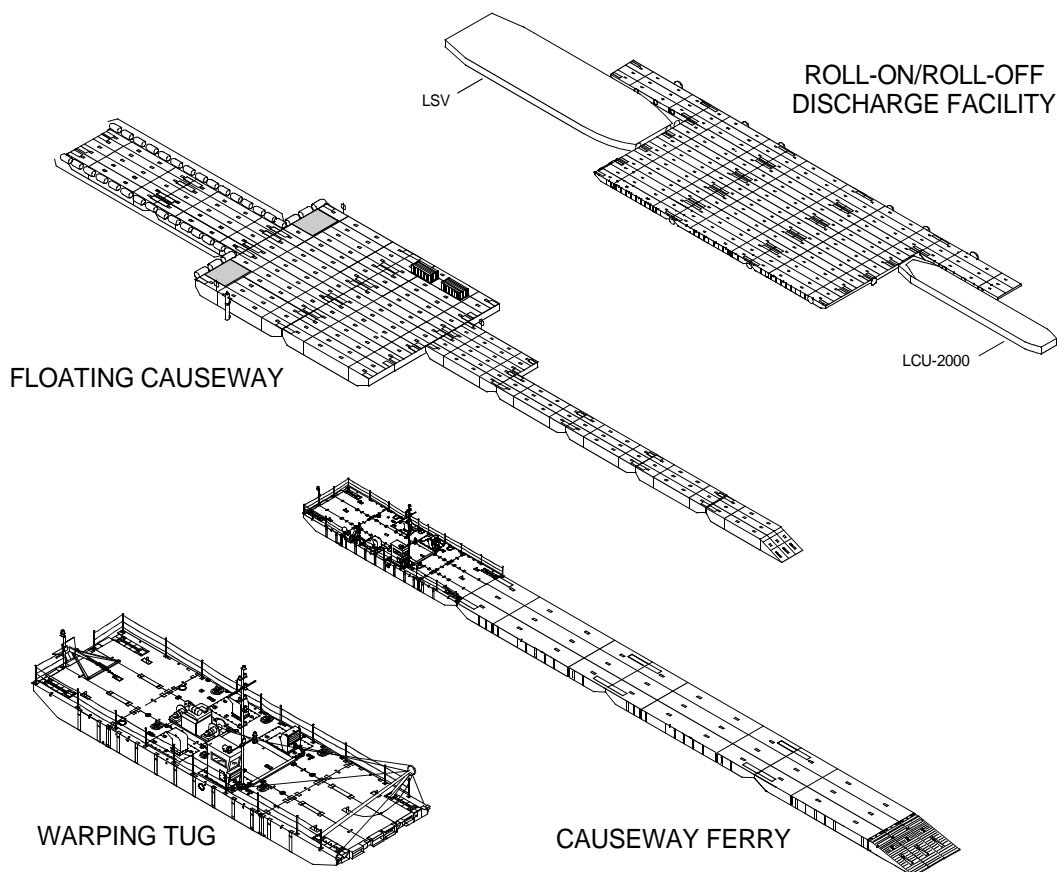


TM 55-1945-205-10-2

TECHNICAL MANUAL

OPERATORS MANUAL
FOR

MODULAR CAUSEWAY SYSTEM (MCS) ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF) RRDF-1 NSN 1945-01-473-2282



This manual supersedes TM 55-1945-205-10 dated 29 August 1997 including all changes.

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

HEADQUARTERS, DEPARTMENT OF THE ARMY
15 MAY 2002

WARNING SUMMARY

NO SMOKING

Smoking is prohibited aboard this vessel.

JEWELRY

Remove rings, bracelets, wristwatches, and neck chains before working around or on a unit.

HEAVY OBJECTS

Handling heavily weighted objects can cause bodily injury. Do not lift materials or equipment over 50 lbs without using appropriate material handling equipment.

BATTERIES

Do not smoke around batteries. Personnel must wear goggles and chemical resistant gloves when adding electrolyte and cleaning up spills.

HAZARD REPORTING

Report all hazards. It is your responsibility to report hazards through your chain-of-command.

HIGH VOLTAGE

Use extreme caution when checking energized circuits. Always place power off warning tags on power supply switches so that no one will apply power while performing maintenance.

NUCLEAR, BIOLOGICAL OR CHEMICAL

In the event equipment has been exposed to Nuclear, Biological or Chemical warfare, the equipment shall be handled with extreme caution and decontaminated in accordance with FM 3-5, instructions for Immediate, Operational and Through decon procedures adapted for the marine environment. Unprotected personnel can experience injury or death if residual toxic agents or radioactive material are present. If equipment is exposed to radioactive, biological or chemical agents, personnel must wear protective mask, hood, protective overgarments, chemical gloves and chemical boots in accordance with MOPP - level prescribed by the OIC or NCOIC.

FUELS

Personnel must wear chemical resistant gloves when handling fuels. Promptly wash exposed skin and change fuel-soaked clothing.

COOLANTS

Before opening coolant system, allow time to cool and wear effective hand, eye and skin protection.

HAND-HELD FIRE EXTINGUISHER

Evacuate the personnel shelter after discharging the dry chemical fire extinguisher. Personnel must wear dust masks, hand, eye and skin protective equipment before re-entering the shelter to clean up residue.

NOISE

Single hearing protection must be worn when inside the generator shelter container (10 kW TQG) when generator is operating and during all rolling cargo movements.

ICE BUILDUP

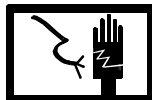
Cold weather operations could create ice buildup on exposed surfaces producing hazardous footing conditions. Use extreme care when operating under icing conditions; death or serious injury to personnel could occur.

SAFETY WARNING ICONS



EAR PROTECTION

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



ELECTRICAL

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



ELECTRICAL

ELECTRICAL 2 - Electrical wire to arm with electricity symbol running through hand shows that shock hazard is present.



EYE PROTECTION

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



HEAVY OBJECTS

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



HEAVY PARTS

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



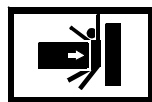
HEAVY PARTS

HEAVY PARTS 2 - Hand with heavy object on top shows that heavy parts can crush and harm.



HEAVY PARTS

EYE HEAVY PARTS 3 - Heavy object on human figure shows that heavy parts present a danger to life or limb.



HEAVY PARTS

HEAVY PARTS 4 - Heavy object pushed up against human figure shows that heavy parts present a danger to life or limb.

SAFETY WARNING ICONS - CONTINUED



HELMET PROTECTION

HOT AREA - Hand over object radiating heat shows that part is hot and can burn.



HOT AREA

HOT AREA - Hand over object radiating heat shows that part is hot and can burn.



MOVING PARTS

MOVING PARTS 2 - Hand with fingers caught between gears shows that the moving parts of the equipment present a danger to life or limb.



SLICK FLOOR

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



VEST

VEST - Life preserver on human figure shows life preserver must be worn to prevent drowning.

HAZARDOUS MATERIAL WARNING ICONS



CHEMICAL

CHEMICALS - Drops of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.



EXPLOSION

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



FIRE

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

HAZARDOUS MATERIAL WARNING ICONS - CONTINUED



POISON

POISON - Skull and crossbones shows that a material is poisonous or is a danger to life.



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

15 MAY 02

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 28 AND TOTAL NUMBER OF WORK PACKAGES IS 121 CONSISTING OF THE FOLLOWING:

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* Zero in this column indicates an original page.

TECHNICAL MANUAL
OPERATORS MANUAL
FOR
MODULAR CAUSEWAY SYSTEM (MCS)
ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF)
RRDF-1
NSN 1945-01-473-2282

Current as of 15 MAY 2002

This manual supersedes TM 55-1945-205-10 dated 29 August 1997 including all changes.

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 referring to the Table of Contents, located in the front of this manual, or by looking in the Alphabetical Index, located in the back of this manual.

b. Illustrations

Various methods are used to locate and repair components. 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, the initial setup requirements are 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 setup will be accomplished prior to starting the actual steps of each maintenance procedure.

Locating Major Components

Obtain the manual for the system to be worked on. Open to the Table of Contents located in the front of this manual. Find Chapter 1, *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, and show an illustration of what the component looks like and its location.

The Alphabetical Index, located in the back of this manual, contains an alphabetical list of all sections of this manual. *Location and Description of Major Components* is found in section L. The work package is found on the right side of the title 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 locate an operator task, open the manual to the Table of Contents located in the front of this manual. Locate the procedure that is to be performed. Next to the procedure, on the right, locate the work package number. Turn to the work package number in the manual. Perform the initial setup 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.

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 Chapter 4, *Supporting Information*.

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 Chapter 4, *Supporting Information*.

Personnel Required: Lists all personnel necessary to perform the task.

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 the work package number or to the TM number.

References: Includes any other manuals necessary to complete the task. When there are no references listed, all steps necessary to complete the task are contained within this manual. A listing of reference materials is contained in the work package *References* in Chapter 4, *Supporting Information*.

Location of Controls and Indicators

To locate a particular control and/or indicator, open the manual to the Table of Contents located in the front of the manual. Find Chapter 2, *Operator Instructions*. Locate the work package titled *Description and Use of Operator 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 following function of the item, as detailed in the far right hand column.

Troubleshooting Procedures

The Table of Contents or Alphabetical Index may be used to locate sections within this manual. To locate a particular troubleshooting procedure, open the manual to the Table of Contents located in the front of this manual. Find Chapter 3, *Troubleshooting Procedures*. Under this section, find a work package titled *Troubleshooting Index*. Turn to the work package indicated, which lists all of 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 indicate which maintenance procedure to go to for the repair of the symptom or what level of maintenance is capable of repair of the problem. Follow the procedures indicated to complete the task. At the top of the task you will have a section called INITIAL SETUP. There are five basic headings listed under INITIAL SETUP.

Test Equipment: Lists all test equipment (standard or special) required to troubleshoot, test and inspect the equipment covered in this manual. The test equipment is identified with an item number and work package number from the *Tool Identification List* located in Chapter 4, *Supporting Information*.

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 Chapter 4, *Supporting Information*.

Personnel Required: Lists all personnel necessary to perform the task.

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 the work package number or to the TM number.

References: Includes any other manuals necessary to complete the task. When there are no references listed, all steps necessary to complete the task are contained within this manual. A listing of reference materials is contained in the work package *References* in Chapter 4, *Supporting Information*.

Maintenance Instructions

To locate a maintenance procedure, open the manual to the Table of Contents located in the front of this manual. Find Chapter 4, *Maintenance Instructions*. Look down the list and find the maintenance procedure to be accomplished. 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 to familiarize yourself with the entire maintenance procedure. At the top of the task you will have a section called INITIAL SETUP. There are five basic headings listed under INITIAL SETUP.

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 Chapter 4, *Supporting Information*.

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 Chapter 4, *Supporting Information*.

Personnel Required: Lists all personnel necessary to perform the task.

References: Includes any other manuals necessary to complete the task. When there are no references listed, all steps necessary to complete the task are contained within this manual. A listing of reference materials is contained in the work package *References* in Chapter 4, *Supporting Information*.

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 the work package number or to the TM number.

Test Equipment: Lists all test equipment (standard or special) required to troubleshoot, test and inspect the equipment covered in this manual. The test equipment is identified with an item number and work package number from the *Tool Identification List* located in Chapter 4, *Supporting Information*.

CHAPTER 1

**DESCRIPTION AND THEORY OF OPERATION
FOR
MODULAR CAUSEWAY SYSTEM (MCS)
ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF)**

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERAL INFORMATION**

SCOPE

This manual contains descriptions and operation instructions for the Roll-On/Roll-Off Discharge Facility.

Type of Manual: Operator Maintenance.

Purpose of Equipment: The system provides the capability to move rolling cargo from a sealift vessel to lighters for movement ashore.

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)

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 an 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 (ODS)

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

Reference WP 0061 00 through WP 0073 00 for preparation of storage or shipment of the RRDF system.

LIST OF ABBREVIATIONS/ACRONYMS

Abbreviation/Acronym	Name
AC	Alternating Current
AF	Audio Frequency
amp	Ampere
AOAP	Army Oil Analysis Program
BII	Basic Issue Items
C	Centigrade
CAGEC	Commercial and Government Entity Code
cm	Centimeters
COEI	Components of End Item
CPC	Corrosion Prevention Control
dB	Decibels
DC	Direct Current
Deg	Degrees
EASY	Emergency Anchor System
EIR	Equipment Improvement Recommendations
F	Fahrenheit
fl	Fluid
ft	Feet
GAL	Gallon
GFI	Ground Fault Interrupter
GPH	Gallons Per Hour
HP	Horse Power
hr	Hour
hz	Hertz
in.	Inches
ISO	International Standards Organization
ISOPAK	International Standards Organization Package
lb	Pounds
kg	Kilograms
khz	Kilohertz
KW	Kilowatt
J-LOTS	Joint-Logistics-Over-The-Shore
LED	Light Emitting Diode
LOTS	Logistics-Over-The-Shore
LCU	Landing Craft Utility
LSV	Logistics Support Vessel
m	Meters
ma	Milliampere
mhz	Megahertz
ml	Milliliters
MTBE	Methyl Tertiary Butyl Ether
MTO&E	Modified Table of Organization and Equipment
NAVMOOR	Naval Mooring
NEMA	National Electrical Manufacturers Association
NICAD	Nickel Cadmium
Nm	Newton-Meters
NOAA	National Oceanic and Atmospheric Administration
ODS	Ozone Depleting Substance
OMC	Outboard Marine Corporation
oz	Ounces

LIST OF ABBREVIATIONS/ACRONYMS (CONT'D)

Abbreviation/Acronym	Name
PMCS	Preventive Maintenance Checks and Services
PSI	Pounds Per Square Inch
PTT	Push To Talk
rcv	Receive
RF	Radio Frequency
RHIB	Rigid Hull Inflatable Boat
RPM	Revolutions Per Minute
RPSTL	Repair Parts and Special Tools List
RRDF	Roll-On/Roll-Off Discharge Facility
RTCH	Rough Terrain Container Handler
SINAD	Signal (plus) Noise And Distortion
SOLAS	Safety Of Life At Sea
TAMMS	The Army Maintenance Management System
TO&E	Table of Organization and Equipment
Tx	Transmit
uv	Ultra Violet
V	Volt
WT	Warping Tug

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MAJOR COMPONENTS
DESCRIPTION AND DATA**

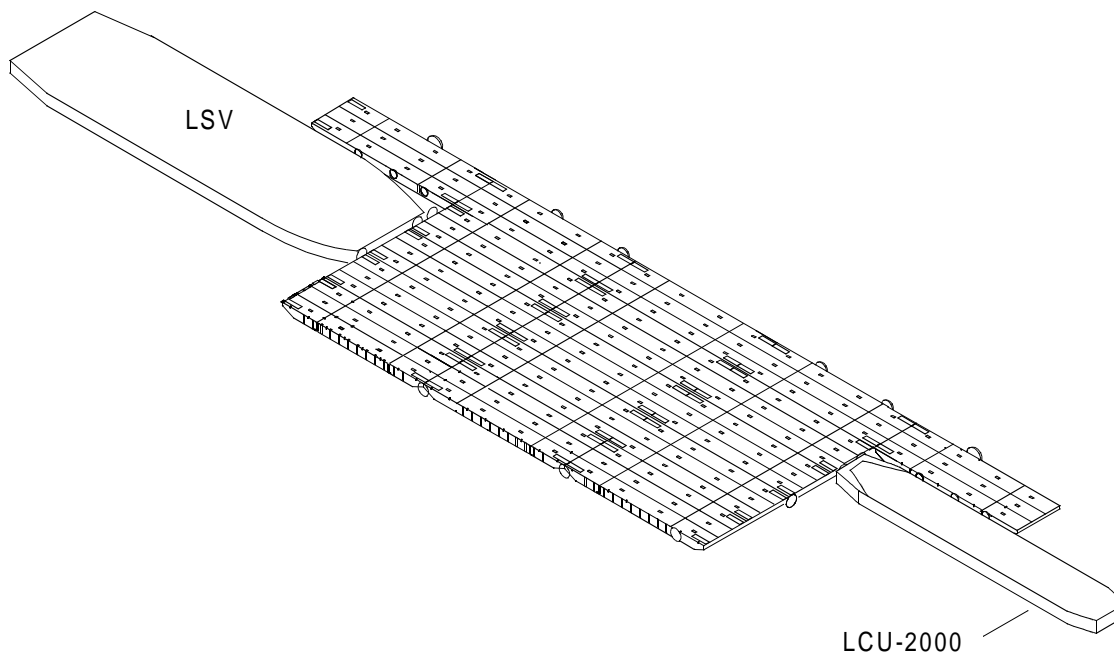
EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

The roll-on/roll-off discharge facility (RRDF) is a floating discharge platform for ocean-going roll-on/roll-off sealift vessels. It provides the capability to move rolling cargo from the sealift vessel to lighters for movement ashore. The RRDF platform consists of an assembly of 153 non-powered floating modules. These modules are assembled into five sub-assemblies, which are then connected together using the Navy flexor and shear connector system which forms a hinge joint between them. The five sub-assemblies are 80 ft long and of differing widths. The width depends on the sub-assemblies location in the platform and on whether the RRDF platform will be used at the side ramp or the stern ramp of the sealift vessel. The overall dimensions of the RRDF platform are 400 ft long by 120 ft wide.

The RRDF is maneuvered into place, either alongside or astern of the sealift vessel, by warping tugs. It is secured to the sealift vessel in position for the stern or the side ramp to land on the platform.

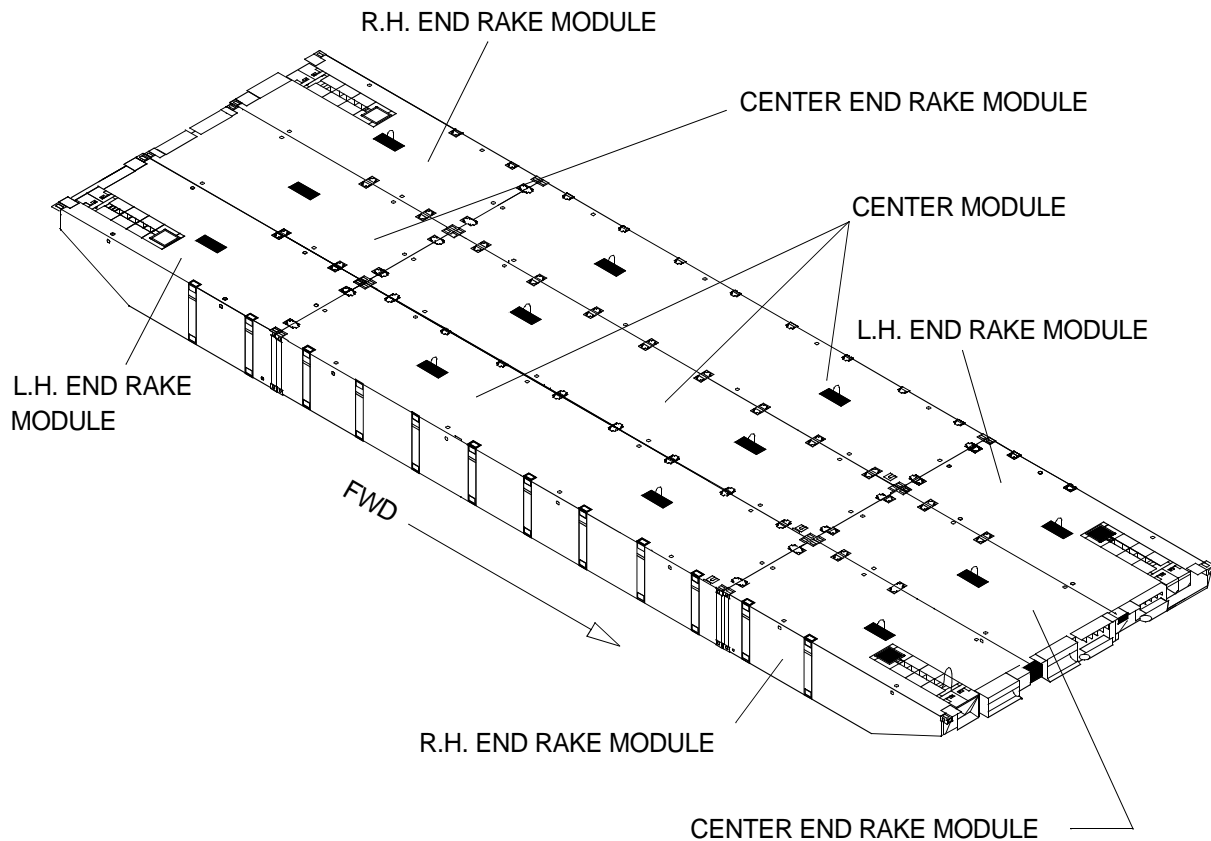
Up to two Landing Ships Vehicle (LSV) or two Landing Craft Utility (LCU) watercraft lighters can be loaded at a time from an RRDF platform. In addition, the platform is capable of supporting two M-1 Abrams tanks and one sealift vessel cargo ramp foot on the platform surface. The structure of the RRDF will withstand the cargo loading through Sea State 2 conditions.

The RRDF consists of up to 17 intermediate modular sections. Intermediate sections consist of three center modules and six rake end modules (two center rake modules, two right-hand rake modules and two left-hand rake modules). Other major components of the RRDF are the personnel shelter, diesel generator set, trailer-mounted light towers, lifeline subsystem, communications equipment, rigid hull inflatable boat (RHIB) and the emergency anchoring system (EASY).



INTERMEDIATE MODULAR CAUSEWAY SECTION

The intermediate section is made up of three non-powered center modules and six end rake modules. The center module is 8 ft wide and 40 ft long. Each end rake is 8 ft wide and 20 ft long. All of the modules have a depth of 4 ft 6 in. The complete assembled intermediate section weighs approximately 142,500 lbs.


PERSONNEL SHELTER

The personnel shelter is a 20 ft ISO container which has been outfitted with insulation, interior bulkheads, fluorescent lighting, electrical power distribution, table, benches, heating/cooling unit, communications equipment, electrical outlets, emergency lighting and a rest room with an electrically powered incinerator toilet.

DIESEL GENERATOR SET

The skid mounted tactical quiet 10 KW or 15 KW diesel generator set is provided to power electrical loads in the personnel shelter. It is contained in a 20 ft ISO container which will be located near the personnel shelter. It is equipped with controls, instruments, fire suppression system, a 1000 gallon fuel system and accessories necessary for operation. The generator set consists of a diesel engine, brushless generator, excitation system, speed governing system, 24 volts DC starting system, control system and fault system. A power cable with a plug end, stored in the personnel shelter, is used to connect to the generator set. (Refer to TM 9-6115-642-10 and TM 9-6115-643-10 for additional information.)

LIGHTING SYSTEM

The RRDF lighting system consists of four trailer-mounted light towers which are stowed in two 20 ft ISO containers. Each light tower is powered by a 6 KW diesel generator and supports four metal-halide lamps. Each lamp delivers 1000 watts of light intensity. Lamps are a high pressure sodium bulbs with a NEMA 6 design for large area coverage. The aluminum reflector housings have tempered impact resistant glass lenses. The lamps come with weather resistant twist-lock connections for connecting floodlights to the light tower.

The light tower is a three-section telescoping mast which extends from 12 to 30 ft and has a rotation range of 360° with a position lock. The mast is easily extended with dual hand-operated winches that incorporate an automatic safety brake. The tower retracts and stows horizontally for travel.

The light system comes with a 30 gallon translucent polyethylene fuel tank, single point lifting bail, forklift slots, heavy-duty outriggers, leveling indicator and removable drawbar. The control panel comes with one GFI protected, 120 volt, 20 amp duplex receptacle; one 240 volt, 25 amp receptacle; individual lamp switches and a non-resettable hourmeter to track records for periodic maintenance.

The overall length is (in./cm) 174/442, width is (in./cm) 79/201, height is (in./cm) 89/226 (travel position), standard tower height is (ft/m) 30/9 and shipping weight is (lb/kg) 2010/912.

LIFELINE SUBSYSTEM

The lifeline subsystem is installed along the sides of the RRDF platform to protect personnel from falls overboard. The stanchions for the lifelines are installed in the turn-tube fittings and ISO corner fittings of the section modules. The lifelines are installed on the inboard side of the lifeline stanchion. Chain is used to span the gap between the sections.

COMMUNICATIONS EQUIPMENT

The communications equipment consists of eight VHF/FM handheld transceivers. The transceivers have a frequency range of 156.025 to 163.275 mhz. All channels currently allocated in the USA, Canadian and International channels are available for use, plus ten weather channels.

The VHF/FM handheld transceiver has an RF power output with the CNB350 battery of 5.0 watts (high) and 1.0 watts (low). The operating voltage is 7.2 volts DC. The current drain in standby mode is 40 ma, in receive mode 200 ma, in the transmit mode 1.8 amps (high power) and 0.7 amps (low power). The battery life (5% Tx, 5% rcv, 90% standby) is approximately 10 hrs (high) and 15 hrs (low).

The dimensions of the unit are 5.51in. H X 2.1in. W X 1.50 in. D. The weight is 1.0 lb.

The transmitter has a conducted spurious emissions of 65 dB (high) and 55 dB (low). The audio response is within +2/-8 of 6 dB/octave pre-emphasis characteristic from 300 hz to 3000 hz. The AF Harmonic Distortion of the transmitter is 3%. The transmitter has a hum and noise rating of 37 dB and a frequency stability (-20°C to +50°C) of $\pm 0.0005\%$.

The receiver has a sensitivity rating of 20 dB quieting at 0.35 uv and 12 dB SINAD at 0.30 uv. The squelch sensitivity (threshold) is 0.20 uv. Modulation acceptance bandwidth is ± 4.5 khz receiver selectivity: spurious and image, rejection 60 dB, intermodulation regulation 60 dB and channel spacing 25 khz.

RIGID HULL INFLATABLE BOAT

The rigid hull inflatable boat, which is stored in 20 ft ISO containers, provides transportation for the crew of the RRDF. It has a seven person capacity and is fitted with a 70 horsepower gasoline outboard motor. The boat is approximately 15 ft 5 in. (4.70 m) long and has a beam of 6 ft 7 in. (2.01 m). The inflatable tube has a diameter of 20 in. Lifting weight is approximately 1000 lbs. The max loading capacity for the boat is 1903 lbs.

EMERGENCY ANCHORING SYSTEM (EASY)

The EASY is provided to anchor the RRDF platform in the event that the sealift vessel(s) departs the operating area due to weather or some other contingency. It is designed to hold the RRDF platform in its anchored position through Sea State 4 conditions. In more severe conditions, the EASY will control the drift of the platform.

The EASY is housed in a 20 ft ISO container which is placed and secured on the deck of the RRDF near the forward edge. The container is 20 ft long, 8 ft wide and 8 ft 5 in. high. The container is a full access container, which means that both sides and both ends of container open to give full access to the interior.

The mooring consists of one 2400 lbs NAVMOOR anchor, 200 ft of 2½ in. stud link chain and 500 ft of 10 in. circumference nylon line with a two-leg, 10 in. circumference nylon bridle.

DECK MATTING

The deck matting is used as dunnage and is placed where the cargo ramps of the sealift vessel and the lighters will land on the RRDF deck. The individual mats are a high density polyethylene material and are approximately 10 ft long, 4 ft wide and 1½ in. thick. Each mat weighs 300 lbs.

DECK CLEAT AND D-RING/CLOVERLEAF FITTINGS

The modular sections are provided with deck fittings to meet various operational needs. These fittings have a 15,000 lb load capacity and are inserted into the tube turns. There are ten tube turns per non-powered module and five per end rake.

MOORING BITT

The mooring bitts provide securing points on the RRDF platform for lighters and for fenders. They attach to the platform at the module connector locks. The bitts are designed for up to a 6 in. circumference mooring line. The mooring bitts are lifted and installed using the forklift adaptor. Each bitt weighs 235 lbs and is 6 ft 5 in. long. Thirty mooring bitts are provided with the RRDF system.

FENDERS (WITH ATTACHMENT CHAINS)

There are four types of fenders authorized for use on the RRDF: 6 ft X 12 ft (Yokohama), 5 ft X 10 ft, 4 ft X 12 ft and 3 ft X 5 ft. The 6 ft X 12 ft fender (Yokohama) weighs approximately 4500 lbs with chain and tire net. The 5 ft X 10 ft fender weighs approximately 1500 lbs. The 4 ft X 12 ft fender weighs approximately 1450 lbs. The 3 ft X 5 ft fender weighs approximately 300 lbs.

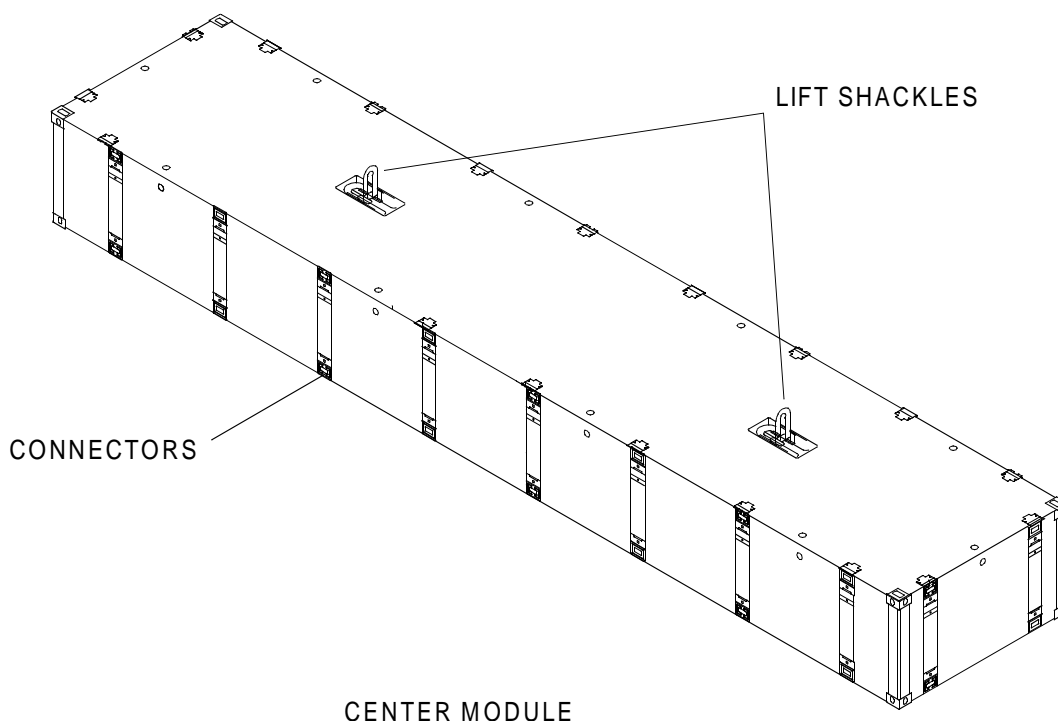
**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DESCRIPTION AND DATA**

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS**CENTER MODULE****Location**

The center modules are located between, and attached to, the end rake modules.

Description

The center module is an empty container. Nominal dimensions of the center module are 8 ft wide, 40 ft long and 4 ft 6 in. deep. Each center module has two 25 ton capacity lifting shackles, which are flush mounted in the deck. The textured deck and smooth bottom are free of any protrusions that might obstruct packing. Access for internal leak detection of each compartment is provided by three recessed threaded plugs. Alternating male and female connectors are equally spaced along both sides and ends of the module. These lock assemblies are stowed flush with the surface and, when deployed, they connect modules with minimum clearance. Weight of the center module is approximately 22,500 lbs.

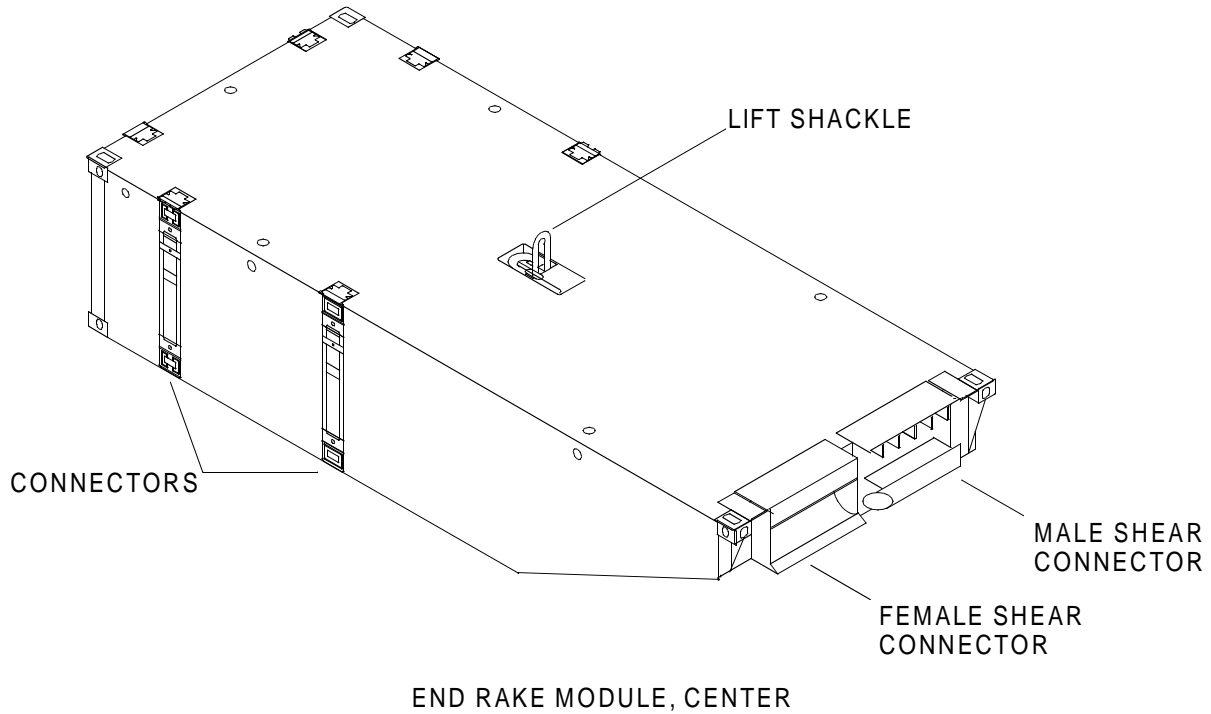


CENTER END RAKE MODULE**Location**

The center end rake modules are attached to the center module.

Description

The center end rake module is an empty container. Nominal dimensions of the center end rake module are 8 ft wide, 20 ft long and 4 ft 6 in. deep. Each center end rake module has one 25 ton capacity lifting shackle, which is flush mounted in the deck. The textured deck and smooth bottom are free of any protrusions that might obstruct packing. Access for internal leak detection of each compartment is provided by a recessed threaded plug. Weight of the center end rake module is approximately 12,500 lbs.



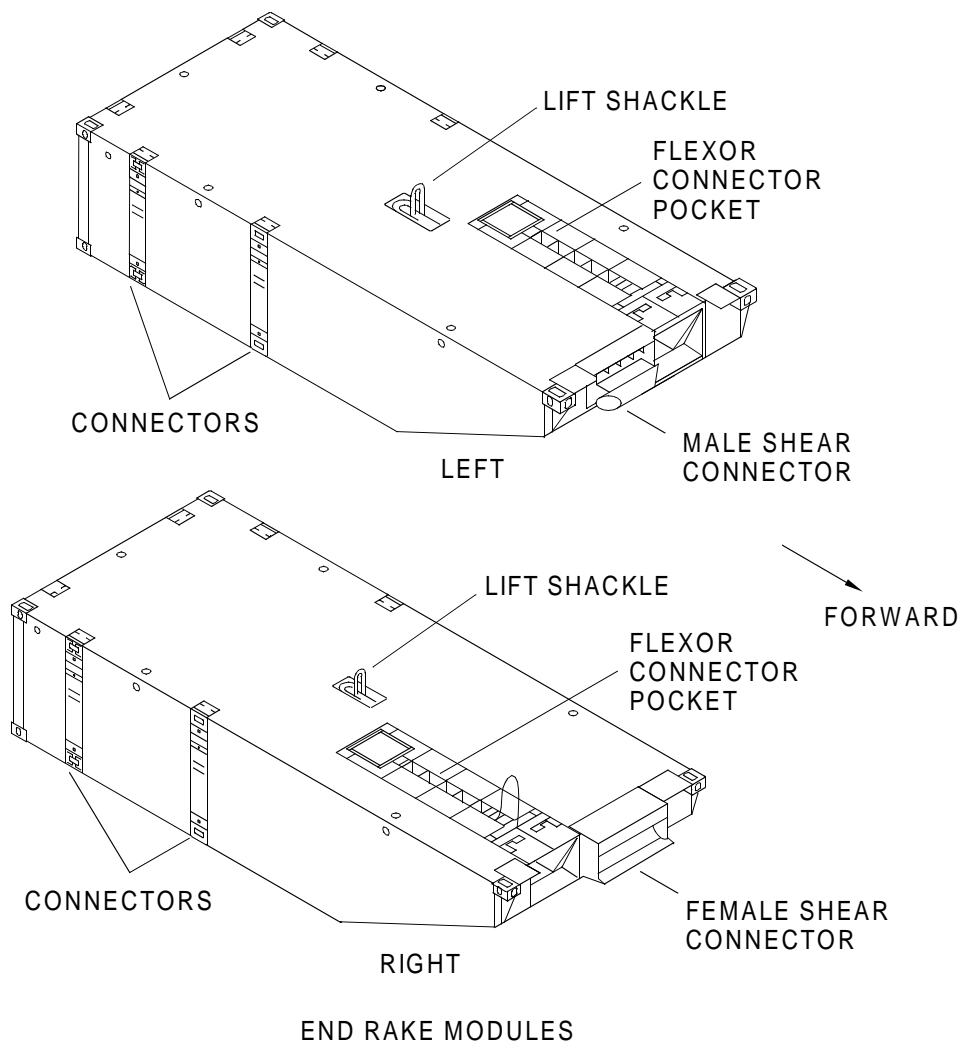
LEFT AND RIGHT END RAKE MODULES

Location

The left and right end rake modules are attached to the center modules.

Description

The left and right end rake modules are empty containers. Nominal dimensions of the left and right end rake modules are 8 ft wide, 20 ft long and 4 ft 6 in. deep. Each left and right end rake module has one 25 ton capacity lifting shackle, which is flush mounted in the deck. The textured deck and smooth bottom are free of any protrusions that might obstruct packing. Access for internal leak detection of each compartment is provided by a recessed threaded plug. The left end rake has a flexor connector pocket for flexor connector installation in the outboard forward corner of the module. The right end rake has a flexor connector pocket for flexor connector installation in the outboard forward corner of the module. The left end rake has a male shear connector and the right end rake has a female shear connector. These are used as a mating device during assembly and act as a hinge during operation. Weight of the left and right end rake modules is approximately 12,500 lbs.

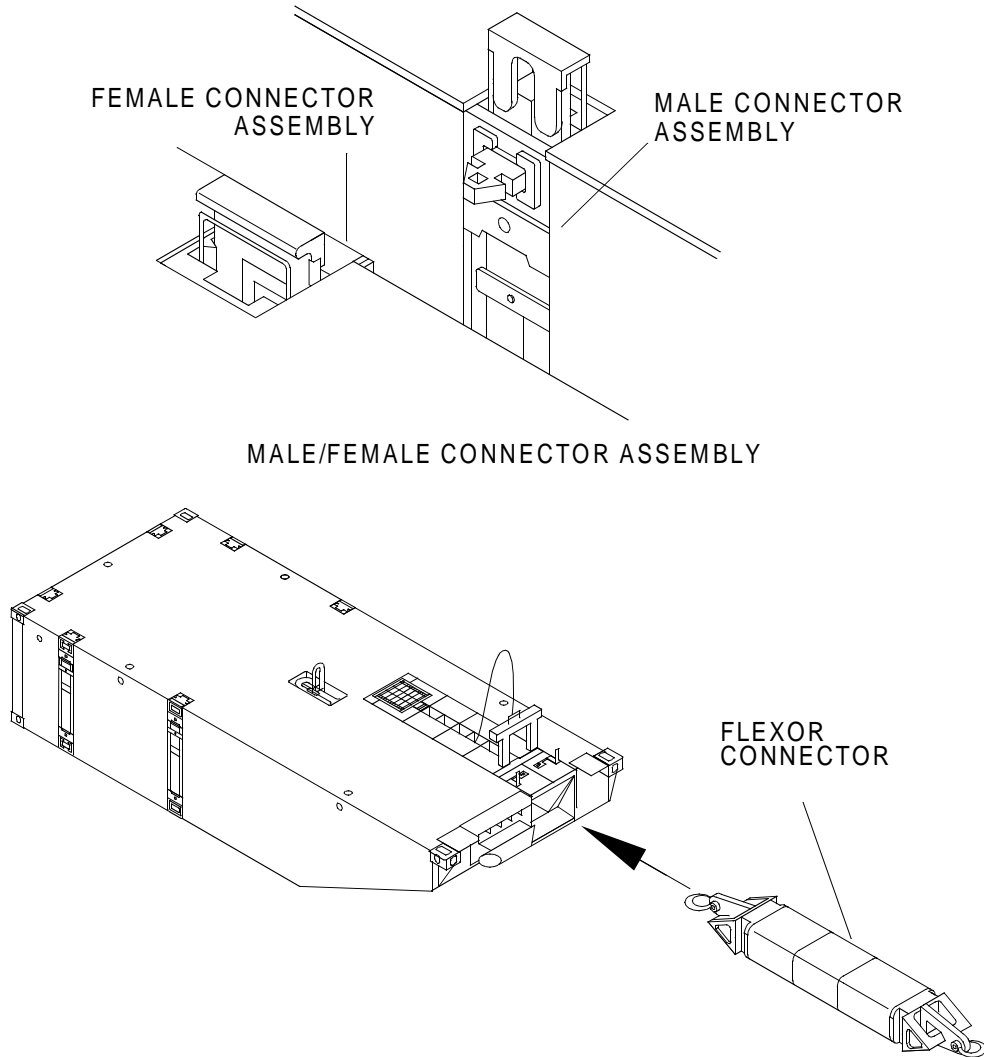


MALE AND FEMALE CONNECTOR ASSEMBLIES**Location**

The male and female connectors are attached to the sides of the modules. The flexor connectors are attached to the ends of the left and right end rake modules.

Description

Two types of connectors are used in the assembly of the RRDF platform. A male/female vertical connector is used to connect modules to modules. Flexor connectors are used to connect sections to sections.



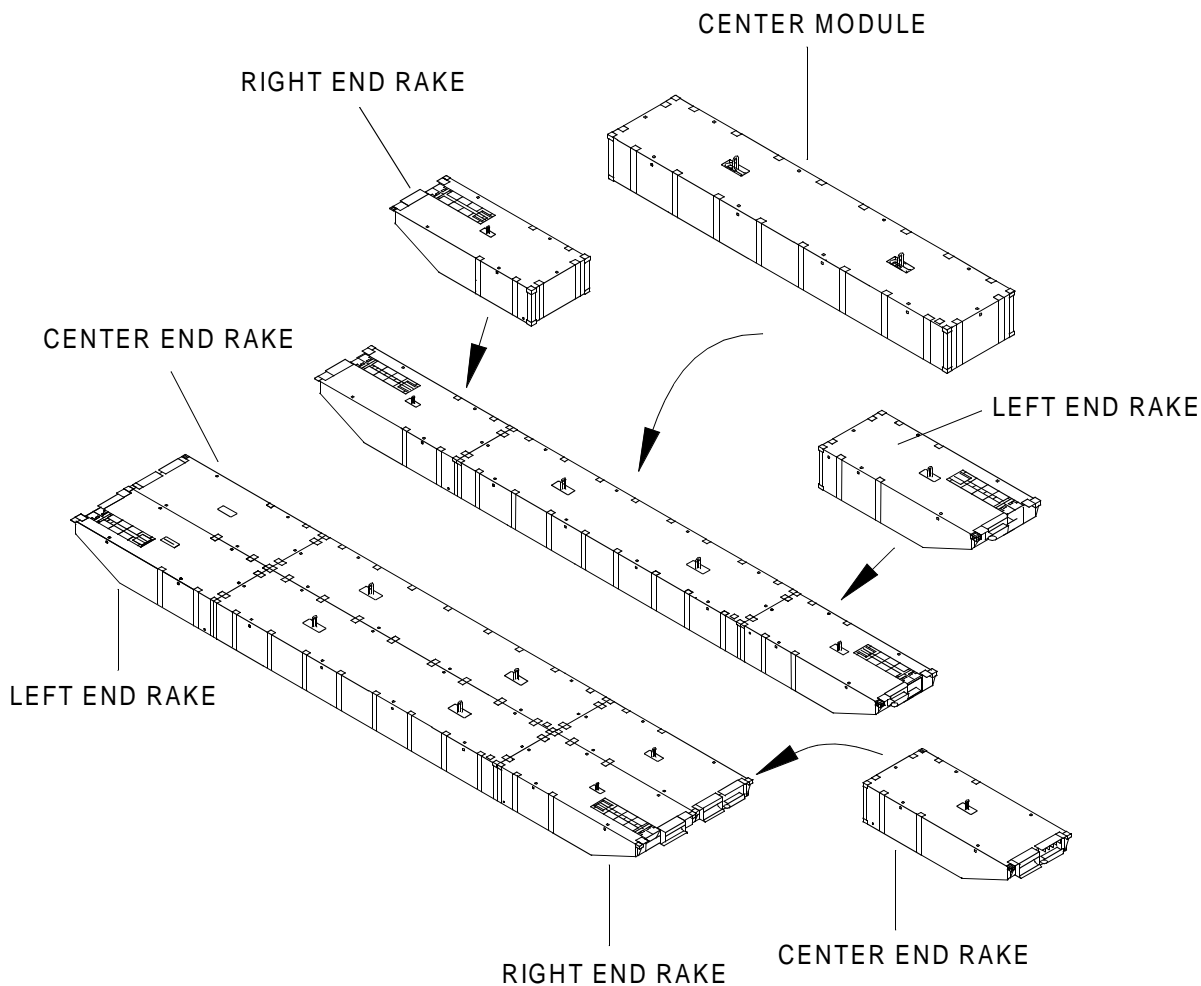
RRDF STRING

Location

The module string is attached to other strings to make up an intermediate section.

Description

The module string may be assembled in five different configurations: a center module with two center end rake modules, a center module with one left and one right end rake module, a center module with a center end rake and a beach/sea end, a center module with a left end rake and a beach/sea end or a center module with a right end and a beach/sea end. (The beach/sea end modules are discussed later.) A center module with two end rake modules weighs 47,500 lbs. A center module and end rakes string is 8 ft wide, 80 ft long and 4 ft 6 in. high. A center module, end rake and beach/sea end string weighs 39,500 lbs and is 8 ft wide, 85 ft long and 4 ft 6 in. high.

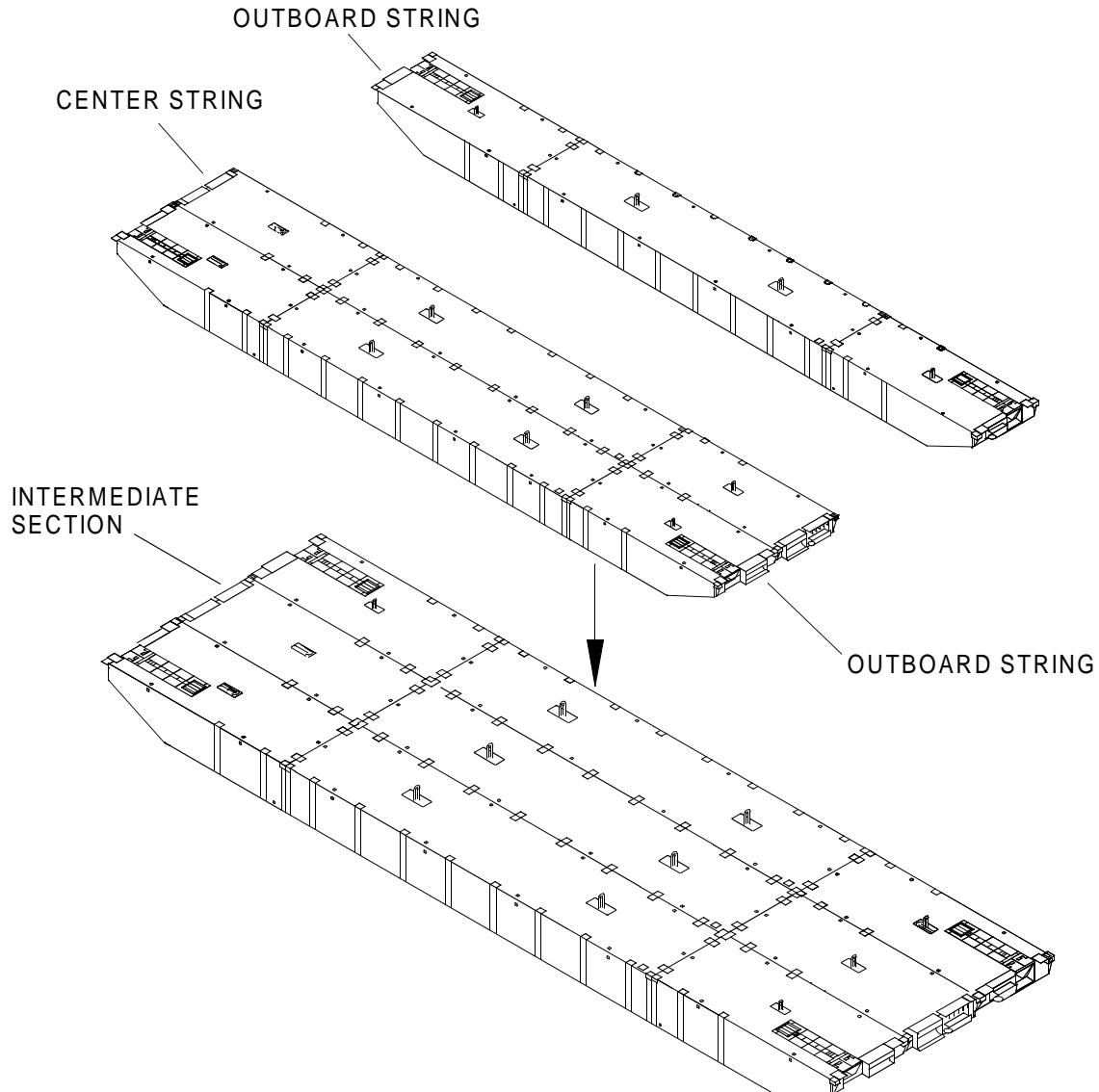


RRDF INTERMEDIATE SECTION
Location

The intermediate section is attached to other intermediate sections to construct an RRDF segment.

Description

An intermediate section is composed of three strings: two outboard strings and a center string. The two outboard strings consist of a center module, left end rake module and right end rake module. The center string consists of a center module and two center end rake modules. Strings are connected using male and female connectors.



The intermediate section is lifted with the intermediate module lifting sling. The intermediate module lifting sling consists of a spreader beam with a 2-1/2 in. safety anchor shackle in the top center lifting eye along with 1-3/4 in. diameter 6 X 37 IWRC two leg and wire rope bridles with 2-1/4 in. X 8 in. X 16 in. master links attached to bottom lift eyes of the spreader beam using 1-3/4 in. safety shackles. Bridle IWRC legs are 22 ft, pull to pull, with thimbles on each end. One 1-3/4 in. screw pin anchor shackle is attached to the lift end of each bridle leg.

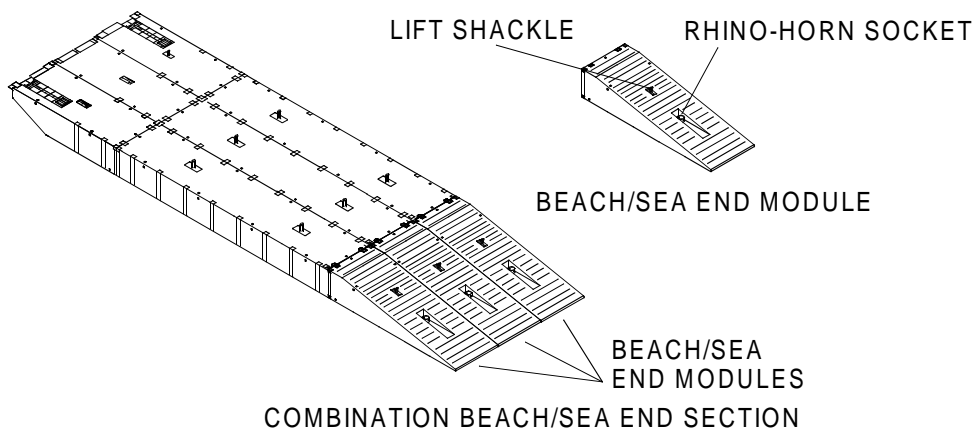
BEACH/SEA END MODULE

Location

The combination beach/sea end modules may be attached to the RRDF for offloading of rolling stock to small lighters that are unable to load from the deck of the RRDF.

Description

The beach/sea end module is 8 ft wide, 25 ft long, and 4 ft 6 in. deep with a ramp slope of 10° and weighs approximately 4500 lbs.



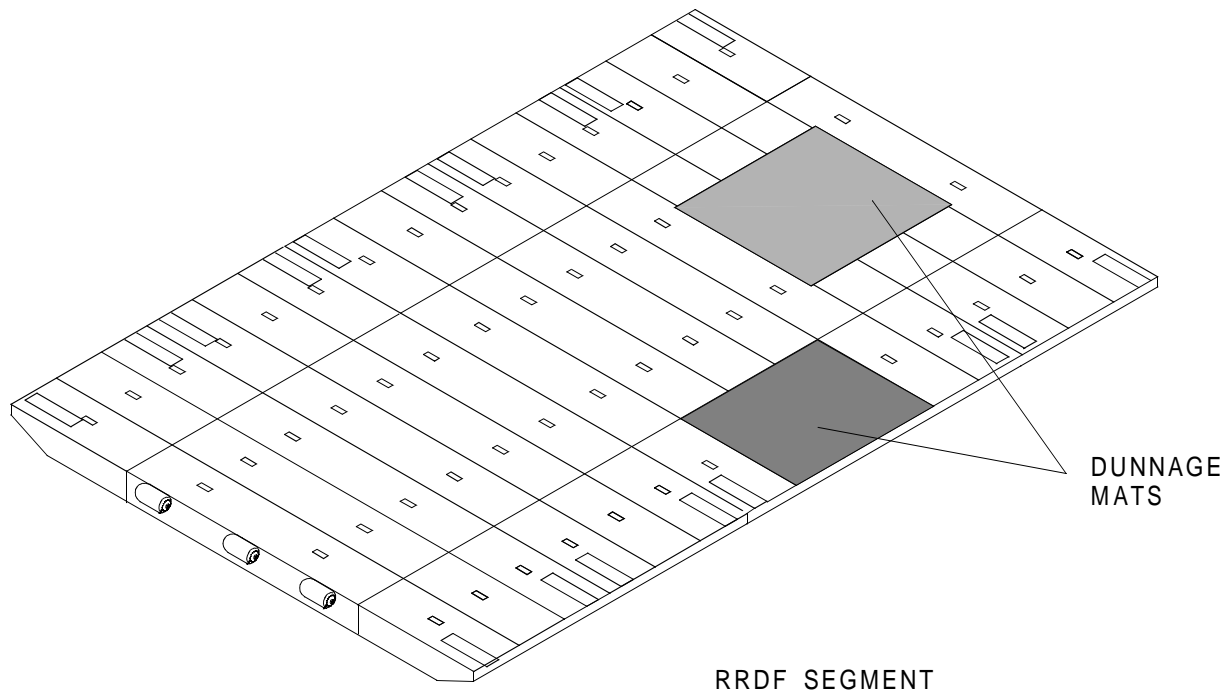
RRDF SEGMENT

Location

The RRDF segments are connected and form the RRDF platform. s

Description

The RRDF segment is comprised of a grouping of side connected intermediate sections/strings.

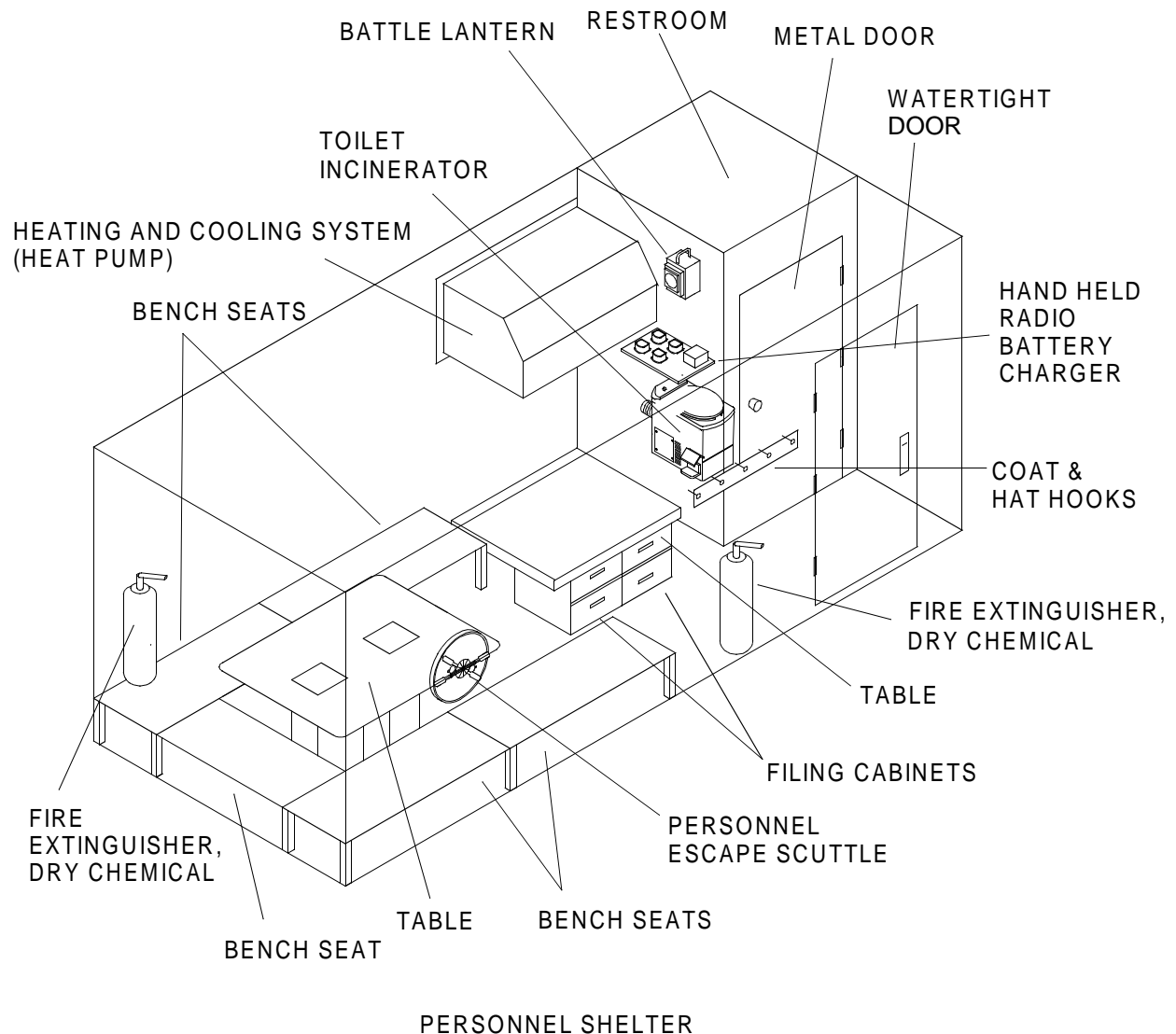


PERSONNEL SHELTER
Location

The personnel shelter is located on the deck of the RRDF platform.

Description

The personnel shelter provides a controlled environment for soldiers supporting the RRDF platform. The personnel shelter equipment is contained in a 20 ft ISO container. The shelter is equipped with a heating and cooling system (heat pump), incinerator toilet, AC lighting system, portable fire extinguishers, a battle lantern, bench seating for personnel, a table and a personnel escape scuttle located in the wall over the bench seat. The personnel shelter receives electrical power from the 10 KW or 15 KW tactical quiet generator. The personnel shelter weighs 9000 lbs.



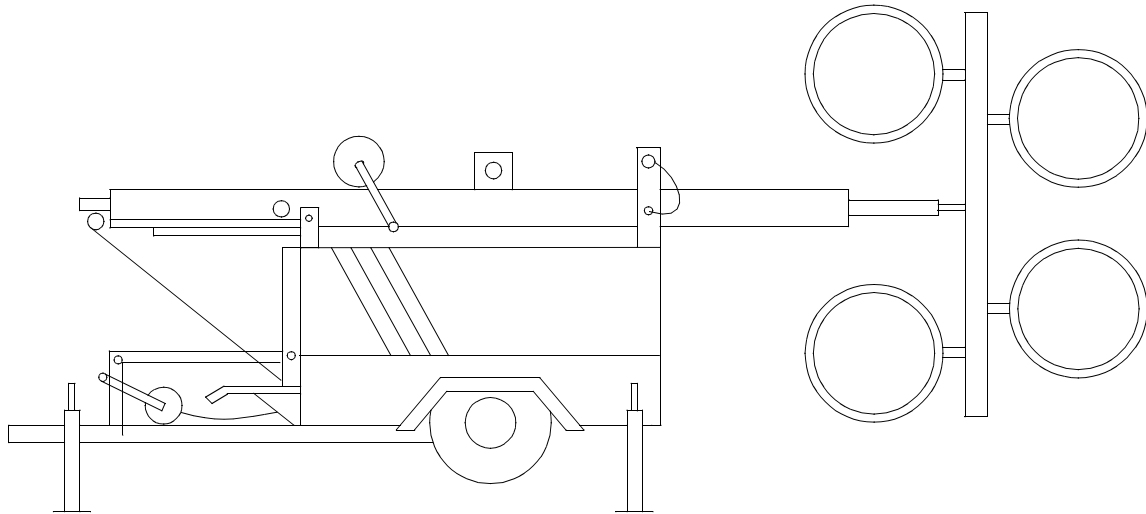
LIGHT TOWERS

Location

The light towers are positioned on the RRDF platform to provide lighting during night operations. The light towers are positioned by the operators as desired.

Description

The light towers are commercially available, self contained lighting systems. The light towers illuminate the work area using four high pressure sodium 1000 watt lamps each. The light towers are powered by a 3 cylinder diesel engine. The light towers are stored in a 20 ft ISO container when not in use. The light tower container, with light towers, weighs 19,000 lbs.



RIGID HULL INFLATABLE BOAT

Location

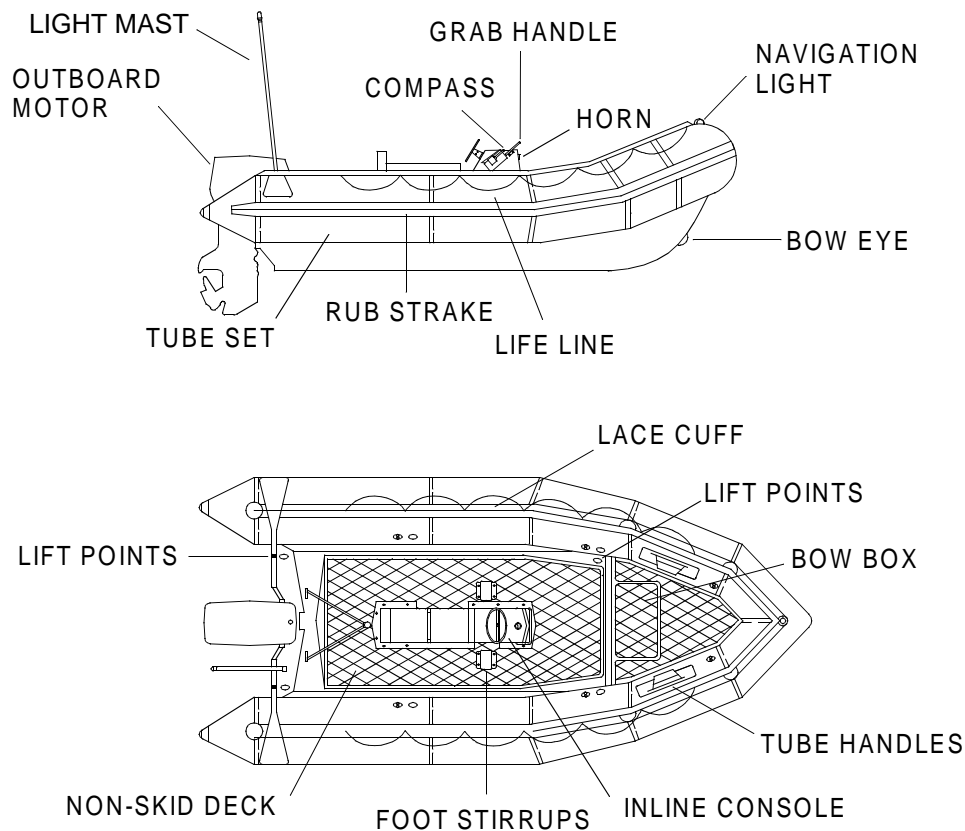
The rigid hull inflatable boat is located alongside the RRDF platform.

Description

The rigid hull inflatable boat is a rigid hull boat with an inflatable collar that supplies reserve buoyancy and acts as an energy sink to soften the ride in rough conditions. The rigid hull inflatable boat will transport seven personnel. The rigid hull inflatable boat is used as a work boat only and does not meet the safety of life at sea (SOLAS) requirements of a rescue boat. The boat is equipped with hydraulic assist steering, a dual function single lever engine control, a 12 volt battery and electrical system, spotlight, compass, horn, navigation lights and a 2½ lb fire extinguisher.

The boat is powered by a 70 horsepower, two stroke outboard engine. The engine is equipped with an oil tank and oil injection system. Oil may be mixed with the fuel for operation without the oil tank. Two 6 gallon fuel tanks provide fuel for operation of the boat.

A shipping cradle is provided with the boat for storage in a 20 ft full access ISO container. A lifting sling with shackles is supplied for placing the boat in the water. Lifting weight is approximately 1000 lbs.



TACTICAL QUIET GENERATOR AND ISO CONTAINER

Location

The tactical quiet generator is located in the generator 20 ft ISO container. The ISO container is located on the RRDF platform.

Description

There are two types of tactical quiet generators authorized for use on the RRDF, 10 KW and 15 KW. The description and specifications for the 15 KW tactical quiet generator may be found in TM 9-6115-643-10 and the description and specifications for the 10 KW tactical quiet generator may be found in TM 9-6115-642-10.

The tactical quiet generator is supplied with fuel by the generator mounted day fuel tank. A 1000 gallon base fuel tank is mounted in the ISO container. Fuel is transferred to the day fuel tank utilizing an electric fuel transfer pump. A hand operated fuel transfer pump is provided in case of electric fuel transfer pump failure. A fuel gauge on the generator instrument panel aids in the refueling of the day tank. The 1000 gallon fuel tank may be refueled inside or outside the container. Fuel level indicator lights are mounted on the inside and outside of the container to aid in refueling the 1000 gallon fuel tank.

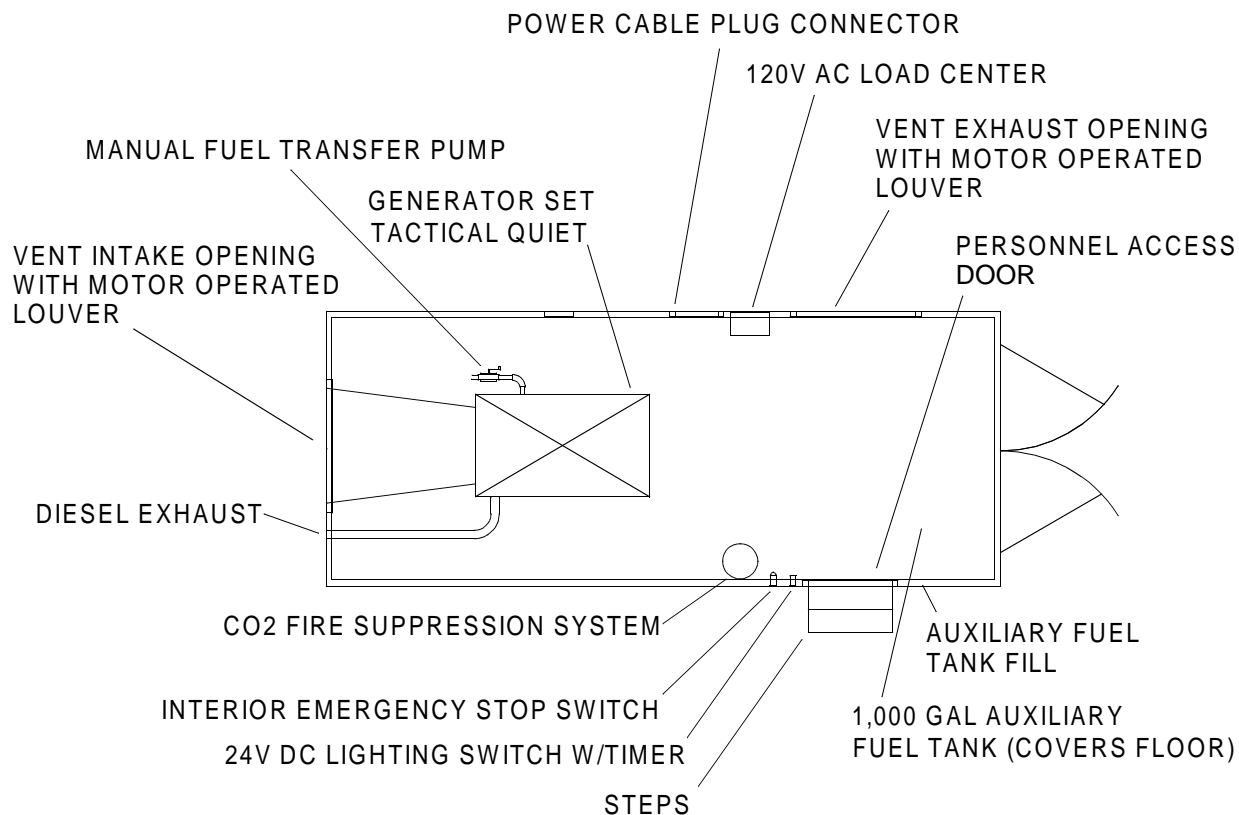
A stainless steel motorized louver provides air to the generator for cooling. Generator exhaust is routed outside of the container. A stainless steel motorized vent provides ventilation for the generator container. Aluminum covers are used while in storage to protect the louvers from the elements.

The ISO container is equipped with a CO₂ fire suppression system. The fire suppression system may be operated automatically or manually. In the automatic mode, a linear detection wire activates the fire suppression system when the temperature exceeds 356°F. The system may be operated in the manual mode using the manual pull station when electrical power is available or by pulling the pin and pressing the actuator knob when electrical power is not available.

The CO₂ fire suppression system is controlled by the control module. Upon sensing that a fire is present, the control module activates the fire suppression sequence. A time delay between the initial alarm condition and operation of the shutdown relay occurs. This delay may be programmed for 5, 10, 20 or 30 seconds by the user. The shutdown relay shuts down the generator and allows personnel time to vacate the shelter. After the delay sequence is completed, a second delay before actuation of the fire extinguishing agent occurs. This second delay may be programmed for 0, 10, 20 or 30 seconds by the user. When using the manual pull station, the delays used in the automatic mode are implemented by the control module.

The shelter is equipped with alternating current (AC) fluorescent light fixtures. A load center is used to control the alternating current system. A direct current (DC) lighting system, comprised of a spring wound timer switch and light fixtures, supply light when AC lighting is not available.

An EMERGENCY STOP button is mounted inside the ISO container personnel access door. When pressed, the EMERGENCY STOP button stops the generator.

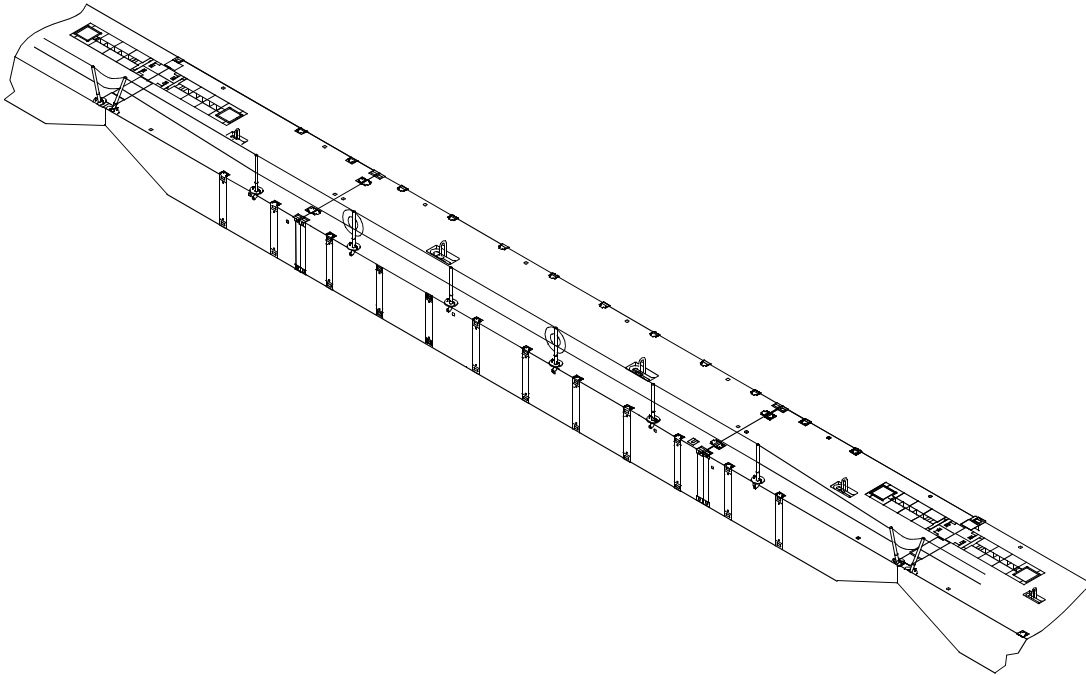


LIFELINE AND LIFE RING SUBSYSTEM**Location**

The lifeline subsystem is installed along the sides of the RRDF platform to protect personnel from falling overboard. The stanchions for the lifelines are installed in the turn-tube fittings and ISO corner fittings of the modules. Chain is used to span the gap between section openings. The lifeline arrangement will vary depending on RRDF configuration. The life rings, nylon rope and strobe lights are attached to the lifeline stanchions.

Description

The components of the lifeline subsystem consist of stanchions (two types), deck fittings (two types) and chain to span the spaces between sections. The components of the life ring subsystem consist of a donut shaped flotation device, nylon rope and strobe light.

**EMERGENCY ANCHORING SYSTEM (EASY)****Location**

The EASY is housed in a 20 ft ISO container which is placed and secured on the upstream end of the RRDF near the forward edge. The anchor end of the EASY container should be located 24 in. from the upstream deck edge to allow enough room for opening of the anchor-end container doors and to allow the anchor to deploy properly.

Description

The EASY is provided to anchor the RRDF platform in the event that the sealift vessel departs the operating area due to weather or some other contingency. It is designed to hold the RRDF platform in its anchored position through Sea State 4 conditions. In more severe conditions, the EASY will control the drift of the platform. Major components of the EASY system, in addition to the container, are the mooring, the stowage and deployment frame that is secured within the ISO container, the mooring box, two manual hydraulic pumps for actuating the moving parts of the stowage/deployment frame and flexor receiver adaptors that are used to secure the mooring bridle to flexor receivers on end rake modules.

EASY Container

The container for the EASY system is a 20 ft full access ISO container. The “full access” descriptor means that both sides and both ends of the container open to give full access to the interior. In addition to providing access to the interior, the doors are used for stowage of some of the smaller components of the EASY.

EASY Mooring and Anchor Assy

The mooring consists of one 2400 lb NAVMOOR anchor, 200 ft of 2½ in. stud link chain and 500 ft of 10 in. circumference nylon line with a two-leg, 10 in. circumference nylon bridle.

EASY Stowage and Deployment Frame

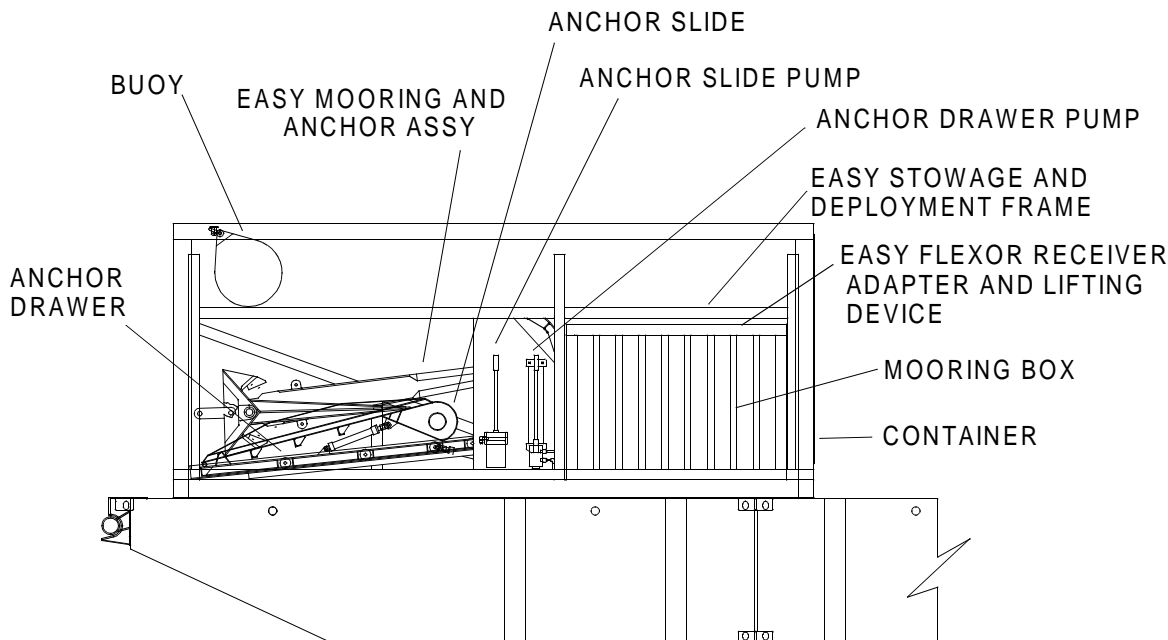
The stowage and deployment frame is a steel assembly which fits inside the EASY container. It includes a tubular steel frame, an anchor drawer, slide sub-assembly and its track and two hydraulic actuators and manual pumps to operate the anchor drawer and slide. The 2400 lb NAVMOOR anchor rests on the anchor slide when the EASY is in the stowed or ready mode.

EASY Mooring Box

The mooring box is a steel, open top box that holds the EASY mooring chain and line. It is placed within the stowage and deployment frame at the inboard end of the EASY container.

EASY Flexor Receiver Adaptor and Lifting Device

The flexor receiver adaptors provide securing points on the RRDF platform for the mooring bridle. They are inserted into the flexor receivers of the rake modules. A large shackle at the outboard end is used to secure the mooring bridle. A lifting device for the flexor receiver adaptors is also provided. The flexor receiver adaptors and the lifting device are located in the top of the EASY container.

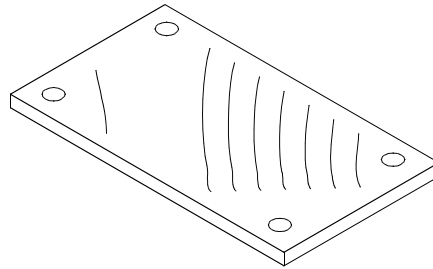


DUNNAGE MATS
Location

Individual dunnage mats are attached to a module ISO corner fitting and are placed where the cargo ramps of the sealift vessel and the lighters will land on the RRDF. When not in use, the mats are stacked horizontally on a pallet in the 20 ft ISO storage containers.

Description

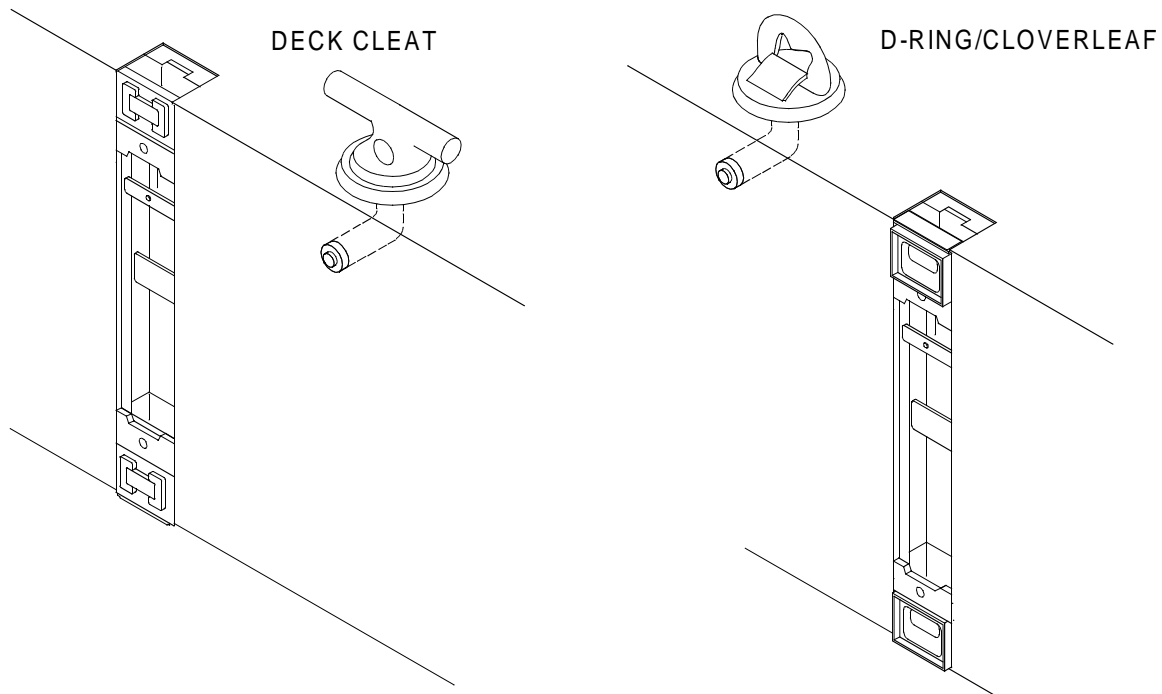
Each dunnage mat is approximately 4 ft wide, 10 ft long and 1½ in. thick and made of high density polyethylene material. Each mat weighs 300 lbs and has a hole near each corner that is used for securing the mat to the ISO corner fittings.

**D-RING/CLOVERLEAF FITTINGS AND DECK CLEAT FITTINGS****Location**

The D-ring/cloverleaf fittings and deck cleat fittings are installed in the module turn tubes located on the deck of the RRDF platform.

Description

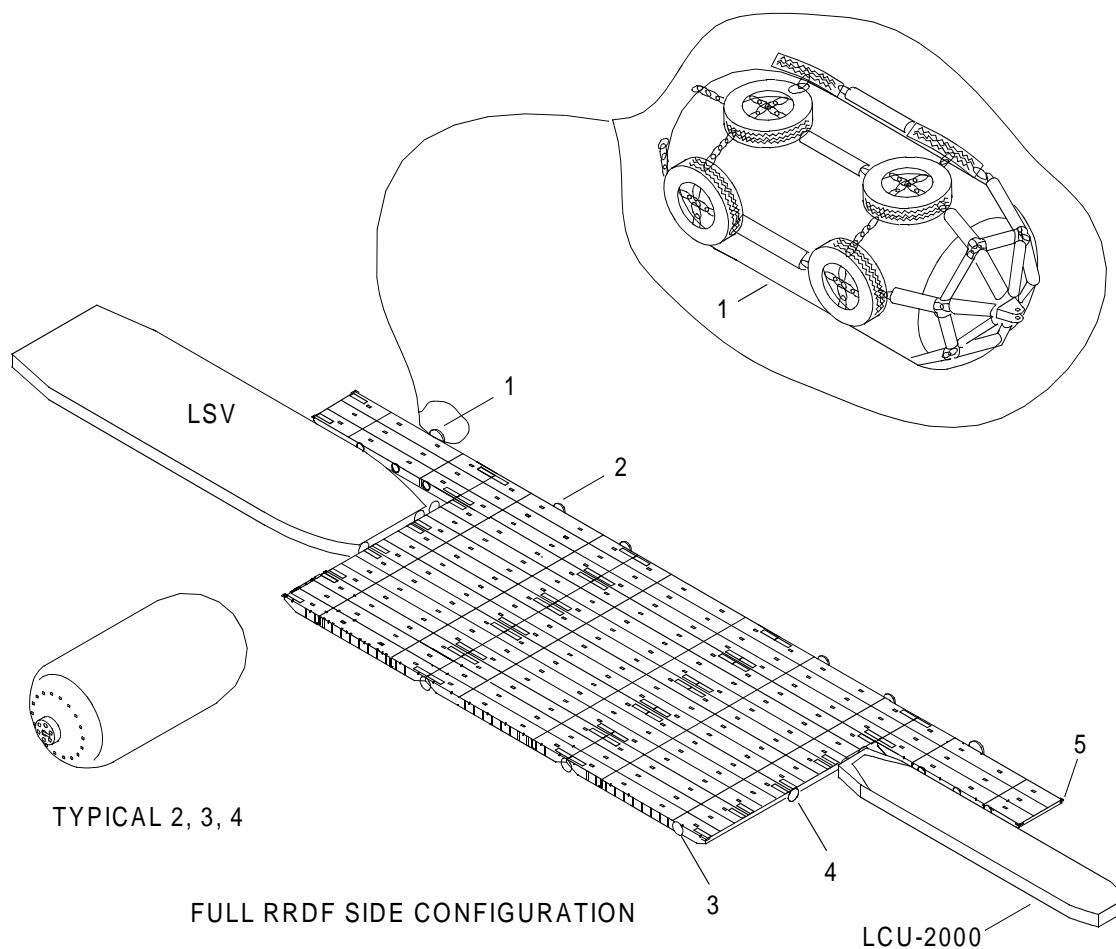
These fittings have a 15,000 lb load capacity. There are ten tube turns per center module and five per end rake.



FENDERS

Location

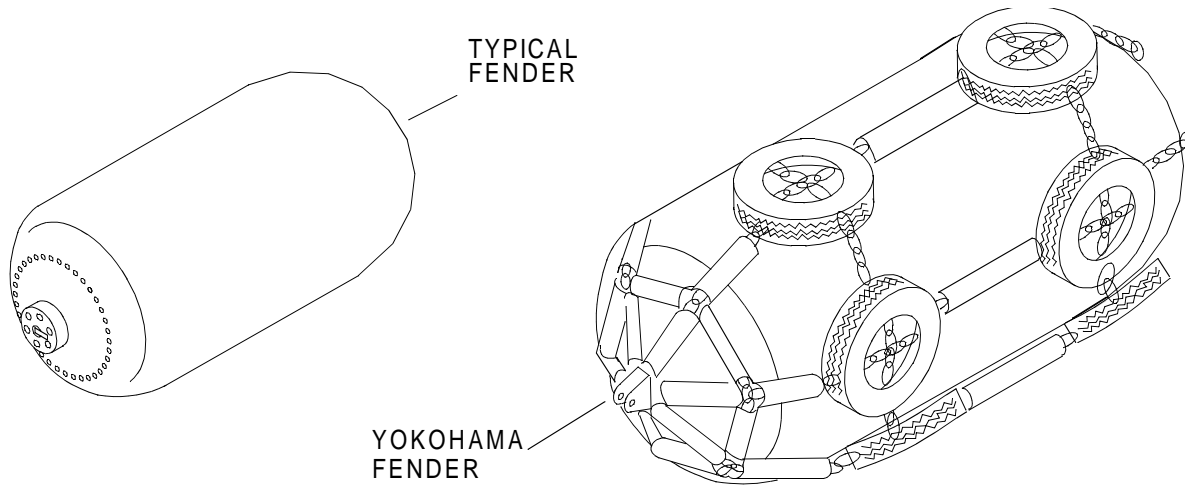
The corner fenders are installed on protruding corners of the RRDF, though the location of the placement of cylindrical fenders will vary with the configuration of the RRDF. One configuration, depicting all cylindrical fenders, is shown below.



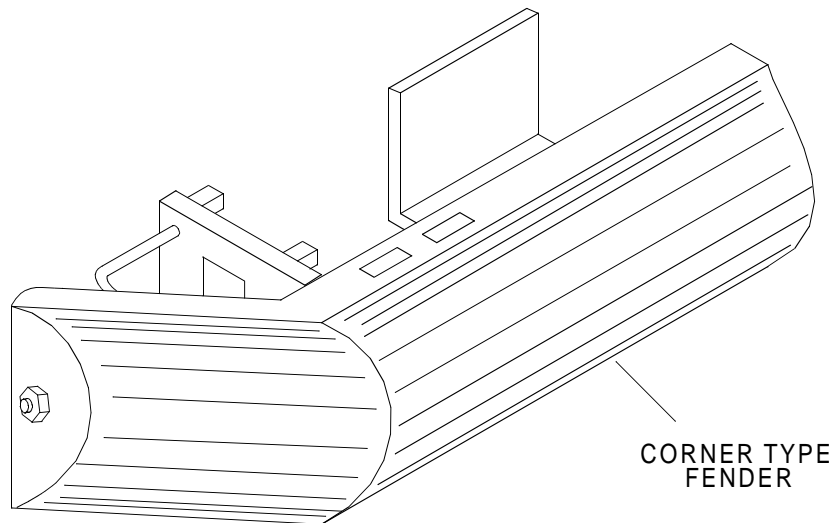
Description

There are two types of fenders which are components of the RRDF. These fenders are cylindrical type and corner type.

Cylindrical Type: There are four sizes of cylindrical shaped fenders (1), (2), (3) and (4) constructed of rubber, that are components of the RRDF. The 3 ft diameter X 5 ft long, the 4 ft diameter X 12 ft long, the 5 ft diameter X 10 ft long and the 6 ft diameter X 12 ft long. The 3 ft X 5 ft, 4 ft X 12 ft and 5 ft X 10 ft fenders are stowed on specially constructed pallets in their own 40 ft open top container. The 5 ft X 10 ft and 6 ft X 12 ft fenders are used for stand-off from the sealift vessel. The sealift fenders each have 100 ft X 5 in. circumference, 12 strand braided nylon line for securing them to either the ship or the RRDF. The 6 ft X 12 ft fender uses aircraft tires as the abrasion element outside of the cylindrical skin. This fender is stowed on the sealift vessel. The 3 ft X 5 ft and 4 ft X 12 ft fenders are used for stand-off from lighters. The lighter fenders are supplied with 25 ft X ½ in. circumference chain for securing the fenders to the RRDF platform. The chain is stored in the tool boxes located in the fender ISO containers.



Corner Type: The corner fenders (5) have two parts and are installed on protruding corners of the RRDF.

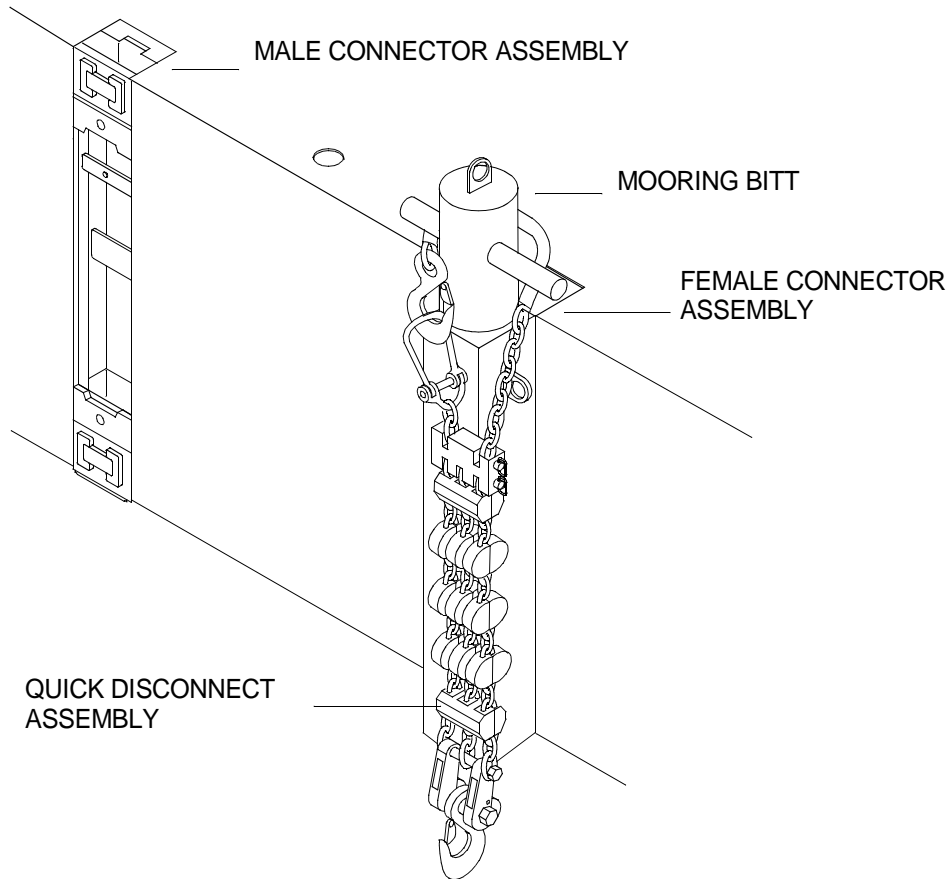


MOORING BITTS AND QUICK DISCONNECTS**Location**

Mooring bitts can be installed on any side of the RRDF that is exposed to the sea and accessible for mooring. Quick disconnect assemblies are attached to the mooring bitts.

Description

Mooring bitts incorporate two mounting connector pins that can only be installed into female module connector assemblies. The quick disconnect is used for creating a safe mooring connection to the mooring bitt. The quick disconnect is designed to break away if excessive pulling force is applied to the RRDF.



TOWING BRIDLE, TOWING INTERFACE AND TOWING LIGHTS
Location

The towing bridle is attached to towing interface. It is stowed in the EASY container when not in use.

The towing interface is attached to the RRDF end rakes. It is stowed in the EASY container when not in use.

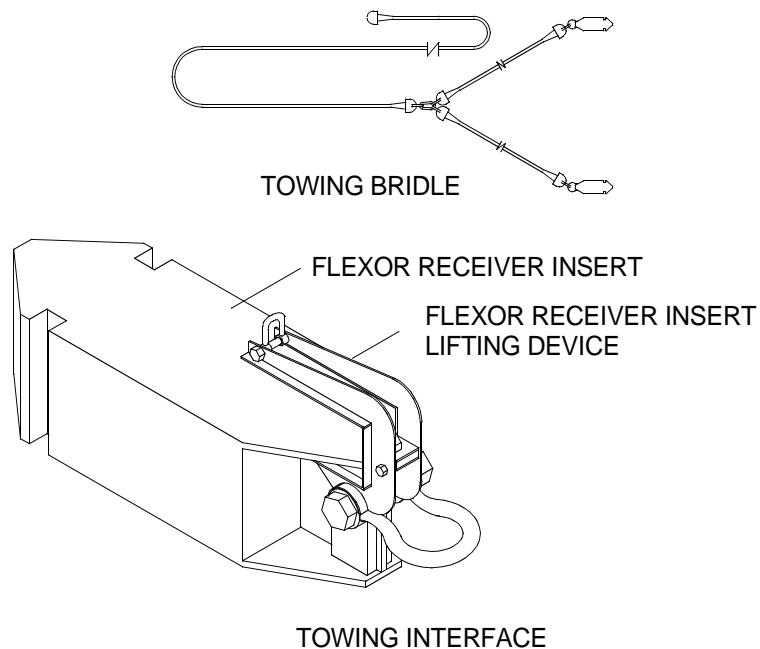
The towing lights are attached to the left side (red lens), right side (green lens), front center (white lens) and the aft end (amber lens) when towing the RRDF. The lights are stowed in the BII container when not in use.

Description

The towing bridle consists of a 500 ft long X 10 in. circumference nylon line and a 2 1/8 in. pear link connected to spliced in eyes and thimbles of the two bridle legs. The bridle legs are 10 in. circumference 12 stand plaited nylon line 35 ft long. Each end of the of the towing bridle has a shackle used to attach the legs to the towing interface at the RRDF and the other end to a warping tug..

The towing interface is used along with the towing bridle to tow the RRDF up through Sea State 5 conditions. The flexor receiver insert lifting device is used to install the towing interface.

There are four types of towing lights used during towing of the RRDF. The towing lights are identified by the color of the lens, which are white, green, red and amber. The lenses are interchangeable and are adjustable for aiming purposes during towing operations. These lights are battery operated and have magnetic bases so no adaptors are needed for installation.



**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DESCRIPTION AND DATA**

EQUIPMENT DATA

The following tables provides data applicable to major component levels.

Table 1. RRDF Equipment Data.

ITEM CHARACTERISTIC	DESCRIPTION
CENTER MODULE	
Width	8 ft
Length	40 ft
Depth	4 ft 6 in.
Weight	22,500 lbs
ISO Compatible	Yes
Sea State Operation	SS 2
END RAKE MODULES	
Width	8 ft
Length	20 ft
Depth	4 ft 6 in.
Weight	12,500 lbs
ISO Compatible	Yes
Sea State Operation	SS 2
BEACH/SEA END MODULES	
Width	8 ft
Length	25 ft
Depth	4 ft 6 in.
Weight	13,600 lbs
ISO Compatible	Yes
Sea State Operation	SS 2
INTERMEDIATE SECTION	
Center Modules (3 Per Section)	Non-Powered
Width	8 ft
Length	40 ft
Depth	4 ft 6 in.

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
End Rake Modules (6 Per Section)	Compatible With U.S. Navy Flexor Attachments And Shear Connectors
Width	8 ft
Length	20 ft
Depth	4 ft 6 in.
Weight of Assembled Intermediate Section	142,500 lbs
ISO Compatible	Yes
Sea State Operation	SS 2
COMBINATION BEACH/SEA END SECTION	
Center Modules (3 Per Section)	Non-Powered
Width	8 ft
Length	40 ft
Depth	4 ft 6 in.
End Rake Modules (3 Per Section)	Compatible with U.S. Navy flexor attachments and shear connectors
Width	8 ft
Length	20 ft
Depth	4 ft 6 in.
Beach/Sea End Modules (3 Per Section)	
Width	8 ft
Length	25 ft
Depth	4 ft 6 in.
Weight of Assembled Combination Beach/Sea End Section	145,800 lbs
ISO Compatible	Yes
Sea State Operation	SS 2
RRDF PLATFORM	
Width	120 ft
Length	400 ft
ISO Compatible	Yes
Sea State Operation	SS 2

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
PERSONNEL SHELTER	
Width	8 ft
Length	20 ft
Depth	8.5 ft
Weight	9,000 lbs
ISO Compatible	Yes
GENERATOR CONTAINER	
Width	8 ft
Length	20 ft
Depth	8.5 ft
Weight	15,000 lbs
ISO Compatible	Yes
DIESEL GENERATOR SET	
10 KW Generator Set	Refer to TM 9-6115-642-10
15 KW Generator Set	Refer to TM 9-6115-643-10
ISO Compatible	Yes
LIGHT TOWERS	
Width	79 in.
Length	174 in.
Depth	89 in. in travel position, 30 ft in assembled position
Weight	2,010 lbs
Weight of Pallet	2,600 lbs
Weight of ISO Container, Including Light Towers	19,000 lbs
ISO Compatible	Yes
RIGID HULL INFLATABLE BOAT	
Length	15 ft 5 in.
Beam	6 ft 7 in.
Lifting Weight	1,000 lbs
Maximum Loading Capacity	1,903 lbs
Diameter of Inflatable Tube	20 in.
ISO Compatible	Yes

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
EMERGENCY ANCHOR SYSTEM (EASY)	
ISO Container	Secured on the deck of the RRDF
Width	8 ft
Length	20 ft
Depth	8.5 ft
Weight	49,000 lbs
ISO Compatible	Yes
Emergency Mooring Box	
Width	73 in
Length	82 in.
Depth	58 in.
Weight	2,160 lbs empty, 15,650 lbs loaded with dry mooring
ISO Compatible	Yes
COMMUNICATIONS EQUIPMENT	
Communications Equipment	The equipment consists of four VHF/FM handheld transceivers that are stored in the personnel shelter.
DUNNAGE MATS	
Mats	Made of high density polyethylene material
Width	4 ft
Length	00 ft
Depth	1 ½ in.
Weight	300 lbs
Weight of Mat Pallet	13,100 lbs
Weight of Dunnage Mat ISO Container With Dunnage Mats	24,000 lbs
ISO Compatible	Yes
MOORING BITTS	
Length	6 ft 5 in.
Weight	235 lbs
Weight of Top Mooring Bitt Pallet (4 Bitts Per Pallet)	1,800 lbs

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
Weight of Middle and Lower Mooring Bitt Pallets (3 Bitts Per Pallet)	1,600 lbs each
Weight of ISO Container With Mooring Bitts	27,000 lbs
ISO Compatible	Yes
6 ft X 12 ft FENDERS	
Weight	4,548 lbs with chain and tire net
ISO Compatible	No
5 ft X 10 ft FENDERS	
Weight	1,500 lbs
Weight of Fender Pallet	2,400 lbs
ISO Compatible	Yes
4 ft X 12 ft FENDERS	
Weight	1,450 lbs
Weight of Fender Pallet	3,800 lbs
Weight of ISO Container with Fenders	25,200 lbs
ISO Compatible	Yes
3 ft X 5 ft FENDERS	
Weight	300 lbs
Weight of Fender Pallet	3,000 lbs
Weight of ISO Container with Fenders	25,200 lbs
ISO Compatible	Yes
FLEXOR CONNECTORS	
Weight	1,400 lbs
Weight of Flexor Connector Pallet	2,700 lbs

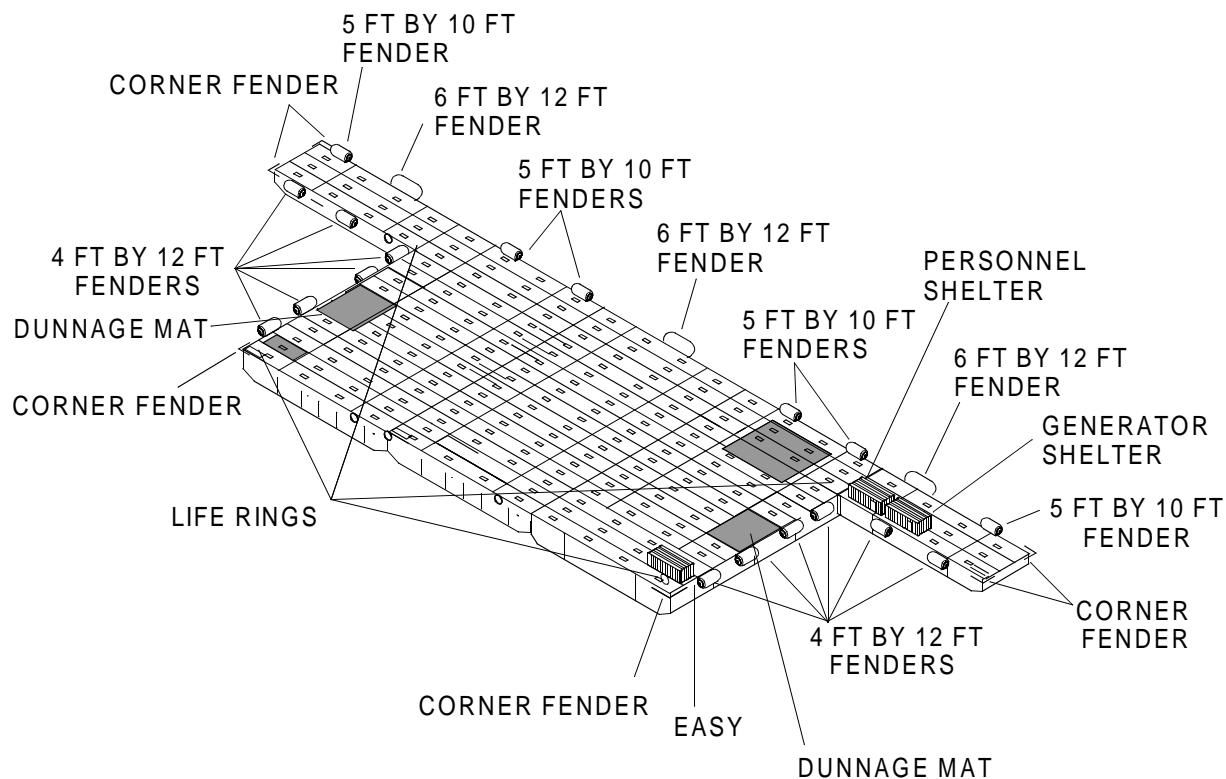
**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DESCRIPTION AND DATA**

EQUIPMENT CONFIGURATION

General

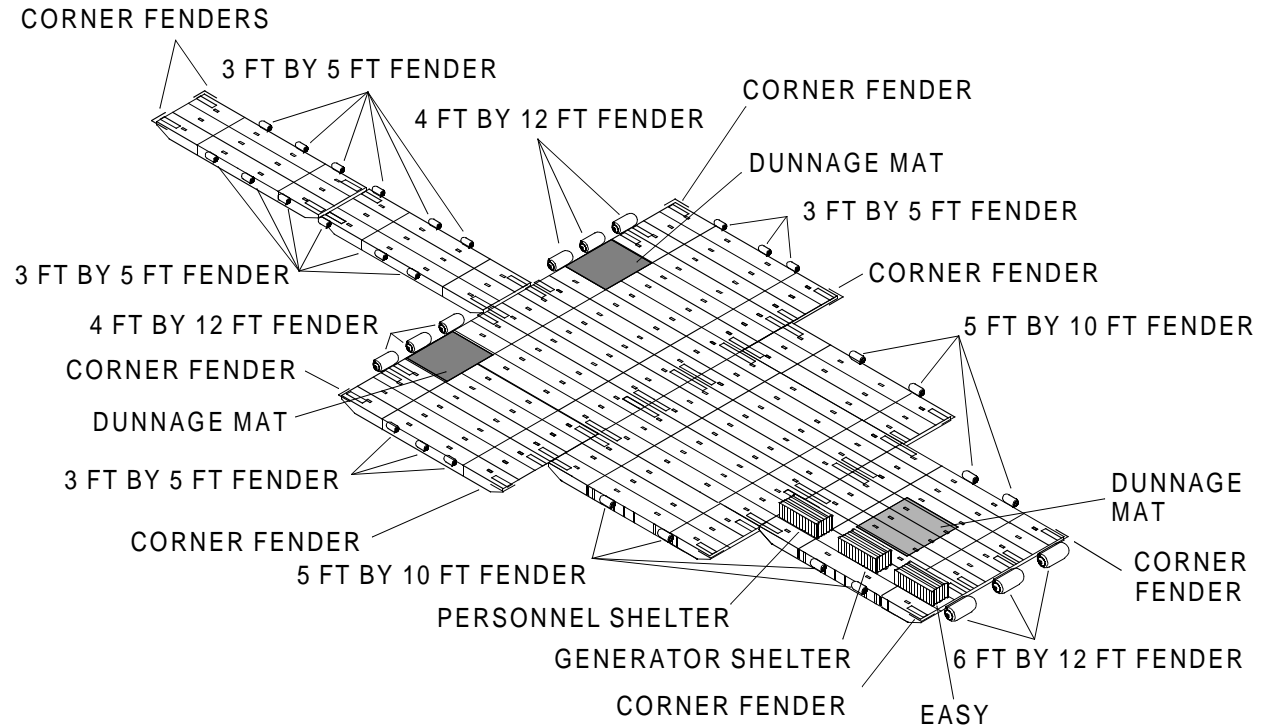
Following are four typical configurations that may be used as roll-on/roll-off discharge platforms for sealift vessels and/or watercraft lighters. The actual configuration will be determined by the watercraft and equipment being loaded/off loaded, if it is to be used at a side ramp or stern ramp of the sealift vessel, Sea State conditions and the operating area. The beach/sea end modules may be used in different alternate configurations for loading/off loading watercraft lighters. These are installed on the outboard end of a platform in place of the end rake modules.

Full RRDF Side Configuration



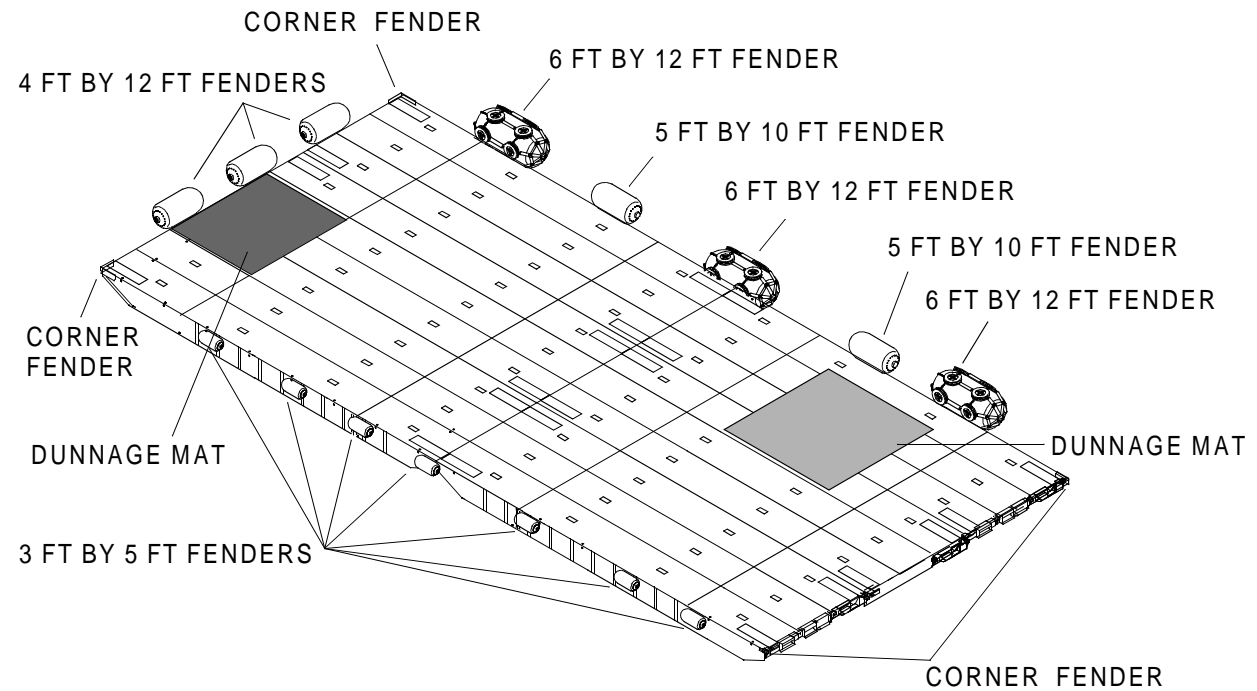
FULL RRDF SIDE CONFIGURATION

Full RRDF Stern Configuration



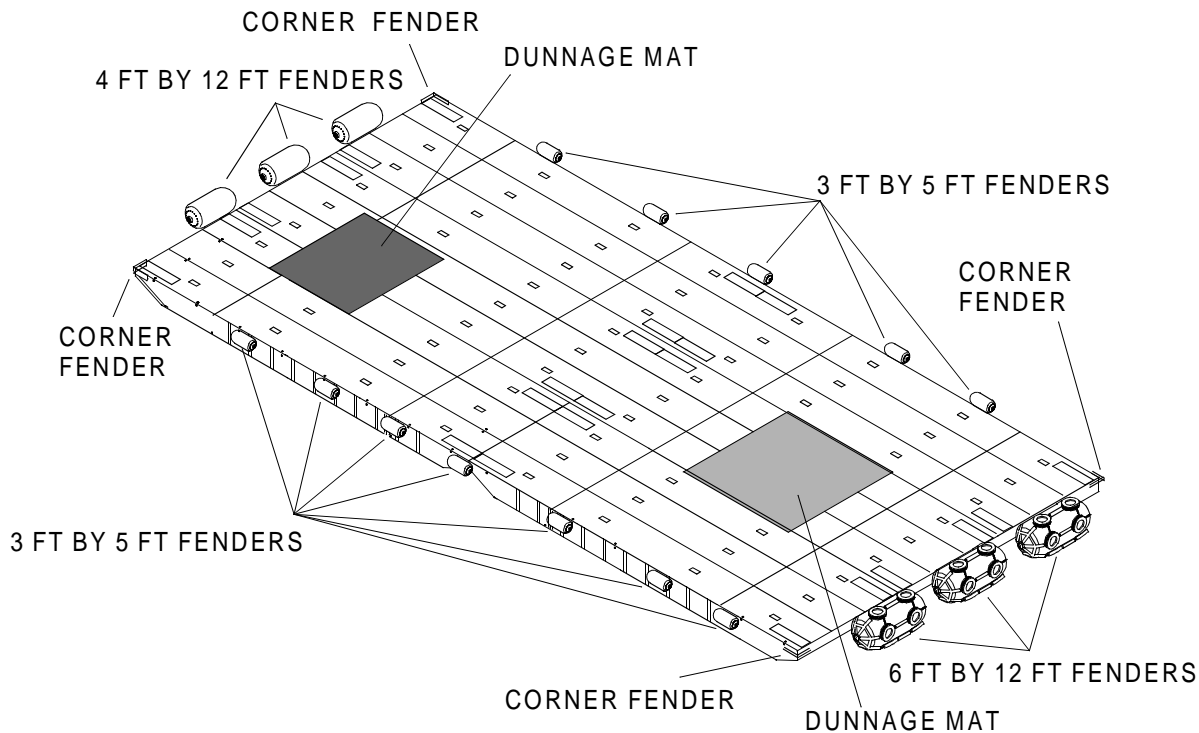
FULL RRDF STERN CONFIGURATION

Force Opening RRDF Side Configuration



FORCE OPENING RRDF SIDE CONFIGURATION

Force Opening RRDF Stern Configuration



FORCE OPENING RRDF STERN CONFIGURATION

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
THEORY OF OPERATION**

SYSTEM OPERATION

The roll-on/roll-off discharge facility (RRDF) is a floating discharge platform for ocean-going roll-on/roll-off sealift vessels. The modules and equipment comprising the RRDF are pre-positioned aboard ship until needed to support combat operations. The RRDF is used in support of joint logistics over the shore (J-LOTS) operations. Vehicles are driven from the ship onto the RRDF and loaded on Army lightering for transport to a theater of operations. The structure of the RRDF will withstand the cargo loading through Sea State 2 conditions.

10 KW OR 15 KW SKID MOUNTED TACTICAL QUIET GENERATOR

Refer to TM 9-6115-642-10 for the theory of operation of the 10 KW diesel generator set.

Refer to TM 9-6115-643-10 for the theory of operation of the 15 KW diesel generator set.

PERSONNEL SHELTER

The personnel shelter is contained in a 20 ft ISO container. Power is supplied to the shelter from the tactical quiet generator through a power cable stored in the shelter and connected from a 100 amp connector on the backside of the shelter to a 100 amp connector on the generator. The power provided by the generator supplies power to the electrical distribution panel, which is cabled to the incinerator toilet, heating and cooling unit, lighting, fire suppression system and to the GFI receptacles in the personnel shelter.

6 KW TRAILER MOUNTED LIGHT TOWER

The lighting system consists primarily of a self-contained, trailer mounted, 6 KW diesel generator which illuminates the work area using four high pressure sodium 1000 watt lamps. The power to each lamp is controlled by individual switches on a control panel. The power is received from a 120 VAC - two phase alternator which is cabled through two 25 amp circuit breakers, to the switches, to a ballast box and connected by quick disconnects to the lights.

VHF/FM HANDHELD TRANSCEIVER

The VHF/FM handheld transceivers are utilized for communicating between personnel during loading and unloading operations on the RRDF. The transceiver has a frequency range of 156.025 to 163.275 mhz, plus 10 weather channels. The transceiver has an RF power output with the CNB350 battery of 5.0 watts (high) and 1.0 watts (low). The operating voltage is 7.2 V DC. Current drain in standby mode is 40 ma, in receive mode 200 ma, in the transmit mode 1.8 amps (high power) and 0.7 amps (low power). The battery life (5% Tx, 5% rcv, 90% standby) is approximately 10 hrs (high mode) and 15 hrs (low mode). The audio response is within +2/-8 of 6 dB/octave pre-emphasis characteristic from 300 hz to 3000 hz. The AF harmonic distortion of the transmitter is 3%. The transmitter has a hum and noise rating of 37 dB and a frequency stability (-20 Deg to +50 Deg C) of +/- 0.0005%. The receiver has a sensitivity rating of 20 dB, quieting at 0.35 uv and 12 dB SINAD at 0.30 uv. The squelch sensitivity (threshold) is 0.20 uv. Modulation acceptance bandwidth is \pm 4.5 khz.

INCINERATOR TOILET

Refer to TM 55-1925-257-14&P for the theory of operation of the incinerator toilet.

EMERGENCY ANCHOR SYSTEM (EASY)

The EASY is housed in a 20 ft ISO container and is secured on the deck of the RRDF. The EASY provides a means of anchoring the RRDF platform in the event the sealift vessel has to depart the operating area due to weather conditions or some other contingency. When required, the 2400 lb NAVMOOR anchor is deployed by extending the drawer to its extended position and elevating the slide with the hand pump until the it slides into the water. The anchor is tethered to the RRDF with 500 ft X 10 in. circumference nylon line.

RIGID HULL INFLATABLE BOAT (RHIB)

The RHIB is a rigid hull type boat with an inflatable collar. Its arrangement consists of hoisting and mooring fittings, 70 horsepower outboard motor, fuel system, control console, electrical system, engine control system, steering system. A 12 volt battery provides power to the engine starting system, electrical accessories, switch/breaker panel and negative bus bar. The positive end of the battery is connected to the battery switch and then to the engine starter. The bilge pump is also connected to the battery switch.

CHAPTER 2

OPERATOR INSTRUCTIONS

FOR

MODULAR CAUSEWAY SYSTEM (MCS)

ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF)

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DESCRIPTION AND USE OF OPERATOR
CONTROLS AND INDICATORS**

GENERAL

The following paragraphs contain illustrations that show the location of each control and indicator for operation of the RRDF platform and installed items of equipment. 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.

LIGHT TOWER CONTROLS AND INDICATORS

Table 1 describes the controls and indicators for the light towers.

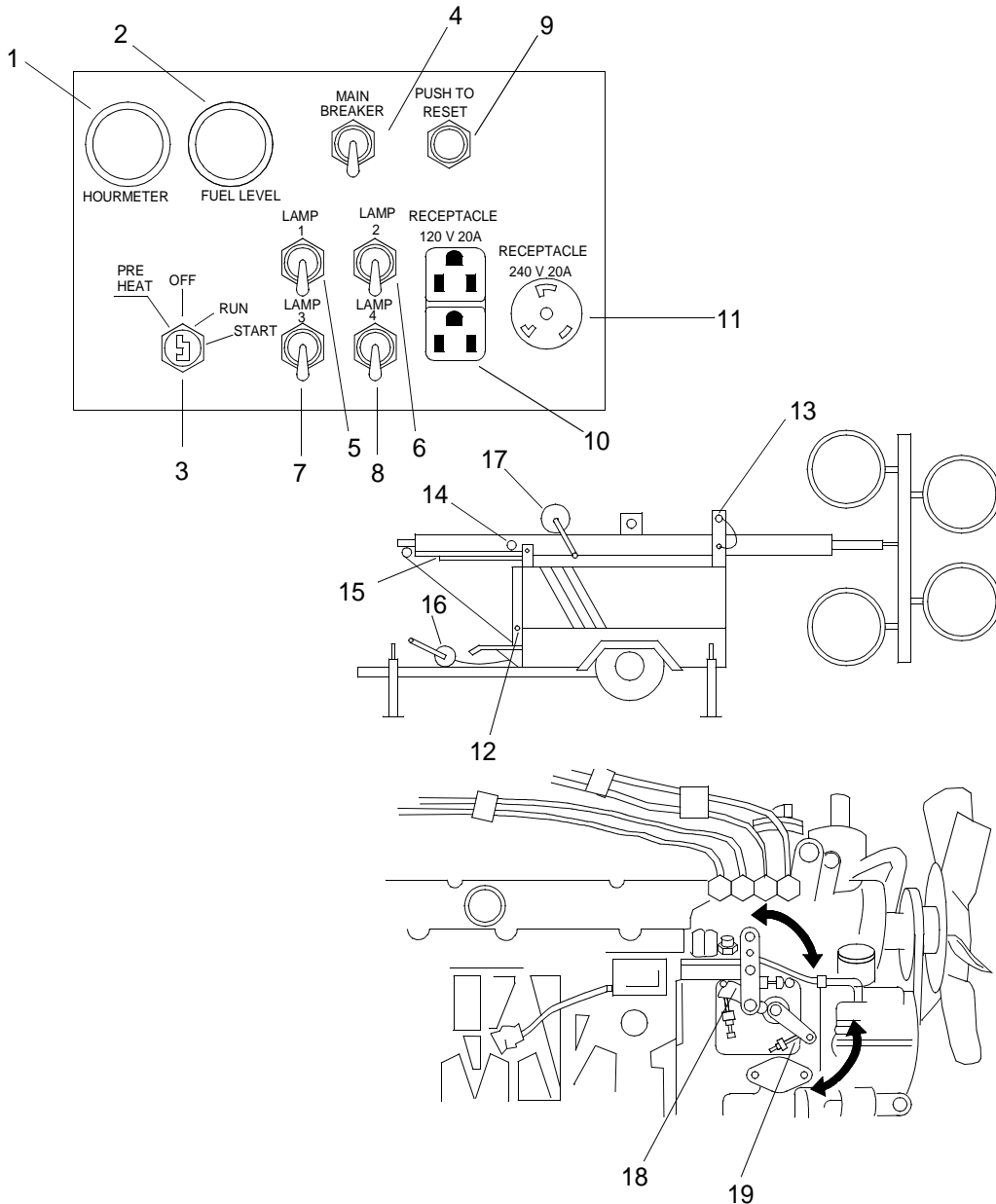
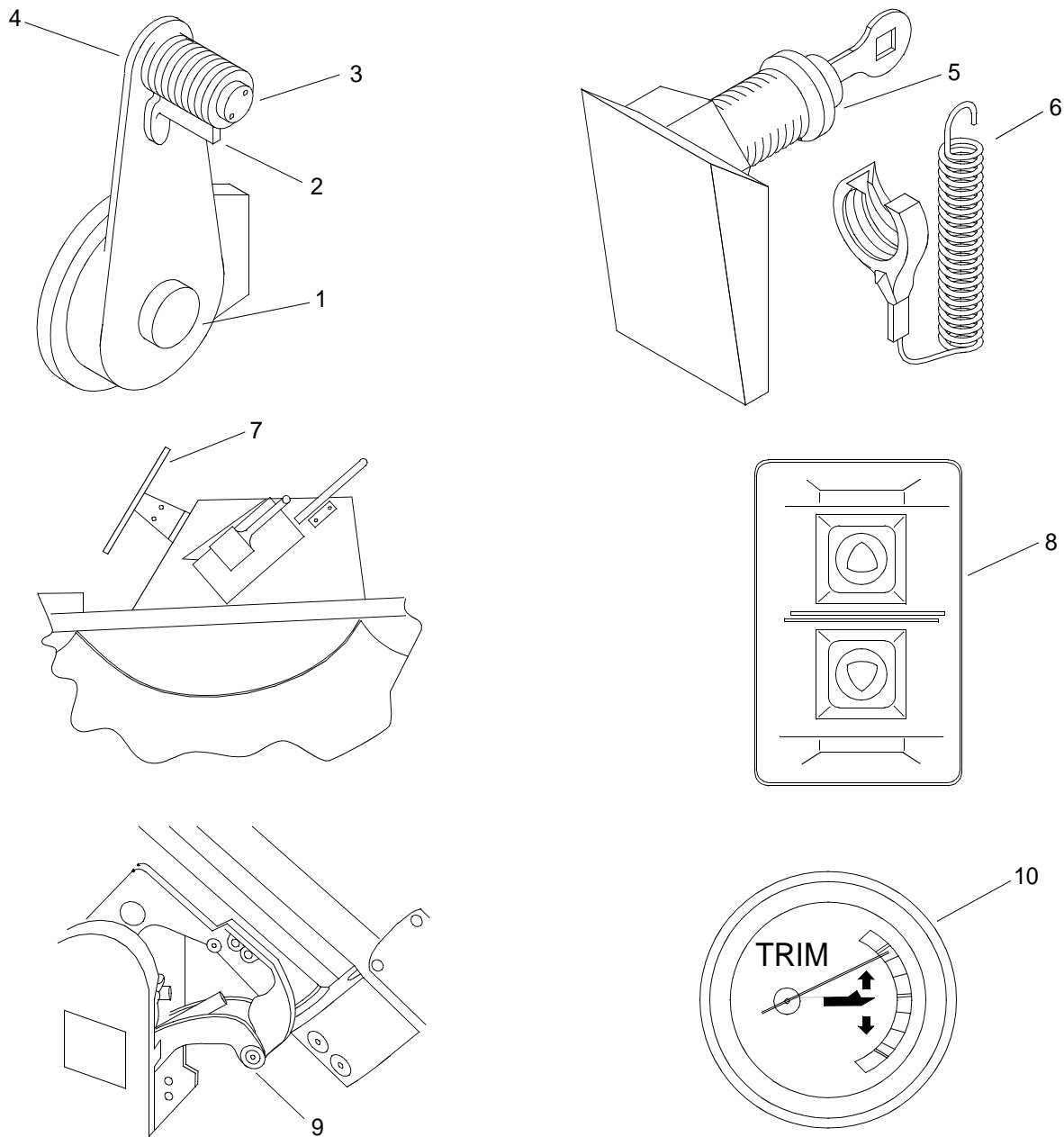


Table 1. Light Tower Controls and Indicators.

KEY	CONTROL OR INDICATOR	FUNCTION
1	HOUR METER	Indicates elapsed time in hours that the light tower engine has operated.
2	FUEL LEVEL	Indicates the fuel level in the light tower fuel tank.
3	Ignition Switch	Allows the operator to select between preheat, run, start and off. The PREHEAT position preheats the glow plugs to aid starting. The START position allows for starting of the engine. The ignition switch is spring loaded to the RUN position when the key is released after starting. The OFF position allows the operator to turn the light tower engine off after use.
4	MAIN BREAKER	Allows the operator to turn off all electrical power to the lights and receptacles. The main breaker is rated at 35 amps.
5	LAMP 1	Circuit breaker switch allows the operator to turn on and off lamp number one on the light tower.
6	LAMP 2	Circuit breaker switch allows the operator to turn on and off lamp number two on the light tower.
7	LAMP 3	Circuit breaker switch allows the operator to turn on and off lamp number three on the light tower.
8	LAMP 4	Circuit breaker switch allows the operator to turn on and off lamp number four on the light tower.
9	PUSH TO RESET	Circuit breaker for light power circuit.
10	RECEPTACLE, 120 V 20A	120 volt, 20 amp electrical receptacle.
11	RECEPTACLE, 240 V 20A	240 volt, 20 amp electrical receptacle.
12	Locking Pin	Secures light tower in upright position.
13	Locking Pin	Locks light tower in the stowed position for transport.
14	Eye Bolt	Allows light tower to rotate. Prevents rotation when tightened.
15	Locking Pin	Locks light tower in position for angled operation.
16	Winch	Raises light tower when turned from the stowed position. Returns light tower to stowed position after operation.
17	Winch	Extends light tower to desired height.
18	Speed Control Lever	Controls engine speed during operation.
19	Engine Stop Lever	Allows operator to stop engine without returning to control panel.

RIGID HULL INFLATABLE BOAT CONTROLS AND INDICATORS

Table 2 describes the controls and indicators for the rigid hull inflatable boat.



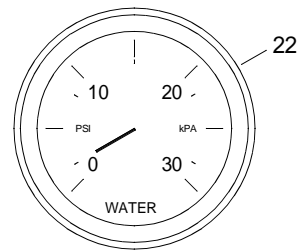
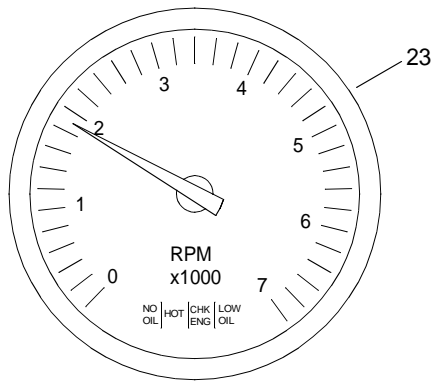
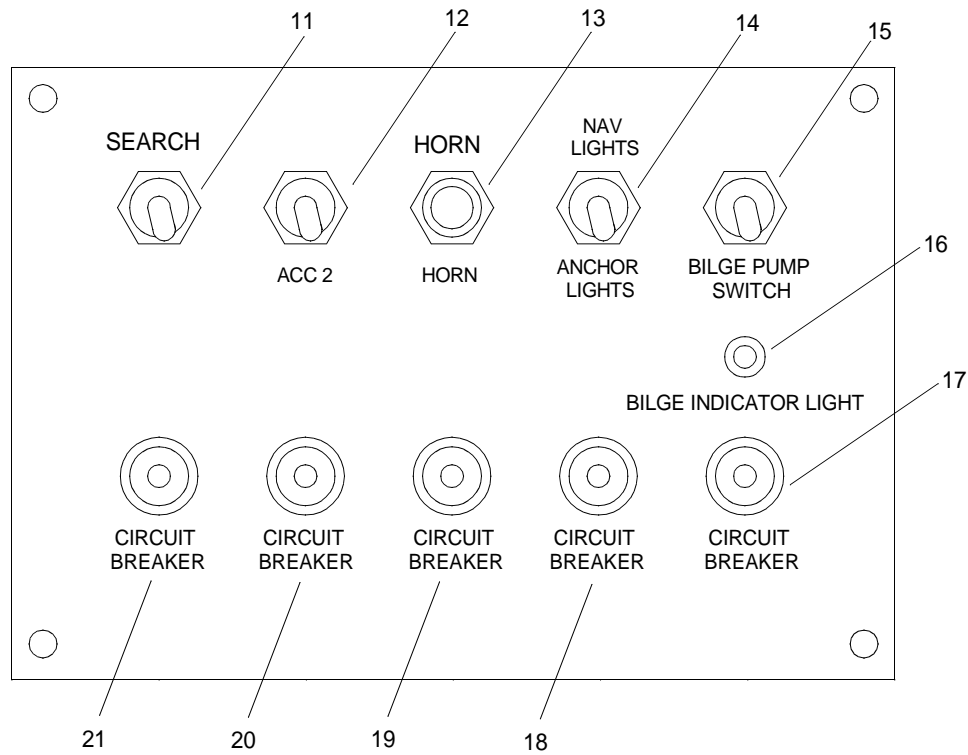


Table 2. Rigid Hull Inflatable Boat Operator Controls and Indicators.

KEY	CONTROL/INDICATOR	FUNCTION
1	Fast Idle Control	With the control in neutral, pushing the fast idle control button and moving the shifting and speed control forward past the forward gear detente, the idle speed of the engine may be increased as desired.
2	Shift Safety Detente	The safety detente under the handle must be depressed to change direction of the boat.
3	POWER TRIM AND TILT Switch	Pushing the power trim switch while underway allows a 21 degree trim range for optimum acceleration, speed and ride quality. While stopped, pushing the button allows the engine to be tilted.

Table 2. Rigid Hull Inflatable Boat Operator Controls and Indicators. (Continued)

KEY	CONTROL/INDICATOR	FUNCTION
4	SHIFTING AND SPEED Control	Moving the handle forward moves the boat forward, center position is neutral, aft position moves the boat backwards. The farther the handle is moved forward, the faster the speed. The farther the handle is moved aft, the faster the speed in reverse.
5	START Key	Turning the key clockwise starts the engine. Pushing in on the key during start primes the engine. Release the key when engine is running.
6	Emergency Stop Clip	Attached to key and operator, stops engine when operator is thrown clear.
7	Steering Wheel	Allows operator to steer boat using hydraulic steering.
8	TRAILERING TILT Switch	Located on lower engine cover, operates the power tilt from outside the boat.
9	TRAILERING Bracket	Locks the engine in the trailering position for transportation or movement of the boat.
10	TRIM Gauge	Indicates the bow position that is achieved by trimming the angle of the motor.
11	SEARCH Light Switch	Turns on the spotlight.
12	ACC 2	Not used.
13	HORN Button	Operates the horn.
14	NAV LIGHTS/ANCHOR LIGHT SWITCH	Operates the nav lights when in the up position and the anchor light when in the down position.
15	BILGE PUMP SWITCH	Not used.
16	BILGE INDICATOR LIGHT	Not used.
17	CIRCUIT BREAKER, Bilge Pump	Not used.
18	CIRCUIT BREAKER, Anchor/Nav Lights 10 AMP	Provides circuit protection for the anchor light/nav lights.
19	CIRCUIT BREAKER, Horn 10 AMP	Provides circuit protection for the horn.
20	CIRCUIT BREAKER, ACC 2 10 AMP	Provides circuit protection for the ACC 2.
21	CIRCUIT BREAKER, Search 10 AMP	Provides circuit protection for the search light.
22	WATER Pressure Gauge	Indicates the water pressure of the water cooling the motor.
23	Tachometer	Indicates the revolutions per minute of the motor.

VHF HANDHELD TRANSCEIVER CONTROLS AND INDICATORS

Table 3 describes the controls and indicators for the VHF handheld transceiver

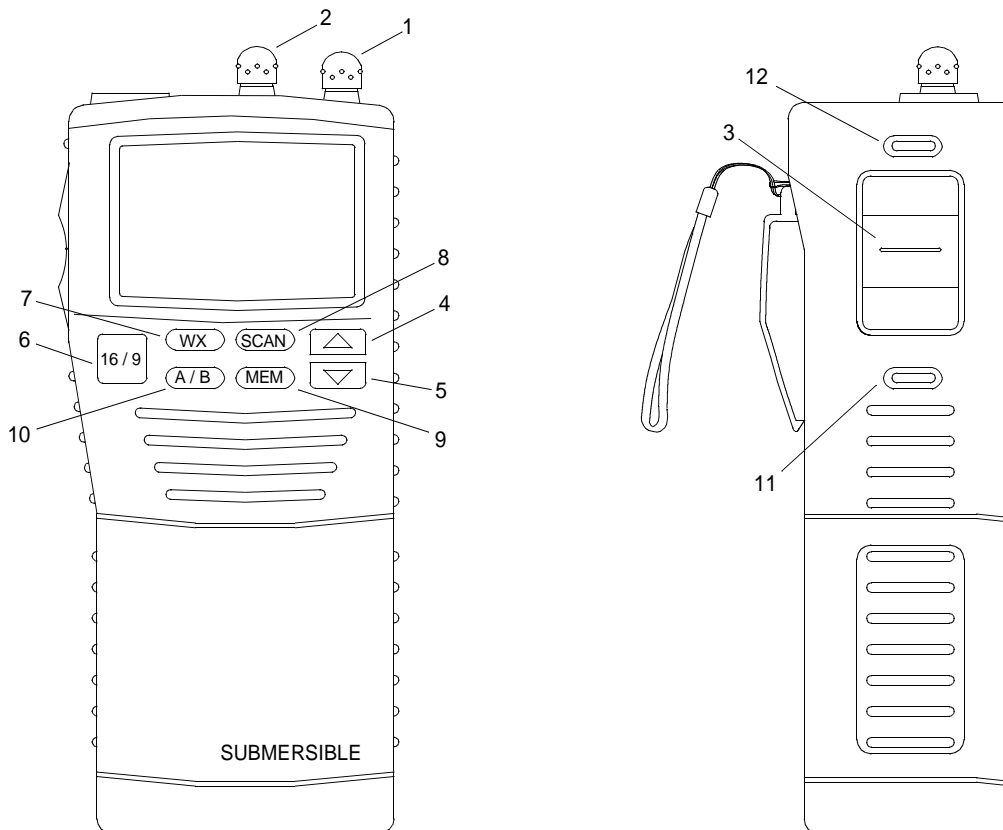


Table 3. VHF Handheld Transceiver Operator Controls and Indicators.

KEY	CONTROL/INDICATOR	FUNCTION
1	POWER/VOLUME Knob	Turns power on and off. Adjusts speaker level.
2	SQUELCH CONTROL Knob	Sets the threshold level of signals that will produce audio output from the speaker.
3	MICROPHONE PUSH TO TALK (PTT) Switch	Press the push to talk switch to transmit. Release button to receive. A transmit timer limits continuous transmissions to 5 minutes.
4	Up Arrow Key	Selects the desired channel. Each press increases the channel number. When held down, the channels increase continuously.
5	Down Arrow Key	Selects the desired channel. Each press decreases the channel number. When held down, the channels decrease continuously.
6	16/9 Key	Immediately recalls channel 16 from any channel location. Holding this key down recalls channel 9. When the WX key is pressed while holding this key, the mode toggles between USA, International and Canada.
7	WX Key	Immediately recalls a weather channel from any channel location. Recalls the previous channel when the WX key is pressed again.

Table 3. VHF Handheld Transceiver Operator Controls and Indicators. (Continued)

KEY	CONTROL/INDICATOR	FUNCTION
8	SCAN Key	Starts scanning programmed channels. Press key for at least one second to turn on and off priority scan during scan.
9	MEM Key	Memorizes the selected channel. When pressed again, deletes the selected channel.
10	A/B Key	Immediately recalls two user assigned channels from any channel location.
11	H/L Key	Toggles between high and low power. To change from low power to high power, hold down key on Canada channel 13, USA channel 13 or 67.
12	LAMP/KEY LOCK Key	Turns the display lamp on and off. Hold down key to lock the displayed channel. Key symbol appears in display. Hold down until key symbol in display disappears to unlock.

PERSONNEL SHELTER HEATING AND AIR CONDITIONING SYSTEM AND ELECTRICAL DISTRIBUTION PANEL BOARD CONTROLS AND INDICATORS

Table 4 describes the controls and indicators for the personnel shelter heating and air conditioning system and electrical distribution panel board.

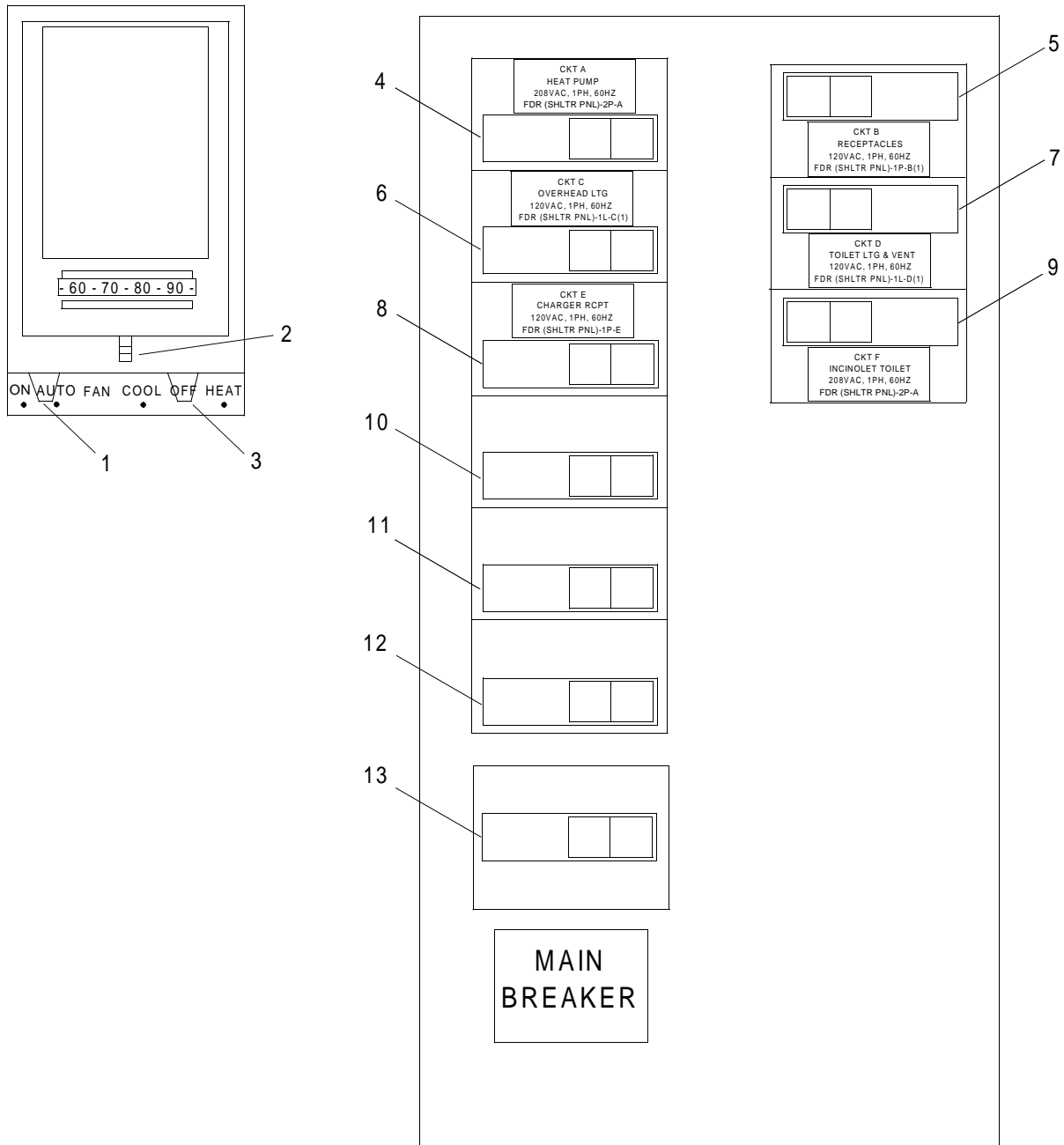


Table 4. Personnel Shelter Heating and Air Conditioning System and Electrical Distribution Panel Board Operator Controls and Indicators.

KEY	CONTROL/INDICATOR	FUNCTION
1	FAN Switch	Selects mode of operation for fan. When in the ON position, fan operates continuously. When in the AUTO mode, fan operates in conjunction with the thermostat.
2	Thermostat Adjustment	Adjust the temperature at which the heating or cooling system will cycle on.
3	Mode Selector Switch	Selects the mode of operation for the heating and cooling system. In the COOL mode, the air conditioning system will cycle on at the thermostat setting. In the HEAT mode, the heating system will cycle on at the thermostat setting. In the OFF mode, the system does not operate.
4	CIRCUIT BREAKER "A"	Provides circuit protect for heating and air conditioning system. Rated at 25 amps.
5	CIRCUIT BREAKER "B"	Provides circuit protect for receptacles. Rated at 20 amps.
6	CIRCUIT BREAKER "C"	Provides circuit protect for overhead lighting. Rated at 15 amps.
7	CIRCUIT BREAKER "D"	Provides circuit protect for toilet lighting and ventilation. Rated at 15 amps.
8	CIRCUIT BREAKER "E"	Provides circuit protect for charger receptacle. Rated at 20 amps.
9	CIRCUIT BREAKER "F"	Provides circuit protect for Incinolet toilet. Rated at 20 amps.
10	CIRCUIT BREAKER "SPARE"	Spare circuit. Rated at 15 amps.
11	CIRCUIT BREAKER "SPARE"	Spare circuit. Rated at 15 amps.
12	CIRCUIT BREAKER "SPARE"	Spare circuit. Rated at 15 amps.
13	MAIN CIRCUIT BREAKER	Allows the operator to turn off all electrical power to electrical distribution panel board. Rated at 100 amps.

INCINOLET CONTROLS AND INDICATORS

Refer to Incinerator Toilet/Urinal Galley/Water Heater TM 55-1925-257-14&P.

10 KW OR 15 KW TACTICAL QUIET GENERATOR DAY FUEL TANK CONTROLS AND INDICATORS

Table 5 describes the controls and indicators for the 10 KW or 15 KW tactical quiet generator day fuel tank.

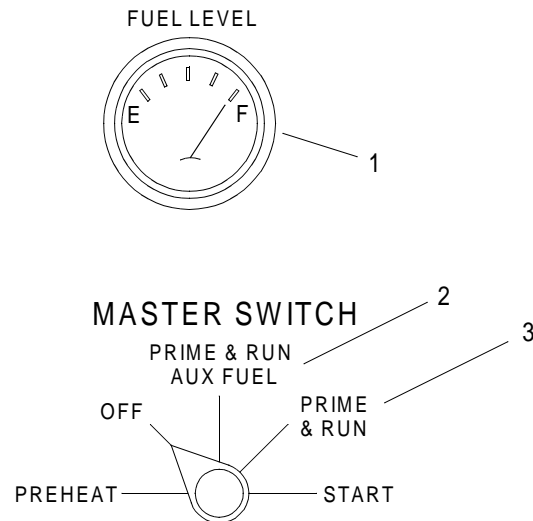


Table 5. 10 KW or 15 KW Tactical Quiet Generator Fuel Tank Operator Controls and Indicators.

KEY	CONTROL/INDICATOR	FUNCTION
1	Day FUEL LEVEL Gauge	Indicates the amount of fuel in the generator day tank.
2	MASTER SWITCH PRIME AND RUN AUX FUEL Position	Energizes generator set run circuits with auxiliary fuel pump operating.
3	MASTER SWITCH PRIME AND RUN Position	Energizes generator set run circuits with auxiliary fuel pump de-energized.

GENERATOR CONTAINER 1000 GALLON FUEL TANK CONTROLS AND INDICATORS

Table 6 describes the controls and indicators for the generator container 1000 gallon fuel tank.

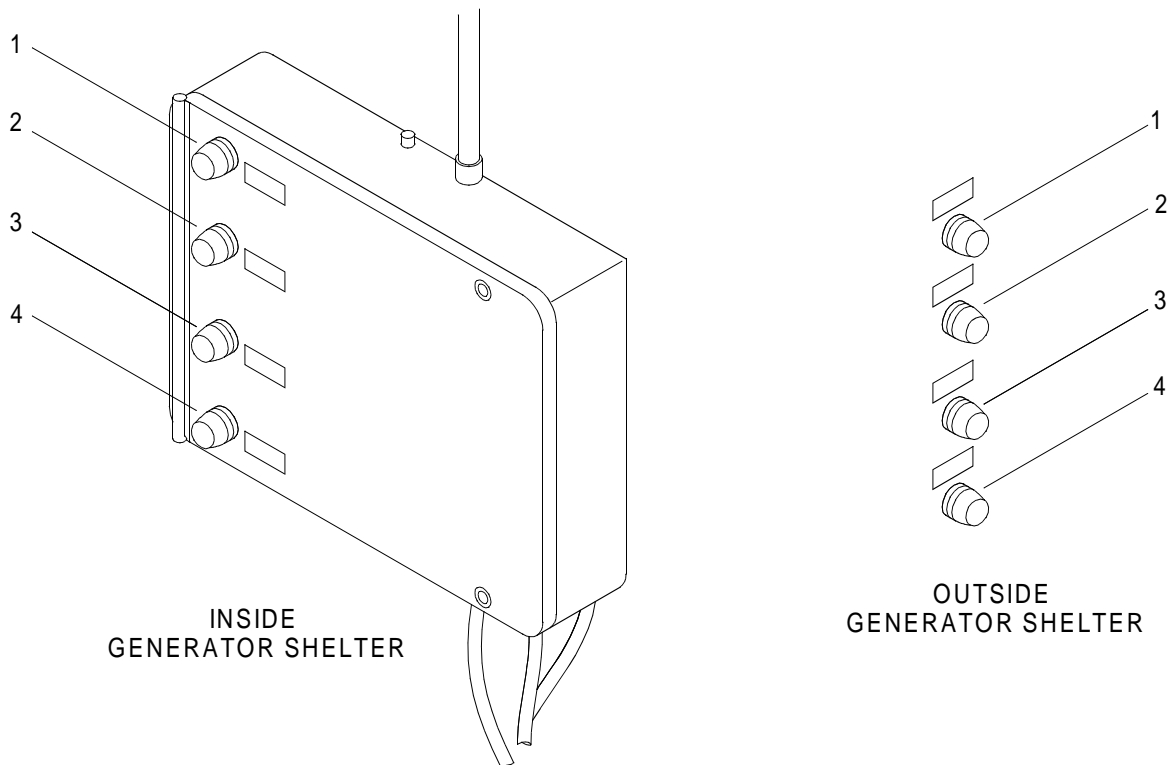


Table 6. Generator Container 1000 Gallon Fuel Tank Operator Controls and Indicators.

KEY	CONTROL/INDICATOR	FUNCTION
1	DANGER OVER-FULL INDICATOR Light	Light illuminates when tank is overfilled during refueling operations.
2	TANK 100% CAPACITY INDICATOR Light	Light illuminates when fuel tank is at 100% of capacity.
3	TANK 50% CAPACITY INDICATOR Light	Light illuminates when fuel tank has 50% of fuel remaining in tank.
4	WARNING LOW FUEL INDICATOR Light	Light illuminates when tank fuel level is low.

GENERATOR CONTAINER DC LIGHTING SYSTEM CONTROLS AND INDICATORS

Table 7 describes the controls and indicators for the generator container DC lighting system.

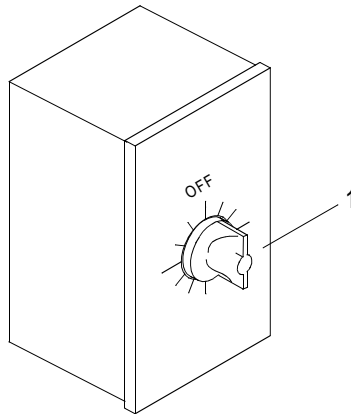


Table 7. Generator Container DC Lighting System Operator Controls and Indicators.

KEY	CONTROL/INDICATOR	FUNCTION
1	DC Light Interval Timer	Spring wound timer that automatically turns off light after a preset time period. Rotate knob to set timer. Rotate clockwise to increase time, counterclockwise to decrease time.

GENERATOR EMERGENCY STOP CONTROLS AND INDICATORS

Table 8 describes the controls and indicators for the generator emergency stop.

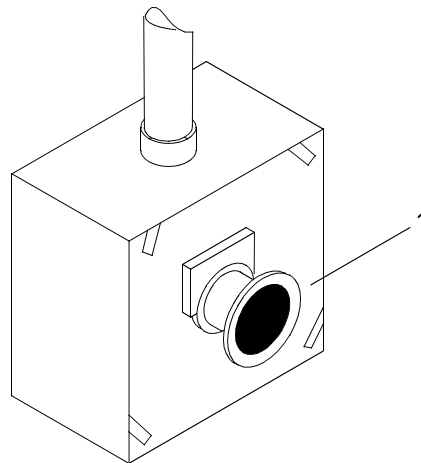


Table 8. Generator Emergency Stop Operator Controls and Indicators.

KEY	CONTROL/INDICATOR	FUNCTION
1	Generator Emergency Stop	When pushed, stops generator. Switch must pulled out to restart generator.

GENERATOR CONTAINER FIRE SUPPRESSION SYSTEM CONTROLS AND INDICATORS

Table 9 describes the controls and indicators for the generator container fire suppression system.

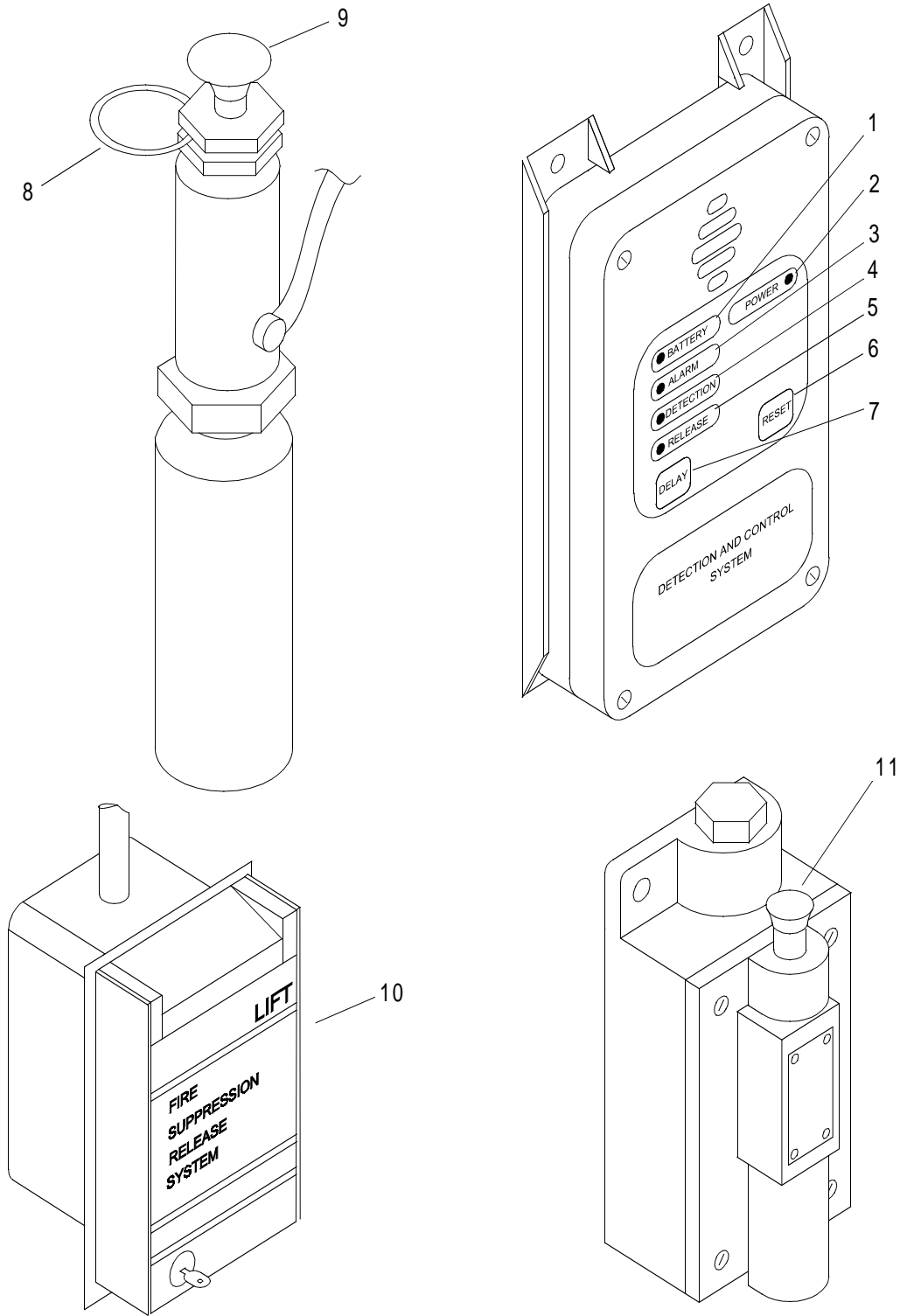


Table 9. Generator Container Fire Suppression System Operator Controls and Indicators.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Control Module BATTERY LED Indicator	The control module battery LED indicator is lit when the fire suppression system is operating on battery power.
2	Control Module POWER LED Indicator	The control module power LED indicator is lit when power is supplied to the fire suppression system.
3	Control Module ALARM LED Indicator	Alarm LED indicates that an alarm has been initiated. Upon receiving an alarm input signal, the LED flashes once per second. After the alarm shutdown time delay has expired, the LED flashes three times per second. After fire suppression system discharge, the LED flashes once every six seconds to indicate that fire suppression has occurred.
4	Control Module DETECTION LED Indicator	The detection LED lights when the fire detection devices send a signal to the control module that a fire has been detected.
5	Control Module RELEASE LED Indicator	The release LED lights when the fire suppression system releases the fire extinguishing agent.
6	RESET Button	The reset button allows the operator to perform the following functions: set relays in correct position upon installation, reset and/or defer alarm-to-shutdown delay if pressed or held down during the period, reset control module after system operation when replacement of detection wire/thermal detectors is complete.
7	DELAY Button	The delay button allows the operator to repeat the shutdown time delay, if pressed before the shutdown time delay has expired.
8	Ring Pin	Pull ring pin to allow manual activation of fire suppression system.
9	Manual Actuator Knob	Manually activates fire suppression system for immediate discharge of fire extinguishing agent.
10	Electric Manual Pull Station	Manually initiates fire suppression system. Lift lever to actuate. Time delay circuit will activate.
11	15 KW Tactical Generator Pneumatic Cutoff Switch	Cutoff switch is pneumatically activated when the fire suppression system is discharged. Cutoff switch must be reset before attempting to start the 15 KW tactical generator.

DC POWER SUPPLY FOR VHF HANDHELD TRANSCEIVER CONTROLS AND INDICATORS

Table 10 describes the controls and indicators for the DC power supply for the VHF handheld transceiver.

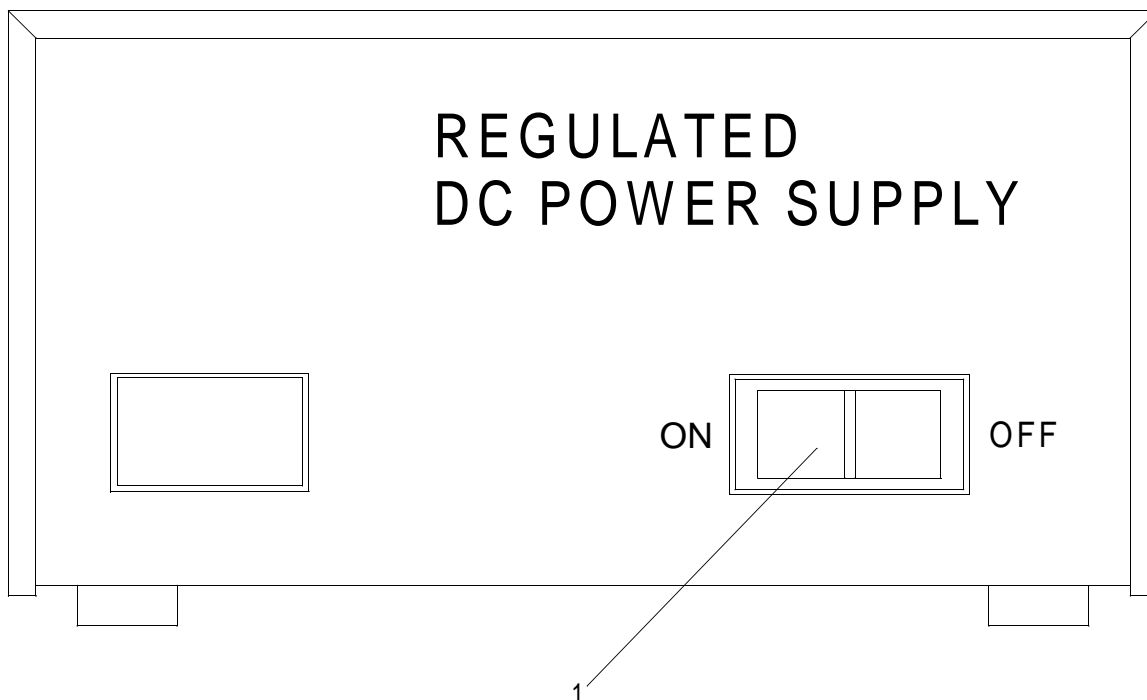


Table 10. DC Power Supply for Transceiver Operator Controls and Indicators.

KEY	CONTROL/INDICATOR	FUNCTION
1	ON/OFF Switch	Rocker switch turns power on and off.

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MODULE ISOPAK
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)

Life Preserver, Vest (Item 32, WP 0119 00)

Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)

Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)

Helmet, Safety (Item 29, WP 0119 00)

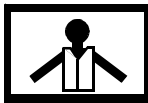
Ladder (Item 32, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR USE - DISASSEMBLY OF MODULE ISOPAK

WARNING



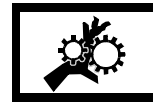
VEST



HELMET PROTECTION



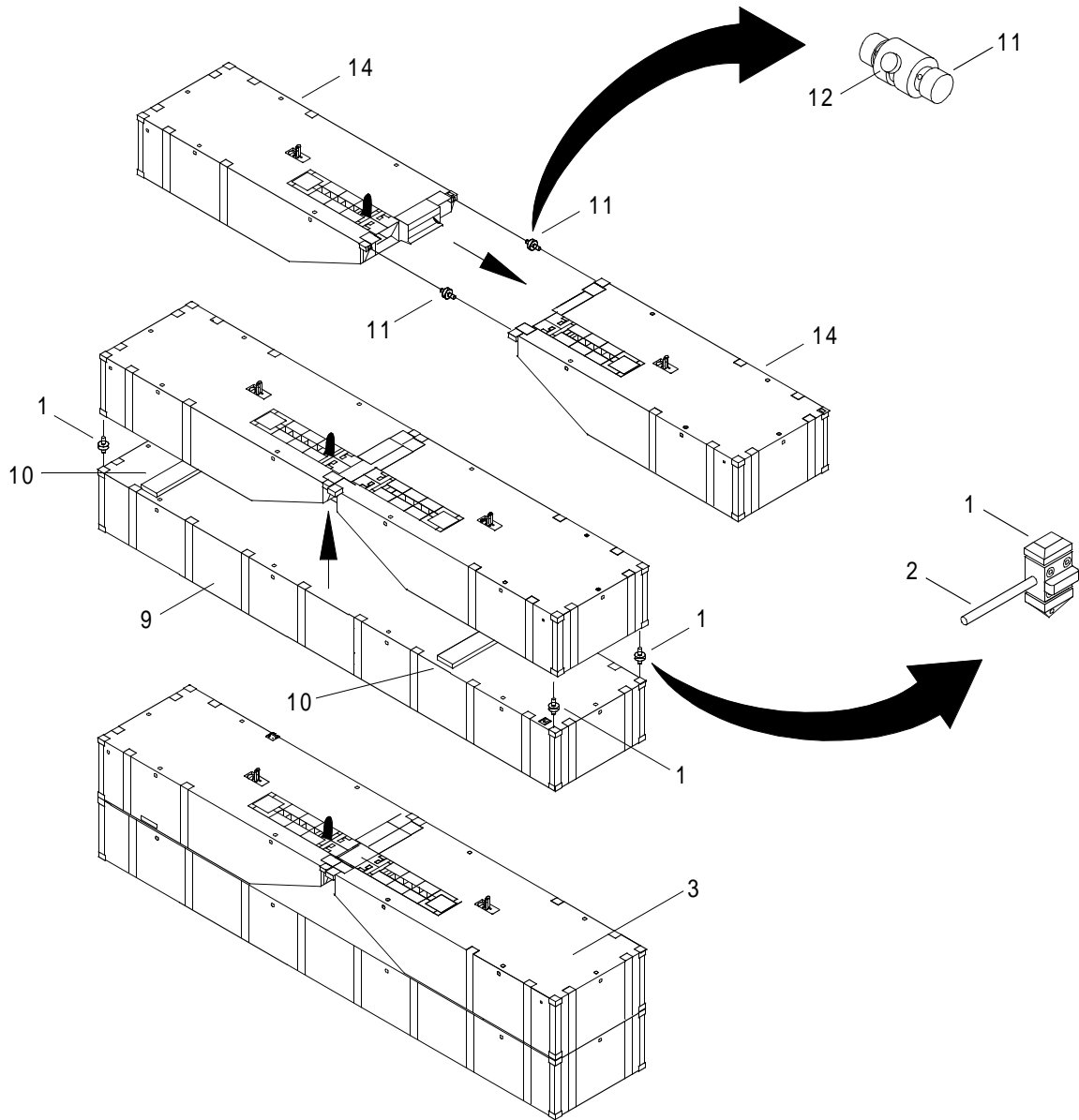
HEAVY PARTS



MOVING PARTS

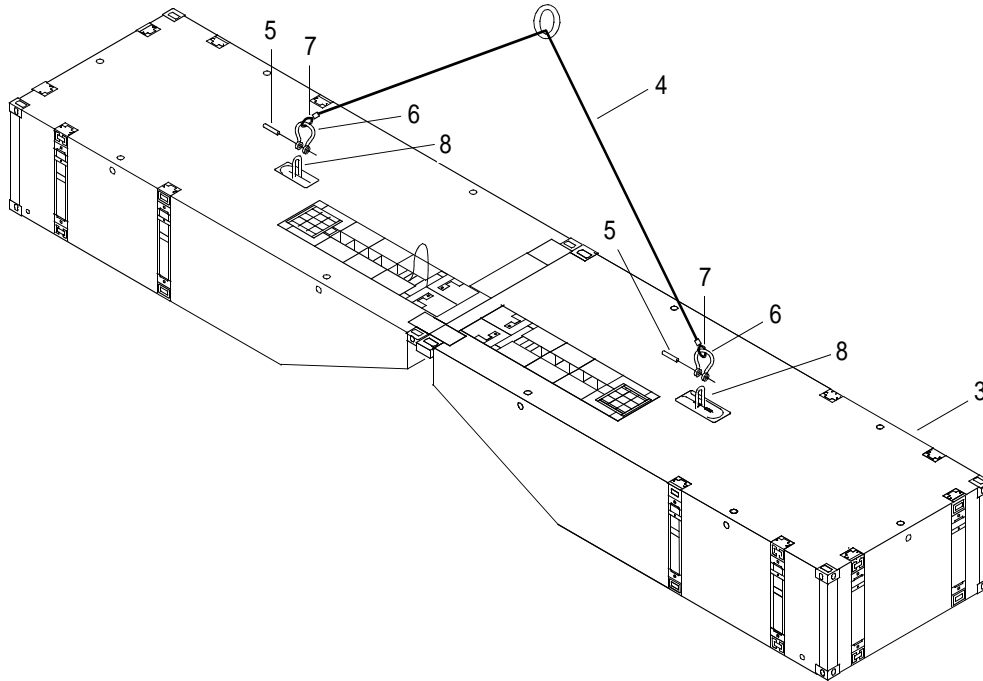
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Unlock four ISOPAK vertical connectors (1), one at each corner, by moving the lever (2).



2. Obtain ladder from BII container and climb to top of connected end rake modules (3).

3. Attach two leg sling (4) to connected end rake modules (3).



- a. Remove shackle pins (5) from shackles (6).
 - b. Insert shackle (6) and sling eye (7) through module lifting shackle (8).
 - c. Install shackle pins (5) in shackles (6).
4. Descend from top of module ISOPAK and stow ladder in BII container.

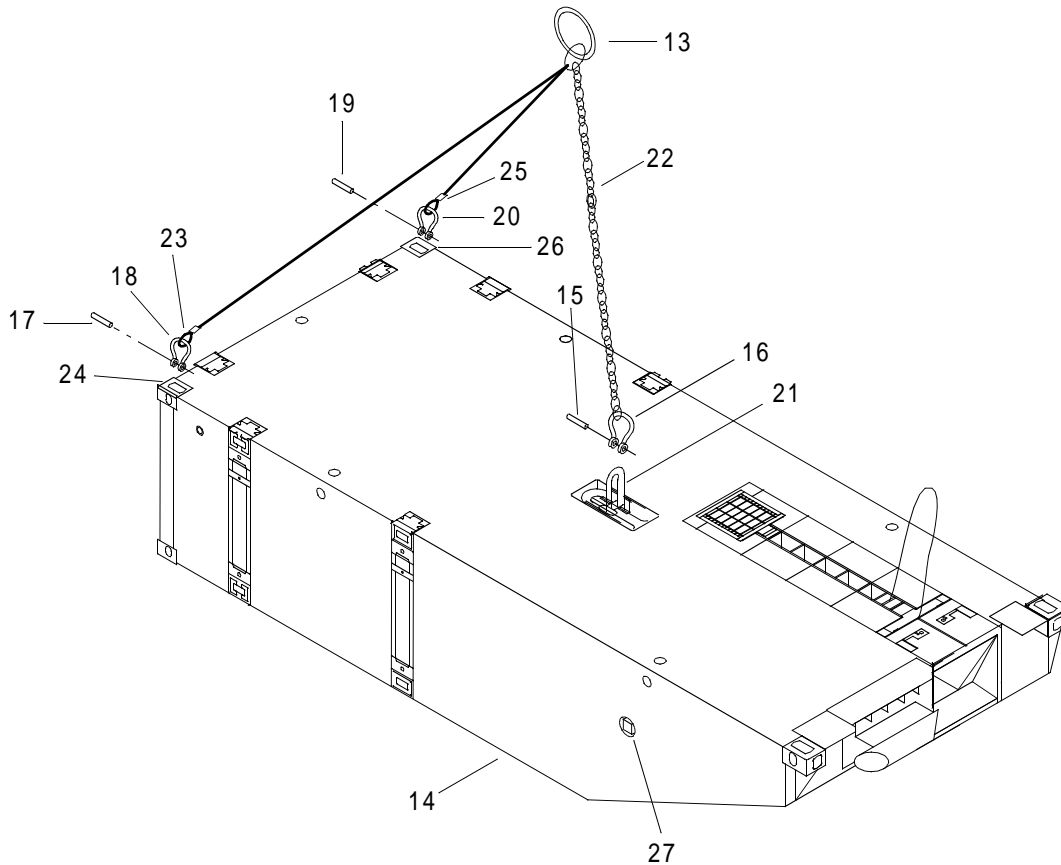
WARNING



HEAVY OBJECTS

5. Lift connected end rake modules (3) by two leg sling (4) and remove from top of center module (9).
6. Remove connectors (1) and dunnage (10) from corners of center module (9).
7. Unlock the two horizontal ISOPAK connectors (11) by moving the lever (12).

8. Install three leg sling (13) on end rake module (14).



- a. Remove shackle pin (15) from shackle (16).
- b. Remove shackle pin (17) from shackle (18).
- c. Remove shackle pin (19) from shackle (20).
- d. Insert shackle (16) through module lifting shackle (21) and chain (22).
- e. Install shackle pins (15) in shackle (16).
- f. Insert shackle (18) through sling eye (23) and module ISO fitting (24).
- g. Install shackle pin (17) in shackle (18).
- h. Insert shackle (20) through sling eye (25) and module ISO fitting (26).
- i. Install shackle pin (19) in shackle (20).

WARNING

**HEAVY PARTS**

9. Using three leg sling (13), lift and separate end rake modules (14).

WARNING

**HEAVY PARTS**

10. Remove ISOPAK horizontal connectors (11).

NOTE

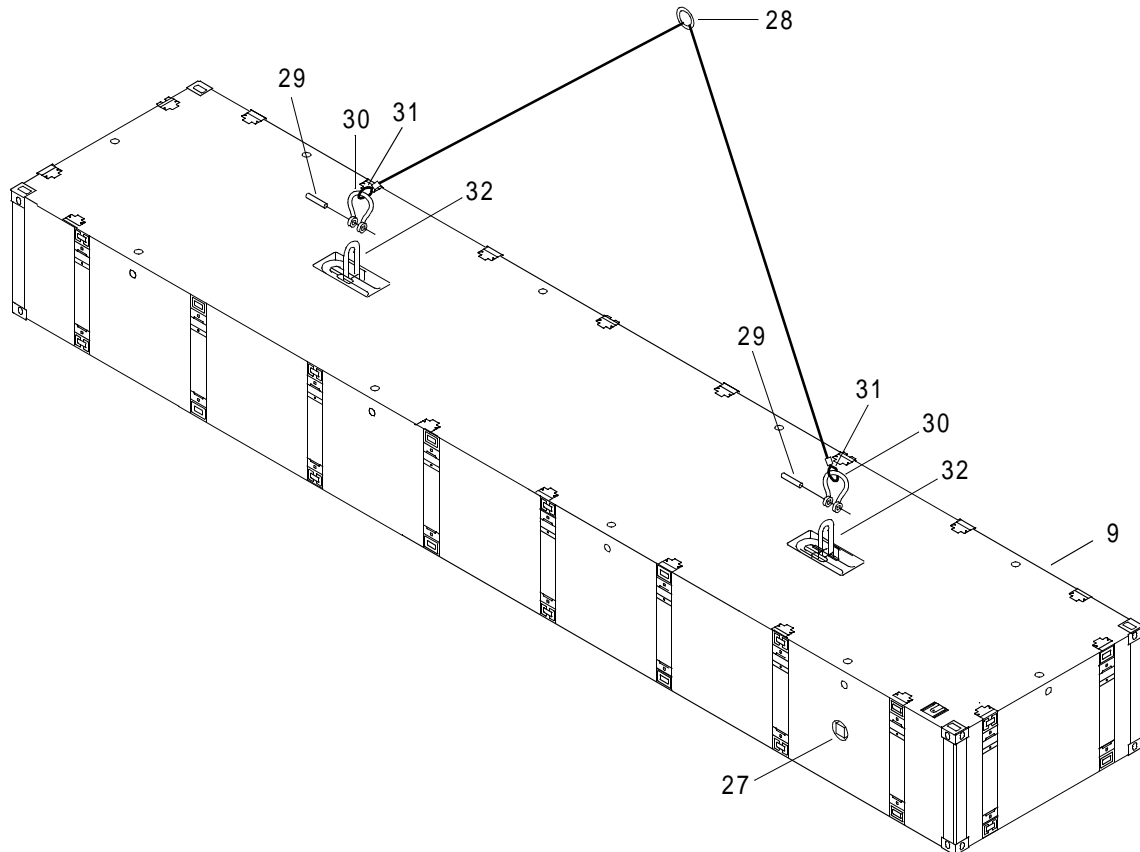
Drain plug location may vary.

11. Inspect modules to ensure drain plugs (27) are installed and tight in all modules.

WARNING

**HEAVY PARTS**

12. Lift center module (9) with two leg sling (28).



- a. Remove shackle pins (29) from shackles (30).
- b. Insert shackle (30) and sling eye (31) through module lifting shackle (32).
- c. Install shackle pins (29) in shackles (30).

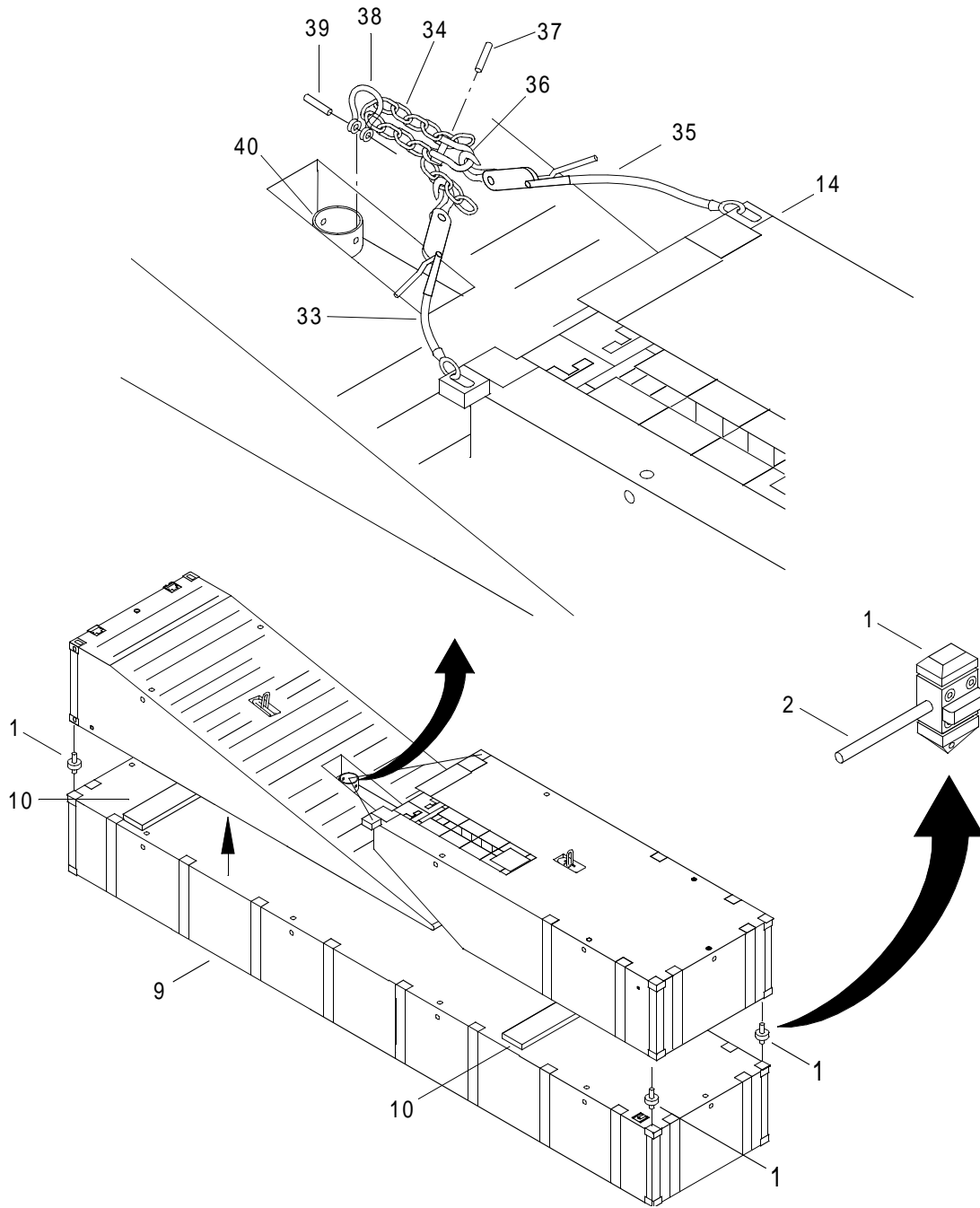
WARNING

**HEAVY PARTS**

- d. Using the crane, remove the center module (9).

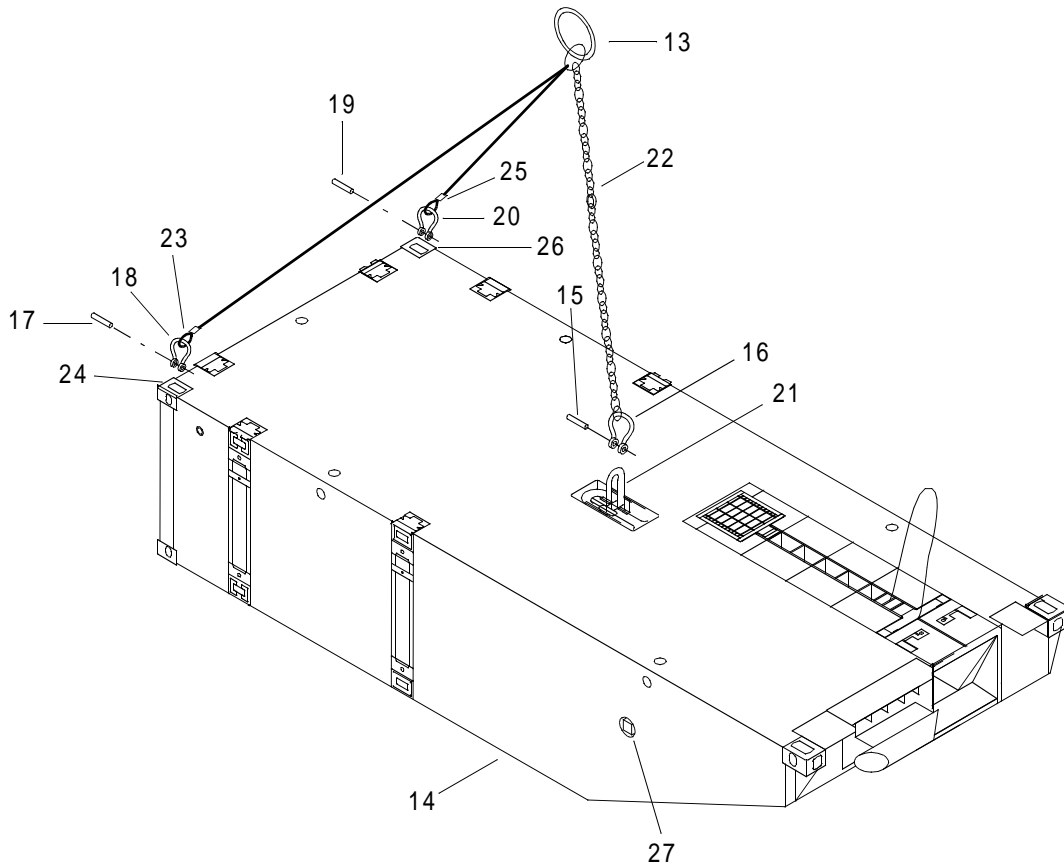
DISASSEMBLE COMBINATION BEACH SEA END (CBSE) MODULE ISOPAK

1. Unlock four ISOPAK vertical connectors (1), one at each corner, by moving the lever (2).



2. Remove tie down cable (33) from end rake (14) and chain (34).
3. Remove tie down cable (35) from end rake (14) and shackle (36).
4. Remove pin (37) from shackle (36) and remove shackle (36).
5. Remove chain (34) from shackle (38).

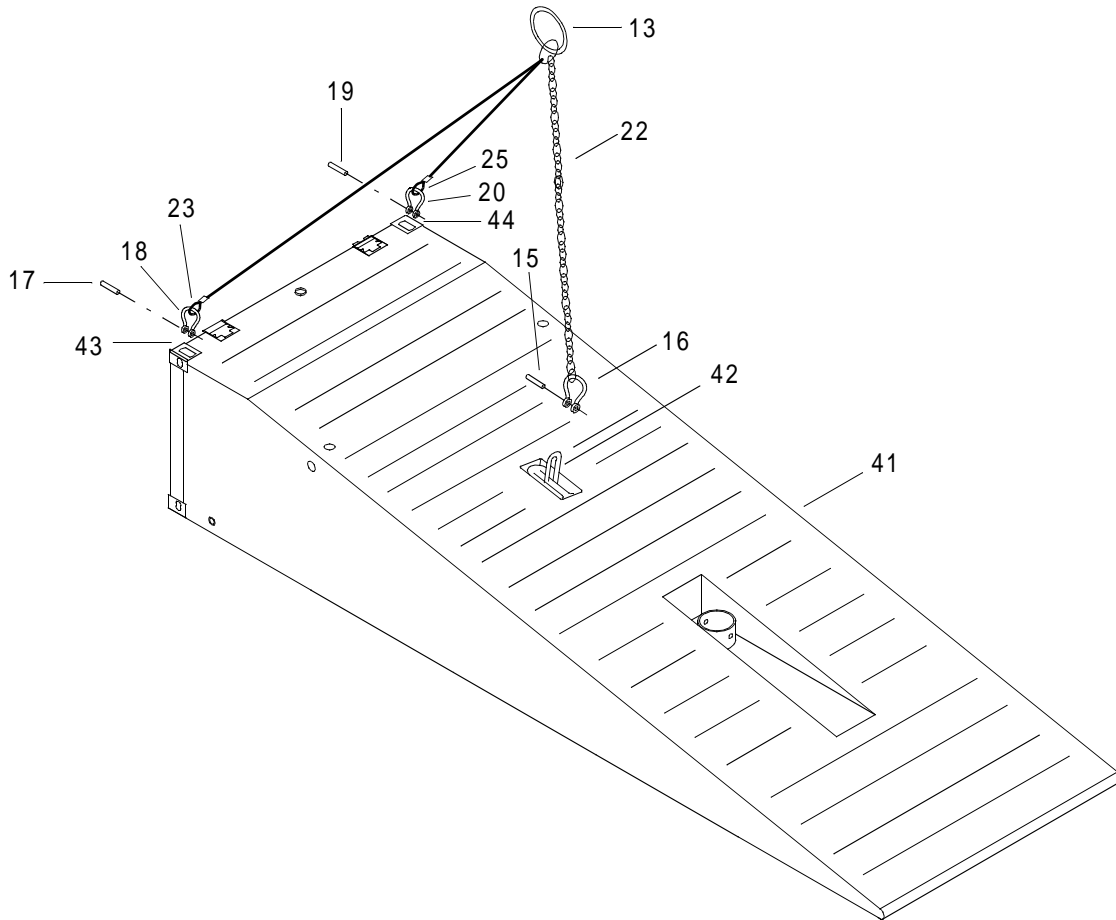
6. Remove pin (39) from shackle (38).
7. Remove shackle (38) from rhino horn fitting (40).
8. Install three leg sling (13) on end rake module (14).



- a. Remove shackle pin (15) from shackle (16).
- b. Remove shackle pin (17) from shackle (18).
- c. Remove shackle pin (19) from shackle (20).
- d. Insert shackle (16) through module lifting shackle (21) and chain (22).
- e. Install shackle pins (15) in shackle (16).
- f. Insert shackle (18) through sling eye (23) and module ISO fitting (24).
- g. Install shackle pin (17) in shackle (18).
- h. Insert shackle (20) through sling eye (25) and module ISO fitting (26).
- i. Install shackle pin (19) in shackle (20).

WARNING**HEAVY PARTS**

- j. Using crane and sling, remove end rake module (14).
9. Install three leg sling (13) on CBSE module (41).



- a. Remove shackle pin (15) from shackle (16).
- b. Remove shackle pin (17) from shackle (18).
- c. Remove shackle pin (19) from shackle (20).
- d. Insert shackle (16) through module lifting shackle (42) and chain (22).
- e. Install shackle pins (15) in shackle (16).
- f. Insert shackle (18) through sling eye (23) and module ISO fitting (43).
- g. Install shackle pin (17) in shackle (18).

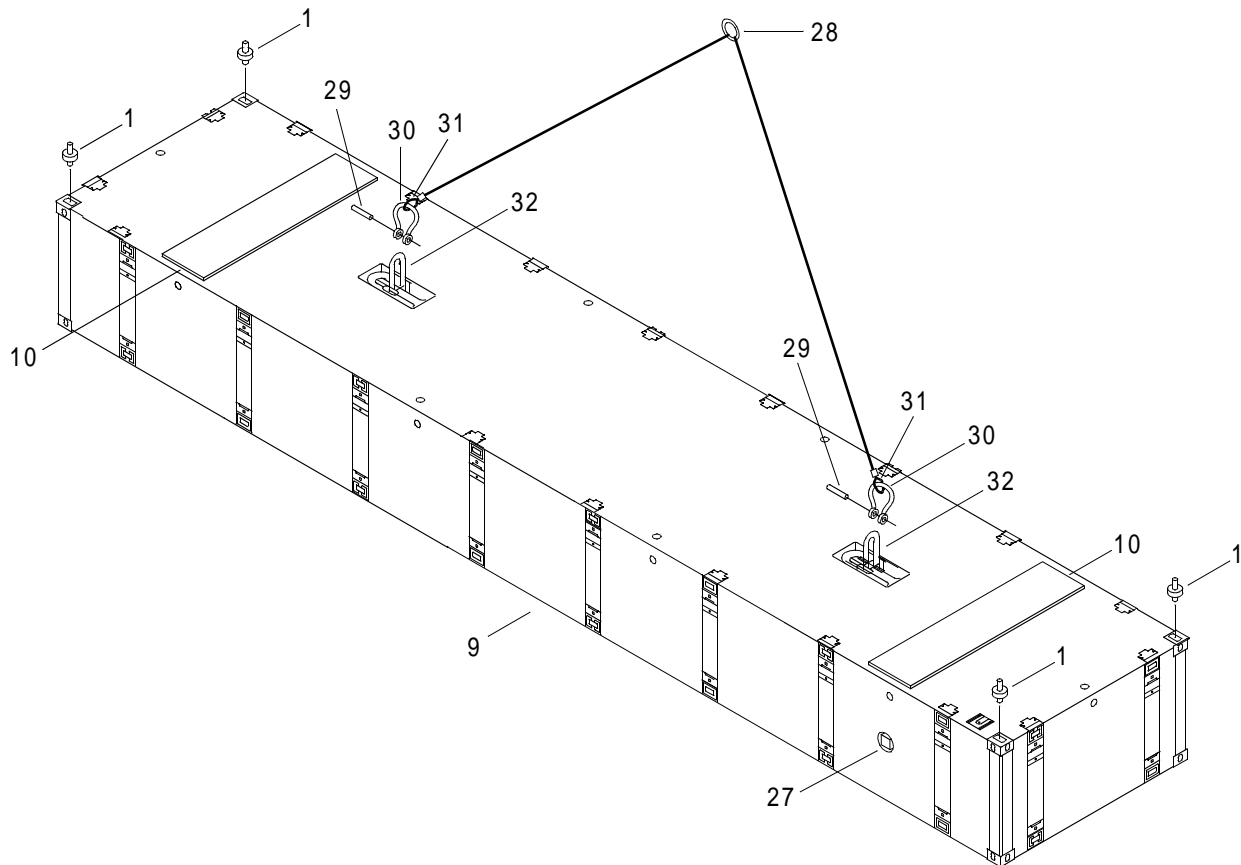
- h. Insert shackle (20) through sling eye (25) and module ISO fitting (44).
- i. Install shackle pin (19) in shackle (20).

WARNING



HEAVY PARTS

- j. Using crane and sling, remove CBSE module (41).
10. Remove connectors (1) and dunnage (10) from corners of center module (9).



NOTE

Drain plug location may vary.

11. Inspect modules to ensure drain plugs (27) are installed and tight in all modules.

WARNING

**HEAVY PARTS**

12. Lift center module (10).
 - a. Remove shackle pins (29) from shackles (30).
 - b. Insert shackle (30) and sling eye (31) through module lifting shackle (32).
 - c. Install shackle pins (29) in shackles (30).

WARNING

**HEAVY PARTS**

- d. Using crane and two leg sling (28), remove center module (10).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MALE AND FEMALE GUILLOTINE CONNECTORS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

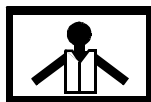
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0106 00)
Life Preserver, Vest (Item 31, WP 0104 00)
Gloves, Men's and Women's (Leather Palm) (Item 23, WP 0104 00)
Goggles, Sun, Wind and Dust (safety) (Item 25, WP 0104 00)
Helmet, Safety (Item 27, WP 0104 00)
Crowbar (Item 14, WP 0104 00)
Hammer, Hand (10 lb Sledge) (Item 26, WP 0104 00)

Personnel Required

Seaman 88K

**PREPARATION FOR USE - OPERATE MALE AND FEMALE
GUILLOTINE CONNECTORS**

WARNING



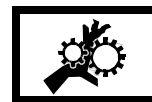
VEST



HELMET PROTECTION



HEAVY PARTS



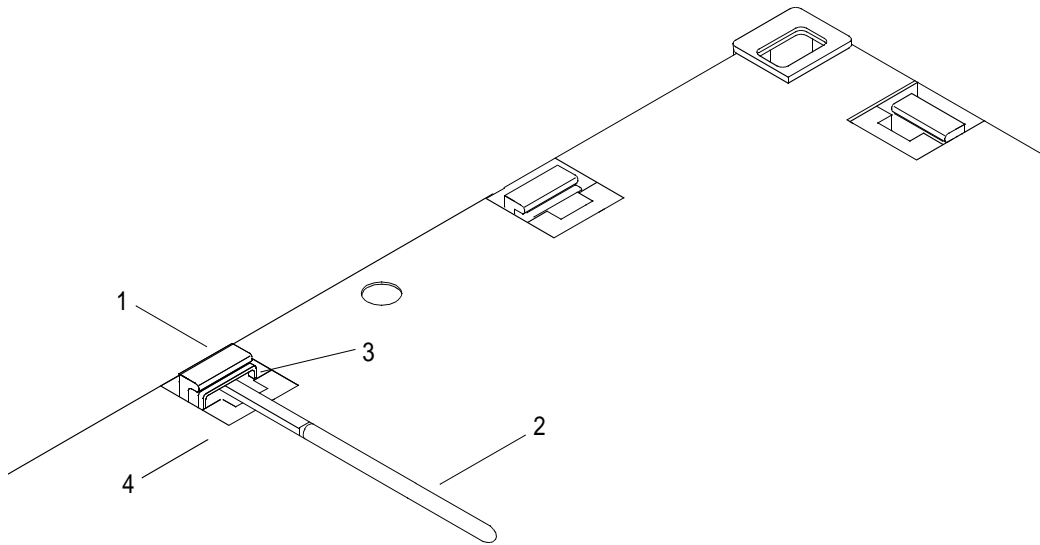
MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

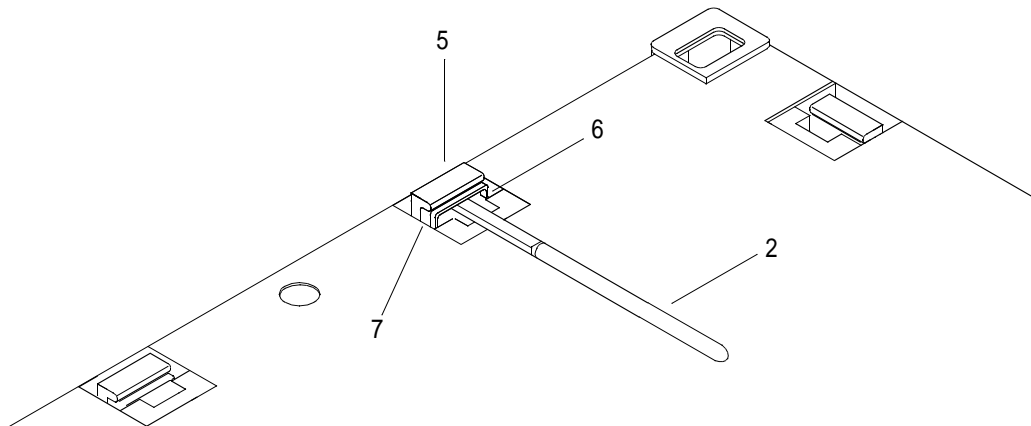
The following procedure is typical for all module side and end connectors.

1. Raise the female guillotine bars (1).



- a. Insert crowbar (2) behind the spring bar (3) under the female guillotine bar (1).
- b. Rotate the crowbar (2) downward to clear spring bar (3) from deck overhangs (4) and allow the female guillotine bar (1) to move upward.
- c. Raise the female guillotine bar (1) approximately 6 in. until it stops.

2. Raise the male guillotine bars (5).



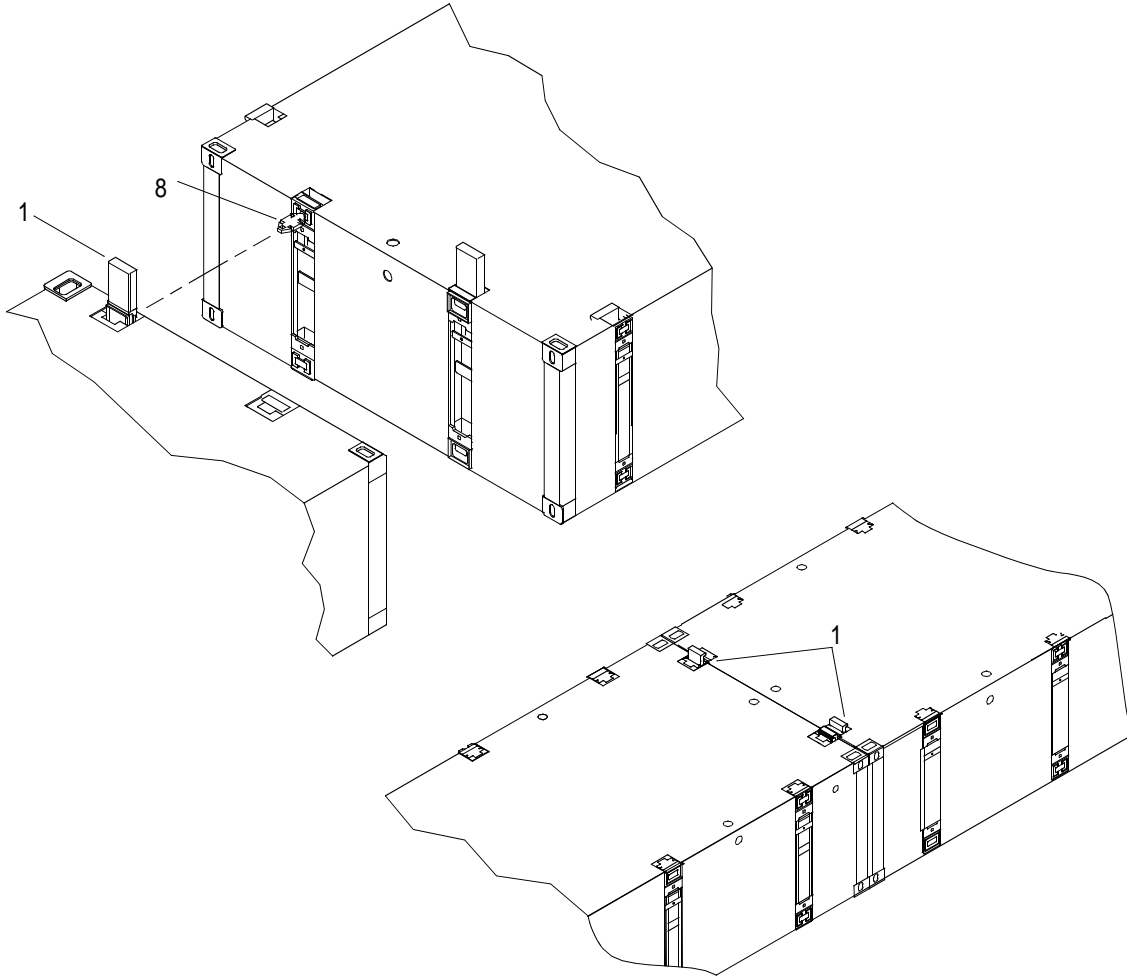
- a. Insert crowbar (2) behind the spring bar (6) under the male guillotine bar (5).
- b. Rotate the crowbar (2) downward to clear spring bar (6) from deck overhangs (7) and allow male guillotine bar (5) to move upward.

NOTE

Personnel should hear two clicks as both pins extend or, if the module is in the water, personnel should see the first pin extend and continue to pull up until one can hear or feel the second lower pin extend.

- c. Raise the male guillotine bar (5) approximately 6 in. until it stops, allowing male connector pins to fully extend.

- d. Remove the crowbar (2).
 - e. Drive the guillotine bar (5) back into stowed position using a sledgehammer to secure the male connector pins (8) in the fully extended position.
3. Position the modules to be connected so that the male connector pins (9) and female (1) connectors are aligned.



4. Using a sledgehammer, drive each female guillotine connector (1) down.
5. If the female guillotine does not close completely, lift the male guillotine bar two to three in. and repeat step three.
6. If female guillotine does not close completely, lift male guillotine bar two to three inches and repeat step 3.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
D-RING/CLOVERLEAF AND DECK CLEAT FITTINGS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

Tools

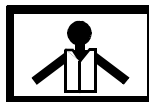
- Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0106 00)
- Life Preserver, Vest (Item 31, WP 0104 00)
- Gloves, Men's and Women's (Leather Palm) (Item 23, WP 0104 00)
- Goggles, Sun, Wind and Dust (safety) (Item 25, WP 0104 00)
- Helmet, Safety (Item 27, WP 0104 00)
- Crowbar (Item 14, WP 0104 00)
- Hammer, Hand (10 lb Sledge) (Item 26, WP 0104 00)

Personnel Required

Seaman 88K

PREPARATION FOR USE - INSTALLATION OF D-RING/CLOVERLEAF AND DECK CLEAT FITTINGS

WARNING



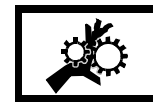
VEST



HELMET PROTECTION



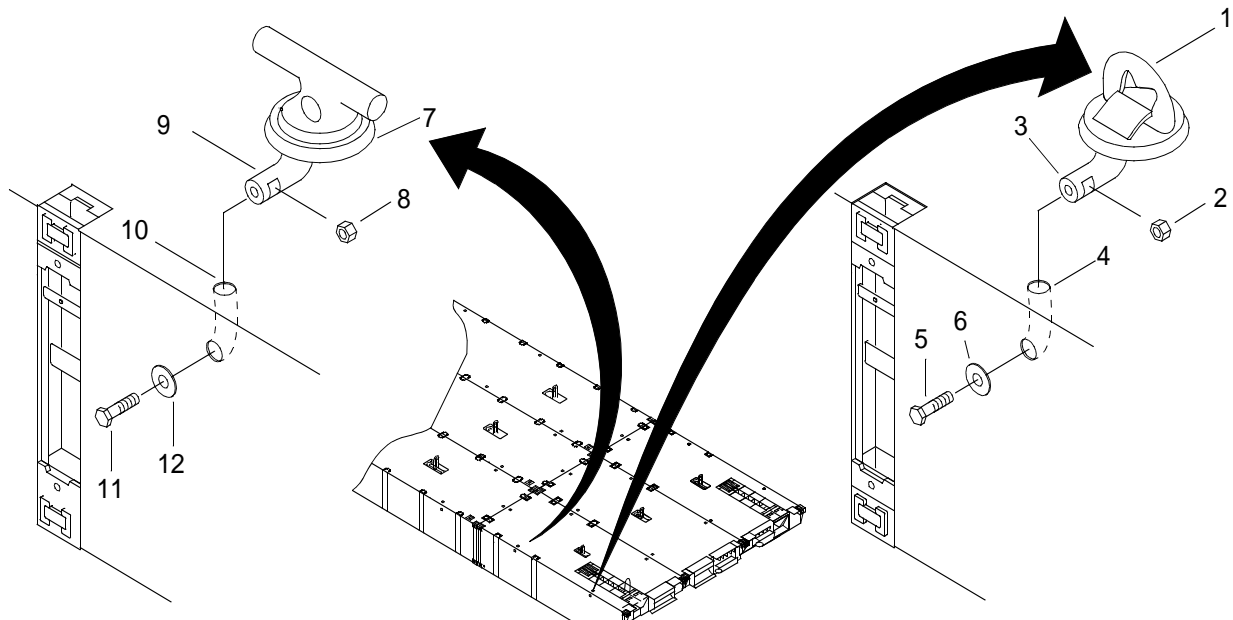
HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes, and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Install D-Ring/Cloverleaf fittings (1) on modules.



- a. Place nut (2) in slot in the tailpiece (3) of the D-Ring/Cloverleaf fitting (1).
- b. Insert D-Ring/Cloverleaf fitting (1) into module turn tube (4).

WARNING

Beware of other craft or objects coming alongside while working outboard installing the bolt and washer. Serious injury may result if body parts are crushed between module and other craft or objects.

Use extreme caution while working outboard and lifting heavy objects as the possibility of falling overboard exists, which could cause serious injury or death.

- c. Insert bolt (5) through keeper plate (6) and thread it into nut (2) in tailpiece (3).
 - d. Tighten bolt (5) securely.
2. Install deck cleat fitting (7) on modules.
 - a. Place nut (8) in slot in the tailpiece (9) of the deck cleat fitting (7).
 - b. Insert deck cleat fitting (7) into module turn tube (10).

WARNING

Beware of other craft or objects coming alongside while working outboard installing the bolt and washer. Serious injury may result if body parts are crushed between module and other craft or objects.

Use extreme caution while working outboard and lifting heavy objects as the possibility of falling overboard exists, which could cause serious injury or death.

- c. Insert bolt (11) through keeper plate (12) and thread it into nut (8) in tailpiece (9).
- d. Tighten bolt (11) securely.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MODULE STRINGS
OPERATION UNDER USUAL CONDITION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)

Personnel Required

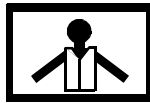
Seaman 88K

Equipment Condition

Module ISOPAK Disassembled (WP 0008 00)
 Operation Of Male And Female Guillotine Connectors (WP 0009 00)

PREPARATION FOR USE - ASSEMBLY OF MODULE STRINGS

WARNING



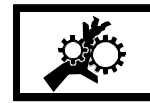
VEST



HELMET PROTECTION



HEAVY PARTS



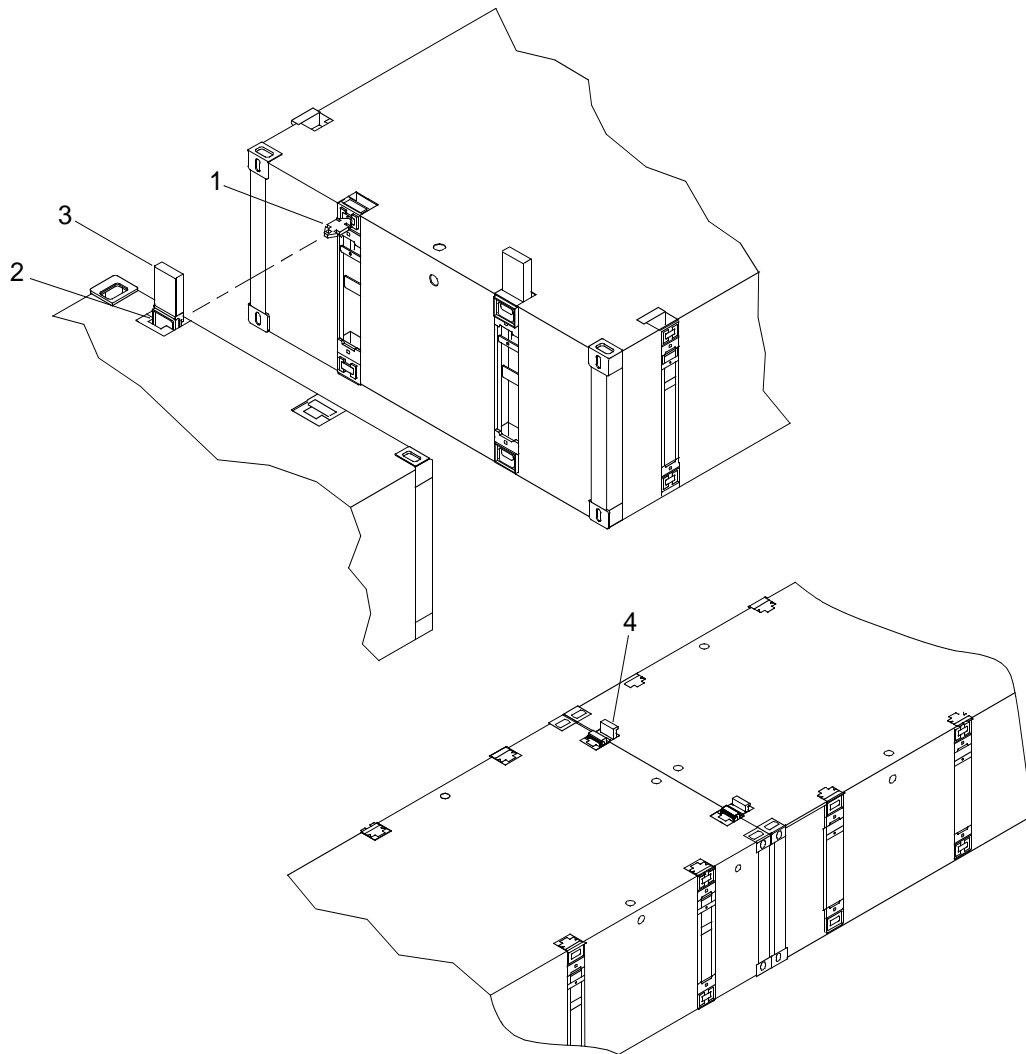
MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

Ensure that end rake modules and center module are completely aligned before locking the guillotine connectors.

1. Align male (1) and female (2) connectors on end rake module with connectors on center module.



2. As the extended and locked male connector pins (1) enter the female lock housing (2), use a sledgehammer to drive the female guillotine bar (3) downward into engagement with the extended male connector pin (1).
3. Lift male guillotine bar (4) 2 to 3 in. and repeat step two if female guillotine (3) does not close completely.
4. Attach end rake module to opposite end of center module.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)

Personnel Required

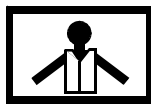
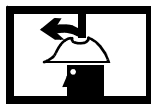
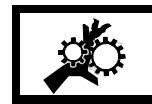
Seaman 88K

Equipment Condition

Module ISOPAK Disassembled. (WP 0008 00)
 Operation Of Male And Female Guillotine Connectors. (WP 0009 00)
 D-Rings/Cloverleaf Fittings And Deck Cleat Fittings Installed. (WP 0010 00)
 Module String Assembled. (WP 0011 00)

PREPARATION FOR USE - ASSEMBLY OF INTERMEDIATE SECTION

WARNING

**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

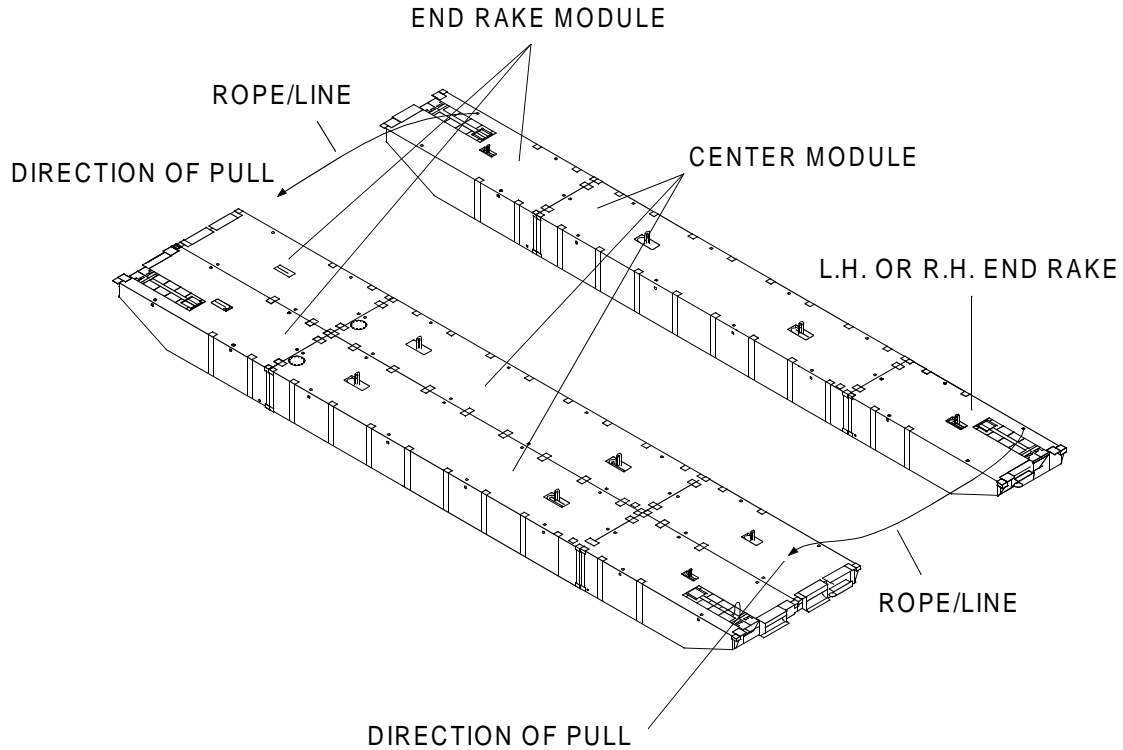
Place the hands on top or on the outside of ropes/lines so that in an emergency the lines can be released quickly to preclude being pulled into the equipment. Failure to observe these precautions could result in serious injury or death.

NOTE

Utilize fenders when bringing strings along side.

1. Pull strings together using rope/lines.

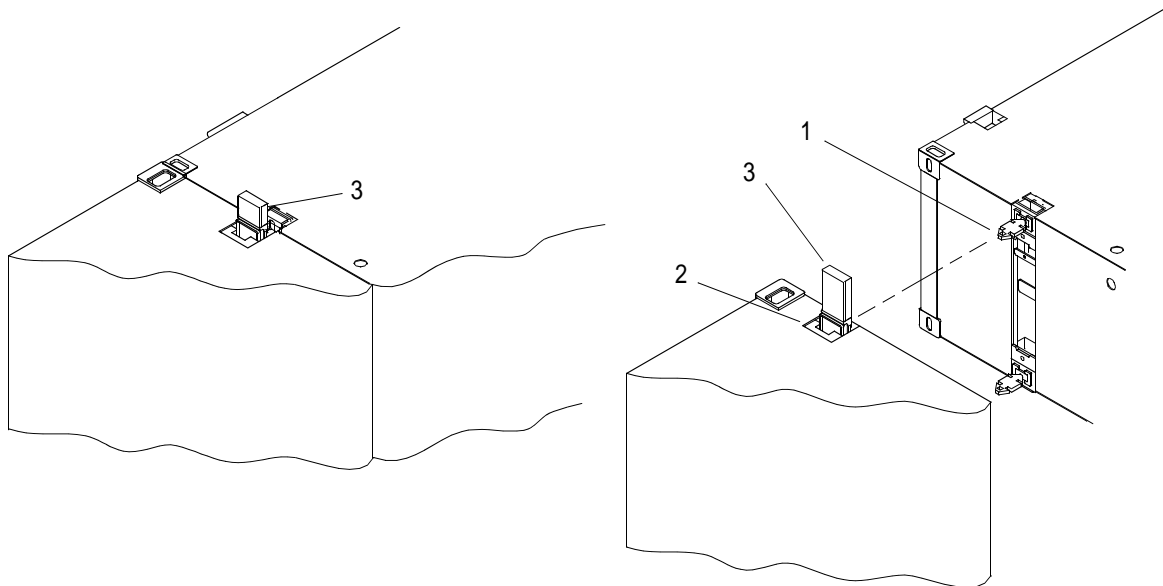
- Align male and female guillotine connectors so that the tapered surfaces of each connector is in general alignment.



NOTE

Ensure the strings are completely aligned before locking the connectors.

- As the locked male connector pin (1) enters the female lock housing (2) use a sledgehammer to drive the female guillotine bar (3) downward into engagement with the extended connector pins (1).

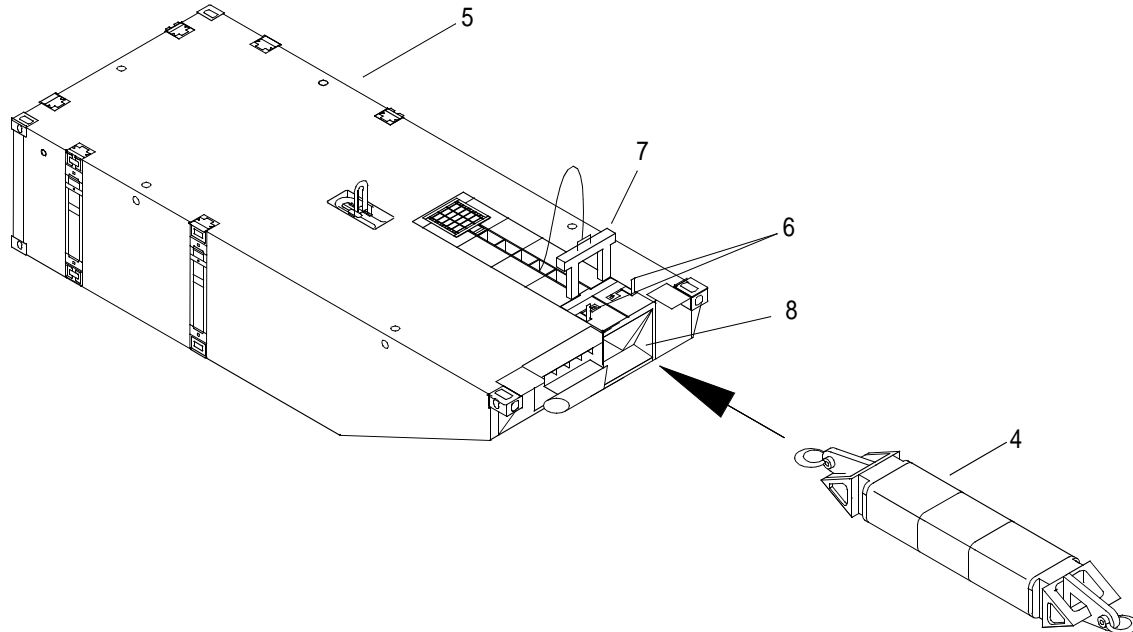


- If female guillotine does not close completely, lift male guillotine bar two to three inches and repeat step 3.

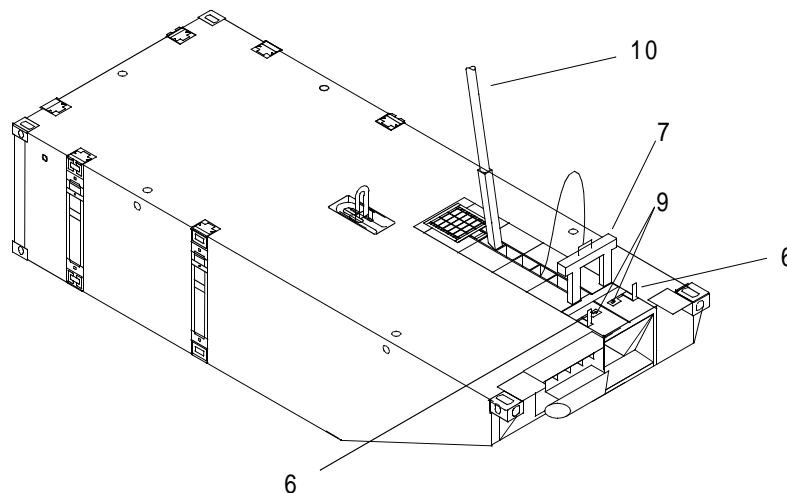
WARNING

The flexor connector weighs approximately 1400 pounds. Failure to use caution during handling could cause severe injury or death to personnel.

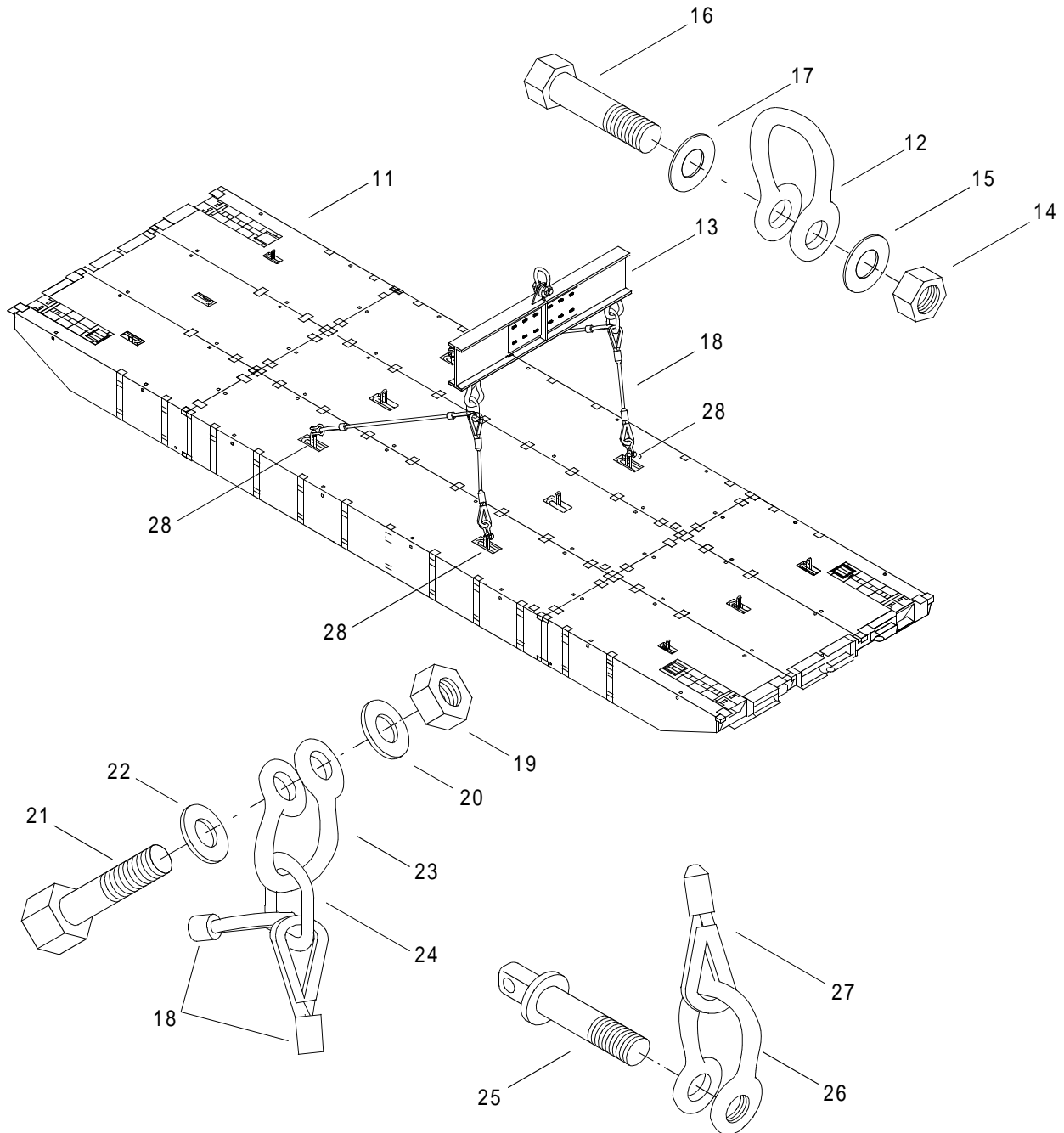
5. Install flexor connectors (4) in left end rakes (5).



- a. Rotate and pull the chute bolts (6) to the unlocked position.
- b. Lift the guillotine plate (7) up from the slots.
- c. Lift the flexor connector (4) using a forklift or crane and insert the flexor connector (4) into the left end rake flexor pocket (8).
- d. Push the flexor connector (4) into the flexor pocket (8) until the flexor connector (4) is fully stowed.
- e. Insert the guillotine plate (7) into the flexor connector pocket (9). Use a crowbar (10) to position flexor connector (4).



- f. Drive the guillotine (7) into the flexor slot (9). Use a sledgehammer.
- g. Push the chute bolts (6) to the locked position and rotate.
6. Lift the intermediate section (11).



- a. Install 110 ton shackle (12) on spreader beam (13).
- {1} Remove nut (14) and washer (15) from shackle bolt (16).
- {2} Remove bolt (16) and washer (17) from shackle (12).

-
- {3} Align hole in spreader beam (13) with holes in shackle (12).
 - {4} Install shackle bolt (16) and washer (17) through shackle (12) and spreader beam (13).
 - {5} Install washer (15) and nut (14) on shackle bolt (16).
 - {6} Tighten nut (14).

NOTE

This step is typical for both two leg bridle slings.

- b. Install two leg bridle sling (18) on spreader beam (13).
 - {1} Remove nut (19) and washer (20) from shackle bolt (21).
 - {2} Remove bolt (21) and washer (22) from 55 ton shackle (23).
 - {3} Insert two leg bridle sling master link (24) on shackle (23).
 - {4} Align holes in shackle (23) with hole on bottom of spreader beam (13).
 - {5} Install shackle bolt (21) and washer (22) through shackle (23) and spreader beam (13).
 - {6} Install washer (20) and nut (19) on bolt (21).
 - {7} Tighten nut (19).

NOTE

This step is typical for all four attachment points.

- c. Attach spreader beam (13) to intermediate module (11).
 - {1} Remove shackle pin (25) from 35 ton shackle (26).
 - {2} Install two leg bridle sling thimble (27) on shackle (26).
 - {3} Insert shackle (26) through intermediate section lifting lug (28).
 - {4} Install shackle pin (25) in shackle (26).

WARNING



HEAVY PARTS

- d. Using crane, lift intermediate section (11) and place in water.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)

Personnel Required

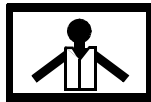
Seaman 88K

Equipment Condition

Module ISOPAK Disassembled. (WP 0008 00)
 Operation Of Male And Female Connectors. (WP 0009 00)
 D-Ring/Cloverleaf Fittings And Deck Cleat Fittings Installed. (WP 0010 00)
 Module String Assembled. (WP 0011 00)

**PREPARATION FOR USE - ASSEMBLY OF ROLL-ON/ROLL-OFF DISCHARGE
FACILITY COMBINATION BEACH/SEA END SECTION**

WARNING



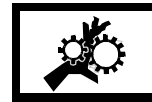
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

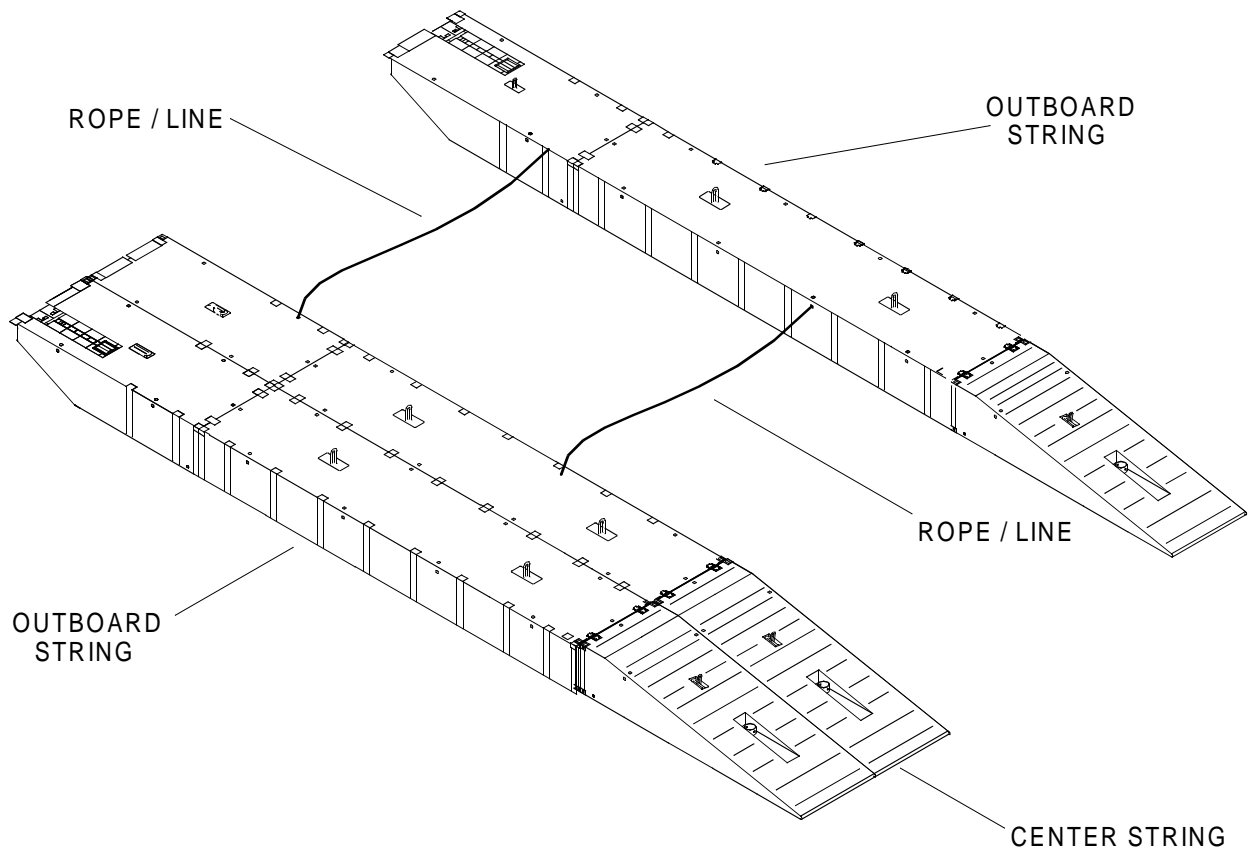
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Place hands on top or on the outside of ropes/lines so that in an emergency the lines can be released quickly to preclude being pulled into the equipment. Failure to follow these precautions could result in injury or death to personnel.

NOTE

The P3 Adaptor is used when the end rakes are to be mounted in an inverted position to provide an alternate configuration of the roll-on/roll-off discharge facility beach end section.

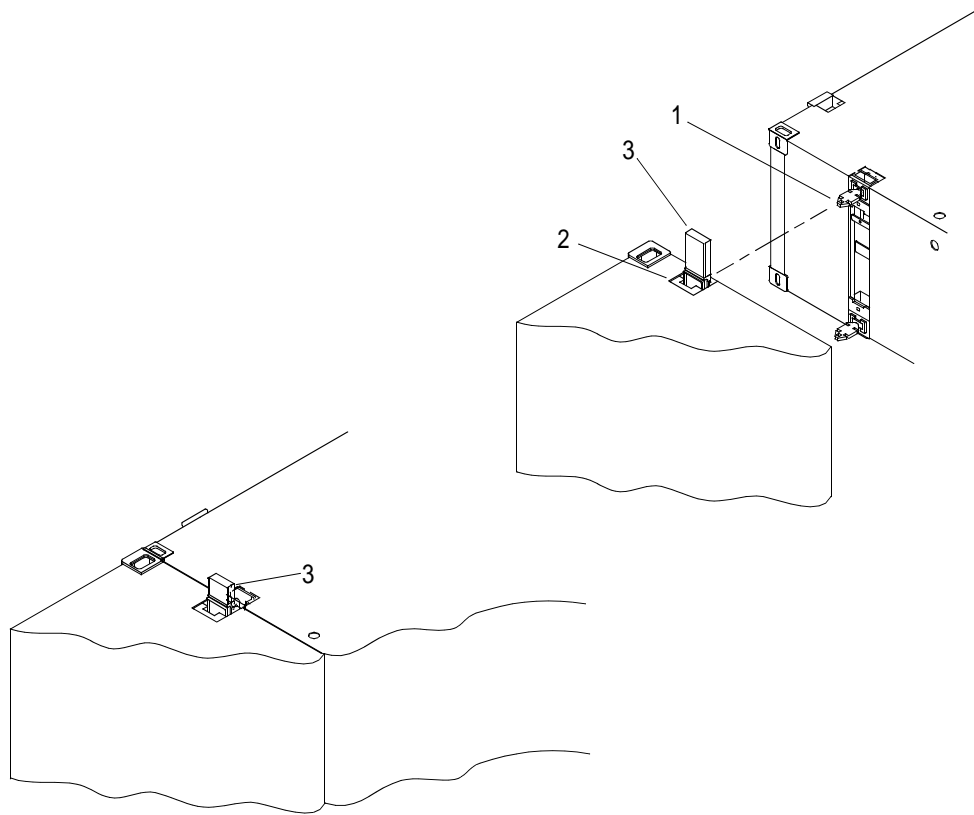
1. Pull the strings together using ropes/lines, flush turn tubes and deck cleats so that the tapered surfaces of male and female connectors mate together in general alignment.

**NOTE**

Ensure the strings are completely aligned before locking the connectors.

If female guillotine does not close completely, lift male guillotine bar 2 to 3 in. and repeat step two.

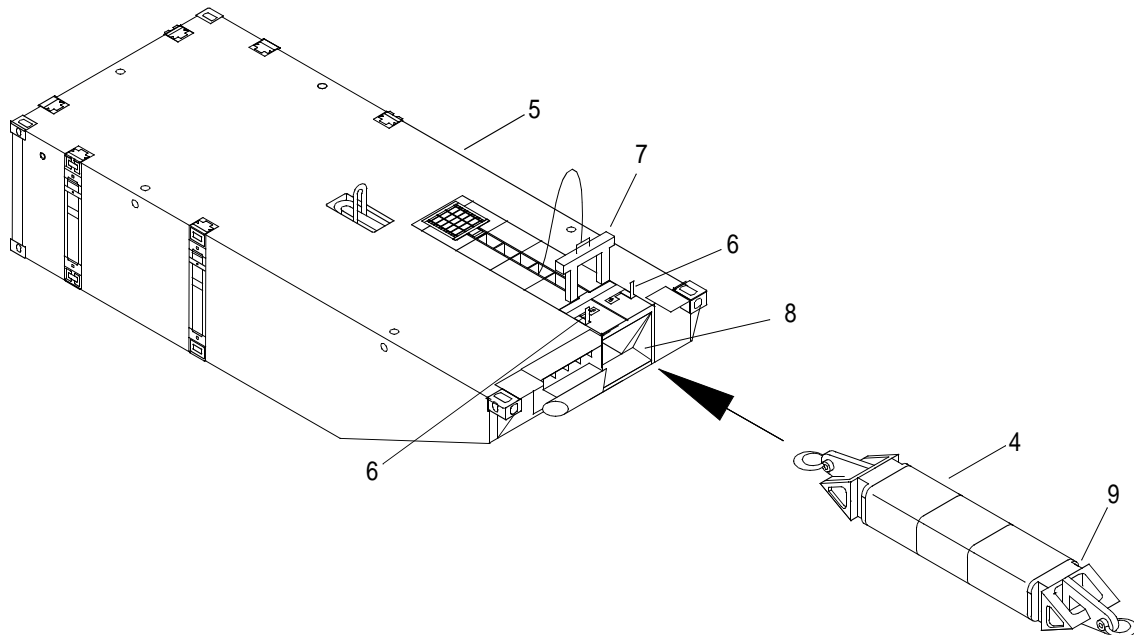
2. As the extended and locked connector pin (1) enters the female lock housing (2), use a sledgehammer to drive the female guillotine bar (3) downward into engagement with the extended connector pins (1).



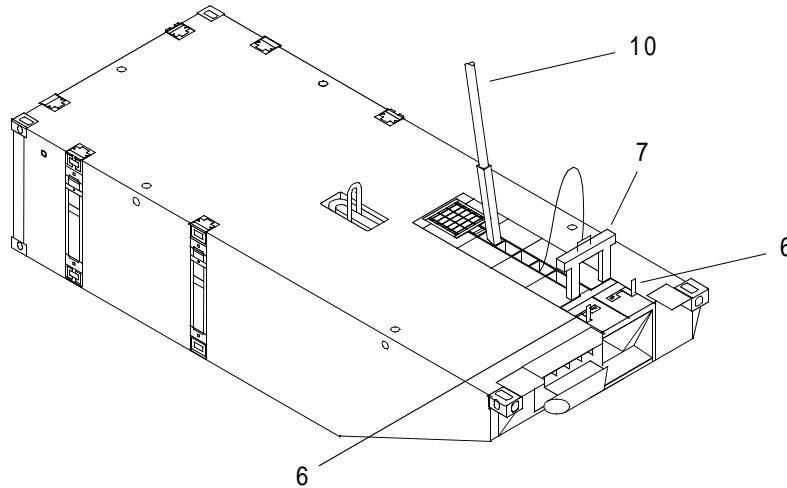
WARNING

The flexor connector weighs approximately 1400 pounds. Failure to use caution during handling could cause severe injury or death to personnel.

3. Install flexor connectors (4) in left end rakes (5).

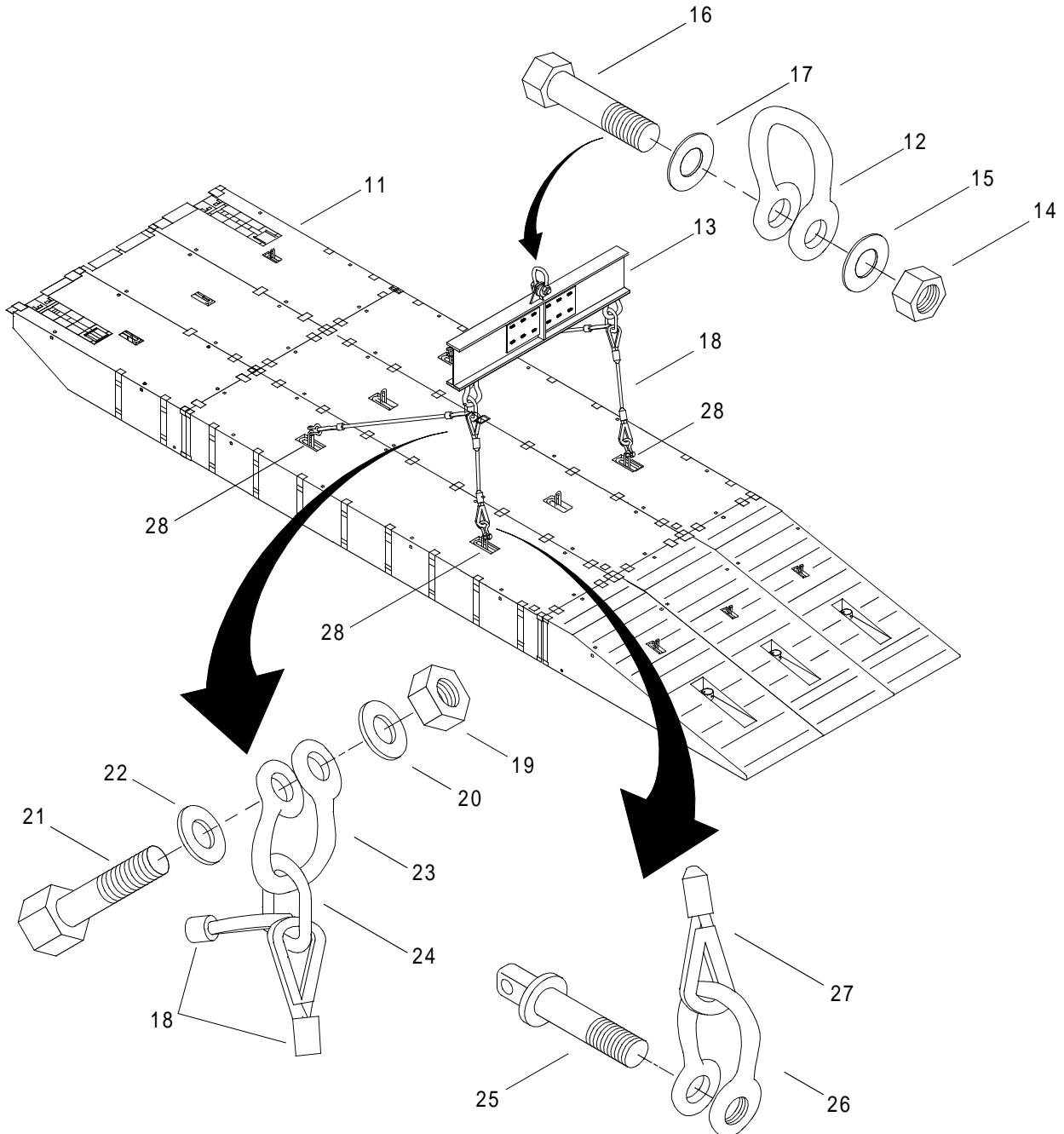


- a. Rotate and pull the chute bolts (6) to the unlocked position.
- b. Lift the guillotine plate (7) up from the slots.
- c. Lift the flexor connector (4) using a forklift or crane and insert the flexor connector (4) into the left end rake flexor pocket (8).
- d. Push the flexor connector (4) into the flexor pocket (8) until the flexor connector (4) is fully stowed.
- e. Insert the guillotine plate (7) into the flexor connector pocket (9). Use a crowbar (10) to position flexor connector (4).



- f. Drive the guillotine (7) into the flexor slot (9). Use a sledgehammer.
- g. Push the chute bolts (6) to the locked position and rotate.

4. Lift the roll-on/roll-off discharge facility combination beach/sea end section (11).



a. Install 110 ton shackle (12) on spreader beam (13).

{1} Remove nut (14) and washer (15) from shackle bolt (16).

{2} Remove bolt (16) and washer (17) from shackle (12).

{3} Align hole in spreader beam (13) with holes in shackle (12).

{4} Install shackle bolt (16) and washer (17) through shackle (12) and spreader beam (13).

{5} Install washer (15) and nut (14) on shackle bolt (16).

{6} Tighten nut (14).

NOTE

This step is typical for both two legged bridle slings.

b. Install two legged bridle sling (18) on spreader beam (13).

{1} Remove nut (19) and washer (20) from shackle bolt (21).

{2} Remove bolt (21) and washer (22) from 55 ton shackle (23).

{3} Insert two legged bridle sling master link (24) on shackle (23).

{4} Align holes in shackle (23) with hole on bottom of spreader beam (13).

{5} Install shackle bolt (21) and washer (22) through shackle (23) and spreader beam (13).

{6} Install washer (20) and nut (19) on bolt (21).

{7} Tighten nut (19).

NOTE

This step is typical for all four attachment points.

c. Attach spreader beam (13) to combination beach sea end section (11).

{1} Remove shackle pin (25) from 35 ton shackle (26).

{2} Install two legged bridle sling thimble (27) on shackle (26).

{3} Insert shackle (26) through causeway ferry beach end section lifting lug (28).

{4} Install shackle pin (25) in shackle (26).

WARNING



HEAVY PARTS

d. Using crane, lift causeway ferry beach end section (11) and place in water.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
SEGMENT
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)

Personnel Required

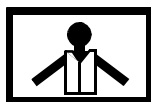
Seaman 88K

Equipment Condition

Module ISOPAK Disassembled. (WP 0008 00)
 Operation Of Male And Female Guillotine Connectors. (WP 0009 00)
 D-Ring/Cloverleaf Fittings And Deck Cleat Fittings Installed. (WP 0010 00)
 Module String Assembled. (WP 0011 00)
 Intermediate Section Assembled. (WP 0012 00)

PREPARATION FOR USE - ASSEMBLY OF SEGMENT

WARNING

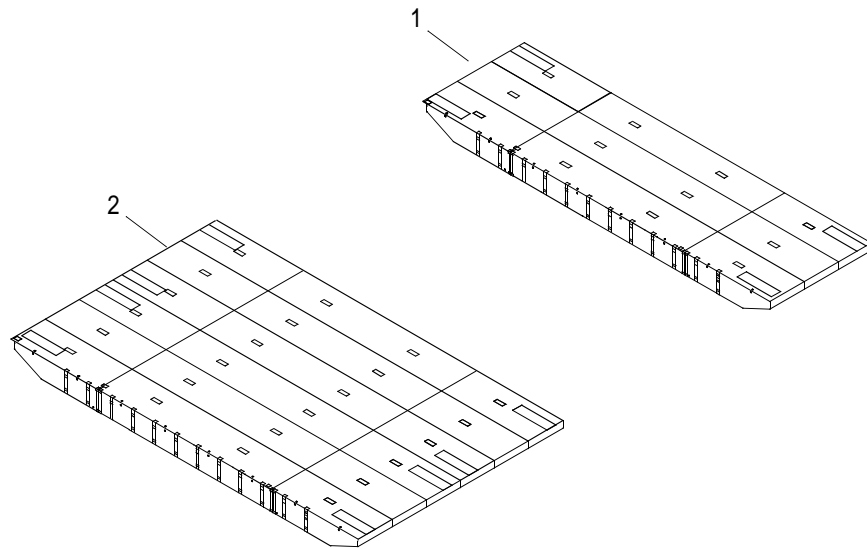
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The segment consists of one or more side connected intermediate sections.

1. Position intermediate sections (1) so that female connectors align with male connectors on the second intermediate section (2).

**NOTE**

Ensure intermediate sections are completely aligned before locking the connectors.

2. Operate male and female guillotine connectors. (WP 0009 00)

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PLATFORM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)

Personnel Required

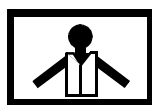
Seaman 88K

Equipment Condition

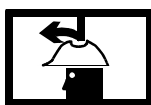
Module ISOPAK Disassembled. (WP 0008 00)
 Operation Of Male And Female Guillotine Connectors. (WP 0009 00)
 D-Ring/Cloverleaf Fittings And Deck Cleat Fittings Installed. (WP 0010 00)
 Module String Assembled. (WP 0011 00)
 Intermediate Section Assembled. (WP 0012 00)
 RRDF Segment Assembled. (WP 0014 00)

PREPARATION FOR USE - ASSEMBLY OF PLATFORM**ASSEMBLE A FULL SIDE CONFIGURATION**

WARNING



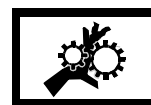
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

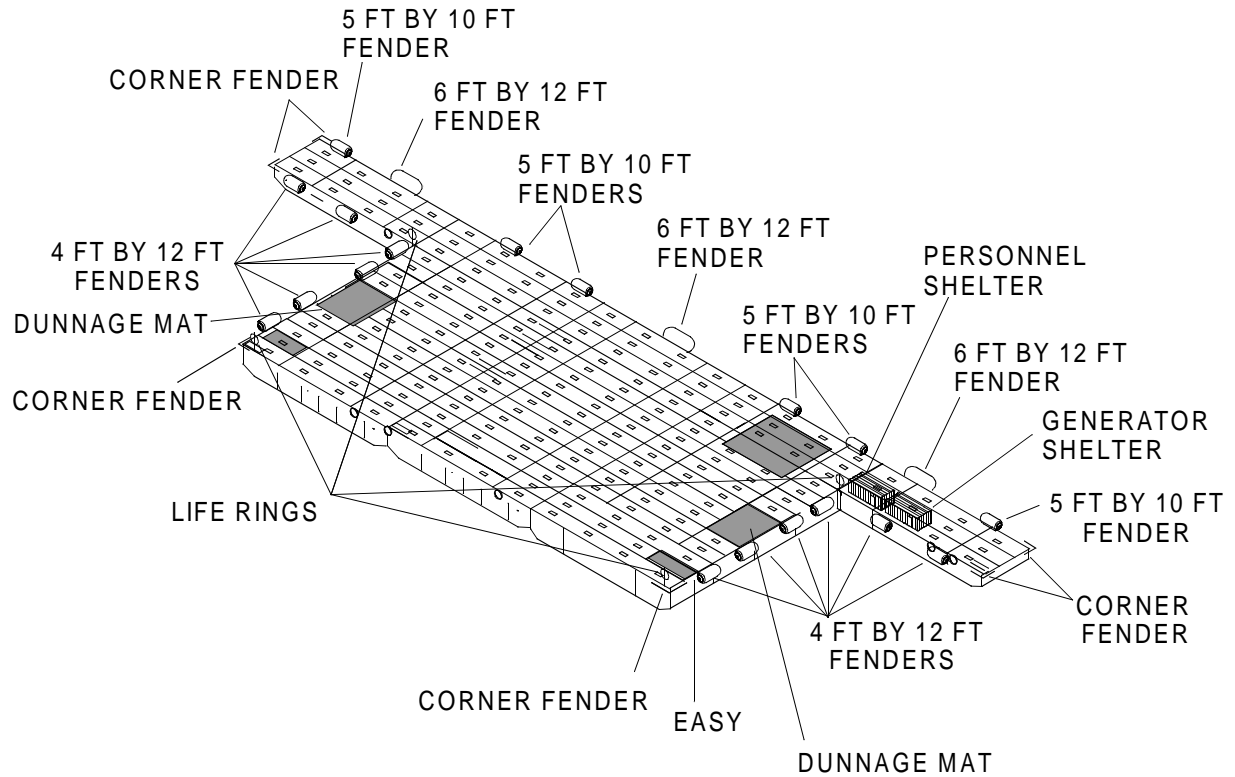
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Do not handle ropes/lines by placing hands in bight of the line where it feeds into cleats, etc. Place the hands on top or on the outside so that in an emergency the lines can be released quickly to preclude being pulled into the equipment. Failure to follow these precautions could result in serious injury or death.

1. Maneuver sections together using warping tugs, ropes/lines, flush turn tubes and lift lugs so that the tapered surfaces of male and female shear connectors mate together in general alignment.

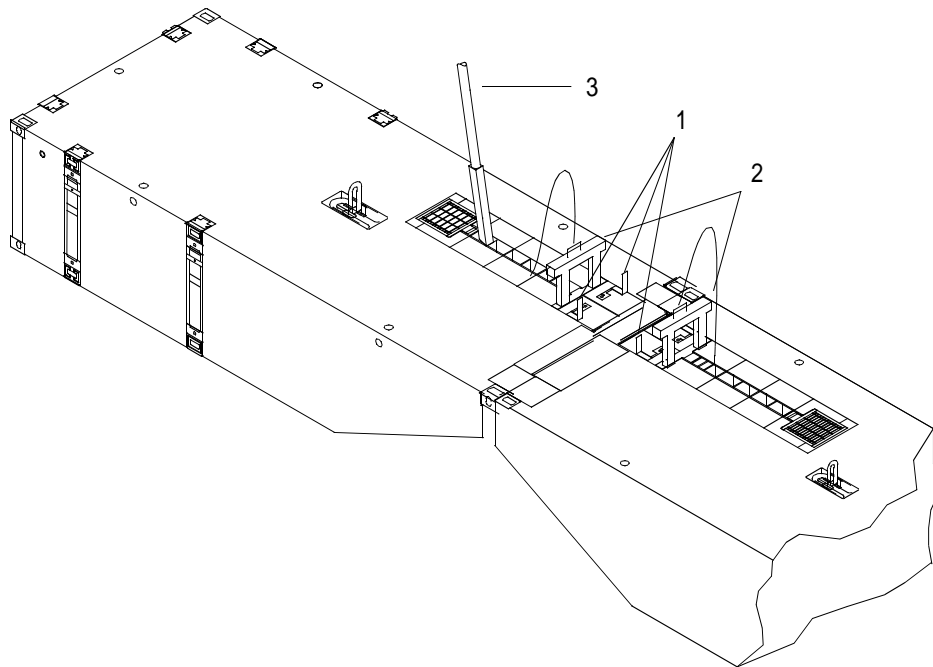
NOTE

The full RRDF side configuration consists of 17 intermediate sections.

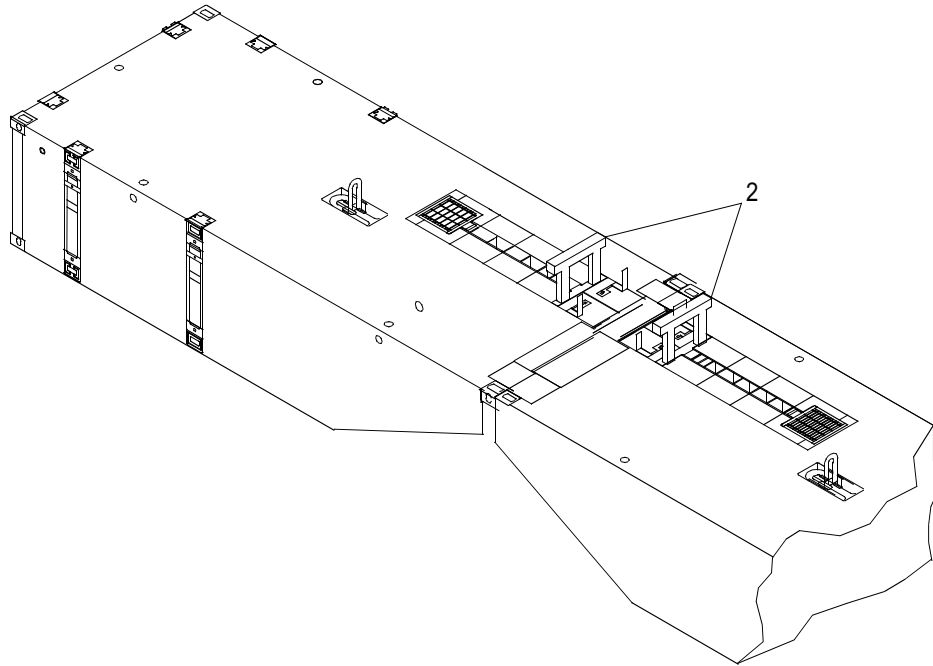


FULL RRDF SIDE CONFIGURATION

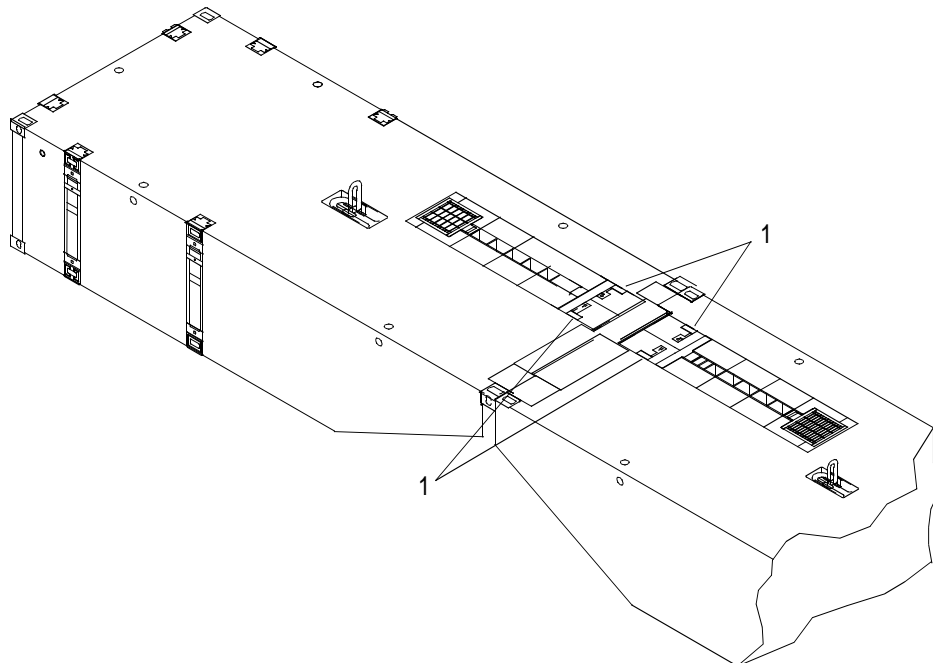
2. Rotate chute bolt handles (1) and pull the chute bolts (1) to the unlocked position.



3. Remove guillotines (2).
4. Push each flexor connector from the left end rake into the corresponding pocket of the right end rake until the guillotines (2) are aligned with the flexor connector slots.
5. Use a crowbar (3) to position flexor connector.
6. Insert guillotines (2).



7. Drive guillotines (2) down into flexor slot using a sledgehammer.
8. Push the chute bolts (1) to the locked position and rotate the chute bolts (1) to the closed position.



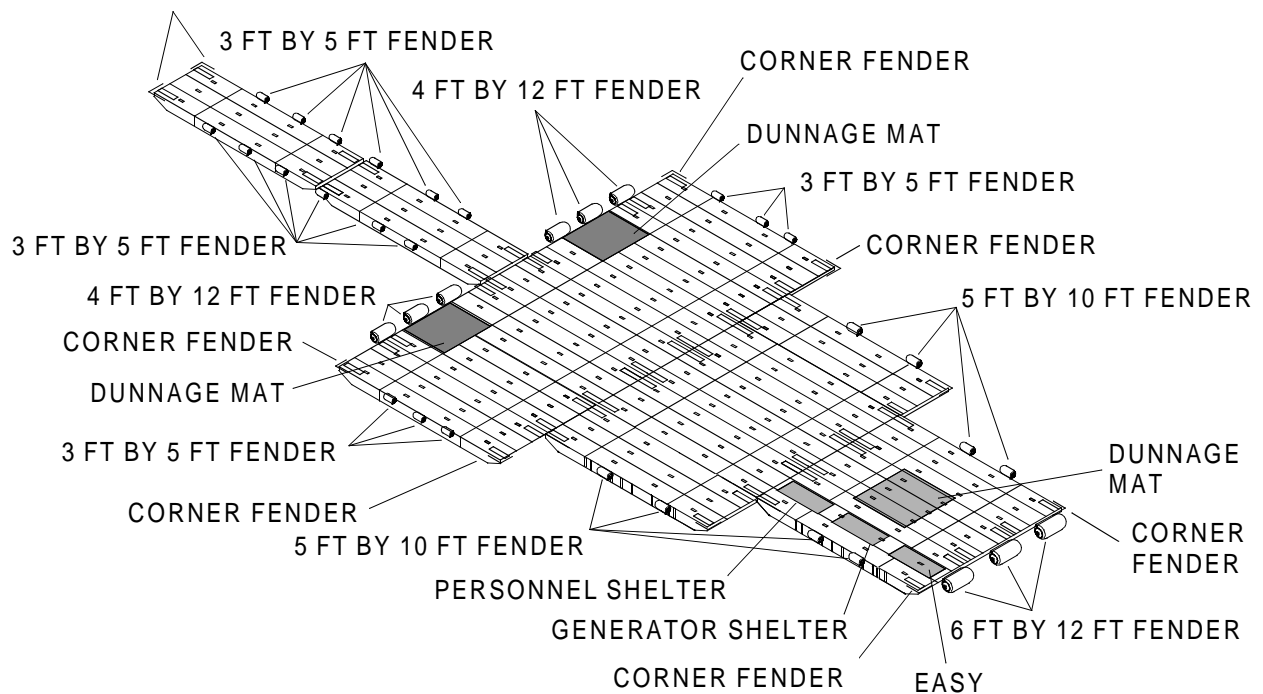
9. Install mooring bitts and quick disconnects. (WP 0016 00)
10. Install fenders. (WP 0018 00)
11. Install safety equipment. (WP 0019 00)
12. Install tactical quiet generator container. (WP 0020 00)
13. Install personnel shelter. (WP 0021 00)
14. Install Emergency Anchor System (EASY). (WP 0022 00)
15. Install light towers. (WP 0023 00)
16. Install dunnage mats. (WP 0019 00)

ASSEMBLE A FULL STERN CONFIGURATION

NOTE

The full RRDF stern configuration consists of nine intermediate sections.

CORNER FENDERS



FULL RRDF STERN CONFIGURATION

WARNING

Do not handle ropes/lines by placing hands in bight of the line where it feeds into cleats, etc. Place the hands on top or on the outside so that in an emergency the lines can be released quickly to preclude being pulled into the equipment. Failure to follow these precautions could result in serious injury or death.

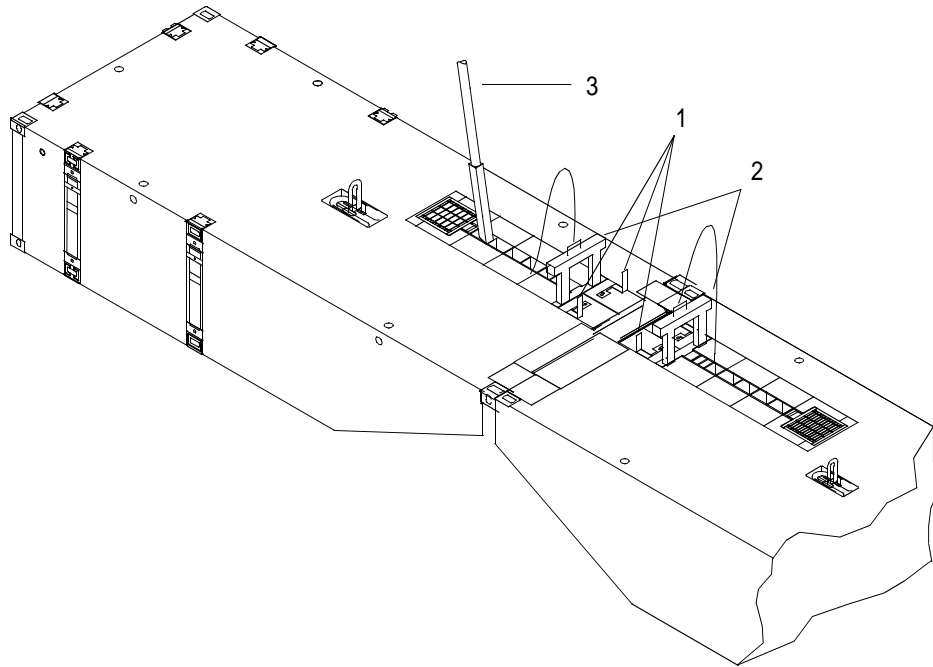
1. Maneuver sections together using warping tugs, ropes/lines, flush turn tubes and lift lugs so that the tapered surfaces of male and female shear connectors mate together in general alignment.

WARNING



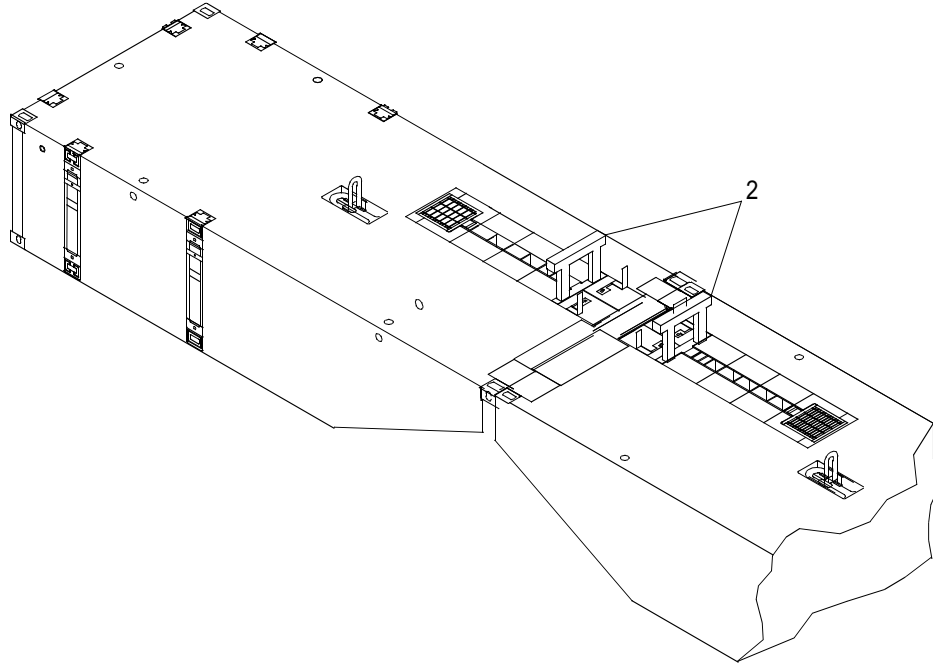
HEAVY PARTS

2. Rotate chute bolt handles (1) and pull the chute bolts (1) to the unlocked position.

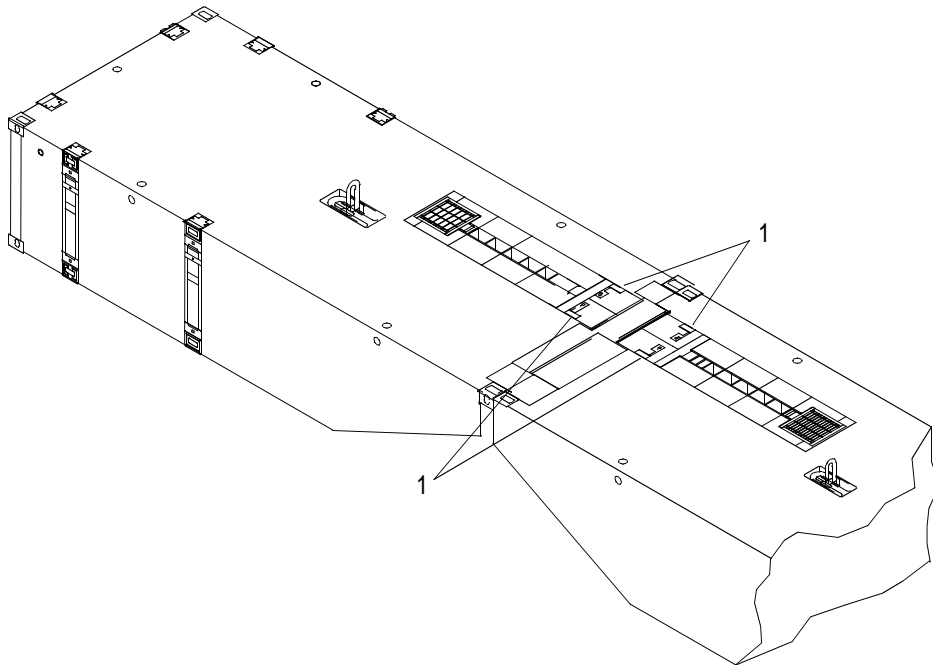


3. Remove guillotines (2).
4. Push each flexor connector from the left end rake into the corresponding pocket of the right end rake until the guillotines (2) are aligned with the flexor connector slots.
5. Use a crowbar (3) to position flexor connector.

6. Insert guillotines (2).



7. Drive guillotines (2) down into flexor slots using a sledgehammer.
8. Push the chute bolts (1) to the locked position and rotate the chute bolt handles (1) to the closed position.



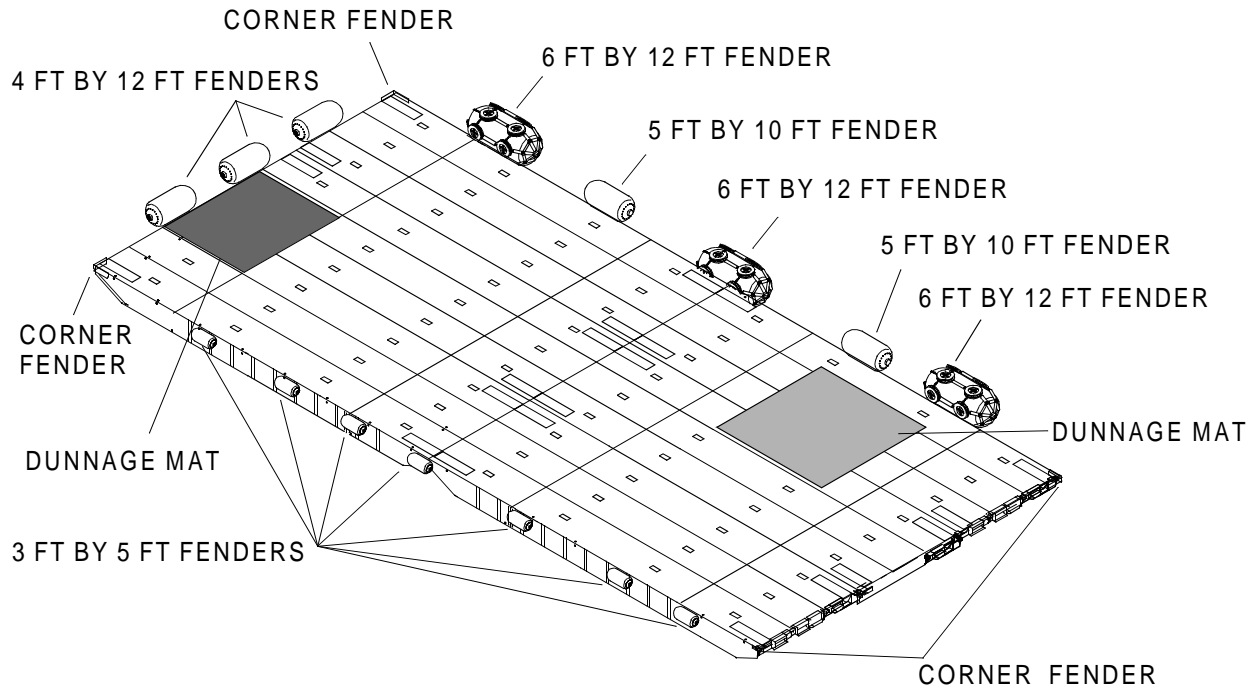
9. Install mooring bitts and quick disconnects. (WP 0016 00)
10. Install fenders. (WP 0018 00)
11. Install safety equipment. (WP 0019 00)

-
12. Install tactical quiet generator container. (WP 0020 00)
 13. Install personnel shelter. (WP 0021 00)
 14. Install Emergency Anchor System (EASY). (WP 0022 00)
 15. Install light towers. (WP 0023 00)
 16. Install dunnage mats. (WP 0019 00)

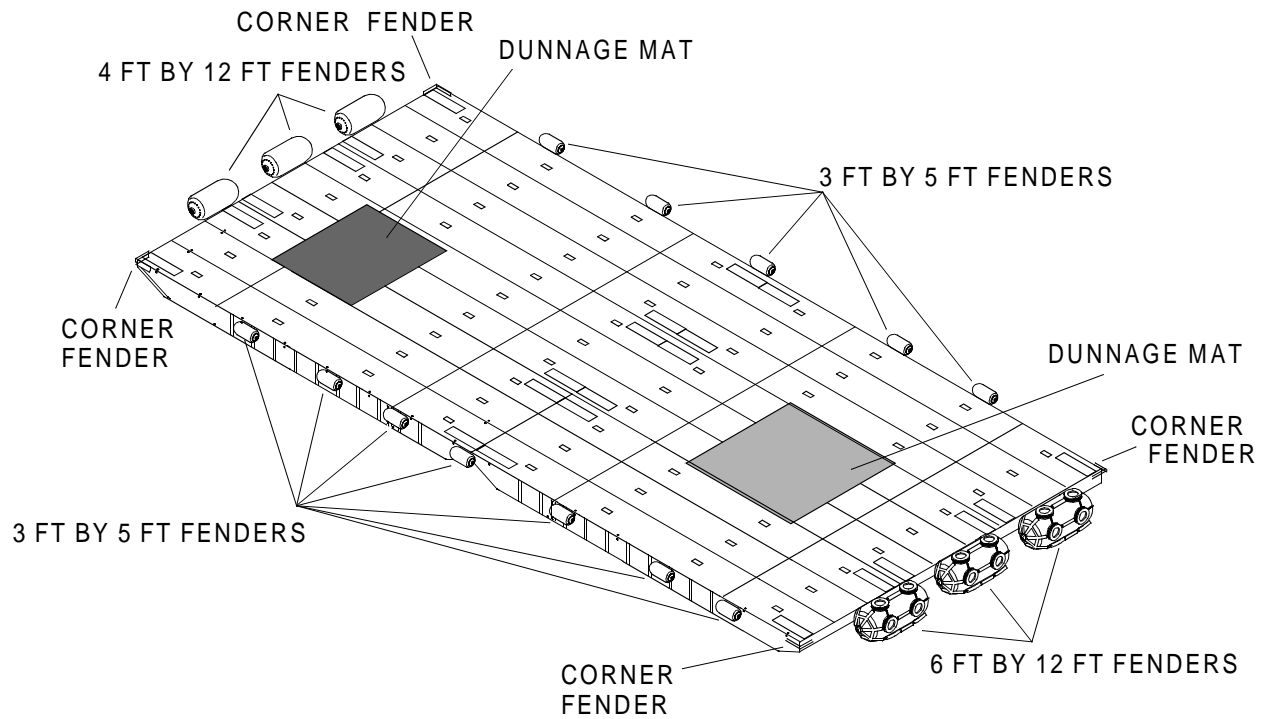
ASSEMBLE A FORCE OPENING CONFIGURATION

NOTE

The force opening configuration consists of two 3-wide segments.



FORCE OPENING RRDF SIDE CONFIGURATION

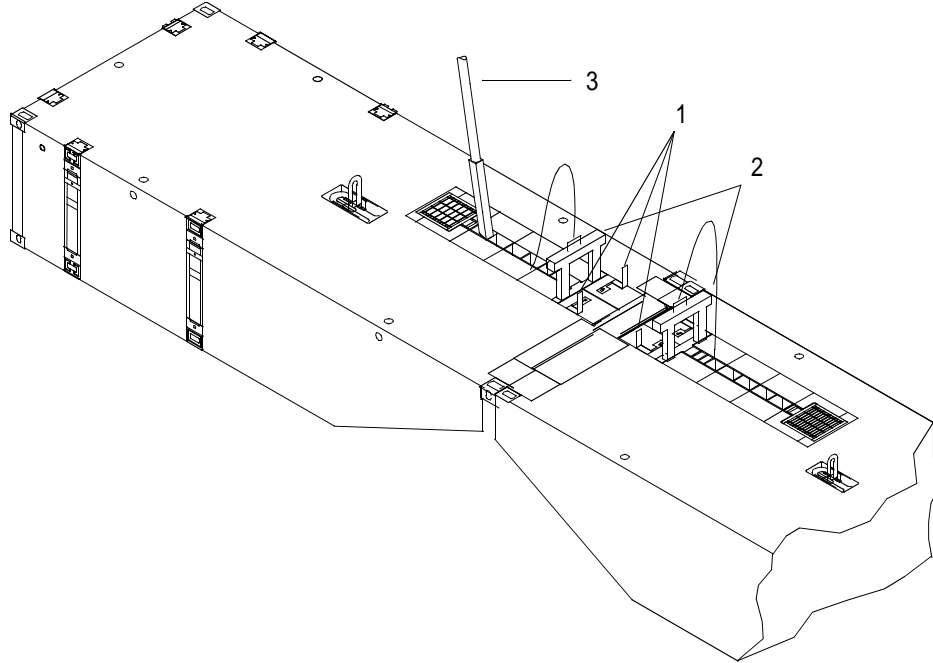


FORCE OPENING RRDF STERN CONFIGURATION

WARNING

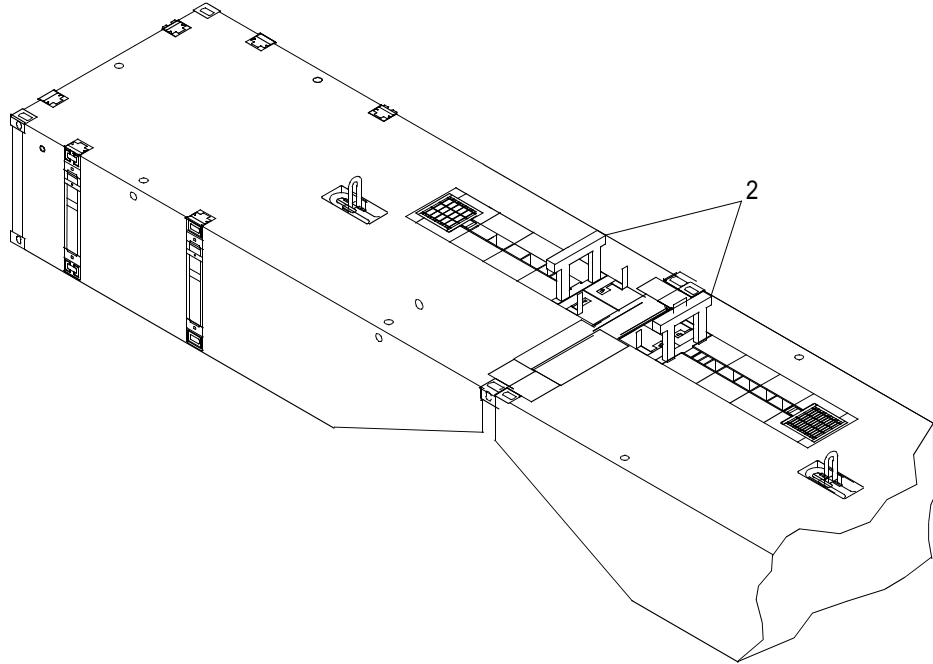
Do not handle ropes/lines by placing hands in bight of the line where it feeds into cleats, etc. Place the hands on top or on the outside so that in an emergency the lines can be released quickly to preclude being pulled into the equipment. Failure to follow these precautions could result in serious injury or death.

1. Maneuver sections together using warping tugs, ropes/lines, flush turn tubes and lift lugs so that the tapered surfaces of male and female shear connectors mate together in general alignment.
2. Rotate chute bolt handles (1) and pull the chute bolts (1) to the unlocked position.

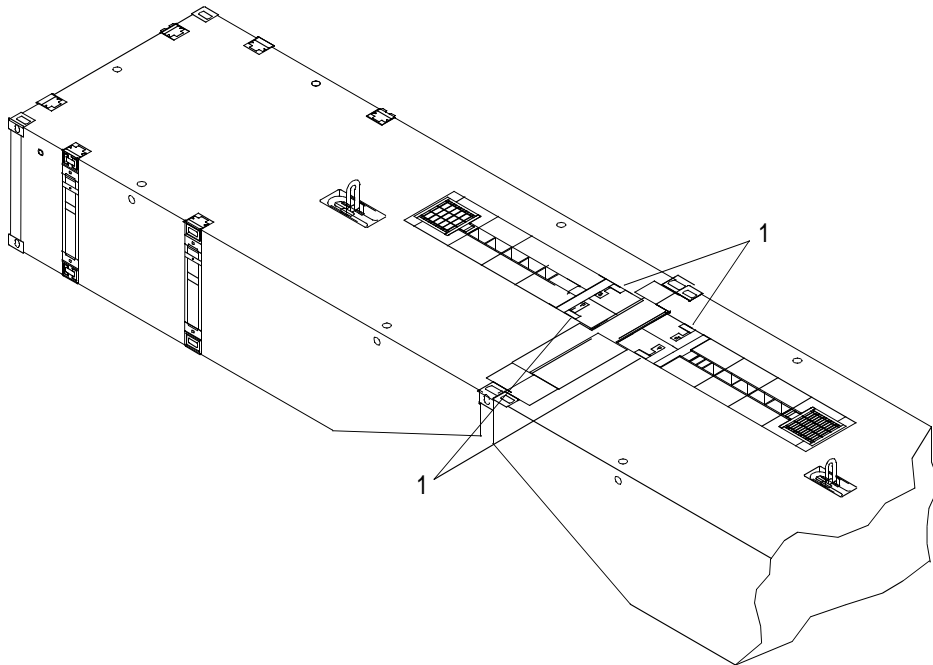


3. Remove guillotines (2).
4. Push each flexor connector from the left end rake into the corresponding pocket of the right end rake until the guillotines (2) are aligned with the flexor connector slots.
5. Use a crowbar (3) to position flexor connector.

6. Insert guillotines (2).



7. Drive guillotines (2) down into flexor slots using a sledgehammer.
8. Push the chute bolts (1) to the locked position and rotate the chute bolts (1) to the closed position.



9. Install mooring bits and quick disconnects. (WP 0016 00)
10. Install fenders. (WP 0018 00)
11. Install safety equipment. (WP 0019 00)

12. Install light towers. (WP 0023 00)

13. Install dunnage mats. (WP 0019 00)

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MOORING BITTS AND QUICK DISCONNECTS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)
 Forklift Fork Extenders (Item 21, WP 0119 00)
 Push Rod (Item 45, WP 0119 00)
 Chain, ½ in. General Purpose (Item 14, WP 0119 00)
 5300 lb 4 ft Sling (Green) (Item 50, WP 0119 00)

Personnel Required

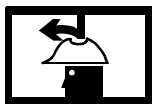
Seaman 88K

PREPARATION FOR USE - INSTALLATION OF MOORING BITTS AND QUICK DISCONNECTS**REMOVE MOORING BITTS FROM ISO CONTAINER**

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

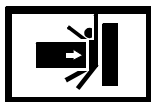


HEAVY PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Remove straps securing mooring bitt pallets to ISO container.

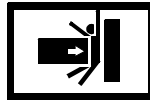
WARNING



HEAVY PARTS

2. Using forklift and fork extenders, remove first stack of pallets from ISO container.
3. Remove one fork extender from forklift and install push-pull rod.

WARNING

**HEAVY PARTS**

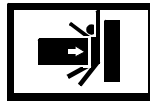
4. Using forklift and push-pull rod, hook second stack of pallets and pull pallets to ISO container door.
5. Remove fork lift push-pull rod and install fork extender.

WARNING

**HEAVY PARTS**

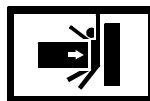
6. Using forklift, remove second stack of pallets from ISO container.
7. Remove one fork extender from forklift and install push-pull rod.

WARNING

**HEAVY PARTS**

8. Using forklift and push-pull rod, hook third stack of pallets and pull pallets to ISO container door.
9. Remove fork lift push-pull rod and install fork extender.

WARNING

**HEAVY PARTS**

10. Using forklift, remove third stack of pallets from ISO container.
11. Separate pallets from stacks.
12. Remove straps securing mooring bits to pallets.

INSTALL MOORING BITTS

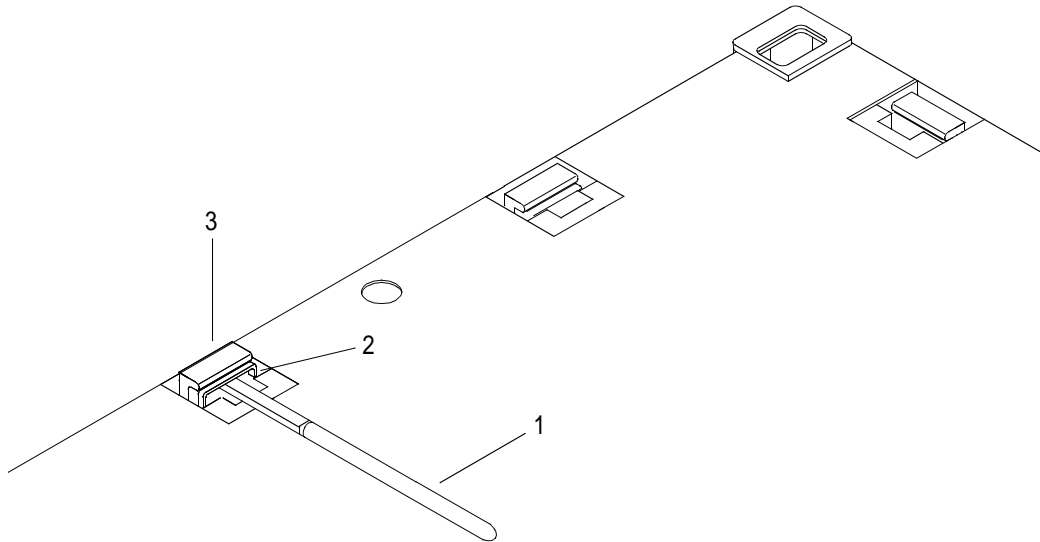
WARNING

Attempting to install mooring bitts on the RRDF in higher sea conditions than Sea State 0 could cause injury or possible death to personnel and/or damage equipment.

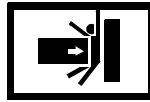
NOTE

Mooring bitts can only be installed on female connector assemblies.

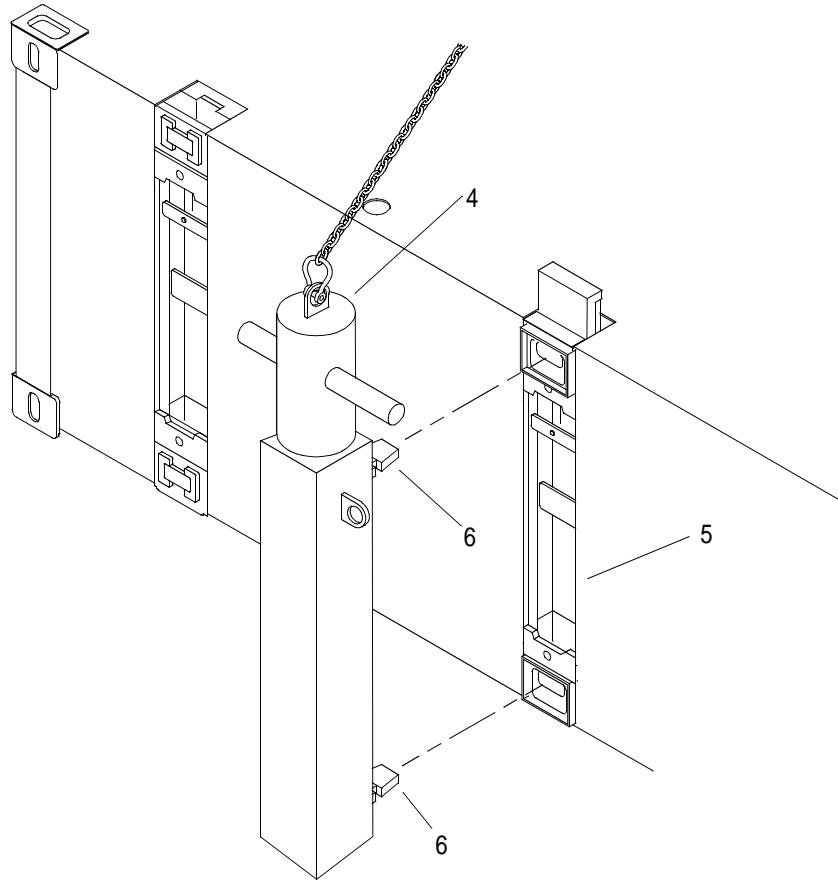
1. Raise female guillotine bar.
 - a. Insert crowbar (1) behind spring bar (2) under female guillotine bar (3).



- b. Rotate crowbar (1) downward to clear spring bar (2) from deck overhangs and allow female guillotine bar (3) to move upward.
 - c. Raise female guillotine bar (3) approximately six in. until it stops.
 - d. Remove crowbar (1).
 2. Lift mooring bitt using fork lift and lift chain for installation.

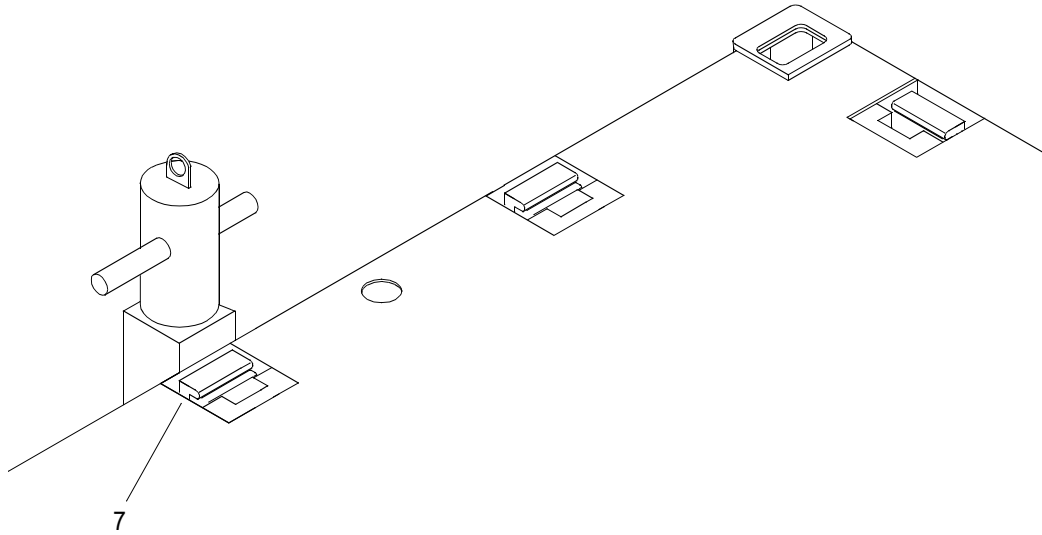
WARNING**HEAVY PARTS**

- a. Align mooring bitt (4) with female connector assembly (5).



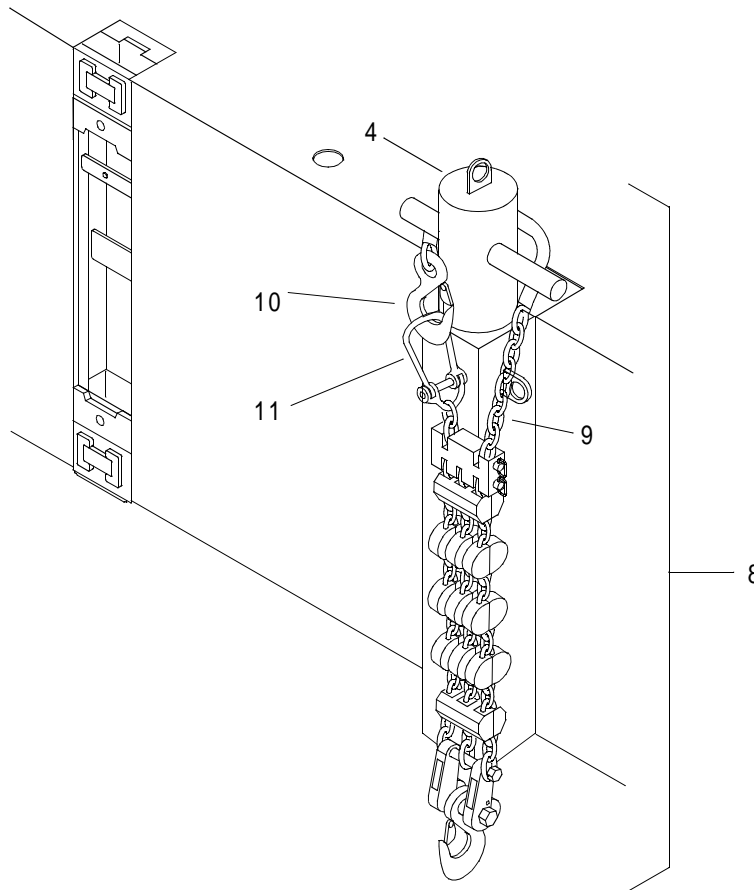
- b. Insert mooring bitt male connecting pins (6) into female connector assembly (5).

- c. Drive female guillotine bar (7) down using sledgehammer.



INSTALL QUICK DISCONNECT ASSEMBLY

1. Using forklift and sling, position quick disconnect assembly (8) beside the mooring bitt (4).



2. Wrap the mounting chain (9) around the mooring bit (4) and secure the pelican hook (10) to the half link (11).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TOWING BRIDLE, TOWING INTERFACE AND TOWING LIGHTS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 32, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 24, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 26, WP 0119 00)
 Helmet, Safety (Item 28, WP 0119 00)
 Lifting Device Assembly (Item 34, WP 0119 00)
 Forklift Adaptor (Item 20, WP 0119 00)
 Towing Lights (Item 57, WP 0119 00)
 Bridle, Towing (Item 31, WP 0118 00)
 Flexor Receiver Insert (Item 19, WP 0119 00)

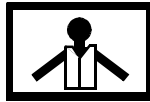
Personnel Required

Seaman 88K

PREPARATION FOR USE - INSTALLATION OF TOWING BRIDLE, TOWING INTERFACE AND TOWING LIGHTS

INSTALL TOWING INTERFACE AND BRIDLE

WARNING



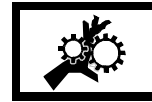
VEST



HELMET PROTECTION



HEAVY PARTS

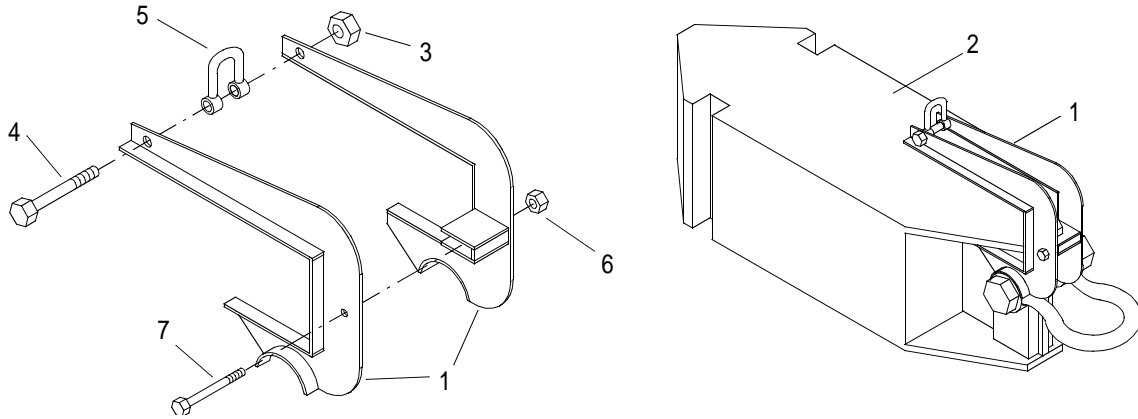


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Remove flexor lifting device (1) and flexor receiver inserts (2) from the BII container.

2. Attach flexor lifting device (1) to the flexor receiver insert (2).



- a. Remove nut (3) from bolt (4) and shackle (5) from the flexor lifting device (1).
- b. Remove nut (6) and bolt (7) from flexor lifting device (1).
- c. Position flexor lifting device (1) over flexor receiver insert (2).
- d. Install shackle (5) flexor receiver insert lifting device (1) and flexor receiver insert (2).

{1} Align shackle (5) and flexor lifting device (1).

{2} Install bolt (4) in flexor lifting device (1).

{3} Install nut (3) on bolt (4).

{4} Tighten nut (3) until snug.

- e. Install bolt (7) in the flexor lifting device (1) and flexor receiver insert (2).

{1} Install nut (6) on bolt (7).

{2} Tighten nut (6) until snug.

3. Install flexor receiver inserts in rake modules.

WARNING

Be sure no other floating objects are nearby that could come in contact with the soldier while installing the flexor receiver insert. Do not work alone. Failure to observe these precautions could result in death or injury to personnel.

- a. Attach a tag line to the inner end of the flexor receiver insert (2) to help in guiding it into the flexor pocket on the rake modules.

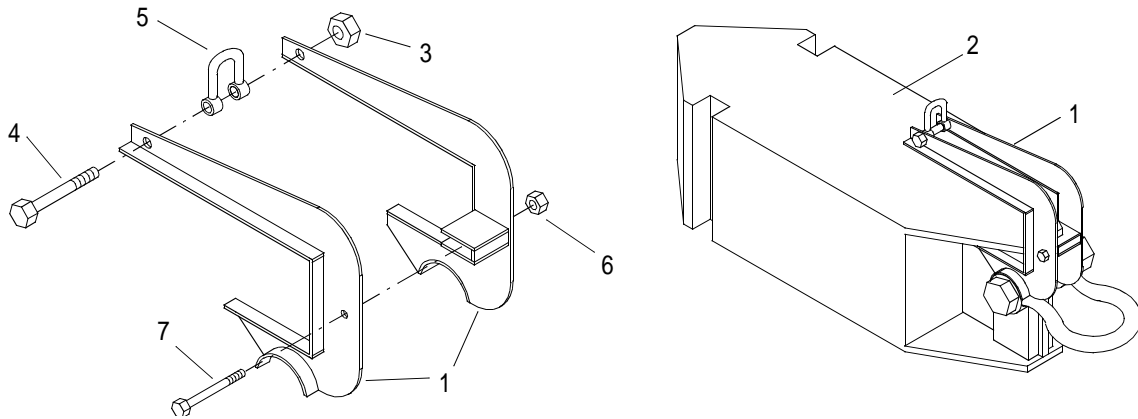
WARNING**HEAVY PARTS**

- b. Using the forklift adaptor and the flexor lifting device (1), place each flexor receiver insert (2) in the appropriate flexor pocket.
- c. Install the guillotine bar in the same manner as the flexors to secure to flexor insert receiver (2). (WP 0015 00)

WARNING

Be sure no other floating objects are nearby that could come in contact with the soldier while removing the lifting device. Do not work alone. Failure to follow these precautions could result in injury or death.

4. Remove the flexor lifting device (1).

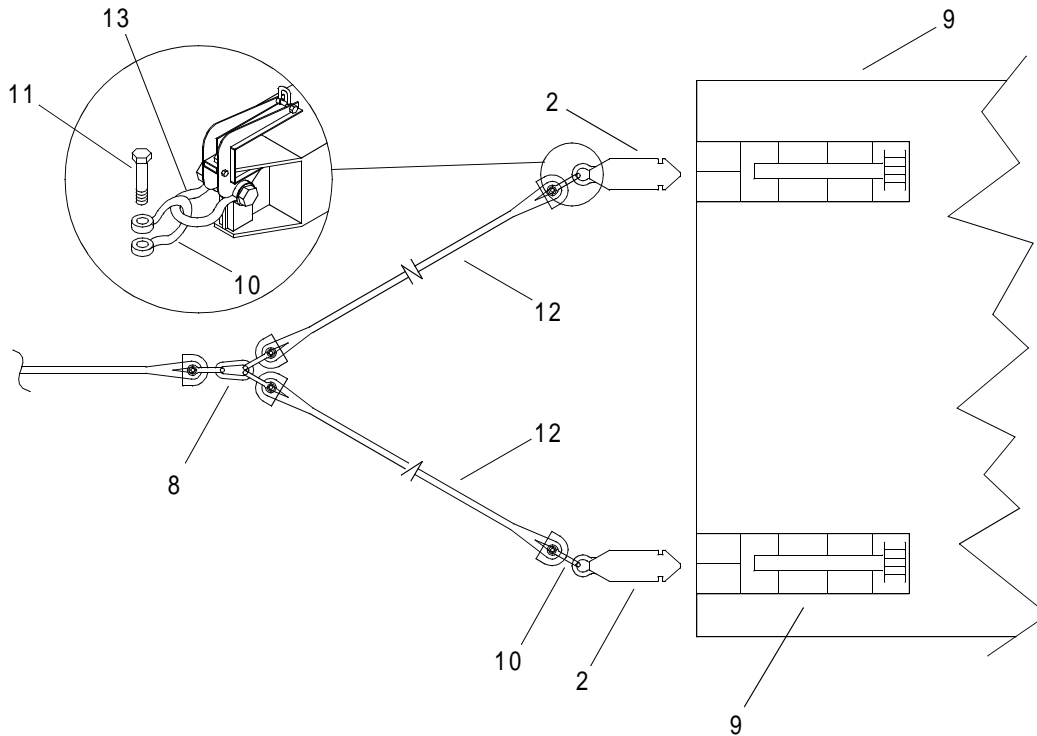


- a. Remove nut (3) from bolt (4).
 - b. Remove nut (6) from bolt (7).
 - c. Remove the flexor lifting device (1) by spreading the halves of the device to clear the shackle cheeks.
5. Repeat procedure for second flexor receiver insert.
 6. Stow flexor lifting device (1) in BII container, in original location, for use during disassembly.

INSTALL TOWING BRIDLE**WARNING**

Be sure no other floating objects are nearby that could come in contact with the soldier while installing the towing bridle. Do not work alone. Failure to observe these precautions could result in death or injury to personnel.

1. Using forklift and forklift adaptor, position towing bridle (8) over end rakes (9) of RRDF.
2. Attach towing bridle (8) to flexor receiver inserts (2).



3. Remove the two 2 in. shackles (10) and pins (11) from the ends of the mooring bridle legs (12).
4. Attach each mooring bridle leg 2 in. shackles (10) and pin (11) to each flexor insert 2 in. shackle (13).

INSTALL TOWING LIGHTS

1. Remove towing lights from BII container.
2. Install batteries in towing lights.
3. Place a towing light with green lens on right side of RRDF.
4. Place a towing light with red lens on left side of RRDF.
5. Place a towing light with amber lens on back of RRDF.
6. Place a towing light with white lens on front center of RRDF.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
FENDERS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR USE - INSTALLATION OF FENDERS

WARNING



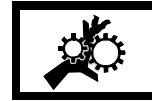
VEST



HELMET PROTECTION



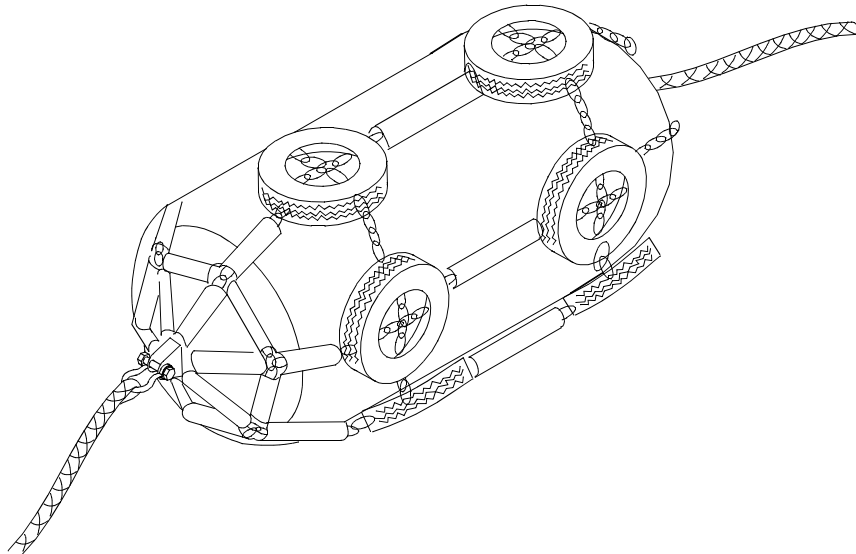
HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

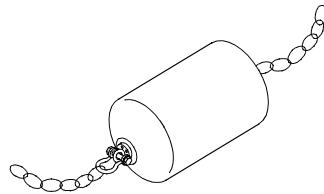
1. Install fenders.
 - a. Attach tag lines to the ends of the securing lines.



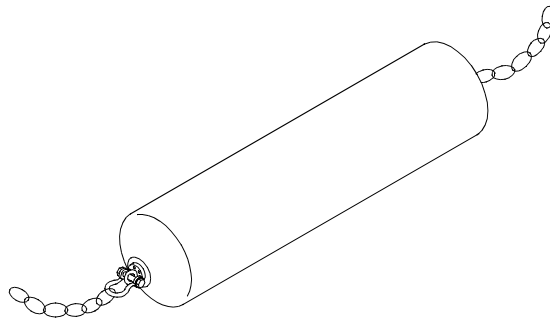
WARNING

**HEAVY OBJECTS**

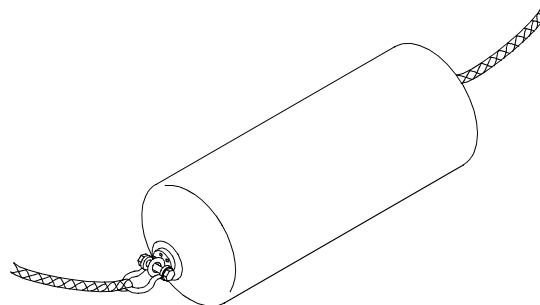
- b. Manning the tag lines and using the sealift vessel, place the 6 ft X 12 ft fender in the water.
 - c. Secure the fender nylon lines to the sealift vessel deck fittings.
 - d. Remove tag lines from securing lines.
2. Install remaining cylindrical fenders.



3 FT X 5 FT LIGHTER FENDER



4 FT X 12 FT LIGHTER FENDER



5 FT X 10 FT SEALIFT VESSEL FENDER

WARNING

**HEAVY OBJECTS**

- a. Remove fender from special pallet in their own 40 ft open top container.
- b. Loosen cable attaching waterproof covering to ISO container.
- c. Remove the waterproof covering from the ISO container.
- d. Remove waterproof covering bows.
- e. Remove straps securing fenders to pallets.

WARNING

**HEAVY OBJECTS**

- f. Using clevises, chains and crane, lift the fenders from the ISO container pallets and move to the installation location on the RRDF deck edge.
- g. Attach tag lines to the ends of the securing chains or lines.

WARNING

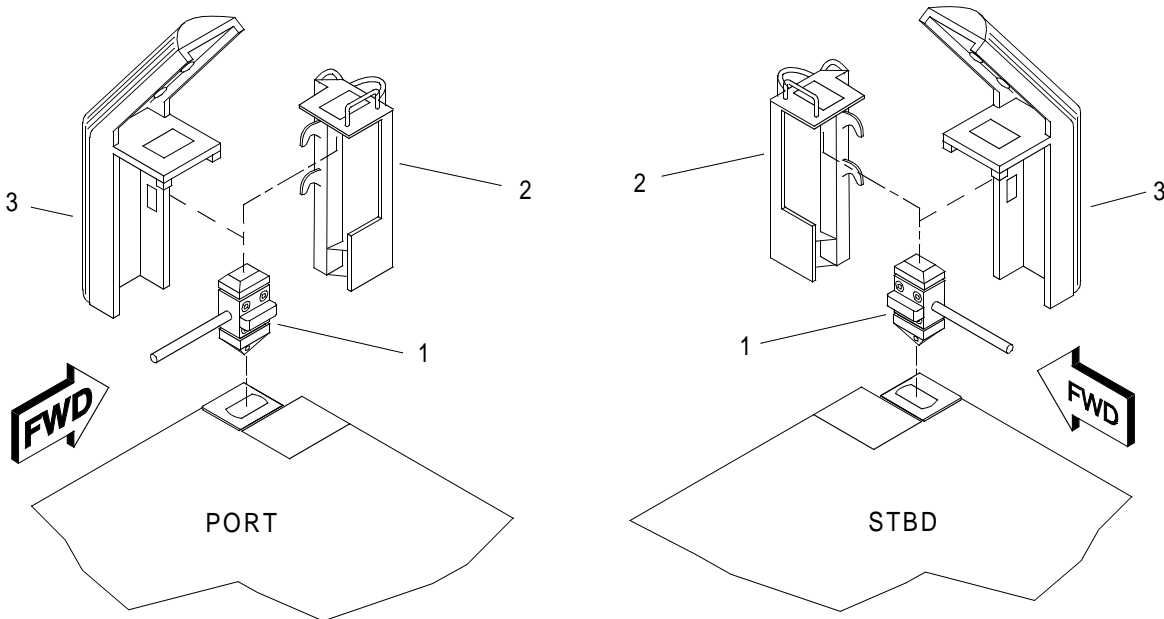
**HEAVY OBJECTS**

- h. Manning the tag lines, roll the respective fender over the side.
 - i. Install waterproof cover bows on ISO container.
 - j. Install waterproof covers on ISO containers.
 - k. Tighten cable attaching waterproof cover to ISO container.
3. Install corner fenders.

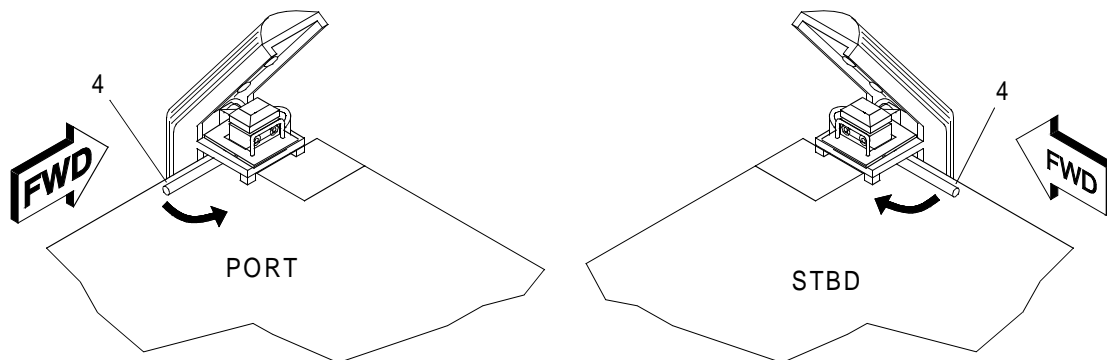
NOTE

There are two configurations of corner fenders, left hand (port) and right hand (starboard).
Each fender configuration consists of two pieces.

- a. Install ISOPAK vertical connector (1) in port and starboard ISO corner fitting.



- b. With hooks facing aft, push straight portion (2) of fender assembly down, over ISOPAK vertical connector (1).
- c. Align slots on angled portion (3) of corner fender assembly with hooks on straight portion (2) of port and starboard corner fender assembly.
- d. Install angled portion (3) of port and starboard corner fender assembly over ISOPAK vertical connector (1).
- e. Move lever on ISOPAK vertical connector (4) to lock two portions of port and starboard fender assembly in place.



END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
SAFETY EQUIPMENT, LIFELINE AND DUNNAGE MATS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

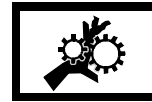
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Life Ring With Light and Stanchion (Item 20, WP 0118 00)

Personnel Required

Seaman 88K

PREPARATION FOR USE - INSTALLATION OF SAFETY EQUIPMENT AND DUNNAGE MATS**INSTALL LIFELINE**

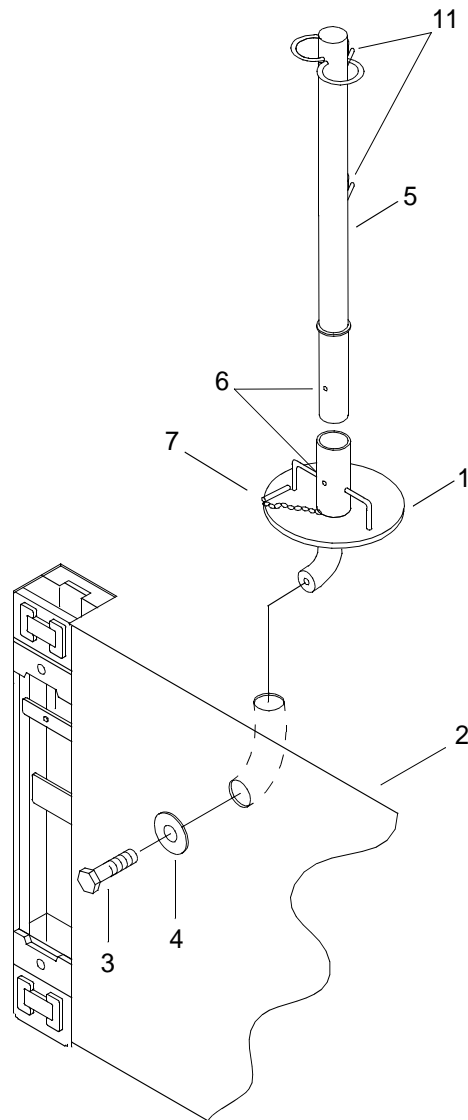
WARNING

**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Beware of other craft or objects coming alongside while working outboard installing the keeper plate and bolt on deck fittings, as the possibility exists of falling overboard. Failure to observe these precautions could result in death or injury to personnel.

1. Install vertical deck fitting (1) into turn tubes on modules (2).

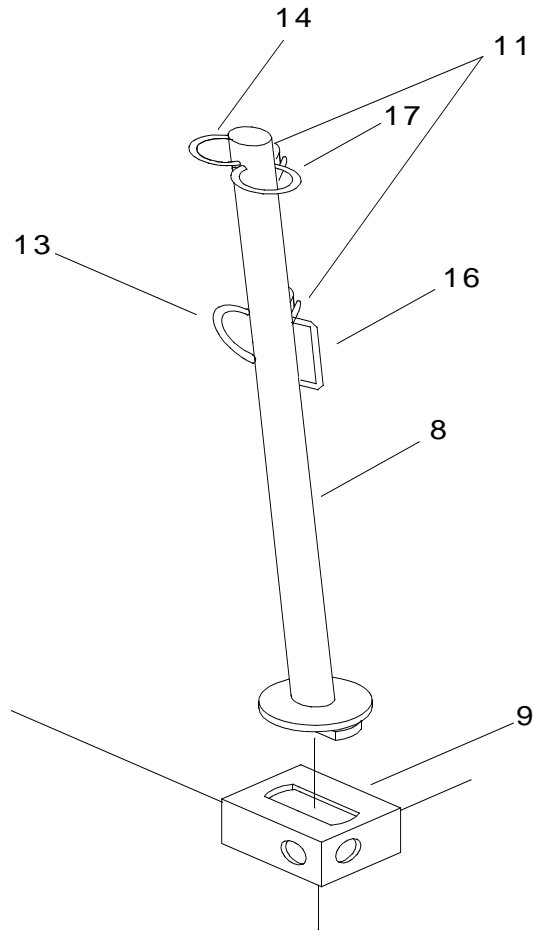


WARNING

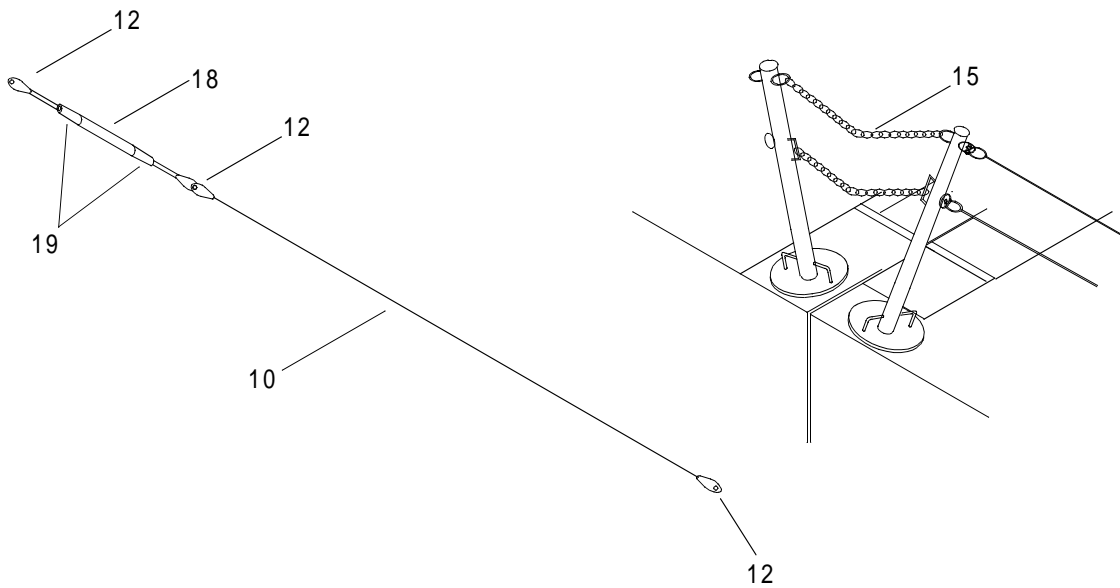
Beware of other craft or objects coming alongside while working outboard installing the keeper plate and bolt on deck fittings, as the possibility exists of falling overboard. Failure to observe these precautions could result in death or injury to personnel.

2. Insert bolt (3) through keeper plate (4) and module (2).
3. Run bolt (3) down into threaded portion of deck fitting (1) and tighten.
4. Insert stanchion (5) in deck fitting (1) and align holes (6) located near the base.
5. Insert attached toggle pin (7) through holes (6).

6. Insert corner stanchion (8) into ISO corner fitting (9) and twist 1/4 turn.



7. Lay out lifelines (10) on the deck near the stanchions.



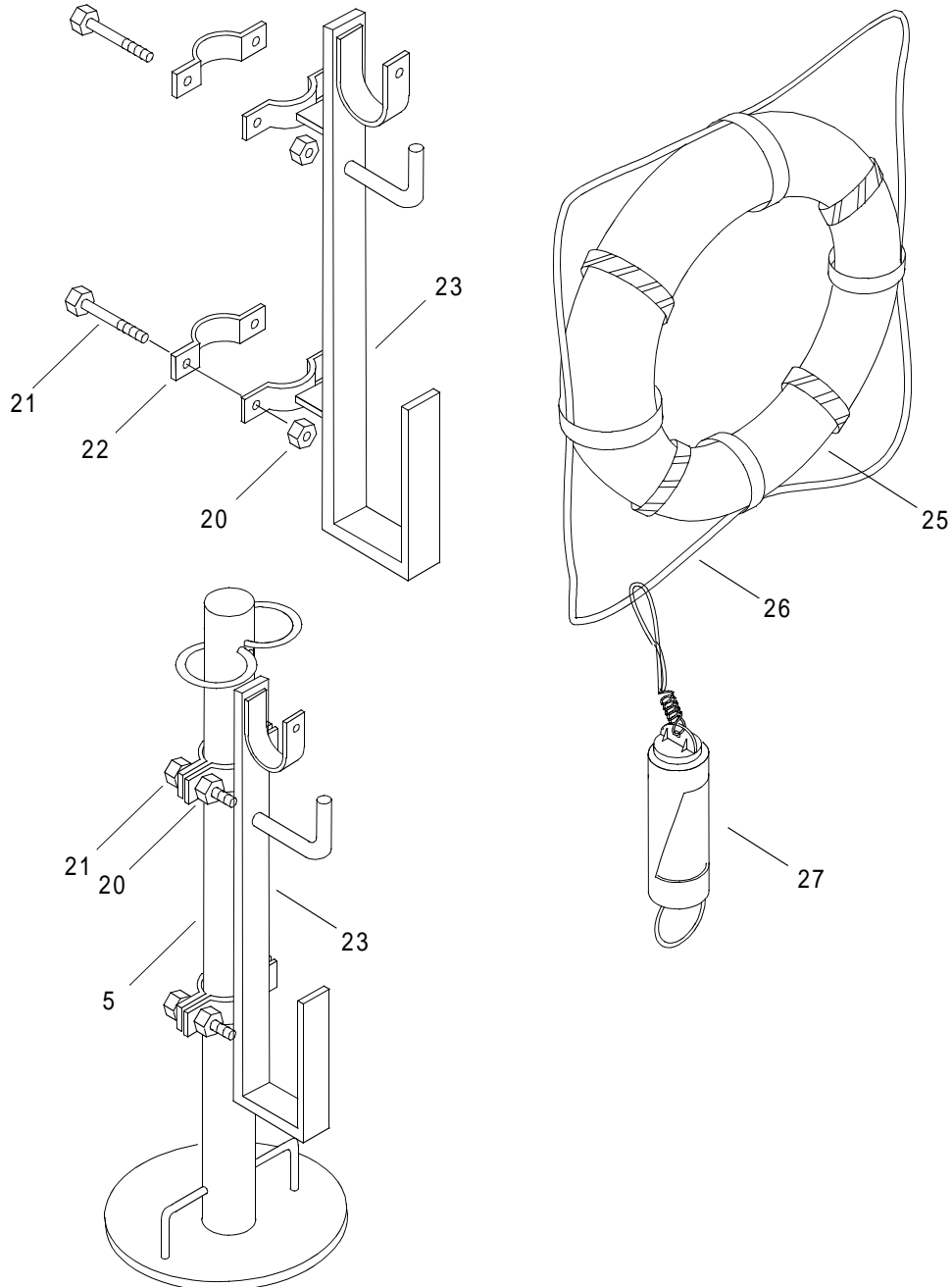
8. Install the lifelines (10) through the pigtail fairleads (11) on each stanchion and secure the clevis (12) to staple fittings (13,14) on the corner stanchion (8).

9. Attach safety chains (15) to staple fittings (16,17) on corner stanchion (8).

10. Take up slack using turnbuckles (18) and set the turnbuckle lock nuts (19).

INSTALL LIFE RINGS

1. Remove nuts (20) from bolts (21) and separate life ring bracket retaining clamp half (22).



2. Position life ring bracket (23) on desired vertical stanchion (5).

3. Position clamp half (22) and install bolt (21) and tighten nut (20).

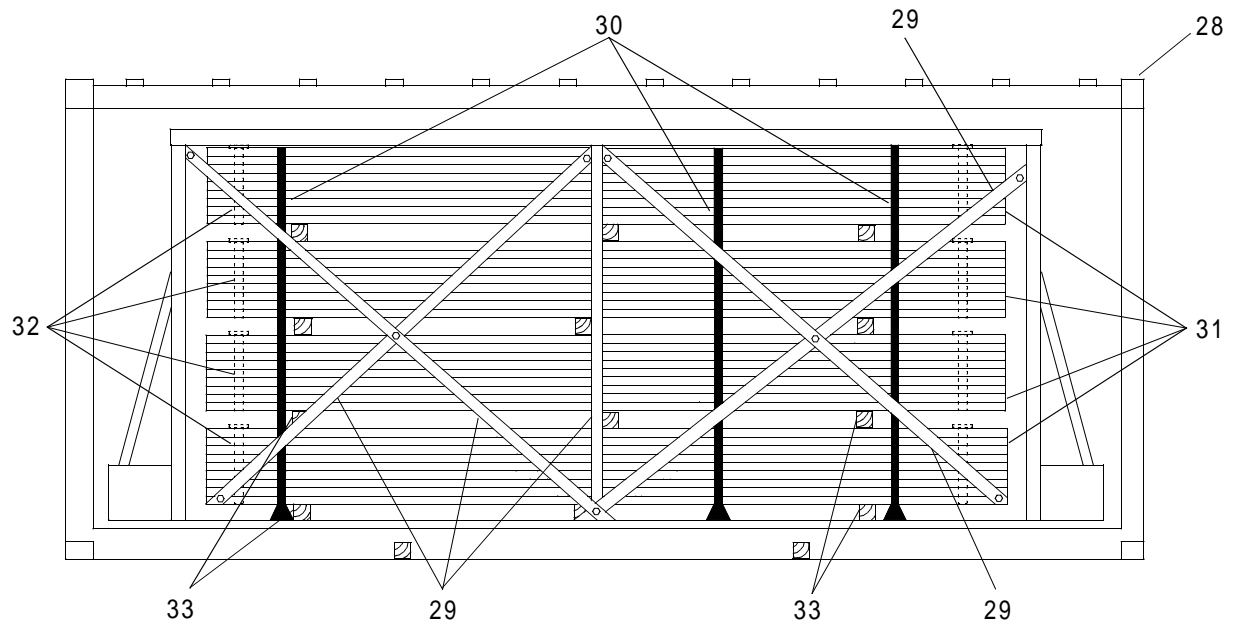
4. Position life ring (25) and rope (26) in life ring bracket (23) and secure rope (26) to strobe light (27).

INSTALL DUNNAGE MATS**CAUTION**

Opening doors while the container is on a soft or uneven surface will damage the container or doors.

Damage to ISO container will occur if any door is open or unlocked while container is moved or lifted.

1. Open ISO container (28) side doors and latch in open position.
2. Remove flat bars (29) from side of container (28).



3. Remove ratchet strap tiedowns (30).

WARNING**HEAVY PARTS**

4. Using forklift, or appropriate handling device, remove first stack of dunnage mats (31) from container (28).
5. Remove two dunnage mat rods (32) from dunnage mat (30) stacks and store in container tool box.
6. Remove 4 X 4 dunnage wood (33) from container.

WARNING

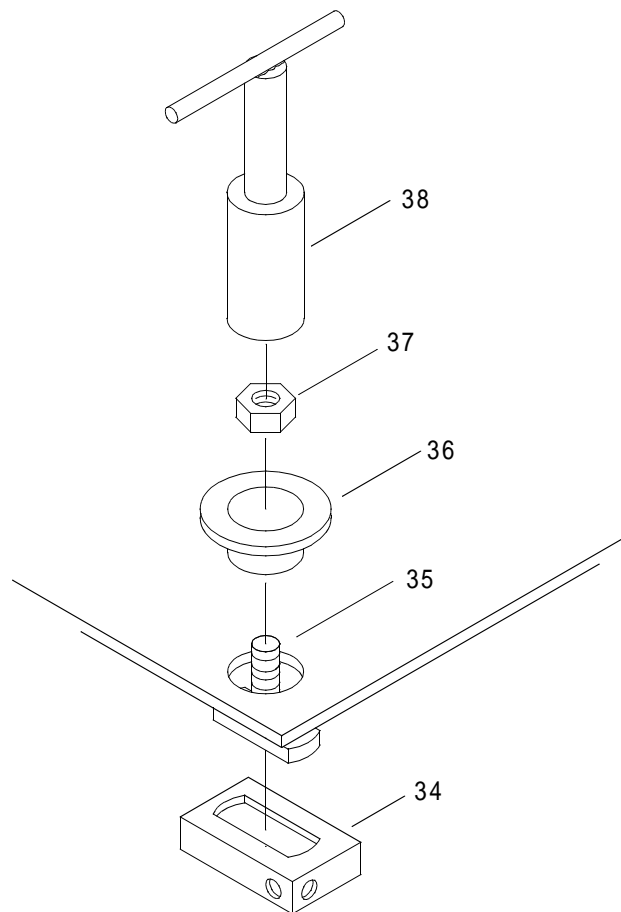
**HEAVY PARTS**

7. Repeat previous steps for removal of remaining dunnage mat (31) stacks from container (28).

WARNING

**HEAVY PARTS**

8. Remove first dunnage mat (30) from stack.
9. Position and place dunnage mat (30) on the appropriate intermediate section with corner hole over ISO corner fitting (34).



10. Install Tee bolt (35) into under side of dunnage mat (30).
11. Install 5 5/8 in. diameter washer (36) on top of dunnage mat (30) over threaded Tee bolt.

12. Install 1 in. nut (37) to hold Tee bolt in place.
13. Install Tee bolt (35) into the ISO corner fitting (34).
14. Turn Tee bolt (35) 1/4 turn, hold against bottom upper surface of corner fitting (34) and finger tighten nut (37).
15. Using Tee handle (38). tighten nut (37).
16. Repeat above procedure for remaining corners and dunnage mats.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Gloves, Chemical (Item 24, WP 0119 00)
 Plug, Ear (Item 43, WP 0119 00)

Materials/Parts

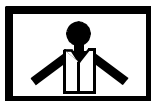
Antiseize Compound (Item 3, WP 0120 00)

Personnel Required

Seaman 88K

**PREPARATION FOR USE - INSTALLATION OF TACTICAL QUITE GENERATOR CONTAINER
ON PLATFORM**

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS



EAR PROTECTION

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

All personnel must wear hearing protection during tactical generator operation. Failure to observe this precaution could result in permanent hearing loss.

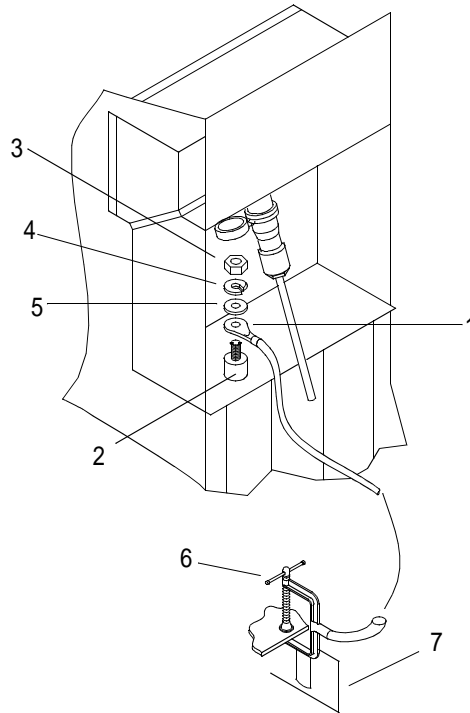
1. Lift generator container onto RRDF platform.
2. Position generator container in desired location.
3. Tie generator container at four corners to RRDF platform using tie down straps.

REMOVE STEPS FROM GENERATOR CONTAINER

1. Secure the generator container access door in open position.
 - a. Loosen turnbuckle on the right side of step assembly until hook is free from round bar.
 - b. Remove hook from round bar and stow.
2. Pull steps from container to allow access.
3. Close generator container access door.

INSTALL GENERATOR CONTAINER GROUND CABLE

1. Open exterior hinged cover of the electrical shore tie and secure in the open position.
2. Attach ground cable (1) to generator container ground stud (2).



- a. Remove nut (3), lock washer (4) and flat washer (5) from generator ground stud (2).

WARNING

**EYE PROTECTION**

- b. Clean shoulder of ground stud so grounding surface has a smooth, bright finish. Use a wire brush.

WARNING

**CHEMICAL**

- c. Apply a thin coating of antiseize compound to ground stud base.
- d. Install ground cable (1) on ground stud (2).

WARNING

**CHEMICAL**

- e. Apply a thin coating of antiseize compound to ground cable terminal.
 - f. Install flat washer (5), lock washer (4) and nut (3) on ground stud (2)
 - g. Tighten ground stud nut (3).
3. Attach generator ground cable C-clamp (6) to module deck ISO fitting (7).

WARNING

**EYE PROTECTION**

- a. Remove paint from ISO fitting (7) so grounding surface has a smooth, bright finish. Use a wire brush.

WARNING

**CHEMICAL**

- b. Apply a thin coating of antiseize compound to ISO fitting (7) grounding surface.

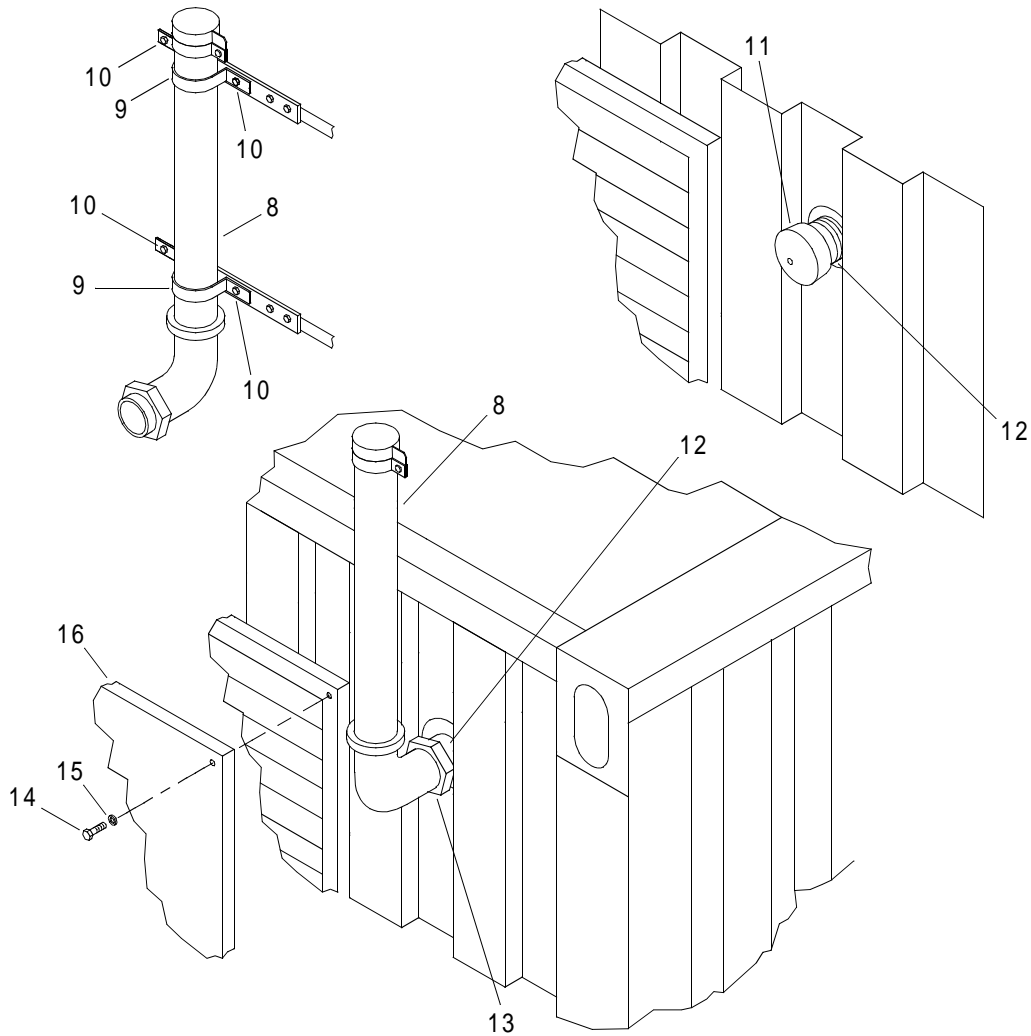
WARNING

**EYE PROTECTION**

- c. Clean C-clamp (6) grounding surface. Use a wire brush.
- d. Attach grounding clamp (6) to module ISO fitting (7).

INSTALL GENERATOR CONTAINER EXHAUST PIPE

1. Remove generator exhaust pipe (8) from generator container storage brackets (9).



- a. Remove bolts (10) and mounting brackets (9).
 - b. Remove exhaust pipe (8).
2. Remove protective cover (11) from ISO container generator exhaust outlet (12).
 3. Position generator exhaust pipe (8) on ISO container generator exhaust outlet (12).
 4. Tighten flange nut (13).
 5. Remove six hex bolts (14) with lock washers (15) and remove louver covers (16) from container end and side. Stow covers in container.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Materials/Parts

Antiseize Compound (Item 3, WP 0120 00)

Personnel Required

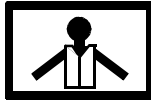
Seaman 88K

Equipment Condition

Generator Container Installed On RRDF Platform. (WP 0020 00)

PREPARATION FOR USE - INSTALLATION OF PERSONNEL SHELTER ON PLATFORM**INSTALL PERSONNEL SHELTER ON RRDF**

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

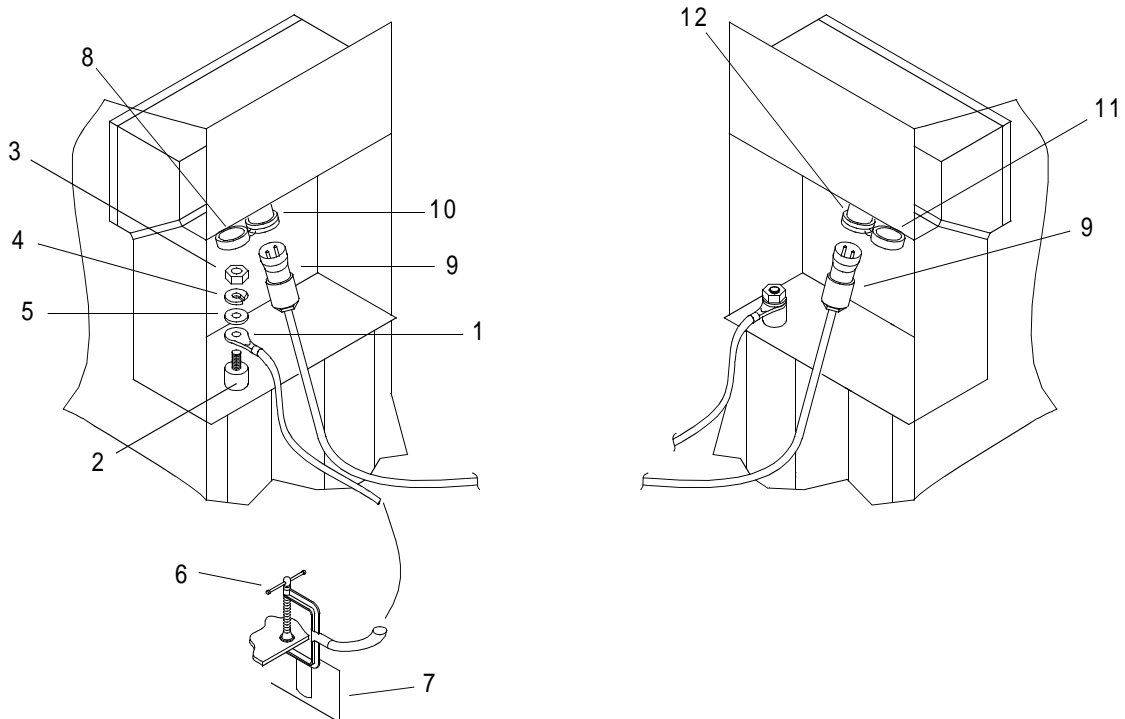
NOTE

Personnel shelter must be on the same platform section with generator container.

1. Using crane, lift personnel shelter onto RRDF platform.
2. Position personnel shelter in desired location.
3. Tie personnel shelter at four corners to RRDF platform using tie down straps.

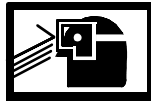
GROUND PERSONNEL SHELTER

1. Open exterior hinged cover of electrical shore tie and secure in open position.
2. Connect ground cable (1) to personnel shelter ground stud (2).



- a. Remove nut (3), lock washer (4) and flat washer (5) from personnel shelter ground stud (2).

WARNING



EYE PROTECTION

- b. Using a wire brush, clean ground stud (2) shoulder to ensure that grounding surface has a smooth, bright finish prior to grounding.

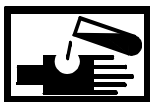
WARNING



CHEMICAL

- c. Apply thin coating of antiseize compound to ground stud (2) base.
- d. Install ground cable (1) on ground stud (2).

WARNING

**CHEMICAL**

- e. Apply a thin coating of antiseize compound to ground cable (1) terminal.
 - f. Install flat washer (5), lock washer (4) and nut (3) on ground stud (2).
 - g. Tighten ground stud nut (3).
3. Attach personnel shelter ground cable C-clamp (6) to module deck ISO fitting (7).

WARNING

**EYE PROTECTION**

- a. Use wire brush to remove paint from ISO fitting (7) to ensure that ISO fitting grounding surface has a smooth, bright finish prior to grounding.

WARNING

**CHEMICAL**

- b. Apply a thin coating of antiseize compound grounding surface.

WARNING

**EYE PROTECTION**

- c. Using wire brush, clean C-clamp (6) grounding surface.
- d. Attach grounding clamp (6) to module ISO fitting (7).

INSTALL PERSONNEL SHELTER POWER CABLE

1. Remove personnel shelter power cable cover (8).
2. Connect power cable (9) to personnel shelter power receptacle (10).
3. Remove generator container power cable cover (11).
4. Connect power cable (9) to generator container power receptacle (12).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EMERGENCY ANCHORING SYSTEM (EASY)
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

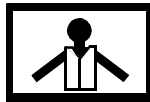
Seaman 88K

Equipment Condition

RRDF Assembled. (WP 0008 00)

PREPARATION FOR USE - INSTALLATION OF EASY ON PLATFORM

WARNING



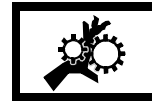
VEST



HELMET PROTECTION



HEAVY PARTS

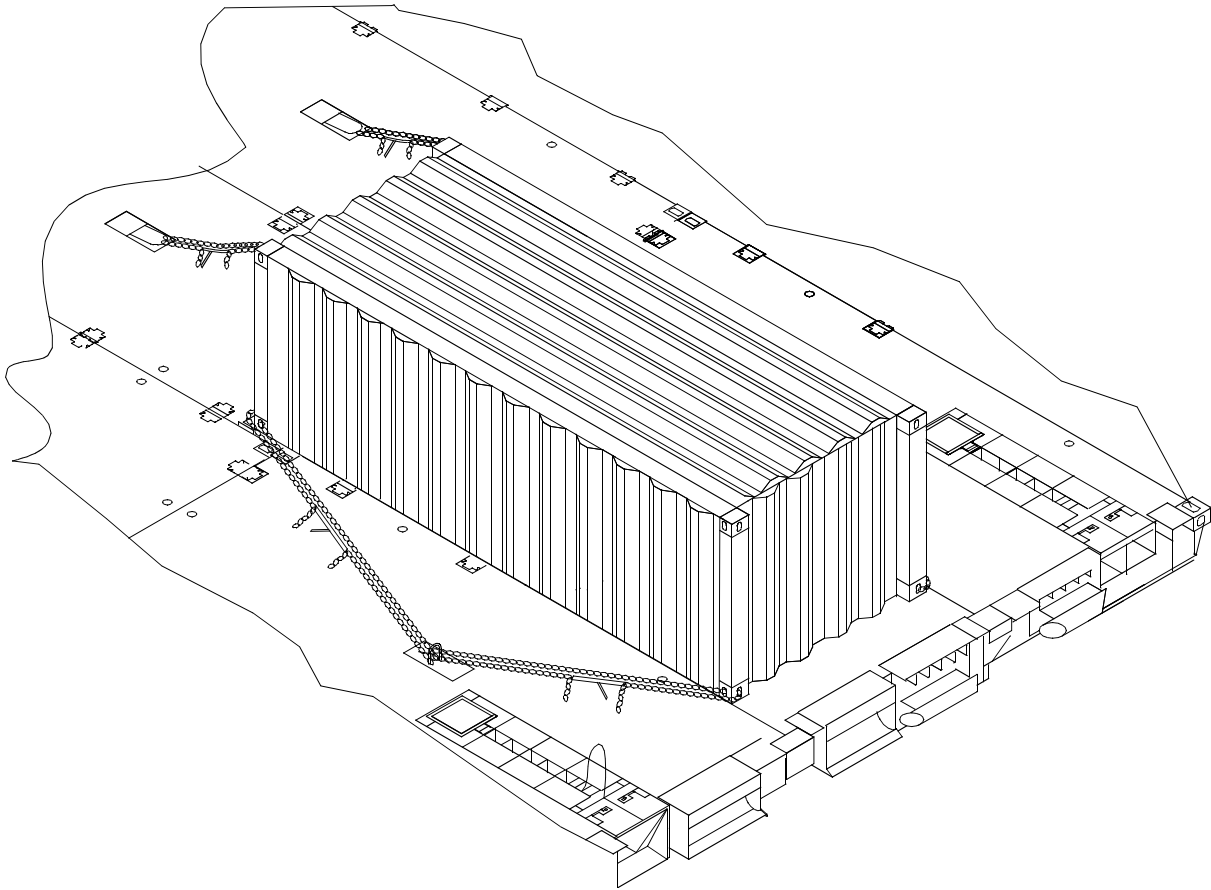


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Position container at the upstream end of the RRDF platform.
2. Ensure that the anchor end of the EASY container is located 24 in. from the upstream deck edge to allow enough room for personnel to open the anchor-end container doors and allow the anchor to deploy properly.

- Secure container to RRDF platform utilizing four 3/4 in. tiedown chains and tensioning ratchets from the bottom ISO fittings on the container to the platform.



- Secure container utilizing two 3/4 in. tiedown chains and tensioning ratchets from top rear ISO fittings to platform.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWERS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

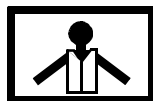
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR USE - INSTALLATION OF LIGHT TOWER UNIT**REMOVE FORWARD AND AFT LIGHT TOWER UNITS FROM CONTAINER**

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The following procedure is typical for the forward and aft light tower units installed in the ISO container, except the light tower must be installed on the aft light tower unit.

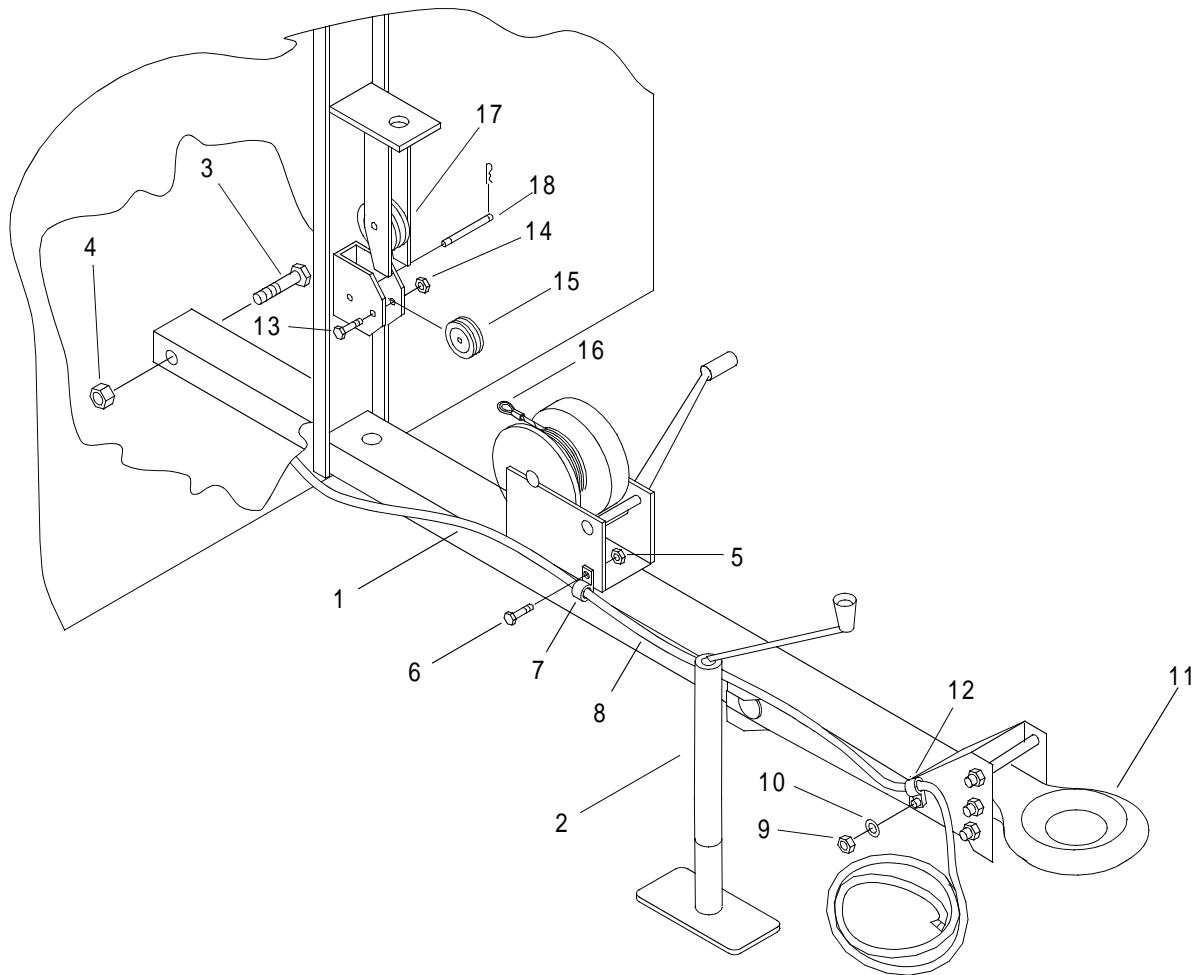
1. Release tiedowns and remove light tower trailer drawbar (1) and drawbar jack (2) from ISO container.

WARNING



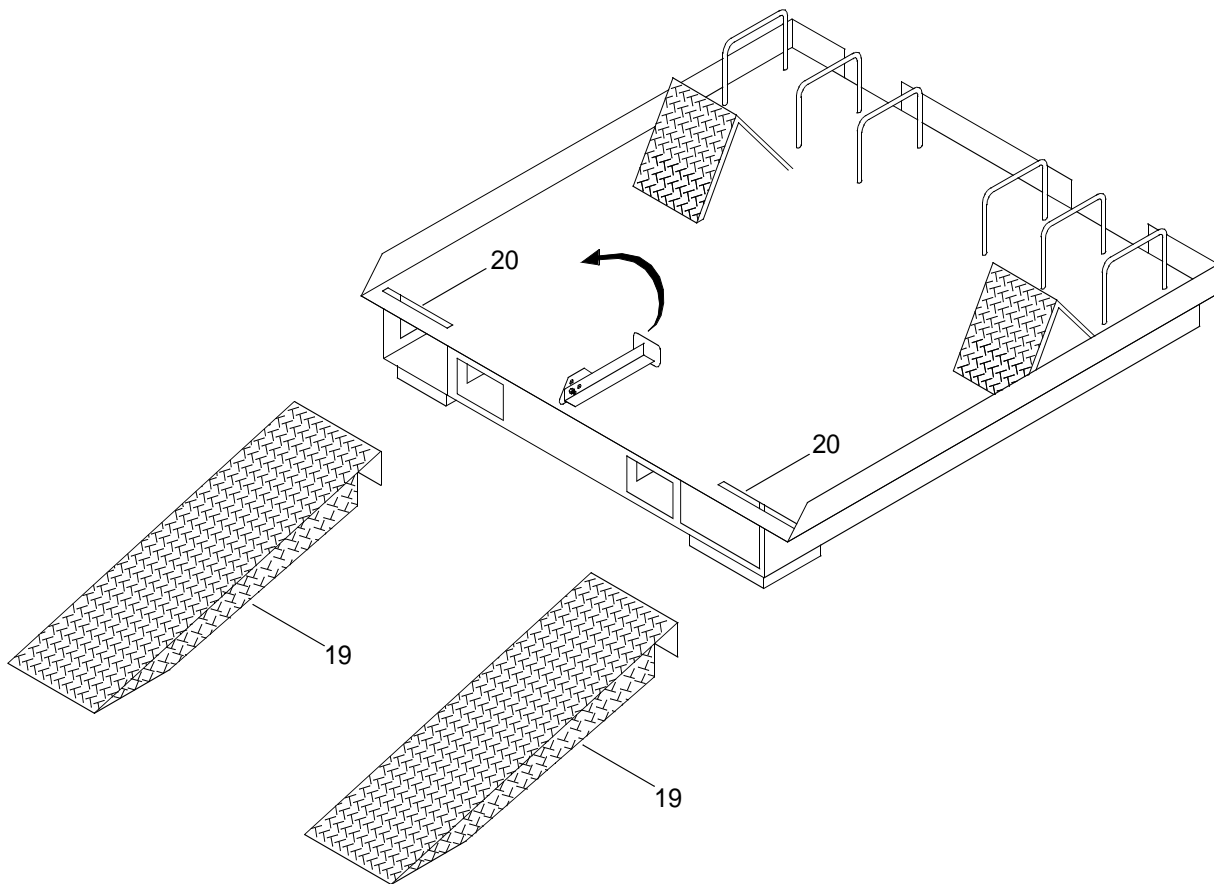
HEAVY PARTS

2. Using forklift pull light tower trailer and pallet from container.
3. Install trailer drawbar (1) and drawbar jack (2) on light tower trailer with bolt (3) and nut (4) and set up on drawbar jack (2).



4. Remove right forward nut (5) from bolt (6) on trailer drawbar hand crank.
5. Position and install electric wire clamp (7) and trailer wire harness (8) to hand crank bracket with nut (5) and bolt (6).
6. Remove nut (9) and washer (10) on right hand side of trailer drawbar, behind drawbar eye (11).
7. Position wire clamp (12) and trailer light harness on bolt and install nut (9) and washer (10).
8. Remove bolt (13) and nut (14) from lower pulley bracket.
9. Remove lower pulley (15).
10. Thread cable (16) on pulley (15), replace pulley (15) and secure with nut (14) and bolt (13).
11. Thread cable (16) around upper pulley (17) and back to lower cable bracket.
12. Remove quick release pin (18) from lower cable pulley bracket.
13. Position cable end loop (16) and attach with quick release pin (18).
14. Connect drawbar eye (11) to towing pintle of fork lift truck.

15. Install ramps (19) into slots (20) of pallet and release tiedowns



WARNING



HEAVY PARTS

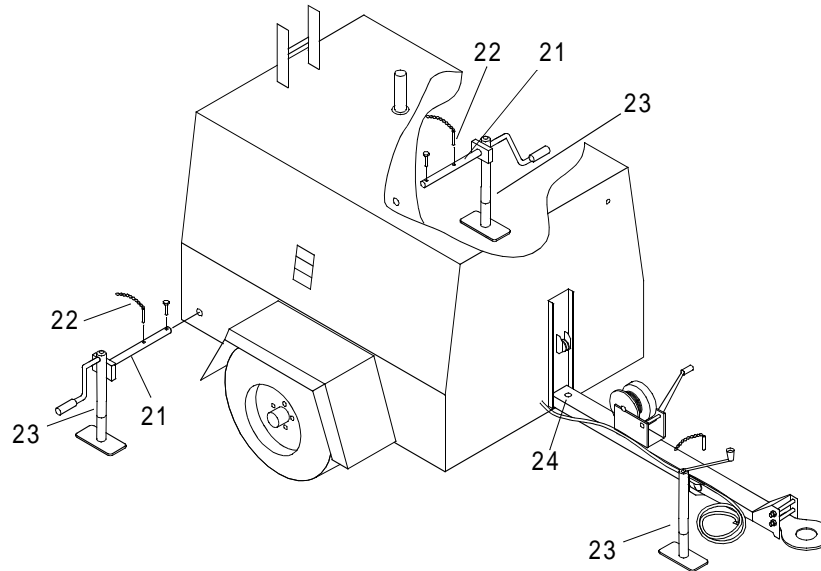
16. Tow light tower trailer off pallet.

INSTALL LIGHT TOWER ON AFT LIGHT TOWER UNIT

NOTE

Light tower is installed on forward light tower unit.

1. Disconnect drawbar eye (11) from fork lift truck towing pintle.
2. Extend both outriggers (21) and install locking pins (22) fully.



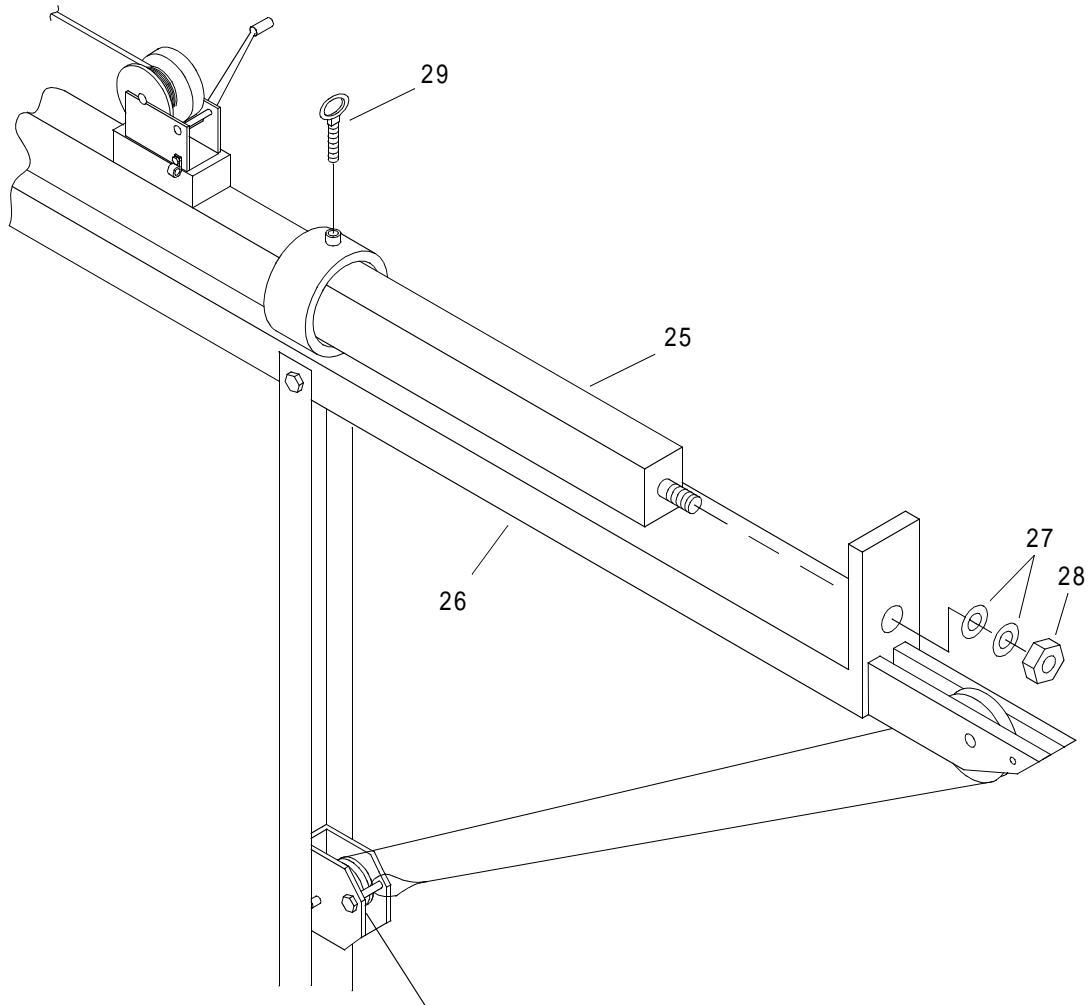
3. Level unit using jacks (23) and bubble level indicator (24) on drawbar (calm water) or measure from deck at four corners of unit.
4. Secure light tower trailer to RRDF platform with tiedowns.

WARNING

**HEAVY PARTS**

5. Remove hitch pins from upper light tower stowage on container side and remove tower from container.

6. Position and attach upper light tower (25) to aft light tower trailer (26) with 2 washers (27) and nut (28).



7. Tighten eye bolt (29) on boom.

INSTALL LIGHT TOWER BOOM LIGHTS

WARNING

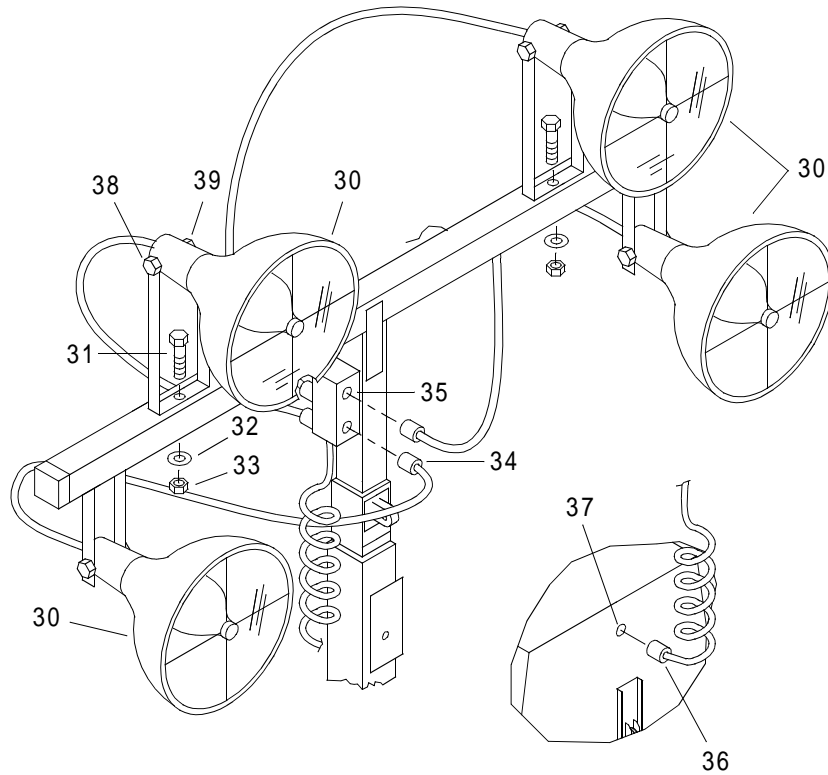


HEAVY PARTS

1. Open light tower engine compartment and remove light tower boom lights.
2. Close engine compartment doors.

WARNING**HEAVY PARTS**

3. Position lights (30) on light tower crossmember and secure with bolts (31), washers (32) and nuts (33).

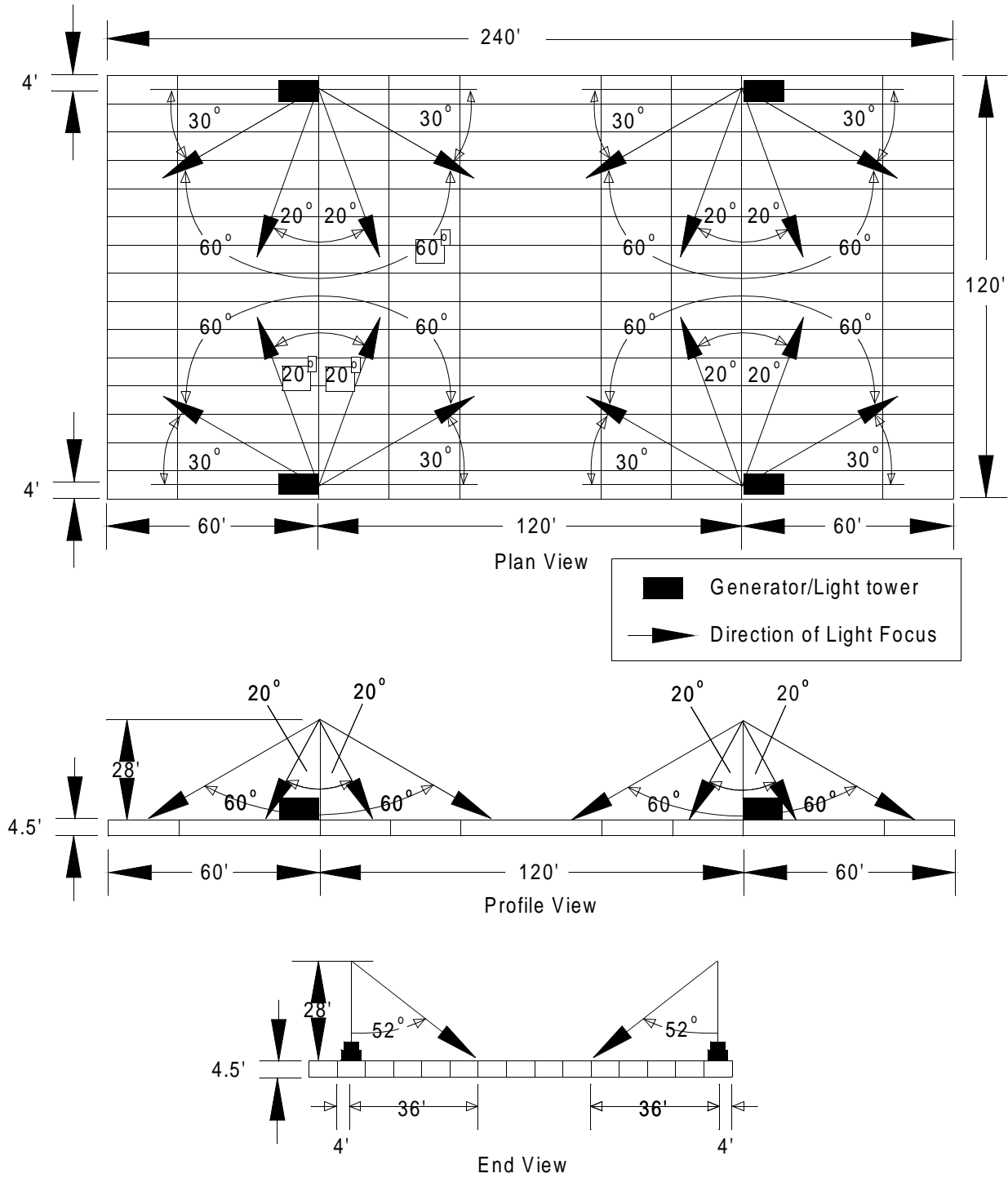


4. Connect light plugs (34) to light tower sockets (35).
5. Connect light tower electrical plug (36) to electrical receptacle (37) on forward top of light trailer.

AIM LIGHT TOWER LAMPS

NOTE

Light tower lamps must be correctly positioned prior to raising the tower.



1. Loosen bolt (38) and nut (39) to rotate lamp (30).

2. Rotate lamp(s) (30) to desired position.
3. Tighten bolt (38) and nut (39).
4. Repeat adjustment until aiming of light is satisfactory.

RAISE TOWER

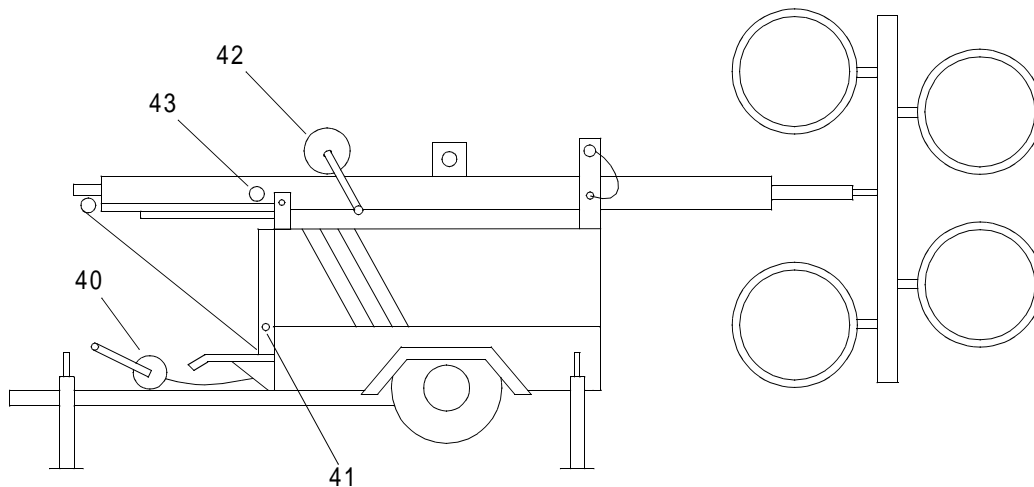
WARNING

Do not operate tower with damaged cables. Damaged cables must be replaced as they may break during tower operation allowing the tower to fall. A falling tower could cause injury or death.

Extend, retract or use in vertical position only. Ensure pin locks securely. Falling tower can cause severe injury or death.

Ensure no overhead obstruction within 40 ft. Injury to personnel could occur.

1. Operate winch (40) to raise tower.



2. Insert and lock pin (41) to secure tower in upright position.

EXTEND TOWER FOR UPRIGHT OPERATION

NOTE

Do not extend mast tower past upright mark on tower.

1. With tower in upright position, operate winch (42) to extend tower to 28 ft above collar. Do not extend past upright mark on tower.
2. Loosen eye bolt (43) to rotate tower to desired position.
3. Tighten eye bolt (43).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Goggles, Industrial (Chipping, Chemical) (Item 26, WP 0119 00)
 Air Pump with Accessories (Item 1, WP 0118 00)
 Gloves, Chemical (Item 24, WP 0119 00)
 Apron, Utility (Item 1, WP 0121 00)
 Pan, Drain (Item 40, WP 0119 00)
 Respirator, Air Filtering (Item 6, WP 0121 00)

Materials/Parts

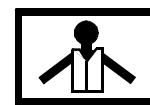
2 + 4 Fuel Conditioner (Item 1, WP 0120 00)
 Kit, HPF Lube (Item 22, WP 0120 00)
 Carbon Guard (Item 6, WP 0120 00)
 Lubricating Oil, Engine, Outboard (Item 25, WP 0120 00)
 Carbon Removing Compound (Item 7, WP 0120 00)
 Hydraulic Fluid, Petroleum Base (tilt/trim and power steering) (Item 20, WP 0120 00)
 Gasoline, Unleaded (Item 12, WP 0120 00)
 Spill Clean-Up Kit, Hazardous Material (Item 54, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR USE - RIGID HULL INFLATABLE BOAT (RHIB)**REMOVE RHIB FROM ISO CONTAINER**

WARNING

**HEAVY PARTS****MOVING PARTS****HELMET PROTECTION****VEST**

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Open the side doors of the full access rigid hull inflatable boat stowage ISO container.
2. Secure doors in the open position.
3. Remove straps attaching pallet to ISO container.

WARNING

**HEAVY PARTS**

4. Using forklift, remove pallet from ISO container.
5. Release ratchet straps attaching boat to pallet.
6. Inflate collar with foot pump.

CAUTION

Tubes should be inflated with foot pump only. Tube pressure should be closely monitored if temperature or altitude increases. Overpressure can damage the tube set.

- a. Remove the inflation valve cover by turning counterclockwise one quarter turn.
- b. Ensure the valve diaphragm is in the closed position by depressing the center spindle and turning counterclockwise one quarter turn.
- c. Insert the inflation pump hose end (comes with an adaptor) into the inflation valve by pushing inward.
- d. Using foot inflation pump, inflate front pontoon, left pontoon and right pontoon to 2.5 PSI. Use an air pressure gage.
- e. Install the inflation valve cover to prevent foreign material from entering and possibly damaging the valve.

WARNING

**HEAVY PARTS**

7. Using warping tug and lifting sling with shackles, lift boat from pallet and place in water.

WARNING

**HEAVY PARTS**

8. Using forklift, install pallet back in ISO container.
9. Secure pallet to container with straps.
10. Stow foot inflation pump on board the rigid hull inflatable boat.

11. Remove lift sling from rigid hull inflatable boat.

12. Perform PMCS. (WP 0114 00)

FUEL OUTBOARD MOTOR

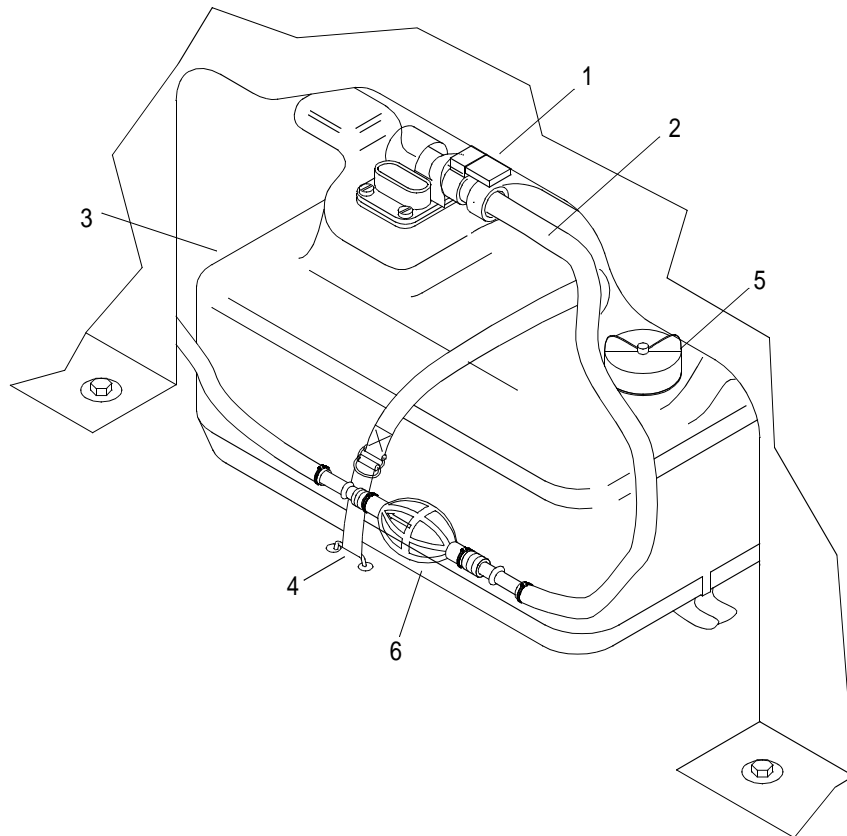
WARNING

Do not refuel a running motor. Failure to comply could result in injury or death to personnel.

Never service fuel tanks while installed in the boat. Static electricity could cause an explosion resulting in injury or death to personnel.

Never smoke or allow open flame or sparks nearby when mixing or refueling. Failure to comply could result in injury or death to personnel.

1. Depress fuel hose spring flange (1) and pull back to remove fuel hose (2) from fuel tank (3).



2. Release fuel tank retaining strap (4).

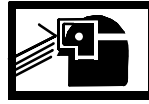
3. Remove fuel tank (3) from boat.

4. Remove fuel cap (5) from fuel tank (3).

WARNING



CHEMICAL



EYE PROTECTION

CAUTION

Do not use ethanol fuel if the ethanol content exceeds 10 percent by volume. Failure to comply could result in damage to motor.

Two cycle oil must be added to gasoline. In addition to the oil that is injected into the cylinders, two cycle oil must be added to the fuel tank during motor break-in period or if high performance use is anticipated. Failure to comply could result in engine damage. Use only OMC approved 2 cycle oil that has a TC-W3 designation.

Ensure the fuel is completely mixed.

5. Mix the oil and fuel as follows:
 - a. Mix sixteen ounces of oil for six gallons of gasoline.
 - b. Mix eight ounces of oil for three gallons of gasoline.
 - c. Mix twenty milliliters of oil for each liter of gasoline.

WARNING



CHEMICAL

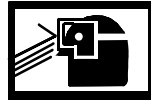


EYE PROTECTION

Maintain contact between fuel nozzle and fuel tank or metal funnel while refueling. Never use a plastic funnel while refueling. Static electricity could cause an explosion resulting in injury or death to personnel.

6. Fill the fuel tank (3) with gasoline having a United States octane rating of 87 and an overseas octane rating of 90 RON.

WARNING

**CHEMICAL****EYE PROTECTION****VAPOR**

CAUTION

**The only additives approved are OMC 2 + 4 Fuel Conditioner and OMC Carbon Guard.
Use of other additives can result in poor engine performance or engine damage.**

7. Add fuel conditioner to fuel to help prevent gum and varnish deposits from forming in fuel system components, remove moisture from the fuel system and during any period when the engine isn't being operated on a regular basis.

WARNING

**CHEMICAL****EYE PROTECTION****NOTE**

Engines with 100 hours of service should be decarbonized with OMC Engine Tuner before using OMC Carbon Guard as a fuel additive.

8. Add carbon guard fuel additive to minimize carbon deposit buildup, reduce piston ring sticking, provide better overall performance and contribute to increased engine life.
9. Install fuel tank cap (5).
10. Install the fuel tank (3) in the boat.
11. Secure tank (3) with retaining strap (4).
12. Depress spring flange (1), push fuel hose (2) on fuel tank (3) and release spring flange.

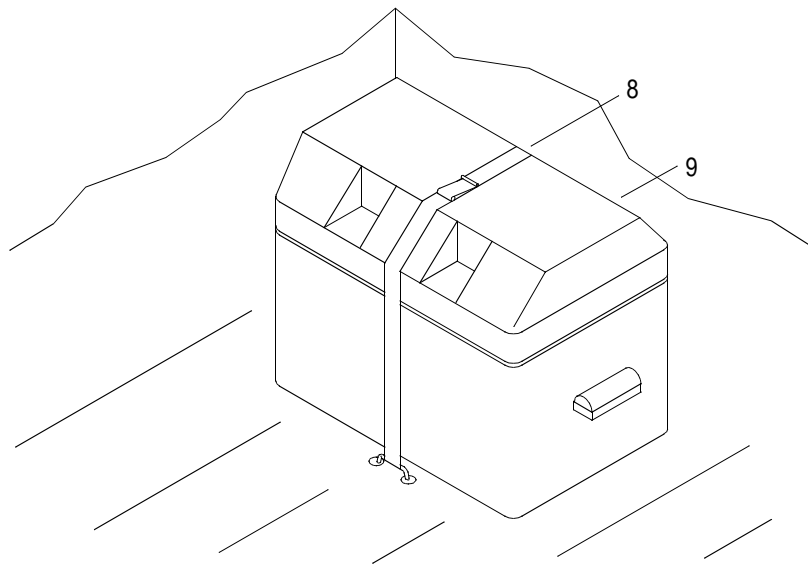
OIL OUTBOARD MOTOR**CAUTION**

The oil injection system must be primed before priming the fuel system. Damage to engine could occur if oil injection system is not primed.

Any time the oil injection hose is disconnected, use a 50:1 fuel/oil mixture in the fuel tank until the oil injection system is verified to be operating properly. Failure to provide oil to the motor could cause engine damage.

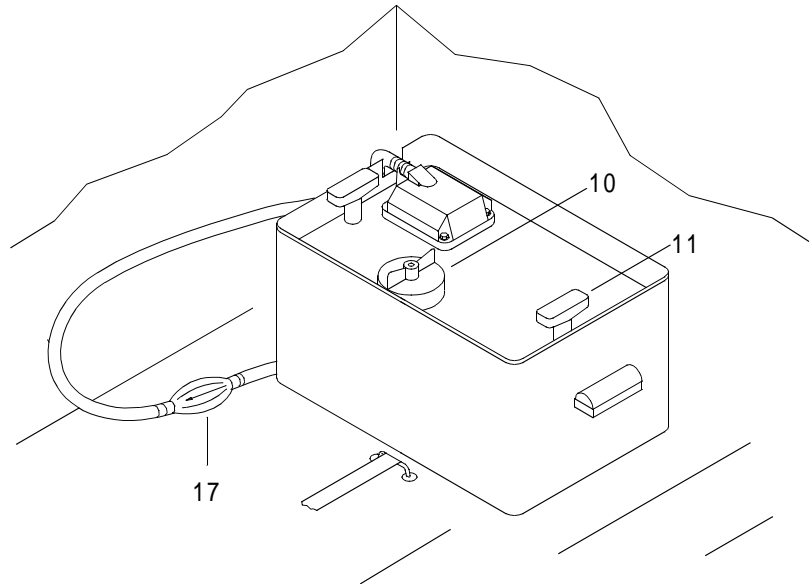
To avoid serious powerhead damage, ensure that the oil tank is installed in a location that does not allow constant exposure to sunlight, rain, bilge water or spray. Periodically inspect the oil tank for presence of water. Water in the oil could cause engine damage.

1. Test the oil injection system.
 - a. Remove the oil tank cover retaining strap (8).

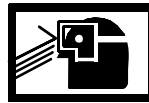


- b. Remove the oil tank cover (9).

- c. Remove the oil filler cap (10).



WARNING

**CHEMICAL****EYE PROTECTION**

- d. Fill the oil tank (11).

NOTE

Placing tape on oil tank will be used as a reference during operation to verify that the oil injection system is operating properly.

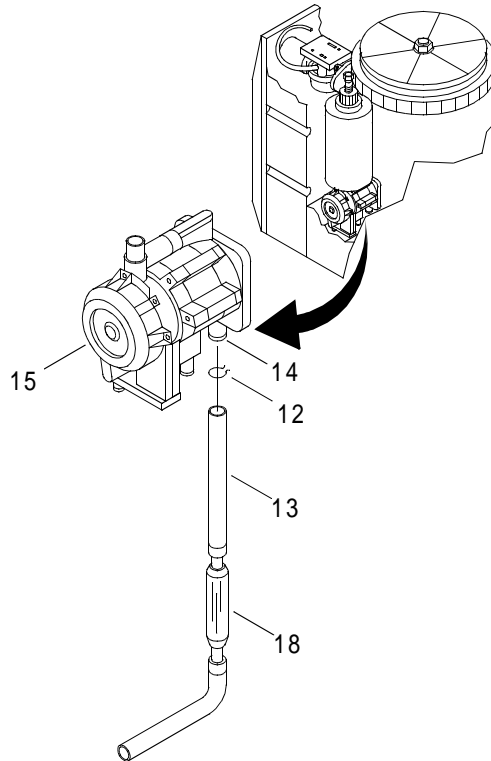
- e. Place a piece of tape on the tank (11) to mark the oil level.
2. Install oil tank cap (10).

WARNING

**CHEMICAL****EYE PROTECTION**

3. Prime the oil system.

- a. Loosen the clamp (12) securing the oil injection hose (13) to the oil fitting (14) on the engine oil pump (15).



- b. Place a drain pan under oil pump.

WARNING



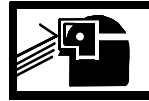
CHEMICAL



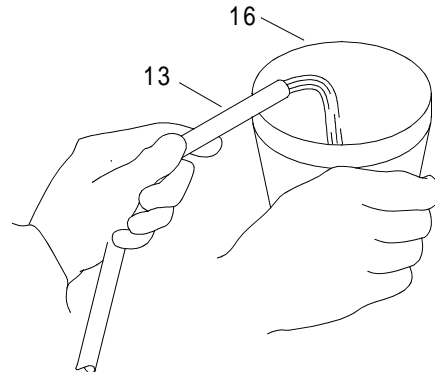
EYE PROTECTION

- c. Remove the oil injection hose (13) from the oil fitting (14) on the engine oil pump (15).

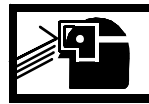
WARNING

**CHEMICAL****EYE PROTECTION**

- d. Place the open end of the oil injection hose (13) in a container (16).



WARNING

**CHEMICAL****EYE PROTECTION**

- e. With the outlet end up, squeeze the oil fill bulb (17) repeatedly until about eight ounces of oil have been pumped and the hose (13) is purged of air.
- f. Feed the oil hose (13) through the engine cover and install on the oil fitting (14).
- g. Tighten clamp (12) securely to provide an air tight connection.

WARNING

**CHEMICAL**

- h. Prime the oil system by squeezing the oil fill bulb (17) until oil is visible in the sight tube (18).
4. Prime fuel system by squeeze the fuel tank primer bulb (6) until firm to prime fuel hose (2).

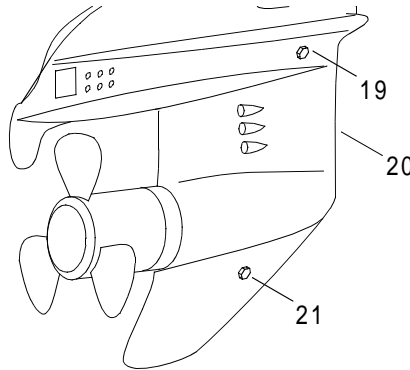
SERVICE GEARCASE

1. Place the engine in the normal operating position.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Remove the lubricant level plug (19) from the side of the gearcase (20).

**NOTE**

Check the color of the lubricant. If lubricant appears milky, water is leaking into the lower gearbox, contact unit maintenance.

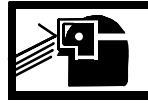
3. Ensure lubricant level is level with the bottom of the lubricant level plug (19) hole.

WARNING

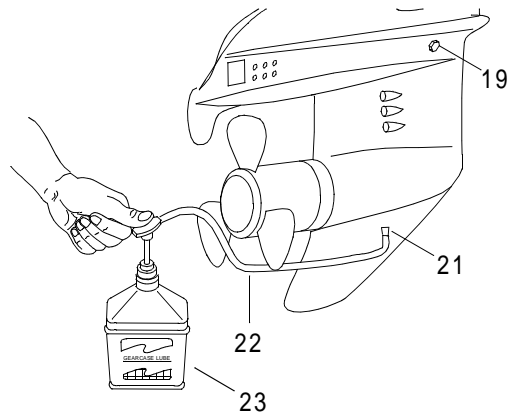
**CHEMICAL****EYE PROTECTION**

4. If lubricant is required, place a drain pan under the drain/fill plug (21) hole to catch any spilled lubricant.
5. Remove the drain/fill plug (21).

WARNING

**CHEMICAL****EYE PROTECTION**

6. Place tube (22) from gearcase lube bottle (23) in drain/fill plug (21) hole and fill slowly until lubricant appears at the lubricant level plug (19) hole.



7. Install lubricant level plug (19) before removing tube (22) from drain/fill plug (21) hole.
8. Tighten lubricant level plug (19).
9. Remove lubricant bottle tube (22) from the drain/fill plug (21) hole and install the drain/fill plug (21).
10. Tighten the drain/fill plug (21).

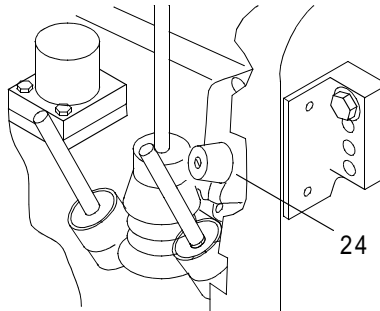
SERVICE POWER TRIM/TILT RESERVOIR

1. Tilt the motor up fully and engage the tilt support.

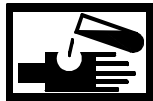
WARNING

**CHEMICAL****EYE PROTECTION**

2. Place a drain pan under the reservoir to catch any spilled fluid.
3. Remove the trim/tilt filler cap (24).



WARNING

**CHEMICAL****EYE PROTECTION**

4. Ensure fluid level is even with the bottom of the filler cap (24) hole, with the motor fully tilted.

WARNING

**CHEMICAL****EYE PROTECTION**

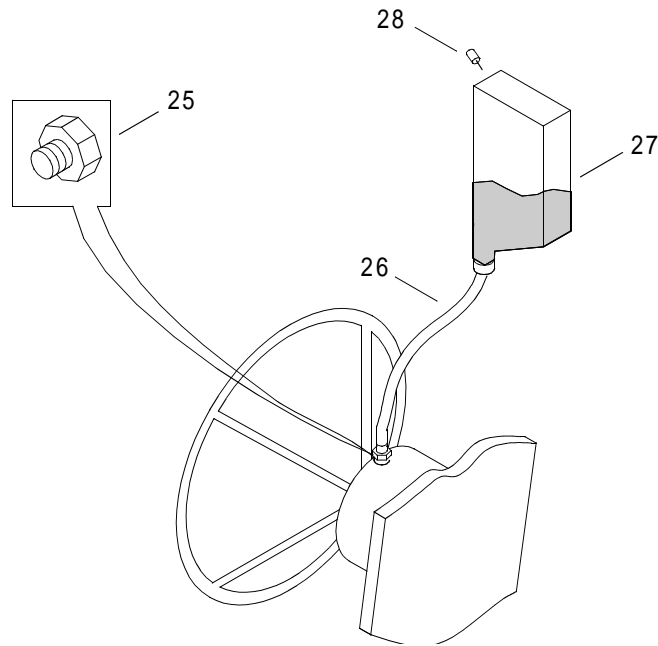
5. Add trim/tilt and power steering fluid as necessary.
6. Install the power trim/tilt reservoir filler cap (24).

SERVICE POWER STEERING RESERVOIR

WARNING

**CHEMICAL****EYE PROTECTION**

1. Remove the helm power steering oil filler cap (25).



2. Place a drain pan under helm power steering.

WARNING

**CHEMICAL****EYE PROTECTION**

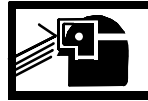
3. Ensure fluid level is at bottom of filler plug hole (25).

CAUTION

Never use brake fluid in place of power steering fluid. Any non-approved fluid may cause damage to power steering components and loss of steering.

4. Screw the threaded end of the filler tube (26) into the helm power steering reservoir filler plug hole (25).

WARNING

**CHEMICAL****EYE PROTECTION**

5. Remove the cap from power trim/tilt and power steering fluid bottle (27) hold upright and screw the filler tube (26) into the bottle (27).

WARNING

**CHEMICAL****EYE PROTECTION**

6. Invert the bottle (27) and poke a hole in the bottom of the bottle with a push pin (28).

WARNING

**CHEMICAL****EYE PROTECTION**

7. Fill the helm power steering reservoir to the bottom of the filler plug (25) hole.

WARNING

**CHEMICAL****EYE PROTECTION**

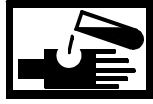
8. Place the bottle (27) upright over a drain pan.
9. Remove the threaded end of the filler tube (26) from the helm power steering reservoir filler plug hole (25).
10. Install the helm power steering reservoir filler plug (25).

WARNING

**CHEMICAL****EYE PROTECTION**

11. Remove drain pan and dispose of contents in accordance with local procedures.

WARNING

**CHEMICAL****EYE PROTECTION****SLICK FLOOR**

12. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

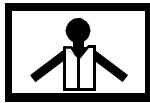
Seaman 88K

Equipment Condition

D-Ring/Cloverleaf Fittings and Deck Cleat Fittings Installed (WP 0010 00)
 Installation of Fenders (WP 0018 00)

OPERATING PROCEDURES - MOORING SEALIFT VESSEL PLATFORM**TYPICAL SIDE CONFIGURATION MOORING**

WARNING



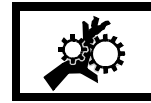
VEST



HELMET PROTECTION



HEAVY PARTS

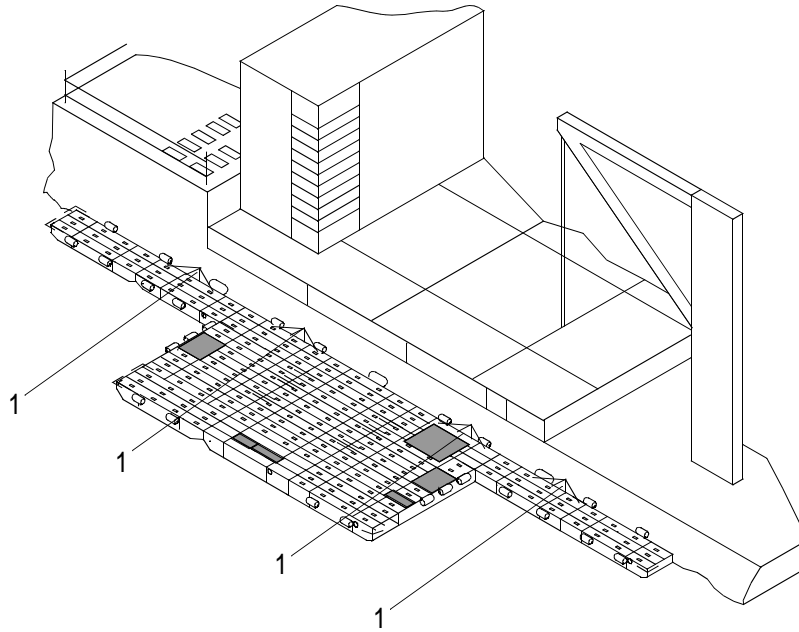


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

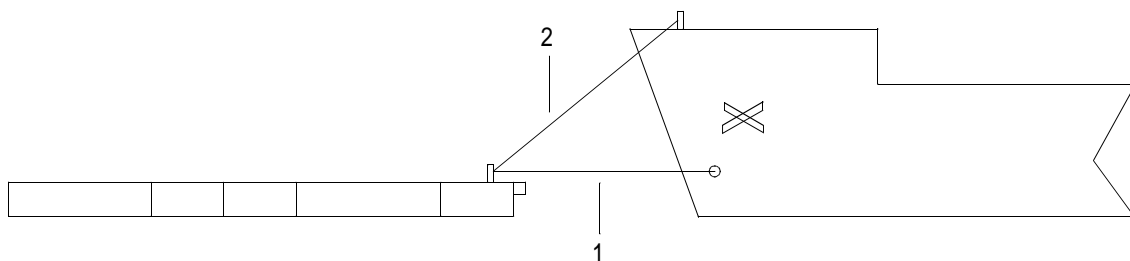
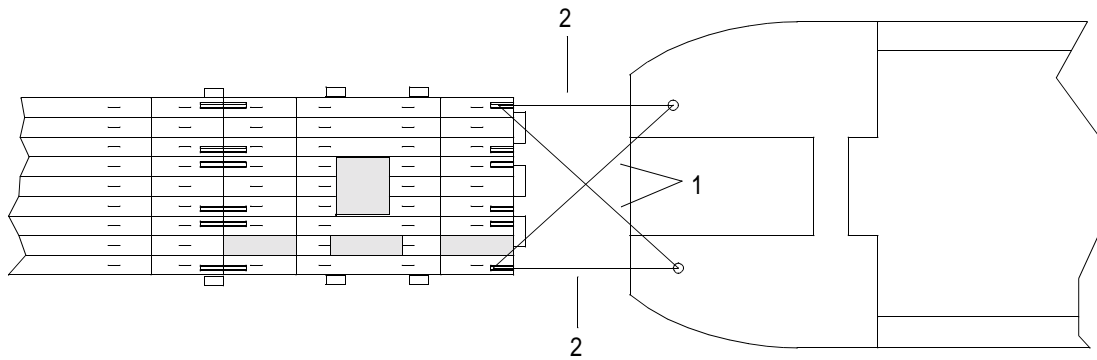
1. Install mooring lines (1) as required.

2. Attach mooring lines (1) to side of vessel.



TYPICAL STERN CONFIGURATION MOORING

1. Install mooring lines as required by ships captain.



2. Connect lower to upper mooring lines (2) on same side.
3. Connect lower mooring lines (1) in cross pattern.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY MOORING SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Forklift Adaptor (Item 21, WP 0119 00)
 5300 lb 6 ft Sling (Green) (Item 51, WP 0119 00)

Personnel Required

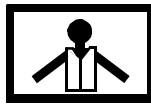
Seaman 88K

Equipment Condition

EASY Container Installed. (WP 0022 00)

OPERATING PROCEDURES - OPERATE EASY MOORING SYSTEM**INSTALL EASY MOORING ASSEMBLY**

WARNING



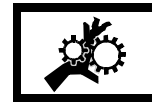
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Unlatch and open container anchor end doors.

WARNING

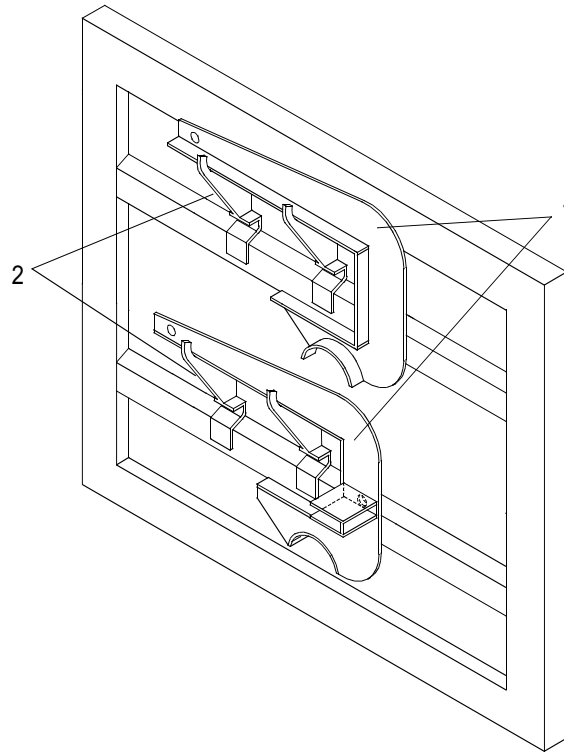
Doors must be secured and latched in the open position. Failure to comply could result in injury to personnel.

2. Secure with locking pins and bars to provide access to anchor, buoys and mooring bridle.
3. Unlatch and open container pump side doors.

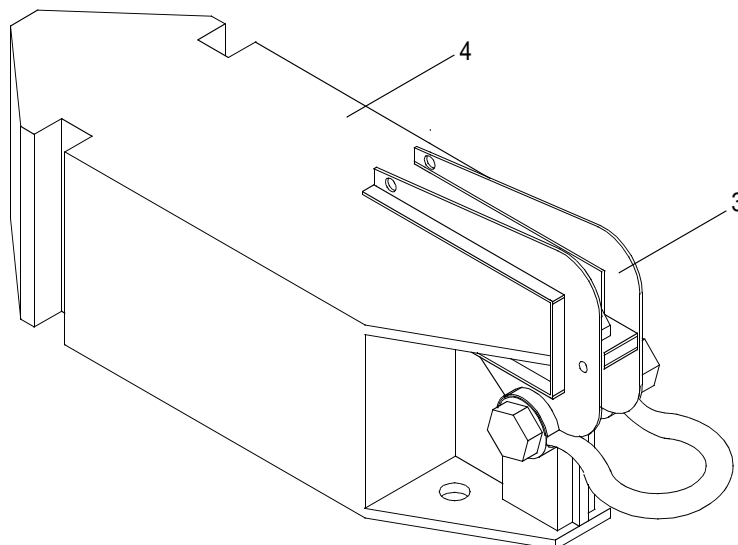
WARNING

Doors must be secured and latched in the open position. Failure to comply could result in injury to personnel.

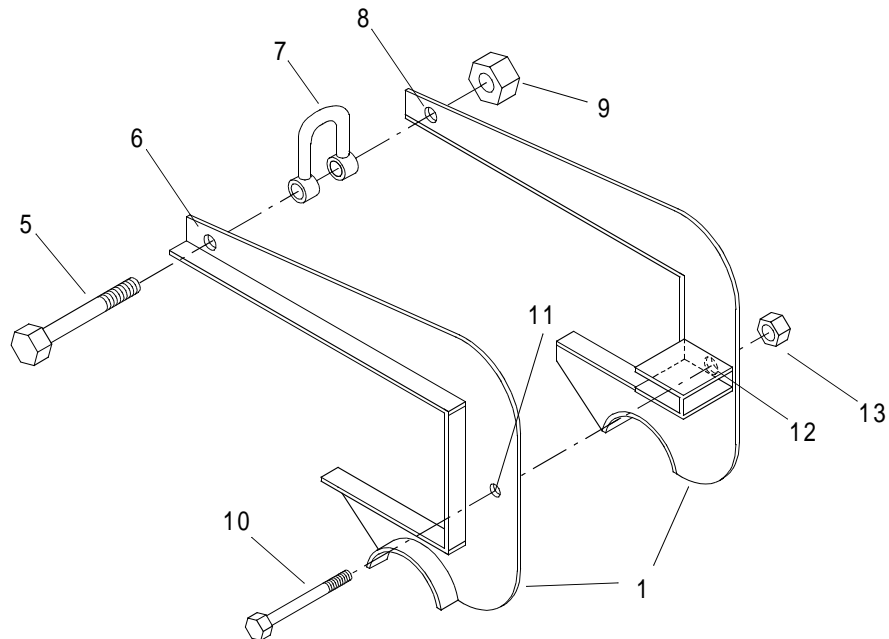
4. Secure with locking hooks.
5. Remove two flexor insert lifting device halves (1) from container side door brackets (2).



6. Remove lifting device assembly parts from toolbox.
7. Install two halves of the flexor insert lifting device (3) over flexor insert (4).

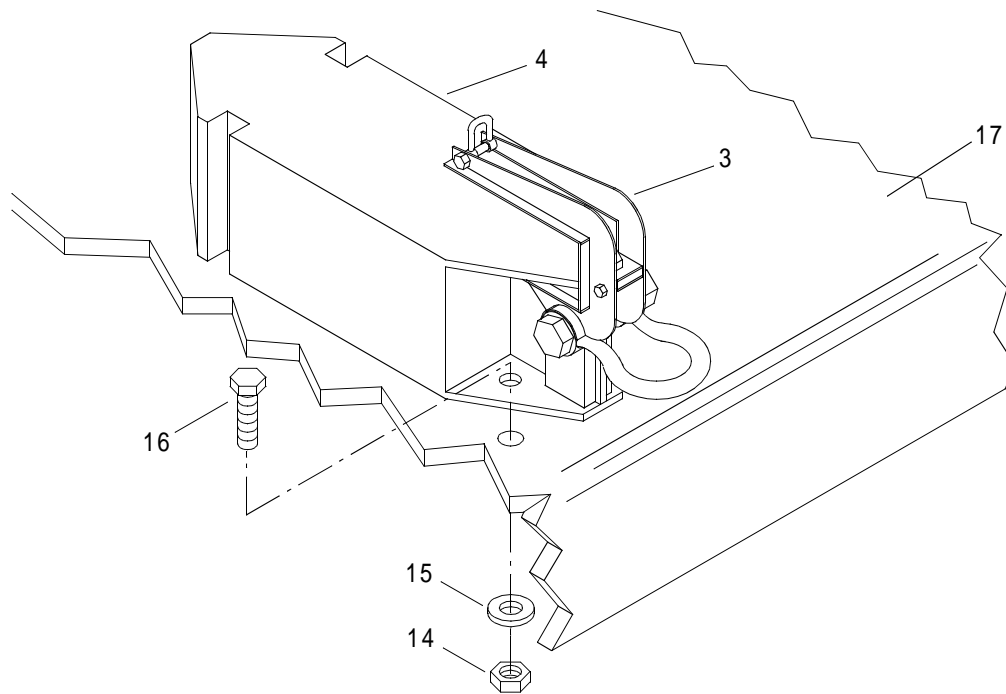


- a. Insert bolt (5) through left long leg hole (6), shackle (7) and right long leg hole (8).



- b. Install lock nut (9) on end of bolt (5).
- c. Insert bolt (10) through left short leg hole (11) and right short leg hole (12).
- d. Install lock nut (13) on end of bolt (10).
- e. Hold bolt (5) and tighten lock nut (9).
- f. Hold bolt (10) and tighten lock nut (13).

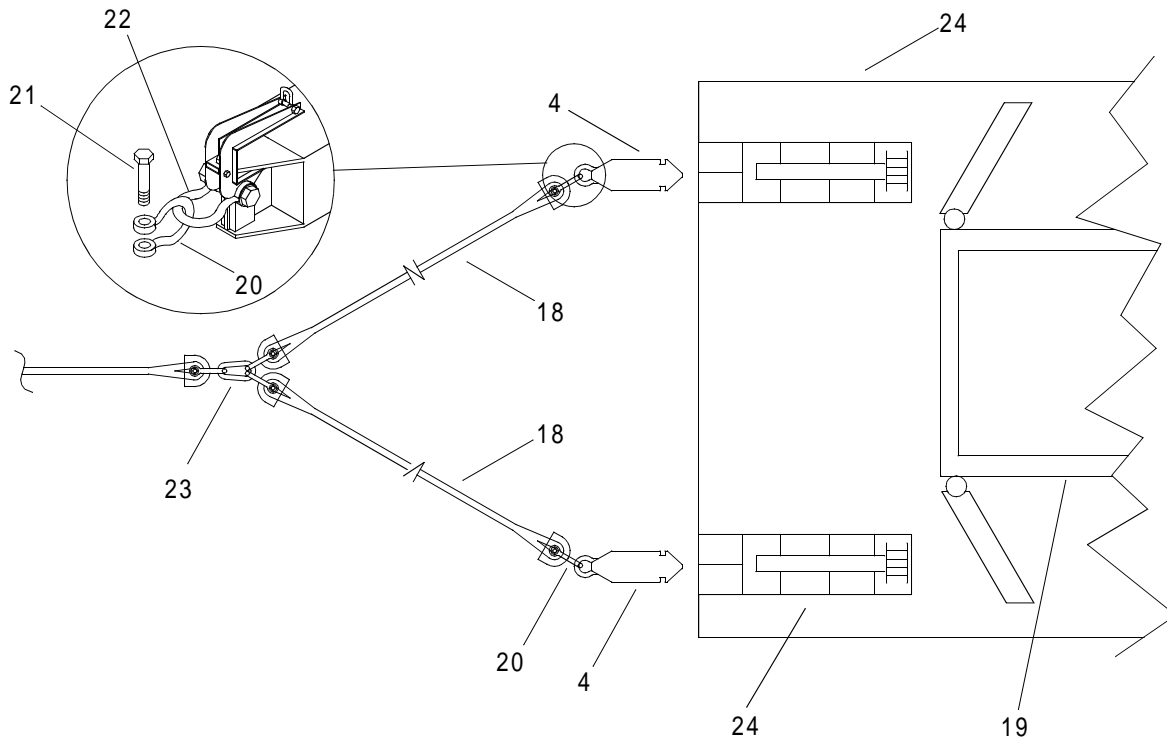
8. Remove four nuts (14), lock washers (15) and bolts (16) securing flexor insert (4) to the upper shelf of EASY container (17).



WARNING

**HEAVY PARTS**

9. Using a forklift and forklift lifting adaptor, use lifting device (3) to remove flexor insert (4) from the container shelf (17) and place on RRDF deck.
10. Remove the mooring bridle legs (18) from the EASY (19).



11. Place legs of mooring bridle (18) to each side of container (19) on deck.
12. Remove 2 in. shackle (20) and pin (21) from end of mooring bridle leg (18).
13. Attach mooring bridle leg 2 in. shackle (20) and pin (21) to flexor insert 2 in. shackle (22).
14. Install flexor insert (4) in end of rake module.
 - a. Secure a tag line between pear link (23) and RRDF deck to prevent slippage overboard.

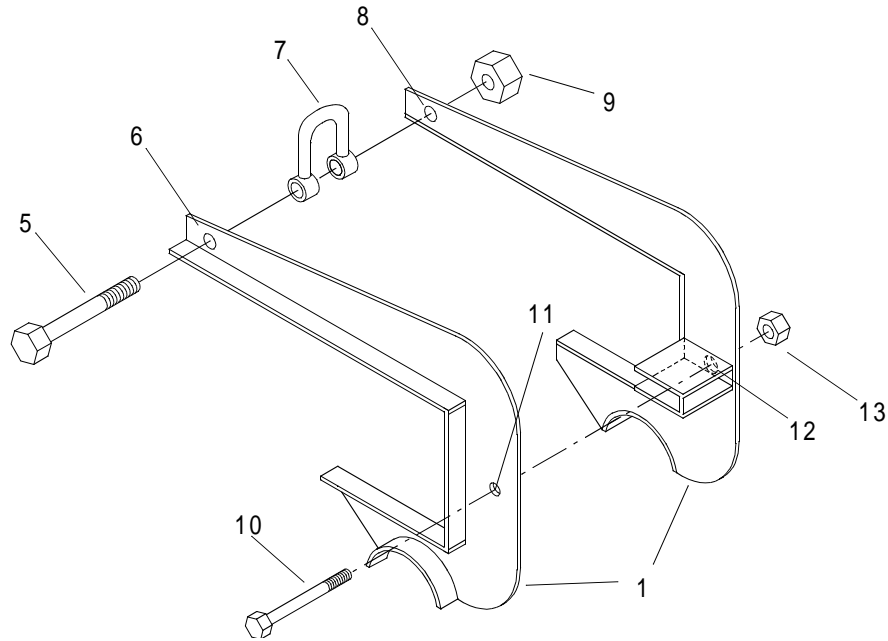
WARNING



HEAVY PARTS

- b. Using a forklift, forklift lifting adaptor, sling and flexor lifting device (3), place flexor insert (4) in a flexor pocket (24).
- c. Secure flexor insert (4) in place with the guillotine bar in the same manner as flexors. (WP 0015 00)

15. Remove flexor insert lifting device (3) from flexor insert (4).



- a. Remove lock nut (13) from bolt (10).
- b. Remove lock nut (9) from bolt (5).
- c. Remove bolt (10) from flexor insert lifting device halves (1).
- d. Remove bolt (5) from flexor insert lifting device halves (1).
- e. Remove flexor insert lifting halves (1) from flexor insert (4).

16. Repeat steps 7 through 15 for other flexor insert (4).

17. Stow the flexor lifting device in the container toolbox for use during EASY recovery.

18. Close container side doors.

19. Latch side doors shut.

20. Unhook and carefully close the container anchor end doors against the mooring bridle legs and secure the doors together with a short length of tag line.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TACTICAL QUIET GENERATOR
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

References

TM 9-6115-642-10

TM 9-6115-643-10

OPERATING PROCEDURES - OPERATE TACTICAL QUIET GENERATOR**NOTE**

The tactical generator pneumatic cutoff switch is activated when the fire suppression system is discharged. The cutoff switch must be reset before starting the tactical quiet generator.

Refer to TM 9-6115-642-10 for 10 KW Tactical Quiet Generator Operating Instructions.

Refer to TM 9-6115-643-10 for 15 KW Tactical Quiet Generator Operating Instructions.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER BASE FUEL TANK
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Industrial (chipping, chemical) (Item 26, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Extinguisher, Fire (10 lb) (Item 17, WP 0119 00)
 Gloves, Chemical (Item 24, WP 0119 00)

Materials/Parts

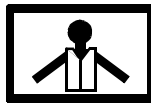
Diesel Fuel, Summer Grade, DF-2 (Item 11, WP 0120 00)
 Spill Clean-Up Kit, Hazardous Material (Item 54, WP 0119 00)

Personnel Required

Seaman 88K

OPERATING PROCEDURES - REFUELING GENERATOR CONTAINER BASE FUEL TANK

WARNING



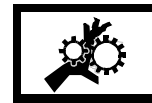
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Before fueling, check the base tank fuel level.

WARNING

Ensure ISO container, generator and fuel nozzle are grounded before beginning refueling operation. Failure to observe these precautions could result in serious injury or death.

CAUTION

Fuel Level: Fill using CLEAN DIESEL fuel (as required) and at the end of the day to minimize condensation. Refer to Table 1 for correct diesel fuel for the environment where equipment is being operated, otherwise damage to equipment could occur.

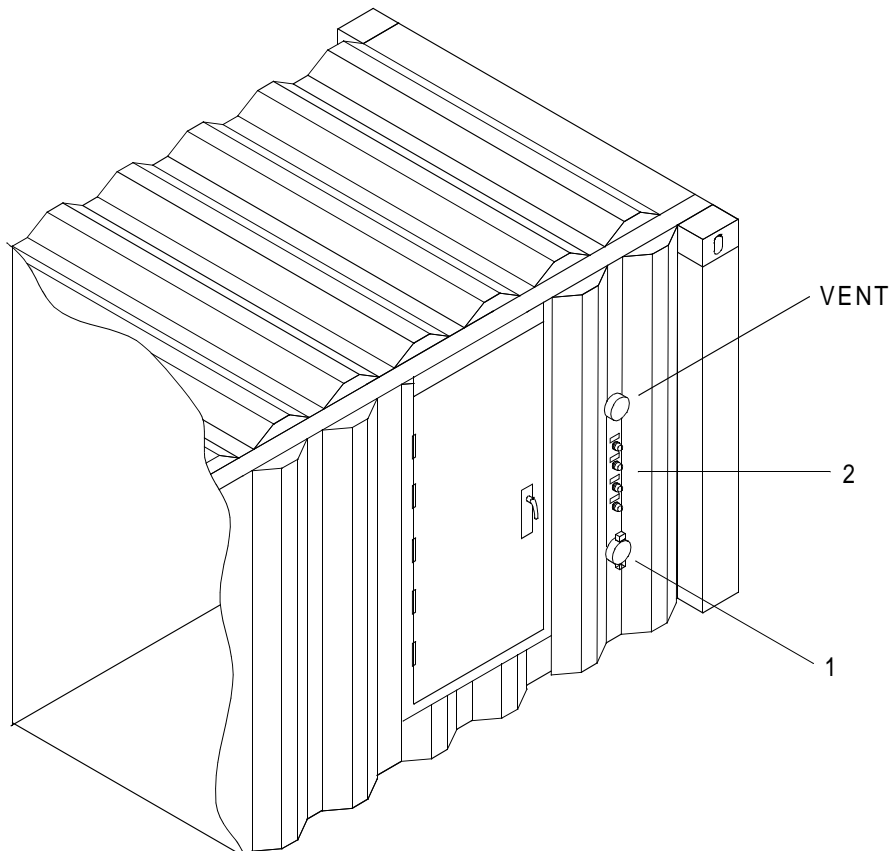
NOTE

Fire extinguisher and spill kit must be present during refueling.

Table 1. Diesel Fuel.

AMBIENT TEMPERATURE	DIESEL FUEL
+20°F to +120°F (-7°C to +49°C)	W-F-800 Grade DF-2 JP4, JP5, JP8
0°F to +20°F (-17°C to +7°C)	W-F-800 Grade DF-1 JP4, JP5 JP8
-25°F to 0°F (-32°C to -17°C)	W-F-800 Grade DF-1
-25°F to 0°F (-32°C to -17°C)	W-F-800 Grade DF-A

2. Attach fuel nozzle to fill port (1). Procedure is the same for outside or inside fill port.



WARNING

**EXPLOSION****FIRE**

Ensure there is no smoking during refueling operations. Failure to observe these precautions could result in explosion and/or fire causing serious injury or death to personnel or damage to equipment.

3. While observing the four indicator lights (2), fill tank until fuel reaches desired level.
4. Detach fuel nozzle from fill port (1).

WARNING

**CHEMICAL****EYE PROTECTION****SLICK FLOOR**

5. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Industrial (chipping, chemical) (Item 26, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Gloves, Chemical (Item 24, WP 0119 00)
 Extinguisher, Fire (10 lb) (Item 17, WP 0119 00)

Materials/Parts

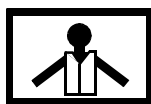
Spill Clean-Up Kit, Hazardous Material (Item 54 WP 0119 00)

Personnel Required

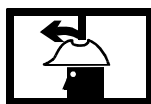
Seaman 88K

OPERATING PROCEDURES - TRANSFERRING FUEL FROM GENERATOR CONTAINER BASE FUEL TANK TO DAY FUEL TANK

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Ensure ISO container and generator are grounded before beginning refueling operation. Failure to observe these precautions could result in serious injury or death.

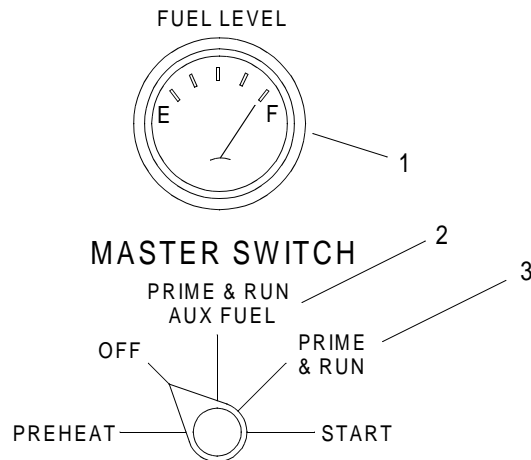
Hot fueling of generators while they are operating presents a safety hazard and should not be attempted. Failure to observe this warning could result in serious injury or death to personnel.

1. Transfer fuel from the 1000 gallon tank to the day tank using the auxiliary electric fuel pump.

NOTE

Fire extinguisher and spill kit must be present during transfer of fuel from base tank to day tank.

- a. Observe the fuel gauge (1) to determine the fuel level in the day tank.
- b. Rotate the master switch to the PRIME & RUN AUX FUEL position (2).



NOTE

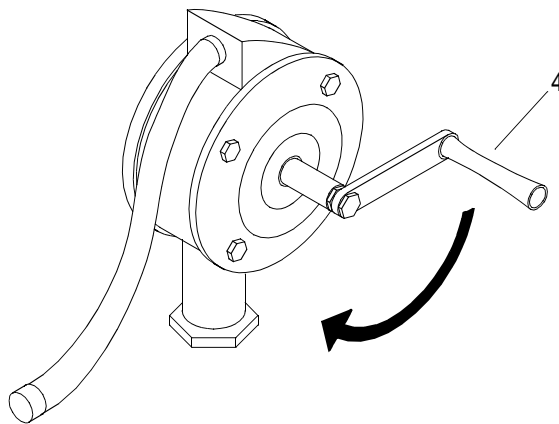
Operation of the electric (24VDC) fuel pump is preset to automatically transfer fuel from the base tank to the day tank with the generator control panel master switch.

- c. Running the generator with the master switch in the PRIME & RUN position (3) will not automatically refuel the day tank.
2. Transfer fuel using rotary hand pump.

NOTE

The hand pump can pump 10 gallons of fuel per minute, approximately 100 revolutions of the handle.

- a. Grasp handle (4).
- b. Turn manual pump handle (4) in clockwise direction to transfer fuel.



3. While observing the generator control panel fuel gauge (1), fill tank until fuel reaches desired level.
4. Check for fuel leaks.

WARNING

**CHEMICAL****EYE PROTECTION****SLICK FLOOR**

5. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FIRE SUPPRESSION SYSTEM
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATING PROCEDURES - OPERATE GENERATOR CONTAINER FIRE SUPPRESSION SYSTEM**TEST CONTROL MODULE LED INDICATORS AND SOUNDER**

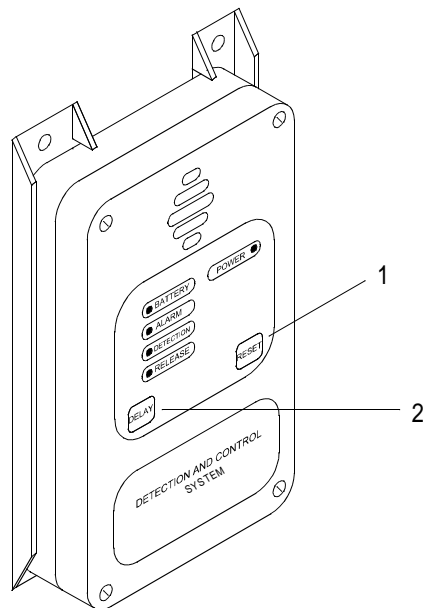
WARNING

Fire in protected compartments or accidental activation of the CO₂ system while personnel occupy compartment could result in loss of life if CO₂ is released. Personnel must listen for siren, recognize its sound and evacuate space immediately (within 30 seconds).

Do not depress fire suppression control head lever during normal maintenance. Death or injury to personnel could occur if CO₂ is inhaled.

Prior to entering the shelter after discharge of CO₂, the shelter shall be completely cleared of any CO₂ that may remain. Death or injury to personnel could occur if CO₂ is inhaled.

1. Locate control module.
2. Press RESET button (1) to illuminate LED indicators and activate sounder.



3. Refer to troubleshooting procedures if light or sounder is inoperative. (WP 0082 00)

CANCEL ACTIVATED ALARM AND REINITIALIZE CONTROL MODULE

1. Locate control module.
2. Press RESET button (1) before fire suppression is released.

RESTART SHUTDOWN DELAY TIMER**NOTE**

Shutdown delay time cannot be restarted after release delay timer has been initiated.

1. Locate control module.
2. Press DELAY button (2) before release delay timer is initiated.

END OF WORK PACKAGE

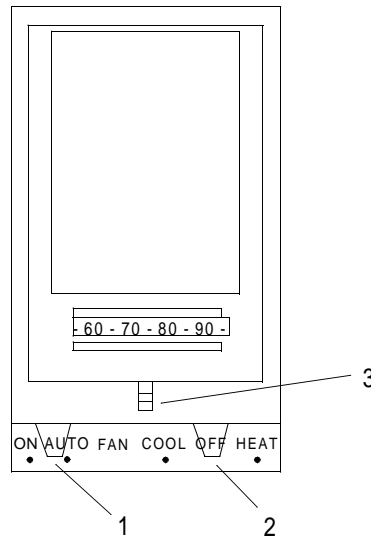
**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATING PROCEDURES - PERSONNEL SHELTER HEATING AND AIR CONDITIONING SYSTEM**TEMPERATURE CONTROL**

1. Place fan control switch (1) in the AUTO position.



2. Select heat or cool using selector (2).
3. Increase temperature by moving the slide lever (3) to the right.
4. Decrease temperature by moving the slide lever (3) to the left.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INCINERATOR TOILET/URINAL GALLEY
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:

Personnel Required

Seaman 88K

References

TM 55-1925-257-14&P

**OPERATING PROCEDURES - OPERATE THE INCINERATOR TOILET/URINAL GALLEY
EQUIPMENT AND ELECTRIC WATER HEATER (INCINOLET)**

Refer to Incinerator Toilet/Urinal Galley and Electric Water Heater (Incinolet) TM 55-1925-257-14&P.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER VHF/FM HANDHELD TRANSCEIVER
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Personnel Required**

Seaman 88K

OPERATING PROCEDURES - OPERATE THE VHF/FM HANDHELD TRANSCEIVER**INITIAL SETUP OF VHF/FM HANDHELD TRANSCEIVER**

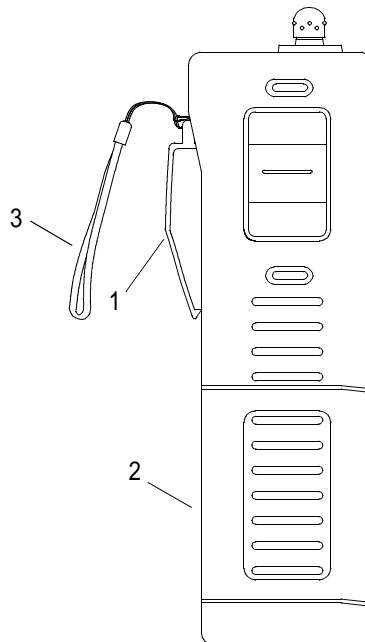
WARNING

**EXPLOSION**

To avoid the risk of explosion, do not operate radio where explosive vapors may be present. Failure to observe these precautions could result in serious injury or death.

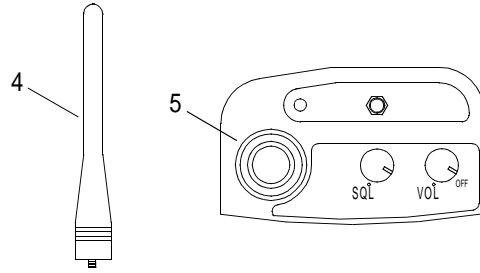
A metal object shorting the terminals may cause the battery to explode. Failure to observe this precaution could result in serious injury or death.

1. Install the belt clip (1) on the transceiver (2), if desired.

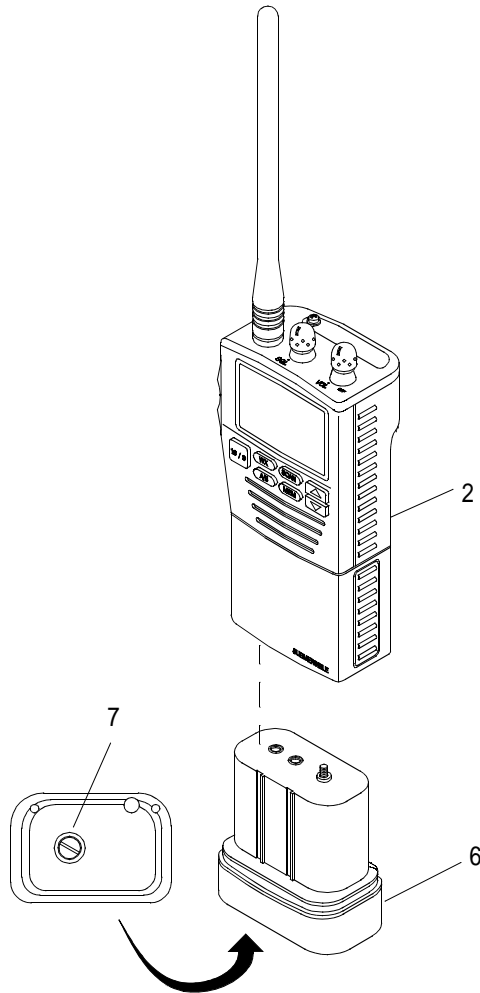


2. Install the nylon strap (3) on the belt clip (1), if desired.

3. Install the antenna (4) in the transceiver antenna receptacle (5).



4. Install the CNB350 nickel cadmium battery pack (6) in the transceiver (2).



- Slide the battery pack (6) into the battery cavity.
- Rotate the battery lock screw (7) counterclockwise two revolutions prior to tightening.
- Turn the battery lock screw (7) clockwise until hand tight.

BATTERY CHARGING

WARNING

Shorting the battery terminals that charge the transceiver can cause sparks, severe overheating, burns and battery damage. Do not place an uninstalled battery pack in the vicinity of metal objects that may short the terminals. Failure to observe this precaution could result in serious injury or death.

To avoid risk of explosion and injury, do not operate radio where explosive vapors may be present. Failure to observe these precautions could result in serious injury or death.

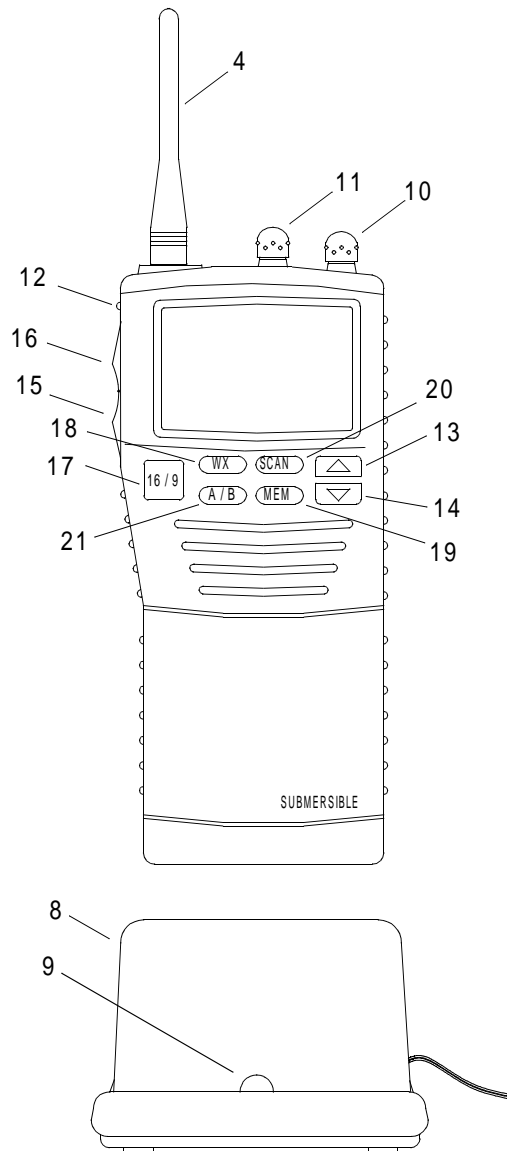
NiCad batteries must be disposed of properly. Battery may explode if incinerated, causing injury or death. Contact unit supply for proper disposal instructions.

CAUTION

Never plug the power supply to the CCA250 charge adaptor except with a CAW240, CWC230 or CWC232 adaptor. Damage to power supply could occur.

Charging the transceiver battery for more than 16 hours with the battery charge system can shorten battery life and cause other components to fail. Battery packs may be left in the CSA280 chargers without harm to either the battery pack or charger.

1. Turn the transceiver off.
2. Insert the transceiver (2) into the charger (8) to light charge indicator (9) and to begin charging.



3. Remove the transceiver (2) from the charger (8) when battery charge time has elapsed.

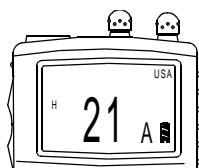
TURNING RADIO ON

NOTE

Water resistance of the transceiver is assured only when the battery pack and antenna are attached to the transceiver.

Never key the transceiver without the antenna attached. Damage to the transceiver will occur.

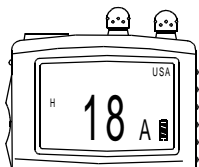
1. Turn the POWER/VOLUME knob (10) clockwise to turn the transceiver on.



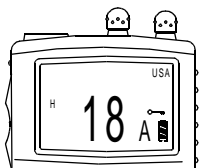
2. Rotate the SQUELCH CONTROL knob (11) fully counterclockwise to the SQUELCH OFF position.
3. Rotate the POWER/VOLUME CONTROL knob (10) until the noise or audio from the speaker can be heard.
4. Select a channel that has no voice transmissions occurring.
5. To find the squelch threshold, rotate the SQUELCH CONTROL knob (2) clockwise until the noise stops.
6. To turn on the radio light for 5 seconds, press the LAMP key (12)
7. To turn off the light sooner than 5 seconds, press the LAMP key (12).

RECEIVING RADIO TRANSMISSIONS

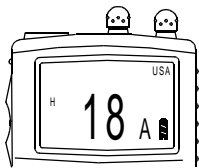
1. Press the UP ARROW key (13) or DOWN ARROW key (14) to change channels.



2. Press the LAMP/KEY LOCK key (12) for 1 second to lock the channel in the operating mode.
3. Ensure that the key lock symbol (12) appears on the display to indicate that the channel is locked.

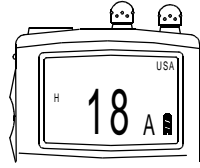


4. To unlock the channel, press the LAMP/KEY LOCK key (12) for 1 second.
5. Ensure that the key lock symbol disappears from the display to indicate that the channel is unlocked.

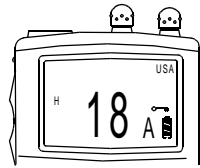


TRANSMITTING

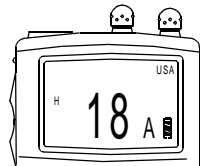
1. Press the UP ARROW key (13) or DOWN ARROW key (14) to change channels.



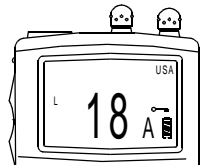
2. Adjust squelch as required.
3. Press the LAMP/KEY LOCK key (12) for 1 second to lock the channel in the operating mode.



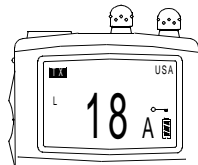
4. To unlock the channel, press the LAMP/KEY LOCK key (12) for 1 second.



5. Press the H/L key (15) until L is displayed for transmissions over a short distance.



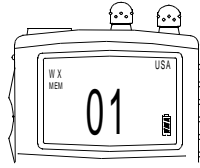
6. If low power is not effective, press the H/L key (15) until H is displayed.
7. Press the PTT switch (16) to transmit.



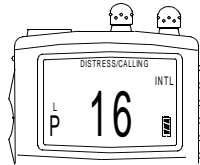
8. Release the PTT switch (16) when transmission is completed.

OPERATING MODES

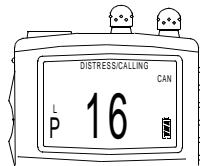
1. To access the USA operating mode, hold down the 16/9 key (17) and press the WX key (18) to change the mode of the receiver to USA.



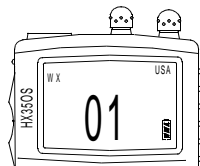
2. To access the INTERNATIONAL operating mode, hold down the 16/9 key (17) and press the WX key (18) to change the mode of the receiver to INTL.



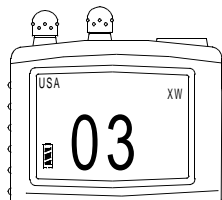
3. To access the CANADIAN operating mode, hold down the 16/9 key (17) and press the WX key (18) to change the mode of the receiver to CAN.


NOAA WEATHER CHANNELS

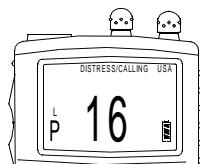
1. Press the WX key (18) to receive a weather channel.



2. Press the UP ARROW key (13) or DOWN ARROW key (14) to change to other weather channels.

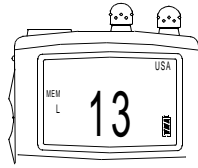


3. Press the WX key (18) to exit from the weather channels and return to the previous non-weather channel.



SCANNING

1. Select the desired channel to be scanned using the UP ARROW key (13) or DOWN ARROW key (14).
2. Press the MEM key (19) to store the channel into the transceiver's memory.



3. Repeat steps one and two until all channels to be scanned are stored in the transceiver's memory.
4. Press the SCAN key (20) to start scan.
5. Press the SCAN key (20) to stop the scan.

DELETE SCAN MEMORY

1. To delete a channel from the transceiver's scan memory, select the desired channel using the UP ARROW key (13) or DOWN ARROW key (14).
2. Press the MEM key (19) while the channel number to be deleted from the scan memory is displayed.
3. Delete the complete scan memory by resetting the transceiver's microprocessor.
 - a. Turn the transceiver off using the POWER/VOLUME CONTROL knob (10).
 - b. To return to the factory default settings, press the SCAN key (20) and the WX key (18) while turning on the transceiver.

PRIORITY SCAN

1. To change from channel 16 to channel 09 and set the priority channel, hold down the 16/9 key (17) and press the MEM key (19).
2. Press MEM key (19) to change to channel number programmed as A channel.
3. Press MEM key (19) to change to channel number programmed as B channel.
4. Press the SCAN key (20) at least 1 second for priority scanning during normal scanning.

WEATHER ALERT**NOTE**

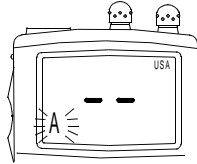
A loud tone will indicate that the transceiver is in the weather alert mode. When a weather alert is received, scanning stops and the transceiver enters the weather alert mode.

1. Press the SCAN key (20) to start scanning the memorized weather channels along with the other regularly scanned channels.
2. Press the WX key (18) to stop the alert tone and receive the voice information on the weather channel.

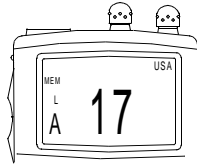
CHANNEL A/B INSTANT ACCESS**NOTE**

Ensure that a blinking letter A and dashes appear on the display to indicate that no channel has been selected for A.

1. Press the A/B key (21) and turn the transceiver on.



2. Using the UP ARROW key (13) and DOWN ARROW key (14), enter the desired channel.
3. Press the MEM key (19) to stop displayed A blinking and display the A channel.



4. Turn the radio off and back on to return to normal radio mode.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWERS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

OPERATING PROCEDURES - OPERATING PROCEDURES FOR LIGHT TOWERS

WARNING



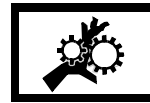
VEST



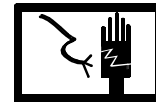
HELMET PROTECTION



HEAVY PARTS



MOVING PARTS



ELECTRICAL

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Electrical power is present upon cranking engine. Electrical shocks could cause injury or death.

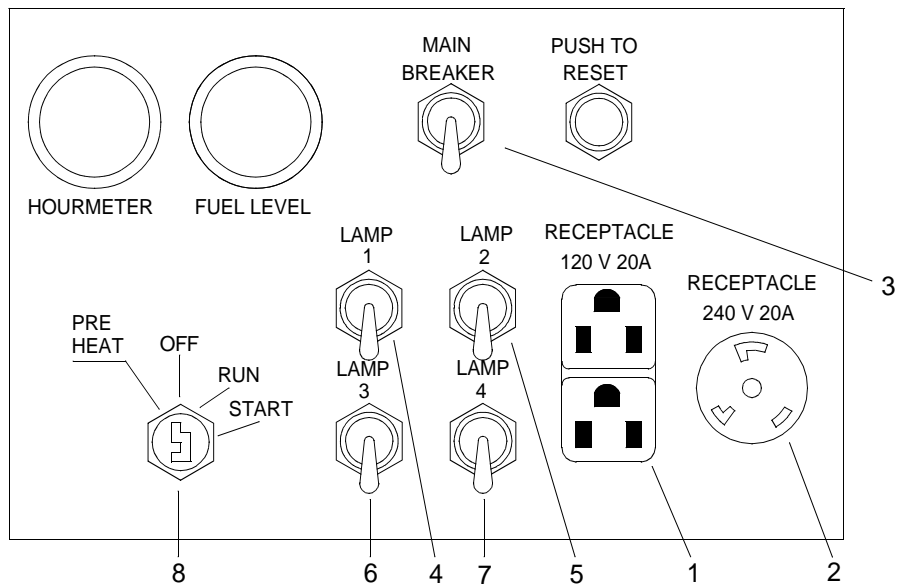
NOTE

The engine in this unit is protected with sensors for high coolant temperature and low oil pressure. Should either of these conditions occur, the engine will automatically stop causing a loss of power to all lamps (except the control panel) and receptacles. Before restarting the unit, check fuel level and engine/radiator thoroughly and correct the problem.

The lamps should not be restarted for approximately fifteen (15) minutes.

START LIGHT TOWER ENGINE

1. Unplug all external loads from the receptacles (1 and 2).



2. Position main breaker (3) to the off position.
3. Position all lamp switches (4, 5, 6, 7), to the off (down) position.

CAUTION

Do not use ether in conjunction with the glow plug preheat system. Failure to comply will result in engine damage.

4. Turn rotary switch (8) to PREHEAT for 5 seconds prior to starting.

CAUTION

Do not crank for more than 15 seconds without allowing starter to cool for 30 seconds. Failure to comply could result in starter damage.

5. Immediately turn rotary switch (8) to START. If engine fails to start, contact unit maintenance.

CAUTION

Keep side doors closed for optimum cooling of unit while running. Failure to comply could result in engine damage.

6. Release rotary switch (8) after engine continues to run.

NOTE

Allow engine to warm-up for 3 to 5 minute before lamp switches (4, 5, 6, 7) and receptacles (1 and 2) can be used.

7. If engine stops unexpectedly, refer to troubleshooting procedures. (WP 0100 00)
8. Plug external loads into receptacles (1 and 2).
9. Position main breaker (3) to the on position.
10. Position lamp switches (4, 5, 6, 7) to the on positions, as required.

STOP LIGHT TOWER ENGINE

1. Position main breaker (3) to the off position.
2. Unplug all external loads from receptacles (1 and 2).
3. Position all lamp switches (4, 5, 6, 7) to off.
4. Turn rotary switch (8) to off.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB) AND MOTOR
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

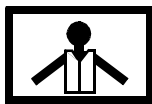
Seaman 88K

Equipment Condition

Rigid Hull Inflatable Boat Prepared For Use. (WP 0024 00)

OPERATING PROCEDURES - RIGID HULL INFLATABLE BOAT (RHIB) AND MOTOR

WARNING



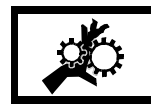
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

PERFORM BREAK-IN PROCEDURE

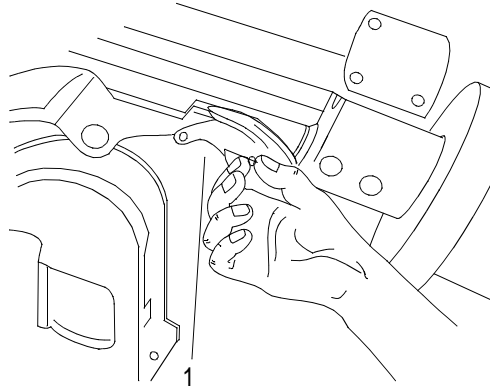
CAUTION

Failure to perform break-in procedures for the first ten hours of engine operation could result in engine damage.

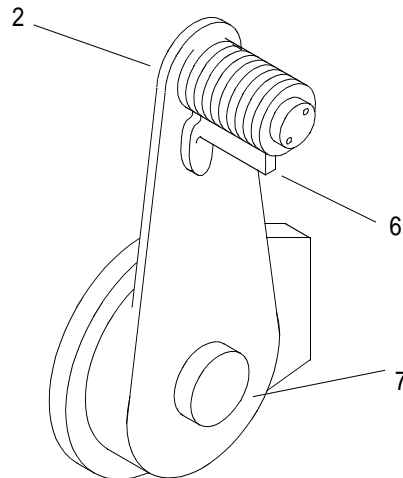
Perform the ten hour break-in procedure with the boat and engine in the water. Do not perform the break-in procedure using a flushing device. Do not start or run the engine out of the water. Do not leave a running engine unattended. Failure to comply could result in engine damage.

1. Disengage the trailering bracket.
 - a. Tilt the motor fully.

-
- b. Return the trailering bracket (1) to its stowed position.



- c. Lower the motor to its vertical position.
2. Connect the lanyard to a secure place on the operator.
 3. Place the shifting and speed control (2) in the neutral position.



CAUTION

Do not exceed 2500 RPM in neutral. Do not exceed 1500 RPM in neutral for extended periods of time. Failure to comply could result in engine damage.

4. Start the engine.

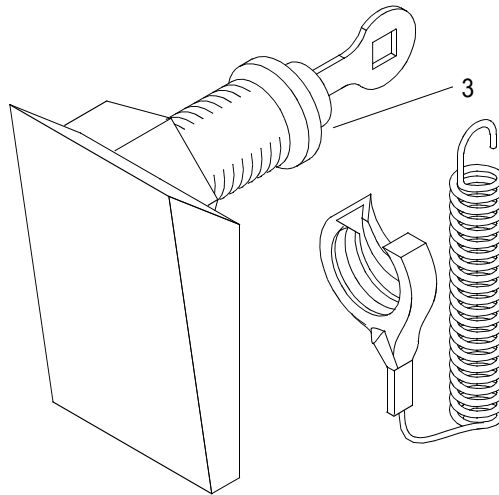
CAUTION

Do not turn the key switch to the start position while the engine is running. Damage to the starter and flywheel will result.

NOTE

Priming is not required when the engine is warm. Do not advance the throttle for starting unless needed to clear a flooded engine.

- a. Turn the key (3) clockwise to the start position and push the key in to prime.



- b. Crank the engine no longer than 10 seconds or until the engine starts.
 - c. If the engine did not start, release the key momentarily, then try again.
 - d. If the engine does not start, refer to troubleshooting procedures. (WP 0105 00)
5. After the engine starts, perform the following:
 - a. If the engine runs rough, primer may be pushed in several times to make engine run smoothly.

CAUTION

If a steady stream of water is not visible from the water pump indicator, stop the engine immediately. Damage to engine may result.

- b. Check the water pump indicator.
6. After starting, change the RPM of the engine often.
 7. During the first five minutes of operation, run the engine in gear at slow idle to fast idle only.
 8. During the first half of the break-in period, run the engine in gear at various speeds no faster than 1/2 throttle.
 9. During the second half of the break-in period, run the engine in gear at various speeds including 30 second bursts at full throttle.
 10. After the first 20 hrs of operation, return the engine to an OMC dealer for inspection and adjustment.

START MOTOR

WARNING

Do not operate the motor with the cover off unless performing emergency starting. Keep hands, hair and clothing clear of moving parts. Contact with moving parts may cause injury or death.

NOTE

Follow break-in procedures if motor is new.

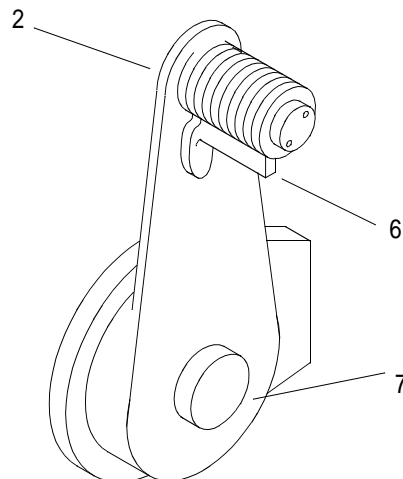
1. Open vent on fuel tank cap.

NOTE

Priming is not required when the engine is warm.

Do not advance the throttle for starting unless needed to clear a flooded engine.

2. Connect fuel hose to fuel tank and engine.
3. Squeeze the fuel line primer bulb until it becomes firm.
4. Connect the lanyard to a secure place on the operator.
5. Place the shifting and speed control (2) in the neutral position.



CAUTION

Do not turn the key switch to the start position while the engine is running. Damage to the starter and flywheel will result.

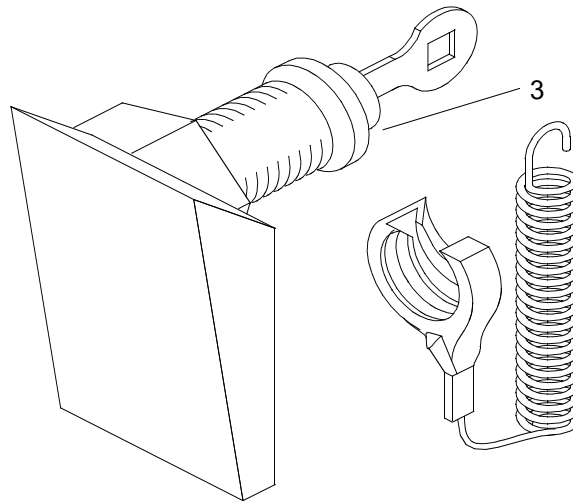
Do not exceed 2500 RPM in neutral. Do not exceed 1500 RPM in neutral for extended periods of time. Engine damage could result.

NOTE

Priming is not required when the engine is warm.

Do not advance the throttle for starting unless needed to clear a flooded engine.

6. Start engine.
 - a. Turn the key (3) clockwise to the START position and push the key in to prime.



- b. Crank the engine no longer than 10 seconds or until the engine starts.
 - c. If the engine did not start, release the key momentarily, then try again.
 - d. If the engine does not start, refer to troubleshooting procedures.
 7. After the engine starts, perform the following:
 - a. If the engine runs rough, primer may be pushed in several times to make engine run smoothly.

CAUTION

If a steady stream of water is not visible from the water pump indicator, stop the engine immediately. Damage to engine may result.

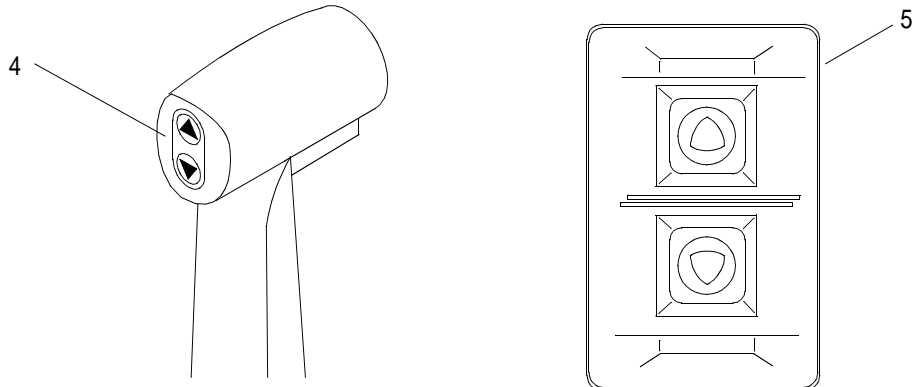
- b. Check the water pump indicator. A steady stream of water indicates the water pump is operating.

TILT MOTOR

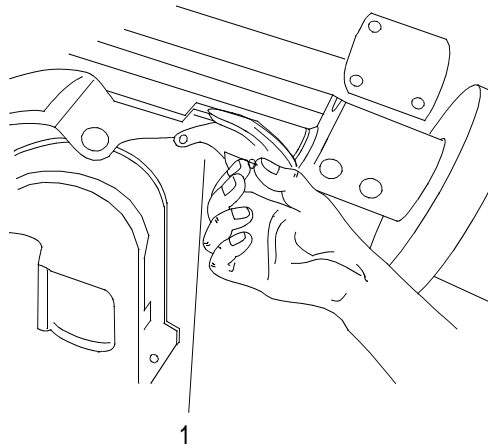
WARNING

Manually tilting the motor could cause the motor to fall suddenly when the trairling bracket is disengaged. Failure to use the power tilt could result in serious injury.

1. Tilt the motor fully using the trim/tilt switch (4) or trairling switch (5).



2. Return the trairling bracket (1) to the stowed position.



3. Tilt the motor down to the operating position.

SHIFTING AND SPEED CONTROL

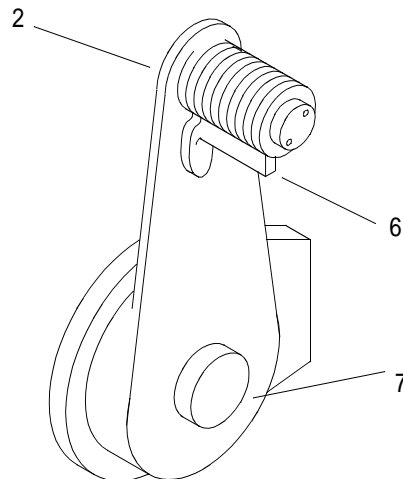
CAUTION

Allow the boat to slow and the engine to return to idle before shifting from forward to reverse or reverse to forward. Failure to comply could result in equipment damage.

NOTE

Check the function of all controls and engine systems before departing RRDF platform. Do not shift into forward or reverse with the engine shut off.

1. Shift gears.



- a. Lift the neutral locking tab (6) by squeezing the hand grip if the shifting and speed control is locked in neutral.
- b. Move the shifting and speed control handle (2) forward.
- c. Shift into reverse gear by moving the shifting and speed control handle (2) aft.
- d. If the shifting and speed control handle (2) is locked in neutral, lift the neutral locking tab (6) by squeezing the hand grip.

2. Operate speed control.

- a. Move the shifting and speed control handle (2) forward while in forward gear to increase speed.
- b. Move the shifting and speed control handle (2) aft while in reverse gear to increase speed.

3. Adjust the engine fast idle.

- a. Squeeze the neutral lock tab (6) to begin handle travel.
- b. With the shifting and speed control handle in neutral, push the fast idle button while using the other hand to move the shifting and speed control handle forward past the forward gear detent and into the throttle range.
- c. When ready to shift, move the shifting and speed control handle (2) back to neutral.

OPERATE NAVIGATION LIGHTS

1. Move the switch to on to operate navigation lights.
2. Move the switch to off to turn the navigation lights off.

STOPPING MOTOR

CAUTION

Leave the key in the off position when the motor is not running. Failure to comply could result in battery discharging.

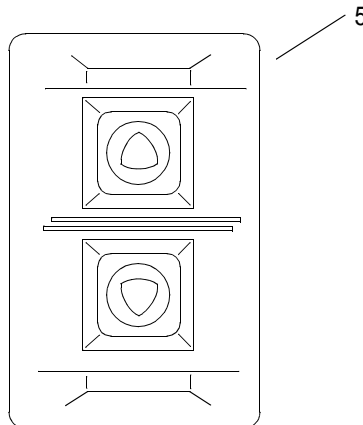
1. Move the shifting and speed control handle (6) to neutral.
2. Turn key (3) counterclockwise to the off position.

POWER TRIM AND TILT

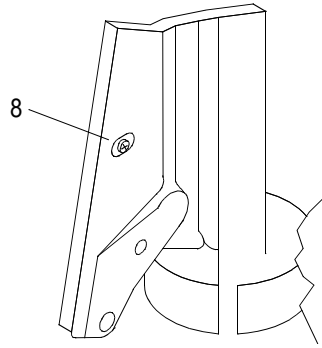
WARNING

Care should be taken not to hit any underwater obstacles. Failure to comply could result in damage to equipment and/or serious injury or death to personnel.

1. Tilt the motor.
2. Operate the power tilt by pushing and holding the trailering switch (5) in the bow up or bow down position.



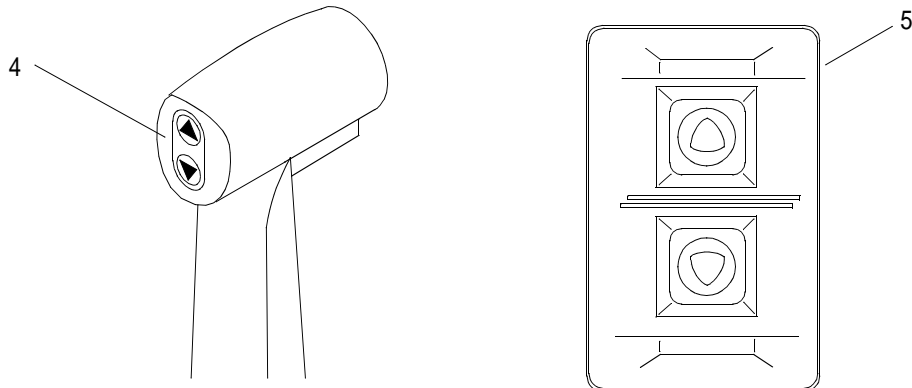
3. Tilt the motor manually.



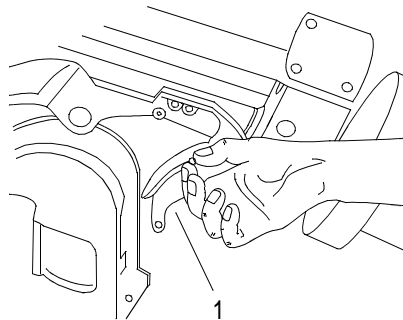
4. Turn the manual release screw (8) counterclockwise slowly until it lightly contacts its retaining ring; about 3 1/2 turns.
5. Reposition the engine.
6. Tighten the manual release screw (10) to hold the engine in its new position.

OPERATE TRAILERING BRACKET

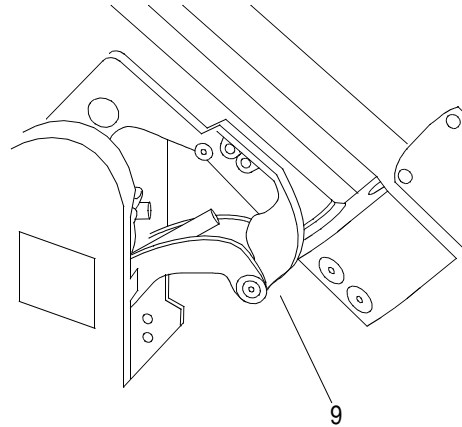
1. Engage the trailering bracket.
 - a. Tilt the motor fully using the tilt trim switch (4) inside the boat or the trailering tilt switch (5).



- b. Pull down the trailering bracket (1).



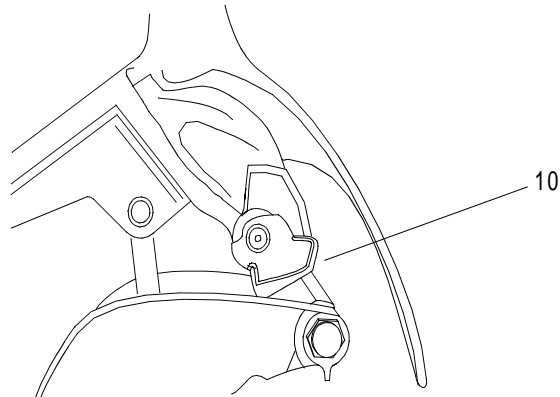
- c. Lower the motor until the trawling bracket (1) locks into place in the stern brackets.



NOTE

Do not use the tilt support lever while trawling.

2. Engage the tilt support (9).
- a. Tilt the motor up using the trim/tilt switch (4) or trawling switch (5).



- b. Flip the tilt support lever (10) down.
- c. Lower the motor until the tilt support lever (9) rests solidly on the stern brackets.

WARNING

Always use the power tilt to lift and support the motor before disengaging the tilt support lever. If the power tilt will not lift the motor, do not attempt to force the tilt support lever from its position on the stern brackets. If oil pressure is lost while using the tilt support lever the motor can drop suddenly when the support is disengaged. Failure to comply could result in serious injury to personnel.

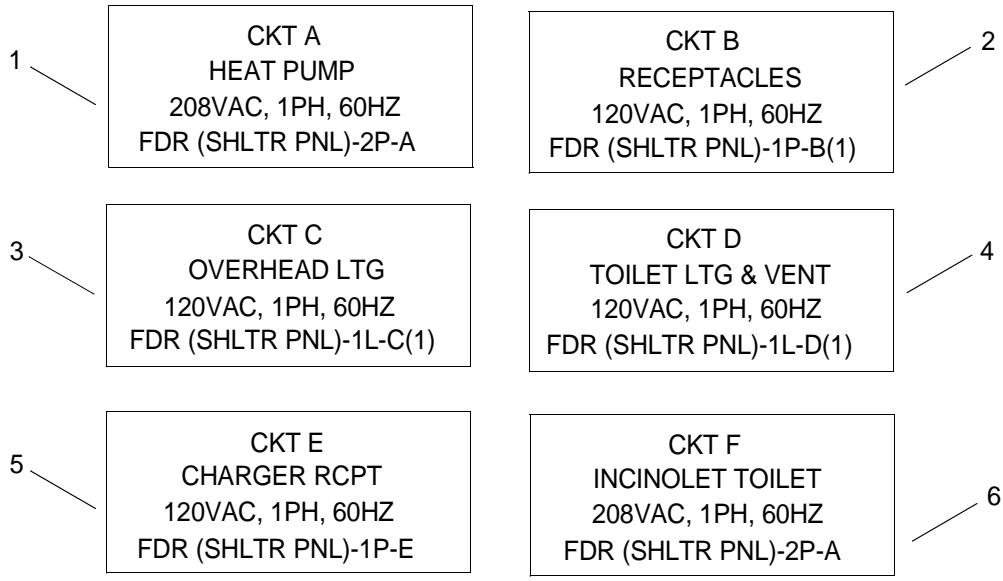
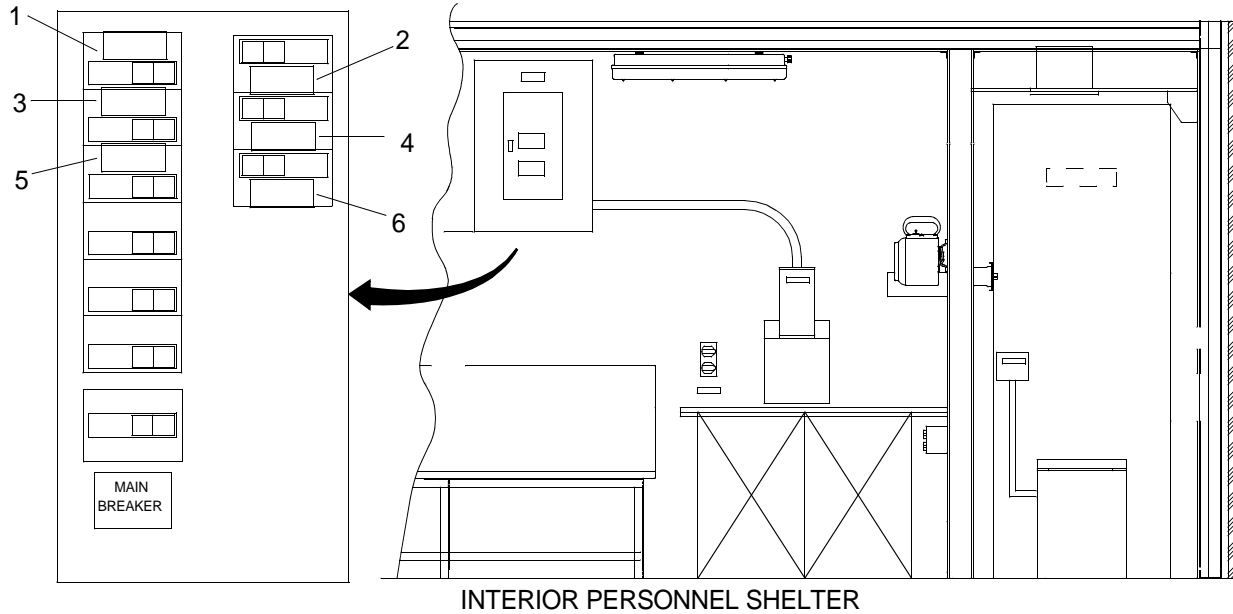
3. Disengage the tilt support lever (9).
 - a. Tilt the motor up.
 - b. Flip the tilt support lever up (9).
 - c. Lower the motor to operating position.

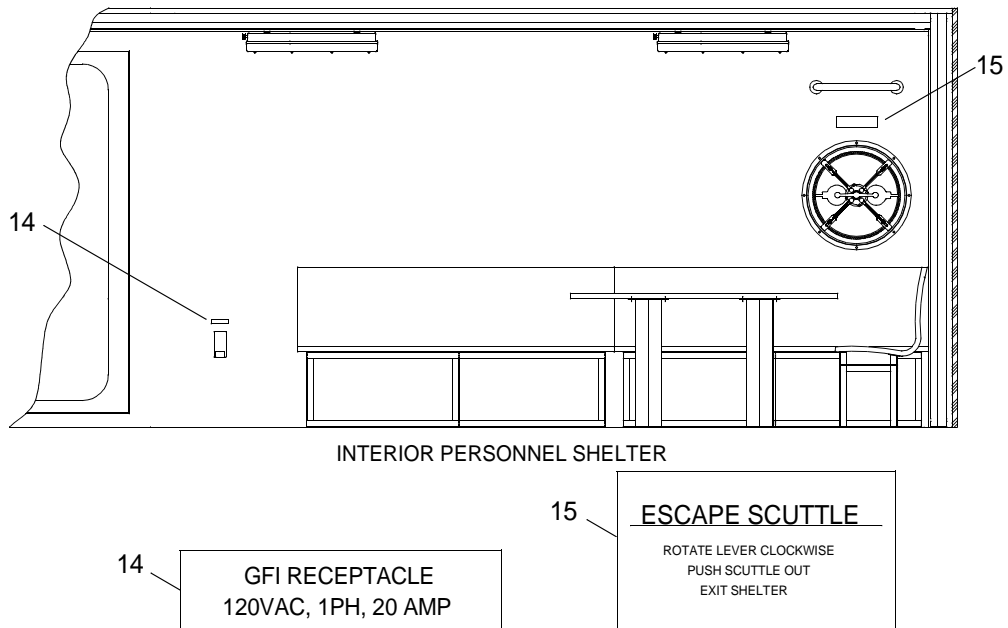
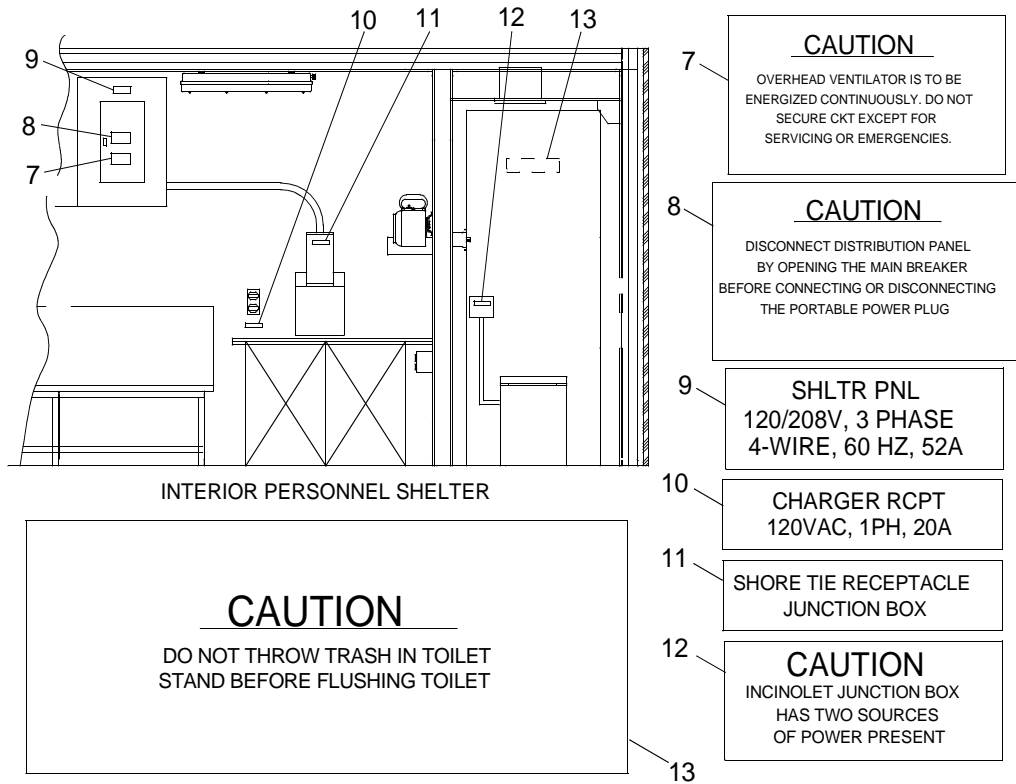
END OF WORK PACKAGE

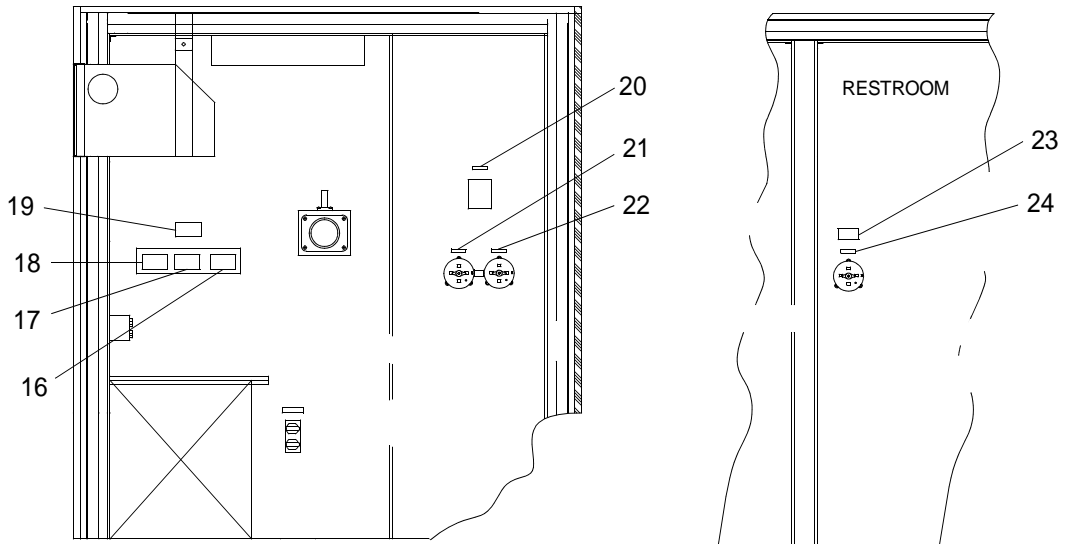
**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DECALS AND INSTRUCTION PLATE LOCATIONS**

DECALS AND INSTRUCTION PLATES

This work package provides location and description of decals and instruction plates. Each index number is shown twice, once to show location and the other to show decal or instruction plate information.







INTERIOR PERSONNEL SHELTER

17 **CAUTION:**
DO NOT CHARGE
BATTERIES FOR MORE
THAN 16 HOURS

19 HX350S
HANDHELD RADIOS

20 THERMOSTAT

21 OVRHD WHITE LTG

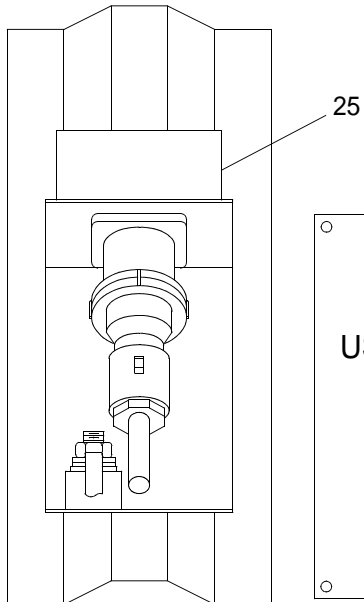
16 HANDHELD
BATT CHARGER

18 VHF HANDHELD
POWER SUPPLY

22 OVRHD RED LTG

23 WHEN THE ELECTRIC TOILET
IS ENERGIZED, THE OVERHEAD
VENTILATOR IS DISABLED

24 RESTROOM LTG



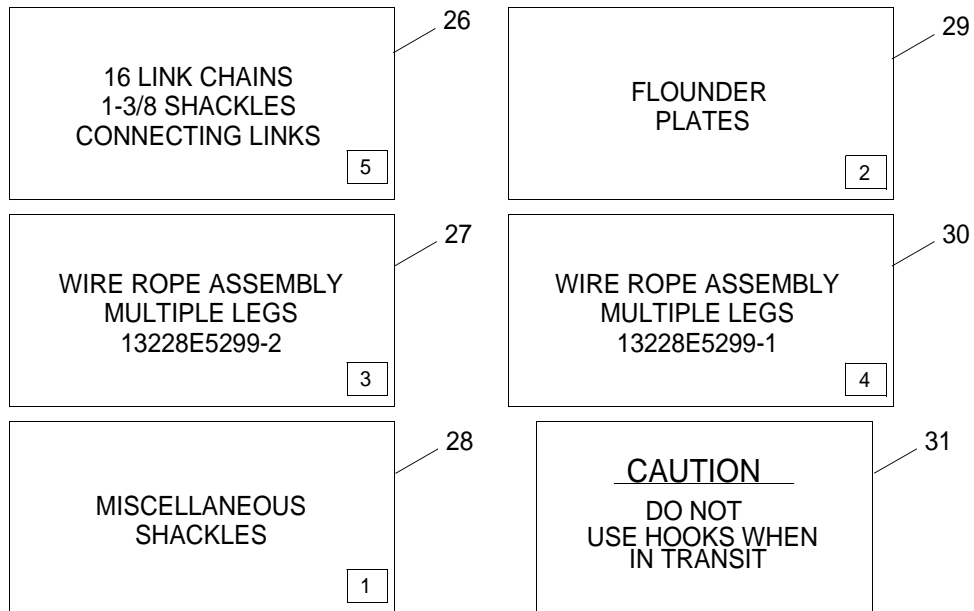
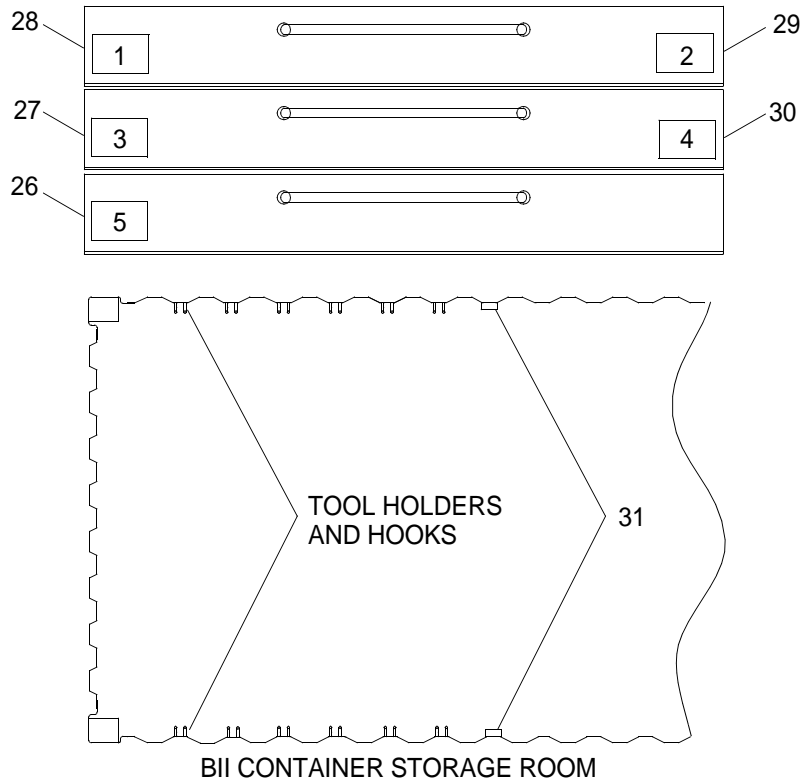
25

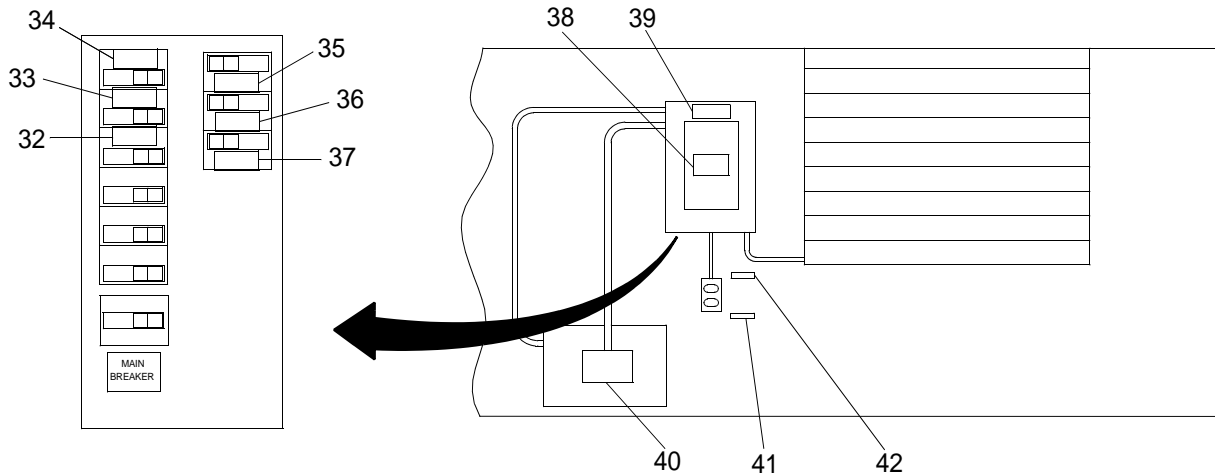
CAUTION

USE CARE WHEN CONNECTING AND DISCONNECTING
THE PORTABLE POWER CABLE AND PLUG. PUSH
CONNECTOR INTO THE INLET, TWIST AND LOCK.

100A SHORE TIE INLET
208VAC, 52A, 3 PHASE, 60 HZ

EXTERIOR OF PERSONNEL SHELTER





INTERIOR GENERATOR ISO CONTAINER

32 — CKT E
CHARGER RCPT
120VAC, 1PH, 60HZ
FDR (GEN PNL)-1P-E

33 — CKT C
OVERHEAD LTG
120VAC, 1PH, 60HZ
FDR (GEN PNL)-1L-C(1)

34 — CKT A
LOUVER MOTORS
208VAC, 1PH, 60HZ
FDR (GEN PNL)-2P-A

35 — CKT B
RECEPTACLES
120VAC, 1PH, 60HZ
FDR (GEN PNL)-1P-B(1)

36 — CKT D
FIRE DETECTION CTRL MOD
120VAC, 1PH, 60HZ
FDR (GEN PNL)-1L-D(1)

37 — CKT F
FLOAT SWITCHES
208VAC, 1PH, 60HZ
FDR (GEN PNL)-2P-A

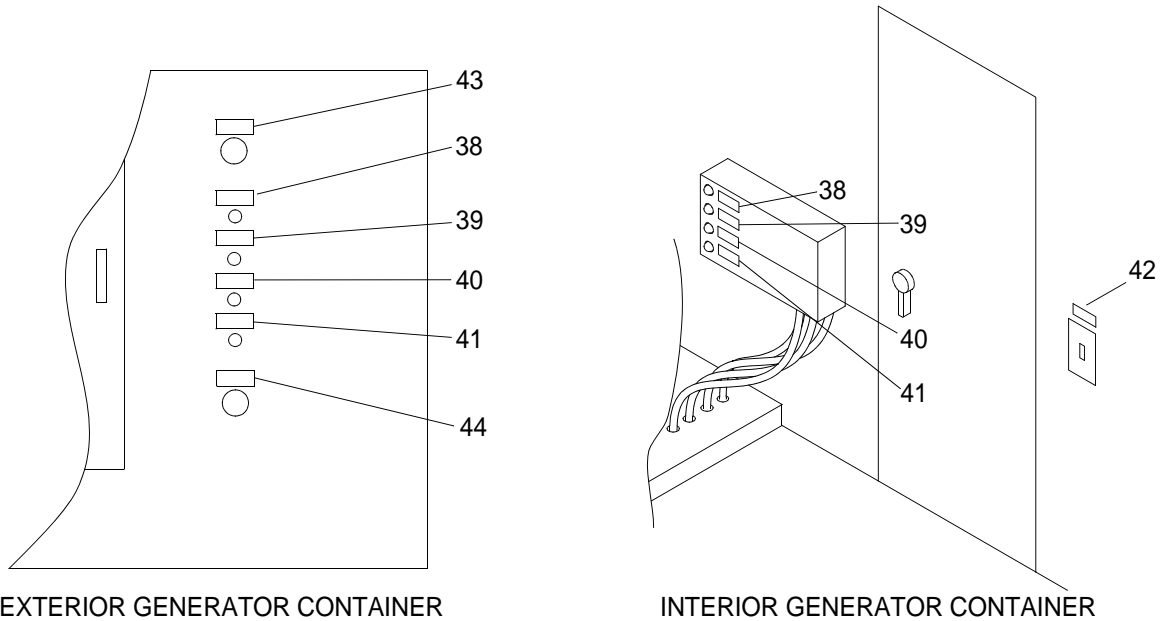
38 — **CAUTION**
DISCONNECT DISTRIBUTION PANEL
BY OPENING THE MAIN BREAKER
BEFORE CONNECTING OR DISCONNECTING
THE PORTABLE POWER PLUG

39 — **GENERATOR PNL**
120/208V, 3 PHASE
4-WIRE, 60 HZ, 52A

40 — **SHORE TIE RECEPTACLE
JUNCTION BOX**

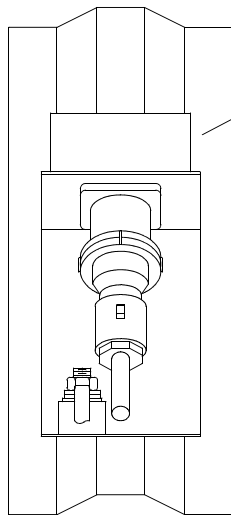
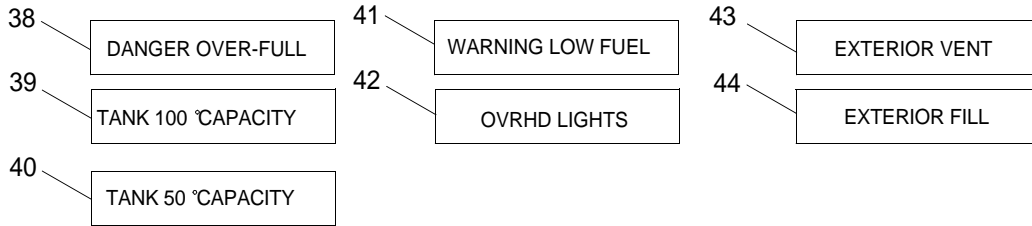
41 — **GFI RECEPTACLE**
120VAC, 1PH, 20 AMP

42 — **RECEPTACLE**
120VAC, 1PH, 20 AMP



EXTERIOR GENERATOR CONTAINER

INTERIOR GENERATOR CONTAINER

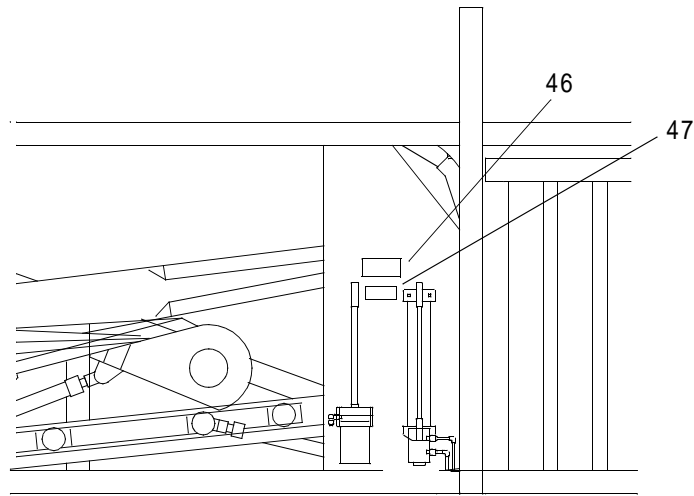


CAUTION

USE CARE WHEN CONNECTING AND DISCONNECTING THE PORTABLE POWER CABLE AND PLUG. PUSH CONNECTOR INTO THE INLET, TWIST AND LOCK.

100A SHORE TIE INLET
208VAC, 52A, 3 PHASE, 60 HZ

EXTERIOR OF GENERATOR CONTAINER



EASY ANCHOR CONTAINER

CAUTION!

BEFORE OPERATING HYDRAULIC PUMPS:

1. OPEN CONTAINER ANCHOR END DOORS
2. REMOVE SHIPPING LINKS (4) ON ANCHOR DOOR
3. REMOVE ANCHOR SECURING BELT

46

CAUTION!

EXTEND ANCHOR DRAWER BEFORE ELEVATING ANCHOR SLIDE

LOWER ANCHOR SLIDE BEFORE RETRACTING ANCHOR DRAWER

47

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DUNNAGE MATS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

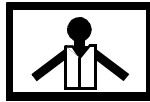
Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Tee Handle (Item 10, WP 0118 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - REMOVAL OF DUNNAGE MATS**REMOVE DUNNAGE MATS FROM PLATFORM**

WARNING



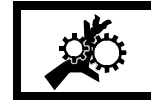
VEST



HELMET PROTECTION



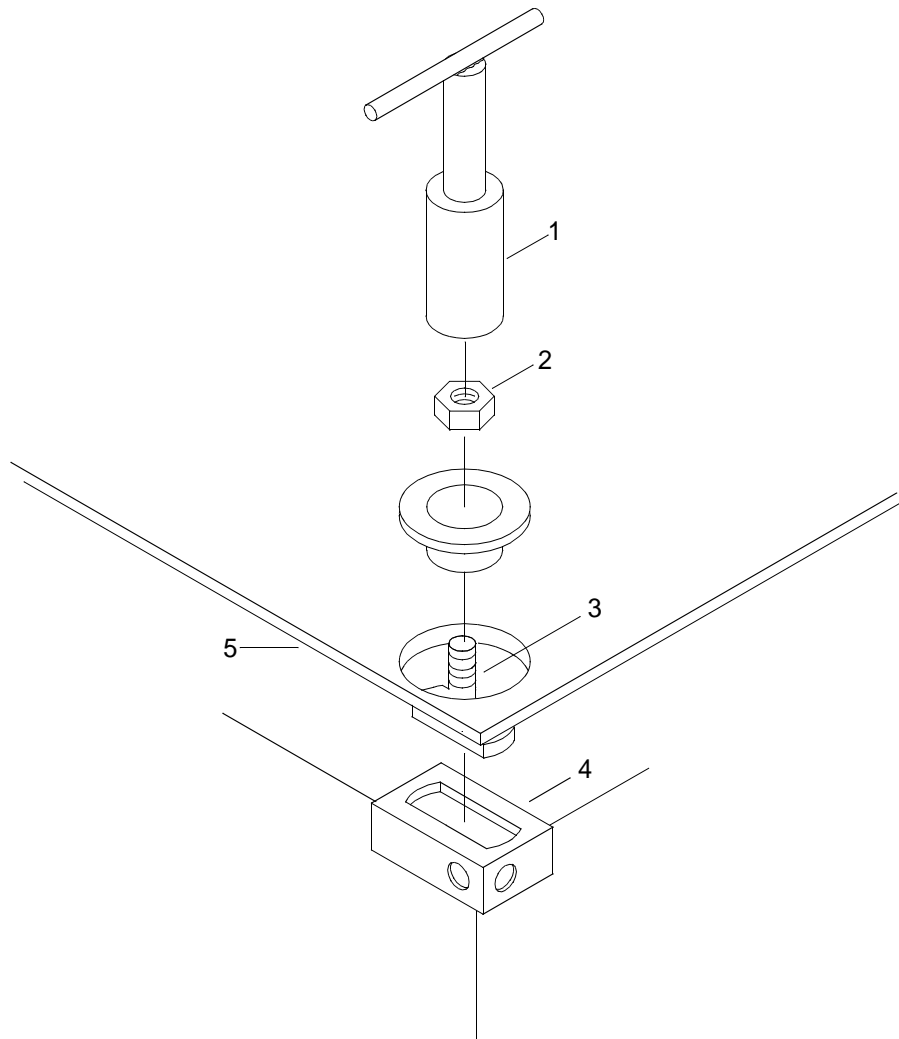
HEAVY PARTS



MOVING PARTS

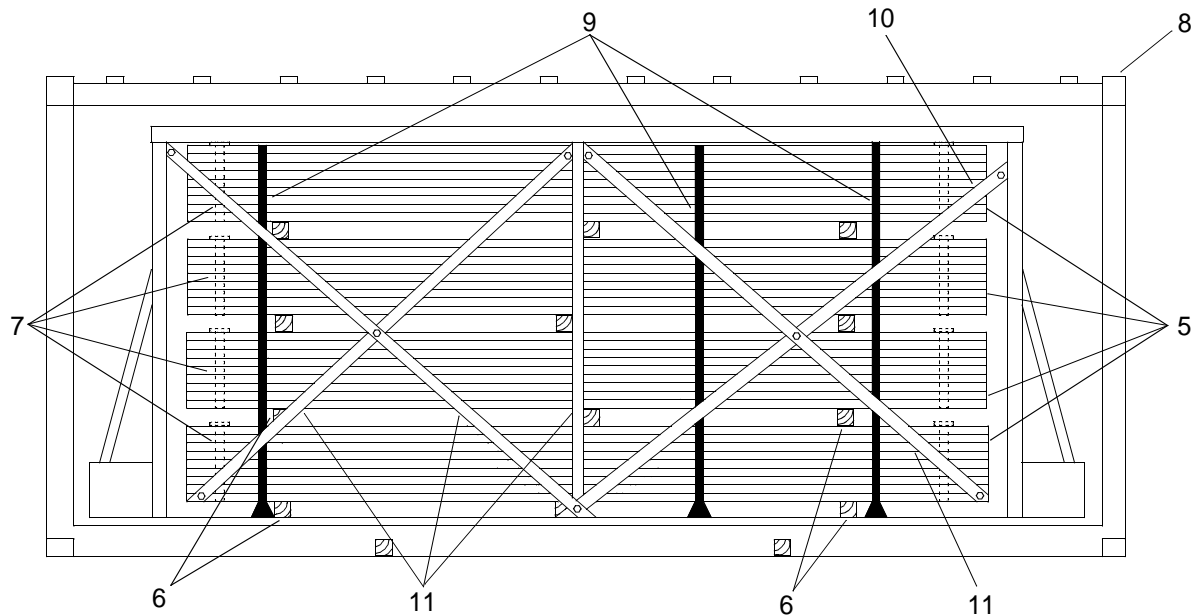
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Using the provided tee handle (1), loosen nut (2) on dog (3).



2. Using the tee handle (1), rotate the dog (3) until aligned with slot in ISO fitting (4).
3. Lift the dog (3) through the top hole of the ISO corner fitting (4) and dunnage mat (5).

- Place dunnage wood (6) on the RRDF platform in an area where the dunnage mats (5) can be stacked.



WARNING

Use appropriate material handling equipment when lifting materials or equipment over 50 pounds. Lifting heavy objects could cause injury to personnel.

- Remove dunnage mat (5) from RRDF platform and stack on the dunnage wood (6).
- Stack the dunnage mats (5) one on top the other, nine mats per stack.
- Install two dunnage mat rods (7) in the holes at each end of the stack of dunnage mats (5).
- Repeat the above procedure for the remaining corners and mats.

INSTALL DUNNAGE MATS IN ISO CONTAINER

CAUTION

Container doors must be latched in the open position. Failure to comply could result in serious injury or death to personnel and damage to equipment.

Opening doors while the container is on a soft or uneven surface will damage the container or doors.

- Open the ISO container (8) side doors and latch in the open position.

WARNING

**HEAVY PARTS**

2. Place three 4 X 4 dunnage wood blocks (6), spaced evenly apart, on the container pallet (8) where the dunnage mats (5) can be stacked on them.

WARNING

**HEAVY PARTS**

3. Using forklift or appropriate handling device, install the first stack of dunnage mats (5) in the 20 ft ISO container (8).
4. After installation of the first stack of dunnage mats (5), install three 4 X 4 dunnage wood (6) on top of the dunnage mats (1).

NOTE

A total of thirty six mats are stored in each container.

5. Repeat previous steps for installation of the remaining three stacks of dunnage mats (5).
6. Install ratchet strap tiedowns (9) to secure dunnage mats (5) to ISO container pallet.
7. Install flat bars (10) on side of container to secure dunnage mats (5) in ISO container (8).

CAUTION

Prior to moving or lifting ISO container, ensure doors are closed and locked. Damage to ISO container will occur if any door is open or unlocked while container is moved or lifted.

8. Close the ISO container (8) side doors and latch in the closed position.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWERS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

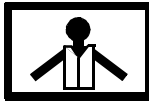
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - REMOVAL OF LIGHT TOWERS**REMOVE LIGHT TOWER**

WARNING



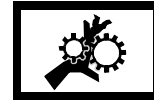
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

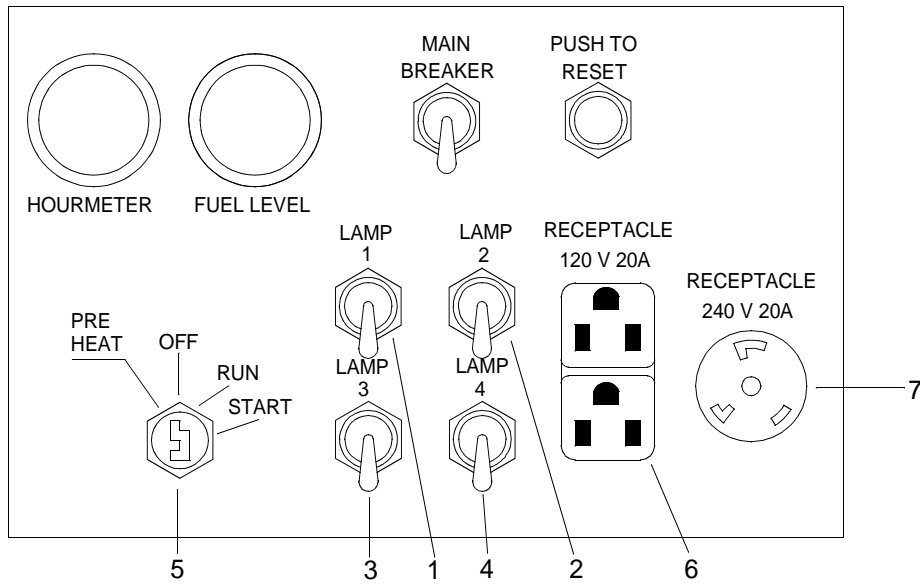
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The following procedures is typical for the forward and aft light tower units to be stowed in the ISO container, except the light tower must be removed from the aft light tower unit.

1. Prior to lowering tower, perform the following:

- a. Position LAMP 1 through LAMP 4 switches (1), (2), (3) and (4) off.

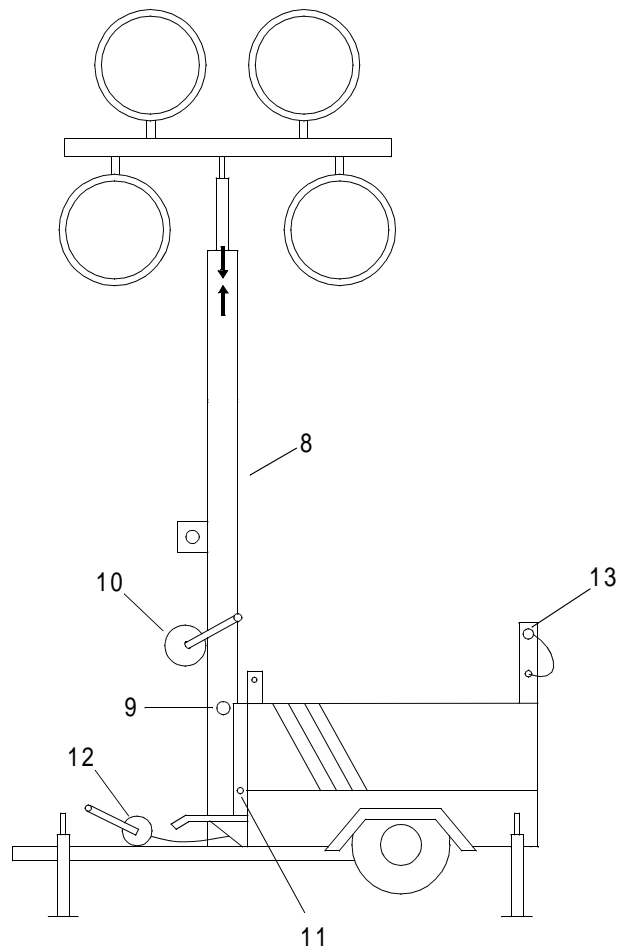


- b. Position engine switch (5) to OFF.
- c. Disconnect any equipment plugged into external power RECEPTACLE (6) and (7).
- d. Allow lamps to cool for at least 10 minutes.

WARNING

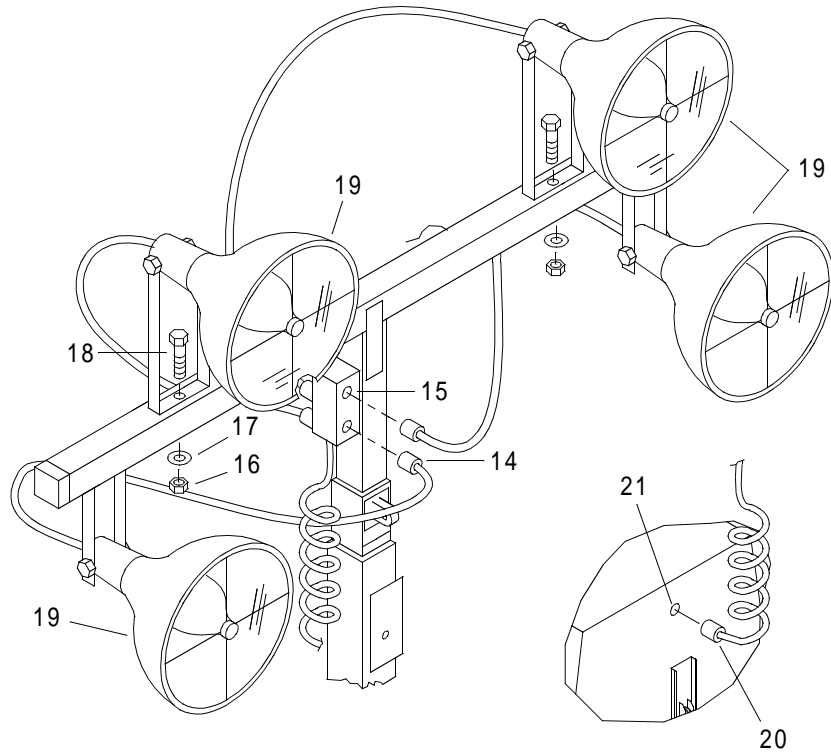
Damaged cables may break during tower operation allowing the tower to fall, which could cause death or injury to personnel.

2. Lower tower assembly (8).



- a. Loosen eye bolt (9).
- b. Rotate tower (8) on mast until the indicating arrows are aligned.
- c. Operate extend winch lever (10) to lower tower (8) until lights are in stowed position.
- d. Remove lock pin (11).
- e. Operate raise/lower winch (12) to lower tower (8) to horizontal position.
- f. Insert and lock pin (13) before moving or lifting.

3. Remove light tower boom lights.

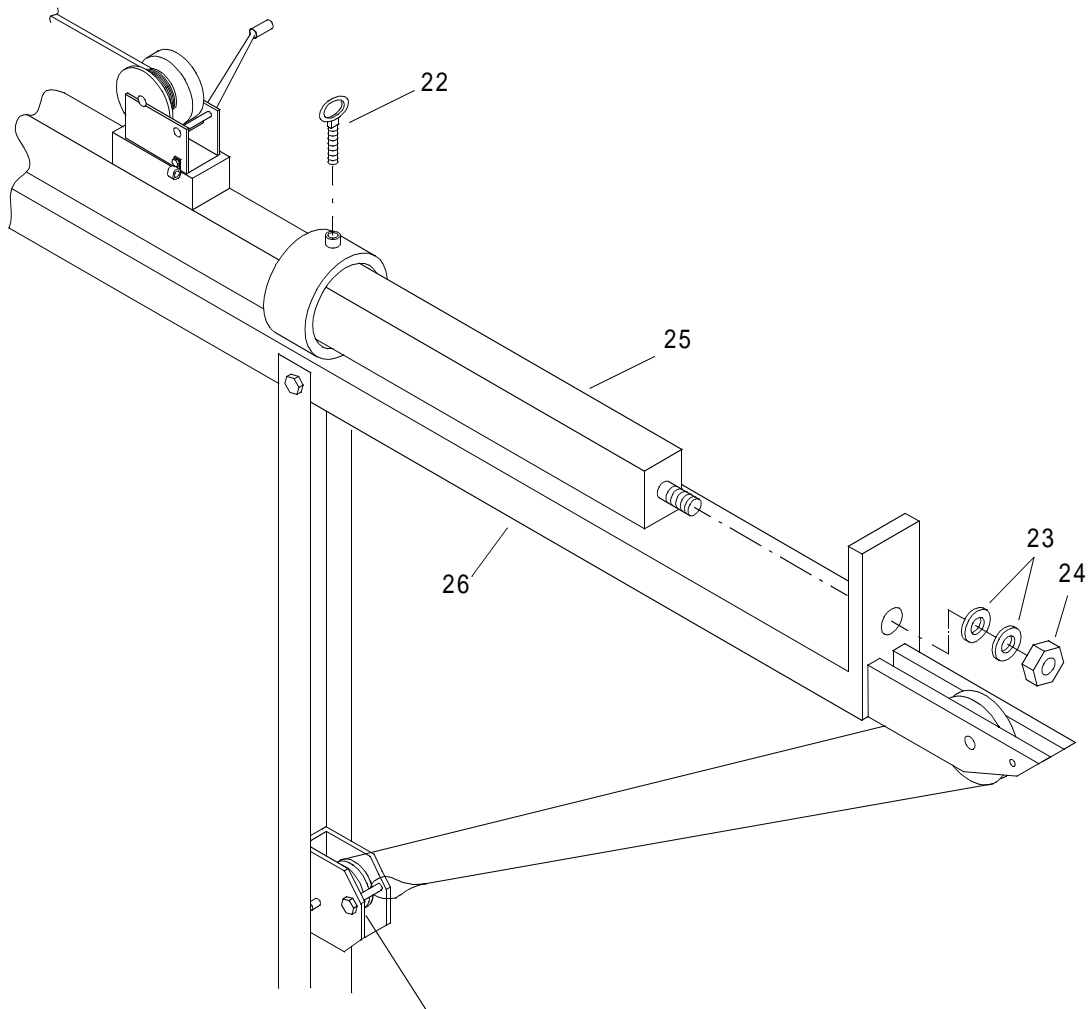


- a. Disconnect light plugs (14) from light tower sockets (15).
- b. Remove nut (16), washer (17) and bolt (18) from light bracket and remove light tower boom lights (19).
- c. Open light tower engine compartment and stow lights (19).
- d. Close engine compartment doors.
- e. Disconnect light tower electrical plug (20) from electrical receptacle (21) on top of light tower trailer.

NOTE

The upper light tower is only removed on the trailer that is stowed in the aft position in the container.

4. Remove upper light tower from light tower trailer.



- a. Ensure eye bolt (19) and lock pin (11) are removed.

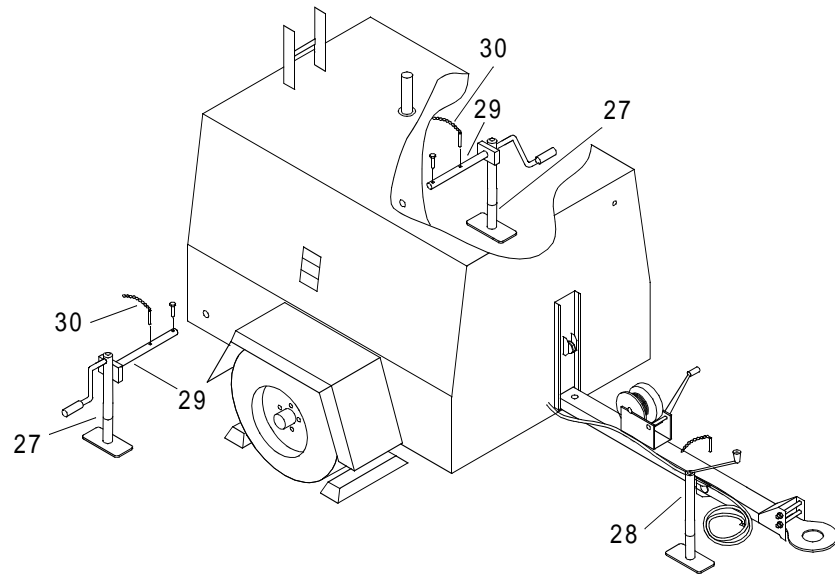
WARNING



HEAVY OBJECTS

- b. Remove nut (23) and two washers (24) and slide upper light tower (25) from aft light tower trailer (26).
5. Remove and stow upper light tower (25) in container on side stowage brackets and secure with hitch pins.

6. Prior to moving trailer, perform the following:



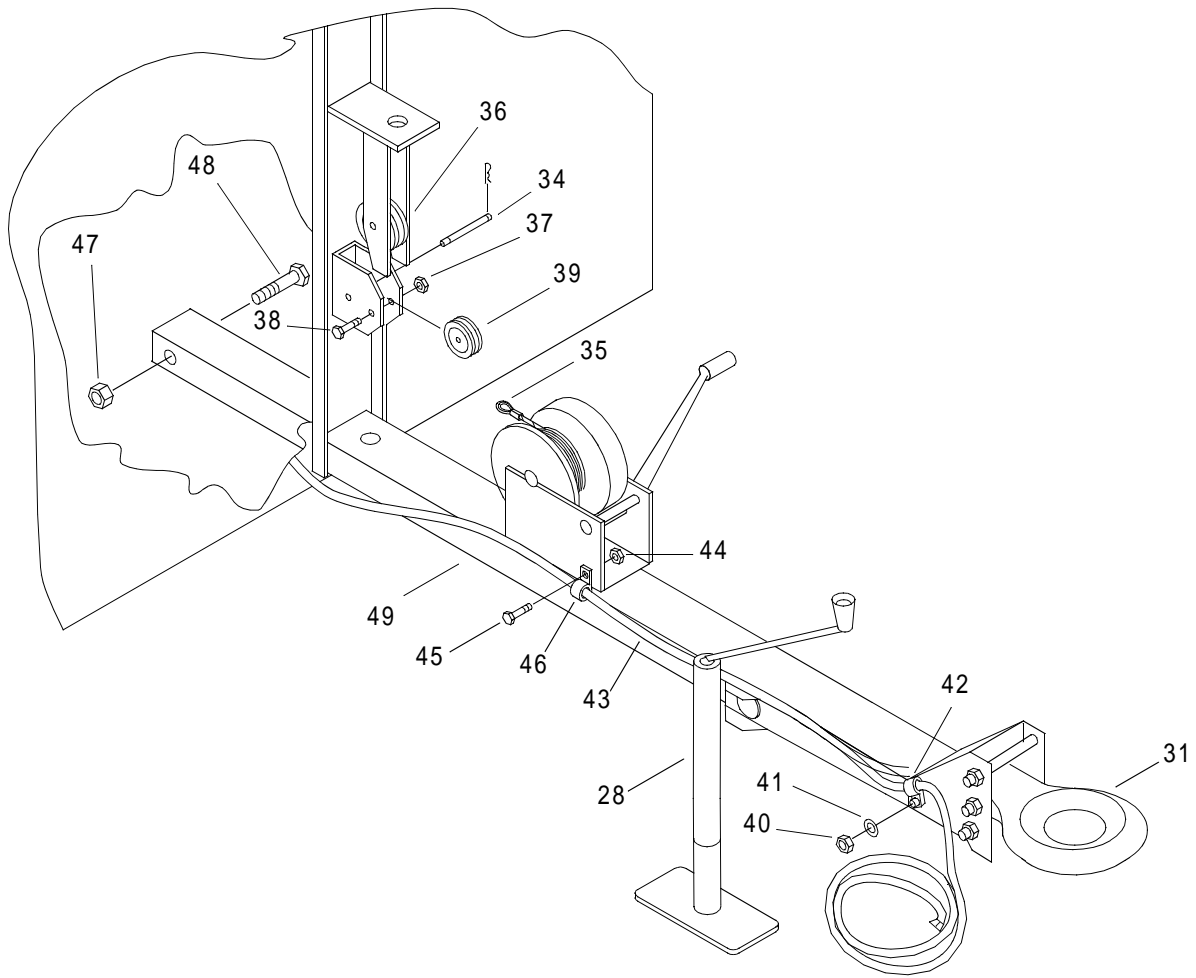
- a. Remove tiedowns.
 - b. Lower jacks (27) and (28).
 - c. Chock tires.
 - d. Swivel jacks (27) and (28) to horizontal position.
 - e. Slide both outriggers (29) to stored position, install locking pins (30).
7. Install aft light tower unit in container.

WARNING

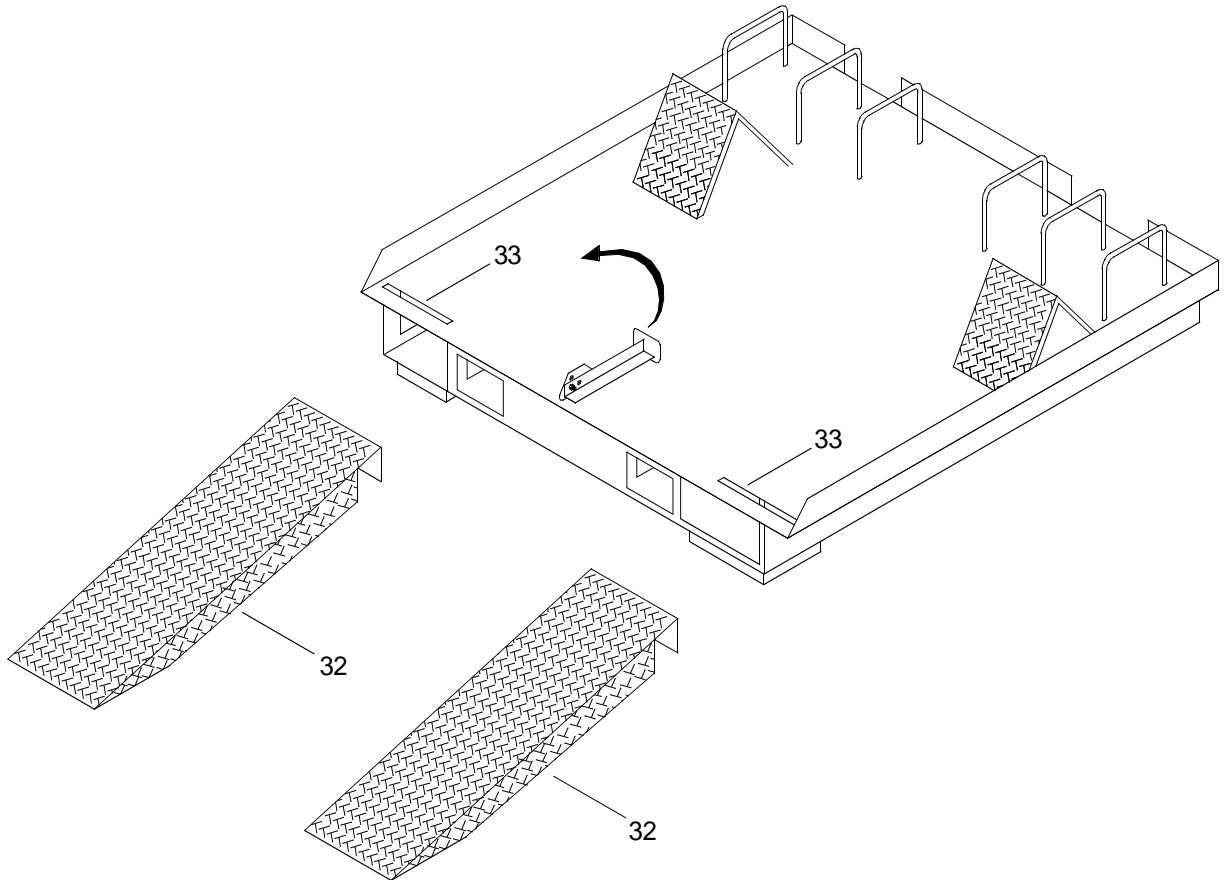


HEAVY PARTS

- a. Connect trailer drawbar eye (31) to forklift truck pintle.



- b. Install ramps (32) into pallet slots (33).



- c. Remove wheel chocks.

WARNING



HEAVY PARTS

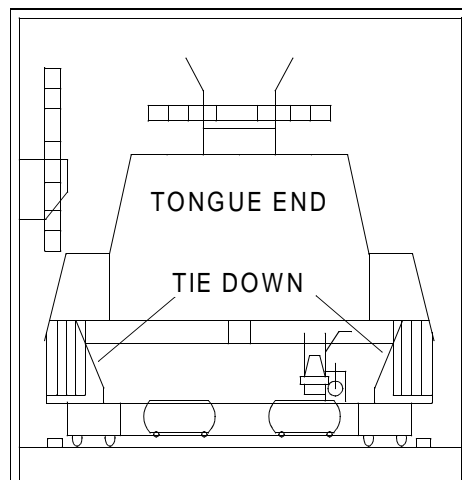
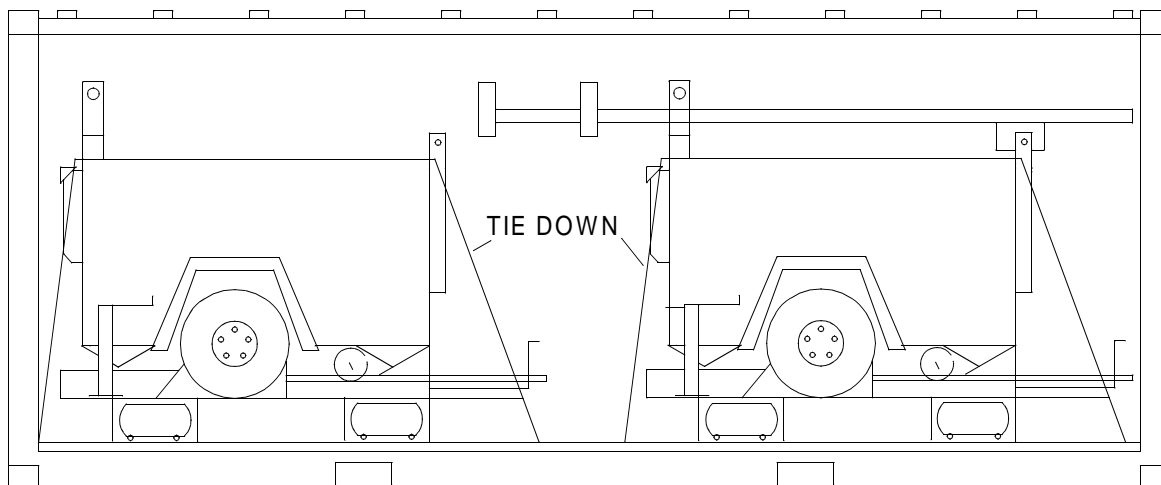
- d. Using forklift truck, push light trailer onto pallet and secure with tiedowns.
- e. Disconnect trailer drawbar eye (31) from forklift truck pintle.
- f. Remove quick release pin (34) from lower cable pulley bracket.
- g. Attach quick release pin (34).
- h. Remove cable (35) from upper pulley (36).
- i. Remove nut (37) and bolt (38) from lower pulley (39).
- j. Remove cable (35) from pulley (39).
- k. Reinstall pulley (39) with bolt (38) and nut (37).

-
- l. Operate winch to take up slack on cable (35).
 - m. Remove nut (40) and washer (41).
 - n. Remove wire clamp (42) and trailer light harness (43).
 - o. Reinstall washer (41) and nut (45) on trailer drawbar.
 - p. Remove right forward nut (44) from bolt (45) on trailer drawbar hand crank.
 - q. Remove wire clamp (46) and trailer light harness (43).
 - r. Reinstall bolt (45) and nut (44).
 - s. Remove nut (47) and bolt (48).
 - t. Remove trailer drawbar (49) and drawbar jack (28) from light tower trailer.
 - u. Secure in container with tiedowns.

WARNING

**HEAVY PARTS**

8. Using forklift truck, push light tower trailer and pallet into container.



PLACEMENT IN CONTAINER

9. Secure light tower trailer and pallet to container deck track with tiedowns.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EMERGENCY ANCHORING SYSTEM (EASY)
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Lifting Device Assembly (Item 34, WP 0119 00)
 Forklift Adaptor (Item 21, WP 0119 00)
 Hook, Boat (Item 31, WP 0119 00)

Materials/Parts

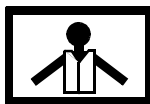
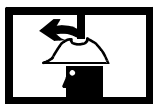
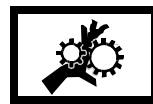
Twine, Fibrous (Item 29, WP 0120 00)

Personnel Required

Seaman 88K (2)

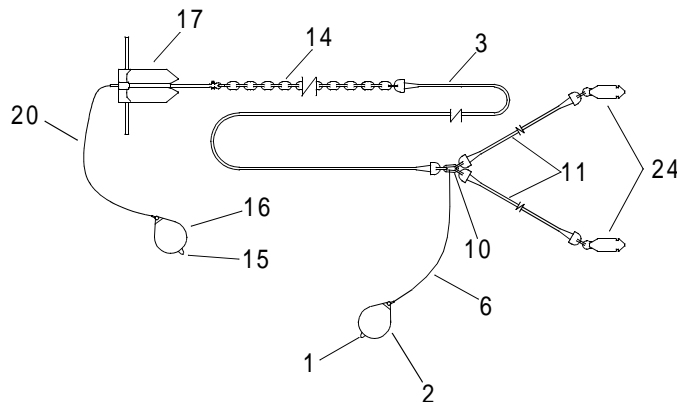
PREPARATION FOR MOVEMENT - REMOVE EASY FROM PLATFORM**RECOVER EMERGENCY ANCHORING SYSTEM (EASY)**

WARNING

**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS****HEAVY PARTS**

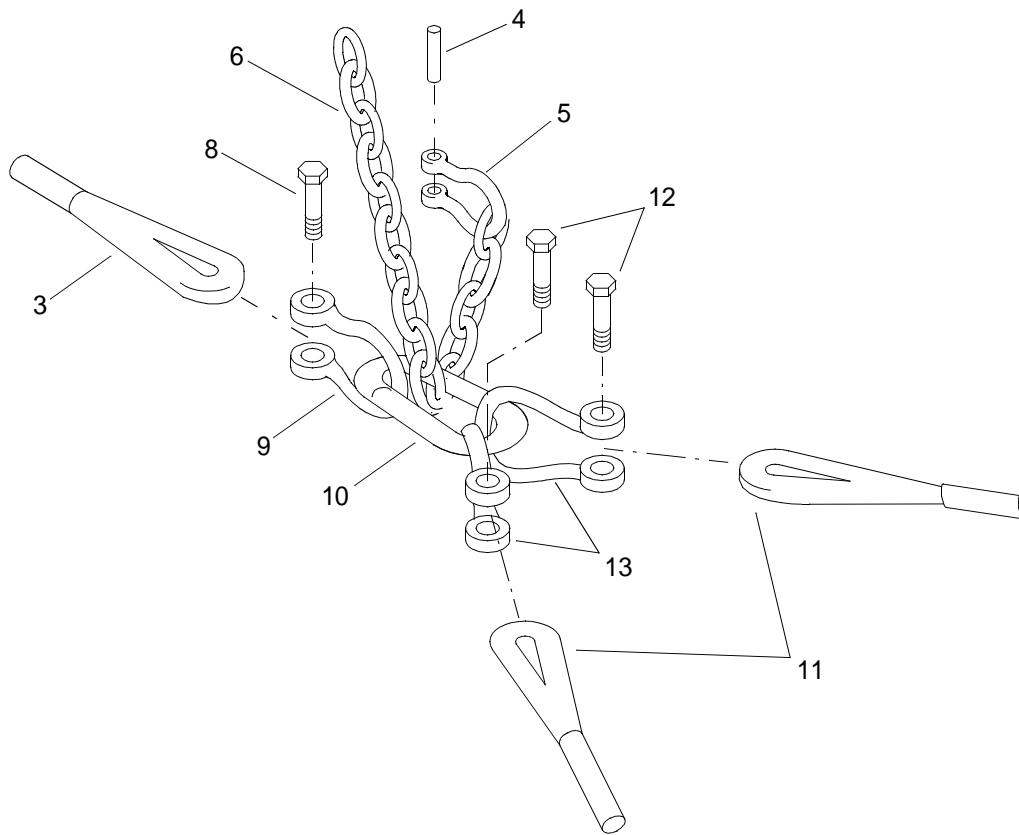
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

- Using a boat hook, capture the retrieval pendant (1) on the mooring bridle buoy (2).



- Connect retrieval pendant (1) to the WT forward winch cable.

3. Recover mooring bridle buoy (2) onto deck of the WT.
4. Tie line between WT and RRDF to take strain off mooring line (3).
5. Remove shackle pin (4) and shackle (5) from mooring bridle buoy chain (6).



6. Set mooring bridle buoy (2) and chain (6) on the deck.
7. Install shackle (5) and pin (4) on end of chain (6).
8. Remove shackle pin (8) and shackle (9) from mooring line (3) and pear link (10).
9. Install the shackle (9) and pin (8) on the end of the mooring line (3).

WARNING



HEAVY OBJECTS

10. Pass the pear link (10) and mooring bridle (11) to RRDF platform.
11. Secure mooring bridle (11) to RRDF platform with a line.
12. Remove mooring bridle two shackle pins (12) and shackles (13) from pear link (10).

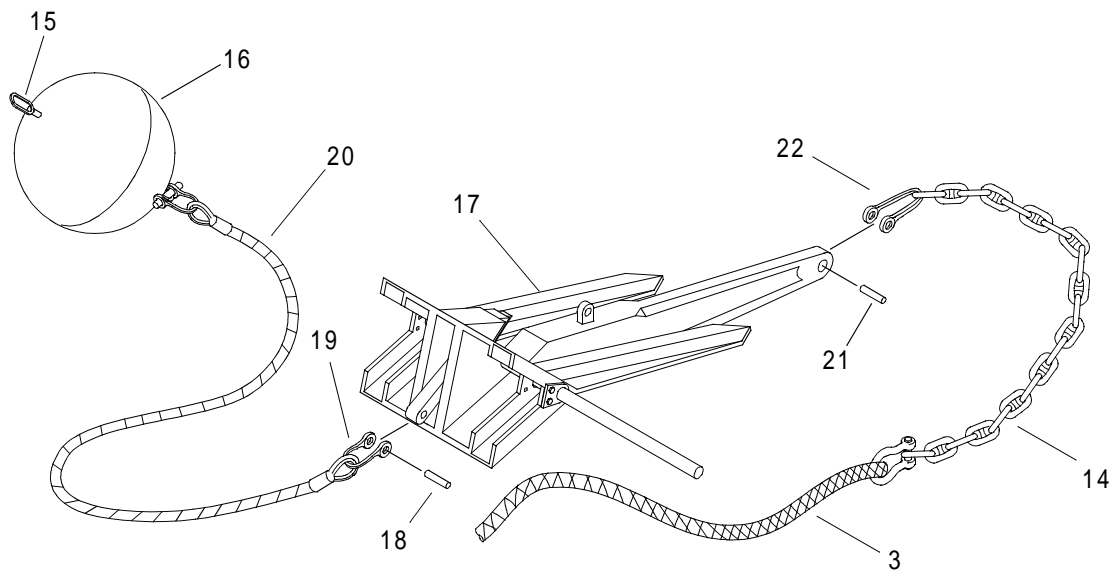
13. Fake mooring bridle (11) out on RRDF deck.
14. Connect mooring line shackle (9) to the WT forward winch cable.

WARNING



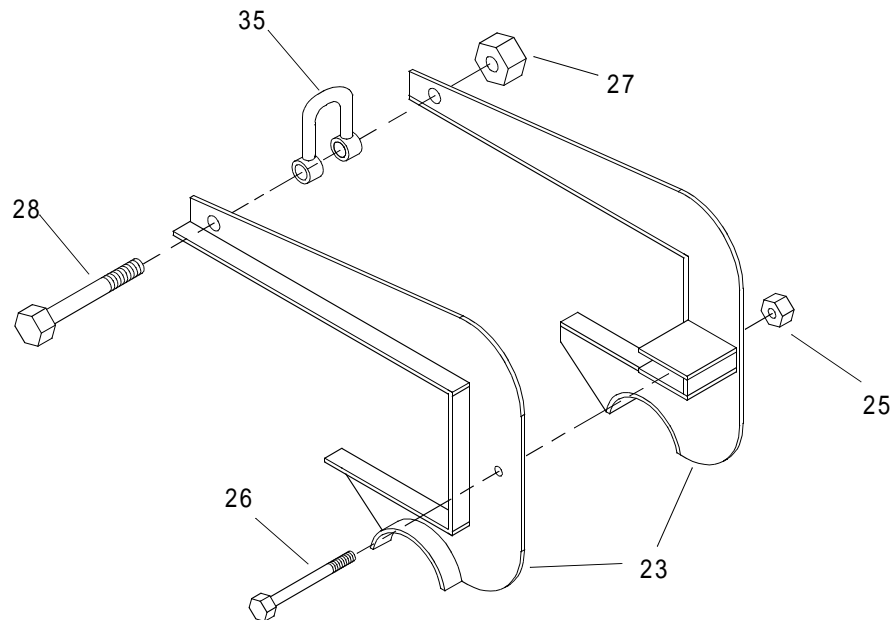
HEAVY PARTS

15. Recover mooring line (3) and anchor chain (14) on to WT.

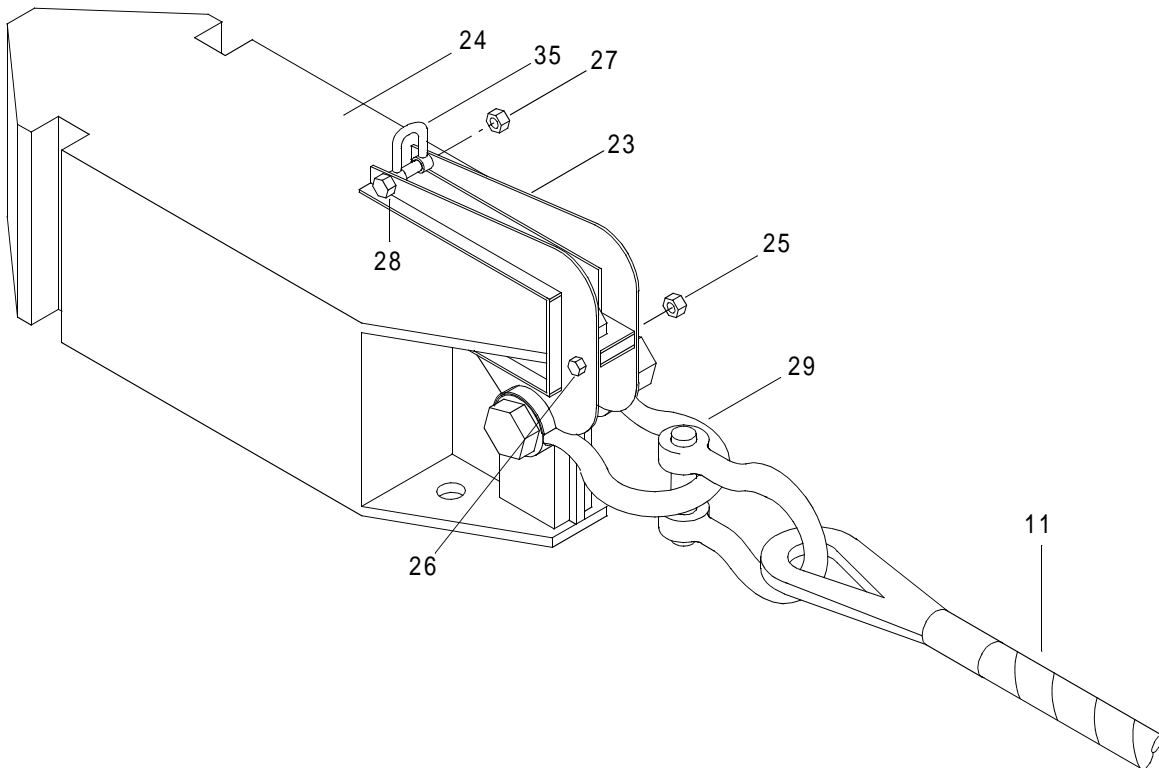


16. Using a boat hook, capture the retrieval pendant (15) on the anchor buoy (16).
17. Recover anchor (17) onto WT.
18. Remove shackle pin (18) and shackle (19) attaching anchor buoy line (20) to bottom of anchor (17).
19. Set anchor buoy (16) and buoy line (20) on the deck.
20. Install shackle (19) and pin (18) on the anchor (17).
21. Remove shackle pin (21) and shackle (22) attaching anchor chain (14) to anchor (17).
22. Install shackle (22) and pin (21) on tongue of anchor (17).

23. Attach flexor lifting device (23) to the flexor receiver insert (24) for removal.



- a. Retrieve the assembled flexor lifting device (23) from the toolbox.
- b. Remove nut (25) from bolt (26) on the closed end of the lifting device (23).
- c. Remove bolt (26).
- d. Remove nut (27) from bolt (28).
- e. Remove bolt (28).
- f. Spread the shorter legs of the lifting device (23) apart.
- g. Position the longer legs of the lifting device (23) over the center portion of the insert (24) and shorter legs on either side of the large 2 in. shackle (29) of the insert (24).



- h. Bring the halves together so that the bearing surface arcs are on top of the shackle cheeks.
- i. Install bolt (26) and nut (25).
- j. Tighten nut (25) until snug.
- k. Install bolt (28) and nut (27).
- l. Tighten nut (27) until snug.

WARNING



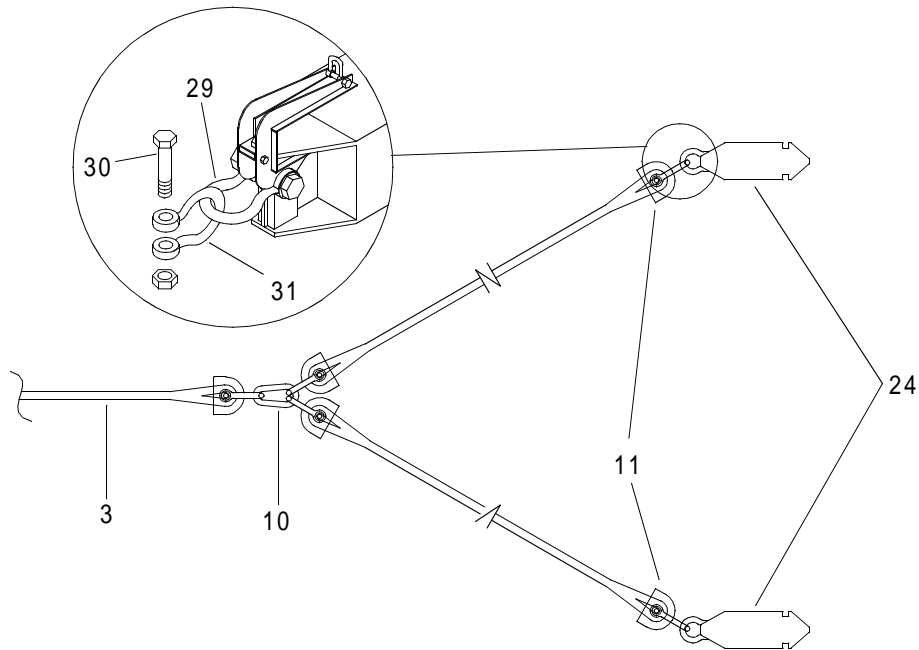
HEAVY PARTS

NOTE

Disconnect the guillotine bar in the same manner as flexors to remove flexor receiver insert. (WP 0051 00)

- m. Using a forklift, forklift adaptor, sling and the flexor lifting device (23), remove each flexor receiver insert (24) from the appropriate flexor pocket.
- n. Place flexor receiver insert (24) and attached mooring bridle (11) on the deck of the RRDF.

- o. Remove shackle pin (30) and shackle (31) securing mooring bridle (11) to flexor receiver insert shackle (29) to separate mooring bridle leg (11) from insert (24).



- p. Install shackle (31) and pin (30) on end mooring bridle (11).

WARNING



HEAVY PARTS

- q. Repeat steps to remove second flexor receiver insert (24).

PACK EASY ANCHOR CONTAINER

NOTE

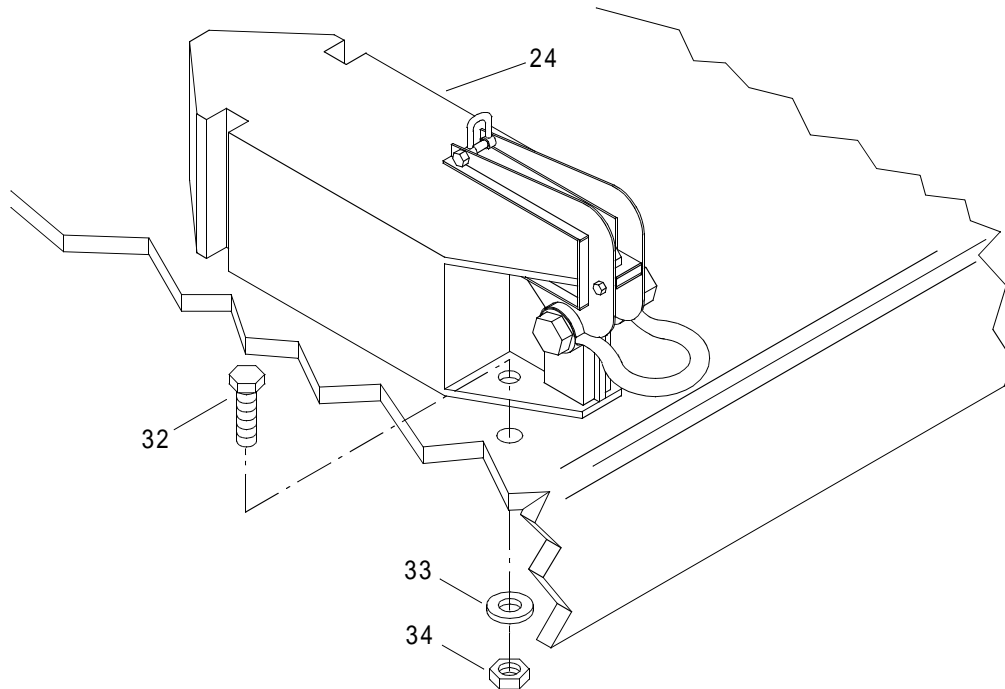
The easy anchor container is normally repacked onshore.

1. Clean all EASY anchor components with fresh water.
2. Unlatch and open container anchor end doors.
3. Secure end doors open with locking bars and pins.
4. Unlatch and open container pump side doors.
5. Secure side doors open with locking hooks.

WARNING

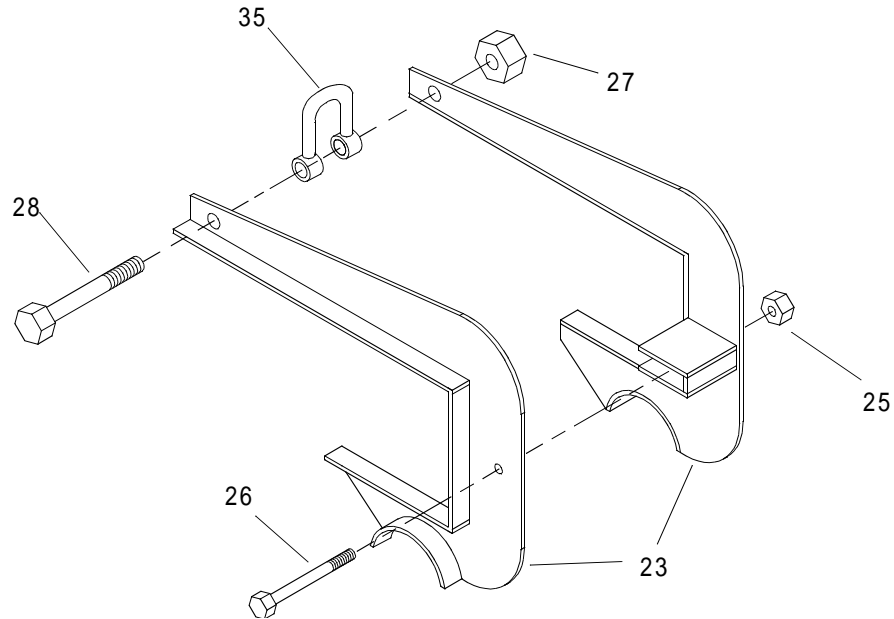
**HEAVY PARTS**

6. Using a forklift, forklift adaptor and lifting device (23), position flexor insert (24) on container upper shelf.
7. Install two bolts (32), lock washers (33) and nuts (34) to secure flexor insert (24) to the upper self of the EASY container.



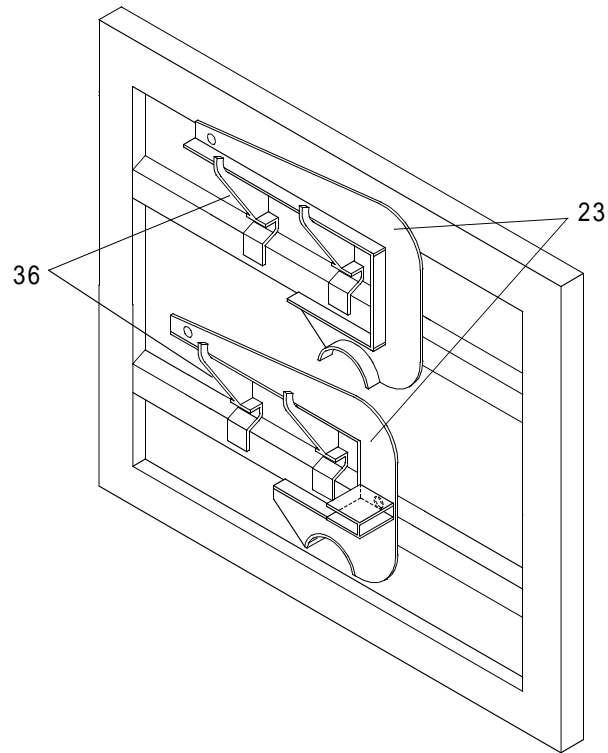
8. Repeat steps for installing other flexor insert (24) in the container.
9. Remove lifting device (23) from flexor insert (24).
10. Disassemble and stow the flexor lifting device (19) components.

- a. Remove nut (25) from bolt (26).

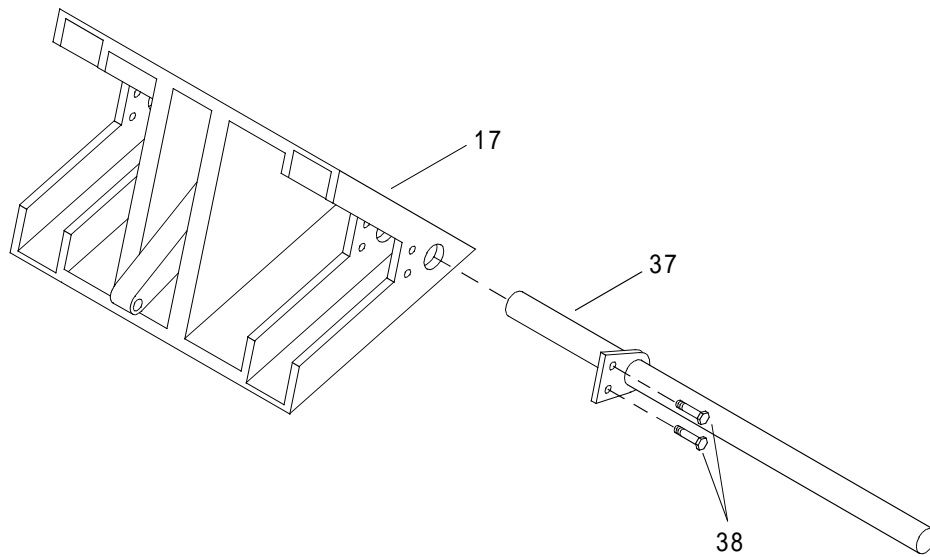


- b. Remove nut (27) from bolt (28).
- c. Separate the halves of the lifting device (23).
- d. Install nut (25) on loose bolt (26).
- e. Insert bolt (28) through shackle (35).
- f. Install nut (27) on bolt (28).
- g. Place nuts, bolts and shackle in the toolbox.

- h. Secure the lifting device halves (23) on the side door brackets (36).



11. Remove both anchor stabilizers (37).



- a. Using ratchet with socket that is stored in container side door mount, remove two bolts (38) attaching each stabilizer (37) to anchor (17).

WARNING

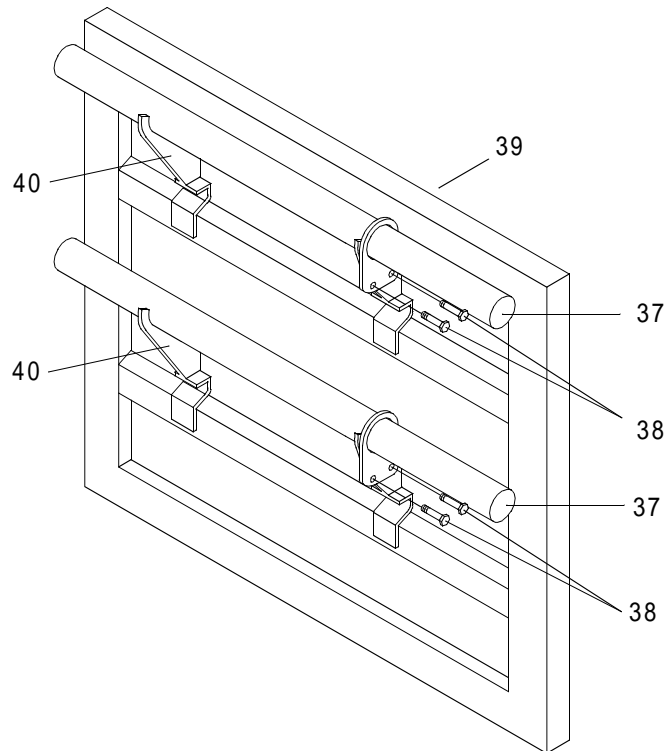
**HEAVY OBJECTS**

- b. Remove anchor stabilizers (37).
12. Install anchor stabilizers (37) on bulkhead (39) forward of mooring box.

WARNING

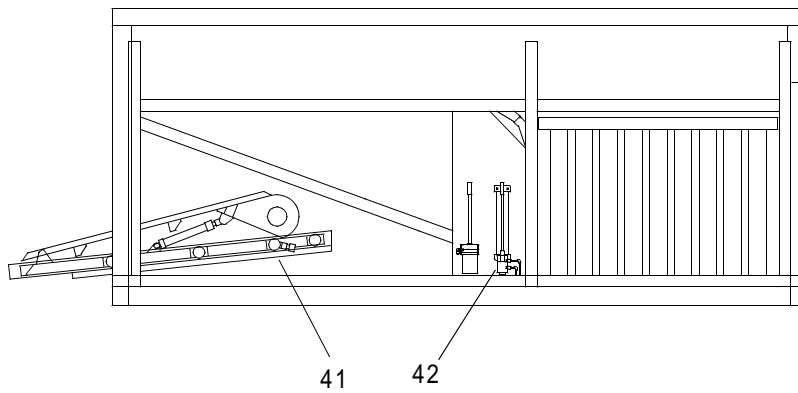
**HEAVY OBJECTS**

- a. Place anchor stabilizers (37) on brackets (40) on bulkhead (39) forward of mooring box.

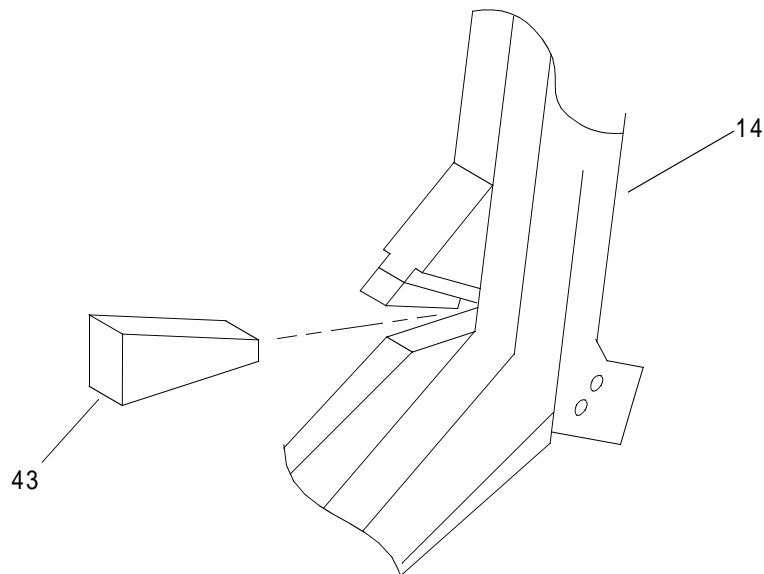


- b. Using ratchet and socket, install two bolts (38) to attach each stabilizer (37) to brackets (40).
- c. Return ratchet and socket to container side door mount.

13. Extend the anchor drawer (41) by pumping the extend/retract pump (42) with the control valve in the extend position (handle to the right).

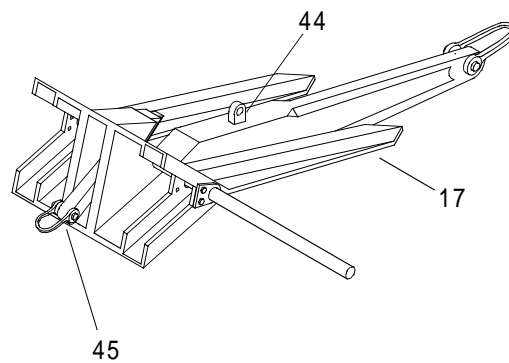


14. Remove aluminum wedge (43) from toolbox.



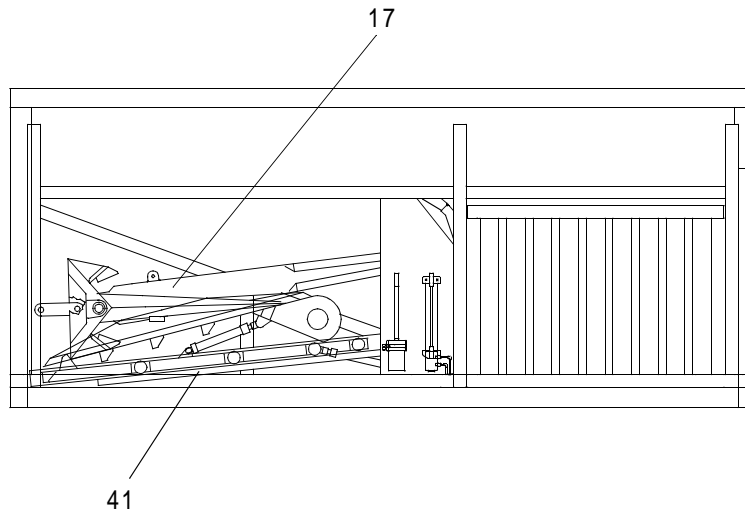
15. Install aluminum wedge (43) in anchor (17) to keep anchor flukes from moving while anchor is being lifted.

16. Attach tag lines to padeye crown (44) and shackle foot (45) of anchor (17) to assist in positioning anchor on anchor drawer (41).

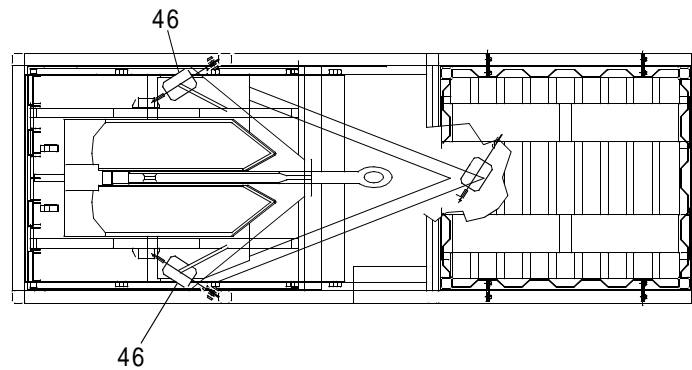


WARNING**HEAVY PARTS**

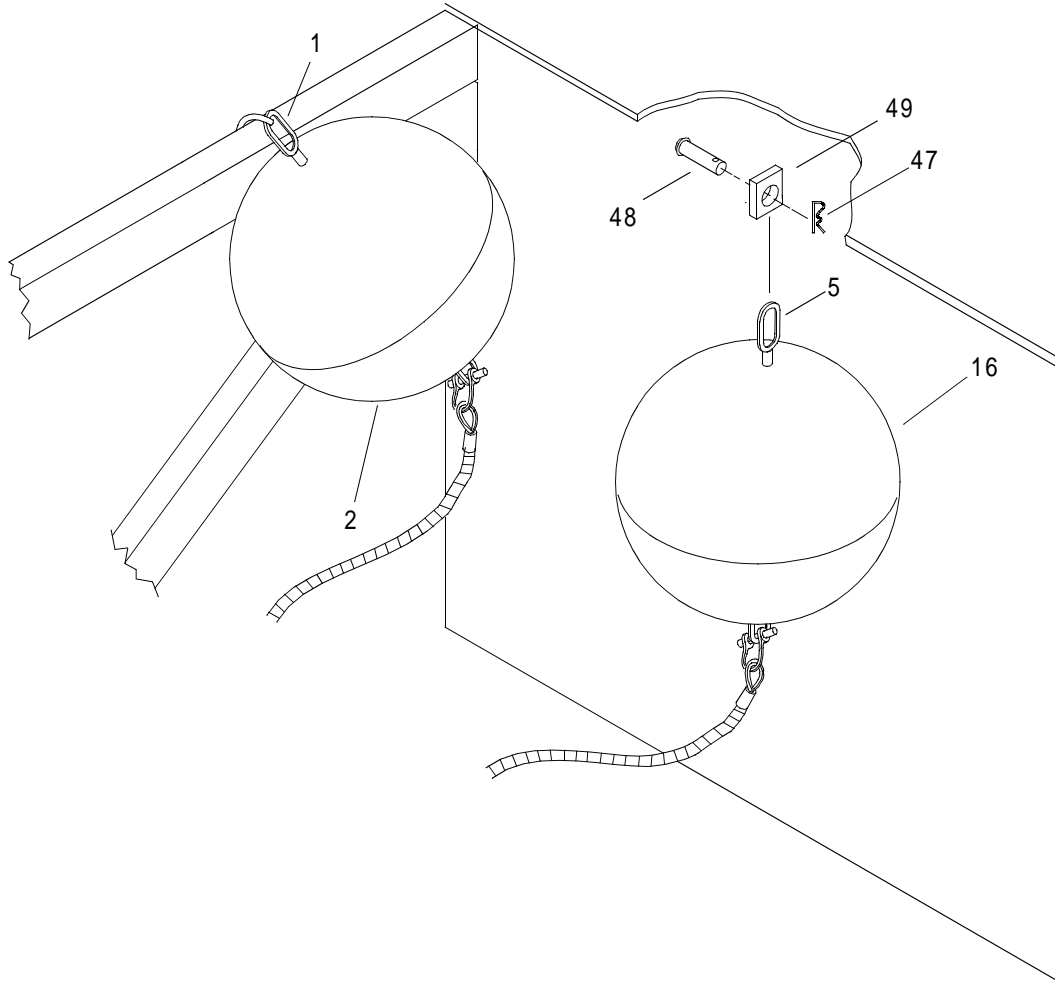
17. Using forklift and forklift adaptor, lift anchor (17) by tag lines between padeye crown (44) and shackle foot (45).
18. Position anchor (17) on drawer (41).
19. Remove aluminum wedge (43).
20. Stow aluminum wedge (43) in toolbox.
21. Remove tag lines from anchor (17).
22. Retract the anchor drawer (41) by pumping the extend/retract pump (42) with the control valve in the retract position (handle to the left).



23. Install the 6 ton chain hoists (46) to secure the anchor drawer (41) to the container frame.



24. Install anchor buoy (1) and mooring bridle buoy (2) in container.



WARNING



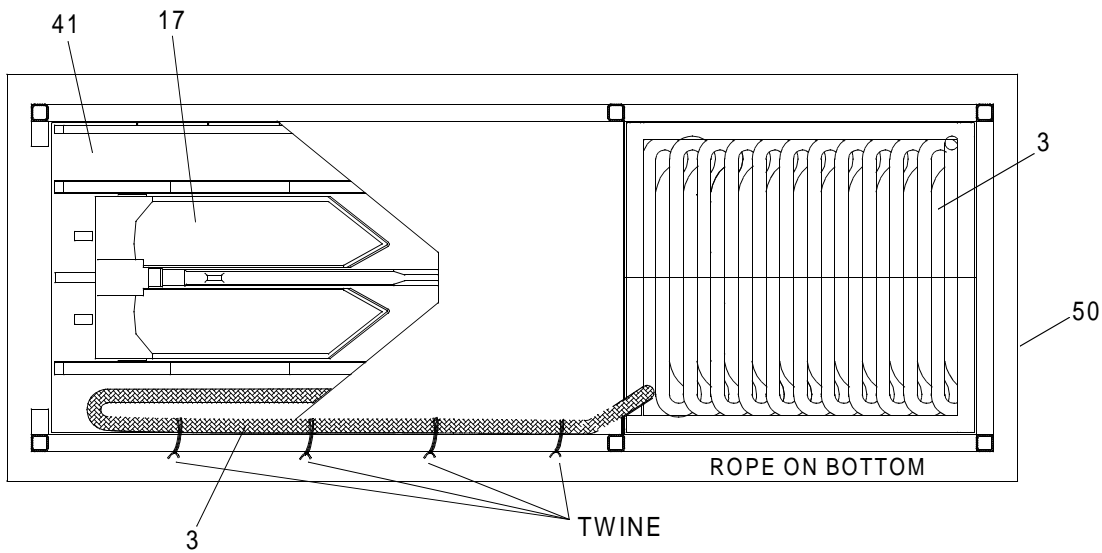
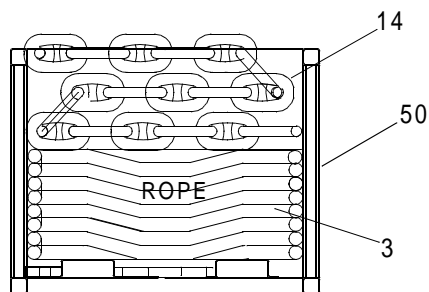
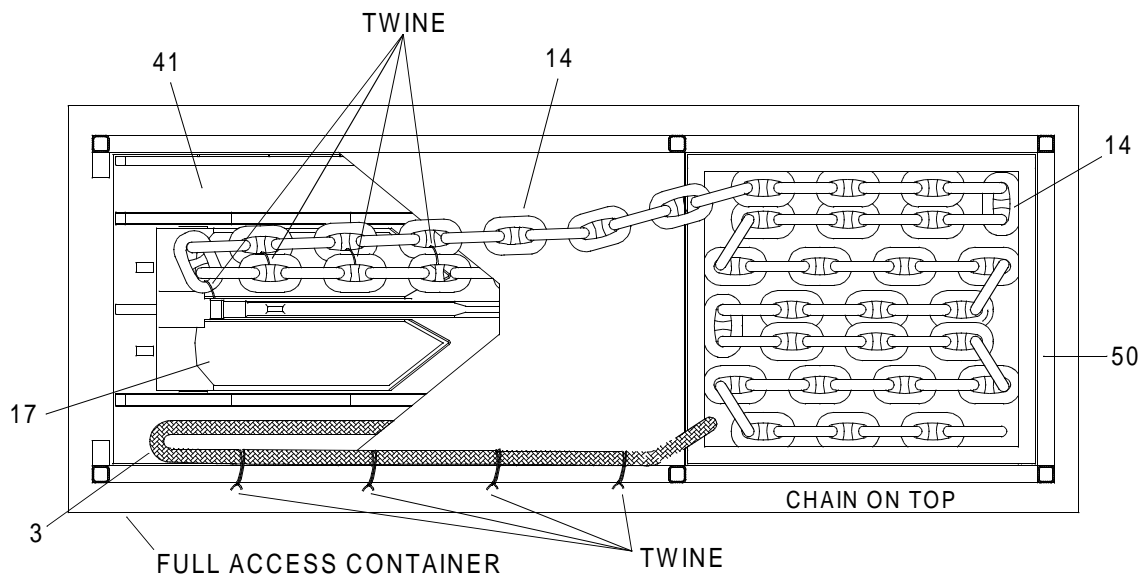
HEAVY OBJECTS

- a. Supporting the weight of the mooring bridle buoy (1), secure the buoy retrieval pendant (2) to the container frame with #6 thread twine.
- b. Coil mooring line buoy chain (6) and secure to container frame with #6 twine for later attachment to the pear link (10).
- c. Remove the quick release pin (47) from the retaining pin (48).
- d. Remove the retaining pin (48) from the container bracket (49).

WARNING

**HEAVY OBJECTS**

- e. Supporting the weight of the anchor buoy (16), install the retaining pin (48) through container bracket (49) and the buoy retrieval pendant (5).
 - f. Install the quick release pin (47) on the retaining pin (48).
 - g. Remove shackle pin (18) and shackle (19) from bottom of anchor (17).
 - h. Attach anchor buoy line (20) to bottom of anchor (17) with shackle (19) and pin (18).
 - i. Coil excess anchor buoy line on top of anchor (17).
25. Unlatch and open container mooring box end doors.
26. Secure doors open with locking bars and pins.
27. Using forklift, remove the mooring box (50) from the container.



WARNING

**HEAVY PARTS****NOTE**

The mooring line should be completely dry before placement in the mooring box.

28. Lay the mooring line (3) in the mooring box (50) leaving approximately 55 feet of mooring line (3) out of the box (50).

WARNING

**HEAVY PARTS**

29. Using forklift and forklift adaptor, lay the anchor chain (14) in the mooring box (50) on top of the mooring line (3).

WARNING

**HEAVY PARTS**

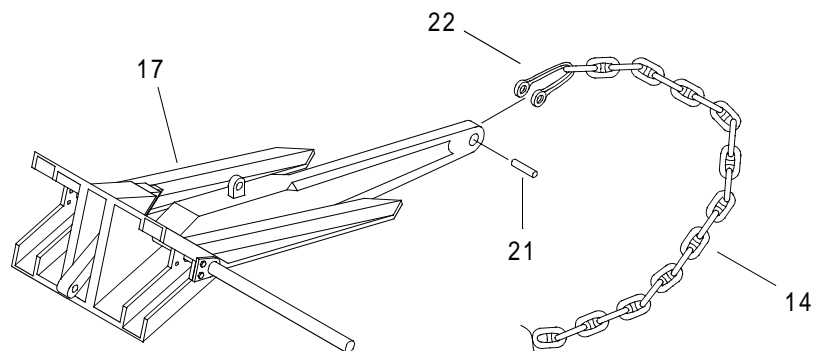
30. Using a forklift, install the mooring box (50) in the container.
31. Pull anchor chain (14) out anchor end of container.
32. Double the anchor chain (14) over the anchor (17).
33. Tie the anchor chain (14) to the anchor crown padeye with #6 thread twine.
34. Tie the anchor links together in three places with #6 twine to prevent the anchor chain (17) from falling behind the anchor drawer (41).

WARNING

**HEAVY OBJECTS**

35. Pull the mooring line (3) out through the anchor end of the container.
36. Tie the mooring line (3) to the upper container frame on the left side in four places with #6 thread twine.

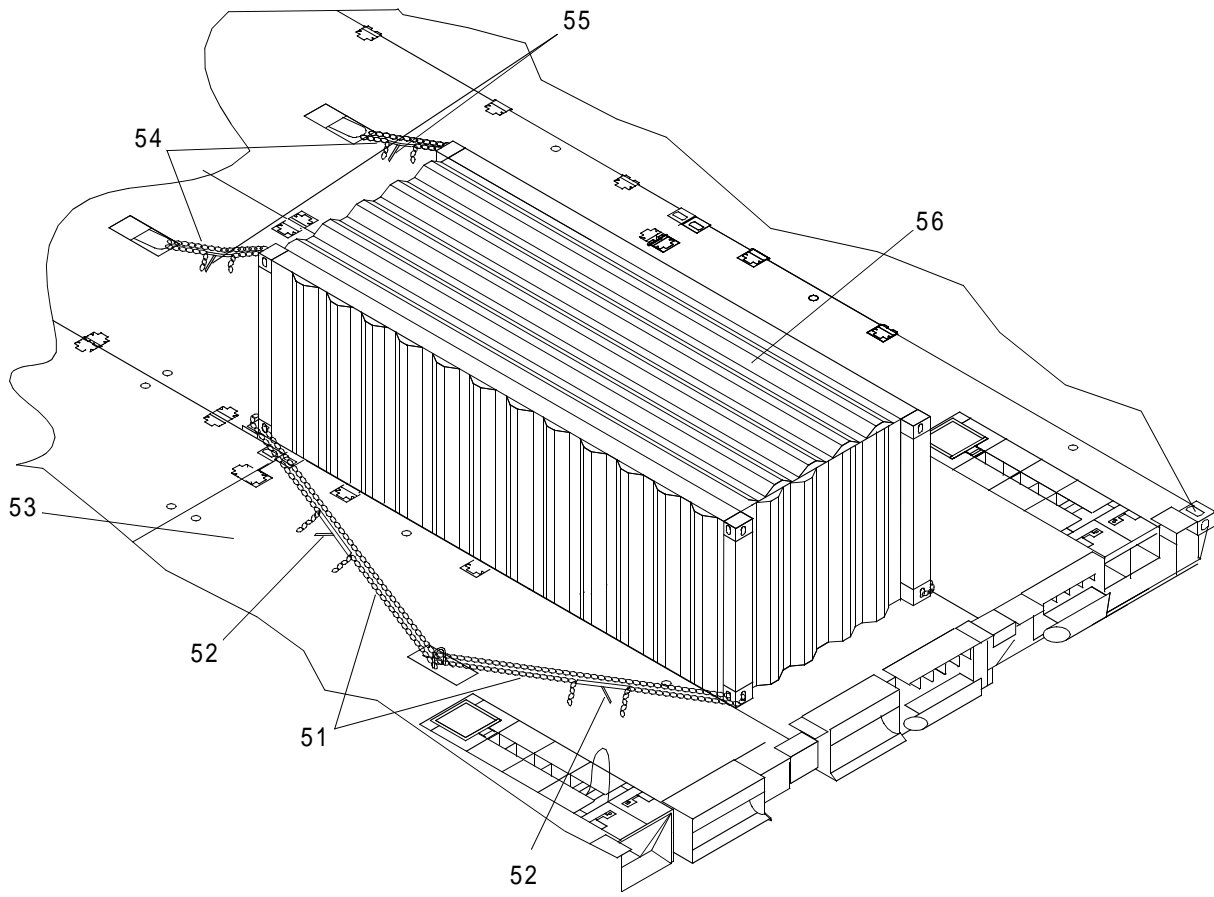
37. Place pear link (10) on top of anchor (17).
38. Attach mooring bridle legs (11) to pear link (10) with shackles (13) and pins (12).
39. Attach mooring line (3) to pear link (10) with shackle (9) and pin (8).
40. Attach mooring bridle buoy chain (6) to pear link (10) with shackle (5) and pin (4).
41. Secure the anchor (13), mooring bridle (7), mooring line (3), pear link (10) and buoy lines to the anchor slide platform (41) with ratchet tensioner strap (34) and #6 twine to prevent movement.
42. Remove the anchor tandem link shackle pin (21) and shackle (22) from the anchor (17).



43. Attach the anchor chain (14) to the anchor (17) with shackle (22) and pin (21).
44. Close and latch all EASY doors shut.

REMOVE EMERGENCY ANCHORING SYSTEM FROM PLATFORM

1. Remove the four 3/4 in. tiedown chains (51) and tensioning ratchets (52) from both sides of container bottom ISO fittings to platform (53).
2. Remove two 3/4 in. tiedown chains (54) and tensioning ratchets (55) from container top rear ISO fittings to platform (53).



3. Remove the EASY (56) from RRDF platform (53).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item XX, WP XXXX 00)

Life Preserver, Vest (Item XX, WP XXXX 00)

Gloves, Men's and Women's (Leather Palm) (Item XX, WP XXXX 00)

Goggles, Sun, Wind and Dust (Safety) Item XX, WP XXXX 00)

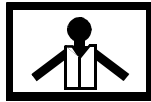
Helmet, Safety (Brown) (Item XX, WP XXXX 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - REMOVAL OF PERSONNEL SHELTER**REMOVE PERSONNEL SHELTER**

WARNING



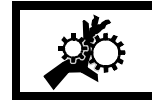
VEST



HELMET PROTECTION



HEAVY PARTS

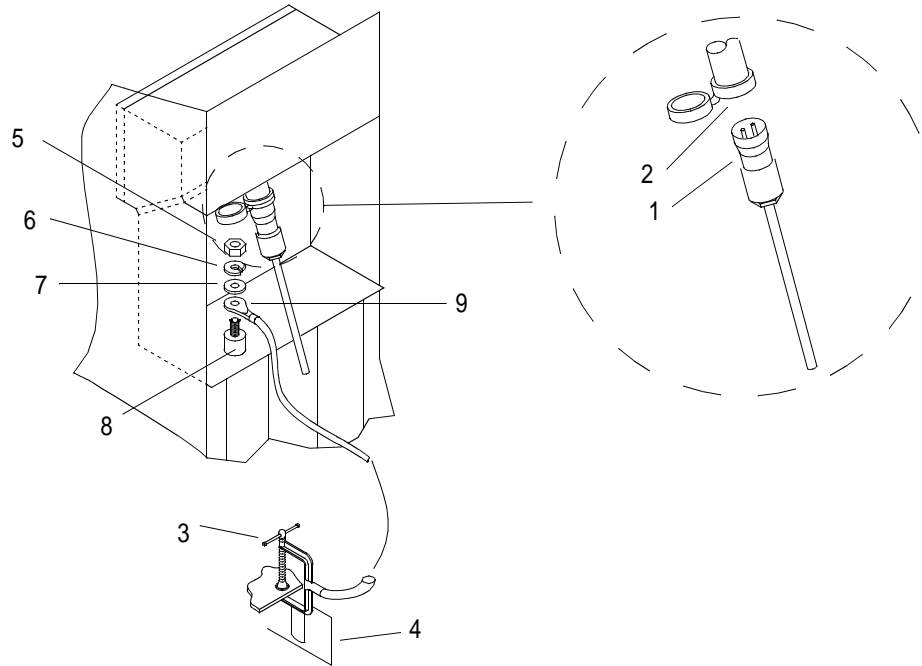


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Detach personnel shelter power cable from generator container power receptacle. (WP 0041 00)

2. Detach power cable (1) from personnel shelter power receptacle (2).



3. Remove ground cable.
 - a. Detach ground cable C-Clamp (3) from module ISO fitting (4).
 - b. Remove nut (5), lock washer (6) and flat washer (7) from personnel shelter ground stud (8).
 - c. Remove ground cable (9) from personnel shelter ground stud (8).
 - d. Install flat washer (7), lock washer (6) and nut (5) on ground stud (8).
 - e. Tighten nut (5) securely.
4. Close exterior hinged cover of the electrical shore tie and secure.
5. Remove tiedown straps securing personnel shelter to RRDF platform.
6. Lift personnel shelter from RRDF platform.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

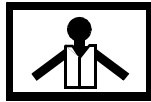
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - REMOVAL OF GENERATOR CONTAINER**REMOVE GENERATOR CONTAINER EXHAUST PIPE**

WARNING



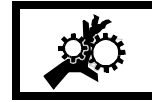
VEST



HELMET PROTECTION



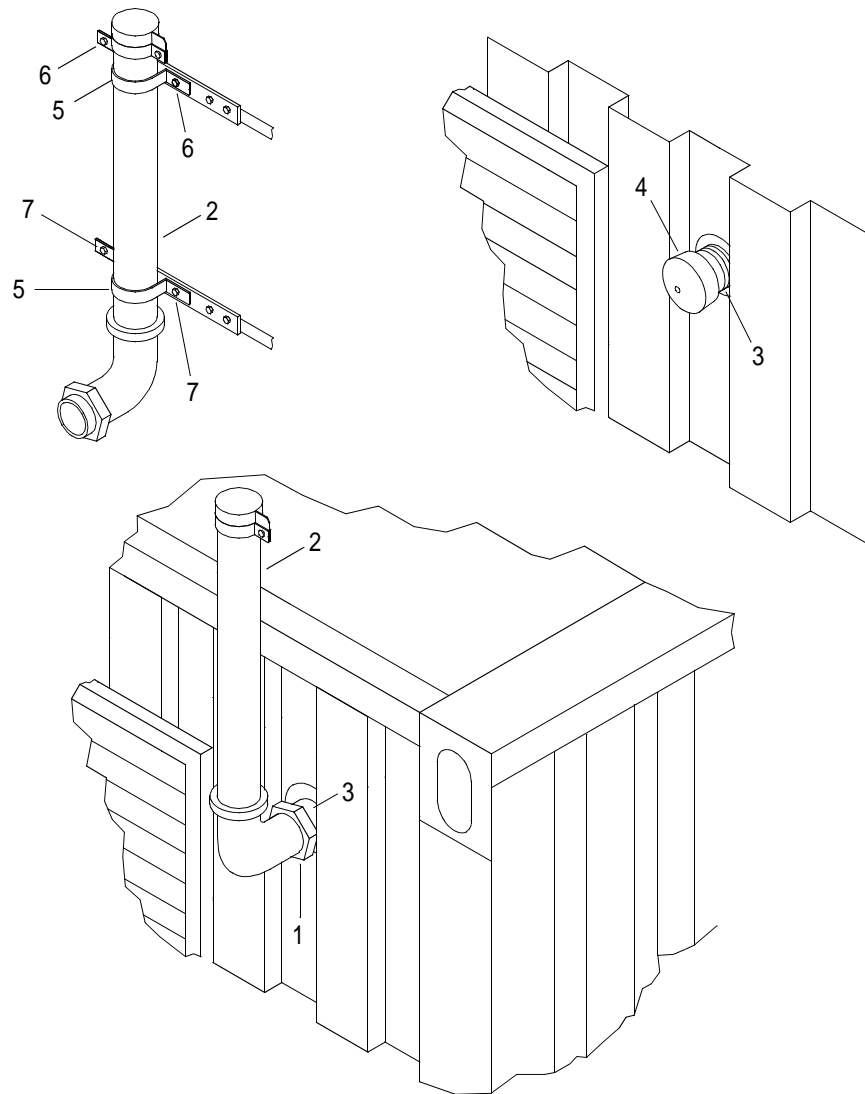
HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Loosen flange nut (1).



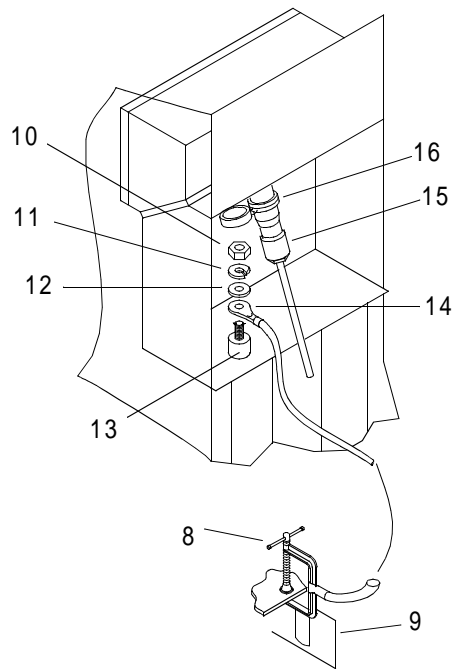
2. Remove generator exhaust pipe (2) from ISO container generator exhaust outlet (3).
3. Install protective cover (4) on ISO container generator exhaust outlet (3).
4. Install generator exhaust vent pipe (2) in ISO container storage brackets (5).
 - a. Position exhaust vent pipe (2).
 - b. Install brackets (5) and bolts (6).
5. Position and install louver covers with thumb screws.

INSTALL LOUVER COVERS

1. Install louver covers.
 - a. Remove attaching bolts and washers from louver frame.
 - b. Position louver cover over the generator container louver and align the open holes.
 - c. Install bolts and washers through the open holes of the louver cover and the holes in the generator container louver frame.
2. Repeat steps to install second louver cover.

REMOVE GENERATOR CONTAINER GROUND CABLE

1. Detach ground cable C-Clamp (8) from module ISO fitting (9).



2. Remove nut (10), lock washer (11) and flat washer (12) from generator shelter ground stud (13).
3. Remove ground cable (14) from generator shelter ground stud (13).
4. Install flat washer (12), lock washer (11) and nut (10) on ground stud (13).
5. Tighten nut (10).
6. Detach power cable (15) from personnel shelter power receptacle (16).
7. Close exterior hinged cover of the electrical shore tie and secure in the closed position.

REMOVE CONTAINER FROM PLATFORM

1. Return steps to generator container.
 - a. Lift steps into generator container.
 - b. Attach hook from the turnbuckle on right-hand side of step assembly onto round bar attached to steps.
 - c. Tighten turnbuckle on right-side of step assembly until step assembly is secured.
 - d. Close the generator container door and secure.
2. Remove tiedown straps securing generator container to RRDF platform.

WARNING

**HEAVY PARTS**

3. Lift generator container from RRDF platform.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
FENDERS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

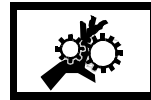
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - REMOVAL OF FENDERS**REMOVE FENDERS**

WARNING

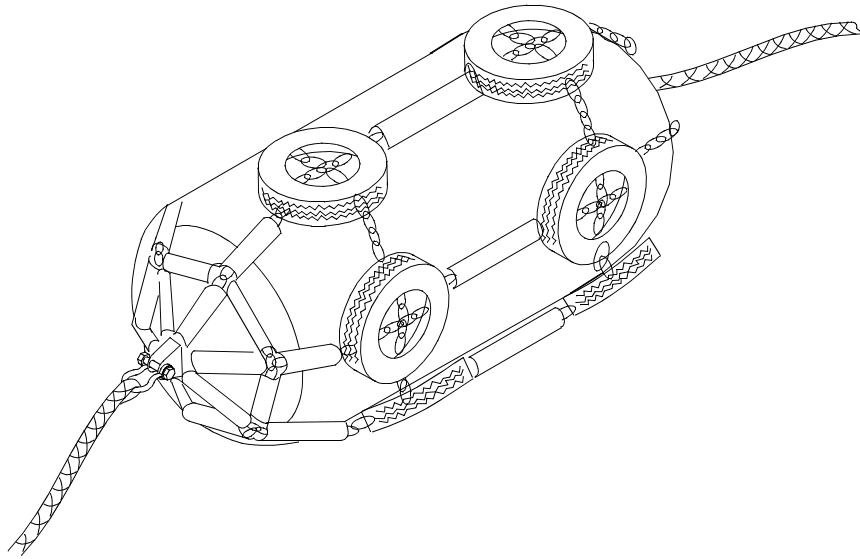
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS****HEAVY PARTS**

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

In the event it is necessary to place fender on deck of the RRDF, it must be chocked to prevent uncontrolled movement.

1. Remove 6 ft x 12 ft fenders.



- a. Attach tag lines to ends of securing lines.
- b. Disconnect nylon fender lines from RRDF platform deck fittings.

WARNING

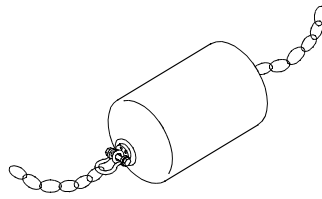
**HEAVY PARTS**

- c. With sealift vessel personnel manning tag lines, the sealift vessel raises 6 ft by 12 ft fender from water, places it on a pallet and ships personnel secures fender to deck.
- d. Remove tag lines from securing lines.

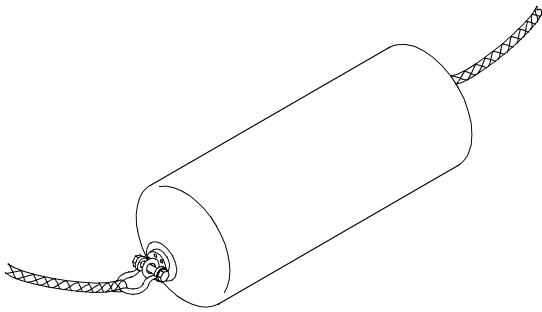
WARNING

**HEAVY PARTS**

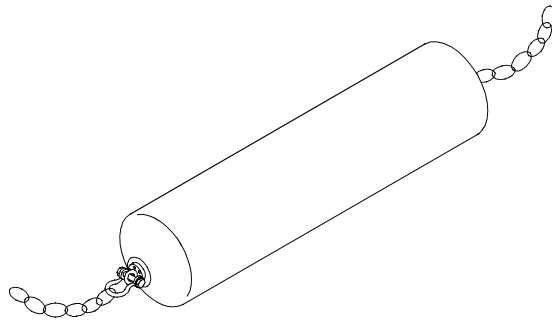
2. Remove 3 X 5 ft, 4 X 12 ft or 5 X 10 ft cylindrical fenders.



3 FT X 5 FT LIGHTER FENDER



5 FT X 10 FT SEALIFT VESSEL FENDER



4 FT X 12 FT LIGHTER FENDER

- a. Connect tag lines to securing chains or lines.
- b. Disconnect fender securing chain or lines from RRDF platform securing eyes on mooring bitts or deck cleat fittings.

WARNING

**HEAVY PARTS**

- c. Using forklift truck and adaptor, man tag lines and raise 3 X 5 ft, 4 X 12 ft or 5 X 10 ft fender from water.
- d. Disconnect tag lines from ends of securing chains or lines.

WARNING

**HEAVY OBJECTS**

- e. Using crane, place fender on its respective pallet.
- f. Install and tighten tiedown straps securing fenders to pallets.
- g. Loosen cable attaching waterproof covering to ISO containers.

- h. Remove waterproof covering from ISO container.
- i. Remove waterproof cover bows from ISO container.

WARNING



HEAVY PARTS

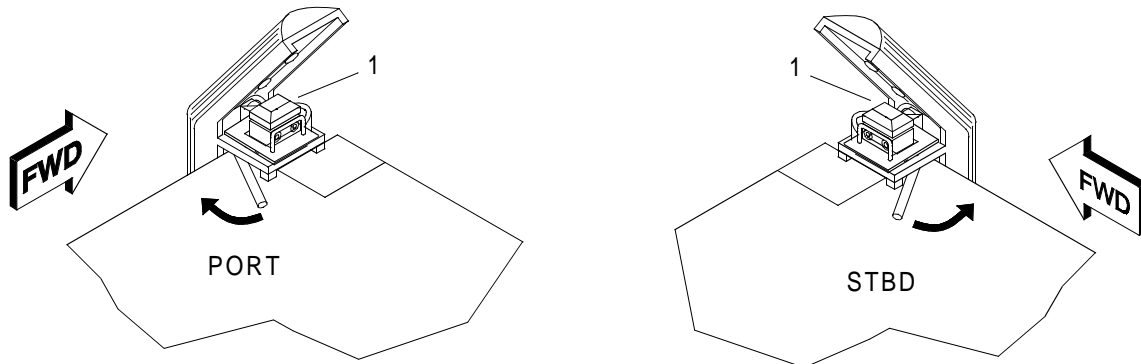
- j. Using clevises, chains and crane or fork lift, install pallets and fenders in 40 ft open top container.
- k. Install waterproof covers on ISO containers.
- l. Tighten cable attaching waterproof cover to ISO container.

WARNING



HEAVY PARTS

- 4. Remove corner fenders from RRDF platform.
 - a. Rotate handle on ISOPAK vertical connector (1) to unlock port and starboard corner fender assembly.

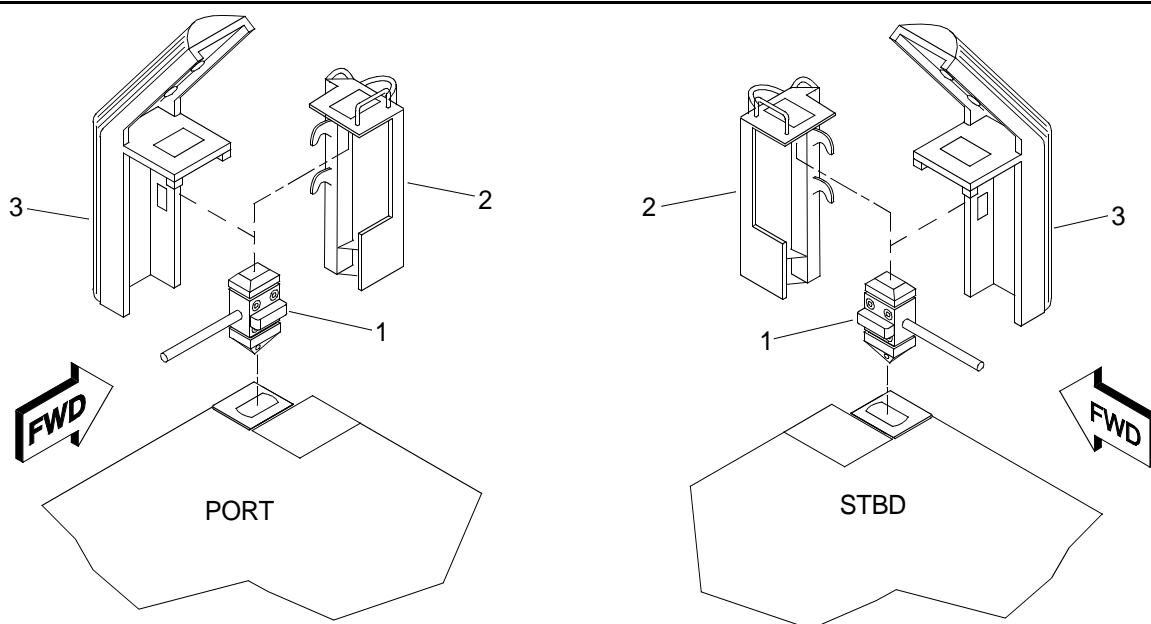


WARNING



HEAVY PARTS

- b. Pull up on straight portion (2) of fender assembly until high enough to disengage hooks of straight portion (2) of corner fender assembly from slots on angled portion (3) of corner fender assembly.



- c. Remove straight portion (2) of corner fender assembly.
- d. Pull straight up on angled portion (3) of corner fender assembly to clear ISOPAK vertical connector (1).
- e. Remove angled portion (3) of corner fender assembly.
- f. Remove ISOPAK vertical connector (1) from ISO corner fitting.
- g. Stow port and starboard corner fender assembly (2, 3) and ISOPAK vertical connector (1) in BII container.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
SAFETY EQUIPMENT
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

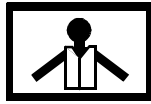
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - REMOVAL OF SAFETY EQUIPMENT**REMOVE LIFE RINGS**

WARNING



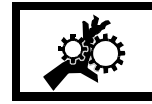
VEST



HELMET PROTECTION



HEAVY PARTS

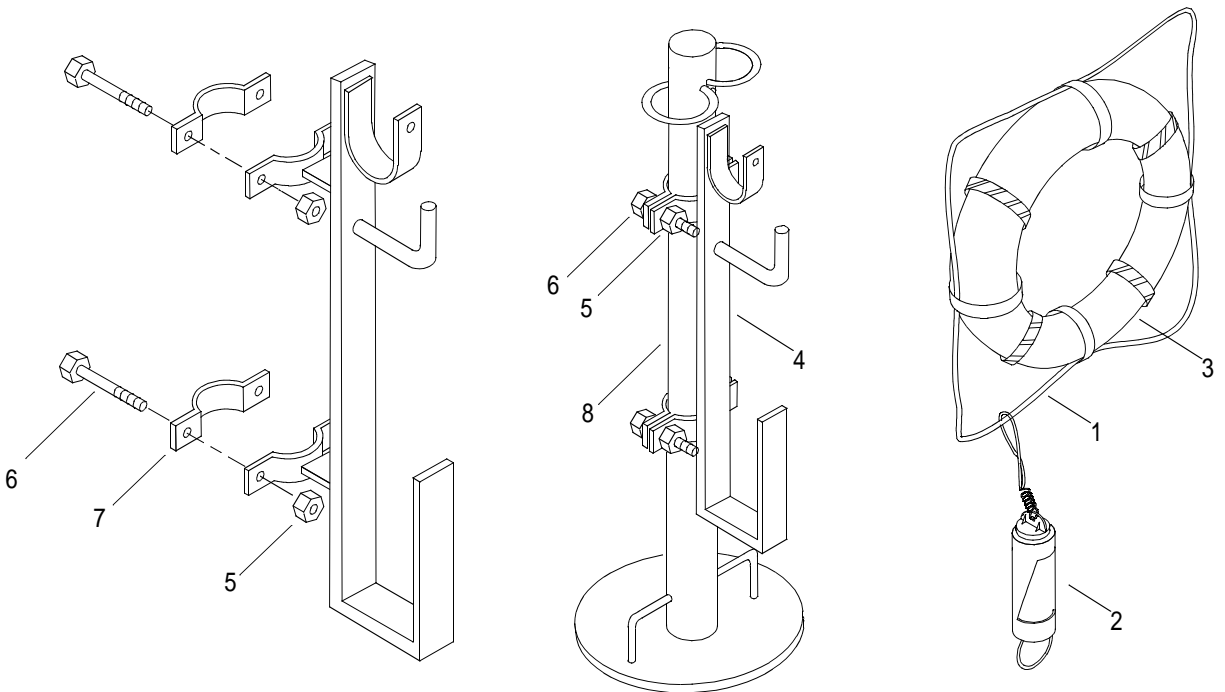


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Beware of other craft or objects coming alongside while working outboard installing the keeper plate and bolt on deck fittings. The possibility exists of falling overboard, which could cause death or injury to personnel.

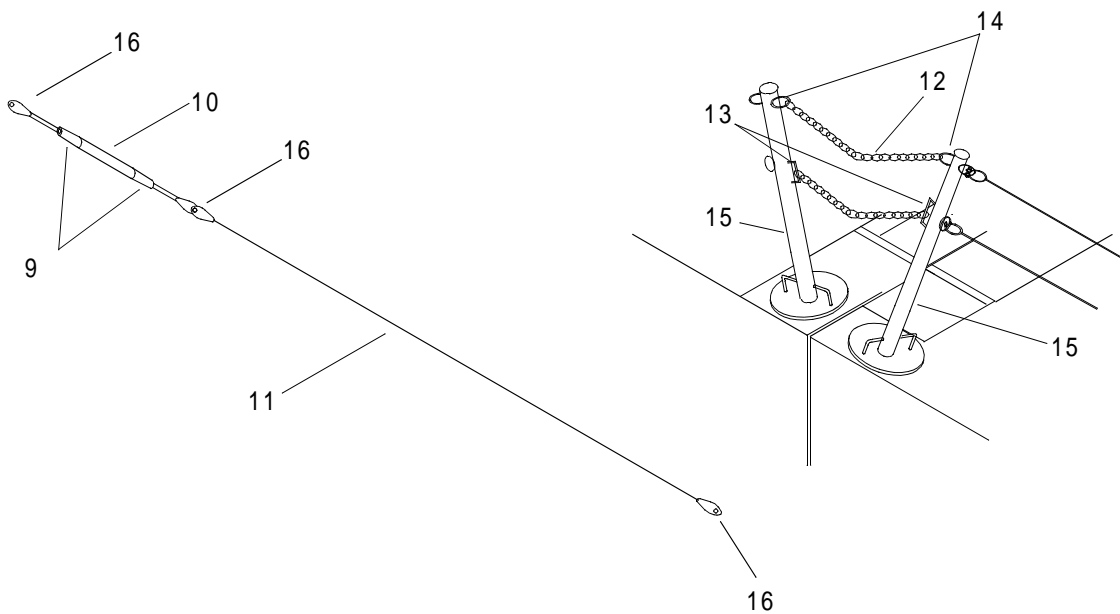
1. Disconnect nylon rope (1) at strobe light (2) and remove life ring (3) and nylon rope (1) from life ring bracket (4).



2. Remove nuts (5) from bolts (6) and separate life ring bracket retaining clamps half (7).
3. Remove life ring bracket (4) from stanchion (8).
4. Stow life ring (3), rope (1), strobe light (2) and bracket (4) as required in BII container. (WP 0067 00)

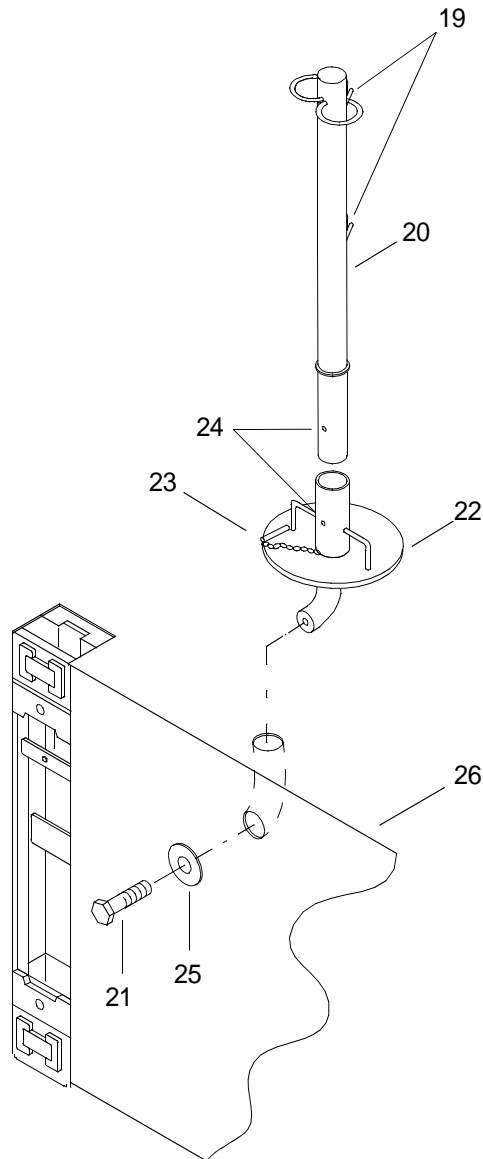
REMOVE LIFELINES

1. Loosen turnbuckle lock nuts (9) and loosen turnbuckles (10) on lifelines (11).



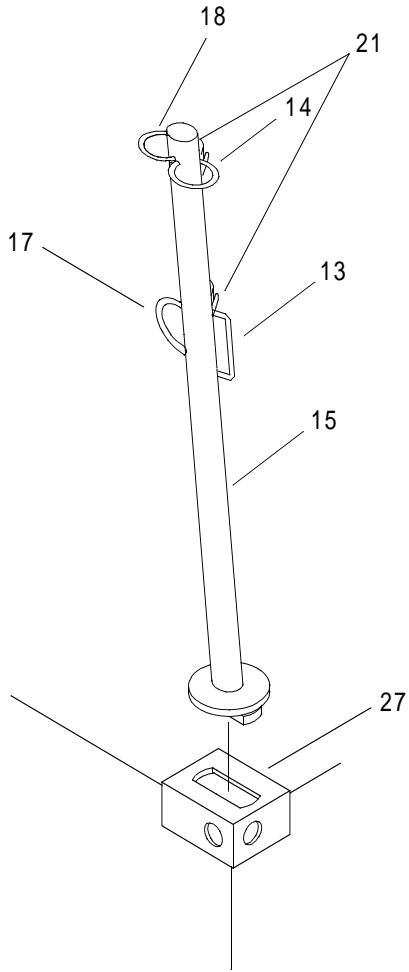
2. Remove safety chains (12) from staple fittings (13, 14) on corner stanchion (15).

3. Remove clevis hook ends (16) of lifelines (11) from staple fittings (17, 18) on corner stanchion (15) and remove lifelines (11) from pigtail fairleads (19) on each vertical stanchion (20).
4. Loosen bolt (21) from threaded portion of deck fitting (22).



5. Remove toggle pin (23) from holes (24) located near the base of the vertical stanchion deck fitting (22) and remove stanchion (20).
6. Remove bolt (21) and keeper plate (25) from module (26).
7. Remove deck fitting (22) from turn tube on module (26).

8. Twist corner stanchion (15) 1/4 turn and remove from ISO corner fitting (27).



9. Stow lifelines (11), safety chains (12) and stanchions (15, 20) as required in BII container. (WP 0067 00)

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TOWING BRIDLE, TOWING INTERFACE AND TOWING LIGHTS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Lifting Device Assembly (Item 35, WP 0119 00)
 Flexor Receiver Insert (Item 20, WP 0119 00)
 Forklift Adapter (Item 21, WP 0119 00)
 Towing Lights (Item 58, WP 0119 00)
 Bridle, Towing (Item 31, WP 0118 00)

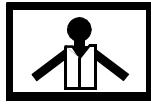
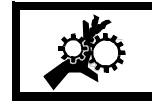
Personnel Required

Seaman 88K

**PREPARATION FOR MOVEMENT - REMOVAL OF TOWING BRIDLE, TOWING INTERFACE
AND TOWING LIGHTS**

REMOVE TOWING LIGHTS

WARNING

**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Remove towing light with amber lens from back of RRDF.
2. Remove towing light with red lens from left side of RRDF.
3. Remove towing light with green lens from right side of RRDF.
4. Remove batteries from towing lights.
5. Stow towing lights and batteries in BII container.

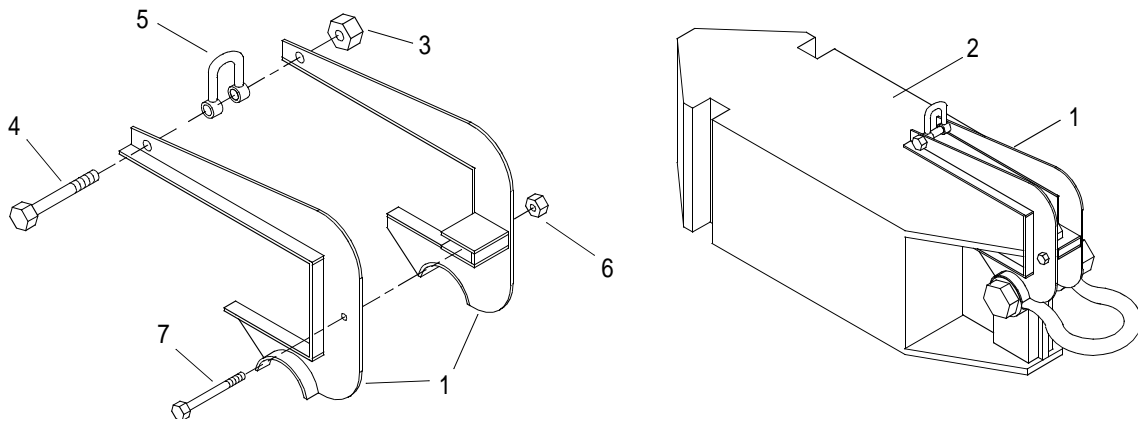
REMOVE TOWING INTERFACE**WARNING****HEAVY PARTS**

Be sure no other floating objects are nearby that could come in contact with the soldier while removing the towing interface. Do not work alone. Failure to observe these precautions could result in death or injury to personnel.

NOTE

Remove towing interface and towing bridle as an assembly.

1. Attach flexor lifting device (1) to the flexor insert (2).



- a. Remove nut (3) from bolt (4) and shackle (5) from the flexor lifting device (1).
- b. Remove nut (6) and bolt (7) from flexor lifting device (1).
- c. Position flexor lifting device (1) over flexor insert (2).
- d. Install shackle (5) on flexor lifting device (1).
 - {1} Align shackle (5) and flexor lifting device (1).
 - {2} Install bolt (4) in flexor lifting device (1).
 - {3} Install nut (3) on bolt (4).
 - {4} Tighten nut (3) until snug.
- e. Install bolt (7) in the flexor lifting device (1) and flexor insert (2).
 - {1} Install nut (6) on bolt (7).
 - {2} Tighten nut (6) until snug.

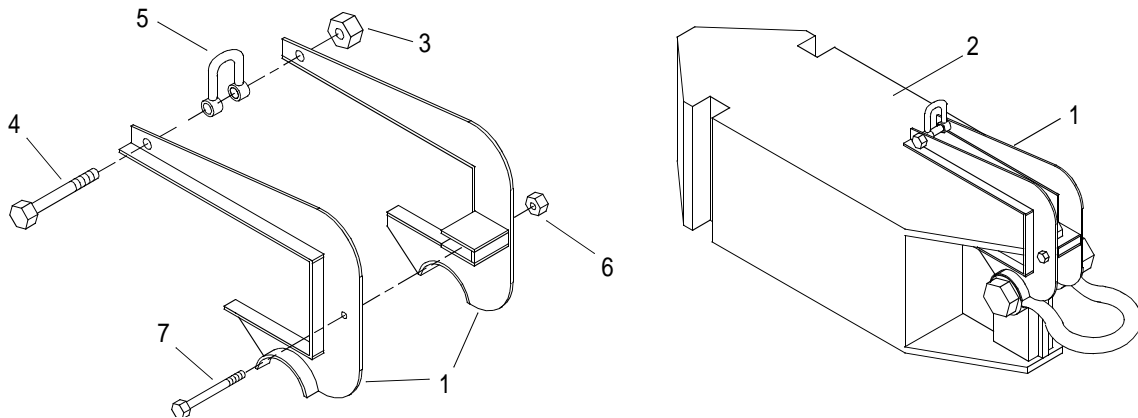
2. Disconnect the guillotine bar in the same manner as flexors to remove flexor insert. (WP 0050 00)

WARNING



HEAVY PARTS

3. Using a forklift and forklift adapter, place towing interface and towing bridle as an assembly on the deck of the RRDF.
4. Remove flexor lifting device (1) from the flexor insert (2).



- a. Remove nut (3), bolt (4) and shackle (5) from flexor lifting device (1).
- b. Remove nut (6) and bolt (7) from flexor lifting device (1).
- c. Remove flexor lifting device (1) from flexor insert (2).
- d. Install bolt shackle (5) on flexor lifting device (1).
 - {1} Align shackle (5) and flexor lifting device (1).
 - {2} Install bolt (4) in flexor lifting device (1).
 - {3} Install nut (3) on bolt (4).
 - {4} Tighten nut (3) until snug.
 - {5} Install nut (4) on bolt (2).
 - {6} Tighten nut (4) until snug.

e. Install bolt (7) in the flexor lifting device (1) and flexor insert (2).

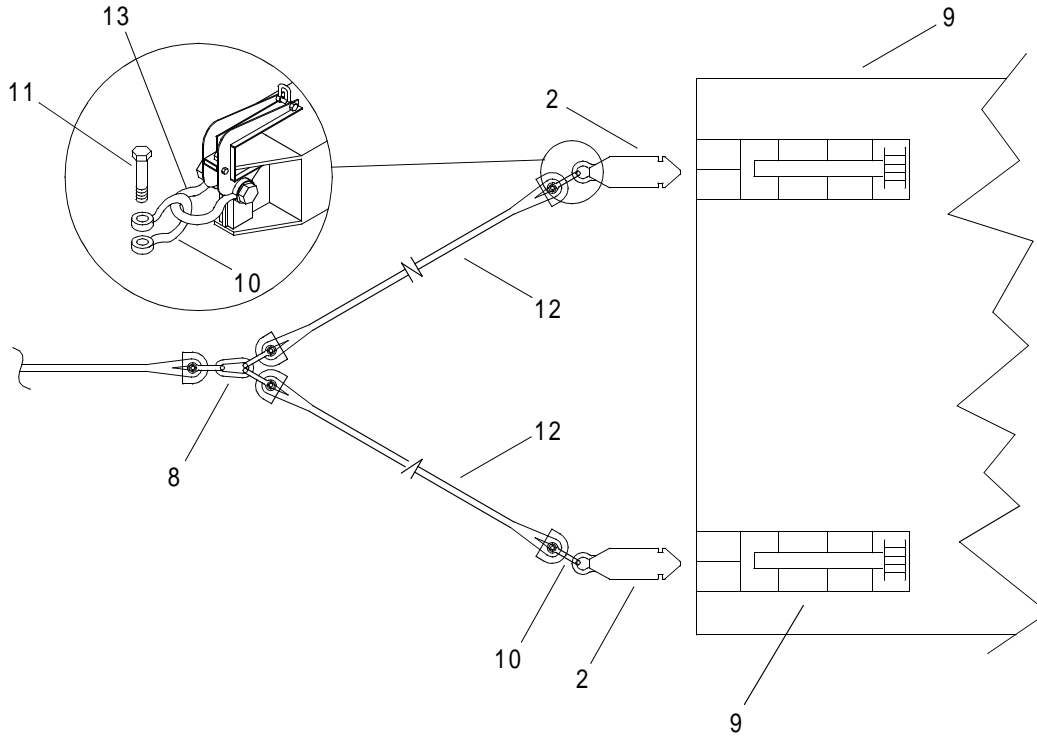
{1} Install nut (6) on bolt (7).

{2} Tighten nut (6) until snug.

5. Repeat procedure for second flexor insert.

REMOVE TOWING BRIDLE

1. Remove shackle securing towing bridle (8) to flexor inserts (2).



2. Remove shackle pin (11) and shackle (10) securing towing bridle (8) to flexor insert shackle (13).

3. Remove towing bridle leg (12) from flexor insert (2).

4. Repeat steps to remove second leg of towing bridle (12) from flexor insert (2).

5. Install shackles (10) and shackle pins (11) on both legs of towing bridle (12).

6. After bridle has been cleaned and dried on deck of RRDF (9), stow towing bridle in BII container.

7. Clean flexor inserts with fresh water.

8. Place flexor inserts in BII container.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MOORING BITTS AND QUICK DISCONNECTS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

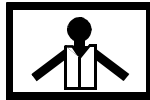
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Goggles, Industrial (chipping, chemical) (Item 24, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)
 Chain, ½ in. General Purpose (Item 13, WP 0119 00)
 Forklift Adapter (Item 21, WP 0119 00)
 Push Rod (Item 45, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - REMOVAL OF MOORING BITTS AND QUICK DISCONNECTS**REMOVE QUICK DISCONNECT**

WARNING



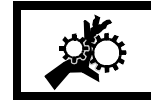
VEST



HELMET PROTECTION



HEAVY PARTS

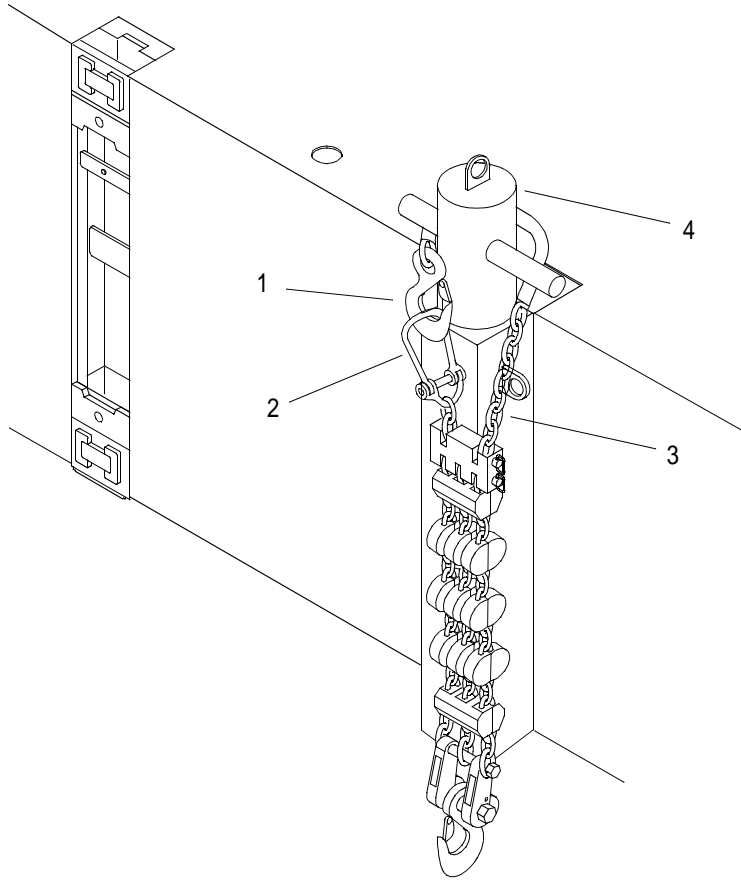


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Holding pelican hook (1) disconnect half link (2) from hook.

2. Remove quick disconnect assembly (3) from mooring bitt (4).



REMOVE MOORING BITT

WARNING

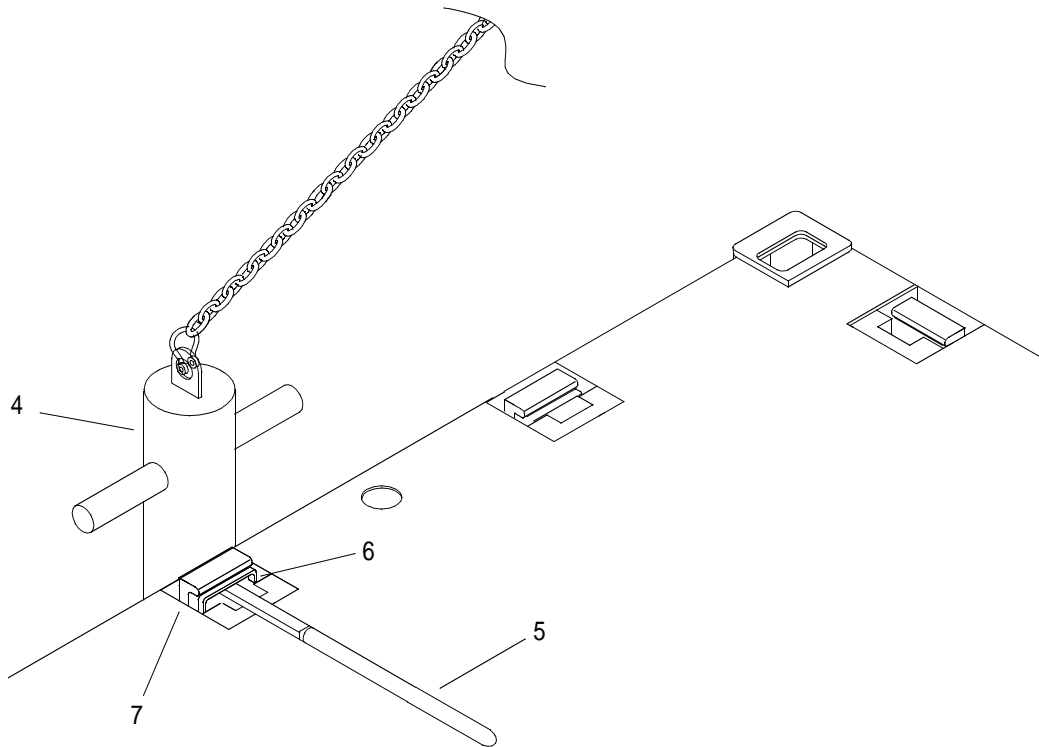


HEAVY PARTS

Attempting to remove mooring bitts from the RRDF in higher sea conditions than Sea State 0 could cause injury or possible death to personnel and/or damage equipment.

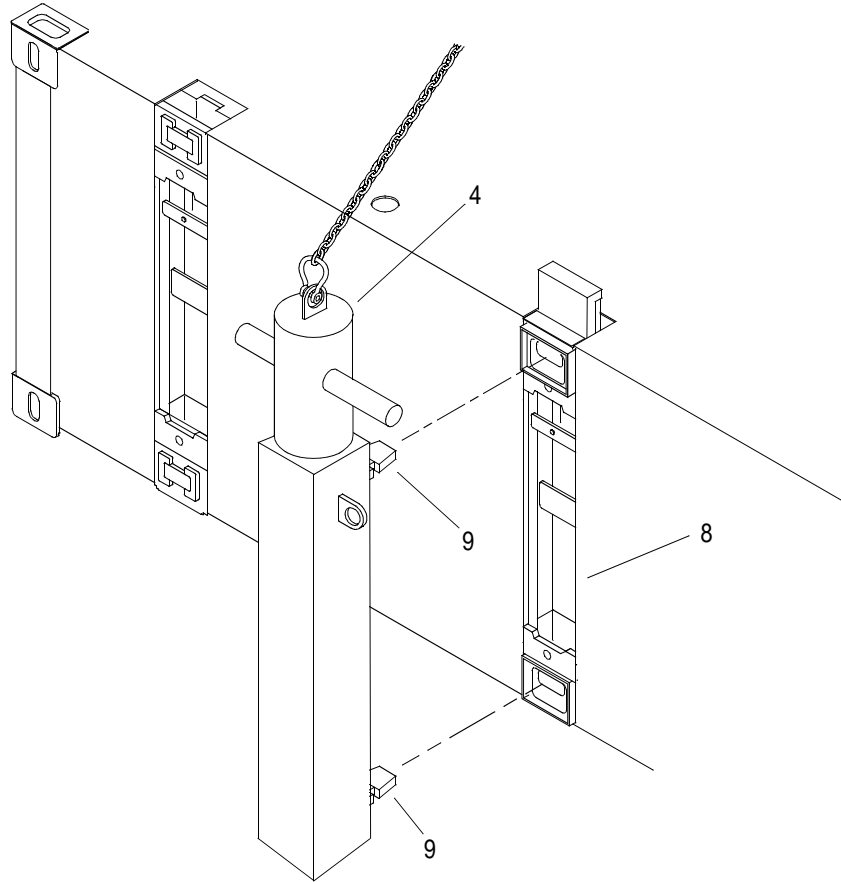
1. Prepare female connector assembly for mooring bitt removal.

- a. Use fork lift and lift chain to support mooring bitt (4).



- b. Insert crowbar (5) behind the spring bar (6) under the female guillotine bar (7).
- c. Rotate the crowbar (5) downward to clear spring bar (6) from deck overhangs and allow the female guillotine bars (7) to move upward.
- d. Raise the female guillotine bar (7) approximately six in. until it stops.
- e. Remove the crowbar (5).

2. Move mooring bitt (4) horizontally until male connector pins (9) clear female connector assembly (8).



WARNING

**HEAVY PARTS**

3. Install mooring bitts (4) on container pallets.
4. Fill pallets with mooring bitts (4) and secure bitts to pallet with straps.

WARNING

**HEAVY PARTS**

5. Using forklift and fork extenders, install first stack of pallets in container.

-
6. Remove one fork extender from forklift and install forklift hooked extender.

WARNING

**HEAVY PARTS**

7. Using forklift and forklift hooked extender, push first stack of pallets to the rear of container.
8. Remove forklift hooked extender from forklift and install fork extender.

WARNING

**HEAVY PARTS**

9. Using forklift, install second stack of pallets in container.
10. Remove one fork extender from forklift and install forklift hooked extender.

WARNING

**HEAVY PARTS**

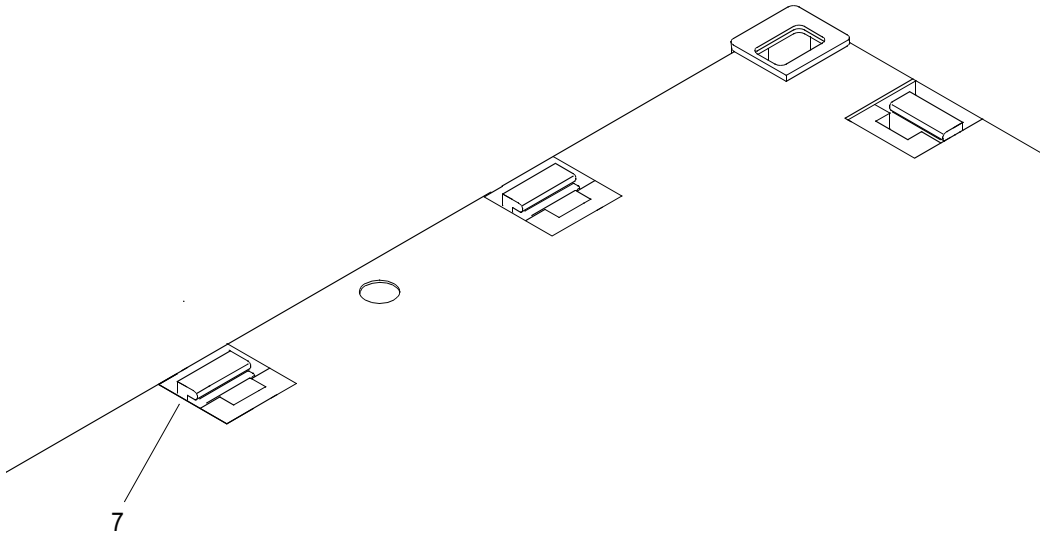
11. Using forklift and forklift hooked extender, push second stack of pallets to the rear of the container.
12. Remove forklift hooked extender from forklift and install fork extender.

WARNING

**HEAVY PARTS**

13. Using forklift, install third stack of pallets in container.
14. Install straps to secure pallets to container.

15. Drive female guillotine bar (7) down using sledgehammer.



END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
D-RING/CLOVERLEAF AND DECK CLEAT FITTINGS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Goggles, Industrial (chipping, chemical) (Item 24, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

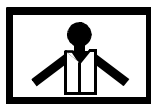
Personnel Required

Seaman 88K

**PREPARATION FOR MOVEMENT - REMOVAL OF D-RING/CLOVERLEAF AND DECK
CLEAT FITTINGS**

REMOVE D-RING/CLOVERLEAF FITTINGS

WARNING



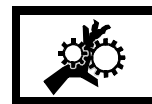
VEST



HELMET PROTECTION



HEAVY PARTS



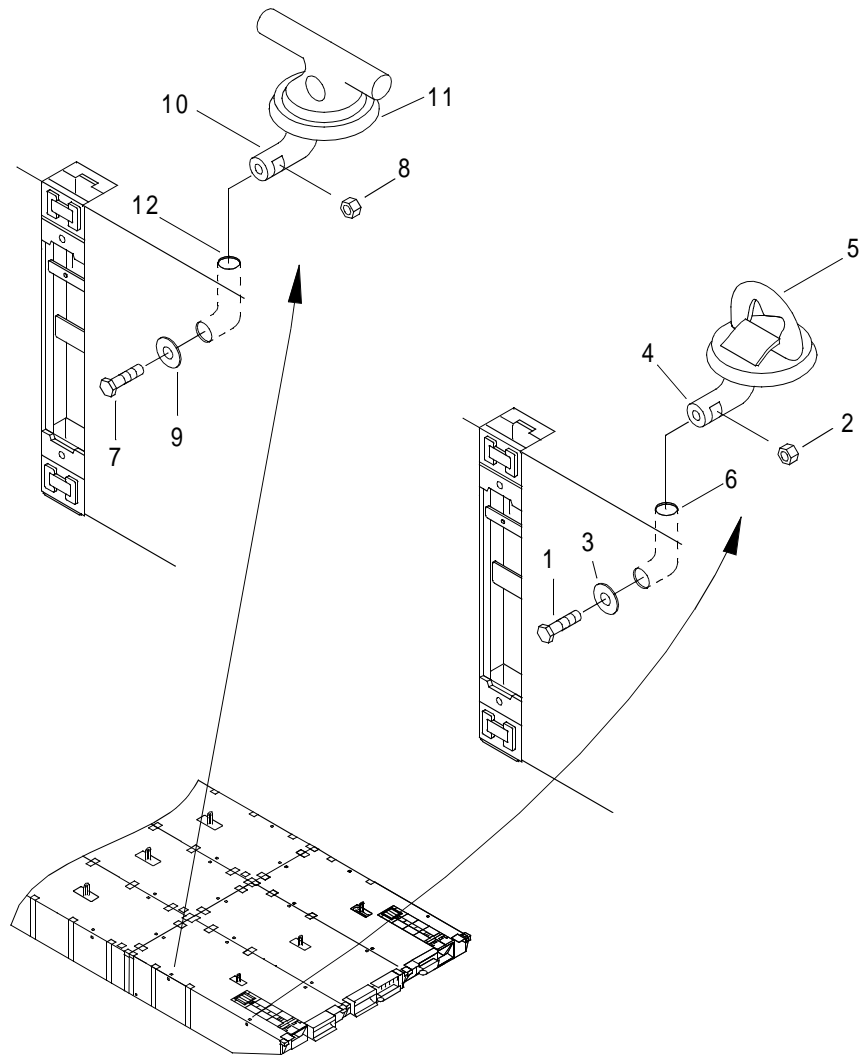
MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Beware of other craft or objects coming alongside while working outboard installing the bolt and washer. Serious injury may result if body parts are crushed between module and other craft or objects.

Use extreme caution while working outboard and lifting heavy objects as the possibility of falling overboard exists, which could cause serious injury or death.

1. Loosen bolt (1) from nut (2).



2. Remove bolt (1) and keeper plate (3) from nut (2) and tailpiece (4).
3. Remove D-Ring/Cloverleaf (5) from module turn tube (6).
4. For storage, thread bolt (1) through keeper plate (3) and thread it into nut (2) in tailpiece (4).

REMOVE DECK CLEAT FITTINGS

1. Loosen bolt (7) from nut (8).
2. Remove bolt (7) and keeper plate (9) from nut (8) and tailpiece (10).
3. Remove deck cleat (11) from module turn tube (12).
4. For storage, install bolt (7) through keeper plate (9) and thread it into nut (8) and tailpiece (10).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
FULL AND FORCE OPENING CONFIGURATIONS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)

Personnel Required

Seaman 88K

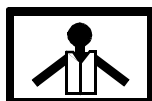
Equipment Condition

Dunnage Mats Removed. (WP 0037 00)
 Light Towers Removed. (WP 0038 00)
 Emergency Anchor System Container Removed. (WP 0039 00)
 Personnel Shelter Container Removed. (WP 0040 00)
 Generator Container Removed. (WP 0041 00)
 Fenders Removed. (WP 0042 00)
 Safety Equipment Removed. (WP 0043 00)
 Mooring Bitts And Quick Disconnects Removed. (WP 0045 00)

**PREPARATION FOR MOVEMENT - DISASSEMBLY OF ALL FULL AND FORCE
OPENING CONFIGURATIONS**

DISASSEMBLE PLATFORM

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS



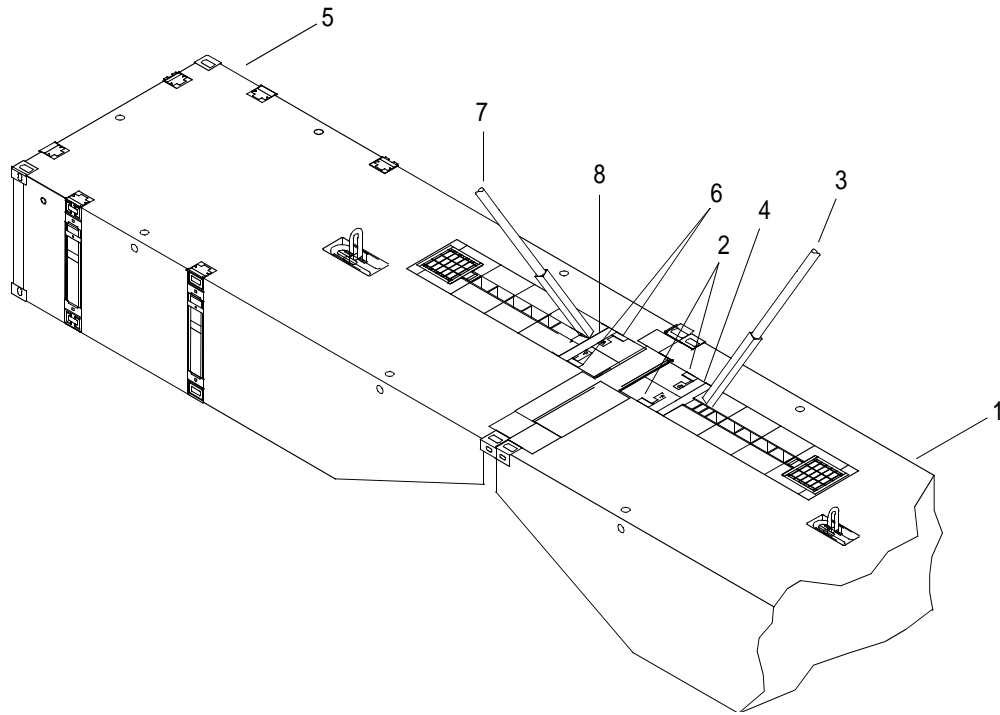
HEAVY PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Do not handle ropes/lines by placing hands in bight of the line where it feeds into cleats, etc. Place the hands on top or on the outside so that in an emergency the lines can be released quickly to preclude being pulled into the equipment.

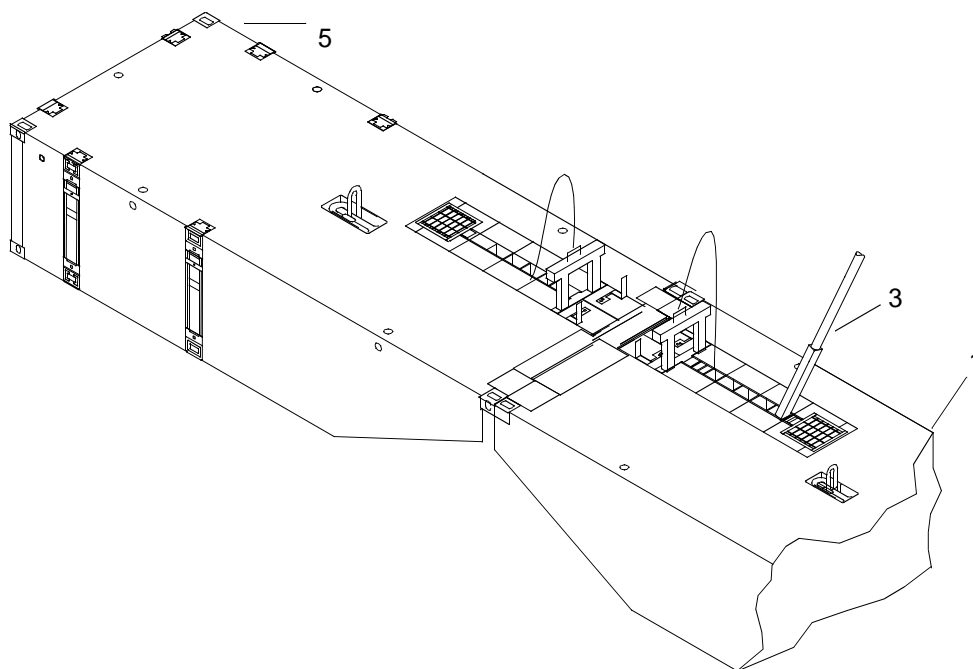
1. Secure RRDF segment to RRDF platform with line so that segments to be separated are secured tightly to platform.

2. Release flexor connectors on right end rakes (1).



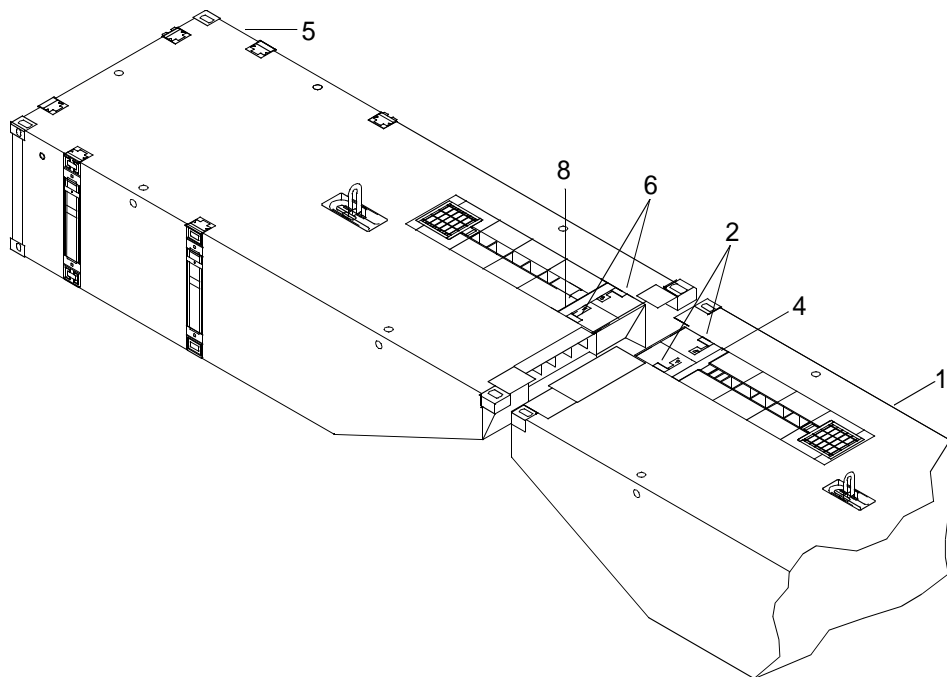
- a. Rotate the chute bolts (2) and pull the chute bolts (2) to the unlocked position.
 - b. Using the crowbar (3), lift the guillotine plates (4) up from the flexor connector slots.
3. Stow flexor connectors in left hand rakes (5).
 - a. Rotate the chute bolts (6) and pull the chute bolts (6) to the unlocked position.
 - b. Using the crowbar (7), lift the guillotine plates (8) up from the flexor connector slots.

- c. Using crowbar (3), move flexor from right end rakes (1) into left hand rake (5) flexor connector pockets.



- d. Align outboard guillotine slot on flexor with slot in left end rake module.

- e. Install guillotine plates (8) on left end rakes (5).



- f. Install guillotine plates (4) on right end rakes (1).

4. Using warping tugs, separate platform into RRDF segments.
5. Untie line securing RRDF segment to RRDF platform.
6. Separate RRDF segment.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
SEGMENT
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

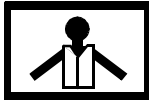
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - DISASSEMBLY OF SEGMENT**DISASSEMBLE SEGMENT**

WARNING



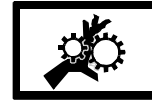
VEST



HELMET PROTECTION



HEAVY PARTS

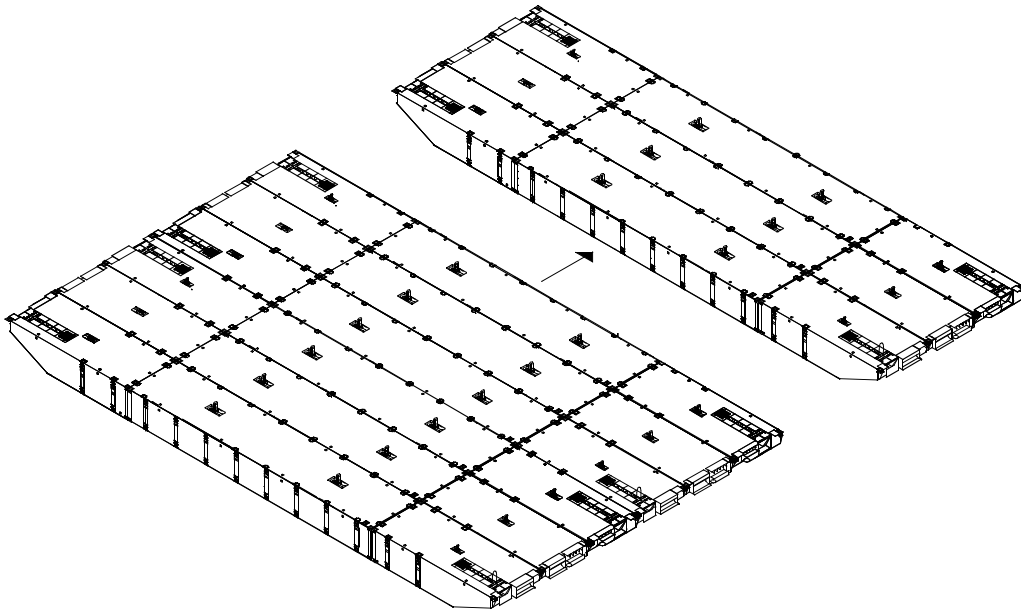


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Place the hands on top or on the outside of ropes/lines so that in an emergency the lines can be released quickly to preclude being pulled into the equipment. Failure to follow these precautions could result in injury or death to personnel.

1. Secure intermediate section to RRDF segment with lines.



3 WIDE SEGMENT SHOWN

2. Raise the female guillotine connectors to release intermediate sections. (WP 0009 00)
3. Install fenders between intermediate sections to protect from puncture. (WP 0018 00)
4. Stow male and female guillotine connectors. (WP 0052 00)

END OF WORK PACKAGE

OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)

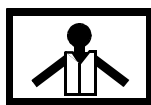
Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - DISASSEMBLY OF ROLL-ON/ROLL-OFF DISCHARGE FACILITY COMBINATION BEACH/SEA END SECTION

DISASSEMBLE ROLL-ON/ROLL-OFF DISCHARGE FACILITY COMBINATION BEACH/SEA END SECTION

WARNING



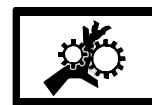
VEST



HELMET PROTECTION



HEAVY PARTS

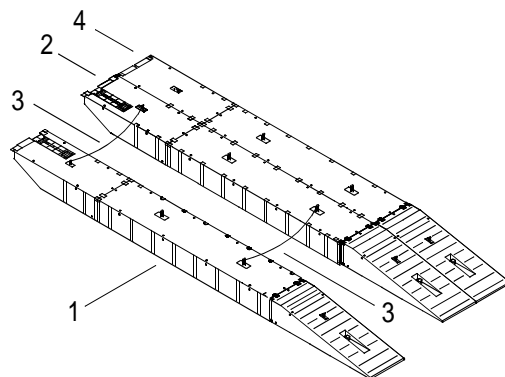


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes, and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

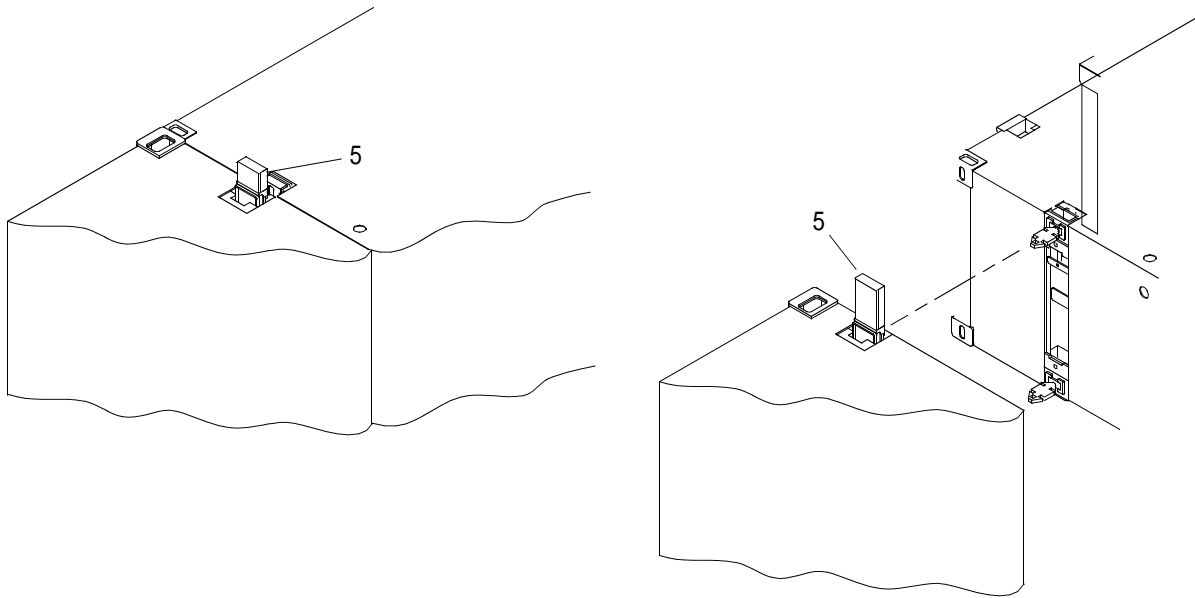
Disassemble the roll-on/roll-off discharge facility beach sea/end section into strings in the water. Lift strings onto deck of ship for disassembly.



ROLL-ON/ROLL-OFF DISCHARGE FACILITY
 BEACH/SEA END SECTION

1. Secure the out board string (1) to the center string (2) with line (3).

- Using a crowbar, raise the side female guillotine connectors (5) to release one outboard string (1).



- Separate the outboard string (1) from the center string (2).
- Repeat steps to separate outboard string (4) from the center string (2).
- Stow the male and female connector guillotines. (WP 0052 00)
- Using crane and slings, lift string out of the water for disassembly.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

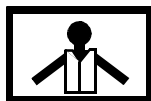
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - DISASSEMBLY OF INTERMEDIATE SECTION**DISASSEMBLE INTERMEDIATE SECTION**

WARNING



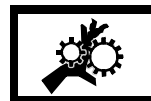
VEST



HELMET PROTECTION



HEAVY PARTS



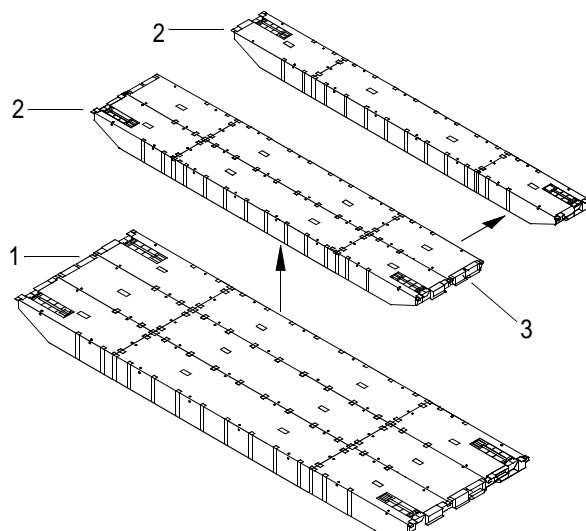
MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

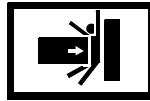
NOTE

Disassemble the intermediate section into strings in the water. Lift strings onto deck of ship for disassembly.

1. Disassemble the intermediate section (1) into strings by raising the female connector guillotines. (WP 0009 00)



WARNING

**HEAVY PARTS**

2. Separate the two outboard strings (2) and one center string (3).
3. Stow the male and female connector guillotines. (WP 0052 00)

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MODULE STRINGS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

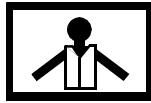
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 28, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - DISASSEMBLY OF MODULE STRINGS**DISASSEMBLE MODULE STRINGS**

WARNING



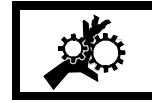
VEST



HELMET PROTECTION



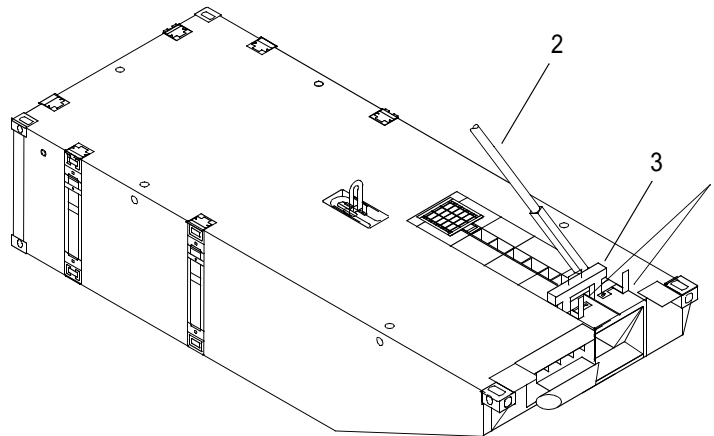
HEAVY PARTS



MOVING PARTS

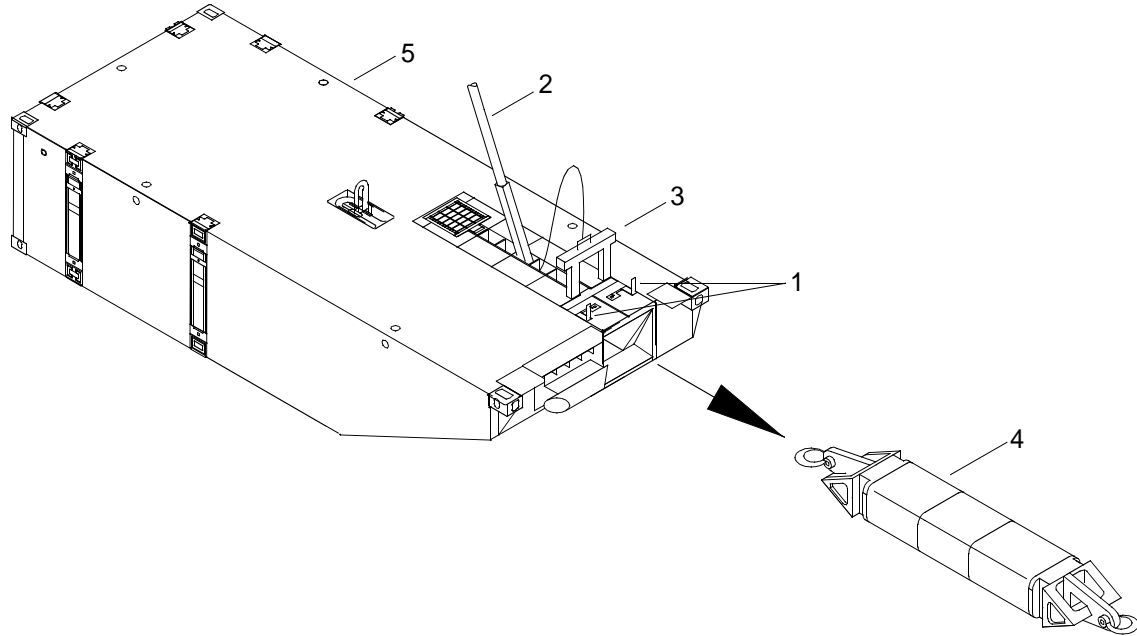
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Remove flexor connectors.
 - a. Rotate the chute bolts (1) and pull the chute bolts (1) to the unlocked position.



- b. Using a crowbar (2), lift the guillotine plate (3) up from the flexor connector slots.

- c. Move the flexor (4) forward using a crowbar (2).

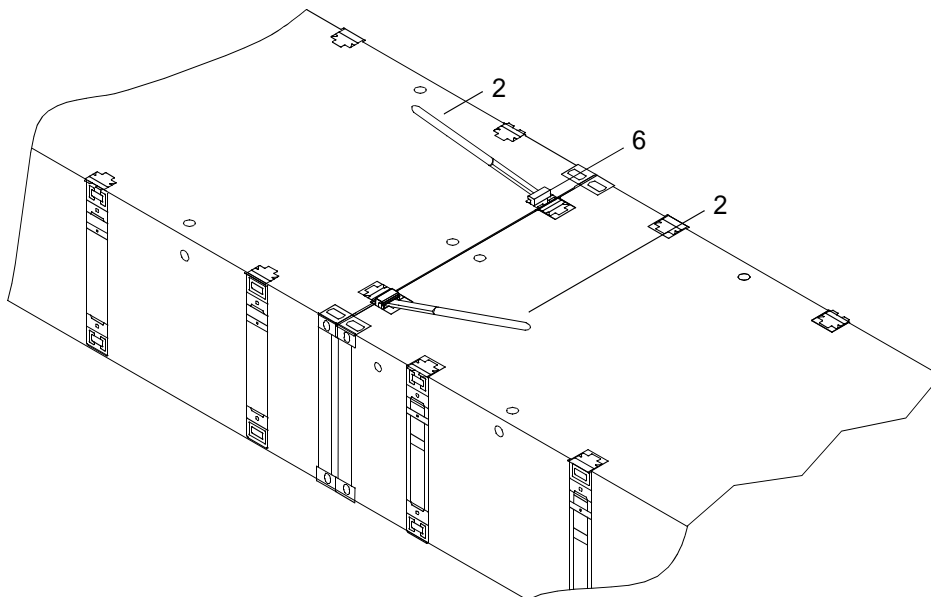


WARNING

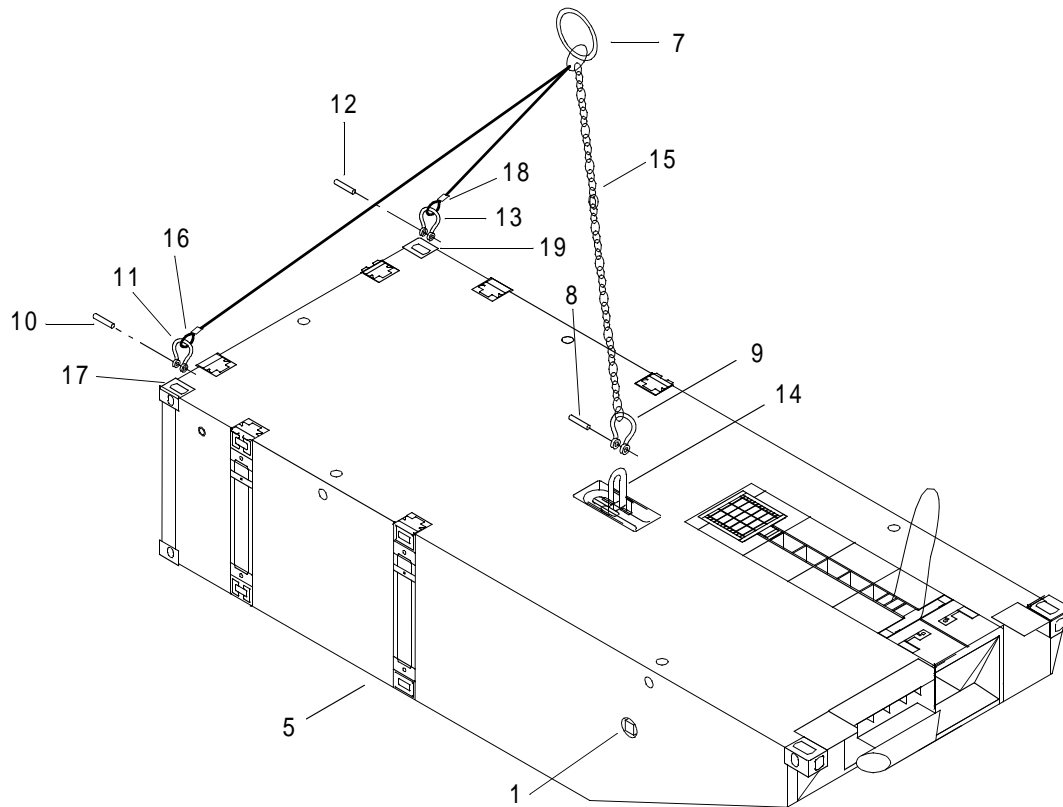


HEAVY PARTS

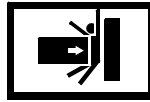
- d. Remove the flexor connector (4) from the end rake (5) using a forklift.
- e. Stow guillotine (3) and lock chute bolts (1).
2. Using the crowbar (2), raise the female connector guillotine (6) to the unlocked position. (WP 0009 00)



3. Install three leg sling (7) on end rake module (5).



- a. Remove shackle pin (8) from shackle (9).
- b. Remove shackle pin (10) from shackle (11).
- c. Remove shackle pin (12) from shackle (13).
- d. Insert shackle (9) through module lifting shackle (14) and chain (15).
- e. Install shackle pins (8) in shackle (9).
- f. Insert shackle (11) through sling eye (16) and module ISO fitting (17).
- g. Install shackle pin (10) in shackle (11).
- h. Insert shackle (13) through sling eye (18) and module ISO fitting (19).
- i. Install shackle pin (12) in shackle (13).

WARNING**HEAVY PARTS**

4. Separate modules.
5. Stow the male connector pins, male and female connectors. (WP 0052 00)

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MALE AND FEMALE GUILLOTINE CONNECTORS
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

**PREPARATION FOR MOVEMENT - STOWAGE OF MALE AND FEMALE
GUILLOTINE CONNECTORS**

STOW MALE CONNECTORS

WARNING



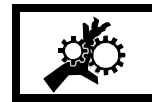
VEST



HELMET PROTECTION



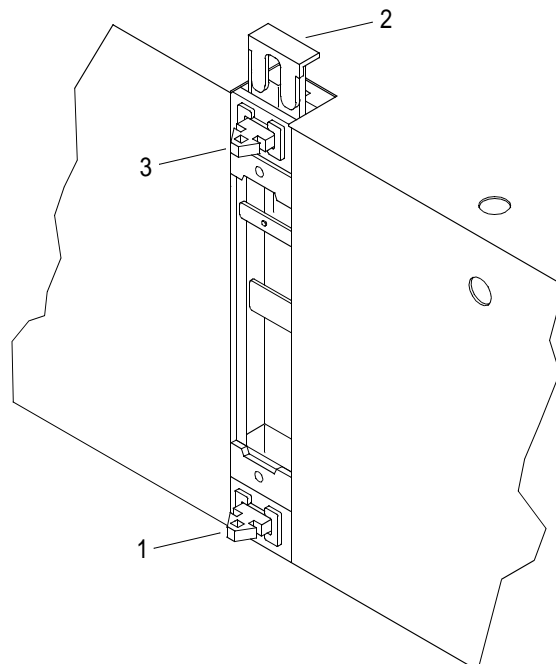
HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Depress the lower male lock pin (1) against its deployment spring into the lower male housing.



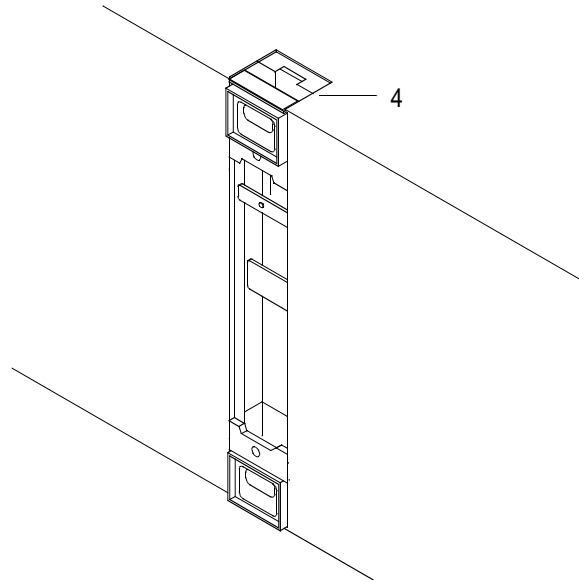
2. Hold the lower male lock pin (1) fully inward while lowering the guillotine connector (2) slightly with sledgehammer to engage and restrain the lower pin without coming in physical contact with any other connector parts.
3. Depress the upper male lock pin (3) against its deployment spring into the upper male housing.
4. Hold the upper lock pin (3) fully inward while lowering the guillotine connector (2) completely down with sledgehammer to engage and restrain the upper pin.

STOW FEMALE CONNECTORS

NOTE

Connectors are properly stowed when guillotines are flush with module deck.

1. Using the sledgehammer, strike the guillotine (4) of the female connectors until completely flush with the deck.



2. Ensure that guillotines are flush with module deck to assure that connectors are properly stowed.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MODULE ISOPAK
OPERATION UNDER USUAL CONDITIONS**

INITIAL SETUP:**Tools**

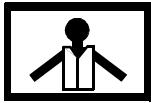
Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 29, WP 0119 00)
 Ladder (Item 32, WP 0119 00)

Personnel Required

Seaman 88K

PREPARATION FOR MOVEMENT - ASSEMBLY OF MODULE ISOPAK**ASSEMBLE END RAKE MODULE ISOPAK**

WARNING



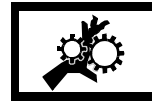
VEST



HELMET PROTECTION



HEAVY PARTS



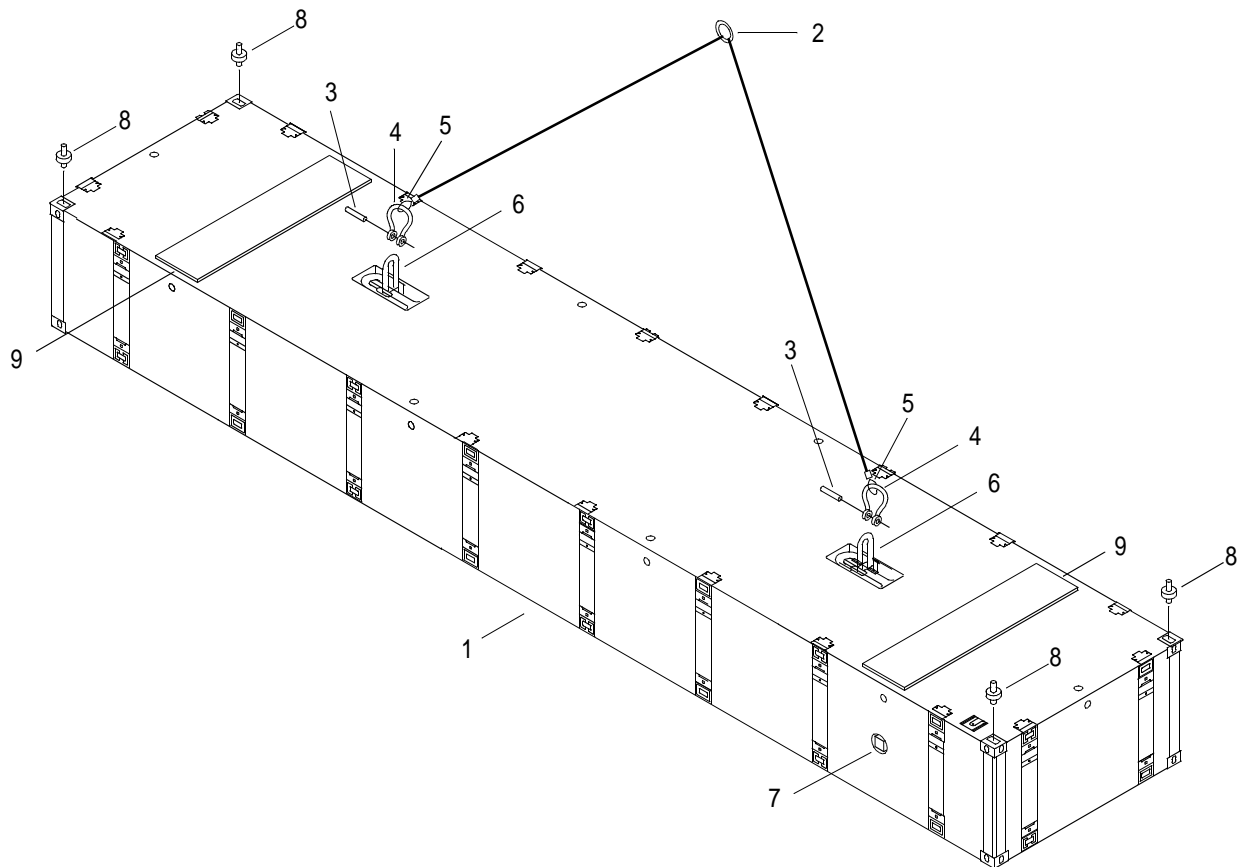
MOVING PARTS



HEAVY PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Lift center module (1) with two leg sling (2).



- a. Remove shackle pins (3) from shackles (4).
- b. Insert shackle (4) through sling eye (5) and module lifting shackle (6).
- c. Install shackle pins (3) in shackles (4).

WARNING



HEAVY PARTS

- d. Using crane and sling (2), lift center module (1)

NOTE

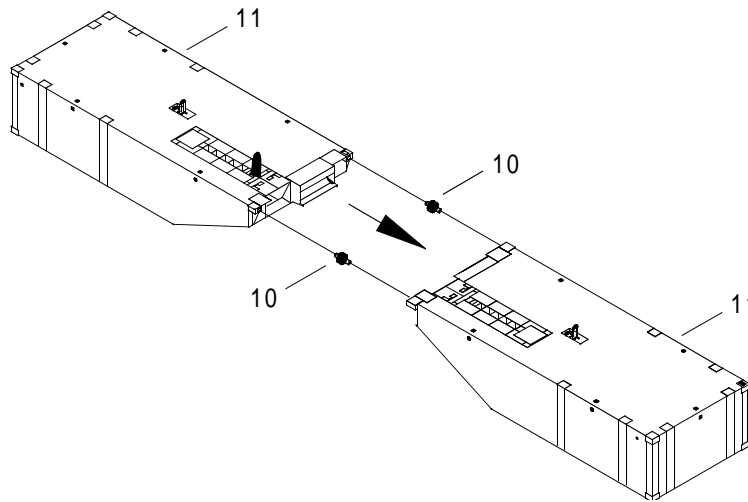
Drain plug location may vary.

2. Inspect modules to ensure drain plugs (7) are installed and tight in all modules.

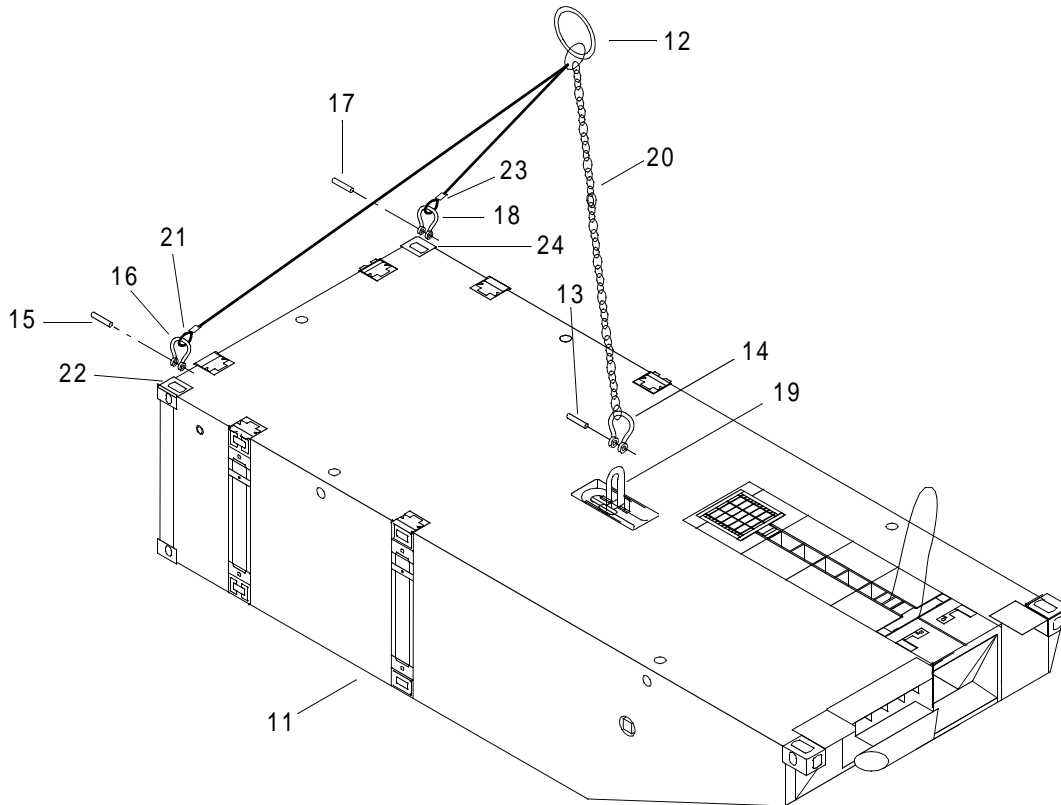
WARNING

**HEAVY PARTS**

3. Using crane position center module (1) where necessary.
4. Install four connectors (8) and dunnage (9) on center module (1).
5. Install ISOPAK horizontal connectors (10) in end rake modules (11).



6. Install three leg sling (12) on end rake module (11).



- a. Remove shackle pin (13) from shackle (14).
- b. Remove shackle pin (15) from shackle (16).
- c. Remove shackle pin (17) from shackle (18).
- d. Insert shackle (13) through module lifting shackle (19) and chain (20).
- e. Install shackle pins (13) in shackle (14).
- f. Insert shackle (16) through sling eye (21) and module ISO fitting (22).
- g. Install shackle pin (15) in shackle (16).
- h. Insert shackle (18) through sling eye (23) and module ISO fitting (24).
- i. Install shackle pin (17) in shackle (18).

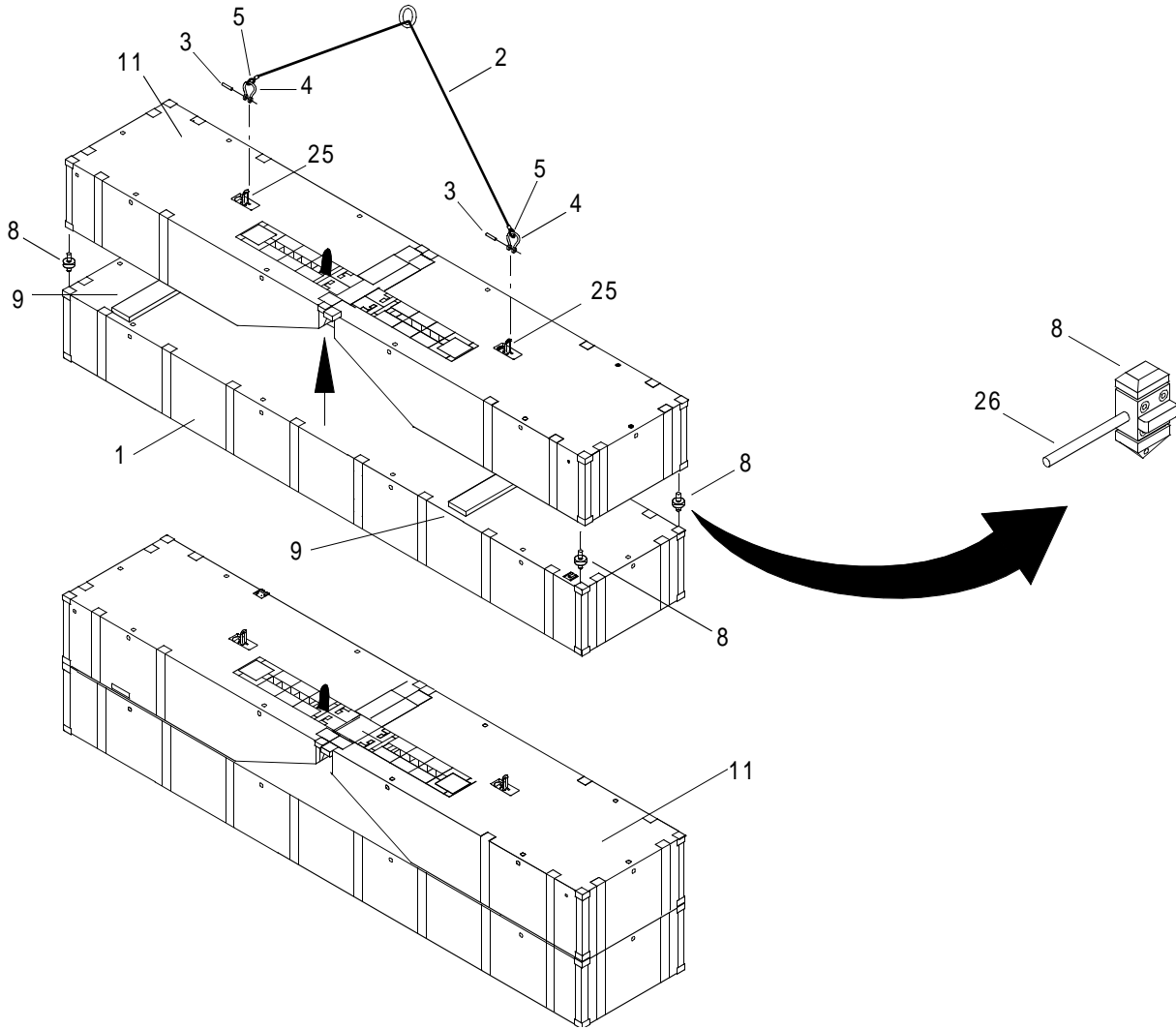
WARNING



HEAVY PARTS

- j. Using crane and sling, lift and connect end rake modules (11) with horizontal connectors (10).

7. Attach two leg sling (2) to connected end rake modules (11).



- a. Remove shackle pins (3) from shackles (4).
- b. Insert shackle (4) through sling eye (5) and through module lifting shackle (25).
- c. Install shackle pins (3) in shackles (4).

WARNING



HEAVY PARTS

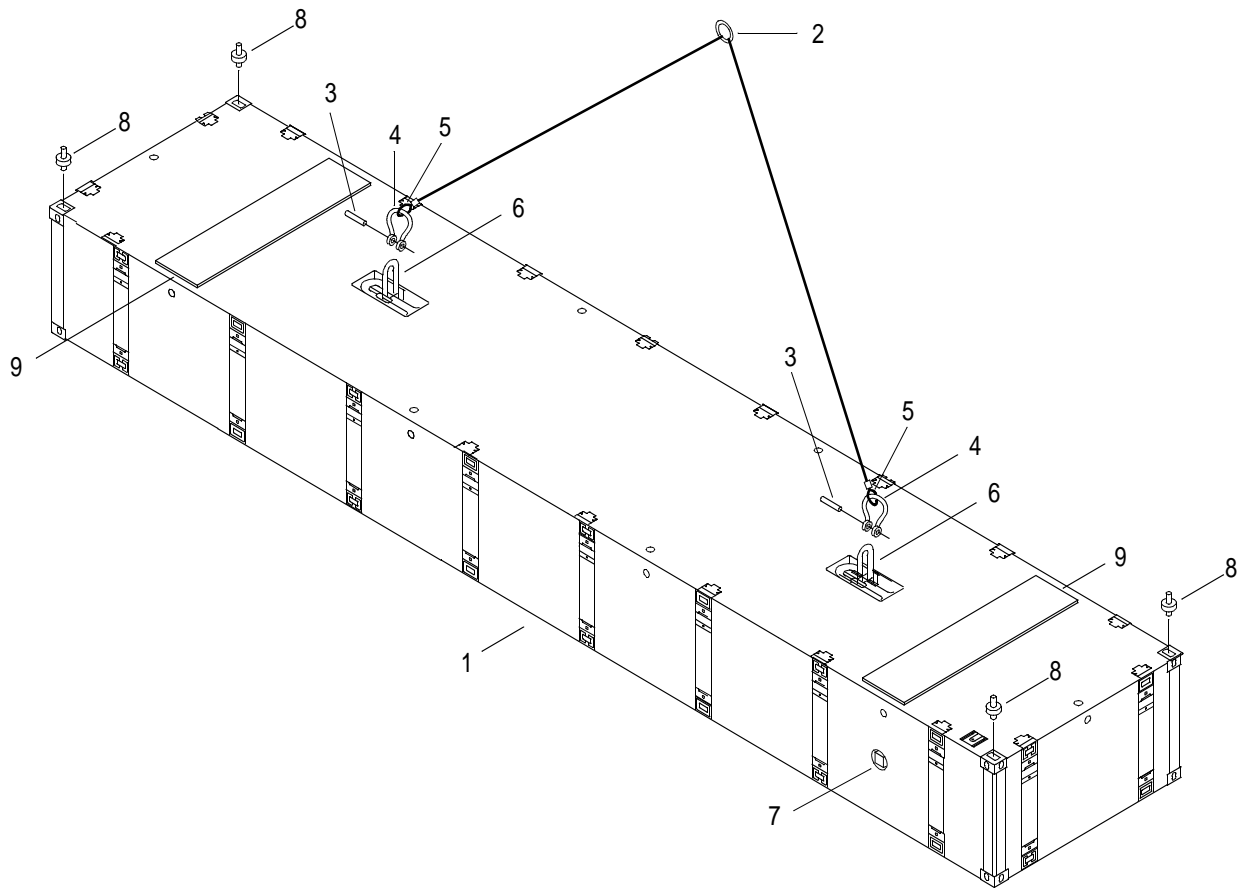
- d. Using crane and sling (2), lift center module (1)

WARNING**HEAVY PARTS**

8. Lift connected end rake modules (11) by two leg sling (2) and install on top of center module (1).
9. Lock four ISOPAK vertical connectors (8), one at each corner, by moving the lever (26).

ASSEMBLE COMBINATION BEACH SEA END (CBSE) MODULE ISOPAK**WARNING****HEAVY PARTS**

1. Lift center module (1) with two leg sling (2).



- a. Remove shackle pins (3) from shackles (4).
- b. Insert shackle (4) and sling eye (5) through module lifting shackle (6).

-
- c. Install shackle pins (3) in shackles (4).

WARNING



HEAVY PARTS

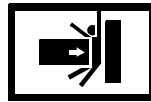
- d. Using crane and sling (2), lift center module (1).

NOTE

Drain plug location may vary.

2. Inspect modules to ensure drain plugs (7) are installed and tight in all modules.

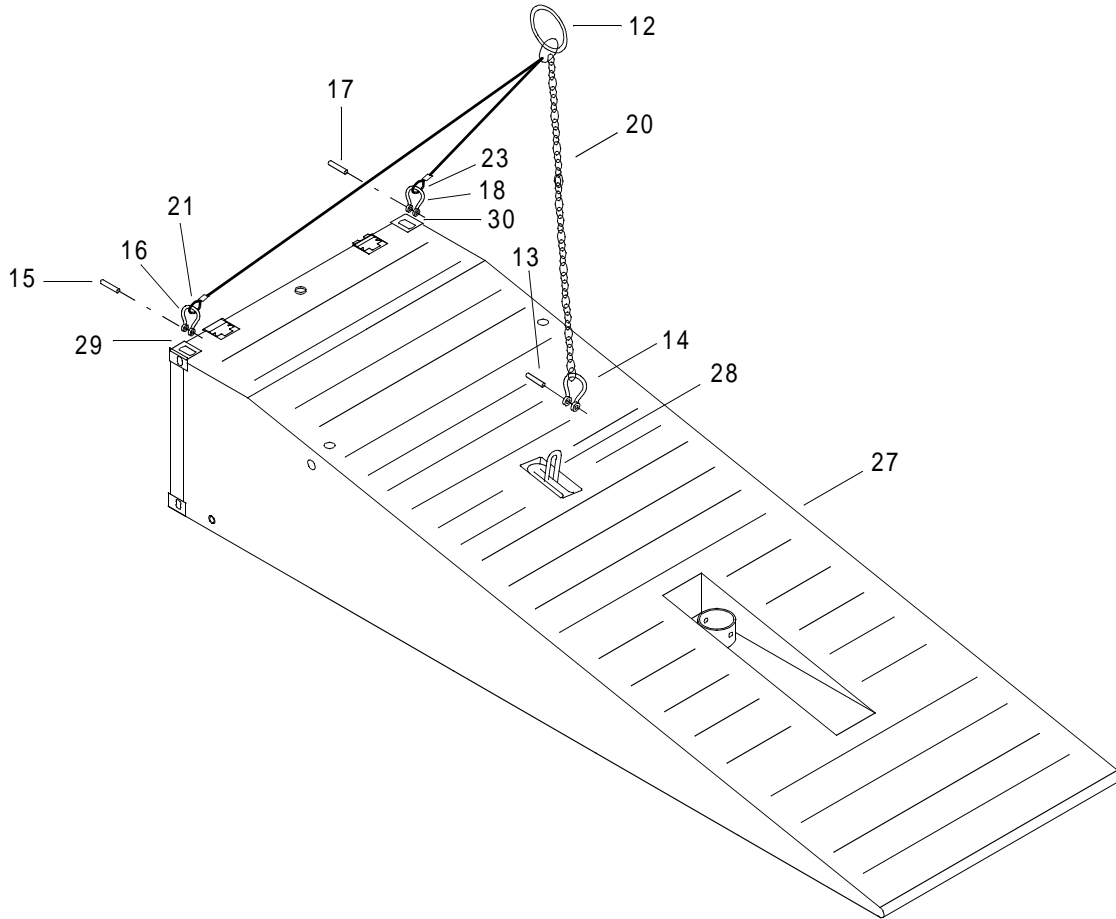
WARNING



HEAVY PARTS

3. Using crane position center module (1) where necessary.
4. Install four connectors (8) and dunnage (9) on center module (1).

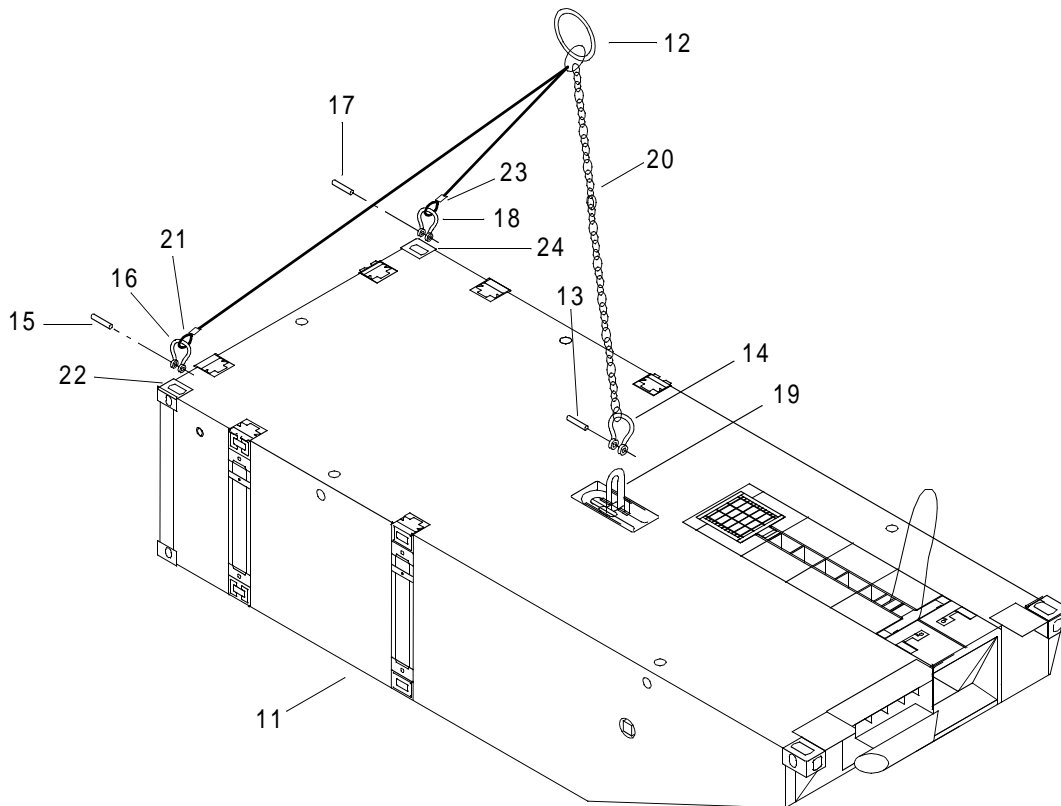
5. Install three leg sling (12) on CBSE module (27).



- a. Remove shackle pin (13) from shackle (14).
- b. Remove shackle pin (15) from shackle (16).
- c. Remove shackle pin (17) from shackle (18).
- d. Insert shackle (13) through module lifting shackle (28) and chain (20).
- e. Install shackle pins (13) in shackle (14).
- f. Insert shackle (16) through sling eye (21) and module ISO fitting (29).
- g. Install shackle pin (15) in shackle (16).
- h. Insert shackle (18) through sling eye (23) and module ISO fitting (30).
- i. Install shackle pin (17) in shackle (18).

WARNING**HEAVY PARTS**

6. Using crane and sling, lift and position CBSE module (27) on two vertical connectors (8) on center module (1).
7. Lock two ISOPAK vertical connectors (8) by moving the lever (26).
8. Install three leg sling (12) on end rake module (11).



- a. Remove shackle pin (13) from shackle (14).
- b. Remove shackle pin (15) from shackle (16).
- c. Remove shackle pin (17) from shackle (28).
- d. Insert shackle (13) through module lifting shackle (19) and chain (20).
- e. Install shackle pins (13) in shackle (14).
- f. Insert shackle (16) through sling eye (21) and module ISO fitting (22).
- g. Install shackle pin (15) in shackle (16).
- h. Insert shackle (18) through sling eye (23) and module ISO fitting (24).

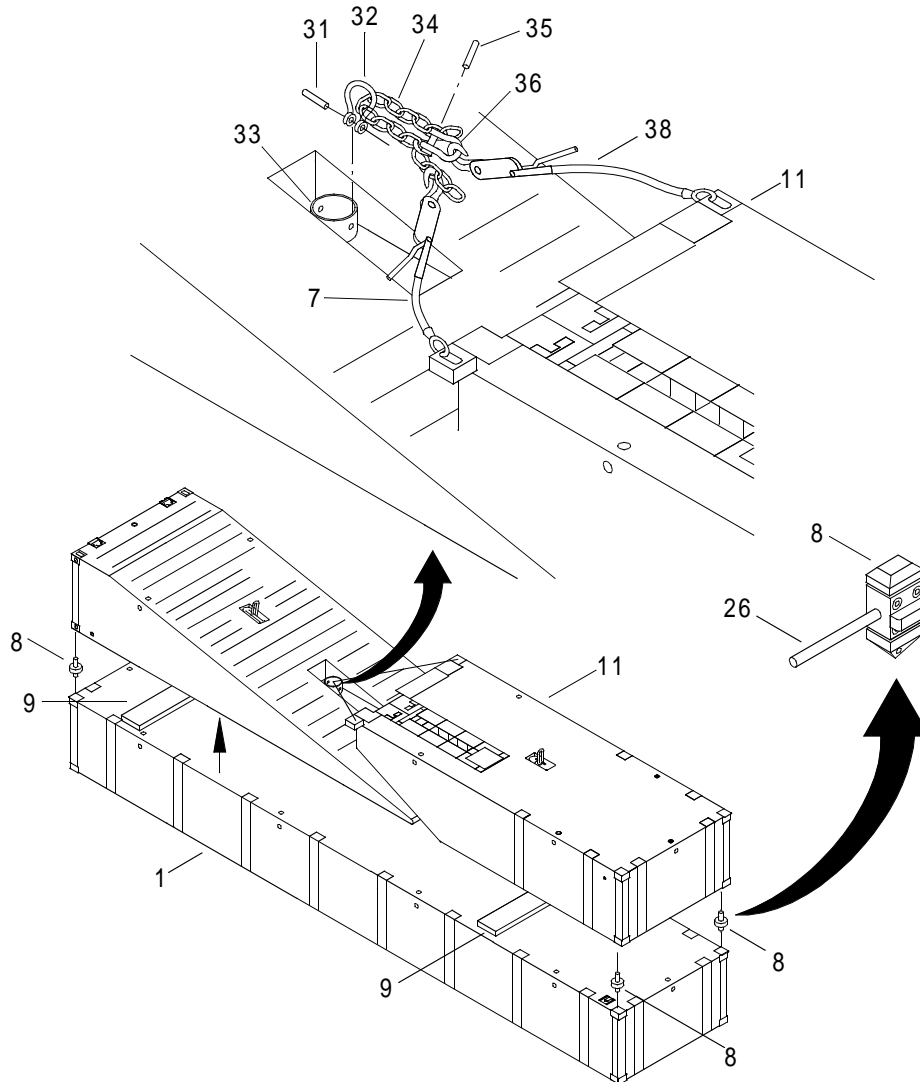
- i. Install shackle pin (17) in shackle (18).

WARNING



HEAVY PARTS

9. Using crane and sling, lift and position end rake module (11) on two vertical connectors (8) on center module (1).



10. Lock two ISOPAK vertical connectors (8), by moving the lever (26).
11. Remove pin (31) from shackle (32).
12. Install shackle (32) on rhino horn fitting (33).
13. Install chain (34) through shackle (32).

14. Remove pin (35) from shackle (36).
15. Install shackle (36) on chain (34).
16. Install tie down cable (37) from end rake (11) and chain (34).
17. Install tie down cable (38) from end rake (11) and shackle (36).
18. Tighten and secure tie down cables (37 and 38).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TACTICAL QUIET GENERATOR
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:

Tools

- Life Preserver, Vest (Item 33, WP 0119 00)
- Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
- Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
- Helmet, Safety (Item 29, WP 0119 00)
- Plug, Ear (Item 43, WP 0119 00)

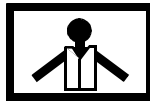
Personnel Required

Seaman 88K

EMERGENCY PROCEDURE - EMERGENCY STOP OF TACTICAL QUIET GENERATOR

ACTIVATE EMERGENCY STOP OF TACTICAL QUIET GENERATOR

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



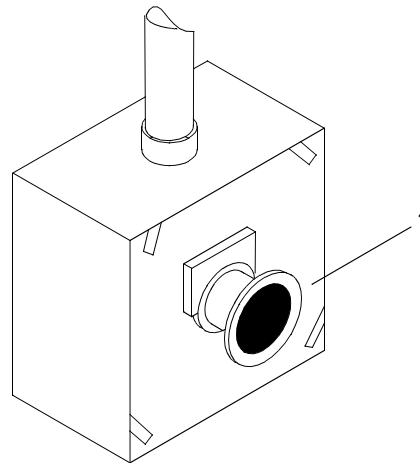
MOVING PARTS



EAR PROTECTION

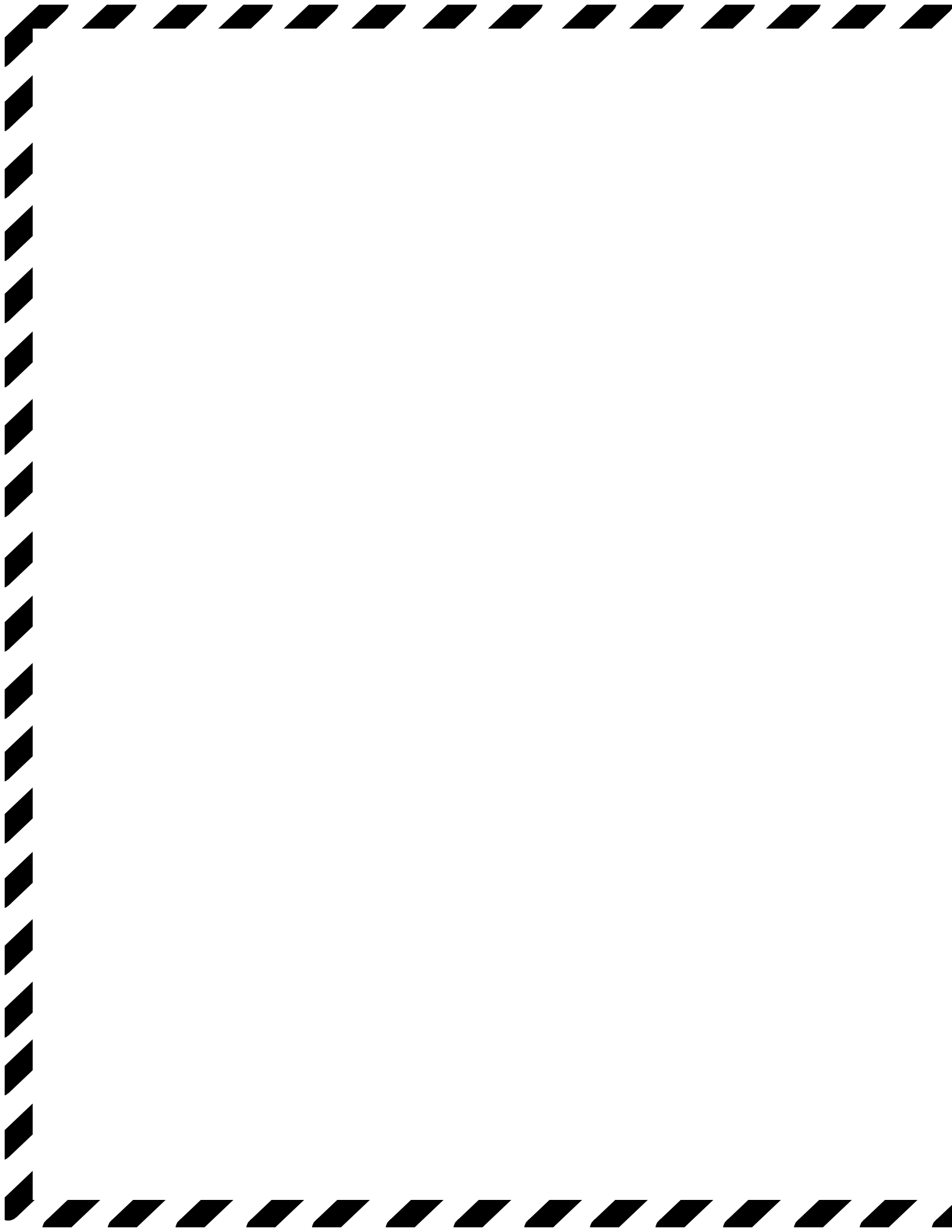
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Push EMERGENCY STOP button (1).



2. Pull EMERGENCY STOP button (1) to reset emergency stop switch.

END OF WORK PACKAGE



**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:

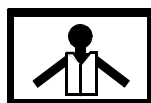
Personnel Required

Seaman 88K

EMERGENCY PROCEDURE - MANUAL OPERATION OF TACTICAL QUIET GENERATOR FIRE SUPPRESSION SYSTEM

ACTIVATE FIRE SUPPRESSION SYSTEM WITH ELECTRIC MANUAL PULL

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS



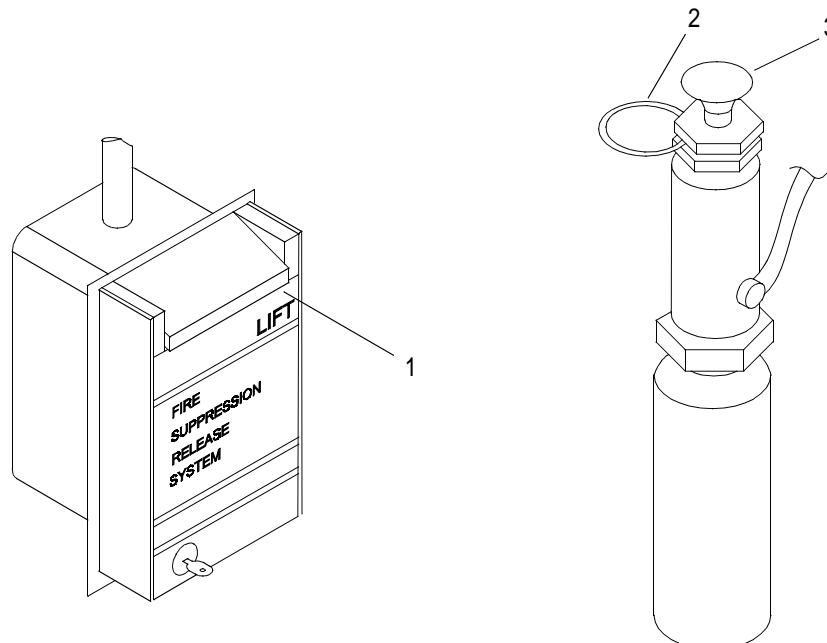
EAR PROTECTION

Fire in protected compartments or accidental activation of the CO2 system while personnel occupy compartment could result in serious injury or death to personnel if CO2 is released.

Do not depress fire suppression control head lever during normal maintenance. Serious injury or death to personnel could result if CO2 is inhaled.

Prior to entering the shelter after discharge of CO2, the shelter shall be completely cleared of any CO2 that may remain. Serious injury or death to personnel could result if CO2 is inhaled.

1. Locate pull station.



-
2. Lift lever (1) to activate fire suppression system. A delay of up to thirty seconds will occur before CO2 is discharged.
 3. Firmly push down on actuator knob (3) to activate fire suppression system. A delay will occur before CO2 is discharged.
 4. Grasp and pull ring (2) to remove safety pin.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**Tools**

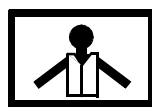
Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

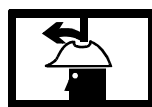
Seaman 88K

EMERGENCY PROCEDURE - EMERGENCY ESCAPE OF PERSONNEL SHELTER**ESCAPE OF PERSONNEL SHELTER**

WARNING



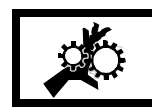
VEST



HELMET PROTECTION



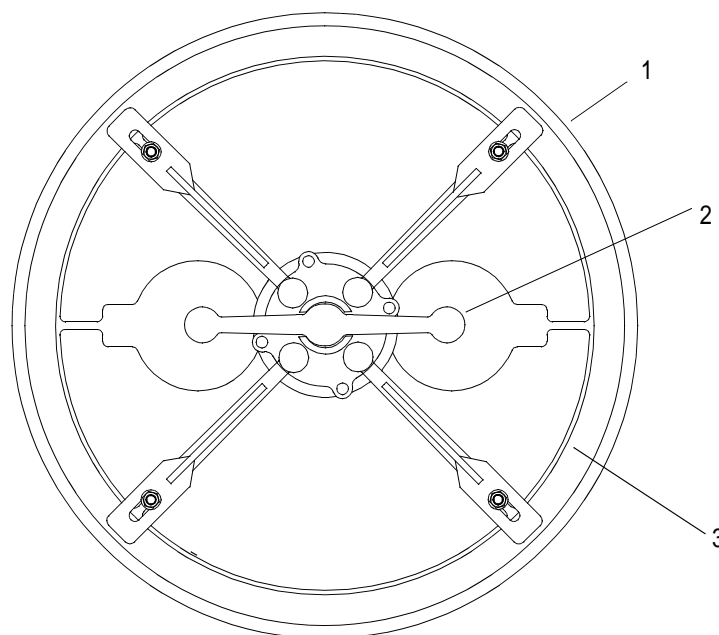
HEAVY PARTS



MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Locate emergency escape scuttle (1).



2. Grasp emergency escape scuttle handle (2) and turn one quarter turn clockwise to release scuttle door (3).

-
3. Push scuttle door (3) open.
 4. Crawl through scuttle opening and exit shelter.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:

Tools

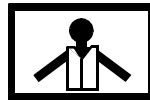
- Life Preserver, Vest (Item 33, WP 0119 00)
- Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
- Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
- Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

EMERGENCY PROCEDURE - EMERGENCY SHUTDOWN OF RIGID HULL INFLATABLE BOAT (RHIB)

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



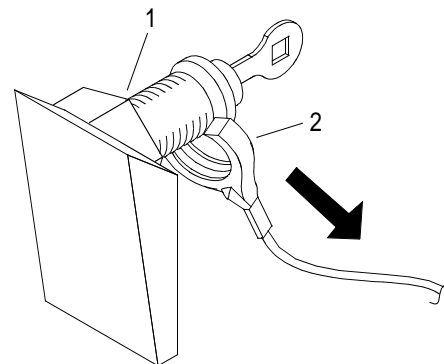
MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

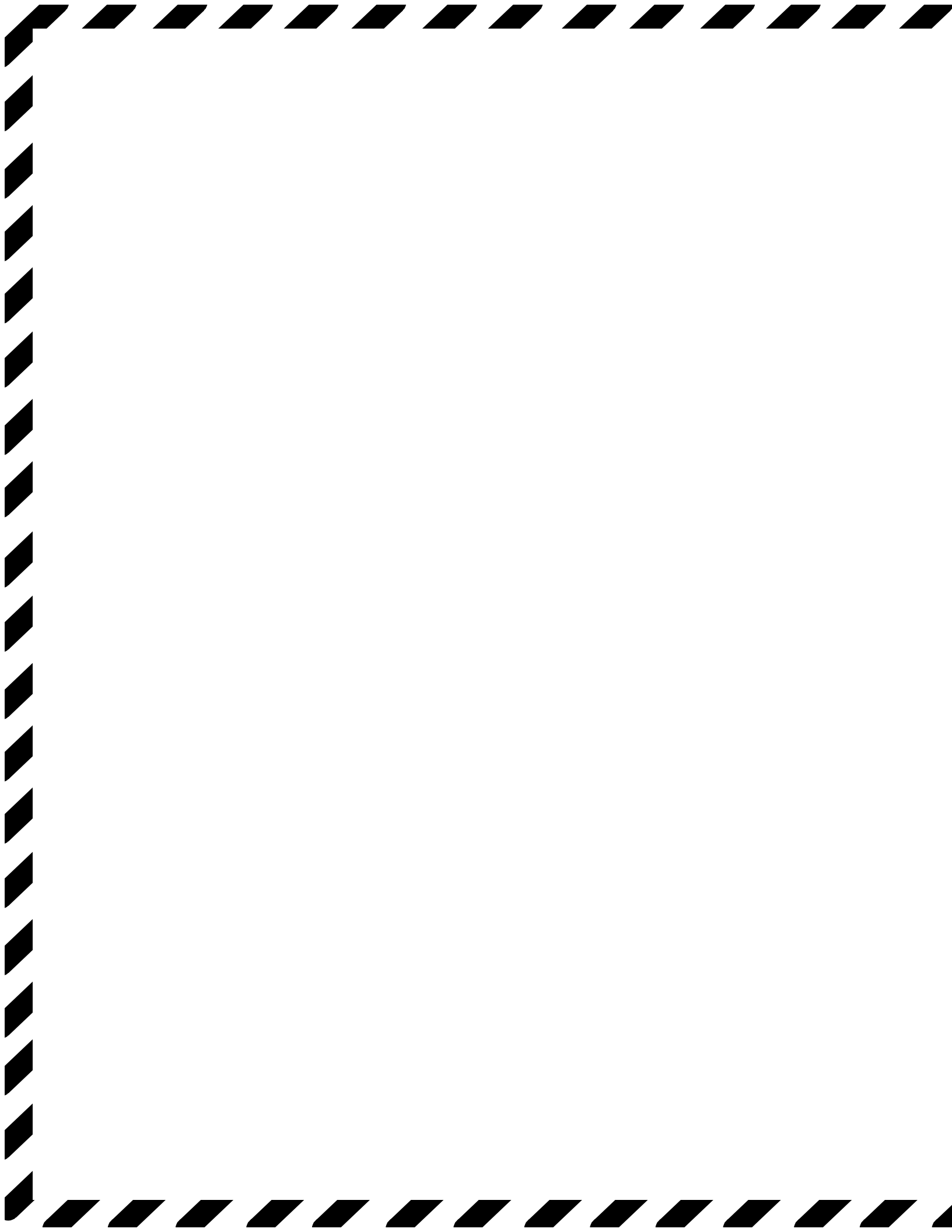
The ignition switch or emergency stop lanyard will not stop the boat motor if the motor wiring harness is disconnected.

1. Locate ignition switch assembly (1).



2. Turn ignition switch (1) to the off position or pull emergency stop lanyard to remove emergency stop clip (2) from ignition switch.

END OF WORK PACKAGE



**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
EMERGENCY STARTING OF BOAT MOTOR**

INITIAL SETUP:**Tools**

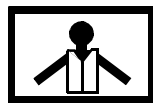
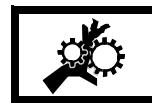
Life Preserver, Vest (Item 33, WP 0119 00)
Gloves, Men's and Women's Leather Palm) (Item 25, WP 0119 00)
Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

Seaman 88K

EMERGENCY PROCEDURE - EMERGENCY STARTING OF BOAT MOTOR

WARNING

**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS****EXPLOSION****ELECTRICAL**

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death to personnel.

Shift lever must be in neutral to prevent sudden movement of boat when motor starts or injury to personnel may occur.

Fumes vented during the battery charging process can lead to an explosion and cause serious injury to personnel and damage to equipment.

CAUTION

Battery must be connected even if it is fully discharged. If the motor is run with a disconnected battery, damage could occur to the electrical system.

NOTE

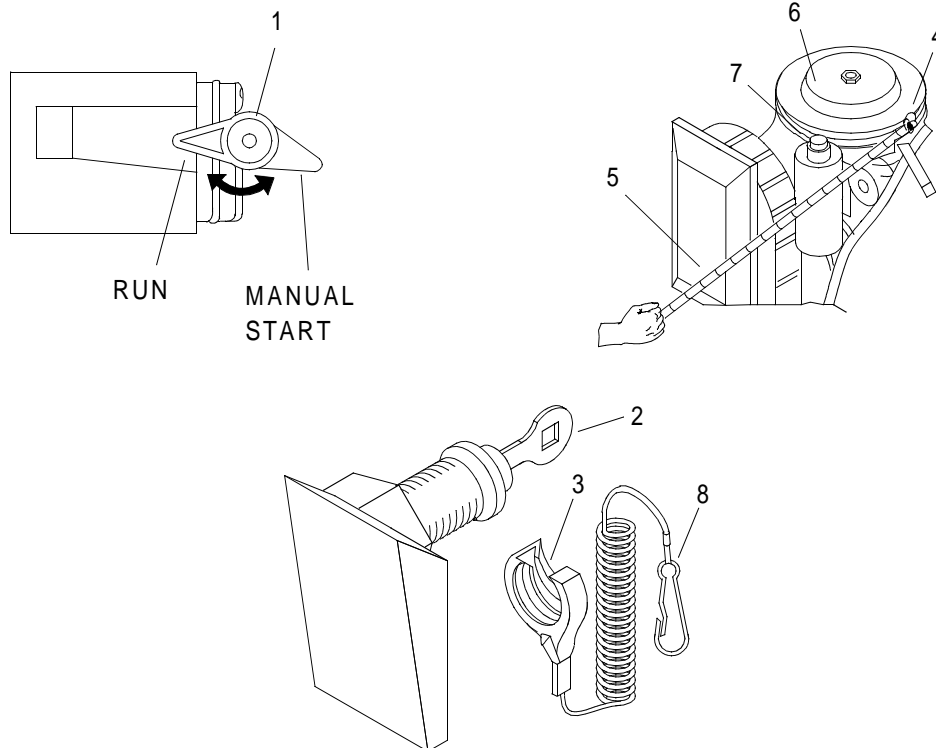
Starter cord must be used to turn flywheel/start motor.

1. Vent pressure from portable fuel tank if portable fuel tank does not have a vented cap.
 - a. Slowly loosen fuel filler cap to release pressure.
 - b. Tighten fuel filler cap.
 - c. Squeeze fuel primer pump bulb until firm.

WARNING

Keep hands, hair and clothing clear of moving parts. Contact with moving parts may cause serious injury or death to personnel.

- Remove engine cover.



- Move lever (1) on primer solenoid to the manual start position.
- Squeeze fuel primer bulb one time.
- Move lever (1) on primer solenoid to the run position.
- Turn ignition key (2) to the on position.
- Connect emergency stop clip (3) to key switch.
- Firmly engage fly wheel notch with starter cord knot (4).
- Wind starter cord (5) clockwise around fly wheel (6).
- Starter cord knot (4) must clear starter pinion (7).
- Pull lightly on starter cord (5) to remove slack.
- Pull hard on starter cord (5) to start motor.
- Monitor engine until it slows to a normal idle speed.
- Attach safety lanyard clip (8) to operators clothing.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EMERGENCY ANCHOR SYSTEM (EASY)
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)

Personnel Required

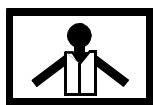
Seaman 88K

Equipment Condition

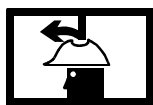
EASY Container Installed. (WP 0022 00)
 EASY Mooring System Installed. (WP 0026 00)

UNUSUAL ENVIRONMENT/WEATHER - DEPLOY EMERGENCY ANCHOR SYSTEM (EASY)**INSTALL ANCHOR STABILIZERS**

WARNING



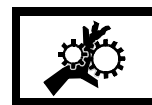
VEST



HELMET PROTECTION



HEAVY PARTS

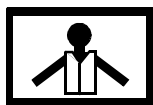


MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Remove rope securing EASY anchor end doors.
2. Secure end doors open with locking bars and pins.
3. Unlatch and open pump side doors.

WARNING



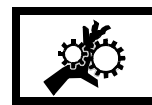
VEST



HELMET PROTECTION



HEAVY PARTS



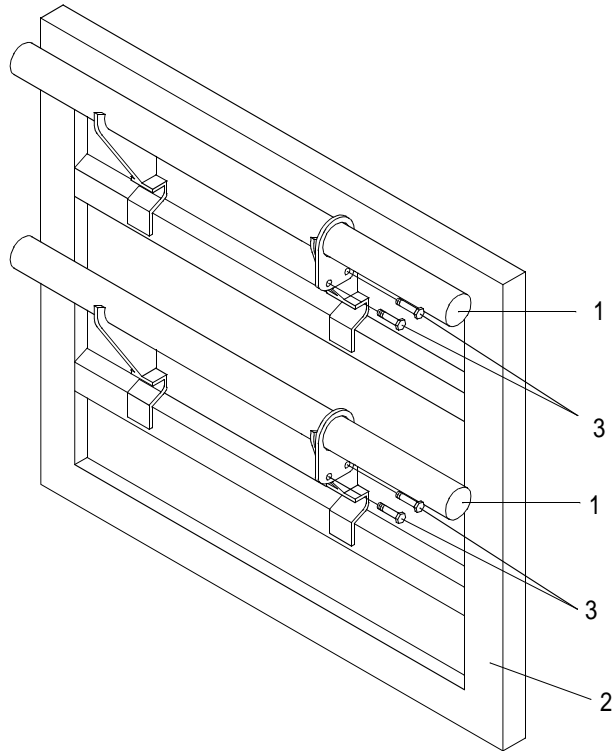
MOVING PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

4. Secure side doors open with locking hooks.

5. Remove anchor stabilizers (1) from container mounting.

a. Remove ratchet with socket from holder on side door (2).



b. Remove four bolts (3) attaching two anchor stabilizers (1) to forward bulkhead mooring box.

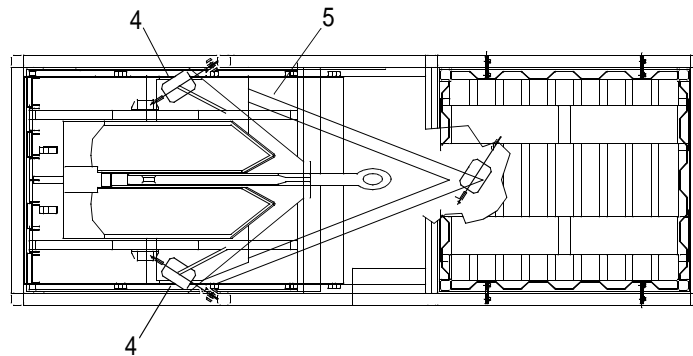
WARNING



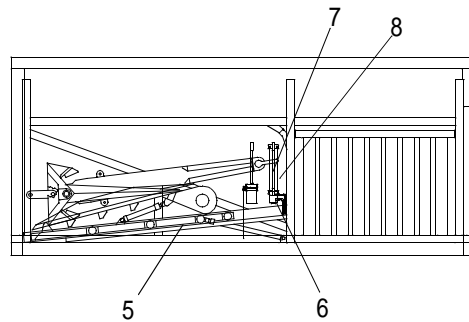
HEAVY PARTS

c. Remove anchor stabilizers (1) from bulkhead.

6. Remove two 6 ton chain hoists (4) and frame shackles securing anchor drawer (5) to container frame.



7. Extend anchor drawer (5).

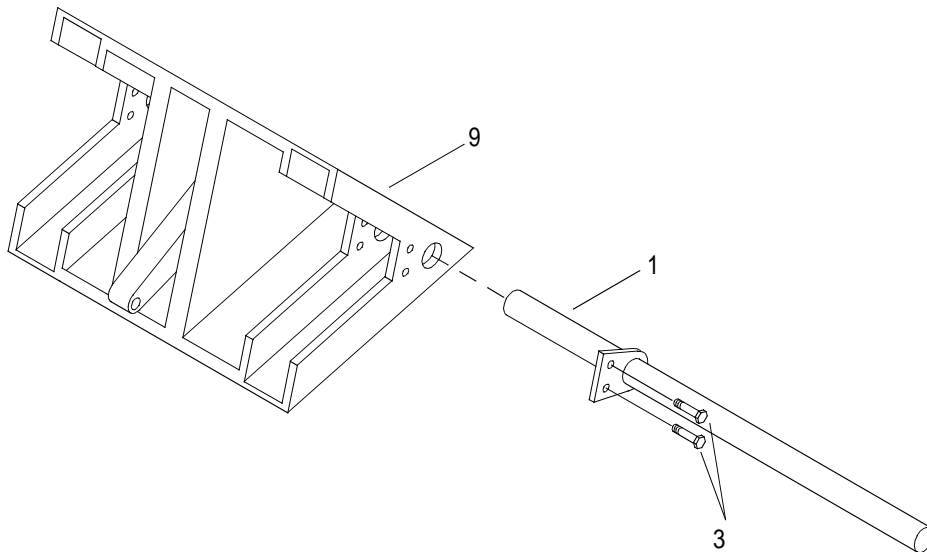


- a. Move valve lever (6) on extend/retract green hand pump (7) to extend position (handle to right).
- b. Pump handle (8) until anchor drawer (5) extends out of container approximately 2 ft.

WARNING

Personnel installing anchor stabilizers must wear lifeline bodybelt with lanyard attached to EASY container. Failure to wear this equipment or properly attach the lanyard could result in injury or death.

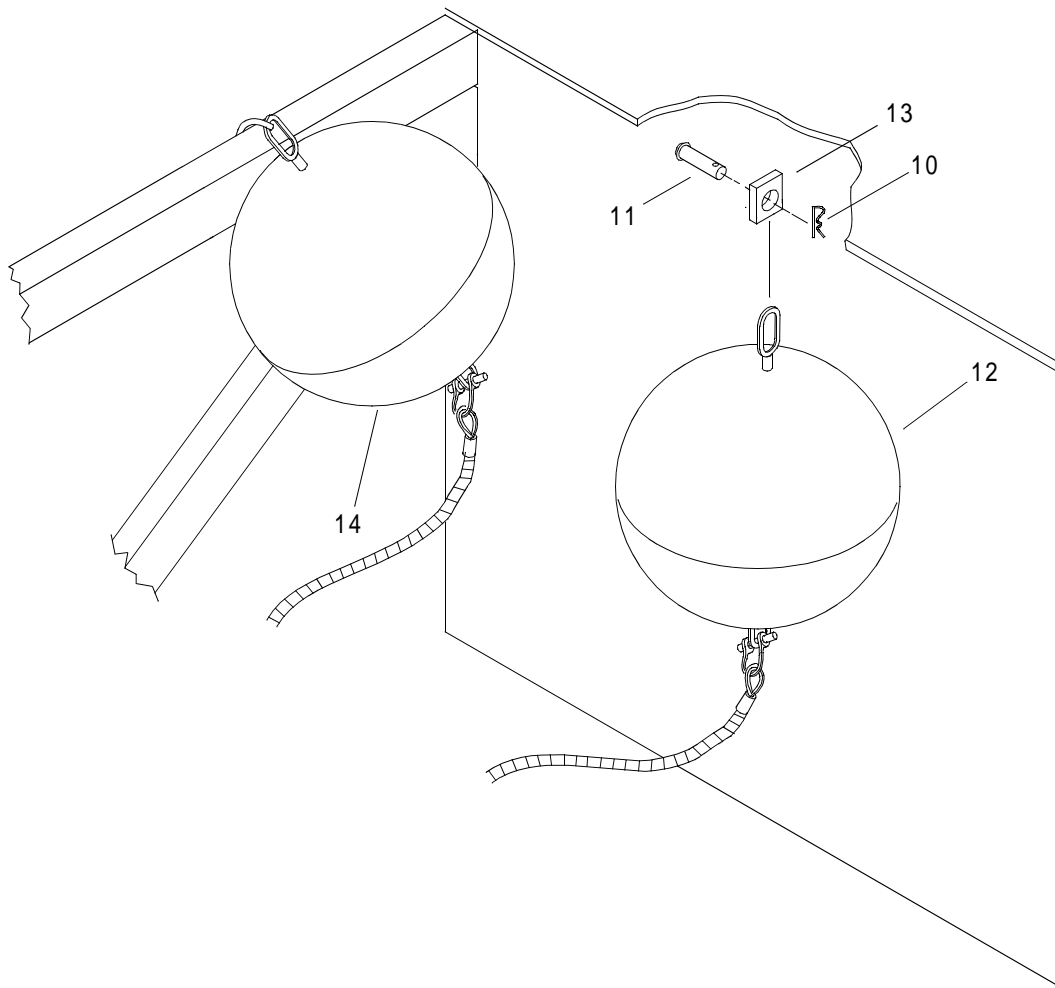
8. Install anchor stabilizers (1) on anchor (9).



- a. Install stabilizer (1) on each side of anchor (9) and secure with two bolts (3).
- b. Tighten bolts (3).
- c. Return ratchet with socket to holder on the side door.

RELEASE BUOYS FROM CONTAINER MOUNTS

1. Remove quick release pin (10) from retaining pin (11).



WARNING

**HEAVY OBJECTS**

2. Support weight of anchor buoy (12) and remove retaining pin (11) from container bracket (13).
3. Place anchor buoy (12) atop anchor (9).
4. Cut twine and release mooring bridle buoy (14) from container frame.

DEPLOY EASY ANCHOR

WARNING

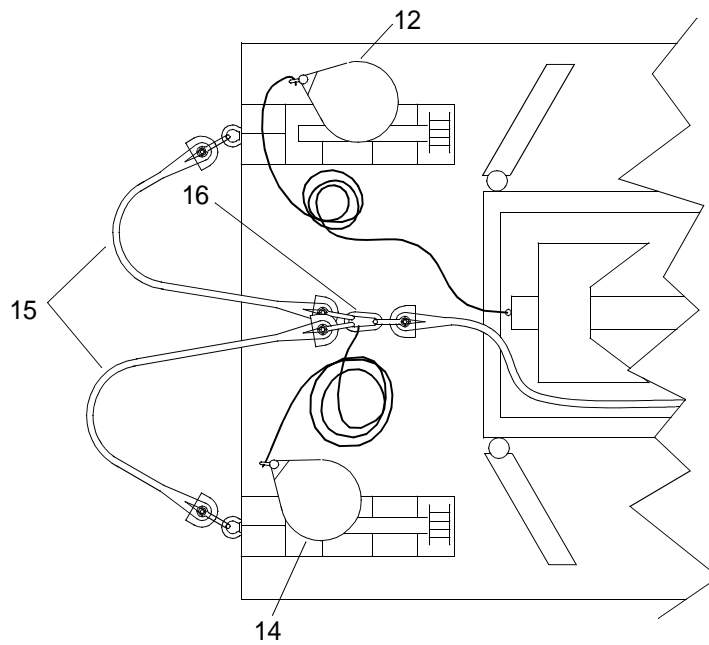


HEAVY PARTS

NOTE

For the RRDF stern configuration it will be necessary to fake the line along the edge due to the short distance of the bridle.

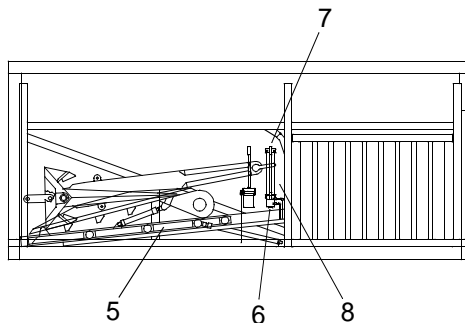
1. Remove anchor buoy (12), mooring bridle buoy (14), mooring bridle (15) and pear link (16) from top of anchor and lay out along deck edge in the direction of deployment.



NOTE

The hydraulic cylinder should reach the end of its travel before drawer wheels contact the end of the trackstop bolts.

2. Fully extend anchor drawer (5).



- a. Move valve lever (6) on extend/retract green hand pump (7) to extend position (handle to the right).
- b. Pump handle (8) until anchor drawer (5) is fully extended.

WARNING



HEAVY PARTS

3. Lower anchor buoys (12) and mooring bridle buoys (14) with associated wire ropes and pear link (16) into water.

WARNING



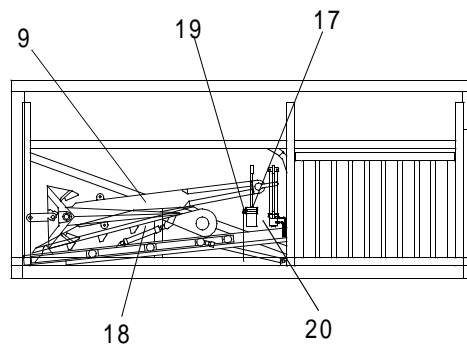
EAR PROTECTION

The EASY 2400 lb anchor, the anchor chain and mooring bridle deploy from container at a high rate of speed, dependant on the depth of water and the drift rate of the RRDF platform. Personnel must stand clear of container end during anchor deployment. Failure to comply could result in death or serious injury to personnel.

NOTE

Anchor will slide when anchor tilt platform elevates to point where stops no longer engage anchor crown.

4. Launch EASY anchor.



- a. Rotate pressure release valve lever (17) on raise/lower yellow hand pump (19) clockwise to close valve.
- b. Pump the handle (20) until the tilt platform (18) is fully tilted.

WARNING

**HEAVY PARTS**

Care must be given to slowly open the valve to release hydraulic pressure and slowly lower the tilt platform. Opening pressure relief valve fully when tilt platform is extended will cause it to slam down violently. Failure to comply could result in death or serious injury to personnel.

5. When all anchor chain and mooring line is out of mooring box, lower tilt platform (18) by slowly opening, turning counterclockwise, pressure release valve (17).
6. When tilt platform (18) is lowered against the anchor drawer (5), close valve (17).
7. Move valve lever (6) extend/retract green hand pump (7) to the retract position (handle to the left).
8. Pump handle (8) until anchor drawer (5) retracts fully into the container.

NOTE

It is recommended that the 6 ton chain hoists be fastened from the empty platform to the container frame after anchor deployment to reduce undue stress on the platform hydraulic cylinder.

9. Close and secure end and side container doors by latching shut.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
 Life Preserver, Vest (Item 33, WP 0119 00)
 Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
 Goggles, Sun, Wind and Dust (safety) (Item 27, WP 0119 00)
 Helmet, Safety (Item 29, WP 0119 00)
 Crowbar (Item 16, WP 0119 00)
 Hammer, Hand (10 lb Sledge) (Item 28, WP 0119 00)

Personnel Required

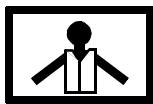
Seaman 88K

Equipment Condition

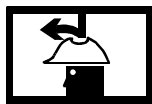
Dunnage Mats Removed And Stowed. (WP 0037 00), (WP 0073 00)
 Fenders Removed And Stowed. (WP 0042 00), (WP 0068 00), (WP 0069 00), (WP 0070 00), (WP 0071 00)
 Light Towers Removed And Stowed. (WP 0038 00), (WP 0064 00)

PREPARATION FOR TOWING - UNUSUAL ENVIRONMENT/WEATHER**PREPARE STERN RAMP FOR TOWING**

WARNING



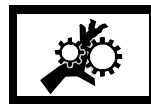
VEST



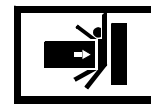
HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

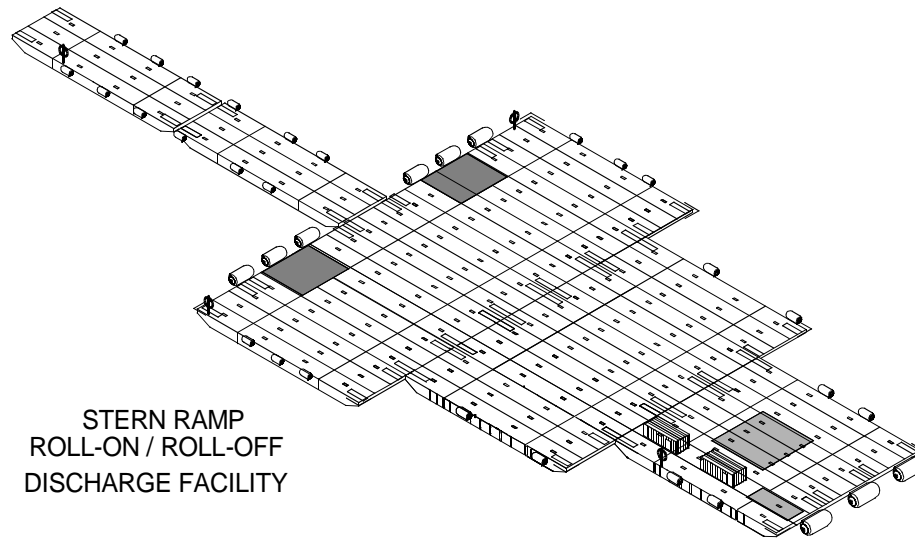


HEAVY PARTS

All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

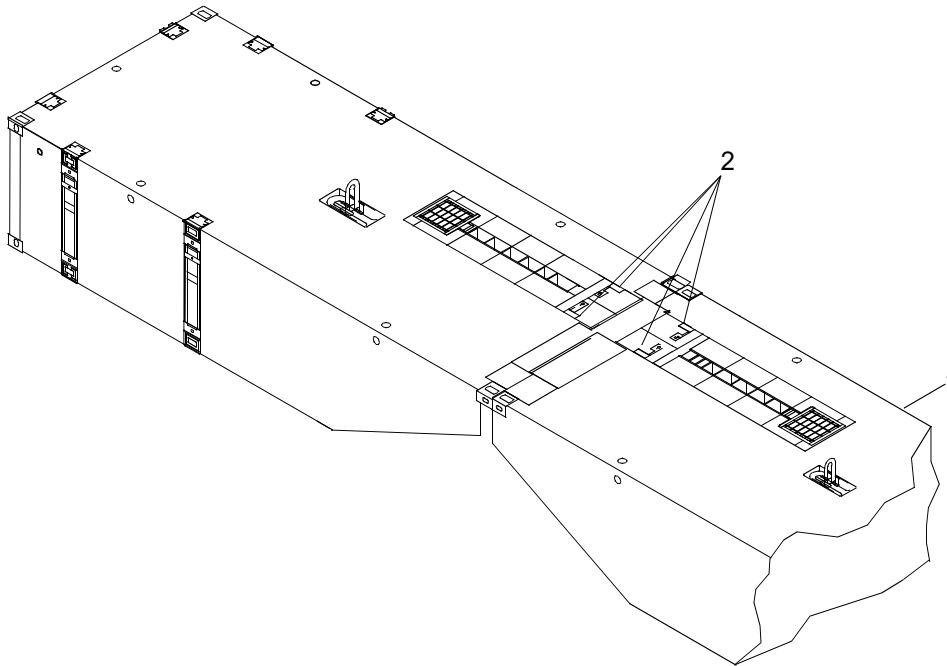
Ensure any ancillary equipment is stowed and secured to the deck. Failure to observe these precautions could result in serious injury or death.

1. Stow and secure dunnage mats on deck, as required. (WP 0037 00)
2. Remove and secure fenders on deck, as required. (WP 0042 00)
3. Stow and secure light towers, as required. (WP 0038 00)
4. Disassemble RRDF intermediate sections as required for a towing configuration.

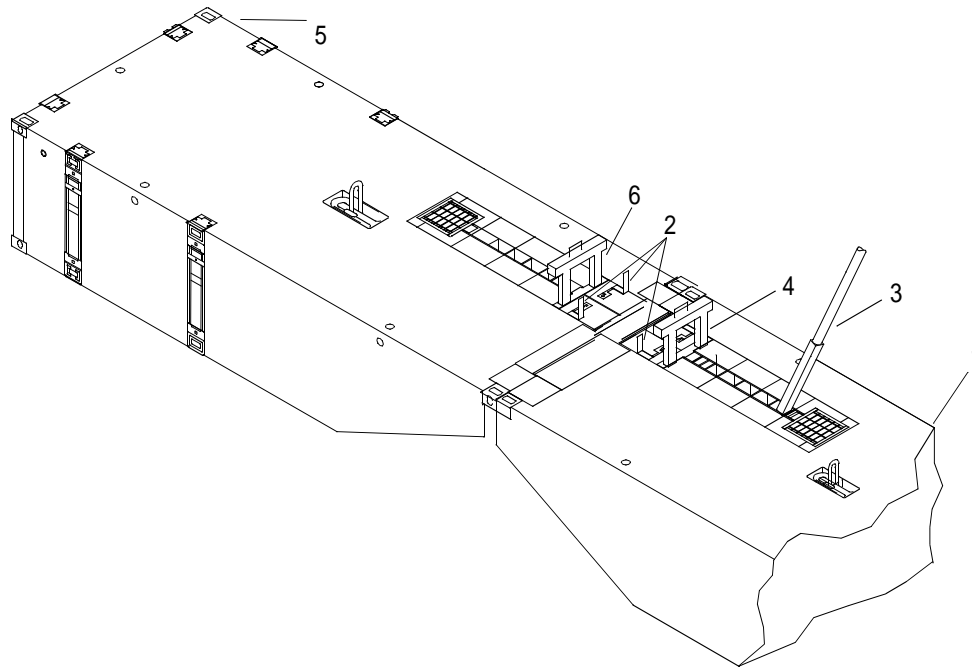


STERN RAMP
ROLL-ON / ROLL-OFF
DISCHARGE FACILITY

5. Disassemble stern ramp RRDF intermediate sections along sides as required by raising female connector guillotines. (WP 0050 00)
6. Disassemble RRDF intermediate sections along ends as required.
 - a. Release flexor connectors on right end rake (1).



- {1} Rotate and pull chute bolts (2) to the unlocked position.
- {2} Using crowbar (3), lift guillotine plate (4) up from flexor connector slots.



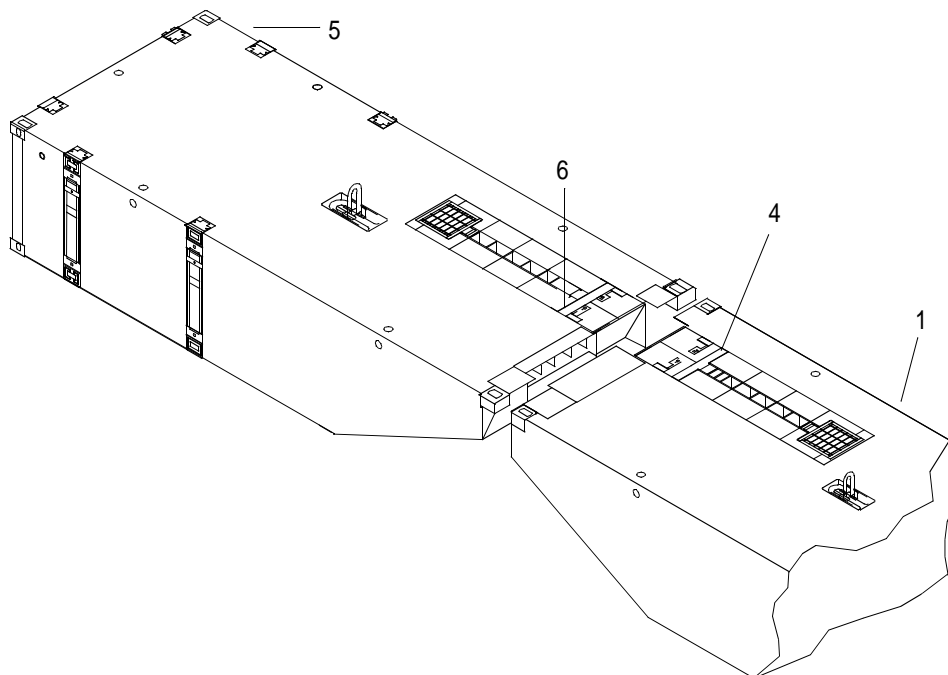
b. Stow flexor connectors in left end rake (5).

{1} Rotate and pull chute bolts (2) to unlocked position.

{2} Using crowbar (3), lift guillotine plate (6) up from flexor connector slots.

{3} Using crowbar (3), move flexor from right end rake (1) into left end rake (5) flexor connector pocket.

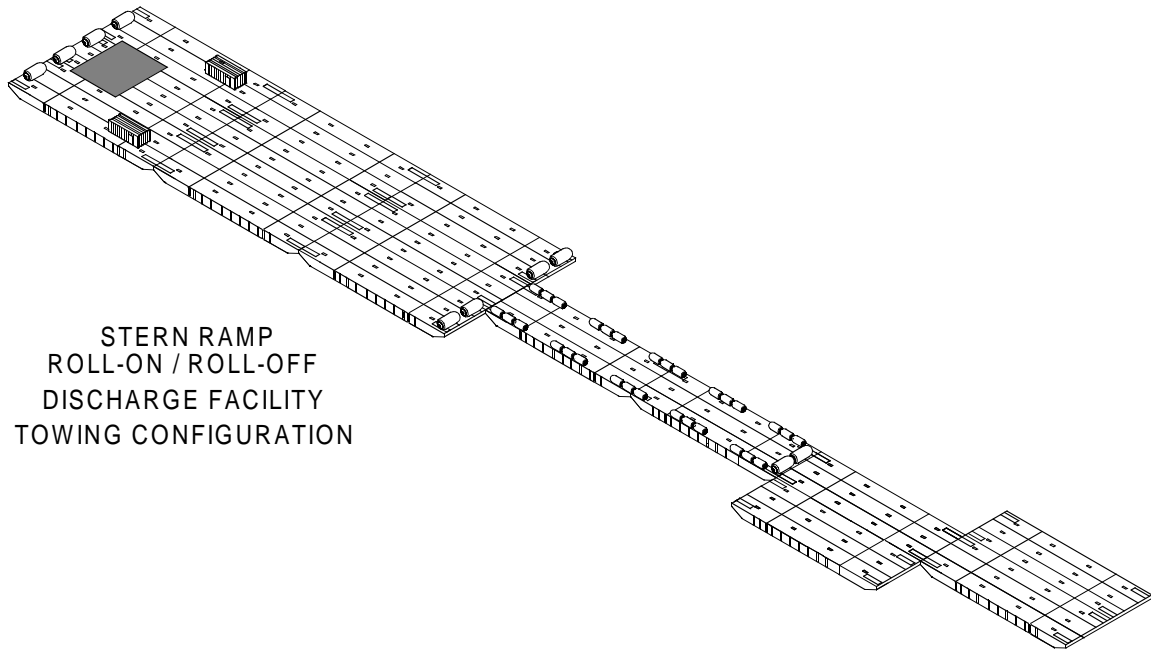
{4} Align outboard guillotine slot on flexor with slot in left end rake module.



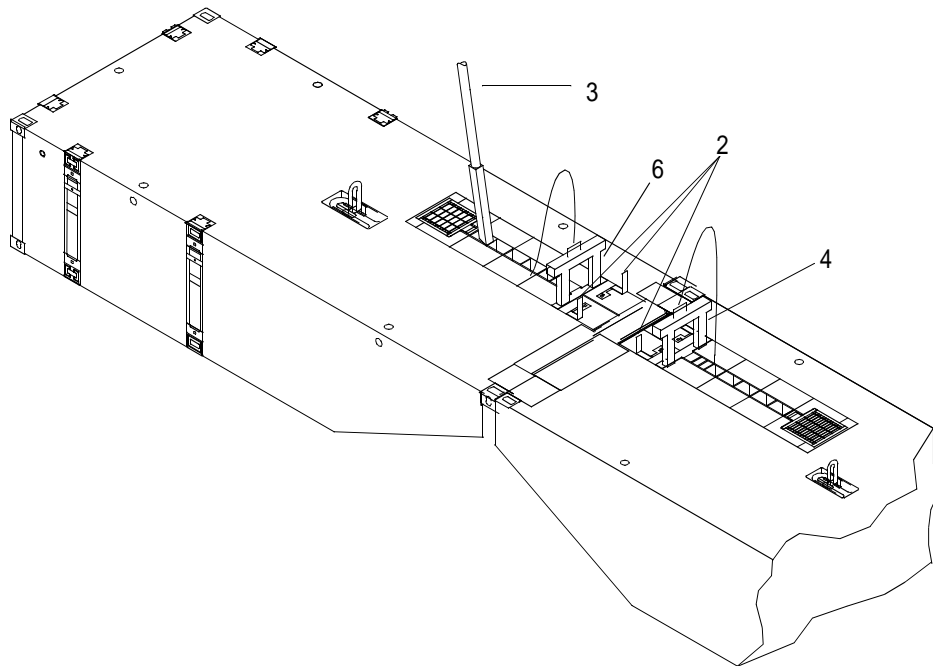
{5} Install guillotine plates (6) on left end rake (5).

{6} Install guillotine plates (4) on right end rake (1).

7. Position RRDF intermediate sections as required into a towing configuration using a warping tug.

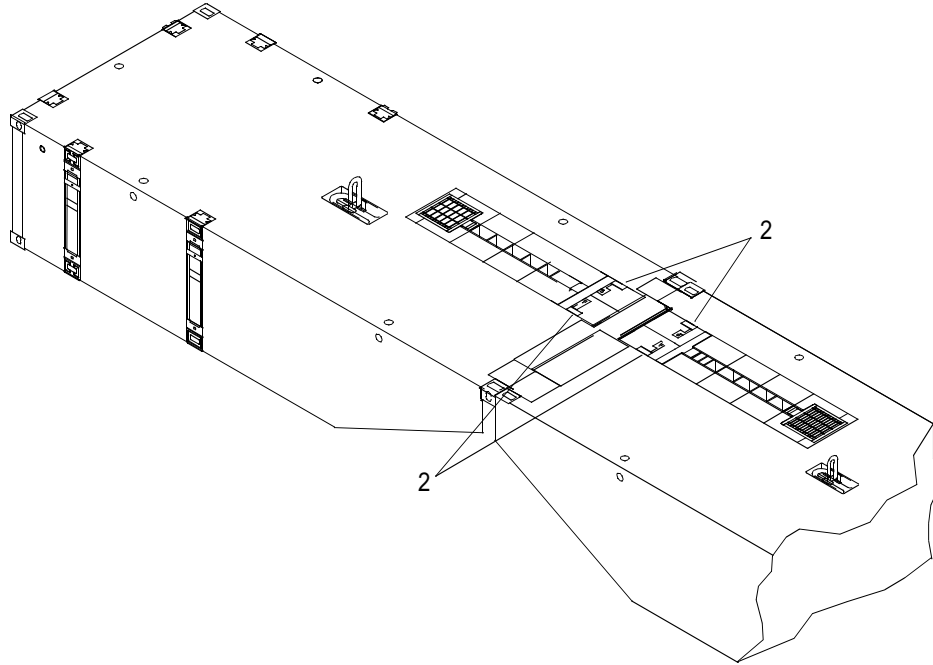


8. Connect RRDF intermediate sections along the sides as required by operating guillotine connectors. (WP 0012 00)
9. Connect intermediate sections end to end as required.
- a. Rotate and pull chute bolts (2) to unlocked position.



- b. Remove guillotines (4) and (6).
- c. Push each flexor connector from left end rake into corresponding pocket of right end rake until guillotines (4) and (6) are aligned with the flexor connector slots.

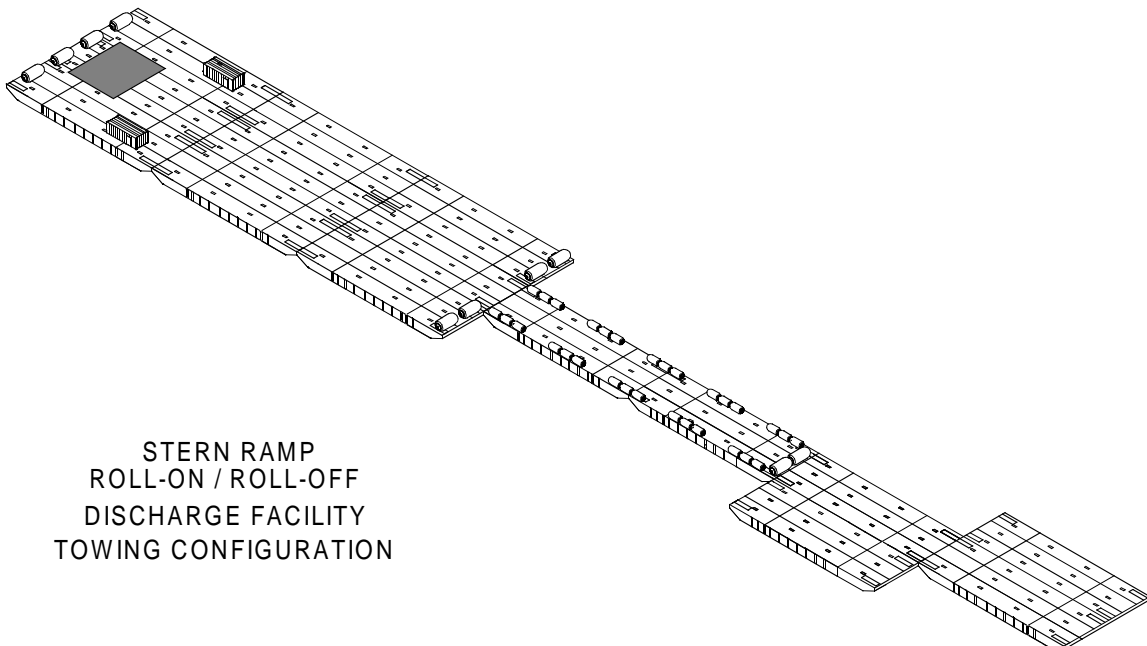
- d. Use a crowbar (3) to position flexor connector.
- e. Insert guillotines (4) and (6).
- f. Drive guillotines (4) and (6) down into flexor slots using a sledgehammer.
- g. Push and rotate chute bolts (2) to locked, then closed position.



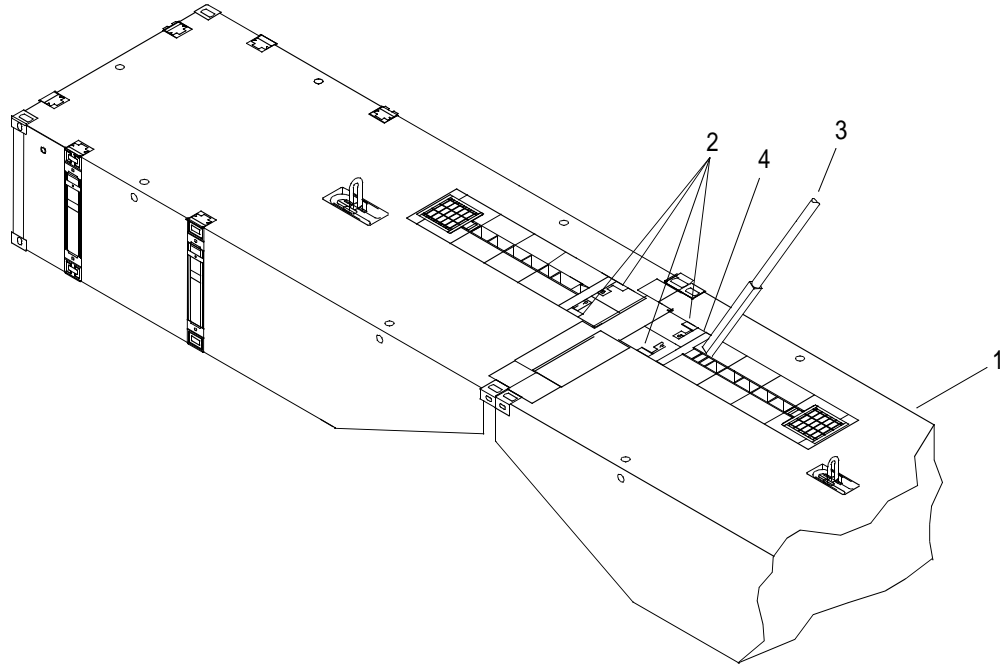
10. Install towing bridle, towing interface and towing lights. (WP 0017 00)

SECURE STERN RAMP FROM TOWING

1. Disassemble RRDF intermediate sections as required for a stern ramp RRDF configuration.



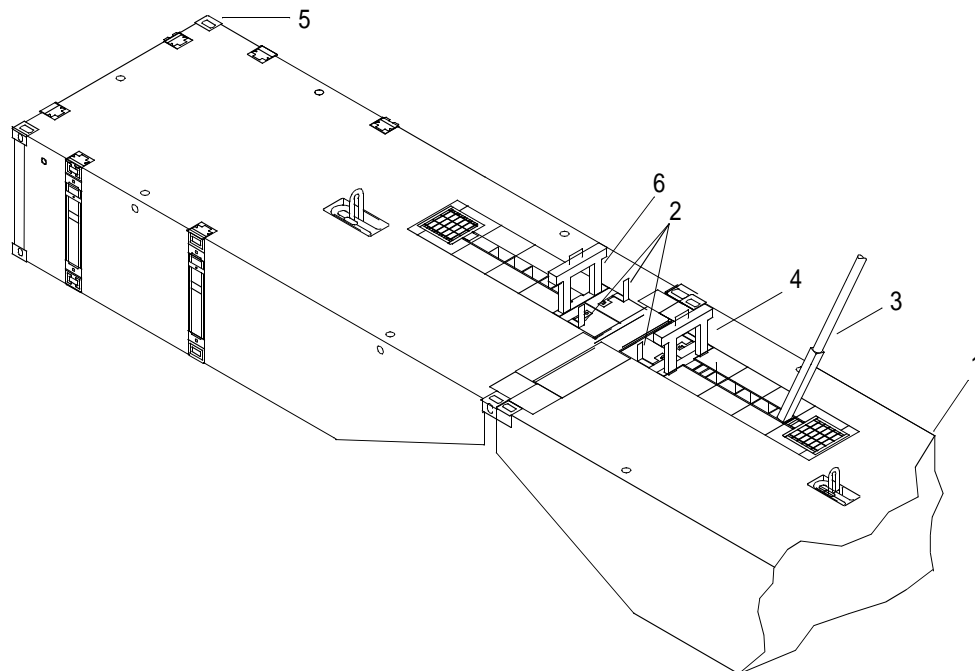
2. Disassemble RRDF intermediate sections along sides as required by raising female connector guillotines. (WP 0050 00)
3. Disassemble RRDF intermediate sections on ends as required.
 - a. Release flexor connectors on right end rake (1).



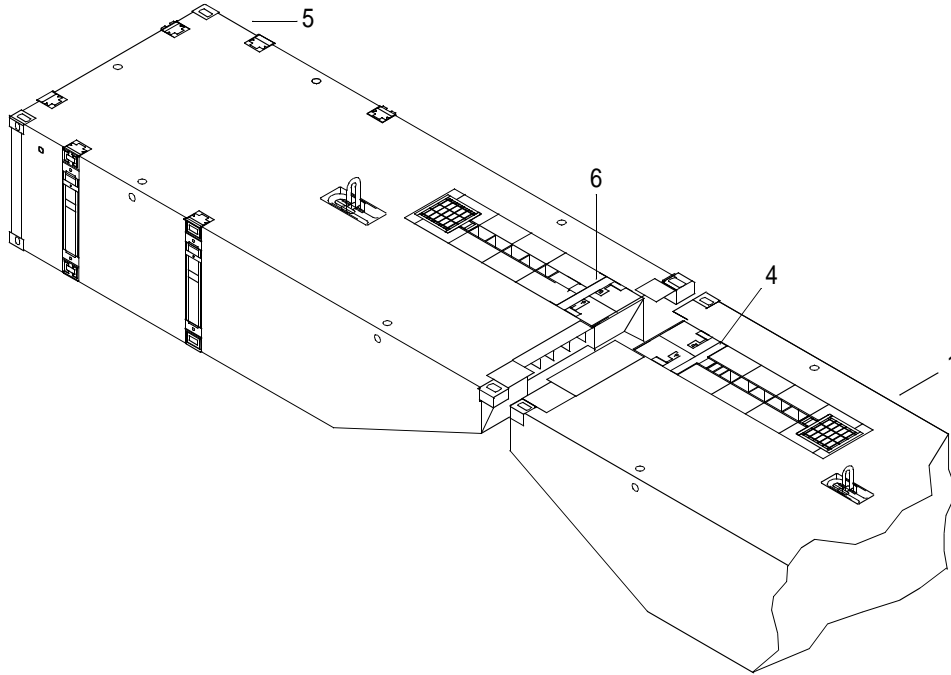
{1} Rotate and pull chute bolts (2) to unlocked position.

{2} Using crowbar (3), lift guillotine plate (4) up from flexor connector slots.

- b. Stow flexor connectors in left end rake (5).

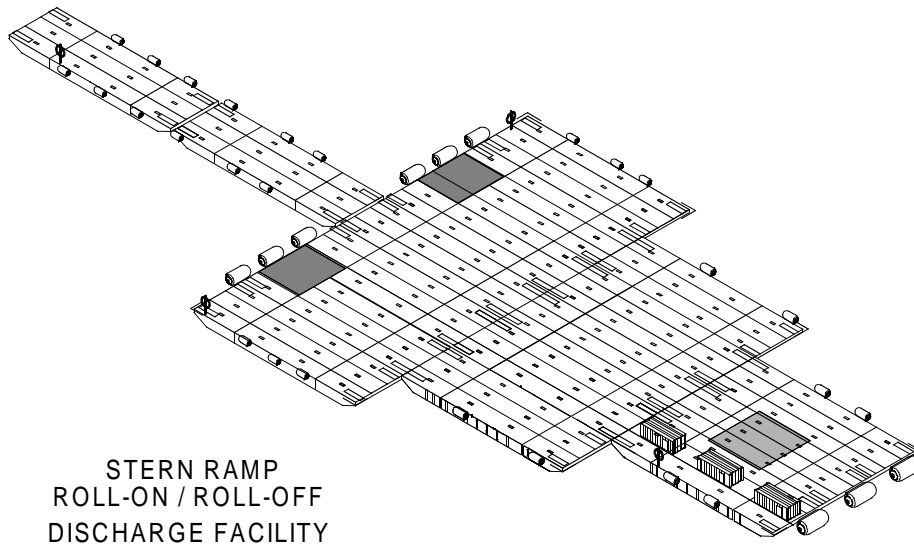


- {1} Rotate and pull chute bolts (2) to unlocked position.
- {2} Using crowbar (3), lift guillotine plate (6) up from flexor connector slots.
- {3} Using crowbar (3), move flexor from right end rake (1) into left end rake (5) flexor connector pocket.
- {4} Align outboard guillotine slot on flexor with slot in left end rake module.



- {5} Install guillotine plates (6) on left end rake (5).
- {6} Install guillotine plates (4) on right end rake (1).

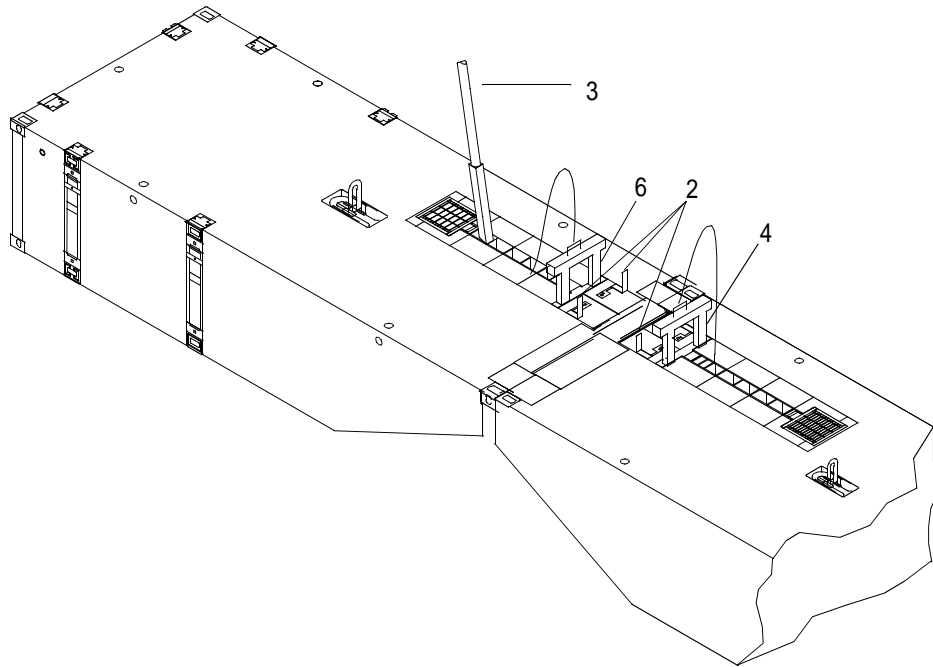
4. Position RRDF intermediate sections as required to a stern ramp RRDF configuration using a warping tug.



5. Connect RRDF intermediate sections along sides as required by operating guillotine connectors. (WP 0012 00)

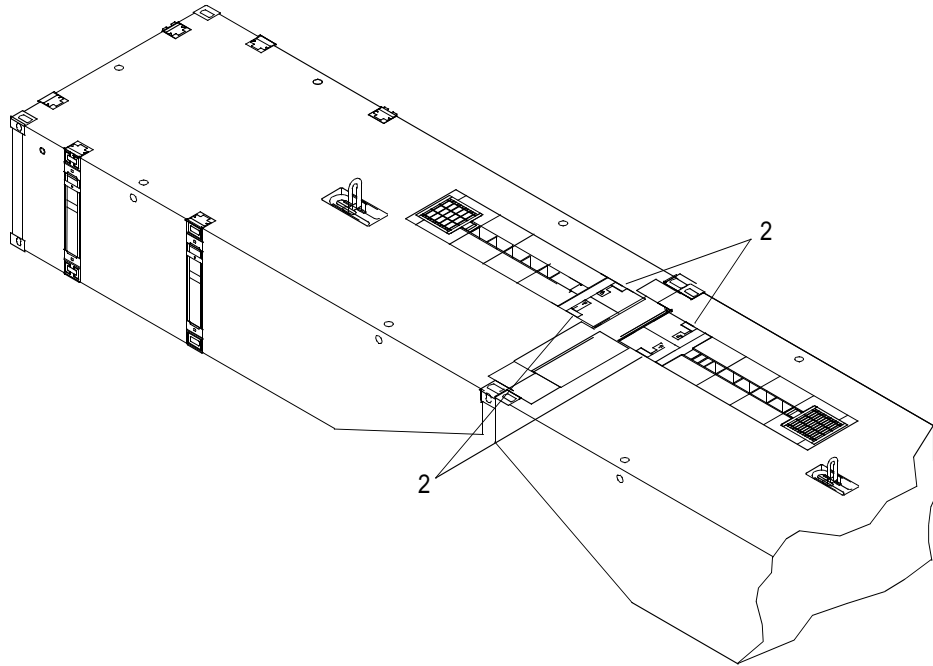
6. Connect RRDF intermediate sections end to end as required.

- a. Rotate and pull chute bolts (2) to unlocked position.



- b. Remove guillotines (4) and (6).
- c. Push each flexor connector from the left end rake into corresponding pocket of right end rake until guillotines (4) and (6) are aligned with flexor connector slots.
- d. Use a crowbar (3) to position flexor connector.
- e. Insert guillotines (4) and (6).
- f. Drive guillotines (4) and (6) down into flexor slots using sledgehammer.

-
- g. Push and rotate chute bolts (2) to locked, then closed position.



7. Remove towing bridle, towing interface and towing lights. (WP 0042 00)
8. Install fenders. (WP 0019 00)
9. Install light towers. (WP 0023 00)

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
FLEXOR CONNECTORS
STOWAGE**

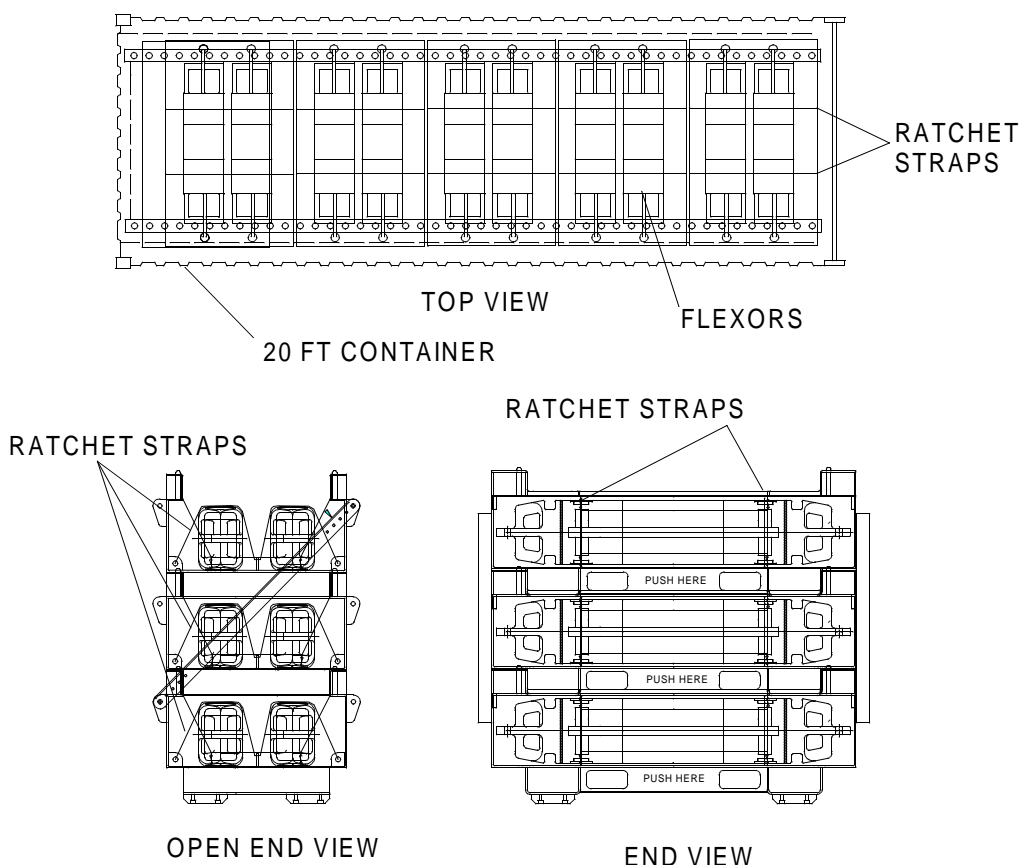
INTRODUCTION

Scope

This work package covers stowage of flexor connectors.

Stowage of Flexor Connectors

The flexor connectors are stowed horizontally two to a pallet in stacks of three high and are secured using two ratchet strap tie downs per pallet. The pallets and flexor connectors are placed in the 20 ft open end container. The stacks are secured to the container deck tracks using two ratchet strap tie downs per stack. The 20 ft open end container accommodates 30 flexor connectors.



**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TACTICAL QUIET GENERATOR
STOWAGE**

INTRODUCTION

Scope

This work package covers stowage of the tactical quiet generator set.

Stowage of Tactical Quiet Generator Set

The following procedures are required prior to stowage of the tactical quiet generator set:

Refer to TM 9-6115-642-10 for 10 KW Tactical Quiet Generator Stowage Instructions.

Refer to TM 9-6115-643-10 for 15 KW Tactical Quiet Generator Stowage Instructions.

GROUND WIRE: Stow on the floor of the ISO container.

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER EQUIPMENT
STOWAGE**

INTRODUCTION

Scope

This work package covers stowage of equipment in the personnel shelter.

Stowage of Equipment in Personnel Shelter

This task covers stowage of equipment in 20 ft personnel shelter.

The following items are removed or stowed in the personnel shelter.

HAND HELD RADIOS: Stow in the BII container.

INCINERATOR TOILET ASH PAN: Ensure it is cleaned prior to stowage. (TM 55-1925-257-14&P)

POWER CABLE: Stow on the floor of the personnel shelter.

GROUND CABLE: Stow on the floor of the personnel shelter.

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWERS
STOWAGE**

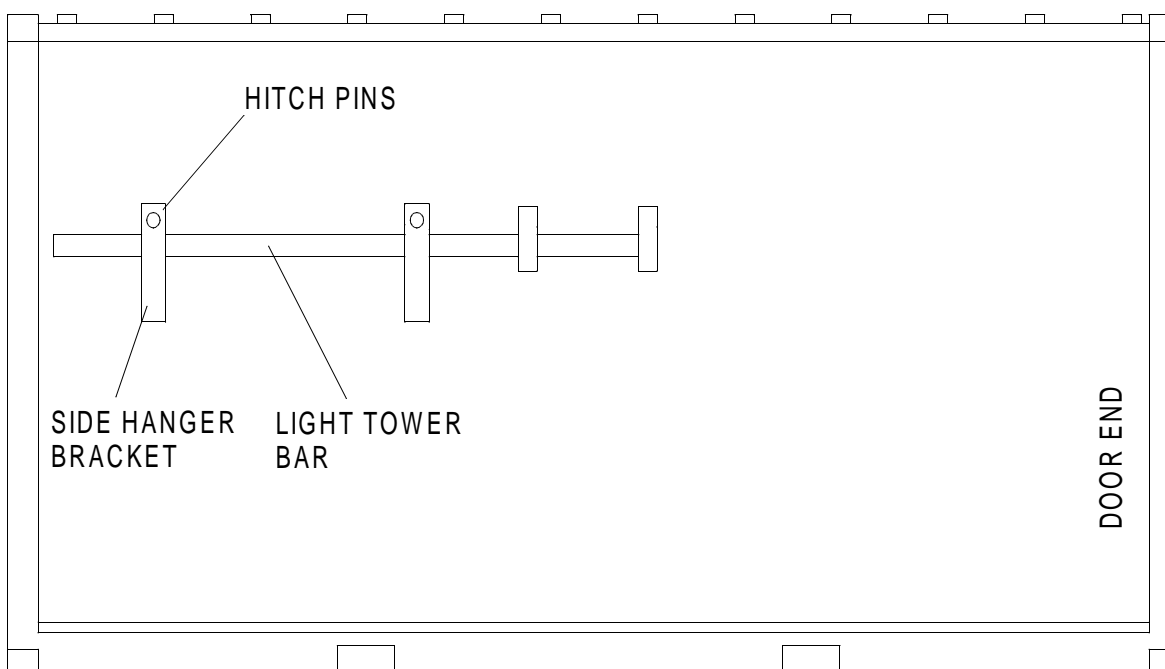
INTRODUCTION

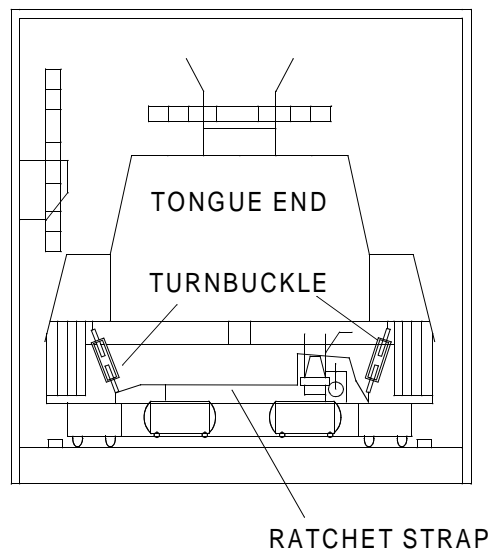
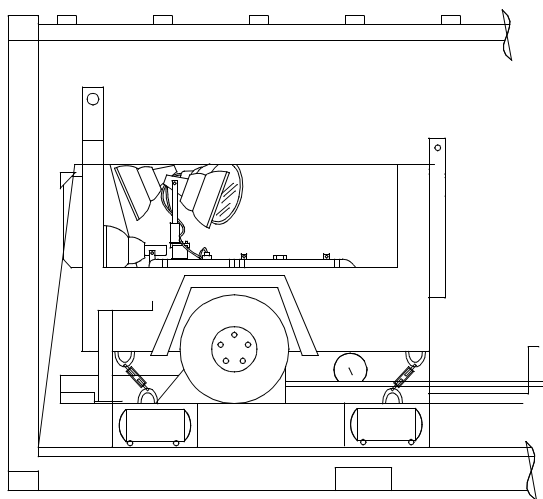
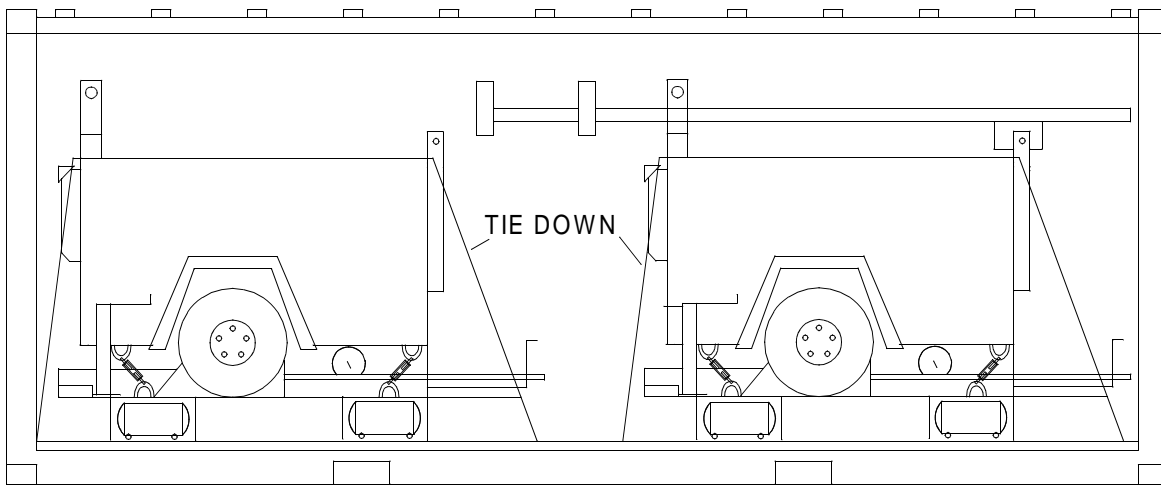
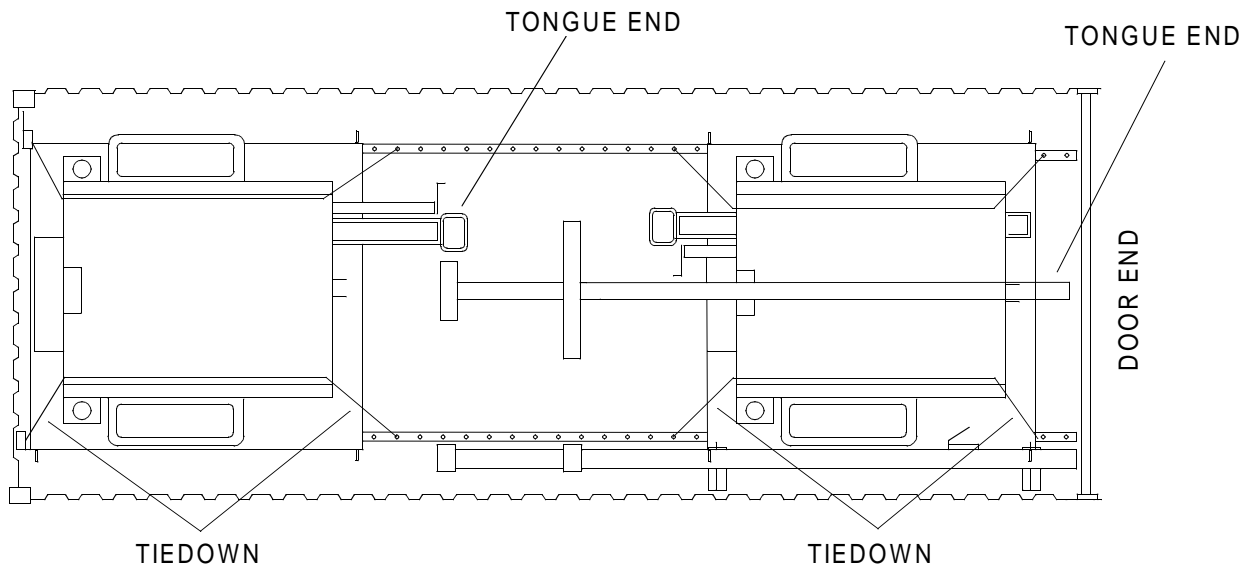
Scope

This work package covers stowage of the light towers.

Stowage of Light Towers

Prior to stowing light tower trailers, the light tower trailer that is placed in the rear of the container must have the light tower removed. The lamps and tow bars must be removed. The removed light tower is placed in side hanger brackets on the 20 ft open end container and secured with hitch pins. The tow bars are secured below the trailers with tie downs. The light tower lamps are stowed in the engine compartment of each trailer. The light tower trailers are placed on pallets with the wheels chocked. The pallets are then placed in the 20 ft open end container and secured with two adjustable tie downs. Each 20 ft open end container accommodates two light towers.





PLACEMENT IN CONTAINER

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT AND MOTOR (RHIB)
STOWAGE**

INTRODUCTION

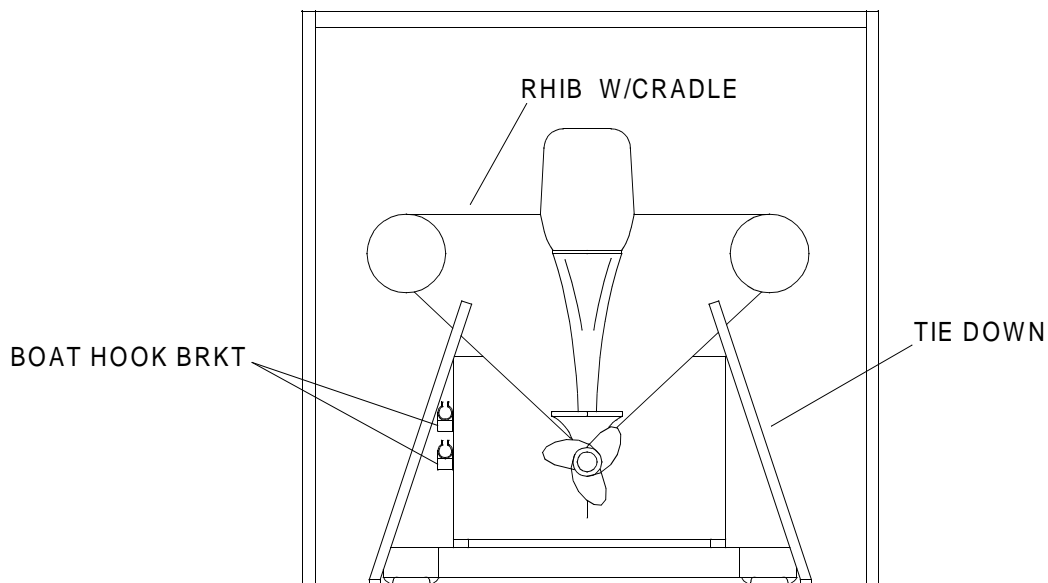
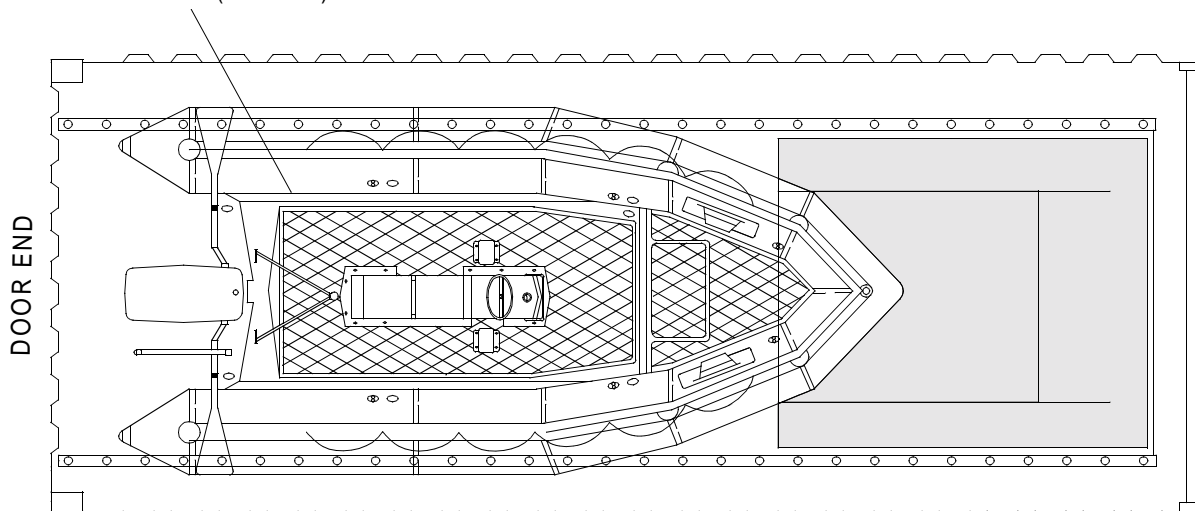
Scope

This work package covers stowage of the rigid hull inflatable boat and motor.

Stowage of Rigid Hull Inflatable Boat and Motor

The rigid hull inflatable boat and motor are stowed on a pallet and placed in a 20 ft open end ISO container. The boat and pallet are then secured to the container deck tracks with four ratchet strap tie downs. Each 20 ft open end container accommodates one rigid hull inflatable boat and motor.

BOAT HOOKS (BELOW)



OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHORING SYSTEM (EASY)
STOWAGE

INTRODUCTION

Scope

This task covers stowage of the Emergency Anchoring System (EASY) in a 20 ft ISO container, which is placed and secured on the deck of the RRDF near the forward edge.

Stowage of EASY

The EASY is housed in a 20 ft full access EASY container. The full access descriptor means that both ends and both sides of the container give full access to the interior. In addition to providing access to the interior, the doors are used for stowage of some of the smaller components of the EASY. The items stowed in the EASY container consists of the following:

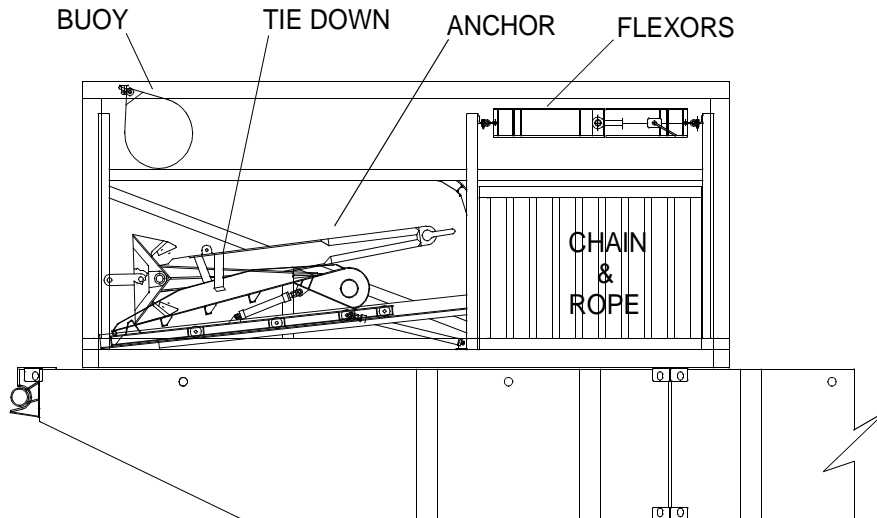
EASY MOORING: Mooring consists of one 2400 lb NAVMOOR anchor, 200 ft of 2 1/2 in. stud link chain and 500 ft of 10 in. circumference nylon line with a two-leg, 10 in. circumference nylon bridle.

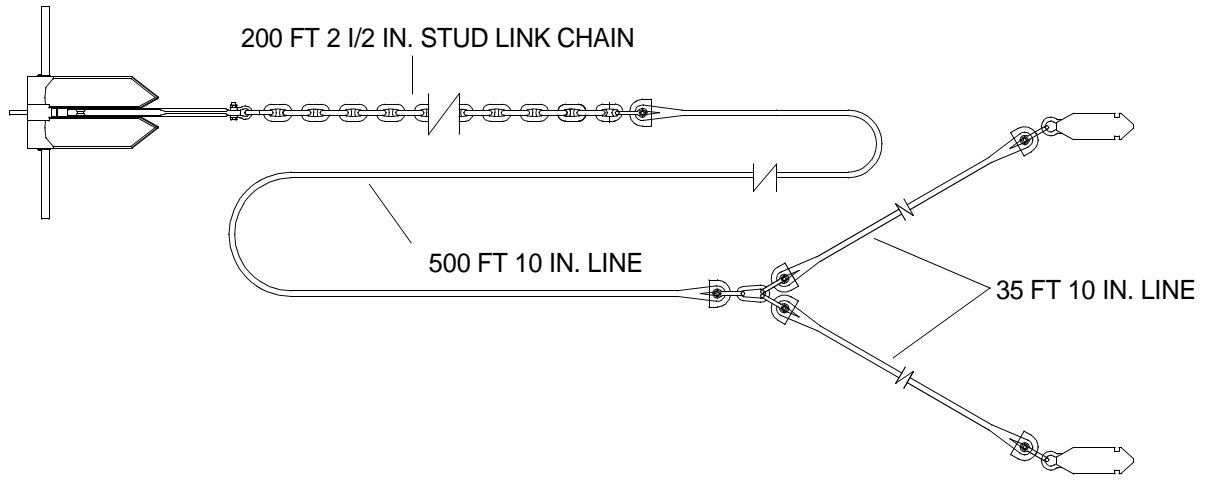
EASY STOWAGE AND DEPLOYMENT FRAME: Includes a tubular frame, an anchor drawer and slide sub-assembly and its track, hydraulic actuators and manual pumps to operate the anchor drawer and slide. The 2,400 lb NAVMOOR anchor rests on the anchor slide when the EASY is in the stowed or ready mode.

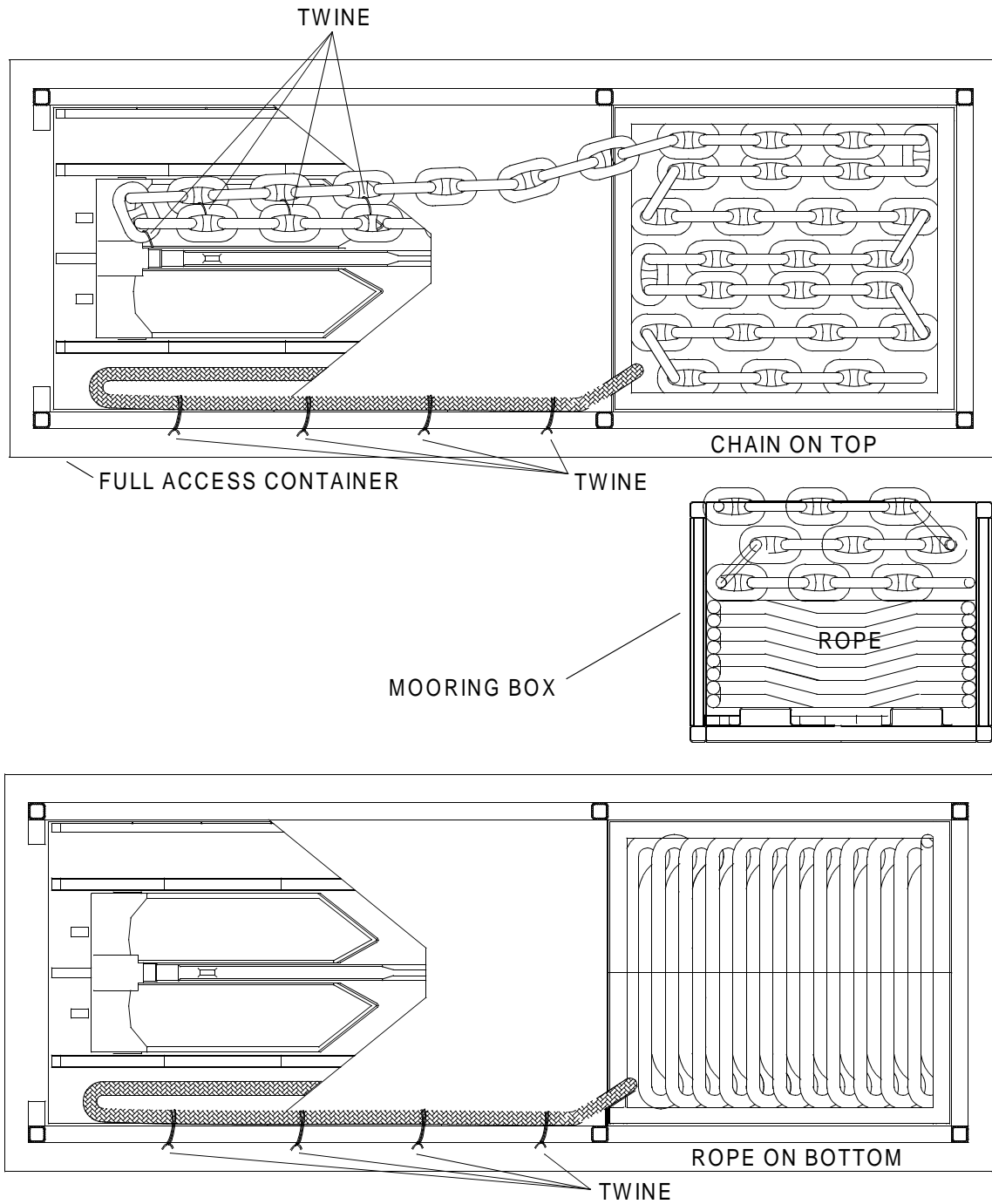
EASY MOORING BOX: Is a steel open top box that holds the EASY mooring chain and line. It is placed within the stowage and deployment frame at the inboard end of the EASY container.

EASY FLEXOR RECEIVER ADAPTOR: The flexor receiver adaptors are stowed in the EASY container until such time as the EASY container is placed on the RRDF. The flexor receiver adaptors are then removed from the EASY container and provide the securing points on the RRDF platform for the mooring bridle. They are inserted into the flexor receivers of the end rake modules. A large shackle at their outboard end is used to secure the mooring bridle.

FLOAT: An 80 in. circular buoy and five 15 ft sections of 3/4 in. wire rope used for retrieval of the EASY is also stowed in the EASY container.







**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
BASIC ISSUE ITEMS (BII)
STOWAGE**

INTRODUCTION

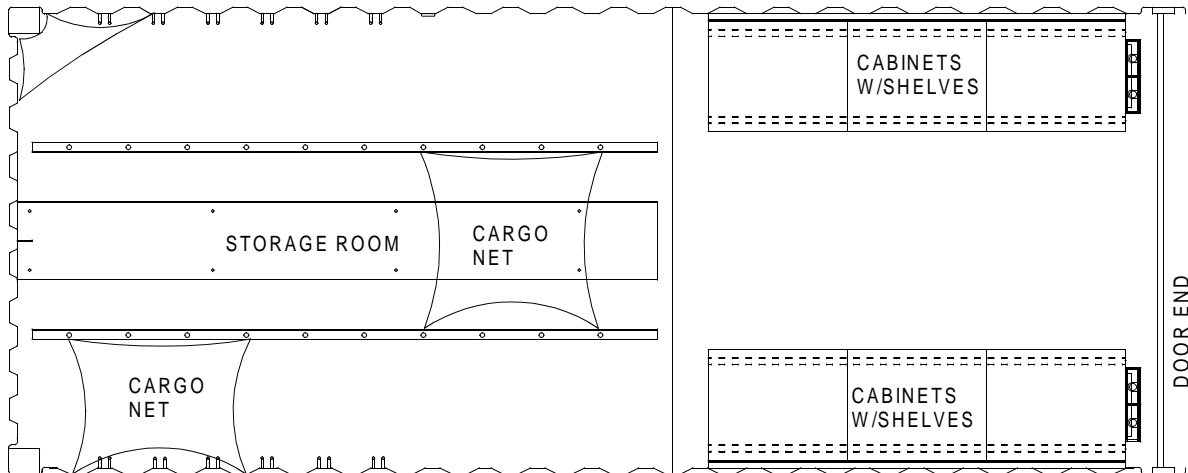
Scope

This work package covers stowage of the BII.

Stowage of BII

The BII for the Roll-On/Roll-Off Discharge Facility (RRDF) is stowed in the BII container. The BII is stowed in the cabinets, storage room and on the shelves. The packing list in the BII container may be consulted for additional information.

STOWAGE OF BII



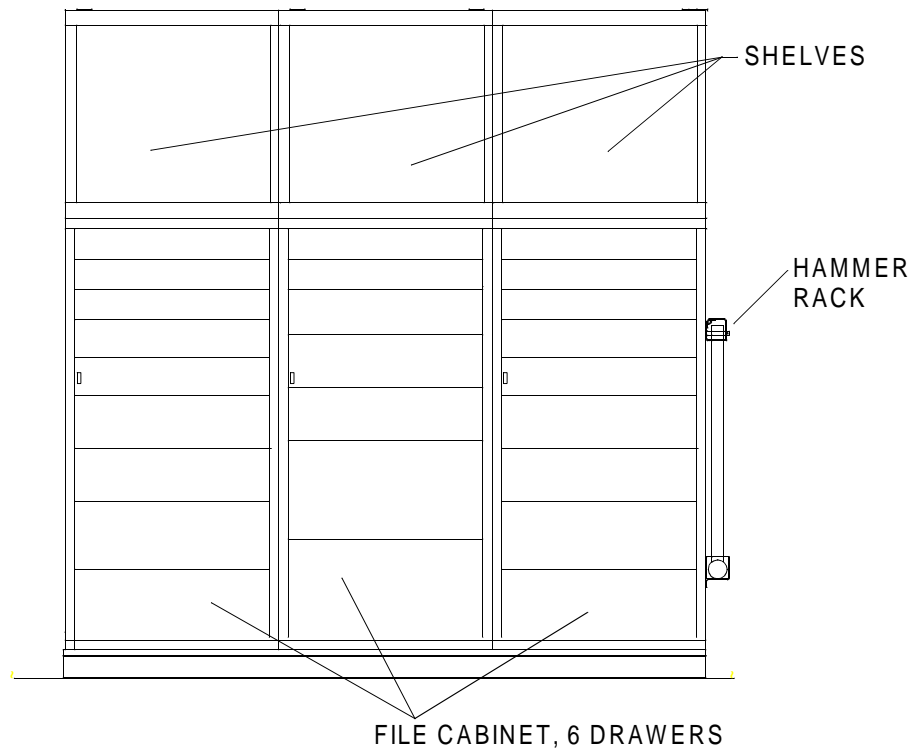


Table 1. BII Stowage Location.

DESCRIPTION	QTY	LOCATION
Adaptor, Forklift	2	Storage Room
Assembly, Flexor Receiver Insert Lifting	1	Storage Room
Ax, Pickhead	2	Storage Room on Hooks
Blanket, Fire (72 in. x 60 in.)	1	Storage Room
Block, Snatch (8 in. Diameter)	3	Storage Room
Bridle, Towing	1	Storage Room
Can, Fuel, Military	8	Storage Room
Can, Water, Military	2	Storage Room
Chain Anchor Assembly, Series 1500	15	Storage Room
Chain Sling, Adjustable, 36,000 lbs	4	Storage Room
Chain, Open Link, ½ in. Open Link, 6 ft pieces	134	Drum in Storage Room
Connector, Plug, Electrical (NATO Slave Cable)	1	Storage Room
Corner Fender	8	Storage Room
Cover, Flexor Well	24	Storage Room
Crowbar	8	Storage Room

Table 1. BII Stowage Location. (Continued)

DESCRIPTION	QTY	LOCATION
Extinguisher, Fire (10 lb)	2	Storage Room
First Aid Kit, General Purpose	2	Cabinets
Flashlight	2	Cabinets
Gloves, Antiflash	18	Cabinets
Gloves, Chemical	6	Cabinets
Gloves, Men's and Women's (Leather Palm)	18	Cabinets
Goggles, Industrial (Chipping)	18	Cabinets
Goggles, Sun, Wind and Dust	18	Cabinets
Hammer, Hand (Sledge)	8	Hammer Rack and Storage Room
Helmet, Safety (Brown)	10	Storage Room on Hooks
Hoist, Wire Rope	2	Storage Room
Hook, Boat	2	Storage Room
Insert, Flexor	2	Storage Room
Kit, Spill	1	Storage Room
Kit, Tarp Repair	1	Cabinets
Ladder, ISOPAK	2	Storage Room
Life Preserver, Vest (Stearns Work Vest)	18	Cabinets
Life Ring with Light and Stanchions	4	Storage Room
Light Set, Towing	2	Shelves
Light, Anchor	10	Storage Room
Lubricating Gun, Hand	2	Cabinets
Marlinspike (16 in.)	8	Cabinets
Meter, Gas Free	1	Cabinets
Mooring Cleat Assembly	8	Storage Room
Pan, Drain	1	Storage Room
Pliers (Combination Wire Cutter)	4	Cabinets
Plug, Ear (Box)	1	Storage Room
Protector, Hearing	4	Storage Room and Cabinets
Pump, Defueling (With Hoses)	1	Storage Room
Quick Disconnect	6	Storage Room

Table 1. BII Stowage Location. (Continued)

DESCRIPTION	QTY	LOCATION
Receiver/Xmtr (VHF/FM Handheld Transceiver)	4	Cabinets
Rope, 4½ in. Amstel Blue, 250 ft	2	Storage Room
Rope, 8 in. Hawser, 75 ft with 3 ft Eyes (2 in 1 Braided Nylon or 8 Strand Ultra Blue Product Code W6)	10	Storage Room
Rope, Fibrous, 4 in. Diameter, 3 Strand (Spool)	2	Storage Room
Shackle, ½ in., 2 Ton	8	Cabinets
Shackle, ½ in., With Cotter Pin	330	Cabinets
Shackle, ¾ in., 4.75 Ton	8	Cabinets
Shackle, 1 1/8 in., 21 Ton	8	Cabinets
Shackle, 5/8 in., 3.25 Ton	8	Cabinets
Sling, 20 ft, 8400 lbs (Yellow)	4	Cabinets
Sling, 25 ft, 53,000 lbs (Brown)	8	Storage Room
Sling, 4 ft, 5300 lbs (Green)	4	Cabinets
Sling, 5 ft, 5300 lbs (Green)	4	Cabinets
Sling, 6 ft, 5300 lbs (Green)	4	Cabinets
Spotlight, Hand Held	2	Cabinets
Spout, Can, Flexible	2	Cabinets
Tool, Pin Retraction	2	Storage Room
Twist Locks, Horizontal	102	Drum in Storage Room
Twist Locks, Vertical	216	Drum in Storage Room
Whistle, Ball	24	Cabinets
Work Suit, Stearns	18	Cabinets
Wrench, Pipe (24 in.)	2	Cabinets

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
3 FT BY 5 FT FENDERS
STOWAGE**

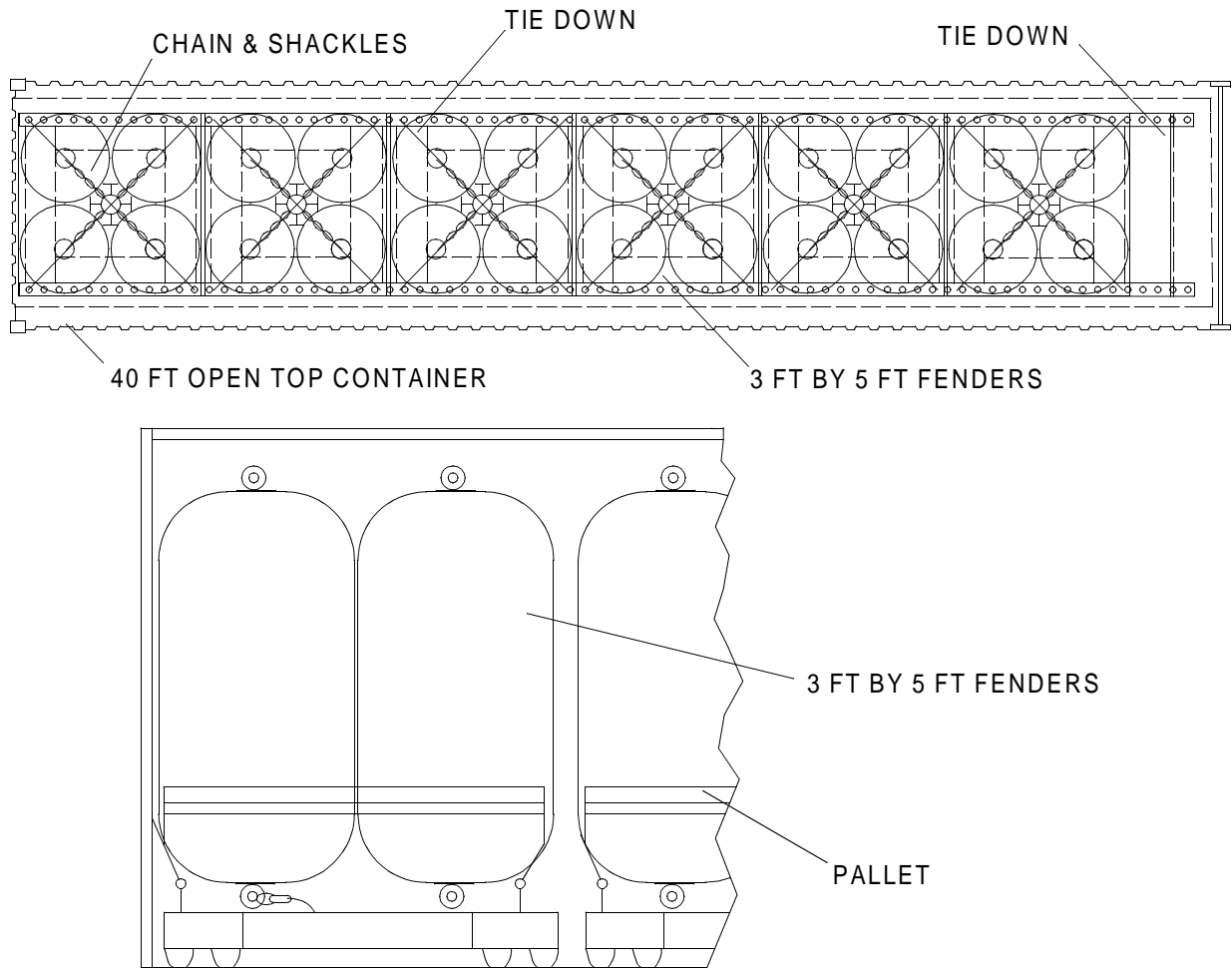
INTRODUCTION

Scope

This task covers stowage of the 3 ft by 5 ft fenders in the 40 ft open top container.

Stowage of 3 ft by 5 ft Fenders

The 3 ft by 5 ft fenders are stowed vertically four to a pallet with the chain and shackles on top of the pallet center pedestals. The pallets and fenders are placed in the 40 ft open top container. The pallets are secured to the container deck tracks using ratchet strap tie downs. The 40 ft open top container accommodates 24 fenders.



**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
4 FT BY 12 FT FENDERS
STOWAGE**

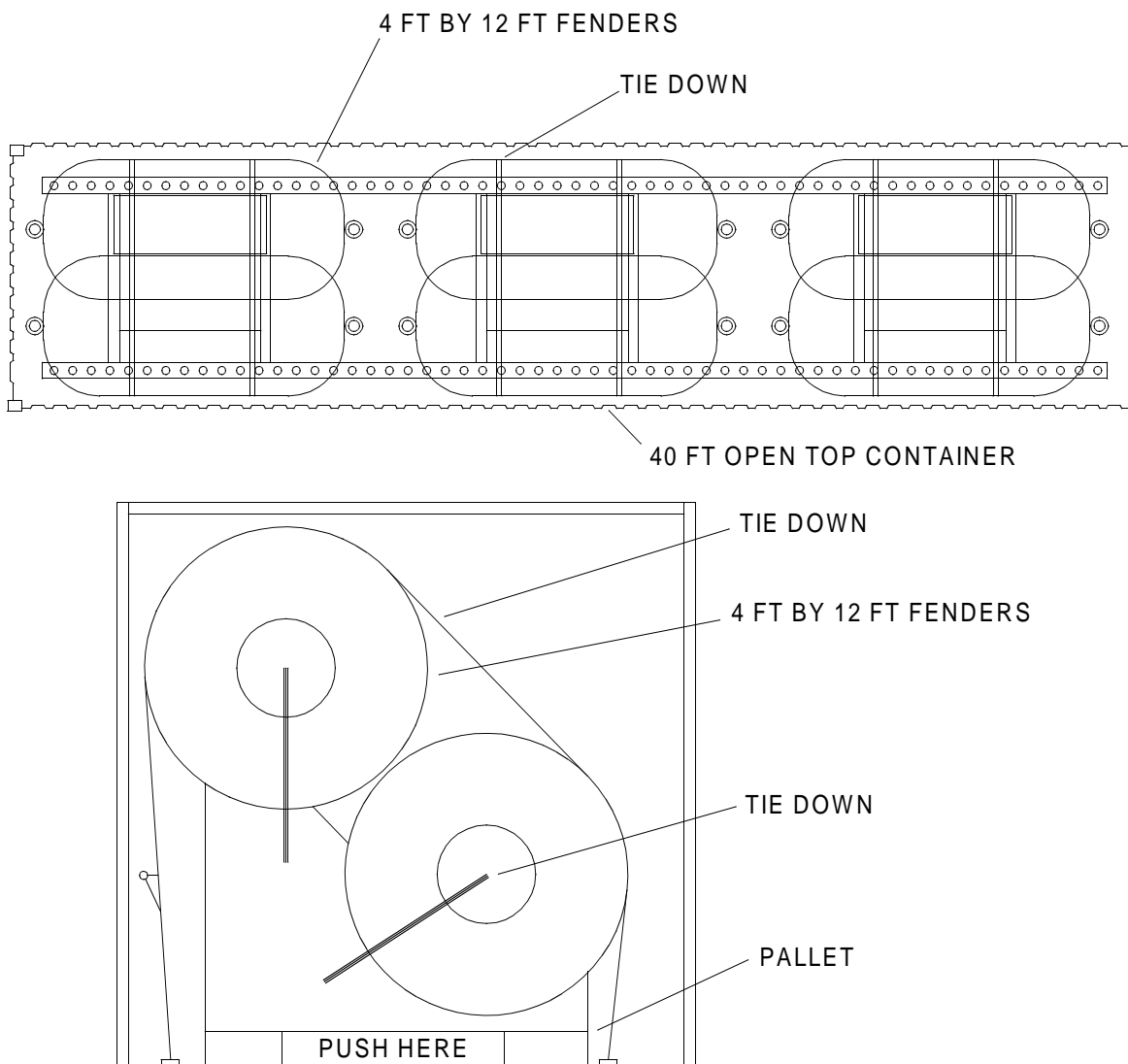
INTRODUCTION

Scope

This task covers stowage of the 4 ft by 12 ft fenders in the 40 ft open top container.

Stowage of 4 ft by 12 ft Fenders

The 4 ft by 12 ft fenders are stowed horizontally two to a pallet. The pallets and fenders are placed in the 40 ft open top container. The fenders are secured to the pallet tie down pads using four ratchet strap tie downs per pallet. The pallet and fenders are secured to the container deck tracks using two ratchet strap tie downs per pallet. The 40 ft open top container accommodates six 4 ft by 12 ft fenders.



**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
5 FT BY 10 FT FENDERS
STOWAGE**

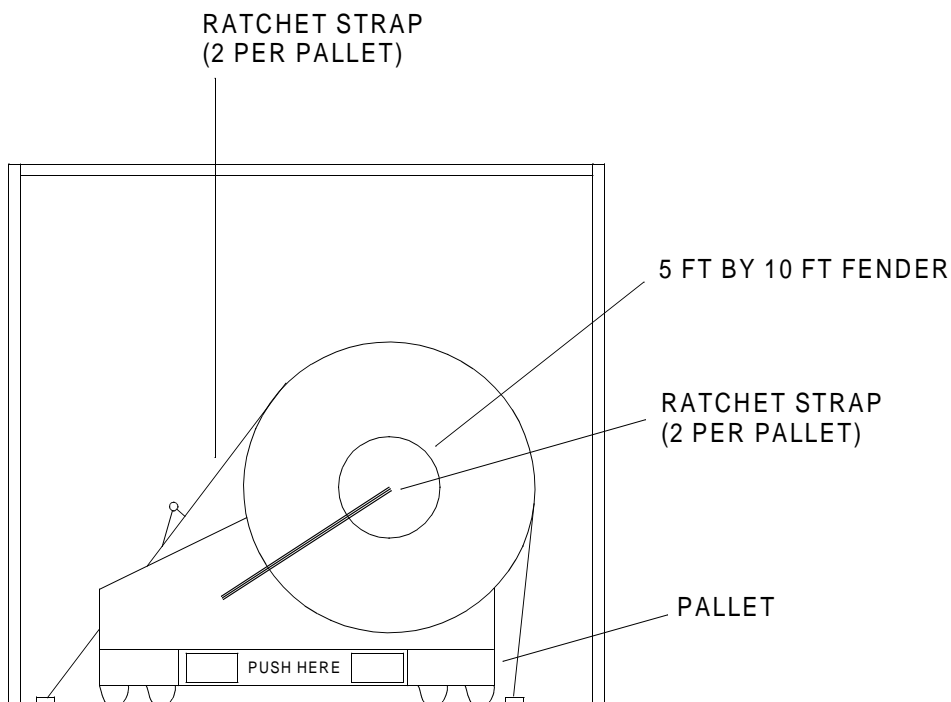
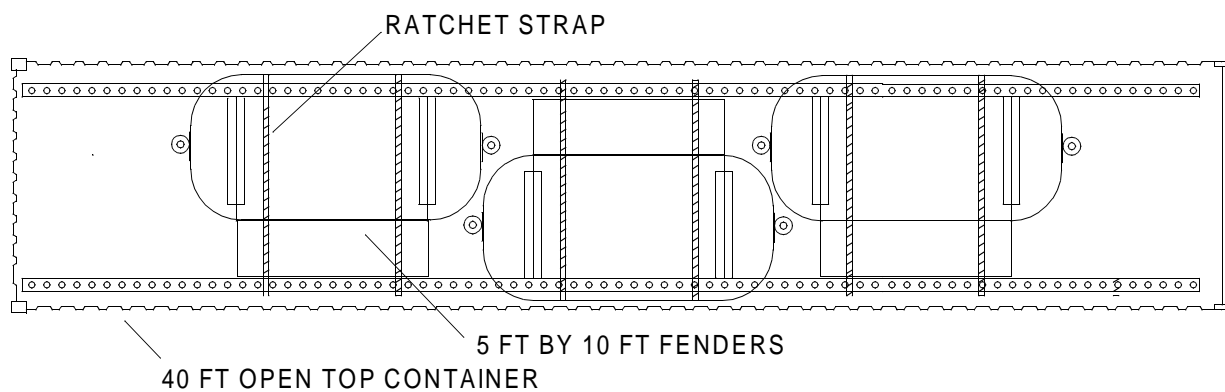
INTRODUCTION

Scope

This task covers stowage of the 5 ft by 10 ft fenders.

Stowage of 5 ft by 10 ft Fenders

The 5 ft by 10 ft fenders are stowed horizontally one to a pallet. The pallets and fenders are placed in the 40 ft open top container. The fender is secured to the pallet tie down pads using two ratchet strap tie downs per pallet. The pallet and fenders are secured to the container deck tracks using two ratchet strap tie downs per pallet. The 40 ft open top container accommodates three 5 ft by 10 ft fenders.



**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
6 FT BY 12 FT FENDERS
STOWAGE**

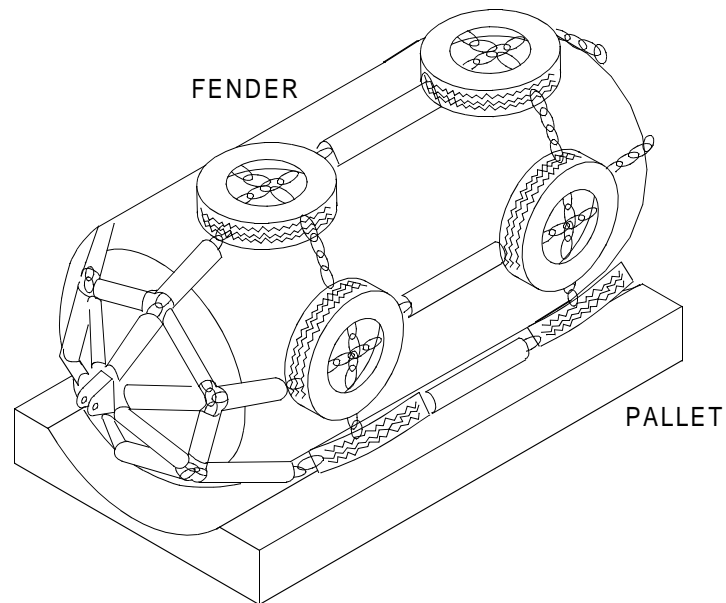
INTRODUCTION

Scope

This task covers stowage of the 6 ft by 12 ft fenders on the sealift vessel.

Stowage of 6 ft by 12 ft Fenders

The 6 ft by 12 ft fenders are stowed horizontally on a pallet. The pallet and fender are secured to the deck of the sea lift vessel with two adjustable strap tie downs.



**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MOORING BITTS
STOWAGE**

INTRODUCTION

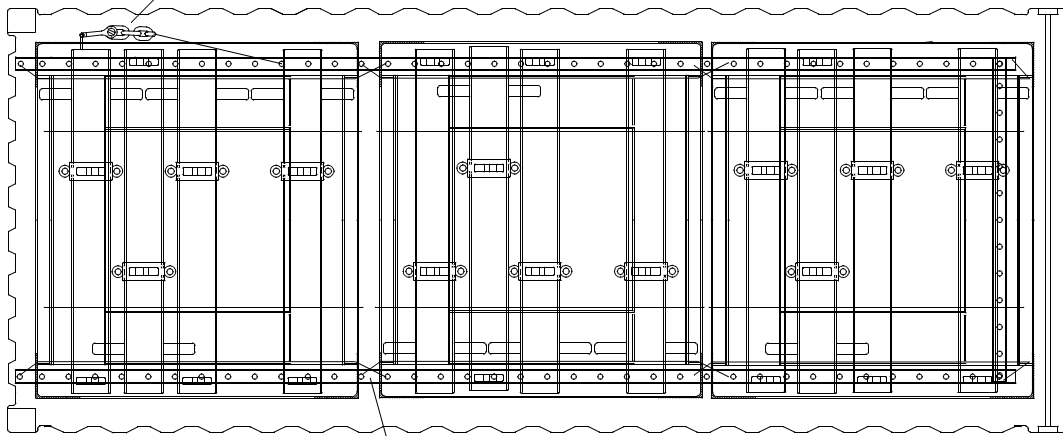
Scope

This work package covers stowage of the mooring bits.

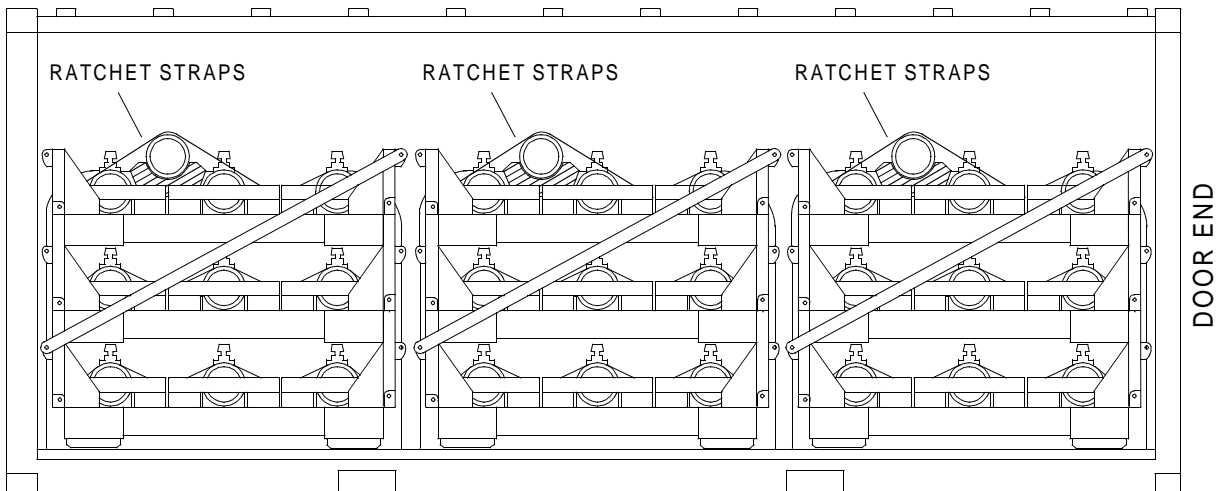
Stowage of Mooring Bitts

The mooring bitts are stowed three to a pallet, except the top pallet will have a fourth mooring bit stowed on top. The mooring bits are secured with ratchet strap tie downs. Once the mooring bitts are placed on the pallets and secured, they are stacked three pallets high. Stack the pallet with four mooring bitts on top. The pallets are then placed in the 20 ft open end container. The three stacks of pallets are then secured to the container deck tracks with ratchet strap tie downs. The 20 ft open end container accommodates 30 mooring bitts.

CHAIN TIEDOWN ASSEMBLY



RATCHET STRAPS



PLACEMENT IN CONTAINER

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DUNNAGE MATS
STOWAGE**

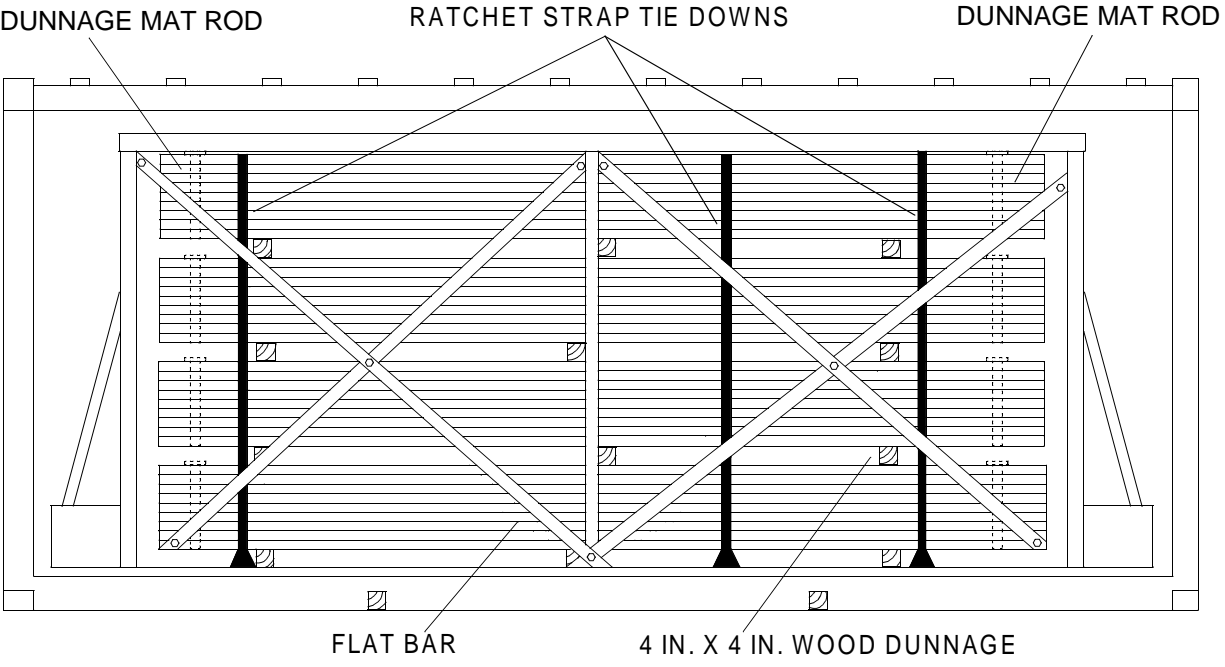
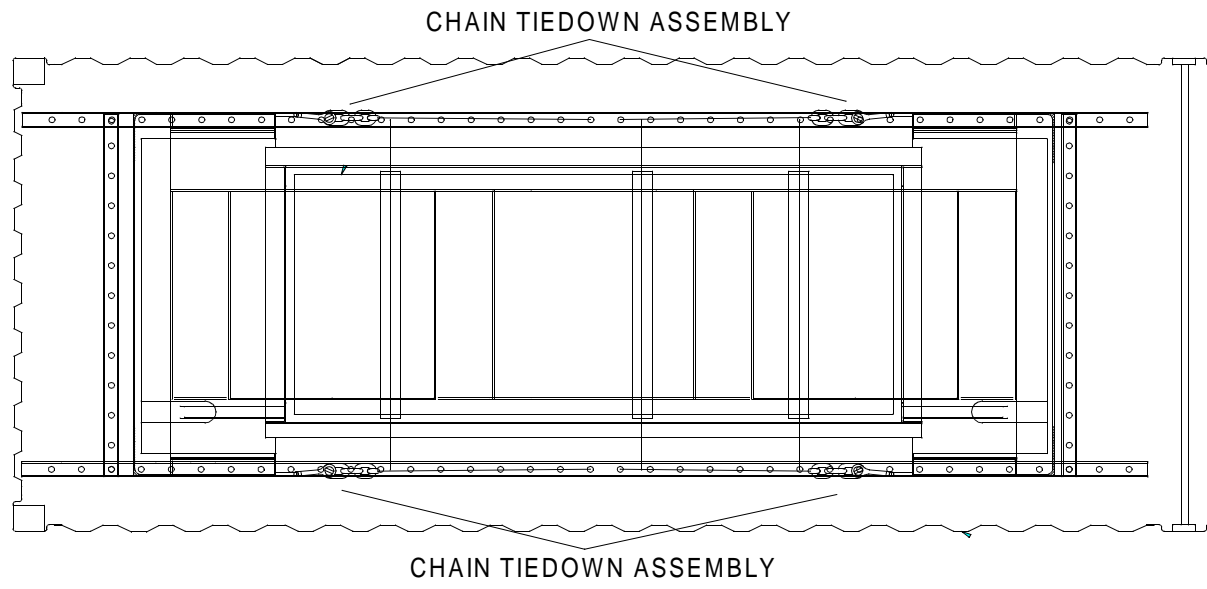
INTRODUCTION

Scope

This work package covers stowage of the dunnage mats.

Stowage of Dunnage Mats

The 4 ft by 10 ft dunnage mats are stowed horizontally in four stacks with nine mats per stack. Dunnage (4 in. X 4 in. wood) is placed on the pallet and between the four stacks of mats to aid in the support of the mats while in stowage. Once stowed on the pallet, the mats are secured to the pallet with ratchet strap tie downs. The pallet is secured to the deck tracks with chain tiedowns.



CHAPTER 3

OPERATOR TROUBLESHOOTING PROCEDURES
FOR
MODULAR CAUSEWAY SYSTEM (MCS)
ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF)

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TROUBLESHOOTING PROCEDURES INDEX**

MALFUNCTION/SYMP TOM**TROUBLESHOOTING PROCEDURE****EMERGENCY ANCHOR SYSTEM (EASY)**

Easy Anchor Slide Will Not Elevate	WP 0111 00
Easy Anchor Drawer Will Not Extend	WP 0112 00

TACTICAL QUIET GENERATOR

Reference Only	WP 0075 00
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GENERATOR CONTAINER

DC Lights Will Not Operate	WP 0076 00
Day Tank Fuel Level Indication System Is Inoperative	WP 0077 00
Manual Fuel Transfer Pump Will Not Prime	WP 0078 00
Manual Fuel Transfer Pump Pumps Slowly	WP 0079 00
Manual Fuel Transfer Pump Leaks	WP 0080 00
Electric Fuel Transfer Pump Inoperative	WP 0081 00
Fire Suppression System Inoperative	WP 0082 00

VHF/FM TRANSCEIVER

VHF/FM Transceiver Has No Power	WP 0087 00
VHF/FM Transceiver Does Not Receive	WP 0088 00
VHF/FM Transceiver Does Not Transmit	WP 0089 00

HEATING AND AIR CONDITIONING SYSTEM

Fan Does Not Operate Continuously When Electrical Power Is Supplied to Shelter	WP 0083 00
Thermostat Does Not Operate System	WP 0084 00
Heater Does Not Produce Warm Air	WP 0085 00

INCINERATOR TOILET

Reference Only	WP 0086 00
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LIGHT TOWER

Lights Will Not Illuminate	WP 0090 00
Engine Shuts Down	WP 0091 00
Excessive Engine Vibration	WP 0092 00
Engine Will Not Start/Run	WP 0093 00
Engine Fails to Shut Down	WP 0094 00

MALFUNCTION/SYMPTOMTROUBLESHOOTING PROCEDURE**LIGHT TOWER (CONTINUED)**

Engine has No Generator Output Voltage	WP 0095 00
Fluctuating Generator Frequency/Voltage and/or Oscillating Engine Speed	WP 0096 00
Engine RPM Is Down	WP 0097 00
Engine Is Difficult to Start	WP 0098 00
Engine has Insufficient Output	WP 0099 00
Engine Suddenly Stops	WP 0100 00
Large Quantity of Black Smoke from Engine Exhaust	WP 0101 00
Engine Oil Lamp Lights Up During Operation	WP 0102 00
Engine Overheats	WP 0103 00

RIGID HULL INFLATABLE BOAT

Starter Motor Will Not Operate	WP 0104 00
Engine Will Not Start	WP 0105 00
Engine Will Not Idle Properly	WP 0106 00
Engine Loses Power and Will Not Accelerate	WP 0107 00
Engine Runs, But Makes Little or No Progress	WP 0108 00
Engine Vibrates Excessively	WP 0109 00
Warning System Activates	WP 0110 00

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TACTICAL QUIET GENERATOR
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

References

TM 9-6115-642-10

TM 9-6115-643-10

TROUBLESHOOTING PROCEDURE

TACTICAL QUIET GENERATOR - REFERENCE ONLY

Refer to TM 9-6115-642-10 for 10 KW Tactical Quiet Generator Operating Instructions.

Refer to **TM 9-6115-643-10** for 15 KW Tactical Quiet Generator Operating Instructions.**END OF WORK PACKAGE**

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

DC LIGHTS WILL NOT OPERATE

SYMPTOM

DC lights will not illuminate.

MALFUNCTION

DC power circuit breaker is tripped.

CORRECTIVE ACTION

Reset DC power circuit breaker. (WP 0007 00)

Perform operational check on generator. (WP 0027 00)

MALFUNCTION

Light bulb(s) burned out.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

DAY TANK FUEL LEVEL INDICATION SYSTEM IS INOPERATIVE

SYMPTOM

Day tank fuel level indication system is inoperative.

MALFUNCTION

Fuel level indication system fuse is blown.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Fuel level sensor inoperable.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

System relay(s) faulty.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Transfer pump/motor not operating.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

MANUAL FUEL TRANSFER PUMP WILL NOT PRIME

SYMPTOM

Manuel fuel transfer pump will not prime.

MALFUNCTION

Fuel supply is depleted from the 1000 gallon fuel tank.

CORRECTIVE ACTION

Refuel the 1000 gallon fuel tank. (WP 0028 00)

MALFUNCTION

Transfer pump intake screen clogged.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Transfer pump gasket is leaking.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Transfer pump vanes or rotors sticking.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Transfer pump vanes or rotors have excessive wear.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

MANUAL FUEL TRANSFER PUMP PUMPS SLOWLY

SYMPTOM

Manuel fuel transfer pump supplies fuel slowly.

MALFUNCTION

Transfer pump intake screen dirty or clogged.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Transfer pump vanes or rotors sticking.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

MANUAL FUEL TRANSFER PUMP LEAKS

SYMPTOM

Manual fuel transfer pump is leaking.

MALFUNCTION

Transfer pump seal is dirty.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

ELECTRIC FUEL TRANSFER PUMP INOPERATIVE

SYMPTOM

Fuel transfer pump is inoperative.

MALFUNCTION

No power to fuel transfer pump.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

FIRE SUPPRESSION SYSTEM INOPERATIVE

SYMPTOM

Fire suppression system does not work.

MALFUNCTION

No continuity in the fire suppression system.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

FAN DOES NOT OPERATE CONTINUOUSLY WHEN ELECTRICAL POWER IS SUPPLIED TO PERSONNEL SHELTER

SYMPTOM

Fan does not operate continuously when electrical power is supplied to personnel shelter.

MALFUNCTION

Power switch on the heating and air conditioning unit is not turned on.

CORRECTIVE ACTION

Turn on power switch on unit. (WP 0007 00)

Perform operational check of heating and air conditioning system. (WP 0031 00)

MALFUNCTION

Heating and cooling circuit breaker is not engaged on personnel shelter electrical distribution panel board.

CORRECTIVE ACTION

Engage heating and cooling circuit breaker on the circuit breaker panel. (WP 0007 00)

Perform operational check of heating and air conditioning system. (WP 0031 00)

MALFUNCTION

No power applied to the heating and air conditioning system.

CORRECTIVE ACTION

Check the external shore tie connection from the generator container to the personnel shelter.

Perform operational check of heating and air conditioning system. (WP 0031 00)

If connection is mated properly, contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

THERMOSTAT DOES NOT OPERATE SYSTEM

SYMPTOM

Thermostat does not operate heating and cooling system.

MALFUNCTION

Selector switch is in the off mode.

CORRECTIVE ACTION

Move selector switch to either COOL or HEAT mode. (WP 0007 00)

Perform operational check of heating and air conditioning system. (WP 0031 00)

MALFUNCTION

Heating and cooling circuit breaker is not engaged on personnel shelter electrical distribution panel board.

CORRECTIVE ACTION

Engage heating and cooling circuit breaker on the electrical distribution panel board. (WP 0007 00)

Perform operational check of heating and air conditioning system. (WP 0031 00)

MALFUNCTION

No power applied to heating and cooling system.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

HEATER DOES NOT PRODUCE WARM AIR

SYMPTOM

The heater is not producing warm air.

MALFUNCTION

The primary limit switch is not operating properly.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INCINERATOR TOILET
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

References

TM 55-1925-257-14&P

TROUBLESHOOTING PROCEDURE

INCINERATOR TOILET - REFERENCE ONLY

Refer to TM 55-1925-257-14&P for Incinerator Toilet/Urinal Galley/Water Heater Operating Instructions.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

VHF/FM TRANSCEIVER HAS NO POWER

SYMPTOM

Transceiver has no power.

MALFUNCTION

Transceiver power/volume knob is turned off.

CORRECTIVE ACTION

Turn the power/volume knob clockwise to turn the transceiver on. (WP 0033 00)

MALFUNCTION

Battery is discharged.

CORRECTIVE ACTION

Replace battery. (WP 0033 00)

MALFUNCTION

Transceiver is defective.

CORRECTIVE ACTION

Replace transceiver. Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

VHF/FM TRANSCEIVER DOES NOT RECEIVE

SYMPTOM

Transceiver does not receive.

MALFUNCTION

Transceiver has no power.

CORRECTIVE ACTION

Turn the power/volume knob clockwise to turn the transceiver on. (WP 0033 00)

MALFUNCTION

Low battery indicator is displayed on transceiver.

CORRECTIVE ACTION

Remove battery. Install a fully charged battery. (WP 0033 00)

MALFUNCTION

Transceiver antenna is damaged or missing.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

VHF/FM TRANSCEIVER DOES NOT TRANSMIT

SYMPTOM

Transceiver does not transmit.

MALFUNCTION

Transceiver as no power.

CORRECTIVE ACTION

Turn the power/volume knob clockwise to turn the transceiver on. (WP 0033 00)

MALFUNCTION

Low battery indicator is displayed on transceiver.

CORRECTIVE ACTION

Remove battery. Install a fully charged battery. (WP 0033 00)

MALFUNCTION

Transceiver antenna is damaged or missing.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

LIGHTS WILL NOT ILLUMINATE

SYMPTOM

Light(s) on tower assembly do not illuminate.

MALFUNCTION

MAIN BREAKER on control panel is off.

CORRECTIVE ACTION

Position MAIN BREAKER to on. (WP 0007 00)

MALFUNCTION

LAMP toggle switch(s) on control panel is off.

CORRECTIVE ACTION

Position control panel LAMP toggle switch(s) to on. (WP 0007 00)

MALFUNCTION

Light tower junction box electrical cable is not plugged into 125V receptacle.

CORRECTIVE ACTION

Connect light tower junction box electrical cable into 125V receptacle. (WP 0023 00)

MALFUNCTION

Light(s) power cable is not plugged into electrical system junction box.

CORRECTIVE ACTION

Connect light(s) power cable into electrical system junction box. (WP 0023 00)

MALFUNCTION

Light bulb(s) is defective.

CORRECTIVE ACTION

Replace light bulb. Contact unit maintenance.

MALFUNCTION

Light tower light(s) still will not illuminate.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURE**

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

TROUBLESHOOTING PROCEDURE

ENGINE SHUTS DOWN

SYMPTOM

Engine stops running

MALFUNCTION

Unit out of fuel.

CORRECTIVE ACTION

Check unit fuel level and refuel. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine coolant temperature too high.

CORRECTIVE ACTION

Check the engine coolant level and add as required. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine oil level low.

CORRECTIVE ACTION

Check the engine oil level and add as required. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine fuel filter clogged.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

EXCESSIVE ENGINE VIBRATION

SYMPTOM

Light tower engine has excessive vibration.

MALFUNCTION

Engine fuel filter clogged.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE WILL NOT START/RUN

SYMPTOM

Light tower engine will not start/run.

MALFUNCTION

Unit is out of fuel.

CORRECTIVE ACTION

Refuel the unit. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine coolant temperature is too high.

CORRECTIVE ACTION

Check the engine coolant level and add as required. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Low oil pressure.

CORRECTIVE ACTION

Check the engine oil level and add as required. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Clogged engine fuel filters.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Loose wire connections.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

ENGINE FAILS TO SHUTDOWN

SYMPTOM

Engine cannot be shutdown.

MALFUNCTION

Faulty control panel key switch.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE HAS NO GENERATOR OUTPUT VOLTAGE

SYMPTOM

No generator output voltage.

MALFUNCTION

Main circuit breaker is in the OFF position.

CORRECTIVE ACTION

Turn the main circuit breaker to the ON position. (WP 0034 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Receptacle circuit breaker is in the OFF position.

CORRECTIVE ACTION

Use PUSH TO RESET button to restore the receptacle circuit breaker. (WP 0034 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Electrical output overload.

CORRECTIVE ACTION

Reduce electrical output. (WP 0034 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Loose wire connections.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Low engine power.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

FLUCTUATING GENERATOR FREQUENCY/VOLTAGE AND/OR OSCILLATING ENGINE SPEED

SYMPTOM

Fluctuating generator frequency/voltage and/or oscillating engine speed.

MALFUNCTION

Light tower unit is not level.

CORRECTIVE ACTION

Reposition unit so that it is level. (WP 0023 00)

MALFUNCTION

Main circuit breaker is in the OFF position.

CORRECTIVE ACTION

Turn the main circuit breaker to the ON position. (WP 0007 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Ambient temperature is greater than 125°F (52°C).

CORRECTIVE ACTION

Do not operate light tower.

MALFUNCTION

There is an electrical output overload.

CORRECTIVE ACTION

Reduce electrical output. (WP 0034 00)

MALFUNCTION

Engine fuel filters are clogged.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Engine air filter element is dirty.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

ENGINE RPM IS DOWN

SYMPTOM

Engine RPM is lower than normal.

MALFUNCTION

Engine speed RPM incorrectly adjusted.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

ENGINE IS DIFFICULT TO START

SYMPTOM

Engine is difficult to start.

MALFUNCTION

Engine fuel filter is contaminated with water or other debris.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Air in the fuel system.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE HAS INSUFFICIENT OUTPUT

SYMPTOM

Engine has little or no power.

MALFUNCTION

Unit is low on fuel.

CORRECTIVE ACTION

Check unit fuel level and refuel. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine oil level is low.

CORRECTIVE ACTION

Check engine oil level and add as required. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine fuel filter is contaminated with water or debris.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Air in the fuel system.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Engine still has little or no power.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE SUDDENLY STOPS

SYMPTOM

Engine suddenly stopped.

MALFUNCTION

Unit is low on fuel.

CORRECTIVE ACTION

Check unit fuel level and refuel. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine oil level is low.

CORRECTIVE ACTION

Inspect and service engine oil system as required. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine fuel filter is contaminated with water or debris.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Air in the fuel system.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Seaman 88K

TROUBLESHOOTING PROCEDURE

LARGE QUANTITY OF BLACK SMOKE FROM ENGINE EXHAUST

SYMPTOM

Large quantity of black smoke from engine exhaust.

MALFUNCTION

Poor quality of fuel.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE OIL LAMP
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE OIL LAMP LIGHTS UP DURING OPERATION

SYMPTOM

Engine oil lamp lights up during operation.

MALFUNCTION

Engine oil level is low.

CORRECTIVE ACTION

Inspect and service engine oil system. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine oil lamp still lights up during operation.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE OVERHEATS

SYMPTOM

Engine overheats.

MALFUNCTION

Engine radiator coolant level is too low.

CORRECTIVE ACTION

Inspect and service engine radiator coolant system. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Engine oil level is low.

CORRECTIVE ACTION

Inspect and service engine oil system. (WP 0114 00)

Perform operational check of light tower. (WP 0034 00)

MALFUNCTION

Fuel is of poor quality.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Engine radiator fins are clogged.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Fan belt is loose or broken.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Fan is defective.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Engine is leaking water.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

STARTER MOTOR WILL NOT OPERATE

SYMPTOM

Starter motor will not operate.

MALFUNCTION

Shift handle is not in the neutral position.

CORRECTIVE ACTION

Position the shift handle in the neutral position. (WP 0035 00)

MALFUNCTION

Engine fuse is blown.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Battery connections are loose or corroded.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Battery voltage appears to be low.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Starter motor is defective.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE WILL NOT START

SYMPTOM

Engine will not start.

MALFUNCTION

Starting procedures are not being followed properly.

CORRECTIVE ACTION

Perform starting procedure and restart engine. (WP 0035 00)

MALFUNCTION

Fuel tank is empty.

CORRECTIVE ACTION

Refuel tank. (WP 0114 00)

Perform operational check of RHIB. (WP 0035 00)

MALFUNCTION

Fuel hose is disconnected.

CORRECTIVE ACTION

Connect hose to the engine fuel connector. (WP 0035 00)

Perform operational check of RHIB. (WP 0035 00)

MALFUNCTION

Fuel hose is kinked.

CORRECTIVE ACTION

Remove the kinks from the fuel hose. (WP 0035 00)

Perform operational check of RHIB. (WP 0035 00)

MALFUNCTION

Engine was not primed before cold engine start.

CORRECTIVE ACTION

Perform cold engine starting procedures. (WP 0035 00)

MALFUNCTION

Engine was flooded.

CORRECTIVE ACTION

Perform warm engine start procedures. (WP 0035 00)

MALFUNCTION

Fuel system is contaminated with water or dirt.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE WILL NOT IDLE PROPERLY

SYMPTOM

Engine does not idle properly.

MALFUNCTION

Fuel/oil mixture is incorrect.

CORRECTIVE ACTION

Remix fuel/oil to correct ratio. (WP 0035 00)

Perform operational check of RHIB. (WP 0035 00)

MALFUNCTION

Motor is not positioned at the correct angle during operation.

CORRECTIVE ACTION

Refer to the power trim and tilt procedures. (WP 0035 00)

MALFUNCTION

Primer solenoid lever is not at run position.

CORRECTIVE ACTION

Briefly push the key into prime fuel system. (WP 0035 00)

Perform operational check of RHIB. (WP 0035 00)

MALFUNCTION

Fuel system is contaminated with water or dirt.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE LOSES POWER AND WILL NOT ACCELERATE

SYMPTOM

Engine loses power and will not accelerate.

MALFUNCTION

Water pump indicator does not discharge a steady stream of water.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Engine water intake screens are clogged.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Fuel system is contaminated with water or dirt.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE VIBRATES EXCESSIVELY

SYMPTOM

Excessive engine vibration.

MALFUNCTION

Propeller is fouled and restricted.

CORRECTIVE ACTION

Clean debris from propeller.

Perform operational check of RHIB. (WP 0035 00)

MALFUNCTION

Steering friction screws are loose.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

ENGINE RUNS, BUT MAKES LITTLE OR NO PROGRESS

SYMPTOM

Engine runs, but makes little or no progress.

MALFUNCTION

Propeller is fouled and restricted.

CORRECTIVE ACTION

Shutdown engine and remove debris from propeller.

Perform operational check of RHIB. (WP 0035 00)

MALFUNCTION

Propeller shaft is bent.

CORRECTIVE ACTION

Shutdown engine. Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT (RHIB)
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

WARNING SYSTEM ACTIVATES

SYMPTOM

Engine monitoring horn activates.

MALFUNCTION

Engine oil level is low.

CORRECTIVE ACTION

Inspect and service engine oil system. (WP 0114 00)

Perform operational check of RHIB. (WP 0035 00)

MALFUNCTION

Cooling system not operating.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

EMERGENCY ANCHOR SYSTEM (EASY) - EASY ANCHOR SLIDE WILL NOT ELEVATE

SYMPTOM

The cylinder does not complete its stroke or extends slowly and with spurts.

MALFUNCTION

Fluid level in the hydraulic pump reservoir is low.

CORRECTIVE ACTION

Service reservoir. (WP 0114 00)

Perform operational check of EASY anchor system. (WP 0026 00)

MALFUNCTION

Hand pump release valve is open.

CORRECTIVE ACTION

Close the release valve. (WP 0026 00)

Perform operational check of EASY anchor system. (WP 0026 00)

MALFUNCTION

Hydraulic line is loose.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Excessive load on anchor slide.

CORRECTIVE ACTION

Ensure that the nominal load of anchor slide is not exceeded. (WP 0026 00)

Perform operational check of EASY anchor system. (WP 0026 00)

SYMPTOM

The cylinder loses pressure after it is fully extended.

MALFUNCTION

Hydraulic line is loose.

CORRECTIVE ACTION

Contact unit maintenance.

SYMPTOM

The cylinder does not complete its stroke or does so partially or slower than it needs to.

MALFUNCTION

Hand pump release valve is closed.

CORRECTIVE ACTION

Open release valve. (WP 0026 00)

Perform operational check of EASY anchor system. (WP 0026 00)

MALFUNCTION

Pump reservoir is overfull.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Hydraulic line is loose.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Internal diameter of hydraulic line is too small.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Air in hydraulic lines under pressure.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TROUBLESHOOTING PROCEDURES**

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

TROUBLESHOOTING PROCEDURE

EMERGENCY ANCHOR SYSTEM (EASY) - EASY ANCHOR DRAWER WILL NOT EXTEND

SYMPTOM

The cylinder does not complete its stroke or extends slowly and with spurts.

MALFUNCTION

Fluid level in the hydraulic pump reservoir is low.

CORRECTIVE ACTION

Service reservoir. (WP 0114 00)

Perform operational check of EASY anchor system. (WP 0026 00)

MALFUNCTION

Hand pump release valve is open.

CORRECTIVE ACTION

Close the release valve. (WP 0026 00)

Perform operational check of EASY anchor system. (WP 0026 00)

MALFUNCTION

Hydraulic line is loose.

CORRECTIVE ACTION

Contact unit maintenance.

MALFUNCTION

Excessive load on anchor slide.

CORRECTIVE ACTION

Ensure that the nominal load of anchor slide is not exceeded. (WP 0026 00)

Perform operational check of EASY anchor system. (WP 0026 00)

MALFUNCTION

Air in hydraulic lines under pressure.

CORRECTIVE ACTION

Contact unit maintenance.

END OF WORK PACKAGE

CHAPTER 4

**OPERATOR MAINTENANCE INSTRUCTIONS
FOR
MODULAR CAUSEWAY SYSTEM (MCS)
ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF)**

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)
PROCEDURES INTRODUCTION**

INTRODUCTION

General

Preventive Maintenance Checks and Services (PMCS) are performed to keep the RRDF 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. Preventative 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.

The right-hand column of the PMCS table list conditions that make the vessel not fully mission capable. Write up items not fixed on DA Form 2404 for unit maintenance. For further information on how to use this form, see DA PAM 738-750.

Leakage Definition

CAUTION

Equipment operation is allowed with minor leakages (Class I or II) except for fuel leaks. Of course, consideration must be given to the fluid capacity of the item or system being checked. When in doubt, ask your supervisor. Failure to maintain proper fluid levels could result in damage to equipment.

When operating with Class I or II leaks, continue to check fluid levels as required in your PMCS.

Class III leaks should be reported immediately to your supervisor.

It is necessary to know how fluid leakage affects the status of the equipment. The following are definitions of the classes of leakage an operator or crew member needs to know to be able to determine the condition of the leak. Learn and then be familiar with them, and REMEMBER: WHEN IN DOUBT, ASK YOUR SUPERVISOR.

Leakage definitions for Crew/Operator PMCS.

CLASS I - Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

CLASS II - Leakage of fluid great enough to form drops, but not enough to cause drops to drip from item being checked.

CLASS III - Leakage of fluid great enough to form drops that fall from the item being checked.

Inspection

Look for signs of a problem or trouble. Senses help here. You can feel, smell, hear or see many problems. Be alert when on the equipment.

Inspect to see if items are in good condition. Are they correctly assembled, stowed, secured, excessively worn, leaking, corroded or properly lubricated? Correct any problems found or notify unit maintenance.

There are some common items to check all over the equipment. These include the following:

1. Bolts, clamps, nuts and screws: Continuously check for looseness. Look for chipped paint, bare metal, rust or corrosion around bolt and screw heads and nuts. Tighten them when you find them loose. If tools are not available, contact unit maintenance.
2. Welds: Many items on the equipment are welded. To check these welds, look for chipped paint, rust, corrosion or gaps. When these conditions exist, notify unit maintenance on DA Form 2404.
3. Electrical wires, connectors and harnesses: Tighten loose connectors. Look for cracked or broken insulation, bare wires and broken connectors. If any are found, notify unit maintenance.
4. Hoses and fluid lines: Look for wear, damage and leaks, and make sure clamps and fittings are tight. Wet spots mean a leak. A stain by a fitting or connector can also mean a leak. When you find a leak, notify unit maintenance.

Lubrication Service Intervals - Normal Conditions

For safer, more trouble free operations, make sure that your equipment is serviced when it needs it. For the proper lubrication and service intervals, see the PMCS section of this manual.

Lubrication Service Intervals - Unusual Conditions

Your equipment will require extra service and care when you operate under unusual conditions. High or low temperatures, long periods of hard use, or continued use in sand, mud, or snow will break down the lubricant, requiring you to add or change lubricant more often.

Lubrication Interval Symbols

The following lubrication interval symbols are used in the PMCS table:

D - daily	W - weekly
M - monthly	Q - quarterly
S - semiannually	H - hours operated
A - annually	

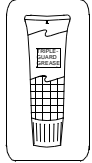
Lubrication Symbols

The following lubrication symbols are used in this manual:

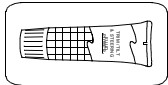
OE/HDO-40 - Lubricating Oil, Gear, Grade 40, MIL-L-2104. Sulfated Ash: less than 1.0%. Temperature range -25 to +150F.



Grease, Cindol (Starter and Pinion Lube) (Item 15, WP 0120 00)



Grease, Outboard Motor (Item 17, WP 0120 00)



Hydraulic Fluid, Petroleum Base (Trim/Tilt and Power Steering) (Item 21, WP 0120 00)



Kit, HPF Lube (Item 22, WP 0120 00)

Oil Filters

Oil filters shall be serviced/cleaned/changed, as applicable, at prescribed hard time intervals.

Army Oil Analysis Program (AOAP)

The components of the RRDF are not enrolled in the Army Oil Analysis Program. Hardtime intervals apply.

Warranty Information

For equipment under manufacturer's warranty, hard time oil service intervals shall be followed. Intervals shall be shortened if lubricants are known to be contaminated or if operation is under adverse conditions, such as: longer than usual operating hours, extended idling period or extreme dust.

Cleaning And Lubrication

Proper cleaning and lubrication can aid in avoiding possible problems or trouble, so make it a habit to do the following:

CAUTION

Follow all cleaning and lubrication instructions carefully. Failure to do so could result in damage to equipment.

1. Thoroughly wash all equipment exposed to salt spray with clean, fresh water.
2. Clean parts to be lubricated with cleaner, type II, MIL-C-29602, or equivalent. Do not use fluid or semi-fluid lubricant on SFD coated surface. Wipe surface dry before lubricating.
3. Clean grease fittings before lubrication.

4. Lubricate all equipment at conclusion of the operation before equipment storage.
5. Always use the PMCS lubrication instructions as a guide.
6. Never use too much lubricant.
7. Never use the wrong type or grade of lubricant.
8. Lubricate more during constant use and less during inactive periods.
9. Use the correct grade of lubricant for seasonal temperature expected.

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 MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)
AND LUBRICATION PROCEDURES**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 7, WP 0121 00)
Life Preserver, Vest (Item 33, WP 0119 00)
Gloves, Men's and Women's (Leather Palm) (Item 25, WP 0119 00)
Goggles, Sun, Wind and Dust (Safety) (Item 27, WP 0119 00)
Helmet, Safety (Item 29, WP 0119 00)
Gloves, Antiflash (Item 23, WP 0119 00)
Gloves, Chemical (Item 24, WP 0119 00)
Goggles, Industrial (Chipping, Chemical) (Item 26, WP 0119 00)
Lubricating Gun, Hand (Item 37, WP 0119 00)
Oiler, Hand (Item 5, WP 0121 00)
Respirator, Air Filtering (Item 6, WP 0121 00)
Apron, Utility (Item 1, WP 0121 00)
Mop (Item 4, WP 0121 00)
Gage, Tire Pressure, 20 to 120 PSI (Item 3, WP 0121 00)
Gage, Tire Pressure, 10 to 50 PSI (Item 2, WP 0121 00)

Materials/Parts

Antifreeze (Item 2, WP 0120 00)
Antiseize Compound (Item 3, WP 0120 00)
Cleaner, Type II (Item 8, WP 0120 00)
Corrosion, Preventive Compound, Grade I (Item 9, WP 0120 00)
Corrosion, Preventive Compound, Grade II (Item 10, WP 0120 00)
Diesel Fuel, Summer, Grade DF-2 (Item 11, WP 0120 00)
Grease, Aircraft, (General Purpose, Mobil Grease 28) (Item 13, WP 0120 00)
Grease, Cindol (Starter and Pinion Lube) (Item 15, WP 0120 00)
Grease, General Purpose (Item 16, WP 0120 00)
Grease, Wire Rope-Exposed (Item 17, WP 0120 00)
Hydraulic Fluid, Petroleum Base (Tilt/Trim and Power Steering) (Item 21, WP 0120 00)
Kit, HPF Lube (Item 22, WP 0120 00)
Lubricating Oil, Engine, 15W40 Grade (Item 25, WP 0120 00)
Lubricating Oil, 80W90 Grade (Item 24, WP 0120 00)
Water, Distilled (Item 29, WP 0120 00)
Rag, Wiping (Item 27, WP 0120 00)

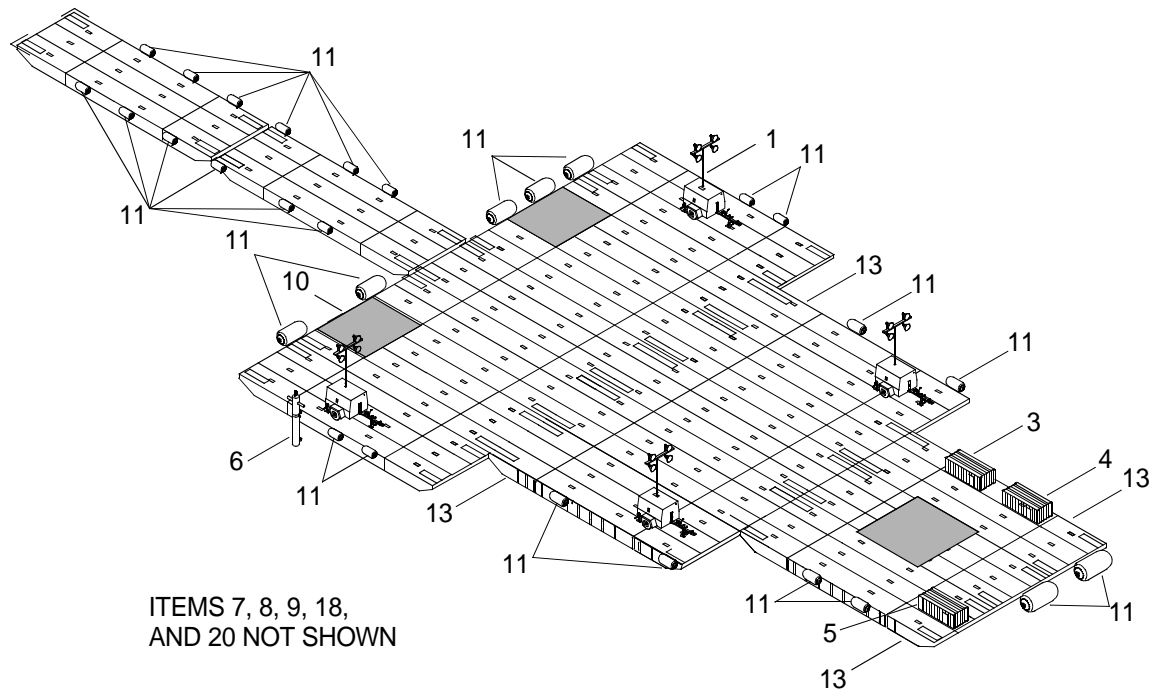
Personnel Required

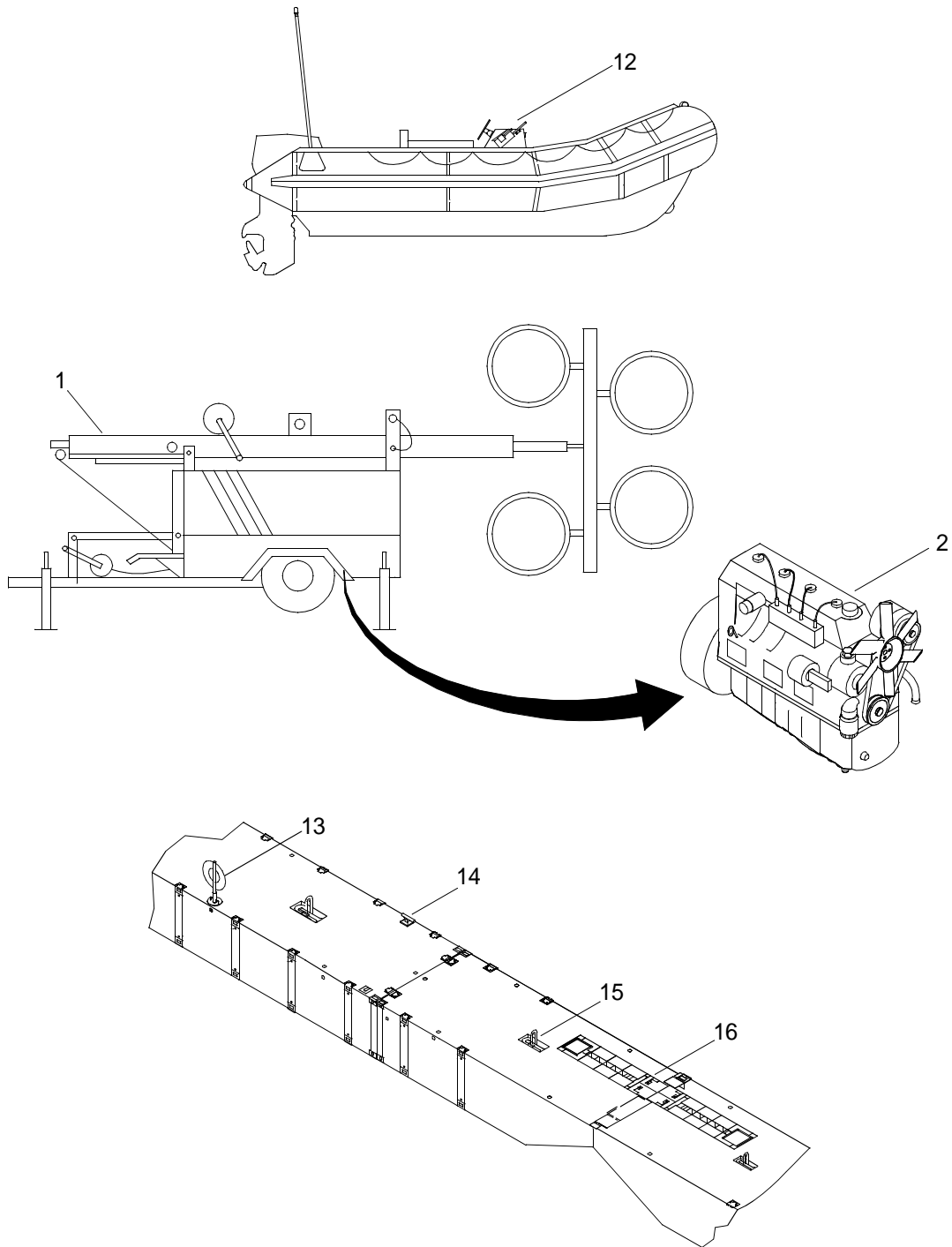
Seaman 88K
Engineer 88L

References

TM 9-6115-642-10
TM 55-1925-257-14&P
29 CFR
46 CFR

1. Light Tower
2. Light Tower Engine
3. 10 KW Generator Container
4. Personnel Shelter
5. EASY
6. Mooring Bitts
7. Towing Bridle
8. Towing Interface
9. Towing Lights
10. Dunnage Mats
11. Fenders
12. Rigid Hull Inflatable Boat
13. Stanchions and Life Rings
14. Deck Fittings
15. Lift Shackles
16. Flexors
17. Non-Powered Modules
18. Lifting Slings
19. Horizontal and Vertical Connectors
20. Steel Weight lifting Chains, Rings, Hooks, Shackles and Swivels
21. Module Interlock Connector and Spring





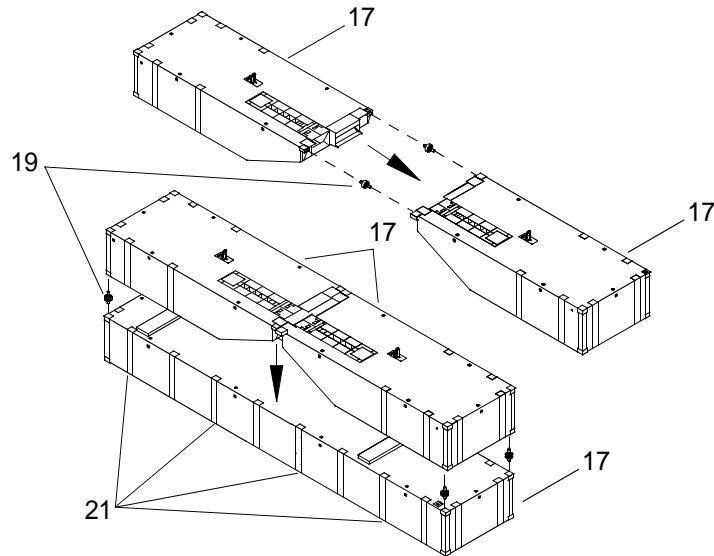


Table 1. Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before	.1	Light Tower	1. Check winch cables to ensure that the ends are securely attached. Check cables for fraying and other damage. If cables are frayed or damaged, contact unit maintenance. 2. Check cable pulleys for damage. If pulleys are damaged, contact unit maintenance. 3. Check for missing tower locking pins. If locking pins are missing, contact unit maintenance. 4. Check for flat or dry rotted tires. Check tire inflation with tire pressure gage. Tires should be inflated to 32 PSI. If tires are flat or dry rotted, contact unit maintenance.	

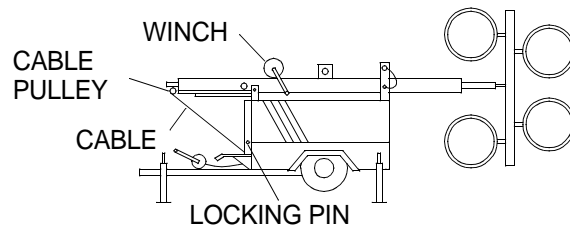


Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before	.1	Light Tower (Cont'd)	<p>5. Check the electrical control compartment for damaged or burned wiring. If wiring is damaged or burned, contact unit maintenance.</p> <p>6. Check for damaged or faded warning and caution decals. decals are damaged or faded, contact unit maintenance.</p> <p>7. Clear the air vents of obstructions.</p> <p>8. Check acoustic material on light set enclosure panels for damage or missing material. If panels are damaged or missing, contact unit maintenance.</p> <p>9. Check for evidence of arcing on electrical terminals. If arcing is found, contact unit maintenance.</p> <p>10. Inspect electrical wiring to ensure that it is securely connected, clean and undamaged. If wiring is not securely connected, dirty or damaged, contact unit maintenance.</p> <p>11. Check all accessible fuse terminal blocks and connections to see that they are securely connected and supported, that insulation is not cracked or chafed and that conduit and shielding are secure and in good condition. If terminal blocks are not securely connected or supported, insulation is cracked or chafed or shielding is damaged, contact unit maintenance.</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)


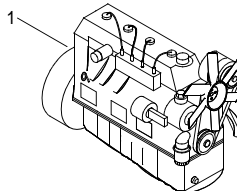
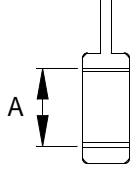

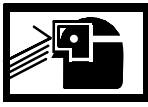


ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p>  <p>EYE PROTECTION</p>					
2	Before	.4	Light Tower Engine	<p>1. Check the engine oil level.</p> <p>a. Verify that it registers FULL on the dipstick. Engine must be cool when reading level. If hot, allow to cool for 20 minutes. If necessary, add Lubricating Oil, Internal Combustion Engine, Grade 15W40 to achieve desired level. DO NOT OVERFILL. Use a rag to wipe up any spillage that may occur.</p>	
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 45%;">  <p>1. OIL LEVEL GAUGE</p> </div> <div style="width: 45%; text-align: center;">  <p>A: ENGINE OIL LEVEL WITHIN THIS RANGE IS PROPER</p> </div> </div>					
				<p>b. Make a visual inspection for oil leaks around the filters and the external oil lines. If oil leaks are found, contact unit maintenance.</p>	Class III oil leaks are found.
<p>WARNING</p>					
<div style="display: flex; justify-content: space-around; align-items: center;">     </div> <p>CHEMICAL EYE PROTECTION FIRE SLICK FLOOR</p>					
<p>Use approved procedures when cleaning up fuel spills. Take proper precautions when removing or installing any fuel system component. Failure to comply may result in serious injury to death to personnel.</p>					
				2. Check fuel system.	

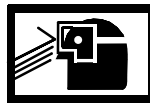
Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before	.4	Light Tower Engine (Cont'd)	<p>a. Check for leaks around fuel tank and fuel lines. If leaks are found, contact unit maintenance.</p> <p>b. Examine fuel lines and flexible hoses for leaks. Check that fittings, clamps and ties are secure. Hoses must not be resting on or touching shafts, couplings, heated surfaces, sharp edges or other areas that might sever or rupture fuel system parts. If fuel leaks, fittings, clamps and ties are not secure or hoses are resting on or touching shafts, couplings, heated surfaces or sharp edges, contact unit maintenance.</p>	<p>Class I fuel leakage is found.</p> <p>Class I fuel leakage is found.</p>

WARNING



CHEMICAL



EYE PROTECTION



FIRE

c. Verify fuel tank is full by checking sight level or using a fuel stick. If necessary, add fuel. DO NOT OVER FILL. Service with Diesel, Fuel W-F-800 Grade DF-2 from -25°F to +150°F. Tank capacity is 30 gallons (114 liters). Fill to 95%.

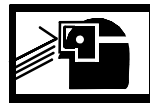
WARNING



POISON



CHEMICAL



EYE PROTECTION

3. Check cooling system.

Table 1. Preventive Maintenance Checks and Services. (Continued)




ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before	.4	Light Tower Engine (Cont'd)	<p>a. Check cooling system fluid level. Add coolant as necessary. Service with antifreeze.</p> <p>4. Check for missing or damaged components. If components are damaged or missing, contact unit maintenance.</p> <p>6. Check for cut, frayed or damaged electrical wiring. If electrical wiring is cut, frayed or damaged, contact unit maintenance.</p>	
<hr/> <p>WARNING</p> <hr/>					
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div> <div style="text-align: center;">  <p>EXPLOSION</p> </div> </div>					
<p>Do not reverse battery polarity. Reversing polarity may cause explosion or sudden discharge of electrolyte. Failure to comply could result in injury or death.</p>					
				<p>7. Inspect battery system for damage. If battery is damaged, contact unit maintenance.</p> <p>a. Check electrolyte level in battery. Level should be above plates in cells. Add distilled water as necessary.</p> <p>b. Ensure all battery cable clamps and hold downs are tight. Make sure all are secure and free of corrosion. If battery cable clamps and hold downs are loose or corroded, contact unit maintenance.</p> <p>8. Check for dirt and foreign objects in radiator fins. Clean as necessary.</p>	<p>Battery will not start light tower.</p> <p>Battery will not start light tower.</p> <p>Battery will not start light tower.</p>

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before	.4	Light Tower Engine (Cont'd)	9. Check fan belts for looseness or fraying. Fan belt should not move more than ½ inch when pushed at the center of the belt. If belts are frayed or loose, contact unit maintenance.	

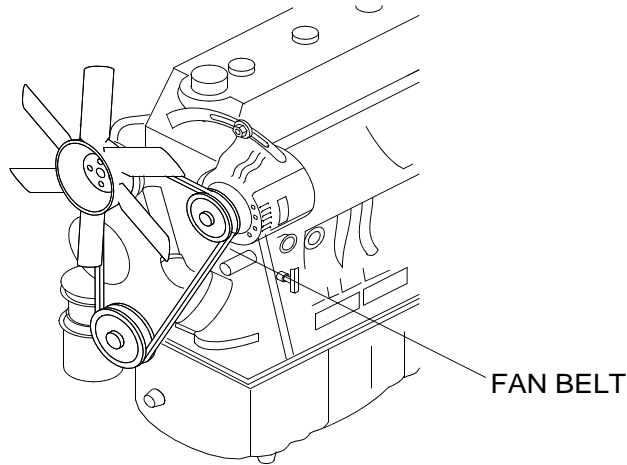
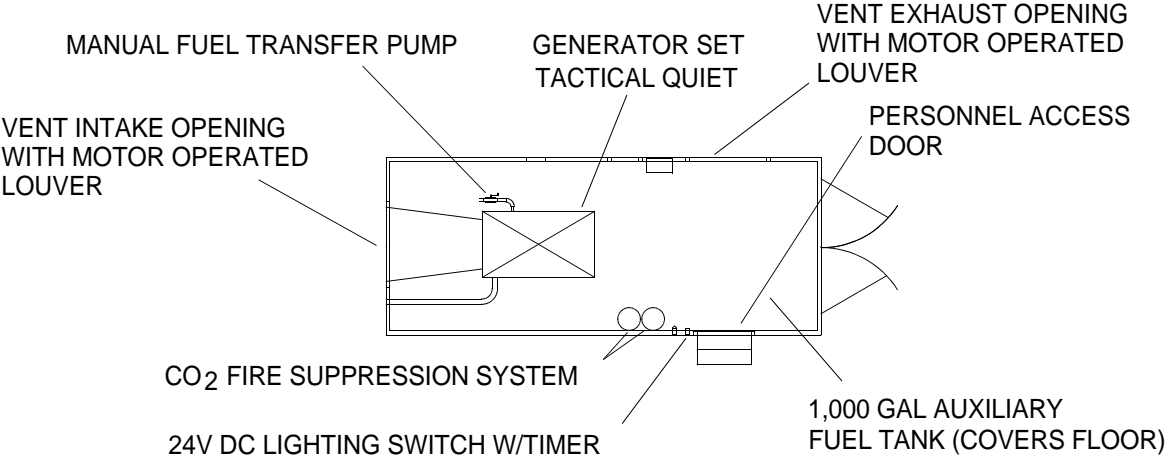


Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Before	.2	Generator Container	<p>1. Check exterior of container for damage. If damage is found, contact unit maintenance.</p> <p>2. Check personnel access door for proper operation. If door does not operate properly, contact unit maintenance.</p> <p>3. Check AC lighting system for operation and burned out bulbs. If does not operate or bulbs are burned out, contact unit maintenance.</p> <p>4. Check DC lighting system for operation. If DC lighting system does not operate, contact unit maintenance.</p> <p style="padding-left: 20px;">a. Check DC lighting system for burned out bulbs. If DC lighting system bulbs are burned out, contact unit maintenance.</p> <p style="padding-left: 20px;">b. Check electrolyte level in DC lighting system battery. Level should be above plates in cells. Add distilled water as necessary.</p> <p style="padding-left: 20px;">c. Ensure all DC lighting system battery cable clamps and hold downs are tight. Make sure all are secure and free of corrosion. If battery cable clamps and hold downs are loose or corroded, contact unit maintenance.</p> <p style="padding-left: 20px;">d. Check DC lighting system battery charger for frayed wires and proper operation. If DC lighting system battery charger has frayed wires or does not operate, contact unit maintenance.</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
					
<p>WARNING</p>					
<p>Use extreme care when inspecting or servicing fire suppression system. Failure to comply could result in injury or death.</p>					
3	Before	.2	Generator Container (Cont'd)	<p>5. Check fire suppression system for proper operation. (WP 0030 00)</p> <p>a. AC power Light Emitting Diode (LED) should be lit on control panel when generator is operating. (WP 0007 00) If LED is not lit, contact unit maintenance.</p>	<p>Fire suppression system is inoperative.</p> <p>Any yellow or red LED is illuminated.</p>
				<p>b. Inspect for discharge, leakage or expansion. Look for damaged or broken seals. If discharge, leakage, expansion or damaged or broken seals are found, contact unit maintenance.</p>	

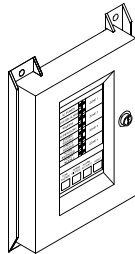


Table 1. Preventive Maintenance Checks and Services. (Continued)








ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> <div style="text-align: center;">  FIRE </div> <div style="text-align: center;">  SLICK FLOOR </div> </div> <p>Use approved procedures when cleaning up fuel spills. Take proper precautions when removing or installing any fuel system component. Failure to comply may result in serious injury or death to personnel.</p>					
3	Before	.2	Generator Container (Cont'd)	<p>6. Check 1,000 gallon fuel tank and fuel pumps for evidence of fuel leakage. If evidence of fuel leakage is found, contact unit maintenance.</p> <p style="padding-left: 20px;">a. Check for leaks around fuel tank and fuel lines. If evidence of fuel leakage is found, contact unit maintenance.</p> <p style="padding-left: 20px;">b. Examine fuel lines and flexible hoses for leaks. Check that fittings, clamps and ties are secure. If evidence of leaks, loose fittings, clamps or ties are found, contact unit maintenance.</p>	<p>Class I fuel leakage is found.</p> <p>Class I fuel leakage is found.</p> <p>Class I fuel leakage is found.</p>
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> <div style="text-align: center;">  FIRE </div> </div>					
				<p>c. Verify fuel tank is full by checking capacity lamps or using a fuel stick. If necessary, add fuel. DO NOT OVER FILL. Service with Diesel, Fuel W-F-800 Grade DF-2 from -25°F to +150°F. Tank capacity is 1000 gallons. Fill to 95%.</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Before	.2	Generator Container (Cont'd)	<p>7. Inspect portable fire extinguisher for discharge nozzle obstruction, proper mounting, tag signed within the last month and that all seals and pins are in place. If discharge nozzle obstruction, improper mounting is found or seals or pins are missing, contact unit maintenance.</p> <p>8. Perform PMCS on generator. (TM 9-6115-642-10)</p>	Fire extinguisher is inoperative.

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before	.1	Personnel Shelter	<p>1. Check exterior of container for damage. If damage is found, contact unit maintenance.</p> <p>2. Check personnel access door for proper operation. If door does not operate properly, contact unit maintenance.</p> <p>3. Check personnel escape scuttle seals and latches for damage. If scuttle seals or latches are damaged, contact unit maintenance.</p> <p>4. Inspect portable fire extinguisher for discharge nozzle obstruction, proper mounting, tag signed within the last month and that all seals and pins are in place. If discharge nozzle obstruction or improper mounting is found or seals or pins are missing, contact unit maintenance.</p> <p>5. Check shelter lighting for operation and burned out bulbs. If lighting does not operate or bulbs are burned out, contact unit maintenance.</p> <p>6. Check heating and air conditioning system for proper operation. (WP 0031 00) If heating and air conditioning system does not operate, contact unit maintenance.</p> <p>7. Check incinerator toilet for proper operation. (TM 55-1925-257-14&P) If incinerator toilet does not operate, contact unit maintenance.</p> <p>8. Functionally test battle lantern for proper operation. If battle lantern does not operate, contact unit maintenance</p>	Fire extinguisher is inoperative.

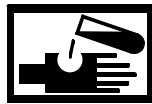
Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before	.1	Personnel Shelter (Cont'd)	<p>9. Check for damaged or missing handheld transceiver batteries. If damage is found or batteries are missing, contact unit maintenance.</p> <p>10. Check for missing or damaged handheld transceiver knobs. If damage is found or knobs are missing, contact unit maintenance</p> <p>11. Check for handheld transceiver damage that would prevent operation. If damage is found, contact unit maintenance</p> <p>12. Functionally check handheld transceivers and chargers for proper operation. (WP 0033 00) If handheld transceivers do not operate, contact unit maintenance.</p>	

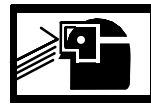
Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Before	.1	EASY	1. Check exterior of container for damage. If container is damaged, contact unit maintenance. 2. Check for damage to anchor system components. If anchor system components are damaged, contact unit maintenance.	

WARNING

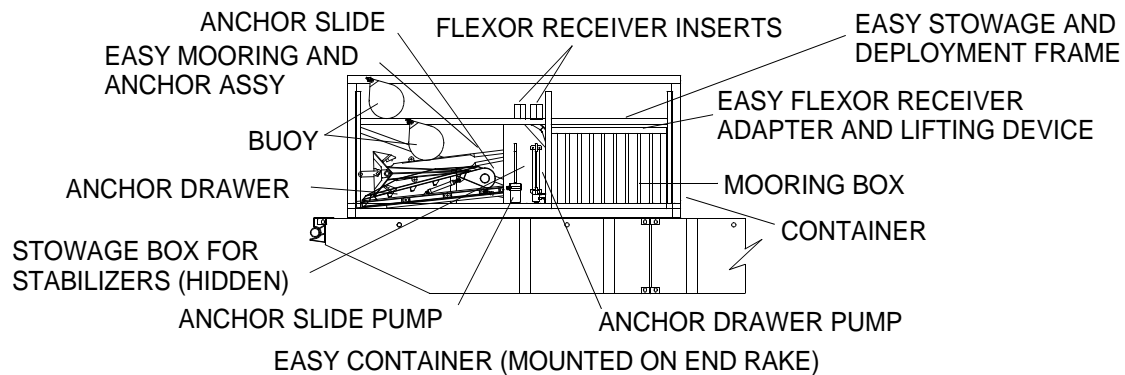


CHEMICAL



EYE PROTECTION

				3. Check anchor drawer and anchor slide hand pumps, cylinders and lines for hydraulic fluid leakage. If fluid leakage is found, contact unit maintenance.	Any Class III fluid leakage is found.
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6	Before	.05	Mooring Bitts	Check for cracked, loose or damaged mooring bitts. If mooring bitts are cracked, loose or damaged, contact unit maintenance.	
7	Before	.05	Towing Bridle	Check for damage. If towing bridle is damaged, contact unit maintenance.	

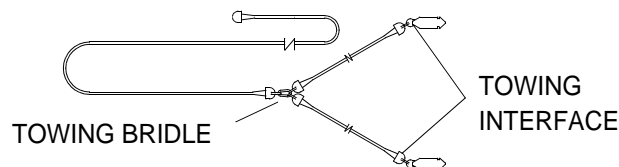
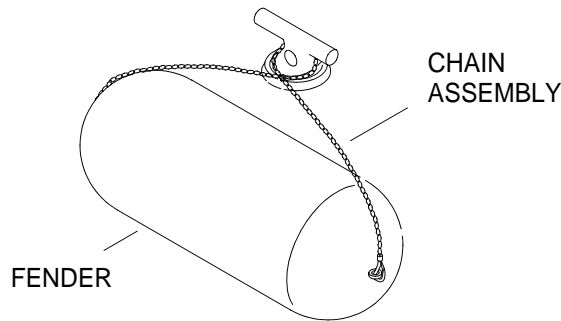
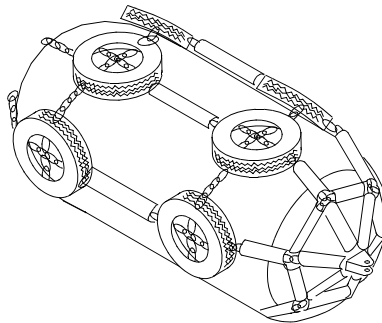


Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before	.05	Towing Interface	Check for damage. If towing interface is damaged, contact unit maintenance.	
9	Before	.05	Towing Lights	Check for damage and operation. If towing lights are damaged or do not operate, contact unit maintenance.	
10	Before	.05	Dunnage Mats	Check dunnage mats for tears or missing pieces. If dunnage mats are damaged, contact unit maintenance.	
11	Before	.3	Fenders	1. Inspect 3 ft X 5 ft, 4 ft X 12 ft and 5 ft X 10 ft fender, shackles and chains for damage or wear. If damage is found, contact unit maintenance.	



2. Inspect 6 ft X 12 ft fenders for damage to tire mounting chains, deep gouges in fenders and missing tires. If tire mounting chains or fender damage is found or tires are missing, contact unit maintenance.



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Table 1. Preventive Maintenance Checks and Services. (Continued)





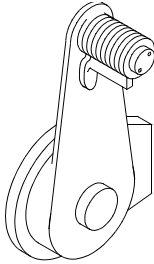



ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> <div style="text-align: center;">  FIRE </div> <div style="text-align: center;">  SLICK FLOOR </div> </div> <p>Use approved procedures when cleaning up fuel spills. Take proper precautions when removing or installing any fuel system component. Failure to comply may result in serious injury to death to personnel.</p>					
12	Before	.3	Rigid Hull Inflatable Boat	<ol style="list-style-type: none"> 1. Check fuel tank, fuel lines and motor for evidence of fuel leaks. If fuel leaks are found, contact unit maintenance. 2. Check oil tank and oil lines for evidence of oil leaks. If oil leaks are found, contact unit maintenance. 3. Check shifting/speed control handle for binding and freedom of movement. If binding is found, contact unit maintenance. 	<p>Any Class I fuel leakage is found.</p> <p>Any Class III oil leakage is found.</p>
					
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> <div style="text-align: center;">  EXPLOSION </div> </div> <p>Do not reverse battery polarity. Failure to comply could result in injury or death.</p>					
				<ol style="list-style-type: none"> 4. Inspect battery system for damage. 	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Before	.3	Rigid Hull Inflatable Boat (Cont'd)	<p>a. Check battery electrolyte level. Fill with distilled water to 3/16 inch above cell plates.</p> <p>b. Ensure all battery cable clamps and hold downs are tight. Make sure all are secure and free of corrosion. Tighten and clean if necessary. If battery clamps or hold downs are loose or corroded, contact unit maintenance.</p> <p>5. Check steering hydraulic lines for leakage. If oil leaks are found, contact unit maintenance.</p> <p>6. Check propeller for damage. If propeller damage is found, contact unit maintenance</p> <p>7. Turn key to ON position for powered checks.</p> <p>a. Check gage indication. All gauge warning lights should illuminate and warning horn should sound. If gage warning lights do not illuminate or warning horn does not sound, contact unit maintenance</p>	<p>Battery is inoperative.</p> <p>Battery is inoperative.</p> <p>Class III oil leakage is found.</p>

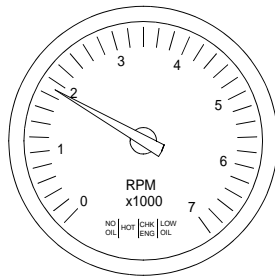


Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Before	.3	Rigid Hull Inflatable Boat (Cont'd)	<p>b. Operate trim/tilt switch on shifting/speed control handle for proper operation. If control handle does not operate properly, contact unit maintenance</p>	
				<p>c. Operate trailering tilt switch. If trailering tilt switch does not operate, contact unit maintenance.</p>	
				<p>d. Operate navigation lights. If navigation lights do not operate, contact unit maintenance.</p> <p>e. Check tilt support lever for proper operation. If tilt support lever does not operate, contact unit maintenance</p>	

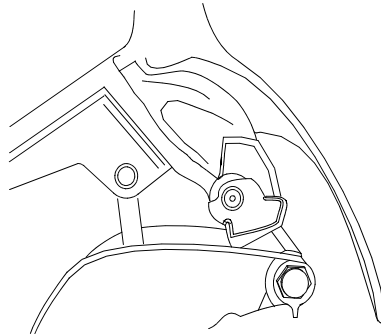
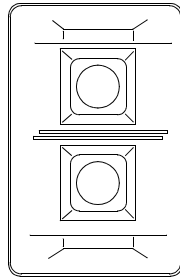


Table 1. Preventive Maintenance Checks and Services. (Continued)

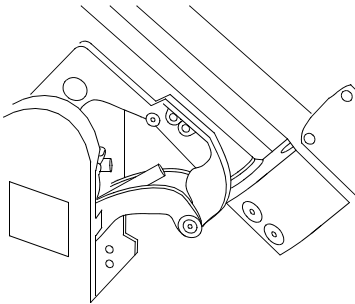
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Before	.3	Rigid Hull Inflatable Boat (Cont'd)	f. Check trailering bracket for proper operation. If trailering bracket does not operate, contact unit maintenance.	
				<p>8. Check hull for damage. If hull is damaged, contact unit maintenance.</p> <p>9. Check pontoons for proper air pressure. Use pressure gage to ensure air pressure is a minimum of 2.0 PSI. If pressure is below 2.0 PSI, inflate pontoons. (WP 0024 00)</p> <p>10. Inspect portable fire extinguisher for broken seal, damage to nozzle or RED zone indication on gage. If seal is broken, nozzle is damaged or a RED zone indication is found on gage, contact unit maintenance.</p>	<p>Fire extinguisher is inoperative.</p>

Table 1. Preventive Maintenance Checks and Services. (Continued)

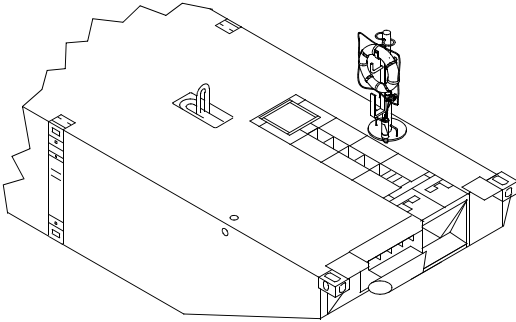
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
13	Before	.2	Stanchions and Life Rings	<p>1. Check life rings for damage. If damage is found that would prevent proper operation of life rings, contact unit maintenance.</p> <p>2. Check life ring strobes for proper operation. If strobes do not operate, contact unit maintenance.</p> <p>3. Inspect life ring stanchions for broken welds, missing or broken bolts and broken connectors. If broken welds or broken connectors are found or bolts are broken or missing, contact unit maintenance.</p>	
					
14	Before	.1	Deck Fittings	Inspect deck fittings for corrosion, breakage or missing parts. If corrosion or breakage is found or parts are missing, contact unit maintenance.	Any damage to deck fittings is found that would affect operation.

Table 1. Preventive Maintenance Checks and Services. (Continued)

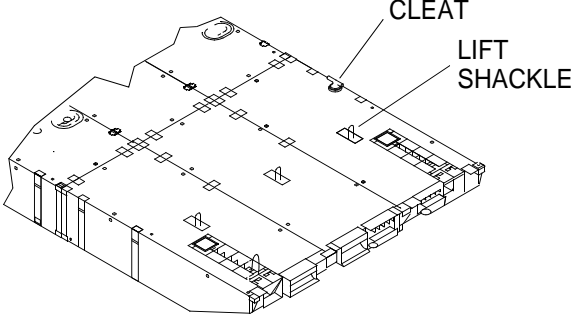
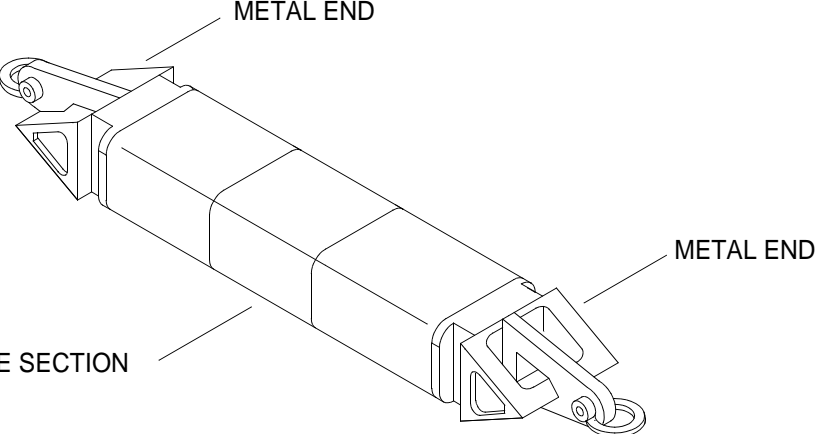



ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
15	Before	.05	Lift Shackles	Remove water from lift shackles.	
					
16	Before	0.5	Flexors	<p>1. Inspect uninstalled flexors for separation of the polyurethane material in the center. If separation of the polyurethane material in the center of the flexor is found, contact unit maintenance.</p> <p>2. Inspect uninstalled flexors for cracks in the external weldments on the ends. If cracks in the external weldments on the ends of the flexor are found, contact unit maintenance.</p>	<p>Separation of the polyurethane material in the center of the flexor is found.</p> <p>Cracks are discovered in the external weldments on the ends of the flexor.</p>
					
17	Before	1.0	Non-powered Modules	Inspect modules for broken welds, cracks, punctures and corrosion. If found, contact unit maintenance.	Broken welds, cracks or punctures are present.
1	During	.05	Light Tower	Check tower lights for operation. If lights do not operate, contact unit maintenance.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<div style="border: 1px solid black; padding: 5px; margin: 0 auto; width: 80%;"> <p style="text-align: center; margin: 0;">WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div> <div style="text-align: center;">  <p>FIRE</p> </div> </div> </div>					
2	During	.05	Light Tower Engine	<p>1. Check fuel level. If necessary, service with Diesel, Fuel W-F-800 Grade DF-2.</p> <p>2. Check for proper gage indications on control panel. (WP 0007 00) If gages do not have proper indication, contact unit maintenance.</p>	
3	During	.05	Generator Container	<p>1. Check fire suppression system for proper operation. AC power LED should be illuminated on control panel when generator is operating. (WP 0030 00) If AC power light is not illuminated, contact unit maintenance.</p>	<p>Fire suppression system is inoperative. Any yellow or red LED is illuminated.</p>

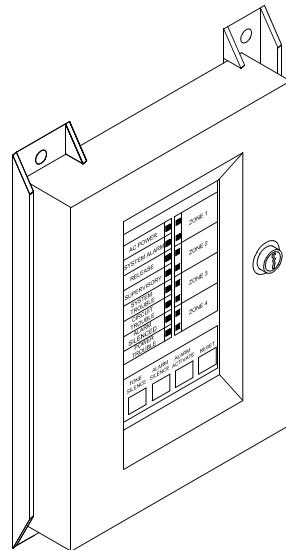


Table 1. Preventive Maintenance Checks and Services. (Continued)




ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> <div style="text-align: center;">  FIRE </div> </div>					
3	During	.05	Generator Container (Cont'd)	2. Check fuel level in fuel tank. If necessary service with Diesel, Fuel W-F-800 Grade DF-2.	
4	During	.05	Personnel Shelter	<p>1. Check incinerator toilet for proper operation. (WP 0032 00) If incinerator toilet does not operate properly, contact unit maintenance.</p> <p>2. Inspect fire extinguisher for broken seal, damage to nozzle or RED zone indication on gage. If seal is broken, nozzle is damaged or RED zone indication is on gage, contact unit maintenance.</p> <p>3. Check for red light while radios are placed in chargers. (WP 0033 00) If red light is not on, contact unit maintenance.</p>	Fire extinguisher is inoperative.
5	During	.05	EASY Anchor System	Check anchor hand pumps for operation. If anchor pumps are inoperative, contact unit maintenance.	
6	During	.05	Mooring Bitts	Check for cracked, loose or bent mooring bitts. If mooring bitts are cracked, loose or bent, contact unit maintenance.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
11	During	.3	Fenders	<p>1. Inspect 3 ft X 5 ft, 4 ft X 12 ft and 5 ft X 10 ft fender, shackles and chains for damage or wear. If damage is found, contact unit maintenance.</p> <p>2. Inspect 6 ft X 12 ft fenders for damage to tire mounting chains, deep gouges in fenders and missing tires. If tire mounting chains or fender damage is found or tires are missing, contact unit maintenance.</p>	
12	During	.05	Rigid Hull Inflatable Boat	<p>1. Check for motor warning lights. (WP 0007 00) If warning lights illuminate, contact unit maintenance.</p>	
				<div> </div> <p>2. Check for water coming out of the water pump indicator. If water is not coming out of water pump indicator, stop down engine immediately and contact unit maintenance.</p> <p>3. Check for oil consumption from oil tank. If oil is not being consumed from oil tank, contact unit maintenance.</p> <p>4. Check for cracks in the hull and leaks air/or water. If air or water leaks are found, contact unit maintenance.</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)

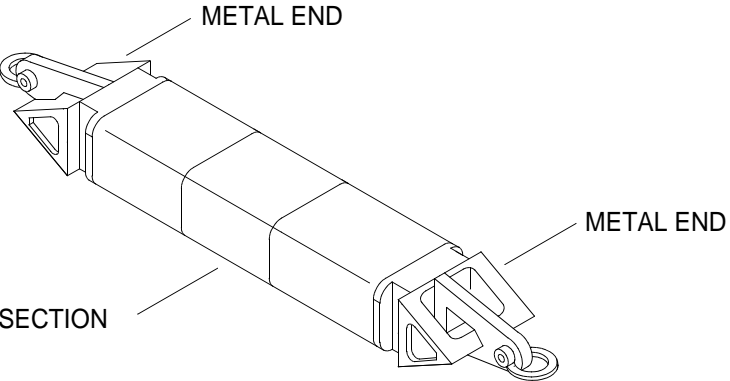
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
16	During	.5	Flexors	1. Inspect visible portions of installed flexors for separation of the polyurethane material in the center. If found, the flexor must be replaced after the exercise or operation is completed. 2. Inspect visible portions of installed flexors for cracks in the external weldments on the ends. If found, the flexor must be replaced immediately.	Separation of the polyurethane material in the center of the flexor is found. Cracks are discovered in the external weldments on the ends of the flexor.
 <p>The diagram shows a perspective view of a flexor component. It consists of a central rectangular section labeled 'POLYURETHANE SECTION' and two metal end fittings labeled 'METAL END'. The metal ends are complex, with various mounting points and a hook-like structure at the bottom.</p>					
1	After	1.0	Light Tower	1. Wash the exterior of the light tower with water and a mild soap. 2. Prior to cleaning the engine and generator, cover the air cleaner intake, generator air intake, exhaust opening, the rear of the control panel box, the generator output electrical connection box and the battery charging alternator with plastic and seal with tape.	

Table 1. Preventive Maintenance Checks and Services. (Continued)






ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EAR PROTECTION</p> </div> <div style="text-align: center;">  <p>FIRE</p> </div> <div style="text-align: center;">  <p>SLICK FLOOR</p> </div> </div> <p>Do not use petroleum products (solvents, fuel oils or gasoline) under high pressure as this can penetrate the skin and result in serious illness.</p> <p>CAUTION</p> <p>Do not use high pressure water, steam or solvent on the exterior finish of the unit housing. This could result in damage to equipment.</p>					
1	After	1.0	Light Tower (Cont'd)	<p>3. Wash the exterior of the engine and generator with cleaner.</p> <p>4. Rinse the engine and generator with water at a moderate pressure.</p>	
<p>WARNING</p> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div>					
				<p>5. Dry engine and generator with compressed air.</p> <p>6. Remove all plastic and tape installed to seal out water and cleaner.</p> <p>7. Start engine and run until normal operating temperature is reached.</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)








ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> <div style="text-align: center;">  FIRE </div> <div style="text-align: center;">  SLICK FLOOR </div> </div> <p>Use approved procedures when cleaning up fuel spills. Take proper precautions when removing or installing any fuel system component. Failure to comply may result in serious injury to death to personnel.</p>					
2	After	.2	Light Tower Engine	<p>1. Check for leaks around fuel tank and fuel lines. If any leaks are found, contact unit maintenance.</p> <p style="padding-left: 20px;">a. Examine fuel lines and flexible hoses for leaks. Check that fittings, clamps and ties are secure. If lines or hoses are leaking or fittings, clamps or ties are not secure, contact unit maintenance.</p>	<p>Any Class I fuel leakage is found.</p> <p>Any Class I fuel leakage is found.</p>
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> <div style="text-align: center;">  FIRE </div> </div>					
				<p>b. Verify fuel tank is full by checking indicator gauge or using a fuel stick. If necessary, add fuel. DO NOT OVER FILL. Service with Diesel, Fuel W-F-800 Grade DF-2 from -25°F to +150°F. Tank capacity is 30 gallons (114 liters). Fill to 95%.</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)


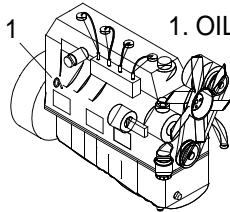
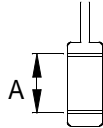
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p>  <p>EYE PROTECTION</p>					
2	After	.2	Light Tower Engine (Cont'd)	<p>2. Check for oil leaks. If oil leaks are found, contact unit maintenance.</p> <p>a. Verify that it registers FULL on the dipstick. Engine must be cool when reading level. If hot, allow to cool for 20 minutes. If necessary, add Lubricating Oil, Internal Combustion Engine, Grade 15W40 to achieve desired level. DO NOT OVERFILL.</p>	Class III oil leakage is found.
<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div>  <p>1. OIL LEVEL GAUGE</p> </div> <div>  <p>A: ENGINE OIL LEVEL WITHIN THIS RANGE IS PROPER</p> </div> </div>					
3	After	.4	Generator Container	<p>b. Make a visual inspection for oil leaks around the filters and the external oil lines. If found contact unit maintenance.</p> <p>3. Check for damage that may have occurred during operation. If damage is found, contact unit maintenance.</p> <p>1. Check exterior of container for damage. If damage is found, contact unit maintenance.</p>	Class III oil leakage is found.

Table 1. Preventive Maintenance Checks and Services. (Continued)








ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div> <div style="text-align: center;">  <p>FIRE</p> </div> <div style="text-align: center;">  <p>SLICK FLOOR</p> </div> </div> <p>Use approved procedures when cleaning up fuel spills. Take proper precautions when removing or installing any fuel system component. Failure to comply may result in serious injury to death to personnel.</p>					
3	After	.4	Generator Container (Cont'd)	<p>2. Check 1,000 gallon fuel tank and fuel pumps for evidence of fuel leakage. If fuel leakage is found, contact unit maintenance.</p> <p style="padding-left: 20px;">a. Check for leaks around fuel tank and fuel lines. If fuel leakage is found, contact unit maintenance.</p> <p style="padding-left: 20px;">b. Examine fuel lines and flexible hoses for leaks. Check that fittings, clamps and ties are secure. If fuel leakage is found or loose fittings, clamps or ties are found, contact unit maintenance.</p>	<p>Class I fuel leakage is found.</p> <p>Class I fuel leakage is found.</p> <p>Class I fuel leakage is found.</p>
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  <p>FIRE</p> </div> </div>					
				<p>c. Verify fuel tank is full by checking capacity lamps or using a fuel stick. If necessary, add fuel. DO NOT OVER FILL. Service with Diesel, Fuel W-F-800 Grade DF-2 from -25°F to +150°F. Tank capacity is 1000 gallons. Fill to 95%.</p> <p>3. Perform PMCS on generator. (TM 9-6115-642-10)</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	After	.4	Generator Container (Cont'd)	<p>4. Clean generator container.</p> <p>a. Clean the exterior of the shelter with clean water.</p> <p>b. Clean the interior floor with a mop and clean water.</p> <p>c. Clean the fire suppression system components with a clean dry wiping rag.</p>	
4	After	.1	Personnel Shelter	<p>1. Check exterior of container for damage. If damage is found, contact unit maintenance.</p> <p>2. Inspect portable fire extinguishers for broken seal, damage to nozzle or RED zone indication on gage. If broken seal, damaged nozzle or RED zone indication on gage is found, contact unit maintenance.</p> <p>3. Clean the personnel shelter.</p> <p>a. Clean the VHF/FM transceivers with a soft bristled brush to remove all dirt</p> <p>b. Clean surface of heating and air conditioning unit with a wiping rag.</p> <p>c. Clean benches and table with clean water.</p>	Fire extinguisher is inoperative.
5	After	2.0	EASY	<p>1. Check exterior of container for damage. If damage is found, contact unit maintenance.</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)









ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	After	2.0	EASY (Cont'd)	<p>2. Clean EASY components.</p> <p style="text-align: center;">————— WARNING —————</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> </div> <p>a. Using wiping rags soaked with Type II cleaner, remove debris from all components.</p> <p style="text-align: center;">————— WARNING —————</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> </div> <p>b. Using clean water, remove cleaner residue from all components.</p> <p>c. Air dry all components.</p> <p style="text-align: center;">————— WARNING —————</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> </div> <p>d. Clean all wire ropes using a wire brush and Type II cleaner.</p> <p style="text-align: center;">————— WARNING —————</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> </div> <p>e. Dispose of contaminated rags in accordance with local procedures.</p>	

Table 1. Preventive Maintenance Checks and Services. (Continued)












ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<hr/> WARNING <hr/>					
					
			CHEMICAL	EYE PROTECTION	
5	After	2.0	EASY (Cont'd)	3. Check anchor hand pump for hydraulic fluid leakage. If found, contact unit maintenance.	Class III oil leak is found.
<hr/> WARNING <hr/>					
					
			CHEMICAL	EYE PROTECTION	VAPOR
				4. Preserve wire ropes by coating with Corrosion Preventive Compound, Grade I.	
<hr/> WARNING <hr/>					
					
			CHEMICAL	EYE PROTECTION	VAPOR
				5. Coat wire rope unplated ferrous fittings with Corrosion Preventive Compound, Grade II.	
				6. Preserve shackles and associated hardware.	
<hr/> WARNING <hr/>					
					
			CHEMICAL	EYE PROTECTION	VAPOR
				a. Coat all unplated threads and exposed fittings with Corrosion Preventive Compound, Grade II.	

Table 1. Preventive Maintenance Checks and Services. (Continued)







ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<hr/> WARNING <hr/>					
			 CHEMICAL	 EYE PROTECTION	
5	After	2.0	EASY (Cont'd)	b. Coat all internal bearing surfaces with Antiseize Compound.	
<hr/> WARNING <hr/>					
			 CHEMICAL	 EYE PROTECTION	
				7. Preserve lever ratchet hoists by pouring 80W 90 Grade Lubricating Oil into lever ratchet hoist openings. Allow excess oil to drain. 8. Preserve anchors.	
<hr/> WARNING <hr/>					
			 CHEMICAL	 EYE PROTECTION	
				a. Coat and preserve all shackle bolts and stabilizer arm bolts with Antiseize Compound.	

Table 1. Preventive Maintenance Checks and Services. (Continued)



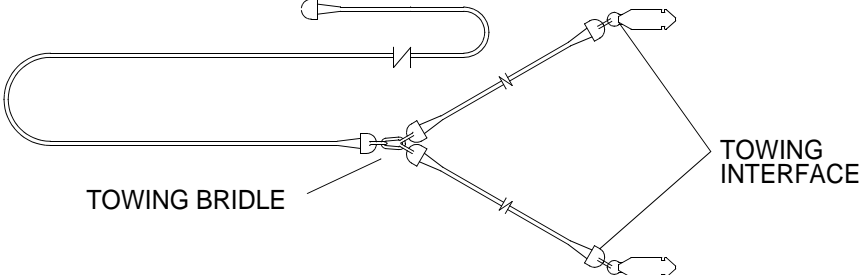
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
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5	After	2.0	EASY (Cont'd)	b. Coat the opening in the anchor shank and the trunnion bearing surface with Antiseize Compound.	
6	After	.05	Mooring Bitts	Check for cracked, loose or bent mooring bitts. If cracked, loose or bent mooring bitts are found, contact unit maintenance.	
7	After	.05	Towing Bridle	Check for damage. If damage is found, contact unit maintenance.	
					
8	After	.05	Towing Interface	Check for damage. If damaged towing interface is found, contact unit maintenance.	
9	After	.05	Towing Lights	Check for damage. If damaged towing lights are found, contact unit maintenance.	
10	After	.05	Dunnage Mats	Check dunnage mats for tears or missing pieces. If damaged dunnage mats are found, contact unit maintenance.	
11	After	.3	Fenders	1. Inspect 3 ft X 5 ft, 4 ft X 12 ft and 5 ft X 10 ft fender, shackles and chains for damage or wear. If damage is found, contact unit maintenance.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

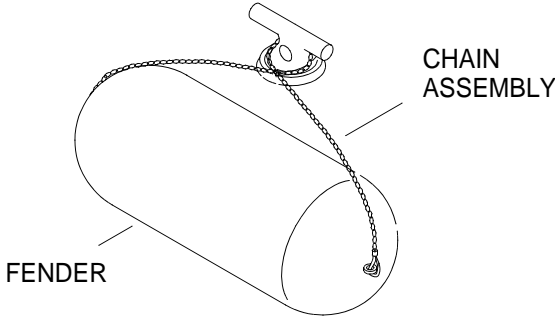
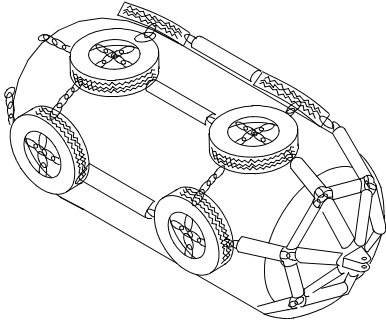
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
11	After	.3	 <p>FENDERS (Cont'd)</p>	<p>2. Inspect 6 ft X 12 ft fenders for damage to tire mounting chains, deep gouges in fenders and missing tires. If tire mounting chains or fender damage is found or tires are missing, contact unit maintenance.</p>	
12	After	.1	 <p>Rigid Hull Inflatable Boat</p>	<ol style="list-style-type: none"> 1. Check propeller for damage. If propeller damage is found, contact unit maintenance. 2. Check hull for damage. If hull is damaged, contact unit maintenance. 3. Check pontoons for proper air pressure. Use pressure gage to ensure air pressure is a minimum of 2.0 PSI. If pressure is below 2.0 PSI, inflate pontoons. (WP 0024 00) 	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	After	.1	Rigid Hull Inflatable Boat (Cont'd)	<p>4. Inspect portable fire extinguisher for broken seal, damage to nozzle or RED zone indication on gage. If seal is broken, nozzle is damaged, or a RED zone indication is found on gage, contact unit maintenance.</p> <p>5. Wash hull and engine with clean water. Remove dirt and residue with a soft bristle brush. Check for cracks. If cracks are found, contact unit maintenance.</p>	Fire extinguisher is inoperative.
13	After	.2	Stanchions and Life Rings	<p>1. Check life rings for damage. If damage is found that would prevent proper operation of life rings, contact unit maintenance.</p> <p>2. Check life ring strobes for proper operation. If strobes do not operate, contact unit maintenance.</p> <p>3. Inspect life ring stanchions for broken welds, missing or broken bolts and broken connectors. If broken welds or broken connectors are found or bolts are broken or missing, contact unit maintenance.</p> <p>3. Fresh water rinse stanchions, life rings and strobes to remove salt water.</p>	

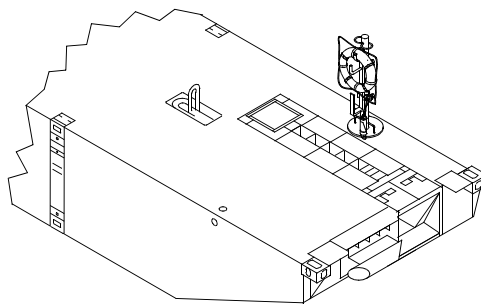


Table 1. Preventive Maintenance Checks and Services. (Continued)

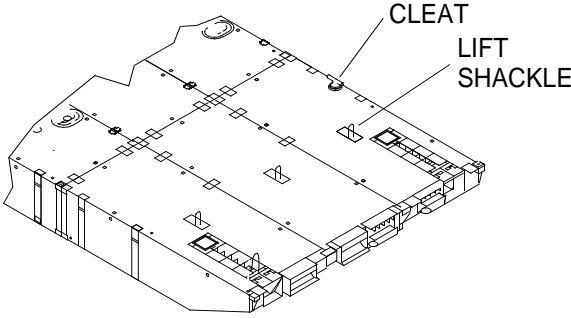
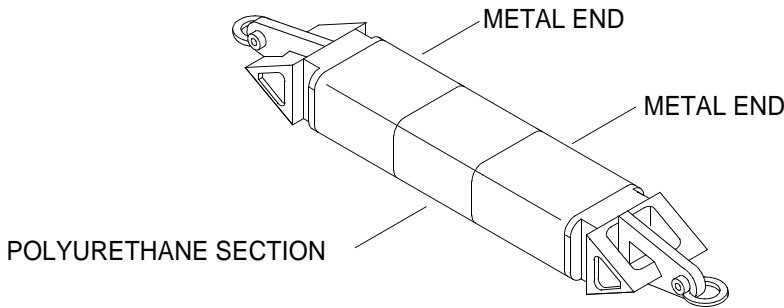
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
15	After	.1	Lift Shackles	Remove water from lift shackles. Lubricate lift shackles using general purpose grease and a hand lubricating gun.	
					
16	After	1.0	Flexors	<p>1. Inspect uninstalled flexors for separation of the polyurethane material in the center. If found, the flexor must be replaced.</p> <p>2. Inspect uninstalled flexors for cracks in the external weldments on the ends. If found, the flexor must be replaced.</p>	<p>Separation of the polyurethane material in the center of the flexor is found.</p> <p>Cracks are discovered in the external weldments on the ends of the flexor.</p>
					
17	After	.4	Non-Powered Modules	Inspect modules for broken welds, cracks, punctures and corrosion. If found, contact unit maintenance. Inspect all non-powered modules for major deformation. If major deformation or leaks are found, contact unit maintenance.	Broken welds, cracks or punctures are present. Major deformation is found.

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
18	After	0.2	Lifting Slings	Check lifting slings for cuts, loose stitching and fraying. If slings are cut, frayed or have loose stitching, contact unit maintenance.	Slings are cut, have loose stitching or frayed.
2	Weekly During Operational Periods	.5	Light Tower Engine	Start engine. If light tower engine cannot be started, contact unit maintenance.	Engine will not start.
4	Weekly During Operational Periods	.1	Personnel Shelter	1. Empty the incinerator toilet ashpan. (TM 55-1925-257-14&P) 2. Clean outer stainless steel surfaces.	
3	Monthly	.5	Generator Container	1. Test the fire suppression control panel LED indicators and sounder. (WP 0030 00) If LED or sounders is inoperative, contact unit maintenance. 2. Remove fire extinguisher and agitate the dry chemical by turning the extinguisher upside down and shaking. Sign and date the fire extinguisher inspection tag	Fire suppression system is inoperative. Any yellow or red LED is illuminated. Fire extinguisher is inoperative.
4	Monthly	.5	Personnel Shelter	Remove fire extinguisher and agitate the dry chemical by turning the extinguisher upside down and shaking. Sign and date the fire extinguisher inspection tag	Fire extinguisher is inoperative.

Table 1. Preventive Maintenance Checks and Services. (Continued)



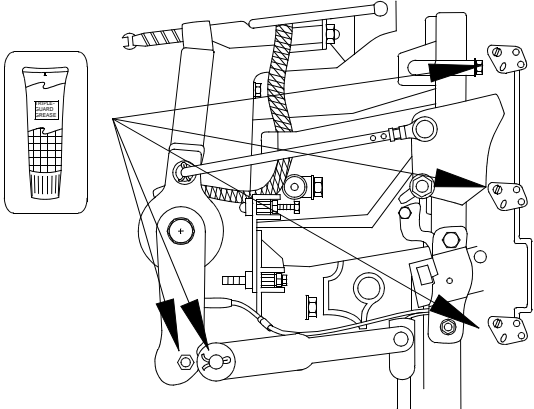
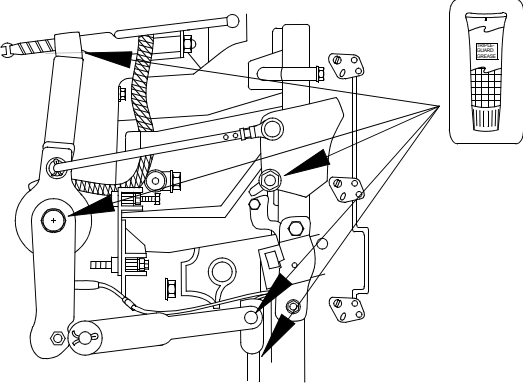


ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div> </div>					
12	Monthly	.3	Rigid Hull Inflatable Boat	1. Grease the shift and throttle linkage and carburetor linkage.	
 					
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div> </div>					
				2. Grease the starter drive.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

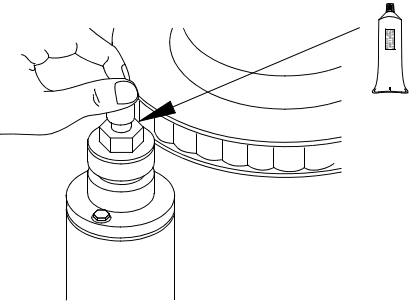


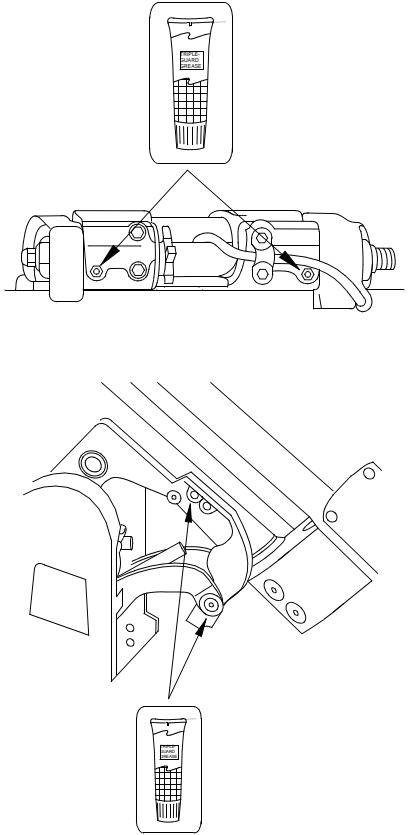
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
				<p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  CHEMICAL </div> <div style="text-align: center;">  EYE PROTECTION </div> </div>	
12	Monthly	.3	Rigid Hull Inflatable Boat (Cont'd)	<p>3. Grease the tilt support swivel bracket.</p> 	

Table 1. Preventive Maintenance Checks and Services. (Continued)



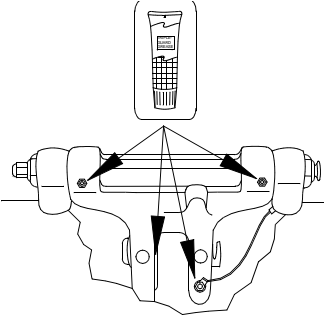


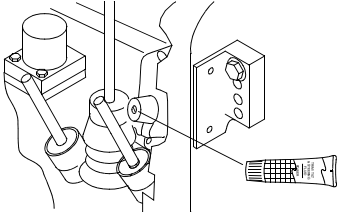
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around;"> <p>CHEMICAL</p> <p>EYE PROTECTION</p> </div>					
12	Monthly	.3	Rigid Hull Inflatable Boat (Cont'd)	4. Grease the upper tilt cylinder pivot.	
					
<p>WARNING</p> <div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around;"> <p>CHEMICAL</p> <p>EYE PROTECTION</p> </div>					
				5. Check the oil level in the power trim and tilt reservoir. If oil level is low, add oil. (WP 0024 00)	
					

Table 1. Preventive Maintenance Checks and Services. (Continued)



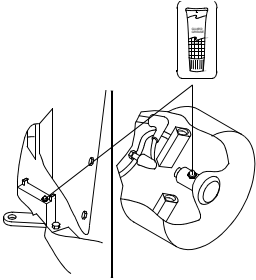


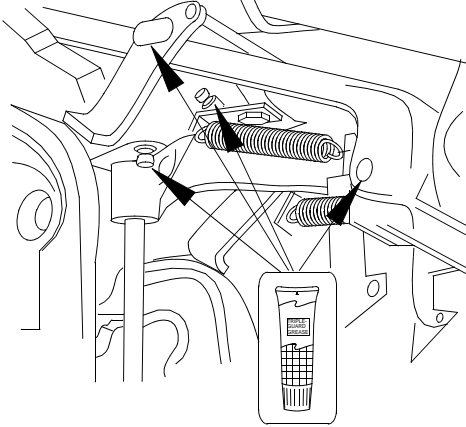
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div> </div>					
12	Monthly	.3	Rigid Hull Inflatable Boat (Cont'd)	6. Lubricate motor cover latches.	
					
<p>WARNING</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div> </div>					
				7. Lubricate swivel bracket, tilt/run lever and shaft/reverse lock.	
					

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Monthly	.3	Rigid Hull Inflatable Boat (Cont'd)	8. Inspect portable fire extinguisher for broken seal, damage to nozzle or RED zone indication on gage. If seal is broken, nozzle is damaged or a RED zone indication is found on gage, contact unit maintenance.	Fire extinguisher is inoperative.
16	Monthly	1.0	Flexors	<p>1. Inspect uninstalled flexors for separation of the polyurethane material in the center. If found, contact unit maintenance.</p> <p>2. Inspect uninstalled flexors for cracks in the external welds on the ends. If found, contact unit maintenance.</p>	<p>Separation of the polyurethane material in the center of the flexor is found.</p> <p>Cracks are discovered in the external weldments on the ends of the flexor.</p>
<p>The diagram shows a perspective view of a lifting sling. It consists of a central section of polyurethane material, which is wider and has a textured surface. This section is attached to two metal end fittings. Each metal end fitting is a complex, hook-like structure with a loop at the top and a hook at the bottom. Labels with leader lines point to the top metal fitting (METAL END), the central polyurethane section (POLYURETHANE SECTION), and the bottom metal fitting (METAL END).</p>					
18	Monthly	.5	Lifting Slings	Check lifting slings for cuts, loose stitching and fraying. If cuts, fraying or loose stitching is found, contact unit maintenance.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
21	Monthly	5.0	Module Interlock Connector (Male Locking Pin)	<p>1. Check male connector pin for deformation, twisting, bending and flatness. If any deformation of the pin is present, remove pin from service. Contact unit maintenance.</p> <p>2. Check contact area where the pins seat against the guillotine bars for wear. If excessive wear is present, remove pin from service. Contact unit maintenance.</p> <p>3. Check the pin to ensure stop bar is attached. If stop bar is removed, remove pin from service and replace stop bar. Contact unit maintenance.</p> <p>4. Check the connector pin for cracks and/or unusual damage (missing material, notches, etc.) If any cracks and/or unusual damage is present, remove pin from service. Contact unit maintenance.</p>	<p>Any deformation of the pin is present.</p> <p>Excessive wear is present.</p> <p>If stop bar is removed.</p> <p>If any cracks and/or unusual damage is present.</p>

 WARNING



CHEMICAL



EYE PROTECTION

3	Quarterly	1.0	Generator Container	Lubricate generator container door hinges. Lubricate with grease, MIL-G-81322. Grease by hand.	
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 WARNING



CHEMICAL



EYE PROTECTION

4	Quarterly	.5	Personnel Shelter	1. Lubricate personnel shelter door hinges. Lubricate with grease, MIL-G-81322. Grease by hand.	
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Table 1. Preventive Maintenance Checks and Services. (Continued)



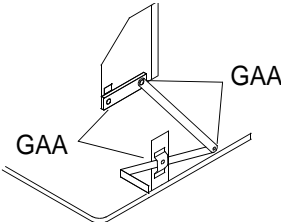


ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:	
4	Quarterly	.5	Personnel Shelter (Cont'd)	2. Clean incinerator toilet interior of dust and paper bits. (TM 55-1925-257-14&P)		
<hr/> WARNING <hr/>						
			 CHEMICAL	 EYE PROTECTION		
				3. Grease all moving parts of the incinerator toilet flushing assembly and foot pedal. (TM 55-1925-257-14&P)		
						
				4. Clean the blower assembly, blower housing and vent line elbow. (TM 55-1925-257-14&P)		
<hr/> WARNING <hr/>						
			 CHEMICAL	 EYE PROTECTION		
5	Quarterly	.5	EASY	Lubricate EASY door hinges. Lubricate with grease, MIL-G-81322. Grease by hand.		
3	Annually	2.5	Generator Container	Inspect fire suppression system in accordance with 46 CFR Parts 91.25-20 and 97.15-60. Contact Specialized repair Activity (SRA).	Fire suppression system is inoperative.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Annually	.2	Personnel Shelter	Inspect incinerator toilet catalyst level. (TM 55-1925-257-14&P).	

WARNING



CHEMICAL



EYE PROTECTION



FIRE



SLICK FLOOR

Use approved procedures when cleaning up fuel spills. Take proper precautions when removing or installing any fuel system component. Failure to comply may result in serious injury to death to personnel.

12	Annually	.1	Rigid Hull Inflatable Boat	Check oil and fuel lines for chafing and leaking. If leakage is found, contact unit maintenance.	Any Class I fuel leakage is found.
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WARNING



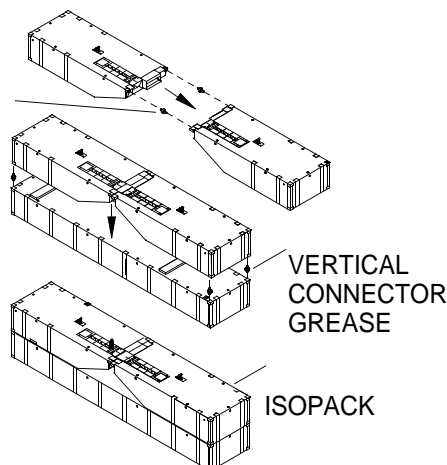
CHEMICAL



EYE PROTECTION

19	Annually	.1 each connector	Horizontal and Vertical Connectors	Lubricate annually and on condition (before and after operation). Service with Grease, General Purpose. Grease by hand.	
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HORIZONTAL CONNECTOR GREASE



VERTICAL CONNECTOR GREASE

ISOPACK

HORIZONTAL AND VERTICAL CONNECTORS - MODULES

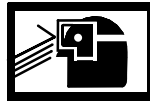
Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
20	Annually	2.0	Steel Weight Lifting Chains, Rings, Hooks, Shackles and Swivels	Anneal all steel weight lifting chains, rings, hooks, shackles and swivels per 29 CFR Parts 1919.16 and 1919.36. Contact Specialized repair Activity (SRA).	

WARNING



CHEMICAL



EYE PROTECTION

21	Annually	.3 each assembly	Module Interlock Connector and Spring	Lubricate annually and on condition (before and after operation). Service with Grease, General Purpose. Grease by hand.	
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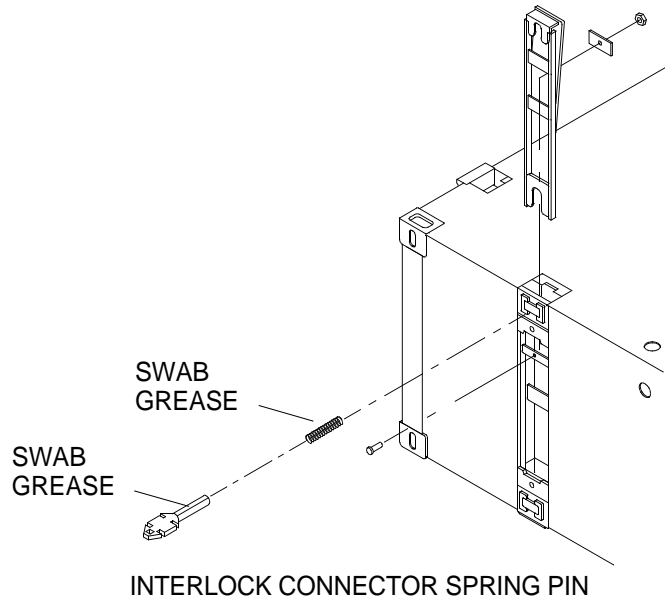


Table 1. Preventive Maintenance Checks and Services. (Continued)



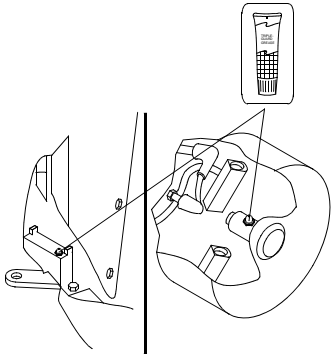


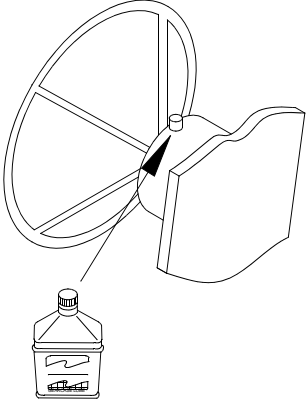
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around;"> <p>CHEMICAL</p> <p>EYE PROTECTION</p> </div>					
12	After First 20 Hours of Operation	1.0	Rigid Hull Inflatable Boat Motor	1. Lubricate motor cover.	
					
<p>WARNING</p> <div style="display: flex; justify-content: space-around;">   </div> <div style="display: flex; justify-content: space-around;"> <p>CHEMICAL</p> <p>EYE PROTECTION</p> </div>					
				2. Check power steering fluid level. If fluid level is low, add fluid. (WP 0024 00)	
					

Table 1. Preventive Maintenance Checks and Services. (Continued)



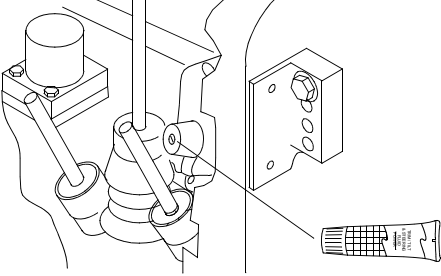


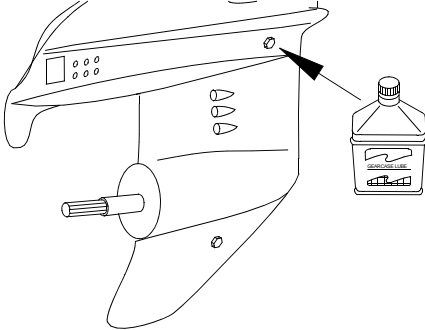


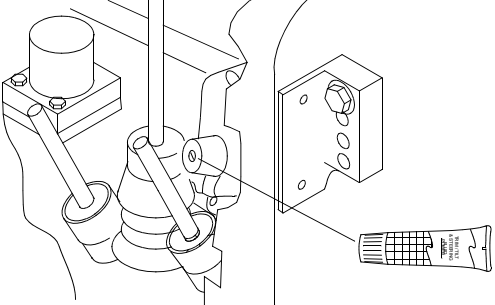
ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around;">   </div> <p style="display: flex; justify-content: space-around;">CHEMICAL EYE PROTECTION</p>					
12	After First 20 Hours of Operation	1.0	Rigid Hull Inflatable Boat Motor (Cont'd)	3. Check fluid level in power trim/tilt reservoir. If fluid level is low, add fluid. (WP 0024 00)	
					
				4. Check propeller and shaft for damage. If damage to propeller or shaft is found, contact unit maintenance.	
<p>WARNING</p> <div style="display: flex; justify-content: space-around;">   </div> <p style="display: flex; justify-content: space-around;">CHEMICAL EYE PROTECTION</p>					
				5. Check lubricant level in gearcase. If lubricant level is low, add lubricant. (WP 0024 00)	
					

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Every 100 Hours of Operation	.1	Light Tower	<p>1. Check all hinges, nuts, bolts clamps, rivets and latches for looseness. If loose hinges, nuts, bolts clamps, rivets or latches are found, contact unit maintenance.</p> <p>2. Check all enclosure panels for warping, bending and tearing and for positive sealing. If warping, bending, tearing or defective seals are found, contact unit maintenance.</p>	
2	Every 100 Hours of Operation	.1	Light Tower Engine	Check engine intake and exhaust systems for loose, damaged or deteriorated components. If loose, damaged or deteriorated components are found, contact unit maintenance.	
12	Every 100 Hours of Operation	2.0	Rigid Hull Inflatable Boat Motor	<p>1. Check battery connections for security. If battery connections are loose, contact unit maintenance.</p> <p>2. Check anti-corrosion anodes for remaining material. If anti-corrosion anodes are deteriorated, contact unit maintenance.</p> <p>3. Check ignition wires and electrical connections for damage. If ignition wires or electrical connections are damaged, contact unit maintenance.</p> <p>4. Wash and wax external surface of motor.</p> <p>5. Check screws, nuts and clamps on motor for looseness. If screws, nuts or clamps are loose, contact unit maintenance.</p> <p>6. Check mounting hardware, screws and clamps for looseness. If mounting hardware, screws or clamps are loose, contact unit maintenance.</p>	Battery is inoperative.

Table 1. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
<p>WARNING</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>CHEMICAL</p> </div> <div style="text-align: center;">  <p>EYE PROTECTION</p> </div> </div>					
12	Every 100 Hours of Operation	2.0	Rigid Hull Inflatable Boat Motor (Cont'd)	7. Check fluid level in power trim/tilt reservoir. If fluid level is low, add fluid. (WP 0024 00)	
					
2	Every 150 Hours of Operation	.2	Light Tower Engine	8. Check propeller and shaft for damage. If damage to propeller or shaft is found, contact unit maintenance. Check air intake hoses for damage. If hoses are damaged, contact unit maintenance.	
2	Every 250 Hours of Operation	.3	Light Tower Engine	Check radiator and oil cooler. Ensure unrestricted airflow is maintained through radiator and oil cooler. If airflow is restricted, clean radiator or oil cooler.	
3	6 Years	1.0	Generator Container	Hydrostatically test portable fire extinguisher and replace o-rings. Contact Specialized Repair Activity (SRA).	
4	6 Years	1.0	Personnel Shelter	Hydrostatically test portable fire extinguisher and replace o-rings. Contact Specialized Repair Activity (SRA).	

END OF WORK PACKAGE

CHAPTER 5

**OPERATOR SUPPORTING INFORMATION
FOR
MODULAR CAUSEWAY SYSTEM (MCS)
ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF)**

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
REFERENCES**

SCOPE

This work package lists all field manuals, forms, technical manuals and miscellaneous publications referenced in this manual.

ARMY REGULATIONS

AR 700-138 Army Logistics Readiness and Sustainability

CODE OF FEDERAL REGULATIONS

29 CFR Labor, Parts 1911 to 1925

46 CFR Shipping, Parts 90 to 139

DA PAMPHLETS

DA PAM 738-750 The Army Maintenance Management Systems (TAMMS)

FIELD MANUAL

FM 3-5 NBC, Decontamination

FM 55-502 Army Watercraft Safety

FORMS

DA Form 2028 Recommended Changes to Publications and Blank Forms

DA Form 2028-2 Recommended Changes to Equipment Technical Publications

DA Form 2404 Equipment Inspection and Maintenance Worksheet

SF 361 Transportation Discrepancy Report

SF 368 Product Quality Deficiency Report

MISCELLANEOUS

ASME Y14.38-1999 The American Society of Mechanical Engineers Abbreviations and Acronyms

CTA 8-100 Common Table of Allowances, Army Medical Department
Expendable/Durable Items

CTA 50-970 Common Table of Allowances, Expendable/Durable Items (Except
Medical, Class V Repair Parts, and Heraldic Items)

SUPPLY CATALOGS

SC 4910-95-A68 Shop Equipment, Automotive Equipment and Repair, Field Maintenance

SC 4910-95-A72 Shop Equipment, Automotive Equipment and Repair, Organizational Maintenance

SC 5180-90-N55 Sets, Kits and Outfits for Tool Kit, General Mechanics, Diesel Engine

TECHNICAL MANUALS

TM 5-2815-258-24 Unit, Direct Support and General Maintenance Manual for Detroit Diesel Engine Series 53

TM 9-6115-642-10 Generator Set (10KW), Skid Mounted, Tactical Quiet

TM 9-6115-643-10 Generator Set (15KW), Skid Mounted, Tactical Quiet

TM 9-6115-642-24 Unit, Direct Support and General Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet 10 KW

TM 9-6115-643-24 Unit, Direct Support and General Maintenance Manual for Generator Set, Skid Mounted, Tactical Quiet 15 KW

TM 11-5820-890-10-8 SINGARS Operators Manual

TM 11-5825-291-13 Operations and Maintenance Manual, Satellite Signals Navigations Sets

TM 55-1925-257-14&P Operator, Unit, Direct Support and General Support Maintenance Manual for Incinerator Toilet/Urinal, Galley Equipment and Electric Water Heater

TM 55-1945-205-24-2 Unit, Direct Support and General Maintenance, Roll-On/Roll-Off Discharge Facility

TM 55-1945-205-24P-2 Unit, Direct Support and General Maintenance, Repair Parts and Special Tools List, Roll-On/Roll-Off Discharge Facility

TM 750-244-6 Destruction of TACOM Equipment

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
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 sub-columns, C (operator/crew) and O (unit) maintenance.

Direct Support - includes an F sub-column.

General Support - includes an H sub-column.

Depot - includes a D sub-column.

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 gauging 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 man-hours 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
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MAINTENANCE ALLOCATION CHART**

MAINTENANCE ALLOCATION CHART

Table 1. MAC for Modular Causeway System. (MCS)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
0101	POWERED SECTION								
010101	POWERED MODULE								
01010101	DRIVE TRAIN								
0101010101	DIESEL ENGINE							A	
0101010102	MARINE GEAR							B	
0101010103	TRANSFER CASE							C	
0101010104	PUMP-JET	Inspect	0.5					E	
		Service		3.0			1	E	
		Repair				10.0		D	
		Replace				50.0		D	
010101010401	HYDRAULIC SYSTEM	Inspect	1.0					E	
		Service	1.0	3.0			1	E	
		Repair			3.0		2, 4, 7		
		Replace			6.0		2, 4, 7		
01010101040101	HYDRAULIC PUMP	Test	0.5					E	
		Inspect	1.0					E	
		Repair				4.0	2, 4, 7	E	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
01010101040101	HYDRAULIC PUMP (CONT'D)	Replace		6.0				1, 2, 4	
01010101040102	HYDRAULIC HAND PUMP	Inspect	1.0						E
		Repair					20.0		
		Replace		2.0				1, 2, 4	
01010101040103	HYDRAULIC WAY-VALVE	Repair				2.0		2, 4, 7	
		Replace		1.5				1, 2, 4	
010101010403	FEEDBACK UNIT	Inspect	1.0						E
		Repair				2.5		2, 4, 7	
		Replace			2.0			2, 4, 7	
0101010105	ALTERNATOR	Test			1.0			7, 14, 15	E
		Inspect	0.5						E
		Replace			2.0			7, 14, 15	
01010102	ENGINE EXHAUST SYSTEM	Clean		2.0				1, 3, 9	E
		Inspect		2.0				1, 3, 9	E
		Repair			6.0			3, 7, 9	
01010103	BILGE PUMP	Test		2.0				1	E
		Inspect	1.0						E
		Replace		8.0				1	F
01010104	FIRE SUPPRESSION SYSTEM	Test					3.0		E
		Inspect	2.0				3.0		E
		Repair					8.0		G
		Replace					24.0		G

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
01010105	FUEL SYSTEM	Test	1.0						E
		Inspect	1.0						E
		Repair			4.0			7	
		Replace			12.0			7	
0101010501	FUEL/WATER SEPARATOR	Clean	1.0						E
		Inspect	1.0						E
		Repair		2.0				1	
		Replace			4.0			7	
01010106	ELECTRICAL SYSTEM	Test			1.0			7, 14, 15	E
		Adjust			1.0			7, 14, 15	
		Repair			2.0			7, 14, 15	
		Replace			8.0			7, 14, 15	
01010107	EMERGENCY STEERING SYSTEM	Inspect	2.0						E
		Service	1.0						E
		Replace		4.0				1	
0101010701	STEERING UNIT	Inspect	0.5						E
		Replace		2.0				1, 2	
0101010702	STEERING ADAPTOR	Inspect	0.5						E
		Replace		1.5				1	
01010108	HULL								
0101010801	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
0101010801	EXTERIOR (CONT'D)	Repair		4.0				1, 16	
		Overhaul					24.0		
0101010802	INTERIOR	Clean					4.0		
		Inspect					2.0		
		Test		8.0			5.0	1, 25, 26	E
		Repair					6.0		
		Overhaul					50.0		
01010109	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
		Repair		3.0				1, 16	
		Replace		1.0				1	
01010110	HATCHES & HINGES	Clean	1.0					8, 9, 23, 24	E
		Inspect	0.5						E
		Service	0.5						E
		Repair		2.0				1, 16	
		Replace		2.0				1	
0101010111	FLEXORS	Inspect	0.5						E
		Replace	4.0						
010102	NON-POWERED MODULES								
01010201	HULL								
0101020101	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
0101020102	INTERIOR	Repair		4.0				1, 16	
		Overhaul					24.0		
		Clean					4.0		
		Inspect					2.0		
		Test					5.0	1, 25, 26	E
		Repair					6.0		
01010202	GUILLOTINE FITTINGS	Overhaul					50.0		
		Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
01010203	FLEXORS	Repair		3.0				1, 16	
		Replace		1.0				1	
		Inspect	0.5						E
01010301	MIDDLE CONTROL PANEL	Replace	4.0						
		010103	OPERATORS CAB						
01010302	LOWER CONTROL PANEL	Test			2.0			7, 14, 15	E
		Inspect			2.0			7, 14, 15	E
		Repair			3.0			7, 14, 15	
		Replace			16.0			7, 14, 15	
01010302	LOWER CONTROL PANEL	Test			2.0			7, 14, 15	E
		Inspect			2.0			7, 14, 15	E
		Repair			3.0			7, 14, 15	
		Replace			16.0			7, 14, 15	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
01010303	CIRCUIT BREAKER PANEL	Test			1.0			7, 14, 15	E
		Inspect			1.0			7, 14, 15	E
		Repair			2.0			7, 14, 15	
		Replace			12.0			7, 14, 15	
01010304	TERMINAL STRIP A-4	Test			1.0			7, 14, 15	E
		Inspect			1.0			7, 14, 15	E
		Repair			2.0			7, 14, 15	
		Replace			10.0			7, 14, 15	
01010305	SPOTLIGHT	Adjust		1.0				1	
		Replace		1.0				1	
01010306	DEFROSTER	Inspect	1.0						E
		Replace			4.0			7, 14, 15	
01010307	HEATER	Inspect		2.0				1	
		Repair			4.0			7, 14, 15	
		Replace			6.0			7, 14, 15	
01010308	WINDSHIELD WIPER	Repair		1.0				1	
		Replace		2.0				1	
01010309	COMMUNICATIONS EQUIPMENT								
0101030901	VHF/FM HANDHELD TRANSCEIVER	Repair					8.0		
		Replace		1.0				1	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0101030902	AN/PSN-11 INTERFACE & SWITCHBOX	Repair					6.0		
		Replace			1.0			7, 14, 15	
0101030903	LOUDHAILER	Repair					8.0		
		Replace	0.5						
0101030904	SINGARS RADIO								H
0101030905	VHF/FM DCS TRANSCEIVER	Repair					12.0		
		Replace		1.0				1	
01010310	NAVIGATION EQUIPMENT	Test	0.5						E
		Inspect	1.0						E
0101031001	COMPASS	Inspect	2.0.						E
		Replace		2.0				1	
		Calibrate		4.0				1	E
0101031002	PLGR								I
01010311	MAST	Inspect	3.0						E
		Repair		3.0				1	
0101031101	NAVIGATION LIGHTS	Repair			1.0			1	
		Replace			1.0			1	
0101312	OPERATORS CAB ELECTRICAL SYSTEM	Test			4.0			7, 14, 15	E
		Inspect			4.0			7, 14, 15	E
		Repair				6.0		7, 14, 15	
		Replace				10.0		7, 14, 15	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
010104	ANCHOR ASSEMBLY	Inspect	1.0						E
		Repair		1.0				1	
		Replace		1.0				1	
0102	INTERMEDIATE SECTION								
010201	NON-POWERED MODULES								
01020101	HULL								
0102010101	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E
		Repair		4.0				1, 16	
		Overhaul					24.0		
0102010102	INTERIOR	Clean					4.0		
		Inspect					2.0		
		Test		8.0			5.0	1, 25, 26	E
		Repair					6.0		
		Overhaul					50.0		
01020102	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
		Repair		3.0				1, 16	
		Replace		1.0				1	
01020103	FLEXORS	Inspect	0.5						E
		Replace	4.0						

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
0103	CAUSEWAY FERRY BEACH- END SECTION								
010301	NON-POWERED MODULE								
01030101	HULL								
0103010101	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E
		Repair		4.0				1, 16	
		Overhaul					24.0		
0103010102	INTERIOR	Clean					4.0		
		Inspect					2.0		
		Test		8.0			5.0	1, 25, 26	E
		Repair					6.0		
		Overhaul					50.0		
01030102	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
		Repair		3.0				1, 16	
		Replace		1.0				1	
01030103	FLEXORS	Inspect	0.5						E
		Replace	4.0						
0104	CONTAINERS	Clean	1.0						E
		Inspect	2.0						E
		Repair			4.0			7	
		Replace					8.0		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
0101010101	DIESEL ENGINE	Inspect	4.0					E	
		Service	4.0	4.0				E	
		Repair				30.0		7, 27-218	
		Replace			120.0			7, 27-218	
		Overhaul					80.0		
010101010101	ENGINE BLOCK ASSEMBLY	Inspect	2.0					E, J	
		Repair				6.0		7, 27-52 J	
		Replace				120.0		7, 27-52 J	
010101010102	CYLINDER HEAD ASSEMBLY	Clean				5.0		7, 53-85 E, K	
		Repair				12.0		7, 53-85 K	
		Inspect			6.0			7, 53-85 E, K	
		Replace			8.0			7, 53-85 K	
010101010103	CRANKSHAFT ASSEMBLY	Repair			16.0			7, 86-106 L	
		Replace			24.0			7, 86-106 L	
010101010104	CAMSHAFT ASSEMBLY	Repair				12.0		7, 131-141	
		Replace				16.0		7, 131-141	
010101010105	FLYWHEEL ASSEMBLY	Inspect			3.0			7, 107-112 M	
		Replace			5.0			7, 107-112 M	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
010101010106	PISTON ASSEMBLY	Clean				2.0		7, 113-130	N
		Repair				3.0		7, 107-112	M
		Inspect				2.0		7, 113-130	N
		Rebuild				4.5		7, 113-130	N
		Replace				3.0		7, 113-130	N
010101010107	ENGINE BALANCE	Inspect				6.0		7, 131-141	O
		Adjust				3.0		7, 131-141	O
		Replace				8.0		7, 131-141	O
		Repair				8.0		7, 131-141	O
010101010108	FUEL SYSTEM	Inspect	0.5					E, P	
01010101010801	FUEL PUMP	Inspect				1.0		7, 142-187	E
		Repair				4.0		7, 142-187	
		Replace				2.0		7, 142-187	
01010101010802	PRIMING PUMP	Inspect		1.5				1, 142-187	E
		Replace		2.0				1, 142-187	
010101010109	ELECTRIC GOVERNOR	Test			0.5				E
		Adjust		1.0				7, 142-187	
		Repair					5.0		
		Replace		2.0				1, 142-187	
		Inspect	0.5						E, Q
010101010110	AIR INTAKE SYSTEM	Clean		2.0				1, 188-195	E, Q
		Replace		3.0				1, 188-195	Q

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
01010101011001	BLOWER	Inspect			2.0	2.0		7, 188-195	E
		Adjust				4.0		7, 188-195	
		Repair				18.0		7, 188-195	
01010101011002	TURBOCHARGER	Inspect		2.0				1, 188-195	E, R
		Replace			8.0			7, 188-195	
		Repair					18.0		
		Replace			6.0			7, 188-195	
010101010111	LUBE OIL SYSTEM	Service	5.0	5.0					E, S
		Inspect	1.0						E
01010101011101	LUBE OIL PUMP	Inspect				3.0		7, 196-203	E
		Repair				4.0		7, 196-203	
		Replace				4.0		7, 196-203	
01010101011102	LUBE OIL COOLER	Clean			2.0			7	E
		Test			1.5			7, 25, 26	E
		Inspect			2.0			7	E
		Repair			4.0			7	E
		Replace			2.0			7	
010101010112	FRESH WATER COOLING SYSTEM	Inspect	1.0						E, T
		Clean		1.0				1	
01010101011201	FRESH WATER PUMP	Inspect			2.5			7, 212-215	E
		Repair			6.0			7, 212-215	
		Replace			3.0			7, 212-215	
		Test			2.0			7, 25, 26	E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
01010101011202	FRESH WATER COOLER	Clean			2.0			7	E
		Inspect			1.0			7	E
		Repair			4.0			7	
		Replace			3.0			7	
010101010113	RAW WATER COOLING SYSTEM	Inspect	1.0					E, U	
01010101011301	RAW WATER PUMP	Inspect		2.0				1	E
		Clean		2.0				1	E, U
		Repair			4.0				7, 212-215
		Replace		2.5					1, 212-215
010101010114	ELECTRICAL SYSTEM	Test			4.0			7, 14, 15	E, V
		Inspect			2.0			7, 14, 15	E, V
		Repair			3.0			7, 14, 15	V
		Replace			16.0			1, 7, 14, 15	V
01010101011401	STARTER	Inspect	1.0						E
		Repair				6.0		7, 14, 15	
		Replace		3.0				1, 14, 15	
01010101011402	COLD PACK STARTER	Clean		1.0				1	E
		Inspect	0.5						E
		Adjust		1.0				1, 14, 15	
		Repair		2.5				1, 14, 15	
		Replace		3.0				1, 14, 15	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
010101010115	OVER SPEED GOVERNOR	Test				1.0		7	E
		Adjust				1.5		7, 184-187	
		Repair				5.0		7, 184-187	
		Replace				4.0		7, 184-187	
010101010116	AUTO SHUTDOWN SYSTEM	Test		1.0					E
		Adjust			2.0			7, 14, 15	
		Repair				6.0		7, 14, 15	
		Replace		4.0			8.0	1	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
0101010102	MARINE GEAR	Inspect	1.0					E	
		Align			2.0		7, 17		
		Service	1.0	4.0			1	E	
		Rebuild				25.0		W	
		Replace			28.0		4, 7, 17		
010101010201	OIL SYSTEM	Inspect	0.5					E, X	
		Repair		.5			1, 11	X	
01010101020101	OIL COOLER	Clean	1.0					E	
		Inspect	1.0					E	
		Replace		4.0			1		
01010101020102	LINES & HOSES	Inspect	0.5					E	
		Repair		1.0			1		
01010101020103	OIL PUMP	Inspect	1.0					E	
		Repair		2.0			1, 3		
01010101020104	ELECTRIC CONTROL VALVE	Repair				8.0			
		Replace			6.0		7, 14, 15		
010101010202	GEAR MOUNTS	Inspect	.05					E	
		Replace			2.0		3,7		
010101010203	COUPLING BLOCKS	Clean			1.0		7	E	
		Inspect			1.0		7	E	
		Replace			4.0		3, 7		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
010101010204	OUTPUT FLANGE	Inspect	0.5						E
		Align			2.0			3, 7, 17	
		Replace			4.0			3, 7, 17	
010101010205	OUTPUT SEAL	Inspect			2.0			7	E
		Replace			2.0			3, 7	
010101010206	INPUT FLANGE (ENGINE CONNECTION)	Inspect	0.5						E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
0101010103	TRANSFER CASE	Clean		2.0				1	E
		Service	1.0	4.0				1	E
		Overhaul				24.0			
		Rebuild					24.0	2, 7, 17	Y
		Replace			24.0			2, 7, 17	
010101010301	OIL SYSTEM	Inspect	1.0						E
		Repair		2.5				1	
01010101030101	OIL PUMP	Inspect	4.0						E
		Replace		2.5				1	
01010101030102	HOSES & FITTINGS	Inspect	0.2						E
		Replace		2.0				1	
01010101030103	OIL COOLER	Inspect	0.2						E
010101010302	GEAR SHAFT	Inspect				5.0		7	E
		Replace		3.5				1	
		Repair				8.0		3, 7, 17	
		Replace				7.0		3, 7, 17, 19	
01010101030201	UPPER SHAFT	Inspect				5.0		7	X E
		Repair				8.0		3, 7, 17	
		Replace				7.0		3, 7, 17, 19	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0101010103020101	INPUT SEAL	Clean			2.0			7	E
		Inspect			2.0			7	E
		Replace			2.0			3, 7, 17, 19	
0101010103020102	OUTPUT SEAL	Clean			2.0			7	E
		Inspect			2.0			7	E
		Replace			2.0			3, 7, 17, 19	
01010101030202	INTERMEDIATE SHAFT	Inspect				2.5		7	E
		Repair				5.5		3, 7, 17	
		Replace				6.5		3, 7, 17, 19	
01010101030203	LOWER SHAFT	Inspect				4.0		7	E
		Repair				8.0		3, 7, 17	
		Replace				6.0		3, 7, 17, 19	
0101010103020301	INPUT SEAL	Clean			2.0			7	E
		Replace			2.0			3, 7, 17, 19	
		Inspect			2.0			7	E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
02	ROLL-ON/ROLL- OFF DISCHARGE FACILITY (RRDF)								
0201	INTERMEDIATE SECTION								
020101	NON-POWERED MODULE								
02010101	HULL								
0201010101	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Repair		4.0				1, 16	
		Service	1.5						E
		Overhaul					24.0		
		Inspect					2.0		
0201010102	INTERIOR	Clean					4.0		
		Test		6.0			5.0	1, 25, 26	E
		Repair					6.0		
02010102	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Overhaul					50.0		
		Inspect	0.5						E
		Repair		3.0				1, 16	
		Replace		1.0				1	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
02010103	FLEXORS	Inspect	0.5						E
		Replace	4.0						
0202	COMBINATION BEACH-END SECTION								
020201	NON-POWERED MODULE								
02020101	HULL								
0202010101	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E
		Repair		4.0				1, 16	
		Overhaul					24.0		
		Inspect					2.0		
0202010102	INTERIOR	Clean					4.0		
		Test		6.0			5.0	1, 25, 26	E
		Repair					6.0		
		Overhaul					50.0		
02020102	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
		Repair		3.0				1, 16	
		Replace		1.0				1	
02020103	FLEXORS	Inspect	0.5						E
		Replace	4.0						
0203	GENERATOR SHELTER			4.0				1	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
020301	ARMY TACTICAL QUIET GENERATOR (ATQG)								AD
020302	FUEL SYSTEM	Inspect	1.0						E
		Repair			1.5			7	
		Replace		1.0				1	
02030201	MANUAL FUEL PUMP	Clean		1.0				1	E
		Inspect	1.0	1.0				1	E
		Repair		2.0				1	
		Replace		2.0				1	
020303	LOUVERS	Clean		1.0				1	E
		Inspect	1.0						E
		Service		1.0				1	E
		Repair		3.0				1	
		Replace		4.0				1	
020304	ELECTRICAL SYSTEM	Test			2.0			7, 14, 15	E
		Repair		2.0	3.0			1, 7, 14, 15	
		Replace			5.0			7, 14, 15	
020305	FIRE SUPPRESSION SYSTEM	Test					4.0		E, G
		Inspect	1.0						E
		Repair					4.0	1, 14, 15	G
		Replace					40.0		G
0204	PERSONNEL SHELTER								

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
020401	HEAT PUMP	Clean		4.0				1	E
		Inspect		1.0				1	E
		Service			3.0			7, 21	E
		Repair		2.0	4.0			1, 7, 14, 15, 21	
		Replace			8.0			7, 14, 15, 21	
		Rebuild				8.0		7, 14, 15, 21	
020402	INCINOLET							AE	
020403	ELECTRICAL SYSTEM	Inspect	2.0						E
		Repair		12.0	3.0			1, 7, 14, 15	
		Replace			12.0			7, 14, 15	
020404	COMMUNICATIONS EQUIPMENT								
02040401	VHF\FM HANDHELD TRANSCEIVER	Replace	1.0						
		Repair					8.0		
0205	LIGHT TOWER								
020501	ELECTRICAL SYSTEM	Inspect			0.5			10, 15	E
		Test			1.0			10, 15	E
02050101	BATTERIES	Repair			6.0			10, 15	
		Test			1.0			10, 13	E
		Inspect	0.5						E
		Replace		2.0			1		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
02050102	OIL PRESSURE UNIT	Test			1.0			10	E
		Repair			1.0			10	
		Replace			1.5			10	
02050103	STARTING CIRCUIT	Repair			2.0			10, 15	
		Replace			3.0			10, 15	
02050104	ENGINE TEMPERATURE UNIT	Test			1.0			10, 18	E
		Replace			2.5			10, 18	
		Repair			2.0			10, 18	
02050105	HOURMETER UNIT	Repair			1.5			10	
		Replace			2.0			10	
02050106	SHUTDOWN CIRCUIT	Repair			2.0			10	
		Replace			4.0			10	
02050107	LAMP SYSTEM	Test	1.0						E
		Repair			2.0			10, 15	
		Replace			6.0			10, 15	
02050108	LAMP BALLAST SYSTEM	Test			0.5			10, 15	E
		Repair			2.0			10, 15	
		Replace			3.0			10, 15	
020502	GENERATOR	Clean		2.0				1	E
		Inspect					12.0		
		Repair					18.0		
		Replace					24.0		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
02050202	CONTROL PANEL	Inspect	1.0						E
		Repair			3.0			10, 15	
		Replace			4.5			10, 15	
02050205	DIESEL ENGINE	Service	4.0	2.0				1	E
		Adjust		3.0				1	
		Overhaul					16.0		
		Repair				16.0		10	
		Replace			16.0			10	
		0205020501	ENGINE FUEL SYSTEM	Inspect	1.0				
020502050101	FUEL PUMP	Repair		4.0				1	E
		Replace			8.0			10	
		Inspect	1.0						
020502050102	FUEL TANK	Repair				4.0		10	E
		Replace			5.0			10	
		Clean	2.0						
0205020502	ENGINE AIR SYSTEM	Inspect	1.0						E
		Repair		2.0				1	
		Replace		4.0				1	
		Inspect	1.0						
0205020503	ENGINE COOLING SYSTEM	Repair		3.0				1	E
		Replace		2.0		5.0		1, 10	
		Inspect	1.0						

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
020502050301	FAN ASSEMBLY	Inspect	0.5						E
		Repair		1.5				1	
		Replace		2.0				1	
020502050302	COOLING WATER PUMP	Inspect			1.0			10	E
		Repair				4.0		10	
		Replace			5.0			10	
020502050303	RADIATOR	Clean	1.0						E
		Inspect		1.0				1	E
		Service	2.0	4.0				1	E
		Repair				4.0		10	
		Replace		2.0	3.0			1, 10	
0205020504	CYLINDER HEAD	Inspect		1.0				1	E
		Adjust					2.0		
		Repair					8.0		
		Replace					5.0		
0205020505	VIBRATION DAMPER	Repair					4.0		
		Replace					4.0		
0205020506	EXHAUST SYSTEM	Clean	1.5						E
		Inspect	1.0						E
		Repair		3.0				1, 16	
		Replace		5.0				1	
0205020507	CRANKSHAFT	Inspect					4.0		
		Repair					8.0		
		Replace					8.0		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0205020508	PISTON	Inspect					4.0		
		Repair					4.0		
		Replace					4.0		
02050206	RUNNING GEAR	Service		2.0				1	E
		Repair		2.0		2.0		1, 10	
		Replace		18.0				1	
0205020601	TIRES	Inspect	0.5						E
		Repair				1.0		10	
		Replace				1.0		10	
02050207	SUPPORT TOWER	Inspect	0.5						E
		Service	1.0						E
		Repair			2.0			10	
		Replace			6.0			10	
02050208	TOWER RAISING ASSEMBLY	Inspect	0.5						E
		Repair			1.0			10	
		Replace			3.0			10	
02050209	ENCLOSURE	Inspect	0.5						E
		Repair			2.0			10	
		Replace			6.0			10	
0206	EASY ANCHOR	Inspect	2.0						E
		Service		1.0				1	E
		Repair			4.0			6, 7	
		Replace			6.0			6, 7	
0207	RHIB (ZODIAC)								

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
020701	STEERING & THROTTLE	Inspect	1.0						E
		Service	1.0						E
		Repair			4.0			10	
		Replace			8.0			10	
020702	CONTROL PANEL	Inspect			2.0			10, 15	E
		Repair			4.0			10, 15	
		Replace			6.0			10, 15	
020703	BOAT HULL	Inspect	1.0						E
		Repair		2.0		20.0		1, 219-230	
		Replace				18.0		1, 219-230	
020704	NAVIGATION SYSTEM	Repair			3.0		12.0	7	
		Replace		2.0				1	
020705	OUTBOARD ENGINE	Test		4.0					E
		Repair					12.0		
		Rebuild					12.0		
		Replace		4.0					
02070501	ENGINE COVER	Inspect	1.0						E
		Repair			2.0			10	
		Replace			2.0			10	
02070502	LOWER ENGINE COVER	Inspect	1.0						E
		Repair			2.0			10	
		Replace			2.0			10	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
02070503	ELECTRICAL STARTER	Repair			2.0			10, 15	
		Replace			3.0			10, 15	
02070504	POWER TRIM/TILT ELECTRICAL	Adjust		1.0				1	
		Repair			2.0			10, 15	
		Replace			2.5			10, 15	
02070505	IGNITION	Repair					8.0		
		Replace					8.0	2, 17	
02070506	INTAKE MANIFOLD	Inspect			1.0			10	E
		Repair			3.0			10	
		Replace			3.0			10	
02070507	CARBURETOR	Adjust		1.0				1	
		Repair			3.0			10	
		Replace			3.0			10	
02070508	ELECTRIC PRIMER SYSTEM	Repair			3.0			10, 15	
		Replace			2.0			10, 15	
02070509	FUEL TANK	Inspect	1.0						E
		Repair			3.0			10	
		Replace	2.0						
02070510	FUEL HOSE & PRIMER BULB	Repair		1.0				1	
		Replace	1.0						
02070511	FUEL PUMP	Repair			2.0			10	
		Replace			2.0			10	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
02070512	CRANKSHAFT & PISTON	Inspect					6.0		
		Repair					8.0		
		Replace					8.0		
02070513	CYLINDER & CRANKCASE	Inspect					6.0		
		Rebuild					16.0		
		Replace					8.0		
02070514	EXHAUST HOUSING	Inspect	1.0						E
		Repair			3.0			10	
		Replace			3.0			10	
02070515	POWER TRIM/TILT HYDRAULIC	Repair					4.0		
		Replace					3.0		
02070516	POWER TRIM/TILT MIDSECTION	Inspect					2.0		
		Repair					4.0		
		Replace					4.0		
02070517	GEARCASE	Inspect			3.0			10	E
		Repair					8.0		
		Replace					8.0		
0207051701	BEARING HOUSING ASSEMBLY	Inspect					2.0		
		Repair					3.0		
		Replace					3.0		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0207051702	PROPELLER SHAFT ASSEMBLY	Inspect					2.0		
		Repair					4.0		
		Replace					3.0		
0207051703	IMPELLER ASSEMBLY	Inspect					4.0		
		Repair					4.0		
		Replace					4.0		
0207051704	WATER PUMP ASSEMBLY	Inspect					4.0		
		Repair					4.0		
		Rebuild					8.0		
		Replace					4.0		
02070518	STEERING LINK KIT	Inspect	1.0						E
		Repair		1.0				1	
		Replace		2.0				1	
02070519	BATTERY	Test			2.0			10, 13	
		Service			2.0			10	
		Replace			2.0			10	
0207051901	BATTERY CABLE	Clean	0.5						
		Inspect	0.5						E
		Repair		1.0				1	
		Replace		1.0				1	
020706	FIRE EXTINGUISHER	Inspect	0.5						E
		Replace	2.0						E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0208	CONTAINERS	Inspect	2.0						E
		Clean	1.0						E
		Repair			4.0			7	
		Replace					8.0		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
02	ROLL-ON/ROLL- OFF DISCHARGE FACILITY (RRDF)								
03	MODULAR WARPING TUG (WT)								
0301	POWERED SECTION								
030101	POWERED MODULE								
03010101	DRIVE TRAIN								
0301010101	DIESEL ENGINE							Z	
0301010102	MARINE GEAR							AA	
0301010103	TRANSFER CASE							AB	
0301010104	PUMP-JET ASSEMBLY	Inspect	0.5					E	
		Service		3.0			1	E	
		Repair				10.0		D	
		Replace				50.0			
030101010401	HYDRAULIC SYSTEM	Inspect	1.0				1	E	
		Service	1.0	3.0			1	E	
		Repair			3.0		2, 4, 7		
		Replace			6.0		2, 4, 7		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
03010101040101	HYDRAULIC PUMP	Test	0.5						E
		Inspect	1.0						E
		Repair				4.0		2, 4, 7	
		Replace		6.0				1, 2, 4	
03010101040102	HYDRAULIC HAND PUMP	Inspect	1.0						E
		Repair					20.0		
		Replace		2.0				1, 2, 4	
03010101040103	HYDRAULIC WAY-VALVE	Repair				2.0		2, 4, 7	
		Replace		1.5				1, 2, 4	
030101010402	FEEDBACK UNIT	Inspect	1.0						E
		Repair				2.5		2, 4, 7	
		Replace			2.0			2, 4, 7	
0301010105	ALTERNATOR	Test			1.0			7, 14, 15	E
		Inspect	0.5						E
		Replace			2.0			7, 14, 15	
03010102	ENGINE EXHAUST SYSTEM	Clean		2.0				1, 3, 9	E
		Inspect		2.0				1, 3, 9	E
		Repair			6.0			3, 7, 9	
03010103	BILGE PUMP SYSTEM	Test		2.0				1	E
		Inspect	1.0						E
03010104	FIRE SUPPRESSION SYSTEM	Test					3.0		E
		Inspect	2.0				3.0		E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
03010104	FIRE SUPPRESSION SYSTEM (CONT'D)	Repair					8.0		G
		Replace					24.0		G
03010105	FUEL SYSTEM	Test	1.0						E
		Inspect	1.0						E
		Repair			4.0			7	
		Replace			12.0			7	
0301010501	FUEL/WATER SEPARATOR	Clean	1.0						E
		Inspect	1.0						E
		Repair		2.0				1	
		Replace			4.0			7	
03010106	ELECTRICAL SYSTEM	Test			1.0			7, 14, 15	E
		Adjust			1.0			7, 14, 15	
		Repair			2.0			7, 14, 15	
		Replace			8.0			7, 14, 15	
03010107	EMERGENCY STEERING SYSTEM	Inspect	2.0						E
		Service	1.0						E
		Replace		4.0				1	
0301010701	STEERING UNIT	Inspect	0.5						E
		Replace		2.0				1	
0301010702	STEERING ADAPTOR	Inspect	0.5						E
		Replace		1.5				1	
03010108	HULL								

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
0301010801	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E
		Repair		4.0				1, 16	
		Overhaul					24.0		
0301010802	INTERIOR	Clean					4.0		
		Inspect					2.0		
		Test					5.0	1, 25, 26	E
		Repair					6.0		
		Overhaul					50.0		
03010109	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
		Repair		3.0				1, 16	
		Replace		1.0				1	
03010110	HATCHES & HINGES	Clean	1.0						E
		Inspect	0.5					1	E
		Service	0.5						E
		Repair		2.0				1, 16	
		Replace		2.0				1	
03010111	FLEXORS	Inspect	0.5						E
		Replace	4.0						
030102	NON-POWERED MODULE								
03010201	HULL								

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
0301020101	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E
		Repair		4.0				1, 16	
		Overhaul					24.0		
0301020102	INTERIOR	Clean					4.0		
		Inspect					2.0		
		Test		8.0			5.0	1, 25, 26	E
		Repair					6.0		
		Overhaul					50.0		
03010202	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
		Repair		3.0				1, 16	
		Replace	1.0					1	
030103	OPERATORS CAB								
03010301	MIDDLE CONTROL PANEL	Test			2.0			7, 14, 15	E
		Inspect			2.0			7, 14, 15	E
		Repair			3.0			7, 14, 15	
		Replace			16.0			7, 14, 15	
03010302	LOWER CONTROL PANEL	Test			2.0			7, 14, 15	E
		Inspect			2.0			7, 14, 15	E
		Repair			3.0			7, 14, 15	
		Replace			16.0			7, 14, 15	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
03010303	CIRCUIT BREAKER PANEL	Test			1.0			7, 14, 15	E
		Inspect			1.0			7, 14, 15	E
		Repair			2.0			7, 14, 15	
		Replace			12.0			7, 14, 15	
03010304	TERMINAL BOARD A-4	Test			1.0			7, 14, 15	E
		Inspect			1.0			7, 14, 15	E
		Repair			2.0			7, 14, 15	
		Replace			10.0			7, 14, 15	
03010305	SPOTLIGHT	Adjust		1.0				1	
		Replace		1.0				1	
03010306	DEFROSTER	Inspect	1.0						E
		Replace			4.0			7, 14, 15	
03010307	HEATER	Inspect		2.0				1	E
		Repair			4.0			7, 14, 15	
		Replace			6.0			7, 14, 15	
03010308	WINDSHIELD WIPER	Repair		1.0				1	
		Replace		2.0				1	
03010309	COMMUNICATIONS EQUIPMENT								
0301030901	VHF/FM HANDHELD TRANSCEIVER	Repair					8.0		
		Replace		1.0				1	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
0301030902	AN/PSN-11 INTERFACE & SWITCHBOX	Repair					6.0		
		Replace			1.0			7, 14, 15	
0301030903	LOUDHAILER	Test	0.5						E
		Repair					8.0		
		Replace	0.5						
0301030904	SINGARS RADIO								H
0301030905	VHF/FM DSC TRANSCEIVER	Repair					12.0		
		Replace		1.0				1	
03010310	NAVIGATION EQUIPMENT	Test	0.5						E
		Inspect	1.0						E
0301031001	COMPASS	Inspect	2.0						E
		Replace		2.0				1	
		Calibrate		4.0				1	
0301031002	PLGR								I
03010311	MAST	Inspect	3.0						E
		Repair		3.0				1	
0301031101	NAVIGATION LIGHTS	Repair		1.0				1	
		Replace		1.0				1	
03010312	OPERATORS CAB ELECTRICAL SYSTEM	Test			4.0			7, 14, 15	E
		Inspect			4.0			7, 14, 15	E
		Repair				6.0		7, 14, 15	
		Replace			10.0			7, 14, 15	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
030104	ANCHOR ASSEMBLY	Inspect	1.0						E
		Repair		1.0				1	
		Replace		1.0				1	
0302	CONTAINERS	Clean	1.0						E
		Inspect	2.0						E
		Repair			4.0			7	
		Replace					8.0		
0303	WINCH								AC
030301	WINCH DIESEL ENGINE								AD
030302	WINCH ASSEMBLY	Clean			8.0			7	E
		Test			4.0			7	E
		Inspect			4.0			7	E
		Service	4.0						
		Repair			4.0			7	
		Replace	3.0						

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
02	ROLL-ON/ROLL- OFF DISCHARGE FACILITY (RRDF)								
03	MODULAR WARPING TUG (WT)								
0301010101	DIESEL ENGINE	Inspect	4.0					E	
		Service	4.0	4.0				E	
		Repair				30.0	7, 27-218		
		Replace			120.0		7, 27-218		
		Overhaul				80.0			
030101010101	ENGINE BLOCK ASSEMBLY	Inspect	2.0					E, J	
		Repair				6.0	7, 27-52	J	
		Replace				120.0	7, 27-52	J	
030101010102	CYLINDER HEAD ASSEMBLY	Clean				5.0	7, 53-85	K	
		Inspect			6.0		7, 53-85	K	
		Repair				12.0	7, 53-85	K	
		Replace			8.0		7, 53-85	K	
030101010103	CRANKSHAFT ASSEMBLY	Repair			16.0		7, 86-106	L	
		Replace			24.0		7, 86-106	L	
030101010104	CAMSHAFT ASSEMBLY	Repair				12.0	7, 131-141		
		Replace				16.0	7, 131-141		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS	DEPOT			
			C	O	F	H	D			
030101010105	FLYWHEEL ASSEMBLY	Inspect			3.0			7, 107-112	M	
		Repair				3.0		7, 107-112	M	
		Replace			5.0			7, 107-112	M	
030101010106	PISTON ASSEMBLY	Clean				2.0		7, 113-130	N	
		Inspect				2.0		7, 113-130	N	
		Rebuild				4.5		7, 113-130	N	
		Replace				3.0		7, 113-130	N	
030101010107	ENGINE BALANCE	Inspect				6.0		7, 131-141	O	
		Adjust				3.0		7, 131-141	O	
		Repair				8.0		7, 131-141	O	
		Replace				8.0		7, 131-141	O	
030101010108	FUEL SYSTEM	Inspect	0.5						E, P	
03010101010801	FUEL PUMP	Inspect			1.0			7, 142-187	E	
		Repair			4.0			7, 142-187		
		Replace			2.0			7, 142-187		
03010101010802	PRIMING PUMP	Inspect		1.5				1, 142-187	E	
		Replace		2.0				1, 142-187		
030101010109	ELECTRIC GOVERNOR	Test		0.5					E	
		Adjust			1.0			7, 142-187		
		Repair					5.0			
		Replace		2.0				1, 142-187		
030101010110	AIR INTAKE SYSTEM	Clean		2.0				1, 188-195	E, Q	
		Inspect	0.5						E, Q	
		Replace		3.0				1, 188-195	Q	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
03010101011001	BLOWER	Inspect			2.0	2.0		7, 188-195	E
		Adjust				4.0		7, 188-195	
		Repair				18.0		7, 188-195	
		Replace			8.0			7, 188-195	
03010101011002	TURBOCHARGER	Inspect			2.0			1, 188-195	E, R
		Repair					18.0		
		Replace			6.0			7, 188-195	
030101010111	LUBE OIL SYSTEM	Service	5.0	5.0					E, S
		Inspect	1.0						E, S
03010101011101	LUBE OIL PUMP	Inspect				3.0		7, 196-203	E
		Repair				4.0		7, 196-203	
		Replace				4.0		7, 196-203	
03010101011102	LUBE OIL COOLER	Clean			2.0			7	E
		Test			1.5			7, 25, 26	E
		Inspect			2.0			7	E
		Repair			4.0			7	
		Replace			2.0			7	
030101010112	FRESH WATER COOLING SYSTEM	Inspect	1.0						E, T
		Clean		1.0				1	
03010101011201	FRESH WATER PUMP	Inspect			2.5			7, 212-215	E
		Repair			6.0			7, 212-215	
		Replace			3.0			7, 212-215	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
03010101011202	FRESH WATER COOLER	Clean			2.0			7	E
		Test			2.0			7, 25, 26	E
		Inspect			1.0			7	E
		Repair			4.0			7	
		Replace			3.0			7	
030101010113	RAW WATER COOLING SYSTEM	Clean	1.0						E, U
		Inspect		2.0				1	E, U
03010101011301	RAW WATER PUMP	Inspect		2.0				1	E
		Repair			4.0			7, 212-215	
		Replace		2.5				1, 211-215	
030101010114	ELECTRICAL SYSTEM	Test			4.0			7, 14, 15	E, V
		Inspect			2.0			7, 14, 15	E, V
		Repair			3.0			7, 14, 15	V
		Replace		4.0	16.0			1, 7, 14, 15	V
03010101011401	STARTER	Inspect	1.0						E
		Repair				6.0		7, 14, 15	
		Replace		3.0				1, 14, 15	
03010101011402	COLD PACK STARTER	Clean		1.0				1	E
		Inspect	0.5						E
		Adjust		1.0				1, 14, 15	
		Repair		2.5				1, 14, 15	
		Replace		3.0				1, 14, 15	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
030101010115	OVER SPEED GOVERNOR	Test				1.0		7	E
		Adjust				1.5		7, 184-187	
		Repair				5.0		7, 184-187	
		Replace				4.0		7, 184-187	
030101010116	AUTO SHUTDOWN SYSTEM	Test		1.0					E
		Adjust			2.0			7, 14, 15	
		Repair				6.0		7, 14, 15	
		Replace		4.0			8.0	1	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
02	ROLL-ON/ROLL- OFF DISCHARGE FACILITY (RRDF)								
03	MODULAR WARPING TUG (WT)								
0301010102	MARINE GEAR	Inspect	1.0					E	
		Align			2.0		7, 17		
		Service	1.0	4.0			1	E	
		Replace			28.0		4, 7, 17		
		Rebuild				25.0		W	
030101010201	OIL SYSTEM	Inspect	0.5					E, X	
		Repair		0.5			1, 11	X	
03010101020101	OIL COOLER	Clean	1.0					E	
		Inspect	1.0					E	
		Replace		4.0			1		
03010101020102	LINES & HOSES	Inspect	0.2					E	
		Repair		0.5			1		
		Replace		2.0			1		
03010101020103	OIL PUMP	Inspect	1.0					E	
		Replace			2.0		1, 3		
03010101020104	ELECTRIC CONTROL VALVE	Repair				8.0			
		Replace			6.0		7, 14, 15		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
030101010202	GEAR MOUNTS	Inspect	0.5						E
		Replace			2.0			3, 7	
030101010203	COUPLING BLOCKS	Clean			1.0			7	E
		Inspect			1.0			7	E
		Replace			4.0			3, 7	
030101010204	OUTPUT FLANGE	Inspect	0.5						E
		Align			2.0			3, 7, 17	
		Replace			4.0			3, 7, 17	
030101010205	OUTPUT SEAL	Inspect			2.0			7	E
		Replace			2.0			3, 7	
030101010206	INPUT FLANGE (ENGINE CONNECTION)	Inspect	0.5						E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
02	ROLL-ON/ROLL- OFF DISCHARGE FACILITY (RRDF)								
03	MODULAR WARPING TUG (WT)								
0301010103	TRANSFER CASE	Clean		2.0				1	E
		Service	1.0	4.0				1	E
		Overhaul				24.0			
		Rebuild					24.0	2, 7, 17	Y
		Replace			24.0			2, 7, 17	
030101010301	OIL SYSTEM	Inspect	1.0						E
		Repair		2.5				1	
03010101030101	OIL PUMP	Inspect	4.0						E
		Replace		2.5				1	
03010101030102	HOSES & FITTINGS	Inspect	0.2						E
		Replace		2.0				1	
03010101030103	OIL COOLER	Inspect	0.2						E
		Replace		3.5				1	
030101010302	GEAR SHAFT	Inspect				5.0		7	E
		Repair				8.0		3, 7, 17	
		Replace				7.0		3, 7, 17, 19	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
03010101030201	UPPER SHAFT	Inspect				5.0		7	E
		Repair				8.0		3, 7, 17	
		Replace				7.0		3, 7, 17, 19	
0301010103020101	INPUT SEAL	Clean			2.0			7	E
		Inspect			2.0			7	E
		Replace			2.0			3, 7, 17, 19	
0301010103020102	OUTPUT SEAL	Clean			2.0			7	E
		Inspect			2.0			7	E
		Replace			2.0			3, 7, 17, 19	
03010101030202	INTERMEDIATE SHAFT	Inspect				2.5		7	E
		Repair				5.5		3, 7, 17	
		Replace				6.5		3, 7, 17, 19	
03010101030203	LOWER SHAFT	Inspect				4.0		7	E
		Repair				8.0		3, 7, 17	
		Replace				6.0		3, 7, 17, 19	
0301010103020301	INPUT SEAL	Clean			2.0			7	E
		Inspect			2.0			7	E
		Replace			2.0			3, 7, 17, 19	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	MODULAR CAUSEWAY SYSTEM (MCS)								
01	CAUSEWAY FERRY (CF)								
02	ROLL-ON/ROLL- OFF DISCHARGE FACILITY (RRDF)								
04	FLOATING CAUSEWAY (FC)								
0401	INTERMEDIATE SECTION								
040101	NON-POWERED MODULE								
04010101	HULL								
0401010101	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E
		Repair		4.0				1, 16	
		Overhaul					24.0		
0401010102	INTERIOR	Clean					4.0		
		Inspect					2.0		
		Test		6.0			5.0	1, 25, 26	E
		Repair					6.0		
		Overhaul					50.0		
04010102	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
		Repair		3.0				1, 16	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE	
			UNIT		DS	GS			DEPOT
			C	O	F	H			D
04010102	GUILLOTINE FITTINGS (CONT'D)	Replace		1.0				1	
04010103	FLEXORS	Inspect	0.5						E
		Replace	4.0						
0402	COMBINATION BEACH-END SECTION								
040201	NON-POWERED MODULES								
04020101	HULL								
0402010101	EXTERIOR	Clean		4.0				8, 9, 23, 24	E
		Inspect	1.0						E
		Service	1.5						E
		Repair		4.0				1, 16	
		Overhaul				24.0			
0402010102	INTERIOR	Clean				4.0			
		Inspect				2.0			
		Test				5.0	1, 25, 26		E
		Repair				6.0			
		Overhaul				50.0			
04020102	GUILLOTINE FITTINGS	Clean		1.0				8, 9, 23, 24	E
		Inspect	0.5						E
		Repair		3.0				1, 16	
		Replace		1.0				1	
04020103	FLEXORS	Inspect	0.5						E
		Replace	4.0						

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0403	GENERATOR SHELTER	Repair		4.0				1	
040301	ARMY TACTICAL QUIET GENERATOR (ATQG)								
040302	FUEL SYSTEM	Clean					1.0		E
		Inspect					1.0	7	
		Repair					5.0	1	
04030201	MANUAL FUEL PUMP	Clean		1.0				1	E
		Inspect	1.0	1.0				1	E
		Repair		2.0				1	
		Replace		2.0				1	
040303	LOUVERS	Clean		1.0				1	E
		Inspect	1.0						E
		Service		1.0					E
		Repair		3.0				1	
		Replace		4.0				1	
040304	ELECTRICAL SYSTEM	Test			2.0			7, 14, 15	E
		Repair		2.0	3.0			1, 7, 14, 15	
		Replace			5.0			7, 14, 15	
040305	FIRE SUPPRESSION SYSTEM	Test					4.0		E, G
		Inspect	1.0						E
		Repair		2.0			4.0	1, 14, 15	G
		Replace					40.0		G

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0404	PERSONNEL SHELTER								
040401	HEAT PUMP	Clean		4.0				1	E
		Inspect		1.0				1	E
		Service			3.0			7, 21	E
		Repair			4.0			1, 7, 14, 15, 21	
		Rebuild				8.0		7, 14, 15, 21	
		Replace			8.0			7, 14, 15, 21	
040402	INCINOLET								AE
040403	ELECTRICAL SYSTEM	Inspect	2.0						E
		Repair		12.0	3.0			1, 7, 14, 15	
		Replace			12.0			7, 14, 15	
040404	COMMUNICATIONS EQUIPMENT								
04040401	VHF/FM HANDHELD TRANSCEIVER	Replace	1.0					1	
		Repair					8.0		
0405	LIGHT TOWER								
040501	ELECTRICAL SYSTEM	Test			1.0			10, 15	E
		Inspect			0.5			10, 15	E
		Repair			6.0			10, 15	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
04050101	BATTERIES	Test			1.0			10, 13	E
		Inspect	0.5						E
		Replace		2.0				1	
04050102	OIL PRESSURE UNIT	Test			1.0			10	E
		Repair			1.0			10	
		Replace			1.5			10	
04050103	STARTING CIRCUIT	Repair			2.0			10, 15	
		Replace			3.0			10, 15	
04050104	ENGINE TEMPERATURE UNIT	Test			1.0			10, 18	E
		Repair			2.0			10, 18	
		Replace			2.5			10, 18	
04050105	HOUR METER UNIT	Repair			1.5			10	
		Replace			2.0			10	
04050106	SHUTDOWN CIRCUIT	Repair			2.0			10	
		Replace			4.0			10	
04050107	LAMP SYSTEM	Test	1.0						E
		Repair			2.0			10, 15	
		Replace			6.0			10, 15	
04050108	LAMP BALLAST SYSTEM	Test			0.5			10, 15	E
		Repair			2.0			10, 15	
		Replace			3.0			10, 15	
040502	GENERATOR	Clean		2.0				1	E
		Inspect					12.0		

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
040502	GENERATOR (CONT'D)	Repair					18.0		
		Replace					24.0		
04050202	CONTROL PANEL	Test	1.0						E
		Inspect	1.0						E
		Repair			3.0			10, 15	
		Replace			4.5			10, 15	
04050205	DIESEL ENGINE	Service	4.0	2.0				1	E
		Adjust		3.0				1	
		Repair				16.0		10	
		Overhaul					16.0		
		Replace			16.0			10	
0405020501	ENGINE FUEL SYSTEM	Inspect	1.0						E
		Repair		4.0				1	
		Replace			8.0			10	
040502050101	FUEL PUMP	Inspect	1.0						E
		Repair				4.0		10	
		Replace			5.0			10	
040502050102	FUEL TANK	Clean	2.0						E
		Inspect	1.0						E
		Repair		2.0				1	
		Replace		2.0				1	
0405020502	ENGINE AIR SYSTEM	Inspect	1.0						E
		Repair		2.0				1	
		Replace		4.0				1	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0405020503	ENGINE COOLING SYSTEM	Inspect	1.0						E
		Repair		3.0				1	
		Replace		7.0				1, 10	
040502050301	FAN ASSEMBLY	Inspect	0.5						E
		Repair		1.5				1	
		Replace		2.0				1	
040502050302	COOLING WATER PUMP	Inspect						10	E
		Repair				4.0		10	
		Replace			5.0			10	
040502050303	RADIATOR	Clean	1.0						E
		Inspect		1.0				1	E
		Service	2.0	4.0				1	E
		Repair				4.0		10	
		Replace		2.0	3.0				1, 10
0405020504	CYLINDER HEAD	Inspect		1.0				1	E
		Adjust					2.0		
		Repair					8.0		
		Replace					5.0		
0405020505	VIBRATION DAMPER	Repair					4.0		
		Replace					4.0		
0405020506	EXHAUST SYSTEM	Inspect	0.5						E
		Clean	1.5						E
		Repair			3.0				1, 16
		Replace			5.0			1	

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0405020507	CRANKSHAFT	Inspect					4.0		
		Repair					8.0		
		Replace					8.0		
0405020508	PISTON	Inspect					4.0		
		Repair					4.0		
		Replace					4.0		
04050206	RUNNING GEAR	Service		2.0				1	E
		Repair		2.0				1, 10	
		Replace		18.0				1	
0405020601	TIRES	Inspect	0.5						E
		Repair				1.0		10	
		Replace				1.0		10	
04050207	SUPPORT TOWER	Inspect	0.5						E
		Service	1.0						E
		Repair			2.0			10	
		Replace			6.0			10	
04050208	TOWER RAISING ASSEMBLY	Inspect	0.5						E
		Repair			1.0			10	
		Replace			3.0			10	
04050209	ENCLOSURE	Inspect	0.5						E
		Repair			2.0			10	
		Replace			6.0			10	
0406	OFFSHORE ANCHOR	Clean	1.0						E
		Inspect	1.0						E

Table 1. MAC for Modular Causeway System. (MCS) (Continued)

(1) GROUP NO.	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP REF CODE	(6) REMARKS CODE
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0406	OFFSHORE ANCHOR (CONT'D)	Repair			4.0			7	
		Replace		2.0				1	
0407	ONSHORE ANCHOR	Clean	1.0						E
		Inspect	1.0						E
		Repair			4.0			7	
		Replace		2.0				1	
0408	CONTAINERS	Clean	1.0						E
		Inspect	2.0						E
		Repair			4.0			7	
		Replace					8.0		

Table 2. Remarks for Modular Causeway System. (MCS)

REMARKS CODE	REMARKS
A	See MAC Chart for Causeway Ferry Diesel Engine Group Number 0101010101.
B	See MAC Chart for Causeway Ferry Marine Gear Group Number 0101010102.
C	See MAC Chart for Causeway Ferry Marine Gear Group Number 0101010103.
D	All repairs to the pump-jet must be done at depot level due to lack of technical information provided by the manufacturer, Schottel of Germany.
E	Preventive Maintenance Checks and Services (PMCS).
F	Includes replacement of level sensors, pump and motor.
G	Most work needs to be done by an authorized manufacturer's technical representative.
H	Refer to Army Technical Manual TM 11-5820-890-10-8.
I	Refer to Army Technical Manual TM 11-5825-291-13.
J	Includes cylinder liner, crankcase, crankcase breather and engine mounts.
K	Includes valves, springs, rocker arm, push rods, etc.
L	Includes valves, main bearings, vibration damper and crankshaft pulley.

Table 2. Remarks for Modular Causeway System. (MCS) (Continued)

REMARKS CODE	REMARKS
M	Includes drive shaft flex coupling.
N	Includes rings, connecting rod and connecting rod bearings.
O	Includes gear train, camshaft, idler gear, idler gear bearing, crankshaft timing gear, blower drive gear, and front and rear accessory drive gears.
P	Includes fuel water separator, fuel lines, fuel filter/strainer, fuel cooler, fuel manifold, fuel injector, fuel injector tube and valves.
Q	Includes air shutdown housing and air box check valves.
R	Includes intercooler and after cooler.
S	Includes lube oil pump driving gear, lube oil pressure regulator, lube oil relief valves, lube oil filter by-pass valve, lube oil cooler by-pass valve, lube oil pan and lube oil ventilation system.
T	Includes fresh water manifold and thermostat.
U	Includes raw water duplex strainer.
V	Includes starting batteries.
W	Rebuild of the marine gear is a depot level function.
X	Includes oil filter screen, pressure gage, temperature gage, selector valve, oil pump drive, output seal and gear mounts.
Y	Rebuild of the transfer case is a depot level function.
Z	See MAC Chart for Modular Warping Tug Diesel Engine Group Number 0301010101.
AA	See MAC Chart for Modular Warping Tug Marine Gear Group Number 0301010102.
AB	See MAC Chart for Modular Warping Tug Transfer Case Group Number 0301010103.
AC	Refer to Army Technical Manual TM 55-3950-204-14 & P.
AD	Refer to Army Technical Manual TM 5-2815-258-24.
AE	Refer to Army Technical Manual TM 55-1925-257-14&P.

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	O	General Mechanics Rail and Marine Tool Kit	5180-00-629-9783	
2	O	Torque Wrench, 30-150 in. lbs 3/8 in. Drive	5120-00-230-6380	
3	O	Torque Wrench, 30-150 ft lbs 1/2 in. Drive	5120-00-247-2540	
4	D	Torque Wrench, 100-500 ft lbs	5120-00-542-5577	
5	D	Pinch Pry Bar 60	5120-00-224-1384	
6	D	Hammer, Hand, (sledge hammer) 10 lb	5120-00-251-4489	
7	D	General Mechanics Tool Kit	5180-00-177-7033	
8	O	Hammer, Hand, Scaling	5120-00-224-4111	
9	O	Wire Brush	7920-00-291-5815	
10	D	Automotive Tool Kit	5810-00-177-7033	
11	O	Wrench, Strap	5120-00-776-1840	
12	D	Wrench, Monkey	5120-00-277-3120	
13	D	Electrolyte Solution Battery Tester	6630-00-171-5126	
14	O	Fuse Puller and Tester	5120-00-319-3295	
15	O	Multimeter	6625-00-171-5126	
16	O	Welder Tool Kit	5180-00-754-0661	
17	D	Dial Indicator	5120-00-402-9619	
18	D	Thermometer, Test	6685-00-056-3109	
19	G	Wheel Puller		
20	D	Pliers, Snap Ring		
21	D	Tool Kit, Compressor	5180-01-188-5075	
22		Megger	6625-01-015-1451	
23	O	Power Washer		
24	O	Scraper, Long Handle		

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
25	O	Air Tester		
26	O	Air Compressor		
27	D	Adaptor (1 5/8 in. Dia plugs) (Cylinder Block)		J21850
28	D	Aftercooler Adaptor Cup Plug Installer		J28711
29	D	Aftercooler Adaptor Plug Remover and Installer		J25275
30	D	Aftercooler Cup Plug Installer (2 1/2 in. Dia)		J24597
31	D	Alignment Tool		J21799
32	D	Block Assembly Wrench Set		J25451-B
33	D	Block Thread Repair Kit		J29513
34	D	Cup Plug Installer (1 in. Dia)		J33420
35	D	Cylinder Block Air Box Plugging Tool		J29571
36	D	Cylinder Block Line Boring Tool		J29005
37	D	Cylinder Block Tap		J25384
38	D	Cylinder Diameter Checking Gage		J5347-B
39	D	Cylinder Hone Set (2 1/2 in. to 5 3/4 in.)		J5902-01
40	D	Dial Bore Gage Master Setting Fixture		J23059-01
41	D	Dial Indicator Set		J22273-01
42	D	Diesel Engine Parts Dolly		J6387
43	D	Handle		J7079-02
44	D	Loctite "Chisel" Gasket Remover		PT7275
45	D	Master Ring Gage for Block Bore		J24564

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
46	D	Overhaul Stand (6V and 8V engines)		J29109
47	D	Overhaul Stand (12V and 16V engines)		J9384-04
48	D	Overhaul Stand Adaptor (6V and 8V engines)		J33850
49	D	Overhaul Stand Adaptor (12V and 16V engines)		J8650
50	D	Pipe Plug Remover/Installer (1/8 in. Dia)		J34650
51	D	Special Plug Remover (dry cylinder block)		J21995-01
52	D	Special Plug Remover		J23019
53	D	Load Cell Kit, Cam Follower Roller Fixture (Cylinder Head)		J33421-25
54	D	Cam Follower Service Fixture		J33421-A
55	D	Cylinder Head Bolt Hole Cleanout Tap		J25384
56	D	Cylinder Head Guide Studs (set of two)		J24748
57	D	Cylinder Head Holding Plate Set		J3087-01
58	D	Cylinder Head Lifting Fixture		J22062-01
59	D	Engine Barring Tool		J22582
60	D	Feeler Gage Set (.0015 in. to .015 in.)		J3172
61	D	Feeler Stock (.0015 in.)		J23185
62	D	Fuel Line Nut Wrench		J8932B
63	D	Injector Fuel Hole Brush		J8152
64	D	Pressure Checking Tool		J28454
65	D	Push Rod Remover (set of three)		J3092-01
66	D	Slide Hammer		J2619-01

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
67	D	Spring Tester		J22738-02
68	D	Valve Bridge Holding Fixture		J21772
69	D	Valve Bridge Gage Remover (broken)		J7453
70	D	Valve Bridge Guide Remover Set		J7091-01
71	D	Valve Bridge Guide Installer		J7482
72	D	Valve Guide Cleaner		J5437
73	D	Valve Guide Installer (machined)		J21520
74	D	Valve Guide Remover		J6569-A
75	D	Valve Seat Dial Gage		J8165-2
76	D	Valve Guide Oil Seal Installer		J35373
77	D	Valve Seat Grinder (Model VIP)		J7040-A
78	D	Valve Seat Grinder		J8165-1A
79	D	Valve Seat Grinder Adaptor Set		J24566
80	D	Valve Seat Insert Installer		J24357
81	D	Valve Seat Insert Remover Assembly		J23479-492
82	D	Valve Seat Insert Remover Collet		J23479-33
83	D	Valve Spring Checking Gage		J25076-B
84	D	Valve Spring Compressor		J7455-A
85	D	Water Nozzle Installer (intermediate)		J24857-A
86	D	Front Oil Seal Installer (6V and 8V) (Crankshaft)		J9783
87	D	Rear Oil Seal Installer (std and ovs seals)		J21112-B
88	D	Handle		J3154-A
89	D	Guide Studs (c/s with dowels)		J9727-2
90	D	Guide Studs (c/s without dowels)		J9727-5

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
91	D	Expander (std seal)		J4239
92	D	Handle		J8092
93	D	Guide Studs		J25002
94	D	Expander (ovs seal, no handle or guide studs)		J8682
95	D	Sleeve Installer (ovs seal)		J21983
96	D	Installer		J9727-A
97	D	Handle		J3154-1A
98	D	Expander (std seal, no handle)		J22425-A
99	D	Expander (ovs seal, no handle or guide studs)		J4195-01
100	D	Installer (ovs seal)		J4194-01
101	D	Dial Indicator Set		J5959-01
102	D	Engine Barring Tool		J22582
103	D	Flywheel Housing Alignment Studs		J1927-01
104	D	Micrometer Ball Attachment		J4757
105	D	Torque Wrench Adaptor (12V and 16V engines)		J22898-A
106	D	Universal Bar Type Puller		J24420-B
107	D	Flywheel Lifting Fixture (Flywheel)		J25026
108	D	Flywheel Lifting Tool		J6361-01
109	D	Oil Seal Removing and Replacing Tool Set		J3154-04
110	D	Slide Hammer Set		J5901-01
111	D	Flywheel Housing Aligning Studs (set of four) (Flywheel Housing)		J1927-01
112	D	Flywheel Housing Concentricity Gage Set		J9734-C

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
113	D	Connecting Rod Holding Fixture (Piston, Connecting Rod and Cylinder Liner)		J7632
114	D	Cylinder Liner Master Ring Gage		J24564
115	D	Cylinder Hone Set (2½ in. to 5¾ in. range)		J5902-01
116	D	Cylinder Liner Hold-Down Tool		J24565-02
117	D	Cylinder Liner Remover Set		J24563-A
118	D	Dial Bore Gage Setting Fixture		J23059-01
119	D	Dial Indicator Set		J24898
120	D	Feeler Gage Set		J3172
121	D	Micrometer Ball Attachment		J4757
122	D	Piston Crown Identification Gage		J25397-A
123	D	Piston Pin Alignment Tool		J24285
124	D	Piston Pin Retainer Installer		J23762-A
125	D	Piston Pin Retainer Leak Detector (plastic)		J23987-B
126	D	Piston Pin Retainer Leak Detector (all metal)		J35134
127	D	Piston Ring Compressor		J24227
128	D	Piston Ring Remover Installer		J8128
129	D	Piston to Liner Feeler Gage Set		J5438-01
130	D	Seal Ring Compressor		J24226
131	D	Accessory Drive Hub Oil Seal Aligning Tool (Camshaft)		J21166
132	D	Alternator Drive Step-Up Gear Aligning Gage		J29893
133	D	Balance Weight Cover Oil Seal Installer		J9791
134	D	Camshaft Gear Puller		J1902-B

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
135	D	Camshaft Gear Puller Adaptor Plate Set		J6202-01
136	D	Camshaft and Oil Pump Gear Installer		J1903
137	D	Dial Indicator and Attachment Set		J5959-01
138	D	Puller Adaptor		J7932
139	D	Slide Hammer Set		J6471-02
140	D	Spring Scale		J8129
141	D	Universal Bar Type Puller		J24420-B
142	D	Pullers (Fuel & Governors)		J6270-1
143	D	Oil Seal Remover and Installer		J6270-3
144	D	Buffing Wheel (brass wire)		J7944
145	D	Fuel Pipe Socket		J8932-B
146	D	Fuel System Primer		J5956
147	D	Injector Auxiliary Tester		J22640-A
148	D	Injector Body Reamer		J21089
149	D	Injector Calibrator		J22410
150	D	Injector Carbon Remover Set		J9418
151	D	Injector Holding Fixture		J22396
152	D	Injector Nut Seal Ring Installer		J29197
153	D	Injector Service Tool Set		J23435-C
154	D	Body Brush		J8152
155	D	Nut Socket Wrench		J4983-01
156	D	Rack Hole Brush		J8150
157	D	Spray Hole Cleaner Vice		J4298-1
158	D	Spray Tip Carbon Remover (high sack)		J9464-01

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
159	D	Spray Tip Carbon Remover (low sack)		J24838
160	D	Spray Tip Driver and Brushing Cleaner		J129101
161	D	Wire Sharpening Stone		J8170
162	D	Injector Tag Remover and Installer		J24767
163	D	Injector Test Oil (5, 10, 30 and 55 GAL)		J26400
164	D	Injector Tester		J23010-B
165	D	DDEC Injector Adaptor Kit		J23010-500
166	D	Lapping Block Set		J22090-A
167	D	Master Injector Calibrating Kit		J35369
168	D	Needle Valve Lift Gage		J9462-02
169	D	Polishing Compound		J23038
170	D	Polishing Stick Set		J22964
171	D	Spray Tip Cleaning Wire (.007 in. Dia holes)		J21462-01
172	D	Spray Tip Flow Gage		J25600-B
173	D	Field Modification Kit		J25600-103
174	D	Spring Tester		J29196
175	D	Tip Conical. Gage and Rack Freeness Tester		J29584
176	D	Cylinder Head Holding Plate Set		J3087-01
177	D	Cylinder Liner Depth Gage		J22273-01
178	D	Injector Protrusion Gage		J25521
179	D	Injector Tube Service Tool Set		J22525-B
180	D	Injector Tube Swaging Tool		J28611-A
181	D	Fuel Pump Tool Set		J1508-E

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
182	D	Fuel Pump Wrench		J4242
183	D	Control Link Operating Lever Bearing Remover and Installer		J8985
184	D	Governor Cover Bearing Installer		J21068
185	D	Governor Cover Bearing Remover and Installer		J21967-01
186	D	High Speed Spring Retainer and Installer		J5345-12
187	D	Governor Weight Shaft Retaining Ring Installer		J36840
188	D	Blower Alignment Tool (Air System)		J33001
189	D	Blower Clearance Feeler Set		J1698-02
190	D	Blower Service Tool Set		J6270-G
191	D	Installer, Lip Type Oil Seal/Water Sleeve		J35787-A
192	D	Dial Indicator Set (magnetic base)		J7872
193	D	Turbocharger Inlet Shield		J26554-A
194	D	Adaptor Cup Plug Installer		J28711
195	D	Adaptor Plug Remover and Installer		J25275
196	D	Bar Type Gear Puller (Lubrication System)		J24420
197	D	Oil Pump Drive Gear Installer (16V)		J9380
198	D	Oil Pump Drive Shaft Gear Installer (6V and 8V)		J22397
199	D	Oil Pump Driven Gear Installer (16V)		J9381
200	D	Oil Pump Driven Shaft Gear Installer (6V and 8V)		J22398

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
201	D	Oil Pump Driving Gear Installer (6V and 8V)		J22285
202	D	Spring Tester (1-125 lbs)		J29196
203	D	Strap Wrench (spin-on filter)		J24783
204	D	Cooling System Radiator Cap Pressure Tester (Cooling System)		J24460-01
205	D	Fingers, Fan Hub Nut Socket (16V)		J6534-8
206	D	Handle		J7079-2
207	D	Oil Seal Installer		J8501
208	D	Pliers		J4646
209	D	Puller		J24420-A
210	D	Socket, Fan Hub Nut (16V)		J22556-2
211	D	Thermostat Seal Installer		J8550
212	D	Water Pump Bearing and Gear Installer		J25257
213	D	Water Pump Impeller/Gear Slip Torque Tool		J33765
214	D	Water Pump Seal Remover Set		J22150-B
215	D	Water Pump Impeller Slip Checking Fixture		J34034
216	D	Slide Hammer (Electrical Equipment)		J23907-1
217	D	Tachometer Drive Alignment Tool Set		J23068
218	D	Tachometer Drive Shaft Remover		J5901-3
219	O	Coveralls, Eye Protection, Respirator, Gloves (Zodiac Boat Hull)		
220	O	Grease Pencil Or Chalk		

Table 3. Tools and Test Equipment for Modular Causeway System. (MCS) (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
221	O	Saber Saw With Metal Cutting Blades		
222	D	Grinder or Disc Sander w/ Coarse Medium Grit		
223	O	Measuring Tape		
224	D	Scissors, Shears		
225	O	Cardboard, Kraft Paper		
226	D	Disposable Containers, Mixing Sticks		
227	D	Disposable Brushes, Putty Knife		
228	D	Polyethylene Sheet		
229	D	Heavy Cardboard, Thin Plywood, Sheet Metal		
230	D	Acetone		

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMPONENTS OF END ITEM (COEI) LIST**

INTRODUCTION

Scope

This work package lists COEI for the Roll-On/Roll-Off Discharge Facility to help you inventory items for safe and efficient operation of the equipment.

General

This list is for information purposes only and is not authority to requisition replacements. These items are part of the Roll-On/Roll-Off Discharge Facility. 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. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List

Column (1) - Illus Number. Gives you the number of the item illustrated.

Column (2) - National Stock Number (NSN). 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 stowage location of COEI is also included in this column. 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. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (5) - Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) - Qty Rqd. Indicates the quantity required.

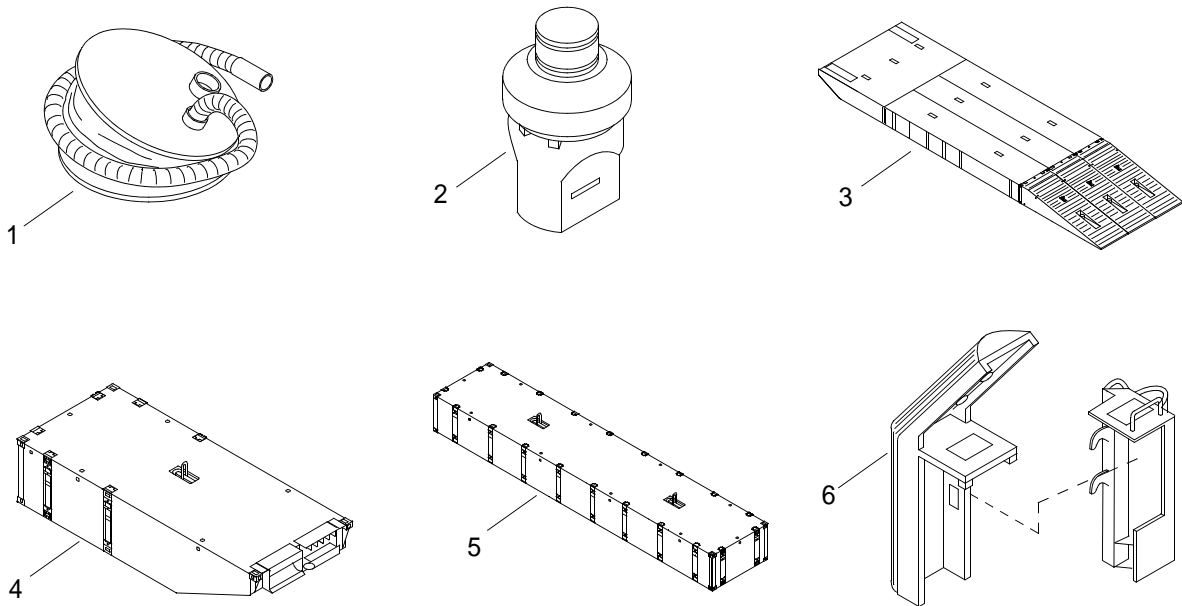


Table 1. Component of End Item. (COEI)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
1		AIR PUMP WITH ACCESSORIES (zodiak container) Consisting of: Bravo Foot Pump (0UUV1) P-I-10025 Foot Pump Adapter (0UUV1) P-I-10030 Pressure Gage (0UUV1) S-T-900001 Fill Valve (0UUV1) T-V-10030		EA	2
2		ANCHOR MARKER LIGHT (clear) (BII container) (0Z3L4) 556-60-14		EA	10
3		BEACH END MODULE ASSEMBLY (ISOPAK) (34712) E02853		EA	3
4		CENTER END RAKE (ISOPAK) (34712) E02823		EA	35
5		CENTER MODULE (ISOPAK) (34712) E02803		EA	54
6		CORNER FENDER (left hand) (BII container) (81340) MCS-00-582-004-15 LH		EA	8

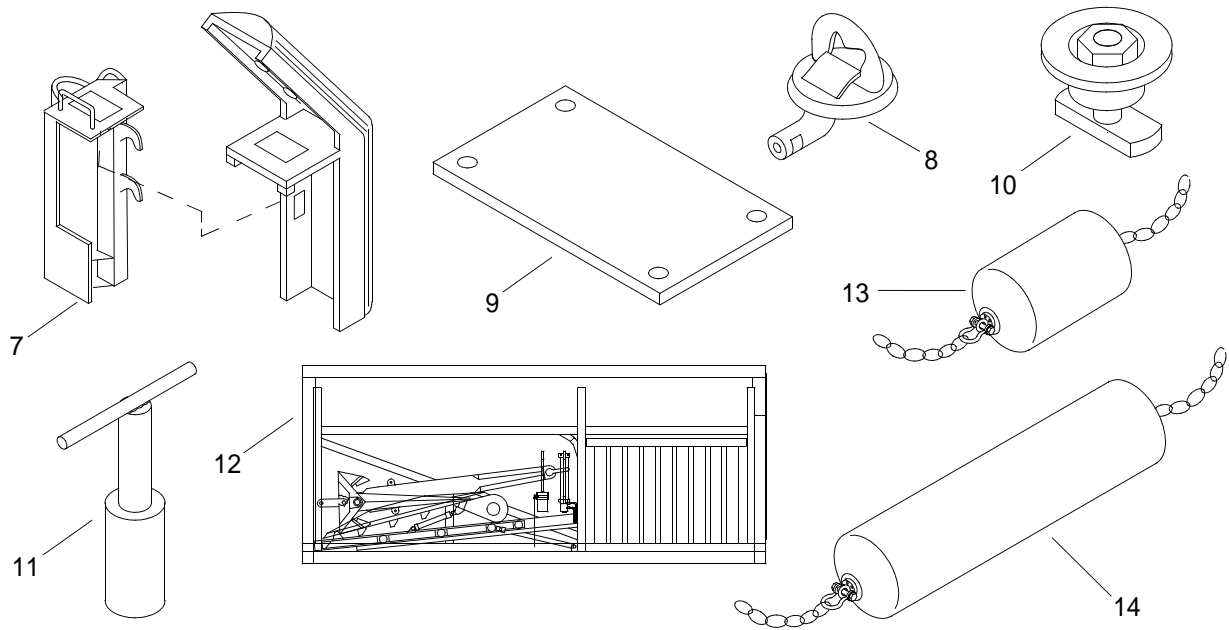


Table 1. Component of End Item. (COEI)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
7		CORNER FENDER (right hand) (BII container) (81340) MCS-00-582-004-15-RH		EA	8
8		D-RING MOORING ASSEMBLY (34712) E07803		EA	8
9		DUNNAGE MATT (20 ft all-access container) (81340) FC-111-001-1		EA	36
10		DUNNAGE MATT LOCK DOWN DOG ASSEMBLY (20 ft all-access container) (81340) FC-111-001-1-11		EA	40
11		DUNNAGE MATT LOCK DOWN TEE HANDLE ASSEMBLY (20 ft all-access container) (81340) FC-111-001-1-10		EA	40
12		EMERGENCY ANCHOR SYSTEM (EASY) (20 ft all-access container) (19207) MCSRRDF-99-581-002		EA	1
13		FENDER ASSEMBLY (3 x 5 marine fender) (40 ft open-top container) (5R766) MG-3x5		EA	50
14		FENDER ASSEMBLY (4 x 12 marine fender) (40 ft open-top container) (5R766) MG-4x12		EA	4

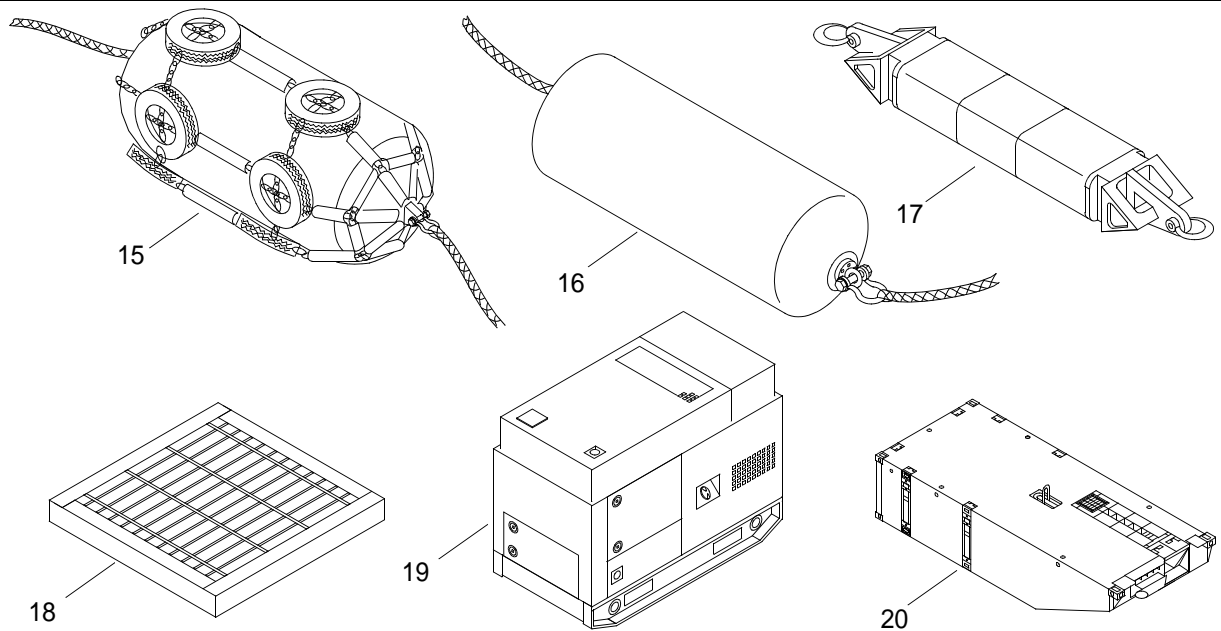


Table 1. Component of End Item. (COEI)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
15		FENDER ASSEMBLY (5 x 10 marine fender) (40 ft open-top container) (5R766) MG-5x10		EA	3
16		FENDER ASSEMBLY (6 x 12 marine container) (break bulk) (5R766) MC-6x12		EA	3
17	2040-01-092-3081	FLEXOR COUPLING, PONTOON CAUSEWAY (left hand rakes) (80091) 6138992		EA	35
18		FLEXOR WELL COVER (BII container) (06101) MCS-99-673-001-129		EA	24
19	6155-01-275-5061	GENERATOR SET, DIESEL ENGINE (20 ft end-opening container) (30554) MEP 803A		EA	1
20		LEFT END RAKE (ISOPAK) (34712) E02833		EA	35

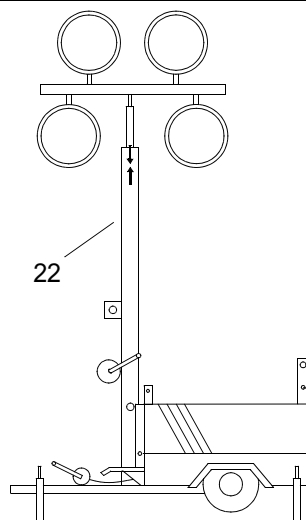
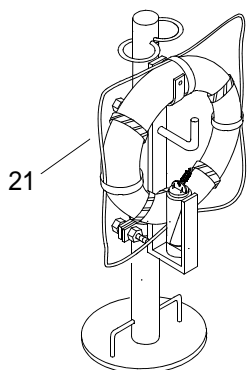


Table 1. Component of End Item. (COEI)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
21	4220-00-275-3157 6230-01-143-4778	LIFE RING BUOY AND STANCHION ASSEMBLY (BII container) Consisting of: Ring, Buoy, Life Saving (81340) SUBPART 160.050-30 IN Light, Marker, Distress (0FDD9) SS777 Hanger, Bracket (06101) MCS-01-612-010-3 Stanchion (06101) MCS-01-612-010-1 Rubber Strip (39428) 9013K52 Nut (39428) 90473A031 Bolt (39428) 91309A628 Bracket Half (06101) MCS-01-612-010-4 Retainer (06101) MCS-01-612-010-2 Bolt (39428) 92245A716		EA	4
22		LIGHT TOWER (20 ft end-opening container) (33968) 36043610		EA	4

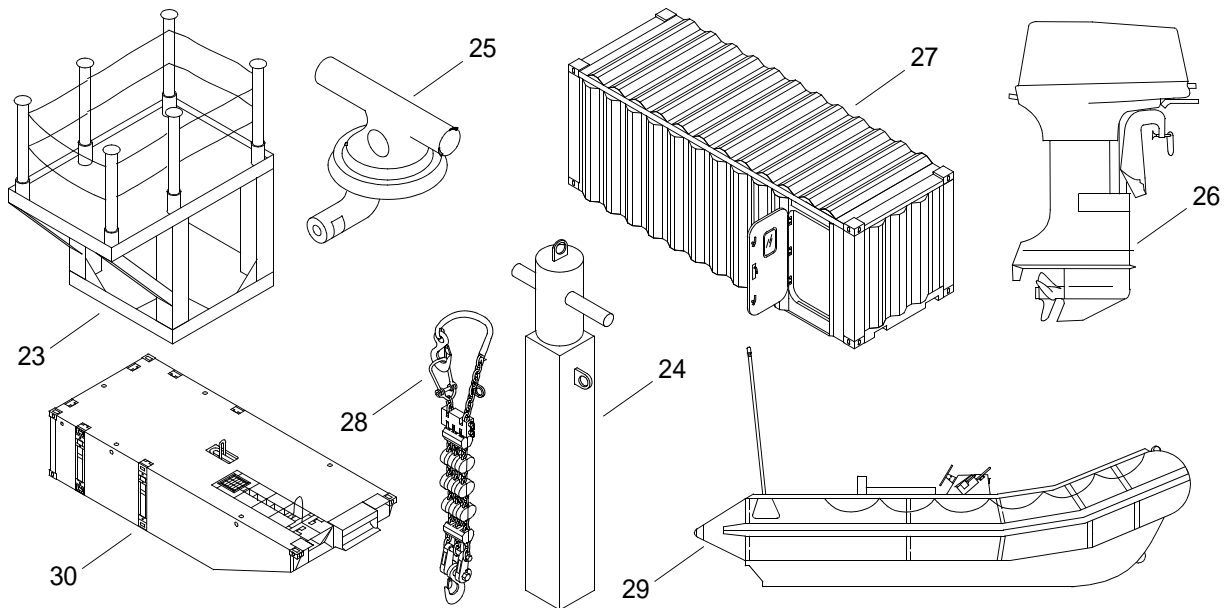


Table 1. Component of End Item. (COEI)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
23		MANLIFT BASKET (5 x 10 fender container) (81340) MCS-99-673-001-127		EA	1
24		MOORING BITT (20 ft end-opening container) (81340) FC-582-004		EA	30
25		MOORING CLEAT ASSEMBLY (BII container) (34712) E02783		EA	8
26	2805-01-362-9548	OUTBOARD MOTOR, GASOLINE (RHIB) (20 ft all-access container) (80256) J70PLEE		EA	1
27		PERSONNEL SHELTER (20 ft end-opening container) (81340) FC-621-001		EA	1
28		QUICK DISCONNECT (BII container) (94658) FC-582-006		EA	6
29		RHIB (20 ft all-access container) (38915) J-U-UT299-B2		EA	1
30		RIGHT END RAKE (ISOPAK) (34712) E02813		EA	35

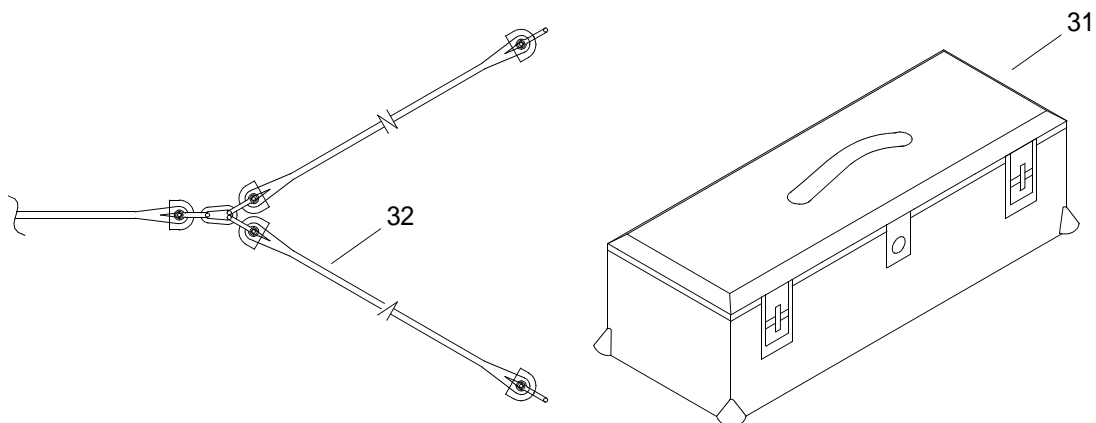


Table 1. Component of End Item. (COEI)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
31	5180-01-430-2911	TOOL KIT, GENERAL MECHANIC'S (personnel shelter) (1GM92) 007		KT	1
32	5925-01-385-2027	TOWING BRIDLE (BII container) (19207) MCS-01-582-001 ON BOARD SPARES 8 STRAND ULTRA BLUE (BII container) (5A457) W6 AMSTEEL-BLUE, 4 1/2 in. X. 250 ft (BII container) (5A457) 830 BOLTS, 3/4 in. X. 7 in. LG (BII container) (0KEV6) 91469A861 BREAKER, 20 AMP (BII container) (16333) OS-416S-EO.FO CARRIAGE BOLT, 1/2 in. -13UNC x 2 in. LG (BII container) (0KEV6) 93548A720 CIRCUIT BREAKER (BII container) (89946) 452D837G04		EA	1

Table 1. Component of End Item. (COEI)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
	2040-01-092-3081	FLEXOR COUPLING, PONTOON CAUSEWAY (unused left hand rakes) (80091) 6138992		EA	4
		FLEXOR WELL COVER (BII container) (06101) MCS-99-673-001-129		EA	2
	5920-01-411-7631	FUSE, CARTRIDGE (BII container) (75915) 251003		EA	2
		GUILLOTINE, INTERCONNECT (BII container) (34712) E04282		EA	20
	6240-01-344-9950	LAMP, FLUORESCENT (BII container) (62607) F48T12/LW/EW		EA	5
	6240-01-335-7727	LAMP, INCANDESCENT (BII container) (24545) BC25T8DC		EA	2
	6240-01-419-2503	LAMP, INCANDESCENT (BII container) (62607) HPR40		EA	2
		MFC, CONNECTING, INTERLOCK (BII container) (34712) E04222		EA	20
	5310-00-765-2280	NUT, PLAIN, HEXAGON (BII container) (4773) D7760D		EA	50
	5310-00-763-8921	NUT, PLAIN, HEXAGON (BII container) (96906) MS51967-23		EA	12
		NYLON ROPE SSR-1200 (BII container) (5A457) W7		RL	1
	5315-00-899-4116	PIN, COTTER (BII container) (80205) MS24665-520		HD	100
	4235-01-416-8465	SPILL CLEAN-UP KIT, HAZARDOUS MATERIAL (BII container) (50378) P-SKFL31		KT	1
		SPRING PIN (BII container) (34712) E04251		EA	20
		TWIST LOCKS, HORIZONTAL (BII container) (059E5) BLR1212		EA	8
		TWIST LOCKS, VERTICAL (BII container) (94658) F633L-C		EA	16

Table 1. Component of End Item. (COEI)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
	5310-00-809-5997	WASHER, FLAT (BII container) (0158B) MS27183-17		HD	50
	5310-00-982-6584	WASHER, FLAT (BII container) (96906) MS27183-26		EA	50

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
BASIC ISSUE ITEMS LIST (BII)**

INTRODUCTION

Scope

This work package lists BII for the Roll-On/Roll-Off Discharge Facility to help you inventory items for safe and efficient operation of the equipment.

General

These essential items are required to place the Roll-On/Roll-Off Discharge Facility in operation, operate it, and TO do emergency repairs. Although shipped separately packaged, BII must be with the Roll-On/Roll-Off Discharge Facility during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the BII List

Column (1) - Illus Number. Gives you the number of the item illustrated.

Column (2) - National Stock Number (NSN). 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 stowage location of BII is also included in this column. 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. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (5) - Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) - Qty Rqd. Indicates the quantity required.

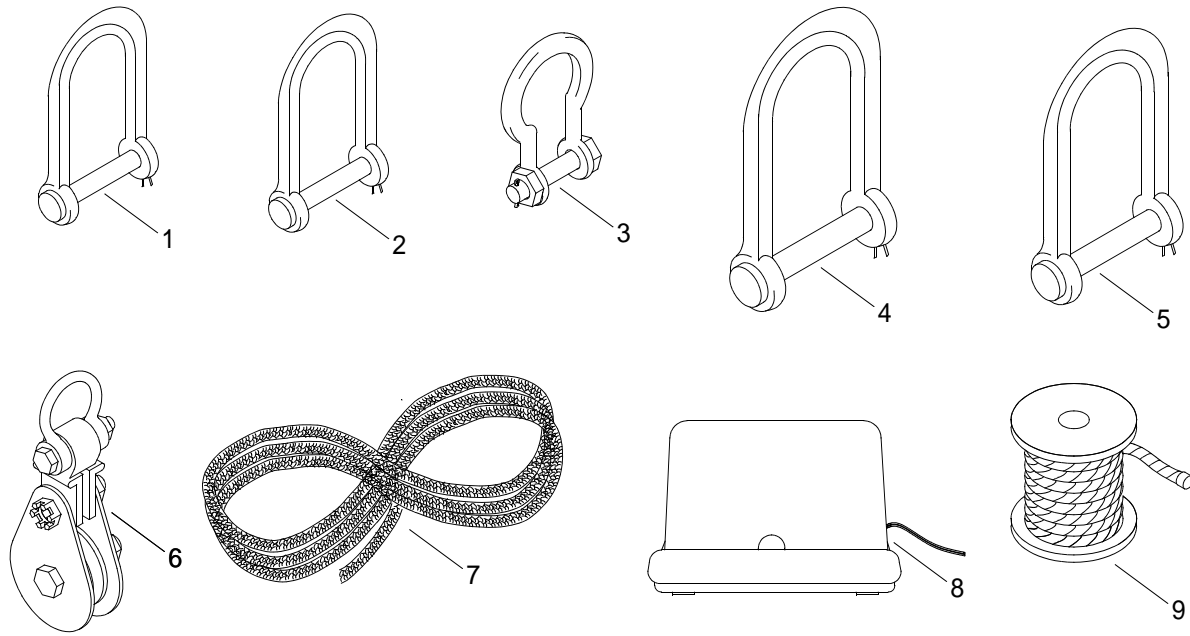


Table 1. Basic Issue Items. (BII)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
1		2-TON 1/2 in. ANCHOR SHACKLE (75535) 1019472		EA	8
2		2-TON 1/2 in. ANCHOR SHACKLE (75535) 1019472		EA	330
3		30-TON 1-1/2 in. ANCHOR BOLT SHACKLE (75535) 1021110		EA	8
4		3-1/4 TON 5/8 in. SHACKLE (75535) 1019490		EA	8
5	4030-00-340-5433	4-3/4 TON 3/4 in. SHACKLE (75535) 1019515		EA	8
6		8 in. SNATCH BLOCK (75535) 121022		EA	3
7		8 STRAND ULTRA BLUE (5A457) W6		RL	10
8		ADAPTOR, CHARGER (OJDM6) 21-200016		EA	4
9		AMSTEEL-BLUE, 4 1/2 in. X. 250 ft (5A457) 830		RL	2

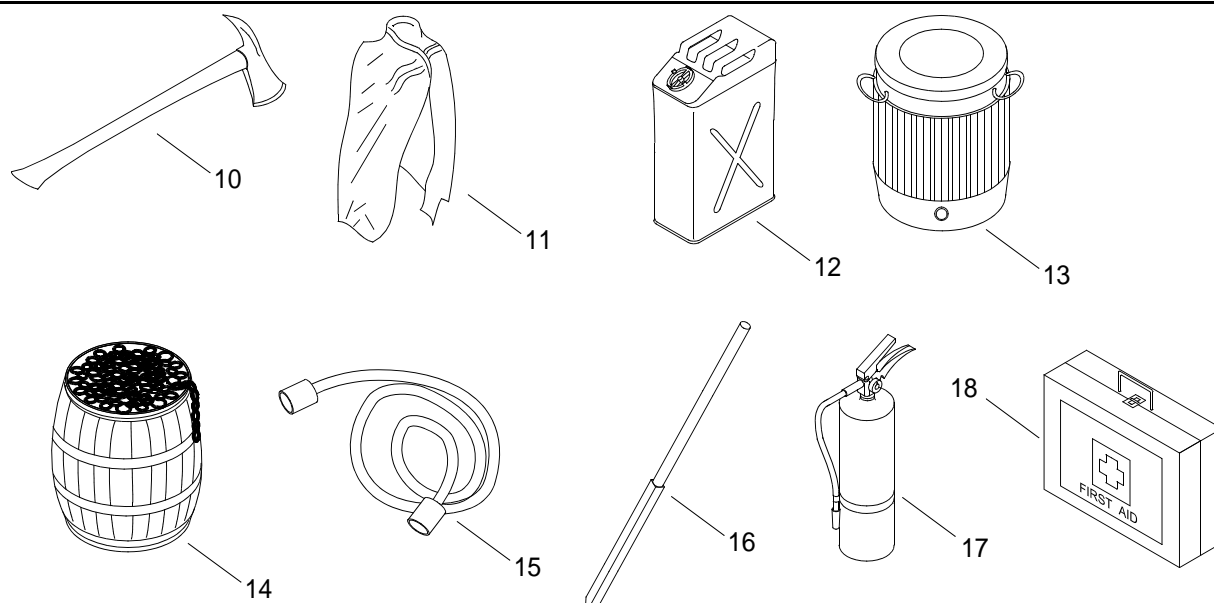


Table 1. Basic Issue Items. (BII) (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
10	4210-00-142-4949	AX, PICKHEAD (76109) GGGA296TYPE2		EA	2
11	6510-01-439-0862	BLANKET, BURN (1BJ97) 7260C		PG	1
12	7240-01-337-5269	CAN, GAS, MILITARY (81349) MIL-C-53109		EA	8
13	7240-00-089-3827	CAN, WATER, MILITARY (81349) MIL-C-43613		EA	2
14		CHAIN, 1/2 in., GENERAL PURPOSE, GRADE 30 (3A054) 3592T549		FT	134
15	5935-00-567-0128	CONNECTOR, PLUG, ELECTRICAL (19207) 1162338		EA	1
16	5120-00-224-1390	CROWBAR (58536) A-A-2563		EA	8
17	4210-00-889-2491	EXTINGUISHER, FIRE (10 lb) (58536) A-A-393		EA	2
18	6545-00-116-1410	FIRST AID KIT, GENERAL PURPOSE (64616) 68-1371		EA	2

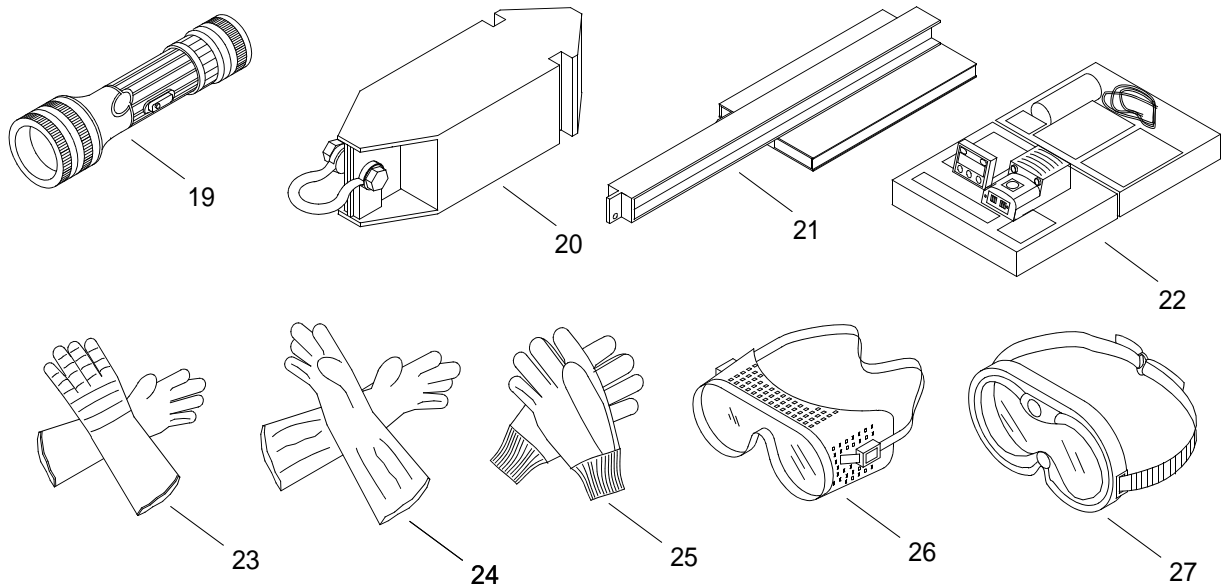


Table 1. Basic Issue Items. (BII) (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
19	6230-00-264-8261	FLASHLIGHT (81349) MIL-F-3747		EA	2
20		FLEXOR RECEIVER INSERT (19207) FCRRDF-99-581-001-70		EA	2
21		FORKLIFT ADAPTOR (06101) MCS-673-99-001-167		EA	2
22		GAS-FREE METER (7J761) US ARMY-112160		EA	1
23	8415-01-267-9661	GLOVES, ANTIFLASH (81349) MIL-G-2874		PR	18
24	8415-00-266-8677	GLOVES, CHEMICAL (81349) ZZ-G-381		PR	6
25	8415-00-34-4658	GLOVES, MEN'S AND WOMEN'S (leather palm) (81348) ZZ-G-401		PR	18
26	4240-00-052-3776	GOGGLES, INDUSTRIAL (chipping, chemical) (80204) ANSI Z87.1		PR	18
27	8465-01-004-2893	GOGGLES, SUN, WIND AND DUST (safety) (81349) MIL-G-43914		PR	18

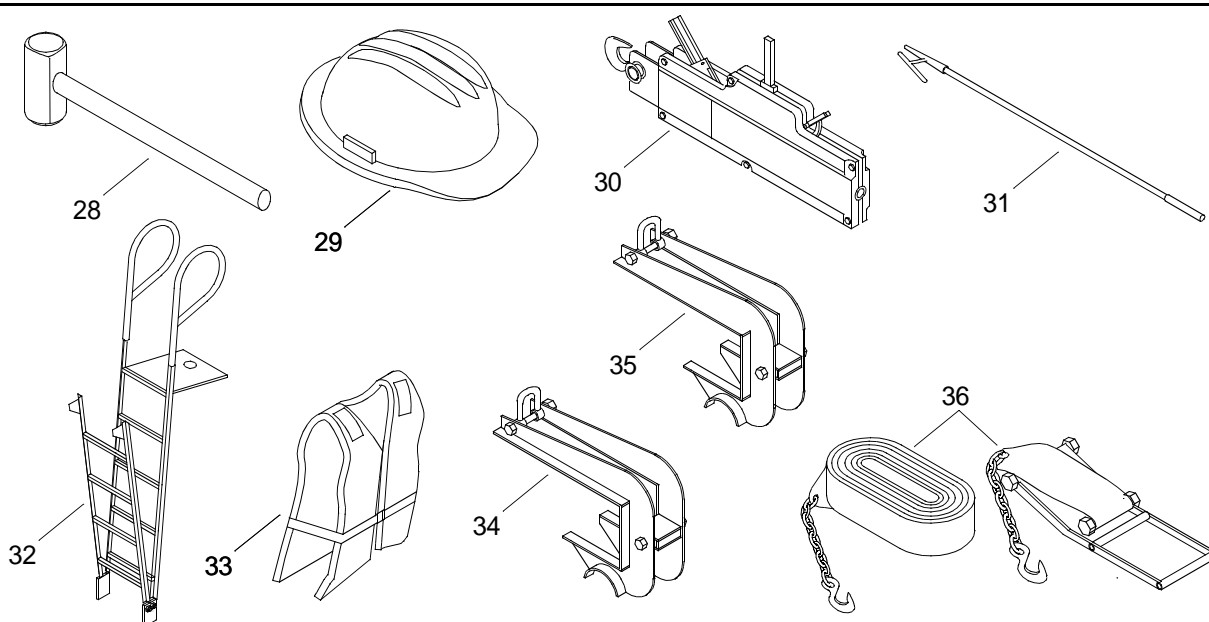


Table 1. Basic Issue Items. (BII) (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
28	5120-00-243-2957	HAMMER, HAND (10 lb sledge) (58536) 75H		EA	8
29	8415-00-889-3768	HELMET, SAFETY (brown) (80204) ISEA/ANSI Z89.1		EA	10
30	3950-01-006-0723	HOIST, WIRE ROPE (12708) TU32		EA	2
31	2040-00-268-9250	HOOK, BOAT (21530) H389		EA	2
32		LADDER (06101) MCS-99-673-001-128		EA	2
33	4220-00-276-8926	LIFE PRESERVER, VEST (work vest) (81349) MIL-L-17653		EA	18
34		LIFTING DEVICE ASSEMBLY (EASY container) (19207) FCRRDF-99-581-001-68		EA	1
35		LIFTING DEVICE ASSEMBLY (BII container) (19207) FCRRDF-99-581-001-68		EA	1
36		LOAD RESTRAINING DEVICE, 30 ft, SERIES 15,000 ULTIMATE STRENGTH (3AJ34) 20489		EA	15

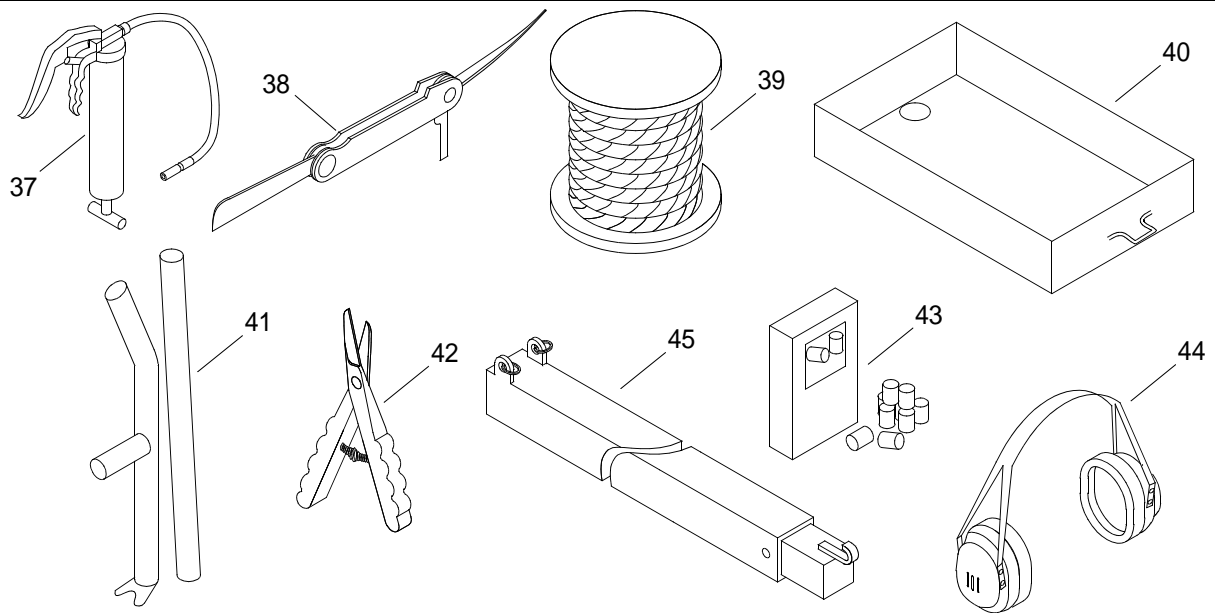


Table 1. Basic Issue Items. (BII) (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
37	4930-00-965-0288	LUBRICATING GUN, HAND (77335) 30415		EA	2
38	5120-00-224-9440	MARLINESPIKE (80244) 51201-00-224-9440		EA	8
39		NYLON ROPE SSR-1200 (5A457) W7		RL	2
40	4910-00-387-9592	PAN, DRAIN (81349) MIL-P-45819		EA	1
41		PIN RETRACTION TOOL (06101) MCS-99-673-001-132		EA	2
42	5110-01-423-8503	PLIERS (WIRE CUTTER COMBO) (55719) 659ACP		EA	4
43	6515-00-137-6345	PLUG, EAR (89875) 4-375		BX	1
44	4240-00-022-2946	PROTECTOR, HEARING (58536) A-A-58084		EA	4
45		PUSH ROD (06101) FCRRDF-99-581-001-130		EA	1

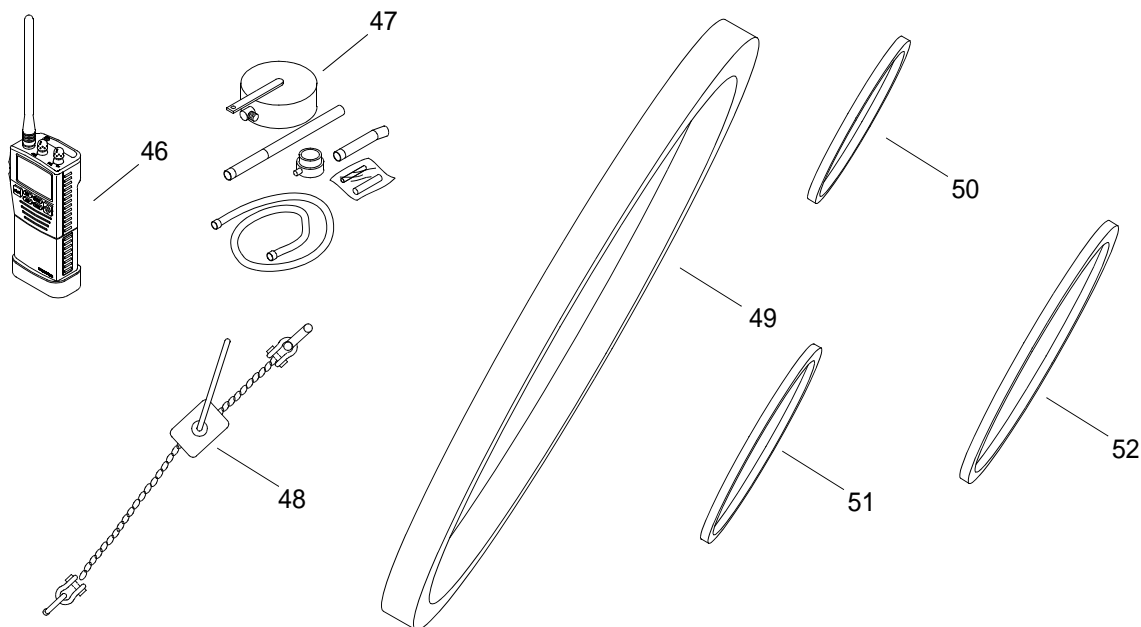


Table 1. Basic Issue Items. (BII) (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
46		RECEIVER/XMTR (OJDM6) 50-2000029		EA	4
47		ROTARY TRANSFER PUMP (25795) 1P893		EA	1
48	4010-01-477-8666 2040-01-442-4055	SLING, 36,000 lbs ADJUSTABLE CHAIN Consisting Of: 1-1/4" Alloy Master Link (75535) 1014342 200 ft-5/8" Chain (75535) 273563 5/8" Clevis Grab Hook (75535) 1027695 5/8" Lokalloy (75535) 1014723		EA	4
49		SLING, LIFTING, 53,000 lbs (brown) (3AJ34) EN600X25FT		EA	8
50		SLING, LIFTING, 5300 lbs (green) (3AJ34) EN60X4FT		EA	4
51		SLING, LIFTING, 5300 lbs (green) (3AJ34) EN60X5FT		EA	4
52		SLING, LIFTING, 5300 lbs (green) (3AJ34) EN60X6FT		EA	4

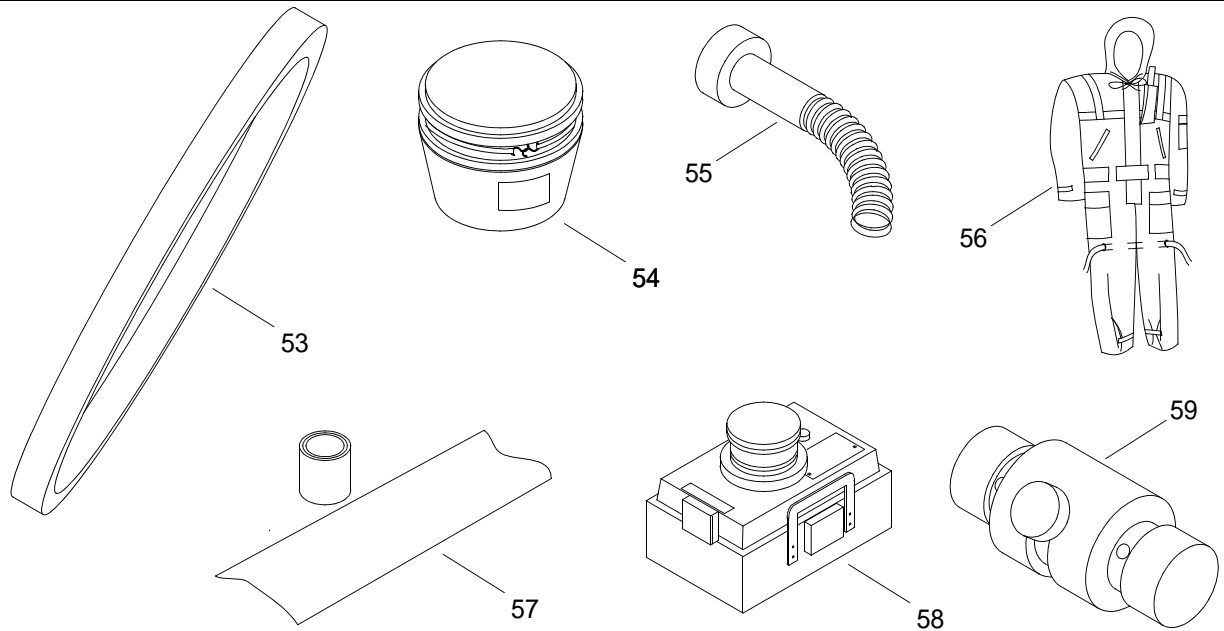


Table 1. Basic Issue Items. (BII) (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
53		SLING, LIFTING, 8400 lbs (yellow) (3AJ34) EN90X20FT		EA	4
54	4235-01-416-8465	SPILL CLEAN-UP KIT, HAZARDOUS MATERIAL (BII container) (50378) P-SKFL31		KT	1
55	7240-00-177-6154	SPOUT, CAN, FLEXIBLE (19207) 11677020		EA	2
56	4220-01-251-6466	SUIT, SURVIVAL, COLD (63806) ISS-590		EA	18
57		TARP REPAIR KIT (1B651) A149		EA	1
58		TOWING LIGHTS Navigational Barge Light (red) (0AGB3) 98-23804M Navigational Barge Light (green) (0AGB3) 98-23805M Navigational Barge Light (amber) (0AGB3) 98-23400M		EA	2
59		TWIST LOCKS, HORIZONTAL (059E5) BLR1212		EA	102

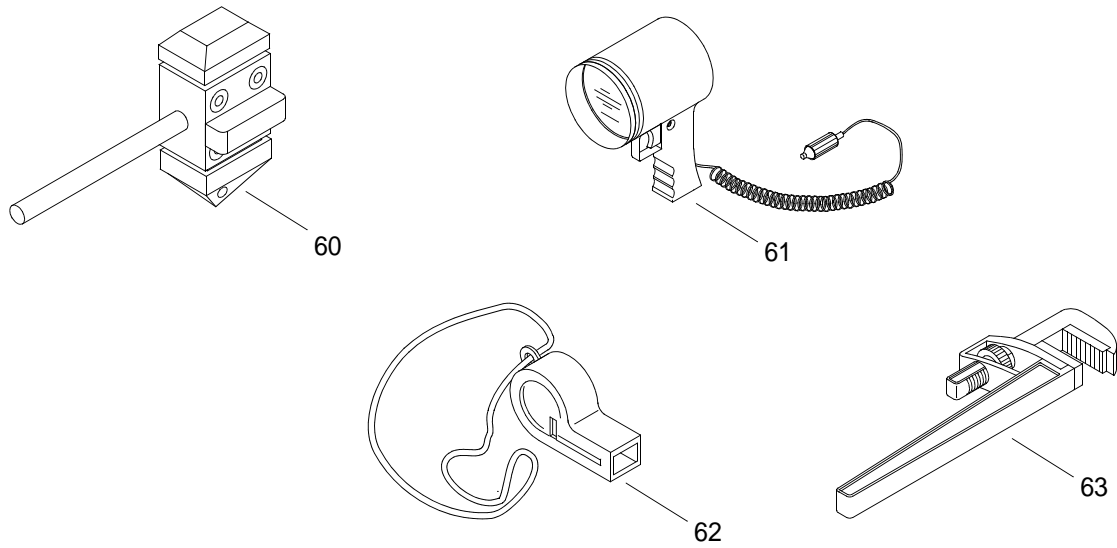


Table 1. Basic Issue Items. (BII) (Continued)

(1) ITEM NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQD
60		TWIST LOCKS, VERTICAL (94658) F633L-C		EA	216
61		WATER PROOF LANTERN (0PL28) 2206		SET	2
62	8465-00-254-8803	WHISTLE, BALL (58536) A-A-55106		EA	24
63	5120-00-277-1462	WRENCH, PIPE (81348) TKCX1D		EA	2

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EXPENDABLE AND DURABLE ITEMS LIST (EDIL)**

INTRODUCTION**Scope**

This work package lists expendable and durable items that you will need to operate and maintain the Roll-On/Roll-Off Discharge Facility. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/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 item (e.g., Use antiseize compound. (Item 3, WP 0106 00)).

Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item. (C = Operator/Crew, O = Unit/AVUM, F = Direct Support/AVUM, H = General Support, D = Depot)

Column (3) - National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) - Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (PN). This column provides the other information you need to identify the item.

Column (5) - Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

EXPENDABLE AND DURABLE ITEMS LIST**Table 1. Expendable and Durable Items List. (EDIL)**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC AND PART NUMBER	(5) U/M
1	C		2 + 4 Fuel Conditioner (0HBE8) 509765	BT
2	C	6850-01-441-3218	Antifreeze 1 gallon liquid (58536) A-A-52624	GL
3	C	8030-01-275-5050	Antiseize Compound (71984) MOLYKOTE G-N PT	CONT
4	C	6135-00-643-1310	Battery, non-rechargeable (6 volt) (83740) EV90	PKG
5	C	6135-00-835-7210	Battery, non-rechargeable (D size) (90303) MN1300	PKG
6	C		Carbon Guard (0HBE8) 772048	BT

Table 1. Expendable and Durable Items List. (EDIL) (Continued)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC AND PART NUMBER	(5) U/M
7	C	6850-01-085-1423	Carbon Removing Compound, (Engine Tuner) (58011) 2+2Gumcutter	CN
8	C	6850-01-431-9025	Cleaner, Type II (81349) MIL-C-29602	CO
9	C	8030-00-231-2345	Corrosion Preventive Compound, Class I, grade I preservative (81349) MIL-C-16173	GL
10	C	8030-00-244-1297	Corrosion Preventive Compound, Class I, grade II preservative (81349) MIL-C-16173	GL
11	C	9140-01-413-7511	Diesel Fuel , Summer grade, DF2, low sulfur (81348) VV-F-800	BULK
12	C	9130-01-089-6745	Gasoline, Unleaded (80738) Unleaded	GAL
13	C	9150-00-145-0268	Grease, Aircraft, General Purpose (81349) MIL-G-81322	CN
14	C	9150-01-197-7693	Grease, Automotive and Artillery, 14 oz. cartridge (81349) M-10924-B	CA
15	F		Grease, Cindol, (Starter and Pinion) (IT4E6) 2321	TU
16	C	9150-00-929-7946	Grease, General Purpose, (lubriplate TU 1200-2) (76736) Dura-Lith Grease EP 2	CA
17	C	9150-01-307-6848	Grease, Outboard Motor, (Triple Guard Grease) (81349) 508298	TU
18	C	9150-00-530-6814	Grease, Wire Rope-Exposed , 35 lb can, petroleum oil based (81349) MIL-G-18458	CN
19	C	8520-00-782-3554	Hand Cleaner (58536) A-A-461	BX
20	C	9150-00-252-6383	Hydraulic Fluid, Petroleum Base, (EASY) (81349) MIL-H-5606	QT
21	C	9150-01-463-0014	Hydraulic Fluid, Petroleum Base, (tilt/trim and power steering) (1G604) 92-90100A12	CN
22	C		Kit, HPF Lube (0HBE8) 509952	KT

Table 1. Expendable and Durable Items List. (EDIL) (Continued)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC AND PART NUMBER	(5) U/M
23	C	6260-01-334-4274	Light, Chemiluminescent (OBY83) 9-42740	BX
24	C	9150-01-035-5392	Lubricating Oil, , 80W90 Grade (81349) M2105-1-80W90	QT
25	C	9150-00-117-8791	Lubricating Oil, Engine, Outboard (54926) TC-W111	PT
26	C	9150-01-293-7696	Lubricating Oil, Engine, 15W40 Grade (81349) MIL-PRF-21260	CN
27	C	8540-00-530-3770	Paper, Toilet (58536) A-A-679	BX
28	C	7920-00-148-9666	Rag, wiping, (80244) 7920-00-148-9666	LB
29	C	4020-00926-1386	Twine, fibrous (80063) SCC30639-1	EA
30	C	6550-01-310-1677	Water, distilled, four 1 gallon (96906) MS36300-5	PG
31	C	9525-00-803-3044	Wire, non-electrical (81348) QQ-N-281	SP

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TOOL IDENTIFICATION LIST (TIL)**

INTRODUCTION**Scope**

This work package lists all common tools and supplements and special tool/fixtures needed to maintain the Roll-On/Roll-Off Discharge Facility.

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., Respirator (Item 9, WP 0121 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 (NSN) assigned to the item; use it to 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 manufacturer's 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.

TOOL IDENTIFICATION LIST**Table 1. Tool Identification List. (TIL)**

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/CAGEC	(5) REFERENCE
1	Apron, utility	8415-00-082-6108	A-A-55063 (58536)	SC 4910-95-A72
2	Gage, tire pressure, 10 to 50 PSI	4910-01-117-2994	YA106 (55719)	SC 4910-95-A72
3	Gage, tire pressure, 20 to 120 PSI	4910-00-204-3170	7188BH (27783)	SC 4910-95-A68
4	Mop			
5	Oiler, hand	4930-00-274-5713	A-A-50477B (58536)	SC 4910-95-A72
6	Respirator, air filtering	4240-01-088-8546	14130047 (79687)	SC 4910-95-A68

Table 1. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/CAGEC	(5) REFERENCE
7	Tool Kit, General Mechanics Rail and Marine	5180-00-629-9783	SC (50980)	SC 5180-90-N55
8	Wrench Set, Socket	5120-00-204-1999	B107.1 (05047)	SC 4910-95-A72

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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: "Whomever" whomever@avma27.army.mil
To: whomever@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 AR 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*

05673

ERIC K. SHINSEKI
*General, United States Army
Chief of Staff*

To be distributed in accordance with the initial distribution number (IDN) 0207004 requirements for TM 55-1945-205-10-2.

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)

$^{\circ}\text{C}$ Celsius temperature

