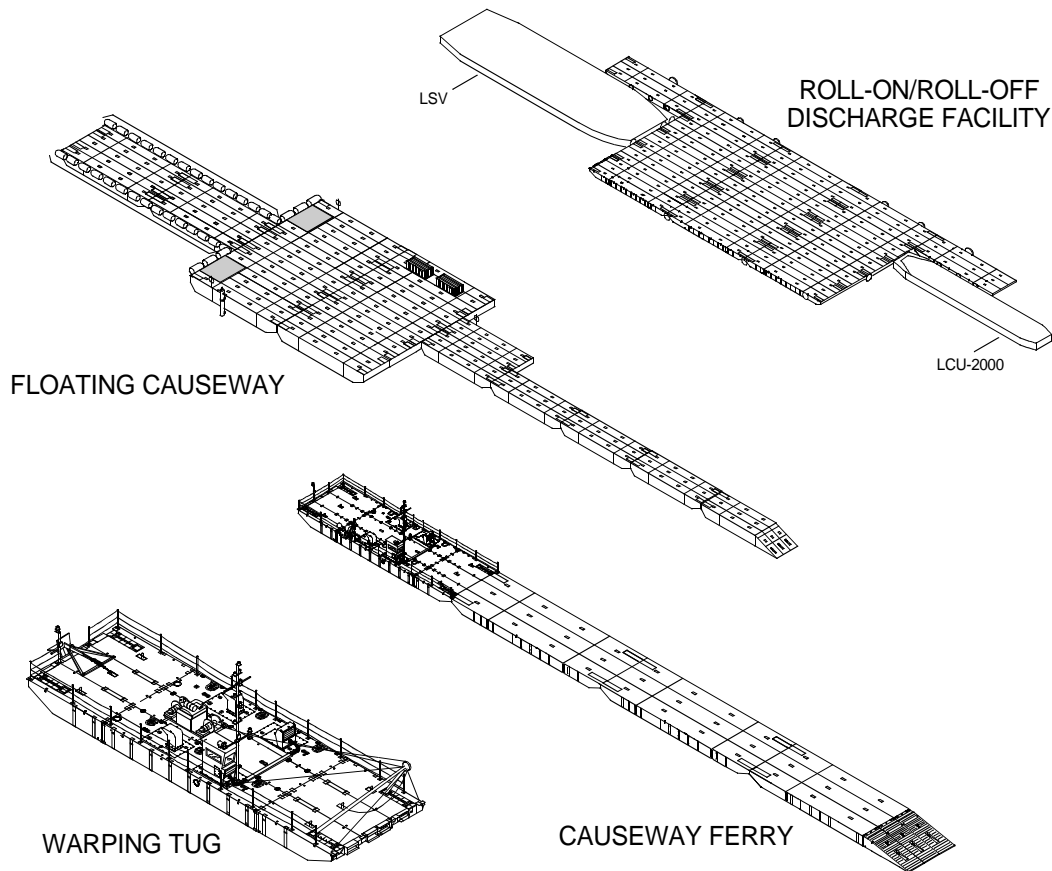


TECHNICAL MANUAL

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL FOR

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



This manual supersedes TM 55-1945-205-24-2 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.



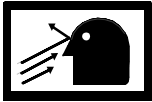
EYE PROTECTION

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



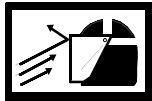
FALLING PARTS

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



FLYING PARTICLES

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



FLYING PARTICLES

FLYING PARTICLES 2 - Arrows bouncing off face with face shield shows that particles flying through the air will harm face.



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.

SAFETY WARNING ICONS - CONTINUED



HEAVY PARTS

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



HEAVY PARTS

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.



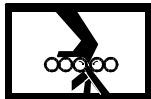
HELMET PROTECTION

HELMET - Arrow bouncing off head with helmet shows that falling parts present a danger.



HOT AREA

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



MOVING PARTS

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



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.



MOVING PARTS

MOVING PARTS 3 - Human figure with an arm caught between gears shows that the moving parts of the equipment present a danger to life or limb.



SHARP OBJECT

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

SAFETY WARNING ICONS - CONTINUED



SHARP OBJECT

SHARP OBJECT 2 - Sharp object on hand shows that a sharp object presents a danger to 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.



CRYOGENIC

CRYOGENICS - Hand in block of ice shows that the material is extremely cold and can injure 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.



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.

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Original 15 MAY 2002

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TECHNICAL MANUAL

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE 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 55-1945-205-24-2 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.

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 2, *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 3, *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*.

Repair Parts and Special Tools List

Refer to TM 55-1945-205-24P-2 when requisitioning parts, special tools and equipment.

Identify the mandatory repair parts required to perform this task listed at the top of the work package in the INITIAL SET UP. Using the part number provided, refer to the part number index work package in TM 55-1945-205-24P-2. Look up the part number in the part number column and identify the figure and item number where the part is located. Turn to the figure and locate the item number listed. Verify that the item is correct.

CHAPTER 1

DESCRIPTION AND THEORY OF OPERATION

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
GENERAL INFORMATION**

SCOPE

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

Type of Manual: Unit, Direct Support and General Support 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 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 TM 55-1945-205-10-2 for preparation of storage or shipment of the RRDF system.

LIST OF ABBREVIATIONS/ACRONYMS

Abbreviation/Acronym	Name
AC	Alternating Current
AEPS	Army Electronic Product Support
AF	Audio Frequency
ASSY	Assembly
ATDC	After Top Dead Center
AOAP	Army Oil Analysis Program
BII	Basic Issue Items
BTDC	Before Top Dead Center
C	Centigrade
CAGEC	Commercial and Government Entity Code
cm	Centimeters
CO2	Carbon Dioxide
COEI	Components of End Item
CPC	Corrosion Prevention Control
D	Depth
DA PAM	Department of the Army Pamphlet
dB	Decibels
DC	Direct Current
Deg	Degrees
E-mail	Electronic mail
EASY	Emergency Anchor System
EIR	Equipment Improvement Recommendations
F	Fahrenheit
fl	Fluid
ft	Feet
ft lbs	Foot Pounds
FWD	Forward
GAL	Gallon
GFI	Ground Fault Indicator
GFCI	Ground Fault Circuit Interrupter
GPH	Gallons Per Hour
H	Height
Hg	Mercury
HP	Horse Power
hrs	Hours
Hz	Hertz
in.	Inches
in. lbs	Inch Pounds
ISO	International Standards Organization
ISOPAK	International Standards Organization Package
lbs	Pounds
kg	Kilograms
kHz	Kilohertz
kPa	Kilopascal
KW	Kilowatt
LCU	Landing Craft Utility
LH	Left Hand
LOTS	Logistics-Over-The-Shore
LSV	Logistics Support Vessel
m	Meters
mA	Milliampere

LIST OF ABBREVIATIONS/ACRONYMS (CONTINUED)

Abbreviation/Acronym	Name
mb	millibar
MCS	Modular Causeway System
mHz	Megahertz
ml	Milliliters
MTBE	Methyl Tertiary Butyl Ether
MTO&E	Modified Table of Organization and Equipment
NEMA	National Electric Manufacturers Association
Ni-Cd	Nickel Cadmium
N-m	Newton-Meters
NOAA	National Oceanic and Atmospheric Administration
ODS	Ozone Depleting Substance
OMC	Outboard Marine Corporation
oz	Ounces
PMCS	Preventive Maintenance Checks and Services
PSI	Pounds Per Square Inch
PTT	Push To Talk
Rcv	Receive
RF	Radio Frequency
RH	Right Hand
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
SS	Sea State
TAMMS	The Army Maintenance Management System
TDC	Top Dead Center
TO&E	Table of Organization and Equipment
Tx	Transmit
uv	Ultra Violet
VAC	Volts Alternating Current
VDC	Volts Direct Current
VHF/FM	Very High Frequency/Frequency Modulation
W	Width

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

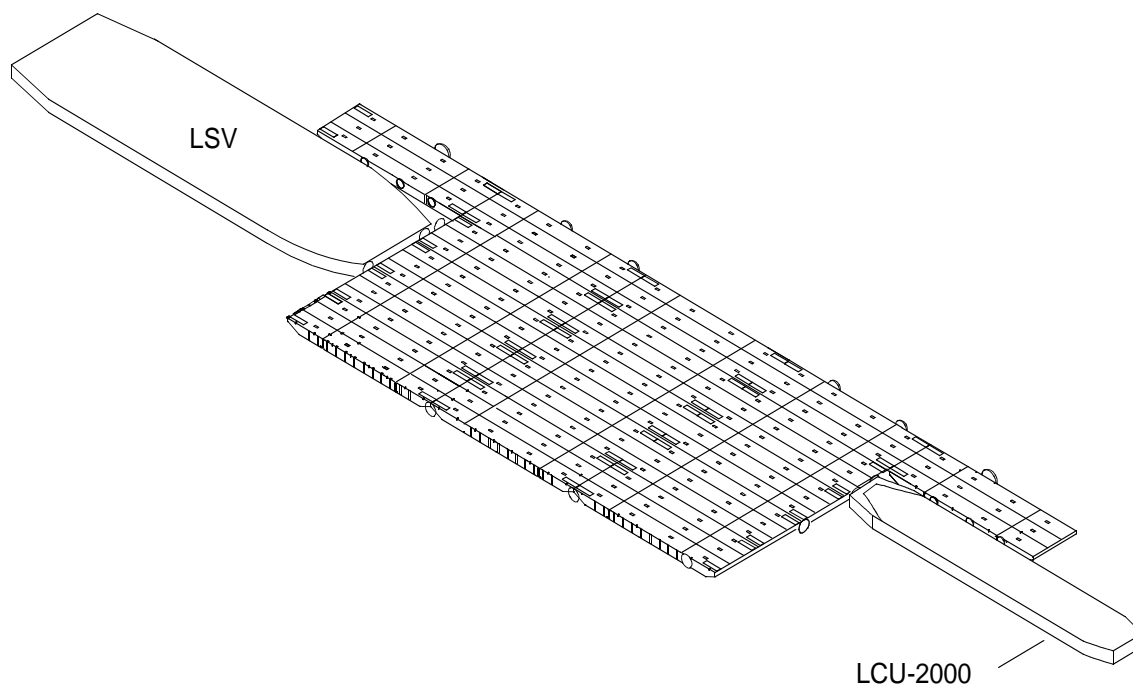
EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

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 subassemblies are 80 ft long and of differing widths. The width depends on the sub assembly's 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.

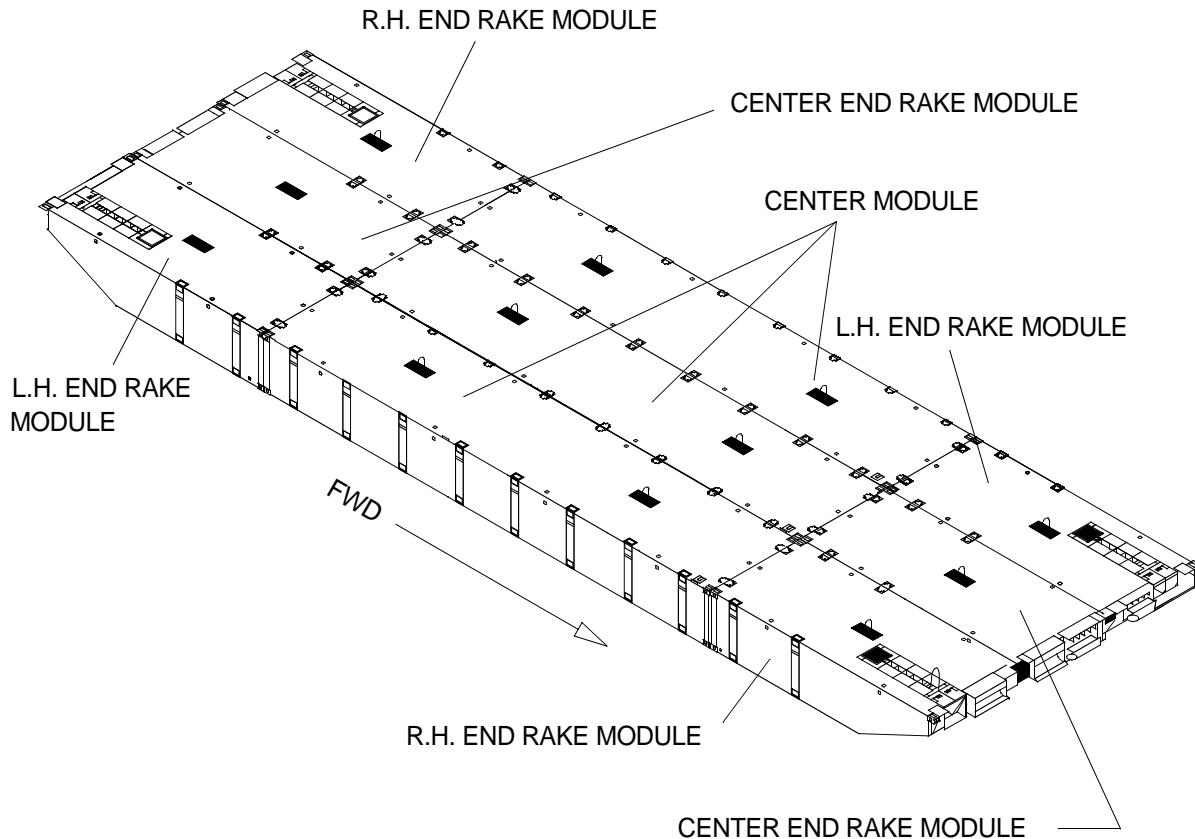
Up to two Landing Ships Vehicle (LSV) or two Landing Craft Utility (LCU) watercraft lighters can be loaded at a time from an RRDF platform. In addition, the platform is capable of supporting two M-1 Abrams tanks and one sealift vessel's cargo ramp foot on the platform surface. The structure of the RRDF 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 center modules (non-powered) 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. All end rakes are compatible with U. S. Navy flexor attachments and shear connectors are fully compatible with ISO container standards. 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 and accessories necessary for operation. The generator set consists of a diesel engine, brushless generator, excitation system, speed governing system, 1000 gallon fuel system, 24 VDC 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 for additional information on the 10 KW tactical quiet generator. Refer to TM 9-6115-643-10 for additional information on the 15 KW tactical quiet generator.

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 bulb 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 ft 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 Ground Fault Interrupter (GFI) protected, 120 volt, 20 amp duplex receptacle; one 240 volt, 25 amp receptacle; individual lamp switches and a non-resettable hour meter 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 (lbs/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 5.51 in. H X 2.17 in. 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° to +50°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 +/- 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 a 20 ft ISO container, 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 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.

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 30,000 lbs 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, 5 ft X 10 ft, 4 ft X 12 ft and 3 ft X 5 ft. The 6 ft X 12 ft fender 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.

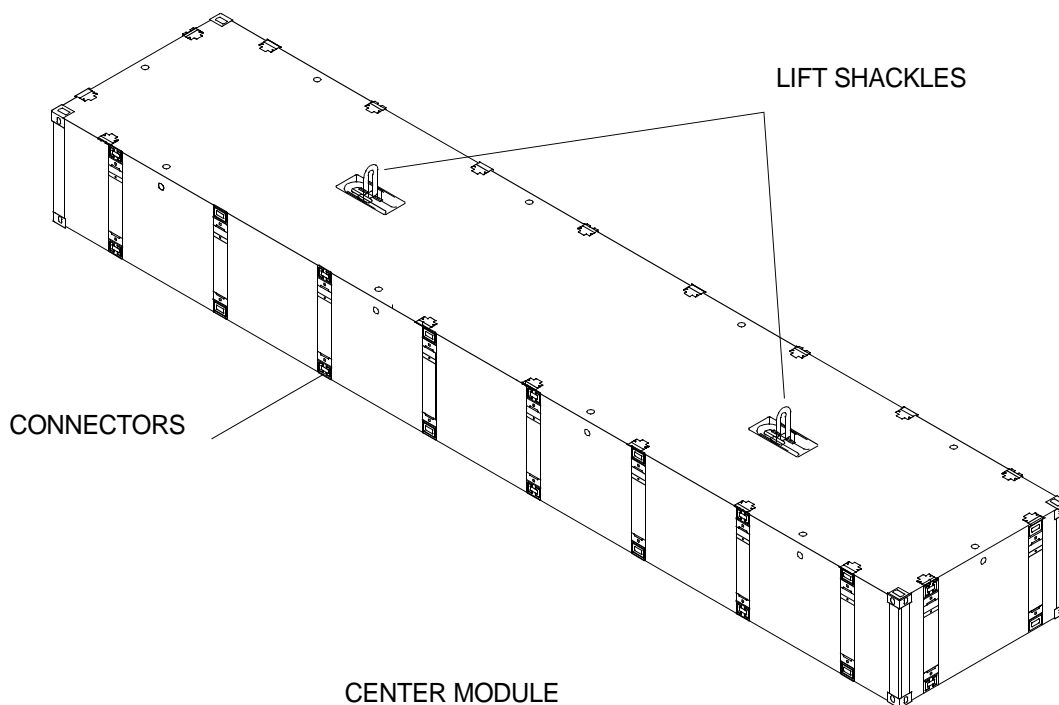
**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DESCRIPTION AND DATA**

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.

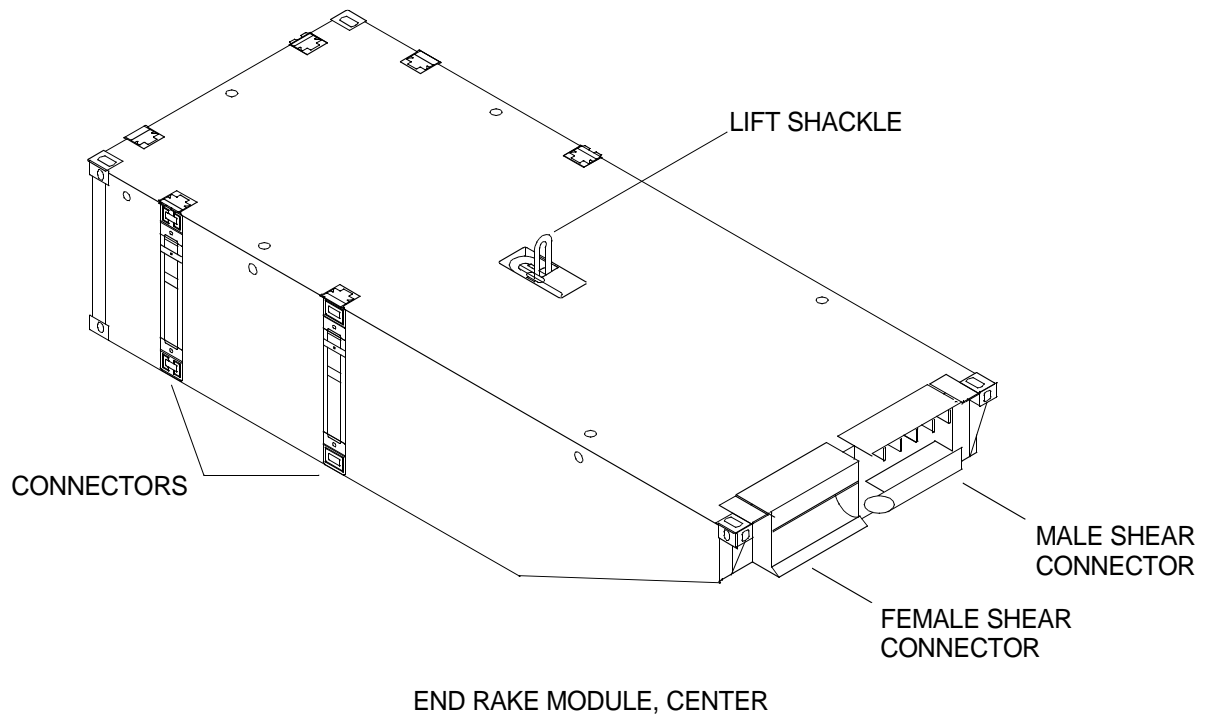


CENTER END RAKE MODULE**Location**

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.



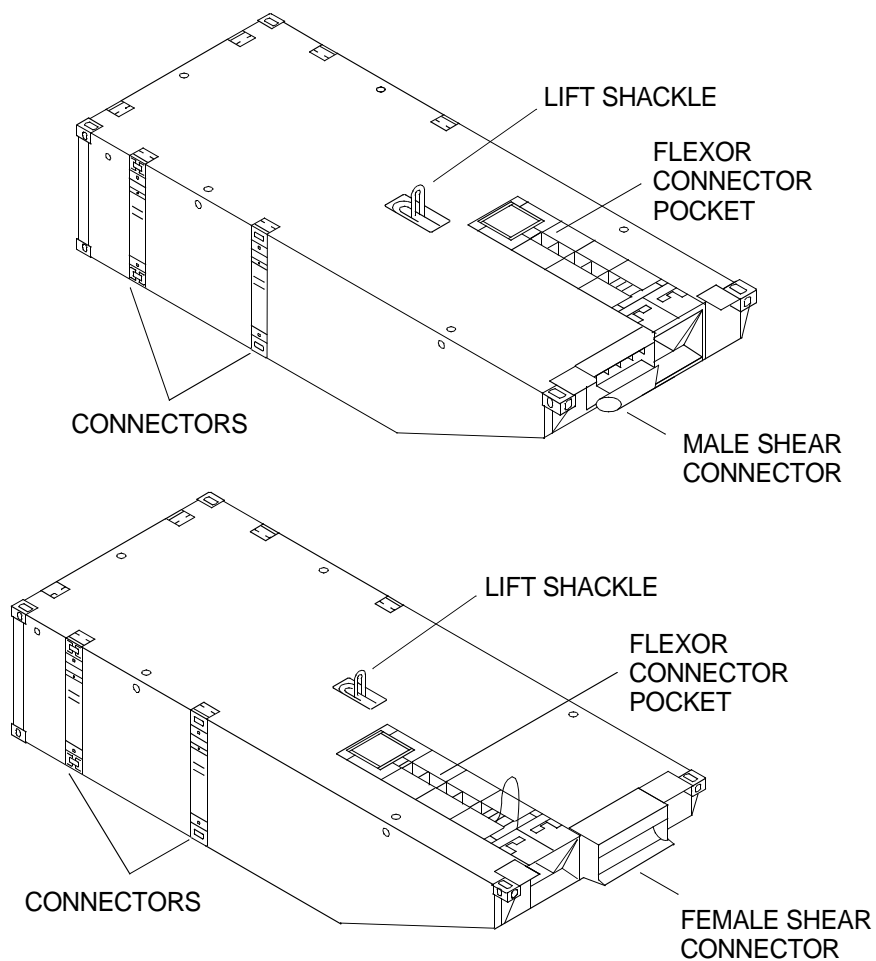
LEFT AND RIGHT END RAKE MODULES

Location

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

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 left forward corner of the module. The right end rake has a flexor connector pocket for flexor connector installation in the right forward corner of the module. Weight of the left and right end rake modules is approximately 12,500 lbs.



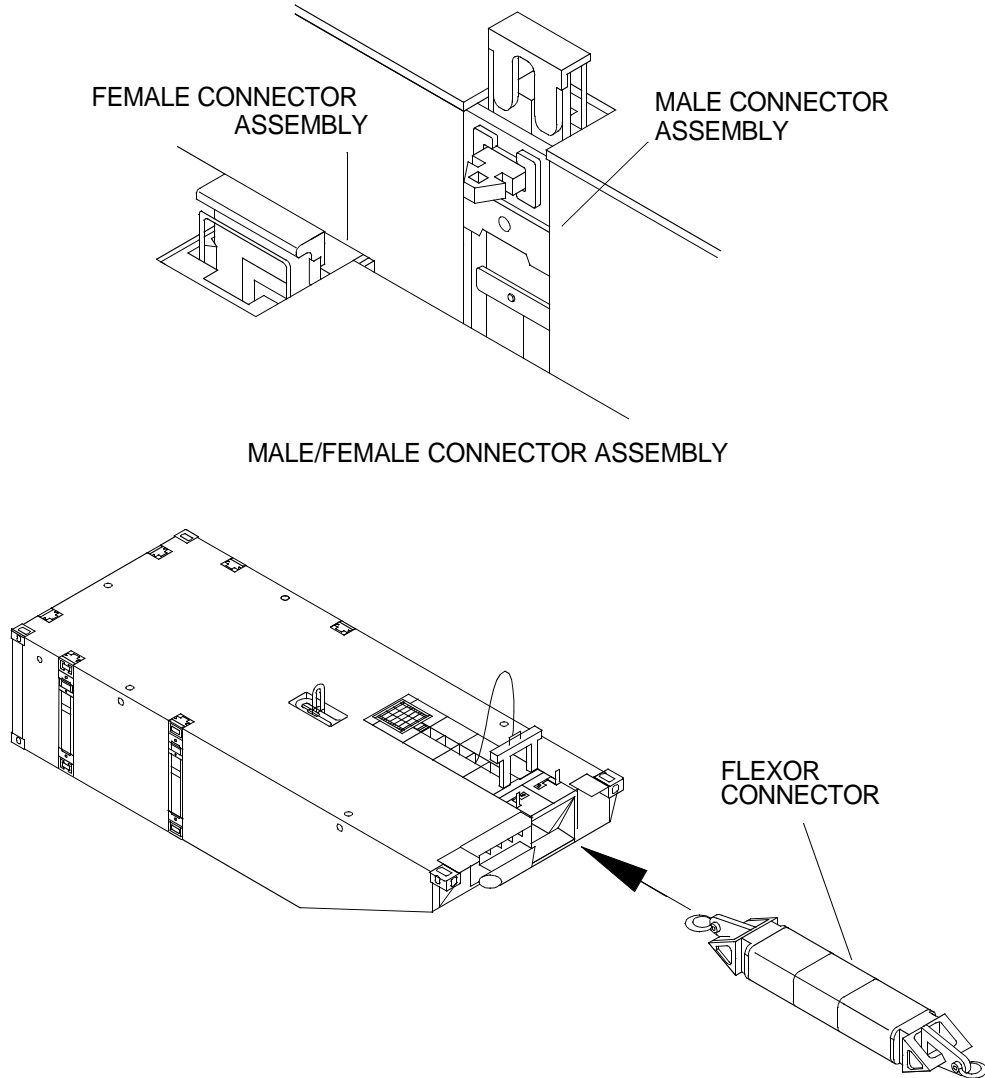
END RAKE MODULES, LEFT HAND (PORT) AND RIGHT HAND (STARBOARD)

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.



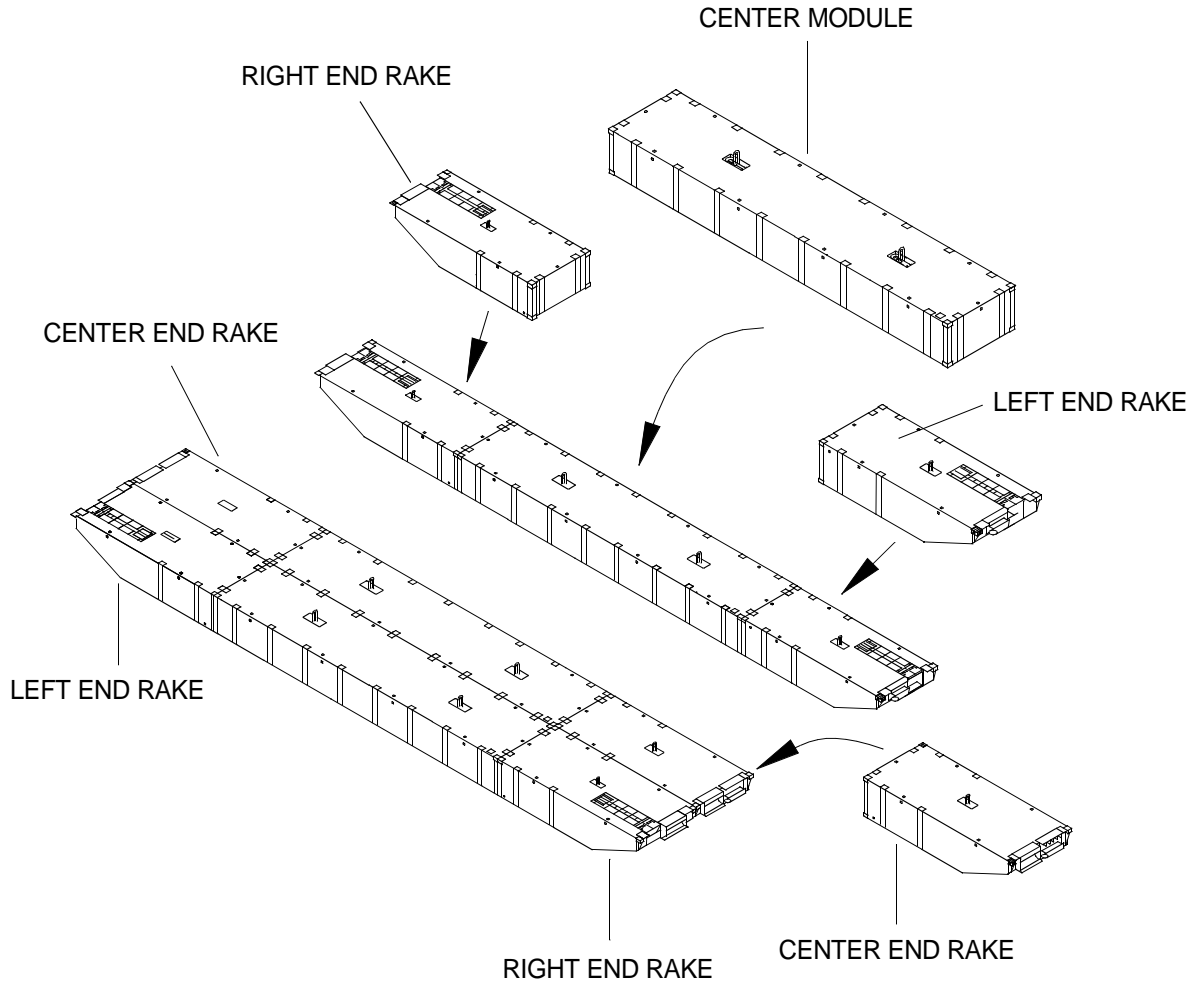
RRDF STRING

Location

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

Description

The module string may be assembled in two different configurations: a center module with two center end rake modules and a center module with one left end rake module and one right end rake module. A center module with two end rake modules weighs 47,500 lbs. A string is 8 ft wide, 80 ft long and 4 ft 6 in. deep.

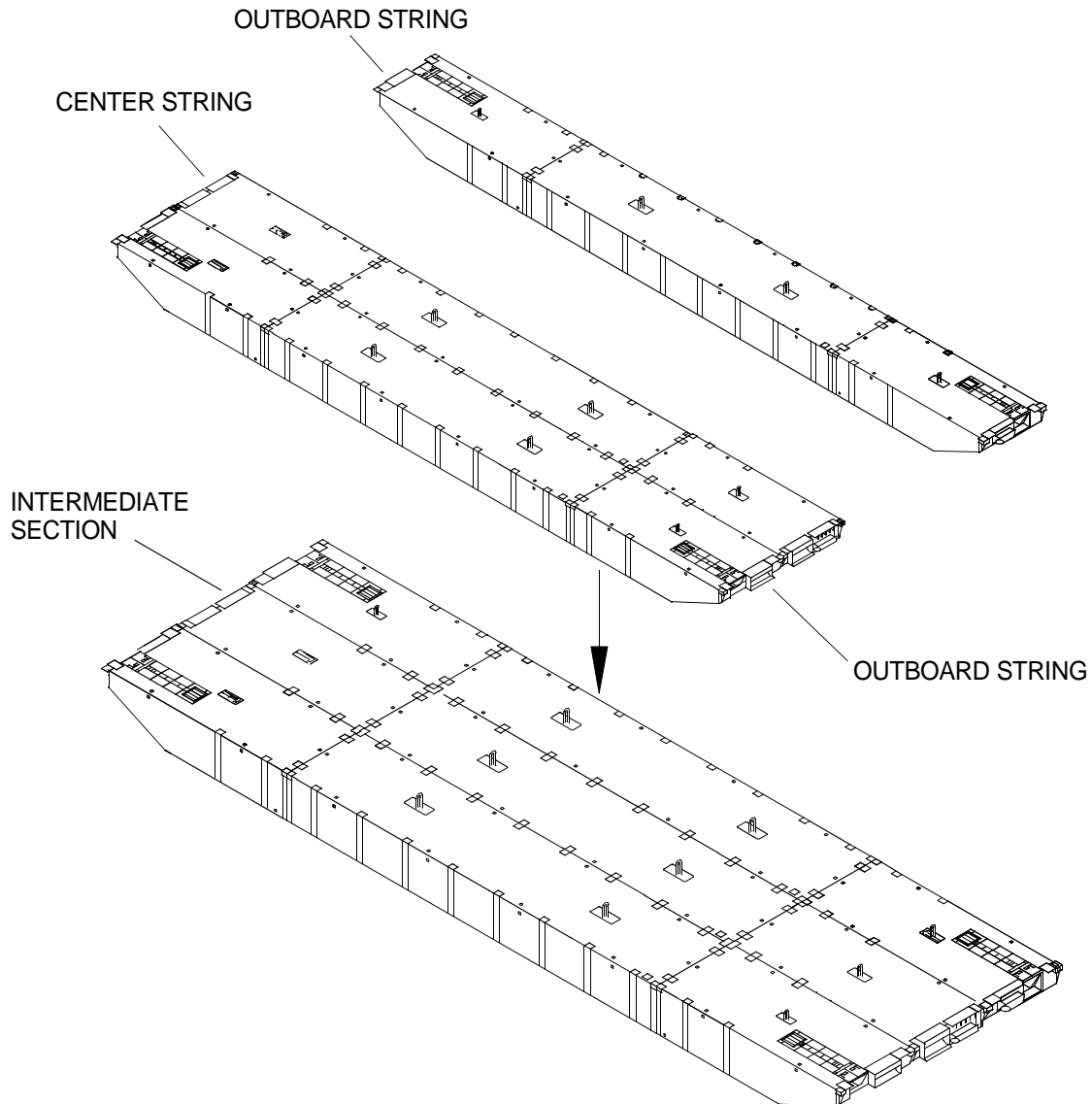


RRDF INTERMEDIATE SECTION
Location

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 2½ in. safety anchor shackle in the top center lifting eye along with 1¾ in. diameter 6 X 37 IWRC two leg and wire rope bridles with 2¼ in. X 8 in. X 16 in. master links attached to bottom lift eyes of the spreader beam using 1¾ in. safety shackles. Bridle IWRC legs are 22 ft, pull to pull, with thimbles on each end. One 1¾ in. screw pin anchor shackle is attached to the lift end of each bridle leg.

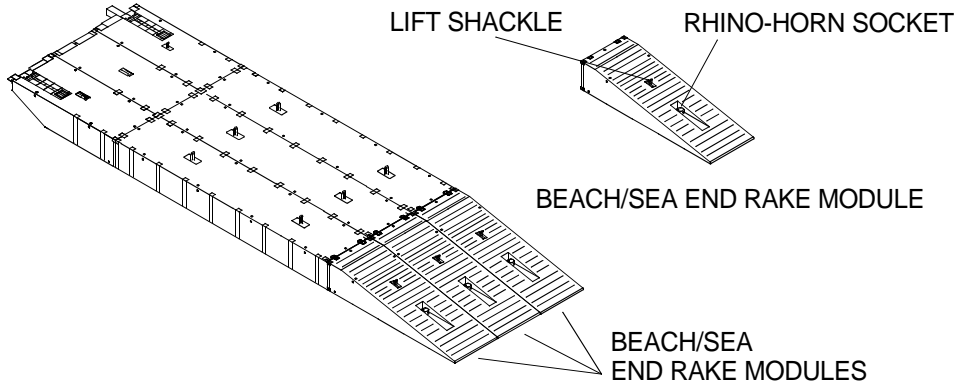
BEACH/SEA END RAKE MODULE

Location

The beach/sea end rake 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 rake 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.



COMBINATION BEACH/SEA END RAKE SECTION

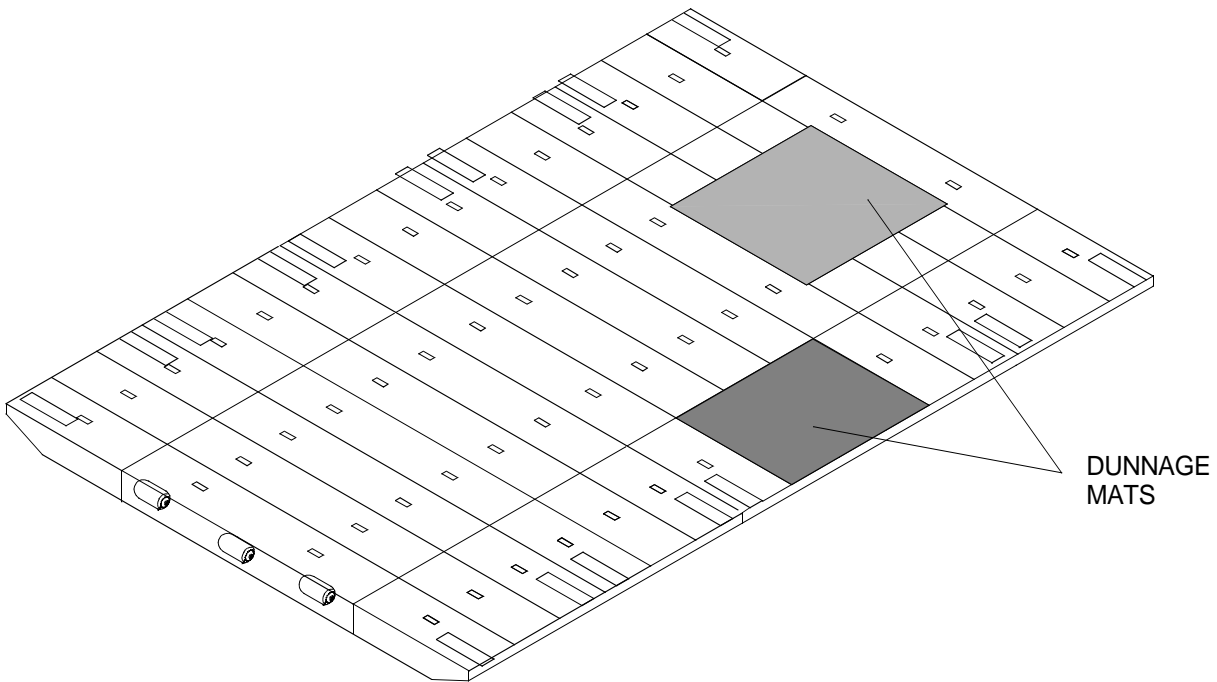
RRDF SEGMENT

Location

The RRDF segments are connected and form the RRDF platform.

Description

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



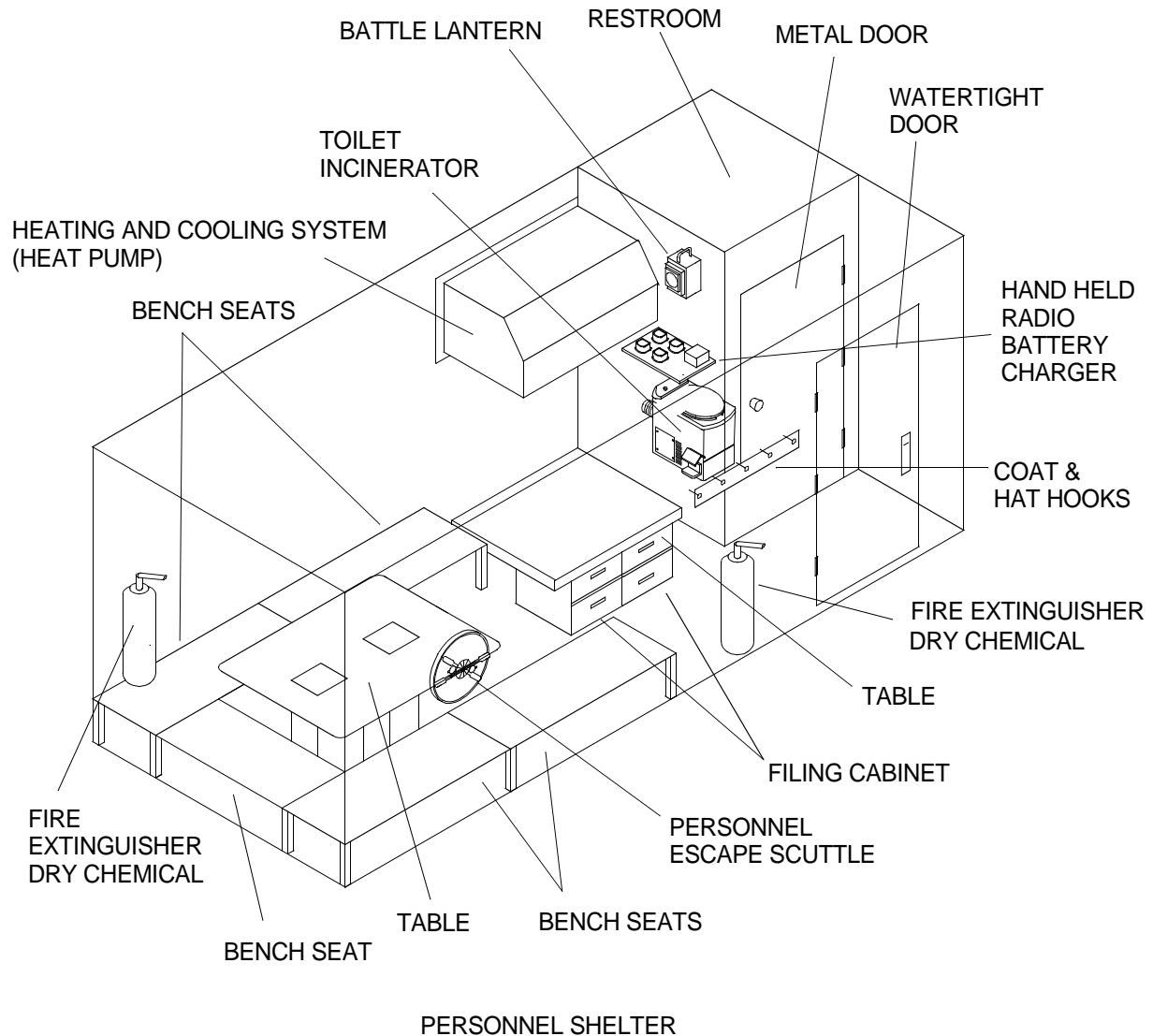
RRDF SEGMENT

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.



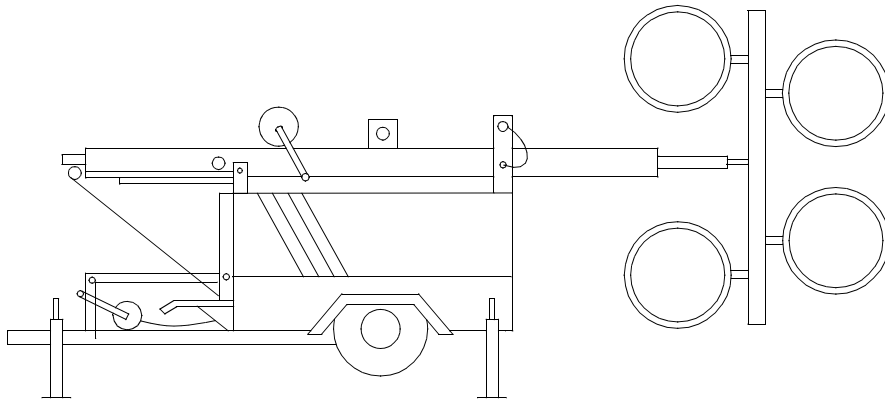
LIGHT TOWERS

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 provide 6 KW of light using four 1000 watt lights. The light towers are powered by a 6 KW 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

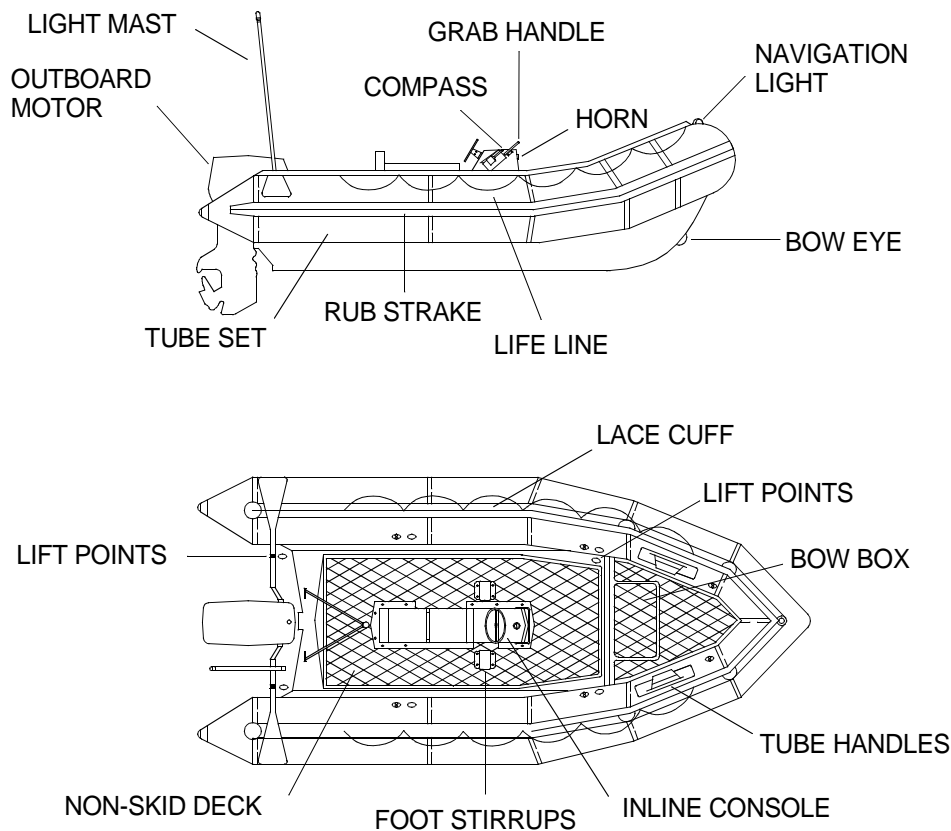
The rigid hull inflatable boat is located alongside the RRDF platform.

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.

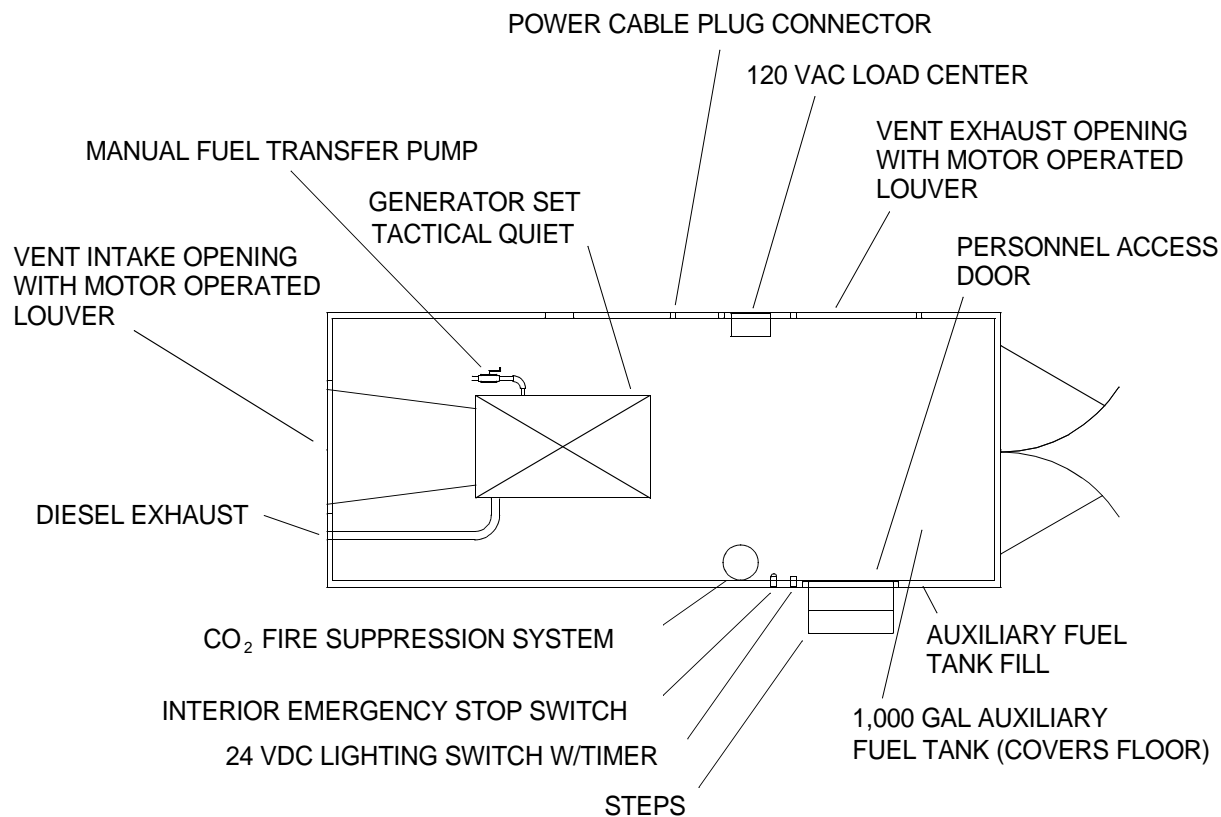
A stainless steel motorized louver provides air to the generator for cooling. Generator exhaust is routed outside of the container. A stainless steel motorized vent provides ventilation for the generator shelter. Aluminum covers are used while in storage to protect the louvers from the elements.

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 5, 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.

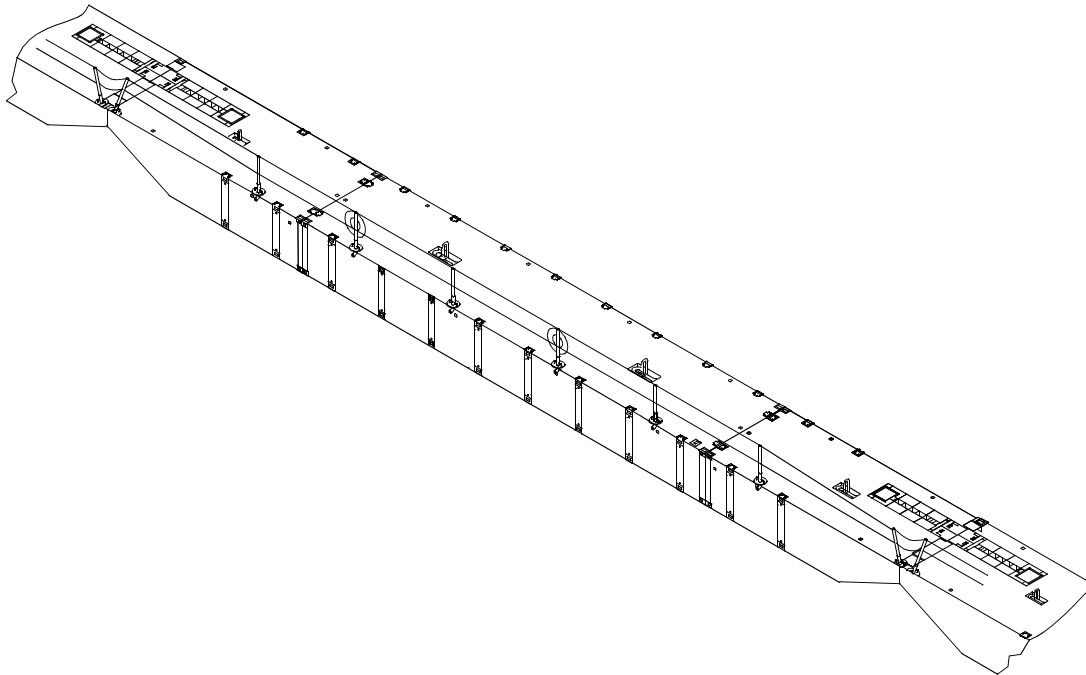


LIFELINE AND LIFE RING SUBSYSTEM**Location**

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 life ring 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 Assembly

The mooring consists of one 2,400 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

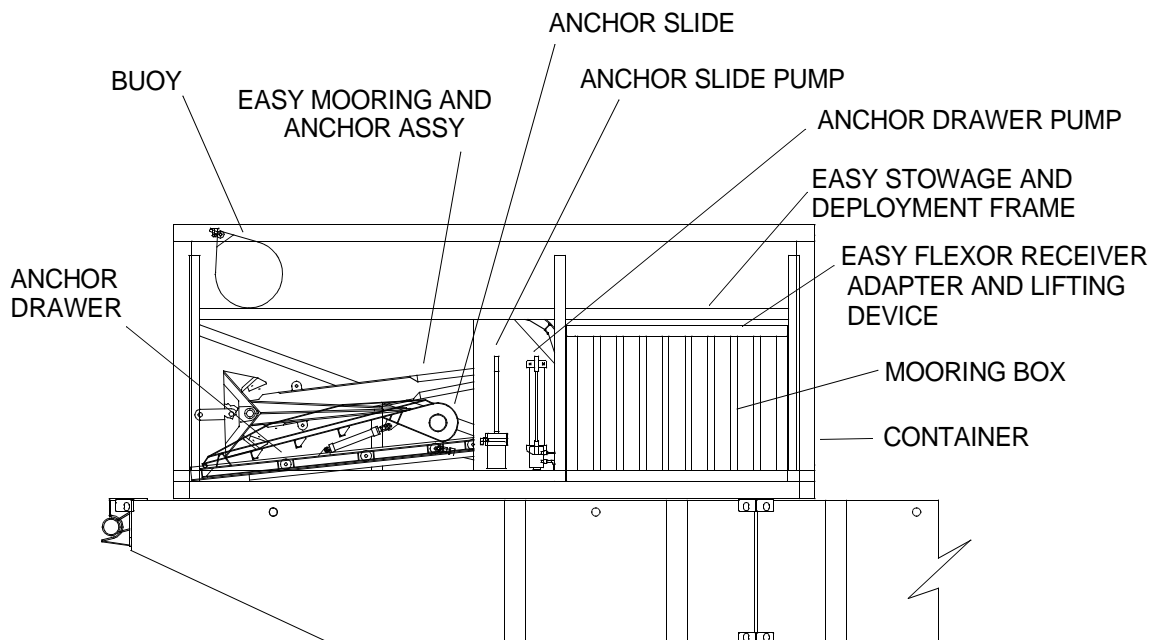
The stowage and deployment frame is a steel assembly which fits inside the EASY container. It includes a tubular steel frame, an anchor drawer, slide sub assembly and its track and two hydraulic actuators and manual pumps to operate the anchor drawer and slide. The 2400 lb NAVMOOR anchor rests on the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

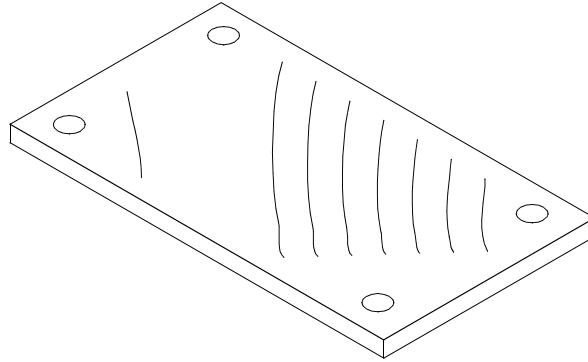


DUNNAGE MATS
Location

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

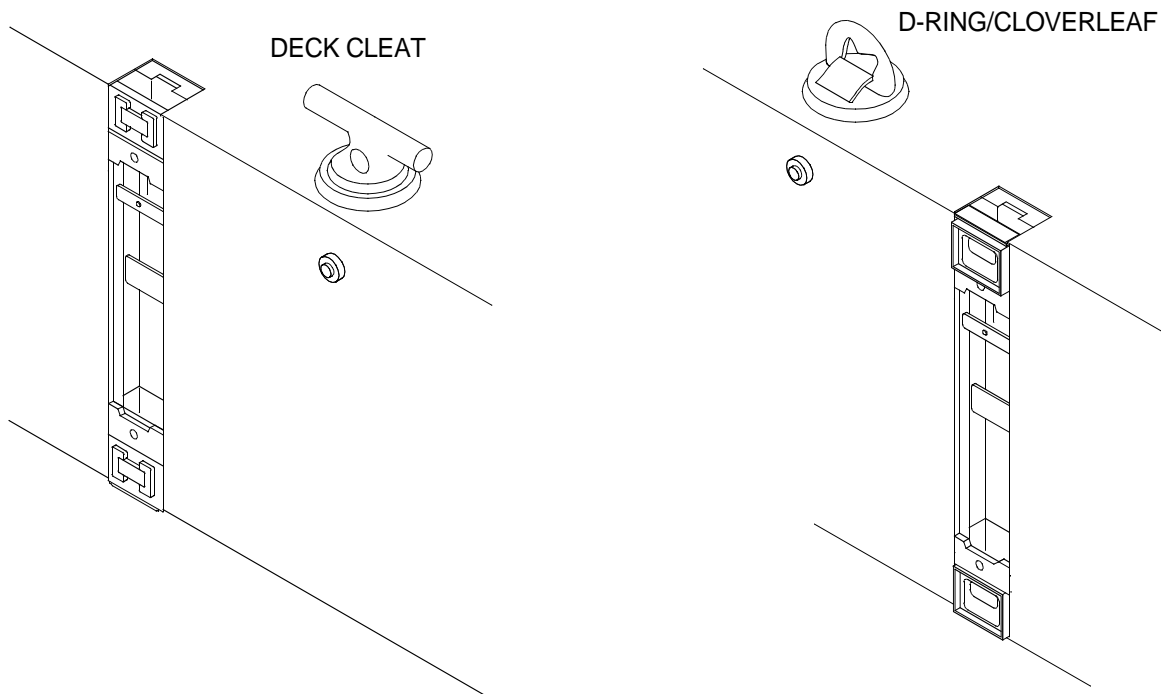
Each dunnage mat is approximately 4 ft wide, 10 ft long and 1½ in. thick and made of high density polyethylene material. Each mat weighs 300 lbs and has a hole near each corner that is used for securing the mat to the ISO corner fittings.

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

The D-ring/cloverleaf fittings and deck cleat fittings are located on the deck of the RRDF platform.

Description

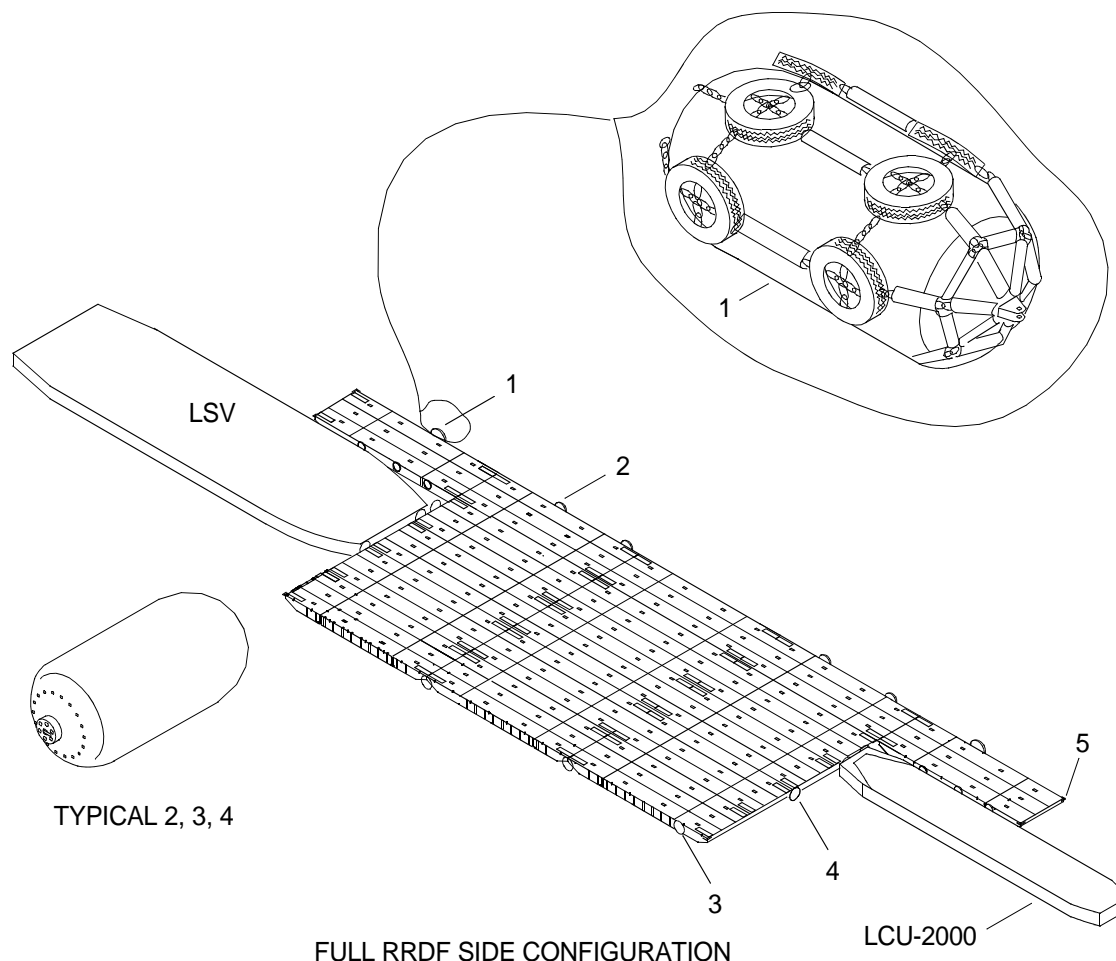
These fittings have a 15,000 lbs load capacity. There are ten tube turns per center module and five per end rake.



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.

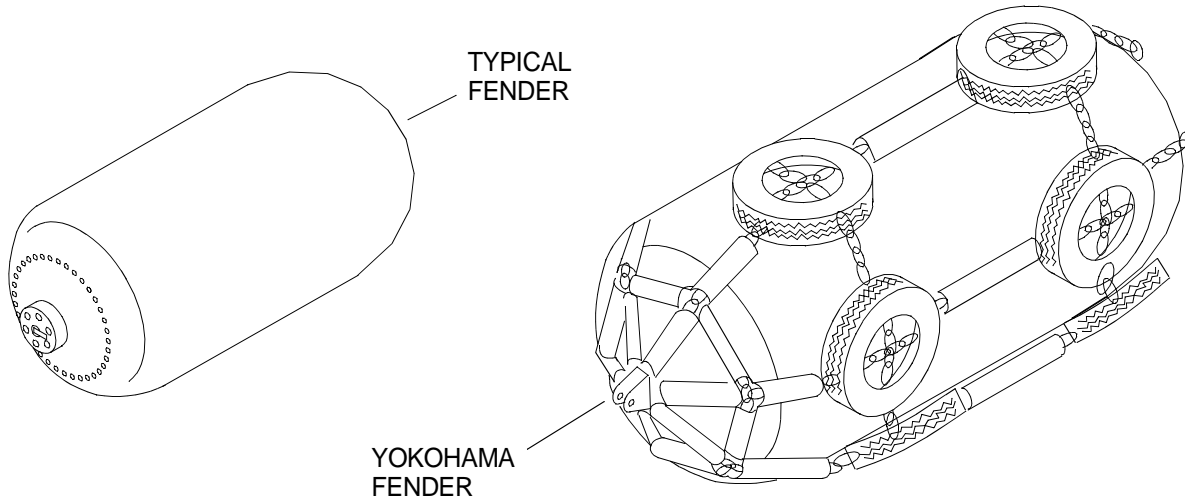


Description

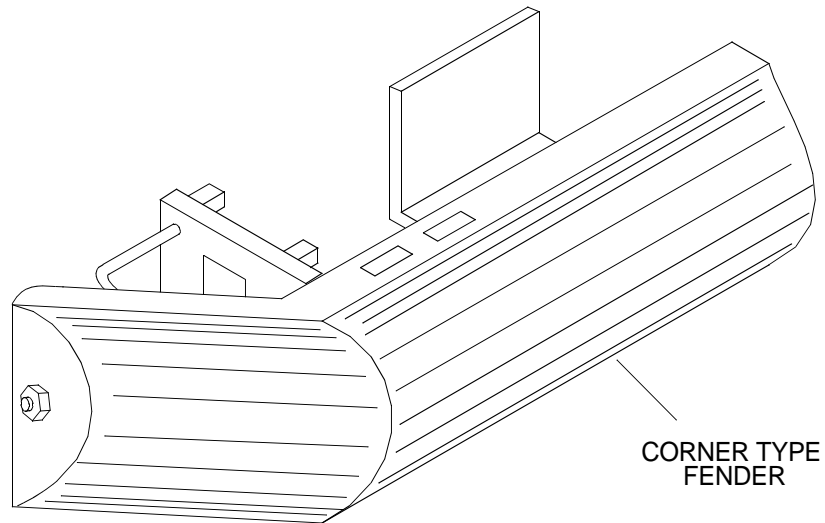
There are two types of fenders which are components of the RRDF. These fenders are cylindrical type and corner type.

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

The 6 ft X 12 ft fender uses aircraft tires as the abrasion element outside of the cylindrical skin. The fender is supplied with 100 ft of 5 in. circumference, 12-strand braided nylon line attached to each end. The 6 ft X 12 ft fender is stowed on a pallet on the sealift vessel. An example of a fender and a typical fender are depicted below.



Corner Type: The corner fenders (5) are installed on protruding corners of the RRDF. The corner fender assembly has two parts and is installed on the ISO corner fittings. An example of a corner fitting is shown below.

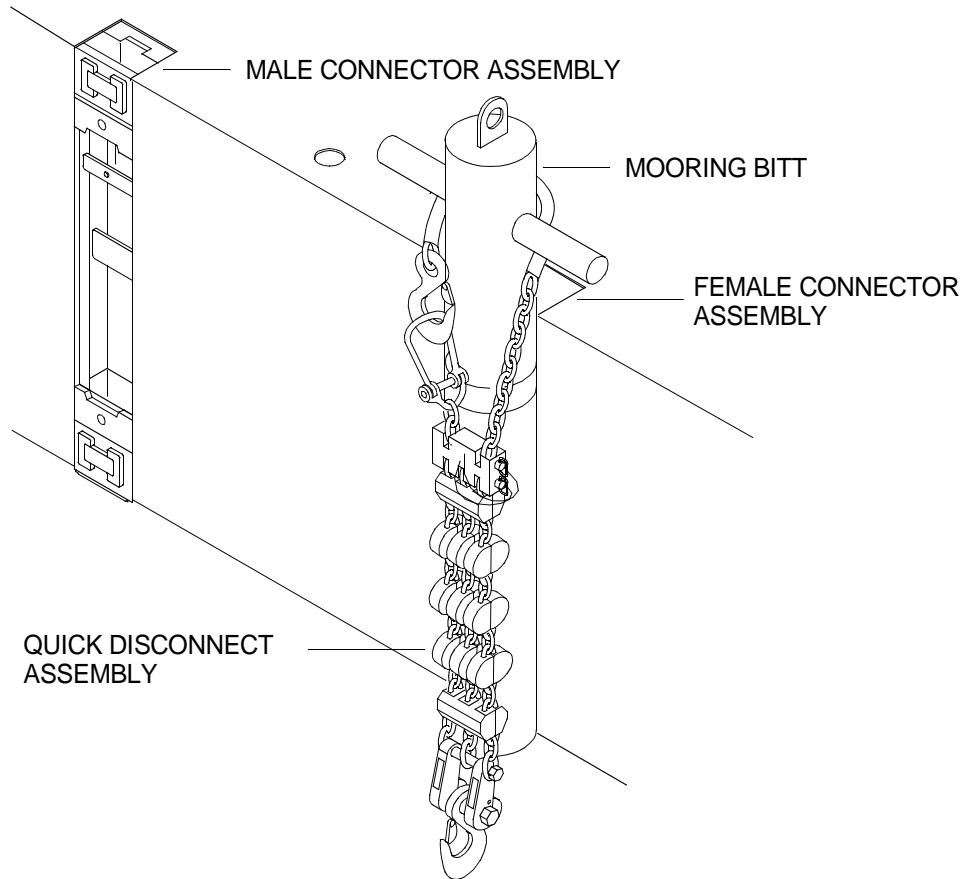


MOORING BITTS AND QUICK DISCONNECTS
Location

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 flexor receiver inserts. 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.

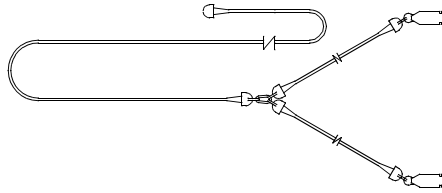
The towing lights are attached to the left side (red lens), right side (green lens), front center (white lens) and the aft end (amber lens) when towing the RRDF. The lights are stowed in the EASY container when not in use.

Description

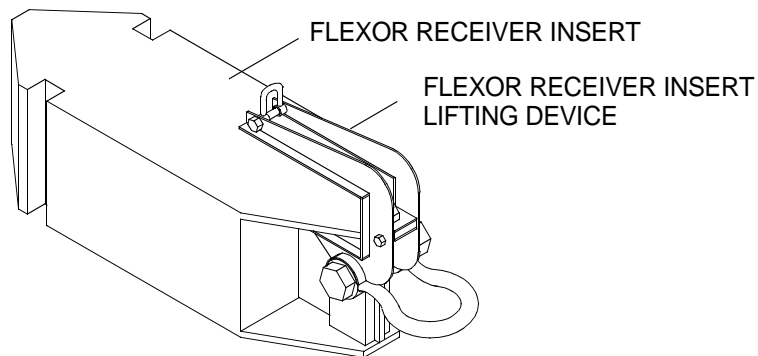
The towing bridle consists of a 500 ft, 10 in. circumference nylon line with a two leg, 10 in. circumference nylon bridle designed to tow the RRDF up through Sea State 5 conditions. It has shackles at each end used to attach it to the flexor receiver inserts at the RRDF and a warping tug at the other end.

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.



TOWING BRIDLE



TOWING INTERFACE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
DESCRIPTION AND DATA**

EQUIPMENT DATA

The following table 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	9000 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	2010 lbs
Weight of Pallet	2600 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	1000 lbs
Maximum Loading Capacity	1903 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	10 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)	1800 lbs

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
Weight of Middle and Lower Mooring Bitt Pallets (3 Bitts Per Pallet)	1600 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	1500 lbs
Weight of Fender Pallet	2400 lbs
ISO Compatible	Yes
4 ft X 12 ft FENDERS	
Weight	1450 lbs
Weight of Fender Pallet	3800 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	3000 lbs
Weight of ISO Container with Fenders	25,200 lbs
ISO Compatible	Yes
FLEXOR CONNECTORS	
Weight	1400 lbs
Weight of Flexor Connector Pallet	2700 lbs

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT 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 RRDF platform consists of an assembly of 153 non-powered floating modules. These modules are assembled into five RRDF sections which are then connected together using the Navy flexor and shear connector system which forms a hinge joint between them. The five RRDF sections are 80 ft long and of differing widths. The width depends on the RRDF section's location in the platform and on whether the RRDF platform will be used as 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 platform is capable of supporting two M-1 Abrams tanks and one sealift vessel's cargo ramp foot on the platform surface. 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 provides 6 KW of power at 60 Hz to 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 - 2 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 TRANSCEIVERS

The VHF/FM handheld transceiver is 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 volts DC. Current drain in standby mode is 40 mA, in receive mode 200 mA, in the transmit mode 1.8 A (high power) and 0.7 A (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° to +50° 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 +/- 4.5 kHz.

INCINERATOR TOILET

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

EMERGENCY ANCHORING 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. The components of the EASY are the mooring bridle, 2400 lb NAVMOOR anchor, the stowage and deployment frame, two manual hydraulic pumps and flexor receiver adaptors. When required, the mooring is deployed by extending the drawer slide to its extended position and elevating the slide with the hand pump until the anchor slides into the water.

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 and bilge water removal 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

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT
TROUBLESHOOTING PROCEDURES
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
TROUBLESHOOTING PROCEDURES INDEX**

MALFUNCTION/SYMP TOM**TROUBLESHOOTING PROCEDURE****EMERGENCY ANCHOR SYSTEM (EASY)**

Slide Platform Will Not Deploy WP 0050 00

Tilt Platform Will Not Raise or Lower WP 0049 00

GENERATOR CONTAINER

Base Tank Fuel Level Indication System is Inoperative WP 0040 00

DC Lights Will Not Operate WP 0042 00

Fire Suppression System Inoperative WP 0043 00

Manual Fuel Transfer Pump Inoperative WP 0047 00

Manual Fuel Transfer Pump Leaks WP 0046 00

Manual Fuel Transfer Pump Pumps Slowly WP 0045 00

Manual Fuel Transfer Pump Will Not Prime WP 0044 00

VHF/FM TRANSCEIVER

Transceiver Does Not Receive WP 0024 00

Transceiver Does Not Transmit WP 0025 00

Transceiver Has No Power WP 0023 00

HEATING AND AIR CONDITIONING SYSTEM

Compressor Cycles Off (Not on Overload) WP 0030 00

Compressor Starts and Runs, But Cycles on the Overload WP 0026 00

Compressor Starts After Cycling the Overload Several Times WP 0027 00

Compressor Will Not Start WP 0029 00

Compressor Will Not Start, Hums and Cycles on the Overload WP 0028 00

Fan Does Not Operate When Electrical Power is Supplied to Shelter WP 0032 00

Fan Motor Hums, But Does Not Start WP 0034 00

Fan Motor Makes No Noise and Does Not Start WP 0035 00

Fan Motor Runs On One Speed WP 0038 00

Fan Motor Starts, But Runs Slow WP 0037 00

Fan Motor Starts, But Stops After a Short Time WP 0036 00

Heater Does Not Produce Warm Air WP 0031 00

Thermostat Does Not Operate System WP 0033 00

INCINERATOR TOILET

Incinerator Toilet Malfunctions WP 0039 00

LIGHT TOWER

Lights Will Not Illuminate WP 0007 00

Engine Battery Discharged WP 0019 00

Engine Has Insufficient Output WP 0018 00

Engine is Difficult to Start WP 0017 00

Engine Fails to Shutdown WP 0010 00

Engine Oil Lamp Lights Up During Operation WP 0021 00

Engine Overheats WP 0022 00

Engine RPM is Down WP 0008 00

Engine Shuts Down WP 0009 00

Engine Will Not Start/Run WP 0012 00

Excessive Engine Vibration WP 0011 00

Fluctuating Generator Frequency/Voltage and/or Oscillating Engine
Speed WP 0016 00

High/Low Generator Frequency Output WP 0015 00

High/Low Generator Output Voltage WP 0014 00

Large Quantity of Black Smoke From Engine Exhaust WP 0020 00

Engine Has No Generator Output Voltage WP 0013 00

RIGID HULL INFLATABLE BOAT

Engine Will Not Start WP 0048 00

TACTICAL QUIET GENERATOR

Tactical Quiet Generator Malfunctions WP 0041 00

**OPERATOR MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

LIGHTS WILL NOT ILLUMINATE

SYMPTOM

Light(s) on tower assembly do not illuminate.

MALFUNCTION

Lamp bulb(s) is defective.

CORRECTIVE ACTION

Replace lamp bulb. (WP 0156 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Light tower junction box electrical cable is damaged or defective.

CORRECTIVE ACTION

Use a multimeter to check continuity of wiring of junction box electrical cable. If continuity is not present, replace light tower junction box electrical cable. (WP 0136 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Lamp optical/socket assembly is damaged or defective.

CORRECTIVE ACTION

Repair lamp optical/socket assembly. (WP 0158 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Light tower electrical system junction box is damaged or defective.

CORRECTIVE ACTION

Replace light tower electrical system junction box. (WP 0137 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Open circuit between 125V receptacle located on front end panel and ballast box.

CORRECTIVE ACTION

Using a multimeter, check for 120 VDC at 125V receptacle.

If 120 VDC is present, use a multimeter to check continuity of wiring between 125V receptacle and ballast(s) in ballast box. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

If 120 VDC is not present, replace defective ballast(s). (WP 0162 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Open circuit between ballast(s) and LAMP toggle switch(s).

CORRECTIVE ACTION

Using a multimeter, check for 120 VDC at LAMP toggle switch(s).

If 120 VDC is present, use a multimeter to check continuity of wiring between LAMP toggle switch(s) and ballast(s). If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

If 120 VDC is not present, replace LAMP toggle switch(s) on control panel. (WP 0152 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Open circuit between LAMP toggle switch(s) and MAIN BREAKER circuit breaker.

CORRECTIVE ACTION

Using a multimeter, check for 120 VDC at LAMP toggle switch(s).

If 120 VDC is present, use a multimeter to check continuity of wiring between LAMP toggle switch(s) and MAIN BREAKER circuit breaker. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

If 120 VDC is not present, replace MAIN BREAKER circuit breaker on control panel. (WP 0151 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Open circuit between MAIN BREAKER circuit breaker and light tower generator.

CORRECTIVE ACTION

Using a multimeter, check for 120 VDC at MAIN BREAKER circuit breaker.

If 120 VDC is present, use a multimeter to check continuity of wiring between MAIN BREAKER circuit breaker and generator. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

If 120 VDC is not present, replace light tower generator. Contact Specialized Repair Activity (SRA).

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Light tower light(s) still will not illuminate.

CORRECTIVE ACTION

Contact Specialized Repair Activity (SRA).

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

ENGINE RPM IS DOWN

SYMPTOM

Engine RPM is lower than normal (less than 1800 RPM).

MALFUNCTION

Engine speed RPM incorrectly adjusted.

CORRECTIVE ACTION

Adjust engine RPM speed. Contact depot maintenance.

MALFUNCTION

Engine electrical output overloading.

CORRECTIVE ACTION

Reduce external electrical load.

Adjust engine electrical output. Contact depot maintenance.

MALFUNCTION

Engine fuel filter(s) are clogged.

CORRECTIVE ACTION

Drain fuel filter bowl. (WP 0167 00)

Replace fuel filter element. (WP 0168 00)

Replace in line fuel filter. (WP 0171 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Air filter element is dirty.

CORRECTIVE ACTION

Inspect and clean air filter element. (WP 0175 00)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

ENGINE SHUTS DOWN

SYMPTOM

Engine stops running

MALFUNCTION

Engine fuel filter(s) are contaminated with water or debris.

CORRECTIVE ACTION

Drain fuel filter bowl. (WP 0167 00)

Replace fuel filter element. (WP 0168 00)

Replace in line fuel filter. (WP 0171 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Air in the fuel system.

CORRECTIVE ACTION

Check for loose couplings, cap nuts, screws and fittings and repair as necessary.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Loose wire connections.

CORRECTIVE ACTION

Check for any loose wire connections and tighten as required.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine fuse blown.

CORRECTIVE ACTION

Replace engine fuse. Contact depot maintenance.

MALFUNCTION

Fuel injection nozzle has thick carbon build-up.

CORRECTIVE ACTION

Clean or replace fuel injection nozzle. Contact depot maintenance.

MALFUNCTION

Fuel injection nozzle not operating properly.

CORRECTIVE ACTION

Replace fuel injection nozzle. Contact depot maintenance.

MALFUNCTION

Defective oil pressure sending unit.

CORRECTIVE ACTION

Replace engine oil pressure switch. (WP 0143 00)

MALFUNCTION

Defective coolant temperature sending unit.

CORRECTIVE ACTION

Replace coolant temperature sending unit. (WP 0146 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Defective shutdown solenoid.

CORRECTIVE ACTION

Replace shutdown solenoid. (WP 0155 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

ReferencesTM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

ENGINE FAILS TO SHUT DOWN

SYMPTOM

Engine cannot be shut down.

MALFUNCTION

Faulty control panel key switch.

CORRECTIVE ACTION

Replace control panel key switch. (WP 0154 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty engine oil pressure switch.

CORRECTIVE ACTION

Replace defective oil pressure switch. (WP 0143 00)

MALFUNCTION

Defective shutdown solenoid.

CORRECTIVE ACTION

Replace shutdown solenoid. (WP 0155 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE**EXCESSIVE ENGINE VIBRATION****SYMPTOM**

Light tower engine has excessive vibration.

MALFUNCTION

Engine rubber mounts are damaged.

CORRECTIVE ACTION

Replace rubber engine mounts. Contact depot maintenance.

MALFUNCTION

Fan belt loose or broken.

CORRECTIVE ACTION

Tighten or replace fan belt. (WP 0183 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

The fan is defective (blades bent or broken).

CORRECTIVE ACTION

Replace fan. (WP 0184 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

The drive coupling is defective.

CORRECTIVE ACTION

Replace drive coupling. Contact depot maintenance.

MALFUNCTION

Failure of the engine/generator mounting isolator.

CORRECTIVE ACTION

Replace engine/generator mounting isolator. Contact depot maintenance.

MALFUNCTION

Engine fuel filter clogged.

CORRECTIVE ACTION

Drain fuel filter bowl. (WP 0167 00)

Replace fuel filter element. (WP 0168 00)

Replace in line fuel filter. (WP 0171 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

The engine governor is defective.

CORRECTIVE ACTION

Replace engine governor. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

ReferencesTM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

ENGINE WILL NOT START/RUN

SYMPTOM

Light tower engine will not start/run.

MALFUNCTION

Engine fuel filter(s) are clogged.

CORRECTIVE ACTION

Drain fuel filter bowl. (WP 0167 00)

Replace fuel filter element. (WP 0168 00)

Replace in line fuel filter. (WP 0171 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Loose wire connections.

CORRECTIVE ACTION

Check all wire connections and tighten as required.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Battery connections are corroded.

CORRECTIVE ACTION

Clean battery terminals and connectors. (WP 0141 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Battery voltage appears to be low.

CORRECTIVE ACTION

Inspect and service battery as necessary. (WP 0141 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Battery voltage still appears to be low.

CORRECTIVE ACTION

Replace battery. (WP 0142 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine fuse is blown.

CORRECTIVE ACTION

Replace fuse. Contact depot maintenance.

MALFUNCTION

Fan belt is loose or broken.

CORRECTIVE ACTION

Tighten or replace fan belt. (WP 0183 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Starter relay is defective.

CORRECTIVE ACTION

Replace starter relay. Contact depot maintenance.

MALFUNCTION

Shutdown solenoid is defective.

CORRECTIVE ACTION

Replace shutdown solenoid. (WP 0155 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Starter is defective.

CORRECTIVE ACTION

Replace starter. (WP 0145 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Defective control panel key switch.

CORRECTIVE ACTION

Replace control panel key switch. (WP 0154 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

ENGINE HAS NO GENERATOR OUTPUT VOLTAGE

SYMPTOM

No generator output voltage.

MALFUNCTION

Loose or intermittent wire connections.

CORRECTIVE ACTION

Check all wire connections and tighten as required.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Low engine power.

CORRECTIVE ACTION

Check and adjust engine RPM. Contact depot maintenance.

MALFUNCTION

Generator is defective.

CORRECTIVE ACTION

Replace defective generator. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE**HIGH/LOW GENERATOR OUTPUT VOLTAGE****SYMPTOM**

Generator output voltage is too high or low (normal is 120 VAC).

MALFUNCTION

Engine is oscillating during operation.

CORRECTIVE ACTION

Adjust engine speed as required. Contact depot maintenance.

MALFUNCTION

Engine power is low.

CORRECTIVE ACTION

Adjust engine power as required. Contact depot maintenance.

MALFUNCTION

Electrical output is unstable.

CORRECTIVE ACTION

Make electrical load adjustments as required. Contact depot maintenance.

MALFUNCTION

Loose wire connections.

CORRECTIVE ACTION

Check for loose connections and tighten as necessary.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE**HIGH/LOW GENERATOR FREQUENCY OUTPUT****SYMPTOM**

Generator frequency is too high or low.

MALFUNCTION

Engine is oscillating during operation (normal 120 VAC at 60 Hertz).

CORRECTIVE ACTION

Adjust engine speed as required. Contact depot maintenance.

MALFUNCTION

Engine power is low.

CORRECTIVE ACTION

Adjust engine power as required. Contact depot maintenance.

MALFUNCTION

Electrical load is unstable.

CORRECTIVE ACTION

Make electrical load adjustments as required. Contact depot maintenance.

MALFUNCTION

Electrical output is overloaded.

CORRECTIVE ACTION

Reduce electrical load. Contact depot maintenance.

MALFUNCTION

Loose wire connections exist.

CORRECTIVE ACTION

Check for loose wire connections and tighten as required.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

FLUCTUATING GENERATOR FREQUENCY/VOLTAGE AND/OR OSCILLATING ENGINE SPEED

SYMPTOM

Fluctuating generator frequency/voltage and/or oscillating engine speed.

MALFUNCTION

Ambient temperature is greater than 125° Fahrenheit (52° Celsius).

CORRECTIVE ACTION

Do not operate light tower unit.

MALFUNCTION

There is an electrical output overload.

CORRECTIVE ACTION

Reduce electrical load. Contact depot maintenance.

MALFUNCTION

Electrical output is unstable.

CORRECTIVE ACTION

Adjust electrical output as required. Contact depot maintenance.

MALFUNCTION

Engine fuel filters are clogged.

CORRECTIVE ACTION

Drain fuel filter bowl. (WP 0167 00)

Replace fuel filter element. (WP 0168 00)

Replace in line fuel filter. (WP 0171 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine air filter element is dirty.

CORRECTIVE ACTION

Clean engine air filter element. (WP 0175 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Loose wire conditions.

CORRECTIVE ACTION

Check for loose wire connections and tighten as required.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine speed oscillating during operation.

CORRECTIVE ACTION

Adjust engine speed as required. Contact depot maintenance.

MALFUNCTION

Engine power is low.

CORRECTIVE ACTION

Adjust engine power as required. Contact depot maintenance.

MALFUNCTION

Generator is defective.

CORRECTIVE ACTION

Replace defective generator. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

ENGINE IS DIFFICULT TO START

SYMPTOM

Engine is difficult to start.

MALFUNCTION

Air in the fuel system.

CORRECTIVE ACTION

Inspect for loose couplings, cap nuts, screws and fittings and repair as necessary.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine does not have proper quantity of oil installed.

CORRECTIVE ACTION

Check oil quantity and add oil as required. (WP 0165 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine fuel filter(s) are contaminated with water or other debris.

CORRECTIVE ACTION

Drain engine fuel filter bowl. (WP 0167 00)

Replace engine fuel filter element. (WP 0168 00)

Replace in line fuel filter. (WP 0171 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Battery is not properly charged.

CORRECTIVE ACTION

Charge battery or replace as required. (WP 0141 00, WP 0142 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Fuel injection nozzle has carbon build-up.

CORRECTIVE ACTION

Clean or replace fuel injection nozzle. Contact depot maintenance.

MALFUNCTION

Fuel injection nozzle functioning improperly.

CORRECTIVE ACTION

Replace fuel injection nozzle. Contact depot maintenance.

MALFUNCTION

Valve clearance is not adjusted properly.

CORRECTIVE ACTION

Adjust valve(s) to proper clearance. Contact depot maintenance.

MALFUNCTION

Engine has low compression.

CORRECTIVE ACTION

Replace internal parts as required. Contact depot maintenance.

MALFUNCTION

Valve(s) are leaking.

CORRECTIVE ACTION

Clean and grind valve(s) as required. Contact depot maintenance.

MALFUNCTION

Fuel injection timing not properly adjusted.

CORRECTIVE ACTION

Adjust fuel injection timing as required. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

ENGINE HAS INSUFFICIENT OUTPUT

SYMPTOM

Engine has little or no power.

MALFUNCTION

Air in the fuel system.

CORRECTIVE ACTION

Inspect for loose couplings, cap nuts, screws and fittings and repair as necessary.

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine fuel filter bowl is contaminated with water or debris.

CORRECTIVE ACTION

Drain engine fuel filter bowl. (WP 0167 00)

Replace fuel filter element. (WP 0168 00)

Replace in line fuel filter. (WP 0171 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine has low compression.

CORRECTIVE ACTION

Replace rings and other internal parts as necessary. Contact depot maintenance.

MALFUNCTION

Carbon deposits build up in fuel injection nozzle orifice.

CORRECTIVE ACTION

Clean or replace fuel injection nozzle. Contact depot maintenance.

MALFUNCTION

Fuel injection nozzle not operating properly.

CORRECTIVE ACTION

Replace fuel injection nozzle. Contact depot maintenance.

MALFUNCTION

Valve clearance improperly adjusted.

CORRECTIVE ACTION

Adjust valves to proper clearance. Contact depot maintenance.

MALFUNCTION

Engine valves leaking.

CORRECTIVE ACTION

Clean and grind valves as required. Contact depot maintenance.

MALFUNCTION

Fuel injection timing out of adjustment.

CORRECTIVE ACTION

Adjust fuel injection timing. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

ENGINE BATTERY DISCHARGED

SYMPTOM

Light tower has no DC power.

MALFUNCTION

Battery electrolyte insufficient.

CORRECTIVE ACTION

Inspect and service battery as necessary. (WP 0141 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Fan belt slips.

CORRECTIVE ACTION

Replace fan belt. (WP 0183 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Alternator defective.

CORRECTIVE ACTION

Replace alternator. (WP 0138 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Battery defective.

CORRECTIVE ACTION

Replace battery. (WP 0142 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Rectifier defective.

CORRECTIVE ACTION

Replace defective rectifier. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

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

Refuel tank. (TM 55-1945-205-10-2)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Fuel is contaminated.

CORRECTIVE ACTION

Refuel tank. (TM 55-1945-205-10-2)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine fuel filter bowl is contaminated with water or debris.

CORRECTIVE ACTION

Drain engine fuel filter bowl. (WP 0167 00)

Replace fuel filter element. (WP 0168 00)

Replace in line fuel filter. (WP 0171 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Valve clearance improperly adjusted.

CORRECTIVE ACTION

Adjust valves to proper clearance. Contact depot maintenance.

MALFUNCTION

Engine valve(s) leaking.

CORRECTIVE ACTION

Clean and grind valve(s) as required. Contact depot maintenance.

MALFUNCTION

Fuel injection nozzle not operating properly.

CORRECTIVE ACTION

Clean fuel injection nozzle and replace as necessary. Contact depot maintenance.

MALFUNCTION

Fuel injection timing not adjusted properly.

CORRECTIVE ACTION

Adjust fuel injection timing as required. Contact depot maintenance.

MALFUNCTION

Fuel governor not operating properly.

CORRECTIVE ACTION

Adjust or replace fuel governor as necessary. Contact depot maintenance.

MALFUNCTION

Engine has low compression.

CORRECTIVE ACTION

Replace internal parts as required. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

ReferencesTM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE**ENGINE OIL LAMP LIGHTS DURING OPERATION****SYMPTOM**

Engine oil lamp lights during operation.

MALFUNCTION

Oil filter contaminated with debris.

CORRECTIVE ACTION

Replace engine oil filter element. (WP 0166 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine oil filter base gasket deteriorated or worn.

CORRECTIVE ACTION

Replace engine oil filter element. (WP 0166 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine oil pressure sending unit is defective.

CORRECTIVE ACTION

Replace defective engine oil pressure sending unit. Contact depot maintenance.

MALFUNCTION

Engine oil system relief valve is defective.

CORRECTIVE ACTION

Replace defective engine oil system relief valve. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE**ENGINE OVERHEATS****SYMPTOM**

Engine overheats.

MALFUNCTION

Fuel is of poor quality.

CORRECTIVE ACTION

Refuel tank. (TM 55-1945-205-10-2)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine radiator coolant has incorrect antifreeze mixture.

CORRECTIVE ACTION

Check antifreeze mixture and service engine radiator coolant system as required.
(WP 0177 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine radiator fins are clogged.

CORRECTIVE ACTION

Inspect radiator fins and remove obstruction. (WP 0177 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Interior of engine radiator is clogged or corroded.

CORRECTIVE ACTION

Flush cooling system. (WP 0179 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine radiator is defective.

CORRECTIVE ACTION

Replace engine radiator. (WP 0187 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Engine is leaking water.

CORRECTIVE ACTION

Ensure radiator drain cocks are securely closed. (TM 55-1945-205-10-2)

Check cooling hoses and fittings. Replace as necessary. (WP 0180 00, WP 0181 00)

Check radiator for punctures. Replace as necessary. (WP 0187 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Fan belt is loose or broken.

CORRECTIVE ACTION

Tighten or replace fan belt. (WP 0183 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Fan is defective.

CORRECTIVE ACTION

Replace defective fan. (WP 0184 00)

Perform operational check of light tower engine. (TM 55-1945-205-10-2)

MALFUNCTION

Thermostat is defective.

CORRECTIVE ACTION

Replace defective thermostat. Contact depot maintenance.

MALFUNCTION

Temperature gauge is defective.

CORRECTIVE ACTION

Replace defective temperature gauge. Contact depot maintenance.

MALFUNCTION

Temperature sensor is defective.

CORRECTIVE ACTION

Replace defective temperature sensor. Contact depot maintenance.

MALFUNCTION

Fuel injection timing improperly adjusted.

CORRECTIVE ACTION

Adjust fuel injection timing. Contact depot maintenance.

MALFUNCTION

Head gasket is defective.

CORRECTIVE ACTION

Replace defective head gasket. Contact depot maintenance.

MALFUNCTION

Engine has electrical overload.

CORRECTIVE ACTION

Reduce electrical load. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

ReferencesTM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

VHF/FM TRANSCEIVER HAS NO POWER

SYMPTOM

Transceiver has no power.

MALFUNCTION

Transceiver batteries are discharged.

CORRECTIVE ACTION

Charge the batteries. (TM 55-1945-205-10-2)

Perform operational check on transceiver. (TM 55-1945-205-10-2)

MALFUNCTION

Transceiver battery charger is defective.

CORRECTIVE ACTION

Replace battery charger. (WP 0132 00)

Perform operational check on transceiver. (TM 55-1945-205-10-2)

MALFUNCTION

Transceiver battery charger power supply is defective.

CORRECTIVE ACTION

Replace battery charger power supply. (WP 0133 00)

Perform operational check on transceiver. (TM 55-1945-205-10-2)

MALFUNCTION

Transceiver batteries are defective.

CORRECTIVE ACTION

If batteries are rechargeable, replace rechargeable battery pack. (WP 0130 00)

If batteries are alkaline, replace alkaline battery pack. (WP 0131 00)

Perform operational check on transceiver. (TM 55-1945-205-10-2)

MALFUNCTION

Transceiver is defective.

CORRECTIVE ACTION

Replace transceiver.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

ReferencesTM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

VHF/FM TRANSCEIVER DOES NOT RECEIVE

SYMPTOM

Transceiver does not receive.

MALFUNCTION

Transceiver antenna is damaged or missing.

CORRECTIVE ACTION

Replace or install antenna. (WP 0128 00)

Perform operational check on transceiver. (TM 55-1945-205-10-2)

MALFUNCTION

Low battery indicator is displayed on transceiver.

CORRECTIVE ACTION

Charge the batteries. (TM 55-1945-205-10-2)

Perform operational check on transceiver. (TM 55-1945-205-10-2)

MALFUNCTION

Transceiver is defective.

CORRECTIVE ACTION

Replace transceiver.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

ReferencesTM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

VHF/FM TRANSCEIVER DOES NOT TRANSMIT

SYMPTOM

Transceiver does not transmit.

MALFUNCTION

Transceiver antenna is damaged or missing.

CORRECTIVE ACTION

Replace antenna. (WP 0128 00)

Perform operational check on transceiver. (TM 55-1945-205-10-2)

MALFUNCTION

Low battery indicator is displayed on transceiver.

CORRECTIVE ACTION

Charge the batteries. (TM 55-1945-205-10-2)

Perform operational check on transceiver. (TM 55-1945-205-10-2)

MALFUNCTION

Transceiver is defective.

CORRECTIVE ACTION

Replace transceiver.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

COMPRESSOR STARTS AND RUNS, BUT CYCLES ON THE OVERLOAD

SYMPTOM

Compressor runs, but cycles on the overload.

MALFUNCTION

Indoor air filter is dirty or plugged.

CORRECTIVE ACTION

Clean and replace the indoor air filter as required. (WP 0100 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Vent air filter is dirty or plugged.

CORRECTIVE ACTION

Clean and replace the vent air filter as required. (WP 0102 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The condensor and coil fins are dirty or plugged.

CORRECTIVE ACTION

Clean and replace condensor and coil fins as required. (WP 0109 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Compressor system wiring is defective.

CORRECTIVE ACTION

Repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Compressor system has low voltage running to it.

CORRECTIVE ACTION

Using multimeter, check continuity between compressor motor black wire and other compressor wires. If continuity is not present, repair/replace wiring as necessary.
(WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The system overload protector is defective.

CORRECTIVE ACTION

Test the overload protector. (WP 0110 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The system capacitor is defective.

CORRECTIVE ACTION

Replace the capacitor. (WP 0111 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The fan motor is defective.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The fan blade or blower wheel is defective or stuck.

CORRECTIVE ACTION

Free the fan blade or blower wheel by cleaning it. (WP 0105 00)

Perform operational test on heating and air conditioning system. (TM 55-1945-205-10-2)

MALFUNCTION

The capillary tube and strainer are restricted or plugged.

CORRECTIVE ACTION

Clean or replace the capillary tube and strainer as required. (WP 0106 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The system is overcharged.

CORRECTIVE ACTION

Service the air conditioning system. Contact depot maintenance.

MALFUNCTION

The system is undercharged.

CORRECTIVE ACTION

Service the air conditioning system. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

COMPRESSOR STARTS AFTER CYCLING THE OVERLOAD SEVERAL TIMES

SYMPTOM

Compressor starts only after cycling the overload.

MALFUNCTION

The compressor requires start assist.

CORRECTIVE ACTION**NOTE**

Providing starting assistance for the compressor is an immediate, but temporary, solution. Eventually, the compressor will need to be replaced or repaired.

Provide start assist for the compressor. Contact depot maintenance.

MALFUNCTION

Compressor system has low voltage running to it.

CORRECTIVE ACTION

Using multimeter, check continuity between compressor motor black wire and other compressor wires. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system. (TM 55-1945-205-10-2)

MALFUNCTION

The system capacitor is defective.

CORRECTIVE ACTION

Replace the capacitor. (WP 0111 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The fan motor is defective.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The capillary tube and strainer are restricted or plugged.

CORRECTIVE ACTION

Clean or replace the capillary tube and strainer as required. (WP 0106 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Air is in the system.

CORRECTIVE ACTION

Service air conditioning system. Contact depot maintenance.

MALFUNCTION

Pressure in the system is not equalized.

CORRECTIVE ACTION

Service the air conditioning system. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

COMPRESSOR WILL NOT START, IT HUMS AND CYCLES ON THE OVERLOAD

SYMPTOM

Compressor will not start, but hums and cycles on the overload.

MALFUNCTION

The compressor is defective.

CORRECTIVE ACTION

Replace compressor. Contact depot maintenance.

MALFUNCTION

Compressor system has low voltage running to it.

CORRECTIVE ACTION

Using multimeter, check continuity between compressor motor black wire and other compressor wires. If continuity is not present, repair/replace wiring as necessary.
(WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Compressor system wiring is defective or incorrectly wired.

CORRECTIVE ACTION

Using multimeter, check continuity of wiring. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Compressor is grounding (shorting) out.

CORRECTIVE ACTION

Repair ground (short) in the compressor or replace compressor as required. Contact depot maintenance.

MALFUNCTION

The system overload protector is defective.

CORRECTIVE ACTION

Test overload protector. (WP 0110 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The system capacitor is defective.

CORRECTIVE ACTION

Replace the capacitor. (WP 0111 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The compressor motor is defective.

CORRECTIVE ACTION

Replace compressor motor. Contact depot maintenance.

MALFUNCTION

Pressure is not equalized in the system.

CORRECTIVE ACTION

Service air conditioning system. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

COMPRESSOR WILL NOT START AND MAKES NO NOISE

SYMPTOM

Compressor makes no noise and will not start.

MALFUNCTION

Thermostat is set too high or low.

CORRECTIVE ACTION

Adjust thermostat switch to required setting. (TM 55-1945-205-10-2)

MALFUNCTION

Compressor has no power.

CORRECTIVE ACTION

Position power switch to AUTO, FAN, COOL or HEAT.

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

Check that power cord is connected.

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

On personnel shelter electrical distribution panel, check circuit breaker A to be sure it is turned on. (TM 55-1945-205-10-2)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Thermostat contacts are open.

CORRECTIVE ACTION

Adjust thermostat to close contacts or replace thermostat as required. (WP 0107 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Selector switch is defective.

CORRECTIVE ACTION

Replace selector switch. Contact depot maintenance.

MALFUNCTION

Compressor system wiring is defective.

CORRECTIVE ACTION

Using multimeter, check continuity of wiring to compressor. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

System overload protector is open or defective.

CORRECTIVE ACTION

Test the overload protector. (WP 0110 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The fan motor is defective.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L
Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

COMPRESSOR CYCLES OFF (NOT ON OVERLOAD)

SYMPTOM

Compressor cycles off.

MALFUNCTION

Compressor system wiring is defective.

CORRECTIVE ACTION

Repair/replace wiring in the system as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Compressor system has low voltage running to it.

CORRECTIVE ACTION

Using a multimeter, check the continuity of wiring to the compressor motor: RUN wire (black) from the capacitor, the START wire (blue) from the capacitor and the COMMON wire (yellow). If continuity is not present, repair/replace wiring as necessary.
(WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The system capacitor is defective.

CORRECTIVE ACTION

Replace the capacitor. (WP 0111 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The compressor motor is defective.

CORRECTIVE ACTION

Replace compressor motor. Contact depot maintenance.

MALFUNCTION

The fan blade or blower wheel is defective or stuck.

CORRECTIVE ACTION

Free the fan blade or blower wheel and replace as required. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan blade motor is defective.

CORRECTIVE ACTION

Replace the fan blade motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The capillary tube and strainer are restricted or plugged.

CORRECTIVE ACTION

Clean and replace the capillary tube and strainer as required. (WP 0106 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Pressure is not equalized in the system.

CORRECTIVE ACTION

Service air conditioning system. Contact depot maintenance.

MALFUNCTION

The system is overcharged.

CORRECTIVE ACTION

Service the air conditioning system. Contact depot maintenance.

MALFUNCTION

The system is undercharged.

CORRECTIVE ACTION

Service the air conditioning system. Contact depot maintenance.

MALFUNCTION

Air flow is not recirculating through the evaporator.

CORRECTIVE ACTION

Clean and replace system vent air filter as required. (WP 0102 00)

MALFUNCTION

Compressor still cycles off.

CORRECTIVE ACTION

Replace compressor. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

Utilities Equipment Repairer 52C

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

Replace primary limit switch. Contact depot maintenance.

MALFUNCTION

The heater coils are broken.

CORRECTIVE ACTION

Replace the heater assembly. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

FAN DOES NOT OPERATE WHEN POWER IS SUPPLIED TO SHELTER

SYMPTOM

Fan does not operate continuously when electrical power is supplied to personnel shelter.

MALFUNCTION

No power applied to the heating and air conditioning system.

CORRECTIVE ACTION

Using multimeter, verify 24 VDC is being received through the shore tie interconnect cable. If voltage is not present, replace the cable. (TM 55-1945-205-10-2)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

If voltage is present at the shore tie interconnect cable, use multimeter to check continuity of wiring between the external shore tie connection and the electrical distribution panel. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

If voltage is present at the circuit breaker panel, use multimeter to check continuity of wiring the electrical distribution panel and the air conditioner. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

If voltage is present at the air conditioner, replace the air conditioner. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

THERMOSTAT DOES NOT OPERATE SYSTEM

SYMPTOM

Thermostat does not operate heating and cooling system.

MALFUNCTION

Circuit breaker to heating and air conditioning system has been tripped.

CORRECTIVE ACTION

Reset circuit breaker A on personnel shelter electrical distribution panel the ON position.
(TM 55-1945-205-10-2)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Thermostat is defective.

CORRECTIVE ACTION

Replace thermostat. (WP 0107 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

FAN MOTOR HUMS, BUT DOES NOT START

SYMPTOM

Fan motor will hum, but does not start.

MALFUNCTION

Low line voltage to the fan motor is present.

CORRECTIVE ACTION

Using multimeter, check continuity of the wiring between fan motor black wire and other fan motor wires. If continuity is not present, repair/replace wiring as necessary.
(WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Broken wires to the fan motor are present.

CORRECTIVE ACTION

Repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor is wired incorrectly.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor winding is grounding out.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor winding has an open condition.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor has a defective capacitor.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan blade is stuck or damaged.

CORRECTIVE ACTION

Free fan blade and replace as required. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan blade motor bearing is defective.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

FAN MOTOR MAKES NO NOISE AND DOES NOT START

SYMPTOM

Fan motor makes no noise and will not start.

MALFUNCTION

There is no power to the fan motor.

CORRECTIVE ACTION

Position power switch to AUTO, FAN, COOL or HEAT.

Check that power cord is connected.

On personnel shelter electrical distribution panel, check circuit breaker A to be sure it is turned on. (TM 55-1945-205-10-2)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Internal thermostat is stuck open.

CORRECTIVE ACTION

Replace thermostat. (WP 0107 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor switch is defective.

CORRECTIVE ACTION

Replace switch. Contact depot maintenance.

MALFUNCTION

Wiring to fan motor is broken.

CORRECTIVE ACTION

Using multimeter, check continuity of the wiring to fan motor. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor is wired incorrectly.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor winding is grounding out.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor winder has an open condition.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

FAN MOTOR STARTS, BUT STOPS AFTER A SHORT TIME

SYMPTOM

Fan motor starts and then stops after a short time.

MALFUNCTION

Low line voltage to the fan motor is present.

CORRECTIVE ACTION

Repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Broken wires to the fan motor are present.

CORRECTIVE ACTION

Repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor is wired incorrectly.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor winding has an open condition.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The fan motor has a defective capacitor.

CORRECTIVE ACTION

Replace the fan motor capacitor. (WP 0111 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The fan blade motor bearing is defective.

CORRECTIVE ACTION

Replace the fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L
Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

FAN MOTOR STARTS, BUT RUNS SLOW

SYMPTOM

The fan motor will start, but runs slow.

MALFUNCTION

Low line voltage to the fan motor is present.

CORRECTIVE ACTION

Repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

The fan blade motor bearing is defective.

CORRECTIVE ACTION

Replace the fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L
Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

FAN MOTOR RUNS ON ONE SPEED

SYMPTOM

The fan motor only runs on one speed.

MALFUNCTION

The fan motor switch is defective.

CORRECTIVE ACTION

Replace switch. Contact depot maintenance.

MALFUNCTION

Wires to the fan motor are broken.

CORRECTIVE ACTION

Repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor is miswired.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor wiring is grounding out.

CORRECTIVE ACTION

Replace the fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

MALFUNCTION

Fan motor wiring has an open condition.

CORRECTIVE ACTION

Replace fan motor. (WP 0108 00)

Perform operational check on heating and air conditioning system.
(TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INCINERATOR TOILET
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Engineer 88L

References

TM 55-1925-257-14&P

TROUBLESHOOTING PROCEDURE

INCINERATOR TOILET MALFUNCTIONS

For troubleshooting procedures for the incinerator toilet, reference Incinerator Toilet/Urinal Galley/Water Heater Manual. (TM 55-1925-257-14&P)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

References

TM 55-1945-205-10-2

TM 9-6115-642-10

TM 9-6115-643-10

TROUBLESHOOTING PROCEDURE

BASE TANK FUEL LEVEL INDICATION SYSTEM IS INOPERATIVE

SYMPTOM

Base tank fuel level indication system is inoperative.

MALFUNCTION

Fuel level indication system fuse is blown.

CORRECTIVE ACTION

Replace fuse. Contact depot maintenance.

MALFUNCTION

Fuel level sensor inoperable.

CORRECTIVE ACTION

Replace fuel level sensor. (WP 0074 00)

Perform operational check on fuel level indication system. (TM 55-1945-205-10-2)

MALFUNCTION

System relay(s) faulty.

CORRECTIVE ACTION

Replace faulty relay(s). (WP 0075 00)

Perform operational check on fuel level indication system. (TM 55-1945-205-10-2)

MALFUNCTION

Transfer pump/motor not operating.

CORRECTIVE ACTION

Replace transfer pump/motor. (TM 9-6115-642-10, TM 9-6115-643-10)

Perform operational check on fuel level indication system. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TACTICAL QUIET GENERATOR
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 9-6115-642-10

TM 9-6115-643-10

TROUBLESHOOTING PROCEDURE**TACTICAL QUIET GENERATOR MALFUNCTIONS**

For troubleshooting procedures for the 10 KW tactical quiet generator, refer to TM 9-6115-642-10 for 10 KW Tactical Quiet Generator Operating Instructions.

For troubleshooting procedures for the 15 KW tactical quiet generator, refer to TM 9-6115-643-10 for 15 KW Tactical Quiet Generator Operating Instructions.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

DC LIGHTS WILL NOT OPERATE

SYMPTOM

DC lights will not illuminate.

MALFUNCTION

Light bulb(s) burned out.

CORRECTIVE ACTION

Replace light bulb(s). (WP 0089 00)

Perform operational check on DC lighting. (TM 55-1945-205-10-2)

MALFUNCTION

Broken or loose connectors in the DC wiring system.

CORRECTIVE ACTION

Tighten or replace connectors as necessary.

Perform operational check on DC lighting. (TM 55-1945-205-10-2)

MALFUNCTION

DC power source battery appears to be low or discharged.

CORRECTIVE ACTION

Replace battery. (WP 0072 00)

Perform operational check on DC lighting. (TM 55-1945-205-10-2)

MALFUNCTION

Damaged electrical wires.

CORRECTIVE ACTION

Repair/replace wiring as required. (WP 0348 00)

Perform operational check on DC lighting. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter, (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE**FIRE SUPPRESSION SYSTEM INOPERATIVE****SYMPTOM**

Fire suppression system does not work.

MALFUNCTION

Control module alarm LED indicator not lit.

CORRECTIVE ACTION

Use multimeter to determine faulty component(s) in the fire suppression system. Repair or replace defective components. Contact depot maintenance.

MALFUNCTION

DC power source battery not supplying power to the system.

CORRECTIVE ACTION

Replace battery. (WP 0090 00)

Perform operational check on fire suppression system. (TM 55-1945-205-10-2)

MALFUNCTION

Control module is not supplying power to the linear detection wire.

CORRECTIVE ACTION

Replace control module. Contact depot maintenance.

MALFUNCTION

Linear detection wire is damaged or broken.

CORRECTIVE ACTION

Replace linear detection wire. Contact depot maintenance.

MALFUNCTION

No electrical continuity to the squib.

CORRECTIVE ACTION

Using multimeter, check continuity of wiring to the squib. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

Perform operational check on fire suppression system. (TM 55-1945-205-10-2)

MALFUNCTION

Defective squib.

CORRECTIVE ACTION

Replace squib. Contact depot maintenance.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

MANUAL FUEL TRANSFER PUMP WILL NOT PRIME

SYMPTOM

Manuel fuel transfer pump will not prime.

MALFUNCTION

Transfer pump intake screen clogged.

CORRECTIVE ACTION

Clean intake screen. (WP 0078 00)

Perform operational check on manual transfer pump. (TM 55-1945-205-10-2)

MALFUNCTION

Transfer inlet pump gasket leaking.

CORRECTIVE ACTION

Replace inlet transfer pump gasket. (WP 0077 00)

Perform operational check on manual transfer pump. (TM 55-1945-205-10-2)

MALFUNCTION

Transfer pump vanes or rotors sticking.

CORRECTIVE ACTION

Repair pump. Replace damaged parts. (WP 0078 00)

Perform operational check on manual transfer pump. (TM 55-1945-205-10-2)

MALFUNCTION

Transfer pump vanes or rotors have excessive wear.

CORRECTIVE ACTION

Repair pump. Repair damaged parts. (WP 0078 00)

Perform operational check on manual transfer pump. (TM 55-1945-205-10-2)

MALFUNCTION

Transfer pump defective.

CORRECTIVE ACTION

Repair pump. Replace damage parts. (WP 0078 00)

Perform operational check on manual transfer pump. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

MANUAL FUEL TRANSFER PUMP PUMPS SLOWLY

SYMPTOM

Manual fuel transfer pump supplies fuel slowly.

MALFUNCTION

Transfer pump intake screen dirty or clogged.

CORRECTIVE ACTION

Replace screen. (WP 0077 00)

Perform operational test on manual transfer pump. (TM 55-1945-205-10-2)

MALFUNCTION

Transfer pump vanes or rotors sticking.

CORRECTIVE ACTION

Repair pump. Replace damaged parts. (WP 0078 00)

Perform operational test on manual transfer pump. (TM 55-1945-205-10-2)

MALFUNCTION

Rotors or vanes have excessive wear.

CORRECTIVE ACTION

Repair pump. Replace damage parts. (WP 0078 00)

Perform operational test on manual transfer pump. (TM 55-1945-205-10-2)

MALFUNCTION

Transfer pump defective.

CORRECTIVE ACTION

Repair pump. Replace damage parts. (WP 0078 00)

Perform operational test on manual transfer pump. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE**MANUAL FUEL TRANSFER PUMP LEAKS****SYMPTOM**

Manual fuel transfer pump is leaking.

MALFUNCTION

Transfer pump seal is defective.

CORRECTIVE ACTION

Repair or replace transfer pump as necessary. (WP 0078 00)

Perform operational test on manual transfer pump. (TM 55-1945-205-10-2)

MALFUNCTION

Transfer pump gasket is leaking.

CORRECTIVE ACTION

Tighten covers and joints and repair or replace transfer pump as necessary. (WP 0078 00)

Perform operational test on manual transfer pump. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter, (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

TM 9-6115-642-10

TM 9-6115-643-10

TROUBLESHOOTING PROCEDURE

ELECTRIC FUEL TRANSFER PUMP INOPERATIVE

SYMPTOM

Fuel transfer pump is inoperative.

MALFUNCTION

No power to fuel transfer pump.

CORRECTIVE ACTION

Using a multimeter, verify 24 VDC power to the pump. If present, replace pump.
(TM 9-6115-642-10, TM 9-6115-643-10)

If voltage to the pump is not present, use multimeter to verify continuity of the wiring between the pump and the circuit breaker panel. If continuity is not present, repair/replace wiring as necessary. (WP 0348 00)

Perform operational check of electric fuel pump. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter, (Item 43, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

RHIB ENGINE WILL NOT START

SYMPTOM

Engine turns over, but fails to start.

MALFUNCTION

Fuel tank hoses not connected or fuel tank out of fuel.

CORRECTIVE ACTION

Check fuel hose connections on the fuel tank, fuel filter and engine. Tighten as required.

Fill fuel tank with fuel. (TM 55-1945-205-10-2)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

SYMPTOM

Engine will not turn over.

MALFUNCTION

Loose or disconnected battery cables.

CORRECTIVE ACTION

Tighten or connect battery cables. (WP 0336 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Battery lacks voltage.

CORRECTIVE ACTION

Charge or replace the battery as necessary. (WP 0337 00, WP 0338 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Loose or disconnected wiring.

CORRECTIVE ACTION

Check all ignition circuit wiring for proper connections and tighten as necessary.

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

If wiring damaged, repair/replace wiring as necessary. Contact depot maintenance.

MALFUNCTION

Blown engine fuse.

CORRECTIVE ACTION

Replace engine fuse on the engine. (WP 0298 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty starter.

CORRECTIVE ACTION

Ensure starter is receiving power. Remove the spark plug wires. Connect a multimeter to the starter positive and negative terminals. Turn the key switch to start and verify voltage to be 12 VDC. If voltage is verified, replace the starter. (WP 0299 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

If voltage is not present, remove starter solenoid to starter wiring and check for continuity using a multimeter. If continuity is not present, repair/replace the wiring as required. Contact depot maintenance.

MALFUNCTION

Faulty starter solenoid.

CORRECTIVE ACTION

Check starter solenoid is receiving power. Connect a multimeter to solenoid output and ground terminals. Turn the key switch to start and verify voltage to be 12 VDC. If voltage is verified, replace starter solenoid. (WP 0301 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

If voltage is not present, check wiring between solenoid and battery for continuity using a multimeter. If not present, repair/replace wiring as required. Contact depot maintenance

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

If voltage is present, check wiring between solenoid and ground using a multimeter. If not present, repair/replace wiring as required. Contact depot maintenance.

If voltage is present, check wiring between solenoid and engine fuse using a multimeter. If not present, replace wiring as required. Contact depot maintenance.

If voltage is present, check wiring between engine fuse and key start switch using a multimeter. If not present, replace wiring. Contact depot maintenance.

MALFUNCTION

Faulty key switch.

CORRECTIVE ACTION

Replace the throttle and shift control assembly. (WP 0270 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty neutral start switch.

CORRECTIVE ACTION

Replace the throttle and shift control assembly. (WP 0270 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty rectifier regulator.

CORRECTIVE ACTION

Replace rectifier regulator. (WP 0302 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty stator.

CORRECTIVE ACTION

Perform stator resistance test. (WP 0304 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty power pack.

CORRECTIVE ACTION

Replace power pack. (WP 0311 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty ignition coil(s).

CORRECTIVE ACTION

Replace ignition coil(s). (WP 0310 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty spark plug wire(s).

CORRECTIVE ACTION

Replace spark plug wire(s). (WP 0308 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty spark plug(s).

CORRECTIVE ACTION

Replace spark plug(s). (WP 0307 00)

Perform operational check of RHIB engine. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY CONTAINER TILT PLATFORM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

ReferencesTM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

EASY CONTAINER TILT PLATFORM WILL NOT RAISE OR LOWER

SYMPTOM

Tilt platform will not raise or lower.

MALFUNCTION

Equipment preventing platform from raising.

CORRECTIVE ACTION

Ensure the anchor chain, mooring line, buoy lines, etc., are clear of the platform during operation.

MALFUNCTION

Hydraulic lines not retaining pressure or damaged.

CORRECTIVE ACTIONEnsure all hydraulic lines are secure and not leaking. Replace as necessary.
(WP 0240 00, WP 0241 00, WP 0242 00, WP 0243 00)

Perform operational check of tilt platform. (TM 55-1945-205-10-2)

MALFUNCTION

Hydraulic lift cylinder not retaining pressure or is damaged.

CORRECTIVE ACTION

Replace lift cylinder. (WP 0250 00)

Perform operational check of tilt platform. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty hydraulic pump.

CORRECTIVE ACTION

Replace hydraulic pump. (WP 0238 00)

Perform operational check of tilt platform. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY CONTAINER SLIDE PLATFORM
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

References

TM 55-1945-205-10-2

TROUBLESHOOTING PROCEDURE

EASY CONTAINER SLIDE PLATFORM WILL NOT DEPLOY

SYMPTOM

Slide platform will not deploy.

MALFUNCTION

Equipment preventing platform from moving.

CORRECTIVE ACTION

Ensure the anchor chain, mooring line, buoy lines, etc., are clear of the platform during operation.

MALFUNCTION

Hydraulic lines not retaining pressure or damaged.

CORRECTIVE ACTION

Ensure all hydraulic lines are secure and not leaking. Replace as necessary.
(WP 0245 00, WP 0246 00, WP 0247 00, WP 0248 00)

Perform operational check of slide platform. (TM 55-1945-205-10-2)

MALFUNCTION

Hydraulic lift cylinder not retaining pressure or damaged.

CORRECTIVE ACTION

Replace lift cylinder. (WP 0250 00)

Perform operational check of slide platform. (TM 55-1945-205-10-2)

MALFUNCTION

Faulty hydraulic pump.

CORRECTIVE ACTION

Replace hydraulic pump. (WP 0237 00)

Perform operational check of slide platform. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

CHAPTER 3

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE INSTRUCTIONS
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
SERVICE UPON RECEIPT OF MATERIEL**

INITIAL SETUP:

Personnel Required

Engineer 88L

References

DA PAM 738-750

SF 361

TM 55-1945-205-10-2

GENERAL INFORMATION

This work package shall contain information required for the user to ensure that the equipment will be adequately inspected, serviced and operationally tested before it is subjected to use.

CHECK UNPACKED EQUIPMENT

Table 1. Inspection Criteria for Packaging.

COMPONENT	ACCEPTABLE	REPARABLE	NONREPARABLE
Dunnage Matt ISO Container			
Exterior	Minor rust, cracks, indentations, or splits that would not impair water proofing or serviceability of containers.	Dents or bending that does not affect access door operation.	Damage or bending that will not allow doors to open.
Interior	Items within the container have remained in stowed position. No broken, dented, or cracked equipment.	Broken or missing hardware or handles.	Damage to pallets that would prevent storage of dunnage matts.
Hardware	Hardware is operative and tight.	Hardware is inoperative or loose.	None.
EASY Container			
Exterior	Minor rust, cracks, indentations, or splits that would not impair water proofing or serviceability of containers.	Dents or bending that does not affect access door operation.	Damage or bending that will not allow doors to open.
Interior	Items within the container have remained in stowed position. No broken, dented, or cracked equipment.	Leaking hydraulic system. Inoperative hydraulic pumps and cylinders. Minor damage to interior of container that does not affect operation.	Bent EASY launch frame that would affect operation. Bent or sprung anchor drawer that would prevent operation of anchor system.

Table 1. Inspection Criteria for Packaging. (Continued)

COMPONENT	ACCEPTABLE	REPARABLE	NONREPARABLE
Hardware	Hardware is operative and tight.	Hardware is inoperative or loose.	None.
Fender Container			
Exterior	Minor rust, cracks, indentations, splits or tears in fabric container covering that would not impair water proofing or serviceability of containers.	Dents or bending that does not affect access door operation.	Damage or bending that will not allow doors to open.
Interior	Items within the container have remained in stowed position. No broken, dented or cracked equipment.	Broken or damaged pallets.	Damage that will not allow storage of fenders.
Hardware	Hardware is operative and tight.	Hardware is inoperative or loose.	None.
Generator Container			
Exterior	Minor rust, cracks, indentations or splits that would not impair water proofing or serviceability of containers.	Dents or bending that does not affect access door operation.	Damage or bending that will not allow doors to open.
Interior	Items within the container have remained in stowed position. No broken, dented or cracked equipment.	Broken or damaged fire suppression system, inoperative tactical quiet generator, broken or damaged louvers.	None.
Hardware	Hardware is operative and tight.	Hardware is inoperative or loose.	None.
Light Tower Container			
Exterior	Minor rust, cracks, indentations or splits that would not impair water proofing or serviceability of containers.	Dents or bending that does not affect access door operation.	Damage or bending that will not allow doors to open.
Interior	Equipment within the container remains stowed position. No broken, dented or cracked equipment.	Minor dents or broken nails, screws and fasteners that can be replaced or properly sealed.	Damage that requires disassembly of the entire light tower.
Hardware	Operative and tight.	Inoperative or lose.	None.

Table 1. Inspection Criteria for Packaging. (Continued)

COMPONENT	ACCEPTABLE	REPARABLE	NONREPARABLE
	Nails, screws and fasteners present and in good condition.	Nails, screws and fasteners that can be replaced or properly sealed.	None.
Mooring Bitt Container			
Exterior	Minor rust, cracks, indentations, or splits that would not impair water proofing or serviceability of containers.	Dents or bending that does not affect access door operation.	Damage or bending that will not allow doors to open.
Interior	Equipment within the container remains stowed position. No broken, dented or cracked equipment.	Minor dents or broken nails, screws and fasteners that can be replaced or properly sealed.	Damage that will not allow for the stowage of mooring bitts.
Hardware	Hardware is operative and tight.	Hardware is inoperative or loose.	None.
Personnel Shelter			
Exterior	Minor rust, cracks, indentations, or splits that would not impair water proofing or serviceability of containers.	Dents or bending that does not affect access door operation.	Damage or bending that will not allow doors to open.
Interior	Items within the container have remained in stowed position. No broken, dented or cracked equipment.	Dents or bending that does not affect access door operation.	Damage or bending that will not allow doors to open.
Hardware	Hardware is operative and tight.	Hardware is inoperative or loose.	None.
Rigid Hull Inflatable Boat (RHIB)			
Exterior	No tears, cuts or gouges.	Small tears no longer than one inch that can be easily patched.	Perforations, excessive tears, closer than one inch to closure, or through all impregnated layers.
Hardware	Hardware is operative and tight.	Hardware is inoperative or loose.	None

Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF 361, Transportation Discrepancy Report.

Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with applicable service instructions (e.g., for Army instructions, see DA PAM 738-750).

Check to see whether the equipment has been modified.

PROCESS UNPACKED EQUIPMENT

Refer to TM 55-1945-205-10-2, Operators Manual for Modular Causeway System (MCS) Roll-On/Roll-Off Discharge Facility, for instructions to process unpacked equipment. The referenced manual will provide information regarding special skills required by processing personnel, caustic and/or toxic material with applicable warnings that may be used during processing, instructions for safe disposal of waste products and the estimated man-hour requirements to process the equipment.

INSTALL EQUIPMENT

Refer to TM 55-1945-205-10-2, Operators Manual for Modular Causeway System (MCS) Roll-On/Roll-Off Discharge Facility. The referenced manual will identify any connectors, wiring diagrams, or instructions to aide in the installation of such equipment.

ASSEMBLY OF EQUIPMENT

Refer to TM 55-1945-205-10-2, Operators Manual for Modular Causeway System (MCS) Roll-On/Roll-Off Discharge Facility. Instructions include preparing equipment for use that has been shipped unassembled. As applicable, power requirements, connections and initial control settings needed for installation purposes shall be included.

PRELIMINARY SERVICING OF EQUIPMENT

Refer to TM 55-1945-205-10-2, Operators Manual for Modular Causeway System (MCS) Roll-On/Roll-Off Discharge Facility for information on preliminary servicing of equipment.

PRELIMINARY CALIBRATION OF EQUIPMENT

No calibration of equipment is required on the Roll-On/Roll-Off Discharge Facility.

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT 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.

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 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.

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 Unit, Direct Support and General Support 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 your supervisor.

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.

2. Welds: Many items on the equipment are welded. To check these welds, look for chipped paint, rust, corrosion or gaps.
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 your supervisor.
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 your supervisor.

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.

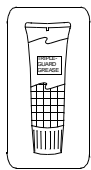
Lubrication Symbols

The following lubrication symbols are used in the PMCS table:



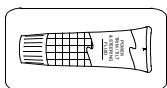
10C044-1

Grease, Cindol (Starter & Pinion) (Item 25, WP 0358 00)



10C044-2

Grease, Outboard Motor, Triple Guard (Item 28, WP 0358 00)



10C044-3

Hydraulic Fluid Petroleum Base, Quicksilver Power Trim & Steering Fluid (Item 31, WP 0358 00)



10C044-4

Kit, HPF Lube (Item 34, WP 0358 00)

GAA - Grease, Automotive and Artillery (Item 23, WP 0358 00)

Interval Symbols

The following lubrication interval symbols shall be used in the PMCS table:

W - weekly	M - monthly
Q - quarterly	S - semiannually
A - annually	B - biennially
H - hours operated	

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

CAUTION

Follow all cleaning and lubrication instructions carefully, failure to do so can result in damage to equipment.

1. Thoroughly wash all equipment exposed to salt spray with clean, fresh water.
2. Ensure proper cleaning and lubrication are completed to aid in avoiding possible problems or trouble.

WARNING



CHEMICAL



EYE PROTECTION

3. Lubricate all equipment at conclusion of the operation before equipment storage.

Generator Container Cleaning

1. For cleaning of the 10 KW tactical quiet generator, refer to TM 9-6115-642-10.
2. For cleaning of the 15 KW tactical quiet generator, refer to TM 9-6115-643-10.
3. Clean the exterior of the shelter with clean water and soap.
4. Clean the interior of the shelter with a broom and vacuum cleaner.

Light Tower Cleaning

WARNING

**CHEMICAL****EXPLOSION****POISON****VAPOR**

Do not use petroleum products (solvents, fuel oils or gasoline) under high pressure as this can penetrate the skin and result in serious illness.

Cleaning with degreaser or mineral spirits should only be performed in a well ventilated area away from all heat flame, or spark producing equipment. No smoking within 25 ft of the area. Mineral spirits are potentially explosive and explosion could cause severe injury or death.

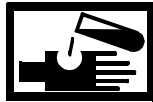
Exercise extreme caution when spraying mineral spirits or other solvents. If the pressure is too high and the spray is allowed to come in contact with the skin, penetration and poisoning could result.

CAUTION

Do not use high pressure water, steam or solvent on the exterior finish of the unit housing. This could result in damage to equipment.

1. Wash the exterior of the light tower with water and a mild soap.

WARNING

**CHEMICAL****EXPLOSION****POISON****VAPOR****NOTE**

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.

2. Wash the exterior of the engine and generator with a quality degreasing product, such as mineral spirits.

WARNING

**EYE PROTECTION**

3. Rinse the engine and generator with water at a moderate pressure.
4. Dry engine and generator with compressed air.

5. Remove all plastic and tape installed to seal out water and solvents.
6. Start engine and run until normal operating temperature is reached.
7. Clean the generator control box.

WARNING

**VAPOR**

The following steps should only be performed in a well ventilated area. Failure to do so could result in serious injury or death to personnel.

- a. Disconnect the battery cables at the light tower battery.
- b. Open the top of the generator control box and vacuum interior.

NOTE

The cleaner must have an evaporative carrier agent which leaves no residue after application.

- c. Spray all switch contacts with a quality commercial electrical contact cleaner.
- d. Cycle the switches through all possible positions spraying at each position.
- e. Leave control box open until completely dry.
- f. Close the top of the generator control box.
- g. Connect battery cables.

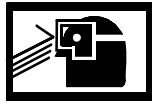
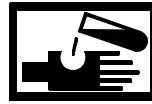
Rigid Hull Inflatable Boat And Motor Cleaning

WARNING

**EYE PROTECTION****CHEMICAL**

1. Clean the hull with clean water and soap.

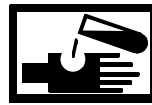
WARNING

**EYE PROTECTION****CHEMICAL**

2. Clean the boat motor with clean water and soap.
3. Clean the battery box with clean water and baking soda.

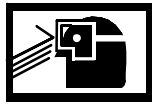
Personnel Shelter

WARNING

**EYE PROTECTION****CHEMICAL**

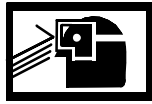
1. Clean the exterior of the shelter with clean water and soap.
2. Clean the VHF/FM transceivers with a soft bristled brush to remove all dirt.
3. Clean surface of heating and air conditioning unit with a clean cloth.

WARNING

**EYE PROTECTION****CHEMICAL**

4. Clean benches and table with clean water and soap.

WARNING

**EYE PROTECTION****CHEMICAL**

5. Clean incinerator toilet with clean water and soap.

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.

Preventive maintenance checks and services for the RRDF 10 KW tactical quiet generator will be accomplished using TM 9-6115-642-10.

Preventive maintenance checks and services for the RRDF 15 KW tactical quiet generator will be accomplished using TM 9-6115-643-10.

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)
AND LUBRICATION PROCEDURES**

INITIAL SETUP:**Tools**

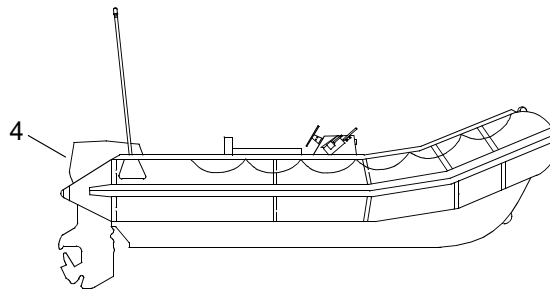
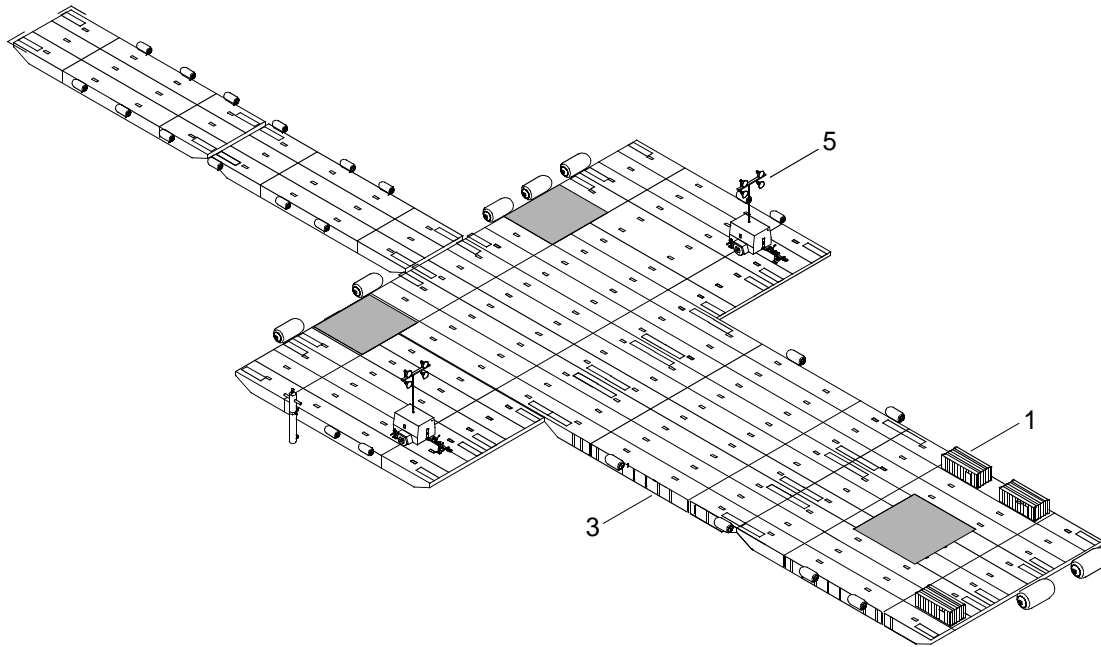
Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Personnel Required

Seaman 88K

Engineer 88L

1. Personnel Shelter
2. Light Tower Engine
3. RRDF Modules
4. Rigid Hull Inflatable Boat Motor
5. Light Tower



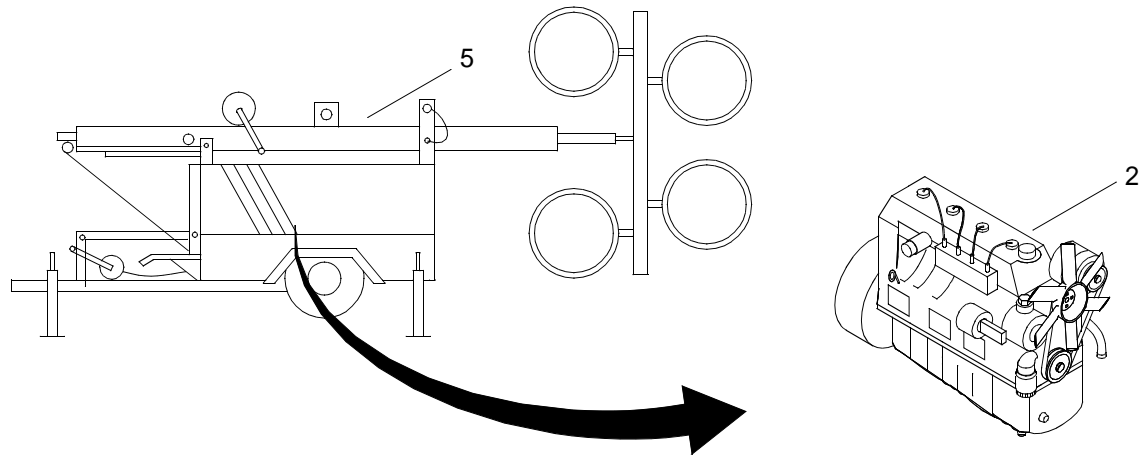


Table 1. Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Monthly	.2	Personnel Shelter	1. Clean heating and air conditioning system indoor air filter. (WP 0100 00) 2. Clean heating and air conditioning system vent air filter. (WP 0102 00)	
3	Quarterly	20.0	RRDF Modules	Inspect for water inside all modules. (WP 0056 00) (WP 0062 00)	
5	Quarterly 100 Hours	.1	Light Tower	Quarterly or every 100 operating hours replace the fuel tank in-line fuel filter. (WP 0171 00)	
1	Annually	.2	Personnel Shelter	Clean heating and air conditioning system internal components. (WP 0105 00, WP 0106 00, WP 0109 00)	
2	Annually	.2	Light Tower Engine	1. Replace air filter element. (WP 0175 00) 2. Perform functional test of engine oil pressure switch in the protection shutdown system. Contact Specialized Repair Activity (SRA).	
3	Annually or 2,400 Operating Hours	1.0	RRDF Modules	Pressure test modules and repair leaks, cracks and corrosion. (WP 0057 00, WP 0063 00)	Leaks present or structural damage which interferes with operation.
2	Biennially	3.0	Light Tower Engine	1. Drain cooling system, flush cooling system and install new coolant. (WP 0179 00, WP 0178 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:
2	Biennially	3.0	Light Tower Engine (Cont'd)	2. Replace all coolant hoses and clamps. (WP 0180 00, WP 0181 00) 3. Replace all fuel hoses and clamps. Contact Specialized Repair Activity (SRA). 4. Replace battery. (WP 0142 00)	
2	50 Operating Hours	.2	Light Tower Engine	1. After the first 50 hours of operation, change the engine oil. (WP 0165 00) 2. After the first 50 hours of operation, replace the engine oil filter. (WP 0166 00)	
2	100 Operating Hours	.3	Light Tower Engine	Remove and clean air filter element. (WP 0175 00)	
4	100 Operating Hours	2.0	Rigid Hull Inflatable Boat Motor	1. Drain and refill lubricant in gearcase. (WP 0332 00) 2. Replace engine fuel filter. (WP 0327 00) 3. Clean engine in-line fuel filter. (WP 0329 00) 4. Check anti-corrosion anodes for remaining material. (WP 0334 00) 5. Check battery connections for security. (WP 0337 00) 6. Tighten cylinder head screws. Contact Specialized Repair Activity (SRA). 7. Decarbonize engine pistons. Contact Specialized Repair Activity (SRA). 8. Check spark plugs for wear. (WP 0307 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:
2	200 Operating Hours	.5	Light Tower Engine	Change engine oil. (WP 0165 00)	
5	250 Operating Hours	.5	Light Tower	Repack wheel bearings and replace grease seals. (WP 0194 00)	
2	400 Operating Hours	.3	Light Tower Engine	1. Replace engine oil filter. (WP 0166 00) 2. Replace engine fuel filter. (WP 0168 00)	
2	500 Operating Hours	3.0	Light Tower Engine	1. Drain cooling system, flush cooling system and install new coolant. (WP 0179 00, WP 0178 00) 2. Replace fan belt. (WP 0183 00)	
4	500 Operating Hours	.5	Rigid Hull Inflatable Boat	Drain and refill power steering reservoir. (WP 0260 00)	

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION NON-POWERED MODULE
MARINE GROWTH REMOVAL**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Hose Assembly, Nonmetallic (Item 34, WP 0359 00)
 Cleaner, Power Washer (Item 11, WP 0359 00)
 Scraper, Ship (Item 64, WP 0359 00)

Personnel Required

Seaman 88K

Equipment Condition

Intermediate Section Non-Powered Module Dry-Docked.

REMOVE INTERMEDIATE SECTION NON-POWERED MODULE MARINE GROWTH

1. Connect hose to power washer.

WARNING



EYE PROTECTION

2. Remove marine growth using a brass scraper.

WARNING



EYE PROTECTION

3. Remove marine growth debris from the surface of the module using a hose with directed water spray.

WARNING



EYE PROTECTION

4. Remove marine growth from male and female connectors in both the extended and retracted position using a hose with directed water spray.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION NON-POWERED MODULE
CLEANING AND PAINTING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Respirator, Air Filtering (Item 59, WP 0359 00)

Materials/Parts

Brush, Paint (Item 7, WP 0358 00)
Paint, Amercoat 385 #27 Haze Grey, Epoxy (Item 40, WP 0358 00)
Paint, Amercoat 385 #27 Haze Grey, Anti-Skid (Item 41, WP 0358 00)
Paint, Amercoat 385 PA, Oxide (Red Primer) (Item 42, WP 0358 00)
Paper, Abrasive (320 grit) (Item 43, WP 0358 00)
Roller Kit, Paint (Item 46, WP 0358 00)
Tape, Pressure Sensitive Adhesive (Item 54, WP 0358 00)
Cloth, Cleaning (Item 14, WP 0358 00)

Personnel Required

Seaman 88K

References

SSPC SP-2
DOD-PRF-24648
MIL-PRF-23236

Equipment Condition

Intermediate Section Non-Powered Module Dry-Docked.
Intermediate Section Non-Powered Module Marine Growth Removed. (WP 0054 00)

PREPARE AND CLEAN INTERMEDIATE SECTION NON-POWERED MODULE FOR PAINTING

 WARNING



EYE PROTECTION

This task is typical for exterior of modules. Power tools are not authorized for use when preparing modules for spot painting. Preparation procedures are in accordance with Steel Structures Painting Council, SP-2 Hand Tool Cleaning (SSPC SP-2).

NOTE

The following steps will be performed prior to module surface painting. Upon completion of rust and paint removal the substrate metal should have a faint metallic sheen and be free of oil, grease, dust, soil, salts and other contaminants.

1. Remove all rust scale, mill scale, loose rust and loose paint to the degree specified by hand wire brushing, hand sanding, hand scraping, hand chipping or other hand impact tools or a combination of these methods.
2. Using clean lint-free cloth, wipe area clean.

PAINT INTERMEDIATE SECTION NON-POWERED MODULE EXTERIOR STEEL SURFACES

1. Mask off areas to be painted.

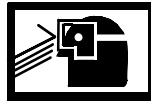
 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

2. Using brush, apply one coat of Amercoat 385 PA oxide red primer paint, Type I, Class I, Composition B in accordance with procedures contained in DOD-PRF-24648.

NOTE

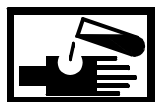
Cold temperatures or high humidity will retard drying time.

3. Allow primer paint to air dry to touch, approximately 2 hours at 70°F.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

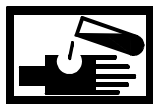
Amercoat 385 #27 haze grey is supplied in two parts.

4. Stir base paint (Amercoat 385 #27) and hardener containers separately.
5. Combine hardener with base paint and stir well.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

6. Apply one coat of Amercoat 385 #27 haze gray epoxy paint (topcoat) in accordance with procedures outlined in MIL-PRF-23236.

NOTE

Cold temperatures or high humidity will retard drying time.

7. Allow topcoat to air dry hard, approximately 16 hours at 70°F.

APPLY DECK GRIP COATING TO INTERMEDIATE SECTION NON-POWERED MODULE EXTERIOR STEEL SURFACES

1. Mask off area to coated.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

 CAUTION

Do not apply anti-skid coating to air test plug ports, lift castings and shackles and connector castings.

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

2. Using nylon roller, paint tray and brush, apply one coat of Amercoat 385 AS anti-skid coating to deck surface.

-
- Back roll each coat while wet at a 90° angle to evenly spread the texture.

NOTE

Cold temperatures or high humidity will retard drying time.

- Allow to dry tack free, approximately 3 hours at 70°F.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

 CAUTION

Do not apply anti-skid coating to air test plug ports, lift castings and shackles and connector castings.

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

- Apply a second coat of anti-skid coating, after the first coat is completely tack free.

NOTE

Cold temperatures or high humidity will retard drying time.

- Allow anti-skid coating to dry 96 hours before heavy traffic or equipment is used on it.

PAINT INTERMEDIATE SECTION NON-POWERED MODULE CLEATS, D-RINGS, GUILLOTINE CONNECTORS AND FLEXOR ASSEMBLIES

 CAUTION

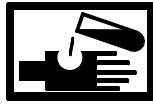
Do not prime or paint rubber surfaces of flexor assemblies.

- Mask off areas to be painted.

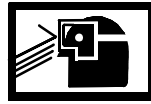
 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc. during the drying period.

- Using brush, apply one coat of Amercoat 385 PA oxide red primer paint, Type I, Class I, Composition B in accordance with procedures contained in DOD-PRF-24648.

NOTE

Cold temperatures or high humidity will retard drying time.

- Allow primer paint to air dry to touch, approximately 2 hours at 70°F.

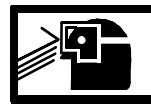
 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

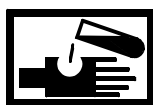
Amercoat 385 #27 haze grey is supplied in two parts.

- Stir base paint (Amercoat 385 #27) and hardener containers separately.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

- Combine hardener with base paint and stir well.

WARNING

**POISON****CHEMICAL****EYE PROTECTION****VAPOR****FIRE**

CAUTION

Do not apply anti-skid coating to air test plug ports, lift castings and shackles and connector castings.

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc. during the drying period.

6. Apply one coat of Amercoat 385 #27 haze gray epoxy paint (topcoat) in accordance with procedures outlined in MIL-PRF-23236.

NOTE

Cold temperatures or high humidity will retard drying time.

7. Allow topcoat to air dry hard, approximately 16 hours at 70°F.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION NON-POWERED MODULE
INSPECTION FOR WATER**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Sling, 53,000 lbs (Brown) (Item 69, WP 0359 00)
 Socket Wrench Set (Item 92, WP 0359 00)
 Socket, Socket Wrench (Item 93, WP 0359 00)
 Key, Socket Head Screw (Allen Wrench) (Item 94, WP 0359 00)

Materials/Parts

Antiseize Compound (Item 4, WP 0358 00)

Personnel Required

Seaman 88K

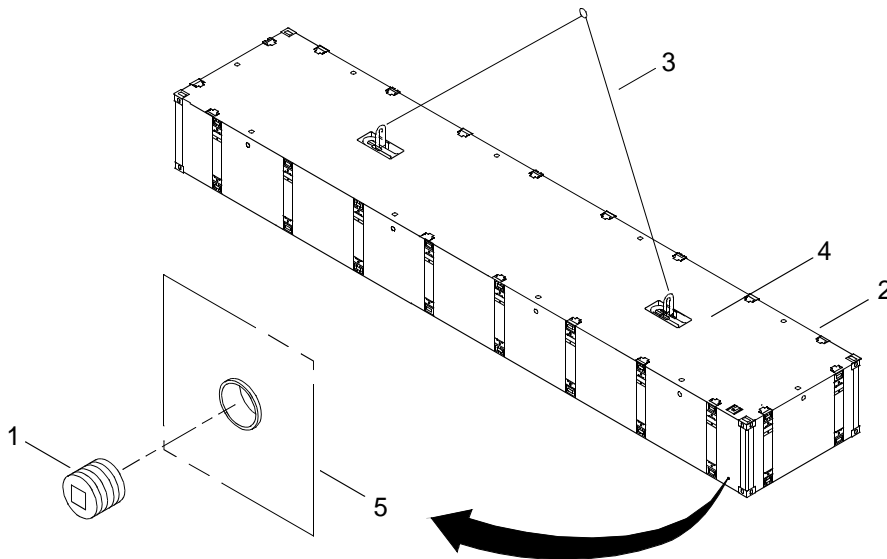
Equipment Condition

Intermediate Section Non-Powered Module Dry-Docked.

INSPECT INTERMEDIATE SECTION NON-POWERED MODULE FOR WATER**NOTE**

The following procedure is typical for inspecting non-powered modules for water and machine plug location.

1. Using breaker bar, socket and allen wrench, remove the machine plug (1) from the module (2).

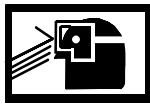
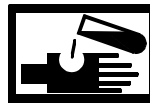


WARNING

**HEAVY PARTS**

2. Using crane, attach a sling (3) to the lifting shackles (4) on the module (2) and tilt module to the side where the machine plug opening (5) is at its lowest point.
3. Using breaker bar, socket and allen wrench, remove machine plug (1). If water is present, allow to drain.
4. If water is found, pressure test the intermediate section non-powered module (2). (WP 0057 00)

WARNING

**EYE PROTECTION****CHEMICAL**

5. Apply antiseize compound to threads of machine plug (1).
6. Using breaker bar, socket and allen wrench, install plug (1) into module (2) and tighten.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION NON-POWERED MODULE
INSPECTION FOR WATER**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Sling, 53,000 lbs (Brown) (Item 69, WP 0359 00)
 Socket Wrench Set (Item 92, WP 0359 00)
 Socket, Socket Wrench (Item 93, WP 0359 00)
 Key, Socket Head Screw (Allen Wrench) (Item 94, WP 0359 00)

Materials/Parts

Antiseize Compound (Item 4, WP 0358 00)

Personnel Required

Seaman 88K

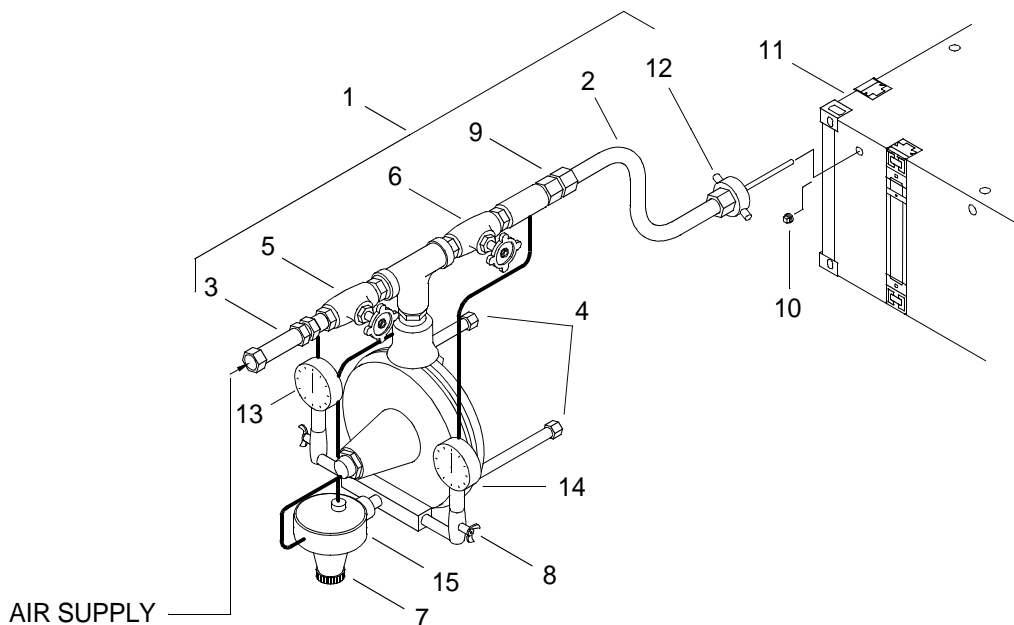
Equipment Condition

Intermediate Section Non-Powered Module Dry-Docked.

PRESSURE TEST INTERMEDIATE SECTION NON-POWERED MODULE**NOTE**

The following procedure is typical for pressure testing all non-powered modules and for pipe plug location.

1. Remove test set (1), sensing line (2) and charging line extension hose (3) from storage box.



2. Attach two extension legs (4).

3. Verify inlet (5) and outlet valves (6), set pressure knob (7) and gage pet cocks (8) are closed.
4. Connect sensing line (2) to the outlet coupling fitting (9).
5. Using breaker bar, socket and allen wrench, remove pipe plug (10) from one of three locations at side of module (11).
6. Install test set sensing line (2) into module (11) through chosen pipe plug (10) opening.
7. Using pipe to hose adapters (12), as required, connect sensing line (2) to pipe plug (10) opening.
8. Adjust length of legs (4) to position test set (1) on module (11).

WARNING

**EYE PROTECTION**

Do not operate air compressor without first reading the operating manual. Failure to comply may result in injury or death to personnel.

9. Connect 100 PSI air supply to inlet valve (3) connector.
10. Rotate set pressure knob (7) counterclockwise eight turns.
11. Open both gage pet cocks (8).
12. Open air supply valve, applying input pressure.
13. Open test set inlet valve (5).

WARNING

**EXPLOSION**

A module pressure must be regulated to 2 PSI pressure. Higher pressures may cause explosion. Failure to comply may result in serious injury or death to personnel.

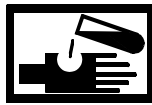
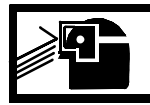
14. Observe input pressure gage (13) and rotate set pressure knob (7) clockwise until gage reads 2 PSI.
15. When input pressure gage (13) is stable at 2 PSI, open outlet valve (6).
16. When output pressure gage reads 2 PSI, close outlet valve (6).
17. Observe any pressure drop on output pressure gage (14).

CAUTION

Leaky joints must be sealed or welded before use. Water leaking into RRDF structure may cause corrosion and metal deterioration.

18. Inspect all seams for evidence of leakage and mark observed leakage areas. Report any leakage to the next higher maintenance level.
19. Seams must be welded watertight before proceeding with assembly for mission.
20. To hold pressure while isolating a leak, open outlet valve (6) to allow regulator (15) to control air loss at a rate dependent upon the volume of the module and rate of leakage.
21. To shut down the test set (1), close air supply valve and remove charging line extension hose (3).
22. Remove test set sensing line (2) from pipe plug (10) opening and remove test set (1).

WARNING

**CHEMICAL****EYE PROTECTION**

23. Apply sealing compound on plug (10) threads.
24. Using breaker bar, socket and allen wrench, install plug (10) on the module (11) test location and tighten.
25. Close inlet (5) and outlet (6) valves, gage pet cocks (8) and rotate set pressure knob (7) clockwise to end of travel.
26. Remove leg extensions (4) and stow in storage box.
27. Remove adapter (12), if used, and stow in storage box.
28. With valve handles (5 and 6) facing down, place test set (1) in storage box.
29. Coil sensing line (2) and charging line extension hose (3) in storage box.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION NON-POWERED MODULE MALE AND
FEMALE GUILLOTINE CONNECTORS
INSPECTION, REPAIR, LUBRICATION AND ADJUSTMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Brush, Wire Scratch (Item 10, WP 0359 00)
 Crowbar (Item 14, WP 0359 00)

Materials/Parts

Paint, Amercoat 385 #27 Haze Grey, Epoxy (Item 40, WP 0358 00)
 Grease, General Purpose (Item 26, WP 0358 00)
 Sponge, Rectangular (Item 51, WP 0358 00)
 Wedge, Wood (Item 61, WP 0358 00)

Personnel Required

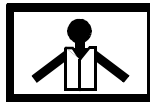
Seaman 88K

References

TM 55-1945-205-10-2

**DISASSEMBLY OF INTERMEDIATE SECTION NON-POWERED MODULE MALE AND FEMALE
GUILLOTINE CONNECTORS**

WARNING



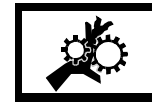
VEST



HELMET PROTECTION



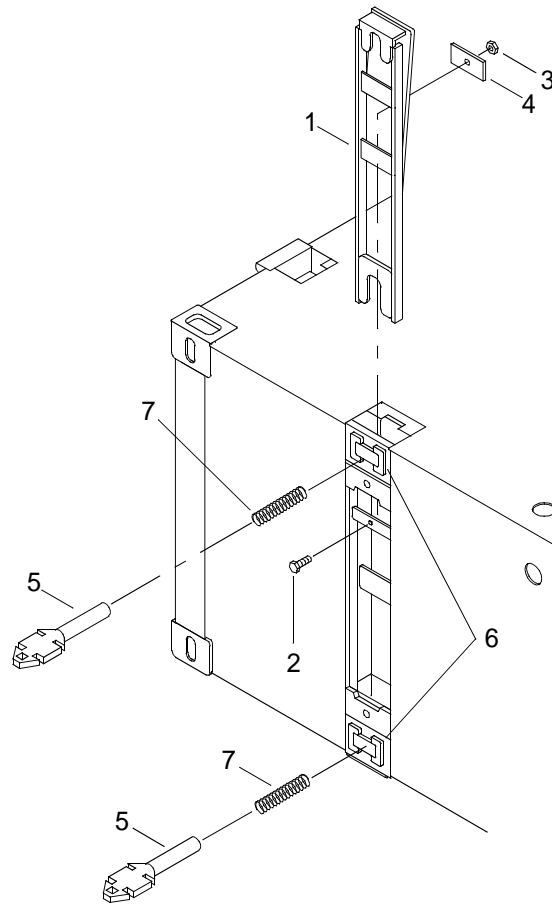
HEAVY PARTS



MOVING PARTS

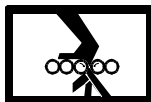
All personnel must wear a personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Disassemble the male guillotine connector assembly.



- a. Remove the guillotine connector bar (1).
 - {1} Remove bolt (2), nut (3) and friction plate (4).
 - {2} Pry up on guillotine connector bar (1) using a crowbar.

WARNING

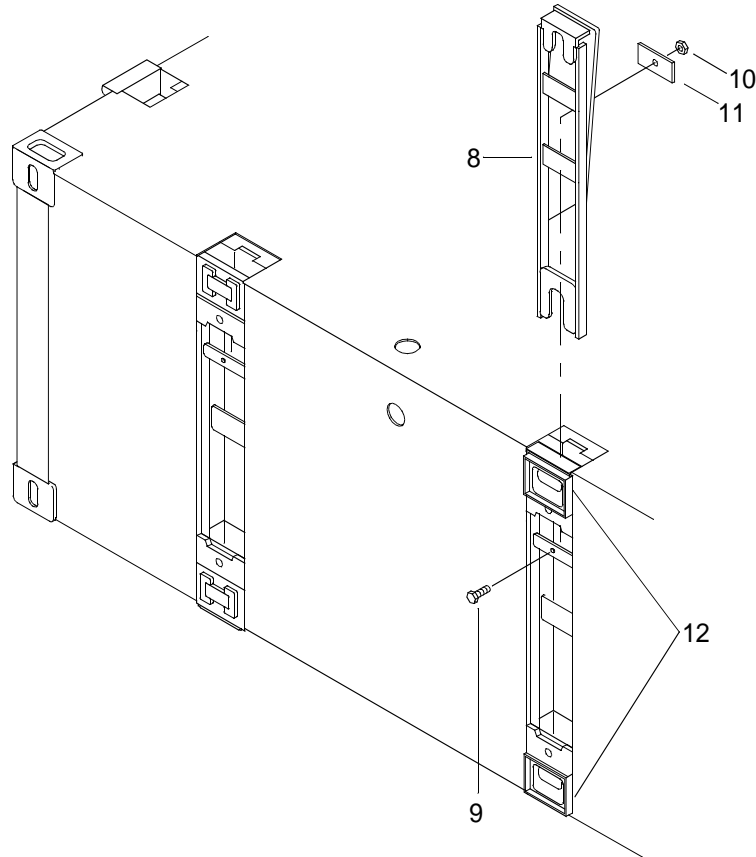


MOVING PARTS

Failure to block guillotine bar in up position when removing pins and springs could result in personal injury or death.

- {3} Place a block of wood under the upper "lip" of the guillotine connector bar (1) after it is raised to hold it in the up position.
- b. Push up on the retainer located on the underside of the male connector pins (5).
- c. Remove male connector pins (5) from the guillotine connector lock housings (6).
- d. Remove deployment springs (7).
- e. Remove guillotine connector bar (1) from guillotine lock housing (6).

2. Disassemble the female guillotine connector assembly.



- a. Remove guillotine connector bar (8).
 - {1} Remove bolt (9), nut (10) and friction plate (11).
 - {2} Pry up on the guillotine connector bar (8) using a crowbar.
- b. Remove guillotine connector bar (8) from guillotine lock housings (12).

INSPECT AND REPAIR/REPLACE INTERMEDIATE SECTION NON-POWERED MODULE MALE AND FEMALE GUILLOTINE CONNECTORS

1. Inspect male connector pins (5) for cracks, cuts or corrosion. If damaged, replace connector pins.
2. Inspect deployment springs (7) for cracks, cuts or corrosion. If damaged, replace deployment springs.
3. Inspect guillotine connector bars (1, 8) for cracks, cuts or corrosion. If damaged, repair or replace guillotine connector bars (1, 8).
4. Inspect guillotine connector male and female lock housings (6, 12) for cracks, cuts or corrosion. If damaged, replace guillotine connector lock housings (6, 12).
5. Inspect guillotine connector assembly friction plates (4, 11) for cracks, cuts or corrosion. If damaged, replace friction plates (4, 11).

**LUBRICATE INTERMEDIATE SECTION NON-POWERED MODULE MALE AND FEMALE
GUILLOTINE CONNECTORS**

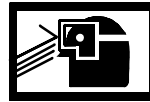
1. Lubricate guillotine connector assemblies.

WARNING

**CHEMICAL****EYE PROTECTION**

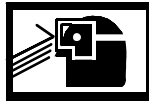
- a. Lubricate connector bar assemblies with a light coat of grease.

WARNING

**CHEMICAL****EYE PROTECTION**

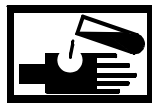
- b. Lubricate deployment springs (7) with a light coat of grease.
2. Clean and/or paint exposed or rusty surfaces. (WP 0055 00)

WARNING

**EYE PROTECTION**

- a. Use wire brush to clean exposed or rusting surfaces.

WARNING

**CHEMICAL****EYE PROTECTION**

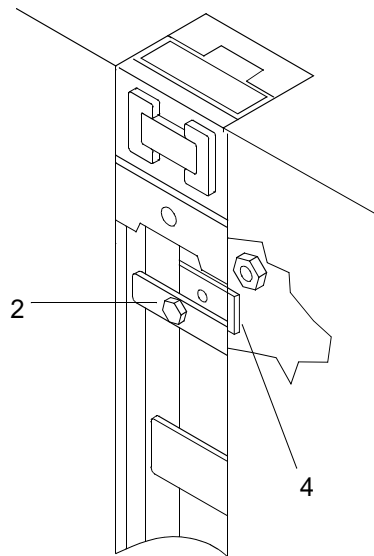
- b. Spot paint exposed surfaces with Haze Grey Amercoat 385 #27 paint.
3. Remove standing water with a sponge from the guillotine connector assemblies.

ASSEMBLY OF INTERMEDIATE SECTION NON-POWERED MODULE MALE AND FEMALE GUILLOTINE CONNECTORS

1. Assemble the female guillotine connector assembly.
 - a. Install guillotine connector bar (8) into guillotine lock housing (12).
 - b. Install bolt (9) through friction plate (11) and nut (10).
2. Assemble the male guillotine connector assembly.
 - a. Install guillotine connector bar (1) into guillotine lock housing (6).
 - b. Install deployment spring (7) on male connector pin (5).
 - c. Install male connector pin (5) into guillotine connector lock housing (6) by pushing down on the retainer located on the underside of the male connector pin (5) to lock pin in place.
 - d. Install bolt (2) through friction plate (4) and nut (3).

ADJUST INTERMEDIATE SECTION NON-POWERED MODULE MALE AND FEMALE GUILLOTINE CONNECTORS

1. Locate the friction plate (4) on the guillotine connector assembly.



CAUTION

Overtightening friction plate causes difficult operation of the guillotine. Failure to comply may result in damage to equipment.

2. Tighten bolt (2) using two standard wrenches.
3. Remove block of wood.
4. Perform operational check of the guillotine connectors. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION NON-POWERED MODULE
FLEXOR ASSEMBLY
INSPECTION**

INITIAL SETUP:**Tools**

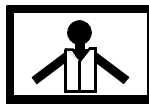
Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)

Personnel Required

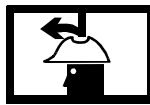
Seaman 88K

INSPECT INTERMEDIATE SECTION NON-POWERED MODULE FLEXOR ASSEMBLY

WARNING



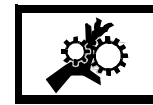
VEST



HELMET PROTECTION



HEAVY PARTS



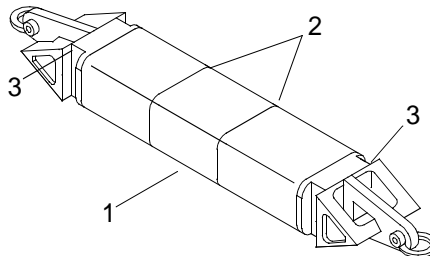
MOVING PARTS

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.

NOTE

The following procedure is typical for all flexors.

1. Inspect flexors (1) for separation of the polyurethane material (2) in the center. If found, replace flexor (1).



2. Inspect flexors (1) for cracks in the external weldments (3) on the ends. If found, replace flexor (1).
3. Inspect installed flexors (1) for separation of the polyurethane material (2) in the center. If, found replace flexor (1) after the exercise or operation is completed.
4. Inspect installed flexors (1) for cracks in the external weldments (3) on the ends. If found, replace flexor (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
NON-POWERED MODULE
MARINE GROWTH REMOVAL**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Cleaner, Power Washer (Item 11, WP 0359 00)
Hose Assembly, Nonmetallic (Item 34, WP 0359 00)
Scraper, Ship (Item 64, WP 0359 00)

Personnel Required

Seaman 88K

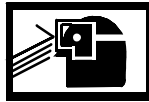
Equipment Condition

Combination Beach/Sea End Section Non-Powered Module Dry-Docked.

**REMOVE COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE
MARINE GROWTH**

1. Connect hose to power washer.

WARNING



EYE PROTECTION

2. Remove marine growth using a scraper.

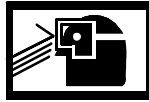
WARNING



EYE PROTECTION

3. Remove marine growth debris from the surface of the module using a hose with directed water spray.

WARNING



EYE PROTECTION

4. Remove marine growth from male and female connectors in both the extended and retracted position using a hose with directed water spray.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
NON-POWERED MODULE
CLEANING AND PAINTING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Respirator, Air Filtering (Item 59, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

Brush, Paint (Item 7, WP 0358 00)
Paint, Amercoat 385 #27 Haze Grey, Epoxy (Item 40, WP 0358 00)
Paint, Amercoat 385 #27 Haze Grey, Anti-Skid (Item 41, WP 0358 00)
Paint, Amercoat 385 PA Oxide (Red Primer) (Item 42, WP 0358 00)
Paper, Abrasive (320 Grit) (Item 43, WP 0358 00)
Roller Kit, Paint (Item 46, WP 0358 00)
Tape, Pressure Sensitive Adhesive (Item 54, WP 0358 00)
Cloth, Cleaning (Item 14, WP 0358 00)

Personnel Required

Seaman 88K

References

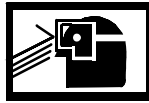
SSPC SP-2
DOD-PRF-24648
MIL-PRF-23236

Equipment Condition

Combination Beach/Sea End Section Non-Powered Module Dry-Docked.

**PREPARE AND CLEAN COMBINATION BEACH/SEA END SECTION NON-POWERED
MODULE FOR PAINTING**

 WARNING



EYE PROTECTION

This task is typical for exterior of modules. Power tools are not authorized for use when preparing modules for spot painting. Preparation procedures are in accordance with Steel Structures Painting Council, SP-2 Hand Tool Cleaning (SSPC SP-2).

NOTE

The following steps will be performed prior to module surface painting. Upon completion of rust and paint removal the substrate metal should have a faint metallic sheen and be free of oil, grease, dust, soil, salts and other contaminants.

1. Remove all rust scale, mill scale, loose rust and loose paint to the degree specified by hand wire brushing, hand sanding, hand scraping, hand chipping or other hand impact tools or a combination of these methods.
2. Using clean lint-free cloth, wipe area clean.

PAINT COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE EXTERIOR STEEL SURFACES

1. Mask off areas to be painted.

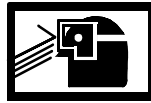
 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

2. Using brush, apply one coat of Amercoat 385 PA oxide red primer paint, Type I, Class I, Composition B in accordance with procedures contained in DOD-PRF-24648.

NOTE

Cold temperatures or high humidity will retard drying time.

3. Allow primer paint to air dry to touch, approximately 2 hours at 70°F.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

Amercoat 385 #27 haze grey is supplied in two parts.

4. Stir base paint (Amercoat 385 #27) and hardener containers separately.
5. Combine hardener with base paint and stir well.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

6. Apply one coat of Amercoat 385 #27 haze gray epoxy paint (topcoat) in accordance with procedures outlined in MIL-PRF-23236.

NOTE

Cold temperatures or high humidity will retard drying time.

7. Allow topcoat to air dry hard, approximately 16 hours at 70°F.

APPLY DECK GRIP COATING TO COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE EXTERIOR STEEL SURFACES

1. Mask off area to coated.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

 CAUTION

Do not apply anti-skid coating to air test plug ports, lift castings and shackles and connector castings.

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

2. Using nylon roller, paint tray and brush, apply one coat of Amercoat 385 AS anti-skid coating to deck surface.

-
- Back roll each coat while wet at a 90° angle to evenly spread the texture.

NOTE

Cold temperatures or high humidity will retard drying time.

- Allow to dry tack free, approximately 3 hours at 70°F.

WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

CAUTION

Do not apply anti-skid coating to air test plug ports, lift castings and shackles and connector castings.

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

- Apply a second coat of anti-skid coating, after the first coat is completely tack free.

NOTE

Cold temperatures or high humidity will retard drying time.

- Allow anti-skid coating to dry 96 hours before heavy traffic or equipment is used on it.

PAINT COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE CLEATS, D-RINGS, GUILLOTINE CONNECTORS, RHINO HORNS, AND FLEXOR ASSEMBLIES

CAUTION

Do not prime or paint rubber surfaces of flexor assemblies.

- Mask off areas to be painted.

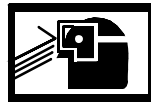
 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc. during the drying period.

- Using brush, apply one coat of Amercoat 385 PA oxide red primer paint, Type I, Class I, Composition B in accordance with procedures contained in DOD-PRF-24648.

NOTE

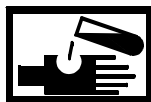
Cold temperatures or high humidity will retard drying time.

- Allow primer paint to air dry to touch, approximately 2 hours at 70°F.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

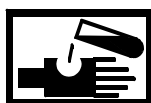
Amercoat 385 #27 haze grey is supplied in two parts.

- Stir base paint (Amercoat 385 #27) and hardener containers separately.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



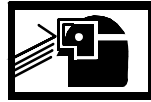
VAPOR



FIRE

- Combine hardener with base paint and stir well.

WARNING

**POISON****CHEMICAL****EYE PROTECTION****VAPOR****FIRE**

CAUTION

Do not apply anti-skid coating to air test plug ports, lift castings and shackles and connector castings.

NOTE

Application temperature range limits are 40° - 120°F.

No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc. during the drying period.

6. Apply one coat of Amercoat 385 #27 haze gray epoxy paint (topcoat) in accordance with procedures outlined in MIL-PRF-23236.

NOTE

Cold temperatures or high humidity will retard drying time.

7. Allow topcoat to air dry hard, approximately 16 hours at 70°F.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON\ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
NON-POWERED MODULE
INSPECTION FOR WATER**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Sling, 53,000lbs (Brown) (Item 69, WP 0359 00)
 Socket Wrench Set (Item 92, WP 0359 00)
 Socket, Socket Wrench (Item 93, WP 0359 00)
 Key, Socket Head Screw (Allen Wrench) (Item 94, WP 0359 00)

Materials/Parts

Antiseize Compound (Item 4, WP 0358 00)

Personnel Required

Seaman 88K

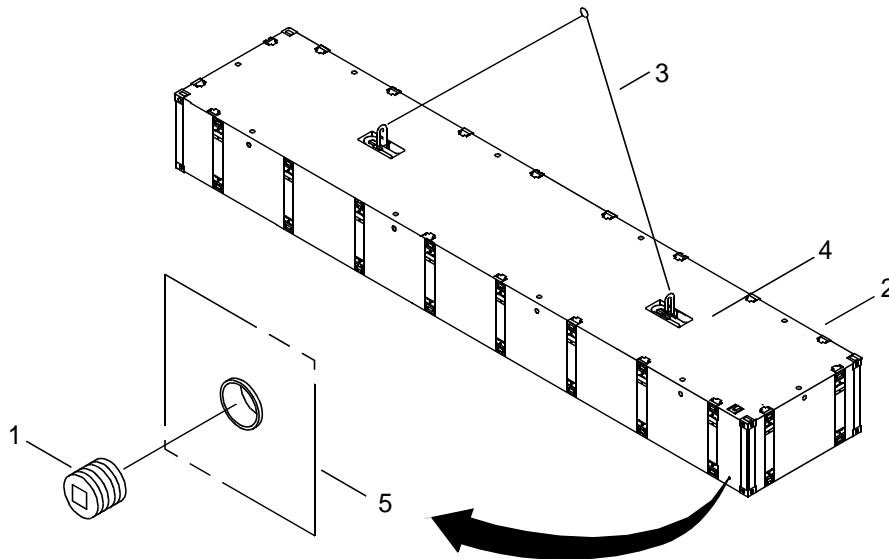
Equipment Condition

Combination Beach/Sea End Section Non-Powered Module Dry-Docked.

INSPECT COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE FOR WATER**NOTE**

The following procedure is typical for inspecting non-powered modules for water and machine plug location.

1. Using breaker bar, socket and allen wrench, remove machine plug (1) from the module (2).



WARNING

**HEAVY PARTS**

2. Using crane, attach a sling (3) to the lifting shackles (4) on the module (2) and tilt module to the side where the machine plug opening (5) is at its lowest point.
3. Using breaker bar, socket and allen wrench, remove machine plug (1). If water is present, allow to drain.
4. If water is found, pressure test the combination beach/sea end section non-powered module (2). (WP 0063 00)

WARNING

**EYE PROTECTION****CHEMICAL**

5. Apply antiseize compound to threads of machine plug (1).
6. Using breaker bar, socket and allen wrench, install plug (1) into module (2) and tighten.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
NON-POWERED MODULE
PRESSURE TEST**

INITIAL SETUP:**Test Equipment**

Test Set, Compartment Air (Item 75, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Gloves, Chemical (Item 25, WP 0359 00)

Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Compressor Unit, Reciprocating, Power Drive (Item 13, WP 0359 00)

Socket Wrench Set (Item 92, WP 0359 00)

Socket, Socket Wrench (Item 93, WP 0359 00)

Key, Socket Head Screw (Allen Wrench) (Item 94, WP 0359 00)

Materials/Parts

Sealing Compound (Item 48, WP 0358 00)

Personnel Required

Engineer 88L

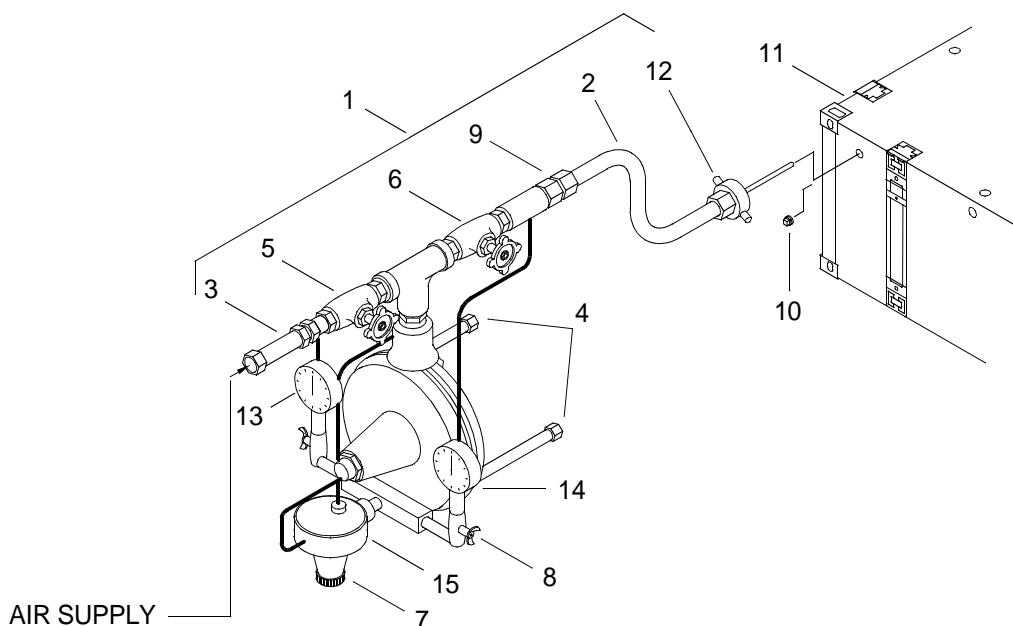
Equipment Condition

Combination Beach/Sea End Section Non-Powered Module Dry-Docked.

PRESSURE TEST COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE**NOTE**

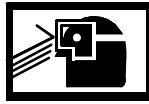
The following procedure is typical for pressure testing all non-powered modules and for pipe plug location.

1. Remove test set (1), sensing line (2) and charging line extension hose (3) from storage box.



2. Attach two extension legs (4).
3. Verify inlet (5) and outlet valves (6), set pressure knob (7) and gage pet cocks (8) are closed.
4. Connect sensing line (2) to the outlet coupling fitting (9).
5. Using breaker bar, socket and allen wrench, remove pipe plug (10) from one of three locations at side of module (11).
6. Install test set sensing line (2) into module (11) through chosen pipe plug (10) opening.
7. Using pipe to hose adaptors (12), as required, connect sensing line (2) to pipe plug (10) opening.
8. Adjust length of legs (4) to position test set (1) on module (11).

WARNING



EYE PROTECTION

Do not operate air compressor without first reading the operating manual. Failure to comply may result in injury or death to personnel.

9. Connect 100 PSI air supply to inlet valve (3) connector.
10. Rotate set pressure knob (7) counterclockwise eight turns.
11. Open both gage pet cocks (8).
12. Open air supply valve, applying input pressure.
13. Open test set inlet valve (5).

WARNING



EXPLOSION

A module pressure must be regulated to 2 PSI pressure. Higher pressures may cause explosion. Failure to comply may result in serious injury or death to personnel.

14. Observe input pressure gage (13) and rotate set pressure knob (7) clockwise until gage reads 2 PSI.
15. When input pressure gage (13) is stable at 2 PSI, open outlet valve (6).
16. When output pressure gage reads 2 PSI, close outlet valve (6).
17. Observe any pressure drop on output pressure gage (14).

CAUTION

Leaky joints must be sealed or welded before use. Water leaking into RRDF structure may cause corrosion and metal deterioration.

18. Inspect all seams for evidence of leakage and mark observed leakage areas. Report any leakage to the next higher maintenance level.
19. Seams must be welded watertight before proceeding with assembly for mission.
20. To hold pressure while isolating a leak, open outlet valve (6) to allow regulator (15) to control air loss at a rate dependent upon the volume of the module and rate of leakage.
21. To shut down the test set (1), close air supply valve and remove charging line extension hose (3).
22. Remove test set sensing line (2) from pipe plug (10) opening and remove test set (1).

WARNING

**CHEMICAL****EYE PROTECTION**

23. Apply sealing compound on plug (10) threads.
24. Using breaker bar, socket and allen wrench, install plug (10) to module (11) test location and tighten.
25. Close inlet (5) and outlet (6) valves, gage pet cocks (8) and rotate set pressure knob (7) clockwise to end of travel.
26. Remove leg extensions (4) and stow in storage box.
27. Remove adaptor (12), if used, and stow in storage box.
28. With valve handles (5 and 6) facing down, place test set (1) in storage box.
29. Coil sensing line (2) and charging line extension hose (3) in storage box.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE MALE AND FEMALE
GUILLOTINE CONNECTORS
INSPECTION, REPAIR, LUBRICATION AND ADJUSTMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Crowbar (Item 14, WP 0359 00)
 Brush, Wire Scratch (Item 10, WP 0359 00)

Materials/Parts

Grease, General Purpose (Item 26, WP 0358 00)
 Paint, Amercoat 385 #27 Haze Grey, Epoxy (Item 40, WP 0358 00)
 Sponge, Rectangular (Item 51, WP 0358 00)
 Wedge, Wood (Item 61, WP 0359 00)

Personnel Required

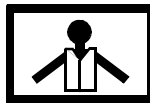
Seaman 88K

References

TM 55-1945-205-10-2

DISASSEMBLY OF COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE MALE AND FEMALE GUILLOTINE CONNECTORS

WARNING



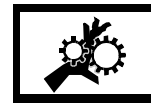
VEST



HELMET PROTECTION



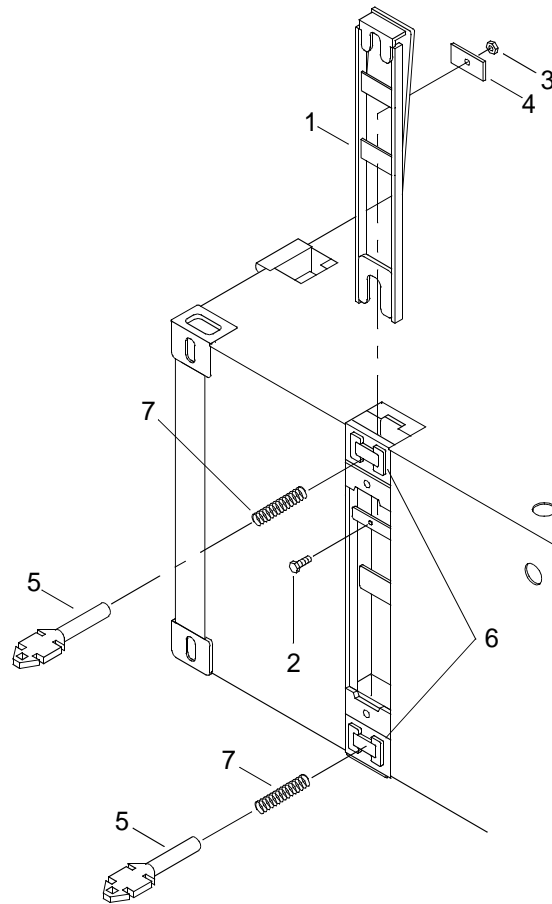
HEAVY PARTS



MOVING PARTS

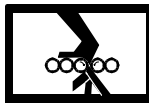
All personnel must wear a personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Disassemble the male guillotine connector assembly.



- a. Remove the guillotine connector bar (1).
 - {1} Remove bolt (2), nut (3) and friction plate (4).
 - {2} Pry up on the guillotine connector bar (1) using a crowbar.

WARNING

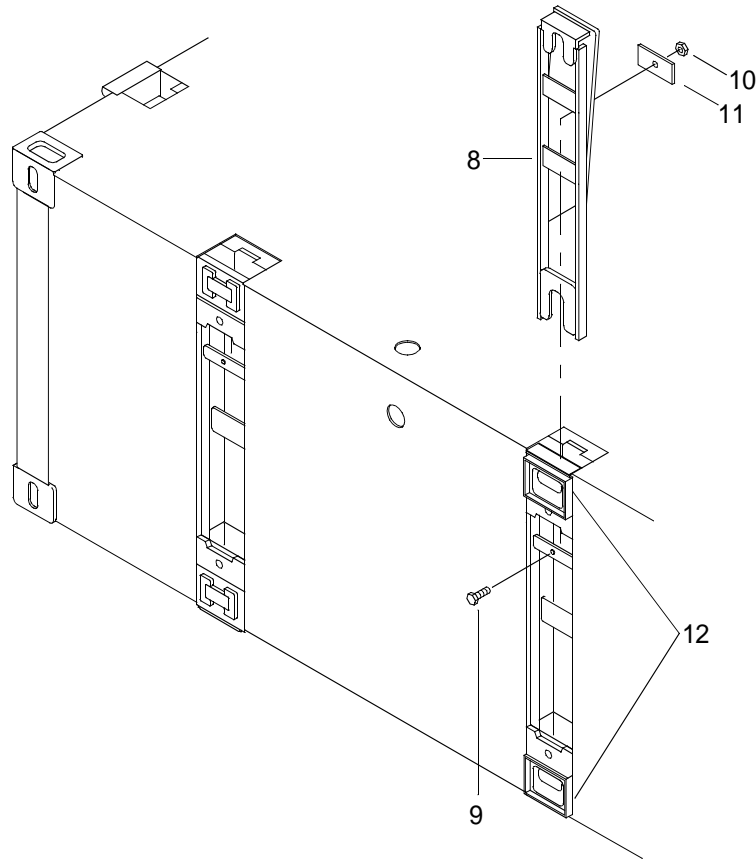


MOVING PARTS

Failure to block guillotine bar in up position when removing pins and springs could result in personal injury or death.

- {3} Place a block of wood under the upper “lip” of the guillotine connector bar (1) after it is raised to hold it in the up position.
- b. Push up on the retainer located on the underside of the male connector pins (5).
- c. Remove male connector pins (5) from the guillotine connector lock housings (6).
- d. Remove deployment springs (7).
- e. Remove guillotine connector bar (1) from guillotine lock housings (6).

2. Disassemble the female guillotine connector assembly.



- a. Remove the guillotine connector bar (8).
 - {1} Remove bolt (9), nut (10) and friction plate (11).
 - {2} Pry up on the guillotine connector bar (8) using a crowbar.
- b. Remove guillotine connector bar (8) from guillotine lock housings (12).

INSPECT AND REPAIR/REPLACE COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE MALE AND FEMALE GUILLOTINE CONNECTORS

1. Inspect male connector pins (5) for cracks, cuts or corrosion. If damaged, replace connector pins.
2. Inspect deployment springs (7) for cracks, cuts or corrosion. If damaged, replace deployment springs.
3. Inspect guillotine connector bars (1, 8) for cracks, cuts or corrosion. If damaged, repair or replace guillotine connector bars (1, 8).
4. Inspect guillotine connector male and female lock housings (6, 12) for cracks, cuts or corrosion. If damaged, replace or replace guillotine connector lock housings (6, 12).
5. Inspect guillotine connector assembly friction plates (4, 11) for cracks, cuts or corrosion. If damaged, replace friction plates (4, 11).

LUBRICATE COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE MALE AND FEMALE GUILLOTINE CONNECTORS

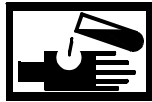
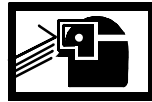
1. Lubricate guillotine connector assemblies.

WARNING

**CHEMICAL****EYE PROTECTION**

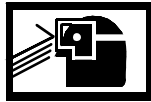
- a. Lubricate connector bar assemblies with a light coat of grease.

WARNING

**CHEMICAL****EYE PROTECTION**

- b. Lubricate deployment springs (7) with a light coat of grease.
2. Clean and/or paint exposed or rusty surfaces (WP 0061 00).

WARNING

**EYE PROTECTION**

- a. Use wire brush to clean exposed or rusting surfaces.

WARNING

**CHEMICAL****EYE PROTECTION**

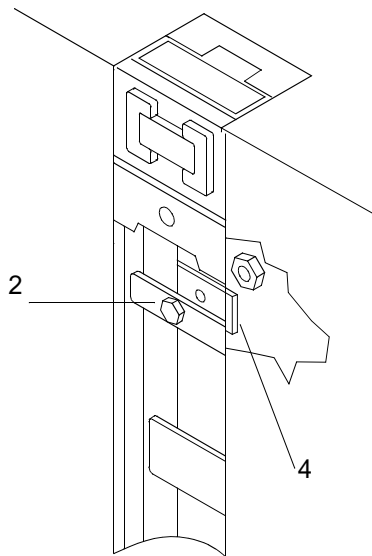
- b. Spot paint exposed surfaces with Haze Grey Amercoat 385 #27 paint.
3. Remove standing water with a sponge from the guillotine connector assemblies.

ASSEMBLY OF COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE MALE AND FEMALE GUILLOTINE CONNECTORS

1. Assemble the female guillotine connector assembly.
 - a. Install guillotine connector bar (8) into guillotine lock housing (12).
 - b. Install bolt (9) through friction plate (11) and nut (10).
2. Assemble the male guillotine connector assembly.
 - a. Install guillotine connector bar (1) into guillotine lock housing (6).
 - b. Install deployment spring (7) on male connector pin (5).
 - c. Install male connector pin (5) into guillotine connector lock housing (6) by pushing down on the retainer located on the underside of the male connector pin (5) to lock pin in place.
 - d. Install bolt (2) through friction plate (4) and nut (3).

ADJUST COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE MALE AND FEMALE GUILLOTINE CONNECTORS

1. Locate the friction plate (4) on the guillotine connector assembly.



CAUTION

Overtightening friction plate causes difficult operation of the guillotine. Failure to comply may result in damage to equipment.

2. Tighten bolt (2) using two standard wrenches.
3. Remove block of wood.
4. Perform operational check of guillotine connectors. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION NON-POWERED
MODULE FLEXOR ASSEMBLY
INSPECTION**

INITIAL SETUP:**Tools**

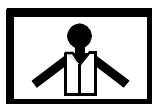
Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

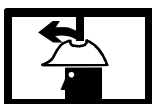
Seaman 88K

**INSPECT COMBINATION BEACH/SEA END SECTION NON-POWERED MODULE
FLEXOR ASSEMBLY**

WARNING



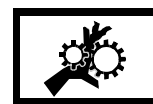
VEST



HELMET PROTECTION



HEAVY PARTS



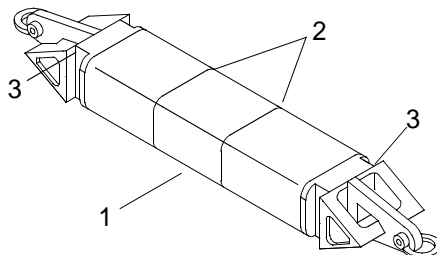
MOVING PARTS

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.

NOTE

The following procedure is typical for all flexors.

1. Inspect uninstalled flexors (1) for separation of the polyurethane material (2) in the center. If found, replace flexor (1).



2. Inspect uninstalled flexors (1) for cracks in the external weldments (3) on the ends. If found, replace flexor (1).
3. Inspect installed flexors (1) for separation of the polyurethane material (2) in the center. If found, replace flexor (1) after the exercise or operation is completed.
4. Inspect installed flexors (1) for cracks in the external weldments (3) on the ends. If found, replace flexor (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER EXTERIOR DOOR LOCKSET
REPLACEMENT**

INITIAL SETUP:**Tools**

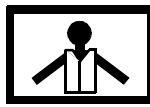
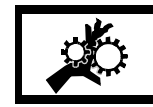
Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

Engineer 88L

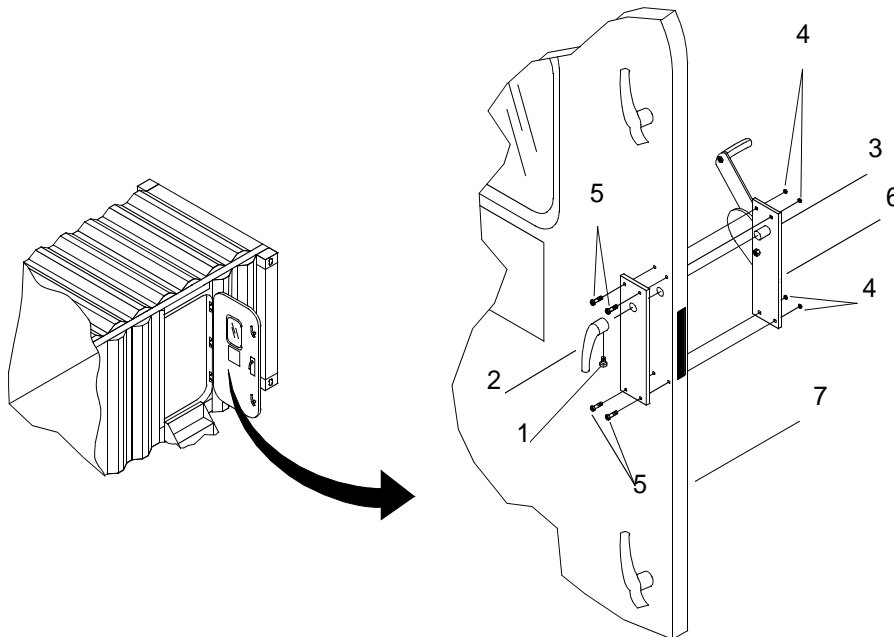
REMOVE GENERATOR CONTAINER EXTERIOR DOOR LOCKSET

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 an allen wrench, remove set screw (1) securing the outer door handle (2) to the latch assembly shaft (3).



2. Remove four cap nuts (4) and bolts (5) securing the lockset (6) to the door (7).
3. Remove the lockset (6) and discard.

INSTALL GENERATOR CONTAINER EXTERIOR DOOR LOCKSET

1. Position the new lockset (6) into the hole in the door (7).
2. Install four bolts (5) and cap nuts (4) to secure the lockset (6) to the door (7). Tighten cap nuts (4).
3. Position the outer door handle (2) over the lockset shaft (3) and secure with the set screw (1). Tighten set screw (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER EXTERIOR DOOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

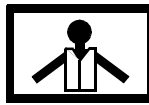
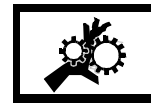
Door, Weathertight
 (81340)
 PN FC-621-001-2

Personnel Required

Engineer 88L (2)

REMOVE GENERATOR CONTAINER EXTERIOR DOOR

WARNING

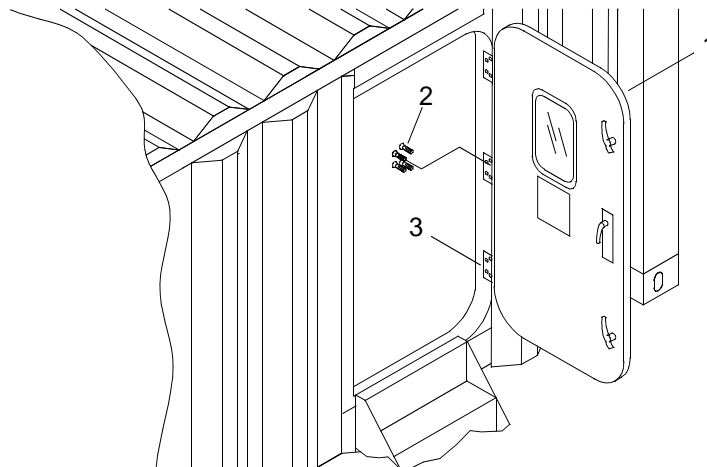
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 hinges will remain on the door frame during door replacement.

1. Supporting the weight of the door (1), remove four screws (2) from three door hinges (3) on the door side.



2. Remove door (1).

INSTALL GENERATOR CONTAINER EXTERIOR DOOR

1. Position new door (1) on the hinges (3).
2. Install four screws (2) in each of the hinges (3) and tighten screws (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER EXTERIOR DOOR DOGS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

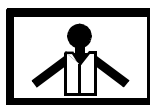
Set, Dog
 (81340)
 PN FC-621-001-2-DOG

Personnel Required

Engineer 88L

REMOVE GENERATOR CONTAINER EXTERIOR DOOR DOGS

WARNING



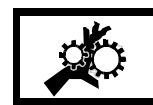
VEST



HELMET PROTECTION



HEAVY PARTS



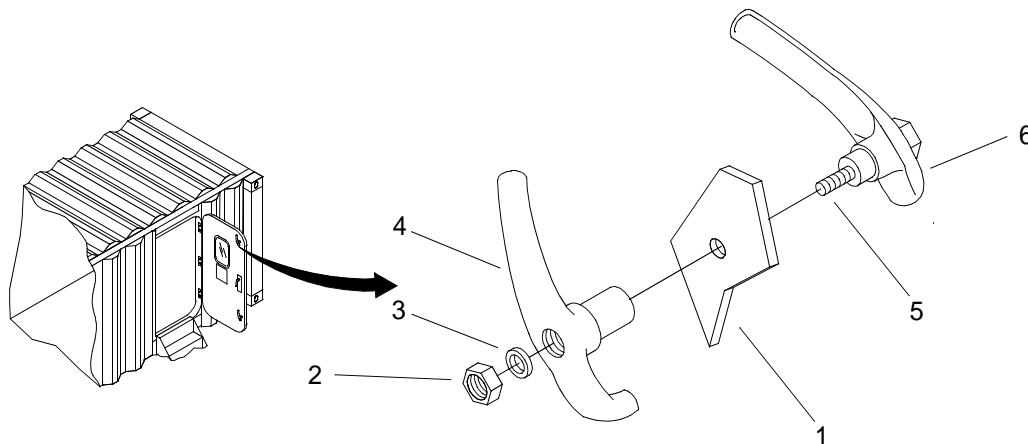
MOVING PARTS

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 removal and installation of door dogs.

1. On the interior of door (1), remove nut (2) and washer (3) securing the inner dog (4) to the outer dog bolt (5).



2. Remove outer door dog (6) with attached bolt (5) from door (1) and discard.

INSTALL GENERATOR CONTAINER EXTERIOR DOOR DOGS

1. Position new outer door dog (6) with attached bolt (5) into door (1).
2. Position inner dog (4) onto outer dog bolt (5).
3. Install washer (3) and nut (2) on outer dog bolt (5) and tighten nut (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER HAND LANTERN MOUNTING BRACKET
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Assembly, Bracket

(81349)

PN M16377-53-003

NSN 6230-00-968-7831

Holder, Light

(81349)

PN M16377/54-2438

NSN 6230-00-578-7401

O-Ring

(96906)

PN MS28775-001

NSN 5331-00-582-2133

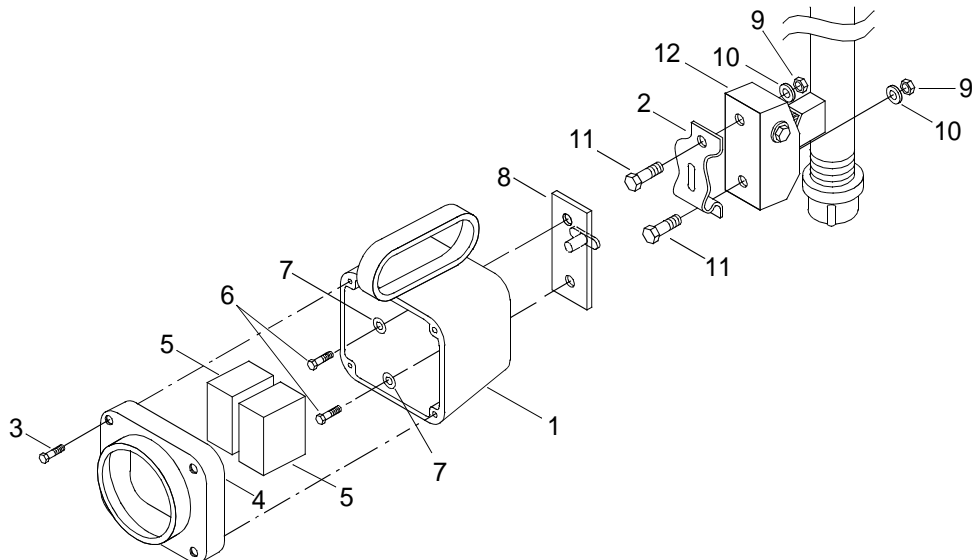
Qty 2

Personnel Required

Engineer 88L

REMOVE GENERATOR CONTAINER HAND LANTERN MOUNTING BRACKET

1. Rotate hand lantern (1) 90° and remove from mounting bracket (2).



2. Loosen four captive screws (3) on cover (4).
3. Remove cover (4).
4. Place hand lantern (1) face up on the work bench.

5. Remove batteries (5).
6. Remove two hex head bolts (6) and o-rings (7) from bracket (8).
7. Discard o-rings (7) and bracket (8).
8. Remove two hex nuts (9), lock washers (10) and hex head bolts (11) securing mounting bracket (2) to the mounting plate (12).
9. Discard mounting bracket (2).

INSTALL GENERATOR CONTAINER HAND LANTERN MOUNTING BRACKET

1. Position new mounting bracket (2) on mounting plate (12).
2. Install two hex head bolts (11), lock washers (10) and hex nuts (9) to secure mounting bracket (2) on mounting plate (12). Tighten hex nuts (9).
3. Position new bracket (8) on the back of hand lantern (1).
4. Install two hex head bolts (6) and new o-rings (7) through hand lantern (1) into bracket (8).
5. Tighten hex head bolts (6).
6. Install batteries (5).
7. Position cover (4) on hand lantern (1).
8. Tighten four captive screws (3).
9. Position hand lantern (1) on mounting bracket (2) and rotate 90°.
10. Perform operational check of hand lantern.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER SHORE TIE PENETRATION HINGED COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

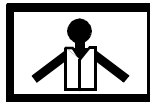
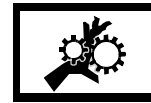
Cover, Hinged
 (81340)
 PN MCSFC-99-310-001-104

Personnel Required

Engineer 88L

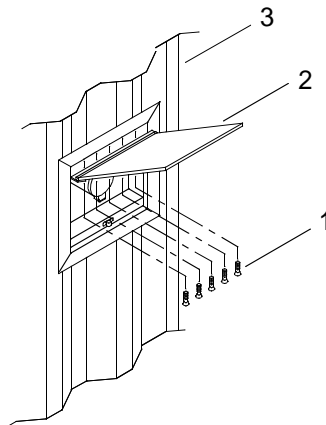
REMOVE GENERATOR CONTAINER SHORE TIE PENETRATION HINGED COVER

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 five cover hinge screws (1) securing cover (2) to the generator container exterior wall (3).



2. Remove cover (2) and discard.

INSTALL GENERATOR CONTAINER SHORE TIE PENETRATION HINGED COVER

1. Position new cover (2) on the generator container exterior wall (3).
2. Install five hinge cover screws (1) securing hinge (2) to wall (3) and tighten.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER SHORE TIE FEMALE ELECTRICAL CONNECTOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Connector, Electrical, Female, Shore Tie
 (81340)
 PN 33-91167-2707-HP

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE GENERATOR CONTAINER SHORE TIE FEMALE ELECTRICAL CONNECTOR

WARNING



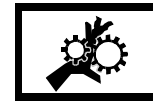
VEST



HELMET PROTECTION



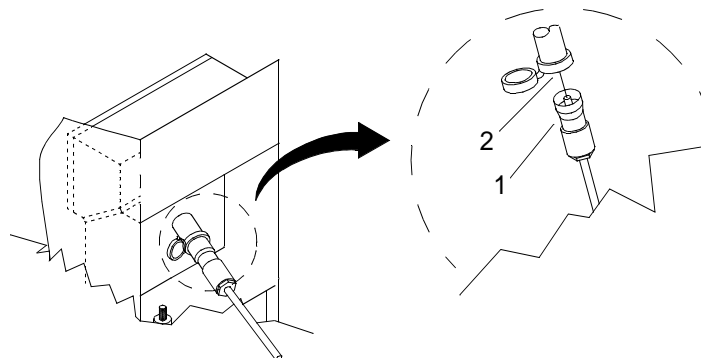
HEAVY PARTS



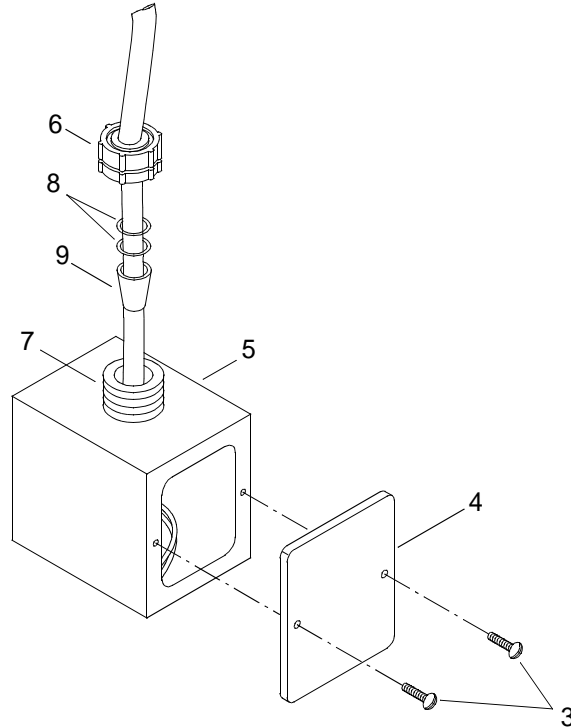
MOVING PARTS

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.

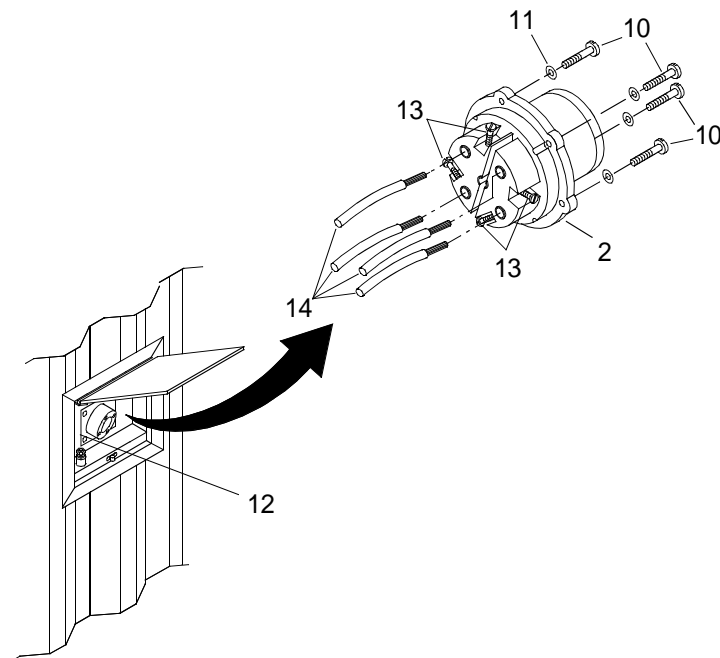
1. Rotate power cable connector (1) counterclockwise $\frac{1}{4}$ turn and disconnect from generator container shore tie female electrical connector (2).



2. Inside generator container, remove two screws (3) from generator container shore tie junction box cover (4).



3. Remove generator container shore tie junction box cover (4) from junction box (5).
4. Rotate stuffing tube packing retainer cap (6) counterclockwise and slide away from nylon stuffing tube (7).
5. Slide plastic packing washers (8) and stuffing tube packing (9) away from nylon stuffing tube (7).
6. Remove four screws (10) and plastic washers (11) from generator container shore tie female connector (2).



-
7. Pull generator container shore tie female connector (2) outward from shore tie recess pocket (12).
 8. Loosen four screws (13) on back of generator container shore tie female connector (2).
 9. Tag and remove wires (14) from generator container shore tie female connector (2).
 10. Remove generator container shore tie female connector (2) and discard.

INSTALL GENERATOR CONTAINER SHORE TIE FEMALE ELECTRICAL CONNECTOR

1. Install wires (14) in new generator container shore tie female connector (2) and remove tags.
2. Tighten four screws (13) on back of generator container shore tie female connector (2).
3. Position generator container shore tie female connector (2) in shore tie recess pocket (12).
4. Install four plastic washers (11) and screws (10) in generator container shore tie female connector (2) and tighten.
5. Slide the stuffing tube packing (9) and plastic packing washers (8) into nylon stuffing tube (7).
6. Slide stuffing tube packing retainer cap (6) onto nylon stuffing tube (7).
7. Rotate stuffing tube packing retainer cap (6) clockwise and tighten.
8. Position generator container shore tie junction box cover (4) on junction box (5), install two screws (3) and tighten.
9. Perform operational check of generator. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TACTICAL QUIET GENERATOR
REPAIR**

INITIAL SETUP:

Personnel Required

Engineer 88L

References

TM 9-6115-642-10

TM 9-6115-643-10

REPAIR 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

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FUEL TANK CONTROL FUSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Personnel Required

Seaman 88K

References

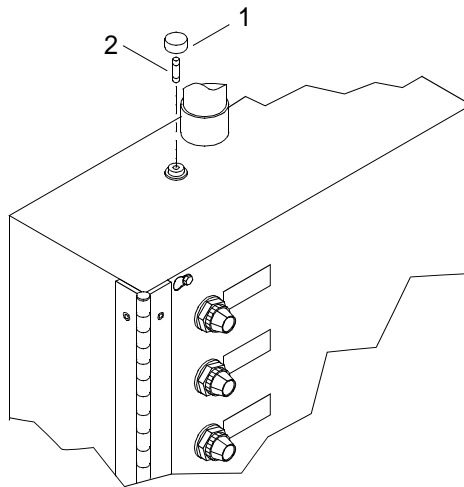
TM 55-1945-205-10-2

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE GENERATOR CONTAINER FUEL TANK CONTROL FUSE

1. Loosen fuse holder cap (1) and remove.



2. Remove fuse (2) from fuse holder cap (1) and discard.

INSTALL GENERATOR CONTAINER FUEL TANK CONTROL FUSE

1. Install new fuse (2) in fuse holder cap (1).
2. Tighten fuse holder cap (1).
3. Perform operational check of fuel tank control. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER 1,000 GALLON FUEL TANK FUEL LEVEL SENSORS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Personnel Required

Engineer 88L

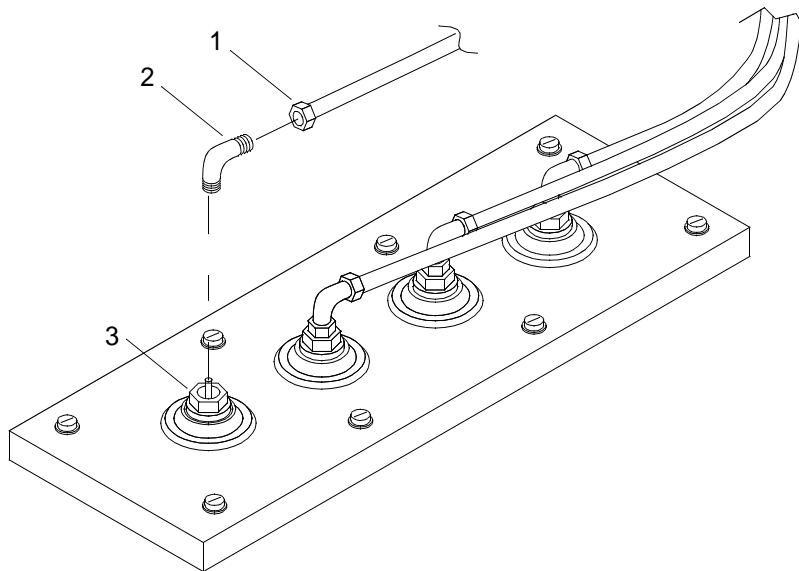
Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE GENERATOR CONTAINER 1,000 GALLON FUEL TANK FUEL LEVEL SENSORS**NOTE**

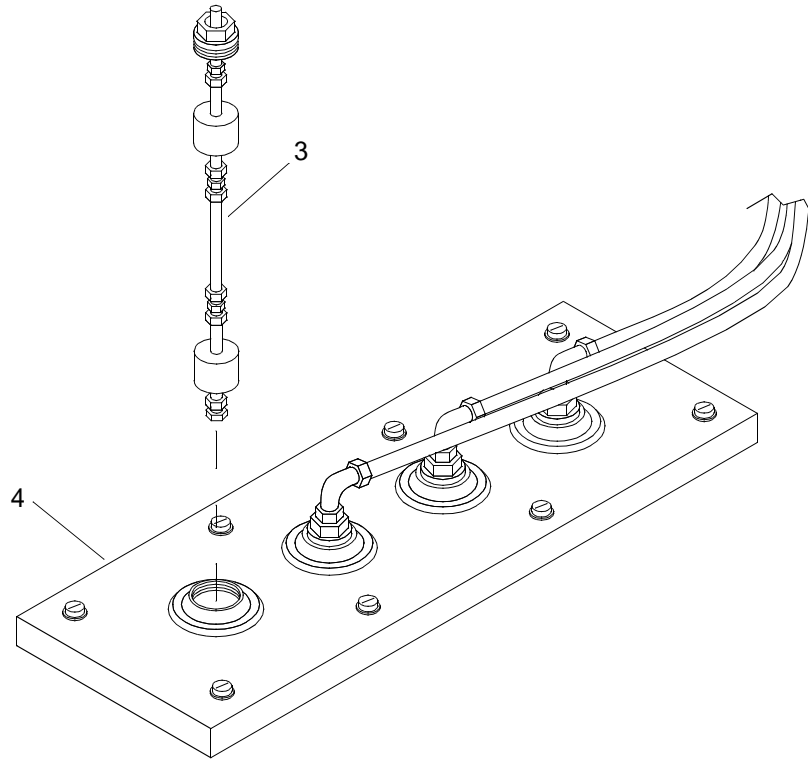
The following procedure is typical for the removal and installation of all fuel level sensors.

1. Remove nut (1) from elbow (2).



2. Remove elbow (2) from sensor (3).

-
3. Unscrew sensor (3) from fuel tank (4) and discard.



INSTALL GENERATOR CONTAINER 1,000 GALLON FUEL TANK FUEL LEVEL SENSORS

1. Screw new sensor (3) into fuel tank (4).
2. Install elbow (2) on sensor (3) and tighten.
3. Install nut (1) on elbow (2) and tighten.
4. Perform operational check of fuel level sensor. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER 1,000 GALLON FUEL TANK FUEL LEVEL
INDICATING SYSTEM LIGHT BULB LENSES
REPLACEMENT**

INITIAL SETUP:**Materials/Parts**

Lens, Bulb, Light

Personnel Required

Seaman 88K

References

TM 55-1945-205-10-2

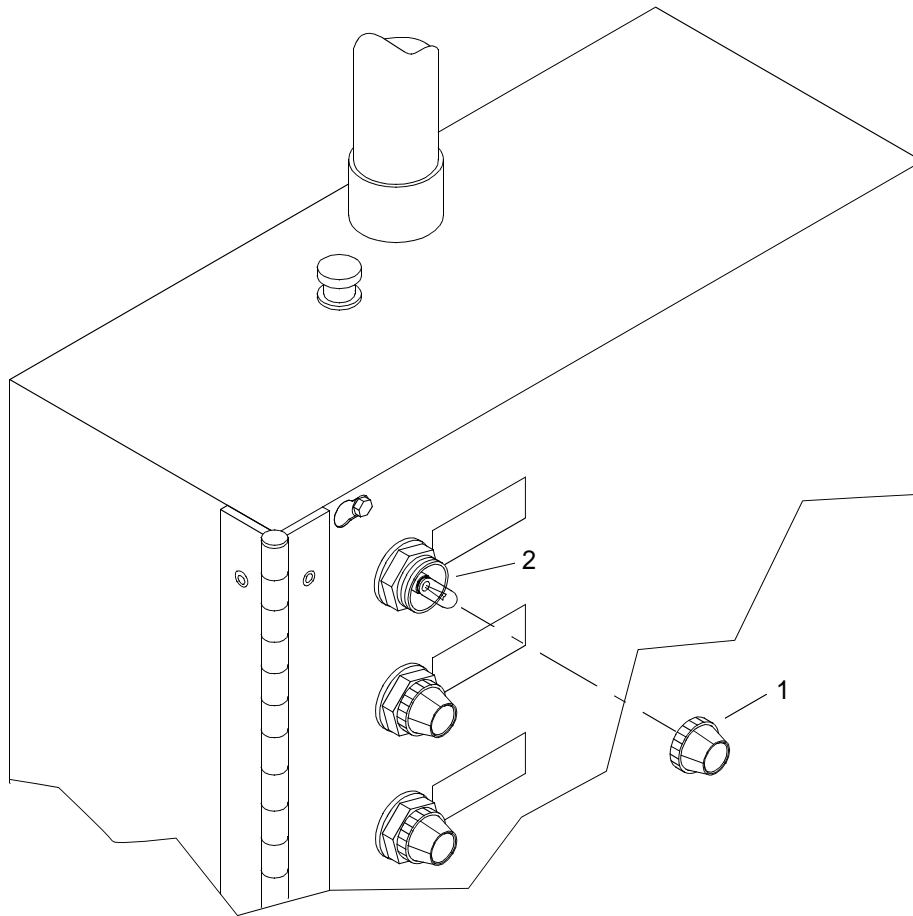
Equipment Condition

Generator Shutdown. (TM 9-6115-642-10)

REMOVE 1,000 GALLON FUEL LEVEL INDICATING SYSTEM LIGHT BULB LENS**NOTE**

The following procedure is typical for both interior and exterior fuel level indicating system light bulb lenses.

1. Unscrew lens (1) from receptacle (2) in a counterclockwise direction.



2. Remove lens (1).

INSTALL 1,000 GALLON FUEL LEVEL INDICATING SYSTEM LIGHT BULB LENS

1. Position new lens (1) over receptacle (2).
2. Screw on lens (1) in a clockwise direction.
3. Perform operational check of fuel level indicating system light bulb. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER 1,000 GALLON FUEL TANK FUEL LEVEL
INDICATING SYSTEM LIGHT BULBS
REPLACEMENT**

INITIAL SETUP:**Materials/Parts**

Bulb, Light

Personnel Required

Seaman 88K

References

TM 55-1945-205-10-2

Equipment Condition

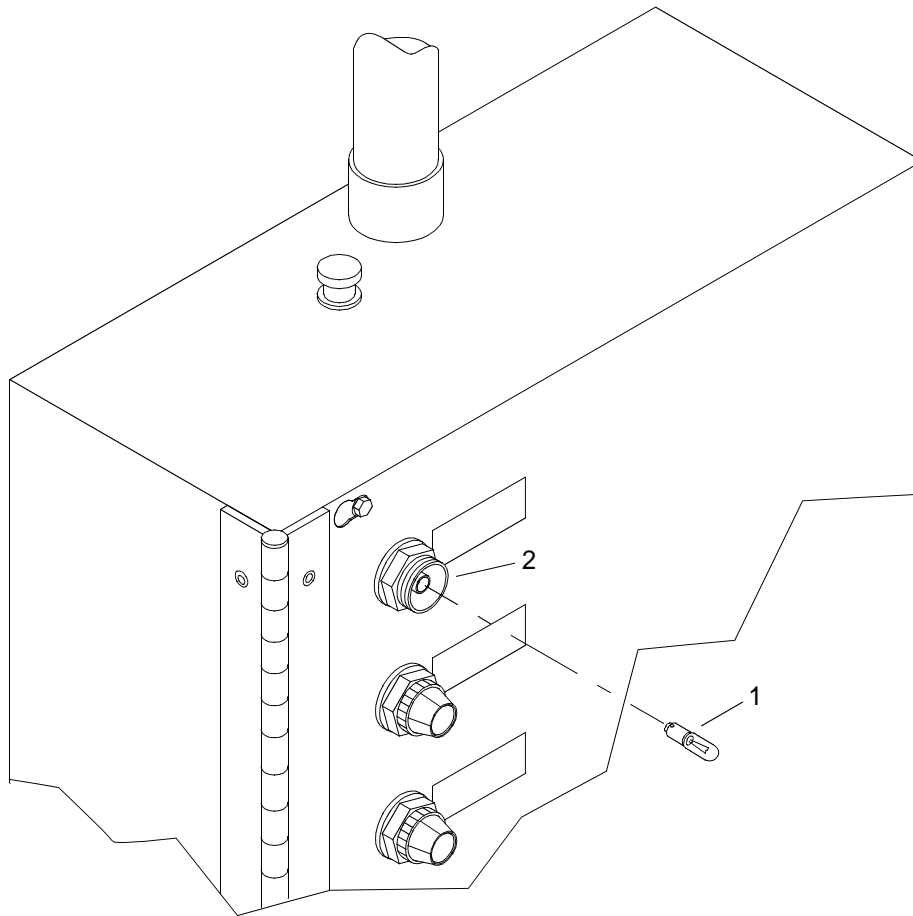
Generator Shutdown. (TM 9-6115-642-10)

1,000 Gallon Fuel Level Indicating System Light Bulb Lenses Removed. (WP 0075 00)

REMOVE 1,000 GALLON FUEL LEVEL INDICATING SYSTEM LIGHT BULB**NOTE**

The following procedure is typical for both interior and exterior fuel level indicating system light bulbs.

1. Push in on bulb (1) and turn counterclockwise in receptacle (2).



2. Remove light bulb (1).

INSTALL 1,000 GALLON FUEL LEVEL INDICATING SYSTEM LIGHT BULB

1. Position light bulb (1) into receptacle (2).
2. Push in on bulb (1) and turn in a clockwise direction to lock in place.
3. Install 1,000 gallon fuel level indicating system light bulb lenses. (WP 0075 00).
4. Perform operational check of fuel level indicating system light bulb. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER 1,000 GALLON FUEL TANK MANUAL FUEL PUMP
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Inlet Gasket
 (08915)
 PN 100F0790
 Screen
 (08915)
 PN 100f0760
 Sealing Compound (Item 48, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

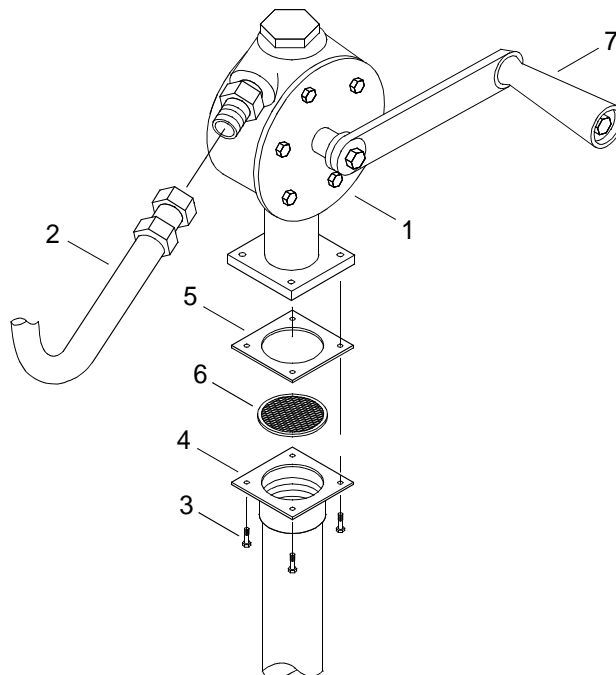
Engineer 88L

Equipment Condition

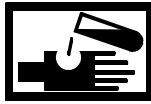
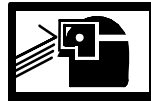
Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE GENERATOR CONTAINER 1,000 GALLON FUEL TANK MANUAL FUEL PUMP

1. Position drain pan under manual fuel pump (1).

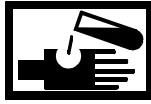
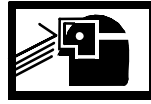


WARNING

**CHEMICAL****EYE PROTECTION**

2. Disconnect hose (2) from fuel pump (1).

WARNING

**CHEMICAL****EYE PROTECTION**

3. Drain residual diesel fuel from hose (2) into drain pan.
4. Remove four hex head screws (3) from inlet flange (4).

WARNING

**CHEMICAL****EYE PROTECTION**

5. Remove pump (1), inlet gasket (5) and screen (6) from inlet flange (4).
6. Discard inlet gasket (5) and screen (6).

WARNING

**CHEMICAL****EYE PROTECTION**

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

INSTALL GENERATOR CONTAINER 1,000 GALLON FUEL TANK MANUAL FUEL PUMP

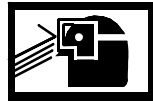
- 1 Position new screen (6), new inlet gasket (5) and fuel pump (1) on inlet flange (4).
- 2 Install four hex head screws (3) in inlet flange (4) and tighten.

WARNING

**CHEMICAL****EYE PROTECTION**

- 3 Apply sealing compound to male threads on pump (1).
- 4 Connect hose (2) to pump (1).
- 5 Inspect for leaks.
 - a Rotate pump handle (7) clockwise.
 - b Tighten connections as required.

WARNING

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

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

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER 1,000 GALLON FUEL TANK MANUAL FUEL PUMP
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

Seal Washer
(08915)
PN 100F0820
O-ring
(08915)
PN 100F2061
O-ring
(08915)
PN 100F0801
Sealing Compound (Item 48, WP 0358 00)
Cleaner (Item 9, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L

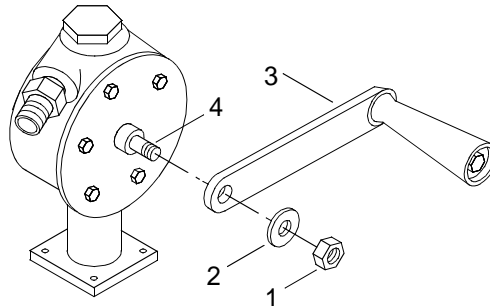
Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)
Generator Container 1,000 Gallon Fuel Tank Manual Fuel Pump Removed. (WP 0077 00)

DISASSEMBLE GENERATOR CONTAINER 1,000 GALLON FUEL TANK MANUAL FUEL PUMP**NOTE**

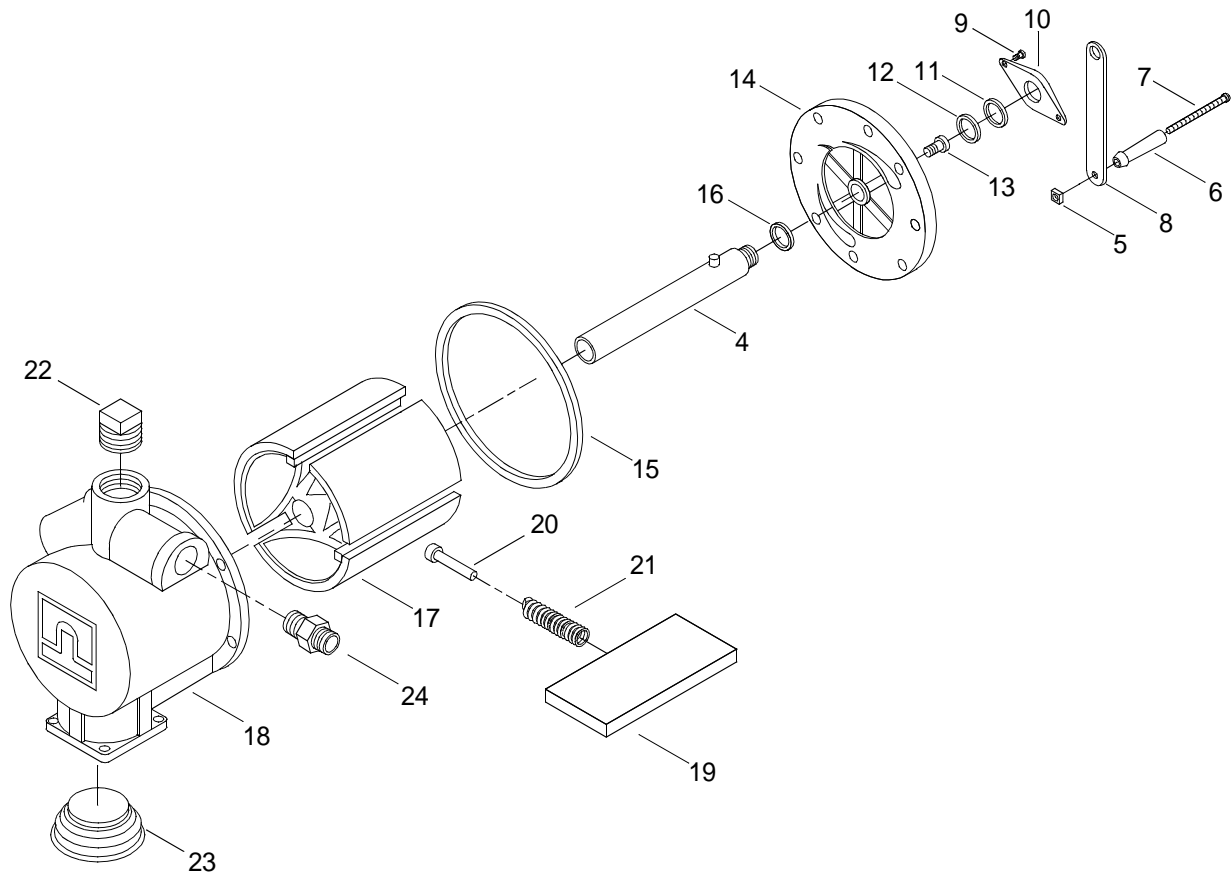
Repair is limited to the replacement of defective parts.

1. Remove hex nut (1) and lock washer (2).



2. Remove handle assembly (3) from shaft (4).

3. Remove square nut (5), wood grip (6) and round head screw (7) from crank (8).



4. Remove two pan head screws (9), bearing plate (10), seal washer (11) and o-ring (12). Discard seal washer (11) and o-ring (12).
5. Remove eight hex head screws (13), cover (14), o-ring (15) and washer (16). Discard o-ring (15).
6. Remove shaft (4) from rotor (17).
7. Remove rotor (17) from pump body (18).
8. Remove three vanes (19), spring pins (20) and vane springs (21) from rotor (17).
9. Remove vacuum breaker (22) from pump body (18).
10. Remove check valve assembly (23) from pump body (18).
11. Remove fitting (24) from pump body (18).

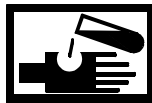
CLEAN GENERATOR CONTAINER 1,000 GALLON FUEL TANK MANUAL FUEL PUMP

WARNING

**CHEMICAL****EYE PROTECTION**

1. Using wiping rags soaked with cleaner, remove debris from external components.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Using wiping rags soaked with cleaner, remove debris from internal components.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Dispose of contaminated wiping rags in accordance with local procedures.

INSPECT GENERATOR CONTAINER 1,000 GALLON FUEL TANK MANUAL FUEL PUMP

1. Inspect all items for cracks and bending. Replace damaged items.
2. Inspect for stripped threads. Replace damaged items.

ASSEMBLE GENERATOR CONTAINER 1,000 GALLON FUEL TANK MANUAL FUEL PUMP

WARNING

**CHEMICAL****EYE PROTECTION**

1. Apply sealing compound to male threads of fitting (24), check valve assembly (23) and vacuum breaker (22).
2. Install fitting (24) in pump body (18) and tighten.
3. Install check valve assembly (23) in pump body (18) and tighten.
4. Install vacuum breaker (22) in pump body (18) and tighten.
5. Install three vane springs (21), spring pins (20) and vanes (19) in rotor (17).
6. Position rotor (17) in pump body (18).
7. Install shaft (4).
8. Install washer (16), new o-ring (15), cover (14) and eight hex head screws (13). Tighten hex head screws (13).
9. Install new o-ring (12), new seal washer (11), bearing plate (10) and two pan head screws (9). Tighten pan head screws (9).
10. Install round head screw (7), wood grip (6) and square nut (5) on crank (8).
11. Position handle assembly (3) on shaft (4).
12. Install lock washer (2) and hex nut (1). Tighten hex nut (1).
13. Install generator container 1,000 gallon fuel tank manual fuel pump. (WP 0077 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
FLOATING CAUSEWAY
GENERATOR CONTAINER COOLING LOUVERS
CLEANING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Brush, Wire Scratch (Item 10, WP 0359 00)

Materials/Parts

Cleaner (Item 9, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

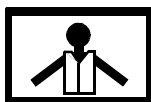
Seaman 88K

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

CLEAN GENERATOR CONTAINER COOLING LOUVERS

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

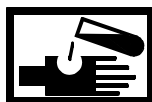


EYE PROTECTION

All personnel must wear a 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 debris from the louvers with a wire brush.

WARNING



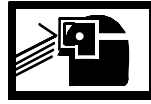
CHEMICAL



EYE PROTECTION

2. Apply cleaner to rag and remove all dirt, dust and foreign matter from inside area of louvers, using cleaner sparingly.

WARNING

**CHEMICAL****EYE PROTECTION**

3. If necessary, use a wire brush and cleaner to remove salt water deposits and corrosion that may have accumulated on the louvers.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Dispose of contaminated wiping rags in accordance with local procedures.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER COOLING DAMPER AND MOTOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

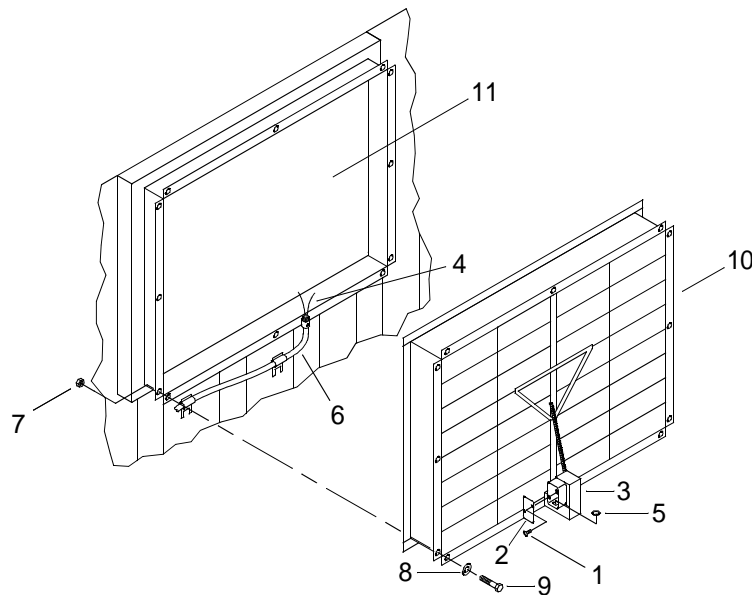
Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE GENERATOR CONTAINER COOLING DAMPER AND MOTOR**NOTE**

The following procedure is typical for the removal and installation of all generator container cooling dampers and motors.

1. Remove two screws (1) from louver motor cover (2).



2. Remove louver motor cover (2) from louver motor (3).
3. Tag and disconnect wires (4) from louver motor (3).
4. Remove conduit nut (5) from conduit (6).
5. Remove twelve lock nuts (7), washers (8) and bolts (9) from louver (10).

WARNING

**HEAVY PARTS**

6. Remove louver (10) from louver opening (11) and discard.

INSTALL GENERATOR CONTAINER COOLING DAMPER AND MOTOR

WARNING

**HEAVY PARTS**

1. Position new cooling louver (10) in louver opening (11).
2. Install twelve bolts (9), washers (8) and lock nuts (7) in louver (10) and tighten nuts (7).
3. Remove two screws (1) from new louver motor cover (2).
4. Remove louver motor cover (2) from new louver motor (3).
5. Connect wires (4) to louver motor (3) and remove tags.
6. Install conduit nut (5) on conduit (6) and tighten nut (5).
7. Position louver motor cover (2) on louver motor (3).
8. Install two screws (1) in louver motor cover (2) and tighten screws (1).
9. Perform operational check of generator container cooling louver. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FLUORESCENT LIGHT BULBS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Electrical (Item 26, WP 0359 00)

Materials/Parts

Bulb, Fluorescent
(58536)
NSN 6240-01-456-7015
PN A50597-1

Personnel Required

Seaman 88K

REMOVE GENERATOR CONTAINER FLUORESCENT LIGHT BULBS**NOTE**

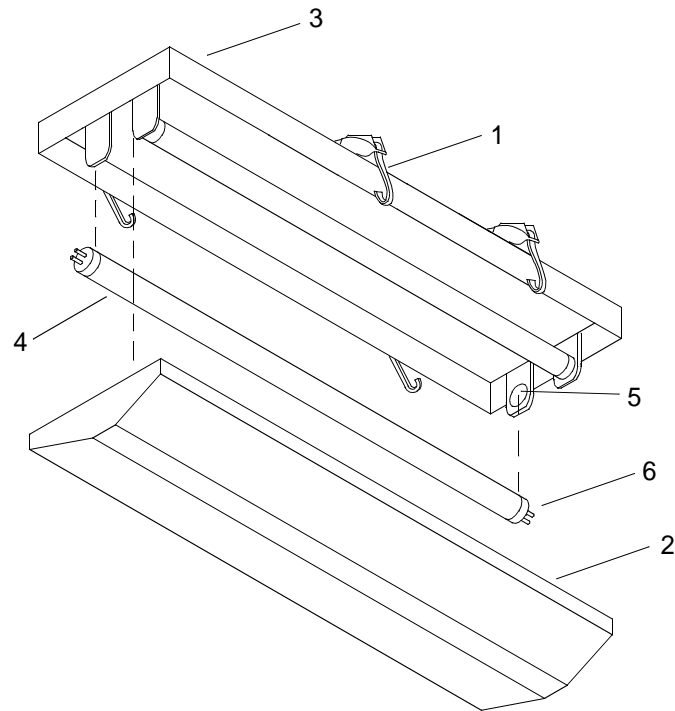
The following procedure is typical for the removal and installation of all generator shelter fluorescent light bulbs.

1. Verify light switch is in the off position.

WARNING

**HOT AREA**

2. Disengage four latches (1) holding light cover (2) on light fixture (3).



3. Remove light cover (2).

WARNING



HOT AREA

4. Grasp light bulb (4) and turn 90° clockwise.
5. Pull down on light bulb (4) and remove from receptacle (5).

INSTALL GENERATOR CONTAINER FLUORESCENT LIGHT BULBS

1. Position new light bulb (4) near receptacle (5).
2. Slide light bulb pins (6) into receptacle (5).
3. Turn light bulb (4) 90° until tube clicks into place.
4. Position light cover (2) over light fixture (3).
5. Engage four latches (1).
6. Turn light switch on and verify light bulb (4) illuminates.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER HOSPITAL GRADE STRAIGHT BLADE
ELECTRICAL RECEPTACLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Receptacle, Duplex
(74545)
PN 8200

Personnel Required

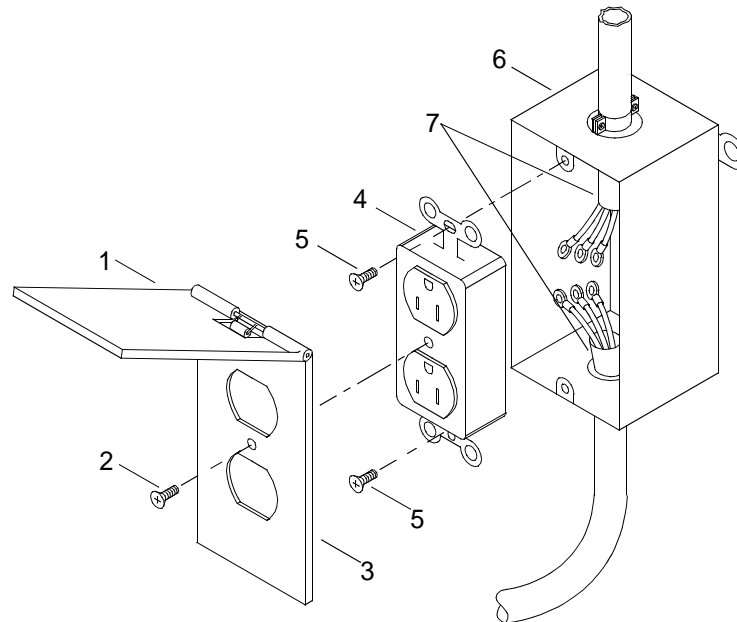
Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

**REMOVE GENERATOR CONTAINER HOSPITAL GRADE STRAIGHT BLADE
ELECTRICAL RECEPTACLE**

1. Lift weather cover (1).



2. Remove screw (2) securing receptacle cover (3) to receptacle (4).
3. Remove two screws (5) securing receptacle (4) to circuit box (6).
4. Tag and disconnect wiring (7) from receptacle (4).
5. Discard receptacle (4).

**INSTALL GENERATOR CONTAINER HOSPITAL GRADE STRAIGHT BLADE
ELECTRICAL RECEPTACLE**

1. Connect wiring (7) to new receptacle (4) and remove tags.
2. Install two screws (5) securing receptacle (4) to circuit box (6) and tighten screw (5).
3. Install screw (2) securing receptacle cover (3) to receptacle (4) and tighten screw (2).
4. Close weather cover (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER GROUND FAULT CIRCUIT
INTERRUPTER (GFCI) RECEPTACLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Interrupter, Ground
(74545)
NSN 5925-01-128-6284
PN GF-5352

Personnel Required

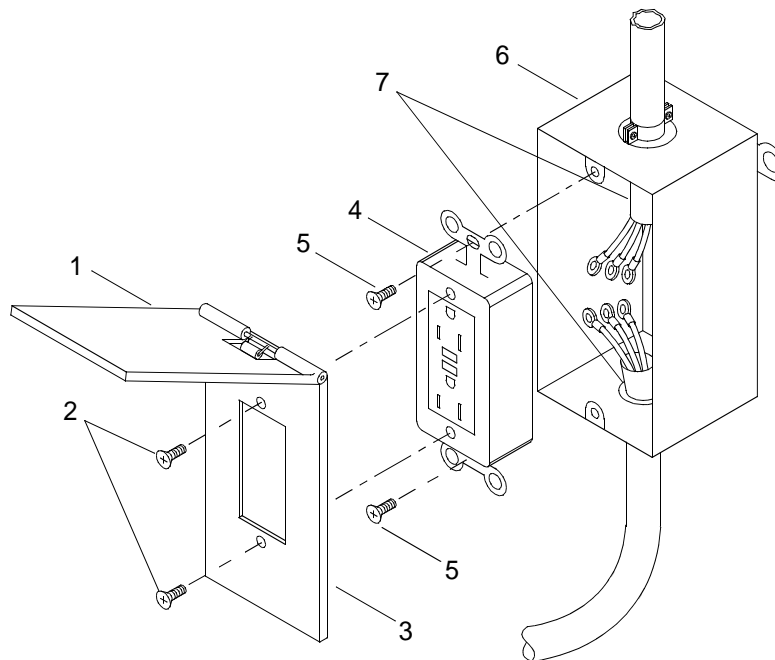
Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE GENERATOR CONTAINER GROUND FAULT CIRCUIT INTERRUPTER (GFCI) RECEPTACLE

1. Lift weather cover (1).



2. Remove two screws (2) securing receptacle cover (3) to GFCI receptacle (4).
3. Remove two screws (5) securing GFCI receptacle (4) to circuit box (6).
4. Tag and disconnect wiring (7) from GFCI receptacle (4).

5. Discard GFCI receptacle (4).

**INSTALL GENERATOR CONTAINER GROUND FAULT CIRCUIT INTERRUPTER
(GFCI) RECEPTACLE**

1. Connect wiring (7) to new GFCI receptacle (4) and remove tags.
2. Install two screws (5) securing GFCI receptacle (4) to circuit box (6) and tighten.
3. Install two screws (2) securing receptacle cover (3) to GFCI receptacle (4) and tighten.
4. Close weather cover (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER OUTLET BOX
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Conduit, Outlet
(81703)
NSN 5975-01-064-6415
PN 30203

Personnel Required

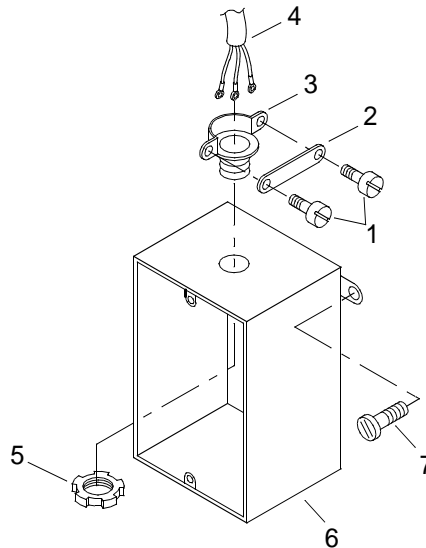
Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)
Generator Container Hospital Grade Straight Blade Electrical Receptacle Removed. (WP 0082 00)
Generator Container Ground Fault Circuit Interrupter Receptacle Removed. (WP 0083 00)

REMOVE GENERATOR CONTAINER OUTLET BOX

1. Remove two screws (1) and clamp (2) from strain relief (3).



2. Pull wiring harness (4) out through strain relief (3).
3. Remove spanner nut (5) from strain relief (3).
4. Remove strain relief (3) from junction box (6).
5. Remove two screws (7) securing junction box (6) to bulkhead. Discard junction box (6).

INSTALL GENERATOR CONTAINER OUTLET BOX

1. Position new junction box (6) on bulkhead.
2. Install two screws (7) in junction box (6) and tighten.
3. Install strain relief (3) in junction box (6).
4. Install spanner nut (5) on strain relief (3) and tighten.
5. Push wiring harness (4) through strain relief (3).
6. Install two screws (1) and clamp (2) on strain relief (3) and tighten screws.
7. Install generator container ground fault circuit interrupter receptacle. (WP 0083 00)
8. Install generator container hospital grade straight blade electrical receptacle. (WP 0082 00)
9. Perform operational check of outlet box. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER ROTARY BRASS LIGHT SWITCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Switch, Brass Rotary Snap Type
(81349)
NSN 5930-00-296-5290
PN M157431-002

Personnel Required

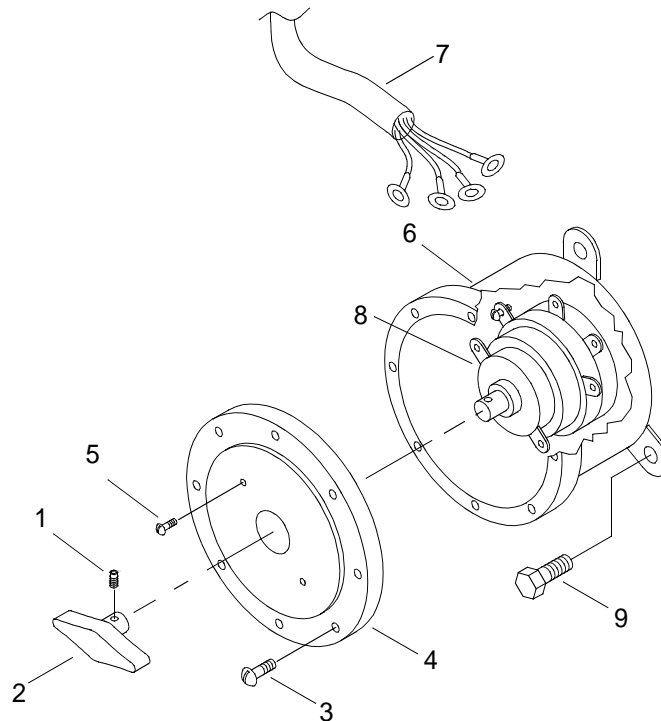
Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE GENERATOR CONTAINER ROTARY BRASS LIGHT SWITCH

1. Remove allen head screw (1) from switch knob (2).



2. Remove eight pan head screws (3) from light switch cover (4).
3. Remove two pan head screws (5) from light switch cover (4).
4. Remove light switch cover (4) from light switch enclosure (6).

5. Tag and disconnect wiring (7) from light switch assembly (8).
6. Remove wiring (7) from light switch enclosure (6).
7. Remove three hex head bolts (9) securing light switch enclosure (6) to the wall.
8. Discard light switch enclosure (6).

INSTALL GENERATOR CONTAINER ROTARY BRASS LIGHT SWITCH

1. Position new light switch enclosure and install three hex head bolts (9). Tighten bolts (9).
2. Install wiring (7) in light switch enclosure (6).
3. Connect wiring (7) and remove tags on light switch assembly (8).
4. Install light switch cover (4) on enclosure (6).
5. Install two pan head screws (5) in light switch cover (4) and tighten.
6. Install eight pan head screws (3) in light switch cover (4) and tighten.
7. Install switch knob (2) on light switch (8).
8. Install allen head screw (1) in light switch knob (2) and tighten.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER ELECTRICAL LOAD DISTRIBUTION
PANEL ACCESS COVER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

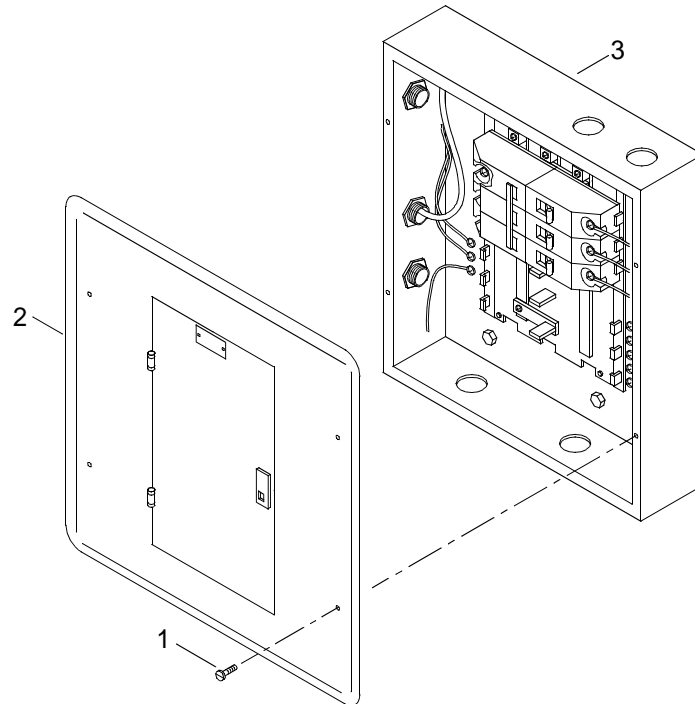
Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE GENERATOR CONTAINER ELECTRICAL LOAD DISTRIBUTION PANEL ACCESS COVER

1. Remove four screws (1) from panel (2).



2. Remove panel (2) from load distribution box (3).

INSTALL GENERATOR CONTAINER ELECTRICAL LOAD DISTRIBUTION PANEL ACCESS COVER

1. Position panel (2) on load distribution box (3).
2. Install four screws (1) through panel (2) and tighten.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER ELECTRICAL LOAD DISTRIBUTION
PANEL SINGLE POLE CIRCUIT BREAKER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Circuit Breaker
(14280)
NSN 5925-00-967-9874
PN Q0B220
Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)

Personnel Required

Engineer 88L

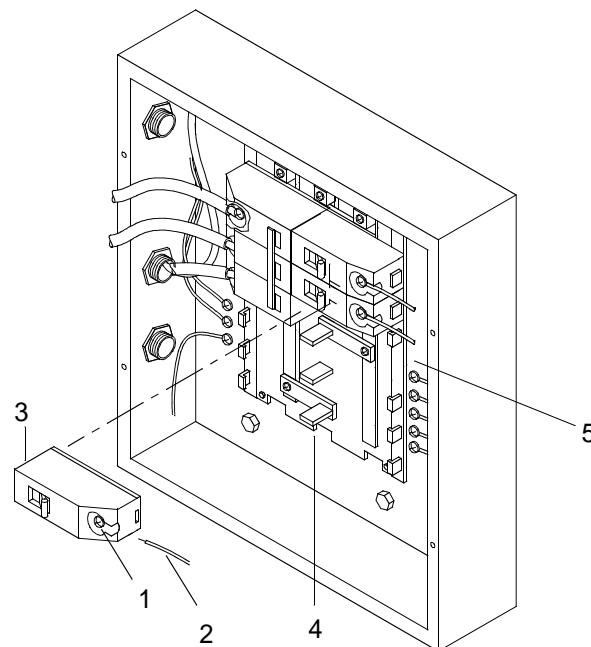
Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)
Generator Container Electrical Load Distribution Panel Access Cover Removed. (WP 0086 00)

REMOVE GENERATOR CONTAINER ELECTRICAL LOAD DISTRIBUTION PANEL SINGLE POLE CIRCUIT BREAKER**NOTE**

The following procedure is typical for the removal and installation of all generator container single pole circuit breakers.

1. Loosen screw (1).

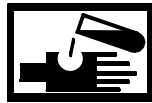


-
2. Tag and pull wire (2) straight out of circuit breaker (3).
 3. Firmly grasp circuit breaker (3) at the midline of the load bank (4) and rotate circuit breaker (3) outward from mounting cleat (5) and discard.

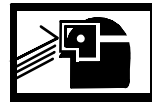
INSTALL GENERATOR CONTAINER ELECTRICAL LOAD DISTRIBUTION PANEL SINGLE POLE CIRCUIT BREAKER

1. Install the back side of the new circuit breaker (3) into mounting cleat (5).
2. Rotate circuit breaker (3) onto the midline of the load bank (4) until it snaps into position.

WARNING



CHEMICAL



EYE PROTECTION

3. Coat wire (2) with silicone grease.
4. Remove tag and install wire (2) into circuit breaker (3).
5. Tighten screw (1).
6. Install generator container electrical load distribution panel access cover. (WP 0086 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER ELECTRICAL DISTRIBUTION PANEL
THREE POLE CIRCUIT BREAKER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Circuit Breaker
(81340)
PN Q0B220SWN
Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)

Personnel Required

Engineer 88L

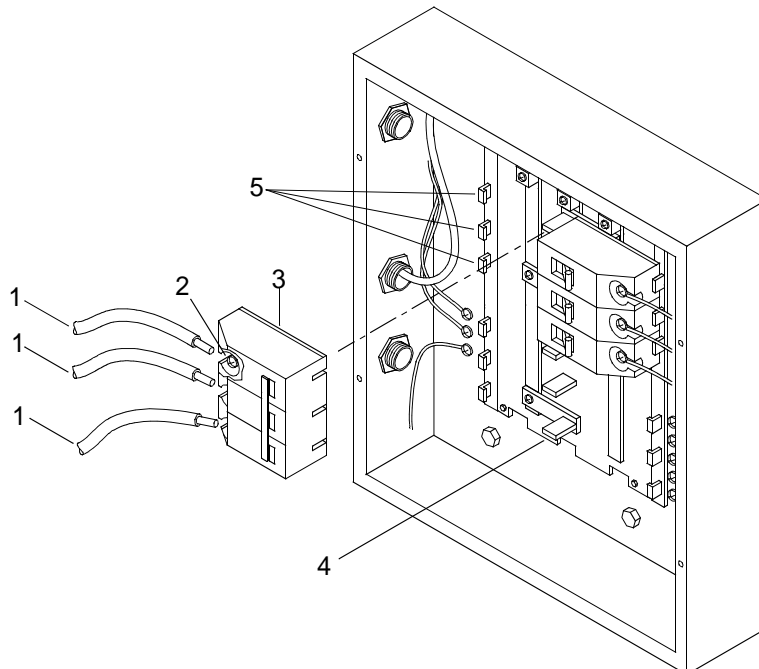
Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)
Generator Container Electrical Load Distribution Panel Access Cover Removed. (WP 0086 00)

REMOVE GENERATOR CONTAINER ELECTRICAL DISTRIBUTION PANEL THREE POLE CIRCUIT BREAKER**NOTE**

The following procedure is typical for the removal and installation of all generator container three pole circuit breakers.

1. Tag three wires (1).

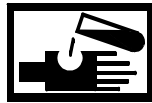


2. Loosen three screws (2).
3. Pull wires (1) straight out of circuit breaker (3).
4. Firmly grasp circuit breaker (3) at the midline of the load bank (4), rotate circuit breaker (3) outward and discard.

INSTALL GENERATOR CONTAINER ELECTRICAL DISTRIBUTION PANEL THREE POLE CIRCUIT BREAKER

1. Install the back side of the new circuit breaker (3) into mounting cleats (5).
2. Rotate circuit breaker (3) onto the midline of the load bank (4), until it snaps into position.

—————
WARNING
—————



CHEMICAL



EYE PROTECTION

3. Coat wires (1) with silicone grease.
4. Install wires (1) into circuit breaker (3) and remove tags.
5. Tighten screws (2).
6. Install generator container electrical distribution panel access cover. (WP 0086 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER DIRECT CURRENT (DC) LIGHT BULBS
REPLACEMENT**

INITIAL SETUP:**Tools**

- Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
- Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)

Personnel Required

Seaman 88K

REMOVE GENERATOR CONTAINER DIRECT CURRENT (DC) LIGHT BULBS**NOTE**

The following procedure is typical for the removal and installation of all generator container direct current light bulbs.

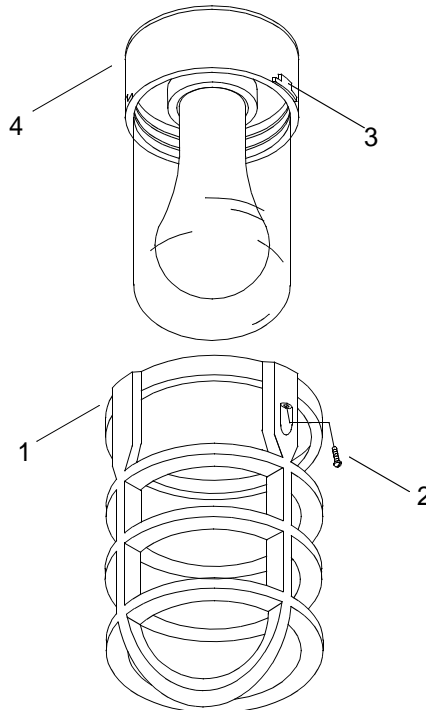
1. Verify light switch is in the off position.

WARNING

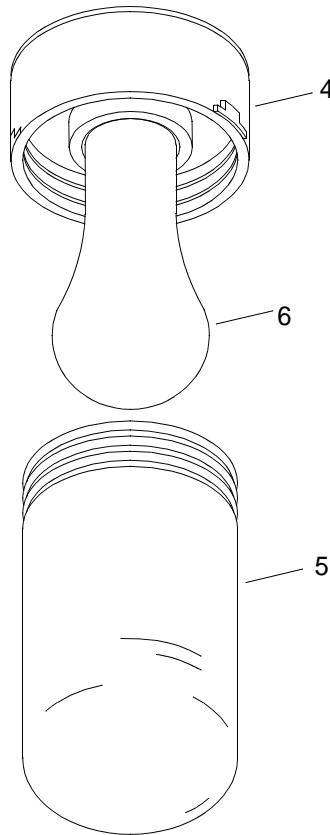


HOT AREA

2. Hold globe protective cage (1) and remove screw (2).



3. Turn globe protective cage (1) counterclockwise until cover is freed from protrusion (3) on base of light fixture (4) and slowly remove.
4. Turn globe (5) counterclockwise until threads are clear of fixture (4).



5. Slowly remove globe (5) from fixture (4).
6. Remove DC light bulb (6) and discard.

INSTALL GENERATOR CONTAINER DIRECT CURRENT (DC) LIGHT BULBS

1. Install new DC light bulb (6) in light fixture (4) and tighten.
2. Slowly slide globe (5) over DC light bulb (6).
3. Turn globe (5) clockwise and tighten.
4. Slowly slide globe protective cage (1) over globe (5).
5. Turn globe protective cage (1) clockwise until protrusions (3) on fixture (4) are not visible and screw holes are aligned.
6. Place screw (2) in hole and tighten.
7. Turn light switch to on position and verify DC light bulb illuminates.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FIRE SUPPRESSION SYSTEM BATTERY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

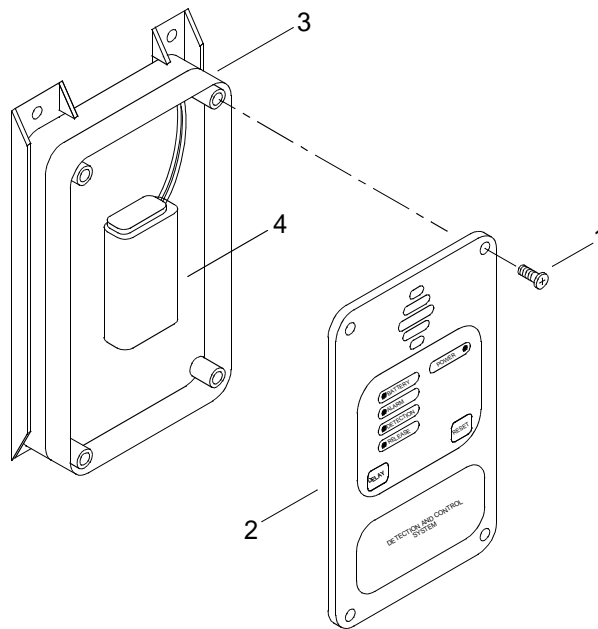
Battery, Non-rechargeable
(51215)
NSN 6135-01-301-8776
PN VE 461-5013-0001

Personnel Required

Seaman 88K

REMOVE GENERATOR CONTAINER FIRE SUPPRESSION SYSTEM BATTERY

1. Remove four screws (1) from cover (2) of module (3).



2. Remove cover (2) from module (3).
3. Remove battery (4) from module (3) and discard.

INSTALL GENERATOR CONTAINER FIRE SUPPRESSION SYSTEM BATTERY

1. Install new battery (4) in module (3).
2. Position cover (2) on module (3).
3. Install four screws (1) in cover (2) of module (3) and tighten.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER SHORE TIE PENETRATION HINGED COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

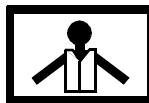
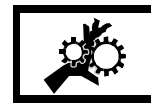
Cover, Assembly
 (81340)
 PN FC-621-001-128

Personnel Required

Engineer 88L

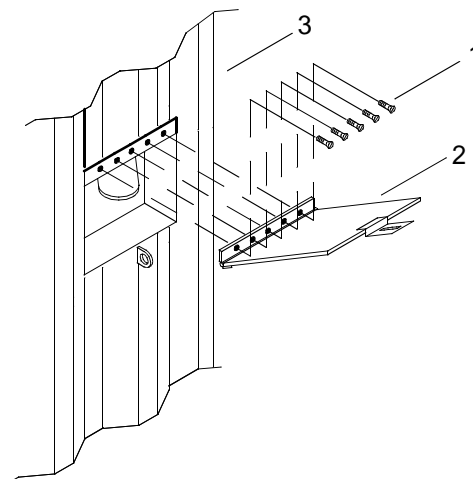
REMOVE PERSONNEL SHELTER SHORE TIE PENETRATION HINGED COVER

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 five cover hinge screws (1) securing the cover (2) to the personnel shelter exterior wall (3).



2. Remove cover (2) and discard.

INSTALL PERSONNEL SHELTER SHORE TIE PENETRATION HINGED COVER

1. Position new cover (2) on the personnel shelter exterior wall (3).
2. Install five screws (1) to secure the hinge (2) to wall (3) and tighten.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER INTERIOR DOOR LOCKSET AND HASP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

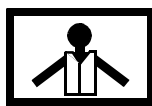
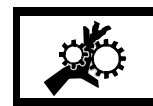
Hasp
 (81340)
 PN 1912A17
 Lockset, Door
 (81340)
 PN Yale LF5302

Personnel Required

Engineer 88L

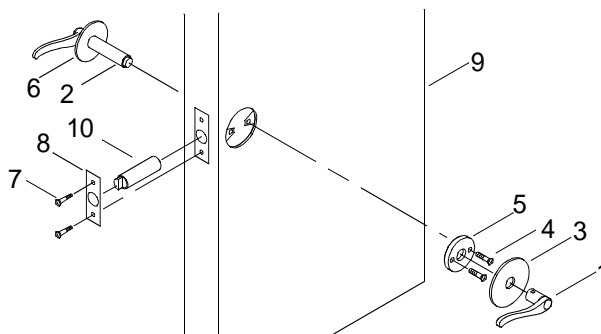
REMOVE PERSONNEL SHELTER INTERIOR DOOR LOCKSET

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.

- Using a scribe, release the inner door handle (1) from the lockset (2).

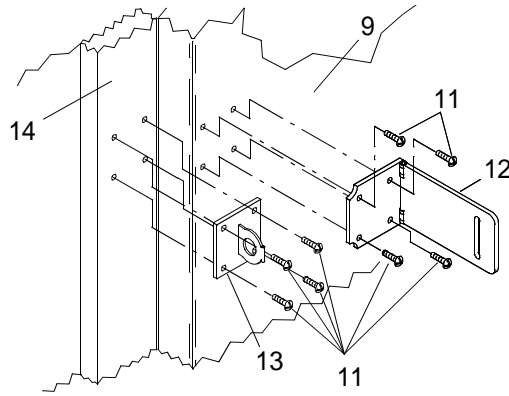


- Using a screwdriver, pry off the inner cover plate (3).
- Remove two screws (4) securing the interior door plate (5) to the exterior door plate (6).

4. Remove two screws (7) securing the retaining plate (8) to the side of the door (9).
5. Remove the bolt assembly (10) and lockset (2) from door (9) and discard lockset (2).

REMOVE PERSONNEL SHELTER INTERIOR DOOR HASP

1. Remove four screws (11) from the base of the hasp (12).



2. Remove hasp (12) from interior door (9) and discard.
3. Remove four screws (11) from the base of the lockring (13).
4. Remove lockring (13) from interior door frame (14).

INSTALL PERSONNEL SHELTER INTERIOR DOOR LOCKSET

1. Install new lockset (2) and bolt assembly (10) into the holes in the interior door (9).
2. Install retaining plate (8) over the bolt assembly and secure with two screws (7). Tighten screws (7).
3. Install interior door plate (5) over the lockset (2) and secure to the exterior plate (6) with two screws (4). Tighten screws (4).
4. Snap inner cover plate (3) onto the interior door plate (5).
5. Push interior door handle (1) onto the lockset until it locks in place.

INSTALL PERSONNEL SHELTER INTERIOR DOOR HASP

1. Position new hasp (12) on interior door (9).
2. Install four screws (11) through hasp (12) and into interior door (9). Tighten screws (11).
3. Position lockring (13) on interior door frame (14).
4. Install four screws (11) in base of lockring (13) and into interior door frame (14). Tighten screws (11).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER INTERIOR DOOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

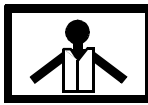
Door, Interior
 (81340)
 PN FC-621-001-4

Personnel Required

Engineer 88L (2)

REMOVE PERSONNEL SHELTER INTERIOR DOOR

—————
WARNING
 —————



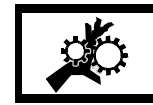
VEST



HELMET PROTECTION



HEAVY PARTS



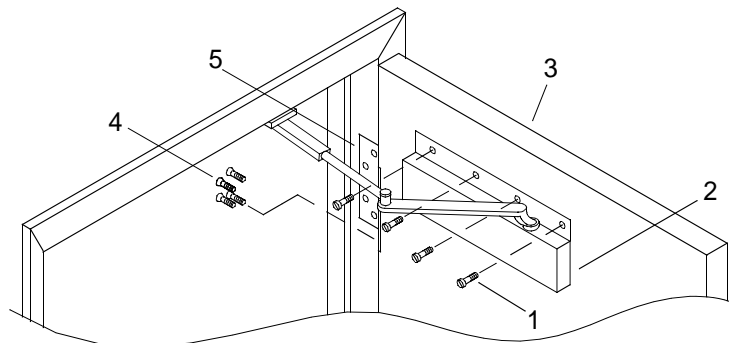
MOVING PARTS

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 door hinges will remain on the door frame during door replacement.

1. Remove four screws (1) securing hydraulic actuator (2) to door (3).



WARNING

**HEAVY OBJECTS**

2. Using assistant to support weight of door (3), remove four screws (4) on each of three door hinges (5) on door side.

WARNING

**HEAVY OBJECTS**

3. Remove door (3) and discard.

INSTALL PERSONNEL SHELTER INTERIOR DOOR

WARNING

**HEAVY OBJECTS**

1. Using assistant to support weight of new door (3), position door (3) on hinges (5).
2. Install four screws (4) in each of hinges (5) and tighten screws (4).
3. Install four screws (1) to secure hydraulic actuator to door (3) and tighten screws (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER EXTERIOR DOOR HASP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

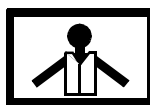
Hasp
 (81340)
 PN 1912A17

Personnel Required

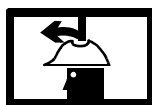
Engineer 88L

REMOVE PERSONNEL SHELTER EXTERIOR DOOR HASP

WARNING



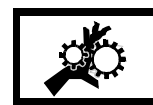
VEST



HELMET PROTECTION



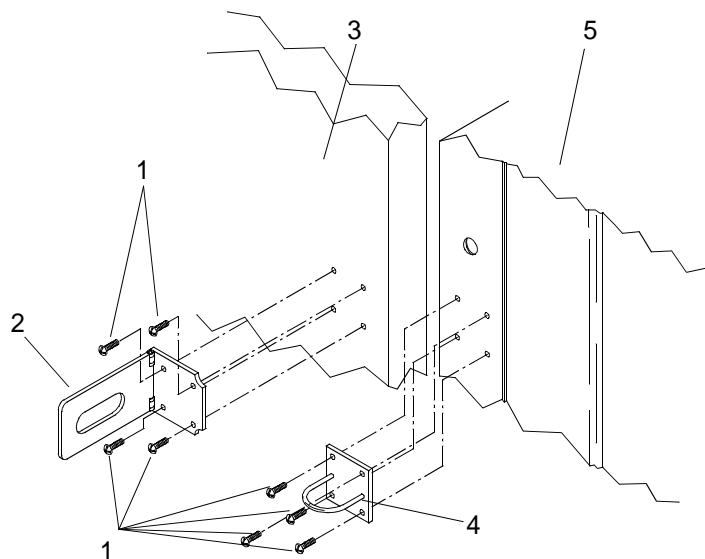
HEAVY PARTS



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 four screws (1) from base hinged hasp (2).



2. Remove hasp (2) from door (3) and discard.
3. Remove four screws (1) from lockring (4).
4. Remove lockring (4) from door frame (5).

INSTALL PERSONNEL SHELTER EXTERIOR DOOR HASP

1. Position hinged (2) on door (3).
2. Install four screws (1) in base hinged hasp (2) and tighten screws.
3. Position lockring (4) on door frame (5).
4. Install four screws (1) in base of lockring (4) and tighten screws (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER EXTERIOR DOOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Door, Weathertight
 (06101)
 PN FC-621-001-2

Personnel Required

Engineer 88L (2)

Equipment Condition

Personnel Shelter Exterior Door Hasp Removed. (WP 0094 00)

REMOVE PERSONNEL SHELTER EXTERIOR DOOR

WARNING

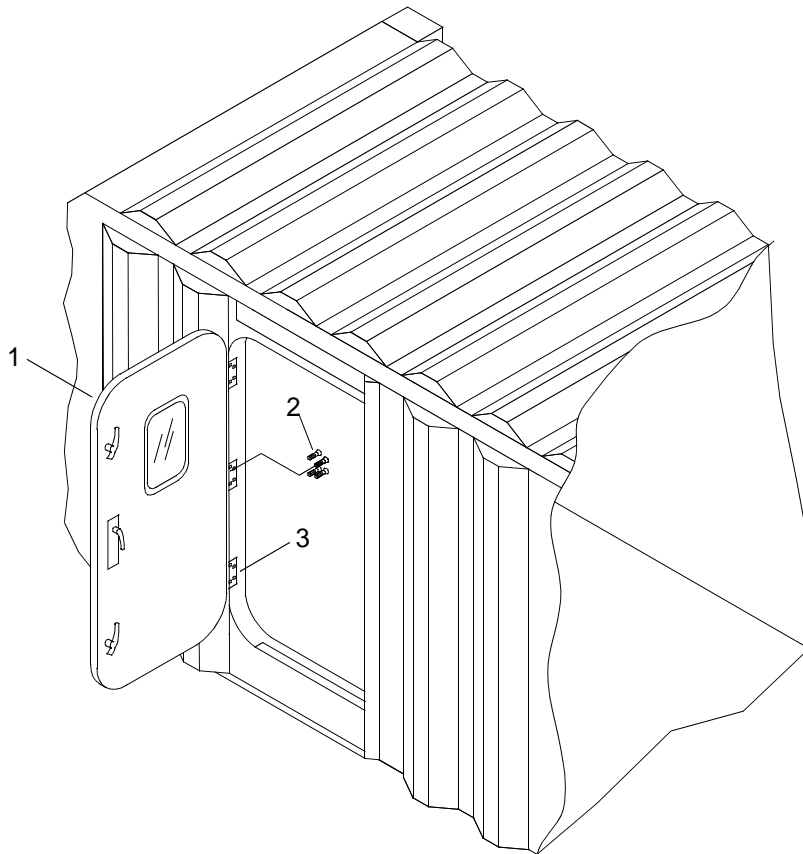
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS****HEAVY OBJECTS**

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 hinges will remain on the door frame during door replacement.

1. Using assistant to support weight of door (1), remove four screws (2) on each of three door hinges (3) on door side.



WARNING

**HEAVY OBJECTS**

2. Remove door (1) and discard.

INSTALL PERSONNEL SHELTER EXTERIOR DOOR

WARNING

**HEAVY OBJECTS**

1. Using assistant to support weight of new door (1), position door (1) on hinges (3).
2. Install four screws (2) in each of hinges (3) and tighten.
3. Install personnel shelter exterior door hasp. (WP 0094 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER EXTERIOR DOOR DOGS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

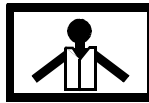
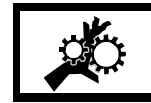
Set, Dog
 (06101)
 PN FC-621-001-2-DOG

Personnel Required

Engineer 88L

REMOVE PERSONNEL SHELTER EXTERIOR DOOR DOGS

WARNING

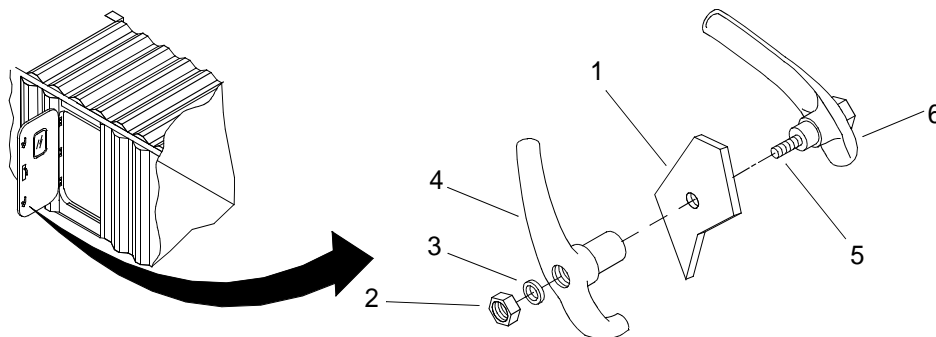
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 removal and installation of door dogs.

1. On the interior of door (1), remove nut (2) and washer (3) securing the inner dog (4) to the outer dog bolt (5).



2. Remove outer door dog (6) with attached bolt (5) from door (1) and discard.

INSTALL PERSONNEL SHELTER EXTERIOR DOOR DOGS

1. Position new outer door dog (6) with attached bolt (5) into the door (1).
2. Position inner dog (4) onto outer dog bolt (5).
3. Install washer (3) and nut (2) on outer dog bolt (5) and tighten nut (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER HAND LANTERN MOUNTING BRACKET
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Bracket, Assembly

(81349)

PN M16377-53-003

NSN 6230-00-968-7831

Holder, Light

(81349)

PN M16377/54-2438

NSN 6230-00-578-7401

O-Ring

(96906)

PN MS28775-001

NSN 5331-00-582-2133

Qty 2

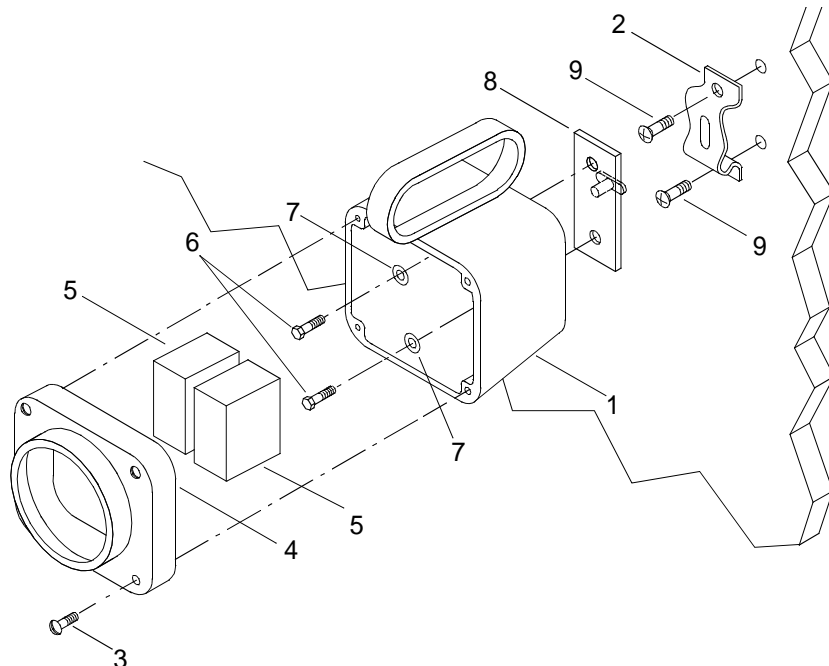
Personnel Required

Engineer 88L

REMOVE PERSONNEL SHELTER HAND LANTERN MOUNTING BRACKET**NOTE**

The following procedure is typical for all personnel shelter hand lantern mounting brackets.

1. Rotate hand lantern (1) 90° and remove from mounting bracket (2).



2. Loosen four captive screws (3) on cover (4).
3. Remove cover (4).
4. Place hand lantern (1) face up on the work bench.
5. Remove batteries (5).
6. Remove two hex head bolts (6) and o-rings (7) from bracket (8). Discard o-rings (7) and bracket (8).
7. Remove two screws (9) securing mounting bracket (2) to bulkhead. Discard mounting bracket (2).

INSTALL PERSONNEL SHELTER HAND LANTERN MOUNTING BRACKET

1. Position new mounting bracket (2) on bulkhead.
2. Install two screws (9) securing mounting bracket (2) to wall. Tighten screws (9).
3. Position new bracket (8) on the back of hand lantern (1).
4. Install two hex head bolts (6) and new o-rings (7) through hand lantern (1) into bracket (8). Tighten hex head bolts (6).
5. Install batteries (5).
6. Position cover (4) on hand lantern (1).
7. Install four screws (3) through cover (4) and into hand lantern (1). Tighten captive screws (3).
8. Position hand lantern (1) on mounting bracket (2) and rotate 90°.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER SHORE TIE MALE ELECTRICAL CONNECTOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Connector, Male
 (OFDK5)
 PN 33-91167-2707-HP

Personnel Required

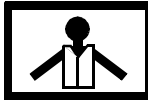
Engineer 88L (2)

Equipment Condition

Generator Shutdown. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE PERSONNEL SHELTER SHORE TIE MALE ELECTRICAL CONNECTOR

WARNING



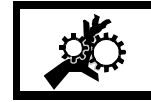
VEST



HELMET PROTECTION



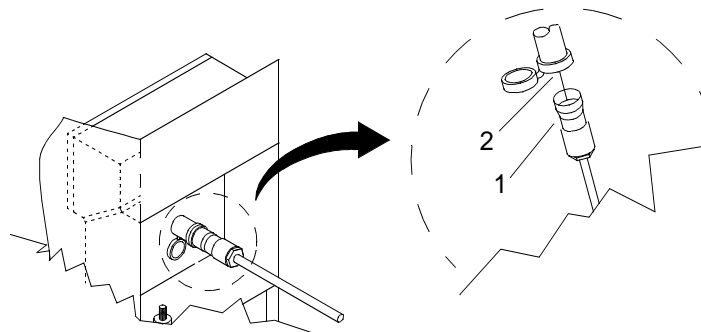
HEAVY PARTS



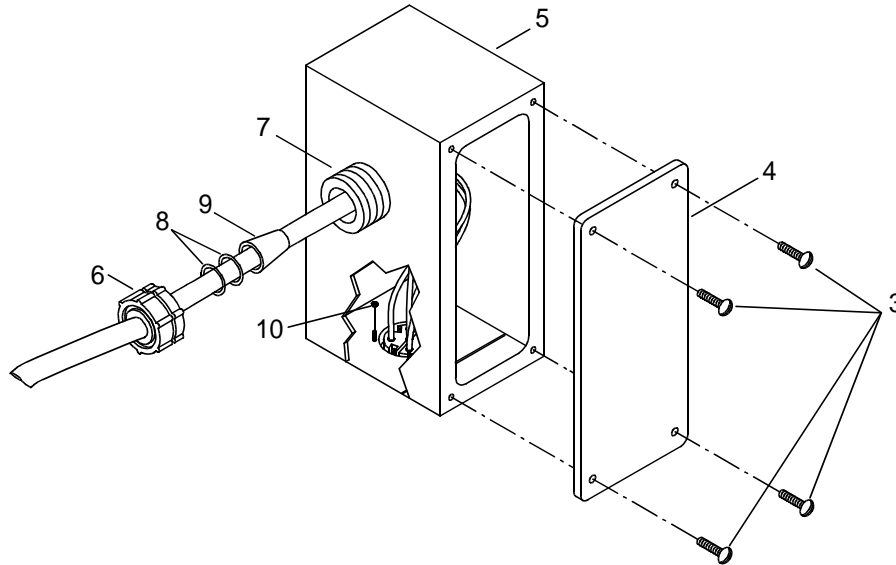
MOVING PARTS

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. Rotate power cable connector (1) counterclockwise $\frac{1}{4}$ turn and disconnect from personnel shelter shore tie male electrical connector (2).



2. Inside personnel shelter, remove four screws (3) from shore tie junction box cover (4).

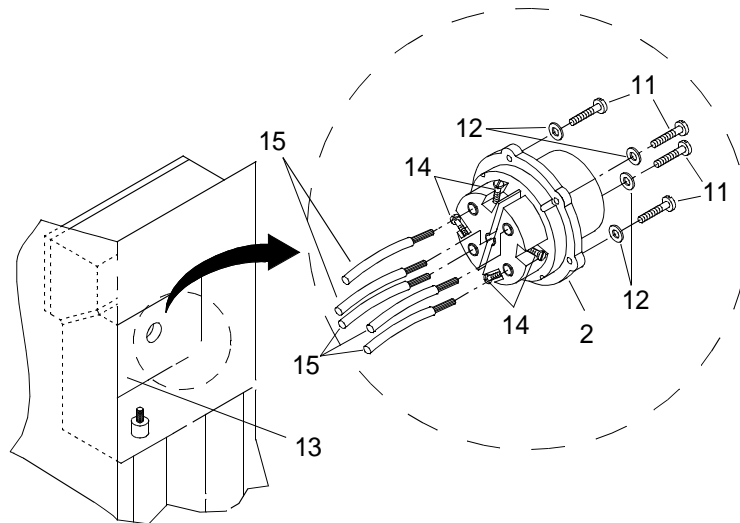


3. Remove shore tie junction box cover (4) from junction box (5).
4. Rotate stuffing tube packing retainer cap (6) counterclockwise and slide away from nylon stuffing tube (7).
5. Slide plastic packing washers (8) and stuffing tube packing (9) away from nylon stuffing tube (7).

NOTE

Due to mounting arrangement of personnel shelter shore tie male connector, two persons will be required to perform this step.

6. Remove four nuts (10) from junction box (5).
7. Remove four screws (11) and plastic washers (12) from personnel shelter shore tie male connector (2).



8. Pull personnel shelter shore tie male connector (2) outward from shore tie recess pocket (13).
9. Loosen five screws (14) on back of personnel shelter shore tie male connector (2).

10. Tag and remove wires (15) from personnel shelter shore tie male connector (2).

11. Remove personnel shelter shore tie male connector (2) and discard.

INSTALL PERSONNEL SHELTER SHORE TIE MALE ELECTRICAL CONNECTOR

1. Install wires (15) in new personnel shelter shore tie male connector (2) and remove tags.

2. Tighten five screws (14) on back of personnel shelter shore tie male connector (2).

3. Position personnel shelter shore tie male connector (2) in shore tie recess pocket (13).

4. Install four plastic washers (12) and screws (11) in personnel shelter shore tie male connector (2).

5. Inside personnel shelter, install four nuts (10) in junction box (5) and tighten.

6. Slide stuffing tube packing (9) and plastic packing washers (8) into nylon stuffing tube (7).

7. Slide stuffing tube packing retainer cap (6) onto nylon stuffing tube (7).

8. Rotate retainer cap (6) clockwise and tighten.

9. Position personnel shore tie junction box cover (4) on junction box (5), install four screws (3) and tighten screws (3).

10. Rotate power cable connector (1) clockwise $\frac{1}{4}$ turn and connect to personnel shelter shore tie male electrical connector (2).

END OF WORK PACKAGE

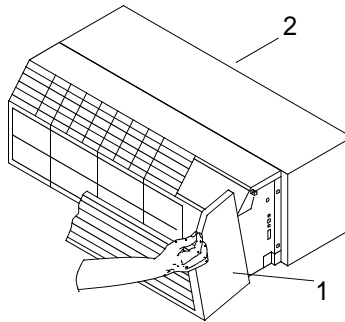
**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM FRONT COVER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Personnel Required**

Engineer 88L

REMOVE HEATING AND AIR CONDITIONING SYSTEM FRONT COVER

1. Verify air conditioning switch is in the off position.
2. Grasp front cover (1) firmly near the top of each side.

**NOTE**

It is not necessary to use excessive force when removing the front cover.

3. Lift upward and pull outward to remove front cover (1) from heating and air conditioning unit (2).

INSTALL HEATING AND AIR CONDITIONING SYSTEM FRONT COVER

1. Grasp front cover (1) firmly near the top of each side.

NOTE

It is not necessary to use excessive force when installing the front cover.

2. Align front cover (1) with the bottom mounting edge of the heating and air conditioning unit (2) and push inward until cover snaps into place.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM INDOOR AIR FILTER
REMOVAL, CLEANING, INSPECTION AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)
Cleaner, Vacuum, Electric (Item 12, WP 0359 00)

Materials/Parts

Cleaner (Item 9, WP 0358 00)

Personnel Required

Engineer 88L

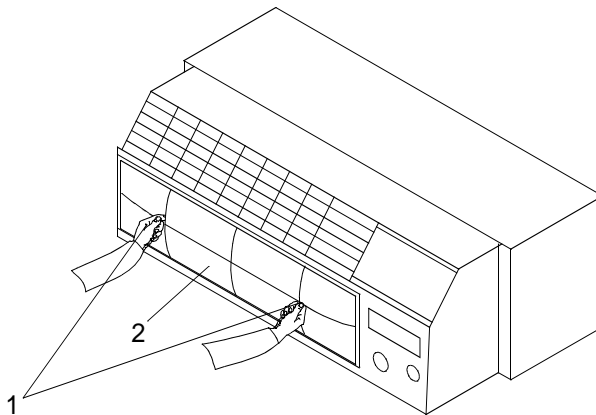
Equipment Condition

Heating And Air Conditioning System Front Cover Removed. (WP 0099 00)

REMOVE HEATING AND AIR CONDITIONING SYSTEM INDOOR AIR FILTER**NOTE**

Do not use excessive force when removing or installing the air filter.

1. Gently grasp the two air filter tabs (1).



2. Push downward and pull outward to remove the air filter (2).

CLEAN HEATING AND AIR CONDITIONING SYSTEM INDOOR AIR FILTER

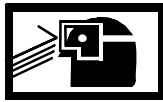
1. With air filter removed from unit, use vacuum cleaner to remove any dust or debris from filter.

WARNING

**EYE PROTECTION****CHEMICAL**

2. If necessary, use cleaner and a soft bristle brush to gently wash filter.

WARNING

**EYE PROTECTION****CHEMICAL**

3. Remove cleaner residue with a gentle flow of water.
4. Allow filter to air dry.

INSPECT HEATING AND AIR CONDITIONING SYSTEM INDOOR AIR FILTER

1. Inspect filter for holes. None allowed. If found, replace filter.
2. Inspect filter for tears. None allowed. If found, replace filter.

INSTALL HEATING AND AIR CONDITIONING SYSTEM INDOOR AIR FILTER

1. Gently grasp two air filter tabs (1).
2. Align the air filter (2) with the bottom mounting edge and push inward until air filter (2) snaps into place.
3. Install heating and air conditioning system front cover. (WP 0099 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM CHASSIS
REMOVAL AND INSTALLATION**

INITIAL SETUP:

Tools

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Personnel Required

Engineer 88L (2)

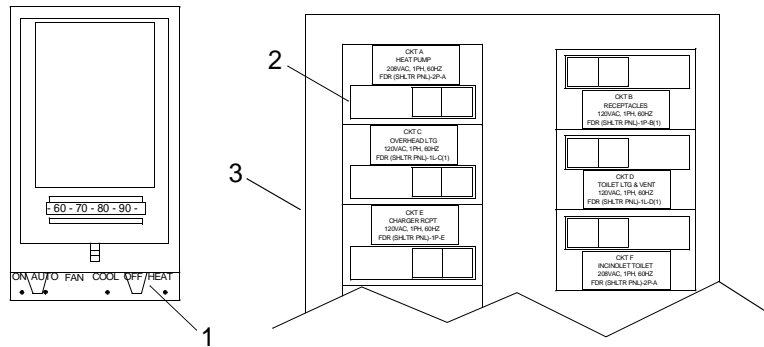
Equipment Condition

Heating And Air Conditioning System Front Cover Removed. (WP 0099 00)

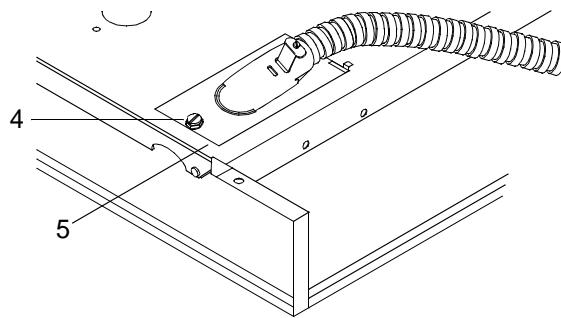
Heating And Air Conditioning System Indoor Air Filter Removed. (WP 0100 00)

REMOVE HEATING AND AIR CONDITIONING SYSTEM CHASSIS

1. Switch mode selector switch (1) to OFF position.

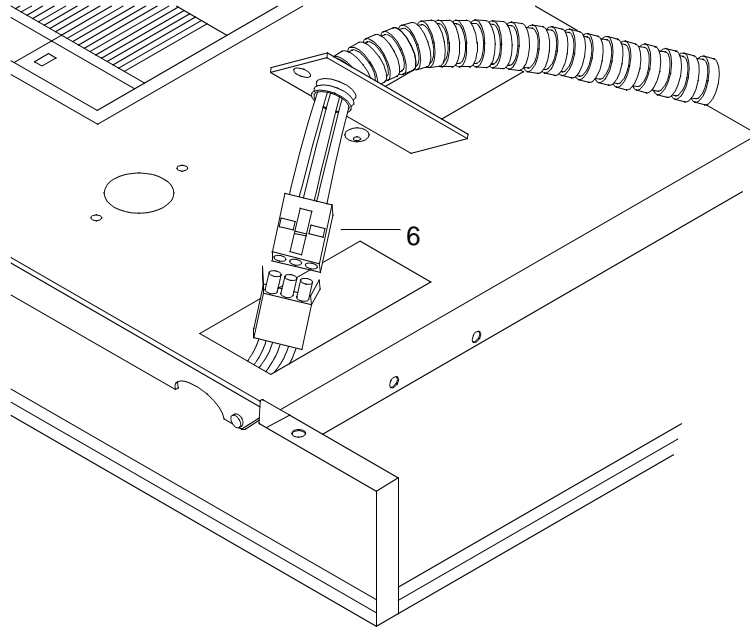


2. Open CKT A HEAT PUMP circuit breaker (2) in shelter electrical distribution panel (3).
3. Remove screw (4) from access cover (5).



4. Remove access cover (5).

5. Pull out the plug assembly (6) and disconnect.

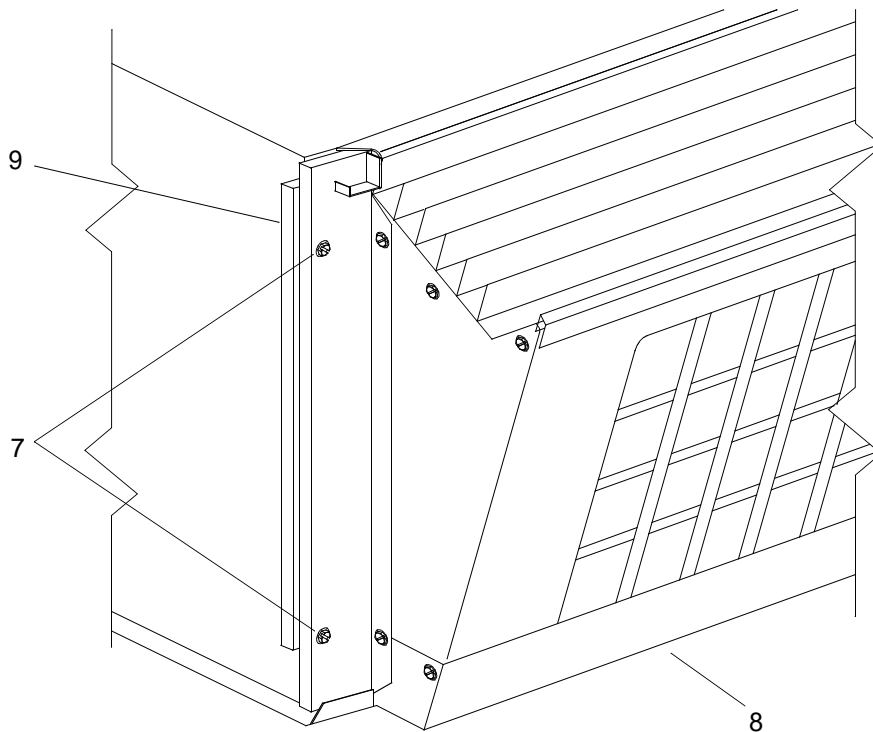


WARNING



HEAVY OBJECTS

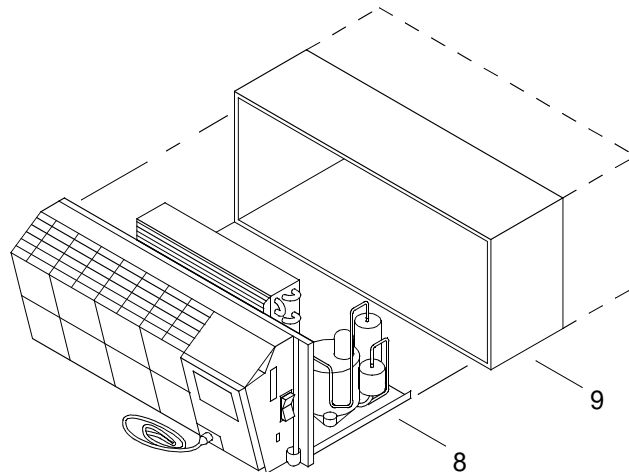
6. Remove the four 1 $\frac{3}{4}$ in. mounting screws (7) that secure the unit chassis (8) to the wall sleeve (9).



 WARNING

**HEAVY OBJECTS**

7. Grasp the sides of the unit chassis (8) and slide it from the wall sleeve (9).

**INSTALL HEATING AND AIR CONDITIONING SYSTEM CHASSIS**

 WARNING

**HEAVY OBJECTS**

1. Grasp the sides of the unit chassis (8) and slide into wall sleeve (9).
2. Install four 1¾ in. mounting screws (7) that secure the unit chassis (88) to the wall sleeve (9).
3. Connect power plug assembly (6) and stow.
4. Align access cover (5) and install screw (4) in access cover (5). Tighten screw (4).
5. Install heating and air conditioning system indoor air filter. (WP 0100 00)
6. Install heating and air conditioning system front cover. (WP 0099 00)
7. Close CKT A HEAT PUMP circuit breaker (2) in personnel shelter electrical load distribution panel (3).
8. Move mode selector switch (1) to desired position.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM VENT AIR FILTER
REMOVAL, CLEANING, INSPECTION AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)

Materials/Parts

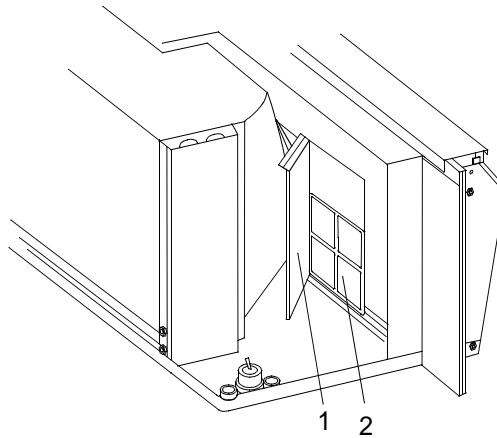
Cleaner (Item 9, WP 0358 00)

Personnel Required

Engineer 88L

REMOVE HEATING AND AIR CONDITIONING SYSTEM VENT AIR FILTER

1. Pull vent door (1) open.



2. Remove vent air filter (2) by gently pushing on the filter slot.

CLEAN HEATING AND AIR CONDITIONING SYSTEM VENT AIR FILTER

WARNING



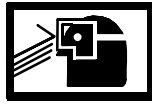
EYE PROTECTION



CHEMICAL

1. Clean vent air filter (2) using a soft bristle brush and cleaner.

WARNING

**EYE PROTECTION****CHEMICAL**

2. Remove cleaner residue with clean fresh water and allow vent air filter (2) to air dry.

INSPECT HEATING AND AIR CONDITIONING SYSTEM VENT AIR FILTER

1. Inspect air vent filter for debris. If debris is found, repeat cleaning steps.
2. Inspect air vent filter for tears or deterioration. If found, replace air vent filter.

INSTALL HEATING AND AIR CONDITIONING SYSTEM VENT AIR FILTER

1. Install vent air filter (2) in track behind vent door (1) by engaging filter slot.
2. Close vent door (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM SIDE ANGLE
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

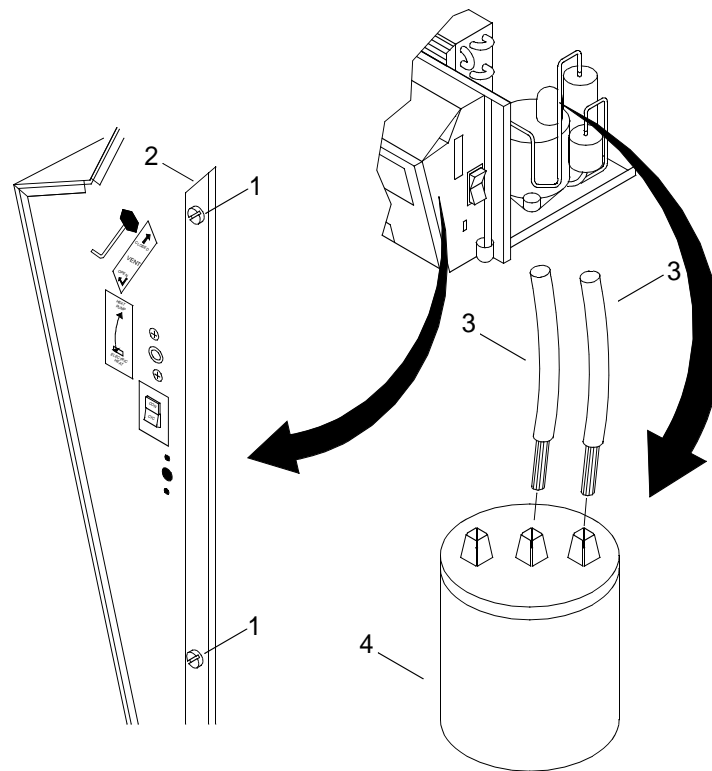
Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

Utilities Equipment Repairer 52C

REMOVE HEATING AND AIR CONDITIONING SYSTEM SIDE ANGLE

1. Remove two screws (1) from each side angle (2).



2. Remove side angle (2) from chassis.
3. Tag and disconnect wires (3) from capacitor (4).

INSTALL HEATING AND AIR CONDITIONING SYSTEM SIDE ANGLE

1. Connect wires (3) to capacitor (4) and remove tags.
2. Position side angle (2) on chassis.
3. Install two screws (1) through each side angle (2) and secure to chassis. Tighten screws (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM DISCHARGE DECK
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

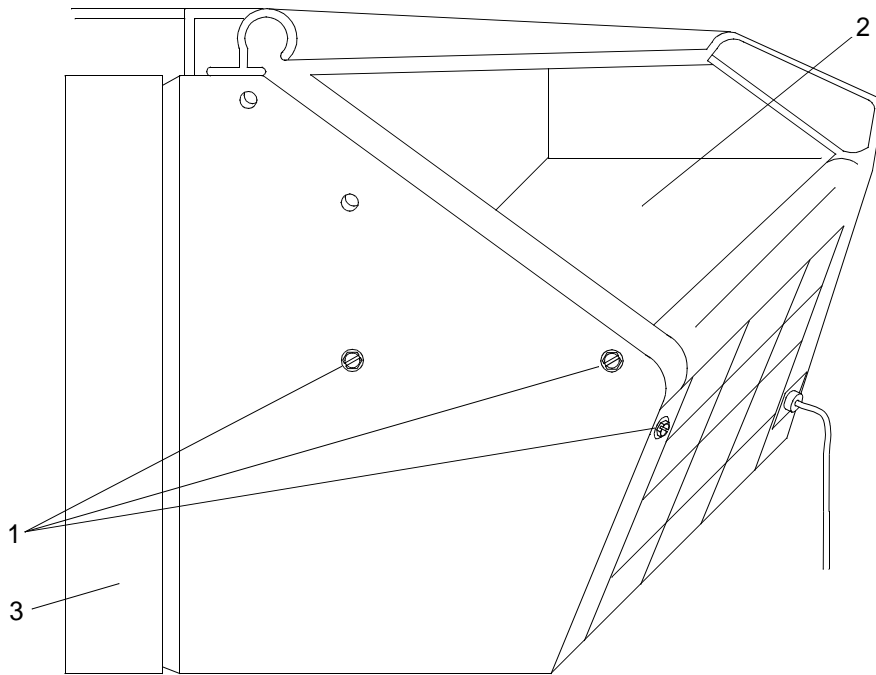
Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

Engineer 88L (2)

REMOVE HEATING AND AIR CONDITIONING SYSTEM DISCHARGE DECK

1. Remove six screws (1) mounting discharge deck (2) to chassis (3).



WARNING



HEAVY OBJECTS

NOTE

The discharge deck is awkward. Two persons may be required for its removal.

2. Remove discharge deck (2) from chassis (3) by lifting discharge deck (2) straight up and out.

INSTALL HEATING AND AIR CONDITIONING SYSTEM DISCHARGE DECK

WARNING

**HEAVY PARTS****NOTE**

The discharge deck is awkward. Two persons may be required for its installation.

1. Position discharge deck (2) in chassis (3).
2. Install six screws (1) and tighten.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM FAN AND STATOR
CLEANING AND INSPECTION**

INITIAL SETUP:**Tools**

- Tool Kit, General Mechanic's (Item 81, WP 0359 00)
- Gloves, Chemical (Item 25, WP 0359 00)
- Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
- Bottle, Sprayer (Item 8, WP 0359 00)
- Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)

Materials/Parts

- Cloth, Cleaning (Item 14, WP 0358 00)
- Hydrogen Peroxide, Topical Solution (Item 32, WP 0358 00)
- Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

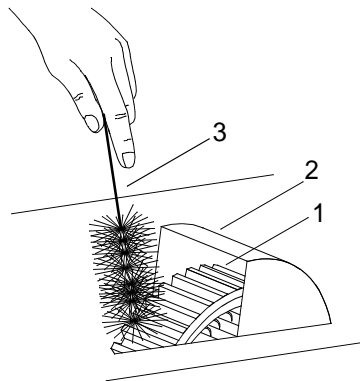
- Engineer 88L

Equipment Condition

- Heating and Air Conditioning System Side Angle Removed. (WP 0103 00)
- Heating and Air Conditioning System Discharge Deck Removed. (WP 0104 00)

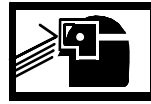
CLEAN HEATING AND AIR CONDITIONING SYSTEM FAN AND STATOR

1. Clean fan blower wheel (1).
 - a. Place wiping rag between fan blower wheel (1) and opening (2) to catch any debris that may fall through the cracks.



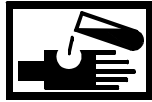
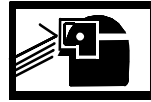
- b. Use soft bristle brush (3) to clean between fan blower wheel (1).

WARNING

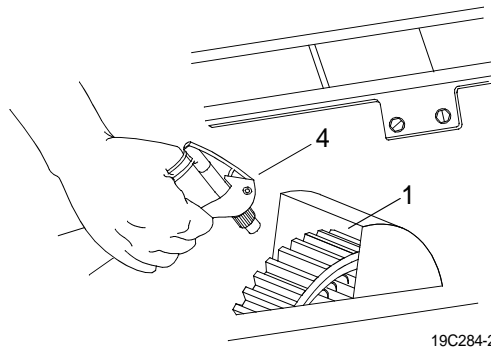
**CHEMICAL****EYE PROTECTION**

- c. Fill spray bottle (4) with a solution of 3% hydrogen peroxide and water.

WARNING

**CHEMICAL****EYE PROTECTION**

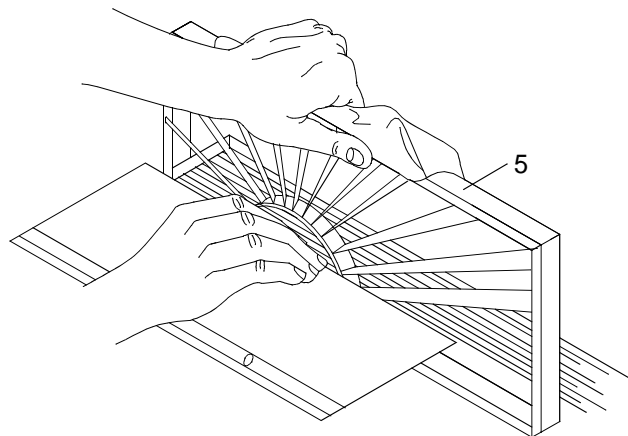
- d. Use a spray bottle (4) to lightly coat the fan blower wheel (1) with the solution.



- e. Use cloth to clean fan blower wheel (1) and to wipe up any excess solution.
f. Remove wiping rag and discard.

2. Clean stator (5).

- a. Using cloth, wipe dirt and debris from stator (5).



- b. Flush with clean fresh water and wipe dry.

INSPECT HEATING AND AIR CONDITIONING SYSTEM FAN AND STATOR

1. Inspect fan assembly for broken blower wheel blades (1). Replace damaged items.
2. Inspect stator (5) for cracked or broken vanes. Replace damaged items.
3. Inspect stator (5) for pitting or deterioration. Replace damaged items.
4. Install heating and air conditioning system discharge deck. (WP 0104 00)
5. Install heating and air conditioning system side angles. (WP 0103 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM CAPILLARY
TUBE AND STRAINER
CLEANING AND INSPECTION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Utilities Equipment Repairer 52C

Equipment Condition

Heating and Air Conditioning System Front Cover Removed. (WP 0099 00)

Heating and Air Conditioning System Indoor Air Filter Removed. (WP 0100 00)

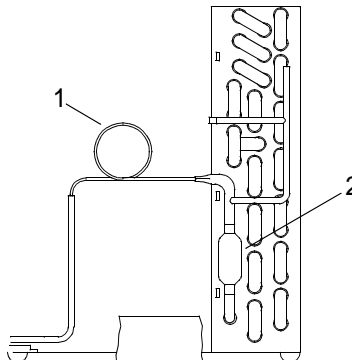
Heating and Air Conditioning System Chassis Removed From Wall Sleeve. (WP 0101 00)

CLEAN HEATING AND AIR CONDITIONING SYSTEM CAPILLARY TUBE AND STRAINER

WARNING

High voltage capacitors may hold a charge long after power is turned off. Always discharge capacitors preforming maintenance. Failure to discharge capacitors could result in injury or death to personnel.

1. Using rag, wipe dirt and debris from capillary tube (1) and strainer (2) area.



2. Flush with clean, fresh water and wipe dry using wiping rag.

INSPECT HEATING AND AIR CONDITIONING SYSTEM CAPILLARY TUBE AND STRAINER

1. Inspect capillary tube (1) and strainer (2) area for evidence of leaking, excessive bend, kinking, bulging, corrosion or other damage.
2. Contact general support maintenance if visual inspection uncovers evidence of leaking, excessive bend, kinking, bulging, corrosion or other damage.
3. Install heating and air conditioning system chassis removed in wall sleeve. (WP 0101 00)
4. Install heating and air conditioning system indoor air filter. (WP 0100 00)
5. Install heating and air conditioning system front cover. (WP 0099 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER THERMOSTAT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Level, Spirit (Item 37, WP 0359 00)

Materials/Parts

Switch, Thermostatic
(10855)
NSN 5930-01-411-9735
PN HH01AD045

Personnel Required

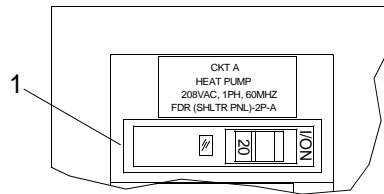
Engineer 88L

References

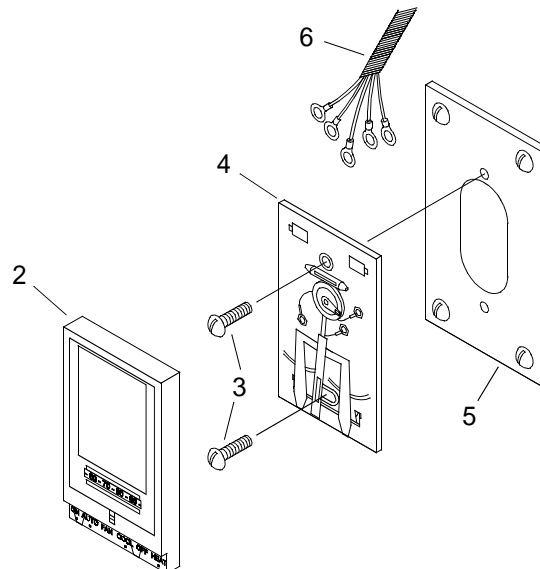
TM 55-1945-205-10-2

REMOVE PERSONNEL SHELTER THERMOSTAT

1. Position circuit breaker A (1) on the electrical distribution panel board to OFF.



2. Remove cover (2) and discard.



3. Remove two screws (3) from thermostat (4).

4. Remove thermostat (4) from mounting surface (5).
5. Tag wires (6) and disconnect from thermostat (4).
6. Dispose of thermostat (4) in accordance with local procedures.

INSTALL PERSONNEL SHELTER THERMOSTAT.

1. Connect wires (6) to new thermostat (4) and remove tags.
2. Position thermostat (6) on mounting surface (5).
3. Install two screws (3) in thermostat (4).
4. Using a spirit level, verify that thermostat (4) is level.
5. Tighten screws (3).
6. Install new cover (2).
7. Position circuit breaker A (1) on the electrical distribution panel board to ON.
8. Perform operational check of personnel shelter thermostat. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM FAN MOTOR
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)

Personnel Required

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

Equipment Condition

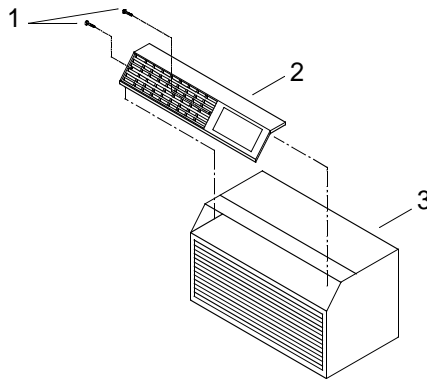
Heating and Air Conditioning System Front Cover Removed. (WP 0099 00)

REMOVE HEATING AND AIR CONDITIONING SYSTEM FAN MOTOR

WARNING

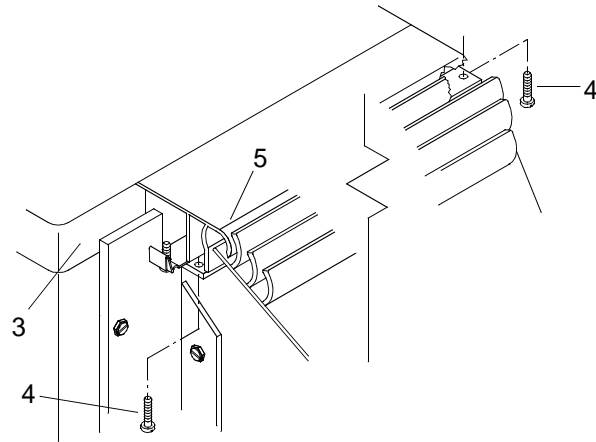
High voltage capacitors may hold a charge long after power is turned off. Always discharge capacitors preforming maintenance. Failure to discharge capacitors could result in injury or death to personnel.

1. Remove two screws (1) from air discharge grille (2).

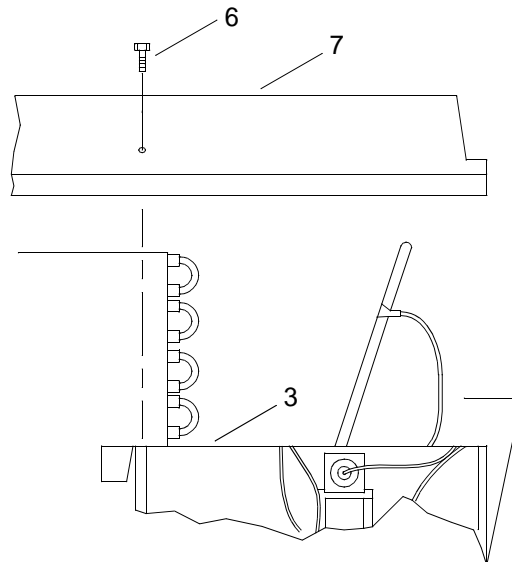


2. Remove air discharge grille (2) from chassis (3).

3. Remove two screws (4) from top panel (5).

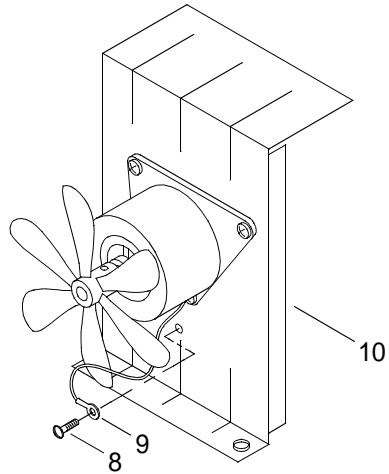


4. Remove top panel (5) from chassis (3).
5. Remove screw (6) from top cover (7).



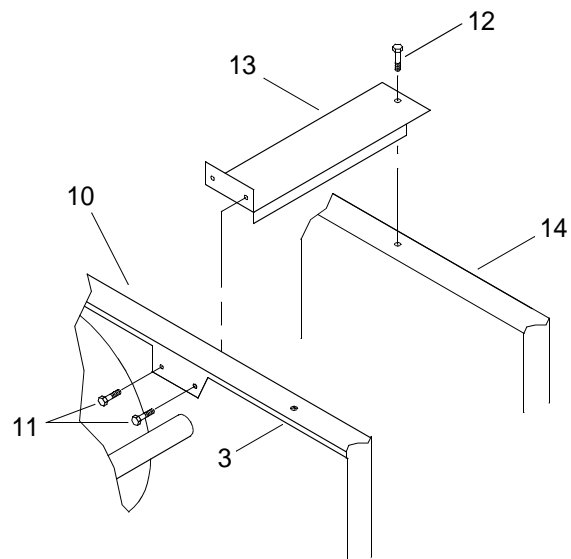
6. Remove top cover (7) from chassis (3).
7. Remove heating and air conditioning system discharge deck. (WP 0104 00)

8. Remove screw (8) from fan motor ground wire (9).



9. Remove fan motor ground wire (9) from partition (10).

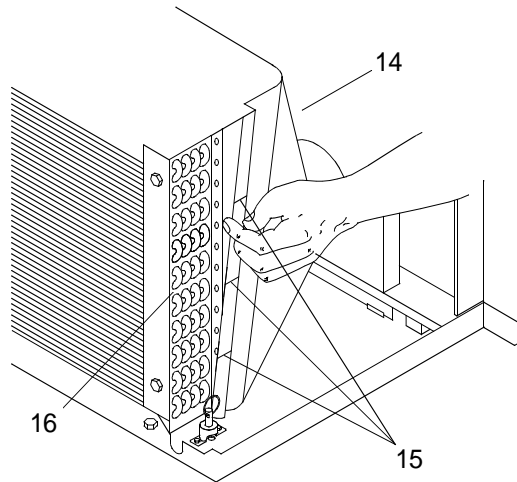
10. Remove two screws (11) from partition (10).



11. Remove screw (12) from gusset (13).

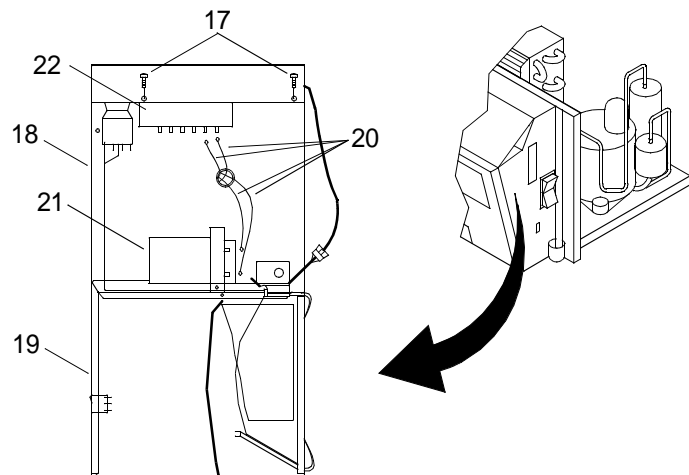
12. Remove gusset (13) from condenser cover (14).

13. Using screwdriver, pry condenser cover tabs (15) from coil (16).



14. Pull condenser cover (14) away from coil (16).

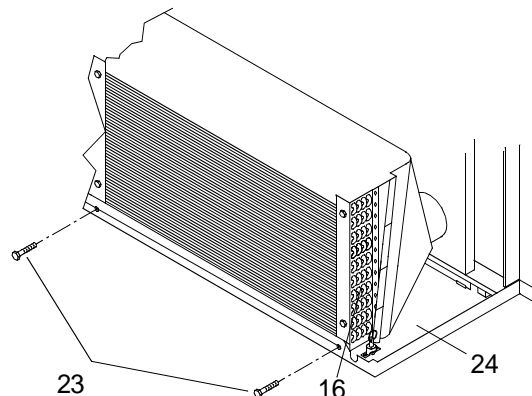
15. Remove two screws (17) on the front of control box (18).



16. Open hinged cover (19) downward.

17. Disconnect fan motor wires (20) from capacitor (21) and switch (22).

18. Remove two screws (23) from base pan (24).

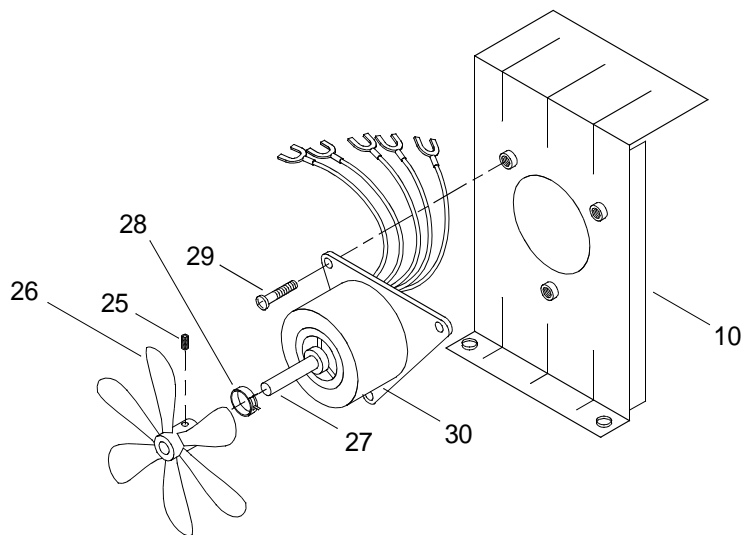


WARNING

**SHARP OBJECT****CAUTION**

Care must be exercised when handling coil. Failure to comply could result in damage to equipment.

19. Remove coil (16) from base pan (24).
20. Loosen screw (25) securing fan (26) to fan motor shaft (27).



WARNING

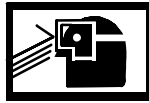
**EYE PROTECTION**

21. Remove spring clip (28).
22. Using two screwdrivers, remove fan (26) from fan motor shaft (27).
23. Remove three bolts (29) from fan motor (30) and partition (10).
24. Remove fan motor (30) from partition (10).

INSTALL HEATING AND AIR CONDITIONING SYSTEM FAN MOTOR

1. Position fan motor (30) on partition (10).
2. Install three bolts (29) in fan motor (30) and partition (10) and tighten bolts (30).
3. Position fan (26) on fan motor shaft (27).

WARNING

**EYE PROTECTION**

4. Install spring clip (28).
5. Tighten screw (25) securing fan (26) to fan motor shaft (27).

WARNING

**SHARP OBJECT****CAUTION**

Care must be exercised when handling coil. Failure to comply could result in damage to equipment.

6. Position coil (16) on base pan (24).
7. Install two screws (23) in base pan (24) and tighten screws (23).
8. Connect fan motor wires (20) to capacitor (21) and switch (22).
9. Close hinged cover (19) upward.
10. Install two screws (17) in the front control box (18) and tighten screws (17).
11. Position condenser cover (14) on coil (16).
12. Install condenser cover tabs (15) on coil (16).
13. Position gusset (13) on condenser cover (14).
14. Install screw (12) in gusset (13) and tighten screw (12).
15. Install two screws (11) in partition (10) and tighten screws (11).
16. Position fan motor ground wire (9) on partition (10).
17. Install screw (8) in fan motor ground wire (9) and tighten screw (8).

-
18. Install heating and air conditioning system discharge deck. (WP 0104 00)
 19. Position top cover (7) on chassis (3).
 20. Install screw (6) in top cover (7) and tighten screw (6).
 21. Position top panel (5) on chassis (3).
 22. Install two screws (4) in top panel (5) and tighten screws (4).
 23. Position air discharge grille (2) on chassis (3).
 24. Install two screws (1) in air discharge grille (2) and tighten screws (1).
 25. Install heating and air conditioning system front cover. (WP 0099 00)
 26. Perform operational check of heating and air conditioning system fan motor. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM CONDENSER AND COIL FINS
CLEANING AND INSPECTION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Respirator, Air Filtering (Item 59, WP 0359 00)
Pan, Drain (Item 46, WP 0359 00)
Sprayer, Pesticide (Manually Carried) (Item 71, WP 0359 00)
Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)

Materials/Parts

Cleaner, Condenser Coil (Item 10, WP 0358 00)
Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

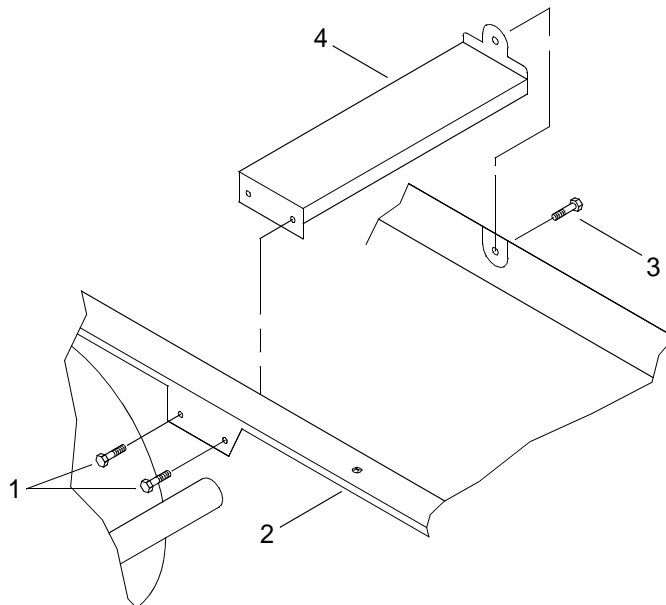
Utilities Equipment Repairer 52C (2)

Equipment Condition

Heating and Air Conditioning System Side Angles Removed. (WP 0103 00)

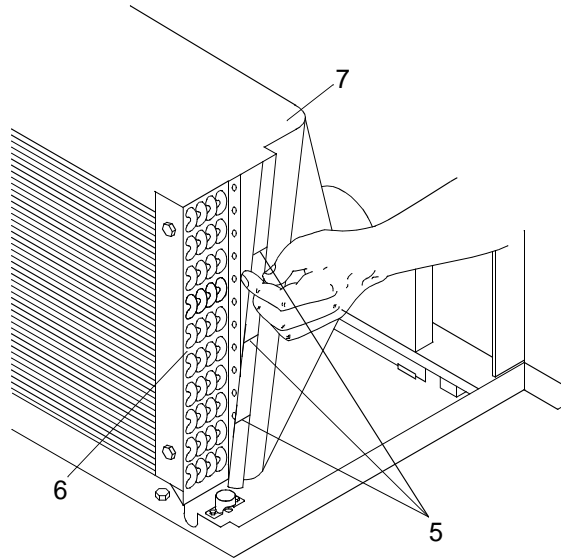
CLEAN HEATING AND AIR CONDITIONING SYSTEM CONDENSER AND COIL FINS

1. Remove two screws (1) from partition (2).

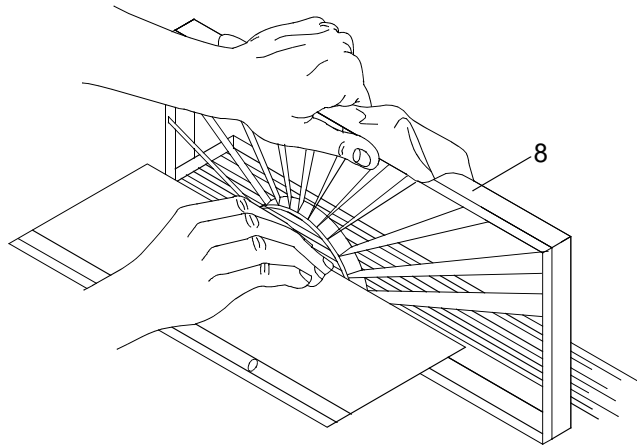


2. Remove screw (3) from gusset (4).
3. Remove gusset (4).

- Using screw driver, pry condenser cover tabs (5) from condenser coils (6).



- Pull condenser cover (7) away from coils (6).
- Remove stator (8).



WARNING



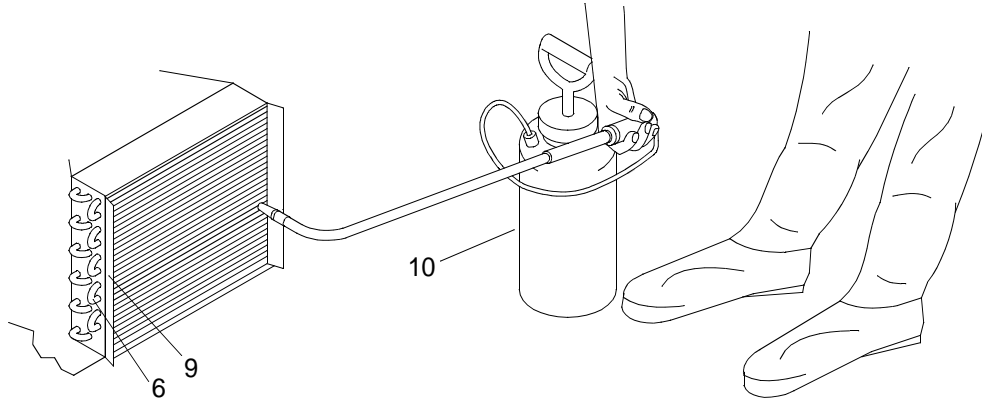
HEAVY OBJECTS

- Place unit in drain pan.

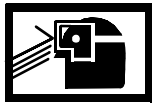
CAUTION

Care must be taken to apply brush in same direction of fins. Failure to comply could result in damage to the equipment.

8. Using a soft bristle brush, clean coils (6) and fins (9).

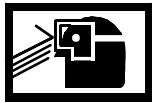


WARNING

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

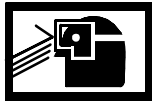
9. Fill spray tank (10) with coil cleaning solution.

WARNING

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

10. Using spray tank (10), apply coil cleaning solution uniformly on both front and back of coils (6).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

 CAUTION

Do not use high pressure water source. Failure to comply could result in damage to equipment.

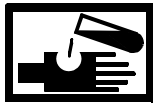
NOTE

Allow condenser coil cleaner to stand for ten minutes so that foam will have sufficient time to dissolve dirt and debris.

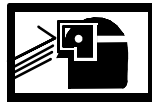
11. Rinse coils (6) thoroughly with clean water.

12. Repeat steps 4 and 5.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

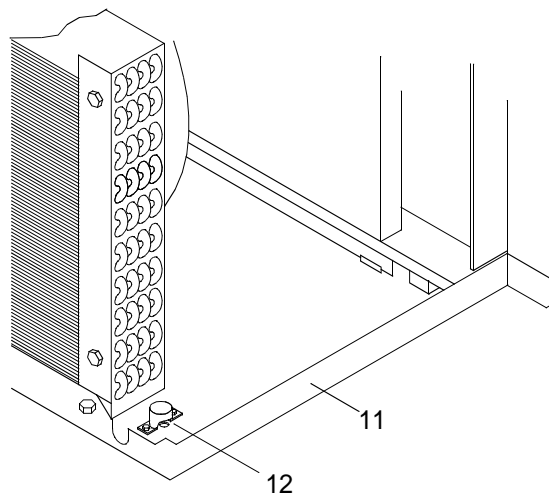


HEAVY OBJECTS

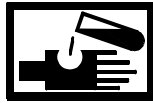
 CAUTION

Do not set unit on its side. Failure to comply could result in serious damage to equipment.

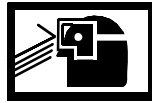
13. Tilt unit and drain cleaning solution and water from base pan (11).



WARNING



CHEMICAL



EYE PROTECTION



VAPOR



HEAVY OBJECTS

14. Remove unit from drain pan.

WARNING



EYE PROTECTION



CHEMICAL



VAPOR

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

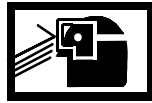
WARNING



HEAVY OBJECTS

16. Place unit in drain pan.

WARNING



EYE PROTECTION



CHEMICAL



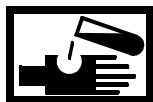
VAPOR

17. Rinse base pan (11) and drain valve (12) with clean water.

WARNING



EYE PROTECTION



CHEMICAL



VAPOR

18. Remove any debris from drain valve (12).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



HEAVY OBJECTS

19. Tilt unit and drain water and residual cleaning solution from base pan (11).

 WARNING



HEAVY OBJECTS

20. Remove unit from drain pan.

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

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

22. Air dry unit.

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

23. Dispose of remaining cleaning solution in spray tank (10) in accordance with local procedures.

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR



SLICK FLOOR

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

INSPECT HEATING AND AIR CONDITIONING SYSTEM CONDENSER AND COIL FINS

1. Inspect coils for crimping. Replace damaged item.
2. Inspect coils for breaks and cracks. Replace damaged item.
3. Inspect condenser cover for cracks and holes. Replace damaged item.
4. Install stator (8).
5. Position condenser cover (7) on coil (6).
6. Install condenser cover tabs (5) on coil (6).
7. Position gusset (4) on condenser cover (5) and partition (2).
8. Install screw (3) in gusset (4). Tighten screw (3).
9. Install two screws (1) in partition (2). Tighten two screws (1).
10. Install heating and air conditioning system side angles. (WP 0103 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM OVERLOAD PROTECTOR
TESTING**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

Utilities Equipment Repairer 52C

Equipment Condition

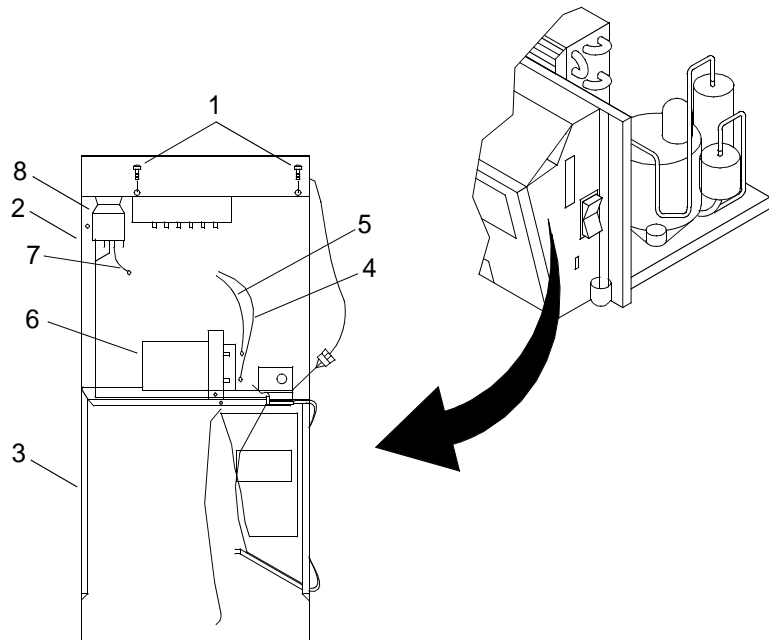
Heating and Air Conditioning Side Angles Removed. (WP 0103 00)

TEST HEATING AND AIR CONDITIONING SYSTEM OVERLOAD PROTECTOR

WARNING

High voltage capacitors may hold a charge long after power is turned off. Always discharge capacitors preforming maintenance. Failure to discharge capacitors could result in injury or death to personnel.

1. Remove two screws (1) from front of control box (2).



2. Open hinged cover (3) downward.
3. Tag and disconnect black RUN wire (4) and blue START wire (5) from capacitor (6).
4. Tag and disconnect yellow COMMON wire (7) from indoor thermostat (8).

5. Set digital multimeter to measure resistance.

NOTE

If readings are infinite, overload protector is defective.

6. Using digital multimeter, verify resistance between blue START wire (5) and yellow COMMON wire (7) is 3 Ω .
7. Using digital multimeter, verify resistance between black RUN wire (4) and yellow COMMON wire (7) is 1 Ω .
8. Using digital multimeter, verify resistance between black RUN wire (4) and blue START wire (5) is 4 Ω .
9. Connect yellow COMMON wire (7) to indoor thermostat (8) and remove tag.
10. Connect black RUN wire (4) and blue START wire (5) to capacitor (6) and remove tags.
11. Close hinged cover (3) upward.
12. Install two screws (1) to front of control box (2) and tighten.
13. Install heating and air conditioning system side angles. (WP 0103 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HEATING AND AIR CONDITIONING SYSTEM CAPACITOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

Utilities Equipment Repairer 52C

References

TM 55-1945-205-10-2

Equipment Condition

Heating and Air Conditioning Side Angles Removed. (WP 0103 00)

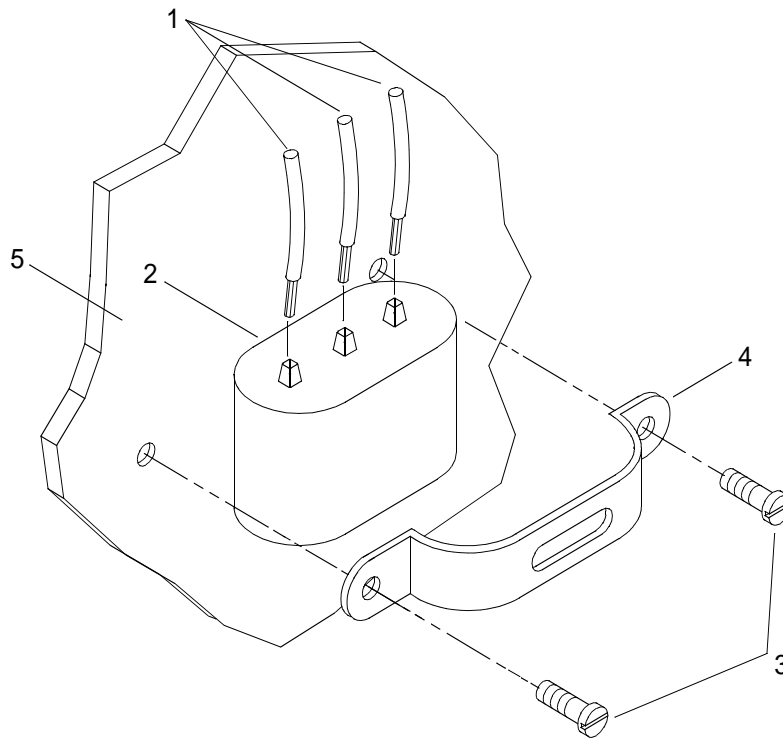
REMOVE HEATING AND AIR CONDITIONING SYSTEM CAPACITOR

WARNING

**ELECTRICAL**

High voltage capacitors may hold a charge long after power is turned off. Always discharge capacitors before performing maintenance. Failure to discharge capacitors could result in injury or death to personnel.

1. Tag and disconnect wires (1) from capacitor (2).



2. Remove two screws (3) from capacitor clamp (4).
3. Remove capacitor clamp (4) from chassis (5).
4. Remove capacitor (2) from capacitor clamp (4) and discard capacitor.

INSTALL HEATING AND AIR CONDITIONING SYSTEM CAPACITOR

1. Install new capacitor (2) in capacitor clamp (4).
2. Position capacitor clamp (4) on chassis (5).
3. Install two screws (3) in capacitor clamp (4) and tighten.
4. Connect wires (1) to capacitor (2) and remove tags.
5. Install heating and air conditioning system side angles. (WP 0103 00)
6. Perform operational check of heating and air conditioning system. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INCINERATOR TOILET
REPAIR**

INITIAL SETUP:

Personnel Required

Engineer 88L

References

TM 55-1925-257-14&P

REPAIR INCINERATOR TOILET

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

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER INCINERATOR TOILET EXHAUST
FLEXIBLE COUPLINGS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Coupling, Pipe
(81340)
PN 4511K81

Coupling, Pipe
(81340)
PN 4511K82
Qty 2

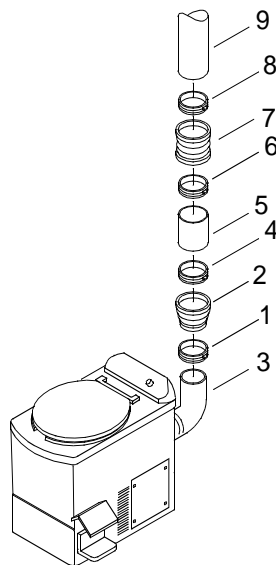
Pipe, Plastic
(81340)
PN 93908

Personnel Required

Engineer 88L

REMOVE PERSONNEL SHELTER INCINERATOR TOILET EXHAUST FLEXIBLE COUPLINGS

1. Loosen stainless steel band (1) between the flex reducing coupling (2) and the incinerator toilet 90° elbow (3) and slide band (1) onto elbow (3).



2. Loosen stainless steel band (4) between the flex reducing coupling (2) and the straight 3 in. PVC pipe (5) and slide band (4) onto pipe (5).
3. Remove flex reducing coupling (2) and discard.

-
4. Loosen stainless steel band (6) between the straight 3 in. PVC pipe (5) and the flex straight coupling (7) and slide band (6) onto pipe (5).
 5. Remove and retain straight 3 in. PVC pipe (5) with two bands (4, 6) for installation.
 6. Loosen stainless steel band (8) between the flex straight coupling (7) and the straight exhaust PVC pipe (9) and slide onto pipe (9).
 7. Remove flex straight coupling (7) and discard.

INSTALL PERSONNEL SHELTER INCINERATOR TOILET EXHAUST FLEXIBLE COUPLINGS

1. Position stainless steel band (8) between the new flex straight coupling (7) and the straight exhaust PVC pipe (9) and tighten band (8).
2. Position stainless steel band (6) between the straight 3 in. PVC pipe (5) and the flex straight coupling (7) and tighten band (6).
3. Position stainless steel band (4) between the new flex reducing coupling (2) and the straight 3 in. PVC pipe (5) and tighten band (4).
4. Position stainless steel band (1) between the flex reducing coupling (2) and the incinerator toilet 90° elbow (3) and tighten band (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER FLUORESCENT LIGHT BULBS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Mittens, Heat Protective (Item 41, WP 0359 00)

Materials/Parts

Bulb, Fluorescent
(58536)
NSN 6280-01-456-7015
PN A50597-1

Personnel Required

Seaman 88K

References

TM 55-1945-205-10-2

REMOVE PERSONNEL SHELTER FLUORESCENT LIGHT BULBS**NOTE**

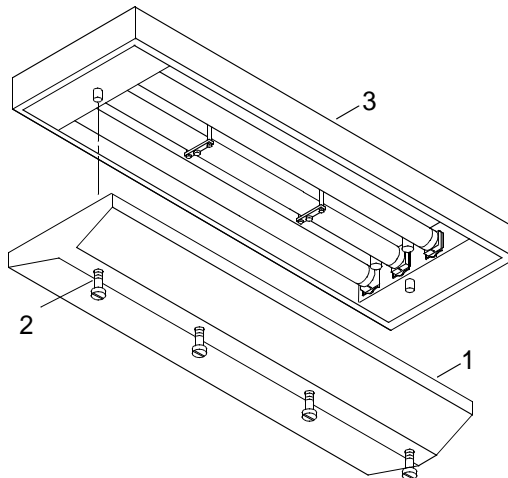
The following procedure is typical for the removal and installation of all personnel shelter fluorescent light bulbs.

1. Verify light switch is in the off position.

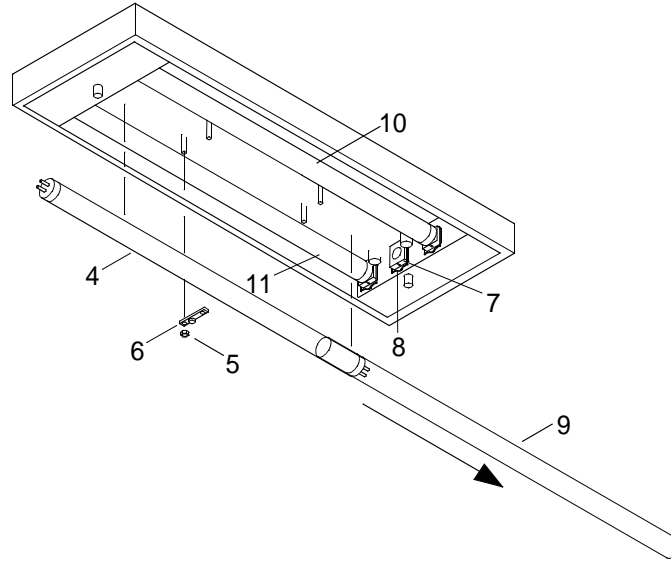
WARNING

**HOT AREA**

2. Remove light cover (1).



- a. Loosen four captive screws (2) holding light cover (1) on light fixture (3).
 - b. Remove light cover (2).
3. Remove middle light bulb (4).
- a. Loosen screws (5) from brackets (6) on middle light bulb (4).



- b. Remove brackets (6).
- c. Disengage light bulb lock (7) from each end of light bulb (4) that requires replacement.
- d. Grasp light bulb (4) and turn 90° clockwise.
- e. Pull down on light bulb (4) and remove from receptacle (8).

NOTE

If middle light bulb is to be replaced, the red sleeve will be reused.

4. Remove sleeve (9) from light bulb (4).
5. Remove outer light bulbs (10 and 11).

 - a. Disengage light bulb lock (7) from each end of light bulb (4) that requires replacement.
 - b. Grasp light bulb (4) and turn light bulb 90° clockwise.
 - c. Pull down on light bulb (4) and remove from receptacle (8).

INSTALL PERSONNEL SHELTER FLUORESCENT LIGHT BULBS

1. Install middle light bulbs (4).
 - a. Slide sleeve (9) onto light bulb (4).
 - b. Position light bulb (4) near receptacle (8).
2. Slide light bulb pins (12) into receptacle (5).
3. Turn light bulb (4) 90° until bulb clicks into place.
4. Install brackets (6) and screws (5) over middle light bulb (4).
5. Install outer light bulbs (10) and (11).
 - a. Position light bulb (4) near receptacle (8).
 - b. Slide light bulb pins (12) into receptacle (8).
 - c. Turn light bulb (4) 90° until bulb clicks into place.
6. Position light cover (1) over light fixture (3).
7. Tighten four captive screws (2) hand tight.
8. Perform operational check of personnel shelter fluorescent light bulb. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER HEAD FLUORESCENT LIGHT BULBS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Bulb, Fluorescent
(58536)
NSN 6280-01-456-7015
PN A50597-1

Personnel Required

Seaman 88K

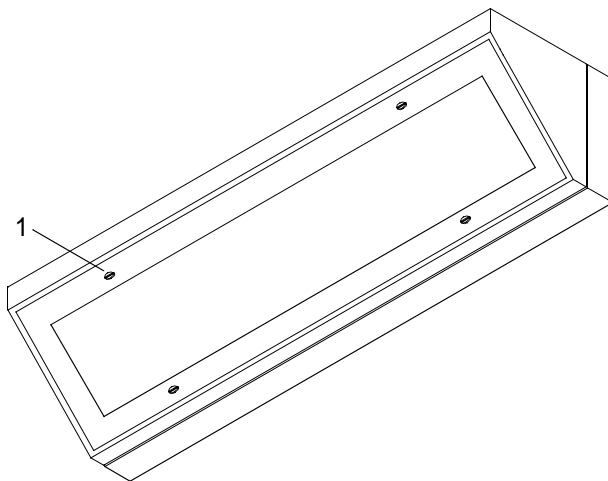
References

TM 55-1945-205-10-2

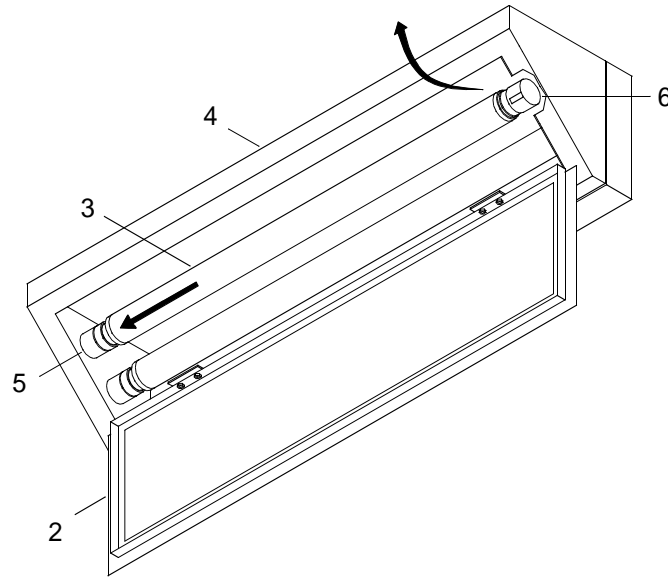
REMOVE PERSONNEL SHELTER HEAD FLUORESCENT LIGHT BULBS**NOTE**

The following procedure is typical for the removal and installation of all personnel shelter head fluorescent light bulbs.

1. Verify light switch is in the off position.
2. Loosen four captive screws (1).



-
3. Lower lens frame (2) to expose fluorescent bulbs (3).



4. Remove fluorescent bulbs (3) from light fixture (4).
 - a. Move bulb (3) toward electrical socket (5) to release one end from electrical socket (6).
 - b. Remove bulb (3) from electrical socket (5).

INSTALL PERSONNEL SHELTER HEAD FLUORESCENT LIGHT BULBS

1. Install fluorescent bulb (3) in light fixture (4).
 - a. Install one end of bulb (3) in electrical socket (5).
 - b. Move bulb (3) toward electrical socket (5) to install opposite end of bulb (3) in electrical socket (6).
2. Raise lens frame (2).
3. Tighten four captive screws (1).
4. Perform operational check of personnel shelter head fluorescent light bulbs. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER VENT FAN
CLEANING AND INSPECTION**

INITIAL SETUP:**Tools**

- Gloves, Chemical (Item 25, WP 0359 00)
- Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
- Apron, Utility (Item 2, WP 0359 00)
- Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)

Materials/Parts

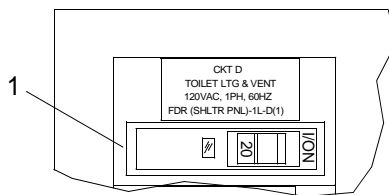
- Cleaner (Item 9, WP 0358 00)
- Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

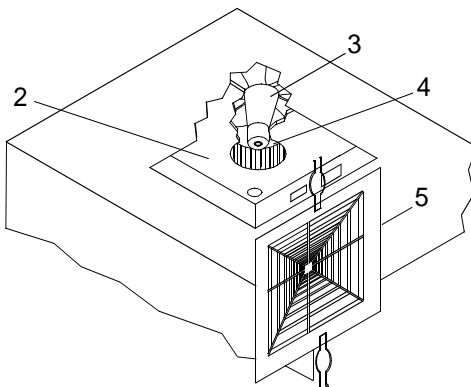
- Seaman 88K
-

CLEAN PERSONNEL SHELTER VENT FAN

1. Position circuit breaker D (1) on the personnel shelter electrical distribution board to the off position.



2. Pull down personnel shelter vent fan cover (2) located in incinerator toilet compartment overhead to open.

**WARNING****CHEMICAL****EYE PROTECTION**

3. Using soft bristle brush and cleaner, clean fan blades (3) and vent cavity (4).

WARNING

**CHEMICAL****EYE PROTECTION**

- Using wiping rag and cleaner, clean debris from vent fan cover (2) and surface of vent fan panel (5).

WARNING

**CHEMICAL****EYE PROTECTION**

- Remove cleaner residue from vent cover (2), fan blades (3) and vent cavity (4) with damp wiping rag.
- Allow fan blades (3), vent cavity (4) and surface of vent fan panel (5) to air dry.

WARNING

**CHEMICAL****EYE PROTECTION**

- Dispose of contaminated wiping rags in accordance with local procedures.

INSPECT PERSONNEL SHELTER VENT FAN

- Inspect fan blades for cracks. Replace defective part.
- Inspect fan for ease of movement. Replace defective part.
- Close personnel shelter vent fan cover (2).
- Move circuit breaker D (1) on the personnel shelter electrical distribution board to the on position.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER VENT FAN
REPLACEMENT**

INITIAL SETUP:

Tools

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Ventilator, Ceiling
(25795)
PN 5C187

Personnel Required

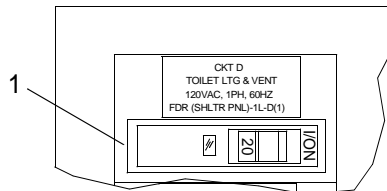
Engineer 88L

References

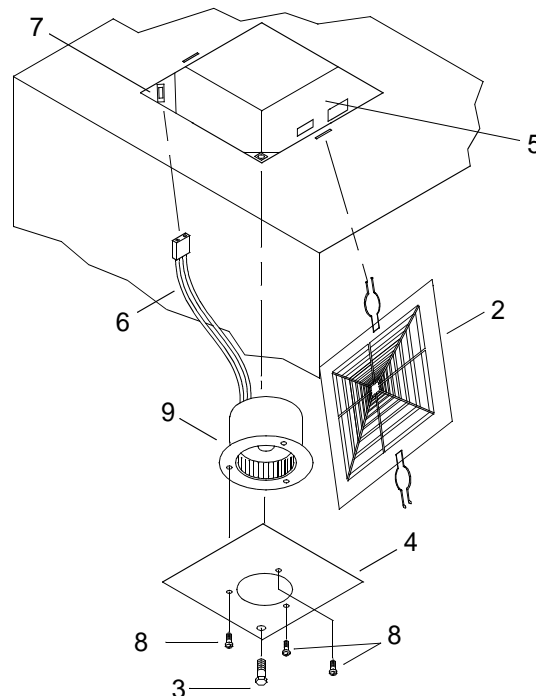
TM 55-1945-205-10-2

REMOVE PERSONNEL SHELTER VENT FAN

1. Position circuit breaker D (1) on the personnel shelter electrical distribution board to off.



2. Pull down personnel shelter vent fan cover (2) located in incinerator toilet compartment overhead to open and remove.



3. Remove hex head machine screw (3) from vent fan panel (4).
4. Remove vent fan panel (4) from vent fan enclosure (5).
5. Disconnect vent fan wiring harness (6) from plug (7).
6. Remove three round head screws (8) from vent fan panel (4).
7. Remove vent fan (9) and discard.

INSTALL PERSONNEL SHELTER VENT FAN

1. Position new vent fan (9) on vent fan panel (4).
2. Install three round head screws (8) and tighten.
3. Connect vent fan wiring harness (6) to plug (7).
4. Position vent fan panel (4) on vent fan enclosure (5).
5. Install hex head machine screw (3) in vent fan panel (4) and tighten.
6. Position and push upward to install and close personnel shelter vent fan cover (2).
7. Position circuit breaker D (1) on the personnel shelter electrical distribution board to the on position.
8. Perform operational check of personnel shelter vent fan. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER LOAD DISTRIBUTION
PANEL ACCESS COVER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

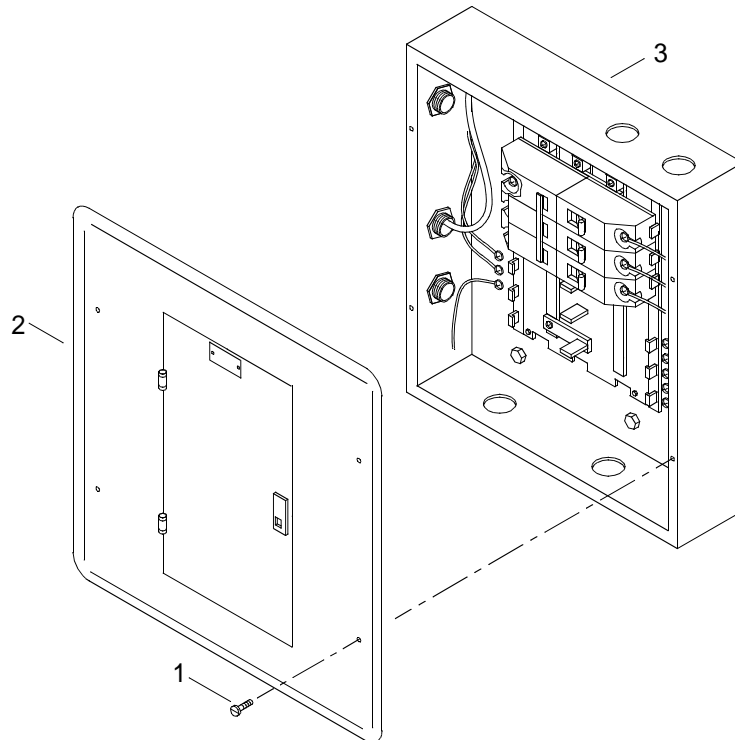
Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE PERSONNEL SHELTER LOAD DISTRIBUTION PANEL ACCESS COVER

1. Remove four screws (1) from panel (2).



2. Remove panel (2) from load distribution box (3).

INSTALL PERSONNEL SHELTER LOAD DISTRIBUTION PANEL ACCESS COVER

1. Position panel (2) on load distribution box (3).
2. Install four screws (1) through panel (2) and tighten.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL
THREE POLE CIRCUIT BREAKER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Circuit Breaker
(56365)
PN Q0B215SWN
Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)

Personnel Required

Engineer 88L

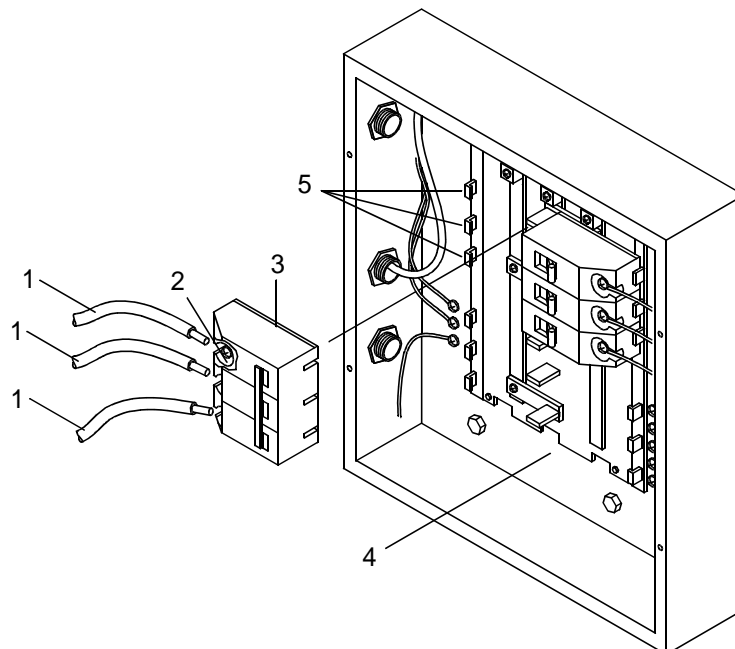
Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)
Personnel Shelter Load Distribution Panel Access Cover Removed. (WP 0115 00)

REMOVE PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL THREE POLE CIRCUIT BREAKER**NOTE**

The following procedure is typical for the removal and installation of all personnel shelter three pole circuit breakers.

1. Tag three wires (1).

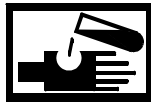


2. Remove three screws (2).
3. Pull wires (1) straight out of circuit breaker (3).
4. Firmly grasp circuit breaker (3) at the midline of the load bank (4), rotate circuit breaker (3) outward and discard.

INSTALL PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL THREE POLE CIRCUIT BREAKER

1. Install the back side of the new circuit breaker (3) into mounting cleats (5).
2. Rotate circuit breaker (3) onto the midline of the load bank (4) until it snaps into position.

—————
WARNING
—————



CHEMICAL



EYE PROTECTION

3. Coat wires (1) with silicone grease.
4. Remove tags and install wires (1) into circuit breaker (3).
5. Install three screws (2) and tighten.
6. Install personnel shelter load distribution panel access cover. (WP 0118 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL TWO
POLE CIRCUIT BREAKER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Circuit Breaker
(53365)
PN Q0B225
Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)

Personnel Required

Engineer 88L

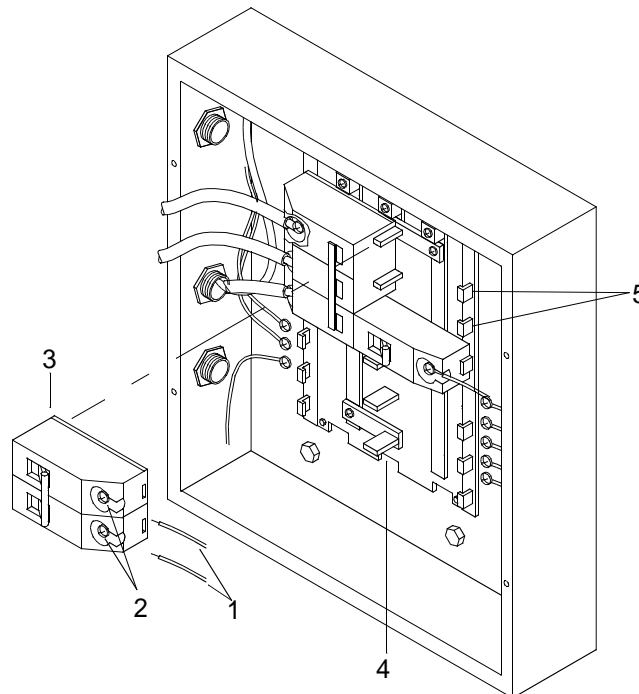
Equipment Condition

Generator Shut down. (TM 9-6115-642-10, TM 9-6115-643-10)
Personnel Shelter Load Distribution Panel Access Cover Removed. (WP 0115 00)

REMOVE PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL TWO POLE CIRCUIT BREAKER**NOTE**

The following procedure is typical for the removal and installation of all personnel shelter two pole circuit breakers.

1. Tag two wires (1).



2. Loosen two screws (2).
3. Pull wires (1) straight out of circuit breaker (3).
4. Firmly grasp circuit breaker (3) at the midline of the load bank (4) rotate circuit breaker (3) outward from mounting cleats (5) and discard.

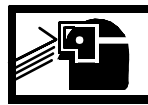
INSTALL PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL TWO POLE CIRCUIT BREAKER

1. Install the back side of the new circuit breaker (3) into mounting cleats (5).
2. Rotate circuit breaker (3) onto the midline of the load bank (4) until it snaps into position.

WARNING



CHEMICAL



EYE PROTECTION

3. Coat wires (1) with silicone grease.
4. Remove tags and install wires (1) into circuit breaker (3) and tighten two screws (2).
5. Install personnel shelter load distribution panel access cover. (WP 0118 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL
SINGLE POLE CIRCUIT BREAKER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Circuit Breaker
(56365)
PN Q0215
Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)

Personnel Required

Engineer 88L

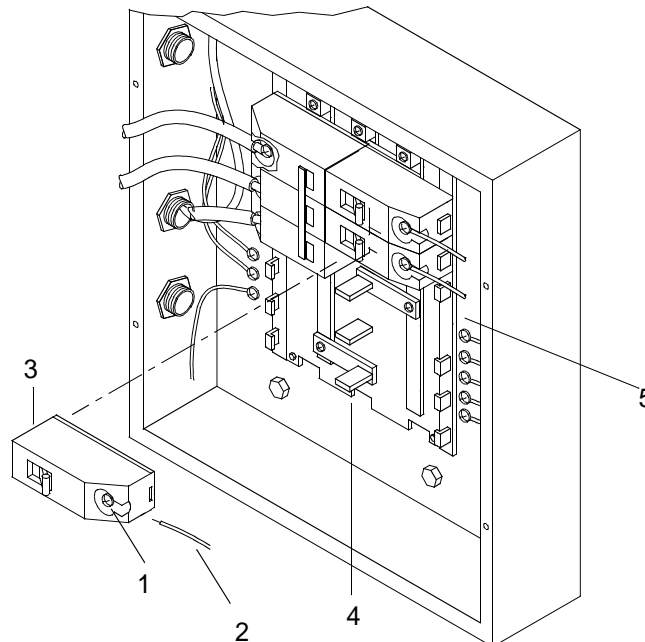
Equipment Condition

Generator Shut down. (TM 9-6115-642-10, TM 9-6115-643-10)
Personnel Shelter Load Distribution Panel Access Cover Removed. (WP 0115 00)

REMOVE PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL SINGLE POLE CIRCUIT BREAKER**NOTE**

The following procedure is typical for the removal and installation of all personnel shelter single pole circuit breakers.

1. Loosen screws (1).



-
2. Tag and pull wire (2) straight out of circuit breaker (3)
 3. Firmly grasp circuit breaker (3) at the midline of the load bank (4), rotate circuit breaker (3) outward and discard.

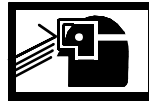
INSTALL PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL SINGLE POLE CIRCUIT BREAKER

1. Install the back side of the new circuit breaker (3) into mounting cleat (5).
2. Rotate circuit breaker (3) onto the midline of the load bank (4) until it snaps into position.

WARNING



CHEMICAL



EYE PROTECTION

3. Coat wire (2) with silicone grease.
4. Install wire (2) into circuit breaker (3) and remove tag and tighten two screws (1).
5. Install personnel shelter load distribution panel access cover. (WP 0118 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER HEAD ELECTRICAL JUNCTION BOX
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

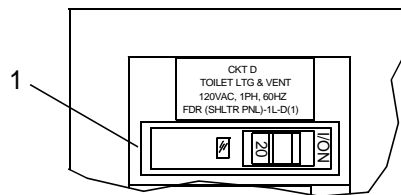
Personnel Required

Engineer 88L

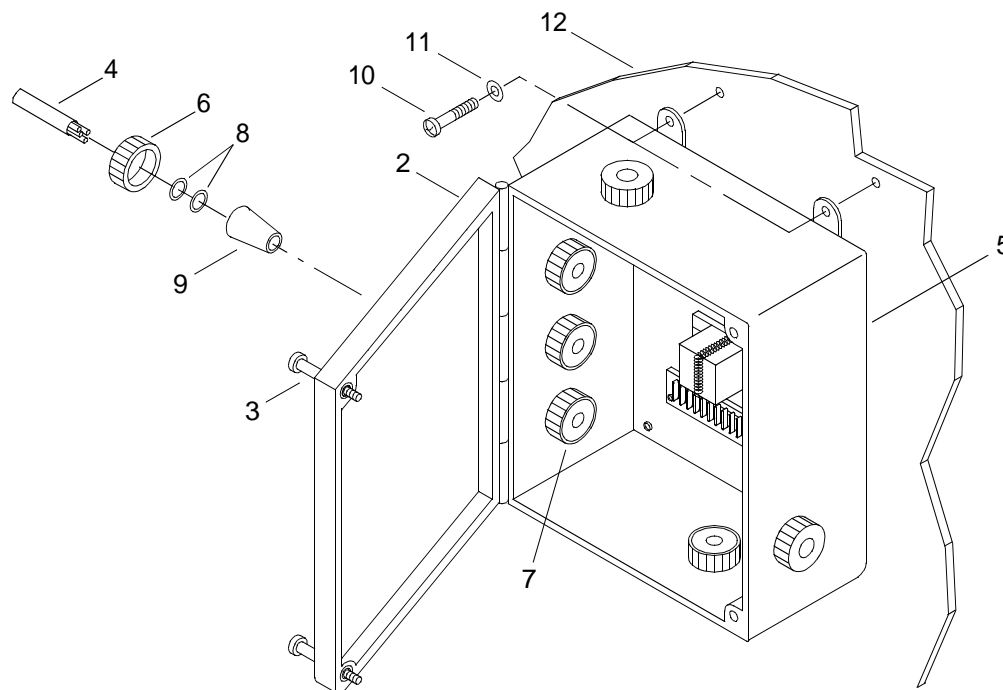
REMOVE PERSONNEL SHELTER HEAD ELECTRICAL JUNCTION BOX**NOTE**

The following procedure is typical for the removal and installation of the personnel shelter head electrical junction box.

1. Position circuit breaker D (1) on the personnel shelter electrical distribution board to OFF.



2. Open enclosure cover (2) by loosening two screws (3).



3. Remove wiring (4) from junction box (5).

- a. Tag and disconnect electrical wiring.
 - b. Unscrew stuffing tube cap (6) from the stuffing tube (7).
 - c. Remove wiring (4) from the stuffing tube (7) and retain the cap (6), plastic washers (8) and preformed packing (9) on the end of the wiring (4).
4. Remove four screws (10) and washers (11) securing the junction box (5) to the wall (12).
 5. Remove the junction box (5).

INSTALL PERSONNEL SHELTER HEAD ELECTRICAL JUNCTION BOX

1. Position the junction box (5) on the wall (12) and secure with four screws (10) and washers (11). Tighten screws (10).
2. Install cable and wires (4) in junction box (5).
 - a. Slide wiring (4) into stuffing tube (7) and into junction box (5).
 - b. Tighten stuffing tube cap (6), plastic washers (8) and preformed packing (9) onto end of the stuffing tube (7) until secure.
 - c. Connect electrical wiring and remove tags.
3. Close enclosure cover (2) and secure by tightening two screws (3).
4. Position circuit breaker D (1) on the personnel shelter electrical distribution board to ON.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER HEAD ELECTRICAL JUNCTION BOX
REPAIR**

INITIAL SETUP:

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

Engineer 88L

References

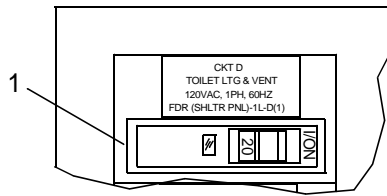
TM 55-1945-205-10-2

REPAIR PERSONNEL SHELTER HEAD ELECTRICAL JUNCTION BOX

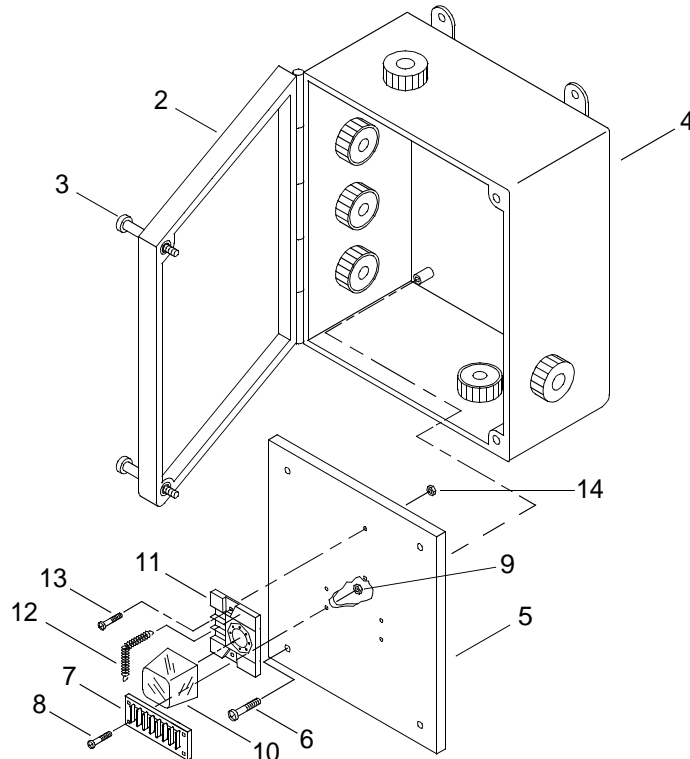
NOTE

Repair is limited to the replacement of damaged components.

1. Position circuit breaker D (1) on the personnel shelter electrical distribution board to OFF.



2. Open enclosure cover (2) by loosening two screws (3).



3. Tag and disconnect internal electrical wiring within junction box (4).
4. Remove panel (5) from junction box (4).
 - a. Remove four screws (6) securing panel (5) to junction box (4).
 - b. Remove panel (5).
5. Remove terminal block (7) from panel (5).
 - a. Remove two screws (8) and nuts (9) securing terminal block (7) to panel (5).
 - b. Remove terminal block (7).
6. Remove relay (10) from relay socket (11).
 - a. Remove spring (12) securing relay (10) to relay socket (11).
 - b. Remove relay (10) from relay socket (11) by pulling outwards.
7. Remove relay socket (11) from panel (5).
 - a. Remove two screws (13) and nuts (14) securing relay socket (11) to panel (5).
 - b. Remove relay socket (11).
8. Install relay socket (11) on panel (5).
 - a. Position relay socket (11) on panel (5).
 - b. Install two screws (13) and nuts (14) to secure relay socket (11) to panel (5). Tighten nuts (14).
9. Install relay (10) in relay socket (11).
 - a. Position relay (10) in relay socket (12) by pushing inwards.
 - b. Install spring (12) to hold relay (10) in relay socket (11).
10. Install terminal block (7) on panel (5).
 - a. Position terminal block (7) on panel (5).
 - b. Install two screws (8) and nuts (9) to secure terminal block (7) to panel (5). Tighten nuts (9).
11. Install panel (5) in junction box (4).
 - a. Position panel (5) in junction box (4).
 - b. Install four screws (6) to secure panel (5) to junction box (4). Tighten screws (6).
12. Connect internal electrical wiring within junction box (4) and remove tags.
13. Close enclosure cover (2) and secure by tightening two screws (3).
14. Position circuit breaker D (1) on the personnel shelter electrical distribution board to ON.
15. Perform operational check of junction box. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER HOSPITAL GRADE STRAIGHT BLADE
ELECTRICAL RECEPTACLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Receptacle, Duplex
(74545)
PN 8200

Personnel Required

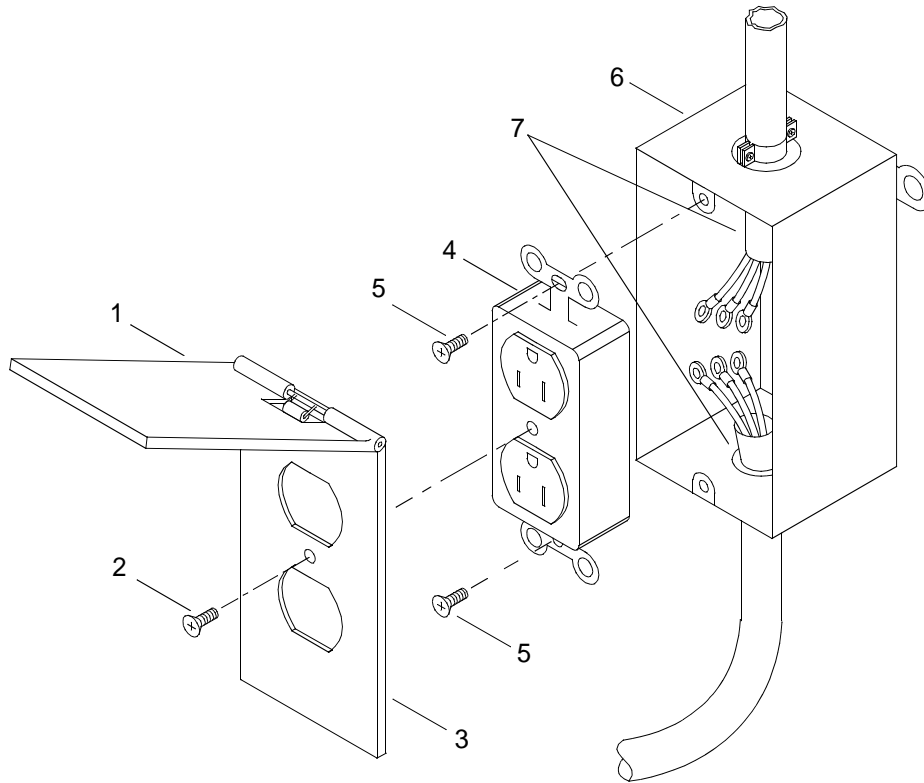
Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

**REMOVE PERSONNEL SHELTER HOSPITAL GRADE STRAIGHT BLADE
ELECTRICAL RECEPTACLE**

1. Lift weather cover (1).



2. Remove screw (2) securing receptacle cover (3) to receptacle (4).
3. Remove two screws (5) securing receptacle (4) to circuit box (6).

4. Tag and disconnect wiring (7) from receptacle (4).
5. Discard receptacle (4).

**INSTALL PERSONNEL SHELTER HOSPITAL GRADE STRAIGHT BLADE
ELECTRICAL RECEPTACLE**

1. Connect wiring (7) to new receptacle (4) and remove tags.
2. Install two screws (5) securing receptacle (4) to circuit box (6). Tighten screws (5).
3. Install screw (2) securing receptacle cover (3) to receptacle (4). Tighten screw (2).
4. Close weather cover (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER GROUND FAULT CIRCUIT INTERRUPTER
(GFCI) RECEPTACLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Interrupter, Ground
(74545)
PN GF-5352

Personnel Required

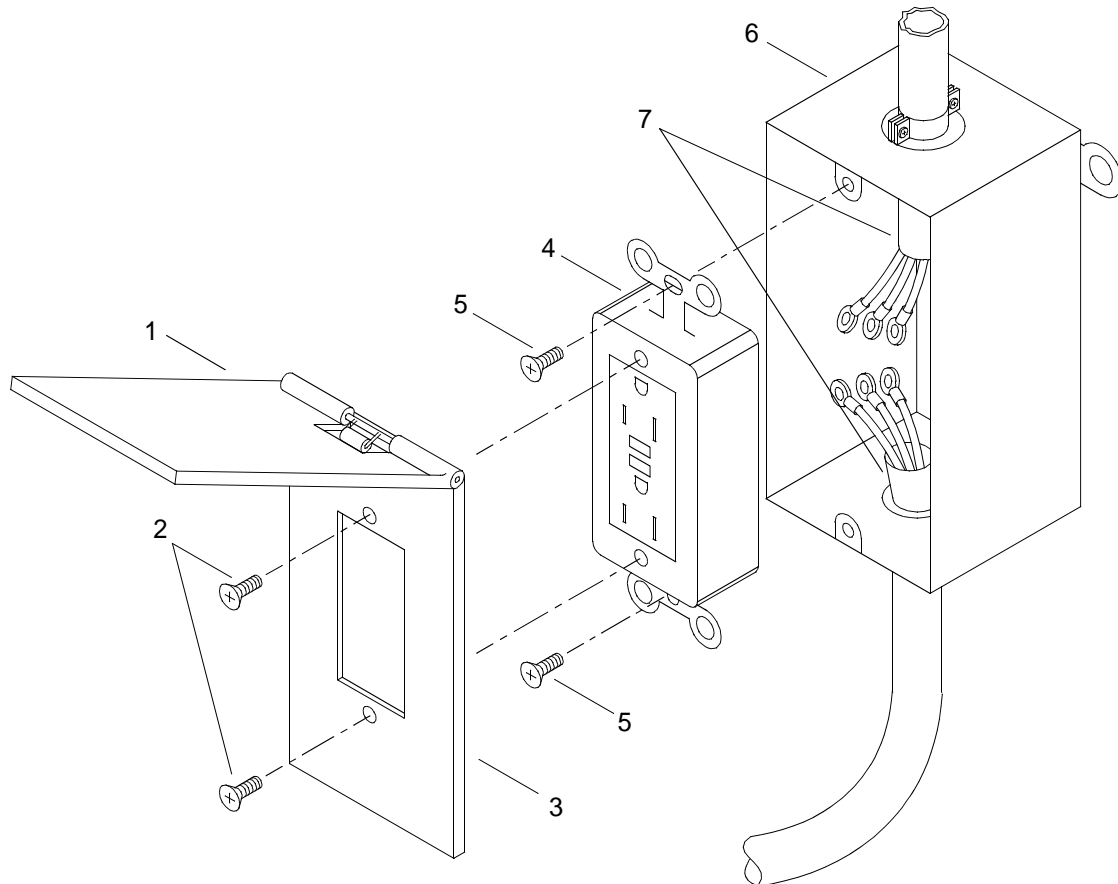
Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE PERSONNEL SHELTER GROUND FAULT CIRCUIT INTERRUPTER (GFCI) RECEPTACLE

1. Lift weather cover (1).



2. Remove two screws (2) securing receptacle cover (3) to (GFCI) receptacle (4).

3. Remove two screws (5) securing (GFCI) receptacle (4) to circuit box (6).
4. Tag and disconnect wiring (7) from (GFCI) receptacle (4).
5. Discard (GFCI) receptacle (4).

INSTALL PERSONNEL SHELTER GROUND FAULT CIRCUIT INTERRUPTER (GFCI) RECEPTACLE

1. Connect wiring (7) to new (GFCI) receptacle (4) and remove tags.
2. Install two screws (5) securing (GFCI) receptacle (4) to circuit box (6). Tighten screws (5).
3. Install two screws (2) securing receptacle cover (3) to (GFCI) receptacle (4). Tighten screws (2).
4. Close weather cover (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER OUTLET BOX
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Conduit, Outlet
(81703)
PN 30203

Personnel Required

Engineer 88L

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

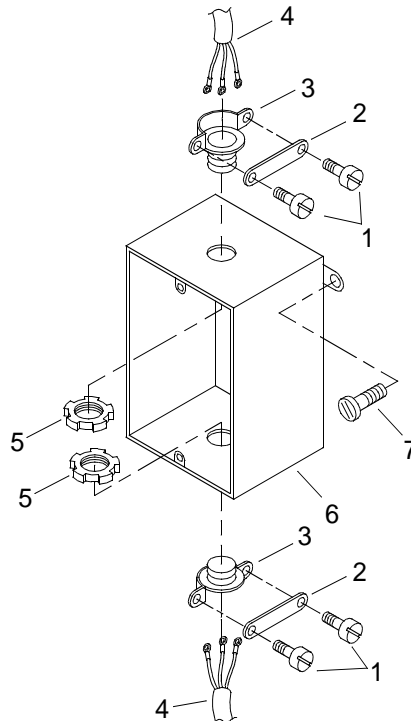
Personnel Shelter Hospital Grade Straight Blade Electrical Receptacle Removed. (WP 0124 00)

Personnel Shelter Ground Fault Circuit Interrupter Receptacle Removed. (WP 0125 00)

REMOVE PERSONNEL SHELTER OUTLET BOX**NOTE**

This task is typical for both the hospital grade straight blade and ground fault circuit interrupter receptacle boxes.

1. Remove two screws (1) and clamp (2) from each strain relief (3).



2. Pull wiring harness (4) out through strain relief (3).

3. Remove spanner nuts (5) from strain relief (3).
4. Remove strain relief (3) from junction box (6).
5. Remove two screws (7) securing junction box (6) to bulkhead and discard junction box (6).

INSTALL PERSONNEL SHELTER OUTLET BOX

1. Position new junction box (6) on bulkhead.
2. Install two screws (7) in junction box (6) and secure to bulkhead. Tighten screws (7).
3. Install strain relief (3) in junction box (6).
4. Install spanner nuts (5) on strain relief (3) and tighten.
5. Push wiring harness (4) through strain relief (3).
6. Install two screws (1) and clamp (2) on strain relief (3). Tighten screws (1).
7. Install personnel shelter ground fault circuit interrupter receptacle. (WP 0125 00)
8. Install personnel shelter hospital grade straight blade electrical receptacle. (WP 0124 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER ROTARY BRASS LIGHT SWITCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Switch, Rotary
(81349)
NSN 5930-00-296-5290
PN M15743/3-002

Personnel Required

Engineer 88L

References

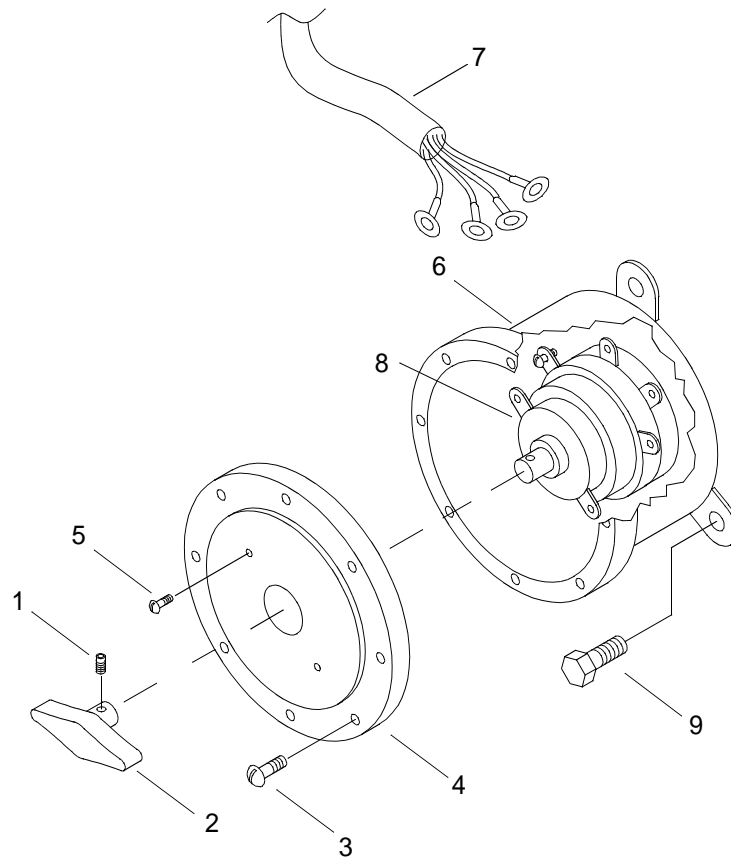
TM 55-1945-205-10-2

Equipment Condition

Generator Shut Down. (TM 9-6115-642-10, TM 9-6115-643-10)

REMOVE PERSONNEL SHELTER ROTARY BRASS LIGHT SWITCH

1. Remove allen head screw (1) from light switch knob (2).



2. Remove four pan head screws (3) from light switch cover (4).
3. Remove two pan head screws (5) from light switch cover (4).
4. Remove switch cover (4) from light switch enclosure (6).
5. Tag and disconnect wiring (7) from light switch assembly (8).
6. Remove wiring harness (7) from light switch enclosure (6).
7. Remove three hex head bolts (9) securing light switch enclosure (6) to the wall.
8. Discard light switch enclosure (6).

INSTALL PERSONNEL SHELTER ROTARY BRASS LIGHT SWITCH

1. Position and install three hex head bolts (9) to secure light switch enclosure (6) to the wall. Tighten bolts (9).
2. Install wiring harness (7) in light switch enclosure (6).
3. Connect wiring (7) and remove tags on light switch assembly (8).
4. Install switch cover (4) on light switch enclosure (6).
5. Install two pan head screws (5) in light switch cover (4). Tighten pan head screws (5).
6. Install four pan head screws (3) in light switch cover (4). Tighten pan head screws (3).
7. Install switch knob (2) on light switch (8).
8. Install allen head screw (1) in light switch knob (2). Tighten allen head screw (1).
9. Perform operational check of light switch. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER ANTENNA
REPLACEMENT**

INITIAL SETUP:**Materials/Parts**

VHF/FM Transceiver Antenna
(OJDM6)
PN 21-200006

Personnel Required

Seaman 88K

References

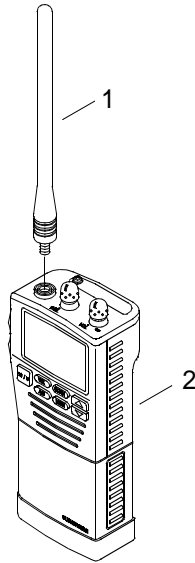
TM 55-1945-205-10-2

Equipment Condition

VHF/FM Handheld Transceiver Power Off.

REMOVE VHF/FM HANDHELD TRANSCEIVER ANTENNA

1. Turn antenna (1) counterclockwise.



2. Remove antenna (1) from transceiver (2).

INSTALL VHF/FM HANDHELD TRANSCEIVER ANTENNA

1. Align antenna (1) with antenna connector.
2. Turn antenna (1) clockwise and tighten.
3. Perform operational check of VHF/FM handheld transceiver. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER CONTROL KNOBS
REPLACEMENT**

INITIAL SETUP:**Materials/Parts**

VHF/FM Transceiver Control Knob
(0JDM6)
PN 210010

Personnel Required

Seaman 88K

References

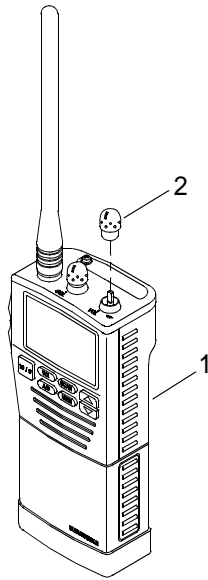
TM 55-1945-205-10-2

Equipment Condition

VHF/FM Handheld Transceiver Power Off.

REMOVE VHF/FM HANDHELD TRANSCEIVER CONTROL KNOBS

1. On the top of VHF/FM handheld transceiver (1), grasp knob (2) and pull straight up.



2. Remove knob (2) from VHF/FM transceiver (1).

INSTALL VHF/FM TRANSCEIVER CONTROL KNOBS

1. Align transceiver control knob (2) with half-moon shaped control knob shaft on top of VHF/FM transceiver (1).
2. Gently insert knob (2) onto shaft until seated.
3. Perform operational check of VHF/FM handheld transceiver. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER RECHARGEABLE BATTERY PACK
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

CNB350 Rechargeable Battery Pack
(OJDM6)
PN 21-200015

Personnel Required

Seaman 88K

References

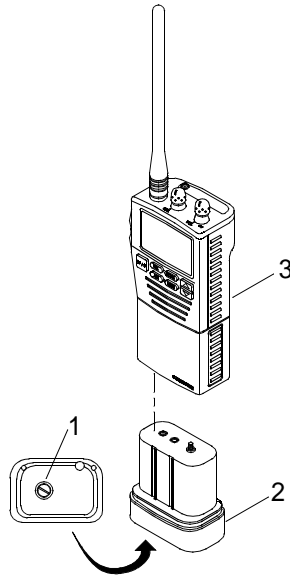
TM 55-1945-205-10-2

Equipment Condition

VHF/FM Handheld Transceiver Power Off.

REMOVE VHF/FM HANDHELD TRANSCEIVER RECHARGEABLE BATTERY PACK

1. Loosen lock screw (1) by turning counterclockwise.



2. Grasp the battery pack (2), pull out from radio (3).

INSTALL VHF/FM HANDHELD TRANSCEIVER RECHARGEABLE BATTERY PACK**NOTE**

Battery pack can only be installed one way.

1. Align battery pack (2) with slots in battery cavity.
2. Slide battery pack (2) into battery cavity of VHF/FM transceiver (3) until fully inserted.
3. Tighten lock screw (1) by turning clockwise until snug.
4. Perform operational check of VHF/FM handheld transceiver. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER ALKALINE BATTERY PACK
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Alkaline Battery Pack
(0JDM6)
PN 21-200014

Personnel Required

Seaman 88K

References

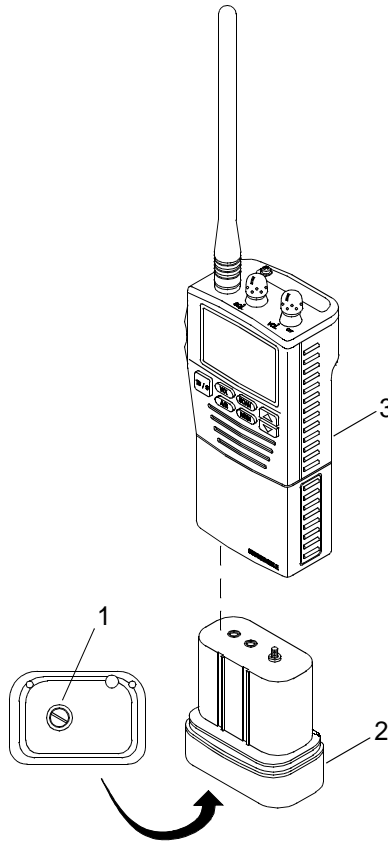
TM 55-1945-205-10-2

Equipment Condition

VHF/FM Handheld Transceiver Power Off.

REMOVE VHF/FM HANDHELD TRANSCEIVER ALKALINE BATTERY PACK

1. Loosen battery lock screw (1) by turning counterclockwise.



2. Grasp the battery pack (2), pull out from radio (3).

INSTALL VHF/FM HANDHELD TRANSCEIVER ALKALINE BATTERY PACK**NOTE**

Battery pack can only be installed one way.

1. Align battery pack (2) with slots in battery cavity.
2. Slide battery pack (2) into battery cavity of VHF/FM transceiver (3).
3. Tighten battery lock screw (1) by turning clockwise until snug.
4. Perform operational check of VHF/FM transceiver. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER BATTERY CHARGER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Adaptor, Charger
(0JDM6)
PN 21-200016

Personnel Required

Engineer 88L

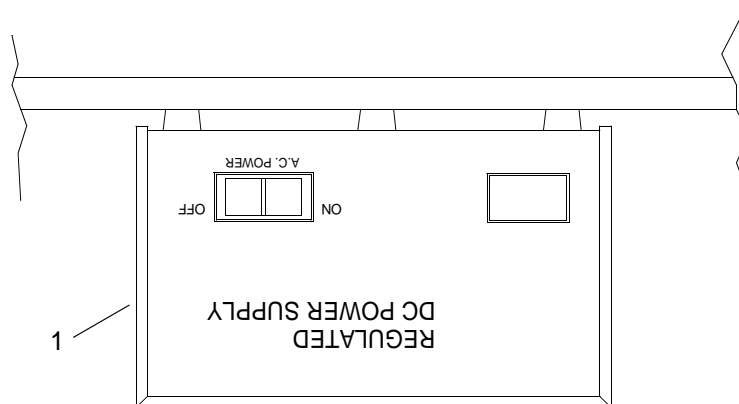
References

TM 55-1945-205-10-2

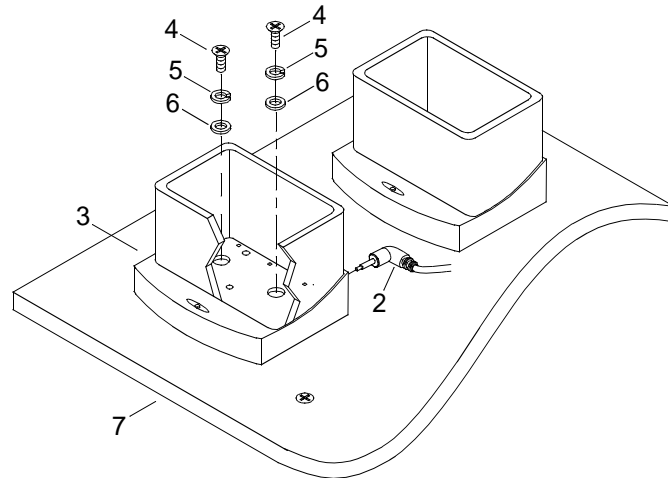
REMOVE VHF/FM HANDHELD TRANSCEIVER BATTERY CHARGER**NOTE**

The following procedure is typical for the removal and installation of all VHF/FM handheld transceiver battery chargers.

1. Turn off DC power supply switch (1).



- Disconnect DC power supply cord (2) from rear of battery charger (3).



- Remove two screws (4), two lock washers (5) and two washers (6) holding battery charger (3) on mounting plate (7).
- Remove battery charger (3).

INSTALL VHF/FM HANDHELD TRANSCEIVER BATTERY CHARGER

- Align battery charger holes with holes in mounting plate (7).
- Install battery charger (3) on mounting plate (7) with two screws (4), two lock washers (5) and two washers (6). Tighten screws (4).
- Connect DC power supply cord (2) to rear of battery charger (3).
- Turn on DC power supply power switch (1).
- Perform operational check of the VHF/FM handheld transceiver. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER BATTERY CHARGER POWER SUPPLY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Drill, Electric Portable (Item 16, WP 0359 00)
Drill Set, Twist (Item 15, WP 0359 00)

Materials/Parts

Power Supply
(0JDM6)
PN STEED-7

Personnel Required

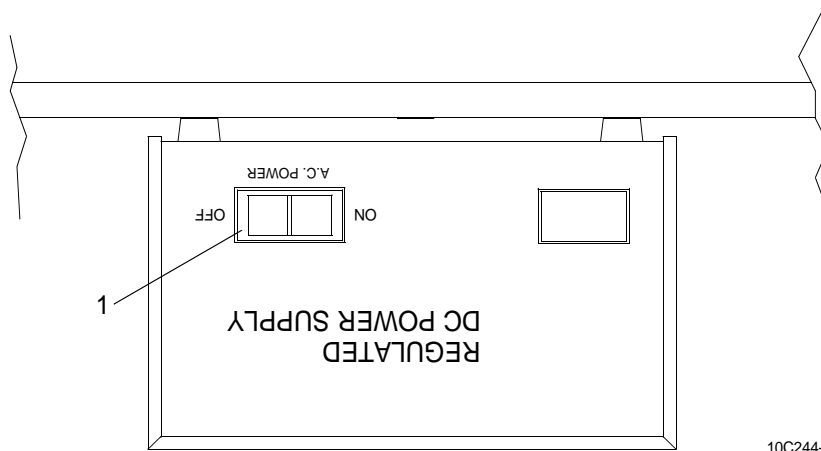
Engineer 88L

References

TM 55-1945-205-10-2

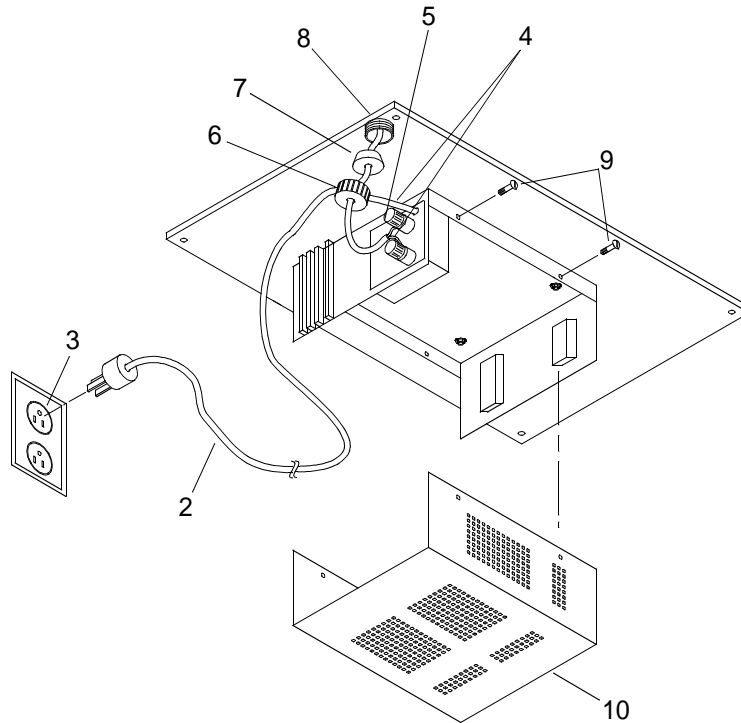
REMOVE VHF/FM HANDHELD TRANSCEIVER BATTERY CHARGER POWER SUPPLY

1. Position DC power supply switch (1) to the off position.

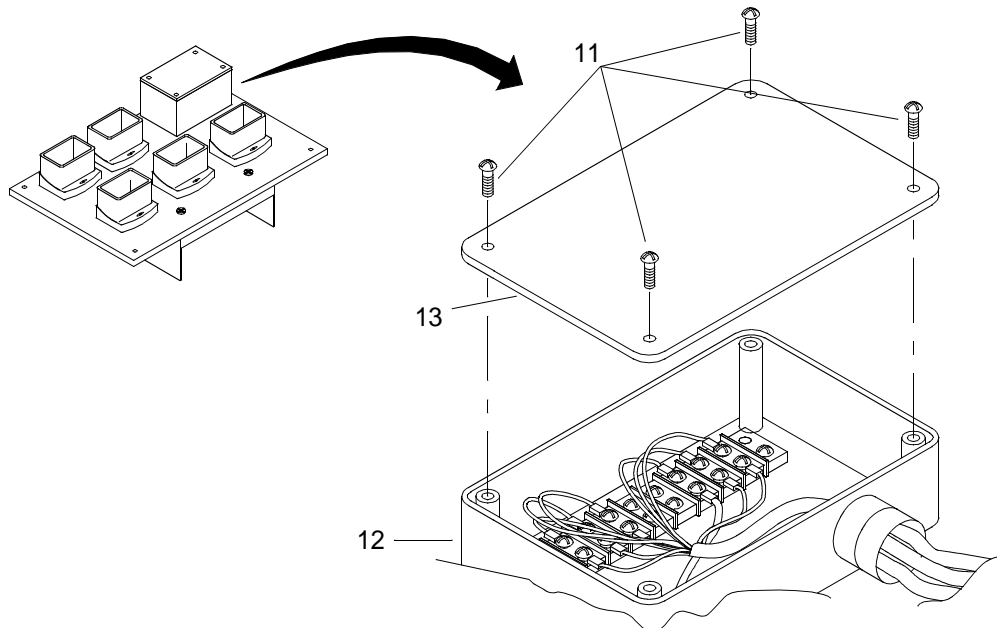


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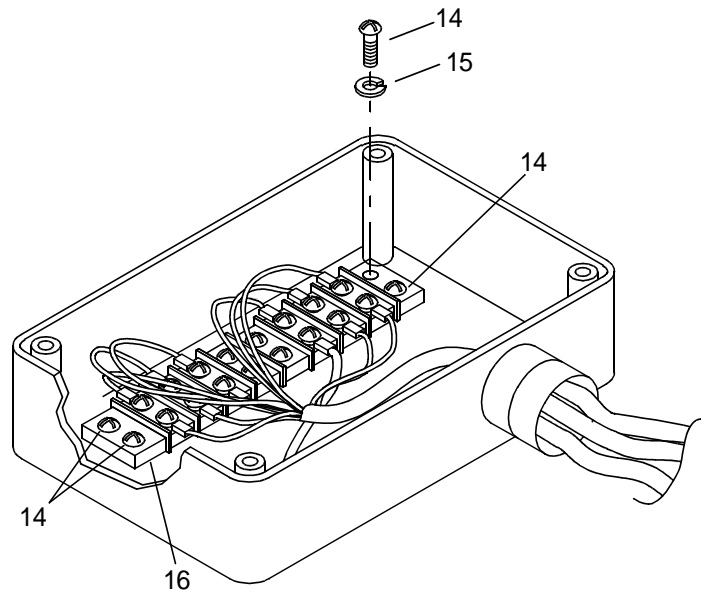
2. Unplug power cord (2) from AC outlet (3).



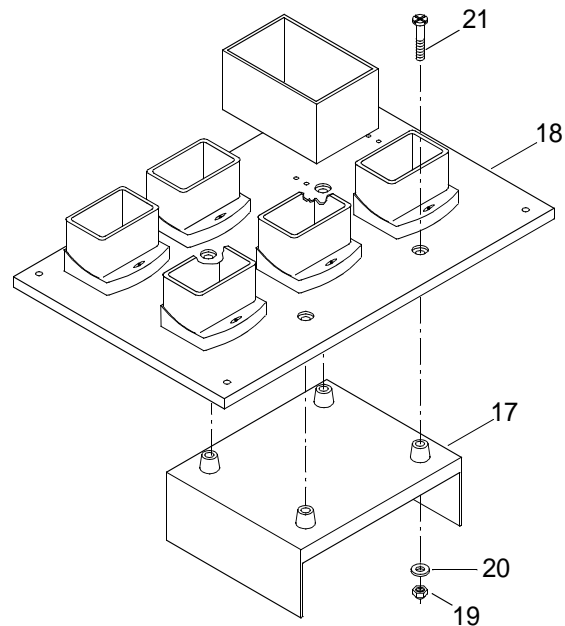
3. Loosen two plastic nuts (4) and disconnect wires (5).
4. Loosen retaining nut (6) and rubber packing (7) from nylon stuffing tube (8).
5. Remove four screws (9) from power supply cover (10).
6. Remove power supply cover (10).
7. Remove four screws (11) from terminal box (12) and terminal box cover (13).



8. Remove terminal box cover (13) from terminal box (12).
9. Remove four screws (14) and four lock washers (15) from terminal strip (16).



10. Hold DC power supply box (17) while removing it from under mounting plate (18).



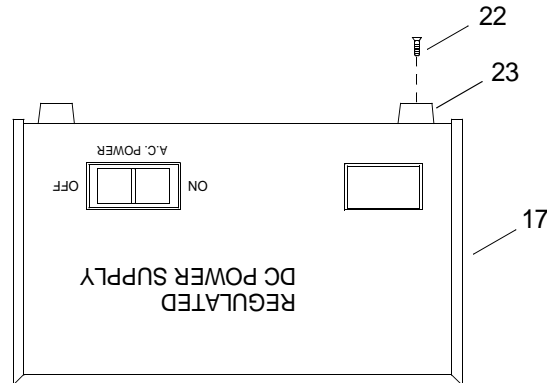
NOTE

Three of the four screws that need to be removed to release the power supply box are seen. The fourth screw is located under the terminal box, which must be rotated 90° in order to gain access for removal.

11. Remove four lock nuts (19), washers (20) and screws (21), releasing DC power supply box (17).
12. Remove DC power supply box (17).

INSTALL VHF/FM HANDHELD TRANSCEIVER BATTERY CHARGER POWER SUPPLY

1. Remove four small screws (22) from four rubber foot pads (23) on new DC power supply box (17). Discard four small screws (22).



2. Remove four screws (9) from new power supply cover (10).
3. Remove new power supply cover (10).
4. On new power supply box (17), use a drill and 3/16 drill bit to enlarge holes where the four small screws (22) were removed.
5. Position new DC power supply box (17) under mounting plate (18).
6. Firmly hold the DC power supply box (17) while installing it under mounting plate (18).
7. Install four screws (21) through mounting plate (18), rubber foot pads (23) and new DC power supply box (17). Tighten four screws (21).
8. Install four washers (20) and lock nuts (19) on four screws (21). Tighten lock nuts (19).
9. Rotate terminal box (12) 90°.
10. Install four lock washers (15) and screws (14) on terminal strip (16). Tighten screws (14).
11. Position terminal box cover (13) over terminal box (12).
12. Install four screws (11) through terminal box cover (13) and into terminal box (12). Tighten four screws (11).
13. Position power supply cover (10) on power supply box (17).
14. Install four screws (9) through power supply cover (10). Tighten four screws (9).
15. Push rubber packing (7) into nylon stuffing tube (8).
16. Install retaining nut (6) on nylon stuffing tube (8). Tighten retaining nut (6).
17. Connect wires (5) and tighten two plastic nuts (4).
18. Plug power cord (2) into AC outlet (3).
19. Position DC power supply switch (1) to the on position.
20. Perform operational check of VHF/FM handheld transceiver battery charger power supply.
(TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER BATTERY NEGATIVE LEAD TERMINAL
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

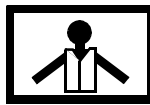
Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Puller, Battery Terminal (Item 52, WP 0359 00)

Personnel Required

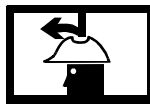
Engineer 88L

REMOVE LIGHT TOWER BATTERY NEGATIVE LEAD TERMINAL

WARNING



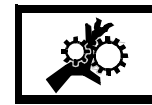
VEST



HELMET PROTECTION



HEAVY PARTS



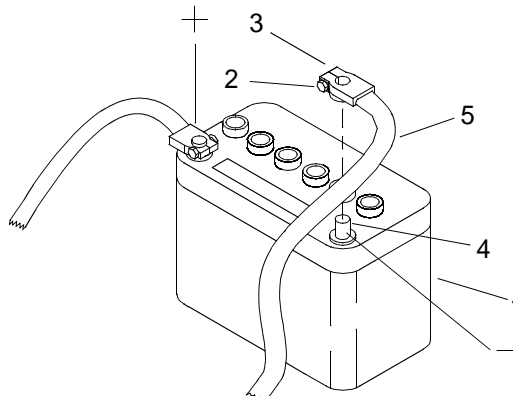
MOVING PARTS

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 negative battery post is identified by a raised negative sign stamped on the battery.

1. Open starboard light tower door.



2. On battery (1), loosen hex nut (2) on negative lead terminal (3).
3. Using a battery terminal puller, remove negative lead terminal (3) from negative post (4).

4. Position negative lead (5) out of the way to prevent contact between negative lead terminal (3) and negative post (4).

INSTALL LIGHT TOWER BATTERY NEGATIVE LEAD TERMINAL

1. Position negative lead terminal (3) over negative post (4).
2. Carefully press negative lead terminal (3) down on negative post (4).
3. Tighten negative lead terminal hex nut (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ELECTRICAL SYSTEM BUS BAR ASSEMBLY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Assembly, Bus Bar
 (33968)
 PN 36787265

Personnel Required

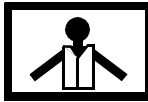
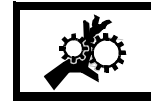
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

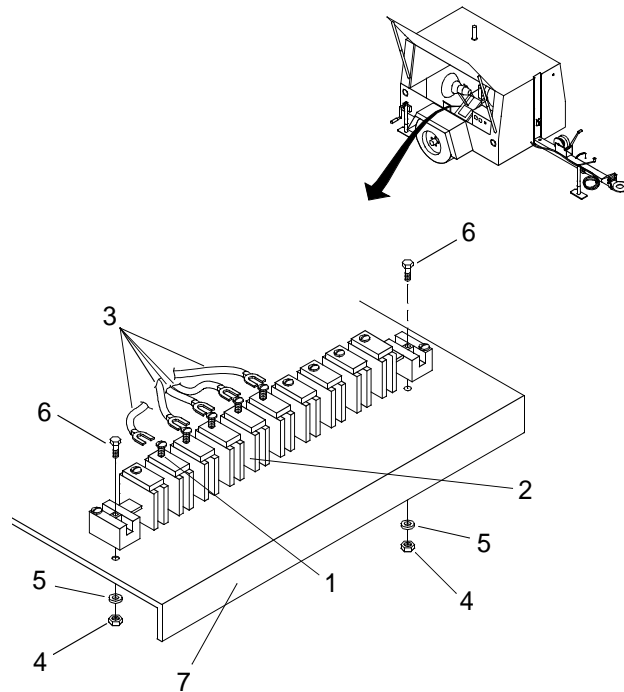
REMOVE LIGHT TOWER ELECTRICAL SYSTEM BUS BAR ASSEMBLY

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. Loosen five screws (1) on bus bar assembly (2).



2. Tag and disconnect wires (3) from bus bar assembly (2).
3. Remove two nuts (4), lock washers (5) and screws (6) from bus bar assembly (2).
4. Remove bus bar assembly (2) from chassis (7) and discard.

INSTALL LIGHT TOWER ELECTRICAL SYSTEM BUS BAR ASSEMBLY

1. Position new bus bar assembly (2) on chassis (7).
2. Install two screws (6), lock washers (5) and nuts (4) in bus bar assembly (2) and tighten nuts (4).
3. Connect wires (3) to bus bar assembly (2) and remove tags.
4. Tighten five screws (1) on bus bar assembly (2).
5. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ELECTRICAL SYSTEM JUNCTION BOX
ELECTRICAL CABLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Curly Cord
 (33968)
 PN 36848729

Personnel Required

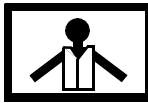
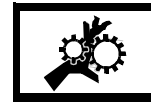
Engineer 88L

Equipment Condition

Tower Assembly Lowered (TM 55-1945-205-10-2)
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

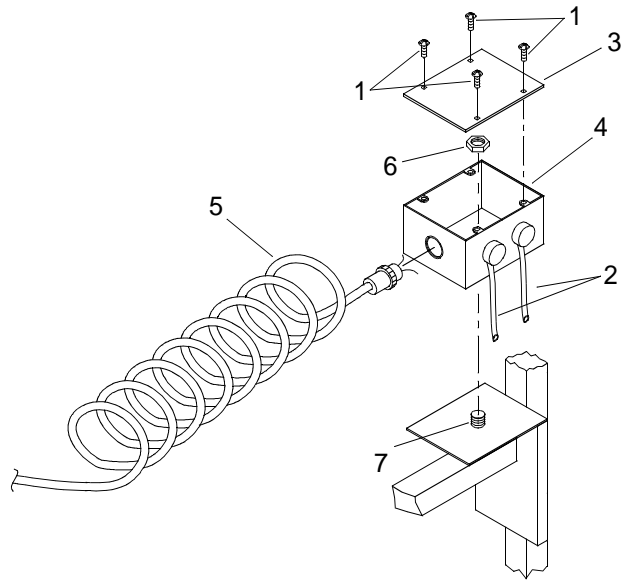
REMOVE LIGHT TOWER ELECTRICAL SYSTEM JUNCTION BOX ELECTRICAL CABLE

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 four screws (1) securing receptacle plug cover lanyards (2) and cover (3) to the junction box (4).



2. Remove cover (3).
3. Disconnect junction box electrical cable (5).
4. Remove light tower electrical cable shroud. (WP 0215 00)
5. Remove electrical cable (5) and discard.

INSTALL LIGHT TOWER ELECTRICAL SYSTEM JUNCTION BOX ELECTRICAL CABLE

1. Connect new junction box electrical cable (5).
2. Position cover (3) on junction box (4).
3. Install four screws (3) through the receptacle plug cover lanyards (2) ends and into cover (3) to secure the cover (3) to the junction box (4). Tighten screws (3).
4. Install light tower electrical cable shroud. (WP 0215 00)
5. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ELECTRICAL SYSTEM JUNCTION BOX
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Box, Junction
 (33968)
 PN 36779353

Personnel Required

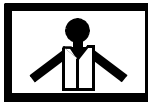
Engineer 88L

Equipment Condition

Tower Assembly Lowered. (TM 55-1945-205-10-2)
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER ELECTRICAL SYSTEM JUNCTION BOX

WARNING

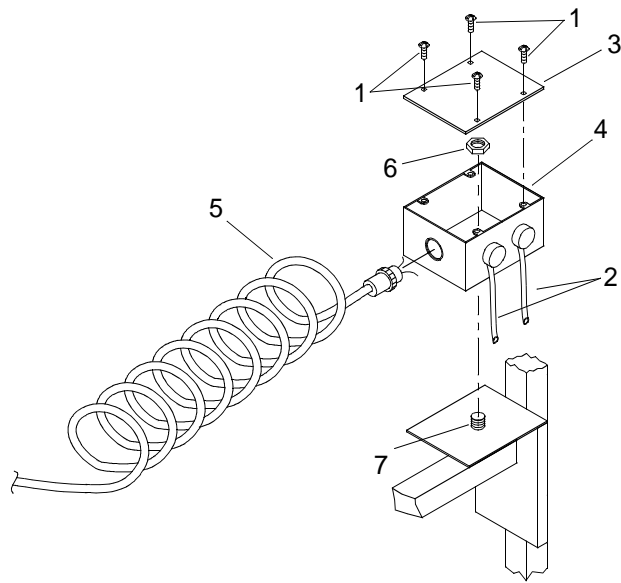
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 removal and installation of light tower junction boxes.

1. Remove four screws (1) securing receptacle plug cover lanyards (2) and cover (3) to junction box (4).



2. Remove cover (3).
3. Tag and disconnect junction box electrical cable (5) from junction box (4).
4. Remove large nut (6) inside junction box (4) from mounting stud (7).
5. Remove junction box (4) and discard.

INSTALL LIGHT TOWER ELECTRICAL SYSTEM JUNCTION BOX

1. Position new junction box (4) on mounting stud (7).
2. Install large nut (6) on mounting stud (7). Tighten nut (6).
3. Install junction box electrical cable (5) in junction box (4) and remove tags.
4. Position cover (3) on junction box (4).
5. Install four screws (1) through the receptacle plug cover lanyards (2) ends and into cover (3) to secure cover (3) to junction box (4). Tighten screws (1).
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE ALTERNATOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Alternator
 (33968)
 PN 36888170

Personnel Required

Engineer 88L

References

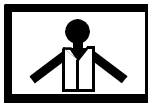
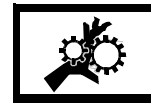
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Fan Belt Removed. (WP 0183 00)

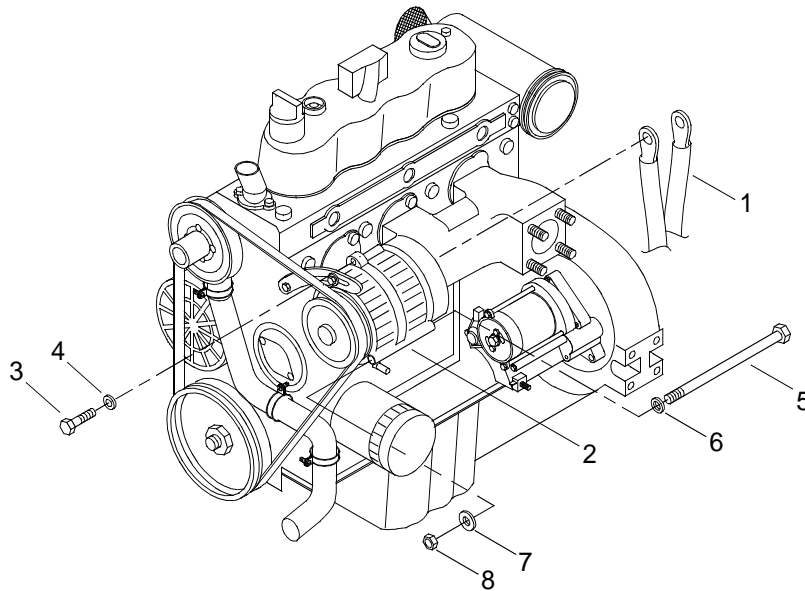
REMOVE LIGHT TOWER ALTERNATOR

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. Tag and disconnect wiring (1) from the alternator (2).



2. Remove alternator adjusting bolt (3) and flat washer (4) from alternator (2).
3. Remove alternator pivot bolt (5), lock washers (6 and 7) and hex nut (8) from alternator (2).
4. Remove alternator (2) and discard.

INSTALL ALTERNATOR

1. Install the new alternator (2) on the engine.
2. Install alternator pivot bolt (5), lock washers (6 and 7) and hex nut (8) on alternator (2).
3. Install alternator adjusting bolt (3) and flat washer (4) on alternator (2).
4. Install light tower fan belt. (WP 0183 00)
5. Connect all wiring (1) as previously tagged.
6. Install light tower battery negative lead terminal. (WP 0134 00)
7. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE GLOW PLUGS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Plug, Glow
 (33968)
 PN 16261-6551-0
 Qty 3

Personnel Required

Engineer 88L

References

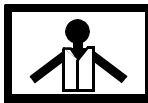
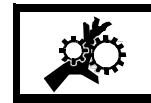
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

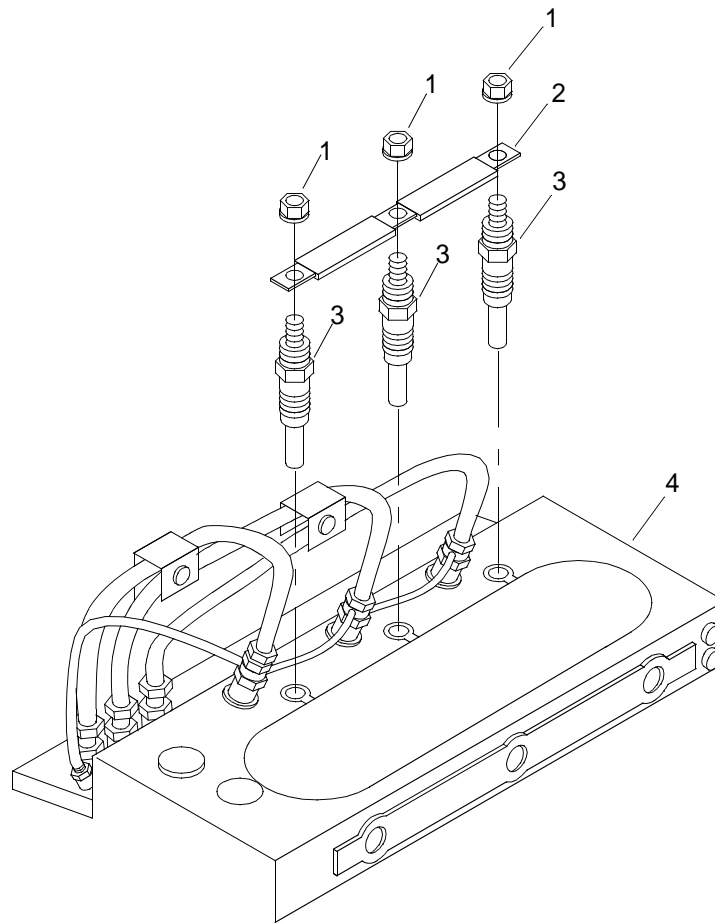
REMOVE LIGHT TOWER ENGINE GLOW PLUGS

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 three hex nuts (1) from cord assembly (2).



2. Remove cord assembly (2) from glow plugs (3).
3. Remove three glow plugs (3) from cylinder head (4).

INSTALL LIGHT TOWER ENGINE GLOW PLUGS

1. Install three new glow plugs (3) in cylinder head (4).
2. Install cord assembly (2) on three glow plugs (3).
3. Install three hex nuts (1) securing cord assembly (2). Tighten hex nuts (1).
4. Install light tower battery negative lead terminal. (WP 0134 00)
5. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE GLOW PLUGS
TESTING**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Tools

Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

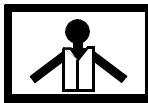
Engineer 88L

Equipment Condition

Light Tower Engine Glow Plugs Removed. (WP 0139 00)

TEST LIGHT TOWER ENGINE GLOW PLUGS

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



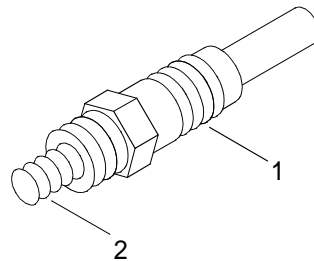
MOVING PARTS

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 steps apply to glow plugs with serial numbers 488290 and below.

1. Set multimeter to measure resistance (Ω).
2. Attach multimeter negative lead to glow plug threaded case (1).



3. Attach multimeter positive lead to glow plug terminal (2).
4. Verify a resistance of 1.0 - 1.2 Ω .

5. Remove multimeter negative lead from glow plug threaded case (1).
6. Remove multimeter positive lead from glow plug terminal (2).
7. If resistance is not 1.0 - 1.2 Ω , discard glow plug.

NOTE

The following steps apply to glow plugs with serial numbers 488291 and above.

8. Set multimeter to measure resistance (Ω).
9. Attach multimeter negative lead to glow plug threaded case (1).
10. Attach multimeter positive lead to glow plug terminal (2).
11. Verify a resistance of 0.9 Ω .
12. Remove multimeter negative lead from glow plug threaded case (1).
13. Remove multimeter positive lead from glow plug terminal (2).
14. If resistance is not 0.9 Ω , discard glow plug.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER BATTERY
SERVICING AND INSPECTION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)

Materials/Parts

Rag, Wiping (Item 45, WP 0358 00)
 Water, Reagent Distilled (Item 60, WP 0358 00)

Personnel Required

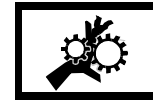
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

SERVICE LIGHT TOWER BATTERY

WARNING

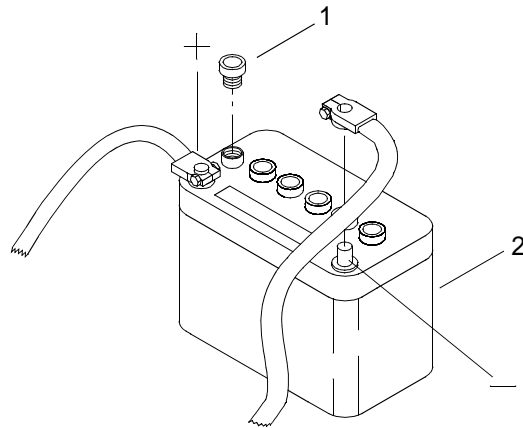
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

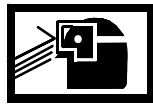
CAUTION

Ensure only distilled water is added when levels drop below acceptable limits. Failure to comply could result in equipment damage.

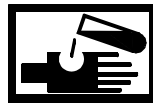
1. Remove battery caps (1) covering the water reservoirs of battery (2).



WARNING



EYE PROTECTION



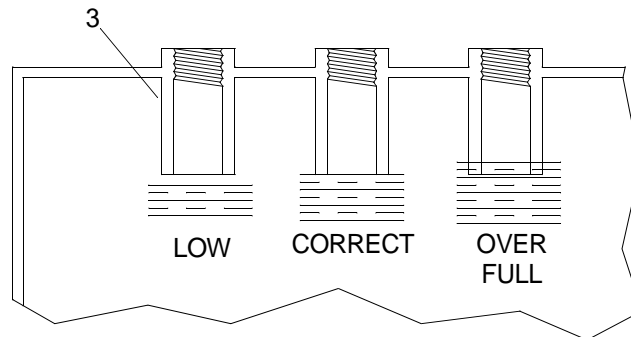
CHEMICAL



VAPOR

Do not overfill the battery. Too much fluid can cause excess pressure in the battery and cause battery acid to overflow through the vents and release harmful fumes into the air. Failure to comply could result in serious injury or death to personnel.

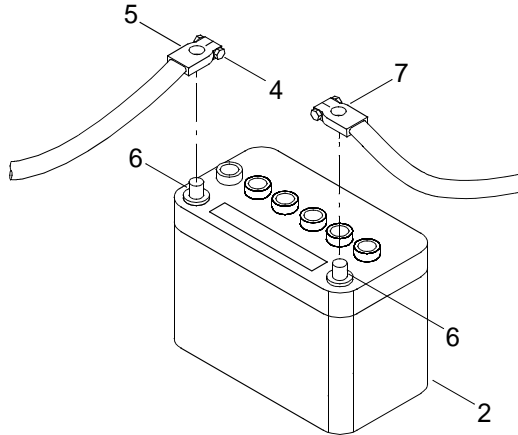
2. Add distilled water to each of the reservoirs in the battery (2) to the bottom of the fill ring (3).



3. Using rag, remove any dirt or debris from each battery cap (1).
4. Install all battery caps (1) on the battery (2).

INSPECT THE BATTERY

1. Inspect the battery (2) for wear and cracks. If cracks are found or the outer housing shows excessive wear, the battery should be replaced.
2. On battery (2), loosen hex nut (4) on the positive battery lead (5).
3. Remove positive battery lead (5).
4. Inspect the battery posts (6), positive battery lead (5) and negative battery lead (7) for excessive buildup of corrosion. If found, remove corrosion with a soft bristle brush.



5. Position positive battery lead (5) on battery (2).
6. Tighten hex nut (4) on the positive battery lead (5).
7. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER BATTERY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Puller, Battery Terminal (Item 52, WP 0359 00)

Materials/Parts

Battery, 12 volt
 (33968)
 PN 36844967

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

REMOVE LIGHT TOWER BATTERY

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

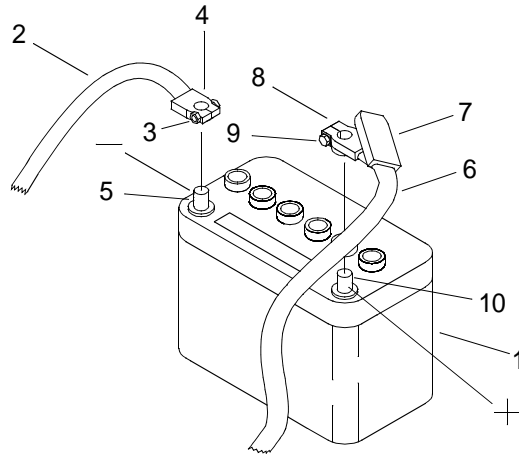
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The battery posts are identified by raised plus and minus signs stamped on the battery.

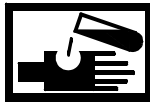
1. Open light tower starboard door to access battery (1).

2. Remove negative lead (2) from battery (1).

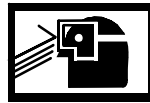


- a. Loosen hex nut (3) of the negative lead terminal (4).
 - b. Using a battery terminal puller, remove the negative lead terminal (4) from negative post (5).
3. Remove positive lead (6) from battery (1).
 - a. Lift rubber terminal cover (7) off positive lead terminal (8).
 - b. Loosen hex nut (9) of the positive lead terminal (8).
 - c. Using a battery terminal puller, remove the positive lead terminal (8) from positive post (10).

WARNING



CHEMICAL



EYE PROTECTION

4. Remove battery (1) and discard in accordance with local procedures.

INSTALL LIGHT TOWER BATTERY

WARNING



CHEMICAL



EYE PROTECTION

1. Position new battery (1) on its mounting surface.

-
2. Install positive lead (6) on battery (1).
 - a. Position positive lead terminal (8) over positive post (10).
 - b. Carefully press positive lead terminal (8) down on positive post (10).
 - c. Tighten positive lead terminal hex nut (9).
 - d. Install rubber terminal cover (7) over positive lead terminal (8).
 3. Install negative lead (2) on battery (1).
 - a. Position negative lead terminal (4) over negative post (5).
 - b. Carefully press negative lead terminal (4) down on negative post (5).
 - c. Tighten negative lead terminal hex nut (3).
 4. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE OIL PRESSURE SWITCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)

Materials/Parts

Switch, Pressure
 (33968)
 PN 36757581
 Sealing Compound (592) (Item 48, WP 0358 00)

Personnel Required

Engineer 88L

References

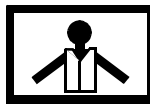
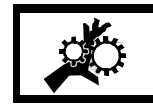
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

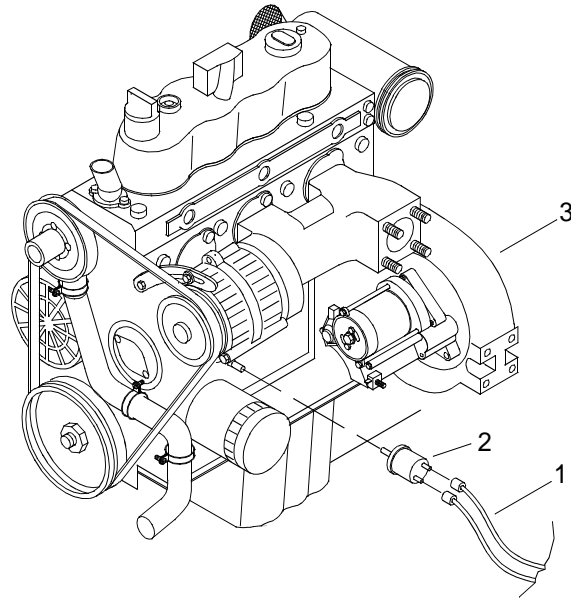
REMOVE LIGHT TOWER ENGINE OIL PRESSURE SWITCH

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. Tag and disconnect two wires (1) from oil pressure switch (2).

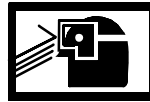


2. Unscrew oil pressure switch (2) from engine block (3) and discard.

WARNING



CHEMICAL



EYE PROTECTION

3. Using wire brush, remove sealing compound from engine block (3).

INSTALL LIGHT TOWER ENGINE OIL PRESSURE SWITCH

WARNING



CHEMICAL



EYE PROTECTION

1. Apply sealing compound to oil pressure switch (2).
2. Screw new oil pressure switch (2) into engine block (3).
3. Connect two wires (1) on new oil pressure switch (2) and remove tags.
4. Install light tower battery negative lead terminal. (WP 0134 00)
5. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE STARTER
TESTING**

INITIAL SETUP:**Tools**

Vise, Machinists (Item 85, WP 0359 00)
 Battery, 6 Volt (Item 4, WP 0359 00)
 Jumper Cable, Battery (Item 36, WP 0359 00)
 Qty 2

Personnel Required

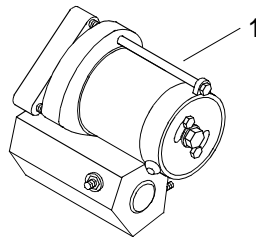
Engineer 88L

Equipment Condition

Light Tower Engine Starter Removed. (WP 0145 00)

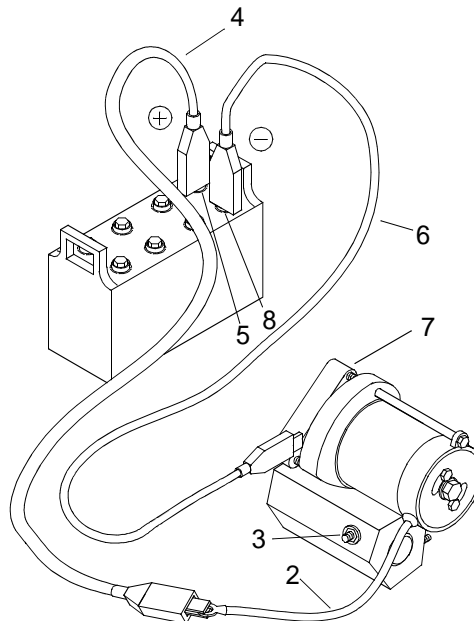
TEST LIGHT TOWER ENGINE STARTER

1. Secure light tower engine starter (1) in vise.



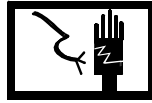
2. Test light tower engine starter motor function.

- a. Disconnect starter motor connecting lead (2) from common terminal (3).



- b. Connect jumper lead (4) to starter motor connecting lead (2) and positive battery terminal (5).

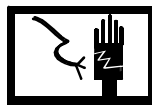
WARNING



ELECTRICAL

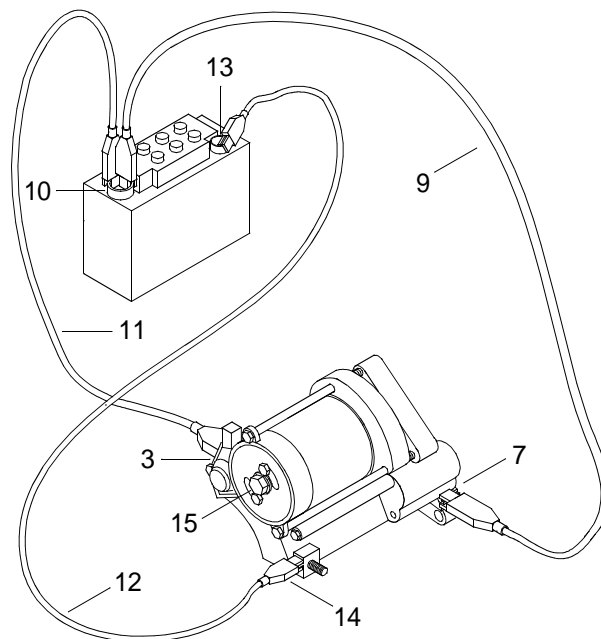
- c. Connect jumper lead (6) to starter body (7) and negative battery terminal (8).
d. Verify starter motor operates.

WARNING



ELECTRICAL

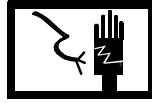
- e. Disconnect jumper lead (6) from negative battery terminal (8) and starter body (7).
f. Disconnect jumper lead (4) from positive battery terminal (5) and starter motor connecting lead (2).
g. If starter motor does not operate, discard light tower engine starter.
h. If starter motor operates, test magnetic switch.
3. Test light tower engine starter magnetic switch function.
- a. Connect jumper lead (9) to negative battery terminal (10) and starter body (7).



- b. Connect jumper lead (11) to negative battery terminal (10) and common terminal (3).

-
- c. Connect jumper lead (12) to positive battery terminal (13) and magnetic switch terminal (14).
 - d. Verify pinion gear (15) engages.
 - e. If pinion gear (15) does not engage, discard light tower engine starter.

WARNING



ELECTRICAL

- f. If pinion gear (15) engages, remove jumper lead (11) from common terminal (3).
 - g. Verify pinion gear (15) remains engaged.
 - h. If pinion gear (15) does not remain engaged, discard light tower engine starter.
4. Install light tower engine starter. (WP 0145 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE STARTER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Starter
 (33968)
 PN 3688818

Personnel Required

Engineer 88L

References

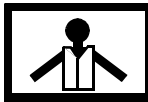
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER ENGINE STARTER

WARNING



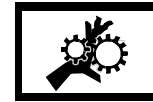
VEST



HELMET PROTECTION



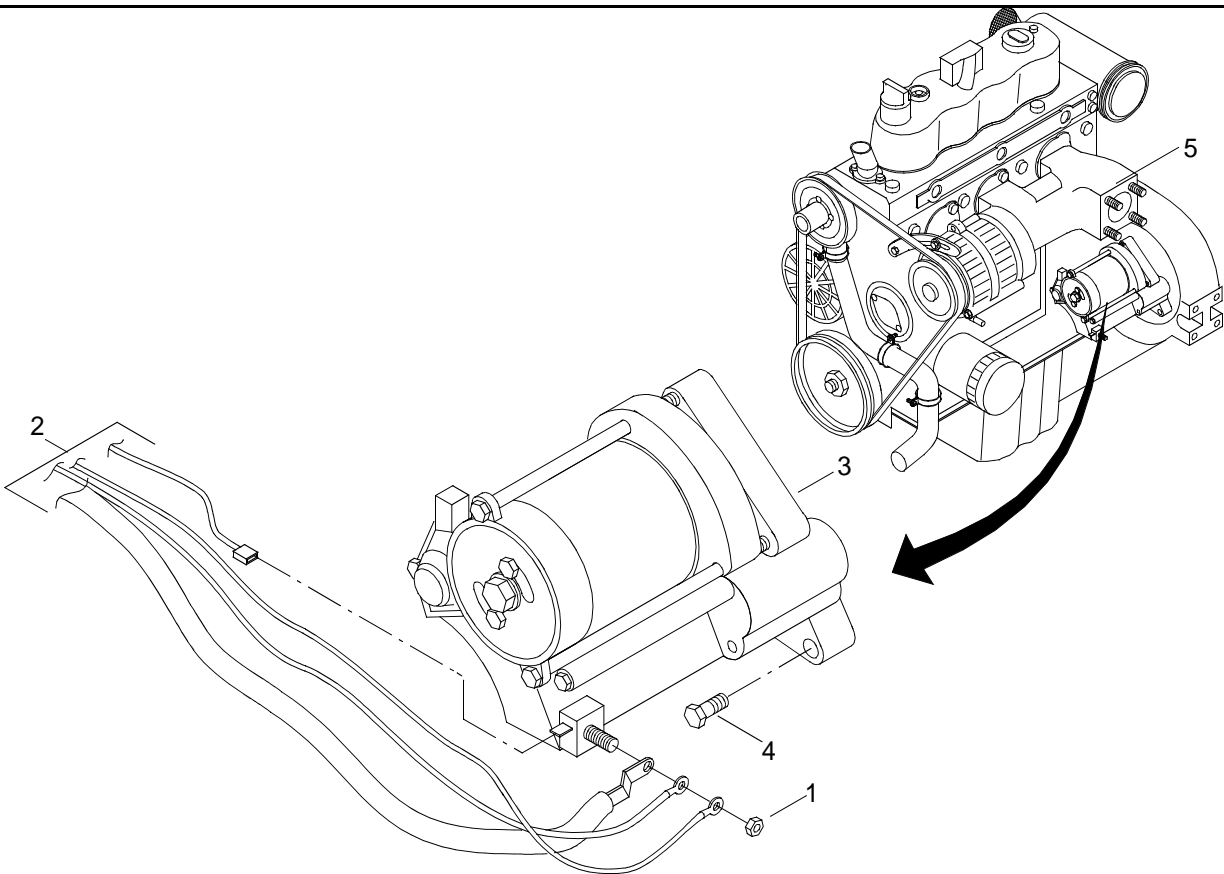
HEAVY PARTS



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 hex nut (1) securing starter wiring (2) to starter (3).



2. Tag and disconnect wiring (2) from starter (3).
3. Remove two hex head mounting bolts (4) from starter (3).
4. Remove starter (3) from engine block (5).

INSTALL LIGHT TOWER ENGINE STARTER

1. Position new starter (3) against engine block (5).
2. Install two hex head mounting bolts (4) in starter (3) and tighten.
3. Connect starter wiring (2) to starter (3) and remove tags.
4. Install hex nut (1) over starter wiring (2) and tighten.
5. Install light tower battery negative lead terminal. (WP 0134 00)
6. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE COOLANT TEMPERATURE SENDING UNIT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Puller, Battery Terminal (Item 52, WP 0359 00)
 Gloves, Chemical (Item 25, WP WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)

Materials/Parts

Sending Unit, Temperature
 (33968)
 PN 36868479
 Sealing Compound (592) (Item 48, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

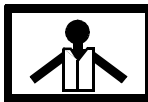
TM 55-1945-205-10-2

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

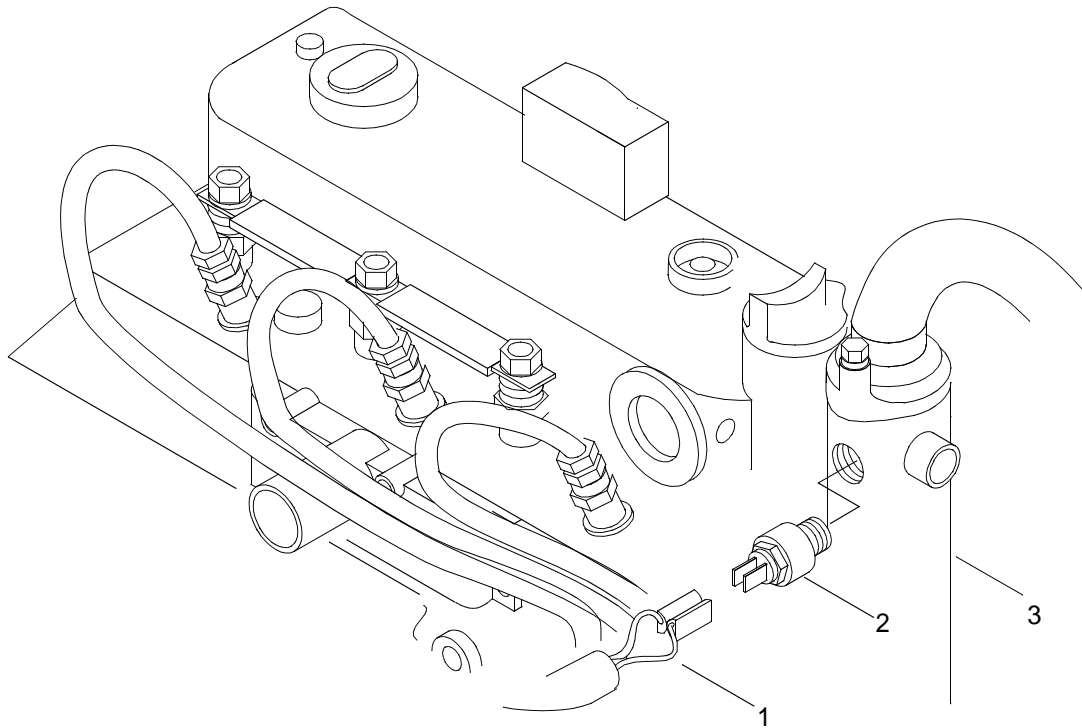
REMOVE LIGHT TOWER ENGINE COOLANT TEMPERATURE SENDING UNIT

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. Tag and disconnect two wires (1) from temperature sending unit (2).

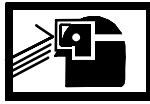


2. Position drain pan under thermostat housing (3).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

3. Unscrew temperature sending unit (2) from thermostat housing (3) and discard.

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



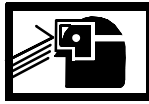
POISON

4. Remove sealing compound from thermostat housing (3) with a putty knife.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

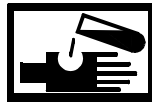


POISON

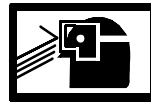
5. Remove drain pan and dispose of contents in accordance with local procedures.

INSTALL LIGHT TOWER ENGINE COOLANT TEMPERATURE SENDING UNIT

 WARNING



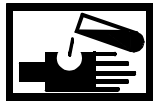
CHEMICAL



EYE PROTECTION

1. Apply sealing compound to temperature sending unit (2).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

2. Screw new temperature sending unit (2) into thermostat housing (3).
3. Connect two wires (1) on new temperature sending unit (2) and remove tags.
4. Service light tower engine cooling system. (WP 0177 00)

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON



SLICK FLOOR

5. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
6. Install light tower battery negative lead terminal. (WP 0134 00)
7. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL PANEL HOUR METER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 27, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Hour Meter
(33968)
PN 36841245

Personnel Required

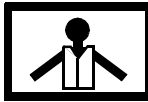
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER CONTROL PANEL HOUR METER

WARNING



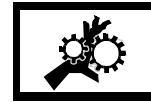
VEST



HELMET PROTECTION



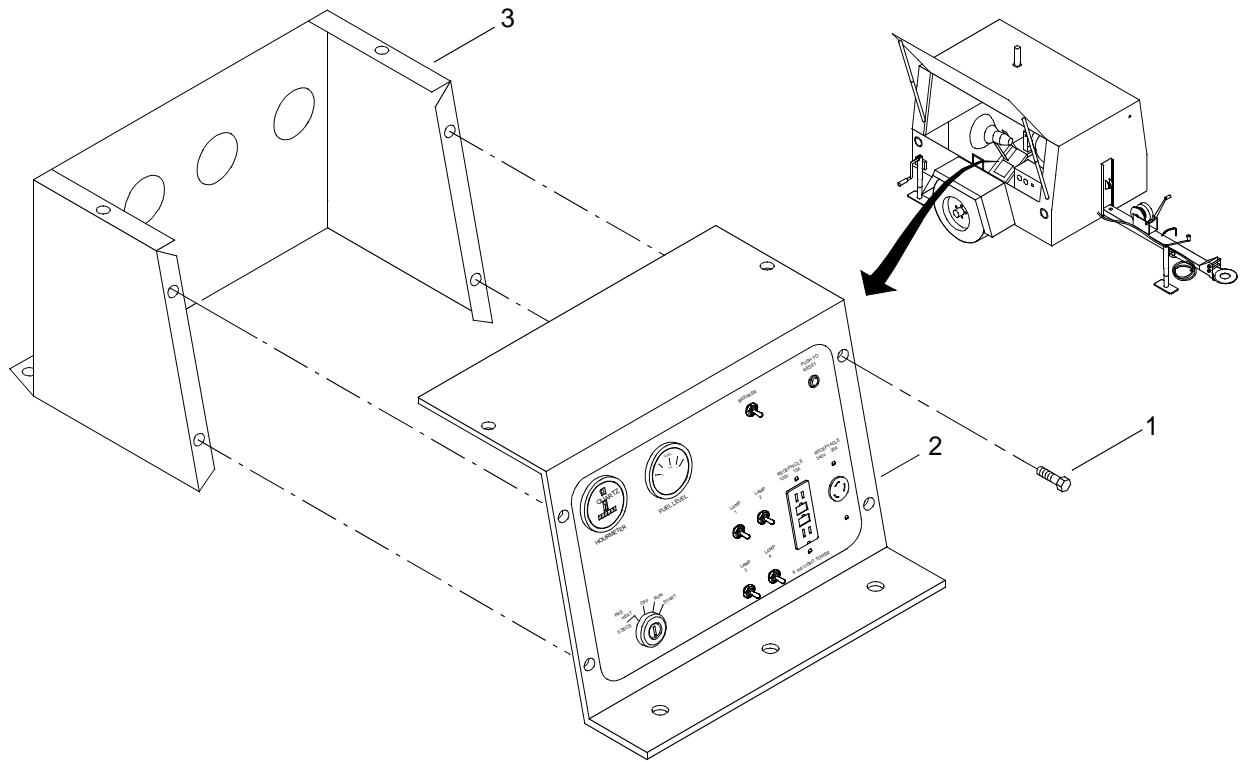
HEAVY PARTS



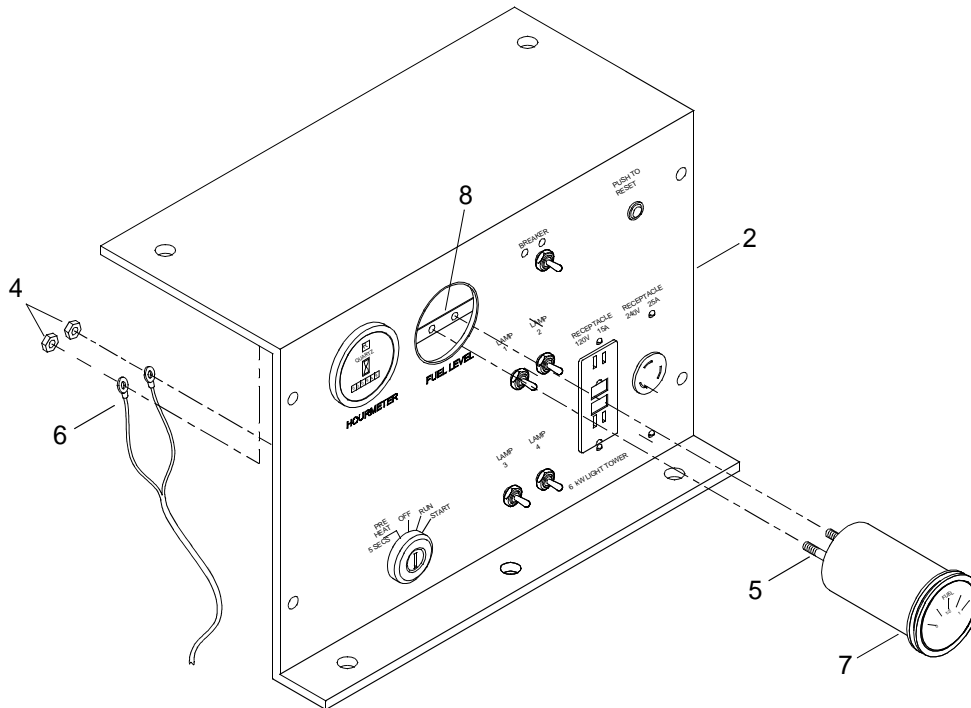
MOVING PARTS

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 nine hex head bolts (1) from control panel (2).



2. Slide control panel (2) away from cover (3).
3. Remove two hex head nuts (4) from hour meter wire studs (5).



4. Tag and remove wires (6) from hour meter wire studs (5).
5. Remove hour meter (7) with gasket (8) from mounting bracket (9) through front of control panel (2).

6. Discard hour meter (7) and gasket (8).

INSTALL LIGHT TOWER CONTROL PANEL HOUR METER

1. Install new gasket (8) on new hour meter (7).
2. Position hour meter (7) through front of control panel (2) until hour meter wire studs (5) project through mounting bracket (9).
3. Install wires (6) on hour meter wire studs (5) and remove tags.
4. Install two hex head nuts (4) on hour meter wire studs (5). Tighten nuts (4).
5. Position control panel (2) over cover (3).
6. Install nine hex head bolts (1) and tighten.
7. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL PANEL FUEL GAGE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Fuel Gage Option
 (33968)
 PN 36011765

Personnel Required

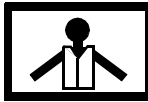
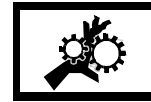
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

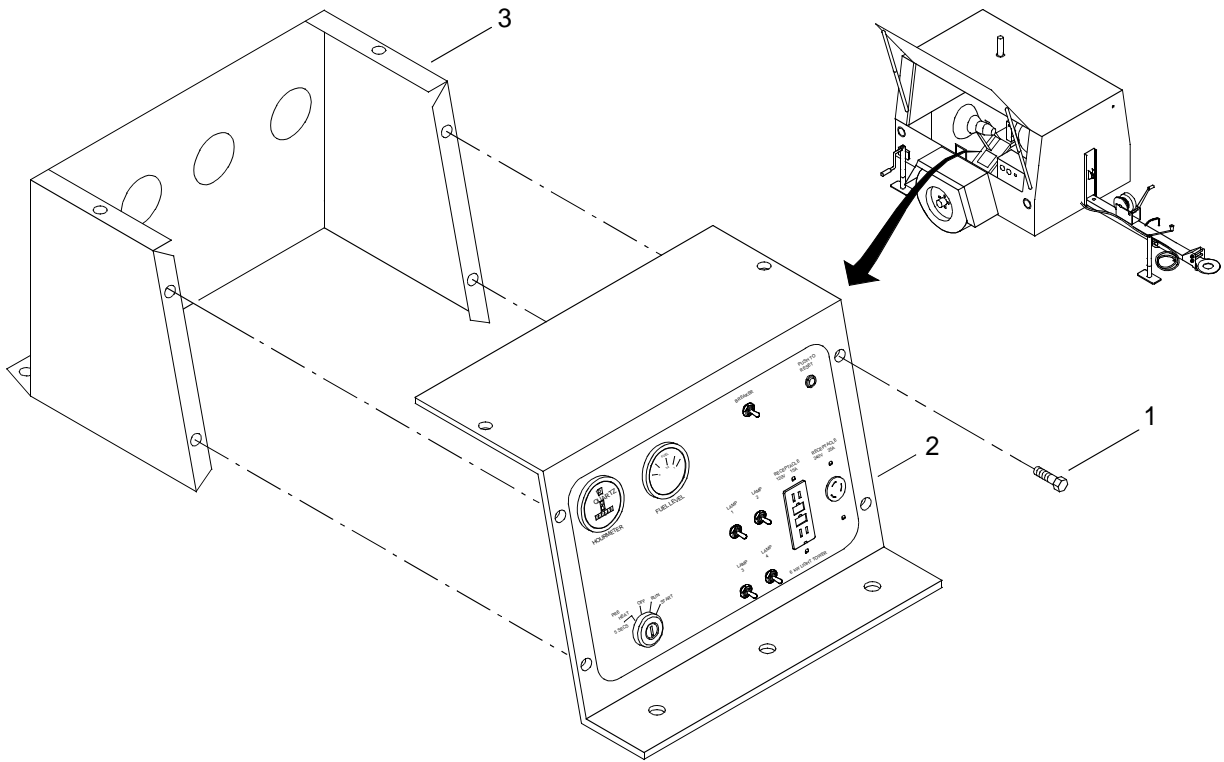
REMOVE LIGHT TOWER CONTROL PANEL FUEL GAGE

WARNING

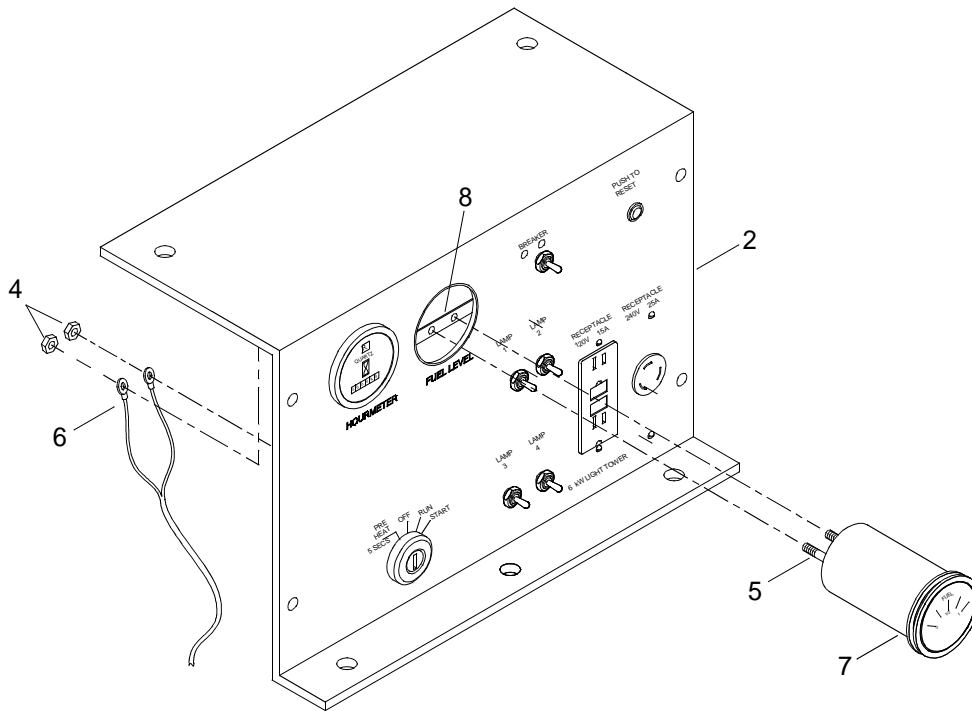
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 nine hex head bolts (1) from control panel (2).



2. Slide control panel (2) away from cover (3).
3. Remove two hex head nuts (4) from fuel gage wire studs (5).



4. Tag and remove wires (6) from fuel gage wire studs (5).
5. Remove fuel gage (7) from mounting bracket (8) through front of control panel (2).

6. Discard fuel gage (7).

INSTALL LIGHT TOWER CONTROL PANEL FUEL GAGE

1. Position fuel gage (7) through front of control panel (2) until fuel gage wire studs (5) project through mounting bracket (8).
2. Install wires (6) on fuel gage wire studs (5) and remove tags.
3. Install two hex head nuts (4) on fuel gage wire studs (5). Tighten nuts (4).
4. Position control panel (2) over cover (3).
5. Install nine hex head bolts (1) and tighten.
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL PANEL DUPLEX OUTLET
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Outlet, Duplex
 (33968)
 PN 36848745

Personnel Required

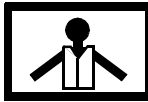
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER CONTROL PANEL DUPLEX OUTLET

WARNING



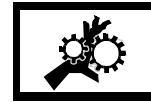
VEST



HELMET PROTECTION



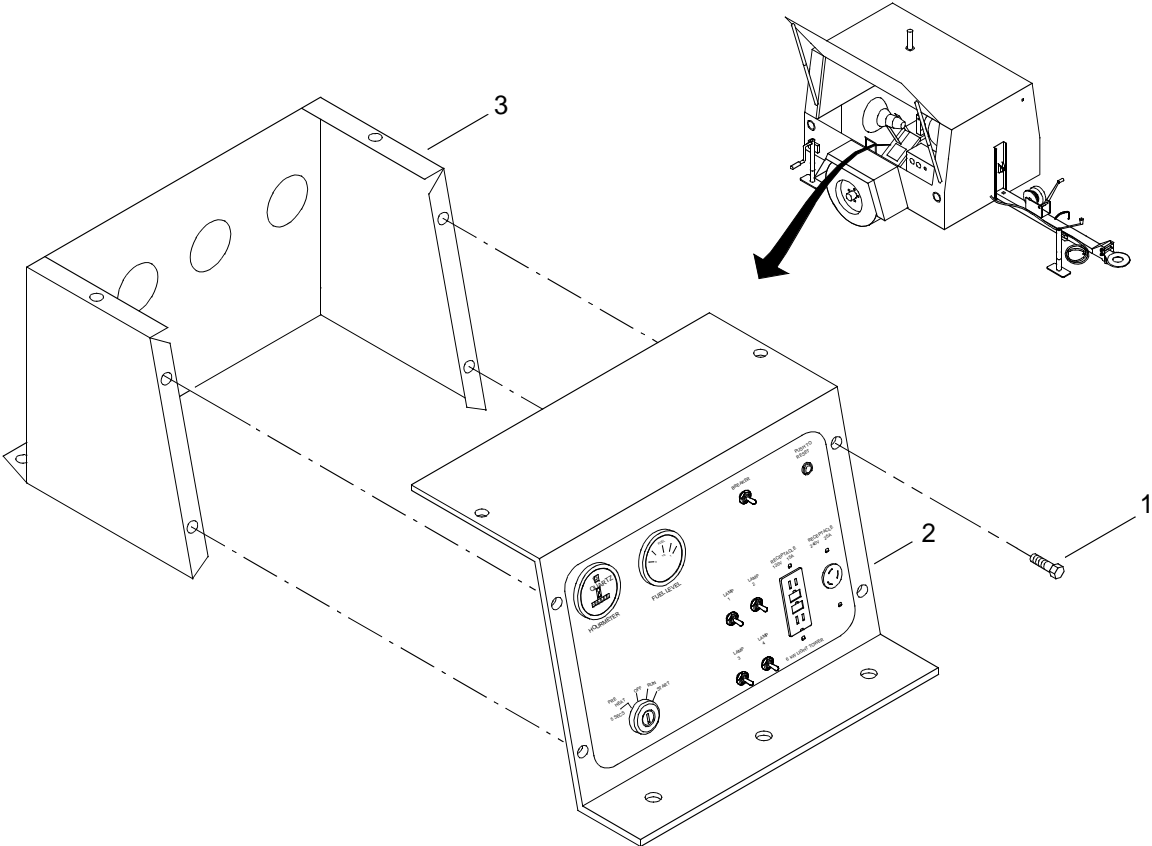
HEAVY PARTS



MOVING PARTS

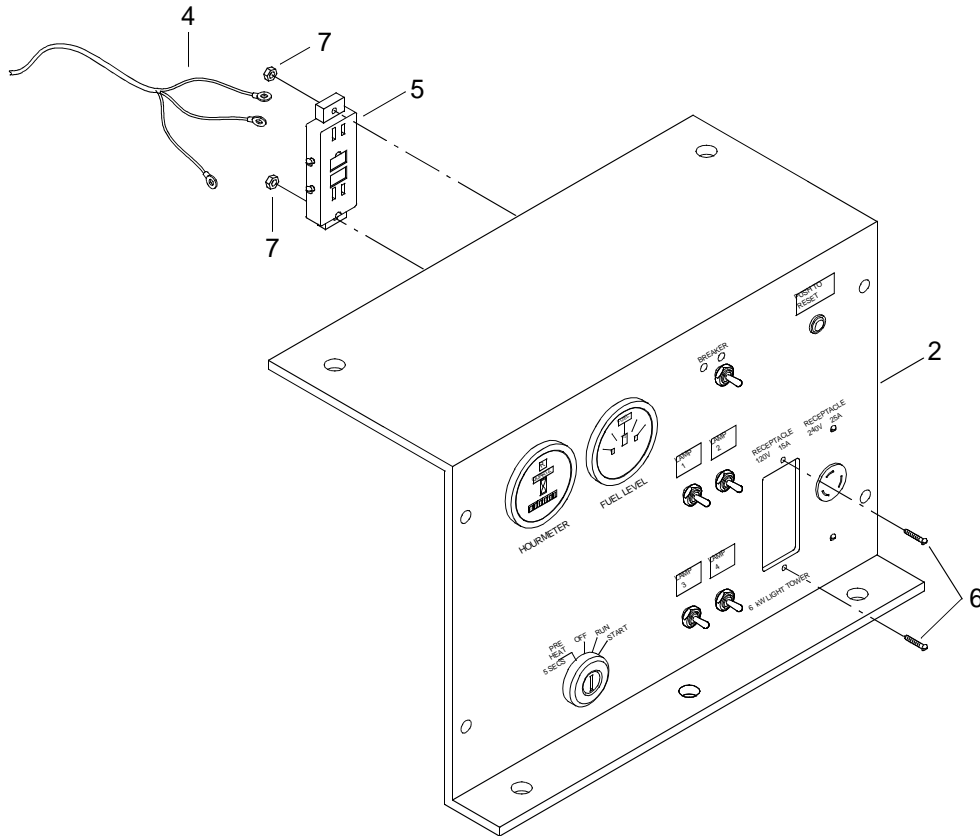
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Remove nine hex head bolts (1) from control panel (2).



2. Slide control panel (2) away from cover (3).

3. Tag and disconnect wires (4) from duplex outlet (5).



4. Remove two pan head screws (6) and nuts (7) securing duplex outlet (5) to control panel (2).
5. Remove duplex outlet (5) from the back of control panel (2) and discard.

INSTALL LIGHT TOWER CONTROL PANEL DUPLEX OUTLET

1. Position new duplex outlet (5) through back of the control panel (2).
2. Install two pan head screws (6) and nuts (7) to secure duplex outlet (5) to control panel (2). Tighten nuts (7).
3. Connect wires (4) to duplex outlet (5) and remove tags.
4. Position control panel (2) over cover (3).
5. Install nine hex head bolts (1) and tighten.
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL PANEL TWIST LOCK OUTLET
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Outlet, Twist Lock
 (33968)
 PN 36848752

Personnel Required

Engineer 88L

References

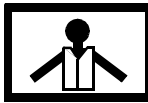
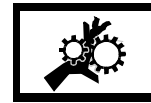
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

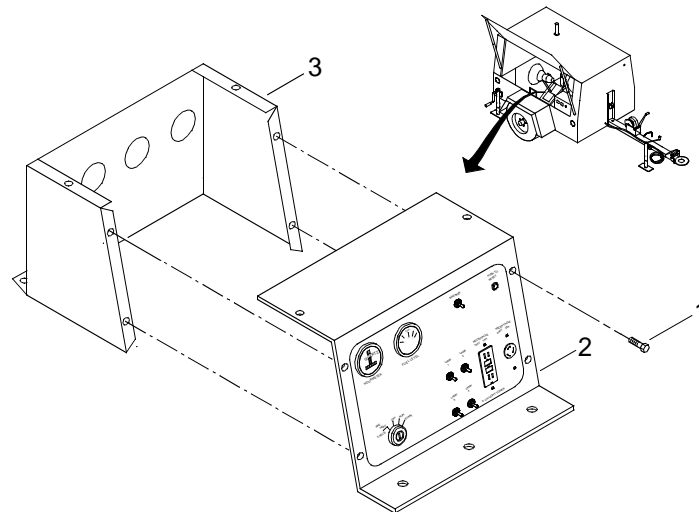
REMOVE LIGHT TOWER CONTROL PANEL TWIST LOCK OUTLET

WARNING

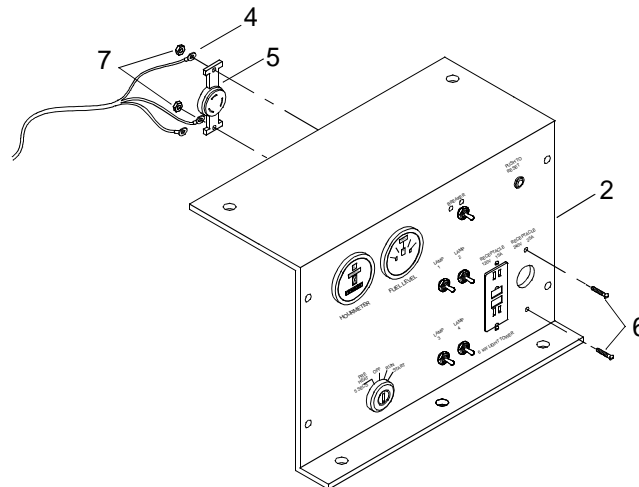
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 nine hex head bolts (1) from control panel (2).



2. Slide control panel (2) away from cover (3).
3. Tag and disconnect wires (4) from twist lock outlet (5).



4. Remove two pan head screws (6) and nuts (7) securing twist lock outlet (5) to control panel (2).
5. Remove twist lock outlet (5) from back of control panel (2) and discard.

INSTALL LIGHT TOWER CONTROL PANEL TWIST LOCK OUTLET

1. Position new twist lock outlet (5) through back of control panel (2).
2. Install two pan head screws (6) and nuts (7) to secure twist lock outlet (5) to control panel (2). Tighten nuts (7).
3. Connect wires (4) to twist lock outlet (5) and remove tags.
4. Position control panel (2) over cover (3).
5. Install nine hex head bolts (1) and tighten.
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL PANEL MAIN CIRCUIT BREAKER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Breaker, Main
 (33968)
 PN 36780278

Personnel Required

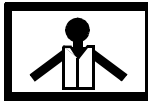
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER CONTROL PANEL MAIN CIRCUIT BREAKER

WARNING



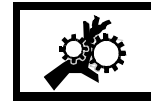
VEST



HELMET PROTECTION



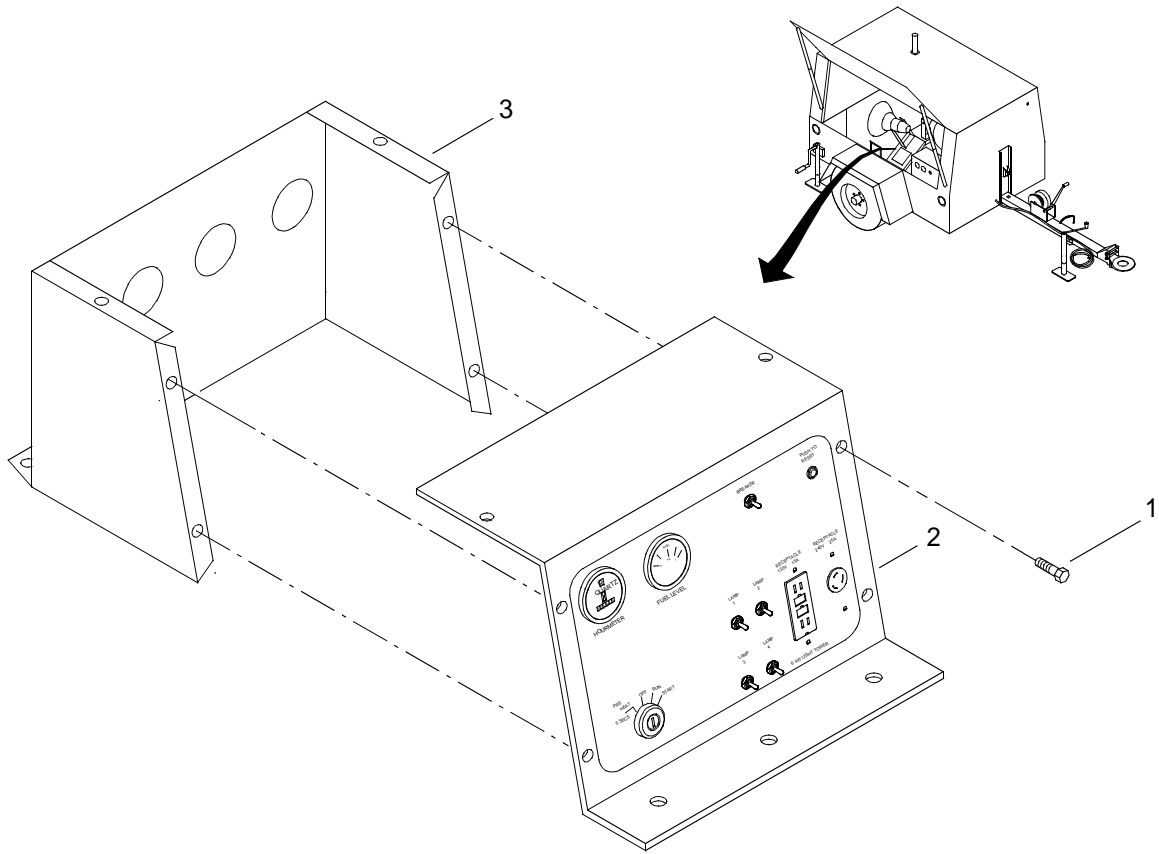
HEAVY PARTS



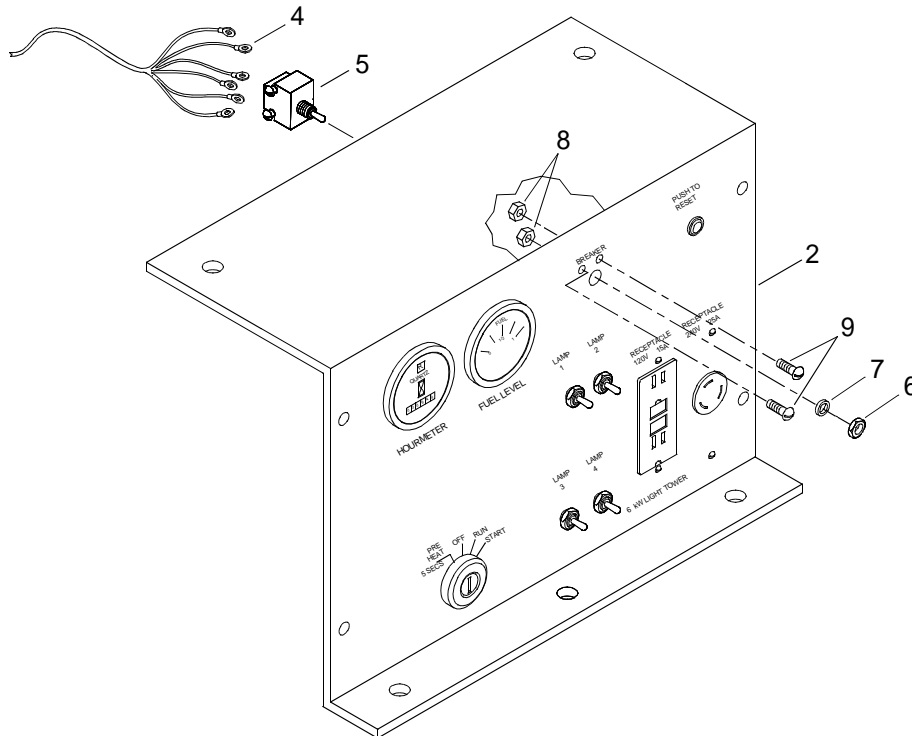
MOVING PARTS

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 nine hex head bolts (1) from control panel (2).



2. Slide control panel (2) away from cover (3).
3. Tag and disconnect wires (4) from main circuit breaker (5).



-
4. Remove nut (6) and washer (7) from control panel (2).
 5. Remove nuts (8) and screws (9) from control panel (2).
 6. Remove main circuit breaker (5) from back of control panel (2) and discard.

INSTALL LIGHT TOWER CONTROL PANEL MAIN CIRCUIT BREAKER

1. Position new main circuit breaker (5) through back of control panel (2).
2. Install screws (9) and nuts (8) into control panel (2). Tighten nuts (8).
3. Install washer (7) and nut (6) on main circuit breaker (5). Tighten nut (6).
4. Connect wires (4) to main circuit breaker (5) and remove tags.
5. Position control panel (2) over cover (3).
6. Install nine hex head bolts (1) and tighten.
7. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL PANEL TOGGLE SWITCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 24, WP 0359 00)
 Helmet, Safety (Brown) (Item 28, WP 0359 00)
 Life Preserver, Vest (Item 33, WP 0359 00)

Materials/Parts

Switch, Toggle
 (33968)
 PN 35337435

Personnel Required

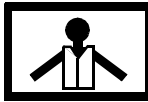
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER CONTROL PANEL TOGGLE SWITCH

WARNING



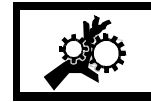
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

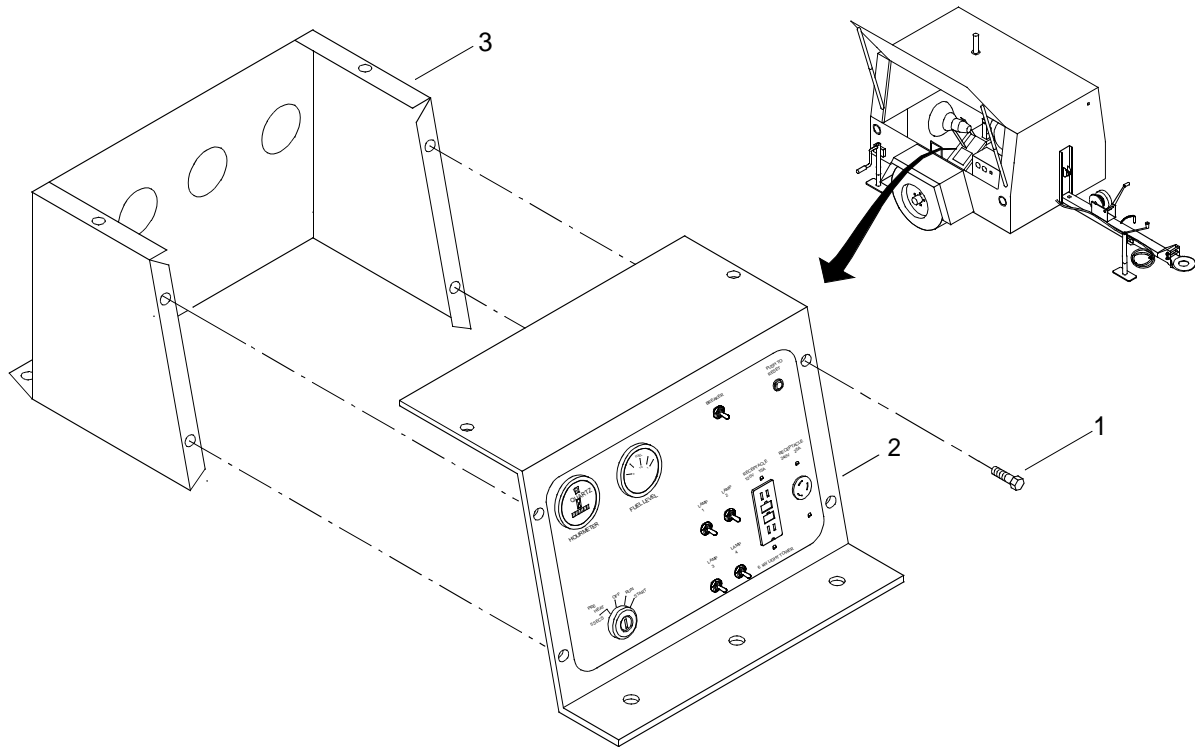
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

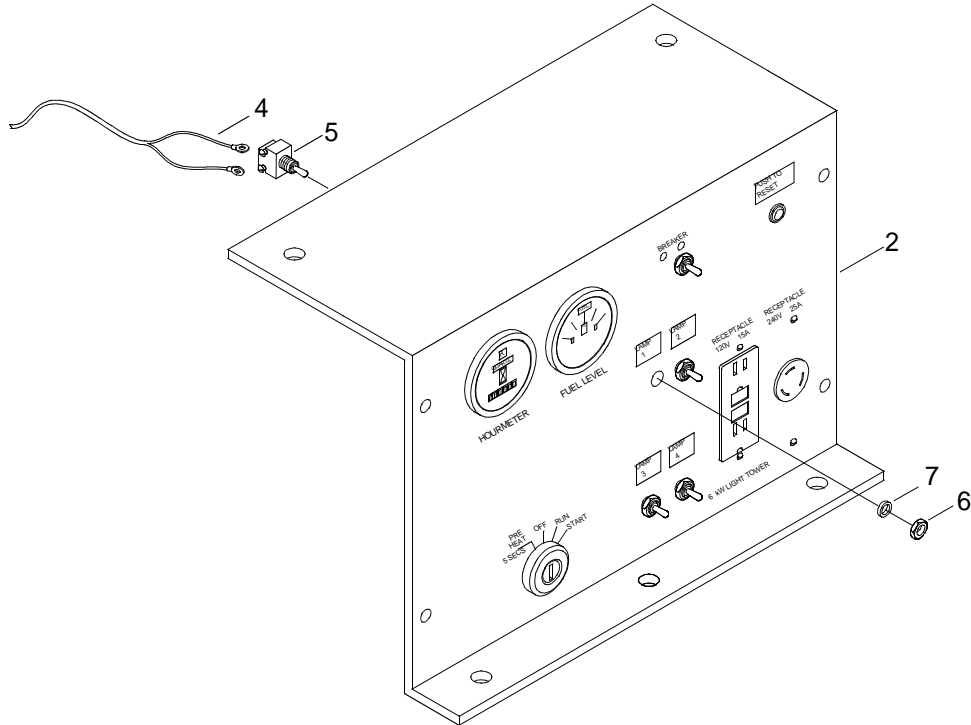
The following procedure is typical for the removal and installation of all toggle switches in the light tower control panel.

Toggle switches for lights 1 and 2 have three wires and toggle switches for lights 3 and 4 have two wires.

1. Remove nine hex head bolts (1) from control panel (2).



2. Slide control panel (2) away from cover (3).
3. Tag wires (4) and disconnect from toggle switch (5).



4. Remove nut (6) and washer (7) from control panel (2).
5. Remove toggle switch (5) from the back of the control panel (2) and discard.

INSTALL LIGHT TOWER CONTROL PANEL TOGGLE SWITCH

1. Position new toggle switch (5) through the back of the control panel (2).
2. Install washer (7) and nut (6) into the front of the control panel (2) and tighten.
3. Connect wires (4) to toggle switch (5) and remove tags.
4. Position control panel (2) over cover (3).
5. Install nine hex head bolts (1) and tighten.
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL PANEL 125 VOLT CIRCUIT BREAKER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Breaker, 125 Volt
(33968)
PN 35371772

Personnel Required

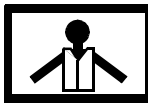
Engineer 88L

Equipment Condition

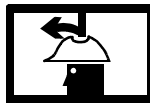
Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER CONTROL PANEL 125 VOLT CIRCUIT BREAKER

WARNING



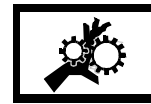
VEST



HELMET PROTECTION



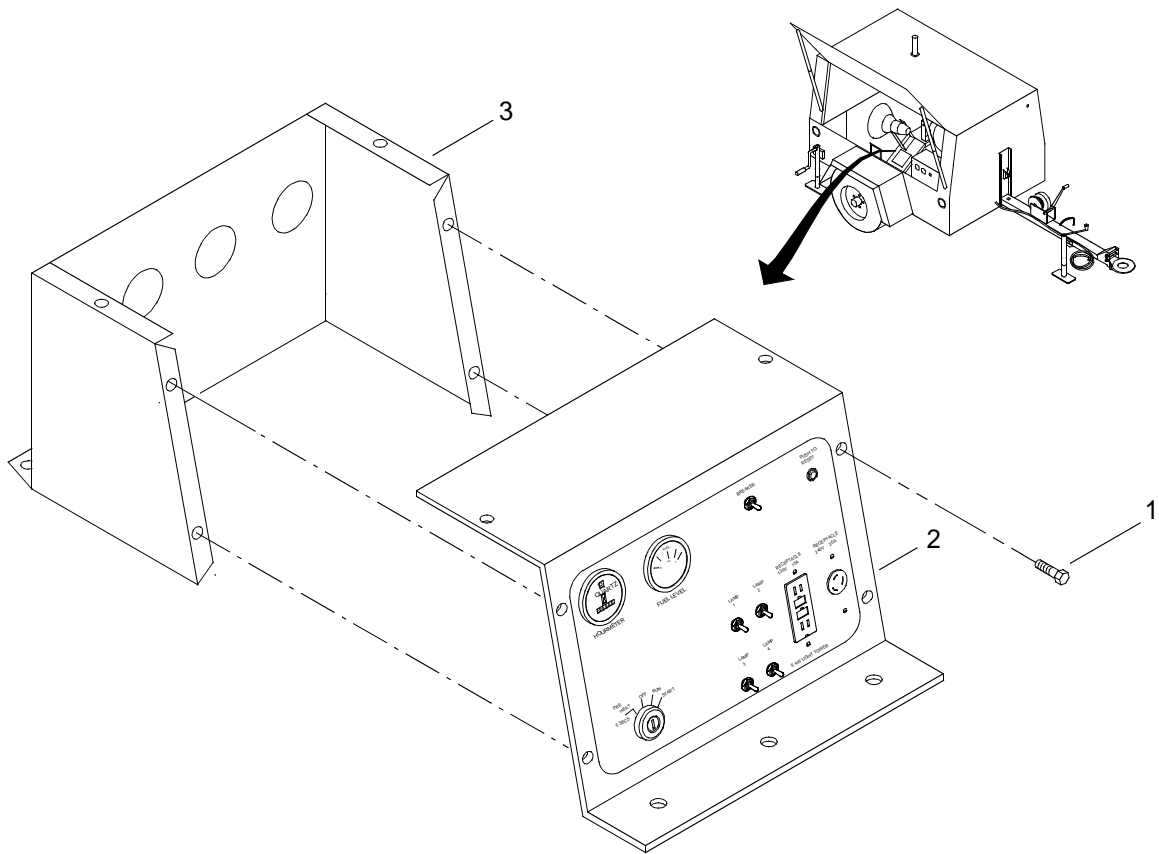
HEAVY PARTS



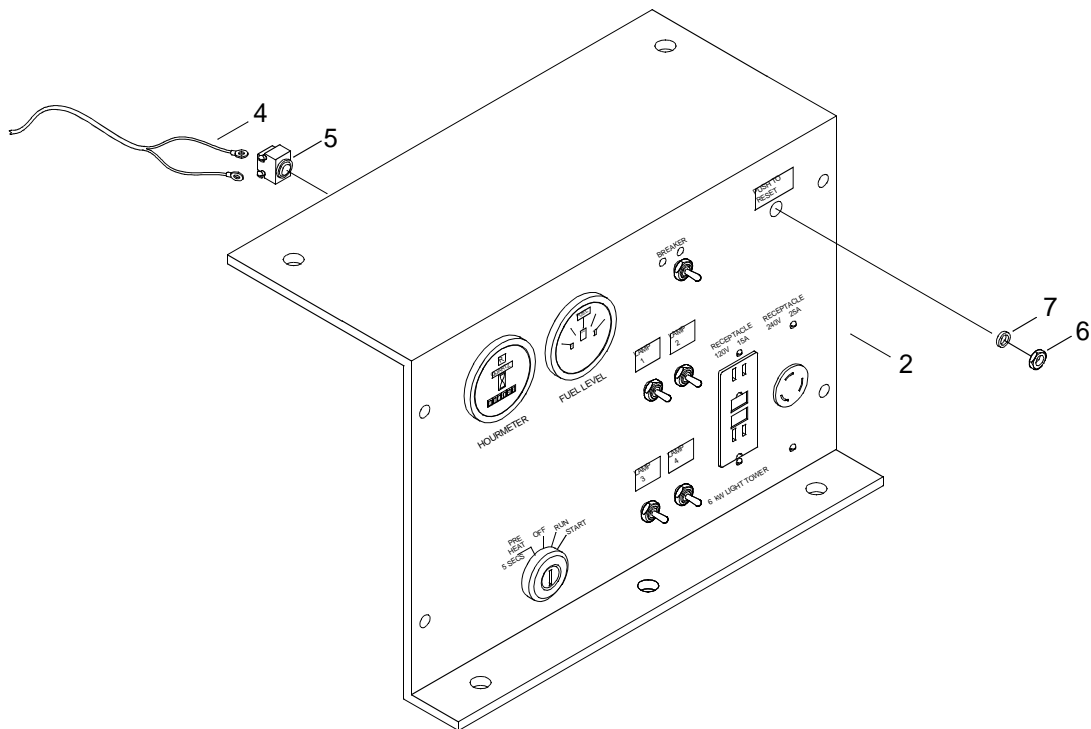
MOVING PARTS

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 nine hex head bolts (1) from control panel (2).



2. Slide control panel (2) away from cover (3).
3. Tag wires (4) and disconnect from 125 volt breaker (5).



4. Remove nut (6) and washer (7) from control panel (2).
5. Remove 125 volt breaker (5) from the back of the control panel (2) and discard.

INSTALL LIGHT TOWER CONTROL PANEL 125 VOLT CIRCUIT BREAKER

1. Position new 125 volt breaker (5) through the back of the control panel (2).
2. Install washer (7) and nut (6) into the front of the control panel (2) and tighten.
3. Connect wires (4) to 125 volt breaker (5) and remove tags.
4. Position control panel (2) over cover (3).
5. Install nine hex head bolts (1) and tighten.
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL PANEL KEY SWITCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Switch, Key
 (33968)
 PN 36786457

Personnel Required

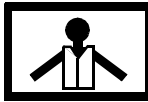
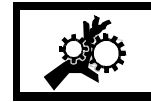
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

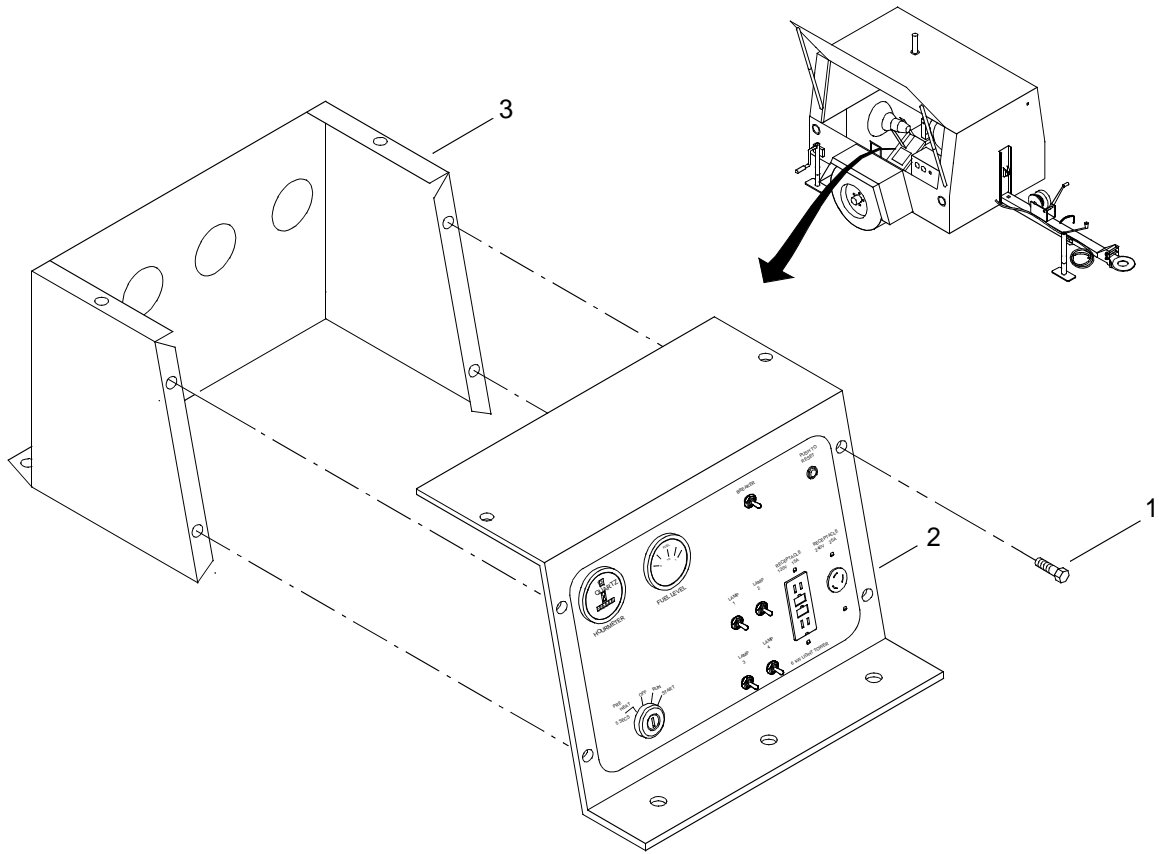
REMOVE LIGHT TOWER CONTROL PANEL KEY SWITCH

WARNING

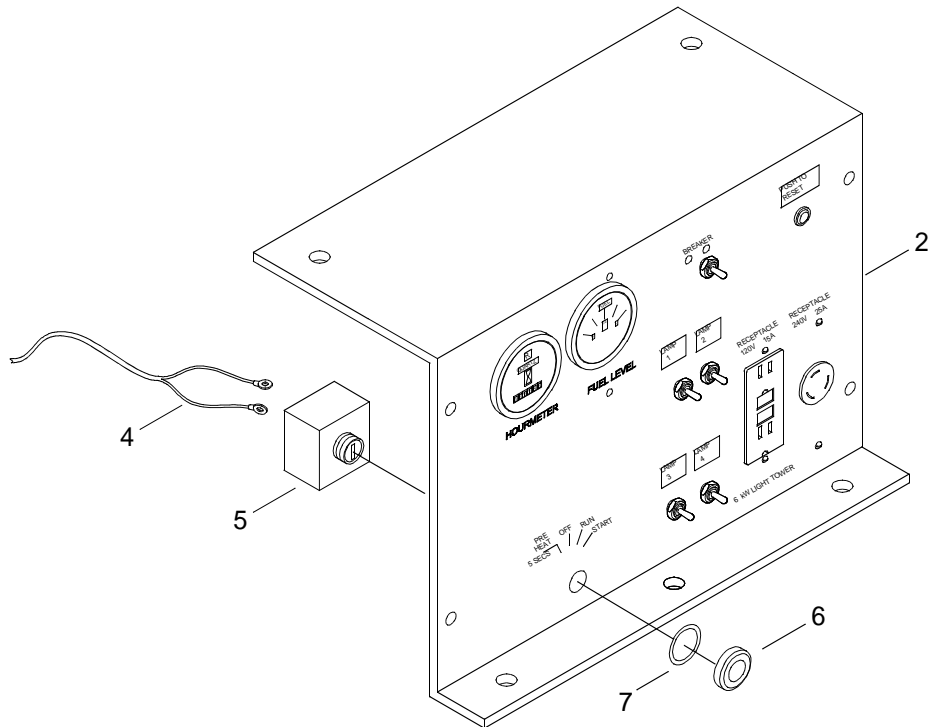
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 nine hex head bolts (1) from control panel (2).



2. Slide control panel (2) away from cover (3).
3. Tag and disconnect wires (4) from key switch (5).



4. Remove key coupling (6) and gasket (7) from key switch (5).
5. Remove key switch (5) from back of control panel (2) and discard.

INSTALL LIGHT TOWER CONTROL PANEL KEY SWITCH

1. Position new key switch (5) through back of control panel (2).
2. Install gasket (7) and key coupling (6) on key switch (5). Tighten key coupling (6).
3. Connect wires (4) to key switch (5) and remove tags.
4. Position control panel (2) over cover (3).
5. Install nine hex head bolts (1) and tighten.
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER SHUTDOWN SOLENOID
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Solenoid, Shutdown
 (33968)
 PN 36878189

Personnel Required

Engineer 88L

References

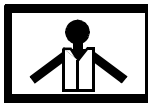
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

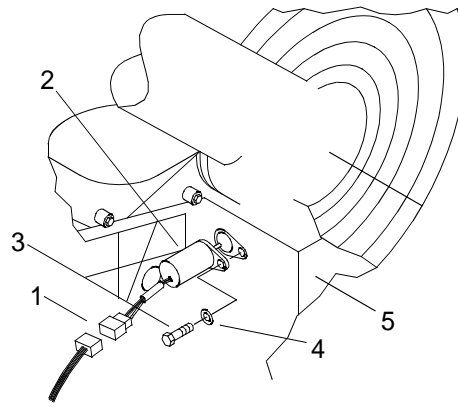
REMOVE LIGHT TOWER SHUTDOWN SOLENOID

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. Tag and disconnect electrical plug (1) supplying power to shutdown solenoid (2), located on forward starboard side of light tower engine.



2. Remove two hex head bolts (3) and washers (4) securing the shutdown solenoid to engine (5).
3. Remove shutdown solenoid (2) and discard.

INSTALL LIGHT TOWER SHUTDOWN SOLENOID

1. Position new shutdown solenoid (2) on engine (5).
2. Install two hex head bolts (3) and washers (4) to secure shutdown solenoid (2) to engine (5) and tighten bolts (3).
3. Connect electrical plug (1) and remove tags.
4. Install light tower battery negative lead terminal. (WP 0134 00)
5. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER BULBS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Bulb, Light, High Pressure Sodium, 6 Watt
 (33968)
 PN 36043669
 Gloves, Men's, Cotton (Item 21, WP 0358 00)

Personnel Required

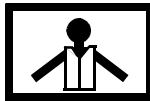
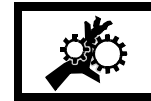
Engineer 88L

Equipment Condition

Light Tower Lamps Cool To Touch.
 Light Tower Lowered. (TM 55-1945-205-10-2)
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

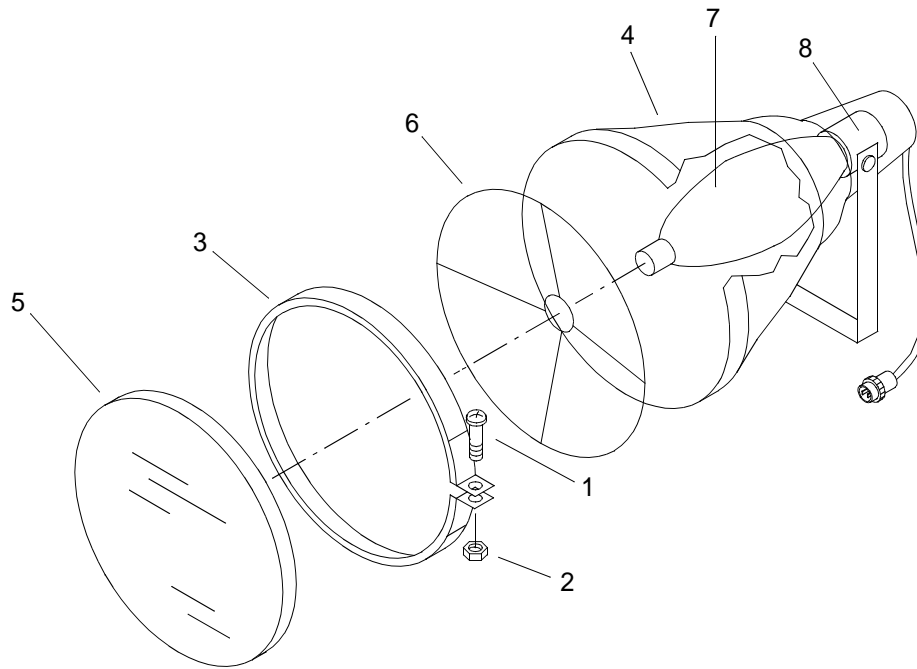
REMOVE LIGHT TOWER BULBS

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 bolt (1) and nut (2) from retainer ring (3).



2. Remove retainer ring (3) from reflector (4).
3. Remove lens (5).
4. Remove lamp support (6).
5. Unscrew lamp (7) from socket (8) and discard lamp (7).

INSTALL THE LIGHT TOWER BULBS

CAUTION

Clean cotton gloves must be worn when installing lamps. Failure to comply will result in damage to lamps.

1. Carefully screw new lamp (7) into socket (8).
2. Install lamp support (6).
3. Install lens (5).
4. Install retainer ring (3) on reflector (4).
5. Install nut (2) on bolt (1) and tighten nut (2).
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER OPTICAL/SOCKET ASSEMBLY
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Optical/Socket Assembly
 (33968)
 PN 36885226

Personnel Required

Engineer 88L

References

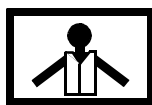
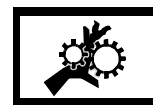
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Terminal Lead Removed. (WP 0134 00)

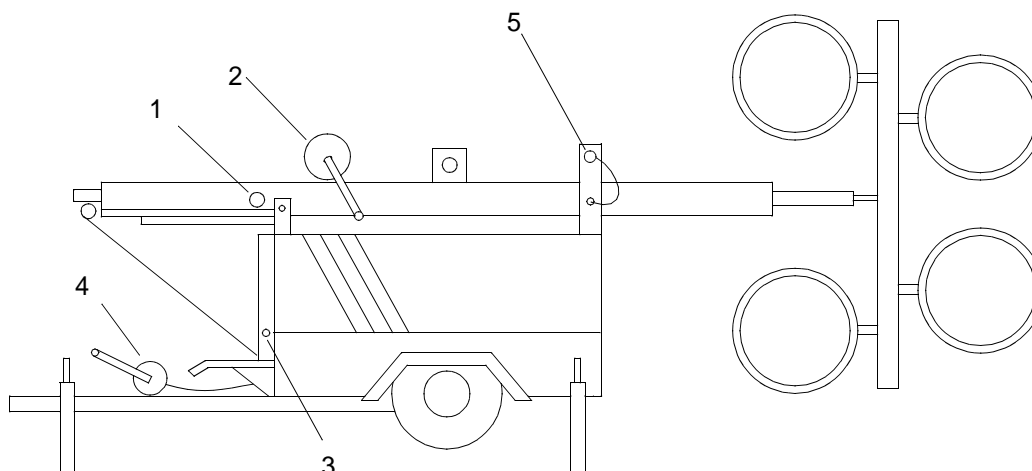
REMOVE LIGHT TOWER OPTICAL/SOCKET ASSEMBLY

WARNING

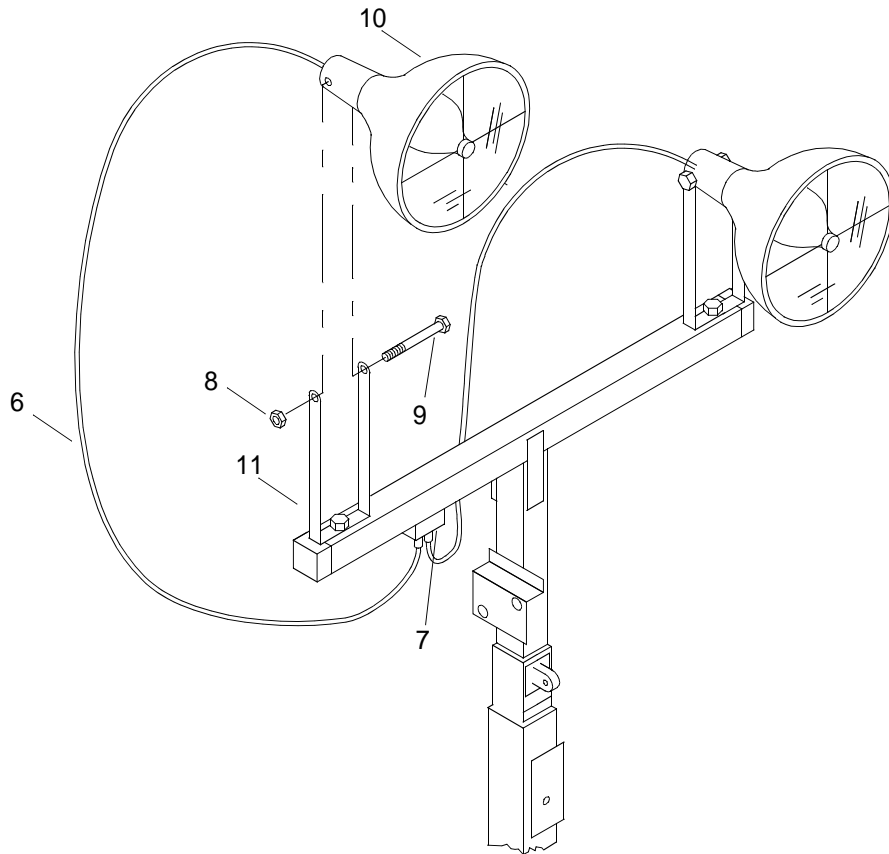
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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. Loosen eye bolt (1).



2. With tower in upright position, operate winch (2) to retract tower.
3. Remove lock pin (3) securing tower in upright position.
4. Operate winch (4) to lower tower.
5. Insert and lock pin (5) to secure tower in the lowered position.
6. Disconnect cord (6) from receptacle (7).



7. Remove nut (8) and bolt (9).

WARNING

**HEAVY OBJECTS**

8. Remove optical/socket assembly (10) from trunnion (11).

INSTALL LIGHT TOWER OPTICAL/SOCKET ASSEMBLY

WARNING

**HEAVY OBJECTS**

1. Position optical/socket assembly (10) on trunnion (11).
2. Install bolt (9) and nut (8) and tighten nut (8).
3. Connect cord (6) to receptacle (7).
4. Remove lock pin (5) to secure tower in lowered position.
5. Operate winch (4) to raise tower.
6. Insert and lock pin (3) to secure tower in the raised position.

NOTE

Do not extend mast tower past upright mark on tower.

7. With tower in upright position, operate winch (2) to extend tower to 28 ft above collar. Do not extend past upright mark on tower.
8. Loosen eye bolt (1) to rotate tower.
9. Tighten eye bolt (1) after rotating tower.
10. Install light tower battery negative lead terminal. (WP 0134 00)
11. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER OPTICAL/SOCKET ASSEMBLY
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

Gasket, Lens
 (33968)
 PN 36885309
 Gasket, Housing
 (33968)
 PN 36885325
 Cleaner (Item 9, WP 0358 00)
 Cloth, Cleaning (Item 14, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

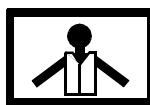
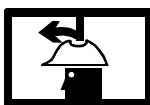
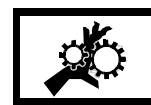
Interior Electrician 51R

Equipment Condition

Light Tower Battery Negative Terminal Lead Removed. (WP 0134 00)
 Light Tower Optical/Socket Assembly Removed. (WP 0157 00)

DISASSEMBLE LIGHT TOWER OPTICAL/SOCKET ASSEMBLY

WARNING

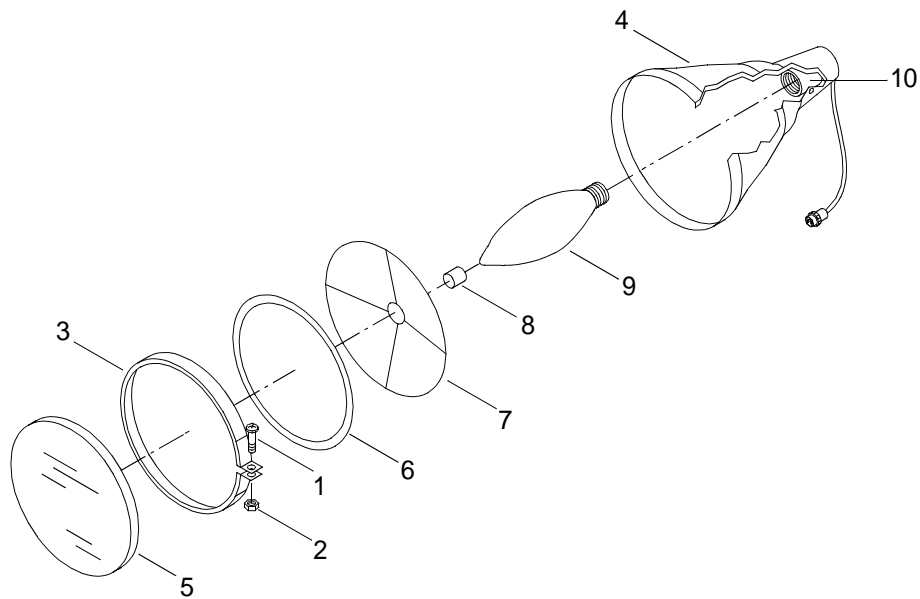
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

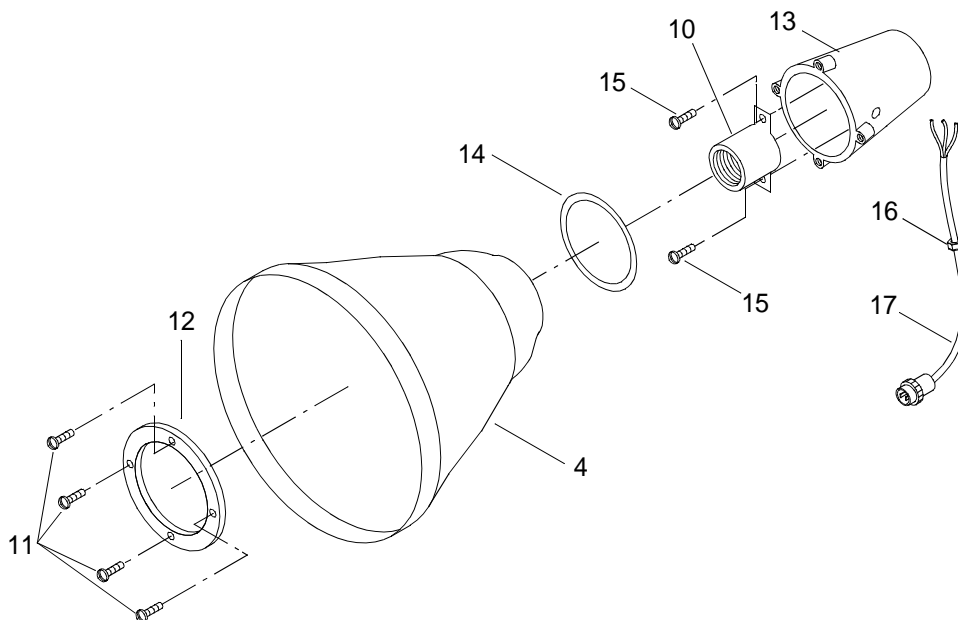
NOTE

Repair is limited to replacement of defective items.

1. Remove nut (1) and bolt (2) from retaining ring (3).



2. Remove retaining ring (3) from reflector (4).
3. Remove lens (5) from reflector (4).
4. Remove gasket (6) from reflector (4) and discard gasket (6).
5. Remove lens support (7) from reflector (4).
6. Remove lens bracket (8) from lamp (9).
7. Rotate lamp (9) counterclockwise and remove from socket (10).
8. Remove four screws (11) from reinforcement ring (12).



9. Remove reflector (4) from housing (13).

10. Remove reinforcement ring (12) from reflector (4).
11. Remove gasket (14) from housing (13) and discard gasket (14).
12. Remove two screws (15) from housing (13).
13. Loosen strain relief (16) and slide up cord (17).
14. Pull socket (10) from housing (13).
15. Loosen screws at base of socket (10), tag and disconnect cord (17) wires.
16. Remove cord (17) from housing (13).

CLEAN LIGHT TOWER OPTICAL/SOCKET ASSEMBLY

WARNING



CHEMICAL



EYE PROTECTION

1. Using wiping rags and cleaner, clean debris from reflector and housing.

WARNING



CHEMICAL



EYE PROTECTION

2. Using clean water, rinse cleaner residue from reflector and housing.
3. Air dry reflector and housing.

WARNING



CHEMICAL



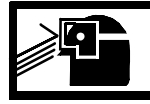
EYE PROTECTION

4. Using wiping rag and cleaner, wipe debris from lens.

 WARNING



CHEMICAL



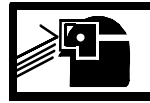
EYE PROTECTION

5. Using fresh water, rinse cleaner residue from lens.
6. Using clean cloth, dry lens.

 WARNING



CHEMICAL



EYE PROTECTION

7. Dispose of contaminated wiping rags in accordance with local procedures.

INSPECT LIGHT TOWER OPTICAL/SOCKET ASSEMBLY

1. Inspect screws for damaged threads. Replace damaged item(s).
2. Inspect retaining ring for twisting or bending. Replace damaged item.
3. Inspect lens for cracks. Replace damaged item.
4. Inspect socket for damaged threads. Replace damaged item.
5. Inspect cord for breaks. Replace damaged item.
6. Inspect cord for frayed insulation. Replace damaged item.

ASSEMBLE LIGHT TOWER OPTICAL/SOCKET ASSEMBLY

1. Install cord (17) in housing (13).
2. Connect cord (17) wires, remove tags and tighten screws at base of socket (10).
3. Position socket (10) on housing (13).
4. Install two screws (15) in housing (13).
5. Slide strain relief (16) down cord (17) and tighten.
6. Position reflector (4) and new gasket (14) on housing (13).
7. Position reinforcement ring (12) on reflector (4).
8. Install four screws (11) in reinforcement ring (12). Tighten four screws (11).
9. Position lamp (9) in socket (10).

-
10. Rotate lamp (9) clockwise in socket (10). Tighten lamp (9).
 11. Position lens bracket (8) on lamp (9).
 12. Install lens support (7) in reflector (4).
 13. Install new gasket (6) on reflector (4).
 14. Install lens (5) in reflector (4).
 15. Position retaining ring (3) on reflector (4).
 16. Install bolt (2) and nut (1) on retaining ring (3). Tighten nut (1).
 17. Install light tower optical/socket assembly. (WP 0157 00)
 18. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER BALLAST BOX
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Box, Ballast
 (33968)
 PN 36894269

Personnel Required

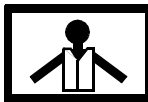
Interior Electrician 51R

Equipment Condition

Light Tower Battery Negative Terminal Lead Removed. (WP 0134 00)
 Light Tower Control Panel Hour Meter Removed. (WP 0147 00)
 Light Tower Control Panel Fuel Gage Removed. (WP 0148 00)
 Light Tower Control Panel Duplex Outlet Removed. (WP 0149 00)
 Light Tower Control Panel Twist Lock Outlet. (WP 0150 00)
 Light Tower Control Panel Main Circuit Breaker Removed. (WP 0151 00)
 Light Tower Control Panel Toggle Switches Removed. (WP 0152 00)
 Light Tower Control Panel 125 Volt Breaker Removed. (WP 0153 00)
 Light Tower Control Panel Key Switch Removed. (WP 0154 00)
 Light Tower Control Panel Removed. (WP 0163 00)
 Light Tower Ballast Box Panel End Removed. (WP 0160 00)
 Light Tower Ballast Box Cover Removed. (WP 0161 00)
 Light Tower Ballasts Removed. (WP 0162 00)

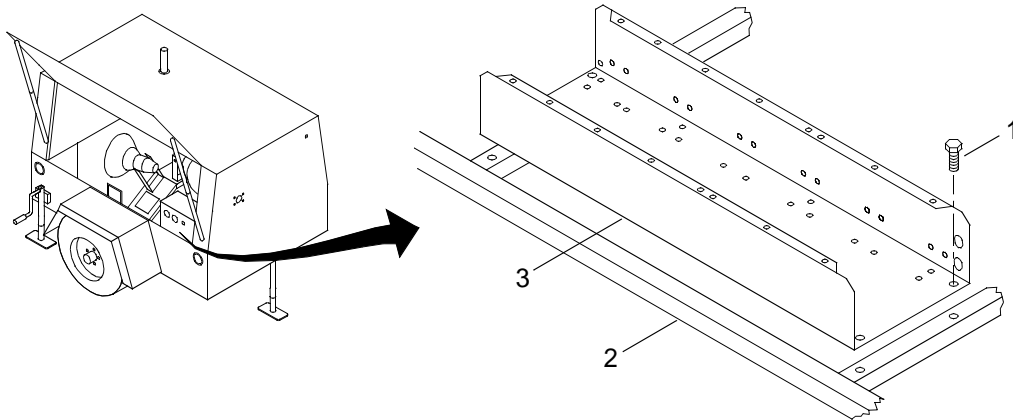
REMOVE LIGHT TOWER BALLAST BOX

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 four bolts (1) from light tower frame (2) and ballast box (3).



2. Remove ballast box (3) from light tower frame (2) and discard.

INSTALL LIGHT TOWER BALLAST BOX

1. Position new ballast box (3) on light tower frame (2).
2. Install four bolts (1) through ballast box (3) and tighten.
3. Install light tower ballasts. (WP 0162 00)
4. Install light tower ballast box cover. (WP 0161 00)
5. Install light tower ballast box panel end. (WP 0160 00)
6. Install light tower control panel key switch. (WP 0154 00)
7. Install light tower control panel 125 volt breaker. (WP 0153 00)
8. Install light tower control panel toggle switches. (WP 0152 00)
9. Install light tower control panel main circuit breaker. (WP 0151 00)
10. Install light tower control panel twist lock outlet. (WP 0150 00)
11. Install light tower control panel duplex outlet. (WP 0149 00)
12. Install light tower control panel fuel gage. (WP 0148 00)
13. Install light tower control panel hour meter. (WP 0147 00)
14. Install light tower control panel. (WP 0163 00)
15. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER BALLAST BOX PANEL END
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Panel, End
 (33968)
 PN 36894277

Personnel Required

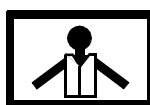
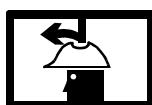
Interior Electrician 51R

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Control Panel Hour Meter Removed. (WP 0147 00)
 Light Tower Control Panel Fuel Gage Removed. (WP 0148 00)
 Light Tower Control Panel Duplex Outlet Removed. (WP 0149 00)
 Light Tower Control Panel Twist Lock Outlet. (WP 0150 00)
 Light Tower Control Panel Main Circuit Breaker Removed. (WP 0151 00)
 Light Tower Control Panel Toggle Switches Removed. (WP 0152 00)
 Light Tower Control Panel 125 Volt Breaker Removed. (WP 0153 00)
 Light Tower Control Panel Key Switch Removed. (WP 0154 00)
 Light Tower Control Panel Removed. (WP 0163 00)

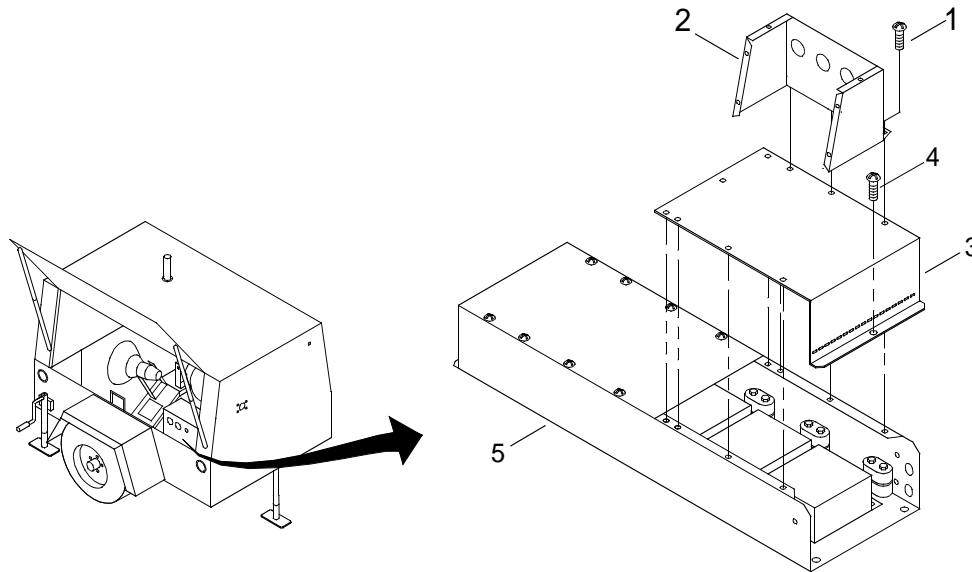
REMOVE LIGHT TOWER BALLAST BOX PANEL END

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 three hex head bolts (1) from control panel cover (2).



2. Remove control panel cover (2) from ballast box panel end (3).
3. Remove seven hex head bolts (4) from ballast box (5) and ballast box panel end (3).
4. Remove ballast box panel end (3) from ballast box (5) and discard.

INSTALL LIGHT TOWER BALLAST BOX PANEL END

1. Position new ballast box panel end (3) over ballast box (5).
2. Install seven hex head bolts (4) through ballast box panel end (3) and tighten.
3. Position control panel cover (2) over ballast box panel end (3).
4. Install three hex head bolts (1) through control panel cover (2) and tighten.
5. Install light tower control panel key switch. (WP 0154 00)
6. Install light tower control panel 125 volt breaker. (WP 0153 00)
7. Install light tower control panel toggle switches. (WP 0152 00)
8. Install light tower control panel main circuit breaker. (WP 0151 00)
9. Install light tower control panel twist lock outlet. (WP 0150 00)
10. Install light tower control panel duplex outlet. (WP 0149 00)
11. Install light tower control panel fuel gage. (WP 0148 00)
12. Install light tower control panel hour meter. (WP 0147 00)
13. Install light tower control panel. (WP 0163 00)
14. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER BALLAST BOX COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Cover, Ballast Box
 (33968)
 PN 36894285

Personnel Required

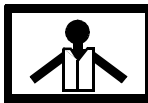
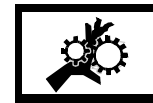
Interior Electrician 51R

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Control Panel Hour Meter Removed. (WP 0147 00)
 Light Tower Control Panel Fuel Gage Removed. (WP 0148 00)
 Light Tower Control Panel Duplex Outlet Removed. (WP 0149 00)
 Light Tower Control Panel Twist Lock Outlet. (WP 0150 00)
 Light Tower Control Panel Main Circuit Breaker Removed. (WP 0151 00)
 Light Tower Control Panel Toggle Switches Removed. (WP 0152 00)
 Light Tower Control Panel 125 Volt Breaker Removed. (WP 0153 00)
 Light Tower Control Panel Key Switch Removed. (WP 0154 00)
 Light Tower Control Panel Removed. (WP 0163 00)
 Light Tower Ballast Box Panel End Removed. (WP 0160 00)

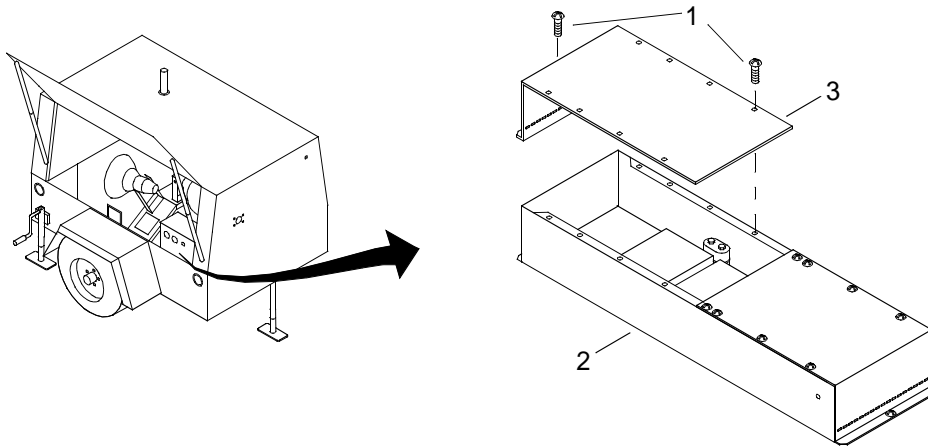
REMOVE LIGHT TOWER BALLAST BOX COVER

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 nine hex head bolts (1) from ballast box (2) and ballast box cover (3).



2. Remove ballast box cover (3) from ballast box (2) and discard.

INSTALL LIGHT TOWER BALLAST BOX COVER

1. Position new ballast box cover (3) over ballast box (2).
2. Install nine hex head bolts (1) through ballast box cover (3) and tighten.
3. Install light tower ballast box panel end. (WP 0160 00)
4. Install light tower control panel key switch. (WP 0154 00)
5. Install light tower control panel 125 volt breaker. (WP 0153 00)
6. Install light tower control panel toggle switches. (WP 0152 00)
7. Install light tower control panel main circuit breaker. (WP 0151 00)
8. Install light tower control panel twist lock outlet. (WP 0150 00)
9. Install light tower control panel duplex outlet. (WP 0149 00)
10. Install light tower control panel fuel gage. (WP 0148 00)
11. Install light tower control panel hour meter. (WP 0147 00)
12. Install light tower control panel. (WP 0163 00)
13. Install light tower battery negative terminal lead. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER BALLAST
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Kit, Ballast and Capacitor
(33968)
PN 368883791
Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)

Personnel Required

Interior Electrician 51R

References

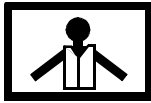
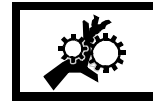
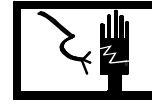
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
Light Tower Control Panel Hour Meter Removed. (WP 0147 00)
Light Tower Control Panel Fuel Gage Removed. (WP 0148 00)
Light Tower Control Panel Duplex Outlet Removed. (WP 0149 00)
Light Tower Control Panel Twist Lock Outlet. (WP 0150 00)
Light Tower Control Panel Main Circuit Breaker Removed. (WP 0151 00)
Light Tower Control Panel Toggle Switches Removed. (WP 0152 00)
Light Tower Control Panel 125 Volt Breaker Removed. (WP 0153 00)
Light Tower Control Panel Key Switch Removed. (WP 0154 00)
Light Tower Control Panel Removed. (WP 0163 00)
Light Tower Ballast Box Panel End Removed. (WP 0160 00)
Light Tower Ballast Box Cover Removed. (WP 0161 00)

REMOVE LIGHT TOWER BALLAST

WARNING

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

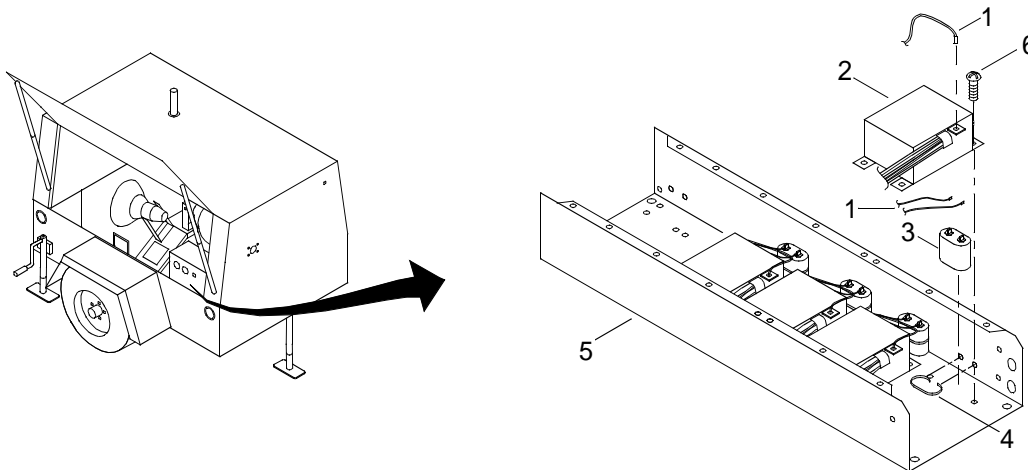
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

High voltage capacitors may hold a charge long after power is turned off. Always discharge capacitors before performing maintenance. Failure to discharge capacitors could result in injury or death to personnel.

NOTE

The following procedure is typical for the removal and installation of all light tower ballasts.

1. Tag and disconnect wires (1) to ballast (2) and capacitor (3).



2. Cut tiedown strap (4) holding capacitor (3) to ballast box (5).
3. Remove capacitor (3) from ballast box (5) and discard.
4. Remove four bolts (6) from ballast box (5) and ballast (2).
5. Remove ballast (2) from ballast box (5) and discard.

INSTALL LIGHT TOWER BALLAST

1. Position ballast (2) in ballast box (5).
2. Install four bolts (6) into ballast (2) and tighten.
3. Position capacitor (3) against ballast box (5).
4. Install tiedown strap (4) around capacitor (3) and tighten.

-
5. Connect wires (1) to capacitor (3) and ballast (2) and remove tags.
 6. Install light tower ballast box cover. (WP 0161 00)
 7. Install light tower ballast box panel end. (WP 0160 00)
 8. Install light tower control panel key switch. (WP 0154 00)
 9. Install light tower control panel 125 volt breaker. (WP 0153 00)
 10. Install light tower control panel toggle switches. (WP 0152 00)
 11. Install light tower control panel main circuit breaker. (WP 0151 00)
 12. Install light tower control panel twist lock outlet. (WP 0150 00)
 13. Install light tower control panel duplex outlet. (WP 0149 00)
 14. Install light tower control panel fuel gage. (WP 0148 00)
 15. Install light tower control panel hour meter. (WP 0147 00)
 16. Install light tower control panel. (WP 0163 00)
 17. Install light tower battery negative lead terminal. (WP 0134 00)
 18. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER CONTROL BOX PANEL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Panel, Control Box
(33968)
PN 36876001

Personnel Required

Interior Electrician 51R

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
Light Tower Control Panel Hour Meter Removed. (WP 0147 00)
Light Tower Control Panel Fuel Gage Removed. (WP 0148 00)
Light Tower Control Panel Duplex Outlet Removed. (WP 0149 00)
Light Tower Control Panel Twist Lock Outlet. (WP 0150 00)
Light Tower Control Panel Main Circuit Breaker Removed. (WP 0151 00)
Light Tower Control Panel Toggle Switches Removed. (WP 0152 00)
Light Tower Control Panel 125 Volt Breaker Removed. (WP 0153 00)
Light Tower Control Panel Key Switch Removed. (WP 0154 00)

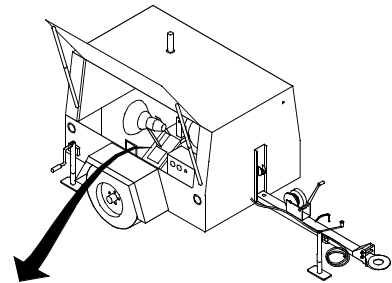
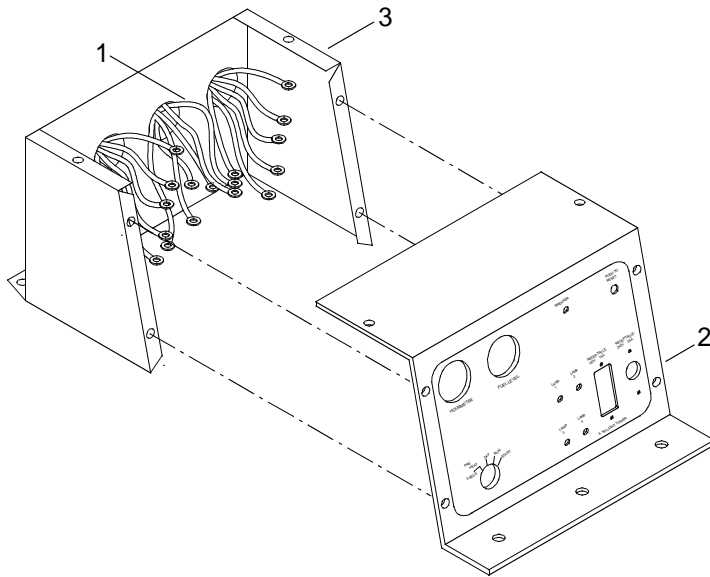
REMOVE LIGHT TOWER CONTROL BOX PANEL

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. Verify all wires (1) are disconnected from control panel (2) and tagged.



2. Remove control panel (2) from cover (3) and discard.

INSTALL LIGHT TOWER CONTROL BOX PANEL

1. Position new control panel (2) over cover (3).

NOTE

Securing of control panel to cover is completed after all components have been installed.

2. Install light tower control panel key switch. (WP 0154 00)
3. Install light tower control panel 125 volt breaker. (WP 0153 00)
4. Install light tower control panel toggle switches. (WP 0152 00)
5. Install light tower control panel main circuit breaker. (WP 0151 00)
6. Install light tower control panel twist lock outlet. (WP 0150 00)
7. Install light tower control panel duplex outlet. (WP 0149 00)

-
8. Install light tower control panel fuel gage. (WP 0148 00)
 9. Install light tower control panel hour meter. (WP 0147 00)
 10. Verify all wires (1) are connected and tags are removed.
 11. Install nine hex head bolts (4) through control panel (2) and into cover (3) and tighten.
 12. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER GENERATOR CONNECTIONS
CLEANING AND INSPECTION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Cleaner, Vacuum, Electric (Item 12, WP 0359 00)

Materials/Parts

Compound, Cleaning, Electrical Contact (Item 11, WP 0358 00)

Personnel Required

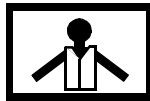
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

CLEAN LIGHT TOWER GENERATOR CONNECTIONS

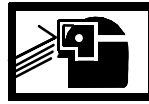
WARNING

**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 to personnel.

1. Behind the control panel, open the top of the generator control box.
2. Vacuum out the interior of the generator control box.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Spray all switch contacts and connectors with electrical contact cleaner.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Cycle the switches through all possible positions, spraying electrical contact cleaner at each position.
5. Leave the control box open until completely dry.

INSPECT LIGHT TOWER GENERATOR CONNECTIONS

1. Inspect generator switch contacts and connectors for looseness. Tighten as required.
2. Inspect generator switch contacts and connectors for cracked or broken insulation or bare wires. Replace defective parts.
3. Inspect generator switch contacts and connectors for evidence of arcing on electrical terminals. Repair or replace defective parts.
4. Inspect generator switch contacts and connectors for corrosion. If found, clean as required.
5. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE LUBRICATING OIL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Lubricating Oil, Engine (Item 37, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

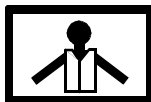
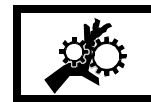
Engineer 88L

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

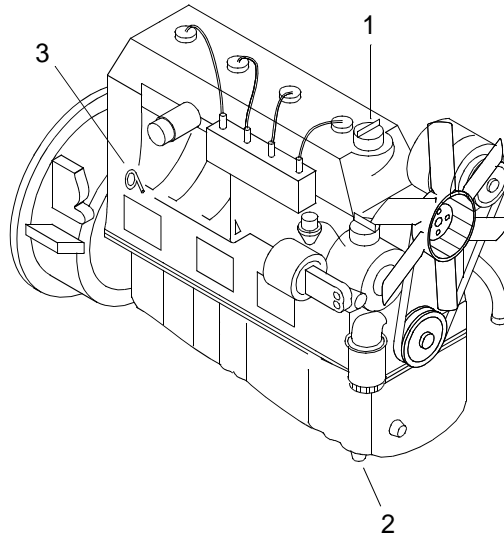
DRAIN LIGHT TOWER ENGINE OF LUBRICATING OIL

WARNING

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

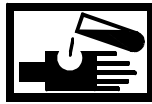
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Remove oil filler cap (1).

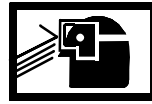


2. Position drain pan under drain plug (2) to catch oil.

WARNING



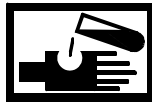
CHEMICAL



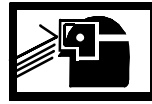
EYE PROTECTION

3. Remove drain plug (2) from engine oil pan and drain oil into drain pan.
4. Install and tighten drain plug (2) after oil is completely drained.

WARNING



CHEMICAL



EYE PROTECTION

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

FILL LIGHT TOWER ENGINE WITH LUBRICATING OIL

1. Add clean engine oil to proper level.

WARNING



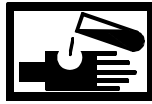
CHEMICAL



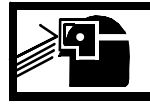
EYE PROTECTION

- a. Add approximately 1.35 gals (5.1 Liters) of engine oil.

 WARNING



CHEMICAL



EYE PROTECTION

- b. Remove oil dip stick (3), wipe clean with a wiping rag and install.

 WARNING

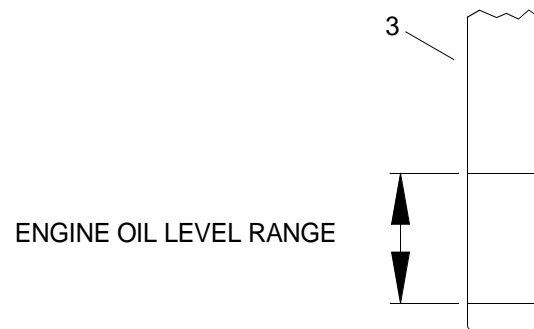


CHEMICAL



EYE PROTECTION

- c. Remove oil dip stick (3) and check for proper oil level.



- d. Install oil dipstick (3).

 WARNING



CHEMICAL



EYE PROTECTION

- e. Add additional engine oil as required.
2. Install oil filler cap (1).

 WARNING



CHEMICAL



EYE PROTECTION

3. Dispose of contaminated wiping rags in accordance with local procedures.

WARNING

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

4. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
5. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE OIL FILTER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38), WP 0359 00)
 Filter Wrench (Item 19, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Element, Lube Filter
 (33968)
 PN 36870574
 Lubricating Oil, Engine (Item 37, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

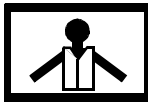
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Engine Lubricating Oil Drained. (WP 0165 00)

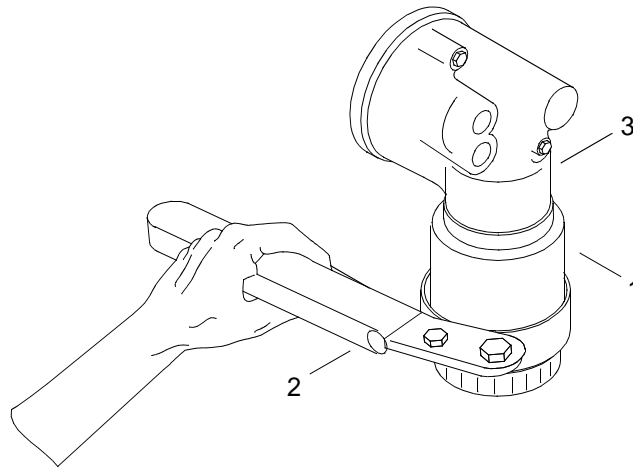
REMOVE LIGHT TOWER ENGINE OIL FILTER

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.

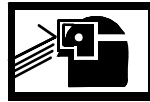
1. Position drain pan under oil filter (1).



WARNING



CHEMICAL



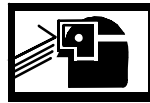
EYE PROTECTION

2. Turn oil filter (1) in counterclockwise direction with filter wrench (2).

WARNING



CHEMICAL



EYE PROTECTION

3. Remove oil filter (1) from oil filter manifold (3). Allow oil to drain into drain pan.

WARNING



CHEMICAL

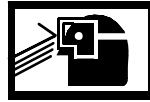


EYE PROTECTION

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

INSTALL LIGHT TOWER ENGINE OIL FILTER

WARNING

**CHEMICAL****EYE PROTECTION**

1. Prefill the new oil filter (1) with oil.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Apply a film of clean engine oil to the gasket of the oil filter (1).

WARNING

**CHEMICAL****EYE PROTECTION**

3. Thread oil filter (1) clockwise onto oil filter manifold (3) until oil filter (1) contacts sealing surface.

CAUTION

Do not use filter wrench to tighten oil filter as damage to oil filter could occur.

4. Hand tighten oil filter (1) until firmly seated.
5. Fill engine with lubricating oil. (WP 0165 00)
6. Install light tower battery negative lead terminal. (WP 0134 00)

WARNING

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

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

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE AIR CLEANER HOUSING
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Housing, Air Cleaner

Personnel Required

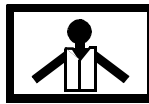
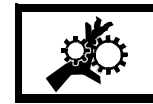
Seaman 88K

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Air Filter Removed (WP 0175 00)

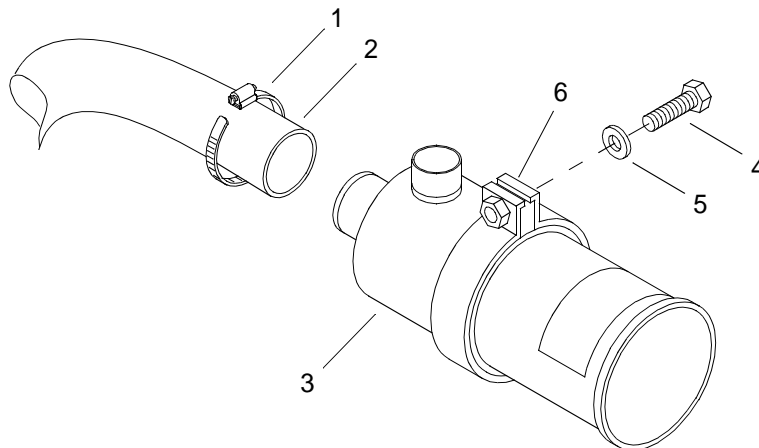
REMOVE LIGHT TOWER ENGINE AIR CLEANER HOUSING

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 hose clamp (1).



2. Slide hose clamp (1) back on air intake hose (2).
3. Disconnect air intake hose (2) from air cleaner housing (3).
4. Remove bolt (4) and washer (5) from air cleaner band (6).
5. Spread air cleaner band (6) and remove air cleaner housing (3).

INSTALL LIGHT TOWER ENGINE AIR CLEANER HOUSING

1. Spread air cleaner band (6) and install air cleaner housing (3).
2. Install bolt (4) and washer (5) in air cleaner band (6).
3. Tighten bolt (4).
4. Connect air intake hose (2) to air cleaner housing (3).
5. Slide hose clamp (1) back into proper position on air intake hose (2).
6. Tighten hose clamp (1).
7. Install air filter. (WP 0172 00)
8. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE FUEL FILTER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Filter Wrench (Item 19, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Filter, Fuel
 (33968)
 PN 36845493
 Diesel Fuel, Summer Grade (Item 16, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

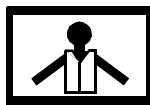
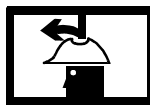
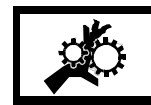
Engineer 88L

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

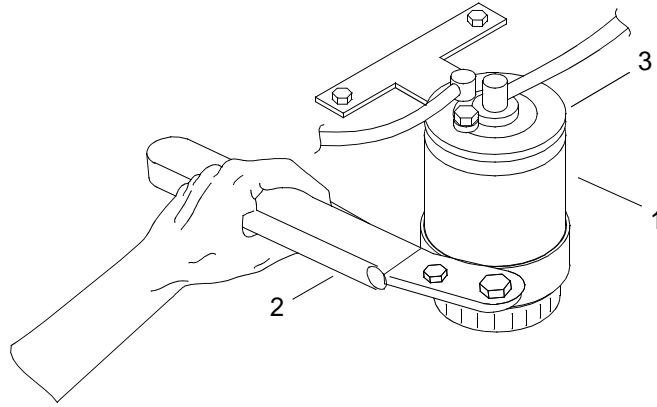
REMOVE LIGHT TOWER ENGINE FUEL FILTER

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.

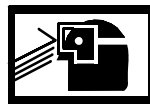
1. Position drain pan under fuel filter (1).



 WARNING



CHEMICAL



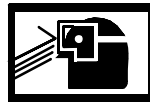
EYE PROTECTION

- Turn fuel filter (1) in counterclockwise direction with filter wrench (2).

 WARNING



CHEMICAL



EYE PROTECTION

- Remove fuel filter (1) from fuel filter manifold (3). Allow fuel to drain into drain pan.

 WARNING



CHEMICAL



EYE PROTECTION

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

INSTALL LIGHT TOWER ENGINE FUEL FILTER

 WARNING



CHEMICAL



EYE PROTECTION

- Prefill new fuel filter (1) with diesel fuel.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Apply a film of diesel fuel to gasket of fuel filter (1).

WARNING

**CHEMICAL****EYE PROTECTION**

3. Thread fuel filter (1) clockwise onto fuel filter manifold (3) until fuel filter (1) contacts sealing surface.

CAUTION

Do not use filter wrench to tighten fuel filter as damage to fuel filter could occur.

4. Hand tighten fuel filter (1) until firmly seated.
5. Install light tower battery negative lead terminal. (WP 0134 00)

WARNING

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

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

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE FUEL SYSTEM
BLEEDING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

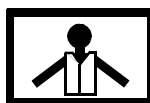
Equipment Condition

Engine Cool To Touch.

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

BLEED LIGHT TOWER ENGINE FUEL SYSTEM

WARNING



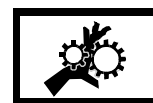
VEST



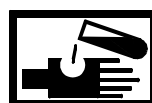
HELMET PROTECTION



HEAVY PARTS



MOVING PARTS



CHEMICAL



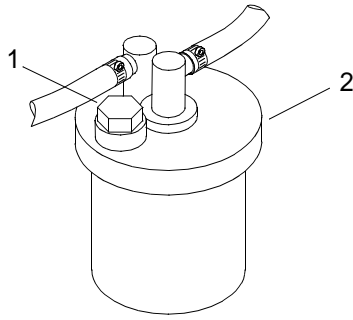
EYE PROTECTION

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.

NOTE

Bleeding of fuel system is required when any maintenance has been performed on fuel system or fuel tank has become empty or after long storage.

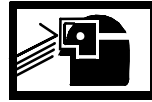
1. Open vent plug (1) on top of fuel filter head (2).



WARNING



CHEMICAL



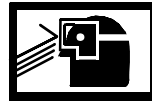
EYE PROTECTION

2. Allow air to purge until no air bubbles are present.

WARNING

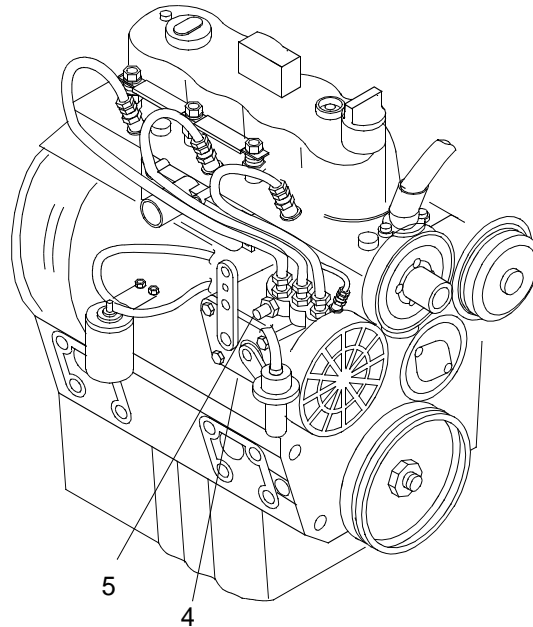


CHEMICAL



EYE PROTECTION

3. Close vent plugs (1) on top of fuel filter head (2).
4. Install light tower battery negative lead terminal. (WP 0134 00)
5. Open vent plug (3) on front side of injector pump (4).

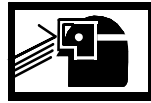


CAUTION

Do not hold ignition key in the start position for more than 20 seconds at a time without giving the starter motor a 3-5 minute rest to cool off. Failure to comply could result in damage to starter motor.

6. Turn the ignition key to the START position and hold until air is purged from fuel.
7. Turn the ignition key to the OFF position.
8. Close vent plug (3) on front side of injector pump (4).

WARNING

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

9. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
10. Perform operational check of the light tower engine. TM 55-1945-205-10-2

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE FUEL PUMP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Fuel Pump Assembly
 (OXWR1)
 PN 16285-5203-2
 Fuel Pump Gasket
 (OXWR1)
 PN 16264-5214-0
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER ENGINE FUEL PUMP

WARNING



VEST



HELMET PROTECTION



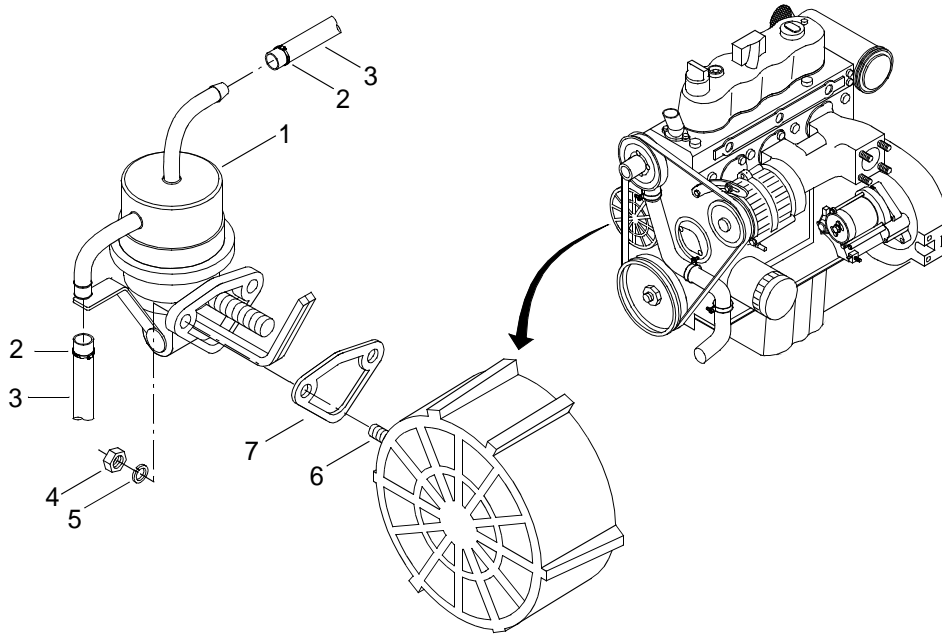
HEAVY PARTS



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 drain pan under light tower engine fuel pump assembly (1).



WARNING



CHEMICAL



EYE PROTECTION

2. Loosen two clamps (2).

WARNING



CHEMICAL



EYE PROTECTION

3. Slide clamps (2) back on fuel hoses (3).

WARNING



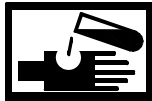
CHEMICAL



EYE PROTECTION

4. Remove two fuel hoses (3) from fuel pump assembly (1).
5. Remove two nuts (4) and lock washers (5) from studs (6).

WARNING

**CHEMICAL****EYE PROTECTION**

6. Remove fuel pump assembly (1) and fuel pump gasket (7) from studs (6) and discard fuel pump gasket (7).

WARNING

**CHEMICAL****EYE PROTECTION**

7. Dispose of fuel pump assembly (1) in accordance with local procedures.

WARNING

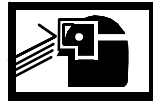
**CHEMICAL****EYE PROTECTION**

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

INSTALL LIGHT TOWER ENGINE FUEL PUMP

1. Position new fuel pump gasket (7) and new fuel pump assembly (1) on studs (6).
2. Install two lock washers (5) and nuts (4) on studs (6) and tighten nuts (4).
3. Position two fuel hoses (3) on fuel pump assembly (1).
4. Slide two clamps (2) back into position and tighten clamps (2).
5. Bleed light tower fuel system. (WP 0169 00)
6. Install light tower battery negative lead terminal. (WP 0134 00)

WARNING

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

7. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
8. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE IN LINE FUEL FILTER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)

Materials/Parts

Filter, In Line
 (33968)
 PN 36789097
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

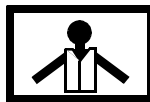
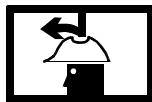
Engineer 88L

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER ENGINE IN LINE FUEL FILTER

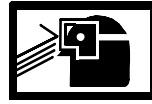
WARNING

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

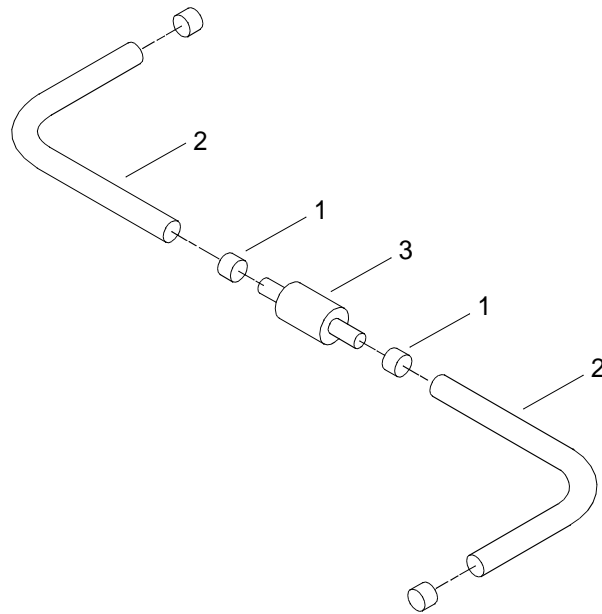
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Loosen clamps (1) from fuel hoses (2).

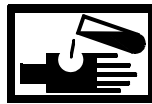
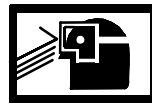
WARNING

**CHEMICAL****EYE PROTECTION**

2. Position drain pan under fuel hoses (2).
3. Slide fuel hoses (2) back.

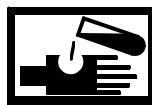


WARNING

**CHEMICAL****EYE PROTECTION**

4. Remove fuel hoses (2) from in line fuel filter (3).

WARNING

**CHEMICAL****EYE PROTECTION**

5. Discard filter (3) in accordance with local procedures.

WARNING

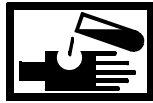
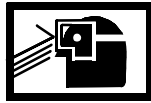
**CHEMICAL****EYE PROTECTION**

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

INSTALL LIGHT TOWER ENGINE IN LINE FILTER

1. Install fuel hoses (2) on new fuel filter (3).
2. Slide hose clamps (1) back into position on hoses (2) and tighten clamps (1).
3. Install light tower battery negative lead terminal. (WP 0134 00)

WARNING

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

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

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER FUEL TANK CAP GASKET
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

Gasket
 (33968)
 PN 3538511
 Cleaner (Item 9, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

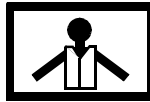
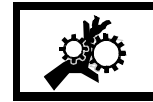
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

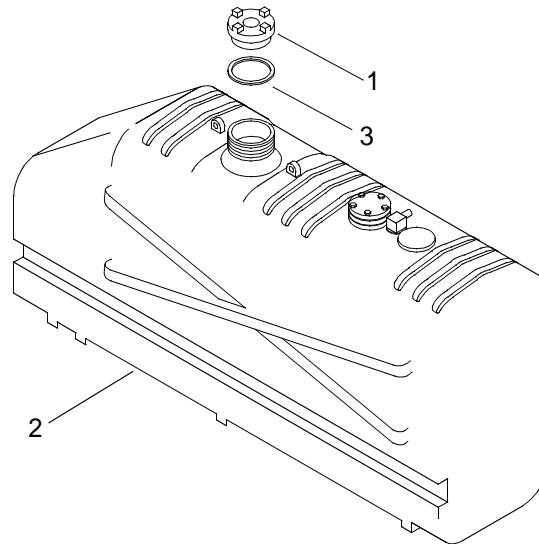
REMOVE LIGHT TOWER FUEL TANK CAP GASKET

WARNING

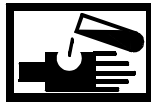
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 to personnel.

1. Rotate light tower fuel tank cap (1) counterclockwise.

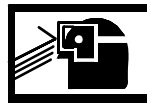


WARNING

**CHEMICAL****EYE PROTECTION**

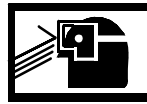
2. Remove fuel tank cap (1) from fuel tank (2).

WARNING

**CHEMICAL****EYE PROTECTION**

3. Remove fuel tank cap gasket (3) from fuel tank cap (1) and discard gasket (3).

WARNING

**CHEMICAL****EYE PROTECTION**

4. Using wiping rag and cleaner, clean inside of fuel tank cap (1).

WARNING

**CHEMICAL****EYE PROTECTION**

5. Using clean water, rinse cleaner residue from fuel tank cap (1).
6. Using wiping rag, dry fuel tank cap (1).

WARNING

**CHEMICAL****EYE PROTECTION**

7. Dispose of contaminated wiping rags in accordance with local procedures.

INSTALL LIGHT TOWER FUEL TANK CAP GASKET

1. Install new fuel tank cap gasket (3) in fuel tank cap (1).
2. Position fuel tank cap (1) on fuel tank (2).
3. Rotate light tower fuel tank cap (1) clockwise. Tighten fuel tank cap (1).
4. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
FLOATING CAUSEWAY
LIGHT TOWER ENGINE FUEL LEVEL SENDING UNIT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 54, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 16, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 18, WP 0359 00)
Helmet, Safety (Brown) (Item 20, WP 0359 00)
Life Preserver, Vest (Item 25, WP 0359 00)
Gloves, Chemical (Item 14, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 17, WP 0359 00)

Personnel Required

Engineer 88L

References

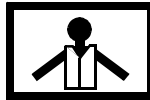
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER ENGINE FUEL LEVEL SENDING UNIT

WARNING



VEST



HELMET PROTECTION



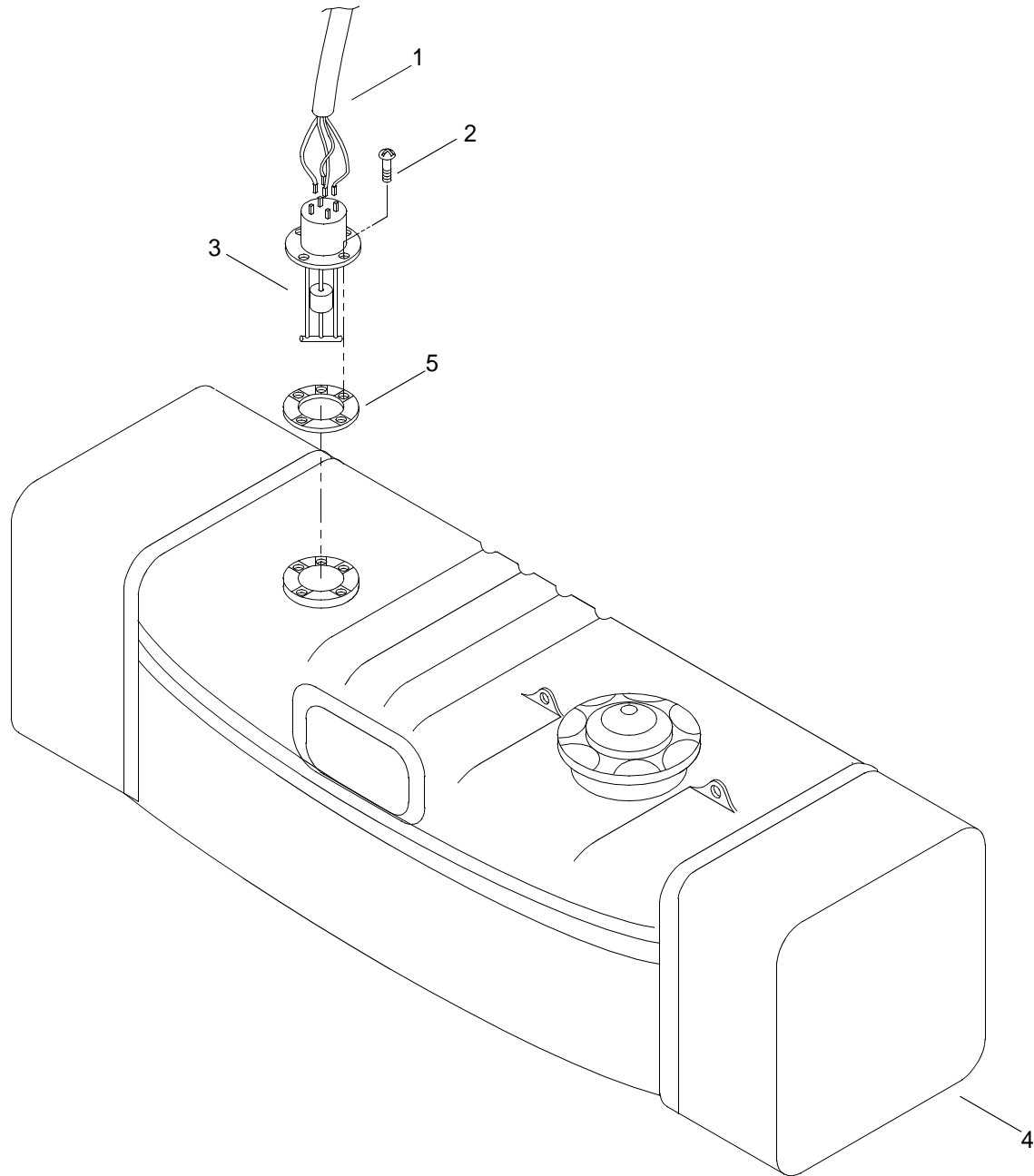
HEAVY PARTS



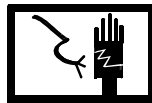
MOVING PARTS

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. Tag and disconnect wiring harness (1).



WARNING

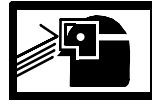


ELECTRICAL

Static electricity may be present on the human body. Ensure all static electricity is discharged prior to removing fuel sending unit. Failure to comply may result in injury or death to personnel.

2. Remove five pan head screws (2) securing fuel level sending unit (3) to fuel tank (4).

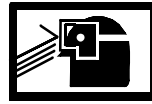
WARNING

**CHEMICAL****EYE PROTECTION**

3. Remove and discard fuel level sending unit (3) and gasket (5).

INSTALL LIGHT TOWER ENGINE FUEL LEVEL SENDING UNIT

WARNING

**CHEMICAL****EYE PROTECTION**

1. Position new gasket (5) and new fuel level sending unit (3) on fuel tank (4).
2. Install five pan head screws (2) securing fuel level sending unit (3) fuel tank (4). Tighten five pan head screws (2).
3. Connect wiring harness (1) and remove tags.
4. Install light tower battery negative lead terminal. (WP 0134 00)
5. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE FUEL LINES AND HOSE CLAMPS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

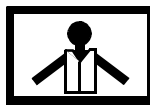
TM 55-1945-205-10-2

Equipment Condition

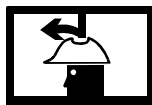
Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER ENGINE FUEL LINE AND HOSE CLAMPS

WARNING



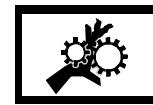
VEST



HELMET PROTECTION



HEAVY PARTS



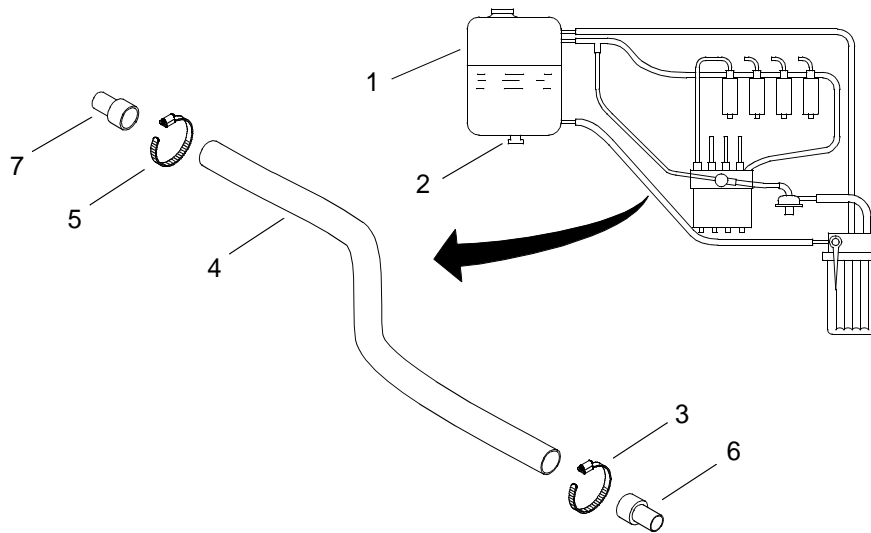
MOVING PARTS

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.

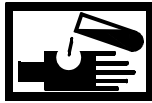
NOTE

The following procedure is typical for the removal and installation of all light tower engine fuel lines and hose clamps.

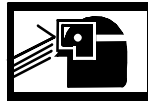
1. Place drain pan under fuel tank (1).



 WARNING



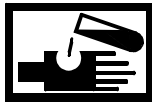
CHEMICAL



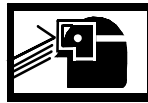
EYE PROTECTION

2. Open drain cock (2) under fuel tank (1).

 WARNING



CHEMICAL



EYE PROTECTION

3. Allow fuel tank (1) to drain into drain pan.
4. Remove hose clamp (3) on fuel line (4) and discard.
5. Remove hose clamp (5) on fuel line (4) and discard.
6. Remove fuel line (4) from fitting (6 and 7). Discard fuel line (4).

 WARNING



CHEMICAL



EYE PROTECTION

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

INSTALL LIGHT TOWER ENGINE FUEL LINE AND CLAMPS

1. Install new fuel line (4) on fitting (6 and 7).
2. Position new hose clamp (5) around fuel line (4). Tighten hose clamp (5).
3. Position new hose clamp (3) around fuel line (4). Tighten hose clamp (3).
4. Close drain cock (2) under fuel tank (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.
6. Service light tower fuel tank. (TM 55-1945-205-10-2)
7. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE AIR FILTER ELEMENT
REMOVAL, CLEANING, INSPECTION AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Compressor, Unit, Reciprocating, Power Drive (Item 13, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Utility, Pail (Item 45, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Cleaner (Item 9, WP 0358 00)
 Sodium Phosphate, Tribasic (Item 49, WP 0358 00)

Personnel Required

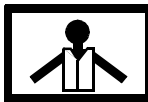
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

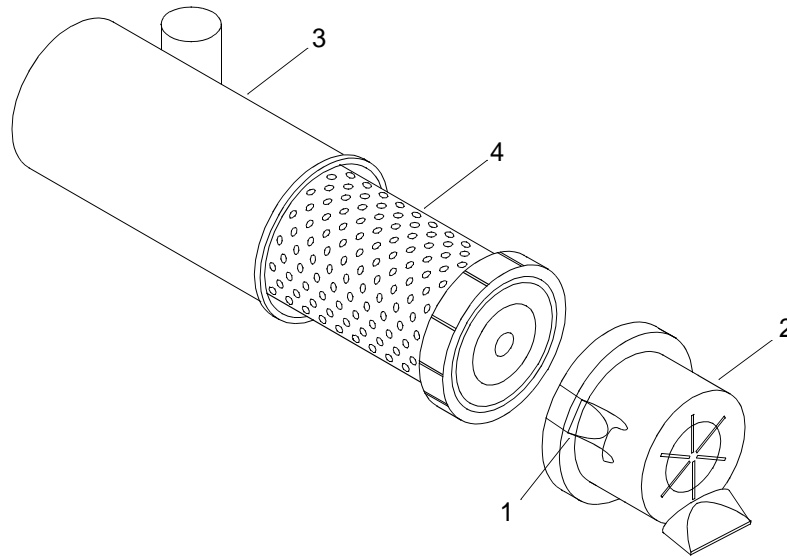
REMOVE LIGHT TOWER ENGINE AIR FILTER ELEMENT

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.

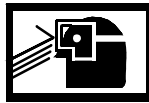
1. Release clips (1) on end cap (2).



2. Remove end cap (2) from air cleaner housing (3).
3. Remove air filter element (4) from air cleaner housing (3).

CLEAN LIGHT TOWER ENGINE AIR FILTER ELEMENT

WARNING



EYE PROTECTION

CAUTION

Hold air nozzle at least 1 in. from the pleated filter element. Failure to comply could result in damage to the filter element.

NOTE

If the filter is to be used immediately, compressed air is the only authorized method of cleaning the filter.

1. Using compressed air not to exceed 100 PSI, clean the filter (4).

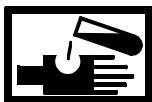
WARNING



EYE PROTECTION

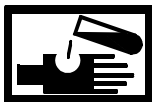
2. Inspect filter (4). Repeat cleaning step if needed.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Using a mixture of trisodium phosphate and detergent, clean filter (4).

WARNING

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

Mix enough solution to allow for the element to be completely submerged.

- a. Mix four tablespoons of general purpose detergent to one gallon of warm water in utility pail.

WARNING

**CHEMICAL****EYE PROTECTION**

- b. Place filter element in cleaning solution and allow to soak for five minutes.

WARNING

**CHEMICAL****EYE PROTECTION**

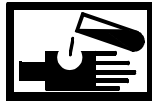
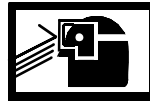
- c. Agitate filter element thoroughly in cleaning solution after the soaking period.

WARNING

**CHEMICAL****EYE PROTECTION**

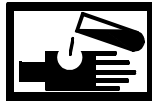
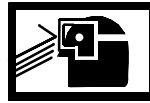
- d. Remove filter element from cleaning solution and allow to drain.
- e. Flush filter element with clean water.

WARNING

**CHEMICAL****EYE PROTECTION**

- f. Repeat cleaning procedure until filter element is clean.
- g. Allow filter element to air dry.

WARNING

**CHEMICAL****EYE PROTECTION**

- 4. Clean air cleaner housing (3) using a clean cloth and cleaning solution.
- 5. Allow air cleaner housing (3) to air dry.

INSPECT LIGHT TOWER ENGINE AIR FILTER ELEMENT

- 1. Inspect filter element (4) for tears or holes. If found, replace filter element.
- 2. Inspect filter element (4) for water or any other type of contamination. If found replace filter element.
- 3. Inspect filter element (4) for dirt. If found, clean filter element. If dirt cannot be removed replace filter element.
- 4. Inspect air cleaner housing (3) for dents or any damaged condition that could cause it to leak air past the filter element. If found replace air cleaner housing.
- 5. Inspect end cap (2) seal for damage or deformation. If found, replace end cap.

INSTALL LIGHT TOWER ENGINE AIR FILTER ELEMENT

1. Insert air filter element (4) into air cleaner housing (3).
2. Install end cap (2) on the air cleaner housing (3).
3. Secure end cap (2) with clips (1) to air cleaner housing (3).
4. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE EXHAUST MANIFOLD
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Men's and (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Manifold, Exhaust
(33968)
PN 17213-1231-0
Gasket, Ex-Manifold
(33968)
PN 16261-1236-0

Personnel Required

Engineer 88L

References

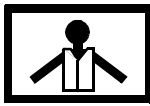
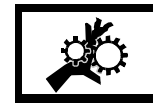
TM 55-1945-205-10-2

Equipment Condition

Engine Cool To Touch.
Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
Light Tower Engine Muffler Removed. (WP 0191 00)

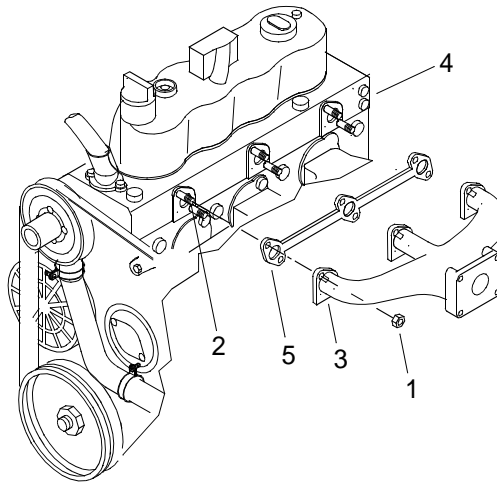
REMOVE LIGHT TOWER ENGINE EXHAUST MANIFOLD

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 six hex nuts (1) from studs (2).



2. Remove exhaust manifold (3) from engine (4).
3. Using putty knife, clean old gasket material (5) from exhaust manifold (3) and engine (4).

INSTALL LIGHT TOWER ENGINE EXHAUST MANIFOLD

1. Install new gasket (5) over studs (2) on engine (4)
2. Install new exhaust manifold (3) on engine (4).
3. Install six hex nuts (1) on studs (2). Tighten hex nuts (1).
4. Install light tower engine muffler. (WP 0191 00)
5. Install light tower battery negative lead terminal. (WP 0134 00)
6. Perform operational check of light tower engine. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE COOLING SYSTEM
SERVICE AND INSPECTION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)

Materials/Parts

Antifreeze (Item 3, WP 0358 00)
 Water, Reagent, Distilled (Item 60, WP 0358 00)

Personnel Required

Engineer 88L

References

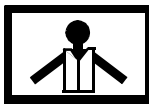
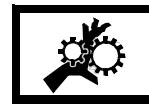
TM 55-1945-205-10-2

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

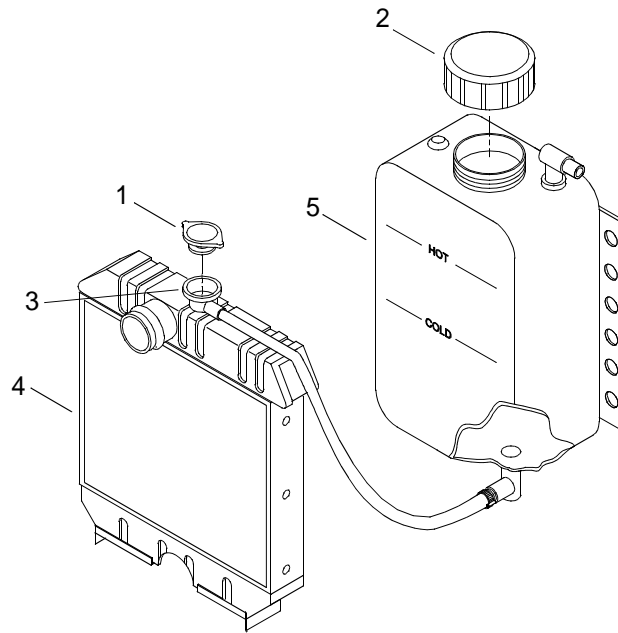
SERVICE LIGHT TOWER ENGINE COOLING SYSTEM

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 radiator cap (1) and reservoir tank cap (2).



WARNING



CHEMICAL



EYE PROTECTION



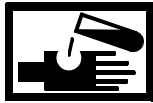
VAPOR



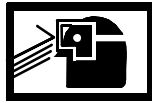
POISON

2. Check fluid level reaches filler neck (3) of radiator (4). If coolant reaches filler neck no additional coolant is necessary.
3. Check fluid level of reserve tank (5) for a level between full and low.

WARNING



CHEMICAL



EYE PROTECTION



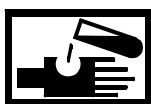
VAPOR



POISON

4. Fill radiator (4) and reserve tank (5) with distilled water and coolant.
5. Install radiator cap (1) and reserve tank cap (2) securely.
6. Start engine. (TM 55-1945-205-10-2)

WARNING



CHEMICAL



EYE PROTECTION



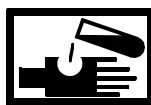
VAPOR



POISON

7. Shut down engine and re-check coolant levels. (TM 55-1945-205-10-2)
8. When operating light tower below freezing, perform following steps.

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

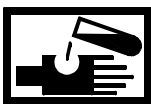


HOT AREA

Do not open the radiator cap or reserve cap while the engine is running or immediately after engine has stopped. Allow engine to cool first. Do not attempt to add coolant until after engine has stopped running. Failure to follow these procedures can result in serious injury to personnel.

- a. Remove radiator cap (1) and reservoir tank cap (2).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

- b. Check coolant levels.

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

- c. Add a mixture of less than 50% antifreeze and distilled water to radiator (4) and reservoir tank (5).

Table 1. Mixture of Antifreeze and Water.

VOL% ANTIFREEZE	FREEZING POINT		BOILING POINT	
40	-12°F	-24°C	222°F	106°C
50	-34°F	-37°C	226°F	108°C

9. Replace reservoir tank cap (2) and radiator cap (1).

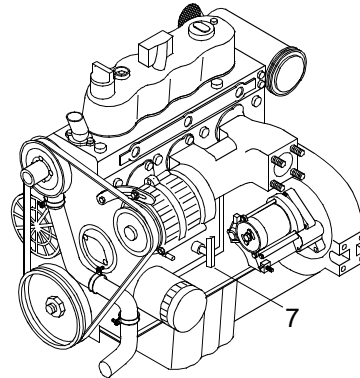
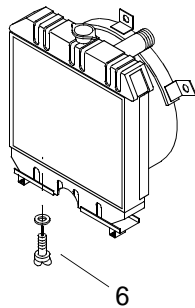
INSPECT LIGHT TOWER ENGINE COOLING SYSTEM

WARNING

**EYE PROTECTION****HOT AREA**

Do not open radiator cap or reserve cap while engine is running or immediately after engine has stopped. Allow engine to cool first. Do not attempt to add coolant until after engine has stopped running. Failure to follow these procedures can result in serious injury to personnel.

1. Verify system has cooled.
2. Verify radiator drain cock (6) and engine drain cock (7) are closed.



3. Inspect for any items that would obstruct airflow to radiator.
4. Remove all items that are obstructing air flow.
5. Inspect radiator for bent fins, leaks. Repair as necessary.
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE RADIATOR COOLANT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)
 Qty 2

Materials/Parts

Antifreeze (Item 3, WP 0358 00)
 Water, Reagent, Distilled (Item 60, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

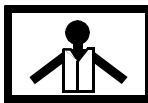
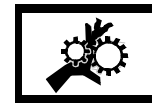
TM 55-1945-205-10-2

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

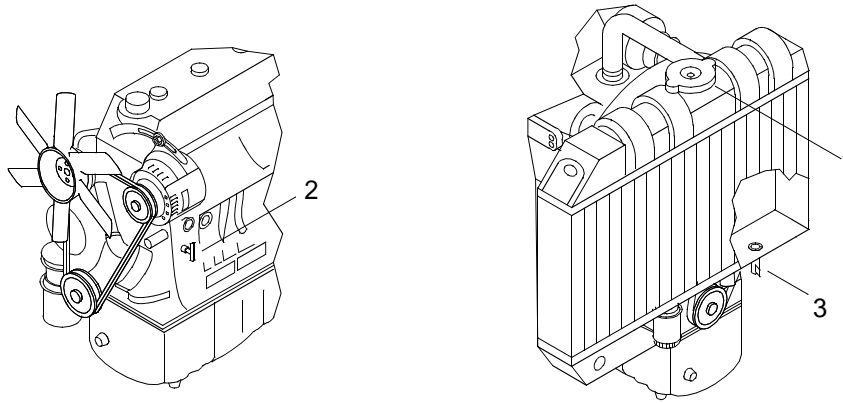
DRAIN LIGHT TOWER ENGINE RADIATOR OF COOLANT

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 radiator pressure cap (1).



2. Position drain pan beneath the drain cocks.
3. Open drain cocks located on crankcase side of engine (2) and at the lower part of the radiator (3).

WARNING



CHEMICAL



EYE PROTECTION

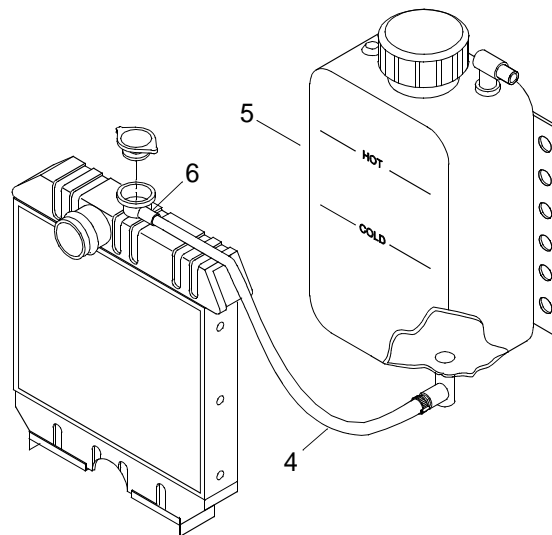


VAPOR



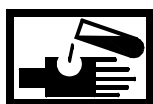
POISON

4. Drain engine radiator coolant.
5. Position drain pan beneath overflow hose (4) and reserve tank (5).



6. Disconnect overflow hose (4) from radiator pressure cap housing (6).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

7. Drain reserve tank (5) coolant.
8. Connect overflow hose (4) to radiator pressure cap housing (6).
9. Close drain cocks located on crankcase side of engine (2) and the lower part of radiator (3).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

10. Remove drain pans and dispose of contents in accordance with local procedures.

FILL LIGHT TOWER ENGINE RADIATOR WITH COOLANT

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



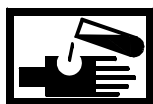
POISON

1. Fill engine radiator with coolant mixture of not more than 50% antifreeze and water.

Table 1. Mixture of Antifreeze and Water.

VOL% ANTIFREEZE	FREEZING POINT		BOILING POINT	
40	-12°F	-24°C	222°F	106°C
50	-34°F	-37°C	226°F	108°C

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

2. Fill overflow tank with coolant to the low level line.
3. Install radiator pressure cap (1).

-
4. Start engine. (TM 55-1945-205-10-2)
 5. Operate engine until normal coolant temperature is reached.

NOTE

Coolant level drops the first time the engine is started. Stop the engine and add more coolant as necessary.

6. Stop engine. (TM 55-1945-205-10-2)
7. Check coolant level in overflow tank.

WARNING

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

8. Add coolant as required.

WARNING

**CHEMICAL****EYE PROTECTION****VAPOR****POISON****SLICK FLOOR**

9. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
10. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER COOLING SYSTEM
FLUSHING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cleaning Compound, Engine Cooling System (Item 12, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

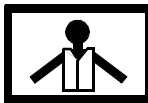
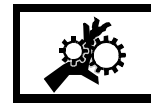
TM 55-1945-205-10-2

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

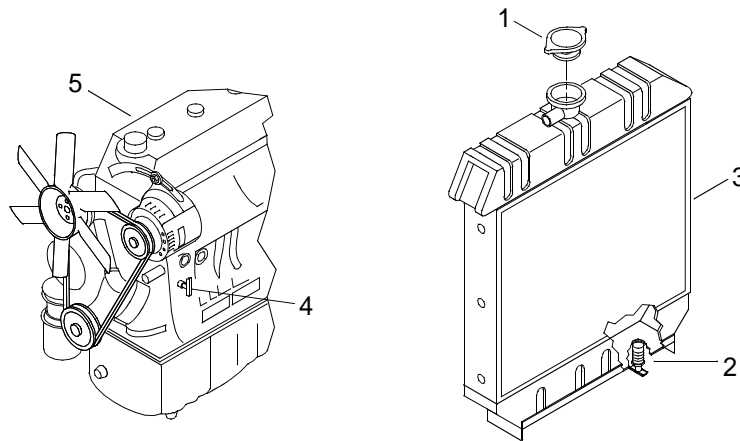
FLUSH LIGHT TOWER COOLING SYSTEM

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 the radiator pressure cap (1).



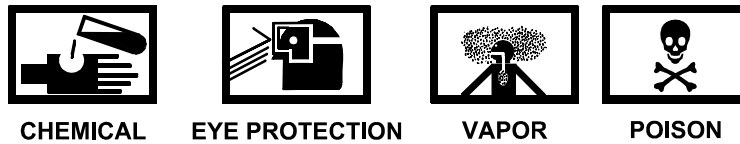
2. Position drain pan under the drain cock (2).

WARNING



3. Open drain cock (2) located at lower part of radiator (3).

WARNING



4. Drain enough engine radiator coolant to pour the entire contents of a bottle of radiator flush in radiator (3).

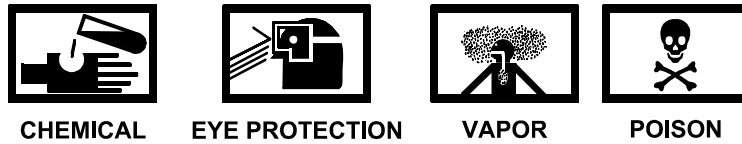
WARNING



5. Close drain cock (2).
6. Shake bottle of radiator cleaning flush.
7. Pour the entire contents of a bottle of flush into radiator (3).
8. Install radiator pressure cap (1).
9. Install light tower battery negative lead terminal. (WP 0134 00)
10. Start light tower engine. (TM 55-1945-205-10-2)

11. Allow light tower engine to run for 2-3 hours with radiator flush in cooling system.
12. Shut light tower engine down. (TM 55-1945-205-10-2)
13. Allow radiator (3) to cool.
14. Remove light tower battery negative lead terminal. (WP 0134 00)
15. Remove radiator pressure cap (1).
16. Position drain pan under drain cocks (2 and 4).
17. Open drain cock (2) located on the radiator (3).
18. Open drain cock (4) located on the engine (5).

WARNING

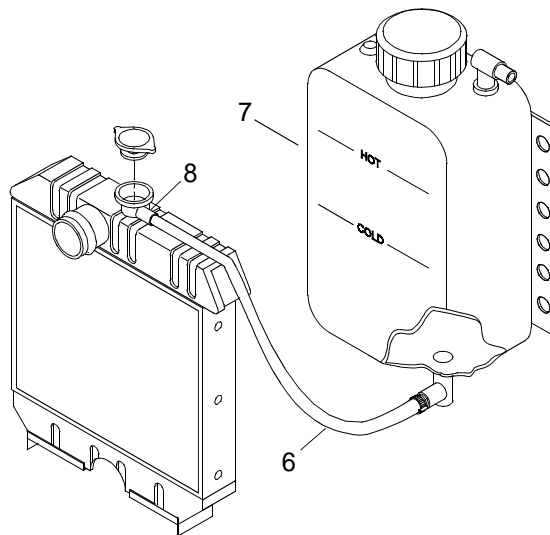


19. Drain engine radiator coolant.
20. Position drain pan under overflow hose (6) and reserve tank (7).

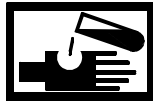
WARNING



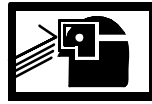
21. Disconnect overflow hose (6) from radiator pressure cap housing (8) to drain the reserve tank (7).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

22. Drain reserve tank (7) coolant.
23. Connect the overflow hose (6) to the radiator pressure cap housing (8).
24. Close drain cock (4) on the engine (5).
25. Close drain cock (2) on the radiator (3)
26. Replace the light tower engine radiator coolant. (WP 0178 00)
27. Install light tower battery negative lead terminal. (WP 0134 00)

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

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

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON



SLICK FLOOR

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

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE UPPER RADIATOR HOSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Antifreeze (Item 3, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

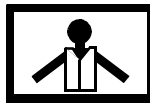
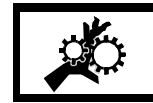
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

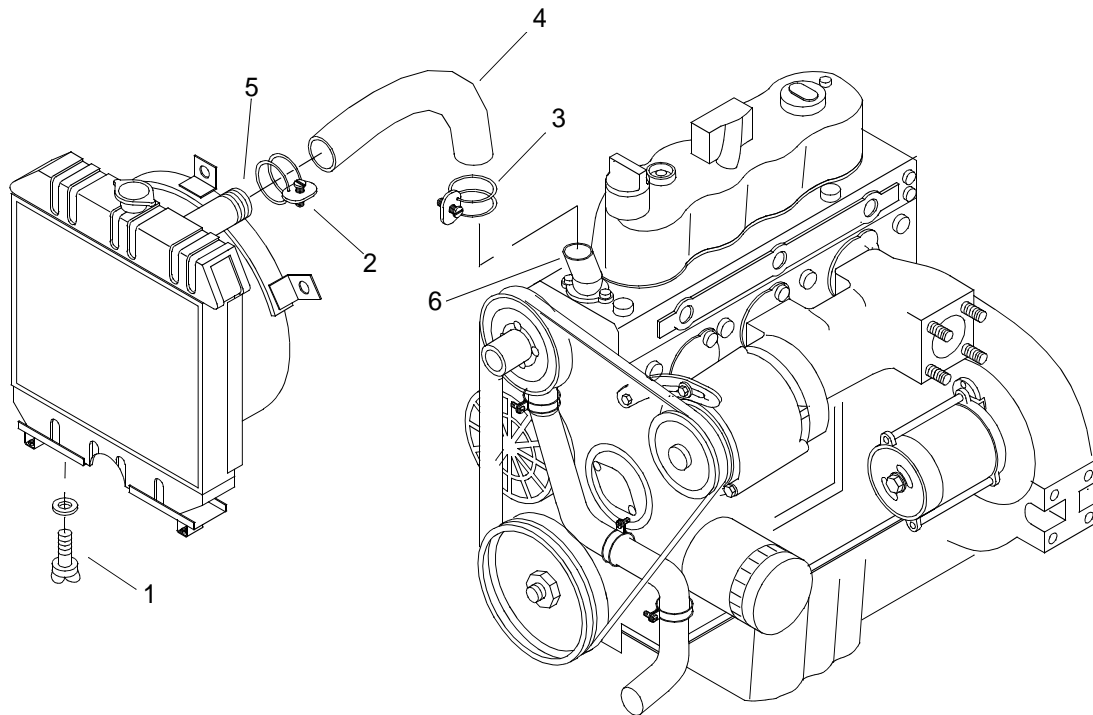
REMOVE LIGHT TOWER ENGINE UPPER RADIATOR HOSE

WARNING

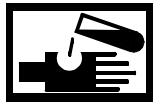
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 drain pan under drain cock (1).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

NOTE

Opening the radiator cap may expedite fluid drainage

2. Open drain cock (1) and drain coolant into drain pan.
3. Loosen hose clamps (2 and 3) and slide back on hose (4).
4. Remove hose (4) from radiator (5) and thermostat cover (6).
5. Remove hose clamps (2 and 3) from hose (4) and discard hose.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

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

INSTALL LIGHT TOWER ENGINE UPPER RADIATOR HOSE

1. Install clamps (2 and 3) over new hose (4).
2. Install hose (4) on radiator (5) and thermostat cover (6).
3. Slide hose clamps (2 and 3) into the proper position on hose (4).
4. Tighten hose clamps (2 and 3).
5. Close drain cock (1).
6. Replace light tower engine radiator coolant. (WP 0178 00)

WARNING

**CHEMICAL****EYE PROTECTION****VAPOR****POISON****SLICK FLOOR**

7. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
8. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE LOWER RADIATOR HOSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Hose, Radiator
 (33968)
 PN 16241-7287-0
 Hose, Radiator
 (33968)
 PN 16626-7285-0
 Antifreeze (Item 3, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

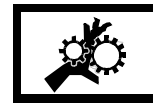
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER ENGINE LOWER RADIATOR HOSE

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 drain pan under drain cock (1).

 WARNING



CHEMICAL



EYE PROTECTION

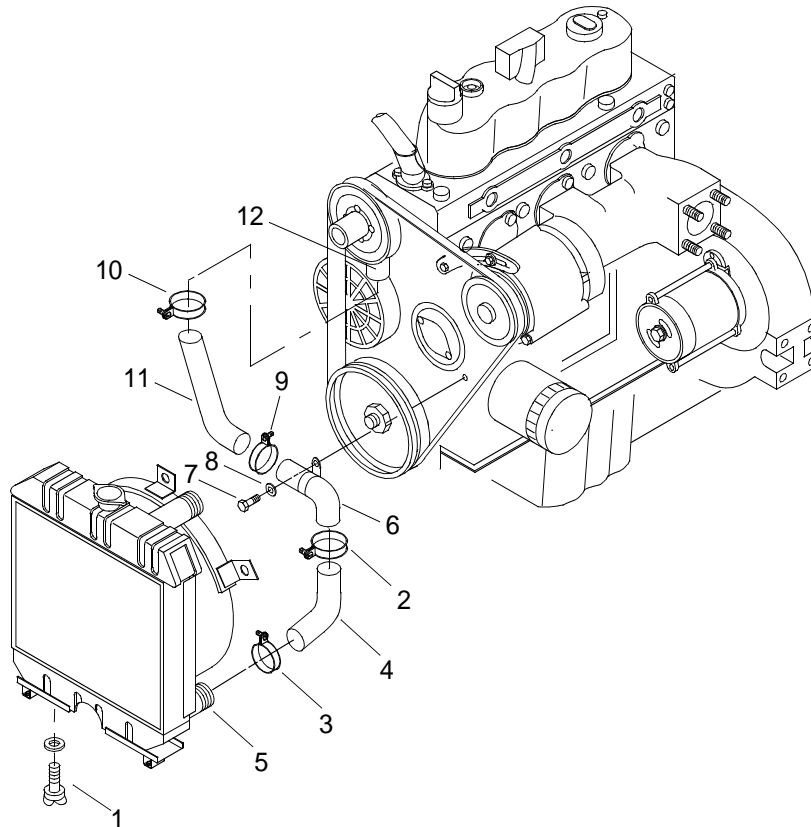


VAPOR



POISON

- Open drain cock (1) and drain coolant into drain pan.



- Loosen hose clamps (2, 3) and slide back on hose (4).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

- Remove hose (4) from radiator (5) and coolant elbow (6).
- Remove hose clamps (2, 3) from hose (4). Discard hose (4).
- Remove hex head bolt (7) and lock washer (8) from coolant elbow (6).
- Loosen hose clamps (9, 10) and slide back on hose (11).

8. Remove coolant elbow (6) from hose (11).
9. Remove hose (11) from water pump (12).
10. Remove hose clamps (9, 10) from hose (11). Discard hose (11).

WARNING

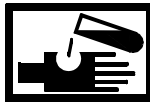
**CHEMICAL****EYE PROTECTION****VAPOR****POISON**

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

INSTALL LIGHT TOWER ENGINE LOWER RADIATOR HOSE

1. Install hose clamps (9, 10) over new hose (11).
2. Install new hose (11) on water pump (12).
3. Install coolant elbow (6) on hose (11).
4. Slide hose clamps (9, 10) into proper place over hose (11).
5. Install lock washer (8) and hex head bolt (7) on coolant elbow (6).
6. Tighten hose clamps (9, 10).
7. Install clamps (2, 3) over hose (4).
8. Install hose (4) on radiator (5) and coolant elbow (6).
9. Slide hose clamps (2, 3) into proper position on hose (4) and tighten.
10. Close drain cock (1).

WARNING

**CHEMICAL****EYE PROTECTION****VAPOR****POISON****SLICK FLOOR**

11. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
12. Replace light tower engine coolant. (WP 0178 00)
13. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE FAN BELT GUARD
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Guard, Fan
 (33968)
 PN 36868727

Personnel Required

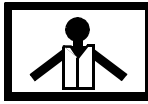
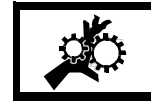
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

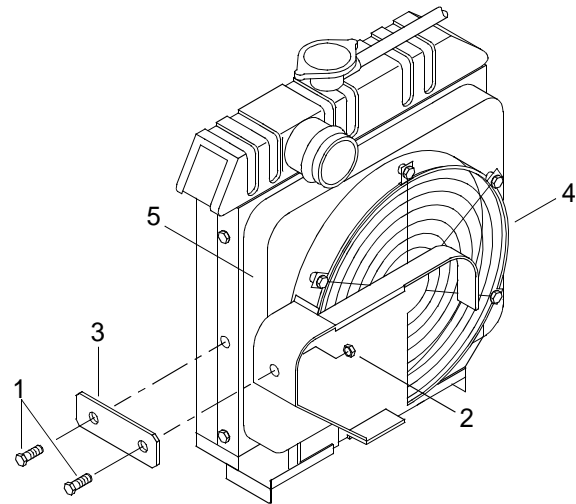
REMOVE LIGHT TOWER ENGINE FAN BELT GUARD

WARNING

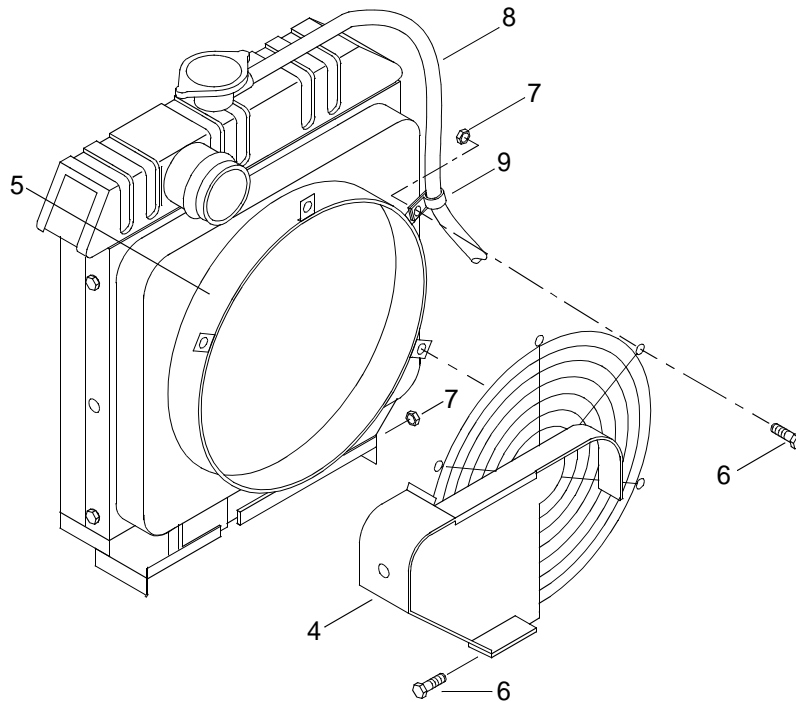
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 injury or death.

1. Remove two bolts (1) and hex nut (2) securing fan belt guard mounting bracket (3) to fan belt guard (4) and fan shroud (5).



2. Remove seven bolts (6) and hex nuts (7) securing fan belt guard (4) to fan shroud (5).



3. Move coolant overflow hose (8) and hose clamp (9) out of the way.
4. Remove fan belt guard (4) and discard.

INSTALL LIGHT TOWER ENGINE FAN BELT GUARD

1. Position fan belt guard (4), hose clamp (9) and coolant overflow hose (8) on fan shroud (5).
2. Install seven bolts (6) and hex nuts (7) securing fan belt guard (4) to fan shroud (5).
3. Position fan belt guard mounting bracket (3) on fan belt guard (4) and fan shroud (5).
4. Install two bolts (1) and hex nut (2) securing fan belt guard mounting bracket (3) to fan belt guard (4) and fan shroud (5).
5. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE FAN BELT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Belt, Fan
 (33698)
 PN 36888493

Personnel Required

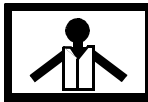
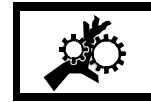
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Engine Fan Belt Guard Removed. (WP 0182 00)

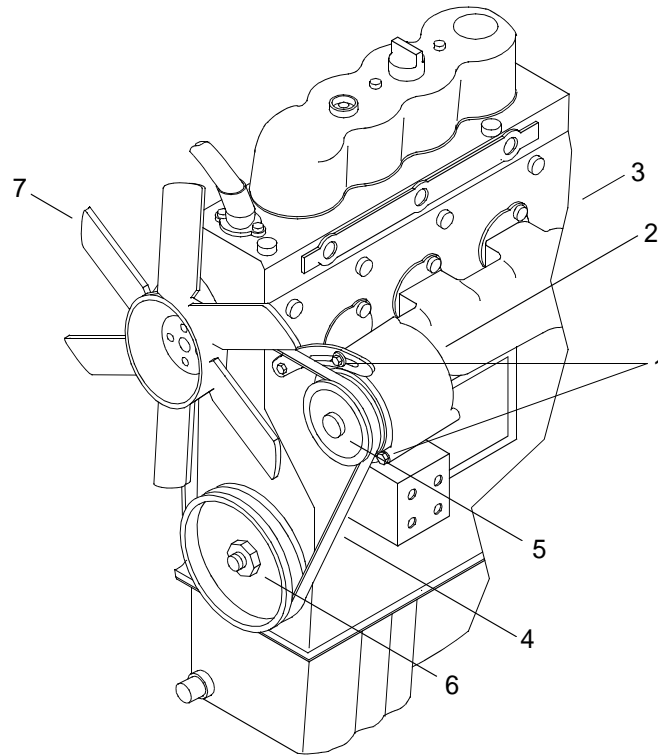
REMOVE LIGHT TOWER ENGINE FAN BELT

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 alternator mount bolts (1).

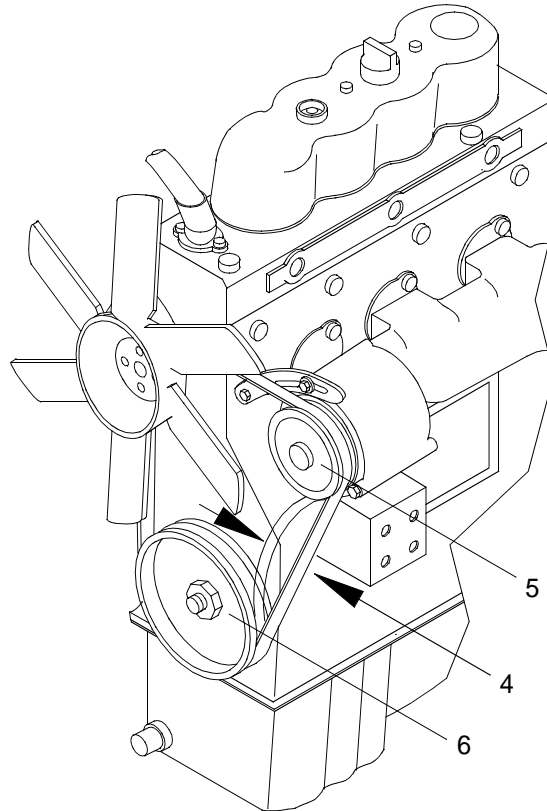


2. Pivot alternator (2) toward engine (3).
3. Pull fan belt (4) off pulleys (5, 6) and fan (7) to remove. Discard belt (4).

INSTALL LIGHT TOWER ENGINE FAN BELT

1. Position new fan belt (4) past fan (7) and over pulleys (5, 6).
2. Pivot alternator (2) away from engine (3) to tighten fan belt (4).
3. Tighten generator mount bolts (1).
4. Use scale to apply 22.1 ft lbs (10 kg) inward pull pressure on fan belt (4).

-
5. Measure the deflection of fan belt (4) between alternator pulley (5) and harmonic balancer pulley (6).



NOTE

If fan belt does not meet deflection specifications given, repeat steps 5, 6 and 7.

6. Verify fan belt (4) deflection dimensions are between 0.28 in. to 0.35 in. (7 to 9 mm).
7. Install light tower engine fan belt guard. (WP 0182 00)
8. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE COOLING FAN
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Fan, Engine Cooling
 (33968)
 PN 36888501

Personnel Required

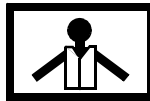
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Engine Upper Radiator Hose Removed. (WP 0180 00)
 Light Tower Engine Lower Radiator Hose Removed. (WP 0181 00)
 Light Tower Engine Fan Belt Guard Removed. (WP 0182 00)
 Light Tower Engine Radiator and Shroud Removed. (WP 0187 00)
 Light Tower Engine Fan Belts Removed. (WP 0183 00)

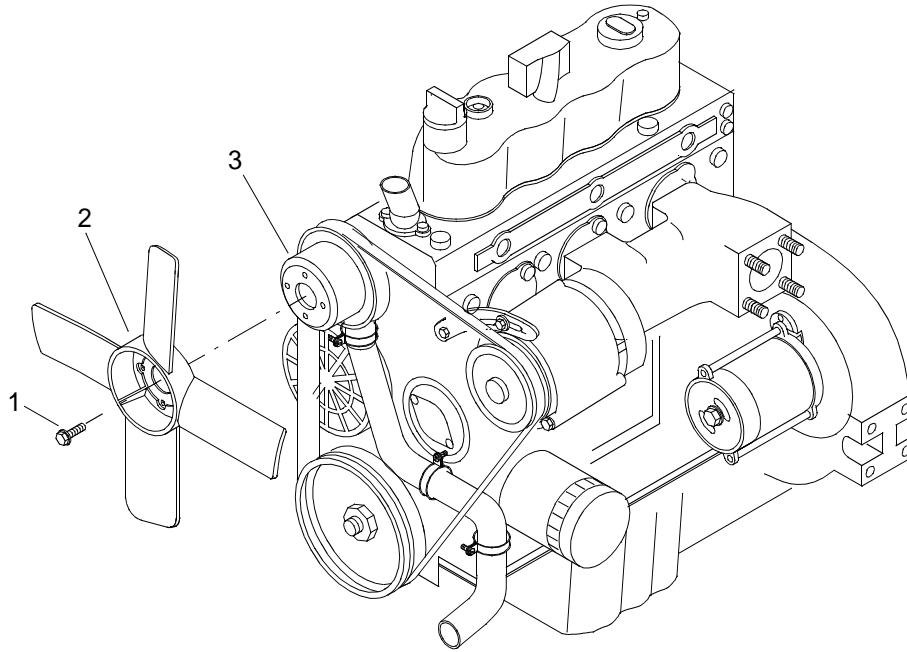
REMOVE LIGHT TOWER ENGINE COOLING FAN

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 to personnel.

1. Remove four bolts (1) from cooling fan (2).



2. Remove cooling fan (2) from water pump sheave (3) and discard.

INSTALL LIGHT TOWER ENGINE COOLING FAN

1. Position new cooling fan (2) on water pump sheave (3).
2. Install four bolts (1) through cooling fan (2) into water pump sheave (3) and tighten.
3. Install light tower engine fan belts. (WP 0183 00)
4. Install light tower engine radiator and shroud. (WP 0187 00)
5. Install light tower engine fan belt guard. (WP 0182 00)
6. Install light tower engine lower radiator hose. (WP 0181 00)
7. Install light tower engine upper radiator hose. (WP 0180 00)
8. Replace light tower engine radiator coolant. (WP 0178 00)
9. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE WATER PUMP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Gasket, Water Pump
 (1Q0C4)
 PN 16261-7343-0
 Pump, Water
 (1Q0C4)
 PN 16241-7303-0

Personnel Required

Engineer 88L

References

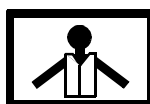
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Engine Upper Radiator Hose Removed. (WP 0180 00)
 Light Tower Engine Lower Radiator Hose Removed. (WP 0181 00)
 Light Tower Engine Fan Belt Guard Removed. (WP 0182 00)
 Light Tower Engine Radiator and Shroud Removed. (WP 0187 00)
 Light Tower Engine Fan Belts Removed. (WP 0183 00)
 Light Tower Engine Cooling Fan Removed. (WP 0184 00)

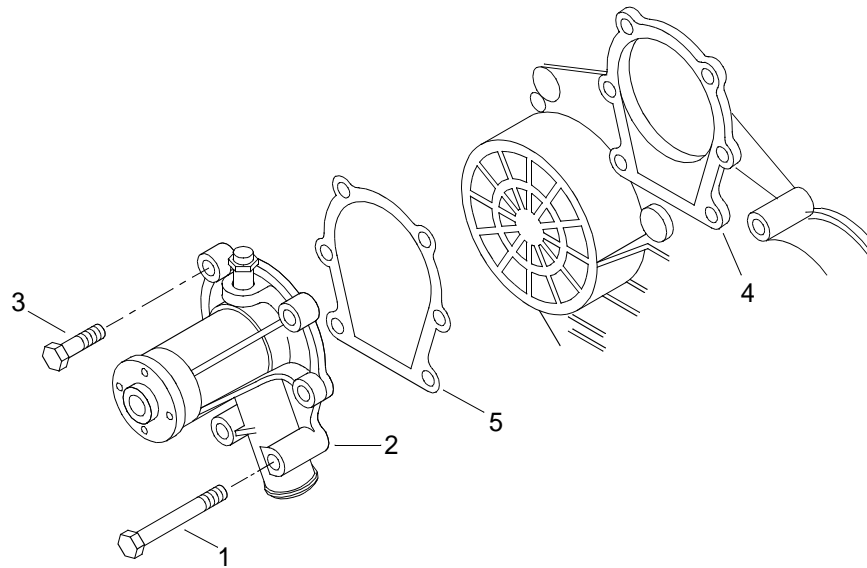
REMOVE LIGHT TOWER ENGINE WATER PUMP

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 two lower bolts (1) from water pump (2).



2. Remove four bolts (3) from water pump (2).
3. Remove water pump (2) from engine block (4).
4. Remove water pump gasket (5) and discard.

INSTALL LIGHT TOWER ENGINE WATER PUMP

1. Position new water pump (2) and new gasket (5) on engine block (4).
2. Install four bolts (3) through water pump (2) and gasket (5) into engine block (4).
3. Install two lower bolts through water pump (2) and gasket (5) into engine block (4).
4. Tighten bolts (1 and 3).
5. Install light tower engine cooling fan. (WP 0184 00)
6. Install light tower engine fan belts. (WP 0183 00)
7. Install light tower engine radiator and shroud. (WP 0187 00)
8. Install light tower engine fan belt guard. (WP 0182 00)
9. Install light tower engine lower radiator hose. (WP 0181 00)
10. Install light tower engine upper radiator hose. (WP 0180 00)
11. Replace light tower engine radiator coolant. (WP 0178 00)
12. Install light tower battery negative lead terminal. (WP 0134 00)
13. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE WATER PUMP
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

Assembly Seal, Mechanical
(1Q0C4)
PN 16241-7305-0
Impeller, Water Pump
(1Q0C4)
PN 16241-7351-0
Cleaner (Item 9, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L

Equipment Condition

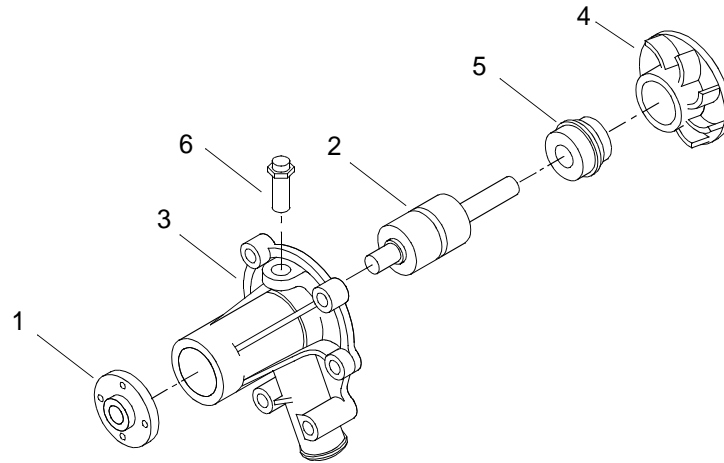
Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
Light Tower Engine Upper Radiator Hose Removed. (WP 0180 00)
Light Tower Engine Lower Radiator Hose Removed. (WP 0181 00)
Light Tower Engine Fan Belt Guard Removed. (WP 0182 00)
Light Tower Engine Radiator and Shroud Removed. (WP 0187 00)
Light Tower Engine Fan Belts Removed. (WP 0183 00)
Light Tower Engine Cooling Fan Removed. (WP 0184 00)

DISASSEMBLE LIGHT TOWER ENGINE WATER PUMP

NOTE

Repair is limited to the replacement of defective piece parts.

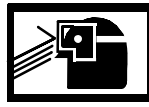
1. Remove the water pump flange (1) from water pump shaft (2).



2. Remove water pump shaft (2) from water pump housing (3) with impeller (4) and mechanical seal (5) attached.
3. Remove water pump impeller (4) from water pump shaft (2).
4. Remove mechanical seal (5) from water pump shaft (2).
5. Remove water return pipe (6) from water pump housing (3).

CLEAN LIGHT TOWER ENGINE WATER PUMP

WARNING


CHEMICAL

EYE PROTECTION

1. Using wiping rags soaked with cleaner, remove debris from external components.

WARNING


CHEMICAL

EYE PROTECTION

2. Using wiping rags soaked with cleaner, remove debris from internal components.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Dispose of contaminated rags in accordance with local procedures.

INSPECT LIGHT TOWER ENGINE WATER PUMP

1. Inspect impeller for cracks or corrosion. Replace damaged part as required.
2. Inspect bearing for pitting, corrosion and freedom of movement. Replace damaged part as required.
3. Inspect water pump housing for cracks and corrosion. Replace damaged part as required.

ASSEMBLE LIGHT TOWER ENGINE WATER PUMP

1. Install water return pipe (6) on water pump housing (3).
2. Install new mechanical seal (5) on water pump shaft (2).
3. Install new water pump impeller (4) on water pump shaft (2).
4. Install water pump shaft (2) in water pump housing (3).
5. Install water pump flange (1) on the water pump shaft (2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE RADIATOR AND SHROUD
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33 WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Radiator, Engine
 (33968)
 PN 3688451

Personnel Required

Engineer 88L

References

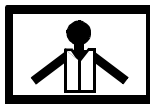
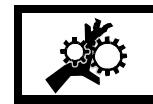
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Engine Upper Radiator Hose Removed. (WP 0180 00)
 Light Tower Engine Lower Radiator Hose Removed. (WP 0181 00)
 Light Tower Engine Fan Belt Guard Removed. (WP 0182 00)

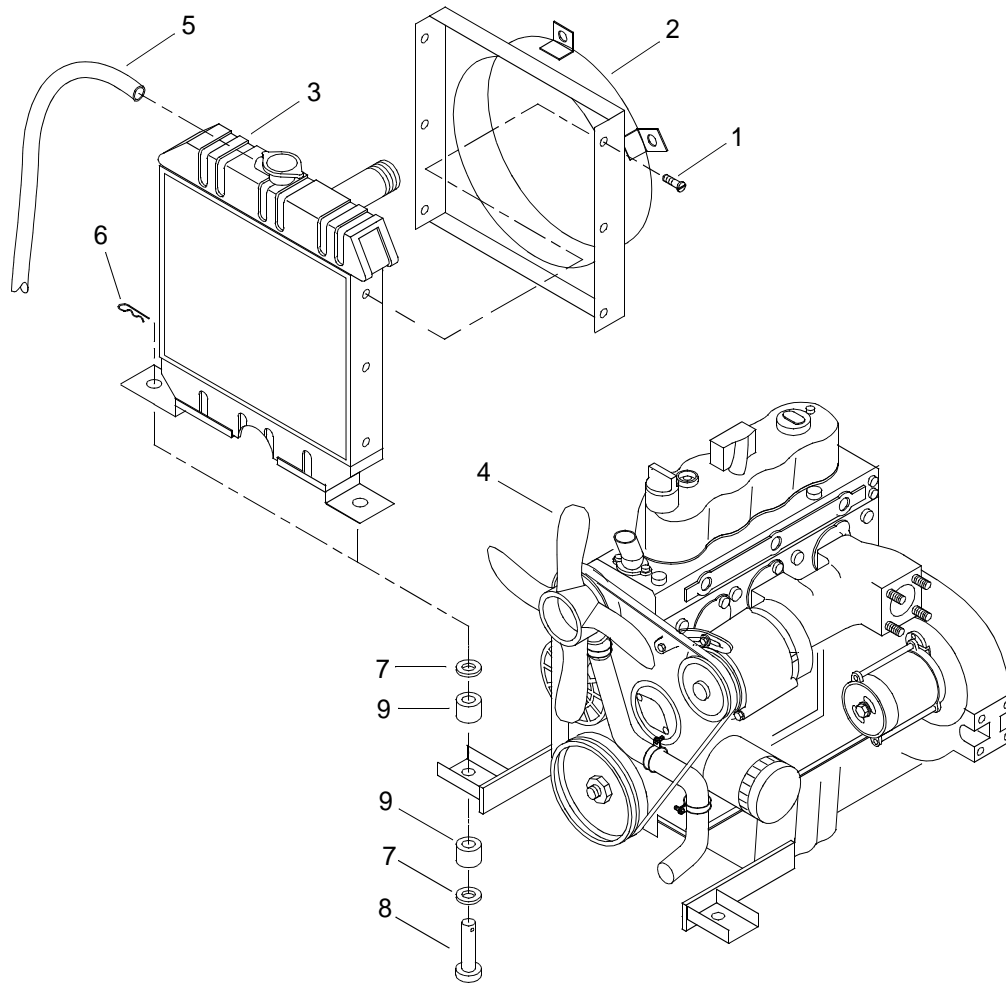
REMOVE LIGHT TOWER ENGINE RADIATOR AND SHROUD

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 to personnel.

1. Remove six hex head screws (1) securing shroud (2) to radiator (3).



2. Slide shroud (2) back toward engine fan (4).
3. Remove overflow line (5) from radiator (3).
4. Remove two retaining clips (6) and flat washers (7) from pin (8) securing radiator (3) to mount bushings (9).
5. Remove mount bushings (9).
6. Remove radiator (3).
7. Remove fan shroud (2) and discard.

INSTALL LIGHT TOWER ENGINE RADIATOR AND SHROUD

1. Position new fan shroud (2) over engine fan (4).
2. Position upper half of new mount bushings (9) on radiator mounting brackets (10).
3. Position new radiator (3) on mounting brackets (10).
4. Install two flat washers (7) and lower half of mount bushings (9) on pins (8).
5. Install two pins (8) up through upper half of new mount bushings (9) and radiator (3).

-
6. Install retaining clips (6) on pin (8).
 7. Install overflow line (5) on radiator (3).
 8. Position shroud (2) on radiator (4).
 9. Install six hex head screws (1) securing shroud (2) to radiator (3). Tighten hex head screws (1).
 10. Install light tower engine fan belt guard. (WP 0182 00)
 11. Install light tower engine lower radiator hose. (WP 0181 00)
 12. Install light tower engine upper radiator hose. (WP 0180 00)
 13. Replace light tower engine radiator coolant. (WP 0178 00)
 14. Install light tower battery negative lead terminal. (WP 0134 00)
 15. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE RADIATOR RESERVE TANK
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Tank, Radiator Overflow
 (33968)
 PN 36845600
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

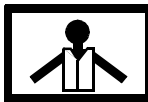
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

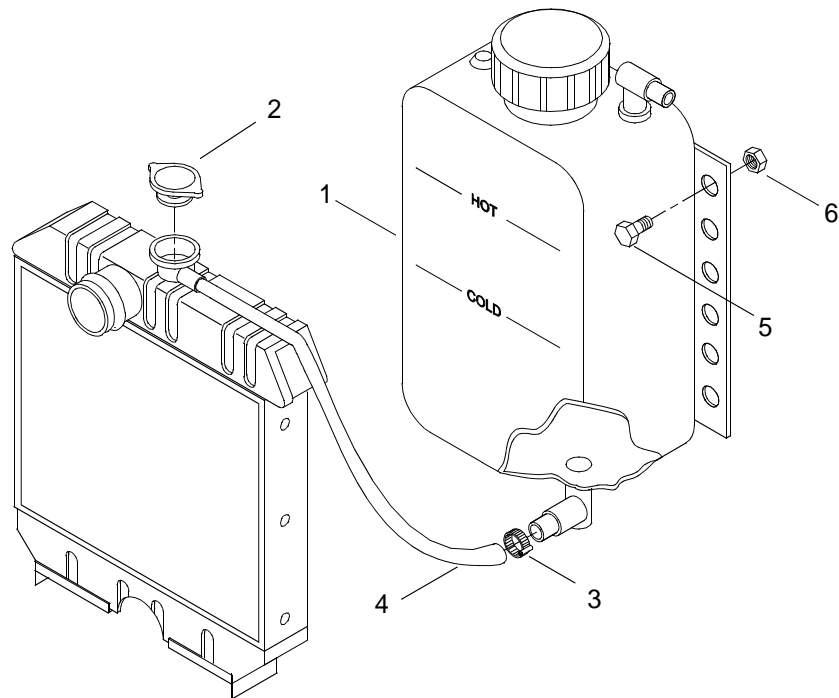
REMOVE LIGHT TOWER ENGINE RADIATOR RESERVE TANK

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. Position drain pan under reserve tank (1).



2. Remove radiator cap (2).
3. Loosen hose clamp (3) and slide back on hose (4).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



POISON

4. Remove hose (4) from bottom of reserve tank (1) and allow coolant to drain into drain pan.
5. Remove two hex head bolts (5) and hex nuts (6) from reserve tank (1).
6. Remove reserve tank (1) and discard.

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



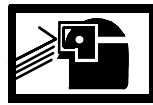
POISON

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

INSTALL LIGHT TOWER ENGINE RADIATOR RESERVE TANK

1. Position new reserve tank (1) on rear panel (7).
2. Install two hex head bolts (5) and hex nuts (6) through reserve tank (1) on rear panel (7).
3. Install hose (4) on the bottom of reserve tank (1).
4. Slide hose clamp (3) back into position on hose (4). Tighten hose clamp (3).
5. Replace light tower engine radiator coolant. (WP 0178 00)
6. Install radiator cap (2).

WARNING

**CHEMICAL****EYE PROTECTION****VAPOR****POISON****SLICK FLOOR**

7. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
8. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE VALVE COVER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Wrench, Torque (10-250 in. lbs) (Item 90, WP 0359 00)

Materials/Parts

Assembly Cover, Cylinder Head
 (OXWR1)
 PN 16261-1450-0
 Gasket
 (OXWR1)
 PN 15951-9666-0
 Qty 3
 Cleaner (Item 9, WP 0358 00)

Personnel Required

Engineer 88L

References

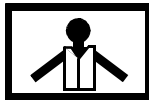
TM 55-1945-205-10-2

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

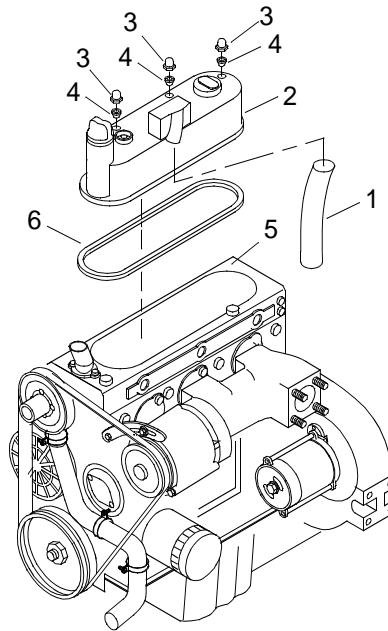
REMOVE LIGHT TOWER ENGINE VALVE COVER

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. Disconnect engine breather hose (1) from valve cover (2).



2. Remove three hex head cap nuts (3) and gaskets (4) from valve cover (2). Discard gaskets (4).
3. Remove valve cover (2) from cylinder head (5).
4. Remove valve cover gasket (6) and discard.

INSTALL VALVE COVER

WARNING



CHEMICAL



EYE PROTECTION

1. Using cleaner and putty knife, clean the gasket surface area on the cylinder head (5) and valve cover (4).
2. Install new valve cover gasket (6) in valve cover (4).
3. Install valve cover (2) on cylinder head (5).
4. Install three new gaskets (4) on valve cover (2).
5. Install three hex head cap nuts (3) in valve cover (2).
6. Torque hex head cap nuts (3) to 61.2 to 78 in. lbs (6.9-8.8 N-m).
7. Connect engine breather hose (1) to valve cover (2).
8. Install light tower battery negative lead terminal. (WP 0134 00)
9. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE VALVE COVER
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

O-Ring
 (OXWR1)
 PN 04811-50300
 Element, Breather
 (OXWR1)
 PN 16241-0567-0
 Cleaner (Item 9, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

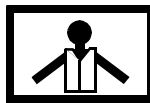
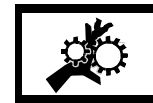
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Engine Valve Cover Removed. (WP 0189 00)

DISASSEMBLE LIGHT TOWER ENGINE VALVE COVER

WARNING

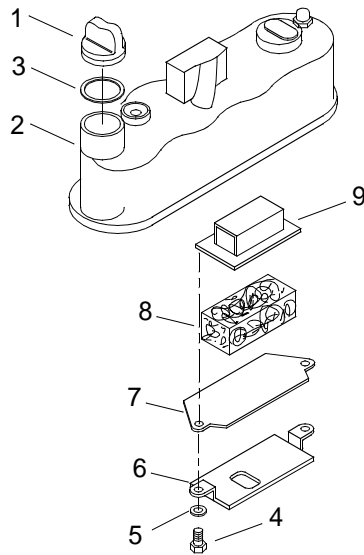
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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

Repair is limited to the replacement of damaged components.

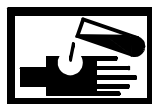
1. Remove the oil filler plug (1) from the valve cover (2).



2. Remove o-ring (3) from the oil filler plug (1) and discard.
3. Remove two hex head bolts (4) and lock washers (5) from breather oil shield (6).
4. Remove breather oil shield (6).
5. Remove lower breather plate (7).
6. Remove breather element (8) and discard.
7. Remove upper breather plate (9).

CLEAN LIGHT TOWER ENGINE VALVE COVER

WARNING



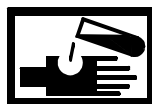
CHEMICAL



EYE PROTECTION

1. Using wiping rags soaked with cleaner, remove debris from external components.

WARNING



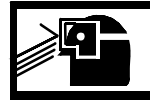
CHEMICAL



EYE PROTECTION

2. Using wiping rags soaked with cleaner, remove debris from internal components.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Dispose of contaminated wiping rags in accordance with local procedures.

INSPECT LIGHT TOWER ENGINE VALVE COVER

1. Inspect oil filler plug (1) for cracks or damaged threads, replace as necessary.
2. Inspect valve cover (2) for cracks, dents, warping or any damage that may cause leaking or interfere with the normal operation of the engine, replace as necessary.
3. Inspect breather oil shield (6) for cracks, dents, or warping. Replace as necessary.
4. Inspect lower breather plate (7) for cracks, dents, or warping. Replace as necessary.
5. Inspect upper breather plate (9) for cracks, dents, or warping. Replace as necessary.

ASSEMBLE LIGHT TOWER ENGINE VALVE COVER

1. Install upper breather plate (9).
2. Install new breather element (8).
3. Install lower breather plate (7).
4. Install breather oil shield (6).
5. Position two lock washers (5) under breather oil shield (6).
6. Install two hex head bolts (4) through lock washers (5) and breather oil shield (6). Tighten hex head bolts (4).
7. Install new o-ring (3) on oil filler plug (1).
8. Install oil filler plug (1) on the valve cover (2).
9. Install light tower engine valve cover. (WP 0189 00)
10. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ENGINE MUFFLER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Muffler, Engine
 (33968)
 PN 36871051
 Gasket, Exhaust
 (33968)
 PN 15263-1237-0

Personnel Required

Engineer 88L

References

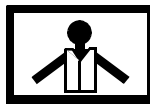
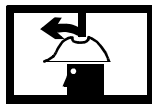
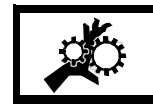
TM 55-1945-205-10-2

Equipment Condition

Engine Cool To Touch.
 Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

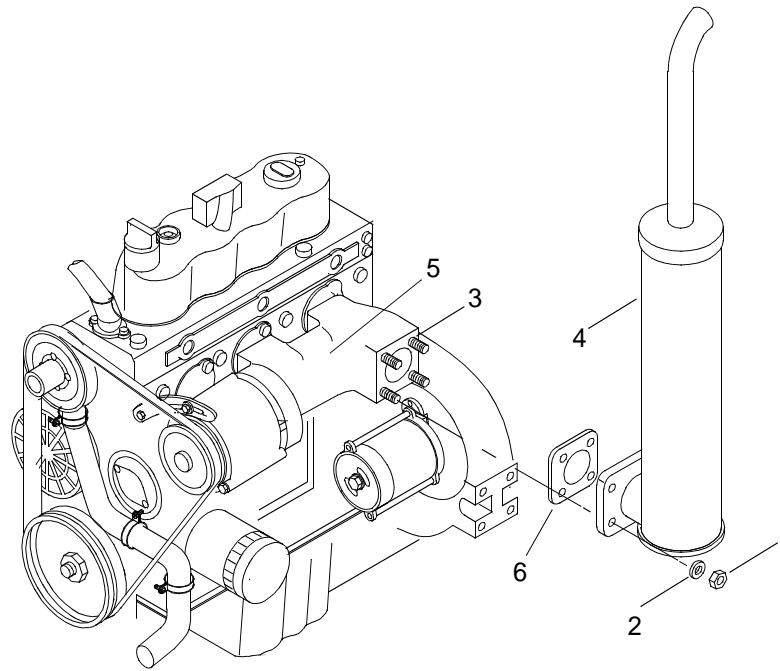
REMOVE LIGHT TOWER ENGINE MUFFLER

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 four hex nuts (1) and lock washers (2) from studs (3).



2. Remove muffler (4) from manifold (5).
3. Clean old gasket material (6) from manifold (5) with a putty knife.

INSTALL LIGHT TOWER ENGINE MUFFLER

1. Install new gasket (6) on manifold (5).
2. Install new muffler (4) on manifold (5).
3. Install four lock washers (2) and hex nuts (1) on studs (3). Tighten hex nuts (1).
4. Install light tower battery negative lead terminal. (WP 0134 00)
5. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RUNNING GEAR WHEEL AND TIRE ASSEMBLY
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

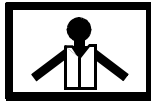
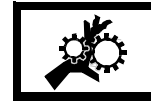
Tire/Wheel Assembly
 (33968)
 PN 35068345

Personnel Required

Engineer 88L

REMOVE LIGHT TOWER RUNNING GEAR WHEEL AND TIRE ASSEMBLY

WARNING

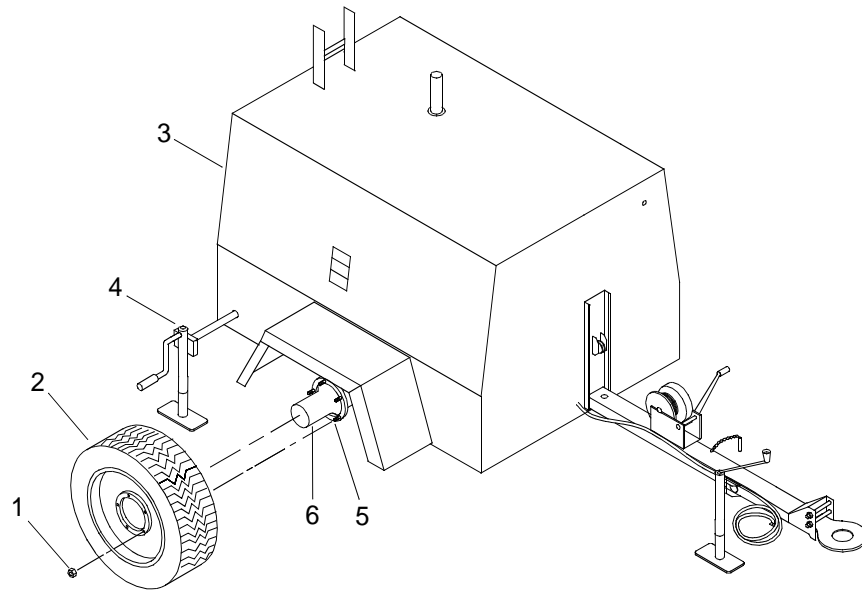
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

NOTE

The following procedure is typical for removal and installation of wheel and tire assemblies.

1. Loosen five lug nuts (1) on the wheel and tire assembly (2).



WARNING

**HEAVY OBJECTS**

2. Raise light tower (3) off the wheel and tire assembly (2) using outrigger (4).
3. Remove five lug nuts (1) from hub studs (5).
4. Remove wheel and tire assembly (2) off hub (6).

INSTALL LIGHT TOWER RUNNING GEAR WHEEL AND TIRE ASSEMBLY

1. Position new wheel and tire assembly (2) on hub (6).
2. Install five lug nuts (1) on hub studs (5).

WARNING

**HEAVY OBJECTS**

3. Lower light tower (3) using outrigger (4) until its weight is supported on wheel and tire assembly (2).
4. Tighten five lug nuts (1) in a criss-cross pattern.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RUNNING GEAR WHEEL HUB
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Wrench, Torque (150-750 in. lbs) (Item 91, WP 0359 00)

Materials/Parts

Pin, Cotter
 (33968)
 PN 35315225
 Seal
 (33968)
 PN 35315142

Personnel Required

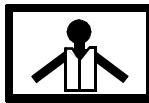
Engineer 88L

Equipment Condition

Light Tower Running Gear Wheel and Tire Assembly Removed. (WP 0192 00)

REMOVE LIGHT TOWER RUNNING GEAR WHEEL HUB

WARNING



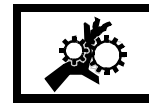
VEST



HELMET PROTECTION



HEAVY PARTS



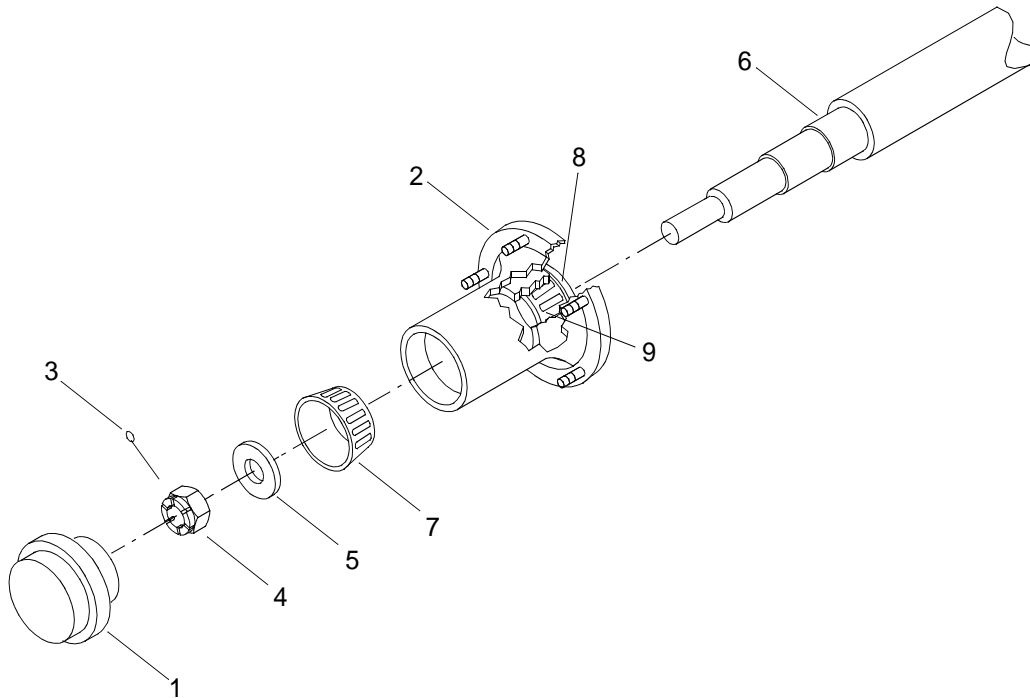
MOVING PARTS

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 removal and installation of port and starboard light tower wheel hubs.

1. Remove dust cap (1) from hub (2).



2. Remove cotter pin (3) from nut (4) and discard.
3. Remove nut (4) and washer (5) from axle (6).
4. Remove outer bearing (7).
5. Remove hub (2) from axle (6).

INSTALL LIGHT TOWER RUNNING GEAR WHEEL HUB

1. Install the hub (2) on axle (6).
 - a. Rotate hub (2) slowly while pushing inward.
 - b. Continue to push inward until inner bearing (9) and seal (8) are completely seated on axle (6).
 - c. Install outer bearing (7) in hub (2).
 - d. Install washer (5) and nut (4) on axle (6).
2. Using a torque wrench, torque nut (4) to 600 in. lbs (68 N-m).
3. Back nut (4) off until next available slot in nut (4) lines up with hole in axle (6).
4. Install new cotter pin (3) through the end of axle (6) and nut (4).
5. Bend cotter pin (3) over to secure in place.
6. Install dust cap (1) over nut (4) in hub (2).
7. Install light tower running gear wheel and tire assembly. (WP 0192 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RUNNING GEAR WHEEL HUB AND BEARINGS
REMOVAL, CLEANING, INSPECTION, LUBRICATION
AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Pan, Drain (Item 46, WP 0359 00)
Qty 2
Wrench, Torque (150-750 in. lbs) (Item 91, WP 0359 00)
Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)
Punch, Drive Pin, Brass (Item 56, WP 0359 00)

Materials/Parts

Pin, Cotter
(33968)
PN 35315217
Seal
(33968)
PN 35315142
Cleaner (Item 9, WP 0358 00)
Grease, General Purpose (Item 26, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)
Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)
Block, Shoring (Item 6, WP 0358 00)
Qty 2

Personnel Required

Engineer 88L

Equipment Condition

Light Tower Running Gear Wheel and Tire Assembly Removed. (WP 0192 00)

REMOVE LIGHT TOWER RUNNING GEAR WHEEL HUB AND BEARINGS

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



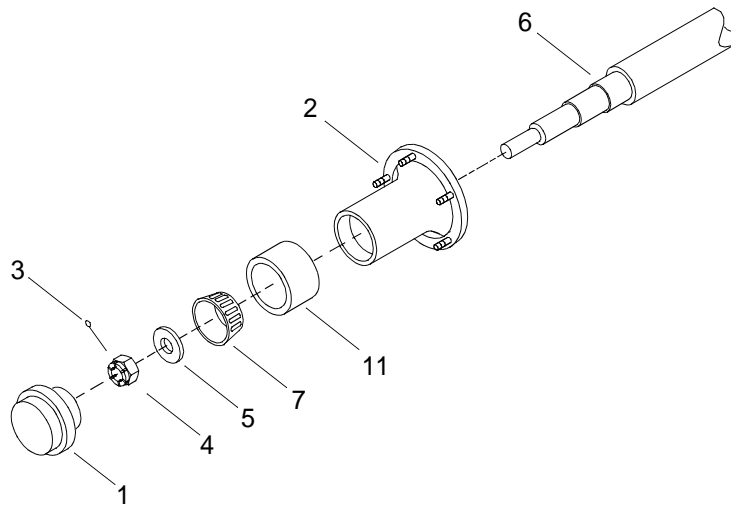
MOVING PARTS

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

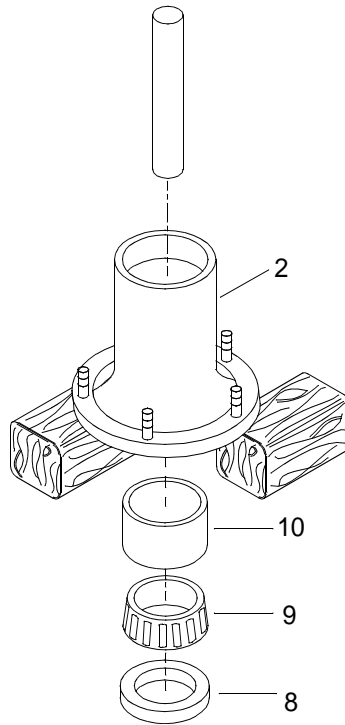
The following procedure is typical for both removal and installation of light tower wheel bearings and races.

1. Remove dust cap (1) from hub (2).



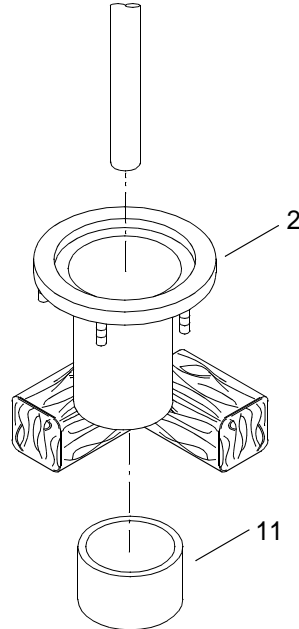
2. Remove cotter pin (3) from nut (4) and discard.
3. Remove nut (4) and washer (5) from axle (6).
4. Remove outer bearing (7).
5. Remove hub (2) from axle (6).

6. Remove seal (8), inner bearing (9) and race (10) from hub (2).



- a. Support hub (2) on two blocks of wood, seal side down.
- b. Using a brass drift and a hammer, drive the seal (8) and inner bearing (9) downward to remove from the back of hub (2).
- c. Discard seal (8).
- d. Using a brass drift and a hammer, drive inner bearing race (10) downward to remove from back of hub (2).

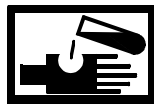
- e. Turn the hub (2) over on the blocks of wood.



- f. Using a brass drift and a hammer, drive the outer bearing race (11) downward to remove from the front of hub (2).

CLEAN LIGHT TOWER RUNNING GEAR WHEEL HUB AND BEARINGS

WARNING



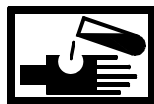
CHEMICAL



EYE PROTECTION

1. Pour a sufficient amount of cleaner into a drain pan to allow for the bearings (7 and 9) and hub (2) to be completely submerged.

WARNING



CHEMICAL



EYE PROTECTION

2. Place the bearings (7 and 9) and hub (2) in the cleaner and allow to soak for 10 to 15 minutes.

 WARNING



CHEMICAL



EYE PROTECTION

3. Agitate the bearings (7 and 9) and hub (2) thoroughly in the cleaner after the soaking period.

 WARNING



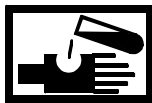
CHEMICAL



EYE PROTECTION

4. Scrub the bearings (7 and 9) and hub (2) thoroughly with the soft bristle brush.

 WARNING



CHEMICAL



EYE PROTECTION

5. Remove the bearings (7 and 9) and hub (2) from the cleaner and allow to drain in a drain pan lined with a clean wiping rag.
6. Allow the bearing (7 and 9) and hub (2) to air dry.

 WARNING



CHEMICAL



EYE PROTECTION

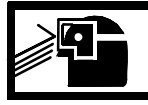
7. Remove drain pan and dispose of contents in accordance with local procedures.

INSPECT LIGHT TOWER RUNNING GEAR WHEEL HUB AND BEARINGS

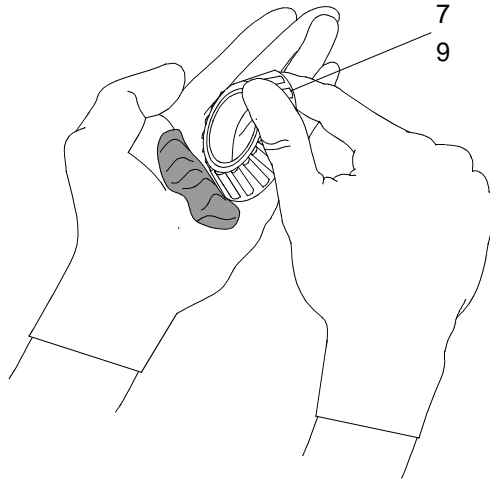
1. Inspect the bearings (7 and 9) and races (10 and 11) for evidence of pitting or corrosion, cracking, discoloration and evidence of wear. Replace damaged items.
2. Inspect hub (2) for cracks and discoloration from heat damage. Replace damaged items.

LUBRICATE LIGHT TOWER RUNNING GEAR WHEEL HUB AND BEARINGS

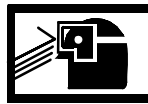
WARNING

**CHEMICAL****EYE PROTECTION**

1. Place a small amount of grease in the palm of one hand and take bearings (7 and 9) in the other hand.



WARNING

**CHEMICAL****EYE PROTECTION**

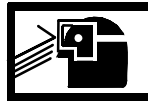
2. Push a segment of the wider end of bearings (7 and 9) down into the outer edge of the grease pile closest to the thumb.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Keep lifting and pushing bearings (7 and 9) down into the edge of the grease pile until grease oozes out from the top and from between the roller bearings (7 and 9).

WARNING

**CHEMICAL****EYE PROTECTION**

4. Rotate and repeat packing bearings (7 and 9) until completely filled with grease.

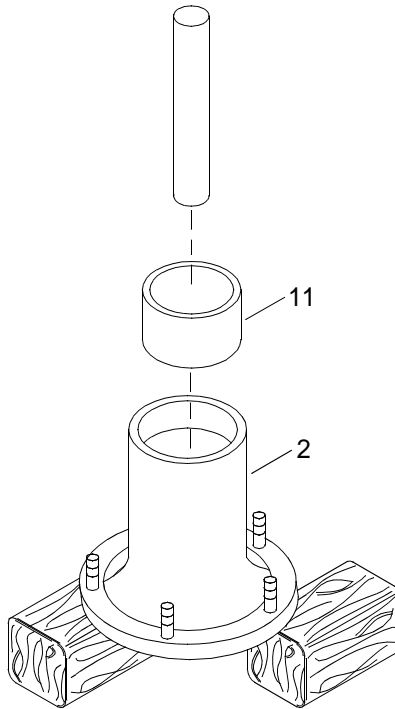
WARNING

**CHEMICAL****EYE PROTECTION**

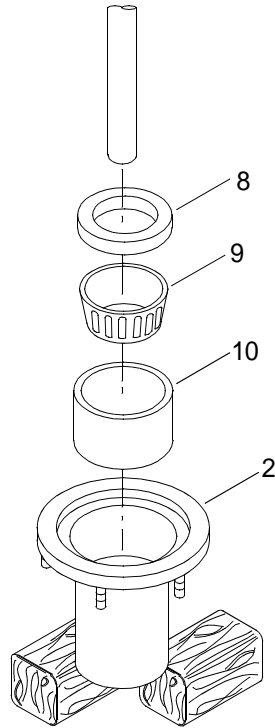
5. Pack the cavity in hub (2) with grease.

INSTALL LIGHT TOWER RUNNING GEAR WHEEL HUB AND BEARINGS

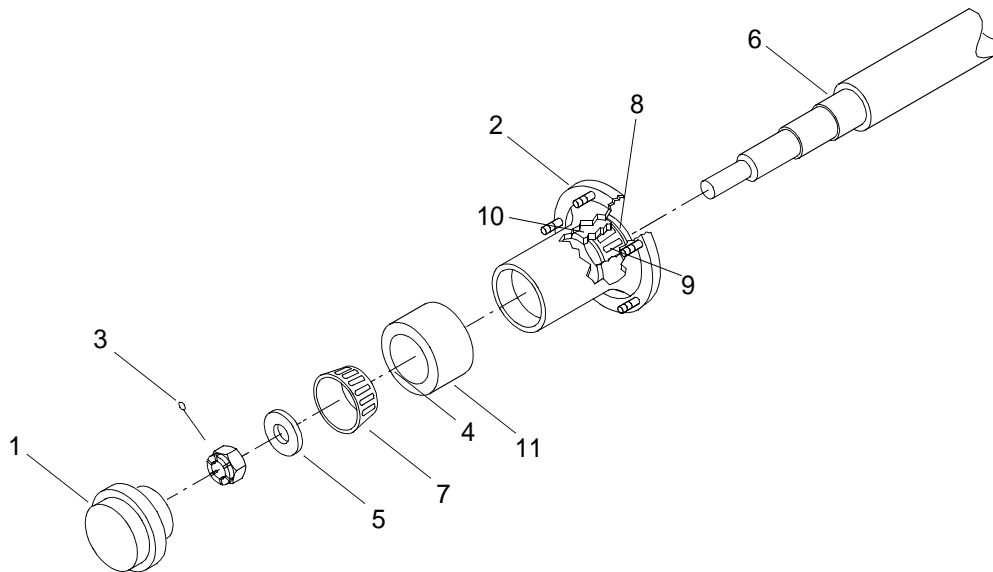
1. Using a brass drift and a hammer, drive outer bearing race (11) inward, seating it securely in the hub (2).



2. Turn hub (2) over on the blocks of wood.



3. Using a brass drift and a hammer, drive inner bearing race (10) inward, seating it securely in the hub (2).
4. Install greased bearing (9) into inner bearing race (10) in hub (2).
5. Install new seal (8) on axle (6).
6. Install the hub (2) on axle (6).



- a. Rotate hub (2) slowly while pushing inward.
- b. Continue to push inward until inner bearing (9) and new seal (8) are completely seated on axle (6).

-
- c. Install outer bearing (7) in hub (2).
 - d. Install washer (5) and nut (4) on axle (6).
7. Using a torque wrench, torque nut (4) to 600 in. lbs (68 N-m).
 8. Back castle nut (4) off until next available slot in castle nut (4) lines up with hole in axle (6).
 9. Install new cotter pin (3) through the end of axle (6) and nut (4).
 10. Bend cotter pin (3) over to secure in place.
 11. Install dust cap (1) over nut (4) in hub (2).
 12. Install light tower running gear wheel and tire assembly. (WP 0192 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RUNNING GEAR WHEEL BEARINGS AND RACES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Punch, Drive Pin, Brass (Item 56, WP 0359 00)
Wrench, Torque (150-750 in. lbs) (Item 91, WP 0359 00)

Materials/Parts

Pin, Cotter
(33968)
PN 35315225
Bearing, Outer
(33968)
PN 35315191
Race, Outer
(33968)
PN 35315183
Seal
(33968)
PN 35315142
Bearing, Inner
(33968)
PN 35361864
Race, Inner
(33968)
PN 35361872
Grease, General Purpose (Item 26, WP 0358 00)
Block, Shoring (Item 6, WP 0358 00)
Qty 2

Personnel Required

Engineer 88L

Equipment Condition

Light Tower Running Gear Wheel And Tire Assembly Removed. (WP 0192 00)

REMOVE LIGHT TOWER RUNNING GEAR WHEEL BEARINGS AND RACES

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



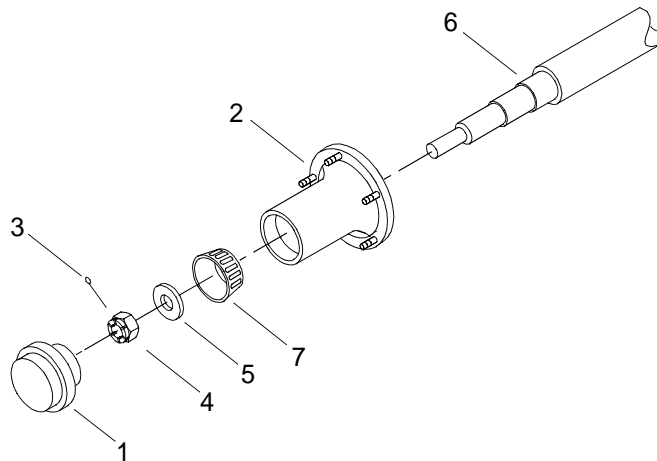
MOVING PARTS

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

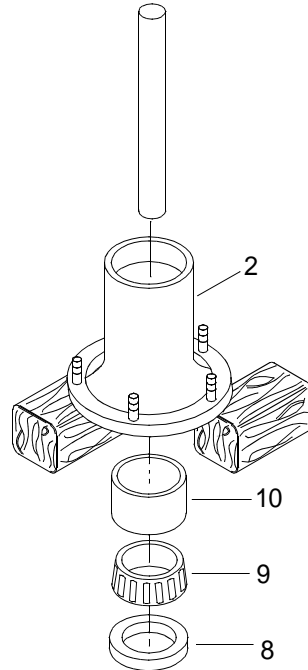
The following procedure is typical for the removal and installation of light tower wheel bearings and races.

1. Remove dust cap (1) from hub (2).

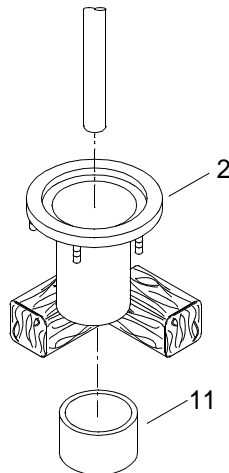


2. Remove cotter pin (3) from nut (4) and discard.
3. Remove nut (4) and washer (5) from axle (6).
4. Remove outer bearing (7) and discard.
5. Remove hub (2) from axle (6).

6. Support hub (2) on two blocks of wood, seal side down.



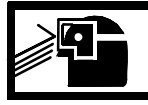
7. Using a brass drift and a hammer, drive the seal (8) and inner bearing (9) downward to remove from the back of hub (2).
8. Discard the seal (8) and inner bearing (9).
9. Using a brass drift and a hammer, drive the inner race (10) downward to remove from the back of hub (2).
10. Discard the inner race (10).
11. Turn the hub (2) over on the blocks of wood.



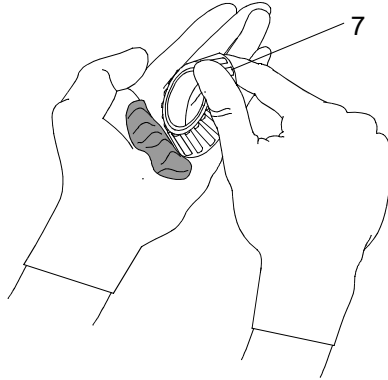
12. Using a brass drift and a hammer, drive the outer race (11) downward to remove from the front of hub (2).
13. Discard outer race (11).

INSTALL LIGHT TOWER RUNNING GEAR WHEEL BEARINGS AND RACES

WARNING

**CHEMICAL****EYE PROTECTION**

1. Place a small amount of grease in the palm of one hand and take new bearings (7) in the other hand.

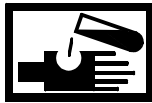


WARNING

**CHEMICAL****EYE PROTECTION**

2. Push a segment of the wider end of bearings (7 and 9) down into the outer edge of the grease pile closest to the thumb.

WARNING

**CHEMICAL****EYE PROTECTION**

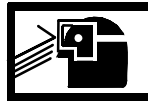
3. Keep lifting and pushing bearings (7 and 9) down into the edge of the grease pile until grease oozes out from the top.

WARNING

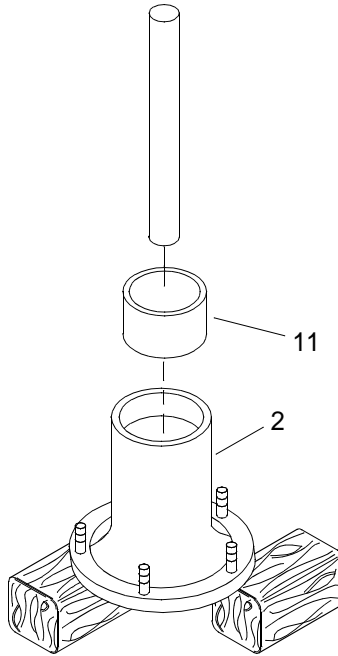
**CHEMICAL****EYE PROTECTION**

4. Rotate and repeat packing bearings (7 and 9) until completely filled with grease.

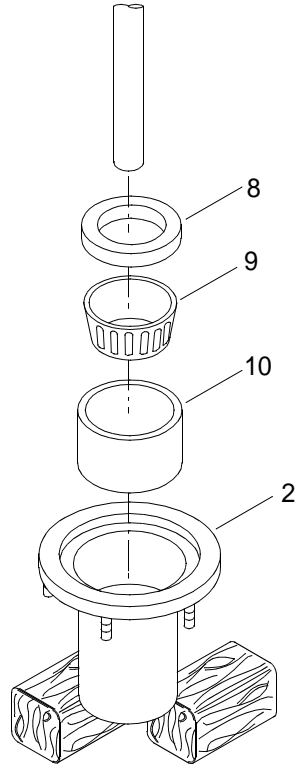
WARNING

**CHEMICAL****EYE PROTECTION**

5. Pack the cavity in hub (2) with grease.
6. Using a brass drift and hammer, drive the new outer bearing race (11) inward, seating it securely in the hub (2).



7. Turn hub (2) over on the blocks of wood.

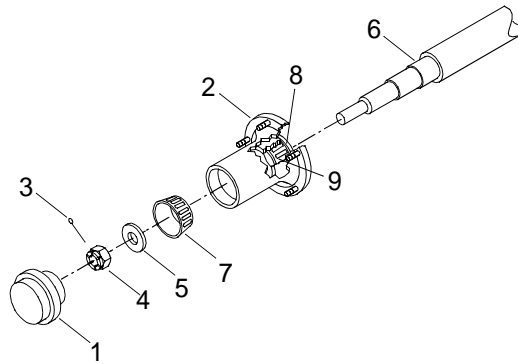


8. Using a brass drift and hammer, drive new outer bearing race (11) inward, seating it securely in the hub (2).

9. Install greased inner bearing (9) into hub (2).

10. Using a brass drift and hammer, install new seal (8) into hub (2).

11. Install hub (2) on axle (6).



a. Rotate hub (2) slowly while pushing inward.

b. Continue to push inward until inner bearing (9) and new seal (8) are completely seated on axle (6).

c. Install greased outer bearing (7) in hub (2).

d. Install washer (5) and nut (4) on axle (6).

-
12. Using a torque wrench, torque nut (4) to 600 in. lbs (68 N-m).
 13. Back castellated nut (4) off until next available slot in castellated nut (4) lines up with hole in axle (6).
 14. Install new cotter pin (3) through the end of axle (6) and nut (4).
 15. Bend new cotter pin (3) over to secure in place.
 16. Install dust cap (1) over nut (4) in hub (2).
 17. Install light tower running gear wheel and tire assembly. (WP 0192 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER AXLE SPRING
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Stand, Vehicle Support (Item 72, WP 0359 00)

Materials/Parts

Axle Spring
 (33968)
 PN 36848166

Personnel Required

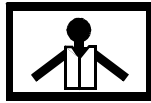
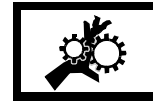
Engineer 88L
 Qty 2

Equipment Condition

Light Tower Running Gear Wheel And Tire Assembly Removed. (WP 0192 00)

REMOVE LIGHT TOWER AXLE SPRING

WARNING

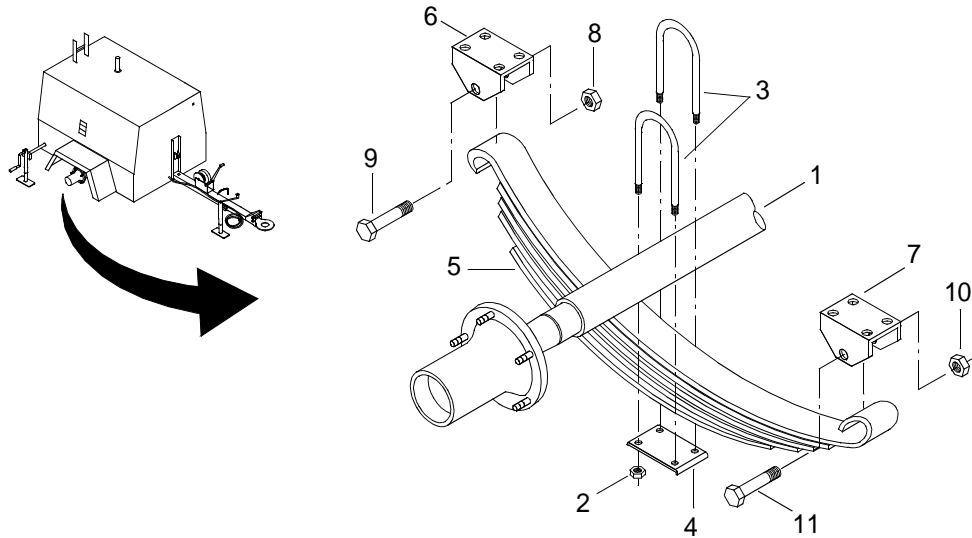
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 removal and installation of light tower port or starboard axle springs.

1. Using vehicle support stand, support light tower trailer axle (1).



2. Remove four nuts (2) from two u-bolts (3).
3. Remove plate (4) from two u-bolts (3).
4. Remove two u-bolts (3).

WARNING



HEAVY PARTS

5. Use assistant to support axle spring (5) during the removal from the aft hanger (6) and the front hanger (7).
6. Remove nut (8) from bolt (9).
7. Remove bolt (9) from axle spring (5) and aft hanger (6).
8. Remove nut (10) from bolt (11).
9. Remove bolt (11) from axle spring (5) and front hanger (7).

WARNING



HEAVY PARTS

10. Remove axle spring (5) and discard.

INSTALL LIGHT TOWER AXLE SPRING

WARNING

**HEAVY PARTS**

1. Use assistant to support new axle spring (5) until it is secured to front hanger (7) and aft hanger (6).

WARNING

**HEAVY PARTS**

2. Position axle spring (5) under front hanger (7) and aft hanger (6).
3. Install bolt (11) through front hanger (7) and axle spring (5).
4. Install nut (10) onto bolt (11) and tighten.
5. Install bolt (9) through aft hanger (6) and axle spring (5).
6. Install nut (8) onto bolt (9) and tighten.
7. Position plate (4) under axle spring (5).
8. Install two u-bolts (3) through plate (4).
9. Install four nuts (2) on two u-bolts (3) and tighten.
10. Remove vehicle support stand from underneath light tower trailer axle (1).
11. Install light tower running gear wheel and tire assembly. (WP 0192 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER AXLE SPRING FORWARD HANGER
REPLACEMENT**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Item 81, WP 0359 00)
- Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
- Helmet, Safety (Brown) (Item 33, WP 0359 00)
- Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

- Hanger, Forward
(33968)
PN 35326958

Personnel Required

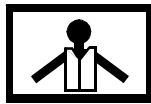
- Engineer 88L

Equipment Condition

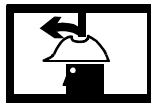
- Light Tower Running Gear Wheel And Tire Assembly Removed. (WP 0192 00)
 - Light Tower Axle Spring Removed. (WP 0196 00)
-

REMOVE LIGHT TOWER AXLE SPRING FORWARD HANGER

—————
WARNING
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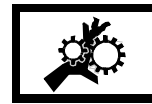
VEST



HELMET PROTECTION



HEAVY PARTS



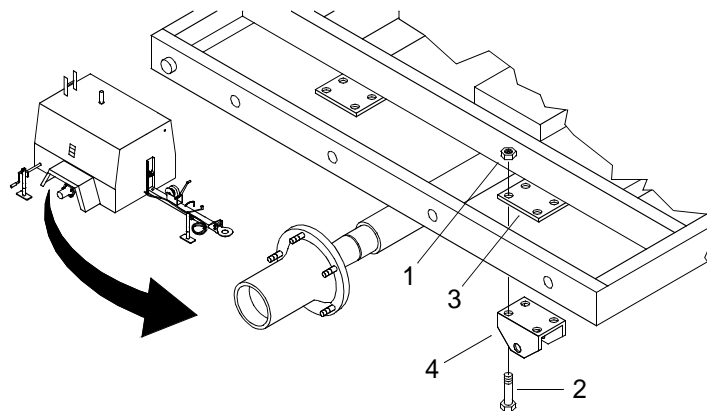
MOVING PARTS

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 removal and installation of light tower port or starboard axle spring forward hangers.

1. Remove four nuts (1) from four bolts (2).



2. Remove four bolts (2) from bracket (3) and forward hanger (4).
3. Remove forward hanger (4) from underneath bracket (3). Discard forward hanger (4).

INSTALL LIGHT TOWER AXLE SPRING FORWARD HANGER

1. Position new forward hanger (4) underneath bracket (3).
2. Install four bolts (2) through forward hanger (4) and bracket (3).
3. Install four nuts (1) onto four bolts (2) and tighten.
4. Install light tower axle spring. (WP 0196 00)
5. Install light tower running gear wheel and tire assembly. (WP 0192 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER AXLE SPRING AFT HANGER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Hanger, Aft
 (33968)
 PN 35326966

Personnel Required

Engineer 88L

Equipment Condition

Light Tower Running Gear Wheel And Tire Assembly Removed. (WP 0192 00)
 Light Tower Axle Spring Removed. (WP 0196 00)

REMOVE LIGHT TOWER AXLE SPRING AFT HANGER

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



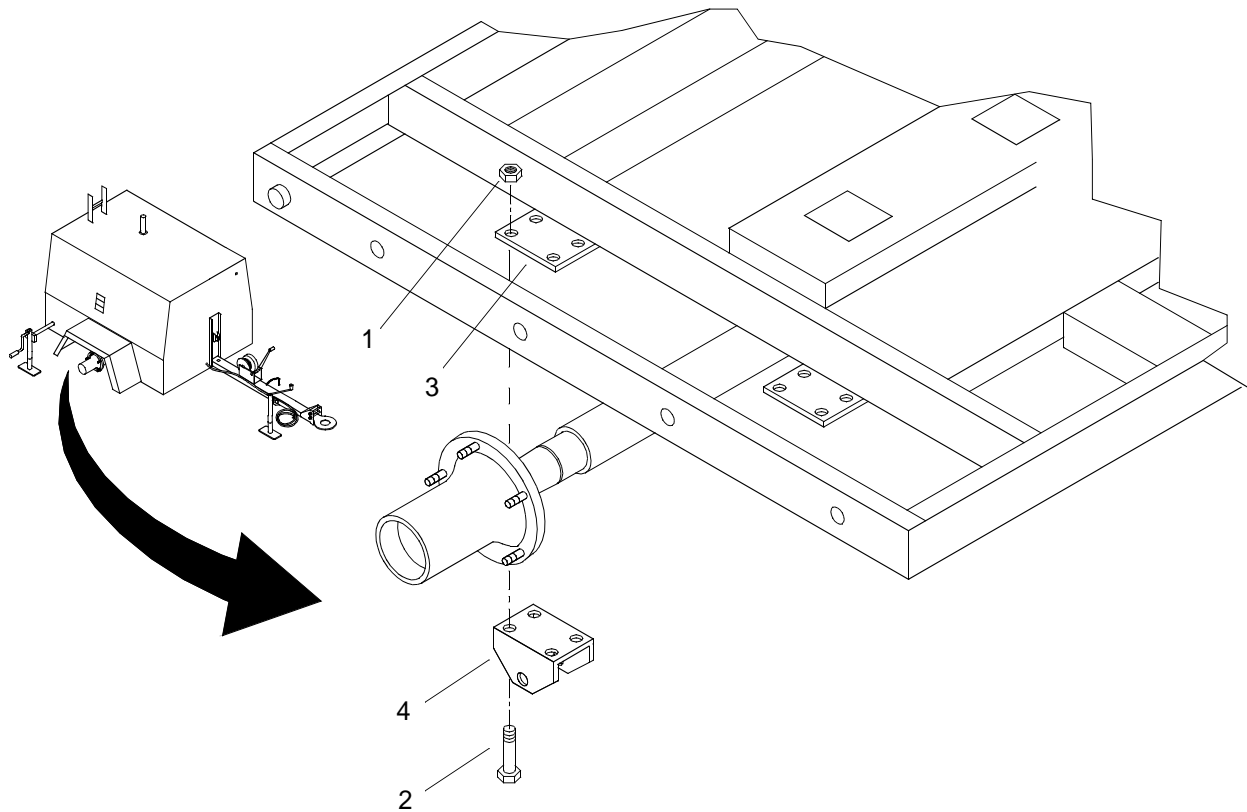
MOVING PARTS

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 removal and installation of light tower port or starboard axle spring aft hangers.

1. Remove four nuts (1) from four bolts (2).



2. Remove four bolts (2) from bracket (3) and aft hanger (4).
3. Remove aft hanger (4) from underneath bracket (3) and discard.

INSTALL LIGHT TOWER AXLE SPRING AFT HANGER

1. Position new aft hanger (4) underneath bracket (3).
2. Install four bolts (2) through aft hanger (4) and bracket (3).
3. Install four nuts (1) onto four bolts (2) and tighten.
4. Tighten four nuts (1).
5. Install light tower axle spring. (WP 0196 00)
6. Install light tower running gear wheel and tire assembly. (WP 0192 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER AXLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Axle
 (33968)
 PN 36848174

Personnel Required

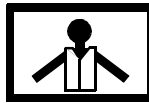
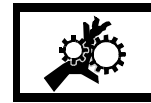
Engineer 88L
 Qty 2

Equipment Condition

Light Tower Running Gear Wheel And Tire Assembly Removed. (WP 0192 00)
 Light Tower Running Gear Wheel Hub Removed. (WP 0193 00)

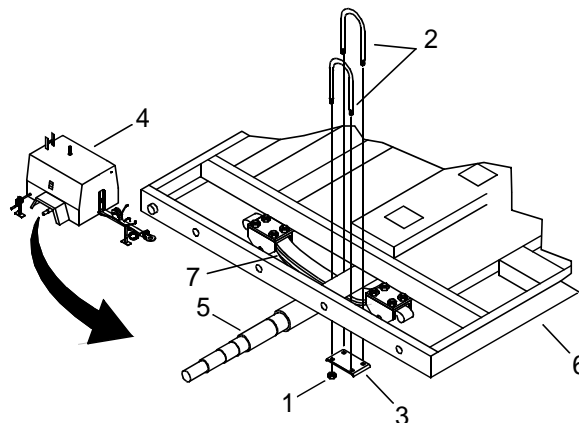
REMOVE LIGHT TOWER AXLE

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 four nuts (1) from two u-bolts (2).



2. Remove plate (3) from two u-bolts (2).
3. Remove two u-bolts (2).

WARNING

**HEAVY OBJECTS****HEAVY PARTS**

4. Repeat steps 1-3 on opposite side of light tower trailer (4).
5. Use assistant to help support axle (5) while sliding it from between the light tower trailer frame (6) and axle springs (7).
6. Discard axle (5).

INSTALL LIGHT TOWER AXLE

WARNING

**HEAVY OBJECTS****HEAVY PARTS**

1. Use assistant to support new axle (5) while sliding it between the axle springs (7) and the light tower trailer frame (6).
2. Position plate (3) under axle spring (7).
3. Install two u-bolts (2) through plate (3).
4. Install four nuts (1) onto two u-bolts (2) and tighten.
5. Repeat steps 2-5 on the opposite side of the light tower trailer (4).
6. Install light tower running gear wheel hub. (WP 0193 00)
7. Install light tower running gear wheel and tire assembly. (WP 0192 00)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER DRAWBAR PINTLE AND BRACKET
REPLACEMENT

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

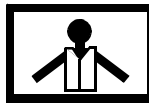
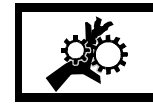
Eye, Pintle
 (33968)
 PN 35605187

Personnel Required

Seaman 88K

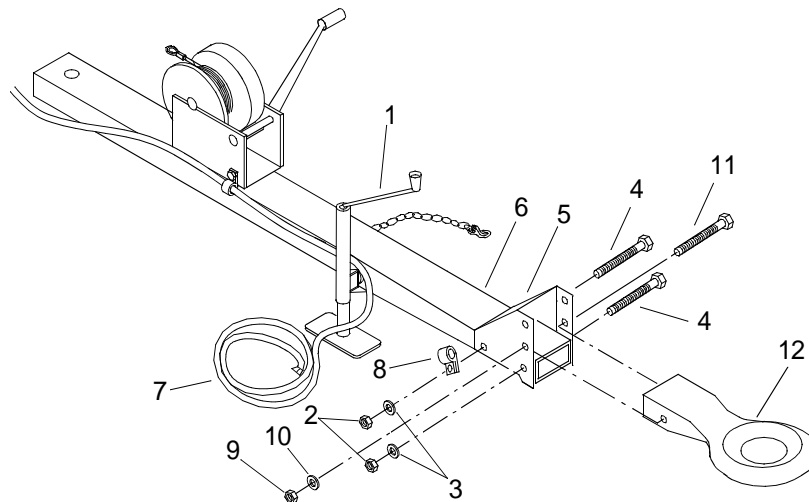
REMOVE LIGHT TOWER PINTLE AND BRACKET

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. Rotate the jack handle (1) clockwise to support the front of the light tower.



2. Remove two nuts (2), washers (3) and bolts (4) securing the pintle bracket (5) to the drawbar (6).

3. Place wire bundle (7) and wire bundle clamp (8) out of the way.
4. Remove the nut (9), washer (10) and bolt (11) securing the pintle (12) to the pintle bracket (5).
5. Remove and discard the pintle (12) and bracket (5).

INSTALL LIGHT TOWER PINTLE AND BRACKET

1. Position new pintle bracket (5) on end of drawbar (6).
2. Install two bolts (4) through the drawbar (6) and pintle bracket (5).
3. Install wire bundle (7) and clamp (8) on bolt (4).
4. Install two washers (3) and nuts (2) on bolts (4). Tighten nuts (2).
5. Position new pintle (12) against pintle bracket (5).
6. Install bolt (11) through pintle bracket (5) and pintle (12).
7. Install washer (10) and nut (9) on bolt (11). Tighten nut (9).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RAISE/LOWER WINCH CABLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

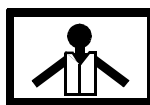
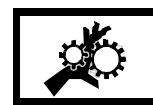
Cable
 (33968)
 PN 43210327

Personnel Required

Engineer 88L

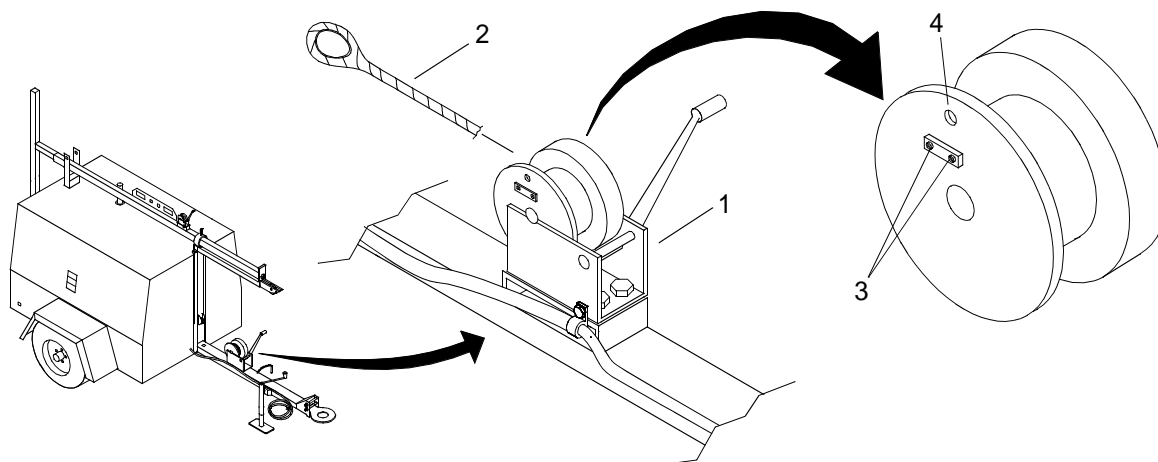
REMOVE LIGHT TOWER RAISE/LOWER WINCH CABLE

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. Rotate light tower raise/lower winch (1) counterclockwise to unreel cable (2).



2. Loosen two screws (3) on metal strap (4) and remove cable (2) from winch (1). Discard cable (2).

INSTALL LIGHT TOWER RAISE/LOWER WINCH CABLE

1. Install new cable (2) through hole in light tower raise/lower winch (1).
2. Position cable (2) under metal strap (4) and tighten two screws (3) to secure cable (2) to winch (1).
3. Rotate light tower raise/lower winch (1) clockwise to take up excess cable (2).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RAISE/LOWER WINCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Winch, 1500 lbs
 (33968)
 PN 36869261

Personnel Required

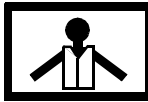
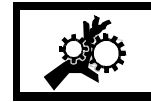
Engineer 88L

Equipment Condition

Light Tower Raise/Lower Winch Cable Removed. (WP 0201 00)

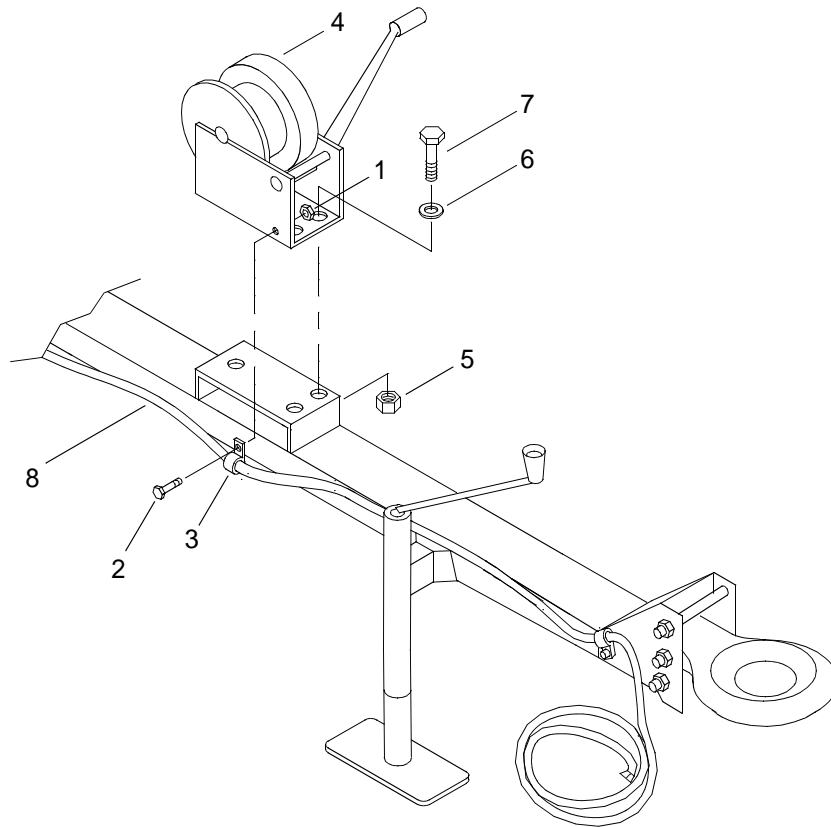
REMOVE LIGHT TOWER RAISE/LOWER WINCH

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 nut (1), bolt (2) and wire clamp (3) from light tower raise/lower winch (4).



2. Remove three nuts (5), washers (6) and bolts (7) from light tower raise/lower winch (4).
3. Remove light tower raise/lower winch (4) from drawbar (8) and discard.

INSTALL LIGHT TOWER RAISE/LOWER WINCH

1. Position new light tower raise/lower winch (4) on drawbar (8).
2. Install three bolts (7), washers (6) and nuts (5) in light tower raise/lower winch (4). Tighten nuts (5).
3. Position wire clamp (3) on light tower raise/lower winch (4), install bolt (2) and nut (1). Tighten nut (1).
4. Install light tower raise/lower winch cable. (WP 0201 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER DRAWBAR JACK
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Pliers, Retaining Ring (Item 47, WP 0359 00)

Materials/Parts

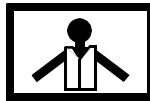
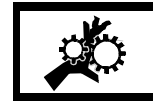
Ring, Snap
 (33968)
 PN 36780039
 Jack, Drawbar
 (33968)
 PN 36848455

Personnel Required

Engineer 88L

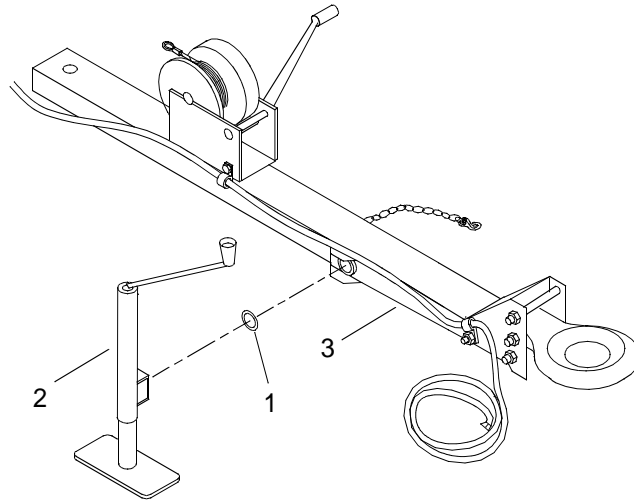
REMOVE LIGHT TOWER DRAWBAR JACK

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 retaining ring pliers, remove ring (1) releasing drawbar jack (2) from drawbar (3).



2. Remove drawbar jack (2).
3. Discard ring (1) and drawbar jack (2).

INSTALL LIGHT TOWER DRAWBAR JACK

1. Position new ring (1) between new drawbar jack (2) and drawbar (3).
2. Install ring (1) to secure drawbar jack (2) to drawbar (3).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER DRAWBAR CHAIN/HOOK ASSEMBLY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

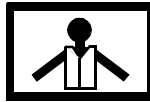
Chain/Hook Assembly
 (33968)
 PN 35610377

Personnel Required

Engineer 88L

REMOVE LIGHT TOWER DRAWBAR CHAIN/HOOK ASSEMBLY

—————
 WARNING
 —————



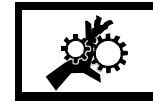
VEST



HELMET PROTECTION



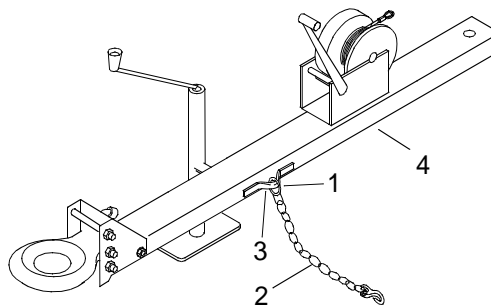
HEAVY PARTS



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.

- Using pliers, remove flex-link (1) securing chain/hook assembly (2) to bracket (3) on drawbar (4).



- Remove chain/hook assembly (2) from drawbar (4) and discard.

INSTALL LIGHT TOWER DRAWBAR CHAIN/HOOK ASSEMBLY

1. Position new chain/hook assembly (2) on bracket (3) of drawbar (4).
2. Using pliers, connect chain/hook assembly (2) to bracket (3) with flex-link (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER OUTRIGGER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

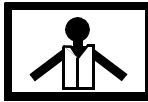
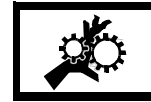
Outrigger
 (33968)
 PN 36847713
 Pin, Outrigger
 (33968)
 PN 36848224

Personnel Required

Seaman 88K

REMOVE LIGHT TOWER OUTRIGGER

WARNING

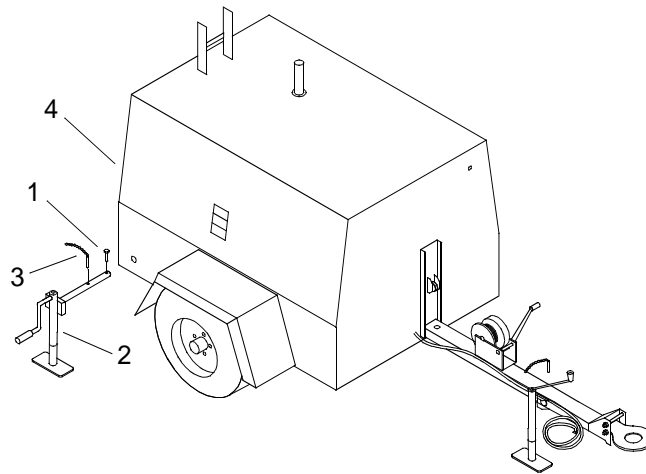
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 removal and installation of both port and starboard light tower outriggers.

1. Remove screw (1) from outrigger (2).



2. Remove pin (3) from outrigger (2) and discard.
3. Slide outrigger (2) from trailer (4) and discard.

INSTALL LIGHT TOWER OUTRIGGER

1. Slide new outrigger (2) into trailer (4).
2. Install new pin (3) into outrigger (2).
3. Install screw (1) into outrigger (2). Tighten screw (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER DRAWBAR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Drawbar
 (33968)
 PN 43210343
 Block, Shoring (Item 6, WP 0358 00)
 Qty 2

Personnel Required

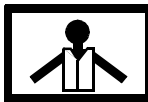
Seaman 88K

Equipment Condition

Light Tower Drawbar Pintle And Bracket Removed. (WP 0200 00)
 Light Tower Drawbar Chain/Hook Assembly Removed. (WP 0204 00)
 Light Tower Drawbar Jack Removed. (WP 0203 00)
 Light Tower Raise/Lower Winch Cable Removed. (WP 0201 00)
 Light Tower Raise/Lower Winch Removed. (WP 0202 00)

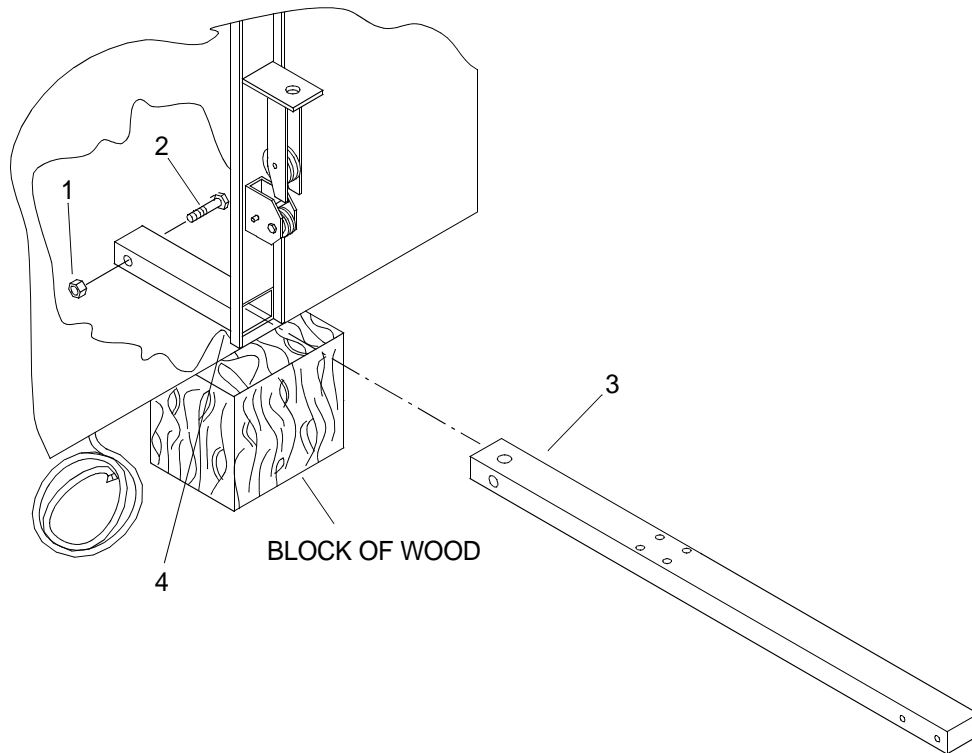
REMOVE LIGHT TOWER DRAWBAR

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. Place a block of wood under the forward light tower structure frame to support light tower.



2. Remove nut (1) and bolt (2) securing the drawbar (3) to the drawbar insert tube (4).
3. Remove drawbar (3) from the drawbar insert tube (4) and discard.

INSTALL LIGHT TOWER DRAWBAR

1. Install new drawbar (3) into drawbar insert tube (4).
2. Install bolt (2) through the end of the drawbar tube (4) and drawbar (3).
3. Install nut (1) on bolt (2) and tighten.
4. Install light tower raise/lower winch. (WP 0202 00)
5. Install light tower raise/lower winch cable. (WP 0201 00)
6. Install light tower drawbar jack. (WP 0203 00)
7. Install light tower drawbar chain/hook assembly. (WP 0204 00)
8. Install light tower drawbar pintle and bracket. (WP 0200 00)

END OF WORK PACKAGE

**GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RUNNING GEAR WHEEL AND TIRE ASSEMBLY
REPAIR**

INITIAL SETUP:**Tools**

Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Compressor, Unit, Reciprocating, Power Drive (Item 13, WP 0359 00)
 Inserter and Remover, Pneumatic Tire Valve Core (Item 35, WP 0359 00)
 Gage, Tire Pressure, 20-120 PSI (Item 24, WP 0359 00)
 Tire Iron (Item 80, WP 0359 00)
 Qty 2

Materials/Parts

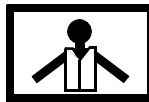
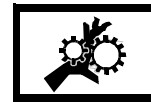
Tire
 (33968)
 PN 36773265
 Cleaner (Item 9, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L

DISASSEMBLE LIGHT TOWER RUNNING GEAR WHEEL AND TIRE ASSEMBLY

WARNING

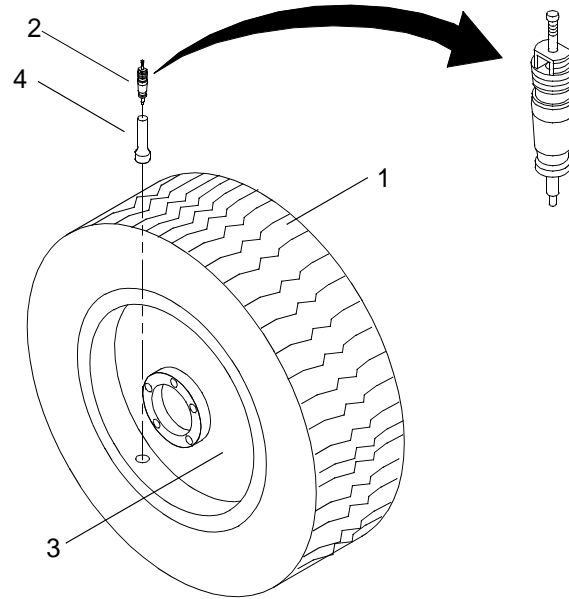
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

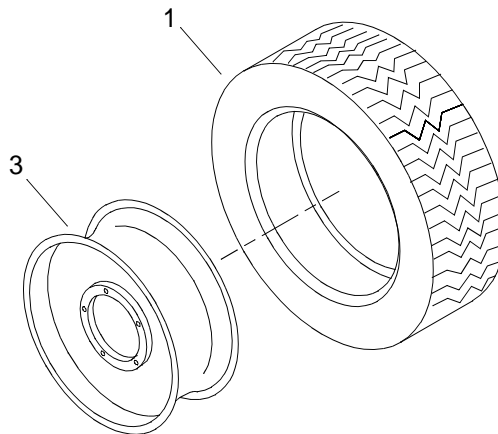
NOTE

Repair of the wheel and tire assembly is limited to the replacement of the tire only.

1. Deflate the tire (1) by removing the valve stem core (2). Use core remover.



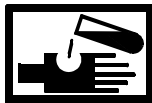
- Remove the tire (1) from the wheel (3) using tire irons.



- Discard tire (1) in accordance with local procedures.

CLEAN LIGHT TOWER RUNNING GEAR WHEEL AND TIRE ASSEMBLY

WARNING



CHEMICAL



EYE PROTECTION

- Using wiping rags soaked with cleaner, remove debris from external components.

WARNING

**CHEMICAL****EYE PROTECTION**

- Using wiping rags soaked with cleaner, remove debris from internal components.

WARNING

**CHEMICAL****EYE PROTECTION**

- Dispose of contaminated wiping rags in accordance with local procedures.

INSPECT LIGHT TOWER RUNNING GEAR WHEEL AND TIRE ASSEMBLY

- Inspect wheel (3) for corrosion and cracks. Replace as required.
- Inspect valve stem (4) for cuts or tears. Replace as required.

ASSEMBLE LIGHT TOWER RUNNING GEAR WHEEL AND TIRE ASSEMBLY

- Install the new tire (1) on the wheel (3) using tire iron(s).
- Install valve stem core (2).
- Using an air compressor, inflate the tire (1) to 32 PSI (220 kPa).
- Check air pressure in the tire (1) using a pressure gage.
- Add air as required.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER - TOWER BASE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Base, Tower
(33968)
PN 43210269

Personnel Required

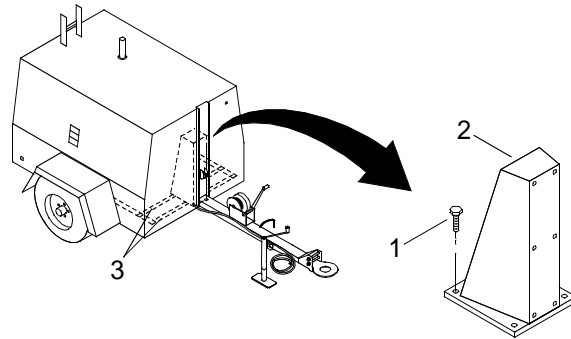
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
Light Tower-Tower Assembly Removed. (WP 0211 00)
Light Tower Support Removed. (WP 0210 00)
Light Tower Access Door Gas Springs Removed. (WP 0218 00)
Light Tower Side Doors Removed. (WP 0225 00)
Light Tower Roof Panel Removed. (WP 0222 00)
Light Tower Front End Panel Removed. (WP 0220 00)

REMOVE LIGHT TOWER - TOWER BASE

1. Remove four hex head bolts (1) securing tower base (2) inside the light tower to frame cross members (3).



2. Remove tower base (2) and discard.

INSTALL LIGHT TOWER - TOWER BASE

1. Position new tower base (2) on frame cross members (3).
2. Install four hex head bolts (1) to secure tower base (2) to frame cross members (3). Tighten hex head bolts (1).
3. Install light tower front end panel. (WP 0220 00)
4. Install light tower top panel. (WP 0222 00)
5. Install light tower side doors support. (WP 0225 00)
6. Install light tower-tower support. (WP 0210 00)
7. Install light tower access door gas springs. (WP 0218 00)
8. Install light tower-tower assembly. (WP 0211 00)
9. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER PIVOT SUPPORT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

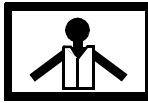
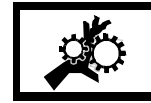
Support, Tower Pivot
 (33968)
 PN 43210277

Personnel Required

Engineer 88L (2)

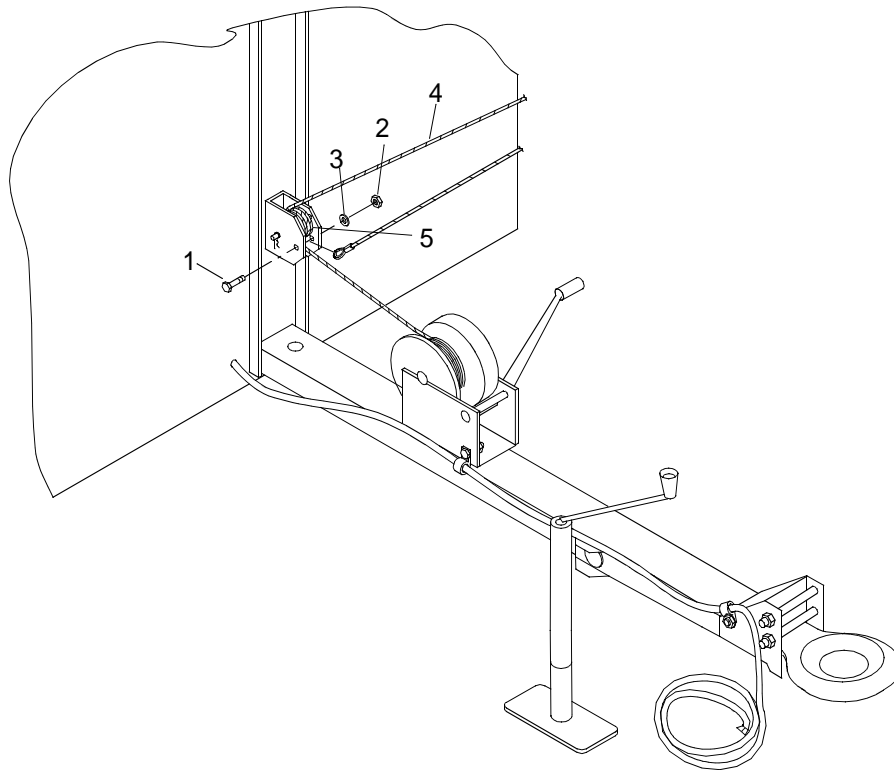
REMOVE LIGHT TOWER SUPPORT PIVOT

WARNING

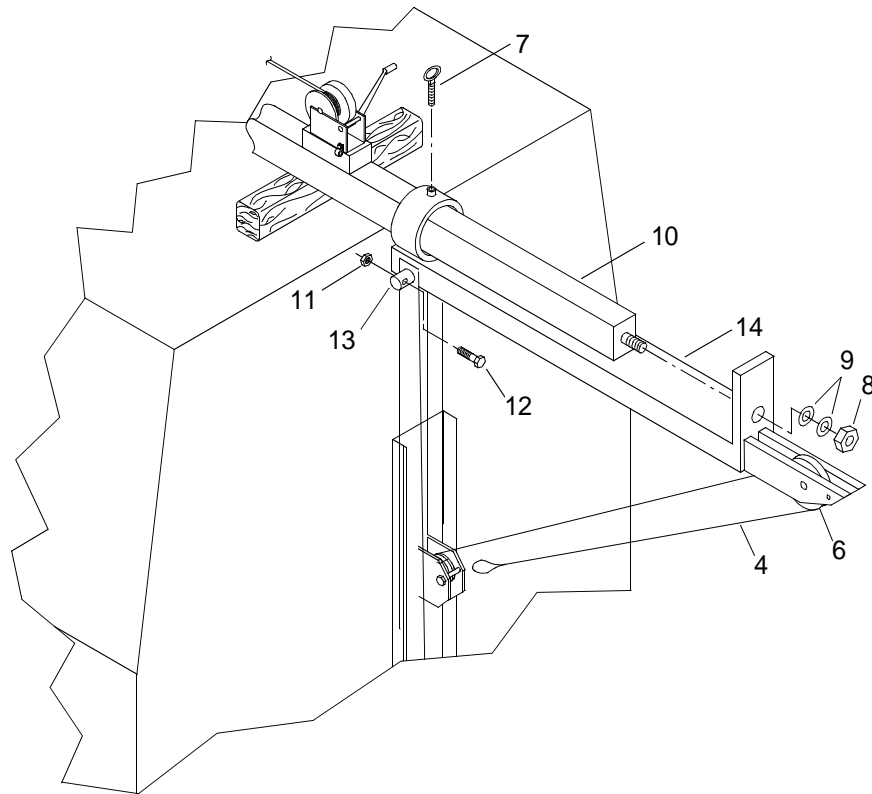
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 injury or death.

1. Remove hex head bolt (1), hex nut (2) and washer (3) from cable (4) at pulley (5).



2. Thread cable (4) around upper pulley (6).



3. Loosen eyebolt (7).

-
4. Remove hex nut (8) and two washers (9) from upper boom section (10).
 5. Support upper boom section (10) with dunnage.
 6. Remove hex nut (11) and hex head bolt (12) from pivot pin (13).
 7. Remove pivot pin (13) securing pivot support (14).
 8. Slide pivot support (14) off of upper boom section (10) and discard.

INSTALL LIGHT TOWER PIVOT SUPPORT

1. Position new pivot support (14) on upper boom section (10).
2. Install pivot pin (13) securing pivot support (14).
3. Install hex head bolt (12) and hex nut (11) on pivot pin (13).
4. Position upper boom section (10) on pivot support (14).
5. Install washer (9) and hex nut (8) securing upper boom section (10). Tighten hex nut (8).
6. Tighten eyebolt (7).
7. Remove dunnage from under boom (10).
8. Thread cable (4) around upper pulley (6).
9. Install hex head bolt (1), hex nut (2) and washer (3) securing cable (4) at lower pulley (5).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER - TOWER SUPPORT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Support, Tower
 (33968)
 PN 43210301
 Pin, Cotter
 (33968)
 PN 95928867

Personnel Required

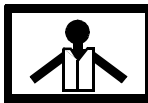
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower - Tower Assembly Removed. (WP 0211 00)

REMOVE LIGHT TOWER - TOWER SUPPORT

WARNING



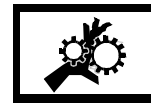
VEST



HELMET PROTECTION



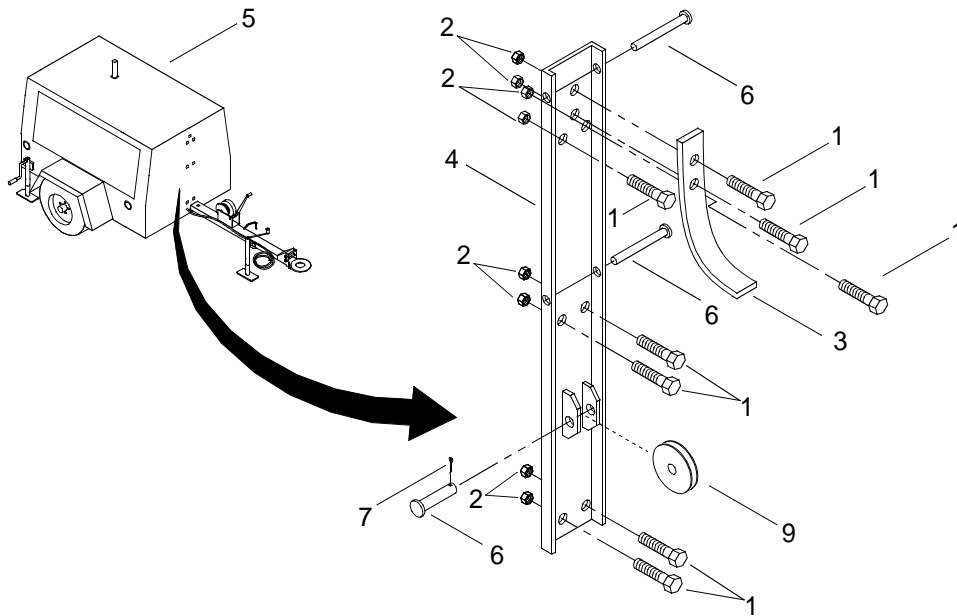
HEAVY PARTS



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 eight hex head bolts (1) and nuts (2) securing spring (3) and tower support (4) to front of light tower (5).



WARNING



HEAVY OBJECTS

2. Remove the spring (3) and tower support (4).
3. Remove top and bottom hitch pins (6) from the tower support (4).
4. Remove cotter pin (7), pin (8) and pulley (9) from tower support (4).
5. Discard tower support (4) and discard.

INSTALL LIGHT TOWER - TOWER SUPPORT

WARNING



HEAVY OBJECTS

1. Position new tower support (4) and spring (3) on front of the light tower (5).
2. Install eight hex head bolts (1) and nuts (2) to secure the spring (3) and tower support (4) to the front of the light tower (5). Tighten the nuts (2).

-
3. Install pulley (9), pin (8) and new cotter pin (7) on tower support (4).
 4. Install top and bottom hitch pins (6) on tower support (4).
 5. Install light tower - tower assembly. (WP 0211 00)
 6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER - TOWER ASSEMBLY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Sling, Lifting 5300 lbs (Green) (Item 70, WP 0359 00)
 Shackle, ½ in. 2 Ton (Item 67, WP 0359 00)
 Qty 2

Materials/Parts

Tube, Bottom
 (33968)
 PN 43210244
 Tube, Middle
 (33968)
 PN 43210285
 Tube, Top
 (33968)
 PN 43210251
 Block, Shoring (Item 6, WP 0358 00)
 Qty 2

Personnel Required

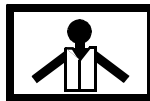
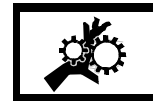
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

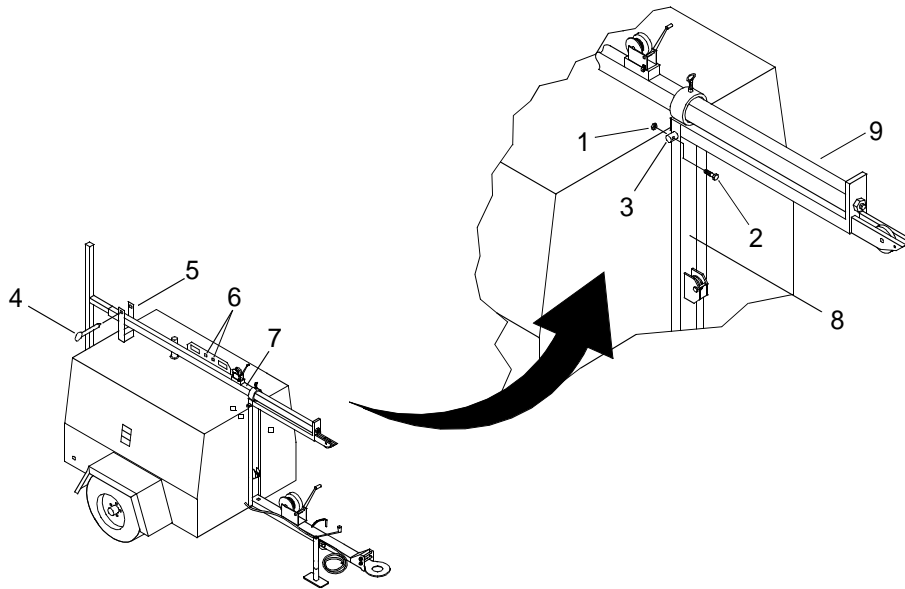
REMOVE LIGHT TOWER - TOWER ASSEMBLY

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. Remove retaining nut (1) and bolt (2) from the pivot pin (3).



2. Remove tower rest retaining pin (4) from tower rest (5).
3. Attach sling and shackles to lift points (6) on tower assembly (7).

WARNING



HEAVY PARTS



HEAVY OBJECTS

4. Using crane and sling to support weight of tower assembly (7), remove pivot pin (3) from tower support (8) and tower pivot support (9).

WARNING



HEAVY PARTS



HEAVY OBJECTS

5. Remove tower assembly (7) and place on wooden blocks.
6. Remove sling from tower assembly (7).
7. Remove light tower - tower cross bar. (WP 0214 00)
8. Remove light tower - tower electrical cable shroud. (WP 0215 00)
9. Remove light tower electrical system junction box electrical cable. (WP 0136 00)
10. Remove light tower pivot support (9). (WP 0209 00)

11. Remove light tower - tower extend winch. (WP 0213 00)
12. Remove light tower - tower extend cables. (WP 0217 00)
13. Discard tower assembly (7).

INSTALL LIGHT TOWER - TOWER ASSEMBLY

1. Install the light tower - tower extend cables. (WP 0217 00)
2. Install the light tower - tower extend winch. (WP 0213 00)
3. Install the light tower pivot support. (WP 0209 00)
4. Install the light tower electrical system junction box electrical cable. (WP 0136 00)
5. Install the light tower - tower electrical cable shroud. (WP 0215 00)
6. Install the light tower - tower cross bar. (WP 0214 00)

WARNING



HEAVY PARTS



HEAVY OBJECTS

7. Using crane and sling, position new tower assembly (7) over tower support (8).
8. When the guide holes align on the tower support (8) and tower pivot support (9), install the pivot pin (3).
9. Install the retaining bolt (2) and nut (1) on pivot pin (3) and tighten nut (1).

WARNING



HEAVY PARTS



HEAVY OBJECTS

10. Lower the tower assembly (7) onto tower rest (5) and secure tower assembly (7) with tower rest retaining pin (4).
11. Remove sling from tower assembly (7).
12. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE ASSEMBLY
LIGHT TOWER - TOWER ASSEMBLY TRUNNION
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Trunnion
 (33968)
 PN 36885457

Personnel Required

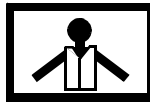
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Optical/Socket Assembly Removed. (WP 0157 00)

REMOVE LIGHT TOWER - TOWER ASSEMBLY TRUNNION

WARNING



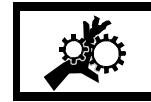
VEST



HELMET PROTECTION



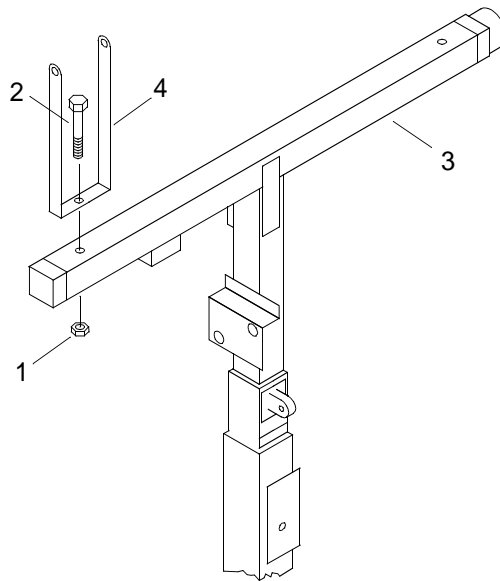
HEAVY PARTS



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 nut (1) and bolt (2) on support bar (3).



3. Remove trunnion (4) and discard.

INSTALL LIGHT TOWER - TOWER ASSEMBLY TRUNNION

1. Position new trunnion (4) on support bar (3).
2. Install bolt (2) and nut (1). Tighten nut (1).
3. Install light tower optical/socket assembly. (WP 0157 00)
4. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER - TOWER EXTEND WINCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Winch, Tower 1500 lb
 (33968)
 PN 36869261

Personnel Required

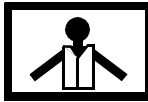
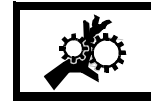
Engineer 88L

Equipment Condition

Light Tower Extend Tower Cable Removed. (WP 0217 00)

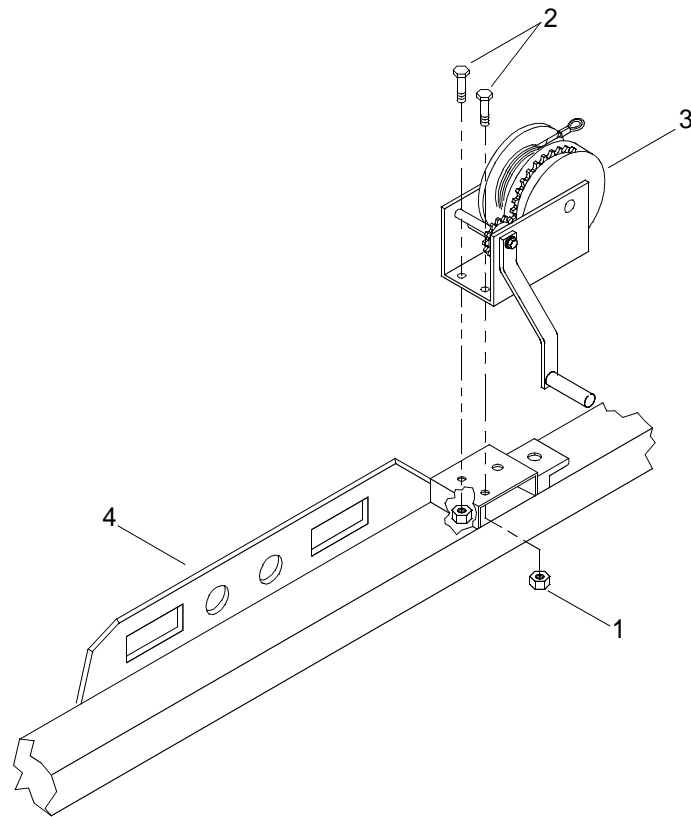
REMOVE LIGHT TOWER - TOWER EXTEND WINCH

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 three nuts (1) and bolts (2).



2. Remove winch (3) from tower assembly (4) and discard.

INSTALL LIGHT TOWER - TOWER EXTEND WINCH

1. Position new winch (3) on tower assembly (4).
2. Install three bolts (2) and nuts (1). Tighten nuts (1).
3. Install light tower extend tower cable. (WP 0217 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE ASSEMBLY
LIGHT TOWER - TOWER CROSS BAR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Bar, Cross
 (33968)
 PN 43210319

Personnel Required

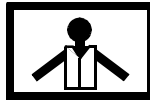
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Telescopic Light Tower Assembly Lowered. (TM 55-1945-205-10-2)
 Light Tower Electrical Cable Shroud Removed. (WP 0215 00)
 Light Tower Electrical System Junction Box Electrical Cable Removed. (WP 0136 00)
 Light Tower Electrical System Junction Box Removed. (WP 0137 00)

REMOVE LIGHT TOWER - TOWER CROSS BAR

WARNING



VEST



HELMET PROTECTION



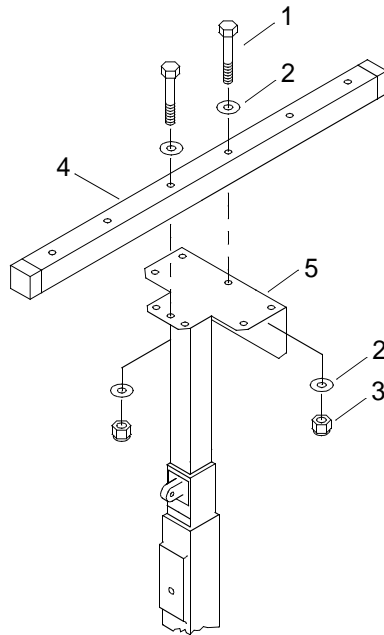
HEAVY PARTS



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 two nuts (1), four washers (2) and two bolts (3) securing cross bar (4) to tower mounting bracket (5).



2. Remove cross bar (4) and discard.

INSTALL LIGHT TOWER - TOWER CROSS BAR

1. Position new cross bar (4) on tower mounting bracket (5).
2. Install two bolts (3), four washers (2) and two nuts (1) to secure the cross bar (4) to tower mounting bracket (5). Tighten nuts (1).
3. Install light tower electrical system junction box. (WP 0137 00)
4. Install light tower junction box electrical cable. (WP 0136 00)
5. Install light tower electrical cable shroud. (WP 0215 00)
6. Raise telescopic light tower assembly. (TM 55-1945-205-10-2)
7. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER - TOWER ELECTRICAL CABLE SHROUD
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Shroud, Cable
 (33968)
 PN 36785822

Personnel Required

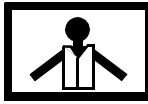
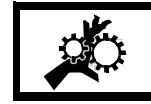
Engineer 88L

Equipment Condition

Telescopic Light Tower Assembly Lowered. (TM 55-1945-205-10-2)

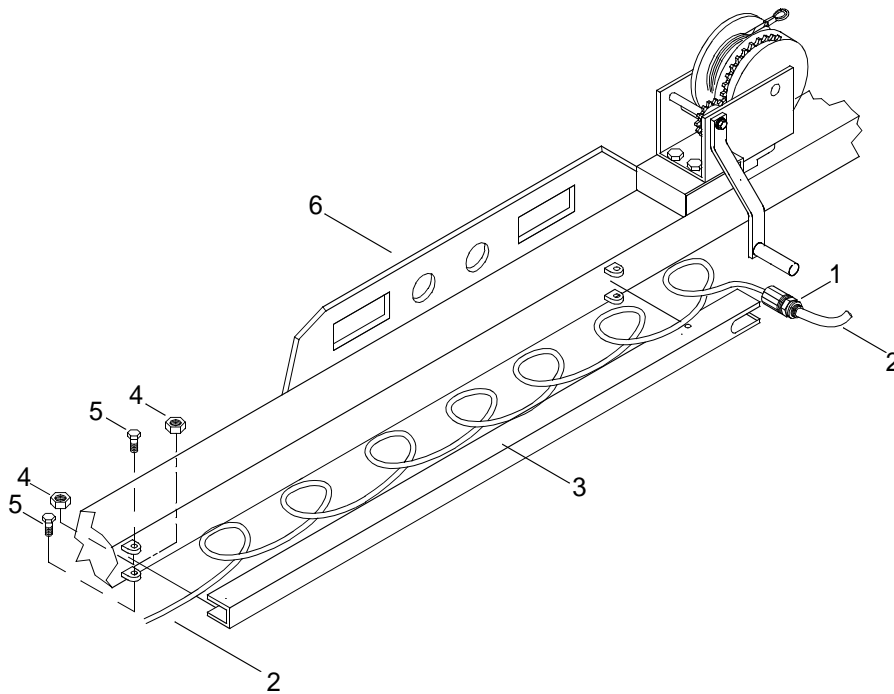
REMOVE LIGHT TOWER - TOWER ELECTRICAL CABLE SHROUD

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 outer stuffing tube coupling (1) until junction box electrical cable (2) can be slid off notch in shroud (3).



2. Remove four nuts (4) and bolts (5).

CAUTION

Do not damage junction box electrical cable during removal of shroud. Failure to comply could result in damage to equipment.

3. Remove shroud (3) from tower assembly (6) and discard.

INSTALL LIGHT TOWER - TOWER ELECTRICAL CABLE SHROUD

1. Position new shroud (3) over junction box electrical cable (2) and on tower assembly (6).
2. Install four bolts (5) and nuts (4). Tighten nuts (4).
3. Position stuffing tube coupling (1) into notch on shroud (3). Tighten coupling (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER - TOWER EXTEND CABLE PULLEY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Pulley
 (33968)
 PN 36783009
 Pin, Cotter
 (33968)
 PN 95928867

Personnel Required

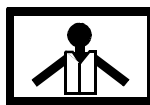
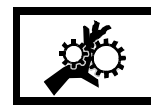
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower - Tower Assembly Removed. (WP 0211 00)
 Light Tower Pivot Support Removed. (WP 0209 00)
 Telescopic Light Tower Assembly Lowered. (TM 55-1945-205-10-2)
 Light Tower - Tower Electrical Cable Shroud Removed. (WP 0215 00)
 Light Tower Electrical System Junction Box Electrical Cable Removed. (WP 0136 00)
 Light Tower Extend Cable Removed. (WP 0217 00)

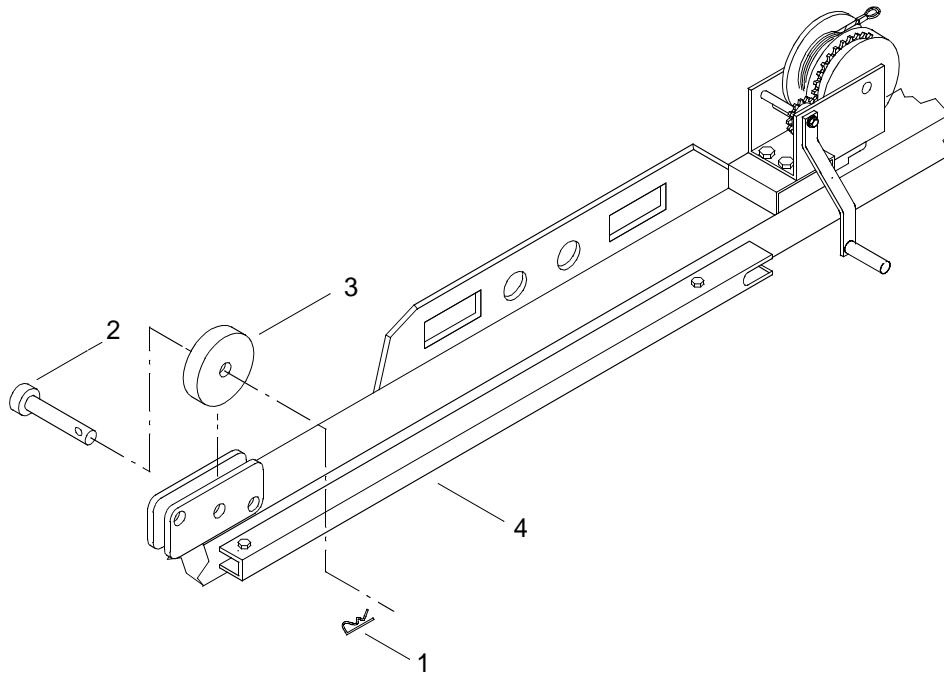
REMOVE LIGHT TOWER - TOWER EXTEND CABLE PULLEY

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 cotter pin (1) from pulley pin (2) and discard.



2. Remove pulley pin (2) from pulley (3).
3. Remove pulley (3) from tower assembly (4) and discard.

INSTALL LIGHT TOWER - TOWER EXTEND CABLE PULLEY

1. Position new pulley (3) on tower assembly (4).
2. Install pulley pin (2) into pulley (3).
3. Install new cotter pin (1) into pulley pin (2).
4. Install light tower extend tower cable. (WP 0217 00)
5. Install light tower electrical system junction box cable. (WP 0136 00)
6. Install light tower electrical cable shroud. (WP 0215 00)
7. Raise telescopic light tower assembly. (TM 55-1945-205-10-2)
8. Install light tower pivot support. (WP 0209 00)
9. Install light tower assembly. (WP 0211 00)
10. Install light tower battery negative lead terminal. (WP 0134 00)
11. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER - TOWER EXTEND CABLES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Cable (Tower Winch to Middle Tube Connection)
 (33968)
 PN 43210327
 Cable (Middle Tube to Inner Tube Connection)
 (33968)
 PN 43210335
 Pin, Cotter
 (33968)
 PN 95928867
 Qty 3

Personnel Required

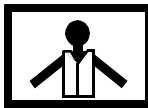
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower - Tower Assembly Removed. (WP 0211 00)
 Light Tower Pivot Support Removed. (WP 0209 00)
 Light Tower - Tower Extend Winch Removed. (WP 0213 00)
 Telescopic Light Tower Assembly Lowered. (TM 55-1945-205-10-2)
 Light Tower - Tower Electrical Cable Shroud Removed. (WP 0215 00)
 Light Tower Electrical System Junction Box Electrical Cable Removed. (WP 0136 00)

REMOVE LIGHT TOWER - TOWER EXTEND CABLES

WARNING



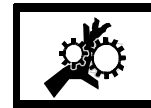
VEST



HELMET PROTECTION



HEAVY PARTS



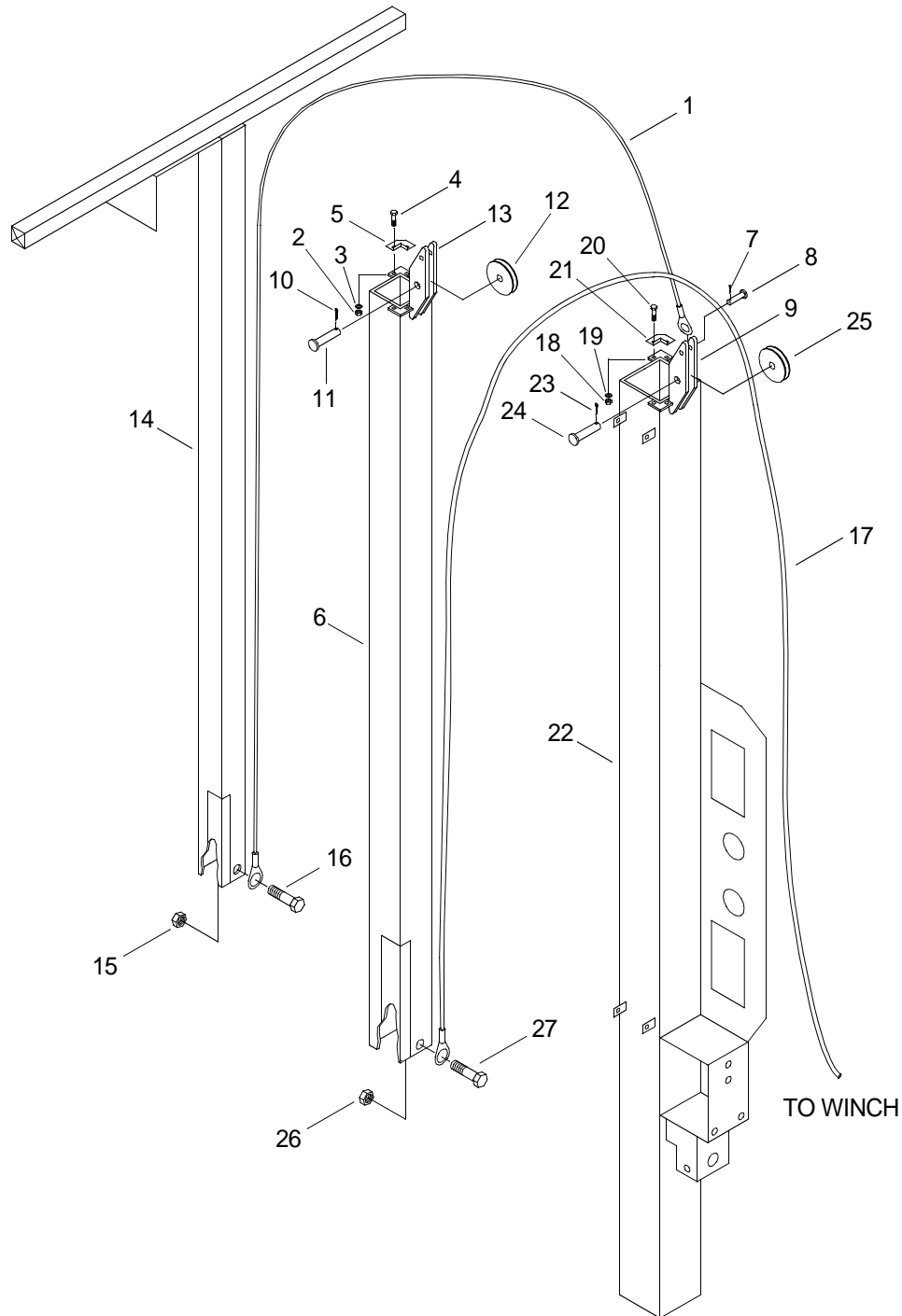
MOVING PARTS

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 inner tube cable connects the inner tube to the middle tube. The middle tube cable connects the middle tube to the tower winch.

1. Remove inner tube cable (1).



- a. Remove four nuts (2), washers (3) and screws (4) securing two slides (5) on the upper end of middle tube (6).
- b. Remove cotter pin (7) and pin (8) securing upper (loop) end of the inner tube cable (1) to outer tube mount bracket (9). Discard cotter pin (7).
- c. Remove cotter pin (10), pin (11) and pulley (12) from middle tube mount bracket (13). Discard cotter pin (10).
- d. Remove both inner tube (14) and inner tube cable (1) from inside middle tube (6).

-
- e. Remove nut (15) and bolt (16) securing inner tube cable (1) to lower end of the inner tube (14).
 - f. Remove inner tube cable (1).
2. Remove middle tube cable (17).
 - a. Remove four nuts (18), washers (19) and screws (20) securing two slides (21) on the upper end of outer tube (22).
 - b. Remove cotter pin (23), pin (24) and pulley (25) from outer tube mount bracket (9). Discard cotter pin (23).
 - c. Remove both middle tube (6) and middle tube cable (17) from inside outer tube (22).
 - d. Remove nut (26) and bolt (27) securing middle tube cable (17) to lower end of middle tube (6).
 - e. Remove middle tube cable (17).

INSTALL LIGHT TOWER - TOWER EXTEND CABLES

1. Install new middle tube cable (17).
 - a. Secure middle tube cable (17) to lower end of the middle tube (6) with bolt (27) and nut (28). Tighten nut (26).
 - b. Install both middle tube (6) and middle tube cable (17) in outer tube (22).
 - c. Install pulley (25), pin (24) and new cotter pin (23) on outer tube mount bracket (9), looping the middle tube cable (17) over pulley (25).
 - d. Install two slides (21) on the upper end of outer tube (22) and secure with four screws (20), washers (19) and nuts (18). Tighten nuts (18).
2. Install new inner tube cable (1).
 - a. Secure inner tube cable (1) to lower end of the inner tube (14) with bolt (16) and nut (15). Tighten nut (15).
 - b. Install both inner tube (14) and inner tube cable (1) in middle tube (6).
 - c. Install pulley (12), pin (11) and new cotter pin (10) on middle tube mount bracket (13), looping the inner tube cable (1) over pulley (12).
 - d. Secure the upper (loop) end of the inner tube cable (1) to outer tube mount bracket (9) with pin (8) and cotter pin (7).
 - e. Install two slides (5) on the upper end of middle tube (6) and secure with the four screws (4), washers (3) and nuts (2). Tighten nuts (2).
3. Install light tower electrical system junction box cable. (WP 0136 00)
4. Install light tower - tower electrical cable shroud. (WP 0215 00)
5. Raise telescopic light tower assembly. (TM 55-1945-205-10-2)
6. Install light tower - tower extend winch. (WP 0213 00)
7. Install light tower pivot support. (WP 0209 00)

8. Install light tower - tower assembly. (WP 0211 00)
9. Install light tower battery negative lead terminal. (WP 0134 00)
10. Perform operational check of light tower. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ACCESS DOOR GAS SPRING
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Spring, Gas
 (33968)
 PN 35600279

Personnel Required

Engineer 88L (2)

REMOVE LIGHT TOWER ACCESS DOOR GAS SPRING

WARNING



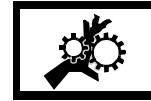
VEST



HELMET PROTECTION



HEAVY PARTS



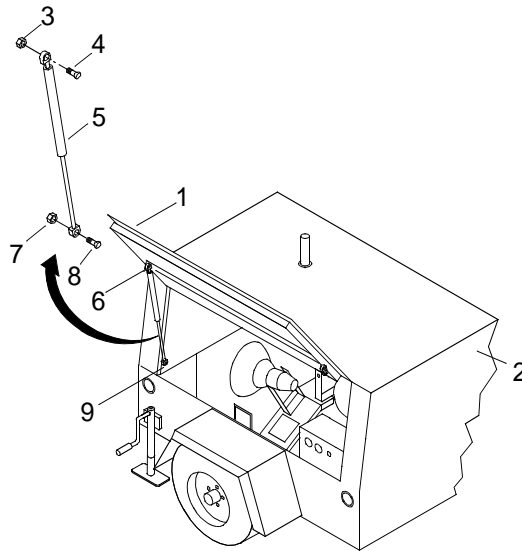
MOVING PARTS

All personal 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 removal and installation of all light tower trailer gas springs.

1. Open door (1) to light tower (2).



WARNING

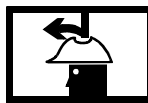


HELMET PROTECTION

2. Using assistant, hold door (1) open and support from falling.
3. Remove lock nut (3) and stud (4) from gas spring (5) and door mount (6).
4. Remove lock nut (7) and stud (8) from gas spring (5) and side mount (9).
5. Discard gas spring (5).

INSTALL LIGHT TOWER ACCESS DOOR GAS SPRING

WARNING



HELMET PROTECTION

1. Using assistant, hold door (1) open and support from falling.
2. Position new gas spring (5) between door mount (6) and side mount (9).
3. Install studs (4, 8) through gas spring (5) and mounts (6, 9).
4. Install lock nuts (3, 7) on studs (4, 8). Tighten nuts (3, 7).
5. Close door (1) to light tower (2).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER LEFT HAND LOWER PANEL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Panel, Left Lower
 (33968)
 PN 36896082

Personnel Required

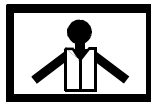
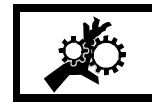
Engineer 88L (2)

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Running Gear Wheel And Tire Assembly Removed. (WP 0192 00)
 Light Tower Access Door Gas Springs Removed. (WP 0218 00)
 Light Tower Side Door Removed. (WP 0225 00)
 Light Tower Fender Removed. (WP 0228 00)
 Light Tower Reflectors Removed. (WP 0221 00)

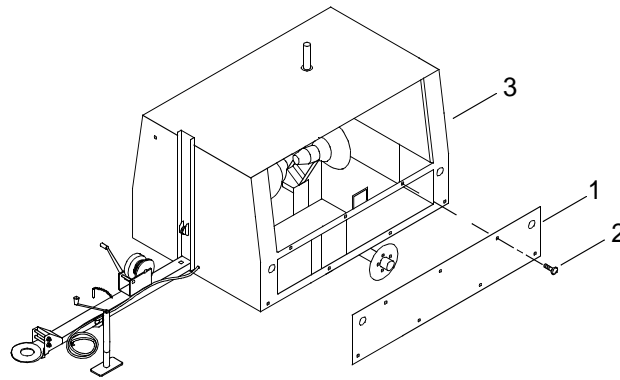
REMOVE LIGHT TOWER LEFT HAND LOWER PANEL

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. Use assistant to help support left lower panel (1).



2. Remove seven screws (2) from left lower panel (1).

WARNING



HEAVY PARTS

3. Remove left lower panel (1) from light tower trailer (3) and discard.

INSTALL LIGHT TOWER LEFT HAND LOWER PANEL

WARNING



HEAVY PARTS

1. Use assistant to help support new left lower panel (1) and position against light tower trailer (3).
2. Install seven screws (2) into left lower panel (1) and tighten.
3. Install light tower reflectors. (WP 0221 00)
4. Install light tower fender. (WP 0228 00)
5. Install light tower access door gas springs. (WP 0218 00)
6. Install light tower side door. (WP 0225 00)
7. Install light tower running gear wheel and tire assembly. (WP 0192 00)
8. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER FRONT END PANEL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Panel, Front End
 (33968)
 PN 36895084

Personnel Required

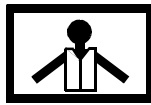
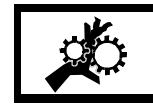
Engineer 88L (2)

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower - Tower Assembly Removed. (WP 0211 00)
 Light Tower - Tower Support Removed. (WP 0210 00)

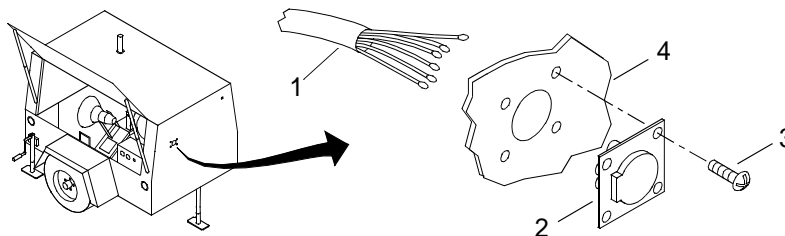
REMOVE LIGHT TOWER FRONT END PANEL

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. Tag and disconnect wires (1) from 125 volt electrical socket (2).

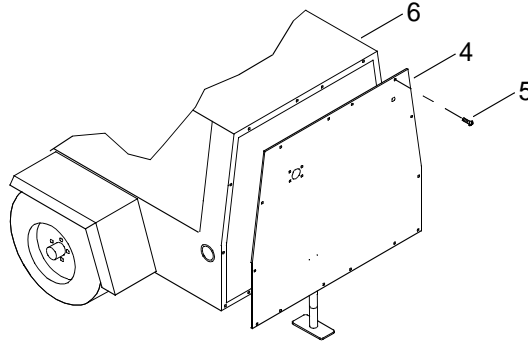


2. Remove four screws (3) from 125 volt electrical socket (2) and front panel (4).
3. Remove 125 volt electrical socket (2) from front panel (4).

 WARNING

**HEAVY PARTS**

4. Use assistant to help support front panel (4).



5. Remove fourteen screws (5) from front panel (4).
6. Remove front panel (4) from light tower trailer (6) and discard.

INSTALL LIGHT TOWER FRONT END PANEL

 WARNING

**HEAVY PARTS**

1. Use assistant to help support front panel (4).
2. Position new front panel (4) against light tower trailer (6).
3. Install fourteen screws (5) into front panel (4). Tighten screws (5).
4. Position 125 volt electrical socket (2) against front panel (4).
5. Install four screws (3) through 125 volt electrical socket (2) and into front panel (4). Tighten screws (3).
6. Connect wires (1) to 125 volt electrical socket (2) and remove tags.
7. Install light tower - tower support. (WP 0210 00)
8. Install light tower - tower assembly. (WP 0211 00)
9. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER REFLECTOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Reflector Assembly
 (33968)
 PN 36787349

Personnel Required

Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER REFLECTOR

WARNING



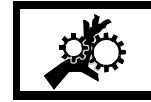
VEST



HELMET PROTECTION



HEAVY PARTS



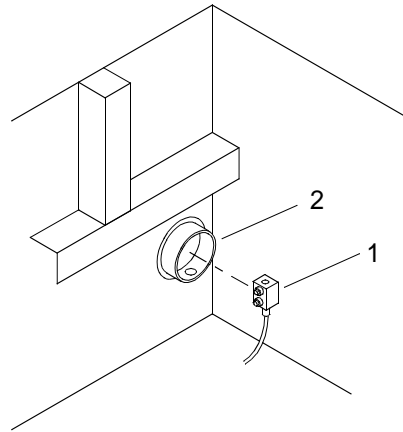
MOVING PARTS

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.

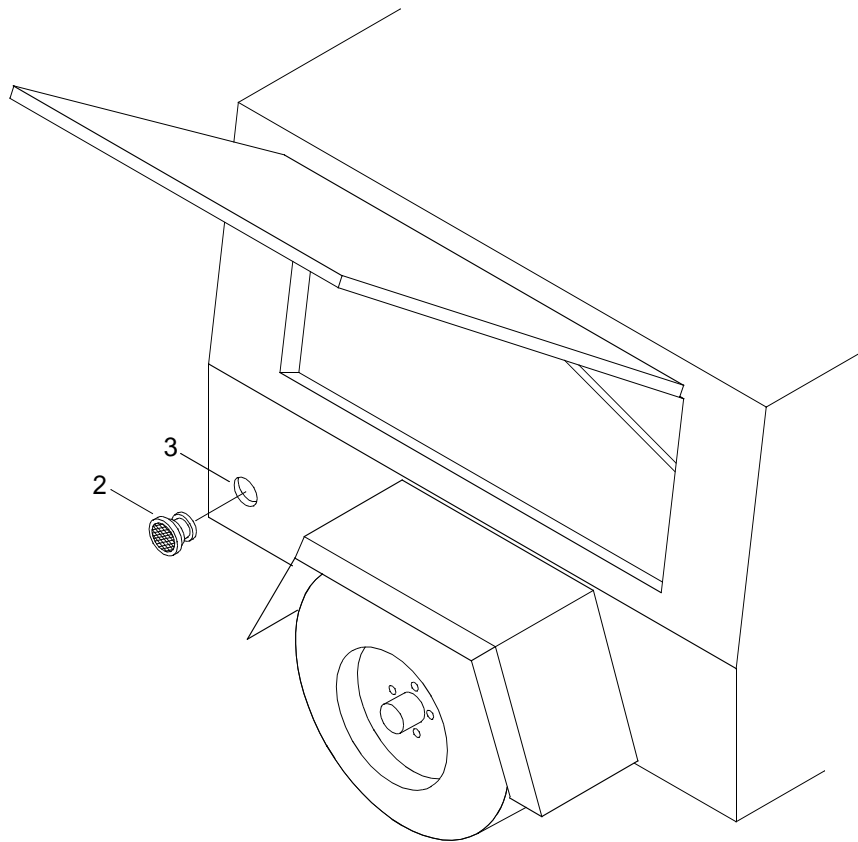
NOTE

The following procedure is typical for the removal and installation of all light tower trailer reflector assemblies.

1. Disconnect connector (1) from the rear of reflector assembly (2).



2. Remove reflector assembly (2) from the side of panel (3) and discard.



INSTALL LIGHT TOWER REFLECTOR

1. Install new reflector assembly (2) in panel (3).
2. Connect connector (1) to rear of reflector assembly (2).
3. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER ROOF PANEL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Roof
 (33968)
 PN 36877710

Personnel Required

Engineer 88L (2)

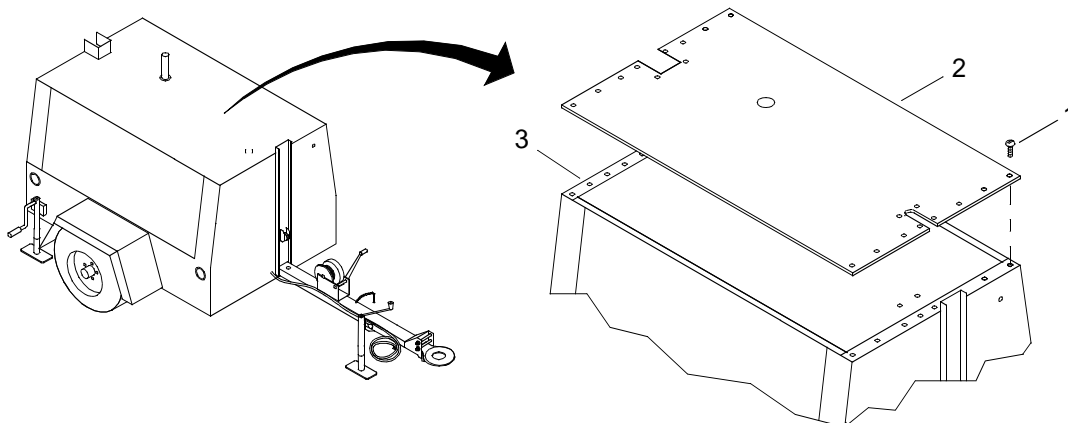
Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower - Tower Assembly Removed. (WP 0211 00)
 Light Tower Access Door Gas Springs Removed. (WP 0218 00)
 Light Tower Side Doors Removed. (WP 0225 00)

REMOVE LIGHT TOWER ROOF PANEL

All personal 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 twenty screws (1) from roof panel (2).



WARNING

**HEAVY OBJECTS**

2. Use assistant to help support roof panel (2) while removing it from light tower trailer (3). Discard roof panel (2).

INSTALL LIGHT TOWER ROOF PANEL

WARNING

**HEAVY OBJECTS**

1. Use assistant to help lift and position roof panel (2) on top of light tower trailer (3).
2. Install twenty screws (1) and tighten.
3. Install light tower side doors. (WP 0225 00)
4. Install light tower access door gas springs. (WP 0218 00)
5. Install light tower - tower assembly. (WP 0211 00)
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER - TOWER REST
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Rest, Tower
 (33968)
 PN 43210293

Personnel Required

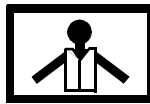
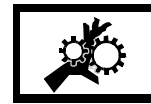
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Engine Radiator Reserve Tank Removed. (WP 0188 00)
 Light Tower Reflectors Removed. (WP 0221 00)
 Light Tower - Tower Assembly Removed. (WP 0211 00)
 Light Tower Access Door Gas Springs Removed. (WP 0218 00)
 Light Tower Side Doors Removed. (WP 0225 00)
 Light Tower Roof Panel Removed. (WP 0222 00)
 Light Tower Rear Panel Removed. (WP 0224 00)

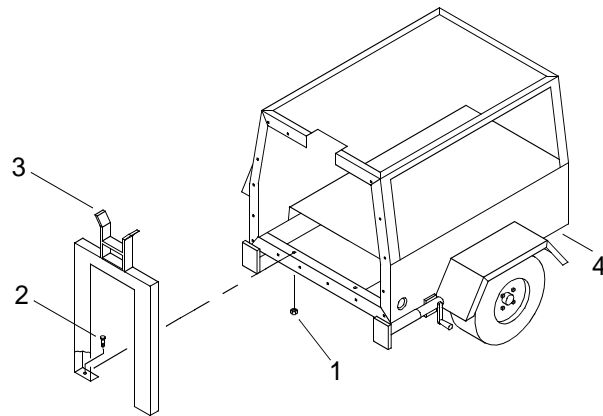
REMOVE LIGHT TOWER - TOWER REST

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 two hex nuts (1) and bolts (2) securing tower rest (3) to the inside frame of light tower (4).



2. Remove tower rest (3) and discard.

INSTALL LIGHT TOWER - TOWER REST

1. Position new tower rest (3) on inside frame of light tower (4).
2. Install two hex head bolts (2) and hex nuts (1) to secure tower rest (3). Tighten hex nuts (1).
3. Install light tower rear panel. (WP 0224 00)
4. Install light tower roof panel. (WP 0222 00)
5. Install light tower side doors. (WP 0225 00)
6. Install light tower access door gas springs. (WP 0218 00)
7. Install light tower reflectors. (WP 0221 00)
8. Install light tower engine radiator reserve tank. (WP 0188 00)
9. Install light tower - tower assembly. (WP 0211 00)
10. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER REAR PANEL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Panel, Rear End
 (33968)
 PN 36868685

Personnel Required

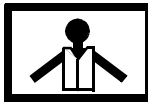
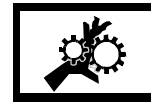
Engineer 88L (2)

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Reflectors Removed. (WP 0221 00)
 Light Tower Engine Radiator Reserve Tank Removed. (WP 0188 00)

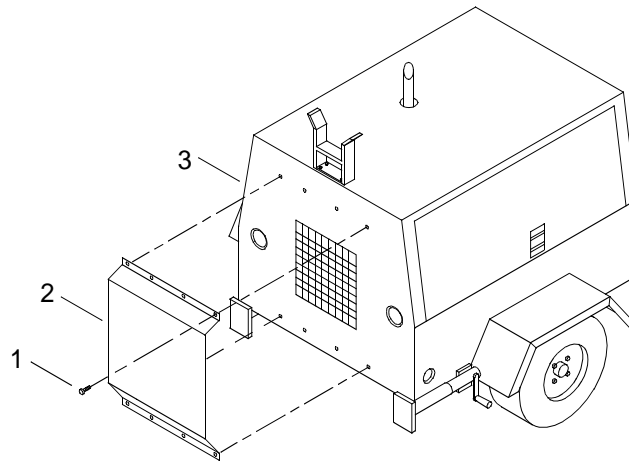
REMOVE LIGHT TOWER REAR PANEL

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 eight screws (1) from exterior radiator shroud (2).



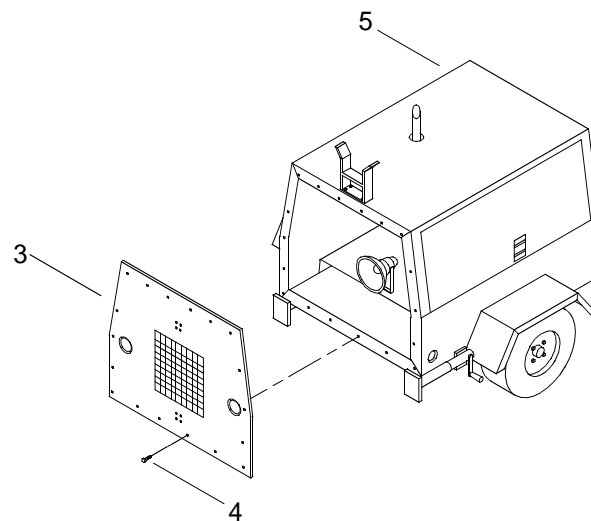
2. Remove exterior radiator shroud (2) from rear panel (3).

WARNING



HEAVY PARTS

3. Use assistant to help support rear panel (3).



4. Remove eighteen screws (4) from rear panel (3).
5. Remove rear panel (3) from light tower trailer (5) and discard.

INSTALL LIGHT TOWER REAR PANEL

WARNING

**HEAVY PARTS**

1. Use assistant to help support rear panel (3).
2. Position new rear panel (3) against light tower trailer (5).
3. Install eighteen screws (4) into rear panel (3). Tighten screws (4).
4. Position exterior radiator shroud (2) against rear panel (3).
5. Install eight screws (1) into exterior radiator shroud (2). Tighten screws (1).
6. Install light tower engine radiator reserve tank. (WP 0188 00)
7. Fill light tower engine radiator with coolant. (WP 0178 00)
8. Install light tower reflectors. (WP 0211 00)
9. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER SIDE DOOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Door, Side
 (33968)
 PN 36797215

Personnel Required

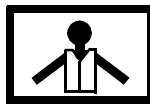
Engineer 88L (2)

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Access Door Gas Springs Removed. (WP 0218 00)

REMOVE LIGHT TOWER SIDE DOOR

WARNING



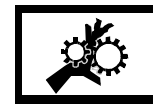
VEST



HELMET PROTECTION



HEAVY PARTS



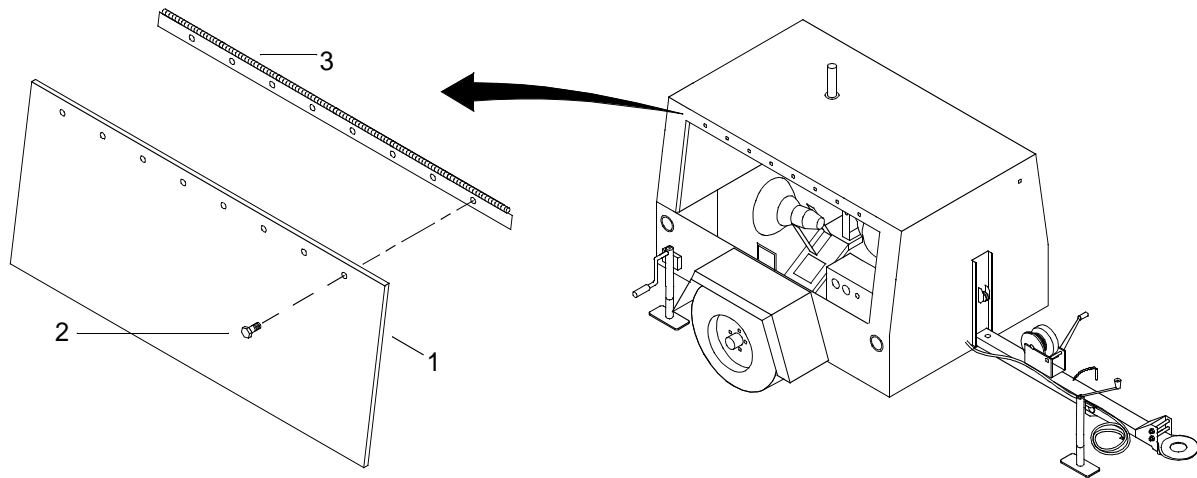
MOVING PARTS

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 removal and installation of port and starboard light tower trailer access doors.

1. Open side door (1).



WARNING

**HEAVY PARTS**

2. Use assistant to help support side door (1).
3. Remove eight screws (2) from door hinge (3) and side door (1).
4. Remove side door (1) from door hinge (3) and discard.

INSTALL LIGHT TOWER SIDE DOOR

WARNING

**HEAVY PARTS**

1. Use assistant to help support side door (1).
2. Position new side door (1) against door hinge (3).
3. Install eight screws (2) through side door (1). Tighten screws (2).
4. Close side door (1).
5. Install light tower access door gas springs. (WP 0218 00)
6. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER SIDE DOOR HINGE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Hinge
 (33968)
 PN 36707180

Personnel Required

Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Access Door Gas Springs Removed. (WP 0218 00)
 Light Tower Side Door Removed. (WP 0225 00)

REMOVE LIGHT TOWER SIDE DOOR HINGE

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



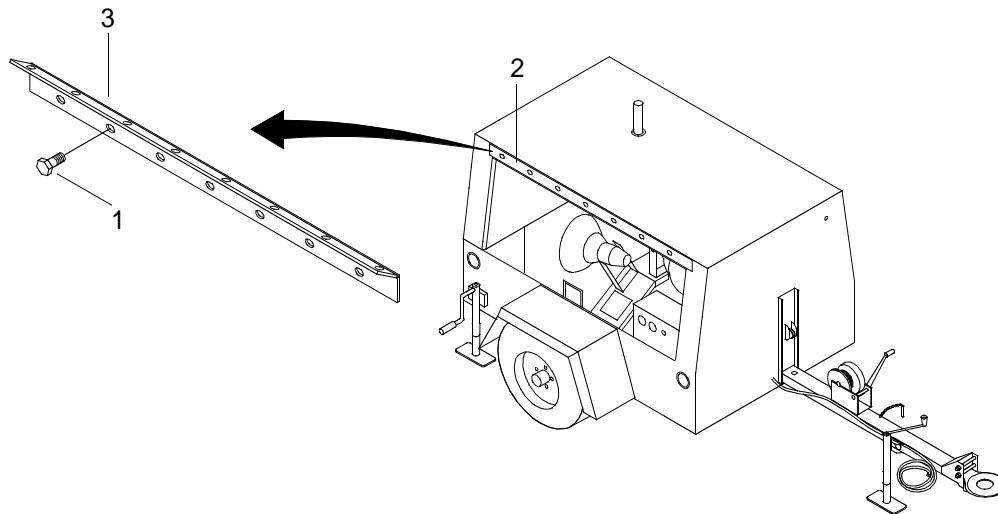
MOVING PARTS

All personnel must wear personal floatation 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 removal and installation of port and starboard light tower trailer door hinges.

1. Remove seven screws (1) from light tower roof panel (2) and door hinge (3).



2. Remove door hinge (3) from light tower roof panel (2) and discard.

INSTALL LIGHT TOWER SIDE DOOR HINGE

1. Position new door hinge (3) against light tower roof panel (2).
2. Install seven screws (1) through through door hinge (3) and into light tower roof panel (2). Tighten screws (1).
3. Install light tower side door. (WP 0225 00)
4. Install light tower access door gas springs. (WP 0218 00)
5. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RIGHT HAND LOWER PANEL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Panel, Right Lower
 (33968)
 PN 36896074

Personnel Required

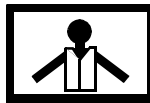
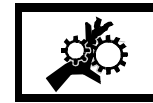
Engineer 88L (2)

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Access Door Gas Spring Removed. (WP 0218 00)
 Light Tower Side Door Removed. (WP 0225 00)
 Light Tower Running Gear Wheel And Tire Assembly Removed. (WP 0192 00)
 Light Tower Fender Removed. (WP 0228 00)
 Light Tower Reflectors Removed. (WP 0221 00)

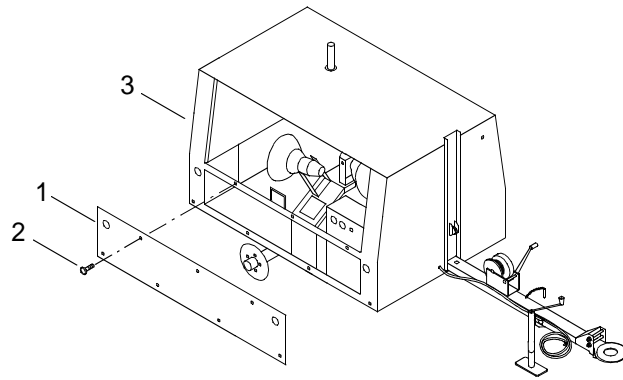
REMOVE LIGHT TOWER RIGHT HAND LOWER PANEL

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. Use assistant to help support right lower panel (1).



2. Remove seven screws (2) from right lower panel (1).

WARNING



HEAVY PARTS

3. Remove right lower panel (1) from light tower trailer (3) and discard.

INSTALL LIGHT TOWER RIGHT HAND LOWER PANEL

WARNING



HEAVY PARTS

1. Use assistant to help support new right lower panel (1) and position against light tower trailer (3).
2. Install seven screws (2) into right lower panel (1) and tighten.
3. Install light tower reflectors. (WP 0221 00)
4. Install light tower fender. (WP 0225 00)
5. Install light tower running gear wheel and tire assembly. (WP 0192 00)
6. Install light tower access door gas spring. (WP 0218 00)
7. Install light tower side door. (WP 0225 00)
8. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER FENDER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Fender, Vehicular
 (33968)
 PN 36877579

Personnel Required

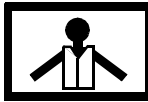
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER FENDER

WARNING



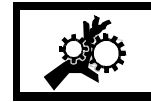
VEST



HELMET PROTECTION



HEAVY PARTS



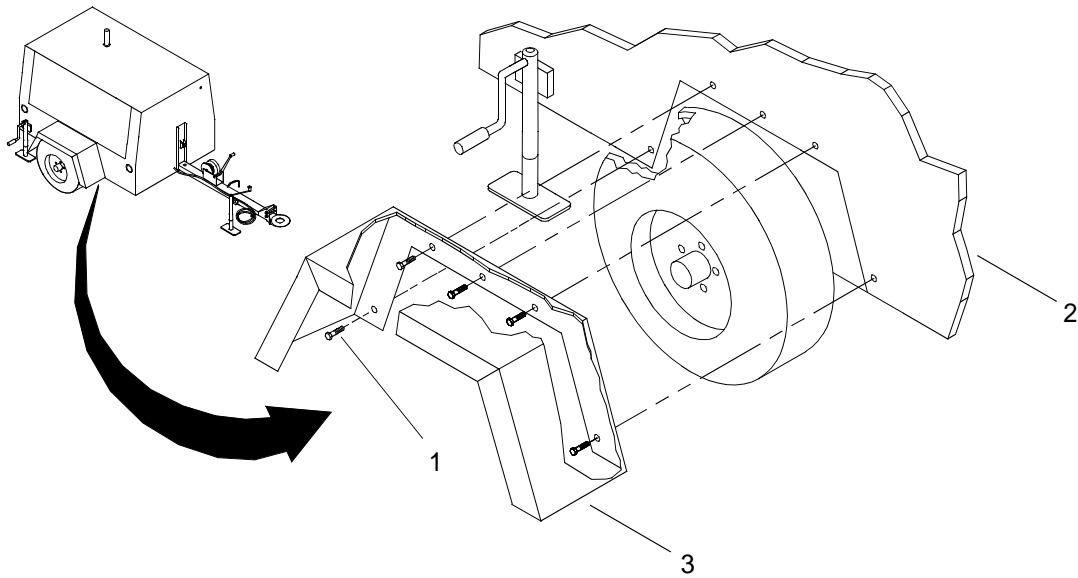
MOVING PARTS

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 removal and installation of both light tower trailer fenders.

1. Remove five screws (1) from light tower trailer (2) and fender (3).



2. Remove fender (3) from light tower trailer (2) and discard.

INSTALL LIGHT TOWER FENDER

1. Position new fender (3) against light tower trailer (2).
2. Install five screws (1) through fender (3) and into light tower trailer (2). Tighten screws (1).
3. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER LEFT HAND LAMP STORAGE BRACKET
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Bracket, Left
 (33968)
 PN 36870384

Personnel Required

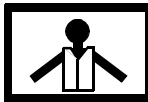
Engineer 88L

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
 Light Tower Upper Lamp Storage Bracket Removed. (WP 0231 00)

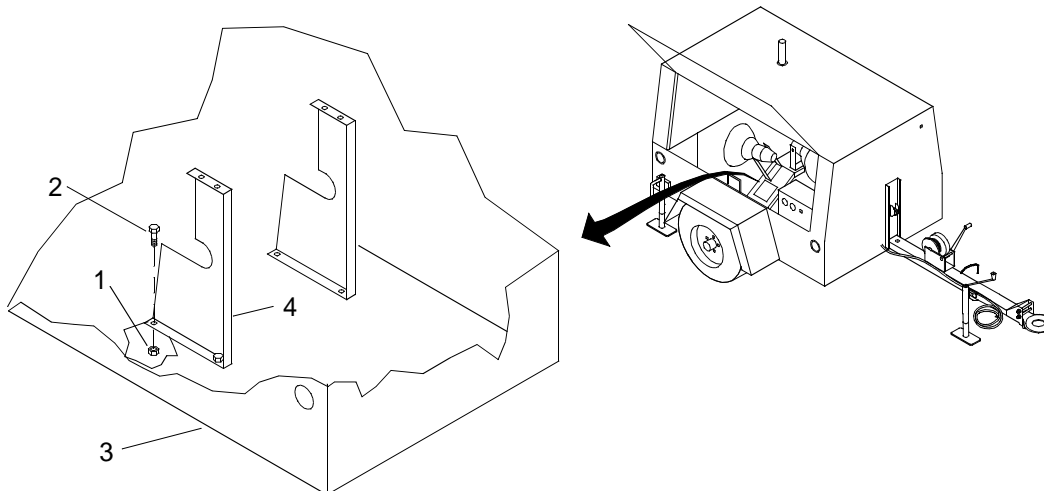
REMOVE LIGHT TOWER LEFT HAND LAMP STORAGE BRACKET

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 two nuts (1) and two bolts (2) from trailer floor (3).



2. Remove bracket (4) from trailer floor (3) and discard.

INSTALL LIGHT TOWER LEFT HAND LAMP STORAGE BRACKET

1. Position new bracket (4) on trailer floor (3).
2. Install two bolts (2) and two nuts (1) through trailer floor (3). Tighten nuts (1).
3. Install light tower upper lamp storage bracket. (WP 0231 00)
4. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER RIGHT HAND LAMP STORAGE BRACKET
REPLACEMENT**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Item 81, WP 0359 00)
- Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
- Helmet, Safety (Brown) (Item 33, WP 0359 00)
- Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

- Bracket, Right
(33968)
PN 36874428

Personnel Required

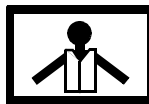
- Engineer 88L

Equipment Condition

- Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)
- Light Tower Upper Lamp Storage Bracket Removed. (WP 0231 00)

REMOVE LIGHT TOWER RIGHT HAND LAMP STORAGE BRACKET

WARNING



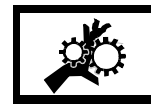
VEST



HELMET PROTECTION



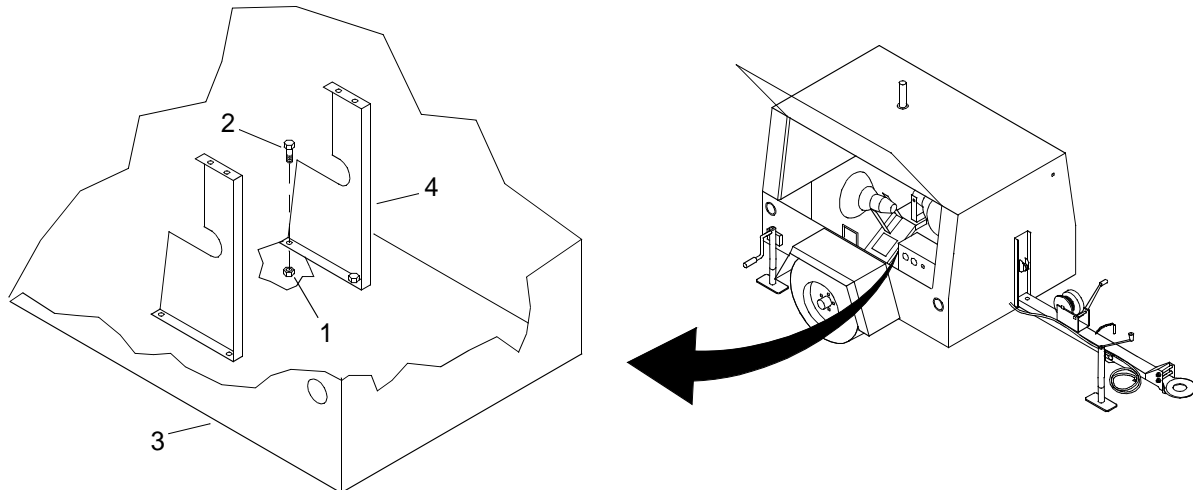
HEAVY PARTS



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 two nuts (1) and two bolts (2) from trailer floor (3).



2. Remove bracket (4) from trailer floor (3) and discard.

INSTALL LIGHT TOWER RIGHT HAND LAMP STORAGE BRACKET

1. Position new bracket (4) on trailer floor (3).
2. Install two bolts (2) and two nuts (1) through trailer floor (3). Tighten nuts (1).
3. Install light tower upper lamp storage bracket. (WP 0231 00)
4. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER UPPER LAMP STORAGE BRACKET
REPLACEMENT**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Item 81, WP 0359 00)
- Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
- Helmet, Safety (Brown) (Item 33, WP 0359 00)
- Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

- Bracket, Upper
(33968)
PN 36894103

Personnel Required

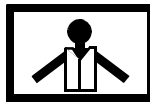
- Engineer 88L

Equipment Condition

- Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER UPPER LAMP STORAGE BRACKET

WARNING



VEST



HELMET PROTECTION



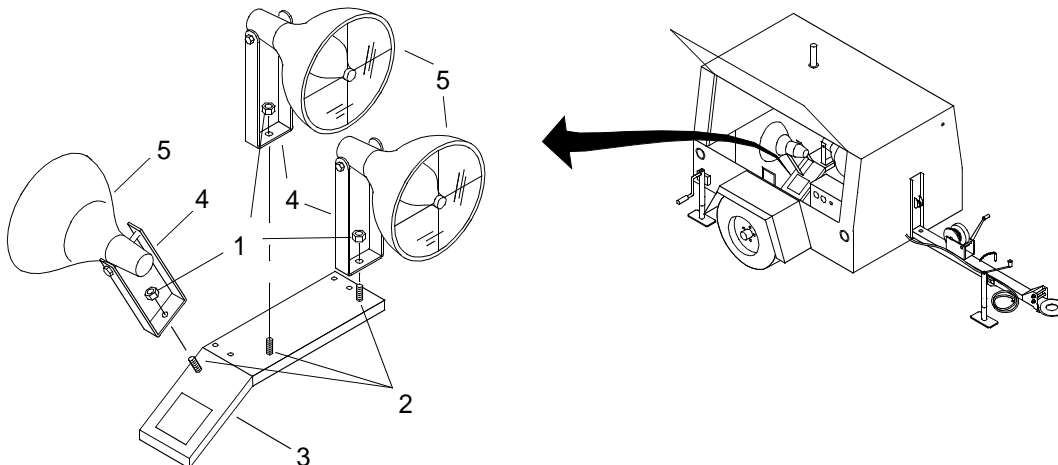
HEAVY PARTS



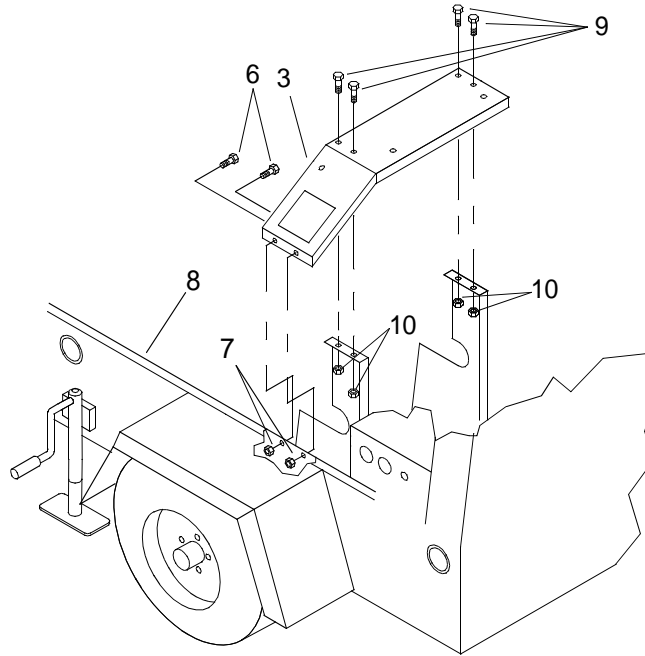
MOVING PARTS

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 three nuts (1) from three studs (2) on bracket (3).



2. Remove three trunnions (4) with attached optical/socket assemblies (5) from bracket (3).
3. Remove three studs (2) from bracket (3).
4. Remove two nuts (6) and two bolts (7) securing bracket (3) to the side of trailer (8).



5. Remove four nuts (9) and four bolts (10).
6. Remove bracket (3) from inside of trailer (8) and discard.

INSTALL LIGHT TOWER UPPER LAMP STORAGE BRACKET

1. Position new bracket (3) inside trailer (8).
2. Install four bolts (10) and four nuts (9). Tighten nuts (9).
3. Install two bolts (7) and two nuts (6) to secure bracket (3) to side of trailer (8). Tighten nuts (6).
4. Install three studs (2) into bracket (3).
5. Position three trunnions (4) with attached optical/socket assemblies (5) on bracket (3).
6. Install three nuts (1) on studs (2). Tighten nuts (1).
7. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER DOOR LATCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Compressor Unit, Reciprocating, Power Drive (Item 13, WP 0359 00)
 Bar, Bucking, BB28 Tool Style (Item 3, WP 0359 00)
 Drill, Electric, Portable, 115 Volt (Item 16, WP 0359 00)
 Drill Set, Twist (Item 15, WP 0359 00)
 Hammer, Pneumatic, Portable (Rivet Gun) (Item 31, WP 0359 00)

Materials/Parts

Latch, Door
 (33968)
 PN 36793602
 Rivet
 (33968)
 PN 36794816
 Qty 4

Personnel Required

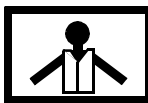
Engineer 88L (2)

Equipment Condition

Light Tower Battery Negative Lead Terminal Removed. (WP 0134 00)

REMOVE LIGHT TOWER DOOR LATCH

WARNING

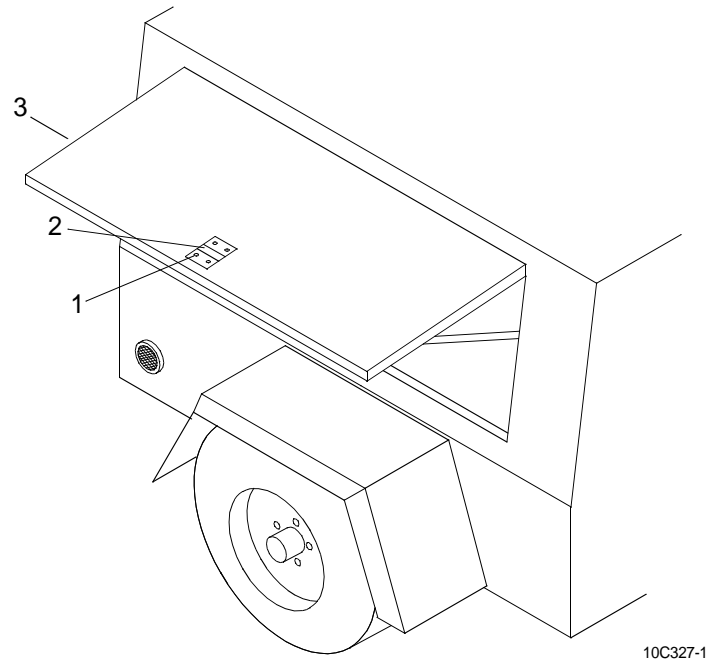
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 removal and installation of port and starboard light tower door latches.

1. Drill out four rivets (1) from door latch (2) using a drill and twist drill. Discard rivets (1).



2. Remove door latch (2) from light tower access door (3) and discard.

INSTALL LIGHT TOWER DOOR LATCH

1. Position new door latch (2) on light tower access door (3).
2. Position four new rivets (1) through new door latch (2) and light tower access door (3).
3. Using a rivet gun and bucking bar, drive four new rivets (1) and secure door latch (2) to light tower access door (3).
4. Install light tower battery negative lead terminal. (WP 0134 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY CONTAINER HYDRAULIC SYSTEM
SERVICING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

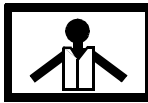
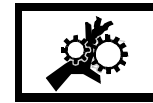
Fluid, Hydraulic
 (81349)
 NSN 9150-00-252-6383
 PN MIL-H-5606

Personnel Required

Seaman 88K

SERVICE EASY CONTAINER HYDRAULIC SYSTEM (LIFT) HYDRAULIC HAND PUMP

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 the container side doors to gain access to the pumps.

WARNING

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

2. Secure doors open with locking hooks.

 WARNING



CHEMICAL

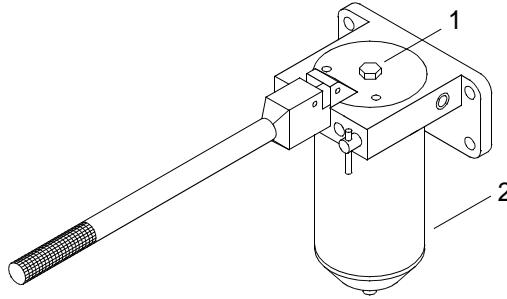


EYE PROTECTION



VAPOR

3. Remove cap (1) from reservoir (2).



PL-R SERIES PUMP

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

 CAUTION

Never fill reservoir unless connected rams are fully retracted. Failure to comply could result in overfilling reservoir and cause damage to hydraulic system.

4. Fill reservoir (2) to correct level with hydraulic fluid.
5. Install cap (1) on reservoir (2) and tighten.

SERVICE EASY CONTAINER HYDRAULIC SYSTEM (EXTEND/RETRACT) HYDRAULIC HAND PUMP (SIMPLEX)

 WARNING



CHEMICAL

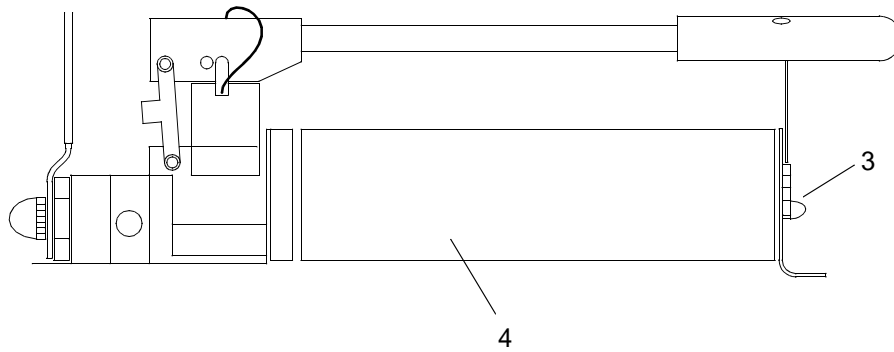


EYE PROTECTION

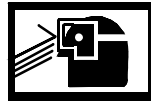


VAPOR

1. Remove cap (3) from reservoir (4).



WARNING

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

CAUTION

Never fill reservoir unless connected rams are fully retracted. Failure to comply could result in overfilling reservoir and cause damage to hydraulic system.

2. Fill reservoir (4) to correct level with hydraulic fluid.
3. Install cap (3) on reservoir (4) and tighten.
4. Unhook and close container side doors.

WARNING

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

5. Latch and secure side doors shut.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHOR BUOY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

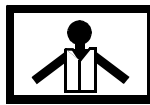
Buoy, Inflatable
 (U8512)
 PN A5-W

Personnel Required

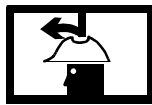
Seaman 88K

REMOVE EASY ANCHOR BUOY

WARNING



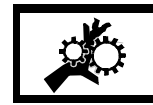
VEST



HELMET PROTECTION



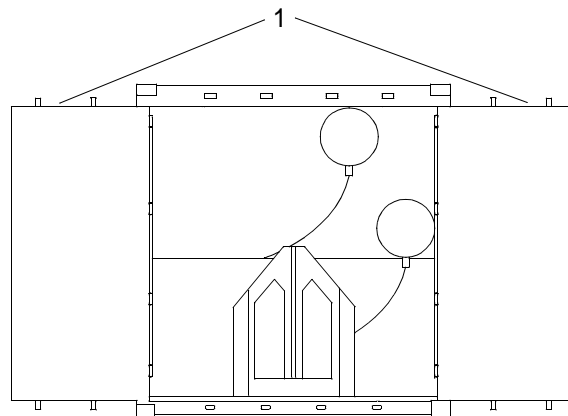
HEAVY PARTS



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.

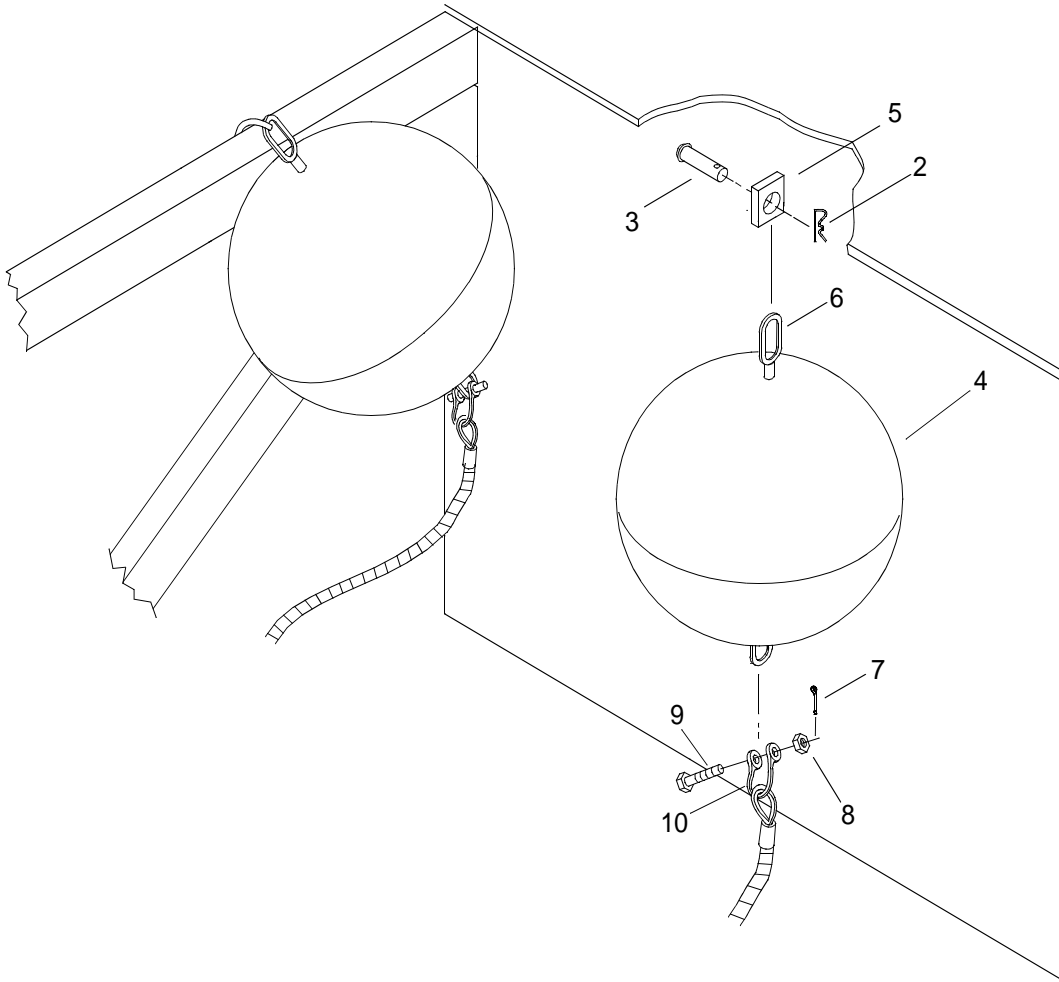
1. Unlatch and open anchor end doors (1).



WARNING

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

2. Secure anchor end doors (1) with locking bars and pins.
3. Remove quick release pin (2) from retaining pin (3).



WARNING



HEAVY OBJECTS

4. Supporting the weight of buoy (4), remove retaining pin (3) from container bracket (5).
5. Remove buoy retrieval pendant (6) from container bracket (5).
6. Lower buoy (4) to deck.

-
7. Remove cotter pin (7), nut (8) and bolt (9) from shackle (10). Discard cotter pin (7).
 8. Remove buoy (4) from shackle (10). Discard buoy (6).

INSTALL EASY ANCHOR BUOY

1. Position new buoy (4) on shackle (10).
2. Install bolt (9), nut (8) and new cotter pin (7) in shackle (10).

WARNING



HEAVY OBJECTS

3. Supporting weight of buoy (4), position buoy retrieval pendant (6) on container bracket (5).
4. Install retaining pin (3) in container bracket (5).
5. Install quick release pin (2) in retaining pin (4).
6. Remove locking bars and pins from anchor end doors (1).

WARNING

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

7. Latch and secure anchor end doors (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHOR
REMOVAL AND INSTALLATION**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
- Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
- Helmet, Safety (Brown) (Item 33, WP 0359 00)
- Life Preserver, Vest (Item 38, WP 0359 00)
- Sling, Lifting, 5300 lbs (Green) (Item 70, WP 0359 00)
- Shackle, ½ in. 2 Ton (Item 67, WP 0359 00)

Materials/Parts

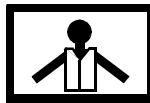
- Twine, Fibrous (Item 59, WP 0358 00)

Personnel Required

- Seaman 88K (2)
-

REMOVE EASY ANCHOR

WARNING



VEST



HELMET PROTECTION



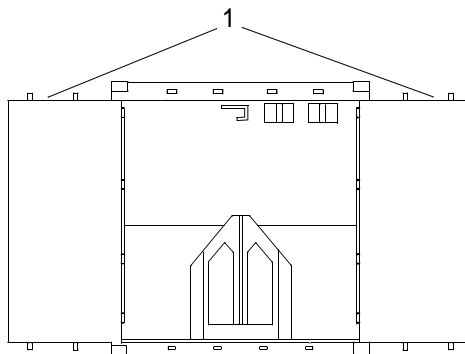
HEAVY PARTS



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.

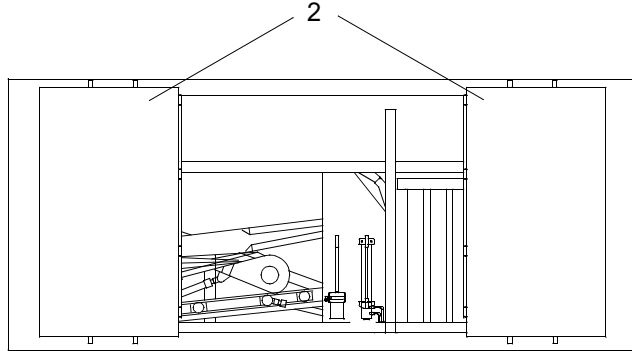
1. Unlatch and open anchor end doors (1).



WARNING

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

2. Secure anchor end doors (1) open with locking bars and pins.
3. Unlatch and open pump side doors (2).



WARNING

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

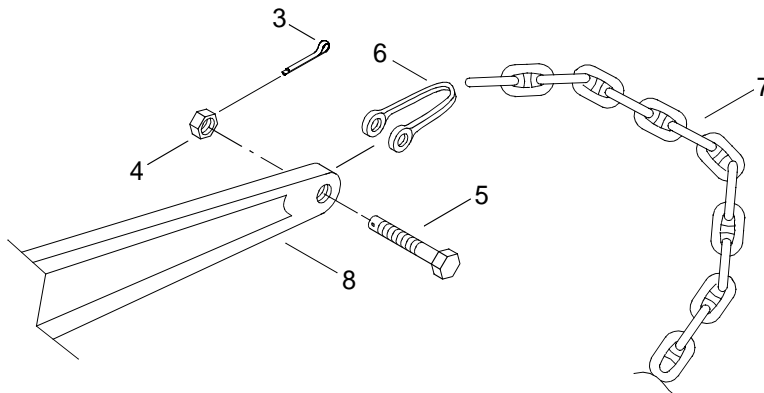
4. Secure pump side doors (2) open with locking hooks.

WARNING



HEAVY PARTS

5. Remove cotter pin (3), nut (4) and bolt (5) from shackle (6).

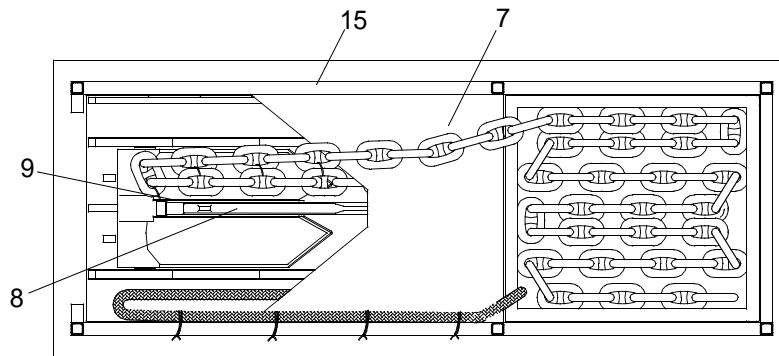


 WARNING



HEAVY PARTS

6. Remove shackle (6) from chain (7).
7. Position shackle (6) on anchor (8).
8. Install bolt (5), nut (4) and cotter pin (3) in shackle (6).
9. Remove twine securing chain (7) to anchor padeye (9).



 WARNING



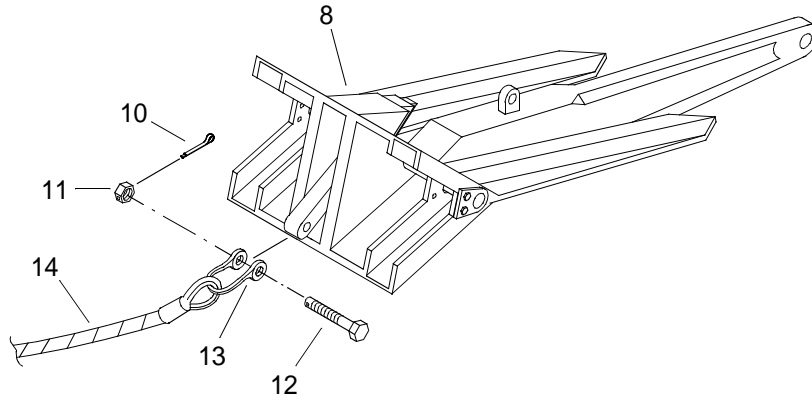
HEAVY PARTS

NOTE

Anchor chain extending from mooring box is stored on top of anchor. It must be secured in such a manner as to permit removal of anchor and allow free operation of the anchor drawer.

10. Move chain (7) off anchor (8).

11. Remove cotter pin (10), nut (11) and bolt (12) from shackle (13).



12. Remove shackle (13) from anchor (8).
 13. Install bolt (12), nut (11) and cotter pin (10) in shackle (13).

WARNING

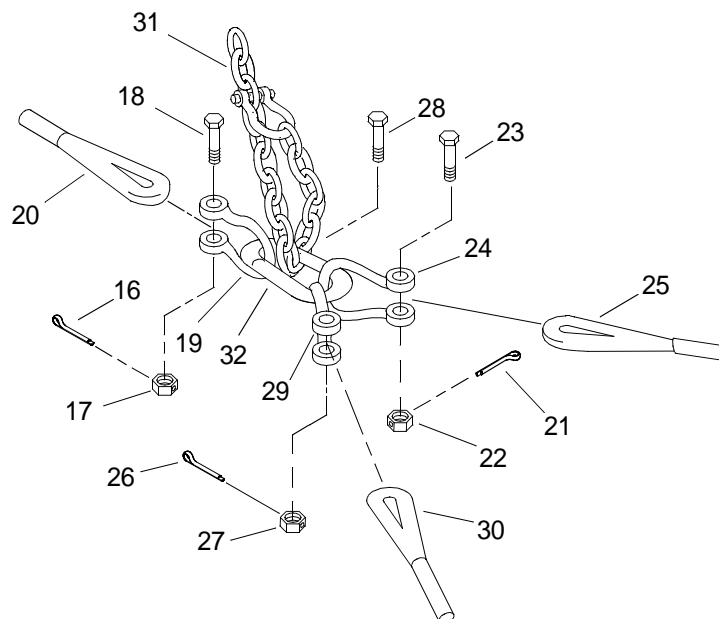


HEAVY PARTS

NOTE

Anchor buoy line must be stowed in such a manner as to permit free operation of anchor drawer and allow removal of anchor.

14. Coil anchor buoy line (14) and secure to frame (15) with twine.
 15. Remove cotter pin (16), nut (17) and bolt (18) from shackle (19).



WARNING

**HEAVY PARTS**

16. Remove mooring line (20) from shackle (19).
17. Install bolt (18), nut (17) and cotter pin (16) in shackle (19).

WARNING

**HEAVY PARTS****NOTE**

Pear link, mooring bridle legs and mooring buoy chain must be stowed in such a manner as to permit free operation of anchor drawer and allow removal of anchor.

18. Remove cotter pin (21), nut (22) and bolt (23) from shackle (24) and disconnect mooring line (25) from shackle (24).
19. Install bolt (23), nut (22) and cotter pin (21) in shackle (24).

WARNING

**HEAVY PARTS**

20. Remove cotter pin (26), nut (27) and bolt (28) from shackle (29) and disconnect mooring line (30) from shackle (29).
21. Install bolt (28), nut (27) and cotter pin (26) in shackle (29).

WARNING

**HEAVY PARTS**

22. Move anchor boy line (31) with pear link (32) installed from top of the anchor (8) and secure to the top frame (15) with twine.

 WARNING



HEAVY PARTS

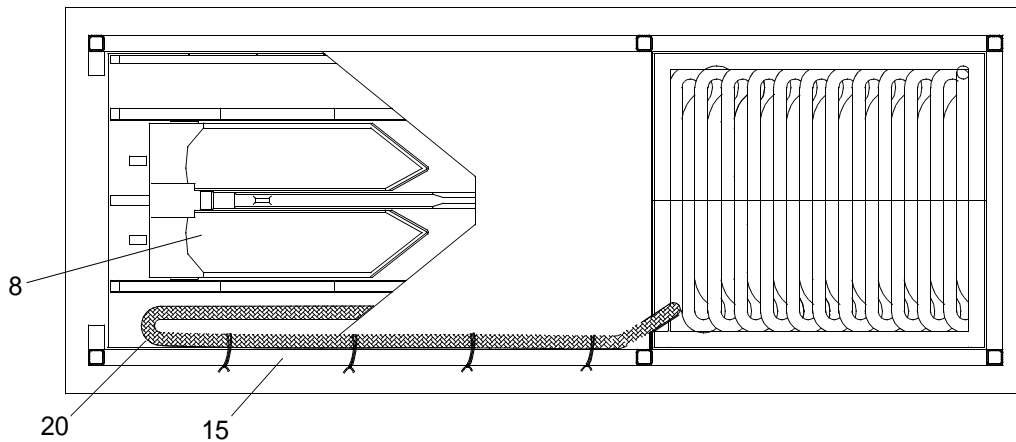
23. Move mooring lines (25, 30) from top of anchor (8) and place in mooring line box.

 WARNING

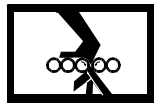


HEAVY PARTS

24. Move mooring line (20) from top of anchor (8) and secure to frame(15) with twine.



 WARNING

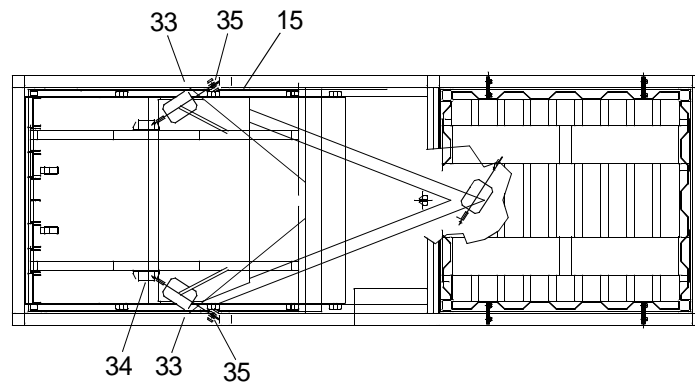


MOVING PARTS



HEAVY PARTS

25. Remove two 6 ton chain hoists (33) which secure the anchor drawer (34) in the track of the launch frame (15).



WARNING



HEAVY PARTS

26. Remove shackles (35) from launch frame (15).

WARNING

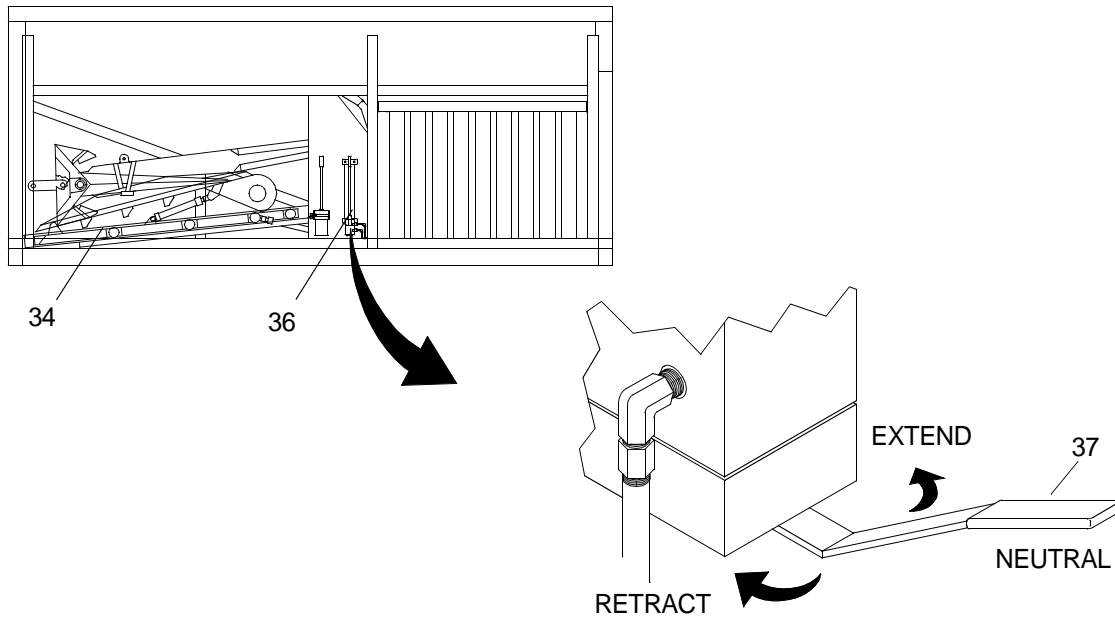


MOVING PARTS



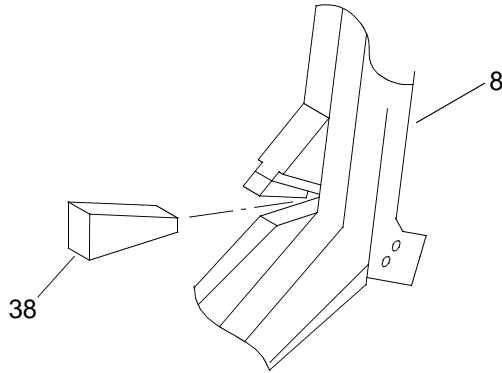
HEAVY PARTS

27. Extend the anchor drawer (34) by pumping the extend/retract pump (36) with the control lever (37) in the extend position (to the right).



28. Move the control lever (37) to neutral position (to the center).

29. Remove aluminum wedge (38) from toolbox.



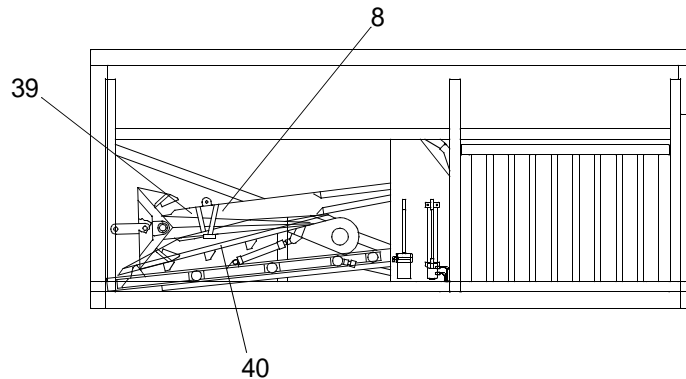
30. Install aluminum wedge (38) in anchor (8) to keep anchor flukes from moving while anchor (8) is being lifted.

WARNING



HEAVY PARTS

31. Remove anchor securing device (39).



WARNING



HEAVY PARTS

32. Install anchor securing device (39) in toolbox.

33. Attach tag lines to crown and foot of anchor (8) to assist in removal of anchor (8) from lifting table (40).

WARNING

**HEAVY PARTS**

34. Using forklift, sling and shackle attached to the anchor padeye (9), remove anchor (8) from lifting table (40).

INSTALL EASY ANCHOR

1. Attach tag lines to crown and foot of anchor (8) to assist in positioning anchor (8) on lifting table (40).

WARNING

**HEAVY PARTS**

2. Using forklift, sling and shackle attached to the anchor padeye (9), lift anchor (8) and position on lifting table (40).

WARNING

**HEAVY PARTS**

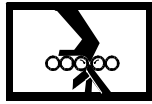
3. Remove anchor securing device (39) from toolbox.
4. Attach anchor securing device (39).
5. Remove aluminum wedge (38) from anchor (8).
6. Install aluminum wedge (38) in toolbox

WARNING

**HEAVY PARTS**

7. Remove sling and shackle from anchor padeye (9).

WARNING

**MOVING PARTS****HEAVY PARTS**

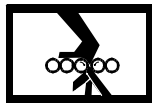
8. Retract the anchor drawer (34) by pumping the extend/retract pump (36) with the control lever (37) in the retract position (to the left).
9. Move the control lever (37) to the center or neutral position.

WARNING

**HEAVY PARTS**

10. Attach shackles (35) to launch frame (15).

WARNING

**MOVING PARTS****HEAVY PARTS**

11. Attach two 6 ton chain hoists (33) to secure the anchor drawer (34) to the launch frame (15).

WARNING

**HEAVY PARTS**

12. Cut twine securing mooring line to frame and place mooring line (21) on top of anchor (8).

WARNING

**HEAVY PARTS**

13. Remove mooring lines (25, 30) from mooring line box, coil and stow on top of anchor (8).

WARNING

**HEAVY PARTS**

14. Cut twine securing coiled anchor buoy line (14), with pear link (32) installed, to frame (15) and place on top of anchor (8).
15. Remove cotter pin (26), nut (27) and bolt (28) from shackle (29).

WARNING

**HEAVY PARTS**

16. Install mooring line (30) in shackle (29).
17. Install bolt (28), nut (27) and cotter pin (26) in shackle (29).

WARNING

**HEAVY PARTS**

18. Remove cotter pin (21), nut (22) and bolt (23) from shackle (24).

WARNING

**HEAVY PARTS**

19. Install mooring line (25) in shackle (24).
20. Install bolt (23), nut (22) and cotter pin (21) in shackle (24).
21. Remove cotter pin (16), nut (17) and bolt (18) from shackle (19).

WARNING

**HEAVY PARTS**

22. Install mooring line (20) in shackle (19).
23. Install bolt (18), nut (17) and cotter pin (16) in shackle (19).
24. Remove cotter pin (3), nut (4) and bolt (5) from shackle (6).

WARNING

**HEAVY PARTS**

25. Install shackle (6) on chain (7).

WARNING

**HEAVY PARTS**

26. Position shackle (6) on anchor (8).
27. Install bolt (5), nut (4) and cotter pin (3) in shackle (6).
28. Remove locking hooks to close pump side doors (2).

WARNING

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

29. Latch and secure pump side doors (2).
30. Remove locking bars and pins to close anchor end doors (1).

WARNING

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

31. Latch and secure anchor end doors (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHOR DRAWER ASSEMBLY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pliers, Retaining Ring, Flat Jaw (Item 48, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Drawer, Anchor
 (19207)
 PN FCRRDF-99-581-001-64
 Block, Shoring (Item 6, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

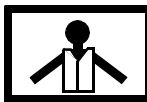
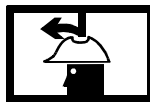
Seaman 88K

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

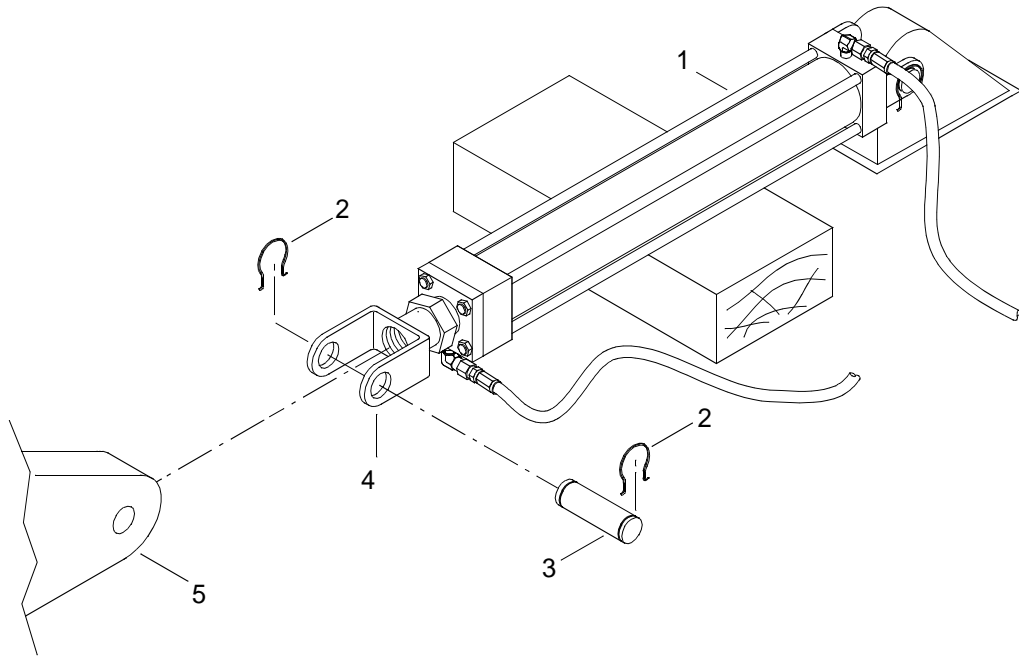
REMOVE EASY ANCHOR DRAWER ASSEMBLY

WARNING

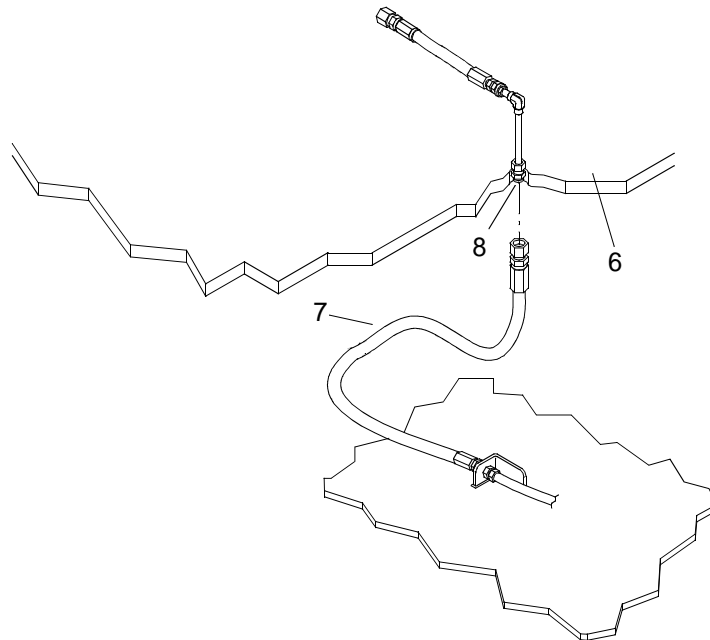
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

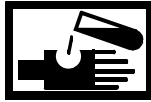
1. Position a wood wedge beneath drawer hydraulic cylinder (1) to support the weight of the cylinder (1).



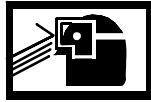
2. Using external retaining ring pliers, remove two snap rings (2) from pin (3).
3. Remove pin (3) from clevis (4).
4. Remove clevis (4) from mounting boss (5) on slide platform (6).
5. Position drain pan under the slide platform (6) near the lower flexible hydraulic hose (7).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

6. Disconnect lower flexible hydraulic hose (7) from the bottom of the slide platform (6) hydraulic fitting (8) and allow hydraulic hose (7) to drain into drain pan.

 WARNING

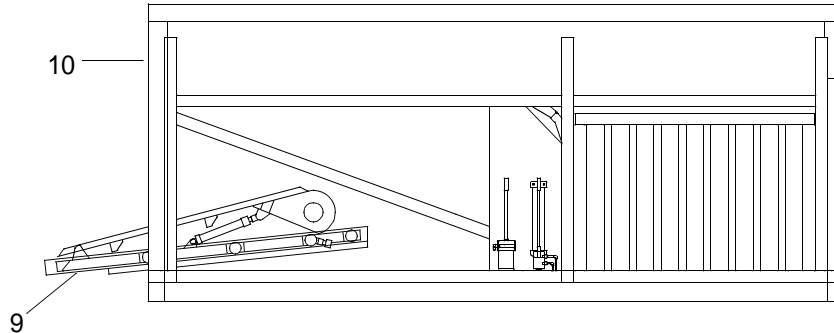


HEAVY PARTS



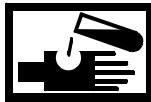
MOVING PARTS

7. Using forklift, remove anchor drawer assembly (9) from EASY container (10).



8. Remove the EASY lift hydraulic cylinder from the anchor drawer assembly (9). (WP 0250 00)
9. Remove upper flexible hydraulic hose from the anchor drawer assembly (9). (WP 0240 00)
10. Discard the anchor drawer assembly (9).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

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

INSTALL EASY ANCHOR DRAWER ASSEMBLY

1. Install the EASY lift hydraulic cylinder on the anchor drawer assembly (9). (WP 0250 00)
2. Install the upper flexible hydraulic hose on the anchor drawer assembly (9). (WP 0240 00)

WARNING

**HEAVY PARTS****MOVING PARTS**

3. Using forklift, install new anchor drawer assembly (9) into the EASY container (10).
4. Connect the lower flexible hydraulic hose (7) to the bottom of the slide platform (6) hydraulic fitting (8). Tighten hose (7).
5. Position clevis (4) on mounting boss (5).
6. Install pin (3) in clevis (4).
7. Using external retaining ring pliers, install two new snap rings (2) on pin (3).
8. Remove wood wedge and stow.
9. Service EASY container hydraulic system. (WP 0233 00)
10. Bleed EASY lift hydraulic cylinder. (WP 0252 00)

WARNING

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

11. Clean up spilled fluid with spill kit and dispose of spill kit waste in accordance with local procedures.
12. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER HYDRAULIC HAND PUMP
REPLACEMENT**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Item 81, WP 0359 00)
- Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
- Helmet, Safety (Brown) (Item 33, WP 0359 00)
- Life Preserver, Vest (Item 38, WP 0359 00)
- Gloves, Chemical (Item 25, WP 0359 00)
- Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
- Respirator, Air Filtering (Item 59, WP 0359 00)
- Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

- Hand Pump, Portable
(26952)
PN PL-3007R
- Cloth, Cleaning (Item 14, WP 0358 00)
- Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

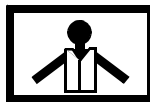
- Engineer 88L

Equipment Condition

- EASY Anchor Removed. (WP 0235 00)
-

REMOVE EASY DRAWER HYDRAULIC HAND PUMP

—————
WARNING
—————



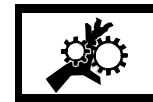
VEST



HELMET PROTECTION



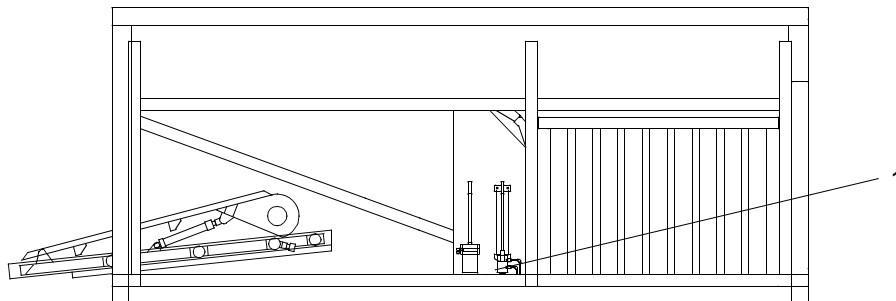
HEAVY PARTS



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.

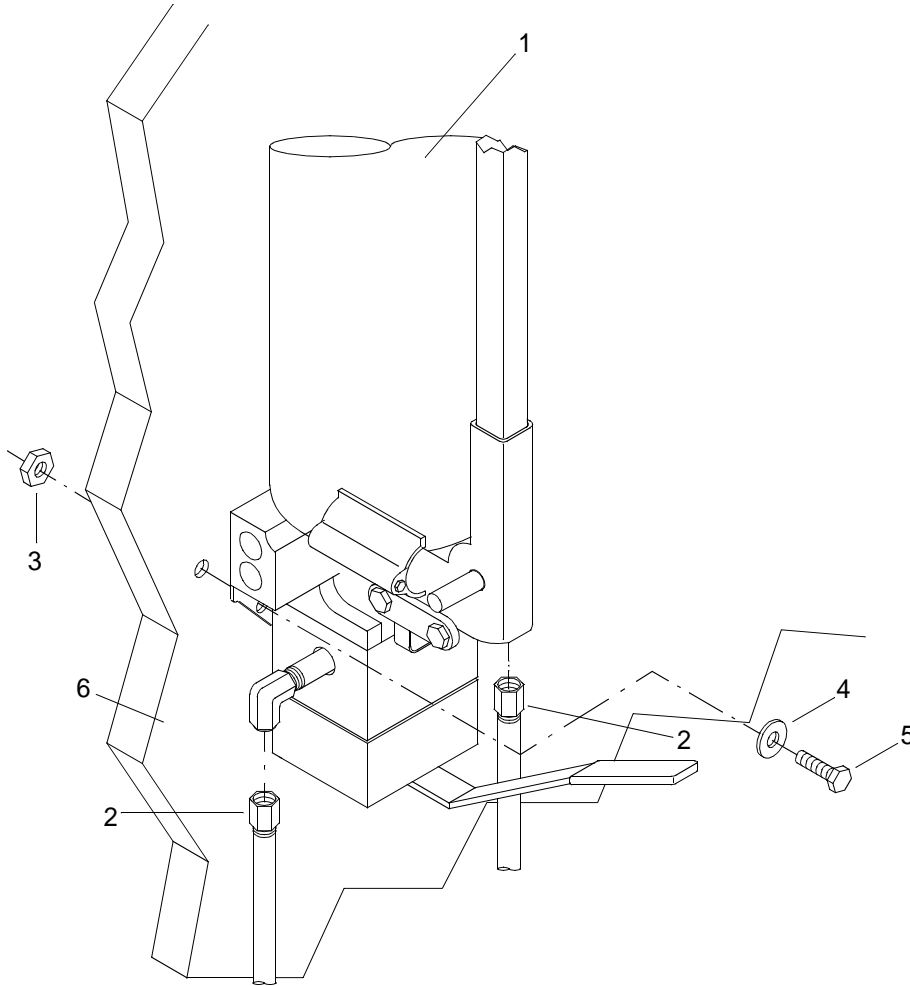
1. Position drain pan directly under pump (1).



WARNING

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

2. Disconnect two fittings (2) from hydraulic pump (1).



3. Remove two nuts (3), lock washers (4) and bolts (5) securing pump (1) to mounting bulkhead (6).

WARNING

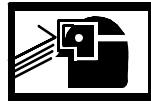
**HEAVY PARTS**

4. Remove pump (1) from mounting bulkhead (6).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

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

INSTALL EASY DRAWER HYDRAULIC HAND PUMP

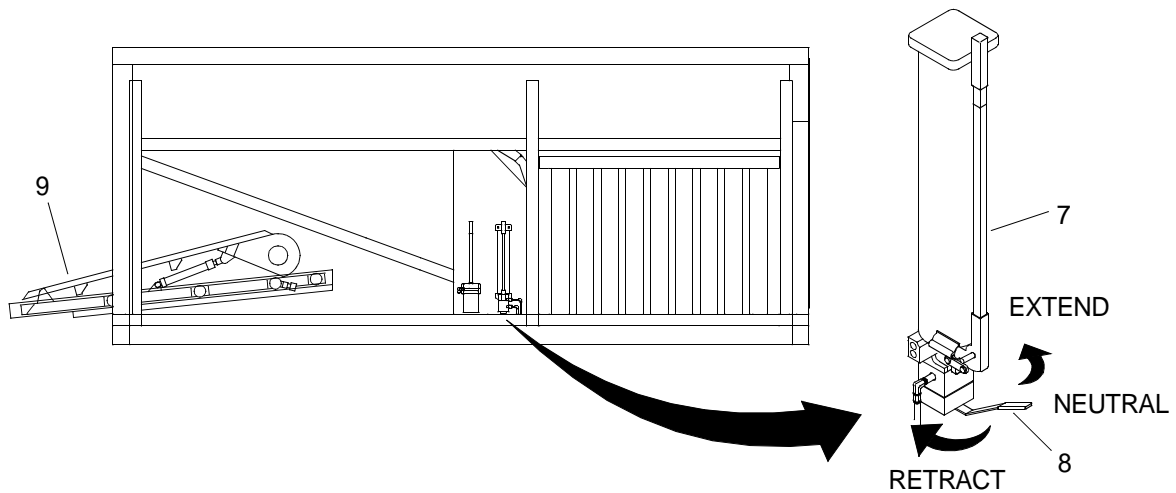
- Using cloth, wipe fittings.

 WARNING



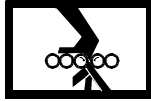
HEAVY PARTS

- Position new pump (1) on mounting bulkhead (6).
- Install two bolts (5), lock washers (4) and nuts (3) in pump (1). Tighten nuts (3).
- Connect two fittings (2) to pump (1). Tighten fittings (2).
- Service EASY container hydraulic system. (WP 0233 00)
- Pump handle (7) ten times.



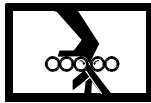
- Move control lever (8) left to retract position.

WARNING

**MOVING PARTS**

8. Pump handle (7) until drawer (9) is fully retracted.
9. Move control lever (8) right to extend position.

WARNING

**MOVING PARTS**

10. Pump handle (7) until drawer is fully extended.
11. Service EASY container hydraulic system. (WP 0233 00)

WARNING

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

12. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
13. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY LIFT HYDRAULIC HAND PUMP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Hand Pump, Portable
 (59462)
 PN P140DF
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

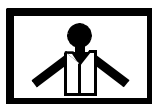
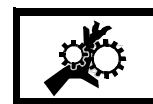
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

REMOVE EASY LIFT HYDRAULIC HAND PUMP

WARNING

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

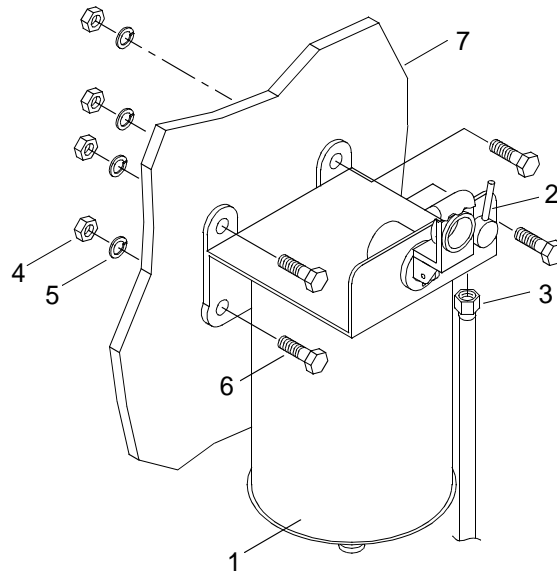
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Position drain pan directly under lift hydraulic pump (1).

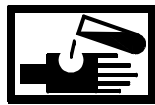
WARNING

Hydraulic system must be depressurized during maintenance. Failure to comply could result in injury to personnel.

2. Rotate release valve (2) counterclockwise.



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

3. Disconnect fitting (3) from pump (1).
4. Remove four nuts (4), lock washers (5) and bolts (6) from pump (1).
5. Remove pump (1) from bulkhead (7).

 WARNING



CHEMICAL



EYE PROTECTION



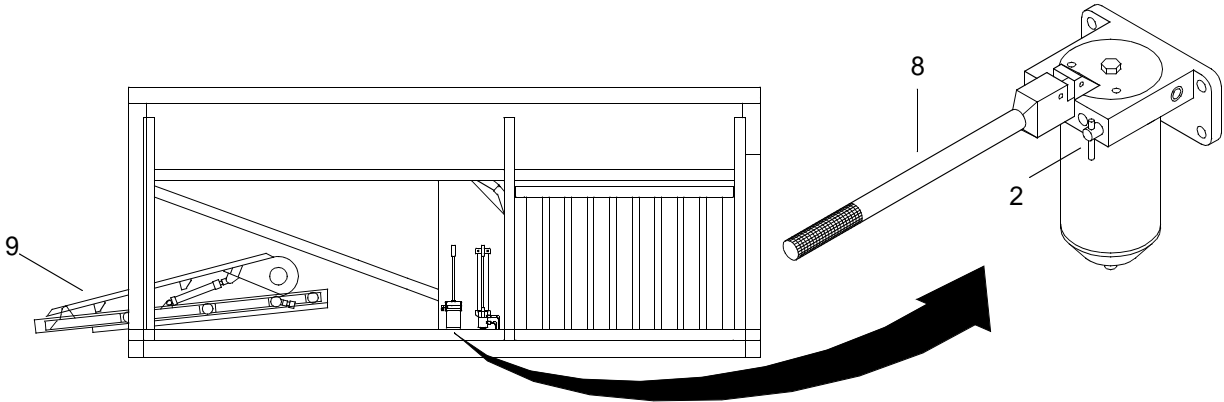
VAPOR

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

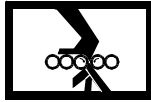
INSTALL EASY LIFT HYDRAULIC HAND PUMP

1. Using cloth, wipe fittings.
2. Position new pump (1) on mounting bulkhead (7).
3. Install four bolts (6), lock washers (5) and nuts (4). Tighten nuts (4)
4. Connect fitting (3) to pump (1). Tighten fitting (3).
5. Service EASY container hydraulic system. (WP 0233 00)

6. Rotate release valve (2) clockwise.



WARNING



MOVING PARTS

7. Pump handle (8) until lift table (9) is elevated.
8. Rotate release valve (2) counterclockwise.
9. Service EASY container hydraulic system. (WP 0233 00)

WARNING



EYE PROTECTION



CHEMICAL



VAPOR



SLICK FLOOR

10. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
11. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY LIFT HYDRAULIC TUBING PROTECTIVE COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Cover, Protective
 (19207)
 PN FCRRDF-99-581-001-72

Personnel Required

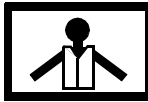
Engineer 88L

Equipment Condition

EASY Anchor Drawer Assembly Extended. (TM 55-1945-205-10-2)

REMOVE EASY LIFT HYDRAULIC TUBING PROTECTIVE COVER

WARNING



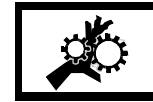
VEST



HELMET PROTECTION



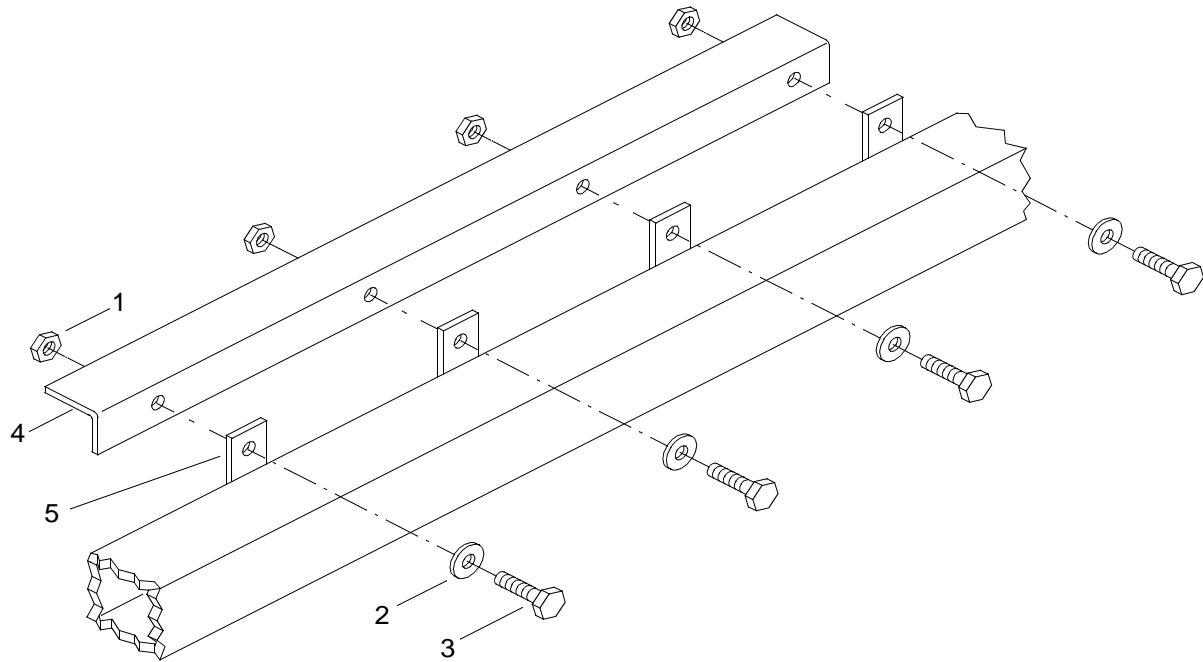
HEAVY PARTS



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 four nuts (1), lock washers (2) and bolts (3) from protective cover (4).



2. Remove protective cover (4) from mounting bosses (5) and discard.

INSTALL LIFT HYDRAULIC TUBE PROTECTIVE COVER

1. Position new protective cover (4) on mounting bosses (5).
2. Install bolts (3), lock washers (2) and nuts (1) in protective cover (4). Tighten bolts (3).
3. Retract EASY anchor drawer assembly. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY LIFT CYLINDER TO METAL TUBE HYDRAULIC HOSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

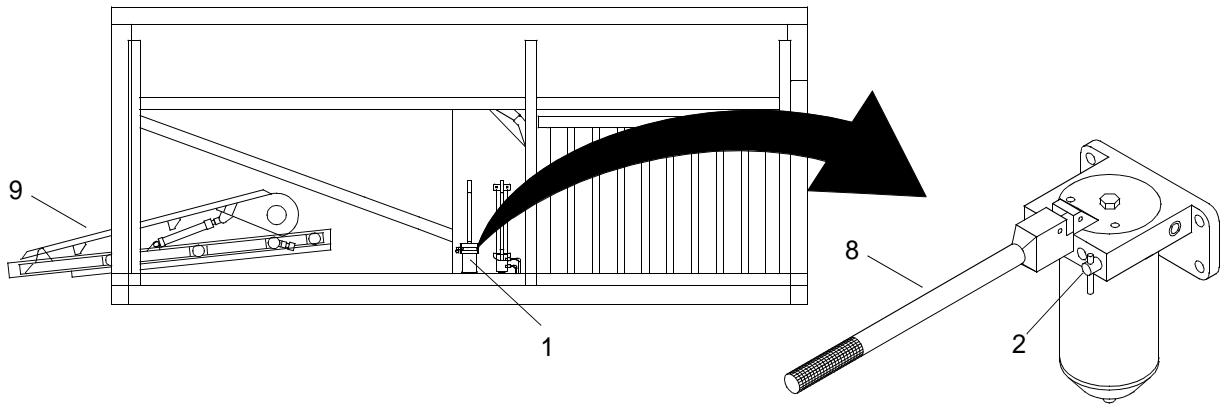
REMOVE EASY LIFT CYLINDER TO METAL TUBE HYDRAULIC HOSE

WARNING

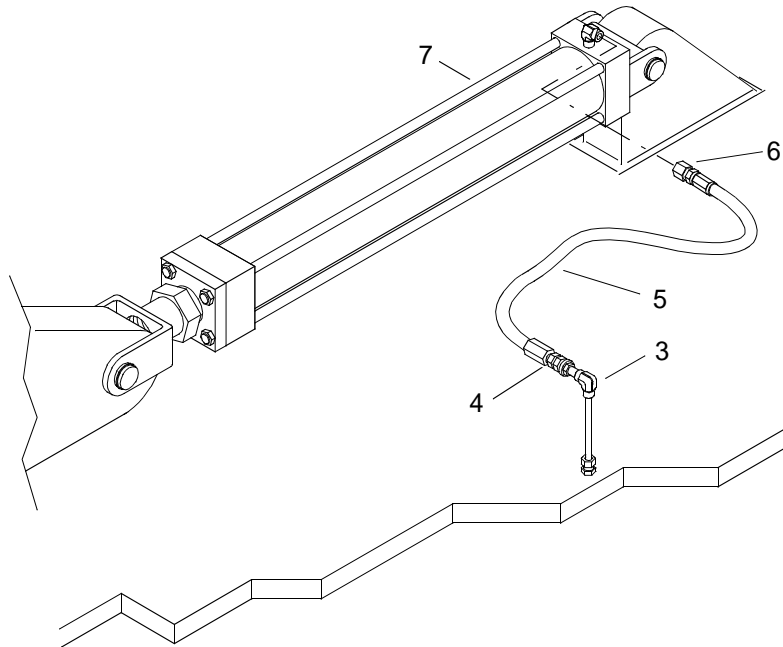
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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. On lift pump (1), rotate release valve (2) counterclockwise.



2. Position drain pan under tube (3) and fitting (4).



WARNING



EYE PROTECTION



CHEMICAL



VAPOR

3. Disconnect fitting (4) from tube (3).

WARNING



EYE PROTECTION



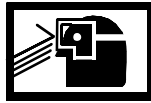
CHEMICAL



VAPOR

4. Tilt hose (5) and drain hydraulic fluid into drain pan.

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

5. Position drain pan under fitting (6) and hydraulic cylinder (7).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

6. Disconnect fitting (6) from hydraulic cylinder (7).
7. Remove hose (5) and discard.

 WARNING



EYE PROTECTION



CHEMICAL



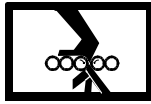
VAPOR

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

INSTALL EASY LIFT CYLINDER TO METAL TUBE HYDRAULIC HOSE

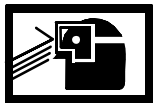
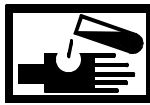
1. Using cloth, wipe fittings.
2. Position new hose (5) on hydraulic cylinder (7).
3. Connect fitting (6) to hydraulic cylinder (7). Tighten fitting (6).
4. Position fitting (4) on tube (3).
5. Connect fitting (4) to tube (3). Tighten fitting (4).
6. Service EASY container hydraulic system. (WP 0233 00)
7. Bleed EASY lift hydraulic cylinder. (WP 0252 00)
8. Rotate release valve (2) clockwise.

WARNING

**MOVING PARTS**

9. Pump handle (8) until lift table (9) is fully elevated.
10. Rotate release valve (2) counterclockwise.
11. Service EASY container hydraulic system. (WP 0233 00)

WARNING

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

12. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
13. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY LIFT HYDRAULIC HOSE FROM METAL TUBE TO BULKHEAD ADAPTOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

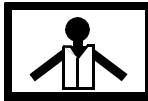
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

REMOVE EASY LIFT HYDRAULIC HOSE FROM METAL TUBE TO BULKHEAD ADAPTOR

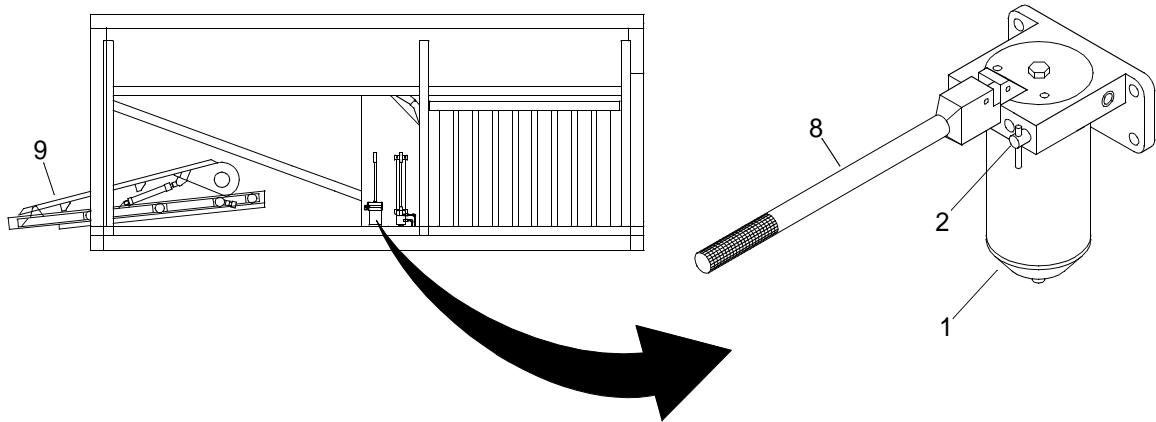
WARNING

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

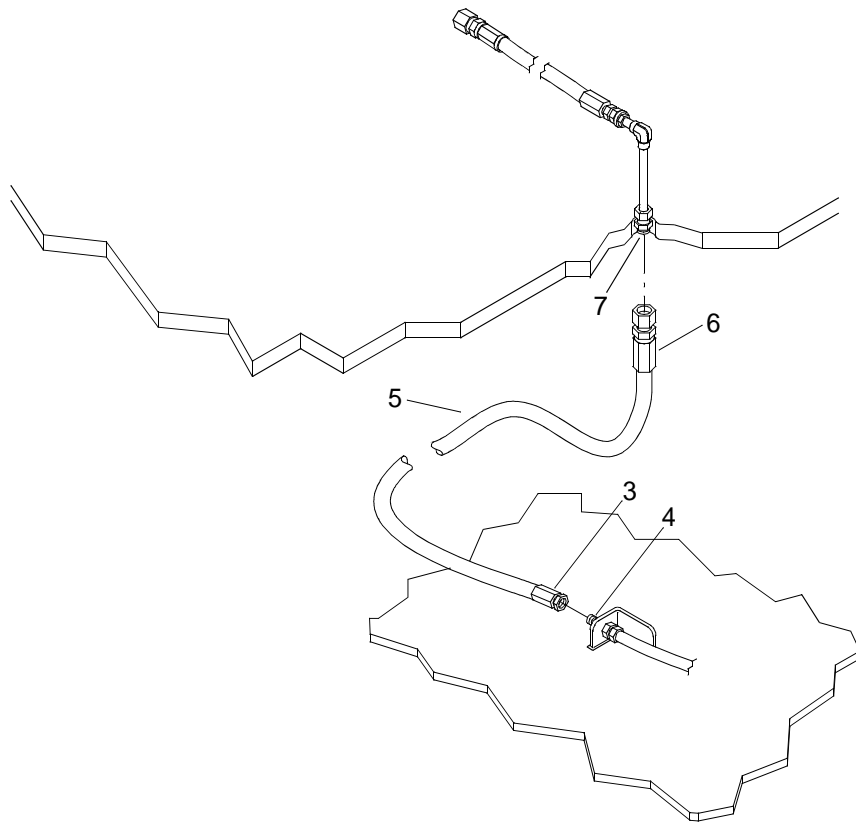
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Hydraulic system must be depressurized during maintenance. Failure to comply could result in injury to personnel.

1. On lift pump (1), rotate release valve (2) counterclockwise.



2. Position drain pan under fitting (3) and bulkhead adaptor (4).



WARNING



CHEMICAL



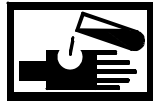
EYE PROTECTION



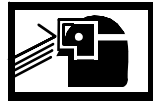
VAPOR

3. Disconnect fitting (3) from bulkhead adaptor (4).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

4. Tilt hose (5) and drain hydraulic fluid into drain pan.

 WARNING



CHEMICAL



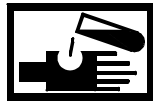
EYE PROTECTION



VAPOR

5. Disconnect fitting (6) from tube (7).
6. Remove hose (5) and discard.

 WARNING



CHEMICAL



EYE PROTECTION



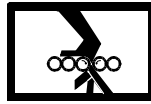
VAPOR

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

INSTALL EASY LIFT HYDRAULIC HOSE FROM METAL TUBE TO BULKHEAD ADAPTOR

1. Using cloth, wipe fittings.
2. Position new hose (5) on metal tube (7).
3. Connect fitting (6) to metal tube (7). Tighten fitting (6).
4. Position fitting (3) on bulkhead adaptor (4).
5. Connect fitting (3) to bulkhead adaptor (4). Tighten fitting (3).
6. Service EASY container hydraulic system. (WP 0233 00)
7. Rotate release valve (2) clockwise.
8. Bleed EASY lift hydraulic cylinder. (WP 0252 00)

WARNING

**MOVING PARTS**

9. Pump handle (8) until lift table (9) is fully elevated.
10. Rotate release valve (2) counterclockwise.
11. Service EASY container hydraulic system. (WP 0233 00)

WARNING

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

12. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
13. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY LIFT HYDRAULIC METAL TUBE FROM LIFT HYDRAULIC
PUMP TO BULKHEAD ADAPTOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

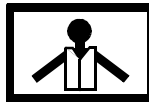
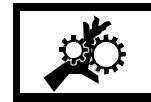
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)
 EASY Lift Hydraulic Metal Tubing Protective Cover Removed. (WP 0239 00)

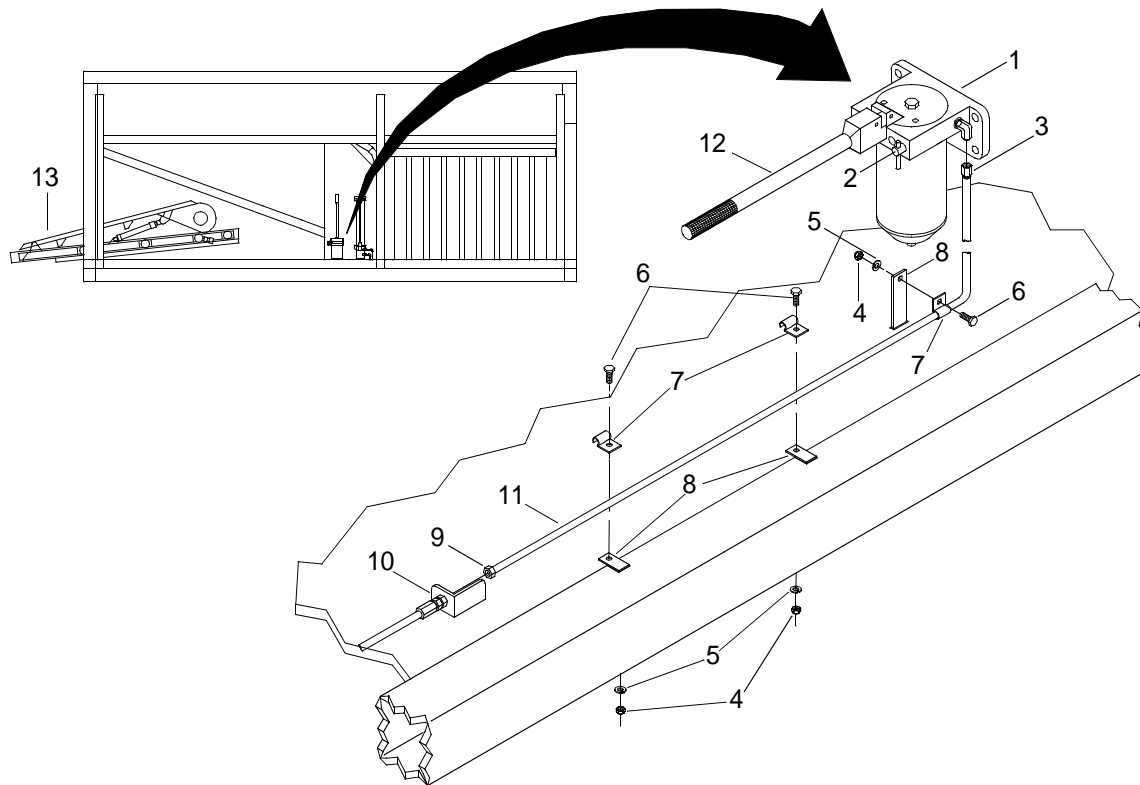
**REMOVE LIFT HYDRAULIC METAL TUBE FROM LIFT HYDRAULIC PUMP TO
BULKHEAD ADAPTOR**

WARNING

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

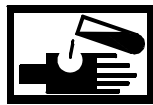
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Position drain pan under hydraulic pump (1).

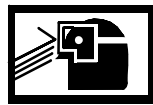


2. Rotate release valve (2) counterclockwise.

WARNING



CHEMICAL



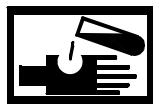
EYE PROTECTION



VAPOR

3. Disconnect fitting (3) from hydraulic pump (1).
4. Remove three nuts (4), lock washers (5) and bolts (6) from mounting clamps (7).
5. Remove three mounting clamps (7) from mounting bosses (8).
6. Position drain pan under fitting (9) and bulkhead adaptor (10).

WARNING



CHEMICAL



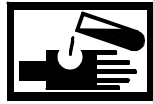
EYE PROTECTION



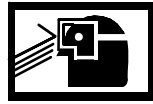
VAPOR

7. Disconnect fitting (9) from bulkhead adaptor (10).
8. Remove tube (11) from three mounting clamps (7).

 WARNING



CHEMICAL



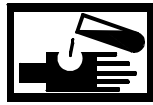
EYE PROTECTION



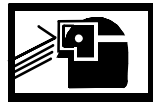
VAPOR

9. Tilt end of tube (11) and drain hydraulic fluid into drain pan.
10. Remove hydraulic metal tube (11) and discard.

 WARNING



CHEMICAL



EYE PROTECTION



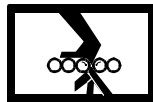
VAPOR

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

INSTALL LIFT HYDRAULIC METAL TUBE FROM LIFT HYDRAULIC PUMP TO BULKHEAD ADAPTOR

1. Using cloth, wipe fittings.
2. Position new tube (11) on bulkhead adaptor (10).
3. Connect fitting (9) to bulkhead adaptor (10). Tighten fitting (9).
4. Install three mounting clamps (7) on tube (11).
5. Position three mounting clamps (7) on mounting bosses (8).
6. Install three bolts (6), lock washers (5) and nuts (4) in mounting clamps (7). Tighten bolts (6).
7. Connect fitting (3) to hydraulic pump (1). Tighten fitting (3).
8. Rotate release valve (2) clockwise.
9. Service EASY container hydraulic system. (WP 0233 00)

 WARNING



MOVING PARTS

10. Pump handle (12) until lift table (13) is fully elevated.
11. Rotate relief valve (2) counterclockwise.

12. Service EASY container hydraulic system. (WP 0233 00)

WARNING



EYE PROTECTION



CHEMICAL



VAPOR



SLICK FLOOR

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

14. Install lift hydraulic tubing protective cover. (WP 0239 00)

15. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY METAL TUBE BETWEEN LIFT HYDRAULIC CYLINDER
HOSES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

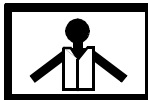
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

REMOVE EASY METAL TUBE BETWEEN LIFT HYDRAULIC CYLINDER HOSES

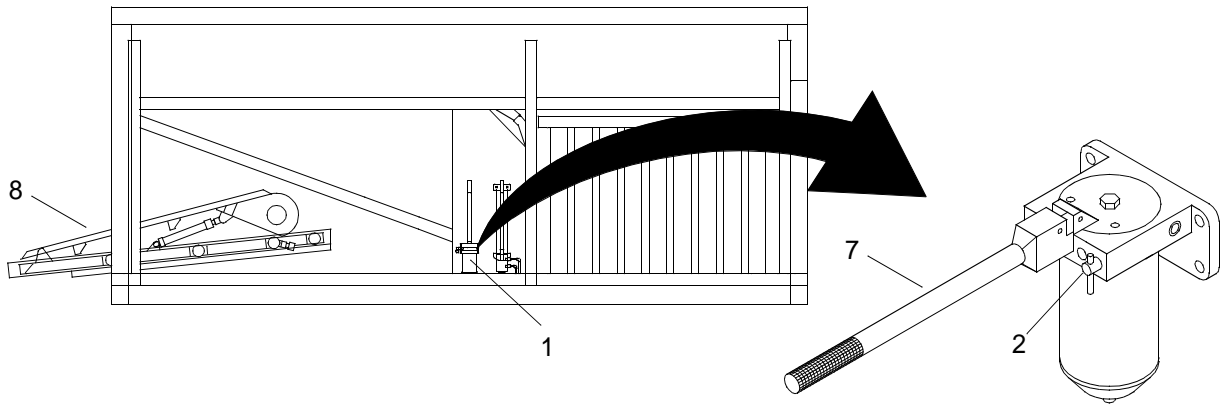
WARNING

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

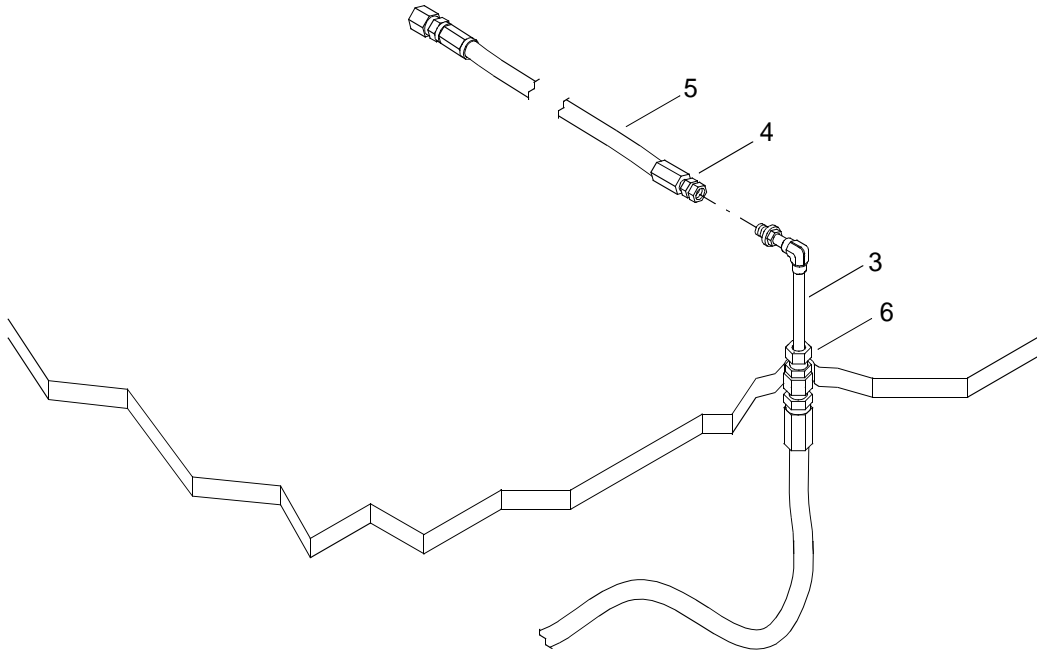
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

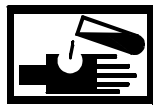
1. On lift pump (1), rotate release valve (2) counterclockwise.



2. Position drain pan under tube (3) and fitting (4).



WARNING



CHEMICAL



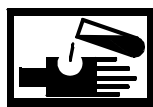
EYE PROTECTION



VAPOR

3. Disconnect fitting (4) from tube (3).

WARNING



CHEMICAL



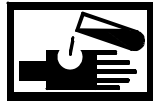
EYE PROTECTION



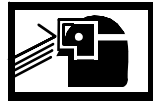
VAPOR

4. Tilt hose (5) and drain hydraulic fluid into drain pan.

 WARNING



CHEMICAL



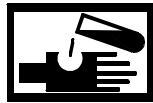
EYE PROTECTION



VAPOR

5. Disconnect fitting (6) from tube (3).
6. Remove hydraulic tube (3) and discard.

 WARNING



CHEMICAL



EYE PROTECTION



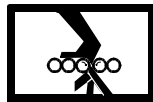
VAPOR

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

INSTALL EASY METAL TUBE BETWEEN LIFT HYDRAULIC CYLINDER HOSES

1. Using cloth, wipe fittings.
2. Position new tube (3) on fitting (6).
3. Connect fitting (6) to tube (3). Tighten fitting (6).
4. Position fitting (4) on tube (3).
5. Connect fitting (4) to tube (3). Tighten fitting (4).
6. Service EASY container hydraulic system. (WP 0233 00)
7. Rotate release valve (2) clockwise.

 WARNING



MOVING PARTS

8. Pump handle (7) until lift (8) table is fully elevated.
9. Rotate release valve (2) counterclockwise.
10. Service EASY container hydraulic system. (WP 0233 00)

WARNING

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

11. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
12. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER HYDRAULIC TUBING PROTECTIVE COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

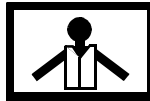
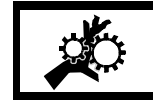
Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

Engineer 88L

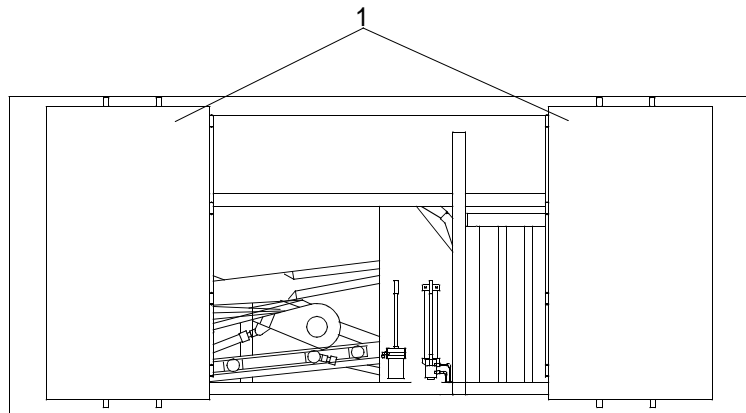
REMOVE EASY DRAWER HYDRAULIC TUBING PROTECTIVE COVER

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 pump side doors (1).

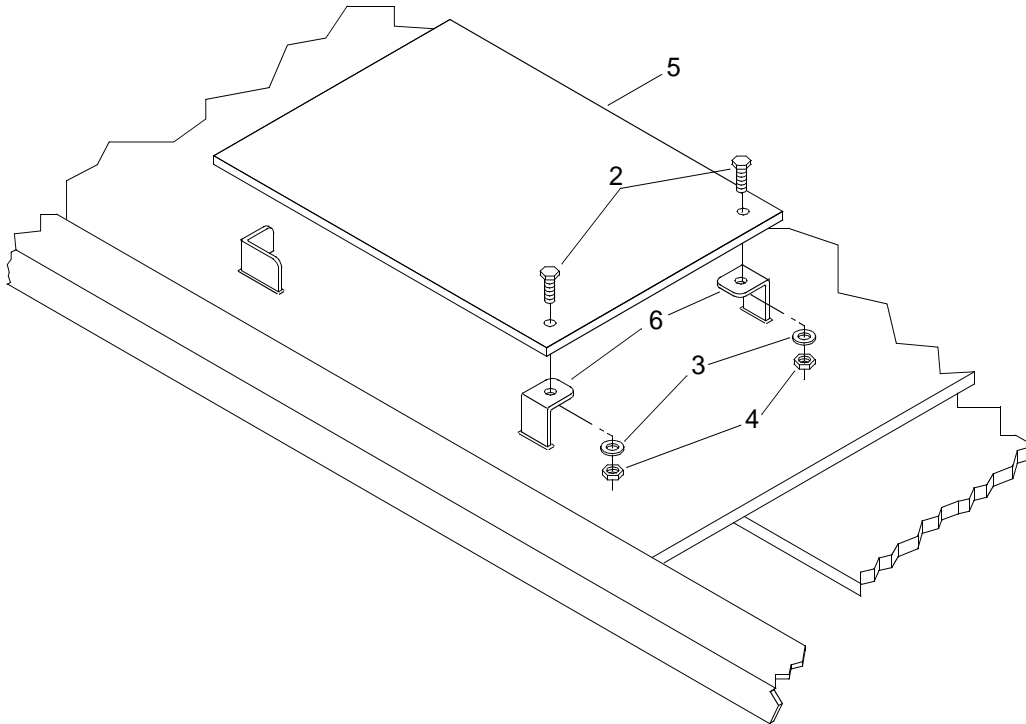


WARNING

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

2. Secure pump side doors (1) open with locking hooks.

3. Remove two bolts (2), lock washers (3) and nuts (4).



4. Remove hydraulic tubing protective cover (5) from mounting bosses (6) and discard.

INSTALL EASY DRAWER HYDRAULIC TUBING PROTECTIVE COVER

1. Position new hydraulic tubing protective cover (5) on mounting bosses (6).
2. Install two nuts (4), lock washers (3) and bolts (2). Tighten bolts (2).
3. Remove locking hooks to close pump side doors (1).

WARNING

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

4. Latch and secure pump side doors (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER PRESSURE HYDRAULIC METAL TUBE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

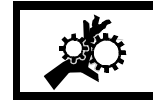
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

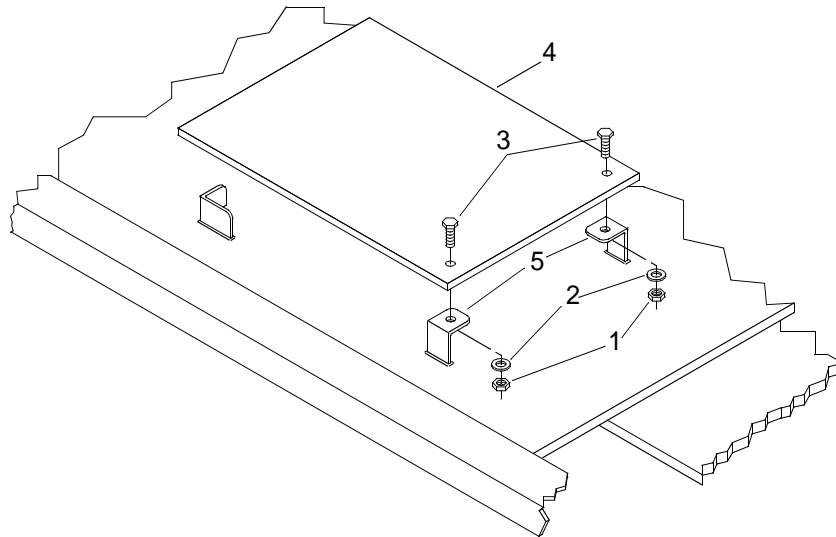
REMOVE EASY DRAWER PRESSURE HYDRAULIC METAL TUBE

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 two nuts (1), lock washers (2) and bolts (3) from protective cover (4).

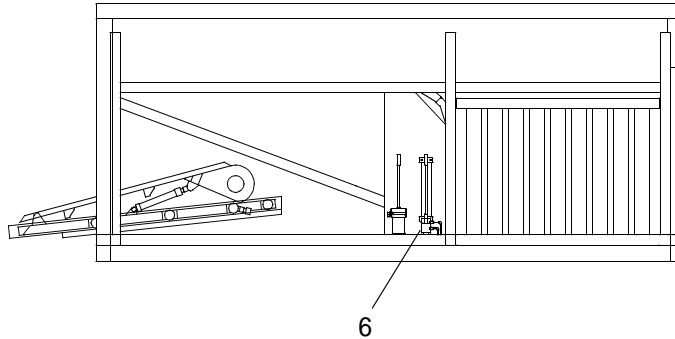


- Remove protective cover (4) from mounting bosses (5).

WARNING

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

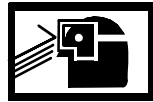
- Position drain pan directly under pump (6).



WARNING



CHEMICAL

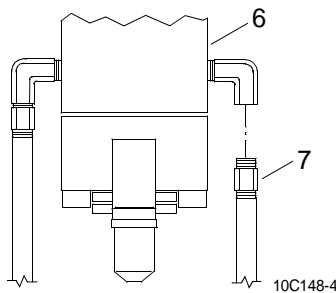


EYE PROTECTION



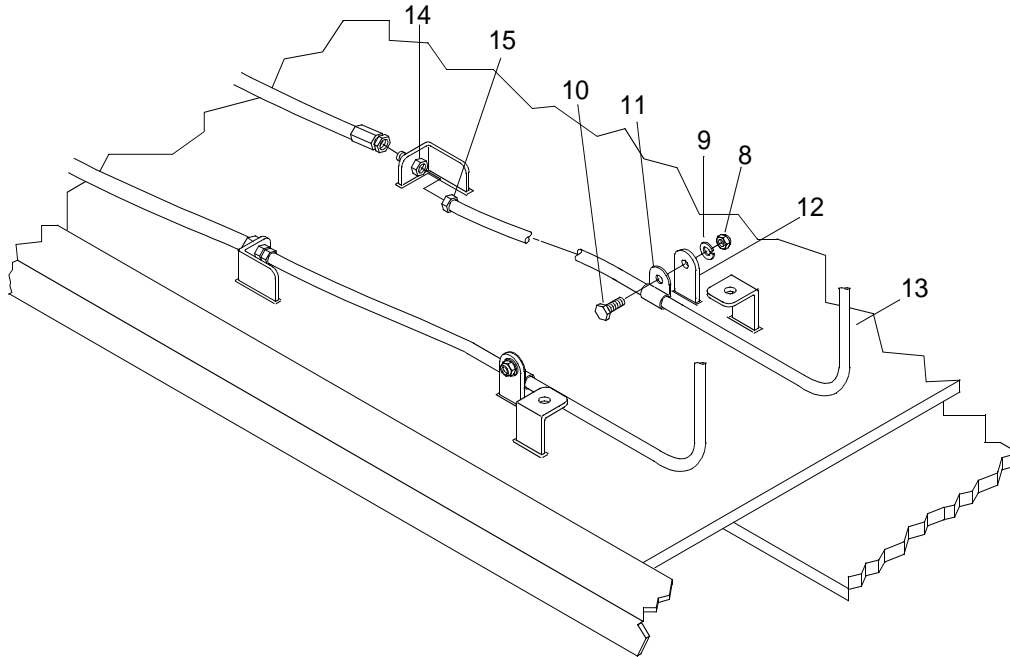
VAPOR

- Disconnect fitting (7) from pump (6).



10C148-4

5. Remove nut (8), lock washer (9) and bolt (10) from tubing clamp (11).



6. Remove tubing clamp (11) from mounting boss (12) and metal tube (13).
7. Position drain pan under bulkhead adaptor (14) and fitting (15).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

8. Disconnect fitting (15) from bulkhead adaptor (14).

WARNING



CHEMICAL



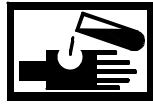
EYE PROTECTION



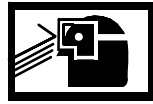
VAPOR

9. Tilt tube (13) and drain hydraulic fluid into drain pan.
10. Discard tube (13).

 WARNING



CHEMICAL



EYE PROTECTION

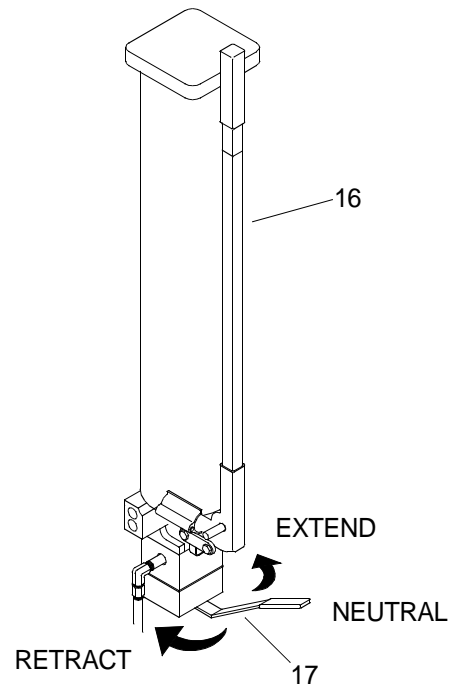
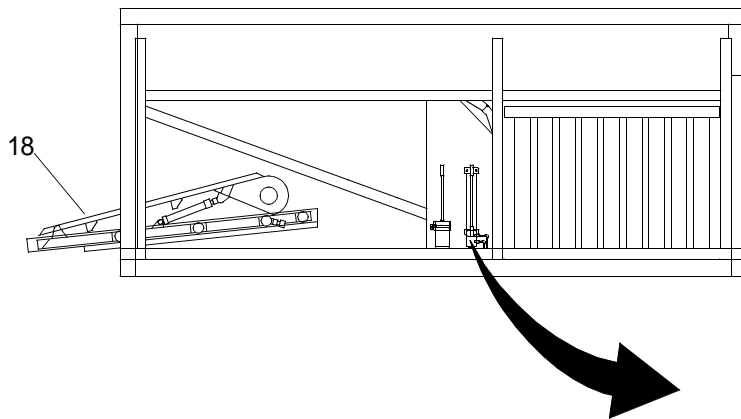


VAPOR

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

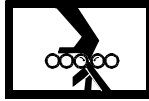
INSTALL EASY DRAWER PRESSURE HYDRAULIC METAL TUBE

1. Using cloth, wipe fittings.
2. Position new tube (13) on bulkhead adaptor (14).
3. Connect fitting (15) to bulkhead adaptor (14). Tighten fitting (15).
4. Install tubing clamp (11) on drawer pressure hydraulic metal tube (13)
5. Position tubing clamp (11) on mounting boss (12).
6. Install bolt (10), lock washer (9) and nut (8) in tubing clamp (11). Tighten bolt (10).
7. Position fitting (7) on pump (6).
8. Connect fitting (7) to pump (6). Tighten fitting (7).
9. Service EASY container hydraulic system. (WP 0233 00)
10. Pump handle (16) ten times.



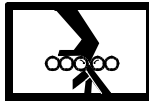
11. Move control lever (17) left to retract position.

WARNING

**MOVING PARTS**

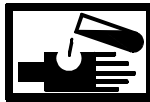
12. Pump handle (16) until drawer (18) is fully retracted.
13. Move control lever (17) right to extend position.

WARNING

**MOVING PARTS**

14. Pump handle (16) until drawer (18) is fully extended.
15. Service EASY container hydraulic system. (WP 0233 00)
16. Position protective cover (4) on mounting bosses (5).
17. Install two bolts (3), lock washers (2) and nuts (1) in protective cover (4). Tighten nuts (1).

WARNING

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

18. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
19. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER PRESSURE HYDRAULIC HOSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

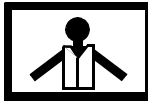
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

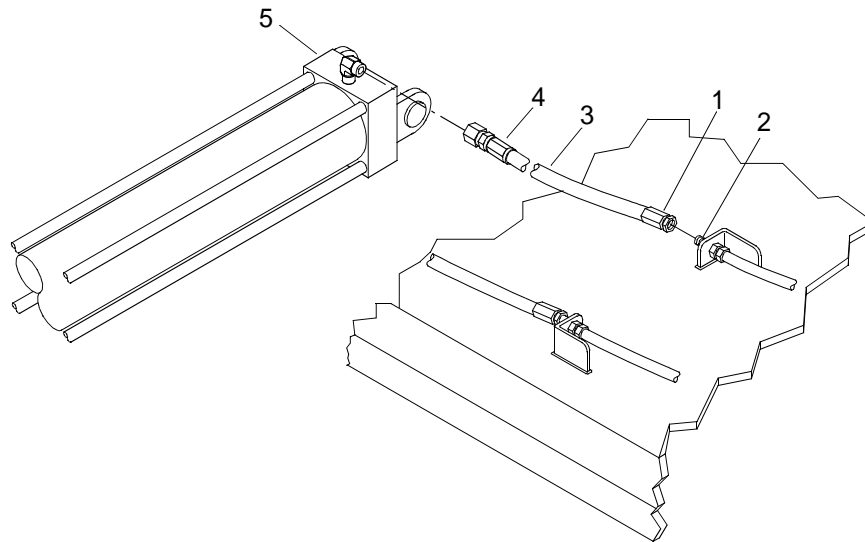
REMOVE EASY DRAWER PRESSURE HYDRAULIC HOSE

WARNING

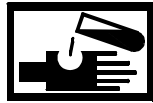
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

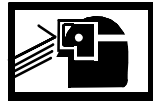
1. Position drain pan under fitting (1) and bulkhead adaptor (2).



 WARNING



CHEMICAL



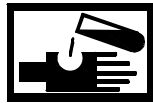
EYE PROTECTION



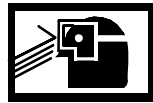
VAPOR

2. Disconnect fitting (1) from bulkhead adaptor (2).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

3. Tilt hose (3) and drain hydraulic fluid into drain pan.
4. Position drain pan directly under fitting (4) and hydraulic cylinder (5).

 WARNING



CHEMICAL



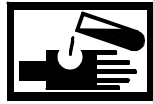
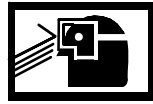
EYE PROTECTION



VAPOR

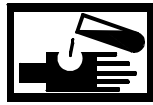
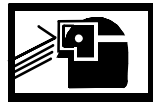
5. Disconnect fitting (4) from hydraulic cylinder (5).

WARNING

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

6. Tilt hose (3) and drain hydraulic fluid into drain pan.
7. Remove hose (3) and discard.

WARNING

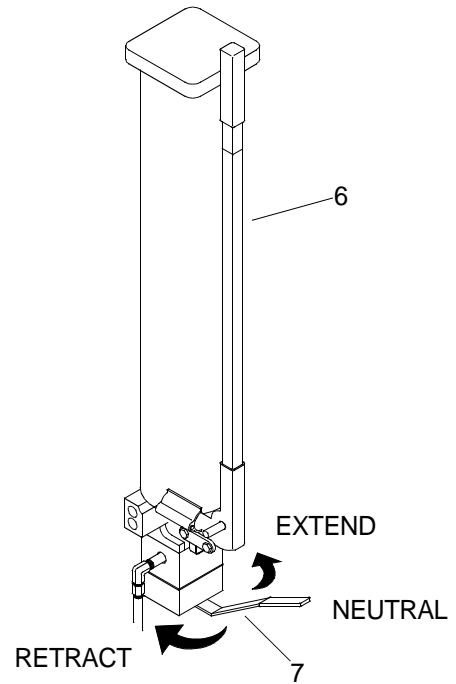
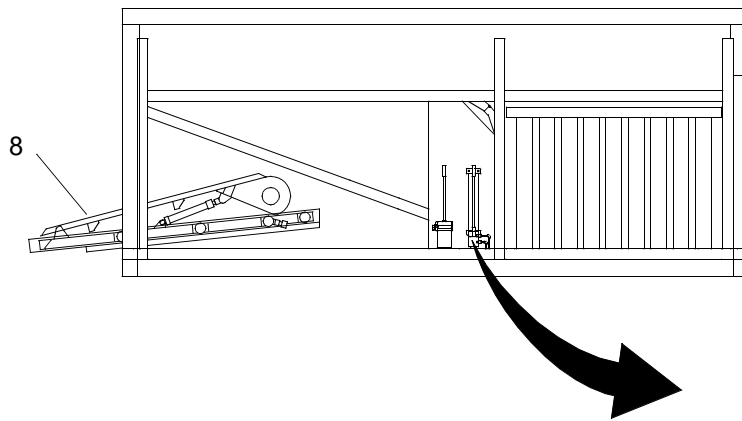
**CHEMICAL****EYE PROTECTION****VAPOR**

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

INSTALL EASY DRAWER PRESSURE HYDRAULIC HOSE

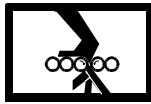
1. Using cloth, wipe fittings.
2. Position new hose (3) on hydraulic cylinder (5).
3. Connect fitting (4) to hydraulic cylinder (5). Tighten fitting (4).
4. Position fitting (1) on bulkhead adaptor (2).
5. Connect fitting (1) to bulkhead adaptor (2). Tighten fitting (1).
6. Service EASY container hydraulic system. (WP 0233 00)
7. Bleed EASY drawer hydraulic cylinder. (WP 0251 00)

8. Pump handle (6) ten times.



9. Move control level (7) left to retract position.

WARNING

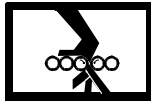


MOVING PARTS

10. Pump handle (6) until drawer (8) is fully retracted.

11. Move control lever (7) right to extend position.

WARNING



MOVING PARTS

12. Pump handle (6) until drawer (8) is fully extended.

13. Service EASY container hydraulic system. (WP 0233 00)

WARNING

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

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

15. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER RETURN HYDRAULIC METAL TUBE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

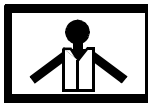
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

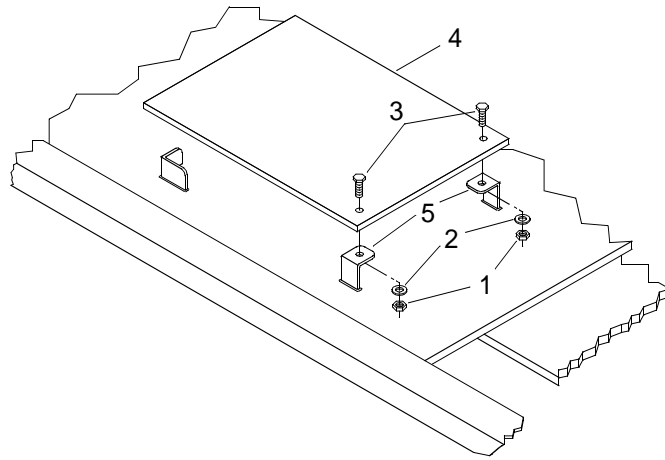
REMOVE EASY DRAWER RETURN PRESSURE HYDRAULIC METAL TUBE

WARNING

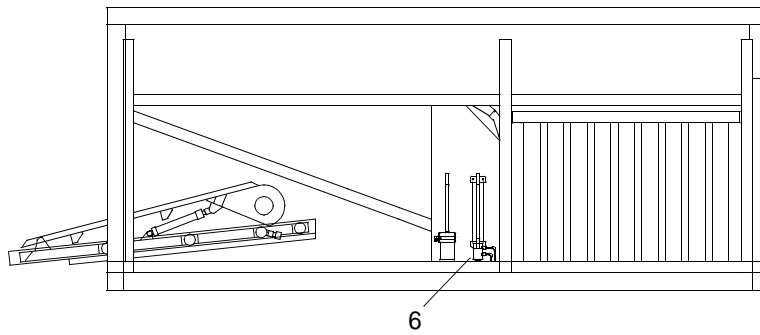
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

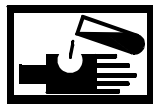
1. Remove two nuts (1), lock washers (2) and bolts (3) from protective cover (4).



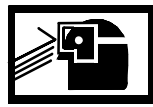
2. Remove protective cover (4) from mounting bosses (5).
3. Position drain pan directly under drawer hydraulic pump (6).



WARNING



CHEMICAL

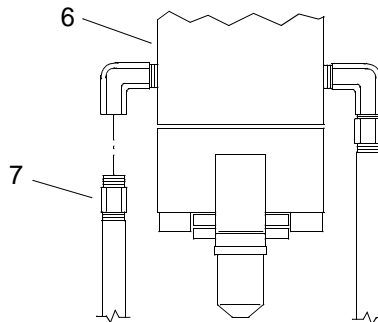


EYE PROTECTION

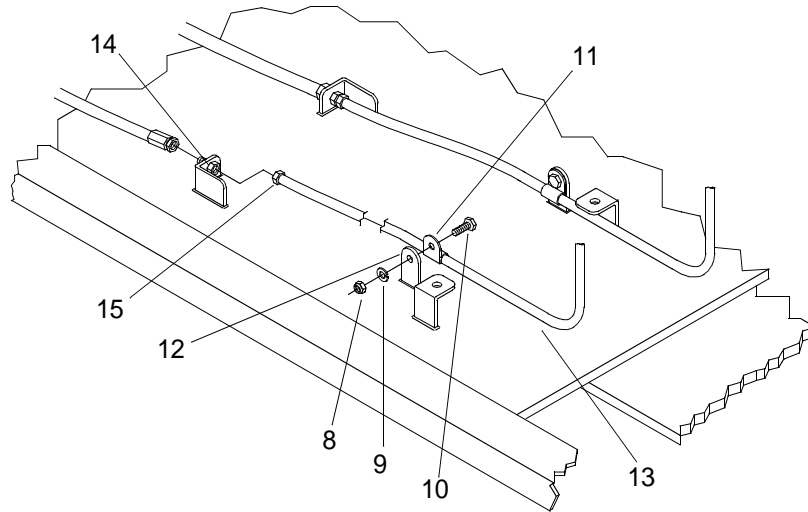


VAPOR

4. Disconnect tube fitting (7) from pump (6).

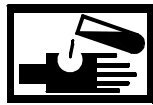


- Remove nut (8), lock washer (9) and bolt (10) from tubing clamp (11).



- Remove tubing clamp (11) from mounting boss (12) and tube (13).
- Position drain pan under bulkhead adaptor (14) and fitting (15).

WARNING



CHEMICAL



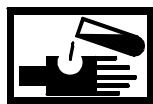
EYE PROTECTION



VAPOR

- Disconnect fitting (15) from bulkhead adaptor (14).

WARNING



CHEMICAL



EYE PROTECTION

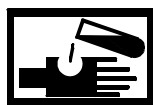


VAPOR

- Tilt tube (13) and drain hydraulic fluid into drain pan.

- Discard tube (13).

WARNING



CHEMICAL



EYE PROTECTION

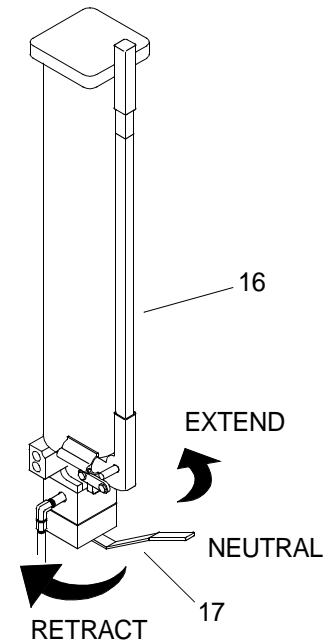
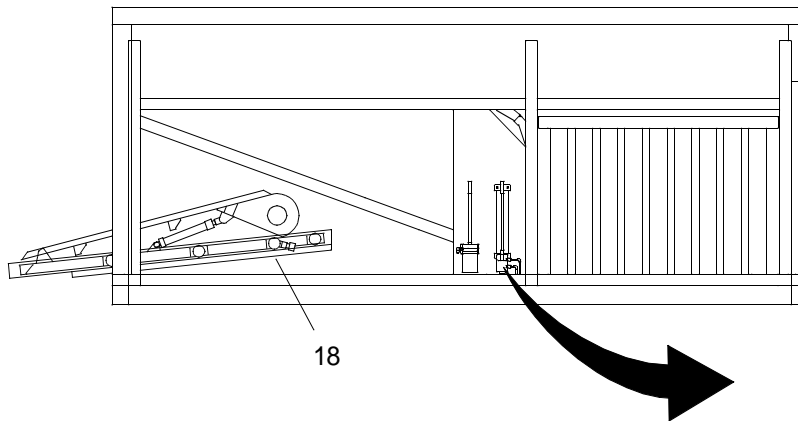


VAPOR

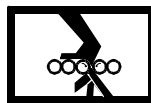
- Remove drain pan and dispose of contents in accordance with local procedures.

INSTALL EASY DRAWER RETURN HYDRAULIC METAL TUBE

1. Using cloth, wipe fittings.
2. Position new tube (13) on bulkhead adaptor (14)
3. Connect fitting (15) to bulkhead adaptor (14).
4. Tighten fitting (15).
5. Install tubing clamp (11) on tube (13).
6. Position tubing clamp (11) on mounting boss (12).
7. Install bolt (10), lock washer (9) and nut (8) to tubing clamp (11). Tighten nut (8).
8. Connect fitting (7) to pump (6). Tighten fitting (7).
9. Service EASY container hydraulic system. (WP 0233 00)
10. Pump handle (16) ten times.



11. Move control lever (17) left to retract position.

WARNING**MOVING PARTS**

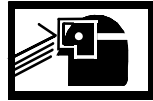
12. Pump handle (16) until drawer (18) is fully retracted.
13. Move control lever (17) right to extend position.

WARNING

**MOVING PARTS**

14. Pump handle (16) until drawer (18) is fully extended.
15. Service EASY container hydraulic system. (WP 0233 00)
16. Position protective cover (4) on mounting bosses (5).
17. Install two bolts (3), lock washers (2) and nuts (1) in protective cover (4). Tighten nuts (1).

WARNING

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

18. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
19. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER RETURN HYDRAULIC HOSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

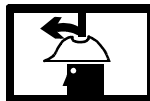
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

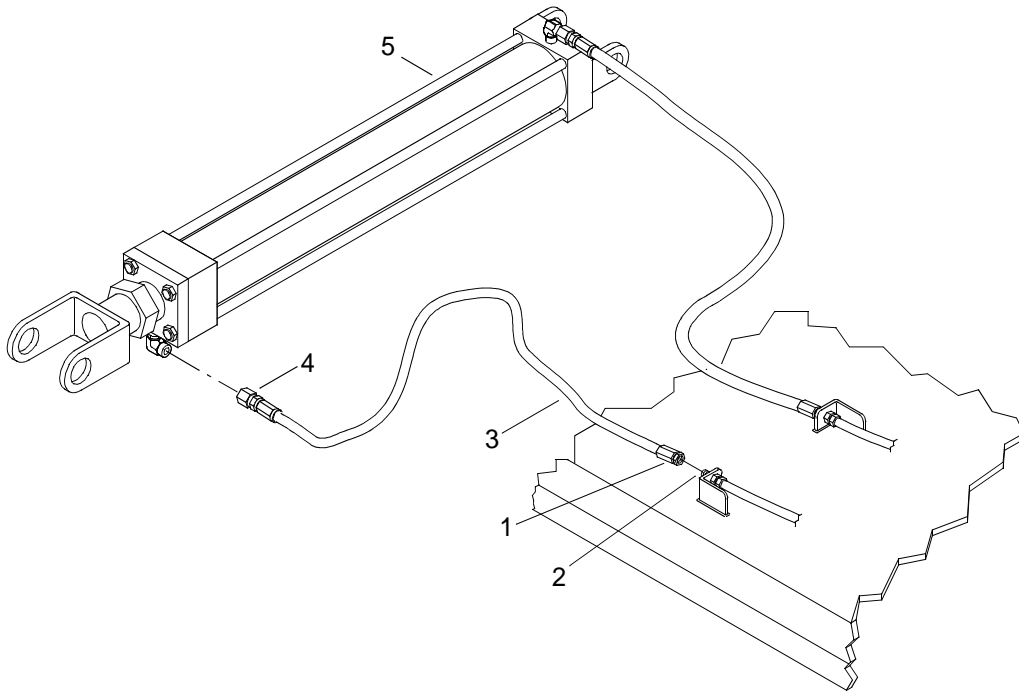
REMOVE EASY DRAWER RETURN PRESSURE HYDRAULIC HOSE

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.

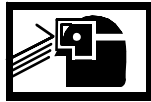
1. Position drain pan directly under fitting (1) and bulkhead adaptor (2).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

2. Disconnect fitting (1) from bulkhead adaptor (2).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

3. Tilt hose (3) and drain hydraulic fluid into drain pan.
4. Position drain pan directly under fitting (4) and hydraulic cylinder (5).

 WARNING



CHEMICAL



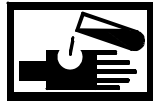
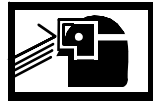
EYE PROTECTION



VAPOR

5. Disconnect fitting (4) from hydraulic cylinder (5).

WARNING

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

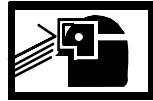
6. Tilt hose (3) and drain hydraulic fluid into drain pan.

WARNING

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

7. Remove hose (3) and discard.

WARNING

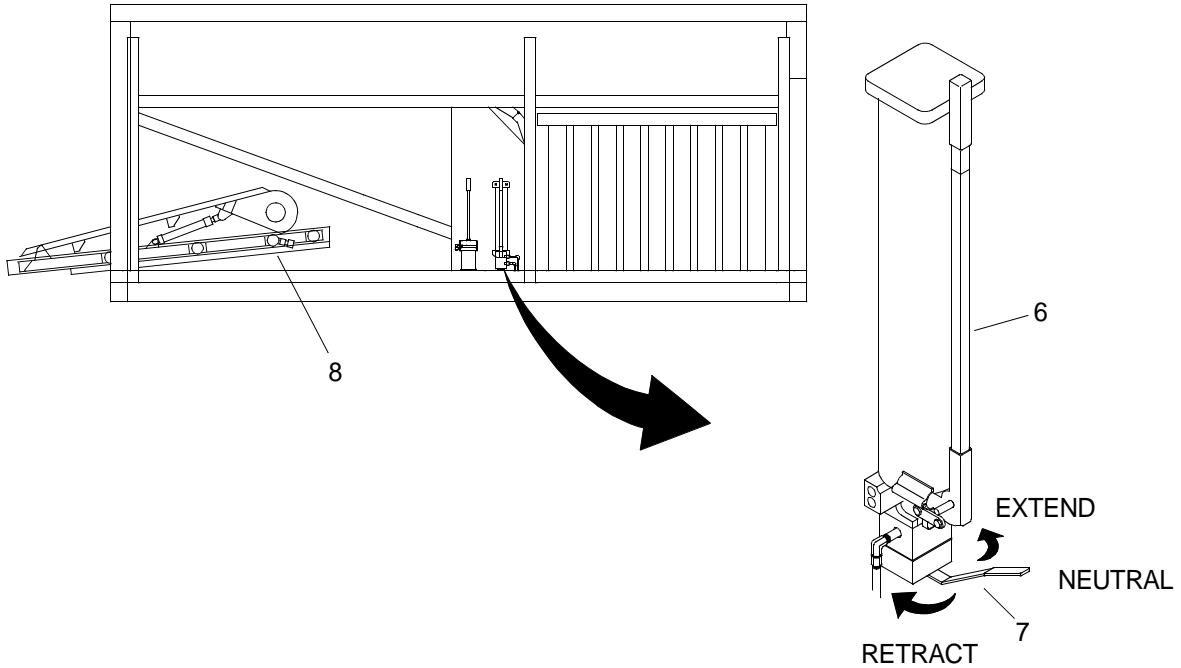
**CHEMICAL****EYE PROTECTION****VAPOR**

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

INSTALL EASY DRAWER RETURN HYDRAULIC HOSE

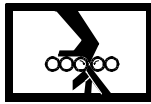
1. Using cloth, wipe fittings.
2. Position new hose (3) to hydraulic cylinder (5).
3. Connect fitting (4) to hydraulic cylinder (5). Tighten fitting (4).
4. Position hose (3) to bulkhead adaptor (2).
5. Connect fitting (1) to bulkhead adaptor (2). Tighten fitting (1).
6. Service EASY container hydraulic system. (WP 0233 00)
7. Bleed EASY drawer hydraulic cylinder. (WP 0251 00)

8. Pump handle (6) ten times.



9. Move control lever (7) left to retract position.

WARNING

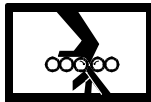


MOVING PARTS

10. Pump handle (6) until drawer (8) is fully extended.

11. Move control lever (7) right to extend position.

WARNING



MOVING PARTS

12. Pump handle (6) until drawer (8) is fully retracted.

13. Service EASY container hydraulic system. (WP 0233 00)

WARNING

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

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

15. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER HYDRAULIC CYLINDER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pliers, Retaining Ring, Flat Jaw (Item 48, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cylinder Assembly
 (53554)
 PN H-2B02-14-1 3/8-P1
 Cloth, Cleaning (Item 14, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)
 Block, Shoring (Item 6, WP 0358 00)

Personnel Required

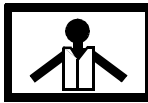
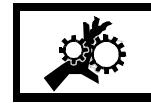
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

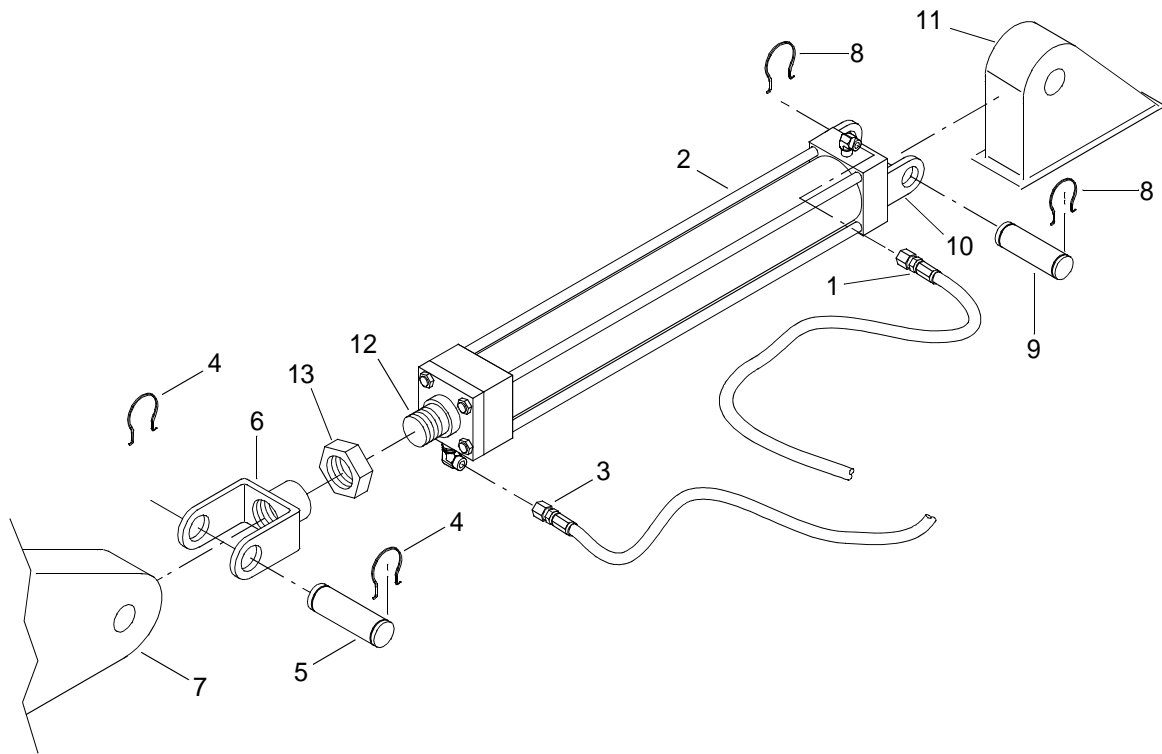
REMOVE EASY DRAWER HYDRAULIC CYLINDER

WARNING

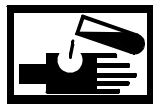
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 drain pan under fitting (1) and hydraulic cylinder (2).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

2. Disconnect fitting (1) from hydraulic cylinder (2) and allow fluid to drain into drain pan.
3. Position drain pan under fitting (3) and hydraulic cylinder (2).
4. Disconnect fitting (3) from hydraulic cylinder (2) and allow fluid to drain into drain pan.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

5. Position wood block under rod end of hydraulic cylinder (2).
6. Using external retaining ring pliers, remove two retaining rings (4) from rod end clevis pin (5).
7. Remove clevis pin (5) from clevis (6).
8. Remove clevis (6) from mounting boss (7).

 WARNING

**HEAVY PARTS**

9. Lower rod end of hydraulic cylinder (2) onto wood block.
10. Using external retaining ring pliers, remove two retaining rings (8) from clevis pin (9).
11. Remove clevis pin (9) from cylinder mounting clevis (10).
12. Remove clevis (10) from mounting boss (11).
13. Remove clevis (6) and rod lock nut (13) from cylinder rod (12).

 WARNING

**HEAVY OBJECTS**

14. Remove hydraulic cylinder (2) and discard.

 WARNING

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

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

INSTALL EASY DRAWER HYDRAULIC CYLINDER**NOTE**

Ensure that clevis opening is parallel to body of hydraulic cylinder.

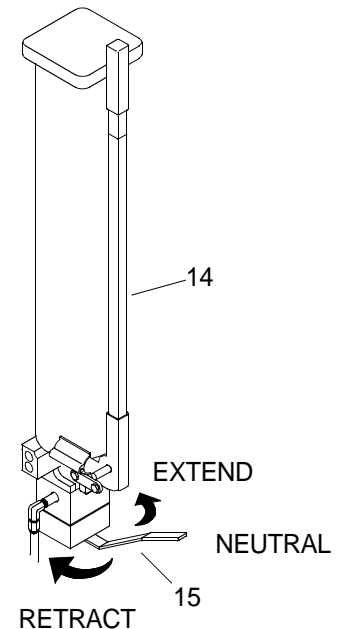
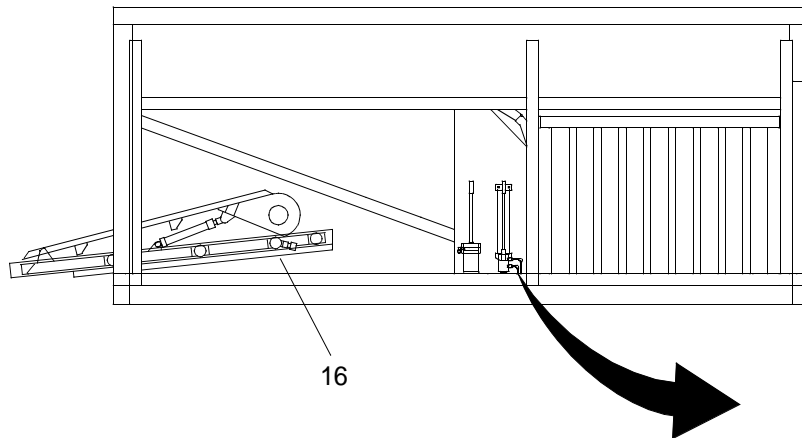
1. Install clevis (6) and rod lock nut (13) on new hydraulic cylinder (2) rod (12). Tighten clevis (6).
2. Position clevis (10) on mounting boss (11).
3. Install clevis pin (9) in clevis (10).
4. Using external retaining ring pliers, install two new retaining rings (8) in clevis pin (9).

WARNING

**HEAVY PARTS**

Hydraulic cylinder must be supported during installation. Failure to comply could result in injury to personnel.

5. Lift rod end of hydraulic cylinder (2) and slide wood block under end.
6. Position clevis (6) on mounting boss (7).
7. Install clevis pin (5) in clevis (6).
8. Using external retaining ring pliers, install two new retaining rings (4) in clevis pin (5).
9. Tighten rod locknut (12).
10. Using cloth, wipe fittings (1 and 3).
11. Remove wood block.
12. Connect fitting (3) to hydraulic cylinder (2). Tighten fitting (3).
13. Connect fitting (1) to hydraulic cylinder (2). Tighten fitting (1).
14. Service EASY container hydraulic system. (WP 0233 00)
15. Bleed EASY drawer hydraulic cylinder. (WP 0251 00)
16. Pump handle (14) ten times.



17. Move control lever (15) left to retract position.

WARNING

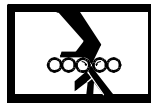


MOVING PARTS

18. Pump handle (14) until drawer (16) is fully retracted.

19. Move control lever (15) right to extend position.

WARNING

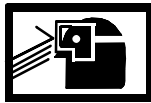


MOVING PARTS

20. Pump handle (14) until drawer (16) is fully extended.

21. Service EASY container hydraulic system. (WP 0233 00)

WARNING



EYE PROTECTION



CHEMICAL



VAPOR



SLICK FLOOR

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

23. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY LIFT HYDRAULIC CYLINDER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pliers, Retaining Ring, Flat Jaw (Item 48, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Cylinder, Hydraulic
 (53554)
 PN LH-2B02-34-1-P1
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)
 Cloth, Cleaning (Item 14, WP 0358 00)
 Block, Shoring (Item 6, WP 0358 00)

Personnel Required

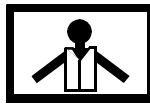
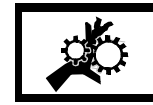
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

REMOVE EASY LIFT HYDRAULIC CYLINDER

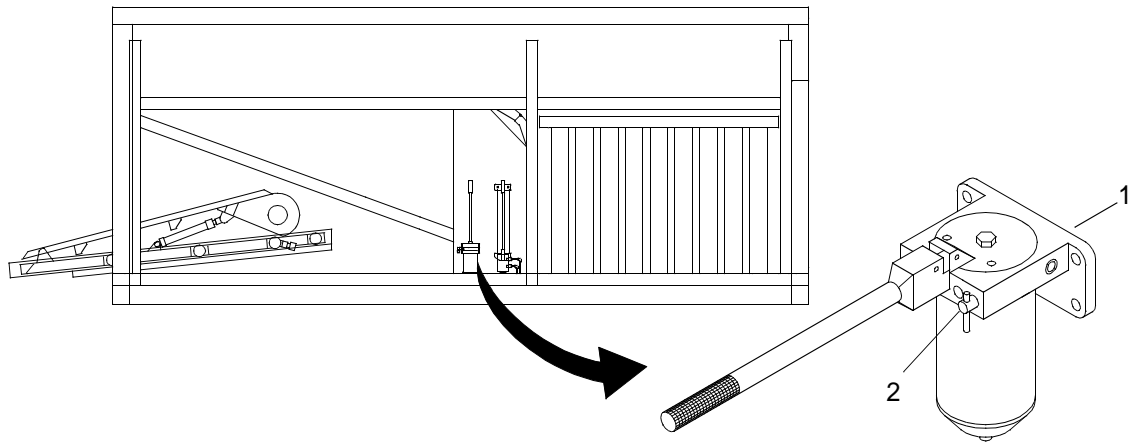
WARNING

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

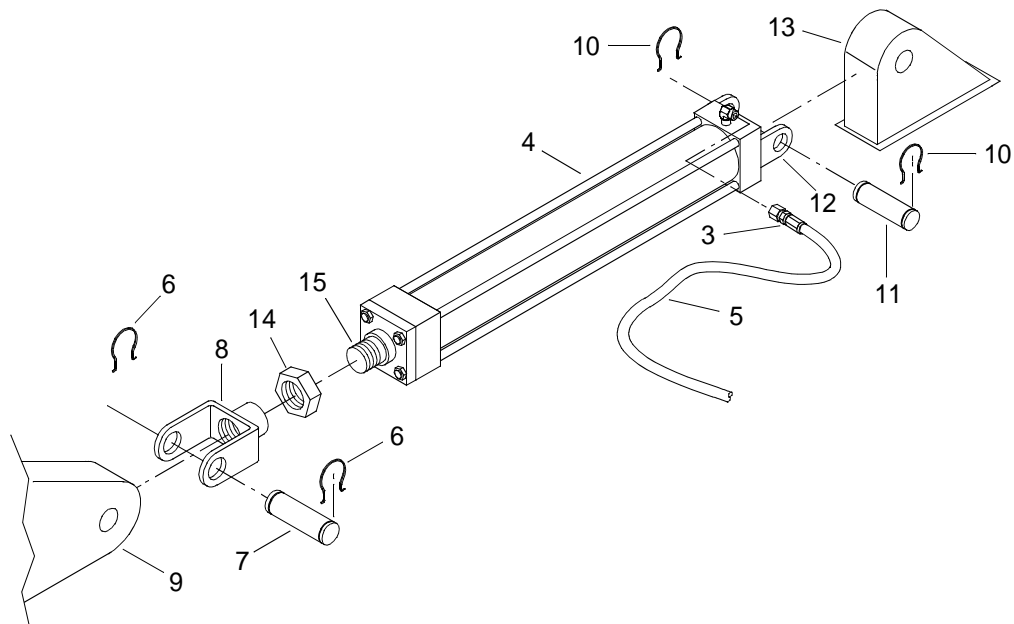
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

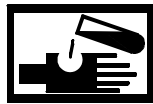
1. On lift pump (1), rotate release valve (2) counterclockwise.



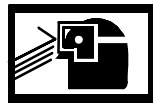
2. Position drain pan under fitting (3) and hydraulic cylinder (4).



WARNING



CHEMICAL



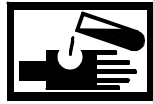
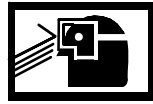
EYE PROTECTION



VAPOR

3. Disconnect fitting (3) from lift hydraulic cylinder (4).

WARNING

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

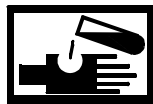
4. Tilt hose (5) and drain hydraulic fluid into drain pan.
5. Position wood block under rod end of hydraulic cylinder (4).
6. Using external retaining ring pliers, remove two retaining rings (6) from clevis pin (7).
7. Remove clevis pin (7) from clevis (8).
8. Remove clevis (8) from mounting boss (9).
9. Lower hydraulic cylinder (4) onto wood block.
10. Using external retaining ring pliers, remove two retaining rings (10) from clevis pin (11).
11. Remove clevis pin (11) from clevis (12).
12. Remove clevis (12) from mounting boss (13).
13. Remove clevis (8) and rod lock nut (14) from cylinder rod (15).

WARNING

**HEAVY OBJECTS**

14. Remove hydraulic cylinder (4) and discard.

WARNING

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

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

INSTALL EASY LIFT HYDRAULIC CYLINDER

NOTE

Ensure that the clevis opening is parallel to body of hydraulic cylinder.

1. Install clevis (8) and rod lock nut (14) on new hydraulic cylinder (4) rod (15). Tighten clevis (8).
2. Position clevis (12) on mounting boss (13).
3. Install clevis pin (11) in clevis (12).
4. Using external retaining ring pliers, install two new retaining rings (10) in clevis pin (11).

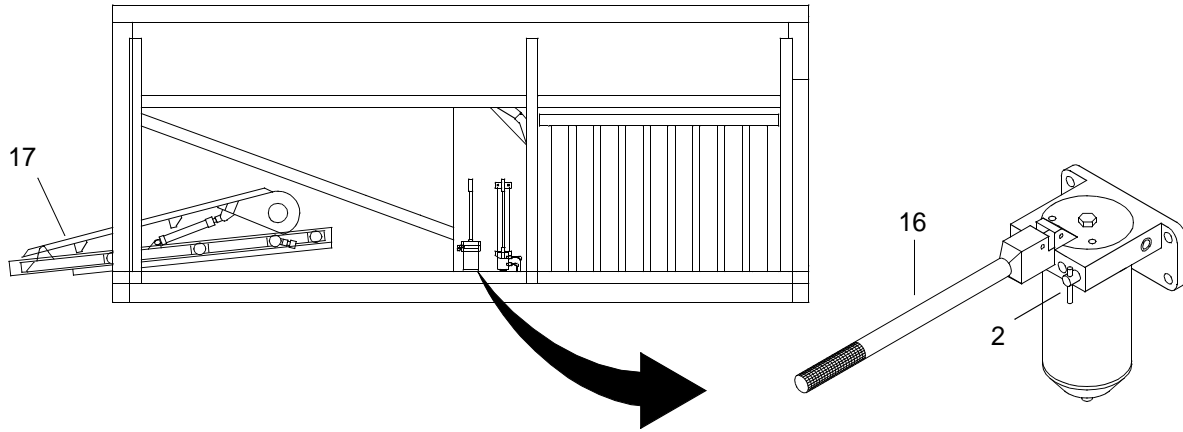
WARNING

**HEAVY PARTS**

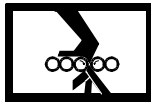
Hydraulic cylinder must be supported during installation. Failure to comply could result in injury to personnel.

5. Lift rod end of hydraulic cylinder (4) and slide wood block under end.
6. Position clevis (8) on boss (9).
7. Install clevis pin (7) in clevis (8).
8. Using external retaining ring pliers, install two retaining rings (6) in clevis pin (7).
9. Tighten rod lock nut (14).
10. Using cloth, wipe fittings.
11. Remove wooden block.
12. Connect fitting (3) to hydraulic cylinder (4). Tighten fitting (3).

13. Rotate release valve (2) clockwise.



WARNING



MOVING PARTS

14. Pump handle (16) until lift table (17) is fully elevated.

15. Rotate release valve (2) counterclockwise.

16. Service EASY container hydraulic system. (WP 0233 00)

17. Bleed EASY lift hydraulic cylinder. (WP 0252 00)

WARNING



EYE PROTECTION



CHEMICAL



VAPOR



SLICK FLOOR

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

19. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER HYDRAULIC CYLINDER
SERVICING**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Item 81, WP 0359 00)
- Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
- Helmet, Safety (Brown) (Item 33, WP 0359 00)
- Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

Seaman 88K

References

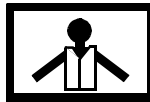
TM 55-1945-205-10-2

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

BLEED EASY DRAWER HYDRAULIC CYLINDER

WARNING



VEST



HELMET PROTECTION



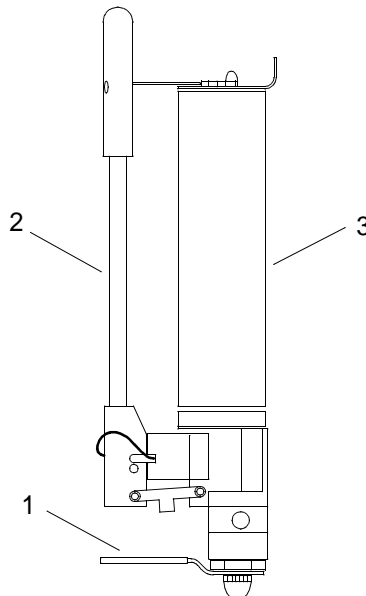
HEAVY PARTS



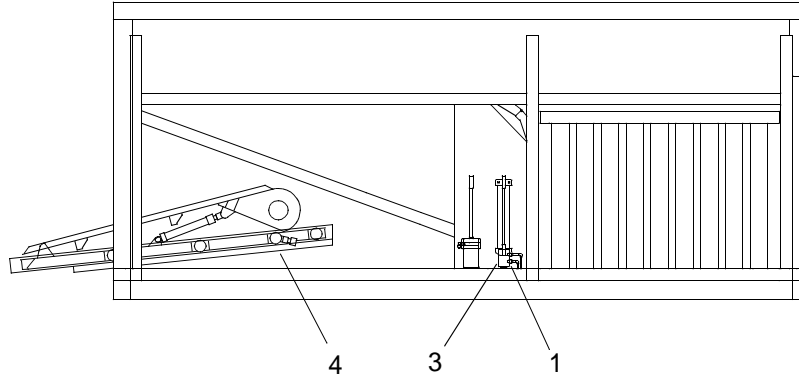
MOVING PARTS

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. Move directional control valve handle (1) to neutral position (handle centered).



2. Pump handle (2) to bleed air from system.
3. Check oil level in reservoir and fill as required. (WP 0233 00)
4. Pump extend/retract pump (3) to extend anchor drawer (4) with control valve (1) in extend position (handle to the right). (TM 55-1945-205-10-2)



5. Repeat steps 1 and 2 to bleed anchor lift hydraulic system.
6. Retract anchor drawer (4) by pumping extend/retract pump (3) with control valve (1) in the retract position (handle to the left). (TM 55-1945-205-10-2)
7. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY LIFT HYDRAULIC CYLINDER
SERVICING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

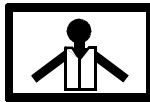
Seaman 88K

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

BLEED EASY LIFT HYDRAULIC CYLINDER

WARNING



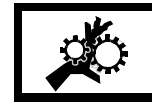
VEST



HELMET PROTECTION



HEAVY PARTS



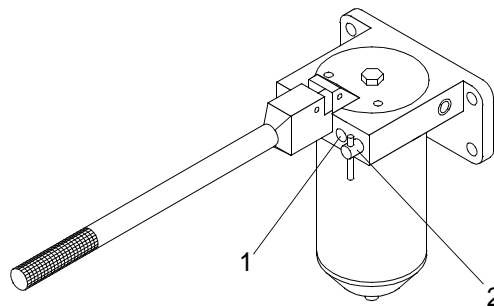
MOVING PARTS

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

This task is to be performed in conjunction with bleeding EASY drawer hydraulic cylinder.

1. Move the pressure relief cap (1) to the vent position.



2. Move the release valve (2) to the closed position.

3. Operate the pump until the cylinder is fully extended. (WP 0235 00)
4. Open the release valve (2) to retract. (WP 0235 00)
5. When EASY hydraulic lift cylinder is fully retracted, check oil level in reservoir and fill if necessary. (WP 0233 00)
6. Retract EASY anchor drawer. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHOR
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

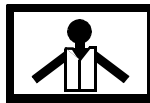
Cleaner, Type II (Item 9, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L

DISASSEMBLE EASY ANCHOR

WARNING

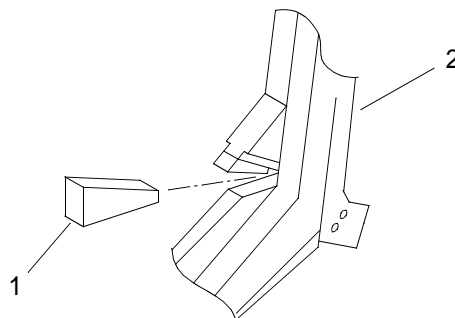
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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

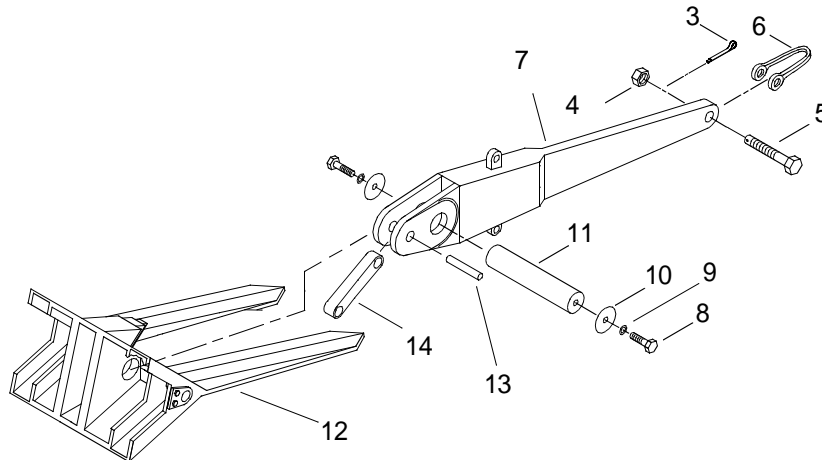
Repair is limited to the replacement of defective items.

1. Remove aluminum wedge (1) from anchor (2).



2. Store aluminum wedge (1) in toolbox.

- Remove cotter pin (3), nut (4) and bolt (5) from shackle (6). Discard cotter pin (3).



- Remove shackle (6) from anchor shank (7).
- Remove two cap screws (8), lock washers (9) and washers (10) from trunnion pin (11).
- Remove trunnion pin (11) from fluke assembly (12).

WARNING

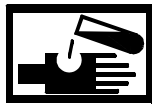


HEAVY PARTS

- Remove fluke assembly (12) from anchor shank (7).
- Remove pin (13) and link (14) from anchor shank (7).

CLEAN EASY ANCHOR

WARNING



CHEMICAL



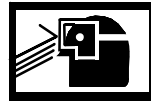
EYE PROTECTION

- Using wiping rags soaked with cleaner, remove debris from all components.

 WARNING



CHEMICAL



EYE PROTECTION

2. Using clean water, remove cleaner residue from all components.
3. Air dry all components.

 WARNING



CHEMICAL



EYE PROTECTION

4. Dispose of contaminated rags in accordance with local procedures.

INSPECT EASY ANCHOR

1. Inspect all components for cracks and breaks. Replace damaged items.
2. Inspect threaded components for damaged threads. Replace damaged items.

ASSEMBLE EASY ANCHOR

1. Position link (14) and pin (13) on anchor shank (7).

 WARNING



HEAVY PARTS

2. Position fluke assembly (12) on anchor shank (7).
3. Install trunnion pin (11) in fluke assembly (12).
4. Install two washers (10), lock washers (9) and cap screws (8) in trunnion pin (11). Tighten cap screws (8).
5. Position shackle (6) on anchor shank (7).
6. Install bolt (5), nut (4) and new cotter pin (3) in shackle (6).
7. Remove aluminum wedge (1) from toolbox.
8. Install aluminum wedge (1) in anchor (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY MOORING BUOY
REPLACEMENT**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
- Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
- Helmet, Safety (Brown) (Item 33, WP 0359 00)
- Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

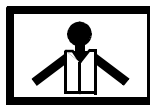
- Buoy, Inflatable (U8512)
PN A5-O
- Twine, Fibrous (Item 59, WP 0358 00)

Personnel Required

- Seaman 88K
-

REMOVE EASY MOORING BUOY

WARNING



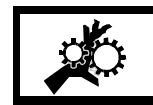
VEST



HELMET PROTECTION



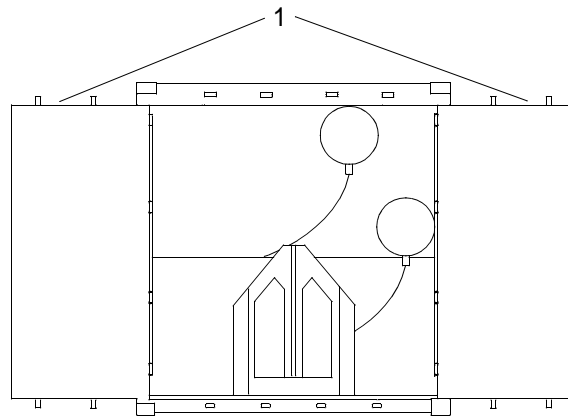
HEAVY PARTS



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 anchor end doors (1).



WARNING

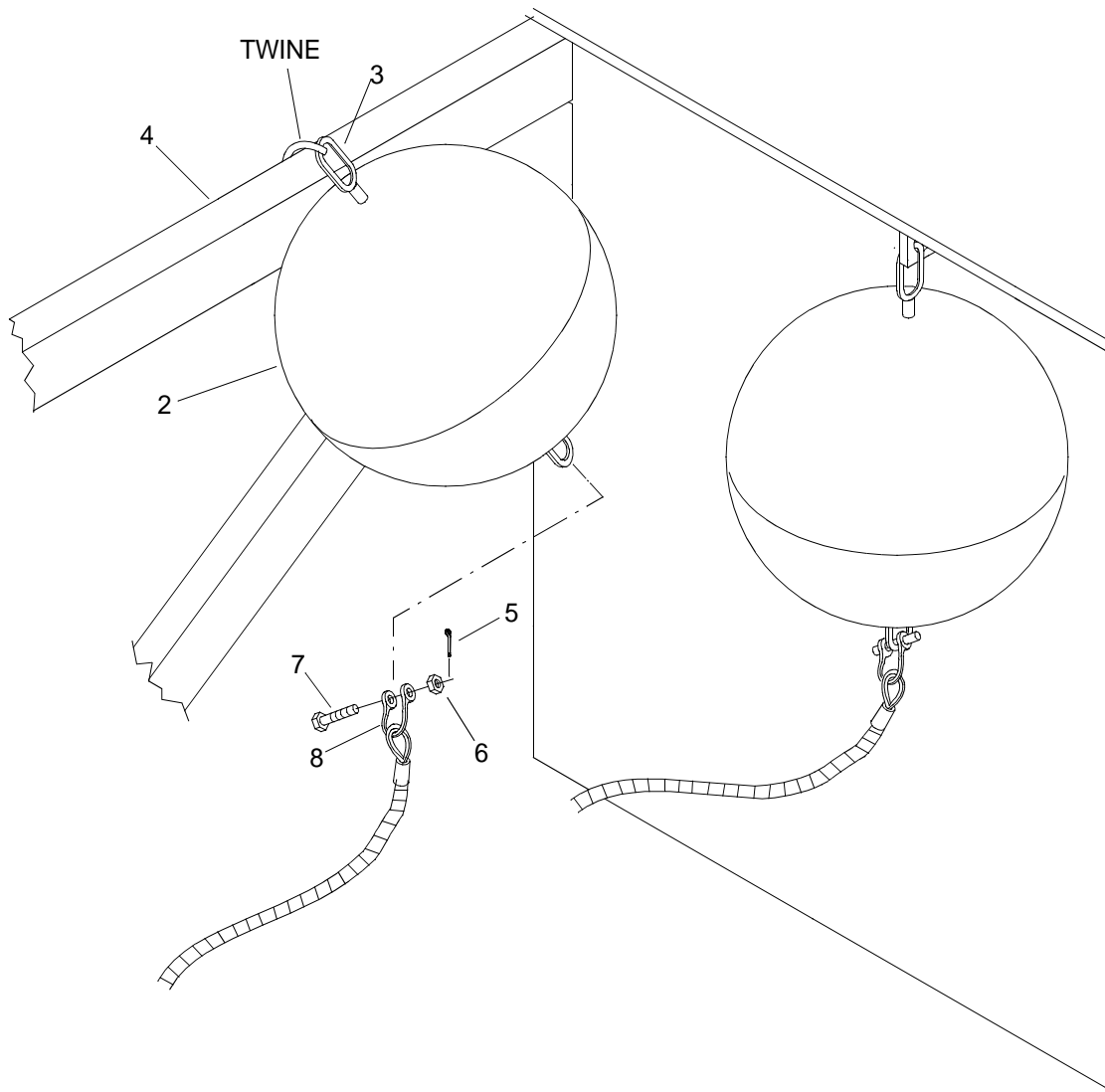
Doors must be secured and latched in the open position. Failure to comply could result in injury to personnel.

- Secure anchor end doors (1) with locking bars and pins.

WARNING

**HEAVY OBJECTS**

- Supporting the weight of buoy (2), cut twine securing buoy retrieval pendant (3) to launch frame (4).



- Lower buoy (2) to deck.
- Remove cotter pin (5), nut (6) and bolt (7) from shackle (8). Discard cotter pin (5).

-
6. Remove buoy (2) from shackle (8) and discard buoy.

INSTALL EASY MOORING BUOY

1. Position new buoy (2) on shackle (8).
2. Install bolt (7), nut (6) and new cotter pin (5) in shackle (8).

WARNING



HEAVY OBJECTS

3. Supporting weight of buoy (2), secure buoy retrieval pendant (3) on launch frame (4) with twine.
4. Remove locking bars and pins from anchor end doors (1).

WARNING

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

5. Latch and secure anchor end doors (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY MOORING BRIDLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

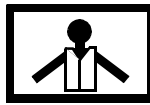
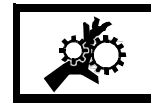
Rope Assembly, Flexor (Mooring Bridle)
 (1J2K0)
 PN 10IC12N935

Personnel Required

Seaman 88K

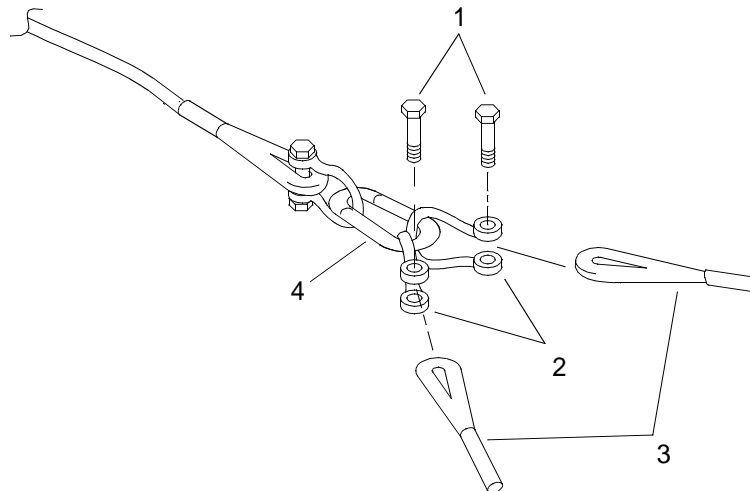
REMOVE EASY MOORING BRIDLE

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 two pins (1) from two shackles (2).



2. Remove mooring bridle (3) from two shackles (2) and discard mooring bridle (3)

3. Remove two shackles (3) from pear link (4).

INSTALL EASY MOORING BRIDLE

1. Install two shackles (3) on pear link (4).
2. Install new mooring bridle (3) on two shackles (2).
3. Install two pins (1) in two shackles (2).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY MOORING BOX
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

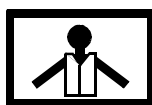
Box, Mooring
 (19207)
 PN FCRRDF-99-581-001-62
 Twine, Fibrous (Item 59, WP 0358 00)

Personnel Required

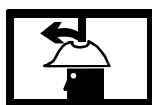
Seaman 88K

REMOVE EASY MOORING BOX

WARNING



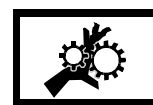
VEST



HELMET PROTECTION



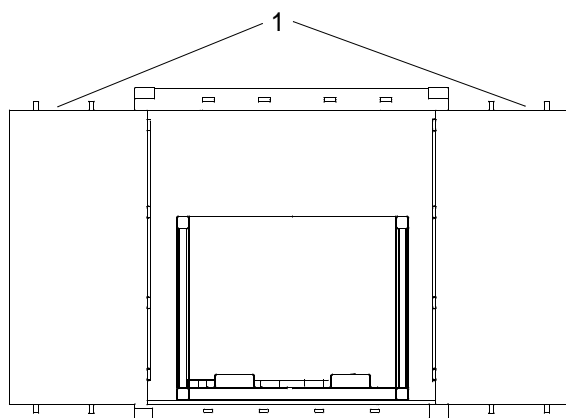
HEAVY PARTS



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.

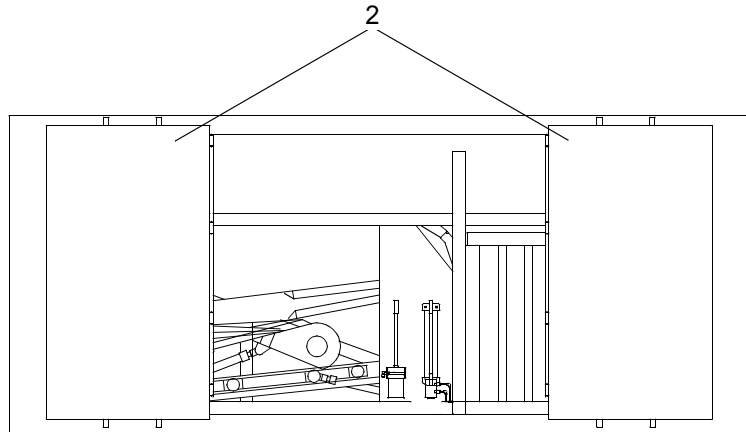
1. Unlatch and open mooring box end doors (1).



WARNING

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

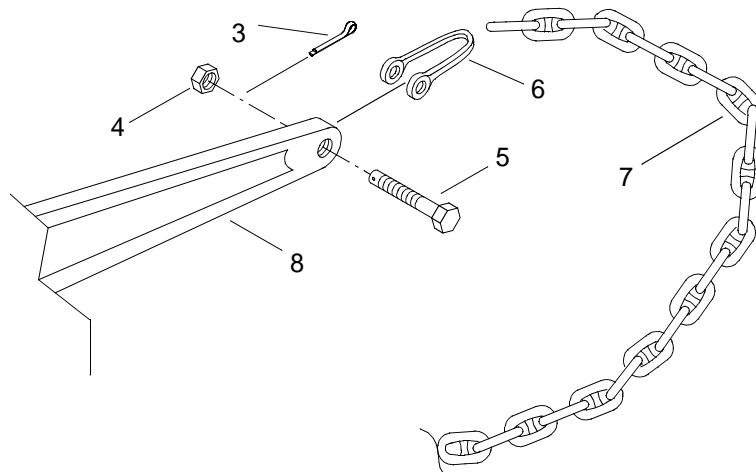
2. Secure mooring box end doors (1) with locking bars and pins.
3. Unlatch and open pump side doors (2).



WARNING

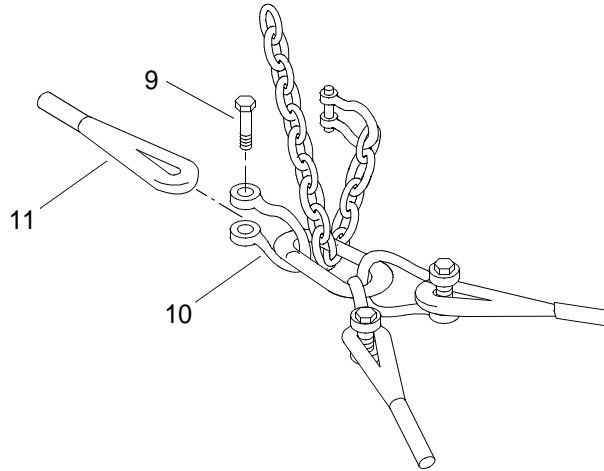
Doors must be secured and latched in the open position. Failure to comply could result in injury to personnel.

4. Secure pump side doors (2) with locking hooks.
5. Remove cotter pin (3), nut (4) and bolt (5) from shackle (6).



6. Remove shackle (6) from anchor chain (7).
7. Position shackle (6) on anchor (8).
8. Install bolt (5), nut (4) and cotter pin (3) in shackle (6).

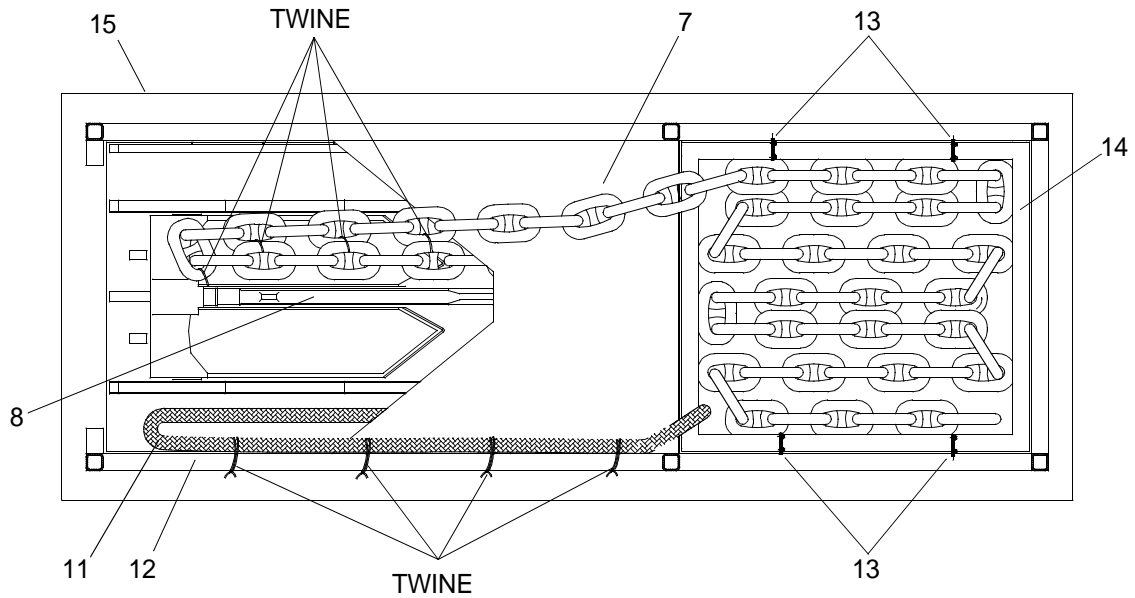
9. Remove pin (9) from shackle (10).



10. Remove shackle (10) from mooring line (11).

11. Install pin (9) in shackle (10).

12. Remove twine securing anchor chain (7) to anchor (8).

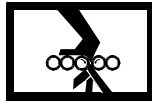


13. Remove twine holding doubled anchor chain (7) links together (three places).

14. Remove twine securing mooring line (11) to launch frame (12).

15. Unfasten and remove four ratchet straps (13) from mooring box (14).

 WARNING



MOVING PARTS



HEAVY PARTS

NOTE

Verify that nothing will prevent the free movement of chain and mooring line.

16. Using forklift, remove mooring box (14) from container (15) and set on deck no more than 6 ft from end of container (15).

 WARNING

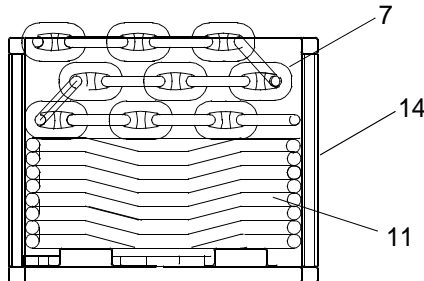


HEAVY PARTS

17. Pull excess anchor chain (7) through opening between anchor (8) and mooring box (14).
18. Pull excess mooring line (11) through opening between anchor (8) and mooring box (14).
19. Remove anchor chain (7) from mooring box (14).
20. Remove mooring line (11) from mooring box (14) and discard mooring box (14).

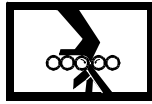
INSTALL EASY MOORING BOX

1. Leaving fifty-five ft of mooring line (11) out of new mooring box (14), lay remaining mooring line (11) in mooring box (14).



2. Leaving twenty-five ft of anchor chain (7) out of mooring box (14), lay remaining anchor chain (7) in mooring box (14).

 WARNING



MOVING PARTS



HEAVY PARTS

NOTE

Verify that nothing will prevent the free movement of chain and mooring line.

3. Using forklift, install mooring box (14) in container (15).
4. Install four ratchet straps (13).

 WARNING



HEAVY PARTS

5. Pull excess anchor chain (7) through opening between mooring box (14) and anchor (8).
6. Lay chain (7) on anchor (8).
7. Tie anchor chain (7) links together (three places) with twine.
8. Tie anchor chain (7) to anchor (8) with twine.
9. Pull excess mooring line (11) through opening between mooring box (14) and anchor (8).
10. Tie mooring line (11) to launch frame (12 (four places).
11. Remove pin (9) from shackle (10).
12. Position shackle (10) on mooring line (11).
13. Install pin (9) in shackle (10).
14. Remove cotter pin (3), nut (4) and bolt (5) from shackle (6).
15. Position shackle (6) on chain (7).
16. Install bolt (5), nut (4) and cotter pin (3) in shackle (6).
17. Remove locking hooks to close pump side doors (2).

WARNING

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

18. Latch and secure pump side doors (2).
19. Remove locking bars and pins to close mooring box end doors (1).

WARNING

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

20. Latch and secure mooring box end doors (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHOR DRAWER WHEEL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Pliers, Retaining Ring, Flat Jaw (Item 48, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Assembly, Wheel
 (19207)
 PN FCRRDF-99-581-001-65
 Bearing, Sleeve
 (39428)
 PN 6391K285
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)
 Cloth, Cleaning (Item 14, WP 0358 00)
 Block, Shoring (6 in. X 6 in. X 30 in.) (Item 6, WP 0358 00)
 Qty 9

Personnel Required

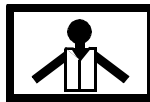
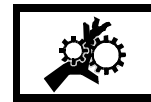
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0235 00)

REMOVE EASY ANCHOR DRAWER WHEEL

—————
 WARNING
 —————

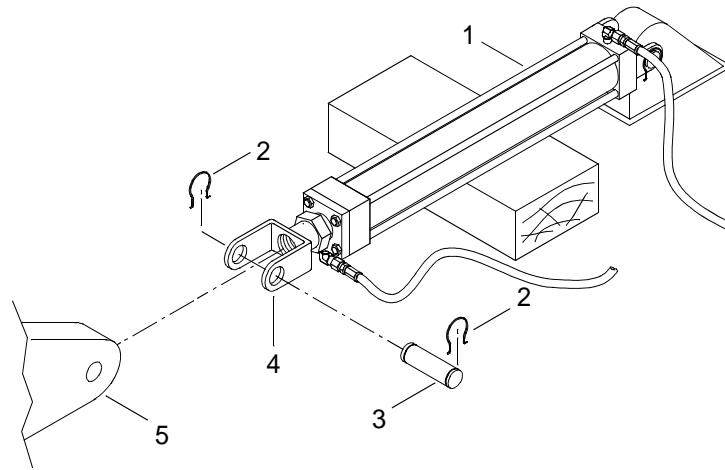
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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

NOTE

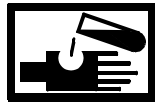
The following procedure is typical for removal and installation of EASY anchor drawer wheels.

1. Position one wood block under drawer hydraulic cylinder (1) to support weight of the cylinder (1).

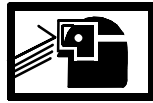


2. Using external retaining ring pliers, remove two snap rings (2) from pin (3).
3. Remove pin (3) from clevis (4).
4. Remove clevis (4) from mounting boss (5) on slide platform (6).
5. Position drain pan beneath bulkhead adaptor (7) in the slide platform (6).

WARNING



CHEMICAL



EYE PROTECTION

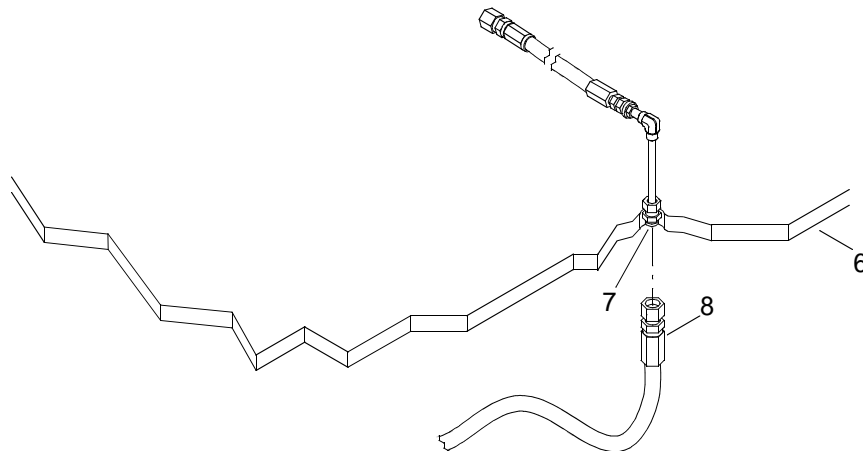


VAPOR

CAUTION

The lower slide platform hydraulic hose must be protected after removal to prevent damage during drawer removal. Failure to comply could result in damage to equipment.

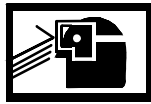
6. Disconnect lift platform lower hydraulic hose fitting (8) from bulkhead adaptor (7).



WARNING



CHEMICAL



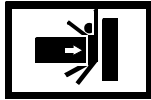
EYE PROTECTION



VAPOR

7. Drain hydraulic fluid into drain pan.

WARNING

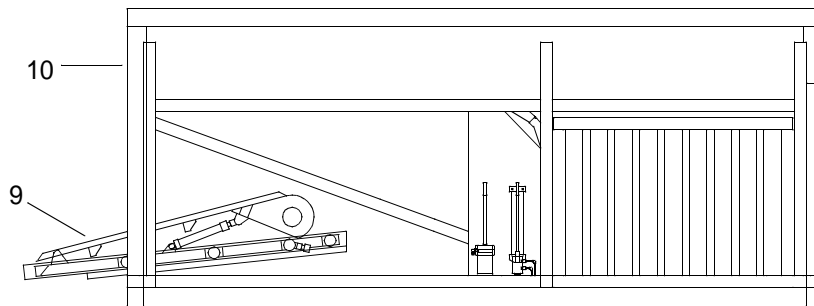


HEAVY PARTS



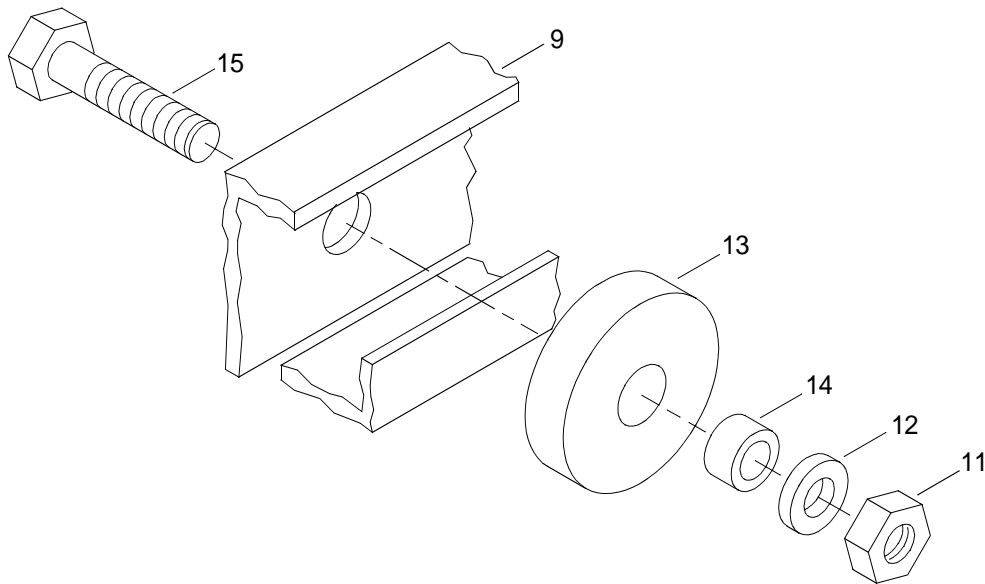
MOVING PARTS

8. Using forklift, remove drawer (9) from container (10).



9. Place drawer (9) on eight wooden blocks.

10. Remove lock nut (11), spacer (12), wheel (13) with plain sleeve bearing (14) and axle bolt (15) from the drawer (9).



11. Discard wheel (13) and plain sleeve bearing (14).

WARNING

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

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

INSTALL EASY ANCHOR DRAWER WHEEL

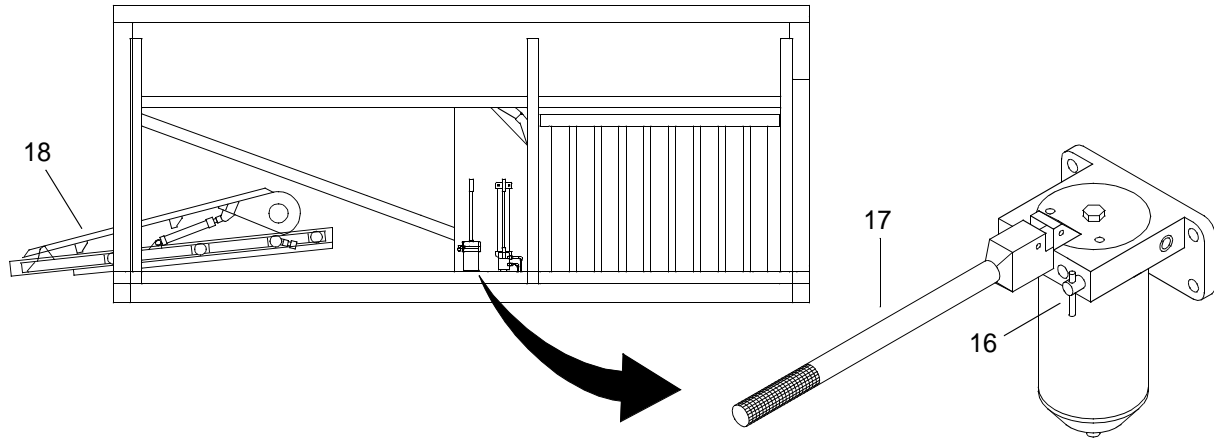
1. Using cloth, wipe fittings.
2. Install new plain sleeve bearing (14) in new wheel (13).
3. Install axle bolt (15), wheel (13) with plain sleeve bearing (14), spacer (12) and lock nut (11). Tighten nut (11).

WARNING

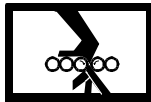
**HEAVY PARTS****MOVING PARTS**

4. Using forklift, install drawer (9) into container (10).
5. Remove eight wood blocks and stow.
6. Connect lift platform lower hydraulic hose fitting (8) to bulkhead adaptor (7).
7. Position clevis (4) on mounting boss (5).
8. Install pin (3) in clevis (4).
9. Using external retaining ring pliers, install two new snap rings (2) on pin (3).
10. Remove one wood block from under hydraulic cylinder (1) and stow.
11. Service EASY container hydraulic system. (WP 0233 00)

12. Rotate release valve (16) clockwise.



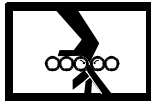
WARNING



MOVING PARTS

13. Pump handle (17) until lift table (18) is fully elevated.

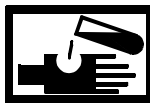
WARNING



MOVING PARTS

14. Rotate release valve (16) counterclockwise.

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

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

16. Service EASY container hydraulic system. (WP 0233 00)

17. Install EASY anchor. (WP 0235 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY FLEXOR RECEIVER INSERT
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Cleaner, Type II (Item 9, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)

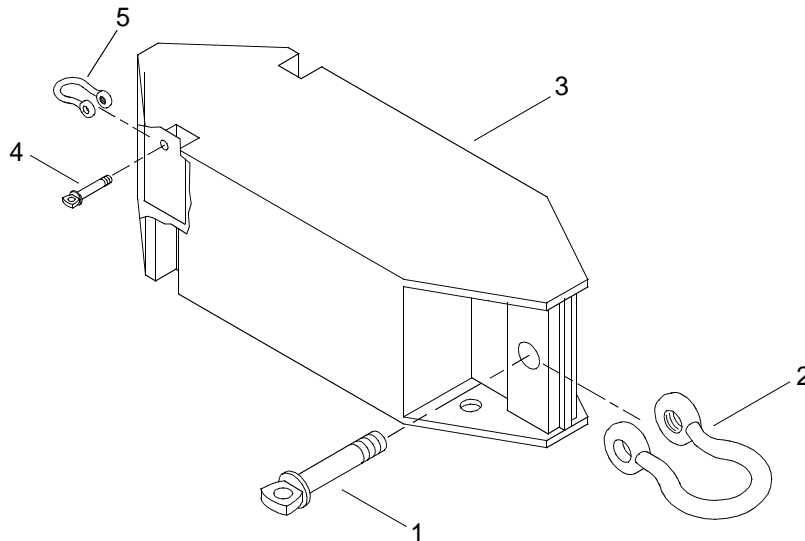
Personnel Required

Engineer 88L

DISASSEMBLE EASY FLEXOR RECEIVER INSERT**NOTE**

Repair is limited to the replacement of defective parts.

1. Remove pin (1) from shackle (2).



2. Remove shackle (2) from flexor receiver insert (3).
3. Remove pin (4) from shackle (5).
4. Remove shackle (5) from flexor receiver insert (3).

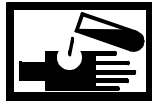
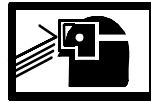
CLEAN EASY FLEXOR RECEIVER INSERT

WARNING

**CHEMICAL****EYE PROTECTION**

1. Using wiping rags soaked with type II cleaner, remove debris from all components.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Using clean water, rinse cleaner residue from all components.
3. Air dry all components.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Dispose of contaminated rags in accordance with local procedures.

INSPECT EASY FLEXOR RECEIVER INSERT

1. Inspect all items for cracks and bending. Replace damaged items.
2. Inspect for shackles and pins for stripped threads. Replace damaged items.

ASSEMBLE EASY FLEXOR RECEIVER INSERT

1. Position shackle (5) on flexor receiver insert (3).
2. Install pin (4) in shackle (5) and tighten.
3. Position shackle (2) on flexor receiver insert (3).
4. Install pin (1) in shackle (2) and tighten.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY FLEXOR RECEIVER INSERT LIFTING DEVICE
REPAIR**

INITIAL SETUP:**Tools**

- Tool Kit, General Mechanic's (Item 81, WP 0359 00)
- Apron, Utility (Item 2, WP 0359 00)
- Gloves, Chemical (Item 25, WP 0359 00)
- Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

- Cleaner, Type II, (Item 9, WP 0358 00)
- Rag, Wiping (Item 45, WP 0358 00)

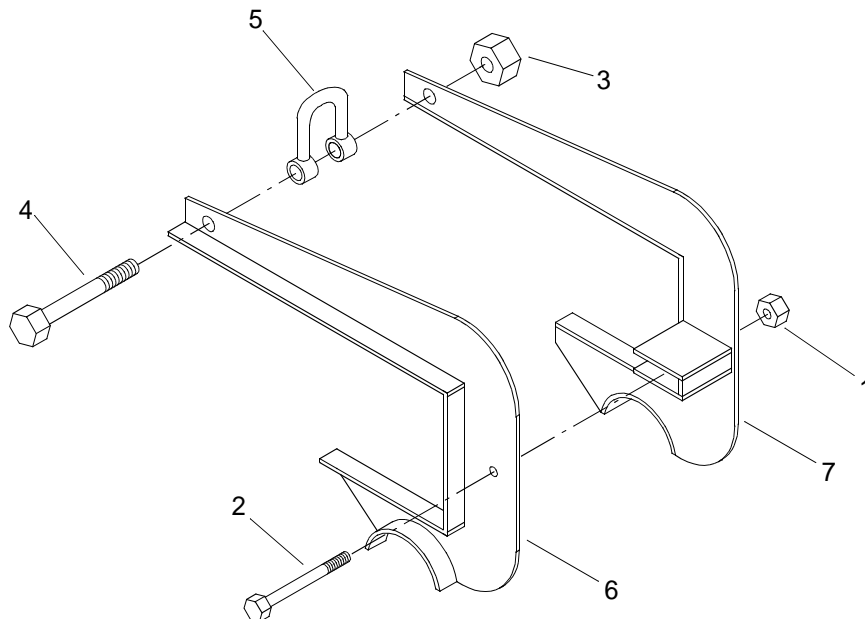
Personnel Required

- Engineer 88L
-

DISASSEMBLE EASY FLEXOR RECEIVER INSERT LIFTING DEVICE**NOTE**

Repair is limited to the replacement of defective parts.

1. Remove hex lock nut (1) and hex head bolt (2).



2. Remove hex lock nut (3) and hex head bolt (4).
3. Remove shackle (5).
4. Separate flexor receiver insert lifting device left hand arm (6) and flexor receiver insert lifting device right hand arm (7).

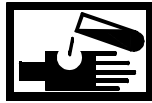
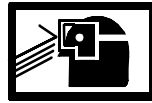
CLEAN EASY FLEXOR INSERT LIFTING DEVICE

WARNING

**CHEMICAL****EYE PROTECTION**

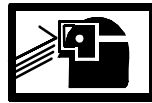
1. Using wiping rag soaked with cleaner, remove debris from all components.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Using clean water, remove cleaner residue from all components.
3. Air dry components.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Dispose of contaminated rags in accordance with local procedures.

INSPECT EASY FLEXOR INSERT LIFTING DEVICE

1. Inspect all items for cracks and bending. Replace damaged items.
2. Inspect for stripped threads. Replace damaged items.

ASSEMBLE EASY FLEXOR INSERT LIFTING DEVICE

1. Position shackle (5) between flexor receiver insert lifting device left hand arm (6) and flexor receiver insert lifting device right hand arm (7).
2. Install hex head bolt (4) and hex lock nut (3). Tighten hex lock nut (3).
3. Install hex head bolt (2) and hex lock nut (1). Tighten hex lock nut (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT POWER STEERING RESERVOIR
SERVICING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Hydraulic Fluid Petroleum Base (quicksilver power trim and steering) (Item 31, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

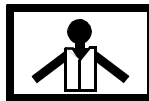
Engineer 88L

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

SERVICE RIGID HULL INFLATABLE BOAT POWER STEERING RESERVOIR

WARNING

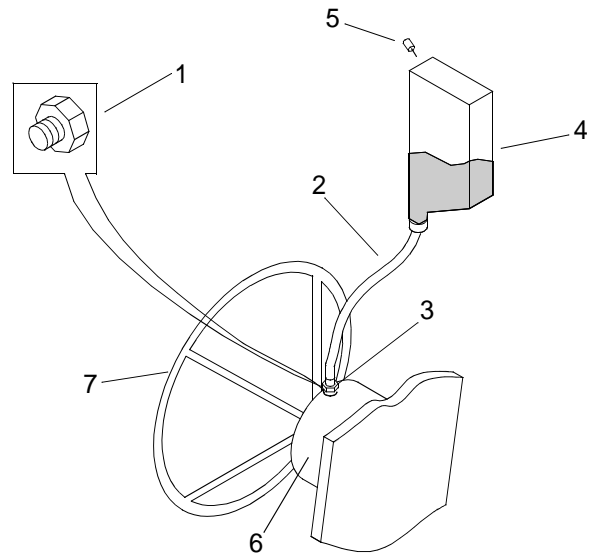
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

CAUTION

Never use brake fluid in place of power steering fluid. Any non-approved fluid may cause irreparable damage and/or loss of steering.

1. Remove oil fill and vent plug (1).



2. Screw threaded end of filler tube (2) into helm pump filler hole (3).
3. Remove cap from hydraulic fluid bottle (4).
4. Holding hydraulic fluid bottle (4) upright, screw filler tube (2) into bottle (4).
5. Rotate bottle (4).
6. Using push pin (5), pierce bottom of bottle (4) to allow hydraulic fluid to flow.

WARNING



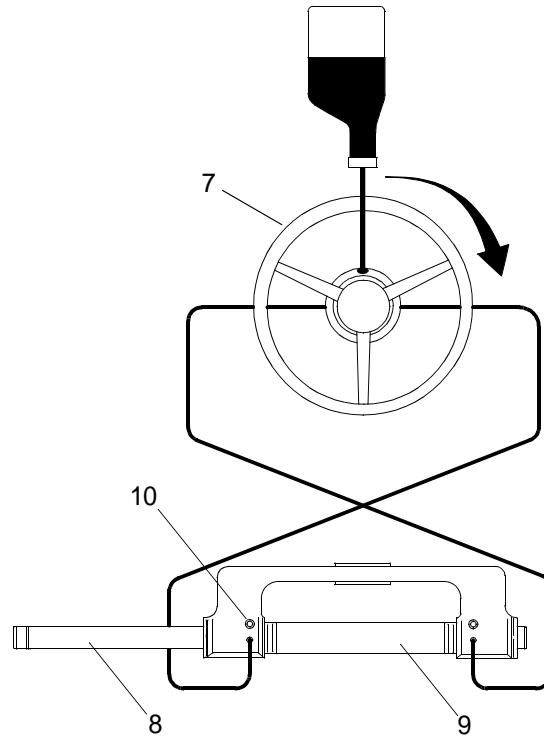
CHEMICAL



EYE PROTECTION

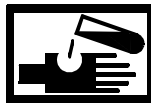
7. Fill helm pump reservoir (6) with steering fluid.
8. When air bubbles stop rising in the tube, bleed air from the steering system.

- a. Turn steering wheel (7) fully clockwise until starboard side steering cylinder piston (8) is fully extended.



- b. Position drain pan under steering cylinder (9).

WARNING



CHEMICAL



EYE PROTECTION

- c. Open bleed nipple (10) on the starboard side of cylinder (8).

WARNING



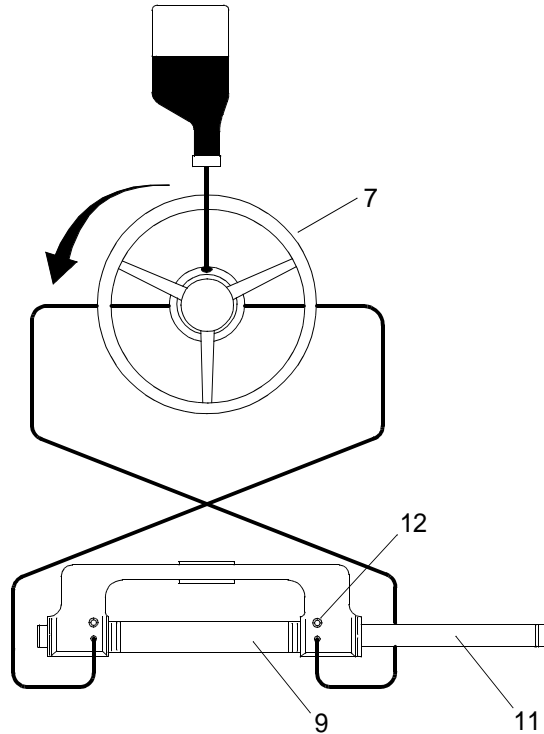
CHEMICAL



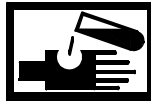
EYE PROTECTION

- d. Hold piston (8) to prevent movement and turn steering wheel (7) counterclockwise until a steady stream of fluid flows out bleed nipple (10).
- e. Close bleed nipple (10).

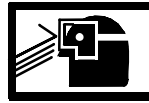
- f. Turn steering wheel (7) fully counterclockwise until portside piston (11) is fully extended.



WARNING



CHEMICAL



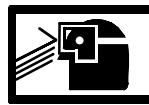
EYE PROTECTION

- g. Open bleed nipple (12) on port side of cylinder (9).

WARNING



CHEMICAL



EYE PROTECTION

- h. Hold piston (11) to prevent movement and turn steering wheel (7) clockwise until a steady stream of fluid flows out bleed nipple (12).
- i. Close bleed nipple (12).

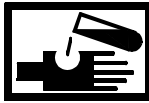
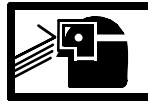
WARNING

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

The full mark for the reservoir is within a ½ in. of the helm filler hole.

- j. Refill helm pump reservoir (6) with steering fluid as required.
- 9. Remove threaded end of the filler tube (2) from helm filler hole (3).
- 10. Install fill and vent plug (1). Tighten plug (1).

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.
- 13. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT POWER STEERING SYSTEM
HOSES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Hose Kit
 (38915)
 PN S-H-49952
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)
 Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)

Personnel Required

Engineer 88L

References

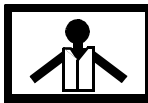
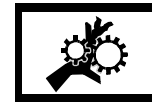
TM 55-1945-205-10-2

Equipment Condition

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

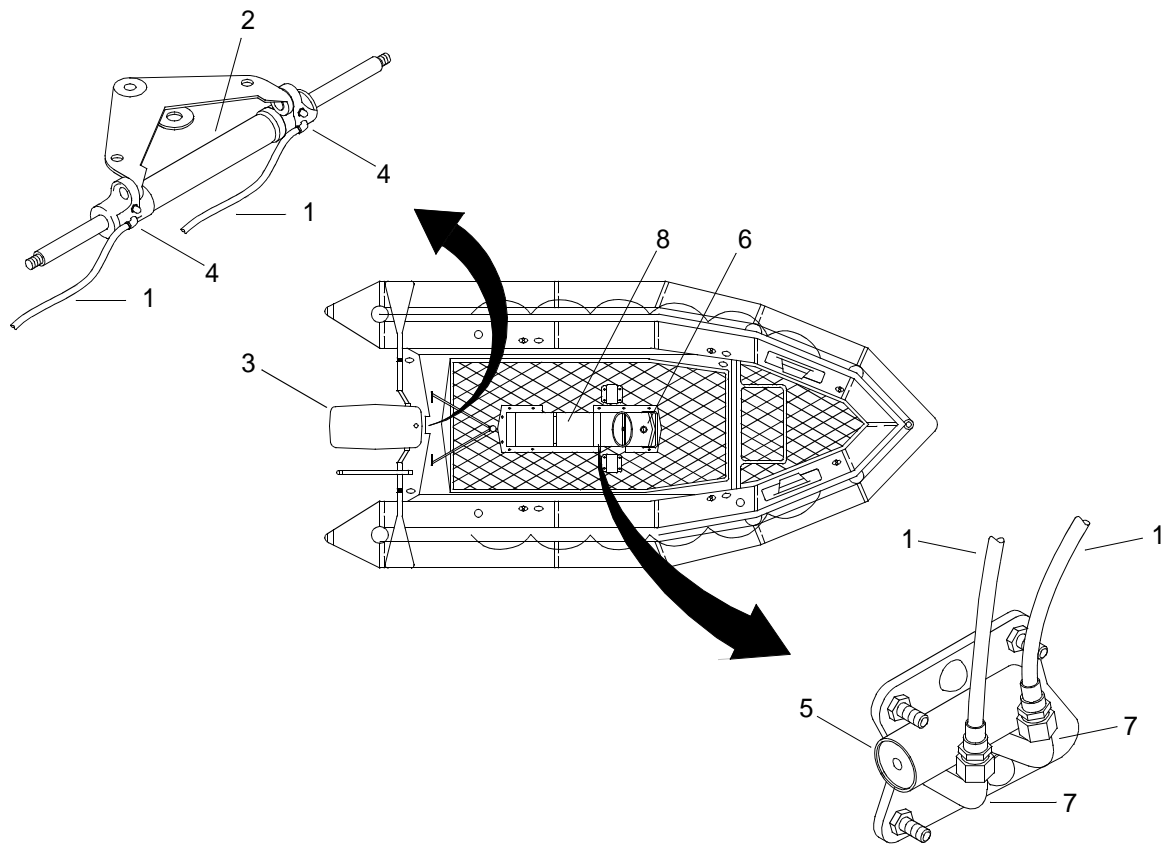
REMOVE RHIB POWER STEERING SYSTEM HOSES

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. Cut all tiedown straps and remove all hose clamps securing power steering hoses (1) to deck and beneath the operators seat.



2. Discard cut tiedown straps.
3. Position drain pan under the hydraulic cylinder (2) mounted on the front of the engine (3).

—————
WARNING
 —————



CHEMICAL



EYE PROTECTION

4. Open hose couplings (4) on the hydraulic cylinder (2) to release any pressure in hoses (1).

—————
WARNING
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CHEMICAL



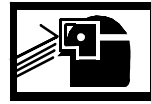
EYE PROTECTION

5. Remove hose couplings (4) from hydraulic cylinder (2) and allow fluid to drain into drain pan.
6. Position drain pan under the helm fittings (5) under control console (6).

 WARNING



CHEMICAL



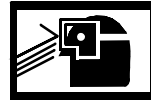
EYE PROTECTION

7. Remove the hose couplings (7) from the helm fittings (5).
8. Remove hoses (1) through the hole in the bottom rear of the operators seat (8) and discard.

 WARNING



CHEMICAL



EYE PROTECTION

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

INSTALL RHIB POWER STEERING HOSES

1. Feed new power steering hoses (1) through hole in bottom rear of operators seat (8).
2. Stretch hoses (1) between the hydraulic cylinder (2) and helm fittings (5).
3. Install the hose couplings (7) on helm fittings (5) and tighten.
4. Install the hose couplings (4) on the hydraulic cylinder (2) and tighten.
5. Install all hose clamps and new tiedown straps to secure hoses (1) in place.

 WARNING



CHEMICAL



EYE PROTECTION



SLICK FLOOR

6. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
7. Service the power steering reservoir. (WP 0260 00)
8. Install RHIB battery negative lead terminal. (WP 0336 00)
9. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT STEERING CYLINDER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L (2)

References

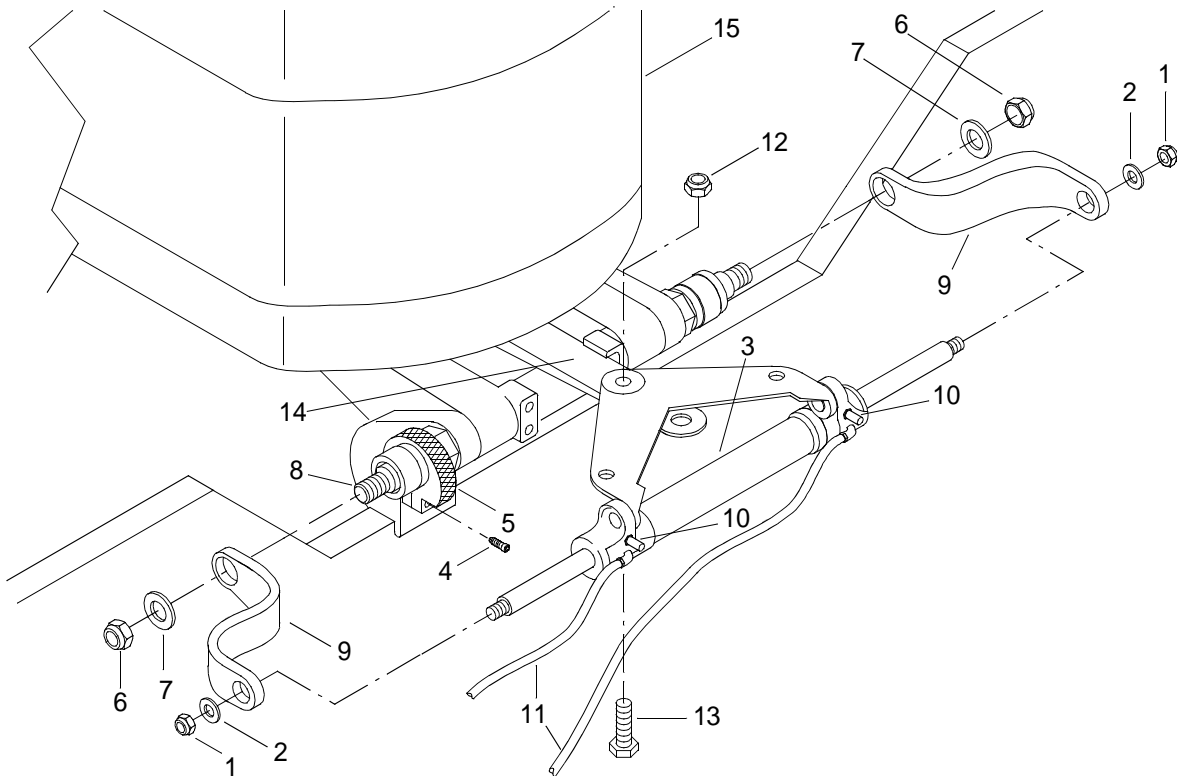
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB STEERING CYLINDER

1. Remove nylok nut (1) and flat washer (2) on both piston ends of the cylinder (3).



- Loosen hexagon set screw (4) on adjusting nut (5) and turn adjusting nut (5) clockwise to allow for free play.
- Remove nylok nuts (6) and washers (7) on both ends of support rod (8).
- Remove support brackets (9).
- Position drain pan under cylinder (3).

WARNING

**CHEMICAL****EYE PROTECTION**

- Open both bleed nipples (10) on cylinder (3) to relieve pressure and drain oil.
- Remove two power steering hoses (11) from cylinder (3) and allow fluid to drain into drain pan.
- Remove nylok nut (12) and tiller bolt (13) securing cylinder (3) to tiller arm (14).
- Remove cylinder (3).

WARNING

**CHEMICAL****EYE PROTECTION**

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

INSTALL THE STEERING CYLINDER

- Position cylinder (3) on tiller arm (14) and secure with tiller bolt (13) and nylok nut (12). Tighten nylok nut (12).
- Position support brackets (9) over ends of support rod (8) and piston ends of cylinder (3).
- Install flat washers (7) and nylok nuts (6) on ends of the support rod (8). Tighten nylok nuts (6).
- Install flat washers (2) and nylok nuts (1) on piston ends of cylinder (3). Tighten nylok nuts (1).
- Manually position engine (15) to amidships.
- Turn adjusting nut (5) counterclockwise until snug against starboard support bracket (9) to eliminate free play.
- Tighten hexagon set screw (4) to lock adjusting nut (5).
- Install the two power steering hoses (11) on the cylinder (3). Tighten fittings.
- Service RHIB power steering reservoir. (WP 0260 00)

10. Install RHIB battery negative lead terminal. (WP 0336 00)

WARNING



CHEMICAL



EYE PROTECTION



SLICK FLOOR

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

12. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT STEERING ROD, TILT TUBE
AND SUPPORT BRACKET HOLES
LUBRICATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

Grease, Ball and Roller Bearing (lithium soap) (Item 24, WP 0358 00)

Personnel Required

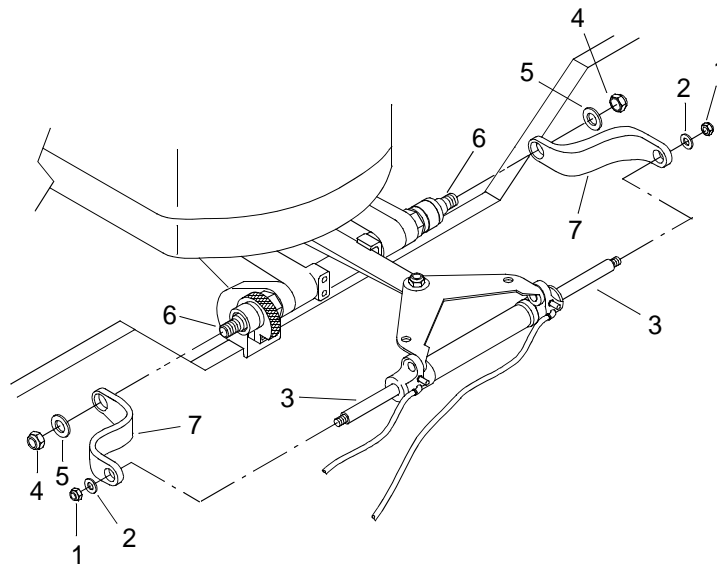
Engineer 88L

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

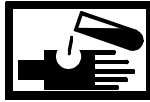
LUBRICATE RHIB STEERING ROD, TILT TUBE AND SUPPORT BRACKET HOLES

1. Remove two nylok nuts (1) and flat washers (2) from steering rod (3).



2. Remove two nylok nuts (4) and flat washers (5) from tilt tube (6).
3. Remove two support brackets (7) from steering rod (3) and tilt tube (6).

WARNING

**CHEMICAL**

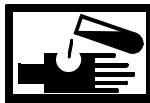
4. Apply ball and roller bearing grease to holes in two support brackets (7).

WARNING

**CHEMICAL**

5. Apply ball and roller bearing grease to threaded ends of tilt rod (6).

WARNING

**CHEMICAL**

6. Apply ball and roller bearing grease to threaded ends of steering rod (3).
7. Position two support brackets (7) on tilt tube (6) and steering rod (3).
8. Install two flat washers (5) and nylok nuts (4) on tilt tube (6). Tighten nylok nuts (4).
9. Install two flat washers (2) and nylok nuts (1) on steering rod (3). Tighten nylok nuts (1).
10. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT STEERING SYSTEM HELM PUMP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Wrench, Torque (10-250 in. lbs) (Item 90, WP 0359 00)

Materials/Parts

Helm Unit
(38915)
PN S-H-49979-5

Personnel Required

Engineer 88L

References

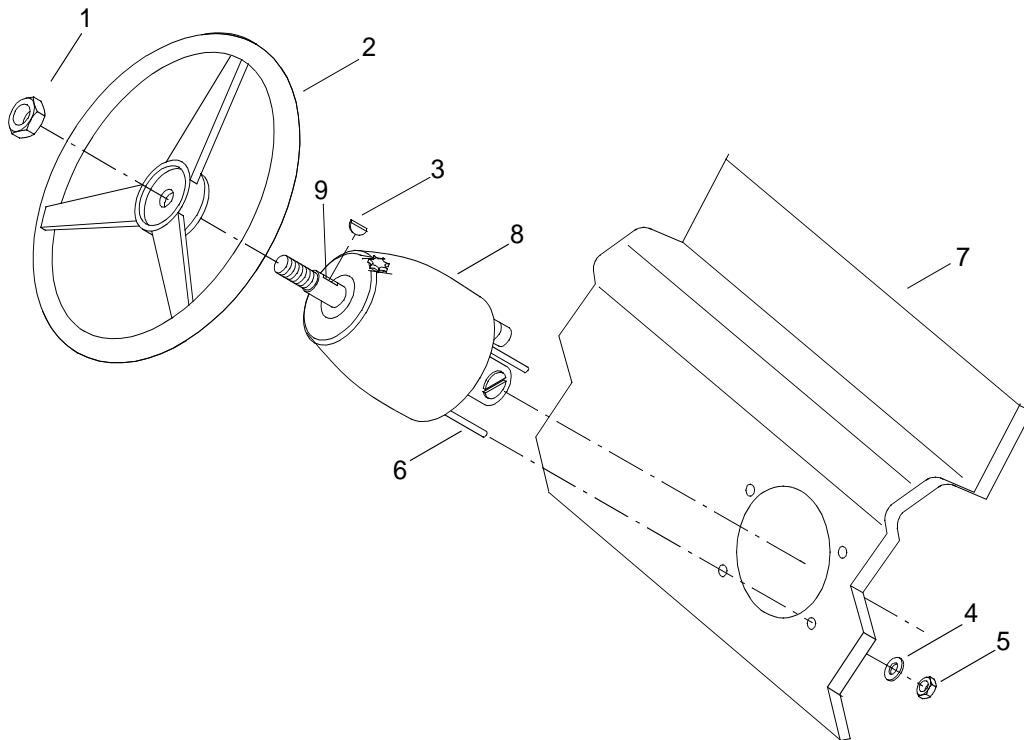
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Power Steering System Hoses Removed. (WP 0261 00)

REMOVE RHIB STEERING SYSTEM HELM PUMP

1. Remove steering wheel shaft nut (1).



2. Remove steering wheel (2).
3. Remove and retain the woodruff key (3).
4. Remove the four lock nuts (4) and washers (5) from the studs (6) under control console (7).
5. Remove the helm pump (8) and discard.

INSTALL RHIB STEERING SYSTEM HELM PUMP

1. Align the studs (6) of new helm pump (8) with holes in the control console (7).
2. Install four washers (5) and nuts (4) on studs (6). Tighten nuts (4).
3. Place woodruff key (3) in the groove of steering wheel shaft (9).
4. Install steering wheel (2).
5. Install steering wheel shaft nut (1).
6. Torque nut (1) to 150 in. lbs (16.9 N-m).
7. Install RHIB power steering system hoses. (WP 0261 00)
8. Install RHIB battery negative lead terminal. (WP 0336 00)
9. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT STEERING CYLINDER
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

Gland, Seal
(3AD06)
PN 797021
Cleaner, Type II (Item 9, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

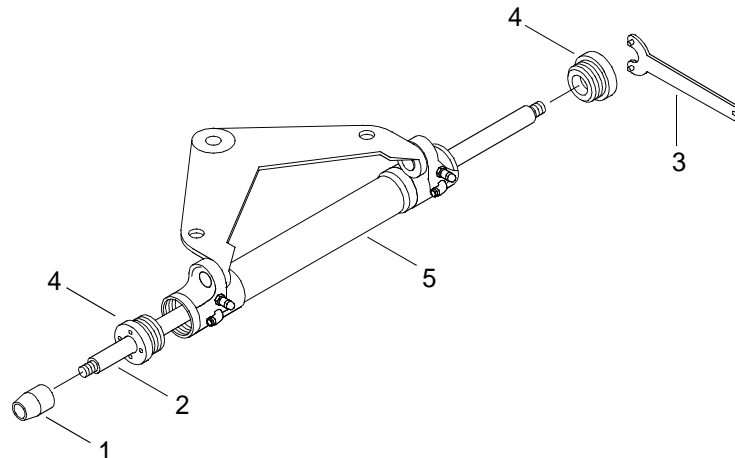
Engineer 88L

DISASSEMBLE RHIB STEERING CYLINDER**NOTE**

The seal kit contains all necessary parts and tools for repairing the steering cylinder.

Repair is limited to the replacement of damaged components. The following procedure is typical for the replacement of both seal glands.

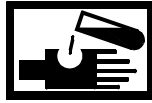
1. Thread seal gland assembly guide tool (1) (provided with the gland seal) on end of the piston rod (2) finger-tight by turning clockwise.



2. Using pin wrench (3), remove seal gland (4) from steering cylinder (5) by turning counterclockwise.
3. Discard seal gland (4).

CLEAN RHIB STEERING CYLINDER

WARNING



CHEMICAL



EYE PROTECTION

1. Using wiping rags soaked with cleaner, remove debris from cylinder.

WARNING



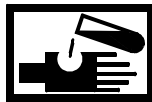
CHEMICAL



EYE PROTECTION

2. Using wiping rags soaked with cleaner, remove debris from piston and cylinder threads.

WARNING



CHEMICAL



EYE PROTECTION

3. Dispose of contaminated rags in accordance with local procedures.

INSPECT RHIB STEERING CYLINDER

1. Inspect piston and cylinder for stripped thread. If found, replace cylinder.
2. Inspect steering cylinder body for corrosion or damage. If found, replace cylinder.

ASSEMBLE RHIB STEERING CYLINDER

1. Position new seal gland (4) on piston rod (2).
2. Tighten seal gland (4) into steering cylinder (5) with pin wrench (3) by turning clockwise.
3. Remove the seal gland assembly guide tool (1) from end of piston rod (2) by turning counterclockwise.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT THROTTLE CONTROL HORN
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Horn, Signal
(38915)
NSN 6350-01-448-1226
PN H-E-20040
Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)
Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)

Personnel Required

Engineer 88L

References

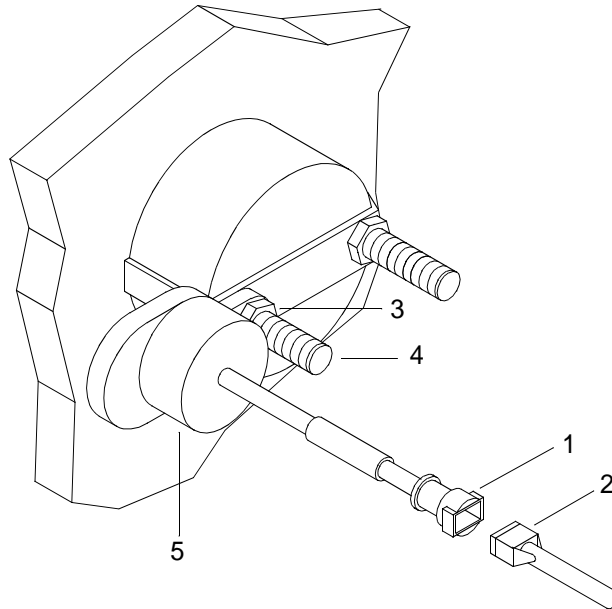
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB THROTTLE CONTROL HORN

1. On rear of instrument panel, separate the throttle control horn receptacle (1) from the instrument cable plug (2) by pulling apart.

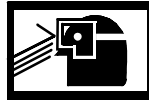


2. Remove nut (3) from gage post (4).
3. Remove and discard any interfering tiedown straps.
4. Remove throttle control horn (5) from gauge post (4) and discard throttle control horn (5).

INSTALL RHIB THROTTLE CONTROL HORN

1. Position new throttle control horn (5) on gauge post (4).
2. Install nut (3) on gauge post (4). Tighten nut (3).

WARNING

**CHEMICAL****EYE PROTECTION**

3. Coat the instrument cable plug (2) with grease.
4. Insert the instrument cable plug (2) into the throttle control horn receptacle (1).
5. Press the instrument cable plug (2) and throttle control horn receptacle (1) firmly together.
6. Secure wire bundle in place with tiedown straps as required.
7. Install RHIB battery negative lead terminal. (WP 0336 00)
8. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT THROTTLE CONTROL CABLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Cable, Control
(38915)
PN C-C-10109-2
Grease, Outboard Motor (Item 28, WP 0358 00)
Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L (2)

References

TM 55-1945-205-10-2

Equipment Condition

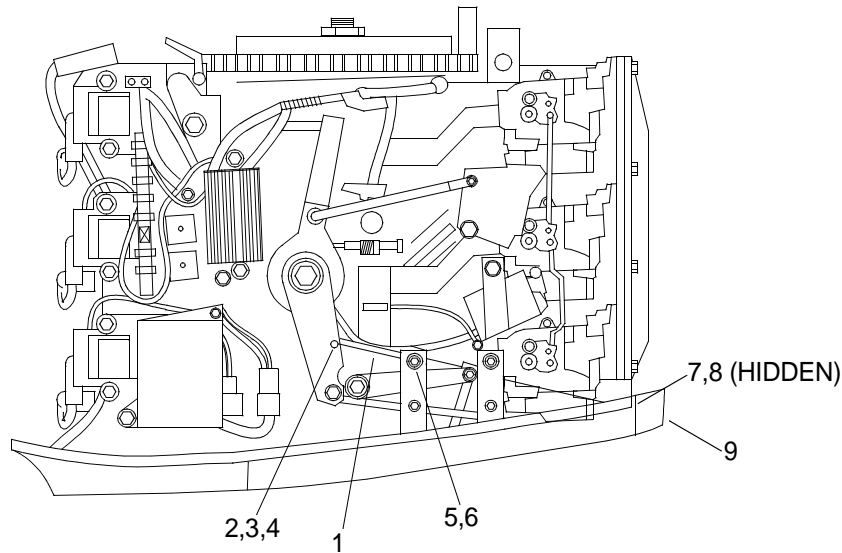
RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)
RHIB Throttle and Shift Control Assembly Removed. (WP 0269 00)

REMOVE RHIB THROTTLE CONTROL CABLE**NOTE**

Refer to TM 55-1945-205-10-2 for throttle and shift control
assembly operation.

Both the throttle and shift control assembly and the engine gearcase must be in neutral
positions prior to removal of the throttle control cable.

1. Remove throttle control cable (1) from engine.



- a. Remove lock nut (2) and washer (3) from throttle lever pin (4).
- b. Remove throttle control cable (1) from throttle lever pin (4).
- c. Remove throttle control cable (1) from cable retainer (5) by removing screw (6).

CAUTION

The shift control cable is secured by the rubber grommet near the throttle control cable. Care must be given to ensure the shift control cable is not damaged during grommet removal.

- d. Remove rubber grommet (7) from anchor block pocket (8) on front of lower engine cover (9).
 - e. Remove throttle control cable (1) from rubber grommet (7).
 - f. Return rubber grommet (7) to anchor block pocket (8).
2. Remove and discard all in line tiedown straps.
 3. Remove and retain all in line wire bundle clamps.
 4. Remove throttle control cable (1) and discard.

INSTALL RHIB THROTTLE CONTROL CABLE

NOTE

Both the throttle and shift control assembly and the engine gearcase must be in neutral positions prior to installation of the throttle control cable.

1. Lay out new throttle control cable (1) between operators console and engine, providing a slack area in front of the engine to allow for engine movement.
2. Install RHIB throttle and shift control assembly. (WP 0269 00)
3. Install throttle control cable (1) on the engine.

-
- a. Verify fast idle lever is down in RUN position.
 - b. Move throttle and shift control handle to the REVERSE position to fully extend throttle control cable (1).

WARNING



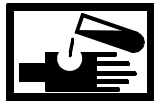
CHEMICAL



EYE PROTECTION

- c. Apply grease to extended cable portion of throttle control cable (1).
- d. Return the throttle and shift control handle to NEUTRAL position to ensure throttle control cable (1) is extended to installation length.
- e. Remove rubber grommet (7) from anchor block pocket (8) on front of lower engine cover (9).
- f. Place throttle control cable (1) in the rubber grommet (7).

WARNING



CHEMICAL



EYE PROTECTION

- g. Apply grease to anchor block pocket (8).
 - h. Install rubber grommet (7) and throttle cable (1) in anchor block pocket (8).
 - i. Position throttle control cable (1) on cable retainer (5) and loosely install with screw (6).
 - j. Adjust RHIB engine throttle control rigging. (WP 0272 00)
4. Install all in line wire bundle clamps and tiedown straps.
 5. Install RHIB engine cover. (WP 0297 00)
 6. Install RHIB battery negative lead terminal. (WP 0336 00)
 7. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT SHIFT CONTROL CABLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Cable, Control
(38915)
PN C-C-10109-2
Grease, Outboard Motor (Item 28, WP 0358 00)
Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L (2)

References

TM 55-1945-205-10-2

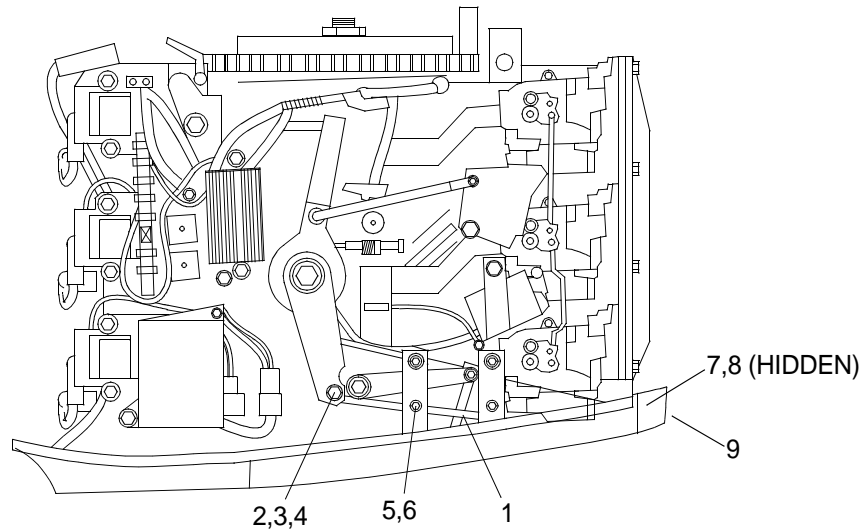
Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)
RHIB Throttle and Shift Control Assembly Removed. (WP 0269 00)

REMOVE RHIB SHIFT CONTROL CABLE**NOTE**

Both the throttle and shift control assembly and the engine gearcase must be in neutral positions prior to removal of the shift control cable.

1. Remove shift control cable (1) from engine.



- a. Remove lock nut (2) and washer (3) from shift lever pin (4).
- b. Remove shift control cable (1) from shift lever pin (4).
- c. Remove shift control cable (1) from cable retainer (5) by removing screw (6).

CAUTION

The throttle control cable is secured by the rubber grommet near the shift control cable. Care must be given to ensure the throttle control cable is not damaged during grommet removal.

- d. Remove rubber grommet (7) from anchor block pocket (8) on front of lower engine cover (9).
 - e. Remove shift control cable (1) from rubber grommet (7).
 - f. Return rubber grommet (7) to anchor block pocket (8).
2. Remove and discard all in line tiedown straps.
 3. Remove and retain all in line wire bundle clamps.
 4. Remove shift control cable (1) and discard.

INSTALL RHIB SHIFT CONTROL CABLE

NOTE

Both the throttle and shift control assembly and the engine gearcase must be in neutral positions prior to installation of the shift control cable.

1. Lay out new shift control cable (1) between operators console and engine, providing a slack area in front of the engine to allow for engine movement.
2. Install RHIB throttle and shift control assembly. (WP 0269 00)
3. Install shift control cable (1) on the engine.

-
- a. Verify fast idle lever is down in RUN position.
 - b. Move throttle and shift control handle to the REVERSE position to fully extend shift control cable (1).

—————
WARNING
—————



CHEMICAL



EYE PROTECTION

- c. Apply grease to extended cable portion of shift control cable (1).
- d. Move the throttle and shift control handle to FORWARD position to ensure shift control cable (1) is extended to installation length.
- e. Remove rubber grommet (7) from anchor block pocket (8) on front of lower engine cover (9).
- f. Place shift control cable (1) in the rubber grommet (7).

—————
WARNING
—————



CHEMICAL



EYE PROTECTION

- g. Apply grease to anchor block pocket (8).
 - h. Install rubber grommet (7) and shift cable (1) in anchor block pocket (8).
 - i. Adjust RHIB engine control rigging. (WP 0272 00)
4. Install all in line wire bundle clamps and tiedown straps.
 5. Install RHIB engine cover. (WP 0297 00)
 6. Install RHIB battery negative lead terminal. (WP 0336 00)
 7. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT THROTTLE AND
SHIFT CONTROL ASSEMBLY
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Wrench, Torque (0-175 ft lbs) (Item 87, WP 0359 00)

Materials/Parts

Grease, Outboard Motor (Item 28, WP 0358 00)
 Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)
 Gasket Forming, Compound, (Item 19, WP 0358 00)
 Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L (2)

References

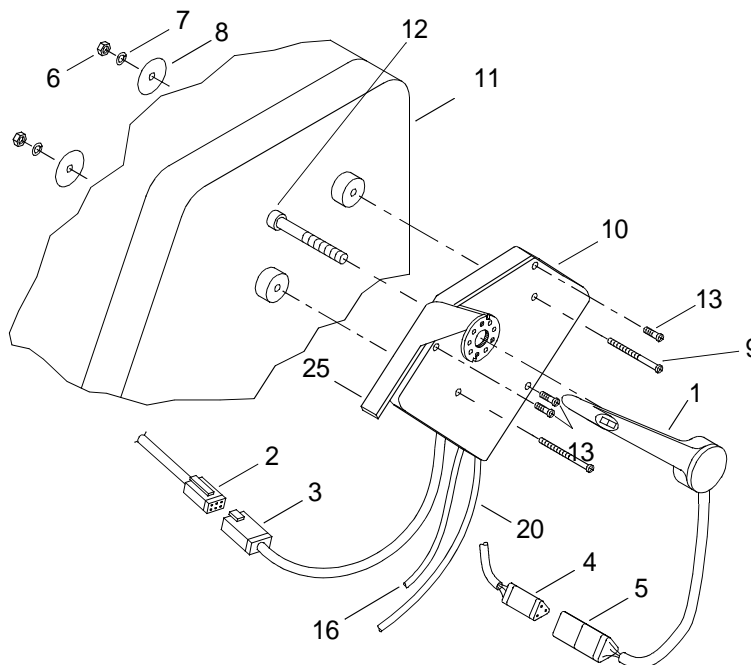
TM 55-1945-205-10-2

Equipment Condition

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB THROTTLE AND SHIFT CONTROL ASSEMBLY

1. Place throttle handle (1) in neutral (handle perpendicular to the housing).

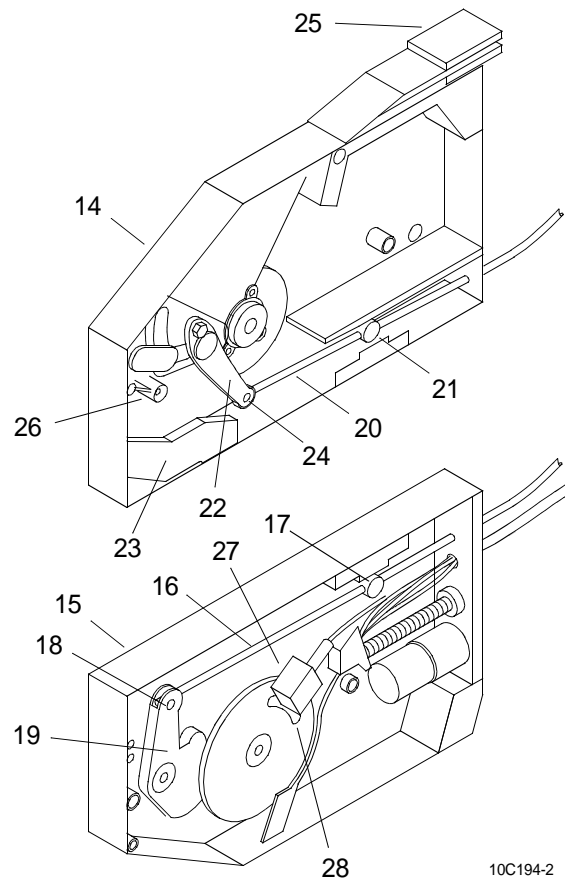


2. Carefully separate six-socket plug (2) from its control receptacle (3).
3. Carefully separate three-socket plug (4) from its control receptacle (5).
4. Cut tiedown straps as necessary to facilitate removal of control cabling.
5. Remove two nuts (6), lock washers (7), flat washers (8) and control mounting screws (9) securing control assembly (10) to starboard side of the RHIB control housing (11).
6. From the inboard side of control assembly (10), loosen throttle handle allen head screw (12).
7. Place a small tap punch against the allen head screw (12) and using a hammer, gently tap throttle handle (1) loose from outboard side of the control assembly (10).
8. Remove throttle handle screw (12).
9. Remove throttle handle (1).
10. Remove three assembly screws (13) holding control assembly (10) halves together.

CAUTION

Carefully separate sealed housing halves. Failure to comply could result in equipment damage.

11. Separate control assembly housing (14) from control assembly cover (15).



10C194-2

12. Remove shift control cable (16) from cable trunnion (17).
13. Remove drop pin (18) securing shift control cable (16) to shift lever (19).
14. Remove control assembly housing (14).
15. Remove throttle control cable (20) from cable trunnion (21).
16. Carefully slide throttle lever (22) backwards from beneath plastic separator plate (23).
17. Remove drop pin (24) securing throttle control cable (20) to throttle lever (22).
18. Remove control assembly cover (15).

INSTALL RHIB THROTTLE AND SHIFT CONTROL ASSEMBLY

1. Place new control assembly housing (14) on a flat surface.
2. Ensure the fast idle lever (25) is flush against the control assembly housing (14).

CAUTION

Do not remove the plastic separator plate. Failure to comply could cause the control cable drop pins to fall out and jam the control assembly.

3. Slide the throttle lever (22) out from under the plastic separator plate (23).

WARNING



CHEMICAL



EYE PROTECTION

4. Apply outboard motor grease to throttle control cable (20).
5. Place the throttle control cable (20) eye between halves of throttle lever (22).

WARNING



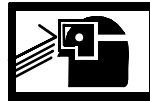
CHEMICAL



EYE PROTECTION

6. Apply outboard motor grease to drop pin (24).
7. Install drop pin (24) to secure throttle control cable (20) to throttle lever (22).

WARNING

**CHEMICAL****EYE PROTECTION**

8. Apply outboard motor grease to cable trunnion (21).
9. Press throttle control cable (20) into cable trunnion (21).

NOTE

The throttle lever must be against its forward position prior to assembling the control assembly halves.

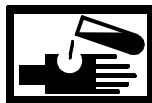
10. Push throttle lever (22) forward beneath the separator (23) against stop (26).
11. Place new control assembly cover (15) on a flat surface.

WARNING

**CHEMICAL****EYE PROTECTION**

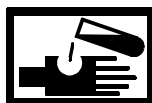
12. Apply outboard motor grease to shift control cable (16).
13. Place the shift control cable (16) eye between the halves of shift lever (19).

WARNING

**CHEMICAL****EYE PROTECTION**

14. Apply outboard motor grease to drop pin (18).
15. Install drop pin (18) to secure shift control cable (16) to shift lever (19).

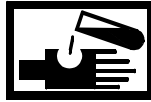
WARNING

**CHEMICAL****EYE PROTECTION**

16. Apply outboard motor grease to cable trunnion (17).
17. Press shift control cable (16) into cable trunnion (17).

18. Place shift lever (19) in neutral and the neutral start switch (27) in the center of the neutral start cam (28).

WARNING



CHEMICAL

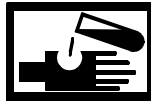
19. Apply a thin bead of gasket compound on the outer lips of both control assembly halves (14 and 15).

CAUTION

Do not turn the cover half over. Failure to comply could cause the shift cable drop pin to fall out and jam the control assembly.

20. With the control assembly cover (15) flat, place control assembly cover (14) on top.
21. Press control assembly halves (14 and 15) firmly together.

WARNING



CHEMICAL

22. Use wiping rag to remove any excessive silicone.

WARNING



CHEMICAL



EYE PROTECTION

23. Apply outboard motor grease to three assembly screws (13).
24. Install three assembly screws (13) into control assembly halves (14 and 15).
25. Torque assembly screws (13) to 40 - 50 in. lb (4.5 - 5.6 N-m).
26. Place throttle handle (1) on control assembly (10) in the neutral position.
27. Install throttle handle screw (12).
28. Torque the screw (12) to 50 - 60 in. lb (5.6 - 6.8 N-m).
29. Position control assembly (10) on starboard side of the RHIB control housing (11).
30. Install two control mounting screws (9) through control assembly (10) and into control housing (11).
31. Install two flat washers (8), lock washers (7) and nuts (6) on mounting screws (9). Tighten nuts (6).

WARNING

**CHEMICAL****EYE PROTECTION**

32. Apply electrical grease to three-socket plug (4) rubber seals.
33. Connect control receptacle (5) to three-socket plug (4).

WARNING

**CHEMICAL****EYE PROTECTION**

34. Apply electrical grease to six-socket plug (3) rubber seals.
35. Connect control receptacle (3) to six-socket plug (2).
36. Install tiedown straps as necessary.
37. Install RHIB battery negative lead terminal. (WP 0336 00)
38. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT THROTTLE AND SHIFT CONTROL ASSEMBLY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Wrench, Torque (10-250 in. lb) (Item 90, WP 0359 00)

Materials/Parts

Control, Side Mount
 (38915)
 PN E-O-13156
 Grease, Outboard Motor (Item 28, WP 0358 00)
 Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)
 Compound, Gasket Forming (Item 19, WP 0358 00)
 Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L (2)

References

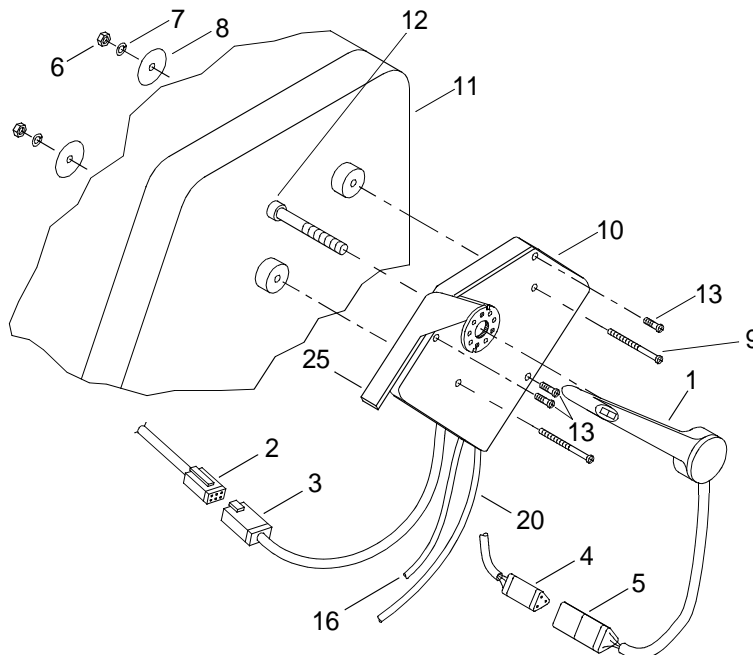
TM 55-1945-205-10-2

Equipment Condition

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB THROTTLE AND SHIFT CONTROL ASSEMBLY

1. Place the throttle handle (1) in neutral (handle perpendicular to the housing).

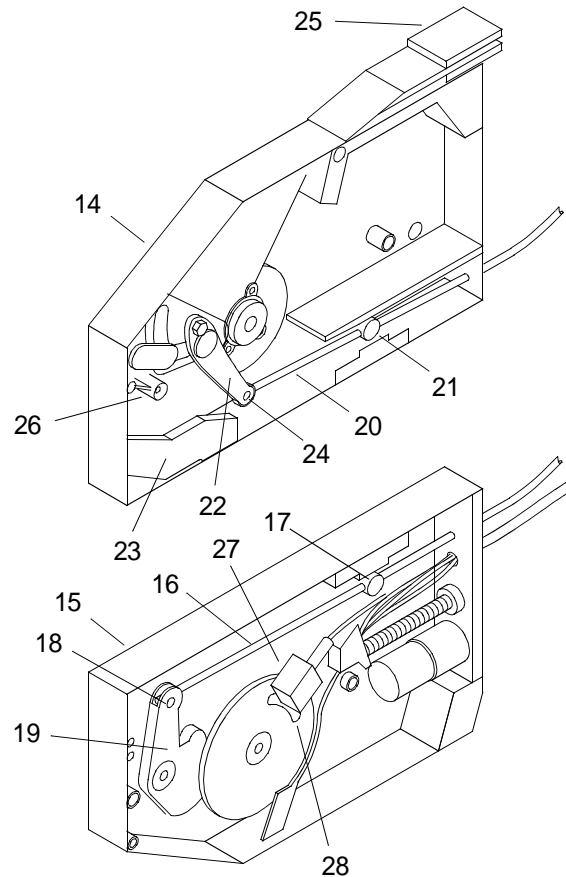


2. Carefully separate six-socket plug (2) from its control receptacle (3).
3. Carefully separate three-socket plug (4) from its control receptacle (5).
4. Cut tiedown straps as necessary to facilitate removal of control cabling.
5. Remove two nuts (6), lock washers (7), flat washers (8) and control mounting screws (9) securing control assembly (10) to starboard side of RHIB control housing (11).
6. From the inboard side of control assembly (10), loosen throttle handle allen head screw (12).
7. Place a small tap punch against the allen head screw (12) and using a hammer, gently tap throttle handle (1) loose from outboard side of the control assembly (10).
8. Remove throttle handle screw (12).
9. Remove throttle handle (1).
10. Remove three assembly screws (13) holding the control assembly (10) halves together.

CAUTION

Carefully separate sealed housing halves. Failure to comply could result in equipment damage.

11. Separate control assembly housing (14) from control assembly cover (15).



12. Remove shift control cable (16) from cable trunion (17).
13. Remove drop pin (18) securing shift control cable (16) to shift lever (19).
14. Remove control assembly housing (14).
15. Remove throttle control cable (20) from cable trunion (21).
16. Carefully slide throttle lever (22) out from under the plastic separator plate (23).
17. Remove drop pin (24) securing throttle control cable (20) to throttle lever (22).
18. Remove control assembly cover (15).

INSTALL RHIB THROTTLE AND SHIFT CONTROL ASSEMBLY

1. Place new control assembly housing (14) on a flat surface.
2. Ensure the fast idle lever (25) is flush against the control assembly housing (14).

CAUTION

Do not remove the plastic separator plate. Failure to comply could cause the control cable drop pins to fall out and jam the control assembly.

3. Slide the throttle lever (22) out from under the plastic separator plate (23).

WARNING



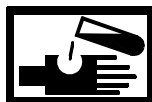
CHEMICAL



EYE PROTECTION

4. Apply outboard motor grease to throttle control cable (20).
5. Place the throttle control cable (20) eye between the halves of throttle lever (22).

WARNING



CHEMICAL



EYE PROTECTION

6. Apply outboard motor grease to drop pin (24).
7. Install drop pin (24) to secure throttle control cable (20) to throttle lever (22).

WARNING

**CHEMICAL****EYE PROTECTION**

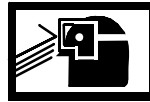
8. Apply outboard motor grease to cable trunnion (21).
9. Press the throttle control cable (20) into cable trunnion (21).

NOTE

The throttle lever must be against its forward position prior to assembling the control assembly halves.

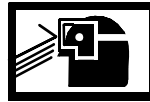
10. Push the throttle lever (22) out from under the separator (23) against stop (26).
11. Place new control assembly cover (15) on a flat surface.

WARNING

**CHEMICAL****EYE PROTECTION**

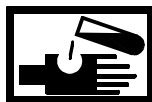
12. Apply outboard motor grease to shift control cable (16).
13. Place the shift control cable (16) eye between halves of the shift lever (19).

WARNING

**CHEMICAL****EYE PROTECTION**

14. Apply outboard motor grease to drop pin (18).
15. Install drop pin (18) to secure shift control cable (16) to shift lever (19).

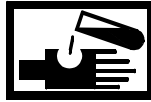
WARNING

**CHEMICAL****EYE PROTECTION**

16. Apply outboard motor grease to shift control cable trunnion (17).
17. Press shift control cable (16) into cable trunnion (17).

18. Place shift lever (19) in neutral and the neutral start switch (27) in the center of the neutral start cam (28).

WARNING



CHEMICAL

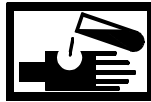
19. Apply a thin bead of gasket compound on the outer lips of both control assembly halves (14 and 15).

CAUTION

Do not turn the cover half over. Failure to comply could cause the shift cable drop pin to fall out and jam the control assembly.

20. With the control assembly cover (15) flat, place control assembly cover (14) on top.
21. Press control assembly halves (14 and 15) firmly together.

WARNING



CHEMICAL

22. Use wiping rag to remove any excessive silicone.

WARNING



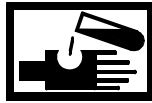
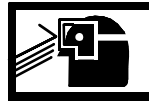
CHEMICAL



EYE PROTECTION

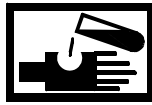
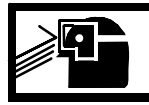
23. Apply grease to the three assembly screws (13).
24. Install three assembly screws (13) into control assembly halves (14 and 15) together.
25. Torque assembly screws (13) to 40 - 50 in. lb (4.5 - 5.6 N-m).
26. Place throttle handle (1) on control assembly (10) in the neutral position.
27. Install throttle handle screw (12).
28. Torque the screw (12) to 50 - 60 in. lb (5.6 - 6.8 N-m).
29. Position control assembly (10) on starboard side of the RHIB control housing (11).
30. Install two control mounting screws (9) through control assembly (10) and into control housing (11).
31. Install two flat washers (8), lock washers (7) and nuts (6) on mounting screws (9). Tighten nuts (6).

WARNING

**CHEMICAL****EYE PROTECTION**

32. Apply electrical grease to three-socket plug (4) rubber seals.
33. Connect control receptacle (5) to three-socket plug (4).

WARNING

**CHEMICAL****EYE PROTECTION**

34. Apply electrical grease to six-socket plug (3) rubber seals.
35. Connect control receptacle (3) to six-socket plug (2).
36. Install tiedown straps as necessary.
37. Install RHIB battery negative lead terminal. (WP 0336 00)
38. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT THROTTLE SYNCHRONIZATION
AND LINKAGE
ADJUSTMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Stop, Piston (OMC) (Item 73, WP 0359 00)
Drum, Shipping and Storage (Test Tank) (Item 17, WP 0359 00)

Personnel Required

Engineer 88L (2)

References

TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)
RHIB Engine Air Silencer Removed. (WP 0314 00)

ADJUST THROTTLE SYNCHRONIZATION AND LINKAGE**SET TIMING POINTER****NOTE**

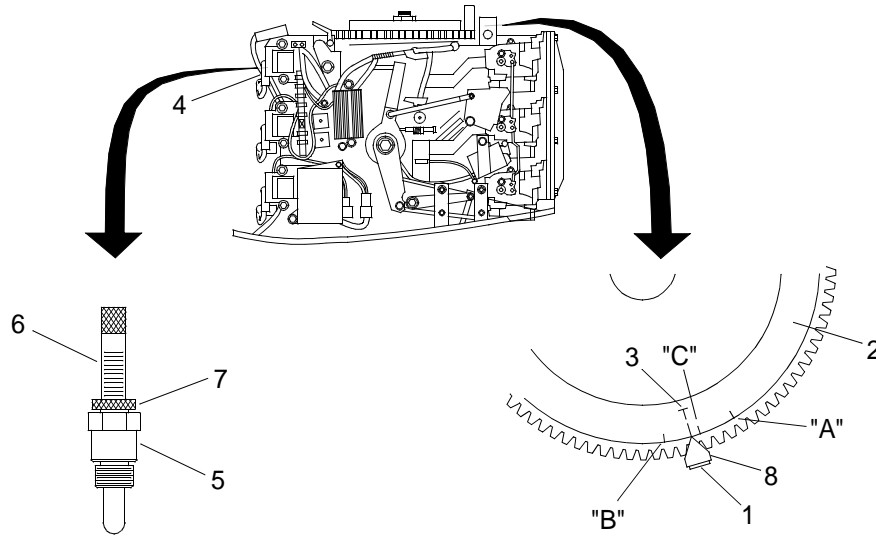
Refer to TM 55-1945-205-10-2 for throttle and shift control assembly and engine operation.

The flywheel has two timing grids. Use the second timing grid when rotating the flywheel in the clockwise direction.

If the timing pointer or intake manifold have been disturbed, check the Top Dead Center (TDC) timing pointer alignment.

1. Remove RHIB throttle control cable. (WP 0267 00)

2. Center timing pointer (1).

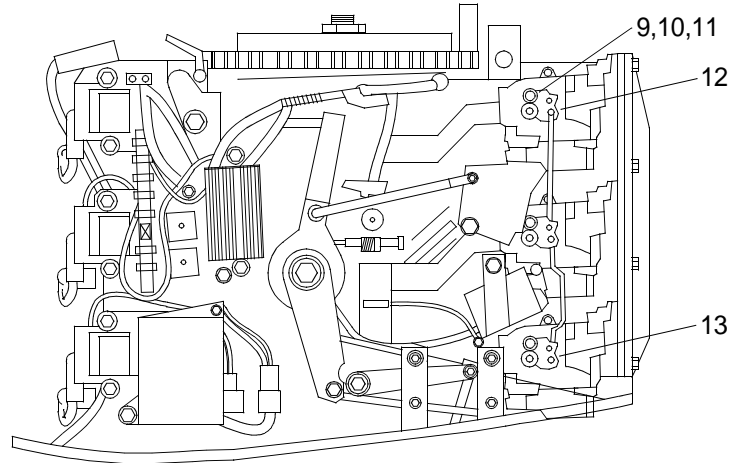


3. Rotate flywheel (2) clockwise until cast-in T mark (3) is approximately 1½ in. (4 cm) past timing pointer (1)
4. Remove spark plug from #1 cylinder (4). (WP 0307 00)
5. Install piston stop (5) in #1 spark plug hole (4).
6. Turn center portion (6) until piston stop (5) contacts #1 piston.
7. Lock piston stop (5) in place with ring (7).
8. Hold flywheel (2) firmly against piston stop (5) and apply pencil mark (A) to flywheel (2) directly across from the timing pointer (1).
9. Continue to turn flywheel (2) clockwise until piston contact is again felt against piston stop (5).
10. Use a pencil and apply mark (B) to flywheel (2) directly across from timing pointer (1).
11. Remove piston stop (5).
12. Install spark plug into #1 cylinder (4). (WP 0336 00)
13. Using a scale, measure along the side of the flywheel (2) between A and B, determining the midpoint, and apply a pencil mark (C).
14. If the T mark (3) and C are in the same location, the timing pointer (1) is aligned correctly.
15. If the T mark (3) and C are not in the same location, turn the flywheel (2) to align the C mark with the timing pointer (1).
16. Loosen screw (8) on timing pointer (1) to allow timing pointer (1) to be moved to T mark (3) on flywheel (2). Tighten screw (8).

SYNCHRONIZE THROTTLE PLATE**NOTE**

Do not allow the cam follower to contact the throttle cam during this procedure.

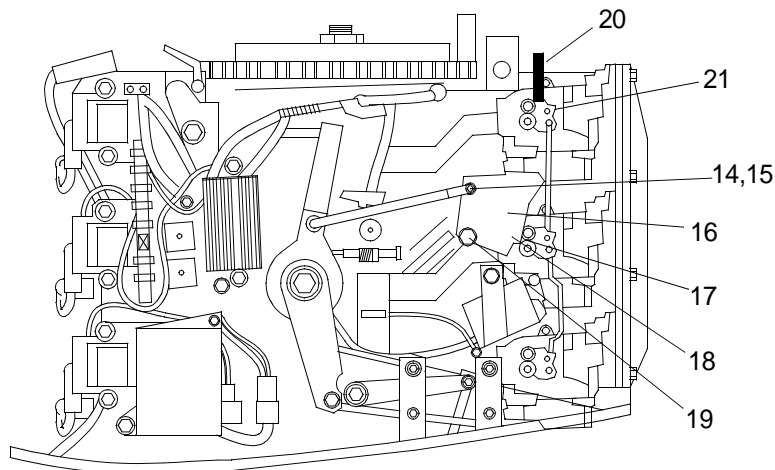
1. Loosen cam follower screw (9) and push cam follower (10) away from the throttle cam (11).



2. Loosen upper carburetor linkage screw (12) and lower carburetor linkage screw (13).
3. Verify all throttle plates are closed.
4. While lightly applying upwards pressure to adjusting link tabs (13), tighten the lower (10) then the upper (11) carburetor linkage screws.

ADJUST CAM FOLLOWER PICKUP

1. Snap throttle link coupler shell (14) off throttle cam ball (15).

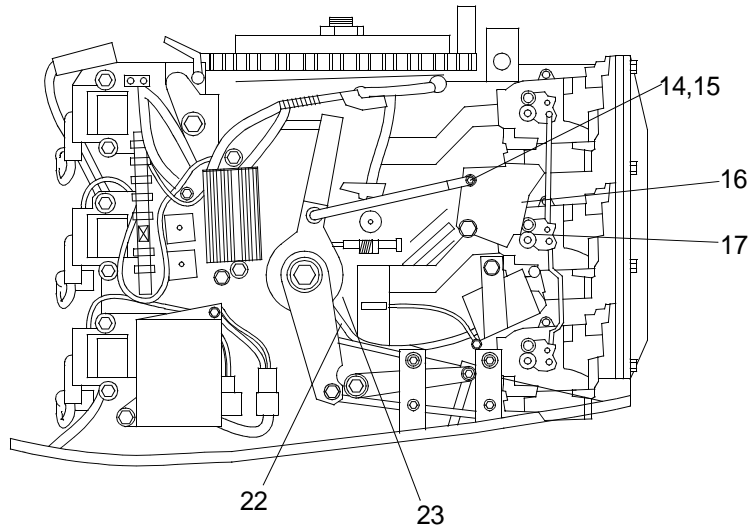


2. While holding cam follower (16) against throttle cam (17), move throttle cam (17) until embossed mark (18) on throttle cam (17) aligns with center of cam follower (16).
3. Tighten cam follower screw (19).

4. Connect throttle shaft (20) to top carburetor shaft plate (21).
5. While advancing throttle cam (17), embossed mark (18) on throttle cam (17) should align with center of cam follower (16) as tip of throttle shaft (20) begins to move.

ADJUST THROTTLE CAM

1. Install throttle control cable. (WP 00283 00)
2. Verify throttle arm (22) is firmly against idle stop (23).



3. Hold throttle link coupler shell (14) on throttle cam ball (15) with light pressure.
4. Rotate cam follower (16) and inspect/adjust clearance between cam follower (16) and throttle cam (17).
 - a. Adjustment is correct if cam follower (16) does not touch throttle cam (17) and clearance is less than 0.010 in. (0.025 cm), adjustment is correct.
 - b. If adjustment is not correct, turn throttle link coupler shell (14) further onto link to increase clearance.
 - c. Turn throttle link coupler shell (14) away from link to decrease clearance.
 - d. When proper clearance is achieved, snap throttle link coupler shell (14) on throttle cam ball (15).
5. Test adjusted clearance by raising and lowering fast idle lever on throttle and shift control assembly. (TM 55-1945-205-10-2)
6. Verify throttle arm (22) is firmly against idle stop (23) and cam follower (16) to throttle cam (17) clearance is less than 0.010 in. (0.025 cm).

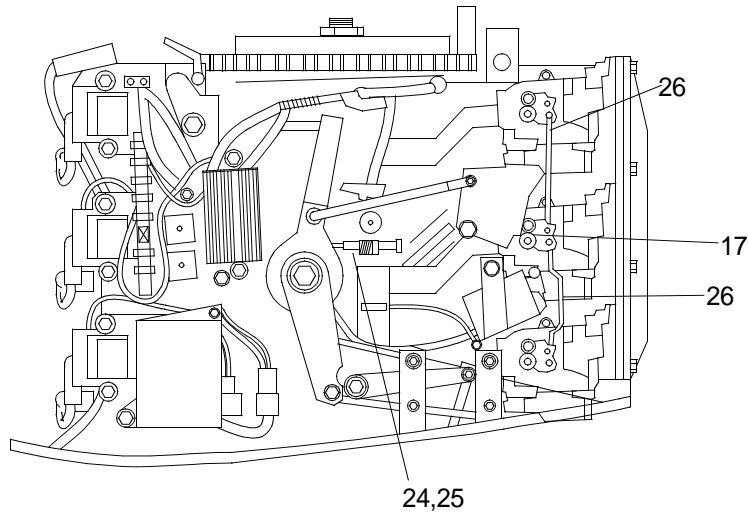
ADJUST WIDE-OPEN THROTTLE STOP

1. Move throttle and shift control lever to wide-open position. (TM 55-1945-205-10-2)

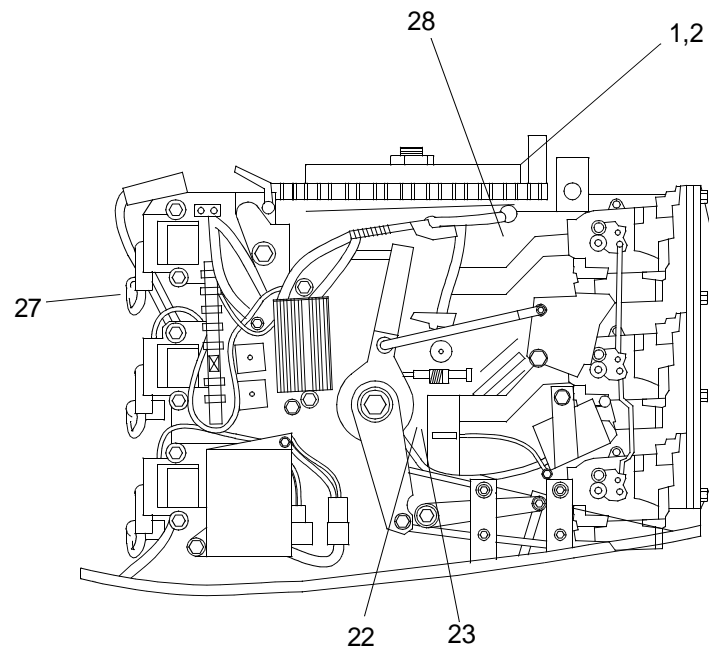
CAUTION

The roll pins must not go past vertical to prevent damage to equipment.

2. Adjust wide-open stop screw (24) so roll pins (25) in carburetor shafts (26) are vertical.

**ADJUST IDLE TIMING**

1. Install RHIB battery negative lead terminal. (WP 0336 00)
2. Place engine in test tank.
3. Connect timing light to the #1 cylinder spark plug lead (27).



WARNING

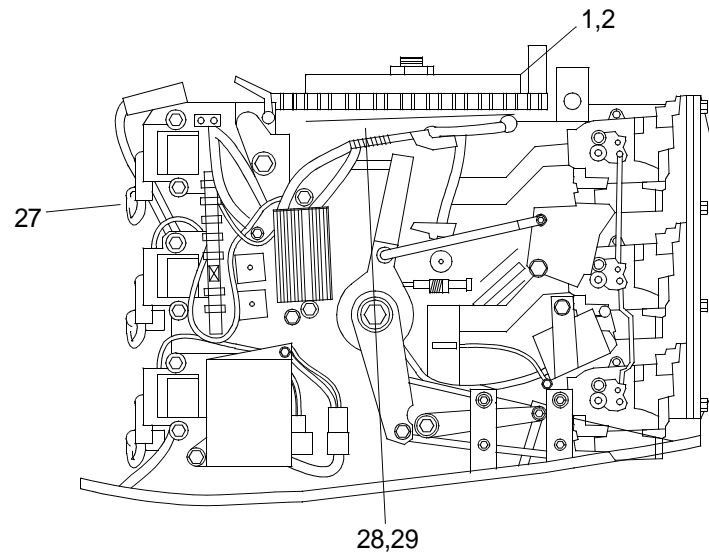
**MOVING PARTS****NOTE**

This procedure provides the best idle characteristics while allowing engine idle speeds in gear ranging from 750-850 RPM, depending on propeller selection.

4. Start engine and allow to warm to normal operating temperature. (TM 55-1945-205-10-2)
5. Shift throttle and shift control lever into forward.
6. On the engine, verify throttle arm (22) is against idle stop (23).
7. Verify engine timing pointer (1) is aligned with 4° ATDC (After Top Dead Center) mark on flywheel (2).
8. Shut down RHIB engine. (TM 55-1945-205-10-2)
9. Turn idle adjusting screw (28) in or out, as necessary, to correct timing.
 - a. Turn idle adjusting screw (28) clockwise to advance timing.
 - b. Turn idle adjusting screw (28) counterclockwise to retard timing.
10. Repeat steps 4 through 9.
11. If idle speed is still too high, check induction system for air leaks.
12. If idle speed is too low when engine condition is correct, decrease idle timing to achieve proper RPM (example: from 6° ATDC to 4° ATDC).
13. If idle speed is inconsistent or the engine runs rough or spits lean, adjust RHIB engine carburetor fuel mixture. (WP 0317 00)

ADJUST SPARK ADVANCE

1. Connect timing light to the #1 cylinder spark plug lead (27).

**WARNING****MOVING PARTS**

2. Start engine and allow to warm to normal operating temperature. (TM 55-1945-205-10-2)
3. Shift throttle and shift control lever into forward and run engine at minimum of 5000 RPM.
4. Verify engine timing pointer (1) is aligned with 17° BTDC (Before Top Dead Center) mark on the flywheel (2).
5. Shut down RHIB engine. (TM 55-1945-205-10-2)
6. Adjust spark advance.
 - a. Loosen timing adjustment screw nut (28) and turn in or out, as necessary to correct timing.
 - b. Turn timing adjustment screw (28) clockwise to retard timing about 1° and turn timing adjustment screw (28) counterclockwise advances timing about 1°.
 - c. When timing is set, tighten timing adjustment screw nut (29).
 - d. Repeat steps 3 through 6.
7. Install RHIB engine air silencer. (WP 0314 00)
8. Install RHIB engine cover. (WP 0297 00)
9. Install RHIB battery negative lead terminal. (WP 0336 00)
10. Remove engine from test tank.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT THROTTLE AND
SHIFT CONTROL RIGGING
ADJUSTMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

Engineer 88L (2)

References

TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

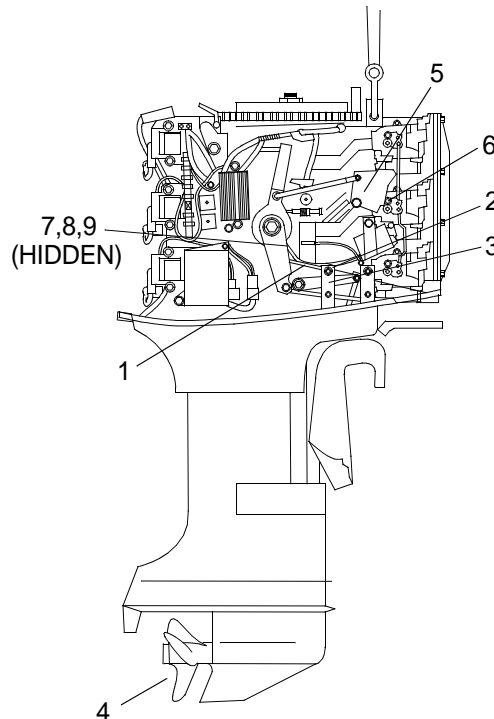
RHIB Engine Cover Removed. (WP 0297 00)

ADJUST THROTTLE AND SHIFT CONTROL RIGGING**NOTE**

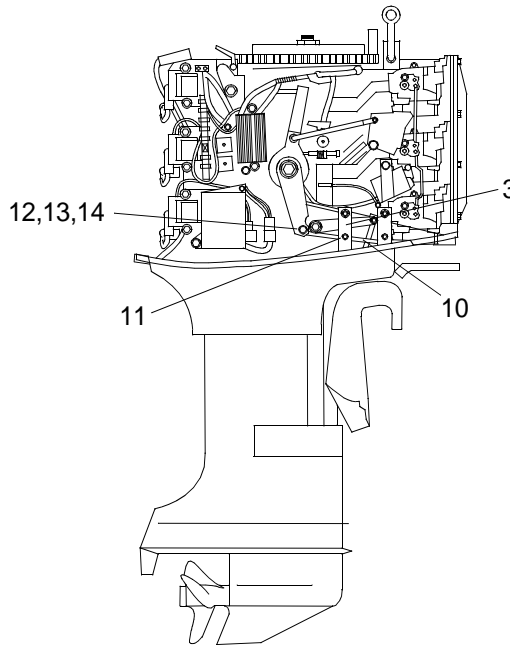
Refer to TM 55-1945-205-10-2 for throttle/shift control operation procedures.

Proper adjustment of the throttle control cable will reduce the possibility of high and inconsistent idle speed or high shifting range control.

1. Adjust throttle control cable (1).



- a. If not previously done, loosen screw (2) on cable retainer (3).
 - b. Rotate propeller (4) and move throttle and shift control lever from NEUTRAL to FORWARD then halfway back to NEUTRAL. (TM 55-1945-205-10-2)
 - c. On side of engine, move throttle lever (5) firmly against idle stop screw (6).
 - d. Position throttle control cable (1) on throttle lever pin (7) and secure with washer (8) and lock nut (9). Tighten lock nut (9).
 - e. Firmly pull on throttle control cable (1) to remove backlash.
 - f. Tighten screw (2) on the cable retainer (3).
2. Adjust shift control cable (10).



- a. If not previously done, loosen screw (11) on cable retainer (3).
 - b. Rotate propeller and verify throttle and shift control lever is FORWARD.
 - c. Position shift control cable (10) on shift lever pin (12) and loosely install flat washer (13) and lock nut (14).
 - d. Firmly pull on shift control cable (10) to remove backlash.
 - e. Return the throttle and shift control lever to NEUTRAL. (TM 55-1945-205-10-2)
 - f. Temporarily remove shift control cable (10) to verify gearcase is in neutral.
 - g. Install shift control cable (10) and tighten lock nut (14).
 - h. Tighten screw (11) on cable retainer (3).
3. Install RHIB engine cover. (WP 0297 00)
4. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT TRIM/TILT GAUGE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Gauge, Trim
(38915)
PN E-O-13007

Personnel Required

Engineer 88L

References

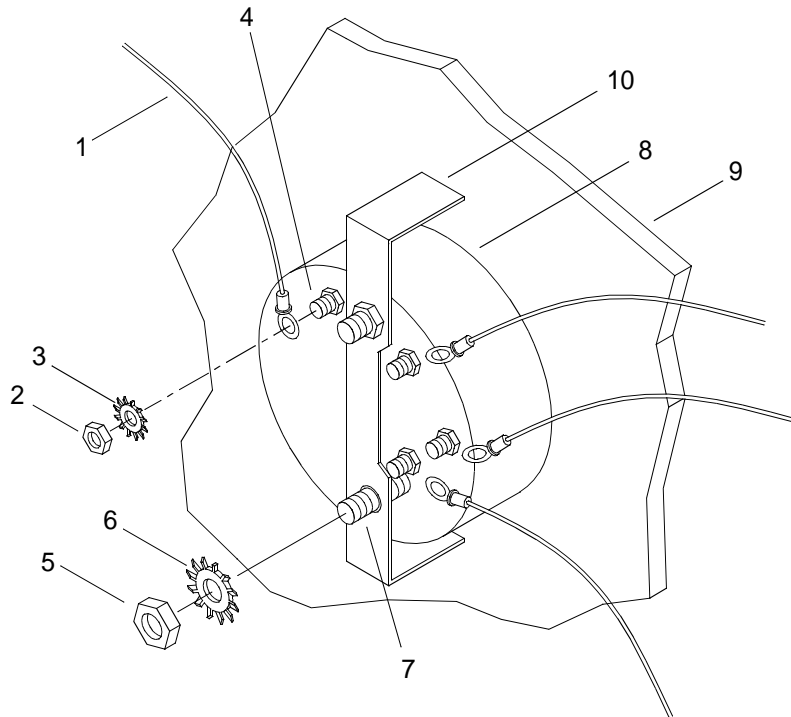
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB TRIM/TILT GAUGE

1. Tag four electrical wires (1).



2. Remove four hex nuts (2), external tooth lock washers (3) and electrical wires (1) from gauge electrical studs (4).

3. Remove two hex nuts (5) and external tooth lock washers (6) from gauge mounting studs (7).
4. Remove trim/tilt gauge (8) from front of control console (9). Discard trim/tilt gauge (8).

INSTALL RIGID HULL INFLATABLE BOAT TRIM/TILT GAUGE

1. Position new trim/tilt gauge (8) through hole in front of control console (9).
2. Position gauge mounting bracket (10) over gauge mounting studs (7).
3. Install two external tooth lock washers (6) and hex nuts (5) on gauge mounting studs (7). Tighten nuts (5).
4. Install four electrical wires (1), external tooth lock washers (3) and hex nuts (2) on gauge electrical studs (4). Tighten nuts (2).
5. Remove tags from electrical wires (1).
6. Install RHIB battery negative lead terminal. (WP 0336 00)
7. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT TACHOMETER GAUGE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Gauge, Tachometer
(38915)
PN E-O-13005

Personnel Required

Engineer 88L

References

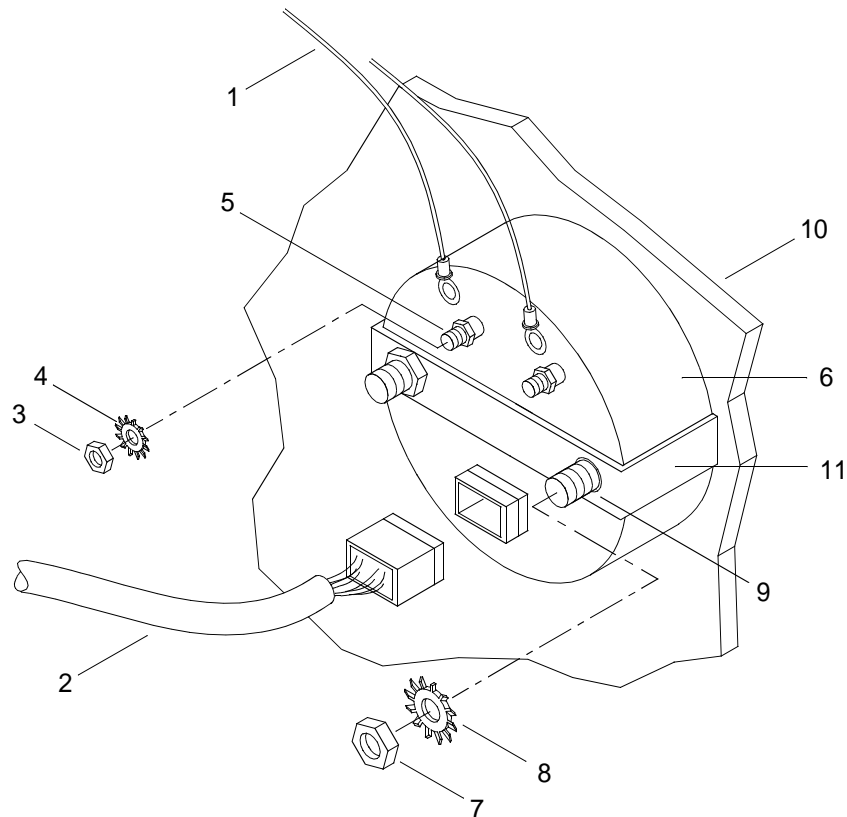
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB TACHOMETER GAUGE

1. Tag two electrical wires (1) and plug wire (2).



2. Remove two hex nuts (3), external tooth lock washers (4) and electrical wires (1) from gauge electrical studs (5).
3. Remove electrical plug (2) from rear of tachometer gauge (6).
4. Remove two hex nuts (7) and external tooth lock washers (8) from gauge mounting studs (9).
5. Remove tachometer gauge (6) from front of control console (10). Discard tachometer gauge (6).

INSTALL RIGID HULL INFLATABLE BOAT TACHOMETER GAUGE

1. Position new tachometer gauge (6) through hole in front of control console (10).
2. Position gauge mounting bracket (11) over gauge mounting studs (9).
3. Install two external tooth lock washers (8) and hex nuts (7) on gauge mounting studs (9). Tighten nuts (7).
4. Install electrical plug (2) into rear of gauge (6).
5. Install two electrical wires (1), external tooth lock washers (4) and hex nuts (3) on the gauge electrical studs (5). Tighten nuts (3).
6. Remove tags from electrical wires (1).
7. Install RHIB battery negative lead terminal. (WP 0336 00)
8. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT WATER PRESSURE GAUGE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Gauge, Water Pressure
(38915)
PN E-O-13008-1
Rag, Wiping (Item 45, WP 0358 00)
Spill Clean-Up Kit Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

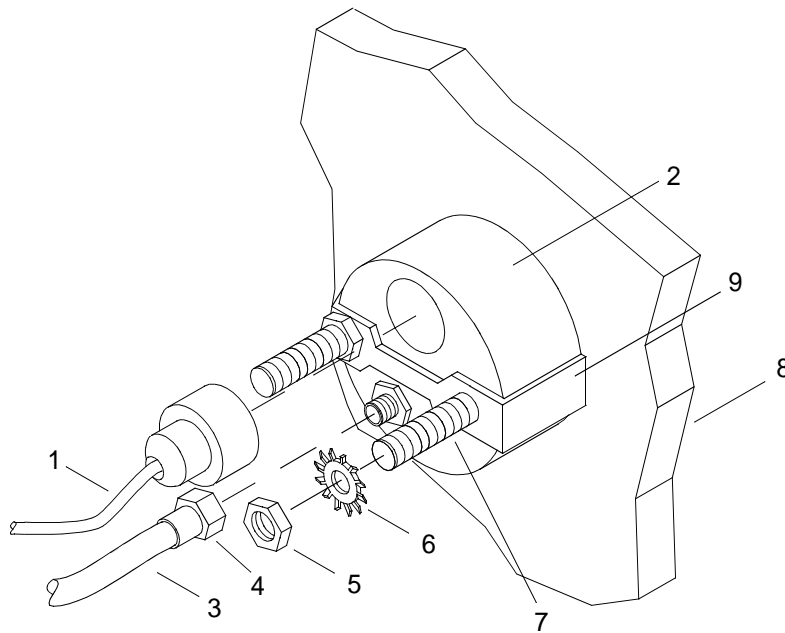
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB WATER PRESSURE GAUGE

1. Tag and remove electrical wire socket (1) from water pressure gauge (2).



2. Position drain pan under gauge (2).

3. Loosen the engine end fitting of the pressure hose (3) to relieve residual pressure in the water pressure hose (3).
4. Remove two hex nuts (5) and external tooth lock washers (6) from gauge mounting studs (7).
5. Remove water pressure gauge (2) from front of control console (8) and discard water pressure gauge (2).
6. Remove drain pan and dispose of contents in accordance with local procedures.

INSTALL RHIB WATER PRESSURE GAUGE

1. Position new water pressure gauge (2) through hole in front of control console (8).
2. Position gauge mounting bracket (9) over gauge mounting studs (7).
3. Install two external tooth lock washers (6) and hex nuts (5) on gauge studs (7). Tighten nuts (5).
4. Connect pressure hose (3) to rear of water pressure gauge (2) by turning the coupling (4) clockwise. Tighten coupling (4).
5. Install electrical wire socket (1) into rear of water pressure gauge (2).
6. Remove tag from electrical wire socket (1).
7. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
8. Install RHIB battery negative lead terminal. (WP 0336 00)
9. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT INSTRUMENT WIRING HARNESS
REPLACEMENT

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Harness, Wiring
 (38915)
 PN E-0-13165
 Grease, Silicone Insulated Electric Motor, Molykote 44 8 oz. (Item 29, WP 0358 00)
 Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)

Personnel Required

Engineer 88L

References

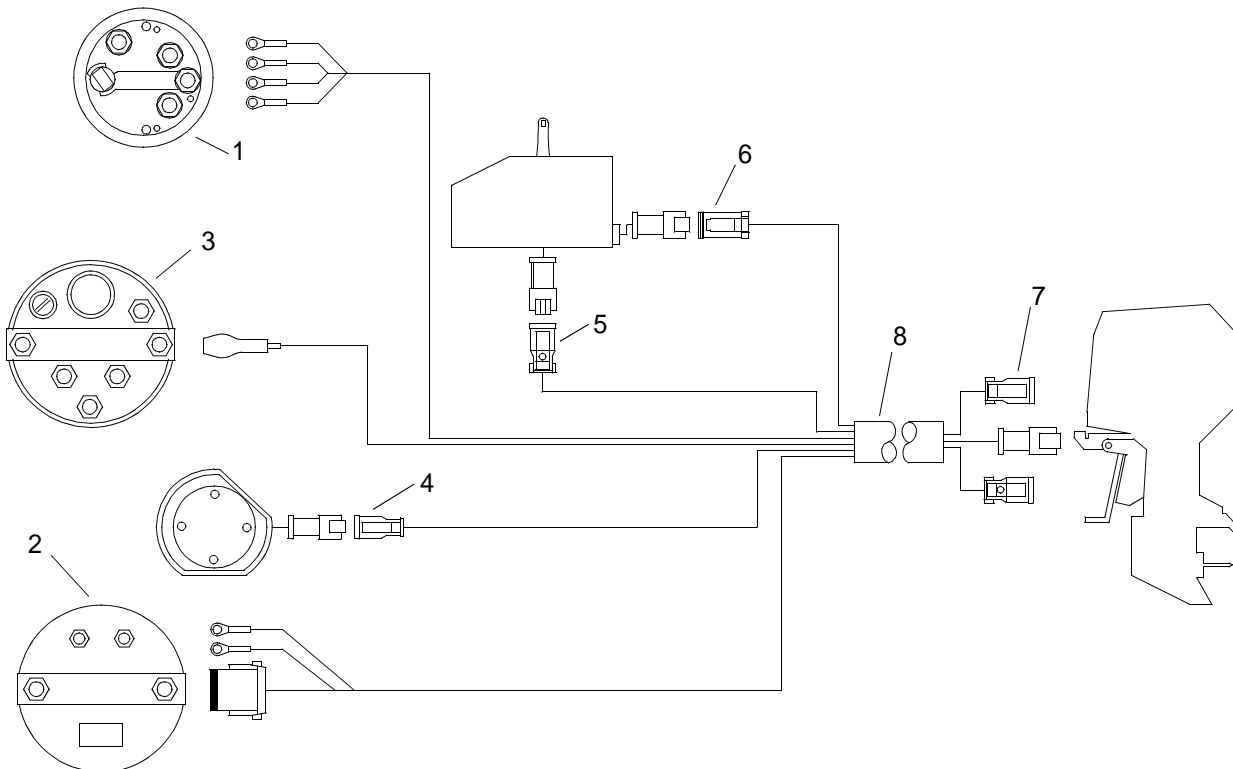
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB INSTRUMENT WIRING HARNESS

Tag and disconnect electrical wiring from trim/tilt gauge (1), tachometer gauge (2) and water pressure gauge (3).

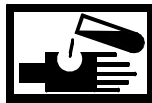


1. Tag and disconnect throttle horn two-socket plug (4), control assembly three-socket plug (5) and control assembly six-socket plug (6).
2. Tag and disconnect three engine electrical connectors (7).
3. Remove and discard all in line tiedown straps.
4. Remove and retain all in line wire bundle clamps.
5. Remove wiring harness (8) and discard.

INSTALL RHIB INSTRUMENT WIRING HARNESS

1. Lay out the new wiring harness along its route to ensure proper length at each end is achieved prior to installing tiedown straps and wire bundle clamps.
2. Connect electrical wiring to trim/tilt gauge (1), tachometer gauge (2) and water pressure gauge (3).

WARNING



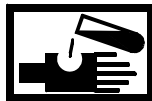
CHEMICAL



EYE PROTECTION

3. Apply electrical grease to throttle horn two-socket plug (4), control assembly three-socket plug (5) and control assembly six-socket plug (6) rubber seals.
4. Connect throttle horn two-socket plug (4), control assembly three-socket plug (5) and control assembly six-socket plug (6).

WARNING



CHEMICAL



EYE PROTECTION

5. Apply electrical grease to three engine electrical connectors (7) rubber seals.
6. Connect three engine electrical connectors (7).
7. Remove all tags for wiring harness (8).
8. Install in line tiedown straps (minimum placement every 24 in.).
9. Install all in line wire bundle clamps.
10. Install RHIB battery negative lead terminal. (WP 0336 00)
11. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT INSTRUMENT PANEL TOGGLE
SWITCHES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Switch, Toggle
(38915)
PN E-S-20175-4

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

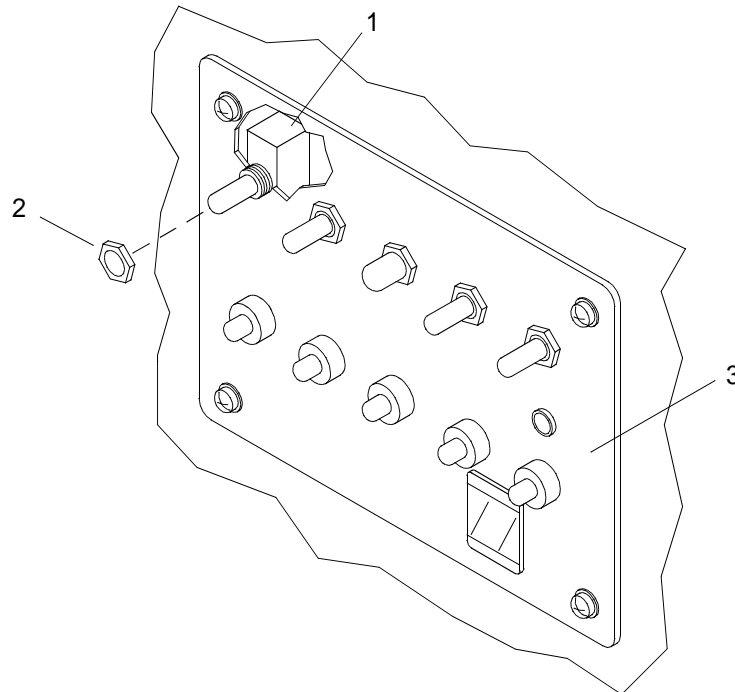
Equipment Condition

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB INSTRUMENT PANEL TOGGLE SWITCHES**NOTE**

The following procedure is typical for the removal and installation of toggle switches.

1. Disconnect and tag electrical wiring from toggle switch (1).



2. Remove hex nut (2) from toggle switch (1) by turning counterclockwise.
3. Remove toggle switch (1) from under control console (3) and discard.

INSTALL RHIB INSTRUMENT PANEL TOGGLE SWITCHES

1. Install new toggle switch (1) into control console (3).
2. Install hex nut (2) on toggle switch (1) by turning clockwise. Tighten hex nut (2).
3. Connect wiring to toggle switch (1) and remove tags.
4. Install RHIB battery negative lead terminal. (WP 0336 00)
5. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT INSTRUMENT PANEL CIRCUIT
BREAKERS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Breaker, 30A
(38915)
PN E-S-20175-19
Boot, Breaker
(38915)
PN E-S-20175-6

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

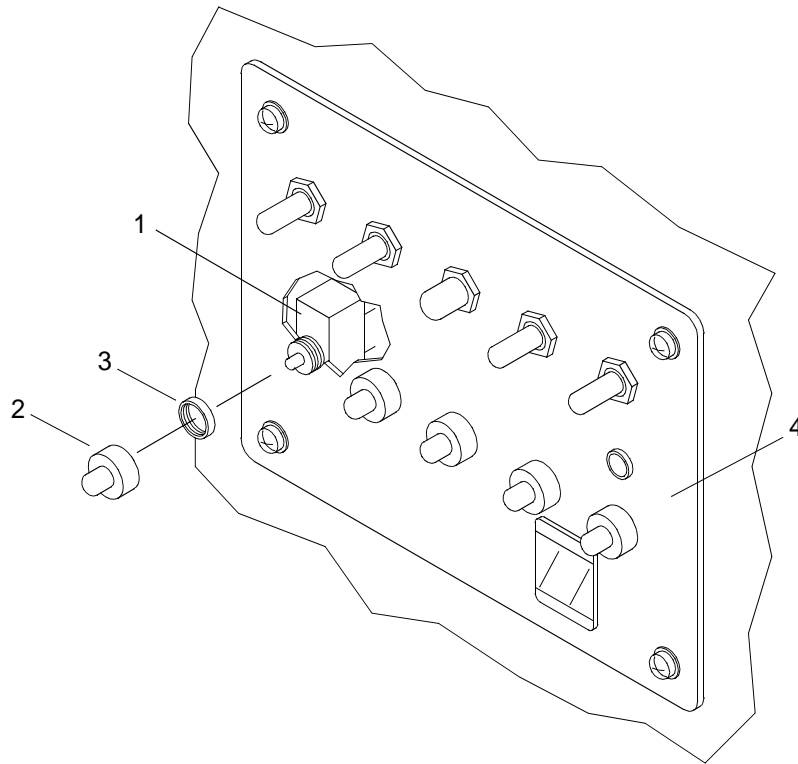
Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REPLACE RHIB INSTRUMENT PANEL CIRCUIT BREAKERS**NOTE**

The following procedure is typical for the removal and installation of circuit breakers.

1. Tag and disconnect electrical wiring from rear of circuit breaker (1).



2. Remove boot cap (2) and discard.
3. Remove round nut (3) from circuit breaker (1) by turning counterclockwise.
4. Remove circuit breaker (1) from control console (4) and discard circuit breaker (1).

INSTALL RHIB INSTRUMENT PANEL CIRCUIT BREAKERS

1. Install new circuit breaker (1) into hole in control console (4).
2. Install round nut (3) on circuit breaker (1) by turning clockwise. Tighten round nut (3).
3. Install new boot cap (2) over circuit breaker (1).
4. Connect wiring to rear of circuit breaker (1) and remove tag.
5. Install RHIB battery negative lead terminal. (WP 0336 00)
6. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT SPOTLIGHT BULB
REPLACEMENT**

INITIAL SETUP:**Tools**

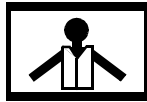
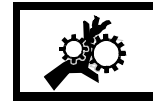
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

Seaman 88K

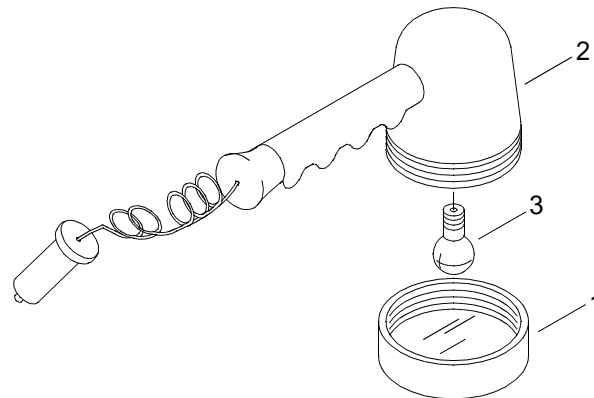
REMOVE RHIB SPOTLIGHT BULB

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 spotlight cover (1) from spotlight housing (2) by turning counterclockwise.



2. Remove bulb (3) from the spotlight housing (2) by turning counterclockwise. Discard bulb (3).

INSTALL RHIB SPOTLIGHT BULB

1. Install new bulb (3) in spotlight housing (2) by turning clockwise. Tighten bulb (3).
2. Install spotlight cover (1) on the spotlight housing (2) by turning clockwise. Tighten spotlight cover (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT INFLATABLE TUBE
INSPECTION AND TESTING**

INITIAL SETUP:**Tools**

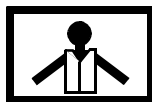
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Pump, Bravo Foot (Item 53, WP 0359 00)
 Pump, Foot Adaptor (Item 54, WP 0359 00)
 Valve, Fill (Item 84, WP 0359 00)
 Gage, Pressure (Item 22, WP 0359 00)

Personnel Required

Engineer 88L

RHIB INFLATABLE TUBE AIR RETENTION TEST

WARNING



VEST



HELMET PROTECTION



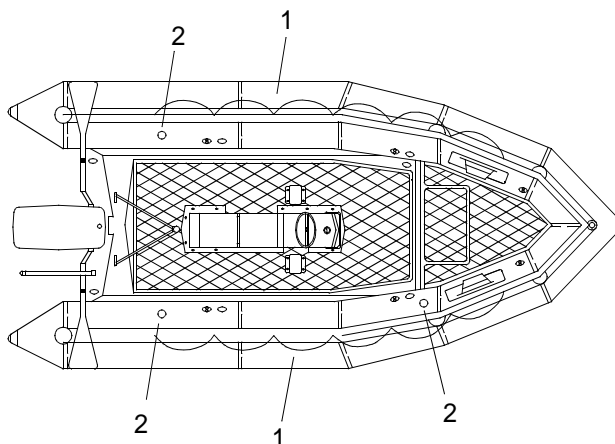
HEAVY PARTS



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. Connect the air pump to RHIB tubes (1) at inflation points (2).



2. Operate air pump until tube (1) is inflated to approximately 4.4 PSI.
3. Using pressure gage, verify full tube pressure is approximately 4.4 PSI (300 mb) in both tubes (1) at all inflation points (2).

4. After 30 minute period, reduce air pressure in each tube (1) to approximately 3.5 PSI (240 mb).
5. Check tubes (1) with pressure gage.
6. If pressure does not maintain, inspect tubes (1) for seam leaks. Repair as required. (WP 0281 00)
7. If pressure does not maintain, inspect tubes (1) for leaks from a small hole or tear. Repair as required. (WP 0281 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT INFLATABLE TUBE
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Fid (12 in. Wood) (Item 18, WP 0359 00)
 Heater, Gun Type, Electric (Item 32, WP 0359 00)
 Repair Kit, Black (Item 57, WP 0359 00)
 Repair Kit, Orange (Item 58, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
 Detergent, General Purpose (Item 15, WP 0358 00)

Personnel Required

Engineer 88L

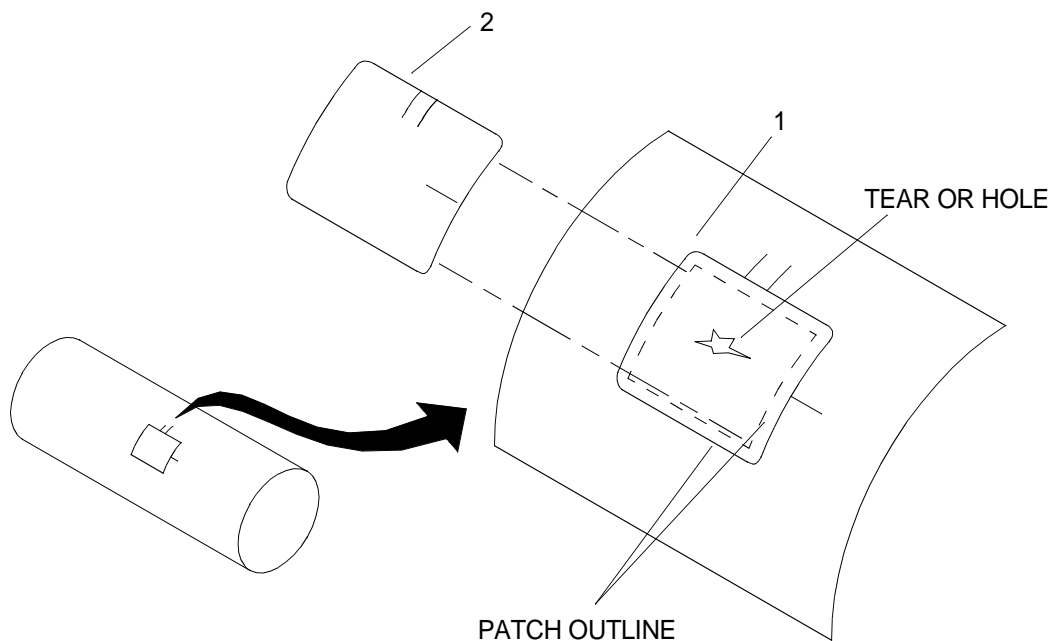
Equipment Condition

RHIB Dry-Docked.

REPAIR RHIB INFLATABLE TUBE SMALL HOLE OR TEAR**NOTE**

A small hole or tear is considered any damage in the middle of a panel under two in. long.

1. Measure hole or tear in inflatable tube (1) to be repaired.



2. Select a patch (2) with a radius two in. larger than the hole or tear being repaired.
3. Lay inflatable tube (1) as flat as possible.

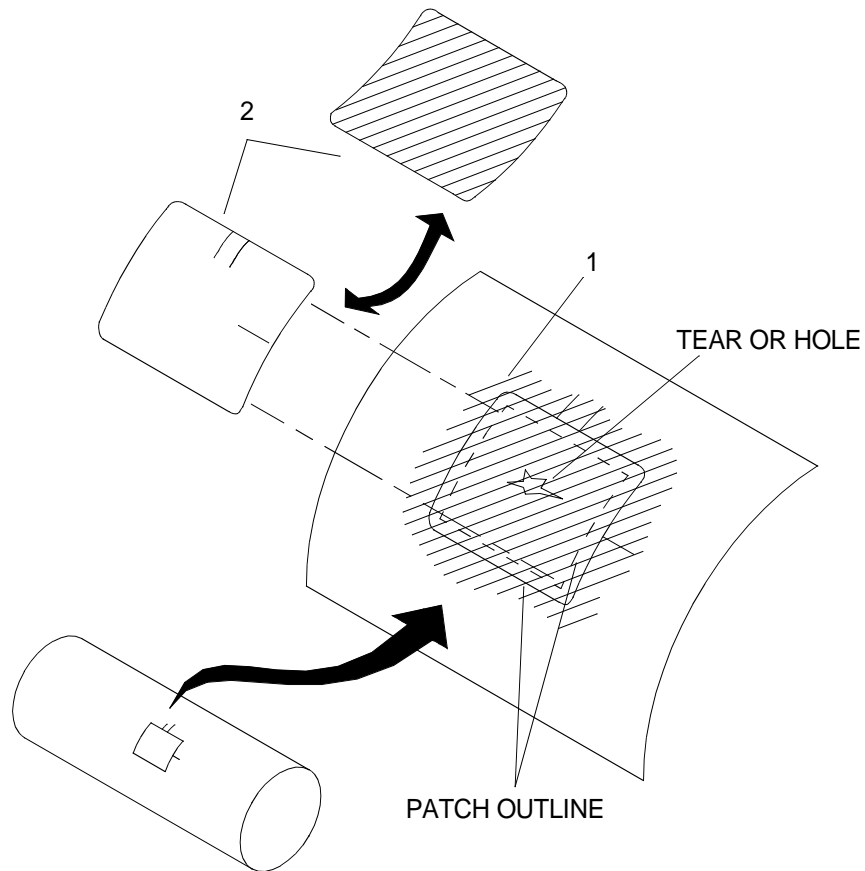
CAUTION

The inflatable tube is constructed of hypalon fabric. Do not use solvent based cleaners. Failure to comply will cause damage to equipment.

NOTE

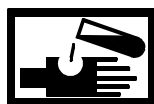
The ideal environmental conditions for repairing the inflatable tube on the RHIB are less than 60% humidity, a shaded dry area and an ambient temperature between 65° and 77°F (18° and 25°C).

4. Clean inflatable tube (1) with general purpose detergent four in. all the way around the damaged area.
5. Allow inflatable tube (1) five minutes to dry.
6. Lay selected patch (2) on inflatable tube (1), taking care to center it over the damaged area.
7. Trace an outline of patch (2) on inflatable tube (1).
8. Using a pumice stone, buff the area outlined on inflatable tube (1).



9. Using a pumice stone, buff the contact surface of patch (2).

WARNING

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

10. Apply glue.
 - a. Apply a thin first coat of glue from repair kit to the inflatable tube (1).
 - b. Apply a thin first coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying second coat. Failure to comply could result in a failed patch and cause damage to equipment.

- c. Allow glue to dry for five to ten minutes or until tacky.
- d. Apply a thin second coat of glue from repair kit to the inflatable tube (1).
- e. Apply a thin second coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying third coat. Failure to comply could result in a failed patch and cause damage to equipment.

- f. Allow the glue to dry for five to ten minutes or until tacky.
- g. Apply a thin third coat of glue from repair kit to the inflatable tube (1).
- h. Apply a thin third coat of glue from repair kit to the contact surface of patch (2).

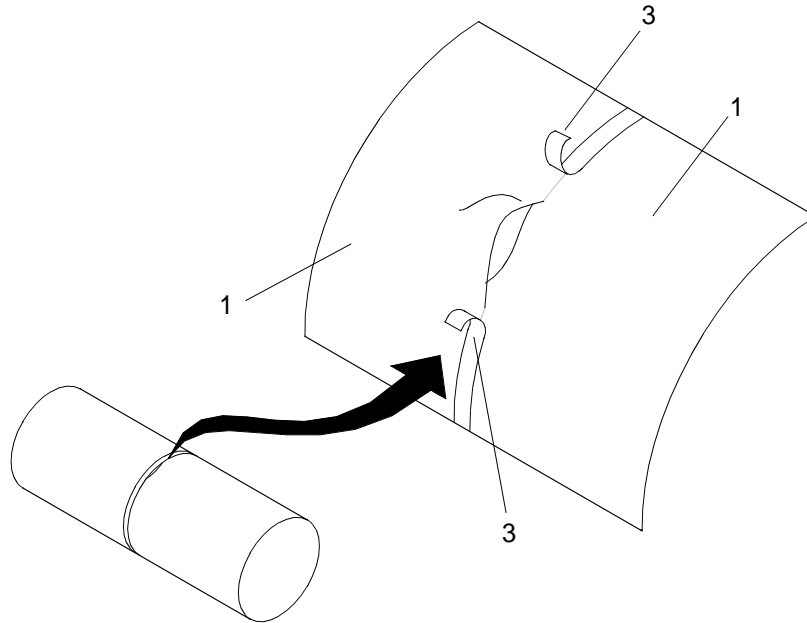
CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying the patch to the inflatable tube. Failure to comply could result in a failed patch and cause damage to equipment.

- i. Allow the glue to dry for five to ten minutes or until tacky.
11. Lay patch (2) on damaged area of inflatable tube (1) without pressing down on patch (2).
 12. Adjust the position of patch (2) so that it is centered over damaged area.
 13. Using a fid, start from the center of patch (2) and move outward removing any air bubbles that have formed under patch (2).
 14. Allow 12 hours for glue to dry before testing the inflatable tube (1) for air retention. (WP 0280 00)

REPAIR RHIB INFLATABLE TUBE SEAM LEAK

1. Remove seam tape (3) from the area of the seam leak.



- a. Using a heat gun, heat seam tape (3).
- b. Using a pair of pliers, lift a small area of seam tape (3).
- c. Cut seam tape (3).
- d. Using a heat gun and pliers, unglue seam tape (3) three inches in both directions.

NOTE

Seam leaks often travel up and down the length of the seam tape until they find the weakest spot. If necessary keep peeling the seam tape back until the spot of the leak is confirmed.

2. Verify location of leak.
3. Lay inflatable tube (1) as flat as possible.

CAUTION

The inflatable tube is constructed of hypalon fabric. Do not use solvent based cleaners. Failure to comply will cause damage to equipment.

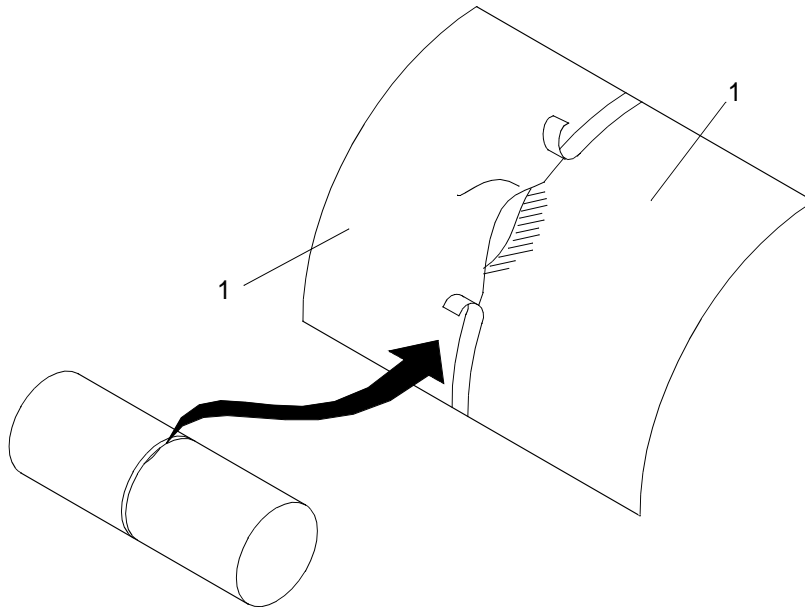
NOTE

The ideal environmental conditions for repairing the inflatable tube on the RHIB are less than 60% humidity, a shaded dry area and an ambient temperature between 65° and 77°F (18° and 25°C).

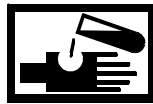
At least two in. of area is required to buff inflatable tube with pumice stone, if the seam is damaged more than two inches step 4 is not required.

4. Using a heat gun and pliers, unglue seam to at least 2 in.

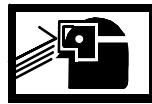
5. Clean inflatable tube (1) with general purpose detergent four in. all the way around the damaged area.
6. Allow inflatable tube (1) five minutes to dry.
7. Using a pumice stone, buff area four in. all the way around the hole in the seam of inflatable tube (1).



WARNING



CHEMICAL



EYE PROTECTION



VAPOR

8. Apply glue.
 - a. Apply a thin first coat of glue from repair kit to the inflatable tube (1).
 - b. Apply a thin first coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying second coat. Failure to comply could result in a failed patch and cause damage to equipment.

- c. Allow the glue to dry for five to ten minutes or until tacky.
- d. Apply a thin second coat of glue from repair kit to the inflatable tube (1).
- e. Apply a thin second coat of glue from repair kit to the contact surface of patch (2).

CAUTION

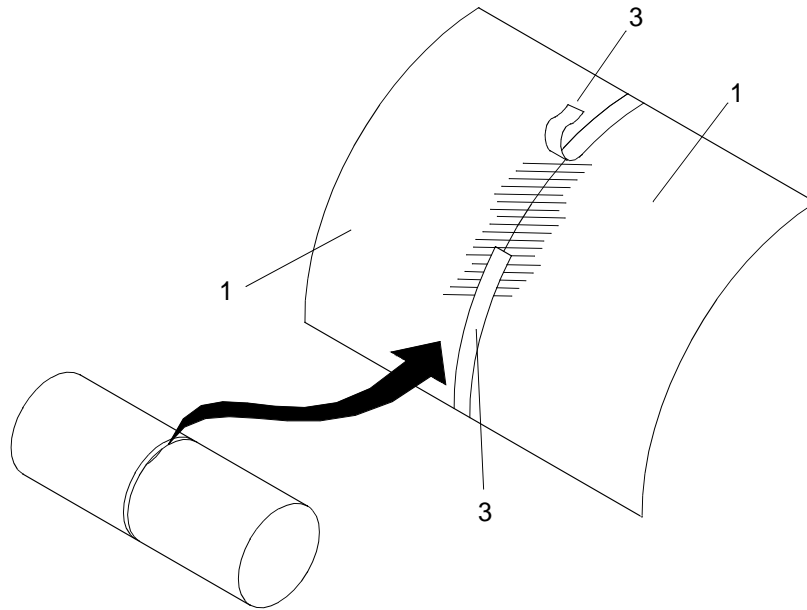
Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying third coat. Failure to comply could result in a failed patch and cause damage to equipment.

- f. Allow glue to dry for five to ten minutes or until tacky.
- g. Apply a thin third coat of glue from repair kit to the inflatable tube (1).
- h. Apply a thin third coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying the patch to the inflatable tube. Failure to comply could result in a failed patch and cause damage to equipment.

- i. Allow the glue to dry for five to ten minutes or until tacky.
- 9. Using a fid, start from the center of seam and move outward removing any air bubbles that have formed in the seam.
 - 10. Wait four hours and verify that the leak has been repaired. (WP 0280 00)
 - 11. Clean the inflatable tube (1) with general purpose detergent four in. all the way around the damaged area.



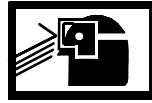
- 12. Allow inflatable tube (1) five minutes to dry.
- 13. Lay the seam tape (3) on inflatable tube (1), taking care to center it over the repaired area.
- 14. Trace an outline of seam tape (3) on inflatable tube (1).
- 15. Using a pumice stone, buff the area outlined on inflatable tube (1).

16. Using a pumice stone, buff the contact surface of seam tape (3).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

17. Apply glue.

- a. Apply a thin first coat of glue from repair kit to the inflatable tube (1).
- b. Apply a thin first coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying second coat. Failure to comply could result in a failed patch and cause damage to equipment.

- c. Allow the glue to dry for five to ten minutes or until tacky.
- d. Apply a thin second coat of glue from repair kit to the inflatable tube (1).
- e. Apply a thin second coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying third coat. Failure to comply could result in a failed patch and cause damage to equipment.

- f. Allow glue to dry for five to ten minutes. or until tacky.
- g. Apply a thin third coat of glue from repair kit to the inflatable tube (1).
- h. Apply a thin third coat of glue from repair kit to the contact surface of patch (2).

CAUTION

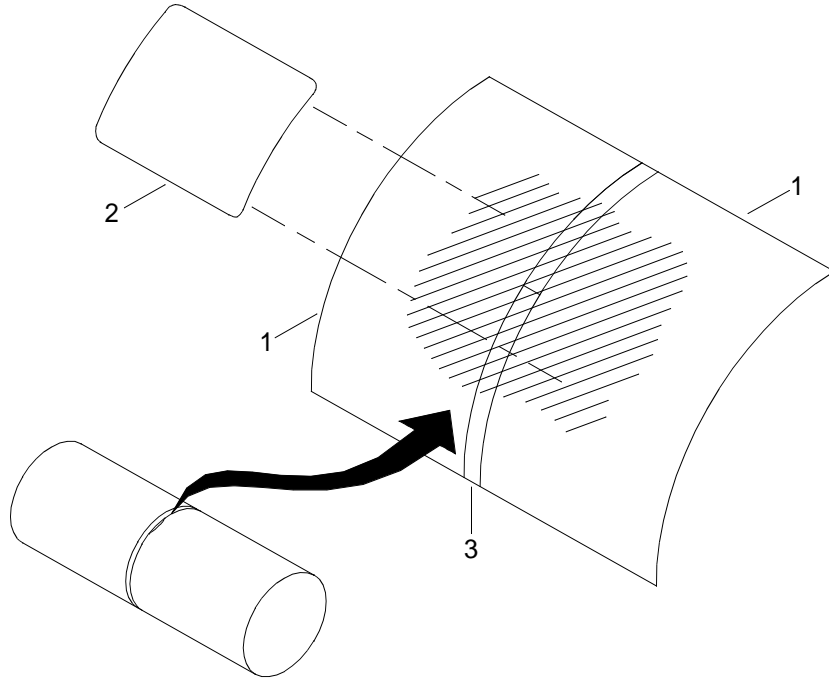
Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying the patch to the inflatable tube. Failure to comply could result in a failed patch and cause damage to equipment.

- i. Allow the glue to dry for five to ten minutes or until tacky.

18. Using a fid, start from where seam tape was already glued and move inward to the cut in seam tape removing any air bubbles that have formed under seam tape.

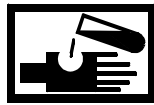
19. Select a patch 1½ in. larger than the width of the seam tape.

20. Clean the inflatable tube (1) with general purpose cleaner 4 in. all the way around the damaged area.



21. Allow inflatable tube (1) five minutes to dry.
22. Lay selected patch (2) on the inflatable tube (1), taking care to center it over the damaged area.
23. Trace an outline of patch (2) on inflatable tube (1).
24. Using a pumice stone, buff area outlined on the inflatable tube (1).
25. Using a pumice stone, buff contact surface of patch (2).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

26. Apply the glue.
 - a. Apply a thin first coat of glue from repair kit to the inflatable tube (1).
 - b. Apply a thin first coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying second coat. Failure to comply could result in a failed patch and cause damage to equipment.

- c. Allow the glue to dry for five to ten minutes or until tacky.

-
- d. Apply a thin second coat of glue from repair kit to the inflatable tube (1).
 - e. Apply a thin second coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying third coat. Failure to comply could result in a failed patch and cause damage to equipment.

- f. Allow glue to dry for five to ten minutes or until tacky.
- g. Apply a thin third coat of glue from repair kit to the inflatable tube (1).
- h. Apply a thin third coat of glue from repair kit to the contact surface of patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying the patch to the inflatable tube. Failure to comply could result in a failed patch and cause damage to equipment.

- i. Allow the glue to dry for five to ten minutes or until tacky.
- 27. Lay patch (2) on the cut in the seam tape (3) with out pressing down on the patch (2).
 - 28. Adjust the position of patch (2) so that it is centered over the cut in the seam tape (3).
 - 29. Using a fid, start from center of patch and move outward removing any air bubbles that have formed under patch.
 - 30. Allow 12 hours drying time before inflating inflatable tube.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT HULL
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Saw, Jig, Electric, Portable (Item 60, WP 0359 00)
 Blades, Jig Saw Metal Cutting, Fine Tooth (Item 7, WP 0359 00)
 Grinder, Pneumatic, High Speed (Item 30, WP 0359 00)
 Tape, Measuring (Item 74, WP 0359 00)

Materials/Parts

Kit, Fiberglass Repair
 (18731)
 PN 100370
 Acetone, Technical (Item 1, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Disk, Abrasive (Item 17, WP 0359 00)
 Disk, Sanding, Coarse (Item 18, WP 0359 00)
 Block, Shoring (Item 6, WP 0359 00)

Personnel Required

Engineer 88L

Equipment Condition

RHIB Dry-Docked.

REPAIR RHIB HULL - TYPE 1 FIBERGLASS REPAIR

WARNING



EYE PROTECTION



POISON



VAPOR

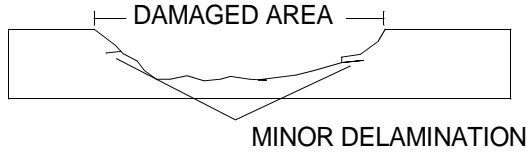


CHEMICAL

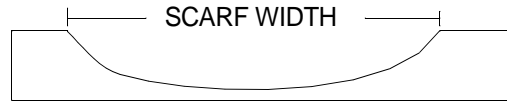
1. Prepare damaged area.

- a. Cut out damaged area with a power jig using a fine tooth, metal blade.

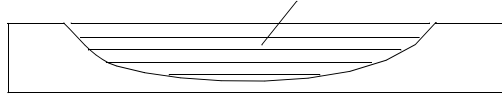
1. BEFORE



2. AFTER PREPARATION



3. REPAIR COMPLETE



WARNING



EYE PROTECTION



POISON



VAPOR



CHEMICAL

Fiberglass dust is extremely abrasive. Areas near the repair must be covered and protected from fiberglass dust and resin. Respirators, gloves and goggles must be worn at all times. Failure to comply may result in injury or death.

NOTE

During grinding steps, look for whitish areas which indicate delamination. These areas must be removed during repair. If during preparation it is discovered the damage extends through the laminate, a Type 2 (WP 0283 00), Type 3 (WP 0284 00) or Type 4 (WP 0285 00) repair should be performed, as necessary.

- b. Using a grinder or disc sander, grind and sand the cutout edges to a minimum 20° included angle.

2. Prepare repair patch for application.

NOTE

The thickness of the repair patch and components to be used depends of the portion of the hull being repaired.

The following steps are typical for the application of a fiberglass patch.

Table 1. Lay-Out Details.

AREA	NOTES	LAY-OUT
HULL	1	Gelcoat 1 oz. Mat 1 Unit Coremat 1 Unit

Table 1. Lay-Out Details. (Continued)

AREA	NOTES	LAY-OUT
TRANSOM	1, 2 and 3	Gelcoat 1 oz. Mat 2 Units ¾ in. Plywood 1½ oz. Mat ¾ in. Plywood 4½ oz. Mat 2 Units 1 oz. Mat Gelcoat
DECK HORIZONTAL SURFACE	1, 2 and 3	Gelcoat 1 oz. Mat 1 Unit Syntactic Foam 5/8 in. Plywood 1 Unit
Lay-Out Schedule Notes		
1	1 Unit shall be 1 oz. Mat and 18 oz. Woven Roving.	
2	Syntactic Foam: 1 part Milled Fibre, 2 parts Resin, 3 parts Glass Bubbles. Thicken as required with Milled Fibre.	
3	Resin shall be polyester isophthalic in hull and orthophthalic in deck and transom.	

- a. Create templates from Kraft paper starting with a size outside the prepared area and making progressively smaller ones to equal thickness of laminate being repaired.
- b. Cut fiberglass cloth pieces to equal templates.
- c. Clean the prepared area with a wiping rag soaked in acetone.

NOTE

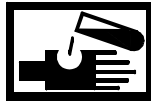
After mixing, the resin with hardener can be used for approximately 20 - 30 minutes.

The repair area temperature should be controlled between 50° and 75°F (8° and 20°C) to ensure proper curing of the resins. Temperatures above or below this range will inhibit curing times.

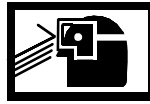
- d. Mix hardener into the resin can.
- e. Lay out a sheet of polyethylene cellophane (separating film), larger than the largest piece of fiberglass cloth, on a horizontal surface.
- f. Place the largest piece of fiberglass on film.
- g. Apply mixed resin on the fiberglass cloth using a putty knife.
- h. Center the next largest piece of fiberglass cloth on top of the first piece and apply as little resin as possible on the second cloth.

- i. Using putty knife, work the resin into the patch until it becomes clear and without white patches, which indicates areas that are not saturated sufficiently with resin.
- j. Repeat steps i and j until all cutout pieces of fiberglass cloth have been applied and saturated with resin and the repair patch takes on a cone shape.

WARNING



CHEMICAL



EYE PROTECTION



POISON



VAPOR

3. Install repair patch on damaged area.
 - a. Apply a thin layer of mixed resin on prepared area.
 - b. Center film with new patch on it over the repair area, aligning patch as necessary.
 - c. Smooth and work the patch into place using finger pressure and putty knife.
 - d. Holding the patch in place, position a backing plate over film and patch area, securing in place with a block of wood.

NOTE

Lower temperatures raise resin cure time up to 24 hours. After 24 hours, the resin should be fully cured.

- e. If the repair area temperature is maintained above 60°F (13°C) and 3 to 4 hours have elapsed, remove backing plate.
- f. Test repaired area by gently pressing into it with a sharp object for hardness, indicating proper cure.

NOTE

If the surface of the patch is rubbery, the area is not completely cured and requires the area temperature to be raised (not to exceed 80°F or 23°C) to finish curing with the backing plate left off.

- g. Inspect the cure to ensure the bond between the patch and the repair area for raised or cloudy areas, incorrect alignment, voids or evidence of poorly bonded areas.
- h. If multiple defects are detected, remove the patch and repeat the patching process.
- i. If patch is determined to be good, sand the patch using coarse, then medium grade sandpaper on the repair area until smooth being careful not to sand patch edges excessively.
- j. Paint the sanded area to match the surrounding structure as necessary.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT HULL
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Saw, Jig, Electric, Portable (Item 60, WP 0359 00)
 Blades, Jig Saw Metal Cutting, Fine Tooth (Item 7, WP 0359 00)
 Grinder, Pneumatic, High Speed (Item 30, WP 0359 00)
 Tape, Measuring (Item 74, WP 0359 00)
 Scissors, Ladies (Item 63, WP 0359 00)

Materials/Parts

Kit, Fiberglass Repair
 (18731)
 PN 100370
 Acetone, Technical (Item 1, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Disk, Abrasive (Item 17, WP 0359 00)
 Disk, Sanding, Coarse (Item 18, WP 0359 00)
 Block, Shoring (Item 6, WP 0359 00)

Personnel Required

Engineer 88L

Equipment Condition

RHIB Dry-Docked.

REPAIR RHIB HULL - TYPE 2 FIBERGLASS REPAIR

WARNING



EYE PROTECTION



POISON



VAPOR



CHEMICAL

Fiberglass dust is extremely abrasive. Areas near the repair must be covered and protected from fiberglass dust and resin. Respirators, gloves and goggles must be worn at all times. Failure to comply may result in injury or death.

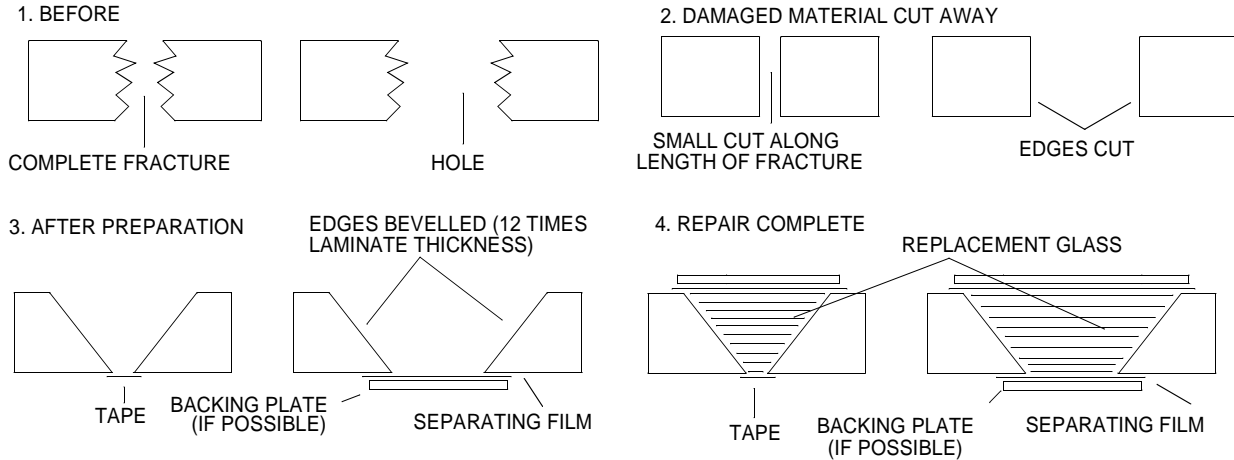
NOTE

Type 2 repairs affect damage is severe enough to crack or break through the entire hull laminate.

The repair area temperature should be controlled between 50° and 75°F (8° and 20°C) to ensure proper curing of the resins.

1. Prepare damaged area.

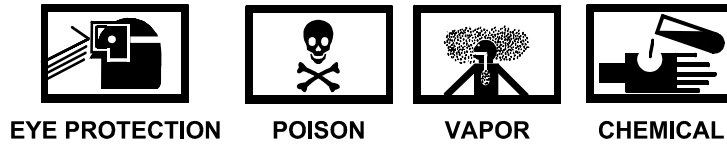
a. Cut out the damaged area with a power jig using a fine tooth, metal blade.



b. Using a grinder or disc sander, grind and sand the cutout edges to a minimum 20° included angle.

c. Bevel edges back from the edge a distance equal to 12 times the laminate thickness.

WARNING



2. Prepare repair patch for application.

NOTE

The thickness of the repair patch and components to be used depends of the portion of the hull being repaired.

The following steps are typical for the application of a fiberglass patch.

Table 1. Lay-Out Details.

AREA	NOTES	LAY-OUT
HULL	1	Gelcoat 1 oz. Mat 1 Unit Coremat 1 Unit

Table 1. Lay-Out Details. (Continued)

AREA	NOTES	LAY-OUT
TRANSOM	1, 2 and 3	Gelcoat 1 oz. Mat 2 Units ¾ in. Plywood 1½ oz. Mat ¾ in. Plywood 4½ oz. Mat 2 Units 1 oz. Mat Gelcoat
DECK HORIZONTAL SURFACE	1, 2 and 3	Gelcoat 1 oz. Mat 1 Unit Syntactic Foam 5/8 in. Plywood 1 Unit
Lay-Out Schedule Notes		
1	1 Unit shall be 1 oz. Mat and 18 oz. Woven Roving.	
2	Syntactic Foam: 1 part Milled Fibre, 2 parts Resin, 3 parts Glass Bubbles. Thicken as required with Milled Fibre.	
3	Resin shall be polyester isophthalic in hull and orthophthalic in deck and transom.	

- a. Create templates from Kraft paper starting with a size outside the prepared area and making progressively smaller ones to equal the thickness of the laminate being repaired.
- b. Cut fiberglass cloth pieces with scissors to equal the templates.
- c. Clean the prepared area with a wiping rag soaked in acetone.

—————
WARNING
—————



CHEMICAL



EYE PROTECTION

NOTE

After mixing, the resin with hardener can be used for approximately 20 - 30 minutes.

- d. Mix hardener into the resin can.
- e. Lay out a sheet of polyethylene cellophane (separating film), larger than the largest piece of fiberglass cloth, on a horizontal surface.
- f. Place the largest piece of fiberglass on the film.

-
- g. Apply mixed resin on the fiberglass cloth using a putty knife.
 - h. Center the next largest piece of fiberglass cloth on top of first piece and apply as little resin as possible on second cloth.
 - i. Using putty knife, work the resin into the patch until it becomes clear and without white patches, which indicates areas that are not saturated sufficiently with resin.
 - j. Repeat steps i and j until all cutout pieces of fiberglass cloth have been applied and saturated with resin, and the repair patch takes on a cone shape.
3. Install repair patch on damaged area.
 - a. Apply a thin layer of mixed resin on prepared area.
 - b. Center film with new patch on it over the repair area, aligning patch as necessary.
 - c. Smooth and work the patch into place using finger pressure and the putty knife.
 - d. Holding the patch in place, position a backing plate over the film and patch area, securing in place with a block of wood.

NOTE

Lower temperatures raise resin cure time up to 24 hours. After 24 hours, the resin should be fully cured.

- e. If the repair area temperature is maintained above 60°F (13°C) and 3 to 4 hours have elapsed, remove backing plate.
- f. Test repaired area by gently pressing into it with a sharp object for hardness, indicating proper cure.

NOTE

If the surface of the patch is rubbery, the area is not completely cured and requires the area temperature to be raised (not to exceed 80°F or 23°C) to finish curing with the backing plate left off.

- g. Inspect the cure to ensure the bond between patch and repair area for raised or cloudy areas, incorrect alignment, voids or evidence of poorly bonded areas.
- h. If multiple defects are detected, remove the patch and repeat the patching process.
- i. If patch is determined to be good, sand the patch using coarse then medium grade sandpaper on repair area until smooth being careful not to sand patch edges excessively.
- j. Paint sanded area to match the surrounding structure as necessary.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT HULL
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Saw, Jig, Electric, Portable (Item 60, WP 0359 00)
 Blades, Jig Saw Metal Cutting, Fine Tooth (Item 7, WP 0359 00)
 Grinder, Pneumatic, High Speed (Item 30, WP 0359 00)
 Tape, Measuring (Item 74, WP 0359 00)
 Scissors, Ladies (Item 63, WP 0359 00)

Materials/Parts

Kit, Fiberglass Repair
 (18731)
 PN 100370
 Acetone, Technical (Item 1, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Disk, Abrasive (Item 17, WP 0359 00)
 Disk, Sanding, Coarse (Item 18, WP 0359 00)
 Block, Shoring (Item 6, WP 0359 00)

Personnel Required

Engineer 88L

Equipment Condition

RHIB Dry-Docked.

REPAIR RHIB HULL - TYPE 3 FIBERGLASS REPAIR

WARNING



EYE PROTECTION POISON VAPOR CHEMICAL

Fiberglass dust is extremely abrasive. Areas near the repair must be covered and protected from fiberglass dust and resin. Respirators, gloves and goggles must be worn at all times. Failure to comply may result in injury or death.

NOTE

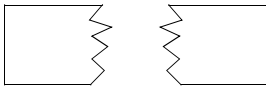
Type 3 repairs affect damage to non-cored hull laminate that shows obvious internal damage or damage to nearby structural member.

The repair area temperature should be controlled between 50° and 75°F (8° and 20°C) to ensure proper curing of the resins.

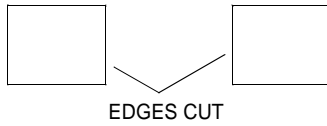
1. Prepare damaged area.

a. Cut out damaged area with a power jig using a fine tooth, metal blade.

1. BEFORE



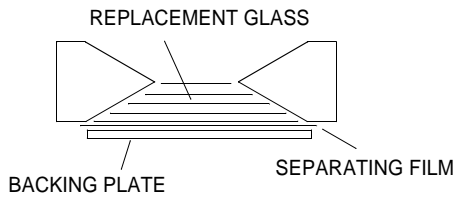
2. DAMAGED MATERIAL CUT AWAY



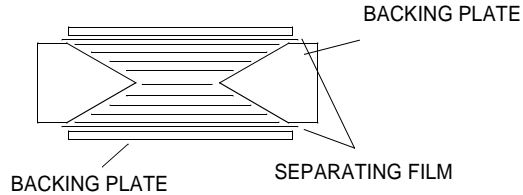
3. AFTER PREPARATION



4. ONE SIDE REPAIR COMPLETE



5. REPAIR COMPLETE



b. Using a grinder or disc sander, grind and sand the cutout edges to a minimum 20° included angle.

c. Bevel the outside and inside back a distance equal to six times laminate thickness for a feathered edge centered in the middle of laminate.

WARNING



EYE PROTECTION



POISON



VAPOR



CHEMICAL

2. Prepare repair patch for application.

NOTE

The thickness of the repair patch and components to be used depends of the portion of the hull being repaired.

The following steps are typical for the application of a fiberglass patch.

Table 1. Lay-Out Details.

AREA	NOTES	LAY-OUT
HULL	1	Gelcoat 1 oz. Mat 1 Unit Coremat 1 Unit

Table 1. Lay-Out Details.

AREA	NOTES	LAY-OUT
TRANSOM	1, 2 and 3	Gelcoat 1 oz. Mat 2 Units ¾ in. Plywood 1½ oz. Mat ¾ in. Plywood 4½ oz. Mat 2 Units 1 oz. Mat Gelcoat
DECK HORIZONTAL SURFACE	1, 2 and 3	Gelcoat 1 oz. Mat 1 Unit Syntactic Foam 5/8 in. Plywood 1 Unit
Lay-Out Schedule Notes		
1	1 Unit shall be 1 oz. Mat and 18 oz. Woven Roving.	
2	Syntactic Foam: 1 part Milled Fibre, 2 parts Resin, 3 parts Glass Bubbles. Thicken as required with Milled Fibre.	
3	Resin shall be polyester isophthalic in hull and orthophthalic in deck and transom.	

- a. Create templates from Kraft paper starting with a size outside the prepared area and making progressively smaller ones to equal thickness of laminate being repaired.
- b. Cut glass cloth pieces with scissors to equal templates.
- c. Clean the prepared area with a wiping rag soaked in acetone.

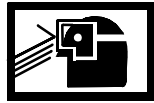
NOTE

After mixing, the resin with hardener can be used for approximately 20 - 30 minutes.

- d. Mix hardener into the resin can.
- e. Lay out a sheet of polyethylene cellophane (separating film), larger than the largest piece of fiberglass cloth, on a horizontal surface.
- f. Place largest piece of fiberglass on film.
- g. Apply mixed resin on the fiberglass cloth using a putty knife.
- h. Center next largest piece of fiberglass cloth on top of first piece and apply as little resin as possible on second cloth.
- i. Using putty knife, work the resin into patch until it becomes clear and without white patches, which indicates areas that are not saturated sufficiently with resin.

- j. Repeat steps i and j until all cutout pieces of fiberglass cloth have been applied and saturated with resin and repair patch takes on a cone shape.

WARNING



EYE PROTECTION



POISON



VAPOR



CHEMICAL

3. Install repair patch on damaged area.
 - a. Apply a thin layer of mixed resin on prepared area.
 - b. Center film with new patch on it over the repair area, aligning patch as necessary.
 - c. Smooth and work the patch into place using finger pressure and putty knife.
 - d. Holding patch in place, position a backing plate over film and patch area, securing in place with a block of wood.

NOTE

Lower temperatures raise the resin cure time up to 24 hours. After 24 hours, resin should be fully cured.

- e. If repair area temperature is maintained above 60°F (13°C) and 3 to 4 hours have elapsed, remove backing plate.
- f. Test repaired area by gently pressing into it with a sharp object for hardness, indicating proper cure.

NOTE

If the surface of the patch is rubbery, the area is not completely cured and requires the area temperature to be raised (not to exceed 80°F or 23°C) to finish curing with the backing plate left off.

- g. Inspect the cure to ensure the bond between the patch and the repair area for raised or cloudy areas, incorrect alignment, voids or evidence of poorly bonded areas.
- h. If multiple defects are detected, remove patch and repeat patching process.
- i. If patch is determined to be good, sand patch with coarse then medium grade sandpaper on repair area until smooth being careful not to sand patch edges excessively.
- j. Paint sanded area to match surrounding structure as necessary.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT HULL
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Saw, Jig, Electric, Portable (Item 60, WP 0359 00)
 Blades, Jig Saw Metal Cutting, Fine Tooth (Item 7, WP 0359 00)
 Grinder, Pneumatic, High Speed (Item 30, WP 0359 00)
 Tape, Measuring (Item 74, WP 0359 00)
 Scissors, Ladies (Item 63, WP 0359 00)

Materials/Parts

Kit, Fiberglass Repair
 (18731)
 PN 100370
 Acetone, Technical (Item 1, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Disk, Abrasive (Item 17, WP 0359 00)
 Disk, Sanding, Coarse (Item 18, WP 0359 00)
 Block, Shoring (Item 6, WP 0359 00)

Personnel Required

Engineer 88L

Equipment Condition

RHIB Dry-Docked.

REPAIR RHIB HULL - TYPE 4 FIBERGLASS REPAIR

WARNING



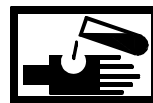
EYE PROTECTION



POISON



VAPOR



CHEMICAL

Fiberglass dust is extremely abrasive. Areas near the repair must be covered and protected from fiberglass dust and resin. Respirators, gloves and goggles must be worn at all times. Failure to comply may result in injury or death.

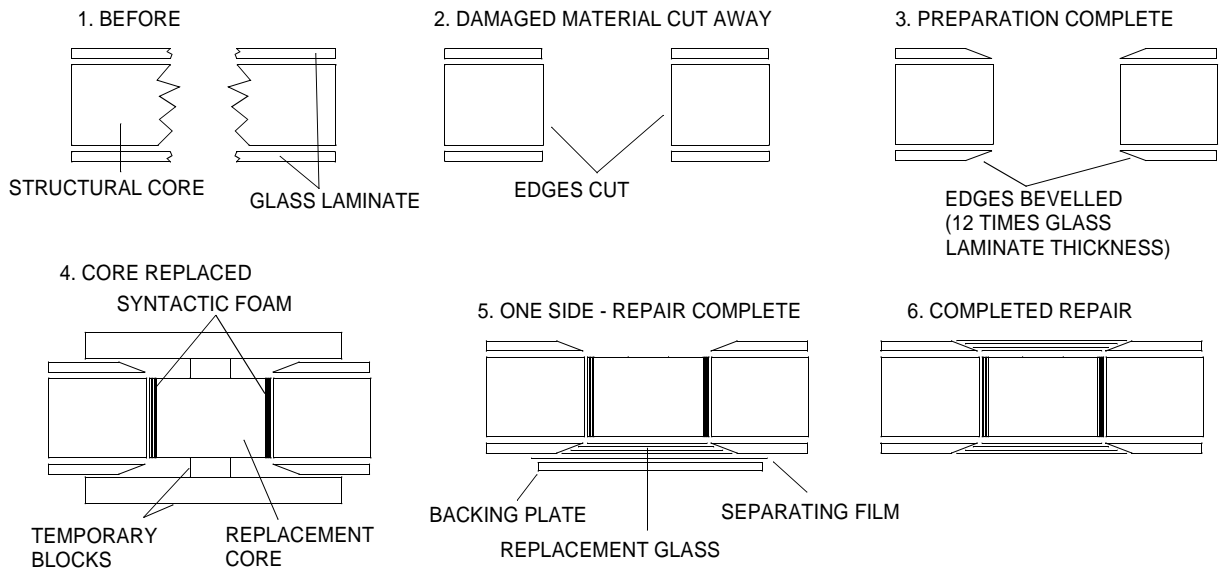
NOTE

Type 4 repairs affect severe damage to cored hull laminate in structural areas.

The repair area temperature should be controlled between 50° and 75°F (8° and 20°C) to ensure proper curing of the resins.

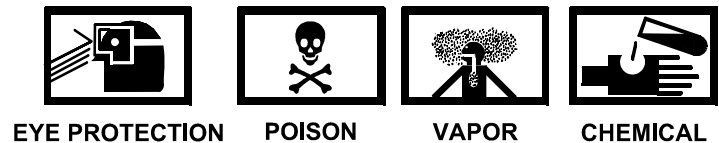
1. Prepare damaged area.

- a. Cut out damaged area with a power jig using a fine tooth, metal blade.



- b. Using a grinder or suitable disc sander, grind and sand the cutout edges to a minimum 20° included angle.
- c. Bevel outside and inside back a distance equal to 12 times the laminate thickness for a feathered edge centered in the middle of laminate.

WARNING



2. Prepare repair patch for application.

NOTE

The thickness of the repair patch and components to be used depends of the portion of the hull being repaired.

The following steps are typical for the application of a fiberglass patch.

Table 1. Lay-Out Details.

AREA	NOTES	LAY-OUT
HULL	1	Gelcoat 1 oz. Mat 1 Unit Coremat 1 Unit

Table 1. Lay-Out Details.

AREA	NOTES	LAY-OUT
TRANSOM	1, 2 and 3	Gelcoat 1 oz. Mat 2 Units ¾ in. Plywood 1½ oz. Mat ¾ in. Plywood 4½ oz. Mat 2 Units 1 oz. Mat Gelcoat
DECK HORIZONTAL SURFACE	1, 2 and 3	Gelcoat 1 oz. Mat 1 Unit Syntactic Foam 5/8 in. Plywood 1 Unit
Lay-Out Schedule Notes		
1	1 Unit shall be 1 oz. Mat and 18 oz. Woven Roving.	
2	Syntactic Foam: 1 part Milled Fibre, 2 parts Resin, 3 parts Glass Bubbles. Thicken as required with Milled Fibre.	
3	Resin shall be polyester isophthalic in hull and orthophthalic in deck and transom.	

- a. Create templates from Kraft paper starting with a size outside the prepared area and making progressively smaller ones to equal thickness of laminate being repaired.
- b. Cut glass cloth pieces with scissors to equal templates.
- c. Clean prepared area with a wiping rag soaked in acetone.

NOTE

After mixing, the resin with hardener can be used for approximately 20 - 30 minutes.

- d. Mix hardener into resin can.
- e. Lay out a sheet of polyethylene cellophane (separating film), larger than largest piece of fiberglass cloth, on a horizontal surface.
- f. Place largest piece of fiberglass on film.
- g. Apply mixed resin on the fiberglass cloth using putty knife.
- h. Center next largest piece of fiberglass cloth on top of first piece and apply as little resin as possible on second cloth.
- i. Using putty knife, work resin into the patch until it becomes clear and without white patches, which indicates areas that are not saturated sufficiently with resin.

-
- j. Repeat steps i and j until all cutout pieces of fiberglass cloth have been applied and saturated with resin and the repair patch takes on a cone shape.
3. Install repair patch on damaged area.
 - a. Apply a thin layer of mixed resin on prepared area.
 - b. Center film with new patch on it over repair area, aligning patch as necessary.
 - c. Smooth and work the patch into place using finger pressure and putty knife.
 - d. Holding patch in place, position a backing plate over film and patch area, securing in place with a block of wood.

NOTE

Lower temperatures raise resin cure time up to 24 hours. After 24 hours, resin should be fully cured.

- e. If repair area temperature is maintained above 60°F (13°C) and 3 to 4 hours have elapsed, remove backing plate.
- f. Test repaired area by gently pressing into it with a sharp object for hardness, indicating proper cure.

NOTE

If surface of the patch is rubbery, the area is not completely cured and requires the area temperature to be raised (not to exceed 80°F or 23°C) to finish curing with the backing plate left off.

- g. Inspect the cure to ensure the bond between the patch and the repair area for raised or cloudy areas, incorrect alignment, voids or evidence of poorly bonded areas.
- h. If multiple defects are detected, remove the patch and repeat patching process.
- i. If patch is determined to be good, sand the patch with coarse then medium grade sandpaper on repair area until smooth being careful not to sand patch edges excessively.
- j. Paint the sanded area to match surrounding structure as necessary.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT INFLATABLE TUBE
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Respirator, Air Filtering (Item 59, WP 0359 00)
Fid (12 in. Wood) (Item 18, WP 0359 00)
Repair Kit, Black (Item 57, WP 0359 00)

Materials/Parts

Cloth, Cleaning (Item 14, WP 0358 00)
Detergent, General Purpose (Item 15, WP 0358 00)

Personnel Required

Engineer 88L

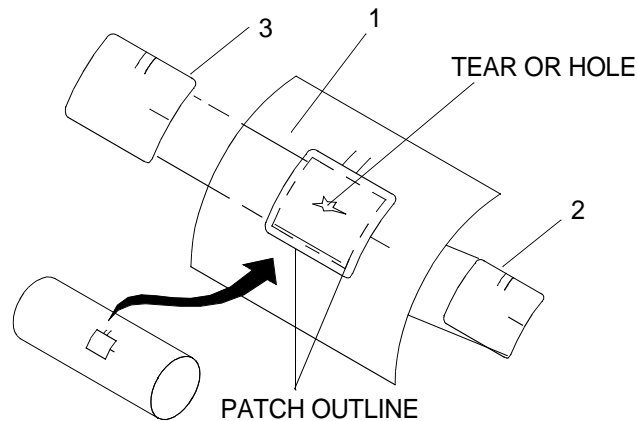
Equipment Condition

RHIB Dry-Docked.

REPAIR RHIB INFLATABLE TUBE LARGE TEAR OR HOLE**NOTE**

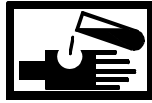
A large tear or hole is considered major damage in the middle of a panel between 2 in. and 15 in. and requires both an inside and outside patch. Repair work is limited to the amount of available repair materials.

1. Measure the hole or tear in the inflatable tube (1) to be repaired.

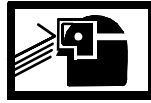


2. Lengthen the tear, depending upon its size, to allow for an internal working space.
3. Select an inner patch (2) with a radius of 3 - 5 in. (75 - 125 mm) larger than the hole or tear being repaired.
4. Select an outer patch (3) with a radius of 1 in. (25 mm) larger than the inner patch (2).
5. Lay the inflatable tube (1) as flat as possible.

WARNING



CHEMICAL



EYE PROTECTION

CAUTION

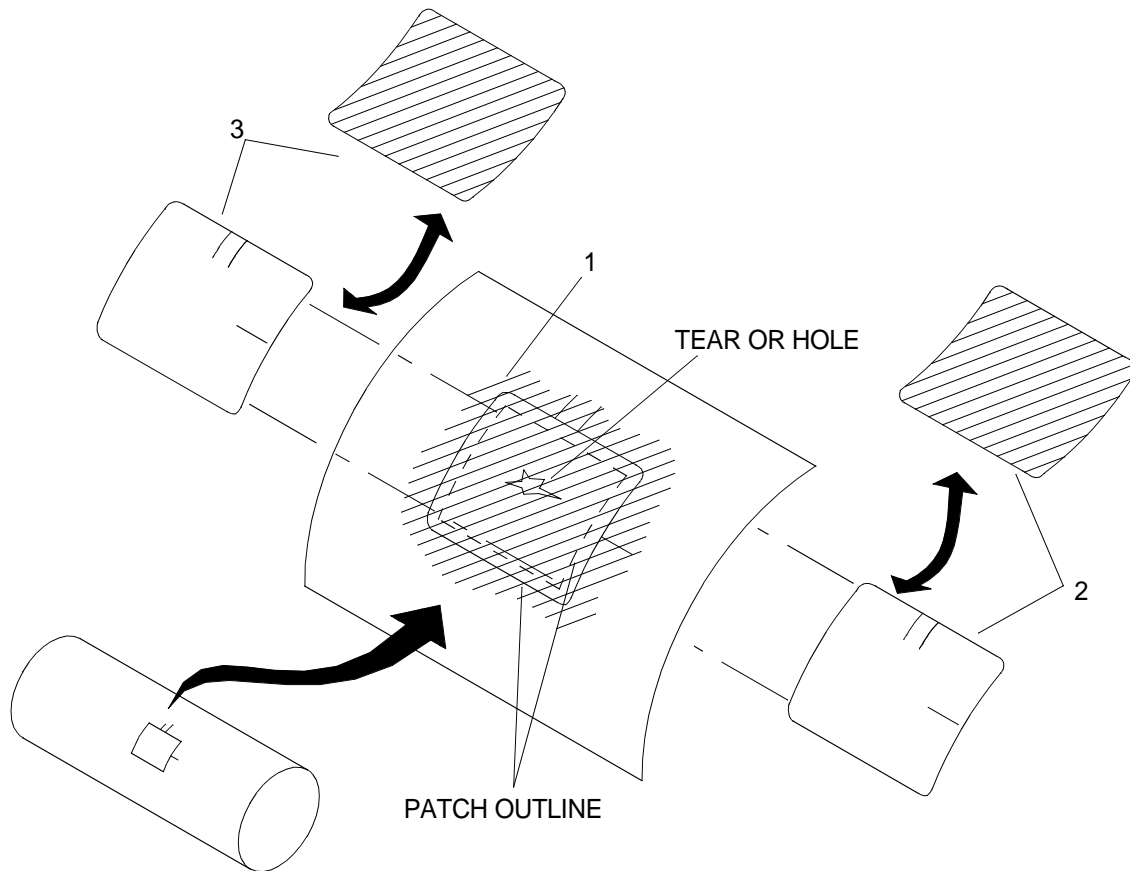
The inflatable tube is constructed of hypalon fabric. Do not use solvent based cleaners. Failure to comply will cause damage to equipment.

NOTE

The ideal environmental conditions for repairing the inflatable tube on the RHIB are less than 60% humidity, a shaded dry area and an ambient temperature between 65° and 77°F (18° and 25°C)

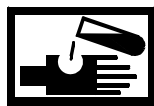
6. Clean the inflatable tube (1) with general purpose cleaner 4 in. all the way around the damaged area inside and out.
7. Allow inflatable tube (1) 5 min. to dry.
8. Insert the inner patch (2) inside the inflatable tube (1) through the tear, providing sufficient overlap in all directions.
9. Using a marker, trace the tear on the inner patch (2).
10. Remove the inner patch (2).

11. Using a pumice stone, buff both areas inside and outside the inflatable tube (1) where both patches (2 and 3) will be applied.



12. Using a pumice stone, buff the contact surface of both patches (2 and 3).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

13. Apply the glue for inner patch (2) application.
- a. Apply a thin first coat of glue from the repair kit to the inner bonding surface of the inflatable tube (1).
 - b. Apply a thin first coat of glue from the repair kit to the contact surface of the inner patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying second coat. Failure to comply could result in a failed patch and cause damage to equipment.

- c. Allow the glue to dry for 5-10 min. or until tacky.

- d. Apply a thin second coat of glue from the repair kit to inner bonding surface of the inflatable tube (1).
- e. Apply a thin second coat of glue from the repair kit to the contact surface of inner patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying third coat. Failure to comply could result in a failed patch and cause damage to equipment.

- f. Allow the glue to dry for 5-10 min. or until tacky.
- g. Apply a thin third coat of glue from the repair kit to inner bonding surface of the inflatable tube (1).
- h. Apply a thin third coat of glue from the repair kit to the contact surface of inner patch (2).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying the patch to the inflatable tube. Failure to comply could result in a failed patch and cause damage to equipment.

- i. Allow the glue to dry for 5-10 min. or until tacky.
14. Insert the inner patch (2) through the tear, lining up one side of the pen mark with one edge of repair.
15. Press one side of the tear to the inner patch (2) first, then the other side.
16. Using a fid, press both lips of the tear firmly together, smoothing thoroughly to remove any air bubbles.
17. Allow 12 hours to dry before testing the inflatable tube (1) for air retention. (WP 0358 00)
18. If repair proves airtight, apply outer patch (3).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

19. Apply the glue for outer patch (3) application.
 - a. Apply a thin first coat of glue from the repair kit to the inner bonding surface of the inflatable tube (1).
 - b. Apply a thin first coat of glue from the repair kit to the contact surface of the outer patch (3).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying second coat. Failure to comply could result in a failed patch and cause damage to equipment.

- c. Allow the glue to dry for 5-10 min. or until tacky.

-
- d. Apply a thin second coat of glue from the repair kit to inner bonding surface of the inflatable tube (1).
 - e. Apply a thin second coat of glue from the repair kit to the contact surface of outer patch (3).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying third coat. Failure to comply could result in a failed patch and cause damage to equipment.

- f. Allow the glue to dry for 5-10 min. or until tacky.
- g. Apply a thin third coat of glue from the repair kit to inner bonding surface of the inflatable tube (1).
- h. Apply a thin third coat of glue from the repair kit to the contact surface of outer patch (3).

CAUTION

Glue drying times may vary due to temperature and humidity, ensure the glue is tacky before applying the patch to the inflatable tube. Failure to comply could result in a failed patch and cause damage to equipment.

- i. Allow the glue to dry for 5-10 min. or until tacky.
- 20. Lay the outer patch (3) on the damaged area of the inflatable tube (1) without pressing down on the outer patch (3).
 - 21. Adjust the position of the outer patch (3) so that it is centered over the damaged area.
 - 22. Using a fid, start at the center of the outer patch (3) and move outward removing any air bubbles that have formed under the outer patch (3).
 - 23. Allow 12 hours to drying before testing the inflatable tube (1) for air retention. (WP 0280 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT FIRE EXTINGUISHER
REPLACEMENT**

INITIAL SETUP:**Tools**

Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

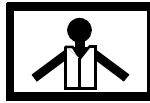
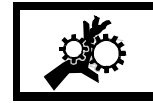
Extinguisher, Fire
(38915)
PN E-D-10020

Personnel Required

Engineer 88L

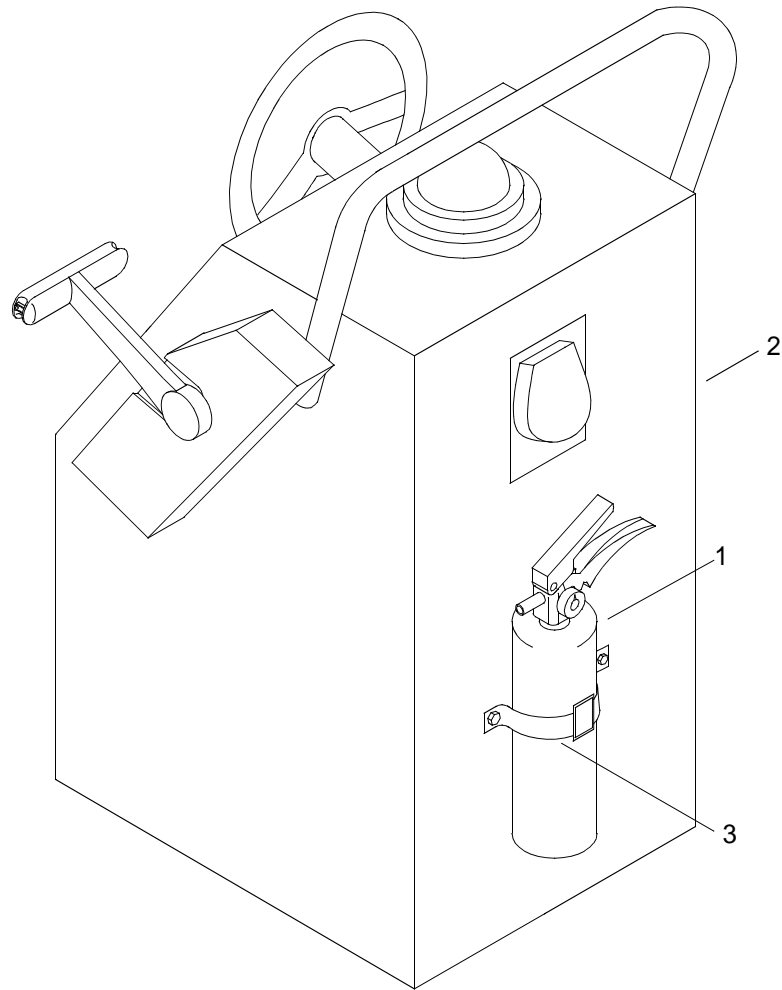
REMOVE RHIB FIRE EXTINGUISHER

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 fire extinguisher (1) on forward end of control console (2).



2. Support weight of fire extinguisher (1).
3. Open fire extinguisher latch (3) and remove fire extinguisher (1).
4. Dispose of fire extinguisher (1) in accordance with local procedures.

INSTALL FIRE EXTINGUISHER

NOTE

Verify new fire extinguisher service date has not been exceeded prior to installation.

1. Position new extinguisher (1) on forward end of control console (2).
2. Close latch (3) to secure fire extinguisher (1) to control console (2).

END OF WORK PACKAGE

UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT SEAT FORWARD HANDLE
REPLACEMENT

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

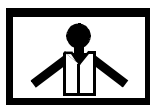
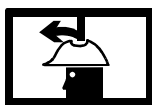
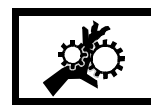
Handle, Forward
 (38915)
 PN M-P-10035

Personnel Required

Engineer 88L

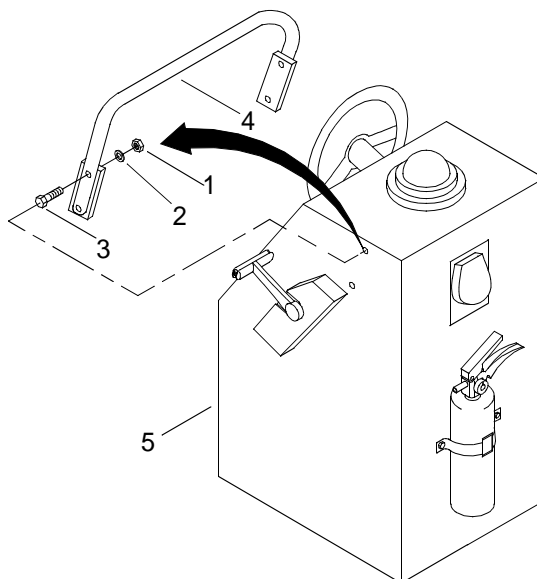
REMOVE RHIB SEAT FORWARD HANDLE

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 four hex nuts (1), washers (2) and hex head bolts (3) securing the forward handle (4) to the forward sides of the operators console (5).



2. Remove the forward handle (4) and discard.

INSTALL RIGID HULL INFLATABLE BOAT SEAT FORWARD HANDLE

1. Position new forward handle (4) on the forward sides of the operators console (5).
2. Install four hex heads bolts (3), washers (2) and hex head nuts (1) to secure the forward handle (4) to the operators console (5). Tighten hex head nuts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT SEAT AFT HANDLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

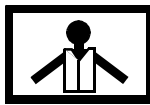
Handle, Aft
 (38915)
 PN M-P-10030-P

Personnel Required

Engineer 88L

REMOVE RHIB SEAT AFT HANDLE

WARNING



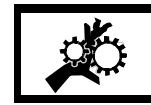
VEST



HELMET PROTECTION



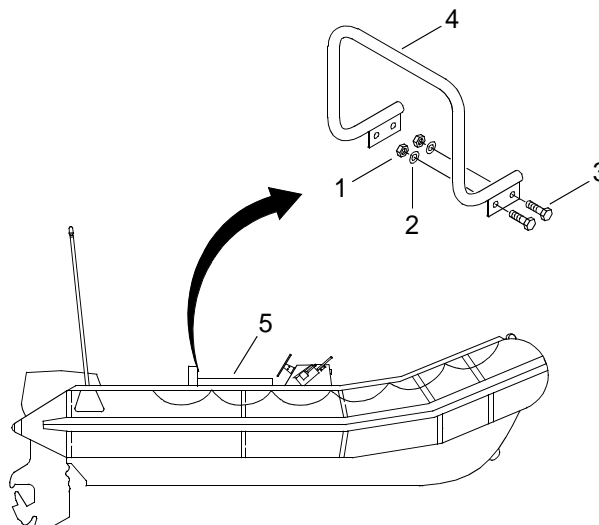
HEAVY PARTS



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 four hex nuts (1), washers (2) and hex head bolts (3) securing the aft handle (4) to the rear sides of the operators seat (5).



2. Remove the aft handle (4) and discard.

INSTALL RIGID HULL INFLATABLE BOAT SEAT AFT HANDLE

1. Position new aft handle (4) on the rear sides of the operators seat (5).
2. Install four hex heads bolts (3), washers (2) and hex head nuts (1) to secure the aft handle (4) to the operators seat (5). Tighten hex head nuts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT SEAT BELT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

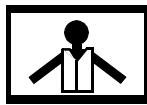
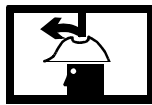
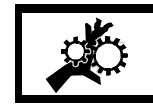
Belt, Seat
 (38915)
 PN M-P-10211

Personnel Required

Engineer 88L

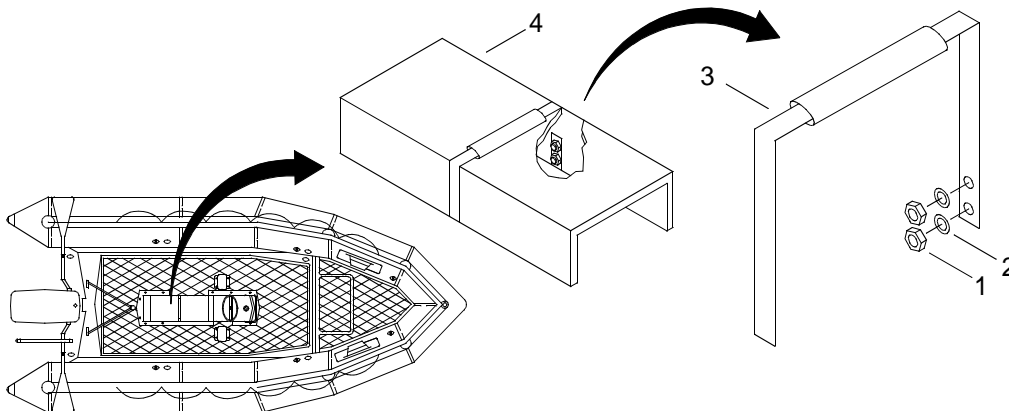
REMOVE RHIB SEAT BELT

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 hex nuts (1) and washers (2) securing the seat belt (3) to studs beneath the operators seat (4).



2. Remove the seat belt (3) and discard.

INSTALL RIGID HULL INFLATABLE BOAT SEAT BELT

1. Position new seat belt (3) over the operators seat (4) and pull under the bottom edge of the operators seat (4).
2. Position the ends of the seat belt (3) over studs beneath the operators seat (4).
3. Install four washers (2) and hex nuts (1) to secure the seat belt (3) to the studs beneath the operators seat (4).
Tighten nuts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT COMPASS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Compass
(38915)
PN Z-H-5301590

Personnel Required

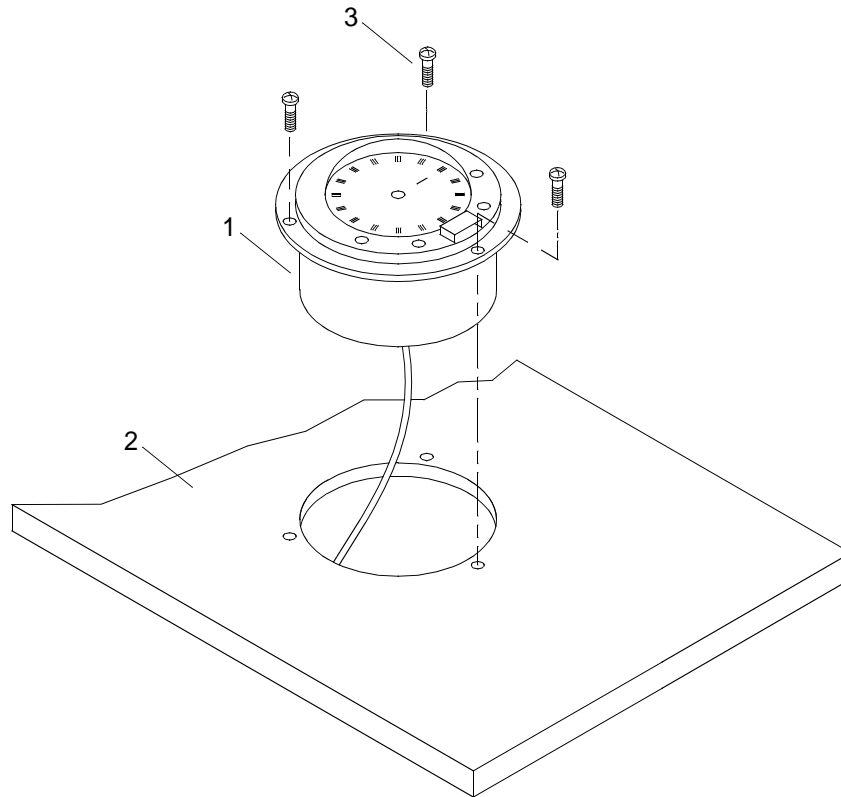
Engineer 88L

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB COMPASS

1. Locate compass (1) on top of operators control console (2).



2. Tag and disconnect electrical wire to the compass (1) from beneath the operators control console (2).

3. Remove three screws (3) securing compass (1) to top of operators control console (2).
4. Remove compass (1).

INSTALL RHIB COMPASS

1. Position new compass (1) on top of operators control console (2).
2. Install three screws (3) and tighten.
3. Connect electrical wire and remove tag.
4. Install RHIB battery negative lead terminal. (WP 0336 00)
5. Check RHIB compass deviation. (WP 0292 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT COMPASS
DEVIATION CHECK**

INITIAL SETUP:**Tools**

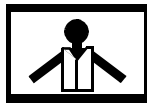
Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
Helmet, Safety (Brown) (Item 33, WP 0359 00)
Life Preserver, Vest (Item 38, WP 0359 00)
Screwdriver, Flat Tip (Item 66, WP 0359 00)

Personnel Required

Engineer 88L

ADJUST RHIB COMPASS DEVIATION

WARNING



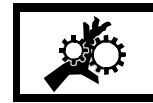
VEST



HELMET PROTECTION



HEAVY PARTS

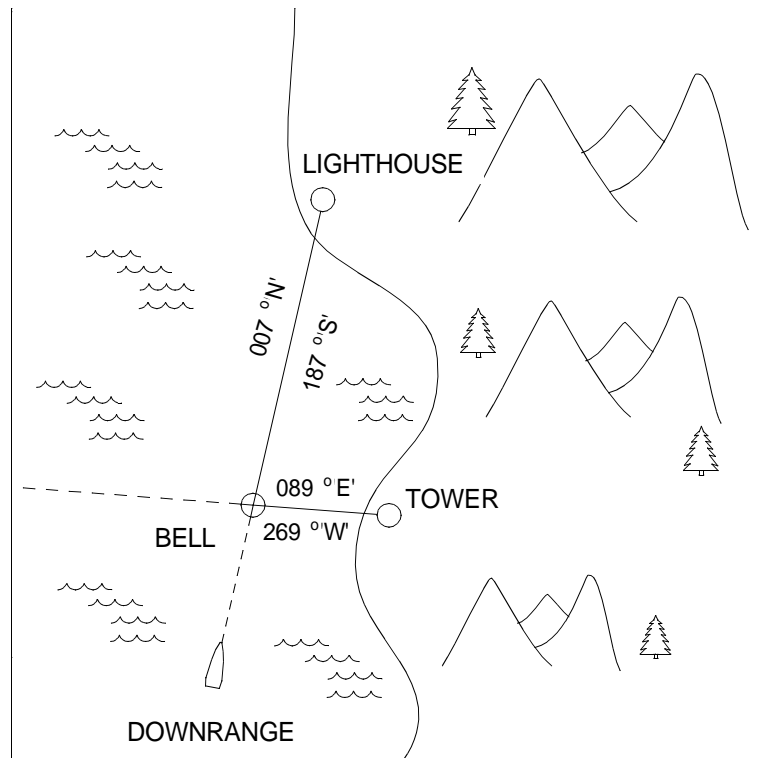


MOVING PARTS

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. Check that compass is secured in position and not loose.
2. Secure all magnetic equipment in its sea going position.
3. Using a non-magnetic screwdriver, turn screws to the horizontal position.

4. Locate two identifiable marks, buoys or other fixed objects on the navigation chart, that are within ten degrees of the north/south line.



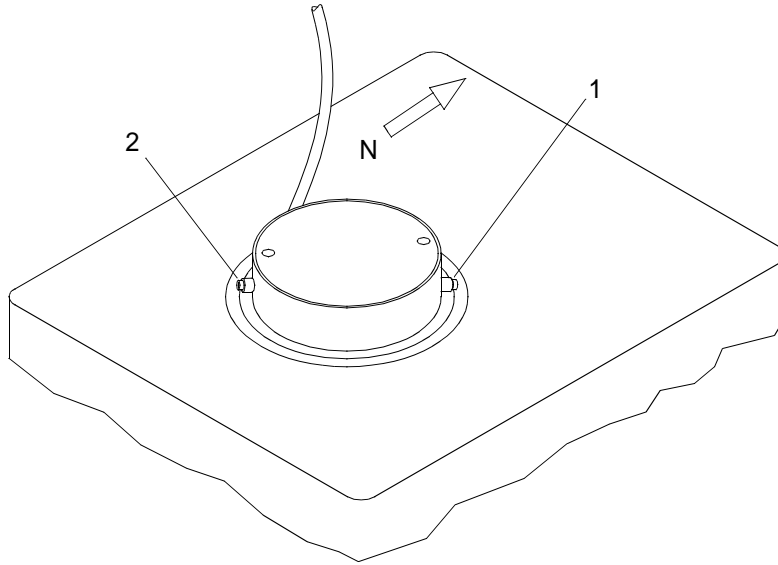
5. Plot a course between the two points located in the previous step on the chart.
6. Position the boat down range of the fixed objects selected.
7. Visually position the boat in line with the two fixed objects.
8. Keep the boat as true as possible on the line created between the fixed points.
9. Keeping the boat on the line, travel in a northerly direction.
10. Using the port/starboard screw (1), adjust the compass until the compass reads north.
11. Keeping the boat on the line travel in a southerly direction.
12. Take note of any error on the compass.

NOTE

If adjustment of the compass is required while traveling in the southerly direction, an alignment problem exists. The compass will need to be removed and re-aligned with the keel of the boat. Perform this alignment procedure only if the compass requires adjustment while traveling in a southerly direction on the line previously used to travel north.

13. Rotate the compass one half of the error noted in step 9a.

-
14. Keeping the boat on line travel in a northerly direction.



15. Using the port/starboard screw (1), adjust the compass until the compass reads north.
16. Locate two identifiable marks, buoys or other fixed objects on the navigation chart, that are within ten degrees of the east/west line.
17. Plot a course between the two points located in the previous step, on the chart.
18. Position the boat down range of the fixed objects selected.
19. Visually position the boat in line with the two fixed objects.

NOTE

Keep the boat as true as possible on the line created between the fixed points

20. Keeping the boat on line, travel in an easterly direction.
21. If adjustment is necessary, use the forward/aft screw (2), adjust the compass.
22. Keeping the boat on the line, travel in a westerly direction.
23. If adjustment is necessary, use the forward/aft screws.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT BOW LIGHT BULB
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Light, Bow
 (38915)
 PN E-L-30000

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

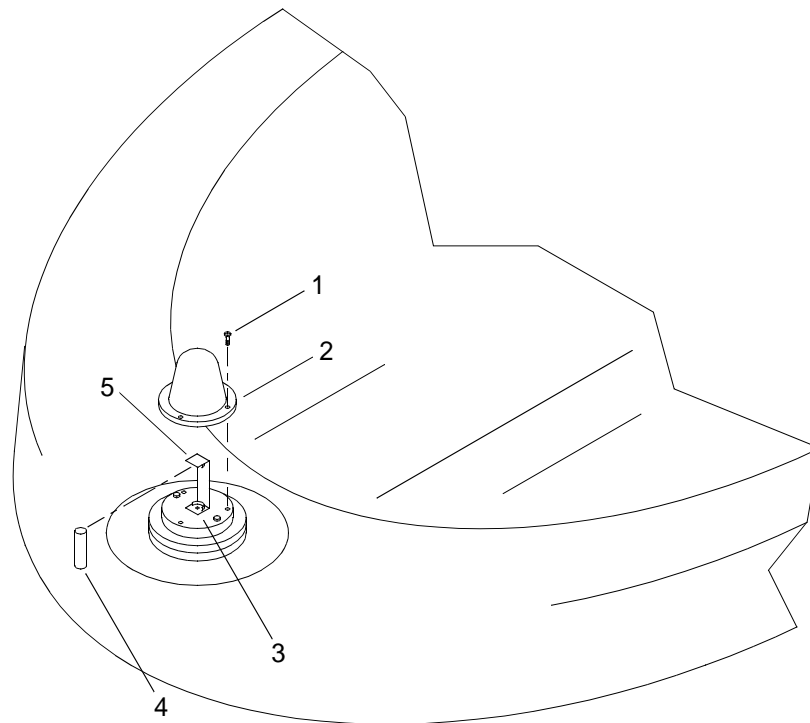
REPLACE RHIB BOW LIGHT BULB

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 three phillips head bolts (1) securing lens cover (2) to accessory mount (3).



2. Remove lens cover (2).
3. Carefully grasp light bulb (4) and remove from electrical mount (5). Discard bulb (4).

INSTALL RHIB STERN LIGHT BULB

1. Install new light bulb (4) into electrical mount (5).
2. Position lens cover (2) on accessory mount (3).
3. Install three phillips head bolts (1) to secure lens cover (2) to accessory mount (3). Tighten bolts (1).
4. Install RHIB battery negative lead terminal. (WP 0336 00)
5. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT STERN LIGHT BULB
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

Engineer 88L

References

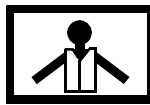
TM 55-1945-205-10-2

Equipment Condition

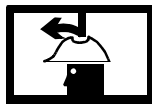
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB STERN LIGHT BULB

WARNING



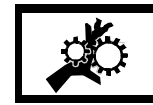
VEST



HELMET PROTECTION



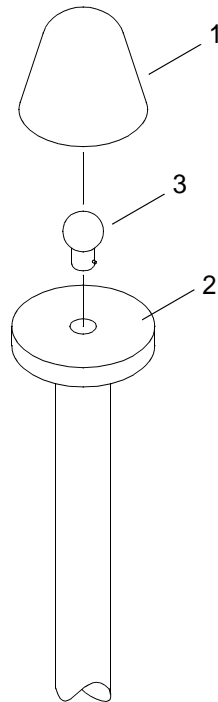
HEAVY PARTS



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. Compress bottom rim of plastic lens cap (1) and remove from top of stern mast (2).



2. Press down and rotate bulb (3) counterclockwise to unlock from stern mast (2).
3. Remove bulb (3) from stern mast (2) and discard bulb (3).

INSTALL RHIB STERN LIGHT BULB

1. Install new light bulb (3) into top of stern mast (2) by pushing down and rotating clockwise to lock in place.
2. Install plastic lens cap (1) by snapping into place on top of stern mast (2).
3. Install RHIB battery negative lead terminal. (WP 0336 00)
4. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT HORN
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Horn, Electric Group
(38915)
PN Z-H-5905190

Personnel Required

Engineer 88L

References

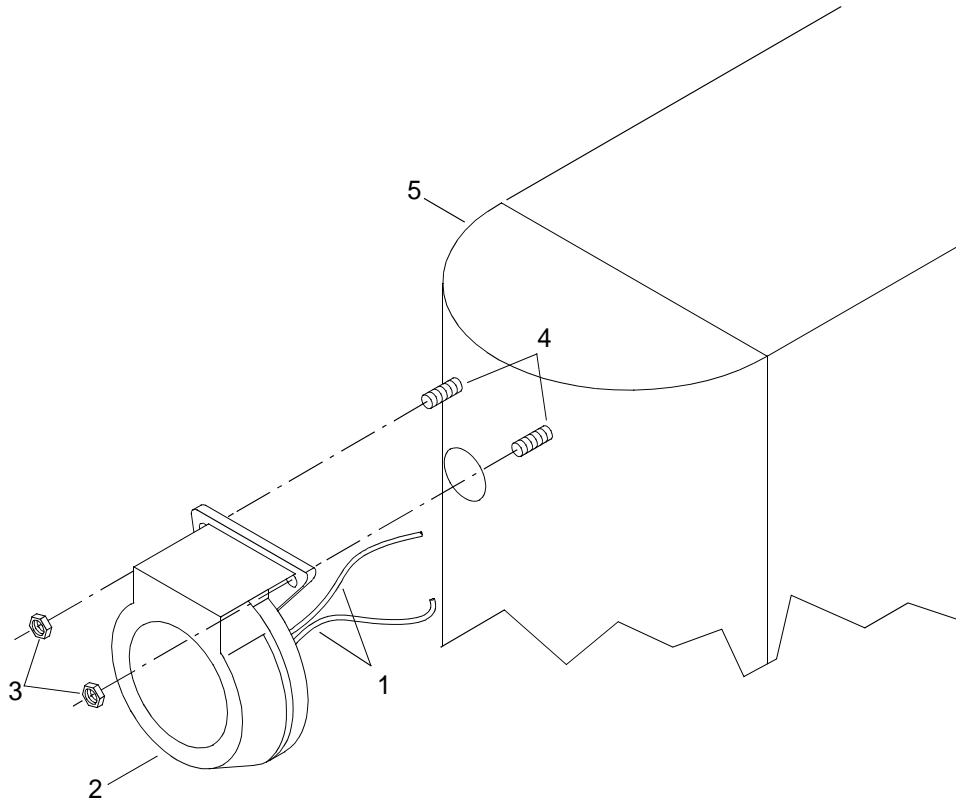
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REPLACE RHIB HORN

1. Tag and disconnect electrical wiring (1) from horn (2).



2. Remove two hex nuts (3) from mounting studs (4).
3. Remove horn (2) and discard.

INSTALL RIGID HULL INFLATABLE BOAT HORN

1. Feed horn wiring (1) of new horn (2) through front of control housing (5).
2. Position new horn (2) onto mounting studs (4).
3. Install two hex nuts (3) on mountings studs (4). Tighten nuts (3).
4. Connect wiring (1) and remove tags.
5. Install RHIB battery negative lead terminal. (WP 0336 00)
6. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT OUTBOARD ENGINE
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Sling, 5300 lb, 4 ft (Green) (Item 70, WP 0359 00)
Shackle, ½ in. 2 Ton (Item 67, WP 0359 00)

Personnel Required

Engineer 88L

References

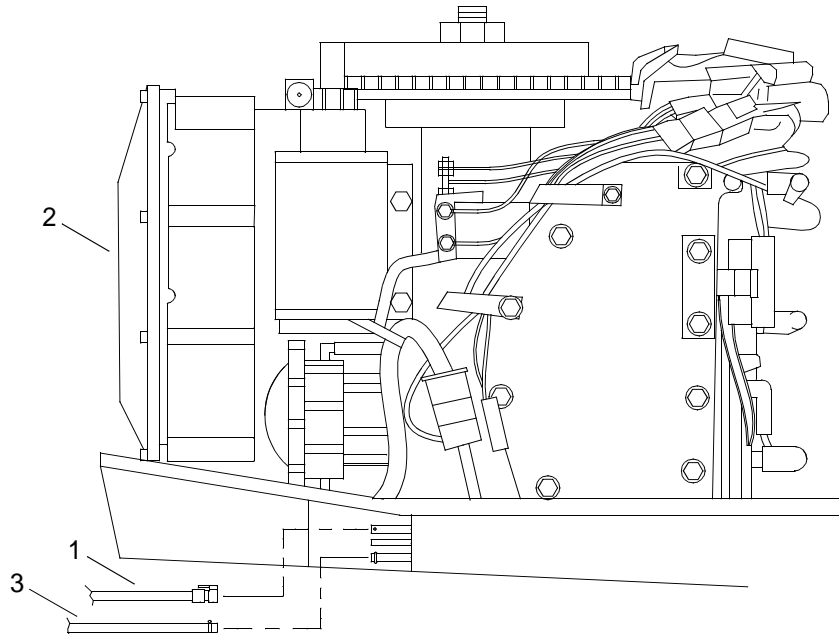
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)
RHIB Power Steering Hoses Removed. (WP 0261 00)
RHIB Steering Cylinder Removed. (WP 0262 00)

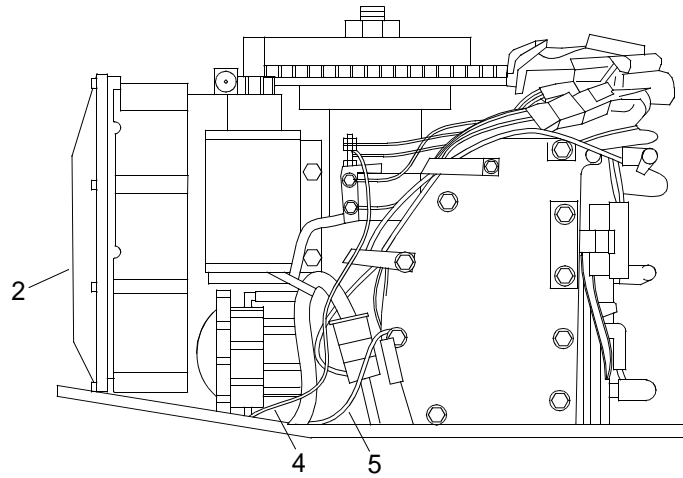
REMOVE RHIB OUTBOARD ENGINE

1. Remove fuel hose (1) from side of the engine (2) by depressing spring flange and pulling backwards.

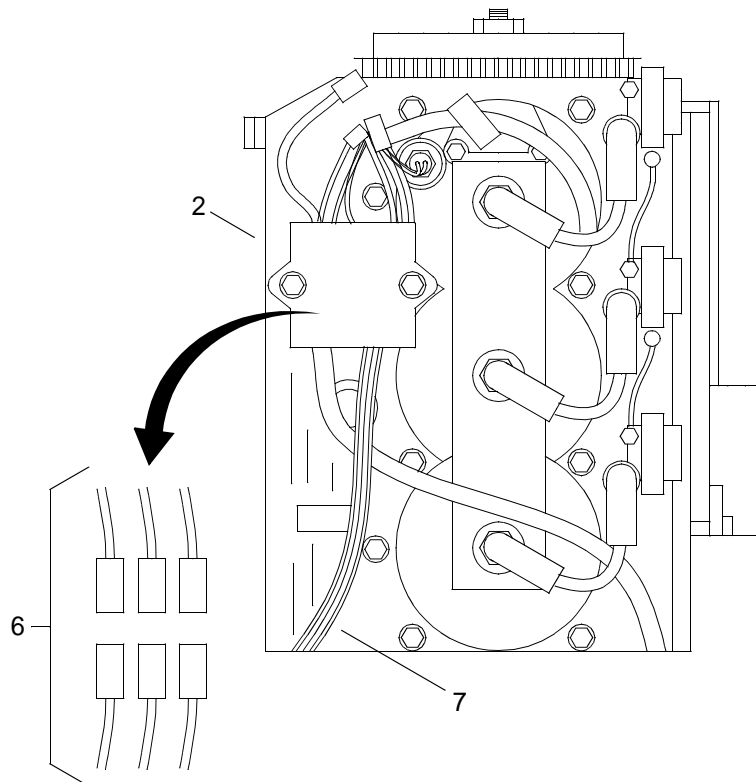


2. Remove oil hose (3) from side of the engine (2) by loosening hose clamp and pulling backwards.

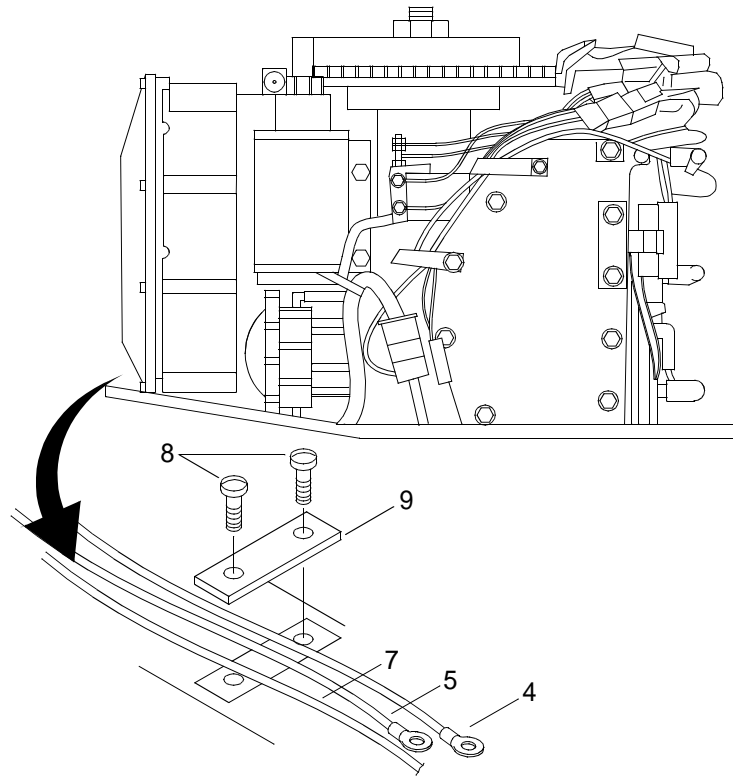
3. Remove positive (4) and negative (5) battery leads from engine (2).



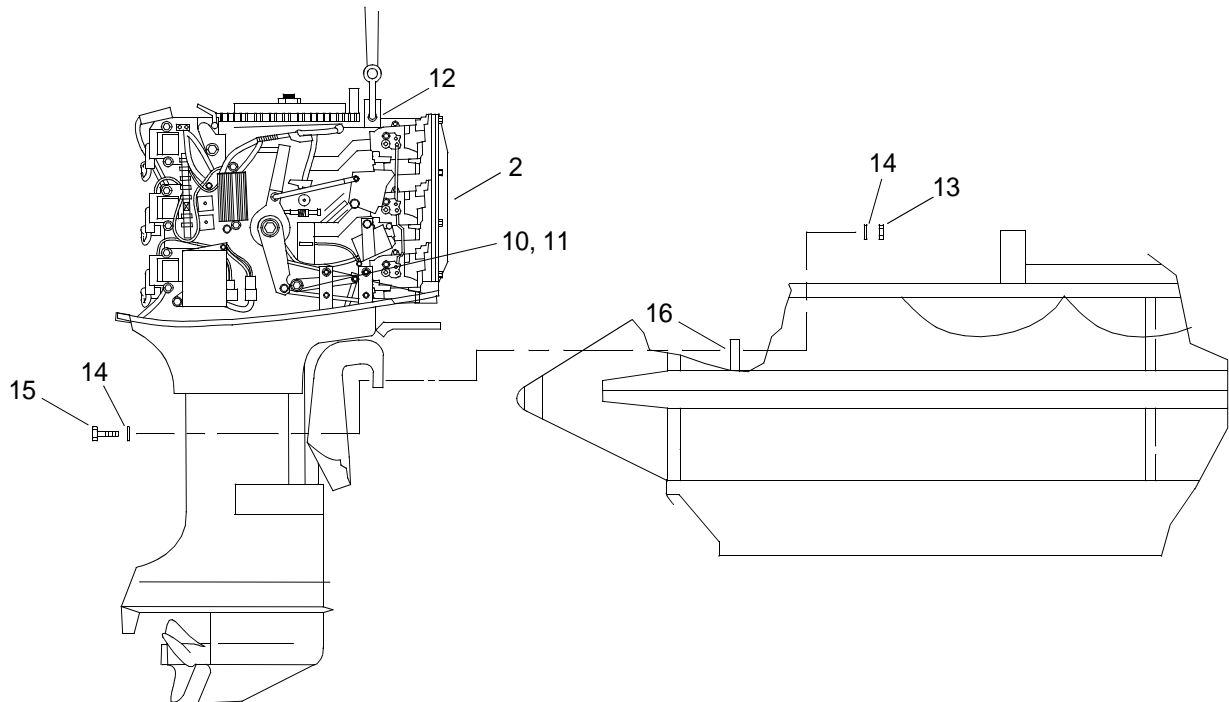
4. Disconnect three plugs (6) of primary electrical wire bundle (7) from engine (2).



- Remove two bolts (8) and retaining plate (9) holding battery leads (4, 5) and primary wire bundle (7) on front of the engine (2).



- Lift battery leads (4, 5) and primary wire bundle (7) from engine (2) and place on the deck of RHIB.
- Disconnect throttle control cable (10) from engine (2). (WP 0267 00)



8. Disconnect shift control cable (11) from engine (2). (WP 0268 00)
9. Lift throttle and shift control cables (10, 11) from engine (2) and place on deck of RHIB.

WARNING



HEAVY PARTS

10. Install shackle and sling to engine lifting bracket (12).

WARNING



HEAVY PARTS



HEAVY OBJECTS

11. Using crane, sling and shackle, tighten sling to support weight of engine (2) during removal.
12. Remove four nuts (13), eight washers (14) and four bolts (15) securing engine (2) to RHIB transom (16).

WARNING



HEAVY PARTS



HEAVY OBJECTS

13. Using crane, sling and shackle, remove engine (2) with tilt/trim mechanism attached from RHIB transom (16).

INSTALL RHIB OUTBOARD ENGINE

WARNING



HEAVY PARTS



HEAVY OBJECTS

1. Using crane, sling and shackle, position engine on the RHIB transom (16).
2. Install four bolts (15), eight washers (14) and four nuts (13) to secure engine (2) to RHIB transom (16). Tighten nuts (1).
3. Remove shackle and sling from engine lifting bracket (12).
4. Connect shift control cable (11) to the engine. (WP 0268 00)

-
5. Connect throttle control cable (10) to the engine. (WP 0267 00)
 6. Connect three plugs (6) of primary electrical wire bundle (7) on engine (2).
 7. Install positive (4) and negative (5) battery leads to engine (2).
 8. Install two bolts (8) and retaining plate (9) to front of engine (2).
 9. Install oil hose (3) on side of engine (2) and tighten hose clamp.
 10. Depress spring flange and install fuel hose (1) on the side of engine (2).
 11. Install RHIB steering cylinder. (WP 0262 00)
 12. Install RHIB power steering system hoses. (WP 0261 00)
 13. Install RHIB engine cover. (WP 0297 00)
 14. Install RHIB battery negative lead terminal. (WP 0336 00)
 15. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE COVER
REMOVAL, INSPECTION AND INSTALLATION**

INITIAL SETUP:**Tools**

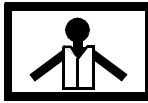
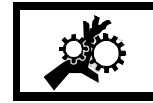
Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

Engineer 88L

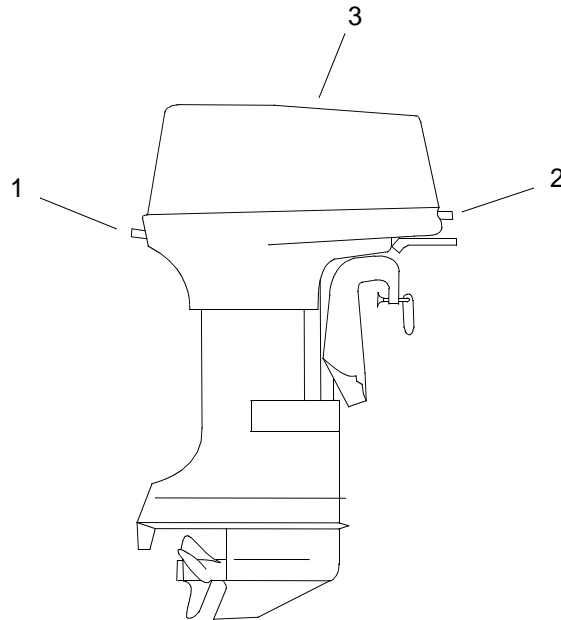
REMOVE RHIB ENGINE COVER

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. Disengage rear latch lever (1) and forward latch lever (2).



2. Remove engine cover (3).

INSPECT ENGINE COVER

1. Inspect engine cover (3) for cracks. Replace cover if damaged.
2. Inspect forward and rear latch assemblies for locking security. Replace cover if damaged.

INSTALL ENGINE COVER

1. Position engine cover (3) over engine.
2. Engage rear latch lever (1) and forward latch lever (2) to secure engine cover (3).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE FUSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Fuse, 20 AMP
 (21119)
 PN 514021

Personnel Required

Engineer 88L

References

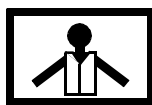
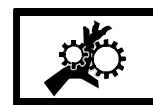
TM 55-1945-205-10-2

Equipment Condition

Engine Cover Removed. (WP 0297 00)
 RHIB Battery Negative Battery Terminal Removed. (WP 0336 00)

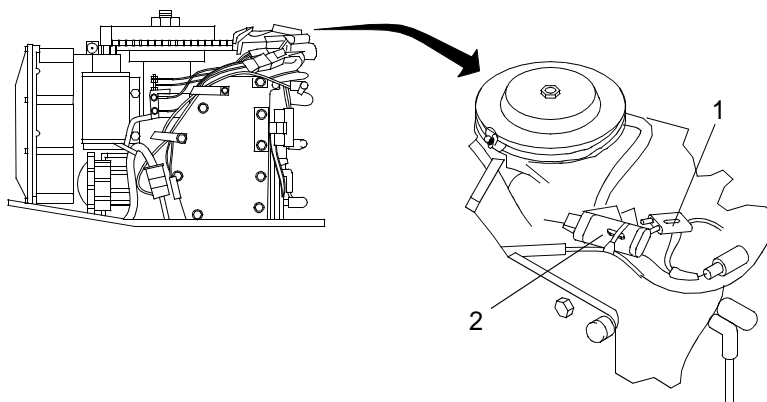
REMOVE RHIB ENGINE FUSE

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 fuse (1) from fuse holder (2).



2. Discard fuse (1)

INSTALL RHIB ENGINE FUSE

1. Install new fuse (1) in fuse holder (2).
2. Install RHIB engine cover. (WP 0297 00)
3. Install RHIB battery negative battery terminal. (WP 0336 00)
4. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE ELECTRICAL STARTER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Torque Wrench (10-250 in. lb) (Item 90, WP 0359 00)

Materials/Parts

Neoprene Coating (Item 39, WP 0358 00)
 Adhesive, (Item 2, WP 0358 00)

References

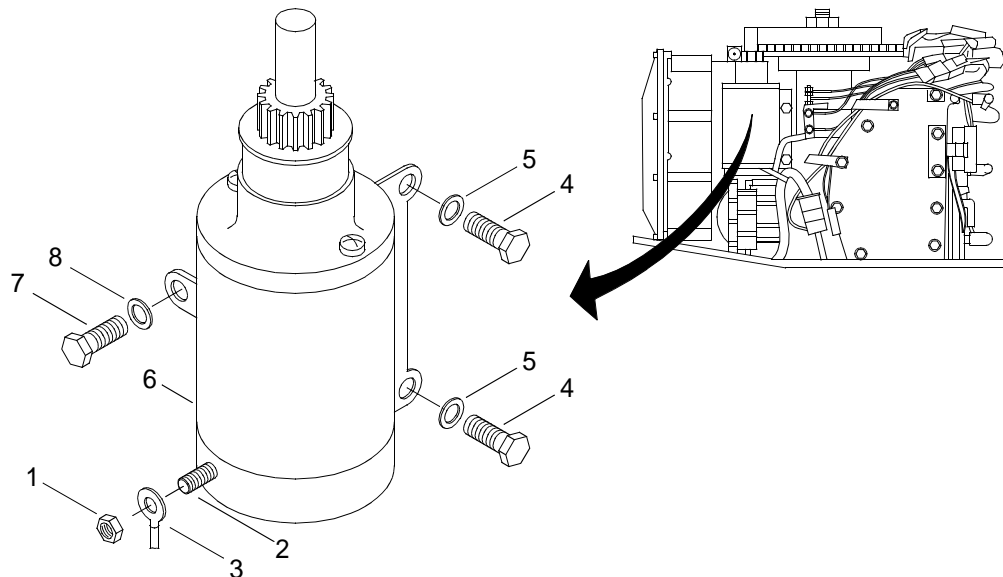
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
 RHIB Engine Cover Removed. (WP 0297 00)

REMOVE RHIB ENGINE ELECTRICAL STARTER

1. Remove nut (1) from starter terminal (2).



2. Tag and disconnect wire (3).
3. Remove two mounting bolts (4) and two washers (5) from back of starter (6).
4. Remove front mounting bolt (7) and washer (8) while supporting starter (6).
5. Remove starter (6).

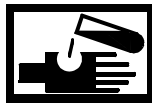
INSTALL RHIB ELECTRICAL STARTER

WARNING

**CHEMICAL****EYE PROTECTION**

1. Apply adhesive to the threads of mounting bolts (4 and 7).
2. Install washers (5) on bolts (4).
3. Install washer (8) on bolt (7).
4. While supporting starter (6), position so mounting holes of starter (6) line up with front and back mounting bracket holes.
5. Install front mounting bolt (7) and washer (8) and tighten.
6. Making sure rear mounting bracket holes align with starter (6), install two mounting bolts (4) and washers (5). Tighten bolts (4).
7. Using a torque wrench, tighten front mounting bolt (7) and two rear mounting bolts (4) to 168 - 192 in. lbs (19-22 N-m).
8. Install wire (3) and nut (1) on terminal (2) and tighten. Remove tag.
9. Using a torque wrench, tighten nut (1) to 120 - 144 in. lbs (14 - 16 N-m).

WARNING

**CHEMICAL****EYE PROTECTION**

10. Apply neoprene coating to wire connection to seal wire (3).
11. Install RHIB engine cover. (WP 0297 00)
12. Install RHIB battery negative lead terminal. (WP 0336 00)
13. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE ELECTRICAL STARTER
REPAIR**

INITIAL SETUP:**Test Equipment**

Ammeter, 0-40 amps (Item 1, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Apron, Utility (Item 2, WP 0359 00)
Wrench, Torque (10-250 in. lbs) (Item 90, WP 0359 00)
Pliers, Retaining Ring P/N J4646 (Item 47, WP 0359 00)
Jumper Cable, Battery (Item 36, WP 0359 00)
Vise, Machinist (Item 85, WP 0359 00)

Materials/Parts

Ring, Retaining, Starter Drive
(80256)
PN 342721
Brush and Spring Set
(80256)
PN 385952
Cleaner, Type II (Item 9, WP 0358 00)
Cloth, Abrasive (320 Grade) (Item 13, WP 0358 00)
Neoprene Coating (Item 39, WP 0358 00)
Adhesive, (general purpose) (Item 2, WP 0358 00)
Lubricating Oil, Engine (Grade 10W) (Item 36, WP 0358 00)
Grease, Cindol (starter & pinion lube) (Item 25, WP 0358 00)

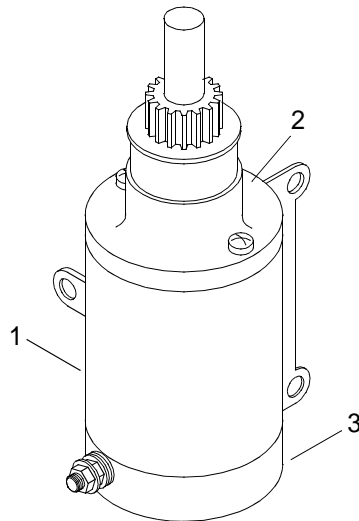
Personnel Required

Engineer 88L

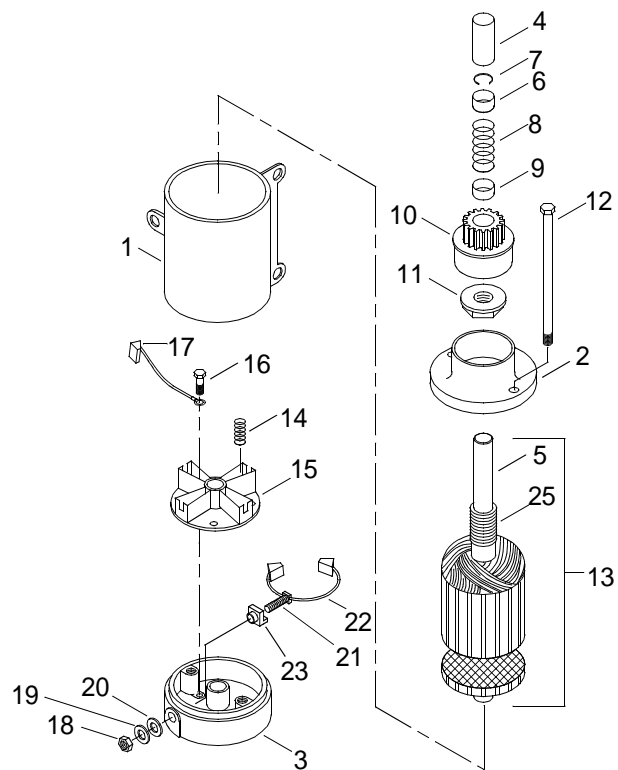
DISASSEMBLE RHIB ELECTRICAL STARTER**NOTE**

Repair is limited to the replacement of defective parts.

1. Mark housing (1) to drive end cap (2) and housing (1) to commutator end cap (3) of starter before disassembly for alignment during assembly.



2. Remove protective cover (4) from armature shaft (5).



3. While pushing spring cup (6) down on armature shaft (5), use retaining ring pliers to remove retaining ring (7).
4. Discard retaining ring (7).
5. Remove spring cup (6), spring (8) and spacer (9).
6. Remove drive gear (10) and base (11).
7. Remove two housing thru bolts (12).
8. Remove drive end cap (2).

9. Remove armature assembly (13) from housing (1).
10. Remove commutator end cap (3).
11. Remove four springs (14) from holder (15). Discard springs (14).
12. Remove two bolts (16) attaching two ground brushes (17) and holder (15) to commutator end cap (3).
13. Remove two ground brushes (17) and holder (15). Discard ground brushes (17).
14. Remove nut (18), washer (19) and insulating washer (20) from terminal (21).
15. Remove insulated brushes (22), terminal (21) and insulation bushing (23). Discard brushes (22).

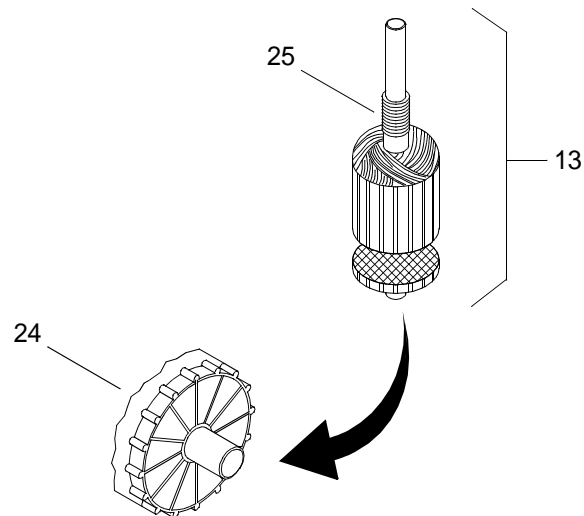
CLEAN RHIB ELECTRICAL STARTER

WARNING



EYE PROTECTION

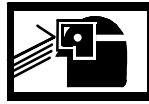
1. Using crocus cloth, remove residual dust from commutator (24).



 WARNING



CHEMICAL



EYE PROTECTION

NOTE

Do not allow dirt, dust or other debris to get into bearings or commutator of armature assembly.

- Using cleaner, clean all parts to remove dirt, carbon dust and oil.

INSPECTION RHIB ELECTRICAL STARTER

- Inspect commutator (24) for uneven wear and pitting. Replace damaged parts.
- Inspect armature (13) for evidence of any damage or overheating. Replace damaged parts.
- Test armature (13) for grounds. Replace damaged parts.
- Inspect drive gear (10) and base (11) for excessive wear, damage or dirt. Replace damaged parts.
- Inspect drive end cap (2) for cracks. Replace damaged parts.
- Inspect housing (1) for cracks and ability to hold armature assembly (13) in housing. Replace damaged parts.

ASSEMBLE RHIB ELECTRICAL STARTER

 WARNING



CHEMICAL



EYE PROTECTION

- Apply small amount of lubricating oil to armature bearing shaft (5).

 WARNING



CHEMICAL



EYE PROTECTION

- Apply starter pinion lube to pinion helix (25).
- Install drive end cap (2) on armature shaft (5).
- Position armature assembly (13) in magnet housing assembly (1), using marks on housing (1) and drive end cap (2) to align.

5. Install new insulated brushes (22) and terminal set (21) on insulating bushing (23).
6. Install terminal (21) through the commutator end cap (3).
7. Install insulating washer (20), the plain washer (19) and the nut (18) on terminal (21) and tighten.
8. Install new holder (15) in commutator end cap (3).
9. Using bolts (16), install two new ground brushes (17) and four new springs (14) in the holder (15). Tighten bolts (16).

NOTE

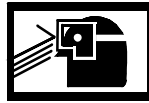
Incorrect installation of brushes will cause starter malfunction.

10. While holding brushes (17 and 22) in place, position starter housing (1) on commutator end cap (3), aligning marks on housing (1) and commutator end cap (3).

WARNING



CHEMICAL



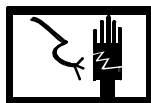
EYE PROTECTION

11. Lightly oil thru bolts (12) with SAE 10 oil.
12. Install thru bolts (12) in drive end cap (2). Tighten thru bolts (12).
13. Using a torque wrench, tighten to 95-100 in lbs (11-12 N-m).
14. Install drive base (11), drive gear (10), spacer (9), spring (8) and spring cup (7) on shaft (5).
15. While holding spring cup (6) down, install retaining ring (7) on armature shaft (5) using retaining ring pliers.
16. Install armature shaft protective cover (4).

TEST RHIB ELECTRICAL STARTER

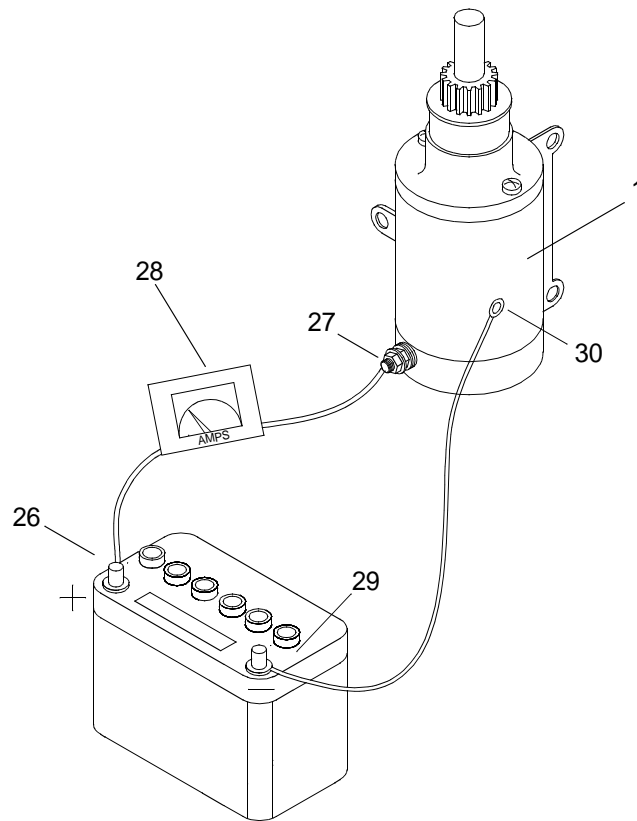
1. Position starter in bench vise and tighten.

WARNING



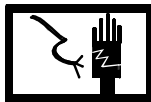
ELECTRICAL

2. Connect jumper cable from positive battery terminal (26) to starter terminal (27).



3. Place ammeter (28) in line with positive jumper, from starter positive terminal (27) to battery positive terminal (26).
4. Connect tachometer to starter.

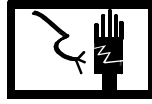
WARNING



ELECTRICAL

5. Connect negative jumper to negative battery terminal (29) and touch negative jumper lead (30) to starter body (1).
 - a. Verify ammeter reading is no more than 32 amps.
 - b. Verify tachometer RPM reading is in the 5700-8000 RPM range.
6. Remove ammeter (28).

WARNING

**ELECTRICAL**

7. Disconnect battery and tachometer from starter.
8. Remove starter from vise.

WARNING

**CHEMICAL****EYE PROTECTION**

9. Apply neoprene coating to thru bolts (12) to seal.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE ELECTRICAL STARTER SOLENOID
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical (Item 28, WP 0359 00)

Materials/Parts

Solenoid, Starter
(80256)
NSN 5945-01-447-9105
PN 586180
Neoprene Coating (Item 39, WP 0358 00)
Adhesive, General Purpose (Item 2, WP 0358 00)

Personnel Required

Engineer 88L

References

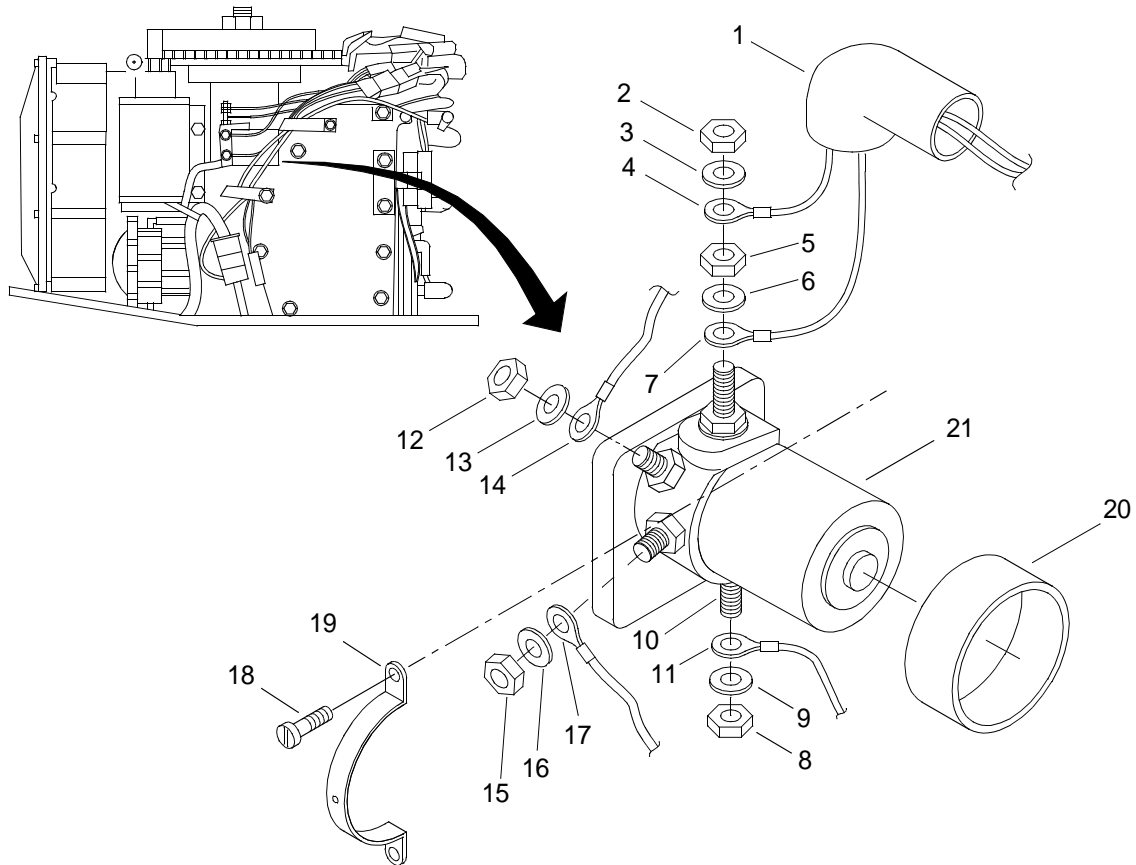
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

REMOVE RHIB STARTER SOLENOID

1. Remove solenoid positive battery cable boot (1).



2. Remove nut (2) and washer (3).
3. Tag and remove red solenoid positive battery cable (4).
4. Remove nut (5) and washer (6).
5. Tag and remove key switch lead (7).
6. Remove nut (8) and washer (9) from solenoid output terminal (10).
7. Tag and remove solenoid to starter cable (11).
8. Remove nut (12) and washer (13).
9. Tag and remove yellow/red neutral start switch wire (14).
10. Remove nut (15) and washer (16).
11. Tag and remove solenoid ground cable (17).
12. Remove top and bottom mounting screws (18).
13. Remove solenoid mounting clamp (19).
14. Remove solenoid sleeve (20).
15. Remove solenoid (21) and discard.

INSTALL RHIB STARTER SOLENOID

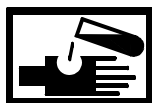
1. Install solenoid sleeve (20) on new solenoid (21).
2. Position solenoid mounting clamp (19) on solenoid sleeve (20).
3. Position new solenoid (21) so mounting clamp (19) holes align with mounting holes on engine.
4. Using a wire brush, clean mounting screws (18).

WARNING

**CHEMICAL****EYE PROTECTION**

5. Apply adhesive to threads of mounting screws.
6. Install top and bottom mounting screws (18) through holes in mounting clamp (19) and into cylinder block.
7. Tighten mounting screws (18).
8. Install solenoid ground cable (17), washer (16) and nut (15). Tighten nut (15).
9. Install yellow/red start switch wire (14), washer (13) and nut (12). Tighten nut (12).
10. Install solenoid to starter cable (11), washer (9) and nut (8) on solenoid terminal (10). Tighten nut (8).
11. Install key switch lead (7), washer (6) and nut (5). Tighten nut (5).
12. Install red solenoid positive battery cable (4), washer (3) and nut (2). Tighten nut (2).
13. Remove all tags.

WARNING

**CHEMICAL****EYE PROTECTION**

14. Coat all wire connections with neoprene coating to seal.
15. Install positive battery cable boot (1).
16. Install RHIB engine cover. (WP 0297 00)
17. Install RHIB battery negative lead terminal. (WP 0336 00)
18. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE RECTIFIER/REGULATOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Torque Wrench (10-250 in. lbs) (Item 90, WP 0359 00)

Materials/Parts

Neoprene Coating (Item 39, WP 0358 00)

Personnel Required

Engineer 88L

References

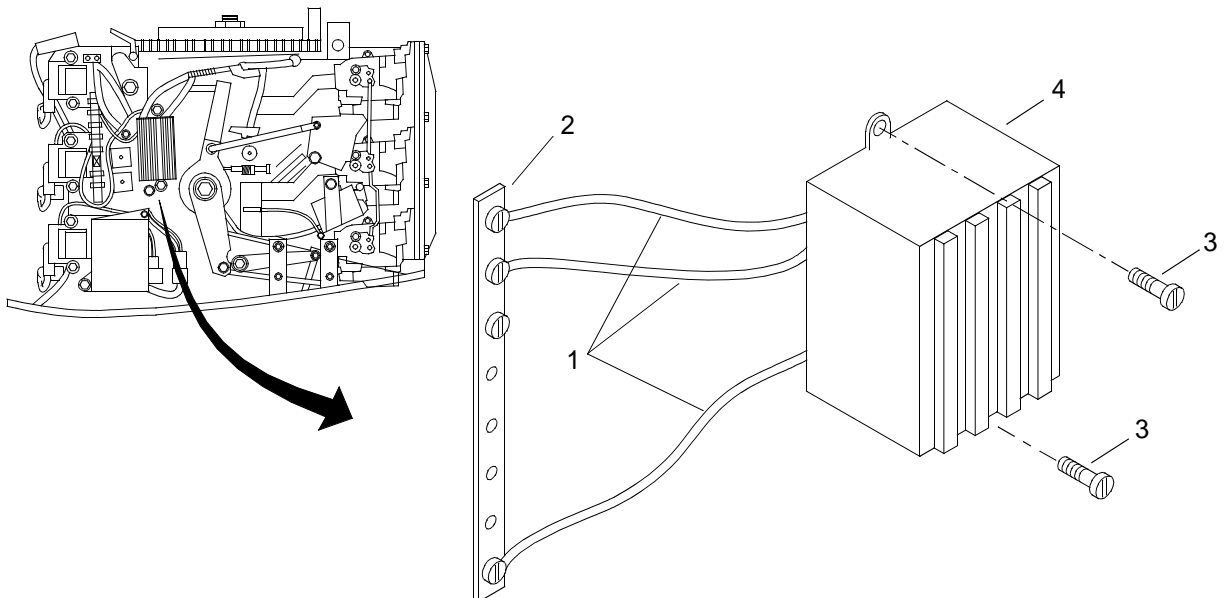
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

REMOVE RHIB ENGINE RECTIFIER/REGULATOR

1. Tag and disconnect three rectifier/regulator wires (1) from the terminal strip (2).



2. Remove two mounting bolts (3) from rectifier/regulator (4).
3. Remove rectifier/regulator (4) and discard.

INSTALL RHIB ENGINE RECTIFIER/REGULATOR

1. Position new rectifier/regulator (4) so mounting holes align with mounting holes on engine.
2. Install two mounting bolts (3).
3. Using a torque wrench, torque mounting bolts to 60 - 84 in. lbs (7 - 9.5 N-m).
4. Connect the three rectifier/regulator wires (1) to the terminal strip (2) and remove tags.

WARNING

**CHEMICAL****EYE PROTECTION**

5. Coat the three wire connections with neoprene coating to seal.
6. Install RHIB engine cover. (WP 0297 00)
7. Install RHIB battery negative lead terminal. (WP 0336 00)
8. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE ALTERNATOR
TESTING**

INITIAL SETUP:**Test Equipment**

Ammeter (0 - 40 amp) (Item 1, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Drum, Shipping and Storage (Test Tank) (Item 17, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

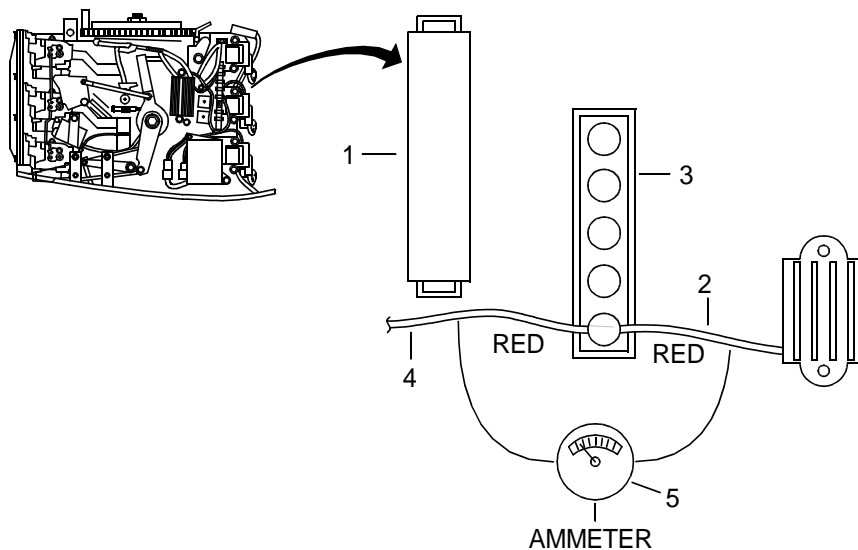
RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

RHIB ENGINE ALTERNATOR OUTPUT RUNNING TEST

WARNING

RHIB engine should be placed in test tank during propeller operation. Failure to comply may result in damage to equipment and injury to personnel.

1. Position engine in test tank so propeller is covered with sufficient water to prevent damage.
2. Remove terminal strip cover (1).



WARNING

**ELECTRICAL**

3. Tag and disconnect rectifier/regulator solid red lead (2) from the terminal strip (3).
4. Tag and disconnect wiring harness red lead (4) from terminal strip (3).
5. Connect the ammeter (5) in series between rectifier solid red lead (2) and wiring harness red lead (4).

WARNING

Do not allow the rectifier/regulator red lead, the ammeter or the wiring harness red lead to touch engine ground with the engine running. Failure to comply could result in damage to equipment or injury to personnel.

6. Install RHIB battery negative lead terminal. (WP 0336 00)
7. Start RHIB engine. (TM 55-1945-205-10-2)
8. Observe ammeter. Alternator output should reach 12 amps at approximately 4000 RPM.
 - a. If alternator output is 12 amps, go to Step 9.
 - b. If there is no alternator output or output is below 12 amps, run resistance tests on the stator and the rectifier. (WP 0304 00)
9. Shut down RHIB engine. (TM 55-1945-205-10-2)
10. Disconnect ammeter (5).
11. Connect rectifier/regulator solid red lead (2) to terminal strip (3) and remove tag.
12. Connect wiring harness red lead (4) to terminal strip (3) and remove tag.
13. Install terminal strip cover (1).
14. Install RHIB engine cover. (WP 0297 00)
15. Install RHIB battery negative lead terminal. (WP 0336 00)
16. Remove engine from test tank.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE STATOR
TESTING**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

Engineer 88L

Equipment Condition

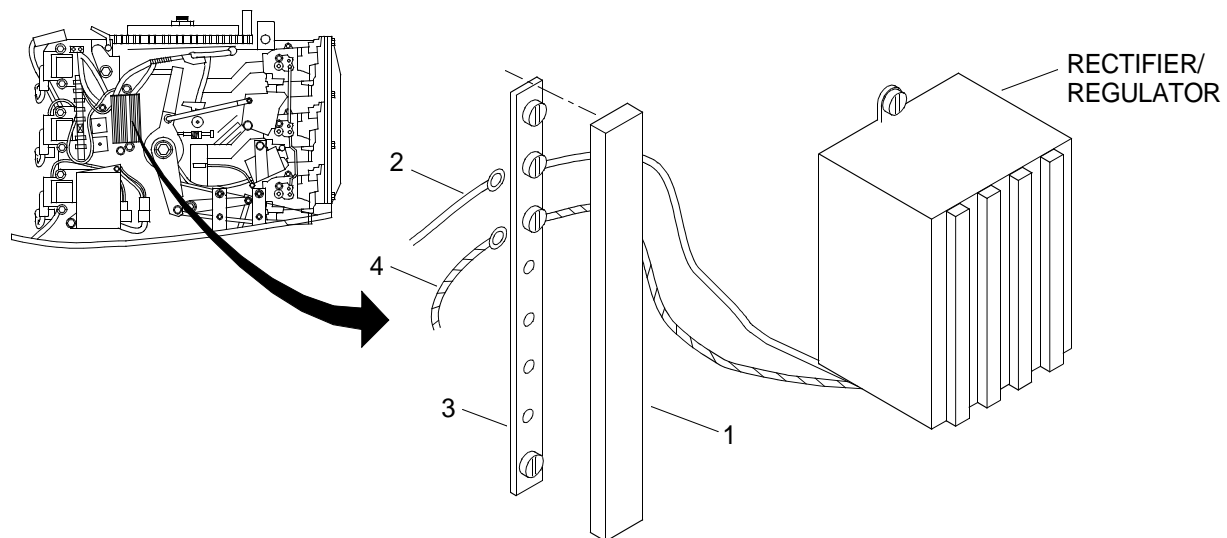
RHIB Dry-Docked.

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

RHIB Engine Cover Removed. (WP 0297 00)

RHIB ENGINE STATOR RESISTANCE TEST

1. Remove terminal strip cover (1).



2. Tag and disconnect yellow stator lead (2) from the terminal strip (3).
3. Tag and disconnect yellow/grey stator lead (4) from terminal strip (3).
4. Set multimeter to the Ω setting.
5. Connect multimeter leads to yellow stator lead (2) and yellow/grey stator lead (4).
6. Verify multimeter reading of 0.4 - 0.6 ohm.
7. Disconnect multimeter.
8. Connect multimeter black lead to engine ground.

9. Connect red multimeter lead to yellow stator lead (2).
10. Verify infinite ohm reading.
11. Connect yellow/grey stator lead (4) to terminal strip (3) and remove tag.
12. Connect yellow stator lead (2) to terminal strip (3) and remove tag.
13. Install terminal strip cover (1).
14. Install RHIB engine cover. (WP 0297 00)
15. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE TACHOMETER CIRCUIT
TESTING**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Drum, Shipping and storage (Test Tank) (Item 17, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

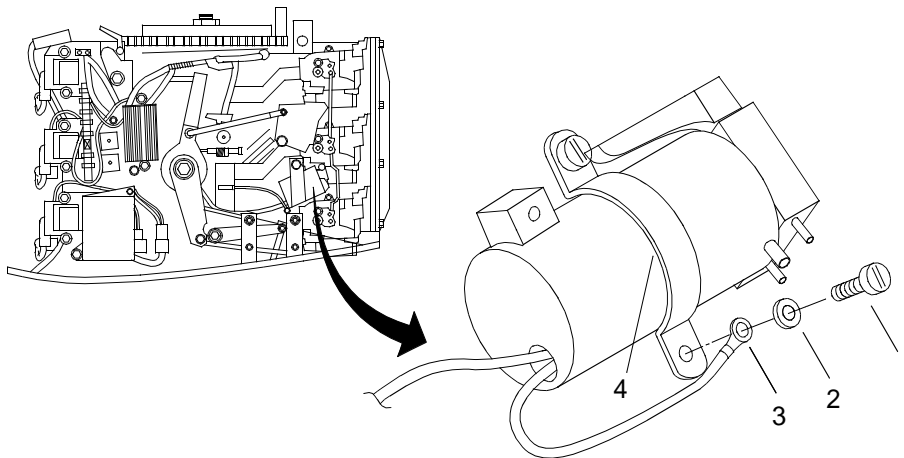
RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

TEST RHIB ENGINE TACHOMETER CIRCUIT

WARNING

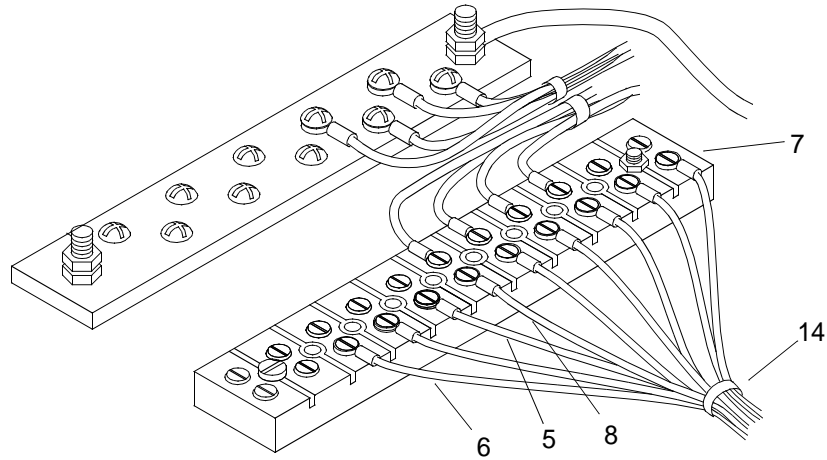
RHIB engine should be placed in test tank during propeller operation. Failure to comply may result in damage to equipment and injury to personnel.

1. Place engine in test tank.
2. Remove primer solenoid bottom mounting clamp screw (1), ground lock washer (2) and ground wire (3) from primer solenoid mounting clamp (4).



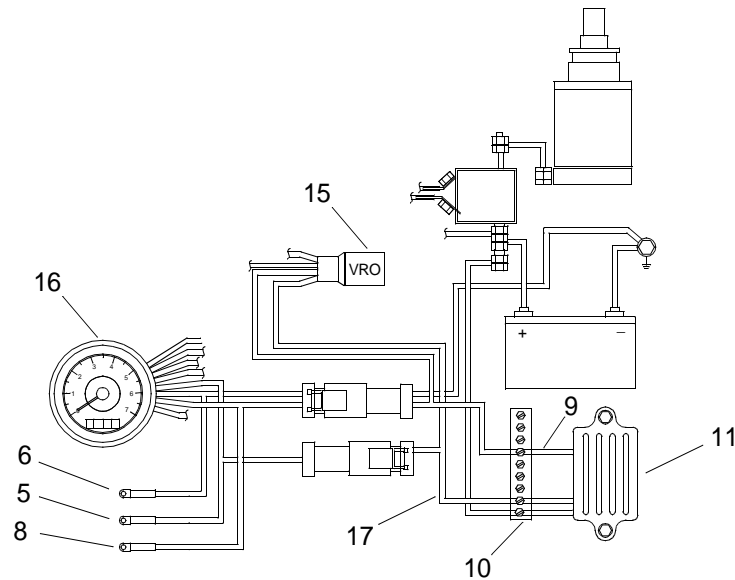
3. Prevent the primer solenoid ground wire (3) from contacting the engine.
4. Using volt hold function on multimeter, read battery voltage and record for reference.

5. Turn key switch on, but do not start engine.
6. Connect multimeter to tachometer purple lead (5) and black lead (6) on dash terminal strip (7).



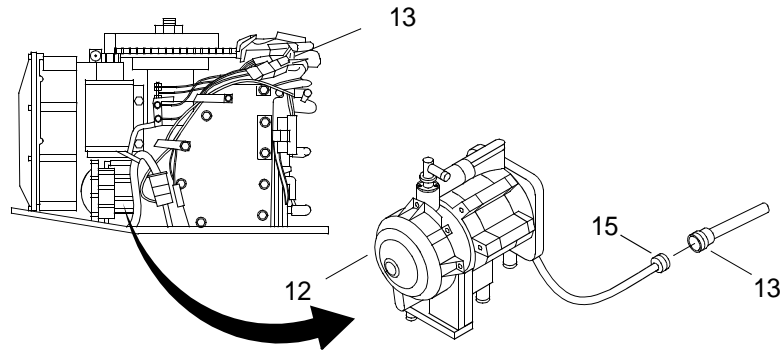
10C358-2

7. Read voltage.
 - a. If reading is lower than battery reference reading, test RHIB engine electrical circuit. (WP 0048 00)
 - b. If reading is same as battery reference reading, connect multimeter to tachometer grey lead (8) and black lead (6) and read voltage.
 - c. If voltage is not present, go to step 10.
 - d. If voltage is present, disconnect rectifier/regulator grey lead (9) from engine terminal strip (10) and read voltage.



{1} If multimeter indicates no voltage, rectifier/regulator (11) is faulty.

{2} If voltage is still present, disconnect VRO pump (12) from engine wiring harness (13).

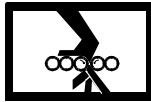


{3} If no voltage is present with VRO pump (12) disconnected, VRO pump connector (14) or pump (12) is faulty.

{4} If voltage is still present, instrument wiring harness (15) or engine wiring harness (13) is faulty.

8. Connect rectifier/regulator grey lead (9) to engine terminal strip (10).
9. Connect VRO pump (12) to engine wiring harness (13).

WARNING



MOVING PARTS

10. Start RHIB engine and run at 1000 RPM. (TM 55-1945-205-10-2)
11. Using multimeter, read voltage to tachometer grey lead (8) and black lead (6) on dash terminal strip (7).
 - a. If no voltage is present, go to Step 15.
 - b. If voltage exceeds eight volts, tachometer (16) is faulty.
 - c. If voltage is below eight volts,
 - {1} Disconnect the tachometer (16) from dash terminal strip (5) and verify an increase of one volt.
 - {2} If increase exceeds one volt, tachometer (16) is faulty.
 - {3} If increase is one volt, connect tachometer (16) to dash terminal strip (5).
 - {4} Disconnect the VRO pump (12) at the engine wiring harness (13) and verify an increase of one volt.
 - {5} If increase exceeds one volt, VRO pump (12) is faulty.
 - {6} If increase is one volt, disconnect tachometer (16) from dash terminal strip (5).

{7} With both tachometer (16) and VRO pump (12) disconnected, verify increase of two volts.

{8} If increase is more than two volts, rectifier/regulator (11) is faulty.

12. Disconnect multimeter and shut down RHIB engine. (TM 55-1945-205-10-2)
13. Connect tachometer (16) to dash terminal strip (5).
14. Connect VRO pump (12) to engine terminal strip (10).
15. Position key switch to on but do not start engine.
16. Connect multimeter to the engine terminal strip purple lead (17) and engine ground (19).
17. Verify voltage reading.
 - a. If battery voltage is present, rectifier/regulator (11) is faulty.
 - b. If no voltage is present, test starter circuit (WP 0048 00), and instrument wiring harness (15).
18. Disconnect multimeter.
19. Position key switch to off.
20. Remove engine from test tank.
21. Install the primer solenoid bottom mounting clamp screw (1), ground lock washer (2) and ground wire (3) on the mounting clamp (4).
22. Install RHIB engine cover. (WP 0297 00)
23. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE
SERVICE**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Tester, Compression, Threaded (Item 76, WP 0359 00)
Drum, Shipping and Storage (Test Tank) (Item 17, WP 0359 00)

Materials/Parts

Carbon Removing Compound (Item 8, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

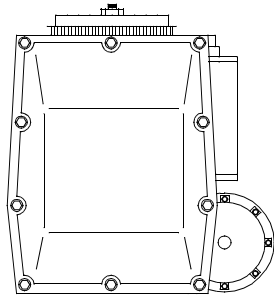
RHIB Dry-Docked.
RHIB Battery Negative Terminal Lead Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

PERFORM RHIB ENGINE TUNE-UP

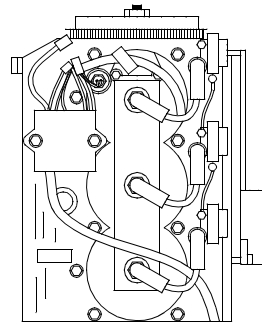
WARNING

RHIB engine should be placed in test tank during propeller operation. Failure to comply may result in damage to equipment and injury to personnel.

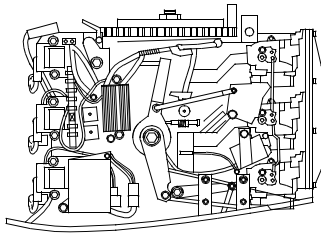
1. Visually inspect engine for fluid leaks and loose or damaged components. Replace or repair as necessary.



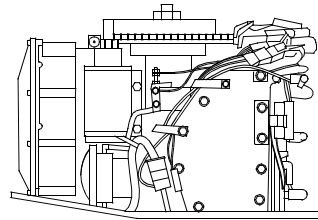
FORWARD



AFT



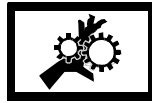
STARBOARD



PORT

2. Check engine compression.

WARNING

**MOVING PARTS**

- a. Start RHIB engine and run until it reaches normal operating temperature. (TM 55-1945-205-10-2)
- b. Shut down RHIB engine. (TM 55-1945-205-10-2)
- c. Remove all RHIB engine spark plug wires. (WP 0308 00)

WARNING

**HOT AREA**

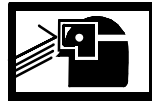
- d. Remove all RHIB engine spark plugs. (WP 0307 00)
- e. Install thread-type compression tester in a spark plug hole.

-
- f. With throttle in wide open position, use starter to crank engine through a minimum of four compression strokes.
 - g. Check compression in each cylinder for a pressure variation between cylinders not to exceed 15 PSI (100 kPa).
 - h. If engine does not have equal compression between the cylinders, contact depot maintenance for repair.

WARNING



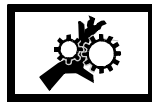
CHEMICAL



EYE PROTECTION

3. Using cleaner, spray each cylinder through the spark plug hole to dissolve carbon deposits.
4. Allow internal engine components to soak in carbon removing compound between 3 to 16 hours.

WARNING



MOVING PARTS

5. After soaking, run RHIB engine at fast idle (1500 RPM) for at least 15 minutes to remove deposits.
6. Allow RHIB engine to cool down.
7. Install new RHIB engine spark plugs. (WP 0307 00)
8. Install new RHIB engine spark plug wires. (WP 0308 00)
9. Adjust RHIB throttle synchronization and linkage. (WP 0271 00)
10. Install RHIB engine cover. (WP 0297 00)
11. Install RHIB battery negative terminal lead. (WP 0336 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE SPARK PLUGS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Men's and (Leather Palm) (Item 27, WP 0359 00)
Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Wrench, Torque (10-250 in. lbs) (Item 90, WP 0359 00)
Gage, Gap Setting (Item 21, WP 0359 00)

Materials/Parts

Spark Plugs
(13321)
NSN 2920-01-447-4796
PN QL78YC
Grease, Silicone Insulated Electric Motor (Item 29, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

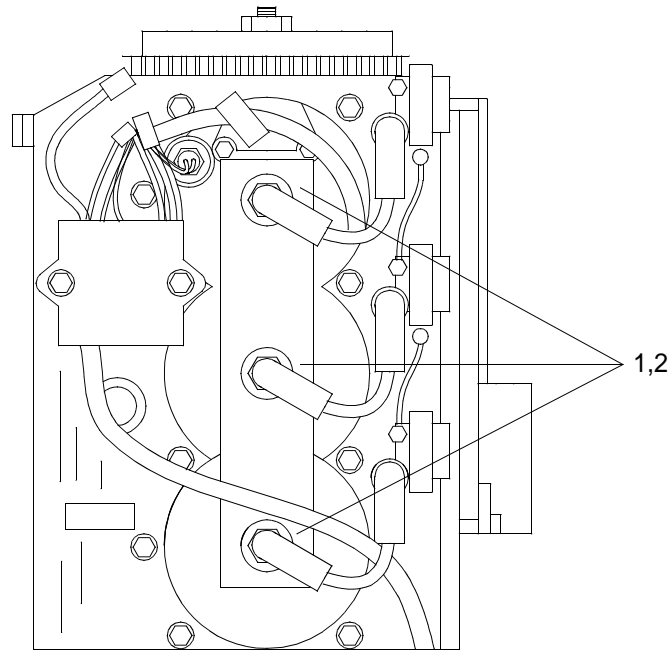
Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

REMOVE RHIB ENGINE SPARK PLUGS**NOTE**

The following procedure is typical for the removal and installation of RHIB engine spark plugs.

1. Tag and disconnect three spark plug wires (1) from spark plugs (2).



2. Remove and discard spark plugs (2).

INSTALL RHIB ENGINE SPARK PLUGS

1. Using spark plug gapper, set new spark plug (2) gaps to .030 in.

WARNING



CHEMICAL



EYE PROTECTION

2. Apply a light coating of electrical grease to threads of spark plugs (2).
3. Install three spark plugs (2).

CAUTION

Do not overtighten spark plugs as damage to engine could result.

4. Torque spark plugs (2) to 180 in. lb (20.34 N-m)
5. Install spark plug wires (1) and remove tags.
6. Install RHIB engine cover. (WP 0297 00)
7. Install RHIB battery negative lead terminal. (WP 0336 00)
8. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE SPARK PLUG WIRES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Ignition, Engine
(80256)
NSN 2920-01-127-9975
PN 582365
Qty 3

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

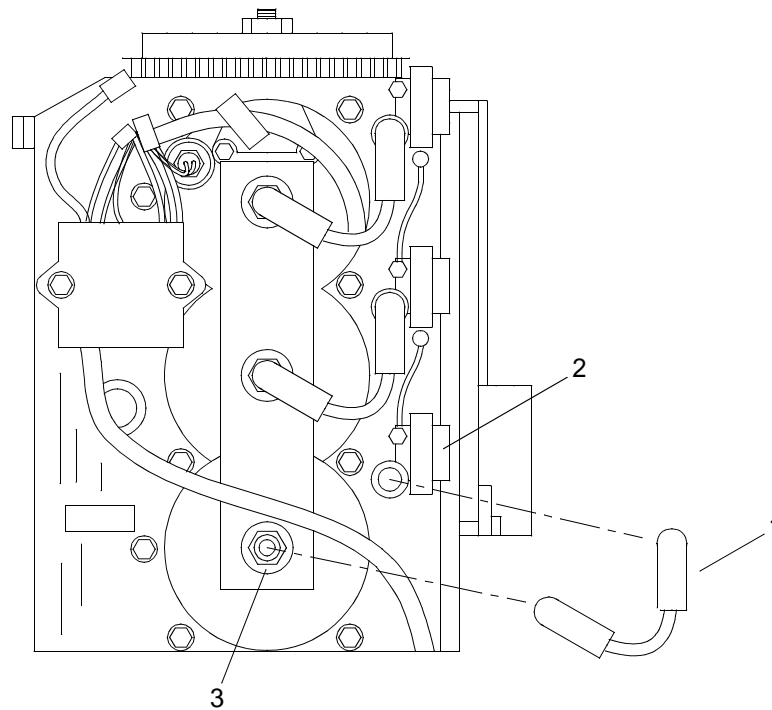
Equipment Condition

RHIB Dry-Docked.
RHIB Engine Cover Removed. (WP 0297 00)
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB ENGINE SPARK PLUG WIRES**NOTE**

The following procedure is typical for the removal and installation of all spark plug wires.

1. Remove spark plug wire (1) from ignition coil (2).



2. Remove spark plug wire (1) from spark plug (3) and discard spark plug wire (1).

INSTALL RHIB ENGINE SPARK PLUG WIRES

1. Install a new spark plug wire on spark plug (3).
2. Install other end of new spark plug wire on ignition coil (2).
3. Install RHIB engine cover. (WP 0297 00)
4. Install RHIB battery negative lead terminal. (WP 0336 00)
5. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE IGNITION COIL
TESTING**

INITIAL SETUP:

Test Equipment

Multimeter (Item 43, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

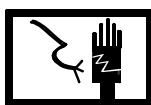
Engineer 88L

Equipment Condition

- RHIB Dry-Docked.
- RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
- RHIB Engine Cover Removed. (WP 0297 00)
- RHIB Engine Spark Plug Wires Removed. (WP 0308 00)
- RHIB Engine Ignition Coil Removed. (WP 0310 00)

TEST RHIB ENGINE IGNITION COIL

WARNING



ELECTRICAL

Perform all tests on an insulated work surface to prevent electrical leakage and shock. Failure to comply may result in injury to personnel.

CAUTION

Do not exceed the coil maximum amperage rating during test to prevent damage to equipment.

NOTE

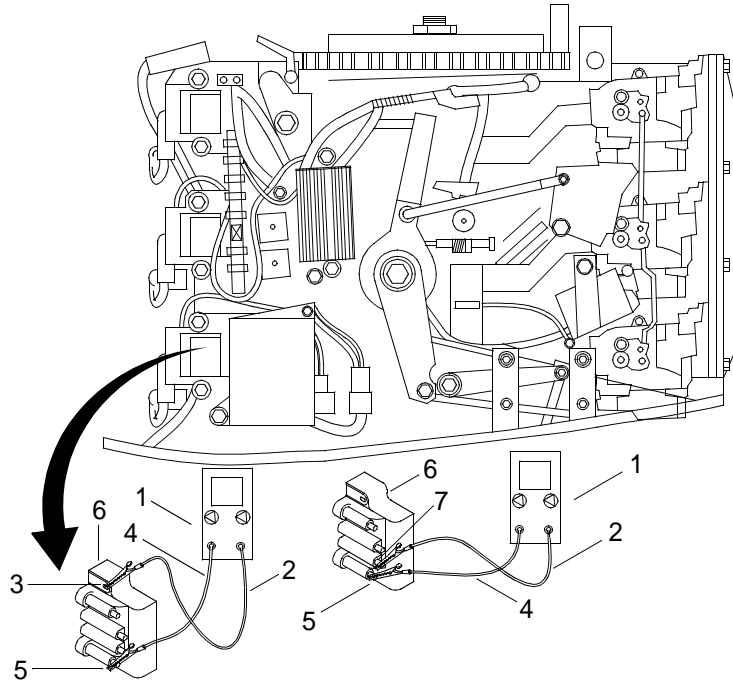
The following procedure is typical for the testing of ignition coils and spark plug wires.

Table 1. Ignition Coil Specifications.

	Primary Resistance	Secondary Resistance	Operating AMPS (Maximum)	Analyzer Polarity
Magnetic C.D. Coil P/N 583740	0.1 ± 0.5 Ω	275 ± 50 Ω	Merc-O-Tronic 1.5 Amps	Normal
Magnetic C.D. Coil P/N 583740	0.1 ± 0.5 Ω	275 ± 50 Ω	Stevens 1.1 Amps	Normal

PERFORM RHIB ENGINE RESISTANCE TEST

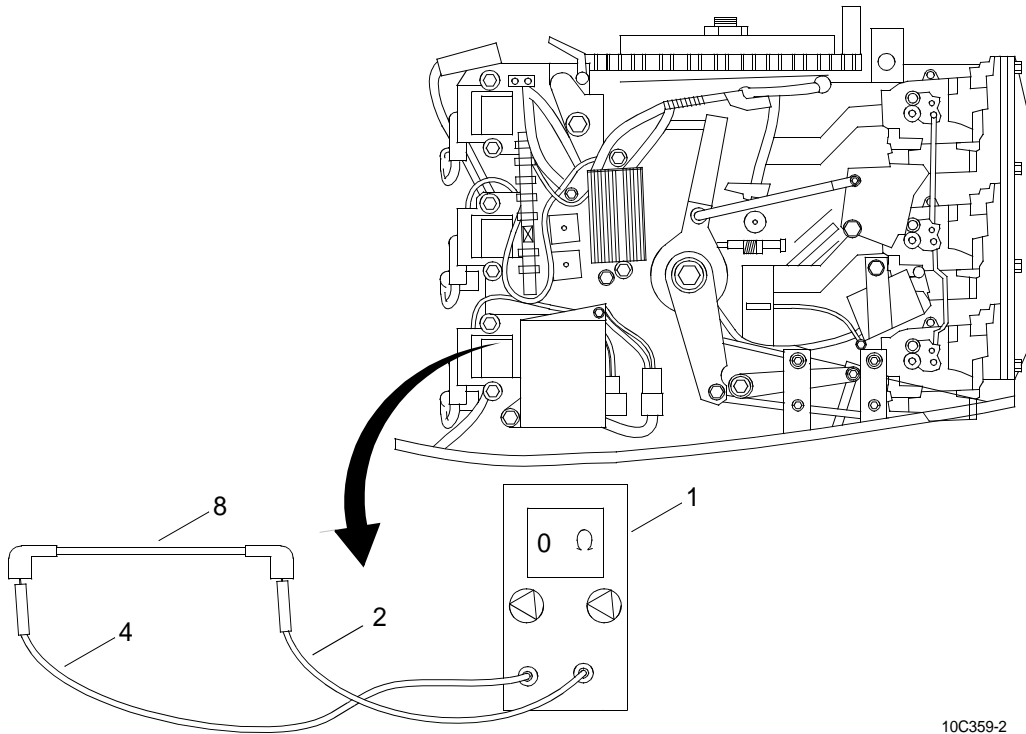
1. Set multimeter (1) to measure resistance.



2. Connect black lead (2) to ground tab (3) and red lead (4) to primary terminal (5) of the coil (6).
3. Verify reading to be $0.1 \pm 0.05 \Omega$.
4. Connect black lead (2) to a spark plug terminal (7) and red lead (4) to primary terminal (5) of the coil (6).
5. Verify reading to be $275 \pm 50 \Omega$.
6. If readings do not meet the requirements as specified, replace coil (6). (WP 0310 00)

PERFORM RHIB ENGINE SPARK PLUG WIRE RESISTANCE TEST

1. Set multimeter (1) to measure resistance.



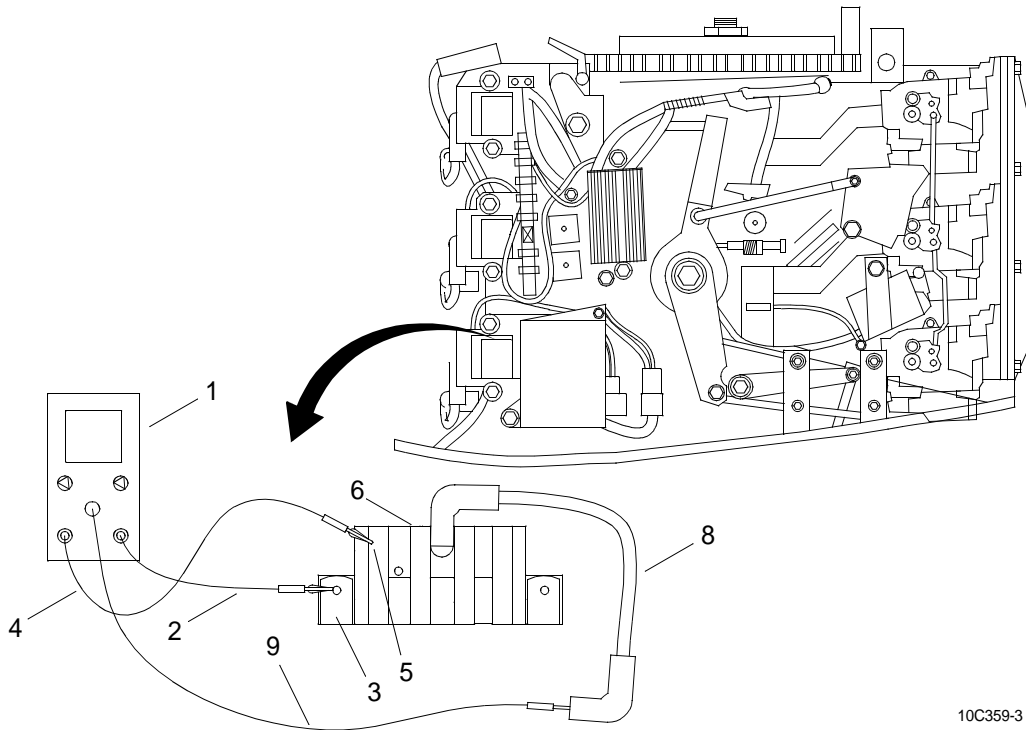
10C359-2

2. Connect black lead (2) and red lead (4) to opposite ends of the spark plug wire (8).
3. Verify reading to be at or near 0 Ω.
4. Repeat these steps for each spark plug wire (8).
5. If readings do not meet the requirements as specified, replace defective spark plug wires. (WP 0308 00)

PERFORM RHIB ENGINE POWER TEST**NOTE**

A steady spark in the tester, before or at specified amperage, indicates a good coil.

1. Connect spark plug wire (8) to the coil (6).



10C359-3

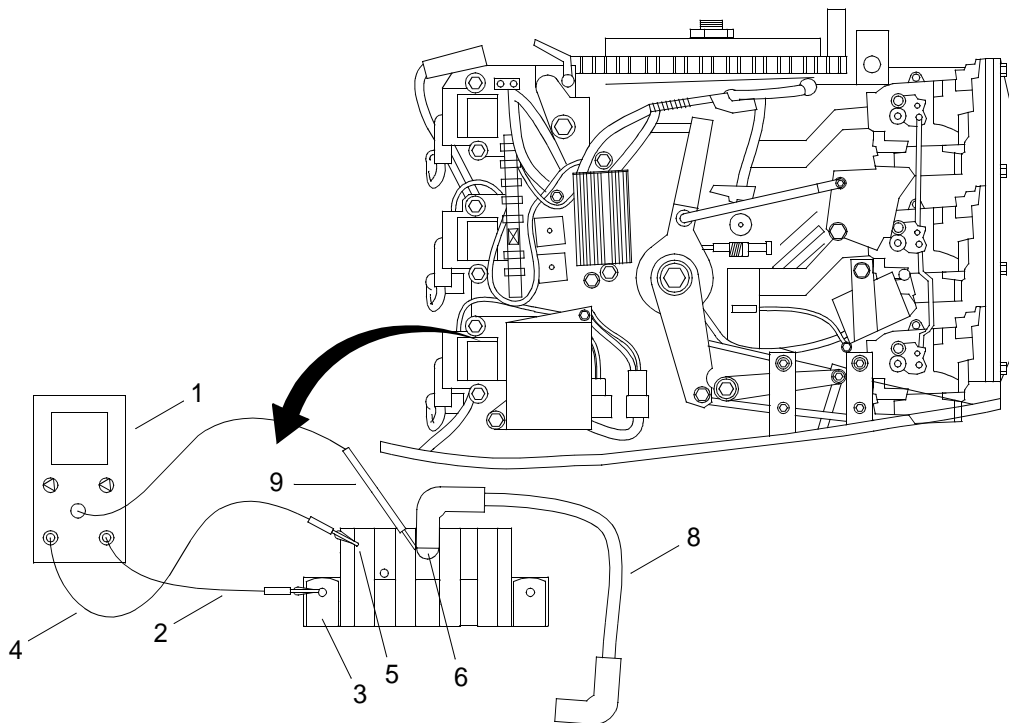
2. Set multimeter (1) to measure normal polarity.
3. Connect black lead (2) to ground tab (3) and red lead (4) to primary terminal (5).
4. Using high tension lead (9) on multimeter (1) connected to spark plug (8) terminal cap, verify reading to be 1.5 amps or 1.1 per TABLE 1.
5. If readings do not meet the requirements as specified, replace coil (6). (WP 0310 00)

PERFORM RHIB ENGINE SURFACE LEAKAGE TEST

NOTE

Leakage is an indication of a breakdown in insulation

1. Connect spark plug wire (8) to coil (6).



2. Set multimeter (1) to measure normal polarity.
3. Connect black lead (2) to ground tab (3) and red lead (4) to primary terminal (5).
4. Using high tension lead (9) on multimeter (1), probe surface of coil (6) and spark plug wire (8).
5. Verify reading to be 1.5 amps or 1.1 per chart.
6. If readings do not meet the requirements as specified, replace the coil (6) or spark plug wire (8) as necessary. (WP 0310 00, WP 0308 00)
7. Install RHIB engine ignition coil. (WP 0310 00)
8. Install RHIB engine spark plug wires. (WP 0308 00)
9. Install RHIB engine cover. (WP 0297 00)
10. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE IGNITION COIL
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Assembly, Coil
(80256)
PN 582508

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.

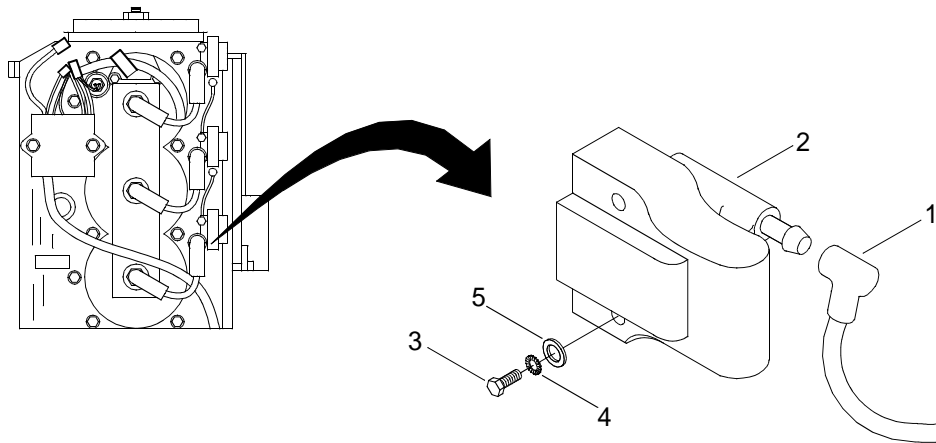
RHIB Engine Cover Removed. (WP 0297 00)

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB ENGINE IGNITION COIL**NOTE**

The following procedure is typical for the removal and installation of RHIB engine ignition coils.

Tag and disconnect spark plug wire (1) from ignition coil assembly (2).



1. Remove two mounting screws (3), ground washers (4) and mounting washers (5) securing the ignition coil assembly (2) to the rear and starboard side of the engine.
2. Remove coil assembly (2) and discard.

INSTALL RHIB ENGINE IGNITION COIL

1. Position new ignition coil assembly (2) on the engine.
2. Install two mounting washers (4), ground screws (3) and mounting washers (5) to secure the ignition coil assembly (2) to the engine and tighten screws (3).
3. Connect the spark plug wire (1) to the ignition coil assembly (2) and remove tag.
4. Install RHIB engine cover. (WP 0297 00)
5. Install RHIB battery negative lead terminal. (WP 0336 00)
6. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE IGNITION POWER PACK
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Materials/Parts

Power Pack
(80256)
PN 585189

Personnel Required

Engineer 88L

References

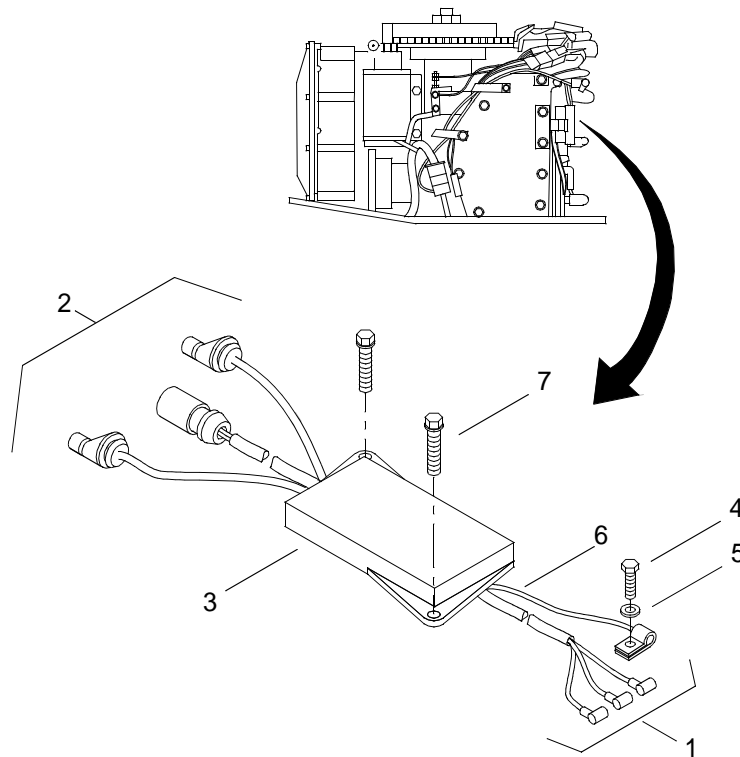
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

REMOVE RHIB ENGINE IGNITION POWER PACK

1. Tag and disconnect three ignition coil sockets (1) and three power connectors (2) between power pack (3) and engine.



2. Remove ground bolt (4) and ground washer (5) on ground wire (6).
3. Remove two power pack screws (7), securing power pack (3) to engine.
4. Remove power pack (3) and discard.

INSTALL RHIB ENGINE IGNITION POWER PACK

1. Position new power pack (3) on the engine.
2. Install two power pack screws (7) to secure power pack (3) to engine mount. Tighten screws (7).
3. Connect three ignition coil sockets (1) and three power connectors (2) between power pack (3) and engine. Remove tags.
4. Install ground wire (6) with ground bolt (4) and ground washer (5). Tighten bolt (4).
5. Install RHIB engine cover. (WP 0297 00)
6. Install RHIB battery negative lead terminal. (WP 0336 00)
7. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE TEMPERATURE
TESTING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Propeller, Marine (Test) (Item 50, WP 0359 00)
Drum, Shipping and Storage (Test Tank) (Item 17, WP 0359 00)

Materials/Parts

Temperature Indicating Compound (stick), 125° (Item 55, WP 0358 00)
Temperature Indicating Compound (stick), 163° (Item 56, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Engine Cover Removed. (WP 0297 00)

TEST RHIB ENGINE TEMPERATURE

WARNING



HEAVY OBJECTS

NOTE

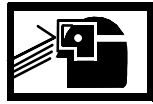
To achieve accurate and consistent readings, engine temperatures must be measured at the top of the cylinder head.

For the engine operating temperatures and RPM figures to be correct, the inlet water temperature in the test tank must be $70^{\circ} \pm 10^{\circ}\text{F}$ ($21^{\circ} \pm 3^{\circ}\text{C}$).

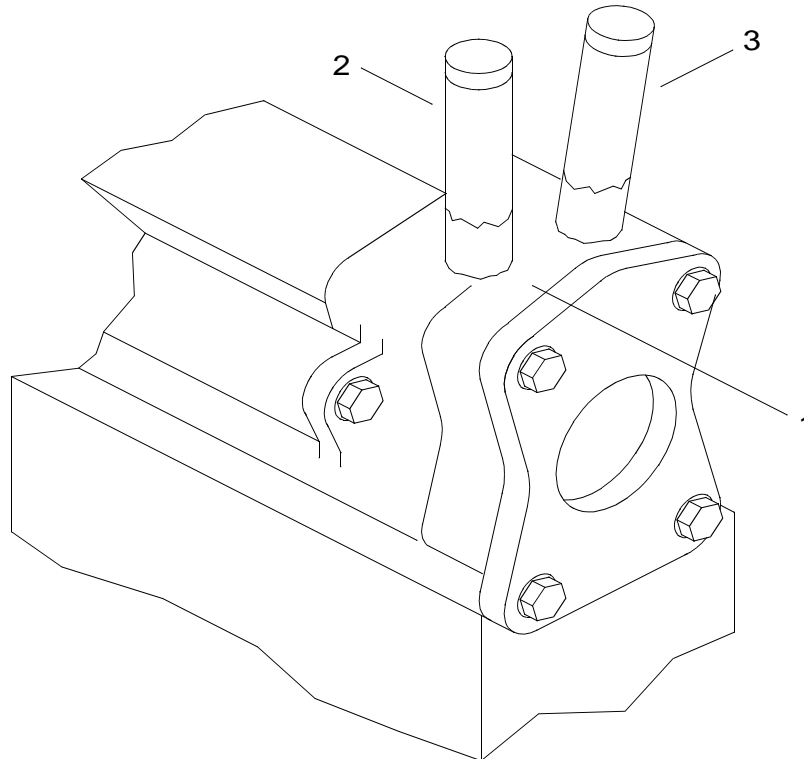
The temperature indicating stick will appear dull and chalky when the surface marked is below the rated temperature. When the surface exceeds the rated temperature, the mark will appear liquid and glossy.

1. Install the correct test propeller and place engine in test tank.
2. Start engine and run it at 3000 RPM for at least 5 minutes. (TM 55-1945-205-10-2)
3. Reduce engine speed and run it at 900 RPM for 5 minutes.

WARNING

**EYE PROTECTION****HOT AREA****CHEMICAL**

4. Mark the cylinder head (1) with a 125°F (52°C) temperature indicating stick (2).



5. Mark the cylinder head (1) with a 163°F (73°C) temperature indicating stick (3).
6. Observe both areas marked by the temperature indicating sticks for the following readings.
- At 900 RPM, the 125°F (52°C) mark should appear liquid and glossy. If the temperature indicating stick mark does not appear liquid and glossy, contact depot maintenance to troubleshoot the engine for causes of running too cool.
 - At 900 RPM, the 163°F (73°C) mark should remain dull and chalky. If the temperature indicating stick mark becomes liquid and glossy, contact depot maintenance to troubleshoot the cooling system for causes of overheating.
7. Increase engine speed to 5000 RPM.
8. The 163°F (73°C) mark should remain dull and chalky. If the mark appears liquid and glossy, contact depot maintenance to troubleshoot the cooling system for causes of overheating.
9. Shut down the engine. (TM 55-1945-205-10-2)
10. Install RHIB engine cover. (WP 0297 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE TEMPERATURE SWITCH
REMOVAL, TESTING AND INSTALLATION**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Thermometer, Industrial (Item 79, WP 0359 00)
Beaker, Glass (Item 5, WP 0359 00)

Materials/Parts

Switch, Thermostatic
(80256)
NSN 5930-01-433-9159
PN 585023
Lubricating Oil, Engine (Grade 30) (Item 37, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)
Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

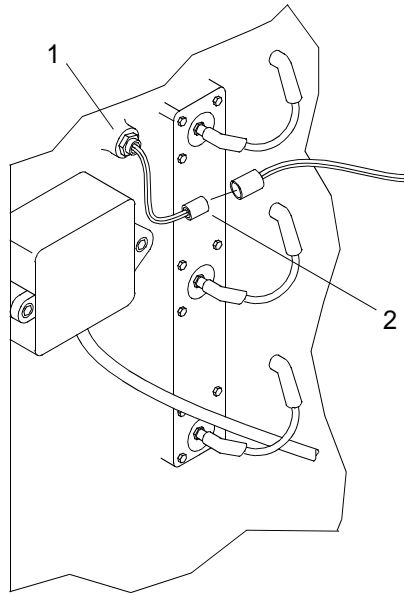
TM 55-1945-205-10-2

Equipment Condition

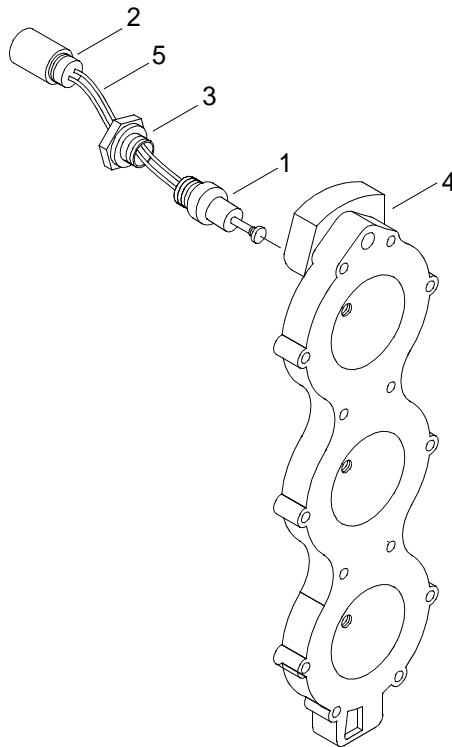
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

REMOVE RHIB ENGINE TEMPERATURE SWITCH

1. Disconnect temperature switch (1) at wiring connector (2).

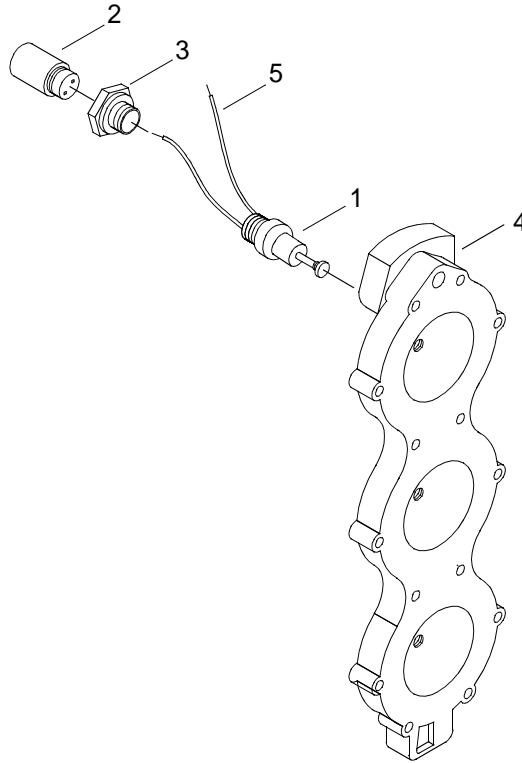


2. Remove temperature switch cover (3) from cylinder head (4).



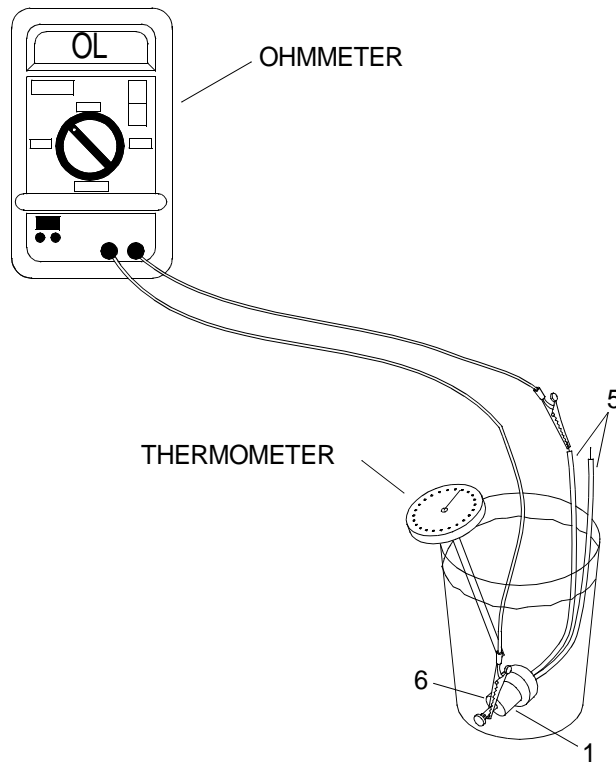
3. Remove temperature switch (1) from cylinder head (4).

4. Tag and disconnect wires (5) from connector (2) by pulling gently.



TEST RHIB ENGINE TEMPERATURE SWITCH

1. Using multimeter, make positive connections to temperature switch (1).



2. Test each colored wire (5) separately, keeping the opposite end connected to metal housing (6) of temperature switch (1).

WARNING



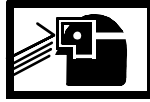
EYE PROTECTION



CHEMICAL

3. Fill a small glass beaker with crankcase oil.

WARNING



EYE PROTECTION



CHEMICAL

4. Place temperature switch (1) and an industrial thermometer in the beaker of oil.

WARNING



HOT AREA



CHEMICAL



EYE PROTECTION



FIRE

Do not use an open flame as a heat source. Failure to observe these precautions could result in serious injury to personnel.

5. Using an external heat source, slowly warm the oil.
6. The temperature switch readings should match the readings in the table below.

Wire Color	Switch Closed	Switch Open
Tan	203 ± 6°F (95 ± 3°C)	170 ± 15°F (77 ± 9°C)116
Tan/Blue	240 ± 6°F (116 ± 4°C)	207 ± 15°F (97 ± 9°C)
White/Black	105 ± 3°F (41 ± 2°C)	90 ± 3°F (32 ± 2°C)

7. If temperature readings vary from those in the table above, replace temperature switch.

 WARNING



EYE PROTECTION



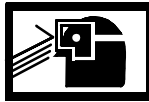
CHEMICAL

 CAUTION

Allow oil to cool before removing temperature switch from beaker. Failure to comply may result in injury to personnel.

8. Remove temperature switch (1) from beaker and wipe clean with wiping rag.

 WARNING



EYE PROTECTION



CHEMICAL

9. Dispose of oil and rags in accordance with local procedures.

 WARNING



EYE PROTECTION



CHEMICAL



SLICK FLOOR

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

INSTALL RHIB ENGINE TEMPERATURE SWITCH

1. Connect wires (5) into connector (2) and remove tags.
1. Install temperature switch (1) in cylinder head (4).
2. Install temperature switch cover (3) into cylinder head (4).
3. Connect wiring connector (2) to temperature switch (1).
4. Install RHIB engine cover. (WP 0297 00)
5. Install RHIB battery negative lead terminal. (WP 0336 00)
6. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE AIR SILENCER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)

Materials/Parts

Gasket, Air Silencer Cover

(80256)

PN 321794

Gasket, Air Silencer

(80256)

NSN 5330-01-313-8501

PN 333008

Personnel Required

Engineer 88L

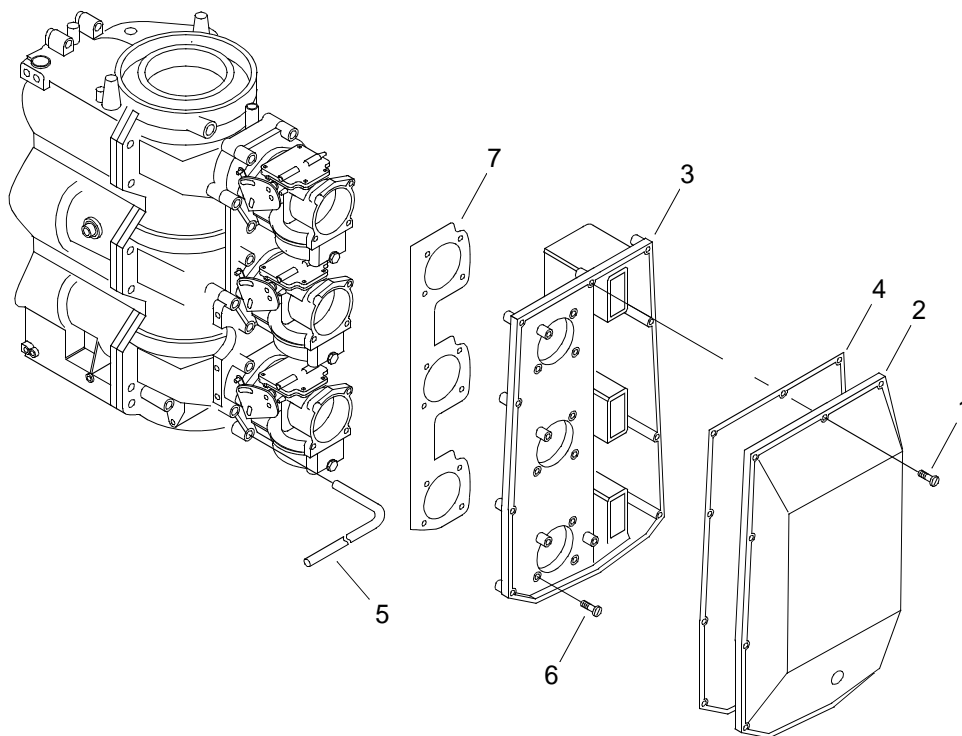
Equipment Condition

RHIB Dry-Docked.

RHIB Engine Cover Removed. (WP 0297 00)

REMOVE RHIB ENGINE AIR SILENCER

1. Remove ten screws (1) securing air silencer cover (2) to air silencer base (3).



2. Remove air silencer cover (2) and cover gasket (4). Discard cover gasket (4)

3. Unplug hose (5) from air silencer base (3).
4. Remove six screws securing air silencer base (3) to the engine.
5. Remove air silencer base (3) and base gasket (7). Discard base gasket (7).

INSTALL RHIB ENGINE AIR SILENCER

1. Position new base gasket (7) and air silencer base (3) on engine.
2. Install six screws (6). Tighten screws (6)
3. Connect hose (5) to air silencer base (3).
4. Tighten six air silencer base to carburetor screws (6).
5. Position new cover gasket (4) and air silencer cover (2) on air silencer base (3).
6. Install ten screws (1). Tighten screws (1).
7. Install RHIB engine cover. (WP 0297 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE CARBURETOR
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Gasket, Carburetor
 (80256)
 NSN 5330-01-099-8870
 PN 325092
 Qty 3
 Straps, Tie Down (Item 52, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

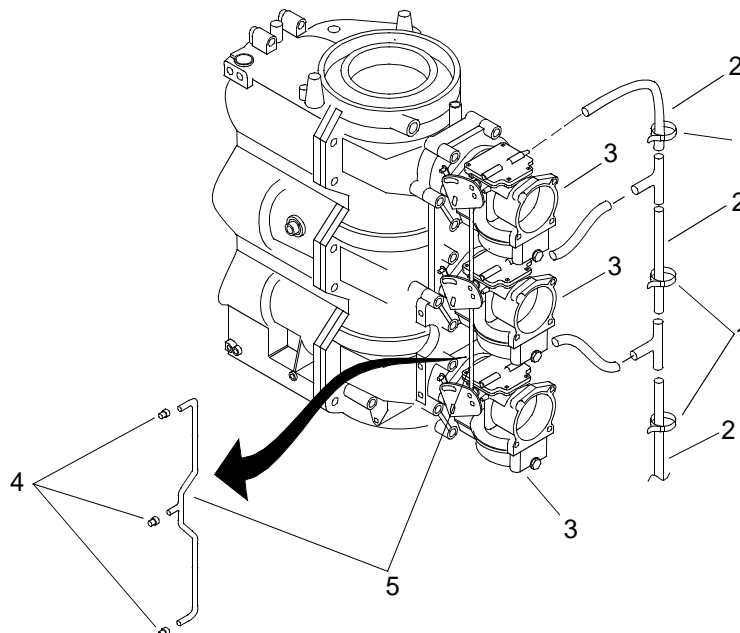
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
 RHIB Engine Cover Removed. (WP 0297 00)
 RHIB Engine Air Silencer Removed. (WP 0314 00)

REMOVE RHIB ENGINE CARBURETOR

1. Remove and discard fuel hose tiedown straps (1) from fuel hoses (2).



2. Position drain pan under fuel hoses (2).

WARNING

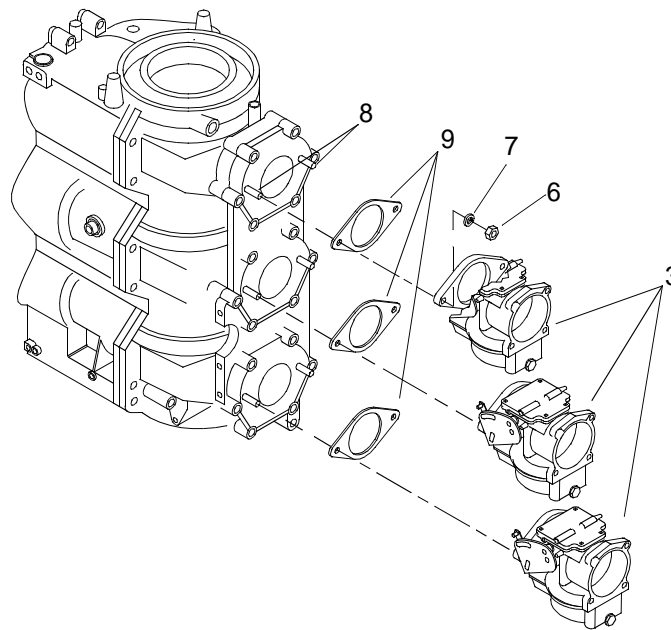


CHEMICAL



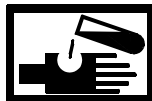
EYE PROTECTION

3. Disconnect fuel hoses (2) from carburetors (3) and allow fluid to drain into drain pan.
4. Remove retainers (4) from linkages (5).
5. Remove linkages (5) from carburetors (3).
6. Remove six hex nuts (6) and lock washers (7) from studs (8).



7. Remove carburetors (3) from studs (8).
8. Remove three carburetor gaskets (9) from studs (8) and discard gaskets (9).

WARNING



CHEMICAL



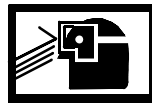
EYE PROTECTION

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

INSTALL RHIB ENGINE CARBURETOR

1. Install three new carburetor gaskets (9) on studs (8).
2. Position carburetors (3) on studs (8).
3. Install six lock washers (7) and hex nuts (6) on studs (8) to secure carburetors (3) to the studs (8). Tighten hex nuts (6).
4. Install linkages (5) on carburetors (3).
5. Install retainers (4) on linkages (5).
6. Connect fuel hoses (2) to carburetors (3).

WARNING

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

7. Clean up spilled fluid with spill kit and dispose of spill kit waste in accordance with local procedures.
8. Install new fuel hose tiedown straps (1).
9. Install RHIB engine air silencer. (WP 0314 00)
10. Adjust RHIB engine throttle synchronization and linkage. (WP 0271 00)
11. Adjust RHIB engine carburetor fuel mixture. (WP 0317 00)
12. Install RHIB engine cover. (WP 0297 00)
13. Install RHIB battery negative lead terminal. (WP 0336 00)
14. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE CARBURETOR
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Wrench, Torque (0-75 in. lbs) (Item 88, WP 0359 00)
Punch Set, Drive Pin (Item 55, WP 0359 00)
Screwdriver, Fixed Jet (Item 65, WP 0359 00)
Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)
Mallet, Rubber (Item 40, WP 0359 00)

Materials/Parts

Carburetor Repair Kit
(80256)
PN 0396701

Float
(80256)
PN 382363

Hinge Pin
(80256)
PN 302661

Preformed Packing, Roller
(80256)
PN 324678

Gasket, Cover
(80256)
PN 337808

Gasket, Float Bowl
(80256)
PN 338880

Isopropyl, Alcohol (Item 33, WP 0358 00)
Syringe, Irrigating (Item 53, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)
Sealing Compound, Pipe Thread (Item 48, WP 0358 00)
Sealing Compound, Ultrablue (Item 47, WP 0358 00)
Carbon Removing Compound (Item 8, WP 0358 00)

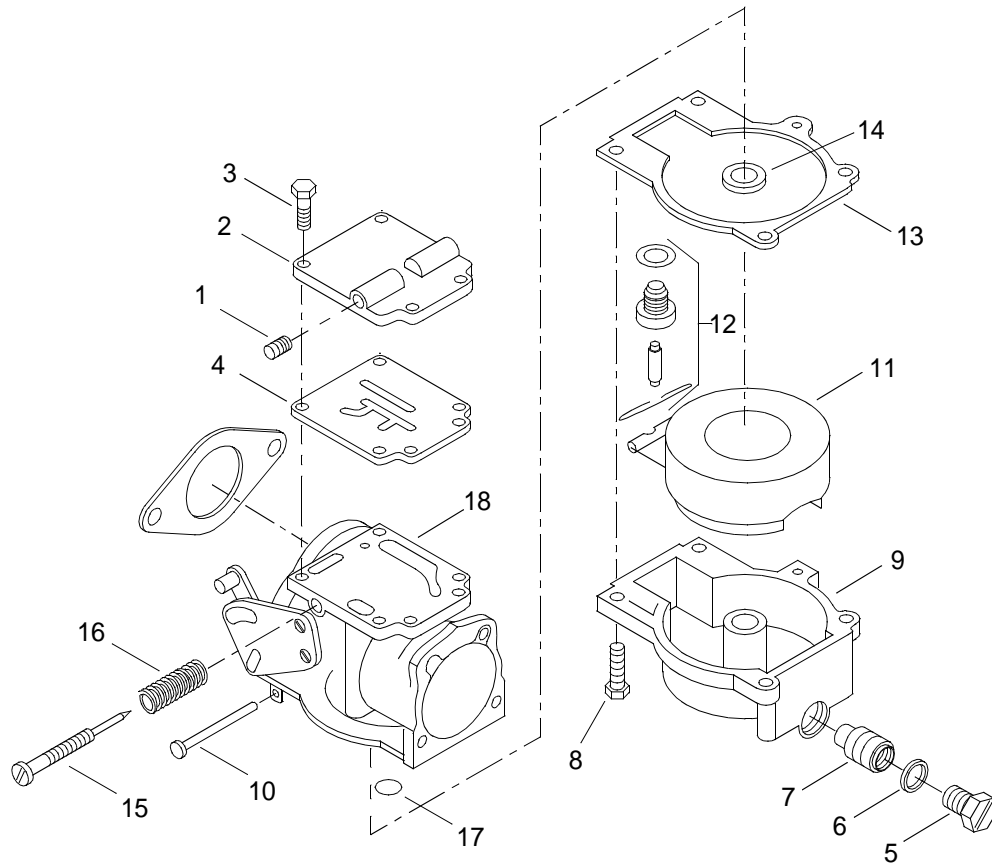
Personnel Required

Engineer 88L

DISASSEMBLE RHIB ENGINE CARBURETOR**NOTE**

The following procedure is typical for all RHIB engine carburetors. The carburetor repair kit contains replacement parts for multiple engine models.

1. Using fixed jet screwdriver, remove orifice (1) from carburetor cover (2).

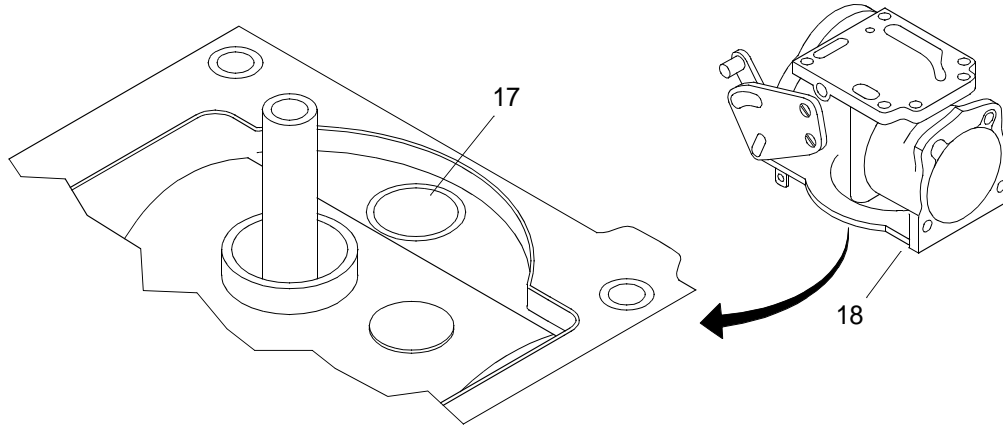


2. Remove four carburetor cover screws (3).
3. Remove carburetor cover (2) and gasket (4). Discard gasket (4).
4. Remove drain plug (5) with preformed packing (6) and discard packing (6).
5. Using a fixed jet screwdriver, remove orifice (7).
6. Remove four float bowl mounting screws (8).
7. Remove float chamber (9).
8. Remove float hinge pin (10) and discard.
9. Remove float (11) and discard.
10. Remove float valve and seat assembly (12) and discard.
11. Remove float bowl gasket (13) and discard.
12. Remove nozzle gasket (14) and discard.
13. Remove needle valve (15) and spring (16).

CAUTION

Do not force punch through core plug more than 1/8 in. (3 mm). Failure to comply will damage carburetor body.

14. Locate core plug (17) on under side of carburetor body (18) and proceed as follows:



- a. Using a small diameter punch, punch through core plug (17).
- b. Remove core plug (17) and discard.

CLEAN RHIB ENGINE CARBURETOR COMPONENTS

WARNING


CHEMICAL

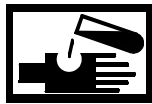
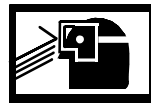
EYE PROTECTION

CAUTION

Do not immerse carburetor body in carbon removing compound or in a hot tank. Do not use carbon removing compound on plastic or rubber components. Failure to comply will damage components.

1. Spray metal parts with carbon removing compound.

WARNING


CHEMICAL

EYE PROTECTION

2. Using a clean bristle brush, remove any residual gasket material, dirt and varnish.

 WARNING



CHEMICAL



EYE PROTECTION

 CAUTION

Air pressure of less than 25 PSI (172 kPa) may be used to dry parts. Use of higher pressure may cause damage to parts.

Always dry passages against the direction of fuel flow to prevent damage to parts.

3. Dry parts completely with compressed air.

INSPECT RHIB ENGINE CARBURETOR COMPONENTS

1. Inspect carburetor body (18).
 - a. Inspect all gasket mounting surfaces for damage or distortions. None allowed. Replace carburetor.
 - b. Inspect throttle shaft for excessive wear. None allowed. Replace carburetor.
 - c. Inspect body for damaged, distorted or excessive wear. None allowed. Replace carburetor.

 WARNING



CHEMICAL



EYE PROTECTION

2. Using isopropyl alcohol in a syringe, inject all fuel flow passages and chambers and proceed as follows:
 - a. Inspect for blockage or restrictions. None allowed. Clean any blocked or restricted passages.
 - b. Inspect pickup tube to body for leaks by filling the idle circuit with isopropyl alcohol.
 - {1} If leak is found, dry body with compressed air of less than 25 PSI (172 kPa).

 WARNING



CHEMICAL



EYE PROTECTION

- {2} Use one drop of OMC Ultra Lock at point of leak.

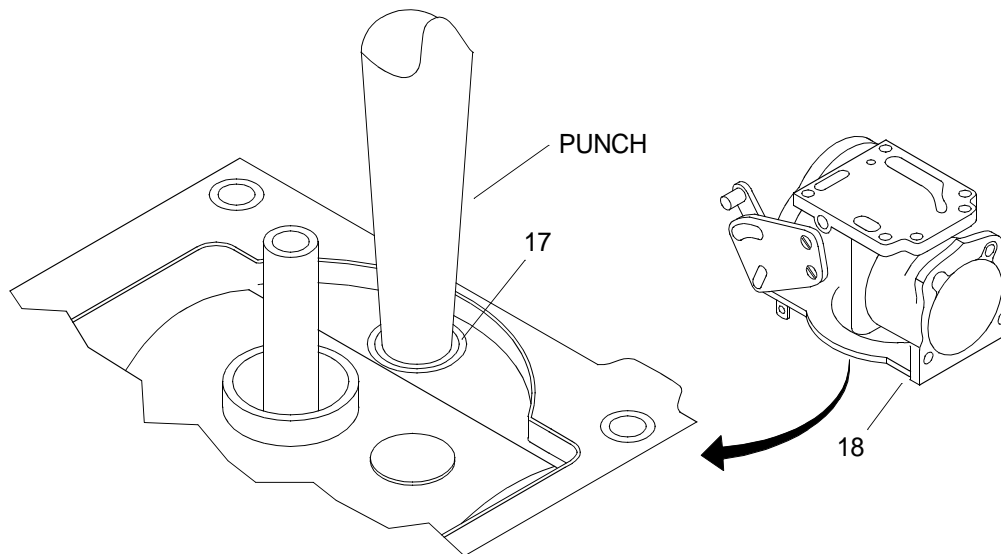
ASSEMBLE RHIB ENGINE CARBURETOR**CAUTION**

Repair kit contains parts for three engine models. Ensure replacement parts used are correct for this model. Failure to comply may damage parts.

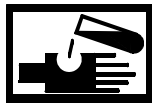
NOTE

All parts must be completely clean before assembly.

1. Inspect all new gaskets for loose gasket material and fibers. Remove prior to installation.
2. Choose a flat face punch with a diameter slightly smaller than the plug opening and a plastic mallet and proceed as follows:



- a. Position carburetor body (18) to access core plug opening (17).
- b. Position plug (17) on body (18) so it resembles a dome over the opening.
- c. Center punch on dome of core plug (17).
- d. Strike punch with mallet to seat core plug (17).

WARNING**CHEMICAL****EYE PROTECTION**

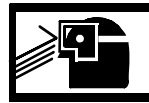
- e. Once seated, apply sealing compound around the edge of core plug (17).
3. With body (18) up turned, install preformed packing (14) over pick up tube.
4. Install new float valve and seat assembly (12).

5. Position new float (11) on carburetor body (18) so hinge pin hole aligns with mounting holes in housing.
6. Install new float hinge pin (10).
7. Using fixed jet screwdriver, install orifice (7) in float housing (9).
8. Install new preformed packing (6) on drain plug (5).
9. Install drain plug (5) in float chamber (9).
10. Install spring (16) on needle valve (15).
11. Using fixed jet screwdriver, install needle valve (15) and spring (16) in carburetor body. Screw orifice into body slowly, until it touches valve seat. Then back needle valve (15) out $2\frac{3}{4}$ turns.
12. Install new carburetor cover gasket (4) on body (9), matching mounting holes and shape.
13. Install carburetor cover (2).

WARNING

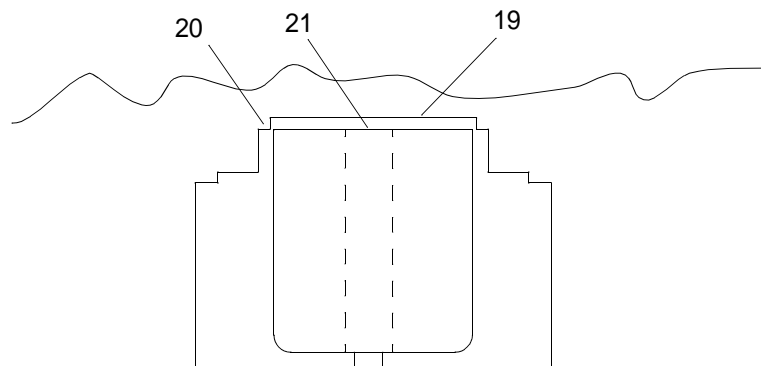


CHEMICAL



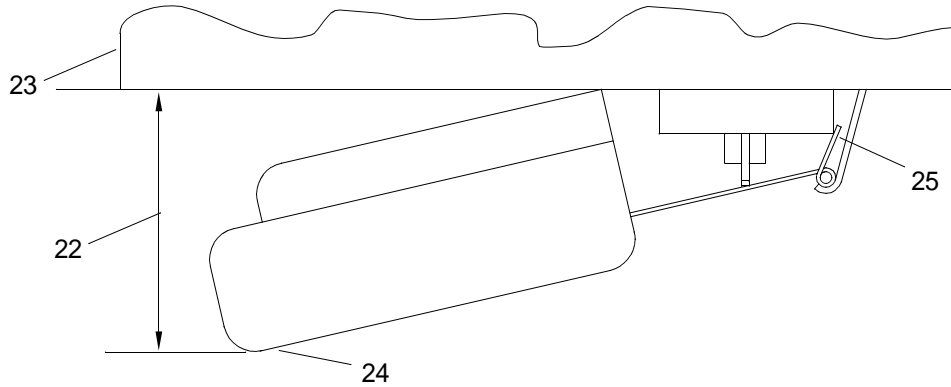
EYE PROTECTION

14. Apply sealing compound to threads of four carburetor cover screws (3) and tighten.
15. Using a torque wrench, tighten screws (3) in criss-cross configuration, to 15 - 22 in. lbs (1.6 - 2.4 N-m).
16. To adjust float level, turn carburetor assembly onto cover and proceed as follows:



- a. Position float gage (19) on surface of float bowl (20), so float surface (21) and gage upper and lower surfaces can be observed.
- b. Adjust float so float surface (21) touches lower gage surface, but not upper gage surface.

17. To adjust float drop, turn carburetor assembly over so float drops and proceed as follows:



- a. Using a mechanics rule, verify the distance (22) from the lower surface of the of the carburetor body (23) to a line parallel to the lowest point on the float (24) (1-1/8 in. - 1-5/8 in), (28 - 41 mm).
- b. Adjust float lever tab (25) to obtain proper float drop.

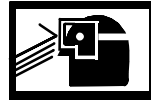
18. Turn carburetor assembly over onto top cover.

19. Install new float bowl gasket (13) and float chamber (9).

WARNING



CHEMICAL



EYE PROTECTION

20. Apply sealing compound to threads of the four float bowl screws (8).
21. Install four screws (8) and tighten.
22. Using a torque wrench, tighten screws (8) in criss-cross configuration, to 25 - 35 in. lbs (2.8 - 4.0 N-m).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE CARBURETOR
FUEL MIXTURE
ADJUSTMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

Engineer 88L

References

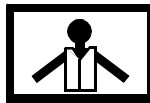
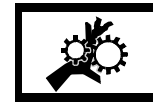
TM 55-1945-205-10-2

Equipment Condition

RHIB Engine Cover Removed. (WP 0297 00)

ADJUST RHIB ENGINE CARBURETOR FUEL MIXTURE

WARNING

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

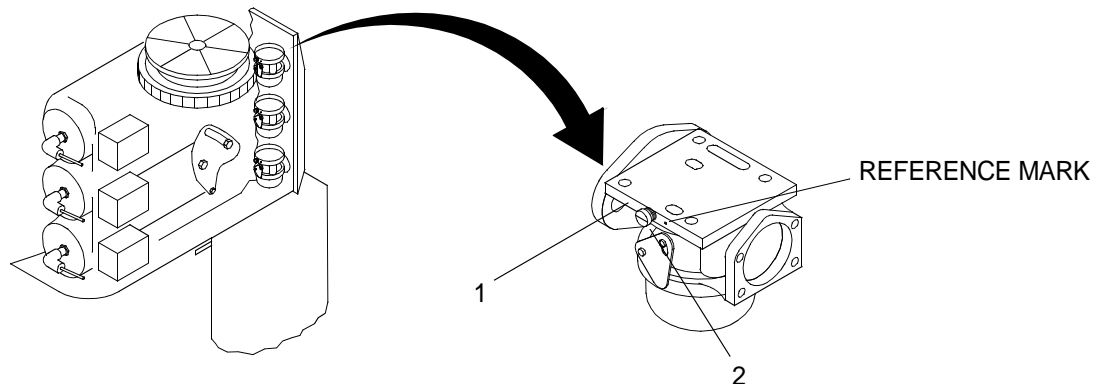
All personnel must wear a personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The slow speed mixture on the carburetor is controlled by an adjustable needle.

There are three carburetors on the engine. This idle adjustment procedure is typical for all three carburetors.

1. Make a reference mark on the carburetor body (1) before disturbing the idle mixture screw (2).



-
2. Start RHIB engine and run it, in gear, at idle speed for at least 3 minutes or until it reaches normal operating temperature. (TM 55-1945-205-10-2)

NOTE

Observe the way the engine idles. If the air/fuel mixture is too lean, the engine will sneeze and backfire. If the air/fuel mixture is too rich, the engine will run rough and unsteady.

3. Adjust the carburetor for too lean or too rich conditions as follows.
 - a. To adjust a carburetor that is too lean, note the reference mark and turn the idle screw (2) 1/8 revolution counter clockwise.
 - b. Wait 15 seconds and repeat this procedure until the engine reaches the highest consistent RPM.
 - c. To adjust a carburetor that is too rich, note the reference mark and turn the idle screw (2) 1/8 turn clockwise.
 - d. Wait 15 seconds after each adjustment and repeat this procedure until you reach the highest consistent RPM.
4. Repeat step 3 for each carburetor.
5. Test the idle adjustment by running engine at a high throttle setting for 3 minutes.
6. Return the engine to idle while still in gear. The engine should maintain a smooth idle.
7. If the engine does not respond properly to these adjustments, check for the following conditions.
 - a. Check carburetor linkage adjustment. (WP 0271 00)
 - b. Check RHIB engine temperature. (TM 55-1945-205-10-2)
 - c. Verify water is being discharged from cooling system port on lower unit.
 - d. Check RHIB intake manifold balance passage. (WP 0318 00)
8. Shut down the engine. (TM 55-1945-205-10-2)
9. Install RHIB engine cover. (WP 0297 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE INTAKE MANIFOLD
REMOVAL, CLEANING, INSPECTION, REPAIR AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Wrench, Torque (0-75 in. lbs) (Item 88, WP 0359 00)
 Wrench, Torque (10-250 in. lbs) (Item 90, WP 0359 00)
 Brush, Stencil (Soft Bristle) (Item 9, WP 0359 00)

Materials/Parts

Gasket, Plate to Manifold
 (80256)
 PN 326926
 Valve, Leaf
 (80256)
 PN 313420
 Qty 6
 Shim, Leaf Valve
 (80256)
 PN 324090
 Qty 6
 Cleaner (Item 9, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Primer and Sealing Compound (Item 44, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
 RHIB Engine Cover Removed. (WP 0297 00)
 RHIB Engine Air Silencer Removed. (WP 0314 00)
 RHIB Engine Carburetors Removed. (WP 0315 00)

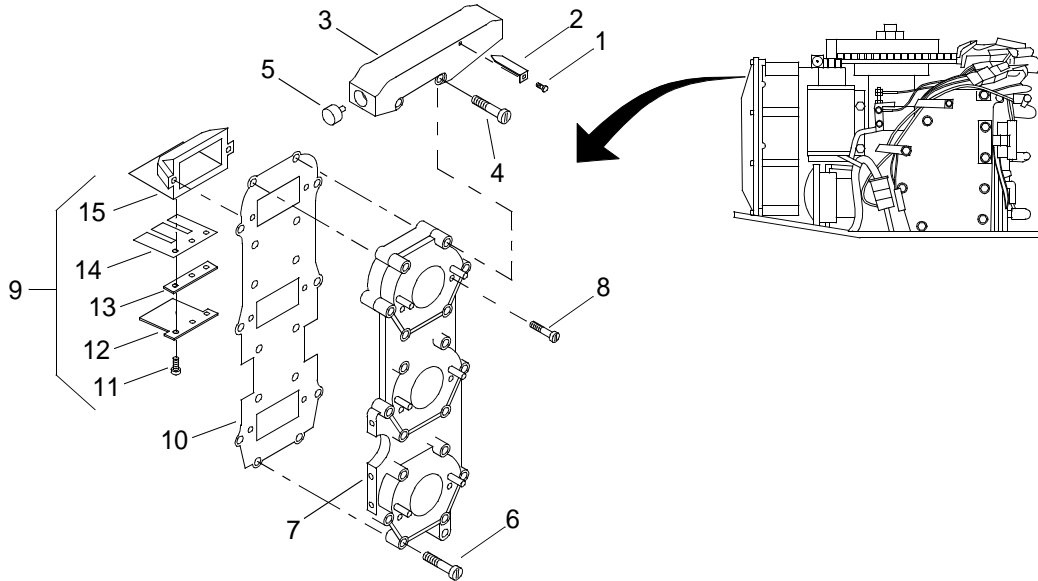
REMOVE RHIB ENGINE INTAKE MANIFOLD

WARNING

**CHEMICAL****EYE PROTECTION**

1. Position wiping rags under all components to be removed to absorb residual fuel.

- Remove screw (1) and timing pointer (2) from mounting bracket (3).



- Remove two mounting bracket screws (4) and two bumpers (5).
- Remove mounting bracket (3).
- Remove 16 screws (6).
- Remove intake manifold (7).

DISASSEMBLE INTAKE MANIFOLD

- Remove two screws (8) from intake manifold (7) holding each of the three leaf plate assemblies (9).
- Remove manifold gasket (10) and discard.

NOTE

When disassembling the leaf plate assemblies, disassemble each separately. Do not mix parts from different assemblies.

- Remove stop screws (11), leaf stop (12), shim (13) (if present), and leaf valve (14) from each leaf plate (15) and keep separate.
- Discard leaf valve (14) and shims (13) (if present), from each leaf plate (15).

WARNING



CHEMICAL



EYE PROTECTION

- Remove and dispose of wiping rags in accordance with local procedures.

CLEAN RHIB ENGINE INTAKE MANIFOLD AND COMPONENTS

WARNING

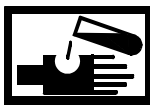
**CHEMICAL****EYE PROTECTION**

CAUTION

Do not clean manifold and components in a hot tank or use strong carbon removing compound. Failure to comply will damage parts.

1. Using cleaner and a bristle brush, remove any residual gasket material from intake manifold (7) and the gasket mounting surface of leaf plates (15).

WARNING

**CHEMICAL****EYE PROTECTION**

2. Using cleaner, remove all dirt, varnish and carbon from the intake manifold (7). Passages must be free of restrictions.
3. Allow the intake manifold (7) to dry thoroughly.

INSPECT AND REPAIR RHIB ENGINE INTAKE MANIFOLD AND COMPONENTS

1. Inspect leaf plate (15) and leaf stop (12) for cracks, chips or distortion. Replace if damaged.
2. Check leaf plate (15) gasket surfaces for flatness. May not vary more than ± 0.003 in. (± 0.08 mm). Replace as necessary.
3. Inspect intake manifold (7) for cracks, chips, burrs and distortions. Replace if damaged.
4. Inspect intake manifold for surface flatness. Surface must not vary by more than ± 0.004 in. (± 0.10 mm). Replace as necessary.

ASSEMBLY OF RHIB ENGINE INTAKE MANIFOLD COMPONENTS

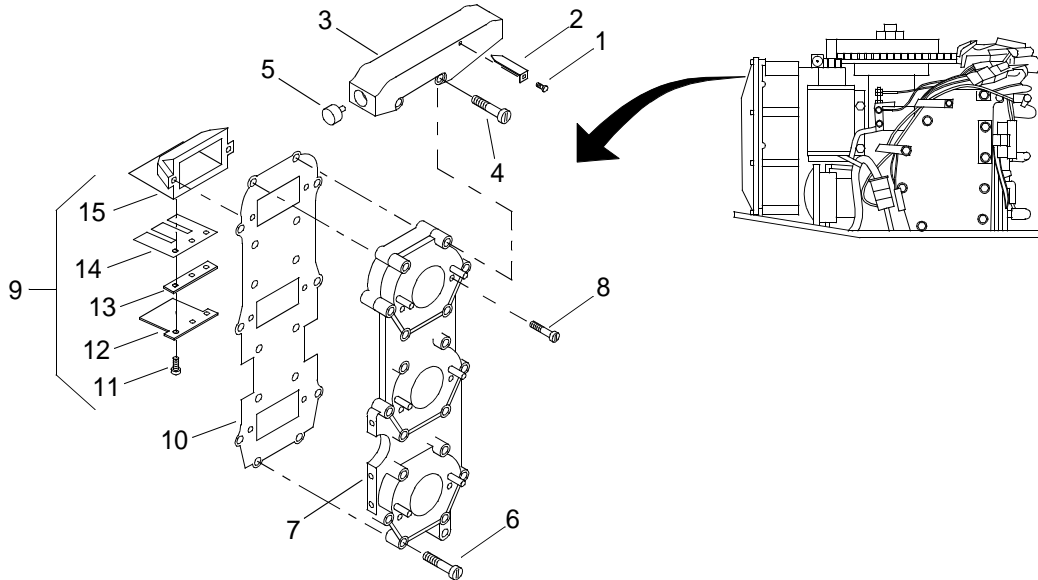
NOTE

New parts must be free of burrs and distortions. New gasket must be free of loose fibers and gasket material.

This procedure is typical for assembly of the leaf valves.

Do not interchange parts from different assemblies.

1. Position new leaf valve (14) on the leaf plate (15).



- a. If valve fails to properly seat, turn valve over.
 - b. If leaf valve (14) is not closed, use a pencil eraser and apply gentle pressure.
 - c. If leaf valve (14) still fails to close, replace.
2. While holding leaf plate (15) and leaf valve (14) horizontally, install leaf stop (12).
 - a. Install stop screws (11) in center holes and check to see that leaf valve (14) has aligned with the ports of leaf plate (15).
 - b. If leaf valve (14) is aligned, tighten screws (11).
 - c. If leaf stop (12) is secure, remove stop screws (11) and go to step 3.
 - d. If leaf stop (12) is loose, remove stop screws (11) and leaf stop (12). Position a shim (13) over leaf valve (14) and go to step 3.

 WARNING



CHEMICAL



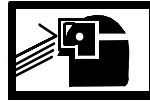
EYE PROTECTION

3. Apply primer and sealing compound to threads on stop screws (11) allow to air dry.

 WARNING



CHEMICAL



EYE PROTECTION

4. Apply primer and sealing compound to screws (11).
5. Install leaf valve (14), leaf stop (12), shim (13) (if required), and stop screws (11) in the center of each leaf valve (14), but do not tighten.
6. Hold the leaf valve assembly (9) horizontally to aid in evenly positioning the leaf valve (14) over ports.
7. Tighten stop screws (11) and proceed as follows:
 - a. Check alignment of leaf valve (14) over ports by using a pencil to mark valve leaf.
 - b. Using the eraser, put gentle pressure on each leaf from the intake side and view leaf valve (14) position.
 - {1} If leafs are positioned evenly over the ports, install remainder of stop screws (11).
 - {2} If not evenly positioned, loosen stop screws (11), and repeat Steps 3- 5.
8. Using a torque wrench, evenly tighten stop screws (11) to 15 -22 in. lbs (1.7 -2.4 N-m).

 WARNING



CHEMICAL



EYE PROTECTION

9. Apply primer and sealing compound to screws (8) allow to air dry.

 WARNING



CHEMICAL



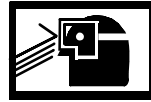
EYE PROTECTION

10. Apply primer and sealing compound to screws (8).

11. Position new gasket (10) on the intake manifold (7) and install each leaf plate assembly (9), using screws (8).
12. Using a torque wrench, tighten screws (8) evenly on each leaf plate assembly to 25-35 in. lbs (3-4 N-m).

INSTALL RHIB ENGINE INTAKE MANIFOLD

WARNING

**CHEMICAL****EYE PROTECTION**

1. Apply primer and sealing compound to 16 manifold screws (6) allow to air dry.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Apply primer and sealing compound to screws (6).
3. Position intake manifold assembly (10) on engine and install 16 screws (6). Tighten screws (6).
4. Using a torque wrench, tighten screws (6) evenly, (in a criss-cross pattern), to 60 - 84 in. lbs (7-9 N-m).
5. Position mounting bracket (3) on intake manifold (10).
6. Install two screws (4) and two mounting bracket bumpers (5) Tighten screws (4).
7. Install timing pointer (2) and screw (1). Tighten screw (1).

WARNING

**CHEMICAL****EYE PROTECTION**

8. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
9. Install RHIB engine carburetors. (WP 0315 00)
10. Adjust RHIB engine throttle synchronization and linkage. (WP 0271 00)
11. Install RHIB engine air silencer. (WP 0314 00)
12. Install RHIB engine cover. (WP 0297 00)
13. Install RHIB battery negative lead terminal. (WP 0336 00)
14. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT FUEL PRIMER SYSTEM
TESTING**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 43, WP 0359 00)

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Men's and (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Tool, Nipple Cleaning (Item 83, WP 0359 00)

Materials/Parts

Isopropyl Alcohol (Item 33, WP 0358 00)
 Tubing, Connecting, General Purpose, Clear Vinyl, 1/8 in. (Item 57, WP 0358 00)
 Syringe, Irrigating (Item 53, WP 0358 00)
 Strap, Tie Down (Item 52, WP 0358 00)

Personnel Required

Engineer 88L

References

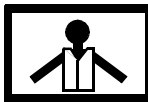
TM 55-1945-205-10-2

Equipment Condition

RHIB Engine Cover Removed. (WP 0297 00)

TEST FUEL PRIMER SYSTEM

WARNING



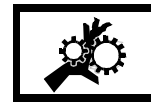
VEST



HELMET PROTECTION



HEAVY PARTS

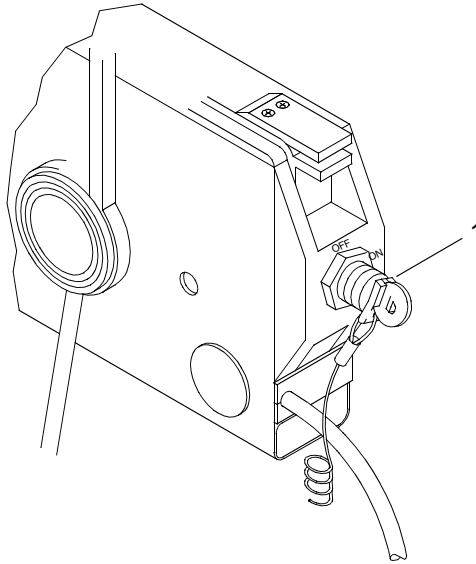


MOVING PARTS

All personnel must wear a 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. Start RHIB engine and allow it to reach normal operating temperature. (TM 55-1945-205-10-2)
2. Maintain engine speed at 2000 RPM.

3. While engine is running, push in ignition key (1).



4. Check engine RPM gage to verify that it displays a reading of 1000 RPM, indicating the engine is running rich.
5. Shutdown RHIB engine by turning key (1) counterclockwise to OFF position. (TM 55-1945-205-10-2)
6. Remove RHIB engine air silencer assembly. (WP 0314 00)

WARNING



CHEMICAL

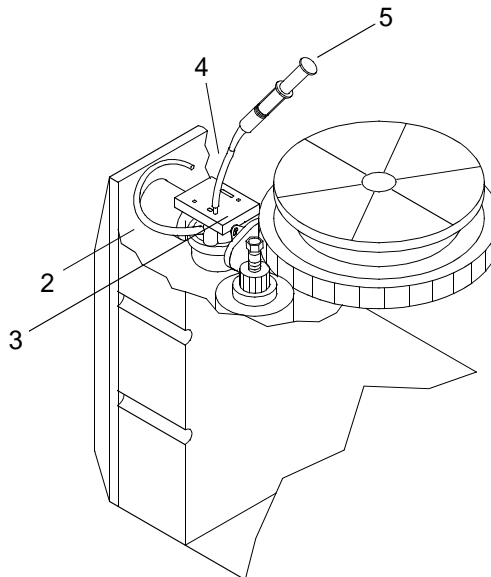


EYE PROTECTION



VAPOR

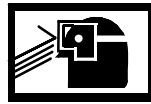
7. Remove primer hose (2) from the carburetor fitting (3) that appears to be clogged.



 WARNING



CHEMICAL

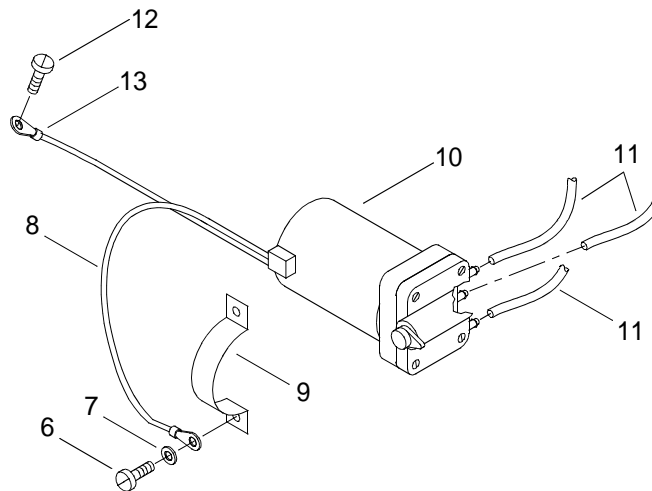


EYE PROTECTION



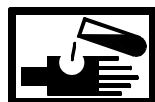
VAPOR

8. Connect a 1/8 in. I.D. clear, vinyl hose (4) between the fitting and a syringe (5) filled with isopropyl alcohol.
9. Press lightly on plunger of syringe (5).
 - a. If fluid moves through fitting, there is no blockage present.
 - b. If fluid does not move through the fitting, clean fitting with OMC Nipple Cleaning tool.
10. Remove two fuel primer solenoid bracket screws (6), washers (7).



11. Tag and remove white grounding wire (8).
12. Remove primer solenoid bracket (9) and fuel primer solenoid (10).

 WARNING



CHEMICAL



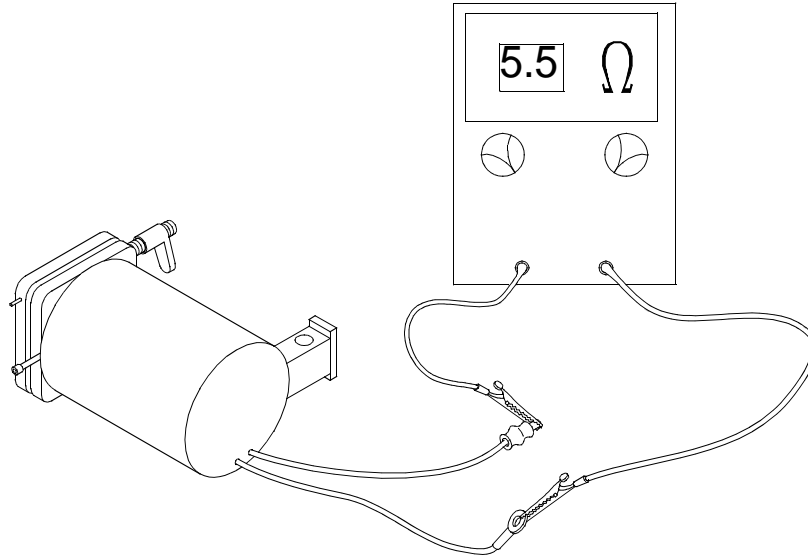
EYE PROTECTION



VAPOR

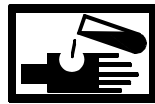
13. Remove three hoses (11).
14. Remove the terminal screw (12).
15. Tag and remove purple lead (13).
16. Test the solenoid windings by calibrating a multimeter on low ohms scale.

17. Verify that meter reads between 4 to 7 ohms.

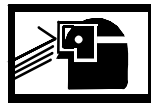


18. Test solenoid internal valve and seat.

WARNING



CHEMICAL

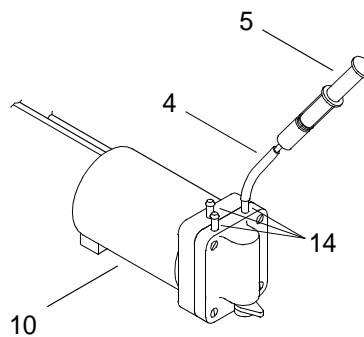


EYE PROTECTION

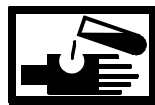


VAPOR

- a. Connect 1/8 in. I.D. clear, vinyl hose (4) and syringe (5) filled with isopropyl alcohol to each of the three inlet fittings (14) on the fuel primer solenoid (10).



WARNING



CHEMICAL



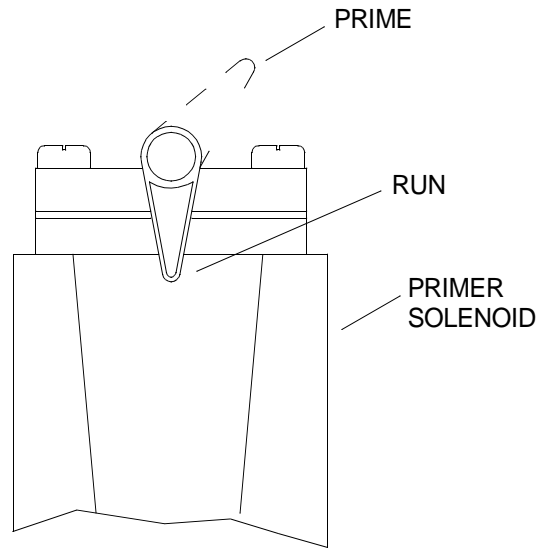
EYE PROTECTION



VAPOR

- b. Lightly pressurize, in turn, each inlet fitting using the alcohol and syringe (5).

- c. To test each fitting, move lever to run position and observe if any fluid enters inlet fitting. No fluid should enter.

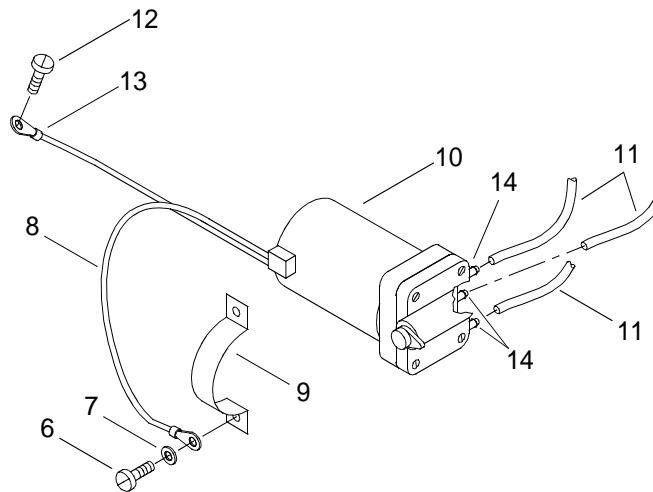


- d. Move lever to prime position. Fluid should come out of both inlet fittings.
- e. Repeat steps a through d for each inlet fitting (14) on fuel primer solenoid (10).

19. Replace defective fuel primer solenoid (10). (WP 0320 00)

20. Install fuel primer solenoid (10).

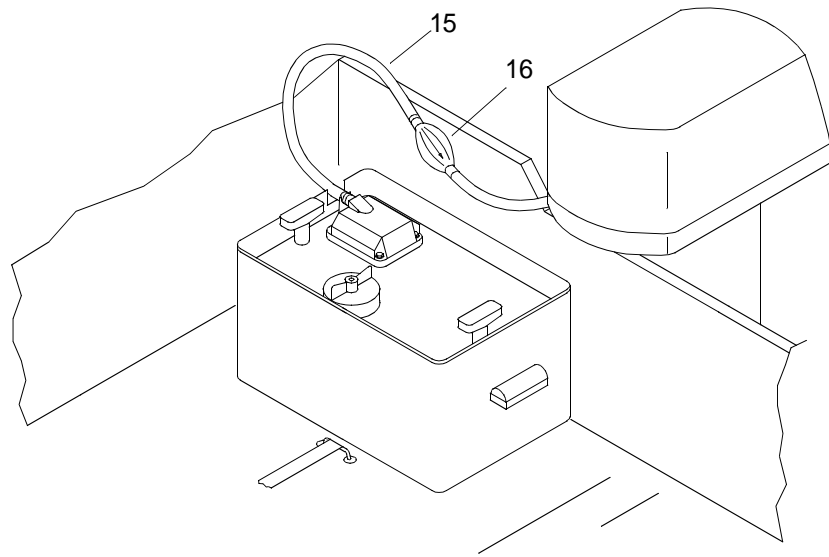
- a. Using terminal screw (12), connect purple wire (13) and remove tag.



- b. Connect three hoses (11) to solenoid inlet fittings (14).
- c. Position fuel primer solenoid (10) and primer solenoid bracket (9).
- d. Secure fuel primer solenoid (10), solenoid bracket (9) and purple grounding wire (8) using screws (6) and washers (7). Tighten screws (6) and remove tag from purple grounding wire (8).
- e. Install primer hose (2) on carburetor fitting (3).

21. Install RHIB engine air silencer assembly. (WP 0314 00)

22. Connect fuel tank line (15) to outboard engine.



WARNING



EYE PROTECTION



EXPLOSION



CHEMICAL

23. Squeeze primer bulb (16) until firm pressure is felt in primer bulb (16).

24. Check for fuel leaks.

25. Install RHIB engine cover. (WP 0297 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE FUEL PRIMER SOLENOID
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Drum, Shipping and Storage (Test Tank) (Item 17, WP 0359 00)

Materials/Parts

Strap, Tie Down (Item 52, WP 0358 00)
Rag, Wiping (Item 45, WP 0358 00)
Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

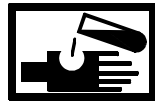
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Engine Cover Removed. (WP 0297 00)

REMOVE RHIB ENGINE FUEL PRIMER SOLENOID

WARNING



CHEMICAL



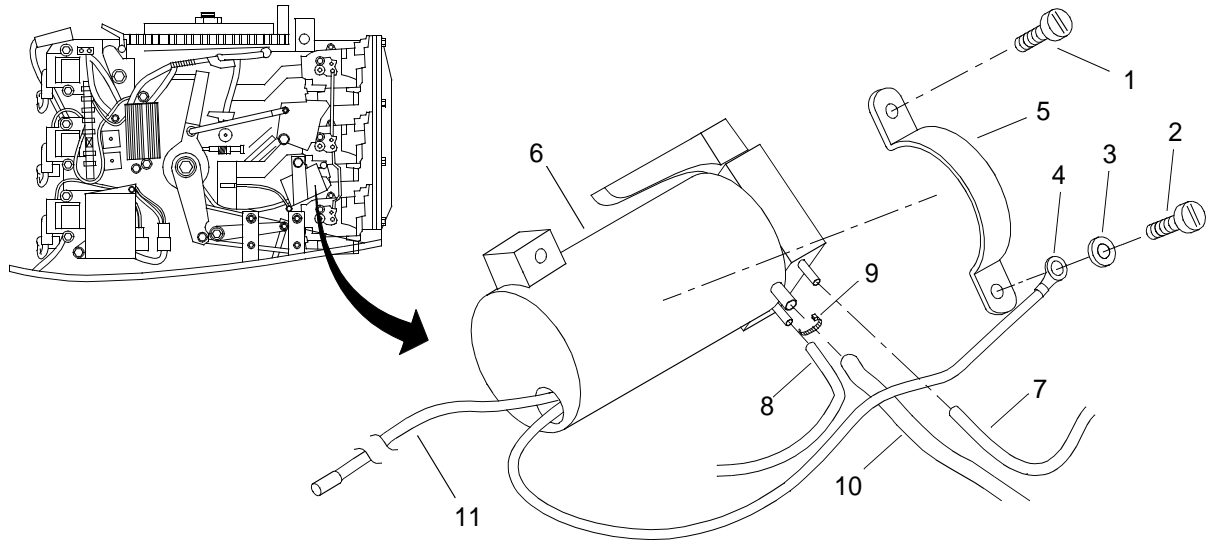
EYE PROTECTION



VAPOR

1. Position wiping rags under all components to absorb residual fuel.

- Remove top mounting clamp screw (1).

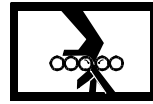


- Remove bottom mounting clamp screw (2) and ground lock washer (3).
- Tag and remove solenoid ground wire (4).
- Remove clamp (5) and primer solenoid (6).
- Tag and remove hoses (7 and 8) from primer solenoid (6).
- Remove tiedown strap (9) from hose (10) and discard tiedown strap.
- Tag hose (10) and remove from primer solenoid (6).
- Tag and disconnect purple/white lead (11) from engine.

INSTALL RHIB ENGINE FUEL PRIMER SOLENOID

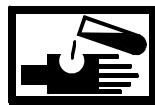
- Connect purple/white lead (11) to engine and remove tag.
- Install hose (10) on primer solenoid, remove tag and secure with new tiedown strap (9).
- Install hoses (7 and 8) on primer solenoid (6) and remove tags.
- Install ground lock washer (3) and ground wire (4) on screw (2).
- Place clamp (5) on primer solenoid (6) and install bottom mounting screw (2) with washer (3) and ground wire (4) in clamp and remove tag.
- Install primer solenoid (6) and clamp with screw (2) on engine mount and tighten screw.
- Install top clamp screw (1) and tighten.
- Install the correct test propeller and place the engine in a test tank.

 WARNING

**FIRE****EYE PROTECTION****MOVING PARTS**

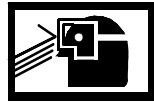
9. Start engine and check for leaks. (TM 55-1945-205-10-2)
10. Stop engine. (TM 55-1945-205-10-2)
11. Install RHIB engine cover. (TM 55-1945-205-10-2)

 WARNING

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

12. Dispose of contaminated wiping rags in accordance with local procedures.

 WARNING

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

13. Clean up spilled fluid with spill kit and dispose of spill kit waste in accordance with local procedures.
14. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE FUEL TANK
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)

Materials/Parts

Seal, Lens
 (80256)
 PN 127146
 O-Ring
 (80256)
 PN 125515
 Seal, Manifold to Tank
 (80256)
 PN 127093
 Gasoline, Unleaded (Item 20, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

Equipment Condition

RHIB Engine Fuel Tank Removed. (TM 55-1945-205-10-2)

DISASSEMBLE RHIB ENGINE FUEL TANK

WARNING



CHEMICAL



EYE PROTECTION

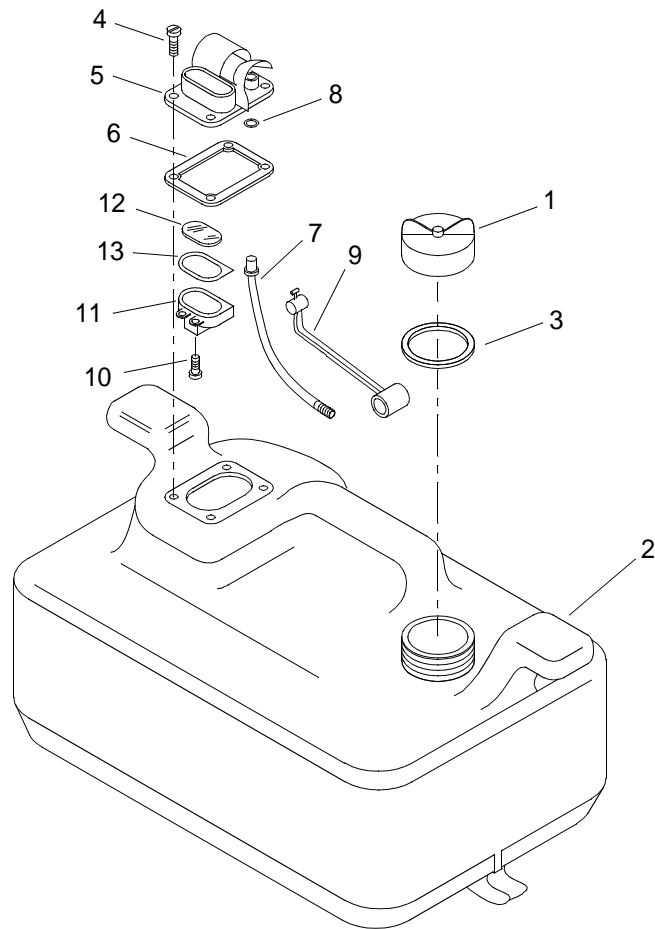


VAPOR

NOTE

Repair is limited to the replacement of damaged components.

1. Remove gas cap (1) from fuel tank (2).

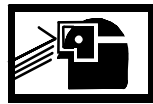


2. Remove gasket (3) from inside gas cap (1). Discard gasket (3).
3. Remove four screws (4) securing manifold assembly (5) to the fuel tank (2).

WARNING



CHEMICAL



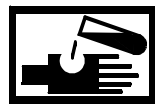
EYE PROTECTION



VAPOR

4. Remove the manifold assembly (5) and subcomponents from inside the fuel tank (2).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

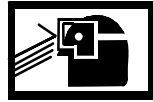
5. Remove and discard seal (6).

WARNING

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

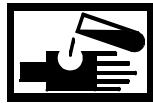
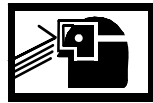
6. Remove fuel conduit hose (7) from manifold assembly (5).

WARNING

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

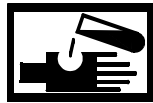
7. Remove and discard o-ring (8) from end of fuel conduit hose (7).

WARNING

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

8. Remove indicator (9) from manifold assembly (5).

WARNING

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

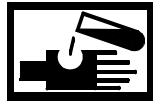
9. Remove three screws (10) securing lens retainer (11) to manifold assembly (5).

WARNING

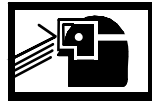
**CHEMICAL****EYE PROTECTION****VAPOR**

10. Remove lens retainer (11) from manifold assembly (5).

 WARNING



CHEMICAL



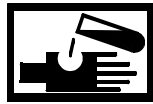
EYE PROTECTION



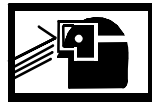
VAPOR

11. Remove lens (12) and lens seal (13) from lens retainer (11). Discard seal (13).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

12. Dispose of any residual fuel in the fuel tank (2) in accordance with local procedures.

CLEAN RHIB ENGINE FUEL TANK

 WARNING



CHEMICAL



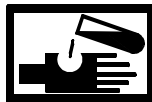
EYE PROTECTION



VAPOR

1. Using clean fuel and wiping rags, clean the interior of the fuel tank and all subcomponents of debris.

 WARNING



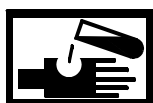
CHEMICAL



EYE PROTECTION

2. Clean the exterior of the fuel tank with cleaner and wiping rags.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

3. Dispose of contaminated wiping rags in accordance with local procedures.

INSPECT RHIB ENGINE FUEL TANK

1. Inspect fuel tank for cracks or deterioration. If found, replace tank.
2. Check subcomponents for wear or damage. If found, replace component.

ASSEMBLE RHIB ENGINE FUEL TANK

1. Install new lens seal (13) and lens (12) in lens retainer (11).
2. Position lens retainer (11) on manifold assembly (5) and secure with three screws (10). Tighten screws (10).
3. Install indicator (9) on manifold assembly (5).
4. Install new o-ring (8) on end of fuel conduit hose (7).
5. Install fuel conduit hose (7) on manifold assembly (5).
6. Position new seal (6) on fuel tank (2).
7. Install manifold assembly (5) and subcomponents into fuel tank (2) and secure with four screws (4). Tighten screws (4).
8. Install new gas cap gasket (3) into gas cap (1).
9. Install gas cap (1) on fuel tank (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE FUEL TANK HOSE AND BULB
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

O-Ring
 (80256)
 PN 334913
 Qty 2
 Cleaner (Item 9, WP 0358 00)
 Gasoline, Unleaded (Item 20, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB ENGINE FUEL TANK HOSE AND BULB

WARNING



CHEMICAL



EYE PROTECTION

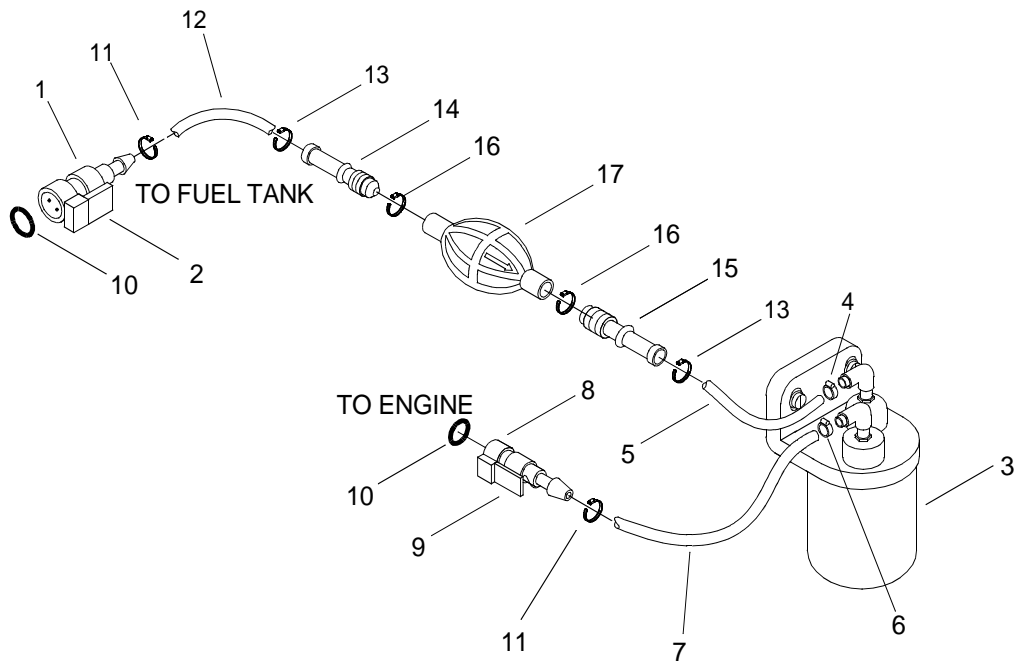


VAPOR

NOTE

The fuel tank hose is comprised of three hose sections with parts: fuel tank to primer bulb, primer bulb to fuel filter and fuel filter to engine.

1. Remove fuel hose connector (1) from fuel tank by depressing spring flange (2) and pulling backwards.



2. Position drain pan under fuel filter (3).

WARNING



CHEMICAL



EYE PROTECTION



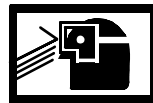
VAPOR

3. Loosen hose clamp (4) on primer bulb to fuel filter hose (5) and remove hose (5) from fuel filter (3).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

4. Drain hose (5) into drain pan.

WARNING



CHEMICAL



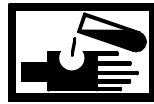
EYE PROTECTION



VAPOR

5. Loosen hose clamp (6) on fuel filter to engine hose (7) and remove hose (7) from fuel filter (3).

 WARNING



CHEMICAL



EYE PROTECTION



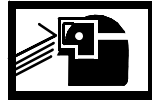
VAPOR

6. Remove fuel hose connector (8) from engine by depressing spring flange (9) and pulling backwards.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

7. Drain hose (7) into drain pan.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

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

DISASSEMBLE RHIB ENGINE FUEL TANK HOSE AND BULB

1. Remove and discard two o-rings (10) from ends of two fuel hose connectors (1 and 8).
2. Remove two snap clamps (11) securing hoses (7 and 12) to fuel hose connectors (1 and 8).
3. Remove two snap clamps (13) securing hoses (5 and 12) to nipple and valve assemblies (14 and 15).
4. Remove two large band clamps (16) securing two nipple and valve assemblies (14 and 15) to primer bulb (17).
5. Remove two nipple and valve assemblies (14 and 15) from primer bulb (17).

CLEAN RHIB ENGINE FUEL TANK HOSE AND BULB

 WARNING



CHEMICAL



EYE PROTECTION

1. Use cleaner and wiping rags to remove debris or dirt from the exterior of all components.

 WARNING



CHEMICAL



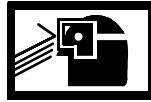
EYE PROTECTION

- Remove and dispose of contaminated wiping rags in accordance with local procedures

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

- Use clean fuel to rinse debris and dirt from the interior of all components into a drain pan.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

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

INSPECT RHIB ENGINE FUEL TANK HOSE AND BULB

- Inspect hoses (5, 7, 12) and primer bulb (17) for cracks or deterioration. Replace as necessary.
- Inspect the nipple and valve assemblies (14 and 15) for corrosion or clogs. Clean or replace as necessary.

ASSEMBLE RHIB ENGINE FUEL TANK HOSE AND BULB

NOTE

Repair is limited to the replacement of damaged components.

- Place two large band clamps (16) on ends of new primer bulb (17).
- Install two new nipple and valve assemblies (14 and 15) into the primer bulb (17) and secure with two large band clamps (16). Tighten clamps (16).

NOTE

New hoses are cut to length from a 25 ft roll of 5/16 in. I.D. hose.

- Install new hose (12) with snap clamp (13) on nipple and valve assembly (14). Tighten snap clamp (13)
- Install other end of hose (12) with snap clamp (11) on fuel hose connector (1). Tighten snap clamp (11).
- Install new hose (5) with snap clamp (13) on nipple and valve assembly (15). Tighten snap clamp (13).

6. Install other end of hose (15) with hose clamp (4) on fuel filter (3). Tighten clamp (4).
7. Install new hose (7) with hose clamp (6) on fuel filter (3). Tighten clamp (6).
8. Install other end of hose (7) with snap clamp (11) on fuel hose connector (1). Tighten clamp (11).
9. Install new o-rings (10) in each fuel hose connector (1 and 8).

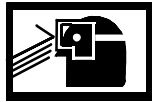
INSTALL RHIB ENGINE FUEL TANK HOSE AND BULB

1. Attach fuel hose connector (8) to engine by depressing spring flange (9) and pushing inwards. Release flange (9) to lock hose (7) in place.
2. Attach fuel hose connector (1) to fuel tank by depressing spring flange (2) and pushing inwards. Release flange (2) to lock hose (12) in place.

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

3. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
4. Install RHIB battery negative lead terminal. (WP 0336 00)
5. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE VRO FUEL PUMP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Respirator, Air Filtering (Item 59, WP 0359 00)

Materials/Parts

Assembly, Fuel Pump
(80256)
PN 438400
O-Ring, Pulse Fitting
(32195)
NSN 5331-01-463-9932
PN 125203
O-Ring, Nipple, Fuel Inlet
(21119)
NSN 5330-01-424-6678
PN 124378
Rag, Wiping (Item 45, WP 0358 00)
Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
RHIB Engine Cover Removed. (WP 0297 00)
RHIB Battery Negative Lead Terminal Disconnected. (WP 0336 00)

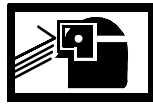
REMOVE RHIB ENGINE VRO FUEL PUMP

1. Position wiping rags beneath the VRO fuel pump (1).

 WARNING



CHEMICAL

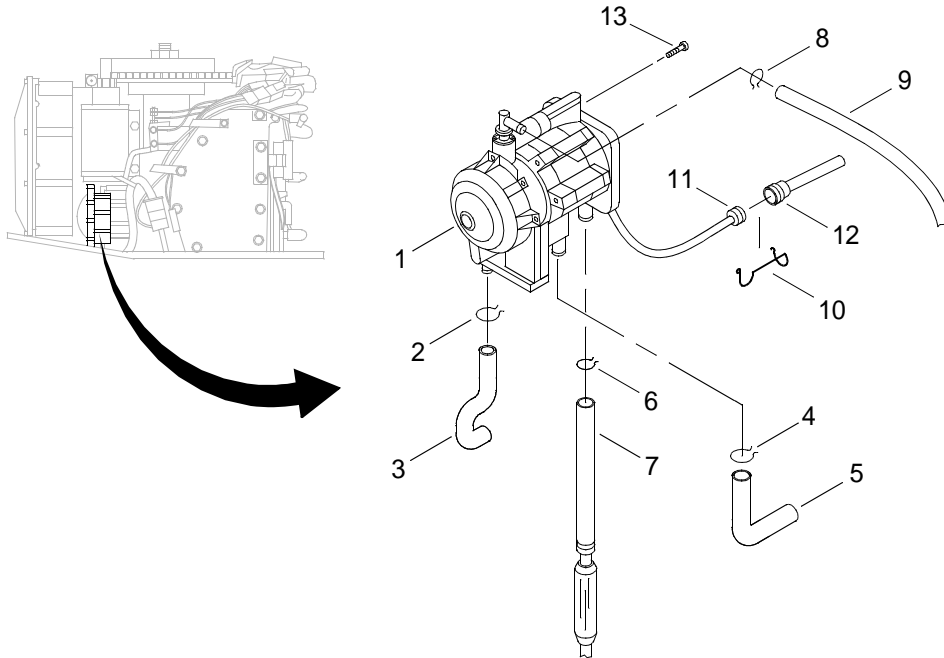


EYE PROTECTION

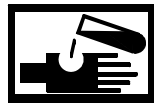


VAPOR

2. Loosen hose clamp (2) and remove pulse limiter hose (3) from VRO fuel pump (1).



 WARNING



CHEMICAL



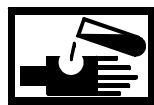
EYE PROTECTION



VAPOR

3. Loosen hose clamp (4) and remove fuel inlet hose (5) from VRO fuel pump (1).

 WARNING



CHEMICAL



EYE PROTECTION



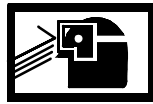
VAPOR

4. Loosen hose clamp (6) and remove oil sight tube hose (7) from VRO fuel pump (1).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

5. Loosen hose clamp (8) and remove fuel outlet hose (9) from VRO fuel pump (1).
6. Remove connector retainer (10) securing 4-socket plug (11) and terminal socket (12) together.
7. Tag and disconnect 4-socket plug (11) on VRO fuel pump (1) from terminal socket (12).
8. Remove three screws (13), securing the VRO fuel pump (1) to engine.
9. Remove VRO fuel pump (1).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

10. Dispose of contaminated wiping rags in accordance with local procedures.

INSTALL RHIB ENGINE VRO FUEL PUMP

1. Position new VRO fuel pump (1) on engine.
2. Install three screws (13) to secure fuel pump (3) to engine mount and tighten screws (13)
3. Connect 4-socket plug (11) and terminal socket (12). Remove tag.
4. Install connector retainer (10) to secure 4-socket plug (11) and terminal socket (12) together.
5. Install fuel outlet hose (9) on VRO fuel pump (1) and secure with hose clamp (8). Tighten hose clamp (8).
6. Install sight tube hose (7) on VRO fuel pump (1) and secure with hose clamp (6). Tighten hose clamp (6).
7. Install fuel inlet hose (5) on VRO fuel pump (1) and secure with hose clamp (4). Tighten clamp (4).
8. Install pulse limiter hose (3) on VRO fuel pump (1) and secure with hose clamp (2). Tighten hose clamp (2).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

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

10. Install RHIB engine cover. (WP 0297 00)
11. Install RHIB battery negative lead terminal. (WP 0336 00)
12. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RHIB ENGINE VRO PULSE LIMITER
REMOVAL, INSPECTION, CLEANING AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Carbon Removing Compound (Item 8, WP 0358 00)

Personnel Required

Engineer 88L

References

TM 55-1945-205-10-2

Equipment Condition

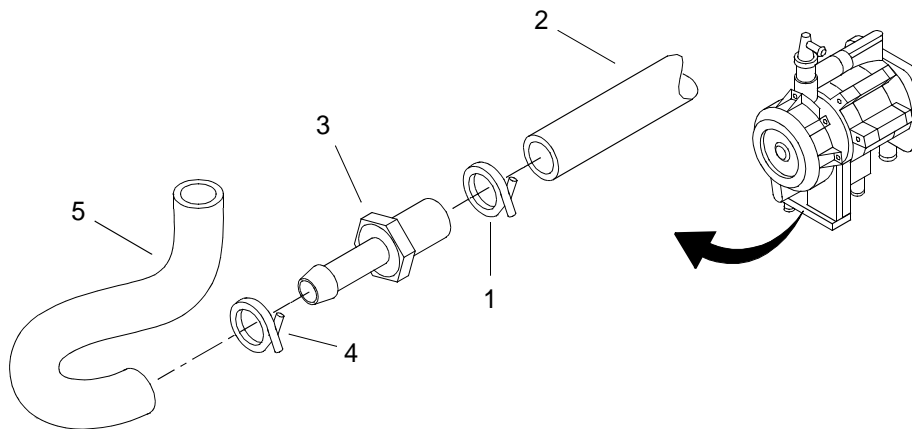
RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)
RHIB Engine Cover Removed. (WP 0297 00)

REMOVE VRO PULSE LIMITER**NOTE**

The pulse limiter has a check valve that closes in case of backfire to protect the pulse rectifier valves. To allow normal pump operation and protect the VRO rectifier valves, the check valve must not be clogged.

A clogged check valve will restrict VRO fuel and oil supply, causing serious powerhead damage.

1. Remove clamp (1) and hose (2) from pulse limiter (3).



2. Remove clamp (4) and pulse hose (5) from pulse limiter (3).

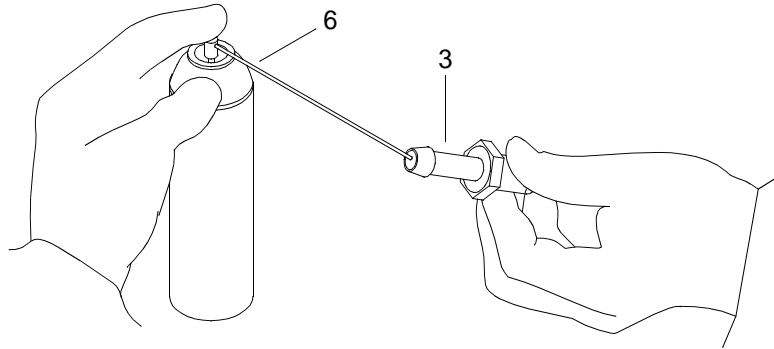
INSPECT PULSE LIMITER**NOTE**

If excessive carbon deposits are found, the engine should be checked for other causes of backfiring.

1. Inspect exterior of pulse limiter (3) for cracks in plastic and metal housings. If damage is found, replace pulse limiter.
2. Inspect the inside of the pulse limiter (3) for carbon deposits.

CLEAN CARBON FROM PULSE LIMITER**WARNING****CHEMICAL****EYE PROTECTION**

1. If excessive carbon is found, backflush pulse limiter (3) with carbon removing compound (6).



2. If carbon cannot be removed with carbon removing compound, replace pulse limiter.
3. If engine still backfires, perform troubleshooting procedures. (WP 0048 00)

INSTALL PULSE LIMITER

1. Install clamp (1) and hose (2) on pulse limiter (3) with metal end of pulse limiter toward powerhead.
2. Install pulse hose (5) and clamp (4) on pulse limiter (3).
3. Install RHIB engine cover. (WP 0297 00)
4. Install RHIB battery negative lead terminal. (WP 0336 00)
5. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE VRO
PUMP FUEL SYSTEM
TESTING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
Respirator, Air Filtering (Item 59, WP 0359 00)
Tester, Gage, Vacuum (Item 77, WP 0359 00)
Gage, Fuel Pressure (Item 20, WP 0359 00)
Drum, Shipping and Storage (Test Tank) (Item 17, WP 0359 00)
Propeller, Marine (Test) (Item 50, WP 0359 00)

Materials/Parts

Rag, Wiping (Item 45, WP 0358 00)
Tubing, Nonmetallic, ¼ in. 8 in. long (Item 58, WP 0358 00)

Personnel Required

Engineer 88L

References

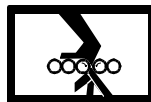
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
Engine Cover Removed. (WP 0297 00)

TEST RHIB ENGINE VRO FUEL PUMP FUEL SYSTEM

WARNING

**MOVING PARTS**

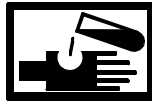
During the following procedure a test propeller must be installed on the engine and the engine must be placed in a test tank. Failure to comply may result in injury to personnel and damage to equipment.

NOTE

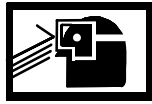
The following procedures test the VRO pump fuel system for proper siphoning and output pressure.

1. Start and warm up RHIB engine to normal operating temperature. (TM 55-1945-205-10-2)
2. Shut down RHIB engine. (TM 55-1945-205-10-2)

 WARNING



CHEMICAL



EYE PROTECTION

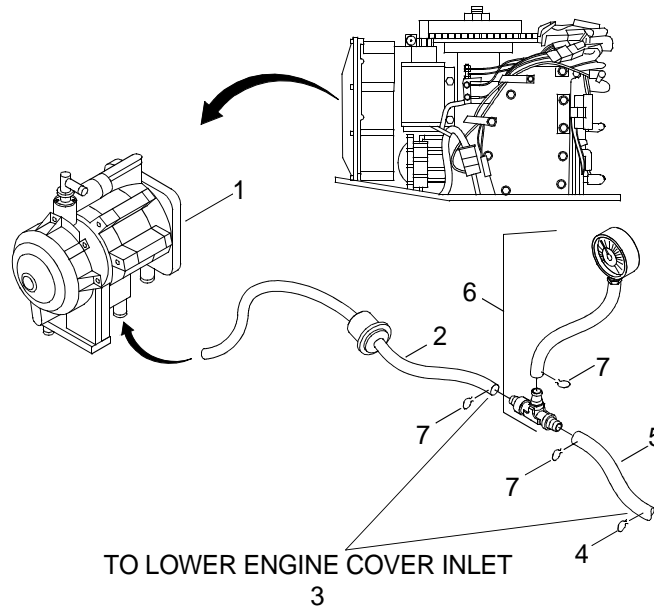


VAPOR



HOT AREA

3. Conduct fuel inlet vacuum tests on the VRO pump (1).



- a. Position a wiping rag under VRO pump (1) to capture residual fuel in fuel hoses during removal.
- b. Remove fuel inlet hose (2) from lower engine cover inlet fitting (3) by loosening hose clamp (4).
- c. Connect an 8 in. piece of clear vinyl hose (5) to lower engine cover inlet fitting (3), securing in place with a hose clamp (4).
- d. Install a vacuum gage with tubing and t-fitting (6) between vinyl hose (5) and fuel inlet hose (2), securing in place with hose clamps (7).
- e. Start the RHIB engine and run at full throttle (5000 - 6000 RPM) for at least two minutes. (TM 55-1945-205-10-2)
- f. Visually inspect vinyl hose (5) to verify no air or bubbles are in the line.
- g. Verify vacuum gage reading to be 4 in. Hg or less.
- h. Shutdown RHIB engine. (TM 55-1945-205-10-2)
- i. If the vacuum gage reading was 4 in. Hg or less and no air bubbles were present, remove vinyl hose (5) and vacuum gage with tubing and t-fitting (6).
- j. Connect fuel inlet hose (2) to lower engine cover inlet fitting (3), securing with clamp (4) and conduct the fuel outlet pressure test on VRO pump (1) per step 4.

NOTE

Air leaks do not always show a visible fuel leak until the engine is turned off and the fuel system pressurizes itself through normal warming.

- k. If the vacuum gage reading was 4 in. Hg or less and air bubbles are present, inspect all fuel supply system components for possible air leaks, prior to VRO fuel pump (1) installation. Replace components as required.
- l. Repeat steps d through g.
- m. If the vacuum gage reading is greater than 4 in. Hg, inspect all fuel supply system components for possible clogs, prior to VRO fuel pump (1) installation. Clean or replace components as required.
- n. Repeat steps d through g.
- o. If steps j and l do not correct the vacuum reading on the vacuum gage, replace the VRO fuel pump (1). (WP 0323 00)

WARNING



CHEMICAL



EYE PROTECTION

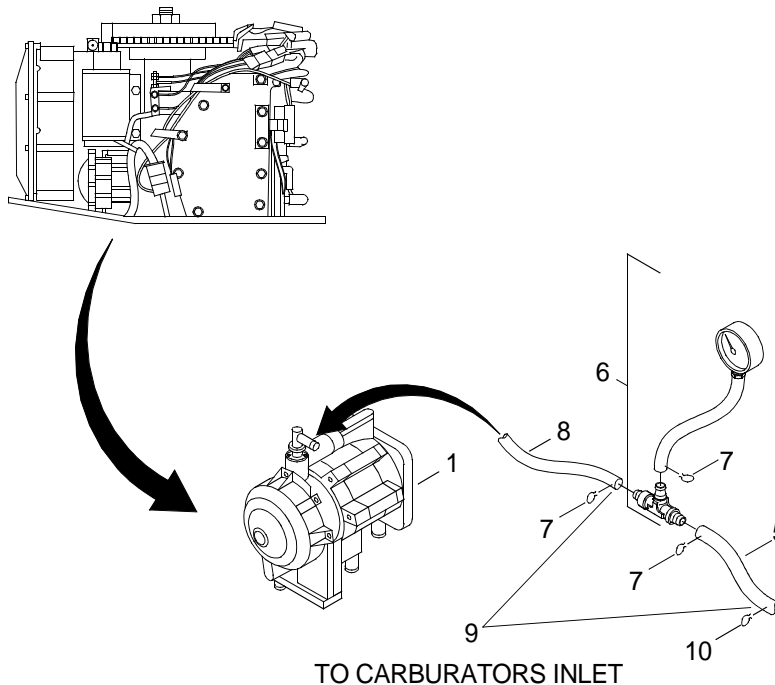


VAPOR



HOT AREA

4. Conduct fuel outlet pressure test on VRO pump (1).



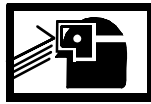
- a. Remove the carburetors inlet hose (8) from carburetors inlet (9) by loosening hose clamp (10).
- b. Connect the 8 in. piece of clear vinyl hose (5) to the carburetors, securing in place with hose clamp (10).

- c. Install a fuel pressure gage with tubing and t-fitting (6) between vinyl hose (5) and carburetor inlet hose (8), securing in place with hose clamps (7).
- d. Start RHIB engine and run at 800 RPM with the engine in gear. (TM 55-1945-205-10-2)
- e. After the fuel pressure stabilizes, verify the pressure gage reading to be 3 PSI (21 kPa).
- f. Shutdown RHIB engine. (TM 55-1945-205-10-2)
- g. If the pressure gage reading was 3 PSI (21 kPa), remove the vinyl hose (5), vacuum gage with tubing and t-fitting (6).
- h. Connect carburetor inlet hose (8) to carburetor inlet (9), securing with clamp (10).
- i. If the pressure gage reading was less than 3 PSI (21 kPa), clean RHIB pulse limiter. (WP 0324 00)
- j. Repeat steps d and e.
- k. If the pulse limiter cleaning or replacement does not correct the pressure reading on the pressure gage, replace VRO fuel pump (1). (WP 0323 00)

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

5. Dispose of contaminated wiping rags in accordance with local procedures.
6. Install RHIB engine cover. (WP 0297 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ENGINE VRO PUMP OIL SYSTEM
TESTING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Tester, Vacuum (Item 78, WP 0359 00)
 Compressor, Unit, Reciprocating, Power Drive (Item 13, WP 0359 00)
 Drum, Shipping and Stowage (Test Tank) (Item 17, WP 0359 00)
 Propeller, Marine (Test) (Item 50, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Holder, Cap
 (80256)
 PN 329661
 Lubricating Oil, Engine, Outboard, 2-Cycle (Item 35, WP 0358 00)
 Cleaner (Item 9, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)
 Tubing, Nonmetallic, Clear ¼ in. Thickness (Item 58, WP 0358 00)

Personnel Required

Engineer 88L (2)

References

TM 55-1945-205-10-2

Equipment Condition

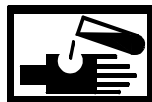
RHIB Dry-Docked.
 RHIB Engine Cover Removed. (WP 0297 00)

TEST RHIB ENGINE VRO PUMP OIL SYSTEM**NOTE**

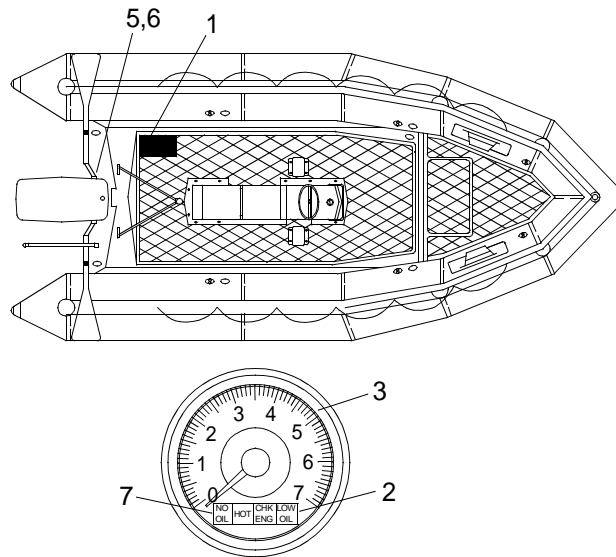
The following procedures test the VRO pump oil system for proper operation.

1. Conduct LOW OIL warning test.

WARNING

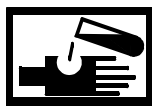
**CHEMICAL****EYE PROTECTION**

- a. Position drain pan under oil reservoir (1) and drain oil from reservoir.



- b. Turn key switch to ON position. (TM 55-1945-205-10-2)
 - c. Verify LOW OIL warning light (2) on tachometer gage (3) comes on and stays lit.
 - d. Turn key switch to OFF position. (TM 55-1945-205-10-2)
 - e. Add oil until oil reservoir (1) is no more than $\frac{1}{4}$ full. (TM 55-1945-205-10-2)
 - f. Turn key switch to ON position. (TM 55-1945-205-10-2)
 - g. Verify the LOW OIL warning light (2) comes on and goes out.
- {1} Fill oil reservoir to full capacity. (TM 55-1945-205-10-2)

WARNING



CHEMICAL



EYE PROTECTION

- h. Remove drain pan and dispose of contents in accordance with local procedures.
2. Conduct NO OIL warning test.

WARNING



CHEMICAL

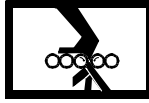


EYE PROTECTION

- a. Position drain pan under oil inlet hose (4).

-
- b. Remove oil inlet hose (4) from side of the engine (5) by loosening hose clamp (6).

WARNING



MOVING PARTS

- c. Install a test propeller on the engine and place the RHIB engine in a test tank.
- d. Start RHIB engine and run at 1500 RPM in gear. (TM 55-1945-205-10-2)
- e. Verify the NO OIL warning light (7) on tachometer gage (3) comes on and warning horn sounds for 10 seconds, indicating residual oil in the system has been depleted.
- f. Shut down the RHIB engine. (TM 55-1945-205-10-2)

WARNING



CHEMICAL



EYE PROTECTION

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

WARNING



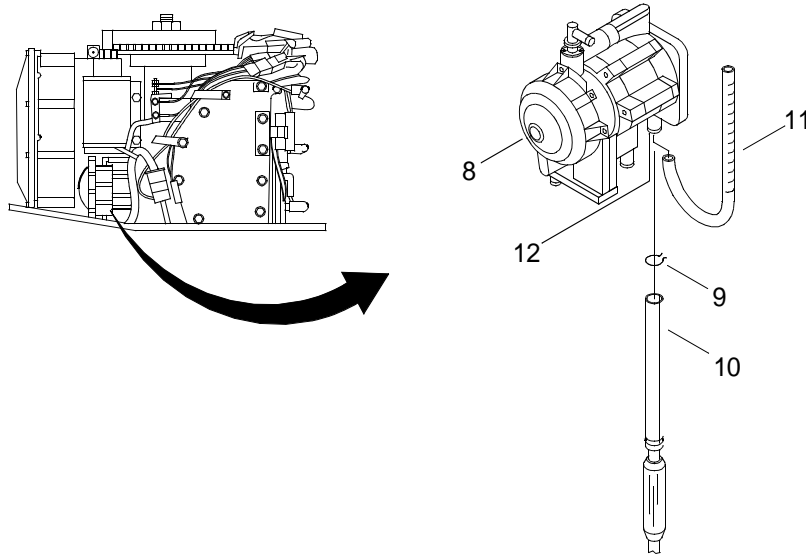
CHEMICAL



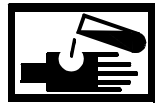
EYE PROTECTION

- h. Connect oil inlet hose (4) to side of the engine (5), securing with the hose clamp (6).
3. Conduct VRO pump volume test to verify oil delivery and the fuel/oil ratio.
- a. Start the RHIB engine and allow it to reach normal operating temperature. (TM 55-1945-205-10-2)
- b. Shut down RHIB engine. (TM 55-1945-205-10-2)

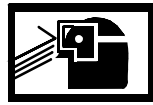
- c. Position a wiping rag under the VRO pump (8) to capture residual oil in oil hose during removal.



WARNING



CHEMICAL



EYE PROTECTION



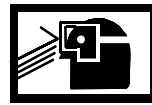
HOT AREA

- d. Loosen the hose clamp (9) and remove the sight glass hose (10) from bottom of VRO pump (8).
- e. Mark a 10 in. (25 cm) clear vinyl hose every ½ in. for 4 in. starting several inches from the connection end.
- f. Connect a vinyl hose (11) to VRO pump oil inlet (12) and secure with a hose clamp (9).

WARNING



CHEMICAL



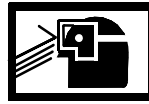
EYE PROTECTION

- g. With the other end of the vinyl hose (11) elevated, fill vinyl hose with lubricant.
- h. Start RHIB engine and run at 1500 RPM to eliminate air from base of vinyl hose (11) and VRO pump (8). (TM 55-1945-205-10-2)
- i. Shut down RHIB engine. (TM 55-1945-205-10-2)

 WARNING



CHEMICAL



EYE PROTECTION

- j. Add lubricant to vinyl hose (11) until level is above the highest mark on vinyl hose (11).
- k. Start RHIB engine and run at 1500 RPM. (TM 55-1945-205-10-2)
- l. While applying light pressure to the sides of vinyl hose (11), monitor the VRO pump (8) cycles by counting the number of pulses it takes for the oil level to drop 3 in. (approximately 6 to 8 pulses for a 3 in. drop in a ¼ hose).
- m. If the pulse rate and oil level does not drop as specified, clean RHIB pulse limiter. (WP 0326 00)
- n. Shut down RHIB engine. (TM 55-1945-205-10-2)
- o. Repeat steps j and k.
- p. Connect sight glass hose (10) to VRO pump (8), securing with hose clamp (9).

 WARNING

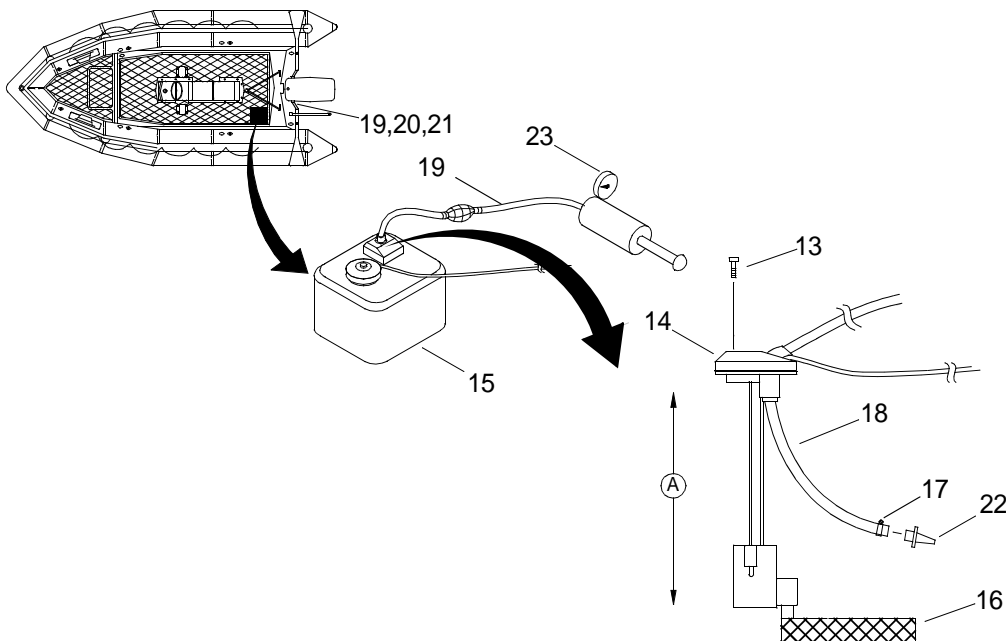


CHEMICAL



EYE PROTECTION

- q. Remove contaminated wiping rags and dispose of contents in accordance with local procedures.
4. Conduct VRO pickup assembly test to verify oil flow is not being restricted to VRO pump (8).

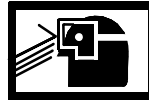


-
- a. Remove four screws (13) securing pickup assembly (14) to oil reservoir (15).

WARNING



CHEMICAL



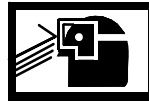
EYE PROTECTION

- b. Remove pickup assembly (14) from oil reservoir (15).

WARNING



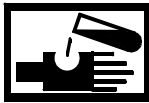
CHEMICAL



EYE PROTECTION

- c. Remove pickup filter (16) from the bottom of the pickup assembly (14) and clean using a wiping rag and cleaner.
- d. Install pickup filter (16) on bottom of pickup assembly (14).
- e. Loosen hose clamp (17) and remove pickup hose (18) from bottom of the pickup assembly (14).

WARNING



CHEMICAL



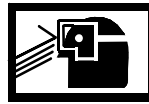
EYE PROTECTION

- f. Remove oil inlet hose (19) from lower housing cover (20) by loosening hose clamp (21).

WARNING



CHEMICAL



EYE PROTECTION

- g. Use low pressure air from an air compressor to remove residual oil from oil inlet hose (19) into a drain pan.
- h. Install cap holder (22) on the pickup assembly end of pickup hose (18).
- i. Connect a vacuum tester gage and hose (23) to the engine end of oil inlet hose (19) and draw a 7 in. Hg vacuum.
- j. Verify the 7 in. Hg vacuum maintains for at least 5 minutes, indicating a good pickup by the oil supply system.
- k. Verify the pickup assembly height (A) for the 1.8 gal oil reservoir to be 6.84 - 6.96 in.

-
- l. Connect oil inlet hose (19) to lower housing cover (20) and secure hose clamp (21).
 - m. Remove cap holder (22) from end of the pickup hose (18).
 - n. Install the pickup hose (18) from the bottom of the pickup assembly and secure with hose clamp (17).
 - o. Install pickup assembly (14) in top of oil reservoir (15) and secure with four screws (13). Tighten screws (13).
5. Install RHIB engine cover. (WP 0297 00)

WARNING



CHEMICAL



EYE PROTECTION



SLICK FLOOR

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

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT FUEL FILTER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
Gloves, Chemical (Item 25, WP 0359 00)
Goggles, Industrial (Chipping, Chemical (Item 28, WP 0359 00)
Respirator, Air Filtering (Item 59, WP 0359 00)
Wrench, Strap (Item 86, WP 0359 00)
Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Lubricating Oil, Engine, Outboard, 2-Cycle (Item 35, WP 0358 00)
Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

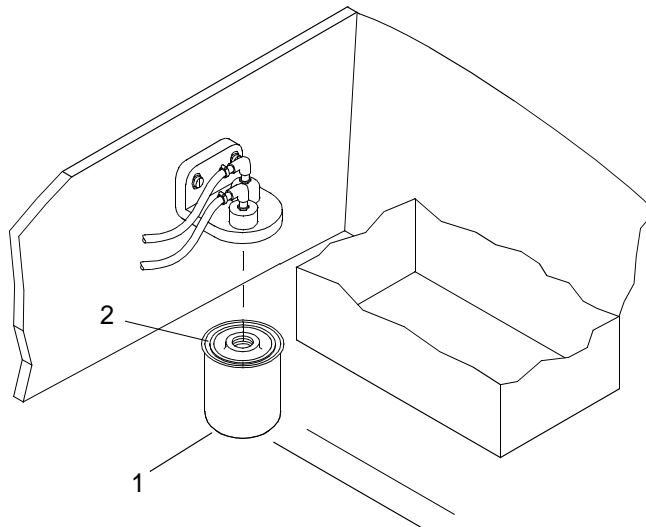
TM 55-1945-205-10-2

Equipment Condition

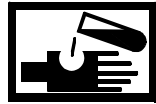
RHIB Dry-Docked.
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB FUEL FILTER

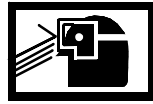
1. Position drain pan under fuel filter (1).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

- Using strap wrench, remove fuel filter (1) by turning counterclockwise.

 WARNING



CHEMICAL



EYE PROTECTION

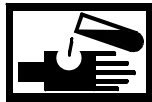


VAPOR

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

INSTALL RHIB FUEL FILTER

 WARNING



CHEMICAL



EYE PROTECTION

- Lubricate new fuel filter gasket (2) with clean oil.
- Using strap wrench, install fuel filter (1) by turning clockwise.
- Turn filter (1) 3/4 to 1 turn to tighten.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

- Clean up spilled fluid with a spill kit and dispose of spill kit waste and fuel filter in accordance with local procedures.
- Install RHIB battery negative lead terminal. (WP 0336 00)
- Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT FUEL FILTER HEAD
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)
 Wrench, Strap (Item 86, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Filter, Fuel
 (80256)
 PN 398327
 Lubricating Oil, Engine, Outboard, 2-Cycle (Item 37, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

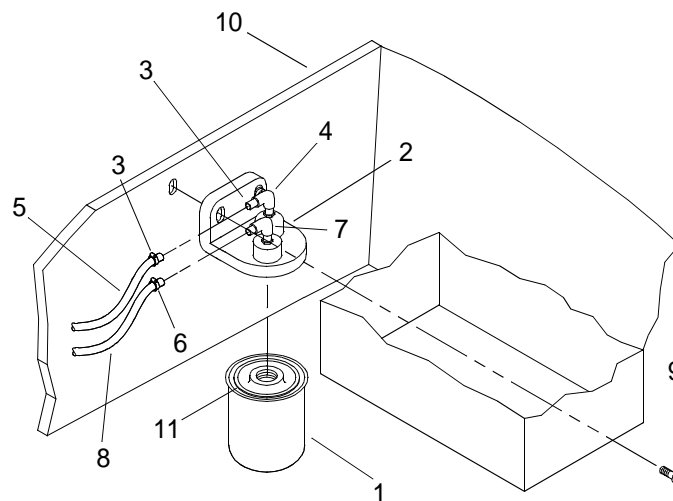
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE FUEL FILTER HEAD

1. Position drain pan under fuel filter (1).

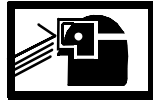


WARNING

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

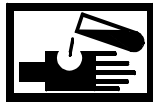
- Using strap wrench, remove fuel filter (1) from fuel filter head (2) by turning counterclockwise.

WARNING

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

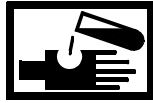
- Dispose of fuel filter (1) in accordance with local procedures.

WARNING

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

- Loosen hose clamp (3) on elbow (4) and remove inlet hose (5).

WARNING

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

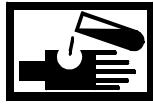
- Loosen hose clamp (6) on to elbow (7) and remove outlet hose (8).

WARNING

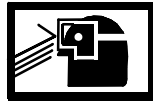
**CHEMICAL****EYE PROTECTION****VAPOR**

- Allow both hoses (5 and 8) to drain fuel into drain pan.
- Remove two bolts (9) securing fuel filter head (2) to the transom (10).
- Remove fuel filter head (2) and discard.

 WARNING



CHEMICAL



EYE PROTECTION



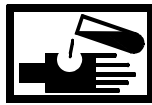
VAPOR

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

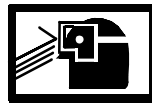
INSTALL FUEL FILTER HEAD

1. Position new fuel filter head (2) against transom (10) and secure with two bolts (9). Tighten bolts (9).
2. Install outlet hose (8) on elbow (7) and secure with clamp (6). Tighten clamp (6).
3. Install inlet hose (5) on elbow (4) and secure with clamp (3). Tighten clamp (3).

 WARNING



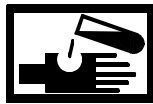
CHEMICAL



EYE PROTECTION

4. Apply thin layer of oil on fuel filter gasket (11).
5. Install new fuel filter (1) on fuel filter head (2) by turning clockwise until gasket (11) contacts fuel filter head (2).
6. Using a fuel filter wrench, tighten fuel filter (1) $\frac{3}{4}$ to 1 additional turn.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

7. Clean up spilled fluid with spill kit and dispose of spill kit waste in accordance with local procedures.
8. Install RHIB battery negative lead terminal. (WP 0336 00)
9. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT IN LINE FUEL FILTER
DISASSEMBLY, CLEANING AND ASSEMBLY**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)

Materials/Parts

Gasoline, Unleaded (Item 20, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

Engineer 88L

References

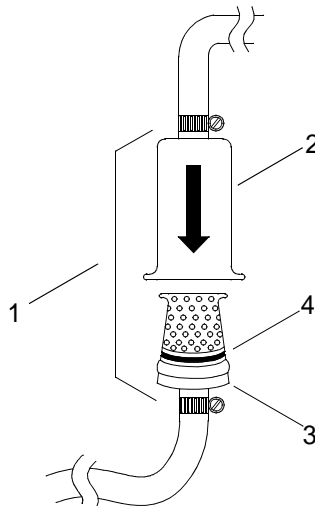
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
 RHIB Engine Cover Removed. (WP 0297 00)
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

DISASSEMBLE IN LINE FUEL FILTER

1. Position wiping rag under the in line fuel filter to absorb any residual fuel during disassembly of the in line fuel filter (1), located on starboard side of engine.



 WARNING



CHEMICAL



EYE PROTECTION



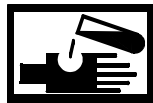
VAPOR

2. Unscrew in line fuel filter cover (2) from in line fuel filter base (3) to expose in line fuel filter element (4).

CLEAN IN LINE FUEL FILTER

1. Remove debris from the in line fuel filter element (4) by tapping against the wiping rag.
2. Clean the inside of the in line fuel filter cover with a wiping rag.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

3. Remove any gummy deposits from the in line fuel filter (1) using clean fuel.
4. Allow components to air dry.

ASSEMBLE IN LINE FUEL FILTER

1. Install in line fuel filter element (4) into in line fuel filter cover (2).
2. Tighten in line fuel filter base (3) into in line fuel filter cover (2) by turning ¼ turn clockwise.

 WARNING



CHEMICAL



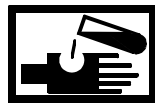
EYE PROTECTION



VAPOR

3. Dispose of contaminated wiping rags in accordance with local procedures.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

4. Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedures.
5. Install RHIB engine cover. (WP 0297 00)
6. Install RHIB battery negative lead terminal. (WP 0336 00)
7. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT TILT LIMITER CAM
ADJUSTMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

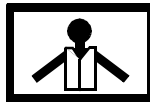
Engineer 88L

Equipment Condition

RHIB Dry-Docked.

ADJUST RHIB TILT LIMITER CAM

WARNING



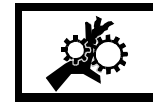
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

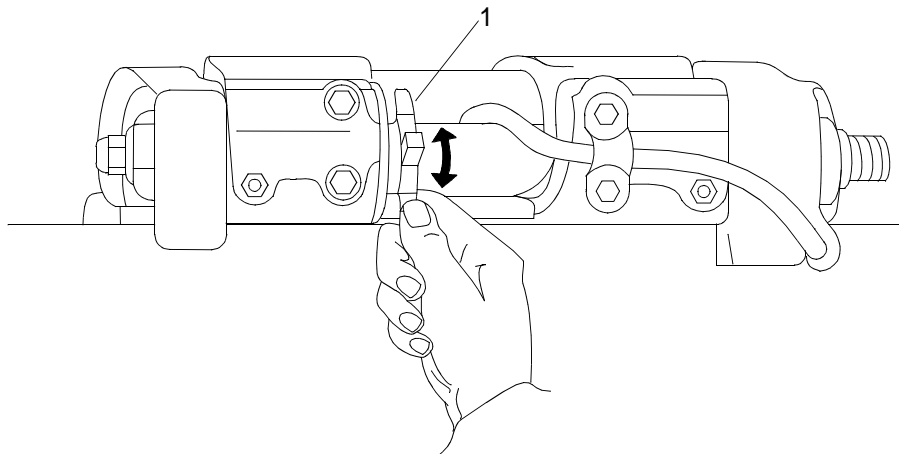
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Position the outboard motor in its normal position.

WARNING

Adjustment of the tilt limiter cam will not prevent the outboard from tilting fully and contacting the motor well if the gearcase hits an object at high speeds. Such contact could damage the outboard and boat, as well as injure boat occupants.

2. Rotate tilt limiter cam (1).



3. Pull its tab forward and up to reduce the amount of tilt up.
4. Check adjustment.
5. Tilt the outboard fully and adjust further, if necessary.
6. Return outboard motor to vertical position for each adjustment and repeat check after each adjustment.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT TRIM TAB
ADJUSTMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Wrench, Torque (150-750 in. lbs) (Item 91, WP 0359 00)

Personnel Required

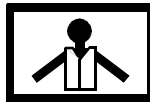
Engineer 88L

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

ADJUST RHIB TRIM TAB

WARNING



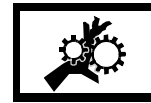
VEST



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 as serious injury may result if body parts are crushed between boat and other craft or objects.

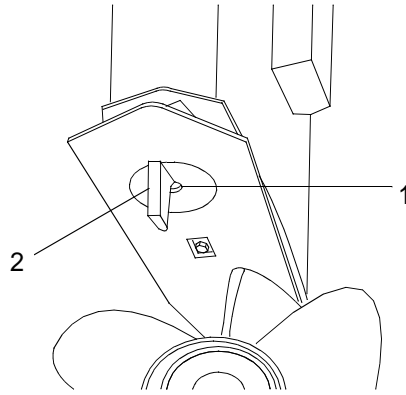
Improper trim tab adjustment can cause difficult steering, resulting in loss of control and damage to equipment and/or injury to personnel.

NOTE

A propeller will generate steering torque when the propeller shaft is not running parallel to the water's surface. The trim tab is adjustable to compensate for this steering torque.

A single trim tab adjustment will relieve steering effort under only one set of speed, motor angle and load conditions. No single adjustment can relieve steering effort under all speeds, motor angle and load conditions.

1. Loosen trim tab screw (1).



2. If boat moves to right, move rear of trim tab (2) slightly to the right.
3. If boat moves to left, move rear of trim tab (2) slightly to the left.
4. Tighten trim tab screw (1).
5. Torque screw (1) to 420 - 480 in. lbs (47 - 54 N-m).
6. Install RHIB battery negative lead terminal. (WP 0336 00)
7. Repeat the procedure until steering effort is as equal as possible.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT GEARCASE LUBRICANT
SERVICING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Pan, Drain (Item 46, WP 0359 00)

Materials/Parts

Kit, HPF Lube (Item 34, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

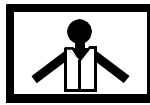
Engineer 88L

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

SERVICE RHIB GEARCASE LUBRICANT

WARNING



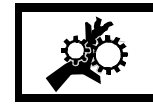
VEST



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. Place engine in normal operating position.

WARNING



CHEMICAL

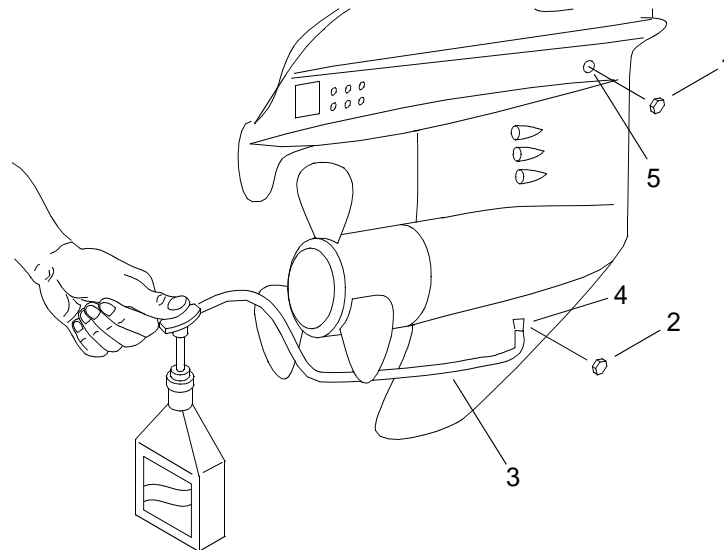


EYE PROTECTION

NOTE

Check color of fluid. If fluid appears milky, water is leaking into lower gearbox.
 Notify direct support maintenance.

2. Remove lubricant level plug (1) from side of gearcase and check level of lubricant.



CAUTION

Engine must not be started while gearcase lube is removed as damage to engine could result.

3. If lubricant is required, position drain pan under drain/fill plug (2) to catch oil.

WARNING



CHEMICAL



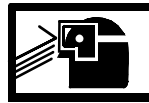
EYE PROTECTION

4. Remove drain/fill plug (2).

WARNING



CHEMICAL



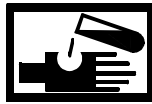
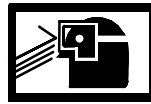
EYE PROTECTION

NOTE

Gearcase lube capacity is 22 fl oz. (622 ml).

5. Place tube of lubricant (3) in drain/fill hole (4) and fill slowly until lubricant appears at lubricant level hole (5).
6. Install lubricant level plug (1) before removing lubricant tube (3) from drain/fill hole (4).
7. Tighten lubricant level plug (1).
8. Install drain/fill plug (2) and tighten.

WARNING

**CHEMICAL****EYE PROTECTION**

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

WARNING

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

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

11. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT POWER TRIM/TILT RESERVOIR
SERVICING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

Hydraulic Fluid, Petroleum Base (Trim/Tilt and Powering Steering) (Item 31, WP 0358 00)
 Spill Clean-Up Kit, Hazardous Material (Item 50, WP 0358 00)

Personnel Required

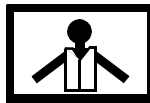
Engineer 88L

Equipment Condition

RHIB Dry-Docked
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

SERVICE RHIB TRIM/TILT RESERVOIR

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

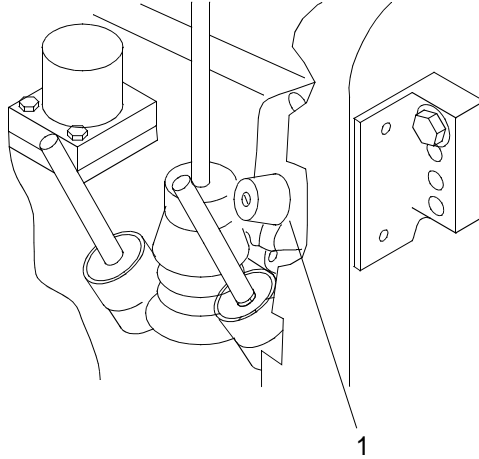
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

Correct fluid level must be maintained to ensure proper operation of the impact protection built into this unit.

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

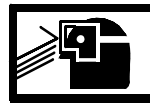
-
- Remove filler cap (1) and check fluid.



WARNING



CHEMICAL



EYE PROTECTION

- If necessary, add steering fluid to bring the fluid level even with the bottom of the fill cap hole when the unit is at full tilt.
- Install filler cap (1) and tighten.

WARNING



CHEMICAL



EYE PROTECTION



SLICK FLOOR

- Clean up spilled fluid with a spill kit and dispose of spill kit waste in accordance with local procedure.
- Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT ANTI-CORROSION ANODE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Anode
 (80256)
 PN 436745

Personnel Required

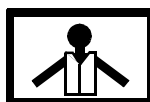
Engineer 88L

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB ANTI-CORROSION ANODE

WARNING



VEST



HELMET PROTECTION



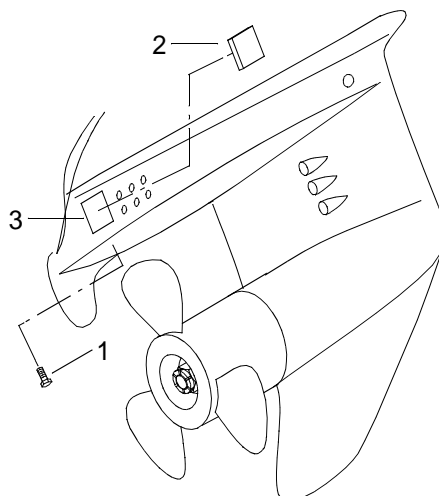
HEAVY PARTS



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 bolt (1) securing anode (2) to lower gearcase (3).



2. Remove and discard anode (2).

INSTALL RHIB ANTI-CORROSION ANODE

1. Position new anode (2) in opening of lower gearcase (3).
2. Install bolt (1) to secure anode (2) to lower gearcase (3). Tighten bolt (1).
3. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT PROPELLER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

Cotter Pin, Propeller Nut
 (80256)
 PN 314502

Personnel Required

Engineer 88L (2)

References

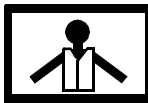
TM 55-1945-205-10-2

Equipment Condition

RHIB Dry-Docked.
 RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

REMOVE RHIB PROPELLER

WARNING



VEST



HELMET PROTECTION



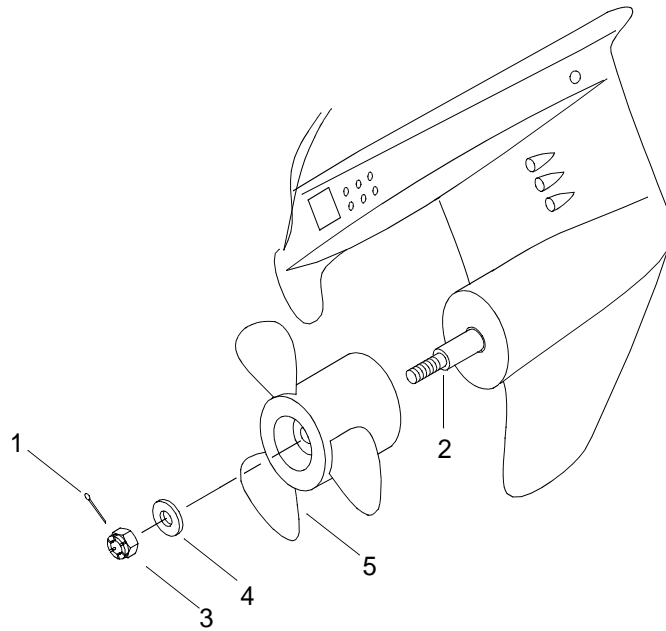
HEAVY PARTS



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 and discard propeller nut cotter pin (1) from end of propeller shaft (2).



2. Remove propeller nut (3) and propeller nut spacer (4) from end of propeller shaft (2).
3. Remove propeller (5) and discard.

INSTALL RHIB PROPELLER

1. Position new propeller (5) on end of propeller shaft (2).
2. Install propeller nut spacer (4) on end of propeller shaft (2).
3. Install propeller nut (3) on end of propeller shaft (2).
4. Tighten propeller nut (3) on the end of propeller shaft (2), allowing the tines on the propeller nut (3) to engage the cotter pin hole in the propeller shaft (2).
5. Install new propeller nut cotter pin (1) through the end of propeller shaft (2) and propeller nut (3).
6. Bend over the legs of the propeller nut cotter pin (1) to secure it in place.
7. Install RHIB battery negative lead terminal. (WP 0336 00)
8. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT BATTERY
NEGATIVE LEAD TERMINAL
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Puller, Battery Terminal (Item 52, WP 0359 00)

Personnel Required

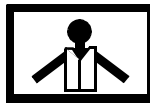
Engineer 88L

References

TM 55-1945-205-10-2

REMOVE RHIB BATTERY NEGATIVE LEAD TERMINAL

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



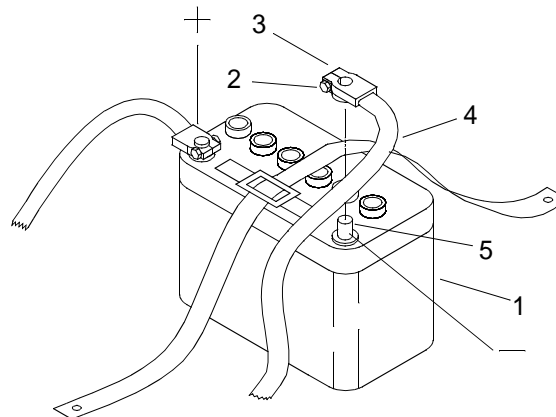
MOVING PARTS

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 battery negative post is identified by a raised negative sign stamped on the battery.

1. Access battery (1) through the starboard rear opening of operators seat.



2. Loosen hex nut (2) of negative lead terminal (3).
3. Using a battery terminal puller, remove negative lead terminal (3) from battery negative post (5).
4. Position negative lead (4) out of way to prevent contact between the negative lead terminal (3) and battery negative post (5).

INSTALL RHIB BATTERY NEGATIVE LEAD TERMINAL

1. Position negative lead terminal (3) over negative post (5).
2. Carefully press negative lead terminal (3) down on negative post (5).
3. Tighten negative lead terminal hex nut (2).
4. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT BATTERY
SERVICING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Respirator, Air Filtering (Item 59, WP 0359 00)

Materials/Parts

Water, Reagent Distilled (Item 60, WP 0358 00)
 Cloth, Cleaning (Item 14, WP 0358 00)

Personnel Required

Engineer 88L

Equipment Condition

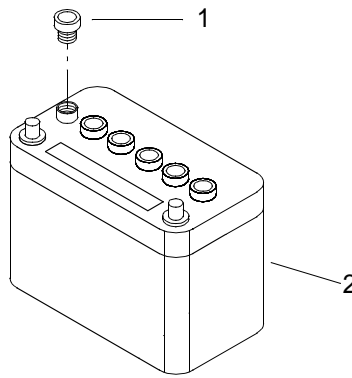
RHIB Battery Negative Lead Terminal Removed. (WP 0336 00)

SERVICE RHIB BATTERY

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 avoid personal injury, care should be taken not to allow battery electrolyte to come into contact with eyes, hands or any other portion of the body.

1. Remove the battery caps (1) covering the water reservoirs of the battery (2).



WARNING



CHEMICAL



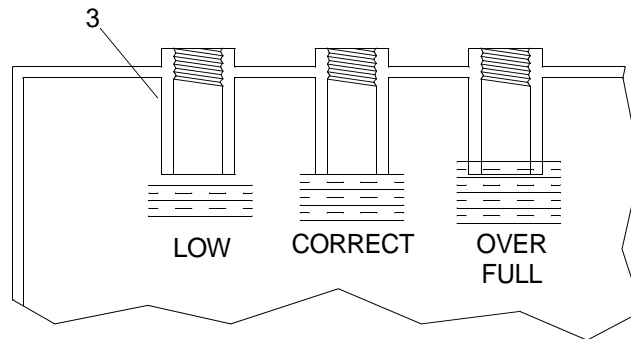
VAPOR

Do not over fill the battery. Too much fluid can cause excess pressure in the battery and cause battery acid to over flow through the vents and release harmful fumes into the air. Failure to comply could result in serious injury or death to personnel.

CAUTION

As water evaporates the electrolyte level drops which can cause damage to the battery. Excessive amounts of electrolyte can cause an overflow which will damage equipment. Ensure only distilled water is added when levels drop below acceptable limits.

2. Add distilled water to each of the reservoirs in battery (2) to the bottom of the fill ring (3).



3. Using a clean, dry, lint-free cloth, remove any dirt or debris from each battery cap (1).
4. Install all battery caps (1) on battery (2).
5. Install RHIB battery negative lead terminal. (WP 0336 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
RIGID HULL INFLATABLE BOAT BATTERY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Puller, Battery Terminal (Item 52, WP 0359 00)

Materials/Parts

Battery
 (38915)
 PN E-B-11015-1

Personnel Required

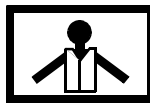
Engineer 88L

References

TM 55-1945-205-10-2

REPLACE RHIB BATTERY

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

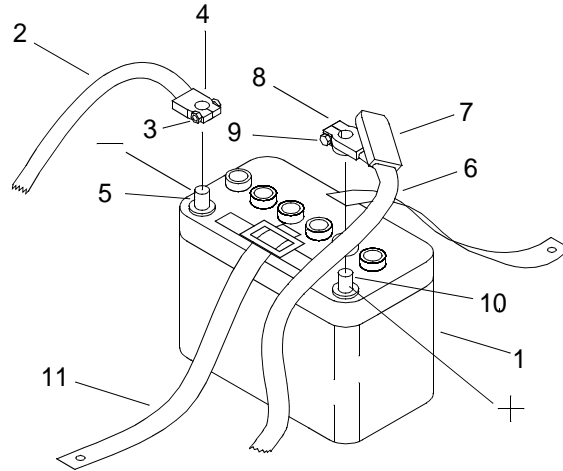
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The battery posts are identified by raised plus and minus signs stamped on the battery.

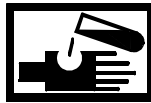
1. Access battery (1) through the starboard rear opening of operators seat.

-
2. Remove negative lead (2) from battery (1).



- a. Loosen hex nut (3) of negative lead terminal (4).
 - b. Using a battery terminal puller, remove negative lead terminal (4) from negative post (5).
3. Remove positive lead (6) from battery (1).
- a. Lift rubber terminal cover (7) off positive lead terminal (8).
 - b. Loosen hex nut (9) of positive lead terminal (8).
 - c. Using a battery terminal puller, remove the positive lead terminal (8) from positive post (10).
4. Unbuckle webstrap (11) from battery (1).

WARNING



CHEMICAL



EYE PROTECTION

5. Remove battery (1).

INSTALL RHIB BATTERY

WARNING



CHEMICAL



EYE PROTECTION

1. Position new battery (1) on its mounting surface.
2. Buckle webstrap (11) over battery (1) to secure it to the deck.

-
3. Tighten webstrap (11).
 4. Install positive lead (6) on battery (1).
 - a. Position positive lead terminal (8) over positive post (10).
 - b. Carefully press positive lead terminal (8) down on positive post (10).
 - c. Tighten positive lead terminal hex nut (9).
 - d. Install rubber terminal cover (7) over positive lead terminal (8).
 5. Install negative lead (2) on battery (1).
 - a. Position negative lead terminal (4) over negative post (5).
 - b. Carefully press negative lead terminal (4) down on negative post (5).
 - c. Tighten negative lead terminal hex nut (3).
 6. Perform operational check of RHIB. (TM 55-1945-205-10-2)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HAND LANTERN INCANDESCENT BULB
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

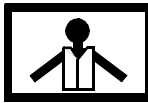
Lamp, Incandescent
 (96906)
 NSN 6240-00-866-4143
 PN MS16524-2

Personnel Required

Engineer 88L

REMOVE HAND LANTERN INCANDESCENT BULB

WARNING



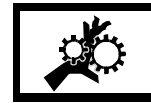
VEST



HELMET PROTECTION



HEAVY PARTS



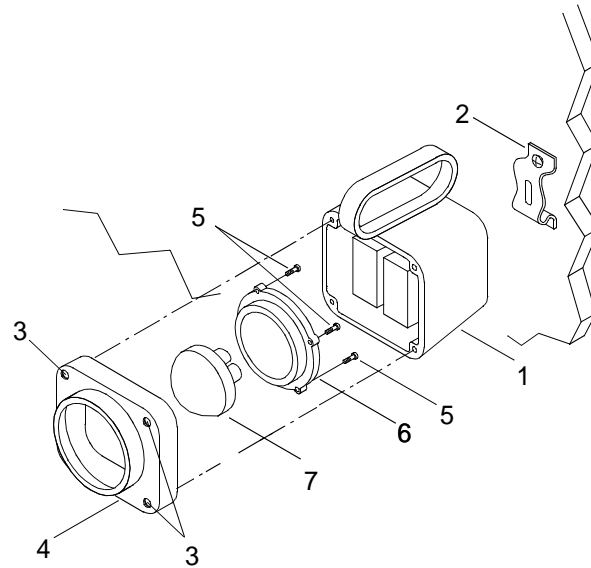
MOVING PARTS

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 removal and installation of hand lantern incandescent bulbs.

1. Rotate hand lantern (1) 90° and remove from mounting bracket (2).



2. Loosen four captive screws (3) on cover (4).
3. Remove cover (4).
4. Place cover (4) face down on work bench.
5. Remove four retaining screws (5) securing retaining ring (6) over bulb (7).
6. Remove retaining ring (6) and bulb (7). Discard bulb (7).

INSTALL HAND LANTERN INCANDESCENT BULB

1. Position new bulb (7) into cover (4).
2. Position retaining ring (6) over bulb (7).
3. Install four retaining screws (5) to secure retaining ring (6) over the bulb (7). Tighten screws (5).
4. Position cover (4) on hand lantern (1).
5. Tighten four captive screws (3) to secure cover (4) to hand lantern (1).
6. Position hand lantern (1) on mounting bracket (2) and rotate 90°.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
HAND LANTERN BATTERIES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

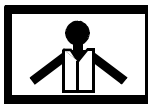
Battery, Non-rechargeable
 (81349)
 NSN 6135-00-050-3280
 PN BA200U
 Qty 2

Personnel Required

Engineer 88L

REMOVE HAND LANTERN BATTERIES

WARNING



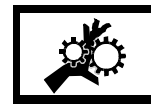
VEST



HELMET PROTECTION



HEAVY PARTS



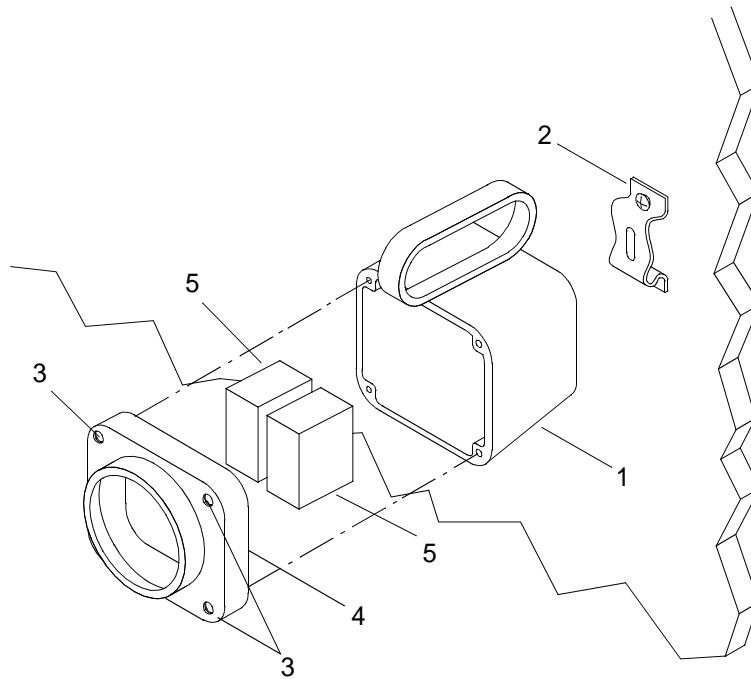
MOVING PARTS

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

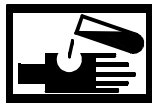
The following procedure is typical for the removal and installation of hand lantern batteries.

1. Rotate hand lantern (1) 90° and remove from mounting bracket (2).



2. Loosen four captive screws (3) on cover (4).
3. Remove cover (4).
4. Place hand lantern (1) face up on work bench.

WARNING



CHEMICAL



EYE PROTECTION

5. Remove batteries (5) and dispose of in accordance with local procedures.

INSTALL HAND LANTERN BATTERIES

WARNING



CHEMICAL



EYE PROTECTION

1. Install new batteries (5) in hand lantern (1).
2. Position cover (4) on hand lantern (1).
3. Tighten four captive screws (3).
4. Position hand lantern (1) on mounting bracket (2) and rotate 90°.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TOWING LIGHT INCANDESCENT BULB
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Materials/Parts

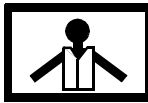
Lamp, Incandescent
 PN U-2166-P

Personnel Required

Engineer 88L

REMOVE TOWING LIGHT INCANDESCENT BULB

WARNING



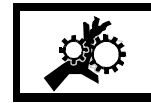
VEST



HELMET PROTECTION



HEAVY PARTS



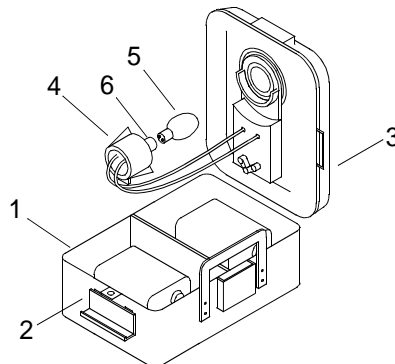
MOVING PARTS

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 removal and installation of a towing light incandescent bulbs.

1. Open the towing light case (1) by unlatching clasp (2).



2. Open cover (3).

3. Remove bulb base (4) from cover (3) by rotating counterclockwise and pulling outwards.
4. Remove bulb (5) from bulb holder (6) by pushing downwards and rotating counterclockwise and pulling outwards. Discard the bulb (5).

INSTALL TOWING LIGHT INCANDESCENT BULB

1. Install new bulb (5) into bulb holder (6), pushing downwards and rotating clockwise.
2. Install bulb base (4) into cover (3) by pushing downwards and rotating clockwise.
3. Close cover (3) over towing light case (1) and lock shut with clasp (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TOWING LIGHT BATTERIES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

Battery, Non-Rechargeable
 (83740)
 PN EV90
 NSN 6135-00-643-1310
 Qty 2

Personnel Required

Engineer 88L

REMOVE TOWING LIGHT BATTERIES

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



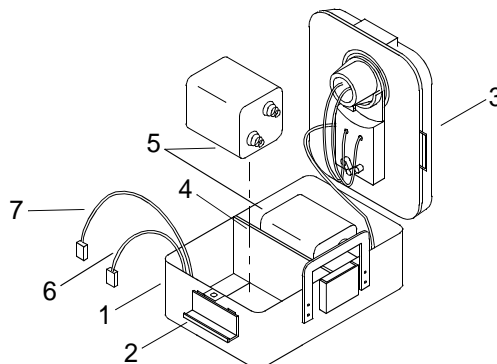
MOVING PARTS

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 removal and installation of towing light batteries.

1. Open towing light case (1) by unlatching the clasp (2).



-
2. Open cover (3).
 3. Raise battery holddown bracket (4) securing batteries (5) inside towing light case (1).
 4. Disconnect the positive (6) and negative (7) leads from the batteries (5).

WARNING



CHEMICAL



EYE PROTECTION

5. Remove batteries (5) and dispose of in accordance with local procedures.

INSTALL TOWING LIGHT BATTERIES

1. Position new batteries (5) in the towing light case (1).

WARNING



CHEMICAL



EYE PROTECTION

2. Install positive (6) and negative (7) leads on batteries (5).
3. Lower battery holddown bracket (4) over batteries (5).
4. Close cover (3) over towing light case (1) and lock shut with clasp (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
ANCHOR LIGHT INCANDESCENT BULB
REPLACEMENT**

INITIAL SETUP:**Tools**

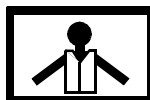
Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)

Personnel Required

Engineer 88L

REMOVE ANCHOR LIGHT INCANDESCENT BULB

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



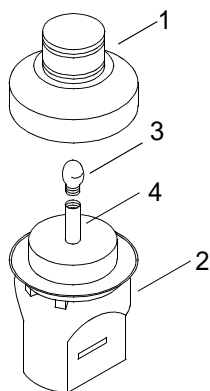
MOVING PARTS

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 removal and installation of an anchor light incandescent bulbs.

1. Remove anchor light top (1) from housing (2) by prying off.



2. Remove bulb (3) from bulb holder (4) and discard bulb.

INSTALL ANCHOR LIGHT INCANDESCENT BULB

1. Install new bulb (3) into bulb holder (4).
2. Install anchor light top (1) onto housing (2) by pressing downwards.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
ANCHOR LIGHT BATTERIES
REPLACEMENT**

INITIAL SETUP:**Tools**

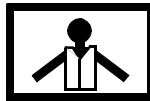
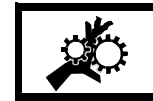
Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Personnel Required

Engineer 88L

REMOVE ANCHOR LIGHT BATTERIES

WARNING

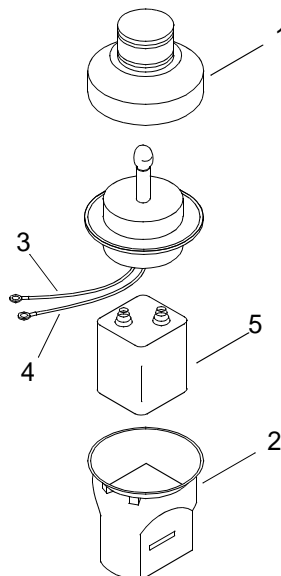
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 removal and installation of the anchor light batteries.

1. Remove anchor light top (1) from housing (2).



2. Disconnect the positive (3) and negative (4) leads from the battery (5).
3. Remove battery (5) and dispose of in accordance with local procedures.

INSTALL ANCHOR LIGHT BATTERIES

1. Install battery (5) into housing (2).
2. Connect positive (3) and negative (4) leads to battery (5).
3. Install anchor light top (1) onto housing (2) by pressing downwards.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIFE RING STROBE LIGHT BATTERY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)

Materials/Parts

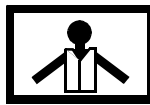
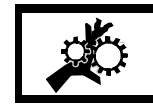
Battery, 6 Volt
 (83740)
 PN EV90

Personnel Required

Engineer 88L

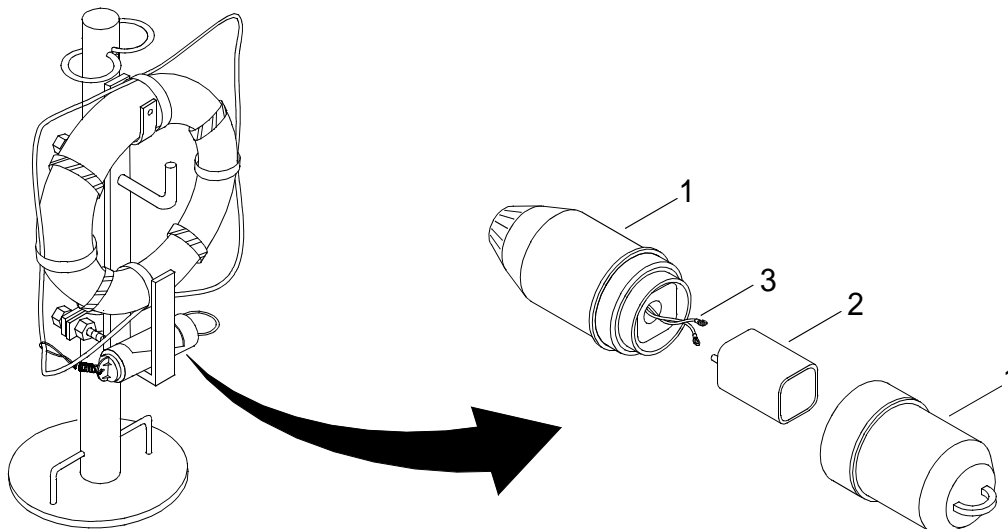
REMOVE LIFE RING STROBE LIGHT BATTERY

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. Unscrew strobe light housing (1) to expose battery (2).



2. Disconnect two wires (3) from battery (2).
3. Remove battery (2) from strobe light housing (1).

WARNING



CHEMICAL



EYE PROTECTION

4. Discard battery (2) in accordance with local procedures.

INSTALL LIFE RING STROBE LIGHT BATTERY

WARNING



CHEMICAL



EYE PROTECTION

1. Position new battery (2) inside strobe light housing (1).
2. Connect two wires (3) to battery (2).
3. Position both sides of the strobe light housing (1) together and screw shut. Tighten strobe light housing (1).

END OF WORK PACKAGE

**GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
WEIGHT LIFTING DEVICES
INSPECTION**

INITIAL SETUP:**Personnel Required**

Seaman 88K

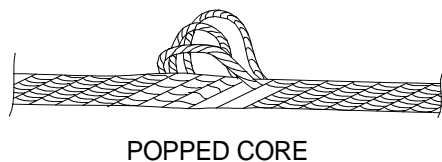
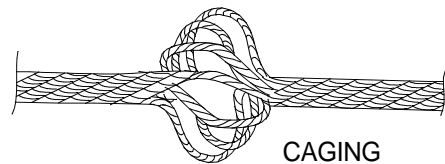
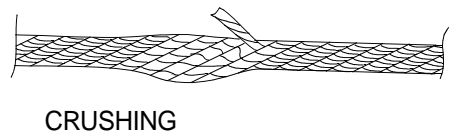
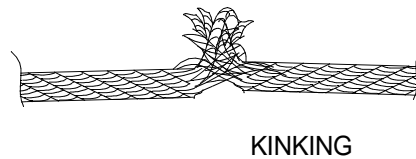
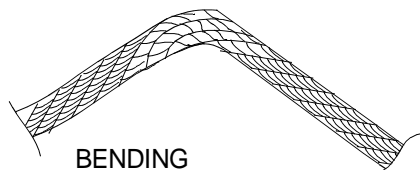
THREE LEG WIRE ROPE AND CHAIN SLINGS

WARNING

All damaged or defective slings and ropes shall be immediately removed from service as serious injury to personnel and damage to equipment could occur.

A visual inspection of slings and all fastenings and attachments shall be conducted before each use using the following minimum criteria.

1. Rope diameter reduction of below nominal value.
2. Rope for broken outside wires.
3. Rope for worn outside wires.
4. Rope for corroded, broken or frayed wires at end connections.
5. Rope for corroded, cracked, bent, worn, improperly sized or improperly applied end connections.
6. Rope for evidence of damage due to welding arc or other heat sources.
7. Rope for severe bending, kinking, crushing, caging or a popped core.



8. Chain for excessive wear or stretch.

9. Chain for bent or twisted links.
10. Chain for defective welds.
11. Chain for nicks and gouges.
12. All attaching shackles and hardware for corrosion, nicks, cuts, scratches or breaks.
13. Distortion of hoist attachment or terminal ring.

TWO LEG LIFTING SLING

1. Rope diameter reduction of below nominal value.
2. Rope for broken outside wires.
3. Rope for worn outside wires.
4. Rope for corroded, broken or frayed wires at end connections.
5. Rope for corroded, cracked, bent, worn, improperly sized or improperly applied end connections.
6. Rope for evidence of damage due to welding arc or other heat sources.
7. Rope for severe bending, kinking, crushing, caging, or a popped core.
8. All attaching shackles and hardware for corrosion, nicks, cuts, scratches or breaks.
9. Distortion of hoist attachment or terminal ring.

SPREADER BEAM LIFTING SLING

1. Rope diameter reduction of below nominal value.
2. Rope for broken outside wires.
3. Rope for worn outside wires.
4. Rope for corroded, broken or frayed wires at end connections.
5. Rope for corroded, cracked, bent, worn, improperly sized or improperly applied end connections.
6. Rope for evidence of damage due to welding arc or other heat sources.
7. Rope for severe bending, kinking, crushing, caging or a popped core.
8. All attaching shackles and hardware for excessive wear or corrosion.
9. Spreader beam for proper assembly.
10. Spreader beam for cracked or broken welds.
11. Spreader beam for bent or loose bolts, rivets, pins and other attaching devices.
12. Spreader beam for distortion of hoist attachment or terminal ring.

ROPE (NATURAL AND SYNTHETIC)

The existence of any of the following conditions will require that the rope be immediately removed from service.

1. Abnormal wear.
2. Powdered fiber between strands.
3. Broken or cut fibers.
4. Variation in the size or roundness of strands.
5. Discoloration or rotting.

END OF WORK PACKAGE

**GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
WEIGHT LIFTING DEVICES
TESTING**

INITIAL SETUP:

Personnel Required

Engineer 88L

References

29 CFR

INSPECT WEIGHT LIFTING DEVICES

Refer to 29 CFR, sections 1919.6, 1919.15, 1919.28, 1919.30 and 1919.3.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
ELECTRICAL WIRING
REPAIR**

INITIAL SETUP:

Personnel Required

Engineer 88L

References

46 CFR

REPAIR ELECTRICAL WIRING

Refer to 46 CFR, section 129.340.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
QUICK RELEASE AND MOORING ASSEMBLY
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Rail and Marine) (Item 82, WP 0359 00)
 Gloves, Men's and Women's (Leather Palm) (Item 27, WP 0359 00)
 Goggles, Sun, Wind, and (Safety) (Item 29, WP 0359 00)
 Helmet, Safety (Brown) (Item 33, WP 0359 00)
 Life Preserver, Vest (Item 38, WP 0359 00)
 Gloves, Chemical (Item 25, WP 0359 00)
 Goggles, Industrial (Chipping, Chemical) (Item 28, WP 0359 00)
 Brush, Wire Scratch (Item 10, WP 0359 00)
 Apron, Utility (Item 2, WP 0359 00)

Materials/Parts

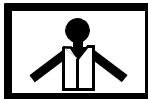
Pin, Cotter
 (80064)
 NSN 5315-01-411-5852
 PN 803-1385623-0641-18
 Qty 2
 Strap, Tiedown, Electrical Components (Item 52, WP 0358 00)
 Cleaner (Item 9, WP 0358 00)
 Rag, Wiping (Item 45, WP 0358 00)

Personnel Required

Engineer 88L

DISASSEMBLE QUICK RELEASE AND MOORING ASSEMBLY

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



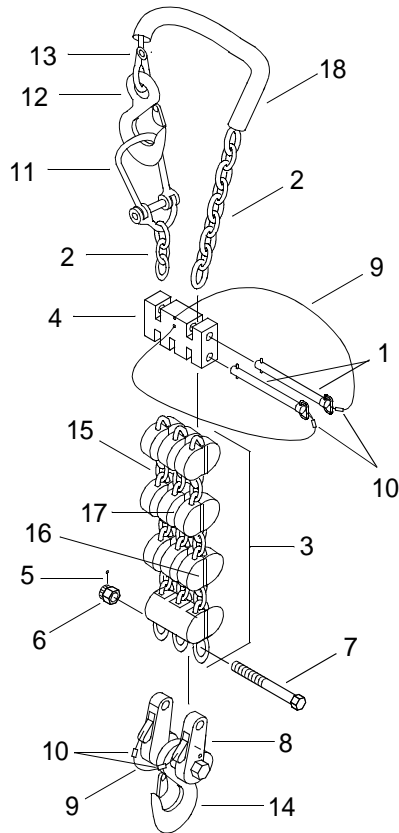
MOVING PARTS

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.

NOTE

Repair is limited to the replacement of damaged components.

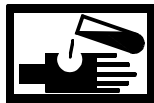
1. Remove two hitch pins (1) to separate chains (2) and kinetic link assemblies (3) from clevis block (4).



2. Remove upper cotter pin (5), slotted nut (6) and bolt (7) to separate the kinetic link assemblies (3) from load release hook (8). Discard cotter pin (5).
3. Install bolt (7) and slotted nut (6) on load release hook (8).

CLEAN QUICK RELEASE AND MOORING ASSEMBLY

WARNING



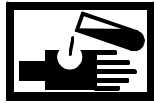
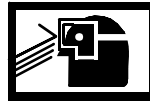
CHEMICAL



EYE PROTECTION

1. Clean quick release and mooring assembly components with cleaner and wire brush.
2. Use fresh water to thoroughly wash all equipment after cleaning.
3. Wipe all parts clean with wiping rags.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Dispose of contaminated wiping rags in accordance with local procedures.

INSPECT QUICK RELEASE AND MOORING ASSEMBLY

1. Inspect swaged cables (9) on both hitch pins (1) and load release hook (8) for fraying or damage. Replace damaged items.
2. Inspect hitch pins (1), clevis block (4), load release hook (8), master & half link (10,11), sling hook (12), hammerlock coupling link (13), chain (2) and eye slip hook (14) for wear, broken components, corrosion and proper operation. Replace damaged items.
3. Inspect kinetic link assemblies (3) for wear or deterioration of the connector links (15) and worn or deteriorated tiedown straps (16) or rubber grommets (17). Replace damaged items.
4. Inspect chain sleeve (18) for wear or deterioration. Replace damaged items.
5. Inspect two load release hook nuts (6) and bolt (7) for worn or stripped threads. Replace damaged items.

ASSEMBLE QUICK RELEASE AND MOORING ASSEMBLY

1. Remove slotted nut (6) and bolt (7) from load release hook (8).
2. Position lower end of the kinetic link assemblies (3) on load release hook (8) and secure with bolt (7) and slotted nut (6). Tighten slotted nut (6).
3. Install new cotter pin (5) through bolt (7) to retain slotted nut (6).
4. Position kinetic link assemblies (3) on clevis block (4) and secure with hitch pin (1).
5. Position chains (2) on clevis block (4) and secure with hitch pin (1).

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
ILLUSTRATED LIST OF MANUFACTURED ITEMS**

INTRODUCTION**Scope**

This work package includes complete instructions for making items authorized to be manufactured or fabricated at the Unit, Direct Support, and General Support Maintenance Level that is applicable.

How to Use the Index of Manufactured Items

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the page which covers fabrication criteria.

Explanation of the Illustrations of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. (*When applicable, a reference to the associated RPSTL TM or RPSTL work package shall be entered here.*) All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustrations.

INDEX OF MANUFACTURED ITEMS

Work Package #	Part Number	Name
WP 0351 00	PN FCRRDF-99-581-001-72	Tube Assembly
	PN FCRRDF-99-581-001-75	Tube Assembly
	PN FCRRDF-99-581-001-76	Tube Assembly
	PN FCRRDF-99-581-001-77	Tube Assembly
	PN FCRRDF-99-581-001-79	Tube Assembly
WP 0352 00	PN FCRRDF-99-581-001-71	Hose Assembly
	PN FCRRDF-99-581-001-73	Hose Assembly
	PN FCRRDF-99-581-001-74	Hose Assembly
	PN FCRRDF-99-581-001-78	Hose Assembly

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY TUBE PN FCRRDF-99-581-001-40
MANUFACTURE**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 81, WP 0359 00)
Bender, Tube, Hand (Item 6, WP 0359 00)

Personnel Required

Engineer 88L

References

TM 5-805-7

HYDRAULIC TUBE PN FCRRDF-99-581-001-40**NOTES:**

TUBE-MAKE FROM 3/8 IN. OD STAINLESS STEEL HYDRAULIC TUBING, 3/8 IN. OD X 0.065 IN. WALL,
PN FCRRDF-99-581-001-40.

CUT TO LENGTH AND BEND TO FIT.

ATTACH TWO FEMALE HOSE CONNECTORS (OBTAINED FROM THE BULKHEAD ADAPTOR,
(PN H890-6-SS), TO EACH END OF TUBE IN ACCORDANCE WITH TM 5-805-7.

ALL DIMENSIONS ARE IN INCHES.

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY HOSE ASSEMBLY PN FCRRDF-99-581-001-71,
FCRRDF-99-581-001-72, FCRRDF-99-581-001-73,
FCRRDF-99-581-001-74
MANUFACTURE**

INITIAL SETUP:

Tools

Tool Kit, General Mechanic's (Item 81, WP 0359 00)

Personnel Required

Engineer 88L

**HYDRAULIC HOSE ASSEMBLY PN FCRRDF-99-581-001-71, FCRRDF-99-581-001-72,
FCRRDF-99-581-001-73, FCRRDF-99-581-001-74**

NOTES:

HOSE ASSEMBLY-MAKE FROM 3/8 IN. FLEXIBLE HYDRAULIC HOSE, SAE 100R2, PN 5279K312.

CUT TO LENGTH.

ATTACH TWO FEMALE HOSE CONNECTORS, PN F880-6, TO EACH END OF HOSE IN ACCORDANCE WITH LOCAL PROCEDURES.

ALL DIMENSIONS ARE IN INCHES.

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TORQUE LIMITS**

INTRODUCTION

When To Use Torque Limits

When a torque is not specified in an individual work package, use the procedures in this work package to determine proper torque limits and use of adaptors with torque wrenches.

How To Use Adaptors With Torque Wrenches

When an adaptor is necessary due to space or type of fitting being torqued, it must be determined how the adaptor changes the amount of force applied. If the adaptor increases or decreases the distance from the drive of the torque wrench to the fitting being torqued, an equation must be used to compensate for the difference.

NOTE

The following abbreviations apply to the below procedures:

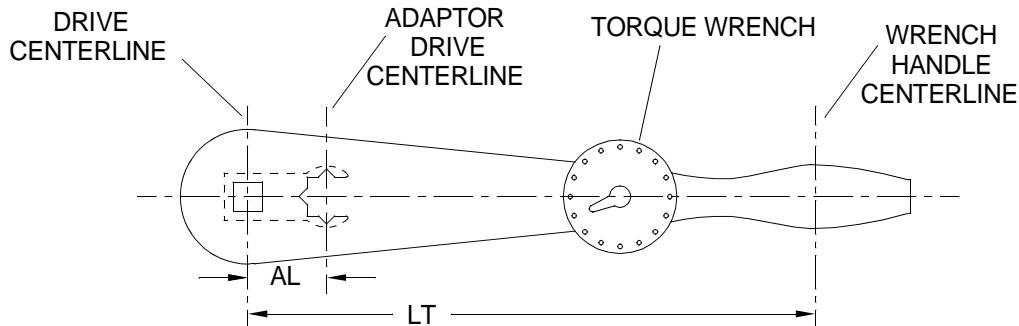
DT = Desired Torque

LT = Length of Torque Wrench

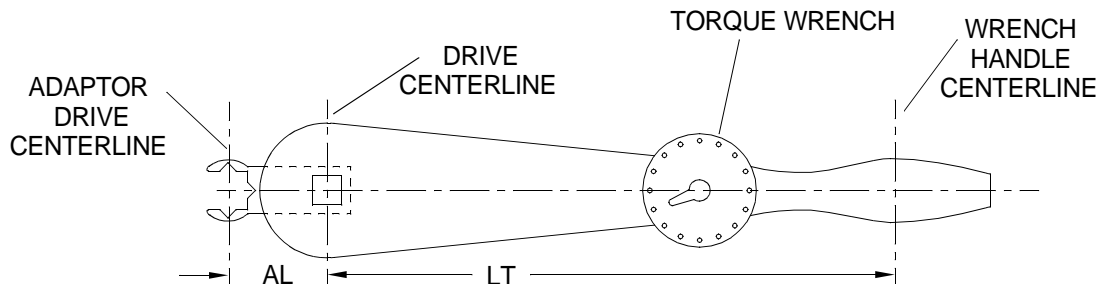
AL = Adaptor Length

AT = Applied Torque

1. If the adaptor used decreases the distance between the center of the torque wrench handle and the center of the drive, first find the desired torque for the fitting, then calculate as follows:



- a. Multiply DT by LT.
 - b. Subtract AL from LT.
 - c. Divide the first answer by the second answer to find AT.
2. If the adaptor used increases the distance between the center of the torque wrench handle and the center of the drive, first find the desired torque for the fitting, then calculate as follows:

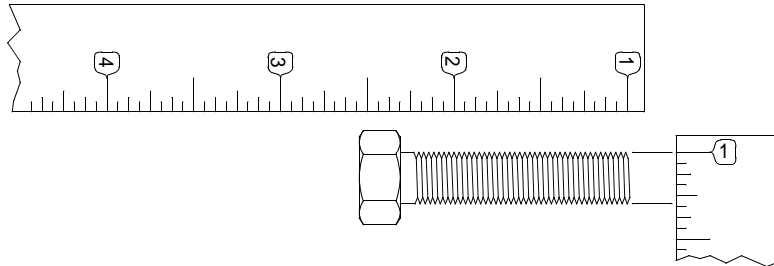


- a. Multiply DT by LT.
- b. Add AL and LT.
- c. Divide the first answer by the second answer to find AT.

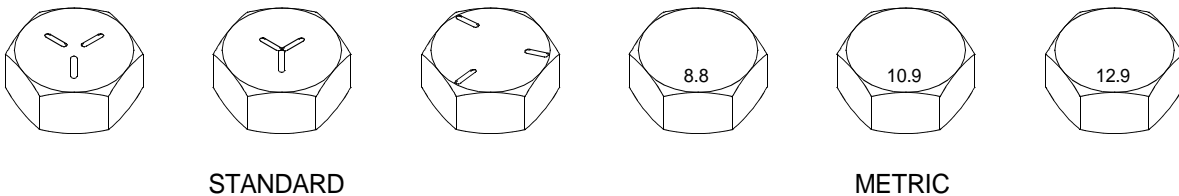
TORQUE TABLES

How To Use Torque Tables

1. Measure the diameter of the bolt to be torqued.



2. For SAE fasteners, determine the threads per inch by counting the threads. For metric fasteners, determine the thread pitch using a thread pitch gage.
3. Determine the type of markings on the bolt you are torquing by comparing the markings on the head of the bolt with the chart below.



4. Determine if this will be a wet or dry torque.
 - a. Wet torque is any bolt that is lubricated or coated with an antiseize compound.
 - b. Dry torque is any bolt that is not lubricated or coated with an antiseize compound.
5. On the table below, locate the bolt to be torqued.
 - a. Locate the diameter of the bolt.
 - b. Determine the threads per inch for the SAE fastener or the thread pitch for the metric fastener.
 - c. Slide across the table to the proper grade.
 - d. Choose wet or dry.
 - e. Slide down the proper column and across the proper row until they intersect, this is the proper torque value.

Table 1. SAE Standard Torque Table.

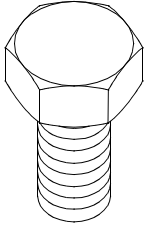
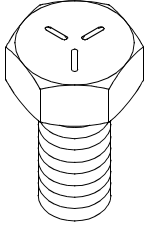
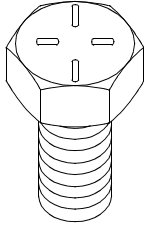
		SAE GRADE NO. 2				SAE GRADE NO. 5				SAE GRADE NO. 8			
													
		DRY		WET		DRY		WET		DRY		WET	
DIA IN.	THREADS PER INCH	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m
1/4	20	66	7.46	49	5.54	101	11.41	76	8.58	143	16.15	107	12.09
1/4	28	75	8.47	56	6.33	116	13.10	87	9.83	164	18.53	123	13.89
5/16	18	135	15.25	101	11.41	209	23.61	157	17.73	295	33.32	221	24.96
5/16	24	150	17.17	112	12.65	230	25.98	173	19.54	327	36.94	245	27.68
3/8	16	240	27.11	180	20.33	370	41.80	278	31.40	523	59.08	392	44.28
3/8	24	272	30.73	204	23.04	420	47.44	315	35.58	593	66.99	445	50.27
7/16	14	384	43.38	288	32.53	593	66.99	445	50.27	837	94.55	628	70.94
7/16	20	428	48.35	321	36.26	662	74.78	496	56.03	935	105.62	700	79.07
1/2	13	585	66.08	439	49.59	904	102.12	678	76.59	1277	144.25	958	108.22
1/2	20	660	74.55	495	55.92	1020	115.22	764	86.30	1440	162.66	1080	122.00

Table 2. SAE Standard Torque Table.

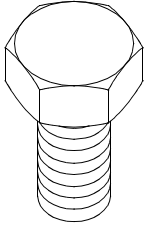
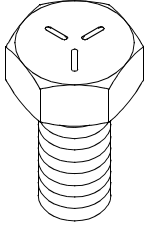
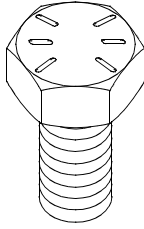
		SAE GRADE NO. 2				SAE GRADE NO. 5				SAE GRADE NO. 8			
													
		DRY		WET		DRY		WET		DRY		WET	
DIA IN.	THREADS PER INCH	FT LBS	N-m	FT LBS	N-m	FT LBS	N-m	FT LBS	N-m	FT LBS	N-m	FT LBS	N-m
9/16	12	70	94.92	53	71.87	109	147.80	82	111.19	154	208.82	115	155.94
9/16	18	78	105.77	59	80.00	121	164.08	91	123.40	171	231.88	128	173.57
5/8	11	97	131.53	73	98.99	150	203.40	113	153.23	212	287.47	159	215.60
5/8	18	110	149.16	82	111.19	170	230.52	127	172.21	240	325.44	180	244.08
3/4	10	172	233.23	129	174.92	269	364.76	201	272.56	376	509.86	282	382.39
3/4	16	192	260.35	144	195.26	297	402.73	223	302.29	420	569.52	315	427.14
1	8	-	-	-	-	644	873.26	483	654.95	909	1232.60	683	926.15
1	12	-	-	-	-	704	954.62	528	715.97	995	1349.22	746	1011.58

Table 3. Metric Standard Torque Table.

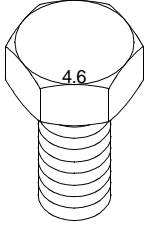
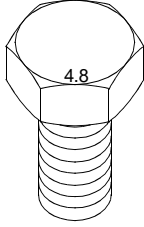
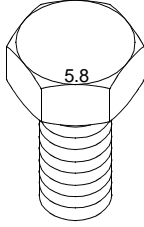
		CLASS 4.6 				CLASS 4.8 				CLASS 5.8 			
		DRY		WET		DRY		WET		DRY		WET	
DIA MM	THREAD PITCH	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS
3.0	0.5	.50	4	.40	4	.70	6	.50	4	-	-	-	-
3.5	0.6	.80	7	.60	5	1.10	10	.80	7	-	-	-	-
4.0	0.7	1.20	11	.90	8	1.60	14	1.20	11	-	-	-	-
5.0	0.8	2.40	21	1.80	16	3.30	29	2.50	22	4.00	35	3.00	27
6.0	1.0	4.00	35	3.00	27	5.66	50	4.20	37	6.90	61	5.20	26
8.0	1.25	9.90	88	7.40	66	13.60	120	10.20	90	16.70	148	12.50	111
10.0	1.50	19.60	174	14.70	130	27.00	239	20.00	177	33.10	293	24.80	220
12.0	1.75	34.10	302	25.60	227	47.00	416	35.00	310	58.00	51	43.00	381
14.0	2.0	54.30	481	40.80	361	75.00	664	56.00	496	92.00	814	69.00	611

Table 4. Metric Standard Torque Table.

DIA MM	THREAD PITCH	CLASS 8.8				CLASS 9.8				CLASS 10.9			
		DRY		WET		DRY		WET		DRY		WET	
		N-m	FT LBS	N-m	FT LBS	N-m	FT LBS	N-m	FT LBS	N-m	FT LBS	N-m	FT LBS
8.0	1.25	26.40	19	19.80	15	28.50	21	21.40	16	36.50	27	27.30	20
10.0	1.50	52.20	38	39.20	29	56.60	42	42.40	31	72.20	53	54.20	40
12.0	1.75	91.00	67	68.00	50	99.00	73	74.00	55	126.00	93	94.00	69
14.0	2.00	145.00	107	109.00	80	157.00	116	118.00	87	200.00	147	150.00	111
16.0	2.00	226.00	167	170.00	125	245.00	181	184.00	136	313.00	231	235.00	173
20.0	2.50	441.00	325	331.00	244	478.00	353	358.00	264	610.00	450	458.00	338
24.0	3.00	762.00	562	572.00	422	826.00	609	620.00	457	1055.00	778	791.00	583
30.0	3.50	1515.00	1117	1136.00	838	1641.00	1210	1231.00	908	2095.00	1545	1572.00	1159
36.0	4.00	2647.00	1952	1985.00	1464	2868.00	2115	2151.00	1586	3662.00	2701	2746.00	2025

END OF WORK PACKAGE

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
WIRING DIAGRAMS**

INITIAL SETUP:**Personnel Required**

Engineer 88L

CABLE AND WIRING DIAGRAMS INTRODUCTION**Scope**

This work package provides the wiring illustrations necessary for maintenance, troubleshooting and repair of the Roll-On/Roll-Off Discharge Facility (RRDF). Diagrams provide the identification of each wire to be connected, by color code or wire number as applicable. The diagrams show the location of each pertinent terminal and/or position.

The same diagram may be referenced at different times as it applies to instructions within the appropriate maintenance chapter (Unit Level, Direct Support, or General Support).

The one line diagram, schematic and wiring diagram fold out illustrations can be located after the alphabetical index in this manual.

LIST OF ABBREVIATIONS/ACRONYMS

The abbreviations used in this work package are in accordance with MIL-STD-12, except when the abbreviation stands for a marking actually found in the equipment.

Abbreviation/Acronym	Name
rcv	Receive
RF	Radio Frequency
RHIB	Rigid Hull Inflatable Boat
RPM	Revolutions Per Minute
RRDF	Roll-On/Roll-Off Discharge Facility
SINAD	Signal (plus) Noise And Distortion
TAMMS	The Army Maintenance Management System
TO&E	Table of Organization and Equipment
Tx	Transmit
uv	Ultra Violet
VAC	Volts Alternating Current

CHAPTER 4

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT
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

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)

DOD-PRF-24648 Primer Coating, Zinc Dust Pigmented for Exterior Steel Surfaces

MIL-PRF-23236 Paint Coating Systems, Fuel and Salt Water Ballast Tanks (Metric)

SSPC SP-2 Steel Structures Painting Council, SP-2 Hand Tool Cleaning

SUPPLY CATALOG

SC 4910-95-A68	Shop Equipment, Automotive Maintenance and Repair: Field Maintenance, Wheeled Vehicle, Post, Camp and Station, Set C. Less Power
SC 4910-95-A72	Shop Equipment, Automotive Equipment and Repair, Organizational Maintenance
SC 4910-99-A07	Sets, Kits and Outfits, Shop Set, Aircraft Maintenance, Fixed Base: Hydraulic, Set C, General Support
SC 4910-99-A16	Sets, Kits and Outfits, Shop Set, Aircraft Maintenance, Fixed Base: Electrical
SC 4940-95-A64	Sets, Kits and Outfits Shop Equipment, Welding, Shelter Mounted
SC 5180-90-N26	Tool Kit, General Mechanics
SC 5180-90-N55	Sets, Kits and Outfits for Tool Kit, General Mechanics, Diesel Engine

TECHNICAL MANUALS

TM 5-805-7	Welding: Design, Procedures and Inspection
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 15 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	SINGGARS 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 55-1945-205-10-2	Operators Manual for the Modular Causeway System, 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

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT 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 subcolumns, C (operator/crew) and O (unit) maintenance.

Direct Support - includes an F subcolumn.

General Support - includes an H subcolumn.

Depot - includes a D subcolumn.

The tools and test equipment requirements, immediately following the MAC, if applicable, list the tools and test equipment, both special tools and common tool sets, required for each maintenance function as referenced from the MAC.

The remarks, immediately following the tools and test equipment requirements, if applicable, contain supplemental instructions and explanatory notes for a particular maintenance function.

Maintenance Functions

Maintenance functions are limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical and/or electrical characteristics with established standards through examination, e.g., by sight, sound or feel. This includes scheduled inspection and gaugings and evaluation of cannon tubes.
2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.
3. Service. Operations required periodically to keep an item in proper operating conditions; e.g., to clean, includes decontaminate, when required, to preserve, to drain, to paint or to replenish fuel, lubricants, chemical fluids or gases. This includes scheduled exercising and purging of recoil mechanisms.
4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test, measuring and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
7. Remove/Install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating or fixing into position a spare, repair part or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
8. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.
9. Repair. The application of the maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction or failure in a part, subassembly, module (component or assembly), end item or system.

NOTE

The following definitions are applicable to the "repair" maintenance function:

Services - inspect, test, service, adjust, align, calibrate and/or replace.

Fault location/troubleshooting - the process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

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

Actions - welding, grinding, riveting, straightening, facing, machining and/or resurfacing.

10. Overhaul. That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
11. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

Explanation of Columns in the MAC

Column (1) - Group Number. Column (1) lists FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

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

Column (3) - Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). For a detailed explanation of these functions refer to "Maintenance Functions" outlined above.

Column (4) - Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as manhours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figures represent 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
010103	OPERATORS CAB	Replace	4.0						
01010301	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	
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						E
		Repair		4.0				1	
		Replace			8.0			10	
020502050101	FUEL PUMP	Inspect	1.0						E
		Repair				4.0		10	
		Replace			5.0			10	
020502050102	FUEL TANK	Clean	2.0						E
		Inspect	1.0						E
		Repair		2.0				1	
		Replace		2.0				1	
0205020502	ENGINE AIR SYSTEM	Inspect	1.0						E
		Repair		2.0				1	
		Replace		4.0				1	
0205020503	ENGINE COOLING SYSTEM	Inspect	1.0						E
		Repair		3.0				1	
		Replace		2.0		5.0		1, 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		
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	
		Inspect		1.0				1	E
0405020504	CYLINDER HEAD	Adjust					2.0		
		Repair					8.0		
		Replace					5.0		
		Repair					4.0		
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		

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EXPENDABLE AND DURABLE ITEMS LIST (EDIL)**

INTRODUCTION**Scope**

This work package lists expendable and durable items to help 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/AVIM, 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, CAGE AND PART NUMBER	(5) U/M
1	F	6810-01-003-0262	Acetone, Technical, liquid, one gallon cans (81346) ASTM-D-329	GL
2	O	8040-01-250-3969	Adhesive, general purpose, medium strength, threadlocker (05972) 242	EA
3	O	6850-01-441-3218	Antifreeze, one gallon liquid (58536) A-A-52624	GL
4	O	8030-00-251-3980	Antiseize Compound, 1 lb. can thread compound (81349) MIL-A-907E	QT
5	O	8030-01-044-5034	Antiseize Compound, MIL-T-5544C graphite and petroleum, one pound can for use on threaded fasteners and fittings (81349) MIL-T-5544	CN
6	O	5510-01-470-5122	Block, Shoring (6 in. X 6 in. X 30 in.) (0F6V7) 551-032-001	EA

Table 1. Expendable and Durable Items List. (EDIL) (Continued)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE AND PART NUMBER	(5) U/M
7	O	8020-00-200-3487	Brush, Paint, 4 in. nominal (80244) GSAPD 8020-00-200-3487	EA
8	F	6850-01-085-1423	Carbon Removing Compound (58011) 2+2 GUMCUTTER B101	CN
9	O	6850-01-431-9025	Cleaner, Type II, 50 lb container (81349) MIL-C-29602	OZ
10	F	7930-01-071-2507	Cleaner, Condenser Coil, concentrated, dilute with 3 parts water (1B504) 0176	CN
11	F	6850-01-099-9842	Cleaning Compound, Electrical Contact, 20 oz. aerosol can (0B6S1) 619022	CN
12	O	6850-00-598-7328	Cleaning Compound, Engine Cooling System, oxalic acid and aluminum chloride with conditioner (81349) MIL-C-10597	KT
13	O	5350-01-168-0048	Cloth, Abrasive, aluminum oxide jean cloth (P-C-451) fine, 320 grit (80244) GSA-001	RO
14	O	7920-00-044-9281	Cloth, Cleaning, contains 10 lbs, white, 12 in. X 16 in. (58536) A-A-59323	BX
15	O	7930-00-279-7089	Detergent, General Purpose (58728) 2902N10	QT
16	O	9140-01-413-7511	Diesel Fuel, summer grade, DF2, low sulfur (81348) VV-F-800	BULK
17	F	5345-01-122-1127	Disk, Abrasive, (for pneumatic high speed grinder) 240 grit (28124) 01102	PKG
18	F	5345-01-184-3241	Disk, Sanding, Coarse (97049) MS206	EA
19	F	5330-00-727-1052	Gasket Forming Compound, paste form hard setting, fast drying, resistant to gasoline, grease, water, oil and hydrocarbon (62377) 1B	TU
20	F	9130-01-089-6745	Gasoline, Unleaded, regular MOGAS unleaded (80738) UNLEADED	GA

Table 1. Expendable and Durable Items List. (EDIL) (Continued)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE AND PART NUMBER	(5) U/M
21	O	8415-00-268-8330	Gloves, Men's, cotton, regular work (80480) 112	PR
22	O	9150-00-145-0268	Grease, Aircraft, Grade 2, resistant to corrosion, water, low evaporation and oxidation (81349) MIL-G-81322	CN
23	O	9150-01-197-7693	Grease, Automotive and Artillery, 14 oz cartridge, oxidation resistant, use where a single multi-purpose grease is needed (81349) M-10924-B	CN
24	O	9150-01-095-5512	Grease, Ball and Roller Bearing, lithium soap, temperature range -35° to 325°F (-54° to 163°C) (White Lithium Grease) (73219) L0189.001	CN
25	F		Grease, Cindol, (Starter & Pinion Lube) (1T4E6) 2321	TU
26	O	9150-00-929-7946	Grease, General Purpose, 14 oz. Cartridge, oxidation, corrosion, water, salt water, wear and extreme pressure resistant (TU Lubriplate Grease) (73736) DURA-Lith Grease EP2	CN
27	O	9150-00-235-5555	Grease, General Purpose, mineral oil and molybdenum disulfide, low evaporation, corrosive and salt water resistive (81349) MIL-G-23549	CN
28	F	9150-01-307-6848	Grease, Outboard Motor, (Triple-Guard) (80256) 508298	TU
29	F	9150-00-257-5358	Grease, Silicone Insulated Electric Motor, Molykote 44, 8 oz. tube, conforms to PPP-C-186, Group B, Class 1 or 2 (81349) MIL-L-15719	TU
30	O	9150-01-179-0228	Grease, Wire Rope-Exposed Gear, 35 lb can, corrosion and antiwear resistant (1VO74) 8888	CN
31	F	9150-01-463-0014	Hydraulic Fluid Petroleum Base, quicksilver power trim & steering fluid (1G604) 92-90100A12	QT
32	F	6506-00-153-8480	Hydrogen Peroxide Topical Solution, USP, 1 pt bottle (1HR62) NDC00395-1113-16	BT

Table 1. Expendable and Durable Items List. (EDIL) (Continued)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE AND PART NUMBER	(5) U/M
33	F	6810-00-753-4993	Isopropyl Alcohol, Technical, 8 fl oz can, DOT Class 3 (89264) 2200200	CN
34	F		Kit, HPF Lube (0HBE8) 509952	KT
35	O	9150-00-117-8791	Lubricating Oil, Engine, Outboard, 2-cycle, TC-W-3, 1 pt can (54926) TW-C-111	PT
36	O	9150-00-189-6727	Lubricating Oil, Engine, 1 qt can, MIL-L-2104 10W Grade, MIL-L-2105 (81349) M2104-1-10W	QT
37	O	9150-00-186-6681	Lubricating Oil, Engine, 5 gal can, internal combustion engine, MIL-L-2104 30 Grade (81349) M2104-1-30W	QT
38	O	9150-01-035-5392	Lubricating Oil, Gear, 1 qt can, 80W90 Grade (81349) M2105-1-80W90	QT
39	F	8030-00-920-3467	Neoprene Coating, 1 gallon can (88112) NA62	GL
40	O	8010-01-363-2805	Paint, Amercoat 385 #27 Haze Grey, epoxy (09869) 373-930	GA
41	O	8010-01-397-3802	Paint, Amercoat 385 #27, Haze Grey, anti-skid (09869) 372-130	GA
42	O	8010-01-363-2803	Paint, Amercoat 385 PA, Oxide, red primer, Type I, Class I (09869) 373-930	GA
43	O	5350-01-043-2278	Paper, Abrasive, 320 grit, 9 in. X 11 in., for metal, wood, plastic, paint, enamel and lacquer (80204) ANSI B74.18	SH
44	F	8030-00-980-3975	Primer Sealing Compound, (Locquik Sealing Compound) (05972) 764-56	CN
45	O	7920-00-205-1711	Rag, Wiping, cotton, contains 50 lbs, mixed colors (80244) 7920-00-205-1711	BE
46	O	8020-00-597-4759	Roller Kit, Paint, consists of paint tray and roller (81348) H-R-550	KT
47	F	8030-01-299-1762	Sealing Compound 3.350 oz can, blue paste, no leak silicone gasket (Superflex Ultra-Blue Silicone) (05972) 58730	TU

Table 1. Expendable and Durable Items List. (EDIL) (Continued)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE AND PART NUMBER	(5) U/M
48	O	8030-00-204-9149	Sealing Compound, 250 cc collapsible tube paste, pipe thread sealant w/teflon (05972) 592-41	TU
49	O	6810-00-141-6078	Sodium Phosphate, Tribasic, Anhydrous, Technical, Type 1, 1 lb bottle, powder or granular form (81349) 0-S-642	LB
50	O	4235-01-416-8465	Spill Clean-Up Kit, Hazardous Material, sorbent pads with disposal bags used for petroleum spills (50378) P-SKFL31	KT
51	O	7920-00-057-2087	Sponge, rectangular sponge 6 in. X 4 in. X 2 in. (18873) 8AF	EA
52	O	5975-00-156-3253	Strap, Tiedown, Electrical Components, plastic, MIL-M20693, Comp A, Type 1, 13.350 in long X 0.055 in thick X 0.192 in wide (56501) TY-28M	HD
53	F	6515-01-480-2040	Syringe, Irrigating (5S573) 45435AY	PG
54	O	7510-00-266-6710	Tape, Pressure Sensitive Adhesive, 60 yard roll (81346) ASTM D-6123	RL
55	F	6685-01-360-4548	Temperature Indicating Compound, 125° (30217) T125	EA
56	F	6685-00-938-0431	Temperature Indicating Compound, 125° (82682) TEMPILSTIK 163	EA
57	F	6515-01-052-8308	Tube Connecting, General Purpose, hose clear vinyl 1/8 in. thickness (59225) 01301	FT
58	F	4720-00-466-6779	Tubing, Nonmetallic , clear, ¼ in. thickness (58536) A55697-03-A-1	FT
59	O	4020-00-926-1386	Twine, Fibrous, 32 lb breaking force, W-P-121, Type I, Grade A wax coating, 1800 ft per roll (80063) SCC30639-1	EA
60	O	6550-01-310-1677	Water, Reagent Distilled, four 1 gallon per package (07TA6) C4350-1A	PK
61	F	5510-00-268-3476	Wedge, Wood, butt thickness 1.5 in. taped to feathered edge X 3 in. wide (80064) S8800-461043	EA

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT 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 4, WP 0107 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	Ammeter (0-40 amps)	6625-01-023-8444	K3S-AAA-050-A1 (32171)	
2	Apron, utility	8415-00-082-6108	A-A-55063 (64067)	SC 4910-95-A68
3	Bar, bucking, BB28 tool style	5120-00-177-7050	A-A-52123-X (58536)	
4	Battery, 6 volt	6140-00-191-8506	C152 (22337)	
5	Beaker, glass	6640-01-191-9440	02-540M (22527)	
6	Bender, tube, hand	5120-00-240-0154	364-FHA-06 (30327)	

Table 1. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
7	Blades, jig saw, metal cutting, fine tooth	3455-01-327-3165	31020 (07429)	
8	Bottle, sprayer	6530-01-464-0451	932B (0KPM1)	
9	Brush, stencil (soft bristle)	7520-00-223-8000	A-A2903 (58536)	SC 4910-95-A72
10	Brush, wire scratch	7920-00-291-5815	7920002915815 (83421)	SC 4910-95-A72
11	Cleaner, power washer	4920-01-086-2087	PVISM15HE-2R (56077)	
12	Cleaner, vacuum, electric	7910-00-267-1205	A-A-50438 (58536)	
13	Compressor, unit, reciprocating, power drive	4310-00-861-9820	MILC13874 (81349)	SC 4940-95-A64
14	Crowbar	5120-00-224-1392	9150189 (18876)	
15	Drill set, twist	5133-00-293-0983	DB129B (55719)	
16	Drill, electric, portable, 115 volt	5130-00-477-0206	358 (89700)	
17	Drum, shipping and storage (Test Tank)	8110-00-418-1634	17C 55GALO DOT FRH (61599)	
18	Fid (12 in. wood)	5120-00-223-8921	A-A-5212+ (80244)	
19	Filter wrench	5120-01-160-8863	3375049 (15434)	
20	Gage, fuel pressure	4910-00-250-2423	MIL-T-1301113 (81349)	
21	Gage, gap setting	5210-01-429-7356	GA461B (55719)	
22	Gage, pressure (used w/RHIB air pump)		S-T-90000-1 (0UUV1)	

Table 1. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
23	Gage, tire pressure, 0 - 20 lbs	6685-00248-6974	236D100-1 (09168)	
24	Gage, tire pressure, 20 - 120 PSI	4910-01-121-9847	YA804 (55719)	
25	Gloves, chemical	8415-00-266-8677	ZZ-G-381 (81349)	
26	Gloves, electrical	8415-00-266-8691	ZZ-G-401 (81348)	
27	Gloves, men's and women's (leather palm)	8415-00-634-4658	37G2940 (90142)	
28	Goggles, industrial (chipping, chemical)	4240-00-190-6432	A-A-1110 (58536)	SC 4910-95-A72
29	Goggles, sun, wind and dust (safety)	8465-01-004-2893	MIL-G-43914 (81349)	
30	Grinder, pneumatic, high speed	5130-01-038-1451	C5000477 (25954)	
31	Hammer, pneumatic, portable (rivet gun)	4920-01-139-4547	A-A-3049 (58536)	
32	Heater, gun type electric, 115 volt ac/dc, 25 to 60 hertz single phase, 200 to 500 ° temperature range	4940-00-785-1162	MIL-H-45193 (81349)	SC 4910-99-A16
33	Helmet, safety (brown)	8415-00-889-3768	ISEA/ANSI Z89-1 (80204)	
34	Hose assembly, nonmetallic	4720-00-203-3912	A-A-59270 (58536)	
35	Insertor and remover, pneumatic tire valve core	5120-01-478-0869	27-130 (85803)	
36	Jumper cable, battery	6150-01-217-8748	65813 (79550)	
37	Level, spirit	5210-01-175-1887	MIL-L-17653 (81349)	
38	Life preserver, vest	4220-00-022-2518	MIL-L-17653 (81349)	

Table 1. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
39	Lubricating gun, hand	4930-00-965-0288	30415 (77335)	
40	Mallet, rubber	5120-00-293-3399	69-490 (03914)	
41	Mittens, heat protective	8145-00-266-8840	GGG-W-2843 (81348)	
42	Mop, wet	7920-00-224-8726	7920-00-224-8726 (83421)	
43	Multimeter	6625-01-265-6000	27/FM W/ACCE (89536)	
44	Oiler, hand	4930-00-274-5713	A-A-50477B (58536)	SC 4910-95-A72
45	Pail, utility	7240-01-252-7075	4486T4 (39428)	
46	Pan, drain	4910-00-287-2944	MILP45819 (81349)	SC 4910-95-A68
47	Pliers, retaining ring	5120-01-024-6182	J4646 (72582)	
48	Pliers, retaining ring, flat jaw	5120-00-596-1106	12z11027-3 (10001)	
49	Pneumatic drill, portable ¼ in.	5730-00-596-8420	00-D-691 (81348)	
50	Propeller, marine (test)	2010-01-370-4936	386665 (80526)	
51	Puller kit, universal (crossbar)	5180-00-423-1596	GGG-P-781 (81348)	
52	Puller, battery terminal	5120-00-944-4268	54000 (36540)	
53	Pump, bravo foot (RHIB)		P-I-10025 (0UUV1)	
54	Pump, foot adaptor (RHIB)		P-I-10030 (0UUV1)	
55	Punch set, drive pin	5120-00-883-3003	GGG-P-831 (81348)	

Table 1. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
56	Punch, drive pin, brass	5120-00-239-0038	12-1-14-314 (81337)	
57	Repair kit, black		R-K-10024-ZNA (60042)	
58	Repair kit, orange		R-K-10025-ZNA (60042)	
59	Respirator, air filtering	4240-00-883-6519	85556 (55799)	
60	Saw, jig, electric, portable	5130-01-397-9287	4300D (0U901)	
61	Scale, tension	4910-00-779-6832	J8129 (33287)	
62	Scale, weighing spring	6670-00-254-4634	MMM-S-133 (18348)	
63	Scissors, ladies	5110-01-241-4375	5110-01-241-4375 (80244)	
64	Scraper, ship	5110-00-224-9929	PD 5110-00-224- 9929 (80244)	
65	Screwdriver, fixed jet	5120-00-341-6198	317002 (80256)	
66	Screwdriver, flat tip (non-magnetic)	5120-01-271-8967	2503551 (07187)	
67	Shackle, ½ in. 2 ton		1019472 (75535)	
68	Sling, 36,000 lb adjustable chain, consisting of: 1 1/4 in. alloy master link 200 ft-5/8 in. chain 5/8 in. clevis grab hook 5/8 in. lokalloy		1014342 (75535) 273563 (75535) 1027695 (75535) 1014723 (75535)	

Table 1. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
69	Sling, lifting, 53,000 lb (brown)		EN600X25FT (3AJ34)	
70	Sling, lifting, 5300 lb (green)		EN60X4FT (3AJ34)	
71	Sprayer, pesticide, manually carried	3740-00-641-4719	A-A-55748 (58536)	
72	Stand, vehicle support	4910-01-301-3051	FH1012 (01252)	
73	Stop, piston (OMC)	5120-00-343-0139	384887 (80256)	
74	Tape, measuring	5210-00-293-3505	GGG-T-106 (81348)	
75	Test set, compartment air	6685-00-327-2957	805-1749233 (80064)	
76	Tester, compression, threaded	4910-00-250-2423	MIL-T-13011B (81349)	
77	Tester, gage, vacuum	6685-01-061-4253	J23987-13 (33287)	
78	Tester, vacuum		10514012 (56161)	
79	Thermometer, industrial	6685-01-376-5905	149300 (61349)	
80	Tire iron (37 in.)	5120-00-765-8536	T48A (75204)	
81	Tool kit, general mechanic's	5180-00-177-7033	SC5180-90-CL-N26 (50980)	SC 5180-90-N26
82	Tool kit, general mechanic's (rail and marine)	5180-00-629-9783	SC5180-90-CL-N55 (50980)	
83	Tool, nipple cleaning		326623 (80256)	
84	Valve, fill (RHIB)		T-V-10030 (0UUV1)	
85	Vise, machinists	5120-00-293-1439	504M20 (79419)	

Table 1. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
86	Wrench, strap	5120-01-160-8863	3375929 (15434)	
87	Wrench, torque (0-175 ft lbs) (½ in. sqdr)	5120-01-396-5751	1753LDF (08194)	
88	Wrench, torque (0-75 in. lbs) (¼ in. sqdr)	5120-01-112-9532	B107.14MTY1CLCS T1 (80204)	
89	Wrench, torque (100-600 ft lbs) (¾ in. sqdr)	5120-00-221-7983	SW130-301 (10001)	
90	Wrench, torque (10-250 in. lbs) (3/8 in. sqdr)	5120-01-356-0743	J24405 (33287)	
91	Wrench, torque (150-750 in. lbs) (3/8 in. sqdr)	5120-01-374- 01931	GGG-W-2843 (81348)	
92	Socket wrench set	5120-00-204-1999	B107.1 (05047)	
93	Socket, socket wrench	5130-00-227-6679	B107.2 (80204)	
94	Key, socket head screw (allen wrench)	5120-00-198-5387	57042 (74445)	

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PWR PNL NO.: SHLTR PNL		TITLE: MCS POWER PANEL		LOCATION: MCS SHELTER		
FEEDER NO.: (GENERATOR EXISTING)			CABLE TY: SO AWG #2 (5-COND)			
TOTAL CONNECTED KW: 10.02						
CKT	DESIGNATION	REV	EQUIPMENT SERVED	CB	PH	LOAD (KW)
1	(SHLTR PNL)-2P-A	C	HEAT PUMP (COOLING & HEATING)	30A	AB-GND	4.16
2	(SHLTR PNL)-1P-B(1)	C	120VAC HOSPITAL GRADE RECEPT VIA 120VAC GFCI RECP	20A	A-NEU/GND	1.20
3	(SHLTR PNL)-1P-C(1)	C	FLOURESCENT OVERHEAD (RED/WHT) LIGHTS VIA SWITCH	15A	C-NEU/GND	0.30
4	(SHLTR PNL)-1P-D(1)	C	VENTILATOR & 90° LIGHT FIXTURE VIA SWITCHES	15A	C-NEU/GND	0.24
5	(SHLTR PNL)-1P-E	C	RECEPTACLE FOR HAND-HELD RADIO CHARGER	20A	B-NEU/GND	0.48
6	(SHLTR PNL)-2P-F	C	INCINOLET ELECTRIC TOILET WITH BLOWER	20A	BC-GND	3.64
7	(SHLTR PNL)-1P-G	C	SPARE CIRCUIT	15A	A-NEU/GND	-
8	(SHLTR PNL)-2P-J	C	SPARE CIRCUIT	15A	CA-GND	-
9	(SHLTR PNL)-1P-L	C	SPARE CIRCUIT	15A	B-NEU/GND	-

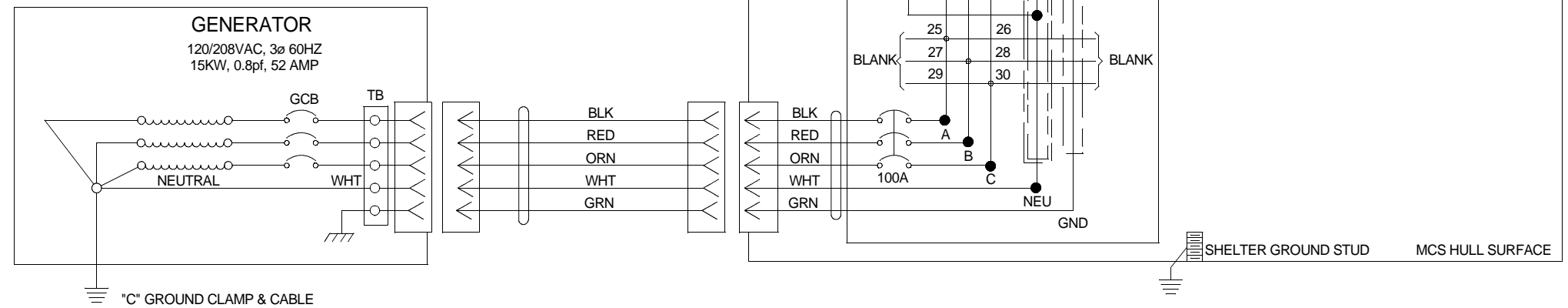
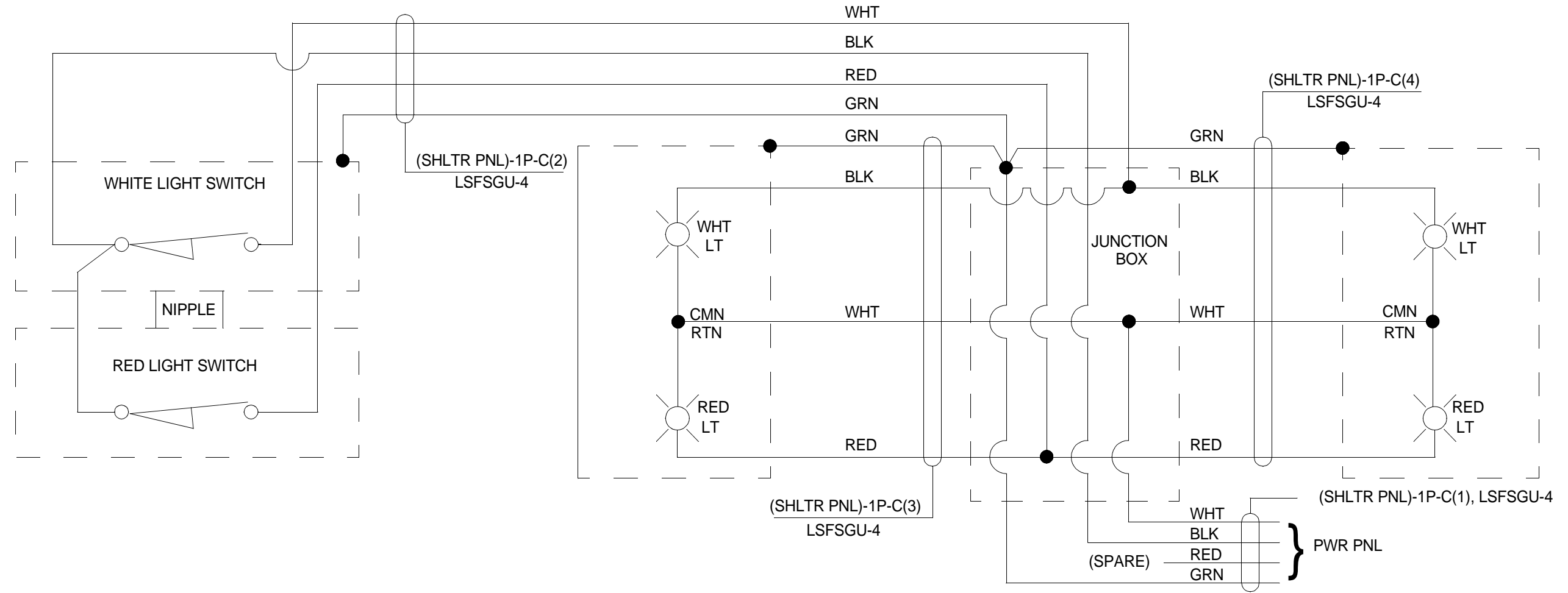


Figure 1. MCS Personnel Shelter Wiring Diagram (Sheet 1).



TYPICAL DETAILED HOOKUP FOR BOTH OVERHEAD FLUORESCENT RED/WHITE LIGHT SWITCH & OVERHEAD LIGHTING

Figure 1. MCS Personnel Shelter Wiring Diagram (Sheet 2).

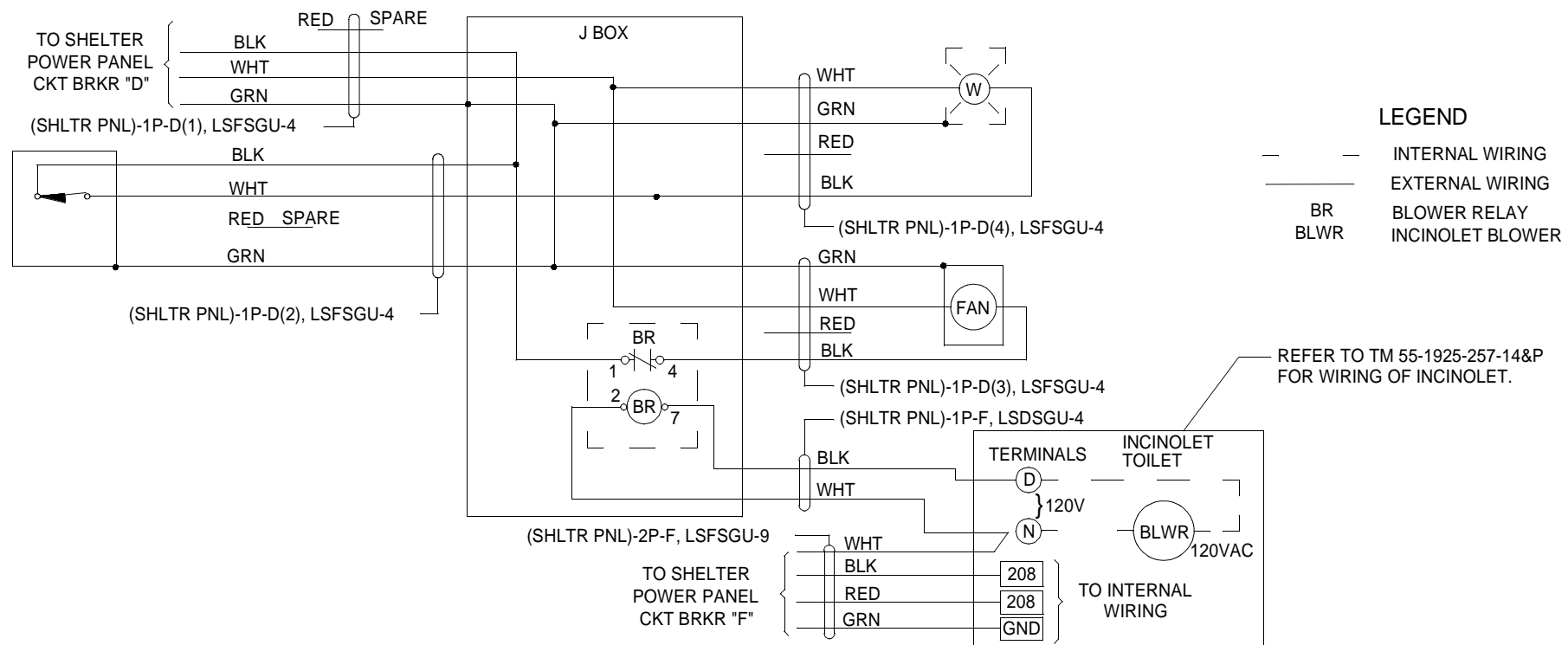
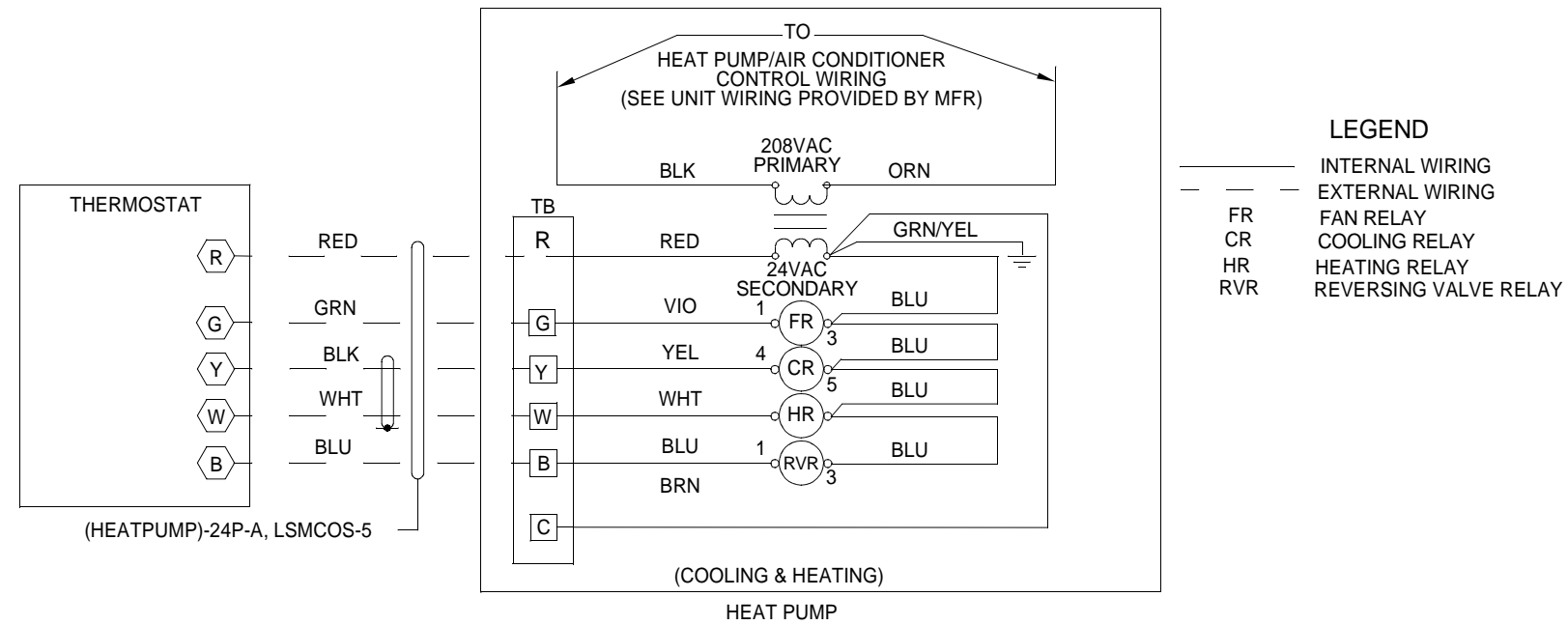


Figure 1. MCS Personnel Shelter Wiring Diagram (Sheet 3).

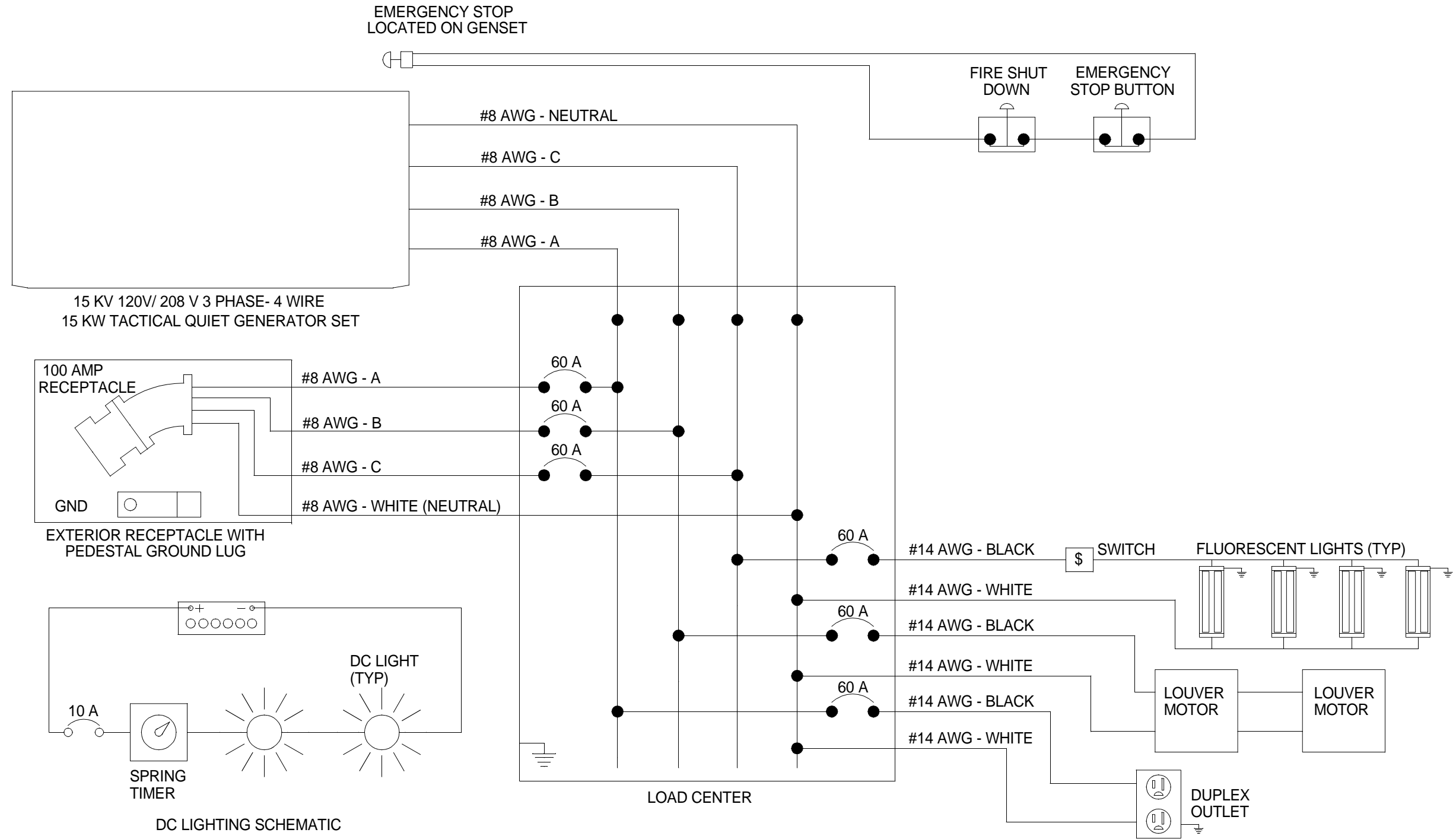


Figure 2. MCS 15KW Generator Container Wiring Diagram (Sheet 1).

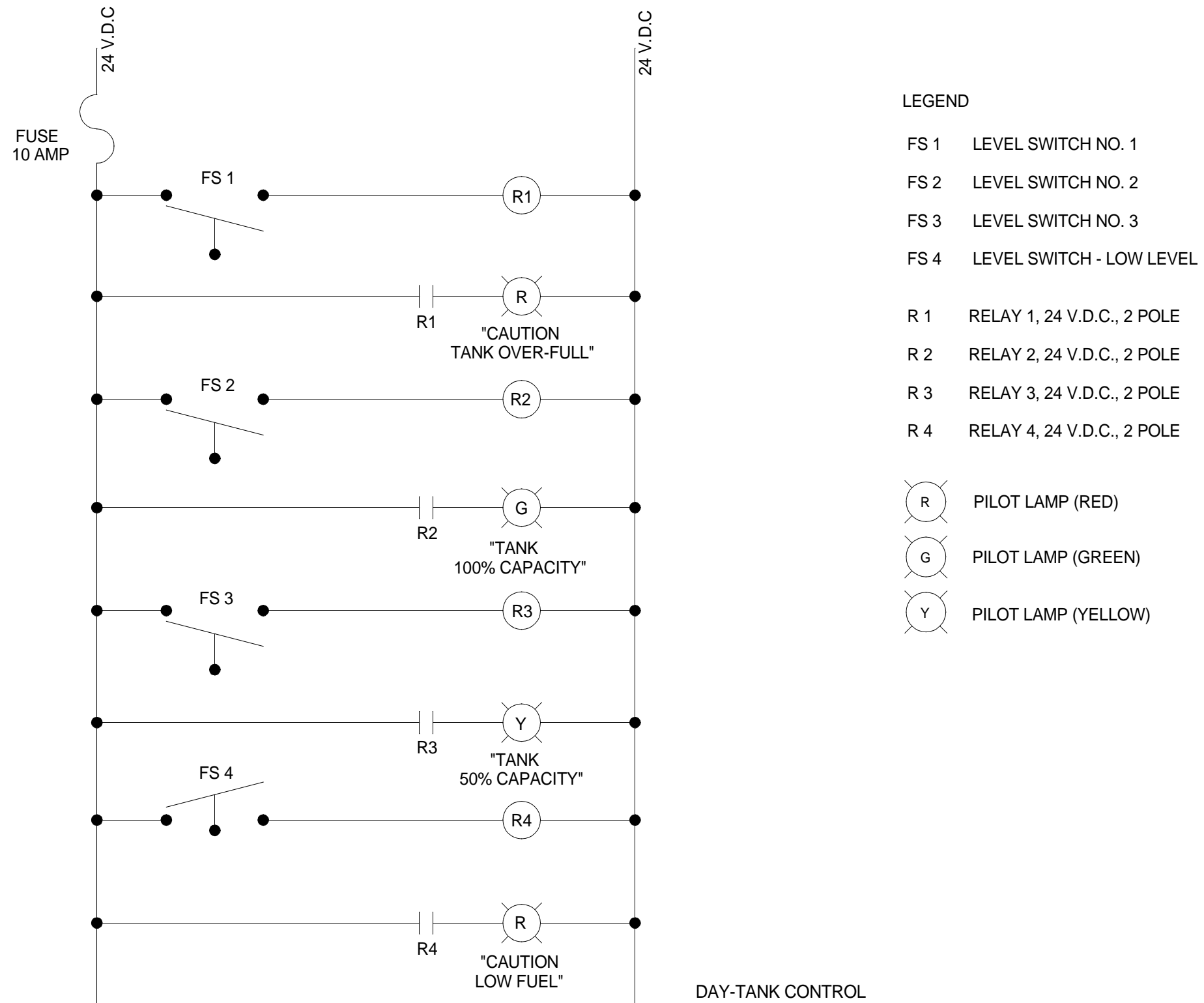


Figure 2. MCS 15KW Generator Container Wiring Diagram (Sheet 2).

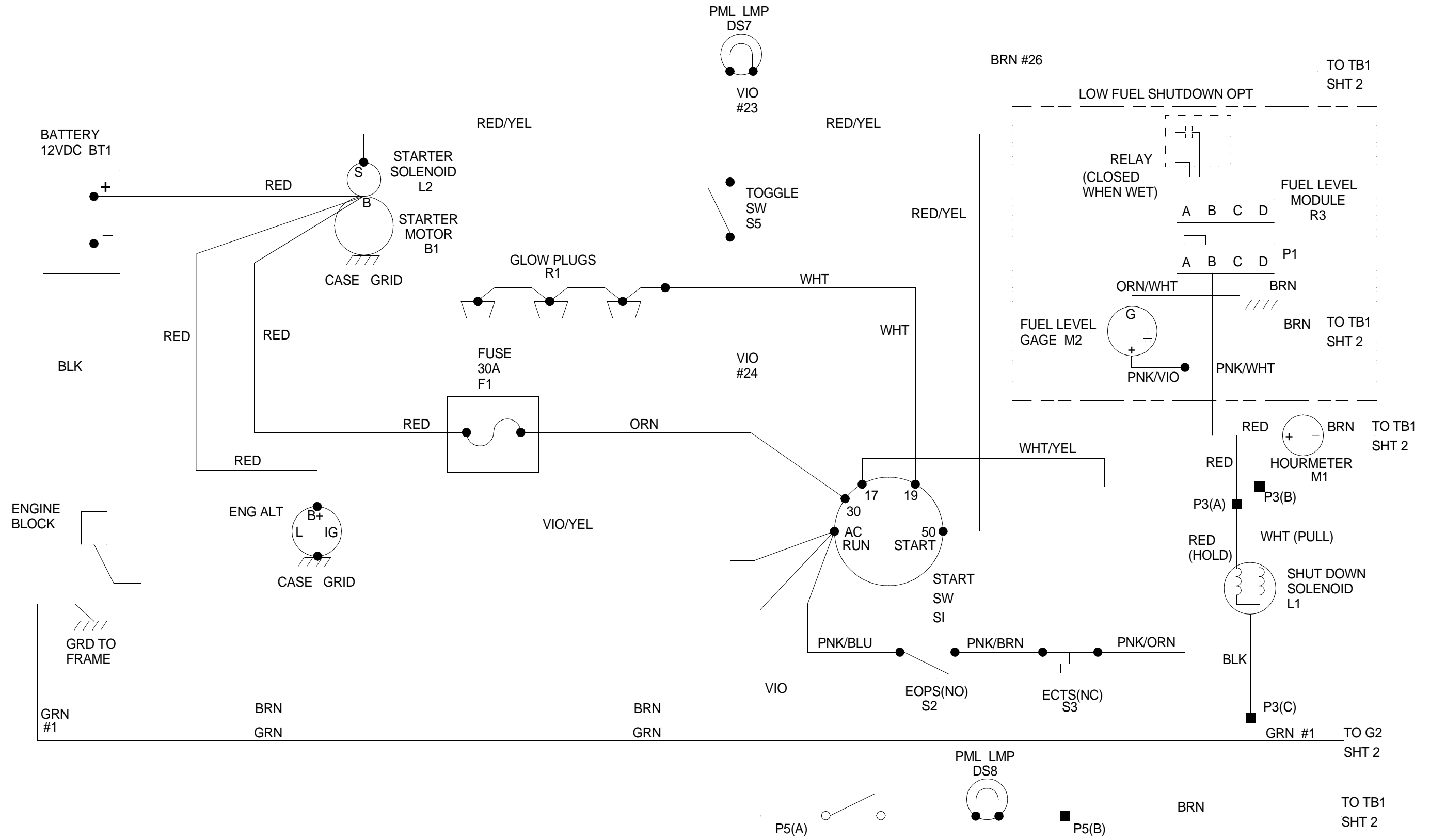


Figure 3. MCS Light Tower Wiring Diagram (Sheet 1).

AC DIAGRAM 6KW

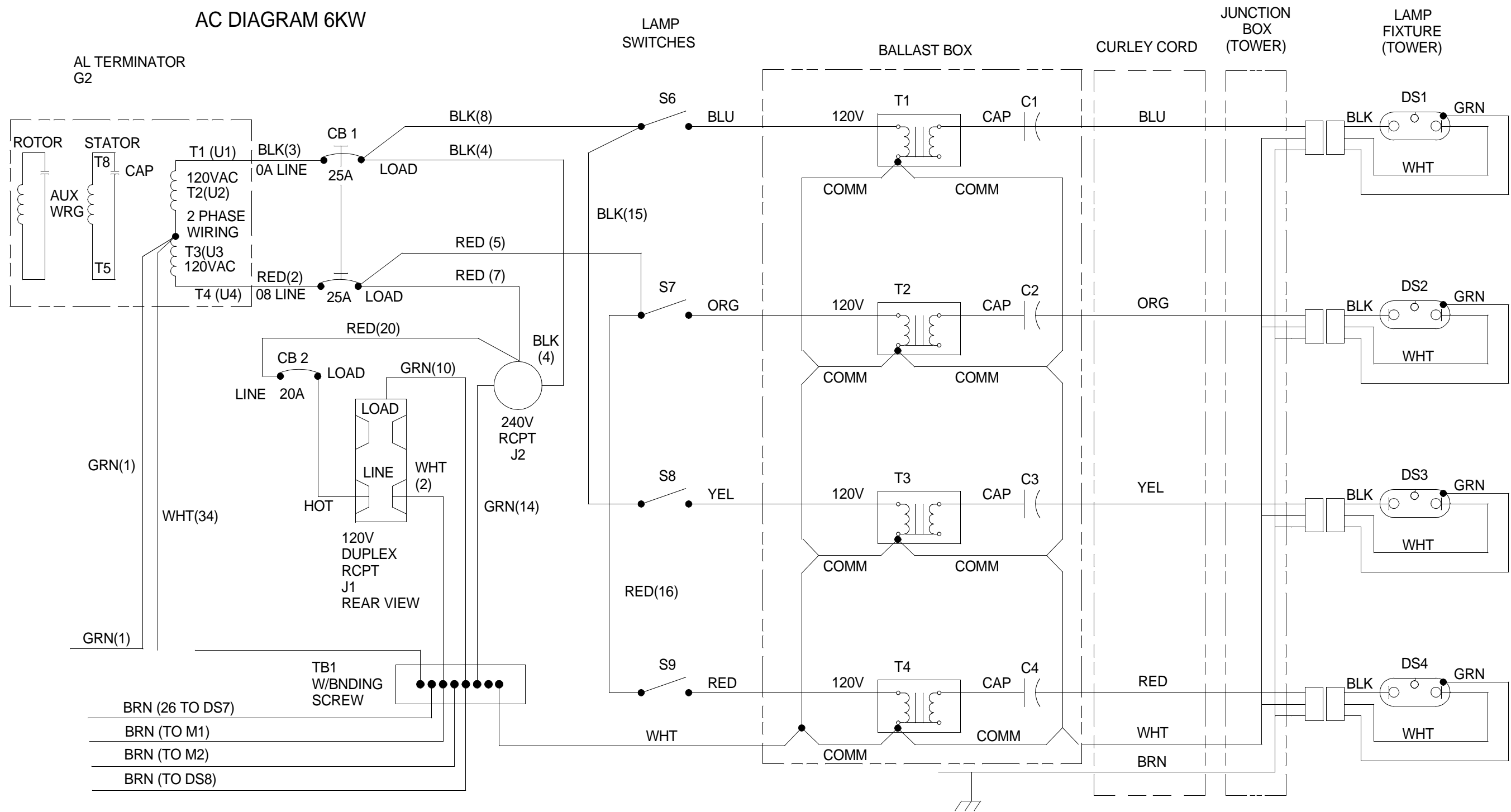


Figure 3. MCS Light Tower Wiring Diagram (Sheet 2).

L6A WIRING DIAGRAM PARTS LIST

<u>DESIGNATOR</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
BT1	35839497	12 VOLT BATTERY
F1	36786259	30 AMP Fuse
S1	36786457	Start Switch
S2	36757581	Engine Oil Press. Switch
S3	36868479	Engine Temp. Switch
S4	35337435	Toggle Switch
M1	35605229	Hourmeter
R1	Supplied w/Engine	Glow Plugs
L1	Supplied w/Engine	Shutdown Solenoid
L2	Supplied w/Engine	Starter Solenoid
M2	35604099	Gage, Fuel Level
DS1-DS6	36847747	Metal Halide Lamp
DS1-DS4	36766837	High Press. Sodium Lamp
DS7	36843852	Panel Lamp
DS8	36844066	Reel Lamp
R3	36789931	Module, Fuel Level
G2	336868966	Generator-6Kw
CB1	36780278	(6Kw) Main Circuit Breaker
CB2-CB3	35371772	120V Receptacle Breaker
S6-S9	35337435	Lamp Switch
J1-J2	36848745	125 Volt Receptacle
J3	36848752	250 Volt Receptacle
-----	36848349-1000 watt	Kit, Ballast, MH or HPS
TB1	36787265	Bus Bar

Figure 3. MCS Light Tower Wiring Diagram (Sheet 3).

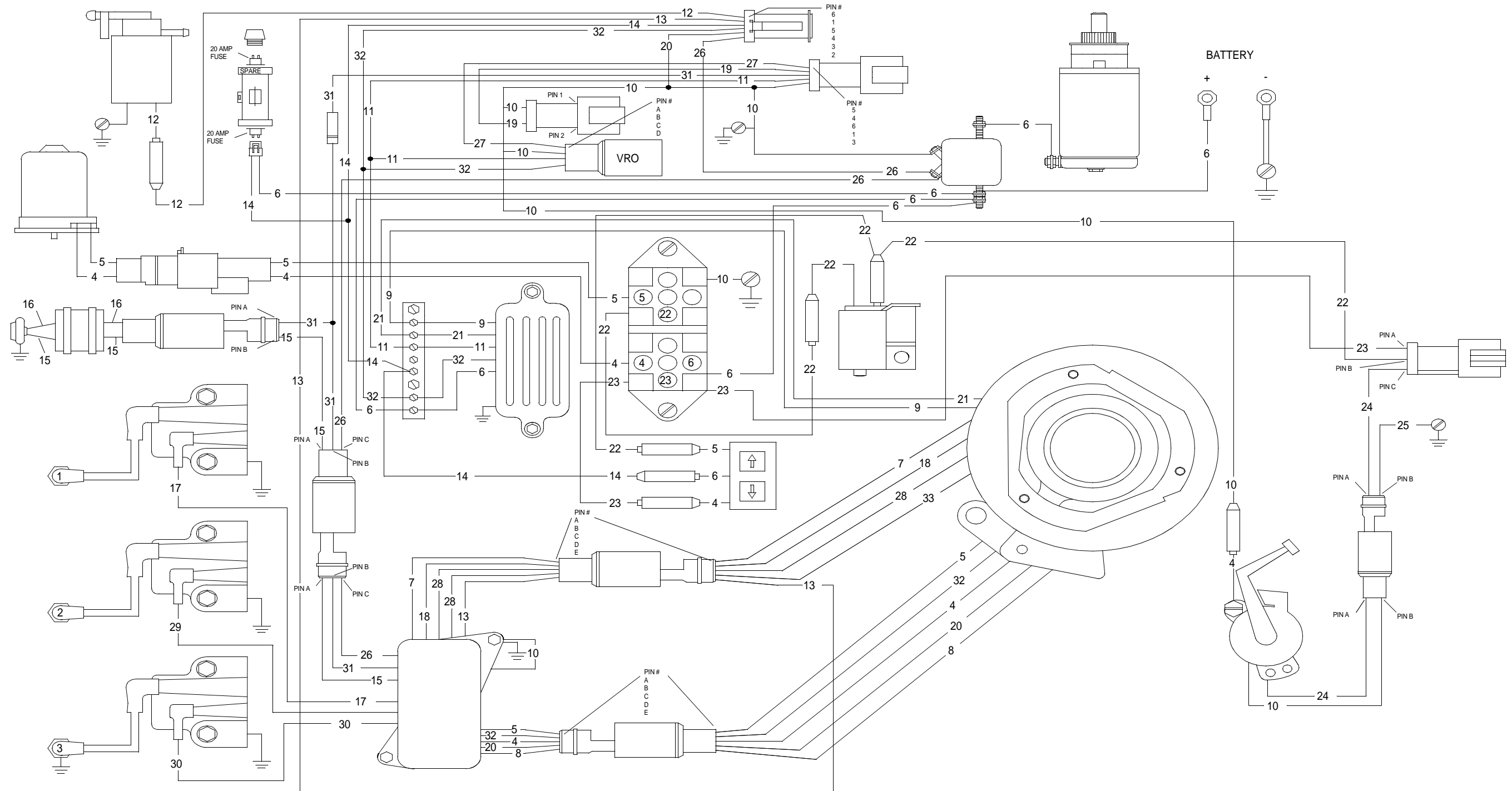


Figure 4.MCS Rigid Hull Inflatable Boat Wiring Diagram (Sheet 1)

WIRING NUMBER CODE

- 4 GREEN
- 5 BLUE
- 6 RED
- 7 BROWN
- 8 WHITE
- 9 YELLOW
- 10 BLACK
- 11 GRAY
- 12 PURPLE/WHITE
- 13 BLACK/YELLOW
- 14 RED/PURPLE
- 15 WHITE/BLACK
- 16 TAN/BLUE
- 17 ORANGE/BLUE
- 18 BROWN/YELLOW
- 19 TAN/BLACK
- 20 BLACK/WHITE
- 21 YELLOW/GRAY
- 22 BLUE/WHITE
- 23 GREEN/WHITE
- 24 WHITE/TAN
- 25 BLACK/TAN
- 26 YELLOW/RED
- 27 TAN/YELLOW
- 28 ORANGE
- 29 ORANGE/PURPLE
- 30 ORANGE/GREEN
- 31 TAN
- 32 PURPLE
- 33 ORANGE/BLACK

Figure 4. MCS Rigid Hull Inflatable Boat Wiring Diagram (Sheet 2).

These are the instructions for sending an electronic 2028.

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17 and 27.

From: "Whoever" whoever@avma27.army.mil
To: whoever@avma27.army.mil
To: TACOM-TECH-PUBS@ria.army.mil

Subject:DA Form 2028

1. **From:** Joe Smith
2. **Unit:** home
3. **Address:** 4300 Park
4. **City:** Hometown
5. **St:** MO
6. **Zip:** 77777
7. **Date Sent:** 19-OCT-93
8. **Pub no:** 55-1915-200-10
9. **Pub Title:** TM
10. **Publication Date:** 11-APR-88
11. **Change Number:** 12
12. **Submitter Rank:** MSG
13. **Submitter Fname:** Joe
14. **Submitter Mname:** T
15. **Submitter Lname:** Smith
16. **Submitter Phone:** 123-123-1234
17. **Problem:** 1
18. **Page:** 1
19. **Paragraph:** 3
20. **Line:** 4
21. **NSN:** 5
22. **Reference:** 6
23. **Figure:** 7
24. **Table:** 8
25. **Item:** 9
26. **Total:** 123
27. **Text:**

This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS <small>For use of this form, see AF 25-32; the proponent agency is DAASA</small>						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: <i>(Forward to proponent of publication or form) (Include ZIP Code)</i>						FROM: <i>(Activity and location) (Include ZIP Code)</i>	
PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER						DATE	TITLE
ITEM	PAGE	PARA- GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON	
<small>* Reference to line numbers within the paragraph or subparagraph.</small>							
TYPED NAME, GRADE OR TITLE						TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

TO: <i>(Forward direct to addressee listed in publication)</i>			FROM: <i>(Activity and location) (Include ZIP Code)</i>				DATE	
PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS								
PUBLICATION NUMBER				DATE			TITLE	
PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
PART III - REMARKS <i>(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)</i>								
TYPED NAME, GRADE OR TITLE				TELEPHONE EXCHANGE/AUTOVON. PLUS EXTENSION			SIGNATURE	

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army

0207002

To be distributed in accordance with the Initial Distribution Number (IDN) 256409 requirements for TM 55-1945-205-24-2.

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	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	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)

°F Fahrenheit
temperature

5/9 (after
subtracting 32)

Celsius
temperature

°C

