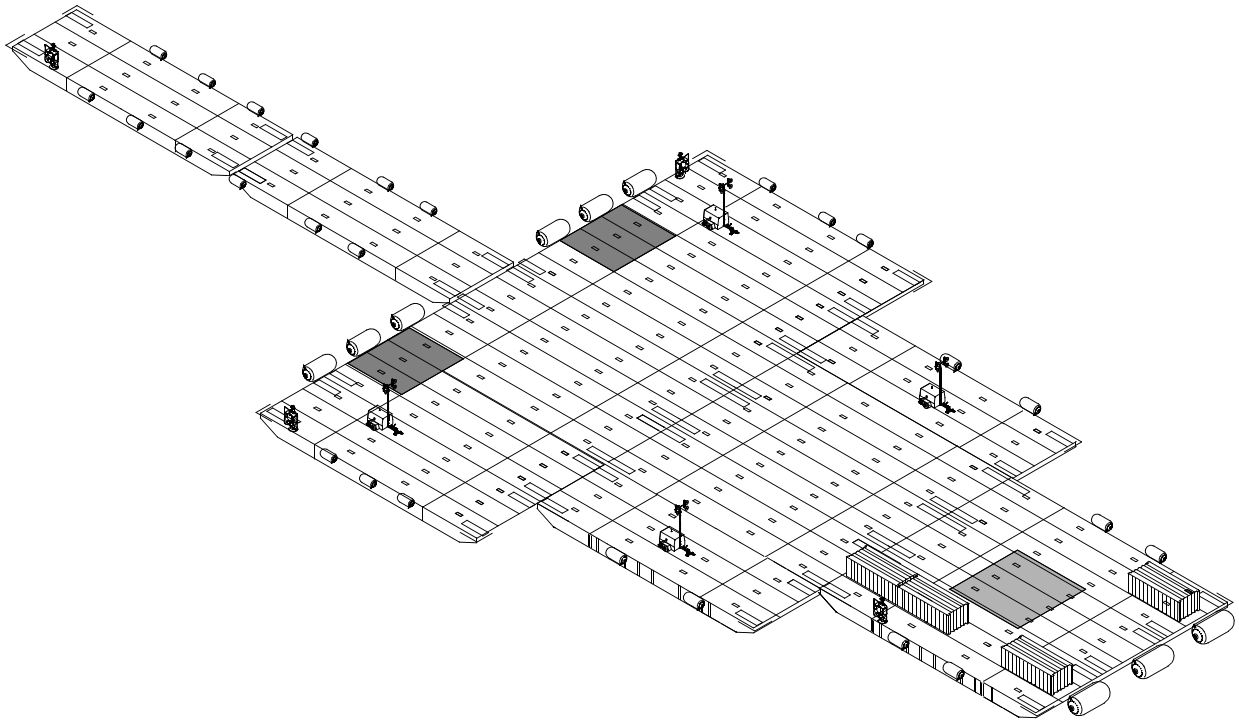


TM 55-1945-216-24

TECHNICAL MANUAL

UNIT, DIRECT SUPPORT AND GENERAL SUPPORT
MAINTENANCE MANUAL
FOR

MODULAR CAUSEWAY SYSTEM (MCS) ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF) NSN 1945-01-497-7059



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

HEADQUARTERS, DEPARTMENT OF THE ARMY
JUNE 2004

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to personnel. Also included are explanations of safety and hazardous materials icons used within the technical manual.

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.

TORQUE VALUES

For torque not specified in an individual work package, refer to the Torque Limits Work Package located in the General Maintenance Section of this manual. Failure to tighten fasteners to specified torque may result in damage to equipment and death or injury to personnel.

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 Thorough 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.

WARNING SUMMARY - CONTINUED

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.

WELDING OR GRINDING

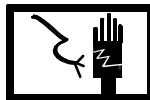
Personnel must use a gas-free meter before performing module repair that requires welding or grinding.

EXPLANATION OF 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.



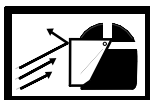
FALLING PARTS

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.

EXPLANATION OF SAFETY WARNING ICONS - CONTINUED



HEAVY PARTS

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



HEAVY PARTS

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



HEAVY PARTS

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.



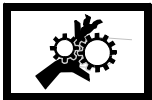
HELMET PROTECTION

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



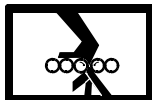
HOT AREA

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.

EXPLANATION OF SAFETY WARNING ICONS - CONTINUED



SHARP OBJECT

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



SHARP OBJECT

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



SLICK FLOOR

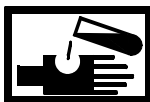
SLICK FLOOR - Wavy line on floor with legs prone shows that slick floor presents a danger for falling.



VEST

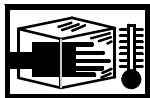
VEST - Life preserver on human figure shows life preserver must be worn to prevent drowning.

EXPLANATION OF 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.

LIST OF EFFECTIVE PAGES / WORK PACKAGES

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

Original

1 JUNE 2004

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 44 AND TOTAL NUMBER OF WORK PACKAGES IS 149 CONSISTING OF THE FOLLOWING:

Page / WP No.	*Change No.	Page / WP No.	*Change No.
Front Cover (2 pgs)	0	WP 0035 00 (6 pgs)	0
Warning Summary (a-f pgs)	0	WP 0036 00 (10 pgs)	0
List of Effective Pages (A-B pgs)	0	WP 0037 00 (2 pgs)	0
Title Block Page (2 pgs)	0	WP 0038 00 (6 pgs)	0
Table of Contents (i-iv pgs)	0	WP 0039 00 (6 pgs)	0
How to Use This Manual (v-vi pgs)	0	WP 0040 00 (2 pgs)	0
WP 0001 00 (4 pgs)	0	WP 0041 00 (2 pgs)	0
Chp 1 title page	0	WP 0042 00 (2 pgs)	0
WP 0002 00 (4 pgs)	0	WP 0043 00 (4 pgs)	0
WP 0003 00 (20 pgs)	0	WP 0044 00 (4 pgs)	0
WP 0004 00 (6 pgs)	0	WP 0045 00 (2 pgs)	0
WP 0005 00 (2 pgs)	0	WP 0046 00 (2 pgs)	0
Chp 2 title page	0	WP 0047 00 (2 pgs)	0
WP 0006 00 (2 pgs)	0	WP 0048 00 (2 pgs)	0
WP 0007 00 (2 pgs)	0	WP 0049 00 (2 pgs)	0
WP 0008 00 (2 pgs)	0	WP 0050 00 (2 pgs)	0
WP 0009 00 (2 pgs)	0	WP 0051 00 (2 pgs)	0
WP 0010 00 (2 pgs)	0	WP 0052 00 (2 pgs)	0
WP 0011 00 (2 pgs)	0	WP 0053 00 (4 pgs)	0
WP 0012 00 (2 pgs)	0	WP 0054 00 (2 pgs)	0
WP 0013 00 (2 pgs)	0	WP 0055 00 (2 pgs)	0
WP 0014 00 (2 pgs)	0	WP 0056 00 (2 pgs)	0
WP 0015 00 (2 pgs)	0	WP 0057 00 (2 pgs)	0
WP 0016 00 (2 pgs)	0	WP 0058 00 (2 pgs)	0
WP 0017 00 (2 pgs)	0	WP 0059 00 (2 pgs)	0
WP 0018 00 (2 pgs)	0	WP 0060 00 (2 pgs)	0
WP 0019 00 (2 pgs)	0	WP 0061 00 (2 pgs)	0
WP 0020 00 (2 pgs)	0	WP 0062 00 (2 pgs)	0
WP 0021 00 (2 pgs)	0	WP 0063 00 (2 pgs)	0
WP 0022 00 (2 pgs)	0	WP 0064 00 (2 pgs)	0
WP 0023 00 (2 pgs)	0	WP 0065 00 (2 pgs)	0
Chp 3 title page	0	WP 0066 00 (2 pgs)	0
WP 0024 00 (6 pgs)	0	WP 0067 00 (2 pgs)	0
WP 0025 00 (6 pgs)	0	WP 0068 00 (2 pgs)	0
WP 0026 00 (6 pgs)	0	WP 0069 00 (4 pgs)	0
WP 0027 00 (6 pgs)	0	WP 0070 00 (4 pgs)	0
WP 0028 00 (8 pgs)	0	WP 0071 00 (2 pgs)	0
WP 0029 00 (2 pgs)	0	WP 0072 00 (2 pgs)	0
WP 0030 00 (4 pgs)	0	WP 0073 00 (2 pgs)	0
WP 0031 00 (6 pgs)	0	WP 0074 00 (2 pgs)	0
WP 0032 00 (2 pgs)	0	WP 0075 00 (4 pgs)	0
WP 0033 00 (2 pgs)	0	WP 0076 00 (2 pgs)	0
WP 0034 00 (6 pgs)	0	WP 0077 00 (2 pgs)	0

Page / WP No.	*Change No.	Page / WP No.	*Change No.
WP 0078 00 (4 pgs)	0	WP 0128 00 (2 pgs)	0
WP 0079 00 (4 pgs)	0	WP 0129 00 (2 pgs)	0
WP 0080 00 (6 pgs)	0	WP 0130 00 (2 pgs)	0
WP 0081 00 (4 pgs)	0	WP 0131 00 (2 pgs)	0
WP 0082 00 (4 pgs)	0	WP 0132 00 (2 pgs)	0
WP 0083 00 (4 pgs)	0	WP 0133 00 (2 pgs)	0
WP 0084 00 (2 pgs)	0	WP 0134 00 (2 pgs)	0
WP 0085 00 (4 pgs)	0	WP 0135 00 (2 pgs)	0
WP 0086 00 (4 pgs)	0	WP 0136 00 (2 pgs)	0
WP 0087 00 (6 pgs)	0	WP 0137 00 (4 pgs)	0
WP 0088 00 (4 pgs)	0	WP 0138 00 (4 pgs)	0
WP 0089 00 (2 pgs)	0	WP 0139 00 (4 pgs)	0
WP 0090 00 (2 pgs)	0	WP 0140 00 (2 pgs)	0
WP 0091 00 (4 pgs)	0	WP 0141 00 (2 pgs)	0
WP 0092 00 (4 pgs)	0	WP 0142 00 (2 pgs)	0
WP 0093 00 (4 pgs)	0	WP 0143 00 (6 pgs)	0
WP 0094 00 (4 pgs)	0	WP 0144 00 (2 pgs)	0
WP 0095 00 (6 pgs)	0	Chp 4 title page	0
WP 0096 00 (6 pgs)	0	WP 0145 00 (4 pgs)	0
WP 0097 00 (2 pgs)	0	WP 0146 00 (4 pgs)	0
WP 0098 00 (2 pgs)	0	WP 0147 00 (26 pgs)	0
WP 0099 00 (4 pgs)	0	WP 0148 00 (4 pgs)	0
WP 0100 00 (4 pgs)	0	WP 0149 00 (4 pgs)	0
WP 0101 00 (6 pgs)	0	INDEX -1 - INDEX - 6 (6 pgs)	0
WP 0102 00 (4 pgs)	0	FO-1 - FO-6 (6 pgs)	0
WP 0103 00 (2 pgs)	0		
WP 0104 00 (2 pgs)	0		
WP 0105 00 (2 pgs)	0		
WP 0106 00 (2 pgs)	0		
WP 0107 00 (2 pgs)	0		
WP 0108 00 (4 pgs)	0		
WP 0109 00 (2 pgs)	0		
WP 0110 00 (2 pgs)	0		
WP 0111 00 (2 pgs)	0		
WP 0112 00 (2 pgs)	0		
WP 0113 00 (2 pgs)	0		
WP 0114 00 (2 pgs)	0		
WP 0115 00 (2 pgs)	0		
WP 0116 00 (2 pgs)	0		
WP 0117 00 (2 pgs)	0		
WP 0118 00 (2 pgs)	0		
WP 0119 00 (2 pgs)	0		
WP 0120 00 (2 pgs)	0		
WP 0121 00 (2 pgs)	0		
WP 0122 00 (2 pgs)	0		
WP 0123 00 (2 pgs)	0		
WP 0124 00 (4 pgs)	0		
WP 0125 00 (2 pgs)	0		
WP 0126 00 (2 pgs)	0		
WP 0127 00 (2 pgs)	0		

* Zero in this column indicates an original page.

TECHNICAL MANUAL

**UNIT, DIRECT SUPPORT AND
GENERAL SUPPORT MAINTENANCE MANUAL
FOR**

**MODULAR CAUSEWAY SYSTEM (MCS)
ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF)
NSN 1945-01-497-7059**

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 (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. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or email your letter or DA Form 2028 direct to: AMSTA-LC-CI / TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

TABLE OF CONTENTS
WP Sequence No.**WARNING SUMMARY****HOW TO USE THIS MANUAL**

General Information	0001 00
CHAPTER 1 - DESCRIPTION AND THEORY OF OPERATION	
Equipment Characteristics, Capabilities and Features	0002 00
Location and Description of Major Components	0003 00
Equipment Data	0004 00
Theory of Operation	0005 00
CHAPTER 2 - TROUBLESHOOTING PROCEDURES	
Troubleshooting Procedures Index.....	0006 00
Tactical Quiet Generator Malfunctions.....	0007 00
Electric Fuel Transfer Pump Inoperative	0008 00
Fuel Tank Signal Box Warning Light Inoperative.....	0009 00
Fire Suppression System Inoperative	0010 00
Fluorescent Lights Do Not Operate.....	0011 00
Air Conditioner and Heat Pump Malfunctions.....	0012 00
Incinerator Toilet Malfunctions.....	0013 00
Personnel Shelter, Fluorescent Lights Do Not Operate.....	0014 00
Light Tower Malfunctions.....	0015 00
Light Tower Engine Malfunctions	0016 00
Rigid Hull Inflatable Boat (RHIB) Malfunctions.....	0017 00
Rigid Hull Inflatable Boat (RHIB) Outboard Motor Malfunctions.....	0018 00
VHF/FM Handheld Transceiver Has No Power	0019 00
VHF/FM Handheld Transceiver Does Not Receive.....	0020 00
VHF/FM Handheld Transceiver Does Not Transmit	0021 00
EASY Container Anchor Slide Will Not Raise or Lower.....	0022 00
EASY Container Anchor Drawer Will Not Deploy	0023 00
CHAPTER 3 - MAINTENANCE INSTRUCTIONS	
Service Upon Receipt of Materiel	0024 00
Preventive Maintenance Checks and Services (PMCS) Procedures Introduction	0025 00
Preventive Maintenance Checks and Services (PMCS) and Lubrication Procedures.....	0026 00
Intermediate Section Non-Powered Modules, Service.....	0027 00
Intermediate Section Non-Powered Modules, Pressure Test	0028 00
Intermediate Section Non-Powered Modules, Marine Growth Removal	0029 00
Intermediate Section Non-Powered Modules, Cleaning and Painting	0030 00
Intermediate Section Non-Powered Modules Male and Female Guillotine Connectors, Repair, Lubrication and Adjustment	0031 00
Intermediate Section Flexor, Replacement.....	0032 00
Intermediate Section Flexor Well Chute Bolt Cover, Replacement.....	0033 00
Intermediate Section Flexor Well Chute Bolt, Replacement	0034 00
Combination Beach/Sea End Section Non-Powered Modules, Inspection for Water.....	0035 00
Combination Beach/Sea End Section Non-Powered Modules, Pressure Test	0036 00
Combination Beach/Sea End Section Non-Powered Modules, Marine Growth Removal	0037 00
Combination Beach/Sea End Section Non-Powered Modules, Cleaning and Painting	0038 00

TABLE OF CONTENTS

WP Sequence No.

CHAPTER 3 - MAINTENANCE INSTRUCTIONS (CONT'D)

Combination Beach/Sea End Section Non-Powered Modules Male and Female Guillotine Connectors, Repair, Lubrication and Adjustment.....	0039 00
Combination Beach/Sea End Section Flexor, Replacement.....	0040 00
Combination Beach/Sea End Section Flexor Well Chute Bolt Cover, Replacement.....	0041 00
Combination Beach/Sea End Section Flexor Well Chute Bolt, Replacement	0042 00
Light Tower, Removal and Installation.....	0043 00
Quick Release and Mooring Assembly, Repair	0044 00
Hand Lantern Incandescent Bulb, Replacement	0045 00
Anchor Light Incandescent Bulb, Replacement.....	0046 00
Life Ring Strobe Light Battery, Replacement.....	0047 00
BII Flexor Receiver Insert, Repair	0048 00
BII Flexor Receiver Insert Lifting Device Assembly, Repair.....	0049 00
Towing Bridle, Repair.....	0050 00
Generator Container Hand Lantern Mounting Bracket, Replacement	0051 00
Generator Container Steps, Removal and Installation	0052 00
Generator Container Shore Tie Female Electrical Connector, Replacement	0053 00
Generator Container Hospital Grade Straight Blade Electrical Receptacle, Replacement ...	0054 00
Generator Container Outlet Box, Replacement.....	0055 00
Generator Container Shore Tie Penetration Hinged Cover, Replacement.....	0056 00
Generator Container Exterior Door Lockset, Replacement	0057 00
Generator Container Exterior Door, Replacement.....	0058 00
Generator Container Exterior Door Dogs, Replacement.....	0059 00
Generator Container Exterior Door Window, Replacement	0060 00
Generator Container Electrical Distribution Panel Access Cover, Removal and Installation.....	0061 00
Generator Container Electrical Distribution Panel Single Pole Circuit Breaker, Replacement.....	0062 00
Generator Container Fuel Tank Signal Box Transformer, Replacement	0063 00
Generator Container Fuel Tank Signal Box Fuse, Replacement.....	0064 00
Generator Container Fuel Tank Signal Box Relay, Replacement.....	0065 00
Generator Container Fuel Tank Signal Box Light Assembly, Replacement.....	0066 00
Generator Container Fuel Tank Signal Box Lamp, Replacement.....	0067 00
Generator Container Fuel Tank Level Sensor, Replacement	0068 00
Generator Container Rotary Brass Light Switch, Replacement.....	0069 00
Generator Container Fluorescent Light Fixture, Replacement.....	0070 00
Generator Container Incandescent Light Fixture, Replacement	0071 00
Generator Container Hand Operated Transfer Pump, Replacement	0072 00
Generator Container Damper Louvers, Cleaning.....	0073 00
Generator Container Air Inlet Duct, Removal and Installation.....	0074 00
Generator Container Damper Assembly, Replacement.....	0075 00
Generator Container Damper Assembly Actuator, Replacement.....	0076 00
Generator Container Disconnect Box Fuses, Replacement.....	0077 00
EASY Container Hydraulic System, Servicing.....	0078 00
EASY Anchor Buoy, Replacement	0079 00
EASY Anchor, Removal and Installation	0080 00
EASY Anchor Drawer, Replacement.....	0081 00
EASY Drawer Hydraulic Hand Pump, Replacement.....	0082 00
EASY Slide Hydraulic Hand Pump, Replacement.....	0083 00
EASY Slide Hydraulic Tubing Protective Cover, Replacement	0084 00

TABLE OF CONTENTS

WP Sequence No.

CHAPTER 3 - MAINTENANCE INSTRUCTIONS (CONT'D)

EASY Slide Cylinder To Metal Tube Hydraulic Hose, Replacement	0085 00
EASY Slide Hydraulic Hose From Metal Tube to Bulkhead Adaptor, Replacement.....	0086 00
EASY Lift Hydraulic Metal Tube From Slide Hydraulic Hand Pump To Bulkhead Adaptor, Replacement.....	0087 00
EASY Metal Tube Between Slide Hydraulic Cylinder Hoses, Replacement	0088 00
EASY Drawer Hydraulic System, Pressure Venting	0089 00
EASY Drawer Hydraulic Tubing Protective Cover, Replacement	0090 00
EASY Drawer Pressure Hydraulic Metal Tube, Replacement.....	0091 00
EASY Drawer Pressure Hydraulic Hose, Replacement	0092 00
EASY Drawer Return Hydraulic Metal Tube, Replacement	0093 00
EASY Drawer Return Hydraulic Hose, Replacement.....	0094 00
EASY Drawer Hydraulic Cylinder, Replacement.....	0095 00
EASY Slide Hydraulic Cylinder, Replacement.....	0096 00
EASY Drawer Hydraulic System, Bleeding	0097 00
EASY Slide Hydraulic System, Bleeding	0098 00
EASY Anchor, Repair	0099 00
EASY Mooring Buoy, Replacement	0100 00
EASY Mooring System, Repair	0101 00
EASY Anchor Drawer Wheel, Replacement	0102 00
Personnel Shelter Benches, Removal and Installation	0103 00
Personnel Shelter Bench Seats, Replacement	0104 00
Personnel Shelter Table, Removal and Installation.....	0105 00
Personnel Shelter Tabletop, Replacement.....	0106 00
Personnel Shelter Shore Tie Penetration Hinged Cover, Replacement.....	0107 00
Personnel Shelter Shore Tie Female Electrical Connector, Replacement.....	0108 00
Personnel Shelter Exterior Door, Replacement.....	0109 00
Personnel Shelter Exterior Door Dogs, Replacement	0110 00
Personnel Shelter Exterior Door Window, Replacement	0111 00
Personnel Shelter Incinerator Toilet Exhaust Flexible Coupling, Replacement	0112 00
Personnel Shelter Vent Fan, Cleaning and Inspection	0113 00
Personnel Shelter Vent Fan, Replacement	0114 00
Personnel Shelter Electrical Distribution Panel Access Cover, Removal and Installation	0115 00
Personnel Shelter Electrical Distribution Panel Three Pole Circuit Breaker, Replacement ..	0116 00
Personnel Shelter Electrical Distribution Panel Two Pole Circuit Breaker, Replacement	0117 00
Personnel Shelter Electrical Distribution Panel Single Pole Circuit Breaker, Replacement .	0118 00
Personnel Shelter Fluorescent Light Fixture, Replacement	0119 00
Personnel Shelter Rotary Brass Light Switch, Replacement.....	0120 00
Personnel Shelter Head Electrical Junction Box, Removal and Installation.....	0121 00
Personnel Shelter Head Fluorescent Light Fixture, Replacement.....	0122 00
Personnel Shelter Head Electrical Junction Box, Repair	0123 00
Personnel Shelter Interior Door, Replacement.....	0124 00
Personnel Shelter Coat Hangers, Replacement	0125 00
Personnel Shelter Interior Door Lockset, Replacement	0126 00
Personnel Shelter Escape Scuttle Gasket, Replacement.....	0127 00
Personnel Shelter Escape Scuttle Grab Bar, Replacement.....	0128 00
Personnel Shelter Hand Lantern Mounting Bracket, Replacement.....	0129 00
Personnel Shelter Hospital Grade Straight Blade Electrical Receptacle, Replacement	0130 00
Personnel Shelter Ground Fault Circuit Interrupter Receptacle.....	0131 00
Personnel Shelter Outlet Box, Replacement	0132 00

TABLE OF CONTENTS

WP Sequence No.

CHAPTER 3 - MAINTENANCE INSTRUCTIONS (CONT'D)

VHF/FM Handheld Transceiver Antenna, Replacement	0133 00
VHF/FM Handheld Transceiver Control Knob, Replacement.....	0134 00
VHF/FM Handheld Transceiver Rechargeable Battery Pack, Replacement.....	0135 00
VHF/FM Handheld Transceiver Alkaline Battery Pack, Replacement.....	0136 00
VHF/FM Handheld Transceiver Battery Charger, Replacement	0137 00
Corner Fender (LT & RT), Repair	0138 00
Life Ring Buoy and Hanger Bracket Assembly, Repair	0139 00
Weight Lifting Devices, Inspection.....	0140 00
Weight Lifting Devices, Testing	0141 00
Electrical Wiring, Repair.....	0142 00
Torque Limits	0143 00
Wiring Diagrams	0144 00

CHAPTER 4 - SUPPORTING INFORMATION

References	0145 00
Maintenance Allocation Chart (MAC), Introduction	0146 00
Maintenance Allocation Chart (MAC).....	0147 00
Expendable and Durable Items List (EDIL).....	0148 00
Tool Identification List (TIL).....	0149 00

INDEX

Alphabetical.....	INDEX - 1
-------------------	-----------

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 six 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 55-1945-216-24P 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 SETUP. Using the part number provided, refer to the part number index work package in TM 55-1945-216-24P. 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.

**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, Functional Users Manual for 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.

HAND RECEIPT (HR) MANUALS

This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt). TM 55-1945-216-10-HR consists of preprinted hand receipts that list end item related equipment (i.e., COEI, BII, and AAL) that must be accounted for. As an aid to property accountability, additional HR manuals may be requisitioned through normal publication channels.

CORROSION PREVENTION AND CONTROL (CPC)

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

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

OZONE DEPLETING SUBSTANCES (ODS)

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

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

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

PREPARATION FOR STORAGE OR SHIPMENT

Reference TM 55-1945-216-10 for preparation for 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
amp	Ampere
AOAP	Army Oil Analysis Program
AR	Army Regulation
ASSY	Assembly
ATDC	After Top Dead Center
BII	Basic Issue Items
BTDC	Before Top Dead Center
C	Centigrade
CAGEC	Commercial and Government Entity Code
CBSE	Combination Beach/Sea End
cm	Centimeters
CO ₂	Carbon Dioxide
COEI	Components of End Item
COTS	Commercial Off the Shelf
CPC	Corrosion Prevention Control
D	Depth
DA	Department of the Army
DA PAM	Department of the Army Pamphlet
dB	Decibels
DC	Direct Current
Deg	Degrees
EASY	Emergency Anchor System
EDIL	Expendable and Durable Items List
Email	Electronic mail
EIR	Equipment Improvement Recommendations
F	Fahrenheit
FGC	Functional Group Code
fl	Fluid
FM	Field Manual
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
hr	Hour
Hz	Hertz
in.	Inches
in. lbs	Inch Pounds
ISO	International Standards Organization
ISOPAK	International Standards Organization Package
J-LOTS	Joint-Logistics-Over-The-Shore
kg	Kilograms

LIST OF ABBREVIATIONS/ACRONYMS (CONT'D)

Abbreviation/Acronym	Name
kHz	Kilohertz
kPa	Kilopascal
kW	Kilowatt
lb	Pound
LCU	Landing Craft Utility
LED	Light Emitting Diode
LH	Left Hand
LMSR	Large Medium Speed Roll-On/Roll-Off Vessel
LOTS	Logistics-Over-The-Shore
LSV	Logistics Support Vessel
m	Meters
mA	Milliamperere
MAC	Maintenance Allocation Chart
mb	Millibar
MBT	Main Battle Tank
MCF	Modular Causeway Ferry
MCS	Modular Causeway System
MHz	Megahertz
ml	Milliliters
MOPP	Mission Oriented Protective Posture
MTBE	Methyl Tertiary Butyl Ether
MTO&E	Modified Table of Organization and Equipment
NAVMOOR	Naval Mooring
NBC	Nuclear, Biological, or Chemical
NCOIC	Noncommissioned Officer in Charge
NEMA	National Electric Manufacturers Association
NHA	Next Higher Assembly
Ni-Cd	Nickel Cadmium
N-m	Newton-Meters
NOAA	National Oceanic and Atmospheric Administration
NSN	National Stock Number
ODS	Ozone Depleting Substance
OIC	Officer in Charge
OMC	Outboard Marine Corporation
oz	Ounces
PMCS	Preventive Maintenance Checks and Services
PN	Part Number
PSI	Pounds Per Square Inch
PTT	Push To Talk
rcv	Receive
RF	Radio Frequency
RH	Right Hand
RHIB	Rigid Hull Inflatable Boat
Ro/Ro	Roll-on/Roll-off
RPM	Revolutions Per Minute
RPSTL	Repair Parts and Special Tools List
RRDF	Roll-On/Roll-Off Discharge Facility
RTCH	Rough Terrain Container Handler
SF	Standard Form
SINAD	Signal (plus) Noise And Distortion
SMR	Source, Maintenance Recoverability

LIST OF ABBREVIATIONS/ACRONYMS (CONT'D)

Abbreviation/Acronym	Name
SOLAS	Safety Of Life At Sea
SRA	Specialized Repair Activity
SS	Sea State
TACOM	United States Army Tank-Automotive and Armaments Command
TAMMS	The Army Maintenance Management System
TDC	Top Dead Center
TIL	Tools Identification List
TMDE	Test, Measurement and Diagnostic Equipment
TO&E	Table of Organization and Equipment
TQG	Tactical Quiet Generator
Tx	Transmit
US	United States
UUT	Unit Under Test
uv	Ultra Violet
V	Volt
VAC	Volts Alternating Current
VDC	Volts Direct Current
VHF/FM	Very High Frequency/Frequency Modulation
W	Width
WP	Work Package

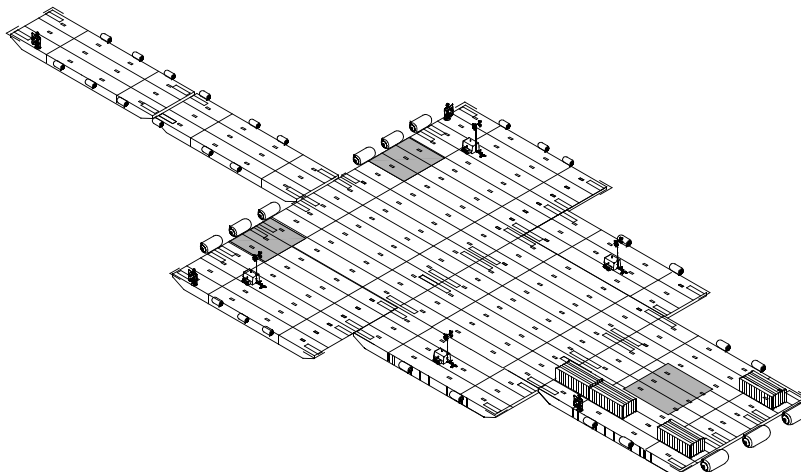
CHAPTER 1

**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
EQUIPMENT DESCRIPTION AND DATA**

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

ROLL-ON/ROLL-OFF DISCHARGE FACILITY



The RRDF is a floating discharge platform for ocean-going Roll-on/Roll-off (Ro/Ro) capable sealift vessels to allow rolling cargo to be transferred to lighters for movement ashore.

A typical RRDF consists of seventeen intermediate sections, one Combination Beach/Sea End (CBSE) section, one generator container, one personnel shelter, one Emergency Anchor System (EASY) container, four light towers and required component equipment (fendering, mooring bitts and dunnage mats).

Four different configurations of the RRDF may be assembled based upon command decision: full side, full stern, force opening side and force opening stern. The force opening configurations do not include the CBSE, generator container, personnel shelter, EASY container and light towers.

The full side and full stern configured RRDF are capable of supporting the combined weight of the following equipment while operating through Sea State 2.

- a. The side ramp or stern ramp of the Large Medium Speed Ro/Ro vessel (LMSR) with one combat loaded Main Battle Tank (MBT).
- b. Two combat loaded MBTs on the RRDF simultaneously being positioned to board two Army watercraft of the Logistics Support Vessel (LSV) or Landing Craft Utility (LCU) 2000 class. One tank will be maneuvering to board one Army watercraft while the other tank is maneuvering to board the other watercraft. The two tanks will not be simultaneously placed on any one modular causeway systems section.
- c. The ramps of two Army LSV class watercraft while conducting cargo operations.

GENERATOR CONTAINER

The generator container is mounted on the deck of the RRDF and houses a skid mounted tactical quiet 10 kW diesel generator set which provides electrical power to the personnel shelter.

The generator container is equipped with fluorescent lighting, auxiliary Direct Current (DC) lighting system, ventilation system, fire suppression system, 1,000 gallon fuel system and accessories required to support operation of the personnel shelter for 90 days.

PERSONNEL SHELTER

The personnel shelter provides a weatherproof, temperature controlled environment for personnel on the RRDF.

The personnel shelter is outfitted with fluorescent lighting, tables, benches, heating/cooling unit, communications equipment, electrical outlets, emergency lighting and a rest room with an electrically powered incinerator toilet.

LIGHTING SYSTEM

The lighting equipment is provided to illuminate the deck of the RRDF and consists of four trailer-mounted light towers.

Each light tower is self-contained with its own diesel-fueled power source capable of providing an average of 30 foot-candles of illumination over the area of six sections.

EMERGENCY ANCHOR SYSTEM

The EASY is capable of mooring the RRDF in water depths up to 60 ft and remain secured through Sea State (SS) 4 and a controlled drift in Sea State 5 conditions.

The EASY is capable of being deployed in Sea State 3 and is retrievable with the Warping Tug (WT) in Sea State 2 conditions.

RIGID HULL INFLATABLE BOAT

The Rigid Hull Inflatable Boat (RHIB) is capable of supporting eight men and is propelled by a 70 Horsepower (HP) gasoline outboard motor.

The RHIB accompanies the RRDF during transport and is stored in its own 20 ft container.

COMMUNICATION EQUIPMENT

The communication equipment consists of four Very High Frequency/Frequency Modulation (VHF/FM) handheld transceivers powered by DC batteries.

A battery charging station for the transceivers is located in the personnel shelter.

FENDERS

There are four types of cylindrical fenders authorized for use on the RRDF: 6 ft by 12 ft, 5 ft by 10 ft, 4 ft by 12 ft and 3 ft by 5 ft.

The corner fenders provide protection to the corners of the RRDF platform.

MOORING BITTS

The mooring bitts are used for securing lines from other vessels and fenders to the RRDF and are mounted in the module guillotine connectors.

DECK MATTING

The deck matting protects the deck of the RRDF under the ramps of sealift and lighter vessels without interfering with their operations and are secured to the deck with fasteners.

DECK FITTINGS

The sections of the RRDF are provided with D-ring and deck cleat fittings to meet various operational needs.

TOWING BRIDLE AND TOWING INTERFACE

The towing bridle and towing interface allow the RRDF to be stern towed by commercial and military tugs when platform relocation is required.

BASIC ISSUE ITEMS CONTAINER

The Basic Issue Items (BII) container provides RRDF personnel with all the necessary tools and equipment required to assemble, operate and maintain the RRDF and its supporting equipment.

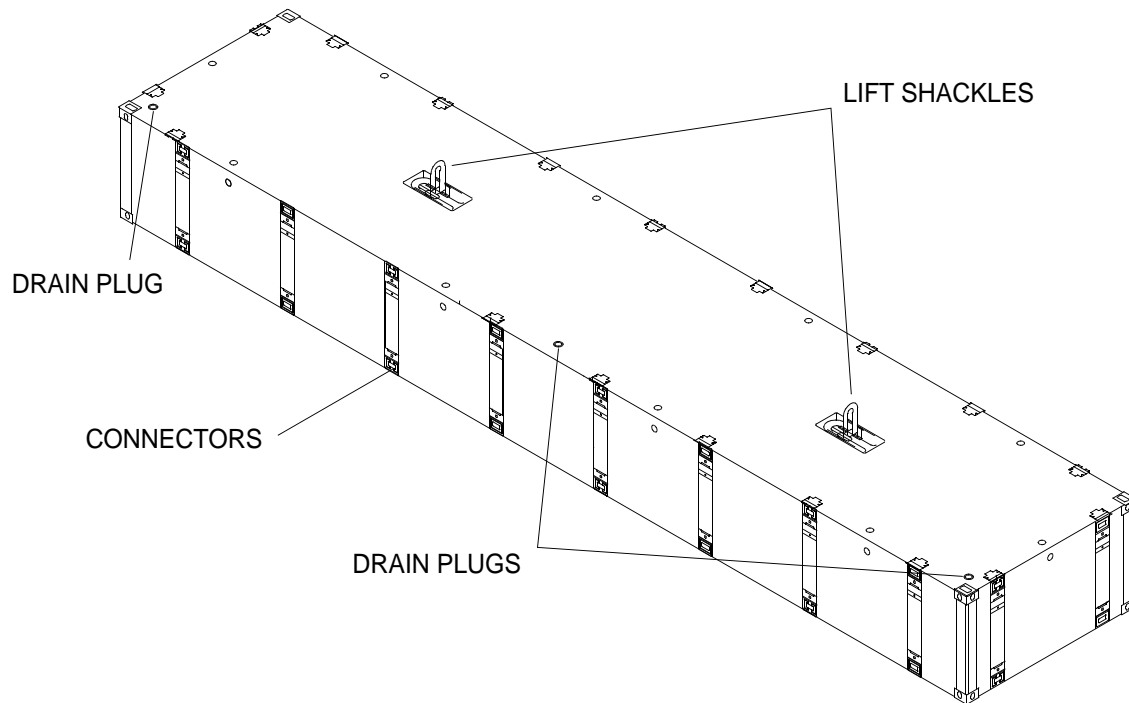
**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EQUIPMENT DESCRIPTION AND DATA**

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 a hollow structure. 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 located on the top of the module. 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.

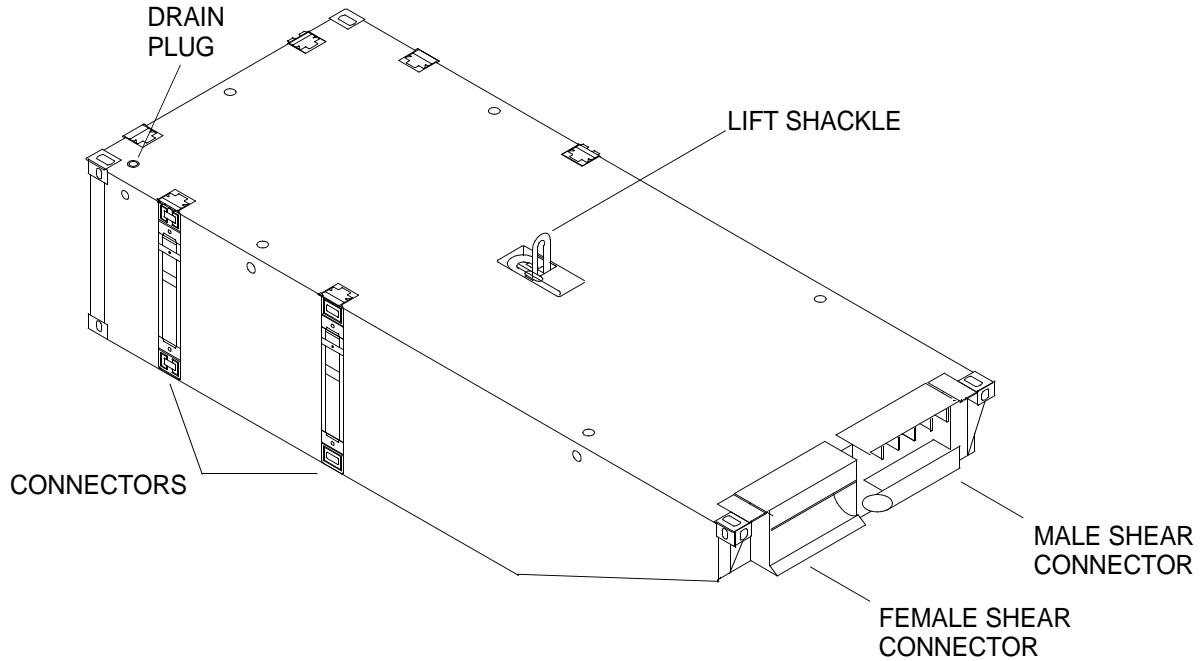


CENTER END RAKE MODULE**Location**

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

Description

The center end rake module is a hollow structure. 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 located on the top of the module.



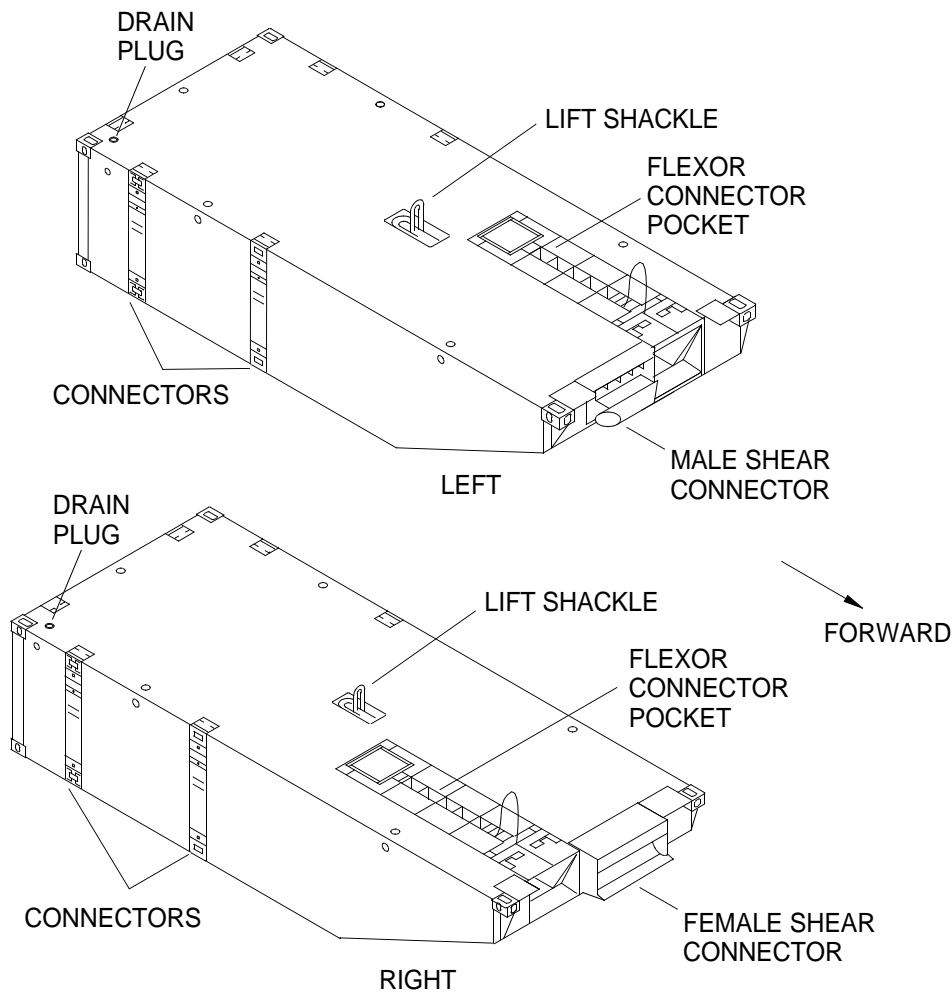
LEFT AND RIGHT END RAKE MODULES

Location

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

Description

The left and right end rake modules are hollow structures. 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 located on the top of the module. The left end rake has a flexor connector pocket for flexor connector installation in the outboard forward corner of the module. The right end rake has a flexor connector pocket for flexor connector installation in the outboard forward corner of the module. The left end rake has a male shear connector and the right end rake has a female shear connector. These are used as a mating device during assembly and act as a hinge during operation.

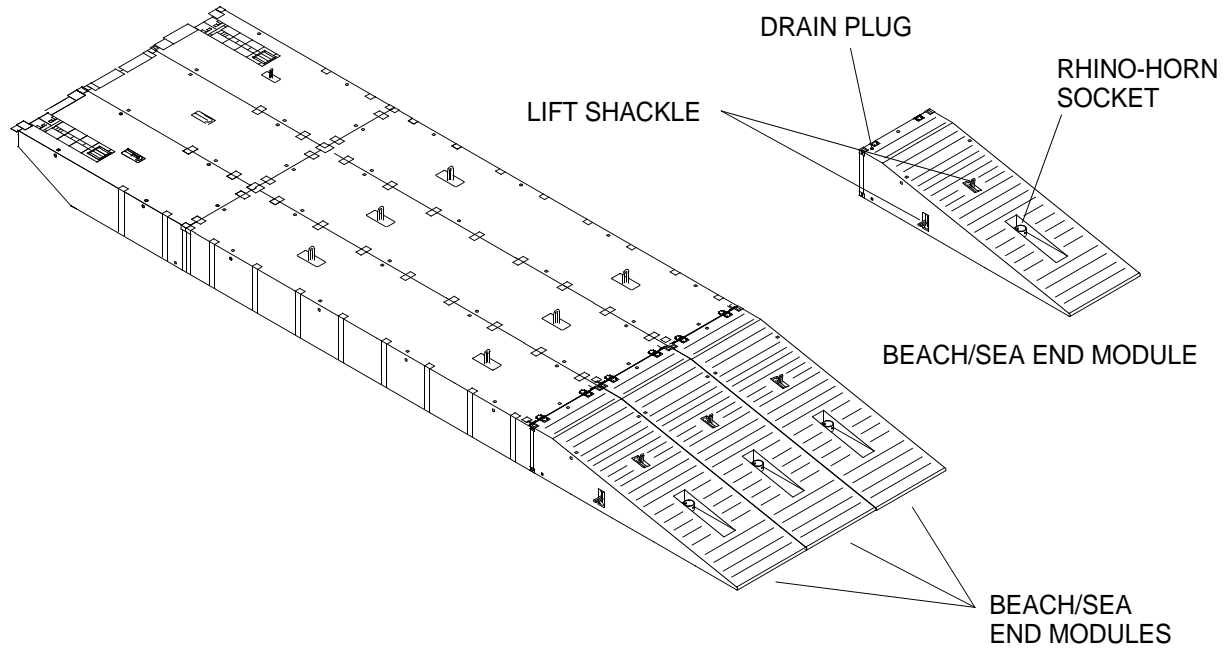


COMBINATION BEACH/SEA END MODULE**Location**

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

Description

The combination beach/sea end module is a hollow structure with a ramp slope of 10°. Each CBSE has two 25 ton lifting padeyes, which are flush mounted one per side. Access for internal leak detection of each compartment is provided by a recessed threaded plug located on the top of the module.



INTERCONNECT GUILLOTINES AND FLEXOR CONNECTORS

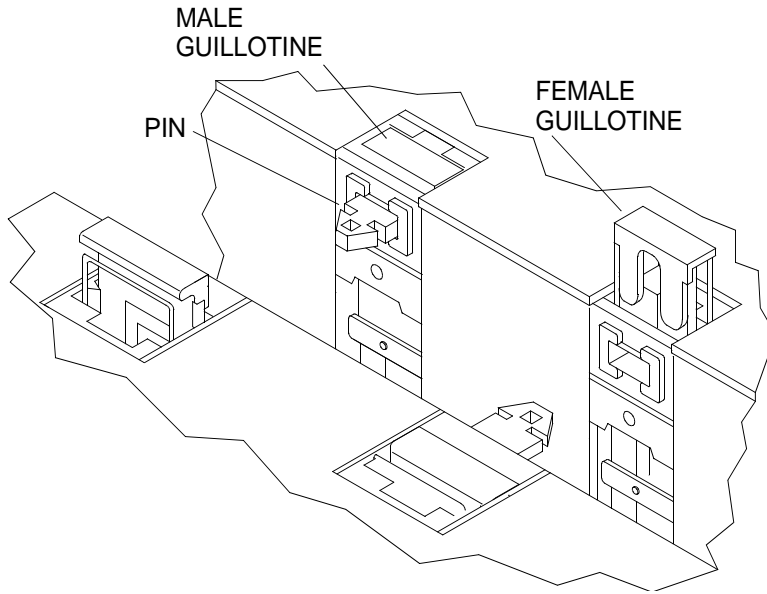
Location

The interconnect guillotines are mounted to the sides and ends of the modules.

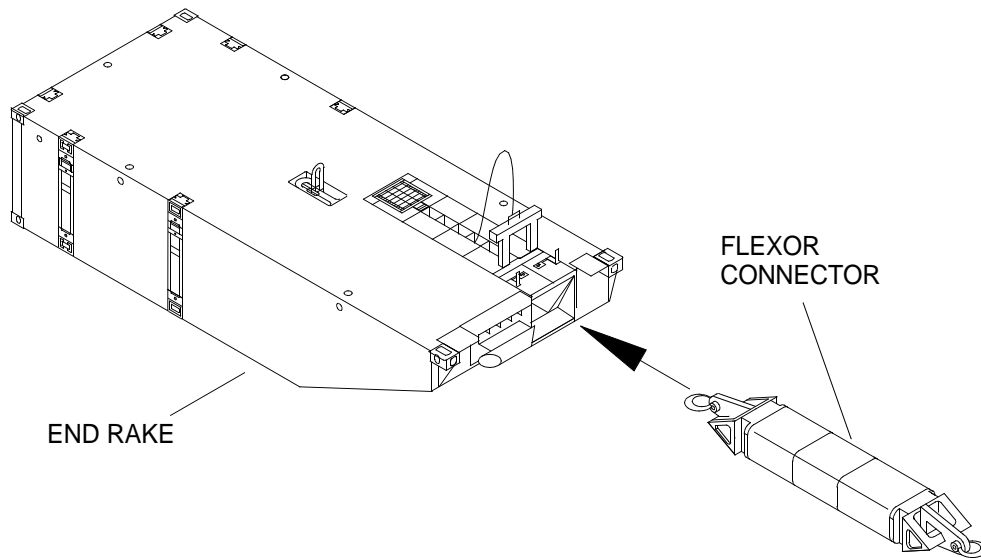
The flexor connectors are stowed in the left end rake modules.

Description

The interconnect guillotines secure the sides of modules together during assembly of the RRDF platform. The female guillotine interlocks with the male guillotine connecting pin and lock when the guillotines are flush with the deck.



The flexor connectors secure the end rake modules together during assembly of the RRDF platform.



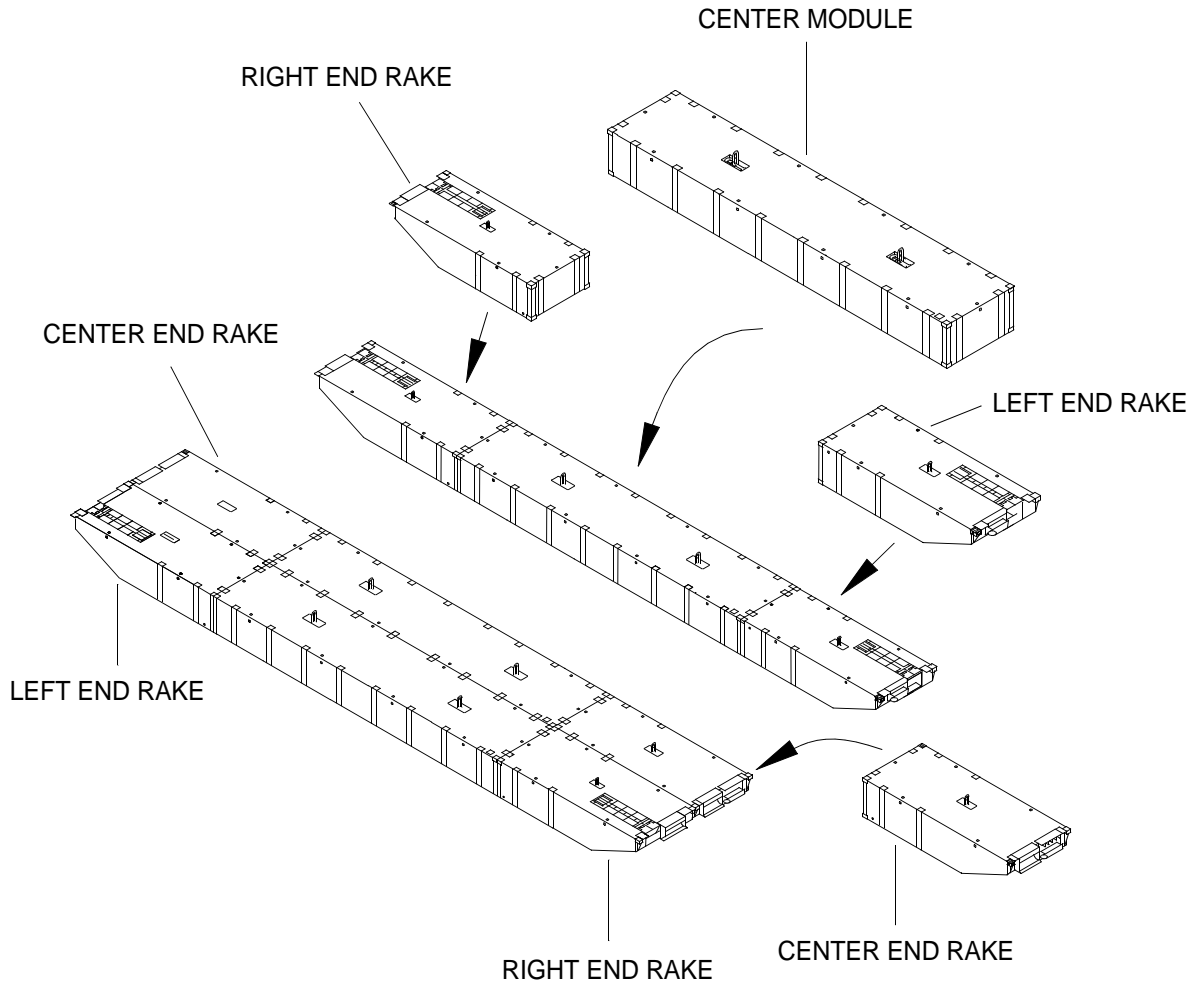
RRDF STRING

Location

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

Description

The module string may be assembled in five different configurations: a center module with two center end rake modules, a center module with one left and one right end rake module, a center module with a center end rake and a combination beach/sea end module, a center module with a left end rake and a combination beach/sea end module or a center module with a right end and a combination beach/sea end module.



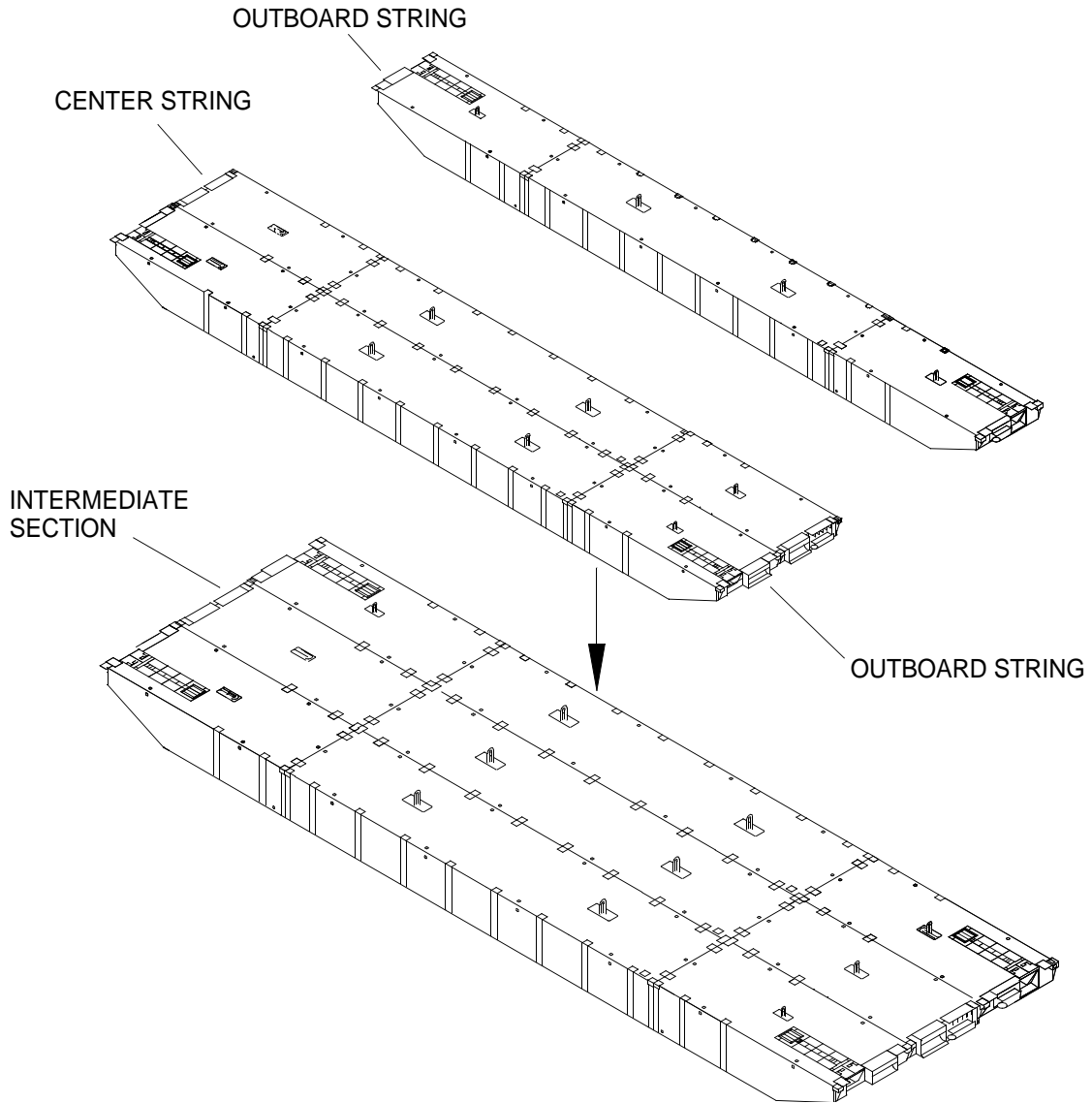
RRDF INTERMEDIATE SECTION

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.

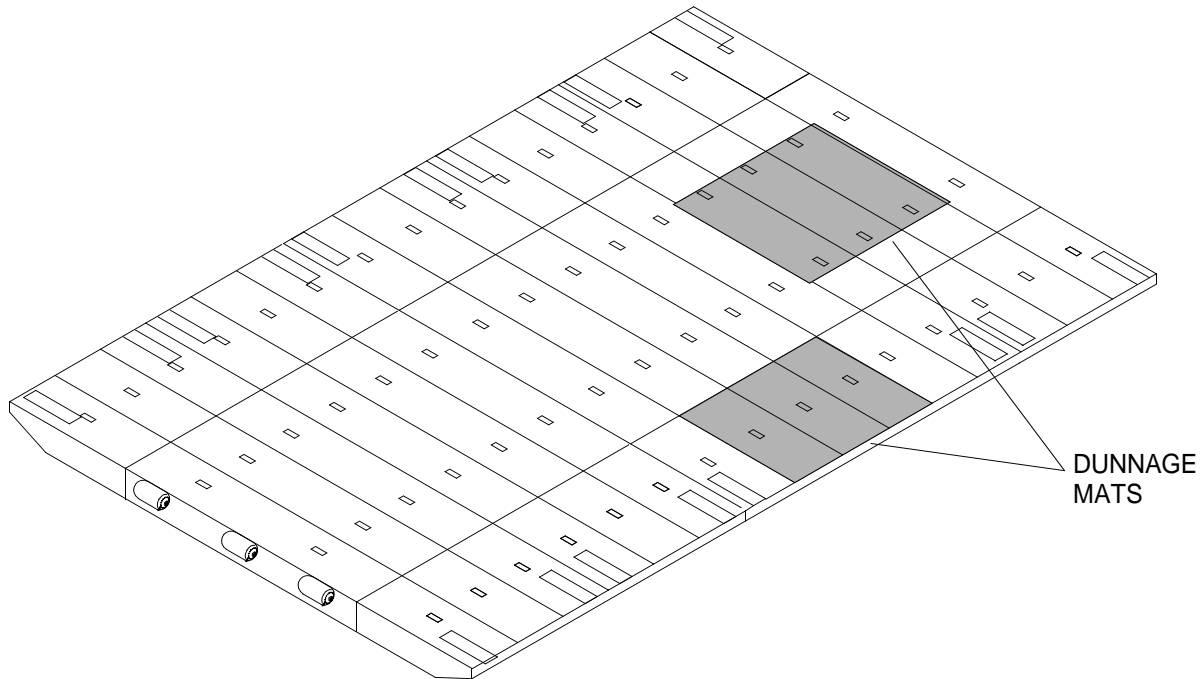


RRDF SEGMENT**Location**

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.

**10 KW GENERATOR AND CONTAINER****Location**

The 10 kW generator is located in a 20 ft container. The container is located on the RRDF platform.

Description

The description and specifications for the 10 kW generator may be found in TM 9-6115-642-10.

The generator is supplied with fuel by the generator mounted day fuel tank. A 1,000 gallon base fuel tank is mounted in the 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 level indicator on the generator instrument panel aids in the refueling of the day tank. The 1,000 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 1,000 gallon fuel tank. The generator container weighs 15,000 lb.

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

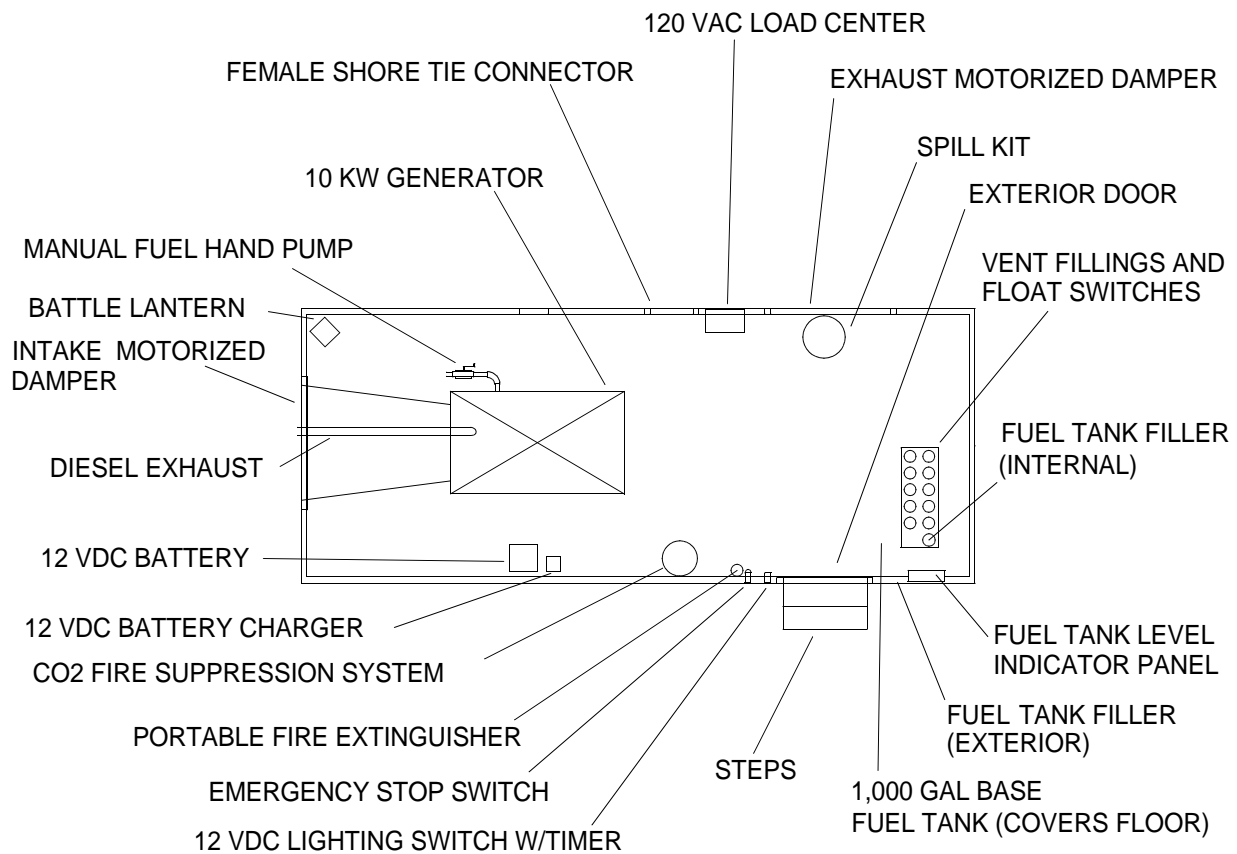
The container is equipped with a CO₂ fire suppression system. The fire suppression system may be operated automatically or manually. In the automatic mode, one of two fixed temperature heat detector elements will activate the fire suppression system when the temperature exceeds 200°F. When the system activates, an alarm bell sounds, a 24Volt Direct Current (VDC) horn strobe will flash and sound, and CO₂ from one 100 lb cylinder is then discharged through two multijet nozzles to flood the container. The system may be operated in the manual mode using the manual pull station or by pulling the pin and raising the actuator handle when electrical power is not available. The two elements are located on the generator container roof centerline.

The CO₂ fire suppression system is controlled by the control module. Two 12 VDC rechargeable batteries provide backup power for the 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 0, 10, 20 or 30 seconds by the user. The shutdown relay shuts down the generator and allows personnel time to vacate the shelter. After the delay sequence is completed, a second delay before actuation of the fire extinguishing agent occurs. This second delay may be programmed for 0, 10, 20 or 30 seconds by the user. When using the manual pull station, the delays used in the automatic mode are implemented by the control module.

Two warning signs designate the exit and are mounted on both the exterior and interior of the container.

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

The container is equipped with Alternating Current (AC) fluorescent light fixtures. A load center is used to control the AC system. A Direct Current (DC) lighting system, comprised of a spring wound timer switch, 12 volt battery with battery charger and light fixtures, supply light when AC lighting is not available.



LIGHT TOWERS**Location**

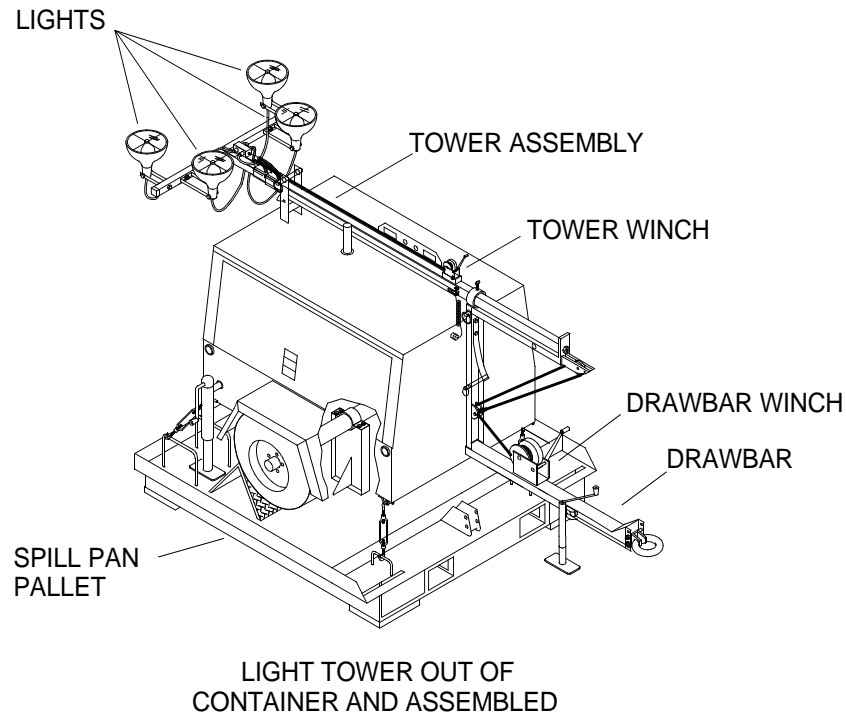
The light towers are positioned on the RRDF platform to provide lighting during night operations. The light towers are positioned by the operators as desired.

The description and specifications for the light tower may be found in TM 55-1945-217-14&P.

The description and specifications for the light tower engine may be found in TM 55-1945-218-14&P.

Description

The light towers are commercially available, self contained lighting systems. The light towers illuminate the work area using four high pressure sodium 1,000 watt lamps each. The light towers are powered by a three cylinder diesel engine. The light towers are stored in a 20 ft container when not in use. Each light tower is secured to its shipping pallet that serves as a spill containment pan/tray.

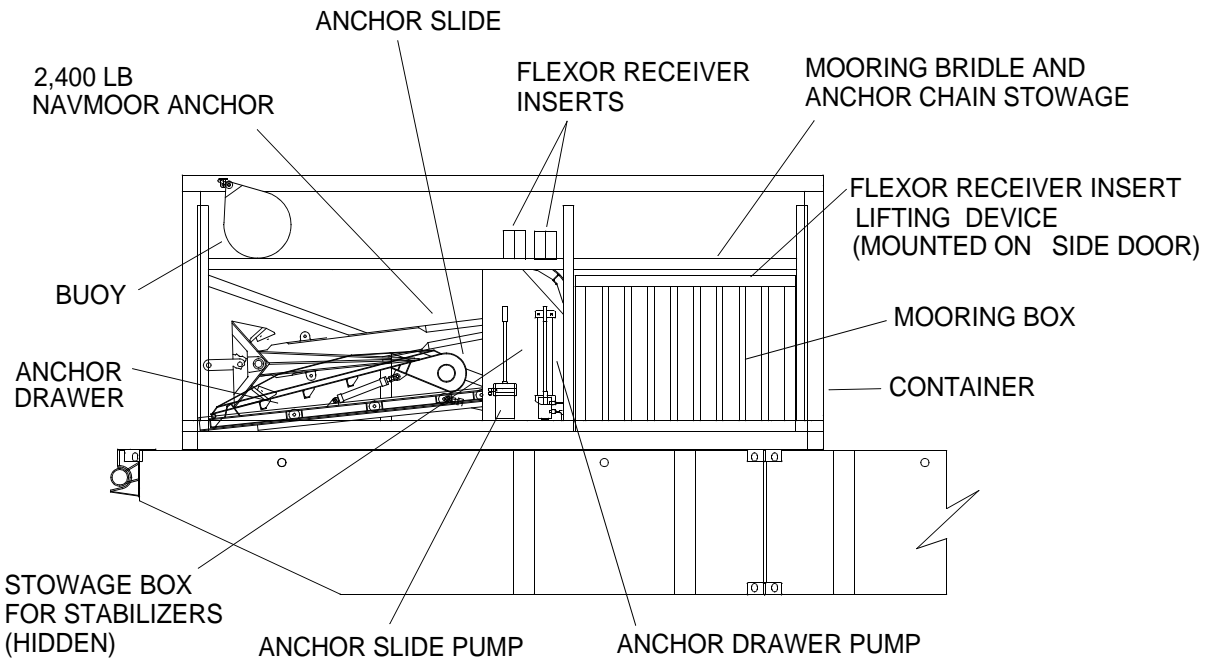


EMERGENCY ANCHOR SYSTEM (EASY)
Location

The EASY is housed in a 20 ft 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, in addition to the container, are the mooring, the stowage and deployment frame, that is secured within the container, the mooring box, two manual hydraulic pumps for actuating the moving parts of the stowage/ deployment frame, mooring line, anchor and mooring line buoys and flexor receiver inserts 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 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 Bridle and Anchor Assembly

The EASY mooring consists of a 2,400 lb NAVMOOR anchor attached to 200 ft of 2½ in. stud link chain. The chain is attached to a 500 ft of 10 in. circumference nylon line. The main line and two 35 ft legs of 10 in. circumference nylon line are joined at a pear link. The mooring bridle legs are attached to flexor receiver inserts installed in left and right end rakes.

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 subassembly with a guide track, two hydraulic actuators and manual pumps to operate the anchor drawer and slide. The 2,400 lb NAVMOOR anchor rests on the anchor slide when the EASY is in the stowed or ready mode.

EASY Mooring Box

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

EASY Flexor Receiver Inserts and Lifting Device

Two flexor receiver inserts are stored on the upper shelf of the EASY container. The two halves of the flexor receiver lifting device are mounted on the container side door (hand pump side) and assembly hardware is located in the stowage box inside the container. The flexor receiver inserts 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.

RIGID HULL INFLATABLE BOAT
Location

The RHIB is located alongside the RRDF platform.

The description and specifications for the RHIB may be found in TM 55-1945-224-14&P.

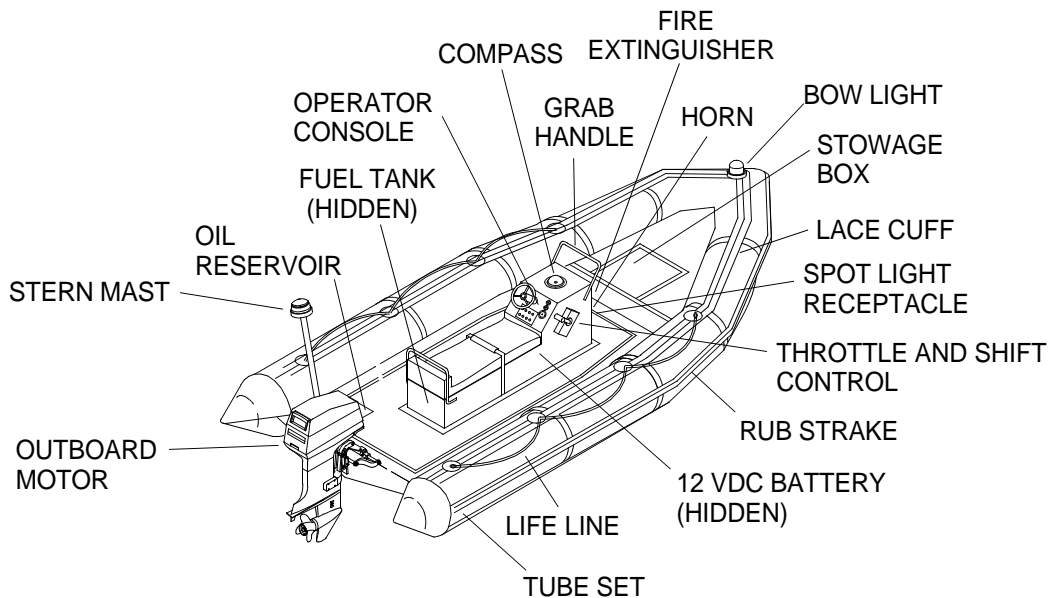
The description and specifications for the RHIB outboard motor may be found in TM 55-1945-221-14&P.

Description

The RHIB 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 RHIB will transport seven personnel. The RHIB is used as a work boat only and does not meet the Safety Of Life At Sea (SOLAS) requirements of a rescue boat. The RHIB 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 RHIB 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.

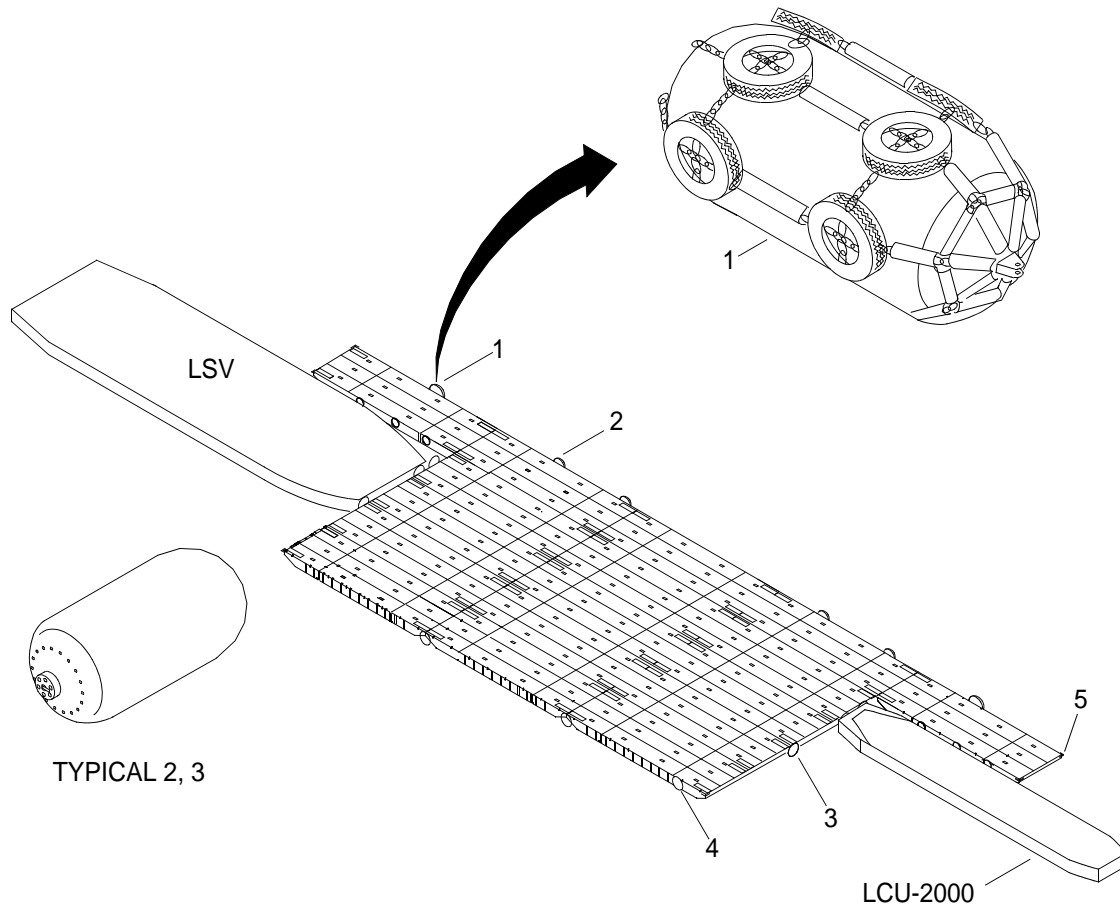
A shipping cradle is provided with the RHIB for storage in a 20 ft full access container. A lifting sling with shackles is supplied for placing the boat in the water.



FENDERS

Location

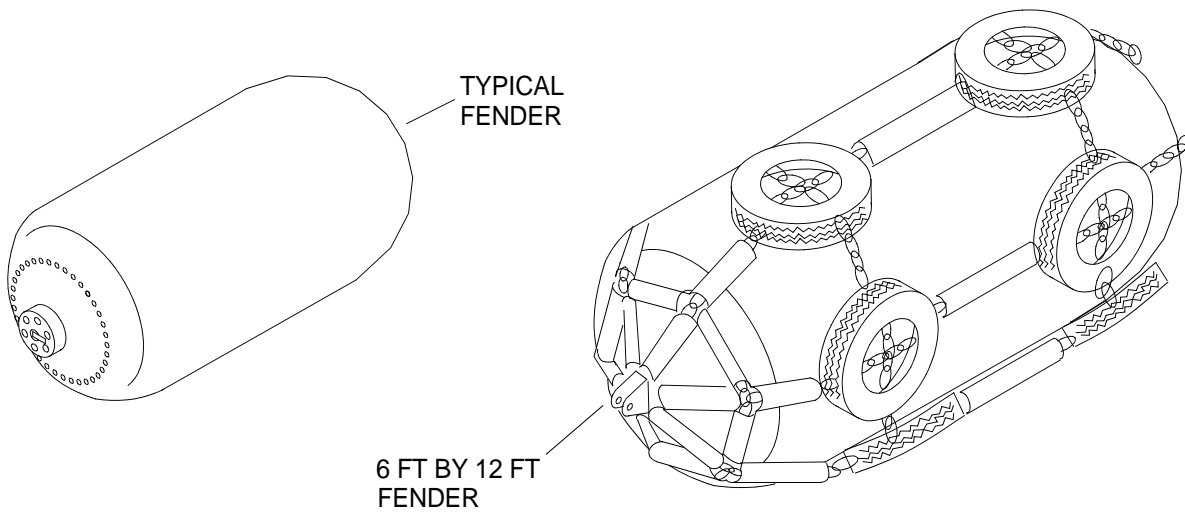
The corner fenders are installed on protruding corners of the RRDF, although placement of cylindrical fenders will vary with the configuration of the RRDF. One configuration is shown below.



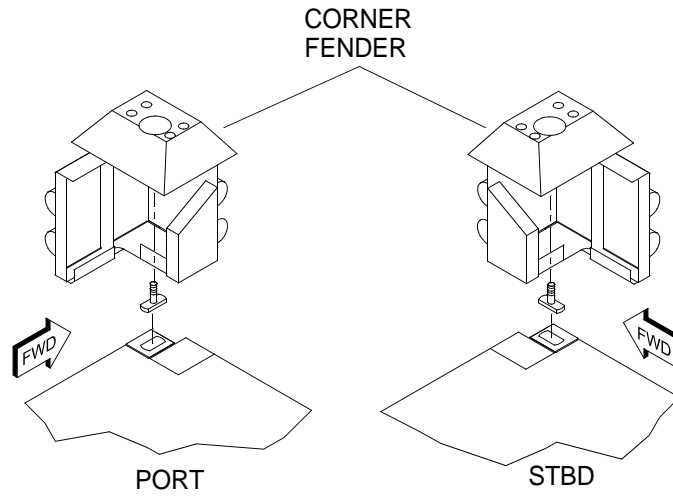
Description

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 constructed of rubber, that are components of the RRDF. The 6 ft by 12 ft (1), 5 ft by 10 ft (2), 4 ft by 12 ft (3) and 3 ft by 5 ft. The 3 ft by 5 ft, 4 ft by 12 ft and 5 ft by 10 ft fenders are stowed on specially constructed pallets in their own 40 ft open top containers. The 6 ft by 12 ft fenders are stowed on the sealift vessel. The 6 ft by 12 ft fenders use aircraft tires (secured together by chains) as the abrasion element outside of the cylindrical skin and are secured to the RRDF mooring bitts (4). The 3 ft by 5 ft and 4 ft by 12 ft fenders are used for stand-off from lighters. The 5 ft by 10 ft and 6 ft by 12 ft fenders are used for stand-off from sealift vessels.



Corner Type: The one piece corner fenders (5) are installed on protruding ISO corners of the RRDF.

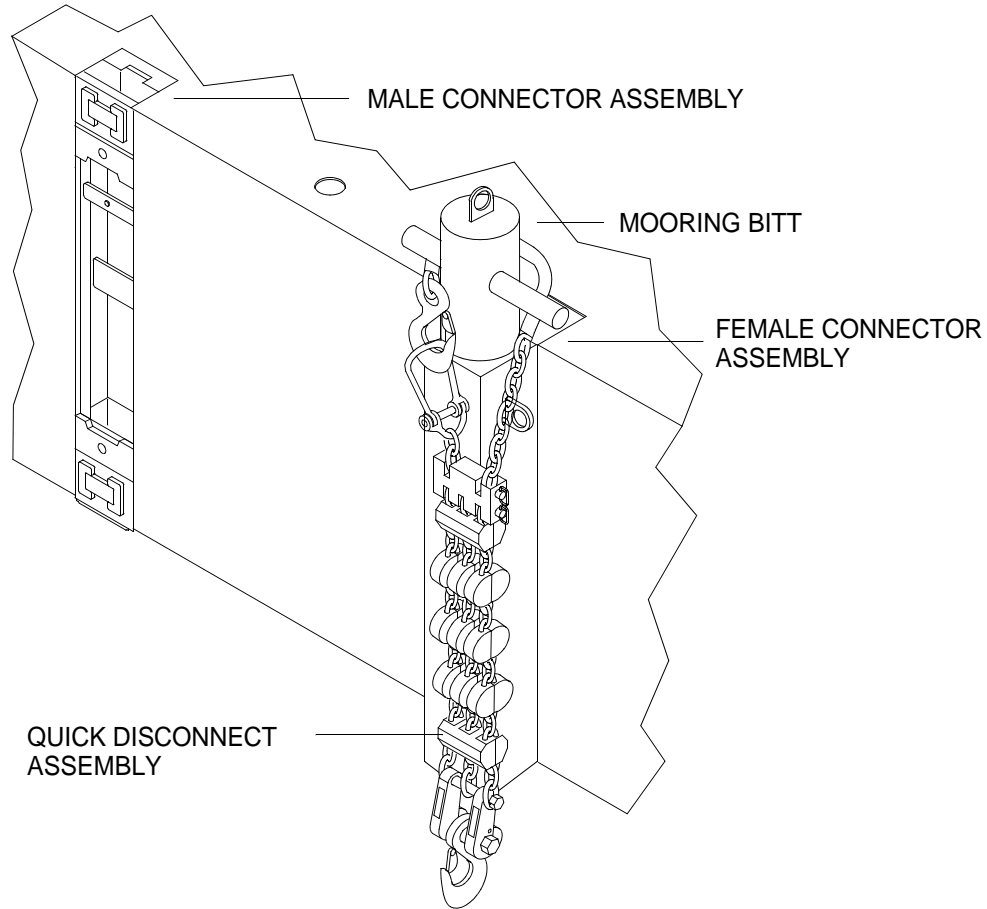


MOORING BITTS AND QUICK DISCONNECTS**Location**

The 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.

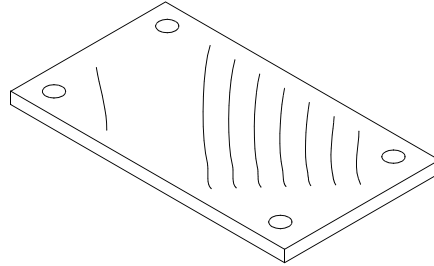


DUNNAGE MATS**Location**

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 20 ft storage containers.

Description

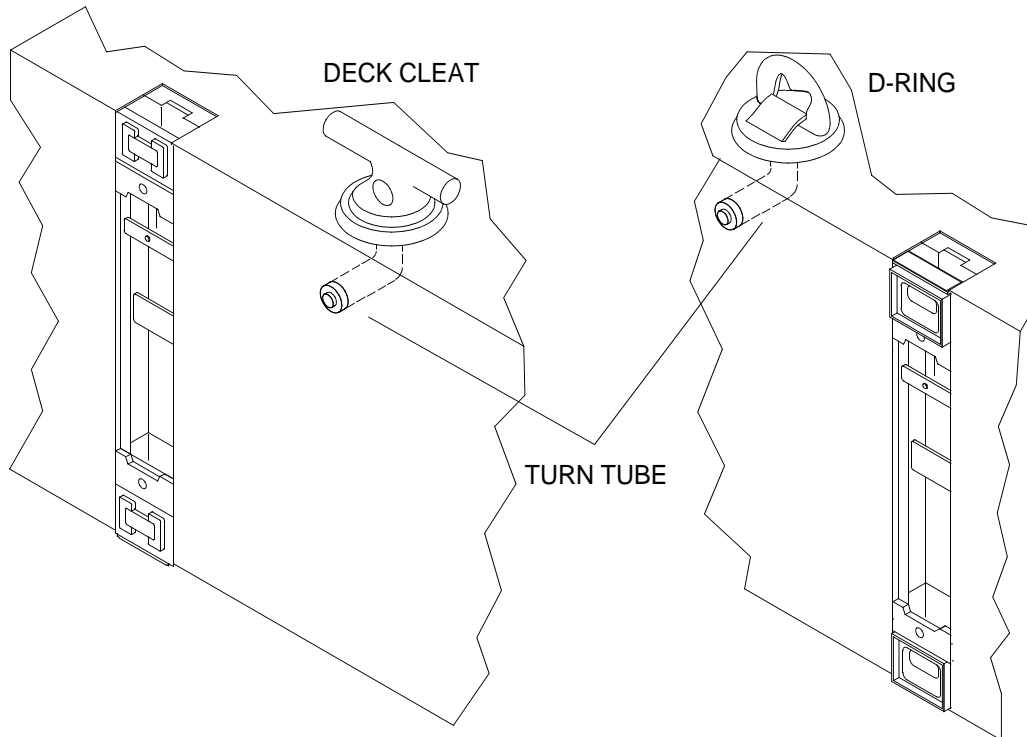
Each dunnage mat is made of high density polyethylene material and has a hole near each corner that is used for securing the mat to the ISO corner fittings.

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

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

Description

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



TOWING BRIDLE, TOWING INTERFACE AND TOWING LIGHTS
Location

The towing bridle is attached to a towing interface and is stowed in the BII container when not in use.

The towing interface (flexor receiver inserts) are attached to the RRDF end rakes and are stowed in the BII container when not in use. A lifting device is provided for handling the flexor receiver inserts and is stowed in the BII container when not in use.

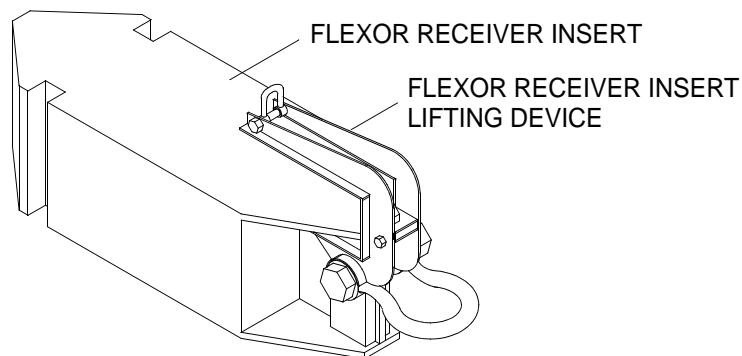
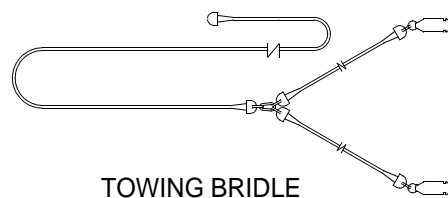
The towing lights are attached to the left side (red lens), right side (green lens), front center (white lens) and the aft end (amber lens) when towing the RRDF. The lights are stowed in the BII container when not in use.

Description

The towing bridle consists of a 500 ft long by 10 in. circumference nylon line and a 2 1/2 in. anchor swivel connected to spliced in eyes and thimbles of the two bridle legs. The bridle legs are 10 in. circumference 12 strand plaited nylon line. One towing bridle has 35 ft long legs and one towing bridle has 60 ft long legs. Each end of the towing bridle has a shackle used to attach the legs to the towing interface at the RRDF and the other end to a towing vessel.

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.

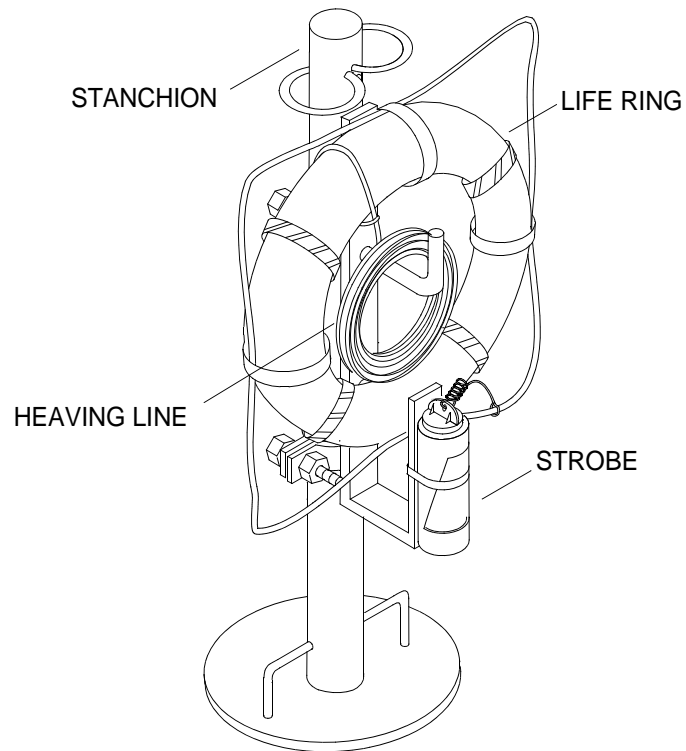


LIFE RING ASSEMBLIES**Location**

The life ring assemblies are installed at various locations on the RRDF platform to assist in the rescue of personnel in the water.

Description

The components of the life ring assembly consists of a donut shaped flotation device, nylon rope and strobe light mounted on a turn tube type stanchion.



**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	22,400 lb
ISO Compatible	Yes
Sea State Operation	SS 2
END RAKE MODULE	
Width	8 ft
Length	20 ft
Depth	4 ft 6 in.
Weight	12,500 lb
Weight (Flexor Stowed)	13,900 lb
ISO Compatible	Yes
Sea State Operation	SS 2
COMBINATION BEACH/SEA END MODULE	
Width	8 ft
Length	25 ft
Depth	4 ft 6 in.
Weight	15,000 lb
ISO Compatible	Yes
Sea State Operation	SS 2

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
INTERMEDIATE SECTION	
Center Modules (3 Per Section)	Non-powered
End Rake Modules (6 Per Section)	Compatible with U.S. Navy flexor attachments and shear connectors
Width	24 ft
Length	80 ft
Depth	4 ft 6 in.
Weight of Assembled Intermediate Section	142,200 lb
ISO Compatible	Yes
Sea State Operation	SS 2
COMBINATION BEACH/SEA END SECTION	
Beach/Sea End Modules (3 Per Section)	Non-powered
Center Modules (3 Per Section)	Non-powered
End Rake Modules (3 Per Section)	Compatible with U.S. Navy flexor attachments and shear connectors
Width	24 ft
Length	85 ft
Depth	4 ft 6 in.
Weight of Assembled Combination Beach/Sea End Section	149,700 lb
ISO Compatible	Yes
Sea State Operation	SS 2
RRDF PLATFORM (FULL SIDE)	
Width	120 ft
Length	400 ft
ISO Compatible	Yes
Sea State Operation	SS 2

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
PERSONNEL SHELTER	
Width	8 ft
Length	20 ft
Depth	8.5 ft
Weight	9,000 lb
ISO Compatible	Yes
GENERATOR CONTAINER	
Width	8 ft
Length	20 ft
Depth	8.5 ft
Weight	15,000 lb
ISO Compatible	Yes
DIESEL GENERATOR SET	
10 kW Generator Set	Refer to TM 9-6115-642-10
ISO Compatible	Yes
LIGHT TOWERS	
Width	79 in.
Length	174 in.
Depth	89 in. in travel position, 30 ft in assembled position
Weight	2,010 lb
Weight of Pallet	2,600 lb
Weight of ISO Container, Including Light Towers	19,000 lb
ISO Compatible	Yes

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
RIGID HULL INFLATABLE BOAT (RHIB)	
Length	15 ft 5 in.
Beam	6 ft 7 in.
Lifting Weight	1,000 lb
Maximum Loading Capacity	1,903 lb
Diameter of Inflatable Tube	20 in.
ISO Compatible	Yes
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 lb
ISO Compatible	Yes
Width	73 in
Length	82 in.
Depth	58 in.
Weight	2,160 lb empty; 15,650 lb loaded with dry mooring
ISO Compatible	Yes
COMMUNICATIONS EQUIPMENT	
Communications Equipment	Consists of four VHF/FM handheld transceivers that are stored in the personnel shelter

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
DUNNAGE MAT	
Mat	Made of high density polyethylene material
Width	4 ft
Length	10 ft
Depth	1 ½ in.
Weight	300 lb
Weight of Mat Pallet	13,100 lb
Weight of Dunnage Mat ISO Container With Dunnage Mats	22,000 lb
ISO Compatible	Yes
MOORING BITT	
Length	6 ft 11 in.
Weight	520 lb
Weight of Top Mooring Bitt Pallet (4 Bitts Per Pallet)	3,880 lb
Weight of Middle and Lower Mooring Bitt Pallets (3 Bitts Per Pallet)	3,360 lb each
Weight of ISO Container With Mooring Bitts	29,320 lb
ISO Compatible	Yes
6 FT BY 12 FT FENDER	
Weight	3,476 lb with chain and tire net
ISO Compatible	No
5 FT BY 10 FT FENDER	
Weight	1,500 lb
Weight of Fender Pallet	2,400 lb
Weight of ISO Container with Fenders	25,200 lb
ISO Compatible	Yes

Table 1. RRDF Equipment Data. (Continued)

ITEM CHARACTERISTIC	DESCRIPTION
4 FT BY 12 FT FENDER	
Weight	1,450 lb
Weight of Fender Pallet	3,800 lb
Weight of ISO Container with Fenders	25,200 lb
ISO Compatible	Yes
3 FT BY 5 FT FENDER	
Weight	300 lb
Weight of Fender Pallet	3,000 lb
Weight of ISO Container with Fenders	25,200 lb
ISO Compatible	Yes
FLEXOR CONNECTOR	
Weight	1,400 lb

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
THEORY OF OPERATION**

SYSTEM OPERATION

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

10 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.

PERSONNEL SHELTER

The personnel shelter is contained in a 20 ft 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 container. 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 and to the GFI receptacles in the personnel shelter.

Refer to TM 55-1945-220-14&P for the theory of operation of the packaged terminal air conditioner and heat pump.

Refer to TM 55-1945-219-14&P for the theory of operation of the incinerator toilet.

6 KW TRAILER MOUNTED LIGHT TOWER

The lighting system consists primarily of a self-contained, trailer mounted, 6 kW diesel generator, which illuminates the work area using four high pressure sodium 1,000 watt lamps. The power to each lamp is controlled by individual switches on a control panel. The power is received from a 120 VAC, two phase alternator, which is cabled through two 25 amp circuit breakers, to the switches, to a ballast box and connected by quick disconnects to the lights.

Refer to TM 55-1945-217-14&P for the theory of operation of the light tower.

Refer to TM 55-1945-218-14&P for the theory of operation of the light tower engine.

VHF/FM HANDHELD TRANSCEIVER

The VHF/FM handheld transceivers are utilized for communicating between personnel during loading and unloading operations on the RRDF. The transceiver has a frequency range of 156.025 to 163.275 MHz, plus 10 weather channels. The transceiver has an RF power output with the CNB350 battery of 5.0 watts (high) and 1.0 watts (low). The operating voltage is 7.2 VDC. Current drain in standby mode is 40 mA, in receive mode 200 mA, in the transmit mode 1.8 amps (high power) and 0.7 amps (low power). The battery life (5% Tx, 5% rcv, 90% standby) is approximately 10 hrs (high mode) and 15 hrs (low mode). The audio response is within +2/-8 of 6 dB/octave pre-emphasis characteristic from 300 Hz to 3,000 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 Degrees to +50 Degrees 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.

EMERGENCY ANCHOR SYSTEM

The EASY is housed in a 20 ft container and is secured on the deck of the RRDF. The EASY provides a means of anchoring the RRDF platform in the event the sealift vessel has to depart the operating area due to weather conditions or some other contingency. When required, the 2,400 lb NAVMOOR anchor is deployed by extending the drawer to its extended position with one hand pump and elevating the slide with a separate hand pump until the anchor slides into the water. The anchor is tethered to the RRDF by an anchor chain and mooring bridle assembly. Buoys are attached to both the mooring bridle and anchor to facilitate recovery.

RIGID HULL INFLATABLE BOAT

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 and steering system. A 12 volt battery provides power to the engine starting system, electrical accessories, switch/breaker panel and negative bus bar. The positive end of the battery is connected to the battery switch and then to the engine starter. The bilge pump is also connected to the battery switch.

Refer to TM 55-1945-224-14&P for the theory of operation of the RHIB.

Refer to TM 55-1945-221-14&P for the theory of operation of the RHIB outboard motor.

CHAPTER 2

**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/SYMPTOM**TROUBLESHOOTING PROCEDURE****EMERGENCY ANCHOR SYSTEM (EASY) CONTAINER**

EASY Anchor Slide Will Not Raise or Lower WP 0022 00

EASY Anchor Drawer Will Not Deploy WP 0023 00

GENERATOR CONTAINER

Electric Fuel Transfer Pump Inoperative WP 0008 00

Fire Suppression System Inoperative WP 0010 00

Fluorescent Lights Do Not Operate WP 0011 00

Fuel Tank Signal Box Warning Light Inoperative WP 0009 00

Tactical Quiet Generator Malfunctions (Reference Only) WP 0007 00

LIGHT TOWER CONTAINER

Light Tower Malfunctions (Reference Only) WP 0015 00

Light Tower Engine Malfunctions (Reference Only) WP 0016 00

PERSONNEL SHELTER

Air Conditioner and Heat Pump Malfunctions (Reference Only) WP 0013 00

Fluorescent Lights Do Not Operate WP 0014 00

Incinerator Toilet Malfunctions (Reference Only) WP 0012 00

RIGID HULL INFLATABLE BOAT CONTAINER

Rigid Hull Inflatable Boat Malfunctions (Reference Only) WP 0017 00

Rigid Hull Inflatable Boat Outboard Motor Malfunctions (Reference Only) WP 0018 00

VHF/FM HANDHELD TRANSCEIVER

VHF/FM Handheld Transceiver Has No Power WP 0019 00

VHF/FM Handheld Transceiver Does Not Receive WP 0020 00

VHF/FM Handheld Transceiver Does Not Transmit WP 0021 00

EASY CONTAINER

Anchor Slide Will Not Raise or Lower

WP 0022 00

Anchor Drawer Will Not Deploy

WP 0023 00

**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

TROUBLESHOOTING PROCEDURE**TACTICAL QUIET GENERATOR MALFUNCTIONS**

For troubleshooting procedures on the 10 kW tactical quiet generator, refer to TM 9-6115-642-10 for Generator Set (10 kW), Skid Mounted, Tactical Quiet.

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 9-6115-642-10

TROUBLESHOOTING PROCEDURE

ELECTRIC FUEL TRANSFER PUMP INOPERATIVE

SYMPTOM

Fuel transfer pump is inoperative.

MALFUNCTION

No power to fuel transfer pump.

CORRECTIVE ACTION

Refer to TM 9-6115-642-10 for Generator Set (10 kW), Skid Mounted, Tactical Quiet.

MALFUNCTION

Fuel transfer pump malfunctioning.

CORRECTIVE ACTION

Refer to TM 9-6115-642-10 for Generator Set (10 kW), Skid Mounted, Tactical Quiet.

END OF WORK PACKAGE

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

INITIAL SETUP:**Test Equipment**

Multimeter (Item 20, WP 0149 00)

Tools

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

TROUBLESHOOTING PROCEDURE**FUEL TANK SIGNAL BOX WARNING LIGHT INOPERATIVE****SYMPTOM**

A fuel warning light will not illuminate.

MALFUNCTION

Fuel tank signal lamp has failed.

CORRECTIVE ACTION

Using a multimeter, check for continuity across incandescent lamp.

If lamp is open, replace lamp. (WP 0067 00)

MALFUNCTION

FLOAT SWITCHES circuit breaker F is faulty.

CORRECTIVE ACTION

Using a multimeter, check for 120 VAC on output side of FLOAT SWITCHES circuit breaker F.

If voltage is not present, replace FLOAT SWITCHES circuit breaker F. (WP 0062 00)

MALFUNCTION

Blown fuse in fuel tank signal box.

CORRECTIVE ACTION

Using a multimeter, check for continuity across fuel tank signal fuse.

If fuse is blown, replace fuel tank signal fuse. (WP 0064 00)

MALFUNCTION

Fuel tank signal transformer is faulty.

CORRECTIVE ACTION

Using a multimeter, check for 24 VAC on output side of fuel tank signal transformer.

If voltage is not present, replace fuel tank signal transformer. (WP 0063 00)

MALFUNCTION

Fuel tank signal relay is faulty.

CORRECTIVE ACTION

Using a multimeter, check for 24 VAC on warning light output side of fuel tank signal relay.

If voltage is not present, replace fuel tank signal relay. (WP 0065 00)

MALFUNCTION

Fuel tank signal light is faulty.

CORRECTIVE ACTION

Using a multimeter, check for 24 VAC on input side of fuel tank signal light.

If voltage is not present, check for continuity across incandescent lamp. If lamp is open, replace lamp. If lamp is serviceable, replace entire signal light assembly. (WP 0066 00)

MALFUNCTION

Fuel tank level sensor is faulty.

CORRECTIVE ACTION

Remove fuel level sensor (WP 0068 00) and check continuity across switches.

If a switch fails to open or close, replace entire fuel level sensor. (WP 0068 00)

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

TROUBLESHOOTING PROCEDURE

FIRE SUPPRESSION SYSTEM INOPERATIVE

SYMPTOM

On fire alarm control console panel, AC Power LED not illuminated.

MALFUNCTION

Circuit breaker D in Generator Container circuit breaker panel in OFF (open) position.

CORRECTIVE ACTION

Position circuit D to ON (closed) position.

If condition still exists, contact Specialized Repair Activity.

MALFUNCTION

Batteries defective.

CORRECTIVE ACTION

Contact Specialized Repair Activity.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 20, WP 0149 00)

Tools

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

TROUBLESHOOTING PROCEDURE

FLUORESCENT LIGHTS DO NOT OPERATE

SYMPTOM

Fluorescent lights will not illuminate.

MALFUNCTION

OVERHEAD LTG circuit breaker C is faulty.

CORRECTIVE ACTION

Using a multimeter, check for 120 VAC on output side of OVERHEAD LTG circuit breaker C.

If voltage is not present, replace OVERHEAD LTG circuit breaker C. (WP 0062 00)

Perform operational check on overhead lighting. (TM 55-1945-216-10)

MALFUNCTION

Open circuit between the OVERHEAD LTG circuit breaker C and the light fixture.

CORRECTIVE ACTION

Using a multimeter, check for 120 VAC on input side of light fixture.

If 120 VAC is not present, use a multimeter to check continuity of wiring between the OVERHEAD LTG circuit breaker C and light fixture. If continuity is not present, repair/replace wiring as necessary. (WP 0126 00)

Perform operational check on overhead lighting. (TM 55-1945-216-10)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INCINERATOR TOILET
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Engineer 88L

References

TM 55-1945-219-14&P

TROUBLESHOOTING PROCEDURE

INCINERATOR TOILET MALFUNCTIONS

Refer to TM 55-1945-219-14&P for incinerator toilet troubleshooting procedures.

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
AIR CONDITIONER AND HEAT PUMP
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:

Personnel Required

Engineer 88L

References

TM 55-1945-220-14&P

TROUBLESHOOTING PROCEDURE

AIR CONDITIONER AND HEAT PUMP MALFUNCTIONS

Refer to TM 55-1945-220-14&P for packaged terminal air conditioner and heat pump troubleshooting procedures.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Test Equipment**

Multimeter (Item 20, WP 0149 00)

Tools

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

TROUBLESHOOTING PROCEDURE

FLUORESCENT LIGHTS DO NOT OPERATE

SYMPTOM

Fluorescent lights will not illuminate.

MALFUNCTION

OVERHEAD LTG circuit breaker C is faulty.

CORRECTIVE ACTION

Using a multimeter, check for 120 VAC on output side of OVERHEAD LTG circuit breaker C.

If voltage is not present, replace OVERHEAD LTG circuit breaker C. (WP 0118 00)

Perform operational check on overhead lighting. (TM 55-1945-216-10)

MALFUNCTION

Open circuit between the OVERHEAD LTG circuit breaker C and the light fixture.

CORRECTIVE ACTION

Using a multimeter, check for 120 VAC on input side of light fixture.

If 120 VAC is not present, use a multimeter to check continuity of wiring between the OVERHEAD LTG circuit breaker C and light fixture. If continuity is not present, repair/replace wiring as necessary. (WP 0126 00)

Perform operational check on overhead lighting. (TM 55-1945-216-10)

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 55-1945-217-14&P

TROUBLESHOOTING PROCEDURE

LIGHT TOWER MALFUNCTIONS

Refer to TM 55-1945-217-14&P for light tower troubleshooting procedures.

END OF WORK PACKAGE

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

INITIAL SETUP:

Personnel Required

Engineer 88L

References

TM 55-1945-218-14&P

TROUBLESHOOTING PROCEDURE

LIGHT TOWER ENGINE MALFUNCTIONS

Refer to TM 55-1945-218-14&P for light tower engine troubleshooting procedures.

END OF WORK PACKAGE

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

INITIAL SETUP:

Personnel Required

Engineer 88L

References

TM 55-1945-224-14&P

TROUBLESHOOTING PROCEDURE

RIGID HULL INFLATABLE BOAT MALFUNCTIONS

Refer to TM 55-1945-224-14&P for RHIB troubleshooting procedures.

END OF WORK PACKAGE

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

INITIAL SETUP:

Personnel Required

Engineer 88L

References

TM 55-1945-221-14&P

TROUBLESHOOTING PROCEDURE

RIGID HULL INFLATABLE BOAT OUTBOARD MOTOR MALFUNCTIONS

Refer to TM 55-1945-221-14&P for RHIB outboard motor troubleshooting procedures.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

References

TM 55-1945-216-10

TROUBLESHOOTING PROCEDURE

VHF/FM HANDHELD TRANSCEIVER HAS NO POWER

SYMPTOM

VHF/FM handheld transceiver has no power.

MALFUNCTION

VHF/FM handheld transceiver batteries are discharged.

CORRECTIVE ACTION

Charge the batteries. (TM 55-1945-216-10)

Perform operational check on VHF/FM handheld transceiver. (TM 55-1945-216-10)

MALFUNCTION

VHF/FM handheld transceiver batteries are defective.

CORRECTIVE ACTION

If batteries are rechargeable, replace rechargeable battery pack. (WP 0135 00)

If batteries are alkaline, replace alkaline battery pack. (WP 0136 00)

Perform operational check on VHF/FM handheld transceiver. (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

References

TM 55-1945-216-10

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 0133 00)

Perform operational check on transceiver. (TM 55-1945-216-10)

MALFUNCTION

Low battery indicator is displayed on transceiver.

CORRECTIVE ACTION

Charge the batteries. (TM 55-1945-216-10)

Perform operational check on transceiver. (TM 55-1945-216-10)

MALFUNCTION

Transceiver is defective.

CORRECTIVE ACTION

Replace transceiver.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

ReferencesTM 55-1945-216-10

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 0133 00))

Perform operational check on transceiver. (TM 55-1945-216-10)

MALFUNCTION

Low battery indicator is displayed on transceiver.

CORRECTIVE ACTION

Charge the batteries. (TM 55-1945-216-10)

Perform operational check on transceiver. (TM 55-1945-216-10)

MALFUNCTION

Transceiver is defective.

CORRECTIVE ACTION

Replace transceiver.

END OF WORK PACKAGE

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

INITIAL SETUP:**Personnel Required**

Seaman 88K

ReferencesTM 55-1945-216-10

TROUBLESHOOTING PROCEDURE

EASY ANCHOR SLIDE WILL NOT RAISE OR LOWER

SYMPTOM

Anchor slide will not raise or lower.

MALFUNCTION

Equipment preventing slide from raising.

CORRECTIVE ACTION

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

MALFUNCTION

Air in hydraulic system.

CORRECTIVE ACTION

Bleed EASY slide hydraulic system. (WP 0098 00)

MALFUNCTION

Hydraulic lines not retaining pressure or damaged.

CORRECTIVE ACTION

Ensure all hydraulic lines are secure and not leaking. Replace as necessary.

Perform operational check of tilt platform. (TM 55-1945-216-10)

MALFUNCTION

EASY slide hydraulic cylinder not retaining pressure or is damaged.

CORRECTIVE ACTION

Replace EASY slide hydraulic cylinder. (WP 0096 00)

Perform operational check of anchor slide. (TM 55-1945-216-10)

MALFUNCTION

Faulty hydraulic hand pump.

CORRECTIVE ACTION

Replace hydraulic hand pump. (WP 0083 00)

Perform operational check of anchor slide. (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT AND DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY CONTAINER ANCHOR DRAWER
TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Personnel Required**

Seaman 88K

ReferencesTM 55-1945-216-10

TROUBLESHOOTING PROCEDURE

EASY ANCHOR DRAWER WILL NOT DEPLOY

SYMPTOM

Anchor drawer will not deploy.

MALFUNCTION

Equipment preventing drawer from moving.

CORRECTIVE ACTION

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

MALFUNCTION

Air in hydraulic system.

CORRECTIVE ACTION

Bleed anchor drawer cylinder. (WP 0097 00)

MALFUNCTION

Hydraulic lines not retaining pressure or damaged.

CORRECTIVE ACTION

Ensure all hydraulic lines are secure and not leaking. Replace as necessary.

Perform operational check of anchor drawer. (TM 55-1945-216-10)

MALFUNCTION

Drawer hydraulic cylinder not retaining pressure or damaged.

CORRECTIVE ACTION

Replace drawer hydraulic cylinder. (WP 0095 00)

Perform operational check of anchor drawer. (TM 55-1945-216-10)

MALFUNCTION

Faulty hydraulic hand pump.

CORRECTIVE ACTION

Replace hydraulic hand pump. (WP 0082 00)

Perform operational check of anchor drawer. (TM 55-1945-216-10)

END OF WORK PACKAGE

CHAPTER 3

**MAINTENANCE INSTRUCTIONS
FOR
MODULAR CAUSEWAY SYSTEM (MCS)
ROLL-ON/ROLL-OFF DISCHARGE FACILITY (RRDF)**

**UNIT LEVEL 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 55-1945-216-10

GENERAL INFORMATION

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

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.

CHECK UNPACKED EQUIPMENT

Table 2. Inspection Criteria for Packaging.

COMPONENT	ACCEPTABLE	REPARABLE	NONREPARABLE
Generator Container			
Exterior	Minor rust, cracks, indentations or splits that would not impair waterproofing 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 10 kW generator, broken or damaged dampers.	None.
Hardware	Hardware is present and tight.	Hardware is missing or loose.	None.
	Nuts, bolts, screws and fasteners present and in good condition.	Nuts, bolts, screws and fasteners that can be replaced or properly sealed.	None.

Table 2. Inspection Criteria for Packaging. (Continued)

COMPONENT	ACCEPTABLE	REPARABLE	NONREPARABLE
Personnel Shelter			
Exterior	Minor rust, cracks, indentations, or splits that would not impair waterproofing 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 present and tight.	Hardware is missing or loose.	None.
	Nuts, bolts, screws and fasteners present and in good condition.	Nuts, bolts, screws and fasteners that can be replaced or properly sealed.	None.
Light Tower Container			
Exterior	Minor rust, cracks, indentations or splits that would not impair waterproofing 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 has remained in 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	Present and tight.	Missing or loose.	None.
	Nuts, bolts, screws and fasteners present and in good condition.	Nuts, bolts, screws and fasteners that can be replaced or properly sealed.	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 and excessive tears closer than one inch to closure, or through all impregnated layers.
Hardware	Hardware is present and tight.	Hardware is missing or loose.	None.

Table 2. Inspection Criteria for Packaging. (Continued)

COMPONENT	ACCEPTABLE	REPARABLE	NONREPARABLE
RHIB ISO Container			
Exterior	Minor rust, cracks, indentations, or splits that would not impair waterproofing 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 present and tight.	Hardware is missing or loose.	None.
	Nuts, bolts, screws and fasteners present and in good condition.	Nuts, bolts, screws and fasteners that can be replaced or properly sealed.	None.
EASY Container			
Exterior	Minor rust, cracks, indentations or splits that would not impair waterproofing 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. Missing 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. Damage or bending that will not allow doors to open for deployment.
Hardware	Hardware is present and tight.	Hardware is missing or loose.	None.
	Nuts, bolts, screws and fasteners present and in good condition.	Nuts, bolts, screws and fasteners that can be replaced or properly sealed.	None.

Table 2. Inspection Criteria for Packaging. (Continued)

COMPONENT	ACCEPTABLE	REPARABLE	NONREPARABLE
Fender Container			
Exterior	Minor rust, cracks, indentations, splits or tears in fabric container covering that would not impair waterproofing 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 present and tight.	Hardware is missing or loose.	None.
Dunnage Matt ISO Container			
Exterior	Minor rust, cracks, indentations, or splits that would not impair waterproofing 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 present and tight.	Hardware is missing or loose.	None.
	Nuts, bolts, screws and fasteners present and in good condition.	Nuts, bolts, screws and fasteners that can be replaced or properly sealed.	None.

Table 2. Inspection Criteria for Packaging. (Continued)

COMPONENT	ACCEPTABLE	REPARABLE	NONREPARABLE
Mooring Bitt Container			
Exterior	Minor rust, cracks, indentations or splits that would not impair waterproofing 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 has remained in stowed position. No broken, dented or cracked equipment.	Minor dents or broken nails, screws and fasteners that can be replaced or properly sealed.	Damage to pallets that would prevent stowage of mooring bitts.
Hardware	Hardware is present and tight.	Hardware is missing or loose.	None.

PROCESS UNPACKED EQUIPMENT

Refer to TM 55-1945-216-10 for instructions to process unpacked equipment. This manual provides 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

This manual identifies any connectors, wiring diagrams or instructions to aide in the installation of equipment.

ASSEMBLY OF EQUIPMENT

Refer to TM 55-1945-216-10. 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.

PLACING IN SERVICE OF EQUIPMENT

Refer to TM 55-1945-216-10 for information on preliminary servicing of equipment.

PREPARATION FOR SHIPMENT OR STORAGE OF EQUIPMENT

Refer to TM 55-1945-216-10 for information on preparing equipment for short or long term storage.

PRELIMINARY CALIBRATION OF EQUIPMENT

No calibration of equipment is required on the RRDF.

END OF WORK PACKAGE

**UNIT LEVEL 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.

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 AOAP. 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.

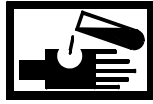
CLEANING AND LUBRICATION

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 generator, refer to TM 9-6115-642-10.
2. Clean the exterior of the container with clean water and cleaner. (Item 6, WP 0148 00)
3. Clean the interior of the container.

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 cleaner. (Item 6, WP 0148 00)

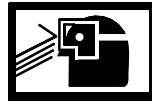
WARNING

**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 covers.

2. Wash the exterior of the engine and generator with a cleaner. (Item 6, WP 0148 00)

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 covers 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.

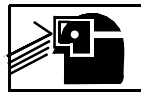
NOTE

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

- c. Clean switch contacts with a cleaning cloth. (Item 6, WP 0148 00)
- 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


CHEMICAL

EYE PROTECTION

1. Clean the hull with clean water and cleaner. (Item 6, WP 0148 00)

WARNING

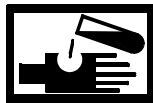

CHEMICAL

EYE PROTECTION

2. Clean the boat motor with clean water and cleaner. (Item 6, WP 0148 00)
3. Clean the battery box with clean water and baking soda. (Item 27, WP 0148 00)

Personnel Shelter

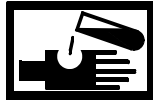
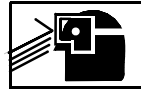
WARNING


CHEMICAL

EYE PROTECTION

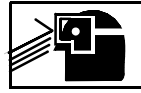
1. Clean the exterior of the shelter with clean water and cleaner. (Item 6, WP 0148 00)
2. Clean the VHF/FM handheld transceivers with a soft bristled brush to remove all dirt.
3. Clean surface of heating and air conditioning unit with a clean cloth.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Clean benches and table with clean water and cleaner. (Item 6, WP 0148 00)

WARNING

**CHEMICAL****EYE PROTECTION**

5. Clean incinerator toilet with clean water and cleaner. (Item 6, WP 0148 00)

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.

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.

PMCS for the RRDF 10 kW generator will be accomplished using TM 9-6115-642-10.

**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 (Item 33, WP 0149 00)

Personnel Required

Seaman 88K

Engineer 88L

References

TM 55-1945-217-14&P

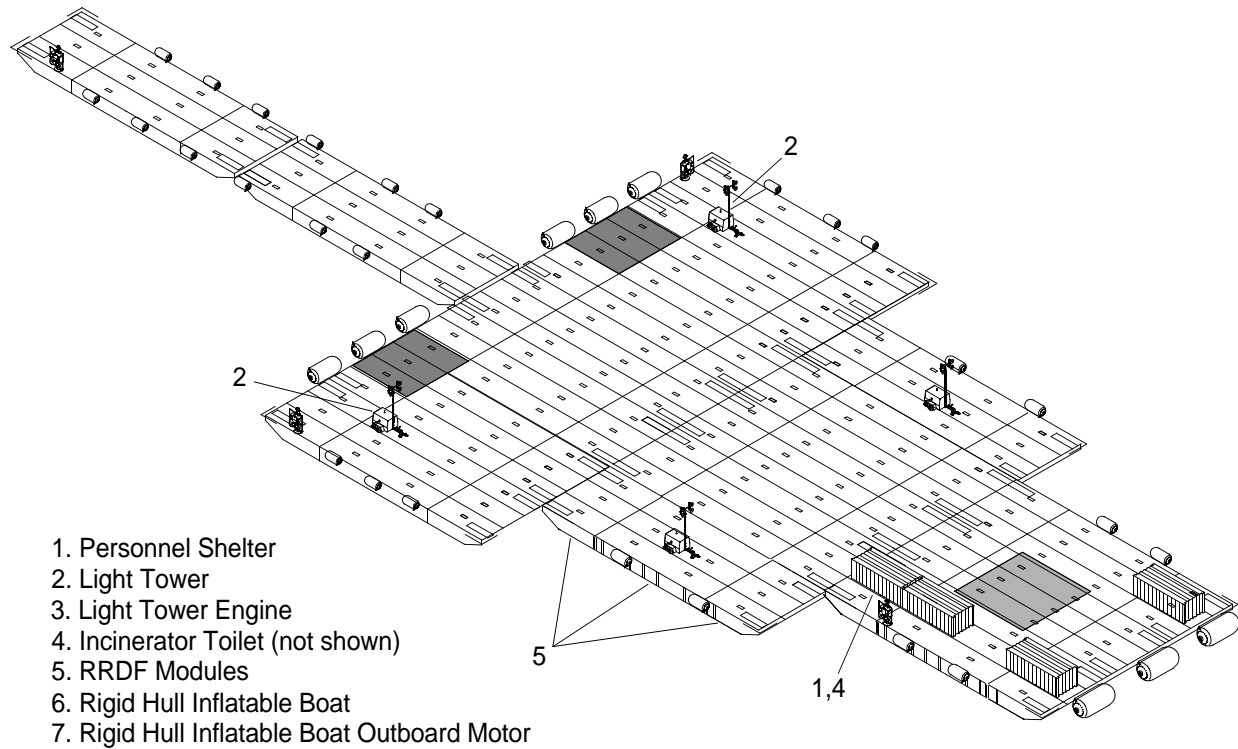
TM 55-1945-218-14&P

TM 55-1945-219-14&P

TM 55-1945-220-14&P

TM 55-1945-221-14&P

TM 55-1945-224-14&P



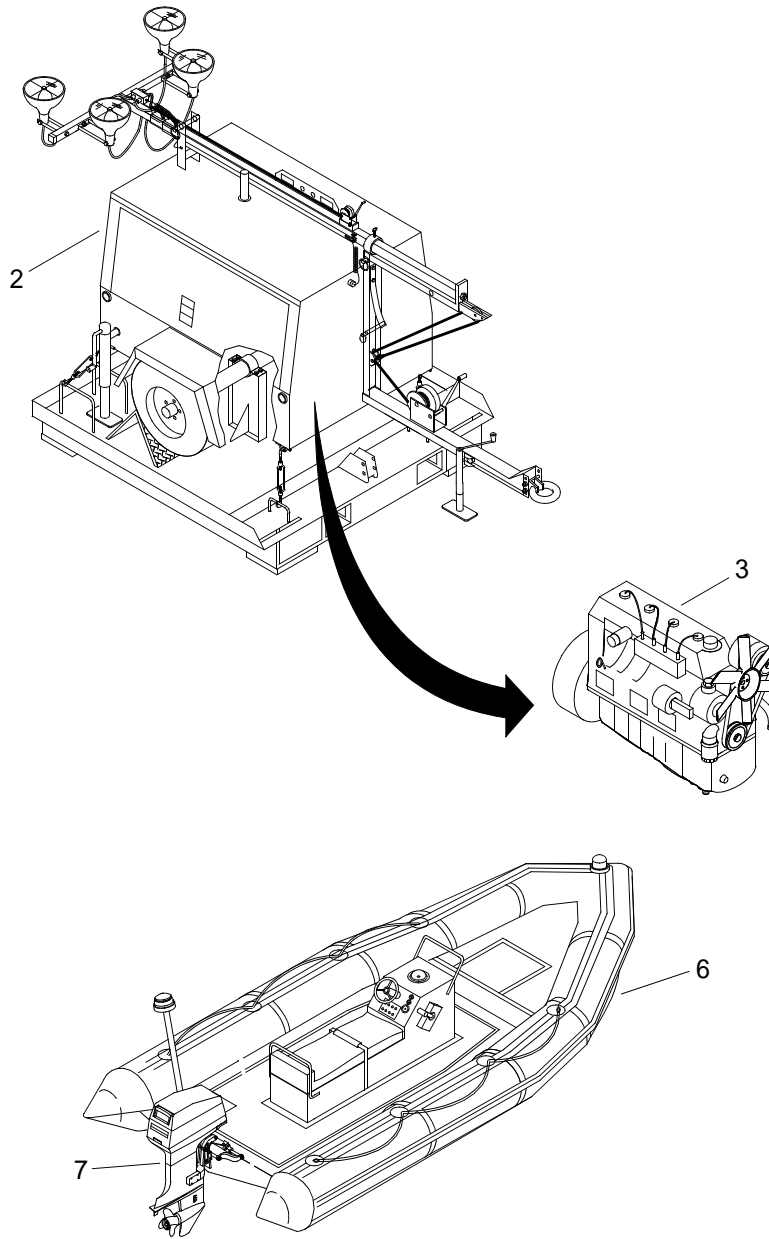


Table 3. Preventive Maintenance Checks and Services.

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. (TM 55-1945-220-14&P) 2. Clean heating and air conditioning system vent air filter. (TM 55-1945-220-14&P)	
2	Quarterly 100 Hours	.1	Light Tower	Quarterly or every 100 operating hours replace the fuel tank in-line fuel filter. (TM 55-1945-217-14&P)	
1	Annually	.2	Personnel Shelter	Clean heating and air conditioning system internal components. (TM 55-1945-220-14&P)	
3	Annually	.2	Light Tower Engine	1. Replace air filter element. (TM 55-1945-218-14&P) 2. Perform functional test of engine oil pressure switch in the protection shutdown system. Contact Specialized Repair Activity (SRA).	
4	Annually	1.0	Incinerator Toilet	Inspect level of catalyst. If catalyst level is low, add catalyst. (TM 55-1945-219-14&P)	
5	Annually or 2,400 Operating Hours	1.0	RRDF Modules	Pressure test modules and repair leaks, cracks and corrosion. (WP 0028 00, WP 0036 00)	Leaks present or structural damage which interferes with operation.
2	Biennially	3.0	Light Tower	Replace battery. (TM 55-1945-217-14&P)	
3	Biennially	3.0	Light Tower Engine	1. Drain cooling system, flush cooling system and install new coolant. (TM 55-1945-218-14&P) 2. Replace all coolant hoses and clamps. (TM 55-1945-218-14&P) 3. Replace all fuel hoses and clamps. Contact Specialized Repair Activity (SRA).	

Table 3. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
	Semi-annually	48	Female and Male Guillotine Connectors	<ol style="list-style-type: none"> 1. Perform functional test of all female and male guillotine connectors. 2. Inspect for cracks, cuts or corrosion. 	
3	50 Operating Hours	.2	Light Tower Engine	<ol style="list-style-type: none"> 1. After the first 50 hours of operation, change the engine oil. (TM 55-1945-218-14&P) 2. After the first 50 hours of operation, replace the engine oil filter. (TM 55-1945-218-14&P) 	
3	100 Operating Hours	.3	Light Tower Engine	Remove and clean air filter element. (TM 55-1945-218-14&P)	
6	100 Operating Hours	2.0	Rigid Hull Inflatable Boat	Replace engine fuel filter. (TM 55-1945-224-14&P)	
7	100 Operating Hours	2.0	Rigid Hull Inflatable Boat Outboard Motor	<ol style="list-style-type: none"> 1. Drain and refill lubricant in gearcase. (TM 55-1945-221-14&P) 2. Clean engine in-line fuel filter. (TM 55-1945-221-14&P) 3. Check anti-corrosion anodes for remaining material. (TM 55-1945-221-14&P) 4. Check battery connections for security. (TM 55-1945-221-14&P) 5. Tighten cylinder head screws. Contact Specialized Repair Activity (SRA). 6. Decarbonize engine pistons. Contact Specialized Repair Activity (SRA). 7. Check spark plugs for wear. (TM 55-1945-221-14&P) 	
3	200 Operating Hours	.5	Light Tower Engine	Change engine oil. (TM 55-1945-218-14&P)	

Table 3. Preventive Maintenance Checks and Services. (Continued)

ITEM NO.	INTERVAL	MAN-HOURS	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	250 Operating Hours	.5	Light Tower	Repack wheel bearings and replace grease seals. (TM 55-1945-217-14&P)	
3	400 Operating Hours	.3	Light Tower Engine	1. Replace engine oil filter. (TM 55-1945-218-14&P) 2. Replace engine fuel filter. (TM 55-1945-218-14&P)	
3	500 Operating Hours	3.0	Light Tower Engine	1. Drain cooling system, flush cooling system and install new coolant. (TM 55-1945-218-14&P) 2. Replace fan belt. (TM 55-1945-218-14&P)	
7	500 Operating Hours	.5	Rigid Hull Inflatable Boat Outboard Motor	Drain and refill power steering reservoir. (TM 55-1945-218-14&P)	

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION NON-POWERED MODULES
SERVICE**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Dispensing Pump, Hand Driven (Item 7, WP 0149 00)
 Wrench Set, Socket (Item 35, WP 0149 00)

Materials/Parts

Antiseize Compound (Item 3, WP 0148 00)

Personnel Required

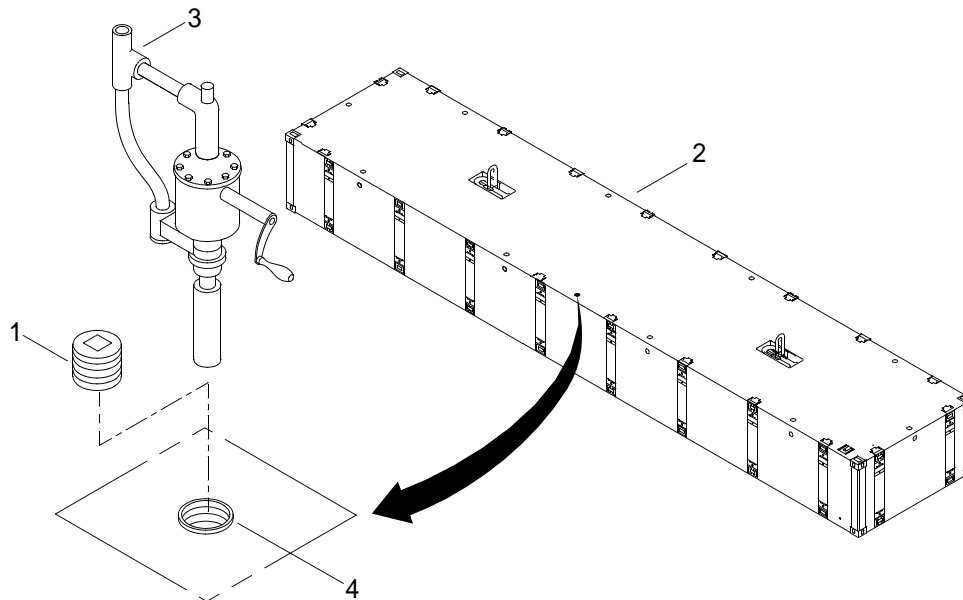
Seaman 88L

Equipment Condition

Intermediate Section Non-Powered Module Dry-Docked.

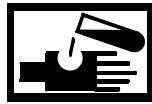
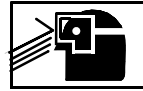
DRAIN WATER FROM INTERMEDIATE SECTION NON-POWERED MODULES**DRAIN WATER FROM 40 FT CENTER MODULE**

1. Using breaker bar, remove three machine plugs (1) from top of center module (2).



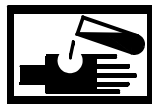
2. Determine if water is present in center module (2).
 - a. If water is not present, proceed to steps 3 and 4.
 - b. If water is present, proceed to step 5.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Apply antiseize compound to threads of machine plugs (1).
4. Using breaker bar, install machine plugs (1) into center module (2). Tighten machine plugs (1).
5. Drain center module (2) of water.
 - a. Lower telescoping siphon of hand pump (3) through hole (4) in top of center module (2).
 - b. Operate hand pump (3) to remove water.
 - c. Pressure test center module (2). (WP 0028 00)

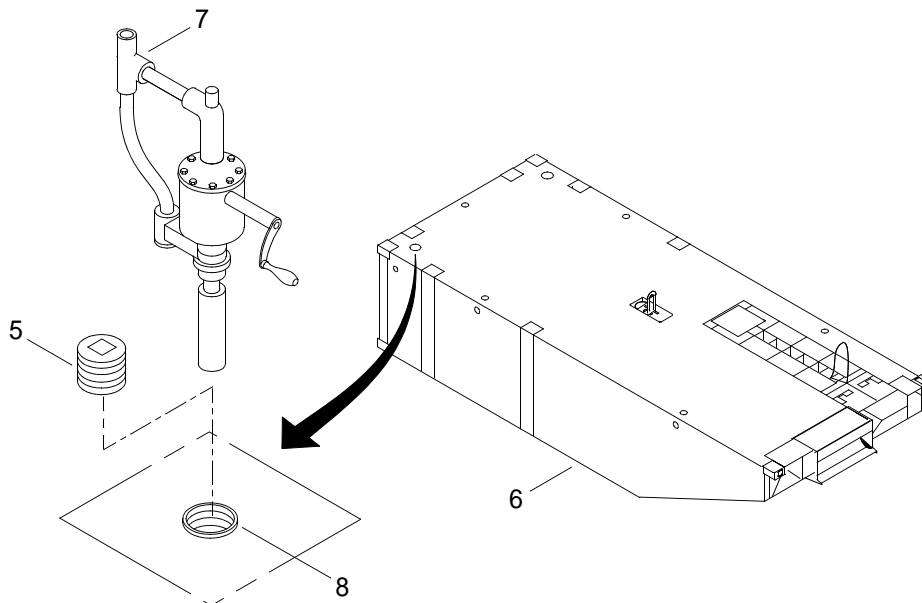
WARNING

**CHEMICAL****EYE PROTECTION**

- d. Apply antiseize compound to threads of machine plugs (1).
- e. Using breaker bar, install machine plugs (1) into center module (2). Tighten machine plugs (1).

DRAIN WATER FROM 20 FT LEFT AND RIGHT END RAKE MODULES

1. Using breaker bar, remove machine plug (5) from top of left/right end rake module (6).



-
2. Determine if water is present in left/right end rake module (6).
 - a. If water is not present, proceed to steps 3 and 4.
 - b. If water is present, proceed to step 5.

WARNING



CHEMICAL



EYE PROTECTION

3. Apply antiseize compound to threads of machine plug (5).
4. Using breaker bar, install machine plug (5) into left/right end rake module (6). Tighten machine plug (5).
5. Drain left/right end rake module (6) of water.
 - a. Lower telescoping siphon of hand pump (7) through hole (8) in top of left/right end rake module (6).
 - b. Operate hand pump (7) to remove water.
 - c. Pressure test left/right end rake module (6). (WP 0028 00)

WARNING



CHEMICAL

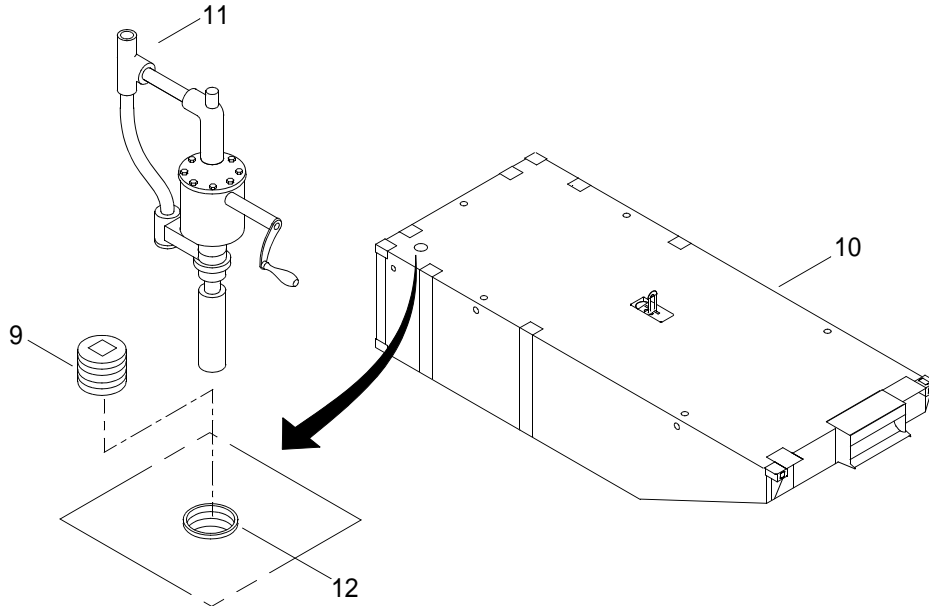


EYE PROTECTION

- d. Apply antiseize compound to threads of machine plugs (1).
- e. Using breaker bar, install machine plugs (1) into center module (2). Tighten machine plugs (1).

DRAIN WATER FROM 20 FT CENTER END RAKE MODULE

1. Using breaker bar, remove machine plug (9) from center end rake module (10).



2. Determine if water is present in center end rake module (10).
 - a. If water is not present, proceed to steps 3 and 4.
 - b. If water is present, proceed to step 5.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Apply antiseize compound to threads of machine plug (9).
4. Using breaker bar, install machine plugs (9) into center end rake module (10). Tighten machine plug (9).
5. Drain center end rake module (10) of water.
 - a. Lower telescoping siphon of hand pump (11) through hole (12) in top of center end rake module (10).
 - b. Operate hand pump (11) to remove water.
 - c. Pressure test center end rake section (10). (WP 0028 00)

WARNING

**CHEMICAL****EYE PROTECTION**

- d. Apply antiseize compound to threads of machine plugs (1).
- e. Using breaker bar, install machine plugs (1) into center module (2). Tighten machine plugs (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION NON-POWERED MODULES
PRESSURE TEST**

INITIAL SETUP:**Test Equipment**

Test Set, Compartment Air (Item 32, WP 0149 00)

Tools

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Compressor, Unit, Reciprocating, Power Drive (Item 5, WP 0149 00)

Materials/Parts

Antiseize Compound (Item 3, WP 0148 00)
Detergent, General Purpose (with bottle) (Item 28, WP 0148 00))

Personnel Required

Engineer 88L

References

TM 5-805-7

Equipment Condition

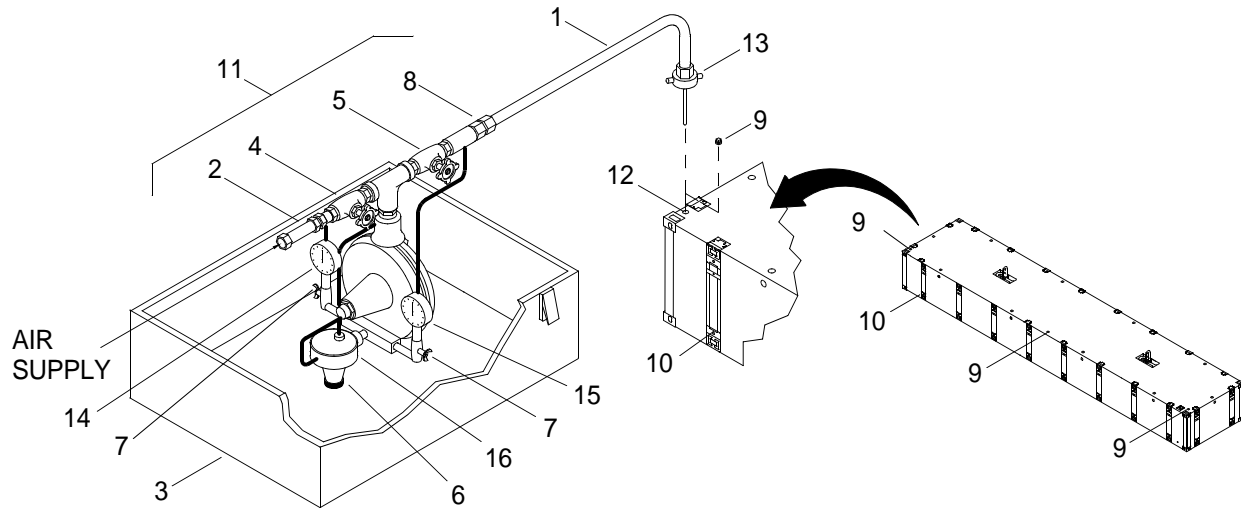
Intermediate Section Non-Powered Module Dry-Docked.

PRESSURE TEST INTERMEDIATE SECTION NON-POWERED MODULES

PRESSURE TEST 40 FT CENTER MODULE**NOTE**

The center module is divided into three airtight sections. Pressure test must be performed at all three drain plug locations.

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



2. Verify inlet and outlet valves (4, 5), pressure knob (6) and both gage petcocks (7) are closed.
3. Connect sensing line (1) to outlet coupling fitting (8).
4. Using breaker bar, remove pipe plug (9) from one of three locations at side of center module (10).
5. Position test set (11) on center module (10).
6. Install test set sensing line (1) into center module (10) through chosen pipe plug opening (12).
7. Using pipe to hose adaptors (13), as required, connect sensing line (1) to pipe plug opening (12).

WARNING**EYE PROTECTION**

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

8. Connect 100 PSI air supply to charging line extension hose (2) connector.
9. Rotate pressure knob (6) counterclockwise eight turns.
10. Open both gage petcocks (7).
11. Open air supply valve, applying input pressure.

-
12. Open inlet valve (4).

WARNING



EXPLOSION

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.

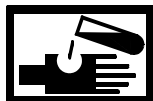
13. Observe input pressure gage (14) and rotate pressure knob (6) clockwise until gage reads 2 PSI.
14. When input pressure gage (14) is stable at 2 PSI, open outlet valve (5).
15. When output pressure gage (15) reads 2 PSI, close outlet valve (5).
16. Observe any pressure drop on output pressure gage (15).

CAUTION

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

17. Inspect all seams for evidence of leakage and mark observed leakage areas by spraying detergent on all seams.
18. Seams must be welded watertight before proceeding with assembly for mission. (TM 5-805-7)
19. To hold pressure while isolating a leak, open outlet valve (5) to allow regulator (16) to control air loss at a rate dependent upon volume of module and rate of leakage.
20. To shut down test set (11), close air supply valve and remove charging line extension hose (2).
21. Remove sensing line (1) from pipe plug opening (12) and remove test set (11).

WARNING



CHEMICAL



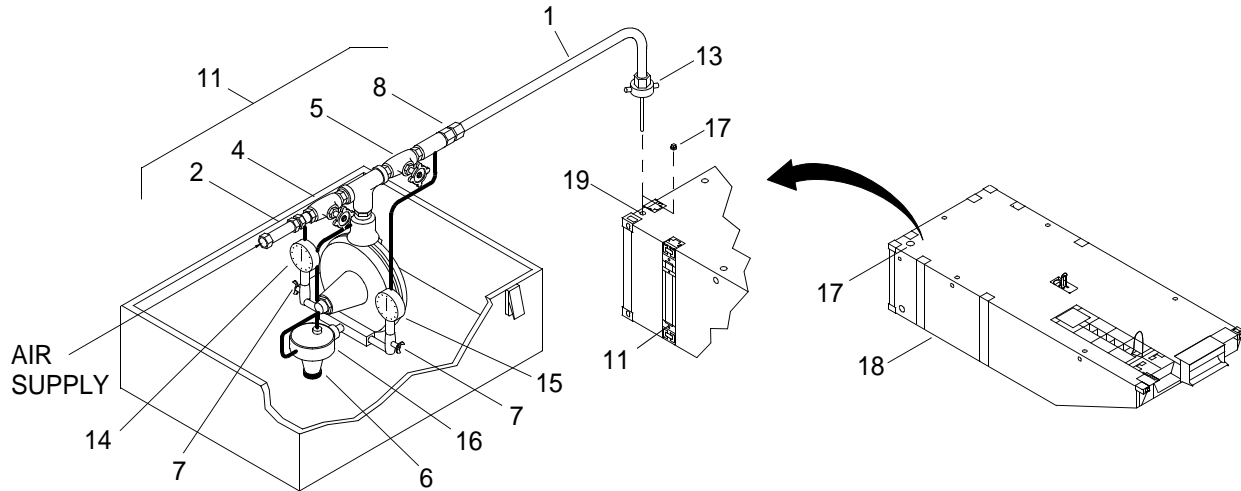
EYE PROTECTION

22. Apply antiseize compound on pipe plug (9) threads.
23. Using breaker bar, install pipe plug (9) in center module (10) and tighten.
24. Close inlet and outlet valves (4, 5), both gage petcocks (7) and rotate pressure knob (6) clockwise to end of travel.
25. Remove adaptor (13), if used, and stow in storage box (3).
26. Coil sensing line (1) and charging line extension hose (2) in storage box (3).

PRESSURE TEST 20 FT RIGHT AND LEFT END RAKE MODULES
NOTE

The following procedure is typical for pressure testing all right and left end rake modules and for pipe plug location.

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



2. Verify inlet and outlet valves (4, 5), pressure knob (6) and both gage petcocks (7) are closed.
3. Connect sensing line (1) to outlet coupling fitting (8).
4. Using breaker bar, remove pipe plug (17) from end rake module (18).
5. Position test set (11) on end rake module (18).
6. Install test set sensing line (1) into end rake module (18) through chosen pipe plug opening (19).
7. Using pipe to hose adaptors (13), as required, connect sensing line (1) to pipe plug opening (19).

WARNING

**EYE PROTECTION**

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

8. Connect 100 PSI air supply to charging line extension hose (2).
9. Rotate set pressure knob (6) counterclockwise eight turns.
10. Open both gage petcocks (7).
11. Open air supply valve, applying input pressure.

12. Open inlet valve (4).

WARNING



EXPLOSION

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.

13. Observe input pressure gage (14) and rotate pressure knob (6) clockwise until gage reads 2 PSI.
14. When input pressure gage (14) is stable at 2 PSI, open outlet valve (5).
15. When output pressure gage (15) reads 2 PSI, close outlet valve (5).
16. Observe any pressure drop on output pressure gage (15).

CAUTION

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

17. Inspect all seams for evidence of leakage and mark observed leakage areas by spraying detergent on all seams.
18. Seams must be welded watertight before proceeding with assembly for mission. (TM 5-805-7)
19. To hold pressure while isolating a leak, open outlet valve (5) to allow regulator (16) to control air loss at a rate dependent upon volume of module and rate of leakage.
20. To shut down test set (11), close air supply valve and remove charging line extension hose (2).
21. Remove sensing line (1) from pipe plug (19) opening and remove test set (11).

WARNING



CHEMICAL



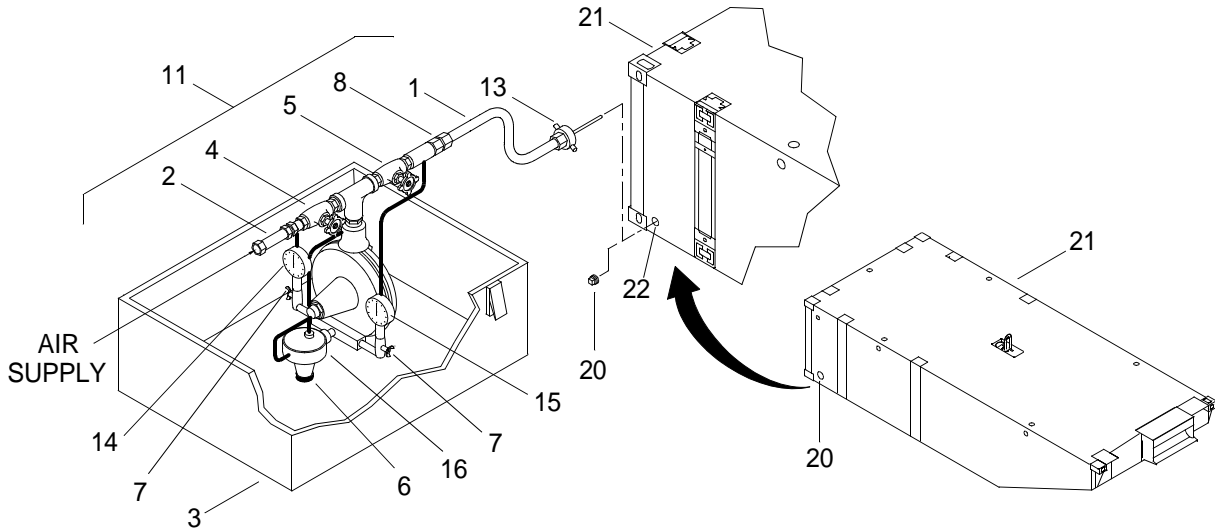
EYE PROTECTION

22. Apply sealing compound on plug (17) threads.
23. Using breaker bar, install plug (17) in end rake module (18) test location and tighten.
24. Close inlet and outlet (4, 5) valves, both gage petcocks (7) and rotate pressure knob (6) clockwise to end of travel.
25. Remove adaptor (13), if used, and stow in storage box (3).
26. Coil sensing line (1) and charging line extension hose (2) in storage box (3).

PRESSURE TEST 20 FT CENTER END RAKE MODULES
NOTE

The following procedure is typical for pressure testing all center end rake modules and for pipe plug location.

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



2. Verify inlet and outlet valves (4, 5), pressure knob (6) and both gage petcocks (7) are closed.
3. Connect sensing line (1) to outlet coupling fitting (8).
4. Using breaker bar, remove pipe plug (20) from center end rake module (21).
5. Position test set (11) on center end rake module (21).
6. Install sensing line (1) into module (21) through chosen pipe plug (22) opening.
7. Using pipe to hose adaptors (13), as required, connect sensing line (1) to pipe plug (22) opening.

WARNING

**EYE PROTECTION**

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

8. Connect 100 PSI air supply to charging line extension hose (2) connector.
9. Rotate set pressure knob (6) counterclockwise eight turns.
10. Open both gage petcocks (7).
11. Open air supply valve, applying input pressure.

-
12. Open inlet valve (4).

WARNING



EXPLOSION

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.

13. Observe input pressure gage (14) and rotate pressure knob (6) clockwise until gage reads 2 PSI.
14. When input pressure gage (14) is stable at 2 PSI, open outlet valve (5).
15. When output pressure gage (15) reads 2 PSI, close outlet valve (5).
16. Observe any pressure drop on output pressure gage (15).

CAUTION

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

17. Inspect all seams for evidence of leakage and mark observed leakage areas by spraying detergent on all seams.
18. Seams must be welded watertight before proceeding with assembly for mission. (TM 5-805-7)
19. To hold pressure while isolating a leak, open outlet valve (5) to allow regulator (16) to control air loss at a rate dependent upon volume of module and rate of leakage.
20. To shut down test set (11), close air supply valve and remove charging line extension hose (3).
21. Remove sensing line (1) from pipe plug (22) opening and remove test set (11).

WARNING



CHEMICAL



EYE PROTECTION

22. Apply sealing compound on plug (20) threads.
23. Using breaker bar, install plug (21) in center end rake module (21) test location and tighten.

-
24. Close inlet and outlet (4, 5) valves, both gage petcocks (7) and rotate pressure knob (6) clockwise to end of travel.
 25. Remove adaptor (13), if used, and stow in storage box (3).
 26. Coil sensing line (1) and charging line extension hose (2) in storage box (3).

END OF WORK PACKAGE

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

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Hose Assembly, Nonmetallic (Item 18, WP 0149 00)
Cleaner, Power Washer (Item 4, WP 0149 00)
Scraper, Ship (Item 26, WP 0149 00)

Personnel Required

Seaman 88K

Equipment Condition

Intermediate Section Non-Powered Module Dry-Docked.

REMOVE INTERMEDIATE SECTION NON-POWERED MODULES MARINE GROWTH

1. Connect hose to power washer.

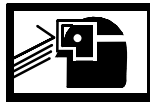
WARNING



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 MODULES
CLEANING AND PAINTING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Apron, Utility (Item 1, WP 0149 00)
Respirator, Air Filtering (Item 24, WP 0149 00)
Drill, Electric, Portable (Item 9, WP 0149 00)
Scraper, Ship (Item 26, WP 0149 00)

Materials/Parts

Brush, Paint (Item 5, WP 0148 00)
Roller Kit, Paint (Item 20, WP 0148 00)
Paint, Sherwin Williams Zinc-Clad XI, (Item 14, WP 0148 00)
Paint, Sherwin Williams Dura-Skid 460 (Item 15, WP 0148 00)
Reducer R7K15 (Item 18, WP 0148 00)
Paper, Abrasive (320 Grit) (Item 16, WP 0148 00)
Tape, Pressure Sensitive Adhesive (Item 24, WP 0148 00)
Cloth, Cleaning (Item 7, WP 0148 00)
Disk, Abrasive, (240 Grit) (Item 8, WP 0148 00)

Personnel Required

Seaman 88K

References

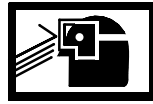
SSPC-SP-10
DOD-PRF-24648
MIL-PRF-23236

Equipment Condition

Intermediate Section Non-Powered Module Marine Growth Removed. (WP 0029 00)

PREPARE AND CLEAN INTERMEDIATE SECTION NON-POWERED MODULES FOR PAINTING

 WARNING



EYE PROTECTION

NOTE

This task is typical for spot painting of module exteriors. Preparation procedures are in accordance with Steel Structures Painting Council, SP-10 Hand Tool Cleaning (SSPC SP-10). These coatings are approved in accordance with DOD-PRF-24648 and MIL-PRF-23236.

The following steps will be performed prior to module surface painting. Upon completion of rust and paint removal, the surface finish shall be free of all oil, grease, dirt, mill scale, rust, corrosion products, oxides, paint or other foreign matter.

1. Remove all oil, dust, grease, dirt, loose rust and other foreign matter by use of portable electric drill and sanding disks, hand scraping, hand sanding or a combination of these methods.
2. Using fresh water and cleaning cloth, wipe area clean and allow to air dry in preparation for painting.

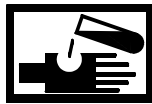
**PAINT INTERMEDIATE SECTION NON-POWERED MODULES EXTERIOR
STEEL SURFACES**

1. Mask off areas to be painted.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR

NOTE

Inorganic zinc coating comes in two premeasured containers which, when mixed with water, provides four gallons of ready-to-apply material.

Application temperature range limits are 40° - 100°F.

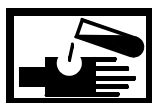
No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

2. Mix two part water based inorganic zinc-rich coating in accordance with manufacturers instructions.

 WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR

3. Using brush, apply mixed water based inorganic zinc-rich coating in accordance with manufacturers instructions.

- Clean up any spills and splatters immediately with soap and warm fresh water.

NOTE

Cold temperatures or high humidity will retard drying time.

- Allow coating to cure, approximately two hours at 77°F, prior to placing in service.
- Remove masking tape from masked off areas.

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

- Mask off area to coated.

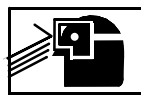
WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

Non-skid deck coating is a two part kit general purpose, polyamide epoxy coating that is mixed prior to application.

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

Application temperature range limits are 50° - 110°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.

- Mix two part non-skid deck coating in accordance with manufacturers instructions.

WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

- Using nylon roller and paint tray or brush, apply non-skid deck coating to deck surface.
- Back roll or brush coating while wet at a 90° angle to evenly spread the texture.
- Clean up any spills and splatters immediately with reducer.

NOTE

Cold temperatures or high humidity will retard drying time.

6. Allow to cure, approximately 24 hours at 77°F, prior to use by light traffic.
7. Remove masking tape from masked off areas.

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

CAUTION

Do not prime or paint rubber surfaces of flexor assemblies.

1. Mask off areas to be painted.

WARNING


POISON



CHEMICAL



EYE PROTECTION



VAPOR

NOTE

Inorganic zinc coating comes in two premeasured containers which when mixed with water provides four gallons of ready-to-apply material.

Application temperature range limits are 40° - 100°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. Mix water based inorganic zinc-rich coating in accordance with manufacturers instructions.

WARNING


POISON



CHEMICAL



EYE PROTECTION



VAPOR

3. Using brush, apply water based inorganic zinc-rich coating in accordance with procedures contained in DOD-PRF-24648.
4. Clean up any spills and splatters immediately with soap and warm fresh water.

NOTE

Cold temperatures or high humidity will retard drying time.

5. Allow coating to cure, approximately two hours at 77°F, prior to placing in service.
6. Remove masking tape from masked off areas.

END OF WORK PACKAGE

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

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Apron, Utility (Item 1, WP 0149 00)
Crowbar (Item 6, WP 0149 00)

Materials/Parts

Paint, Sherwin Williams Zinc-Clad XI (Item 14, WP 0148 00)
Grease, General Purpose (Lubriplate) (Item 9, WP 0148 00)
Antiseize Compound (Item 3, WP 0148 00)
Sponge, Rectangular (Item 22, WP 0148 00)
Wedge, Wood (Item 26, WP 0148 00)

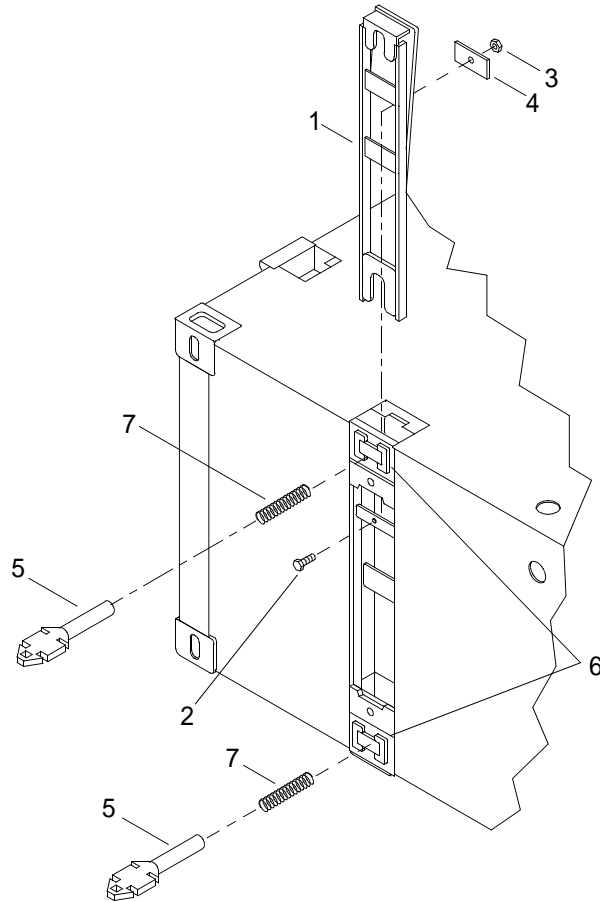
Personnel Required

Seaman 88K

Equipment Condition

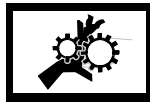
Intermediate Section Non-Powered Module Dry Docked.

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

 1. Disassemble male guillotine connector assembly (1).


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

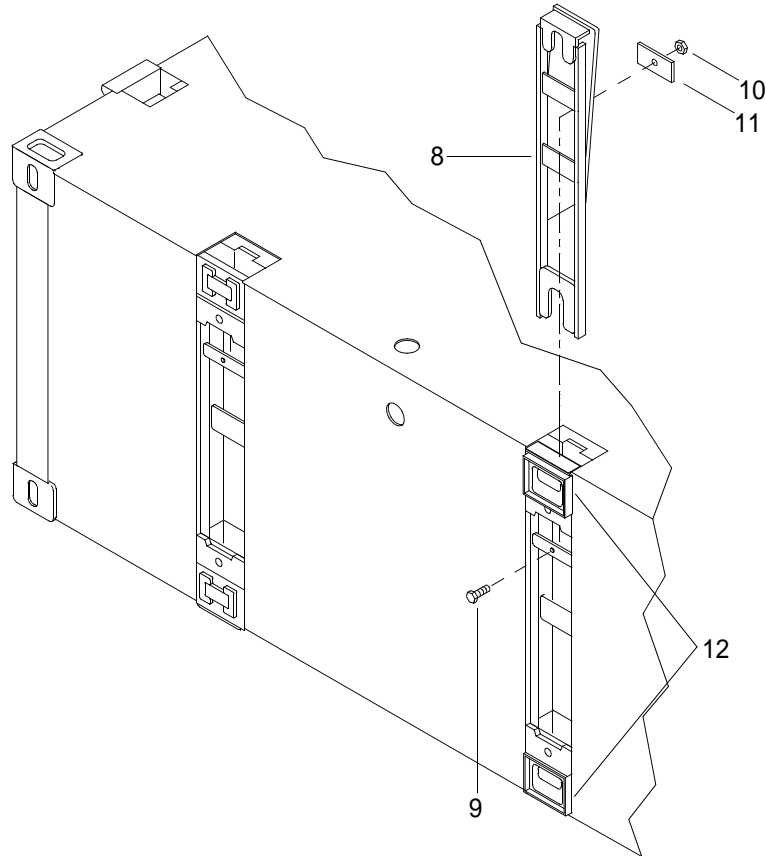
 WARNING


MOVING PARTS

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

- c. Place wood wedge under upper "lip" of guillotine connector bar (1) after it is raised to hold it in up position.
- d. Push up on retainer located on underside of male connector pins (5).
- e. Remove male connector pins (5) from guillotine connector lock housings (6).
- f. Remove deployment springs (7).
- g. Remove guillotine connector bar (1) from guillotine lock housings (6).

2. Disassemble female guillotine connector assembly (8).



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

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

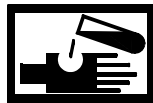
1. Lubricate guillotine connector assemblies.

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 0030 00)

WARNING

**EYE PROTECTION**

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

WARNING

**CHEMICAL****EYE PROTECTION**

- b. Spot paint exposed surfaces. (WP 0030 00)

3. Remove standing water with a sponge from guillotine connector assemblies.

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

1. Assemble female guillotine connector assembly.
 - a. Install guillotine connector bar (8) into guillotine lock housing (12).

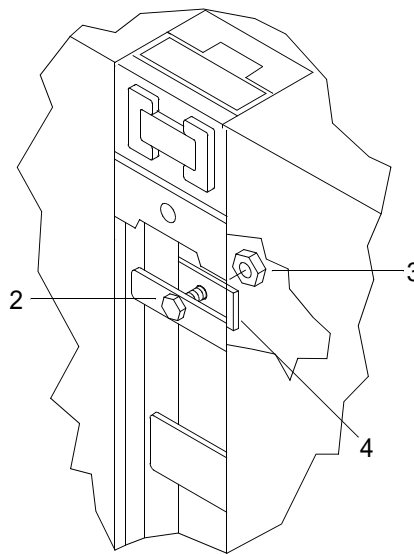
WARNING

**CHEMICAL****EYE PROTECTION**

- b. Apply antiseize compound to threads of bolt (9).
 - c. Install bolt (9) through friction plate (11) and nut (10).
2. Assemble male guillotine connector assembly.
 - a. Install guillotine connector bar (1) into guillotine lock housing (6).
 - b. Place wood wedge under upper “lip” of guillotine connector bar (1) to hold it in up position.
 - c. Install deployment spring (7) on male connector pin (5).
 - d. Install male connector pin (5) into guillotine connector lock housing (6) by pushing down on retainer located on underside of male connector pin (5) to lock pin in place.
 - e. Install bolt (2) through friction plate (4) and nut (3).

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

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



CAUTION

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

2. Tighten bolt (2) and nut (3).
3. Remove wedge of wood.
4. Raise and lower male and female guillotine connectors and check for smooth operation and verify female connector remains in the raised position.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION FLEXOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Crowbar (Item 6, WP 0149 00)
 Hammer, Hand (10 lb Sledge) (Item 16, WP 0149 00)
 Sling, Lifting, 5,300 lb (Green) (Item 29, WP 0149 00)
 Forklift Adapter (Item 10, WP 0149 00)

Materials/Parts

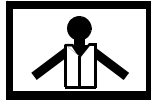
Flexor
 PN E02783

Personnel Required

Seaman 88K

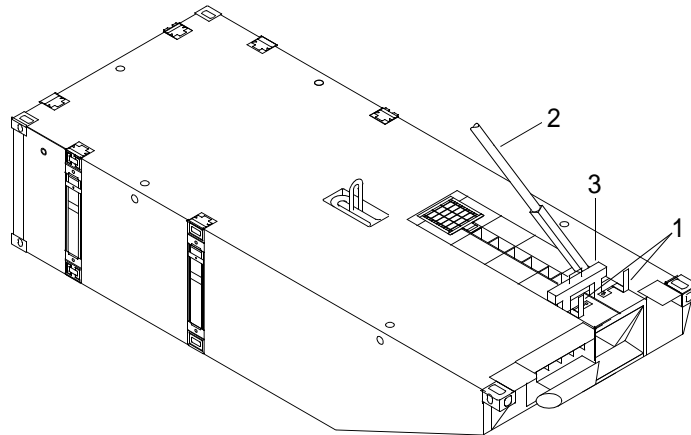
REMOVE INTERMEDIATE SECTION FLEXOR

WARNING

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

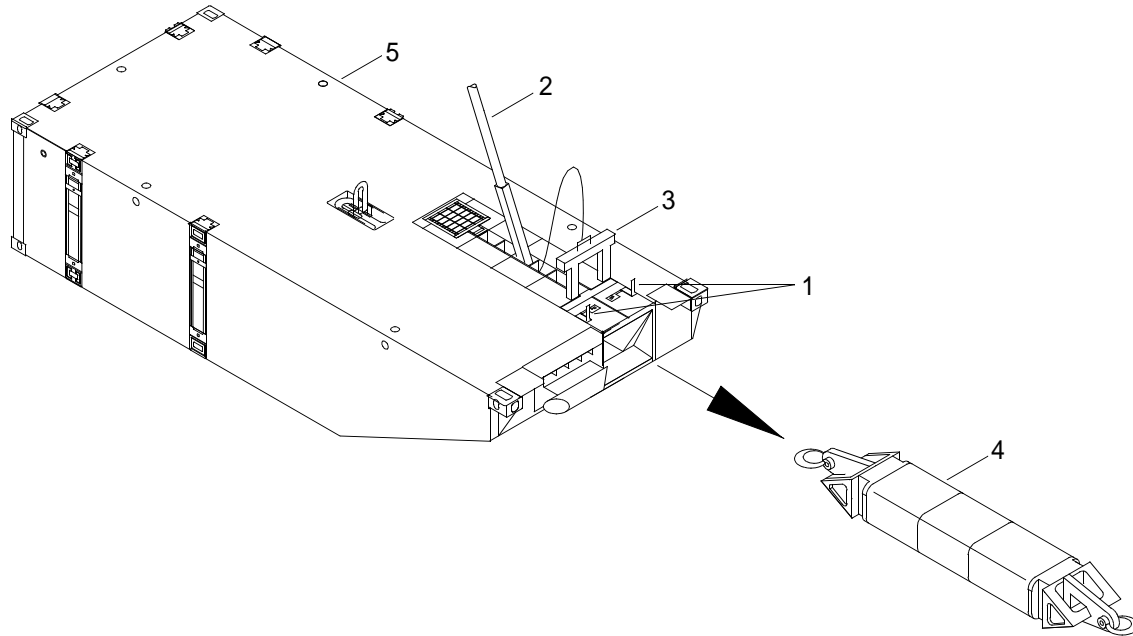
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

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



2. Using a crowbar (2), lift guillotine plate (3) up from flexor connector slots.

3. Move flexor (4) forward using a crowbar (2).



WARNING



HEAVY PARTS

4. Remove flexor connector (4) from end rake (5) using a forklift, forklift adapter and sling.
5. Using sledgehammer, drive down guillotine (3) and rotate chute bolt handles (1) to locked position.

INSTALL INTERMEDIATE SECTION FLEXOR

1. Rotate chute bolt handles (1) and pull chute bolts (1) to unlocked position.
2. Using a crowbar (2), lift guillotine plate (3) up from flexor connector slots.

WARNING



HEAVY PARTS

3. Position flexor connector (4) into end rake (5) using a forklift, forklift adapter and sling.
4. Push flexor (4) backward using a crowbar (2).
5. Using sledgehammer, drive down guillotine (3) and rotate chute bolt handles (1) to locked position.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION FLEXOR WELL CHUTE BOLT COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

Cover, Bolt, Right
 PN E38052
 Cover, Bolt, Left
 PN E38082
 Adhesive, General Purpose (Threadlocker) (Item 1, WP 0148 00)

Personnel Required

Engineer 88L

REMOVE INTERMEDIATE SECTION FLEXOR WELL CHUTE BOLT COVER

WARNING

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

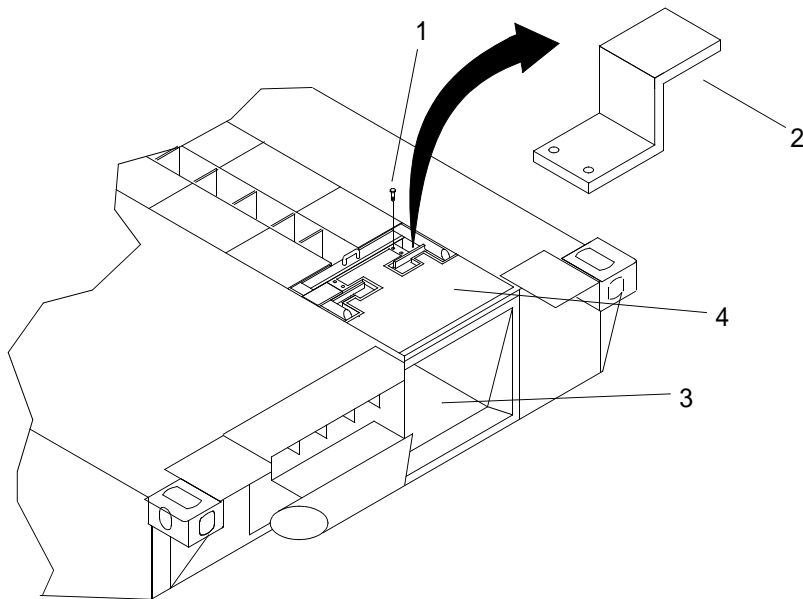
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

This task is typical for the removal and installation of flexor well chute bolt covers.

The bolts securing the chute bolt cover to the flexor well are accessed through holes in the flexor well top plate.

1. Remove bolts (1) securing flexor well chute bolt cover (2) to flexor well (3).



2. Remove and discard flexor well chute bolt cover (2).

INSTALL INTERMEDIATE SECTION FLEXOR WELL CHUTE BOLT COVER

1. Position new flexor well chute bolt cover (2) through opening in flexor well top plate (4).

WARNING



CHEMICAL



EYE PROTECTION

2. Apply coat of adhesive to threads of bolts (1).
3. Install bolts (1) to secure flexor well chute bolt cover (2) in flexor well (3). Tighten bolts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
INTERMEDIATE SECTION FLEXOR WELL CHUTE BOLT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

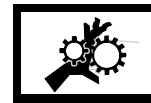
Receiver, Chute Bolt
 PN E04842
 Adhesive, General Purpose (Threadlocker) (Item 1, WP 0148 00)

Personnel Required

Engineer 88L

REMOVE INTERMEDIATE SECTION FLEXOR WELL CHUTE BOLT

WARNING

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

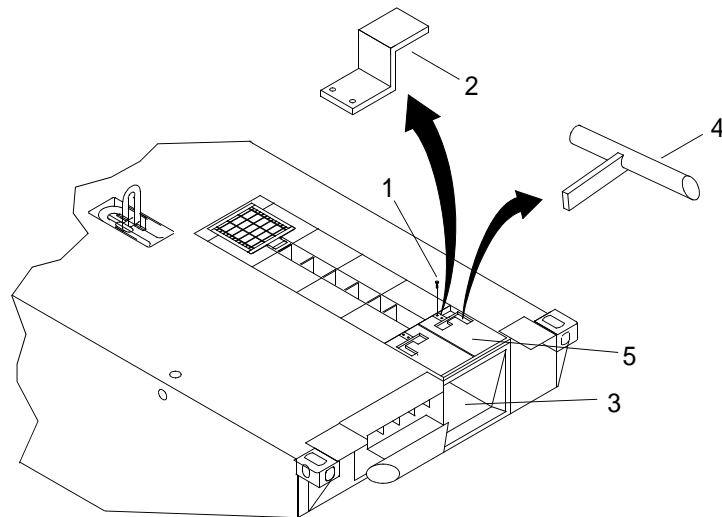
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

This task is typical for the removal and installation of flexor well chute bolts.

The bolts securing the chute bolt cover are accessed through holes in the flexor well top plate.

1. Remove bolts (1) securing flexor well chute bolt cover (2) to flexor well (3).



2. Remove flexor well chute bolt cover (2) from flexor well (3).
3. Remove flexor well chute bolt (4) from inside flexor well (3) and discard.

INSTALL INTERMEDIATE SECTION FLEXOR WELL CHUTE BOLT

1. Position new flexor well chute bolt (4) into flexor well (3).

WARNING



CHEMICAL



EYE PROTECTION

2. Apply coat of adhesive to threads of bolts (1).
3. Position flexor well chute bolt cover (2) through opening of flexor well top cover (5).
4. Install bolts (1) to secure flexor well chute bolt cover (2) in flexor well (3). Tighten bolts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
NON-POWERED MODULES
SERVICE**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Dispensing Pump, Hand Driven (Item 7, WP 0149 00)
Wrench Set, Socket (Item 35, WP 0149 00)

Materials/Parts

Antiseize Compound (Item 2, WP 0148 00)

Personnel Required

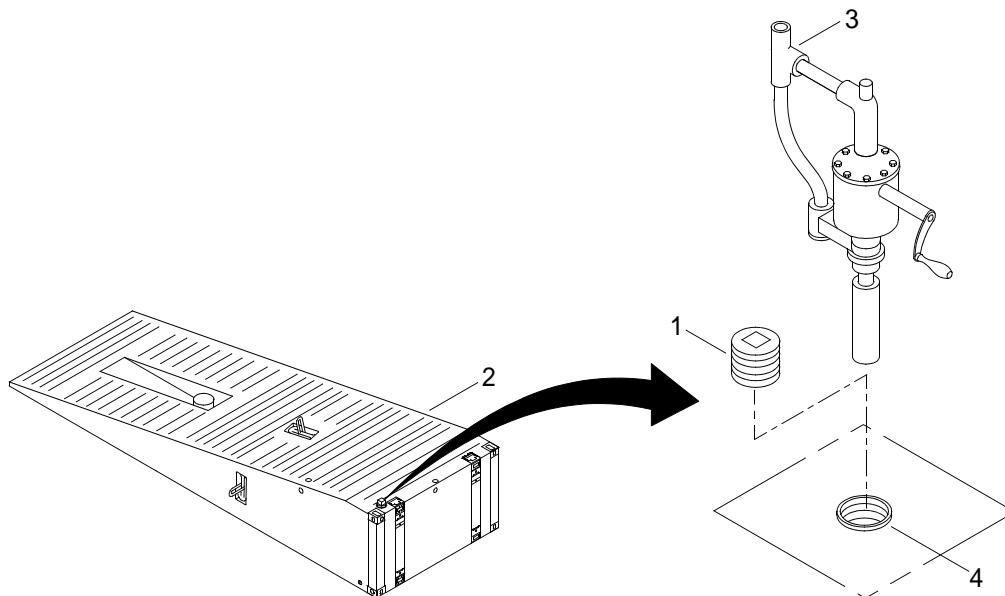
Seaman 88L

Equipment Condition

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

DRAIN WATER FROM COMBINATION BEACH/SEA END SECTION NON-POWERED MODULES**DRAIN WATER FROM 25 FT COMBINATION BEACH/SEA END MODULE**

1. Using breaker bar, remove machine plug (1) from top of combination beach/sea end module (2).



-
2. Determine if water is present in combination beach/sea end module (2).
 - a. If water is not present, proceed to step 3 and 4.
 - b. If water is present, proceed to step 5.

WARNING



EYE PROTECTION



CHEMICAL

3. Apply antiseize compound to threads of machine plug (1).
4. Using breaker bar, install plug (1) into combination beach/sea end module (2). Tighten machine plug (1).
5. Drain combination beach/sea end module (2) of water.
 - a. Lower telescoping siphon of hand pump (3) through hole (4) in top of combination beach/sea end module (2).
 - b. Operate hand pump (3) to remove water.
 - c. Pressure test combination beach/sea end module (2). (WP 0036 00)

WARNING



EYE PROTECTION

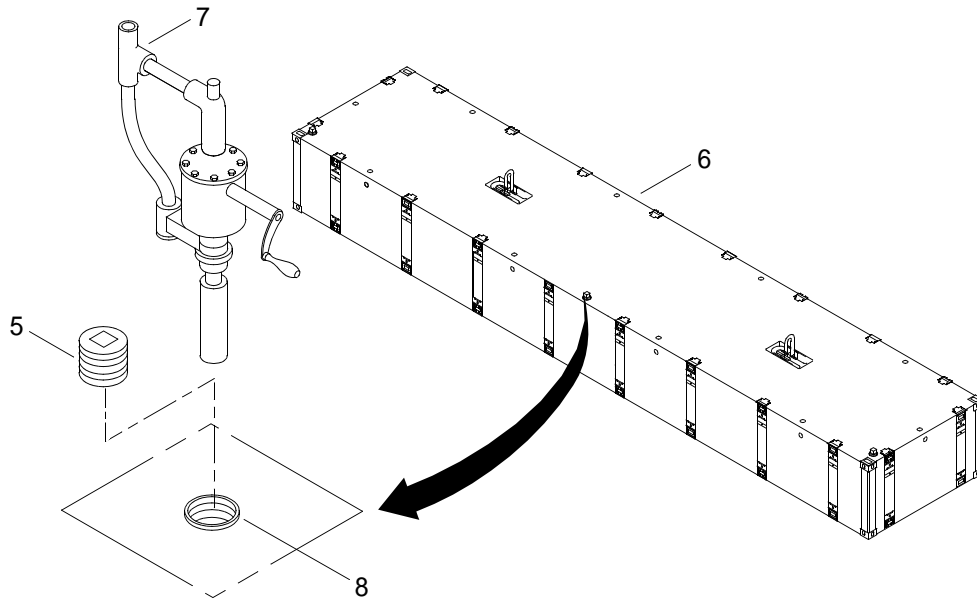


CHEMICAL

- d. Apply antiseize compound to threads of machine plug (1).
- e. Using breaker bar, install machine plug (1) into center module (2). Tighten machine plug (1).

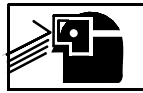
DRAIN WATER FROM 40 FT CENTER MODULE

1. Using breaker bar, remove three machine plugs (5) from top of center module (6).



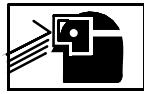
2. Determine if water is present in center module (6).
 - a. If water is not present, proceed to step 3 and 4.
 - b. If water is present, proceed to step 5.

WARNING

**EYE PROTECTION****CHEMICAL**

3. Apply antiseize compound to threads of machine plugs (5).
4. Using breaker bar, install machine plugs (5) into center module (6). Tighten machine plugs (5).
5. Drain center module (6) of water.
 - a. Lower telescoping siphon of hand pump (7) through hole (8) in top of center module (6).
 - b. Operate hand pump (7) to remove water.
 - c. Pressure test center module (6). (WP 0036 00)

 WARNING



EYE PROTECTION

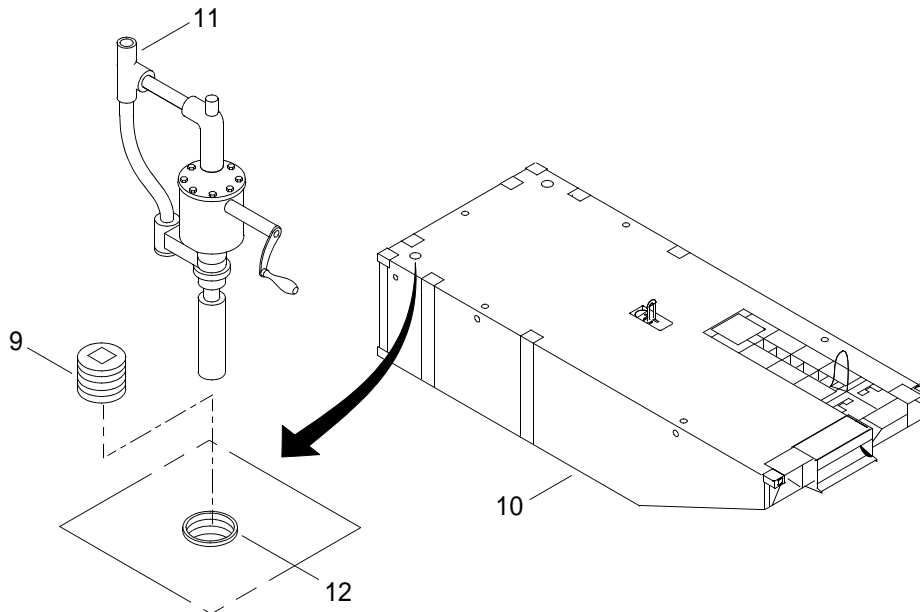


CHEMICAL

- d. Apply antiseize compound to threads of machine plugs (5).
- e. Using breaker bar, install machine plugs (5) into center module (6). Tighten machine plugs (5).

DRAIN WATER FROM 20 FT LEFT AND RIGHT END RAKE MODULES

1. Using breaker bar, remove machine plug (9) from left/right end rake module (10).



2. Determine if water is present in left/right end rake module (10).
 - a. If water is not present, proceed to step 3 and 4.
 - b. If water is present, proceed to step 5.

 WARNING



EYE PROTECTION



CHEMICAL

3. Apply antiseize compound to threads of machine plug (9).
4. Using breaker bar, install machine plug (9) into left/right end rake module (10). Tighten machine plug (9).

5. Drain center module (10) of water.
 - a. Lower telescoping siphon of hand pump (11) through hole (12) in top of left/right end rake module (10).
 - b. Operate hand pump (11) to remove water.
 - c. Pressure test left/right end rake module (10). (WP 0036 00)

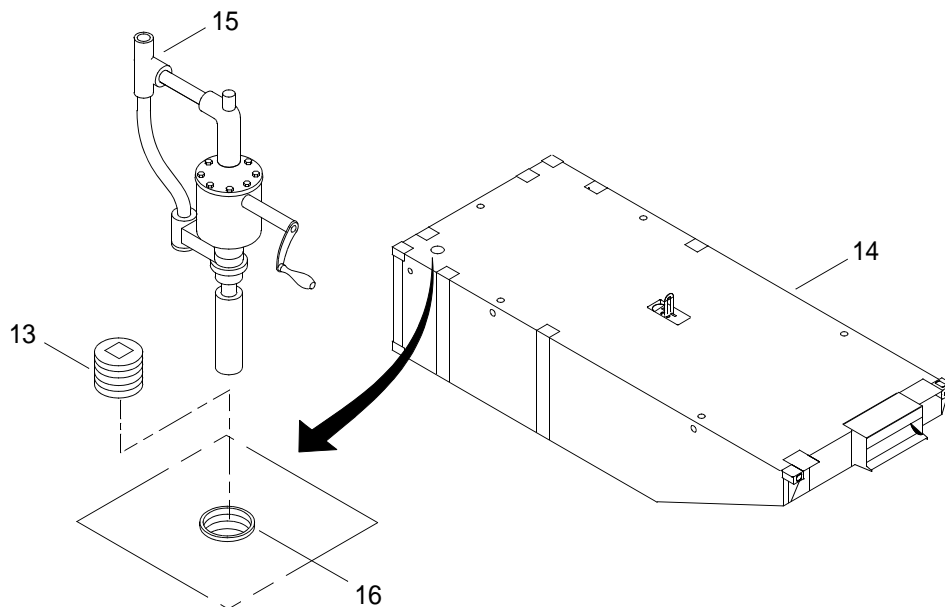
WARNING



- d. Apply antiseize compound to threads of machine plugs (9).
- e. Using breaker bar, install machine plugs (9) into center module (10). Tighten machine plugs (9).

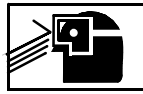
DRAIN WATER FROM 20 FT CENTER END RAKE MODULE

1. Using breaker bar, remove machine plug (13) from center end rake module (14).



2. Determine if water is present in center end rake module (14).
 - a. If water is not present, proceed to step 3 and 4.
 - b. If water is present, proceed to step 5.

WARNING

**EYE PROTECTION****CHEMICAL**

3. Apply antiseize compound to threads of machine plugs (13).
4. Using breaker bar, install machine plugs (13) into center end rake module (14). Tighten machine plugs (13).
5. Drain center end rake module (14) of water.
 - a. Lower telescoping siphon of hand pump (15) through hole (16) in top of center end rake module (14).
 - b. Operate hand pump (15) to remove water.
 - c. Pressure test center end rake module (14). (WP 0036 00)

WARNING

**EYE PROTECTION****CHEMICAL**

- d. Apply antiseize compound to threads of machine plugs (13).
- e. Using breaker bar, install machine plugs (13) into center module (14). Tighten machine plugs (1).

END OF WORK PACKAGE

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

INITIAL SETUP:**Test Equipment**

Test Set, Compartment Air (Item 32, WP 0149 00)

Tools

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Compressor, Unit, Reciprocating, Power Drive (Item 5, WP 0149 00)
Wrench Set, Socket (Item 35, WP 0149 00)

Materials/Parts

Antiseize Compound (Item 2, WP 0148 00)
Detergent, General Purpose (with bottle) (Item 28, WP 0148 00)

Personnel Required

Engineer 88L

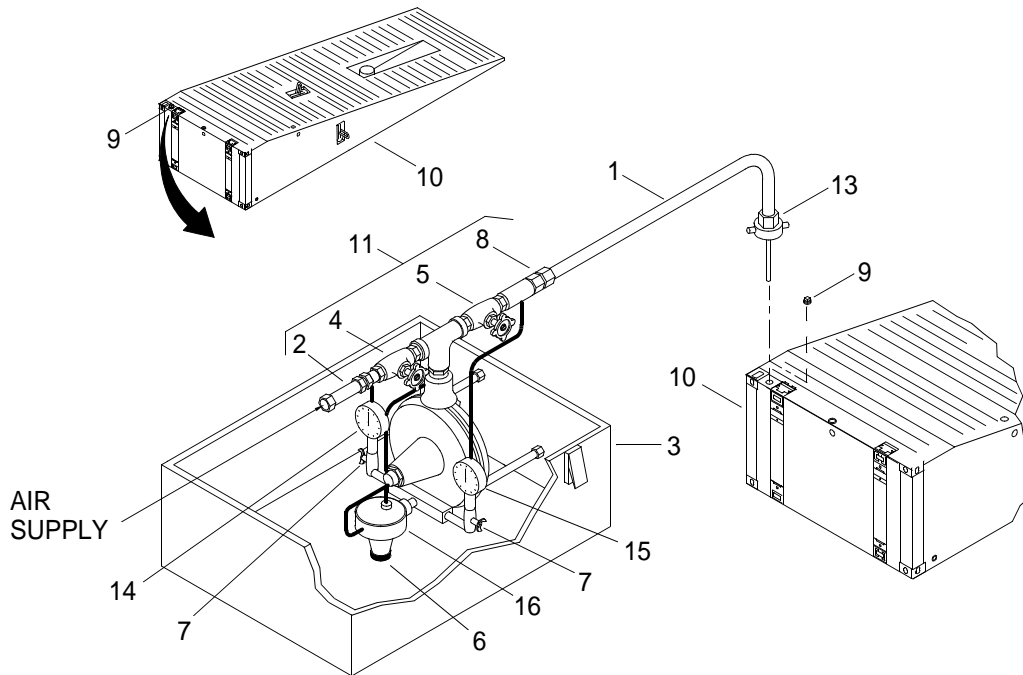
Equipment Condition

Combination Beach/Sea Section Non-Powered Modules Dry-Docked.

PRESSURE TEST COMBINATION BEACH/SEA END SECTION NON-POWERED MODULES**PRESSURE TEST 25 FT COMBINATION BEACH/SEA END MODULE****NOTE**

The following procedure is typical for pressure testing all CBSE modules
and for pipe plug location.

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



2. Verify inlet and outlet valves (4, 5) pressure knob (6) and both gage petcocks (7) are closed.
3. Connect sensing line (1) to the outlet coupling fitting (8).
4. Using breaker bar, remove pipe plug (9) from top of CBSE module (10).
5. Position test set (11) on CBSE module (10).
6. Install test set sensing line (1) into CBSE module (10) through chosen pipe plug opening (12).
7. Using pipe to hose adaptors (13), as required, connect sensing line (2) to pipe plug opening (12).

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.

8. Connect 100 PSI air supply to inlet valve (4) connector.
9. Rotate pressure knob (6) counterclockwise eight turns.
10. Open both gage petcocks (7).
11. Open air supply valve, applying input pressure.
12. Open test set inlet valve (4).

WARNING

**EXPLOSION**

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.

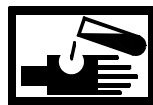
13. Observe input pressure gage (14) and rotate pressure knob (6) clockwise until gage reads 2 PSI.
14. When input pressure gage (14) is stable at 2 PSI, open outlet valve (5).
15. When output pressure gage (15) reads 2 PSI, close outlet valve (5).
16. Observe any pressure drop on output pressure gage (15).

CAUTION

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

17. Inspect all seams for evidence of leakage and mark observed leakage areas by spraying detergent on all seams.
18. Seams must be welded watertight before proceeding with assembly for mission. (TM 5-805-7)
19. To hold pressure while isolating a leak, open outlet valve (6) to allow regulator (16) to control air loss at a rate dependent upon the volume of the module and rate of leakage.
20. To shut down the test set (11), close air supply valve and remove charging line extension hose (2).
21. Remove test set sensing line (1) from pipe plug opening (12) and remove test set (11).

WARNING

**CHEMICAL****EYE PROTECTION**

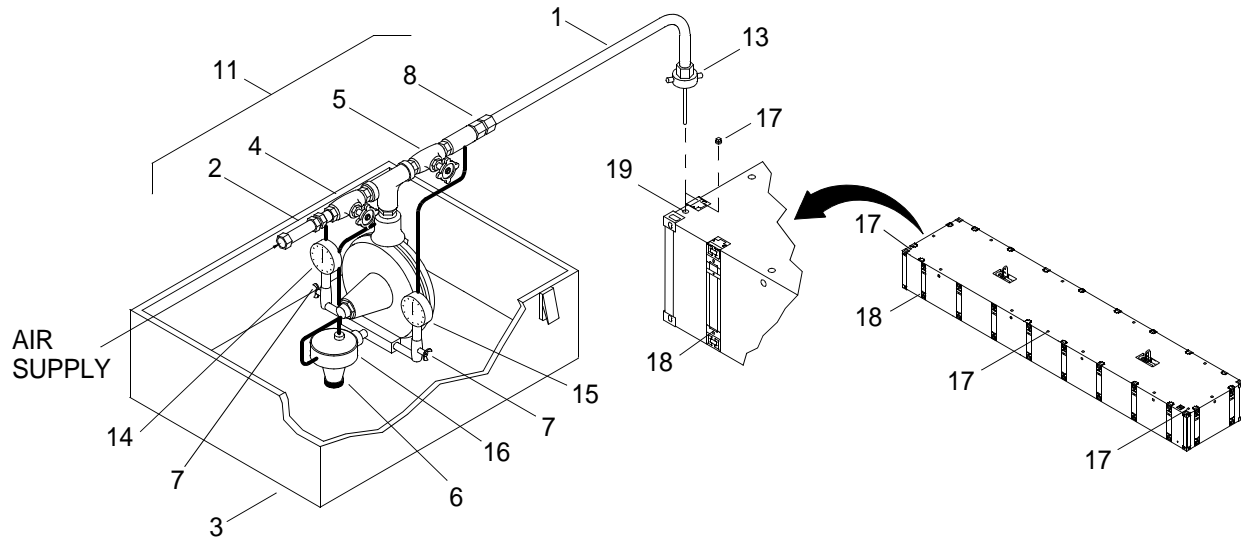
22. Apply sealing compound on pipe plug (9) threads.
23. Using breaker bar, install plug (9) in test location on CBSE module (10) and tighten.
24. Close inlet and outlet (4, 5) valves, both gage petcocks (7) and rotate pressure knob (6) clockwise to end of travel.
25. Remove adaptor (13), if used, and stow in storage box (3).
26. Coil sensing line (1) and charging line extension hose (2) in storage box (3).

PRESSURE TEST 40 FT CENTER MODULE
NOTE

The center module is divided into three airtight sections. Pressure test must be performed at all three drain plug locations.

The following procedure is typical for pressure testing all center modules and for pipe plug location.

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



2. Verify inlet and outlet valves (4, 5) pressure knob (6) and both gage petcocks (7) are closed.
3. Connect sensing line (1) to outlet coupling fitting (8).
4. Using breaker bar, remove pipe plug (17) from one of three locations at side of center module (18).
5. Position test set (11) on center module (18).
6. Install test set sensing line (1) into center module (18) through chosen pipe plug (19) opening.
7. Using pipe to hose adaptors (13), as required, connect sensing line (1) to pipe plug (19) opening.

WARNING

**EYE PROTECTION**

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

8. Connect 100 PSI air supply to charging line extension hose (2) connector.
9. Rotate pressure knob (6) counterclockwise eight turns.

10. Open both gage petcocks (7).
11. Open air supply valve, applying input pressure.
12. Open test set inlet valve (4).

WARNING



EXPLOSION

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.

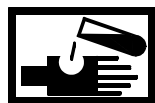
13. Observe input pressure gage (14) and rotate pressure knob (6) clockwise until gage reads 2 PSI.
14. When input pressure gage (14) is stable at 2 PSI, open outlet valve (5).
15. When output pressure gage (15) reads 2 PSI, close outlet valve (5).
16. Observe any pressure drop on output pressure gage (15).

CAUTION

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

17. Inspect all seams for evidence of leakage and mark observed leakage areas by spraying detergent on all seams.
18. Seams must be welded watertight before proceeding with assembly for mission. (TM 5-805-7)
19. To hold pressure while isolating a leak, open outlet valve (5) to allow regulator (16) to control air loss at a rate dependent upon volume of module and rate of leakage.
20. To shut down test set (11), close air supply valve and remove charging line extension hose (2).
21. Remove test set sensing line (1) from pipe plug (19) opening and remove test set (11).

WARNING



CHEMICAL



EYE PROTECTION

22. Apply sealing compound on pipe plug (17) threads.
23. Using breaker bar, install pipe plug (17) in test location on center module (18) and tighten.
24. Close inlet and outlet valves (4, 5), both gage petcocks (7) and rotate pressure knob (6) clockwise to end of travel.

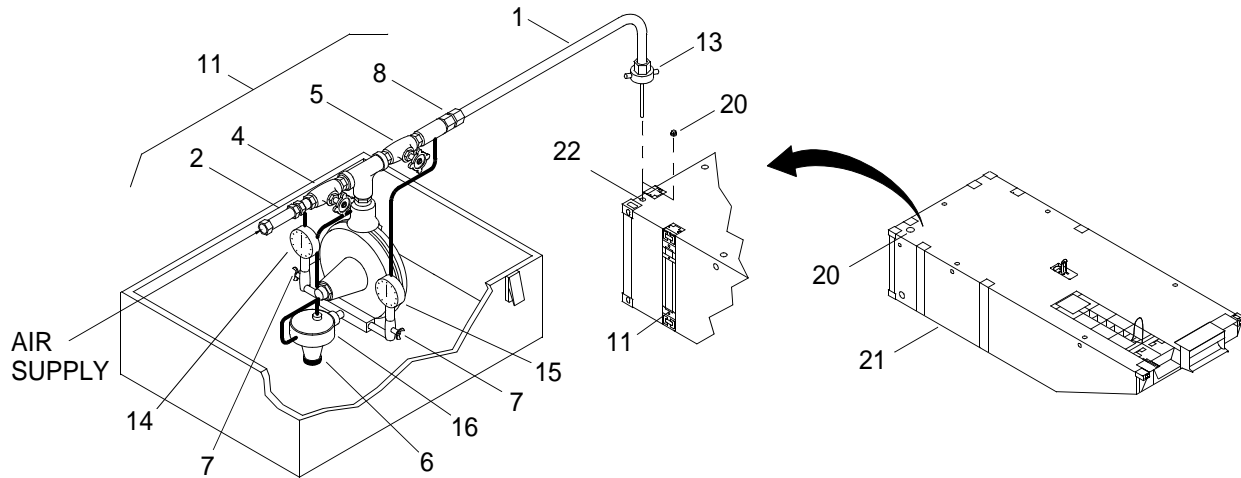
25. Remove adaptor (13), if used, and stow in storage box (3).
26. Coil sensing line (1) and charging line extension hose (2) in storage box (3).

PRESSURE TEST 20 FT RIGHT AND LEFT END RAKE MODULES

NOTE

The following procedure is typical for pressure testing all right and left end rake modules and for pipe plug location.

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



2. Verify inlet and outlet valves (4, 5), pressure knob (6) and both gage petcocks (7) are closed.
3. Connect sensing line (1) to outlet coupling fitting (8).
4. Using breaker bar, remove pipe plug (20) from end rake module (21).
5. Position test set (11) on end rake module (21).
6. Install test set sensing line (1) into end rake module (21) through chosen pipe plug (22) opening.
7. Using pipe to hose adaptors (13), as required, connect sensing line (1) to pipe plug (22) opening.

WARNING



EYE PROTECTION

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

8. Connect 100 PSI air supply to charging line extension hose (2).
9. Rotate set pressure knob (6) counterclockwise eight turns.

10. Open both gage petcocks (7).
11. Open air supply valve, applying input pressure.
12. Open test set inlet valve (4).

WARNING



EXPLOSION

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.

13. Observe input pressure gage (14) and rotate pressure knob (6) clockwise until gage reads 2 PSI.
14. When input pressure gage (14) is stable at 2 PSI, open outlet valve (5).
15. When output pressure gage (15) reads 2 PSI, close outlet valve (5).
16. Observe any pressure drop on output pressure gage (15).

CAUTION

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

17. Inspect all seams for evidence of leakage and mark observed leakage areas by spraying detergent on all seams.
18. Seams must be welded watertight before proceeding with assembly for mission. (TM 5-805-7)
19. To hold pressure while isolating a leak, open outlet valve (5) to allow regulator (16) to control air loss at a rate dependent upon volume of module and rate of leakage.
20. To shut down test set (11), close air supply valve and remove charging line extension hose (2).
21. Remove test set sensing line (1) from pipe plug (22) opening and remove test set (11).

WARNING



CHEMICAL



EYE PROTECTION

22. Apply sealing compound on pipe plug (20) threads.
23. Using breaker bar, install plug (20) in test location on end rake module (21) and tighten.
24. Close inlet and outlet (4, 5) valves, both gage petcocks (7) and rotate pressure knob (6) clockwise to end of travel.

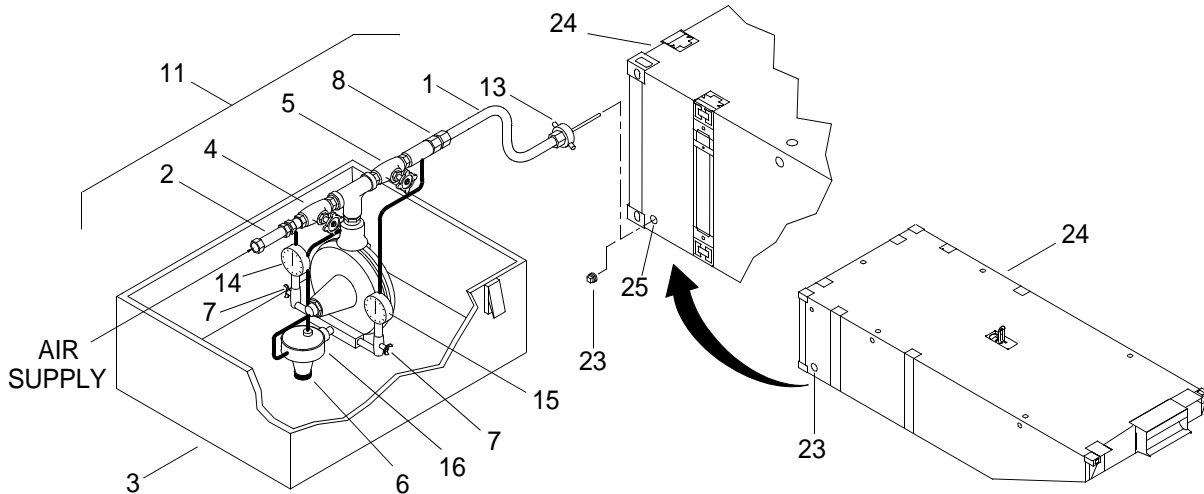
25. Remove adaptor (13), if used, and stow in storage box (3).
26. Coil sensing line (1) and charging line extension hose (3) in storage box (3).

PRESSURE TEST 20 FT CENTER END RAKE MODULES

NOTE

The following procedure is typical for pressure testing all center end rake modules and for pipe plug location.

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



2. Verify inlet and outlet valves (4, 5), pressure knob (6) and both gage petcocks (7) are closed.
3. Connect sensing line (1) to outlet coupling fitting (8).
4. Using breaker bar, remove pipe plug (23) from center end rake module (24).
5. Position test set (11) on center end rake module (24).
6. Install test set sensing line (1) into center end rake module (24) through chosen pipe plug (25) opening.
7. Using pipe to hose adaptors (13), as required, connect sensing line (1) to pipe plug (25) opening.

WARNING



EYE PROTECTION

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

8. Connect 100 PSI air supply to charging line extension hose (2) connector.
9. Rotate set pressure knob (6) counterclockwise eight turns.

10. Open both gage petcocks (7).
11. Open air supply valve, applying input pressure.
12. Open test set inlet valve (4).

WARNING



EXPLOSION

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.

13. Observe input pressure gage (14) and rotate pressure knob (6) clockwise until gage reads 2 PSI.
14. When input pressure gage (14) is stable at 2 PSI, open outlet valve (5).
15. When output pressure gage (15) reads 2 PSI, close outlet valve (5).
16. Observe any pressure drop on output pressure gage (15).

CAUTION

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

17. Inspect all seams for evidence of leakage and mark observed leakage areas by spraying detergent on all seams.
18. Seams must be welded watertight before proceeding with assembly for mission. (TM 5-805-7)
19. To hold pressure while isolating a leak, open outlet valve (5) to allow regulator (16) to control air loss at a rate dependent upon volume of module and rate of leakage.
20. To shut down test set (11), close air supply valve and remove charging line extension hose (3).
21. Remove test set sensing line (1) from pipe plug (25) opening and remove test set (11).

WARNING



CHEMICAL



EYE PROTECTION

22. Apply sealing compound on pipe plug (23) threads.

-
23. Using breaker bar, install plug (23) in test location on center end rake module (24) and tighten.
 24. Close inlet and outlet (4, 5) valves, both gage petcocks (7) and rotate pressure knob (6) clockwise to end of travel.
 25. Remove adaptor (13), if used, and stow in storage box (3).
 26. Coil sensing line (1) and charging line extension hose (2) in storage box (3).

END OF WORK PACKAGE

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

INITIAL SETUP:**Tools**

Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Hose Assembly, Nonmetallic (Item 18, WP 0149 00)
 Cleaner, Power Washer (Item 4, WP 0149 00)
 Scraper, Ship (Item 26, WP 0149 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 MODULES
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 MODULES
CLEANING AND PAINTING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Apron, Utility (Item 1, WP 0149 00)
Respirator, Air Filtering (Item 24, WP 0149 00)
Drill, Electric, Portable (Item 9, WP 0149 00)
Scraper, Ship (Item 26, WP 0149 00)

Materials/Parts

Brush, Paint (Item 5, WP 0148 00)
Roller Kit, Paint (Item 20, WP 0148 00)
Paint, Sherwin Williams Zinc-Clad XI, (Item 14, WP 0148 00)
Paint, Sherwin Williams Dura-Skid 460 (Item 15, WP 0148 00)
Reducer R7K15 (Item 18, WP 0148 00)
Paper, Abrasive (320 Grit) (Item 16, WP 0148 00)
Tape, Pressure Sensitive Adhesive (Item 24, WP 0148 00)
Cloth, Cleaning (Item 7, WP 0148 00)
Disk, Abrasive, (240 Grit) (Item 8, WP 0148 00)

Personnel Required

Seaman 88K

References

SSPC-SP-10
DOD-PRF-24648
MIL-PRF-23236

Equipment Condition

Combination Beach/Sea End Section Non-Powered Module Marine Growth Removed. (WP 0037 00)

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

 WARNING



EYE PROTECTION

NOTE

This task is typical for spot painting of module exteriors. Preparation procedures are in accordance with Steel Structures Painting Council, SP-10 Hand Tool Cleaning (SSPC SP-10). These coatings are approved in accordance with DOD-PRF-24648 and MIL-PRF-23236.

The following steps will be performed prior to module surface painting. Upon completion of rust and paint removal, the surface finish shall be free of all oil, grease, dirt, mill scale, rust, corrosion products, oxides, paint or other foreign matter.

1. Remove all oil, dust, grease, dirt, loose rust and other foreign matter by use of portable electric drill and sanding disks, hand scraping, hand sanding or a combination of these methods.
2. Using fresh water and cleaning cloth, wipe area clean and allow to air dry.

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

1. Mask off areas to be painted.

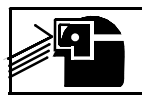
 WARNING



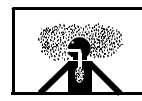
POISON



CHEMICAL



EYE PROTECTION



VAPOR

NOTE

Inorganic zinc coating comes in two premeasured containers which, when mixed with water, provides four gallons of ready-to-apply material.

Application temperature range limits are 40° - 100°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. Mix two part water based inorganic zinc-rich coating in accordance with manufacturers instructions.

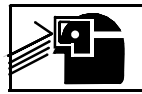
WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR

- Using brush, apply mixed water based inorganic zinc-rich coating to affected areas in accordance with manufacturers instructions.
- Clean up any spills and splatters immediately with soap and warm fresh water.

NOTE

Cold temperatures or high humidity will retard drying time.

- Allow coating to cure, approximately two hours at 77°F, prior to placing in service.
- Remove masking tape from masked off areas.

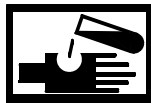
**APPLY NON-SKID DECK COATING TO COMBINATION BEACH/SEA END SECTION
NON-POWERED MODULE EXTERIOR STEEL SURFACES**

- Mask off area to coated.

WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

NOTE

Non-skid deck coating is a two part kit general purpose, polyamide epoxy coating that is mixed prior to application.

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

Application temperature range limits are 50° - 110°F.

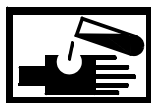
No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

- Mix two part non-skid deck coating in accordance with manufacturers instructions.

WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR



FIRE

- Using nylon roller and paint tray or brush, apply non-skid deck coating to affected deck surface.

4. Back roll or brush coating while wet at a 90° angle to evenly spread the texture.
5. Clean up any spills and splatters immediately with reducer.

NOTE

Cold temperatures or high humidity will retard drying time.

6. Allow to cure, approximately 24 hours at 77°F, prior to use by light traffic.
7. Remove masking tape from masked off areas.

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

NOTE

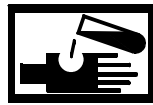
Do not prime or paint rubber surfaces of flexor assemblies.

1. Mask off areas to be painted.

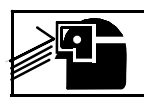
WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR

NOTE

Inorganic zinc coating comes in two pre measured containers which when mixed with water provides four gallons of ready-to-apply material.

Application temperature range limits are 40° - 100°F.

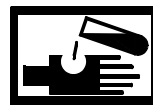
No coating should be done if the surface is likely to be damaged by rain, fog, dew or dust, etc., during the drying period.

2. Mix water based inorganic zinc-rich coating in accordance with manufacturers instructions.

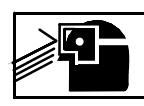
WARNING



POISON



CHEMICAL



EYE PROTECTION



VAPOR

3. Using brush, apply water based inorganic zinc-rich coating to affected areas in accordance with procedures contained in DOD-PRF-24648.
4. Clean up any spills and splatters immediately with soap and warm fresh water.

NOTE

Cold temperatures or high humidity will retard drying time.

5. Allow coating to cure, approximately two hours at 77°F, prior to placing in service.
6. Remove masking tape from masked off areas.

END OF WORK PACKAGE

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

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Apron, Utility (Item 1, WP 0149 00)
Crowbar (Item 6, WP 0149 00)

Materials/Parts

Paint, Sherwin Williams Zinc-Clad XI, (Item 14, WP 0148 00)
Grease, General Purpose (Lubriplate) (Item 9, WP 0148 00)
Sponge, Rectangular (Item 22, WP 0148 00)
Wedge, Wood (Item 26, WP 0148 00)

Personnel Required

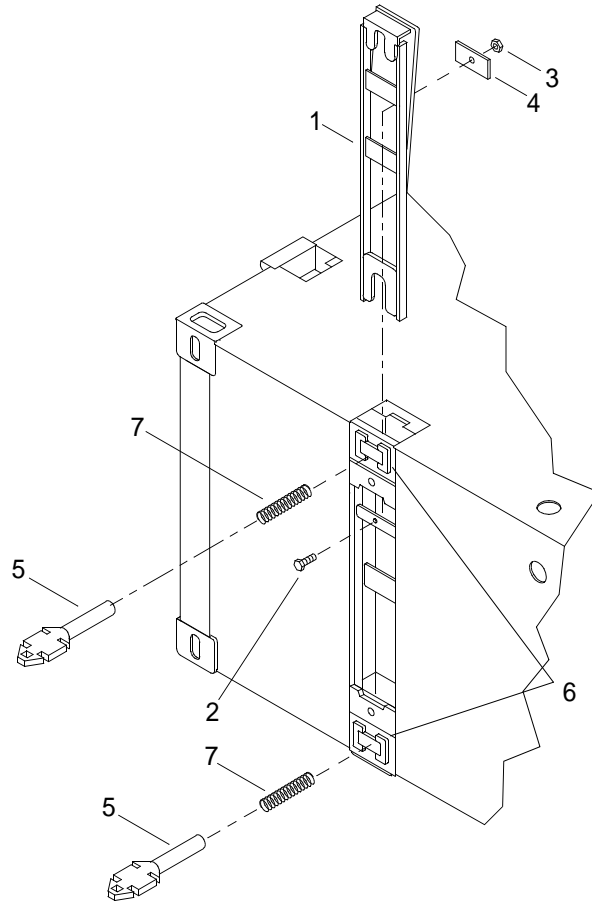
Seaman 88K

Equipment Condition

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

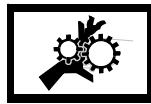
**DISASSEMBLY OF COMBINATION BEACH/SEA END SECTION NON-POWERED MODULES
MALE AND FEMALE GUILLOTINE CONNECTORS**

1. Remove guillotine connector bar (1).



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

WARNING

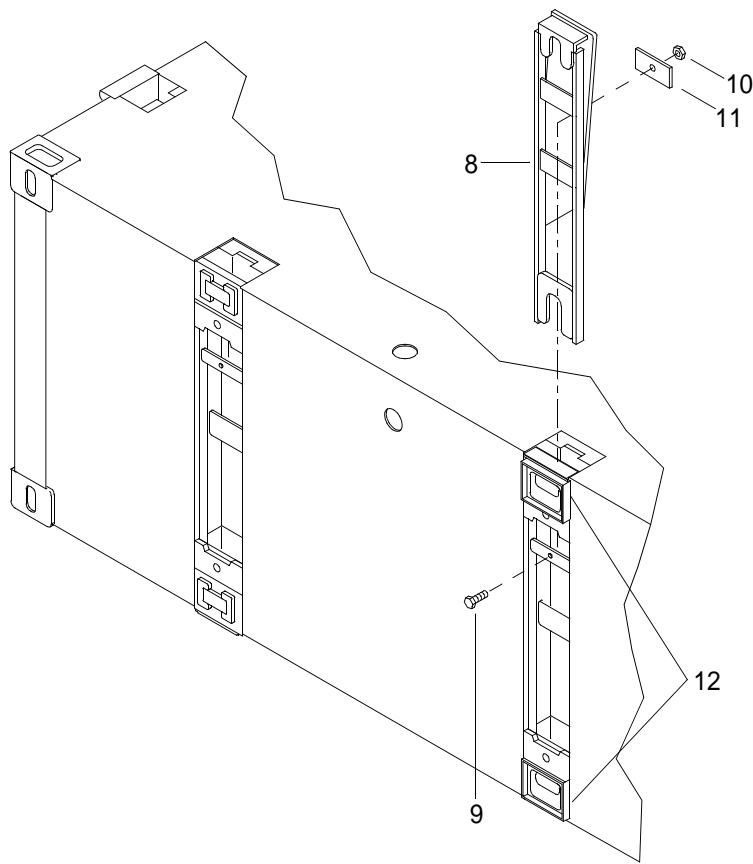


MOVING PARTS

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

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

2. Disassemble female guillotine connector assembly (8).



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

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

1. Lubricate guillotine connector assemblies.

WARNING



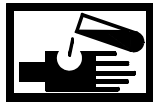
CHEMICAL



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 0038 00)

WARNING



EYE PROTECTION

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

WARNING



CHEMICAL



EYE PROTECTION

- b. Spot paint exposed surfaces. (WP 0038 00)

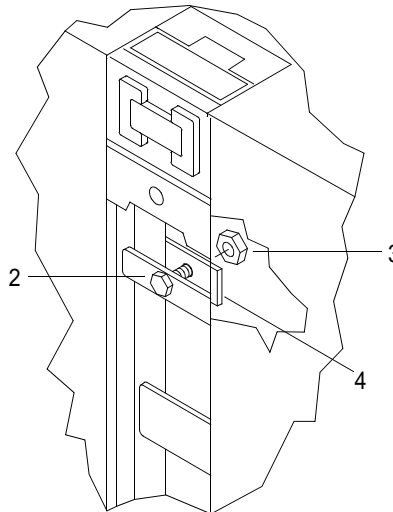
3. Remove standing water with a sponge from guillotine connector assemblies.

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

1. Assemble 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 male guillotine connector assembly.
 - a. Install guillotine connector bar (1) into guillotine lock housing (6).
 - b. Place wood wedge under upper "lip" of guillotine connector bar (1) to hold it in up position.
 - c. Install deployment spring (7) on male connector pin (5).
 - d. Install male connector pin (5) into guillotine connector lock housing (6) by pushing down on retainer located on underside of male connector pin (5) to lock pin in place.
 - e. Install bolt (2) through friction plate (4) and nut (3).

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

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



CAUTION

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

2. Tighten bolt (2) and nut (3).
3. Remove wood wedge from under upper "lip" of guillotine connector bar (1).
4. Raise and lower male and female guillotine connectors and check for smooth operation and verify female connector remains in the raised position.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION FLEXOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Crowbar (Item 6, WP 0149 00)
 Hammer, Hand (10 lb Sledge) (Item 16, WP 0149 00)
 Sling, Lifting, 5,300 lb (Green) (Item 29, WP 0149 00)
 Forklift Adapter (Item 10, WP 0149 00)

Materials/Parts

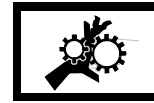
Flexor
 PN E02783

Personnel Required

Seaman 88K

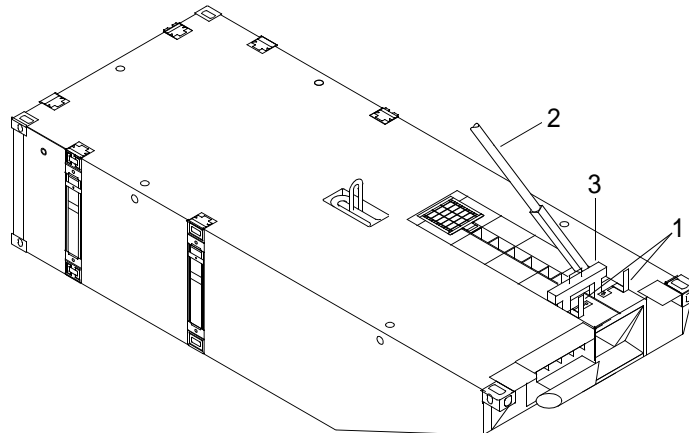
REMOVE COMBINATION BEACH/SEA END SECTION FLEXOR

—————
 WARNING
 —————

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

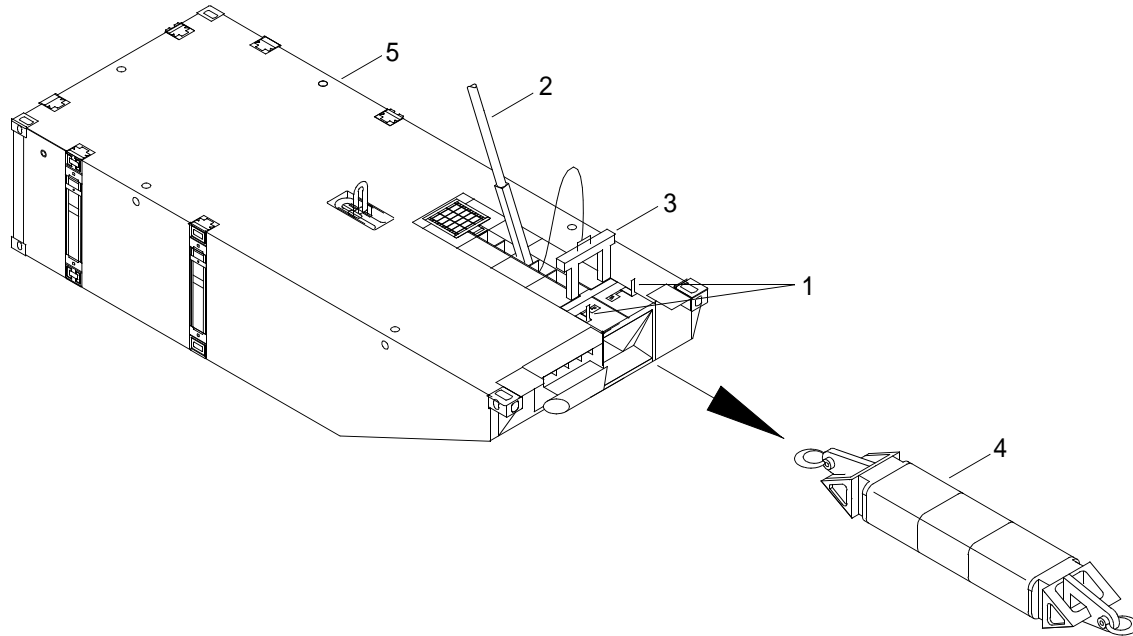
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

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



2. Using a crowbar (2), lift guillotine plate (3) up from flexor connector slots.

3. Move flexor (4) forward using a crowbar (2).



WARNING



HEAVY PARTS

4. Remove flexor connector (4) from end rake (5) using a forklift, forklift adapter and sling.
5. Using sledgehammer, drive down guillotine (3) and rotate chute bolt handles (1) to locked position.

INSTALL COMBINATION BEACH/SEA END SECTION FLEXOR

1. Rotate chute bolt handles (1) and pull chute bolts (1) to unlocked position.
2. Using a crowbar (2), lift guillotine plate (3) up from flexor connector slots.

WARNING



HEAVY PARTS

3. Position flexor connector (4) into end rake (5) using a forklift, forklift adapter and sling.
4. Push flexor (4) backward using a crowbar (2).
5. Using sledgehammer, drive down guillotine (3) and rotate chute bolt handles (1) to locked position.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
FLEXOR WELL CHUTE BOLT COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

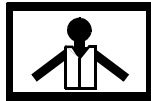
Cover, Bolt, Right
 PN E38052
 Cover, Bolt, Left
 PN E38082
 Adhesive, General Purpose (Threadlocker) (Item 1, WP 0148 00)

Personnel Required

Engineer 88L

**REMOVE COMBINATION BEACH/SEA END SECTION FLEXOR WELL
CHUTE BOLT COVER**

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

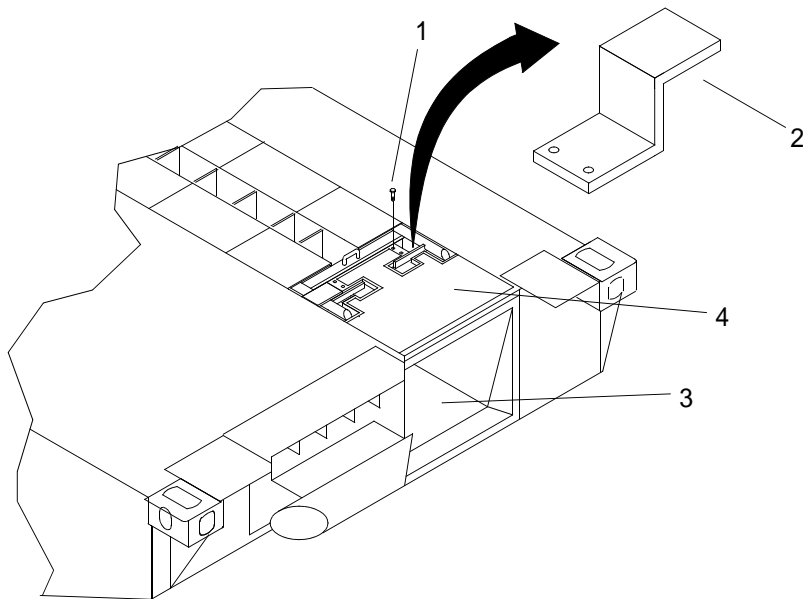
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

This task is typical for the removal and installation of flexor well chute bolt covers.

The bolts securing the chute bolt cover to the flexor well are accessed through holes in the flexor well top plate.

1. Remove bolts (1) securing flexor well chute bolt cover (2) to flexor well (3).

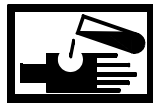


2. Remove and discard flexor well chute bolt cover (2).

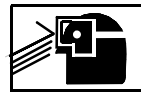
INSTALL COMBINATION BEACH/SEA END SECTION FLEXOR WELL CHUTE BOLT COVER

1. Position new flexor well chute bolt cover (2) through opening in flexor well top plate (4).

WARNING



CHEMICAL



EYE PROTECTION

2. Apply coat of adhesive to threads of bolts (1).
3. Install bolts (1) to secure flexor well chute bolt cover (2) in flexor well (3). Tighten bolts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
COMBINATION BEACH/SEA END SECTION
FLEXOR WELL CHUTE BOLT
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

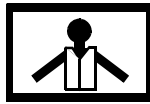
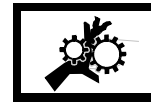
Receiver, Chute Bolt
 PN E04842
 Adhesive, General Purpose (Threadlocker) (Item 1, WP 0148 00)

Personnel Required

Engineer 88L

REMOVE COMBINATION BEACH/SEA END SECTION FLEXOR WELL CHUTE BOLT

WARNING

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

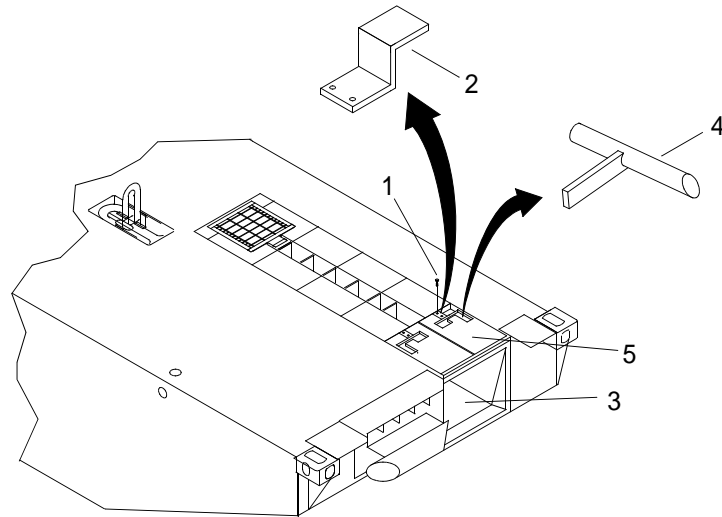
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

This task is typical for the removal and installation of flexor well chute bolts.

The bolts securing the chute bolt cover are accessed through holes in the flexor well top plate.

1. Remove bolts (1) securing flexor well chute bolt cover (2) to flexor well (3).



2. Remove flexor well chute bolt cover (2) from flexor well (3).
3. Remove flexor well chute bolt (4) from inside flexor well (3) and discard.

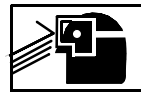
INSTALL COMBINATION BEACH/SEA END SECTION FLEXOR WELL CHUTE BOLT

1. Position new flexor well chute bolt (4) into flexor well (3).

WARNING



CHEMICAL



EYE PROTECTION

2. Apply coat of adhesive to threads of bolts (1).
3. Position flexor well chute bolt cover (2) through opening of flexor well top cover (5).
4. Install bolts (1) to secure flexor well chute bolt cover (2) in flexor well (3). Tighten bolts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIGHT TOWER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Personnel Required

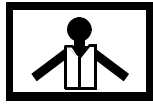
Seaman 88K

Equipment Condition

Light Tower Removed From Container. (TM 55-1945-216-10)
Tower Assembly Lowered. (TM 55-1945-216-10)

REMOVE LIGHT TOWER FROM STOWAGE PALLET

 WARNING



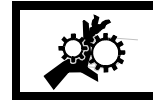
VEST



HELMET PROTECTION



HEAVY PARTS

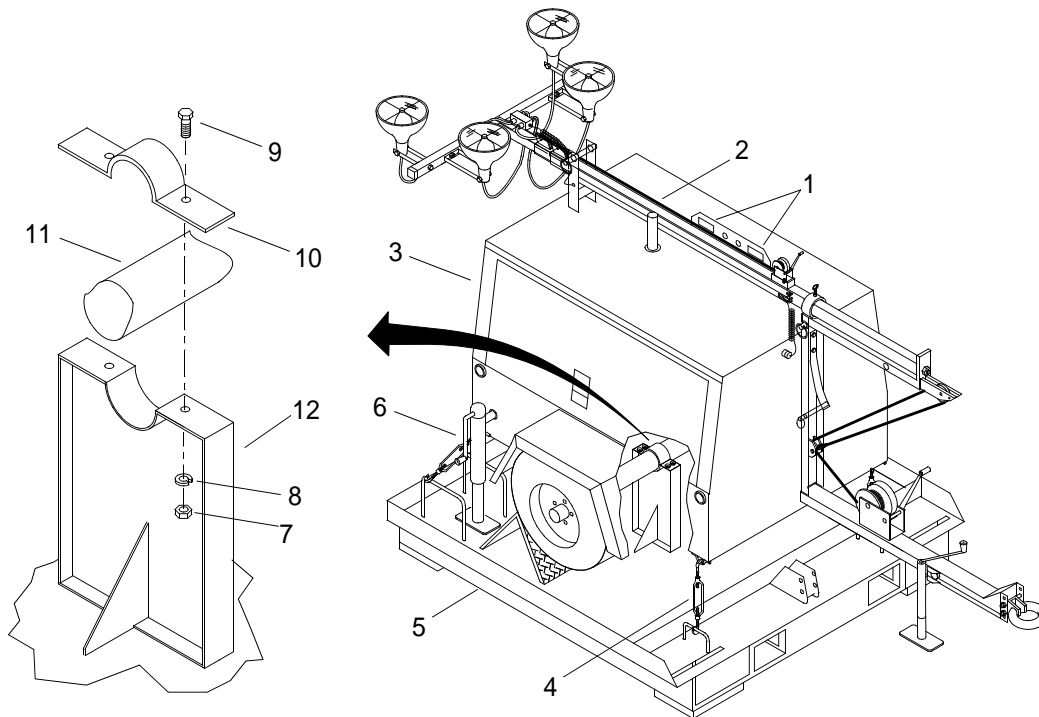


MOVING PARTS

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.

The following procedure is typical for the removal and installation of the light tower from the stowage pallet.

1. Position forks of forklift into liftpoints (1) of tower assembly (2) to support weight of light tower (3).



2. Loosen and remove turnbuckles (4) securing light tower (3) to stowage pallet (5).
3. Raise and stow outriggers (6).
4. Remove nuts (7), lock washers (8) and bolts (9) from clamps (10) securing light tower axle (11) to stowage pallet pedestals (12).

 WARNING



HEAVY PARTS

5. Using forklift, remove light tower (3) from stowage pallet (5).

INSTALL LIGHT TOWER ON STOWAGE PALLET

1. Position forks of forklift into liftpoints (1) of tower assembly (2).

WARNING

**HEAVY PARTS**

2. Using forklift, position new light tower (3) on stowage pallet pedestals (12).
3. Position clamps (10) over light tower axle (11) and secure to stowage pallet pedestals (12) with bolts (10), lock washers (9) and nuts (8). Tightens nuts (8).
4. Level light tower (3) on stowage pallet (5) by deploying outriggers (6).
5. Install turnbuckles (4) to secure light tower (2) to stowage pallet (5). Tighten turnbuckles (4).

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 (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Apron, Utility (Item 1, WP 0149 00)
 Brush, Wire Scratch (Item 3, WP 0149 00)

Materials/Parts

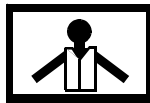
Pin, Cotter
 PN 803-1385623-0641-18
 Qty 2
 Strap, Tiedown, Electrical Components (Item 23, WP 0148 00)
 Cleaner (Item 6, WP 0148 00)
 Rag, Wiping (Item 17, WP 0148 00)

Personnel Required

Engineer 88L

DISASSEMBLE QUICK RELEASE AND MOORING ASSEMBLY

WARNING



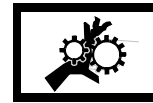
VEST



HELMET PROTECTION



HEAVY PARTS



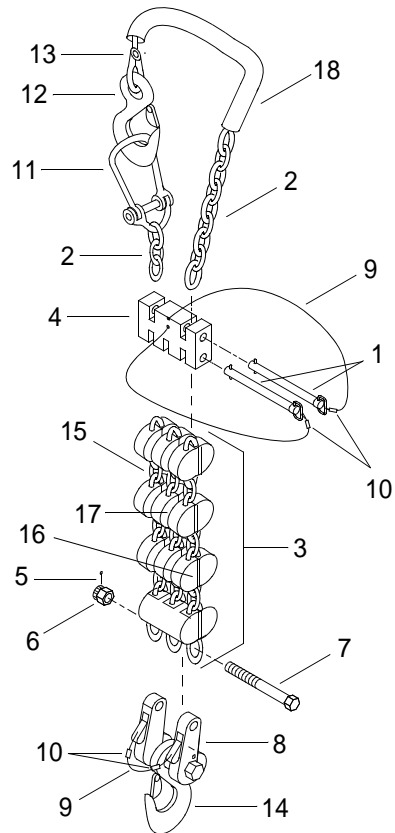
MOVING PARTS

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) and 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 kinetic link assemblies (3) from load release hook (8). Discard cotter pin (5).
3. Retain bolt (7) and slotted nut (6) for assembly.

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 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 connector links (15), 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 slotted nuts (6) and bolt (7) for worn or stripped threads. Replace damaged items.

ASSEMBLE QUICK RELEASE AND MOORING ASSEMBLY

1. Position lower end of kinetic link assemblies (3) on load release hook (8) and install bolt (7) and slotted nut (6). Tighten slotted nut (6).
2. Install new cotter pin (5) through bolt (7) to retain slotted nut (6).
3. Position kinetic link assemblies (3) on clevis block (4) and secure with hitch pin (1).
4. Position chains (2) on clevis block (4) and secure with hitch pin (1).

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 (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

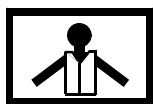
Lamp, Incandescent
PN MS16524-2

Personnel Required

Engineer 88L

REMOVE HAND LANTERN INCANDESCENT BULB

WARNING



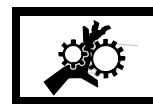
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

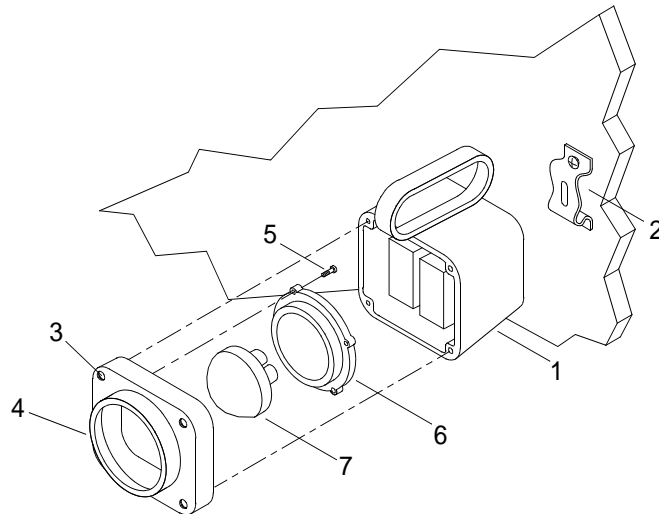
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The following procedure is typical for the removal and installation of hand lantern incandescent bulbs.

A spare bulb is located in each hand lantern.

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) and position face down on work bench.
4. Remove four retaining screws (5) securing retaining ring (6) over bulb (7).
5. Remove retaining ring (6) and bulb (7) from cover (4). 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
ANCHOR LIGHT INCANDESCENT BULB
REPLACEMENT**

INITIAL SETUP:**Tools**

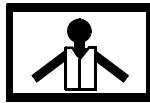
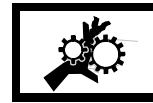
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Personnel Required

Engineer 88L

REMOVE ANCHOR LIGHT INCANDESCENT BULB

WARNING

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

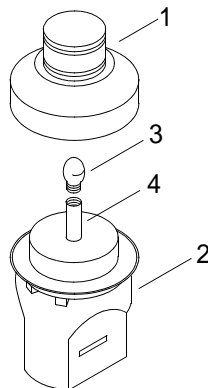
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The following procedure is typical for the removal and installation of anchor light incandescent bulbs.

A spare bulb is located in each anchor light.

1. Remove anchor light top (1) from housing (2) by pulling up.



2. Remove bulb (3) from bulb holder (4). Discard bulb (3).

INSTALL ANCHOR LIGHT INCANDESCENT BULB

1. Install new bulb (3) into bulb holder (4).
2. Install anchor light top (1) over housing (2) by pushing down.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIFE RING STROBE LIGHT BATTERY
REPLACEMENT**

INITIAL SETUP:

Tools

- Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
- Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
- Helmet, Safety (Brown) (Item 17, WP 0149 00)
- Life Preserver, Vest (Item 19, WP 0149 00)
- Gloves, Rubber, Industrial (Item 11, WP 0149 00)
- Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

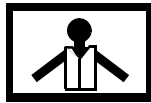
- Battery, 6 Volt
PN EV90

Personnel Required

- Engineer 88L
-

REMOVE LIFE RING STROBE LIGHT BATTERY

WARNING



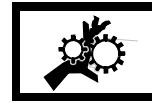
VEST



HELMET PROTECTION



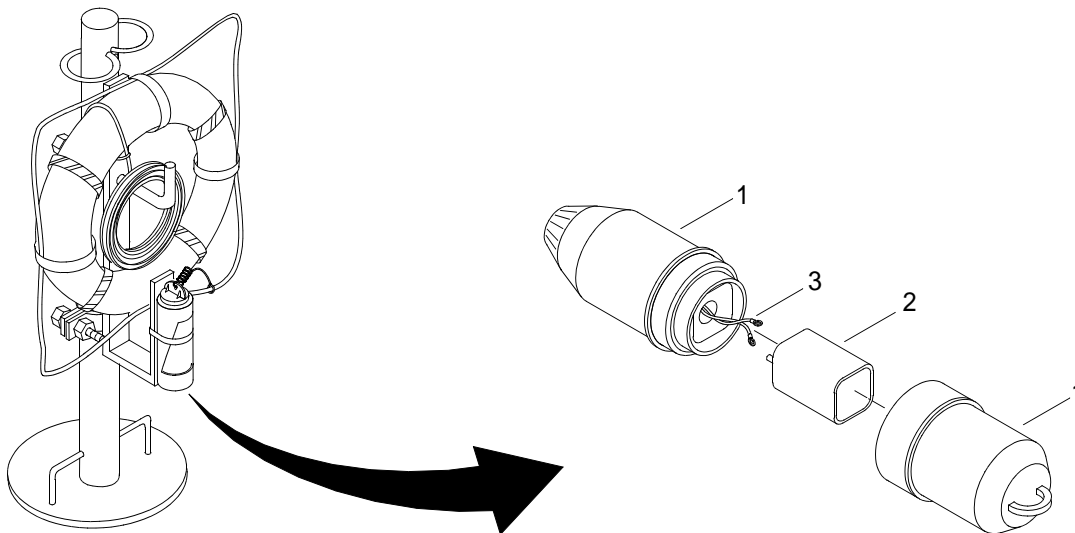
HEAVY PARTS



MOVING PARTS

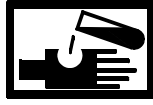
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

1. Unscrew strobe light housing (1) to expose battery (2).



-
2. Disconnect two wires (3) from battery (2).

WARNING



CHEMICAL

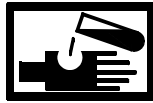


EYE PROTECTION

3. Remove battery (2) and dispose of per 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

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
BII FLEXOR RECEIVER INSERT
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Apron, Utility (Item 1, WP 0149 00)

Materials/Parts

Cleaner (Item 6, WP 0148 00)
Rag, Wiping (Item 17, WP 0148 00)

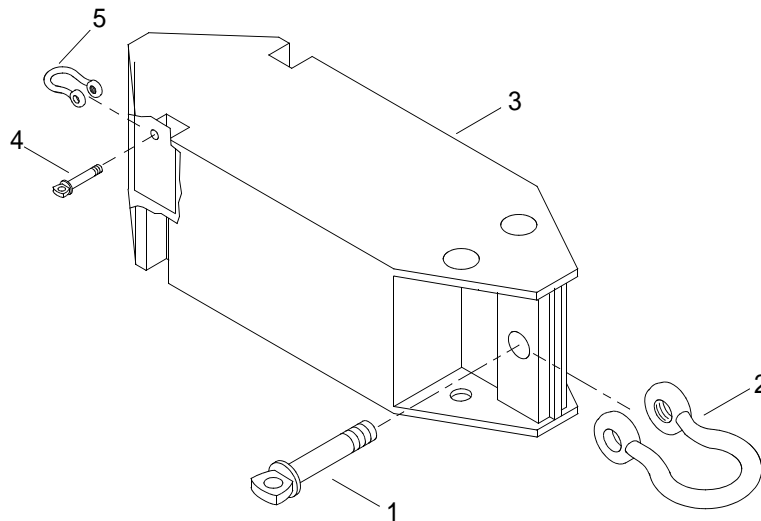
Personnel Required

Engineer 88L

DISASSEMBLE BII FLEXOR RECEIVER INSERT**NOTE**

Repair is limited to the replacement of defective parts.

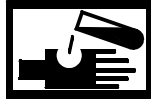
1. Remove pin (1) from shackle (2).



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 BII FLEXOR RECEIVER INSERT

WARNING

**CHEMICAL****EYE PROTECTION**

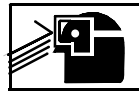
1. Using wiping rags soaked with cleaner, remove debris from all components.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Using fresh water, rinse cleaner residue from all components.
3. Air dry all components.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Dispose of contaminated rags per local procedures.

INSPECT BII 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 BII 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
BII FLEXOR RECEIVER INSERT LIFTING DEVICE ASSEMBLY
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Apron, Utility (Item 1, WP 0149 00)

Materials/Parts

Cleaner (Item 6, WP 0148 00)
Rag, Wiping (Item 17, WP 0148 00)

Personnel Required

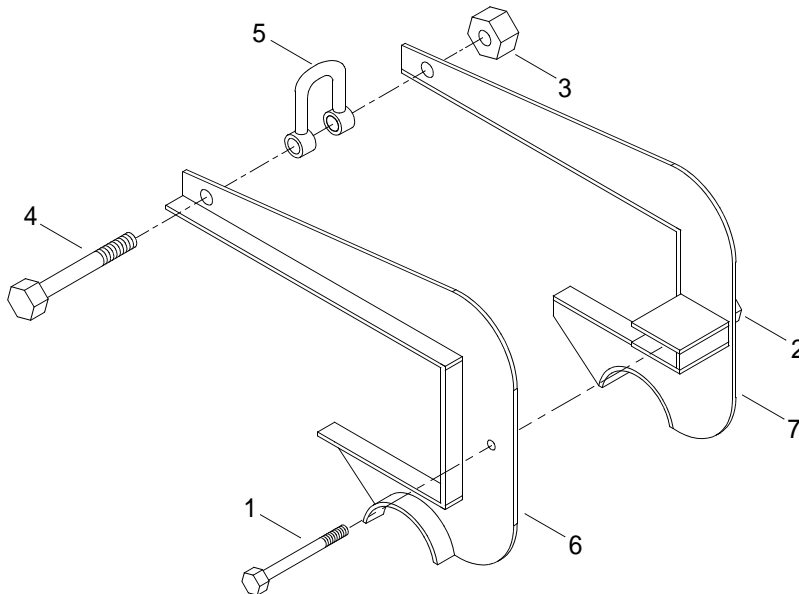
Engineer 88L

DISASSEMBLE BII FLEXOR RECEIVER INSERT LIFTING DEVICE ASSEMBLY**NOTE**

Repair is limited to the replacement of defective parts.

The lower right half of the lifting device assembly has the nut welded to the leg and cannot be removed.

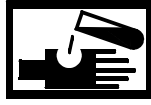
1. Remove hex head bolt (1) from welded hex lock nut (2).



2. Remove hex lock nut (3), hex head bolt (4) and shackle (5).
3. Separate lifting device assembly left (6) and right (7) halves.

CLEAN BII FLEXOR RECEIVER INSERT LIFTING DEVICE ASSEMBLY

WARNING

**CHEMICAL****EYE PROTECTION**

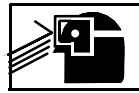
1. Using wiping rag soaked with cleaner, remove debris from all components.

WARNING

**CHEMICAL****EYE PROTECTION**

2. Using fresh water, remove cleaner residue from all components.
3. Air dry components.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Dispose of contaminated rags per local procedures.

INSPECT BII FLEXOR RECEIVER INSERT LIFTING DEVICE ASSEMBLY

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

ASSEMBLE BII FLEXOR RECEIVER INSERT LIFTING DEVICE ASSEMBLY

1. Position shackle (5) between lifting device assembly left (6) and right (7) halves.
2. Install hex head bolt (4) and hex lock nut (3). Tighten hex lock nut (3).
3. Install hex head bolt (1) into welded hex lock nut (2). Tighten hex head bolt (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
TOWING BRIDLE
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Personnel Required

Seaman 88K (2)

References

TM 55-1945-216-10

DISASSEMBLE TOWING BRIDLE

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.

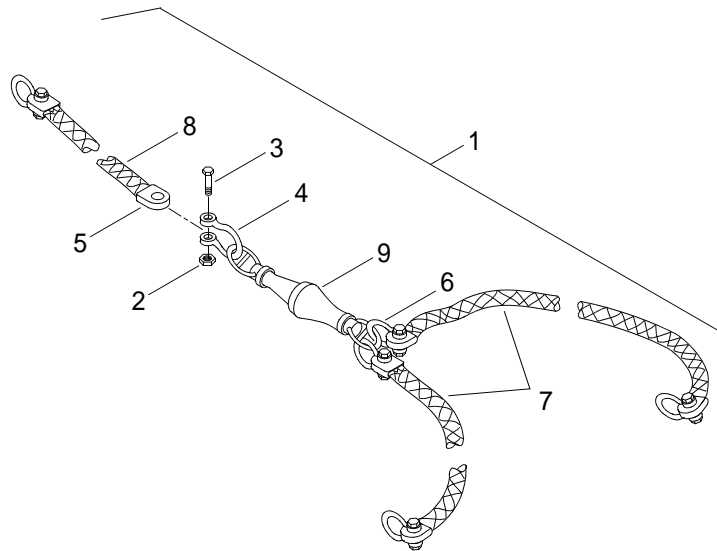
NOTE

Repair is limited to the replacement of damaged components.

The towing bridle can have either 35 ft or 60 ft flexor rope legs.

The nylite connector consists of a cover, shackle, bolt and nut on loops of each bridle end.

1. Using assistant, remove towing bridle (1) from BII container.



2. Remove nuts (2), bolts (3), shackles (4) and protective covers (5) of all nylite connector assemblies (6) from end loops of both flexor rope assemblies (7) and main rope assembly (8).
3. Separate two flexor rope assemblies (7) and main rope assembly (8) from swivel (9).
4. Discard damaged components.

ASSEMBLE TOWING BRIDLE

1. Connect main rope assembly (8) and two flexor rope assemblies (7) to swivel (9) using nylite connector assemblies (6).
 - a. Install protective cover (5) over end loop of rope assembly (7, 8).
 - b. Install shackle (4) over protective cover (5).
 - c. Install bolt through shackle (4), protective cover (5) and end loop of rope assembly (7, 8).
 - d. Install nut (2) on bolt (3). Tighten nut (2).
2. Using assistant, stow towing bridle (1) in BII container. (TM 55-1945-216-10)

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 (Item 33, WP 0149 00)

Materials/Parts

Assembly, Bracket

PN MS16377/53-002

Holder, Light

PN MS16377/54-2438

O-Ring

PN MS28775-001

Qty 2

Personnel Required

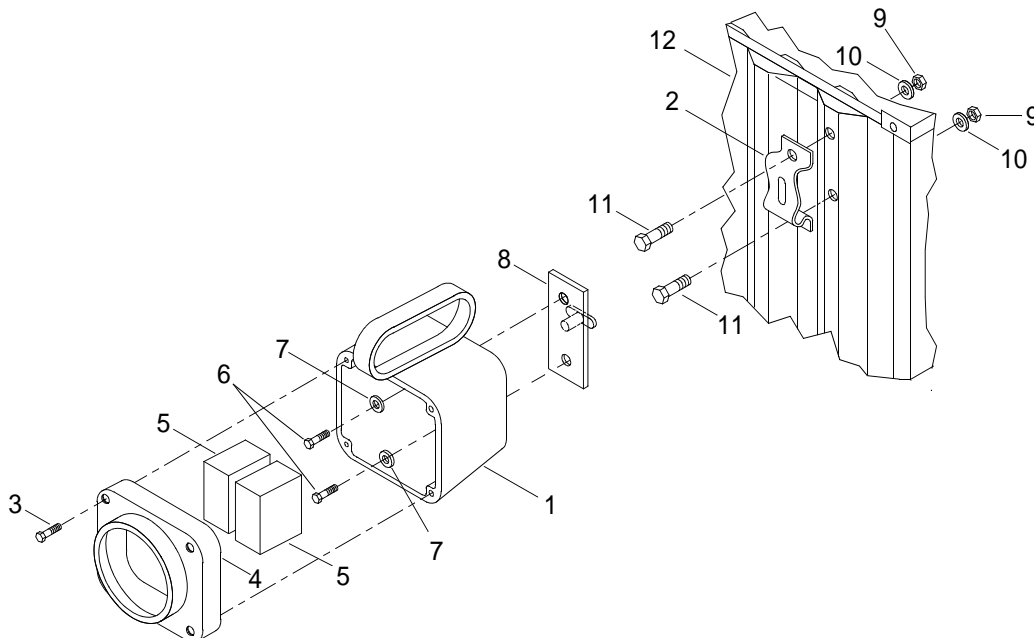
Engineer 88L (2)

References

TM 55-1945-216-10

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 container end door (12).
9. Discard mounting bracket (2).

INSTALL GENERATOR CONTAINER HAND LANTERN MOUNTING BRACKET

1. Position new mounting bracket (2) on container end door (12).
2. Install two hex head bolts (11) through mounting bracket (2) and container end door (12).
3. Install lock washers (10) and hex nuts (9) on hex head bolts (11). Tighten hex nuts (9).
4. Position new bracket (8) on the back of hand lantern (1).
5. Install two hex head bolts (6) and new o-rings (7) through hand lantern (1) into bracket (8).
6. Tighten hex head bolts (6).
7. Install batteries (5).
8. Position cover (4) on hand lantern (1).
9. Tighten captive screws (3).
10. Position hand lantern (1) on mounting bracket (2) and rotate 90°.
11. Perform operational check of hand lantern. (TM 55-1945-216-10)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER STEPS
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

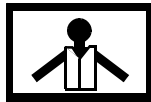
Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Personnel Required

Engineer 88L (2)

REMOVE GENERATOR CONTAINER STEPS

WARNING



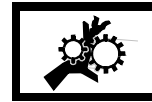
VEST



HELMET PROTECTION



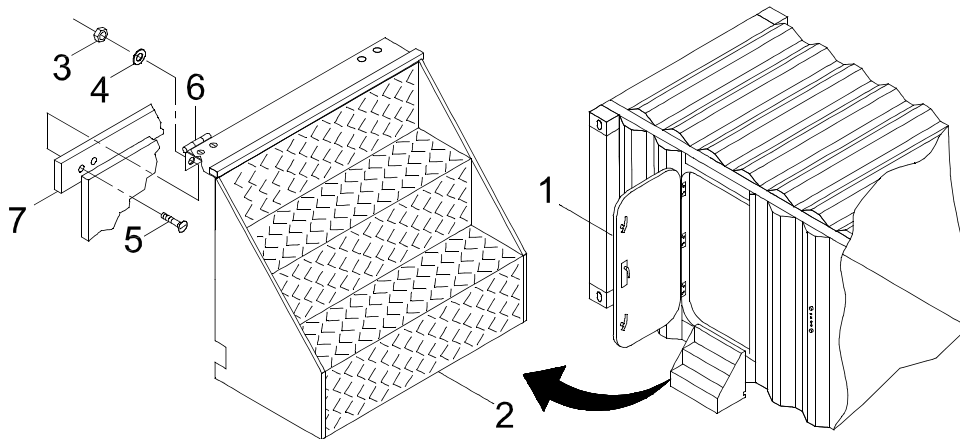
HEAVY PARTS



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. Open generator container exterior door (1).



2. Using assistant, support steps (2) to access lock nuts (3).
3. Remove lock nuts (3) and washers (4) from bolts (5) securing step hinges (6) to hinge supports (7).
4. Remove bolts (5) from hinges (6) and hinge supports (7).
5. Remove steps (2).

INSTALL GENERATOR CONTAINER STEPS

1. Using assistant, align step hinges (6) with hinge supports (7).
2. Install bolts (5) through holes in hinges (6) and hinge supports (7).
3. Install lock nuts (3) and washers (4) on bolts (5) and tighten lock nuts (3).
4. Fold steps (2) up.
5. Close generator container exterior door (1).

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 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

Connector, Electrical, Female, Shore Tie
PN 33-94167-HP-E292

Personnel Required

Engineer 88L (2)

References

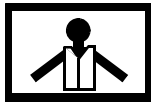
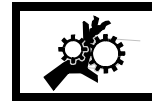
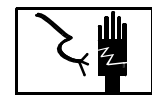
TM 55-1945-216-10

Equipment Condition

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

REMOVE GENERATOR CONTAINER SHORE TIE FEMALE ELECTRICAL CONNECTOR

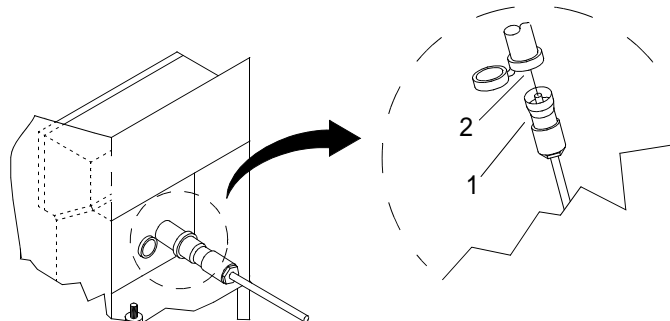
WARNING

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

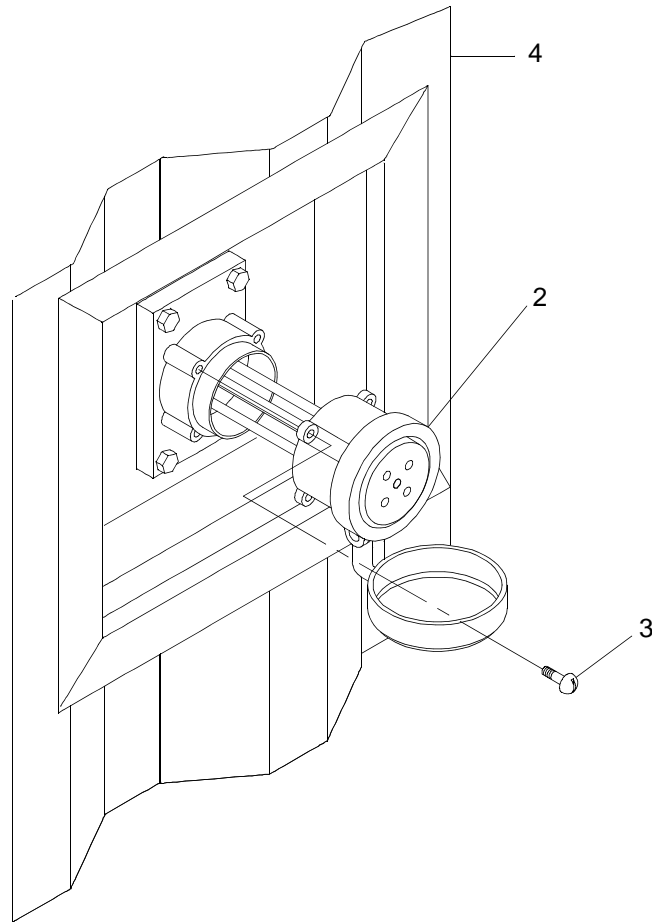
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Ensure generator power is secured using proper lock-out/tag-out procedure.

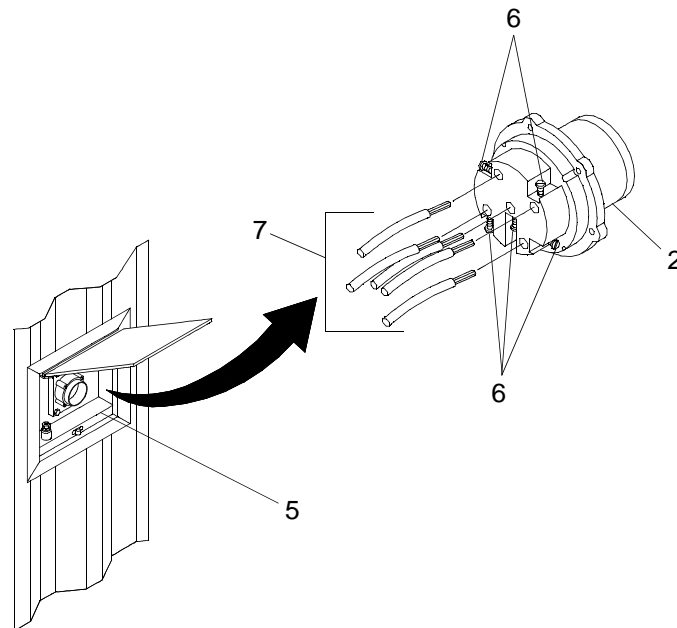
1. Rotate power cable connector (1) counterclockwise $\frac{1}{4}$ turn and disconnect from generator container shore tie female electrical connector (2).



2. Outside generator container, remove four screws (3) securing female electrical connector (2) to generator container (4).



3. Pull generator container shore tie female connector (2) outward from shore tie recess pocket (5).



-
4. Loosen five screws (6) on back of generator container shore tie female connector (2).
 5. Label and remove wires (7) from generator container shore tie female connector (2).
 6. Discard generator container shore tie female connector (2).

INSTALL GENERATOR CONTAINER SHORE TIE FEMALE ELECTRICAL CONNECTOR

1. Install wires (7) in new generator container shore tie female connector (2) and remove labels.
2. Tighten five screws (6) on back of generator container shore tie female connector (2).
3. Position generator container shore tie female connector (2) on outside of generator container wall (4).
4. Install four screws (3). Tighten screws (3).
5. Install power cable connector (1) on generator container shore tie female electrical connector (2).
6. Rotate power cable connector (1) clockwise $\frac{1}{4}$ turn.
7. Start generator. (TM 9-6115-642-10)
8. Verify personnel shelter receives power. (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT LEVEL 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 33, WP 0149 00)

Materials/Parts

Receptacle, Duplex
PN 7462K22

Personnel Required

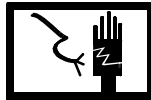
Engineer 88L

Equipment Condition

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

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

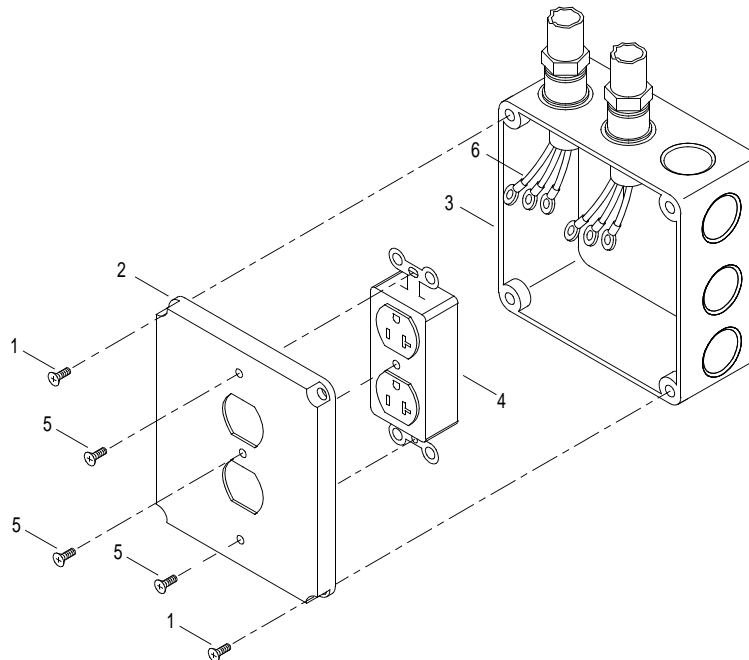
WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Remove screws (1) securing receptacle cover (2) to circuit box (3).



2. Remove receptacle cover (2) with attached receptacle (4) from circuit box (3).
3. Remove screws (5) securing receptacle (4) to receptacle cover (2).
4. Label and disconnect wiring (6) from receptacle (4).
5. Discard receptacle (4).

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

1. Connect wiring (6) to new receptacle (4) and remove labels.
2. Install screws (5) to secure receptacle (4) to receptacle cover (2). Tighten screws (5).
3. Position receptacle cover (2) with attached receptacle (4) in circuit box (3).
4. Install screws (1) to secure receptacle cover (2) to circuit box (3). Tighten screws (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER OUTLET BOX
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Conduit, Outlet
PN 71695K41

Personnel Required

Engineer 88L

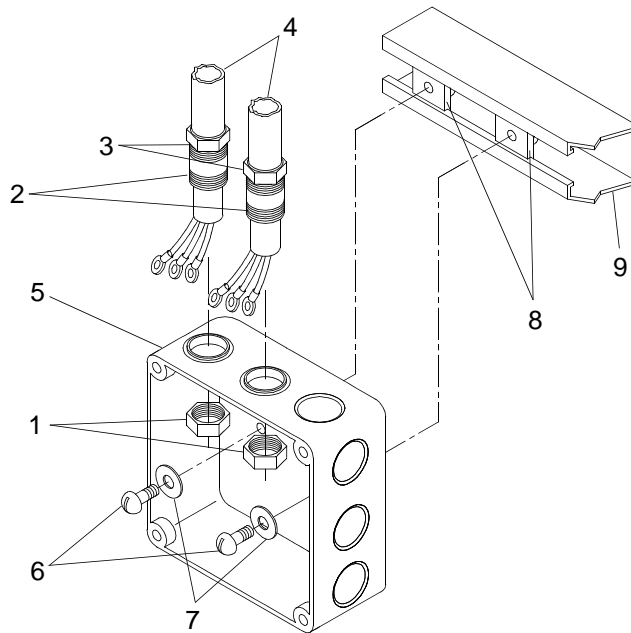
Equipment Condition

Generator Container Hospital Grade Straight Blade Electrical Receptacle Removed. (WP 0054 00)

REMOVE GENERATOR CONTAINER OUTLET BOX**NOTE**

The following procedure is typical for the removal and installation of generator container outlet boxes.

1. Remove two spanner nuts (1) from conduit compression connectors (2).



2. Loosen nuts (3) on compressions connectors (2).
3. Slide compressions connectors (2) up conduits (4) and pull wiring out of outlet box (5).
4. Remove two screws (6) and washers (7) securing outlet box (5) to clamping nuts (8) in track (9) Discard outlet box (3).

INSTALL GENERATOR CONTAINER OUTLET BOX

1. Position new outlet box (5) at clamping nuts (8) in track (9).
2. Install two screws (6) and washers (7) in outlet box (5). Tighten screws (6).
3. Install two conduit compression connectors (2) and conduits (4) with wiring in outlet box (5).
4. Tighten nuts (3) on compressions connectors (2).
5. Install two spanner nuts (1) on conduits (2) and tighten.
6. Install generator container hospital grade straight blade electrical receptacle. (WP 0054 00)

END OF WORK PACKAGE

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

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Drill, Electric, Portable, 115 Volt (Item 9, WP 0149 00)
 Drill Set, Twist (Item 8, WP 0149 00)
 Riveter Kit, Blind, Hand (Rivet Gun) (Item 25, WP 0149 00)

Materials/Parts

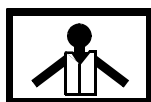
Cover Assembly
 PN E33228-86
 Rivet, Blind (Pop Rivets) (0.25 in. Diameter) (Item 19, WP 0148 00)

Personnel Required

Engineer 88L

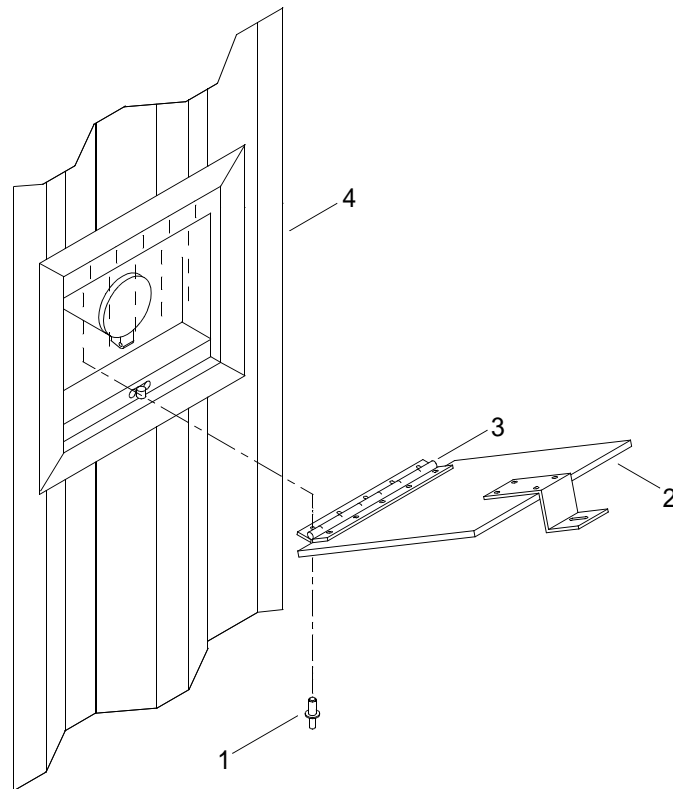
REMOVE GENERATOR CONTAINER SHORE TIE PENETRATION HINGED COVER

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. Using drill and drill bits, remove and discard pop rivets (1) securing cover (2) and piano hinge (3) to container (4).



2. Discard cover (2).

INSTALL GENERATOR CONTAINER SHORE TIE PENETRATION HINGED COVER

1. Position new cover (2) piano hinge (3) on generator container exterior wall (4).
2. Using rivet gun and pop rivets, attach cover (2) piano hinge (3) to generator container exterior wall (4).

END OF WORK PACKAGE

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

INITIAL SETUP:**Tools**

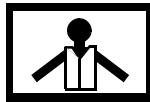
Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Personnel Required

Engineer 88L

REMOVE GENERATOR CONTAINER EXTERIOR DOOR LOCKSET

WARNING



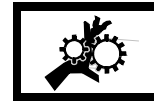
VEST



HELMET PROTECTION



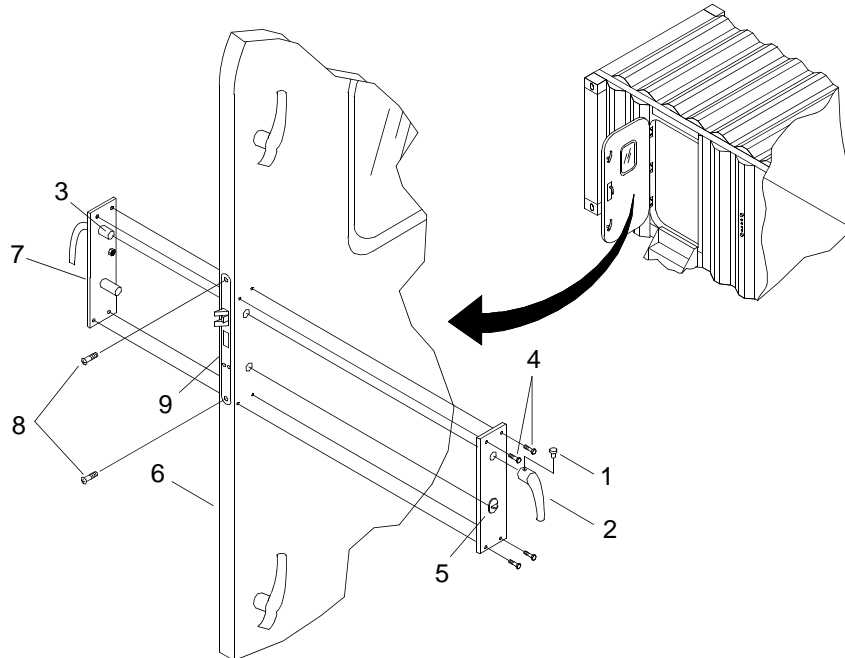
HEAVY PARTS



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. Remove set screw (1) securing inner door handle (2) to outer door handle shaft (3).



2. Remove four screws (4) securing inner door handle plate (5) to inside of door (6).

3. Remove inner door handle plate (5) from door (6).
4. Remove outer door handle plate (7) from door (6).
5. Remove two screws (8) securing lockset (9) to end of door (6).
6. Remove lockset (9) and discard.

INSTALL GENERATOR CONTAINER EXTERIOR DOOR LOCKSET

1. Position new lockset (9) into hole in side of door (6).
2. Install two screws (8) to secure lockset (9) to door (6). Tighten screws (8).
3. Position outer door handle plate (7) into outer face hole of door (6).
4. Position inner door handle plate (5) into inner face hole of door (6).
5. Install four screws (4) to secure inner door handle plate (5) to outer door handle plate (7). Tighten screws (4).
6. Position inner door handle (2) on outer door handle shaft (3).
7. Install set screw (1) securing inner door handle (2) to outer door handle shaft (3). 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 (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

Door, Weathertight
 PN R-11-0-1

Personnel Required

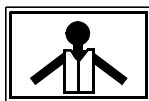
Engineer 88L (2)

Equipment Condition

Window Removed. (WP 0060 00)

REMOVE GENERATOR CONTAINER EXTERIOR DOOR

WARNING

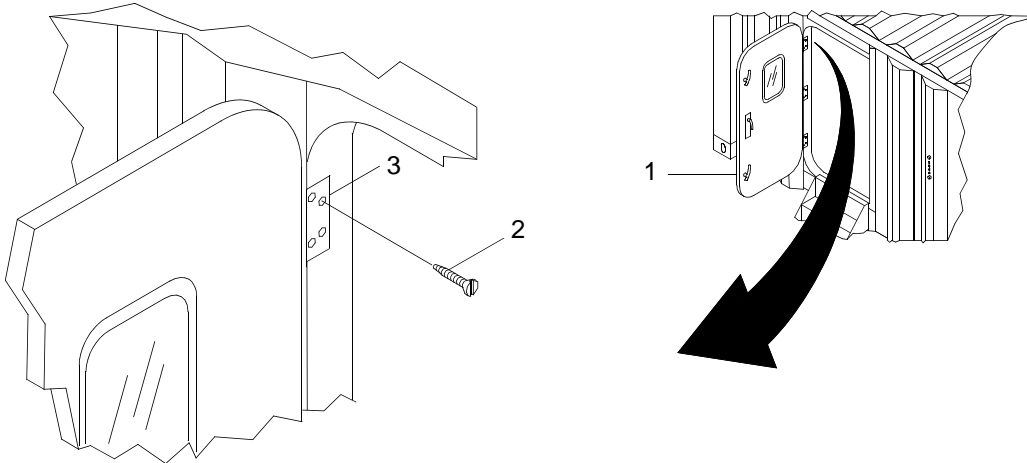
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS****HEAVY OBJECTS**

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

Hinges will remain on door frame during door replacement.

1. Using assistant to support weight of door (1), remove screws (2) from door hinges (3).



2. Remove door (1) and discard.

INSTALL GENERATOR CONTAINER EXTERIOR DOOR

WARNING



HEAVY OBJECTS

1. Using assistant to support weight of new door (1), align new door (1).
2. Install screws (2) into door hinges (3) and tighten.

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 (Item 33, WP 0149 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
- Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
- Helmet, Safety (Brown) (Item 17, WP 0149 00)
- Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

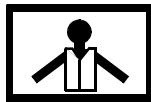
- Set, Dog
PN FC-621-001-2-DOG

Personnel Required

- Engineer 88L

REMOVE GENERATOR CONTAINER EXTERIOR DOOR DOGS

WARNING



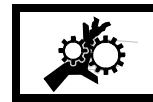
VEST



HELMET PROTECTION



HEAVY PARTS



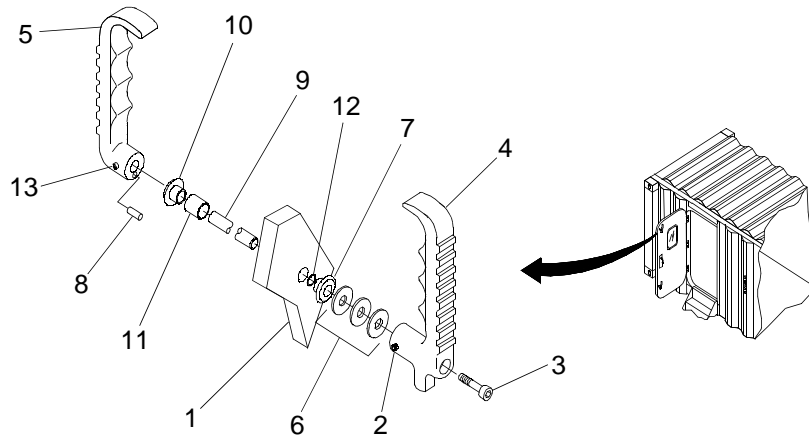
MOVING PARTS

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 interior of door (1), loosen setscrew (2) and remove bolt (3) securing inner dog (4) to outer dog (5).



-
2. Remove inner dog (4), inner shims (6), and inner dog bushing (7) from door (1) and discard.
 3. Remove outer dog (5), stop pin (8), shaft (9), outer dog bushing (10), shaft bushing (11) and O-ring (12) from door (1) and discard.

INSTALL GENERATOR CONTAINER EXTERIOR DOOR DOGS

1. Install new shaft bushing (11), outer dog bushing (1) and inner dog bushing (7) in door (1).
2. Install new stop pin (8) and shaft (9) in new outer dog (5) and tighten set screw (13).
3. Install new O-ring (12) on shaft (9).
4. Install outer dog (5) assembly in door (1).
5. Position inner dog (4) on shaft (7) of outer dog (5), aligning both handles vertically.
6. Install bolt (3) to secure inner dog (4) to outer dog (5). Tighten bolt (3).
7. Tighten setscrew (2).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER EXTERIOR DOOR WINDOW
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

Window, Weathertight Door
 PN 0611-9031
 Tape, Glazing
 PN 0331-2006
 Sealant, Silicone (Black)
 PN 0331-2007

Personnel Required

Engineer 88L

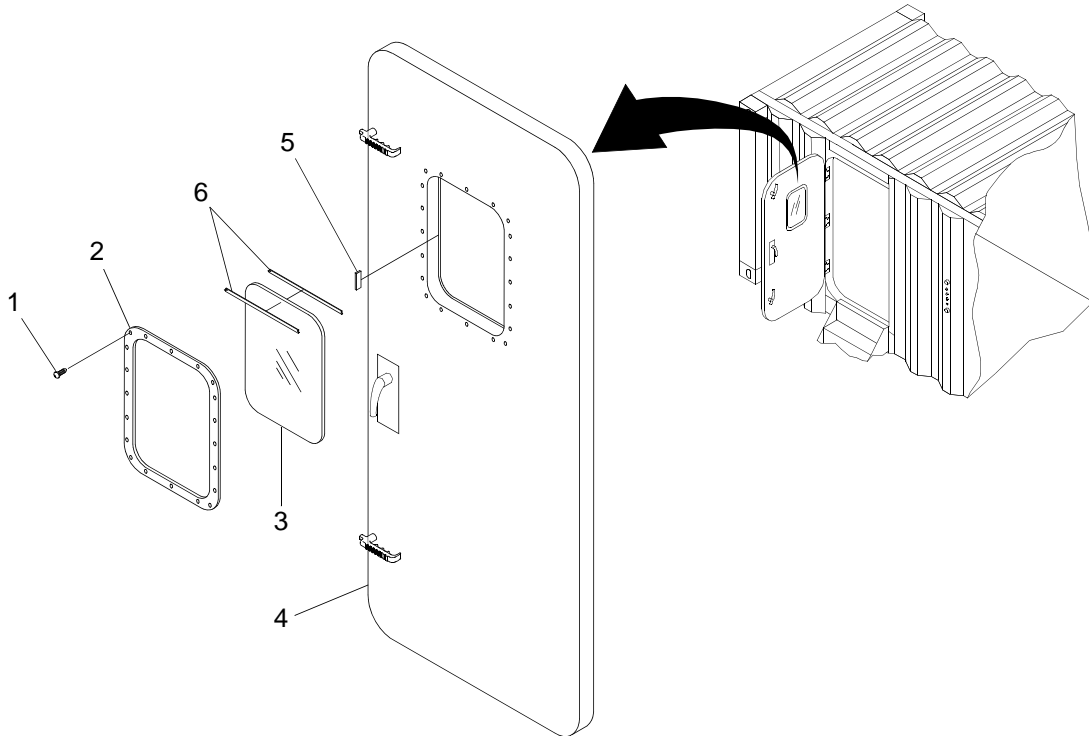
REMOVE GENERATOR CONTAINER EXTERIOR DOOR WINDOW

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.

1. Remove screws (1).



2. Remove window retainer (2).
3. Remove window (3) from door (4) and discard.
4. Remove spacer blocks (5) from door.
5. Remove all residual glazing tape (6) and silicone sealant from retainer (2) and window opening in door (4).

INSTALL GENERATOR CONTAINER EXTERIOR DOOR WINDOW

1. Apply glazing tape (6) to both sides of new window (3).
2. Position new window (3) in door (4).
3. Insert spacer blocks (5) between window (3) and door (4) frame (top, bottom, left and right) to center window (3) in door (4) window opening.
4. Position retainer (2) over window (3) and secure with screws (1).
5. Apply silicone sealant to seal gap between retainer (2) and window (3).
6. Apply silicone sealant to seal gap between door (4) and window (3).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER ELECTRICAL DISTRIBUTION
PANEL ACCESS COVER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Personnel Required

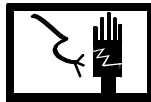
Engineer 88L

Equipment Condition

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

REMOVE GENERATOR CONTAINER ELECTRICAL DISTRIBUTION PANEL ACCESS COVER

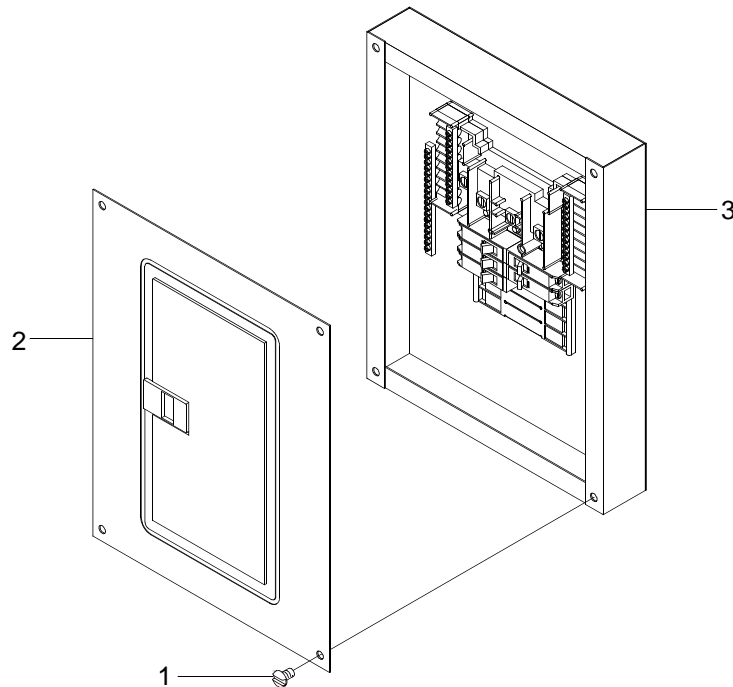
WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Remove four screws (1) from panel (2).



2. Remove panel (2) from load distribution box (3).

**INSTALL GENERATOR CONTAINER ELECTRICAL 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

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER ELECTRICAL DISTRIBUTION PANEL
SINGLE POLE CIRCUIT BREAKER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

Circuit Breaker
PN 452D837
Grease, Silicone Insulated Electric Motor (Item 10, WP 0148 00)

Personnel Required

Engineer 88L

References

TM 9-6115-642-10

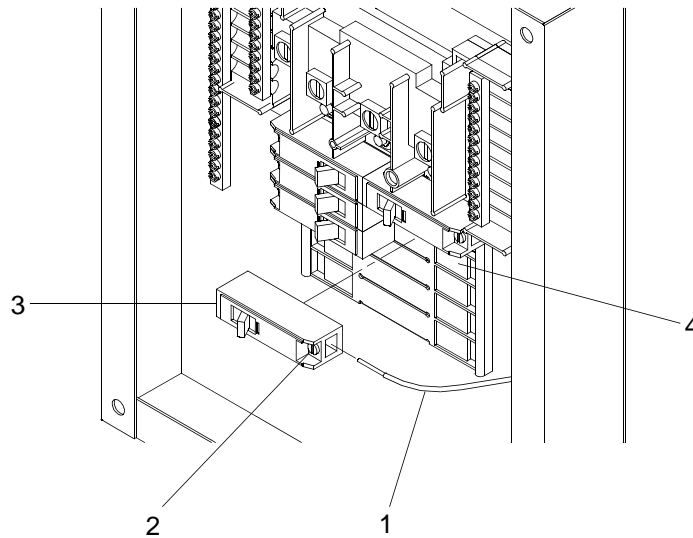
Equipment Condition

Generator Container Load Distribution Panel Access Cover Removed. (WP 0061 00)

REMOVE GENERATOR CONTAINER ELECTRICAL DISTRIBUTION PANEL SINGLE POLE CIRCUIT BREAKER**NOTE**

The following procedure is typical for the removal and installation of generator container single pole circuit breakers.

1. Label wire (1).



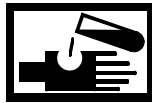
2. Loosen screw (2).

-
3. Pull wires (1) straight out of circuit breaker (3).
 4. Firmly grasp circuit breaker (3), rotate circuit breaker (3) outward from mounting cleat (4) and remove. Discard circuit breaker (3).

INSTALL GENERATOR CONTAINER ELECTRICAL DISTRIBUTION PANEL SINGLE POLE CIRCUIT BREAKER

1. Install back side of new circuit breaker (3) into mounting cleat (4).
2. Rotate circuit breaker (3) until it snaps into position.

WARNING



CHEMICAL



EYE PROTECTION

3. Coat wire (1) with silicone grease.
4. Install wire (1) into circuit breaker (3) and remove label.
5. Tighten screw (2).
6. Install generator container load distribution panel access cover. (WP 0061 00)
7. Position circuit breaker (3) to on position.
8. Start generator. (TM 9-6115-642-10)
9. Verify affected equipment operates.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FUEL TANK SIGNAL BOX TRANSFORMER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Transformer, 120-24VAC
PN 592

Personnel Required

Engineer 88L

Equipment Condition

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

REMOVE GENERATOR CONTAINER FUEL TANK SIGNAL BOX TRANSFORMER

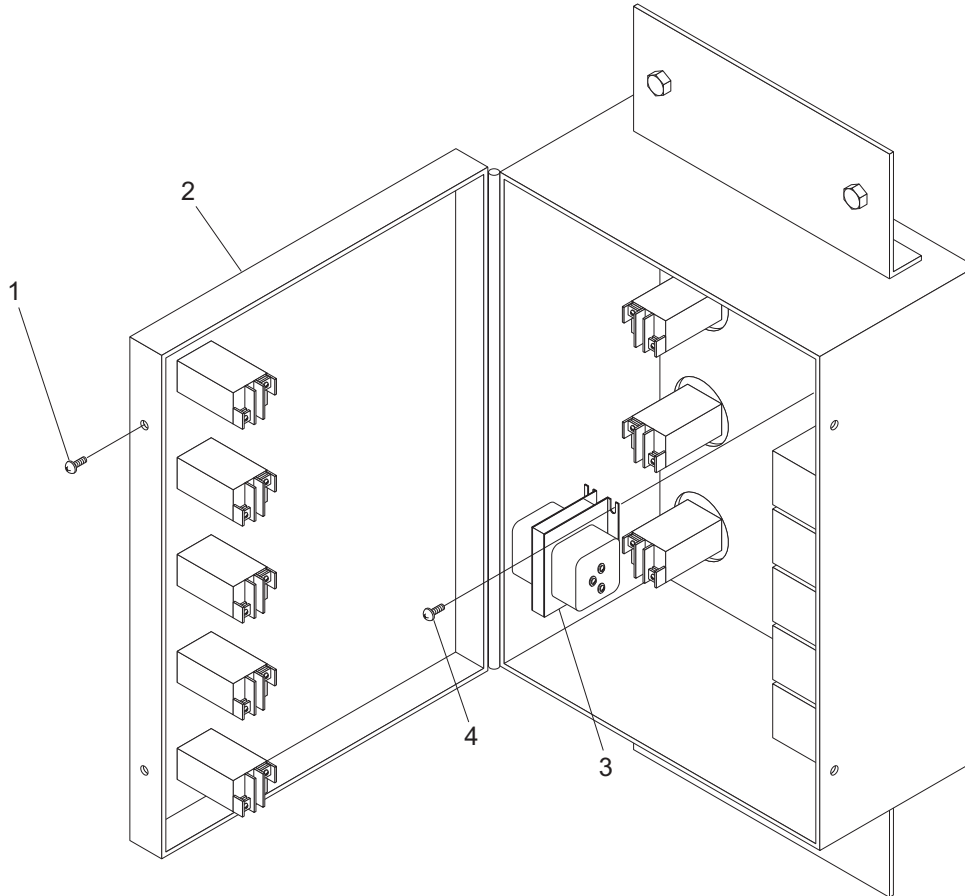
WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Remove screws (1) and open fuel tank signal box door (2).



2. Label and disconnect wiring from transformer (3).
3. Remove screws (4) and transformer (3). Discard transformer (3).

INSTALL GENERATOR CONTAINER FUEL TANK SIGNAL BOX TRANSFORMER

1. Position new transformer (3) in fuel tank signal box.
2. Install and tighten screws (4).
3. Connect wiring to transformer (3).
4. Close fuel tank signal box door (2) and secure with screws (1).
5. Start generator. (TM 9-6115-642-10)
6. Verify affected equipment operates.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FUEL TANK SIGNAL BOX FUSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Fuse

PN 740-3014

Personnel Required

Engineer 88L

Equipment Condition

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

REMOVE GENERATOR CONTAINER FUEL TANK SIGNAL BOX FUSE

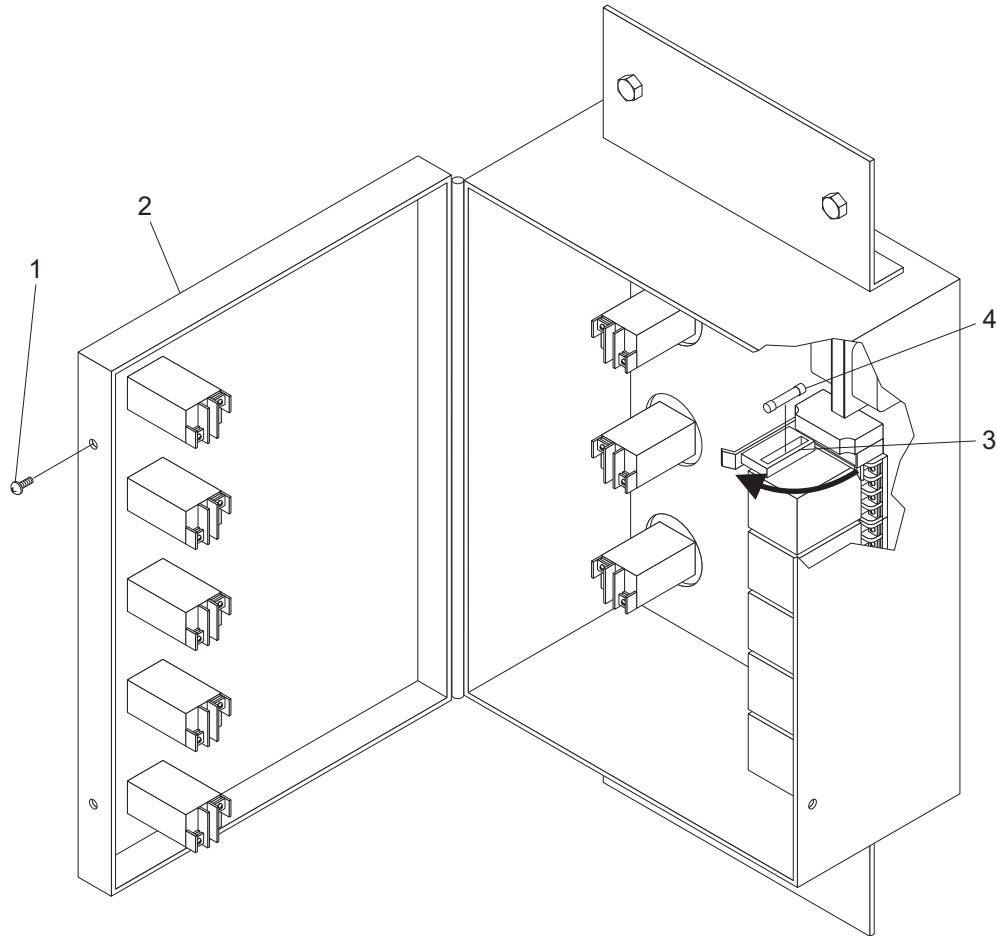
WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Remove screws (1) and open fuel tank signal box door (2).



2. Open fuse holder (3).
3. Remove fuse (4) from fuse holder (3). Discard fuse (4).

INSTALL GENERATOR CONTAINER FUEL TANK SIGNAL BOX FUSE

1. Install new fuse (4) in fuse holder (3).
2. Close fuse holder (3).
3. Close fuel tank signal box door (2) and secure with screws (1).
4. Start generator. (TM 9-6115-642-10)
5. Verify affected equipment operates.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FUEL TANK SIGNAL BOX RELAY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Relay
PN 700-HA32A24

Personnel Required

Engineer 88L

Equipment Condition

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

REMOVE GENERATOR CONTAINER FUEL TANK SIGNAL BOX RELAY

WARNING



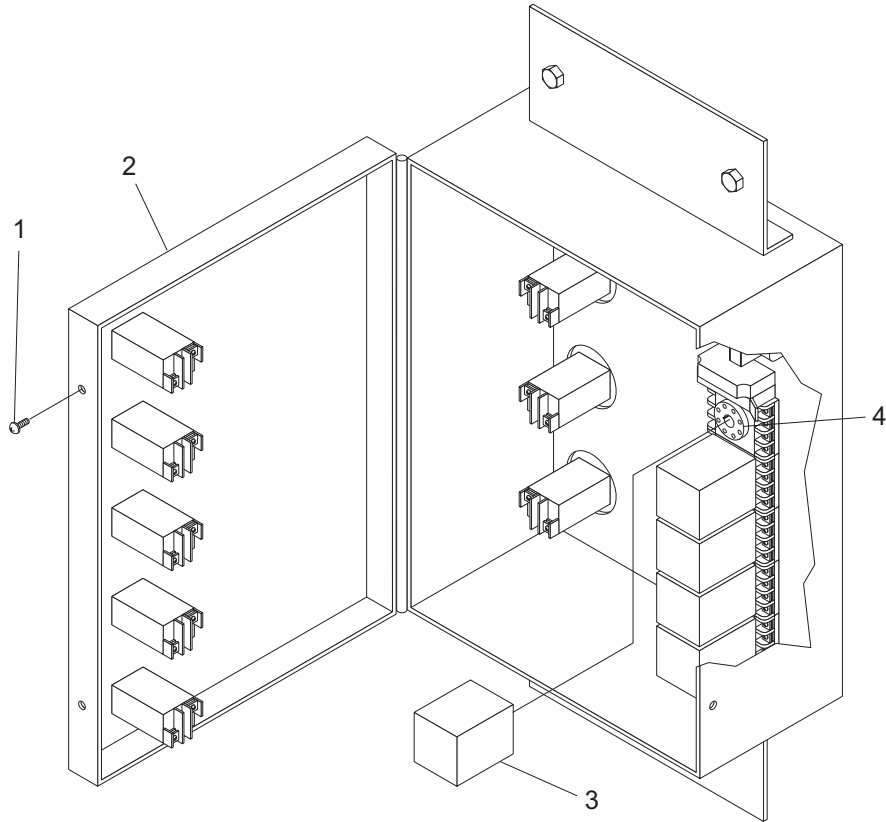
ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

NOTE

The following procedure is typical for the removal and installation of generator container fuel tank signal box relays.

1. Remove screws (1) and open fuel tank signal box door (2).



2. Firmly grasp relay (3) and pull it out from relay socket (4). Discard relay (3).

INSTALL GENERATOR CONTAINER FUEL TANK SIGNAL BOX RELAY

1. Align pins at base of new relay (3) with holes in relay socket (4) and firmly seat relay (3) in relay socket (4).
2. Close fuel tank signal box door (2) and secure with screws (1).
3. Start generator. (TM 9-6115-642-10)
4. Verify affected equipment operates.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FUEL TANK SIGNAL BOX LIGHT ASSEMBLY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Light, Pilot (Red)

PN 800T-QS24R

Light, Pilot (Amber)

PN 800T-QS24A

Light, Pilot (Green)

PN 800T-QS24G

Personnel Required

Engineer 88L

Equipment Condition

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

REMOVE GENERATOR CONTAINER FUEL TANK SIGNAL BOX LIGHT ASSEMBLY

WARNING



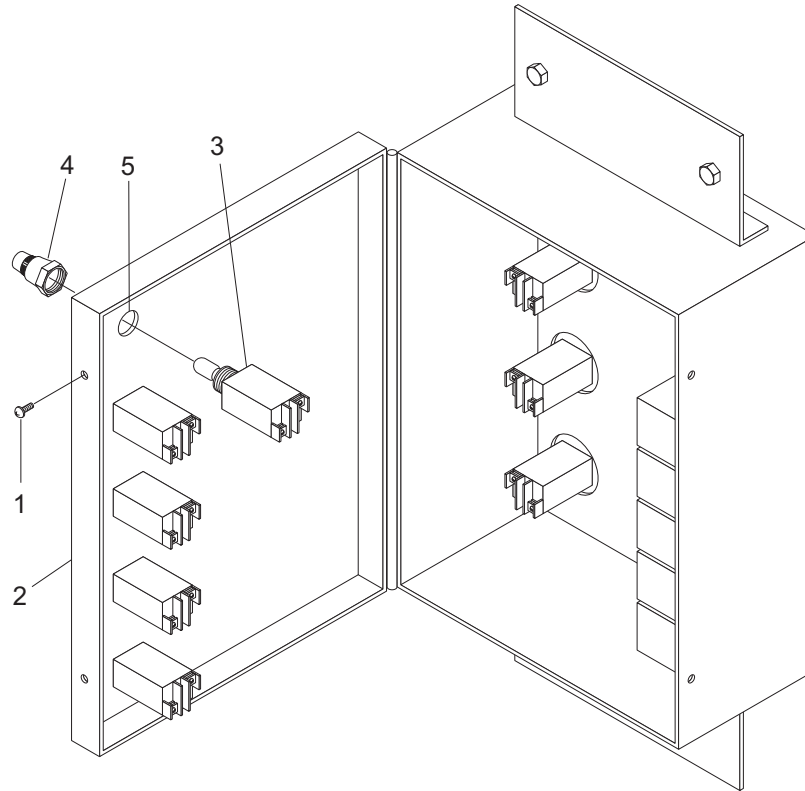
ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

NOTE

The following procedure is typical for the removal and installation of internal and external panel generator container fuel tank signal box light assemblies.

1. Remove screws (1) and open fuel tank signal box door (2).



2. Label and remove wires from light assembly (3).
3. Remove retaining nut (4) and light assembly (3) and discard.

INSTALL GENERATOR CONTAINER FUEL TANK SIGNAL BOX LIGHT ASSEMBLY

1. Remove retaining nut (4) from new light assembly (3).
2. Insert new light assembly (3) in mounting hole (5).
3. Install and tighten retaining nut (4) on light assembly (3).
4. Connect wires to light assembly (3).
5. Close fuel tank signal box door (2) and secure with screws (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FUEL TANK SIGNAL BOX LAMP
REPLACEMENT**

INITIAL SETUP:**Materials/Parts**

Lamp, Miniature 24V
PN 800T-N157

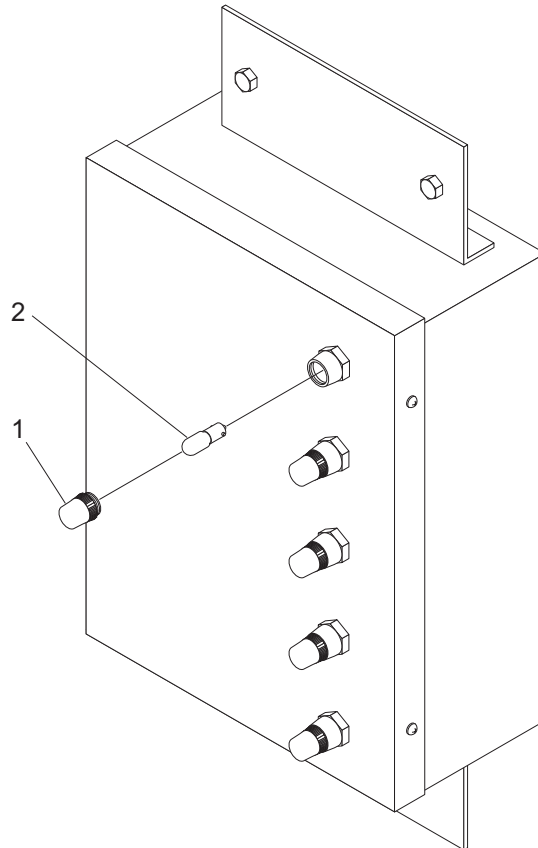
Personnel Required

Engineer 88L

REMOVE GENERATOR CONTAINER FUEL TANK SIGNAL BOX LAMP**NOTE**

The following procedure is typical for the replacement of internal and external panel generator container fuel tank signal box lamps.

1. Remove lamp cap (1).



2. Remove lamp (2) by pushing in slightly, then rotating approximately 1/4-turn counterclockwise. Discard lamp (2).

INSTALL GENERATOR CONTAINER FUEL TANK SIGNAL BOX LIGHT ASSEMBLY

1. Align pins on base of new lamp (2) with slots in receptacle and insert into receptacle.
2. While pushing in slightly on the lamp (2), rotate the lamp (2) approximately 1/4-turn clockwise until lamp is fully engaged in receptacle.
3. Install lamp cap (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FUEL TANK LEVEL SENSOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Sensor, Fuel Level, 50%/Overfill

PN TP-JC-23880

Sensor, Fuel Level, Full/Empty

PN TP-JC-43880

Sensor, Fuel Level, Leak Detection

PN TP-JC-33880

Cloth, Cleaning (Item 7, WP 0148 00)

Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

Engineer 88L

Equipment Condition

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

REMOVE GENERATOR CONTAINER FUEL TANK LEVEL SENSOR

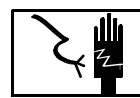
WARNING



FIRE



EXPLOSION



ELECTRICAL

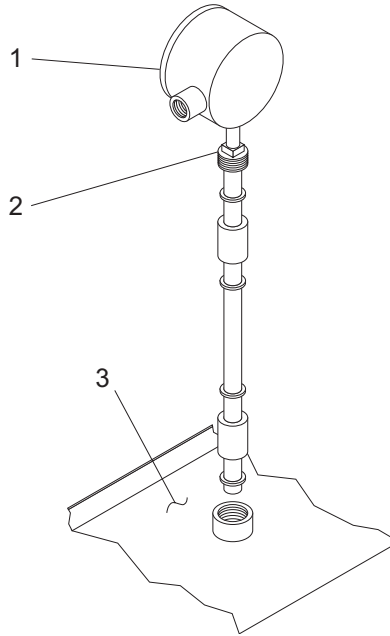
**Fire extinguisher and spill kit must be present during fuel tank maintenance.
Failure to comply could result in injury to personnel.**

Ensure generator power is secured using proper lock-out/tag-out procedure.

NOTE

The following procedure is typical for the removal and installation of generator container fuel tank level sensors.

1. Label and disconnect from fuel level sensor (1).



2. Using a wrench on sensor fitting (2), remove the fuel level sensor (1) from the fuel tank (3). Discard fuel level sensor (1).

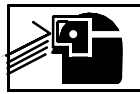
INSTALL GENERATOR CONTAINER FUEL TANK LEVEL SENSOR

1. Using cloth, wipe fittings.
2. Carefully slide the new fuel level sensor (1) into the fuel tank (3).
3. Tighten sensor fitting (2).
4. Connect wiring to fuel level sensor (1).

WARNING



CHEMICAL



EYE PROTECTION



SLICK FLOOR

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

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 33, WP 0149 00)

Materials/Parts

Switch, Single Pole (20 Amp)

PN 7030K61

Nameplate, Switch ("RED")

PN 1001057-18

Nameplate, Switch ("WHITE")

PN 1001057-17

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

Equipment Condition

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

REMOVE GENERATOR CONTAINER ROTARY BRASS LIGHT SWITCH

WARNING



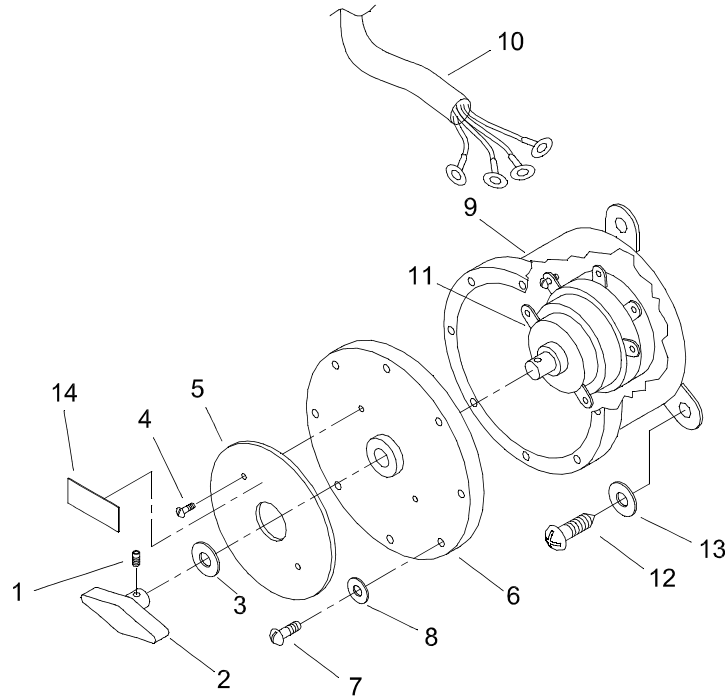
ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

NOTE

The following procedure is typical for the removal and installation of generator container rotary brass light switches.

1. Loosen screw (1) and remove light switch knob (2) and washer (3).



2. Remove two pan head screws (4) from faceplate (5).
3. Remove faceplate (5) from light switch cover (6).
4. Remove four pan head screws (7) and four washers (8) from light switch cover (6).
5. Remove switch cover (6) from light switch enclosure (9).
6. Label and disconnect wiring (10) from light switch assembly (11).
7. Remove wiring harness (10) from light switch enclosure (9).
8. Remove three phillips quick screws (12) and three washers (13) securing light switch enclosure (9) to wall.
9. Discard light switch enclosure (9).

INSTALL GENERATOR CONTAINER ROTARY BRASS LIGHT SWITCH

1. Position new light switch enclosure (9) and install three phillips quick screws (12) and three washers (13) to secure light switch enclosure (9) to wall. Tighten phillips quick screws (12).
2. Install wiring harness (10) in light switch enclosure (9).
3. Connect wiring (10) to light switch assembly (11) and remove labels.
4. Install light switch cover (6) onto light switch enclosure (9).
5. Install four pan head screws (7) and washers (8) in light switch cover (6). Tighten pan head screws (7).
6. Install faceplate (5) onto light switch cover (6).

-
7. Install two pan head screws (4) in faceplate (5). Tighten pan head screws (4).
 8. Install washer (3) and switch knob (2) on light switch assembly (11) and tighten allen head screw (1).
 9. Install nameplate (14) onto faceplate (5).
 10. Perform operational check of light switch. (TM 55-1945-216-10)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER FLUORESCENT LIGHT FIXTURE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Fixture, Fluorescent
PN MS19107-333-1

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

Equipment Condition

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

REMOVE GENERATOR CONTAINER FLUORESCENT LIGHT FIXTURE

WARNING



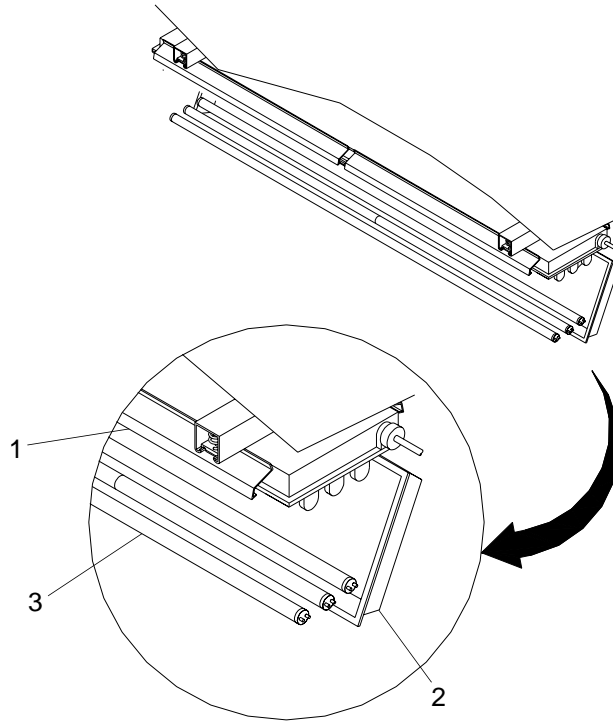
ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

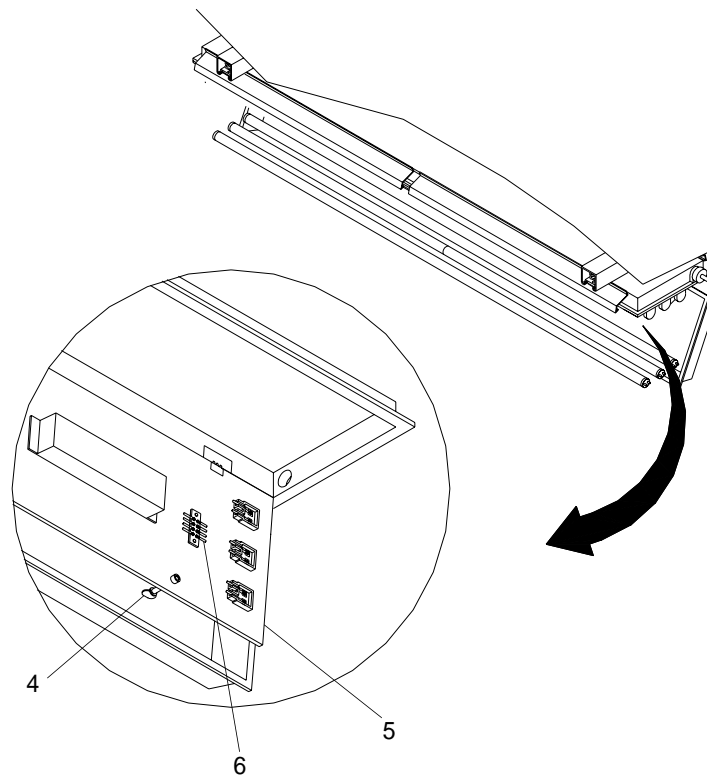
NOTE

The following procedure is typical for the removal and installation of generator container fluorescent light fixtures.

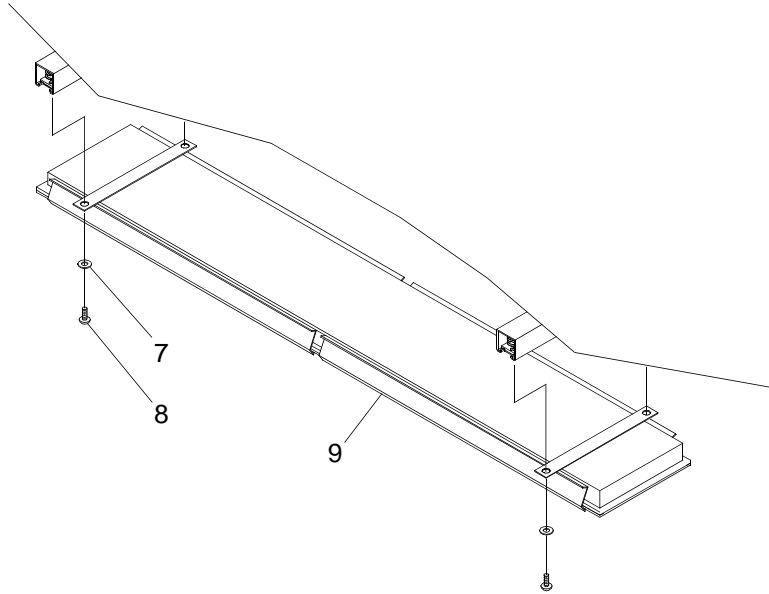
1. Release clamps (1) by pulling downward.



2. Remove cover (2).
3. Remove fluorescent lamps (3).
4. Loosen wing screws (4) and allow reflector (5) to hang down on hinge.



5. Label and disconnect wiring (6).
6. Remove four screws (7) and washers (8) securing light fixture (9) to ceiling.



7. Discard light fixture (9).

INSTALL GENERATOR CONTAINER FLUORESCENT LIGHT FIXTURE

1. Position and install four screws (7) and washers (8) to secure light fixture (9) to ceiling. Tighten screws (7).
2. Install wiring (6) in light fixture (9).
3. Close reflector (5) and secure with wing screws (4).
4. Install fluorescent lamps (3).
5. Position cover (2) and secure with clamps (1).
6. Perform operational check of lights. (TM 55-1945-216-10)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER INCANDESCENT LIGHT FIXTURE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Fixture, Incandescent
PN 717AM-SP-T-1-3/4NPT

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

Equipment Condition

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

REMOVE GENERATOR CONTAINER INCANDESCENT LIGHT FIXTURE

WARNING



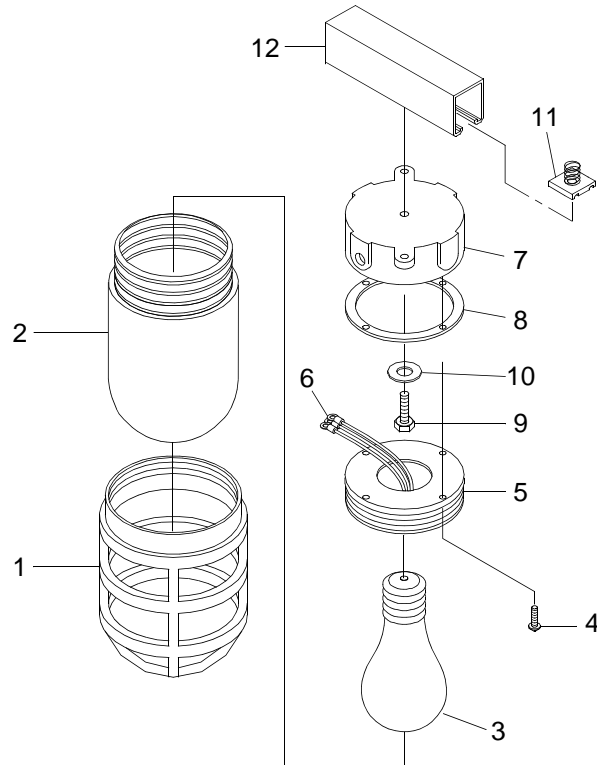
ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

NOTE

The following procedure is typical for the removal and installation of generator container incandescent light fixtures.

1. Remove guard (1) and discard.



2. Remove globe (2) and discard.
3. Remove lamp (3) and retain if serviceable.
4. Remove screws (4) from lampholder (5) and allow lampholder (5) to hang down from wires (6).
5. Label and disconnect wiring (6) from fixture base (7).
6. Remove lampholder (5) and gasket (8) and discard.
7. Remove hex head bolt (9) and washer (10) securing fixture base (7) to clamping nut (11) in track (12). Discard fixture base (7).

INSTALL GENERATOR CONTAINER INCANDESCENT LIGHT FIXTURE

1. Position fixture base (7) under track (12) and clamping nut (11).
2. Install hex head bolt (9) and washer (10) to secure fixture base (7) to clamping nut (10). Tighten hex head bolt (9).
3. Position lampholder (5) and gasket (8) under fixture base (7).
4. Connect wiring (6) to fixture base (7).
5. Secure lampholder (5) and gasket (8) to fixture base (7) with screws (4). Tighten screws (4).
6. Install lamp (3).
7. Install globe (2).

-
8. Install guard (1).
 9. Perform operational check of light switch. (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER HAND OPERATED TRANSFER PUMP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Wrench, Pipe (Item 34, WP 0149 00)

Materials/Parts

Transfer Pump, Hand Operated
PN 100
Cloth, Cleaning (Item 7, WP 0148 00)
Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

Engineer 88L

Equipment Condition

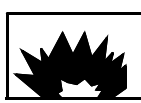
Generator Shut Down. (TM 9-6115-642-10)

REMOVE GENERATOR CONTAINER HAND OPERATED TRANSFER PUMP

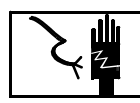
WARNING



FIRE



EXPLOSION

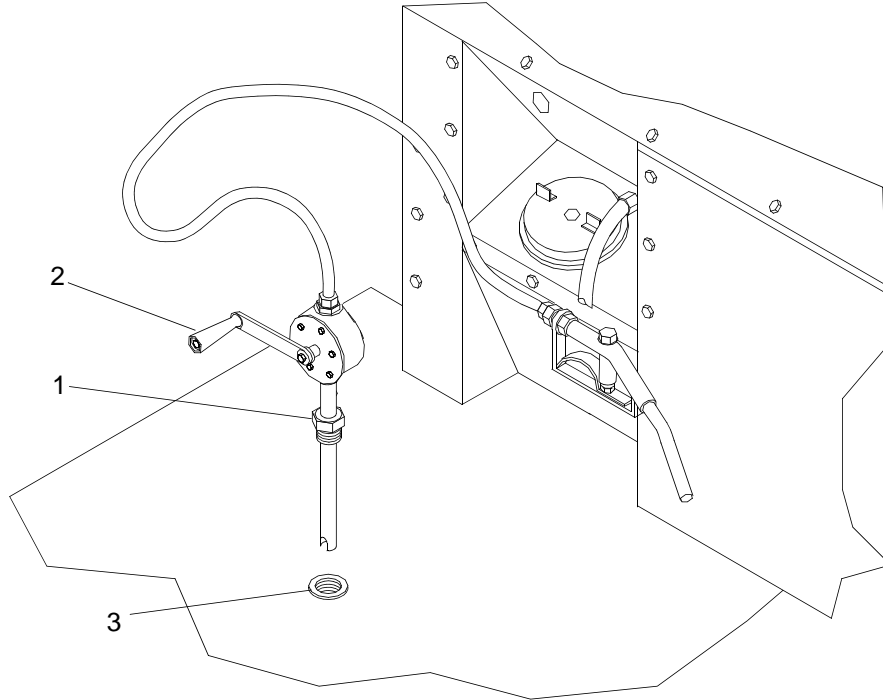


ELECTRICAL

**Fire extinguisher and spill kit must be present during transfer pump maintenance.
Failure to comply could result in injury to personnel.**

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Using pipe wrench on fitting (1), remove transfer pump assembly (2) from fuel tank (3).



2. Discard transfer pump assembly (2).

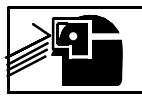
INSTALL GENERATOR CONTAINER HAND OPERATED TRANSFER PUMP

1. Using cloth, wipe fittings.
2. Install new transfer pump assembly (2) in fuel tank (3). Using pipe wrench, tighten fitting (1).

WARNING



CHEMICAL



EYE PROTECTION



SLICK FLOOR

3. Clean up spilled fluid with a spill kit and dispose of spill kit waste per local procedures.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER DAMPER LOUVERS
CLEANING**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Item 33, WP 0149 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
- Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
- Helmet, Safety (Brown) (Item 17, WP 0149 00)
- Life Preserver, Vest (Item 19, WP 0149 00)
- Gloves, Rubber, Industrial (Item 11, WP 0149 00)
- Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
- Apron, Utility (Item 1, WP 0149 00)
- Brush, Wire Scratch (Item 3, WP 0149 00)

Materials/Parts

- Cleaner (Item 6, WP 0148 00)
- Rag, Wiping (Item 17, WP 0148 00)

Personnel Required

Seaman 88K

Equipment Condition

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

CLEAN GENERATOR CONTAINER DAMPER LOUVERS

WARNING



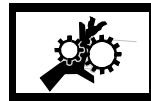
VEST



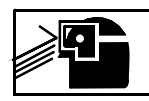
HELMET PROTECTION



HEAVY PARTS



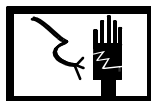
MOVING PARTS



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.

WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Using a wire brush, remove debris from louvers.

WARNING

**CHEMICAL****EYE PROTECTION**

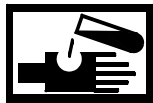
2. Apply cleaner sparingly to a rag and remove all dirt, dust and foreign matter from inside area of louvers.

WARNING

**CHEMICAL****EYE PROTECTION**

3. Using a wire brush and cleaner, remove salt water deposits and corrosion from louvers.

WARNING

**CHEMICAL****EYE PROTECTION**

4. Dispose of contaminated wiping rags per local procedures.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER AIR INLET DUCT
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)

Personnel Required

Engineer 88L

Equipment Condition

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

REMOVE GENERATOR CONTAINER AIR INLET DUCT

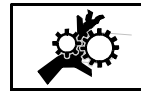
WARNING



ELECTRICAL



HEAVY PARTS

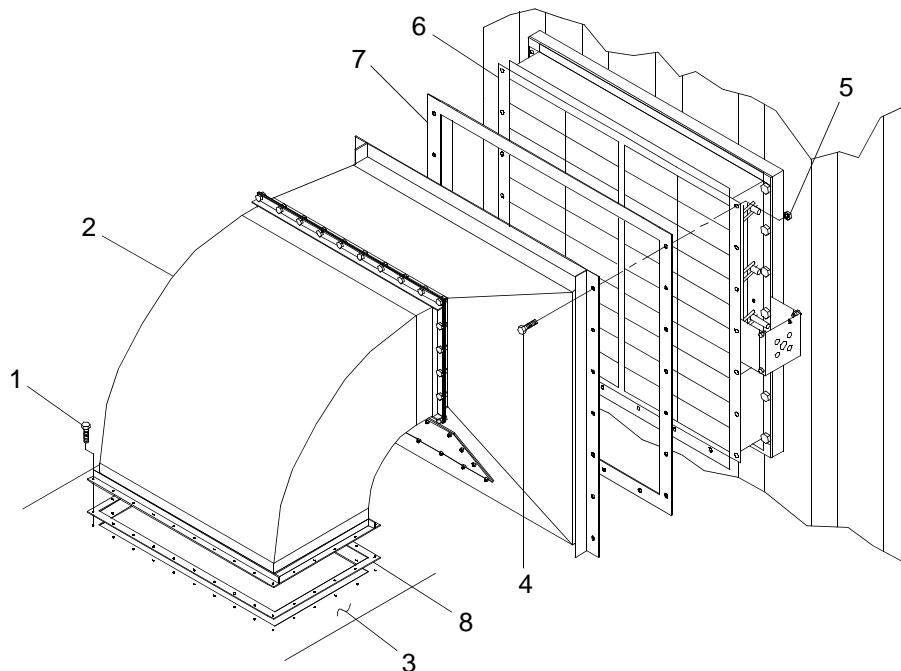


MOVING PARTS

Ensure generator power is secured using proper lock-out/tag-out procedure.

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

1. Remove bolts (1) securing air inlet duct (2) to generator (3).



-
2. Remove bolts (4) and lock nuts (5) securing air inlet duct (2) to damper assembly (6).
 3. Remove air inlet duct (2) and collect gaskets (7, 8). Inspect gaskets (7, 8) for general condition and tears. Replace as needed.

INSTALL GENERATOR CONTAINER AIR INLET DUCT

1. Position air inlet duct (2) with gaskets (7, 8).
2. Install and tighten bolts (1) to secure air inlet duct (2) to generator (3).
3. Install and tighten bolts (4) and lock nuts (5) to secure air inlet duct (2) to damper assembly (6).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER DAMPER ASSEMBLY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Damper Assembly with Motor
PN HCD-230

Personnel Required

Engineer 88L (2)

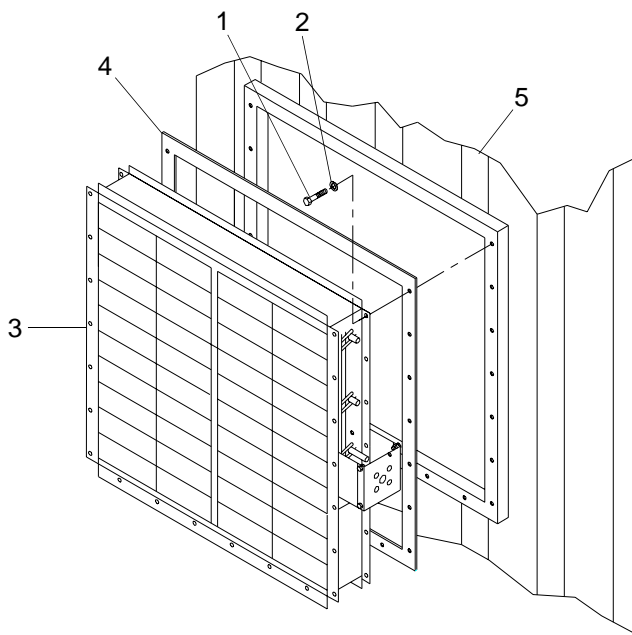
Equipment Condition

Generator Container Damper Assembly Actuator Removed. (WP 0076 00)

Generator Container Air Inlet Duct Removed. (WP 0074 00)

REMOVE GENERATOR INTAKE DAMPER ASSEMBLY

1. Remove bolts (1) and lock washers (2) securing generator air intake damper assembly (3) and gasket (4) to generator container side wall (5).



WARNING

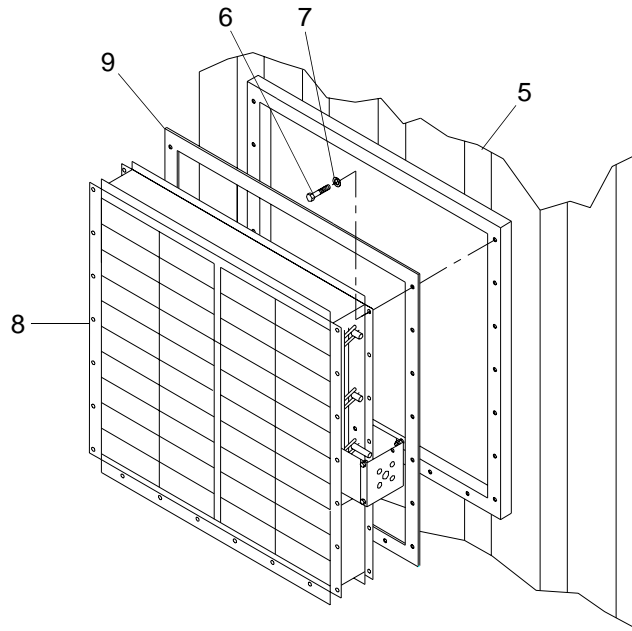


HEAVY OBJECTS

2. Using assistant, remove and discard damper assembly (3) and gasket (4).

REMOVE GENERATOR CONTAINER VENTILATION DAMPER ASSEMBLY

1. Remove bolts (6) and lock washers (7) securing ventilation assembly (8) and gasket (9) to generator container side wall (5).



WARNING

**HEAVY OBJECTS**

2. Using assistant, remove and discard damper assembly (8) and gasket (9).

INSTALL GENERATOR CONTAINER VENTILATION DAMPER ASSEMBLY

WARNING

**HEAVY OBJECTS**

1. Using assistant, position new ventilation damper assembly (8) and gasket (9) against generator container side wall (5).
2. Install and tighten bolts (6) and lock washers (7).
3. Install generator container damper assembly actuator. (WP 0076 00)

INSTALL GENERATOR INTAKE DAMPER ASSEMBLY

WARNING

**HEAVY OBJECTS**

1. Using assistant, position new generator air intake damper assembly (3) and gasket (4) against generator container side wall (5).
2. Install and tighten bolts (6) and lock washers (7).
3. Install generator container air inlet duct (WP 0074 00).
4. Install generator container damper assembly actuator. (WP 0076 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER DAMPER ASSEMBLY ACTUATOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Personnel Required

Engineer 88L

References

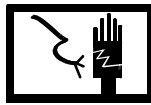
TM 55-1945-216-10

Equipment Condition

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

REMOVE GENERATOR CONTAINER DAMPER ASSEMBLY ACTUATOR

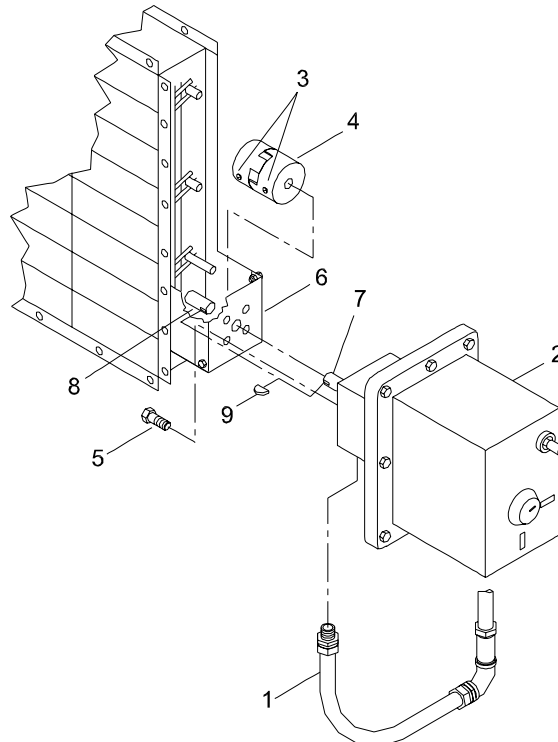
WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Label and disconnect power cable (1) from actuator (2).



2. Loosen set screws (3) on both halves of actuator coupling adapter (4).
3. Remove four hex head bolts (5) securing actuator (2) to mounting plate (6).
4. Slowly remove actuator (2) from mounting plate (6), capturing actuator coupling adapter (4) when actuator drive shaft (7) clears mounting plate (6).
5. Ensure to capture shaft keys (9) when removing actuator (2).
6. Retain actuator coupling adapter (4) for installation and discard actuator (2).

INSTALL GENERATOR CONTAINER DAMPER ASSEMBLY ACTUATOR

1. Install new actuator (2) through hole in mounting plate (6).
2. Position shaft keys (9) on actuator drive shaft (7) and damper assembly shaft (8).
3. Install actuator coupling adapter (4) between actuator drive shaft (7) and damper assembly shaft (8).
4. Install four hex head bolts (5) to secure actuator (2) to mounting plate (6).
5. Tighten set screws (3) on both halves of actuator coupling adapter (4).
6. Connect power cable (1) to actuator (2) and remove labels.
7. Start generator. (TM 9-6115-642-10)
8. Verify that damper assembly actuator operates.
9. Shut generator down. (TM 9-6115-642-10)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
GENERATOR CONTAINER DISCONNECT BOX FUSES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Gloves, Electrical (Item 12, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Puller, Fuse (Item 23, WP 0149 00)

Materials/Parts

Fuse, Time Delay, Class RK5, 70 Amp
 PN 025003

Personnel Required

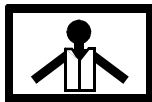
Engineer 88L

Equipment Condition

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

REMOVE GENERATOR CONTAINER DISCONNECT BOX FUSES

WARNING



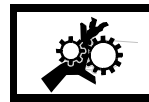
VEST



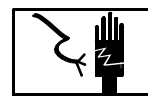
HELMET PROTECTION



HEAVY PARTS



MOVING PARTS



ELECTRICAL

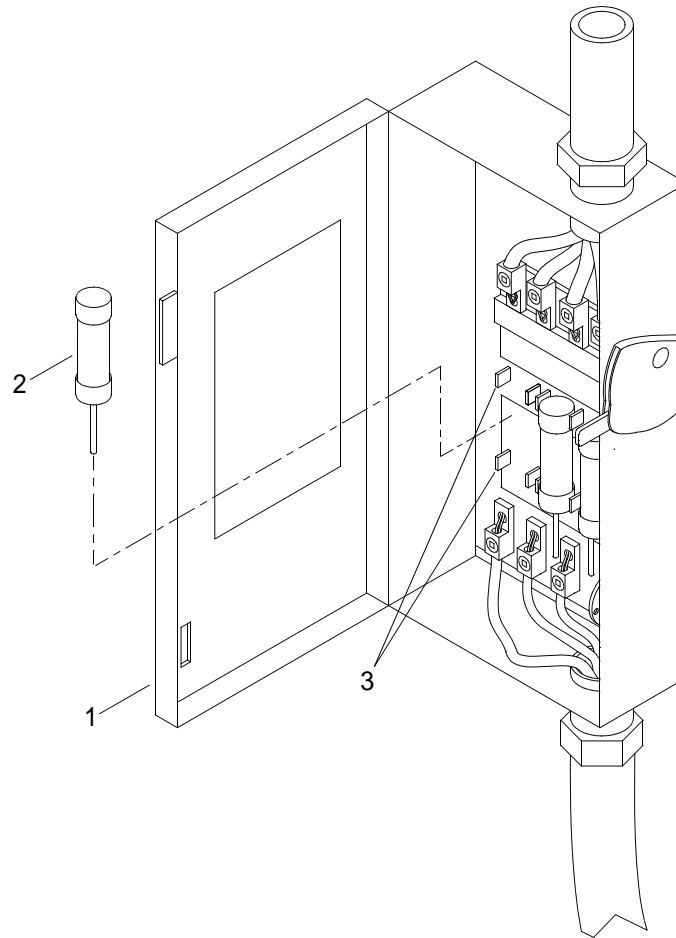
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Ensure generator power is secured using proper lock-out/tag-out procedure.

NOTE

The following procedure is typical for the removal and installation of generator container disconnect box fuses.

1. Unlatch and open disconnect box cover (1).



2. Using fuse puller, remove fuse (2) from electrical contacts (3). Discard fuse (2).

INSTALL GENERATOR CONTAINER DISCONNECT BOX FUSES

1. Using fuse puller, press new fuse (2) into electrical contacts (3).
2. Close and latch disconnect box cover (1).

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 (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Apron, Utility (Item 1, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)

Materials/Parts

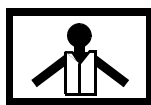
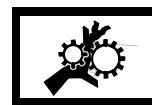
Hydraulic Fluid, Petroleum Base (Item 11, WP 0148 00)

Personnel Required

Seaman 88K

SERVICE SLIDE 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 container doors.

WARNING

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

2. Secure container doors open with locking bars, pins or hooks.

 WARNING



CHEMICAL

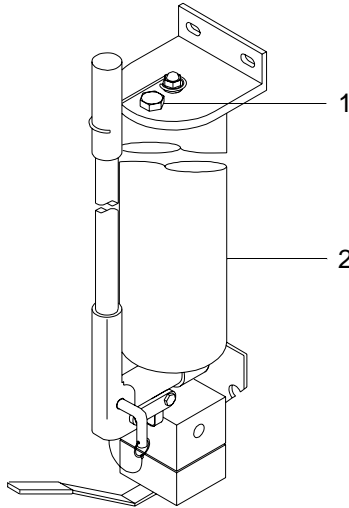


EYE PROTECTION



VAPOR

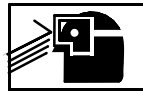
3. Remove cap (1) from reservoir (2).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

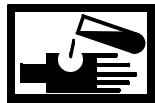
 CAUTION

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 DRAWER HYDRAULIC HAND PUMP

 WARNING



CHEMICAL

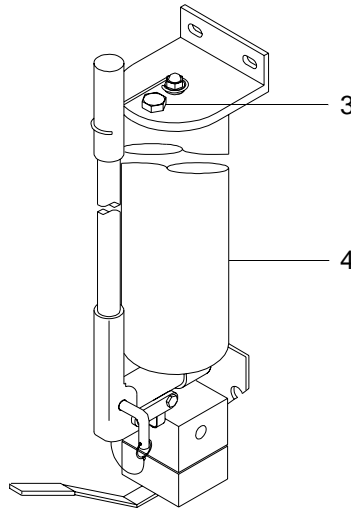


EYE PROTECTION



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. Remove locking bars, pins or hooks to close container doors.
5. Close and latch container doors.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHOR BUOY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

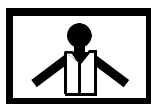
Buoy, Inflatable
 PN A5-0

Personnel Required

Seaman 88K (2)

REMOVE EASY ANCHOR BUOY

WARNING



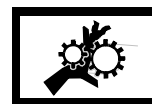
VEST



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.

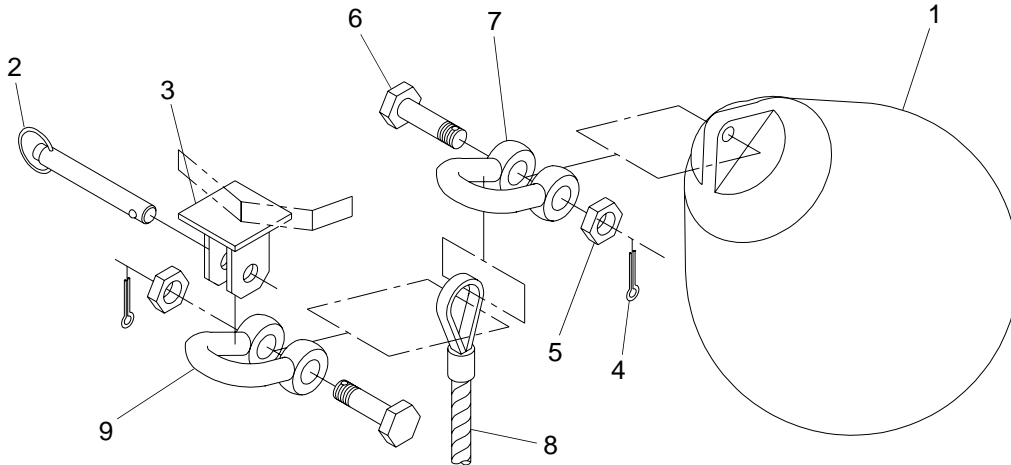
1. Unlatch and open container doors.

WARNING

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

2. Secure container doors open with locking bars, pins or hooks.

3. Using assistant to support weight of buoy (1), remove quick release pin (2) from container bracket (3).



WARNING



HEAVY OBJECTS

4. Remove buoy (1) from container bracket (3).

WARNING



HEAVY OBJECTS

5. Lower buoy (1) to deck.
6. Remove cotter pin (4), nut (5) and bolt (6) from shackle (7).
7. Remove shackle (7) from anchor buoy cable (8) and buoy (1).
8. Discard buoy (1).

INSTALL EASY ANCHOR BUOY

WARNING



HEAVY OBJECTS

1. Position new buoy (1) on deck.

-
2. Install shackle (7) through anchor buoy cable (8) and buoy (1).
 3. Install bolt (6), nut (5) and cotter pin (4) in shackle (7).

WARNING



HEAVY OBJECTS

4. Using assistant to support weight of buoy (1), position shackle (9) on container bracket (3).
5. Install quick release pin (2) in container bracket (4).
6. Remove locking bars, pins or hooks to close container doors.
7. Close and latch container doors.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHOR
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Sling, Lifting, 5,300 lbs (Green) (Item 29, WP 0149 00)
 Shackle, ½ in. 2 Ton (Item 27, WP 0149 00)

Materials/Parts

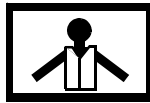
Twine, Fibrous (Item 25, WP 0148 00)

Personnel Required

Seaman 88K (2)

REMOVE EASY ANCHOR

WARNING



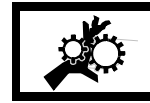
VEST



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.

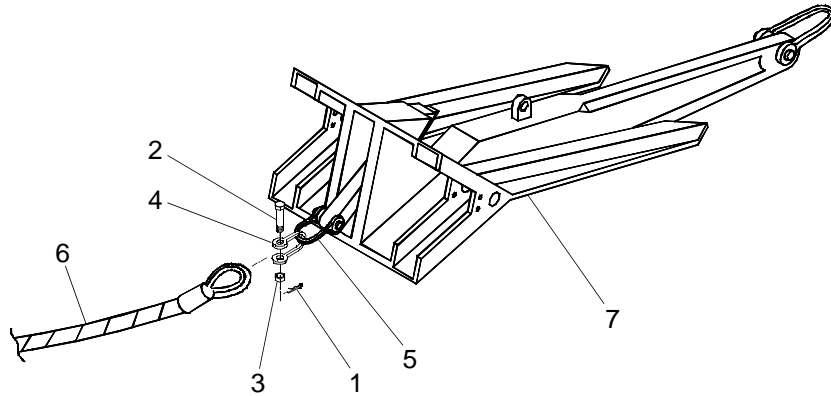
1. Unlatch and open container doors.

WARNING

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

2. Secure container doors open with locking bars, pins or hooks.

3. Remove cotter pin (1) from shackle bolt (2).

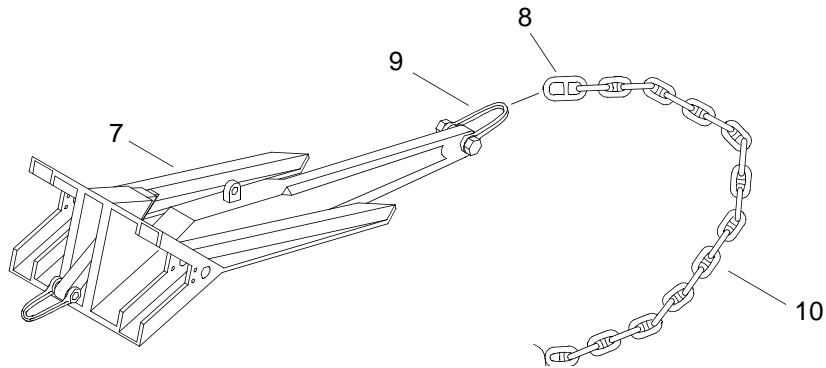


4. Remove nut (3) and bolt (2) from shackle (4).
5. Remove shackle (4) from anchor foot shackle (5) and anchor buoy cable (6).
6. Install shackle (4) on anchor buoy cable (6).
7. Install bolt (2) and nut (3) in shackle (4).

NOTE

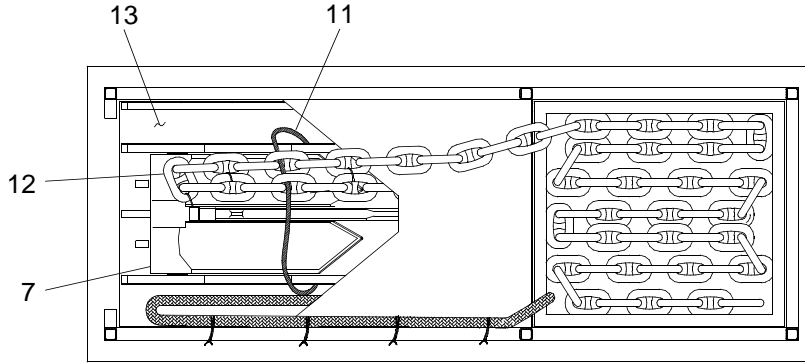
Anchor buoy cable must be stowed in such a manner as to permit free operation of anchor drawer and allow removal of anchor.

8. Coil anchor buoy cable (6) and secure away from anchor (7) with twine.
9. Remove joining link (8) to separate anchor tongue shackle (9) from anchor chain (10).



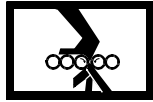
10. Install joining link (8) on end of anchor chain (10).

11. Remove tie down strap (11) securing chain (12) and anchor (7) to anchor drawer (13).



12. Ensure that loose items will not interfere with anchor deployment.

WARNING

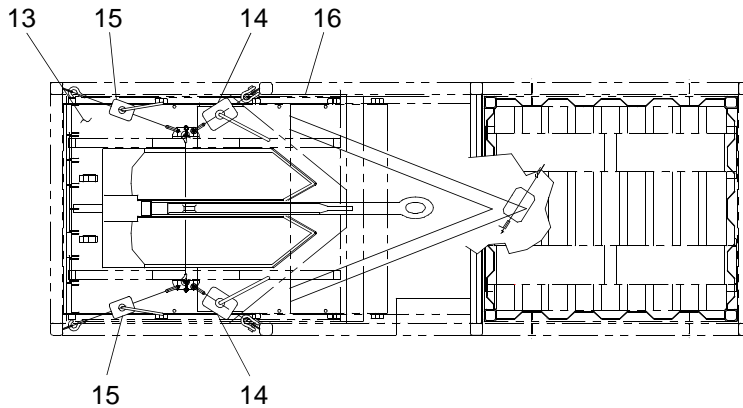


MOVING PARTS

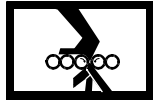


HEAVY PARTS

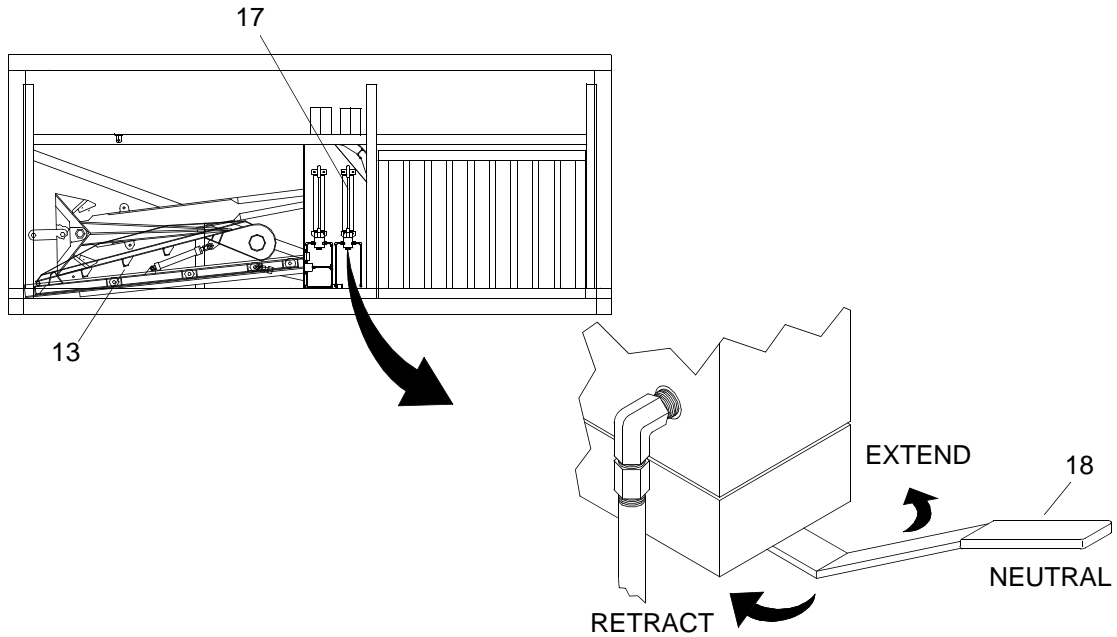
13. Remove two 6-ton chain hoists (14) and two ¾-ton chain hoists (15) from anchor drawer (13) and track of launch frame (16).



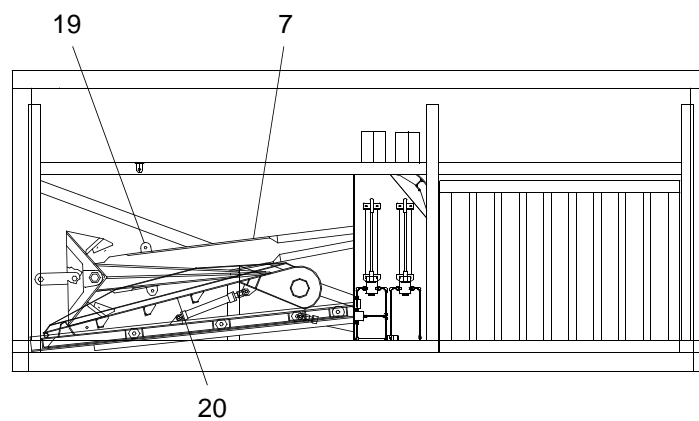
WARNING

**MOVING PARTS****HEAVY PARTS**

14. Extend anchor drawer (13) by pumping extend/retract pump (17) with control lever (18) in extend position (right).



15. Move control lever (18) to neutral position (center).
16. Attach tag lines to padeye crown and foot shackle of anchor (7).



17. Attach sling and shackle to anchor padeye (19).

WARNING

**HEAVY PARTS**

18. Using forklift, sling and shackle, remove anchor (7) from anchor slide (20) and place on deck of RRDF.
19. Remove sling and shackle from anchor padeye (19).
20. Remove tag lines from padeye crown and foot shackle of anchor (7).

INSTALL EASY ANCHOR

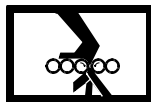
1. Attach tag lines to padeye crown and foot shackle of anchor (7).
2. Attach sling and shackle to anchor padeye (19).

WARNING

**HEAVY PARTS**

3. Using forklift, sling and shackle, position anchor (7) over anchor slide (20).
4. Remove sling and shackle from anchor padeye (19).
5. Remove tag lines from padeye crown and foot shackle of anchor (7).

WARNING

**MOVING PARTS****HEAVY PARTS**

6. Retract anchor drawer (13) by pumping extend/retract pump (17) with control lever (18) in retract position (left).
7. Move control lever (18) to neutral position (center).
8. Install two 6 ton chain hoists (14) and two ¾ ton chain hoists (15) between anchor drawer (13) and track of launch frame (16).
9. Using tie down strap (11), secure chain (12) and anchor (7) to anchor drawer (13), ensuring enough chain is free to permit attachment of anchor chain (10) to anchor (7).
10. Remove joining link (8) from end of anchor chain (10).
11. Install joining link (8) between anchor tongue shackle (9) and anchor chain (10).

12. Cut twine securing coiled anchor buoy cable (6) away from anchor (7).
13. Position coiled anchor buoy cable (6) on top of anchor (7).
14. Remove nut (3) and bolt (2) from shackle (4).
15. Remove shackle (4) from anchor buoy cable (6).
16. Install shackle (4) between anchor foot shackle (5) and anchor buoy cable (6).
17. Install bolt (2), nut (3) and new cotter pin (1) in shackle (4).
18. Remove locking bars, pins or hooks to close container doors.
19. Close and latch container doors.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY ANCHOR DRAWER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pliers, Retaining Ring, Flat Jaw (Item 22, WP 0149 00)
 Pan, Drain (Item 21 WP 0149 00)

Materials/Parts

Drawer, Anchor
 PN E32758
 Block, Shoring (Item 4, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

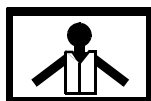
Seaman 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

REMOVE EASY ANCHOR DRAWER

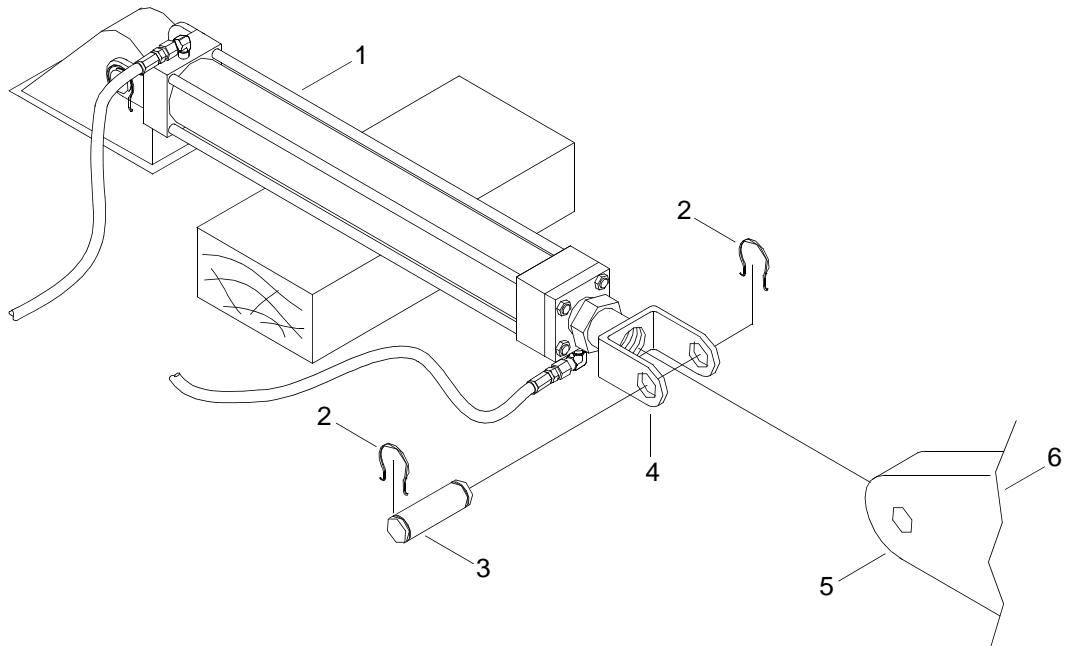
WARNING

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

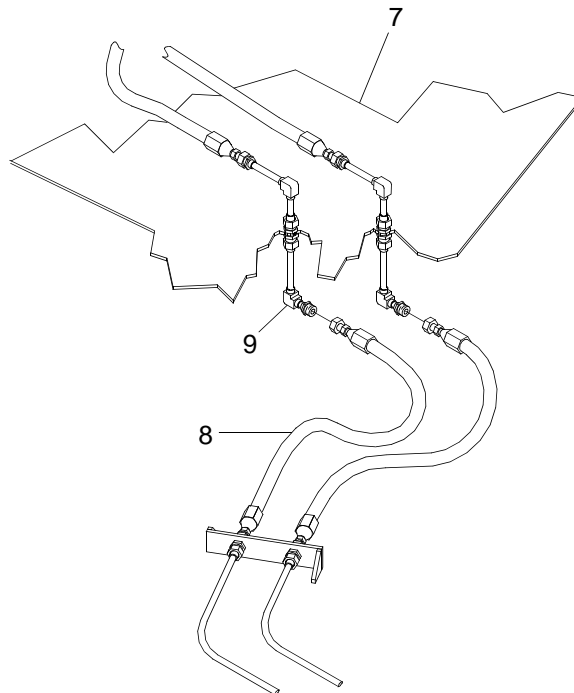
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

1. Vent hydraulic pressure. (WP 0089 00)
2. Position a shoring block under anchor drawer hydraulic cylinder (1).



3. Using external retaining ring pliers, remove two snap rings (2) from pin (3).
4. Remove pin (3) from clevis (4).
5. Remove clevis (4) from mounting boss (5) on anchor drawer (6).
6. Position drain pan under anchor slide (7) near lower flexible hydraulic hoses (8).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

7. Disconnect lower flexible hydraulic hoses (8) from bottom of anchor slide hydraulic fittings (9) and allow hydraulic hoses (8) to drain into drain pan.

 WARNING

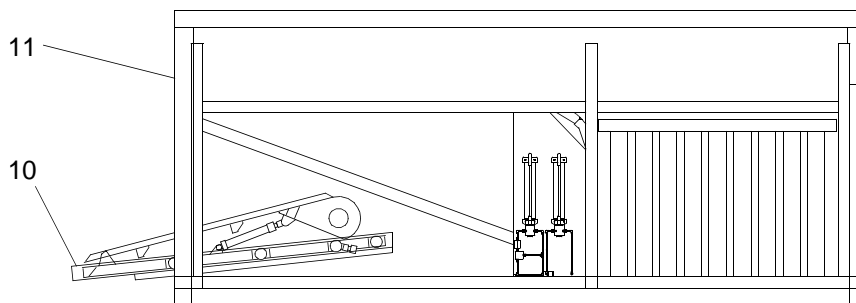


HEAVY PARTS



MOVING PARTS

8. Using forklift, remove anchor platform (10) from EASY container (11).



9. Remove EASY slide hydraulic cylinder from anchor platform (10). (WP 0096 00)
10. Discard anchor platform (10).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

11. Remove drain pan and dispose of contents per local procedures.

INSTALL EASY ANCHOR DRAWER

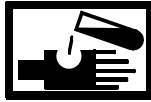
1. Install EASY slide hydraulic cylinder on new anchor platform (10). (WP 0096 00)

 WARNING

**HEAVY PARTS****MOVING PARTS**

2. Using forklift, position anchor platform (10) into EASY container (11).
3. Connect lower flexible hydraulic hoses (8) to bottom of anchor slide hydraulic fittings (9). Tighten hoses (8).
4. Position clevis (4) on mounting boss (5).
5. Install pin (3) in clevis (4).
6. Using external retaining ring pliers, install two snap rings (2) on pin (3).
7. Remove shoring block.
8. Service EASY container hydraulic system. (WP 0078 00)
9. Bleed EASY slide hydraulic system. (WP 0098 00)
10. Bleed EASY drawer hydraulic system. (WP 0097 00)

 WARNING

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

11. Clean up spilled fluid with spill kit and dispose of spill kit waste per local procedures.
12. Install EASY anchor. (WP 0080 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 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Hand Pump, Portable
 PN P140F
 Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

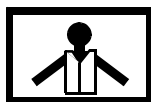
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 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. Unlatch and open container doors.

WARNING

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

2. Secure container doors open with locking bars, pins or hooks.

 WARNING

Hydraulic system must be depressurized during maintenance. Failure to comply could result in injury to personnel.

3. Position drain pan directly under hand pump (1).

 WARNING



CHEMICAL

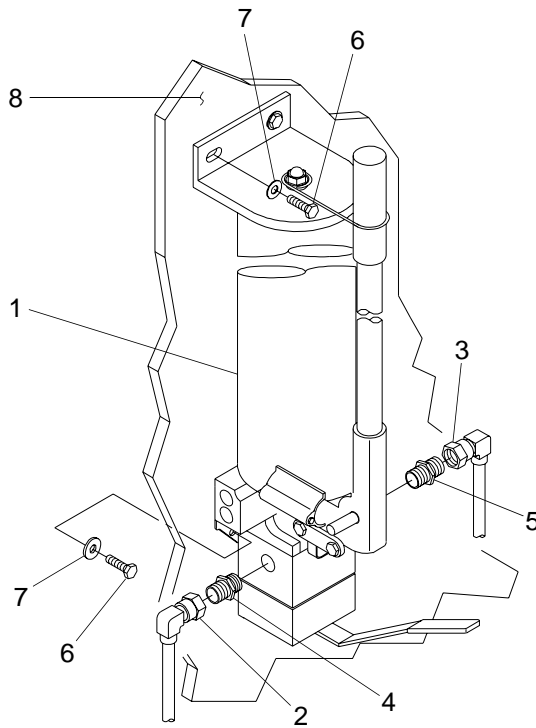


EYE PROTECTION



VAPOR

4. Disconnect two line fittings (2, 3) from fittings (4, 5).



5. Remove two fittings (4, 5) from hand pump (1).
6. Remove four bolts (6) and washers (7) securing hand pump (1) to bulkhead (8).
7. Remove hydraulic hand pump (1) from bulkhead (8).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

-
- Remove drain pan and dispose of contents per local procedures.

INSTALL EASY DRAWER HYDRAULIC HAND PUMP

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

- Using cloth, wipe fittings.

WARNING



HEAVY PARTS

- Position new hand pump (1) on mounting bulkhead (8).
- Install four bolts (6) and washers (7). Tighten bolts (6).
- Install two fittings (4, 5) in hand pump (1). Tighten fittings (4, 5).
- Connect line fittings (2, 3) to fittings (4, 5). Tighten line fittings (2, 3).
- Service EASY container hydraulic system. (WP 0078 00)
- Bleed EASY drawer hydraulic system. (WP 0097 00)

WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

- Clean up spilled fluid with a spill kit and dispose of spill kit waste and wiping rags per local procedures.
- Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY SLIDE HYDRAULIC HAND PUMP
REPLACEMENT**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Item 33, WP 0149 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
- Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
- Helmet, Safety (Brown) (Item 17, WP 0149 00)
- Life Preserver, Vest (Item 19, WP 0149 00)
- Gloves, Rubber, Industrial (Item 11, WP 0149 00)
- Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
- Respirator, Air Filtering (Item 24, WP 0149 00)
- Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

- Hand Pump, Portable
PN P140DF
- Cloth, Cleaning (Item 7, WP 0148 00)
- Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

- Engineer 88L

Equipment Condition

- EASY Anchor Removed. (WP 0080 00)
-

REMOVE EASY SLIDE HYDRAULIC HAND PUMP

WARNING



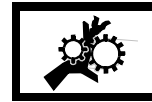
VEST



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 container doors.

WARNING

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

2. Secure container doors open with locking bars, pins or hooks.

WARNING

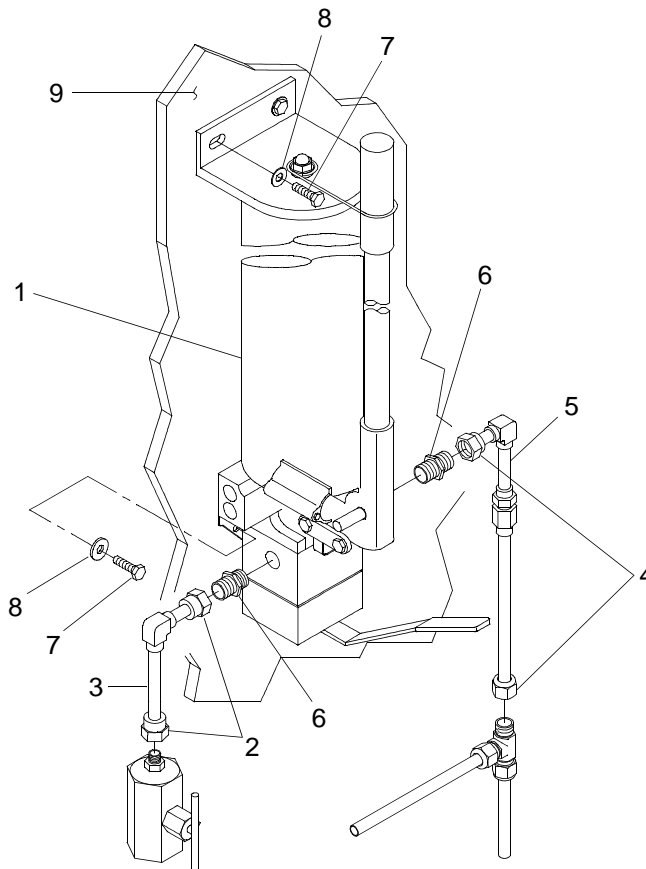
Hydraulic system must be depressurized during maintenance. Failure to comply could result in injury to personnel.

3. Position drain pan directly under hydraulic hand pump (1).

WARNING

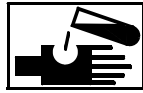
**CHEMICAL****EYE PROTECTION****VAPOR**

4. Disconnect line fittings (2) and remove line assembly (3)



5. Disconnect line fittings (4) and remove line assembly (5).
6. Remove two fittings (6) from hand pump (1).
7. Remove four bolts (7) and washers (8) securing hand pump (1) to bulkhead (9).
8. Remove hydraulic hand pump (1) from bulkhead (9) and discard.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

9. Remove drain pan and dispose of contents per local procedures.

INSTALL EASY SLIDE HYDRAULIC HAND PUMP

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

1. Using cloth, wipe fittings.
2. Position new hydraulic hand pump (1) on mounting bulkhead (9).
3. Install four bolts (7) and washers (8). Tighten bolts (7).
4. Install two fittings (6) in hand pump (1). Tighten fittings (6).
5. Position line assembly (5) and connect line fittings (4). Tighten line fittings (4).
6. Position line assembly (3) and connect line fittings (2). Tighten line fittings (2).
7. Service EASY container hydraulic system. (WP 0078 00)
8. Bleed EASY slide hydraulic system. (WP 0098 00)

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

9. Clean up spilled fluid with a spill kit and dispose of spill kit waste and wiping rags per local procedures.
10. Install EASY anchor. (WP 0080 00)
11. Remove locking bars, pins or hooks to close container doors.
12. Close and latch container doors.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY SLIDE HYDRAULIC TUBING PROTECTIVE COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

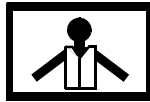
Cover, Tubing
 PN E32758-80

Personnel Required

Engineer 88L

REMOVE EASY SLIDE HYDRAULIC TUBING PROTECTIVE COVER

WARNING



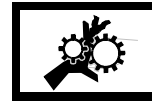
VEST



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.

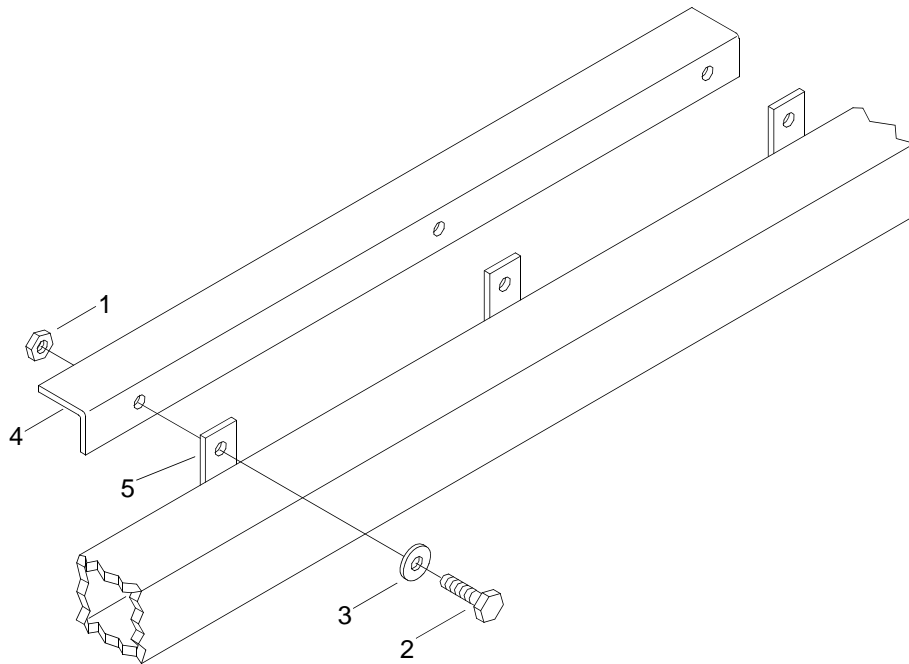
1. Unlatch and open container doors.

WARNING

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

2. Secure container doors open with locking bars, pins or hooks.

3. Remove three nuts (1), bolts (2) and washers (3) securing protective cover (4) to mounting bosses (5).



4. Remove protective cover (4) from mounting bosses (5) and discard.

INSTALL SLIDE HYDRAULIC TUBE PROTECTIVE COVER

1. Position new protective cover (4) against mounting bosses (5).
2. Install three washers (3), bolts (2) and nuts (1) to secure protective cover (4) to mounting bosses (5). Tighten bolts (3).
3. Remove locking bars, pins or hooks to close container doors.
4. Close and latch container doors.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY SLIDE CYLINDER TO METAL TUBE HYDRAULIC HOSE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Hose (E-Z Flex)
 PN DAYCO BXX06
 Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

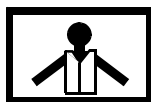
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

REMOVE EASY SLIDE CYLINDER TO METAL TUBE HYDRAULIC HOSE

WARNING

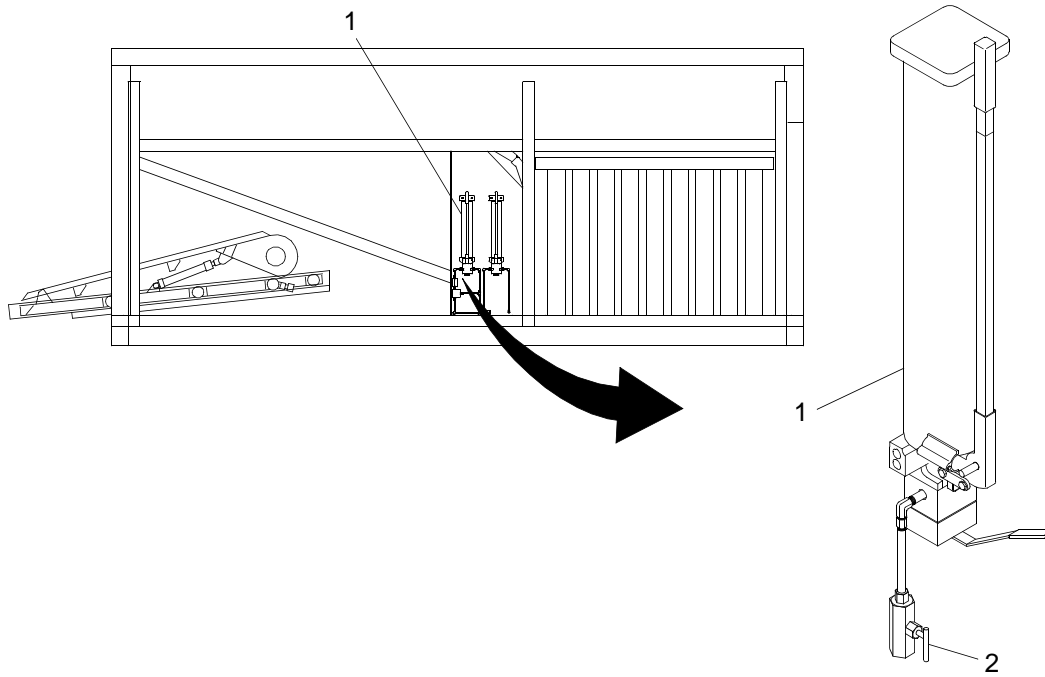
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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.

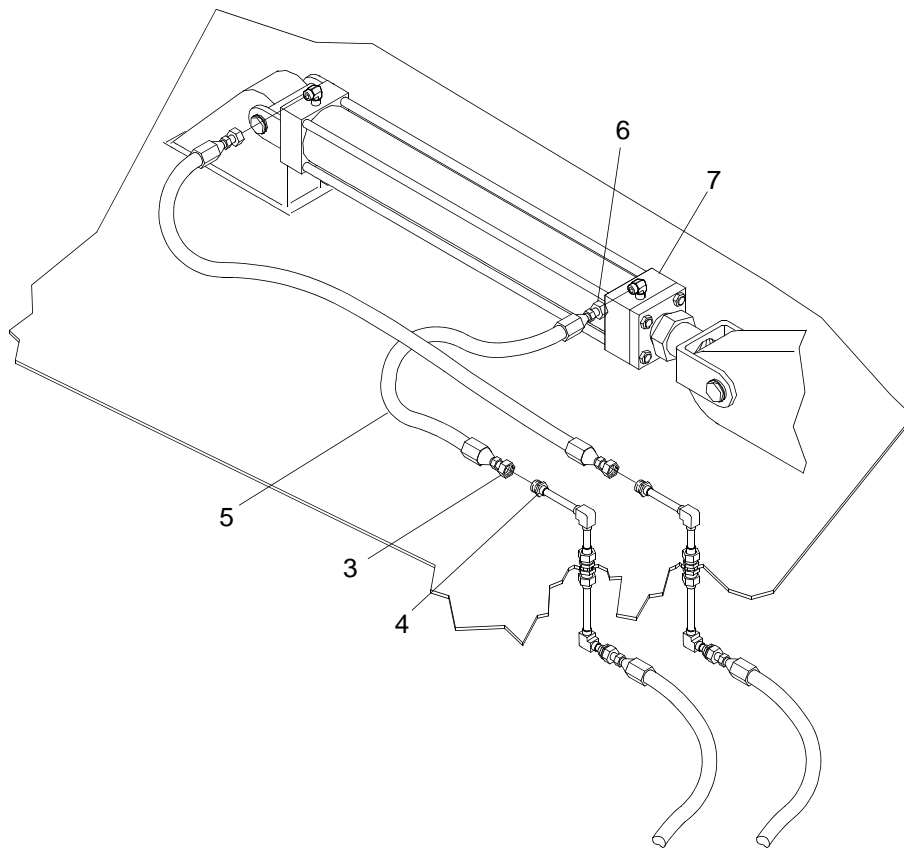
NOTE

The following procedure is typical for the removal and installation of both hydraulic hoses.

1. On anchor slide hydraulic hand pump (1), rotate release valve handle (2) counterclockwise.



2. Position spill kit around hose fitting (3) and tube fitting (4).



 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

3. Disconnect hose fitting (3) from tube fitting (4).

 WARNING



EYE PROTECTION



CHEMICAL



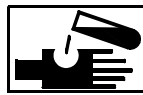
VAPOR

4. Tilt hose (5) and drain hydraulic fluid into drain pan.

 WARNING



EYE PROTECTION



CHEMICAL



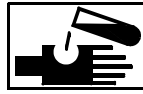
VAPOR

5. Position drain pan under hose fitting (6) and anchor slide hydraulic cylinder (7).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

6. Disconnect hose fitting (6) from anchor slide hydraulic cylinder (7).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

7. Remove hose (5) and discard.

 WARNING



EYE PROTECTION



CHEMICAL

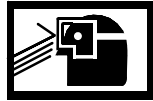


VAPOR

8. Dispose of spill kit waste and drain pan contents per local procedures.

INSTALL EASY SLIDE CYLINDER TO METAL TUBE HYDRAULIC HOSE

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

1. Using cloth, wipe fittings.
2. Position new hose (5) on anchor slide hydraulic cylinder (7).
3. Connect hose fitting (6) to anchor slide hydraulic cylinder (7). Tighten hose fitting (6).
4. Connect hose fitting (3) to tube fitting (4). Tighten hose fitting (3).
5. Service EASY container hydraulic system. (WP 0078 00)
6. Bleed EASY slide hydraulic cylinder. (WP 0098 00)

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR



SLICK FLOOR

7. Clean up spilled fluid with a spill kit and dispose of spill kit waste and cleaning cloth per local procedures.
8. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY SLIDE HYDRAULIC HOSE FROM METAL TUBE TO BULKHEAD ADAPTOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Hose (E-Z Flex)
 PN DAYCO BXX06
 Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

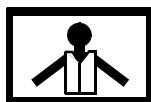
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

REMOVE EASY SLIDE HYDRAULIC HOSE FROM METAL TUBE TO BULKHEAD ADAPTOR

WARNING

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

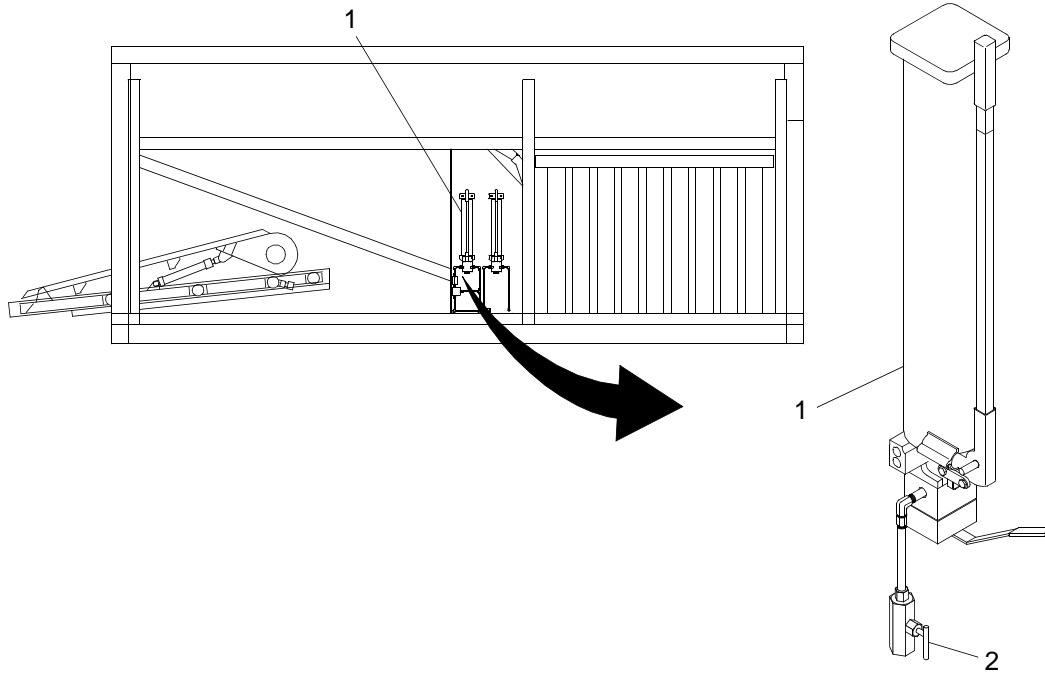
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Hydraulic system must be depressurized during maintenance. Failure to comply could result in injury to personnel.

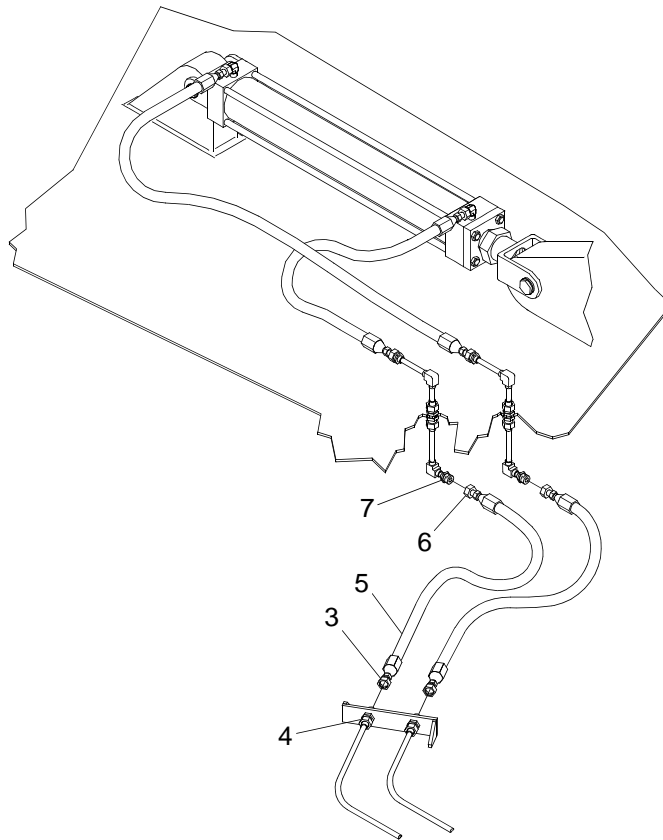
NOTE

The following procedure is typical for the removal and installation of both hydraulic hoses.

1. At anchor slide hydraulic hand pump (1), rotate release valve handle (2) counterclockwise.



2. Position spill kit around hose fitting (3) and bulkhead adaptor (4).



WARNING



EYE PROTECTION



CHEMICAL



VAPOR

3. Disconnect hose fitting (3) from bulkhead fitting (4).

WARNING



EYE PROTECTION



CHEMICAL



VAPOR

4. Tilt hose (5) and drain hydraulic fluid into drain pan.

WARNING



EYE PROTECTION



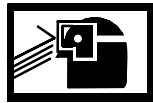
CHEMICAL



VAPOR

5. Disconnect hose fitting (6) from tube fitting (7).

WARNING



EYE PROTECTION



CHEMICAL



VAPOR

6. Remove hose (5) and discard.

WARNING



EYE PROTECTION



CHEMICAL



VAPOR

7. Dispose of spill kit waste and drain pan contents per local procedures.

INSTALL EASY SLIDE HYDRAULIC HOSE FROM METAL TUBE TO BULKHEAD ADAPTOR

WARNING

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

1. Using cloth, wipe fittings.
2. Position new hose (5) between fittings (4, 7).
3. Connect hose fitting (6) to tube fitting (7). Tighten fitting (6).
4. Connect hose fitting (3) to bulkhead fitting (4). Tighten fitting (3).
5. Service EASY container hydraulic system. (WP 0078 00)
6. Bleed EASY slide hydraulic cylinder. (WP 0098 00)

WARNING

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

7. Clean up spilled fluid with a spill kit and dispose of spill kit waste and cleaning cloth per local procedures.
8. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY LIFT HYDRAULIC METAL TUBING FROM SLIDE HYDRAULIC
HAND PUMP TO BULKHEAD ADAPTORS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

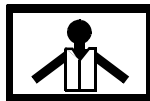
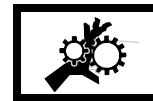
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)
 EASY Slide Hydraulic Tubing Protective Cover Removed. (WP 0084 00)

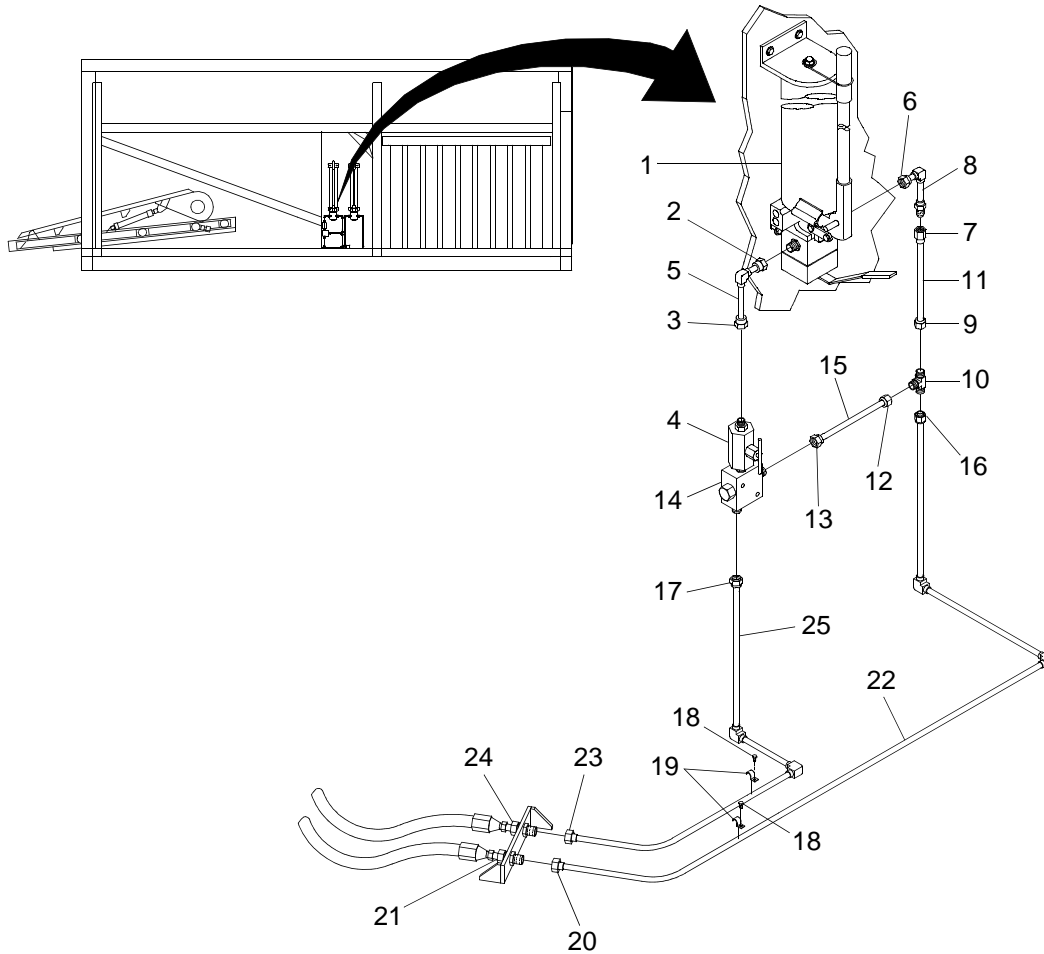
**REMOVE ANCHOR SLIDE HYDRAULIC METAL TUBE FROM ANCHOR SLIDE HYDRAULIC
HAND PUMP TO BULKHEAD ADAPTOR**

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 hand pump (1).



 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

2. Disconnect line fitting (2) from hydraulic hand pump (1).

 WARNING



EYE PROTECTION



CHEMICAL



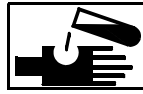
VAPOR

3. Disconnect line fitting (3) from release valve (4) and remove hydraulic metal tube assembly (5). Discard hydraulic metal tube assembly (5).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

4. Disconnect line fitting (6) from hydraulic hand pump (1).

 WARNING



EYE PROTECTION



CHEMICAL



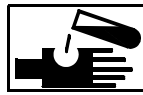
VAPOR

5. Disconnect line fitting (7) from hydraulic metal tube assembly (8). Remove hydraulic metal tube assembly (8) and discard.

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

6. Disconnect line fitting (9) from tee fitting (10) and remove hydraulic metal tube assembly (11). Discard hydraulic metal tube assembly (11).

 WARNING



EYE PROTECTION



CHEMICAL



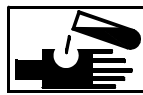
VAPOR

7. Disconnect line fitting (12) from tee fitting (10).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

8. Disconnect line fitting (13) from check valve (14) and remove hydraulic metal tube assembly (15). Discard hydraulic metal tube assembly (15).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

9. Disconnect line fitting (16) from tee fitting (10) and remove tee fitting (10).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

10. Disconnect line fitting (17) from check valve (14) and remove check valve (14) and release valve (4).

11. Remove two bolts (18) and mounting clamps (19).

 WARNING



EYE PROTECTION



CHEMICAL



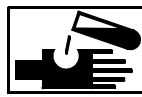
VAPOR

12. Position spill kit around line fittings (20, 23) and bulkhead adaptors (21, 24).

 WARNING



EYE PROTECTION



CHEMICAL



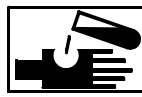
VAPOR

13. Disconnect line fitting (20) from bulkhead adaptor (21).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

14. Remove hydraulic metal tube assembly (22) and discard.

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

15. Disconnect line fitting (23) from bulkhead adaptor (24).

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

16. Remove hydraulic metal tube assembly (25) and discard.

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

17. Remove drain pan and dispose of hydraulic fluid per local procedures.

INSTALL LIFT HYDRAULIC METAL TUBE FROM SLIDE HYDRAULIC HAND PUMP TO BULKHEAD ADAPTOR

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR

1. Using cloth, wipe fittings.
2. Position new hydraulic metal tube assembly (25) on bulkhead adaptor (24).
3. Connect line fitting (23) to bulkhead adaptor (24). Tighten line fitting (23).
4. Position new hydraulic metal tube assembly (22) on bulkhead adaptor (21).
5. Connect line fitting (20) to bulkhead adaptor (21). Tighten line fitting (20).
6. Install two mounting clamps (19) and secure with two bolts (18). Tighten bolts (18).
7. Position check valve (14) and release valve (4) on hydraulic metal tube assembly (25).
8. Connect line fitting (17) to check valve (14). Tighten line fitting (17).
9. Position tee fitting (10) on hydraulic metal tube assembly (22).

-
10. Connect line fitting (16) to tee fitting (10). Tighten line fitting (16).
 11. Position new hydraulic metal tube assembly (15) on check valve (14).
 12. Connect line fitting (13) to check valve (14). Tighten line fitting (13).
 13. Connect line fitting (12) to tee fitting (10). Tighten line fitting (12).
 14. Position new hydraulic metal tube assembly (11) on tee fitting (10).
 15. Connect line fitting (9) to tee fitting (10). Tighten line fitting (9).
 16. Position new hydraulic metal tube assembly (8) on hydraulic metal tube assembly (11).
 17. Connect line fitting (7) to hydraulic metal tube assembly (8). Tighten line fitting (7).
 18. Connect line fitting (6) to hydraulic hand pump (1). Tighten line fitting (6).
 19. Position new hydraulic metal tube assembly (5) on release valve (4).
 20. Connect line fitting (3) to release valve (4). Tighten line fitting (3).
 21. Connect line fitting (2) to hydraulic hand pump (1). Tighten line fitting (2).
 22. Bleed EASY slide hydraulic system. (WP 0098 00)
 23. Service EASY container hydraulic system. (WP 0078 00)

WARNING



EYE PROTECTION



CHEMICAL



VAPOR



SLICK FLOOR

24. Clean up spilled fluid with spill kit and dispose of spill kit waste and cleaning cloth per local procedures.
25. Install slide hydraulic tubing protective cover. (WP 0084 00)
26. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY METAL TUBE BETWEEN SLIDE HYDRAULIC CYLINDER HOSES
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Hose (E-Z Flex)
 PN DAYCO BXX06
 Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

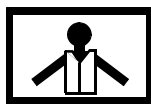
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

REMOVE EASY METAL TUBE BETWEEN SLIDE HYDRAULIC CYLINDER HOSES

WARNING



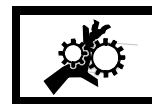
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

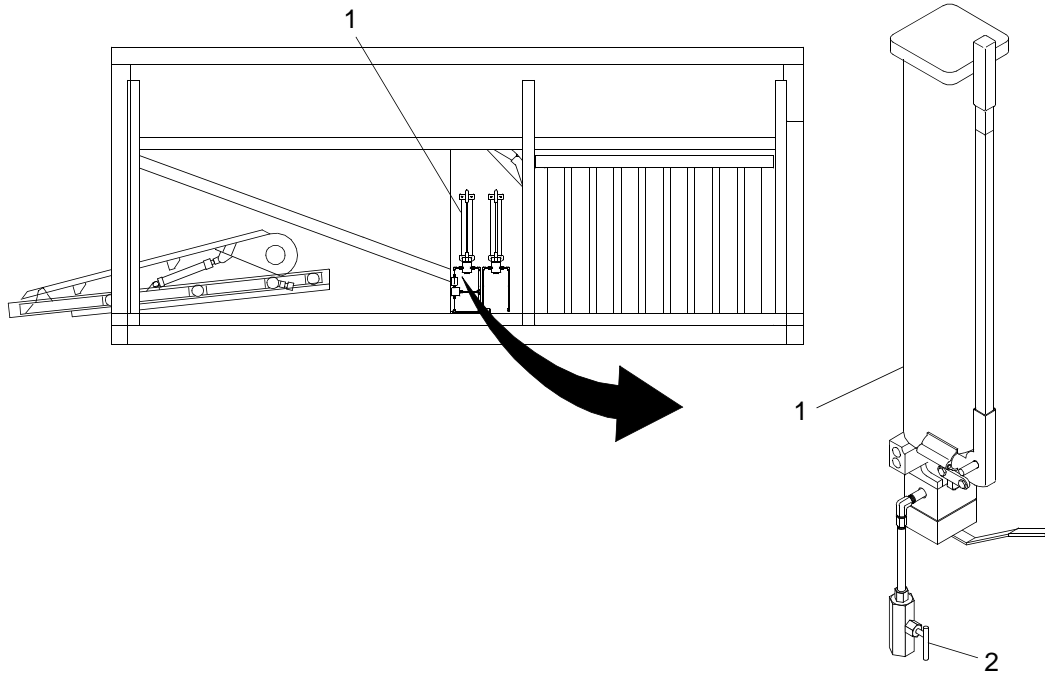
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

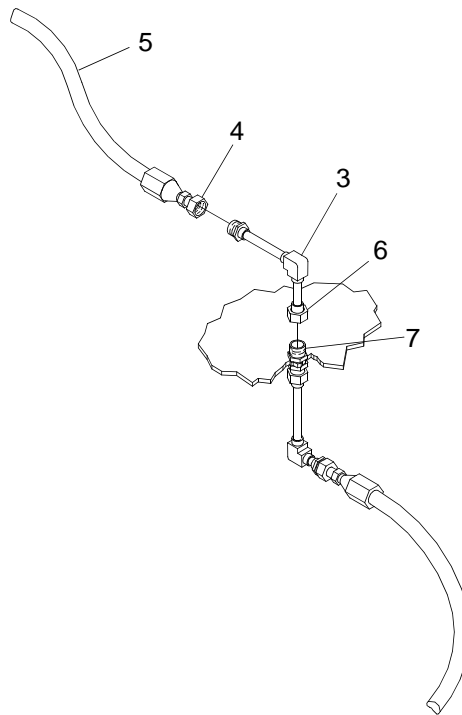
NOTE

The following procedure is typical for the removal and installation of metal tubes between slide hydraulic cylinder hoses.

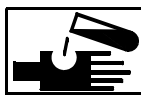
1. At lift pump (1), rotate release valve handle (2) counterclockwise.



2. Position spill kit around tube assembly (3) and fitting (4).



WARNING

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

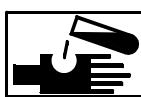
3. Disconnect fitting (4) from tube assembly (3).

WARNING

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

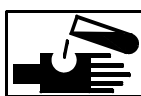
4. Tilt hose (5) and drain hydraulic fluid.

WARNING

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

5. Disconnect line fitting (6) from bulkhead fitting (7).

WARNING

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

6. Remove hydraulic tube assembly (3) and discard.

WARNING

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

7. Dispose of spill kit waste per local procedures.

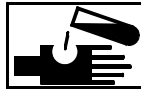
INSTALL EASY METAL TUBE BETWEEN SLIDE HYDRAULIC CYLINDER HOSES

WARNING

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

1. Using cloth, wipe fittings.
2. Position new tube assembly (3) on bulkhead fitting (7).
3. Connect line fitting (6) to bulkhead fitting (7). Tighten fitting (6).
4. Position hose fitting (4) on tube assembly (3).
5. Connect hose fitting (4) to tube assembly (3). Tighten hose fitting (4).
6. Service EASY container hydraulic system. (WP 0078 00)
7. Bleed EASY slide hydraulic system. (WP 0098 00)

WARNING

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

8. Clean up spilled fluid with a spill kit and dispose of spill kit waste per local procedures.
9. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER HYDRAULIC SYSTEM
PRESSURE VENTING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

Wedge, Wood (Item 26, WP 0148 00)

Personnel Required

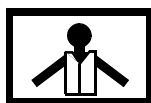
Seaman 88K

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

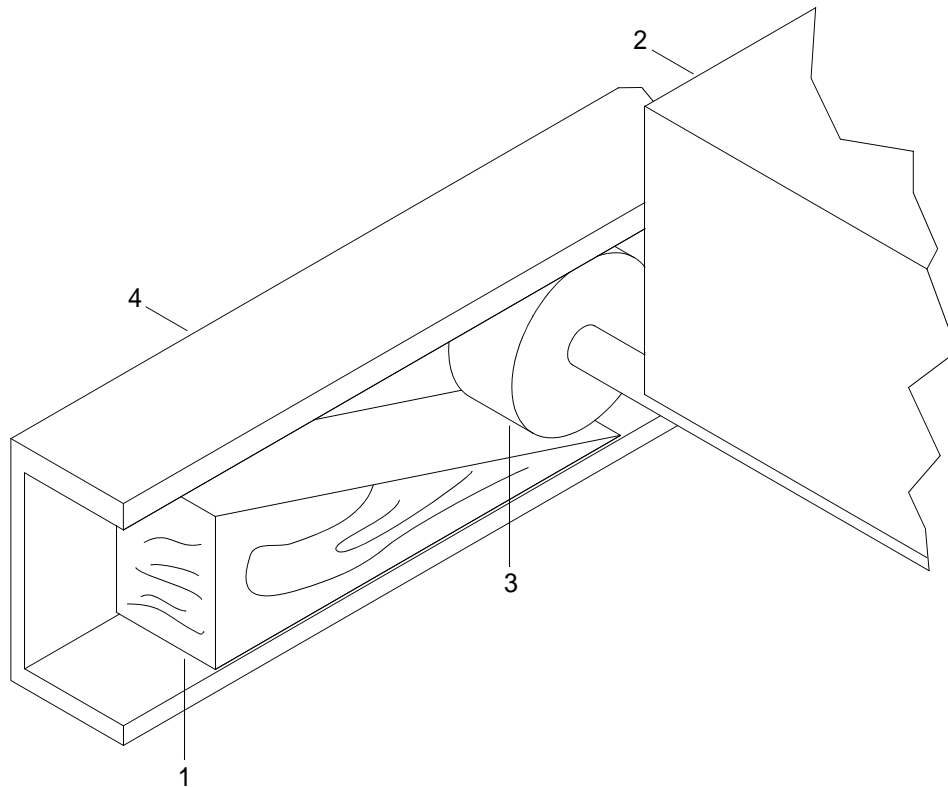
VENT PRESSURE FROM EASY DRAWER HYDRAULIC SYSTEM

WARNING

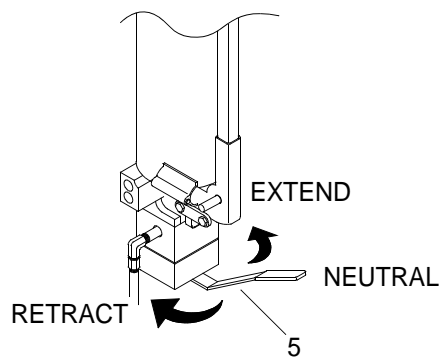
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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. Using a wooden wedge (1), secure drawer (2) in fully extended position by chocking aft port wheel (3) in drawer slide (4).



2. At the drawer hydraulic hand pump, move directional control valve handle (5) to the NEUTRAL position (center).



3. Perform maintenance required on EASY drawer hydraulic system
4. Remove wood wedge (1) from aft wheel (4).
5. Bleed EASY drawer hydraulic system as required. (WP 0097 00)
6. Service EASY container hydraulic system as required. (WP 0078 00)
7. Install EASY anchor. (WP 0080 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 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Personnel Required

Engineer 88L

REMOVE EASY DRAWER HYDRAULIC TUBING PROTECTIVE COVER

WARNING



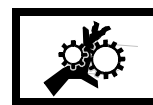
VEST



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.

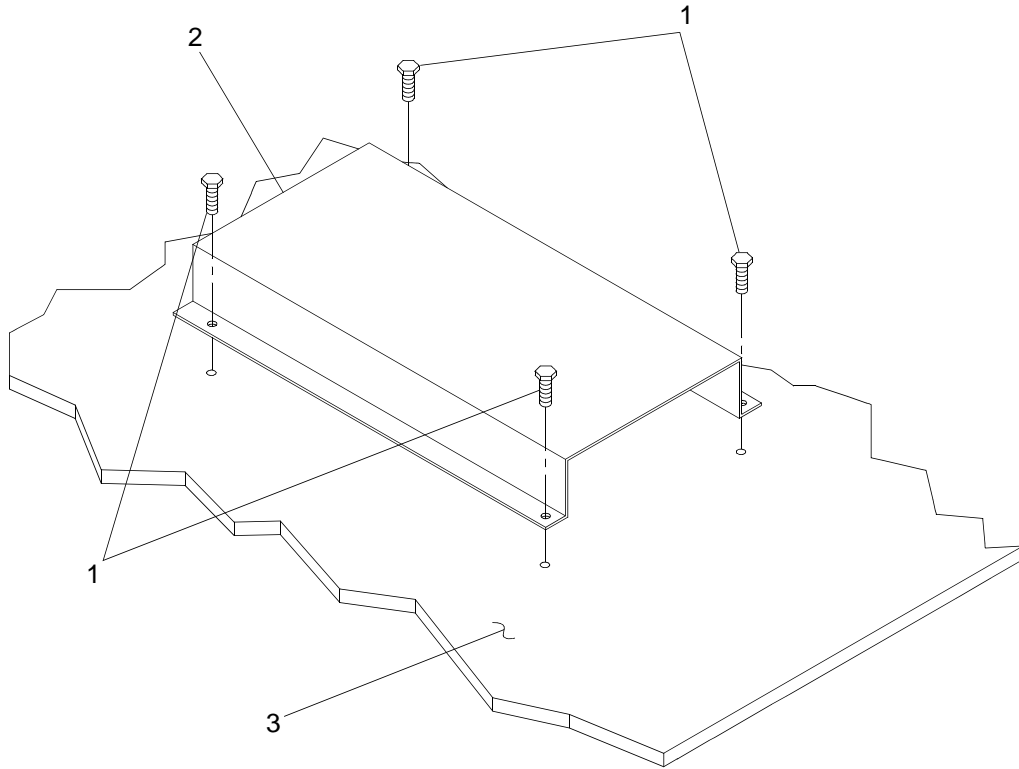
1. Unlatch and open container doors.

WARNING

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

2. Secure container doors open with locking bars, pins or hooks.

-
3. Remove four bolts (3) securing hydraulic tubing protective cover (2) to container floor (3).



4. Remove hydraulic tubing protective cover (4) from container floor (3) and discard.

INSTALL EASY DRAWER HYDRAULIC TUBING PROTECTIVE COVER

1. Position new hydraulic tubing protective cover (2) on container floor (3).
2. Install four bolts (1) to secure hydraulic tubing protective cover (2) on container floor (3). Tighten bolts (1).
3. Remove locking bars, pins or hooks to close container doors.
4. Close and latch container doors.

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 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

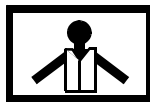
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)
 EASY Drawer Hydraulic Tubing Protective Cover Removed. (WP 0090 00)

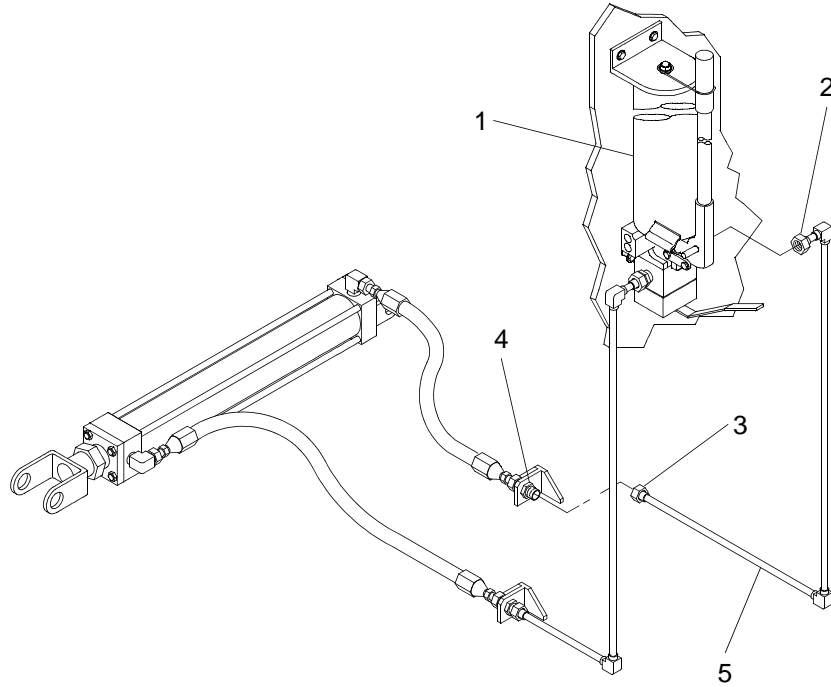
REMOVE EASY DRAWER PRESSURE HYDRAULIC METAL TUBE

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. Position spill kit around drawer hydraulic pump (1).

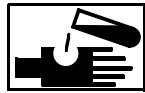


WARNING

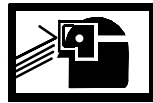
Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

2. Vent hydraulic pressure. (WP 0089 00)

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

3. Disconnect tube fitting (2) from pump (1).
4. Position spill kit around fitting (3) and bulkhead adaptor (4).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

5. Disconnect fitting (3) from bulkhead adaptor (4).

 WARNING



CHEMICAL



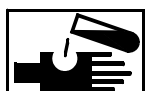
EYE PROTECTION



VAPOR

6. Tilt metal tube (5) and drain hydraulic fluid into drain pan.
7. Discard metal tube (5).

 WARNING



CHEMICAL



EYE PROTECTION

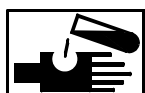


VAPOR

8. Remove drain pan and dispose of drain pan contents and spill kit waste in accordance with local procedures.

INSTALL EASY DRAWER PRESSURE HYDRAULIC METAL TUBE

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

1. Using cloth, wipe fittings.
2. Position new metal tube (5) on bulkhead adaptor (4).
3. Connect fitting (3) to bulkhead adaptor (4). Tighten fitting (3).
4. Position fitting (2) on pump (1).
5. Connect fitting (2) to pump (1). Tighten fitting (2).
6. Service EASY container hydraulic system. (WP 0078 00)
7. Bleed EASY drawer hydraulic system. (WP 0097 00)

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

8. Clean up spilled fluid with spill kit and dispose of spill kit waste and cleaning cloths per local procedures.

9. Install EASY drawer hydraulic tubing protective cover. (WP 0090 00)

10. Install EASY anchor. (WP 0080 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 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Hose (E-Z Flex)
 PN DAYCO BXX06
 Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

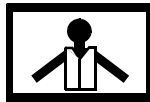
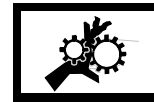
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)
 EASY Drawer Hydraulic Tubing Protective Cover Removed. (WP 0090 00)

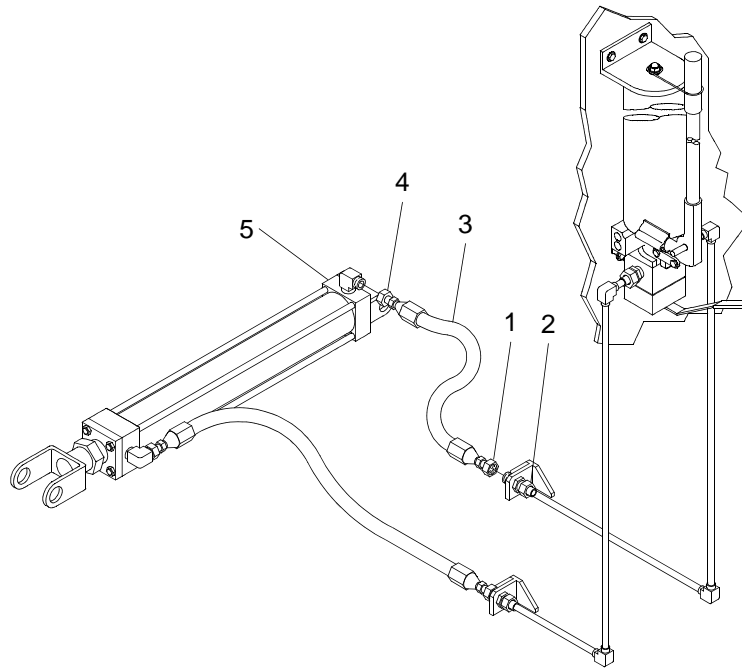
REMOVE EASY DRAWER PRESSURE HYDRAULIC HOSE

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 spill kit around fitting (1) and bulkhead adaptor (2).

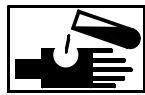


 WARNING

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

- Vent hydraulic pressure. (WP 0089 00)

 WARNING



CHEMICAL



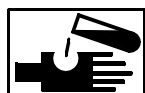
EYE PROTECTION



VAPOR

- Disconnect fitting (1) from bulkhead adaptor (2).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

- Tilt hose (3) and drain hydraulic fluid into drain pan.
- Position drain pan directly under fitting (4) and hydraulic cylinder (5).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

6. Disconnect fitting (4) from hydraulic cylinder (5).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

7. Tilt hose (3) and drain hydraulic fluid into drain pan.
8. Remove hose (3) and discard.

 WARNING



CHEMICAL



EYE PROTECTION

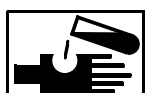


VAPOR

9. Remove drain pan and dispose of drain pan contents and spill kit waste in accordance with local procedures.

INSTALL EASY DRAWER PRESSURE HYDRAULIC HOSE

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

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 0078 00)
7. Bleed EASY drawer hydraulic system. (WP 0097 00)

WARNING

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

8. Clean up spilled fluid with spill kit and dispose of spill kit waste and cleaning cloths per local procedures.
9. Install EASY drawer hydraulic tubing protective cover. (WP 0090 00)
10. Install EASY anchor. (WP 0080 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 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Respirator, Air Filtering (Item 24, WP 0149 00)
Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Cloth, Cleaning (Item 7, WP 0148 00)
Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

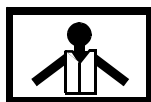
Engineer 88L

Equipment Condition

EASY Drawer Hydraulic Tubing Protective Cover Removed. (WP 0090 00)
EASY Anchor Removed. (WP 0080 00)

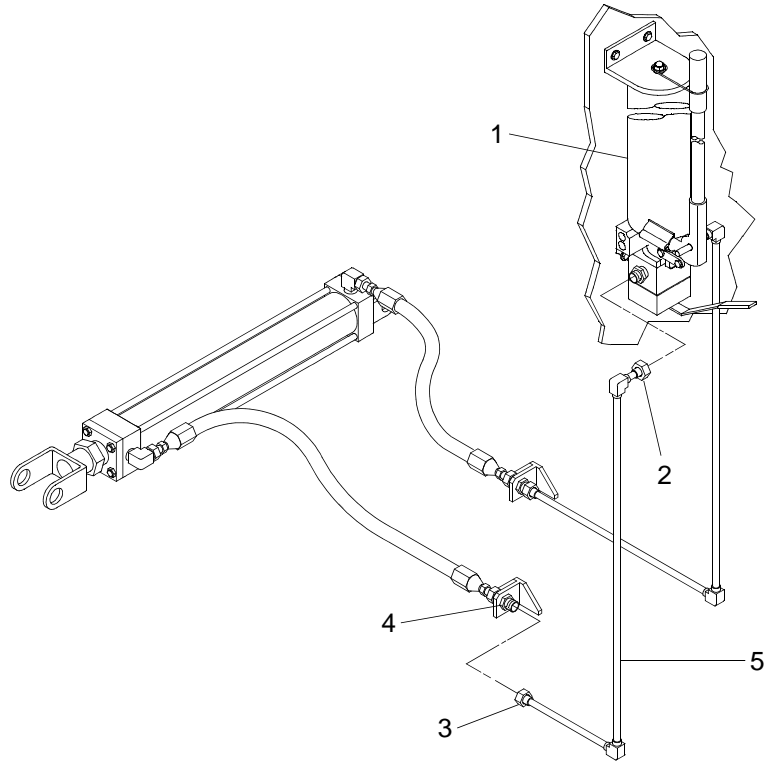
REMOVE EASY DRAWER RETURN PRESSURE HYDRAULIC METAL TUBE

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. Position spill kit around drawer hydraulic pump (1).

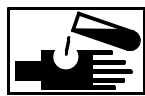


WARNING

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

2. Vent hydraulic pressure. (WP 0089 00)

WARNING



CHEMICAL



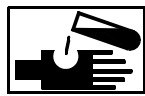
EYE PROTECTION



VAPOR

3. Disconnect tube fitting (2) from pump (1).
4. Position spill kit around fitting (3) and bulkhead adaptor (4).

WARNING



CHEMICAL



EYE PROTECTION



VAPOR

5. Disconnect fitting (3) from bulkhead adaptor (4).

 WARNING



CHEMICAL



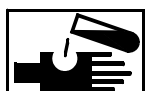
EYE PROTECTION



VAPOR

6. Tilt metal tube (5) and drain hydraulic fluid into drain pan.
7. Discard metal tube (5).

 WARNING



CHEMICAL



EYE PROTECTION

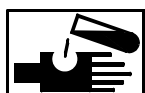


VAPOR

8. Remove drain pan and dispose of drain pan contents and spill kit waste in accordance with local procedures.

INSTALL EASY DRAWER RETURN HYDRAULIC METAL TUBE

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

1. Using cloth, wipe fittings.
2. Position new metal tube (5) on bulkhead adaptor (4).
3. Connect fitting (3) to bulkhead adaptor (4). Tighten fitting (3).
4. Position fitting (2) on pump (1).
5. Connect fitting (2) to pump (1). Tighten fitting (2).
6. Service EASY container hydraulic system. (WP 0078 00)
7. Bleed EASY drawer hydraulic system. (WP 0097 00)

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

8. Clean up spilled fluid with spill kit and dispose of spill kit waste and cleaning cloths per local procedures.

9. Install EASY drawer hydraulic tubing protective cover. (WP 0090 00)

10. Install EASY anchor. (WP 0080 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 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Hose (E-Z Flex)
 PN DAYCO BXX06
 Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)

Personnel Required

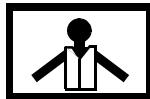
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)
 EASY Drawer Hydraulic Tubing Protective Cover Removed. (WP 0090 00)

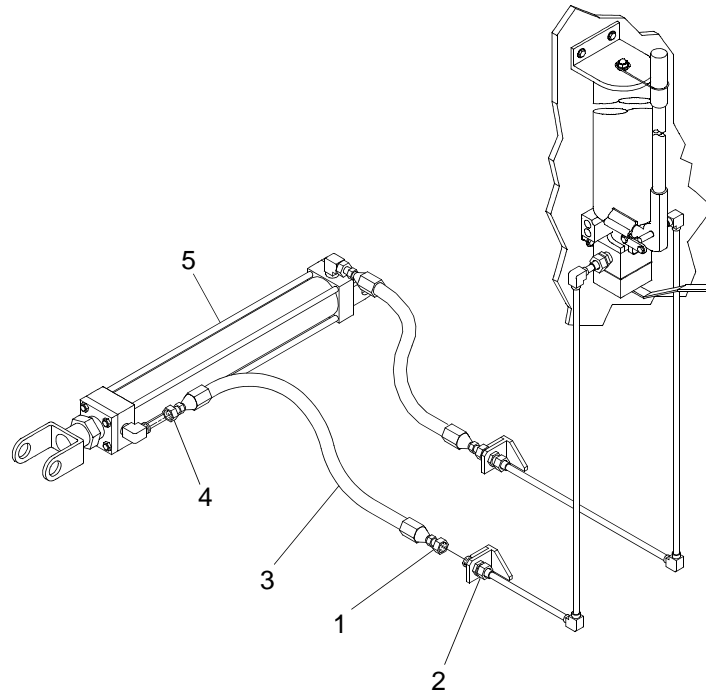
REMOVE EASY DRAWER RETURN PRESSURE HYDRAULIC HOSE

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 spill kit around fitting (1) and bulkhead adaptor (2).

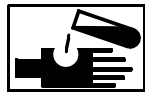


WARNING

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

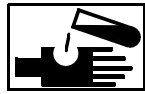
- Vent hydraulic pressure. (WP 0089 00)

WARNING

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

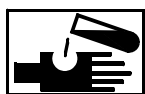
- Disconnect fitting (1) from bulkhead adaptor (2).

WARNING

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

- Tilt hose (3) and drain hydraulic fluid into drain pan.
- Position drain pan directly under fitting (4) and hydraulic cylinder (5).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

6. Disconnect fitting (4) from hydraulic cylinder (5).

 WARNING



CHEMICAL



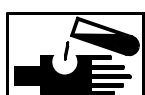
EYE PROTECTION



VAPOR

7. Tilt hose (3) and drain hydraulic fluid into drain pan.

 WARNING



CHEMICAL



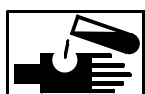
EYE PROTECTION



VAPOR

8. Remove hose (3) and discard.

 WARNING



CHEMICAL



EYE PROTECTION

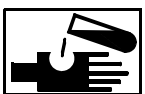


VAPOR

9. Remove drain pan and dispose of drain pan contents and spill kit waste per local procedures.

INSTALL EASY DRAWER RETURN HYDRAULIC HOSE

 WARNING



CHEMICAL



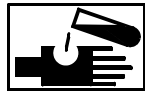
EYE PROTECTION



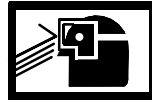
VAPOR

1. Using cloth, wipe fittings.

 WARNING



CHEMICAL



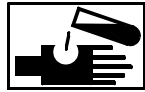
EYE PROTECTION



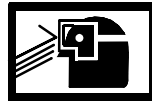
VAPOR

2. Position new hose (3) on hydraulic cylinder (5).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

3. Connect fitting (4) to hydraulic cylinder (5). Tighten fitting (4).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

4. Position hose (3) on bulkhead adaptor (2).

 WARNING



CHEMICAL



EYE PROTECTION



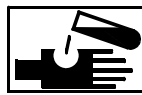
VAPOR

5. Connect fitting (1) to bulkhead adaptor (2). Tighten fitting (1).
6. Service EASY container hydraulic system. (WP 0078 00)
7. Bleed EASY drawer hydraulic cylinder. (WP 0097 00)

 WARNING



EYE PROTECTION



CHEMICAL



VAPOR



SLICK FLOOR

8. Clean up spilled fluid with a spill kit and dispose of spill kit waste and cleaning cloth per local procedures.
9. Install EASY drawer hydraulic tubing protective cover. (WP 0090 00)
10. Install EASY anchor. (WP 0080 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 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pliers, Retaining Ring, Flat Jaw (Item 22, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Cylinder Assembly
 PN H-2B02-14-1 3/8-P1
 Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)
 Lumber, Softwood, Dimension (2 in. X 4 in. X 8 ft) (Item 12, WP 0148 00)

Personnel Required

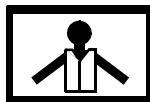
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

REMOVE EASY DRAWER HYDRAULIC CYLINDER

WARNING



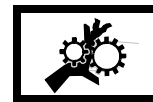
VEST



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. Unlatch and open container doors.

WARNING

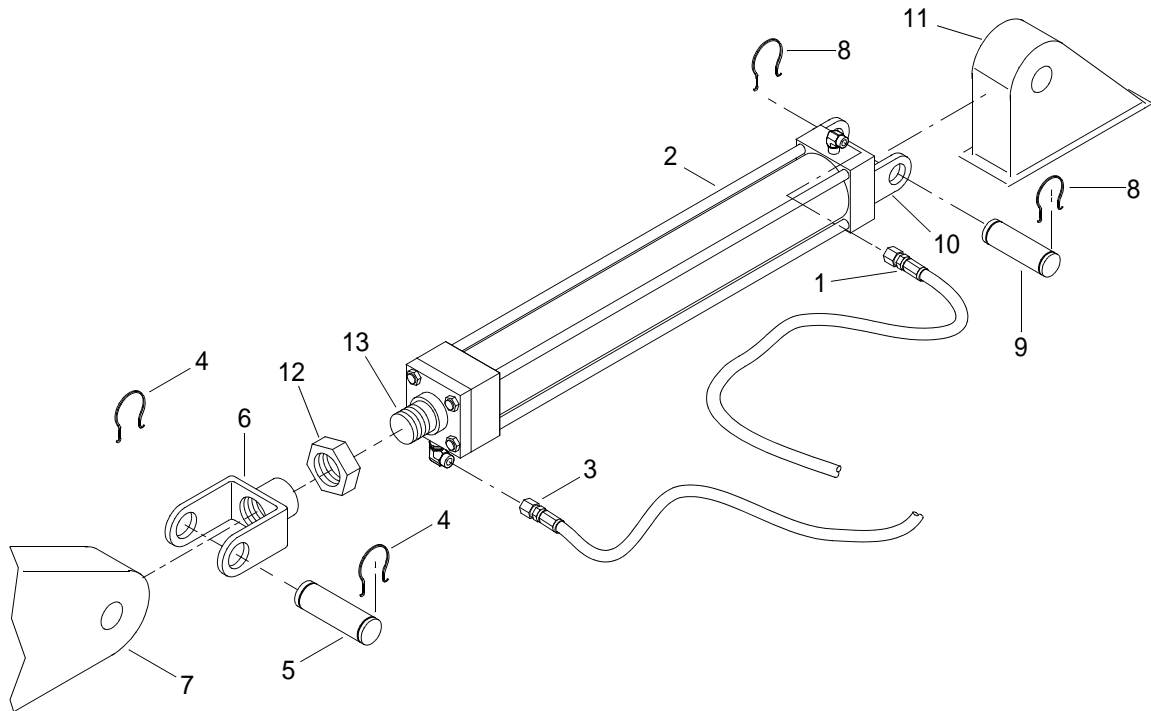
Doors must be secured in the open position. Failure to comply could result in death or injury to personnel.

2. Secure container doors open with locking bars, pins or hooks.

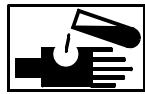
WARNING

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

3. Vent hydraulic pressure. (WP 0089 00)
4. Position drain pan under fitting (1) and hydraulic cylinder (2).

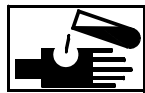


WARNING

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

5. Disconnect fitting (1) from hydraulic cylinder (2) and allow fluid to drain into drain pan.
6. Position drain pan under fitting (3) and hydraulic cylinder (2).

WARNING

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

7. Disconnect fitting (3) from hydraulic cylinder (2) and allow fluid to drain into drain pan.
8. Position wood block under rod end of hydraulic cylinder (2).

9. Using external retaining ring pliers, remove two retaining rings (4) from rod end clevis pin (5).
10. Remove clevis pin (5) from clevis (6).
11. Remove clevis (6) from mounting lug (7).

 WARNING


HEAVY PARTS

12. Lower rod end of hydraulic cylinder (2) onto wood block.
13. Using external retaining ring pliers, remove two retaining rings (8) from clevis pin (9).
14. Remove clevis pin (9) from cylinder mounting clevis (10).
15. Remove clevis (10) from mounting lug (11).
16. Remove clevis (6) and rod lock nut (12) from hydraulic cylinder rod (13).

 WARNING


HEAVY OBJECTS

17. Remove hydraulic cylinder (2) and discard.

 WARNING


CHEMICAL

EYE PROTECTION

VAPOR

18. Remove drain pan and dispose of contents per 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 (12) on new hydraulic cylinder rod (13). Tighten clevis (6).
2. Position clevis (10) on mounting lug (11).
3. Install clevis pin (9) in clevis (10).
4. Using external retaining ring pliers, install two retaining rings (8) in clevis pin (9).

 WARNING

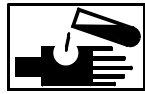


HEAVY PARTS

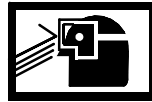
Hydraulic cylinder must be supported during installation. Failure to comply could result in injury to personnel.

5. Lift rod end of hydraulic cylinder (2) and slide wood block under end.
6. Position clevis (6) on mounting lug (7).
7. Install clevis pin (5) in clevis (6).
8. Using external retaining ring pliers, install two retaining rings (4) in clevis pin (5).
9. Tighten rod lock nut (13).

 WARNING



CHEMICAL



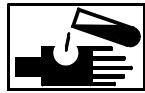
EYE PROTECTION



VAPOR

10. Using cloth, wipe fittings (1 and 3).
11. Remove wood block.

 WARNING



CHEMICAL



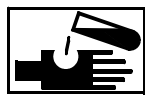
EYE PROTECTION



VAPOR

12. Connect fitting (3) to hydraulic cylinder (2). Tighten fitting (3).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

13. Connect fitting (1) to hydraulic cylinder (2). Tighten fitting (1).
14. Bleed EASY drawer hydraulic system. (WP 0097 00)
15. Service EASY container hydraulic system. (WP 0078 00)

WARNING

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

16. Clean up spilled fluid with a spill kit and dispose of spill kit waste and cleaning cloths per local procedures.

17. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY SLIDE HYDRAULIC CYLINDER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Respirator, Air Filtering (Item 24, WP 0149 00)
 Pliers, Retaining Ring, Flat Jaw (Item 22, WP 0149 00)
 Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

Cylinder Assembly
 PN H-2B02-34-1 3/8-P1
 Cloth, Cleaning (Item 7, WP 0148 00)
 Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)
 Lumber Softwood Dimension (2 in. X 4 in. X 8 ft) (Item 12, WP 0148 00)

Personnel Required

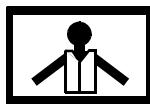
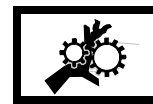
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

REMOVE EASY SLIDE HYDRAULIC CYLINDER

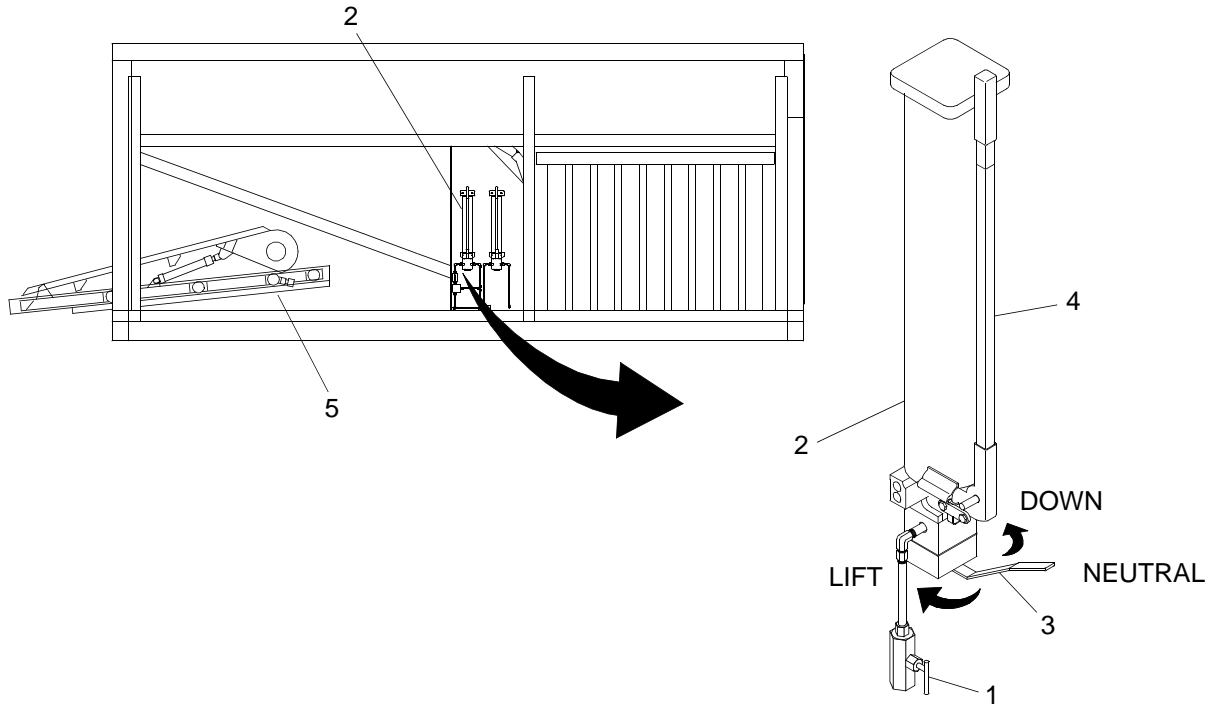
WARNING

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

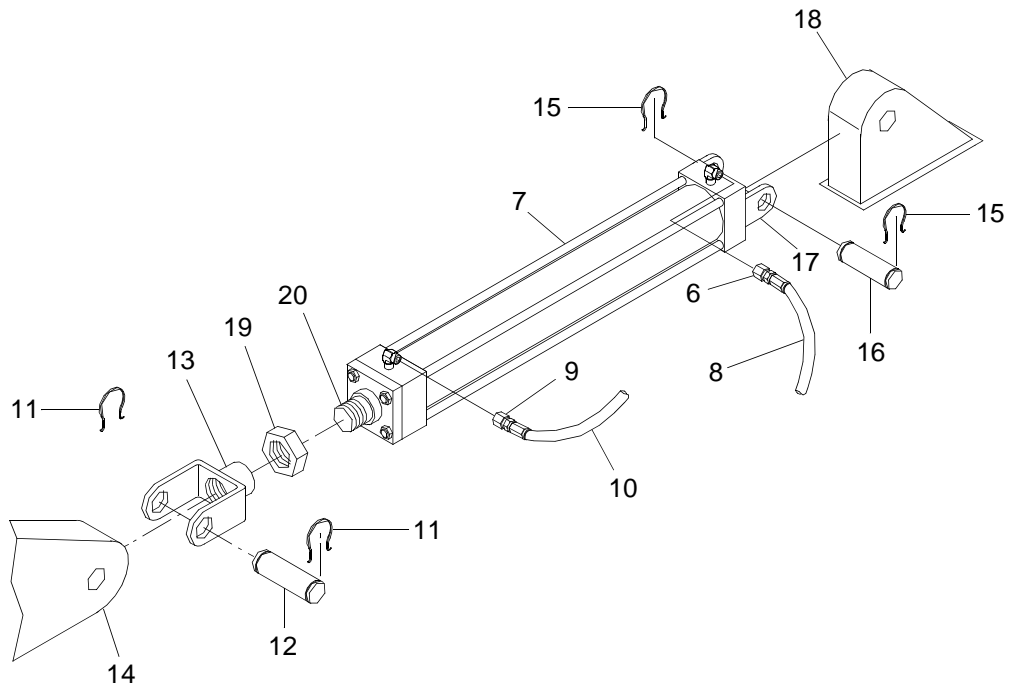
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Hydraulic system must not be under pressure during maintenance. Failure to comply could result in injury to personnel.

1. Rotate release valve (1) counterclockwise.



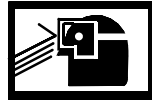
2. Move control lever (3) on pump (2) to the DOWN position.
3. Pump handle (4) until anchor slide (5) is fully lowered.
4. Move control lever (3) on pump (2) to the NEUTRAL position.
5. Position drain pan under fitting (6) and slide hydraulic cylinder (7).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

6. Disconnect fitting (6) from slide hydraulic cylinder (7).
7. Tilt hose (8) and drain hydraulic fluid into drain pan.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

8. Disconnect fitting (9) from slide hydraulic cylinder (7).
9. Tilt hose (10) and drain hydraulic fluid into drain pan.
10. Position wood block under rod end of slide hydraulic cylinder (7).
11. Using external retaining ring pliers, remove two retaining rings (11) from clevis pin (12).
12. Remove clevis pin (12) from clevis (13).
13. Remove clevis (13) from mounting lug (14).
14. Lower slide hydraulic cylinder (8) onto wood block.
15. Using external retaining ring pliers, remove two retaining rings (15) from clevis pin (16).
16. Remove clevis pin (16) from clevis (17).
17. Remove clevis (17) from mounting lug (18).
18. Remove clevis (13) and rod lock nut (19) from cylinder rod (20).

 WARNING



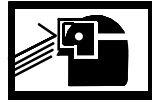
HEAVY OBJECTS

19. Remove slide hydraulic cylinder (7) and discard.

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

20. Remove drain pan and dispose of contents per local procedures.

INSTALL EASY SLIDE HYDRAULIC CYLINDER

NOTE

Ensure that clevis opening is parallel to body of hydraulic cylinder.

1. Install clevis (13) and rod lock nut (19) on new slide hydraulic cylinder (7) rod (20). Tighten clevis (13).
2. Position clevis (17) on mounting lug (18).
3. Install clevis pin (16) in clevis (17).
4. Using external retaining ring pliers, install two new retaining rings (15) on clevis pin (16).

 WARNING



HEAVY PARTS

Hydraulic cylinder must be supported during installation. Failure to comply could result in injury to personnel.

5. Lift rod end of slide hydraulic cylinder (8) and slide wood block under end.
6. Position clevis (13) on lug (14).
7. Install clevis pin (12) in clevis (13).
8. Using external retaining ring pliers, install two retaining rings (11) on clevis pin (12).
9. Tighten rod lock nut (19).

 WARNING



CHEMICAL



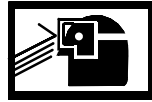
EYE PROTECTION



VAPOR

10. Using cloth, wipe fittings.
11. Remove wooden block.

WARNING

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

12. Connect fittings (6,9) to slide hydraulic cylinder (7). Tighten fittings (6,9).
13. Bleed EASY slide hydraulic system. (WP 0098 00)

WARNING

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

14. Clean up spilled fluid with a spill kit and dispose of spill kit waste and cleaning cloths per local procedures.
15. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY DRAWER HYDRAULIC SYSTEM
BLEEDING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Personnel Required

Seaman 88K

References

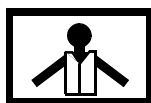
TM 55-1945-216-10

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

BLEED EASY DRAWER HYDRAULIC SYSTEM

WARNING



VEST



HELMET PROTECTION



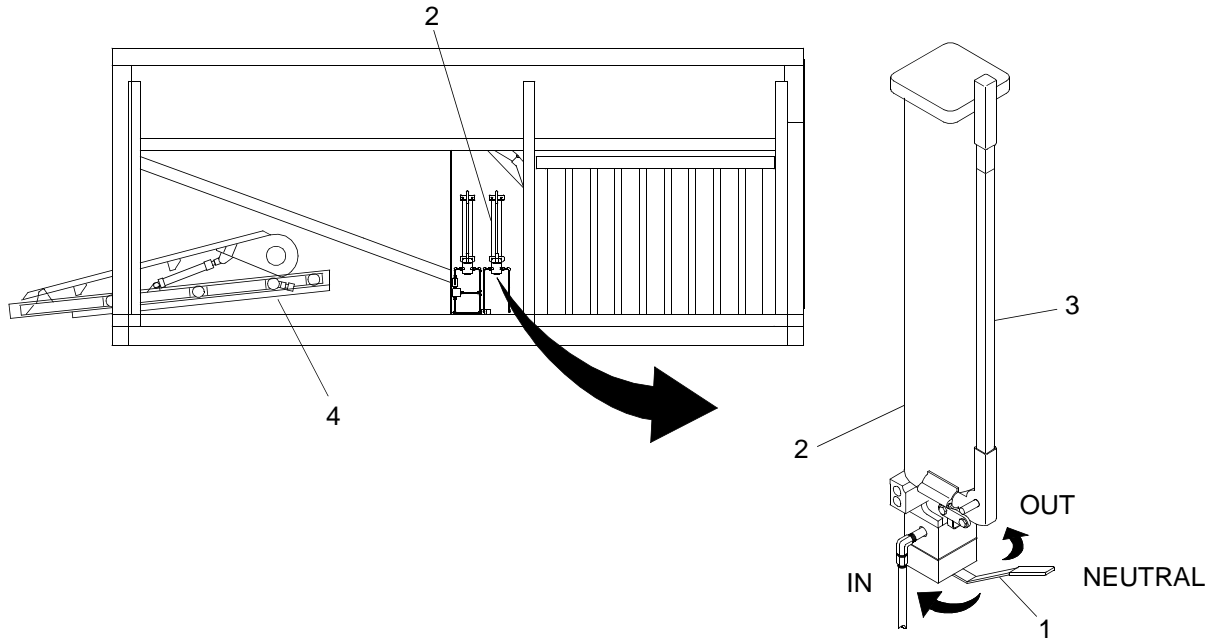
HEAVY PARTS



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. Move control valve handle (1) on pump (2) to neutral position (handle centered).



2. Pump handle (3) to bleed air from the system.
3. Move control valve handle (1) on pump (2) to the OUT position (handle to right).
4. Pump handle (3) until anchor drawer (4) is fully extended.
5. Repeat steps 1 and 2 to bleed air from the system.
6. Move control valve handle (1) on pump (2) to the IN position (handle to left).
7. Pump handle (3) until anchor drawer (4) is fully retracted.
8. Repeat steps 1 and 2 to bleed air from the system.
9. Service EASY container hydraulic system. (WP 0078 00)
10. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY SLIDE HYDRAULIC SYSTEM
BLEEDING**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Personnel Required

Seaman 88K

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

BLEED EASY SLIDE HYDRAULIC CYLINDER

WARNING



VEST



HELMET PROTECTION



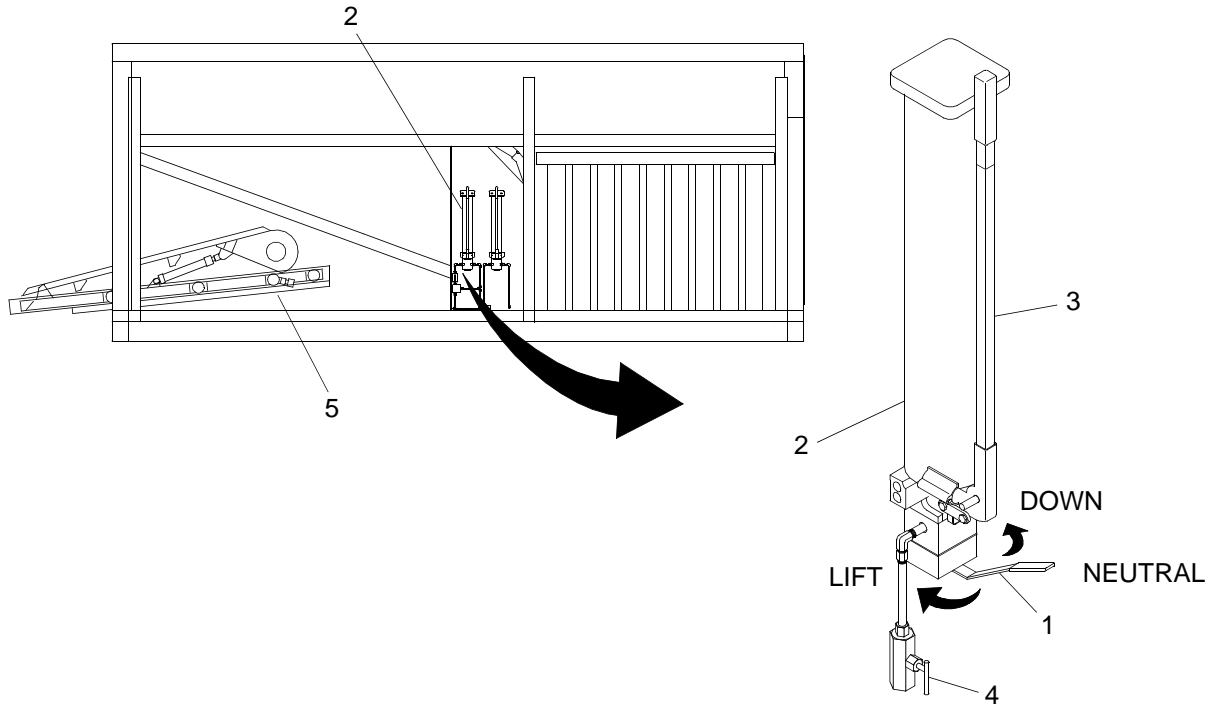
HEAVY PARTS



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 control valve handle (1) on pump (2) to neutral position (handle centered).



2. Pump handle (3) to bleed air from the system.
3. Rotate release valve (4) clockwise to close valve (4).
4. Move control valve handle (1) on pump (2) to the LIFT position (handle to left).
5. Operate pump handle (3) until anchor slide (5) is fully extended upward.
6. Repeat steps 1 and 2 to bleed air from the system.
7. Rotate release valve (4) counterclockwise to open valve (4).
8. Move control valve handle (1) on pump (2) to the DOWN position (handle to right).
9. Operate pump handle (3) until anchor slide (5) is fully lowered.
10. Repeat steps 1 and 2 to bleed air from the system.
11. Service EASY container hydraulic system. (WP 0078 00)
12. Install EASY anchor. (WP 0080 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 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Apron, Utility (Item 1, WP 0149 00)
Shackle, ¾ in. 4.75 ton (Item 28, WP 0149 00)
Sling, lifting, 5,300 lb (green) (Item 29, WP 0149 00)

Materials/Parts

Cleaner, Type II (Item 6, WP 0148 00)
Rag, Wiping (Item 17, WP 0148 00)

Personnel Required

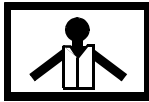
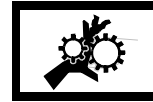
Engineer 88L

Equipment Condition

EASY Anchor Removed. (WP 0080 00)

DISASSEMBLE EASY ANCHOR

WARNING

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

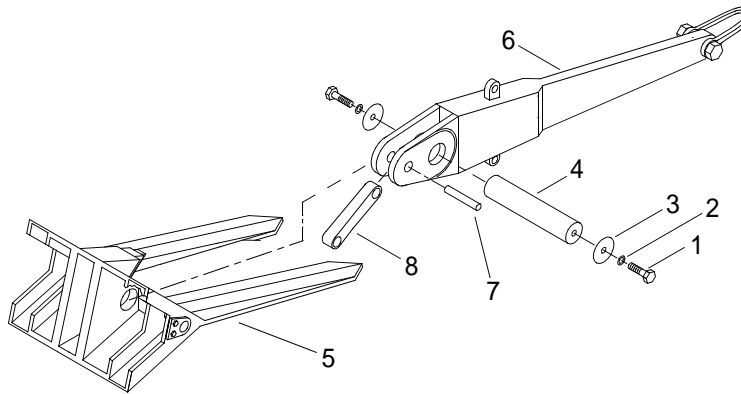
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

Repair is limited to the replacement of defective items.

The anchor tongue shackle cannot be removed. The shackle nut is welded to the shackle bolt per manufacturing instructions.

1. Remove two cap screws (1), lock washers (2) and washers (3) from trunnion pin (4).

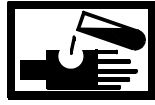


2. Remove trunnion pin (4) from fluke assembly (5).

WARNING

**HEAVY PARTS**

3. Using slings and shackles, remove fluke assembly (5) from anchor shank (6).
4. Remove pin (7) and link (8) from anchor shank (6).

CLEAN EASY ANCHOR**WARNING****CHEMICAL****EYE PROTECTION**

1. 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 per 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 (8) and pin (7) on anchor shank (6).

WARNING**HEAVY PARTS**

2. Position fluke assembly (5) on anchor shank (6).

3. Install trunnion pin (4) in fluke assembly (5).
4. Install two washers (3), lock washers (2) and cap screws (1) in trunnion pin (4). Tighten cap screws (1).
5. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY MOORING BUOY
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

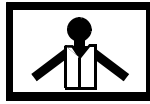
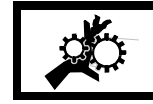
Buoy, Inflatable
 PN A5-0

Personnel Required

Seaman 88K (2)

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 EASY container (1) rear doors.

WARNING

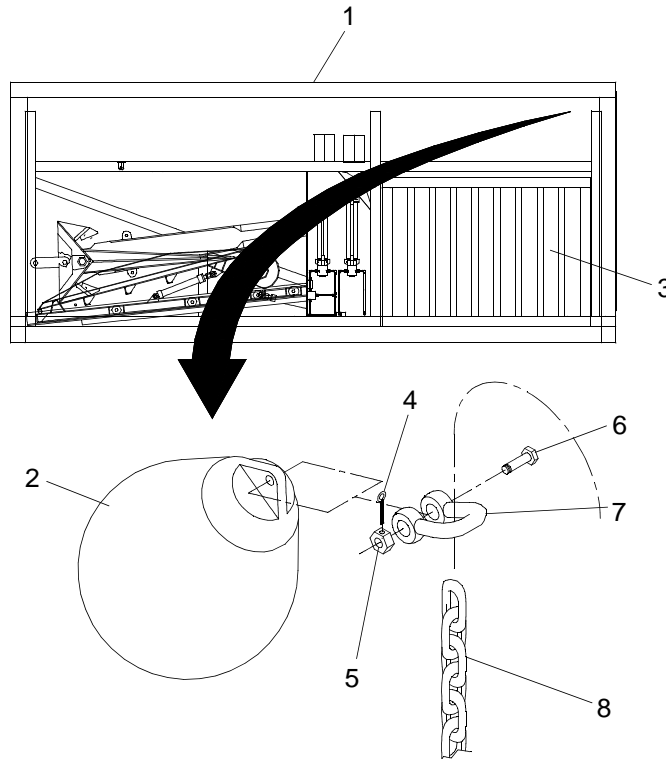
Doors must be secured and latched in the open position. Failure to comply could result in injury to personnel.

2. Secure EASY container (1) rear doors open with locking bars, pins or hooks.

WARNING

**HEAVY OBJECTS**

3. Using assistant, remove mooring bridle buoy (2) from mooring box (3) of EASY container (1).



4. Remove cotter pin (4), nut (5), bolt (6) and shackle (7) connecting mooring bridle buoy chain (8) to mooring bridle buoy (2).
5. Discard mooring bridle buoy (2).

INSTALL EASY MOORING BUOY

1. Install shackle (7), bolt (6), nut (5) and cotter pin (4) to connect mooring bridle buoy chain (8) to new mooring bridle buoy (2).

WARNING

**HEAVY OBJECTS**

2. Using assistant, place mooring bridle buoy (2) in mooring box (3) of EASY container (1).
3. Remove locking bars, pins or hooks from EASY container (1) rear doors.
4. Latch and secure EASY container (1) rear doors.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
EASY MOORING SYSTEM
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

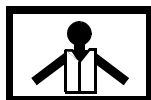
Twine, Fibrous (Item 25, WP 0148 00)

Personnel Required

Seaman 88K (2)

DISASSEMBLE MOORING BRIDLE

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

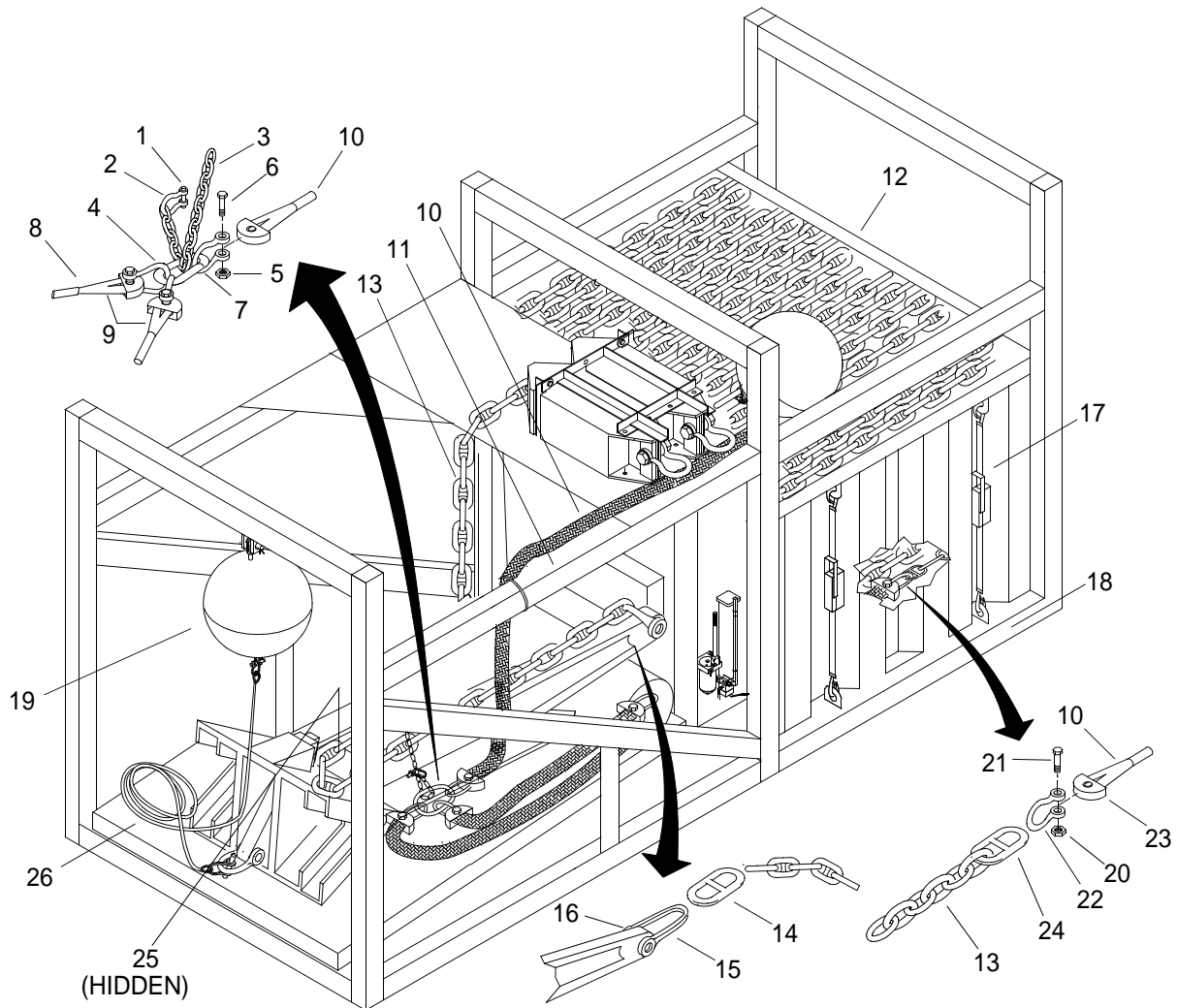
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

Repair is limited to the replacement of damaged components.

The mooring bridle consists of a main rope assembly and two flexor rope assemblies connected to a pear link with nylite connector assemblies.

1. Remove pin (1) and shackle (2) connecting mooring bridle buoy chain (3) to pear link (4).



2. Remove nuts (5), bolts (6) and shackles (7) from three nylite connector assemblies (8) connecting two flexor rope assemblies (9) and main rope assembly (10) to pear link (4).
3. Cut twine securing exposed main rope assembly (10) to EASY container upper frame (11).

WARNING



HEAVY OBJECTS

4. Using assistant, position exposed main rope assembly (10) in mooring box (12) on top of anchor chain (13).

REMOVE ANCHOR CHAIN FROM ANCHOR

WARNING

**HEAVY OBJECTS**

1. Using assistant to support weight of anchor chain (13), remove anchor chain joining link (14) connecting anchor chain (13) and anchor tongue shackle (15).
2. Install anchor chain joining link (14) on anchor tongue shackle (15).
3. Cut twine securing anchor chain (13) to anchor (16).

WARNING

**HEAVY OBJECTS**

4. Using assistant, position loose anchor chain (13) in mooring box (12).

REMOVE MOORING BOX FROM EASY CONTAINER

1. Remove four ratcheting tie downs (17) securing mooring box (12) to EASY lower container frame (18).

WARNING

**HEAVY PARTS**

2. Using forklift, remove mooring box (12) from EASY container (19).

REMOVE MOORING BRIDLE AND ANCHOR CHAIN FROM MOORING BOX

WARNING

**HEAVY PARTS****NOTE**

The connection between anchor chain and mooring bridle is located beneath anchor chain when mooring box is fully loaded.

1. Using forklift, remove anchor chain (13) from mooring box (12).
2. Once exposed, remove nut (20), bolt (21) and shackle (22) of nylite connector assembly (23) connecting main rope assembly (10) to anchor chain (13) joining link (24).

WARNING

**HEAVY OBJECTS**

3. Using assistant, remove main rope assembly (10) from mooring box (12).

INSTALL MOORING BRIDLE AND ANCHOR CHAIN IN MOORING BOX

WARNING

**HEAVY OBJECTS****NOTE**

The mooring bridle must be attached to the anchor chain prior to completely installing the anchor chain in the mooring box.

1. Using assistant, install main rope assembly (10) in mooring box (12), leaving approximately 55 ft of main rope assembly out of mooring box (12) for attachment of flexor rope assemblies (9).
2. Remove nut (20), bolt (21) and shackle (22) of nylite connector assembly (23) connecting main rope assembly (10) to anchor chain (13) joining link (24).
3. Install shackle (22), bolt (21) and nut (20) of nylite connector assembly (23) to connect anchor chain (13) joining link (24) to main rope assembly (10).

WARNING

**HEAVY PARTS**

4. Using forklift, install anchor chain (13) in mooring box (12).

INSTALL MOORING BOX IN EASY CONTAINER

WARNING

**HEAVY PARTS**

1. Using forklift, install mooring box (12) in EASY container (19) and using assistant, pull exposed main rope assembly (10) into EASY container (19) towards anchor (16).
2. Install four ratcheting tie downs (17) to secure mooring box (12) to EASY lower container frame (18).

INSTALL ANCHOR CHAIN ON ANCHOR

WARNING

**HEAVY OBJECTS**

1. Using assistant, remove approximately 30 ft of anchor chain (13) from mooring box (12).

WARNING

**HEAVY OBJECTS**

2. Double anchor chain (13) over anchor (16).
3. Tie anchor chain (13) to anchor crown padeye (25) with twine.
4. Tie anchor links together in three places with twine to prevent anchor chain (13) from falling behind anchor drawer (26).
5. Remove anchor chain joining link (14) from anchor shackle (15).

WARNING

**HEAVY OBJECTS**

6. Using assistant to support weight of anchor chain (13), install anchor chain joining link (14) to connect anchor tongue shackle (15) and anchor chain (13).

ASSEMBLE MOORING BRIDLE

WARNING

**HEAVY OBJECTS**

1. Tie exposed portion of main rope assembly (10) to EASY container upper frame (11) in four places with twine.
2. Remove nuts (5), bolts (6) and shackles (7) of three nylite connector assemblies (8) from two flexor rope assemblies (9) and main rope assembly (10).
3. Install shackles (7), bolts (6) and nuts (5) of three nylite connector assemblies (8) to connect two flexor rope assemblies (9) and main rope assembly (10) to pear link (4).
4. Remove pin (1) and shackle (2) connecting mooring bridle buoy chain (3) to pear link (4).
5. Install shackle (2) and pin (1) to connect mooring bridle buoy chain (3) to pear link (4).
6. Position pear link (4) and flexor rope assemblies (9) on top of anchor (16) and secure with twine.

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 33, WP 0149 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
- Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
- Helmet, Safety (Brown) (Item 17, WP 0149 00)
- Life Preserver, Vest (Item 19, WP 0149 00)
- Gloves, Rubber, Industrial (Item 11, WP 0149 00)
- Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
- Respirator, Air Filtering (Item 24, WP 0149 00)
- Pliers, Retaining Ring, Flat Jaw (Item 22, WP 0149 00)
- Pan, Drain (Item 21, WP 0149 00)

Materials/Parts

- Bearing, Sleeve
PN 6391K292
- Spill Clean-Up Kit, Hazardous Material (Item 21, WP 0148 00)
- Cloth, Cleaning (Item 7, WP 0148 00)
- Block, Shoring (Item 4, WP 0148 00)
Qty 9

Personnel Required

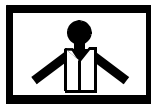
- Engineer 88L

Equipment Condition

- EASY Anchor Removed. (WP 0080 00)
-

REMOVE EASY ANCHOR DRAWER WHEEL

WARNING



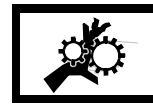
VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS

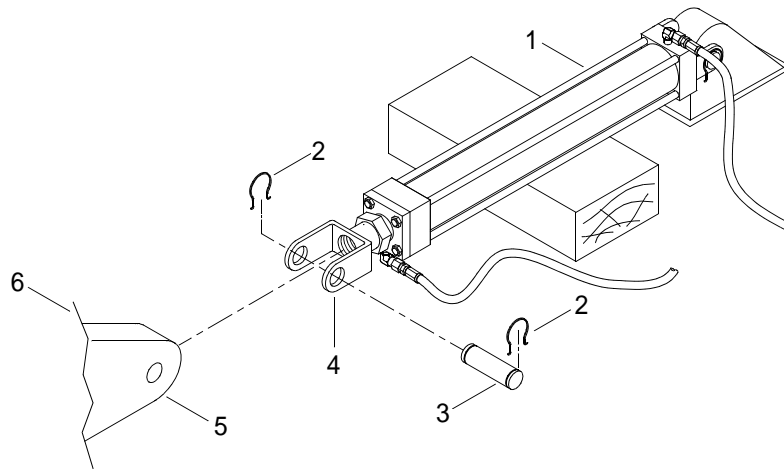
All personnel must wear personal flotation devices, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

NOTE

The following procedure is typical for removal and installation of EASY anchor drawer wheels.

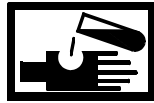
The EASY anchor platform consists of an anchor slide (tilts) and anchor drawer (deploys).

1. Position shoring block under anchor drawer hydraulic cylinder (1) to support weight of anchor drawer hydraulic cylinder (1).

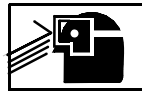


2. Using external retaining ring pliers, remove two snap rings (2) from pin (3).
3. Remove pin (3) from clevis (4).
4. Remove clevis (4) from mounting boss (5) on anchor drawer (6).
5. Position drain pan beneath bulkhead adaptors (7) in the anchor slide (8).

WARNING



CHEMICAL



EYE PROTECTION

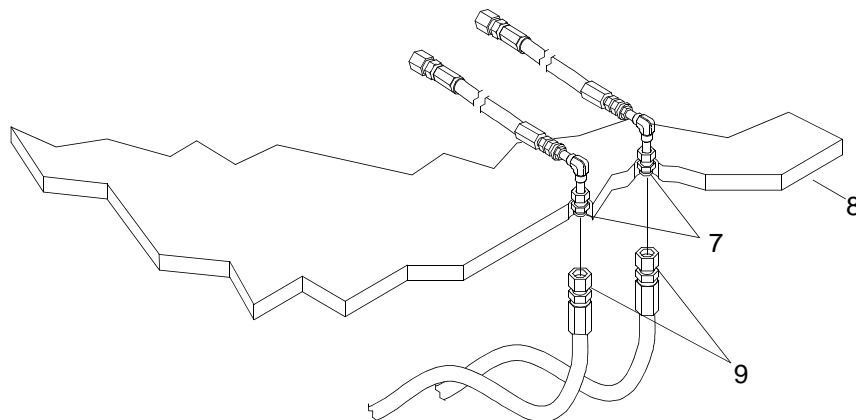


VAPOR

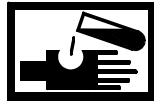
CAUTION

The lower anchor slide hydraulic hose must be protected after removal to prevent damage during drawer removal. Failure to comply could result in damage to equipment.

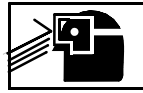
6. Disconnect anchor slide lower hydraulic hose fittings (9) from bulkhead adaptors (7).



 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

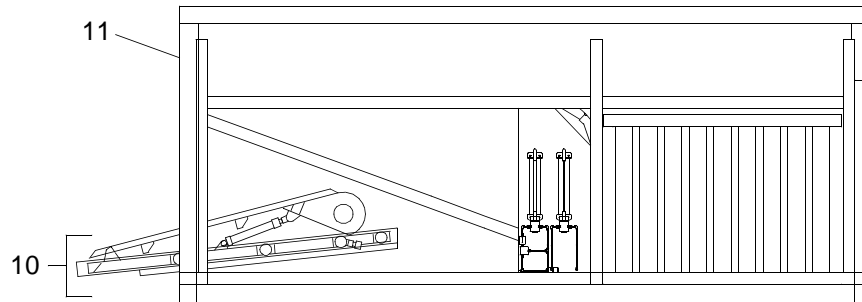
7. Drain hydraulic fluid into drain pan.

 WARNING

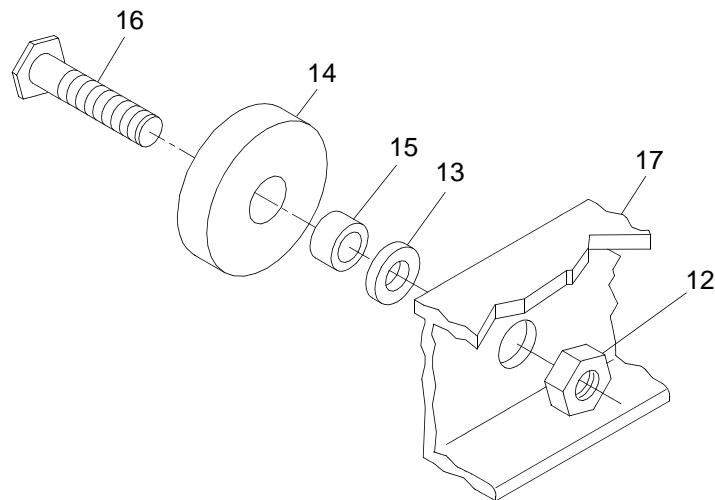


HEAVY PARTS

8. Using forklift, remove anchor platform (10) from EASY container (11).

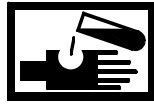


9. Place anchor platform (10) on eight wooden blocks to support weight.
10. Remove lock nut (12), spacer (13), wheel (14) with sleeve bearing (15) and axle bolt (16) from side of anchor drawer (17).



11. Discard wheel (14) and sleeve bearing (15).

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR

12. Remove drain pan and dispose of contents per local procedures.

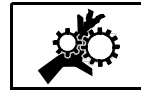
INSTALL EASY ANCHOR DRAWER WHEEL

1. Using cloth, wipe fittings.
2. Install new sleeve bearing (15) in new wheel (14).
3. Install axle bolt (16), wheel (14) with sleeve bearing (15), spacer (13) and lock nut (12). Tighten lock nut (12).

 WARNING



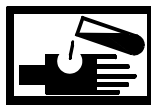
HEAVY PARTS



MOVING PARTS

4. Using forklift, lift anchor platform (10) off wood blocks and position in EASY container (11).
5. Connect anchor slide lower hydraulic hose fittings (9) to bulkhead adaptors (7).
6. Position clevis (4) on mounting boss (5).
7. Install pin (3) in clevis (4).
8. Using external retaining ring pliers, install two snap rings (2) on pin (3).
9. Remove shoring block from under anchor drawer hydraulic cylinder (1).
10. Service EASY container hydraulic system. (WP 0078 00)
11. Bleed EASY slide hydraulic system. (WP 0098 00)

 WARNING



CHEMICAL



EYE PROTECTION



VAPOR



SLICK FLOOR

12. Clean up spilled fluid with a spill kit and dispose of spill kit waste per local procedures.
13. Service EASY container hydraulic system. (WP 0078 00)
14. Install EASY anchor. (WP 0080 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER BENCHES
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

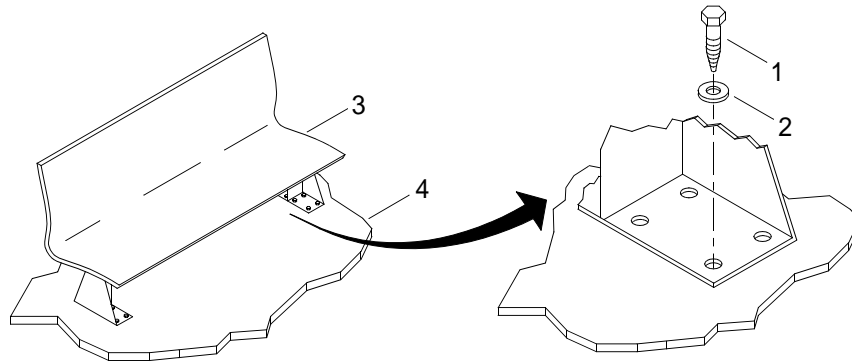
Personnel Required

Seaman 88K

REMOVE PERSONNEL SHELTER BENCHES**NOTE**

The following procedure is typical for the removal and installation of all personnel shelter benches.

1. Remove lag bolts (1) and washers (2) securing bench (3) to container floor (4).



WARNING



HEAVY OBJECTS

2. Remove bench (3) from container floor (4).

INSTALL PERSONNEL SHELTER BENCHES

WARNING



HEAVY OBJECTS

1. Position bench (3) over holes in container floor (4).
2. Install lag bolts (1) and washers (2) to secure bench (3) to container floor (4). Tighten lag bolts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER BENCH SEATS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0133 00)

Materials/Parts

Seat, Bench (Single Booth, 71 in.)

PN 1001023

Seat, Bench (Single Booth, 59 in.)

PN 1001024

Seat, Bench (Single Booth, 41 in.)

PN 1001025

Personnel Required

Seaman 88K

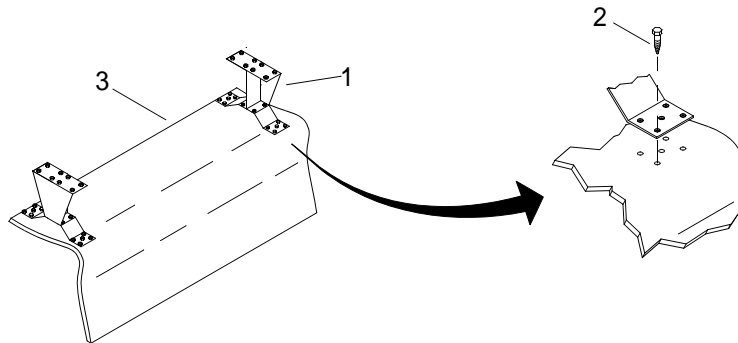
Equipment Condition

Personnel Shelter Bench Removed. (WP 0093 00)

REMOVE PERSONNEL SHELTER BENCH SEATS**NOTE**

The following procedure is typical for the removal and installation of all personnel shelter bench seats.

1. Turn bench and frame (1) upside down.



2. Remove self-tapping screws (2) from bench frame (1).
3. Remove bench seat (3) from bench frame (1). Discard bench seat (3).

INSTALL PERSONNEL SHELTER BENCH SEATS

1. Align new bench seat (3) with holes in bench frame (1).
2. Install self-tapping screws (2) in bench frame (1). Tighten self-tapping screws (2).
3. Turn bench and frame (1) upright.
4. Install personnel shelter bench. (WP 0093 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER TABLE
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

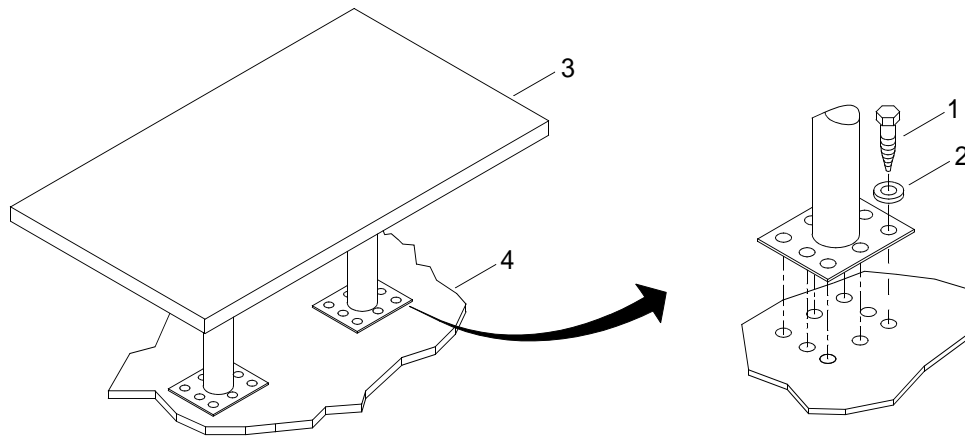
Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Personnel Required

Seaman 88K

REMOVE PERSONNEL SHELTER TABLE

1. Remove lag bolts (1) and washers (2) securing table (3) to container floor (4).



2. Remove table (3) from container floor (4).

INSTALL PERSONNEL SHELTER TABLE

1. Position table (3) over holes in container floor (4).
2. Install lag bolts (1) and washers (2) to secure table (3) to container floor (4). Tighten lag bolts (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER TABLETOP
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Tabletop, Rectangular
PN 1001026

Personnel Required

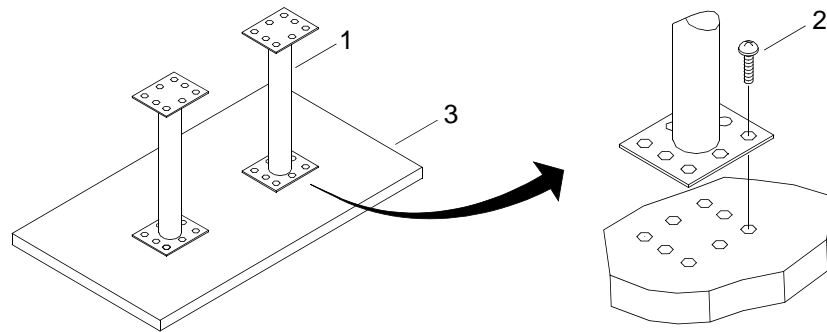
Seaman 88K

Equipment Condition

Personnel Shelter Table Removed. (WP 0105 00)

REMOVE PERSONNEL SHELTER TABLETOP

1. Turn table (1) upside down.



2. Remove screws (2) from table (1).
3. Remove tabletop (3) from table (1) and discard.

INSTALL PERSONNEL SHELTER TABLETOP

1. Align new tabletop (3) with holes in table (1).
2. Install screws (2) in table (1). Tighten screws (2).
3. Turn table (1) upright.
4. Install personnel shelter table. (WP 0105 00)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER SHORE TIE
PENETRATION HINGED COVER
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Drill, Electric, Portable, 115 Volt (Item 9, WP 0149 00)
 Drill Set, Twist (Item 8, WP 0149 00)
 Riveter Kit, Blind, Hand (Rivet Gun) (Item 25, WP 0149 00)

Materials/Parts

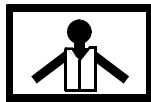
Cover Assembly
 PN 1001028
 Rivet, Blind (Pop rivets) (0.25 in. diameter) (Item 19, WP 0148 00)

Personnel Required

Engineer 88L

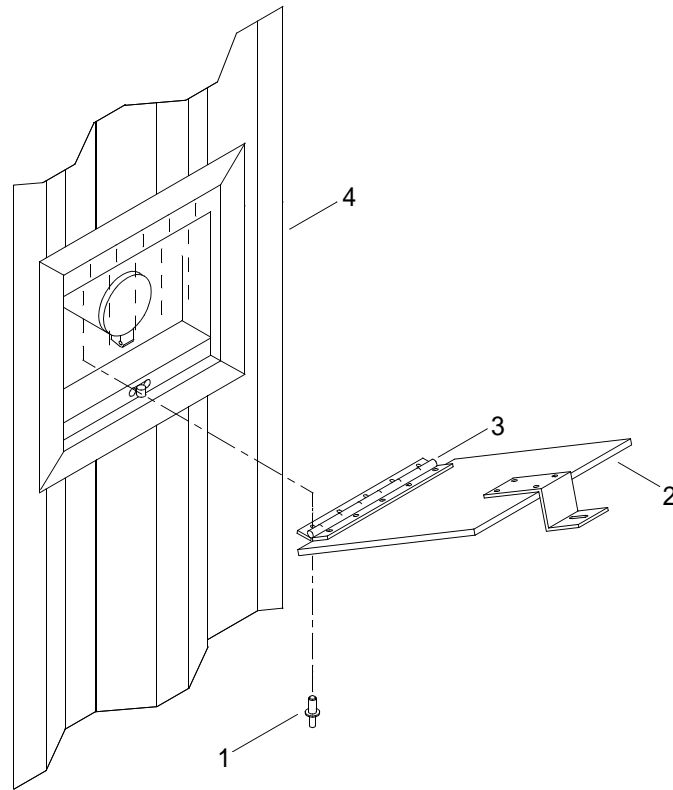
REMOVE PERSONNEL SHELTER SHORE TIE PENETRATION HINGED COVER

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. Using drill and drill bits, remove and discard pop rivets (1) securing cover (2) and piano hinge (3) to container (4).



2. Discard cover (2).

INSTALL PERSONNEL SHELTER SHORE TIE PENETRATION HINGED COVER

1. Position new cover (2) and piano hinge (3) on personnel shelter exterior wall (4).
2. Using rivet gun and pop rivets, attach cover (2) piano hinge (3) to personnel shelter exterior wall (4).

END OF WORK PACKAGE

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

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

Connector, Female
PN 33-94167-HP-E292

Personnel Required

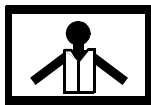
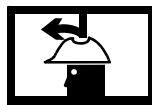
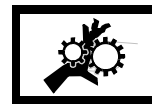
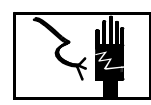
Engineer 88L (2)

Equipment Condition

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

REMOVE PERSONNEL SHELTER SHORE TIE FEMALE ELECTRICAL CONNECTOR

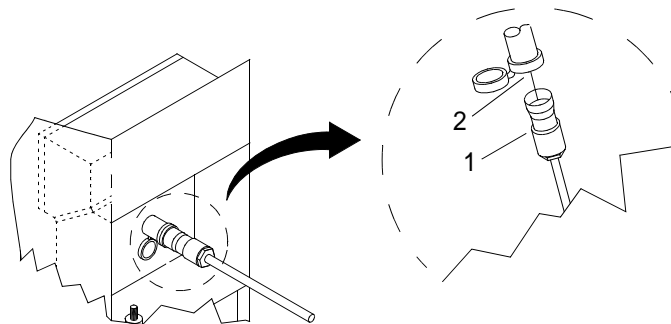
WARNING

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

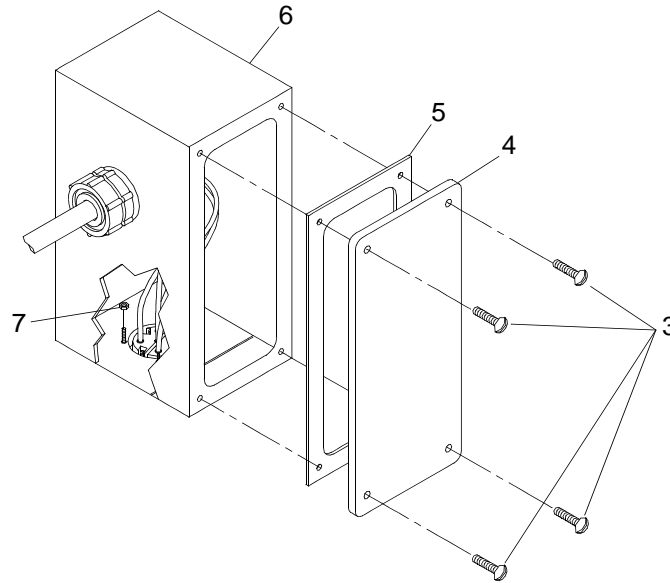
All personnel must wear personal flotation device, hard hat, safety shoes and gloves during RRDF operations and maintenance. Failure to observe these precautions could result in serious injury or death.

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Rotate power cable connector (1) counterclockwise ¼ turn and disconnect from personnel shelter shore tie female electrical connector (2).



2. Inside personnel shelter, remove four screws (3) from shore tie junction box cover (4).

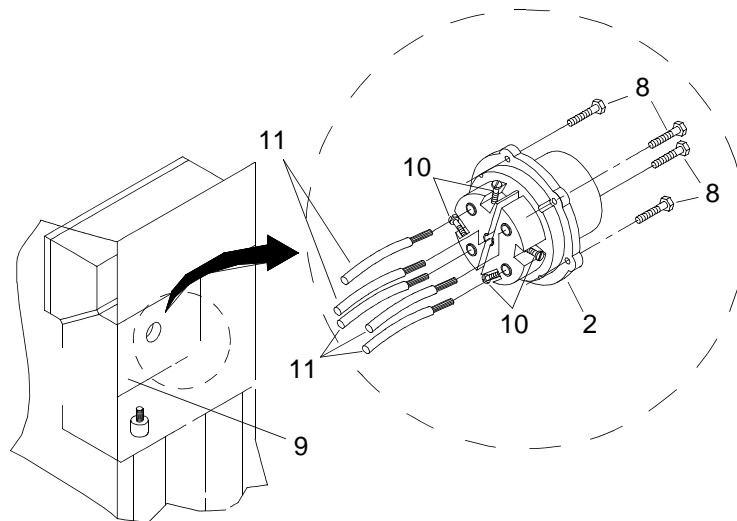


3. Remove shore tie junction box cover (4) and gasket (5) from junction box (6).

NOTE

Due to mounting arrangement of personnel shelter shore tie female electrical connector, two persons will be required to perform this step.

4. Remove four nuts (7) from junction box (6).
5. Remove four bolts (8) from personnel shelter shore tie female electrical connector (2).



6. Pull personnel shelter shore tie female electrical connector (2) outward from shore tie recess pocket (9).
7. Loosen five screws (10) on back of personnel shelter shore tie female electrical connector (2).
8. Label and remove wires (11) from personnel shelter shore tie female electrical connector (2).

-
9. Remove personnel shelter shore tie female electrical connector (2) and discard.

INSTALL PERSONNEL SHELTER SHORE TIE FEMALE ELECTRICAL CONNECTOR

1. Install wires (11) in new personnel shelter shore tie female electrical connector (2) and remove labels.
2. Tighten five screws (10) on back of personnel shelter shore tie female electrical connector (2).
3. Position personnel shelter shore tie female electrical connector (2) in shore tie recess pocket (9).
4. Install four bolts (8) in personnel shelter shore tie female electrical connector (2).
5. Inside personnel shelter, install four nuts (7) in junction box (6) and tighten.
6. Position personnel shore tie junction box cover (4) and gasket (5) on junction box (6).
7. Install four screws (3) and tighten screws (3).
8. Rotate power cable connector (1) clockwise $\frac{1}{4}$ turn and connect to personnel shelter shore tie female electrical connector (2).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER EXTERIOR DOOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

Door, Weathertight
 PN R-11-D-1

Personnel Required

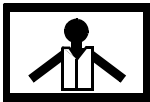
Engineer 88L (2)

Equipment Condition

Window Removed. (WP 00111 00)

REMOVE PERSONNEL SHELTER EXTERIOR DOOR

WARNING



VEST



HELMET PROTECTION



HEAVY PARTS



MOVING PARTS



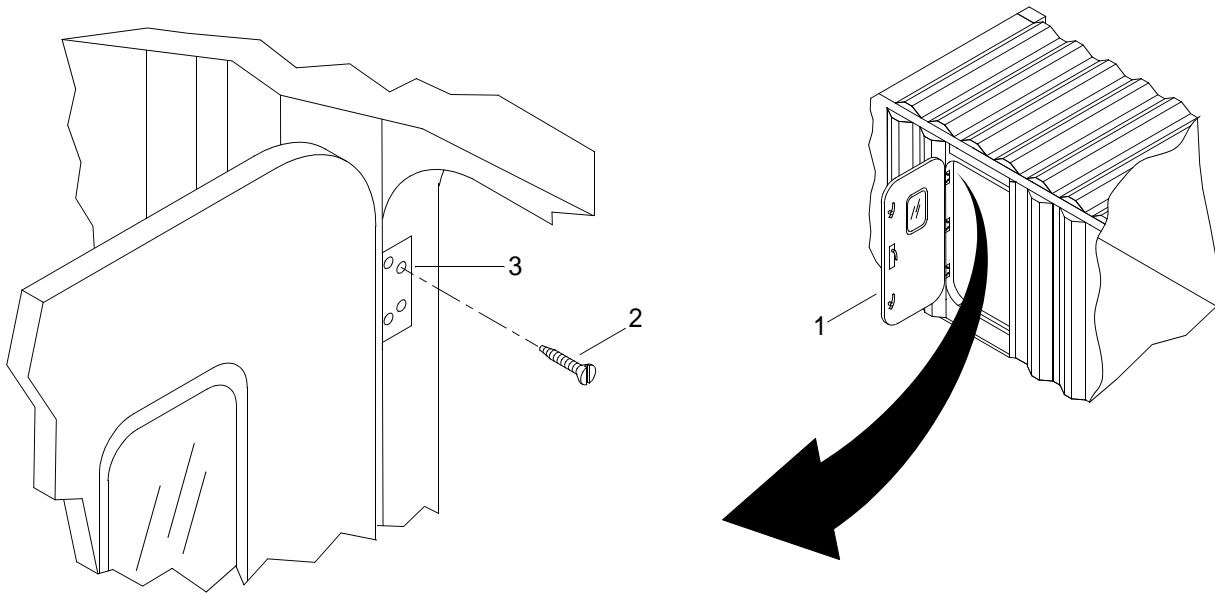
HEAVY OBJECTS

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

Hinges will remain on door frame during door replacement.

1. Using assistant to support weight of door (1), remove screws (2) from door hinges (3).



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), align new door (1) with three door hinges (3).
2. Install four screws (2) into door hinges (3) and tighten.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER EXTERIOR DOOR DOGS
REPLACEMENT**

INITIAL SETUP:

Tools

- Tool Kit, General Mechanic's (Item 33, WP 0149 00)
- Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
- Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
- Helmet, Safety (Brown) (Item 17, WP 0149 00)
- Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

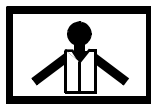
- Set, Dog
PN FC-621-001-2-DOG

Personnel Required

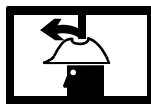
- Engineer 88L

REMOVE PERSONNEL SHELTER EXTERIOR DOOR DOGS

WARNING



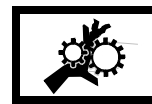
VEST



HELMET PROTECTION



HEAVY PARTS



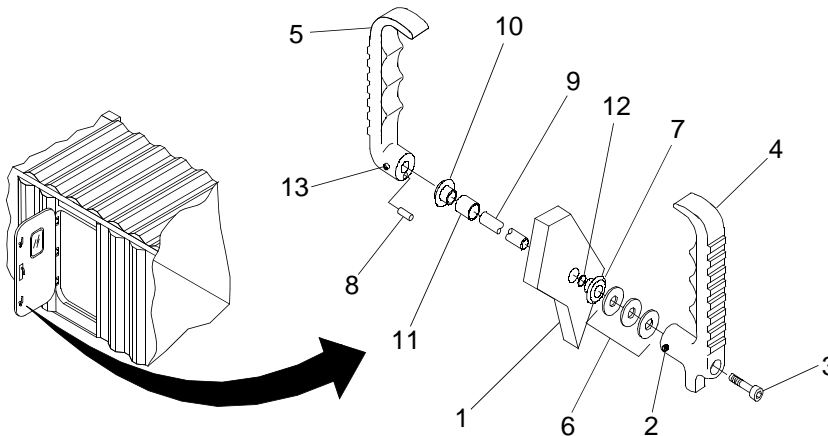
MOVING PARTS

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 interior of door (1), loosen setscrew (2) and remove bolt (3) securing inner dog (4) to outer dog (5).



2. Remove inner dog (4), inner shims (6), and inner dog bushing (7) from door (1) and discard.
3. Remove outer dog (5), stop pin (8), shaft (9), outer dog bushing (10), shaft bushing (11) and O-ring (12) from door (1) and discard.

INSTALL PERSONNEL SHELTER EXTERIOR DOOR DOGS

1. Install new shaft bushing (11), outer dog bushing (1) and inner dog bushing (7) in door (1).
2. Install new stop pin (8) and shaft (9) in new outer dog (5) and tighten set screw (13).
3. Install new O-ring (12) on shaft (9).
4. Install outer dog (5) assembly in door (1).
5. Position inner dog (4) on shaft (7) of outer dog (5), aligning both handles vertically.
6. Install bolt (3) to secure inner dog (4) to outer dog (5). Tighten bolt (3).
7. Tighten setscrew (2).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER EXTERIOR DOOR WINDOW
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

Window, Weathertight Door
 PN 0311-2009
 Tape, Glazing
 PN 0331-2006
 Sealant, Silicone (Black)
 PN 0331-2007

Personnel Required

Engineer 88L

REMOVE PERSONNEL SHELTER EXTERIOR DOOR WINDOW

WARNING



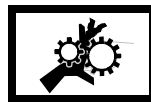
VEST



HELMET PROTECTION



HEAVY PARTS



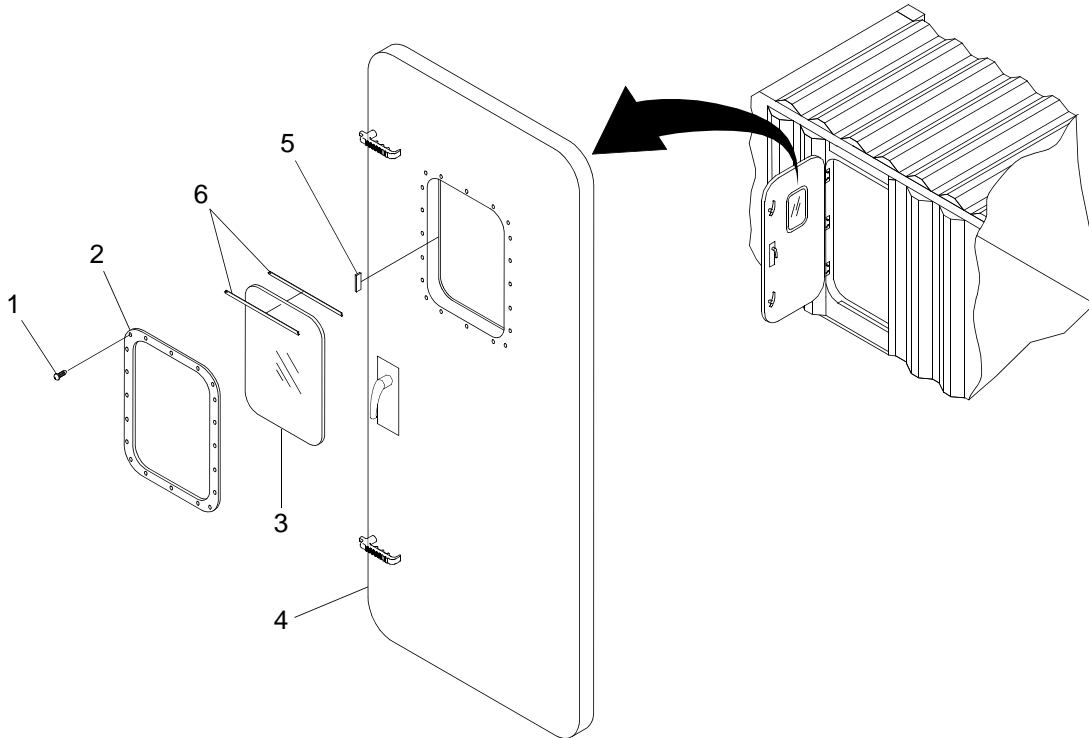
MOVING PARTS



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.

1. Remove screws (1).



2. Remove window retainer (2).
3. Remove window (3) from door (4) and discard.
4. Remove spacer blocks (5) from door.
5. Remove all residual glazing tape (6) and silicone sealant from retainer (2) and window opening in door (4).

INSTALL PERSONNEL SHELTER EXTERIOR DOOR WINDOW

1. Apply glazing tape (6) to both sides of new window (3).
2. Position new window (3) in door (4).
3. Insert spacer blocks (5) between window (3) and door (4) frame (top, bottom, left and right) to center window (3) in door (4) window opening.
4. Position retainer (2) over window (3) and secure with screws (1).
5. Apply silicone sealant to seal gap between retainer (2) and window (3).
6. Apply silicone sealant to seal gap between door (4) and window (3).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER INCINERATOR TOILET
EXHAUST FLEXIBLE COUPLING
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

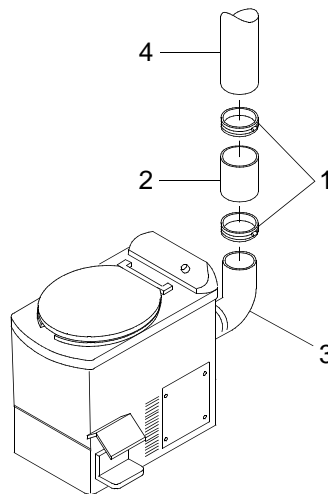
Coupling with Clamps, Pipe
PN 1056-44

Personnel Required

Engineer 88L

**REMOVE PERSONNEL SHELTER INCINERATOR TOILET EXHAUST
FLEXIBLE COUPLING**

1. Loosen two band clamps (1) and slide band clamps (1) onto elbow (3).



2. Remove flexible coupling (2) from elbow (3) and pipe (4). Discard flexible coupling (2) and band clamps (1).

**INSTALL PERSONNEL SHELTER INCINERATOR TOILET EXHAUST
FLEXIBLE COUPLINGS**

1. Slide two new band clamps (1) onto elbow (3).
2. Position new flexible coupling (2) between elbow (3) and pipe (4).
3. Position two band clamps (1) on flexible coupling (2) and tighten band clamps (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER VENT FAN
CLEANING AND INSPECTION**

INITIAL SETUP:**Tools**

- Gloves, Rubber, Industrial (Item 11, WP 0149 00)
- Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
- Apron, Utility (Item 1, WP 0149 00)
- Brush, Stencil (Soft Bristle) (Item 2, WP 0149 00)

Materials/Parts

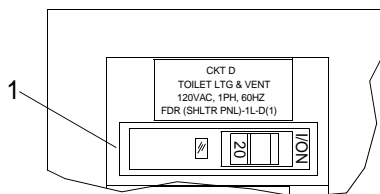
- Cleaner (Item 6, WP 0148 00)
- Rag, Wiping (Item 17, WP 0148 00)

Personnel Required

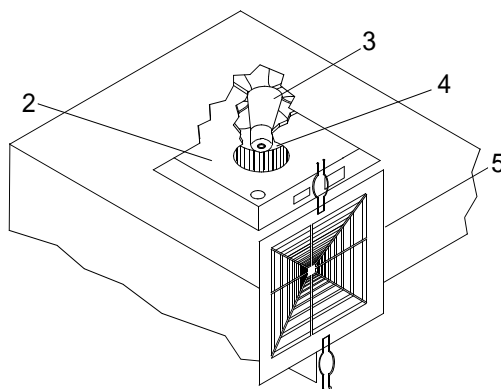
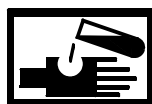
- Seaman 88K
-

CLEAN PERSONNEL SHELTER VENT FAN

1. Position circuit breaker D (1) on the personnel shelter electrical distribution board to off.



2. Pull down vent fan cover (2).

**WARNING****CHEMICAL****EYE PROTECTION**

3. Using soft bristle brush and cleaner, clean fan blades (3) and vent cavity (4).

WARNING

**CHEMICAL****EYE PROTECTION**

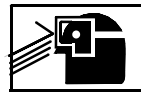
- Using wiping rag and cleaner, clean debris from vent fan cover (2) and surface of vent fan panel (5).

WARNING

**CHEMICAL****EYE PROTECTION**

- Using damp wiping rag, remove cleaner residue from vent cover (2), fan blades (3) and vent cavity (4).
- 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 per local procedures.

INSPECT PERSONNEL SHELTER VENT FAN

- Inspect fan blades (3) for cracks. None are allowed. If cracks are found, replace vent fan. (WP 0114 00)
- Inspect fan for ease of movement. If fan does not move freely, replace vent fan. (WP 0114 00)
- Close vent fan cover (2).
- Position circuit breaker D (1) on the personnel shelter electrical distribution board to on.

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 (Item 33, WP 0149 00)

Materials/Parts

Ventilator, Ceiling
PN S130

Personnel Required

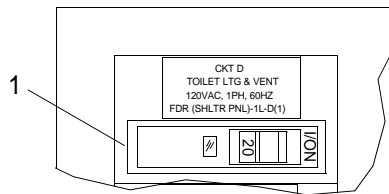
Engineer 88L

References

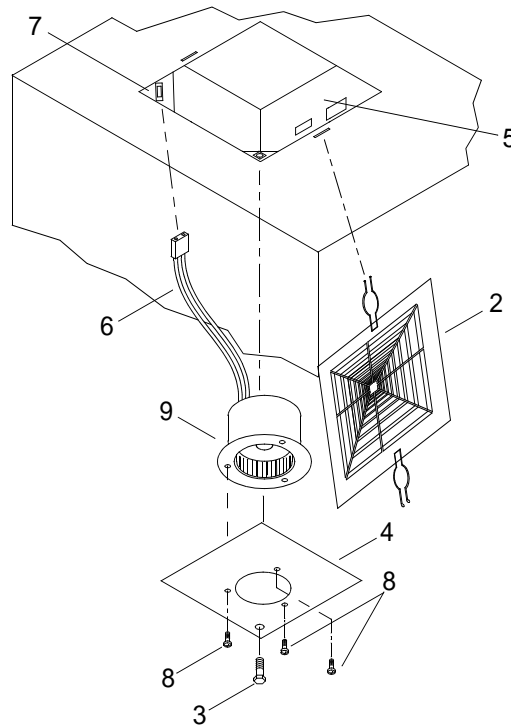
TM 55-1945-216-10

REMOVE PERSONNEL SHELTER VENT FAN

1. Position circuit breaker D (1) on personnel shelter electrical distribution board to off.



2. Pull down vent fan cover (2) 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 vent fan cover (2) and push upward to close.
7. Position circuit breaker D (1) on personnel shelter electrical distribution board to on.
8. Perform operational check of personnel shelter vent fan. (TM 55-1945-216-10)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER ELECTRICAL DISTRIBUTION
PANEL ACCESS COVER
REMOVAL AND INSTALLATION**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Personnel Required

Engineer 88L

Equipment Condition

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

REMOVE PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL ACCESS COVER

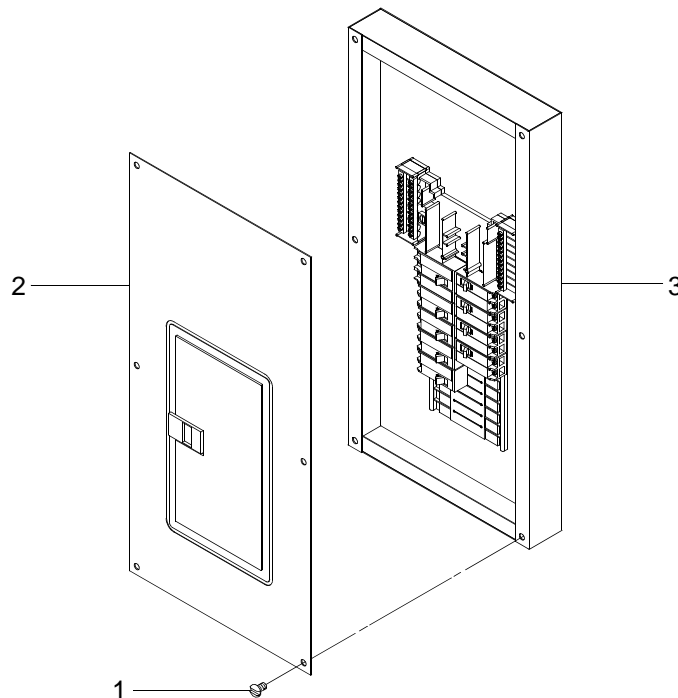
WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Remove six screws (1) from panel (2).



2. Remove panel (2) from load distribution box (3).

**INSTALL PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL
ACCESS COVER**

1. Position panel (2) on load distribution box (3).
2. Install six 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 33, WP 0149 00)
- Gloves, Rubber, Industrial (Item 11, WP 0149 00)
- Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

- Circuit Breaker
PN QOB3100
- Grease, Silicone Insulated Electric Motor (Item 10, WP 0148 00)

Personnel Required

- Engineer 88L

References

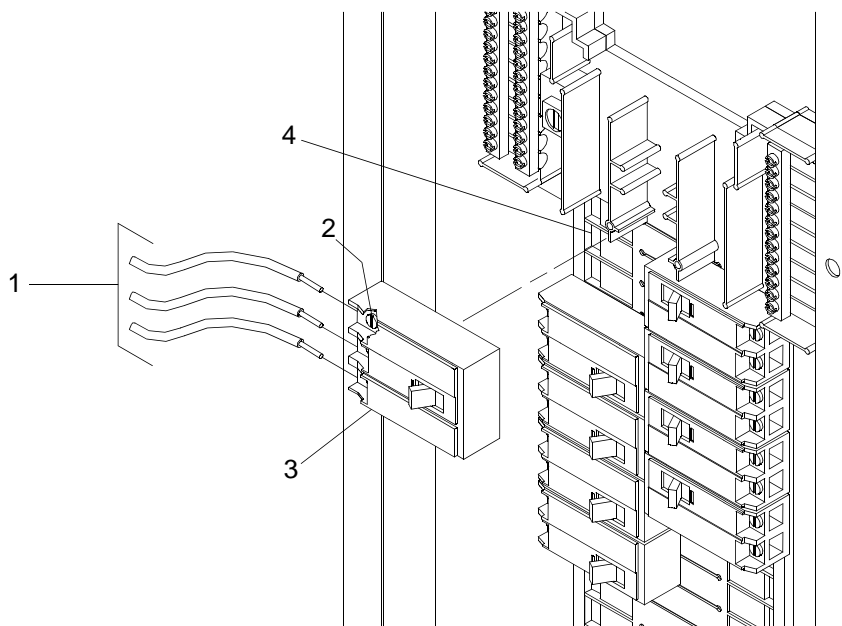
- TM 9-6115-642-10

Equipment Condition

- Personnel Shelter Electrical Distribution Panel Access Cover Removed. (WP 0115 00)
-

REMOVE PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL THREE POLE CIRCUIT BREAKER

1. Label three wires (1).



2. Loosen three screws (2).
3. Pull wires (1) straight out of circuit breaker (3).

4. Firmly grasp circuit breaker (3), rotate circuit breaker (3) outward and remove from mounting cleats (4). Discard circuit breaker (3).

INSTALL PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL THREE POLE CIRCUIT BREAKER

1. Install back side of new circuit breaker (3) into mounting cleats (4).
2. Rotate circuit breaker (3) onto 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 labels.
5. Tighten three screws (2).
6. Install personnel shelter electrical distribution panel access cover. (WP 0115 00)
7. Position circuit breaker (3) to on position.
8. Start generator. (TM 9-6115-642-10)
9. Verify affected equipment operates.

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 33, WP 0149 00)
- Gloves, Rubber, Industrial (Item 11, WP 0149 00)
- Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

- Circuit Breaker
PN QOB220, QOB215
- Grease, Silicone Insulated Electric Motor (Item 10, WP 0148 00)

Personnel Required

- Engineer 88L

References

- TM 9-6115-642-10

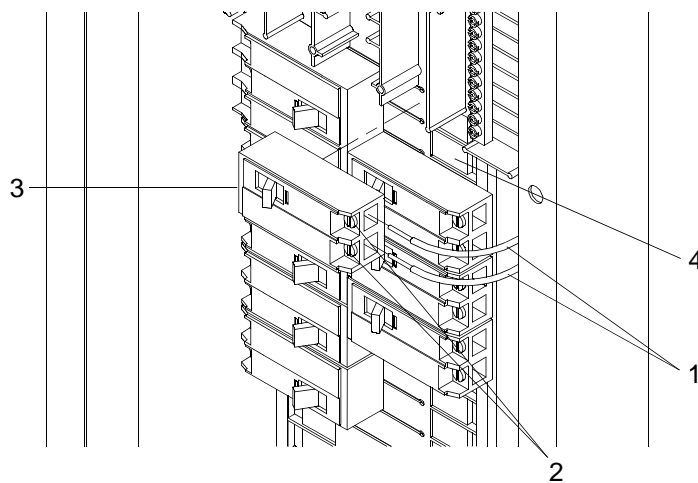
Equipment Condition

- Personnel Shelter Electrical 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 personnel shelter two pole circuit breakers.

1. Label two wires (1).



2. Loosen two screws (2).

-
3. Pull wires (1) straight out of circuit breaker (3).
 4. Firmly grasp circuit breaker (3), rotate circuit breaker (3) outward from mounting cleats (4) and remove. Discard circuit breaker (3).

INSTALL PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL TWO POLE CIRCUIT BREAKER

1. Install back side of new circuit breaker (3) into mounting cleats (4).
2. Rotate circuit breaker (3) 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 labels.
5. Tighten two screws (2).
6. Install personnel shelter electrical distribution panel access cover. (WP 0115 00)
7. Position circuit breaker (3) to on position.
8. Start generator. (TM 9-6115-642-10)
9. Verify affected equipment operates.

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 33, WP 0149 00)
- Gloves, Rubber, Industrial (Item 11, WP 0149 00)
- Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

- Circuit Breaker
PN Q0215SWN, Q0220SWN
- Grease, Silicone Insulated Electric Motor (Item 10, WP 0148 00)

Personnel Required

- Engineer 88L

References

- TM 9-6115-642-10

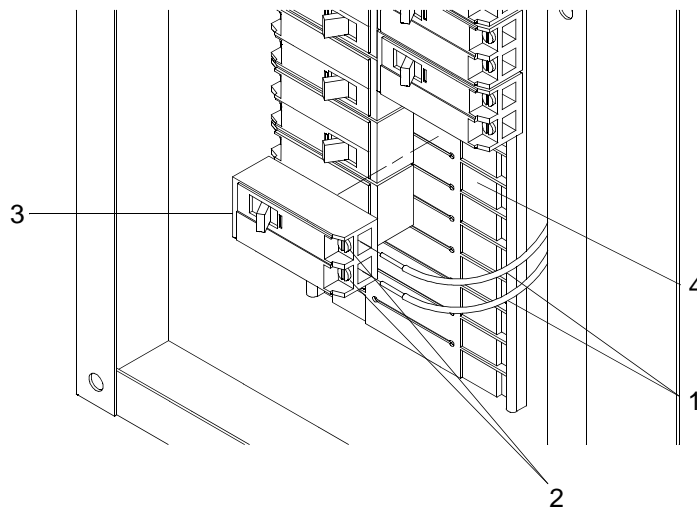
Equipment Condition

- Personnel Shelter Electrical 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 personnel shelter single pole circuit breakers.

1. Label wires (1).



2. Loosen two screws (2).
3. Pull wires (1) straight out of circuit breaker (3).

-
4. Firmly grasp circuit breaker (3), rotate circuit breaker (3) outward from mounting cleats (4) and remove. Discard circuit breaker (3).

INSTALL PERSONNEL SHELTER ELECTRICAL DISTRIBUTION PANEL SINGLE POLE CIRCUIT BREAKER

1. Install back side of new circuit breaker (3) into mounting cleat (4).
2. Rotate circuit breaker (3) 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 labels.
5. Tighten screws (2).
6. Install personnel shelter electrical distribution panel access cover. (WP 0115 00)
7. Position circuit breaker (3) to on position.
8. Start generator. (TM 9-6115-642-10)
9. Verify affected equipment operates.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER FLUORESCENT LIGHT FIXTURE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Fixture, Fluorescent Light
PN

Personnel Required

Engineer 88L

References

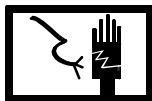
TM 55-1945-216-10

Equipment Condition

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

REMOVE PERSONNEL SHELTER FLUORESCENT LIGHT FIXTURE

WARNING



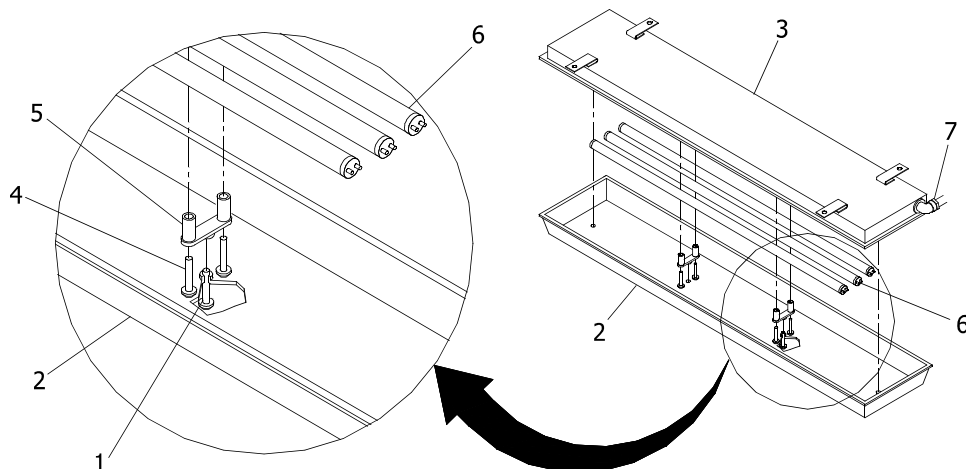
ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

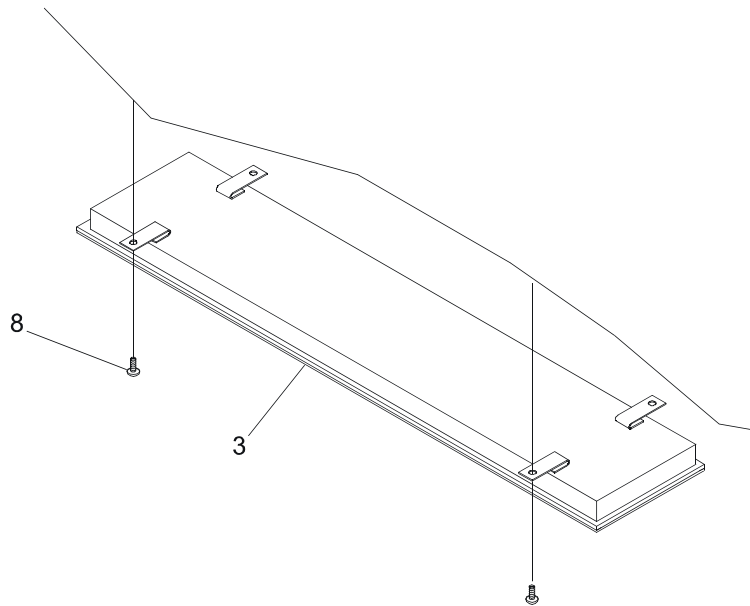
NOTE

The following procedure is typical for the removal and installation of personnel shelter fluorescent light fixtures.

1. Loosen four screws (1) securing cover (2) to fixture base (3).



2. Remove cover (2).
3. Remove four screws (4) securing cover standoffs (5) to fixture base (3).
4. Remove cover standoffs (5).
5. Remove fluorescent lamps (6).
6. Label and disconnect wiring and conduit (7) from fixture base (3).
7. Remove four screws (8) securing fixture base (3) to ceiling.
8. Discard light fixture.



INSTALL PERSONNEL SHELTER FLUORESCENT LIGHT FIXTURE

1. Position and install four screws (8) to secure new fixture base (3) to ceiling.
2. Install wiring and conduit (7) in fixture base (3).
3. Connect wiring (7) to fixture base (3) and remove labels.
4. Install fluorescent lamps (6).
5. Secure cover standoffs (5) to fixture base (3) with screws (4). Tighten screws (4)
6. Position cover (2) and secure with screws (1). Tighten screws (1).
7. Perform operational check of fluorescent lights. (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER ROTARY BRASS LIGHT SWITCH
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Switch, Rotary
PN M15743/3-002

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

Equipment Condition

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

REMOVE PERSONNEL SHELTER ROTARY BRASS LIGHT SWITCH

WARNING



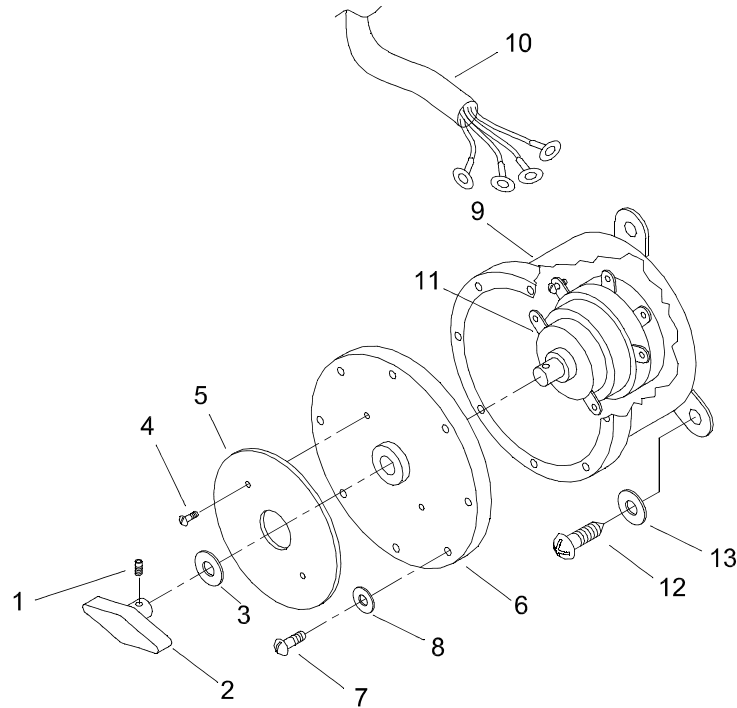
ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

NOTE

The following procedure is typical for the removal and installation of personnel shelter rotary brass light switches.

1. Loosen screw (1) and remove light switch knob (2) and washer (3).



2. Remove two pan head screws (4) from faceplate (5).
3. Remove faceplate (5) from light switch cover (6).
4. Remove four pan head screws (7) and four washers (8) from light switch cover (6).
5. Remove switch cover (6) from light switch enclosure (9).
6. Label and disconnect wiring (10) from light switch assembly (11).
7. Remove wiring harness (10) from light switch enclosure (9).
8. Remove three phillips quick screws (12) and three washers (13) securing light switch enclosure (9) to wall.
9. Discard light switch enclosure (9).

INSTALL PERSONNEL SHELTER ROTARY BRASS LIGHT SWITCH

1. Position new light switch enclosure (9) and install three phillips quick screws (12) and three washers (13) to secure light switch enclosure (9) to wall. Tighten phillips quick screws (12).
2. Install wiring harness (10) in light switch enclosure (9).
3. Connect wiring (10) to light switch assembly (11) and remove labels.
4. Install light switch cover (6) onto light switch enclosure (9).
5. Install four pan head screws (7) and washers (8) in light switch cover (6). Tighten pan head screws (7).
6. Install faceplate (5) onto light switch cover (6).

-
7. Install two pan head screws (4) in faceplate (5). Tighten pan head screws (4).
 8. Install washer (3) and switch knob (2) on light switch assembly (11) and tighten allen head screw (1).
 9. Perform operational check of light switch. (TM 55-1945-216-10)

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 33, WP 0149 00)

Personnel Required

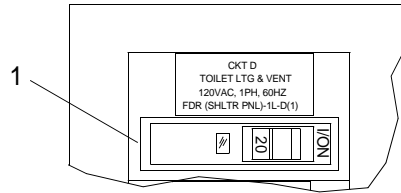
Engineer 88L

REMOVE PERSONNEL SHELTER HEAD ELECTRICAL JUNCTION BOX

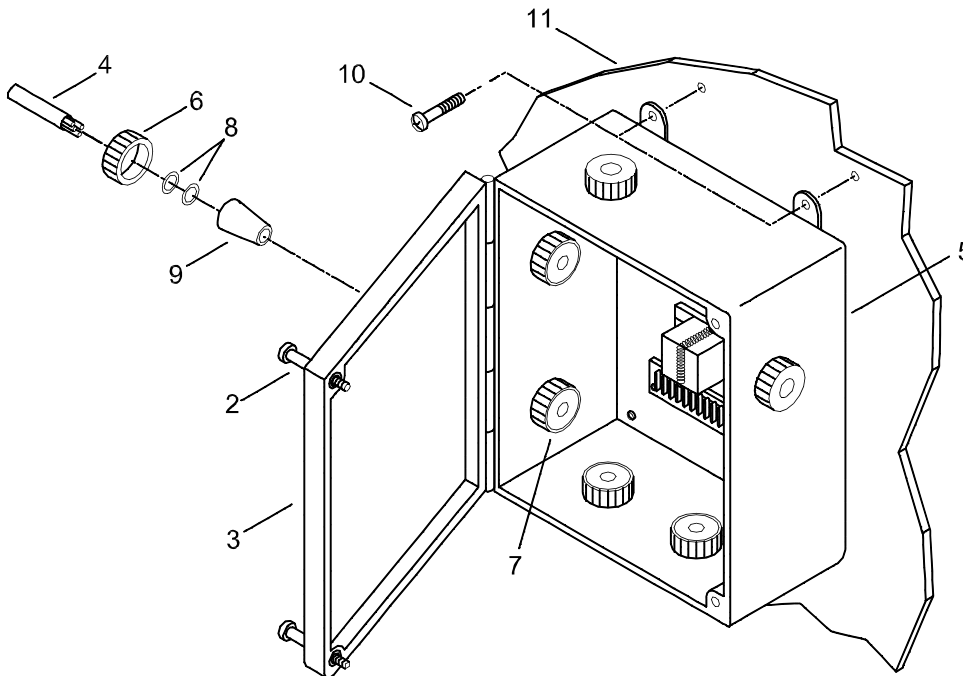
NOTE

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 personnel shelter electrical distribution board to off (open) position.



2. Loosen two screws (2) and open enclosure (3).



3. Remove wiring (4) from junction box (5).
 - a. Label and disconnect wiring (4).
 - b. Unscrew stuffing tube cap (6) from stuffing tube (7).
 - c. Remove wiring (4) from stuffing tube (7) and retain cap (6), plastic washers (8) and preformed packing (9) on end of wiring (4).
4. Remove four screws (10) securing junction box (5) to wall (11).
5. Remove junction box (5).

INSTALL PERSONNEL SHELTER HEAD ELECTRICAL JUNCTION BOX

1. Position junction box (5) on wall (11) and secure with four screws (10). Tighten screws (10).
2. Install wiring (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 stuffing tube (7) until secure.
 - c. Connect wiring (4) and remove labels.
3. Close enclosure cover (3).
4. Tighten two screws (2).
5. Position circuit breaker D (1) on personnel shelter electrical distribution board to on (closed) position.

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER HEAD FLUORESCENT LIGHT FIXTURE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Fixture, Fluorescent Light
PN 55M-122-18G-.187PC/.125AP-120-MAG

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

Equipment Condition

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

REMOVE PERSONNEL SHELTER HEAD FLUORESCENT LIGHT FIXTURE

WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

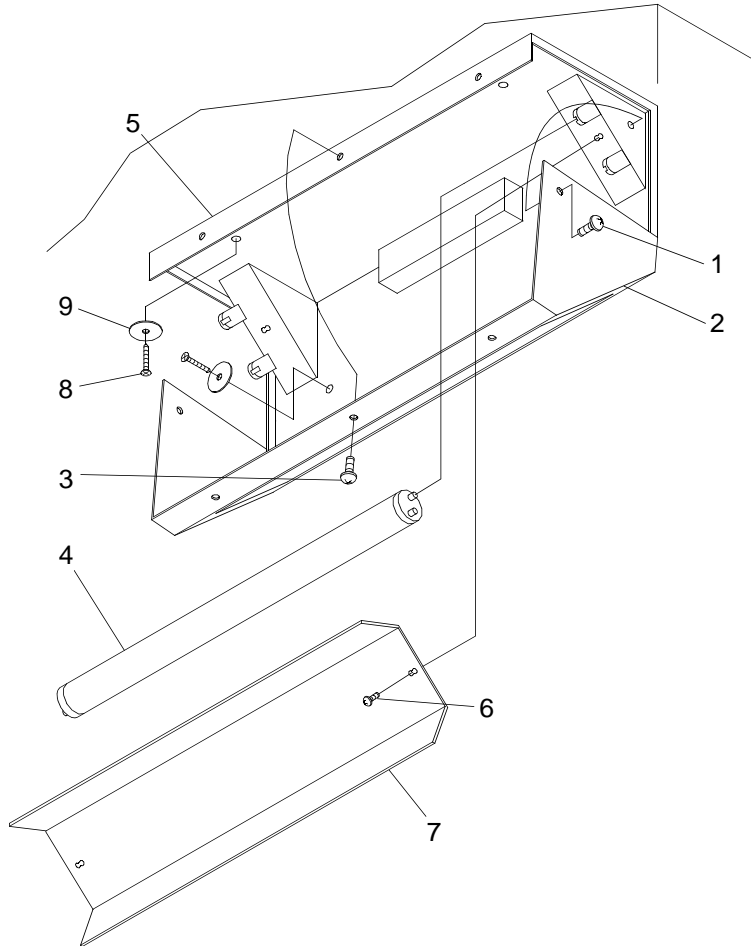
NOTE

Use the oval head bit driver with bit stored in the file cabinet drawer.

NOTE

The oval head bit driver and bit come with the new replacement light assembly.

6. Remove two screws (1) from sides of fixture cover (2).



7. Remove three screws (3) from front of fixture cover (2) and allow cover (2) to swing down.
8. Remove fluorescent lamps (4) from fixture base (5).
9. Remove two screws (6) retaining reflector (7) to fixture base (5).
10. Label, disconnect and remove wiring from fixture base (5).
11. Remove four drywall screws (8) and washers (9) retaining fixture base (5) to ceiling and wall. Discard fixture.

INSTALL PERSONNEL SHELTER HEAD FLUORESCENT LIGHT FIXTURE

1. Position and install four drywall screws (8) and washers (9) to retain new fixture base (5) to ceiling and wall. Tighten drywall screws (8).
2. Install and connect wiring in fixture base (5).
3. Position and install two screws (6) to retain reflector (7) to fixture base (5).
4. Install fluorescent lamps (4) in fixture base (5).
5. Swing fixture cover (2) up into position and install three screws (3) at front of fixture cover (2).

-
6. Install two screws (1) in sides of fixture cover (2).
 7. Perform operational check of head fluorescent lights. (TM 55-1945-216-10)

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 33, WP 0149 00)

Personnel Required

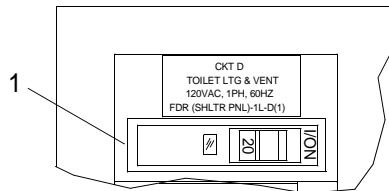
Engineer 88L

REPAIR PERSONNEL SHELTER HEAD ELECTRICAL JUNCTION BOX

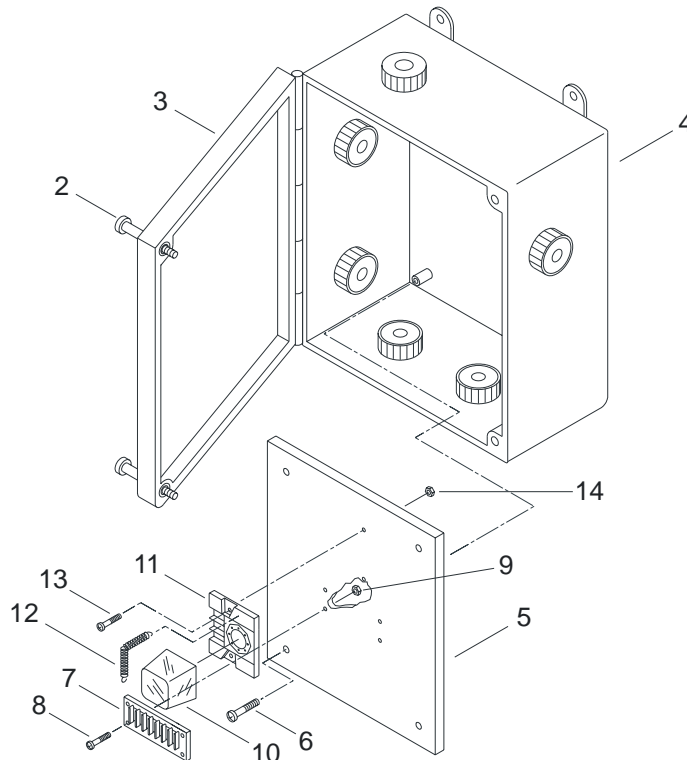
NOTE

Repair is limited to the replacement of damaged components.

1. Position circuit breaker D (1) on personnel shelter electrical distribution board to off (open) position.



2. Loosen two screws (2) and open enclosure cover (3).



3. Label 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 labels.
13. Close enclosure cover (3).
14. Tighten two screws (2).
15. Position circuit breaker D (1) on the personnel shelter electrical distribution board to on (closed) position.
16. Verify affected equipment operates.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER INTERIOR DOOR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

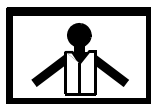
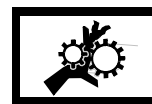
Door, Interior
PN 012668D801

Personnel Required

Engineer 88L (2)

REMOVE PERSONNEL SHELTER INTERIOR DOOR

WARNING

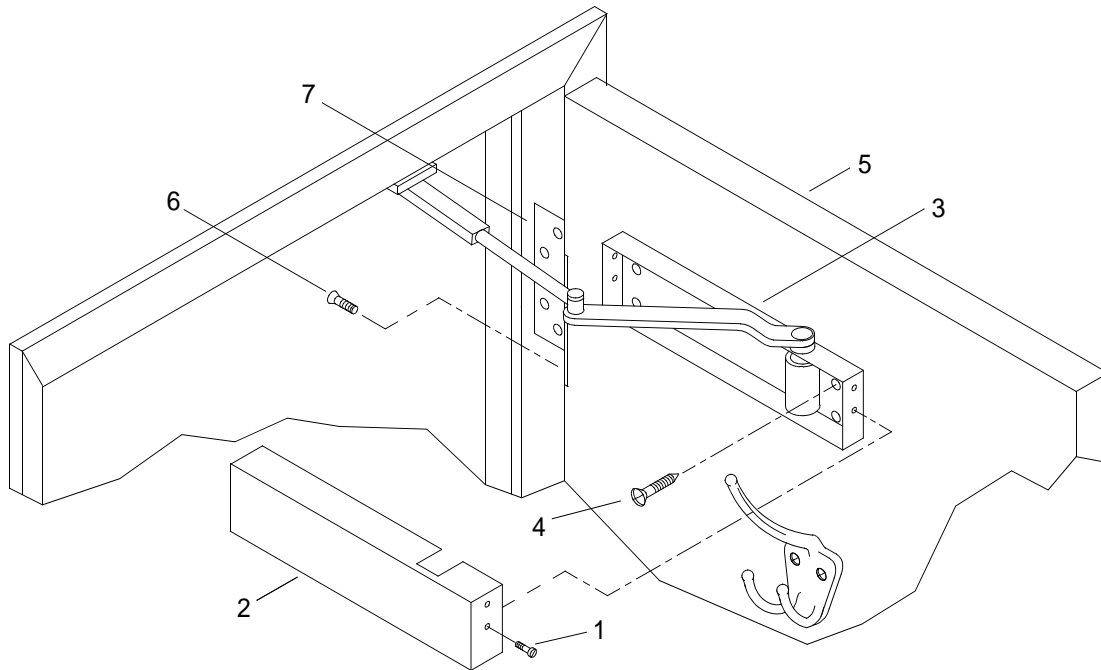
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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

Door hinges will remain on door frame during door replacement.

1. Remove screws (1) securing cover (2) to actuator (3).



2. Remove screws (4) securing actuator (3) to door (5).

WARNING



HEAVY OBJECTS

3. Using assistant to support weight of door (5), remove screws (6) from door hinges (7).

WARNING



HEAVY OBJECTS

4. Remove door (5) and discard.

INSTALL PERSONNEL SHELTER INTERIOR DOOR

WARNING

**HEAVY OBJECTS**

1. Using assistant to support weight of new door (5), align door (5) with door hinges (7).
2. Install screws (6) through door hinges (7) and tighten.
3. Position actuator (3) on door (5) and secure with screws (4). Tighten screws (4).
4. Position cover (2) on actuator (3) and secure with screws (1). Tighten screws (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER COAT HANGERS
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

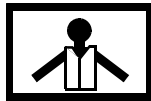
Hanger, Coat
 PN MIL-H-929

Personnel Required

Engineer 88L

REMOVE PERSONNEL SHELTER COAT HANGERS

WARNING

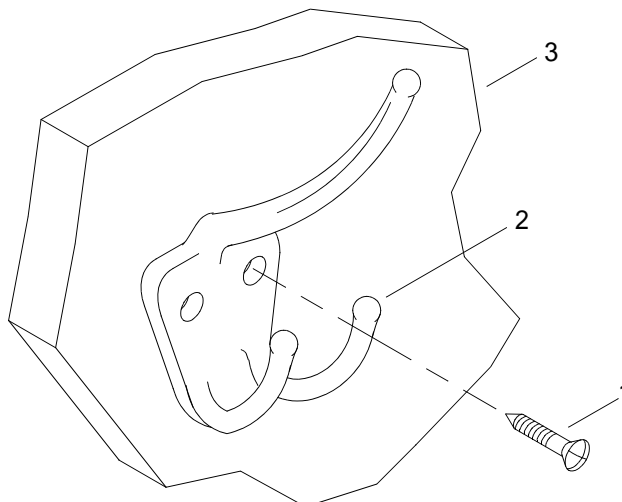
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 typical for replacing coat hangers.

1. Remove screws (1) securing coat hanger (2) to side of personnel shelter (3).



2. Remove coat hanger (2) from side of personnel shelter (3) and discard.

INSTALL PERSONNEL SHELTER COAT HANGERS

1. Position new coat hanger (2) on side of personnel shelter (3).
2. Install screws (1) to secure coat hanger (2) on side of personnel shelter (3). Tighten screws (1).

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER INTERIOR DOOR LOCKSET
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)

Materials/Parts

Lockset, Door
PN Yale LF5302

Personnel Required

Engineer 88L

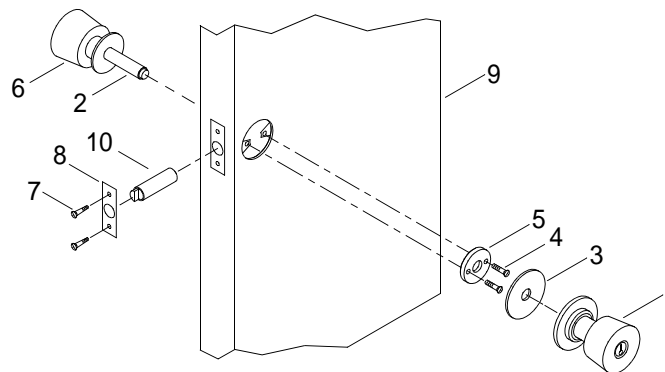
REMOVE PERSONNEL SHELTER INTERIOR DOOR LOCKSET

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 inner door handle (1) from lockset (2).



- Using a screwdriver, pry off inner cover plate (3).
- Remove two screws (4) securing interior door plate (5) to exterior door plate (6).
- Remove two screws (7) securing retaining plate (8) to side of door (9).
- Remove bolt assembly (10) and lockset (2) from door (9). Discard lockset (2).

INSTALL PERSONNEL SHELTER INTERIOR DOOR LOCKSET

1. Install new lockset (2) and bolt assembly (10) into holes of interior door (9).
2. Position retaining plate (8) over bolt assembly (10).
3. Install two screws (7) through retaining plate (8). Tighten screws (7).
4. Position interior door plate (5) over lockset (2) and secure to exterior plate (6) with two screws (4). Tighten screws (4).
5. Snap inner cover plate (3) onto interior door plate (5).
6. Push interior door handle (1) onto lockset until it locks in place.

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER ESCAPE SCUTTLE GASKET
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Brush, Wire Scratch (Item 3, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)

Materials/Parts

Gasket, Scuttle
PN 9835-2005
Adhesive/Sealant
PN SIK-291B
Cleaner (Item 6, WP 0148 00)
Rag, Wiping (Item 17, WP 0148 00)

Personnel Required

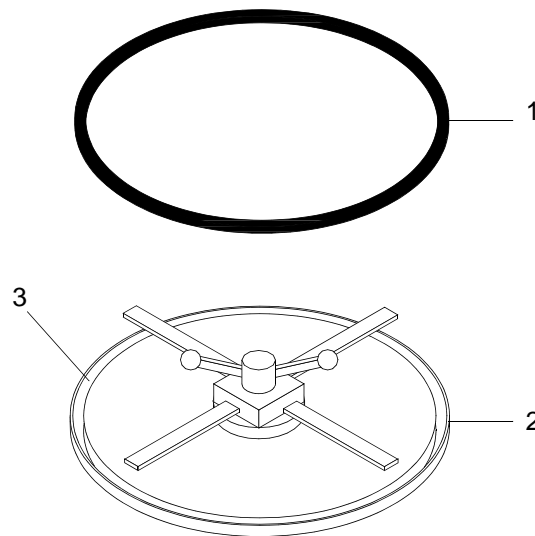
Engineer 88L

Equipment Condition

Scuttle Hatch Removed. (TM 9-6115-642-10)

REMOVE PERSONNEL SHELTER ESCAPE SCUTTLE GASKET

1. Remove gasket (1) from scuttle hatch (2). Discard gasket.



INSTALL PERSONNEL SHELTER ESCAPE SCUTTLE GASKET

1. Clean the new gasket (1) with cleaner and wiping rag to remove any residue.
2. Using a wire brush, clean the gasket groove (3) in scuttle hatch (2) to remove residual gasket material and adhesive/sealant.
3. Using cleaner and wiping rag, clean the gasket groove (3) in scuttle hatch (2).
4. Apply a thin coat of adhesive/sealant to the bottom of the gasket groove (3) in scuttle hatch (2).
5. Press the new gasket into the gasket groove (3) in scuttle hatch (2).
6. Install scuttle hatch in personnel container to hold gasket in place until adhesive/sealant cures.
(TM 9-6115-642-10)

END OF WORK PACKAGE

**DIRECT SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER ESCAPE SCUTTLE GRAB BAR
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

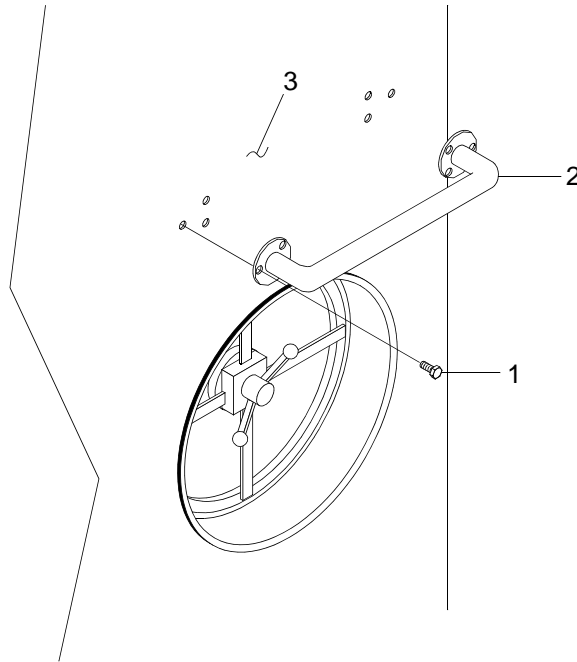
Bar, Grab
PN B6106-18

Personnel Required

Engineer 88L

REMOVE PERSONNEL SHELTER ESCAPE SCUTTLE GRAB BAR

1. Remove bolts (1) securing grab bar (2) to personnel shelter wall (3).



2. Remove grab bar (2) and discard.

INSTALL PERSONNEL SHELTER ESCAPE SCUTTLE GRAB BAR

1. Position new grab bar (2) on personnel shelter wall (3).
2. Install and tighten bolts (1) to secure grab bar (2) to personnel shelter wall (3).

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 (Item 33, WP 0149 00)

Materials/Parts

Assembly, Bracket

PN MS16377/53-002

Holder, Light

PN MS16377/54-2438

O-Ring

PN MS28775-001

Qty 2

Personnel Required

Engineer 88L

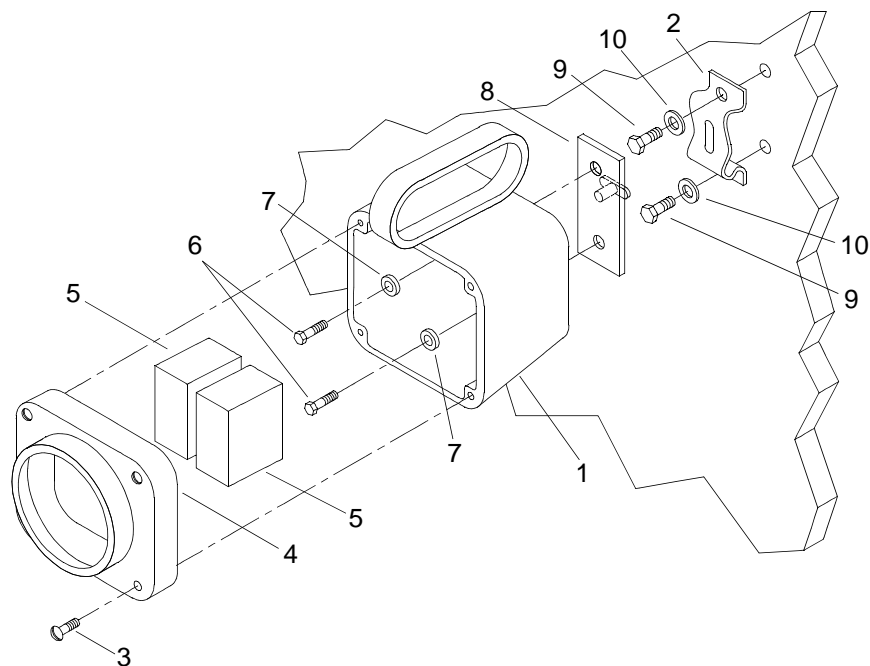
References

TM 55-1945-216-10

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 hex head bolts (9) and washers (10) 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 hex head bolts (9) and washers (10) securing mounting bracket (2) to wall. Tighten hex head bolts (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°.
9. Perform operational check of hand lantern. (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT LEVEL 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 33, WP 0149 00)

Materials/Parts

Receptacle, Duplex
PN HBL8300GY

Personnel Required

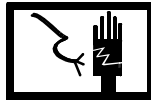
Engineer 88L

Equipment Condition

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

**REMOVE PERSONNEL SHELTER HOSPITAL GRADE STRAIGHT BLADE
ELECTRICAL RECEPTACLE**

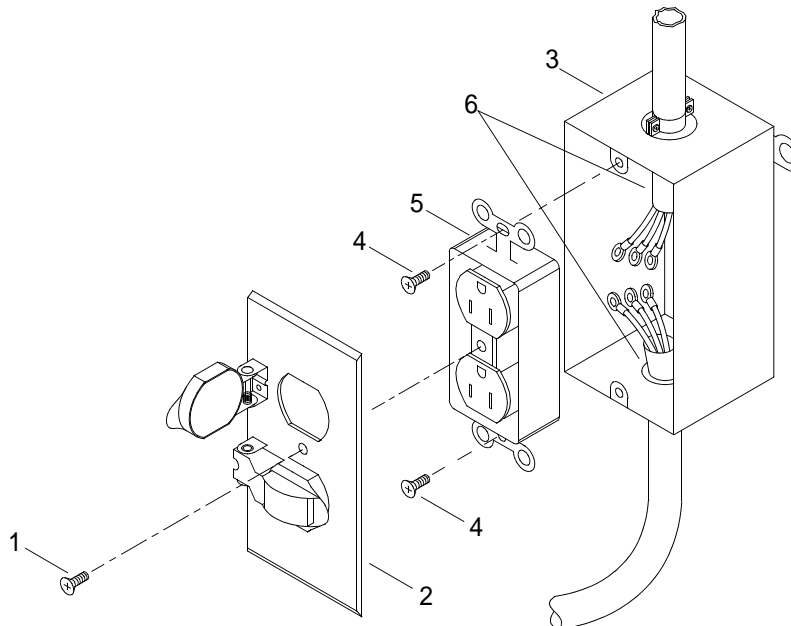
WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Remove screw (1) securing cover (2) to circuit box (3).



2. Remove screws (4) securing receptacle (5) to circuit box (3).
3. Label and disconnect wiring (6) from receptacle (5).
4. Discard receptacle (5).

**INSTALL PERSONNEL SHELTER HOSPITAL GRADE STRAIGHT BLADE
ELECTRICAL RECEPTACLE**

1. Connect wiring (6) to new receptacle (5) and remove labels.
2. Install screws (4) to secure receptacle (5) to circuit box (3). Tighten screws (4).
3. Position cover (2) on circuit box (3) and secure with screw (1). Tighten screw (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER GROUND FAULT CIRCUIT
INTERRUPTER RECEPTACLE
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Interrupter, Ground
PN GF-5352GY

Personnel Required

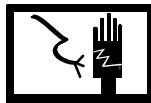
Engineer 88L

Equipment Condition

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

**REMOVE PERSONNEL SHELTER GROUND FAULT CIRCUIT
INTERRUPTER RECEPTACLE**

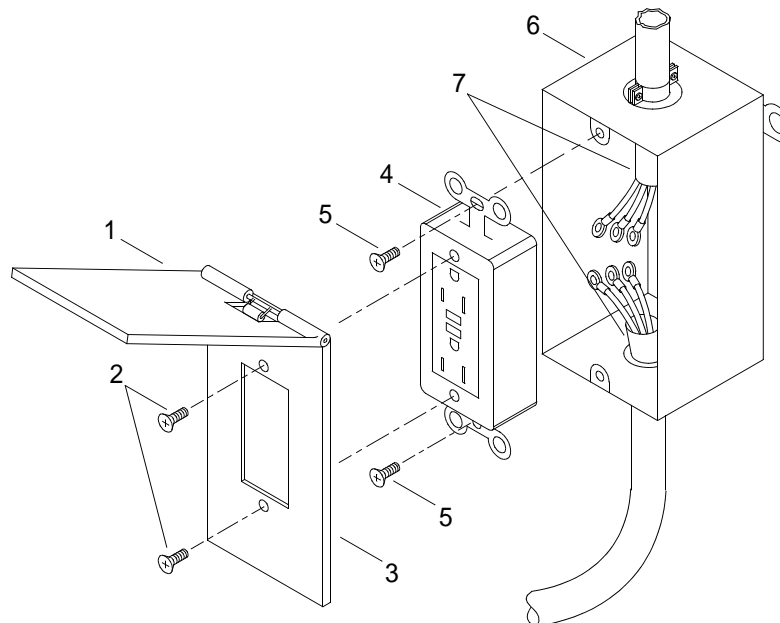
WARNING



ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

1. Lift weather cover (1).



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

INSTALL PERSONNEL SHELTER GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE

1. Connect wiring (7) to new receptacle (4) and remove labels.
2. Install two screws (5) to secure receptacle (4) to circuit box (6). Tighten screws (5).
3. Install two screws (2) to secure receptacle cover (3) to receptacle (4). Tighten screws (2).
4. Close weather cover (1).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
PERSONNEL SHELTER OUTLET BOX
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

Conduit, Outlet
PN T-11-L

Personnel Required

Engineer 88L

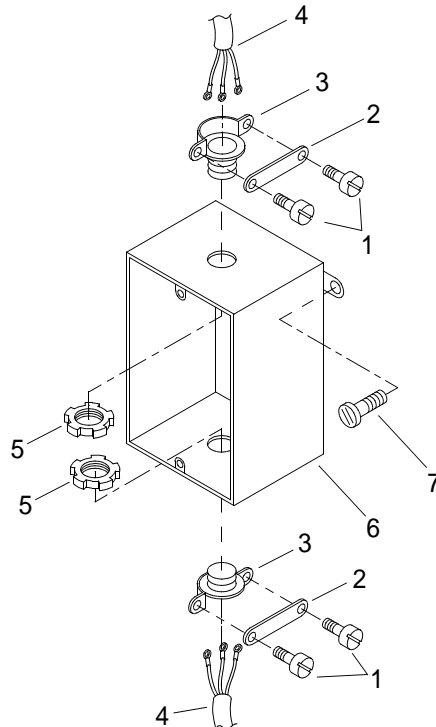
Equipment Condition

Personnel Shelter Hospital Grade Straight Blade Electrical Receptacle Removed. (WP 0130 00), or
Personnel Shelter Ground Fault Circuit Interrupter Receptacle Removed. (WP 0131 00)

REMOVE PERSONNEL SHELTER OUTLET BOX**NOTE**

The following procedure is typical for the removal and installation of both 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. 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 0131 00)
8. Install personnel shelter ground fault circuit interrupter receptacle. (WP 0131 00), or install personnel shelter hospital grade straight blade electrical receptacle. (WP 0130 00)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER ANTENNA
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

VHF/FM Transceiver Antenna
PN 21-200006

Personnel Required

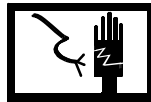
Seaman 88K

References

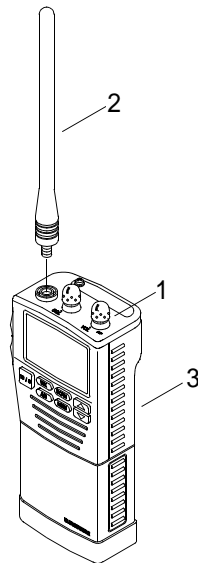
TM 55-1945-216-10

REMOVE VHF/FM HANDHELD TRANSCEIVER ANTENNA

WARNING

**ELECTRICAL**

1. Position VHF/FM handheld transceiver POWER/VOLUME knob (1) to off position.



2. Turn antenna (2) counterclockwise.
3. Remove antenna (2) from transceiver (3) and discard.

INSTALL VHF/FM HANDHELD TRANSCEIVER ANTENNA

1. Position new antenna (2) on transceiver (3).
2. Turn antenna (2) clockwise to tighten.
3. Perform operational check of VHF/FM handheld transceiver (3). (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
VHF/FM HANDHELD TRANSCEIVER CONTROL KNOB
REPLACEMENT**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)

Materials/Parts

VHF/FM Transceiver Control Knob
PN 210010

Personnel Required

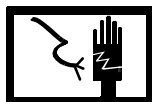
Engineer 88L

References

TM 55-1945-216-10

REMOVE VHF/FM HANDHELD TRANSCEIVER CONTROL KNOB

WARNING

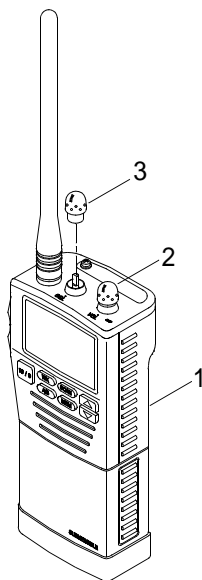


ELECTRICAL

NOTE

This procedure is typical for both knobs on the VHF/FM handheld transceiver.

1. On top of VHF/FM handheld transceiver (1), position POWER/VOLUME knob (2) to off position.



2. On the top of VHF/FM handheld transceiver (1), grasp knob (3) and pull straight up.

3. Remove knob (3) from VHF/FM transceiver (1).

INSTALL VHF/FM TRANSCEIVER CONTROL KNOB

1. Align transceiver control knob (3) with half-moon shaped control knob shaft on top of VHF/FM transceiver (1).
2. Gently insert knob (3) onto shaft until seated.
3. Perform operational check of VHF/FM handheld transceiver. (TM 55-1945-216-10)

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 (Item 33, WP 0149 00)

Materials/Parts

CNB350 Rechargeable Battery Pack
PN 21-200015

Personnel Required

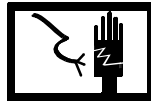
Engineer 88L

References

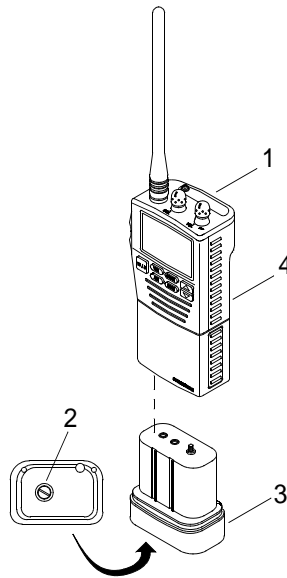
TM 55-1945-216-10

REMOVE VHF/FM HANDHELD TRANSCEIVER RECHARGEABLE BATTERY PACK

WARNING

**ELECTRICAL**

1. Position VHF/FM handheld transceiver POWER/VOLUME knob (1) to off position.



2. Loosen lock screw (2) by turning counterclockwise eight or nine complete turns.
3. Grasp the battery pack (3) and pull out from VHF/FM transceiver (4).

INSTALL VHF/FM HANDHELD TRANSCEIVER RECHARGEABLE BATTERY PACK**NOTE**

Battery pack can only be installed one way.

1. Align battery pack (3) with slots in battery cavity.
2. Slide battery pack (3) into battery cavity of VHF/FM transceiver (4) until fully inserted.
3. Tighten lock screw (2) by turning clockwise until snug.
4. Perform operational check of VHF/FM handheld transceiver. (TM 55-1945-216-10)

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 (Item 33, WP 0149 00)

Materials/Parts

Battery, Nonrechargeable
PN 20-0571-1988-NEDA 15A
Qty 6

Personnel Required

Engineer 88L

References

TM 55-1945-216-10

REMOVE VHF/FM HANDHELD TRANSCEIVER ALKALINE BATTERY PACK

WARNING



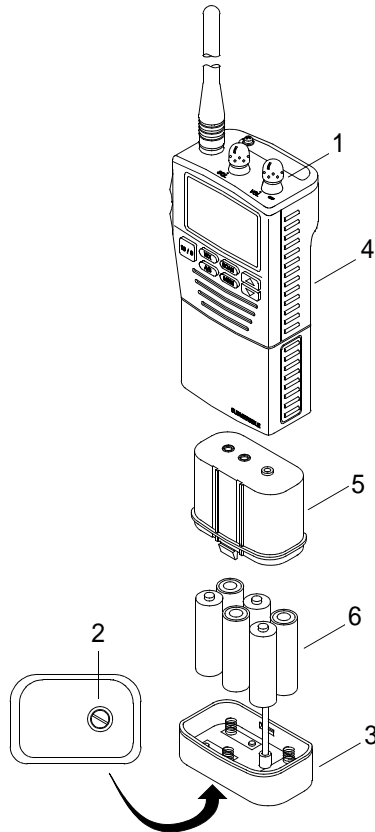
ELECTRICAL

NOTE

The following procedure is typical for the removal and installation of VHF/FM handheld transceiver alkaline batteries.

1. Position VHF/FM handheld transceiver POWER/VOLUME knob (1) to off position.

- Turn battery lock screw (2) counterclockwise eight or nine complete turns.



- Grasp the battery pack base (3) and pull out from transceiver (4).
- Squeeze sides of battery pack cover (5) and separate from battery pack base (3).
- Remove six batteries (6) from battery pack cover (5) and discard.

INSTALL VHF/FM HANDHELD TRANSCEIVER ALKALINE BATTERY PACK

- Install six new batteries (6) in battery pack cover (5).
- Press battery pack base (3) on battery pack cover (5).

NOTE

Assembled battery pack base and battery pack cover can only be inserted into transceiver cavity one way.

- Align battery pack base (3) and battery pack cover (5) with slots in transceiver (4) cavity. Slide assembled battery pack base (3) and cover (5) into cavity of transceiver (4).
- Turn the battery lock screw (2) clockwise until hand-tightened.
- Perform operational check on the handheld transceiver. (TM 55-1945-216-10)

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 (Item 33, WP 0149 00)

Materials/Parts

Battery Charger, Upright
PN HX350SAS1S1

Battery Charger, Rapid
PN CSA280

Personnel Required

Engineer 88L

Equipment Condition

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

REMOVE VHF/FM HANDHELD TRANSCEIVER BATTERY CHARGER

WARNING



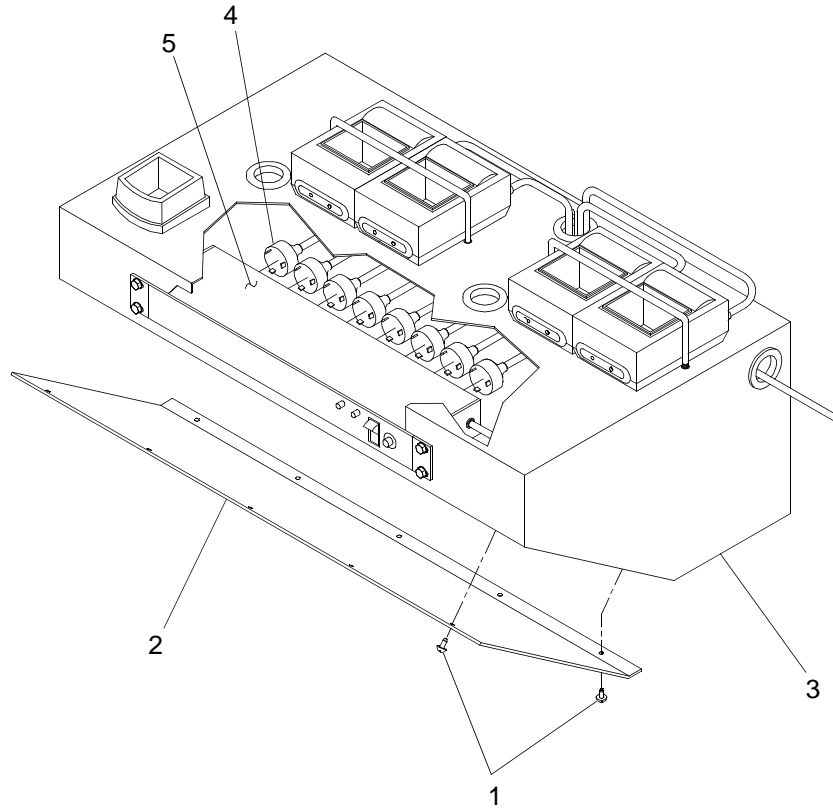
ELECTRICAL

Ensure generator power is secured using proper lock-out/tag-out procedure.

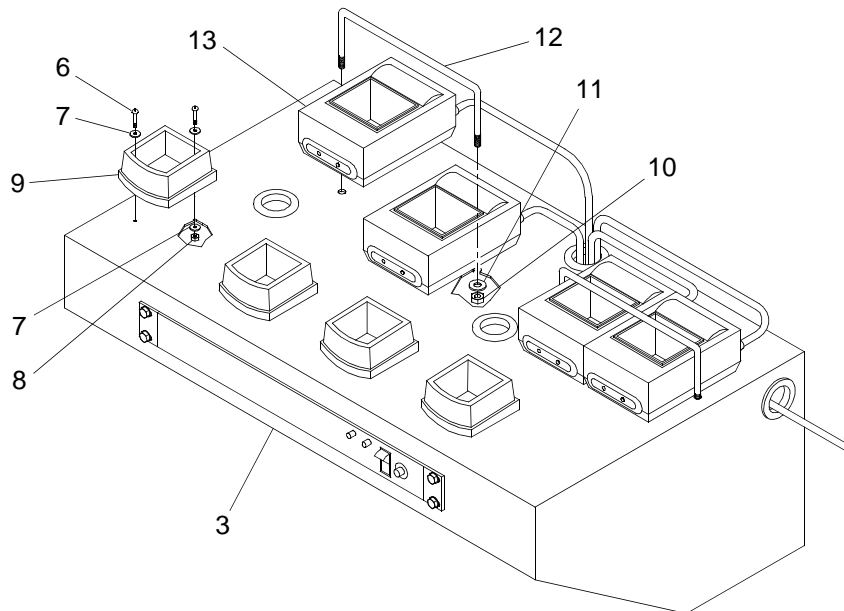
NOTE

The following procedure is typical for the removal and installation of VHF/FM handheld transceiver battery chargers.

1. Remove ten screws (1) retaining cover (2) to battery charger shelf (3).



2. Remove cover (2).
3. Disconnect battery charger electrical connectors (4) from back of power strip (5).
4. Remove two screws (6), four washers (7) and two locknuts (8) securing upright battery charger (9) to battery charger shelf (3).



-
5. Remove upright battery charger (9) and discard.
 6. Remove two locknuts (10), washers (11) and retainer (12).
 7. Remove rapid battery charger (13) and discard.

INSTALL VHF/FM HANDHELD TRANSCEIVER BATTERY CHARGER

1. Position new rapid battery charger (13) on the battery charger shelf (3).
2. Place retainer (12) over rapid battery charger (13) and secure with two washers (11) and locknuts (10). Tighten locknuts (10).
3. Position new upright battery charger (9) on the battery charger shelf (3).
4. Install two screws (6), four washers (7) and two locknuts (8). Tighten locknuts (8).
5. Position cover (2) on the battery charger shelf (3) and secure with ten screws (1).
6. Perform operational check on the battery chargers. (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
WARPING TUG
CORNER FENDER (LT & RT)
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
 Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
 Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
 Helmet, Safety (Brown) (Item 17, WP 0149 00)
 Life Preserver, Vest (Item 19, WP 0149 00)
 Gloves, Rubber, Industrial (Item 11, WP 0149 00)
 Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
 Apron, Utility (Item 1, WP 0149 00)

Materials/Parts

Cleaner, Type II (Item 6, WP 0148 00)
 Rag, Wiping (Item 17, WP 0148 00)

Personnel Required

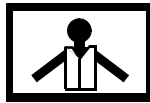
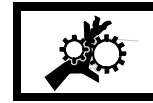
Engineer 88L

Equipment Condition

Corner Fender Removed. (TM 55-1945-216-10)

DISASSEMBLE CORNER FENDER

WARNING

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

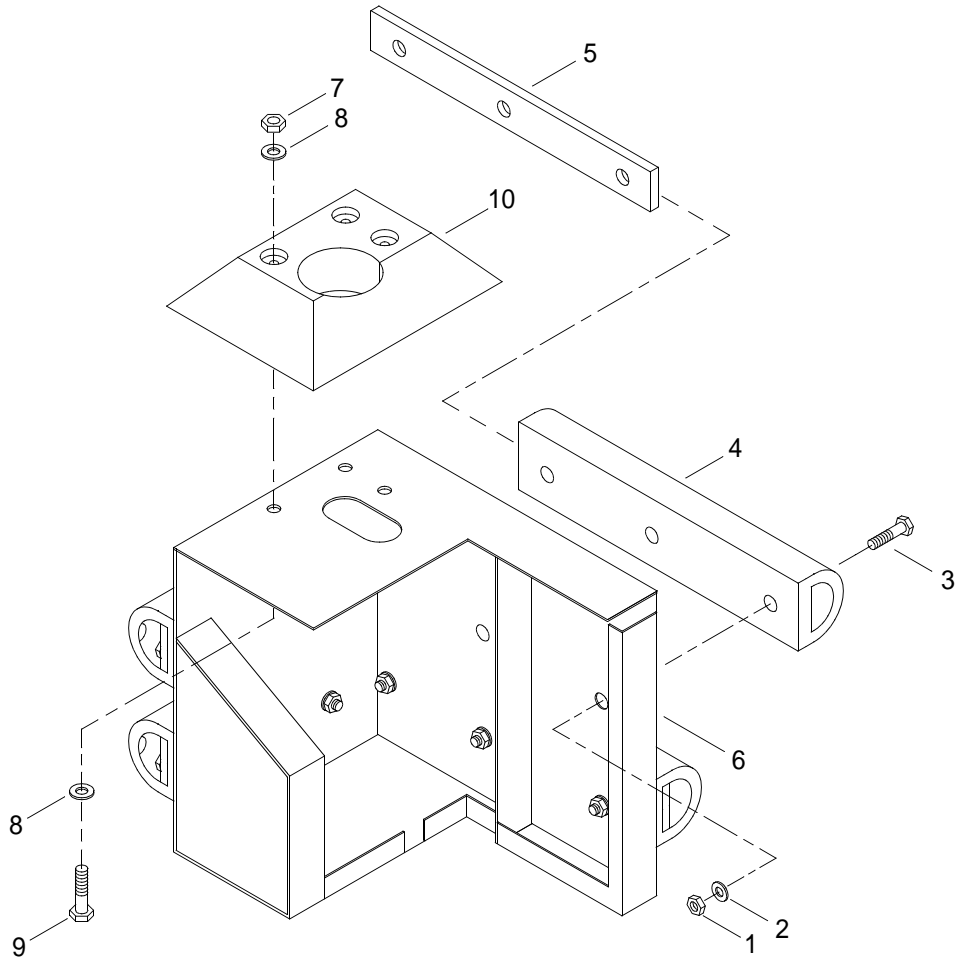
All personnel must wear a personal flotation device, hard hat, safety shoes and gloves during WT operations and maintenance. Failure to observe these precautions could result in serious injury or death to personnel.

NOTE

This task is typical for the removal, inspection, repair and installation of components on the corner fender.

Repair is limited to replacement of defective items.

1. Remove nuts (1), washers (2) and bolts (3) securing D-shaped rubber fender (4) and backing bar (5) to corner fender frame (6).



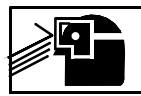
2. Remove D-shaped rubber fender (4) and backing bar (5) from corner fender frame (6).
3. Remove nuts (7), washers (8) and bolts (9) securing top sheet (10) to corner fender frame (6).
4. Remove top sheet (10) from corner fender frame (6).

CLEAN CORNER FENDER

WARNING



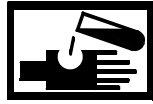
CHEMICAL



EYE PROTECTION

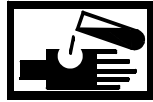
1. Using wiping rags soaked with cleaner, remove debris from all components.

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 CORNER FENDER

1. Inspect D-shaped rubber fender and top sheet for wear and tear. Replace as required.
2. Inspect corner fender frame for corrosion, rust, wear and tear or damage to nuts, bolts and washers. Replace as required.

ASSEMBLE CORNER FENDER

1. Position backing bar (5) inside D-shaped rubber fender (4).
2. Position D-shaped rubber fender (4) and backing bar (5) on corner fender frame (6).
3. Install nuts (1), washers (2) and bolts (3) to secure D-shaped rubber fender (4) and backing bar (5) to corner fender frame (6). Tighten nuts (1).
4. Position top sheet (10) on corner fender frame (6).
5. Install nuts (7), washers (8) and bolts (9) to secure top sheet (10) to corner fender frame (6). Tighten nuts (7).
6. Install corner fender. (TM 55-1945-216-10)

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
LIFE RING BUOY AND HANGER BRACKET ASSEMBLY
REPAIR**

INITIAL SETUP:**Tools**

Tool Kit, General Mechanic's (Item 33, WP 0149 00)
Goggles, Sun, Wind and Dust (Safety) (Item 15, WP 0149 00)
Gloves, Men's and Women's (Leather Palm) (Item 13, WP 0149 00)
Helmet, Safety (Brown) (Item 17, WP 0149 00)
Life Preserver, Vest (Item 19, WP 0149 00)
Gloves, Rubber, Industrial (Item 11, WP 0149 00)
Goggles, Industrial (Chipping, Chemical) (Item 14, WP 0149 00)
Apron, Utility (Item 1, WP 0149 00)
Brush, Wire Scratch (Item 3, WP 0149 00)

Materials/Parts

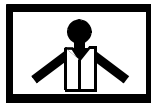
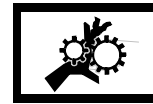
Cleaner, Type II (Item 6, WP 0148 00)
Rag, Wiping (Item 17, WP 0148 00)

Personnel Required

Engineer 88L

DISASSEMBLE LIFE RING BUOY AND HANGER BRACKET ASSEMBLY

WARNING

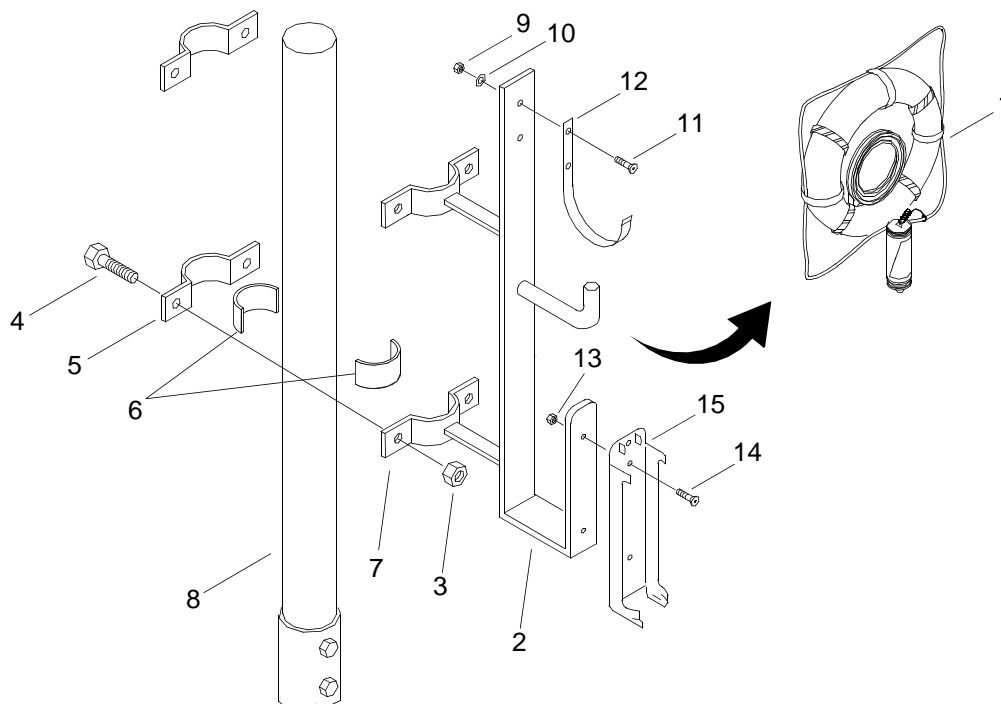
**VEST****HELMET PROTECTION****HEAVY PARTS****MOVING PARTS**

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 ring buoy with rope and strobe light (1) from hanger bracket assembly (2).



2. Remove nuts (3), hex head capscrews (4) outer clamp half (5) and rubber strips (6) securing inner clamp half (7) to stanchion (8).
3. Remove hanger bracket assembly (2) from stanchion (8).
4. Remove nuts (9), washers (10), capscrews (11) and ring buoy bracket (12) from hanger bracket assembly (2).
5. Remove nuts (13), capscrews (14) and strobe light bracket (15) from hanger bracket assembly (2).

CLEAN QUICK RELEASE AND MOORING ASSEMBLY

WARNING

**CHEMICAL****EYE PROTECTION**

1. Clean hanger bracket 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.

ASSEMBLE LIFE RING BUOY AND HANGER BRACKET ASSEMBLY

1. Install strobe light bracket (15), capscrews (14) and nuts (13) on new hanger bracket assembly (2). Tighten nuts (13).
2. Install ring buoy bracket (12), capscrews (11), washers (10) and nuts (9) on hanger bracket assembly (2). Tighten nuts (9).
3. Position hanger bracket assembly (2) inner clamp half (7) on stanchion (8).
4. Install outer clamp half (5), rubber strips (6), hex head capscrews (4) and nuts (3) to secure hanger bracket assembly inner clamp half (7) to stanchion (8). Tighten nuts (3).
5. Install ring buoy with rope and strobe light (1) on hanger bracket assembly (2).

END OF WORK PACKAGE

**UNIT LEVEL MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
WEIGHT LIFTING DEVICES
INSPECTION**

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

CHAIN SLINGS

WARNING

The existence of any of the following conditions will require that chain slings be immediately removed from service. Failure to observe these precautions could result in serious injury or death to personnel.

1. Inspect chain for excessive wear or stretch.
2. Inspect chain for bent or twisted links.
3. Inspect chain for defective welds.
4. Inspect chain for nicks and gouges.
5. Inspect all attaching shackles and hardware for corrosion, nicks, cuts, scratches or breaks.
6. Inspect hoist attachment or terminal ring for distortion.

ROPE (NATURAL AND SYNTHETIC)

WARNING

The existence of any of the following conditions will require that rope be immediately removed from service. Failure to observe these precautions could result in serious injury or death to personnel.

1. Inspect rope for abnormal wear.
2. Inspect rope for powdered fiber between strands.
3. Inspect rope for broken or cut fibers.
4. Inspect rope for variation in the size or roundness of strands.
5. Inspect rope for discoloration or rotting.

SYNTHETIC WEB SLINGS

WARNING

The existence of any of the following conditions will require that web slings be immediately removed from service. Failure to observe these precautions could result in serious injury or death to personnel.

1. Inspect web slings for marks or codes that show rated capacities and type of synthetic web material.
2. Inspect web slings for uniform thickness and width.
3. Inspect web slings for selvage edges splitting from webbings width.
4. Inspect web slings for snags, punctures, tears or cuts.
5. Inspect web slings for broken or worn stitches.
6. Inspect web slings for distortion of fittings.
7. Inspect web sling fittings for sharp edges that could damage webbing.
8. Inspect web sling surface for evidence of melting, charring from acid or burns.

HOOKS AND SHACKLES

WARNING

The existence of any of the following conditions will require that hooks and/or shackles be immediately removed from service. Failure to observe these precautions could result in serious injury or death to personnel.

1. Inspect hooks and shackles for proper position and function of safety closure latch.
2. Inspect hooks and shackles for cracks or corrosion.
3. Inspect hooks and shackles for a throat opening of more than fifteen percent original dimensions.
4. Inspect hooks and shackles for wear exceeding ten percent of original dimensions.
5. Inspect hooks for more than a 10° twist from plane of unbent hook.
6. Inspect shackle pin for cracks, corrosion or excessive wear.

NOTE

New hooks should have all paint removed prior to being placed in service.

7. Inspect hooks for paint that covers small stress cracks from metal fatigue.

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

TEST 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, 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:

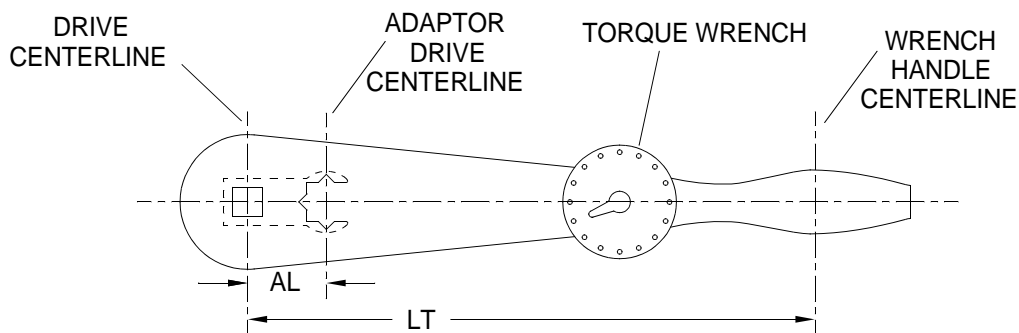
DT = Desired Torque

LT = Length of Torque Wrench

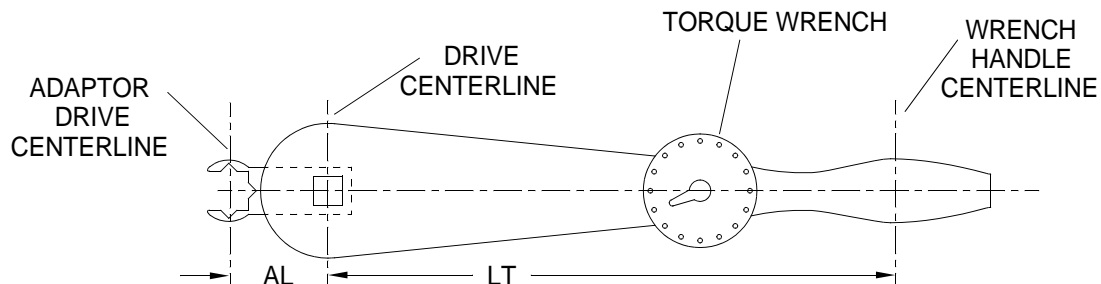
AL = Adaptor Length

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:

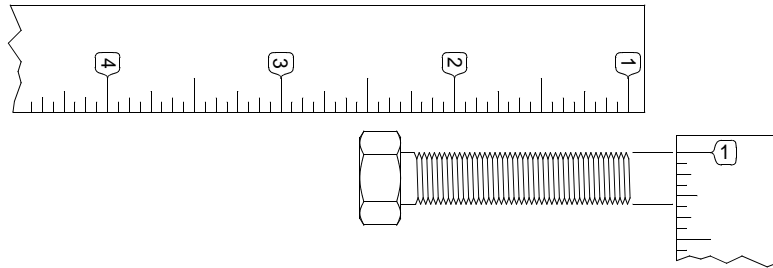


- a. Multiply DT by LT.
- b. Add AL and LT.
- c. Divide the first answer by the second answer to find AT.

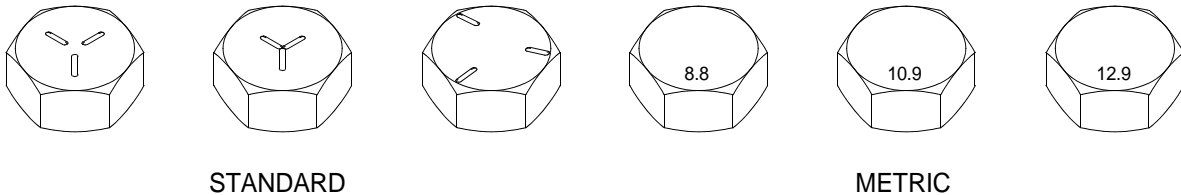
TORQUE TABLES

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 4. 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 5. 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 6. Metric Standard Torque Table.

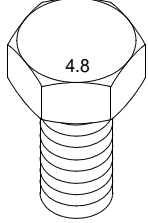
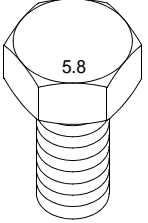
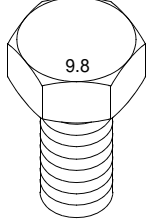
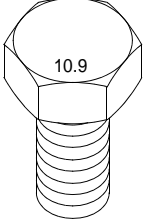
		CLASS 4.6				CLASS 4.8				CLASS 5.8			
		4.6											
		DRY		WET		DRY		WET		DRY		WET	
DIA MM	THREAD PITCH	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS	N-m	IN. LBS
3.0	0.5	.50	4	.40	4	.70	6	.50	4	-	-	-	-
3.5	0.6	.80	7	.60	5	1.10	10	.80	7	-	-	-	-
4.0	0.7	1.20	11	.90	8	1.60	14	1.20	11	-	-	-	-
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 7. Metric Standard Torque Table.

		CLASS 8.8				CLASS 9.8				CLASS 10.9			
		8.8											
		DRY		WET		DRY		WET		DRY		WET	
DIA MM	THREAD PITCH	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.

CHAPTER 4

**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 Functional Users Manual for 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 2404 Equipment Inspection and Maintenance Worksheet

SF 361 Transportation Discrepancy Report

SF 368 Product Quality Deficiency Report

MISCELLANEOUS

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-10 Steel Structures Painting Council, SP-10 Near-White Blast Cleaning

SUPPLY CATALOG

SC 4910-95-A68	Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Wheeled Vehicles, Post, Camp and Station, Set C, Less Power
SC 4910-95-A72	Shop Equipment, Automotive Maintenance and Repair, Organizational Maintenance, Common No. 2
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 4920-99-A68	Shop Set, Sheet Metal
SC 4940-95-A18	Tool Kit, Glass Cut, Vehicle Repair
SC 4940-95-A52	Shop Equipment, Mechanical, Maintenance, Shelter Mounted
SC 4940-95-A64	Shop Equipment, Welding, Shelter Mounted
SC 5180-92-S01	Battery Control Center, Vehicle Mounted, Organizational Maintenance
SC 5180-95-N26	Shop Equipment, General Mechanic's Automotive

TECHNICAL MANUALS

TM 5-2815-258-24	Unit, Direct Support and General Maintenance Manual for Detroit Diesel Engine Series 53
TM 5-805-7	Welding: Design, Procedures and Inspection, for Minor Weld Repairs
TM 9-6115-642-10	Generator Set (10 kW), Skid Mounted, Tactical Quiet
TM 9-6140-200-14	Unit, Direct and General Support Maintenance Manual for Lead-Acid Storage Batteries
TM 11-5820-890-10-8	SINCGARS Operators Manual
TM 11-5825-291-13	Operations and Maintenance Manual, Satellite Signals Navigations Sets
TM 55-1945-216-10	Operators Manual for the Modular Causeway System, Roll-On/Roll-Off Discharge Facility
TM 55-1945-216-24P	Unit, Direct Support and General Support Maintenance Repair parts and Special Tools List for the Modular Causeway System, Roll-On/Roll-Off Discharge Facility
TM 55-1945-217-14&P	Operator, Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for the Light Tower
TM 55-1945-218-14&P	Operator, Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for the Light Tower Engine

TECHNICAL MANUALS (CONTINUED)

TM 55-1945-219-14&P	Operator, Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for Incinerator Toilet
TM 55-1945-220-14&P	Operator, Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for the Package Terminal Air Conditioner and Heat Pump
TM 55-1945-221-14&P	Operator, Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for the Outboard Motor for the Rigid Hull Inflatable Boat (RHIB)
TM 55-1945-224-14&P	Operator, Unit, Direct Support and General Support Maintenance Manual (Including Repair Parts and Special Tools List) for the Rigid Hull Inflatable Boat (RHIB)
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 maintenance 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 and capabilities 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) 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) contain supplemental instructions and explanatory notes for a particular maintenance function.

Maintenance Functions

Maintenance functions are limited to and defined as follows:

6. 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 gaging, and evaluation of cannon tubes.
7. 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.
8. Service. Operations required periodically to keep an item in proper operating condition; 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.
9. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
10. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

11. 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.
12. 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.
13. 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.
14. 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.

15. 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.
16. 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 figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

- C — Operator or crew maintenance
- O — Unit maintenance
- F — Direct support maintenance
- L — Specialized Repair Activity (SRA)
- H — General support maintenance
- D — Depot maintenance

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the "H" column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) — Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) — Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) — Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) — Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) — Nomenclature. Name or identification of the tool or test equipment.

Column (4) — National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) — Tool Number. The manufacturer's part number, model number, or type number.

Explanation of the Columns in the Remarks

Column (1) — Remarks Code. The code recorded in column (6) of the MAC.

Column (2) — Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

**UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE
ROLL-ON/ROLL-OFF DISCHARGE FACILITY
MAINTENANCE ALLOCATION CHART**

MAINTENANCE ALLOCATION CHART

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF)

(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	Inspect	1.0					P	
		Service		1.5			5		
		Repair		4.0		20.0	1, 3, 4, 6	A, B	
020101	NON-POWERED MODULE EXTERIOR	Inspect	1.0					P	
		Test		6.0			1, 3, 4, 6		
		Service		1.5			5		
		Repair		4.0		20.0	1, 3, 4, 6	A, B	
		Overhaul						C, D	
02010101	GUILLOTINE	Inspect	0.5	48.0				P	
		Service	1.5	1.5			4	P	
		Adjust		1.0					
		Replace		1.0			4		
		Repair		3.0			4		

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
02010102	CONNECTOR	Inspect	0.5						P
		Replace		1.0					
02010103	SPRING PIN	Inspect	0.5						P
		Service	1.5						P
		Replace		1.0				4	
02010104	LOCK PLATE	Inspect	0.5						P
		Replace		1.0				4	
02010105	D-RING MOORING ASSEMBLY	Inspect	0.5						P
		Replace	1.0					4	
02010106	FLEXOR CONNECTOR ASSEMBLY	Inspect	1.0						P
		Replace	1.0						
		Repair				30.0			C, D
02010107	CLEAT MOORING ASSEMBLY	Inspect	0.5						P
		Replace	1.0					4	
0202	BEACH SEA END SECTION	Inspect	1.0						P
		Service		1.5				5	
		Repair		4.0		20.0		1, 3, 4, 6	A, B

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020201	NON-POWERED MODULES EXTERIOR	Inspect	1.0						P
		Test		6.0				1, 3, 4, 6	
		Service		1.5				5	
		Repair		4.0		20.0		1, 3, 4, 6	A, B
		Overhaul				20.0			C, D
02020101	GUILLOTINE	Inspect	0.5	48.0					P
		Service	1.5	1.5				5	P
		Adjust		1.0				4	
		Replace		1.0				4	
		Repair		3.0				4	
02020102	CONNECTOR	Inspect	0.5						P
		Replace		1.0				4	
02020103	SPRING PIN	Inspect	0.5						P
		Service	1.5	1.5					P
		Replace		1.0					
02020104	LOCK PLATE	Inspect	0.5						P
		Replace		1.0				4	
02020105	FLEXOR CONNECTOR ASSEMBLY	Inspect	1.0						P
		Replace	1.0						
		Repair				30.0			C, D
02020106	D-RING MOORING ASSEMBLY	Inspect	0.5						P
		Replace	1.0					4	

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020200107	CLEAT MOORING ASSEMBLY	Inspect	0.5						P
		Replace	1.0				4		
02020108	RHINO HORN ASSEMBLY	Inspect	0.5						P
		Replace	0.5				4		
0203	CONTAINERIZATION	Inspect	0.5						P
		Service	1.0						P
		Repair			4.0				B, D
020301	SHIP FENDERING (5 FT BY 10 FT)	Inspect	0.5						P
		Repair				20.0			C, D
02030101	40 FT OPEN TOP CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B, D
02030102	FENDER (5 FT BY 10 FT)	Inspect	0.5						P
		Repair				20.0			C, D
02030103	CORNER FENDER (LT & RT)	Inspect	0.2						
		Replace		0.3					
020302	SHIP FENDERING (4 FT BY 12 FT & 3 FT BY 5 FT)	Inspect	0.5						P
		Repair				20.0			C, D

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
02030201	40 FT OPEN TOP CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B, D
02030202	FENDER (4 FT BY 12 FT)	Inspect	2.0						P
		Repair				20.0			C, D
02030203	FENDER (3 FT BY 5 FT)	Inspect	1.0						P
		Repair				20.0			C, D
02030204	FENDER (6 FT BY 12 FT)	Inspect	0.5						P
		Repair				40.0			D
020303	LIGHTER FENDERING SYSTEM	Inspect	0.5						P
		Repair				20.0			C, D
02030301	40 FT OPEN TOP CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B, D
02030302	FENDERS (3 FT BY 5 FT)	Inspect	1.0						P
		Repair				20.0			C, D
020304	LIGHTING SYSTEM	Inspect	0.5						P
		Repair			4.0			4	C, D

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
02030401	20 FT END OPEN CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B, D
02030402	TURNBUCKLE	Inspect	0.5						P
02030403	LIGHT TOWER	Service	0.5						P
		Replace		1.0				4	
		Repair			1.0	30.0		4	C, D
0203040301	ELECTRICAL SYSTEM	Inspect			0.5				P
		Test			1.0			1, 4	E
		Repair			6.0			1, 4	E
020304030101	BATTERIES	Inspect	0.5						P
		Test		1.0				1	F
		Replace		2.0				4, 7	E
020304030102	OIL PRESSURE UNIT	Test			1.0			1	E, G
		Replace			1.5			4	E, G
		Repair			1.0			4	E, G
020304030103	STARTING CIRCUIT	Replace			3.0			4	E, G
		Repair			2.0				E, G
020304030104	ENGINE TEMPERATURE UNIT	Test			1.0			1	E, G
		Replace			2.5			4	E, G
		Repair			2.0			4	E, G

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020304030105	HOURMETER UNIT	Replace			2.0			4	E
		Repair			1.5			4	E
020304030106	SHUTDOWN CIRCUIT	Replace			4.0			4	E, G
		Repair			2.0			4	E, G
020304030107	LAMP SYSTEM	Test			1.0			1	E
		Replace			6.0			4	E
		Repair			2.0			4	E
020304030108	LAMP BALLAST SYSTEM	Test			0.5			1	E
		Replace			3.0			4	E
		Repair			2.0			4	E
0203040302	GENERATOR	Inspect		2.0					E
		Service		2.0					E
		Replace			2.0			4	E
		Repair				10.0			C
020304030201	CONTROL PANEL	Inspect	1.0						P
		Replace			4.5			4	E
		Repair			3.0			4	E
0203040303	DIESEL ENGINE	Inspect	1.0						P
		Service	2.0					29, 30	P
		Adjust		2.0				4, 31	E
		Replace			16.0			4	E
		Overhaul				16.0			C, D

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020304030301	ENGINE FUEL SYSTEM	Inspect	1.0					32	P
		Replace			8.0			4	G
		Repair		4.0				4	G
02030403030101	FUEL PUMP	Inspect	1.0						P
		Replace			5.0			4	G
		Repair				4.0		4	G
02030403030102	FUEL TANK	Inspect	1.0						P
		Service	2.0						P
		Replace		2.0				4	E
		Repair		2.0				4	E
020304030302	ENGINE AIR SYSTEM	Inspect	1.0						P
		Replace		4.0				4	G
		Repair		2.0				4	G
020304030303	ENGINE COOLING SYSTEM	Inspect	1.0	1.0				33	P
		Replace				5.0		4	F, G
		Repair		3.0				4	F, G
02030403030301	FAN ASSEMBLY	Inspect	0.5						P
		Replace		2.0				4	G
		Repair		1.5					G
02030403030302	COOLING WATER PUMP	Inspect	1.0						P
		Replace		5.0				4	G
		Repair		4.0				4	G

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
02030403030303	RADIATOR	Inspect	1.0						P
		Service	1.0	4.0					P
		Replace			3.0			4	E
		Repair				4.0		4	E
02030403030304	COOLING SYSTEM HOSES	Inspect	.05						P
		Replace		1.0				4	E, G
020304030304	ENGINE ELECTRICAL SYSTEM	Inspect	0.5						P
		Replace		0.5				4	G
		Repair			2.0				G
02030403030401	ALTERNATOR	Inspect	0.5						P
		Test			2.0			1	G
		Replace		1.5				4	G
		Repair			5.0			4	G
02030403030402	STARTER	Inspect	0.5						P
		Test			2.0			1	G
		Replace		2.5				4	G
		Repair			5.0			4	G
020304030305	CYLINDER HEAD	Inspect		1.0					G
		Adjust				8.0		37, 38	C
		Repair				5.0			C
		Replace				4.0			C

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020304030306	ENGINE LUBRICATION SYSTEM	Test		0.5				1, 34, 39	G
		Repair		1.0					G
020304030307	VIBRATION DAMPER	Replace				4.0			C
020304030308	EXHAUST SYSTEM	Inspect	1.0						P
		Service		1.5				4	E, G
		Replace		5.0				4	E, G
		Repair		3.0				4	E, G
020304030309	CRANKSHAFT	Inspect				4.0		34, 35, 36	C
		Repair				8.0		34, 35, 36	C
020304030310	PISTON	Inspect				4.0		35	C
		Replace				4.0		35	C
		Repair				4.0			C
0203040304	RUNNING GEAR	Service		2.0				4	E
		Replace			8.0			4	E
		Repair		2.0	2.0			4	H
0203040305	TIRES	Inspect	0.5						P
		Replace			3.0			4	E
		Repair			1.0			4	E
0203040306	SUPPORT TOWER	Inspect	0.5						P
		Service	1.0						P
		Replace			6.0			4	E
		Repair			2.0			4	E

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
0203040307	TOWER RAISING ASSEMBLY	Inspect	0.5						P
		Replace			3.0			4	E
		Repair			1.0			4	E
0203040308	ENCLOSURE	Inspect	0.5						P
		Replace			6.0			4	E
		Repair			2.0			4	E
020305	RHIB STOWAGE	Inspect	0.5						P
		Repair			4.0				B, D
02030501	20 FT FULL ACCESS CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B, D
02030502	RHIB W/CRADLE	Inspect	0.5						P
		Repair			4.0				D
0203050201	SHIFT CONTROL & THROTTLE	Inspect	1.0						P
		Replace			8.0			4	I
		Repair			4.0			4	I
0203050202	STEERING SYSTEM	Inspect	1.0						P
		Service	0.5						P
		Replace			3.0			4	I
		Repair				5.0		4	I
		Replace			3.0			4	I
0203050203	POWER TRIM/TILT ELECTRICAL	Replace			3.0			4	I
		Repair			3.0			4	I

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
0203050204	POWER TRIM/TILT HYDRAULIC	Inspect	0.5						P
		Service	0.5						P
		Replace				5.0		4	I
		Repair				5.0		4	I
0203050205	FUEL SYSTEM TANK & FILTER	Inspect	1.0						P
		Service	1.0						P
		Replace		1.0				4	I
		Repair		2.0				4	I
0203050206	FUEL HOSE AND PRIMER BULB	Replace	1.0					4	I
		Repair		2.0				4	I
0203050207	OIL SYSTEM TANK	Inspect	0.5						P
		Service	1.0						P
		Replace		2.0				4	I
0203050208	BATTERY	Inspect	0.5						P
		Test		1.0				1, 4	F
		Service	1.0						P
		Replace		1.0				4	I
020305020801	BATTERY CABLES	Inspect	0.5						P
		Replace		1.0				4	I
0203050209	CONTROL PANEL	Inspect			2.0				I
		Replace			6.0			4	I
		Repair			2.0			4	I

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
0203050210	BOAT HULL	Inspect	1.0						P
		Test		1.0					I
		Repair		1.0		20.0			D, I, J, K
0203050211	NAVIGATION SYSTEMS	Inspect	0.5						P
		Replace		2.0				4	I
0203050212	OUTBOARD ENGINE	Inspect	0.5						P
		Test		4.0				1, 16, 17, 18, 19, 20	L
		Service	1.0						P
		Replace		4.0				4, 13, 14, 15, 16	L
		Repair				12.0			C
		Rebuild				12.0			C, D
		020305021201	ENGINE COVER	Inspect	1.0				
		Replace		2.0			4	L	
020305021202	LOWER ENGINE COVER	Inspect	1.0						P
		Replace			8.0		4	L	
020305021203	ELECTRICAL STARTER	Replace		3.0			4, 21	L	
		Repair			2.0		4, 21	L	
020305021204	IGNITION	Replace				8.0		C	
		Repair				8.0		C	

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020305021205	INTAKE MANIFOLD	Inspect			1.0				L
		Replace			3.0			4	L
		Repair			3.0			4	L
020305021206	CARBURETOR	Adjust		1.0				4, 17, 22, 23	L
		Replace			3.0			4, 17, 22, 23	L
		Repair			3.0			4	L
020305021207	ELECTRIC PRIMER SYSTEM	Replace			2.0			4	L
		Repair			3.0			4, 25, 26	L
020305021208	FUEL/OIL PUMP	Replace			2.0			4	L
		Repair			2.0			4, 17, 22, 24, 26, 27, 28	L
020305021209	CRANKSHAFT & PISTON	Inspect				6.0			C
		Replace				8.0			C
		Repair				8.0			C
020305021210	CYLINDER & CRANKCASE	Inspect				6.0			C
		Replace				8.0			C
		Rebuild				16.0			C
020305021211	EXHAUST HOUSING	Inspect	1.0						P
		Replace			3.0			4	L
		Repair			3.0			4	L

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020305021212	GEARCASE	Inspect			3.0				L
		Replace				8.0			C
		Repair				8.0			C
02030502121201	BEARING HOUSING ASSEMBLY	Inspect				2.0			C
		Replace				3.0			C
		Repair				3.0			C
02030502121202	PROPELLER SHAFT ASSEMBLY	Inspect				2.0			C
		Replace				3.0			C
		Repair				4.0			C
02030502121203	IMPELLER ASSEMBLY	Inspect				4.0			C
		Replace				4.0			C
		Repair				4.0			C
02030502121204	WATER PUMP ASSEMBLY	Inspect				4.0			C
		Replace				4.0			C
		Repair				4.0			C
		Rebuild				8.0			C
0203050213	FIRE EXTINGUISHER	Replace	2.0						
020306	MOORING BITT STOWAGE	Inspect	0.5						P
		Repair			4.0				B, D

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
02030601	20 FT OPEN END CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B, D
02030602	MOORING BITT	Inspect	0.5						P
		Replace	1.0						
020307	DECK MAT STOWAGE	Inspect	0.5						P
		Repair			4.0				D
02030701	20 FT SIDE OPEN CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B
02030702	DECK MATTING	Inspect	0.5						P
		Replace	2.0						
020308	BASIC ISSUE ITEMS	Inspect	0.5						P
		Repair			4.0				D
02030801	20 FT END OPEN CONTAINER	Inspect	2.0						P
		Service	1.0						
		Repair			4.0				B, D
02030802	SAFETY EQUIPMENT LIFERING BOUY & STANCHION ASSEMBLY	Inspect	0.3						
		Repair		0.5					

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020309	GENERATOR CONTAINER	Inspect	0.5						P
		Repair			4.0				D
02030901	20 FT CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B, D
02030902	SHORE TIE HINGED PENETRATION COVER	Inspect	0.5						P
		Replace			2.0			1, 2, 8	
02030902	DOUBLE PANEL WATERTIGHT DOOR	Inspect	0.5						P
		Replace		1.5				4	
		Repair		1.0				4	
02030903	LIGHT FIXTURE (OVERHD LGHTS)	Inspect	0.5						P
		Test			1.0				
		Repair			1.0			4	
02030904	HAND OPERATED TRANSFER PUMP	Inspect	0.5						P
		Service	0.5						P
		Replace		0.5				4	
02030905	ELECTRICAL SYSTEM	Inspect	0.5						P
		Test			1.0			1	
		Repair	1.0		1.0			4	

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
02030906	FUEL INDICATOR ALARM PANEL	Inspect	0.5						P
		Test			1.0			1	
		Repair			1.0			4	
02030907	ROTARY SWITCH (OVERHD LGHTS)	Replace			1.0			4	
02030908	FUEL TANK	Inspect	1.0						P
		Service	1.0						P
		Repair			5.0			2, 4	B
02030909	DAMPER ASSEMBLIES	Inspect	0.5						P
		Replace		3.0				4	
0203090901	DAMPER	Inspect	1.0						P
		Service	1.0						P
		Replace		3.0				4	
0203090902	DAMPER ACTUATORS	Inspect	1.0						P
		Replace		2.0				4	
02030910	FIRE SUPPRESSION SYSTEM	Inspect	1.0						P
		Test	1.0						
		Replace				4.0			C
02030911	WEATHERTIGHT EXTERIOR DOOR	Replace			3.0			4	
0203091101	DOOR DOGS	Replace			1.0			4	
0203091102	DOOR SEAL	Inspect	0.5						
		Replace			1.0			4	

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
0203091103	DOOR WINDOW	Inspect	0.1						
		Replace			4.0			4	
02030912	DISCONNECT SWITCH	Replace		1.0				4, 9	
02030913	BATTERY CHARGER	Replace		1.0				4	
02030914	BATTERY BOX & BATTERY	Inspect	0.5						P
		Test		1.0				1	F
		Replace		2.0				4	
02030915	EMERGENCY STOP	Test	0.5						
		Replace		1.0				4	
02030916	DC LIGHTING W/TIMER	Inspect	0.5						P
		Test		0.5				1	
		Replace		1.0				4	
02030917	10 KW GENERATOR SET								M
020310	EASY ANCHOR SYSTEM	Inspect	2.0						P
		Service		1.0					P
		Repair			4.0			2, 4, 12	
		Replace			6.0			4, 10, 11	
02031001	FULL ACCESS CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0			4	B

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
020311	PERSONNEL SHELTER	Inspect	1.0						P
		Repair			4.0			4	D
02031101	ISO CONTAINER	Inspect	2.0						P
		Service	1.0						P
		Repair			4.0				B, D
02031102	WEATHERTIGHT EXTERIOR DOOR	Replace			3.0			4	
0203110201	DOOR DOGS	Replace			1.0			4	
0203110202	DOOR SEAL	Inspect	0.5						P
		Replace			1.0			4	
0203110203	DOOR WINDOW	Inspect	0.1						
		Replace			4.0			4	
02031103	INCINERATOR TOILET	Inspect	0.5						P, N
		Replace			2.0			4	
		Repair			2.0			4	
0203110301	INCINERATOR EXHAUST	Replace			1.0			4	
02031104	VENTILATOR	Inspect	0.5						P
		Service		0.5					
		Replace		1.0				4	
02031105	ELECTRICAL DISTRIBUTION PANEL	Inspect	0.5						P
		Replace		1.0				4	
		Repair		1.0				4	

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
0203110501	CIRCUIT BREAKERS	Inspect	0.5						P
		Replace		1.0				4	
02031106	LIGHT FIXTURE (OVERHEAD)	Inspect	0.5						P
		Repair		1.0					
0203110601	LIGHT BULB	Replace	0.5						
02031107	ROTARY SWITCH	Inspect	0.5					4	P
		Replace		1.0				4	
02031108	LIGHT FIXTURE (HEAD)	Inspect	0.5						P
		Repair		1.0					
0203110801	LIGHT BULB	Replace	0.5						
02031109	ROTARY SWITCH	Inspect	0.5						P
		Replace		1.0				4	
02031110	HEAT PUMP THERMOSTAT	Inspect	0.5						P
		Replace			2.0			4	O
02031111	INCINERATOR JUNCTION BOX	Inspect	0.5						P
		Repair			2.0			4	
02031112	AC/HEAT PUMP	Inspect	0.5						P
		Replace		1.0				4	O
		Repair			2.0			1, 4	O
02031113	WATERTIGHT SCUTTLE	Inspect	0.5						P
0203111301	SCUTTLE SEAL	Inspect	0.5						P
		Replace			1.0			4	

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
02031114	INTERIOR DOOR	Replace			3.0			4	
0203111401	LOCKSET	Replace			1.0			4	
02031115	HAND HELD LANTERN	Inspect	0.5						P
		Repair		0.5				4	
		Replace		0.5				4	
0203111501	LANTERN MOUNTING BRACKET	Replace		0.5				4	
02031116	ELECTRICAL RECEPTACLE	Inspect	0.5						P
		Replace		1.0				4	
02031117	GFCI RECEPTACLE	Inspect	0.5						P
		Replace		1.0				4	
02031118	OUTLET BOX	Inspect	0.5						P
		Replace		1.0				4	
02031119	VHF/FM HANDHELD TRANSCEIVER	Inspect	1.0						P
		Replace		1.0					
0203111901	ANTENNA	Replace		1.0					
0203111902	CONTROL KNOBS	Replace		1.0					
0203111903	RECHARGEABLE BATTERY PACK	Inspect	0.5						P
		Replace		1.0					
020311190301	ALKALINE BATTERY PACK	Replace	0.5						

Table 1. Maintenance Allocation Chart (MAC) for Roll-On/Roll-Off Discharge Facility (RRDF) (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		
0203111904	BATTERY CHARGER	Inspect	0.5					4	P
		Replace		1.0					

Table 2. Remarks for Roll-On/Roll-Off Discharge Facility (RRDF).

REMARKS CODE	REMARKS
A	Repair limited to guillotines, connectors, spring pins, locking plates and minor weld repairs.
B	Refer to TM 5-805-7, Welding: Design, Procedures and Inspection, for minor weld repairs.
C	Repair at Specialized Repair Activity (SRA)
D	Disposition at Specialized Repair Activity (SRA)
E	Refer to Commercial Off the Shelf (COTS) Manual for Light Tower (TM 55-1945-217-14&P)
F	Refer to Unit, Direct and General Support Maintenance Manual for Lead-Acid Storage Batteries (TM 9-6140-200-14)
G	Refer to Commercial Off the Shelf (COTS) Manual for Light Tower Engine (TM 55-1945-218-14&P)
H	Organizational Repair Limited to Replacement of Wheel and Tire Assembly, Grease Seals and Greasing of Wheel Bearings
I	Refer to Commercial Off the Shelf (COTS) Manual for Rigid Hull Inflatable Boat (RHIB) (TM 55-1945-224-14&P)
J	Organizational repair limited to inflatable collar.
K	Direct Support repair limited to Type-1 thru Type-3 hull repairs.
L	Refer to Commercial Off the Shelf (COTS) Manual for Rigid Hull Inflatable Boat (RHIB) Outboard Motor (TM 55-1945-221-14&P)
M	Refer to 10 kW Generator Technical Manual (TM 9-6115-642-10)
N	Refer to Commercial Off the Shelf (COTS) Incinolet Manual (TM 55-1945-219-14&P)
O	Refer to Commercial Off the Shelf (COTS) Packaged Terminal Air Conditioner and Heat Pump Manual (TM 55-1945-220-14&P)
P	Limited to Preventative Maintenance Checks and Services (PMCS)

Table 3. Tools and Test Equipment for Roll-On/Roll-Off Discharge Facility (RRDF).

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	O	Shop Equipment, Automotive Maintenance and Repair, Field Maintenance, Wheeled Vehicles, Post, Camp and Station, Set C, Less Power	4910-00-348-7698	SC 4910-95-A68
2	O	Shop Equipment, Automotive Maintenance and Repair, Organizational Maintenance, Common No. 2	4910-00-754-0650	SC 4910-95-A72
3	O	Shop Equipment, Welding, Shelter Mounted	4940-00-290-6240	SC 4940-95-A64
4	O	Shop Equipment, General Mechanic's Automotive	5180-00-177-7033	SC 5180-95-N26
5	O	Cleaner, Power Washer	4940-01-457-6854	PC4-20321
6	O	Test Set, Compartment Air	6685-00-327-2957	805-1749233
7	O	Brush, Battery Terminal	5120-00-926-5175	AGH3024
8	F	Drill, Electric, Portable, 115 Volt	5130-00-477-0206	358
9	O	Puller, Fuse	5120-00-224-9453	34-001
10	O	Sling, Lifting, 5,300 lb		EN60X4FT
11	O	Shackle, 1/2 in., 2 ton		1019472
12	O	Shackle, 3/4 in., 4.75 ton	4030-00-343-5433	1019515
13	O	Universal Puller Kit	5120-00-110-4564	378103
14	O	Lifting Eye- 40-55		321537
15	O	Temperature Gun		772018
16	O	Test Propeller	2010-01-370-4936	386665
17	O	Float Gauge	5120-01-218-4342	324891
18	O	Piston Stop	5120-00-343-0139	384887
19	O	Starter Rope, Threading Tool	2805-00-243-9534	378774
20	O	Starter Spring Winder and Installer	5360-01-150-1063	392093
21	O	Pliers, Retaining Ring	5120-00-924-5600	

Table 3. Tools and Test Equipment for Roll-On/Roll-Off Discharge Facility (RRDF). (Continued)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
22	O	Orifice Plug Screwdriver	5120-00-341-6198	317002
23	O	Tie Strap Installation Tool	5120-01-258-7589	323716
24	O	Nipple Cleaning Tool	5120-01-234-6637	326623
25	F	Electric Fuel Primer	2910-01-465-2595	174651
26	F	Hose Clamp Wrench	5120-01-258-7595	325043
27	F	Manual Filter Primer Assembly	2910-00-126-3679	398540
28	F	Cap Holder		329661
29	O	Compression Tester	4910-01-131-7773	99-800
30	O	Diesel Engine Compression Tester	5120-01-177-9313	C-400
31	O	Mechanical Puller Set	5120-01-486-5065	07916-09032
32	O	Nozzle Tester		07909-31361
33	O	Radiator Tester		07909-31551
34	O	Press Gage		07909-30241
35	H	Connecting Rod Alignment Tool	5120-01-479-5832	07909-31661
36	H	Flywheel Puller		07916-32011
37	O	Red Check (Crack Check Liquid)		07909-31371
38	O	Valve Seat Cutter Set		07909-33102
39	O	Oil Pressure Tester		07916-32031

**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 0127 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 4. Expendable and Durable Items List. (EDIL)**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC AND PART NUMBER	(5) U/M
1	O	8040-01-250-3969	Adhesive, general purpose, medium strength, threadlocker (05972) 242	EA
2	O	8030-00-251-3980	Antiseize Compound, 1 lb. can thread compound (81349) MIL-A-907	QT
3	O	8030-01-044-5034	Antiseize Compound, MIL-T-5544C graphite and petroleum, one pound can for use on threaded fasteners and fittings (6X798) MIL-T-5544	CN
4	O	5510-01-470-5122	Block, Shoring, (6 in. X 6 in. X 30 in.) (0F6V7) 551-032-001	EA
5	O	8020-00-200-3487	Brush, Paint, 4 in. nominal (80244) PD 8020-00-245-4517	EA
6	O	6850-01-431-9025	Cleaner, Type II, 50 lb container (81349) MIL-C-29602	CO

Table 4. Expendable and Durable Items List. (EDIL) (Continued)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC AND PART NUMBER	(5) U/M
7	O	7920-00-044-9281	Cloth, Cleaning, contains 10 lbs, white, 12 in. X 16 in. (58536) A-A-59323	BX
8	F	5345-01-122-1127	Disk, Abrasive, (for pneumatic high speed grinder) 240 grit (28124) 01102	PKG
9	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
10	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
11	O	9150-00-935-9807	Hydraulic Fluid, Petroleum Base, MIL-H-6083 77988 AVERX904	QT
12	O	5510-00-220-6178	Lumber, Softwood, Dimension, (2 in. X 4 in. X 8 ft min) (81348) MM-L-751	BF
13	O	5510-00-220-6146	Lumber, Softwood, Dimension, (4 in. X 4 in. X 6 ft) (81348) MM-L-751	BF
14	O		Paint, Sherwin Williams Zinc-Clad XI	GAL
15	O		Paint, Sherwin Williams Dura Skid 460	GAL
16	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
17	O	7920-00-205-1711	Rag, Wiping, cotton, contains 50 lbs, mixed colors (80244) 7920-00-205-1711	BE
18	O		Reducer, R7K15	
19	O	5320-01-033-8180	Rivet, Blind (Pop rivet) (0.25 in. diameter) CR3243-6-6 (11815)	BX
20	O	8020-00-597-4759	Roller Kit, Paint, consists of paint tray and roller (81348) H-R-550	KT
21	O	4235-01-416-8465	Spill Clean-Up Kit, Hazardous Material, sorbent pads with disposal bags used for petroleum spills (50378) P-SKFL31	KT

Table 4. Expendable and Durable Items List. (EDIL) (Continued)

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC AND PART NUMBER	(5) U/M
22	O	7920-00-057-2087	Sponge, rectangular sponge 6 in. X 4 in. X 2 in. (18873) 8AF	EA
23	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
24	O	7510-00-266-6710	Tape, Pressure Sensitive Adhesive, 60 yard roll (81346) ASTM D-6123	RL
25	O	4020-00-231-5886	Twine, Fibrous, 32 lb breaking force, W-P-121, Type I, Grade A wax coating, 1800 ft per roll (80063) SCD28054B	EA
26	F	5510-00-268-3476	Wedge, Wood, butt thickness 1.5 in. taped to feathered edge X 3 in. wide (80064) S8800-461043	EA
27	O	6505-01-053-2634	Sodium Bicarbonate Injection USP, baking soda (32288) NCD00517-0639-25	BX
28	O	7930-00-279-7089	Detergent, General Purpose, Liquid, 1 quart plastic bottle, Liqui-Nox, used on glassware, plastics and metals (17534) LIQUI-NOX	QT

**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 0128 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 5. Tool Identification List. (TIL)**

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
1	Apron, utility	8415-00-082-6108	A-A-55063 (64067)	SC 4910-95-A68
2	Brush, stencil (soft bristle)	7520-00-223-8000	A-A2903 (58536)	SC 4910-95-A72
3	Brush, wire scratch	7920-00-291-5815	7920002915815 (83421)	SC 4910-95-A72
4	Cleaner, power washer	4940-01-457-6854	PC4-20321 (56077)	
5	Compressor, unit, reciprocating, power drive	4310-00-861-9820	MILC13874 (81349)	SC 4940-95-A64
6	Crowbar	5120-00-224-1390	10501985 (56161)	
7	Dispensing pump, hand driven	4930-00-287-8293	FEDXXD370 (08915)	SC 4910-95-A72

Table 5. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
8	Drill set, twist	5133-00-293-0983	DB129B (55719)	SC 4910-95-A72
9	Drill, electric, portable, 115 volt	5130-00-477-0206	358 (89700)	
10	Forklift adapter		MCS-673-99-001-167 (06101)	SC 4910-95-A68
11	Gloves, rubber, industrial	8415-00-266-8677	MIL-DTL-32066 (81349)	SC 4910-95-A68
12	Gloves, electrical	8415-00-266-8691	ZZ-G-401 (81348)	
13	Gloves, men's and women's (leather palm)	8415-00-634-4658	37G2940 (90142)	SC 4940-95-A18
14	Goggles, industrial (chipping, chemical)	4240-00-190-6432	A-A-1110 (58536)	SC 4910-95-A72
15	Goggles, sun, wind and dust (safety)	8465-01-004-2893	MIL-G-43914 (81349)	
16	Hammer, hand (10 lb sledge)	5120-00-243-2957	75H-01116 (66080)	SC 4940-95-A52
17	Helmet, safety (brown)	8415-00-935-3135	ISEA/ANSI Z89-1 (80204)	
18	Hose assembly, nonmetallic	4720-00-203-3912	A-A-59270 (58536)	SC 4910-95-A68
19	Life preserver, vest	4220-00-276-8926	MIL-L-17653 (81349)	
20	Multimeter	6625-01-265-6000	27/FM W/ACCE (89536)	SC 4910-95-A68
21	Pan, drain	4910-00-287-2944	MILP45819 (81349)	SC 4910-95-A68
22	Pliers, retaining ring, flat jaw	5120-00-596-1106	12Z11027-3 (10001)	SC 4910-95-A68
23	Puller, fuse	5120-00-224-9453	34-001 (30119)	SC 5180-92-S01
24	Respirator, air filtering	4240-00-883-6519	85556 (55799)	
25	Riveter kit, blind, hand	5180-01-201-4978	D-100-MIL-1 (64878)	SC 4910-95-A72
26	Scraper, ship	5110-00-224-9929	PD 5110-00-224-9929 (80244)	
27	Shackle, ½ in. 2 ton		1019472 (75535)	
28	Shackle, ¾ in. 4.75 ton	4030-00-343-5433	1019515 (75535)	
29	Sling, lifting, 5,300 lb (green)		EN60X4FT (3AJ34)	

Table 5. Tool Identification List. (TIL) (Continued)

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER/ CAGEC	(5) REFERENCE
30	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. connecting link	4010-01-477-8666 2040-01-442-4055	1014342 (75535) 273563 (75535) 1027695 (75535) 1014723 (75535)	
31	Sling, lifting, 53,000 lb (brown)		EN600X25FT (3AJ34)	
32	Test set, compartment air	6685-00-327-2957	805-1749233 (80064)	
33	Tool kit, general mechanic's	5180-00-177-7033	SC5180-90-CL-N26 (50980)	SC 5180-95-N26
34	Wrench, pipe (24 in)	5120-00-277-1462	TKCX1D (19204)	
35	Wrench set, socket	5120-00-204-1999	B107.1 (05047)	SC 4910-95-A68

INDEX

<u>Subject</u>	<u>WP Sequence No. – Page No.</u>
A	
Air Conditioner and Heat Pump Malfunctions, Troubleshooting Procedures	0012 00-1
Anchor Light Incandescent Bulb, Replacement	0046 00-1
B	
BII Flexor Receiver Insert	
Lifting Device Assembly, Repair	0049 00-1
Repair	0048 00-1
C	
Combination Beach/Sea End Section	
Flexor Well	
Chute Bolt Cover, Replacement	0041 00-1
Chute Bolt, Replacement	0042 00-1
Flexor, Replacement	0040 00-1
Combination Beach/Sea End Section Non-Powered Modules	
Cleaning and Painting	0038 00-1
Drain Water	0035 00-1
Male and Female Guillotine Connectors, Repair, Lubrication and Adjustment	0039 00-1
Marine Growth Removal	0037 00-1
Pressure Test	0036 00-1
Corner Fender	
Repair	0138 00-1
E	
EASY	
Container Anchor Drawer Will Not Deploy, Troubleshooting Procedures	0023 00-1
Container Anchor Slide Will Not Raise or Lower, Troubleshooting Procedures	0022 00-1
Container Hydraulic System, Servicing	0078 00-1
Lift Hydraulic Metal Tubing from Slide Hydraulic Hand Pump to Bulkhead Adaptors, Replacement	0087 00-1
Metal Tube Between Slide Hydraulic Cylinder Hoses, Replacement	0088 00-1
Mooring Buoy, Replacement	0100 00-1
Mooring System, Repair	0101 00-1
Slide Cylinder To Metal Tube Hydraulic Hose, Replacement	0085 00-1
Slide Hydraulic	
Cylinder, Replacement	0096 00-1
Hand Pump, Replacement	0083 00-1
Hose From Metal Tube to Bulkhead Adaptor, Replacement	0086 00-1
System, Bleeding	0098 00-1
Tubing Protective Cover, Replacement	0084 00-1
EASY Anchor	
Buoy, Replacement	0079 00-1
Drawer Wheel, Replacement	0102 00-1
Drawer, Replacement	0081 00-1
Removal and Installation	0080 00-1
Repair	0099 00-1

INDEX (CONT'D)

Subject **WP Sequence No. – Page No.**

E (CONT'D)

EASY Drawer

Hydraulic Cylinder, Replacement	0095 00-1
Hydraulic Hand Pump, Replacement	0082 00-1
Hydraulic System, Bleeding	0097 00-1
Hydraulic System, Pressure Venting	0089 00-1
Hydraulic Tubing Protective Cover, Replacement	0090 00-1
Pressure Hydraulic Hose, Replacement	0092 00-1
Pressure Hydraulic Metal Tube, Replacement	0091 00-1
Return Hydraulic Hose, Replacement	0094 00-1
Return Hydraulic Metal Tube, Replacement	0093 00-1
Electrical Wiring, Repair	0142 00-1
Equipment Characteristics, Capabilities and Features	0002 00-1
Equipment Data	0004 00-1
Expendable and Durable Items List (EDIL)	0148 00-1

G

General Information	0001 00-1
Generator Container	
Air Inlet Duct, Removal and Installation	0074 00-1
Damper Assembly Actuator, Replacement	0076 00-1
Damper Assembly, Replacement	0075 00-1
Damper Louvers, Cleaning	0073 00-1
Disconnect Box Fuses, Replacement	0077 00-1
Electric Fuel Transfer Pump Inoperative, Troubleshooting Procedures	0008 00-1
Electrical Distribution Panel	
Access Cover, Removal and Installation	0061 00-1
Single Pole Circuit Breaker, Replacement	0062 00-1
Exterior Door	
Dogs, Replacement	0059 00-1
Lockset, Replacement	0057 00-1
Replacement	0058 00-1
Exterior Door Window	
Replacement	0060 00-1
Fire Suppression System Inoperative, Troubleshooting Procedures	0010 00-1
Fluorescent Light Fixture, Replacement	0070 00-1
Fluorescent Lights Do Not Operate, Troubleshooting Procedures	0011 00-1
Fuel Tank Level Sensor, Replacement	0068 00-1
Fuel Tank Signal Box	
Fuse, Replacement	0064 00-1
Lamp, Replacement	0067 00-1
Light Assembly, Replacement	0066 00-1
Relay, Replacement	0065 00-1
Transformer, Replacement	0063 00-1
Warning Light Inoperative, Troubleshooting Procedures	0009 00-1
Hand Lantern Mounting Bracket, Replacement	0051 00-1
Hand Operated Transfer Pump, Replacement	0072 00-1
Hospital Grade Straight Blade Electrical Receptacle, Replacement	0054 00-1
Incandescent Light Fixture, Replacement	0071 00-1

INDEX (CONT'D)

Subject

WP Sequence No. – Page No.

G (CONT'D)

Generator Container (Continued)

Outlet Box, Replacement	0055 00-1
Rotary Brass Light Switch, Replacement	0069 00-1
Shore Tie Female Electrical Connector, Replacement	0053 00-1
Shore Tie Penetration Hinged Cover, Replacement	0056 00-1
Steps, Removal and Installation	0052 00-1

H

Hand Lantern Incandescent Bulb, Replacement	0045 00-1
Hazardous Material Warning Icons	f
How to Use This Manual	v

I

Incinerator Toilet Malfunctions, Troubleshooting Procedures	0013 00-1
Intermediate Section	
Flexor, Replacement	0032 00-1
Intermediate Section Flexor Well	
Chute Bolt Cover, Replacement	0033 00-1
Chute Bolt, Replacement	0034 00-1
Intermediate Section Non-Powered Modules	
Cleaning and Painting	0030 00-1
Male and Female Guillotine Connectors, Repair, Lubrication and Adjustment	0031 00-1
Marine Growth Removal	0029 00-1
Pressure Test	0028 00-1
Service	0027 00-1

L

Life Ring Strobe Light Battery, Replacement	0047 00-1
Light Tower	
Engine Malfunctions, Troubleshooting Procedures	0016 00-1
Malfunctions, Troubleshooting Procedures	0015 00-1
Removal and Installation	0043 00-1
Location and Description of Major Components	0003 00-1

M

Maintenance Allocation Chart (MAC)	0147 00-1
Maintenance Allocation Chart (MAC), Introduction	0146 00-1

INDEX (CONT'D)

Subject **WP Sequence No. – Page No.**

P

Personnel Shelter

- Bench Seats, Replacement 0104 00-1
- Benches, Removal and Installation 0103 00-1
- Coat Hangers, Replacement 0125 00-1
- Electrical Distribution Panel
 - Access Cover, Removal and Installation 0115 00-1
 - Single Pole Circuit Breaker, Replacement 0118 00-1
 - Three Pole Circuit Breaker, Replacement 0116 00-1
 - Two Pole Circuit Breaker, Replacement 0117 00-1
- Escape Scuttle,
 - Gasket, Replacement 0127 00-1
 - Grab Bar, Replacement 0128 00-1
- Exterior Door
 - Dogs, Replacement 0110 00-1
 - Replacement 0109 00-1
 - Window, Replacement 0111 00-1
- Fluorescent Light Fixture, Replacement 0119 00-1
- Fluorescent Lights Do Not Operate, Troubleshooting Procedures 0014 00-1
- Ground Fault Circuit Interrupter Receptacle, Replacement 0131 00-1
- Hand Lantern Mounting Bracket, Replacement 0129 00-1
- Head Electrical Junction Box, Removal and Installation 0121 00-1
- Head Electrical Junction Box, Repair 0123 00-1
- Head Fluorescent Light Fixture, Replacement 0122 00-1
- Hospital Grade Straight Blade Electrical Receptacle, Replacement 0130 00-1
- Incinerator Toilet Exhaust Flexible Coupling, Replacement 0112 00-1
- Interior Door
 - Lockset, Replacement 0126 00-1
 - Replacement 0124 00-1
- Outlet Box, Replacement 0132 00-1
- Rotary Brass Light Switch, Replacement 0120 00-1
- Shore Tie Female Electrical Connector, Replacement 0108 00-1
- Shore Tie Penetration Hinged Cover, Replacement 0107 00-1
- Table, Removal and Installation 0105 00-1
- Tabletop, Replacement 0106 00-1
- Vent Fan, Cleaning and Inspection 0113 00-1
- Vent Fan, Replacement 0114 00-1

Preventive Maintenance Checks and Services (PMCS)

- Lubrication Procedures 0026 00-1
- Procedures Introduction 0025 00-1

Q

- Quick Release and Mooring Assembly, Repair 0044 00-1

R

- References 0145 00-1
- Rigid Hull Inflatable Boat (RHIB)
 - Malfunctions, Troubleshooting Procedures 0017 00-1
 - Outboard Motor Malfunctions, Troubleshooting Procedures 0018 00-1
- Ring Buoy and Hanger Bracket Assembly, Repair 0139 00-1

INDEX (CONT'D)

Subject **WP Sequence No. – Page No.**

S

Safety Warning Icons c
 Service Upon Receipt of Materiel 0024 00-1

T

Tactical Quiet Generator Malfunctions, Troubleshooting Procedures 0007 00-1
 Theory of Operation 0005 00-1
 Tool Identification List (TIL) 0149 00-1
 Torque Limits 0143 00-1
 Towing Bridle, Repair 0050 00-1
 Troubleshooting Procedures
 Air Conditioner and Heat Pump Malfunctions 0012 00-1
 EASY Container
 Anchor Drawer Will Not Deploy 0023 00-1
 Anchor Slide Will Not Raise or Lower 0022 00-1
 Generator Container
 Electric Fuel Transfer Pump Inoperative 0008 00-1
 Fire Suppression System Inoperative 0010 00-1
 Fluorescent Lights Do Not Operate 0011 00-1
 Fuel Tank Signal Box Warning Light Inoperative 0009 00-1
 Incinerator Toilet Malfunctions 0013 00-1
 Index 0006 00-1
 Light Tower
 Engine Malfunctions 0016 00-1
 Malfunctions 0015 00-1
 Personnel Shelter Fluorescent Lights Do Not Operate 0014 00-1
 Rigid Hull Inflatable Boat (RHIB)
 Malfunctions 0017 00-1
 Outboard Motor Malfunctions 0018 00-1
 Tactical Quiet Generator Malfunctions 0007 00-1
 VHF/FM Handheld Transceiver
 Does Not Receive 0020 00-1
 Does Not Transmit 0021 00-1
 Has No Power 0019 00-1

V

VHF/FM Handheld Transceiver
 Alkaline Battery Pack, Replacement 0136 00-1
 Antenna, Replacement 0133 00-1
 Battery Charger, Replacement 0137 00-1
 Control Knob, Replacement 0134 00-1
 Does Not Receive, Troubleshooting Procedures 0020 00-1
 Does Not Transmit, Troubleshooting Procedures 0021 00-1
 No Power, Troubleshooting Procedures 0019 00-1
 Rechargeable Battery Pack, Replacement 0135 00-1

INDEX (CONT'D)

Subject

WP Sequence No. – Page No.

W

Warning Summary a

Weight Lifting Devices

 Inspection 0140 00-1

 Testing 0141 00-1

Wire Diagram Fold Outs..... FO-1

Wiring Diagrams 0144 00-1

These are the instructions for sending an electronic 2028.

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17 and 27.

From: "Whomever" whomever@avma27.army.mil
To: whomever@avma27.army.mil
To: TACOM-TECH-PUBS@ria.army.mil

Subject:DA Form 2028

1. **From:** Joe Smith
2. **Unit:** home
3. **Address:** 4300 Park
4. **City:** Hometown
5. **St:** MO
6. **Zip:** 77777
7. **Date Sent:** 19-OCT-93
8. **Pub no:** 55-1915-200-10
9. **Pub Title:** TM
10. **Publication Date:** 11-APR-88
11. **Change Number:** 12
12. **Submitter Rank:** MSG
13. **Submitter Fname:** Joe
14. **Submitter Mname:** T
15. **Submitter Lname:** Smith
16. **Submitter Phone:** 123-123-1234
17. **Problem:** 1
18. **Page:** 1
19. **Paragraph:** 3
20. **Line:** 4
21. **NSN:** 5
22. **Reference:** 6
23. **Figure:** 7
24. **Table:** 8
25. **Item:** 9
26. **Total:** 123
27. **Text:**

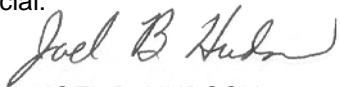
This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS						Use Part II (<i>reverse</i>) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
For use of this form, see AR 25-30; the proponent agency is OAASA							
TO: (<i>Forward to proponent of publication or form</i>) (<i>Include ZIP Code</i>)				FROM: (<i>Activity and location</i>) (<i>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	
* Reference to line numbers within the paragraph or subparagraph.							
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:

Army
Official:



JOEL B. HUDSON
*Administrative Assistant to the
Secretary of the Army*
0316904

PETER J. SCHOOMAKER
General, United States

Chief of Staff

To be distributed in accordance with the Initial Distribution Number (IDN) 256775 requirements for TM 55-1945-216-24.

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	CABLE	LOAD (KW)
-	(SHLTR PNL)-100A-RCPT	C	MASTER	100A	A/B/C	TYPE SO	10KW
1	(SHLTR PNL)-2P-A	C	HEAT PUMP (COOLING & HEATING)	30A	AB-GND	LSFSGU-9	4.16
2	(SHLTR PNL)-1P-B(1)	C	120 VAC RECEPTACLE	20A	A-NEU/GND	LSFSGU-9	1.20
3	(SHLTR PNL)-1P-C(1)	C	FLOURESCENT OVERHEAD (RED/WHT) LIGHTS VIA SWITCH	15A	C-NEU/GND	LSFSGU-4	0.30
4	(SHLTR PNL)-1P-D(1)	C	VENTILATOR & 90' LIGHT FIXTURE VIA SWITCHES	15A	C-NEU/GND	LSFSGU-4	0.24
5	(SHLTR PNL)-1P-E	C	(1) RECEPTACLE, GFCI & COMMUNICATION CONSOLE	20A	B-NEU/GND	LSFSGU-9	0.48
6	(SHLTR PNL)-2P-F	C	INCINOLET ELECTRIC TOILET WITH BLOWER	20A	BC-GND	LSFSGU-9	3.64
7	(SHLTR PNL)-1P-G	C	SPARE CIRCUIT	15A	A-NEU/GND	-	-
8	(SHLTR PNL)-1P-L	C	SPARE CIRCUIT	15A	B-NEU/GND	-	-

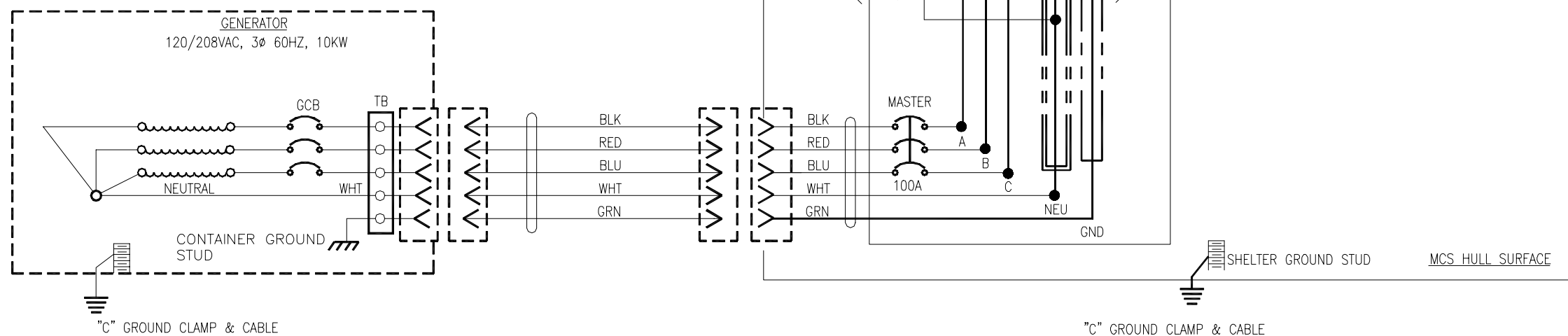
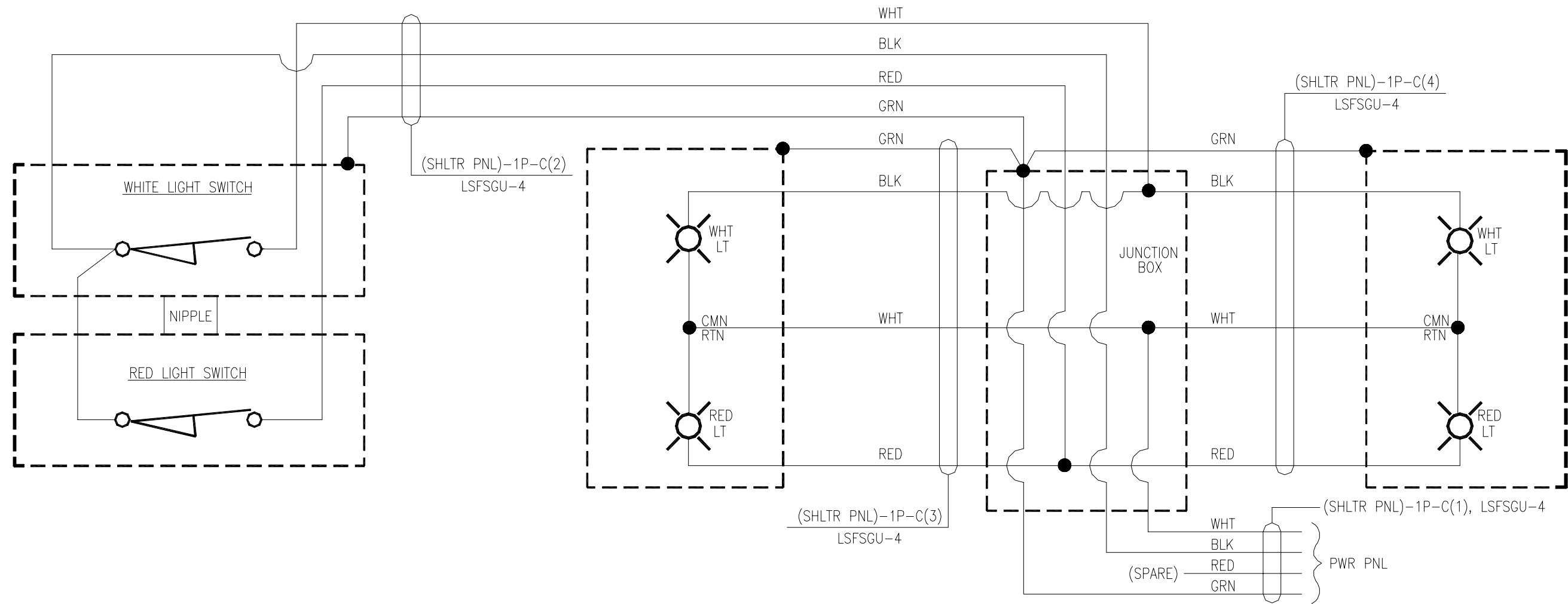
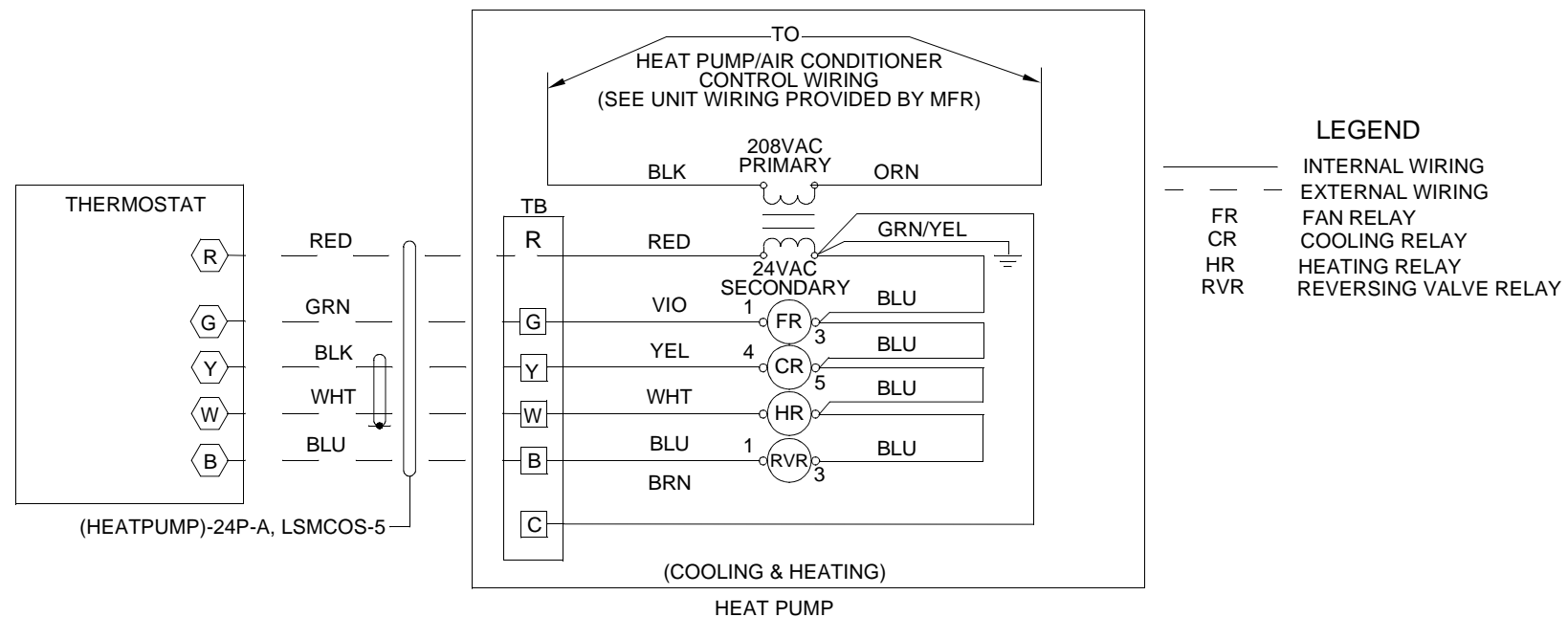


Figure 1. MCS Personnel Shelter Wiring Diagram (Sheet 1).

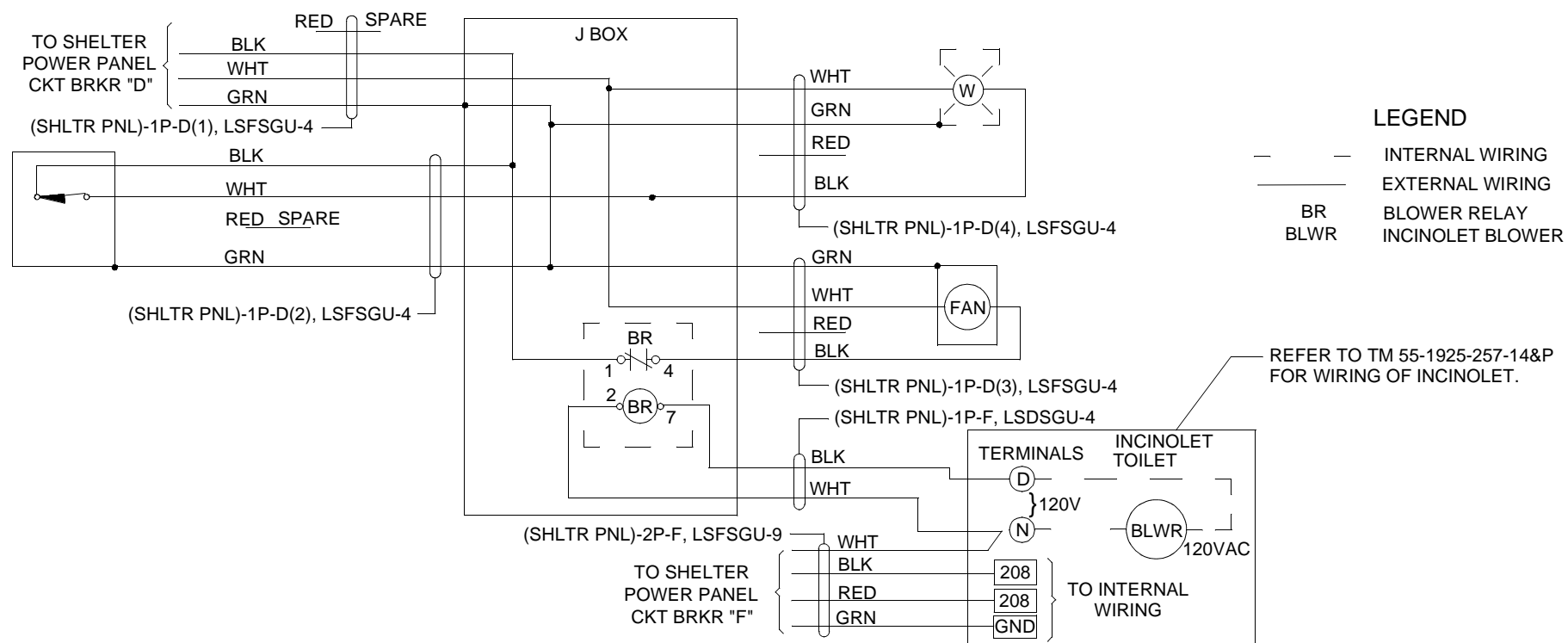


TYPICAL DETAILED HOOKUP FOR BOTH OVERHEAD FLOURESCENT RED/WHITE LIGHT SWITCH & OVERHEAD LIGHTING

Figure 1. MCS Personnel Shelter Wiring Diagram (Sheet 2).



HEAT PUMP AND THERMOSTAT WIRING DETAILS



INCINOLET BLOWER AND OVERHEAD VENTILATOR DISABLE WIRING DIAGRAM

Figure 1. MCS Personnel Shelter Wiring Diagram (Sheet 3).

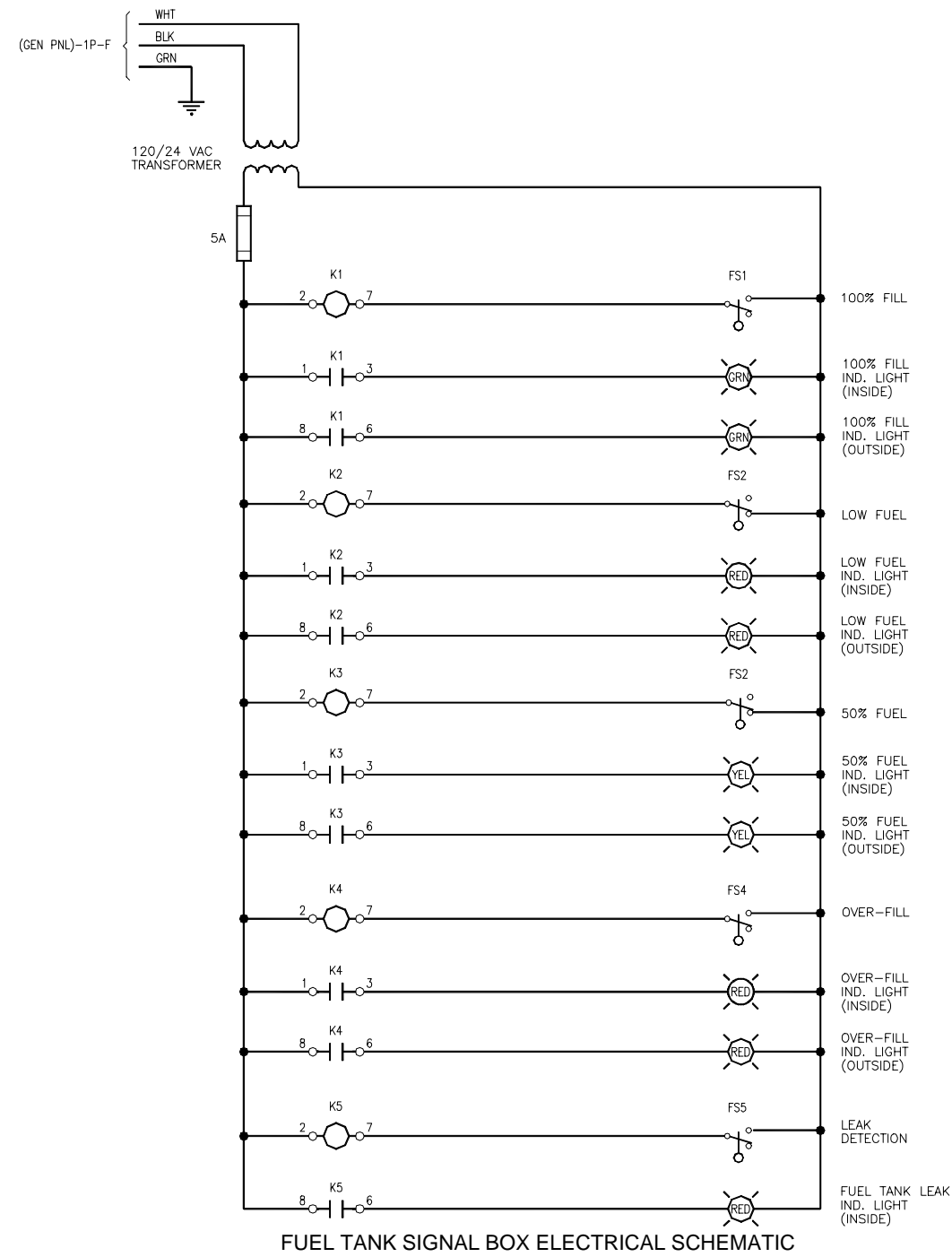


Figure 2. MCS Generator Container Wiring Diagram (Sheet 1).

LEGEND

"FS" - FLOAT SWITCH
 "K" - RELAY

NOTES

1. FS1 AND FS2 ARE PART OF FULL/EMPTY LIQUID LEVEL SWITCH.
2. FS3 AND FS4 ARE PART OF 50%/OVER-FILL LIQUID LEVEL SWITCH.
3. FS5 IS LEAK DETECTION LIQUID LEVEL SWITCH.

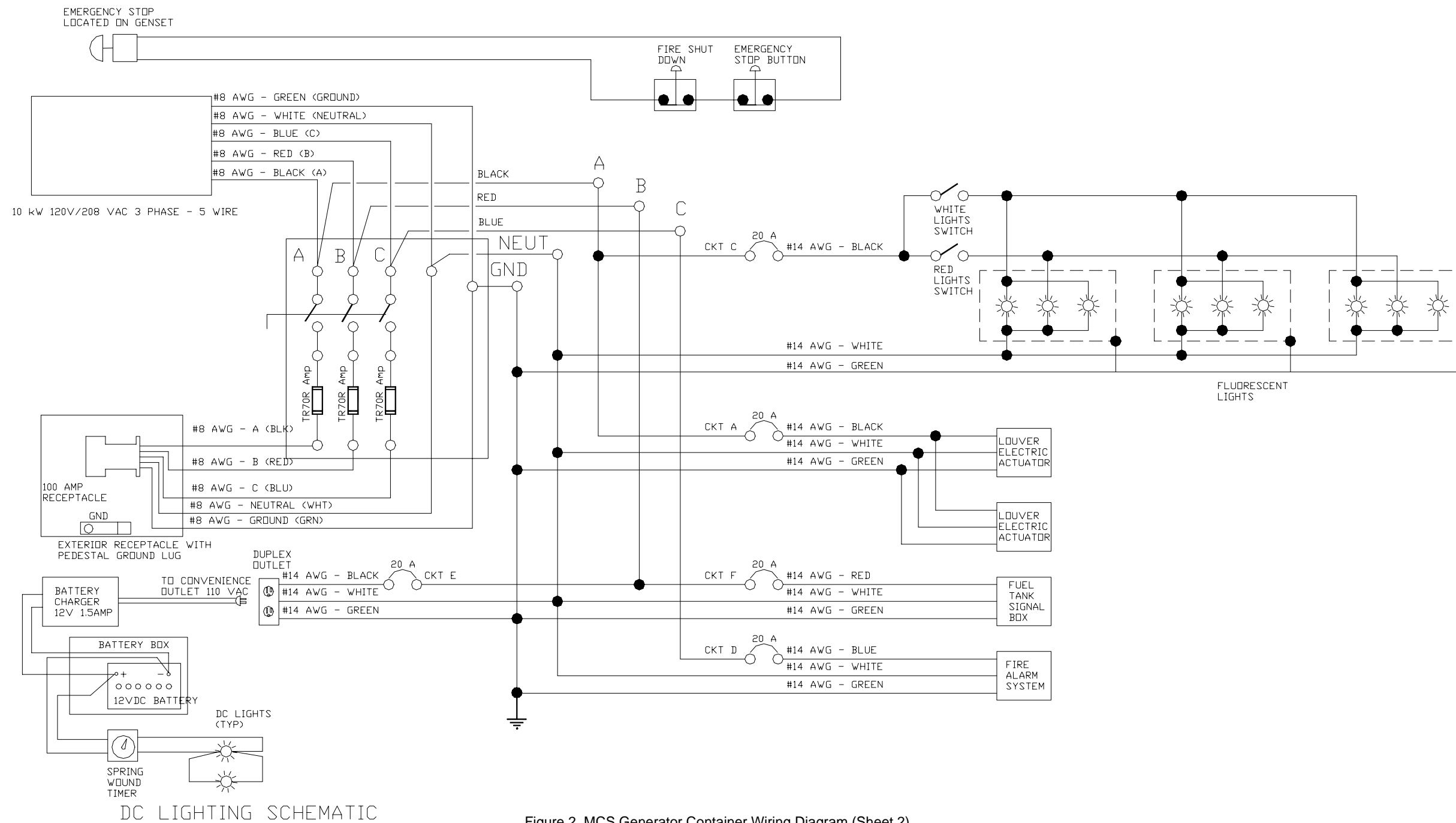


Figure 2. MCS Generator Container Wiring Diagram (Sheet 2).

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

Weights

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

<i>To change</i>	<i>To</i>	<i>Multiply by</i>	<i>To change</i>	<i>To</i>	<i>Multiply by</i>
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	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
----	------------------------	----------------------------	---------------------	----

