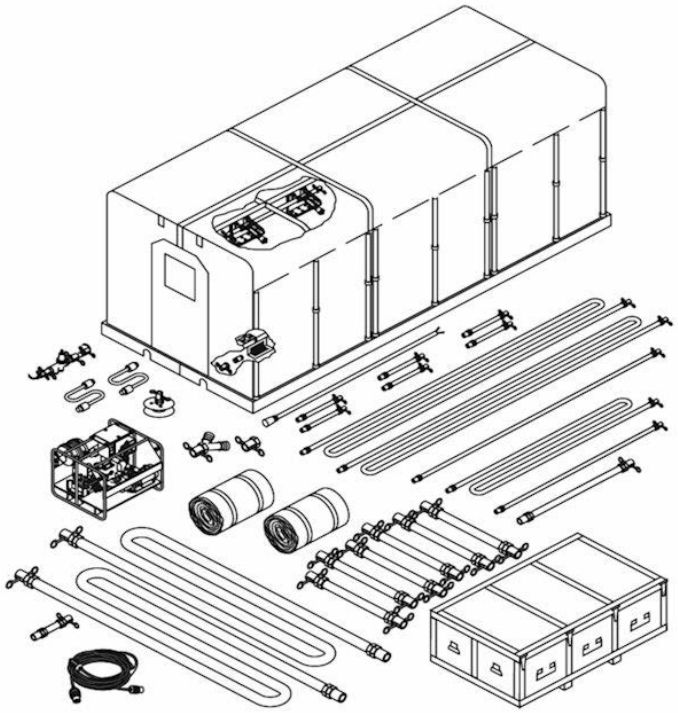
*TM 10-4510-207-13&P

TECHNICAL MANUAL

OPERATOR AND FIELD MAINTENANCE MANUAL

INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST
FOR

12-HEAD SHOWER SYSTEM
(NSN 4510–01–597–9434)



*This manual supersedes TM 10-4510-207-14 dated 30 AUGUST 2000 and TM 10-4510-207-24P dated 31 JULY 2002, including all changes.

HEADQUARTERS, DEPARTMENT OF THE ARMY

10 JUNE 2013

WARNING SUMMARY

The following safety and hazardous materials warnings appear throughout this manual. Review these warnings to ensure that you understand them and can apply them during operation and maintenance of the equipment. Failure to follow these warnings may result in serious injury or death to personnel.

FIRST AID

First aid is the emergency care given to the sick, injured, or wounded before being treated by medical personnel. Refer to FM 4-25.11 for first aid treatment information.

WARNING SUMMARY – (Continued)

EXPLANATION OF SAFETY WARNING ICONS

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

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

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

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

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

FLYING PARTICLES – Arrows bouncing off face shield show that particles flying through the air will harm face.

FLYING PARTICLES – Arrows bouncing off face show that particles flying through the air will harm face.

SLIPPING – Legs angled out and off the ground indicate a person slipping.

WARNING SUMMARY – (Continued)

SAFETY WARNINGS DESCRIPTION

WARNING

EAR PROTECTION

Hearing protection must be worn when using power equipment.

WARNING

ELECTRICAL

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Never wear jewelry when working around electrical equipment.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not disconnect power cables when power is on or generator set is operating.

High voltage is used in the 12-head shower module. Care must be taken to avoid personal injury or death from energizing circuits.

Lights from the light set must be installed in the TEMPER. Never install lights anywhere directly on the 12-head shower facility.

Be sure that source power has been shut off before removing the power cable.

Failure to follow this warning may result in serious injury or death to personnel.

WARNING

HEAVY OBJECT

WARNING SUMMARY – (Continued)

Be sure to use at least two operators to lift the shower bases, shower cabinet and shower frame. Failure to follow this warning may result in serious injury to personnel.

Be sure to use at least four operators to lift the pump assembly. Failure to follow this warning may result in serious injury to personnel.

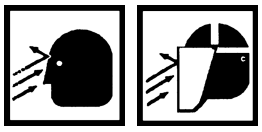
Be sure to use at least six operators to lift the water heater. Failure to follow this warning may result in serious injury to personnel.

WARNING

HEAVY PARTS

The shower head manifold assembly will be loose when the U-bolts are removed. The manifold must be supported to prevent injury to personnel. Failure to follow this warning may result in serious injury to personnel.

WARNING



FLYING OBJECTS

Metal debris from drilling out rivets poses an eye hazard. Wear eye protection when removing and replacing rivets.

Flying debris from using wood fasteners can be an eye hazard. Wear eye protection when removing and replacing rivets.

Failure to comply with this warning can result in injury to personnel and damage to equipment.

WARNING

SLIPPING

Be careful when walking on wet surfaces. Wet surfaces can be slippery. Failure to heed this warning may result in injury to personnel.

Hoses will contain water. Care must be taken to contain spills and minimize the danger of slipping.

WARNING SUMMARY – (Continued)

WARNING

MOVING PARTS

Be careful when installing the shower frame legs onto the shower cabinet support poles not to put your fingers directly on the location where the frame legs and support posts join. Severely pinched fingers may result. Failure to follow this warning may cause injury to personnel.

WARNING SUMMARY – (Continued)

EXPLANATION OF HAZARDOUS MATERIALS ICONS

EYE PROTECTION – Person with goggles shows that the material can injure the eyes.

FIRE – Flames shows that a material may ignite and cause burns.

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

HAZARDOUS MATERIALS WARNING DESCRIPTION

WARNING

FIRE

Adhesives and paint products are flammable. Keep away from heat and open flames. Use in a well-ventilated area. Failure to follow this warning may result in serious injury or death to personnel.

For immediate decontaminating procedures use ONLY hot soapy water for spot decontamination of Shower.

WARNING

VAPOR

Adhesives and paint products are potentially dangerous to personnel. Do not apply solvents or apply paint products in a closed room. Be sure there is good ventilation or the adhesive or paint vapors will build up in the air and become a poisonous mixture which can cause physical injury or even death.

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may cause injury or death to personnel.

WARNING

WARNING SUMMARY – (Continued)

EYE PROTECTION

Wear eye protection when applying adhesives or when painting. Failure to follow this warning may result in serious injury to personnel.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: This manual supersedes TM 10-4510-207-14 dated 30 August 2000 and TM 10-7360-206-24P dated 31 July 2002. Zero in the “Change No.” column indicates an original page or work package.
10 June 2013

THE TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 32 AND THE TOTAL NUMBER OF WORK PACKAGES IN THIS MANUAL IS 55 CONSISTING OF THE FOLLOWING:

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 10 JUNE 2013

TECHNICAL MANUAL

OPERATOR AND FIELD MAINTENANCE MANUAL

INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST
FOR

12-HEAD SHOWER SYSTEM
(NSN 4510–01–597–9434)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any errors, or if you would like to recommend any improvements to the procedures in this publication, please let us know. The preferred method is to submit your DA Form 2028 (Recommended Changes to Publications and Blank Forms) through the Internet,on the TACOM Unique Logistics Support Applications (TULSA) Web site. The Internet address is https://tulsa.tacom.army.mil. Access to all applications requires CAC authentication, and you must complete the Access Request form the first time you use it. The DA Form 2028 is located under the TULSA Applications on the left-hand navigation bar. Fill out the form and click on SUBMIT. Using this form on the TULSA website will enable us to respond more quickly to your comments and better manage the DA Form 2028 program. You may also mail, e-mail, or fax your comments or DA Form 2028 directly to the U.S. Army TACOM Life Cycle Management Command. The postal mail address is U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-MPP / TECH PUBS, 6501 E. 11 Mile Road, Warren, MI 48397-5000. The e-mail address is tacomlcmc.daform2028@us.army.mil. The fax number is DSN 786-1856 or Commercial (586) 282-1856. A reply will be furnished to you.

CURRENT AS OF 15 JANUARY 2013

*This manual supersedes TM 10-4510-207-14 dated 30 August 2000 and TM 10-4510-207-24P dated July 2002, including all changes.

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

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HOW TO USE THIS MANUAL

INTRODUCTION

HOW TO OBTAIN TECHNICAL MANUALS

When a new system is introduced to the Army inventory, it is the responsibility of the receiving units to notify and inform the unit publications clerk that a technical manual is available for the new system. Throughout the life cycle of the new system, the publications proponent will also provide updates and changes to the technical manual.

To receive new technical manuals or change packages to fielded technical manuals, provide the unit publications clerk the full technical manual number, title, date of publication, and number of copies required. The unit publications clerk will then justify the request through the unit publications officer. When the request is approved, DA Form 12-R is used to order the technical manual from the Army Publishing Directorate (APD).

Instructions for Unit Publications Clerk

Obtain the form and request a publications account from the APD Web site at http://www.apd.army.mil. Once on the Web site, click on the “Orders/Subscriptions/Reports” tab. From the drop-down menu, select “Establish an Account,” then select “Tutorial,” and follow the instructions in the tutorial presentation.

Complete information for obtaining Army publications can be found in DA PAM 25-33.

ORGANIZATION OF THIS MANUAL

In this manual, primary chapters appear in uppercase/capital letters; work packages are presented in numeric sequence, e.g., 0001, 0002; paragraphs within a work package are not numbered and are presented in a titled format. For a first level paragraph, titles are in all uppercase/capital letters, e.g., FRONT MATTER. Subordinate paragraph titles will have the first letter of the first word of each principle word all uppercase/capital letters, e.g., Manual Organization and Page Numbering System. The location of additional material that must be referenced is clearly marked. Illustrations supporting maintenance procedures/text are located underneath, or as close as possible to, their referenced paragraph.

FRONT MATTER. Front matter consists of front cover, warning summary, title block, table of contents, and how to use this manual page.

CHAPTER 1 – GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND THEORY OF OPERATION. Chapter 1 contains introductory information on the shower and its associated equipment as well as theory of operation.

CHAPTER 2 – OPERATOR INSTRUCTIONS. Chapter 2 provides operator instructions required for use of the shower by the operator, including description and use of controls and indicators, operational deployment cycles, and cleaning.

CHAPTER 3 – TROUBLESHOOTING. Chapter 3 provides a troubleshooting index and operator and field troubleshooting procedures.

CHAPTER 4 – PREVENTIVE MAINTENANCE INSTRUCTIONS. Chapter 4 provides Preventative Maintenance Checks and Services (PMCS) instructions authorized at the operator and field maintenance levels.

CHAPTER 5 – OPERATOR MAINTENANCE INSTRUCTIONS. Chapter 5 provides maintenance procedures authorized at the operator level that includes service upon receipt, cleaning and replacement procedures.

CHAPTER 6 – FIELD MAINTENANCE INSTRUCTIONS. Chapter 6 provides maintenance procedures authorized at the maintainer level that includes repair and replacement of key components.

CHAPTER 7 – PARTS INFORMATION. Chapter 7 provides Repair Parts and Special Tools List (RPSTL) information, including authorized repair parts, special tools, special test, measurement, and diagnostic equipment (TMDE), and other special support equipment required for performance of operator and field maintenance of the shower. This chapter also contains national stock number and part number cross reference tables.

CHAPTER 8 – SUPPORTING INFORMATION. Chapter 8 provides supporting information that includes the document reference table, the Maintenance Allocation Chart, tools list, remarks, Components of End Item List, Basic Issue Items List, Additional Authorization List, the Expendable/Durable Suppliers and Material List, and the Mandatory Replacement Parts List.

REAR MATTER. Rear matter consists of alphabetical index, DA Form 2028, authentication page, and back cover.

HOW TO USE THIS MANUAL – (Continued)

Manual Organization and Page Numbering System

The manual is divided into eight chapters that detail the topics mentioned above. Within each chapter are work packages covering a wide range of topics. Each work package is numbered sequentially starting at page 1. The work package has its own page-numbering scheme and is independent of the page numbering used by other work packages. Each page of a work package has a page number of the form XXXX-YY where XXXX is the work package number (e.g., 0010 is work package 10) and YY represents the number of the page within that work package. A page number such as 0010-1/blank means that page 1 contains information, but page 2 of that work package has been intentionally left blank.

Finding Information

The table of contents permits the reader to find information in the manual quickly. The reader should start here first when looking for a specific topic. The table of contents lists the topics, figures, and tables contained within each chapter and the work package sequence number where it can be found.

Example: If the reader were looking for instructions on Operating Under Usual Conditions, the table of contents indicates that information can be found in Chapter 2. Scanning down the listings for Chapter 2, information on how to operate the shower can be found in WP 0005, Operation Under Usual Conditions (i.e., work package 5). An alphabetical index can be found at the back of the manual; specific topics are listed with the corresponding work package number.**vii**

CHAPTER 1

GENERAL INFORMATION, EQUIPMENT DESCRIPTION AND THEORY OF OPERATION

FOR

12–HEAD SHOWER SYSTEM

OPERATOR INSTRUCTIONS

GENERAL INFORMATION

SCOPE

This manual covers operator and field maintenance instructions of the 12-head shower system, shown in Figure 1. The 12-head shower system provides six two-person shower stalls for field personnel.

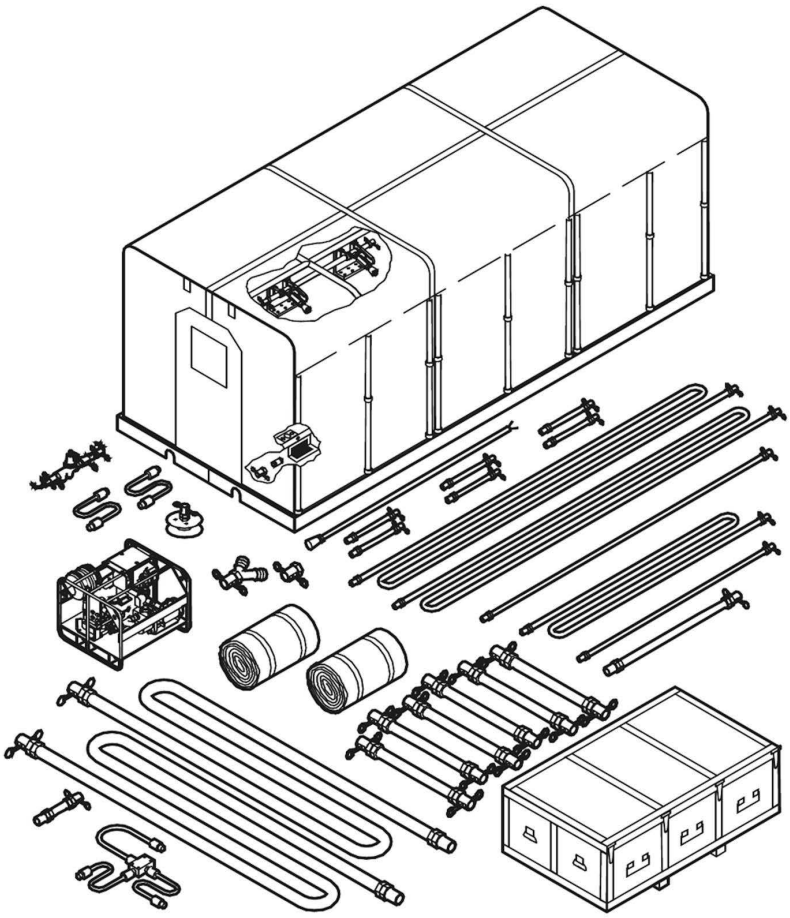


Figure 1. Shower and Associated Components.

GENERAL INFORMATION - (CONTINUED)

The manual also contains a RPSTL that lists and authorizes spare and repair parts, special tools, special tests, measurement, and diagnostic equipment (TMDE), and other special support equipment required for performance of operator and field maintenance of the shower. It authorizes the requisitioning, issue, and disposition of spare and repair parts and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

Type of Manual

Operator and Field Maintenance Manual including Repair Parts and Special Tools List for 12-Head Shower Module.

Purpose of Equipment

The shower provides six two-person shower stalls for field personnel.

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by (as applicable) DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual; DA PAM 738-751, Functional Users Manual for the Army Maintenance Management Systems - Aviation (TAMMS-A); or AR 700-138, Army Logistics Readiness and Sustainability.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your shower 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. If you have Internet access, the easiest and fastest way to report problems or suggestions is to go to https://aeps.ria.army.mil/aepspublic.cfm (scroll down and choose the “Submit Quality Deficiency Report” bar). The Internet form lets you choose to submit an Equipment Improvement Recommendation (EIR), a Product Quality Deficiency Report (PQDR), or a Warranty Claim Action (WCA). You may also submit your information using an SF 368 (Product Quality Deficiency Report). You can send your SF 368 via e-mail, regular mail, or facsimile using the addresses/facsimile numbers specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army material 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 specifically occurs with metals. It is an electrochemical process that causes the degradation of metals. It is commonly caused by exposure to moisture, acids, bases, or salts. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking.

Plastics, composites, and rubbers can also degrade. Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light, typically UV) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking.

SF Form 368, Product Quality Deficiency Report should be submitted to the address specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

OZONE DEPLETING SUBSTANCES

There are no Ozone Depleting Substances in the 12-Head Shower.

DESTRUCTION OF MATERIEL

Destruction of Army materiel to prevent enemy use shall be in accordance with TM 750-244-3.

PREPARATION FOR STORAGE OR SHIPMENT

Prepare the equipment for storage or shipment as described in WP 0019.

GENERAL INFORMATION - (CONTINUED)

WARRANTY INFORMATION

The 12-head shower is warranted for 365 days from the date of shipment. Report all defects in material or workmanship to your supervisor who will take appropriate action.

NOMENCLATURE CROSS-REFERENCE LIST

Following is a cross reference of official names and nomenclature.

Table 1. Nomenclature Cross-Reference List

Common Name	Official Nomenclature
Base, Bath Unit, Portable	Shower Base
Bath Unit, Portable	12–Head Shower
Cabinet Support Pole	Rod, Shower Curtain
Cable Assembly, Power, Electrical, Branched	Power Cable
Cable Assembly, Power, Electrical, Branched	Power Cable Assembly
Check Valve Assembly	Check Valve
Cover	Shower Cabinet
Field Shower, Portable	12–Head Shower
General Mechanic's Automotive Tool Kit	Tool Kit, General Mechanic's Automotive Tool Kit
Portable Shower Base	Shower Base
Portable Shower Base Assembly	Shower Base
Pump Assembly	Reciprocating Pump Assembly
Pump Unit, Reciprocating	Reciprocating Pump
Reciprocating Pump Unit	Reciprocating Pump
Reciprocating Pump Unit Assembly	Reciprocating Pump
Regulator Valve Assembly	Regulator Valve
Regulator Valve Assembly	Pressure Regulator
Shower Cabinet Door Panel	Shower Cabinet (Door Panel)
Shower Cabinet Floor Panel	Shower Cabinet (Floor Panel)
Shower Facility Interconnection Hose Assembly	Shower Facility Interconnection Hose
Shower Frame Supply Assembly	Shower Frame
Shower Frame Assembly	Shower Frame
Strainer	Suction Strainer
Supply Pump Assembly	Supply Pump
Supply Pump Cold Line Hose Assembly	Supply Pump Cold Line Hose
Supply Pump Motor	Centrifugal Pump Unit
Switch Box Assembly	Switch Box
Temperature Valve Regulating	Temperature Regulator Valve
Top Frame Assembly	Shower Frame
Water Supply Strainer	Suction Strainer
Y-Fitting Coupler	Wye Quick Disconnect

LIST OF ABBREVIATIONS/ACRONYMS

Following is a list of acronyms and abbreviations contained in this manual.

Table 2. Acronyms and Abbreviations List

Acronym or Abbreviation	Item
AAL	Additional Authorization List
APD	Army Publishing Directorate
Assy	Assembly
BII	Basic Issue Item

GENERAL INFORMATION - (CONTINUED)

Acronym or Abbreviation	Item
BOI	Basis of Issue
Cm	Centimeter
CBRN	Chemical, Biological, Radiological, and Nuclear
CAGEC	Commercial and Government Entity Code
COEI	Component of end item
CPC	Corrosion Prevention Control
°C	Degrees Celsius
°F	Degrees Fahrenheit
Ea	Each
EIR	Equipment Improvement Recommendation
EMP	Electromagnetic Pulse
HCI	Hardness Critical Item
HEX	Hexagon
IAW	In Accordance With
in	Inches
Kg	Kilogram
MAC	Maintenance Allocation Chart
MSDS	Material Safety Data Sheet
MOS	Military Occupational Specialty
MOD	Model
MTOE	Modified Table of Organization and Equipment
MWO	Modification Work Order
NBC	Nuclear, Biological or Chemical
NIIN	National Item Identification Number
NSN	National Stock Number
P/N	Part Number
LBS	Pounds
ODS	Ozone Depleting Substance
PMCS	Preventive Maintenance Checks and Services
QD	Quick Disconnect
REF	Reference
RPSTL	Repair Parts and Special Tools List
SMR	Source, Maintenance and Recoverability
TMDE	Test, Measurement, and Diagnostic Equipment
U/M	Unit of Measure
UOC	Usable On Code
WP	Work Package

SAFETY, CARE AND HANDLING, WARNINGS, CAUTIONS AND NOTES

Always pay attention to warnings, cautions, and notes appearing throughout the manual. They will appear prior to applicable procedures. Ensure you read and understand their content to prevent serious injury to yourself and others or damage to equipment.

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), 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, as applicable to your unit.

Repair parts are listed and illustrated in WP 0045.

All special tools, TMDE, and support equipment for the shower are listed in Chapter 7.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

The shower is made up of six two-person shower stalls. Each shower stall is made up of a base and frame to support the soft-sided shower cabinet. Shower heads and hard, plastic separators are attached to the frame. The six shower stalls are joined to make a 12 person walk-through shower facility. Shower cabinet door panels, secured using hook and loop strips, are provided on the two open ends of the facility.

Water is supplied to the shower through a water supply, using a water supply pump to draw water from a clean closed or open water supply source. Water is drained from the shower using a reciprocating pump that draws water from the shower bases to a water discharge site. These two pumps are housed within a single pump assembly.

Typical installation of the 12-head shower module is inside a TEMPER tent. Heated water for the 12-head shower module is provided by a portable hot water system.

The 12-head shower is typically used in environments where the ambient air temperature is above 32° Fahrenheit (0° Celsius). The shower cannot be used in environments where the temperature is below 32 °F (0 °C) without taking special precautions to prevent damage to the equipment.

CHARACTERISTICS

The shower is a portable shower designed to be used in environments where ambient air temperature is above 32 °F (0 °C). A portable hot water system provides heated water to the shower heads. An electric supply pump is used to supply the shower with water. An electric reciprocating pump is used to drain the water.

CAPABILITIES

With an unlimited water supply and continuous operation of the WH-400 water heater, the 12-head shower can provide 7 minute showers for 500 people in a 24-hour period. It can also produce 9 gallons of water per minute heated to between 100 °F (37 °C) and 210 °F (98 °C).

Features

The 12-head shower houses six two-person shower stalls. Typical installation of the shower is inside a TEMPER tent. The temperature of the water is controlled by a temperature regulator that normally keeps the temperature between 95 °F (35 °C) and 105 °F (40 °C).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

The following are the major components of the shower. A brief description of the function of each component and its location is detailed below. Each of the components are illustrated in Figure 1.

Shower Cabinet

There are six two-person canvas shower cabinets. These cabinets are joined together to make up the 12 person walk-through shower facility.

Pump Assembly

The pump assembly consists of the pump frame, diaphragm tank, supply pump, reciprocating pump, temperature regulator, and the electrical switch box.

The supply pump draws cold water from a clean, open or closed, water source, supplying cold water to the cold water side of the temperature regulator and to the inlet side of the hot water heater (e.g., WH-400). Cold water is provided to the temperature regulator through a direct connection from within the pump assembly. Cold water to the water heater is provided by a hose connection from the outlet side of the supply pump.

The reciprocating pump draws waste water away from the shower to a waste water disposal facility.

EQUIPMENT DESCRIPTION AND DATA - (CONTINUED)

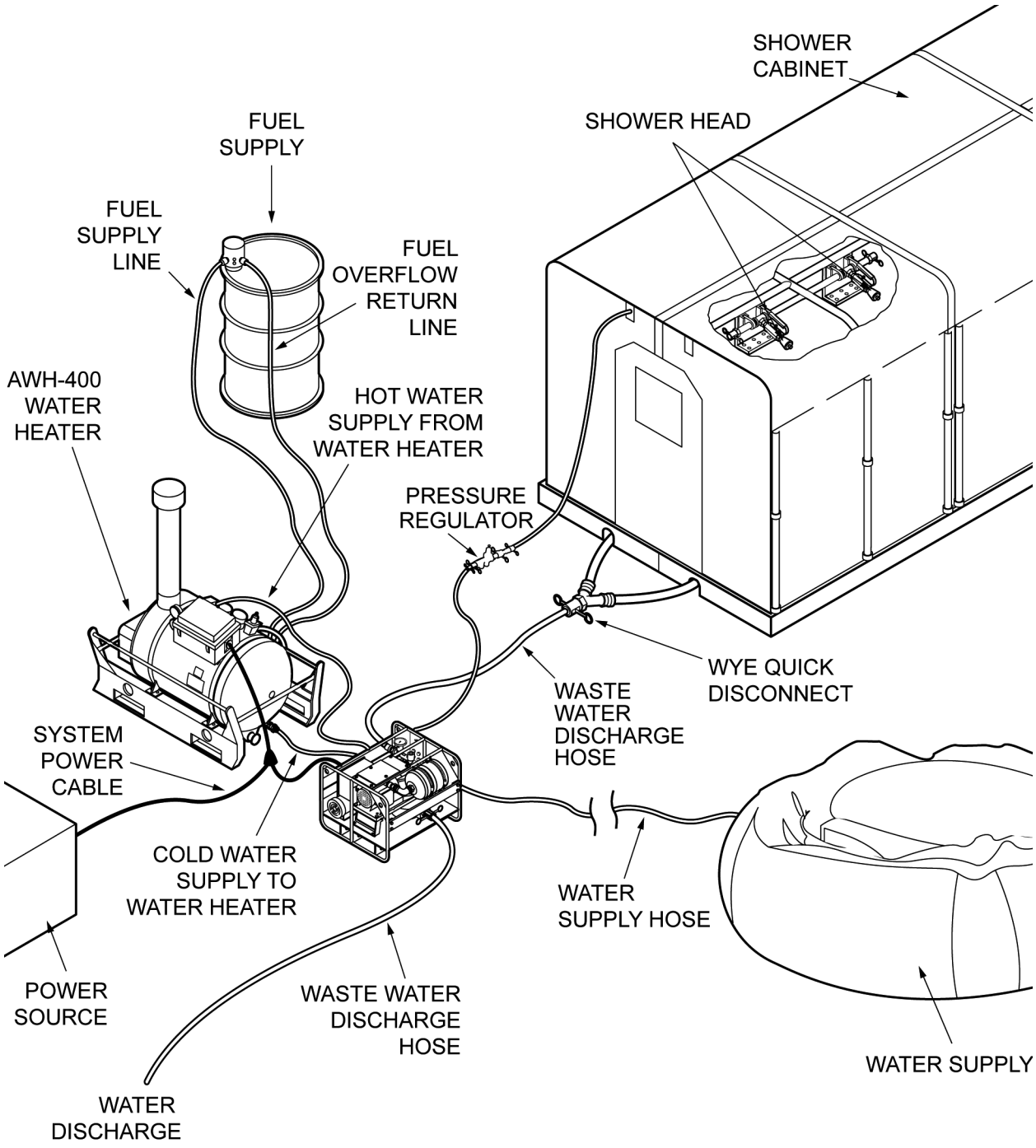


Figure 1. 12-Head Shower System Major Components (Sheet 1 of 3).

EQUIPMENT DESCRIPTION AND DATA - (CONTINUED)

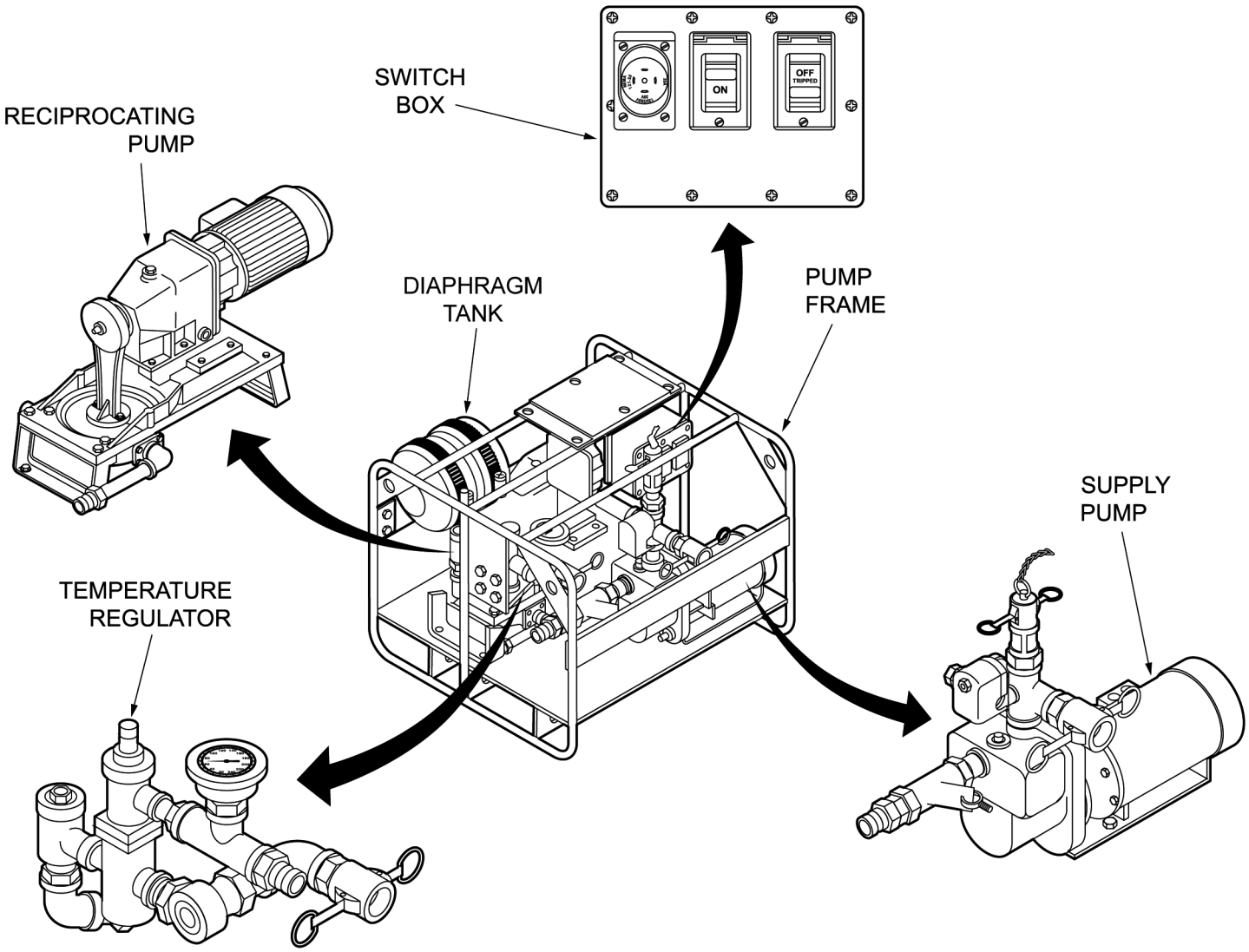


Figure 1. 12-Head Shower System Major Components (Sheet 2 of 3).

EQUIPMENT DESCRIPTION AND DATA - (CONTINUED)

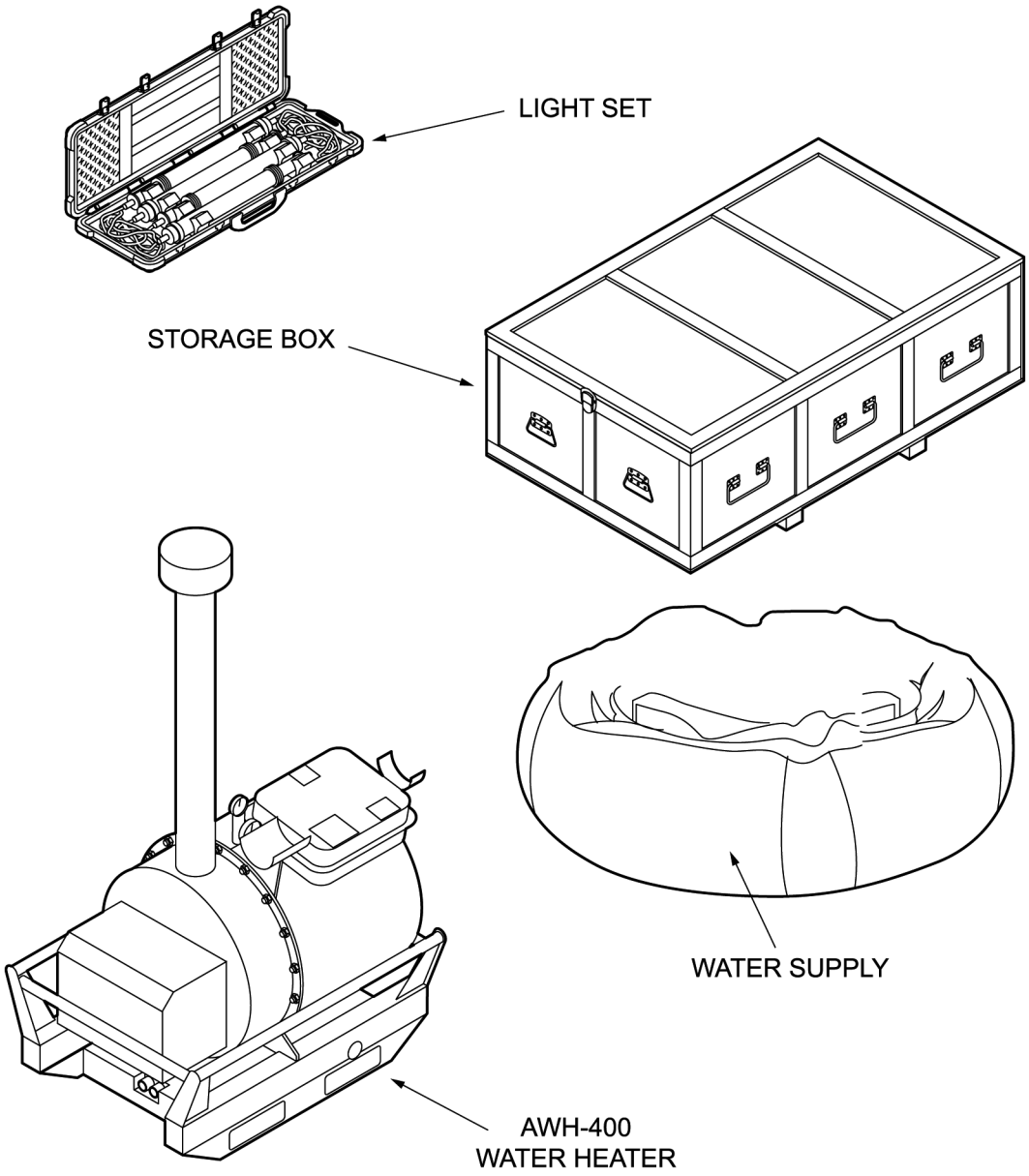


Figure 1. 12-Head Shower System Major Components (Sheet 3 of 3).

Water Heater

The WH-400 water heater delivers heated water at a rate of 9 gallons per minute at temperatures between 60 °F (16 °C) and 190 °F (88 °C). For additional information about the WH-400 water heater, refer to TM 10-4520-266-13&P.

Temperature Regulator

The adjustable temperature regulator is used to control the water temperature within the shower. The water temperature is monitored through the use of a temperature gauge attached to the regulator.

Switch Box

The switch box is attached to the water pump assembly frame. The switch box contains a 120/280 V power receptacle, the supply pump on and off switch, and the reciprocating pump on and off switch. The power switches

EQUIPMENT DESCRIPTION AND DATA - (CONTINUED)

for the supply pump and reciprocating pump have trip capabilities to provide overload protection to the pump motors.

Regulator Valve

The regulator valve is an in-line valve that uses an adjustable flow meter to control the water pressure being supplied to the shower.

Power Cable Assemblies

Two power cable assemblies are used for the shower, an input power cable assembly and a system power cable assembly. The input power cable assembly provides power from the source power supply to the system power cable assembly. The system power cable assembly distributes power through the system switch box to the supply pump and reciprocating pump.

Check Valve

The check valve is an in-line valve used to maintain water flow in a single direction. It prevents water in the hose from flowing back into the water source when the supply pump is off.

Suction Strainer

The suction strainer is an in-line filter used to filter debris when water is being drawn from an open source water supply (e.g., pond or lake).

Hoses and Fittings

Water flows to, from, and within the shower through a series of non-metallic hoses that are connected together by quick-disconnect fittings.

WYE Quick Disconnect Fitting

The WYE quick-disconnect fitting allows an operator to easily connect or disconnect the waste water hose from the shower.

Storage Container

The storage container, constructed of wood, is used to pack the shower components for storage or shipment.

Light Set

The light set is designed to be used when the shower is housed inside a TEMPER and provides general illumination for the shower. The light set consists of four EMI hardened stringable lights, two replacement bulb kits and four 130-inch horizontal anchor straps with mounted vertical straps for hanging and placement.

EQUIPMENT DESCRIPTION AND DATA - (CONTINUED)

EQUIPMENT DATA

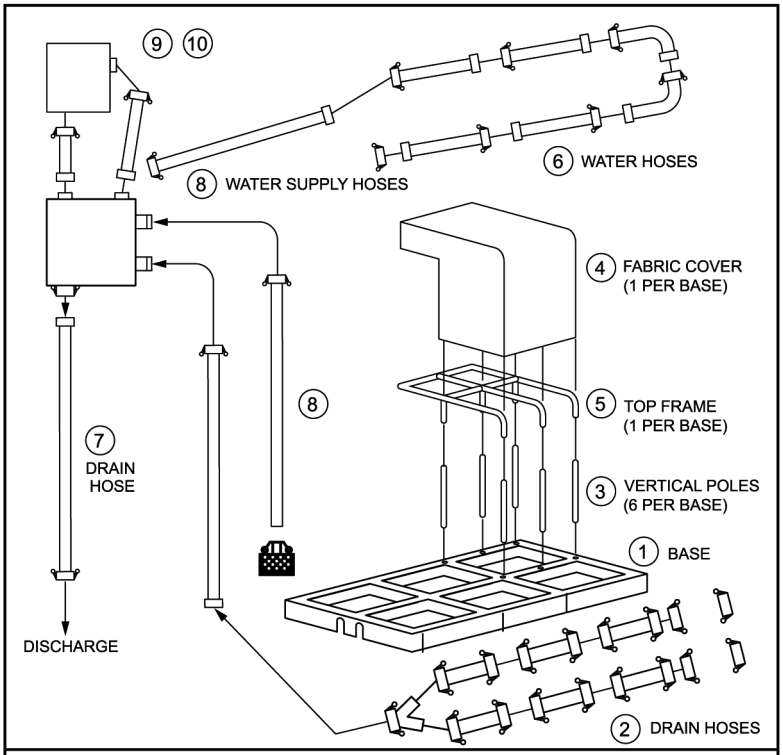
The following technical and identification data (Table 1) pertains to selected components of the shower. Refer to the shower identification plate (Figure 2) located on the top of the pump frame assembly for additional information.

Equipment Specification Data

Table 1. Components, Dimensions, and Weights

Overall Shower Cabinet Dimensions	
Height	86.38 inches (219.41 cm)
Length	216.38 inches (549.61 cm)
Width	86 inches (218.44 cm)
Shower Stall Dimensions	
Height	86.00 inches (218.44 cm)
Length	72.13 inches (183.21 cm)
Width	43.19 inches (109.70 cm)
Pump Assembly Dimensions	
Height	26.00 inches (66.04 cm)
Length	32.00 inches (81.28 cm)
Width	32.00 inches (81.28 cm)
Power Assembly Requirements	230 VAC, 3 phase, 60 hz
Storage Container Dimensions	
Height	30.00 inches (76.20 cm)
Length	75.50 inches (191.77 cm)
Width	46.50 inches (118.11 cm)
WH-400 Water Heater	WH-400
Height	46 inches (117 meters)
Length	47.5 inches (121 cm)
Width	31 inches (79 centimeters)
Capacity	27.1 gallons (102.6 liters)
Weight (without accessories)	490 lbs (223 kg)
Power Requirements	208 VAC, 3 Phase
Fuel Requirements	Jet Fuel MIL-T-83133 (JP-8) (above -60 °F (-51.1 °C)) (VV-F-800, DF-A, (above -60 °F (-51.1 °C)) (VV-F-800, DF-1 (above -25 °F (-31.7 °C)) (VV-F-800, DF-2 (above -25 °F (-31.7 °C)) Jet Fuel MIL-T-5624 (JP5) (above -25 °F (-31.7 °C))
Normal Temperature Control Set Point	150 °F (65.5 °C)
M-80 Water Heater	M-80
Height	47 inches (1.12 meters)
Length	52 inches (1.32 meters)
Width	27.17 (69 centimeters)
Capacity	23.7 gallons (89.7 liters)
Weight	465 lbs
Power Requirements	208 VAC, 3 Phase
Fuel Requirements	Diesel (VV-F-800, DF-A, DF-1, DF-2 Jet Fuel MIL-T-5624 (JP-4, JP5) Jet Fuel MIL-T-83133 (JP-8, Fuel No. 2 Commercial)
Normal Temperature Control Set Point	150 °F (65.5 °C)

EQUIPMENT DESCRIPTION AND DATA - (CONTINUED)



1. ARRANGE BASES.
2. TIP EACH BASE UP. CONNECT DRAIN HOSES. PLACE CAPS ON END DRAINS.
3. 4. INSERT VERTICAL POLES INTO BASES, SIX POLES PER BASE. PLACE VERTICAL POLES (ALONG OUTSIDE OF BASE) THROUGH HOLES IN COVER (FROM OUTSIDE TO INSIDE OF COVER).
5. INSTALL TOP FRAME ON POLES: PULL COVER OVER FRAME: FASTEN ALL WEB STRAPS.
6. INSTALL SHORT 1' WATER HOSES.
7. INSTALL LONG DRAIN HOSE FROM SHOWER TO PUMP AND PUMP TO DISPOSAL SITE.
8. INSTALL WATER SUPPLY HOSES FROM SHOWER TO PUMP AND PUMP TO WATER SOURCE.
9. CONNECT WATER HOSES TO HEATER.
10. CONNECT ELECTRICAL CORDS. START HEATER PUMPS. ADJUST TEMPERATURES.
11. LUBRICATE ECCENTRIC AND DRIVE MECHANISMS EVERY 25 HOURS OF USE WITH 4.6 STROKES OF A GOOD GRADE OF BEARING GREASE.

FIELD SHOWER PORTABLE

FEDERAL STOCK NO.	MFR NAME
4510-01-163-6775EJ	ENGINEERED AIR SYSTEMS INC.
SUPPLY CATALOG NO.	MFR MODEL NO.
8611305	SMP100
MFR SERIAL NO.	DATE OF MFR.
SMP100-	

CONTRACT NO.
F09603-93-C-0864

Figure 2. Shower Identification Plate.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

THEORY OF OPERATION

SUPPLY PUMP

The supply pump draws water from a clean, open or closed water source, supplying cold water through a direct connection from within the pump assembly to the temperature regulator, and to the inlet side of the hot water heater (e.g., WH-400) by a hose connection from the outlet side of the supply pump. (Figure 1). A diaphragm tank is used to maintain constant pressure on the system, preventing excessive pump wear from short cycling.

WATER HEATER (e.g., WH-400)

The water heater used for the shower is an WH-400 field water heater. The WH-400 is capable of supplying heated water at 9 gallons per minute at temperatures between 60 °F (16 °C) and 190 °F (88 °C). Once heated, hot water is then supplied to the hot water inlet of the temperature regulator.

TEMPERATURE REGULATOR

Supply water temperature is regulated between 95 °F (35 °C) and 105 °F (41 °C) by mixing the cold water from the supply pump with the hot water from the hot water heater. The temperature regulator manual adjustment knob is used to control the mixing of the hot and cold water to provide the desired water temperature to the shower heads.

PRESSURE REGULATOR

The pressure regulator is connected to the water supply hose between the outlet side of the temperature regulator and the shower heads. The pressure regulator can be manually adjusted to provide the desired water pressure to the shower.

SHOWER HEAD

Two different shower heads that can be used to provide either a fixed position spray or a swivel type directional spray.

RECIPROCATING PUMP

The reciprocating pump draws drain water from the base of the shower and discharges it through hoses to a greywater holding tank or processing facility.

THEORY OF OPERATION - (CONTINUED)

SHOWER WATER FLOW SCHEMATIC

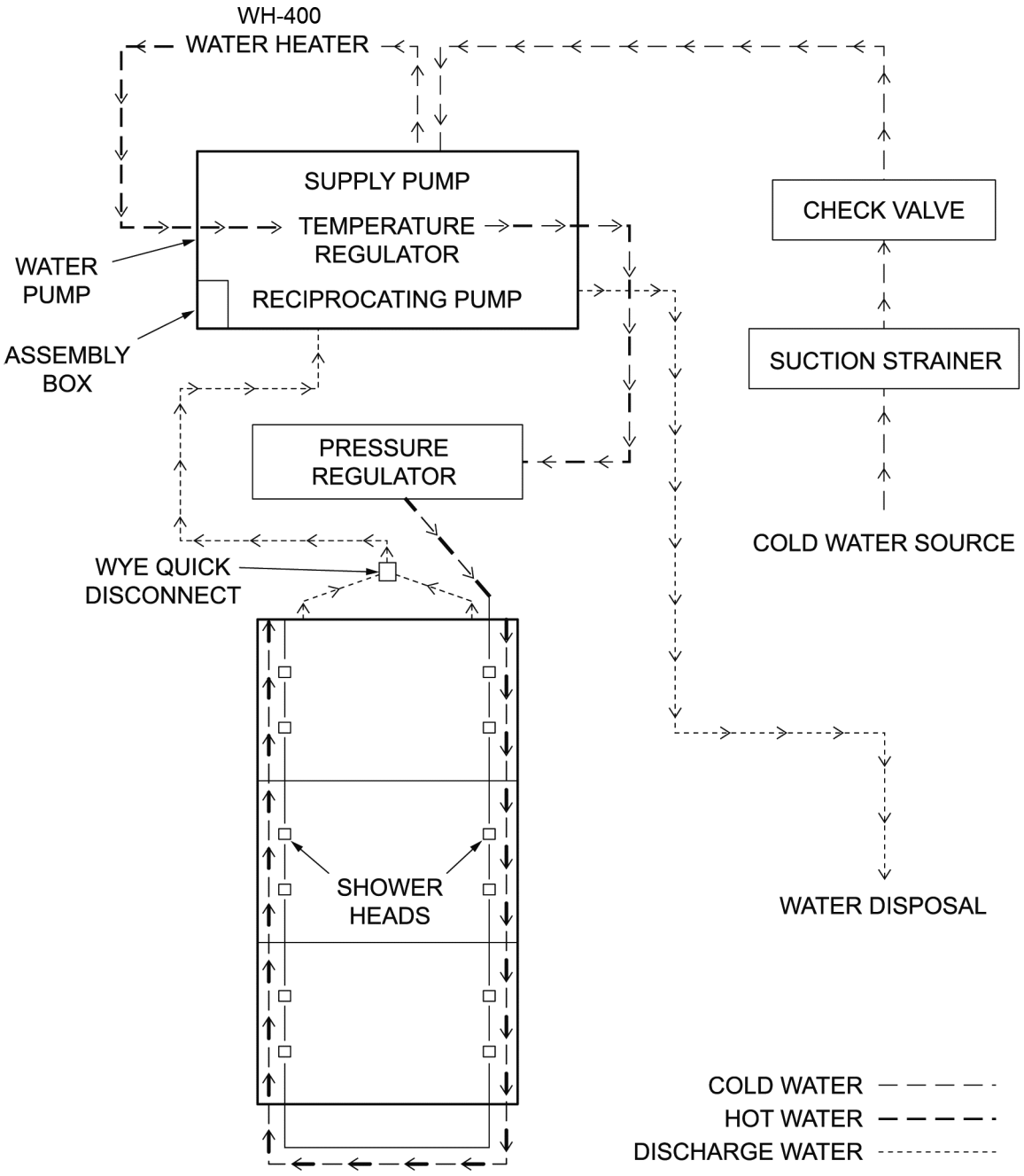


Figure 1. Shower Water Flow Schematic.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

FOR

12-HEAD SHOWER SYSTEM

OPERATOR INSTRUCTIONS

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS

Figure 1 and the associated table show the location of the controls and indicators and identifies the function of each component.

Table 1. Pump Assembly Controls And Indicators

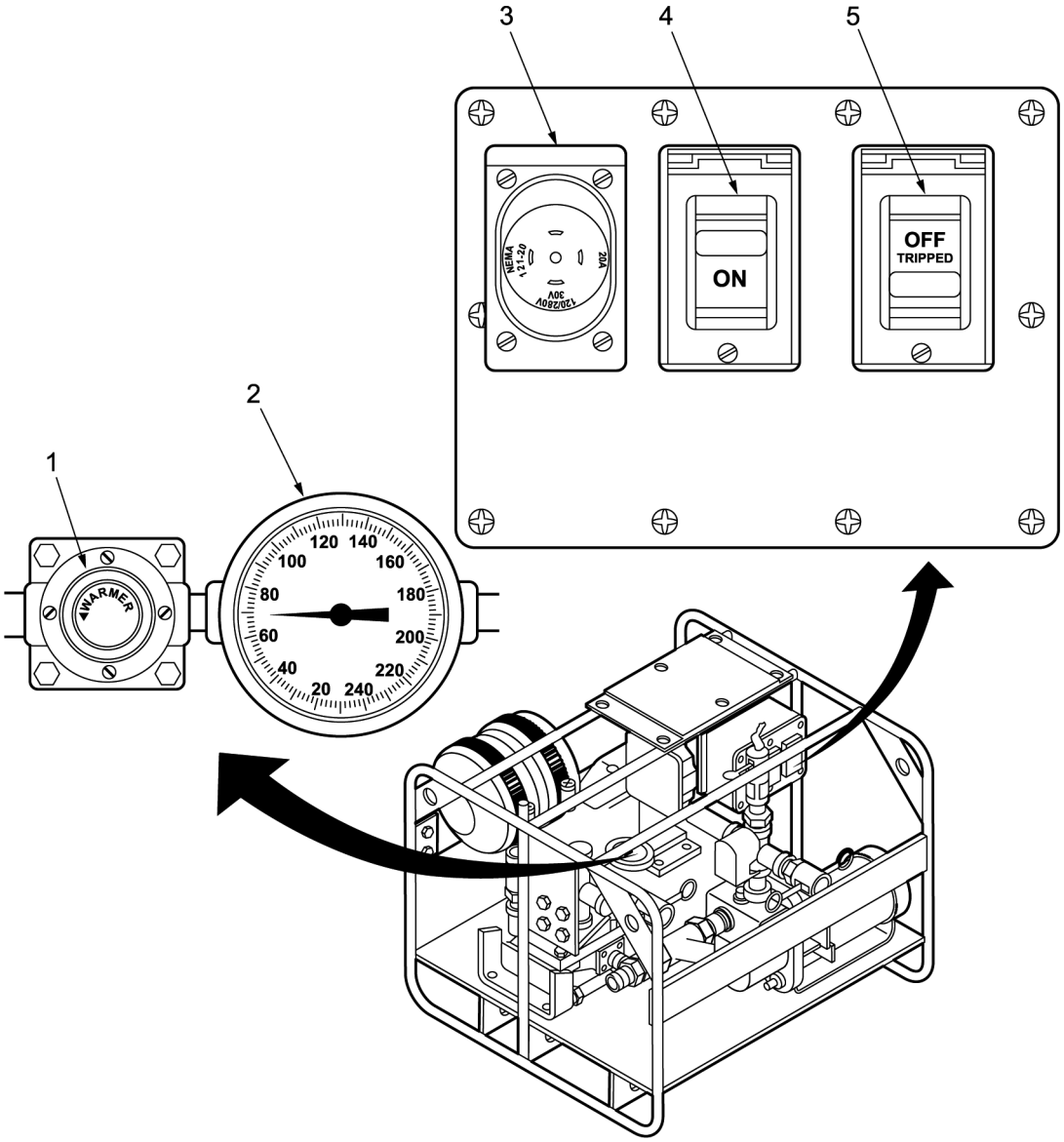


Figure 1. Pump Assembly Operating Controls and Indicators.

DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS - (CONTINUED)

KEY	CONTROL/INDICATOR	FUNCTION
1	Temperature Regulator	The temperature regulator has a manually adjusted control knob that can be set to deliver the desired water temperature to the shower stall. Turning the control knob counterclockwise increases the delivered water temperature and clockwise decreases it.
2	Temperature Gauge	The temperature regulator temperature gauge indicates the water temperature being sent to the shower stall. Monitor this indicator whenever adjusting the temperature regulator.
3	Power Receptacle	The power receptacle provides a 120/280 V power source.
4	Supply Pump Switch	The supply pump switch controls power to the supply pump as well as overload protection for the motor. Place the switch in the ON position for operation and the OFF position when not in use. If the motor overloads, the switch will move to a midway TRIPPED position and power will be interrupted. If the switch is in the TRIPPED position, it must be switched to OFF then ON to reset it.
5	Reciprocating Pump Switch	The reciprocating pump switch controls power to the reciprocating pump as well as providing overload protection for the motor. Place the switch in the ON position to operate and in the OFF position when not in use. If the motor overloads, the switch will move to a midway TRIPPED position and power will be interrupted. If the switch is in the TRIPPED position, it must be switched to OFF then ON to reset it.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 5)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1
Shower/Laundry and Clothing Repair Specialist, (92S) - 6

References
TM 10-4520-266-13&P
TM 10-8340-244-13&P
WP 0008

GENERAL INFORMATION

This work package provides instructions for shower siting, assembly, operation, and shutdown. The instructions in this section are for personnel who operate the shower.

SITING REQUIREMENTS

The following should be considered when selecting a site for the 12-head shower. Carefully review these assembly requirements to determine the optimum location.

If possible, find a location where the shower can be set up next to a natural slope to allow water to flow away from the shower.

The 12-head shower should be assembled on an area that is level and as well-drained as possible. If possible, select a site where there is a gravel pad measuring 30 ft by 90 ft on which to set up the 12-head shower bases.

The site must have overhead clearance higher than a TEMPER tent, Type II (10 x 16 x 32 feet).

The distance from the shower to a clean, potable water supply is determined by the length of the supply hose, about 50 ft. A closed water source is preferable if available, such as a 3K bag.

The shower must be near an electrical power source and wastewater disposal site. If these items are not available, they must be provided before the shower is assembled.

END OF TASK

ASSEMBLY AND PREPARATION FOR USE

NOTE

The following is a suggested layout of supplied components and may differ from that required for any specific installation.

The 12-head shower is shipped disassembled with parts in six storage containers. Table 1 lists the contents of each container. The pump assembly, 3K bag, and water heater are the only items packed separately.

Refer to Figure 1 and Table 1 as references when assembling the 12-head shower cabinets.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

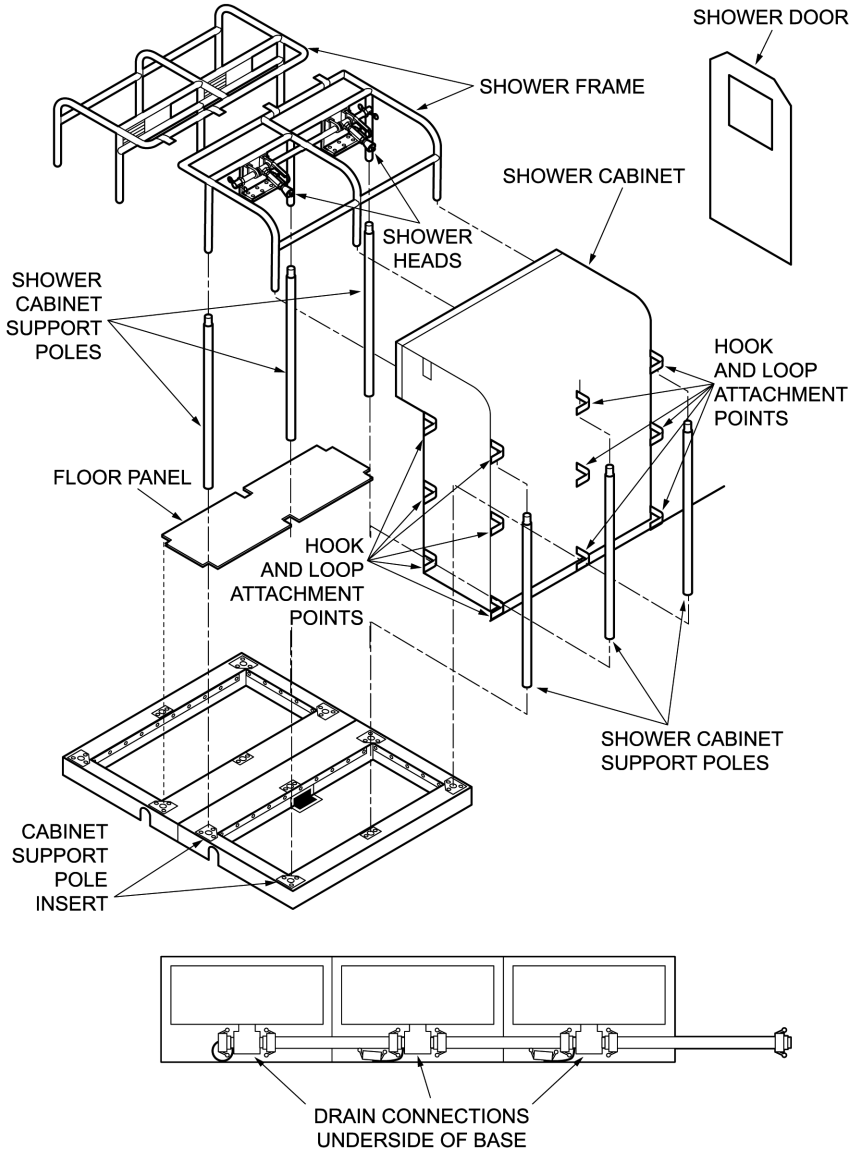


Figure 1. Assembly of the 12-Head Shower Cabinets.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

Table 1. Storage Container Contents

Description of Contents	Quantity	Description of Contents	Quantity
STORAGE CONTAINER 1		STORAGE CONTAINER 4	
Shower Base	1	Shower Base	1
Shower Frame	1	Shower Frame	1
Shower Cabinet Support Pole	6	Shower Cabinet Support Pole	6
Shower Cabinet	1	Shower Cabinet	1
2-inch Drain Hose (5 feet long)	1	2-inch Drain Hose (5 feet long)	1
2-inch Supply Hose (35 feet long)	1	1-inch Supply Hose (12 feet long)	1
2-inch Supply Hose	1	Floor Mat	2
Pressure Regulator Valve Assembly	1	Clinching Straps (2 on each floor mat)	4
Light Set	1	Light Set	1
STORAGE CONTAINER 2		STORAGE CONTAINER 5	
Shower Base	1	Shower Base	1
Shower Frame	1	Shower Frame	1
Shower Cabinet Support Pole	6	Shower Cabinet Support Pole	6
Shower Cabinet	1	Shower Cabinet	1
2-inch Drain Hose (5 feet long)	1	2-inch Drain Hose (5 feet long)	1
1-inch Supply Hose (25 feet long)	1	1-inch Supply Hose (35 feet long)	1
Wye Quick Disconnect	1	Water Supply Suction Strainer	1
Shower Heads (alternate)	12	Power Cable Assembly	1
Light Set	1	Check Valve	1
STORAGE CONTAINER 3		STORAGE CONTAINER 6	
Shower Base	1	Shower Base	1
Shower Frame	1	Shower Frame	1
Shower Cabinet Support Pole	6	Shower Cabinet Support Pole	6
Shower Cabinet	1	Shower Cabinet	1
2-inch Drain Hose (5 feet long)	1	2-inch Drain Hose (5 feet long)	1
1-inch Supply Hose (7.5 feet long)	1	1-inch Supply Hoses (2 feet long)	6
2-inch Drain Hose (35 feet long)	3	Fuel Hoses	2
Shower Cabinets Floor Panel	3		
Shower Cabinets Door Panel	2		

Unpacking the Shower

1. To aid in assembly, remove components from the storage containers (Table 1), lay them out, and organize them by size and length similar to the way pictured in Figure 2. Be sure to place components away from the area where the shower will be assembled.
2. Place any packaging material into the storage containers, then move the containers to a suitable storage site.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

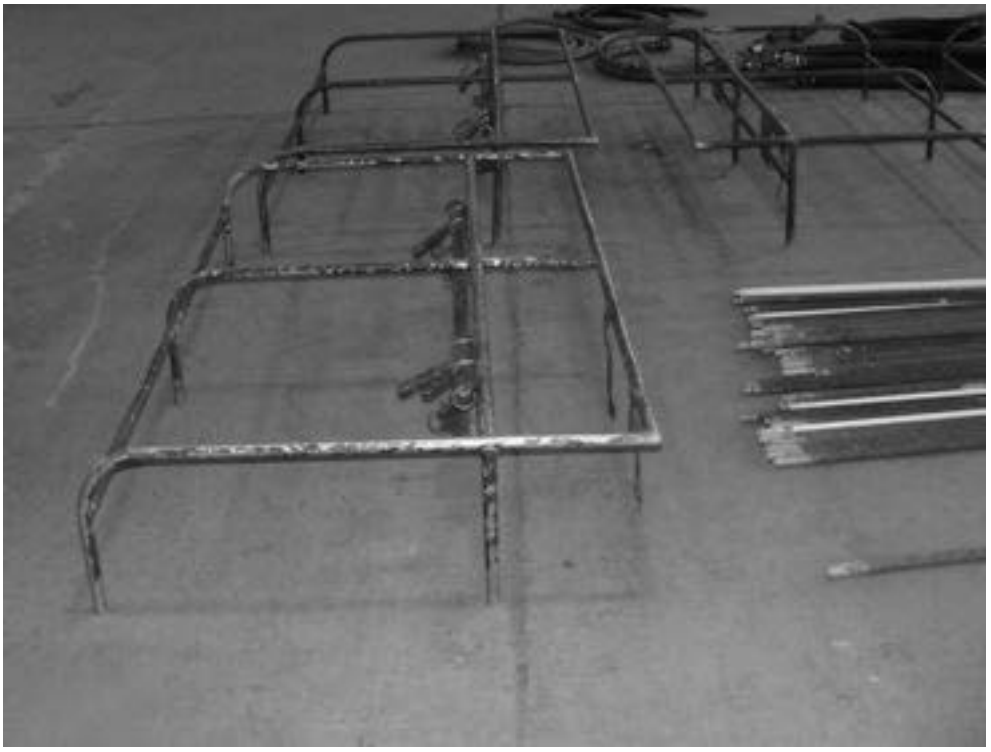


Figure 2. Shower Frames, Unloaded.

END OF TASK

ASSEMBLING THE SHOWER FACILITY

WARNING

Be sure to use at least two operators to lift the shower bases. Failure to follow this warning may result in serious injury to personnel.

NOTE

If the shower is to be installed inside a TEMPER tent, the TEMPER must be set up first.

1. If the shower is going to be housed inside a TEMPER tent, set up the TEMPER in accordance with the operator instruction in the TEMPER operators manual. Set the TEMPER up before assembling the 12-head shower.
2. Using two operators, move the shower bases to the location where the shower will be installed.
3. Set each of the bases on its side, arranged as shown in Figure 3 so that the drain hose assemblies can be easily installed. Be sure that the connections for the drain hose assemblies are facing out and that the drain hose connections are on the side closest to the ground (Figure 3).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

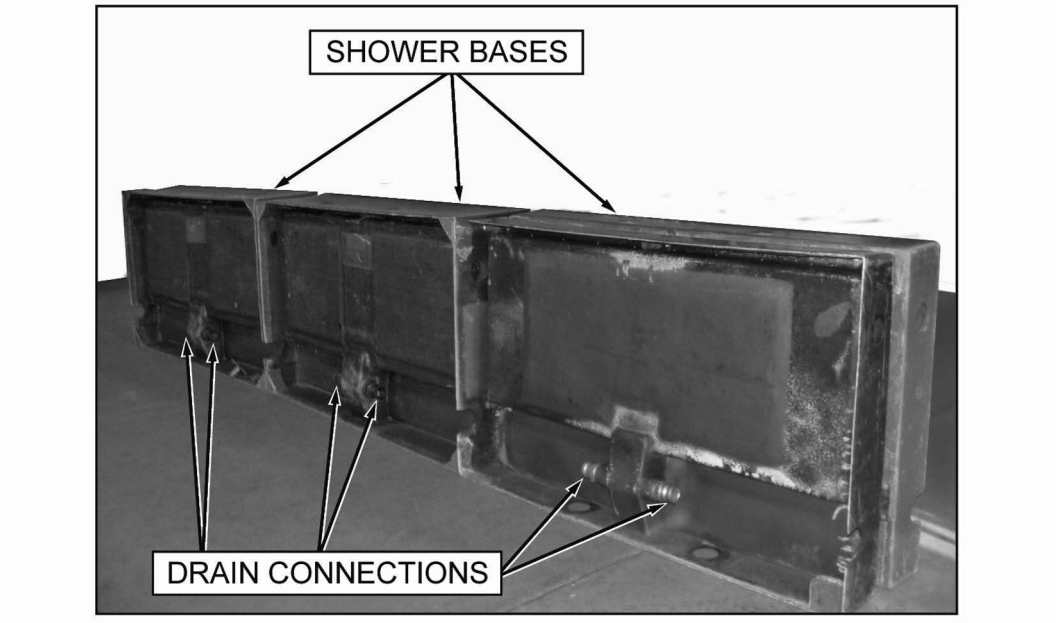


Figure 3. Positioning the Shower Bases.

4. If not already installed, install two drain caps (Figure 4) onto the end of the drain assemblies that are at the opposite end of where the shower pump assembly will be located. This will prevent water from flowing out of the entrance side of the shower.
5. Install six 2-inch diameter by 5 foot long drain hoses (Figure 4), so that the two drain hoses on the pump assembly side of the shower extend beyond the shower bases (Figure 4).

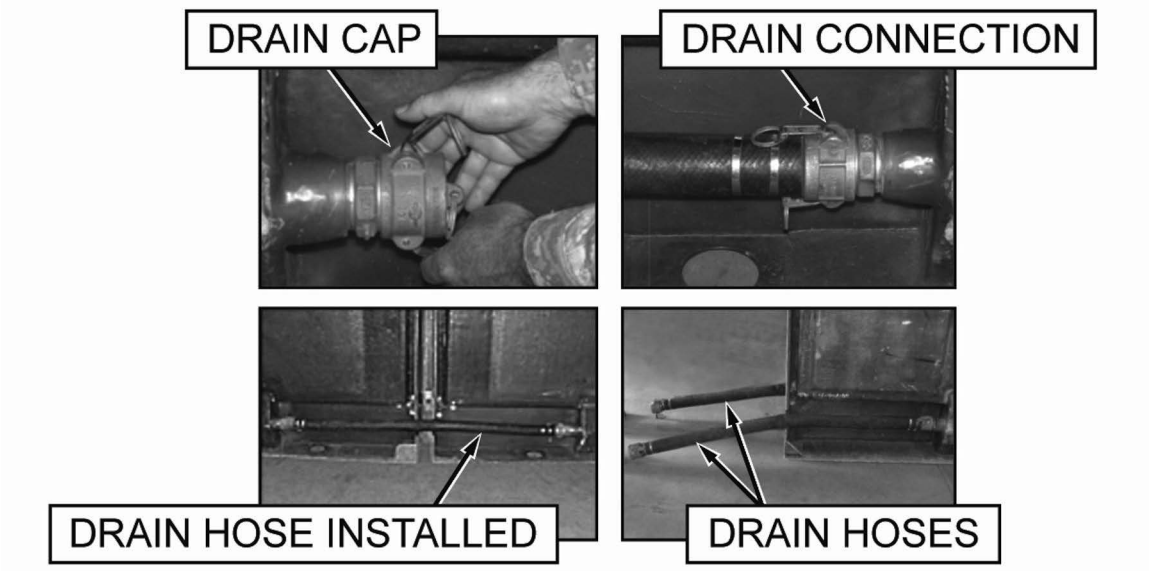


Figure 4. Installing Drain Hose Assemblies.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

CAUTION

Be sure that all drain assemblies are properly connected. A loose connection could cause the drain hose connector to press against the shower base and cause damage.

Laying out the shower bases requires six operators.

6. Inspect each drain assembly connection to make sure that all drain assemblies are properly connected.
7. With one operator on the drain side of each shower base, carefully and at the same time lower the six shower bases to the ground. Push bases together into final position as shown in (Figure 5).

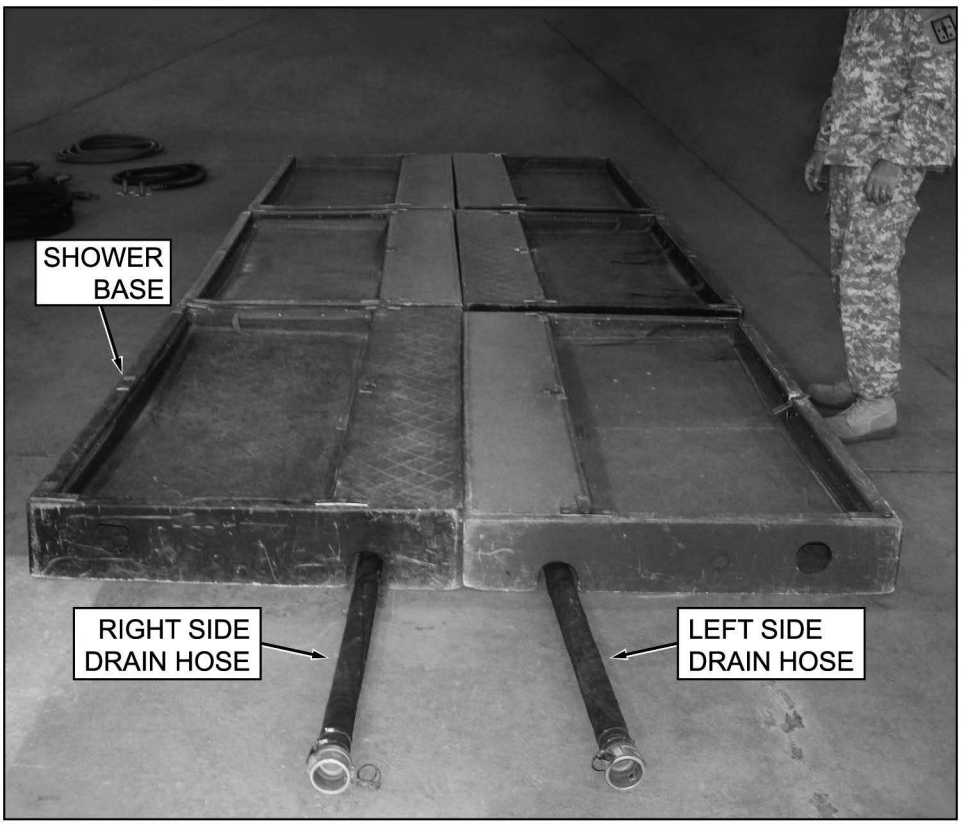


Figure 5. Shower Base Layout.

8. Install the three floor panels along the center shower walkway and secure them to the shower bases using attached hook and loop strips.
9. Install five shower cabinet support poles into shower base (Figure 6). Do not install the outer center shower cabinet support pole at this time (Figure 6).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

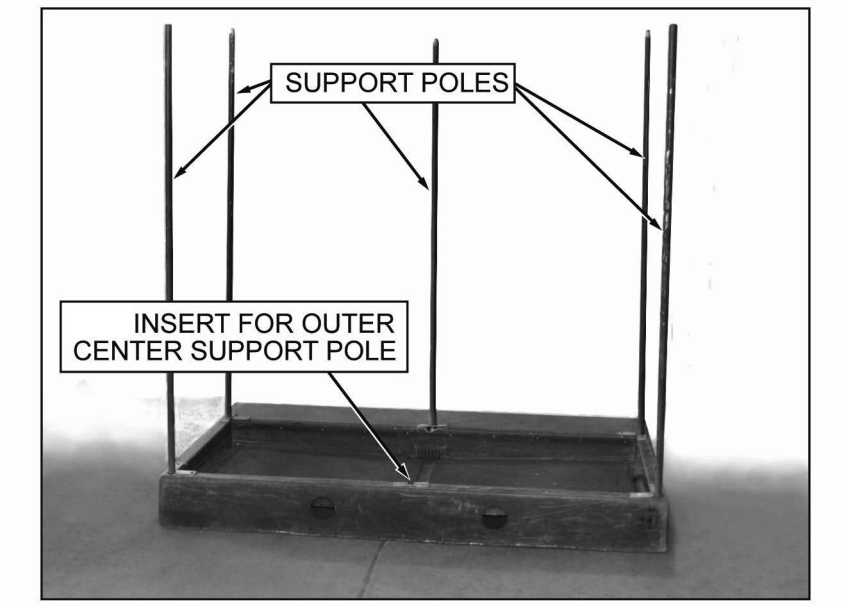


Figure 6. Installing Shower Cabinet Support Poles.

10. Lay the shower cabinet on the ground with the outside of the cabinet facing down (Figure 7).
11. Position the shower frame on the shower cabinet (opposite side of where the shower head is installed) and carefully guide the three outer legs through openings in back of shower cabinet (Figure 7).
12. Pull the shower frame up as shown in (Figure 7) and pull the shower cabinet skirt up so that the cabinet hook and loop strip that runs along the length of the cabinet skirt is above the height of the frame.
13. Attach the hook and loop strips at each position on the inside of the cabinet to the shower frame (Figure 7). Hook and loop strips are sewn in place on both the outside and inside of the shower cabinet.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

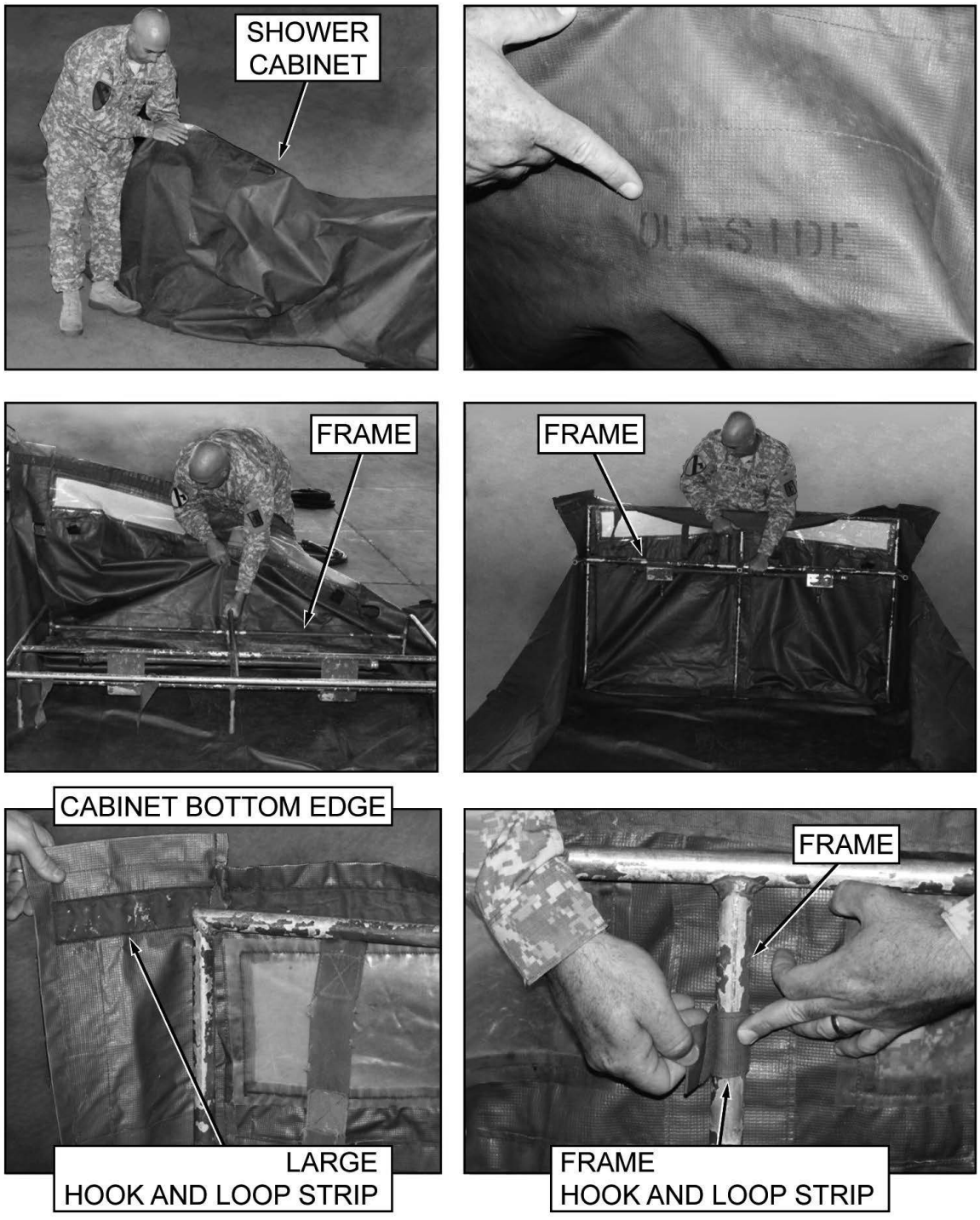


Figure 7. Assembling the Shower Cabinet and Frame.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

WARNING

Be sure to use at least two operators to lift the shower cabinet and shower frame. Failure to follow this warning may result in serious injury to personnel.

14. From the inside, lift the shower frame and cabinet and install the assembly onto the shower cabinet support poles. Note that the two outer shower cabinet support poles should be on the outside of the shower cabinet.

WARNING

Be careful when installing the shower frame legs onto the shower cabinet support poles not to put your fingers directly on the location where the frame legs and support posts join. Severely pinched fingers may result. Failure to follow this warning may cause injury to personnel.

15. Install outer center shower cabinet support pole.
16. Secure the shower cabinet to the shower cabinet support poles (Figure 8) using the attached hook and loop strips.
17. Secure the shower cabinets to the inside of each shower base using attached hook and loop strips on the bottom skirt of the shower cabinet.
18. Perform steps 6 through 17 to assemble the remaining shower cabinet and frame assemblies until all shower cabinet and frame assemblies have been installed.
19. Secure the shower frames to each other using attached hook and loop strips (Figure 8).

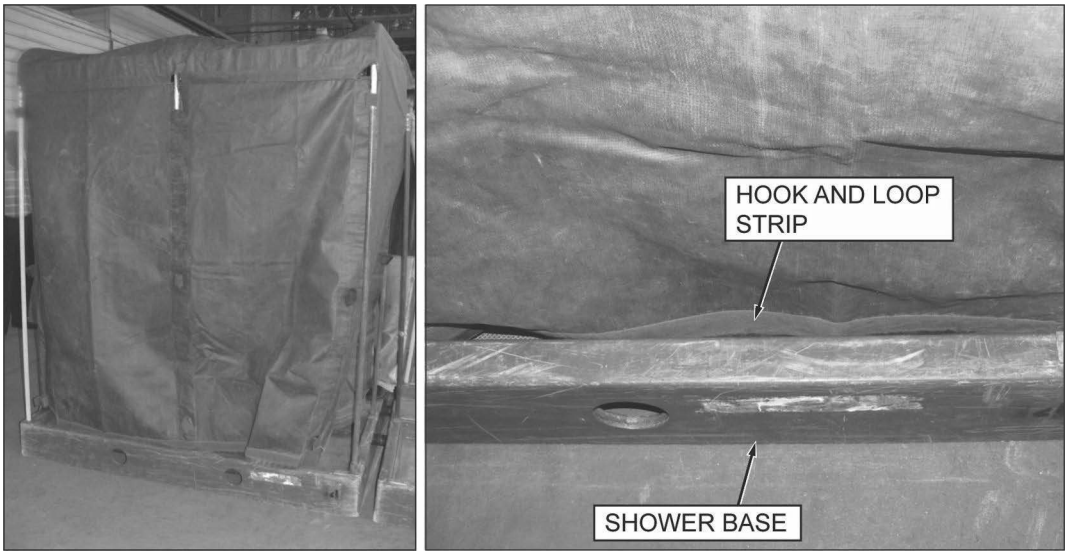


Figure 8. Attaching the Outside Hook and Loop Strips.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

20. On the inside of the shower facility, each shower cabinet has two overhead hook and loop attaching strips (Figure 9). Secure each facing shower cabinet together using the attached hook and loop strips provided.

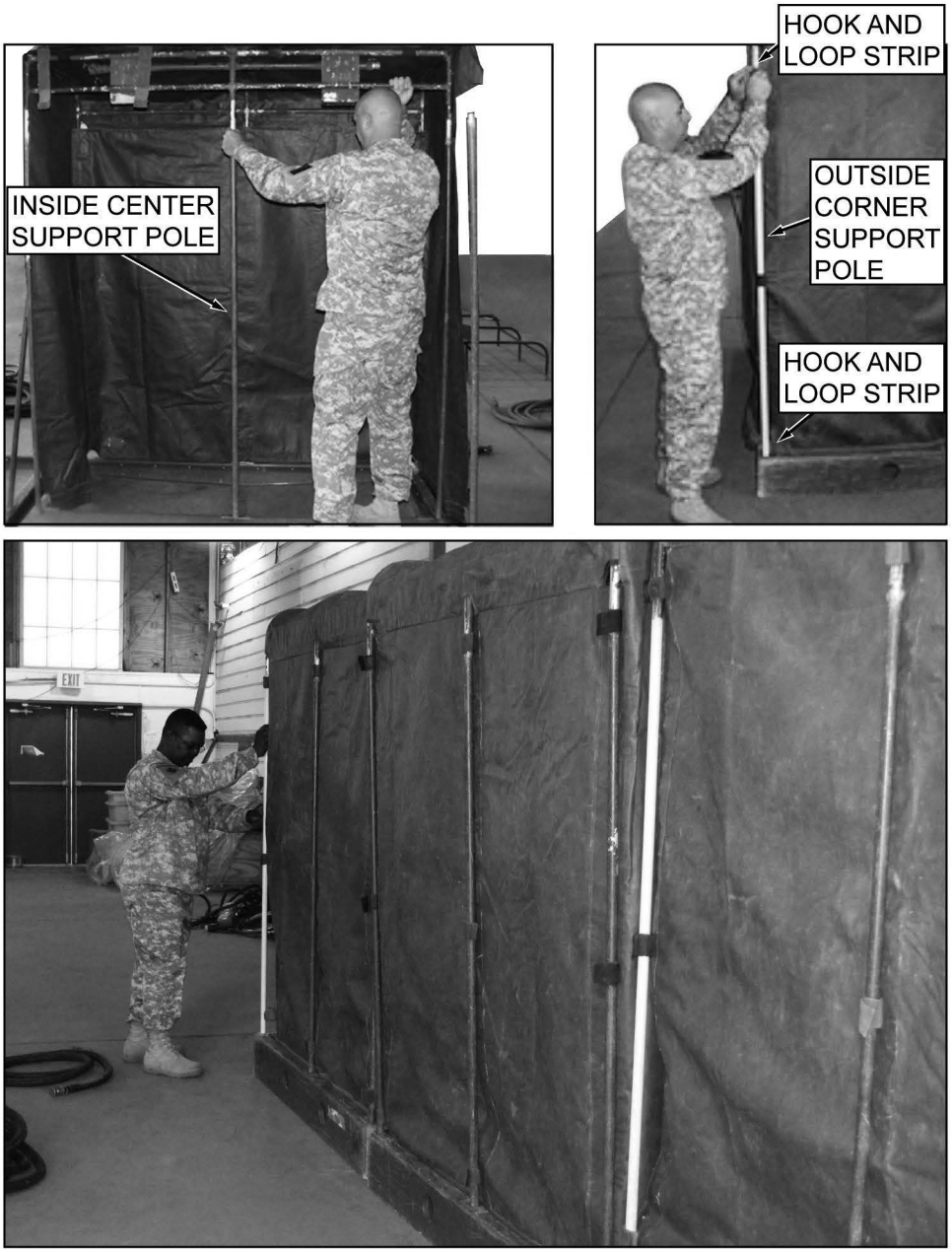


Figure 9. Attaching the Inside Hook and Loop Strips.

21. Secure the two shower cabinet door panels, one on each end, to the outside of the assembled shower using the attached hook and loop strips provided (Figure 10).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

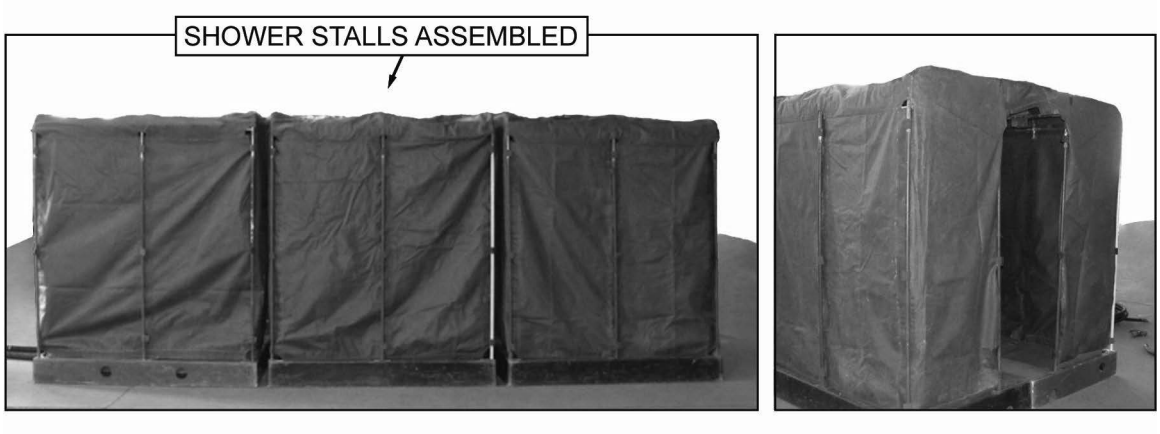


Figure 10. Assembled Shower Cabinet Assemblies.

END OF TASK

HOSE CONNECTIONS

NOTE

The 12-head shower assembly hoses are attached and connected using quick-disconnect connectors. No tools are required to connect the hoses. Refer to Figure 11 for a visual reference to hose connections and the pump assembly connection points.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

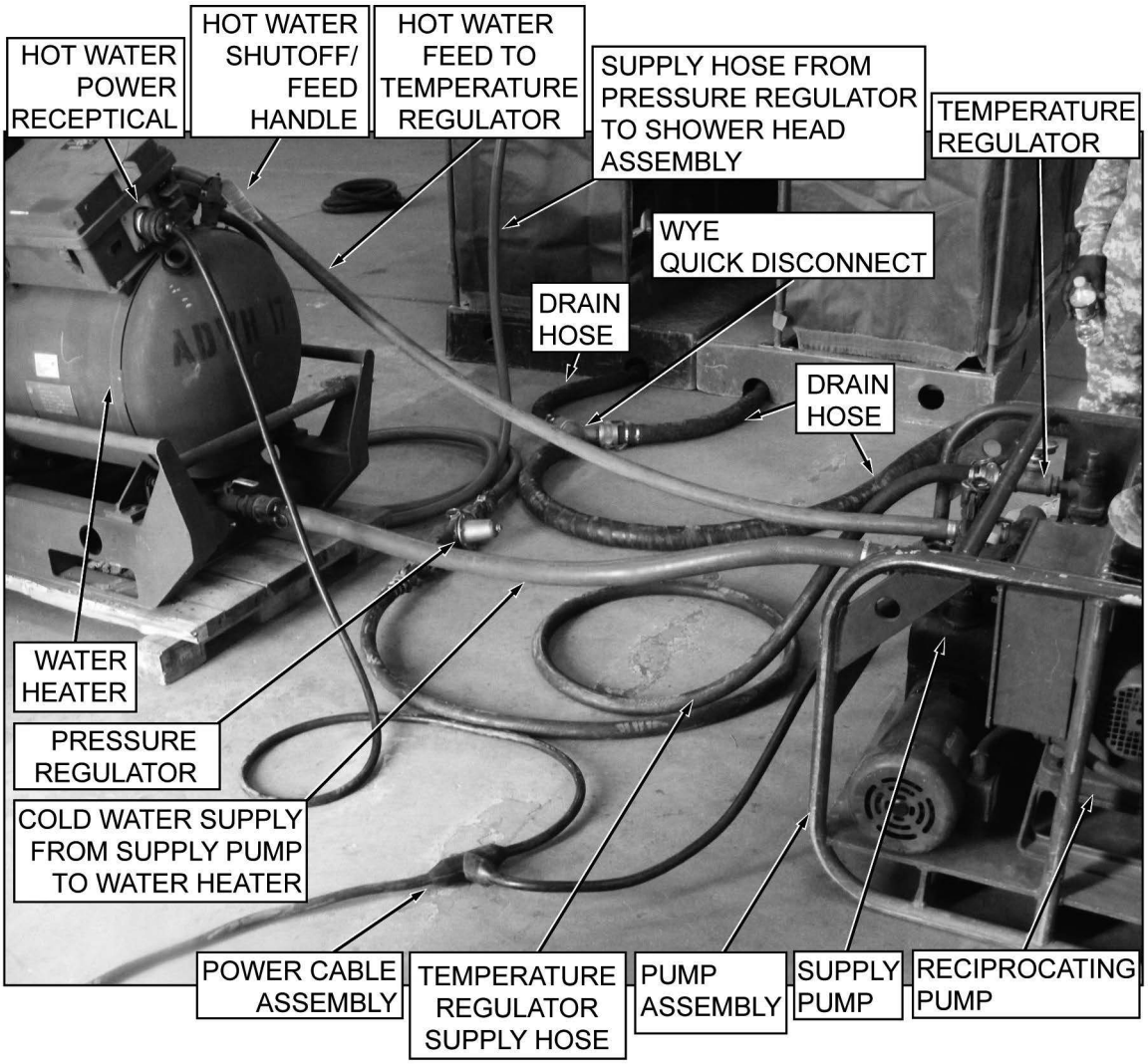


Figure 11. Hose Connections.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

WARNING

Be sure to use at least four operators to move the pump assembly. Failure to follow this warning may result in serious injury to personnel.

1. Move the pump assembly to approximately ten feet from the end of the shower facility where the two drain hoses are extended out from the shower base (Figure 11).
2. Position the pump assembly so that the supply pump and reciprocation pump inlets are facing the shower facility (Figure 11).

WARNING

Be sure to use at least six operators to move the water heater. Failure to follow this warning may result in serious injury to personnel.

3. Move the water heater to a location approximately five feet from the pump assembly, so that the cold water inlet of the water heater is facing the cold water outlet of the supply pump (Figure 11).
4. Assemble the water supply suction strainer and check valve. Note that flow direction of the check valve must point away from the suction strainer.
5. Connect a 1-inch diameter by 35-foot long supply hose to the check valve.

NOTE

The suction strainer must rest within the water supply source at least 1 inch above the bottom. This will help prevent material that may be at the bottom of the water supply source from obstructing the free flow of water through the suction strainer.

6. Position the suction strainer end of the supply hose into the water supply, such that the suction strainer is completely submerged. Make sure that the suction strainer is at least 1 inch above the bottom of the water source.
7. If necessary to reach the supply pump, join the 1-inch diameter by 25-foot long supply hose with the 35-foot long supply hose to provide additional hose length.
8. Connect the supply hose to the supply pump inlet (Figure 12).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

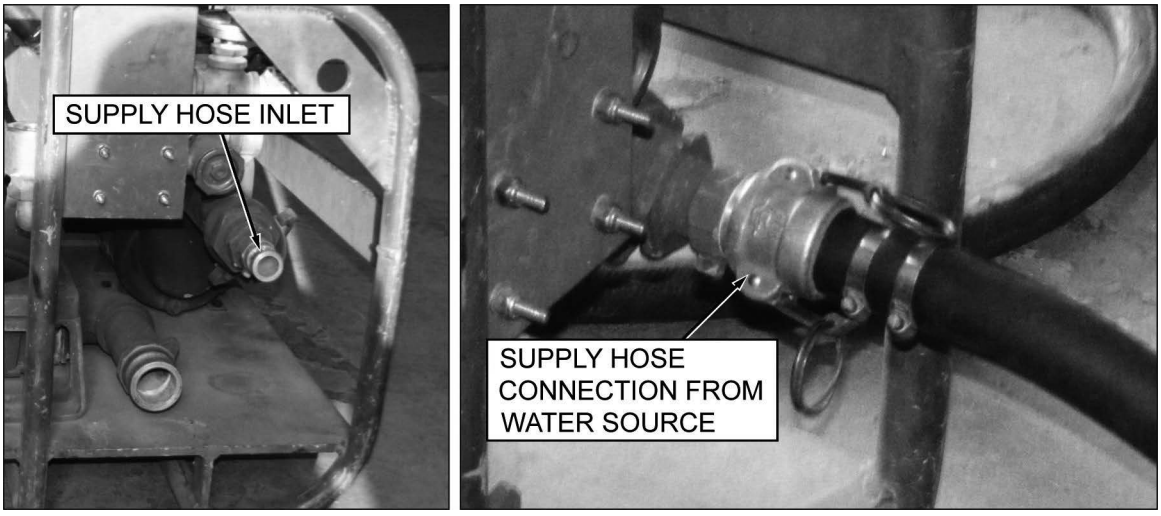


Figure 12. Connecting the Supply Hose to the Supply Pump Inlet.

9. Connect the hose between the temperature regulator outlet (Figure 13) and the pressure regulator (Figure 13) inlet, using a reducer between the hose and the pressure regulator. Note that the direction of water flow from the pressure regulator must be pointing away from the pump assembly, toward the shower facility.

Figure 13. Temperature Regulator to Pressure Regulator Connection.

10. Connect a 1-inch diameter by 35-foot long supply hose between the pressure regulator outlet and the shower head manifold (Figure 14), using a reducer between the pressure regulator outlet and the supply hose. Note that supply hose must pass through the opening provided in the shower cabinet.
11. Connect six supply hoses between each shower head manifold as shown in Figure 14. Connect the left and right side manifold hoses at the entrance end of the shower facility together as shown in Figure 14. Note that the connector hose must pass through opening in shower cabinet.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

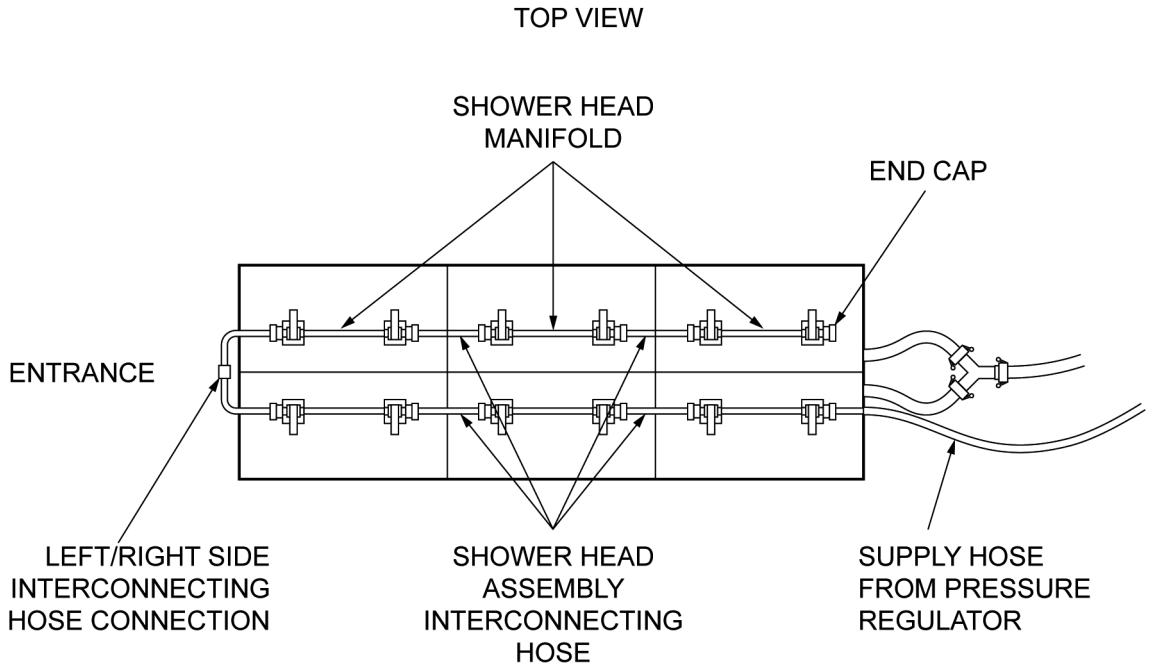


Figure 14. Connecting the Shower Manifold Assemblies.

12. Install an end cap onto the open end of last shower head manifold (Figure 14).
13. Connect two drain hoses extending from the shower facility to the WYE quick disconnect (Figure 15).
14. Connect the 2-inch diameter by 35-foot long noncollapsable drain hose between the WYE quick disconnect and the reciprocating pump inlet.
15. Connect the drain hose to the reciprocating pump outlet. (Figure 15).
16. Connect the opposite end of the drain hose to the waste water connection point (storage tank) or route to waste water disposal site.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

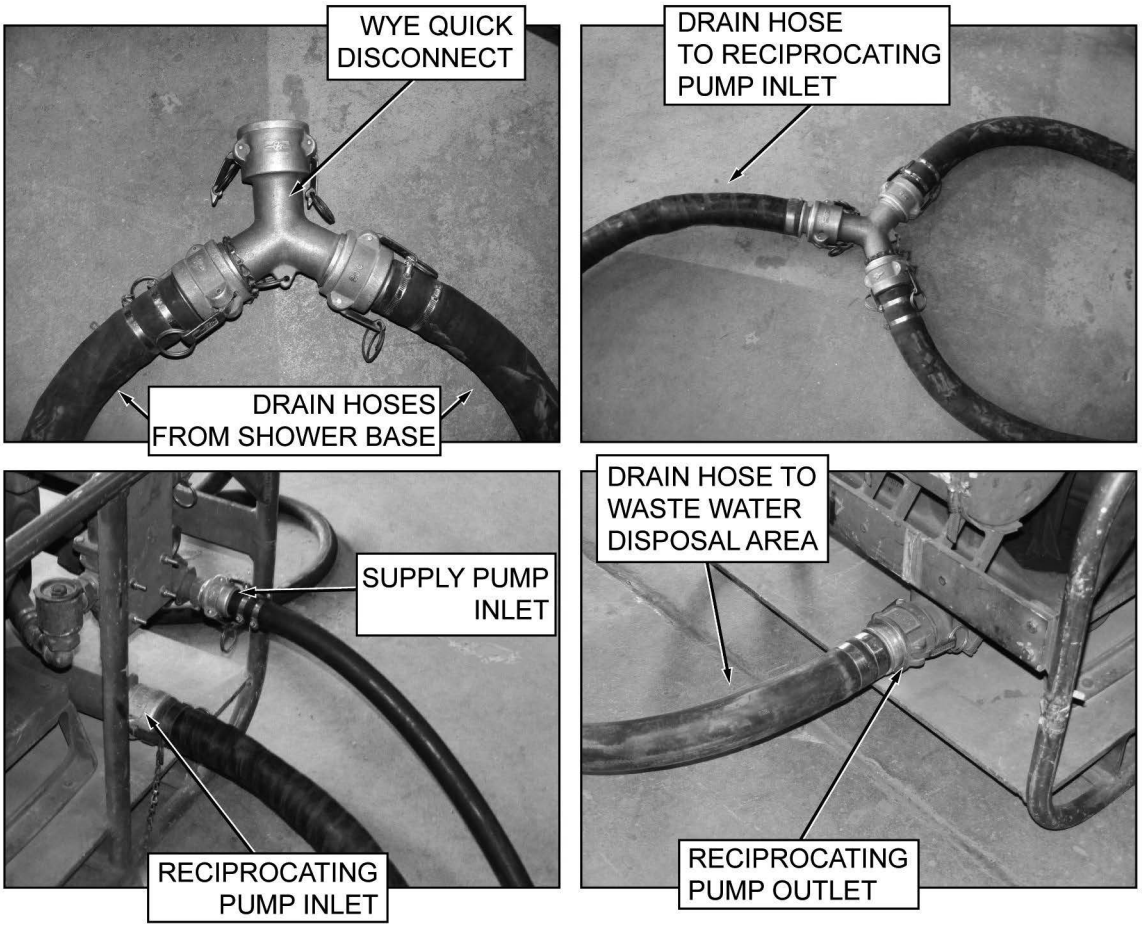


Figure 15. Connecting the Waste Water Drain Hoses.

17. Connect the 1½-inch diameter by 5-foot long cold water supply hose to the outlet side of the supply pump (Figure 16).
18. Connect the other end of the 5 foot supply hose to the inlet side of the water heater.

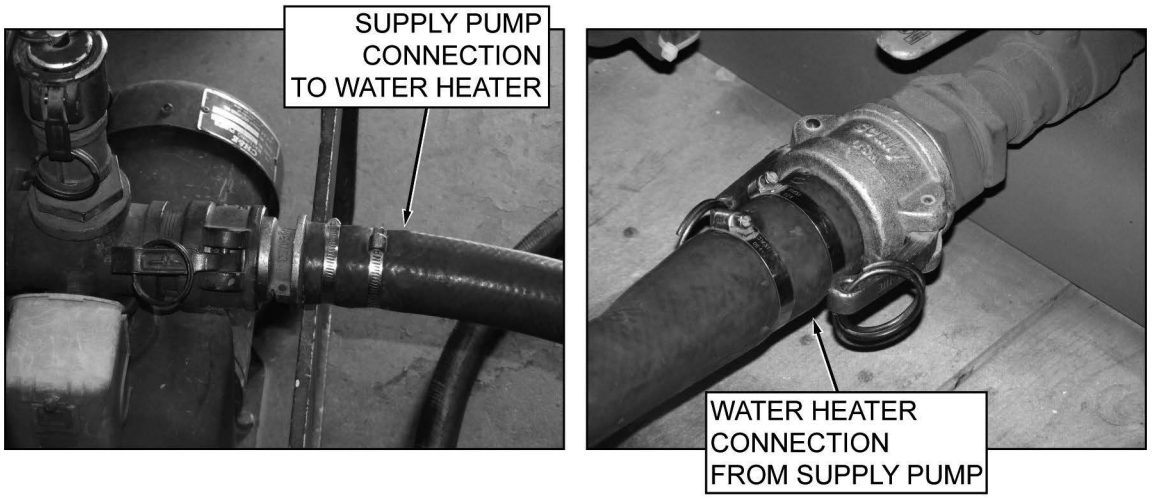


Figure 16. Connecting Cold Water Supply Hose from Supply Pump to Water Heater.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

19. Connect the 1-inch diameter by 12-foot long hot water supply hose to the inlet side of the water heater (Figure 17).
20. Connect the other end of the 12-foot long hose to the outlet side of the temperature regulator (Figure 17).

Figure 17. Connecting the Hot Water Supply Hose.

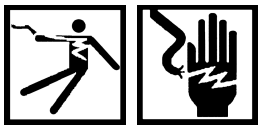
21. Contact maintenance to confirm that the closed side (air side) of the diaphragm tank on the pump assembly is pressurized in accordance with the instruction plate located on top of the diaphragm tank.
22. Contact maintenance for connection of the two hot water heater fuel lines (Figure 18).

Figure 18. Connecting the Water Heater Fuel Lines.

END OF TASK

CONNECT POWER CABLES

WARNING



High voltage is used in the 12-head shower module. Care must be taken to avoid personal injury or death from energizing circuits.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

1. Notify Maintainer maintenance to connect the input power cable (pigtail) to a 230 volts AC, 3 phase, 60 Hz power source.
2. Check that both pump switches (Figure 20) are in the OFF position, then plug one of the short lengths of the system power cable connector into the input power receptacle on the switch box (Figure 20).
3. Plug the other short length of the system power cable into the water heater electrical receptacle.
4. Plug the long length of the system power cable into the connector of the input power cable.

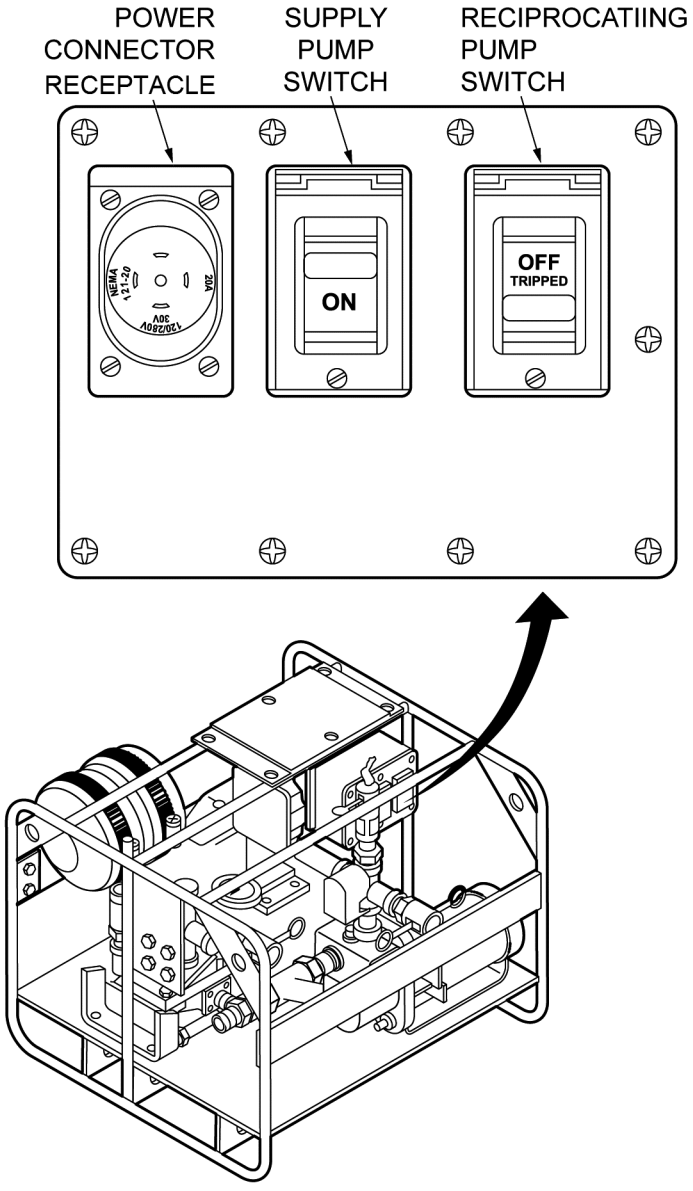


Figure 19. Connecting to the Power Source.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

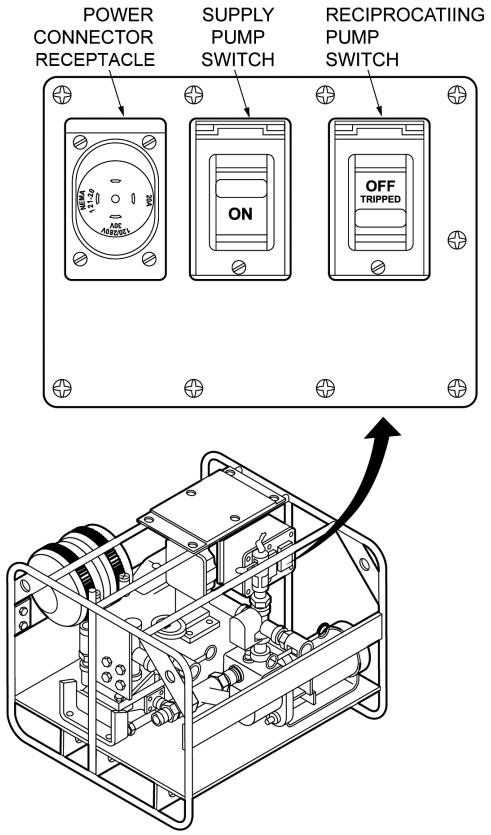


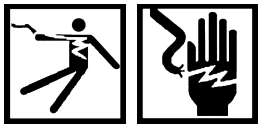
Figure 20. Connecting Electrical Power.

END OF TASK

INSTALLING THE LIGHT SETS FOR TEMPER TENT

There are three light sets provided with the 12-head shower, designed to be used when the shower is housed inside a TEMPER. Each light set contains four 2-foot lights. If the 12-head shower is housed inside a TEMPER assembly, install shower perimeter lighting as follows:

WARNING



High voltage is used in the 12-head shower module. Care must be taken to avoid contact with energizing circuits.

Lights from the light set must be installed in the TEMPER. Never install lights anywhere directly on the 12-head shower facility.

Failure to follow this warning could result in injury or death to personnel.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

1. Determine the locations in the TEMPER where the lights will be installed.
2. Remove each light, one at a time, and uncoil the hook and loop straps that are used to hang the lights.
3. Feed the end of one hook and loop strap behind the horizontal support of the TEMPER, as shown in (Figure 21), and attach the end to the lower part of the strap so that is secured to the TEMPER support.
4. Connect the hook and loop strap in the same way as the first strap so that the light is parallel to the TEMPER horizontal support (Figure 21).

Figure 21. Installing Light Sets.

5. Repeat steps 1 through 4 for each light.
6. There is an electrical receptacle on each end of each light. String the lights together electrically by first plugging the electrical cable provided with the light set into the receptacle on the end of the light nearest the power source. Make sure the plug is connected to the receptacle on the end facing away from the power source.
7. Plug the cable into the receptacle on the opposing end of the next light in succession. Continue connecting each light until the last light in line is connected.
8. Plug an extension cable in the empty receptacle of the first light and then connect the other end of the extension cable into a 110 volt power source.
9. Energize the power source and visually inspect the light assembly to make sure all lights are working properly.

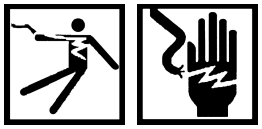
END OF TASK

OPERATING PROCEDURES

Start-Up Procedures

1. Confirm that PMCS is complete, referring to WP 0011, energizing shower as needed.

WARNING



High voltage is used in the 12-head shower module. Care must be taken to avoid personal injury or death from energizing circuits.

2. Confirm that all accessible hose and power connections are secure.
3. Confirm that supply hose is connected to a closed water supply or that the water supply suction strainer is completely submerged in the water source and off the floor of the water source at least one inch.
4. Confirm that the drain hose is routed to a waste water disposal site or connected to a waste water connection point (storage tank), whichever is applicable.
5. Open shower nozzle valves 11 and 12. If connected to a closed water supply, open the supply valve of the water supply.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

6. Make sure the supply pump is primed. If not, remove the cap from the priming pipe (Figure 22) and pour enough water into the supply pump to prime it. Priming takes about 5 gallons of water.

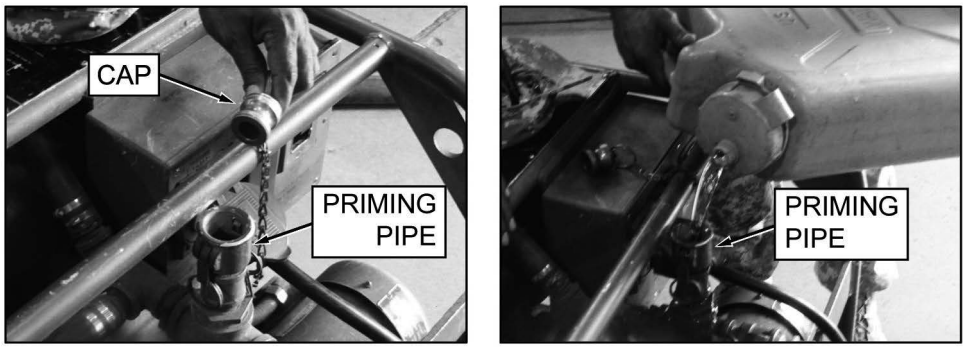


Figure 22. Priming the Supply Pump.

CAUTION

Be sure adequate water supply is available and supply pump remains primed.

7. Energize the power source and then flip the supply pump power switch to the ON position. When water begins to flow from the shower heads, flip the reciprocating pump power switch to the ON position.
8. Allow water to flow through system for two minutes, and then close all shower nozzle valves. If either pump fails to start, refer to troubleshooting procedures (WP 0008).
9. Check pump and all accessible hoses and connections for evidence of leaking, and to ensure connections are tight. Notify maintainer if a leak is found.

WARNING

Ensure the WH-400 is placed and operated in accordance with TM 10–4520–266–13&P. Failure to follow safety precautions may result in fire and possible injury or death to personnel.

11. Start up the hot water system, and wait until water reaches operating temperature (150°F). Refer to TM 10-4520-266-13&P for the WH-400 to find specific operating procedures for the hot water system.
12. When the hot water system has reached operating temperature, open all shower nozzle valves (Figure 23) and monitor the pump temperature gauge.
13. Adjust the temperature regulator as necessary to maintain desired shower water temperature of between 95–105°F. When desired temperature is ready, close all shower nozzle valves. The shower facility is now ready for use.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

Figure 23. Shower Head.

END OF TASK

USING THE SHOWER

1. Open shower nozzle valve or push button (Figure 23) as necessary for desired water flow.
2. Close shower nozzle valve when finished with shower.

END OF TASK

SHUT-DOWN PROCEDURES

CAUTION

Begin shut-down procedures after the water temperature is below 100°F.

1. Shut off the fuel source to the hot water system. Refer to TM 10-4520-266-13&P for the WH-400 to find specific operating procedures for the hot water system.
2. With shower heads open, wait until discharge water and water in water heater are below 100°F.
3. Turn the supply pump and reciprocating power switches, located on the pump assembly switch box, to the OFF position and then de-energize power source.
4. If connected to a closed water supply, close the water supply valve.
5. Open a shower nozzle valve to relieve system pressure. Close the valve when water stops flowing from the nozzle.

END OF TASK

DISASSEMBLY AND PREPARATION FOR MOVEMENT

This section addresses the procedures required to disassemble the shower and prepare it for movement to another location.

Components of the shower must be stored in six separate shipping containers. During disassembly of the shower, remove and group shower components as best as possible in accordance with the container in which the components will be stored. Refer to Table 1 at the beginning of this work package to identify which components

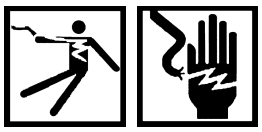
OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

go into which container. Refer to (Figure 26, Sheets 1 through 6) for a visual reference of the order in which components should be packed in each container. Each sheet of Figure 26 represents a different container, beginning with container 1 (Figure 26, Sheet 1) through to container 6 (Figure 26, Sheet 6).

Disconnecting Power Cables

WARNING

HIGH VOLTAGE



High voltage is used in the 12-head shower module. Care must be taken to avoid personal injury or death form energized circuits.

1. Confirm that the power source is de-energized, and then disconnect the power cable from the generator.
2. Disconnect the power cable connector from the hot water heater power receptacle.
3. Disconnect the power cable plug from the supply pump power receptacle located on the pump assembly switch box.
4. Coil the power cables neatly for storage.

END OF TASK

DISCONNECTING THE HOSES

1. Contact maintenance to disconnect the two fuel hoses going to the fuel source (Figure 24, Item 2) from the hot water system (Figure 24, Item 1). Refer to TM 10–4520–266–13&P for specific procedures for disconnecting hoses from the hot water system.

WARNING

Hoses will contain water. Care must be taken to contain spills and minimize the danger of slipping.

2. Disconnect the cold water supply hose (Figure 24, Item 19) from between the hot water system (Figure 24, Item 1) and the supply pump (Figure 24, Item 7).
3. Disconnect the hot water supply hose (Figure 24, Item 3) from between the hot water system (Figure 24, Item 1) and the temperature regulator (Figure 24, Item 7).
4. Prepare the hot water system (Figure 24, Item 1) for storage/shipment. Refer to TM 10–4520–266–13&P for storage/shipment requirements for the hot water system.
5. Disconnect drain hose (Figure 24, Item 8) from pump assembly (Figure 24, Item 7) and wastewater connection point (e.g., storage tank), if connected to one.
6. Disconnect drain hose (Figure 24, Item 18) from WYE quick disconnect (Figure 24, Item 17) and from reciprocating pump.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

7. Disconnect two drain hoses (Figure 24, Item 12) form WYE quick disconnect (Figure 24, Item 17).
8. Disconnect and remove supply hose (Figure 24, Item 11) from between temperature regulator valve outlet and shower head manifold (Figure 24, Item 13).
9. Disconnect the ends of the shower head assembly supply hose (Figure 24, Item 15), located over the entrance to shower facility.
10. Disconnect and remove six supply hoses from between each shower head manifold (Figure 24, Item 13).
11. Install attached caps onto manifold ends.
12. Disconnect supply hose (Figure 24, Item 4) from pump assembly (Figure 24, Item 7) and check valve (Figure 24, Item 5).
13. Remove check valve (Figure 24, Item 5) and suction strainer (Figure 24, Item 6) from supply hose.
14. Remove check valve (Figure 24, Item 5) from suction strainer (Figure 24, Item 6).
15. Drain and thoroughly dry all hoses, fitting, and components.
16. Coil hoses neatly for storage.
17. Notify maintainer to remove drain plug (Figure 24, Item 14) from the supply pump.
18. Carefully tip pump in all directions to drain the water.
19. When all water is drained, install the drain plug.

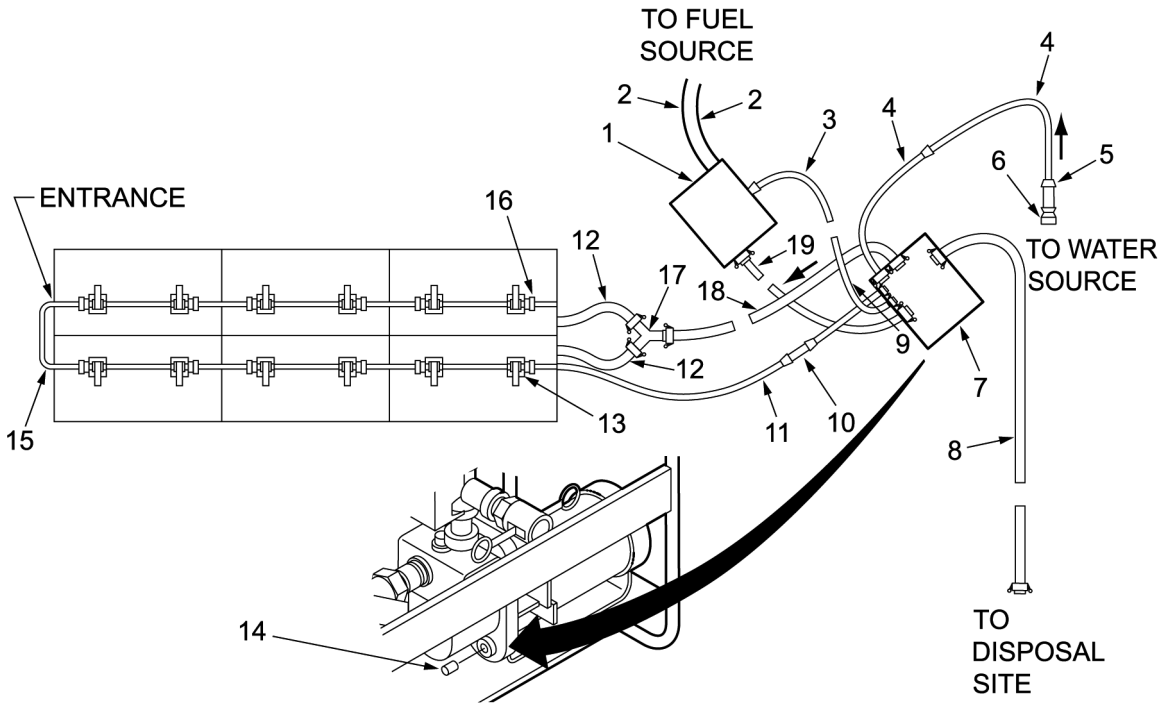


Figure 24. Disconnecting the Hoses.

END OF TASK

DISASSEMBLING THE SHOWER

NOTE

The following procedures are typical for each shower base.

1. Remove two shower cabinet door panels (Figure 25, Item 6) from the outside of the shower cabinet and fold the door panels neatly for storage.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

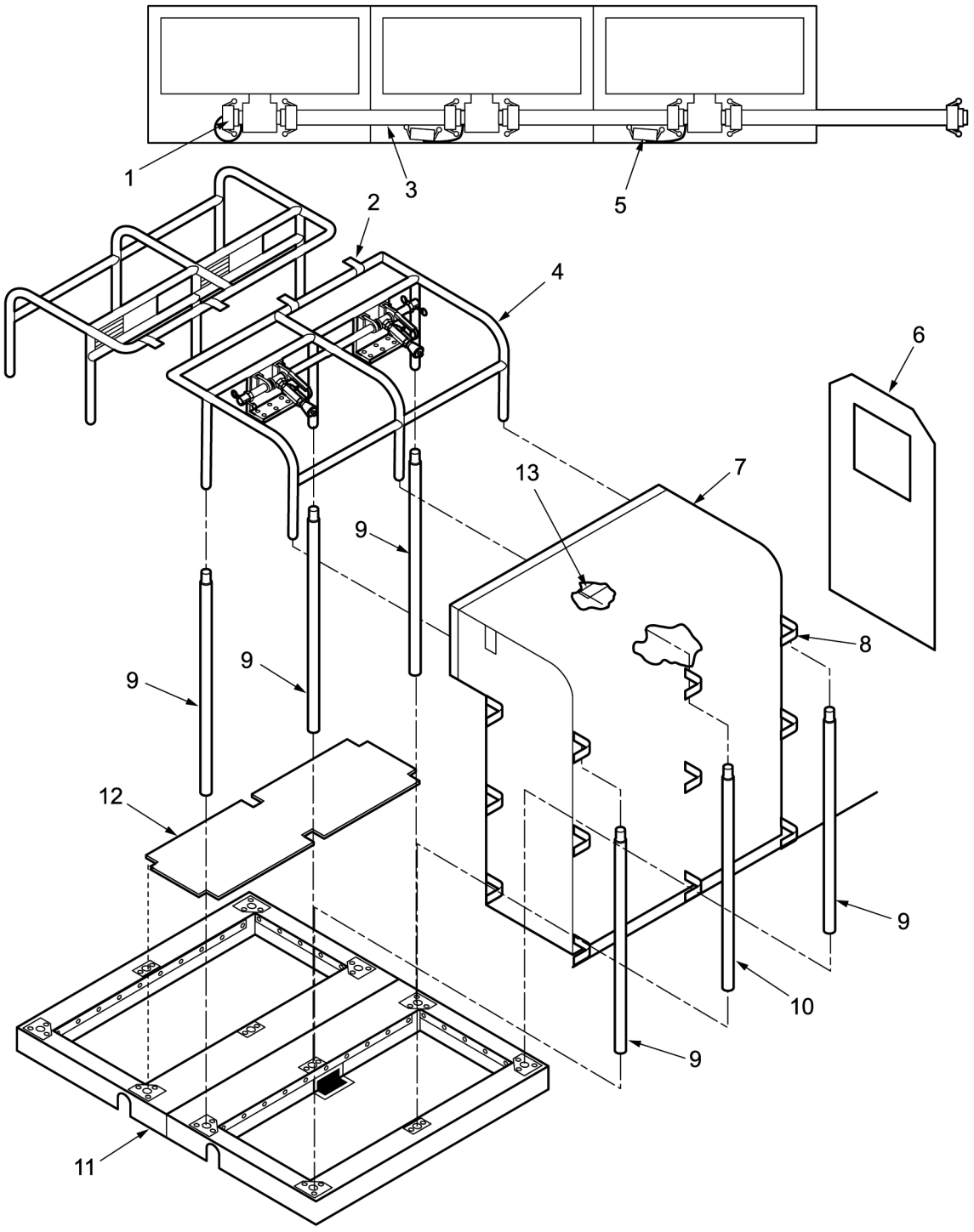


Figure 25. Disassembling the Shower.

2. Release hook and loop strips that secure shower cabinets (Figure 25, Item 7) facing each other.
3. Release attached hook and loop strips (Figure 25, Item 2) that secure shower frames (Figure 25, Item 4) facing each other.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

4. Release hook and loop strips that secure the shower cabinets (Figure 25, Item 7) to the inside of the shower bases (Figure 25, Item 11).
5. Release attached hook and loop straps (Figure 25, Item 8) that secure shower cabinets (Figure 25, Item 7) to shower cabinet support poles (Figure 25, Items 9 and 10).
6. Remove shower cabinet center support poles (Figure 25, Item 10).

WARNING

Be sure to use at least two operators to lift each shower cabinet and shower frame. Failure to follow this warning may result in serious injury to personnel.

7. From the inside, two operators will lift shower frames (Figure 25, Item 4) with shower cabinets (Figure 25, Item 7) attached off of shower cabinet support poles (Figure 25, Item 9). While each shower frame is being removed, one operator will remove shower cabinet support poles.
8. Release hook and loop strips (Figure 25, Item 13) that secure the shower cabinets (Figure 25, Item 7) to the shower frames (Figure 25, Item 4).
9. Remove the shower cabinets from the shower frames.
10. Fold the shower cabinets neatly for storage.
11. Release hook and loop strips and remove the three shower cabinet floor panels (Figure 25, Item 12).
12. Pull the sets of three shower bases (Figure 25, Item 11) away from each other and carefully raise each set together to access the drain hoses (Figure 25, Item 3).
13. Remove six drain hoses (Figure 25, Item 3) and install 12 attached caps (Figure 25, Item 1) onto an open end of each shower base (Figure 25, Item 11) drain.
14. Empty and dry the drain hoses.
15. Carefully lower each shower base (Figure 24, Item 11).

END OF TASK

PACKING THE SHOWER

NOTE

Ensure that all items are clean and dry before packing.

1. Identify the correct storage container and the components to be packed using the packing lists in Table 1. If any components are damaged, notify maintainer.
2. Fold loose hardware components such as the regulator and WYE quick disconnect into the shower cabinet.
3. Insert shower bases flat into each storage container.
4. Pack each storage container in accordance with Figure 26, sheets 1 through 6, folding loose hardware components such as the regulator and the WYE disconnect into the shower cabinet.

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

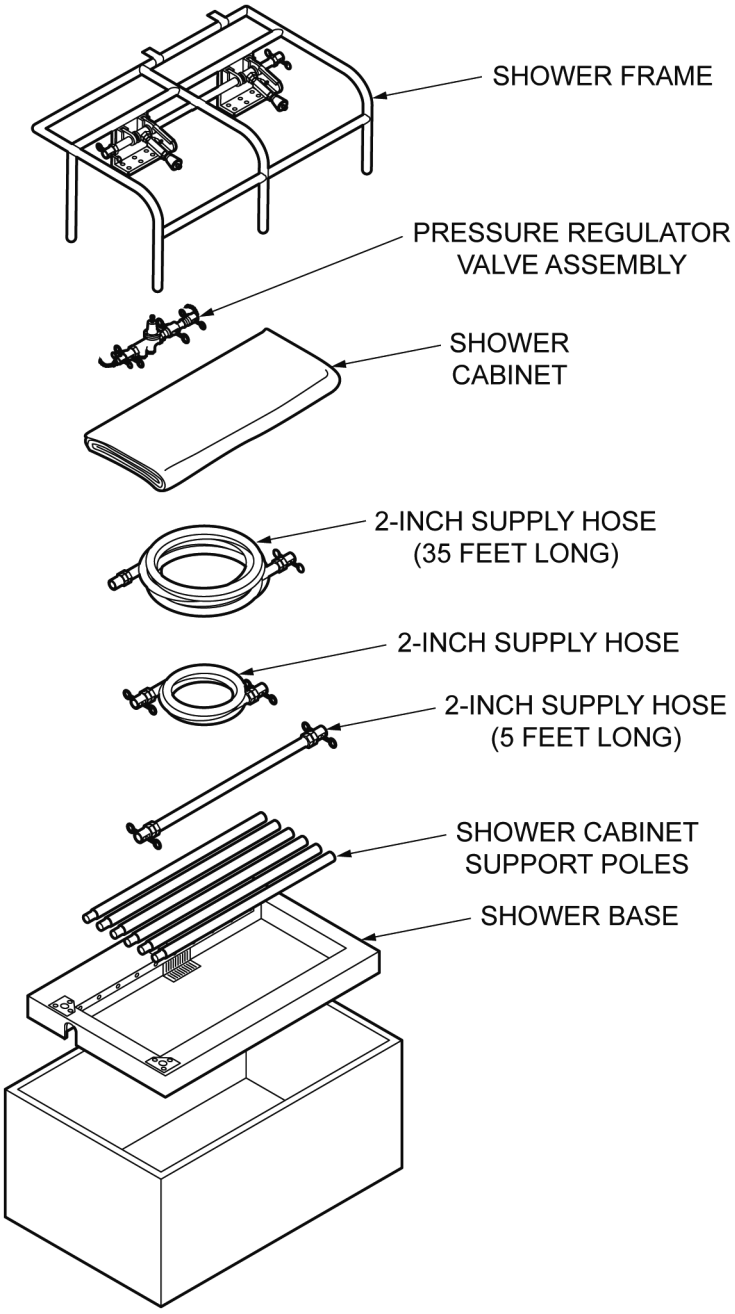


Figure 26. Packing the 12-Head Shower (Sheet 1 of 6).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

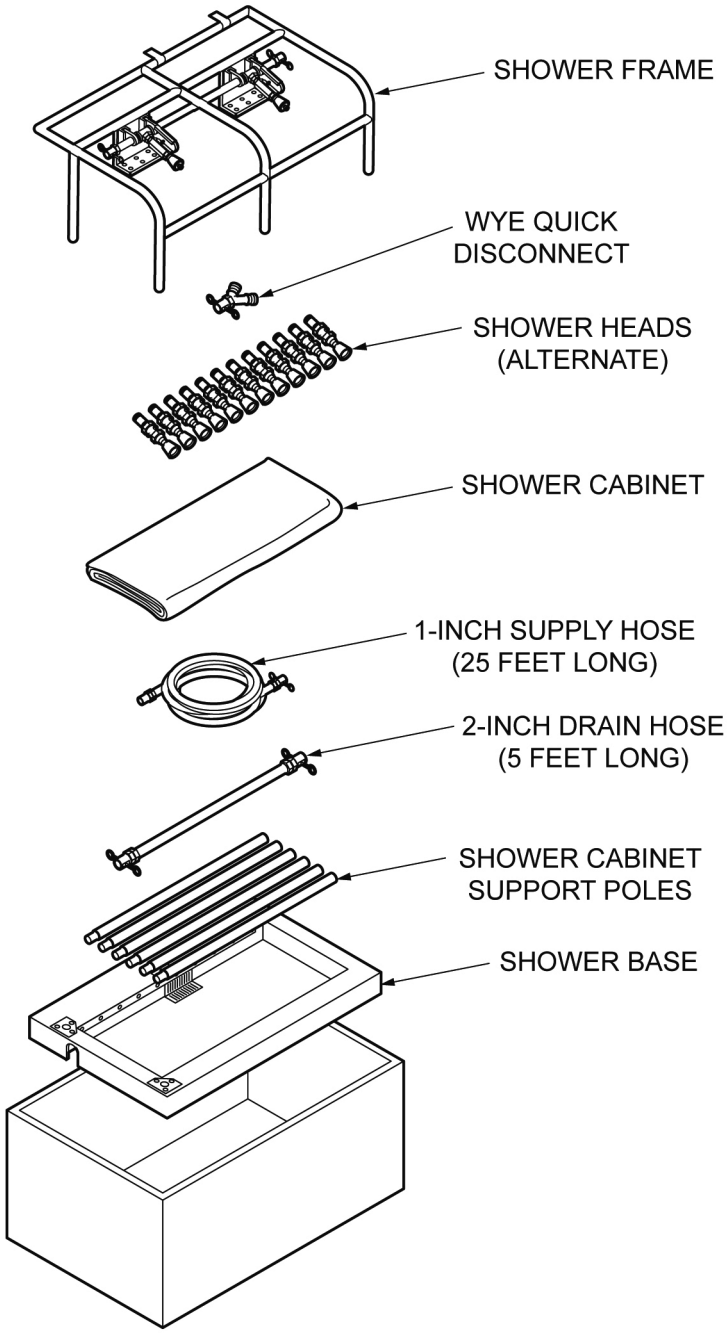


Figure 26. Packing the 12-Head Shower (Sheet 2 of 6).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

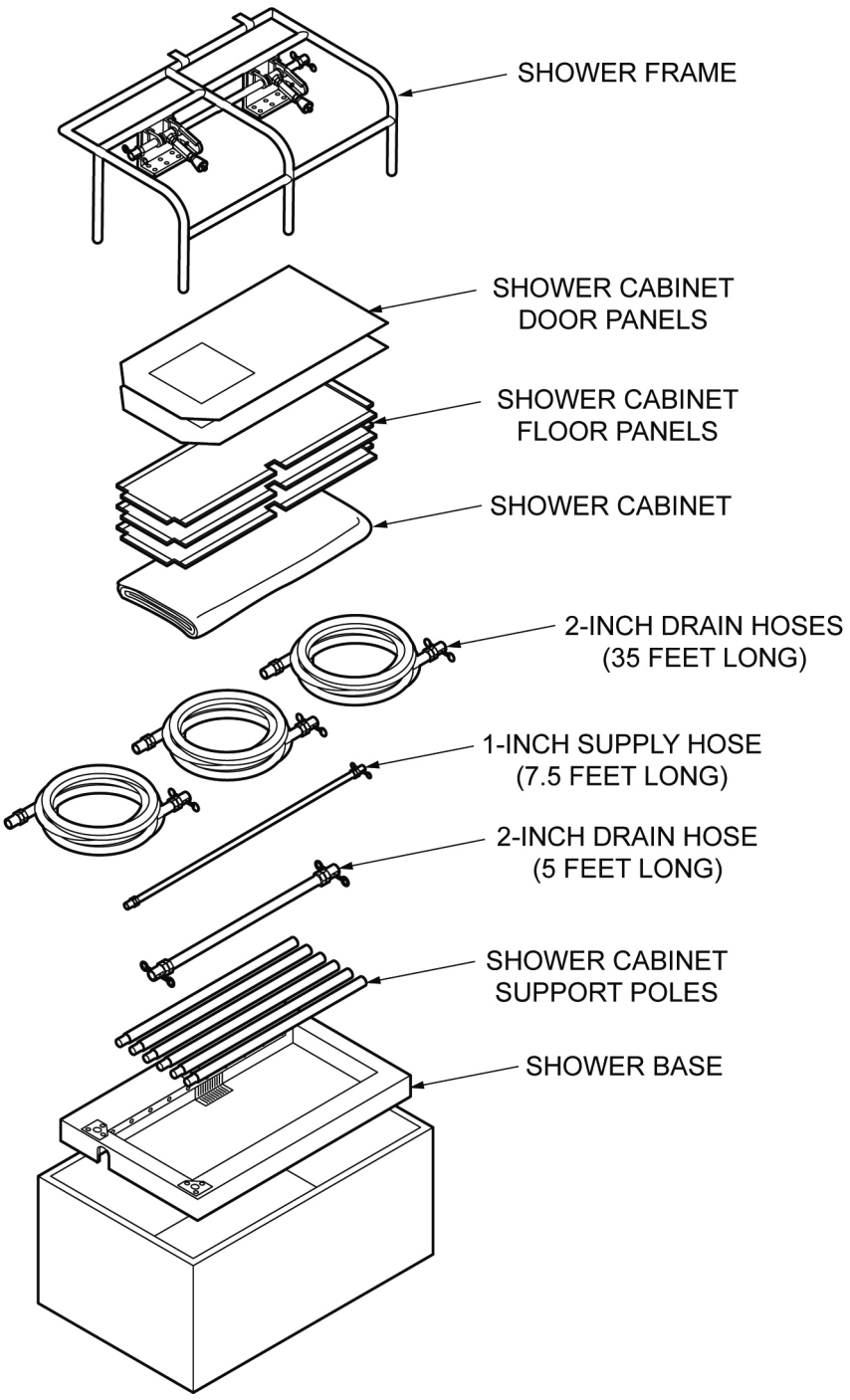


Figure 26. Packing the 12-Head Shower (Sheet 3 of 6).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

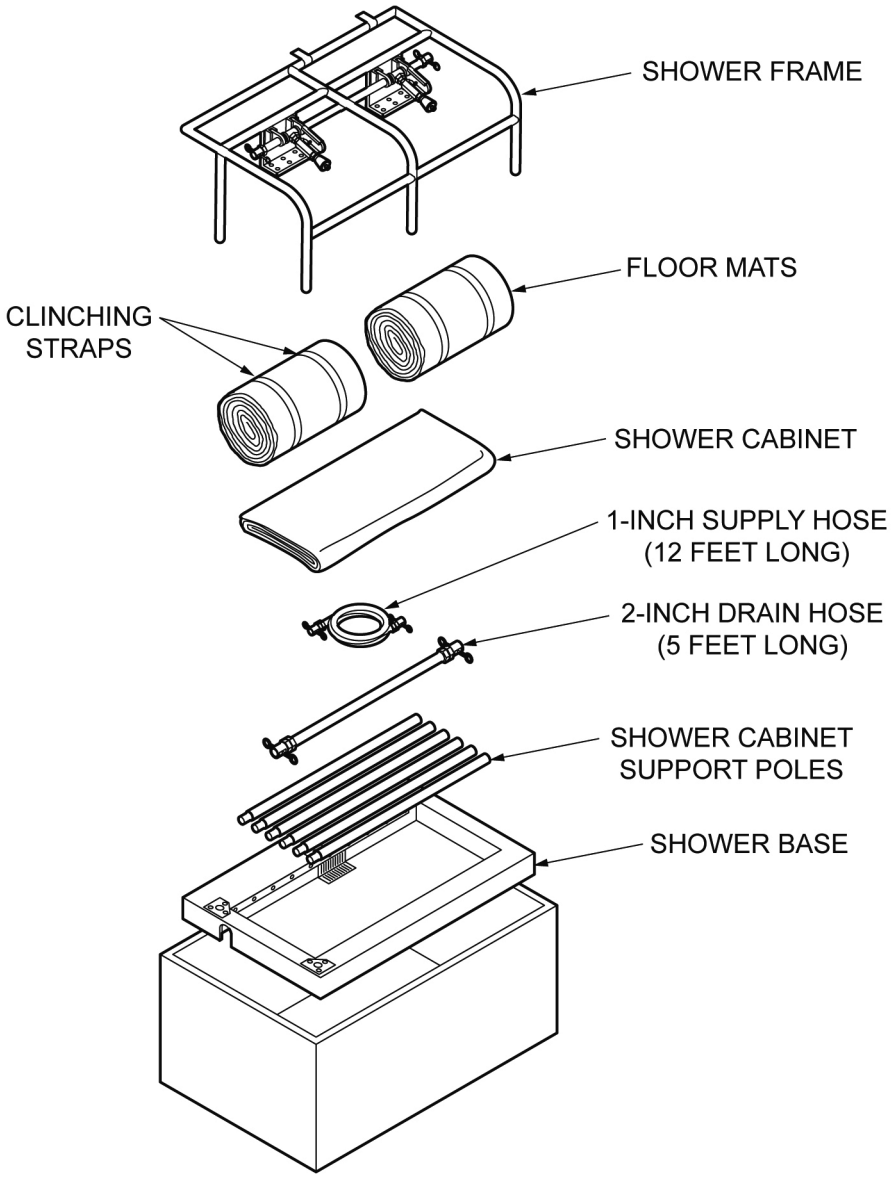


Figure 26. Packing the 12-Head Shower (Sheet 4 of 6).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

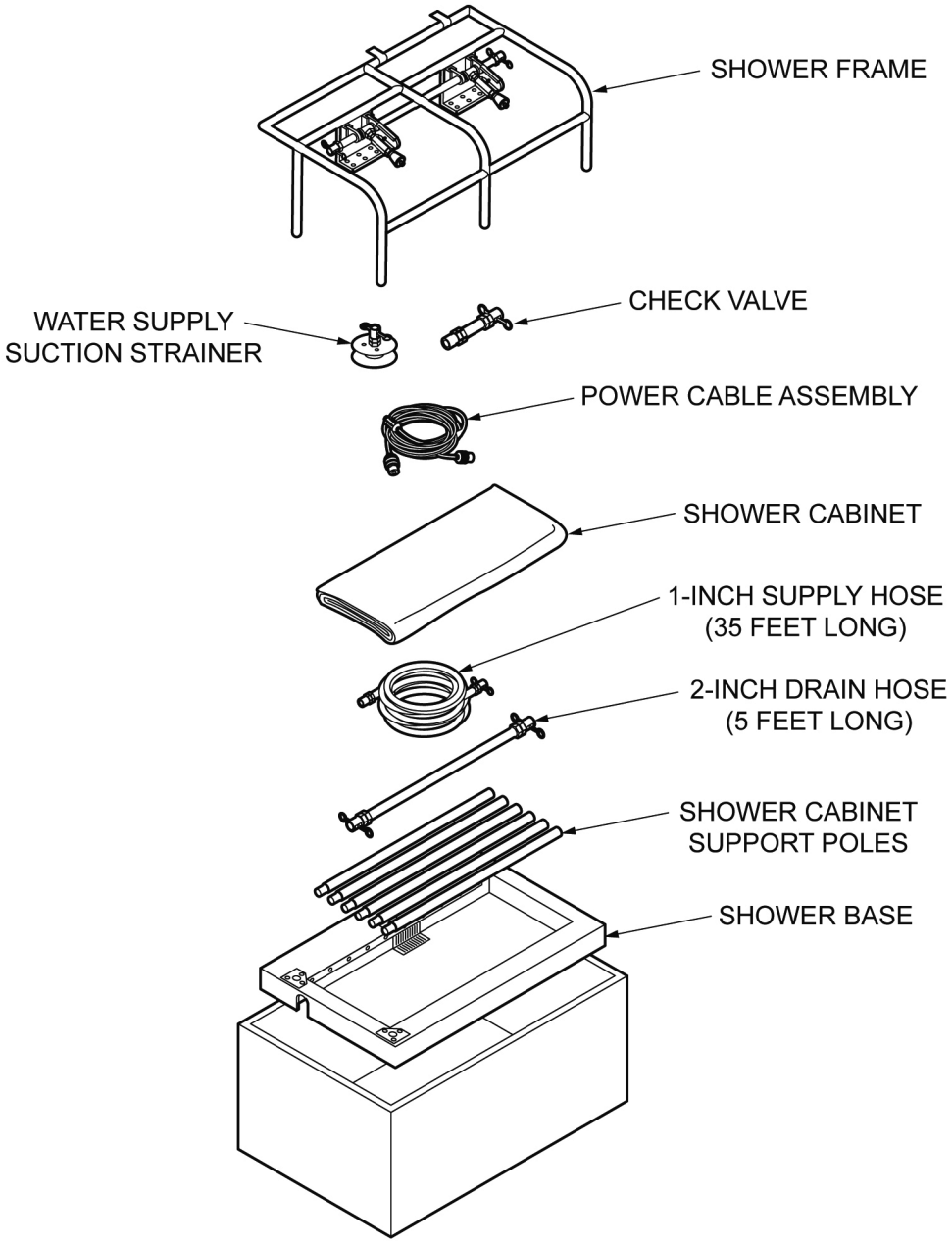


Figure 26. Packing the 12-Head Shower (Sheet 5 of 6).

OPERATION UNDER USUAL CONDITIONS - (CONTINUED)

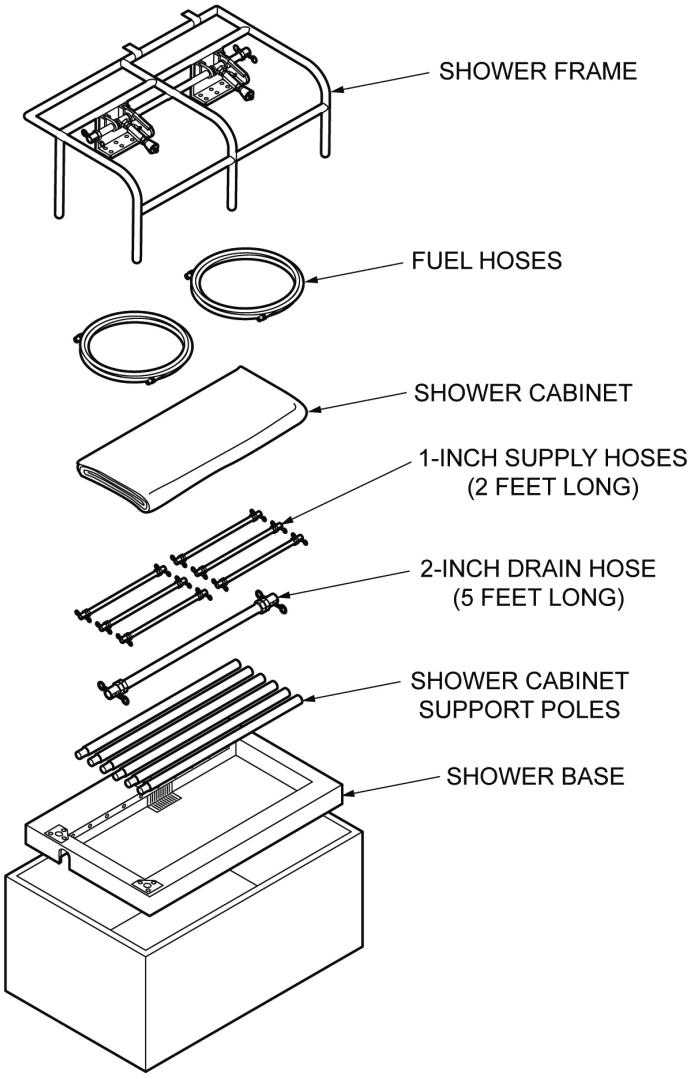


Figure 26. Packing the 12-Head Shower (Sheet 6 of 6).

END OF TASK

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

OPERATION UNDER UNUSUAL CONDITIONS

INITIAL SETUP:

Personnel Required	References
Shower/Laundry and Clothing Repair Specialist, (92S) - 3	WP 0005

OPERATION IN EXTREMELY COLD TEMPERATURES OF 32 °F (0 °C) AND BELOW

The shower is typically installed inside a TEMPER tent and is therefore not subjected to any unusual operating conditions. Additionally, the water source must also be in a heated tent to keep from freezing. It should be noted, however, that the 12-head shower is limited to use in environments where the ambient air temperature is above 32 °F (0 °C).

If the shower is not inside a heated TEMPER tent and the ambient air temperature is expected to be 32 °F (0 °C) or colder, the shower hoses must be disconnected as per the following procedure:

DRAINING THE SHOWER DUE TO TEMPERATURES AT OR BELOW 32 °F (0 °C)

1. Using the supply pump power switch (Figure 1) located on the switch box, shut off the supply pump.
2. Run the reciprocating pump until all waste water has been removed from the shower facility. Shut down reciprocating pump and power source.
3. Disconnect all hoses and cables, referring to the procedure in WP 0005 for disconnecting power cables and hoses.

OPERATION UNDER UNUSUAL CONDITIONS - (CONTINUED)

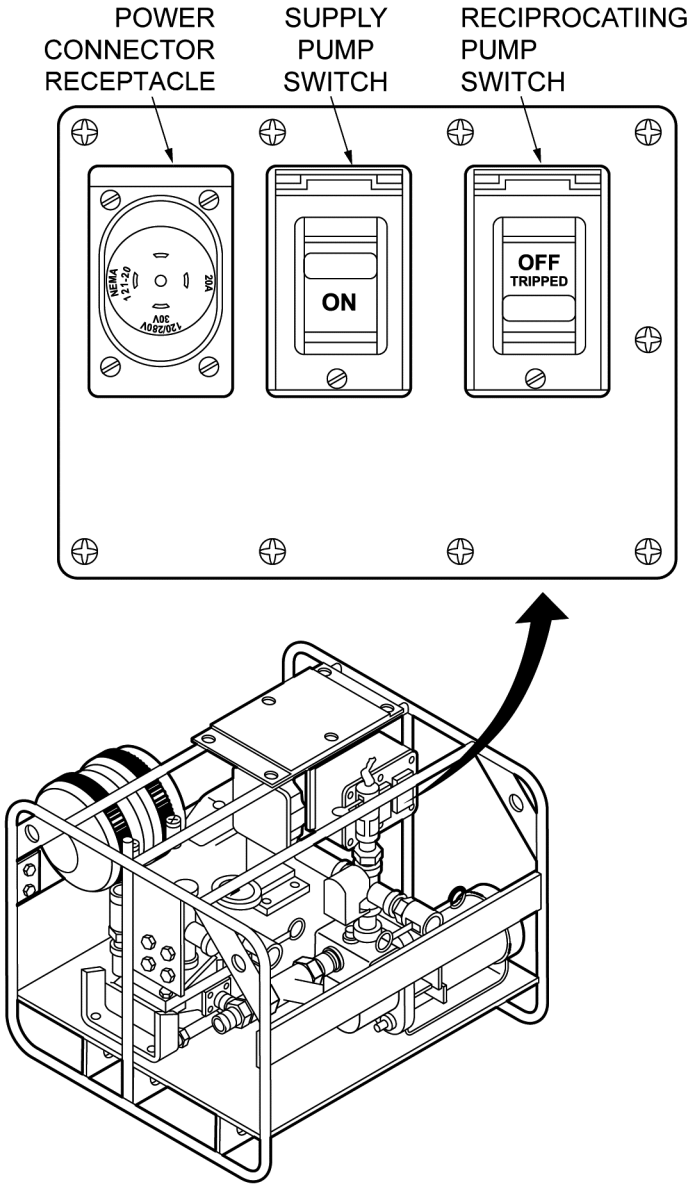


Figure 1. Pump Assembly Switch Box.

4. Alert field maintenance for removal of supply pump drain plug.
5. Remove the drain plug (Figure 2) until all water has drained from the supply pump.
6. When you have confirmed that all water has been drained, re-install the drain plug.

OPERATION UNDER UNUSUAL CONDITIONS - (CONTINUED)

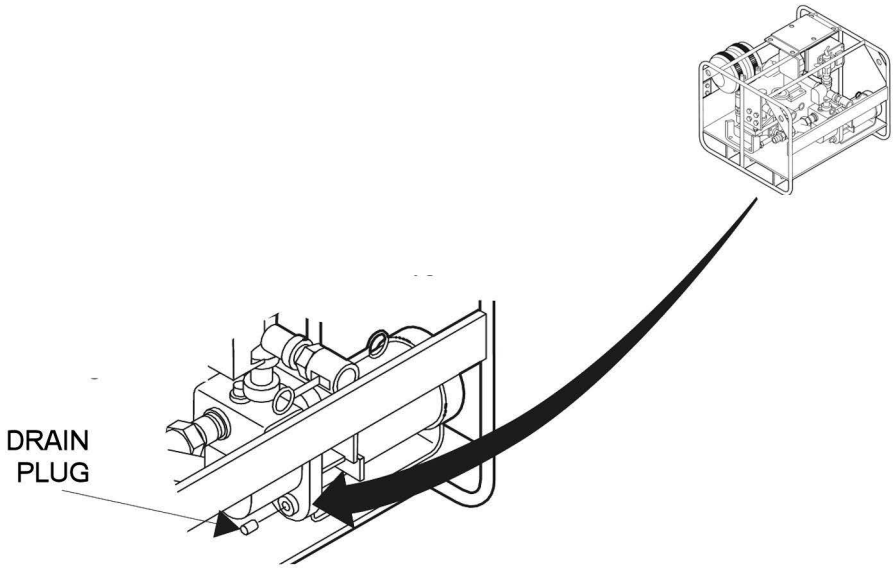


Figure 2. Removing the Drain Plug.

END OF TASK

CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) DECONTAMINATION.

WARNING

For immediate decontaminating procedures use ONLY hot soapy water for spot decontamination of shower.

When a Nuclear, Biological, or Chemical attack is expected, and time allows, the shower should be packed for transport until threat of attack is over. If a CBRN attack occurs, unit must be decontaminated before use in accordance with FM 3-5.

END OF TASK

END OF WORK PACKAGE

CHAPTER 3

TROUBLESHOOTING PROCEDURES

FOR

12-HEAD SHOWER SYSTEM

FIELD MAINTENANCE

TROUBLESHOOTING INDEX

This work package lists the common malfunctions that may occur during the operation or maintenance of the shower. Locate the malfunction/system in the following index and then refer to the corresponding work package for the appropriate troubleshooting procedure.

NOTE

This manual cannot list all malfunctions, tests, inspections, or corrective actions that may occur. If a malfunction is either not listed or is not corrected by listed corrective actions, notify your supervisor.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

OPERATOR TROUBLESHOOTING PROCEDURES

INITIAL SETUP:

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 1

References
TM 10-5420-259-13&P
WP 0005
WP 0015
WP 0023
WP 0027
WP 0029

Equipment Condition
Shower fully assembled (, WP 0005)

GENERAL INFORMATION

This work package contains troubleshooting information for isolating most of the operating issues that may develop in the shower which can be resolved by the operator.

TROUBLESHOOTING

This work package contains the procedures to be followed by operator and/or field personnel in correcting possible malfunctions in the equipment. Troubleshooting is set up to use the decision tree method of troubleshooting, which tracks potential causes of equipment problems through a series of questions for which a yes or no answer will guide the operator to a solution.

This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by the listed corrective action, notify your supervisor.

The troubleshooting flow process that follows lists the common malfunctions which you may find during the operation or maintenance of the shower or its components. You should check the tests/inspections and corrective actions in the order listed.

Before using these tables, be sure you have performed all applicable operating checks. Functional checks and visual inspection should isolate most malfunctions or potential problems that occur with this equipment.

OPERATOR TROUBLESHOOTING PROCEDURES - (CONTINUED)

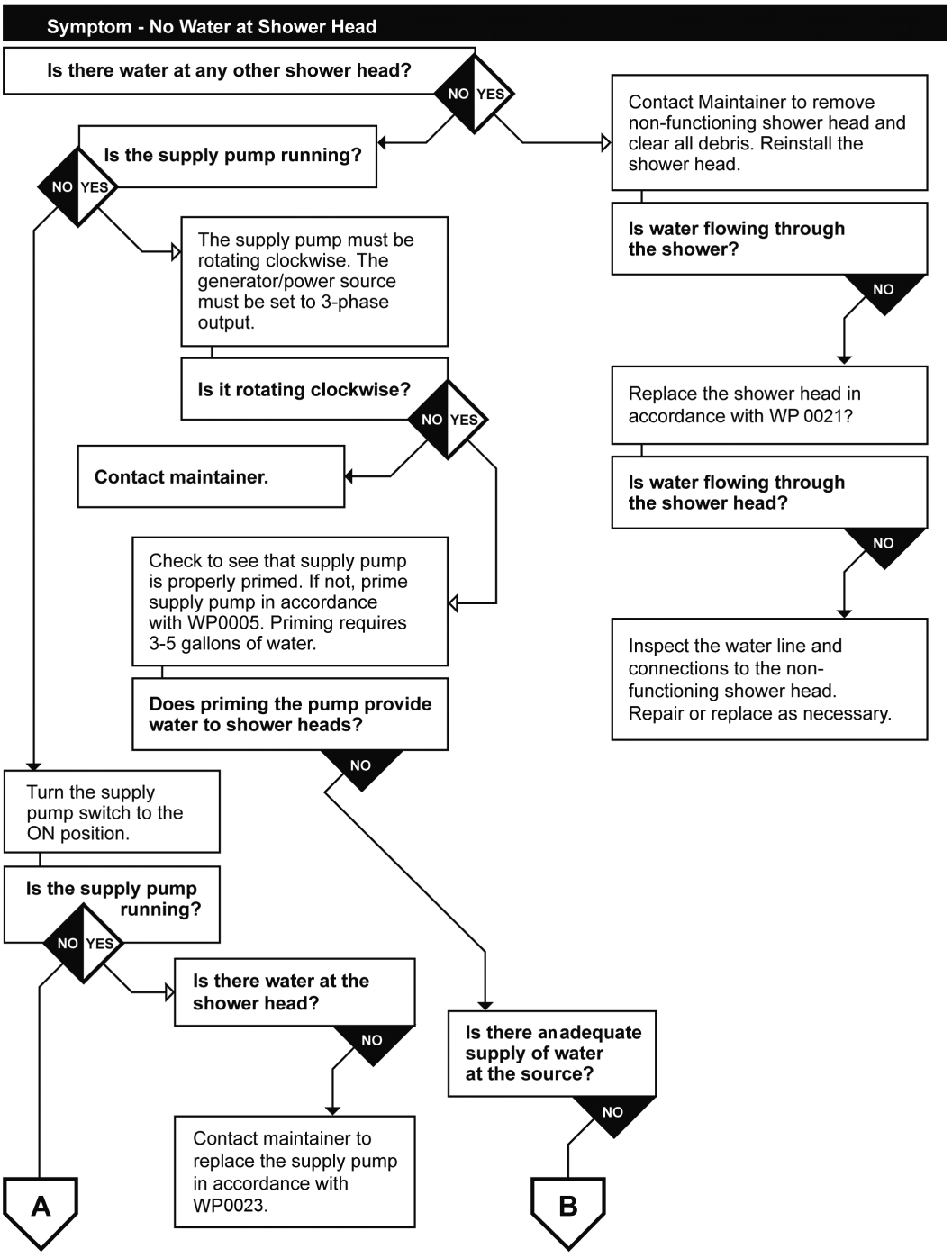


Figure 1. No Water at Shower Head. (Sheet 1 of 2).

OPERATOR TROUBLESHOOTING PROCEDURES - (CONTINUED)

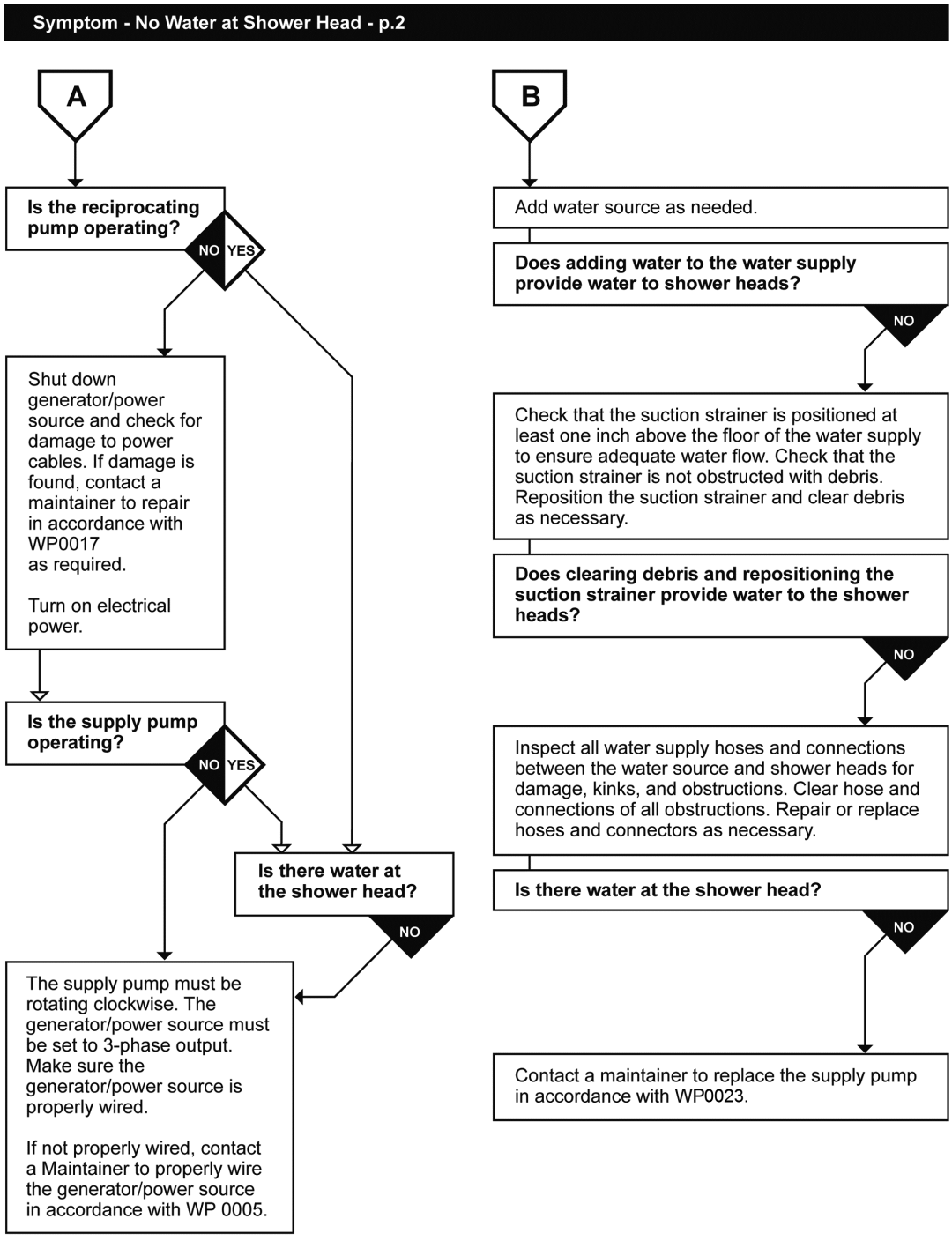


Figure 1. No Water at Shower Head. (Sheet 2 of 2).

OPERATOR TROUBLESHOOTING PROCEDURES - (CONTINUED)

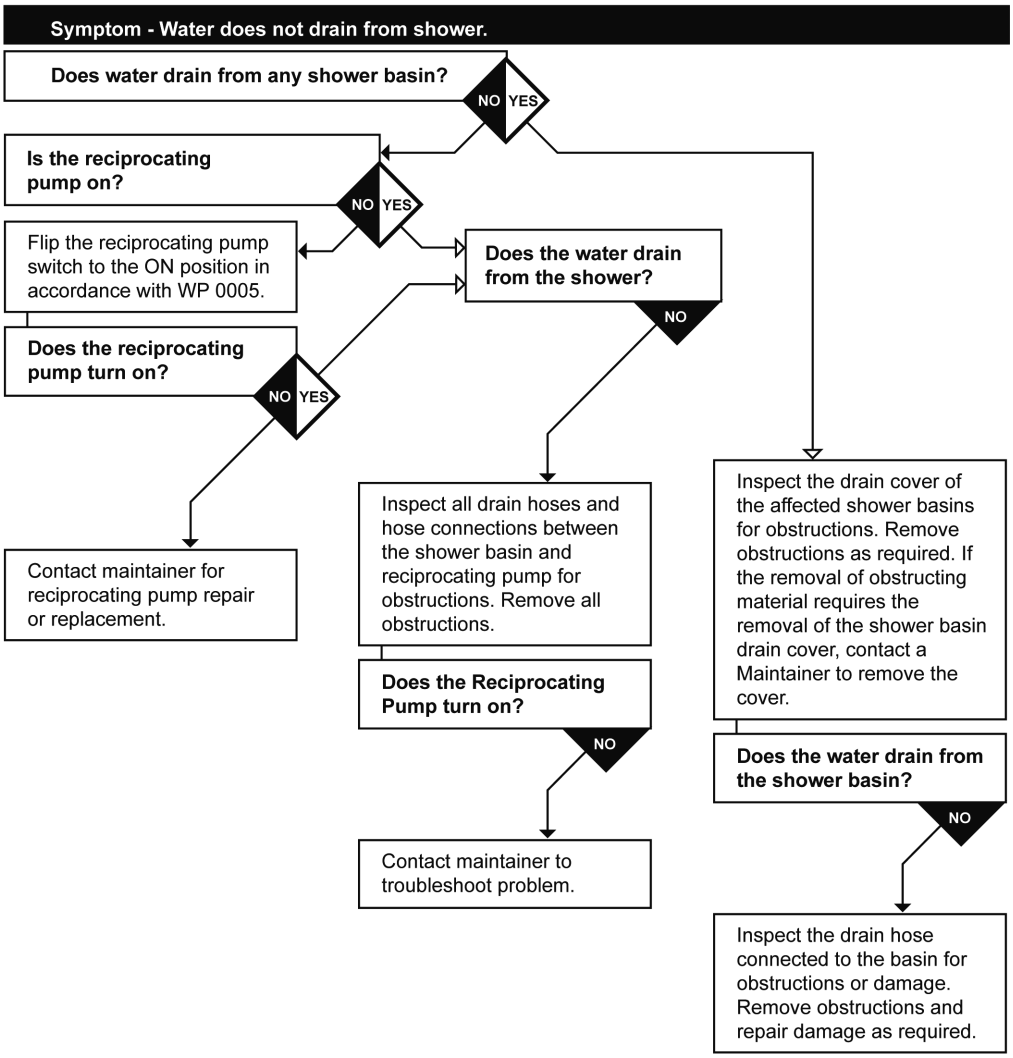


Figure 2. Water Does Not Drain from Shower.

OPERATOR TROUBLESHOOTING PROCEDURES - (CONTINUED)

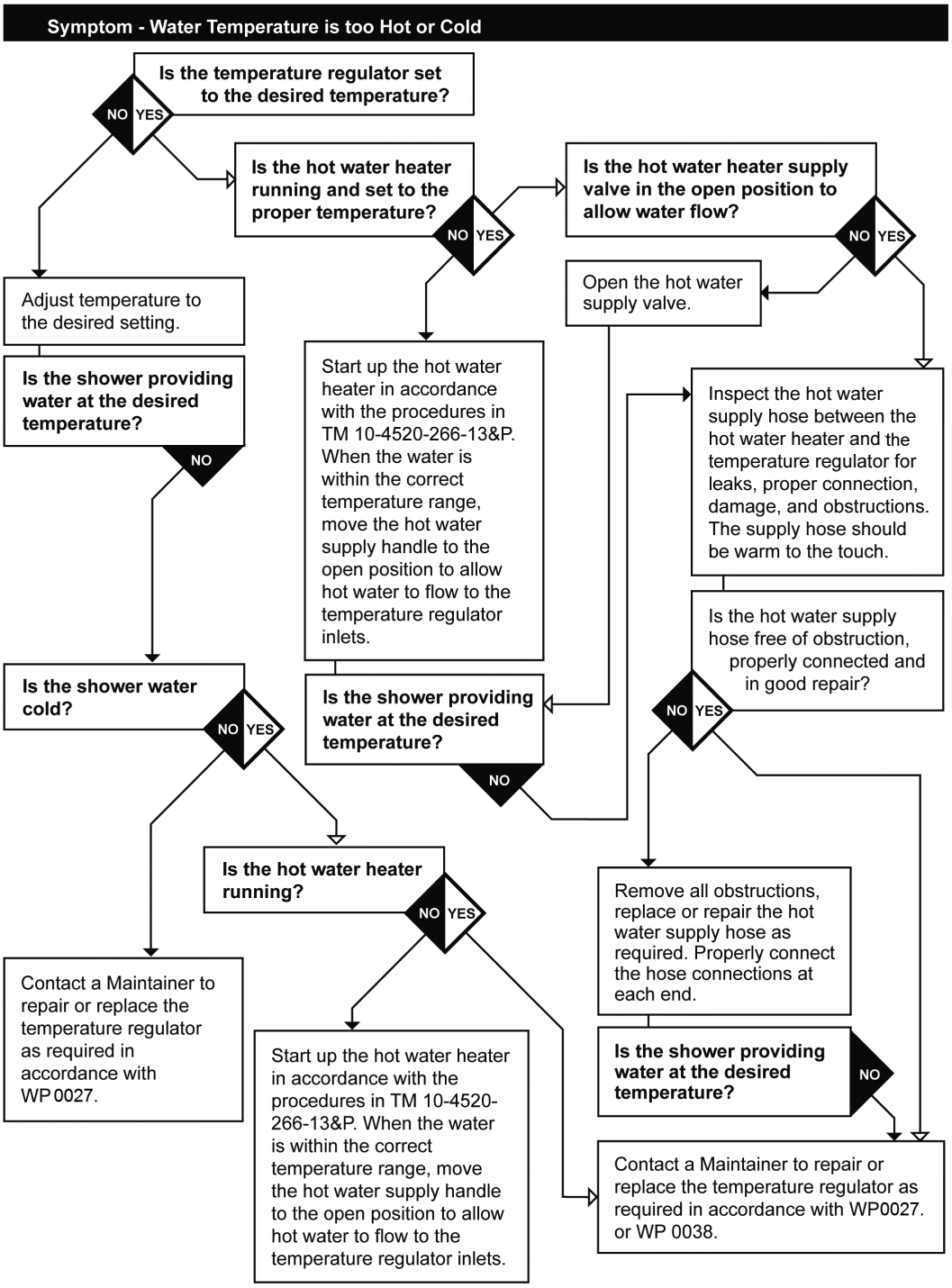


Figure 3. Water Temperature Is Too Hot or Cold.

OPERATOR TROUBLESHOOTING PROCEDURES - (CONTINUED)

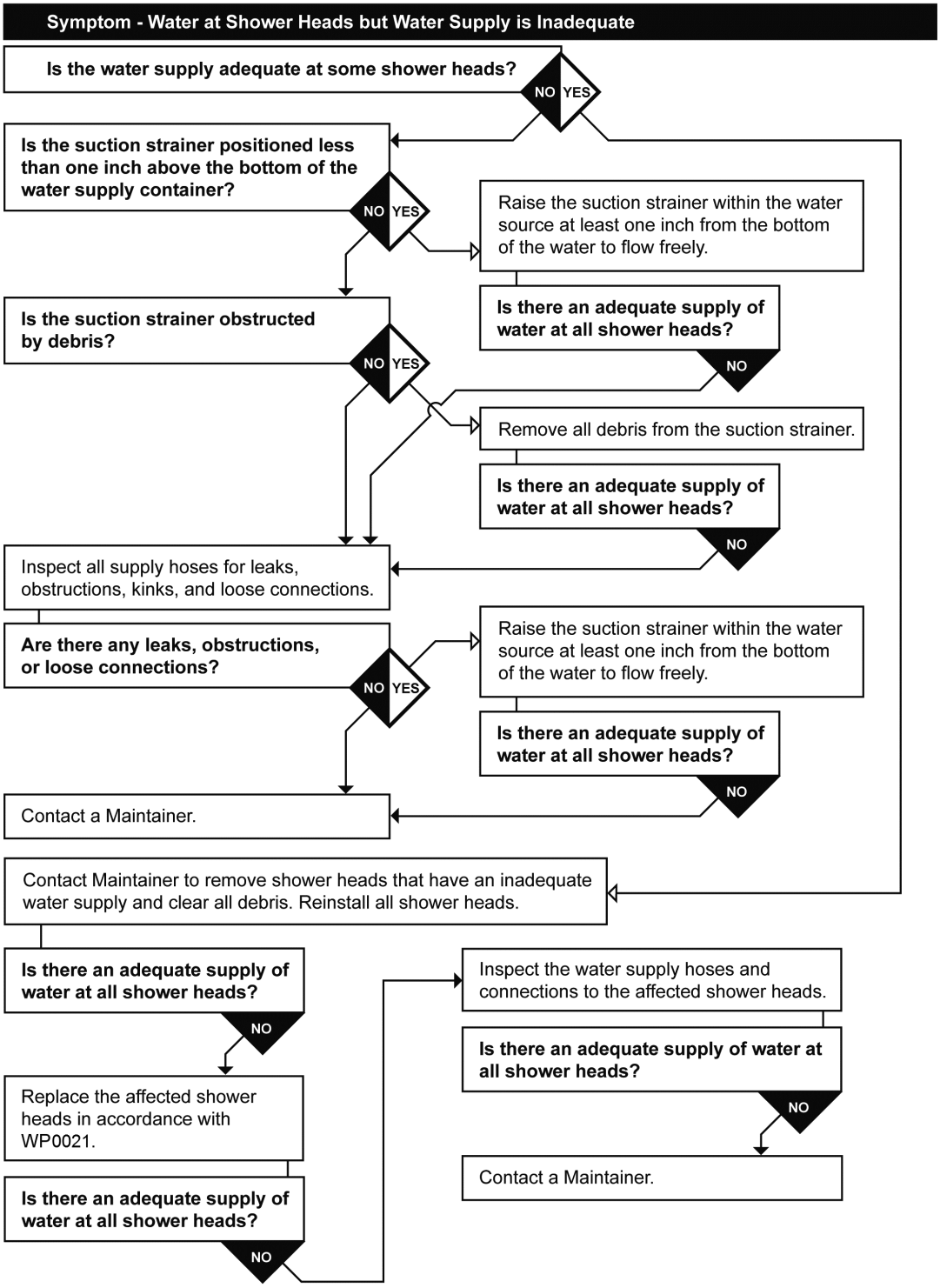


Figure 4. Water at Shower Head but Water Supply Is Inadequate.

END OF WORK PACKAGE

FIELD MAINTENANCE

FIELD TROUBLESHOOTING PROCEDURES

INITIAL SETUP:

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

Equipment Condition
Shower fully assembled (, WP 0005)

References
TM 10-5420-266-13&P

GENERAL INFORMATION

This work package contains troubleshooting information for isolating most of the operating issues that may develop in the shower which must be resolved by the maintainer.

TROUBLESHOOTING

This work package contains the procedures to be followed by operator and/or field personnel in correcting possible malfunctions in the equipment. Troubleshooting is set up to use the decision tree method of troubleshooting, which tracks potential causes of equipment problems through a series of questions for which a yes or no answer will guide the operator to a solution.

This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by the listed corrective action, notify your supervisor.

The troubleshooting flow process that follows lists the common malfunctions which you may find during the operation or maintenance of the shower or its components. You should check the tests/inspections and corrective actions in the order listed.

Before using these tables, be sure you have performed all applicable operating checks. Functional checks and visual inspection should isolate most malfunctions or potential problems that occur with this equipment.

FIELD TROUBLESHOOTING PROCEDURES - (CONTINUED)

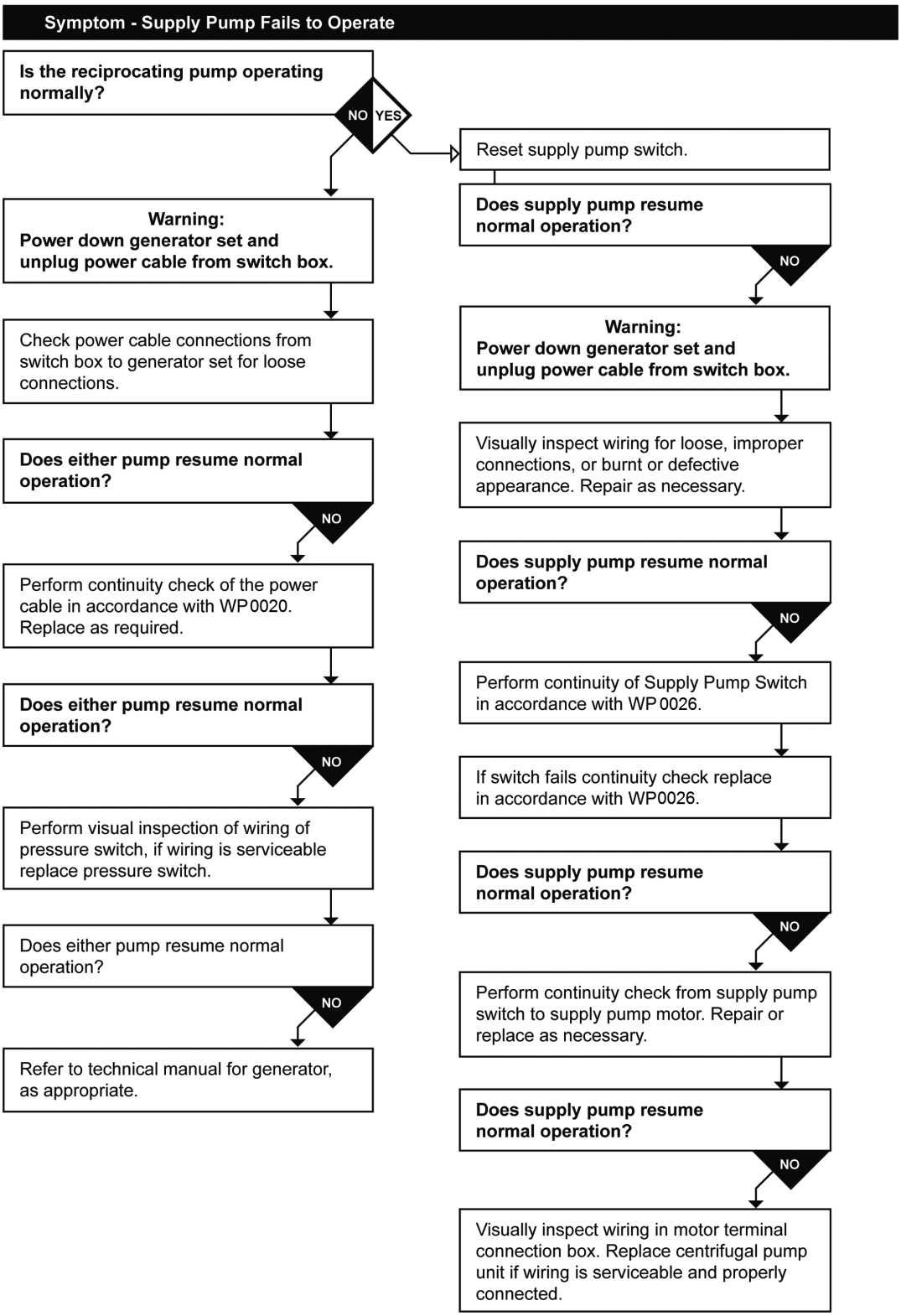


Figure 1. Supply Pump Fails to Operate.

FIELD TROUBLESHOOTING PROCEDURES - (CONTINUED)

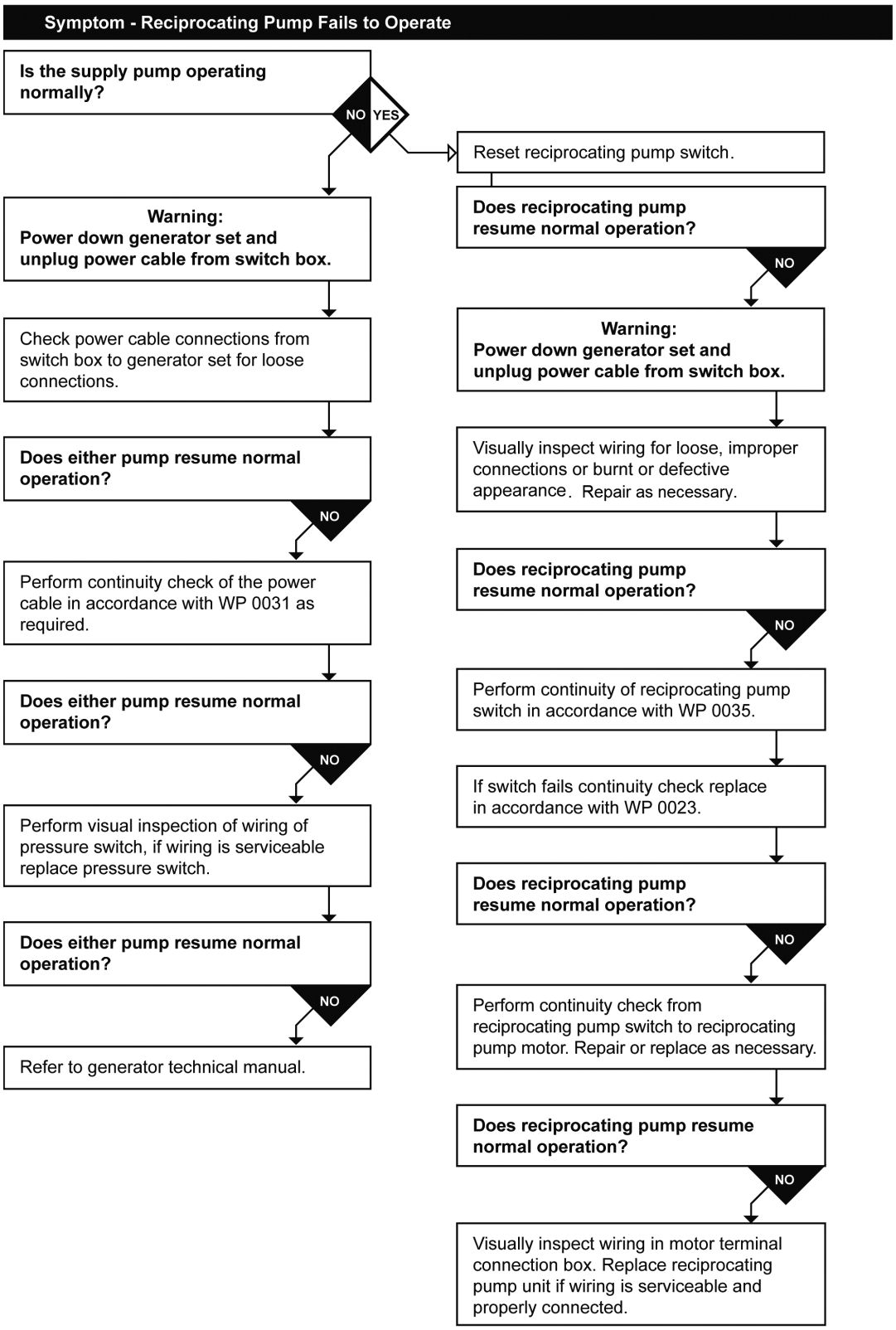


Figure 2. Reciprocating Pump Fails to Operate.

END OF WORK PACKAGE

CHAPTER 4

MAINTENANCE INSTRUCTIONS

FOR

12-HEAD SHOWER SYSTEM
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

OPERATOR INSTRUCTIONS

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

INTRODUCTION

GENERAL

Preventive Maintenance Checks and Services (PMCS) are essential to the efficient operation of the shower and to prevent possible damage that might occur through neglect or failure to observe symptoms of a failure in a timely manner. Checks and services performed by operators are limited to those that can be done with minimal disassembly and without the use of tools. The PMCS table lists the inspections and care of the 12-head shower module required to keep it in good operating condition. PMCS must be done every day the shower is operated. Pay attention to warning and caution statements. A warning means someone could be hurt. A caution means equipment could be damaged.

PMCS means systematic caring, inspecting, and servicing of equipment to keep it in good condition and to prevent breakdowns. Always perform the PMCS in the same order, so it gets to be a habit. Once you have had some practice, you will quickly spot anything wrong. Perform the PMCS as follows:

1. BEFORE — just before you operate the shower for the first time each day. These do not need to be performed before each use of the facility during the day. Pay attention to warnings, cautions, and notes.
2. DURING — while you operate the shower for the day. During operation means to monitor the shower and its related components while it is actually being operated. Pay attention to warnings, cautions, and notes.
3. AFTER — after operating the shower for the last time of the day. Pay attention to warnings, cautions, and notes.
4. WEEKLY — once each week, preferably on the same day each week, when the shower is not in use.
5. MONTHLY — once each month, preferably on the same day each month, when the shower in not in use.
6. QUARTERLY — once every three months, preferably at the same part of the month, when the shower is not in use.

If you find something wrong when performing PMCS, fix it using troubleshooting and/or maintenance procedures. If the fault cannot be corrected, use DA Form 2404 (Equipment Inspection and Maintenance Worksheet) to record the fault and immediately report it to your supervisor. When completing DA Form 2404, be sure to reference the item number of the faulty item from PMCS table.

Be prepared to assist maintainer maintenance when they lubricate the shower. Perform any other services when required by maintainer maintenance.

The right-hand column of the PMCS table lists conditions that make the shower not fully mission capable. Use DA Form 2404 to record any faults that you discover before, during, or after operation, unless you can fix them. For further information on how to use this form, see DA PAM 750-8. You DO NOT need to record faults that you fix.

If tools that are required to perform PMCS are not listed in procedures, notify your supervisor.

PMCS PROCEDURES

The PMCS tables (WP 0011, Table 1 and WP 0012, Table 1) list the inspections and care required to keep the shower in good operating condition. It is set up so you can perform BEFORE operation checks as you walk around the shower. The PMCS table includes the following columns:

1. The ITEM NO. column indicates the number assigned to each PMCS procedure. The procedures are numbered in logical sequence of performance.
2. The INTERVAL column indicates when to perform a certain check or service.
3. The PROCEDURE column states how to do the required checks and services. Carefully follow these instructions. If you do not have tools, or if the procedure tells you to, notify your supervisor.
4. The EQUIPMENT NOT READY/AVAILABLE IF column indicates when the shower is non-mission capable and why the equipment cannot be used.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION - (CONTINUED)

NOTE

Only use those authorized cleaning solvents or agents listed in the Expendable/Durables work package (WP 0054) in this manual.

1. Keep it clean. Dirt, grease, oil, and debris may cover up a serious problem. Clean as you work and as needed. Use soap and water when you clean rubber or plastic material. When cleaning rust, use a cleaning solvent. Then apply a thin coat of light oil to affected area.
2. Rust and corrosion. Check the shower frame and metal components for rust and corrosion. If any bare metal or corrosion exists, clean and apply a thin coat of lubricating oil (WP 0054 Item 4). Report it to your supervisor.
3. Bolts, nuts, and screws. Check for obvious looseness and missing, bent, or broken condition. You cannot try them all with a tool, but look for chipped paint, bare metal, or rust around bolt heads. If you find a bolt, nut, or screw you think is loose, tighten it or report it to your supervisor
4. Welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to your supervisor.
5. Electric wires and connectors. Look for cracked, frayed, or bare wires, and for loose or broken connectors. Report any damaged wires to your supervisor.
6. Hoses and fluid lines. Look for wear, damage, and leaks, and make sure clamps and fittings are tight. Wet spots indicate leaks, but a stain around a fitting or connector can also mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to your supervisor. When you check for operating condition, look at the component to see if it's serviceable.

Fluid Leaks

It is necessary for you to know how fluid leakage affects the status of the shower. Following are types/classes of leakage you need to know to determine the status of the shower. Learn these leakage definitions and remember that when in doubt notify your supervisor.

Equipment operation is allowed with minor leakage (Class I or II). Consideration must be given to fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

When operating with Class I or II leaks, continue to check fluid levels as required in the PMCS. Class III leaks should be reported immediately to your supervisor.

1. CLASS I - Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
2. CLASS II - Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.
3. CLASS III - Leakage of fluid great enough to form drops that fall from item being checked/inspected.

If the shower does not perform as required, refer to Chapter 3, Troubleshooting. If anything looks wrong and you cannot fix it, complete a DA Form 2404 or DA Form 5988E. IMMEDIATELY report the problem to your supervisor.

When you check for operating condition, look at the component to see if it is serviceable.

Figure 1 shows the shower and the PMCS items to be checked. Refer to Figure 1for a visual reference during the PMCS inspections being performed in work packages WP 0011 and WP 0012.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION - (CONTINUED)

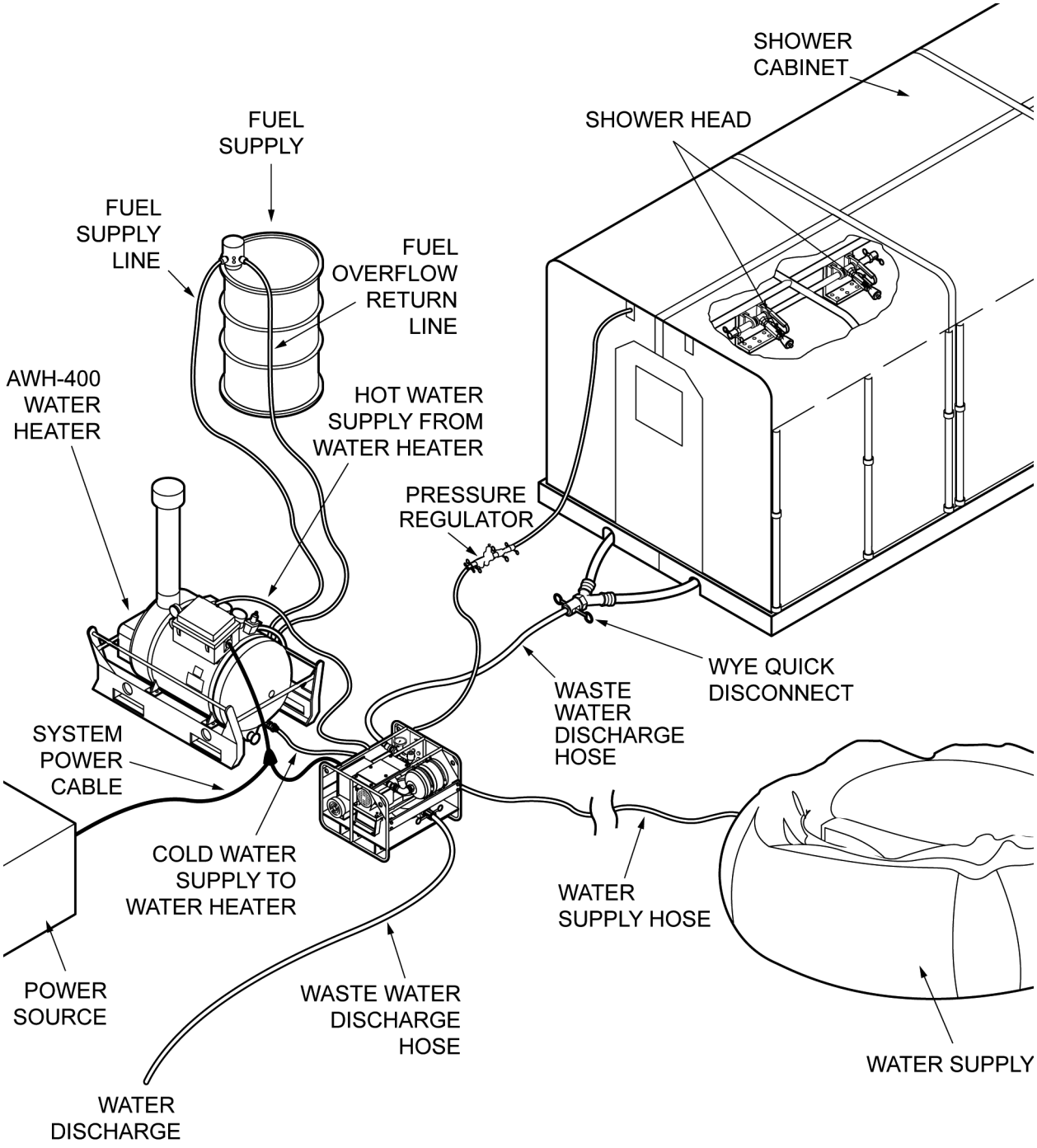


Figure 1. 12-Head Shower.

Lubrication

Figure 2 shows the PMCS lubrication of the reciprocating pump on a weekly interval. The reciprocating pump is Item No. 17 in the PMCS table in WP 0011. Remove the fitting cap (Figure 2, Item 1) and using the hand

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION - (CONTINUED)

lubrication gun (WP 0051, Table 2, Item 5), apply general purpose grease (WP 0054, Table 1, Item 2) to the grease fitting (Figure 2, Item 2).

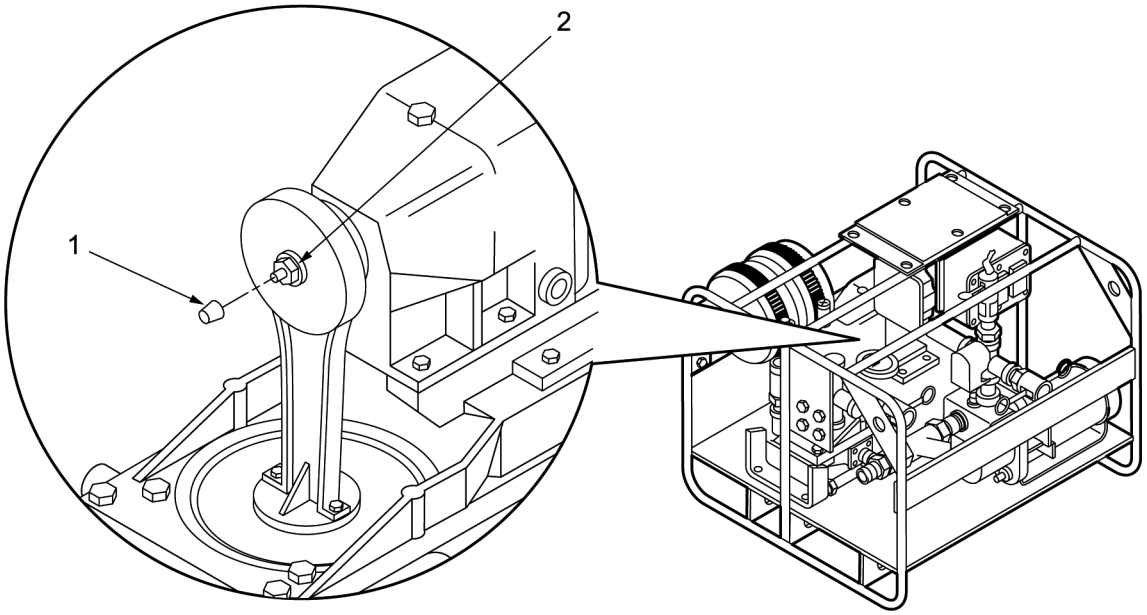


Figure 2. Lubrication of the Reciprocating Pump.

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

INITIAL SETUP:

Tools and Special Tools
None required

Personnel Required
Shower/Laundry and Clothing Repair Specialist , (92S) - 1
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0010
WP 0014
WP 0016
WP 0017
WP 0015
WP 0018
WP 0030
WP 0031
WP 0020
WP 0021
WP 0023
WP 0027
WP 0029
WP 0032

Equipment Condition
Shower fully assembled (, WP 0005)

Table 1. Preventive Maintenance Checks And Services (PMCS)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before	Shower Cabinet	1. Inspect shower cabinet for cracks or punctures. Replace if required (WP 0015). 2. Inspect shower cabinet for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation.
2	Before	Hook and Loop Strips	Inspect all hook and loop strips for fastening strength. If weak, replace as necessary.	
3	Before	Shower Cabinet Door Panel	1. Inspect shower cabinet door panels for cracks, punctures and for proper operation. Replace if required (WP 0015). 2. Inspect door panel for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation.
4	Before	Shower Cabinet Floor Panel	Verify that the shower cabinet floor panels are not loose, cut, or damaged. Replace as required (WP 0018).	Floor panel damage interferes with shower operation.
5	Before	Floor Mat	Verify that floor mat is laying flat and is not cut or damaged. If not laying flat, straighten it. Replace if damaged (WP 0015).	Damage interferes with shower operation
6	Before	Shower Cabinet Support Pole	Inspect shower cabinet support poles for damage. Replace shower cabinet support poles as necessary (WP 0018).	Damage interferes with shower operation
7	Before	Shower Frame Assembly	Inspect shower frame for damage or missing parts. Contact maintainer for repair or replacement (WP 0016, WP 0021).	Damage interferes with shower operation

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - (CONTINUED)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before	Shower Head Manifold	Operate shower. Inspect the operation of each showerhead as well as the showerhead spray. If spray is not even, clean the showerhead. If the showerhead cannot be cleaned and does not operate smoothly, contact maintainer support for repair or replacement (WP 0021).	Showerhead is clogged or valve does not work smoothly.
9	Before	Shower Base	1. Inspect shower base for cracks, punctures, or leaks. Replace if required (WP 0017). 2. Inspect shower base drains for damage or obstructions. Remove all material obstructing the drains. If damaged, replace if required (WP 0017). 3. Inspect shower base for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation. Damage interferes with shower operation.
10	Before	Nonmetallic Hoses and Fittings	1. Inspect all hoses and fittings for leaks. Replace leaking hoses or fittings as necessary (WP 0020). 2. Verify that hoses are not kinked, pinched, damaged, or loose. Move hoses as necessary to relieve kink or pinch. Reconnect lose connections. Contact maintainer support to replace hose if damaged (WP 0020).	Hoses or fittings are leaking. A hose is kinked, pinched, or damaged.
11	Before	Suction Strainer	Inspect suction strainer for debris or obstruction. Clear any obstruction found.	Obstruction cannot be cleared.
12	Before	Check Valve Assembly	1. Inspect the check valve for leaks and to ensure it is properly connected. Secure connections to stop leaking as required. If leaking persists, contact maintainer support for replacement (WP 0023). 2. Inspect for damage. If damaged, contact maintainer support for replacement (WP 0023).	Check valve assembly is leaking. Damage interferes with shower operation.
13	Before	WYE Quick Disconnect	1. Inspect for leaks and to verify that the WYE quick disconnect is properly connected and secure. Secure connections to stop leaking as required. If leaking persists, replace the WYE quick disconnect (WP 0015). 2. Inspect for damage. Replace WYE quick disconnect if damage interferes with shower operation (WP 0015).	Leaking is excessive and interferes with shower operation. Damage interferes with shower operation.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - (CONTINUED)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
14	Before	Pressure Regulator	1. If the shower has low or no water pressure, and all hoses, fittings, suction strainer, and supply pump have been inspected for proper operation, inspect the regulator valve assembly for proper operation. Contact maintainer support for replacement (WP 0020). 2. Inspect for leaks and to ensure proper connection. Secure connections to stop leaking as required. If leaking persists, contact maintainer support for replacement (WP 0020).	Damage interferes with shower operation. Regulator valve assembly is leaking.
15	Before	Temperature Regulator	1. Inspect for proper operation and to verify the water temperature of the shower is the temperature set on the temperature gauge. If the water is not being heated or the temperature gauge is not indicating properly, contact maintainer support for repair or replace (WP 0014 , WP 0027). 2. Inspect the glass of the temperature gage for cracks. If the gage glass is cracked or damaged, contact maintenance to repair the temperature regulator (WP 0027). 3. Check that the temperature regulator knurled temperature control knob moves freely and affects the water temperature when adjusted in either direction. If the control knob does not move freely or does not affect changes in water temperature when adjusted, contact maintenance to repair the temperature regulator (WP 0027).	Temperature regulator not operating as designed. Temperature regulator glass is cracked. Temperature regulator not operating as designed.
16	Before	Diaphragm Tank and Pump Frame	1. Inspect the diaphragm tank for damage. Contact Maintainer maintenance for repair or replacement (WP 0030). 2. Inspect the pump frame for damage. Contact maintainer support for repair (WP 0030).	Diaphragm tank damaged. Damage to pump frame interferes with shower operation.
17	Before	Reciprocating Pump Assembly	1. Check reciprocating pump for proper operation. Check that it is well lubricated and free from dirt buildup. Lubricate if necessary (WP 0010). Clean if necessary (WP 0014). Contact maintainer support if reciprocating pump is not properly operating.	Reciprocating pump is not operating properly.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - (CONTINUED)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			2. Inspect the reciprocating pump diaphragm for cuts or tears. If cut or torn, contact Maintainer maintenance to repair the reciprocating pump (WP 0029).	Reciprocating pump diaphragm has cuts or tears.
18	Before	Supply Pump Assembly	1. Inspect supply pump for proper operation, ensuring pump is primed. If not operating properly, contact maintainer support for replacement (WP 0023). 2. Inspect that the supply pump motor fan is rotating clockwise. If it is not, contact Maintainer maintenance to properly connect the power cable to the 3-phase power source. 3. Inspect for dirt buildup. Clean if necessary (WP 0014).	Supply pump is not operating properly. Supply pump fan is rotating counterclockwise.
19	Before	Power Cable Assembly	Verify that the power cable assembly is in good condition and securely connected to the pump and water heater. Secure loose cable connectors as necessary. If damaged, contact maintainer support to for repair or replacement (WP 0015, WP 0020).	Power cable assembly is damaged or loose on pump or water heater.
20	Before	Storage Containers	Inspect for damage or missing hardware and for any damage to container. If damaged, contact maintainer support for repair or replacement (WP 0031, WP 0032).	Container damage or hardware missing.
21	During	Shower Cabinet	1. Inspect shower cabinet for cracks or punctures. Replace if required (WP 0018). 2. Inspect shower cabinet for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation.
22	During	Hook and Loop Strips	Inspect all hook and loop strips for fastening strength. If weak, replace as necessary.	
23	During	Shower Cabinet Door Panel	1. Inspect shower cabinet door panels for cracks, punctures and for proper operation. Replace if required (WP 0015). 2. Inspect door panel for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation.
24	During	Shower Cabinet Floor Panel	1. Verify that the shower cabinet floor panels are not loose, cut, or damaged. Replace as required (WP 0018). 2. Inspect for soap or dirt buildup. Clean if necessary (WP 0014).	Floor panel damage interferes with shower operation.
25	During	Floor Mat	Verify that floor mat is laying flat and is not cut or damaged. If not laying flat, straighten it. Replace if damaged (WP 0015).	Damage interferes with shower operation

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - (CONTINUED)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
26	During	Shower Cabinet Support Pole	Inspect shower cabinet support poles for damage. Replace shower cabinet support poles as necessary (WP 0018).	Damage interferes with shower operation
27	During	Shower Frame Assembly	Inspect shower frame for damage or missing parts. Contact maintainer for repair or replacement (WP 0016, WP 0021).	Damage interferes with shower operation
28	During	Shower Head Manifold	Operate shower. Inspect the operation of each nozzle valve as well as the nozzle spray. If spray is not even, clean the nozzle. If the nozzle cannot be cleaned and does not operate smoothly, contact maintainer support for repair or replacement (WP 0021).	Nozzle is clogged or valve does not work smoothly.
29	During	Shower Base	1. Inspect shower base for cracks, punctures, or leaks. Replace if required (WP 0017) 2. Inspect shower base drains for damage and proper drainage. Remove all material obstructing the drains. If damaged, replace if required (WP 0017) 3. Inspect shower base for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation. Damage interferes with shower operation.
30	During	Nonmetallic Hoses and Fittings	1. Inspect all hoses and fittings for leaks. Replace leaking hoses or fittings as necessary (WP 00207). 2. Verify that hoses are not kinked, pinched, damaged, or loose. Move hoses as necessary to relieve kink or pinch. Reconnect lose connections. Contact maintainer support to replace hose if damaged (WP 0020).	Hoses or fittings are leaking. A hose is kinked, pinched, or damaged.
31	During	WYE Quick Disconnect	1. Inspect for leaks and to verify that the WYE quick disconnect is properly connected and secure. Secure connections to stop leaking as required. If leaking persists, replace the WYE quick disconnect (WP 0015). 2. Inspect for damage. Replace WYE quick disconnect if damage interferes with shower operation (WP 0015).	Leaking is excessive and interferes with shower operation. Damage interferes with shower operation.
32	During	Supply Pump Assembly	1. Inspect supply pump for proper operation. If not operating properly, contact maintainer support for repair (WP 0023). 2. Inspect for dirt buildup. Clean if necessary (WP 0014).	Supply pump is not operating properly.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - (CONTINUED)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
33	During	Diaphragm Tank and Pump Frame	1. Inspect the diaphragm tank for damage and proper operation. Verify that the diaphragm tank is warmer on the hose end than on the closed end. Equal temperature on both ends of the diaphragm tank indicates damage to the diaphragm on the inside of the tank. Contact Maintainer maintenance for repair or replacement (WP 0030). 2. Inspect the pump frame for damage. Contact maintainer support for repair.	Diaphragm tank damaged that could affect shower operation. Temperature is as warm on the closed end of the tank as it is on the hose side. Damage to pump frame interferes with shower operation.
34	During	Power Cable Assembly	Verify that the power cable assembly is in good condition and securely connected to the pump and water heater. Secure loose cable connectors as necessary. If damaged, contact maintainer support to for repair or replacement (WP 0015, WP 0020).	Power cable assembly is damaged or loose on pump or water heater.
35	After	Shower Cabinet	1. Inspect shower cabinet for cracks or punctures. Replace if required (WP 0015). 2. Inspect shower cabinet for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation.
36	After	Hook and Loop Strips	Inspect all hook and loop strips for fastening strength. If weak, replace as necessary.	
37	After	Shower Cabinet Door Panel	1. Inspect shower cabinet door panels for cracks, punctures and for proper operation. Replace if required (WP 0015). 2. Inspect door panel for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation.
38	After	Shower Cabinet Floor Panel	Verify that the shower cabinet floor panels are not loose, cut, or damaged. Replace as required (WP 0018).	Floor panel damage interferes with shower operation.
39	After	Floor Mat	Verify that floor mat is laying flat and is not cut or damaged. If not laying flat, straighten it. Replace if damaged (WP 0015).	Damage interferes with shower operation.
40	After	Shower Cabinet Support Pole	Inspect shower cabinet support poles for damage. Replace shower cabinet support poles as necessary (WP 0015).	Damage interferes with shower operation.
41	After	Shower Frame Assembly	Inspect shower frame for damage or missing parts. Contact maintainer for repair or replacement (WP 0016, WP 0021).	Damage interferes with shower operation.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - (CONTINUED)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
42	After	Shower Head Manifold	Operate shower. Inspect the operation of each showerhead as well as the showerhead spray. If spray is not even, clean the showerhead. If the showerhead cannot be cleaned and does not operate smoothly, contact maintainer support for repair or replacement (WP 0021).	Nozzle is clogged or valve does not work smoothly.
43	After	Shower Base	1. Inspect shower base for cracks, punctures, or leaks. Replace if required (WP 0017) 2. Inspect shower base drains for damage and proper drainage. Remove all material obstructing the drains. If damaged, replace if required (WP 0017) 3. Inspect shower base for general cleanliness. Clean if necessary (WP 0014).	Damage interferes with shower operation. Damage interferes with shower operation.
44	After	Nonmetallic Hoses and Fittings	1. Inspect all hoses and fittings for leaks. Replace leaking hoses or fittings as necessary (WP 0020). 2. Verify that hoses are not kinked, pinched, damaged, or lose. Move hoses as necessary to relieve kink or pinch. Reconnect lose connections. Contact maintainer support to replace hose if damaged (WP 0020).	Hoses or fittings are leaking. A hose is kinked, pinched, or damaged.
45	After	Suction Strainer	Inspect suction strainer for debris or obstruction. Clear any obstruction found.	Obstruction cannot be cleared.
46	After	Check Valve Assembly	1. Inspect the check valve for leaks and to ensure it is properly connected. Secure connections to stop leaking as required. If leaking persists, contact maintainer support for replacement (WP 0023). 2. Inspect for damage. If damaged, contact maintainer support for replacement (WP 0023).	Check valve assembly is leaking. Damage interferes with shower operation.
47	After	WYE Quick Disconnect	1. Inspect for leaks and to verify that the WYE quick disconnect is properly connected and secure. Secure connections to stop leaking as required. If leaking persists, replace the WYE quick disconnect (WP 0015).	Leaking is excessive and interferes with shower operation.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - (CONTINUED)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			2. Inspect for damage. Replace WYE quick disconnect if damage interferes with shower operation (WP 0015).	Damage interferes with shower operation.
48	After	Pressure Regulator	1. If the shower has low or no water pressure, and all hoses, fittings, suction strainer, and supply pump have been inspected for proper operation, inspect the regulator valve assembly for proper operation. Contact Maintainer maintenance to troubleshoot the issue and replace the pressure regulator if necessary (WP 0020). 2. Inspect for leaks and to ensure proper connection. Secure connections to stop leaking as required. If leaking persists, contact maintainer support for replacement (WP 0020).	Damage interferes with shower operation. Regulator valve assembly is leaking.
49	After	Temperature Regulator	Inspect for proper operation and to verify the water temperature of the shower is the temperature set on the temperature gauge. If the water is not being heated or the temperature gauge is not indicating properly, contact maintainer support for repair or replace (WP 0014, WP 0027).	Temperature regulator not operating as designed.
50	After	Diaphragm Tank and Pump Frame	1. Inspect the diaphragm tank for damage. Contact Maintainer maintenance for repair or replacement (WP 0030). 2. Inspect the pump frame for damage. Contact maintainer support for repair (WP 0030).	Diaphragm tank damaged. Damage to pump frame interferes with shower operation.
51	After	Reciprocating Pump Assembly	Check reciprocating pump for proper operation. Check that it is well lubricated and free from dirt buildup. Lubricate if necessary (WP 0010). Clean if necessary (WP 0014). Contact maintainer support if reciprocating pump is not properly operating.	Reciprocating pump is not operating properly.
52	After	Supply Pump Assembly	1. Inspect supply pump for proper operation. If not operating properly, contact maintainer support for replacement (WP 0023) 2. Inspect for dirt buildup. Clean if necessary (WP 0014).	Supply pump is not operating properly.

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - (CONTINUED)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
53	After	Power Cable Assembly	Verify that the power cable assembly is in good condition and securely connected to the pump and water heater. Secure loose cable connectors as necessary. If damaged, contact maintainer support to for repair or replacement (WP 0015, WP 0020).	Power cable assembly is damaged or loose on pump or water heater.
54	After	Storage Containers	Inspect for damage or missing hardware and for any damage to container. If damaged, contact maintainer support for repair or replacement (WP 0021, WP 0032).	Container damage or hardware missing.
55	Weekly	Nonmetallic Supply Hoses	Shut down shower and relieve system pressure. Remove each supply hose one at a time and check for obstructions. Clean if necessary (WP 0014).	Supply hose is damaged.
56	Weekly	Nonmetallic Hoses and Fittings	1. Inspect all hoses and fittings for leaks. Replace leaking hoses or fittings as necessary (WP 0020). 2. Verify that hoses are not kinked, pinched, damaged, or lose. Move hoses as necessary to relieve kink or pinch. Reconnect lose connections. Contact maintainer support to replace hose if damaged (WP 0020).	Hoses or fittings are leaking. A hose is kinked, pinched, or damaged.
57	Weekly	Check Valve Assembly	Inspect for damage. If damaged, contact maintainer support for replacement (WP 0023).	Damage interferes with shower operation.
58	Weekly	Supply Pump Assembly	1. Inspect supply pump for proper operation. If not operating properly, contact maintainer support for replacement (WP 0023) 2. Inspect for dirt buildup. Clean if necessary (WP 0014).	Supply pump is not operating properly.
59	Weekly	Reciprocating pump	Lubricate as necessary (WP 0010).	No lubricant present.
60	Weekly	Hook and Loop Strips	Inspect all hook and loop strips for fastening strength. If weak, replace as necessary.	

END OF WORK PACKAGE

FIELD MAINTENANCE

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

INITIAL SETUP:

Tools and Special Tools
Tools Set, General Mechanics (WP 0051, Table 2)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0010
WP 0014
WP 0023

Equipment Condition
Shower fully assembled (, WP 0005),

Table 1. Preventive Maintenance Checks And Services (PMCS)

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Quarterly	Switch Box Wiring	Remove switch box cover (WP 0026) and inspect wiring for damage and loose terminal connections. Replace damaged wires and tighten terminal connections as necessary.	Wiring is damaged or terminal connections are loose.
2	Quarterly	Reciprocating Pump Assembly	Check reciprocating pump for proper operation. Check that it is well lubricated and is free from dirt buildup. Lubricate if necessary (WP 0010). Clean if necessary (WP 0014). Contact maintainer support if reciprocating pump is not properly operating.	Reciprocating pump is not operating properly.
3	Quarterly	Supply Pump Assembly	Inspect supply pump for proper operation. If not operating properly, contact maintainer support for replacement (WP 0023). Inspect for dirt buildup. Clean if necessary (WP 0014).	Supply pump is not operating properly.

END OF WORK PACKAGE

CHAPTER 5

MAINTENANCE INSTRUCTIONS

FOR

12-HEAD SHOWER SYSTEM (OPERATOR MAINTENANCE)

OPERATOR INSTRUCTIONS

SERVICE UPON RECEIPT OF MATERIEL

INITIAL SETUP:

Tools and Special Tools
None required.

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 2

References
DA PAM 750-8
SF 364
WP 0005
WP 0045
WP 0051

INTRODUCTION

NOTE

Repair Parts and Special Tools List (RPSTL) (WP 0045) as well as the Maintenance Allocation Chart (MAC) (WP 0051) identify the tools and support equipment needed to maintain the shower.

This work package addresses the Service Upon Receipt of Materiel for the 12–head shower.

SERVICE UPON RECEIPT OF MATERIEL

Checking Unpacked Equipment

Inspecting and Servicing the Equipment. There are no special procedures required for inspecting and servicing the shower on receipt. Refer to WP 0005 for shower set up procedures.

Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on SF Form 364, Report of Discrepancy.

Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with DA PAM 750-8.

Check to see whether the equipment has been modified. Equipment that has been modified will have the Modification Work Order (MWO) number near the identification plate. Check also to see whether all currently applicable MWO's have been applied. Current MWO's applicable to the equipment are listed in the Modification Management Information System (MMIS).

END OF TASK

INSTALLATION

There are no installation procedures required at the time the 12-head shower is received.

END OF TASK

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

12-HEAD SHOWER SYSTEM SERVICE

INITIAL SETUP:

Tools and Special Tools
Scrub Brush (WP 0054, Table 1, Item 9)

Materials/Parts
Pine Oil (WP 0054, Table 1, Item 7)
Scouring Powder (WP 0054, Table 1, Item 8)

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 1

Equipment Condition
Shower not in use
Shower fully operational

GENERAL CLEANING PROCEDURES

WARNING

Wear eye protection when using cleaning solvents. Failure to follow this warning may result in serious injury to personnel.

This work package contains instructions covering the cleaning of the shower. These procedures are applicable to cleaning on a regular basis as well as cleaning in preparation for storage and shipment.

1. Scrub each shower cabinet, shower nozzle, and shower base to remove soap buildup.
2. Rinse with clean water.
3. Scrub each floor panel to remove soap buildup.
4. Rinse with clean water.
5. With the shower in operational condition, open all shower nozzle assembly valves and allow water to run until water leaving drain hose is clear. If the spray from any nozzle does not flow properly, clean the nozzle to clear shower head holes from obstruction to the extent possible. If a nozzle cannot be cleared of obstructions, contact maintainer support to repair or replace the nozzle.
6. Close all shower nozzle assembly valves.
7. Shut down the 12-head shower system.
8. Using a bristle brush, scrub floor mat to remove any dirt. Rinse with clean water.

END OF TASK

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

12-HEAD SHOWER SYSTEM REPAIR

INITIAL SETUP:

Materials/Parts
Strap, Retaining (WP 0052, Table 1, Item 22), 2
Gloves, Men's (WP 0054, Table 1, Item 4)

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 1
Quartermaster and Chemical Equipment Repairer, (91J) - 1

Equipment Condition
Water drained from shower
Shower not in use
Shower powered off
Both pump switches in the OFF position
Power cable connector disconnected from power source

FLOOR MAT REPLACEMENT

Removal

1. Roll up and remove floor mat (Figure 1, Item 3). The mats are located parallel along each side of the shower.
2. Wrap two retaining straps (Figure 1, Item 2) around rolled up floor mat (Figure 1, Item 1).

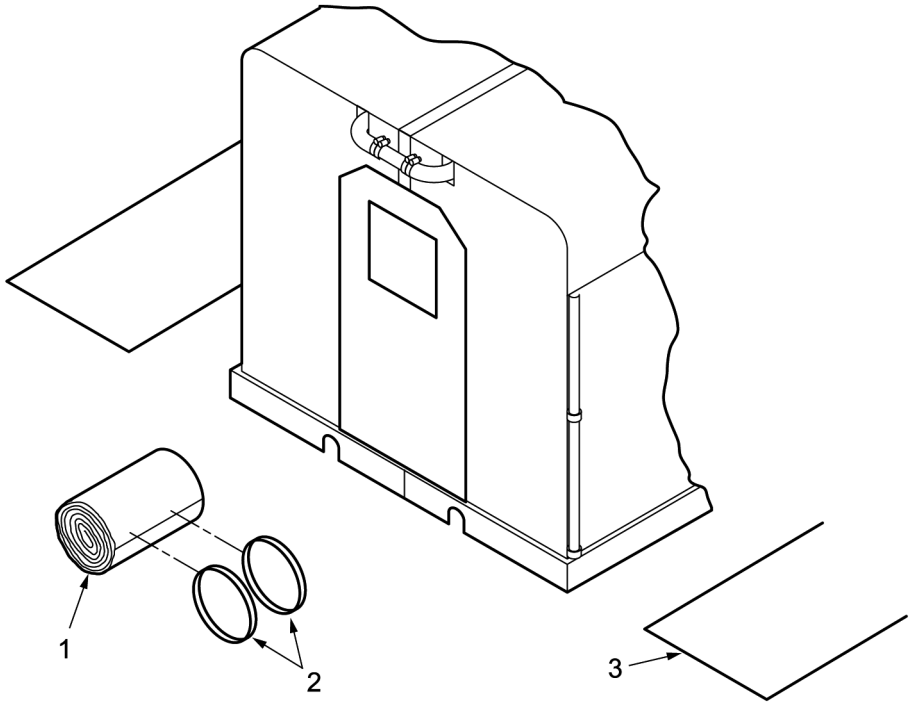


Figure 1. Replacing the Floor Mat.

Installation

1. Remove two retaining straps (Figure 1, Item 2) from new floor mat (Figure 1, Item 1).
2. Unroll new floor mat and place it in position where the damaged mat was removed.

END OF TASK

12-HEAD SHOWER SYSTEM REPAIR - (CONTINUED)

SHOWER CABINET DOOR PANEL REPLACEMENT

Removal

1. Separate the shower cabinet door panel (Figure 2, Item 2) from the hook and loop strip (Figure 2, Item 1).
2. Remove shower cabinet door panel (Figure 2 Item 2).

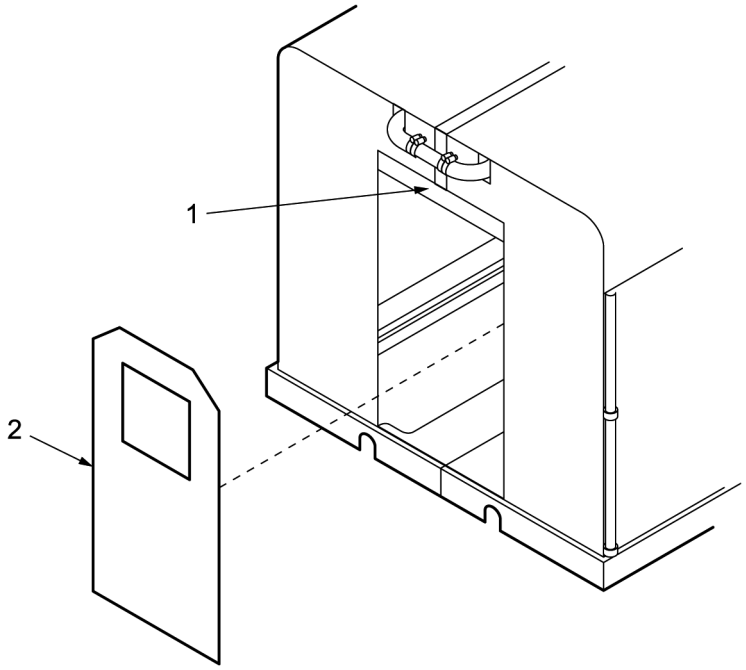


Figure 2. Replacing the Shower Cabinet Door Panel.

Installation

1. Install shower cabinet door panel (Figure 2, Item 2) in place.
2. Secure using hook and loop strip (Figure 2, Item 1).

END OF TASK

WYE QUICK DISCONNECT REPLACEMENT

Removal

1. Release the quick disconnect coupling (Figure 3, Item 2).
2. Separate the drain hose (Figure 3, Item 1) from the WYE quick disconnect (Figure 3, Item 3).

12-HEAD SHOWER SYSTEM REPAIR - (CONTINUED)

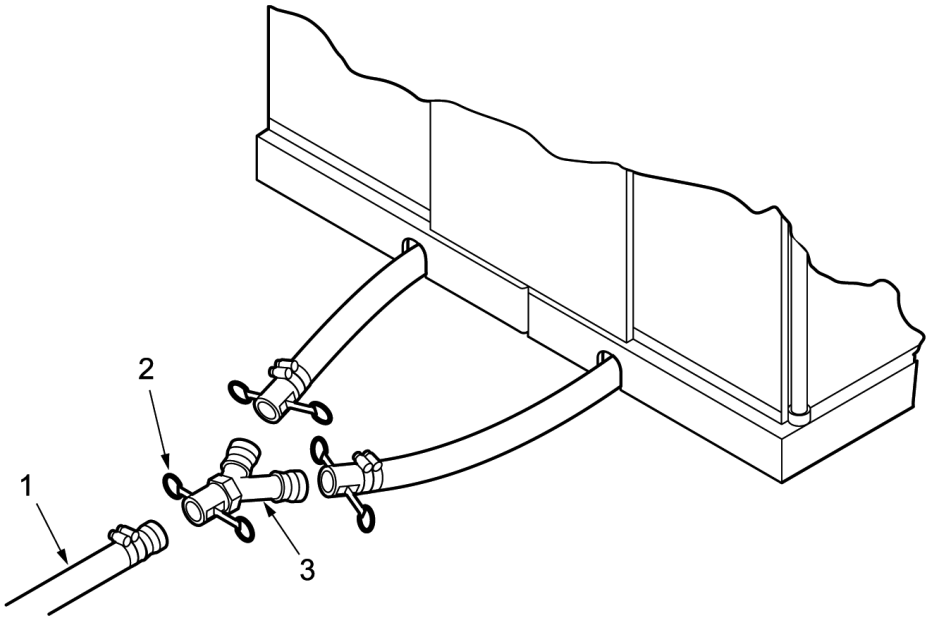


Figure 3. Replacing the WYE Quick Disconnect.

Installation

CAUTION

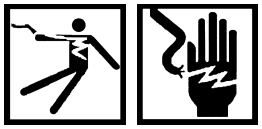
Verify that the drain hoses are not kinked when replacing the WYE quick disconnect.

1. Connect the drain hose (Figure 3, Item 1) to the WYE quick disconnect coupler (Figure 3, Item 3).
2. Secure the drain hose (Figure 3, Item 1) using the quick disconnect coupling (Figure 3, Item 2).

END OF TASK

POWER CABLE ASSEMBLY REPLACEMENT

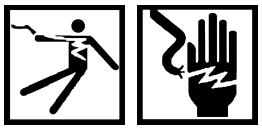
WARNING



High voltage is used on the 12-head shower system. Care must be taken to avoid personal injury or death from energizing circuits.

12-HEAD SHOWER SYSTEM REPAIR - (CONTINUED)

WARNING



Make sure that source power has been shut off before removing the power cable. Failure to follow this warning may result in injury or death to personnel.

Removal

NOTE

If no obvious physical damage can be seen on the power cable, a continuity check must be accomplished on each lead of the power cable to determine that the power cable is no longer serviceable.

1. Disconnect the power cable plug (Figure 4, Item 1) from the input power cable.
2. Disconnect the power cable plug (Figure 4, Item 2).
3. Disconnect the power cable (Figure 4, Item 3).

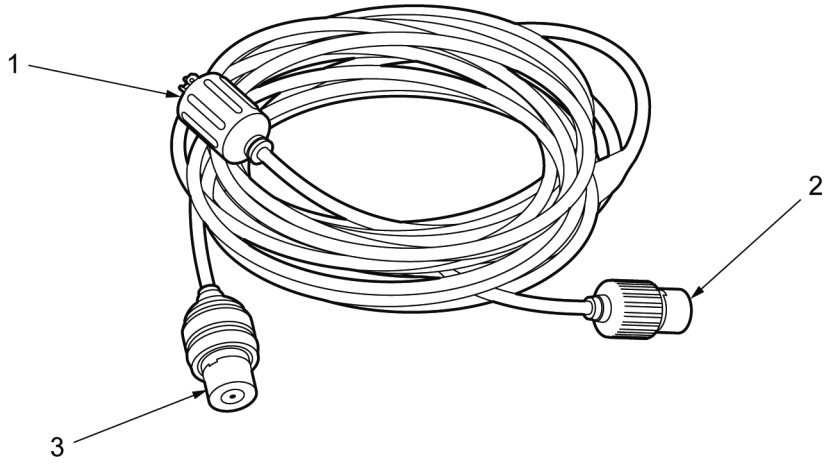


Figure 4. Replacing the Power Cable Assembly.

Installation

1. Connect plug (Figure 4, Item 2) to the pump assembly receptacle located on the pump assembly switch box.
2. Connect plug (Figure 4, Item 3) to the power receptacle on the water heater. The receptacle is located on the top front of the water heater.
3. Connect the plug (Figure 4, Item 1) to the receptacle at the power supply source.

END OF TASK

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

SHOWER FRAME ASSEMBLY REPLACE

INITIAL SETUP:

Tools and Special Tools
None required.

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 3

References
WP 0005

Equipment Condition
Shower not in use
System powered off and pressure relieved
Water drained from shower

REPLACE

Removal

If a shower frame is damaged beyond repair, replace the shower frame as follows:

1. If removing a frame from an end shower stall, remove the shower door (Figure 1) from that end of the shower.
2. If removing a frame assembly from the end shower stall to which the water supply hose is connected, disconnect the supply hose.
3. Disconnect the shower head assembly connection hose from the shower head manifold (Figure 1) of the affected shower stall.
4. Disconnect the shower connection hoses from the shower head manifold assembly of the two adjacent shower stalls.

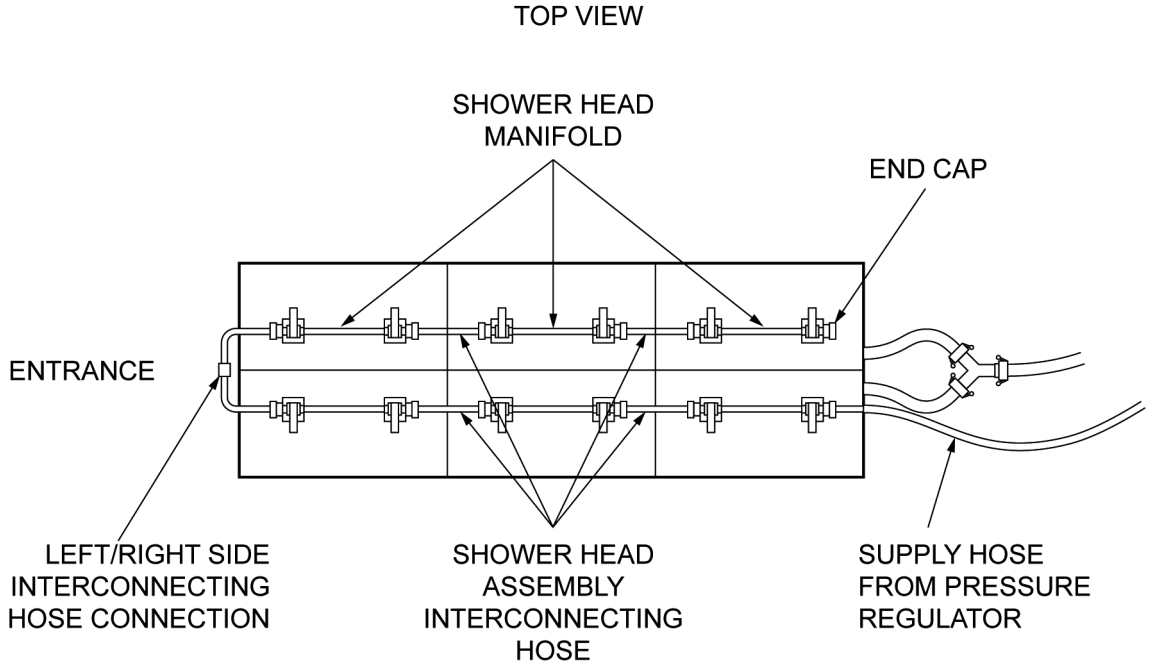


Figure 1. Disconnecting the Shower Head Assemblies.

5. From inside the shower, disconnect the hook and loop strips at the top of the shower frame that secure the affected frame assembly to the opposing frame assembly.
6. Disconnect all of the exterior hook and loop straps used to secure the affected shower cabinet and frame assembly to its shower cabinet support poles.

SHOWER FRAME ASSEMBLY REPLACE - (CONTINUED)

7. Remove the outside center shower cabinet and frame assembly support pole.
8. A large hook and loop strip is sewn along the bottom (skirt) of the shower cabinet (Figure 2) and is used to secure the bottom of the shower cabinet to the back of the shower base. Separate the hook and loop strip from the back of the shower base.

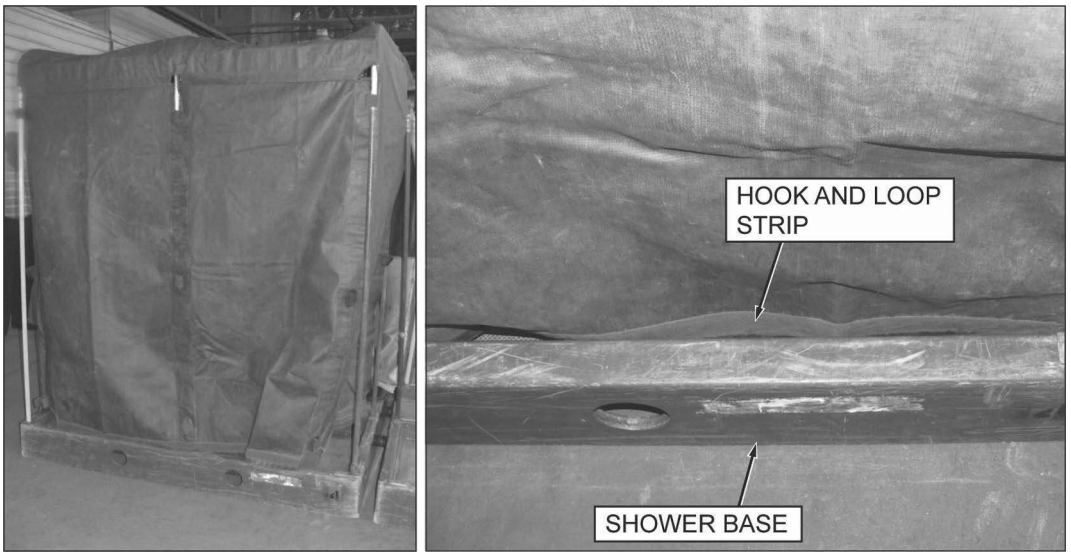


Figure 2. Shower Base to Shower Cabinet Hook and Loop Connection.

WARNING

Be sure to use at least two operators to lift the shower cabinet and frame assembly. Failure to follow this warning may result in serious injury to personnel.

9. Confirm that all associated hook and loop strips and shower head assemblies have been disconnected, then lift the affected shower frame, together with its shower cabinet, from the support poles (Figure 3).
10. Remove the shower frame from the shower cabinet.

SHOWER FRAME ASSEMBLY REPLACE - (CONTINUED)

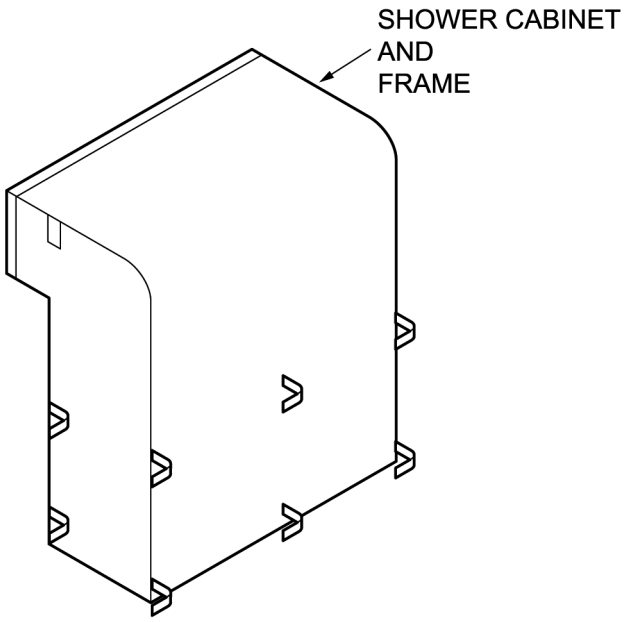


Figure 3. Shower Cabinet and Frame Assembly.

Installation

1. Lay the shower cabinet on the ground with the outside of the cabinet facing down
2. Position the new shower frame on the shower cabinet (opposite side of where the shower head is installed) and carefully guide the three outer legs through openings in back of shower cabinet (Figure 4).
3. Pull the shower frame up as shown in (Figure 4) and pull the shower cabinet skirt up so that the cabinet hook and loop strip that runs along the length of the cabinet skirt is above the height of the frame.
4. Hook and loop strips are sewn in place on both the outside and inside of the shower cabinet. Attach the hook and loop strips at each position on the inside of the cabinet to the shower frame (Figure 4).

WARNING

Be careful when installing the shower frame legs onto the shower cabinet support poles not to put your fingers directly on the location where the frame legs and support posts join. Severely pinched finger may result. Failure to follow this warning may cause injury to personnel.

5. Install outer center shower cabinet support pole.
6. From the inside, lift the shower frame and cabinet and install the assembly onto the shower cabinet support poles. Note that the two outer shower cabinet support poles should be on the outside of the shower cabinet.
7. Secure the shower cabinet to shower the cabinet support poles (Figure 5) using the attached hook and loop strips.
8. Secure the shower cabinets to the inside of each shower base using attached hook and loop strips on the bottom skirt of the shower cabinet.

SHOWER FRAME ASSEMBLY REPLACE - (CONTINUED)

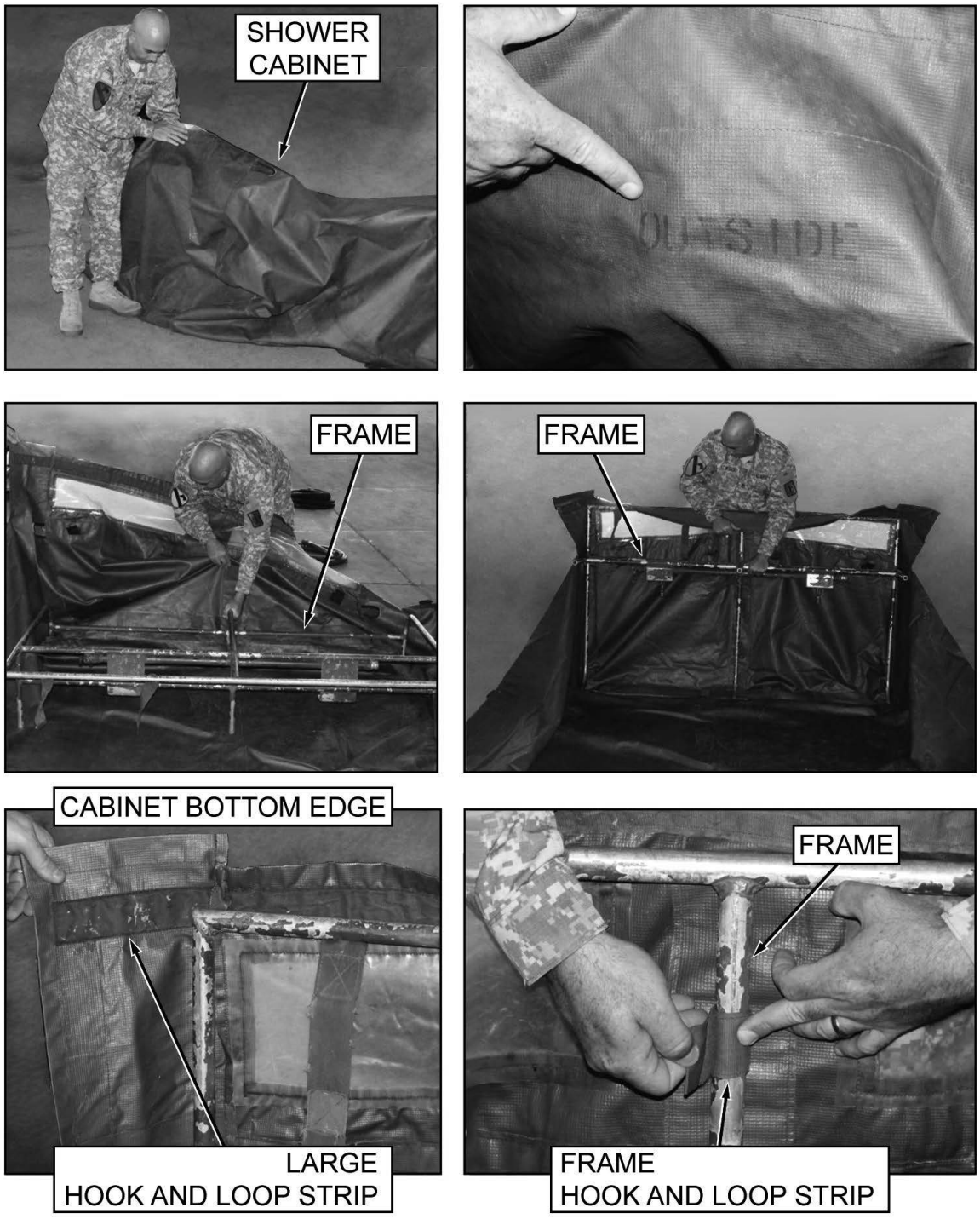


Figure 4. Assembling the Shower Cabinet and Frame.

SHOWER FRAME ASSEMBLY REPLACE - (CONTINUED)

WARNING

Be sure to use at least two operators to lift the shower cabinet and frame assembly. Failure to follow this warning may result in serious injury to personnel.

9. Install the shower cabinet together with its shower frame (Figure 5) onto the installed cabinet support poles.
10. A large hook and loop strip is sewn along the bottom (skirt) of the shower cabinet and is used to secure the bottom of the shower cabinet to the back of the shower base. Attach the hook and loop strip to the back of the shower base.
11. Install the outside center shower cabinet support pole.
12. Attach all of the exterior hook and loop strips (Figure 5) to the shower cabinet support poles (Figure 5).

Figure 5. Assembling the Shower Cabinet to Supporting Poles.

13. Connect the shower head assembly connection hoses to the shower head assembly manifold connections. (Figure 1).
14. From inside the shower, connect the hook and loop strips at the top of the shower frame used to secure the cabinet and frame assembly to the opposing cabinet and frame assembly.
15. If it is an end cabinet and frame assembly being installed, and it is the cabinet through which the water supply hose must be connected, connect the supply hose.
16. Start the shower, referring to the start-up procedures in WP 0005.

END OF TASK

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

SHOWER BASE ASSEMBLY REPLACE

INITIAL SETUP:

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 2

Equipment Condition
Shower powered down
All water drained from the shower.

References
WP 0005

REPLACE

Removal

If a shower base is damaged beyond repair, replace the shower base as follows:

1. If removing an end cabinet, remove the shower door (Figure 1) from that end of the shower.
2. If removing the end cabinet to which the water supply hose is connected, disconnect the supply hose.
3. Disconnect and remove the shower head assembly (Figure 1) and all connecting hoses from the affected shower stall and the shower head assemblies from the two adjacent shower stalls.
4. From inside the shower, disconnect the hook and loop strips at the top of the shower frame that secure the affected cabinet and frame assembly to the opposing cabinet and frame assembly.
5. The shower floor panels (Figure 1) are secured to the shower bases using hook and loop strips. Detach the hook and loop strips and remove the floor panel from the shower base.
6. Disconnect all of the exterior hook and loop strips (Figure 1) used to secure the affected shower cabinet to its shower cabinet support poles (Figure 1).
7. Remove the outside center shower cabinet support pole.
8. A large hook and loop strip is sewn along the bottom (skirt) of the shower cabinet and is used to secure the bottom of the shower cabinet to the back of the shower base. Separate the hook and loop strip from the back of the shower base.

WARNING

Be sure to use at least two operators to lift the shower cabinet and frame assembly. Failure to follow this warning may result in serious injury to personnel.

9. Confirm that all associated hook and loop strips and shower head assemblies have been disconnected and/or removed, then remove the affected shower cabinet together with its shower frame (Figure 2).
10. Place the shower cabinet and frame assembly out of the way so that it does not interfere with the removal of the shower base.
11. Remove all of the remaining shower cabinet support poles from the affected shower base (Figure 1).

SHOWER BASE ASSEMBLY REPLACE - (CONTINUED)

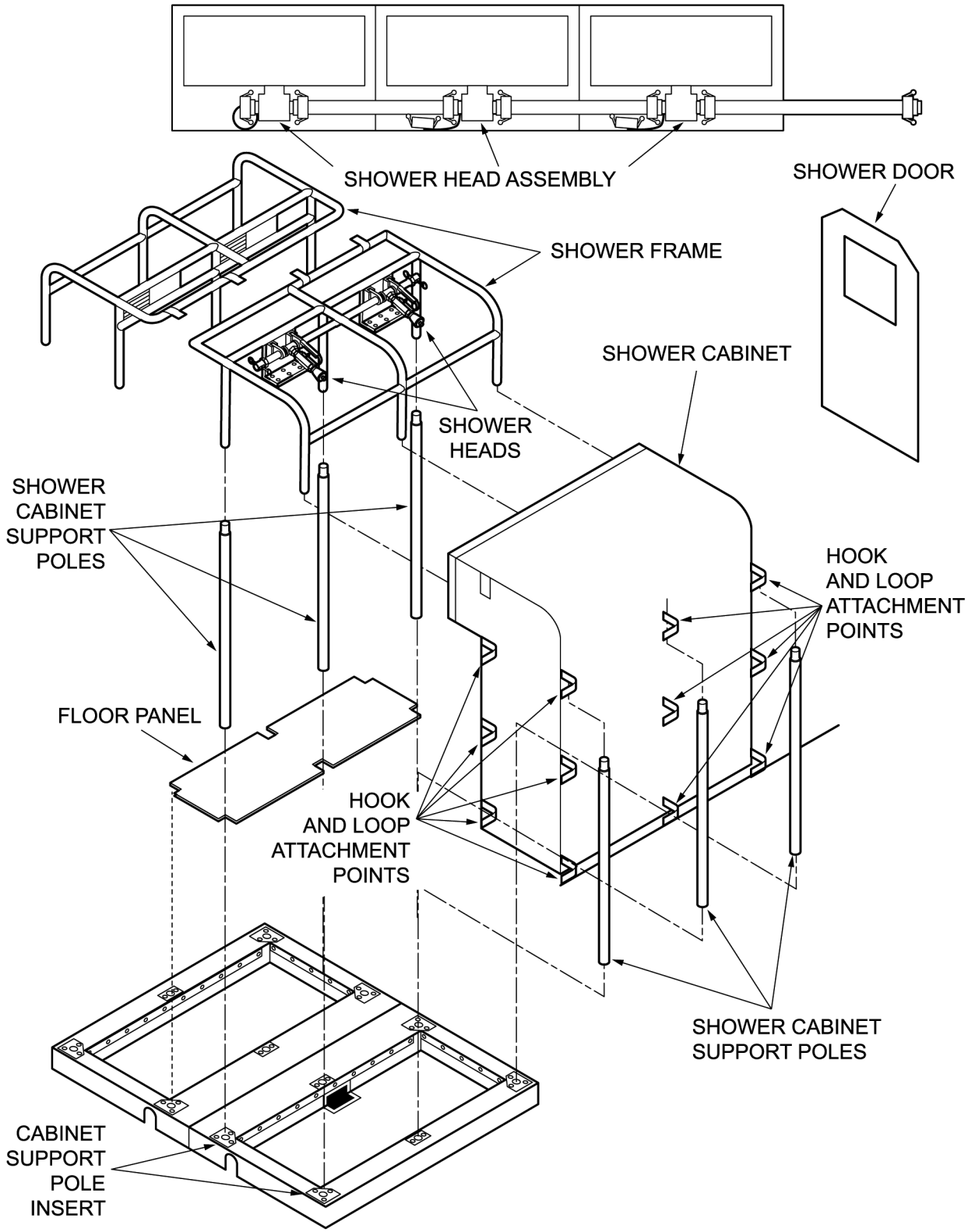


Figure 1. Replacing the Shower Base.

SHOWER BASE ASSEMBLY REPLACE - (CONTINUED)

12. Using one operator, lift the back of the shower base up to the extent that the second operator can easily reach the drain hose connections (Figure 1).
13. Disconnect the two drain hoses from the two connection points at the center of the shower base (Figure 1). If the base being replaced is an end base on the opposite side of where the pump assembly is located, remove the end cap from the last hose connection point so that it can be installed onto the new shower base.

WARNING

Be sure to use at least two operators when lifting the shower base from the shower. Failure to follow this warning may result in serious injury to personnel.

14. Lower the back of the shower base down to the extent that the drain hoses will have clearance from the shower base when the shower base is removed from the shower. Using two operators, lift the entire shower base as straight up as possible and remove it from the shower. Be sure that the drain hoses below the shower base do not interfere with the shower base when lifting.

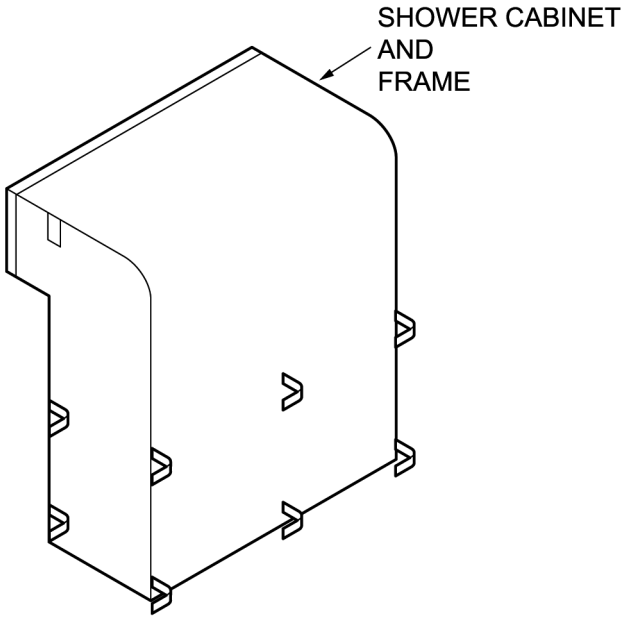


Figure 2. Shower Base and Frame Assembly.

SHOWER BASE ASSEMBLY REPLACE - (CONTINUED)

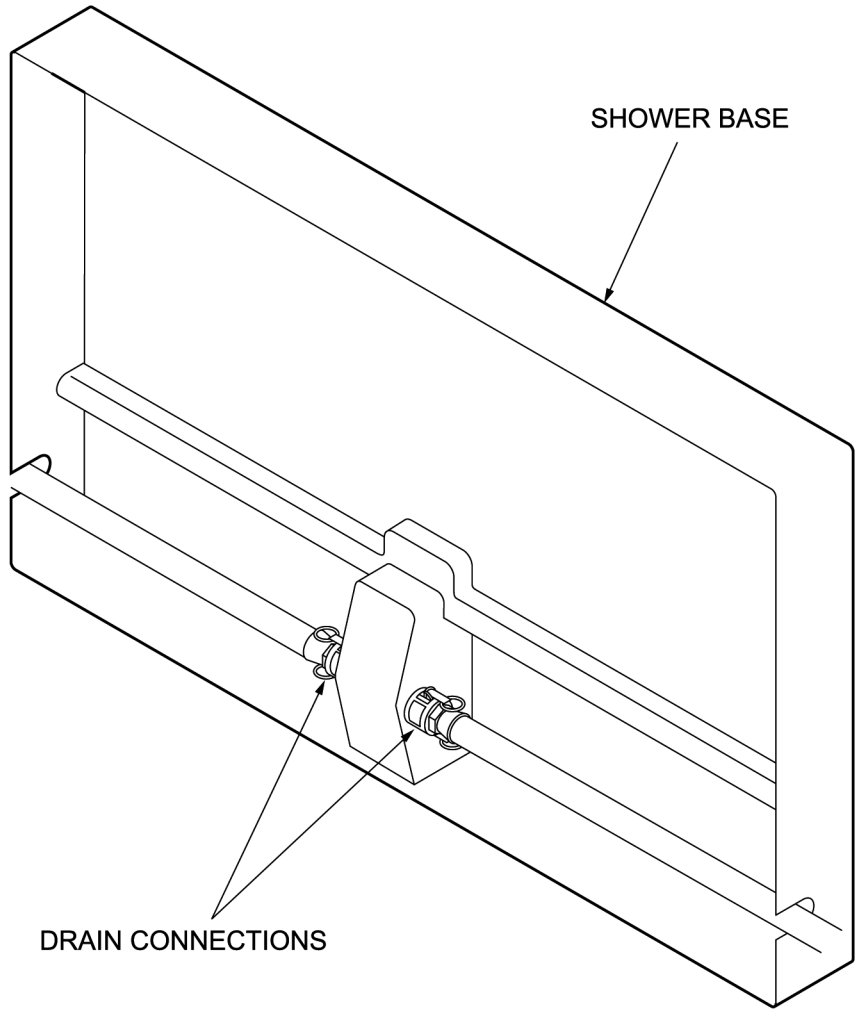


Figure 3. Disconnecting and Connecting the Drain Hoses.

Installation

CAUTION

Be careful when lowering the shower base into place that the pass-through holes in the base align properly with the drain hoses below. Ensure that all shower bases are level with each other.

1. Drain hose pass-through holes on each end of the shower base provide clearance to allow the drain hoses to be routed under the shower base. Lower the new shower base into the location where the old shower base was installed, making sure that the pass-through holes are lowered over and properly align with the drain hoses.
2. Using one operator, lift the back of the shower base up to the extent that the second operator can easily reach the drain hose connections (Figure 1).
3. Connect the two drain hoses to the two connection points at the center of the shower base (Figure 3). If the base being replaced is an end base on the opposite side of where the pump assembly is located, install the end cap on the last hose connection point.
4. Lower shower base into place, ensuring that drain hoses are in the pass-through holes in the shower base.
5. Install 5 shower cabinet support poles into the new base (Figure 1). Do not install the outside center support pole at this time.

SHOWER BASE ASSEMBLY REPLACE - (CONTINUED)

WARNING

Be sure to use at least two operators to lift the shower cabinet and frame assembly. Failure to follow this warning may result in serious injury to personnel.

WARNING

Be careful when installing the shower frame legs onto the shower cabinet support poles not to put your fingers directly on the location where the frame legs and support posts join. Severely pinched fingers may result. Failure to follow this warning may cause injury to personnel.

6. Install the shower cabinet together with its shower frame (Figure 1) onto the installed cabinet support poles.
7. A large hook and loop strip is sewn along the bottom (skirt) of the shower cabinet and is used to secure the bottom of the shower cabinet to the back of the shower base. Attach the hook and loop strip to the back of the shower base.
8. Install the outside center shower cabinet support pole.
9. Attach all of the exterior hook and loop strips (Figure 1) to the shower cabinet support poles.Figure 1).
10. If installing an end cabinet, install the shower door (Figure 1) to the end of the shower.
11. Install and connect the shower head assemblies (Figure 1) with hoses.
12. From inside the shower, connect the hook and loop strips at the top of the shower frame used to secure the cabinet and frame assembly to the opposing cabinet and frame assembly.
13. Using the hook and loop strips attached to the floor panel (Figure 1), install the floor panel onto the shower base.
14. If the end cabinet being installed is the cabinet to which the water supply hose must be connected, connect the supply hose.
15. Start the shower, referring to the start-up procedures in WP 0005.

END OF TASK

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

SHOWER STALL ASSEMBLY REPLACE

INITIAL SETUP:

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 3

Equipment Condition
System powered off and water pressure relieved.

References
WP 0005

SHOWER CABINET REPLACEMENT

Removal

If a shower cabinet is damaged beyond repair, replace the shower cabinet as follows:

1. If removing a cabinet from an end shower stall, remove the shower door from that end of the shower.
2. If removing a cabinet from the end shower stall to which the water supply hose is connected, disconnect the supply hose.
3. Disconnect the shower head assembly connection hoses from the shower head manifold (Figure 1) of the affected shower cabinet stall.
4. Disconnect the shower connection hoses from the shower head manifold assembly of the two adjacent shower stalls.

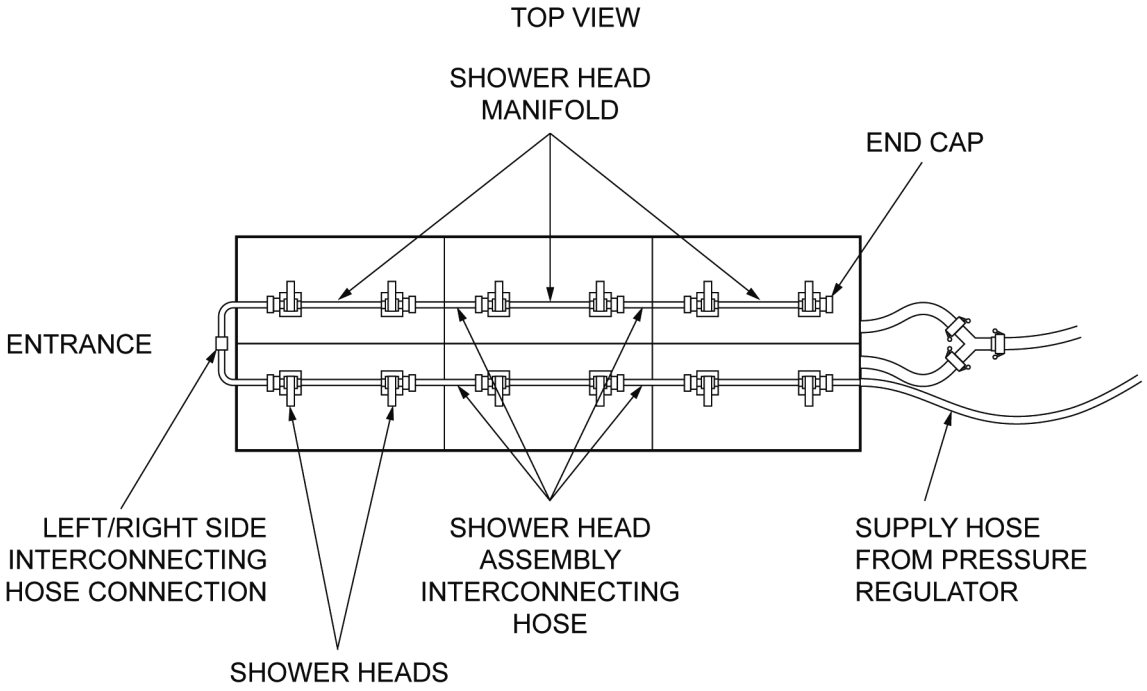


Figure 1. Disconnecting the Shower Head Assemblies.

5. From inside the shower, disconnect the hook and loop strips at the top of the shower frame that secure the affected cabinet and frame assembly to the opposing cabinet and frame assembly.
6. Disconnect all of the exterior hook and loop strips used to secure the affected shower cabinet and its shower cabinet support poles.
7. Remove the outside center shower cabinet support pole.

SHOWER STALL ASSEMBLY REPLACE - (CONTINUED)

8. A large hook and loop strip is sewn along the bottom (skirt) of the shower cabinet (Figure 2) and is used to secure the bottom of the shower cabinet to the back of the shower base. Separate the hook and loop strip from the back of the shower base.

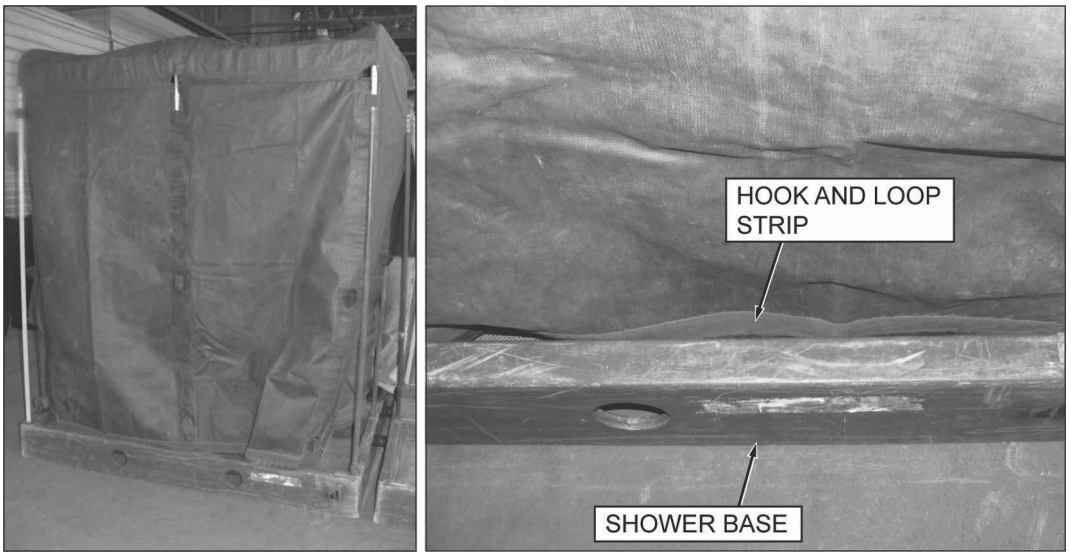


Figure 2. Shower Base to Shower Cabinet Hook and Loop Connection.

WARNING

Be sure to use at least two operators to lift the shower cabinet and frame assembly. Failure to follow this warning may result in serious injury to personnel.

9. Confirm that all associated hook and loop strips and shower head assemblies have been disconnected, then lift the affected shower frame, together with its shower cabinet, from the support poles (Figure 3).
10. Remove the shower frame from the shower cabinet.

SHOWER STALL ASSEMBLY REPLACE - (CONTINUED)

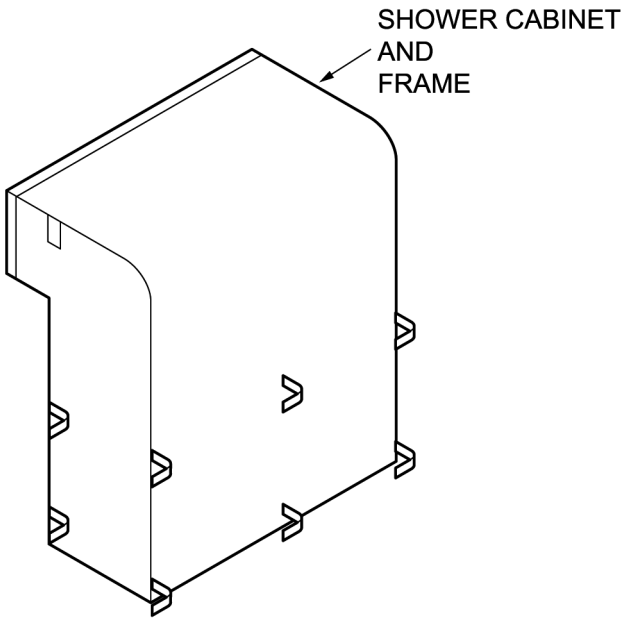


Figure 3. Shower Cabinet and Frame Assembly.

Installation

1. Lay the replacement shower cabinet on the ground with the outside of the cabinet facing down (Figure 4).
2. Position the shower frame on the shower cabinet (opposite side of where the shower head is installed) and carefully guide the three outer legs through openings in back of shower cabinet (Figure 4).
3. Pull the shower frame up (Figure 4) and pull the shower cabinet skirt up so that the cabinet hook and loop strip that runs along the length of the cabinet skirt is above the height of the frame.
4. Hook and loop strips are sewn in place on both the outside and inside of the shower cabinet. Attach the hook and loop strips at each position on the inside of the cabinet to the shower frame (Figure 4).
5. From the inside, lift the shower frame and cabinet and install the assembly onto the shower cabinet support poles. Note that the two outer shower cabinet support poles should be on the outside of the shower cabinet.

WARNING

Be careful when installing the shower frame legs onto the shower cabinet support poles not to put your fingers directly on the location where the frame legs and support poles join. Severely pinched fingers may result. Failure to follow this warning may cause injury to personnel.

SHOWER STALL ASSEMBLY REPLACE - (CONTINUED)

WARNING

Be sure to use at least two operators to lift the shower cabinet and frame assembly. Failure to follow this warning may result in serious injury to personnel.

6. Install outer center shower cabinet support pole.
7. Secure the shower cabinet to the shower cabinet support poles (Figure 4) using the attached hook and loop strips.
8. Secure the shower cabinets to the inside of each shower base using attached hook and loop strips on the bottom skirt of the shower cabinet.

SHOWER STALL ASSEMBLY REPLACE - (CONTINUED)

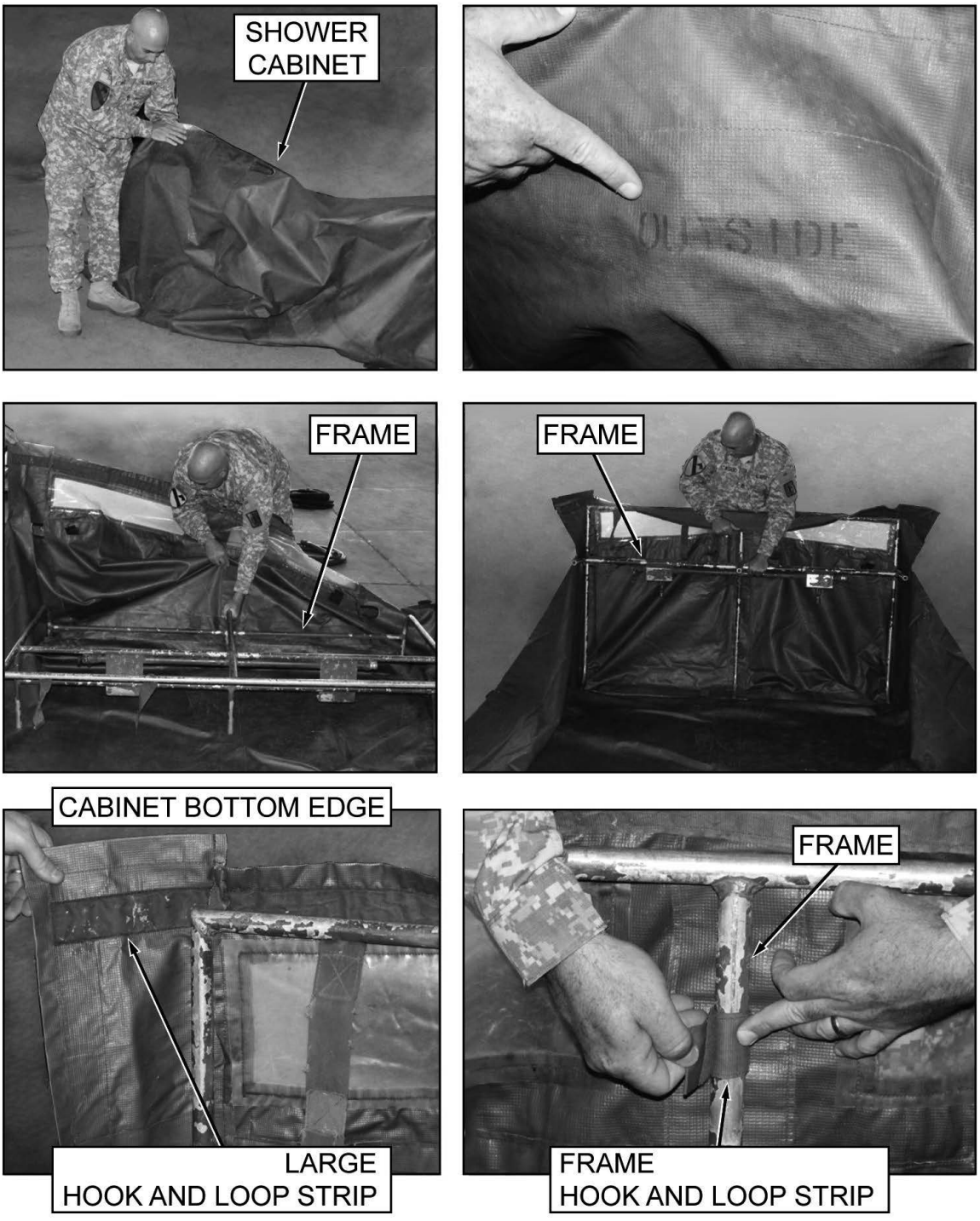


Figure 4. Assembling the Shower Cabinet and Frame.

SHOWER STALL ASSEMBLY REPLACE - (CONTINUED)

Figure 5. Attaching the Shower Cabinet to Supporting Poles.

9. Connect the shower head assembly connection hoses to the shower head manifold assembly (Figure 1).
10. From inside the shower, connect the hook and loop strips at the top of the shower frame used to secure the cabinet and frame assembly to the opposing cabinet and frame assembly.
11. If it is an end cabinet and frame assembly being installed, and it is the cabinet through which the water supply hose must be connected, connect the supply hose.
12. Start the shower, referring to the start-up procedures in WP 0005.

END OF TASK

SHOWER CABINET FLOOR PANEL REPLACEMENT

Removal

WARNING

Be careful when walking on wet surfaces. Wet surfaces can be slippery. Failure to heed this warning may result in injury to personnel.

1. Release hook and loop strips securing shower cabinet floor panel (Figure 6, Item 1) to shower base (Figure 6, Item 2).
2. Lift the shower cabinet floor panel up along the interior shower cabinet support poles and remove.

Installation

1. Lower shower cabinets floor panel (Figure 6, Item 1) into place along interior shower cabinet support poles.
2. Secure floor panels to shower base (Figure 6, Item 2) using attached hook and loop strips.

SHOWER STALL ASSEMBLY REPLACE - (CONTINUED)

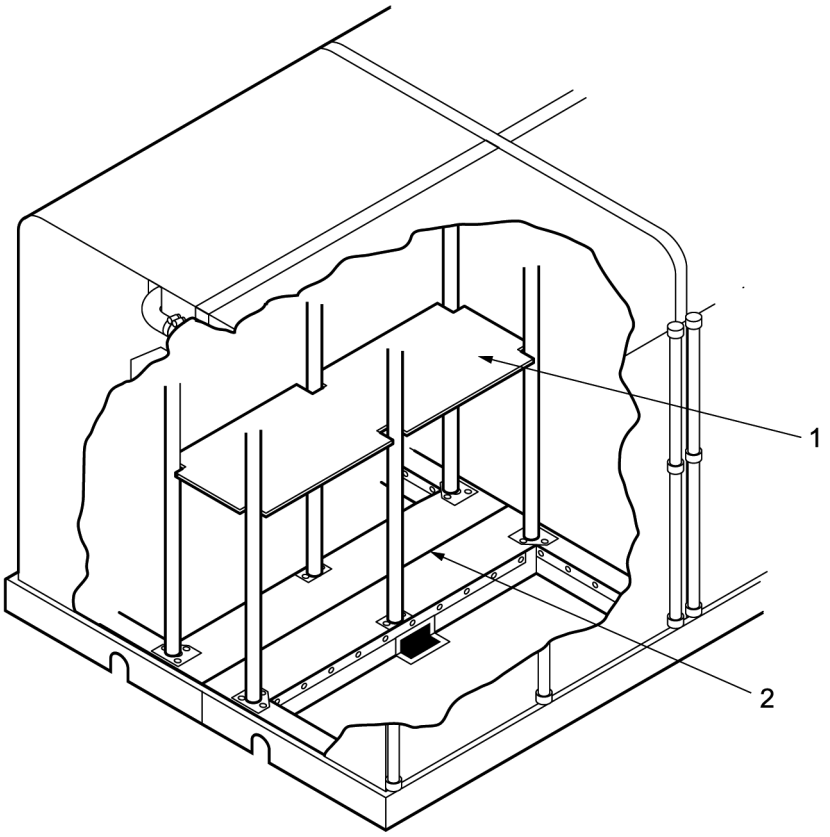


Figure 6. Replacing the Floor Panels.

END OF TASK

SHOWER CABINET SUPPORT POLE REPLACEMENT

Removal

NOTE

For convenience, replace only one shower cabinet support pole at a time to avoid having to remove shower cabinet and shower frame.

1. Release hook and loop strips securing shower cabinet (Figure 7, Item 4) to shower base (Figure 7, Item 3).
2. Release hook and loop strips (Figure 7, Item 5) from shower cabinet support pole (Figure 7, Item 2) being removed.
3. Lift shower frame (Figure 7, Item 1) as necessary and remove shower cabinet support pole (Figure 7, Item 2).

Installation

1. Lift shower frame (Figure 7, Item 1) as necessary and install shower cabinet support pole (Figure 7, Item 2).
2. Secure shower cabinet (Figure 7, Item 4) to shower cabinet support pole (Figure 7, Item 2) using attached hook and loop strips (Figure 7, Item 5).

SHOWER STALL ASSEMBLY REPLACE - (CONTINUED)

3. Secure shower cabinet (Figure 7, Item 4) to inside of shower base (Figure 7, Item 3) using attached hook and loop strips.

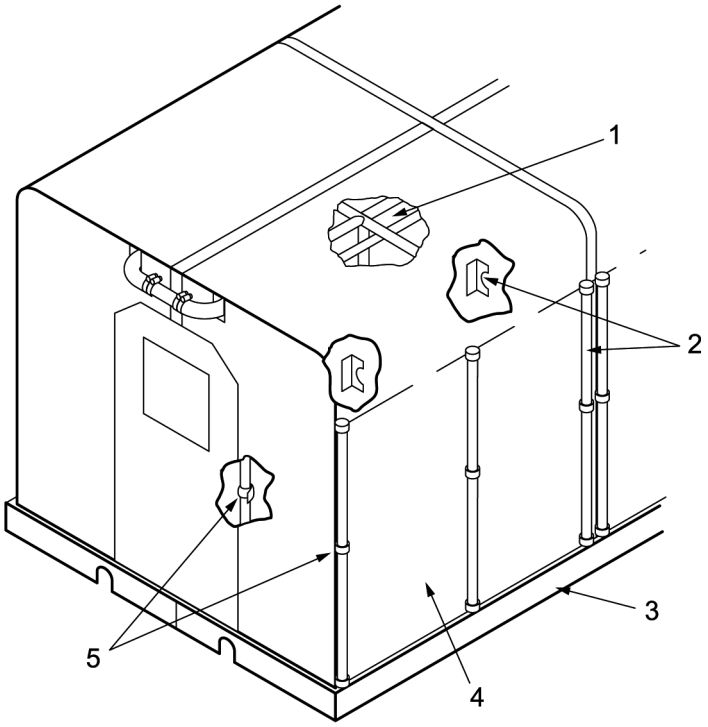


Figure 7. Replacing the Shower Cabinet Support Poles.

END OF TASK

END OF WORK PACKAGE

OPERATOR INSTRUCTIONS

PREPARATION FOR STORAGE AND SHIPMENT

INITIAL SETUP:

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 1

References
AR 750-1
WP 0005
WP 0014

Equipment Condition
Shower powered down
Water drained from shower system
Storage containers empty

INTRODUCTION

This work package contains the basic requirements and instructions to place the 12-Head Shower System into administrative storage and to prepare the item for shipment. Refer to WP 0005 for procedures on disconnecting, disassembling, and packing the shower. If the shower requires cleaning prior to disassembly and packing, refer to WP 0014.

ADMINISTRATIVE STORAGE

Administrative storage is the placement of materiel in a limited care and preservation status for short periods of time. Units may consider administrative storage of equipment should certain conditions exist. Refer to AR 750-1 for further instructions concerning administrative storage and any other specific requirements.

END OF TASK

PREPARATION FOR SHIPMENT

1. Unit shall perform required Preventive Maintenance Checks and Services (PMCS) in accordance with this technical manual to identify and correct any deficiencies and/or shortcomings with equipment. Unit will initiate any Maintenance Work Orders (MWO) required to bring equipment to TM 10/20 in accordance with AR 750-1 prior to shipment.
2. Refer to AR 750-1 for further instructions prior to the shipment of equipment.

END OF TASK

END OF WORK PACKAGE

CHAPTER 6

MAINTENANCE INSTRUCTIONS

FOR

12-HEAD SHOWER SYSTEM (MAINTAINER MAINTENANCE)

FIELD MAINTENANCE

12–HEAD SHOWER SYSTEM TEST

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Materials/Parts
ID Strap (2) (Item 5, WP 0055)
Tag, Marker (Item 11, WP 0054)

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 1
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0005

Equipment Condition
Water drained from shower
Shower powered off (WP 0005)
Shower disconnected from power source
Input power connector disconnected from power source.

TESTING POWER CABLE ASSEMBLY CONTINUITY

WARNING

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not disconnect power cables when power is on or generator set is operating.

Failure to follow this warning may result in serious injury or death to personnel.

1. Using a multimeter set to measure continuity, check between each power cable assembly contact point (Figure 1, Items 1, 2, and 3) and the contact point of the corresponding connector or loose lead on the other end of the cable.
2. Replace the power cable if no continuity is indicated on any one lead. If the input power cable does not pass the continuity check, replace the input power cable, referring to the disassembly/assembly procedures in this work package.

12–HEAD SHOWER SYSTEM TEST - (CONTINUED)

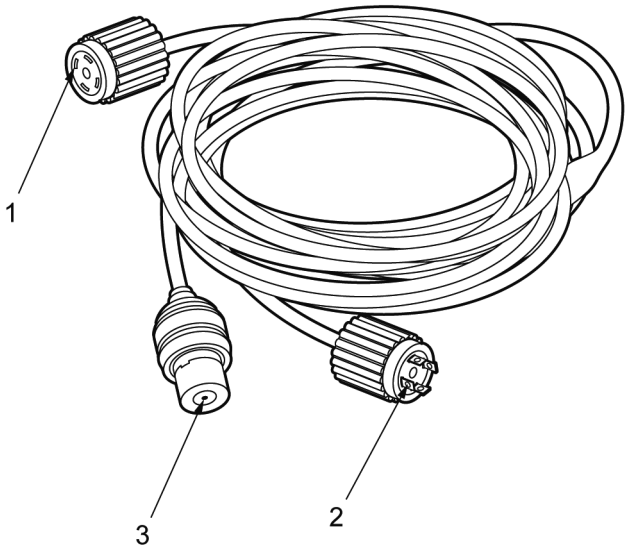


Figure 1. Testing Power Cable.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

SHOWER FRAME ASSEMBLY REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)
Sealing Compound (Item 9, WP 0054)
Self Locking Nuts (8) (Item 1, WP 0055)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0016

Equipment Condition
Shower is shut down

This work package includes procedures for all components that can be removed from and installed on the shower frame assembly. Repair, however, is limited to the replacement of defective, missing, or damaged components. Disassemble only to the extent necessary to replace a particular component.

SHOWER FRAME ASSEMBLY REPAIR

Disassemble

WARNING

The shower head manifold assembly will be loose when the U-bolts are removed and must be supported by hand to prevent the manifold from falling on and injuring personnel. Failure to follow this warning may cause injury to personnel.

1. Remove eight self-locking nuts (Figure 1, Item 1), flat washers (Figure 1, Item 2), 4 U-bolts (Figure 1, Item 11), and four pipe brackets (Figure 1, Item 7). Discard self-locking nuts.

NOTE

Two different shower heads can be used on the manifold assembly. Use the following procedures as necessary for the shower heads installed.

2. Remove two shower heads (Figure 1, Item 12), washers (Figure 1, Item 13), gaskets (Figure 1, Item 14), and adapter (Figure 1, Item 15).
3. Remove two valves (Figure 1, Item 16), nipples (Figure 1, Item 17), and bushings (Figure 1, Item 18).

SHOWER FRAME ASSEMBLY REPAIR - (CONTINUED)

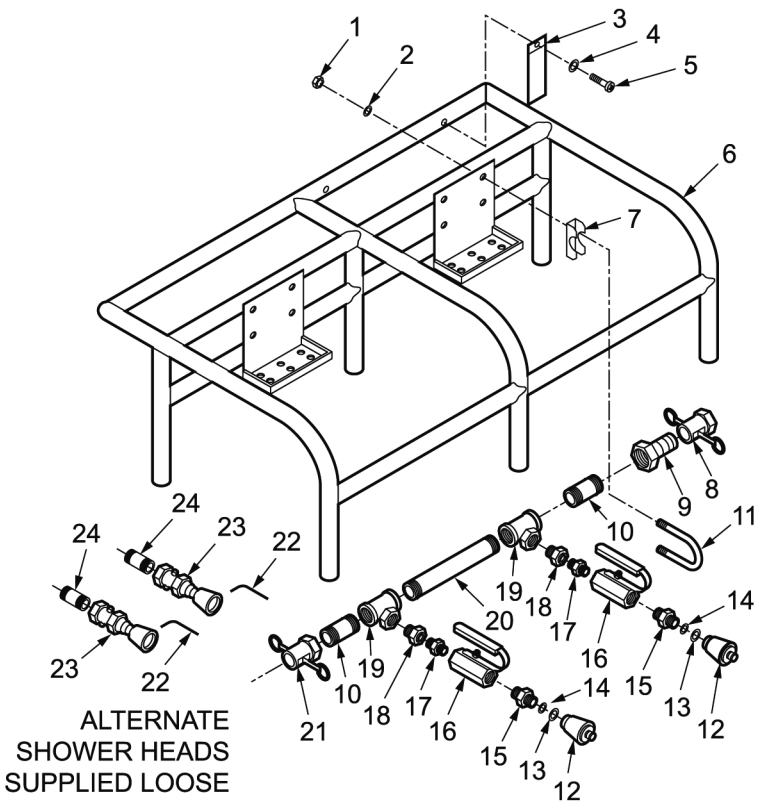


Figure 1. Shower Frame Repair.

4. If alternate shower heads are being used, loosen set screws as necessary using hex wrench (Figure 1, Item 22).
5. Remove two shower heads (Figure 1, Item 23) and nipples (Figure 1, Item 24).
6. Remove cap (Figure 1, Item 8) and couplings (Figure 1, Items 9 and 21).
7. Remove two nipples (Figure 1, Item 10) and tees (Figure 1, Item 19) from nipple (Figure 1, Item 20).

Assemble

1. Be sure any defective, missing, or damaged components have been replaced.
2. Install two Tees (Figure 1, Item 19). Be sure both tee side fittings are facing the same direction.
3. install nipples and couplings (Figure 1, Items 9 and 21) as illustrated.

NOTE

Two different shower heads can be used on the manifold. Use the following procedures as necessary for the shower heads installed.

4. Install bushings, nipples, and two valves (Figure 1, Item 16) as shown.
5. Install two adapters, gaskets (Figure 1, Item 14), washers (Figure 1, Item 13), and shower heads (Figure 1, Item 12).
6. If alternate shower heads are being used, install two nipples (Figure 1, Item 24) and shower heads (Figure 1, Item 23). Adjust shower heads as necessary and secure set screws using hex wrench (Figure 1, Item 22).
7. Place shower head manifold in place and secure using four pipe brackets (Figure 1, Item 7), four U-bolts (Figure 1, Item 11), eight flat washers (Figure 1, Item 2), and new self-locking nuts (Figure 1, Item 1).

SHOWER FRAME ASSEMBLY REPAIR - (CONTINUED)

8. Reconnect manifold connection hoses and secure the couplings.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

PORTABLE BATH UNIT BASE ASSEMBLY REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0017

Equipment Condition
Shower is powered off
Water drained from shower

NOTE

Repair of the shower base is limited to the replacement of defective, missing, or damaged components listed in this work package. Disassemble only to the extent necessary to repair the item. If the shower base is cracked or perforated, the shower base must be replaced (WP 0017).

SHOWER BASE ASSEMBLY REPAIR

Removing the Shower Base Grate

1. Remove four screws (Figure 1, Item 3).
2. Remove grate (Figure 1, Item 2).

Removing the Hook and Loop Strips

1. Remove 30 screws (Figure 1, Item 4) and flat washers (Figure 1, Item 5).
2. Remove two hook and loop strips (Figure 1, Items 6 and 14) from the shower base.

Removing the Shower Cabinet Support Pole Fittings

1. Remove 12 screws (Figure 1, Item 7) and four support pole corner fittings (Figure 1, Item 8).
2. Remove four screws (Figure 1, Item 1) and two support pole side fittings (Figure 1, Item 15).

Removing the Shower Base Coupling

1. Stand the shower base (Figure 1, Item 9) on its side to access the coupling (Figure 1, Item 12), located on the underside of the shower base.
2. Remove chain (Figure 1 Item 10).
3. Remove cap (Figure 1, Item 11).

CAUTION

Take care when removing the coupling not to damage the shower base. If the shower base is cracked or perforated, the shower base must be replaced (WP 0017).

4. Remove coupling (Figure 1, Item 12).

PORTABLE BATH UNIT BASE ASSEMBLY REPAIR - (CONTINUED)

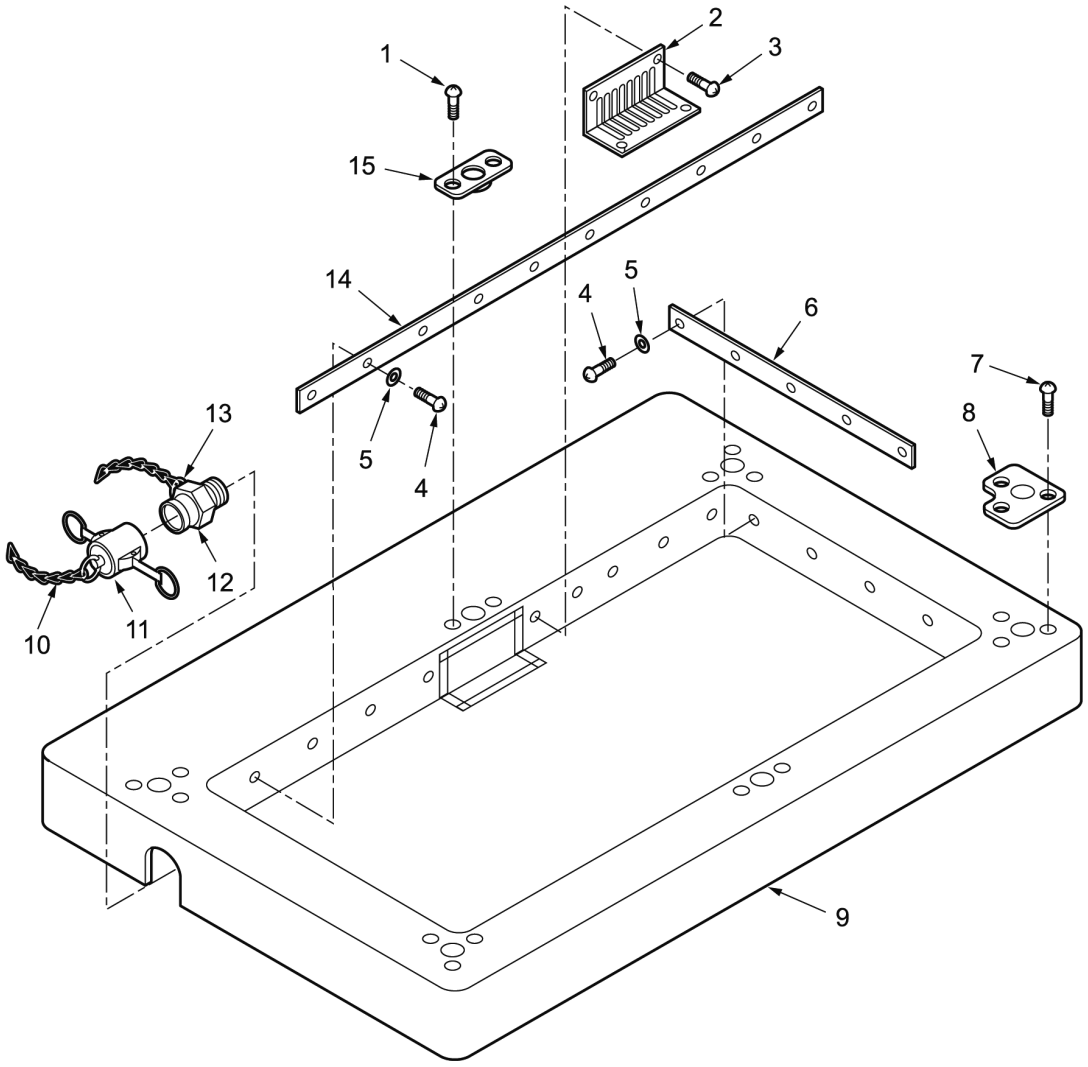


Figure 1. Repairing the Shower Base.

Installing the Shower Base Coupling

1. Be sure any defective, missing, or damaged components have been replaced.
2. Stand the shower base (Figure 1, Item 9) on its side to access coupling connection (Figure 1, Item 13), located on the underside of the shower base.

CAUTION

Take care when installing the coupling not to damage the shower base. If the shower base is cracked or perforated, the shower base must be replaced (WP 0017).

3. Install new coupling (Figure 1, Item 12).
4. Install cap (Figure 1, Item 11).
5. Install chain (Figure 1, Item 10).

Installing Shower Cabinet Support Pole Fittings

1. Install two cabinet support pole side fittings (Figure 1, Item 15) and secure using four screws (Figure 1, Item 1).

PORTABLE BATH UNIT BASE ASSEMBLY REPAIR - (CONTINUED)

2. Install four cabinet support pole corner fittings (Figure 1, Item 8) and secure using twelve (12) screws (Figure 1, Item 7).

Installing Hook and Loop Strips

1. Install two hook and loop strips (Figure 1, Items 6 and 14).
2. Secure using 30 screws (Figure 1, Item 4) and flat washers (Figure 1, Item 5).

Installing the Shower Base Grate

1. Install grate (Figure 1, Item 2).
2. Secure using four screws (Figure 1, Item 3).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

WATER PUMP ASSEMBLY REPLACE, REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)
Compressor, Unit (SATS) (WP 0051, Table 2, Item 4)

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)
Lock Washers (8) (Item 7, WP 0055)
Sealing Compound (Item 9, WP 0054)
Self-Locking Nuts (4) (Item 3, WP 0055)
Tag, Marker (Item 11, WP 0054)

Personnel Required
Shower/Laundry and Clothing Repair Specialist, (92S) - 1
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0005

Equipment Condition
Shower powered off
Check valve removed from the water source.
Shower not in use
Input power shut down and connector disconnected from pump assembly switch box
Water drained from shower

SUPPLY PUMP ASSEMBLY REPLACEMENT

Removal

1. Disconnect the water supply hose from the supply pump inlet (Figure 1). The supply pump inlet is where the hose connects the supply pump and the water source.
2. Disconnect the water supply hose from the supply pump outlet (Figure 1). The supply pump outlet is the hose connected between the supply pump and the hot water heater.

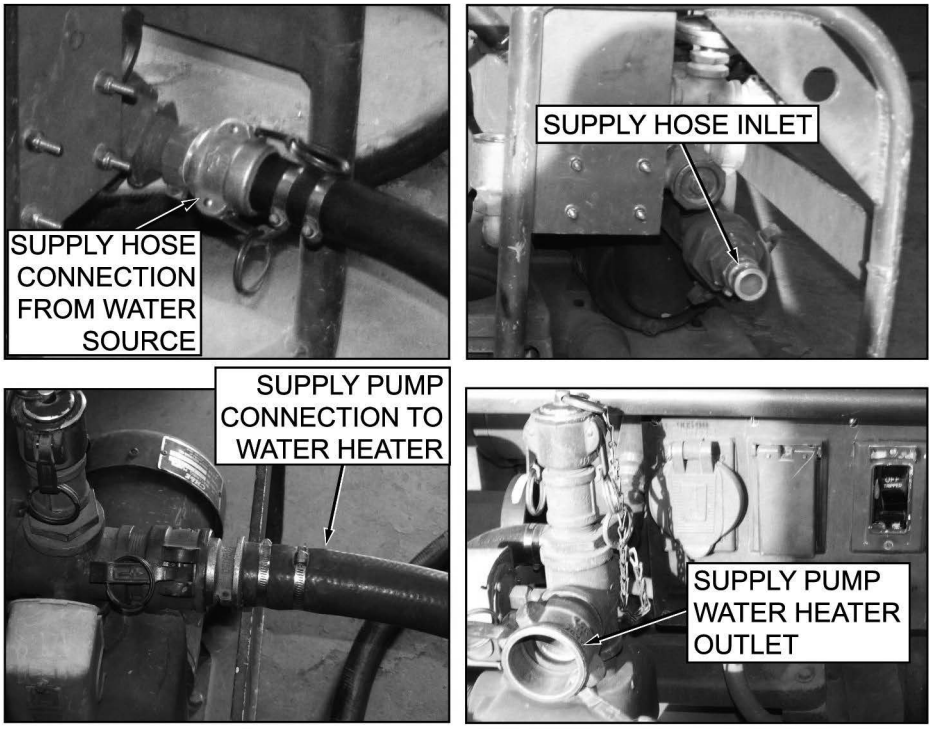


Figure 1. Disconnecting Supply Pump Hoses.

3. Remove the cold water supply hose that connects the supply pump and the temperature regulator (Figure 2).
4. Remove the cold water supply hose that connects the supply pump and the diaphragm tank (Figure 2).

WATER PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

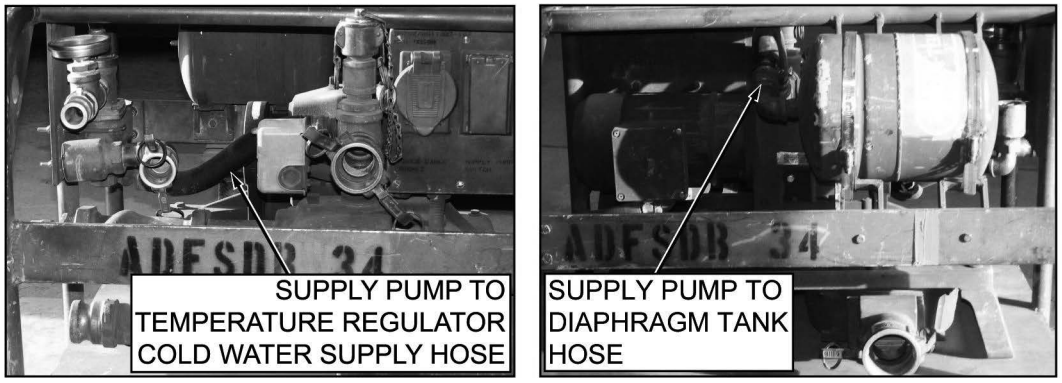


Figure 2. Removing Pump Assembly Hoses.

WARNING

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not attempt to connect or disconnect power cables when power is on. Always confirm that power is disconnected from the shower before working on electrical equipment.

Failure to follow this warning may result in serious injury or death to personnel.

5. Tag and disconnect wire leads from supply pump motor (Figure 3, Item 6).
6. Remove six screws from plate on pressure switch and remove pressure switch from supply pump.
7. Remove conduit from pump, with wire leads inside, from one conduit elbow (Figure 3, Item 5) and remove conduit connector. Leave the other elbow loose.
8. Remove four self-locking nuts (Figure 3, Item 10), flat washers (Figure 3, Item 9), bolts (Figure 3, Item 7), flat washers (Figure 3, Item 8), and supply pump (Figure 3, Item 6).
9. Discard self-locking nuts.
10. Replace any defective, missing, or damaged components.

WATER PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

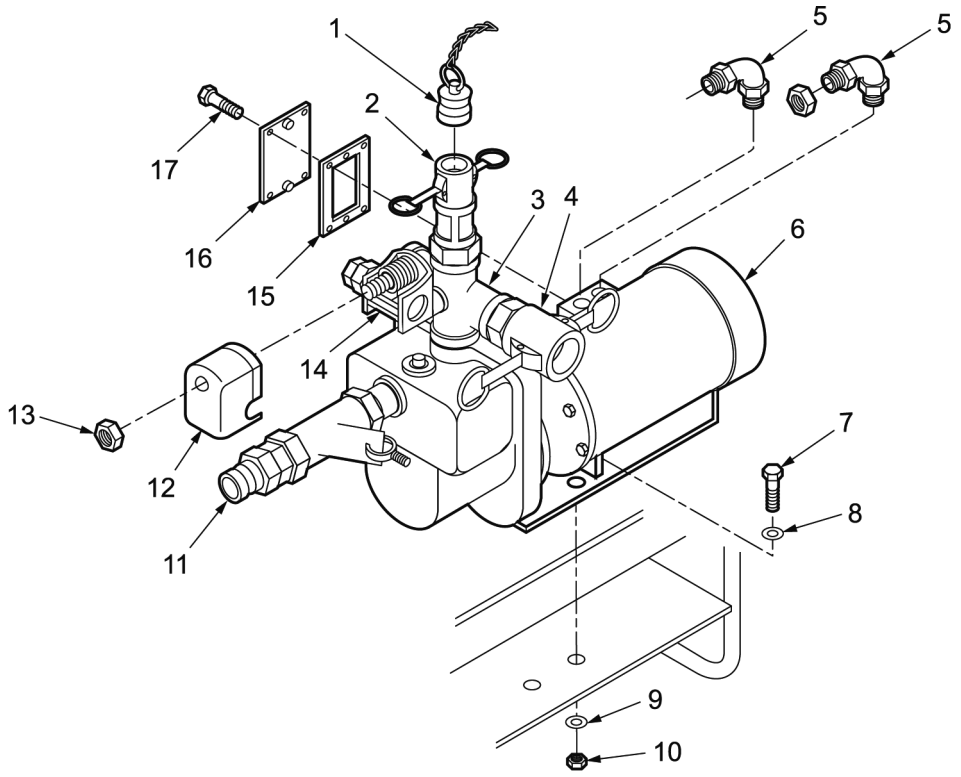


Figure 3. Replacing the Supply Pump.

Installation

1. Be sure any defective, missing, or damaged components have been replaced.
2. Install supply pump (Figure 3, Item 6) and align mounting holes.
3. Secure using four flat washers (Figure 3, Item 8), bolts (Figure 3, Item 7), and lock washers (Figure 3, Item 9).

WARNING

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not attempt to connect or disconnect power cables when power is on. Always confirm that power is disconnected from the shower before working on electrical equipment.

WATER PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

Failure to follow this warning may result in serious injury or death to personnel.

4. Install conduit, with wire leads inside, into conduit connectors on box connector on centrifugal supply pump.
5. Install conduit connector (Figure 3, Item 5).
6. Connect wire leads to pressure switch (Figure 3, Item 14) and supply pump motor (Figure 3, Item 6) in accordance with the wire tagging done during removal. If necessary, refer to the electrical schematic in Figure 3.

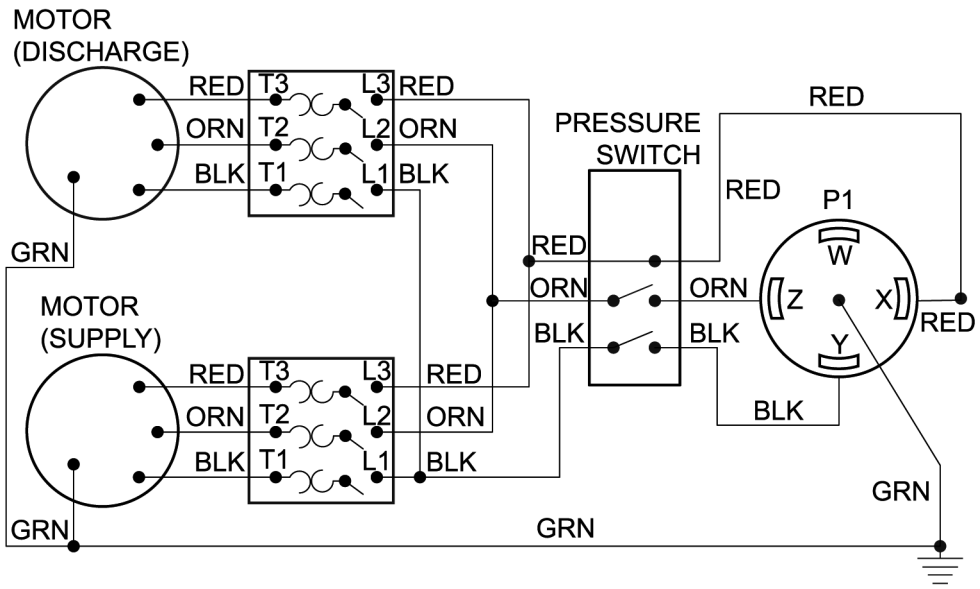


Figure 4. Electrical Schematic.

7. Remove tags.
8. Install gasket (Figure 3, Item 15), cover (Figure 3, Item 16), and four screws (Figure 3, Item 17).
9. Install the cold water supply hose between the supply pump and the temperature regulator (Figure 2).
10. Install the cold water supply hose between the supply pump and the diaphragm tank (Figure 2).
11. Connect the water supply hose to the supply pump inlet (Figure 1). The supply pump inlet is the hose connected between the supply pump and the water source.
12. Connect the water supply hose to the supply pump outlet (Figure 1). The supply pump outlet is the hose connected between the supply pump and the hot water heater.
13. Start up shower facility, referring to WP 0005.

END OF TASK

CENTRIFUGAL PUMP UNIT REPLACEMENT

REMOVAL

1. Remove the supply pump assembly as described above.
2. Remove 4 bolts and lock washers (Figure 5, Items 1 and 2) that attach the centrifugal pump unit (Figure 5, Item 3) to the side of the pump housing.

WATER PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

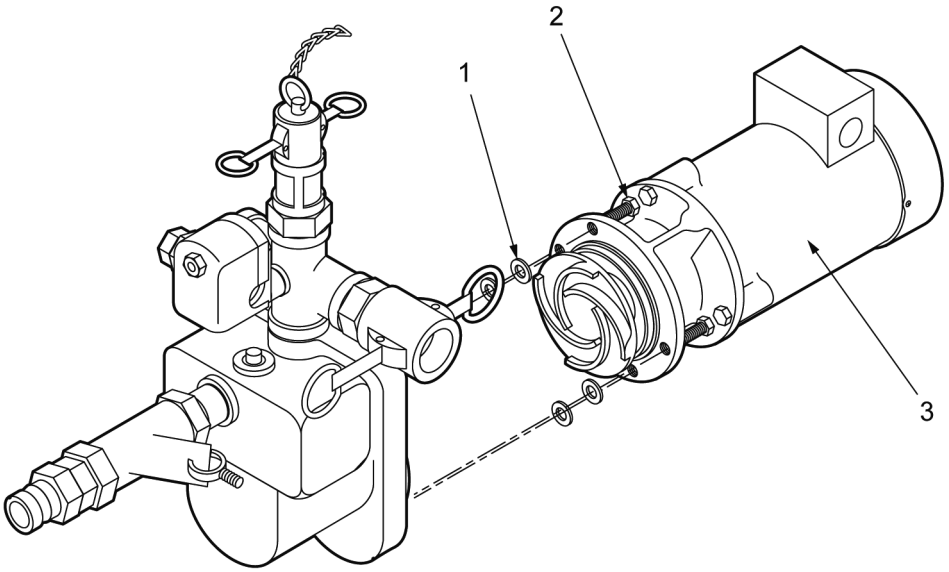


Figure 5. Centrifugal Pump Unit.

REPLACEMENT

1. Be sure any defective, missing, or damaged components have been replaced.
2. Attach centrifugal pump unit (Figure 5, Item 3) to the side of the pump housing, using 4 bolts and lock washers (Figure 5, Items 1 and 2).
3. Replace supply pump assembly as described above.

END OF TASK

DIAPHRAGM TANK ASSEMBLY REPLACEMENT

REMOVE

1. Disconnect cold line hose end from tee (Figure 6, Item 5).
2. Remove elbow with bushing (Figure 6, Item 3) attached.
3. Remove two clamps (Figure 6, Item 1) and diaphragm tank (Figure 6, Item 2) from bracket (Figure 6, Item 6).

WATER PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

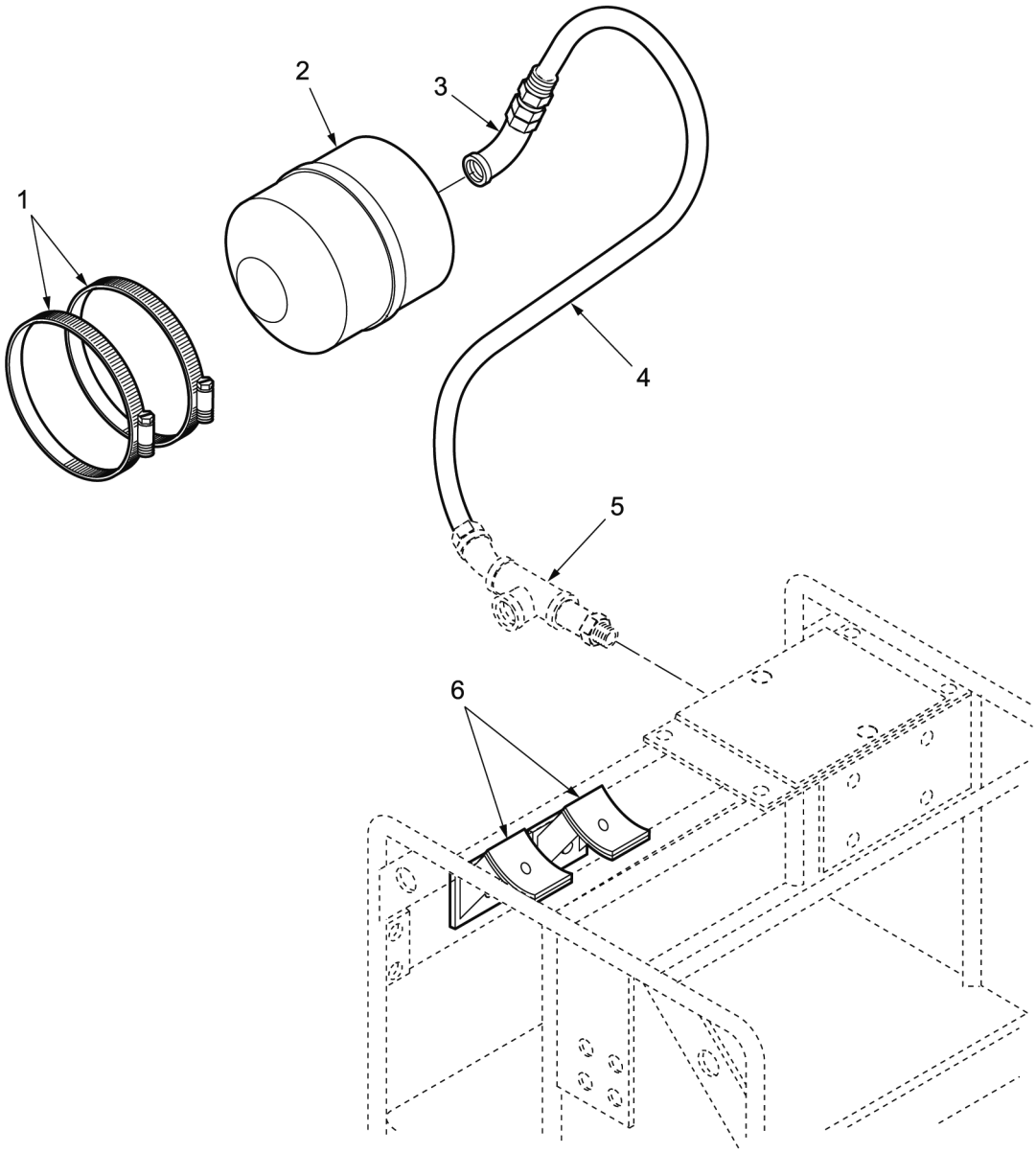


Figure 6. Replacing the Diaphragm Tank.

INSTALL

1. Ensure unserviceable diaphragm tank (Figure 6, Item 2) has been replaced.
2. Install diaphragm tank (Figure 6, Item 2).

WARNING

Ensure that fasteners on clamps for diaphragm tank are oriented downwards and do not stick out away from pump frame.

3. Secure using two clamps (Figure 6, Item 1).

WATER PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

WARNING

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may case injury or death to personnel.

5. Apply sealing compound to diaphragm tank (Figure 6, Item 2) fitting.
6. Install elbow with bushing (Figure 6, Item 3) attached.
7. Install cold line hose (Figure 6, Item 4) onto bushing and elbow (Figure 6, Item 3).
8. Remove the air valve cap from the closed side of the diaphragm tank
9. Using compressor unit, pressurize the air side of the diaphragm tank to 20 psi in accordance with the instructions on the diaphragm tank.
10. Replace the air valve cap.
11. Startup shower facility, referring to WP 0005.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CHECK VALVE ASSEMBLY REPLACE, REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)
Sealing Compound (Item 9, WP 0054)

Equipment Condition
Shower is powered off (, WP 0005)
Water drained from shower

Repair is limited to replacement of defective, missing, or damaged components. Disassemble only to the extent necessary to repair the item.

CHECK VALVE ASSEMBLY REPLACEMENT

Removal

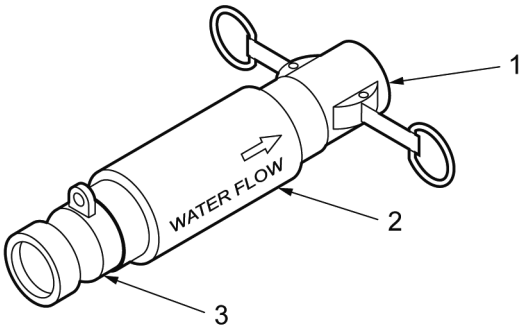


Figure 1. Check Valve Assembly.

1. Remove suction strainer assembly ().
2. Release coupling (Figure 1, Item 1) and remove check valve assembly.

Installation

1. Install spring check valve assembly (Figure 1, Item 2) and secure coupling (Figure 1, Item 1).
2. Install suction strainer assembly ().
3. Start up the shower facility (WP 0005).

END OF TASK

CHECK VALVE ASSEMBLY REPLACE, REPAIR - (CONTINUED)

CHECK VALVE ASSEMBLY REPAIR

Disassemble

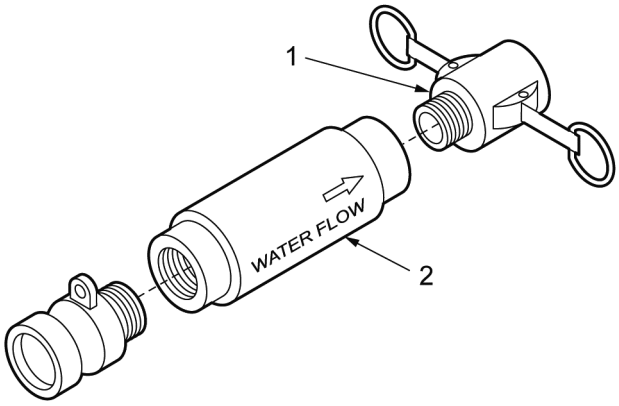


Figure 2. Check Valve Assembly.

1. Remove coupling (Figure 1, Item 3) from check valve (Figure 1, Item 2).
2. Remove coupling (Figure 1, Item 1) from check valve (Figure 1, Item 2).

Assemble

1. Be sure any defective, missing, or damaged components have been replaced.

WARNING

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may case injury or death to personnel.

CAUTION

Ensure that the female coupling is facing the direction of the supply pump.

2. Apply sealing compound to threaded ends of couplings (Figure 1, Item 1) and (Figure 1, Item 3) install coupling onto check valve (Figure 1, Item 2). Note that flow direction should be away from suction strainer when installing coupling.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

REGULATOR VALVE ASSEMBLY REPLACE, REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)
Sealing Compound (Item 9, WP 0054)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

Equipment Condition
Shower is powered off (, WP 0005)
Water drained from shower

Repair is limited to replacement of defective, missing, or damaged components. Disassemble only to the extent necessary to repair the item. If the item is being replaced, do not disassemble it.

REGULATOR VALVE ASSEMBLY REPLACEMENT

Removal

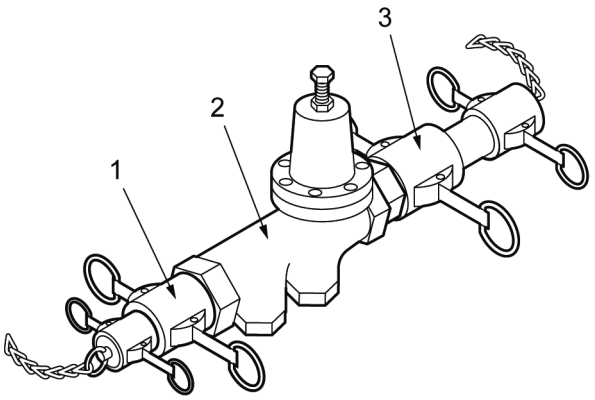


Figure 1. Regulator Valve Assembly.

1. Release couplings (Figure 1, Item 1) and (Figure 1, Item 3) and remove regulator valve assembly (Figure 1, Item 2).

Installation

1. Install regulator valve assembly (Figure 1, Item 2) and secure couplings (Figure 1, Item 1) and (Figure 1, Item 3).
2. Start up the shower facility (WP 0005).

END OF TASK

REGULATOR VALVE ASSEMBLY REPLACE, REPAIR - (CONTINUED)

REGULATOR VALVE ASSEMBLY REPAIR

Disassemble

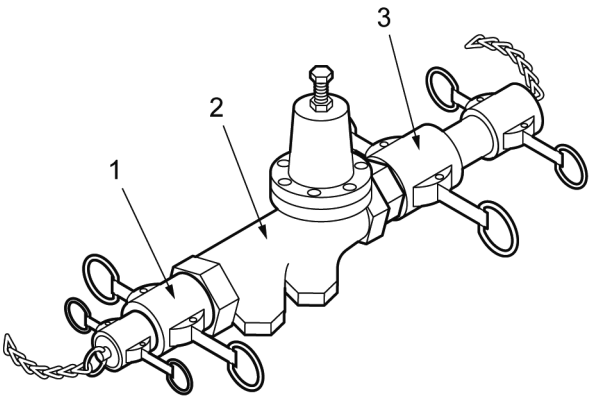


Figure 2. Regulator Valve Assembly.

1. If necessary, release reducer coupling (Figure 1, Item 3) and cap coupling (Figure 1, Item 11).
2. Remove plug (Figure 1, Item 1), gasket (Figure 1, Item 2), cap and gasket (Figure 1, Item 10).
3. Release reducer coupling (Figure 1, Item 9) then remove reducer (Figure 1, Item 9) and gasket (Figure 1, Item 8).
4. Release coupling (Figure 1, Item 5) then remove reducer (Figure 1, Item 3) and gasket (Figure 1, Item 4).
5. Remove couplings (Figure 1, Item 5) and (Figure 1, Item 7) from regulator valve (Figure 1, Item 6).

Assemble

1. Be sure any defective, missing, or damaged components have been replaced.

WARNING

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may case injury or death to personnel.

2. Apply sealing compound to threaded ends of couplings (Figure 1, Item 5) and (Figure 1, Item 7) then install couplings onto regulator valve (Figure 1, Item 6). Note flow direction when installing couplings.
3. Install gasket (Figure 1, Item 4) and reducer (Figure 1, Item 3) then secure coupling (Figure 1, Item 5).
4. Install gasket (Figure 1, Item 8) and reducer (Figure 1, Item 9) then secure reducer coupling.
5. Install gasket (Figure 1, Item 10) into cap (Figure 1, Item 11) and gasket (Figure 1, Item 2) into reducer (Figure 1, Item 3) then if necessary install plug (Figure 1, Item 1) and cap then secure cap and reducer couplings.
6. Ensure that regulator valve assembly is oriented correctly to ensure water flow.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

SWITCH BOX ASSEMBLY REPLACE, REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)
Adhesive (Item 1, WP 0054)
Lock Washers (4) (Item 9, WP 0055)
Lock Washers (3) (Item 10, WP 0055)
Lock Washers (3) (Item 11, WP 0055)
Sealing Compound (Item 9, WP 0054)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

Equipment Condition
Shower is powered off.
Shower disconnected from power source.

WARNING

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not disconnect power cables when power is on or generator set is operating.

Failure to follow this warning may result in serious injury or death to personnel.

INSPECT

1. Confirm that the power has been disconnected at the source, and then disconnect input power cable from switch box.
2. Remove 10 screws (Figure 1, Item 5). and carefully pull switch box cover (Figure 1, Item 28) out as far as wire leads will allow.
3. Inspect for damage, deterioration, or missing parts. Based on the inspection, determine if the switch box can be repaired or if it must be replaced.

SWITCH BOX ASSEMBLY REPLACE, REPAIR - (CONTINUED)

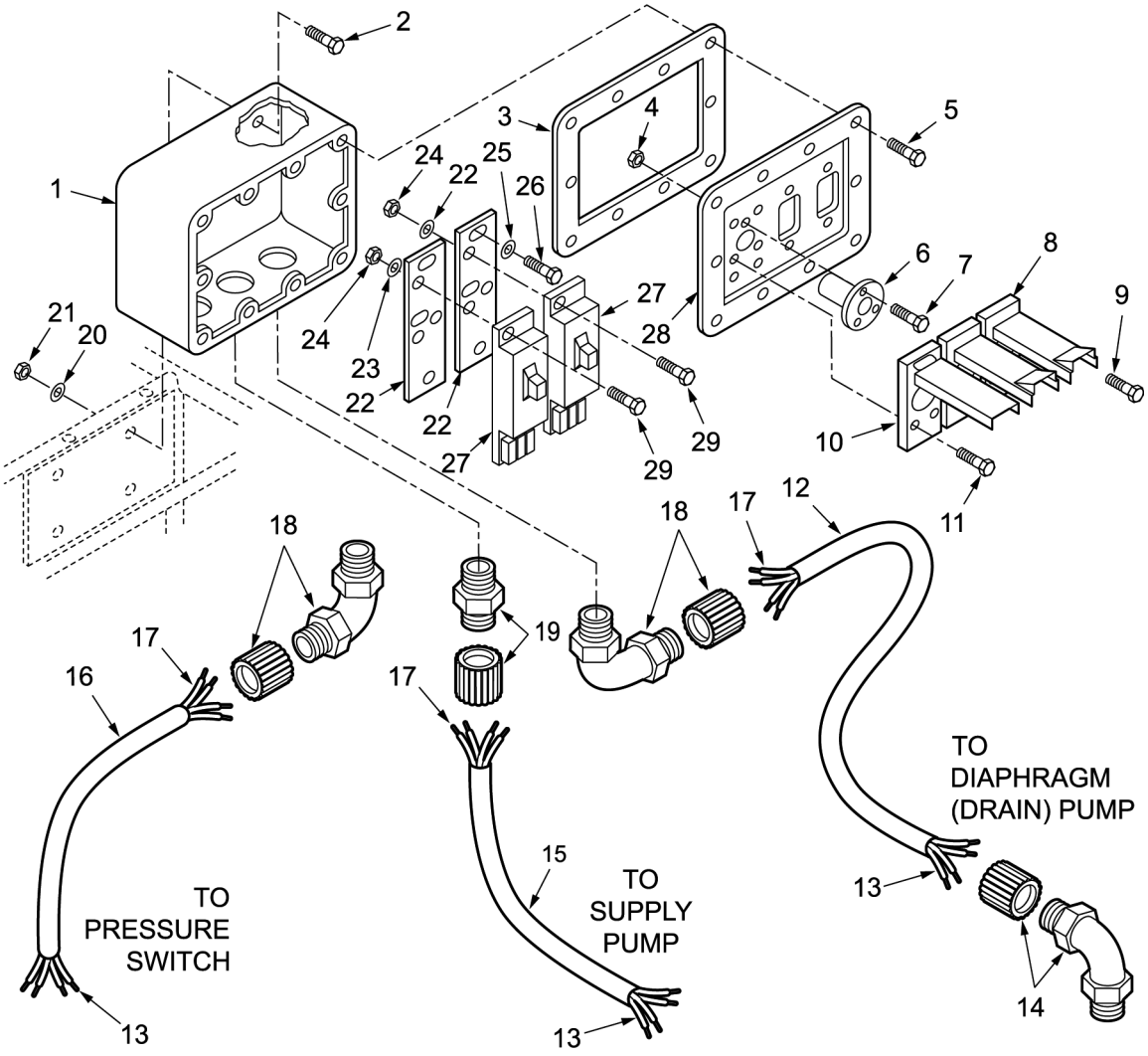


Figure 1. Repairing the Switch Box.

END OF TASK

TEST

1. Using multimeter set to measure continuity, check each switch (Figure 1, Item 27). Place both switches on the OFF position and check continuity between matching color leads on top and bottom of each switch. Replace switch if continuity was indicated.
2. Place both switches in the ON position and check continuity between matching color leads on top and bottom of each switch. Replace switch if no continuity was indicated.
3. Using multimeter set to measure continuity, check between ends of wire leads at terminal connections. Remove pressure switch and motor covers as necessary and use electrical schematic (Figure 2) for test points. Replace any wire leads that do not indicate continuity.

SWITCH BOX ASSEMBLY REPLACE, REPAIR - (CONTINUED)

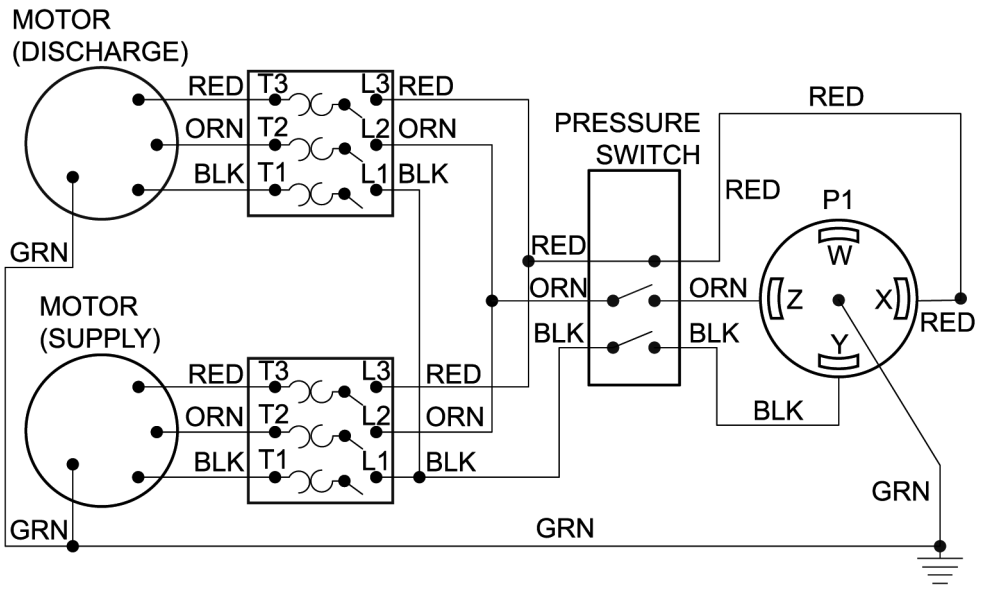


Figure 2. Electrical Schematic.

END OF TASK

REPLACE

Removal

1. Verify that power is off.

NOTE

To facilitate removal, be aware that on some models, the middle left screw may be partially covered by the power cover.

2. Remove 10 screws (Figure 3, Item 4) and carefully pull switch box cover (Figure 3, Item 3) out as far as wire leads will allow.
3. One at a time, tag and disconnect the wire leads (Figure 3, Item 6) attached to pressure switch, supply pump, and reciprocating pump. Remove covers as necessary to access lead terminals.
4. Remove conduit (Figure 3, Item 9) from pressure switch conduit connector.
5. Remove conduit (Figure 3, Item 8) from supply pump conduit connector.
6. Remove conduit connector (Figure 3, Item 7) from reciprocating pump.
7. Remove four nuts (Figure 3, Item 11), lock washers (Figure 3, Item 10), bolts (Figure 3, Item 2), and switch box (Figure 3, Item 1). Discard lock washers.

SWITCH BOX ASSEMBLY REPLACE, REPAIR - (CONTINUED)

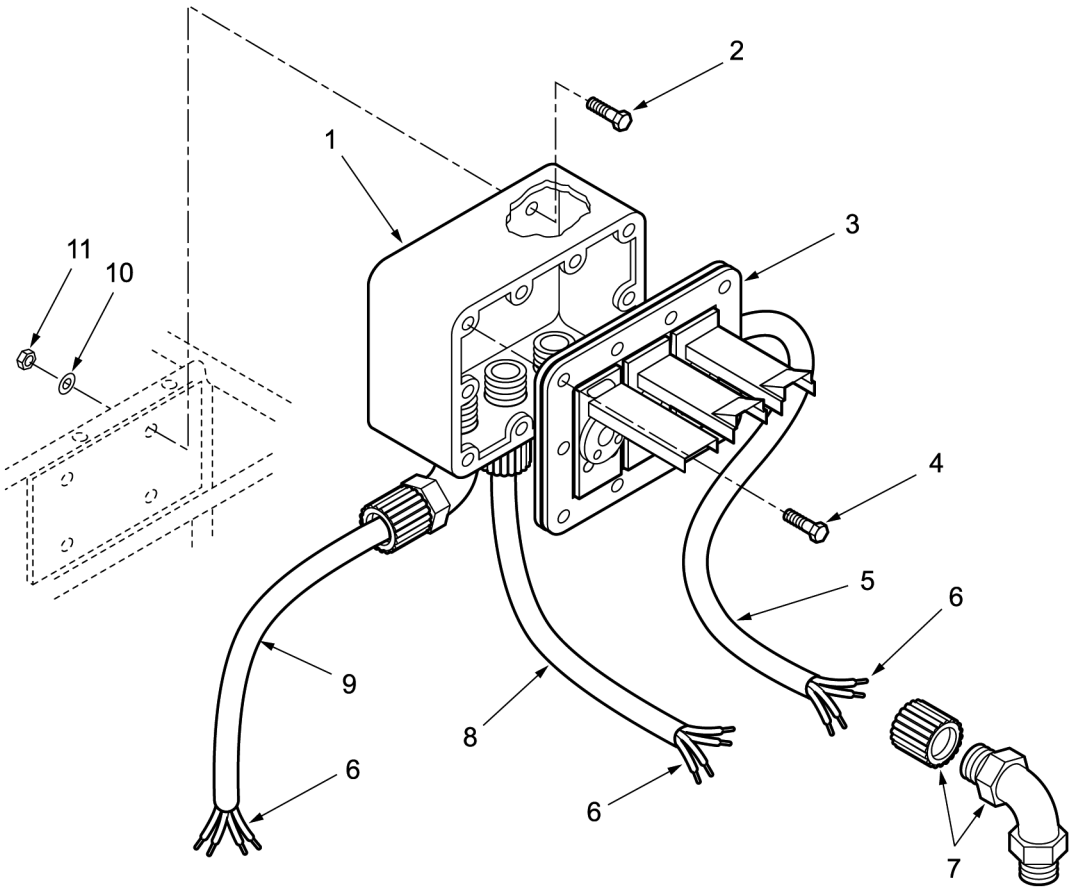


Figure 3. Replacing the Switch Box.

Installation

1. Be sure any defective, missing, or damaged components have been replaced.
2. If switch box cover (Figure 3, Item 3) is not already loose, remove 9 screws (Figure 3, Item 4)
3. Carefully pull switch box cover out as far as wire leads will allow.

WARNING

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may case injury or death to personnel.

4. Apply sealing compound to the threads of four bolts (Figure 3, Item 2).
5. Install switch box (Figure 3, Item 1) and secure using the four bolts, new lock washers (Figure 3, Item 10), and nuts (Figure 3, Item 11).
6. Install conduit (Figure 3, Item 9) into pressure switch conduit connector.
7. Install conduit (Figure 3, Item 8) into supply pump conduit connector.

SWITCH BOX ASSEMBLY REPLACE, REPAIR - (CONTINUED)

8. Install conduit connector (Figure 3, Item 7) onto reciprocating pump.
9. Connect wire leads (Figure 3, Item 6) that go to pressure switch, supply pump, and reciprocating pump in accordance with the wire tagging done during removal. If necessary, refer to the electrical schematic in (Figure 3).
10. Remove tags and install covers as necessary.
11. Position switch box cover (Figure 3, Item 3) in place and secure using the 9 screws.
12. Start up the shower facility, referring to WP 0005.

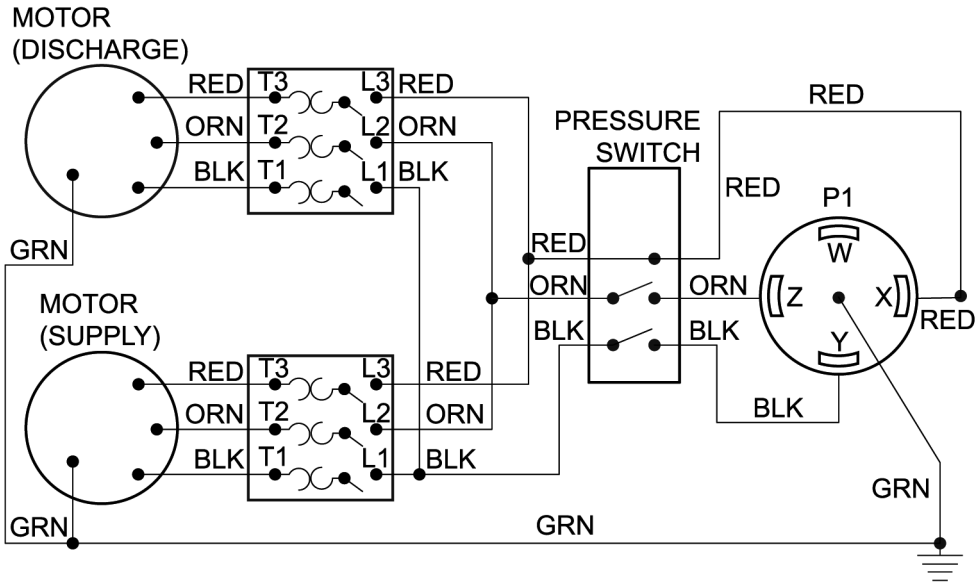


Figure 4. Electrical Schematic.

END OF TASK

REPAIR

DISASSEMBLE

NOTE

Repair is limited to replacement of defective, missing, or damaged components. Disassemble only to the extent necessary to repair the item. If the item is being replaced, do not disassemble it.

1. If switch box cover (Figure 1, Item 28) is not already loose, remove 10 screws (Figure 1, Item 5) and carefully pull switch box cover out as far as wire leads will allow.
2. Tag and disconnect wire leads (Figure 1, Item 17) from each other as well as switches (Figure 1, Item 27) and receptacle (Figure 1, Item 6).
3. Remove conduit connector (Figure 1 Item 14) from Conduit (Figure 1 Item 12).
4. Remove conduits (Figure 1, Items 12, 15, and 16) with wire leads inside then remove wire leads from conduit.
5. Remove three conduit connectors (Figure 1, Items 18 and 19).
6. Remove four screws (Figure 1, Item 11) and cover (Figure 1, Item 10).

SWITCH BOX ASSEMBLY REPLACE, REPAIR - (CONTINUED)

7. Remove four screws (Figure 1 Item 9) and two covers (Figure 1, Item 8).
8. Remove three nuts (Figure 1, Item 4), screws (Figure 1, Item 7), and Receptacle (Figure 1, Item 6).
9. If gasket (Figure 1, Item 3) needs to be replaced, remove it by carefully pulling and scraping it off switch box cover (Figure 1, Item 28).
10. Remove six screws (Figure 1, Item 26), lock washers (Figure 1, Item 25), plates (Figure 1, Item 22), and two switches (Figure 1, Item 27) from switch box (Figure 1, Item 1). Discard lock washers.
11. Remove six nuts (Figure 1, Item 24), lock washers (Figure 1, Item 23), screws (Figure 1, Item 29), and two switches (Figure 1, Item 27) from plates (Figure 1, Item 22). Discard lock washers.

ASSEMBLE

1. Be sure any defective, missing, or damaged components have been replaced.

WARNING

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may case injury or death to personnel.

2. Apply sealing compound to the threads of six screws (Figure 1, Item 29) and then assemble two switches (Figure 1, Item 27) onto plates (Figure 1, Item 22) using the six screws, new lock washers (Figure 1, Item 23) and nuts (Figure 1, Item 24) to secure them.
3. Apply sealing compound to the threads of six screws (Figure 1, Item 26) then install two plates (Figure 1, Item 22), with Switches (Figure 1, Item 27) attached, using the six screws and new lock washers (Figure 1, Item 25) to secure them.
4. If gasket (Figure 1, Item 3) was removed, apply adhesive to mating surfaces of new gasket and switch box cover (Figure 1, Item 28). Allow adhesive to dry until it is tacky but will not stick to fingers then assemble by pressing firmly together. Make sure gasket is secure completely around the cover.
5. Apply sealing compound to the threads of three screws (Figure 1, Item 7) then install Receptacle (Figure 1, Item 6) and secure using the three screws and nuts (Figure 1, Item 4).
6. Apply sealing compound to the threads of four screws (Figure 1, Item 9) then install two covers (Figure 1, Item 8) and secure using the four screws.
7. Apply sealing compound to the threads of four screws (Figure 1, Item 11) then install cover (Figure 1, Item 10) and secure using four screws.
8. Install three conduit connectors (Figure 1, Items 18 and 19) as illustrated.
9. Install wire leads into conduit (Figure 1, Items 12, 15, and 16) using tags and electrical schematic (Figure 2).
10. Remove tags.
11. Install conduit (Figure 1, Items 12, 15, and 16) into conduit connectors (Figure 1, Items 18 and 19) as illustrated using electrical schematic (Figure 2).
12. Install conduit connector (Figure 1, Item 14) onto conduit (Figure 1, Item 12).
13. Connect the corresponding wire leads (Figure 1, Item 17) to each other as well as to the switches (Figure 1, Item 27) and the receptacle (Figure 1, Item 6) using tags and electrical schematic (Figure 2).
14. Remove tags.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TEMPERATURE REGULATOR ASSEMBLY REPLACE, REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)
Sealing Compound (Item 9, WP 0054)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

Equipment Condition
Shower is powered off (, WP 0005)
Water drained from shower

Repair of the temperature regulator assembly (Figure 2, Item 3) is limited to replacing the temperature regulator gauge.

REPLACE

Removal

NOTE

Remove only if necessary for repair.

1. Release coupling (Figure 1, Item 3) and disconnect the hot water supply hose coupling coming from the water heater.

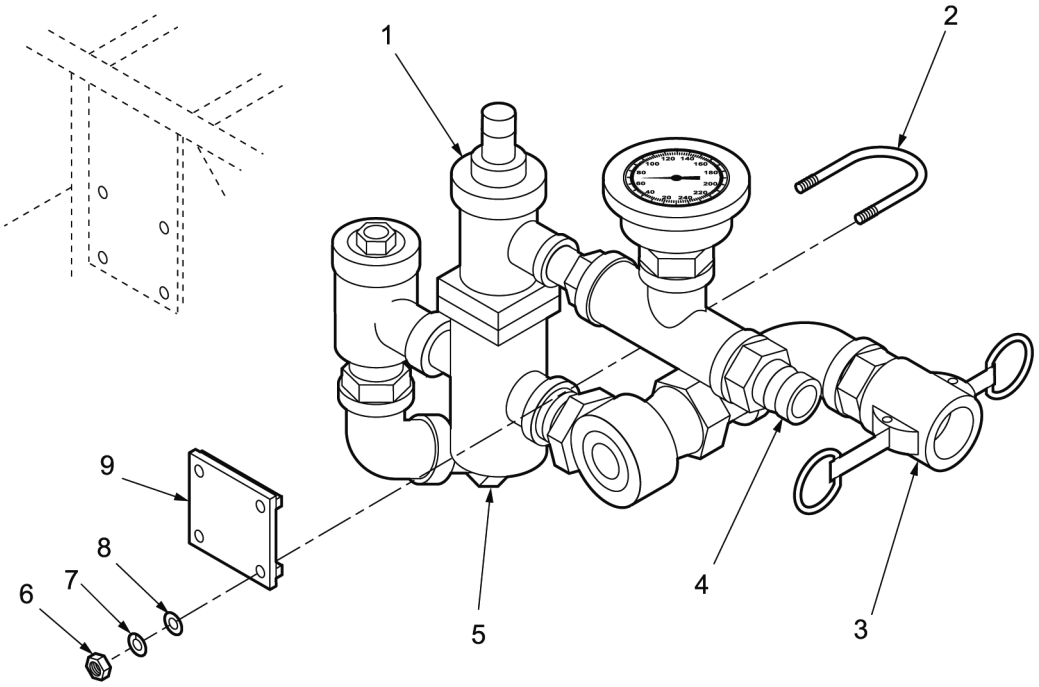


Figure 1. Replacing the Temperature Regulator.

2. Release the coupling (Figure 1, Item 4) and disconnect the shower water supply hose.
3. Remove cold line hose from pipe bushing (Figure 1, Item 5).
4. Remove four self-locking nuts (Figure 1, Item 6), lock washers (Figure 1, Item 7), flat washers (Figure 1, Item 8), two U-bolts (Figure 1, Item 2), bracket (Figure 1, Item 9), and temperature regulator (Figure 1, Item 1).

TEMPERATURE REGULATOR ASSEMBLY REPLACE, REPAIR - (CONTINUED)

5. Discard self-locking nuts and lock washers.
6. Replace unserviceable temperature regulator (Figure 1, Item 1).

Installation

1. Ensure unserviceable temperature regulator (Figure 1, Item 1) has been replaced.
2. Using two U-bolts (Figure 1, Item 2), four flat washers (Figure 1, Item 8), new lock washers (Figure 1, Item 7), and new self-locking nuts (Figure 1), install Bracket (Figure 1, Item 9) and temperature regulator (Figure 1, Item 1) assembly.
3. Install cold line onto pipe bushing (Figure 1, Item 5).
4. Connect shower water supply hose end coupling to coupling (Figure 1, Item 4) and secure coupling.
5. Connect hot water supply hose end coupling to coupling (Figure 1, Item 3) and secure coupling.
6. Start up the shower facility as per WP 0005.

END OF TASK

REPAIR

Disassemble

1. Secure bushing (Figure 2, Item 2) with a wrench so that it does not turn while removing the temperature gauge.
2. Remove the temperature gauge (Figure 2, Item 1).

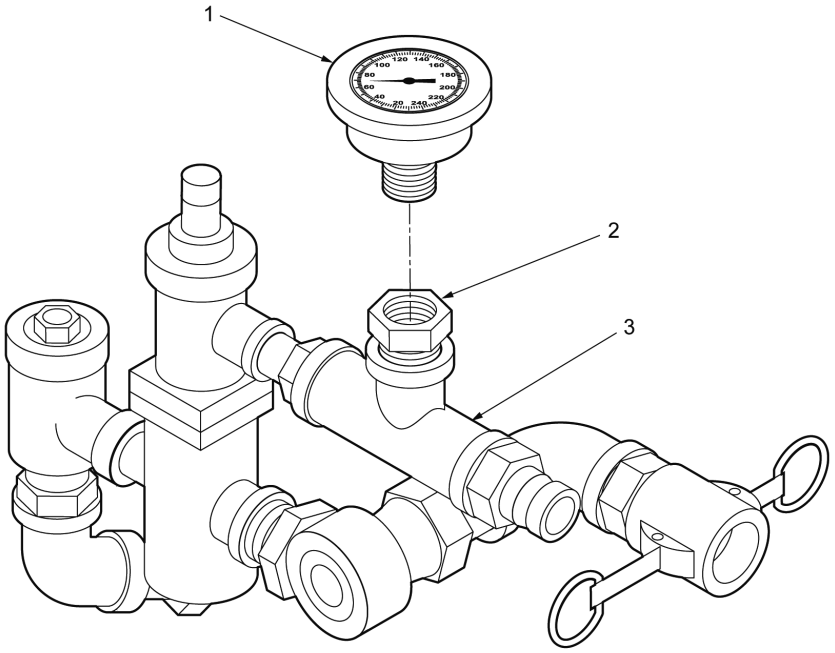


Figure 2. Repairing the Temperature Regulator.

TEMPERATURE REGULATOR ASSEMBLY REPLACE, REPAIR - (CONTINUED)

Assemble

WARNING

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may case injury or death to personnel.

1. Apply sealing compound to the threaded end of temperature gauge (Figure 2, Item 1).
2. Thread the temperature gauge onto bushing (Figure 2 Item 2) and tighten.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

SUCTION STRAINER ASSEMBLY REPLACE, REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)
Elastic Stop Nuts (3) (Item 14, WP 0055)
Sealing Compound (Item 9, WP 0054)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

Equipment Condition
Shower is powered off (, WP 0005)
Suction strainer removed from the water supply
Check valve removed

REPLACE

Removal

1. Remove the suction strainer from the water source.
2. Disconnect the check valve from the suction strainer coupling (Figure 1).
3. Remove the suction strainer coupling from the suction strainer (Figure 2).

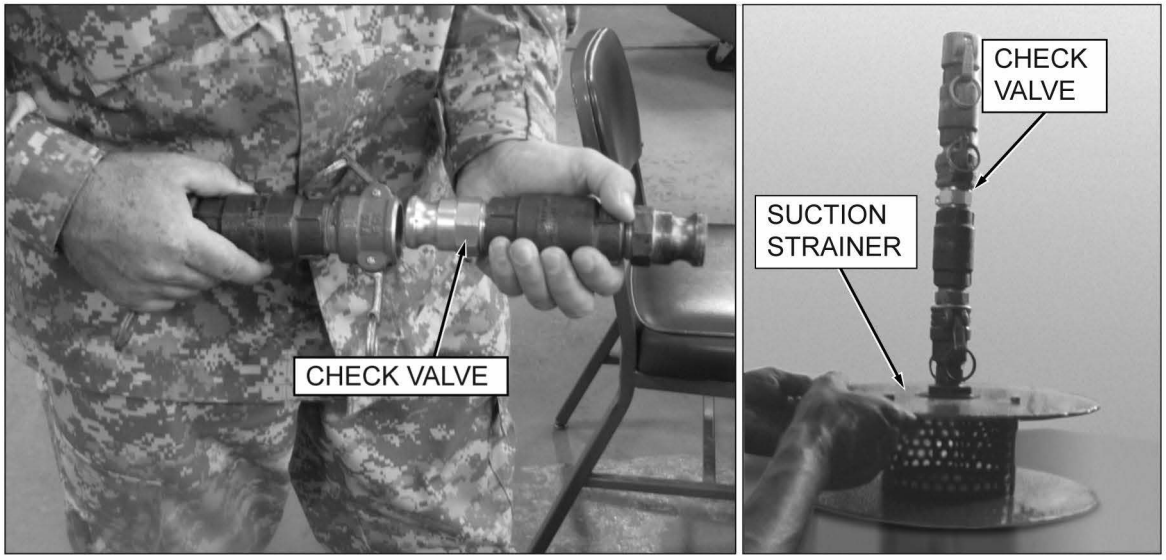


Figure 1. Suction Strainer, Check Valve, and Adapter.

SUCTION STRAINER ASSEMBLY REPLACE, REPAIR - (CONTINUED)

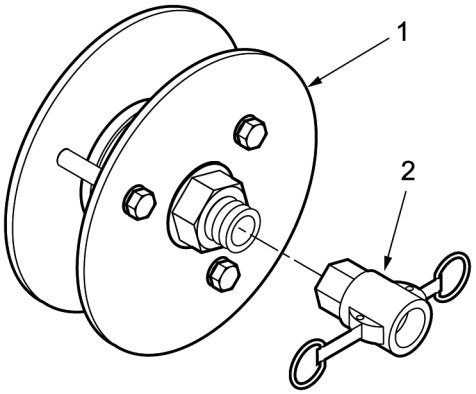


Figure 2. Removing the Suction Strainer Coupling.

Installation

WARNING

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may case injury or death to personnel.

1. Apply sealing compound to threaded end of suction strainer (Figure 2, Item 1).
2. Attach the suction strainer coupling (Figure 2, Item 2) to the suction strainer (Figure 2, Item 1).
3. Connect the check valve to the coupling (Figure 2, Item 2).
4. Connect the water supply hose to the other end of the check valve (Figure 2, Item 2).
5. Start up the shower facility, referring to WP 0005.

END OF TASK

REPAIR

Disassemble

1. Remove three elastic stop nuts (Figure 3, Item 1), flat washers (Figure 3, Item 2), bolts (Figure 3, Item 6), flat washers (Figure 3, Item 5), and fiberglass disk (Figure 3, Item 3).
2. Discard elastic stop nuts (Figure 3, Item 1).
3. Remove coupling (Figure 3, Item 7), nipple (Figure 3, Item 8), bushing (Figure 3, Item 9), strainer (Figure 3, Item 10), and fiberglass disk (Figure 3, Item 4).

SUCTION STRAINER ASSEMBLY REPLACE, REPAIR - (CONTINUED)

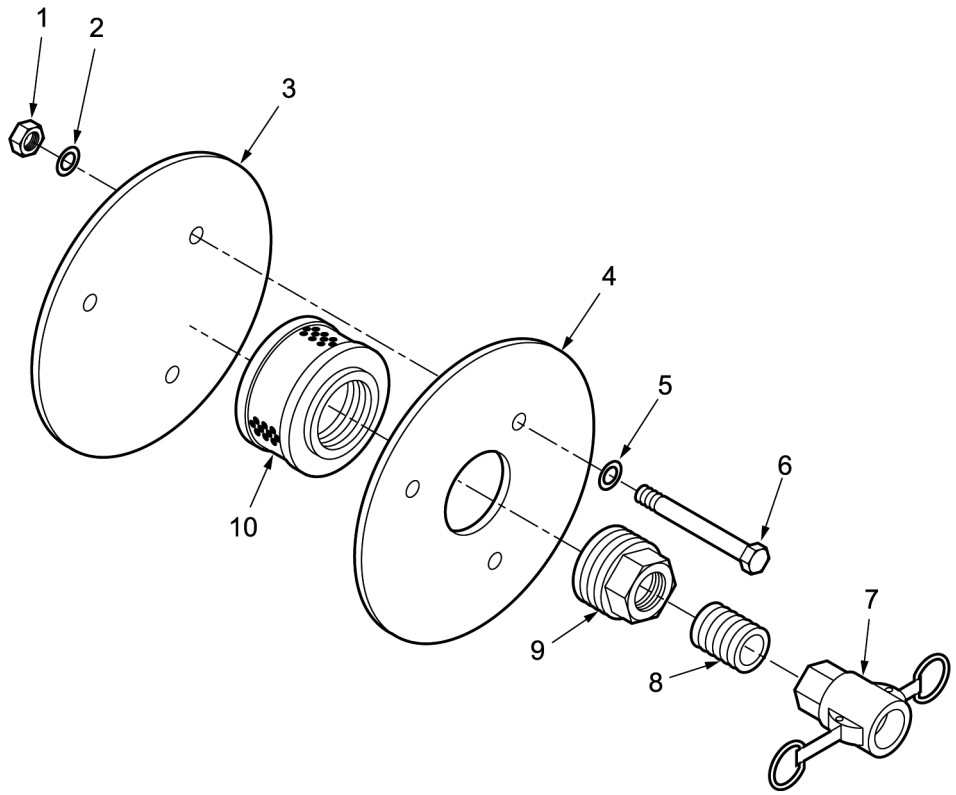


Figure 3. Repairing the Suction Strainer.

Assemble

1. Be sure any defective, missing, or damaged components have been replaced.

WARNING

Sealing compounds are potentially dangerous to personnel. Be sure there is good ventilation when applying sealing compound. Failure to adhere to this warning may case injury or death to personnel.

2. Apply sealing compound onto threaded end of bushing (Figure 3, Item 9) and threaded ends of nipple (Figure 3, Item 8).
3. Assemble fiberglass disk (Figure 3, Item 4), Strainer (Figure 3, Item 10), bushing, nipple, and coupling (Figure 3, Item 7).

SUCTION STRAINER ASSEMBLY REPLACE, REPAIR - (CONTINUED)

4. Assemble fiberglass disk (Figure 3, Item 3), Strainer (Figure 3, Item 10), and fiberglass disk (Figure 3, Item 4) using three flat washers (Figure 3, Item 5), bolts (Figure 3, Item 6), flat washers (Figure 3, Item 2), and new elastic stop nuts (Figure 3, Item 1).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

RECIPROCATING PUMP ASSEMBLY REPLACE, REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Materials/Parts
Lock Washers (4) (Item 15, WP 0055)
Self Locking Nuts (4) (Item 3, WP 0055)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References

Equipment Condition
Shower is powered off
Shower disconnected from power source.
Water drained from shower

Repair of the reciprocating pump is limited to replacing the diaphragm valve.

REPLACE

Removal

1. Release quick-disconnect coupling (Figure 1) and disconnect the drain hose from the reciprocating pump inlet (Figure 1).
2. Release quick-disconnect coupling (Figure 1) and disconnect the drain hose from the reciprocating pump outlet (Figure 1).

WARNING

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not disconnect power cables when power is on or generator set is operating.

Failure to follow this warning may result in serious injury or death to personnel.

3. Remove 4 screws (Figure 2, Item 4), cover (Figure 2, Item 7, and gasket (Figure 2, Item 3).

RECIPROCATING PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

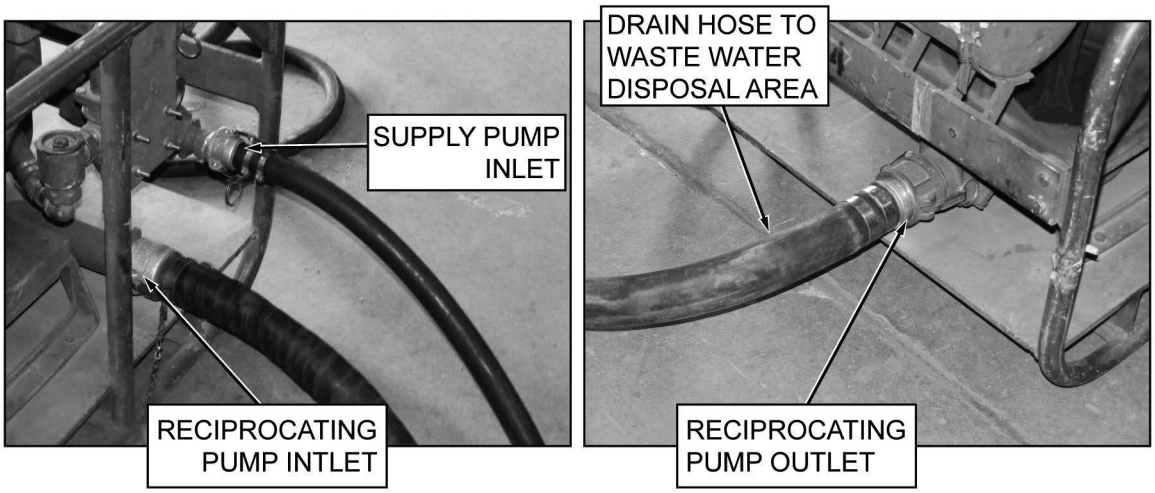


Figure 1. Disconnecting Inlet and Outlet Drain Hoses.

4. Remove conduit connector (Figure 2, Item 9).
5. Identify and note locations of wire leads prior to disconnecting them.
6. Disconnect wire leads from reciprocating pump conduit.
7. Carefully pull the conduit end and wire leads from the reciprocating pump electrical connection box.
8. Remove four bolts, nuts, and washers (Figure 2, Item 5), and then remove the pump assembly cross member (Figure 2, Item 6).
9. Remove two diaphragm band clamps (Figure 2, Item 2) from the diaphragm tank (Figure 2, Item 1).

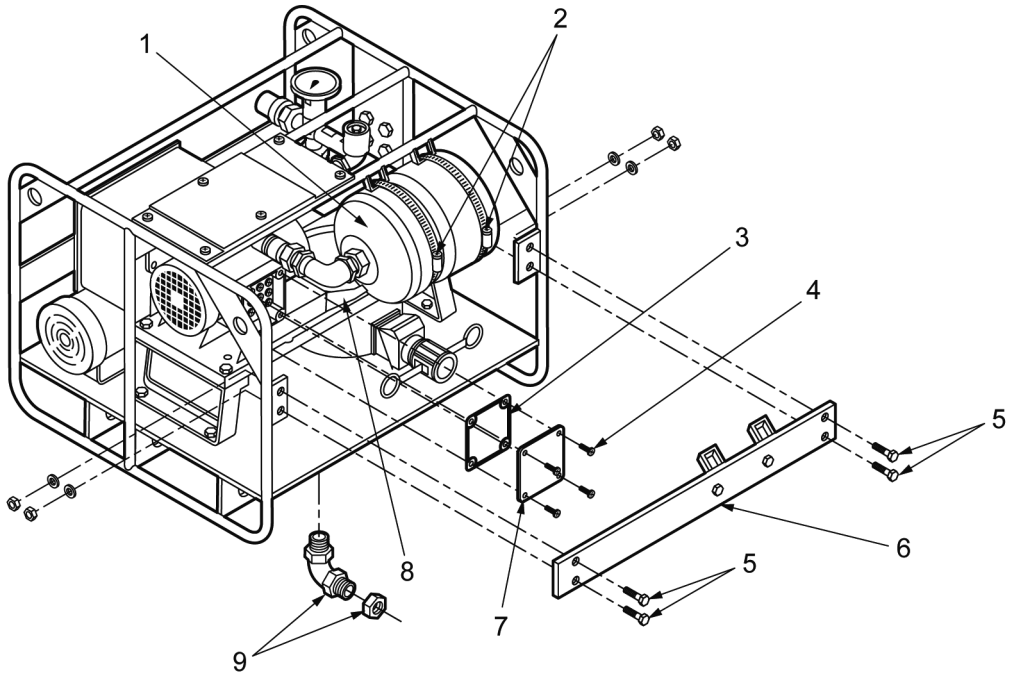


Figure 2. Disconnecting Conduit and Pump Assembly Cross Member.

10. Remove four self-locking nuts (Figure 3, Item 2), eight flat washers (Figure 3, Item 4), and four bolts (Figure 3, Item 2).

RECIPROCATING PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

11. Discard the self-locking nuts.
12. Carefully lift up on the diaphragm tank (Figure 3, Item 1) only enough to provide clearance for when the reciprocating pump is removed from the side of the pump assembly.
13. Slide the reciprocating pump out of the pump assembly from underneath the diaphragm tank, as shown in (Figure 3).

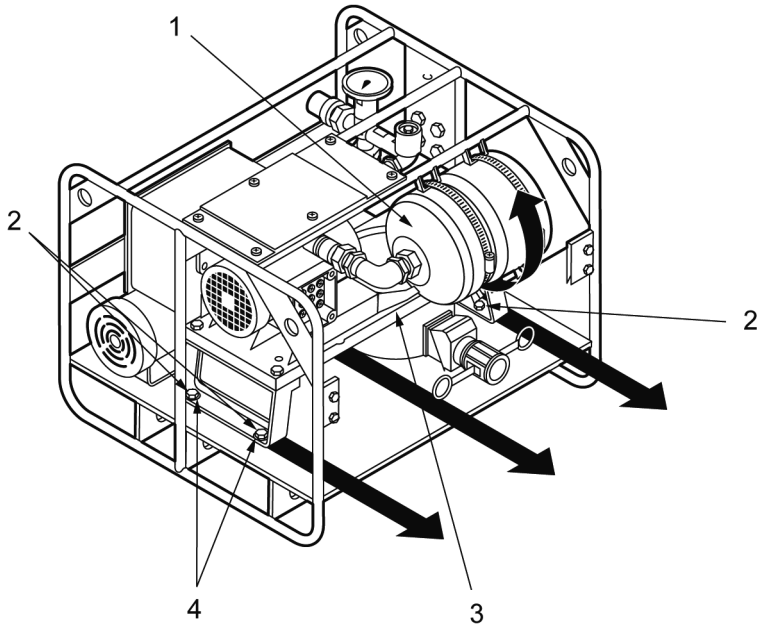


Figure 3. Removing and Installing the Reciprocating Pump.

14. Replace any defective, missing, or damaged components.
15. Repair or replace removed reciprocating pump (Figure 4, Item 3) as required. Ensure that reciprocating pump is properly lubricated (WP 0010) as necessary.

RECIPROCATING PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

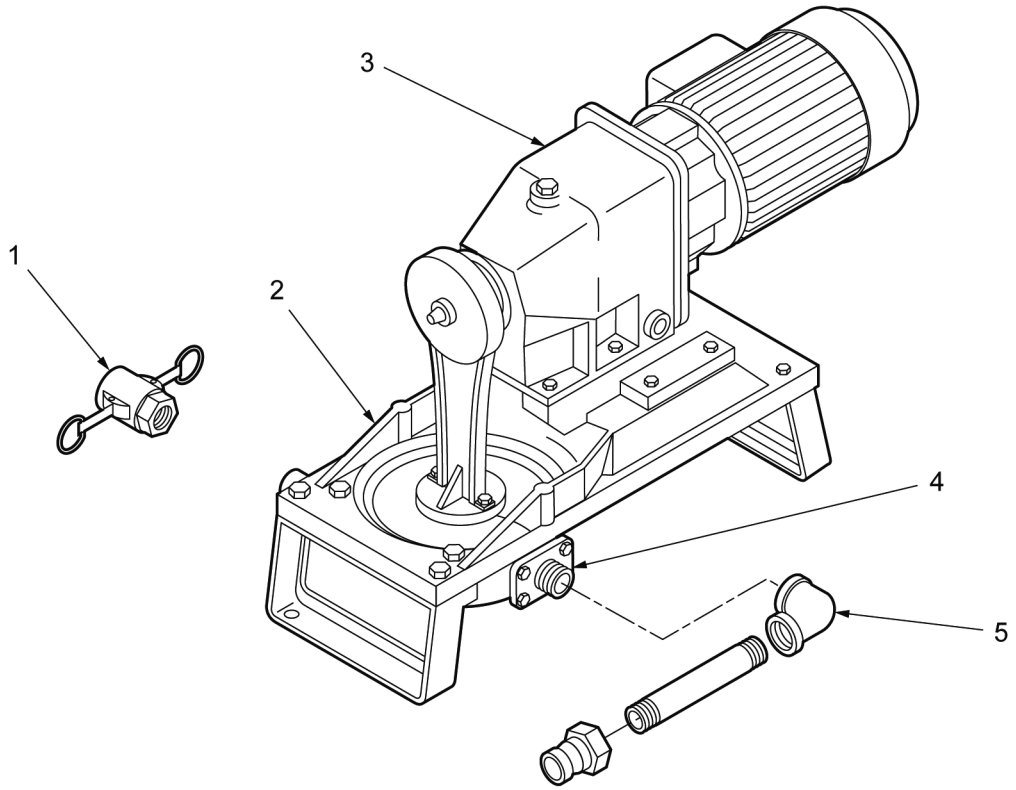


Figure 4. Removing and Installing the Reciprocating Pump.

Installation

1. Be sure any defective, missing, or damaged components have been replaced.
2. Carefully lift up on the diaphragm tank (Figure 3) only enough to provide clearance for when the reciprocating pump is installed onto the pump assembly.
3. Install reciprocating pump (Figure 3, Item 8) into the pump assembly and align the mounting holes.
4. Secure the pump using four bolts (Figure 3, Item 2), flat washers (Figure 3, Item 4), and new self-locking nuts (Figure 3, Item 2).

WARNING

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not disconnect power cables when power is on or generator set is operating.

RECIPROCATING PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

Failure to follow this warning may result in serious injury or death to personnel.

5. Pass wires from conduit through elbow into the switchbox. Thread conduit nut onto elbow and tighten.
6. Connect the wire leads to the reciprocating pump in accordance with the tagging done during removal. If necessary, refer to electrical schematic in Figure 5.

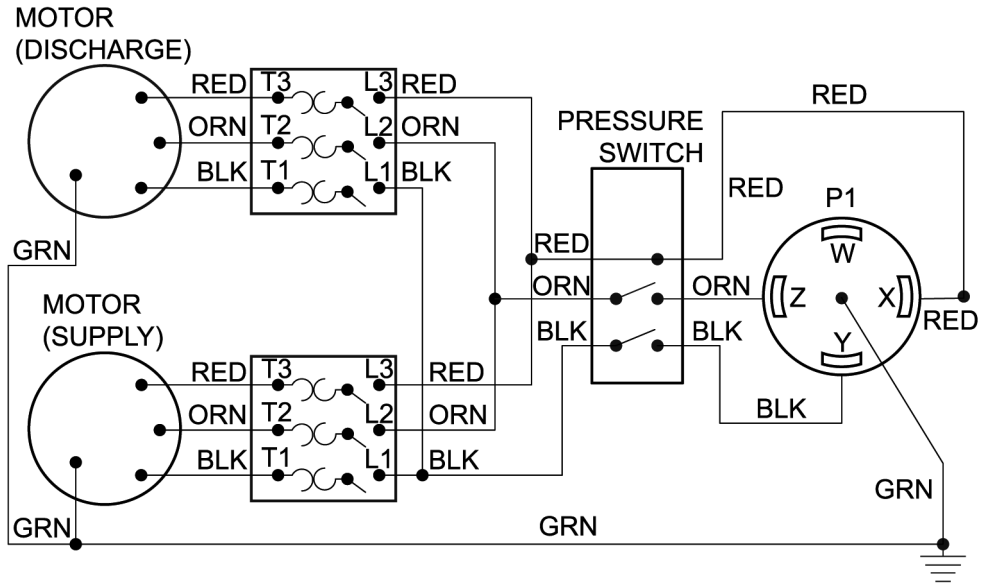


Figure 5. Removing and Installing the Reciprocating Pump.

7. Install gasket (Figure 2, Item 3), cover (Figure 2, Item 7), and four screws (Figure 2, Item 4).
8. Install the pump assembly cross member (Figure 2, Item 6) using 4 bolts, nuts, and washers (Figure 2, Item 5).
9. Install and secure the two diaphragm band clamps (Figure 2, Item 2). (Figure 2, Item 1).
10. Connect the drain hose coming from the WYE quick disconnect to the inlet coupling (Figure 1, Item 7) of the reciprocating pump and secure the coupling.
11. Connect the drain hose that is leading to the waste water collection site to the reciprocating pump outlet coupling (Figure 1, Item 12) and secure the coupling.
12. Start up shower facility, referring to WP 0005.

END OF TASK

REPAIR

Disassemble

1. Remove the reciprocating pump from the pump frame, referring to the removal procedures in .

NOTE

Place the reciprocating pump on its side for easier access to the nuts securing the pump base (Figure 6 Item 4) and diaphragm (Figure 6 Item 3).

2. Remove four nuts (Figure 6, Item 6), lock washers (Figure 6, Item 5), screws (Figure 6, Item 2).
3. Remove pump base (Figure 6, Item 4). Remove diaphragm valve (Figure 6, Item 3) from housing.

RECIPROCATING PUMP ASSEMBLY REPLACE, REPAIR - (CONTINUED)

4. Carefully remove metal support plate from diaphragm valve (Figure 6, Item 3).
5. Discard the lock washers.

Assemble

1. Place the metal support plate onto the diaphragm valve (Figure 6, Item 3), then place assembly onto the pump frame (Figure 6, Item 4).
2. Mount the pump base (Figure 6, Item 4) onto the pump frame over the diaphragm valve.
3. Align the mounting holes and secure using four screws (Figure 6, Item 2), new lock washers (Figure 6, Item 5), and nuts (Figure 6, Item 6). Be sure diaphragm valve is not pinched.

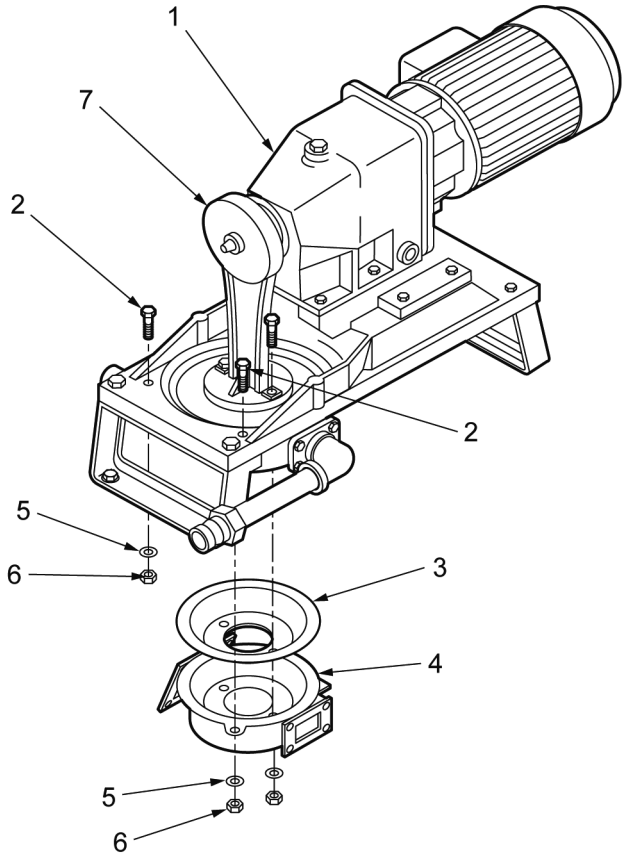


Figure 6. Repairing the Reciprocating Pump.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

PUMP FRAME ASSEMBLY REPLACE

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Materials/Parts
Lock Washers (2) (Item 9, WP 0055)
Lock Washers (4) (Item 8, WP 0055)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0023

Equipment Condition
Shower powered off
Shower disconnected from power source.

REPLACE

WARNING

Never work on electrical equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and who is competent in administering first aid. When the technician is aided by operators, he must warn them about dangerous areas.

Be careful not to contact high-voltage connections of 115-volt ac input connections when installing or operating this equipment.

Whenever the nature of the operation permits, keep one hand away from the equipment to reduce the hazard of current flowing through vital organs of the body.

Do not disconnect power cables when power is on or generator set is operating.

Failure to follow this warning may result in serious injury or death to personnel.

If only the diaphragm tank must be removed and not the entire pump frame, go to the procedure for removing the diaphragm tank in this work package. To replace the entire pump frame assembly, do the following:

1. Remove the switch box (Figure 1), referring to .
2. Remove the supply pump (Figure 1), referring to WP 0023.
3. Remove the temperature regulator (Figure 1), referring to .
4. Remove the reciprocating pump (Figure 1) , referring to .
5. Install the switch box, supply pump, temperature regulator, and reciprocating pump into the new pump frame assembly, referring to the work packages referenced in steps 1 through 4 above.

PUMP FRAME ASSEMBLY REPLACE - (CONTINUED)

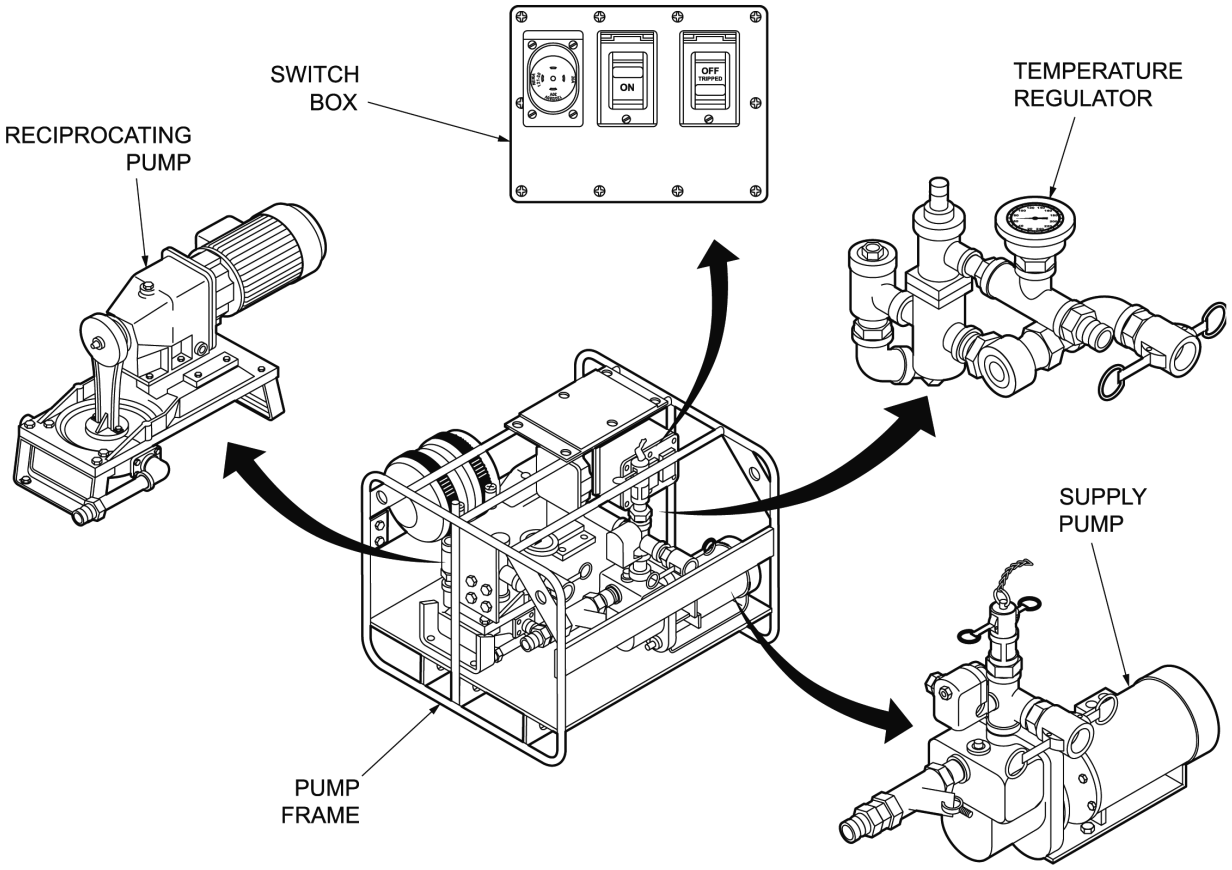


Figure 1. Replacing the Pump Frame Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

STORAGE CONTAINER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, Carpenter's (WP 0051, Table 2, Item 1)
Tool Kit, Supplement (WP 0051, Table 2, Item 2)

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)
Lumber (WP 0042, Item 4)
Lumber (WP 0042, Item 5)
Plywood (WP 0043, Item 4)

Personnel Required
Carpentry and Masonry Specialist, 12W - 2

Equipment Condition
Storage container empty.

NOTE

Replacement of the storage container consists of fabricating a new container using salvaged or new hardware and bulk lumber and plywood.

Salvaging usable hardware items from the old storage container is the only disassembly applicable to replacing the container.

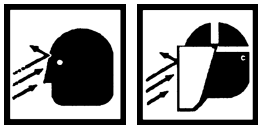
STORAGE CONTAINER REPLACEMENT

Storage container hardware removal

1. Remove any usable hardware items from the old storage container.
2. Replace any unusable or missing hardware items to make a complete set for assembly.

Fabricating a new storage container

WARNING



Metal debris from drilling out rivets poses an eye hazard. Wear eye protection when removing and replacing rivets.

Flying debris from using wood fasteners can be an eye hazard. Wear eye protection when removing and replacing rivets.

Failure to comply with this warning can result in injury to personnel and damage to equipment.

WARNING

Hearing protection must be worn when using power equipment.

STORAGE CONTAINER REPLACEMENT - (CONTINUED)

1. To fabricate the lid of the storage container:
   a. Place two pieces of lumber (Figure 1, Item 23) and four equally spaced pieces of lumber (Figure 1, Item 22) onto one sheet of plywood (Figure 1, Item 1) as illustrated.
   b. Secure the lumber to plywood using wood screws as available.

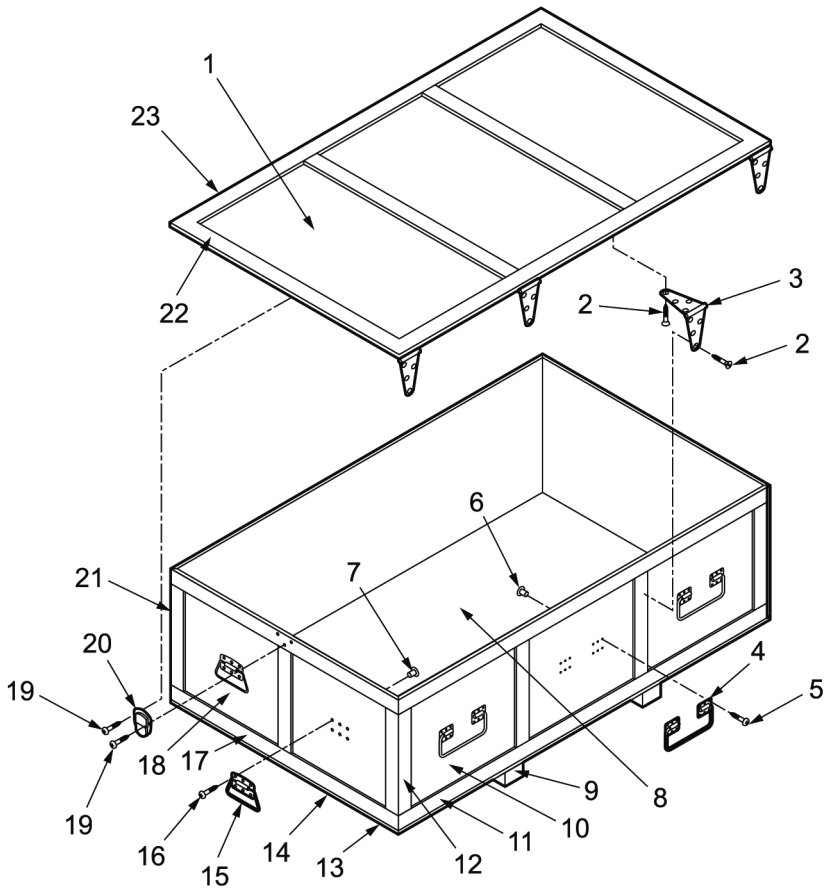


Figure 1. Fabricating the Storage Container.

2. To fabricate the box:
   a. To fabricate the bottom of the box.
      (1) Place two pieces of lumber (Figure 1, Item 13) WP 0042, Item 4) and four equally spaced pieces of lumber (Figure 1, Item 14) (WP 0042, Item 5) onto sheet of plywood (Figure 1, Item 8) (WP 0043, Item 4).
      (2) Place two pieces of lumber (Figure 1, Item 9) (WP 0042, Item 6) onto the two centerpieces of lumber (Figure 1, Item 14) as illustrated.
      (3) Secure the lumber to plywood using wood screws as available.
      (4) Turn bottom over so it is supported by the two pieces of lumber (Figure 1, Item 9) as illustrated.

NOTE

The following procedure applies to both panels. The quantities listed are for one panel only.

   b. To fabricate the front and back panels of the box:
      (1) Place two pieces of lumber (Figure 1, Item 11) and four equally spaced pieces of lumber (Figure 1, Item 12) onto sheet of plywood (Figure 1, Item 10) as illustrated.

STORAGE CONTAINER REPLACEMENT - (CONTINUED)

(2) Secure the lumber to plywood using wood screws as available.

NOTE

The following procedure applies to both panels. The quantities listed are for one panel only.

c. To fabricate the left and right side panels of the box:
   (1) Place two pieces of lumber (Figure 1, Item 17) and three equally spaced pieces of lumber (Figure 1, Item 21) onto one sheet of plywood (Figure 1, Item 18) as illustrated.
   (2) Secure the lumber to plywood to using wood screws as available.
d. Assemble the front, back, left, and right side panels onto the bottom panel as illustrated. Secure the panels to bottom and each other using wood screws as available.

Storage container hardware installation

NOTE

The following procedure applies to multiple items. The quantities listed are for one panel only.

1. To install the folding handles:
   a. Position the folding handle in place and align mounting holes, and then secure ten screws (Figure 1, Item 5).
   b. Drill ten mounting holes necessary and insert tentee nuts (Figure 1, Item 6) from inside box.
   c. Repeat procedure for remaining five folding handles.

NOTE

The following procedure applies to multiple items. The quantities listed are for one panel only.

2. To install the bail handles:
   a. Position the bail handle (Figure 1, Item 15) in place as illustrated and mark mounting hole locations.
   b. Drill five mounting holes as necessary, and insert five tee nuts (Figure 1, Item 7) from inside box.
   c. Position bail handle in place, aligning mounting holes, and then secure using five screws (Figure 1, Item 16).
   d. Repeat procedure for remaining three bail handles.
3. To install the hinges and attach the lid:
   a. Place lid on box and position hinge (Figure 1, Item 3) in place as illustrated.
   b. Mark mounting hole locations and drill eight pilot holes (four in lid and four in box).
   c. Position hinge in place, align mounting holes, and then secure using eight screws (Figure 1, Item 2) (four in lid and four in box).
   d. Repeat procedure for remaining three hinges.
4. To install the latch:
   a. Position latch (Figure 1, Item 20) in place as illustrated.
   b. Mark mounting holes locations, and drill six pilot holes (three in lid and three in box).
   c. Position latch in place, aligning mounting holes, and then secure using six screws (Figure 1, Item 19) (three in lid and three in box).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

STORAGE CONTAINER ASSEMBLY REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, Carpenter's (WP 0051, Table 2, Item 1)
Tool Kit, Supplement (WP 0051, Table 2, Item 2)

Materials/Parts
Gloves, Men's (WP 0054, Table 1, Item 4)

Personnel Required
Carpentry and Masonry Specialist, 12W - 2

References
WP 0031
WP 0045

Equipment Condition
Storage container empty

NOTE

Repair is limited to replacement of missing or damaged components.

Disassemble only to the extent necessary to repair the item.

If the storage container must be replaced, refer to WP 0031.

The following procedures can apply to multiple storage containers.

The quantities listed in the procedures are for only one storage container.

STORAGE CONTAINER ASSEMBLY REPAIR

Disassemble

1. To disassemble for repair/replacement of parts:
   a. Raise and support lid (Figure 1, Item 1).
   b. Remove 16 screws (Figure 1, Item 2) and four hinges (Figure 1, Item 3).
   c. Remove lid (Figure 1, Item 1) from storage container.
   d. Remove six screws (Figure 1, Item 10), three screws per latch, and then latch (Figure 1, Item 11).
   e. Remove five screws (Figure 1, Item 9) per each of four bail handles total, tee nuts (Figure 1, Item 7), and then each bail handle (Figure 1, Item 8).
   f. Remove 10 screws (Figure 1, Item 5), tee nut (Figure 1, Item 6) from the six folding handles, and the folding handles (Figure 1, Item 4).
   g. Replace any defective, missing, or damaged components.
   h. If storage container was in use, place any removed items back in it.

STORAGE CONTAINER ASSEMBLY REPAIR - (CONTINUED)

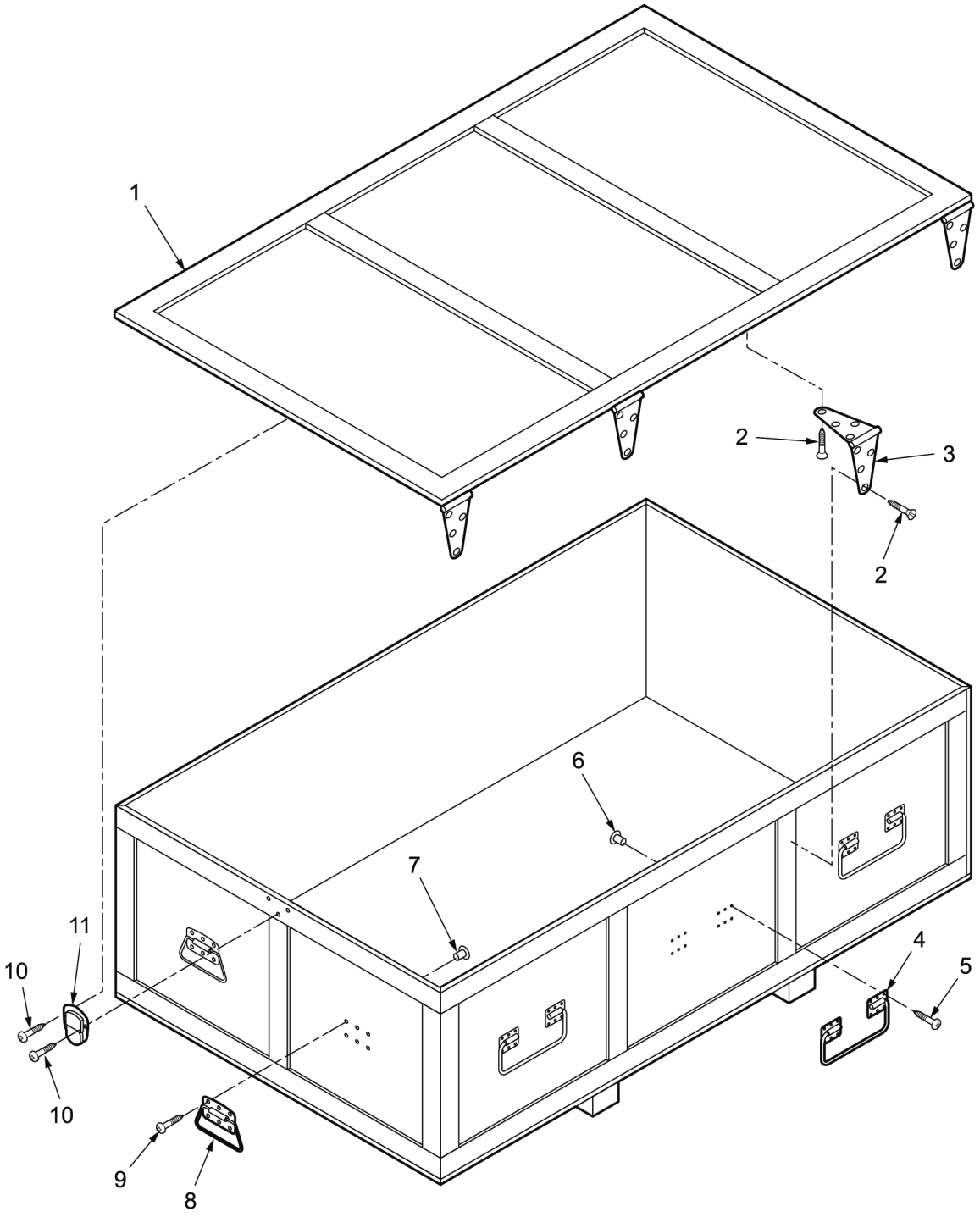


Figure 1. Disassembling the Storage Container.

2. Remove any usable hardware items from the old storage container as directed above.
3. Replace any unusable or missing hardware items to make a complete set for assembly.

STORAGE CONTAINER ASSEMBLY REPAIR - (CONTINUED)

Assemble

NOTE

For information about what materials and requirements are necessary to assemble the storage container, refer to the Repair Parts and Special Tools List (WP 0045) and the respective make from work packages.

1. Be sure any missing or damaged components have been replaced. Remove any items that may be stored inside the container.
2. Position folding handle (Figure 1, Item 4) in place and align mounting holes.
3. Secure handle using five screws (Figure 1, Item 5) and tee nuts (Figure 1, Item 6).
4. Position bail handle (Figure 1, Item 8) in place and align mounting holes.
5. Secure handle using five screws (Figure 1, Item 9) and tee nuts (Figure 1, Item 7).
6. Position latch (Figure 1, Item 11) in place and align mounting holes.
7. Secure using six screws (Figure 1, Item 10).
8. Place and support lid (Figure 1, Item 1) in position.
9. Position hinge (Figure 1, Item 3) in place and align mounting holes.
10. Secure using 16 screws (Figure 1, Item 2).
11. If the storage container was in use, place any removed items back in it.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

SHOWER FACILITY INTERCONNECTION HOSE ASSEMBLY REPLACE

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0005

Equipment Condition
Shower powered off

SHOWER FACILITY INTERCONNECTION HOSES REPLACEMENT

Removal

1. Release the quick disconnect coupling halves (Figure 1, Items 1 and 2) at each end of the interconnecting hose assembly and remove the interconnecting hose assembly from the shower assembly. coupling half (Figure 1, Item 1) is the male end of the quick disconnect. coupling half (Figure 1, Item 2) is the female end of the quick disconnect.
2. Remove the shower facility interconnection hose assembly.

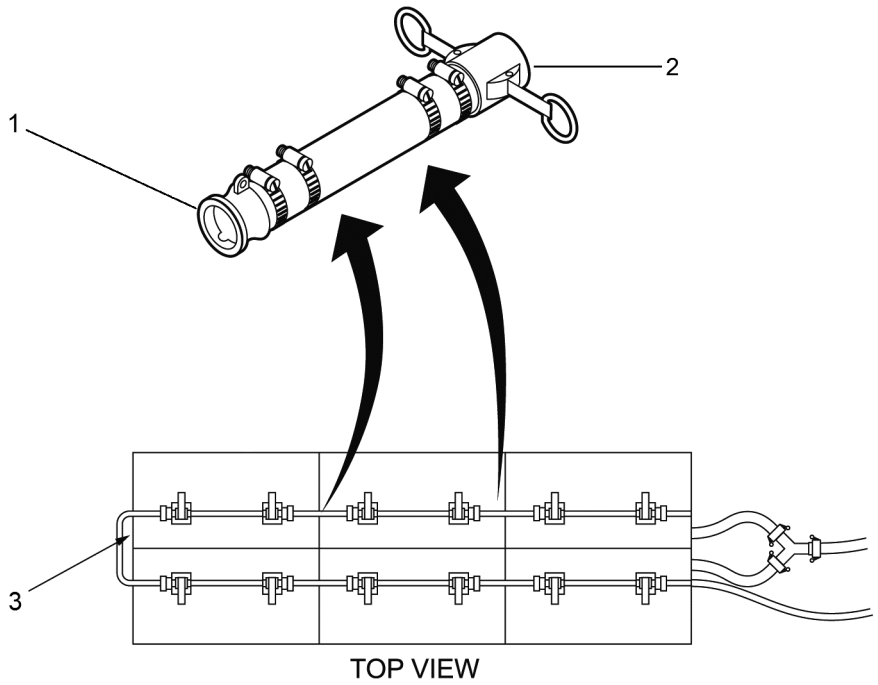


Figure 1. Typical Shower Facility Interconnection Hose.

Installation

1. Attach serviceable shower facility interconnection hose (Figure 1, Items 3) and secure couplings (Figure 1, Items 1 and 2).
2. Start up the shower facility, referring to the procedures in WP 0005.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

SUPPLY PUMP COLD LINE HOSES ASSEMBLY REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Set, General Mechanics (WP 0051, Table 2, Item 3)

Personnel Required
Quartermaster and Chemical Equipment Repairer, (91J) - 1

References
WP 0005

Equipment Condition
Shower powered off
Water drained from shower

SUPPLY PUMP COLD LINE HOSES REPAIR

Removal

1. Loosen the two clamps (Figure 1, Item 2) and then pull hose (Figure 1, Item 3) end off coupling half (Figure 1, Item 1).
2. Remove the two clamps (Figure 1, Item 2).

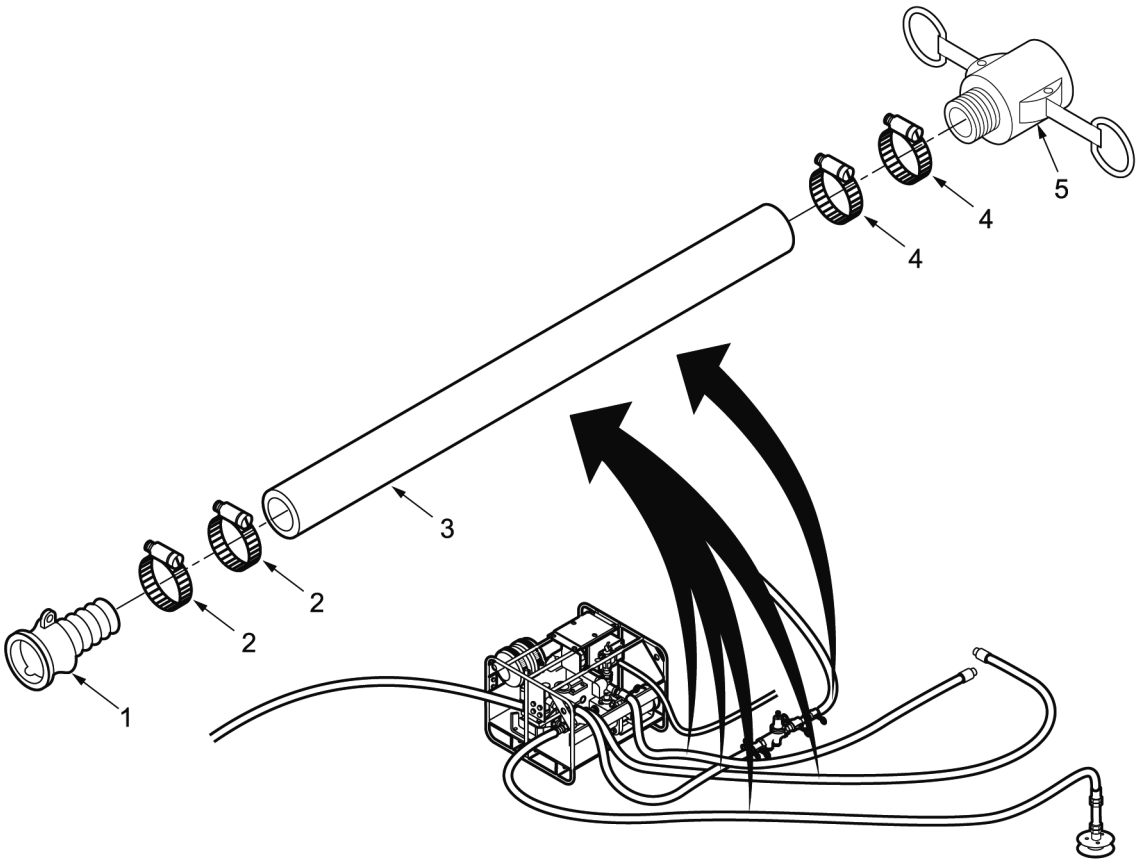


Figure 1. Typical Supply Pump Cold Line Hose.

3. Remove the two clamps (Figure 1, Item 4) and then pull hose (Figure 1, Item 3) end from the coupling half (Figure 1, Item 5). Remove the two clamps (Figure 1, Item 4).
4. Remove coupling halves (Figure 1, Items 1 and 5) from the supply pump.
5. Replace supply pump cold line hose (Figure 1, Item 3).

SUPPLY PUMP COLD LINE HOSES ASSEMBLY REPAIR - (CONTINUED)

Installation

1. Confirm that any defective, missing, or damaged components have been replaced.

NOTE

Supply pump cold line hose couplings are issued as a set.

2. Install coupling half (Figure 1, Item 1) and connector (Figure 1, Item 5) into the supply pump.
3. Slide two clamps (Figure 1, Item 4) over supply pump cold line hose (Figure 1, Item 3) end and install supply pump cold line hose onto coupling (Figure 1, Item 5). Be sure clamps are around coupling half.
4. Tighten clamps.
5. Slide two clamps (Figure 1, Item 2) over supply pump cold line hose (Figure 1, Item 3) end and install supply pump cold line hose onto coupling half (Figure 1, Item 1). Be sure clamps are around coupling half and tighten clamps.
6. Start up the shower facility, referring to the procedures in WP 0005.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

GENERAL REPAIR INSTRUCTIONS

INITIAL SETUP:

Personnel Required
Shower/Laundry and Clothing Repair Specialist,
(91J)

SCOPE

This section provides instructions to perform maintenance on all items that are the responsibility of field level maintenance.

Within reasonable limits of field capability and using approved shop procedures, straighten, align, or reform deformed parts to a serviceable condition. Fix or patch repairable cracks, holes, or tears.

All repair procedures are in disassembly/assembly sequence. Only disassemble an item as far as necessary to repair it, then locate the appropriate point in the assembly sequence to reassemble the item.

All components damaged beyond simple shop repair should be replaced. Refer to the appropriate work package in this manual for instructions on replacing a component.

END OF WORK PACKAGE

FIELD MAINTENANCE

ILLUSTRATED LIST OF MANUFACTURED ITEMS INTRODUCTION

Scope

This work package includes complete instructions for making items authorized to be manufactured or fabricated at the maintainer maintenance level.

How To Use The Index Of Manufactured Items

A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the information which covers fabrication criteria.

Explanation Of The Illustrations Of Manufactured Items

All instructions needed by maintenance personnel to manufacture the item are included on the illustrations. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration. All dimensions are given in inches with centimeters shown in parentheses.

Manufactured Items Part Number Index

PART NUMBER/ CAGEC	DRAWING NUMBER	NAME	FIGURE
8611309-63 98752	Figure 4, WP 0051	FASTENER TAPE, HOOK MAKE FROM HOOK AND LOOP MATERIAL (81337) 6-1-5876, 65.50 IN LG TYPE 1, CLASS 1,80 HOOK ()	
8611309-64 98752	Figure 4, WP 0051	FASTENER TAPE, HOOK MAKE FROM HOOK AND LOOP MATERIAL (81337) 6-1-5876, 26.50 IN LG TYPE 1, CLASS 1, 80 HOOK ()	
8611317 98752	Figure 3, WP 0051	PIPE, MANIFOLD. FABRICATE FROM 1.00 IN (2.54 CM) PIPE, SCH 40 BRASS, 3 IN (7.62 CM) LG, 1-11 1/2 MALE NPT 2 PL, 1.00 NOMINAL ()	
8611344-105 98752	Figure 15, WP 0051	HOSE, NONMETALLIC 25.50 INCHES LONG (607.06 CM) ()	

ILLUSTRATED LIST OF MANUFACTURED ITEMS INTRODUCTION - (CONTINUED)

PART NUMBER/ CAGEC	DRAWING NUMBER	NAME	FIGURE
8611344-106 98752	Figure 15, WP 0051	HOSE, NONMETALLIC, 420.00 INCHES LONG (1066.8 CM). MAKE FROM HOSE (24161) 1B, BLACK 1.00 I.D. ()	
8611344-107 98752	Figure 15, WP 0051	HOSE, NONMETALLIC 144.00 INCHES LONG (365.76 CM) ()	
8611344-108 98752	Figure 16, WP 0051	HOSE, NONMETALLIC, 12.00 INCHES LONG (30.48 CM) MAKE FROM HOSE (24161) 1B, BLACK,1.00 I.D. ()	
8611344-156 98752	Figure 16, WP 0051	HOSE, NONMETALLIC, 13.75 INCHES (34.93 CM) ()	
8611349-109 98752	Figure 15, WP 0051	HOSE, NONMETALLIC, 300.00 INCHES LONG (762 CM). MAKE FROM HOSE (62543) 55-1776-43.00 I.D. ()	
8611349-110 98752	Figure 15, WP 0051	HOSE, NONMETALLIC, 90.00 INCHES LONG (228.6 CM). MAKE FROM HOSE (62543) 55-1776-431.00 ID ()	
8611350-111 98752	Figure 15, WP 0051	HOSE, NONMETALLIC 61 INCHES LONG (176.8 CM) ()	
8611351-112 98752	Figure 1, WP 0040	HOSE, NONMETALLIC 58 INCHES LONG (134.7 CM) ()	

ILLUSTRATED LIST OF MANUFACTURED ITEMS INTRODUCTION - (CONTINUED)

PART NUMBER/ CAGEC	DRAWING NUMBER	NAME	FIGURE
8611351-113 98752	Figure 15, WP 0051	HOSE, NONMETALLIC 420 INCHES LONG (1066.8 CM) ()	
8611356-200/10 FT 98752	Figure 1, WP 0046	CABLE. MAKE FROM CABLE, (81349) CO-05HGF (5/12) 0740, 10 FT LG (304.8 CM) ()	
931007924 98752	Figure 1, WP 0044	CHAIN, SAFETY, MAKE FROM CHAIN (19207) 12353858-3, 3, SST,35, 18 IN LG (45.72 CM) ()	
SK17026 94833	Figure 1, WP 0048	LUMBER, MAKE FROM 1 BY 3 PINE LUMBER, 73.00 IN LONG (185.3 CM), PN SK17026 ()	
SK17026 94833	Figure 1, WP 0048	LUMBER, MAKE FROM 1 BY 3 PINE LUMBER, 18.75 IN LONG (48.77 CM), PN SK17026 ()	
SK17026 94833	Figure 1, WP 0048	LUMBER, MAKE FROM 1 BY 3 PINE LUMBER, 46.50 IN LONG (118.1 CM), PN SK17026 ()	
SK17026 94833	Figure 1, WP 0048	LUMBER, MAKE FROM 1 BY 3 PINE LUMBER, 75.50 IN LONG (191.7 CM), PN SK17026 ()	
SK17026 94833	Figure 1, WP 0048	LUMBER, MAKE FROM 1 BY 3 PINE LUMBER, 41.25 IN LONG (CM), PN SK17026 ()	

ILLUSTRATED LIST OF MANUFACTURED ITEMS INTRODUCTION - (CONTINUED)

PART NUMBER/ CAGEC	DRAWING NUMBER	NAME	FIGURE
SK17026 94833	Figure 1, WP 0048	LUMBER, MAKE FROM 4 BY 4 PRESSURE TREATED LUMBER, 46.50 IN (117.9 CM), PN SK17026 ()	
SK17026 94833	Figure 1, WP 0049	PLYWOOD, MAKE FROM 0.50 PLYWOOD, GRADE AC, 46.50 BY 75.50 IN LO (118.9 BY 191.7 CM), PN SK17026 ()	
SK17026 94833	Figure 1, WP 0049	PLYWOOD, MAKE FROM 0.50 PLYWOOD, GRADE AC, 24.0 BY 46.50 IN LO (60.96 BY 118.9 CM) ,PN SK17026 ()	
SK17026 94833	Figure 1, WP 0049	PLYWOOD, MAKE FROM 0.50 PLYWOOD, GRADE AC, 24.00 BY 73.00 IN L (60.96 BY 185.3 CM), PN SK17026 ()	
SK17027 94833	Figure 1, WP 0048	LUMBER, MAKE FROM 1 BY 3 PINE LUMBER, 41.25 IN LONG (104.8 CM) PN SK17027 ()	
SK17027 94833	Figure 1, WP 0048	LUMBER, MAKE FROM 1 BY 3 PINE LUMBER, 75.50 IN LONG (191.7 CM) PN SK17027 ()	
SK17027 94833	Figure 1, WP 0049	PLYWOOD, MAKE FROM 0.50 PLYWOOD, GRADE AC, 46.50 BY 75.00 IN L (118.9 BY 190.5 CM), PN SK17027 ()	

END OF WORK PACKAGE

FIELD MAINTENANCE

ILLUSTRATED LIST OF MANUFACTURED ITEMS — HOOK AND LOOP EXTRUSION

INITIAL SETUP:

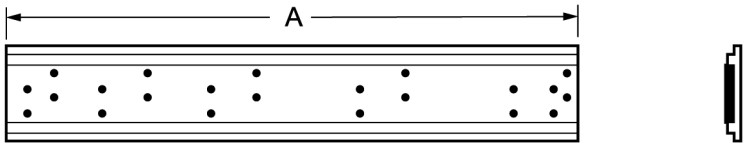


Figure 1. Hook and Loop Extrusion.

Table 1. Hook and Loop Extrusion Manufacture

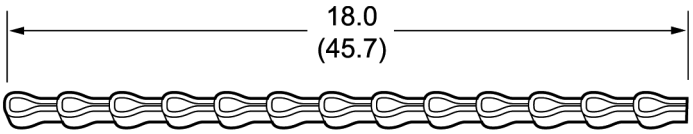
ITEM	PART NO.	DIM "A"	FABRICATE FROM
1	8611309-63	65.5 (166.37)	(81349) MIL-F-21840, TYPE 1, 1 IN., 80 HOOK AND LOOP EXTRUSION
2	8611309-64	26.50 (67.31)	(81349) MIL-F-21840, TYPE 1, 1 IN., 80 HOOK AND LOOP EXTRUSION

END OF WORK PACKAGE

FIELD MAINTENANCE

ILLUSTRATED LIST OF MANUFACTURED ITEMS — CHAIN, SAFETY

INITIAL SETUP:



NOTE
FABRICATE FROM (81348) RR-C-271/II, 3, SST, 35 WELDLESS SAFETY CHAIN

Figure 1. Chain, Safety.

Table 1. Chain, Safety

ITEM	PART NO.	DIM "A"	FABRICATE FROM
1	931007924/CHAIN	18.0 (45.7)	(81349) RR-C-271/II, 3, SST, 35 WELDLESS SAFETY CHAIN

END OF WORK PACKAGE

FIELD MAINTENANCE

ILLUSTRATED LIST OF MANUFACTURED ITEMS — VARIOUS HOSES

INITIAL SETUP:

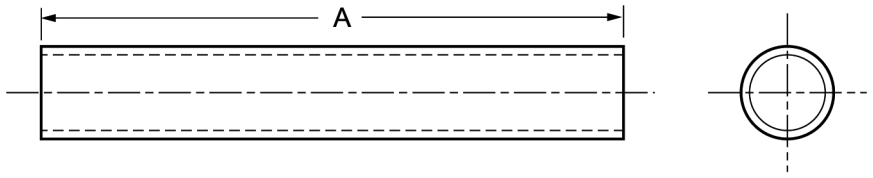


Figure 1. Various Hoses.

Table 1. Various Hoses

ITEM	PART NO.	DIM "A"	FABRICATE FROM
1	8611344 ITEM 105	25.50 (64.77)	(24161) 1 LB BLACK 1.00 INCH (2.54 CM) I. D. HOSE
2	8611344 ITEM 106	420.00 (1066.80)	(24161) 1 LB BLACK 1.00 INCH (2.54 CM) I. D. HOSE
3	8611344 ITEM 107	144.00 (365.76)	(24161) 1 LB BLACK 1.00 INCH (2.54 CM) I. D. HOSE
4	8611344 ITEM 108	12.00 (30.48)	(24161) 1 LB BLACK 1.00 INCH (2.54 CM) I. D. HOSE
5	8611344 ITEM 156	13.75 (34.93)	(24161) 1 LB BLACK 1.00 INCH (2.54 CM) I. D. HOSE
6	8611349 ITEM 109	300.00 (762.00)	(62543) 55-1776-43, 1.00 INCH (2.54 CM) I. D. HOSE
7	8611349 ITEM 110	90.00 (228.60)	(62543) 55-1776-43, 1.00 INCH (2.54 CM) I. D. HOSE
8	8611350 ITEM 111	61.00 (154.94)	(62543) 55-1776-49, 1.50 INCH (3.81 CM) I. D. HOSE
9	8611351 ITEM 112	58.00 (147.32)	(25472) 89-83-4020-00, 2.00 INCH (5.08 CM) I. D HOSE
10	8611351 ITEM 113	420.00 (1066.80)	(25472) 89-83-4020-00, 2.00 INCH (5.08 CM) I. D HOSE

END OF WORK PACKAGE

FIELD MAINTENANCE

ILLUSTRATED LIST OF MANUFACTURED ITEMS — ELECTRIC CABLE

INITIAL SETUP:

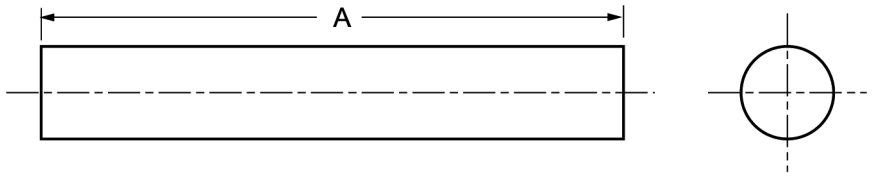


Figure 1. Electric Cable.

Table 1. Electric Cable Manufacture

ITEM	PART NO.	DIM "A"	FABRICATE FROM
1	8611356-200/10 FT	120.0 (304.8)	(81349) CO-05HGF (5/12) 0740 ELECTRIC CABLE

END OF WORK PACKAGE

FIELD MAINTENANCE

ILLUSTRATED LIST OF MANUFACTURED ITEMS — MANIFOLD PIPE

INITIAL SETUP:

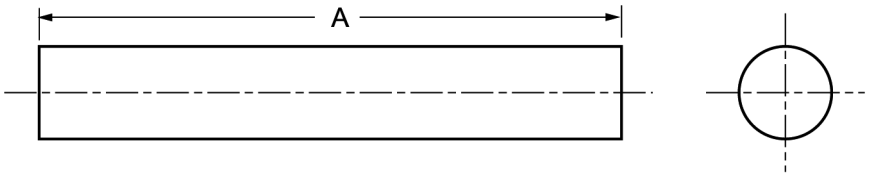


Figure 1. Manifold Pipe.

Table 1. Manifold Pipe Manufacture

ITEM	PART NO.	DIM "A"	FABRICATE FROM
1	8611317	3 IN (7.62 CM)	(98752) SCH 40 BRASS MANIFOLD PIPE 1.00 IN (2.54 CM) D, 3 IN (7.62 CM) LG, 1-11 1/2 MALE NPT 2 PL, 1.00 NOMINAL

END OF WORK PACKAGE

FIELD MAINTENANCE

ILLUSTRATED LIST OF MANUFACTURED ITEMS — LUMBER

INITIAL SETUP:

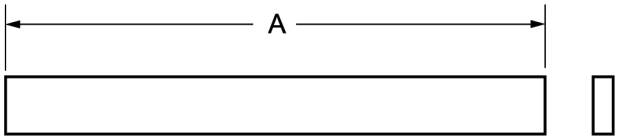


Figure 1. Lumber.

Table 1. Lumber

ITEM	PART NO.	DIM "A"	FABRICATE FROM
1	SK17026 ITEM 4	18.75 (47.63)	1 by 3 LUMBER (PINE)
2	SK17026 ITEM 5	73.00 (185.42)	1 by 3 LUMBER (PINE)
3	SK17026 ITEM 6	46.50 (118.11)	1 by 3 LUMBER (PINE)
4	SK17026 ITEM 7	75.50 (191.77)	1 by 3 LUMBER (PINE)
5	SK17026 ITEM 8	41.25 (104.78)	1 by 3 LUMBER (PINE)
6	SK17026 ITEM 9	46.50 (118.11)	4 by 4 LUMBER (PRESSURE TREATED)
7	SK17027 ITEM 2	41.25 (104.78)	1 by 3 LUMBER (PINE)
8	SK17027 ITEM 3	75.50 (191.77)	1 by 3 LUMBER (PINE)

END OF WORK PACKAGE

FIELD MAINTENANCE

ILLUSTRATED LIST OF MANUFACTURED ITEMS — PLYWOOD

INITIAL SETUP:

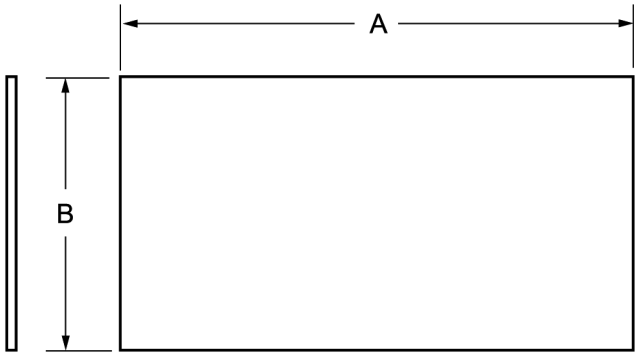


Figure 1. Plywood.

Table 1. Plywood

ITEM	PART NO.	DIM "A"	DIM "B"	FABRICATE FROM
1	SK17026 ITEM 1	75.50 (191.77)	46.50 (118.11)	0.50 (1.27) GRADE AC PLYWOOD
2	SK17026 ITEM 2	46.50 (118.11)	24.00 (60.96)	0.50 (1.27) GRADE AC PLYWOOD
3	SK17026 ITEM 3	73.00 (185.42)	24.00 (60.96)	0.50 (1.27) GRADE AC PLYWOOD
4	SK17027 ITEM 1	75.50 (191.77)	46.50 (118.11)	0.50 (1.27) GRADE AC PLYWOOD

END OF WORK PACKAGE

CHAPTER 7

PARTS INFORMATION

FOR

12-HEAD SHOWER SYSTEM

FIELD MAINTENANCE

12-HEAD SHOWER

INTRODUCTION

SCOPE

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of field maintenance of the 12-Head Shower. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

GENERAL

In addition to the Introduction work package, this RPSTL is divided into the following work packages.

1. Repair Parts List Work Packages. Work packages containing lists of spare and repair parts authorized for use in the performance of maintenance at the levels determined by the MAC/SMR code. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending Figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in the Bulk Items work package which follows the Parts List work package. Repair parts kits are listed separately in their own functional group. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.
2. Bulk Items Work Package. This work package lists all items identified as ‘bulk’ in the parts lists. Due to the nature of bulk items, this work package does not include a Figure.
3. Special Tools List Work Packages. Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.
4. Cross-Reference Indexes Work Packages. There are two cross reference indexes work packages in this RPSTL: the National Stock Number (NSN) Index work package, and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout. This entry may be subdivided into 4 subentries, one for each service.

Table 1. SMR Code Explanation.

Source Code XX	Maintenance Code XX		Recoverability Code X
1st two positions: How to get an , Item.	3rd position: Who can install, replace, or use the , Item.	4th position: Who can do complete repair on the item.	5th position: Who determines disposition action on unserviceable items.

*

Source Code. The source code tells you how you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

12-Head Shower - (CONTINUED)

Source Code	Application/Explanation
PA PB PC PD PE PF PG PH PR PZ	**NOTE** Items coded PC are subject to deterioration. Stock items, use the applicable NSN to requisition/request items with these source codes. They are authorized to the level indicated by the code entered in the third position of the SMR code.
KD KF KB	Items with these codes are not to be requested/ requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the third position of the SMR code. The complete kit must be requisitioned and applied.
MF–Made at field MH–Made at below depot sustainment level ML–Made at SRA MD–Made at depot MG–Navy only	Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the third position code of the SMR code, but the source code indicates it is made at higher level, order the item from the higher level of maintenance.
AF–Assembled by field level AH–Assembled by below depot sustainment level AL–Assembled by SRA AD–Assembled by depot AG–Navy only	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the third position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
XA	Do not requisition an “XA” coded item. Order the next higher assembly. (Refer to NOTE below.)
XB	If an item is not available from salvage, order it using the CAGEC and part number.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer’s part number.
XD	Item is not stocked. Order an XD–coded item through local purchase or normal supply channels using the CAGEC and P/N given, if no NSN is available.

12-Head Shower - (CONTINUED)

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded “XA” or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance:

Maintenance Code	Application/Explanation
F –	Field maintenance can remove, replace, and use the item.
H –	Below Depot Sustainment maintenance can remove, replace, and use the item.
L –	Specialized repair activity can remove, replace, and use the item.
G –	Afloat and ashore intermediate maintenance can remove, replace, and use the item. (Navy only).
K –	Contractor facility can remove, replace, and use the item.
Z –	Item is not authorized to be removed, replace, or used at any maintenance level.
D –	Depot can remove, replace, and use the item.

*NOTE– Army may use C in the third position. However, for joint service publications, Army will use O.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

Maintenance Code	Application/Explanation
F –	Field is the lowest level that can do complete repair of the item.
H –	Below Depot Sustainment is the lowest level that can do complete repair of the item.
L –	Specialized repair activity is the lowest level that can do complete repair of the item
D –	Depot is the lowest level that can do complete repair of the item.
G –	Both afloat and ashore intermediate levels are capable of complete repair of item. (Navy only)
K –	Complete repair is done at contractor facility.
Z –	Nonreparable. No repair is authorized.
B –	No repair is authorized. No parts or special tools are authorized for maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

12-Head Shower - (CONTINUED)

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

Recoverability Code	Application/Explanation
Z –	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
F –	Reparable item. When uneconomically reparable, condemn and dispose of the item at the field level.
H –	Reparable item. When uneconomically reparable, condemn and dispose of the item at the below depot sustainment level.
D –	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L –	Reparable item. Condemnation and disposalnot authorized below Specialized Repair Activity (SRA).
A –	Item requires special handling or condemnation procedures because of specific reasons such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.
G –	Field level reparable item. Condemn and dispose at either afloat or ashore intermediate levels. (Navy only)
K –	Reparable item. Condemnation and disposal to be performed at contractor facility.

NSN (Column (3)). The NSN for the item is listed in this column.

CAGEC (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

PART NUMBER (Column (5)). Indicates the primary number used by the manufacturer manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different P/N form the number listed.

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following information:

1. The federal item name, and when required, a minimum description to identify the item.
2. Part numbers of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.
3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in Column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A “V” appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

12-Head Shower - (CONTINUED)

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

1. National Stock Number (NSN) Index Work Package. NSN's in this index are listed in National Item Identification Number (NIIN) sequence.
   - STOCK NUMBER Column. This column lists the NSN in National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.
   - For example, if the NSN is 5385-01-574-1476, the NIIN is 01-574-1476.
   - FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.
   - ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.
2. Part Number (P/N) Index Work Package. P/Ns in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order.)
   - PART NUMBER Column. Indicates the P/N assigned to the item.
   - FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.
   - ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

SPECIAL INFORMATION

UOC. The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as “UOC:” in the Description Column (justified left) on the first line under the applicable item nomenclature. Uncoded items are applicable to all models. Identification of the UOCs used in the RPSTL are:

Code	Used On
N/A	N/A

Fabrication Instructions. Bulk materials required to manufacture items are listed in the bulk material functional group of this RPSTL. Part numbers for bulk material are also referenced in the Description Column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in WP 0042 — WP 0049() of this technical manual.

Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN/Part Number (P/N) index work packages and the bulk material list in the repair parts list work package.

Illustrations List. The illustrations in this RPSTL contain field authorized items. Illustrations published in (enter applicable TM number for the higher maintenance level RPSTL, e.g., for field, below depot sustainment, etc.) that contain field authorized items also appear in this RPSTL. The tabular list in the repair parts list work package contains only those parts coded "F" in the third position of the SMR code, therefore, there may be a break in the item number sequence.

12-Head Shower - (CONTINUED)

HOW TO LOCATE REPAIR PARTS

1. When NSNs or Part Numbers Are Not Known.
   - First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.
   - Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.
   - Third. Identify the item on the figure and note the number(s).
   - Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.
2. When NSN Is Known.
   - First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.
   - Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.
3. When Part Number Is Known.
   - First. If you have the part number and not the NSN, look in the PART NUMBER column of the part number index work package. Identify the figure and item number.
   - Second. Look up the item on the figure in the applicable repair parts list work package.

END OF WORK PACKAGE

FIELD MAINTENANCE

REPAIR PARTS LIST

REPAIR PARTS LIST - (CONTINUED)

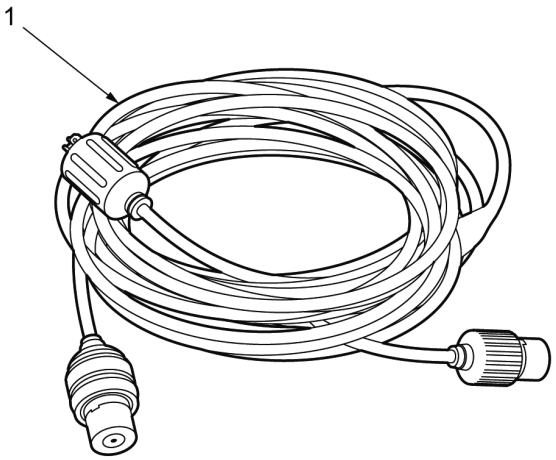


Figure 1. Power Cable Assembly.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 00 12-HEAD SHOWER SYSTEM	
					FIGURE 1 Power Cable Assembly.	
1	PACZZ	6150-01-214-0135	81337	6-1-8222-1	CABLE ASSEMBLY, POWER	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

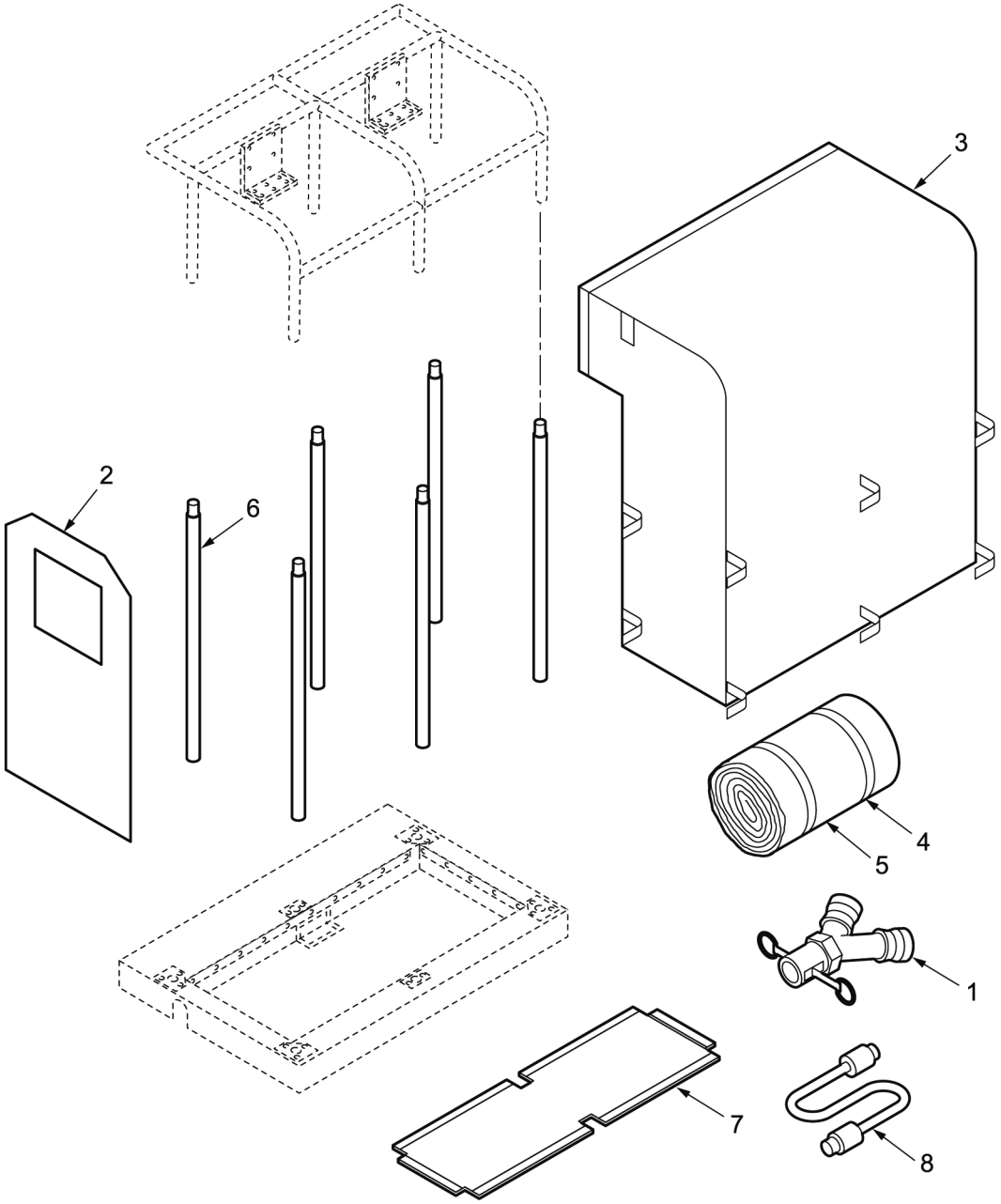


Figure 2. Shower Stall Assembly.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01 SHOWER STALL ASSEMBLY FIGURE 2 Shower Stall Assembly.	
1	PACZZ	4730-01-317-0694	0U9Z1	319K-AL20	WYE, QUICK DISCONNECT	1
2	PACZZ	4510-01-485-6257	98752	8611341-35	SHOWER CABINET DOOR, VINYL CLOTH.....	2
3	PACZZ	4510-01-396-5040	90598	8611336-400	SHOWER CABINET	6
4	PAFZZ	5340-01-487-6922	39428	3955T367	STRAP, RETAINING 2 IN W X 18 IN LG	4
5	PACZZ	7220-01-487-0342	0AK83	HEI15051	MAT, FLOOR 36 IN X 240 IN (20 FT) LONG.....	2
6	PACZZ	4510-01-486-4466	98752	8611319-5	ROD, SHOWER CURTAIN	6
7	PACZZ	4510-01-485-6209	98752	8611340-34	SHOWER CABINET, FLOOR PANEL ..	1
8	PAFZZ	4720-00-064-0832	96906	MS28741-8-1440	HOSE ASSEMBLY, NONMETALLIC	2
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

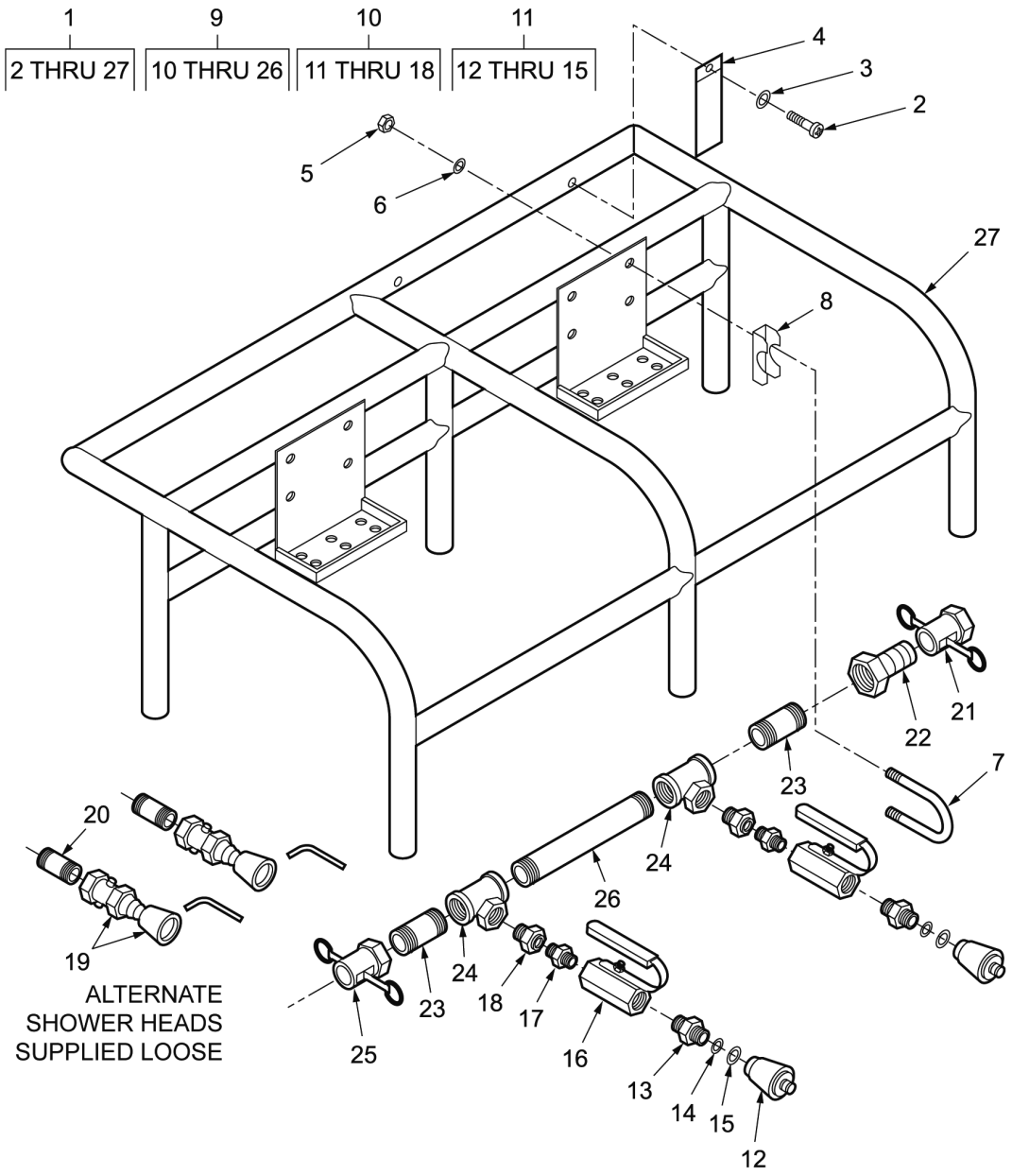


Figure 3. Shower Frame Assembly.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01 SHOWER STALL ASSEMBLY	
					FIGURE 3 Shower Frame Assembly.	
1	PAFFF	4510-01-394-1777	98752	8611312-4	FRAME ASSEMBLY, SHOWER	6
2	PAFZZ	5305-00-433-3711	80205	MS51861-35C	.SCREW, TAPPING	2
3	PAFZZ	5310-00-685-3744	88041	AN960C8	.WASHER, FLAT	2
4	PFFZZ	5340-01-352-2053	98752	8611342-36	.STRAP, WEBBING	2
5	PAFZZ	5310-00-889-2589	80205	MS21044C4	.NUT, SELF-LOCKING, HEXAGON	8
6	PAFZZ	5310-00-531-9515	88044	AN960C416	.WASHER, FLAT	8
7	PFFZZ	5306-00-457-1172	80205	NAS3104C11-12	.BOLT, U	4
8	XBFZZ		98752	8611315	.BRACKET, PIPE	4
9	XAFFF		98752	8611316	.MANIFOLD ASSEMBLY	1
10	XAFFF		98752	93107904	..HEAD ASSEMBLY, SHOWER	2
11	XAFFF		98752	93107905	...NOZZLE ASSEMBLY	1
12	PAFZZ	4510-01-218-6504	0AK83	38797	....SHOWER HEAD	1
13	XBFZZ		98752	93107906	....ADAPTER	1
14	PAFZZ	5330-01-220-7255	90598	10392	....GASKET	1
15	XBFZZ		98752	93107908	....WASHER	1
16	PAFZZ	4820-01-216-4319	57807	86-1-RT-1-C1	...VALVE, BALL	1
17	PBFZZ	4730-01-147-5427	81346	B687X539B	...NIPPLE, PIPE	1
18	PAFZZ	4730-00-817-6578	80204	ANSI/ASME B16.15 1/2X3/8MPT	...BUSHING, PIPE	1
19	PAFZZ	4510-01-316-7423	09HB4	BN4VP	.SHOWER HEAD (INCLUDES ALLEN WRENCH)	2
20	PAFZZ	4730-00-222-1839	81346	B687R-58B	..NIPPLE, PIPE	2
21	PAFZZ	4730-00-929-0791	58536	AA59326IX13	..CAP, QUICK DISCONNECT	1
22	PBFZZ	4730-00-141-3195	96906	MS27020-5	..COUPLING HALF, QUICK DISCONNECT	1
23	PAFZZ	4730-00-196-2010	81346	ASTM B687R-104R	..NIPPLE, PIPE	2
24	PFFZZ	4730-01-315-8249	96906	MS14309-16	..TEE, PIPE	2
25	PAFZZ	4730-01-042-5265	58536	AA59326V13	..COUPLING HALF, QUICK DISCONNECT	1
26	MFFZZ		98752	8611317	..PIPE, MANIFOLD MAKE FROM (81337) 543-8242, 1.00 IN PIPE, SCH 40 BRASS, 33 IN LG,1-11 1/2 MALE NPT 2 PL, 1.00 NOMINAL	1
27	XAFZZ		98752	8611313	.FRAME, TOP	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

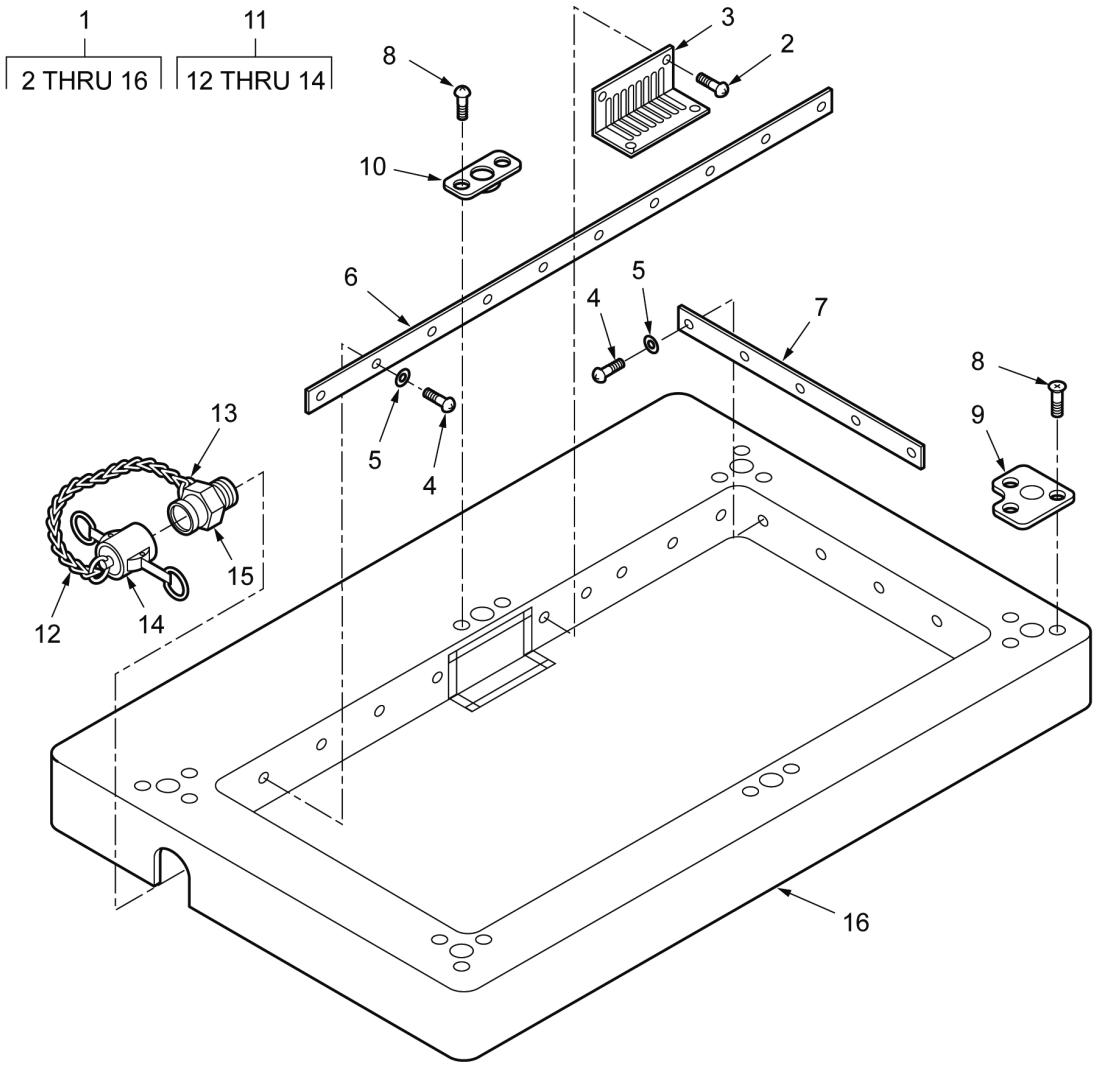


Figure 4. Base, Bath Unit, Portable.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01 SHOWER STALL ASSEMBLY FIGURE 4 Base, Bath Unit, Portable.	
1	PAFFF	4510-01-578-8101	81337	5-13-8232	BASE, BATH UNIT PORTABLE	1
2	XDFZZ		98752	8611307 ITEM 173	.SCREW, CRES, OVAL HEAD, SHEET METAL NO. 10 X 1/2 IN LONG.....	4
3	PAFZZ	4510-01-351-5244	98752	8611308	.DRAIN, FLOOR.....	1
4	PAFZZ	5305-00-433-3711	80205	MS51861-35C	.SCREW, TAPPING.....	30
5	PAFZZ	5310-00-685-3744	88041	AN960C8	.WASHER, FLAT	30
6	MFFZZ		98752	8611309-63	.FASTENER TAPE, HOOK MAKE FROM HOOK AND LOOP (81337) 6-1-5876, 65.50 IN LG TYPE 1, CLASS 1, 80 HOOK	2
7	MFFZZ		98752	8611309-64	.FASTENER TAPE, HOOK MAKE FROM hook and loop (81337) 6-1-5876, 26.50 IN LG TYPE 1, CLASS 1, 80 HOOK	2
8	XDFZZ		98752	8611307 ITEM 177	.SCREW, CRES, OVAL HEAD, SHEET METAL NO. 8 X 5/8 IN LONG.....	16
9	PAFZZ	4820-01-316-1094	98752	8611310-168	.LINER, VALVE.....	4
10	PAFZZ	4510-01-315-7695	98752	8611310-169	.TUBE LINER, SHOWER STALL	2
11	XDFFF		98752	93107924	.CAP, CAM LOCKING	1
12	MFFZZ		98752	93107924/CHAIN	..CHAIN, SAFETY, MAKE FROM CHAIN (81348) RRC2741/II,3,SST,35,18 IN LG.	1
13	XDFZZ		97403	13228E3480	..RING, KEYCHAIN.....	1
14	PAFZZ	4730-00-649-9100	72661	200-DC-AL	..CAP, QUICK DISCONNECT	1
15	PAFZZ	4730-00-938-7997	58536	AA59326/3A-6-A	.COUPLING HALF, QUICK DISCONNECT	2
16	XAFZZ		98752	8611307/BASE	.BASE, MOLDED, WITH SUMP.....	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

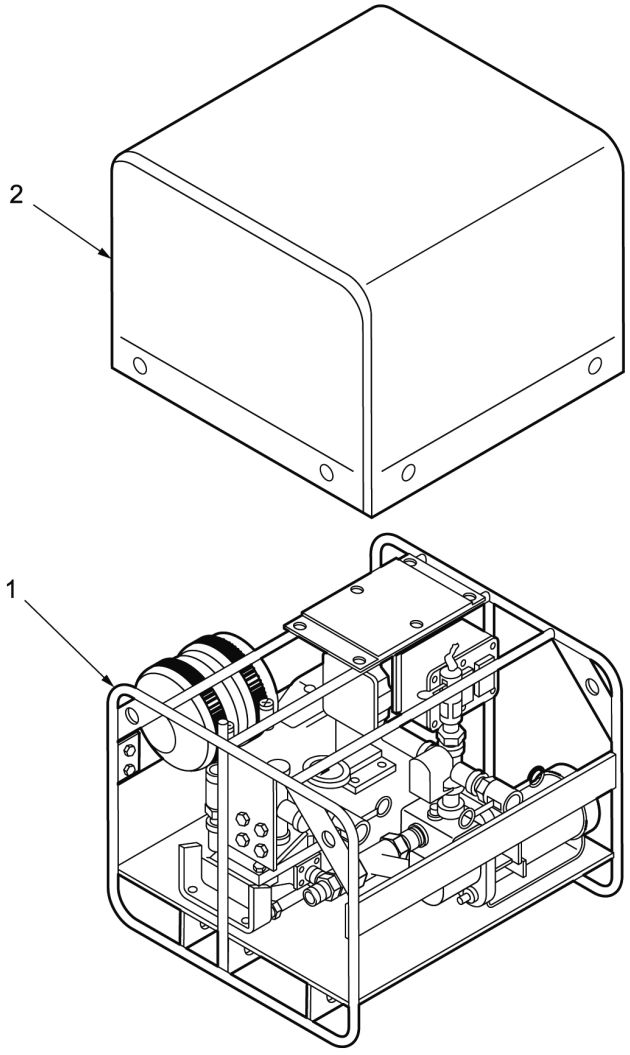


Figure 5. Water Pump Assembly.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WATER PUMP ASSEMBLY	
					FIGURE 5 Water Pump Assembly.	
1	PAFFF	4320-01-412-8596	90598	8611320-150	PUMP UNIT, RECIPROCATING	1
2	PAFZZ	5340-01-486-6564	98752	8611343-8	.COVER, ACCESS.....	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

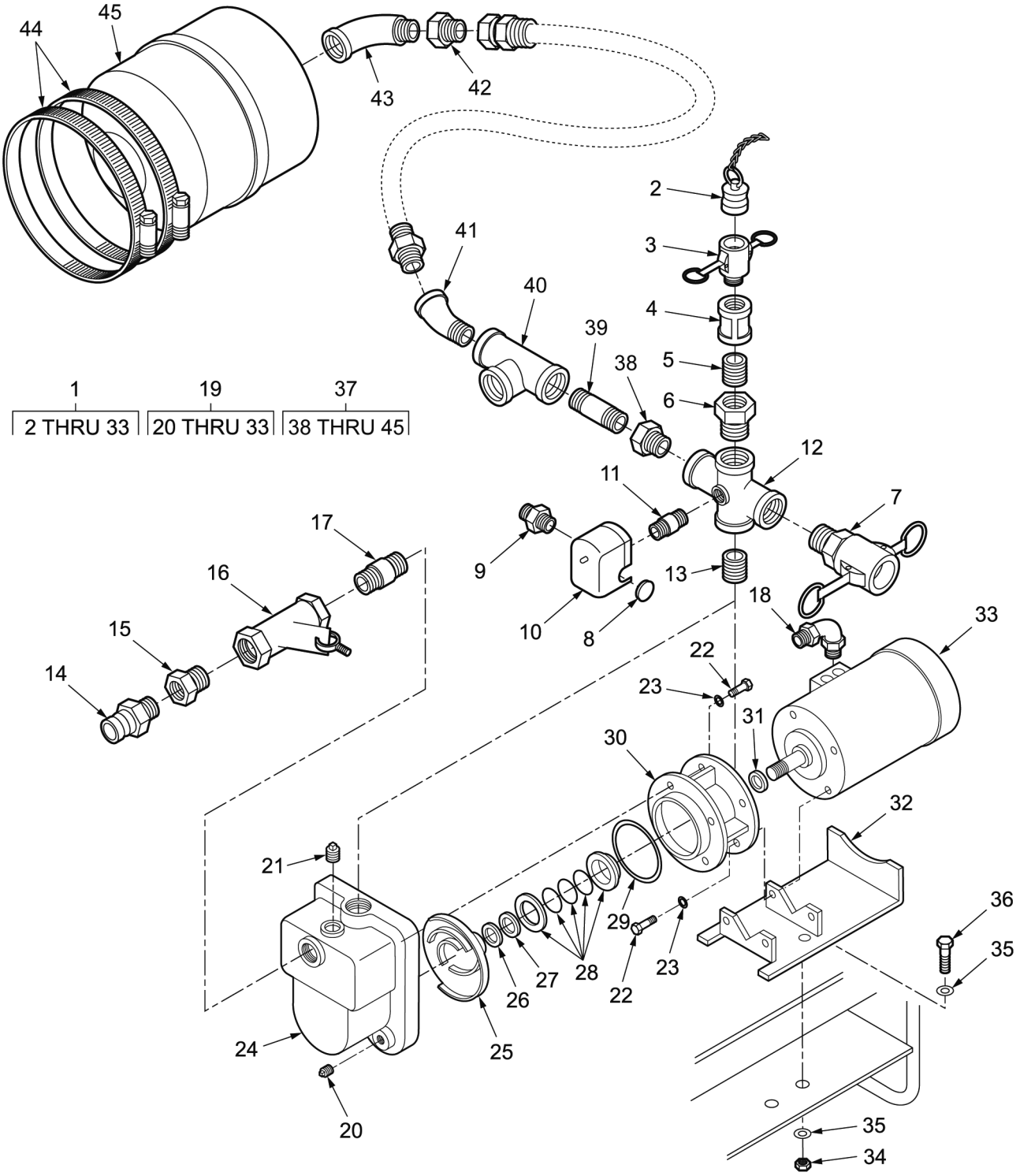


Figure 6. Supply Pump.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WATER PUMP ASSEMBLY	
					FIGURE 6 Supply Pump.	
1	XDFFF		98752	8611332-69	.PUMP, WATER SUPPLY	1
2	PAFZZ	4730-00-360-0715	58536	AA59326XII3	..PLUG, QUICK DISCONNECT	1
3	PAFZZ	4730-00-360-0710	58536	AA59326VII13	..COUPLING HALF, QUICK DISCONNECT	1
4	PAFZZ	4730-00-221-2132	88044	AN910-8	..COUPLING, PIPE	1
5	PAFZZ	4730-00-014-4615	81346	B687R-96B	..NIPPLE, PIPE	1
6	PAFZZ	4730-00-277-1874	96906	MS14315-19X	..BUSHING, PIPE	1
7	PFFZZ	4730-00-203-1010	58536	AA59326/7-5-A-2	..COUPLING HALF, QUICK DISCONNECT	1
8	PAFZZ	5340-01-114-2314	03743	S50	..BUTTON, PLUG	1
9	PAFZZ	5975-00-578-3666	58536	AA50552-I-3-I-1	..BOX CONNECTOR, ELECTRICAL, LIQUIDTITE, 1/2 IN STRAIGHT	1
10	PAFZZ	5930-00-272-1346	56365	9013FSG2	..SWITCH, PRESSURE	1
11	PAFZZ	4730-00-222-1837	81348	B687R-20B	..NIPPLE, PIPE	1
12	XDFZZ		98752	93107920	..CROSS, BRASS	1
13	PAFZZ	4730-00-222-1843	81346	B687R-134B	..NIPPLE, PIPE	1
14	PAFZZ	4730-00-084-7435	58536	AA59326III13	..COUPLING HALF, QUICK DISCONNECT	1
15	PAFZZ	4730-00-196-0830	81349	WW-P-471BEQBUFC	..BUSHING, PIPE	1
16	PAFZZ	4730-00-707-6621	81718	187A	.STRAINER, SEDIMENT	1
17	PAFZZ	4730-00-196-2025	96906	MS51846-141	..NIPPLE, PIPE	1
18	PFFZZ	5975-01-399-0620	3743	NL90-50L	..BOX CONNECTOR, ELECTRICAL, WATERTIGHT, 90 DEG, 1/2 INCH	1
19	PAFFF	4320-00-707-5971	96046	027458T	..PUMP UNIT, CENTRIFUGAL	1
20	XDFZZ		10190	3/8-18	...PLUG, PIPE, SQUARE HEAD, 3/8 INCH-18 NPT (CASE DRAIN)	1
21	XDFZZ		10190	3/4-14	...PLUG, PIPE, SQUARE HEAD, 3/4 INCH-14 NPT (CASE FILL)	1
22	XDFZZ		10190	3/8-16UNCX1	...SCREW, CAP, HEX HEAD 3/8-16 UNC X 1 LG	8
23	PAFZZ	5310-01-491-9727	56833	3/8	...WASHER, LOCK, 3/8 (ZINC PLATED)	8
24	XAFZZ		10190	P5302	...CASE, PUMP 1-1/2 INCH NPT SUCTION AND DISCHARGE PORTS	1
25	PAFZZ	4320-01-485-9898	10190	P3229B-C2	...IMPELLER, PUMP, CENTRIFICAL, 3/8 INCH BLADE WIDTH	1
26	XDFZZ		10190	P3238	...SHIM, IMPELLER .005 INCH	19
27	XBFZZ		10190	P3239	...SHIM, IMPELLER. 010 INCH THICK, STAINLESS STEEL	19
28	PAFZZ	4320-01-486-0660	67209	16-062-227	...SEAL ASSEMBLY, SHAFT	1
29	PAFZZ	5331-01-359-1502	10190	P3397	...O-RING 4-3/4 INCH O.D. X 4-1/2 INCH I.D. X 1/8 INCH	1
30	XAFZZ		10190	P5350	...SIDE, PUMP	1
31	XDFZZ		10190	P3241	...SLINGER, SHAFT	1
32	XBFZZ		10190	P5410	...BASE, MOUNTING	1
33	PAFZZ	6105-01-348-5895	05472	JM3550	...MOTOR, ALTERNATING CURRENT	1
34	PAFZZ	5310-00-914-6028	81349	M45913/1-6CS3	.NUT, SELF-LOCKING, HEXAGON	4

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
35	PAFZZ	5310-00-167-0804	80205	NAS1149C0663R	.WASHER, FLAT	8
36	PAFZZ	5305-00-821-3869	80204	B1821BH038C175N	.SCREW, CAP, HEXAGON HEAD	4
37	PAFZZ	4730-00-277-1874	96906	MS14315-19X	.BUSHING, PIPE.....	1
38	PAFZZ	4730-00-014-4615	81346	B687R-96B	.NIPPLE, PIPE	1
39	PAFZZ	4730-01-126-0203	96906	MS14305-6UA	.TEE, PIPE	1
40	PFFZZ	4730-00-231-3909	81343	AS4855-08	.ELBOW, PIPE	1
41	PAFZZ	4730-01-060-6467	96906	MS14315-10X	.BUSHING, PIPE.....	2
42	PAFZZ	4730-00-595-0141	96906	MS51952-5	ELBOW, PIPE	1
43	PAFZZ	4730-01-180-9931	08484	HP-5	.CLAMP, HOSE	2
44	PFFZZ	4510-01-317-2799	25681	V6P	.TANK, DIAPHRAGM, SHOCK	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

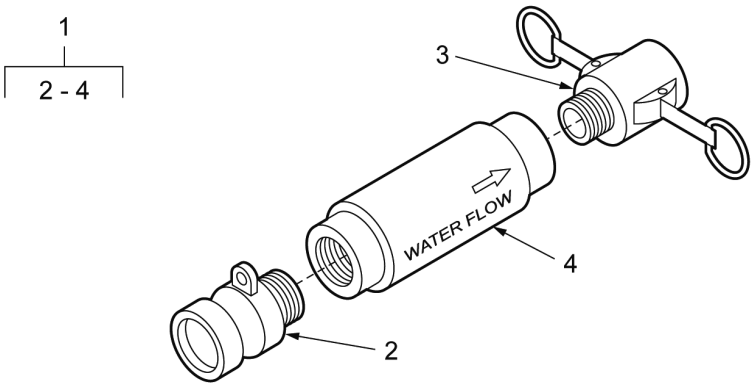


Figure 7. Check Valve Assembly.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WATER PUMP ASSEMBLY FIGURE 7 Check Valve Assembly.	
1	PAFZZ	4820-01-396-1368	98752	8611355-18	VALVE, CHECK ASSEMBLY	1
2	PAFZZ	4730-00-084-7435	58536	AA59326III13	.COUPLING HALF,QUICK DISCONNECT	1
3	PAFZZ	4730-00-360-0710	58536	AA59326/7-3-A-1	.COUPLING HALF,QUICK DISCONNECT	1
4	PAFZZ	4820-01-316-0088	51469	503SB	.VALVE,CHECK.....	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

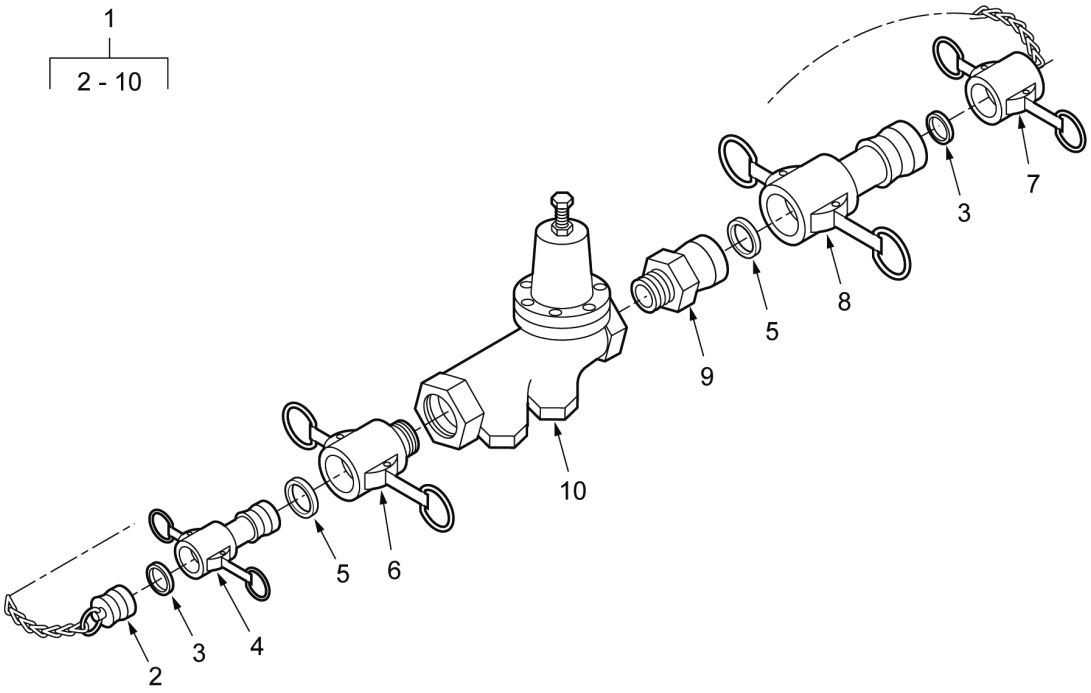


Figure 8. Regulator Valve Assembly.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WATER PUMP ASSEMBLY	
					FIGURE 8 Regulator Valve Assembly.	
1	PAFZZ	4820-01-600-8892	98752	93107903	VALVE, REGULATOR ASSEMBLY	1
2	PAFZZ	4730-01-036-7498	58536	AA59326/11-3-B	.PLUG,QUICK DISCONNECT	1
3	PAFZZ	5330-00-088-9167	96906	MS27030-3	.GASKET.....	2
4	PAFZZ	4730-01-485-8408	58536	AA59326/12-4-B-1	.REDUCER,QUICK DISCONNECT	1
5	PAFZZ	5330-00-360-0595	58536	AA59326-G5	.GASKET.....	2
6	PAFZZ	4730-01-115-5175	58536	AA59326/7-5-B-2	.COUPLING HALF,QUICK DISCONNECT	1
7	PAFZZ	4730-01-035-9608	58536	AA59326IX23	.CAP,QUICK DISCONNECT	1
8	PAFZZ	4730-01-485-8408	58536	AA59326/12-4-B-1	. REDUCER,QUICK DISCONNECT	1
9	PAFZZ	4730-00-958-7117	58536	AA59326III25	.COUPLING HALF,QUICK DISCONNECT	1
10	PAFZZ	4820-01-485-9203	79227	25AUB-Z3-1.5	.VALVE,REGULATING,FLUID.....	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

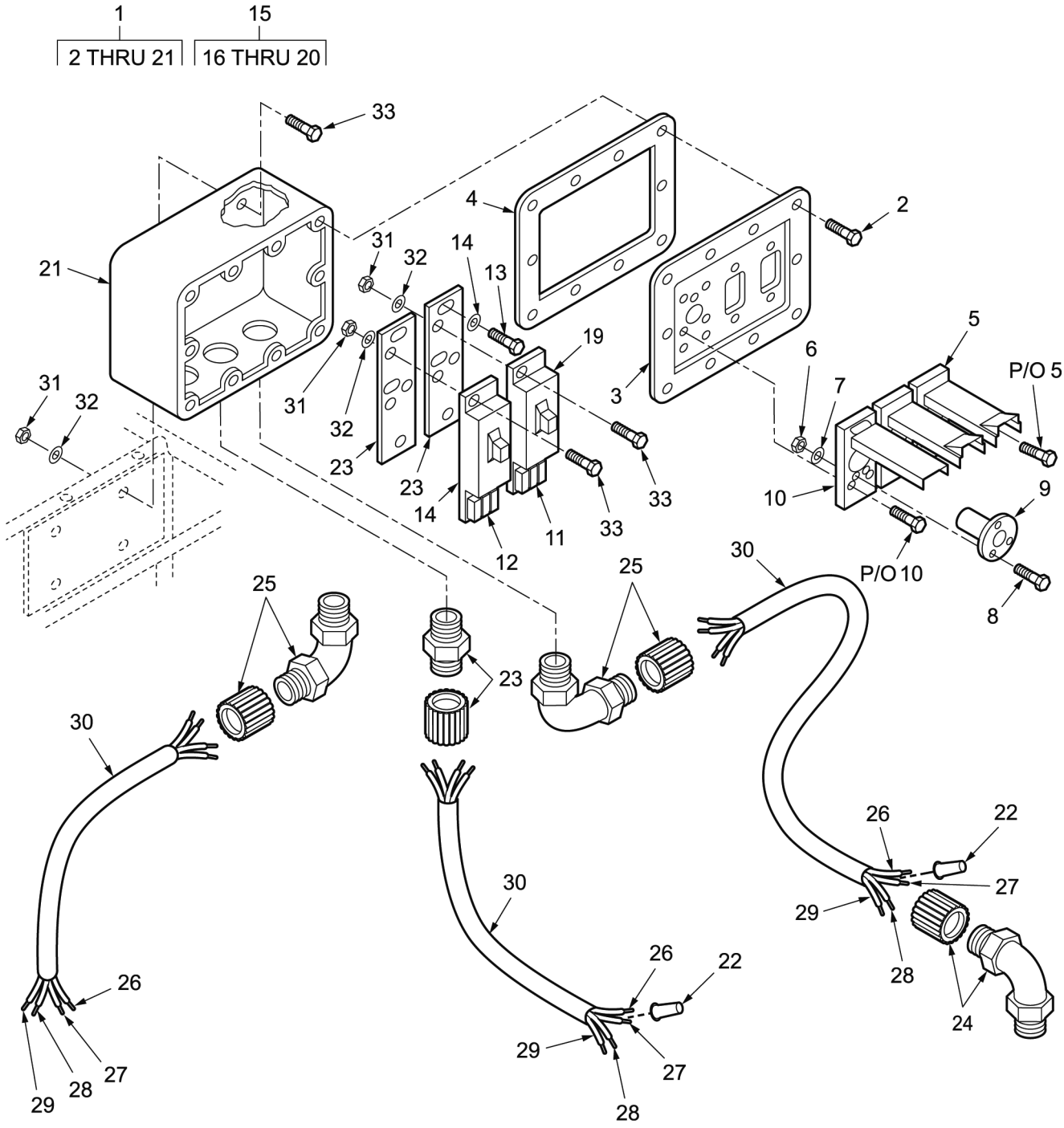


Figure 9. Switch Box Assembly.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WATER PUMP ASSEMBLY FIGURE 9 Switch Box Assembly.	
1	AFFFF		98752	8611325	.SWITCH BOX ASSEMBLY	1
2	PBFZZ	5305-01-393-7785	90598	8611325-176	..SCREW, MACHINE SS C/S 10-24 X 5/8 INCH LONG.....	10
3	XDFZZ		98752	8611327-167	..COVER, SWITCH BOX.....	1
4	PCFZZ	5330-01-393-8435	90598	8611327-62	..GASKET.....	1
5	PAFZZ	5975-01-414-6995	71183	GFRWPV	..PLATE, WALL, ELECTRICAL	2
6	PFFZZ	5310-01-393-9933	90598	8611325-190	..NUT, PLAIN, HEXAGON 4-40 UNC-2B, CM/ST, ZINC PLATED.....	3
7	XDFZZ		90598	8611325-185	..WASHER, FLAT CM/ST, ZINC PLATED #4, SPLIT	3
8	PAFZZ	5305-00-889-2998	80205	MS35206-216	..SCREW, MACHINE	3
9	XDFZZ	5935-01-314-6048	71183	72120MB	..CONNECTOR, PLUG, ELECTRICAL	1
10	PAFZZ	5935-01-323-5722	6Z415	7427B	..COVER, ELECTRICAL CONNECTOR.....	1
11	PAFZZ	5999-01-071-0370	89946	H28	..HEATER, THERMAL RELEASE	3
12	PAFZZ	5999-01-136-3988	89946	FH31	..HEATER, THERMAL RELEASE	3
13	PAFZZ	5305-00-088-9044	96906	MS35207-260	..SCREW, MACHINE	6
14	PFFZZ	5310-01-393-9934	90598	8611325-229	..WASHER, LOCK CM/ST, ZINC PLATED #10, SPLIT	6
15	XDFFF		98752	93107912	..STARTER, MOTOR ASSY.....	2
16	XDFZZ		98752	93107912 ITEM 190	...NUT, HEX, NO. 8-32, ZINC PLATED	4
17	XDFZZ		98752	93107912 ITEM 185	...LOCKWASHER, NO. 8, ZINC PLATED	4
18	XDFZZ		98752	93107912 ITEM 230	...SCREW, PAN HEAD, NO. 8-32 X.625 LONG, ZINC PLATED	4
19	PAFZZ	6110-01-317-4827	79500	B100-MOC	...STARTER, MOTOR	1
20	XDFZZ		98752	93107923	...PLATE, STARTER.....	1
21	XDFZZ		98752	8611326	..BOX, SWITCH	1
22	PAFZZ	5940-00-924-7831	56501	RP7	.SPLICE, CONDUCTOR	12
23	PAFZZ	5975-00-578-3666	58536	AA50552-I-3-I-1	.BOX CONNECTOR, ELECTRICAL, LIQUIDTITE, 1/2 IN STRAIGHT	1
24	XDFZZ		56501	LT451	.CONNECTOR, ELECTRICAL, LIQUIDTITE, 45 DEGREE X 1/2 INCH STEEL	1
25	PFFZZ	5975-01-399-0620	3743	NL90-50L	.BOX CONNECTOR, ELECTRICAL, WATERTIGHT, 90 DEG,1/2 INCH	2
26	MFFZZ		98752	8611320 ITEM 215	.WIRE, ELECTRICAL, 4 FEET LONG, MAKE FROM WIRE, ELECTRICAL (81343) M22759/11-12-5	1
27	MFFZZ		98752	8611320 ITEM 216	.WIRE, ELECTRICAL, 4 FEET LONG, MAKE FROM WIRE, ELECTRICAL (81343) M22759/11-18-1	1
28	MFFZZ		98752	8611320 ITEM 217	.WIRE, ELECTRICAL, 4 FEET LONG, MAKE FROM WIRE, ELECTRICAL (81343) M22759/11-22-2	1
29	MFFZZ		98752	8611320 ITEM 218	.WIRE, ELECTRICAL, 4 FEET LONG, MAKE FROM WIRE, ELECTRICAL (81343) AS22759/11	1
30	MFFZZ		98752	8611320 ITEM 220	.CONDUIT, LIQUIDTITE 4 FEET LONG, MAKE FROM (70510) TYPE CW, 1/2 INCH DIA	1

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
31	XDFZZ		98752	8611320 ITEM 189	.NUT, HEX, 1-4-20 UNC-2B CM/ST ZINC PLATED.....	6
32	PFFZZ	5310-01-393-6793	90598	8611320-182	.WASHER, LOCK CM-ST, ZINC PLATED, 1/4 INCH	4
33	PFFZZ	5305-01-393-7098	90598	8611320-194	.SCREW, MACHINE CM-ST, ZINC PLATED, 1/4-20 UNC-2A X 1 INCH	6
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

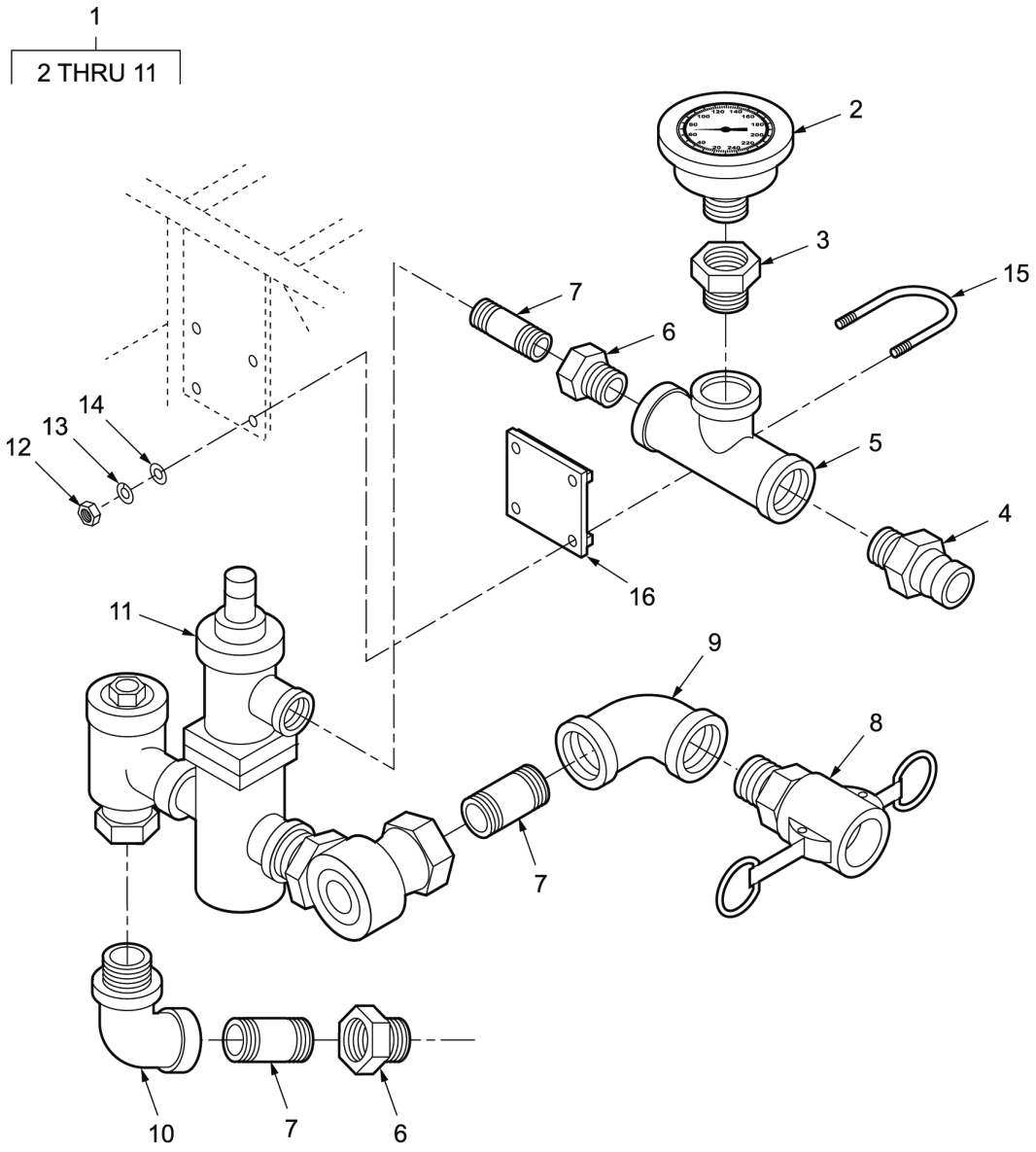


Figure 10. Temperature Regulator Valve.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WATER PUMP ASSEMBLY FIGURE 10 Temperature Regulator Valve.	
1	PAFFF	4820-01-395-7276	98752	8611328-25	.VALVE, REGULATING, TEMPERATURE ASSEMBLY	1
2	PAFZZ	6685-01-486-2157	0AK83	HEI15038	..THERMOMETER, SELF-INDICATING	1
3	PAFZZ	4730-00-277-5615	81343	AS4861.11	..BUSHING, PIPE	1
4	PAFZZ	4730-00-084-7435	58536	AA59326III13	..COUPLING HALF, QUICK DISCONNECT	1
5	PAFZZ	4730-01-126-0203	96906	MS14305-6UA	..TEE, PIPE	1
6	PAFZZ	4730-01-060-6467	96906	MS14315-10X	..BUSHING, PIPE	2
7	PAFZZ	4730-01-283-8172	81346	B687R-81B	..NIPPLE, PIPE	3
8	PAFZZ	4730-00-360-0710	58536	AA59326CII13	..COUPLING HALF, QUICK DISCONNECT	1
9	PAFZZ	4730-00-253-5763	96906	MS14308-5	..ELBOW, PIPE	1
10	PAFZZ	4730-00-595-0141	96906	MS51952-5	..ELBOW, PIPE	1
11	PAFZZ	4820-00-233-7928	98752	8611329-154	..VALVE, REGULATING, TEMPERATURE	1
12	PAFZZ	5310-00-143-6102	81349	M45913-1-4FS3	.NUT, SELF-LOCKING, HEXAGON	4
13	PAFZZ	5310-00-933-8121	80205	MS35338-139	.WASHER, LOCK	4
14	PFFZZ	5310-00-531-9515	88044	AN960C416	.WASHER, FLAT	4
15	PAFZZ	5306-01-326-1029	80205	NAS3104C20-24	.BOLT, U	2
16	XDFZZ		98752	8611323-30	.BRACKET	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

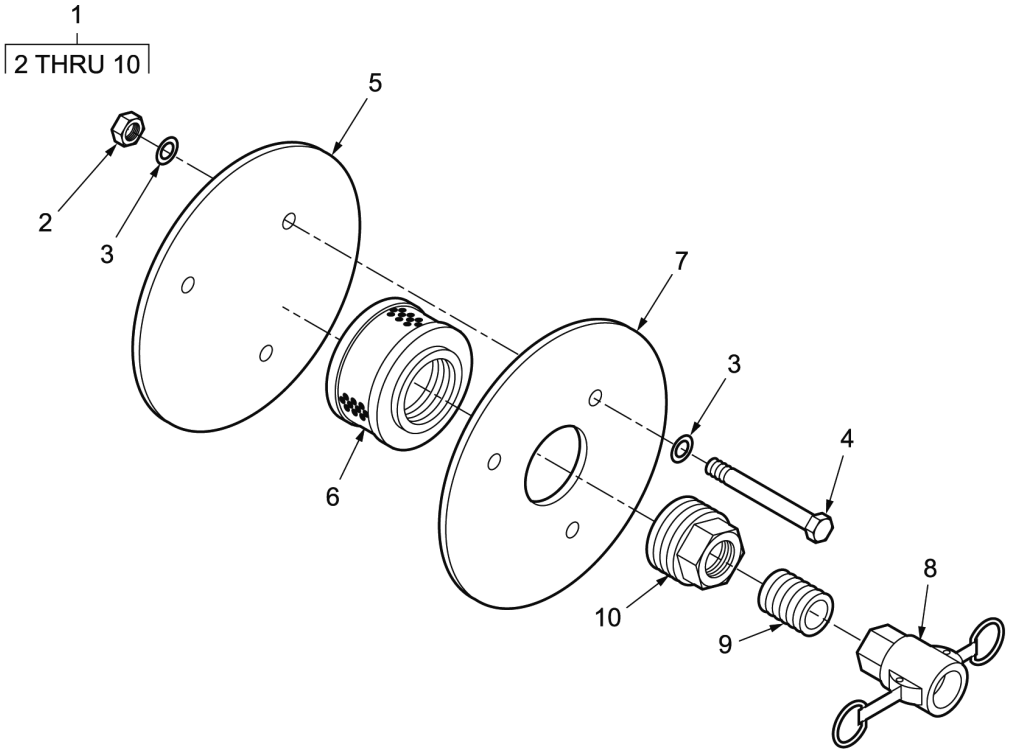


Figure 11. Suction Strainer.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WARER PUMP ASSEMBLY FIGURE 11 Suction Strainer.	
1	PAFFF	4730-01-315-8304	90598	8611354-17	STRAINER, SUCTION	1
2	XBFZZ		98752	8611354	.NUT, ELASTIC STOP .250-20 SST, 300 SERIES	3
3	PAFZZ	5310-00-531-9515	88044	AN960C416	.WASHER, FLAT	6
4	XDFZZ		98752	8611354	.BOLT, HEX HEAD .250-20 X 5 IN LONG, SST 300	3
5	XAFZZ		98752	8611354-250	.FIBERGLASS DISK	1
6	PBFZZ	4730-01-315-8305	25795	1P690-2	.STRAINER, SUCTION 2 INCH, 16 GAGE	1
7	XAFZZ		98752	8611354-251	.FIBERGLASS DISK	1
8	PAFZZ	4730-01-042-5265	58536	AA59326V13	.COUPLING HALF, QUICK DISCONNECT	1
9	PFFZZ	4730-01-315-8245	98752	8611354-143	.NIPPLE, PIPE 1 INCH X 2 INCH LONG	1
10	PAFZZ	4730-00-196-0955	96906	MS14315-24Y	.BUSHING, PIPE 1 INCH X 2 INCH LONG	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

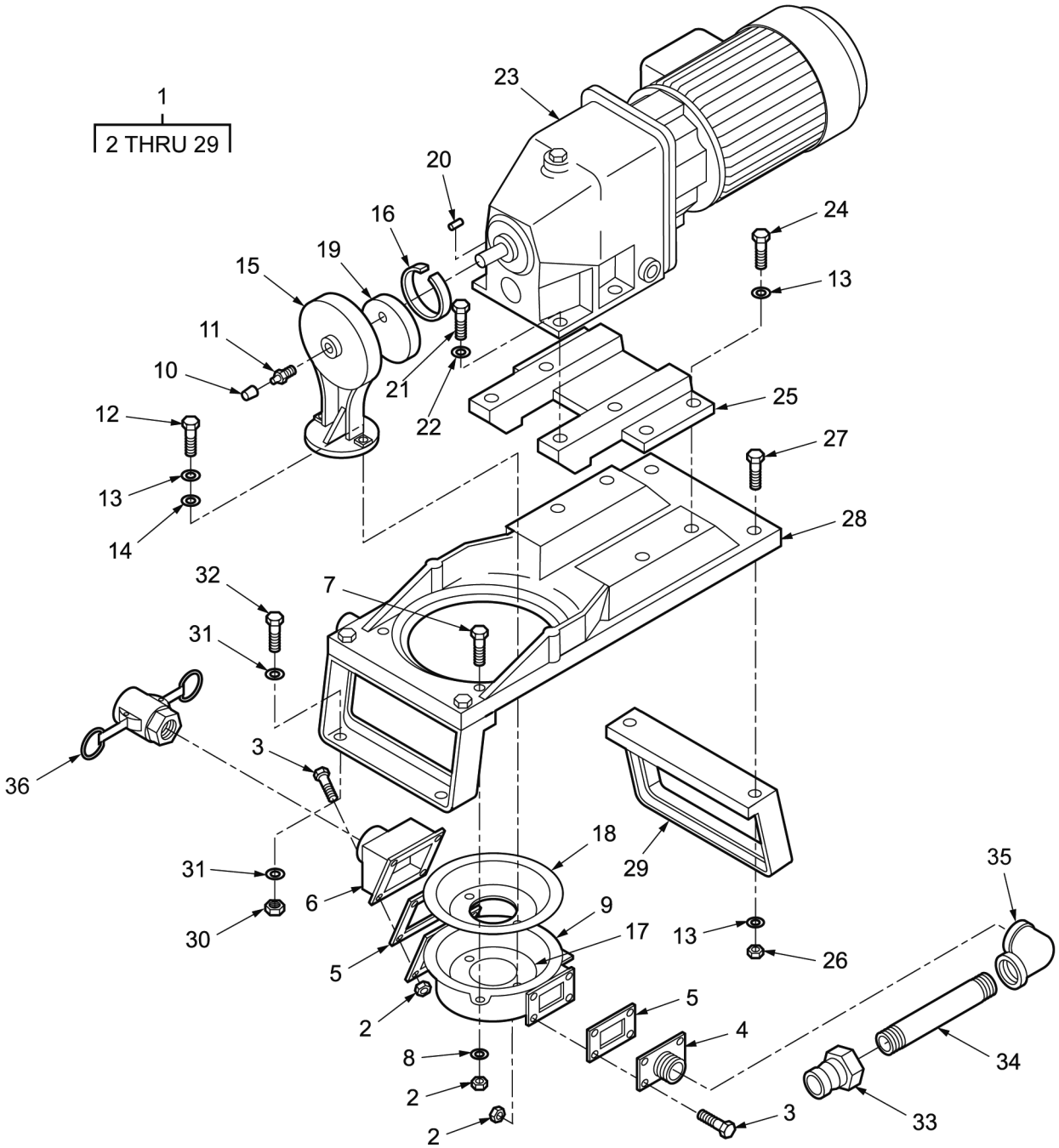


Figure 12. Reciprocating Pump.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WATER PUMP ASSEMBLY	
					FIGURE 12 Reciprocating Pump.	
1	PAFFF	4320-01-316-7383	98752	8611331 FIND NO 165	.PUMP UNIT, RECIPROCATING	1
2	XBFZZ		19548	1-4"-20NUT	..NUT, HEXHEAD	12
3	XBFZZ		19548	1-4"-20 X 1 HHC'S	..SCREW, HEXHEAD CAP STAINLESS STEEL, 1-4"-20 X 1"	8
4	XAFZZ		19548	160-B-68A	..CHAMBER, SUCTION, ALUMINUM 2 INCH	1
5	PAFZZ	4320-01-323-5967	19548	160-G-107	..VALVE FLAPPER, PUMP	2
6	PFFZZ	4730-00-937-5488	19548	160-B50A-200	..ELBOW, FLANGE TO PIPE	1
7	XBFZZ		19548	1-4"-20 X 2 25HHCS	..SCREW, HEXHEAD, CAP, STAINLESS STEEL, 1-4"-20 X 2.25"	4
8	XBFZZ		19548	1-4"LOCK WASHER	..WASHER, LOCK, STAINLESS STEEL, 1-4"	4
9	XBFZZ		19548	160-C-196	..BASE, PUMP	1
10	PAFZZ	5340–01–533–6806	19548	161-A-399	..CAP, DUST	1
11	PAFZZ	4730–01–323–5009	19548	161-A-150	..FITTING, GREASE	1
12	XBFZZ		19548	3-8"- 16 X 1.25 HHC'S	..SCREW, HEXHEAD, CAP, STAINLESS STEEL, 3-8"-16 X 2.25"	2
13	XDFZZ		19548	3-8" LOCK WASHER	..WASHER, LOCK,STAINLESS STEEL, 3-8"	10
14	PAFZZ	5310–01–393–8514	19548	160-A-1200	..WASHER, SEAL	2
15	XAFZZ		19548	161-A-1213	..HOUSING, ASSEMBLY, ECCENTRIC	1
16	XDFZZ		19548	161-A-1161	..RING, SNAP	1
17	PFFZZ	4320-01-133-1830	19548	160-A-906	..SUPPORT PLATE, PUMP	1
18	PCFZZ	4820-01-393-5286	19548	113H-0	..DIAPHRAGM, VALVE, FLAT	1
19	XDFZZ		19548	161-A-168	..DISK, ECCENTRIC	1
20	XDFZZ		19548	NO NUMBER	..KEY, STAINLESS STEEL, 1-4" X 1-4 X 1.5	1
21	XDFZZ		19548	5-16" - 18 X 1.25 HHC'S	..SCREW, HEXHEAD, CAP, STAINLESS STEEL 5-16"-18 X 1.25 INCH	4
22	XDFZZ		19548	5-16" LOCK WASHER	..WASHER, LOCK, STAINLESS STEEL, 5-16"	4
23	PAFZZ	6105-01-393-8951	19548	161-A-1214	..MOTOR, ALTERNATING CURRENT	1
24	XDFZZ		19548	3-8"-16 X 1" HHCS	..SCREW, HEXHEAD, CAP,STAINLESS STEEL 3-8"-16 X 1 INCH	4
25	XBFZZ		19548	161-C-390	..PLATE, ADAPTER, MOTOR	1
26	XDFZZ		19548	3/8"-16 NUT	..NUT HEX, STAINLESS STEEL,3/8"-16	4
27	XDFZZ		19548	3/8"-16X2" HHCS	..SCREW, HEX HEAD, CAP,STAINLESS STEEL,3/8"-16 X 2 INCH	4
28	XBFZZ		19548	161-D-49	..FRAME, PUMP	1
29	XBFZZ		19548	161-C-389	..LEG, PUMP FRAME	2
30	PAFZZ	5310-00-914-6028	81349	M45913/1-6CS3	.NUT, SELF-LOCKING, HEXAGON	4
31	PAFZZ	5310-00-167-0804	80205	NAS1149C0663R	.WASHER, FLAT	8

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
32	PAFZZ	5305-00-821-3869	80204	B1821BH038C175N	.SCREW, CAP, HEXAGON HEAD	4
33	PAFZZ	4730-00-079-1362	58536	AA59326/1-6-A	.COUPLING HALF, QUICK DISCONNECT	1
34	PAFZZ	4730-00-196-2035	81346	B687R-162B	.NIPPLE, PIPE	1
35	PAFZZ	4730-01-315-8253	96906	MS90522-3K3	.ELBOW, DRAINAGE PIPE	1
36	PAFZZ	4730-00-088-9285	58536	AA59326/7-6-A-1	.COUPLING HALF, QUICK DISCONNECT	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

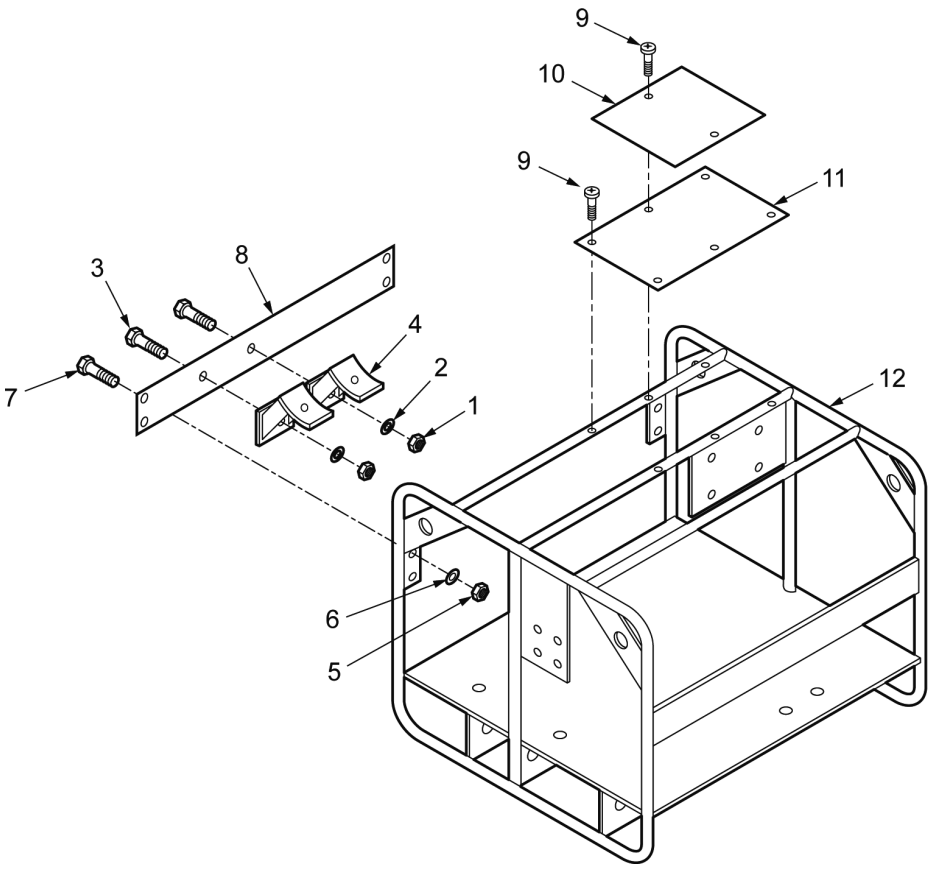


Figure 13. Pump Frame.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 WATER PUMP ASSEMBLY FIGURE 13 Pump Frame.	
1	XDFZZ		98752	8611320 ITEM 189	.NUT, HEX, PLATED, 1/4-20,UNC-2B..	2
2	PFFZZ	5310-01-393-6793	90598	8611320-182	.WASHER, LOCK CM/ST ZINC PLATED 1/4 INCH	2
3	PFFZZ	5305-01-393-7098	90598	8611320-194	.SCREW, MACHINE CM/ST, ZINC PLATED, 1/4-20 UNC-2A X 1 INCH LG...	2
4	XBFZZ		98752	93107915	BRACKET, LOWER-TANK.....	2
5	XDFZZ		98752	8611320 ITEM 192	.NUT, HEX, CM/ST, ZINC PLATED, 3/8-16 INCH.....	4
6	XDFZZ		98752	8611320 ITEM 184	.WASHER, LOCK, CM/ST, 3/8 INCH, ZINC PLATED.....	4
7	XDFZZ		98752	8611320 ITEM 196	.BOLT, HEX, CM/ST, ZINC PLATED, 3/8-16 X 1-1/4	4
8	XDFZZ		94833	8611324-K57	.PLATE	1
9	PAFZZ	5305-00-433-3711	80205	MS51861-35C	.SCREW, TAPPING.....	6
10	XDFZZ		94833	8611334K	.PLATE, IDENTIFICATION AND INSTRUCTION	1
11	XDFZZ		98752	8611335	.PLATE, MOUNTING, INSTRUCTION PLATE.....	1
12	XDFFF		98752	8611321	.FRAME, PUMP	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

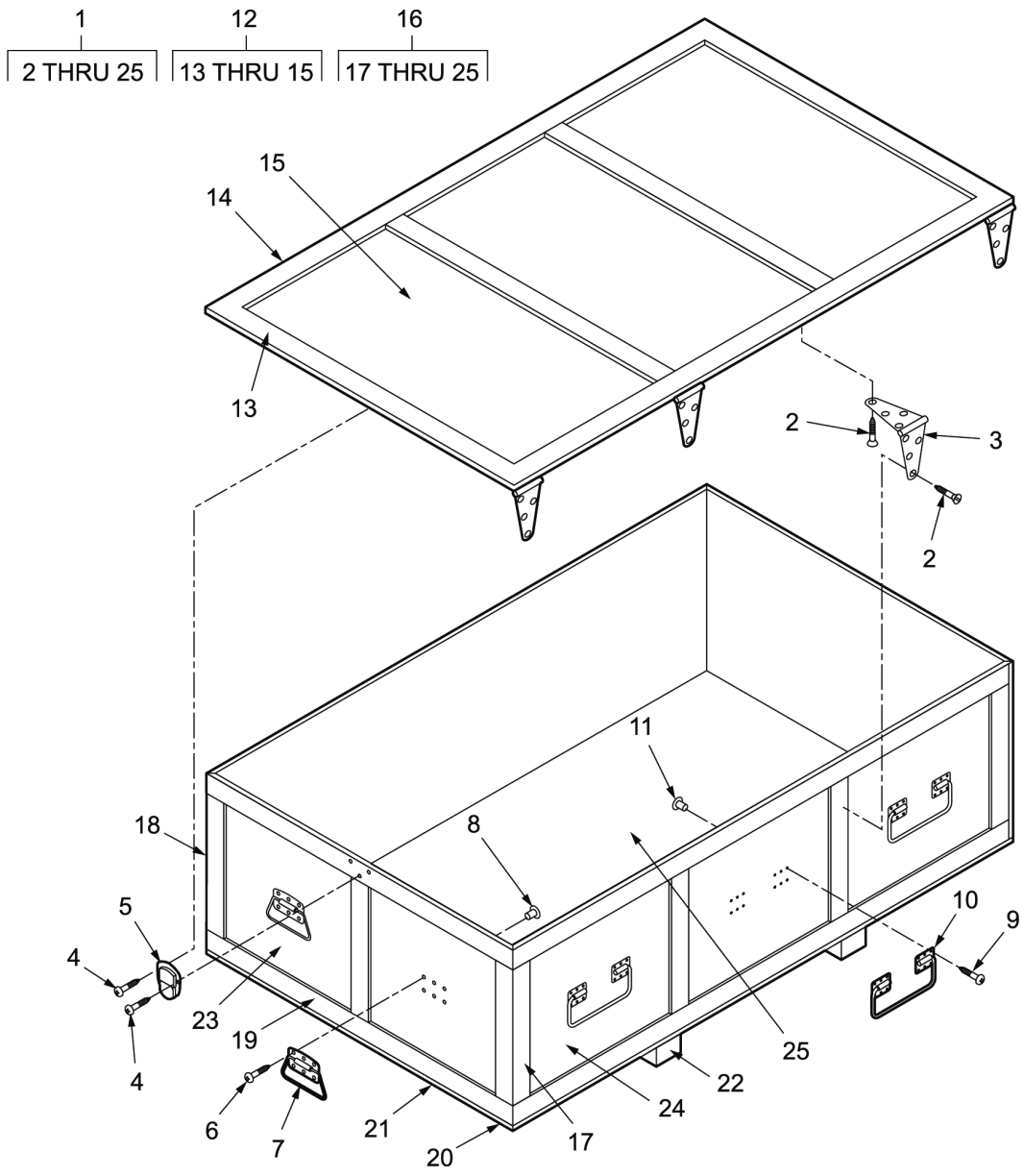


Figure 14. Portable Field Shower Storage Container.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 03 PORTABLE FIELD SHOWER STORAGE CONTAINER FIGURE 14 Portable Field Shower Storage Container.	
1	AFFFF		94833	SK17025-1	CONTAINER, STORAGE, PORTABLE FIELD SHOWER, (ASSEMBLE FROM ITEMS 2-16)	6
2	XDFZZ		94833	53581-9-14	.SCREW, WOOD, FLAT HEAD, ZINC PLATED	32
3	XDFZZ		94833	SK17073	.HINGE, STRAP	4
4	XDFZZ		39428	90011A153	.SCREW, WOOD, SLOTTED, 1.00 INCH LG	24
5	XDFZZ		94833	500K2122	.LATCH, LINK, DRAW PULL	4
6	PAFZZ	5305-00-958-5246	80205	MS35190-289	.SCREW, MACHINE	20
7	XDFZZ		94833	500K2132	.HANDLE, BAIL, CHEST	4
8	PAFZZ	5310–01–483–8508	39428	90975A025	.NUT,PLAIN,BARREL, 1/4-20 UNC.....	20
9	PAFZZ	5305-00-984-6210	80205	MS35206-263	.SCREW, MACHINE	60
10	XDFZZ		94833	500K2121	.HANDLE, FOLDING.....	6
11	PAFZZ	5310–01–486–7136	39428	90975A041	.NUT,PLAIN,PLATE 10-24 UNC.....	60
12	AFFFF		94833	SK17027-1	.LID, STORAGE CONTAINER (ASSEMBLE FROM ITEMS 13-15)	1
13	MFFZZ		94833	SK17027 ITEM 2	..LUMBER, MAKE FROM 1 X 3 PINE LUMBER (81348) MML751, 41.25 IN LONG.....	4
14	MFFZZ		94833	SK17027 ITEM 3	..LUMBER, MAKE FROM 1 X 3 PINE LUMBER (81348) MML751, 75.50 IN LONG, PN SK17026.....	2
15	MFFZZ		94833	SK17027 ITEM 1	..PLYWOOD, MAKE FROM 0.50 PLYWOOD (0HV88) PS1–83, GRADE AC, 46.50 X 75.00 IN LONG.....	1
16	AFFFF		94833	SK17026-1	.BOX, STORAGE CONTAINER (ASSEMBLE FROM ITEMS 17-25)	1
17	MFFZZ		94833	SK17026 ITEM 5	..LUMBER, MAKE FROM 1 X 3 PINE LUMBER (81348) MML751, 73.00 IN LONG.....	4
18	MFFZZ		94833	SK17026 ITEM 4	..LUMBER, MAKE FROM 1 X 3 PINE LUMBER (81348) MML751, 18.75 IN LONG.....	14
19	MFFZZ		94833	SK17026 ITEM 6	..LUMBER, MAKE FROM 1 X 3 PINE LUMBER (81348) MML751, 46.50 IN LONG.....	4
20	MFFZZ		94833	SK17026 ITEM 7	..LUMBER, MAKE FROM 1 X 3 PINE LUMBER (81348) MML751, 75.50 IN LONG.....	2
21	MFFZZ		94833	SK17026 ITEM 8	..LUMBER, MAKE FROM 1 X 3 PINE LUMBER (81348) MML751, 41.25 IN LONG.....	4
22	MFFZZ		94833	SK17026 ITEM 9	..LUMBER, MAKE FROM 4 X 4 PRESSURE TREATED LUMBER (81348) MML-75-1, 46.50 IN L	2
23	MFFZZ		94833	SK17026 ITEM 2	..PLYWOOD, MAKE FROM 0.50 PLYWOOD, (0HV88) PS1–83, GRADE AC, 24.0 X 46.50 IN LONG.....	2

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
24	MFFZZ		94833	SK17026 ITEM 3	..PLYWOOD, MAKE FROM 0.50 PLYWOOD, (0HV88) PS1–83, GRADE AC, 24.00 X 73.00 IN LONG.....	2
25	MFFZZ		94833	SK17026 ITEM 1	..PLYWOOD, MAKE FROM 0.50 PLYWOOD, (0HV88) PS1–83, GRADE AC,46.50 X 75.50 IN LONG.....	17
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

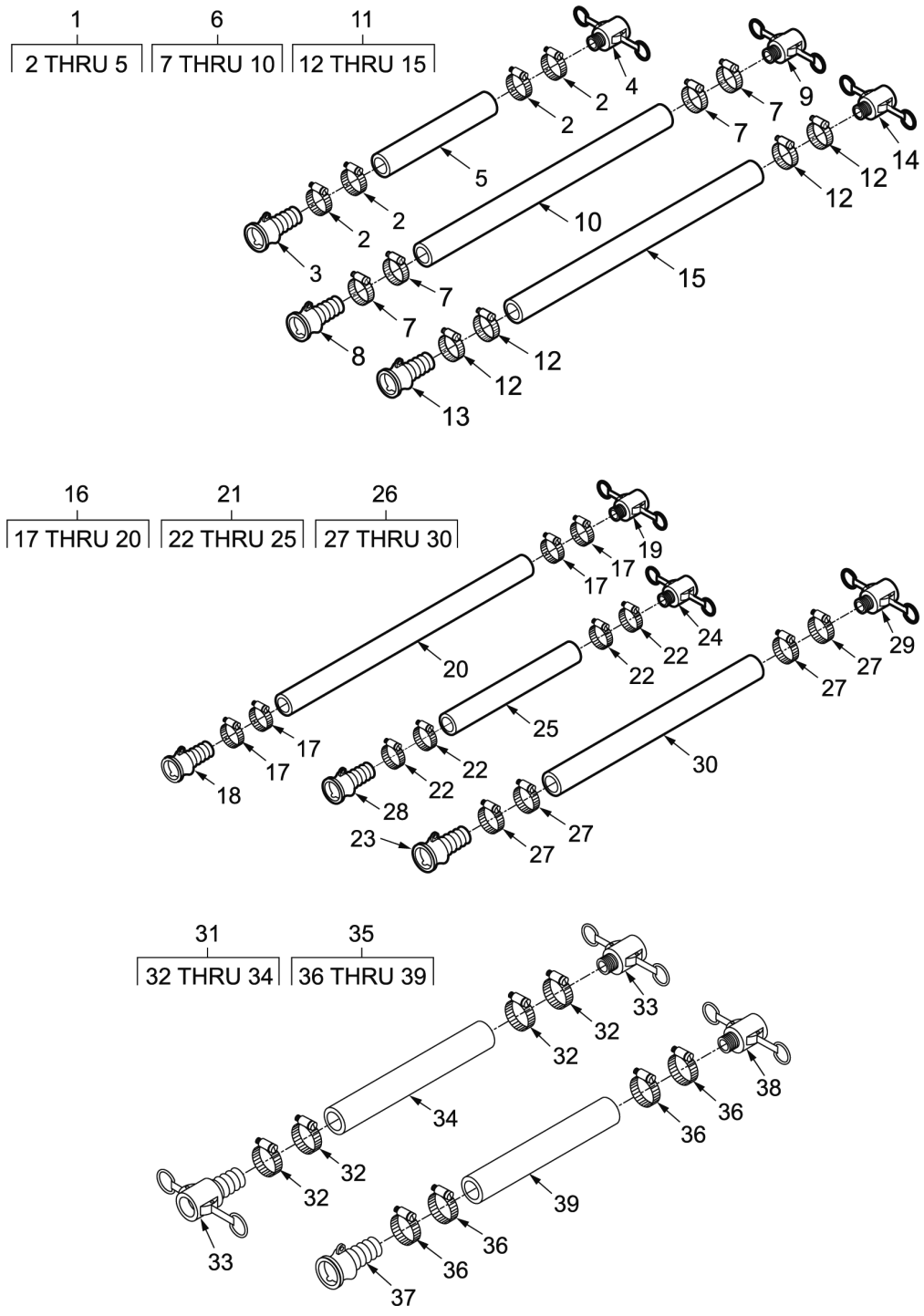


Figure 15. Interconnecting Hose Assemblies.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04 HOSE ASSEMBLIES FIGURE 15 Interconnecting Hose Assemblies.	
1	PAFFF	4720-01-485-8125	98752	8611345-9	HOSE ASSEMBLY, NONMETALLIC 28.62 IN LG	6
2	PFFZZ	4730-01-393-5883	35871	325-016	.CLAMP, HOSE CRES BAND AND HOUSING, 1.50 INCH, .25 W X .030 THICK	4
3	PAFZZ	4730-01-164-9254	58536	AA59326-2A-3-A	.COUPLING HALF, QUICK DISCONNECT (MALE)	1
4	PAFZZ	4730-01-223-4931	58536	AA59326-6B-3-A-2	.COUPLING HALF, QUICK DISCONNECT (FEMALE)	1
5	PFFZZ	4720-01-396-1378	98752	8611344-105	.HOSE, NONMETALLIC 25.50 INCHES LONG	1
6	PAFZZ	4720-01-486-0655	98752	86611346-10	HOSE ASSEMBLY, NONMETALLIC, 424 IN LG	2
7	PFFZZ	4730-01-393-5883	35871	325-016	.CLAMP, HOSE CRES BAND AND HOUSING, 1.50 INCH, .25 W X .030 THICK	4
8	PAFZZ	4730-01-164-9254	58536	AA59326-2A-3-A	.COUPLING HALF, QUICK DISCONNECT	1
9	PAFZZ	4730-01-223-4931	58536	AA59326-6B-3-A-2	.COUPLING HALF, QUICK DISCONNECT	1
10	MFFZZ		98752	8611344-106	.HOSE, NONMETALLIC, 420.00 INCHES LONG MAKE FROM HOSE (62543) 55-1776-43 1B, BLACK 1.00 I.D.	1
11	PAFFF	4720-01-486-1000	98752	8611347-11	HOSE ASSEMBLY, NONMETALLIC, 147 IN LG	1
12	PFFZZ	4730-01-393-5883	35871	325-016	.CLAMP, HOSE CRES BAND AND HOUSING, 1.50 INCH, .25 W X .030 THICK	4
13	PAFZZ	4730-01-164-9254	58536	AA59326-2A-3-A	.COUPLING HALF, QUICK DISCONNECT	1
14	PAFZZ	4730-01-223-4931	58536	AA59326-6B-3-A-2	.COUPLING HALF, QUICK DISCONNECT	1
15	PFFZZ	4720-01-393-7988	90598	8611344-107	.HOSE, NONMETALLIC 144.00 INCHES LONG	1
16	PAFFF	4720-01-485-7205	98752	8611349-12	HOSE ASSEMBLY, NONMETALLIC, 300 IN LG	1
17	PFFZZ	4730-01-393-5883	35871	325-016	.CLAMP, HOSE CRES BAND AND HOUSING, 1.50 INCH, .25 W X .030 THICK	4
18	PAFZZ	4730-01-164-9254	58536	AA59326-2A-3-A	.COUPLING HALF, QUICK DISCONNECT	1
19	PAFZZ	4730-01-223-4931	58536	AA59326-6B-3-A-2	.COUPLING HALF, QUICK DISCONNECT	1
20	MFFZZ		98752	8611349-109	.HOSE, NONMETALLIC, 300.00 INCHES LONG MAKE FROM HOSE (62543) 55-1776-43.00 I.D.	1
21	PAFFF	4720-01-485-6885	98752	8611349-13	HOSE ASSEMBLY, NONMETALLIC, 90 IN LONG	1

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
22	PFFZZ	4730-01-393-5883	35871	325-016	.CLAMP, HOSE CRES BAND AND HOUSING, 1.50 INCH, .25 W X .030 THICK	4
23	PAFZZ	4730-01-164-9254	58536	AA59326-2A-3-A	.COUPLING HALF, QUICK DISCONNECT	1
24	PAFZZ	4730-01-223-4931	58536	AA59326-6B-3-A-2	.COUPLING HALF, QUICK DISCONNECT	1
25	MFFZZ		98752	8611349-110	.HOSE, NONMETALLIC, 90.00 INCHES LONG MADE FROM HOSE (62543) 55-1776-431.00 ID	1
26	PAFFF	4720-01-486-1009	98752	8611350-14	HOSE ASSEMBLY, NONMETALLIC, 61 IN LG	1
27	PFFZZ	4730-01-393-5887	35871	325-024	.CLAMP, HOSE, CRES BAND AND HOUSING 2.00 IN SIZE, 25W	4
28	PAFZZ	4730-00-360-0592	58536	AA5936II15	.COUPLING HALF, QUICK DISCONNECT	1
29	PAFZZ	4730-00-948-1722	58536	AA59326VI15	.COUPLING HALF, QUICK DISCONNECT	1
30	PFFZZ	4720-01-394-2675	98752	8611350-111	.HOSE, NONMETALLIC 61 INCHES LONG	1
31	PAFFF	4720-01-449-9834	1X179	8611352-15	HOSE ASSEMBLY, NONMETALLIC, 62 IN LG	6
32	XDFZZ		38571	325-036	.CLAMP, HOSE, CRES BAND AND HOUSING 2.75 IN SIZE, 25W X .030TH.	4
33	PAFZZ	4730-00-360-0943	58536	AA59326-6B-6-A-1	.COUPLING HALF, QUICK DISCONNECT	1
34	PFFZZ	4720-01-394-2676	9T488	43-0364-42	HOSE, NONMETALLIC 58 INCHES LONG	1
35	PAFFF	4720-01-449-9342	90598	8611353-16	HOSE, NONMETALLIC .424 INCHES LONG	2
36	XDFZZ		35871	325-036	.CLAMP, HOSE, CRES BAND AND HOUSING 2.75 IN SIZE, 25W X .030TH.	4
37	PAFZZ	4730-00-938-7996	58536	AA59326-2B-6-A	.COUPLING HALF, QUICK DISCONNECT	1
38	PAFZZ	4730-00-360-0943	58536	AA59326-6B-6-A-1	.COUPLING HALF, QUICK DISCONNECT	1
39	PFFZZ	4720-01-394-0545	98752	8611351-113	.HOSE, NONMETALLIC 420 INCHES LONG	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

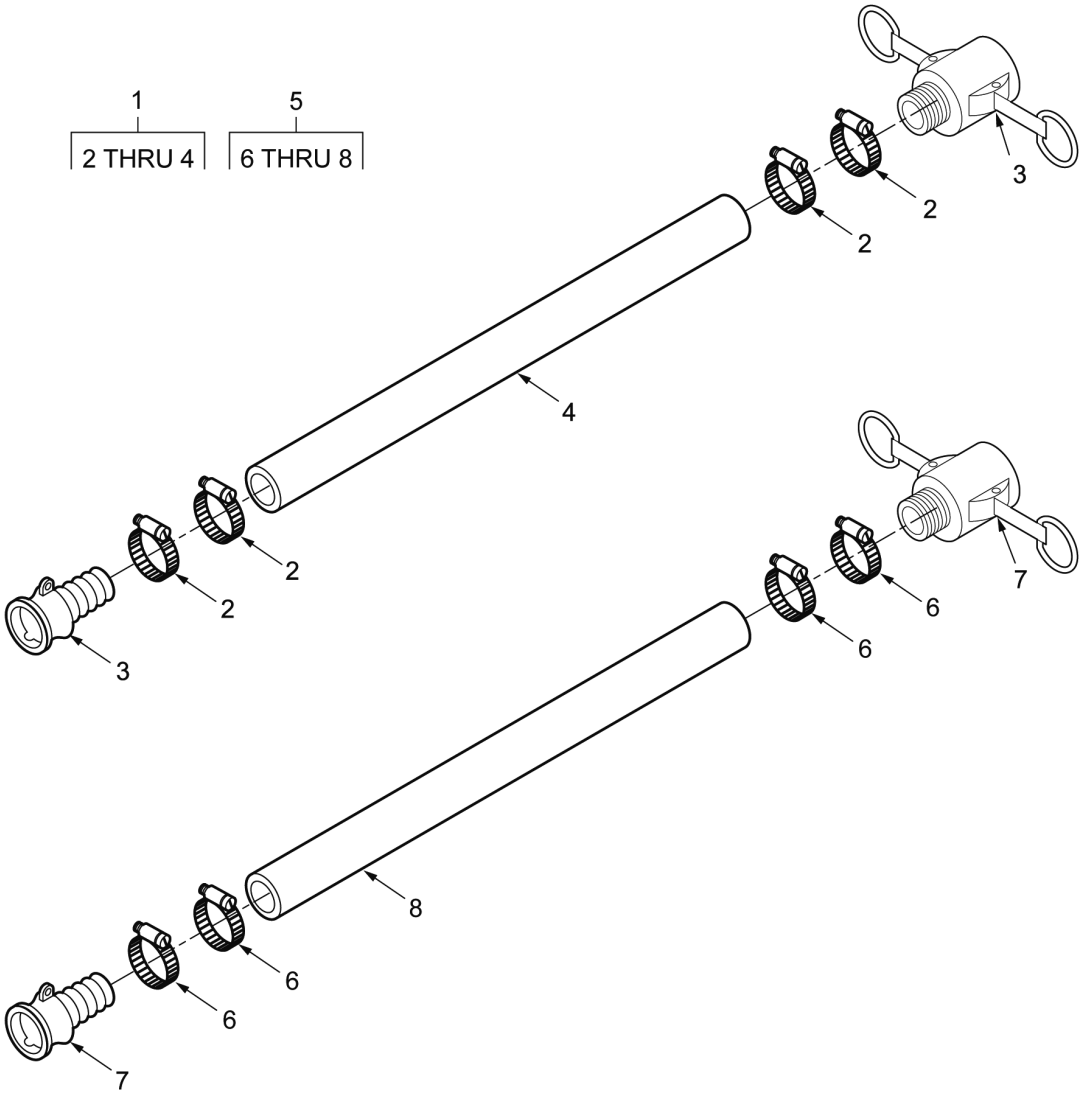


Figure 16. Cold Line Hose Assemblies.

REPAIR PARTS LIST - (CONTINUED)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04 HOSE ASSEMBLIES FIGURE 16 Cold Line Hose Assemblies.	
1	PAFFF	4720-01-485-6689	98752	8611348-28	.HOSE ASSEMBLY, NONMETALLIC, 13.68 IN LG	1
2	PFFZZ	4730-01-393-5883	35871	325-016	..CLAMP, HOSE CRES BAND AND HOUSING, 1.50 INCH, .25 W X.030 THICK	4
3	PFFZZ	4730-01-485-0755	58536	AA59614-1W-3-08	..COUPLING ASSEMBLY, HOSE, TY I, STYLE 3, CL AA, SIZE 1 INCH, BRASS .	2
4	MFFZZ		98752	8611344-108	..HOSE, NONMETALLIC, 12.00 INCHES LONG MAKE FROM HOSE (62543)55-1776-43 1B, BLACK, 1.00 I.D.	1
5	PBFFF	4720-01-485-6635	98752	8611348-51	.HOSE ASSEMBLY, NONMETALLIC, 15.43 IN LG	1
6	PFFZZ	4730-01-393-5883	35871	325-016	..CLAMP, HOSE CRES BAND AND HOUSING, 1.50 INCH, .25 W X.030 THICK	4
7	PFFZZ	4730-01-485-0755	58536	AA59614-1W-3-08	..COUPLING ASSEMBLY, HOSE, TY I, STYLE 3, CL AA, SIZE 1 INCH, BRASS .	2
8	MFFZZ		98752	8611344-156	..HOSE, NONMETALLIC, 13.75 MAKE FROM HOSE (24161)55-1776-43 1B, BLACK, 1.00 ID	1
					END OF FIGURE	

REPAIR PARTS LIST - (CONTINUED)

END OF WORK PACKAGE

FIELD MAINTENANCE
BULK ITEMS LIST

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP BULK MATERIAL FIG BULK	
1	PBFZZ	6145-01-485-4558	81349	CO-05HGF(5/12)0740	CABLE, POWER, ELECTRICAL;	100
2	PAFZZ	8315-00-106-5973	81337	1452358	FASTENER TAPE, HOOK 1.000 INCH, NYLON, II TYPE AND 1 CLASS, 80 HOOK ,GREEN 383, MIL-F-21840;	25
3	PAFZZ	4010-00-129-6049	19207	12353858-3	CHAIN, WELDED SAFETY, SST, TRADE NO. 35, TYPE II, CLASS 3;	500
4	XDFZZ		24161	1B	HOSE, NONMETALLIC 1.00 I.D.;	50
5	XDFZZ		62543	55-1776-43	HOSE, 1.00 I.D.;	50
6	XDFZZ		62543	55-1776-49	HOSE, 1.50 I.D.;	50
7	XDFZZ		21868	17834461002	HOSE, WATER SUCTION, BLACK, ABRASION RESISTANT SBR, 2.00 I.D.; ..	50
8	PAFZZ	6145-01-007-4701	81343	M22759/11-12-5	WIRE, ELECTRICAL;	100
9	PAFZZ	6145-01-007-4691	81343	SAE AS22759/11	WIRE, ELECTRICAL;	100
10	PAFZZ	6145-01-006-2837	81349	M22759/11-12-2	WIRE, ELECTRICAL;	100
11	PAFZZ	6145-01-006-2835	81349	M22759/11-12-0	WIRE, ELECTRICAL;	100
12	XDFZZ		58536	A-A-1417	PLYWOOD, CONSTRUCTION 0.50 THICK, GRADE AC, 48.00 INCH X 96.00 INCH SHEET;	32
13	XDFZZ		70510	TYPE CW	CONDUIT, LIQUIDTIGHT FLEXIBLE, 1/2 INCH DIAMETER ;	50
14	XDFZZ		81337	543-8242	BRASS PIPE 1.00 IN PIPE, SCH 40 BRASS, 33 IN LG, 1-11 1/2 MALE NPT 2 PL, 1.00 NOMINAL;	1
15	PAFZZ	5510-00-269-9484	81348	MML751	LUMBER,SOFTWOOD,BOARD;	34
16	PAFZZ	5510-01-445-1016	81348	MM-L751	LUMBER,SOFTWOOD,DIMENSION;	2
					END OF FIGURE	

FIELD MAINTENANCE

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
4010-00-129-6049		3
4320-00-707-5971	11	19
4320-01-133-1830	13	17
4320-01-316-7383	13	1
4320-01-323-5967	13	5
4320-01-412-8596	8	1
4320-01-485-9898	11	25
4320-01-486-0660	11	28
4510-01-218-6504	3	12
4510-01-315-7695	16	10
4510-01-316-7423	3	19
4510-01-317-2799	14	8
4510-01-351-5244	16	3
4510-01-394-1777	3	1
4510-01-396-5040	1	3
4510-01-485-6209	1	7
4510-01-485-6257	1	2
4510-01-486-4466	1	6
4510-01-578-8101	16	1
4720-00-064-0832	1	8
4720-01-393-7988	7	15
4720-01-394-0545	7	39
4720-01-394-2675	7	30
4720-01-394-2676	7	34
4720-01-396-1378	7	5
4720-01-449-9342	7	35
4720-01-449-9834	7	31
4720-01-485-6635	9	5
4720-01-485-6689	9	1
4720-01-485-6885	7	21
4720-01-485-7205	7	16
4720-01-485-8125	7	1
4720-01-486-0655	7	6
4720-01-486-1000	7	11
4720-01-486-1009	7	26
4730-00-014-4615	11	5
	14	2
4730-00-079-1362	13	33
	11	14
	12	4
4730-00-088-9285	13	36
4730-00-141-3195	3	22
4730-00-196-0830	11	15
4730-00-196-0955	4	10
4730-00-196-2010	3	23
4730-00-196-2025	11	17
4730-00-196-2035	13	34
4730-00-203-1010	11	7
4730-00-221-2132	11	4
4730-00-222-1837	11	11
4730-00-222-1839	3	20
4730-00-222-1843	11	11
	11	13
4730-00-231-3909	14	4
4730-00-253-5763	12	9
4730-00-277-1874	11	6
	14	1
4730-00-277-5615	12	3
4730-00-360-0592	7	28
	11	3
	12	8
4730-00-360-0715	11	2
4730-00-360-0943	7	33
	7	38
4730-00-595-0141	12	10
	14	6
4730-00-649-9100	16	14
4730-00-707-6621	11	16
4730-00-817-6578	3	18
4730-00-929-0791	3	21
4730-00-937-5488	13	6
4730-00-938-7996	7	37
4730-00-938-7997	16	15
4730-00-948-1722	7	29
4730-01-042-5265	3	25
	4	8
4730-01-060-6467	12	6
	14	5
4730-01-126-0203	12	5
	14	3
4730-01-147-5427	3	17
4730-01-164-9254	7	3
	7	8
	7	13
	7	18
	7	23
4730-01-180-9931	14	7
4730-01-223-4931	7	4

NATIONAL STOCK NUMBER INDEX - (CONTINUED)

STOCK NUMBER	FIG.	ITEM
	7	9
	7	14
	7	19
	7	24
4730-01-283-8172	12	7
4730-01-315-8245	4	9
4730-01-315-8249	3	24
4730-01-315-8253	13	35
4730-01-315-8304	4	1
4730-01-315-8305	4	6
4730-01-317-0694	1	1
4730-01-393-5883	7	2
	7	7
	7	12
	7	17
	7	22
	9	2
	9	6
4730-01-393-5887	7	27
4730-01-485-0755	9	3
	9	7
4820-00-233-7928	12	11
4820-01-216-4319	3	16
4820-01-316-1094	16	9
4820-01-393-5286	13	18
4820-01-395-7276	12	1
5305-00-088-9044	10	13
5305-00-433-3711	16	4
	3	2
	14	17
5305-00-821-3869	11	36
	13	32
5305-00-889-2998	10	8
5305-00-958-5246		6
5305-00-984-6210		9
5305-01-393-7098	10	33
	14	11
5305-01-393-7785	10	2
5306-00-457-1172	3	7
5306-01-326-1029	12	15
5310-00-143-6102	12	12
5310-00-167-0804	11	35
	13	31
5310-00-531-9515	3	6
	4	3
	12	14
5310-00-685-3744	16	5
	3	3
5310-00-889-2589	3	5
5310-00-914-6028	11	34
	13	30
5310-00-933-8121	12	13
5310-01-393-6793	10	32
	14	10
5310-01-393-9933	10	6
5310-01-393-9934	10	14
5310-01-491-9727	11	23
5330-01-220-7255	3	14
5330-01-393-8435	10	4
5331-01-359-1502	11	29
5340-01-114-2314	11	8
5340-01-352-2053	3	4
5340-01-486-6564	8	2
5340-01-487-6922	1	4
5930-00-272-1346	11	10
5935-01-314-6048	10	9
5935-01-323-5722	10	10
5940-00-924-7831	10	22
5975-00-578-3666	10	23
	11	9
5975-01-399-0620	10	25
	11	18
5975-01-414-6995	10	5
5999-01-071-0370	10	11
5999-01-136-3988	10	12
6105-01-348-5895	11	33
6105-01-393-8951	13	23
6110-01-317-4827	10	19
6145-01-006-2835		11
6145-01-006-2837		10
6145-01-007-4691		9
6145-01-007-4701		8
6145-01-485-4558		1
6150-01-214-0135	15	1
6685-01-486-2157	12	2
7220-01-487-0342	1	5
8315-00-106-5973		2

END OF WORK PACKAGE

FIELD MAINTENANCE

PART NUMBER INDEX

PART NUMBER	FIG.	ITEM
027458T	11	19
10392	3	14
113H-0	13	18
12353858-3		3
13228E3480	16	13
1-4"-20 X 1 HHCS	13	3
1-4"-20 X 2 25HHCS	13	7
1-4"-20 NUT	13	2
1-4" LOCK WASHER	13	8
1452358		2
16-062-227	11	28
160-A-1200	13	14
160-A-906	13	17
160-B50A-200	13	6
160-B-68A	13	4
160-C-196	13	9
160-G-107	13	5
161-A-1161	13	16
161-A-1213	13	15
161-A-1214	13	23
161-A-150	13	11
161-A-168	13	19
161-A-399	13	10
161-C-389	13	29
161-C-390	13	25
161-D-49	13	28
17834461002		7
187A	11	16
1B		4
1P690-2	4	6
200-DC-AL	16	14
3/4-14	11	21
3/8	11	23
3/8"-16 NUT	13	26
3/8"-16X2" HHCS	13	27
3/8-16UNCX1	11	22
3/8-18	11	20
319K-AL20	1	1
325-016	7	2
	7	7
	7	12
	7	17
	7	22
	9	2
	9	6
325-024	7	27
325-036	7	32
	7	36
3-8"- 16 X 1.25 HHCS	13	12
3-8" LOCK WASHER	13	13
3-8"-16 X 1" HHCS	13	24
38797	3	12
3955T367	1	4
43-0364-42	7	34
5-13-8232	16	1
500K2121		10
500K2122		5
500K2132		7
5-16" - 18 X 1.25 HHCS	13	21
5-16" LOCK WASHER	13	22
53581-9-14		2
543-8242		14
55-1776-43		5
55-1776-49		6
6-1-8222-1	15	1
72120MB	10	9
7427B	10	10
8611307	16	2
	16	8
8611307/BASE	16	16
8611308	16	3
8611309-63	16	6
8611309-64	16	7
8611310-168	16	9
8611310-169	16	10
8611312-4	3	1
8611313	3	27
8611315	3	8
8611316	3	9
8611317	3	26
8611319-5	1	6
8611320	14	14
	10	31
	14	9
	14	13
	14	15
	10	26
	10	27

PART NUMBER INDEX - (CONTINUED)

PART NUMBER	FIG.	ITEM
	10	28
	10	29
	10	30
8611320-150	8	1
8611320-182	10	32
	14	10
8611320-194	10	33
	14	11
8611321	14	20
8611323-30	12	16
8611324-K57	14	16
8611325	9	1
8611325-176	10	2
8611325-185	10	7
8611325-190	10	6
8611325-229	10	14
8611326	10	21
8611327-167	10	3
8611327-62	10	4
8611328-25	12	1
8611329-154	12	11
8611331	13	1
8611332-69	11	1
8611334K	14	18
8611335	14	19
8611336-400	1	3
8611340-34	1	7
8611341-35	1	2
8611342-36	3	4
8611343-8	8	2
8611344-105	7	5
8611344-106	7	10
8611344-107	7	15
8611344-108	9	4
8611344-156	9	8
8611345-9	7	1
8611347-11	7	11
8611348-28	9	1
8611348-51	9	5
8611349-109	7	20
8611349-110	7	25
8611349-12	7	16
8611349-13	7	21
8611350-111	7	30
8611350-14	7	26
8611351-113	7	39
8611352-15	7	31
8611353-16	7	35
8611354 ITEM 186	4	2
8611354 ITEM 193	4	4
8611354-143	4	9
8611354-17	4	1
8611354-250	4	5
8611354-251	4	7
8611355-18	5	1
86-1-RT-1-C1	3	16
86611346-10	7	6
90011A153		4
9013FSG2	11	10
90975A025		8
90975A041		11
93107904	3	10
93107905	3	11
93107906	3	13
93107908	3	15
93107912	10	15
	10	17
	10	16
	10	18
93107915	14	12
93107920	11	12
93107923	10	20
93107924	16	11
93107924/CHAIN	16	12
A-A-1417		12
AA50552-I-3-I-1	10	23
	11	9
AA59326/1-6-A	13	33
AA59326/3A-6-A	16	15
AA59326/7-5-A-2	11	7
AA59326/7-6-A-1	13	36
AA59326-2A-3-A	7	3
	7	8
	7	13
	7	18
	7	23
AA59326-2B-6-A	7	37
AA59326-6B-3-A-2	7	4
	7	9
	7	14

PART NUMBER INDEX - (CONTINUED)

PART NUMBER	FIG.	ITEM
	7	19
	7	24
AA59326-6B-6-A-1	7	33
	7	38
AA59326CII13	12	8
AA59326III13	5	2
	11	14
	12	4
AA59326IX13	3	21
AA59326V13	3	25
	4	8
AA59326VI15	7	29
AA59326VII13	11	3
AA59326XI22	6	8
AA59326XII3	11	2
AA5936II15	7	28
AA59614-1W-3-08	9	3
	9	7
AN910-8	11	4
AN960C416	3	6
	4	3
	12	14
AN960C8	16	5
	3	3
ANSI/ASME B16.15 1/2X3/8MPT	3	18
AS4855-08	14	4
AS4861.11	12	3
ASTM B687R-104R	3	23
B100-MOC	10	19
B1821BH038C175N	11	36
	13	32
B687R-134B	11	13
B687R-162B	13	34
B687R-20B	11	11
B687R-58B	3	20
B687R-81B	12	7
B687R-96B	11	5
	14	2
B687X539B	3	17
BN4VP	3	19
CO-05HGF(5/12)0740		1

PART NUMBER	FIG.	ITEM
FH31	10	12
GFRWPV	10	5
H28	10	11
HEI15038	12	2
HEI15051	1	5
HP-5	14	7
JM3550	11	33
LT451	10	24
M22759/11-12-0		11
M22759/11-12-2		10
M22759/11-12-5		8
M45913/1-6CS3	11	34
	13	30
M45913-1-4FS3	12	12
MS14305-6UA	12	5
	14	3
MS14308-5	12	9
MS14309-16	3	24
MS14315-10X	12	6
	14	5
MS14315-19X	11	6
	14	1
MS14315-24Y	4	10
MS21044C4	3	5
MS27020-5	3	22
MS28741-8-1440	1	8
MS35190-289		6
MS35206-216	10	8
MS35206-263		9
MS35207-260	10	13
MS35338-139	12	13
MS51846-141	11	17
MS51861-35C	16	4
	3	2
	14	17
MS51952-5	12	10
	14	6
MS90522-3K3	13	35
NAS1149C0663R	11	35
	13	31
NAS3104C11-12	3	7
NAS3104C20-24	12	15

PART NUMBER INDEX - (CONTINUED)

END OF WORK PACKAGE

CHAPTER 8

SUPPORTING INFORMATION

FOR

12-HEAD SHOWER SYSTEM

OPERATOR INSTRUCTIONS

REFERENCES

SCOPE

This work package lists forms, pamphlets, field manuals, technical manuals, military specifications, military standards, technical bulletins, technical circulars and common tables of allowances referenced in this manual.

ARMY REGULATIONS

AR 700-138	Army Logistics Readiness and Sustainability
AR 750-1	Army Material Maintenance Policy

COMMON TABLES OF ALLOWANCES

CTA 50-970	Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items),
CTA 8-100	Army Medical Department Expendable/Durable Items

DA PAMPHLETS

DA PAM 738-751	Functional Users Manual for the Army Maintenance Management System (TAMMS)
DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual

FIELD MANUALS

FM 3-5	NBC Decontamination
FM 4-25.11	First Aid for Soldiers

FORMS

DA Form 12-R	Request for an Establishment of a Publications Account
DA Form 2028	Recommended Changes to Equipment Publications
SF 364	Report of Discrepancy
SF 368	Product Quality Deficiency Report (PQDR)

TECHNICAL MANUALS

TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use (Mobility Equipment Command)
TM 10-4520-259-13&P	Operator's, Unit and Direct Support Maintenance Manual (Including Repair Parts and Special Tools List) for Heater, Water, Liquid Fuel.
TM 10-4520-266-13&P	Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Heater, Water, 400,000 BTU
TM 10-8340-244-13&P	Operator and Field Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for Tent, Extendable, Modular, Personnel (TEMPER), Air-Supported

END OF WORK PACKAGE

FIELD MAINTENANCE

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION

The Army Maintenance System MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level Maintenance System concept.

This 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:

- Field – includes two subcolumns, Crew (C) and Maintainer (F).
- Sustainment – includes two subcolumns, Below Depot (H) and Depot (D).

The maintenance to be performed at field and sustainment levels is described as follows:

1. Crew maintenance. The responsibility of a using organization to perform maintenance on its assigned equipment. It normally consists of inspecting, servicing, lubricating, adjusting, and replacing parts, minor assemblies, and subassemblies. The replace function for this level of maintenance is indicated by the letter "C" in the third position of the Source, Maintenance, and Recoverability (SMR) code. A "C" appearing in the fourth position of the SMR code indicates complete repair is possible at the crew maintenance level.
2. Maintainer maintenance. Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "F" appearing in the third position of the SMR code. An "F" appearing in the fourth position of the SMR code indicates complete repair is possible at the field maintenance level. Items are returned to the user after maintenance is performed at this level.
3. Below depot sustainment. Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "H" appearing in the third position of the SMR code. An "H" appearing in the fourth position of the SMR code indicates complete repair is possible at the below depot sustainment maintenance level. Items are returned to the supply system after maintenance is performed at this level.
4. Depot sustainment. Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "D" or "K" appearing in the third position of the SMR code. Depot sustainment maintenance can be performed by either depot personnel or contractor personnel. A "D" or "K" appearing in the fourth position of the SMR code indicates complete repair is possible at the depot sustainment maintenance level. Items are returned to the supply systems after maintenance is performed at this level.

The tools and test equipment requirements table (immediately following the MAC) lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks table (immediately following the tools and test equipment requirements) contains supplemental instructions and explanatory notes for a particular maintenance function.

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION - (CONTINUED)

MAINTENANCE FUNCTIONS

Maintenance functions are limited to and defined as follows:

1. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel). This includes scheduled inspection and gaugings and evaluation of cannon tubes.
2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.
3. Service. Operations required periodically to keep an item in proper operating 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. The following are examples of service functions:
   a. Unpack. To remove from packing box for service or when required for the performance of maintenance operations.
   b. Repack. To return item to packing box after service and other maintenance operations.
   c. Clean. To rid the item of contamination.
   d. Touch up. To spot paint scratched or blistered surfaces.
   e. Mark. To restore obliterated identification.
4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.
6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
7. Remove/install. To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.
8. Paint (ammunition only). To prepare and spray color coats of paint so that the ammunition can be identified and protected. The color indicating primary use is applied, preferably, to the entire exterior surface as the background color of the item. Other markings are to be repainted as original so as to retain proper ammunition identification.
9. 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 SMR code.
10. Repair. The application of 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).

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION - (CONTINUED)

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.

11. 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.
12. 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 material 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 Functional Group Code (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:

Field:

C Crew maintenance

F Maintainer maintenance

Sustainment:

L Specialized Repair Activity (SRA)

H Below depot 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 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.

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION - (CONTINUED)

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.

Explanation of 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.

END OF WORK PACKAGE

FIELD MAINTENANCE

MAINTENANCE ALLOCATION CHART

Table 1. MAC for 12-HEAD SHOWER SYSTEM

(1)	(2)	(3)	(4) MAINTENANCE LEVEL				(5)	(6)
			FIELD		SUSTAINMENT			
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	CREW C	MAIN-TAINER F	BELOW DEPOT H	DEPOT D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
00	12-HEAD SHOWER SYSTEM	Inspect	1.4					
		Service	1.0					
		Service		0.5			3	
		Test		0.2			3	
		Repair	0.5					
		Repair		0.3			3	
01	STALL ASSEMBLY, SHOWER	Replace	0.3					
0101	FRAME ASSEMBLY, SHOWER	Repair		1.5			3	
		Replace	0.5					
0102	BASE, BATH UNIT, PORTABLE	Repair		0.7			3	
		Replace	0.5					
02	PUMP ASSEMBLY, WATER	Inspect	2.0					
		Repair		2.6			3, 4	
0201	VALVE, CHECK ASSEMBLY	Repair		0.7			3	
		Replace		0.2			3	
0202	VALVE, REGULATOR ASSEMBLY	Repair		0.7			3	
		Replace		0.2			3	
0203	BOX ASSEMBLY, SWITCH	Inspect		0.5				A
		Test		0.8			3	A
		Repair		1.8			3	A
		Replace		0.8			4	A
0204	VALVE, TEMPERATURE REGULATOR	Repair		1.5			3	
		Replace		0.8			3	
0205	STRAINER, SUCTION	Repair		0.7			3	
		Replace		0.2			3	
0206	PUMP, RECIPROCATING	Repair		2.0			3, 5	
		Replace		0.1			3	
03	STORAGE CONTAINER, PORTABLE FIELD SHOWER	Repair		2.0			3	
		Replace		6.0			1, 2	
04	HOSE ASSEMBLIES	Repair	0.3					
0401	INTERCONNECTED HOSE ASSEMBLY	Repair		1.0			3	
		Replace		0.2			3	
0402	COLD LINE HOSE ASSEMBLY	Repair		1.0			3	
		Replace		0.2			3	

MAINTENANCE ALLOCATION CHART - (CONTINUED)

Table 2. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	F	Tool Kit, Carpenter's	5180-01-499-3546	DFP414
2	F	Tool Kit, Supplement	5180-01-537-5424	DFP TRI-008
3	F	Tool Set, General Mechanics	5180-01-548-7634	PD 484
4	F	Compressor, Unit (SATS)		KTC S0157
5	F	Lubricating Gun, Hand (SATS)		KTC S0248

Table 3. REMARKS

REMARKS CODE	REMARKS
A	All repair and replacement parts performed by field maintenance limited to authorized items in RPSTL (WP 0045).

END OF WORK PACKAGE

FIELD MAINTENANCE

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

SCOPE

This work package lists COEI and BII for the 12–head shower to help you inventory items for safe and efficient operation of the equipment.

GENERAL

The COEI and BII information is divided into the following lists:

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the 12–head shower. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the 12–head shower in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the 12–head shower during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1) Item Number. Gives you the reference number of the item listed.

Column (2) National Stock Number (NSN) and Illustration. Identifies the stock number of the item to be used for requisitioning purposes and provides an illustration of the item.

Column (3) Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (4) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (5) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) Qty Rqr. Indicates the quantity required.

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - (CONTINUED)

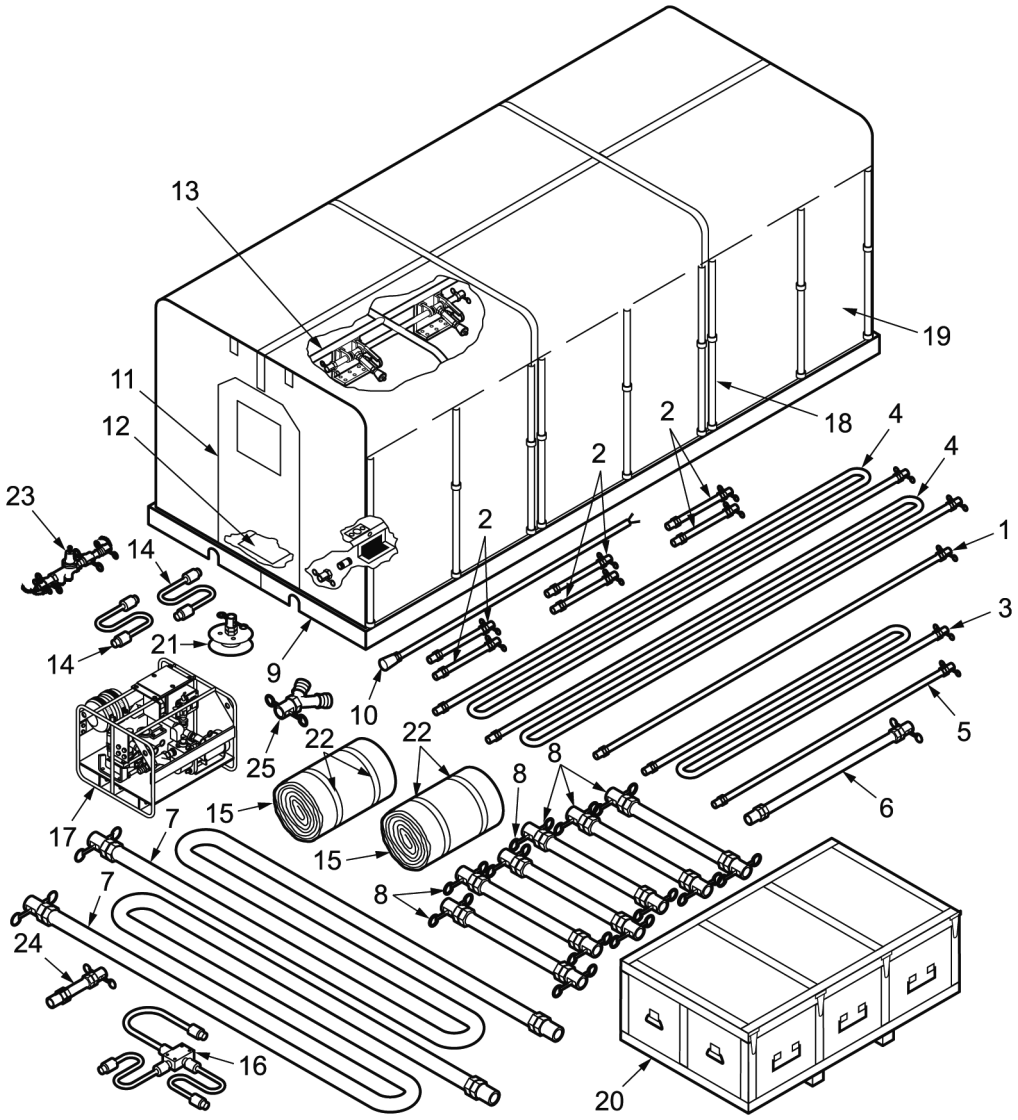


Table 1. Components of End Item List

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
1	4720-01-486-1000	1 INCH X 147 INCH LONG HOSE ASSEMBLY: 8611347 (98752)		EA	1
2	4720-01-485-8125	1 INCH X 28-5/8 INCH LONG HOSE ASSEMBLY: 8611345 (98752)		EA	6
3	4720-01-485-7205	1 INCH X 300 LONG HOSE ASSEMBLY: 8611349-12 (98752)		EA	1
4	4720-01-486-0655	1 INCH X 424 INCH LONG HOSE ASSEMBLY: 8611346 (98752)		EA	2
5	4720-01-485-6885	1 INCH X 90 INCH LONG HOSE ASSEMBLY: 8611349-13 (98752)		EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - (CONTINUED)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
6	4720-01-486-1009	1-1/2 INCH X 61 INCH LONG HOSE ASSEMBLY: 8611350 (98752)		EA	1
7	4720-01-449-9342	2 INCH X 424 INCH LONG HOSE ASSEMBLY: 8611353 (98752)		EA	2
8	4720-01-449-9834	2 INCH X 61-7/8 INCH LONG HOSE ASSEMBLY: 8611352 (98752)		EA	6
9	4570-01-354-9590	BASE, BATH UNIT, PORTABLE: 8611307 (98752)		EA	6
10	6150-01-393-8949	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL: 8611356-20		EA	1
11	4510-01-485-6257	DOOR PANEL: 8611341-35 (98752)		EA	2
12	4510-01-485-6209	FLOOR PANEL: 8611340-34 (98752)		EA	3
13	4510-01-394-1777	FRAME ASSEMBLY, SHOWER: 8611312-4 (98752)		EA	6
14	4720-00-064-0832	HOSE ASSEMBLY, NONMETALLIC: MS 28741-8-1440 (96906)		EA	2
15	7220-01-487-0342	MAT, FLOOR (36 INCH X 20 FEET): 8611305 ITEM 271 (98752)		EA	2
16	6150–01–214–0135	POWER CABLE ASSEMBLY: 6-1-822-1		EA	1
17	4320-01-412-8596	PUMP UNIT, RECIPROCATING:		EA	1
18	4510-01-486-4466	ROD, SHOWER CURTAIN: 8611319-5 (98752)		EA	36
19	4510-01-396-5040	SHOWER CABINET: 8611336-400 (98752)		EA	6
20		STORAGE CONTAINER: SK17025-1 (94833)		EA	6
21	4730-01-315-8304	STRAINER, SUCTION: 8611354 (98752)		EA	1
22	5340-01-487-6922	STRAP, RETAINING (FOR FLOOR MAT): 3955T67 (39428)		EA	4
23	4820-01-139-1368	VALVE, CHECK: 8611355 (98752)		EA	1
24	4820-01-395-7276	VALVE, REGULATING, TEMPERATURE: 9317903 (98752)		EA	1
25	4730-01-317-0694	WYE, QUICK DISCONNECT: 8611306 (98752)		EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - (CONTINUED)

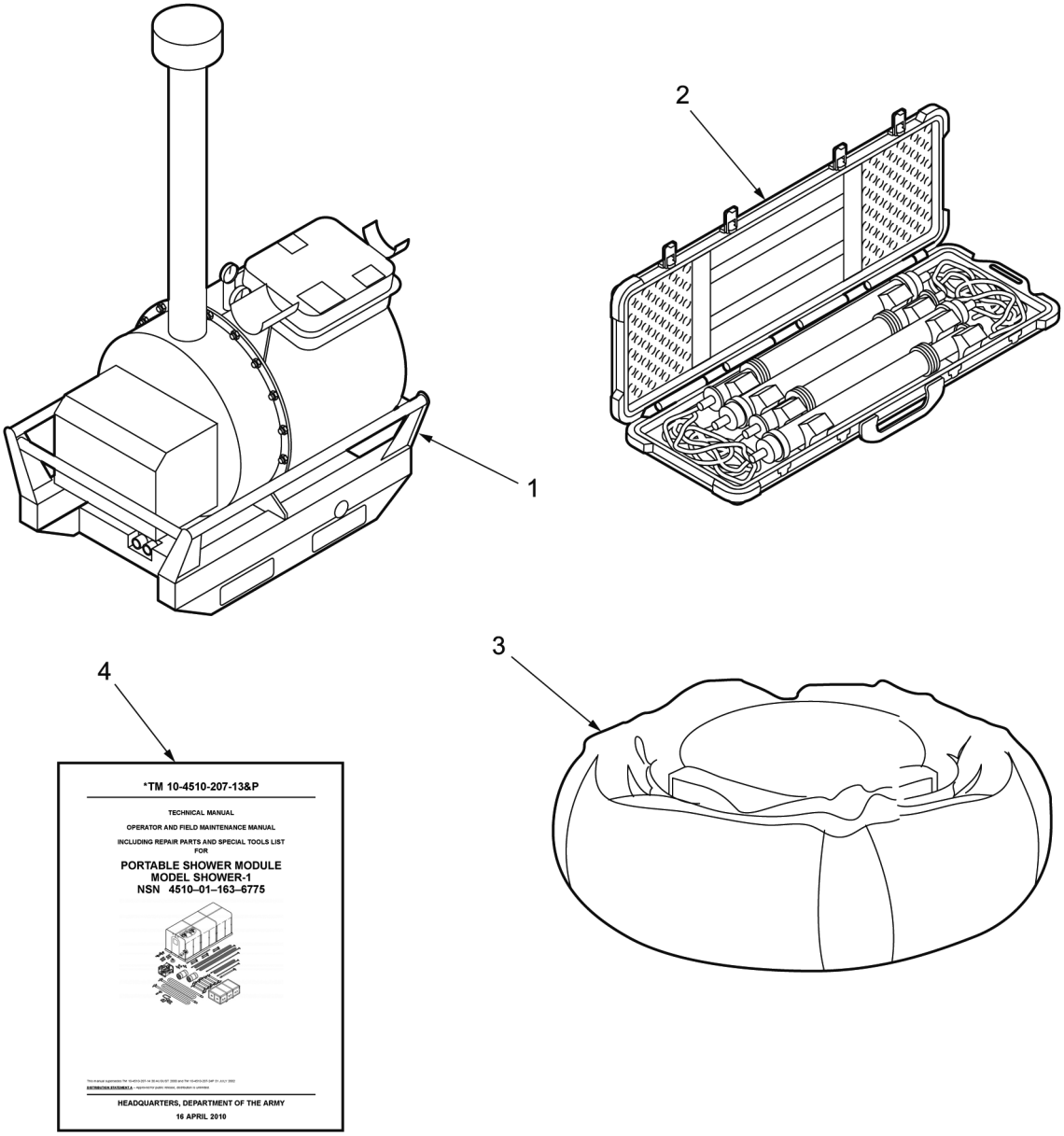


Table 2. Basic Issue Items List

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
1	4520-01-566-6669	HEATER, WATER, 400,000 BTU (WH-400): 111244 (51419)		EA	1
2	6230-01-483-7562	LIGHT SET, GENERAL ILLUMINATION: 31-5004M (06967)		KT	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - (CONTINUED)

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, PART NUMBER/(CAGEC)	(4) USABLE ON CODE	(5) U/I	(6) QTY RQR
3	5430-01-470-7380	TANK, FABRIC, COLLAPSIBLE: RCF-3K-W-OT (05YK6)		EA	1
4		TECHNICAL MANUAL OPERATOR AND FIELD MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST FOR 12-HEAD SHOWER SYSTEM		EA	1

END OF WORK PACKAGE

FIELD MAINTENANCE

ADDITIONAL AUTHORIZATION LIST

INTRODUCTION

Scope

This work package lists additional items you are authorized for the support of the 12-head shower.

General

This list identifies items that do not have to accompany the (enter short item name) and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanation Of Columns In The AAL

Column (1) National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (3) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (4) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) Qty Recm. Indicates the quantity recommended.

Table 1. ADDITIONAL AUTHORIZED ITEMS

(1) NATIONAL STOCK NUMBER (NSN)	(2) DESCRIPTION, PART NUMBER/(CAGEC)	(3) USABLE ON CODE	(4) U/I	(5) QTY RECM
4520-01-477-0568	HEATER, DUCT TYPE, PORTABLE 60300-100 (1V0A4)		EA	
8340-01-185-2615	TENT: EXTENDABLE, MODULE 48L X 20W UTILITY MIL-T-44271 (81349)		EA	

END OF WORK PACKAGE

FIELD MAINTENANCE

EXPENDABLE AND DURABLE ITEMS LIST

Scope

This work package lists expendable and durable items that you will need to operate and maintain the 12-head shower module. 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), CTA 50-909, Field and Garrison Furnishings and Equipment or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation Of Columns In The Expendable/Durable Items List

Column (1) Item No. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (WP 0098, item 5)).

Column (2) Level. This column identifies the lowest level of maintenance that requires the listed item.

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, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (5) U/I. Unit of Issue (U/I) code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc."

Table 1. Expendable and Durable Items List

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER AND (CAGEC)	(5) U/I
1	F		Adhesive 93107922 (98752)	QT
2	F	8020–00–297–6658	Brush, Paint A-A-3193 (58536)	EA
3	F	8010–00–948–7388	Enamel 34088/TT-E-527 (81349)	BX
4	F	8145–00–268–8349	Gloves, Men's A-A-50021 (58536)	PR
5	F	9150-00-985-7360	Grease, General Purpose ROYCO 49 (07950)	CN
6	F	9150–00–273–2389	Lubricating Oil, General Purpose VV-L-800 (81348)	CN
7	F	9460–00–044–6878	Pine Oil LLLP400 (81348)	GL
8	F	7930–01–294–1116	Scouring Powder 7930–01–294–1116 (80244)	DZ
9	F	7920-00-282-2470	Scrub Brush 7920–00–282–2470 (83421)	EA
10	F	8030-00-543-4384	Sealing Compound AN 828998 (19203)	PT
11	F	9905-00-537-8954	Tag, Marker 9905-00-537-8954 (64067)	BD

END OF WORK PACKAGE

FIELD MAINTENANCE

MANDATORY REPLACEMENT PARTS LIST

MANDATORY REPLACEMENT PARTS LIST

This work package includes a list of all mandatory replacement parts referenced in the task initial setups and procedures. These are items that must be replaced during maintenance whether they have failed or not. This includes items based on usage intervals such as miles, time, rounds fired, etc.

Table 1. Mandatory Replacement Parts

ITEM NO.	PART NUMBER/ CAGEC	NATIONAL STOCK NUMBER (NSN)	NOMENCLATURE	QTY
1	MS21044C4 80205	5310–00–889–2589	Nut, Self Locking, Hexagon	8
2	MS35338-139 80205	5310–01–249–9376	Washer, Lock	4
3	M45913/1-4F53 81349	5310–00–143–6102	Nut, Self Locking, Hexagon	4
4	M45913/1-6C93 81346	5310–00–914–6028	Nut, Self Locking, Hexagon	4
5	TY 553M 56501		ID Strap	2
6	WASHER, LOCK, 1/4" 19548		Washer, Lock	4
7	WASHER, LOCK, 3/8" 19548		Washer, Lock	10
8	WASHER, LOCK, 3/8" 56833		Washer, Lock	8
9	WASHER, LOCK, 5/16" 19548		Lock Washer	4
10	160-A-1200 19548	5310–01–393–8514	Sealing Washer	2
11	8611320 ITEM 184 98752		Washer, Lock	4
12	8611320 182 98752		Washer, Lock	4
13	8611325 229 98752		Washer, Lock	4
14	8611354 ITEM 186 98752		Elastic Stop Nut	12
15	93107912 ITEM 230 98752		Washer, Lock	4

END OF WORK PACKAGE

INDEX

INDEX – (Continued)

INDEX – (Continued)

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: TACOMLCMC.DAForm2028@us.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: 55-2840-229-23
9. Pub Title: TM
10. Publication Date: 04-JUL-85
11. Change Number: 7
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: 2
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

For use of this form, see AR 25-30; the proponent agency is ODISC4.

Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).

DATE
21 October 2003

TO: *(Forward to proponent of publication or form) (Include ZIP Code)*
U.S. Army TACOM Life Cycle Management Command,
ATTN: AMSTA-LCL-MPP / TECH PUBS
6501 E. 11 Mile Road, Warren, MI 48397-5000

FROM: *(Activity and location) (Include ZIP Code)*
PFC JANE DOE
Co A 3RD Engineer Br.
Ft Leonard Wood, MO 63108

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 10-1670-296-20&P	30 October 2002	Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*
	0036 00-2				1	*In Table 1, Sewing Machine Code Symbols, the second sewing machine code symbol should be MDZZ not MD22* *Change the manual to show Sewing Machine, Industrial: Zig-Zag; 308 stitch; medium-duty; NSN 3530-01-181-1421 as a MDZZ code symbol.*

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Jane Doe, PFC	(508) 233-4141 DSN 256-4141	Jane Doe *Jane Doe*

DA FORM 2028, FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. USAPPC V3.00

TO: (*Forward direct to addressee listed in publication*)	**FROM:** (*Activity and location) (Include ZIP Code)*	**DATE**
U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-MPP / TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	*PFC JANE DOE* *Co A 3RD Engineer Br.* *Ft Leonard Wood, MO 63108*	21 October 2003

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM 10-1670-296-20&P	30 October 2002	Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
0066 00-					4			*Callout 16 in figure 4 is pointed to a D-Ring.In the Repair Part List key for Figure 4, item 16 is called a Snap Hook. Please correct one or the other.*

PART III – REMARKS (*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.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-MPP / TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 10-4510-207-13&P	10 June 2013	Operator and Field Maintenance Manual for 12-Head Shower System (NSN 4510-01-597-9434)

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

TO: *(Forward to proponent of publication or form) (Include ZIP Code)*	**FROM:** (*Activity and location) (Include ZIP Code)*	**DATE**
U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-MPP / TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000		

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM 10-4510-207-13&P	10 June 2012	Operator and Field Maintenance Manual for 12-Head Shower System (NSN 4510-01-597-9434)

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 (*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.)*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

UASPPC V3.00

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-MPP / TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

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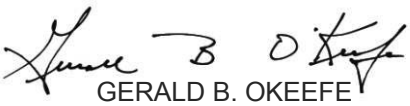
TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

UASPPC V3.00

By Order of the Secretary of the Army:

RAYMOND T. ODIERNO
General, United States Army
Chief of Staff

Official:



GERALD B. OKEEFE
Acting Administrative Assistant
to the Secretary of the Army
1314209

DISTRIBUTION:

To be distributed in accordance with initial distribution number (IDN) 257999 requirements for TM 10-4510-207-13&P.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 3 2.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

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

Weights

1 centigram = 10 milligrams = .15 grain
1 decigrarn = 10 centigrams = 1.54 grains
1 gram = 10 decigrams = .035 ounce
1 dekagrarn = 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

Square Measure

1 sq. centimeter = 100 sq. millimeters = .15 5 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 feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	Iiters	.473	milliliters	fluid ounces	.034
quarts	Iiters	.946	liters	pints	2.113
gallons	Iiters	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

PIN: 087437-000