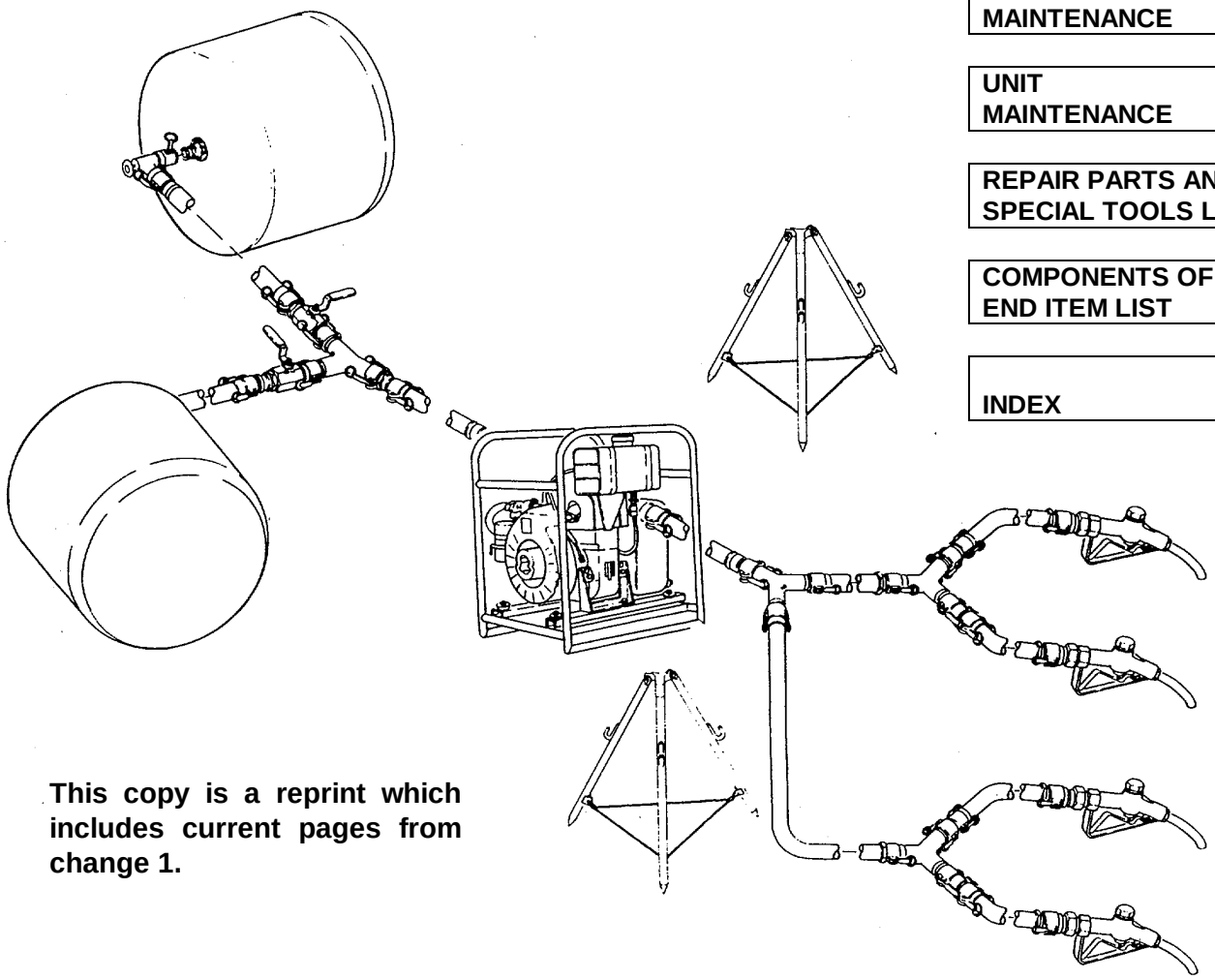
TECHNICAL MANUAL

OPERATOR'S AND UNIT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

FORWARD AREA WATER POINT SUPPLY SYSTEM
MODEL LAB 9095
NSN 4320-01-359-0369



This copy is a reprint which includes current pages from change 1.

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

HEADQUARTERS, DEPARTMENT OF THE ARMY
30 APRIL 1993

CHANGE

No.2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 30 November 1996

Operator's and Unit
Maintenance Manual
Including Repair Parts and Special Tools List

FOR

FORWARD AREA WATER POINT
SUPPLY SYSTEM
MODEL LAB 9095
NSN 4320-01-359-0369
UOC: FFV
MODEL JGB-FAWPSS-432034612P
NSN 4320-01-431-1461
UOC: FNQ

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

TM 10-4320-346-12&P, 30 April 1993, is changed as follows:

1. Title is changed as indicated above.

2. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
i through iv	i through iv
4-3 and 4-4	4-3 and 4-4
4-11 through 4-14	4-11 through 4-14
C-5 and C-6/(C-7 Blank)	C-5 and C-6/(C-7 Blank)
C-17 and C-18	C-17 through C-18.2
C-29/(C-30 blank) through C-34	C-29 through C-35/(C-36 blank)

3. Retain this sheet in front of manual for reference purposes.

TM 10-4320-346-12&P
C2

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Amy
03032

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25-E. block no. 6049, requirements for TM 10-4320-346-12&P

CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 4 JANUARY 1996

Operator's and Unit
Maintenance Manual
Including Repair Parts and Special Tools List

FOR

FORWARD AREA WATER POINT
SUPPLY SYSTEM
MODEL LAB 9095
NSN 4320-01-359-0369

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

TM 10-4320-346-12&P, 30 April 1993, is changed as follows:

1. Remove and insert pages as indicated below. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

Remove pages	Insert pages
i through iv	i through iv
1-3 and 1-4	1-3 and 1-4
2-7 and 2-8	2-7 and 2-8
4-3 and 4-4	4-3 and 4-4
4-11 through 4-14	4-11 through 4-14
B-5 and B-6	B-5 and B-6
C-15 and C-16	C-15 and C-16
C-21 through C-23/(C-24 blank)	C-21 through C-23/(C-24 blank)
C-31 through C-34	C-31 through C-34
D-1 through D-4	D-1 through D-4
D-7 and D-8	D-7 and D-8
F-1 and F-2	F-1 and F-2
1-1/(I-2 blank)	1-1/(I-2 blank)

2. Retain this sheet in front of manual for reference purposes.

By Order of the Secretary of the Army:

Official:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Yvonne M. Harrison

YVONNE M. HARRISON
Administrative Assistant to the
Secretary of the Army
01014

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25-E, block no. 6049, requirements for TM 10-4320-346-12&P.

WARNING

Serious injury could occur if heavy equipment is moved/lifted without sufficient personnel to do the job. Use proper physical lifting procedures or use a suitable lifting device or dolly. Wear safety shoes, gloves, and other suitable protective clothing.

WARNING

Serious injury can result in breathing fumes of dry cleaning solvent A-A-71 1, type I. Serious injury or death can result from explosion of fumes from solvent. When using this solvent:

- Clean parts in a well ventilated area.
- Avoid inhalation of solvent fumes and prolonged exposure of skin to cleaning solvent. Wash exposed skin thoroughly.
- Do not use near open flame or excessive heat. Flash point of solvent is 100° F to 138° F (380 C to 590 C).
- Wear eye protection when blowing solvent from parts. Air pressure should not exceed 30 psig (2.1 kg/cm2).

WARNING

Engine Exhaust Gas (Carbon Monoxide) is **DEADLY.** Carbon monoxide is an odorless, colorless gas formed by incomplete combustion of hydrocarbon fuels. Carbon monoxide is a dangerous gas that can cause unconsciousness and is potentially lethal. Some of the symptoms or signs of carbon monoxide inhalation are: Dizziness; Intense Headache; Weakness and Sleepiness; Vomiting; Muscular Twitching; Throbbing in Temples. If you experience any of these symptoms, get out into fresh air immediately. The best protection against carbon monoxide inhalation is a regular inspection of the complete exhaust system. If you notice a change in the sound or appearance of the exhaust system, shut the unit down immediately and have it inspected and repaired at once by a competent mechanic.

NOTE

In the event that first aid is required for injured operating or maintenance personnel, refer to FM21-11 for proper first aid procedures.

TECHNICAL MANUAL

NO. 10-4320-346-12&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 30 April 1993

Operator's and Unit
Maintenance Manual
Including Repair Parts and Special Tools List

For

FORWARD AREA WATER POINT SUPPLY SYSTEM
MODEL LAB 9095
NSN 4320-01-359-0369
UOC: FFV
MODEL JGB-FAWPSS-432034612P
NSN 4320-01-431-1461
UOC: FNQ

Current as of 1 July 1996

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. You may also submit your recommended changes by E-mail directly to <mpmt%avma28@st-louis-emh7.army.mil>. A reply will be furnished directly to you. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

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

TABLE OF CONTENTS

TABLE OF CONTENTS - Continued

TABLE OF CONTENTS - Continued

LIST OF ILLUSTRATIONS

LIST OF TABLES

HOW TO USE THIS MANUAL

GENERAL. This technical manual provides you with the information needed to operate and to maintain the Forward Area Water Point Supply System (FAWPSS). By properly using this manual, you will be able to identify any problem you may have in operating the FAWPSS and then locate the proper procedure needed to correct any problem found.

MANUAL ORGANIZATION. This manual has been organized in a manner that groups together the information that an operator or a maintenance technician will need to perform their duties. The following list indicates how this information has been organized.

Chapter 1 This chapter contains a complete description of the FAWPSS and includes such information as general equipment data, location/descriptions of major FAWPSS components, and general theory of operations for the FAWPSS.

Chapter 2 The information needed to set up and to operate the FAWPSS are included in this chapter. It includes assembly information, operator PMCS, and special instructions for unusual or emergency conditions.

Chapter 3 All operator maintenance procedures have been placed within this chapter.

Chapter 4 In the event that unit level maintenance is required for the FAWPSS, the required maintenance instructions can be found in this chapter.

Appendix C If you find that a part or component of the FAWPSS is damaged and must be replaced, you can identify the part needed by referring to the illustrations and parts lists found in this Repair Parts and Special Tools List.

AIDS TO FINDING INFORMATION. The following aids have been placed within this technical manual to help you quickly locate the information you may need.

Front Cover Index To provide you with a quick reference to the most used portions of this technical manual, an index of these areas has been placed on the front cover of this manual.

Bleeder Edges On Pages On the right edge of the front cover index of this manual you will see a black box area that goes to the edge of the front cover page. If you hold this manual with you left hand and bend back the outer right edges of the pages with your right hand, you will find that there are pages inside the technical manual that also have black boxes on the right edges of the page and that these boxes line up with the boxes on the front cover index. By turning to the page in the technical manual that lines up with the box on the front cover, you will be able to quickly turn to the topic shown in the front cover index.

Table Of Contents In the event that the front cover has been removed from this And Boxed Titles manual, the items that appear in the front cover index have also been placed in a box where they appear in the Table of Contents of this manual.

Alphabetical Index To assist you in locating any other information not found in the front cover index or the Table of Contents, an alphabetical index has been placed in the back of this manual to help you find any information you may need.

GENERAL MAINTENANCE METHOD. Although your local standard operating and maintenance procedure may vary, a simple method of using this technical manual to operate and maintain the FAWPSS is shown in the following steps.

WARNINGS And CAUTIONS.
Always Read, Understand, and Perform ALL WARNINGS and CAUTIONS
Found In This Technical Manual BEFORE Performing
The Step Immediately Following The
WARNING or CAUTION.

Throughout this technical manual there are certain procedures and operations that are hazardous to you or to the FAWPSS. If you see a **WARNING**, pay special attention to the information stated in it because all **WARNINGS** provide you with data that will prevent serious injury to you or others around you. When you see a CAUTION read it carefully because the information given in it will keep you from damaging the FAWPSS and making the FAWPSS unable to fulfill its mission.

Equipment Set Up And Operation. Unpack and set up the FAWPSS in accordance with the procedures shown in Chapter 2.

Preventive Maintenance Checks And Services (PMCS). Perform the operator PMCS procedures shown in Chapter 2.

Troubleshooting Procedures. If the FAWPSS should not operate properly, refer to either the operating troubleshooting procedures in Chapter 3 or the unit troubleshooting procedures in Chapter 4. The most likely FAWPSS malfunctions have been placed within these troubleshooting procedures and a test and/or repair procedure paragraph has been indicated to correct the malfunction found. If a repair is required, refer to the maintenance paragraph shown in the troubleshooting procedure.

Maintenance Procedures. The complete repair procedures needed to correct a problem found with the FAWPSS have been included in Chapters 3 and 4.

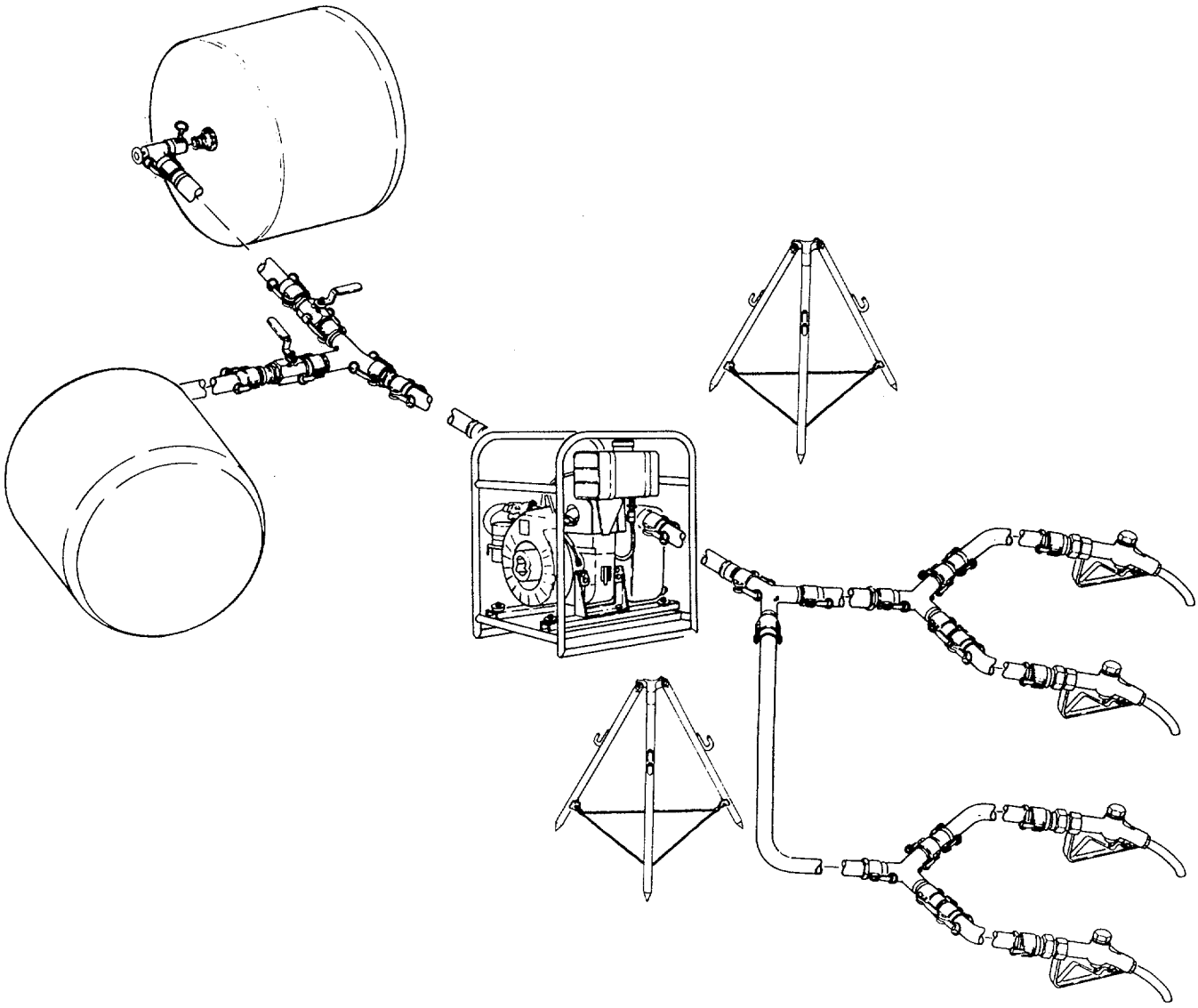


Figure 1-1. Forward Area Water Point Supply System.

CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. ***Type of Manual.*** Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List).

b. **Model Number and Equipment Name.** Model LAB 9095, Forward Area Water Point Supply System (FAWPSS).

c. ***Purpose of Equipment.*** The FAWPSS system covered by this manual is a specially assembled group of components designed to be used by forward area personnel to receive, dispense, and store potable water to troops.

1-2. MAINTENANCE FORMS AND RECORDS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750. The Army Maintenance Management System (TAMMS) (Maintenance Management UPDATE).

1-3. CORROSION AND PREVENTION CONTROL. Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and .improvements can be made to prevent the problem in future items.

While corrosion is typically associated with the rusting of metals, it can also include deterioration of other materials such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of the materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using Standard Form 368, Product Quality Deficiency Report. Use of key words such as "rust", "deterioration", "corrosion", or "cracking" will insure that the information is identified as a CPC problem. The form should be submitted to the address specified in the DA PAM 738-750.

1-4. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE. Refer to TM 750-244-3, Procedures for Destruction of Equipment to Prevent Enemy Use.

1-5. PREPARATION FOR STORAGE OR SHIPMENT. Contact unit maintenance for preparation and storage or shipment. Refer to Section VI, Chapter 4.

1-6. QUALITY ASSURANCE / QUALITY CONTROL. The text of any quality assurance or quality control procedure in this manual will always be preceded by the designation "(QA)". Any procedures of this type should be followed closely to insure the FAWPSS is in proper operating condition.

1-7. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S). If your FAWPSS needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design
or performance. Put it on a SF 368 (Product Quality Deficiency Report). Mail it to us at;

Commander
U.S. Army Aviation and Troop Support Command
Attention: AMSAT-I-MDO
4300 Goodfellow Blvd.
St. Louis, Missouri 63120-1798.

We will send you a reply.

1-8. LIST OF ABBREVIATIONS. All abbreviations use within this technical manual conform to the standard military abbreviations found in MIL-STD-12, Abbreviations for Use on Drawings, and in Specifications, Standards, and Technical Documents.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-9. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

a. Characteristics and Capabilities. The FAWPSS is designed to store and dispense potable water and is capable of the following.

(1) Storing a maximum of 1,000 gallons of potable water.

(2) Dispensing potable water by pumping the water from the collapsible storage drums to the nozzles at the water dispensing points.

b. Features. The FAWPSS has the following features.

(1) The FAWPSS is equipped with four separate nozzles for distribution of potable water at four individual water distribution points.

(2) Two nozzle stand assemblies are furnished to store the nozzles when not in use.

(3) A 125 gpm pumping assembly is provided to pump potable water from the collapsible storage drums to the nozzles at the distribution points.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS. The FAWPSS consists of the following major components shown on Figure 1-2.

a. Pump and Engine Assembly. A diesel powered pump and engine assembly (1) capable of pumping 125 gallons of potable water per minute is provided with the FAWPS S to pump the potable water stored in the 500 gallon water drums to the water distribution nozzles.

b. Collapsible Water Drums. Six collapsible water drums (2) with coupler valve assemblies (3) are furnished to store water within the FAWPSS until it is needed at the distribution points.

c. Towing Yokes. One towing and lifting yoke (4) is provided to allow the collapsible drums to be moved.

d. Nozzle Assemblies. Four nozzle assemblies (5) are provided to distribute the potable water at four distribution points.

e. Nozzle Stand Assemblies. Two nozzles stand assemblies (6) are furnished to provide a device to store the water distribution nozzles in a safe manner when the nozzles are not being used.

f. Swivel Assemblies. Four swivel assemblies (7) are attached to each of the four nozzle assemblies to allow freedom of nozzle movement without damage or kinking of the FAWPSS hose assemblies.

g. Valve Assemblies. *To allow for flexibility in choosing which collapsible drum assembly will be used for distribution* of water, two 2.00 in. ball valve assemblies (8) are provided with the FAWPSS.

h. Hose Assemblies. For distribution and routing of the potable water throughout the FAWPSS, four 2.00 in. x 10 feet long hose assemblies (9), two 2.00 in. x 25 feet long hose assemblies (10), and four 1.50 in. x 25 feet long hose assemblies (11) are provided.

i. Fuel Can. Two five gallon fuel cans (12) are provided for refueling the FAWPSS pump and engine assembly.

j. Deleted.

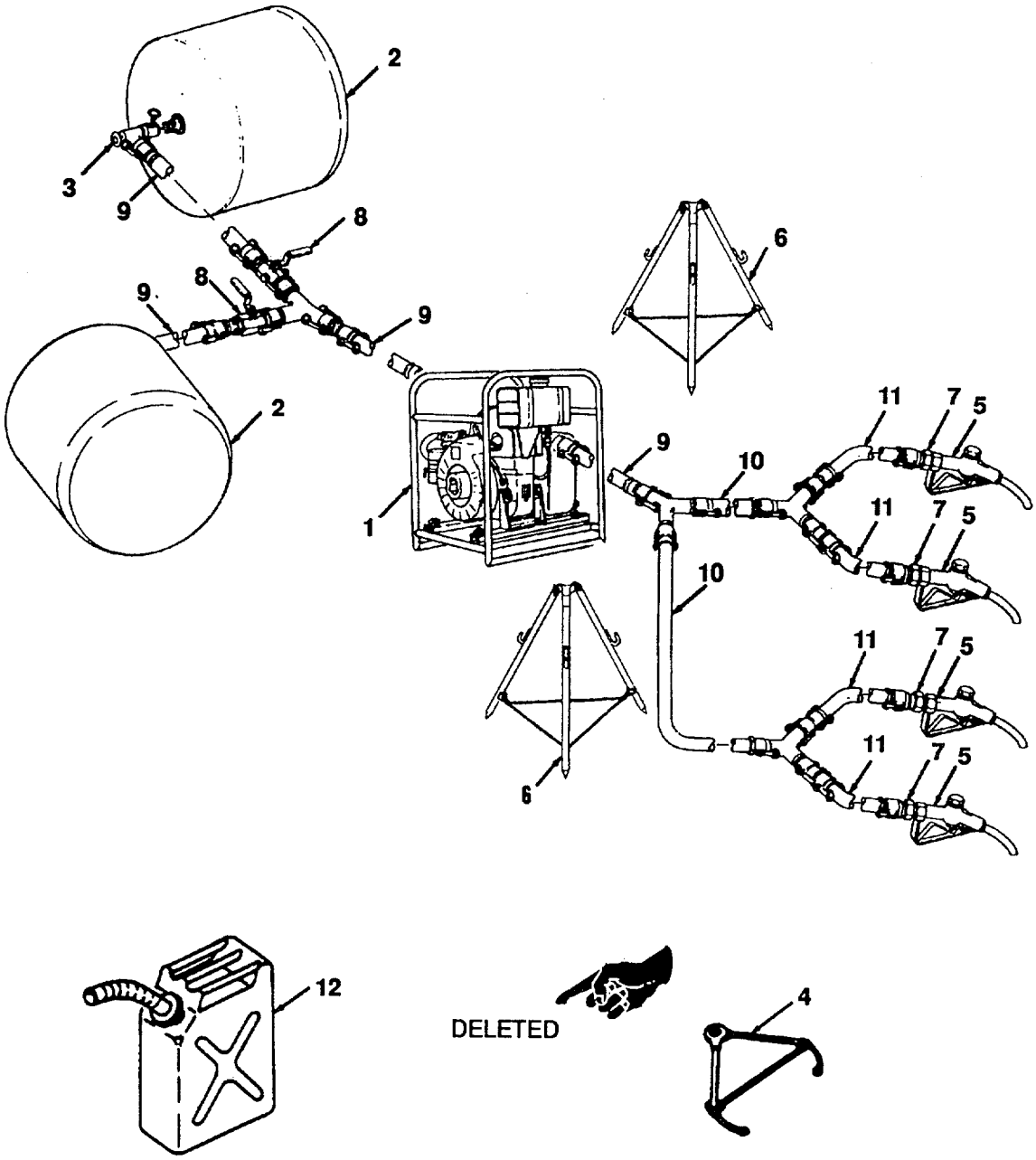


Figure 1-2. Location of Major Components.

1-11. EQUIPMENT DATA. Refer to Table 1-1. for the performance data for the FAWPSS.

Table 1-1. Equipment Data.

PUMP ASSEMBLY

Engine:
- Fuel ..... Diesel
- Horsepower ..... 3 hp

Capacities:
- Pumping Capacity ..... 500 gpm (473 Lpm)
- Fuel Tank ..... 1 gal (3.785 liter)
- Crankcase ..... 4/5 qt (0.757 liter)

Weights and Dimensions:
- Shipping Weight ..... 146 lbs (66.28 kg)
- Length ..... 22.00 in. (55.88 cm)
- Width ..... 18.00 in. (45.72 cm)
- Height ..... 28.00 in. (71.12 cm)

COLLAPSIBLE STORAGE DRUMS
- Length ..... 80.00 in. (200.00 cm)
- Width ..... 46.00 in. (117.00 cm)
- Weight (filled) ..... 4,300 lbs (1,952 kg)
- Volume ..... 500 gal (1,893 liter)

FAWPSS SHIPPING WEIGHT

(Excluding pump and engine assembly, storage tank adapter assemblies, and 5 gallon fuel tank.) ..... 400 lbs (181 Kg)

FAWPSS SHIPPING DIMENSIONS
- Width ..... 48.00 in. (121.92 cm)
- Length ..... 48.00 in. (121.92 cm)
- Height ..... 36.00 in. (91.44 cm)

Section III. PRINCIPLES OF OPERATION

1-12. THEORY OF OPERATIONS. The forward area water point supply system comprises a number of separate major components to store and dispense potable water. The principles of operation of each of these major components and how they work within the system are defined in the following paragraphs. (Refer to Figure 1-2.)

a. ***Potable Water Storage System***. The FAWPSS uses two 500 gallon collapsible storage drums to store the potable water used in the FAWPSS. A typical layout of the FAWPSS is shown in Figure 1-2. Each of the collapsible fabric drums are equipped with an adapter assembly that allows the tank to connect to the other piping components of the FAWPSS.

b. Pump. The 125 gpm centrifugal pump and engine assembly is used to move potable water from the collapsible drums to the four nozzles located at the four water distribution points.

c. Ball Valve Assemblies. Two 2.00 ball valve assemblies are placed between each of the collapsible storage drums and the pump and engine assembly. These valve assemblies are used to select which of the storage drums will be used for potable water distribution. Water may be drawn from both drums at the same time by opening both valves or the valves may be set to draw from one drum by closing the valves on one side of the system. This allows for the changing of drums for repair or refill.

d. Nozzle Assemblies. When the pump and engine assembly is operating and the ball valve assemblies have been properly opened to allow potable water to be pumped from the selected storage tank, the nozzle assemblies located at each of the four distribution points is then used to dispense potable water into suitable receiving containers.

e. Fittings. Several different types of fitting assemblies are also used in the FAWPSS to connect hoses, valves and components together.

CHAPTER 2

OPERATING INSTRUCTIONS

CHAPTER 2 INDEX

Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. INTRODUCTION. The Forward Area Water Point Supply System (FAWPSS) is designed for operation in a wide range of climatic conditions. Operators must be aware of any peculiarities or operational limitations for their specific installation. Before setting up and operating this system, be sure that you have determined the type of terrain and climate in which you will use the system and that you have assembled and serviced the system to match the existing needs.

2-2. OPERATOR'S CONTROLS AND INDICATORS. This manual generally covers a FAWPSS less the pump and engine assembly. For controls and indicators applicable to the pump and engine assembly, refer to the applicable technical manual. The following items are the only remaining operator's controls for the FAWPSS.

a. ***Ball Valve Assemblies***. The two ball valve assemblies furnished with the FAWPSS are used to control the flow of water between the two collapsible storage drums and the 125 pump and engine assembly. The ball valve is in the open position when the handle on the valve is turned in the counter clockwise direction until the handle stop comes into contact with the body of the valve. The ball valve is in the fully closed position when the handle is turned clockwise until the handle stop again comes into contact with the body of the valve.

b. ***Nozzle Assemblies***. The nozzle assemblies are used as the final dispensing component of the FAWPSS. After positioning the nozzle over the container to be filled with potable water, the lever on the nozzle is depressed to allow water to flow through the spout of the nozzle and into the container. When dispensing is complete, releasing the nozzle will stop the flow of water from the nozzle.

c. ***Collapsible Drum Assemblies***. Each collapsible drum assembly is equipped with a coupler valve assembly to control the flow of water from the drum.

Section II. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES

2-3. GENERAL. Preventive Maintenance Checks and Services (PMCS) means systematic caring, inspecting, and servicing of equipment to keep it in good condition and to prevent breakdowns. As the operator of the FAWPSS, your mission is to:

a. Be sure to perform your PMCS each time you operate your FAWPSS. Always do your PMCS in the same order, so it gets to be a habit. Once you've had some practice, you'll quickly spot anything wrong.

b. Do your **BEFORE (B)** PMCS just before you operate the FAWPSS. Pay special attention to all WARNINGS, CAUTIONS, and NOTES.

c. Do your **DURING (D)** PMCS while you are operating the FAWPSS. During operations means to monitor the FAWPSS and its related components while it is actually being operated. Pay special attention all WARNINGS, CAUTIONS, and NOTES.

d. Do your **AFTER (A**) PMCS right after you have operated the FAWPSS. Pay special attention to all WARNINGS, CAUTIONS, and NOTES.

e. Do your **WEEKLY PMCS** once a week.

f. Do you **MONTHLY PMCS** once a month.

g. Use DA Form 2404 (Equipment Inspection and Maintenance Worksheet) to record any faults that you discover before, during, or after operation unless you can fix them. You do not need to record faults that you fix.

h. Be prepared to assist unit maintenance in any lubrication procedures. Perform any other services when required by unit maintenance.

2-4. PMCS PROCEDURES.

a. Your Preventive Maintenance Checks and Services, Table 2-1, lists inspections and care to keep your FAWPSS in good operating condition. It is set up so you can make your BEFORE (B) Operation checks as you perform a general examination of the FAWPSS.

b. The "INTERVAL" column of Table 2-1 tells you when to do a certain check or service.

c. The "PROCEDURE" column of Table 2-1 tells you how to do required checks and services. Carefully follow these instructions. If you do not have tools or if the procedure tells you to, notify your supervisor.

NOTE

Terms "ready/available" and "mission capable" refer to the same status: Equipment is on hand and ready to perform combat missions. (See DA PAM 738-750.)

d. The "NOT FULLY MISSION CAPABLE IF:" column in Table 2-1 tells you when your FAWPSS is not capable and why the FAWPSS cannot be used.

e. If the FAWPSS does not perform as required, refer to Section III, Operator Troubleshooting.

2-4. PMCS PROCEDURES. - Continued.

f. If anything looks wrong and you can't fix it, write it on your DA Form 2404 IMMEDIATELY and report it to your supervisor.

g. When you do your PMCS, you will always need a rag or two. The following items are common to all of the FAWPSS components:

(1) Keep It Clean. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (Appendix F, Item 3) on all metal surfaces. Use soap (Appendix F, Item 5) when you clean rubber or plastic material.

(2) Rust and Corrosion. Check the components of the FAWPSS for rust and corrosion. If any bare metal or corrosion exists, clean and apply a thin coat of oil. Report it to your supervisor.

(3) Bolts, Nuts, and Screws. Check them for obvious looseness, missing, bent, or broken condition. You can't 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 metal parts are welded together. If you find a bad weld, report it to your supervisor.

(5) Hoses. Look for wear, damage, or leaks and make sure clamps and fittings are tight. Wet spots show obvious 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.

h. When you check for "proper operating condition", you look at the component to see if its serviceable.

2-5. SPECIAL INSTRUCTIONS. If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shut down.

2-6. LEAKAGE DEFINITIONS FOR OPERATOR PMCS. It is necessary for you to know how fluid leakage affects the status of the FAWPSS. Following are types and classes of leakage an operator needs to know to be able to determine the status of the FAWPSS. Learn these leakage definitions and remember -- ***when in doubt, notify your supervisor***.

CAUTION

- Equipment operation is allowable with minor leakages (Class I or II). Of course, 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 by your PMCS.
- Class III leaks should be reported immediately to you supervisor.

a. ***CLASS I*** Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

b. CLASS II. Leakage of fluid great enough to form drops, but not enough to cause drops to drip from item being checked/inspected.

c. CLASS III. Leakage of fluid great enough to form drops that fall from item being checked/inspected.

Table 2-1. Operator Preventive Maintenance Checks and Services For Forward Area Water Point Supply System.

Item No.	Interval	Location: Item To Check/Service	Procedure	Not Fully Mission Capable If:
1	Before	**HOSE ASSEMBLIES**	Check all hose coupling halves for missing gaskets.	Coupling half gasket is missing.
	Before		Check hoses for cuts, cracks, and deterioration.	Hoses are cut, cracked, or deteriorated.
	Before		Check for damaged or missing coupling halves.	Coupling halves are damaged or missing.
2	Before	**BALL VALVE ASSEMBLIES**	Inspect valve handles for damage.	Valve handles are damaged.
	Before		Check all valves for proper operation.	Valves do not operate properly.
	Before		Inspect valve coupling halves for damage and for missing gaskets.	Valve coupling halves are damaged or gasket is missing.

Table 2-1. Operator Preventive Maintenance Checks and Services For Forward Area Water Point Supply System. - Continued.

Item No.	Interval	Location: Item To Check/Service	Procedure	Not Fully Mission Capable If:
3	Before	**NOZZLE ASSEMBLIES**	Inspect nozzles for cracks, damage, or missing parts.	Nozzles are cracked, damaged, or has, missing parts.
	Before		Check control handle for proper operation.	Control handle does not operate properly.
	Before		Inspect couplings for damage and for missing gaskets.	Couplings are damaged or gaskets are missing.
	Before		Check that nozzle swivel fitting operates smoothly.	Swivel fitting jammed, or does not operate smoothly.
4	Before	**NOZZLE STAND ASSEMBLIES**	Inspect nozzle stands for damage or missing parts.	Nozzles stands are damaged or have missing parts.
5	Before	**TOWING AND LIFTING YOKES**	Inspect towing yokes for damage or missing parts.	Towing yokes are damaged or have missing parts.
6	Before	**MISC. FITTINGS**	Inspect all fittings for damage or missing gaskets.	Fittings are damaged or gaskets are missing
7	During	**HOSE ASSEMBLIES**	Check hoses and fittings for leaks.	Hoses or fittings leak.
8	During	**BALL VALVE**	Inspect valves and coupling halves for leaks.	Valve or coupling halves leak.
9	During	**NOZZLE ASSEMBLIES**	Inspect nozzles for leaks.	Nozzle leaks.
10	During	**MISC. FITTINGS**	Inspect fittings and coupling halves for leaks.	Fittings or coupling halves leak.

SECTION III. OPERATION UNDER USUAL CONDITIONS

2-7. ASSEMBLY AND PREPARATION FOR USE. Figure 2-1 shows a typical layout of the FAWPSS. It should be used only as a guide since terrain features of the site and the specific application will dictate the final configuration. Plan the most efficient layout for the selected site, making the best use of natural cover and level terrain. It is estimated that a fully assembled FAWPSS will need an open area of about 30 feet by 120 feet.

NOTE

- Make sure all dust caps and plugs remain in place on components, hoses, and fittings until they are connected into the system.
- For all components having cam lock type caps and plugs, attach protective plugs from one component into the protective caps of the other mating component to protect loose caps, plugs, and gaskets when components are in use.

a. Position major components of the FAWPSS first.

(1) Position the two 500 gallon collapsible storage drums (1). If the collapsible drums must be repositioned, attach the towing and lifting yoke to the drum and move drum to desired position. To attach the towing and lifting yoke to the collapsible drum assembly, perform the following steps.

(a) Remove coupler valve assembly from drum.

(b) Unfold the towing and lifting yoke and connect the two braces.

(c) Install two screws and two lock nuts to secure the braces together.

(d) Place ends of towing yoke arms into position onto towing pins of collapsible drum assembly.

(e) Insert clevis pins through the towing yoke arms and through towing pins on each side of collapsible drum assembly.

CAUTION

Sharp objects or rough terrain can seriously damage the collapsible drum. Do not tow collapsible drum over sharp objects or rough terrain. Do not tow collapsible drum at speeds greater that 10 mph (16 km/hr).

(f) Tow collapsible drum into position required for intended FAWPSS installation and in accordance with collapsible drum technical manual.

(g) Remove clevis pins from towing yoke arms and from towing pins of collapsible drum assembly.

2-7. ASSEMBLY AND PREPARATION FOR USE. - Continued.

(h) Remove two lock nuts and two screws connecting braces.

(i) Fold braces together and store towing and lifting yoke away for future use.

(j) Attach coupler valve assembly to collapsible drum.

(2) Position the 125 GPM pump and engine assembly (2) within 15 feet of the collapsible drum and in accordance with instructions contained in the applicable operator's manual for the pump and engine assembly.

b. Connect two 2.00 in. dia. x 10 ft. long hose assemblies (3) to two collapsible drum assemblies (1).

c. Install one ball valve assembly (4) onto each of the two 2.00 in. dia. x 10 ft. long hose assemblies (3).

d. Connect y-fitting connector (5) to the female coupling halves of the two ball valve assemblies (4).

e. Install adapter (6) and 2.00 in. dia. x 10 ft. long hose assembly (7) to y-fitting connector (5) and to suction port of pump and engine assembly (2).

f. Install 2.00 in. dia. x 10 ft. long hose assembly (8) to discharge port of pump and engine assembly (2).

g. Install y-fitting connector (9) to 2.00 in. dia. x 10 ft. long hose assembly (8).

h. Install two 2.00 in. dia. x 25 ft. long hose assemblies (10) to y-fitting connector (9).

i. Install two y-fitting connectors (11) onto two 2.00 in. dia. x 25 ft long hose assemblies (10).

j. Install four reducers (12) onto two y-fitting connectors (11).

k. Install four 1.50 in. dia x 25 ft long hose assemblies (13) onto four reducers (12).

l. Connect four nozzle assemblies (14) onto four 1.50 in. dia. x 25 ft. long hose assemblies (13).

m. Determine where the actual water dispensing points will be and place the two nozzle stand assemblies (15) into position to allow for easy access and storage of nozzle assemblies (14) during water dispensing operations.

2-8. INITIAL ADJUSTMENTS, DAILY CHECKS, AND SELF TESTS.

a. Inspect all collapsible drums, hoses, pump and engine assembly, ball valve assemblies, y-fitting connectors, reducers, adapters, swivels, and nozzle stand assemblies for completeness, damage, and for proper operation as applicable. Report any deficiencies to unit maintenance.

b. Perform the preventative maintenance checks and services listed in Table 2-1.

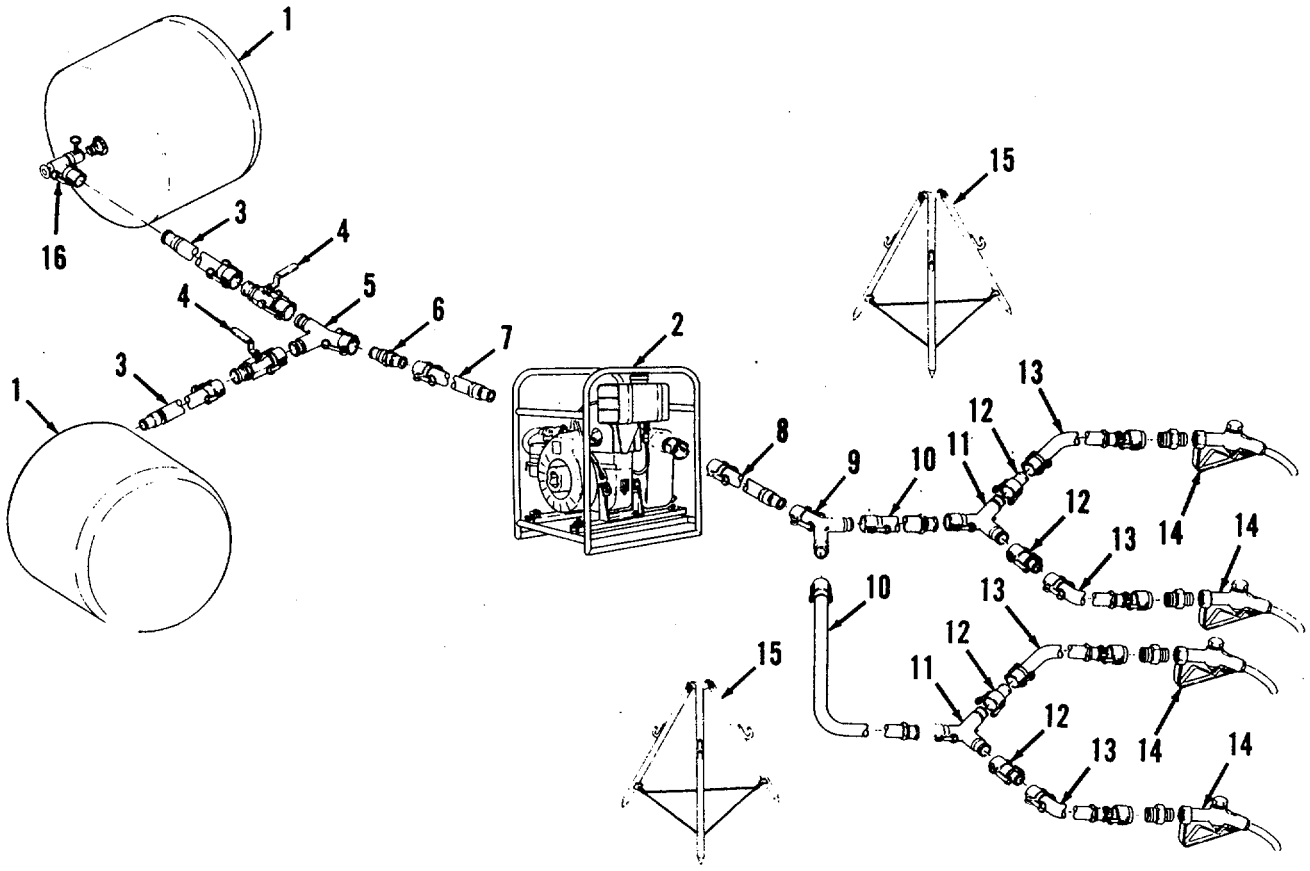


Figure 2-1. Typical Set Up of Forward Area Water Point Supply System.

2-9. OPERATING PROCEDURES. The following general operation procedures and explanations indicate the steps required to properly dispense water from the FAWPSS. All of the following procedures should be used and fully understood to be sure that the FAWPSS will operate in the best possible manner. (Refer to Figure 2-1.)

a. Turn handles on drum coupler valve assemblies (16) located on of both collapsible water drums (1) clockwise to open valves.

b. Open both ball valve assemblies valve (6).

c. Refer to applicable technical manual for pump and engine assembly (2) and start pump to move water from collapsible water drums (1) into the water discharge lines.

d. Select the nozzle assembly (14) to be used and lift it from the nozzle stand assembly.

WARNING

Contaminated water can injure personnel. When FAWPSS is used for the first time after assembly, operate each of the four nozzles to flush out any dirt or debris that may have entered the FAWPSS during assembly.

e. To dispense water through nozzle assemblies (14), place nozzle spout into proper water container and operate lever on nozzle assembly to dispense water.

f. When dispensing operation is completed, release lever on nozzle assembly (14) and place nozzle assembly onto an unused hook of nozzle stand assembly.

g. When all water dispensing operations are concluded, close two ball valve assemblies (6) and two adapter valve assemblies (16) located on collapsible water drums (1).

h. Refer to applicable technical manual for pump and engine assembly (2) and shut down pump.

2-10. OPERATION INSTRUCTIONS ON DECALS AND INSTRUCTION PLATES. Because the FAWPSS is basically a set of separate items assembled for a special purpose, the system itself does not have any information plates. Certain components of the system, however, do have individual information plates. Refer to the applicable technical manual for the following system components that do have information plates.

- ***Pump and Engine Assembly*.**
- ***Collapsible Storage Drum Assemblies***.

2-11. PREPARATION FOR MOVEMENT. When the FAWPSS is to be moved, the services of unit maintenance shall be employed for the necessary preparations. For general disassembly of the FAWPSS, perform the following steps (Refer to Figure 2-1).

NOTE

- Be sure to install all dust caps and plugs on the hose assemblies and fittings as they are dismantled.
- Store hose assemblies and fittings in their original shipping boxes or other suitable containers for transportation.

a. Close both elbow valves on coupler valve assemblies (16) installed into collapsible storage drums (1) and open two valve assemblies (4).

b. Disconnect two 2.00 in. dia. x 10 ft. long hose assemblies (3) from two collapsible water drums (1).

c. Disconnect two 2.00 in. dia x 10 ft. long hose assemblies (7) and (8) from pump and engine assembly (2).

d. Disconnect two ball valve assemblies (4) from y-fitting (5) and hose assembly (3).

e. Remove 2.00 in. dia. x 10 ft long hose assembly (7) and adapter (6) from y-fitting (5).

f. Disconnect four 1.50 in. dia x 25 ft. long hose assemblies (13), two 2.00 in. dia x 25 ft. Long hose assemblies (10), and 2.00 in. dia x 10 ft. long hose assembly (8) from y-fittings (9) and (11).

g. Remove four reducers (12) from y-fittings (11).

h. Remove four nozzle assemblies (14) from four 1.50 in. dia. x 25 ft. long hose assemblies (13).

i. Lift hose assemblies over the shoulder to create a siphoning action and walk the hose line to drain water from all hoses. Remove valves and other fittings as you go and install caps and plugs into all dismantled components.

j. Store hose assemblies and fittings in their original shipping boxes or other suitable containers for transportation.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-12. OPERATION UNDER UNUSUAL WEATHER. The FAWPSS is designed to operate normally within a wide range of climatic conditions. However, some extreme conditions require special operating and servicing procedures to prevent undue loading and excessive wear on the equipment. These unusual conditions and the special steps to be performed are listed in the following paragraphs.

a. Operation In Extreme Cold. When operating the FAWPSS in temperatures down to -50°F (-45°C), extra care should be taken to minimize possible injury to personnel and damage to equipment. Special cold weather procedures must be followed for operation of the pump and engine assembly and collapsible water drums which are part of this FAWPSS. Refer to the applicable technical maintenance manual for the procedures to follow when operating these items in extremely cold temperatures.

WARNING

Water can freeze very quickly and can quickly lower the temperature of exposed skin until there is a great danger of frost bite. Prevent leakage of water onto bare skin of personnel. Remove any water from exposed skin as soon as possible.

CAUTION

Freezing water can badly damage the FAWPSS components. When FAWPSS operations are completed at temperatures below 32°F (0°C), disconnect each end of all hose assemblies to prevent freezing water from damaging equipment.

b. Operation In Sandy or Dusty Conditions. Dusty and sandy conditions can seriously affect the operation of the FAWPSS. When operating the FAWPSS in these dusty and sandy conditions, perform the following steps.

(1) Accumulation of dust or sand in the filters of the pump and engine assembly will cause the pump to overheat and damage the equipment. Frequently clean filters and all other areas of dust and sand accumulation. In extreme conditions, daily cleaning of filters may be necessary. Refer to the technical maintenance manual for the pump and engine assembly for detailed procedures which must be performed when the pump is used in dusty and sandy conditions.

(2) Water which has been contaminated by dust and sand can severely affect the usability of the water. Special care must be taken that the water being pumped does not have dust or sand in it when using the FAWPSS in dusty and sandy conditions. Be sure that all hose and piping connections are tight. Be sure that the insides of all FAWPSS components are clean before piping connections are made during FAWPSS set up and assembly.

c. Operation In Salt Air and Sea Spray Conditions. The nature of salt presents serious corrosion problems. Frequent cleaning is necessary during which all exposed surfaces should be thoroughly sprayed, rinsed, or sponged with fresh water to remove salt. Keep spouts on nozzle assemblies free from dried salt to insure that the water being dispensed for potable water use is not contaminated.

2-13. OPERATION UNDER EMERGENCY CONDITIONS. Emergency shutdown of the FAWPSS is done by the immediate shutdown of the pump and engine assembly used by the FAWPSS. Refer to the technical maintenance manual for the pump assembly for the proper emergency shutdown procedures for the pump.

CHAPTER 3
OPERATOR MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

3-1. GENERAL. No lubrication is required for the FAWPSS itself, however, the pump and engine assembly used with the FAWPSS does require lubrication. Refer to the pump and engine assembly technical manual for the for proper lubrication procedures.

Section II. OPERATOR TROUBLESHOOTING PROCEDURES

3-2. INTRODUCTION.

a. This section contains troubleshooting information for locating and correcting most of the operating troubles which may develop in the FAWPSS. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which will help you to determine corrective actions to take. You should perform the tests/inspections and corrective actions in the order listed.

b. 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 listed corrective actions, notify your supervisor.

c. Table 3-1 lists the common malfunctions which you may find during the operation or maintenance of the FAWPSS or its components. You should perform the tests/inspections and corrective actions in the order listed.

3-3. MALFUNCTION INDEX.

3-4. OPERATOR TROUBLESHOOTING TABLE. Refer to Table 3-1 for the operator troubleshooting procedures authorized for the FAWPSS.

Table 3-1. Operator Troubleshooting.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. PUMP AND ENGINE ASSEMBLY WILL NOT START.
Refer to operator sections of operator technical manual for pump and engine assembly and start pump.
2. PUMP AND ENGINE ASSEMBLY STARTS, BUT WILL NOT PUMP RATED CAPACITY.
Step 1. FAWPSS system valves are improperly set. Refer to Operating Instructions in Chapter 2 of this technical manual to be sure that all FAWPSS valves have been adjusted for the operation desired.
Step 2. Inspect pump and engine assembly for low engine speed. If pump and engine assembly is operating at a low speed, adjust engine operating speed per operator technical manual.
Step 3. Notify unit maintenance.
3. PUMP AND ENGINE ASSEMBLY STARTS, BUT WATER CANNOT BE DISPENSED.
Step 1. FAWPSS system valves are improperly set. Refer to Operating Instructions in Chapter 2 of this technical manual to be sure that all FAWPSS valves have been adjusted for the operation desired.
Step 2. Check for clogged hose assemblies, ball valve assemblies, or nozzle assemblies by disconnecting component from the FAWPSS system and checking internal areas for dirt or debris. Clean all dirt and debris from inside of any clogged or dirty components.
Step 3. Nozzle assembly is defective. Notify unit maintenance.
Step 4. A ball valve assembly is defective. Notify unit maintenance.

Table 3-1. Operator Troubleshooting.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
Step 5. Valve assembly on collapsible water drum coupler valve assembly is defective. Refer to troubleshooting section of collapsible water drum technical manual.
4. WATER CONTINUES TO FLOW WHEN ALL VALVES ARE CLOSED.
Step 1. Test for defective ball valve assembly by disconnecting hose assembly nearest to outlet of ball valve assembly, closing ball valve, and then checking ball valve outlet for water leakage. If water leakage is found, ball valve assembly is defective and unit maintenance must be notified.
Step 2. Test for defective nozzle assembly by starting FAWPSS pump and engine assembly and then opening and closing nozzle valve assembly. Check for continued water leakage from nozzle spout when nozzle is closed. If water continues to leak from nozzle spout when nozzle assembly is closed, nozzle assembly is defective and unit maintenance must be notified.
5. HOSE ASSEMBLY LEAKS.
Step 1. Gaskets are missing from hose connection joints. Remove affected hose from connection and check that gasket is properly placed within the coupling half. If gasket is missing, contact unit maintenance for a replacement gasket.
Step 2. Cam-lock couplings are improperly fastened. Disconnect couplings from hose and then reconnect couplings. Be sure that the coupling cam-locking mechanism is properly positioned to seal the hose joint.
Step 3. Dust or dirt is trapped inside the hose coupling connection. Disconnect couplings from hose and check for dust or dirt inside couplings. Remove any dust or dirt found and reconnect hose assembly.

Table 3-1. Operator Troubleshooting. - Continued.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
5. HOSE ASSEMBLY LEAKS. - Continued. Step 4. Hose assembly is defective. Notify unit maintenance. **6. LEAKS OCCUR AT JOINTS OF COMPONENTS.** Step 1. Cam-lock couplings are improperly fastened. Disconnect couplings from component and then reconnect couplings. Be sure that the coupling cam-locking mechanism is properly positioned to seal the component joint. Step 2. Dust or dirt is trapped inside the component coupling connection. Disconnect couplings from component and check for dust or dirt inside couplings. Remove any dust or dirt found and reconnect component. Step 3. Gaskets are missing from connection joints. Take affected joint connection apart and check that gasket is properly placed within the coupling half. If gasket is missing, contact unit maintenance for a replacement gasket. Step 4. Component parts are defective. Notify unit maintenance. **7. COMPONENTS LEAK AT PLACES OTHER THAN JOINTS.** Component parts are defective. Notify unit maintenance.

Section III. OPERATOR MAINTENANCE PROCEDURES

3-5. GENERAL. This section contains the maintenance procedures which the Maintenance Allocation Chart authorizes the operator to perform. If the FAWPSS still does not operate properly after performing these maintenance procedures, contact unit maintenance for assistance.

3-6. GENERAL COMPONENT REPLACEMENT. The FAWPSS comprises a number of separate assembly and subassembly components. The operator is authorized to replace a number of these separate components if they should fail. The following components may be replaced (as an assembly) by the FAWPSS operator if they are found to be defective.

- **Hose Assemblies.**
- **Ball Valve Assemblies.**
- **Nozzle Assemblies.**
- **Nozzle Stand Assemblies.**
- **Towing and Lifting Yokes.**
- **Miscellaneous Fittings.**

In the event that any of the above components fail, the operator should replace the defective component with a properly functioning component exactly like the one which has failed. The operator should not attempt to make any repairs on any components found to be defective. All defective FAWPSS components must be sent to unit maintenance who will repair the defective components as needed.

NOTE

No other operator maintenance is authorized. If the FAWPSS still fails to operate properly, contact unit maintenance.

CHAPTER 4

UNIT MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS, TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE), AND SUPPORT EQUIPMENT

4-1. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE), CTA 50-970, or CTA-8-100, as applicable to your unit. Unit maintenance for the FAWPSS will require the use of a Tool Kit, General Mechanic's, (Appendix B, Item 1).

4-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. Special tools are required for maintenance of the equipment. These special tools are listed in the Special Tools section of the Maintenance Allocation Chart in Appendix B of this technical Manual. Test, Measurement, and Diagnostic Equipment and Support Equipment include standard equipment found in any maintenance shop.

4-3. REPAIR PARTS. Repair parts needed by unit maintenance of the FAWPSS are listed and illustrated in the Repair Parts and Special Tools List (RPSTL) provided in Appendix C to this technical manual.

Section II. SERVICE UPON RECEIPT AND PREPARATION FOR MOVEMENT

4-4. SITING REQUIREMENTS. The FAWPSS should be assembled on a level area free of debris and large rocks. Special care should be taken to insure that no hose assemblies will be placed on or near rocks or other objects that may have sharp points or edges which may damage the hose assemblies when the FAWPSS is operated. Be sure that the site allows for enough room to assemble the FAWPSS. When configured as shown in this technical manual (see Figure 2-1) the FAWPSS will take up an area about 30 ft. x 120 ft.

4-5. SERVICE UPON RECEIPT. The following paragraphs contain the procedures for unloading, unpacking, and general checking of the unpacked FAWPSS.

a. Unloading. Most of the components of the FAWPSS are shipped in one wooden crate. The only items which are not shipped inside this crate are the pump and engine assembly and the collapsible water drums. The crate may be lifted by fork-lift, crane, or sling. To unload the FAWPSS, perform the following steps.

(1) Check all shipping crates for damage. Damaged crates indicate probable damage to equipment.

4-5. SERVICE UPON RECEIPT. - Continued.

a. Unloading. - Continued.

(2) Remove all blocking and tie downs that may have been used to secure the crate onto the carrier.

(3) Use a forklift truck or other suitable material handling equipment to remove the crate from the carrier.

b. Unpacking.

NOTE

The FAWPSS shipping container is designed so that it may be retained for re-use for mobility purposes when frequent relocation of the system is anticipated.

(1) Remove top of shipping crate.

(2) Remove the technical publications envelope that is attached to the inside of the crate and put them in a safe place.

(3) Carefully remove all FAWPSS components and packaging material from crate.

c. Checking Unpacked Equipment. Check the unpacked FAWPSS as follows:

(1) Inspect each of the FAWPSS components for damage that may have been incurred during shipment, especially if crate is damaged. If any component has been damaged, report damage on SF 364, Report of Discrepancy.

(2) Check the quantities and type of each component against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions as defined within DA PAM 738-750. See that all Components of End Item and Basic Issue Items (See Appendix D) are with the FAWPSS.

(3) Check to see whether the equipment has been modified.

4-6. INSTALLATION INSTRUCTIONS.

a. Tools, Test Equipment, and Materials Needed for Installation. The FAWPSS can be assembled by hand. No special tools, test equipment, or other materials are needed for assembly of the FAWPSS.

b. Assembly of Equipment. Some pump and engine assemblies do not have cam-lock fittings on the suction or discharge ports of the pump. If the pump and engine assembly furnished with the FAWPSS does not have these cam-lock fittings. perform the following procedures.

(1) Apply sealing compound (Appendix F, Item 4) to male threads of discharge outlet pipe of pump and engine assembly and install male cam-lock fitting (Appendix D, Item 22) to outlet pipe of pump.

(2) Apply sealing compound (Appendix F, Item 4) to male threads of suction inlet pipe of pump and engine assembly and install female cam-lock fitting (Appendix D, Item 24) to inlet pipe of pump.

(3) Attach quick disconnect plugs (Appendix D. Item 25) to nozzle assemblies (Appendix D. Item 4) with retaining rings (Appendix D, Item 11).

For all other FAWPSS assembly instructions refer to paragraph 2-7.

Section III. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES

4-7. INTRODUCTION.

a. Systematic, periodic, Preventive Maintenance Checks and Services (PMCS) are essential to ensure that the FAWPSS is ready for operation at all times. The purpose of a preventive maintenance program is to discover and correct defects and deficiencies before they can cause serious damage or complete failure of the equipment. Any effective preventive maintenance program must begin with the training of operators to report all unusual conditions noted during daily checks or actual operation to unit maintenance. All defects and deficiencies discovered during maintenance inspections must be recorded, together with corrective action taken, on DA Form 2404 (Equipment Inspection and Maintenance Worksheet).

b. A schedule for unit preventive maintenance inspection and service should be established immediately after installation of the FAWPSS. A quarterly interval, equal to three calendar months or 250 hours of operation (which ever occurs first) is recommended for usual operating conditions. When operating under unusual conditions, such as a very dusty or sandy environment, it may be necessary to reduce the interval to monthly or even less if conditions are extreme.

4-8. UNIT PMCS. The FAWPSS has no system unit PMCS. However, the pump and engine assembly and collapsible storage drums do have unit PMCS. Refer to the applicable technical manual for these items for proper unit PMCS procedures and perform those procedures.

Section IV. UNIT TROUBLESHOOTING PROCEDURES

4-9. INTRODUCTION.

a. This section contains troubleshooting information for location and correcting most of the operating troubles which may develop in the FAWPSS. Each malfunction for an individual component, unit. or system is by a list of tests or inspection which will help you to determine corrective actions to take. You should perform the test/inspections and corrective actions in the order listed.

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

C. Table 4-1 lists the common malfunctions which you may find during the operation or maintenance of the FAWPSS or its components. You should pa-form the tcsts/inspections and corrective actions in the order listed.

4-10. UNIT TROUBLESHOOTING PROCEDURES TABLE. Refer to Table 4-1 for the authorized unit troubleshooting procedures for the FAWPSS.

NOTE

Before you use this table. be sure all applicable operating checks have been preformed.

NOTE

Unit troubleshooting procedures for the pump and engine assembly and collapsible storage drums are contained in the technical manual for those components.

Table 4-1. Unit Troubleshooting.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. HOSE ASSEMLBIES LEAK.
Inspect hose assemblies for leaks.
Repair hose assemblies per paragraph 4-12.

Table 4-1. Unit Troubleshooting.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
2. OTHER FAWPSS COMPONENTS LEAK OR WILL NOT JOIN WITH OTHER COMPONENTS PROPERLY. Repair the defective component per the following applicable paragraph. For repair of ball valve assemblies, refer to paragraph 4-13. For repair of nozzle assemblies, refer to paragraph 4-14. For repair of nozzle stand assemblies, refer to paragraph 4-15. For repair of towing yoke assemblies, refer to paragraph 4-16. For repair of other miscellaneous fittings, refer to paragraph 4-17.

Section V. UNIT MAINTENANCE PROCEDURES

4-11. GENERAL INFORMATION. This section contains the maintenance procedures authorized for the unit maintenance as defined in the Maintenance Allocation Chart located in Appendix B. Before performing any procedure in this section, use the unit troubleshooting procedures to identify and locate the parts on the FAWPSS requiring maintenance.

4-12. HOSE ASSEMBLIES.

This Task Covers:

Repair

Initial Setup:

Tools Required

Tool Kit, General Mechanic's (Appendix B, Item 1)
Clamping Tool (Appendix B, Item 3)

Material's Required

Brush, Medium Bristle (Appendix F, Item 2)
Solvent, Dry Cleaning (Appendix F, Item 3)
Cloth, Lint-Free (Appendix F, Item 1)
Gaskets (Appendix I, Item 1) for 2.00 inch diameter hose.
Gaskets (Appendix I, Item 2) for 1.50 inch diameter hose.

Equipment Condition

Hose assembly removed from FAWPSS.

Repair. (Refer to Figure 4-1.)

NOTE

Repair is limited to replacement of parts found defective during inspection.

a. Disassembly.

(1) Cut hose clamps (1) and remove clamps from hose assembly.

(2) Remove female coupling half (2) and male coupling half (3) from hose (4).

(3) Remove quick disconnect plug (5) from female coupling half (2).

(4) Remove quick disconnect cap (6) from male coupling half (3).

(5) Remove gaskets (7) and (8) from female coupling half (2) and from quick disconnect cap (5).

b. Cleaning.

(1) Remove all build up of dirt, oil, and debris from all mating surfaces and clamping areas.

WARNING

DO NOT breath dry cleaning solvent vapors for long periods of time or allow solvent to come into contact with skin for an extended time. DO NOT use solvent near open flames or excessive heat.

(2) Clean all metallic parts with a clean soft cloth (Appendix F, Item 1) or a medium bristle brush (Appendix F, Item 2), and cleaning solvent (Appendix F, Item 3).

(3) Allow parts to dry.

c. Inspection.

(1) Inspect all metal parts for cracks, corrosion, or broken fittings.

(2) Examine all gaskets for cracks, tears, or nicks.

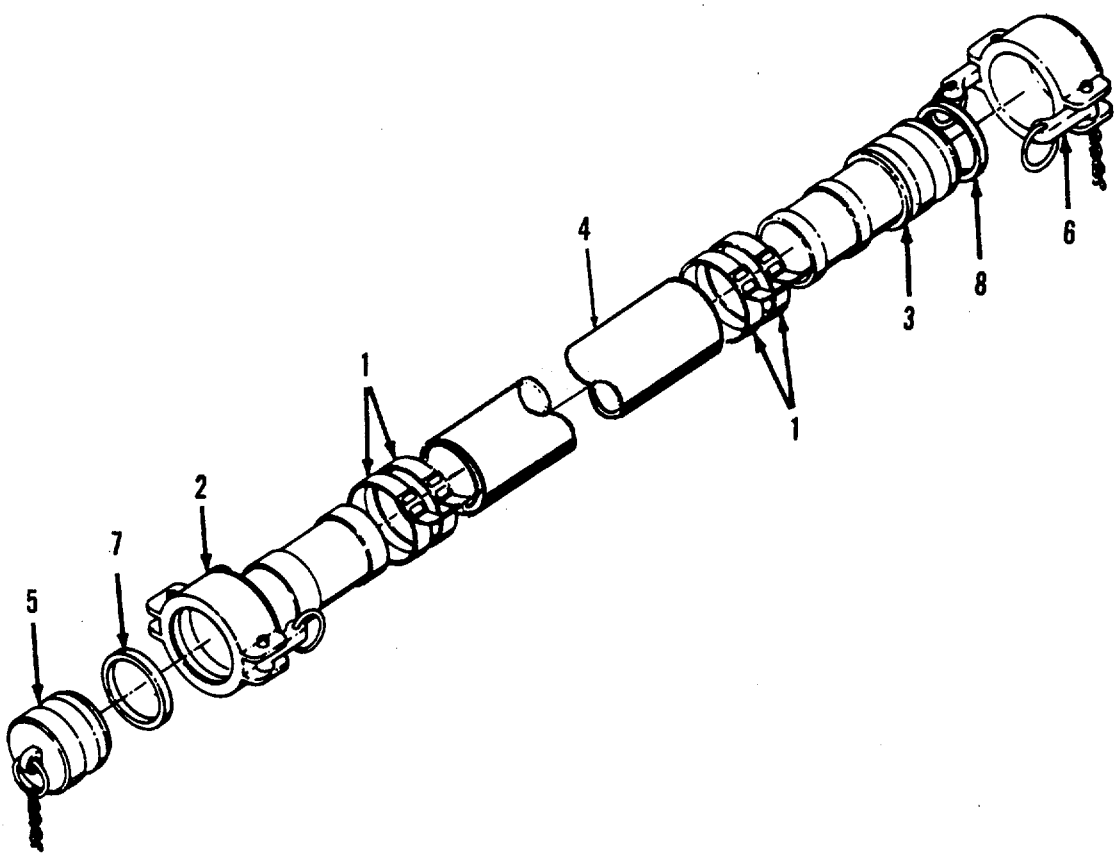


Figure 4-1. Hose Assembly.

4-12. HOSE ASSEMBLIES. - Continued.

d. Assembly.

(1) Install female coupling half (2), male coupling half (3), and new hose clamps (1) into hose (4) by performing the following steps (a) through (h). (Refer to Figure 4-2.)

(a) Place two adjustable hose clamps and seals onto the end of the hose and insert the coupling half into the end of the hose (Step 1). Be sure the static wires make good contact with the coupling.

(b) Insert the end of the hose clamp into the clamping tool (Step 2).

(c) Insert the winder into the clamping tool (Step 3). Be certain the end of the hose clamp fits into the winder slot.

(d) Attach the ratchet wrench to the winder and tighten the hose clamp until the hose presses against the shank of the coupling half (Step 4).

(e) Maintain tension on the wrench and strike the punch a sharp blow with a mallet (Step 5).

(f) Maintain tension on the wrench and move the clamping tool back and forth until the end of the clamp breaks off (Step 6).

(g) Peen the sharp edges of the clamp flat with a mallet.

(h) Repeat steps (a) through (g) for each clamp until two clamps have been installed onto each end of the hose to hold the male and female coupling halves.

(2) (Refer to Figure 4-1.) Install new gaskets (8) and (7) into quick disconnect cap (6) and female coupling half (2).

(3) Install quick disconnect cap (6) onto male coupling half (3).

(4) Install quick disconnect plug (5) into female coupling half (2).

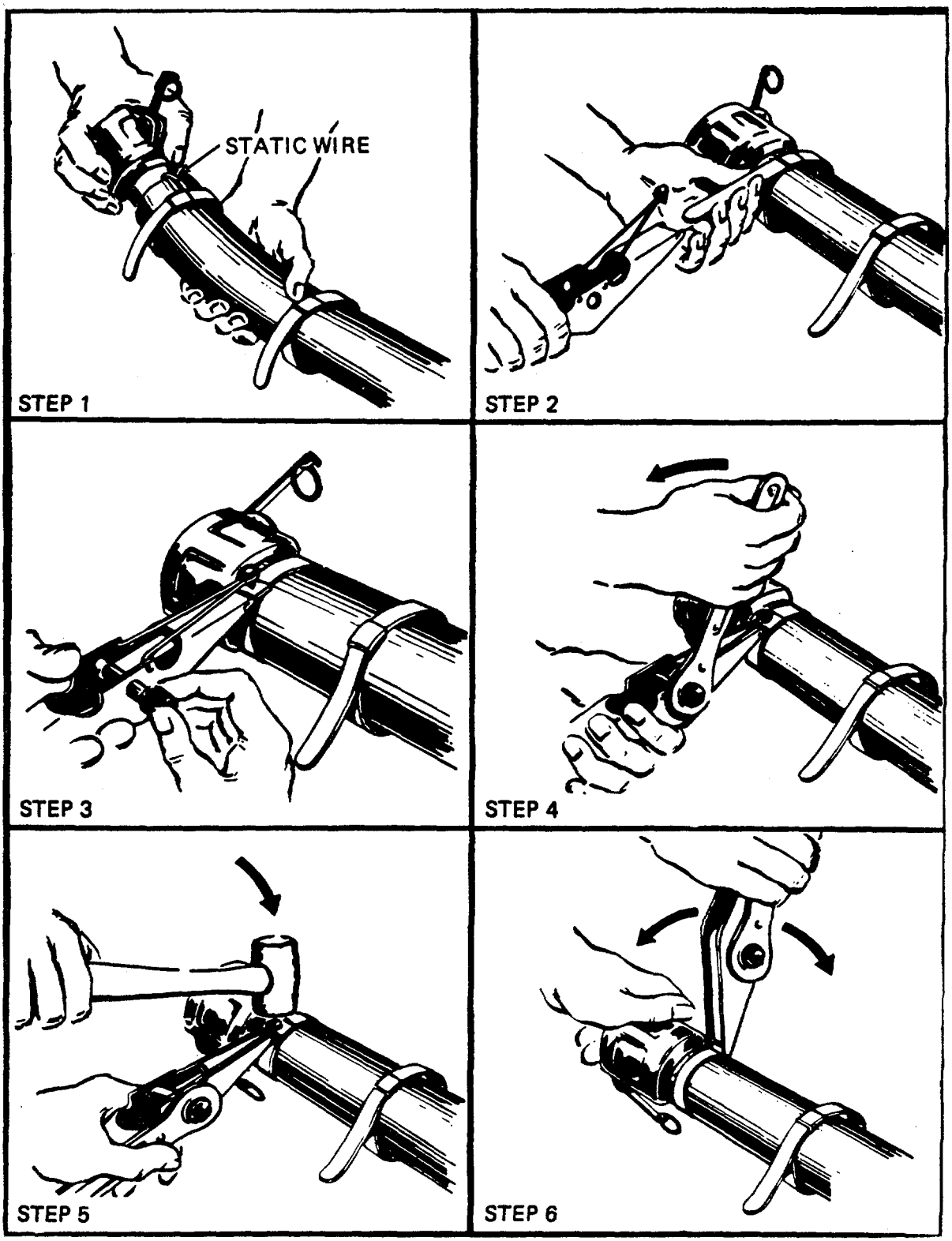


Figure 4-2. Clamp Installation Using Clamping Tool (Appendix B, Item 2).

4-13. BALL VALVE ASSEMBLY, 2.00 INCH, QUICK ACTING.

This Task Covers:

Repair

Initial Setup:

Tools Required

Tool Kit, General Mechanic's (Appendix B, Item 1)
Wrench, Pipe (Appendix B, Item 2)

Material's Required

Brush, Medium Bristle (Appendix F, Item 2)
Solvent, Dry Cleaning (Appendix F, Item 3)
Cloth, Lint-Free (Appendix F, Item 1)
Sealing Compound (Appendix F, Item 4)
Gaskets (Appendix I, Item 1)

Equipment Condition

Assembly removed from FAWPSS installation.

Repair. (Refer to Figure 4-3.)

NOTE

Repair is limited to replacement of parts found defective during inspection.

a. Disassembly.

(1) Remove quick disconnect cap (1) and gasket (2) from male coupling half (3).

(2) Remove quick disconnect plug (4) and gasket (5) from female coupling half (6).

(3) Remove male coupling half (3) and female coupling half (6) from ball valve assembly (7).

b. Clean.

(1) Remove all build up of dirt, oil, and debris from all mating surfaces and clamping areas.

WARNING

DO NOT breath dry cleaning solvent vapors for long periods of time or allow solvent to come into contact with skin for an extended time. DO NOT use solvent near open flames or excessive heat.

(2) Clean all metallic parts with a clean soft cloth (Appendix F, Item 1) or a medium bristle brush (Appendix F, Item 2), and cleaning solvent (Appendix F, Item 3).

(3) Allow parts to dry.

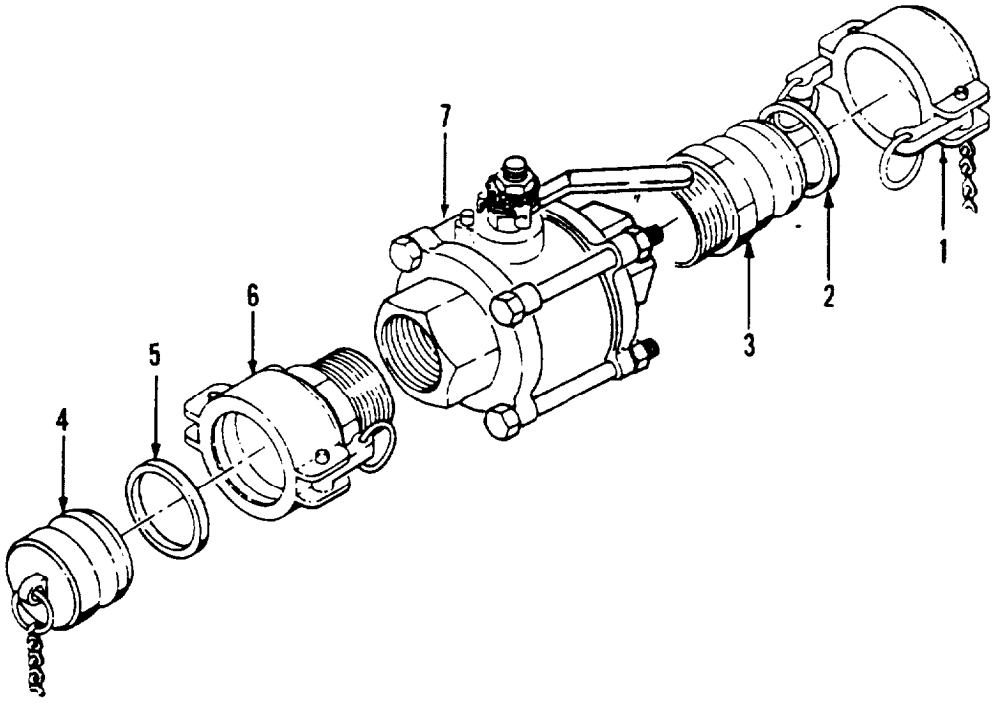


Figure 4-3. Ball Valve Assembly, 2.00 Inch, Quick Acting.

c. **Inspection.**

(1) Inspect all metal parts for cracks, corrosion, or broken fittings.

(2) Check for smooth operation of handle on ball valve.

d. **Assembly.,**

(1) Apply sealing compound (Appendix F, Item 4) to all external threads and install female coupling half (6) and male coupling half (3) into ball valve (7).

(2) Install new gasket (5) and quick disconnect plug (4) onto female coupling half (6).

(3) Install new gasket (2) and quick disconnect cap (1) onto male coupling half (3).

4-14. NOZZLE ASSEMBLIES.

This Task Covers:

Repair

Initial Setup:

Tools Required

Tool Kit. General Mechanic's (Appendix B, Item 1)

Wrench, Pipe (Appendix B. Item 2)

Materials Required

Brush, Medium Bristle (Appendix F, Item 2)

Solvent, Dry Cleaning (Appendix F, Item 3)

Cloth. Lint-Free (Appendix F, Item I)

Sealing Compound (Appendix F, Item 4)

Gasket (Appendix I. Item 2)

Equipment Condition

Assembly removed from FAWPSS installation.

Repair. (Refer to Figure 4-4.)

NOTE

Repair is limited to replacement of parts found defective during, inspection.

a. Disassembly.

(1) Remove dust plug (10) and retaining ring (11) from reducer (2).

(2) Remove gasket (1) from reducer (2).

(3) Remove reducer (2) and swivel (3) from nozzle assembly (4).

(4) Remove dust cap (5). cap links (6). chain (7). compression spring (8), and draw bars (9) or for Mode1 # JGB-FAWPSS-432034612P tension spring (12) from nozzle (4).

b. Clean.

(1) Remove all build up of dirt. oil. and debris from all mating surfaces and clamping areas.

WARNING

DO NOT breathe dry cleaning solvent vapors for long periods of time or allow solvent to come into contact with skin for an extended time. DO NOT use solvent near open flames or excessive heat.

(2) Clean all metallic parts with a clean soft cloth (Appendix F, Item 1) or a medium bristle brush (Appendix F, Item 2). and cleaning solvent (Appendix F. Item 3).

(3) Allow parts to dry.

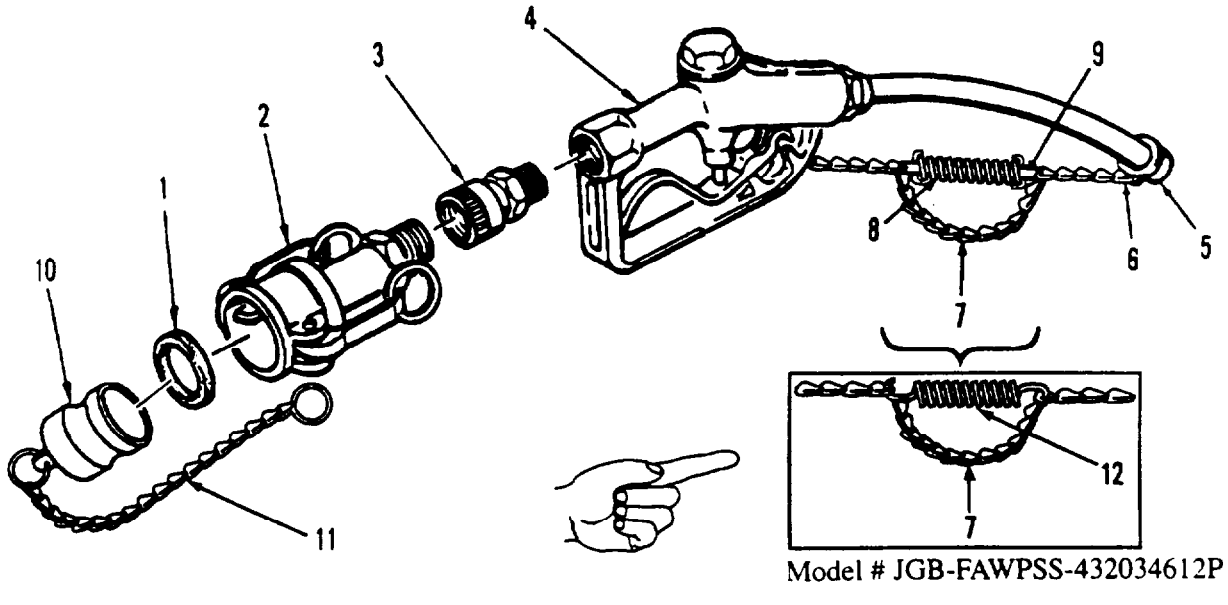


Figure 4-4. Nozzle Assembly.

c. Inspection

(1) Inspect all metal parts for cracks, corrosion, or broken fittings.

(2) Check that lever operates smoothly.

d. Assembly.

(1) Apply antiseizing tape (Appendix F, Item 6) to external threads of swivel (3) and install swivel into nozzle assembly (4).

(2) Install draw bars (9) and compression spring (8), [or for Model # JGB-FAWPSS-432034612P, tension spring (12)], chain (7), cap links (6), and dust cap (5) onto nozzle (4).

(3) Apply antiseizing tape (Appendix F, Item 6) to external threads of reducer (2) and install reducer into swivel (3).

(4) Install new gasket (1) into reducer (2)

(5) Install retaining ring (11) and dust plug (10) on reducer (2).

4-15. NOZZLE STAND ASSEMBLY.

This Task Covers: Repair
Initial Setup: **Tools Required** Tool Kit, General Mechanic's (Appendix B, Item 1) **Materials Required** Brush, Medium Bristle (Appendix F, Item 2) Solvent, Dry Cleaning (Appendix F, Item 3) Cloth, Lint-Free (Appendix F, Item 1) Cotter Pin (Appendix I, Item 3) **Equipment Condition** Assembly removed from FAWPSS installation.

Repair. (Refer to Figure 4-5.)

NOTE

Repair is limited to replacement of parts found defective during inspection.

a. Disassembly

(1) Remove three s-hooks (1) and three chains (2) from two pivot legs (3) and clevis leg (4).

(2) Remove two straight pins (5) and two cotter pins (6).

(3) Remove two pivot legs (3) from clevis leg (4).

b. Clean.

(1) Remove all build up of dirt, oil, and debris from all mating surfaces.

WARNING

DO NOT breathe dry cleaning solvent vapors for long periods of time or allow solvent to come into contact with skin for an extended time. DO NOT use solvent near open flames or excessive heat.

(2) Clean all metallic parts with a clean soft cloth (Appendix F, Item 1) or a medium bristle brush (Appendix E Item 2). and cleaning solvent (Appendix F, Item 3).

(3) Allow parts to dry.

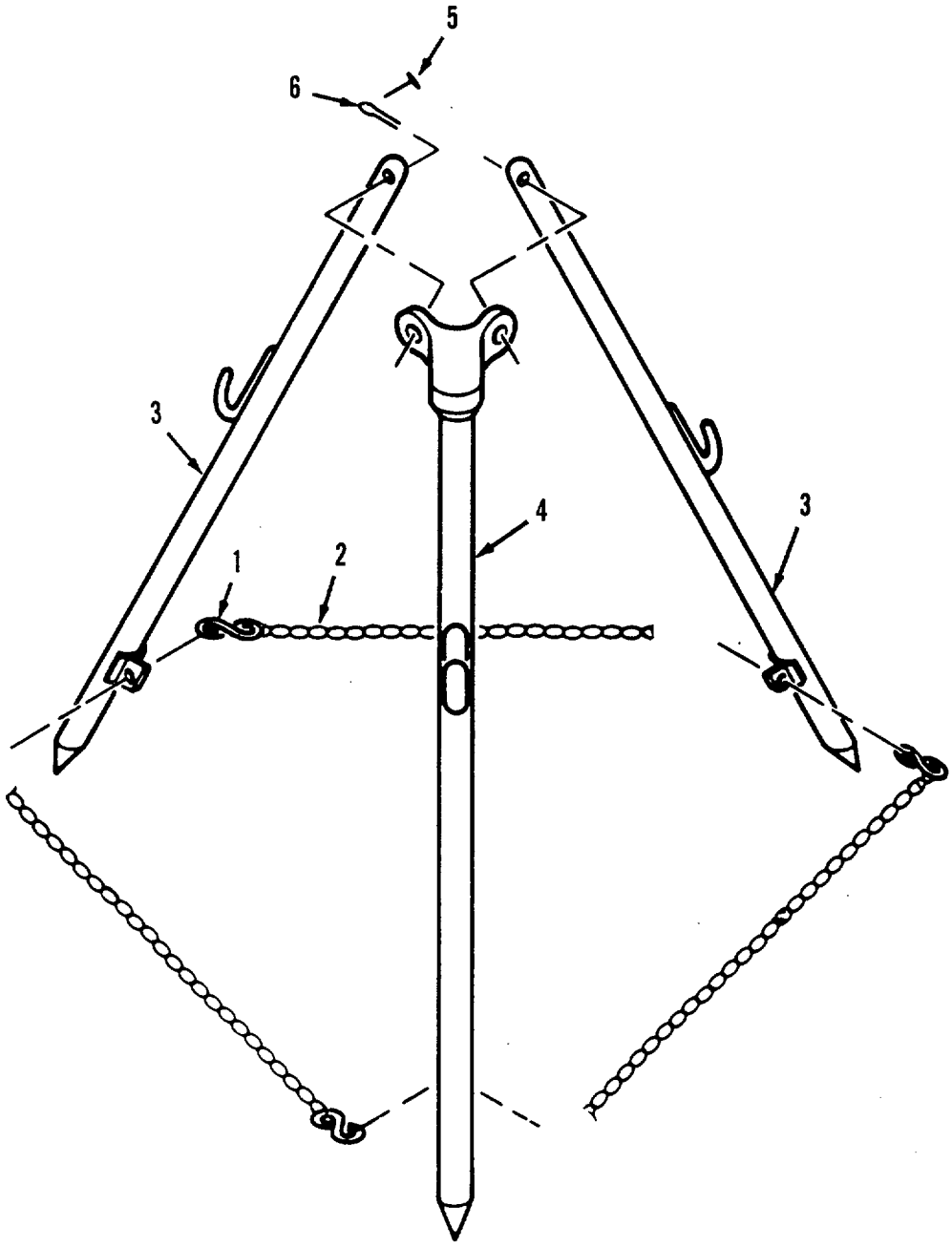


Figure 4-5. Nozzle Stand Assembly.

4-15. NOZZLE STAND ASSEMBLY. - Continued.

c. Inspection.

Inspect all metal parts for cracks, corrosion, or broken fittings.

d. Assembly.

(1) Install two pivot legs (3) onto clevis leg (4) and install two cotter pins (6) and two straight pins (5).

(2) Install three chains (2) and three s-hooks (1) onto two pivot legs (3) and clevis leg (4). Pinch s-hooks to captivate chains and to secure s-hooks to legs.

4-16. TOWING AND LIFTING YOKE.

This Task Covers:

Repair

Initial Setup:

Tools Required
Tool Kit, General Mechanic's (Appendix B, Item 1)

Material's Required
Brush, Medium Bristle (Appendix F, Item 2)
Solvent, Dry Cleaning (Appendix F, Item 3)
Cloth, Lint-Free (Appendix F, Item 1)
Lock Nuts (Appendix I, Item 4)
Lock Nuts (Appendix I, Item 5)

Equipment Condition
Assembly removed from FAWPSS installation.

Repair. (Refer to Figure 4-6.)

NOTE
Repair is limited to replacement of parts found defective during inspection.

a. Disassembly.

(1) Remove two s-hooks (1) and two clevis pin assemblies (2).

(2) Remove two screws (3) and two lock nuts (4) from two braces (5).

(3) Remove two screws (6) and two lock nuts (7) and then remove two braces (5) from two connecting legs (8).

(4) Remove two set screws (9) and two pins (10) and then remove two connecting legs (8) from two upper legs (11).

b. Clean.

(1) Remove all build up of dirt, oil, and debris from all mating surfaces.

WARNING
DO NOT breath dry cleaning solvent vapors for long periods of time or allow solvent to come into contact with skin for an extended time. DO NOT use solvent near open flames or excessive heat.

(2) Clean all metallic parts with a clean soft cloth (Appendix F, Item 1) or a medium bristle brush (Appendix F, Item 2), and cleaning solvent (Appendix F, Item 3) and allow parts to dry.

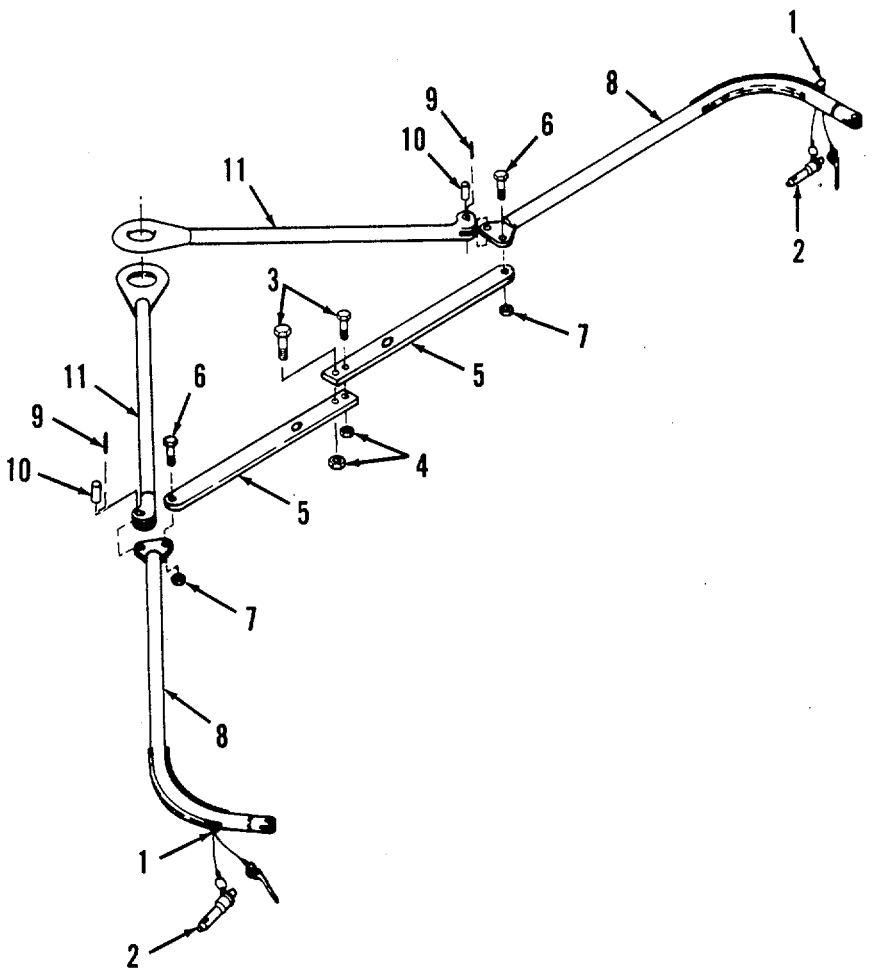


Figure 4-6. Towing and Lifting Yoke.

c. Inspection.

Inspect all metal parts for cracks, corrosion, or broken fittings.

d. Assembly.

(1) Place two upper legs (11) onto two connecting legs (8) and install two pins (10) and two set screws (9).

(2) Place two braces (5) onto two connecting legs (8) and install two lock nuts (7) and two , screws (6).

(3) Install two lock nuts (4) and two screws (3) into two braces (5).

(4) Install two clevis pin assemblies (2) and two s-hooks (1) onto connecting legs (8).

4-17. MISCELLANEOUS FITTINGS.

This Task Covers:

Repair

Initial Setup:

Tools Required

Tool Kit, General Mechanic's (Appendix B, Item 1)

Material's Required

Brush, Medium Bristle (Appendix F, Item 2)
Solvent, Dry Cleaning (Appendix F, Item 3)
Cloth, Lint-Free (Appendix F, Item 1)

Equipment Condition

Assembly removed from FAWPSS installation.

In addition to the other components listed in the previous chapters and paragraphs of this technical manual, there are a number of various miscellaneous fittings and components which are furnished with the FAWPSS. The following general maintenance procedures are to be used to verify that these additional miscellaneous components are in proper working order.

a. Clean.

(1) Remove all build up of dirt, oil, and debris from all mating surfaces and clamping areas.

WARNING

DO NOT breath dry cleaning solvent vapors for long periods of time or allow solvent to come into contact with skin for an extended time. DO NOT use solvent near open flames or excessive heat.

(2) Clean all metallic parts with a clean soft cloth (Appendix F, Item 1) or a medium bristle brush (Appendix F, Item 2), and cleaning solvent (Appendix F, Item 3).

(3) Allow parts to dry.

b. Inspection.

(1) Inspect all metal parts for cracks, corrosion, or broken fittings.

(2) Examine all coupling half gaskets for cracks, tears, or nicks.

c. Repair.

Repair is limited to replacement of parts found defective during inspection.

Section VI. PREPARATION FOR STORAGE OR SHIPMENT

4-18. PREPARATION FOR STORAGE.

a. ***Intermediate Storage (46 to 180 days).***

(1) Drain all water from the FAWPSS and all of its components.

(2) Disassemble the entire FAWPSS by referring to paragraph 2-10 and performing the Preparation for Movement procedures.

(3) Refer to Preparation for Storage sections of the applicable technical manuals for the pump and engine assembly and collapsible storage drums and prepare those items for long term storage.

(4) Mark the FAWPSS for intermediate storage in accordance with the standard Army procedures contained in TM 740-90-1, Administrative Storage of Equipment.

b. ***Long Term or Flyable Storage (Indefinite time).*** Long term storage procedures are the same as for intermediate storage except the FAWPSS shall be marked for long term storage in accordance with TM 740-90-1, Administrative Storage of Equipment.

4-19. ADMINISTRATIVE STORAGE. Placement of equipment in administrative storage should be for short periods of time when a shortage of maintenance effort exists. Items should be in mission readiness within 24 hours or within the time factors determined by the directing authority. During the storage period appropriate maintenance records will be kept.

Before placing equipment in administrative storage, current maintenance services and Equipment Serviceable Criteria (ESC) evaluations should be completed, shortcomings and deficiencies should be corrected, and all Modification Work Orders (MWO) should be applied.

Storage site selection. Inside storage is preferred for items selected for administrative storage. If inside storage is not available, trucks, vans, conex containers and other containers may be used.

APPENDIX A

REFERENCES

A-1. SCOPE. This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

A-2. FORMS.

Report of Discrepancy ..... SF 364
Equipment Inspection and Maintenance Worksheet ..... DA Form 2404
Product Quality Deficiency Report ..... SF 368
Recommended Changes to Equipment Technical Publication ..... DA Form 2028-2
Recommended Changes to Publications and Blank Forms ..... DA Form 2028

A-3. FIELD MANUALS.

First Aid For Soldiers ..... FM 21-11

A-4. TECHNICAL MANUALS.

Administrative Storage of Equipment ..... TM 740-90-1
Procedures for Destruction of Equipment to Prevent Enemy Use (Mobility Equipment Command) ..... TM 750-244-3
Operator, Unit, Direct Support, and General Support Maintenance Manual for Pumping Assembly, 125 GPM ..... TM 5-4320-309-14
Unit, Direct Support, and General Support Repair Parts and Special Tools List for Pumping Assembly, 125 GPM ..... TM 5-4320-309-24P
Operator, Unit, Direct Support, and General Support Maintenance Manual for Drums, Fabric, Collapsible, Non-Vented ..... TM10-8110-202-13&P

A-5. MISCELLANEOUS PUBLICATIONS AND STANDARDS.

The Army Maintenance Management System ..... DA PAM 738-750
Abbreviations for Use on Drawings, And Standards, Specifications and Technical Documents MIL-STD-12
Army Medical Department Expendable/Durable Items ..... CTA 8-100
Expendable Items (Except Medical Class V, Repair Parts and Heraldic Items) ..... CTA 50-970

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL.

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

b. The Maintenance Allocation Chart (MAC) in section II 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 will be consistent with the capacities and capabilities of the designated maintenance categories.

c. Section HI lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS.

Maintenance functions will be limited to and defined as follows:

a. **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).

b. **Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. **Service.** Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

d. **Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

e. **Align.** To adjust specified variable elements of an item to bring about optimum or desired performance.

f. **Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipments 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.

g. **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.

h. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the 3rd position code of the SMR code.

I. **Repair**. The application of maintenance services, including fault location/trouble-shooting, removal/installation, and 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.

j. **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 (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. **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 (hours/miles, etc.) considered in classifying Army equipment/components.

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II.

a. **Column 1, Group Number.** Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00."

b. **Column 2, Component/Assembly.** Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. **Column 3, Maintenance Function.** Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph B-2.)

d **Column 4, Maintenance Category.** Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed

maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. 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/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

C	Operator or crew
O	Unit Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
D	Depot Maintenance

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

B-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III.

a. Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5.

b. Column 2, Maintenance Category. The lowest category of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, National Stock Number. The National stock number of the tool or test **equipment.**

e. Column 5, Tool Number. The manufacturer's part number.

B-5. EXPLANATION OF COLUMNS IN REMARKS, SECTION IV.

a. Column 1, Reference Code. The code recorded in column 6, Section II

b. Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART FOR FORWARD AREA WATER POINT SUPPLY SYSTEM.

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIP	(6) REMARKS
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	Forward Area Water Point Supply System								
01	Hose Assemblies	Inspect	0.2						
		Replace	0.2						A
		Repair		1.0				1, 2, 3	
02	Ball Valve Assemblies	Inspect	0.2						
		Replace	0.2						A
		Repair		1.0				1, 2, 4	
03	Nozzle Assemblies	Inspect	0.2						
		Replace	0.3						A
		Repair		1.0				1, 2, 4	
04	Nozzle Stand Assemblies	Inspect	0.2						
		Replace	0.3						A
		Repair		1.0				1	
05	Towing and Lifting Yokes	Inspect	0.2						
		Replace	0.3						A
		Repair		1.0				1	
06	Miscellaneous Fittings	Inspect	0.2						
		Replace	0.3						A
		Repair		0.4					B
07	Fabric Drums								C
08	Pumping Assembly								D

Section III. SPECIALS TOOLS AND TEST EQUIPMENT REQUIREMENTS

(1) REFERENCE TOOL CODE	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL/NATO STOCK NUMBER	(5) TOOL NUMBER
		Standard tools and test equipment contained in the following kits are adequate to perform the maintenance functions		
1	O	Tool Kit, General Mechanic's	5180-00-177-7033	SC5180-90- CL-N26 (19099)
2	O	Shop Equipment, Automotive Maintenance Repair; Organizational Maintenance SPECIAL TOOLS	4910-00-754-0654	SC 4910-95- CL-A74- HR (19099)
3	O	Clamping Tool, Strap Band, Hose: size of strap for which designed; 3/8 in. to 5/8 in. range, 1/64 in. to 1/32 in thk range; furnished with ratchet tension wrench	5120-00-359-6587	S38 (70847)

Section IV. REMARKS.

REFERENCE CODE	REMARKS
A	Operator replacement consists of removal and installation of component. and retaining rings.
B	Repair of miscellaneous components is limited to the replacement of caps, gaskets,
C	Refer to technical manual TM 10-8110-202-13&P for maintenance of fabric drum assemblies.
D	Refer to technical manuals TM 5-4320-309-14 and TM 5-4320-309-24P for maintenance of pump and engine assembly.

APPENDIX C

UNIT MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

1. 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 unit maintenance of the Forward Area Water Point Supply System. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recover- ability (SMR) codes.

2. GENERAL. In addition to this section, Introduction, this Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. This list also includes 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. Bulk materials are listed in item name sequence. Items are shown in the associated illustration(s)/figure(s).

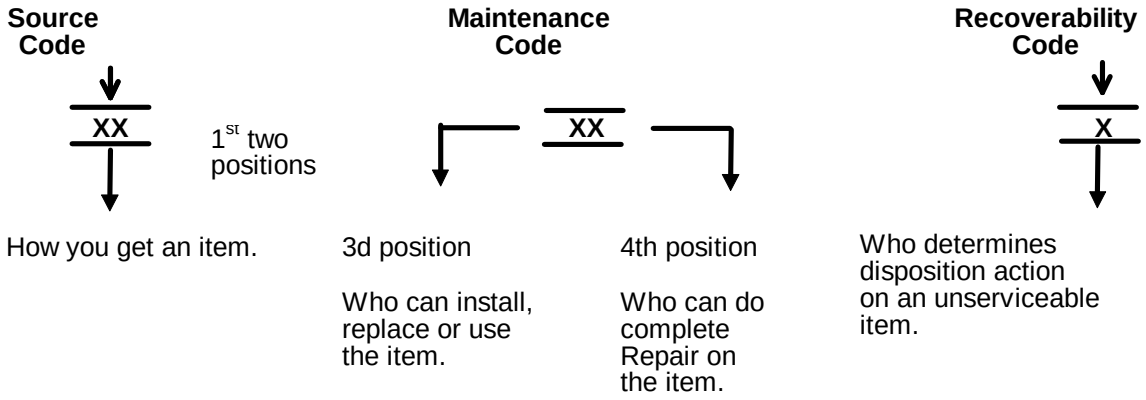
b. Section III. Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USABLE ON CODE column) for the performance of maintenance.

c. Section IV. Cross-Reference Index. A list, in National Item Identification Number(NIIN)sequence, of all National stock numbered items appearing in the listing, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross referenced to each illustration figure and item number appearance. The figure and item number index lists figure and item numbers in alphanumeric sequence and cross references NSN, CAGEC and part number.

3. EXPLANATION OF COLUMNS (SECTIONS II AND III).

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

b. SMR Code (Column (2)). The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



*Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

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

Source Code	Explanation
PA PB PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3rd position of the SMR code. **NOTE: Items coded PC are subject to deterioration.
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 category indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.
MO - (Made at Unit/AVUM Level) MF - (Made at DS/AVUM Level) MH - (Made at GS Level) ML (Made at Specialized Repair Activity (SRA)) MD - (Made at Depot)	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION and USABLE ON CODE (UOC) column and listed in the Bulk Material group of the repair parts list in this RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
AO - (Assembled by Unit/AVUM Level) AF - (Assembled by DS/AVIM Level) AH - (Assembled by GS Category) AL - (Assembled by SRA) AD - (Assembled by SRA) (Assembled by Depot)	Items with these codes are not to be requested/ requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position code of the SMR code authorizes you to replace the item, but the source code indicates the items are assembled at a higher level, order the item from the higher level of maintenance.

XA - Do not requisition "XA"-coded item. Order its next higher assembly. (Refer to the NOTE below.)
XB - If an "XB" item is not available from salvage, order it using the CAGEC and part number given.
XC - Installation drawing, diagram, instruction sheet, field service drawing, that is identified manufacturer's part number.
XD - Item is not stocked. Order an "XD"-coded item through normal supply channels using the CAGEC and part number given ,if no NSN is available.

NOTE

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

(2) 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:

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

Maintenance Code	**Application/Explanation**
C -	Crew or operator maintenance done within unit/AVUM maintenance.
O -	Unit level/AVUM maintenance can remove, replace, and use the item.
F -	Direct support/AVIM maintenance can remove, replace, and use the item.
H -	General support maintenance can remove, replace, and use the item.
L -	Specialized repair activity can remove, replace, and use the item.
D -	Depot can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (i.e., per- form all authorized repair functions.)

NOTE

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

Maintenance **Code**	**Application/Explanation**
O -	Unit/AVUM is the lowest level that can do complete repair of the item.
F -	Direct support/AVIM is the lowest level that can do complete repair of the item.
H -	General Support is the lowest level that can do complete repair of the item.
L -	Specialized repair activity is the lowest level that can do complete repair of the item.
D -	Depot is the lowest level that can do complete repair of the item.
Z -	Nonreparable. No repair is authorized.
B -	No repair is authorized. No parts or special tools are authorized for the maintenance of a "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

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

Recoverability Codes	Application/Explanation
Z -	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3d position of SMR Code.
O -	Reparable item. When not economically reparable, condemn and dispose of the item at unit or AVUM level.
F -	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or AVIM level.
H -	Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D -	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L -	Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A -	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. CAGEC (Column (3)). The Commercial and Government Entity Code (CAGEC) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

d. PART NUMBER (Column (4)). Indicates the primary number used by the manufacturer, (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different part number from the number listed.

e. DESCRIPTION AND USABLE ON CODE (UOC) (Column (5). 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/fabricated.
(3) The statement "END OF FIGURE' appears just below the last item description in Column (5) for a given figure in both Section II and Section III.

f. QTY (Column (6)). 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 may vary from application to application.

4. EXPLANATION OF INDEX FORMAT AND COLUMNS (SECTION IV).

a. NATIONAL STOCK NUMBER (NSN) INDEX.

(1) 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, i.e.

NSN
5305-01-574-1467
NIIN

When using this column to locate an item, ignore the first four digits of the NSN. Use the complete NSN (13 digits) when requisitioning items by stock number.

(2) FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in Section II and Section III.

(3) 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.

b. PART NUMBER INDEX. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i e., vertical arrangement of letter and number combination 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).

(1) CAGEC Column. The Commercial and Government Entity Code (CAGEC) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

(2) PART NUMBER Column. Indicates the primary number used by the manufacturer (individual. 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.

(3) STOCK NUMBER Column. This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and CAGEC columns to the left.

(4) FIG. Column. This column lists the number of the figure where the item is identified/located in Section II and Section III.

(5) ITEM COlumn The item number is that number assigned to the item as it appears in the figure referenced in adjacent figure number column.

c. FIGURE AND ITEM NUMBER INDEX.

(1) FIG. Column. This column lists the number of the figure where the item is identified/located in Section II and Section III.

(2) ITEM Column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

(3) STOCK NUMBER COLUMN. This column lists the NSN for the item.

(4) CAGEC Column. The Commercial and Government Entity Code (CAGEC) is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

(5) PART NUMBER. Indicates the primary number used by the manufacturer (individual, 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.

4. SPECIAL INFORMATION..

a. USABLE ON CODE. The usable on code appears in the tower left corner of the Description Column heading. Usable on codes are shown as "UOC:.." in the Description Column (justified left) on the last line of the applicable item description/nomenclature. Uncoded items are applicable to all models. identification of the usable on codes used in this RPSTL are:

Code	Used On
FFV	LAB 9095
FNQ	JGB-FAWPSS-432034612P

b. FABRICATION INSTRUCTIONS, Bulk materials required to manufacture items are listed in the Bulk Material Functional Group of this RPSTL. Part numbers for bulk materials are also referenced in the description column of the line entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in Appendix G of this technical manual.

c. 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 National Stock Number/Part Number Index and the bulk material list in Section II.

d. ASSOCIATED PUBLICATIONS. Refer to Appendix A, References.

5. HOW TO LOCATE REPAIR PARTS.

a. When National Stock Numbers or Part Numbers are NOT Known.

(1) First Using the table of contents, determine the assembly or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) Third. Identify the item on the figure and use the Figure and item Number Index to find the NSN.

b. When National Stock Number or Part Number is Known.

(1) First. Using the of National Stock Number and Part Number Indexes find the pertinent National Stock Number or Part Number. The NSN index is in National Item Identification Number (NIIN) sequence (see paragraph 4.a.). The part numbers in the Part Number index are listed in ascending alphanumeric sequence (see paragraph 4-b.). Both indexes cross-reference you to the illustration/figure and item number of the item you are looking for.

(2) Second. Turn to the figure and item number, verify that the item is the one you are looking for, then locate the item number in the repair parts list for the figure.

6. ABBREVIATIONS. Abbreviations used in this manual are listed in MIL-STD-12.

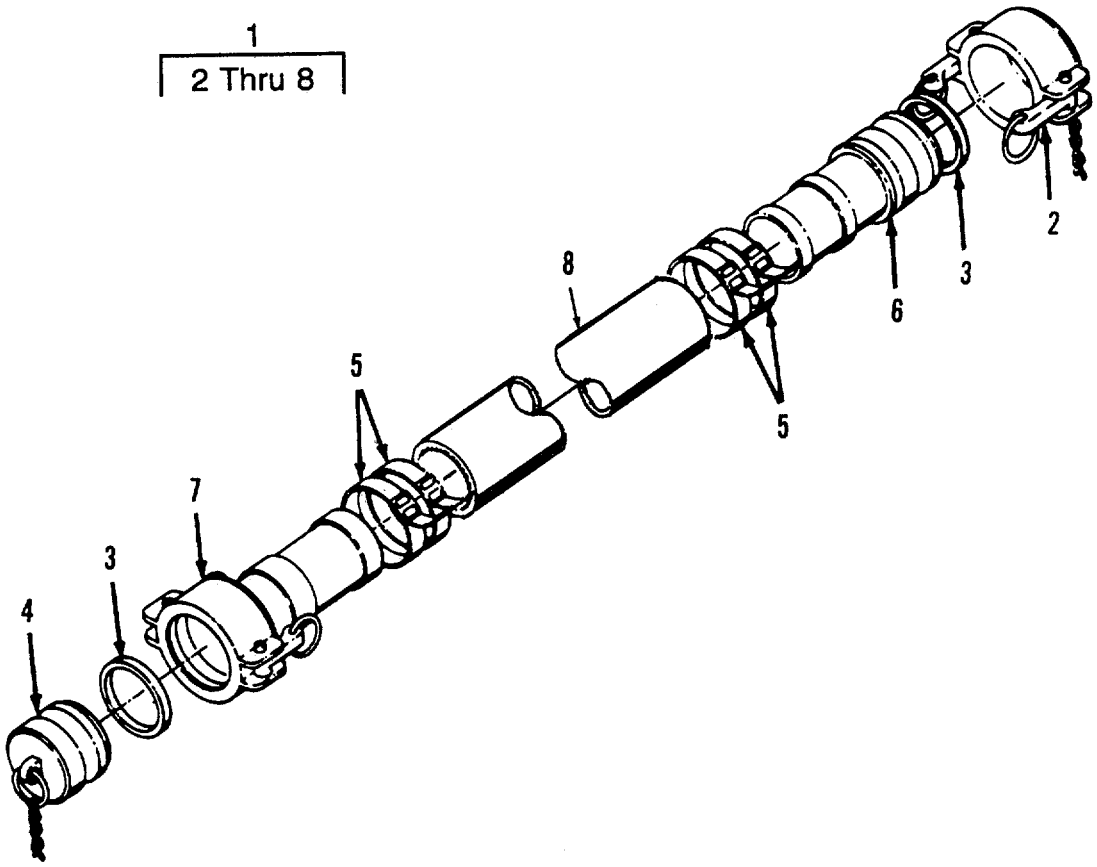


Figure 1. Hose Assembly, Potable Water.

(1) ITEM NO	(2) SMR CODE	(3) CAGE C	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 01 HOSE ASSEMBLIES FIG. 1 HOSE ASSEMBLY, POTABLE WATER	
1	PCOOO	97403	13225E9135-1	HOSE ASSEMBLY	2
2	PAOZZ	96906	MS27028-11	.CAP, QUICK DISCONNECT	1
3	PCOZZ	96906	MS27030-6	.GASKET	2
4	PAOZZ	96906	MS27029-11	.PLUG, QUICK DISCONNECT	1
5	PAOZZ	70847	J230	CLAMP, HOSE	4
6	PAOZZ	96906	MS27021-11	.COUPLING HALF, QUICK DISCONNECT	1
7	PAOZZ	96906	MS27025-11	COUPLING HALF, QUICK DISCONNECT.....	1
8	MDOOO	97403	13225E9135-1/6	.HOSE, RUBBER, MAKE FROM P/N ZZ-H-561, GRADE A, CLASS 2, 2 IN NOM SIZE X10 FT LG ..... END OF FIGURE	1

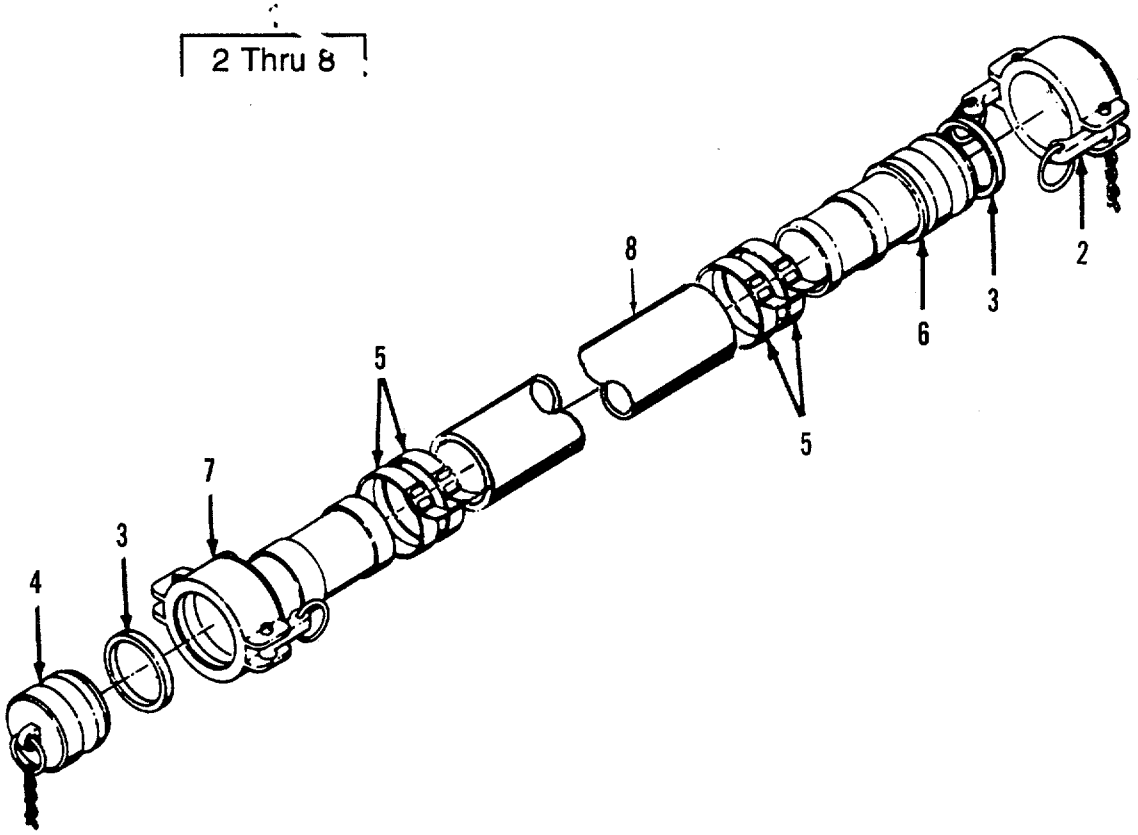


Figure 2. Hose Assembly, Potable Water

(1) ITEM NO	(2) SMR CODE	(3) CAGE C	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 01 HOSE ASSEMBLIES FIG. 2. HOSE ASSEMBLY, POTABLE WATER	
1	PCOOO	97403	13225E9136-5	HOSE ASSEMBLY	2
2	PAOZZ	96906	MS27028-11	. CAP, QUICK DISCONNECT	1
3	PCOZZ	96906	MS27030-6	. GASKET	2
4	PAOZZ	96906	MS27029-11	. PLUG, QUICK DISCONNECT	1
5	PAOZZ	70847	J230	.CLAMP, HOSE	4
6	PAOZZ	96906	MS27021-11	. COUPLING HALF,QUICK ..... DISCONNECT.....	1
7	PAOZZ	96906	MS27025-11	. COUPLING HALF,QUICK ..... DISCONNECT	1
8	MDOOO	97403	13225E9136-5/6	. HOSE, RUBBER ..... MAKE FROM P/N ZZ-H-601, GRADE 3, CLASS 2 2" NOM DIA X 25 FT LG	1
				END OF FIGURE	

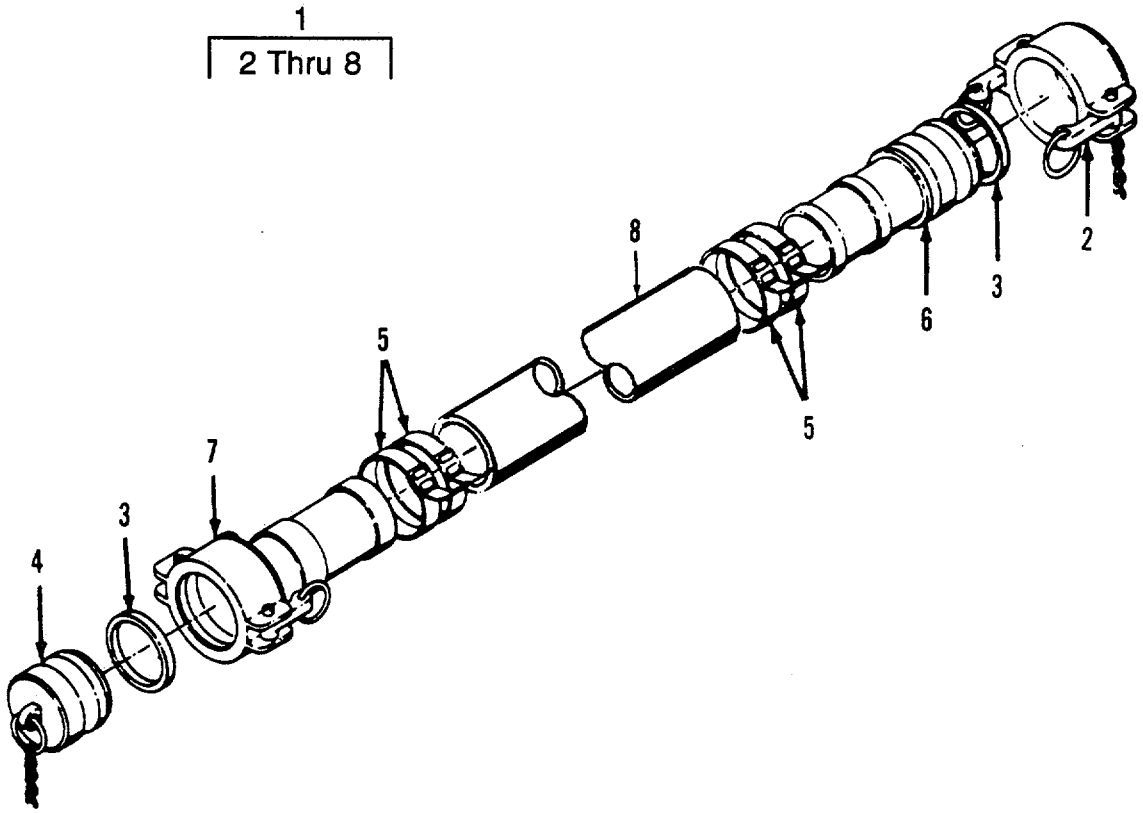


Figure 3. Hose Assembly, Potable Water

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 01 HOSE ASSEMBLIES FIG. 3. HOSE ASSEMBLY, POTABLE WATER	
1	PCOOO	97403	13225E9136-11	HOSE ASSEMBLY	4
2	PAOZZ	96906	MS27028-9	.CAP, QUICK DISCONNECT	1
3	PCOZZ	96906	MS27030-5	.GASKET	2
4	PAOZZ	96906	MS27029-9	.PLUG, QUICK DISCONNECT	1
5	PAOZZ	70847	J230	.CLAMP, HOSE	4
6	PAOZZ	96906	MS27021-9	.COUPLING HALF,QUICK DISCONNECT	1
7	PAOZZ	96906	MS27025-9	.COUPLING HALF,QUICK DISCONNECT	1
8	MDOOO	97403	13225E9136-11/6	HOSE, RUBBER ..... MAKE FROM P/N ZZ-H-601, GRADE 3, CLASS 2 1-1/2" NOM DIA X 25 FT LG	1
				END OF FIGURE	

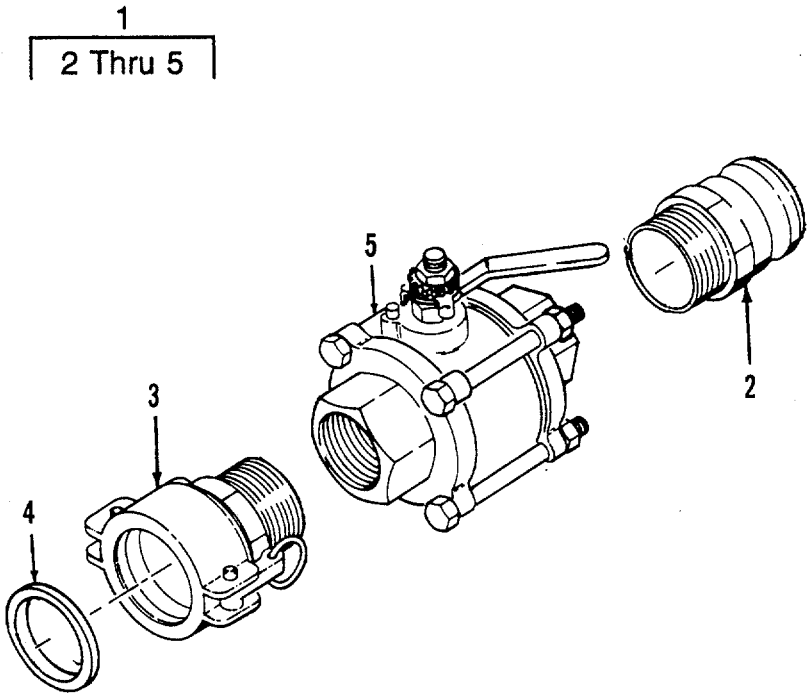


Figure 4. Valve, Ball, Quick-Acting

SECTION II

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 02 BALL VALVE ASSEMBLIES	
				FIG. 4. VALVE, BALL, QUICK-ACTING	
1	PCOOO	1 U339	13225E9137	VALVE ASSEMBLY, BALL VALVE	2
2	PBOZZ	96906	MS27022-11	. COUPLING HALF, QUICK	1
3	PBOZZ	96906	MS27026-11	. COUPLING HALF, QUICK	1
4	PAOZZ	96906	MS27030-6	.. GASKET	1
5	PBOZZ	97403	13225E9137-2	. VALVE, BALL.....	1
				END OF FIGURE	

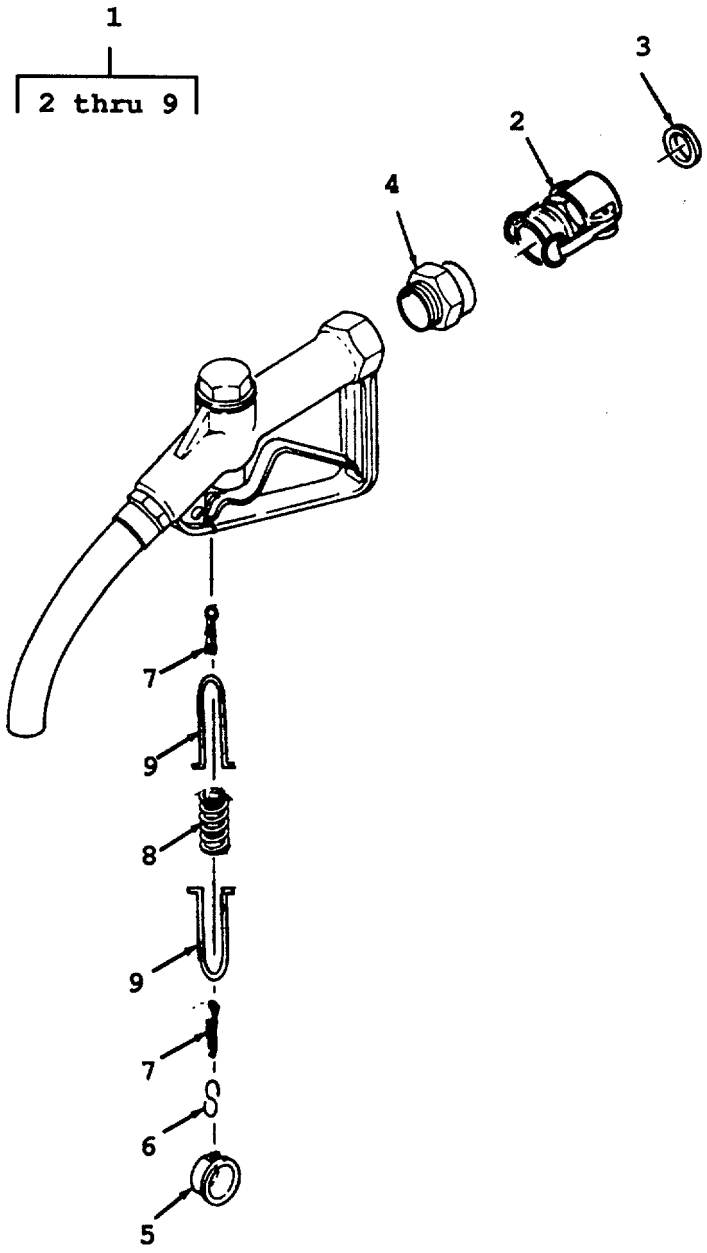


Figure 5. Nozzle, Distribution, Potable Water

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 03 NOZZLE ASSEMBLIES FIG. 5 NOZZLE, DISTRIBUTION, POTABLE WATER	
1	PCOOO	1U339	13225E9094-2	NOZZLE DIST. POINT UOC: FFV	4
2	PAOZZ	96906	MS49002-17	COUPLING HALF, QUICK UOC: FFV	1
3	PCOZZ	96906	MS27030-5	GASKET UOC: FFV	1
4	PAOZZ	97403	13225E9138-1	SWIVEL UOC: FFV	1
5	XBOZZ	81718	H-9116-AS	DUST CAP UOC: FFV	1
6	XBOZZ	81718	H-3283-M	CAP LINK UOC: FFV	2
7	XBOZZ	81718	H-9112-M	CHAIN UOC: FFV	1
8	XBOZZ	81718	H-9209-M	COMPRESSION SPRING UOC: FFV	1
9	XBOZZ	81718	H-9210-M	DRAW BAR UOC: FFV END OF FIGURE	2

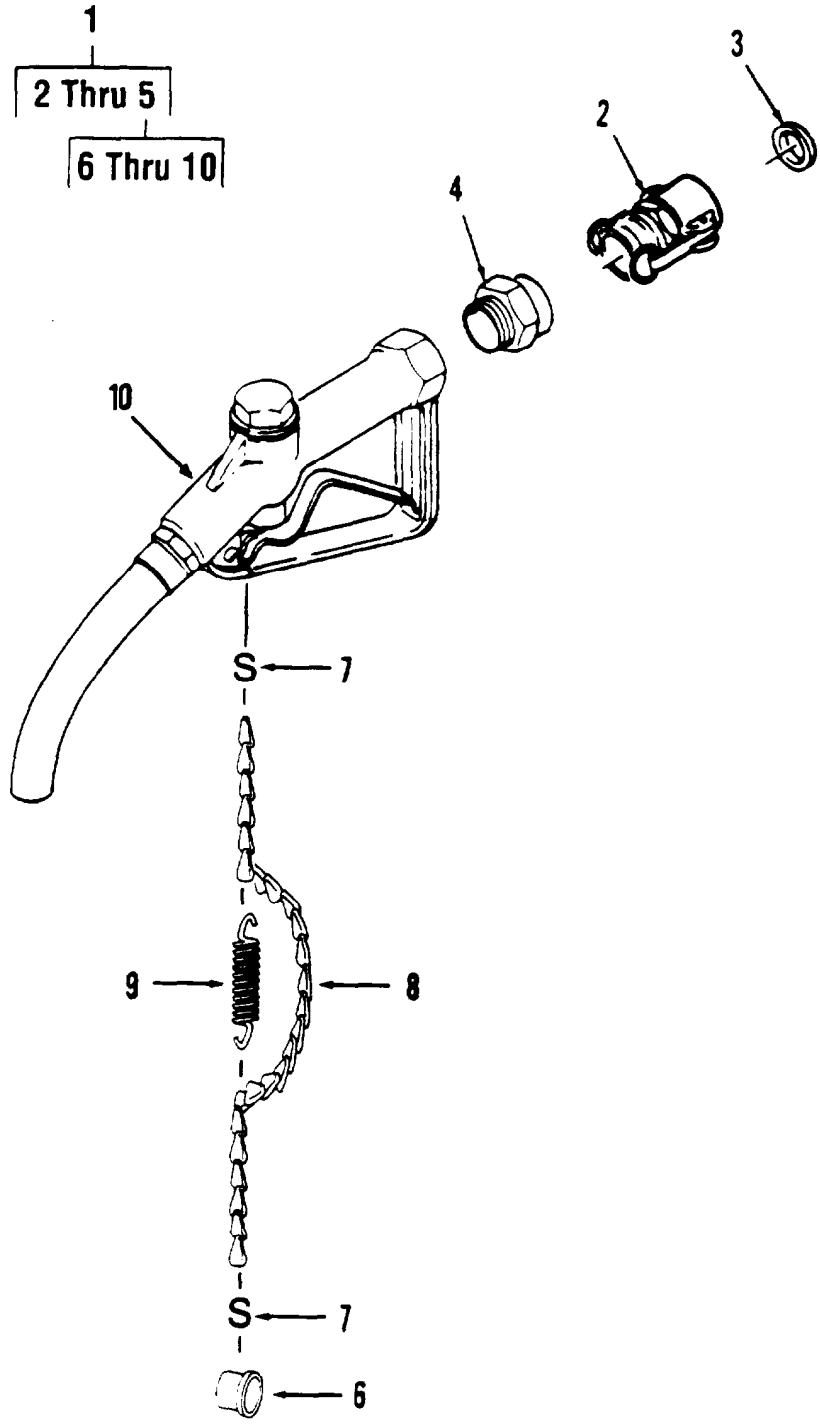


Figure 5a. Nozzle. Distribution. Potable Water (Model # JGB-FAWPSS-432034612P)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 03 NOZZLE ASSEMBLIES FIG. 5.a NOZZLE, DISTRIBUTION, POTABLE WATER (Model # JGB-FAWPSS-432034612P)	
1	AOOOO	97403	13225E9095-12/13/22	NOZZLE ASSEMBLY ..... UOC: FNQ	4
2	PAOZZ	96906	MS49002-17	COUPLING HALF, QUICK ..... UOC: FNQ	1
3	PCOZZ	96906	MS27030-5	GASKET ..... UOC: FNQ	1
4	PAOZZ	97403	13225E9138-1	SWIVEL ..... UOC: FNQ	1
5	PCOOO	97403	13225E9094-2	NOZZLE, DIST. POINT ..... UOC: FNQ	1
6	XBOZZ	41592	300ALM0424XAA	DUST CAP ..... UOC: FNQ	1
7	XBOZZ	41592	231APC01232H	CAP LINK (S-HOOK) ..... UOC: FNQ	2
8	XBOZZ	41592	231APM01232C	SASH CHAIN ..... UOC: FNQ	1
9	XBOZZ	41592	231APM01232S	TENSION SPRING, S.S. ..... UOC: FNQ	1
10	XAOZZ	41592	300ALM-BODY	NOZZLE ..... UOC: FNQ	1
				END OF FIGURE	

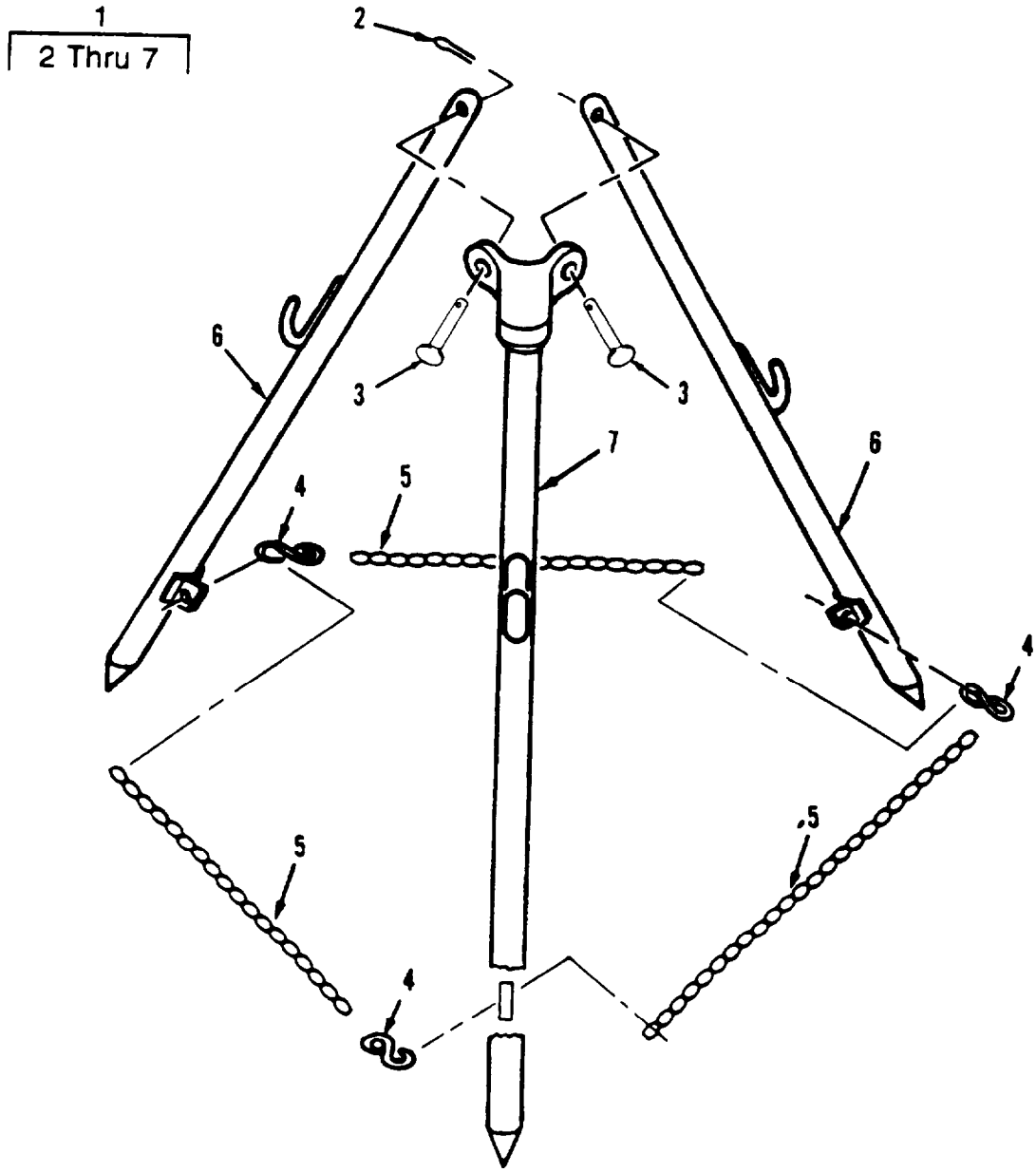


Figure 6. Nozzle Stand Assembly

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 04 NOZZLE STAND ASSEMBLIES	
				FIG. 6. NOZZLE STAND ASSEMBLY	
1	PBOOO	97403	13225E9140	STAND ASSEMBLY, NOZZLE	2
2	PAOZZ	96906	MS24665-134	.PIN, COTTER ..... 1/16 NOM DIA X 3/4 LG	2
3	XBOZZ	96906	MS20392-3C35	.PIN, STRAIGHT ..... 1/4 NOM DIA X 1.094 EFF LG STEEL	2
4	X3OZZ	96906	MS87006-33	.HOOK, CHAIN, S ..... 0.120 DIA X 1-7/16 REACH	3
5	MDOZZ	1U339	13225E9140/3	.CHAIN ..... MAKE FROM P/N RR-C-271, 45 LINKS LG	3
6	XBOZZ	97403	13225E9146	.LEG, CLEVIS	2
7	XBOZZ	97403	13225E9145	.LEG, PIVOT	1
				END OF FIGURE	

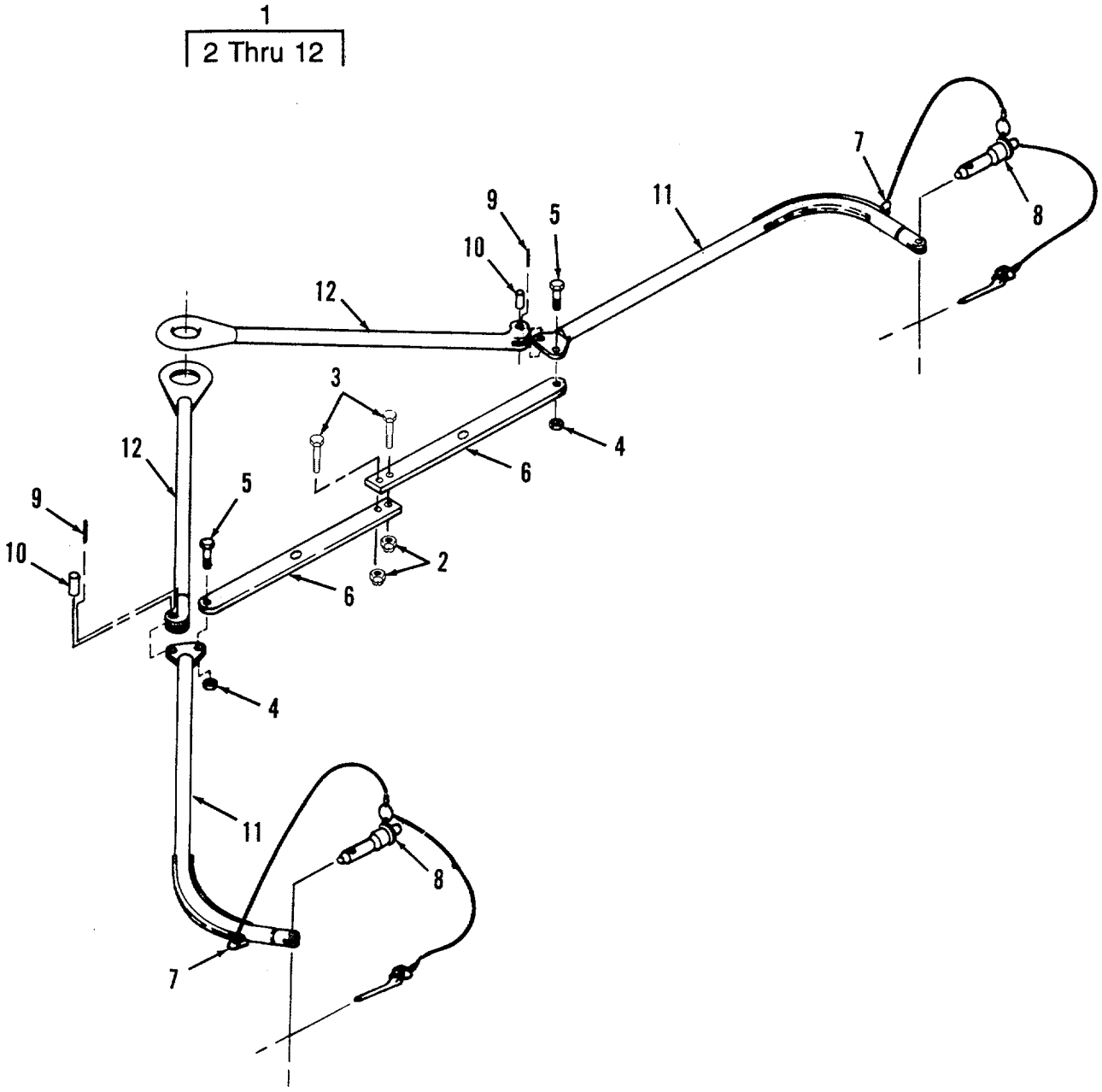


Figure 7. Towing and Lifting Yoke

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 05 TOWING AND LIFTING YOKES	
				FIG. 7. TOWING AND LIFTING YOKE	
1	PBOOO	97403	1321 6E7991	YOKE, TOWING	1
2	PAOZZ	96906	MS16228-8C	. NUT, SELF-LOCKING 1/2-13 UNC-3B	2
3	PAOZZ	96906	MS35307-414	. SCREW, CAP, HEXAGON ..... 1/2-13X 1.750 LG	2
4	PAOZZ	96906	MS16228-10C	. NUT, SELF LOCKING 5/8-11 UNC-3B	2
5	PAOZZ	96906	MS35307-463	. SCREW, CAP, HEX HD ..... 5/8-11 X 1.750 LG	2
6	XBOZZ	97403	13216E7994	. BRACE	2
7	XBOZZ	96906	MS87006-33	. HOOK, CHAIN, S ..... 0.120 DIA X 1-7/16 REACH	2
8	XBOZZ	97403	13216E8075	. CLEVIS PIN ASSEMBLY	2
9	PAOZZ	96906	MS51963-63	. SETSCREW ..... 0.250-20 X 0.250 LG	2
10	XBOZZ	97403	13216E7995	. PIN	2
11	XBOZZ	97403	13216E7992	. LEG, CONNECTING	2
12	XBOZZ	97403	13216E7993	. LEG, UPPER	2
				END OF FIGURE	

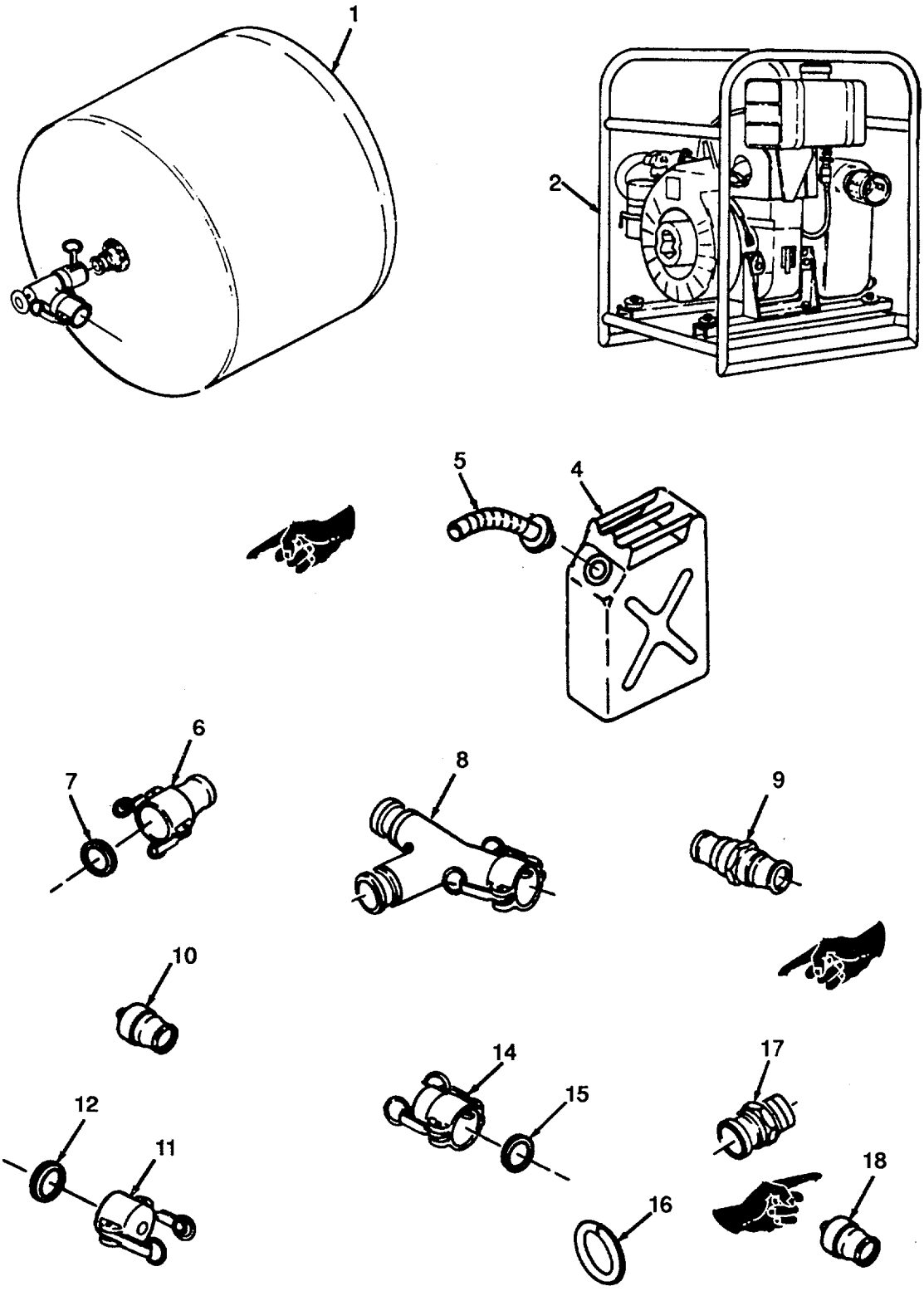


Figure 8. Miscellaneous Parts and Fittings

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 06 MISCELLANEOUS FITTINGS GROUP 07 FABRIC DRUMS GROUP 08 PUMPING ASSEMBLY	
				FIG. 8. MISCELLANEOUS PARTS AND FITTINGS	
1	PCOOO	81349	MIL-D-43699	DRUM ASSEMBLY 500 GALLON CAPACITY..... FOR PARTS BRKDN SEE TM 10-8110-202-138P	6
2	PBOOO	97403	13200E8800	PUMP UNIT, CENTRIFUGAL, FOR PARTS ..... BRKDN SEE TM 5-4320-309-24P	1
3	DELETED				
4	PBOZZ	97403	13219E2670	CAN, GASOLINE, MILITARY	2
5	PBOZZ	19207	11677020	SPOUT, CAN, FLEXIBLE	1
6	PAOZZ	96906	MS49000-5	REDUCER, QUICK DISCONNECT	4
7	PCOZZ	96906	MS27030-6	.GASKET	1
8	PAOZZ	81718	319-K WYE,	QUICK DISCONNECT	4
9	PAOZZ	96906	MS35392-9	ADAPTER, QUICK DISCONNECT	1
10	PAOZZ	96906	MS27029-11	PLUG, QUICK DISCONNECT	2
11	PAOZZ	96906	MS27028-11	CAP, QUICK DISCONNECT	3
12	PCOZZ	96906	MS27030-6	.GASKET	1
13	DELETED				
14	PAOZZ	96906	MS2702411	COUPLING HALF, QUICK	1
15	PCOZZ	96906	MS27030-6	.GASKET	1
16	PAOZZ	97403	13227E610-7	RING, SPLIT (KEY RING)	3
17	PAOZZ	96906	MS27022-11	COUPLING HALF, QUICK	1
18	PAOZZ	96906	MS27029-9	PLUG, QUICK DISCONNECT	8
				END OF FIGURE	

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 98 BULK MATERIALS FIG. BULK	
1	PAOZZ	81349	ZZ-H-561	HOSE, RUBBER, GRADE 3, CLASS 2, 2.00 IN. DIA.....	V
2	PAOZZ	81349	ZZ-H-601	HOSE, RUBBER, GRADE 3, CLASS 2, 2.00 IN. DIA.....	V
3	PAOZZ	81349	ZZ-H-601	HOSE, RUBBER, GRADE 3, CLASS 2, 1.50 IN. DIA.....	V
4	PAOZZ	81349	RR-C-271	CHAIN, SASH, BRONZE, TRADE NO. 35, TYPE II CLASS 3.....	V
				END OF FIGURE	

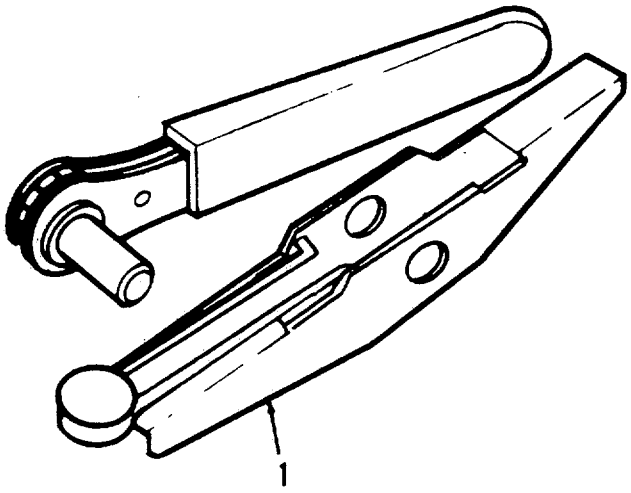


Figure 9. Special Tools

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 99 SPECIAL TOOLS	
				FIG. 9 SPECIAL TOOLS	
1	PAOZZ	70847	S38	CLAMPING TOOL ..... 3/8 TO 5/8 WIDTH	1
				END OF FIGURE	

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
TBD (TYP.)	1	1
	1	2
	1	3
	1	4
	1	5
	1	6
	1	7
	1	8
	2	1
	2	2
	2	3
	2	4
	2	5
	2	6
	2	7
	2	8
	3	1
	3	2
	3	3
	3	4
	3	5
	3	6
	3	7
	3	8
	4	1
	4	2
	4	3
	4	4
	4	5
	5	1
	5	2
	5	3
	5	4
	5	5
	5	6
	5	7
	5	8
	5	9
	Deleted	
	5a	2
	5a	3
TBD (TYP.)	6	2
	6	3
	6	4
	6	5
	6	6
	6	7
	7	1
	7	2
	7	3
	7	4
	7	5
	7	6
	7	7
	7	8
	7	9
	7	10
	7	11
	7	12
	8	1
	8	2
	8	3
	8	4
	8	5
	8	6
	8	7
	8	8
	8	9
	8	10
	8	11
	8	12
	8	13
	8	14
	8	15
	8	16
	8	17
	98	1
	98	2
	98	3
	98	4

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
[redacted]	5a	4			
	5a	5			
	5a	6			
	5a	7			
	5a	8			
	5a	9			
	5a	10			
	6	1		99	1

CROSS-REFERENCE INDEXES
PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
81718	H-9116-AS		05	06
81718	H-9112-M		05	08
81718	H-9209-M		05	09
81718	H-3283-M		05	07
Deleted				
70847	J230		03	05
70847	J230		02	05
70847	J230		01	05
81349	MIL-D-43699		08	01
96906	MS16228-8C		07	02
96906	MS16228-1OC		07	04
96906	MS20392-3C35		06	03
96906	MS24665-134		06	02
96906	MS27021-9		03	06
96906	MS27021-11		01	06
96906	MS27021-11		02	06
98906	MS27022-11		04	02
96906	MS27022-11		08	17
96906	MS27024-11		08	14
96906	MS27025-9		03	07
96906	MS27025-11		02	07
96906	MS27025-11		01	07
96906	MS27026-11		04	03
96906	MS27028-11		08	11
96906	MS27028-9		03	02
96906	MS27028-11		01	02
96906	MS27028-11		02	02
96906	MS27029-11		02	04
96906	MS27029-11		01	04
96906	MS27029-9		03	04
96906	MS27029-9		08	18
96906	MS27029-11		08	10
96906	MS27030-5		03	03
96906	MS27030-6		02	03
96906	MS27030-6		01	03
96906	MS27030-5		08	15
96906	MS27030-5		05	03
96906	MS27030-5		05a	03
96906	MS27030-6		08	12
96906	MS27030-6		04	04
96906	MS27030-6		08	07
96906	MS35307-414		07	03
96906	MS35307-463		07	05

CROSS-REFERENCE INDEXES
PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS35392-9		08	09
96906	MS49000-5		08	06
96906	MS49002-17		05	02
96906	MS49002-17		05a	02
96906	MS51963-63		07	09
96906	MS67006-33		06	04
96906	MS87006-33		07	07
81348	RR-C-271		98	04
70847	S38		99	01
81348	U-H-561		98	01
81348	U-H-601		98	02
81348	U-H-601		98	03
19207	11677020		08	05
97403	13200E8800		08	02
97403	13216E7991		07	01
97403	13216E7992		07	11
97403	13216E7993		07	12
97403	13216E7994		07	06
97403	13216E7995		07	10
97403	13216E8075		07	08
97403	13219E2670		08	04
97403	13225E9094-2		05	05
97403	13225E9094-2		05a	05
1U339	13225E9094-2		05	01
97403	13225E9095-12/13/22		05a	01
97403	13225E9135-1/6		01	08
97403	13225E9135-1		01	01
97403	13225E9136-11		03	01
97403	13225E9136-5/6		02	08
97403	13225E9136-5		02	01
97403	13225E9136-11/6		03	08
1U339	13225E9137		04	01
97403	13225E9137-2		04	05
97403	13225E9138-1		05	04
97403	13225E9138-1		05a	04
1U339	13225E9140/3		06	05
97403	13225E9140		06	01
97403	13225E9145		06	07
97403	13225E9146		06	06
97403	13227E6160-7		08	16
41592	231APC01232H		05a	07
41592	231APM01232C		05a	08
41592	231APM01232S		05a	09
41592	300ALM0424XAA		05a	06
81718	319-K		08	08

CROSS-REFERENCE INDEXES
FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
1	1		97403	13225E9135-1
1	2		98906	MS27028-11
1	3		96906	MS27030-6
1	4		96906	MS27029-11
1	5		70847	J230
1	6		96906	MS27021-11
1	7		96906	MS27025-11
1	8		97403	13225E9135-1/6
2	1		97403	13225E9136-5
2	2		96906	MS27028-11
2	3		98906	MS27030-6
2	4		96906	MS27029-11
2	5		70847	J230
2	6		96906	MS27021-11
2	7		96906	MS27025-11
2	8		97403	13225E9136-5/6
3	1		97403	13225E9136-11
3	2		96906	MS27028-9
3	3		96906	MS27030-5
3	4		96906	MS27029-9
3	5		70847	J230
3	6		96906	MS27021-9
3	7		96906	MS27025-9
3	8		97403	13225E9136-11/6
4	1		1U339	13225E9137-2
4	2		96906	MS27022-11
4	3		96906	MS27026-11
4	4		96906	MS27030-6
4	5		97403	13225E9137-2
5	1		1U339	13225E9094-2
5	2		96906	MS49002-17
5	3		96906	MS27030-5
5	4		97403	13225E9138-1
5	5		81718	13225E9094-2
5	6		81718	H-9116-AS
5	7		81718	H-3283-M
5	8		81718	H-9112-M
5	9		81718	H-9209-M
Deleted				
5a	1		97403	13225E9095-12/13/22
5a	2		96906	MS49002-17
5a	3		96906	MS27030-5
5a	4		97403	13225E9138-1
5a	5		97403	13225E9094-2

CROSS-REFERENCE INDEXES
FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
5a	6		41592	300ALM0424XAA
5a	7		41592	231APC01232H
5a	8		41592	231APM01232C
5a	9		41592	231APM01232S
5a	10		41592	300ALM-BODY
6	1		97403	13225E9140
6	2		96906	MS24665-134
6	3		96906	MS20392-3C35
6	4		96906	MS67006-33
6	5		1U339	13225E9140/3
6	6		97403	13225E9146
6	7		97403	13225E9145
7	1		97403	13216E7991
7	2		96906	MS16228-8C
7	3		96906	MS35307-414
7	4		96906	MS16228-10C
7	5		96906	MS35307-463
7	6		97403	13216E7994
7	7		98906	MS67006-33
7	8		97403	13216E8075
7	9		96906	MS51963-63
7	10		97403	13216E7995
7	11		97403	13216E7992
7	12		97403	13216E7993
8	1		81349	MIL-043699
8	2		97403	13200E8800
8	3			DELETED
8	4		97403	13219E2670
8	5		19207	11677020
8	6		96906	MS49000-5
8	7		96906	MS27030-6
8	8		81718	319-K
8	9		96906	MS35392-9
8	10		96906	MS27029-11
8	11		96906	MS27028-11
8	12		96906	MS27030-5
8	13			DELETED
8	14		96906	MS27024-11
8	15		96906	MS27030-5
8	16		97403	13227E6160-7
8	17		96906	MS27022-11
8	18		96906	MS27029-9
98	1		81348	ZZ-H-561

CROSS-REFERENCE INDEXES
FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
98	2		81348	ZZ-H-601
98	3		81348	ZZ-H-601
98	4		81348	RR-C-271
99	1		70847	S38

☆ U.S. GOVERNMENT PRINTING OFFICE: 1997 - 554-024/600822

APPENDIX D

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

D-1. SCOPE.

This appendix lists components of end item and basic issue items for the Forward Area Water Point Supply System to help you inventory items required for safe and efficient operation.

D-2. GENERAL.

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts.

b. Section III Basic Issue Items (BII). These essential items required to place the Forward Area Water Point Supply System in operation, to operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the system during operation and whenever 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 TOE/MTOE Illustrations are furnished to help you find and identify the items.

D-3. EXPLANATION OF COLUMNS.

The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustration Number (Illus. Number). This column indicates the number of the illustration in which the item is shown

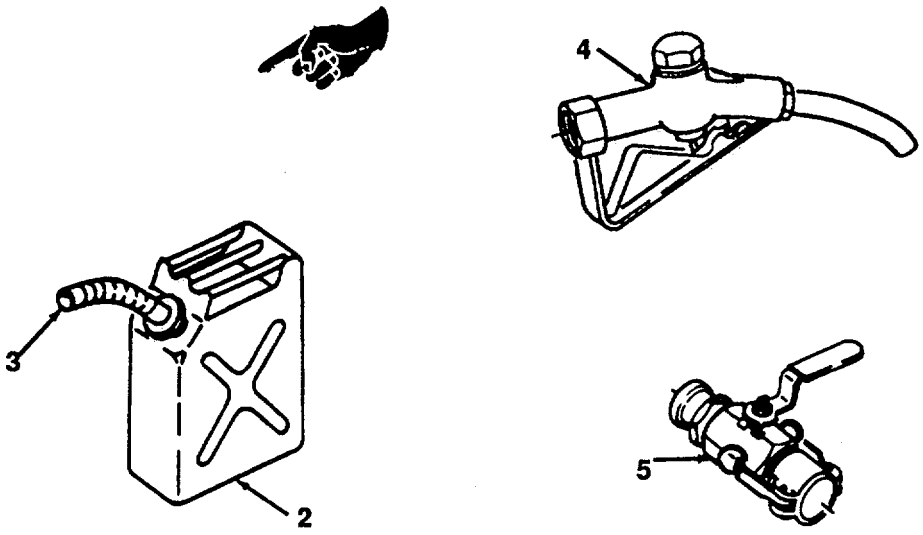
b. Column (2) - National Stock Number. Indicates the National stock number of the item to be used for requisitioning purposes.

c. Column (3) - Description. Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parentheses) and the part number.

d. Column (4) - Unit of Issue (U/I). Indicates how the item is issued for the National Stock Number shown in column two.

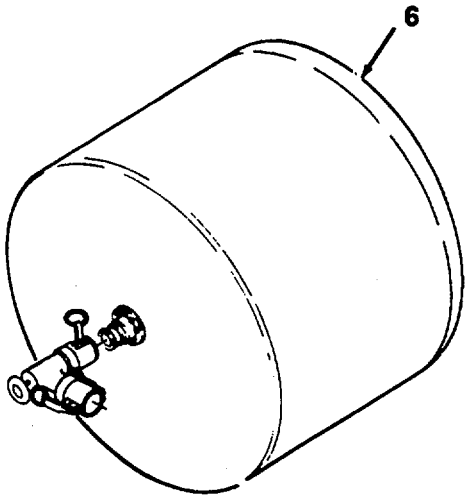
e. Column (5) - Quantity required (Qty Qqr). Indicates the quantity required.

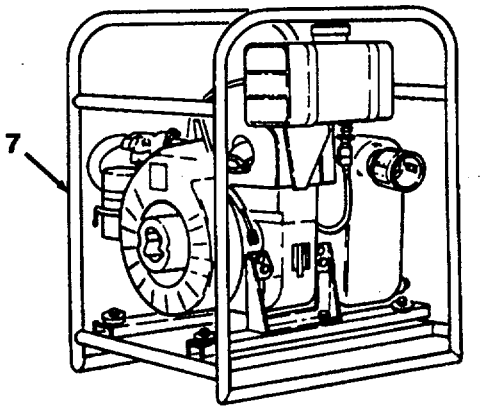
Section II. COMPONENTS OF END ITEM



(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQ'D
1	DELETED				
2	7240-00 222-3088	CAN, GASOLINE, MILITARY: (81349) MIL-C-1283		EA	2
3	7240 00 177-6154	SPOUT, CAN. FLEXIBLE: (81349) MIL-S-1285		EA	1
4	2910-01-188-8197	NOZZLE ASSEMBLY: WATER DIS TRUBUTION. COUPLING, QUICK DISCONNECT TYPE: AUTOMATIC SHUT-OFP (97403) 13225E9094-2		EA	4
5	4820-00 330-5466	VALVE ASSEMBLY, QUICK ACT-ING: BALL TYPE; 2 IN. SIZE (97403) 13225E9137-2 (24869) SSBV-200		EA	2

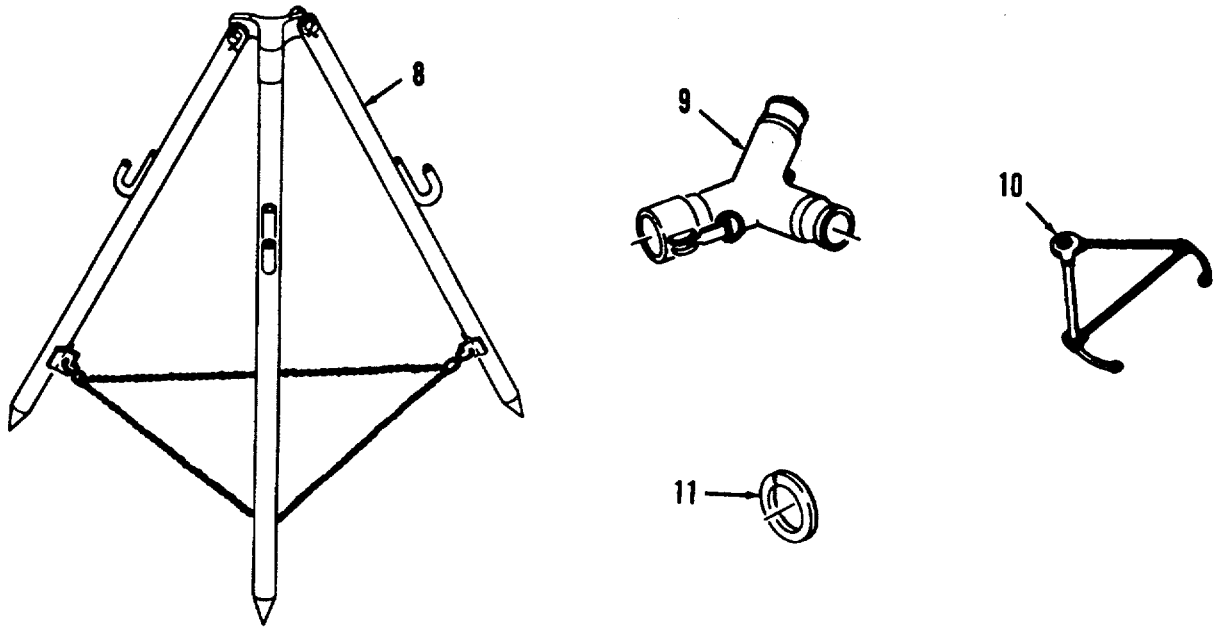
Section II. COMPONENTS OF END ITEM





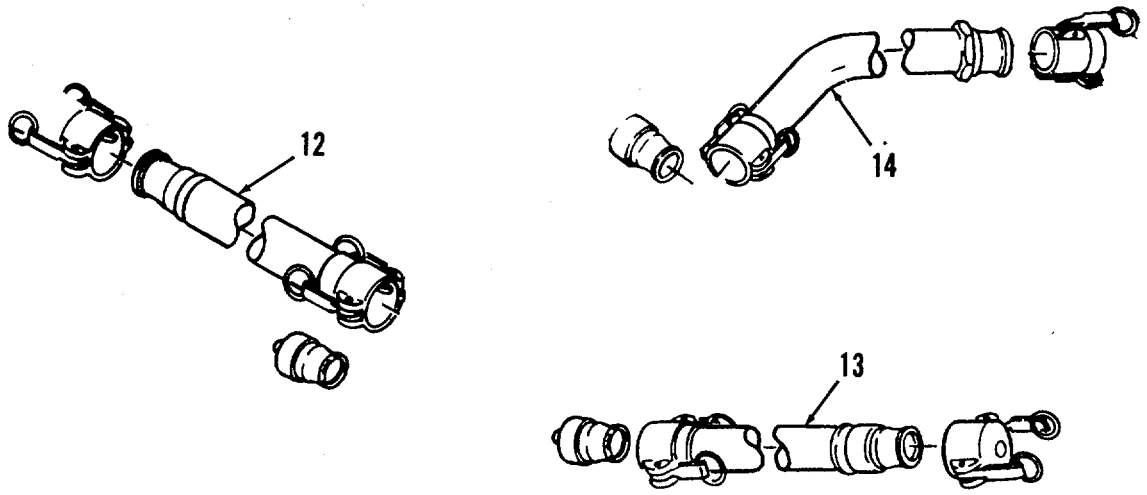
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQ'D
6	8110-01-122-0055	DRUM ASSEMBLY. 500 GALLON COLLAPSIBLE		EA	6
7	4320-00 542-3347	PUMP AND ENGINE ASSEMBLY 125 GPM		EA	1

Section II. COMPONENTS OF END ITEM



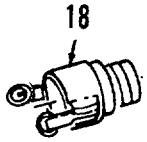
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER USABLE ON CODE	(4) U/M	(5) QTY REQ'D
8	4930-01-120-7246	STAND ASSEMBLY, fuel AND WATER DISPENSING EQUIP. TRIPOD TYPE; N=1/2 IN. MAX SPREAD OF LEGS; 36-3/4 IN.:t3/64 IN. O/A LEG LG, PER DRWG 13225E9145; 3 HOOKS FOR NOZZLE 1/2 IN DIA MATL PER DRWG 13225E9145; PIVOT PER DRWO 13225E9144; PLUG PER DRWG 13225E9143; (97403) 1322SE9140 AND PL13225E9140	EA	2
9	4730-01-068-5070	Y FITTING, QUICK DISCONNECT: FLANGED, 2 IN. SIZE: (97403) 13216E7991	EA	4
10	8110-00 856-6423	YOKE, TOWING AND LIFTING (97403) 13216E7991	EA	1
11	5365-00-926-5411	RING, RETAINING (97403) 13227E6160-7, ((9H113)HO1434M	EA	7

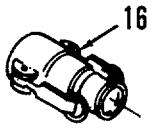
Section II. COMPONENTS OF END ITEM



(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (CAGEC AND PART NUMBER) USABLE ON CODE	(4) U/M	(5) QTY REQ'D
12	4720-01-175-4683	HOSE ASSEMBLY, NONMETALLIC: RUBBER INNER TUBE CONVEYING MATL; MOLDED RUBBER OUTER LAYER BLACK COLOR; 2 IN. X 120 IN. LG, EXCLUDING END FITTINGS (97403) 13225E9135-1	EA	4
13	4720-01-175-5957	HOSE ASSEMBLY, NONMETALLIC: RUBBER INNER TUBE CONVEYING MATL; MOLDED RUBBER OUTER LAYER BLACK COLOR; 2 IN. X 300 IN. LG, EXCLUDING END FITTINGS; (97403) 13225E9136-5	EA	2
14	4720-01-174-8173	HOSE ASSEMBLY, NONMETALLIC: RUBBER INNER TUBE CONVEYING MATL; MOLDED RUBBER OUTER LAYER BLACK COLOR; 1-1/2 IN. X 300 IN. LG, EXCLUDING END FITTINGS; (97403) 13225E9136-11	EA	4

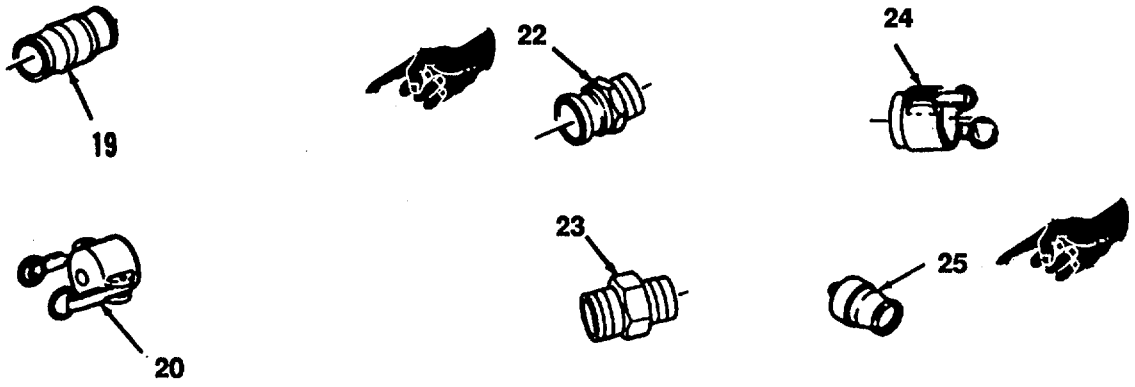
Section II. COMPONENTS OF END ITEM





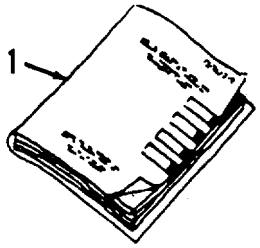
(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (CAGEC AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQ'D
15	4730 00-915-5127	PLUG, QUICK DISCONNECT: CAM-LOCKING TYPE X; 2 IN. SIZE; W/RING, SPLIT (KEY RING) AND CHAIN. (96906) MS27029-11		EA	3
16	4730-01-126-3825	REDUCER, QUICK DISCONNECT: CAM-LOCKING TYPE XI; 1.5 IN DIA TO 1 IN. DIA; FEMALE 1st END, EXTERNAL PIPE THREAD 2ND END; (96906) MS49002-17		EA	4
17	4730 00-951-3295	REDUCER, QUICK DISCONNECT: CAM-LOCKING TYPE XI; 2 IN DIA TO 1.5 IN. DIA; FEMALE 1st END, MALE 2nd END; (96906) MS49000-5		EA	4
18	4730 00-088-0285	COUPLING HALF, QUICK DISCONNECT FEMALE, EXTERNAL PIPE THREAD (96906) MS27026-11		EA	2

Section II. COMPONENTS OF END ITEM



(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (CAGEC AND PART NUMBER) USABLE ON CODE	(4) U/M	(5) QTY REQ'D
19	4730-01-009-1735	NIPPLE, QUI CK DISCONNECT: CAM-LOCKING TYPE XXI: MALE BOTH ENDS; 2 IN. BOTH ENDS (96906) MS39352-9	EA	1
20	4730-00-649-9100	CAP, QUICK DISCONNECT: CAM-LOCK TYPE IX; 2 IN. SIZE; W/RING SPLIT (KEY RING) AND CHAIN, SASH, 19 LINKS LG, BRONZE MATL; ALUMINUM ALLOY MATL; (96906) MS27028-11	EA	3
21	DELETED			
22	4730-00-938-7997	(COUPLING HALF, QUICK DISCONNECT CAM LOCKING, MALE EXT PIPE THRD (96906) MS27022-11	EA	3
23	4730-01-189-1233	SWIVEL (97403) 13225E9138-1	EA	4
24	4370-00 649-9103	COUPLING HALF, QUICK DISCONNECT CAM-LOCKING FITTING, FEMALE, INT. PIPE THREAD (96906) MS27024-11	EA	1
25	4730-00 823-5316	PLUG, QUICK DISCONNECT (96906) MS27029-9, (9H113) 634A-l- 1/2AL	EA	4

Section III. BASIC ISSUE ITEMS



(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY REQ'D
1	TM 10-4320-346-12&P	Technical Manual: Forward Area Water Point Supply System		EA	1

APPENDIX E
ADDITIONAL AUTHORIZATION LIST

SECTION I. INTRODUCTION

E-1. SCOPE.

This appendix lists additional items you are authorized for the support of the Forward Area Water Point Supply System.

E-2. GENERAL.

This list identifies items that do not have to accompany the forward area water point supply system and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

E-3. EXPLANATION OF LISTING .

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name. If the item you require differs between the serial numbers of the same model, effective serial numbers are shown in the last line of the description. If the item required differs for different models of this equipment, the model number is shown under the "Usable On" heading in the description column.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION CAGEC & PART NUMBER USABLE ON CODE	(3) U/M	(4) QTY AUTH
	NO ADDITIONAL AUTHORIZATION ITEMS ARE AUTHORIZED FOR THE FORWARD AREA WATER POINT SUPPLY SYSTEM.		

APPENDIX F

EXPENDABLE / DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

F-1. SCOPE.

This appendix lists expendable supplies and materials you will need to operate and maintain the Forward Area Water Point Supply System. This listing is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable Items (except medical, class V, repair parts, and heraldic items) or CTA 8-100, Army Medical Department Expendable/Durable Items.

F-2. EXPLANATION OF COLUMNS.

a. Column (1) - Item number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify Me material (e.g., "Use cleaning compound, item 5, Appendix E").

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

C - Operator/Crew
O - Unit Maintenance
F - Direct Support Maintenance
H - General Support Maintenance

c. Column (3) - National Stock Number. This is the National stock number assigned to the item which you can use to requisition it.

d. Column (4) - Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number. This provides the other information you need to identify the item.

e. Column (5) - Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

SECTION II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION CAGEC, PART NUMBER	(5) U/M
1	0	7920-00-205-1711	Cloth, Lint Free	ea
2	0	8020-00-207-6658	Brush, Medium Oval	ea
3	0	6850-00-274-5421	Dry Cleaning Solvent, A-A-711 Type I. (81348)	gl
4	0	8030-00-837-5885	Sealing Compound Paste From; One Guart Per Can; (81349) MIL-S-45180, TYPE (77247) FORMAGASKET 2.	gt
5	0	7930-00-068-166	Soap, Mild	gl
6	0	8030-00-889-3535	Tape, Antiseizing (96214)417043-2	ea

APPENDIX G
ILLUSTRATED LIST OF MANUFACTURED ITEMS

SECTION I. INTRODUCTION

a This appendix includes complete instructions for making items authorized to be manufactured or fabricated at unit maintenance level (or aviation maintenance level, if applicable).

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

c All bunk materials needed for manufacture of an item are listed by the part number or specification in a tabular list on the illustration.

PART NUMBER INDEX

Part Number to Be Manufactured	Part Name	Manufacturing Figure
13225E9135-1/6	Hose, Rubber	G-1
13225E9136-5/6	Hose, Rubber	G-2
13225E9136-1 1/6	Hose, Rubber	G-3
13225E9140/3	Chain	G-4

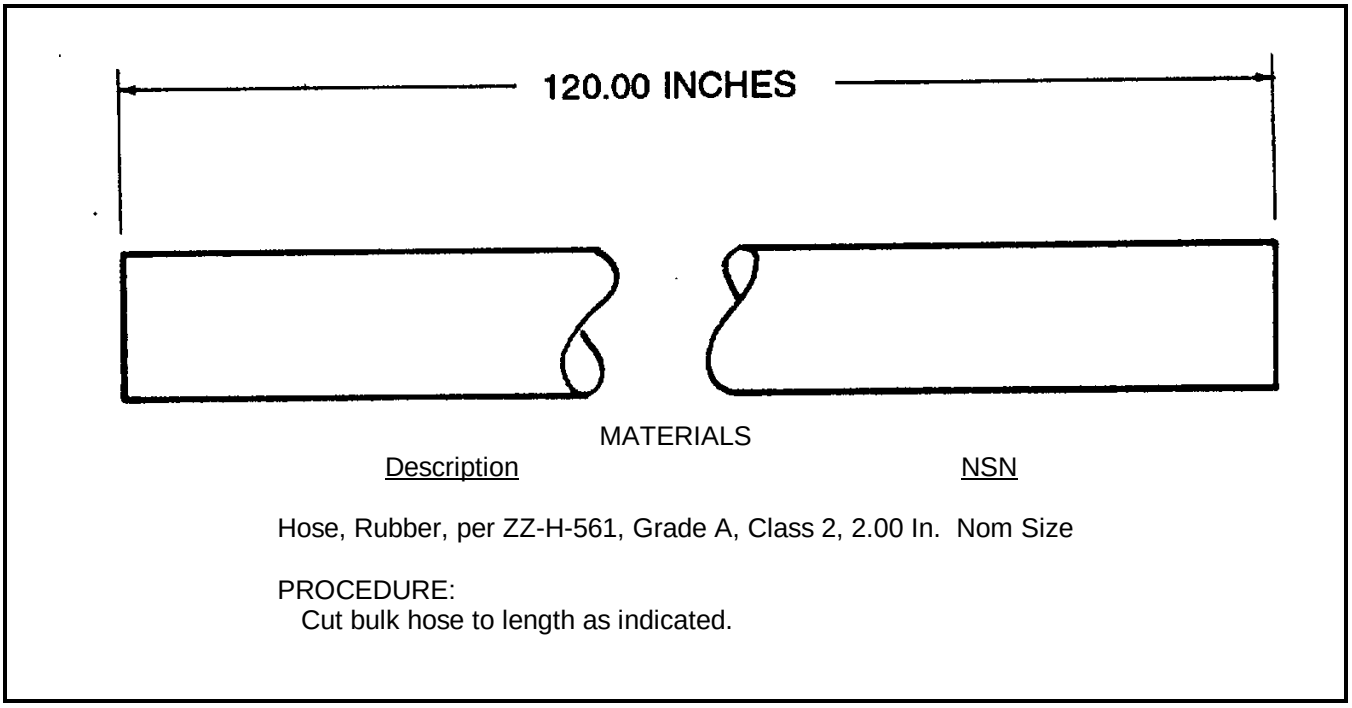
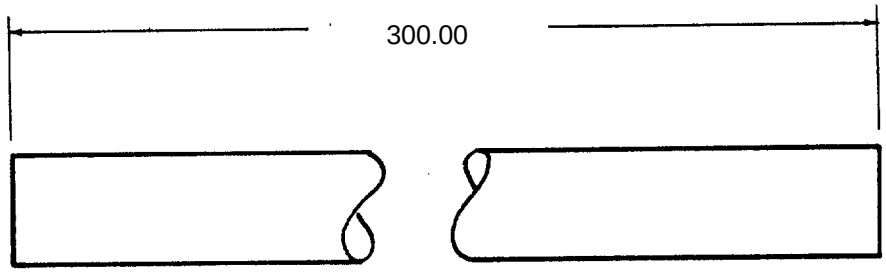


Figure G-1.



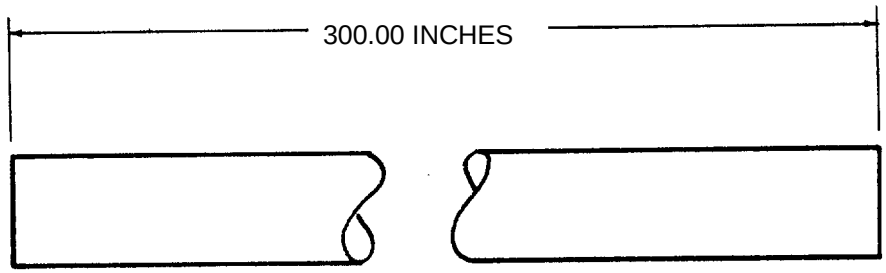
MATERIALS

Description	NSN
Hose, Rubber, per ZZ-H-601, Grade 3, Class 2, 2.00 In. Nom Size	

PROCEDURE:

Cut bulk hose to length as indicated.

Figure G-2.



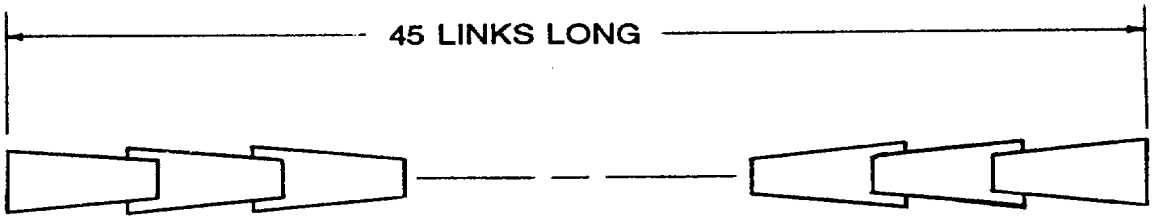
MATERIALS

Description	NSN
Hose, Rubber, per ZZ-H-601 Grade 3, Class 2, 1.50 In. Nom Size	

PROCEDURE:

Cut bulk hose to length as indicated.

Figure G-3.



MATERIALS

Description	NSN
Chain, Sash, Bronze, Trade no. 35 Type II Class 3	

PROCEDURE:

Cut bulk chain to length of 45 links.

Figure G-4.

APPENDIX H
TORQUE LIMITS

H-1. GENERAL. This appendix provides general torque limits for fasteners. Special torque values are indicated in the maintenance procedures for applicable components. The general torque values given in this appendix shall be used when specific torque values are not indicated in the maintenance procedures.

H-2. TORQUE LIMITS. Torque limits are listed in Table H-1 for fasteners. Dry fasteners are defined as fasteners on which no lubricants are applied to the threads. Wet fasteners are defined as fasteners on which graphite or moly-disuphide greases or other extreme pressure lubricants are applied to the threads. Table H-2 lists the minimum breakaway torque values for locknuts.

Table H-1. General Torque Requirements for Dry Fasteners.*

Bolt/Screw Size	Torque Requirement in lb ft (N.m)			
	SAE Grade 1 or 2	SAE Grade 5	SAE Grade 6 or 7	SAE Grade 8
1/4-20 UNC	5 (7)	8 (11)	10 (14)	12 (16)
1/4-28 UNF	6 (8)	10 (14)	12 (16)	14 (19)
5/16 18 UNC	11 (15)	17 (23)	19 (26)	24 (33)
5/16-24 UNF	13 (18)	19 (26)	23 (31)	27 (37)
3/8 16 UNC	18 (24)	31 (42)	34 (46)	44 (60)
3/8-24 UNF	20 (27)	35 (47)	42 (57)	49 (66)
7/16-14 UNC	28 (38)	49 (66)	55 (75)	70 (95)
7/16-20 UNF	30 (41)	55 (75)	67 (91)	78 (106)
1/2-13 UNC	39 (53)	75 (102)	85 (115)	105 (142)
1/2-20 UNF	41 (56)	85 (115)	102 (138)	120 (163)
9/16-12 UNC	51 (69)	110 (149)	120 (163)	155 (210)
9/16-18 UNF	55 (75)	120 (163)	145 (197)	170 (231)
5/8-11 UNC	63 (85)	150 (203)	167 (226)	210 (285)
5/8-18 UNF	95 (129)	170 (231)	205 (278)	240 (325)
3/4-10 UNC	105 (142)	270 (366)	280 (380)	375 (509)
3/4-16 UNF	115 (156)	295 (400)	357 (484)	420 (570)
7/8-9 UNC	160 (217)	395 (536)	440 (597)	605 (820)
7/8-14 UNF	175 (237)	435 (590)	555 (753)	675 (915)

Table H-1. General Torque Requirements for Dry Fasteners.* - Continued.

Bolt/ Screw Size	Torque Requirement in lb ft (N.m)			
	SAE Grade 1 or 2	SAE Grade 5	SAE Grade 6 or 7	SAE Grade 8
1-8 UNC	235 (319)	590 (800)	660 (895)	910 (1234)
1-14 UNF	250 (339)	660 (895)	825 (1119)	990 (1342)
1-1/8-7 UNC	350 (475)	800 (1085)	1000 (1356)	1280 (1736)
1-1/8-12 UNF	400 (542)	880 (1193)	1050 (1424)	1440 (1953)
1-1/4-7 UNC	500 (678)	1080 (1464)	1325 (1797)	1820 (2468)
1-1/4-12 UNF	550 (746)	1125 (1526)	1325 (1797)	1820 (2712)
1-3/8-6 UNC	660 (895)	1460 (1980)	1800 (2441)	2380 (3227)
1-3/8-12 UNF	740 (1003)	1680 (2278)	1960 (2658)	2720 (3688)
1-1/2-6 UNC	870 (1180)	1940 (2631)	2913 (3950)	3160 (4285)
1-1/2-12 UNF	980 (1329)	2200 (2983)	3000 (4068)	3560 (4827)

** Torque given is for clean, dry threads. Reduce by 10% when engine oil is used as lubricant.*

Table H-2. Locknut Breakaway Torque Values.

NOTE

To determine breakaway torque, thread lock nut onto screw or bolt until at least two threads stick out. Locknut shall not make contact with a mating part. Stop the locknut. Torque necessary to begin turning locknut again is the breakaway torque. Do not reuse locknuts that do not meet minimum breakaway torque.

Thread Size	Minimum Breakaway Torque	
	lb-in.	(N.m)
10-32	2.0	(0.23)
¼-28	3.5	(0.40)
5/16-24	6.50	(0.73)
3/8-24	9.5	(1.07)
7/16-20	14.0	(1.58)
1/2-20	18.0	(2.03)
9/16-18	24.0	(2.71)
5/8-18	32.0	(3.62)
3/4-16	50.0	(5.65)
7/8-14	70.0	(7.91)
1-12	90.0	(10.17)
1-1/8-12	117.0	(13.22)

APPENDIX I

MANDATORY REPLACEMENT PARTS LIST

Section I. INTRODUCTION.

SCOPE I-1.
This appendix lists all mandatory replacement parts referenced In the task setups and procedures for the support of the Forward Area Water Point Supply System.

I-2. EXPLANATION OF LISTING.

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name. If the item you require diners between the serial numbers of the same model, effective serial numbers are shown in the last line of the description. If the item required differs for different models of this equipment, the model number is shown under the "Usable On" heading in the description column.

Section II. Mandatory Replacement Parts List

(1) ILLUS NO.	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION (CAGEC AND PART NUMBER) USABLE ON CODE	(4) U/M	(5) QTY REQ'D
1	5330-00-612-2414	Gaskets for 2.00 inch diameter hose. (96906) MS2703-6	ea	5
2	5330-00-360-0595	Gaskets for 1.50 inch diameter hose. (96906) MS2703-5	ea	3
3	5315-00-839-5820	Cotter Pin (96906) MS24665-134	ea	2
4	5310-00-241-6667	Lock Nuts (96906) MS16228-8C	ea	2
5	5310-00-245-8826	Lock Nuts (96906) MS16228-10C	ea	2

ALPHABETICAL INDEX

ALPHABETICAL INDEX - Continued

ALPHABETICAL INDEX

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:.

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
04109

DISTRIBUTION:
To be distributed in accordance with DA Form 12-25-E, block no. 6049, requirements for TM 10-4320-346-12&P.

*U.S. GOVERNMENT PRINTING OFFICE 1996 -406-421/61023

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: mpmt%avma28@st-louis-emh7.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 EQUIPMENT TECHNICAL PUBLICATIONS

THEN...JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT, FOLD IT AND DROP IT IN THE MAIL.

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

IN THIS SPACE, TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 decagram = 10 grams = .35 ounce
1 hectogram = 10 decagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	Newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound-feet	Newton-meters	1.356	metric tons	short tons	1.102
pound-inches	Newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

PIN: 071334-002