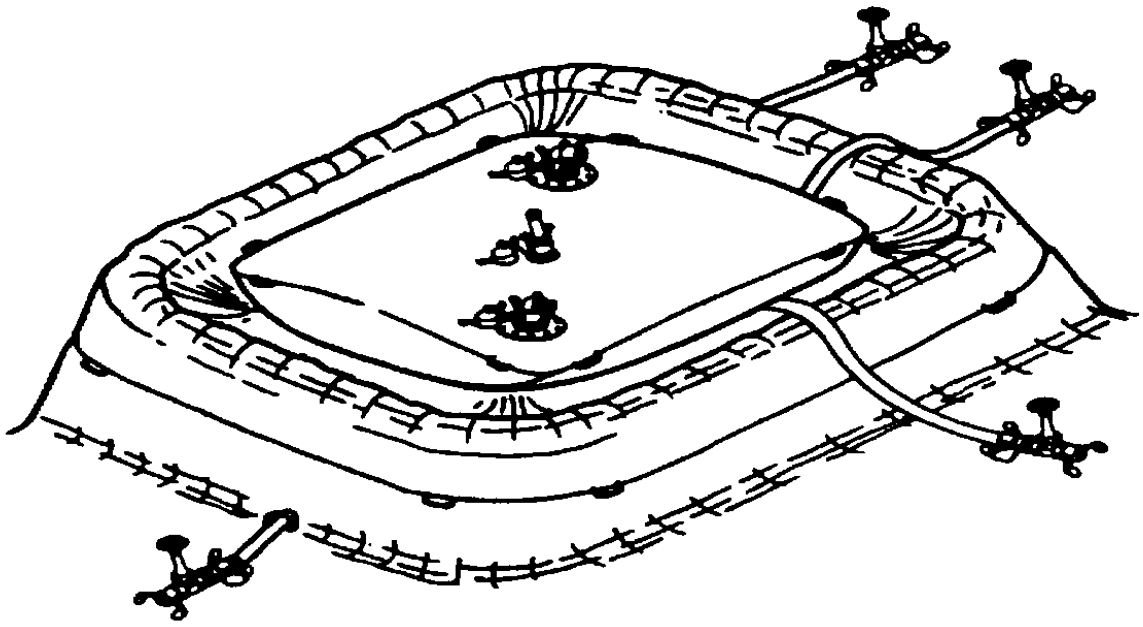
TM 10-5430-236-12&P

TECHNICAL MANUAL

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

TANK, FABRIC, COLLAPSIBLE: PETROLEUM, LOW TEMPERATURE

3,000 GALLON, MODEL X-4851 (EIC-ZF5)
NSN 5430-01-327-2117
10,000 GALLON, MODEL X-4756A (EIC-ZF6)
NSN 5430-01-327-7787
20,000 GALLON, MODEL X-4757A (EIC-ZF7)
NSN 5430-01-327-7788



This manual supersedes TM 10-5430-231-12 dated 11 August 1996 and TM 10-5430-231-20P dated 31 May 1996 including all changes

HEADQUARTERS, DEPARTMENT OF THE ARMY

30 JUNE 2000

DESTROY SUPERSEDED DATA

LIST OF EFFECTIVE PAGES/WORK PACKAGES

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TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 30 AND TOTAL NUMBER OF WORK PACKAGES IS 37, CONSISTING OF THE FOLLOWING:

Page/WP No.	*Change No.
A/B blank	0
Warnings	0
Title	0
i-ii	0
Chap 1 title page	
WP 0001 00 (2 pgs)	0
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*Zero in this column indicates an original page.

WARNING SUMMARY

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

Do not use near open flame or extreme heat. Death or personnel injury could occur due to exploding or burning fuel.

Do not touch cold metal parts with bare hands when operating under arctic conditions. Frostbite can cause permanent injury.

Do not allow fuel to come in contact with eyes or skin. Wear protective goggles. Fuels are toxic and can cause illness or death. If fuel contacts skin or eyes, flush and get medical attention immediately.

Do not spill fuel on clothing. Static electricity can ignite fuel and cause personnel injury or death. Remove clothing and wash affected area thoroughly and get medical attention immediately.

Do not breathe fuel vapors. Fuel vapors are toxic and can cause serious illness or death. If dizziness occurs, leave area and get fresh air.

Do not allow smoking within 100 feet (30.5m) of the dispensing area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. If spillage of fuel occurs, cover the area with dry soil to reduce the rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire.

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Get an assistant. Bend legs while lifting. Do not support weight with your back.

Do not use excessive pressure when applying sealing compound onto threads. Sharp thread edges can cause serious injury.

Do not allow fuel to come in contact with face and eyes. Put on protective hood provided in repair kit to protect face and eyes from escaping fuel. Fuels are toxic and can cause illness or death. If fuel contacts face or eyes, flush and get medical attention immediately.

To prevent injury to personnel and damage to the equipment, do not open coupling lock arms when fuel is stored in tank.

FIRST AID instructions are given in FM 21-11. First Aid For Soldiers.

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 30 JUNE 2000

TECHNICAL MANUAL

OPERATOR'S AND UNIT MAINTENANCE MANUAL
(Including Repair Parts and Special Tools List)

TANK, FABRIC, COLLAPSIBLE; PETROLEUM, LOW TEMPERATURE

3,000 GALLON CAPACITY MODEL X-4851 (EIC-ZF5) NSN 5430-01-327-2117
10,000 GALLON CAPACITY MODEL X-4756A (EIC-ZF6) NSN 5430-01-327-7787
20,000 GALLON CAPACITY MODEL X-4757A (EIC-ZF7) NSN 5430-01-327-7788

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028-2 (Recommended changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or email your letter, DA Form 2028, or DA Form 2028-2 direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-LC-CIP-WT, Rock Island, IL 61299-7630. The email address is tacom-tech-pubs@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726

This manual supersedes TM 10-5430-231-12 dated 11 August 1996 and TM 10-5430-231-20P dated 31 May 1996 including all changes.

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

TABLE OF CONTENTS

HOW TO USE THIS MANUAL

Section I. OVERVIEW -This manual is divided into five chapters consisting of 28 work packages and 9 appendices that provide all the information necessary to operate and maintain the collapsible fabric petroleum tank assemblies.

Section II. INDEXING -This manual contains several types of indexes to help the user locate information quickly and efficiently. The different indexes are as follows:

a. Table of Contents. Lists all chapters, work packages, and appendices contained in the manual, along with the work package numbers where they begin.

b. Alphabetical Index. Located at the back of the manual, this index lists entries that personnel are most likely to look for. Most listings are provided several times in the index (i.e., "Maintenance Forms and Records" can also be found as "Forms and Records, Maintenance," and "Records, Maintenance Forms and"). This increases the likelihood of finding the information the first place you look. Each entry also lists the work package where the information can be found.

CHAPTER 1

GENERAL INFORMATION

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON GENERAL INFORMATION

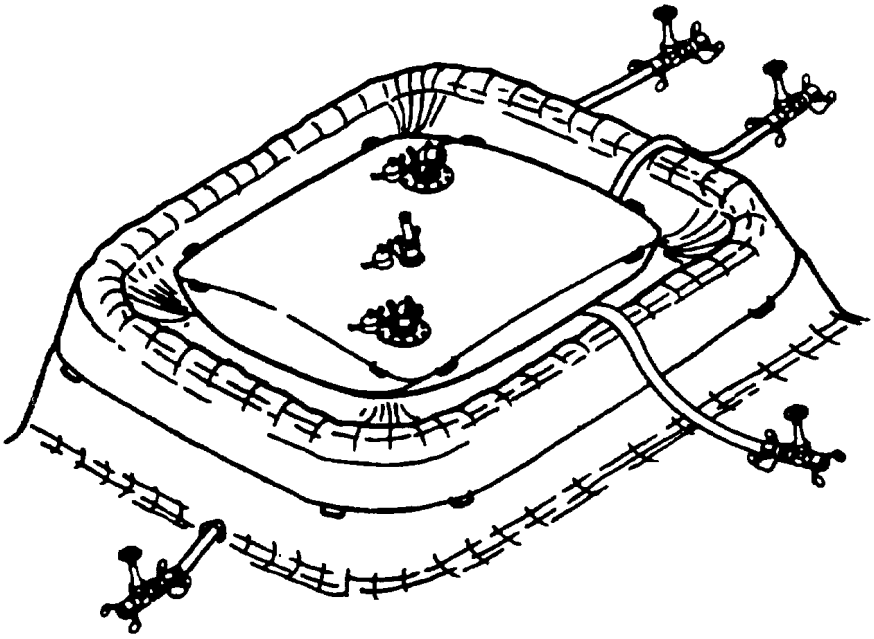
SCOPE

This technical manual contains operating instructions, checks and corrective maintenance procedures for the 3,000, 10,000 and 20,000 gallon collapsible fabric petroleum tanks.

Type of Manual: Operator and unit maintenance including Repair Parts and Special Tools List.

Model Number and Equipment names: X-4851, 3,000 Gallon Petroleum Collapsible Fabric Tank; X-4756A, 10,000 Gallon Petroleum Collapsible Fabric Tank, and X-4757A, 20,000 Gallon Petroleum Collapsible Fabric Tank.

Purpose of Equipment: The collapsible petroleum tanks are vented fabric tanks for storing liquid petroleum fuels. The tanks are designed for operation in environmental conditions including low ambient temperatures.



MAINTENANCE FORMS, RECORDS, AND REPORTS

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

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

General. This equipment may be destroyed by mechanical methods or by using the fuel which the tank contains to set it on fire.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE - continued

NOTE
Fuel in tanks can be used to destroy other pieces of equipment in the same area.

Mechanical Demolition. Use an axe, pick, mattock, sledge, or any other heavy implement to smash the fittings and to slash holes in the tanks

Demolition by Fire. Use some of the fuel contained in the tanks to saturate the equipment and ignite.

Additional Information. For additional information on procedures for destruction of materiel, refer to TM 750-244-3.

CORROSION PREVENTION AND CONTROL (CPC)

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

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

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

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs)

If your collapsible fabric petroleum tanks need improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-Automotive and Armaments Command, AMSTA-LC-CIP-WT, Rock Island, IL 61299-7630. We will send you a reply.

PREPARATION FOR STORAGE AND SHIPMENT

Refer to work package 0028 00.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Workmanship shall be of the highest quality and shall permit no defects not repaired in accordance with the instructions in this manual. All metal parts shall be clean and free of sand, dirt, etc. The inside and outside of the tank shall be clean and free of foreign material.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Characteristics, capabilities, and features of the 3,000, 10,000, and 20,000-gallon (11,355, 37,850, and 75,700L) petroleum tanks

1. Portable tank folds and rolls up to aid in storing of tank in packing crate for transporting.
2. U-shaped handles aid in positioning and movement of the empty tank.
3. Tanks are supplied with components required to connect tank to a distribution system.
4. Quick-disconnect couplings enable rapid connection of system fuel hoses.
5. The self-erecting, pillow-shaped tanks are provided with a vent assembly to prevent over pressurization of the tank. These vent assemblies are installed for all three tanks.
6. Accessory hose assemblies, gate valves, couplings and gaskets required for operation are supplied with each tank. These components are the same for all three tanks.
7. Berm liner assembly prevents spillage of fuel on the ground due to leaks in the tank. The berm liner is supplied with two drain assemblies, drain hose assemblies and gate valves.
8. A nylon coated fabric ground cloth protects berm liner and tank bottom from damages.
9. Tanks are supplied with type I and type II emergency repair kits for emergency repairs.
10. Easily and quickly setup in the field.

EQUIPMENT DATA

Collapsible Fuel Tanks (including ground cloth, accessories, and repair items)

Operating Temperature Range	-60° F to +95° F (-15.6°C to +35°C)

3,000 Gallon (11,355L) Tank

Model Number	X-4851
Tank Dimensions (Empty)	14 x 14 feet (4.3 x 4.3m)
Tank Dimensions (Full)	12.5 x 12.5 x 4 feet high (3.8 x 3.8 x 1.2m)
Tank Weight (Empty)	436 pounds (198kg)

10,000 Gallon (37,850L) Tank:

Model Number	X-4756A
Tank Dimensions (Empty)	22 x 22 feet (6.7 x 6.7m)
Tank Dimensions (Full)	20.5 x 20.5 x 4 feet high (6.3 x 6.3 x 1.2m)
Tank Weight (Empty)	532 pounds (242kg)

20,000 Gallon (75,700L) Tank: X-4757A

Tank Dimensions (Empty)	24 x 28 feet (7.4 x 8.5m)
Tank Dimensions (Full)	23.5 x 27.5 feet x 5 feet 7 inches high (7.2 x 8.4 x 1.7m)
Tank Weight (Empty)	676 pounds (307kg)

Berm Liner Assemblies

3,000 Gallon (11,355L) Tank Berm Liner:

Part Number	M53102-03
Dimensions	37 x 37 feet (11.3 x 11.3m)
Weight	225 pounds (102kg)

10,000 Gallon (37,850L) Tank Berm Liner:

Part Number	M53102-10
Dimensions	52.5 x 52.5 feet (16 x 16m)
Weight	425 pounds (193kg)

20,000 Gallon (75,700L) Tank Berm Liner:

Part Number	M53102-20
Dimensions	59 x 59 feet (18 x 18m)
Weight	550 pounds (250kg)

Ground Cloth

Dimensions:

3,000 Gallon (11,355L) Tank	17 x 17 feet (5.2 x 5.2m)
10,000 Gallon (37,850L) Tank	25 x 25 feet (7.6 x 7.6m)
20,000 Gallon (75,700L) Tank	31 x 27 feet (9.5 x 9.5m)

END OF WORK PACKAGE

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

The collapsible fabric petroleum tanks are supplied with all components necessary to make the tanks operational. For the purpose of this manual, the collapsible fabric petroleum tanks will be addressed as kits comprising the following major components.

Tank

The collapsible fabric petroleum tank (1) is used to store liquid fuels. The vent, filler, and discharge fittings are on the top of the tank. Two drain fittings are on the tank bottom. U-shaped handles along the tank perimeter aid in unfolding, positioning, and storing of the tank.

Tank Fitting Assemblies

Each tank is equipped with the following fitting assemblies:

1. Drain Fitting Assembly. Two drain fittings (2) are mounted on the bottom surface of the tank. These are low profile fittings equipped with couplings and dust caps.

2. Vent Fitting Assembly. The vent fitting (3) connects to the top center of the collapsible fuel tank and prevents damage from over pressurization. Venting of tank pressure is automatic and no operator control is required. The vent assembly contains a flame.

3. Filler/Discharge Assemblies. A filler assembly (4) and discharge assembly (5) are located on top of the collapsible fuel tank. Both assemblies are supplied with a 90° elbow for use in connecting the tank to system hoses. A protective dust cap and plug are provided at each fitting to prevent entry of contaminants when tank is not in use.

Accessories

The following accessory items are furnished with each collapsible fabric petroleum tank.

1. Two 2-inch (5.08cm) non-collapsible hose assemblies (6). These 10-foot (3.05m) long hose assemblies connect to the tank drain fittings.

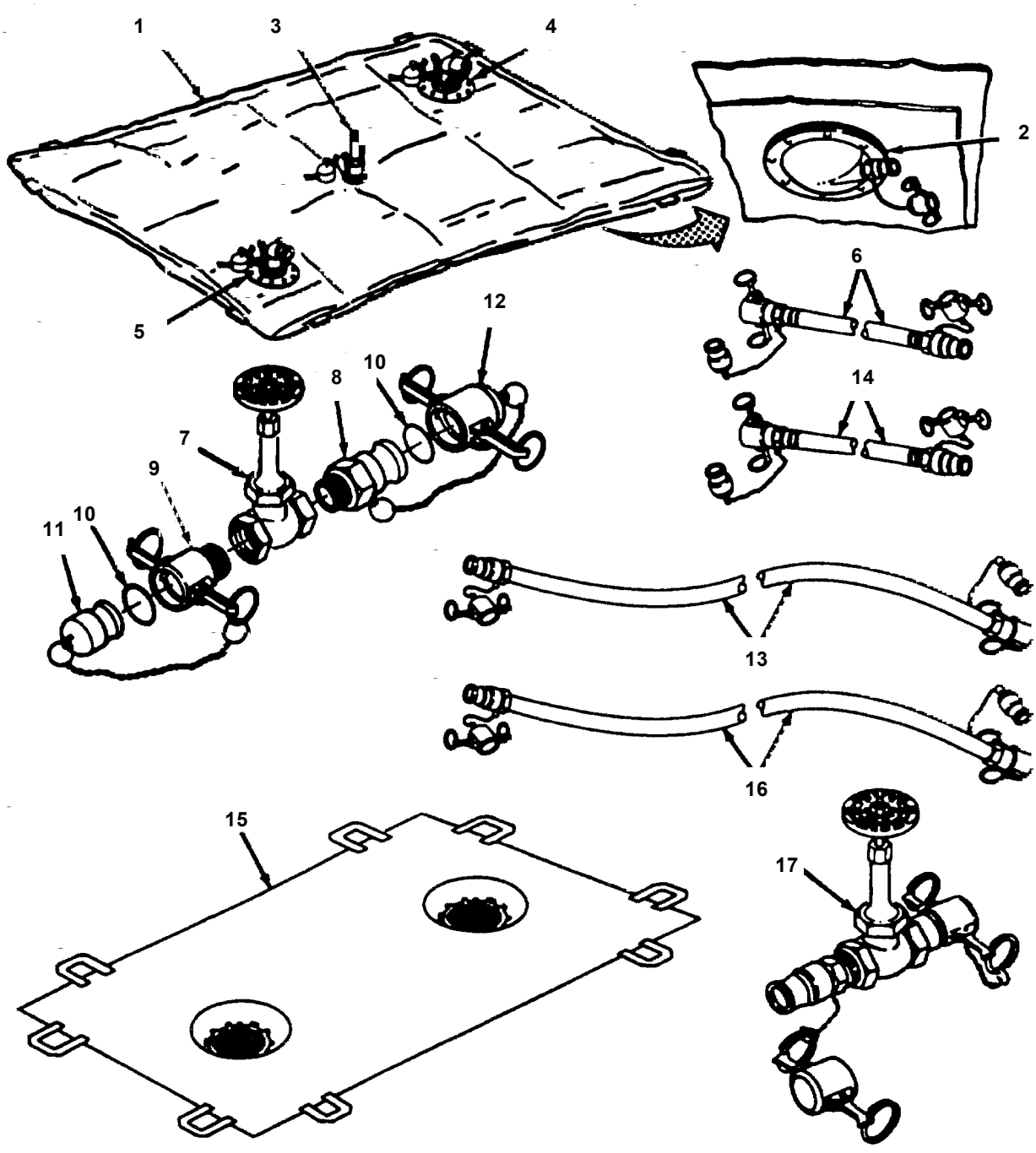
2. Two 2-inch (5.08cm) gate valves (7). These valves allow manual control of tank draining. Quick-disconnect couplings (8 and 9), gaskets (10), dust plugs (11) and caps (12) are included for use on these valves (7).

3. One 4-inch (11.16cm) collapsible hose assembly (13). This 20-foot (6.1m) long hose assembly connects to the tank filler assembly (4) for filling with liquid fuel.

4. One 6-inch non-collapsible hose assembly (14). This 10-foot (3.05m) long hose assembly connects to the tank discharge assembly (5) for discharging fuel.

5. Berm Liner. The berm liner (15) provides a fuel barrier for the berm installed around the collapsible tank. The berm liner is equipped with two drain fitting assemblies. Four 20-foot (6.1m) long, 2-inch (5.08cm) non-collapsible hose assemblies (16) and two 2-inch (5.08cm) gate valves (17) are furnished with the berm liner for draining the liner.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - continued



LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - continued

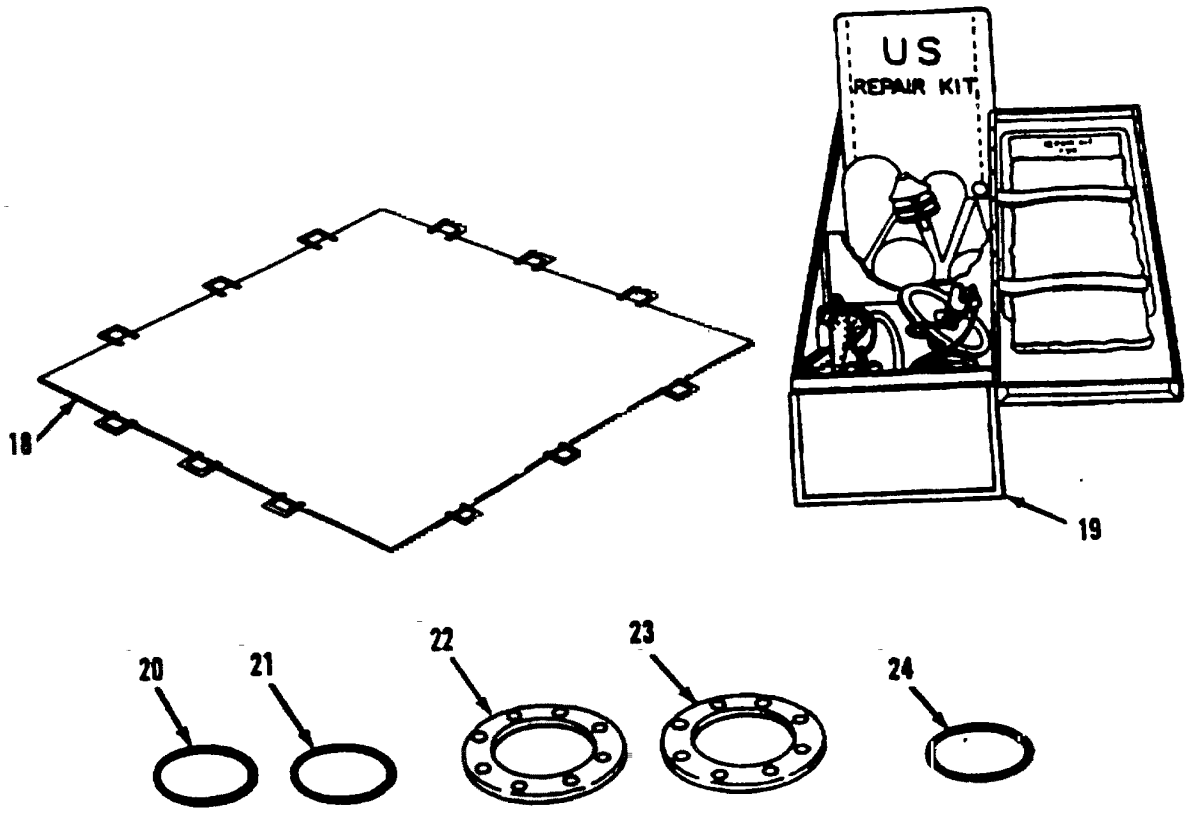
Ground Cloth

A ground cloth (18) is furnished with each collapsible tank. The cloth provides protection for the bottom surface of the berm liner and tank. Handles on the ground cloth edges aid in its installation.

Repair Items

Repair items furnished with each tank consist of the following:

1. Repair kit (19), for repairs up to 6 inches (15.24cm). The kit contains plugs, patches, clamps, tools, protective hood and instructions for accomplishing field repairs on the tanks (1).
2. Two replacement preformed packings (20) for vent fitting assembly (3) or drain assembly (2).
3. Two replacement preformed packings (21) for filler assembly (4).
4. Two replacement 4-inch (10.16cm) flange gaskets (22) for filler assembly (4),
5. Two replacement 6-inch (15.24cm) flange gaskets (23) for discharge assembly (5).
6. Two 2-inch (5.08cm) coupling half gaskets (24) (furnished only with 3,000-gallon (11,355L) tanks).



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**OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
PRINCIPLES OF OPERATION**

PRINCIPLES OF OPERATION

General
The collapsible fabric petroleum tanks described in this manual are components of a fuel system. Any size fuel tank may be connected to the system, depending on operational requirements.

Filling
The collapsible fabric petroleum tanks are filled by pumping fuel from tank trucks using the system pump assembly. Control of fuel flow during filling is accomplished with fuel system gate valves. The tank is filled through a 4-inch (10.16cm) collapsible hose connected to the tank filler assembly. As the tank is filled, it enlarges to a pillow shape. Venting of the tank during filling is performed automatically by the center vent assembly with pressure relief cap.

Discharge
When needed, fuel is drawn from the tank by the system pump and distributed through a network of valves and hoses to the fuel dispensing facilities. Fuel is drawn from the tank discharge assembly through a 6-inch (15.24cm) hose. As fuel is drawn from the tank, the tank will flatten. Fuel flow between the system pumps and the fuel tank is controlled by system gate valves. When the tank is empty, or no more fuel is needed, the downstream system valves are then closed.

Draining
Hand-operated gate valves on the drain hose assemblies connected to the tank drain fittings control fuel flow from the tank drain. These valves allow restricted flow of fuel from the tank for sampling or complete drainage. When preparing the tank for movement, the system pump will draw most of the fuel from the tank. To ensure complete drainage, the hand drain valves are opened.

END OF WORK PACKAGE

CHAPTER 2

OPERATING INSTRUCTIONS FOR TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON

**OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
CONTROLS AND INDICATORS**

GENERAL

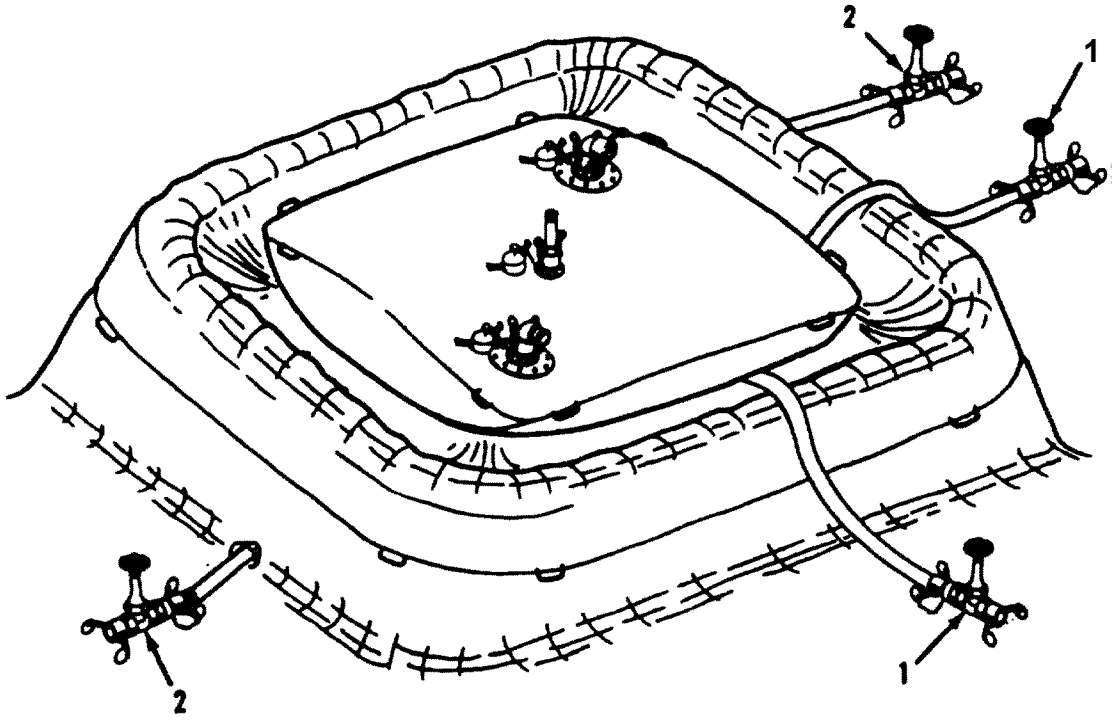
This section provides the operator with information needed to locate, identify, and use the controls and indicators required to operate the collapsible fabric petroleum tanks.

DESCRIPTION AND USE OF MAJOR COMPONENTS

Description and use of major components, including controls and indicators, are contained in Table 1.

Table 1. Major Components, Controls, and Indicators

Key	Control or Indicator	Function
1	Two tank drain gate valves	Start and stop flow from tank drains
2	Two berm liner drain valves	Start and stop flow from berm liner drains



END OF WORK PACKAGE

OPERATOR MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
PMCS PROCEDURES INTRODUCTION

INTRODUCTION

General

Preventive Maintenance Checks and Services (PMCS) are performed to keep the collapsible fabric petroleum tank assembly in operating condition. The checks are used to find, correct or report problems. Be sure to perform your PMCS each time you service the tank assembly. Using the PMCS table, always do PMCS in the same order, so it gets to be a habit. With practice, you'll quickly spot anything wrong. Pay attention to WARNING and CAUTION statements. A WARNING means someone could be hurt. A CAUTION means equipment could be damaged.

Before you use the tank assembly, do Before PMCS.

During use, do During PMCS.

After the tank assembly is used, do After PMCS.

Do weekly PMCS once a week.

If you find something wrong when performing PMCS, fix it if you can, using troubleshooting procedures and/or maintenance procedures.

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. For further information on how to use this form, see DA PAM 738-750.

If tools required to perform PMCS are not listed in this manual, notify unit maintenance.

PMCS Procedures

Your Preventive Maintenance Checks and Services, Table 1, lists the inspections and care required to keep the petroleum tank assembly in good operating order.

The Interval column of Table 1 tells you when to do a certain check or service.

NOTE

When a check and service procedure is required for both weekly and before intervals, it is not necessary to perform the weekly procedure during the same week in which the before procedure was done.

The Procedure column of Table 1 tells you how to do the required checks and services. Carefully follow these instructions. When the procedure tells you to, notify your supervisor.

"Equipment Not Ready/Available If" column tells you when and why your equipment cannot be used.

NOTE

If the equipment must be kept in continuous operation, do only the procedures that can be done without disturbing operation. Make complete checks and services when the equipment is shut down.

PMCS Leakage Definitions

It is necessary for you to know how fluid leakage affects the status of the collapsible fabric petroleum tank. Following are types/causes of leakage you need to know to be able to determine the status of the collapsible fabric petroleum tank. Learn these leakage definitions and remember – when in doubt, notify your supervisor.

CAUTIONS

- **Equipment operation is allowed with minor leakages (Class I or II). Consideration must be given to fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.**
- **When operating with Class I or II leaks, continue to check fluid levels as required in PMCS.**
- **Class III leaks should be reported immediately to your supervisor.**

Class I – Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

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

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

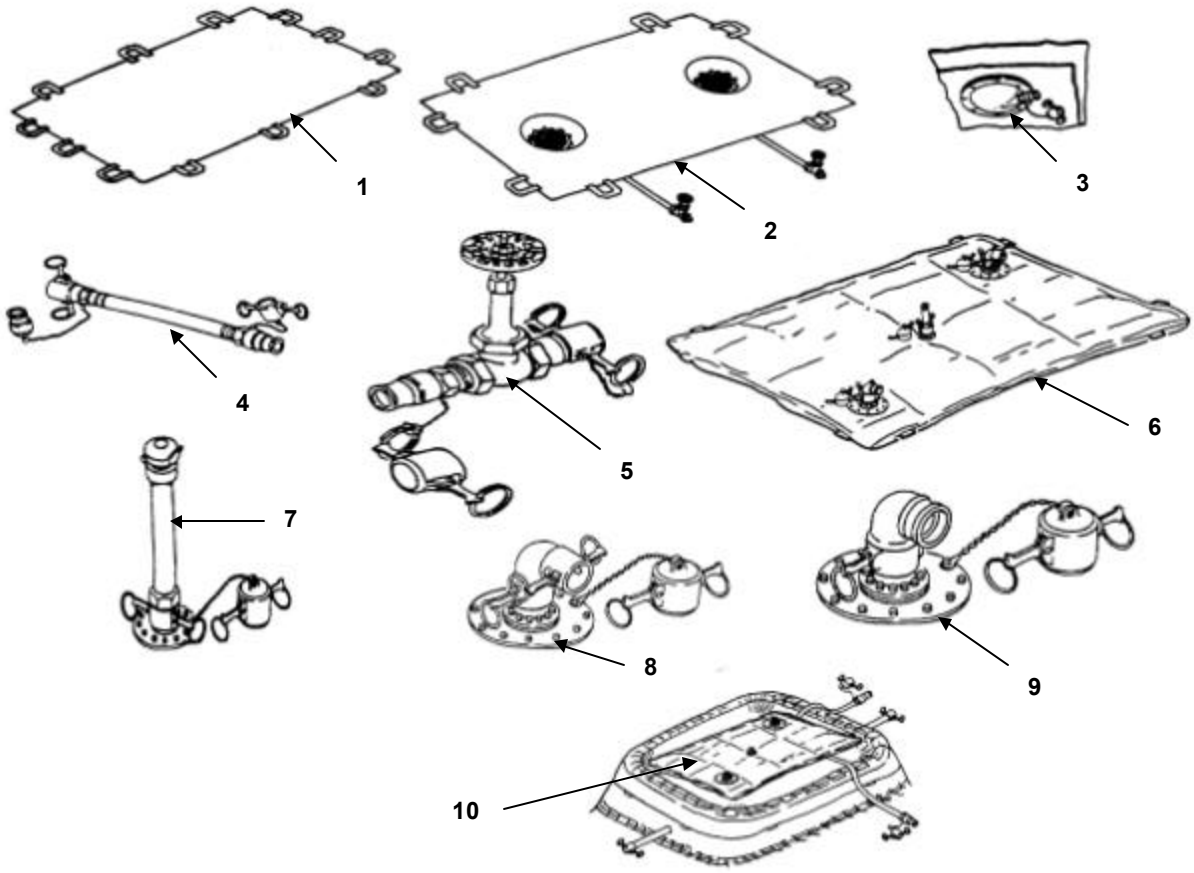


Table 1. Preventative Maintenance Checks and Services
For Tank, Fabric, Collapsible: Petroleum, Low Temperature

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before		Ground Cloth (1)	Inspect for rips and tears.	Ripped or torn.
2	Before		Berm Liner (2)	Inspect liner fabric for tears, punctures, and loose seams.	Tears, punctures, or loose seams found.
3	Before		Berm Liner Drain Assemblies (3)	a. Inspect drain body for cracks and damage.	Drain body cracked or damaged.
				b. Inspect coupling half for cracks and damage. Inspect for missing or damaged dust cap and gasket.	Coupling half cracked or damaged Dust cap missing or damaged. Gasket missing or damaged.

Table 1. Preventative Maintenance Checks and Services

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before		Berm Liner Drain Hose Assembly (4)	a. Inspect hoses for punctures or tears.	Puncture or tear found.
				b. Inspect hose coupling halves for damaged or missing gasket.	Damaged coupling halves, missing or damaged gasket.
5	Before		Berm Liner Drain Gate Valve Assemblies (5)	a. Check for loose or missing hand wheels, missing screws, and nuts.	Hardware loose or missing.
				b. Open and close valves. Valve should move freely.	Valve sticks or binds.
6	Before		Tank (6)	Inspect for damaged or missing dust caps. Check dust caps for damaged or missing gaskets.	Dust caps damaged or missing. Gaskets damaged or missing.
7	Before		Vent Fitting Assembly (7)	a. Inspect vent fitting coupling half for cracks and damaged locking arms.	Coupling half cracked. Locking arms damaged.
				b. Inspect for damaged or missing coupling half gasket.	Coupling half gasket damaged or missing.
				c. Lift relief cap and check for free movement. Inspect for cracks, bends, and bent or broken pivot pin.	Relief cap binds or is damaged.
				d. Inspect pipe for cracks or damage.	Pipe is cracked or is damaged.
				e. Inspect for loose or missing screws on fittings.	Screws loose or missing.

Table 1. Preventative Maintenance Checks and Services

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before		Filler Assembly (8)	a. Inspect elbow coupling half and locking arms for cracks and damage.	Coupling half or locking arms cracked or damaged.
				b. Inspect for damaged or missing coupling half gasket.	Gasket damaged or missing.
				c. Inspect for loose or missing screws	Screws loose or missing.
9	Before		Discharge Assembly (9)	a. Inspect elbow coupling half locking arms for cracks and damage.	Coupling half locking arms cracked or damaged.
				b. Inspect for damaged or missing coupling half gasket.	Coupling half gasket damaged or missing.
				c. Inspect for loose or missing screws.	Screws loose or missing.
10	Before		Berm Liner Drain Assembly (3)	a. Inspect drain body for cracks and damage.	Drain body cracked or damaged.
				b. Inspect coupling half for cracks and damage. Inspect for missing or damaged dust cap and gasket.	Coupling half cracked or damaged. Dust cap missing or damaged. Gasket missing or damaged.
				c. Inspect for loose or missing screws.	Screws loose or missing.
11	Before		Berm Liner Drain Hose Assembly (4)	a. Inspect hoses for punctures or tears.	Puncture or tear found.
				b. Inspect coupling halves for damaged or missing gasket.	Damaged coupling halves. Missing or damaged gasket.
				c. Inspect for damaged or missing dust caps or plugs. Inspect caps for damaged or missing gaskets.	Dust caps/plugs missing or damaged. Gaskets missing or damaged.

Table 1. Preventative Maintenance Checks and Services

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Before		Berm Liner Drain Gate Valve Assembly (5)	a. Check for loose or missing hand wheel, screws, and nuts.	Hardware loose or missing.
				b. Open and close valve. Valve stem should move freely.	Valve sticks or binds.
13	During		Tank (6)	Inspect for leaks in tank. If found, refer to leak repair (WP 0013 00).	Leak can not be repaired.
14	During		Vent Fitting Assembly (7)	Check vent coupling half for leaks	Vent coupling half leaking
15	During		Filler Assembly (8)	Check elbow coupling half for leaks.	Elbow coupling half leaking. Coupling half or locking arms damaged.
16	During		Discharge Assembly (9)	Check elbow coupling half for leaks.	Elbow Coupling half leaking. Coupling half or locking arms damaged.
17	During		Tank and Berm Liner (10)	Check tank and berm liner for leaks.	Tank or berm liner leaking.
18	During		Berm Liner Drain Gate Valve Assembly (5)	Check gate valves for leaks.	Gate valve leaking.
19	After		Tank (6)	a. Inspect tank fabric for tears, punctures, and loose seams.	Tear, puncture, or loose seam found.
				b. Inspect for loose or missing screws on fittings. Tighten loose screws.	Screws damaged or missing.
20	After		Vent Fitting Assembly (7)	Inspect elbow coupling half for leaks.	Elbow coupling half leaking. Coupling half or locking arms damaged. Gasket damaged.

Table 1. Preventative Maintenance Checks and Services

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
21	After		Discharge Assembly (9)	Inspect elbow coupling half for leaks.	Elbow coupling half leaking. Coupling half, locking arms, or gasket damaged.
22	After		Vent Fitting Assembly (7)	a. Inspect vent fitting coupling half for cracks and damaged locking arms.	Coupling half cracked. Locking arms damaged.
				b. Inspect for damaged or missing coupling half gasket.	Coupling half gasket damaged or missing.
				c. Lift relief cap and check for free movement. Inspect for cracks, bends, and bent or broken pivot pin.	Relief cap binds or is damaged.
				d. Inspect pipe for cracks or damage.	Pipe is cracked or damaged.
				e. Inspect for loose or missing bolts on fittings.	Bolts loose or missing.
23	After		Berm Liner (2)	a. Inspect berm liner fabric for tears, punctures, and loose seams.	Tear, puncture, or loose seam found.
				b. Inspect for loose or missing screws on fittings. Tighten loose screws.	Screws damaged or missing.
24	After		Berm Liner Hose Assembly (4)	a. Inspect hoses for punctures or tears.	Puncture or leak found.
				b. Inspect locking arms and coupling halves for damage.	Locking arms or coupling halves missing or damaged.
				c. Inspect for damaged or missing dust caps or plugs. Inspect caps for damaged or missing gaskets.	Gaskets missing or damaged.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
OPERATION UNDER USUAL CONDITIONS

ASSEMBLY AND PREPARATION FOR USE

The following procedures describe assembly, preparation for use, and operation of the collapsible petroleum tanks.

Site Selection

The site selected for tank installation should be level and large enough to contain the berm liner and filled tank (Refer to FM 10-69, Supply Point of Operations.) Site selection must also consider location near tank truck receiving area. The minimum sizes for the berm floor is as follows:

1. 3,000 gallon (11,355L) - 28 x 28 feet (8.5 x 8.5m)
2. 10,000 gallon (37,850L) - 28 x 28 feet (8.5 x 8.5m)
3. 20,000 gallon (75,700L) - 34 x 34 feet (10.4 x 10.4m)

WARNING

Do not use near open flame or excessive heat. Death or personnel injury could occur due to exploding or burning fuel.

CAUTION

To prevent damage to tank, remove gravel, rocks, and debris from bottom of shoes before walking on tank fabric.

NOTE

If your fuel tank is supplied as part of a system, the tank may be supplied in a reusable container.

Unpacking the Equipment

Open and unpack the contents of each container. To aid assembly, open containers in the same sequence as the assembly, preparation for use and operation for the collapsible fabric petroleum tanks. For example, first open the container for the ground cloth, then second open the container for the berm liner, and so on until all containers are unpacked. If required, request assistance from unit maintenance.

Inspection

Inspect the equipment for damage incurred during shipment. Report any problems to your supervisor.

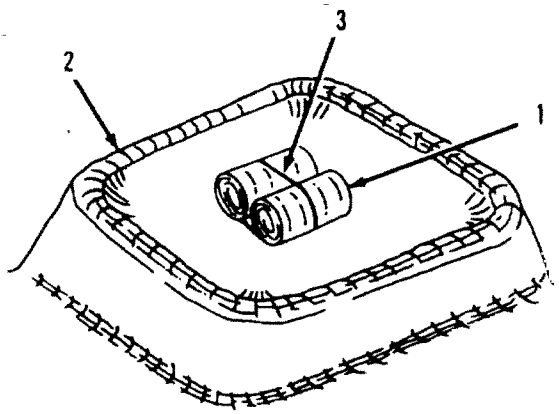
WARNINGS

A minimum of two personnel is required to unfold and position ground cloth.

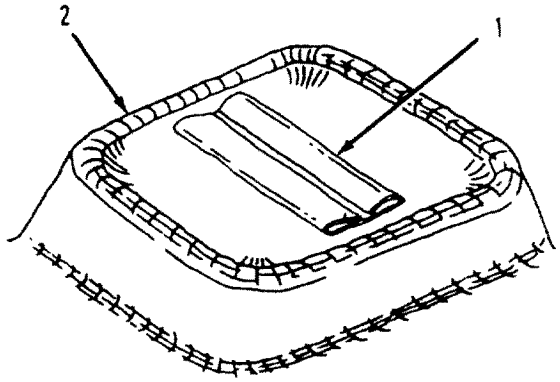
Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Get an assistant. Bend legs while lifting. Do not support heavy weight with your back.

Laying Ground Cloth

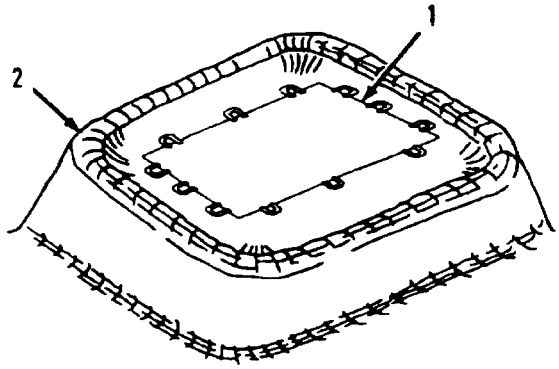
1. Place ground cloth (1) bundle in center of berm (2) floor. Remove ties (3) from ground cloth (1) bundle.



2. Unfold ground cloth (1) bundle in berm (2) floor.



3. Center ground cloth (1) in berm (2) and smooth out wrinkles.



Installing Berm Liner

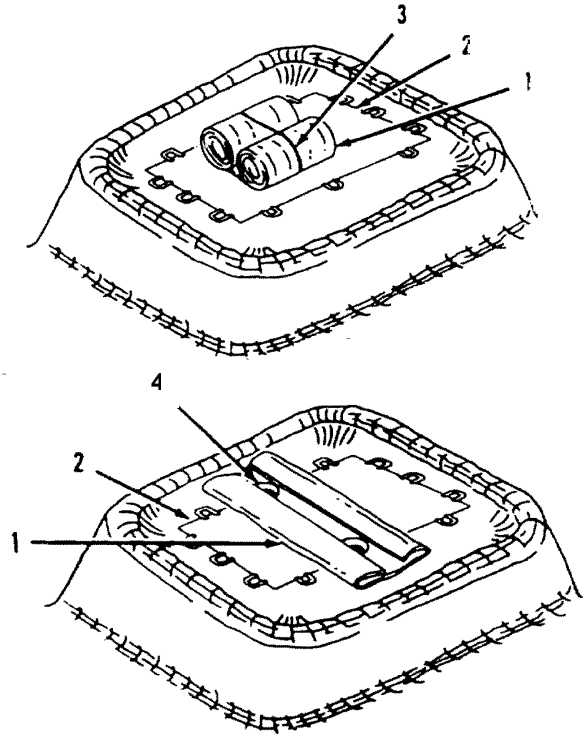
WARNINGS

Berm liner weights are 225, 425 and 550 pounds (102, 193 and 250kg) respectively for the 3,000, 10,000 and 20,000 gallon (11,355, 37,850 and 75,700L) sizes. Ensure that sufficient personnel are available for handling.

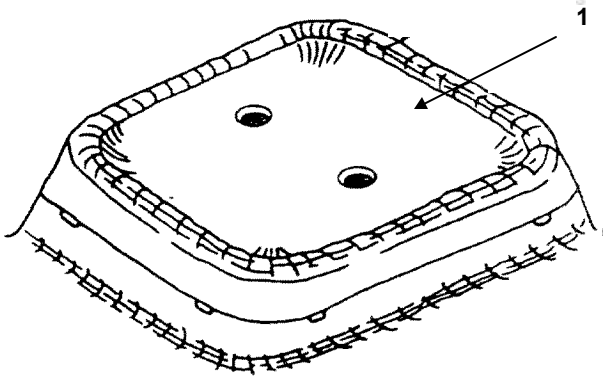
Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Always use assistants during lifting operations. Bend legs while lifting. Do not support heavy weight with your back.

Unfolding

1. Position folded berm liner (1) on center of ground cloth (2) with drain fittings down. Remove ties (3) and unfold berm liner (1).



2. Center berm liner (1) on ground cloth (2) with strainers (4) facing up.



Installing Berm Liner - Continued

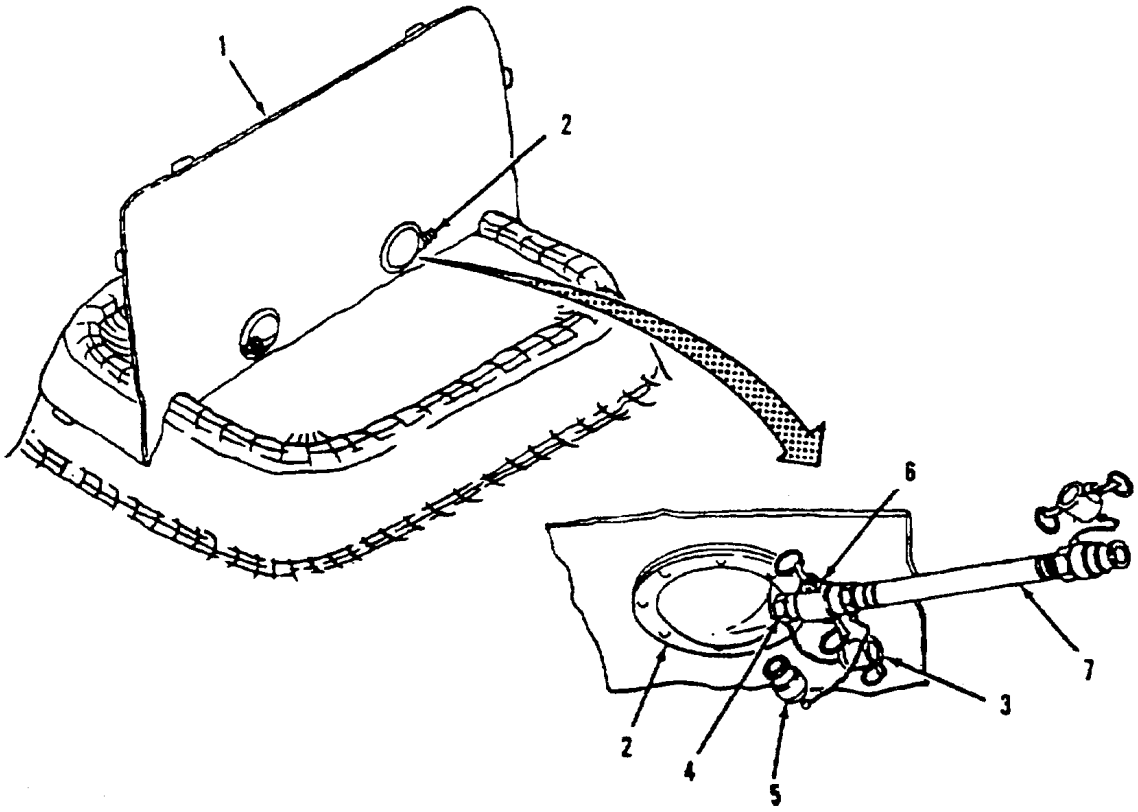
WARNINGS

Berm liner weights are 225, 425 and 550 pounds (102, 193 and 250kg) respectively for the 3,000, 10,000 and 20,000 gallon (11,355, 37,850 and 75,700L) sizes. Ensure that sufficient personnel are available for handling.

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Always use assistants during lifting operations. Bend legs while lifting. Do not support heavy weight with your back.

Connect Drain Hoses

1. Fold back berm liner (1) to expose the two bottom drain fittings (2).
2. Remove dust caps (3) from the two berm liner drain coupling halves. (4).
3. Remove dust plugs (5) from female couplings (6) of the two 20-foot (6.1m) drain hose assemblies (7). Connect the hoses to the berm liner drain coupling halves (4).



Installing Berm Liner - Continued

WARNINGS

Berm liner weights are 225, 425 and 550 (102, 193 and 250kg) pounds respectively for the 3,000, 10,000 and 20,000 gallon (11,355, 37,850 and 75,700L) sizes. Ensure that sufficient personnel are available for handling.

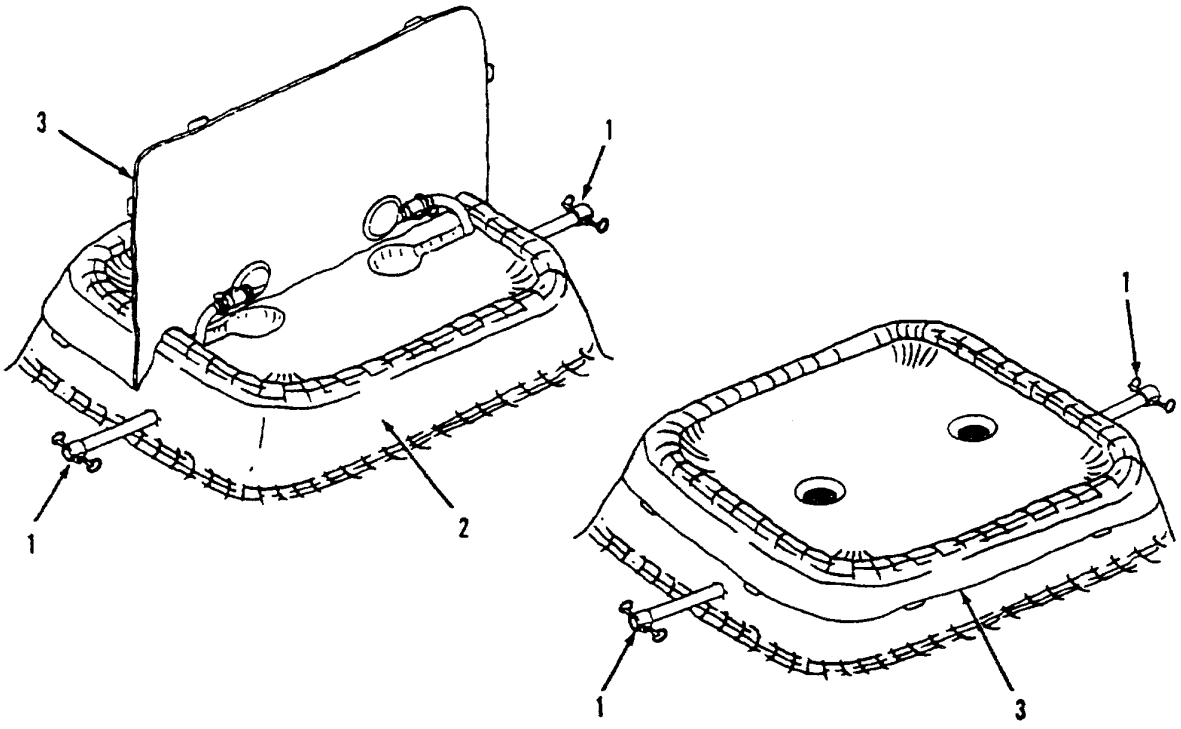
Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Always use assistants during lifting operations. Bend legs while lifting. Do not support heavy weight with your back.

Position Drain Hoses for Access

1. Position the two drain hose assemblies (1) through the berm wall (2) and out past the berm liner (3) edge. If necessary, connect a second drain hose assembly to extend the drain hose.

2. Reposition the folded back half of the berm liner (3) over the drain hose assemblies (1).

3. Smooth out the liner fabric over the area.



Installing Collapsible Fabric Petroleum Tank

WARNINGS

Tank weights are 436, 532 and 676 pounds (198, 242 and 307kg) respectively for the 3,000, 10,000 and 20,000 gallon (11,355, 37,850 and 75,700L) sizes. Ensure that sufficient personnel are available for handling.

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Always use assistants during lifting operations. Bend legs while lifting. Do not support heavy weight with your back.

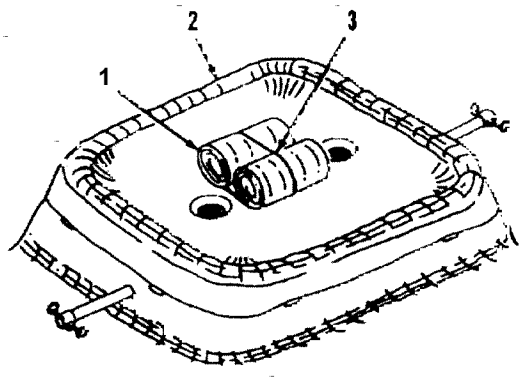
Unfold and Position Tank

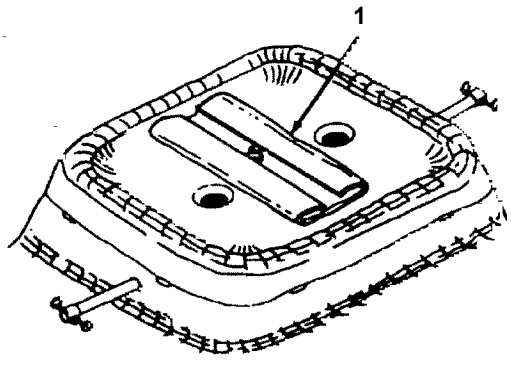
1. Position folded tank (1) in center of berm liner (2).
2. Remove ties (3) from folded tank (1) and unfold tank (1).

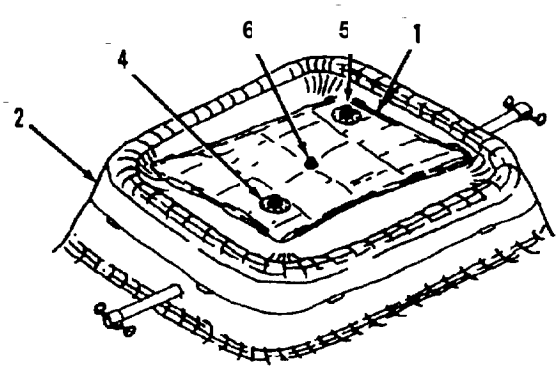
NOTE

Position tank so that two bottom drain fittings will be at the lowest level of tank.

3. Position tank (1) centered on berm liner (2) with filler (4), discharge (5), and vent fittings (6) facing up.







Installing Collapsible Fabric Petroleum Tank - Continued

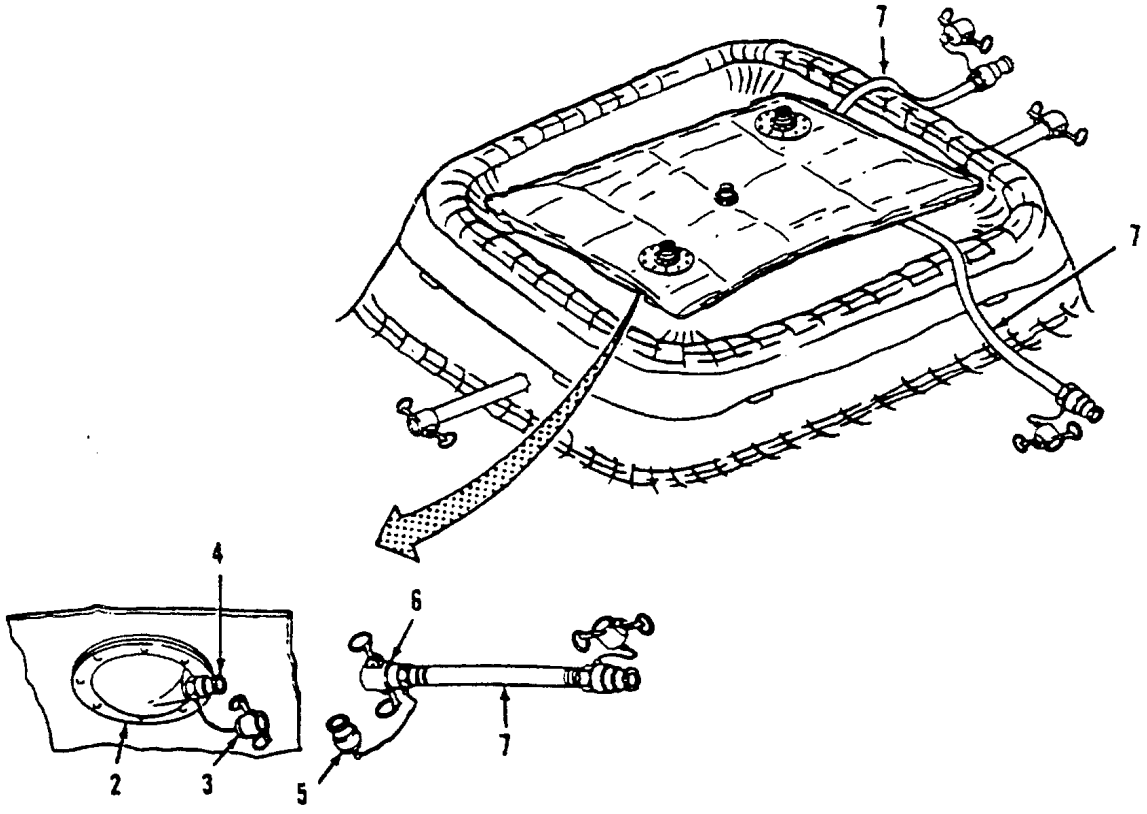
WARNINGS

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Always use assistants during lifting operations. Bend legs while lifting. Do not support heavy weight with your back.

Tank weights are 436, 532, and 676 pounds (198,242, and 307 Kg) respectively for the 3,000, 10,000, and 20,000 gallon (11,355, 37,850, and 75,700L) tanks. Ensure that sufficient personnel are available for handling.

Install Tank Drain Hoses

1. Fold back tank (1) edge to expose the two bottom drain fittings (2).
2. Remove dust caps (3) from the two tank drain coupling halves (4).
3. Remove dust plugs (5) from female coupling halves (6) of 10-foot (3.05m) drain hose assemblies (7). Connect hose assemblies (7) to the drain assembly coupling halves (4).
4. Position the tank drain hose assemblies (7) over the berm wall.
5. Reposition the folded edge of the tank (1) over the drain hose assemblies (7).
6. Smooth out the tank (1) fabric over the area.



Installing Collapsible Fabric Petroleum Tank - Continued

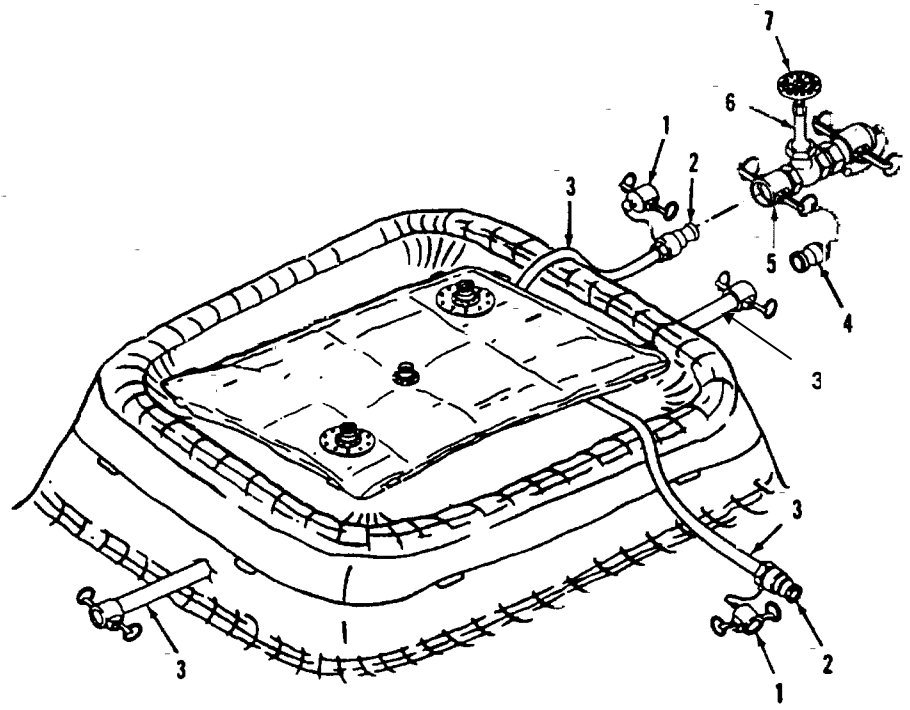
WARNINGS

Do not touch cold metal parts with bare hands when operating under arctic conditions. Frostbite can cause permanent injury.

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Get an assistant. Bend legs while lifting. Do not support heavy weight with your back.

Install Tank and Berm Liner Drain Valves

1. Remove dust caps (1) from male coupling halves (2) at end of the installed drain hose assemblies (3).
2. Remove dust plugs (4) from the female coupling halves (5) on the four gate valves (6).
3. Install gate valve coupling halves (5) onto the four drain hose coupling halves (2) and lock in place.
4. Close the four drain gate valves (6) by turning the hand wheels (7).
5. Install dust plugs (4) into dust caps (1) and lock in place.



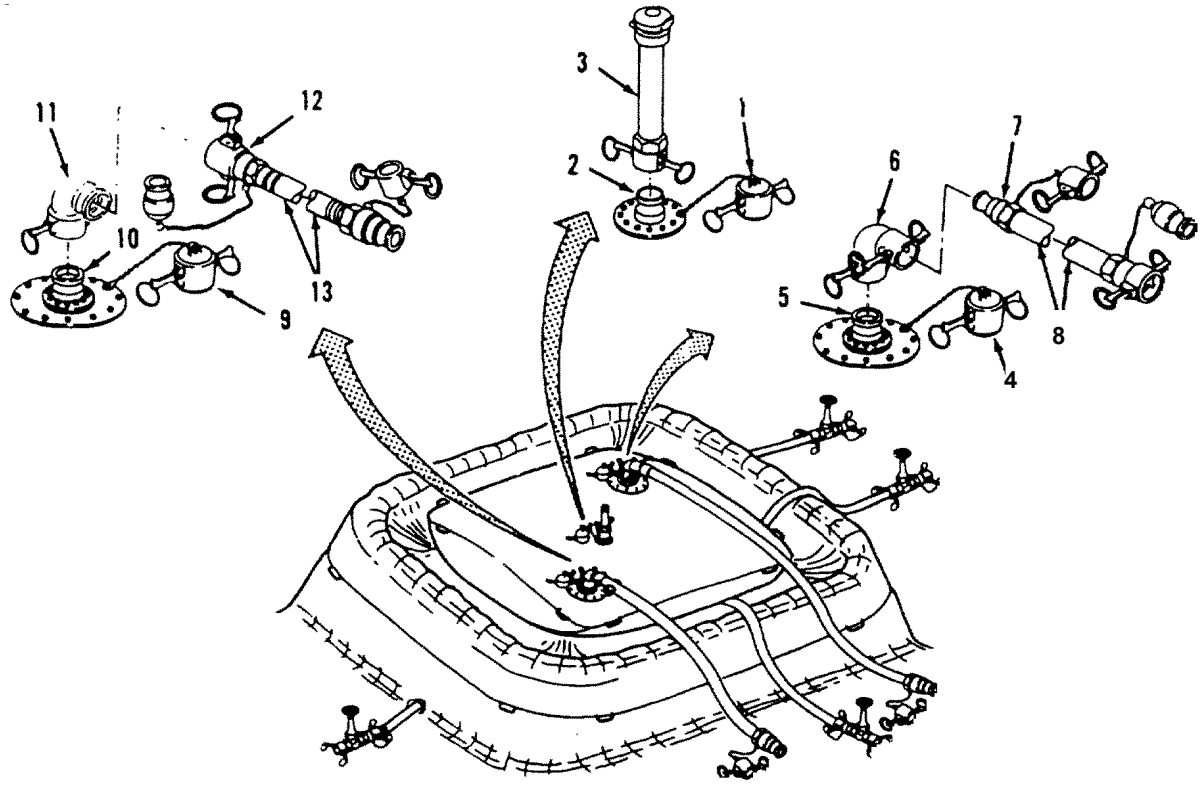
Installing Collapsible Fabric Petroleum Tank - Continued

WARNING

Do not touch cold metal parts with bare hands when operating under arctic conditions. Frostbite can cause permanent injury.

Connect Tank Vent Pipe and Filler/Discharge Elbows and Hoses

1. Remove dust cap (1) from coupling half (2).
2. Install vent pipe (3) on coupling half (2) and lock in place.
3. Remove dust cap (4) from coupling half (5) on tank.
4. Install 4-inch (10.16cm) female to female elbow (6) on coupling half(5) and lock in place.
5. Install male coupling half (7) end of the 20-foot long (6.1m), 4-inch (10.16cm) collapsible filler hose (8) into filler female-to-female elbow (6) and lock in place.
6. Remove dust cap (9) from 6 inch (15.24cm) coupling half (10) on tank.
7. Install 6-inch (15.24cm) female to male elbow (11) on coupling half (10) and lock in place.
8. Install female coupling half (12) end of the 10-foot long (3.05m) , 6-inch (15.24cm) discharge hose (13) over the female to male elbow (11) and lock in place.



Installing Collapsible Fabric Petroleum Tank - Continued

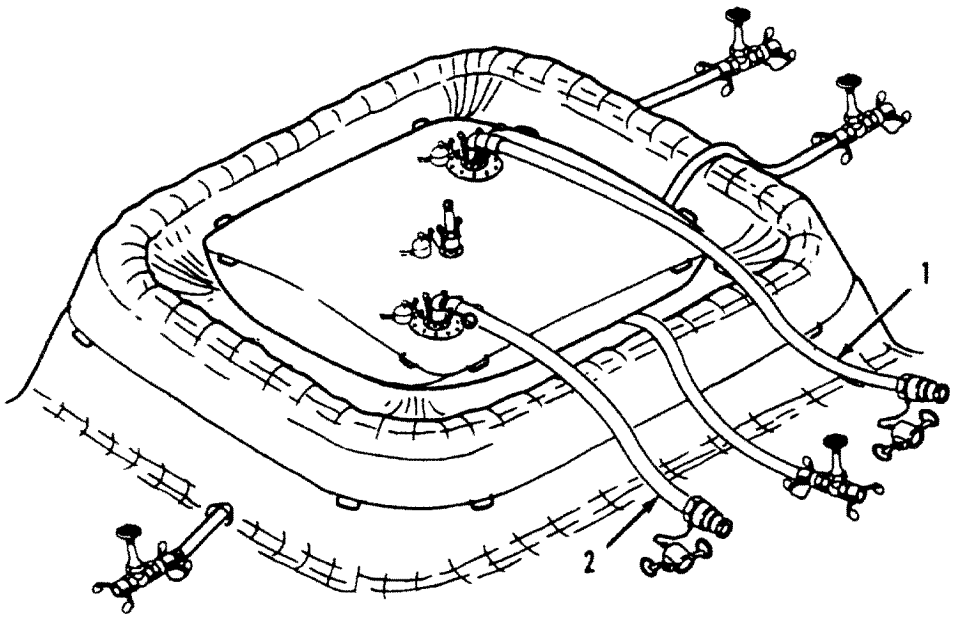
Fuel System Connection

NOTES

View is typical for the 3,000 and 10,000 gallon (11,355,and 37,858L) tanks. Position of filler and discharge fittings on the 20,000 gallon (75,700L) tank are reversed from those shown.

Refer to fuel system technical manual for connections.

1. Connect the tank 4-inch (10.16cm) collapsible filler hose (1) coupling to the system fueling manifold.
2. Connect the tank 6-inch (15.24cm) discharge hose (2) coupling to the system fueling manifold.
3. Check to make sure all hose coupling halves are connected and locked securely.



OPERATING PROCEDURES

General

The fill mode of operation fills the fuel tank and the discharge mode draws fuel from the tank. The fill and discharge modes can occur at the same time. Fuel is pumped to and drawn from the tank by components of the fuel distribution system. Operator control of the tank during operation is limited to the drain control.

WARNING

Do not allow smoking within 100 feet (30.5m) of the dispensing area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. If spillage of fuel occurs, cover the area with dry soil to reduce the rate of vaporization. Make sure a suitable fire extinguisher is charged and readily available in case of fire.

Fill Mode

1. Verify drain valves are closed (valve hand wheels turned to full clockwise position).
2. Close system discharge circuit valve (refer to system technical manual).
3. Open fuel system fill circuit valve(s) (refer to system technical manual).
4. Start system fill pump (refer to system technical manual).
5. Allow fuel to flow into tank until full, or required amount is received.
6. Close fuel system fill circuit gate valve(s) (refer to system technical manual),

NOTE

Refer to FM 10-68 or 10-69 for fuel spills.

Discharge Mode

1. Verify drain valves are closed (valve hand wheels turned to full clockwise position).
2. Open system discharge circuit valve (refer to system technical manual).
3. Close system fill circuit valve(s) (refer to system technical manual).
4. Start system discharge pump (refer to system technical manual).
5. Allow fuel to flow from tank until required amount is dispensed.
6. Close fuel system discharge circuit gate valve(s) (refer to system technical manual).
7. If tank must be completely emptied, open tank drain valves and drain fuel into a suitable container.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
OPERATION UNDER UNUSUAL CONDITIONS

UNUSUAL ENVIRONMENTAL / WEATHER CONDITIONS

WARNING

Do not touch cold metal parts with bare hands when operating under arctic cold conditions. Frostbite can cause permanent injury.

Operation in Artic Cold Conditions

Observe the following precautions when operating the tank in extreme cold:

1. Keep snow and ice from collecting on top of tank.
2. Keep snow and ice clear of vent assembly.
3. Remove snow and ice from quick disconnect couplings before making or breaking connections.
4. Avoid unnecessary folding, unfolding or rolling of tank and hoses in freezing temperatures. Cracks can develop in tank fabric and hoses.
5. Wear arctic mittens when handling tank fittings.

WARNING

Do not use near open flame or excessive heat. Death or personnel injury could occur due to exploding or burning fuel.

Operation in Extreme Heat

Observe the following precautions to keep the tank as cool as possible when operating in extreme heat:

1. Protect tank from extreme heat by covering with tarp, setting up tank in shaded area, or constructing a sun block.
2. Ventilate area around tank. Make sure air flow can circulate freely around tank.
3. Avoid unnecessary folding, unfolding or rolling of empty tank. Do not store unused tank in direct sunlight.

Operation in Sandy or Dusty Conditions

Observe the following precautions when operating the tank in dusty or sandy areas:

1. Keep dust caps and dust plugs in place on fittings and coupling halves until ready for use.
2. Carefully inspect coupling half gaskets. Dust or dirt on gaskets will cause leaks. Remove dust and dirt from gaskets before connecting coupling halves.

EMERGENCY PROCEDURES

WARNING

Do not allow smoking within 100 feet (30.5m) of the dispensing area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel, If spillage of fuel occurs, cover the area with dry soil to reduce the rate of vaporization. Make sure a suitable fire extinguisher is charged and readily available in case of fire.

During Operation

1. If spillage of fuel occurs, cover the areas with dry soil to reduce its rate of vaporization and notify unit maintenance. Refer to FM 10-68 or 10-69.

2. The repair kit supplied with the collapsible fabric petroleum tank contains wooden plugs that can be used for emergency repairs to the tank fabric. These can be used to seal punctures, slits or tears up to 1 1/2 inches (3.8cm) in size. For larger holes or slits up to six inches (15.24cm), use the repair kit sealing clamps.

After Operation

1. Emergency repair plugs in kit are intended only to enable the operator to stop the leakage long enough to empty the tank.

2. When the tank has been emptied, it should be transported to unit maintenance.

NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) DECONTAMINATION PROCEDURES

NOTE

Detailed decontamination procedures can be found in FM 3-3, FM 3-4, and FM 3-5.

General

The following emergency procedures can be followed until field NBC decontamination facilities are available. Assigned operators will assist the supporting NBC unit.

Emergency Procedures

If NBC attack is known or suspected, mask at once and perform the following:

1. Stop pumping and dispensing fuel.
2. Do not connect or disconnect the collapsible fabric petroleum tank from the fuel system.
3. Have fuel tested for contamination before resuming operation.

PREPARATION FOR MOVEMENT

WARNINGS

Do not touch cold metal parts with bare hands when operating under arctic conditions. Frostbite can cause permanent injury.

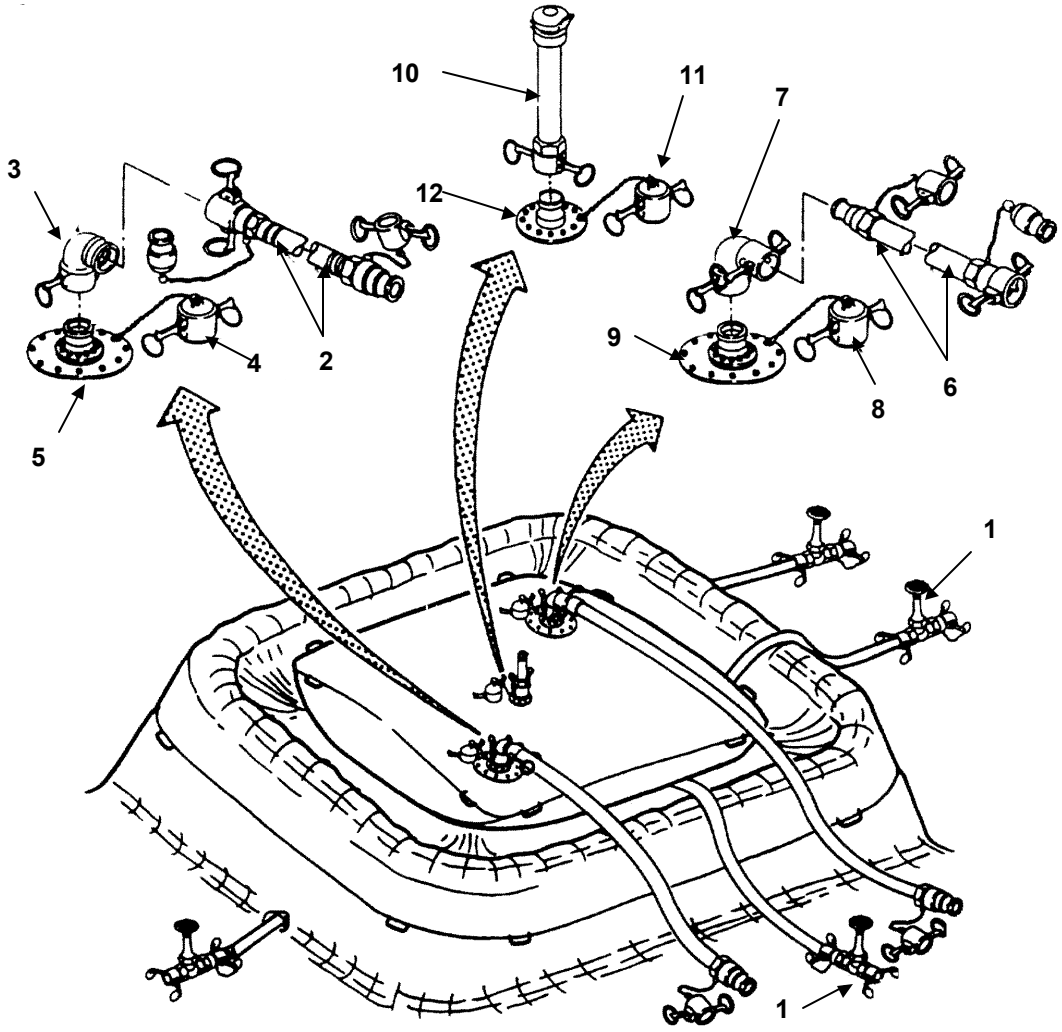
To prevent damage to tank, remove gravel, rocks, and debris from bottom of shoes before walking on tank fabric.

Fuel is toxic to skin, eyes and respiratory tract. Wear skin and eye protection when handling components.

Avoid spillage of fuel. Drain fuel in an adequate container, otherwise a fire hazard or environmental contamination could result.

Disconnect Tank Vent Pipe and Filler/Discharge Elbows and Hoses

1. Open tank drain gate valves (1) and drain fuel into a suitable container.
2. Disconnect discharge hose assembly (2) from discharge elbow (3).
3. Remove discharge elbow (3) and install dust cap (4) on discharge coupling half (5).
4. Disconnect filler hose assembly (6) from filler elbow (7).
5. Remove filler elbow (7) and install dust cap (8) on filler assembly coupling half (9).
6. Remove vent pipe assembly (10) and install dust cap (11) on tank vent coupling half (12).



PREPARATION FOR MOVEMENT - continued

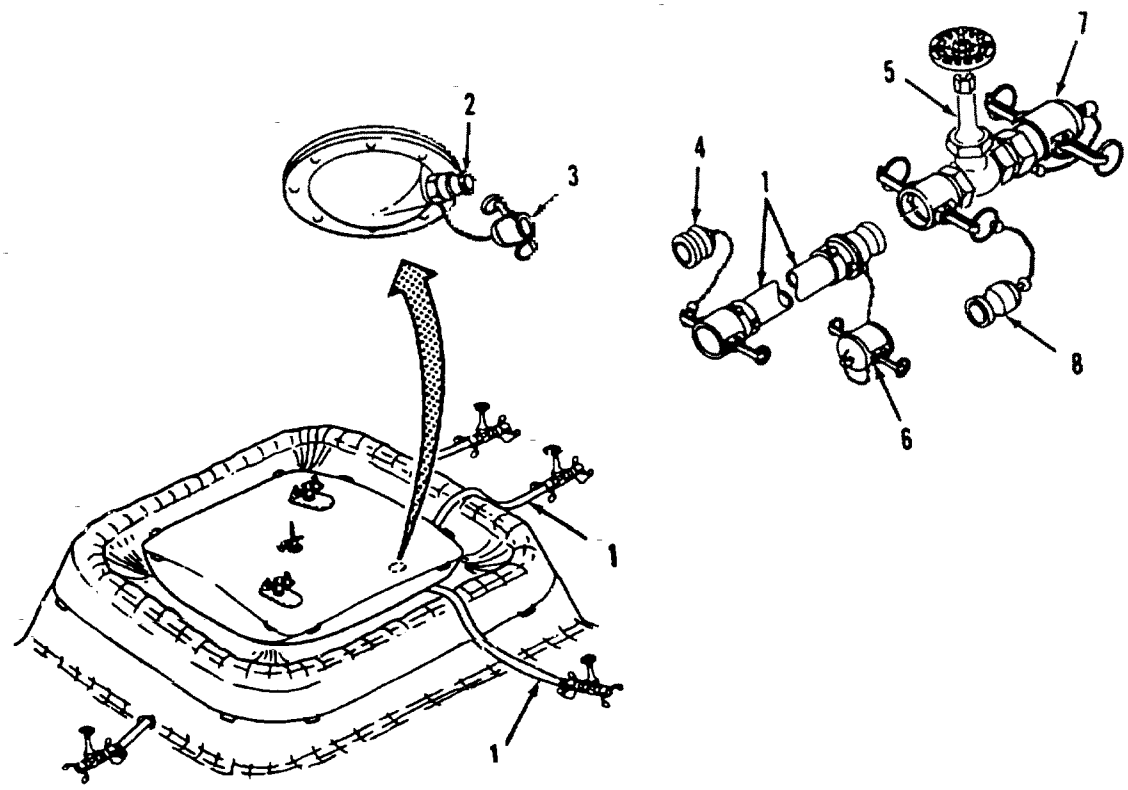
WARNINGS

Do not touch cold metal parts with bare hands when operating under arctic conditions. Frostbite can cause permanent injury.

Do not spill fuel on clothing. Static electricity can ignite fuel and cause personnel injury or death. Remove clothing and wash affected area thoroughly and get medical attention immediately.

Disconnect Tank Drain Valves and Hoses

1. Disconnect drain hose assemblies (1) from drain fittings (2).
2. Install dust caps (3) on drain fittings (2).
3. Install dust plugs (4) in drain hose assemblies (1).
4. Disconnect drain gate valves (5) from hose assemblies (1).
5. Install dust caps (6) on hose assemblies (1).
6. Install dust caps (7) and dust plugs (8) on drain valves (5).



PREPARATION FOR MOVEMENT - continued

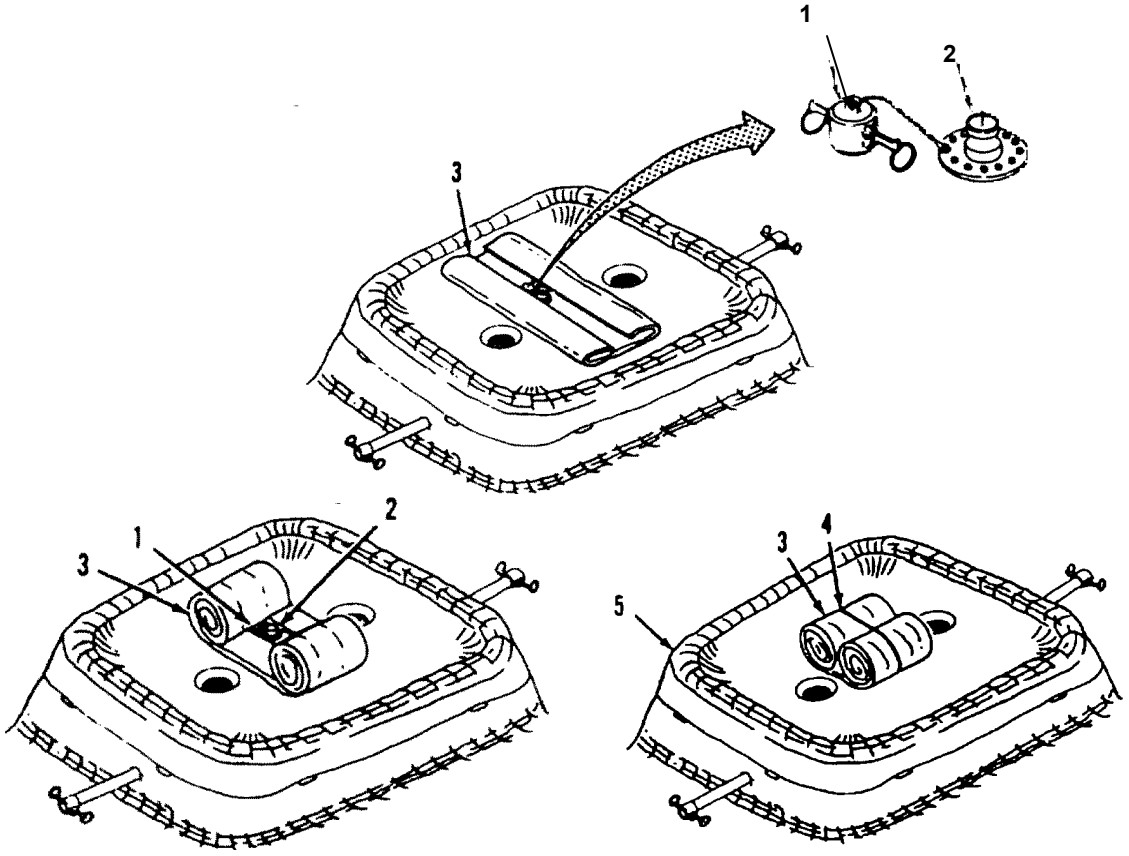
WARNINGS

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Get an assistant. Bend legs while lifting. Do not support heavy weight with your back.

Four personnel are required to fold tank. Push out trapped air through vent fitting while folding tank.

Fold Tank

1. Remove dust cap (1) from vent fitting (2) on tank (3).
2. Working from sides of tank (3) (sides with longest length), tightly fold both sides towards center of tank as shown. Brush off any stones, dirt, twigs or debris on tank fabric.
3. Roll tank (3) ends toward vent fitting (2). Install dust cap (1) on vent fitting (2).
4. Tie webbing (4) around tank (3).
5. Remove rolled tank (3) from berm liner (5).



PREPARATION FOR MOVEMENT - continued

WARNING

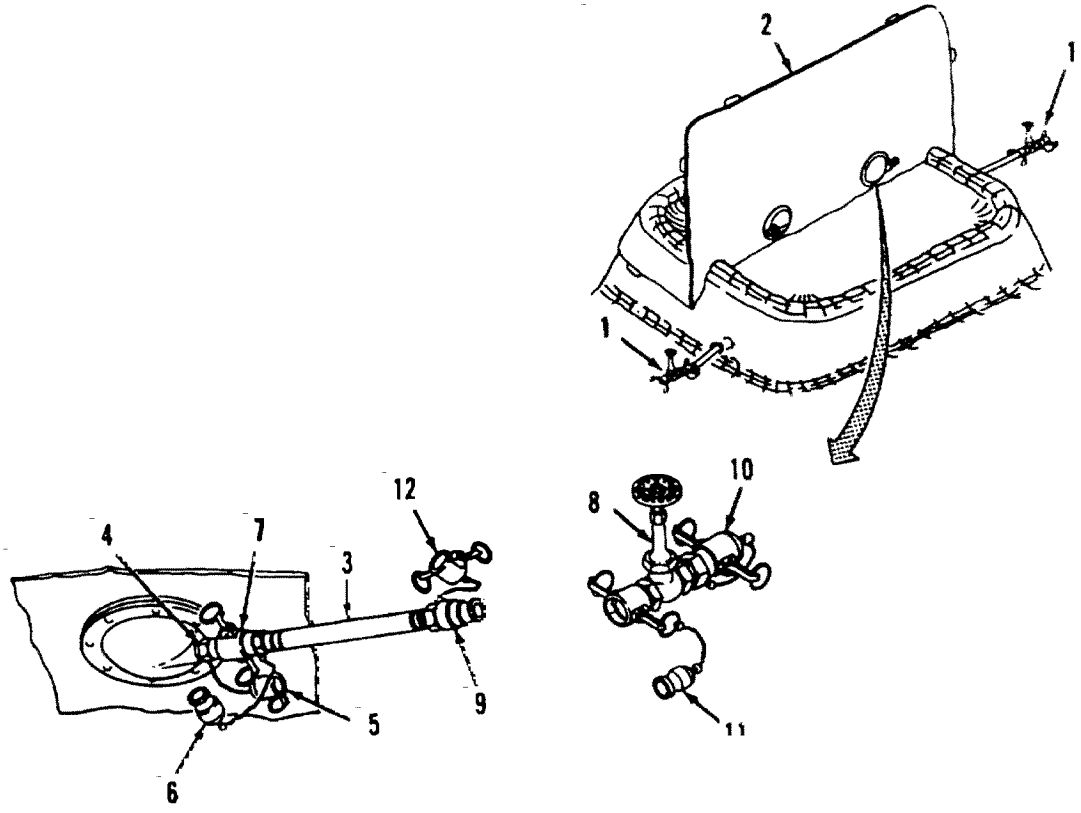
Four personnel are required to handle berm liner during disassembly, folding and moving.

CAUTION

To prevent damage to berm liner, remove gravel, rocks, and debris from bottom of shoes before walking on liner fabric.

Disconnect Berm Liner Drain Valves and Hoses

1. Open berm liner drain gate valves (1) and drain water/fuel into a suitable container.
2. Fold back berm liner (2) and disconnect drain hose assemblies (3) from drain couplings halves (4).
3. Install dust caps (5) on drain coupling halves (4).
4. Install dust plugs (6) into drain hose coupling halves (7).
5. Disconnect gate valves (8) from hose coupling halves (9).
6. Install dust caps (10) and dust plugs (11) on gate valves (8).
7. Install dust caps (12) on hose coupling halves (9).



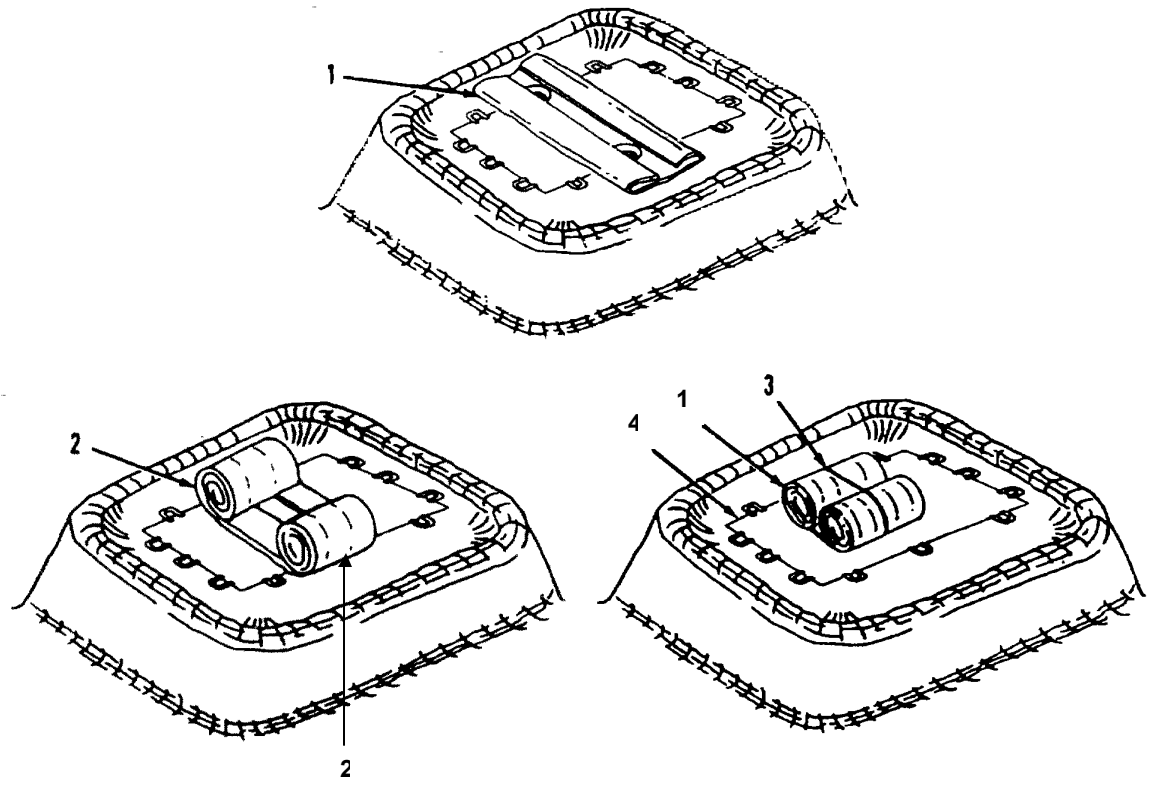
PREPARATION FOR MOVEMENT - continued

WARNING

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Get an assistant. Bend legs while lifting. Do not support weight with your back.

Fold Berm Liner

1. Working from sides of berm liner (1), tightly fold both sides in toward center. Brush off any stones, dirt, twigs or debris that stick to liner fabric.
2. Roll liner ends (2) toward berm liner center.
3. Tie webbing (3) around rolled berm liner (1).
4. Remove rolled berm liner (1) from ground cloth (4).



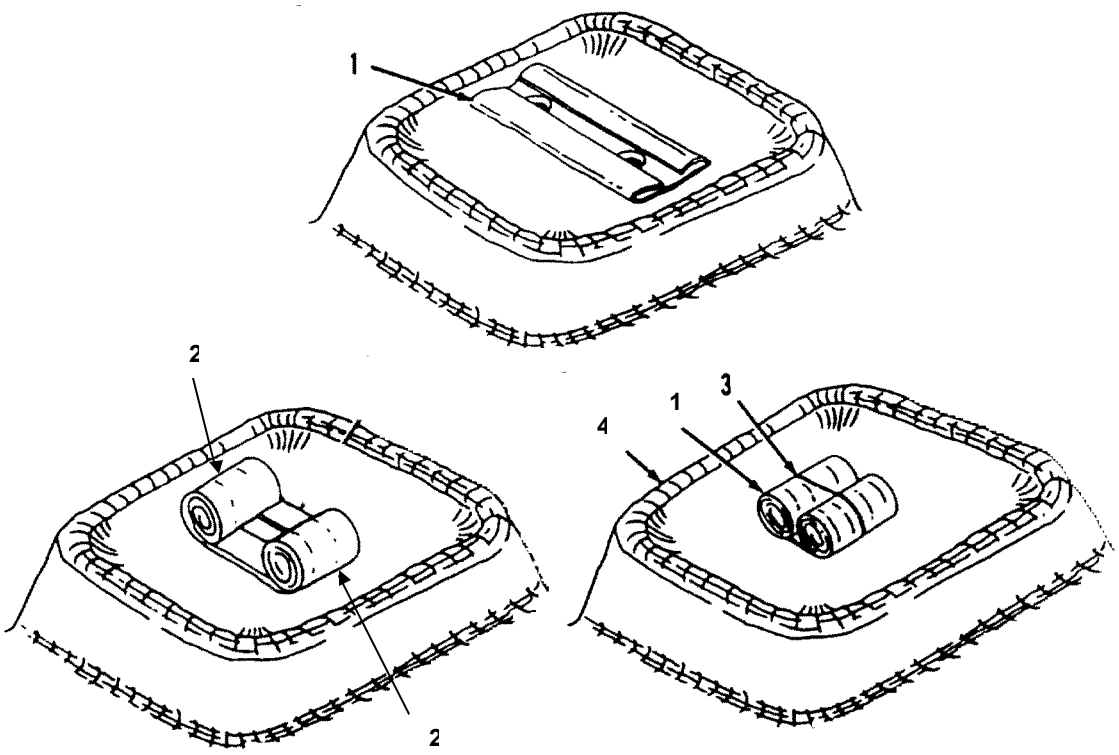
PREPARATION FOR MOVEMENT - continued

WARNING

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Get an assistant. Bend legs while lifting. Do not support weight with your back.

Fold Ground Cloth

1. Working from sides of ground cloth (1), tightly fold both sides in toward center. Brush off any stones, dirt, twigs or debris that stick to liner fabric.
2. Roll ground cloth ends (2) toward ground cloth center.
3. Tie webbing (3) around rolled ground cloth (1).
4. Remove rolled ground cloth (1) from berm (4).



Packing

If fuel tank is supplied as part of a system, refer to system technical manual for instructions on packing in reusable container.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
DECALS AND INSTRUCTION PLATES

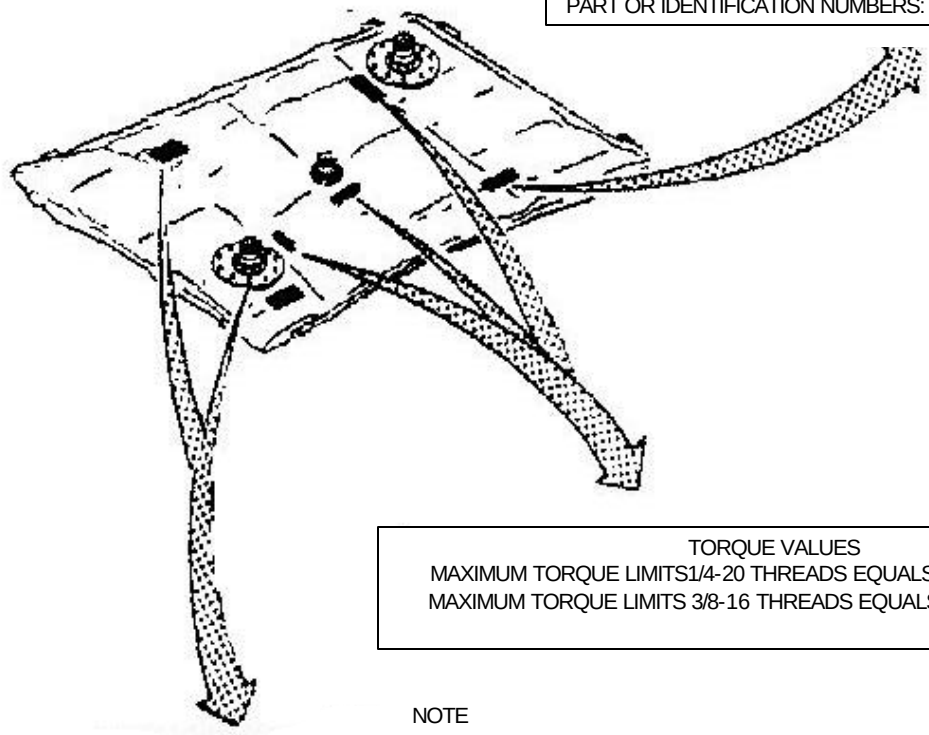
GENERAL INFORMATION

Instruction and identification plates are used on the collapsible fabric petroleum tank, berm liners, and hoses to identify the unit and advise the operator of safe operation. The following illustrations show the instruction plates and identify their location on the tanks, berm liners, and hoses. Instruction and identification plates illustrated in this work package are a generic representation for the 3K, 10K, and 20K gallon (11,355, 37,850 and 75,700L) tanks.

TANK

NOTE
TWO IDENTIFICATION LABLES ARE ON TANK

TANK, FABRIC, COLLAPSIBLE:
…….. GALLONS, PETROLEUM, LOW TEMPERATURE
SERIAL NO.:
MFR:
MFR DATE:
WEIGHT EMPTY: LBS:
CONTRACT OR ORDER NO:
LOT:
PART OR IDENTIFICATION NUMBERS:



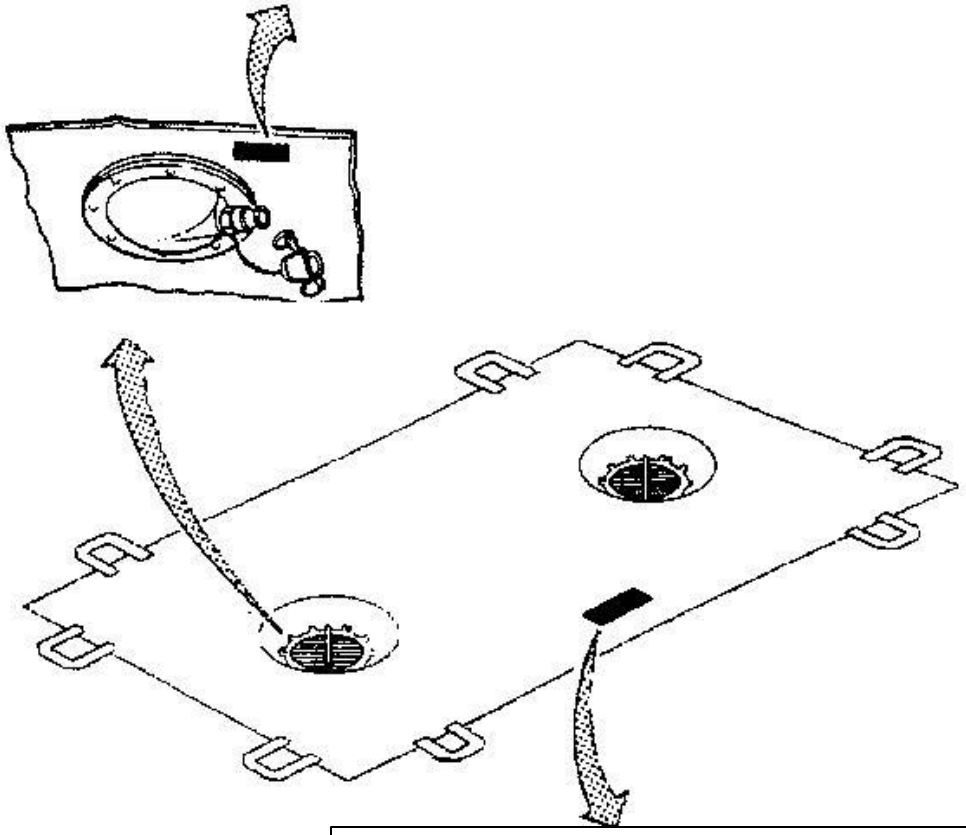
TORQUE VALUES
MAXIMUM TORQUE LIMITS1/4-20 THREADS EQUALS 16 FOOT POUNDS
MAXIMUM TORQUE LIMITS 3/8-16 THREADS EQUALS 30 FOOT POUNDS

NOTE
CAUTION LABLE LOCATED NEAR FILLER ASSEMBLY

DO NOT OVERFILL
CAUTION
OVERFILLING WILL RESULT IN PERMANENT DAMAGE AND FAILURE OF TANK
MAXIMUM CAPACITY IS ……GALLONS WHEN FULL
MAXIMUM TANK HEIGHT IS …..FEET …..INCHES/ …..METERS
WARNING
NOT FOR STORAGE OF ACOHOL DERIVATIVE FUELS

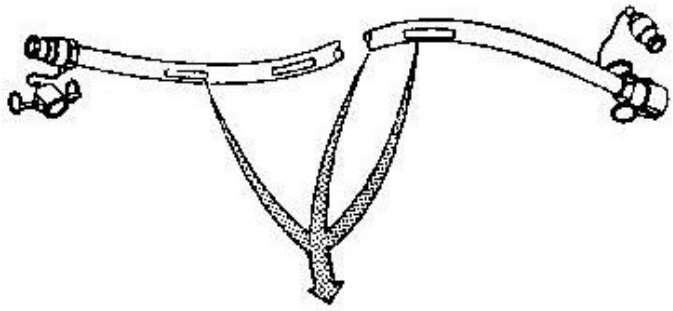
BERM LINER

TORQUE VALUES
MAXIMUM TORQUE LIMITS1/4-20 THREADS EQUALS 16 FOOT POUNDS
MAXIMUM TORQUE LIMITS 3/8-16 THREADS EQUALS 30 FOOT POUNDS



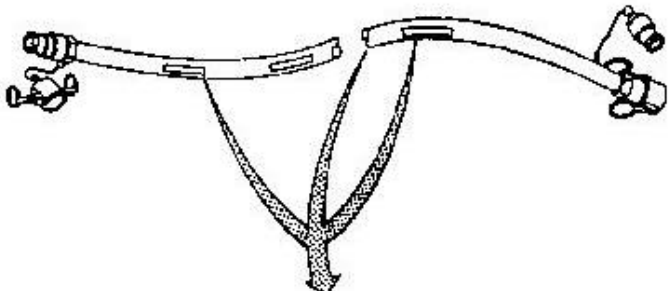
BERM LINER, ARTIC SERVICE
SIZE:
FOR USE WITH:
PIN:
MANUFACTURE:
MANUFACTRUE DATE:
CONTRACT NO:
LOT NO:

HOSES



CONTRACTOR'S NAME
QUARTER AND YEAR OF MANUFACTURE
LIQUID PETROLEUM FUEL, NONCOLLAPSIBLE, LOW TEMPERATURE
(PART NUMBER)

2-INCH (5.08CM) AND 6-INCH (15.24CM) NON-COLLAPSIBLE HOSE ASSEMBLIES
M53096-06B2A100, M53096-06B2A200, AND M53096-10B2A100



NOTE
MARKED AT 10 FOOT (3.05M) INTERVALS OR LESS

CONTRACTOR'S NAME
QUARTER AND YEAR OF MANUFACTURE
TYPE III, 150 PSI
LIQUID PETROLEUM FUEL, NONCOLLAPSIBLE, LOW TEMPERATURE

4-INCH (10.16CM) COLLAPSIBLE HOSE ASSEMBLY
M53095-03G200

END OF WORK PACKAGE

CHAPTER 3

OPERATOR MAINTENANCE INSTRUCTIONS FOR TANK, PETROLEUM, 3,000, 10,000 AND 20,000 GALLON

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
LUBRICATION INSTRUCTIONS

LUBRICATION INSTRUCTIONS

Lubrication is not required for the collapsible fabric petroleum tanks.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
TROUBLESHOOTING PROCEDURES

INTRODUCTION TO TROUBLESHOOTING

This work package contains troubleshooting information for locating and correcting most of the operating problems which may develop in the collapsible fabric petroleum tanks and their components. Each malfunction is followed by a list of tests or inspections which will help you to determine probable causes and corrective actions to take.

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

The information below lists the common malfunctions which you may find during the operation and maintenance of the collapsible fabric petroleum tanks. You should perform the tests/inspections and corrective actions in the order listed.

TROUBLESHOOTING PROCEDURE

TANK

SYMPTOM

Tank fabric leaks.

MALFUNCTION

Inspect tank fabric for punctures, tears, and damaged seams.

CORRECTIVE ACTION

Repair tank (WP 0013 00).

If leak can not be repaired, notify unit maintenance.

TROUBLESHOOTING PROCEDURE

DRAIN HOSE ASSEMBLY

SYMPTOM

Drain hose assembly leaks.

MALFUNCTION

Verify drain hose gate valve is closed.

CORRECTIVE ACTION

Close drain valve.

Inspect for fuel leakage at drain valve stem.

CORRECTIVE ACTION

If leak found, notify unit maintenance for repair.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
OPERATOR MAINTENANCE PROCEDURES

GENERAL INSTRUCTIONS

Maintenance instructions in this section will list resources required, personnel required, and equipment condition for start of procedure, except as noted below:

- Personnel required are listed only if the task requires more than one.
- Petroleum tank should be drained empty if performing Type II emergency repairs.

EQUIPMENT	MAINTENANCE PROCEDURE
Tank Repair, Type I and II Emergency Repairs	WP 0013 00

END OF WORK PACKAGE

OPERATOR MAINTENANCE
TANK REPAIR, TYPE I AND II EMERGENCY REPAIRS
REPAIR

INITIAL SET UP

Tools
Rotary Cutter (Item 13, WP 0032 00, Fig. 17)
Pliers (Item 15, WP 0032 00, Fig. 17)

Materials/Parts
Type I Repair Kit (Item 12, WP 0032 00, Fig. 17)
Type II Repair Kit (Item 1, WP 0032 00, Fig.17)

WARNINGS

Do not allow fuel to come in contact with face and eyes. Put on protective hood provided in repair kit to protect face and eyes from escaping fuel. Fuels are toxic and can cause illness or death. If fuel contacts face or eyes, flush and get medical attention immediately.

Do not breathe fuel vapors. Fuel vapors are toxic and can cause serious illness or death. If dizziness occurs, leave area and get fresh air.

TYPE I EMERGENCY REPAIRS

When holes in petroleum tank are less than 2 inches (5.08cm) repairs will be as follows:

Petroleum Tank Filled

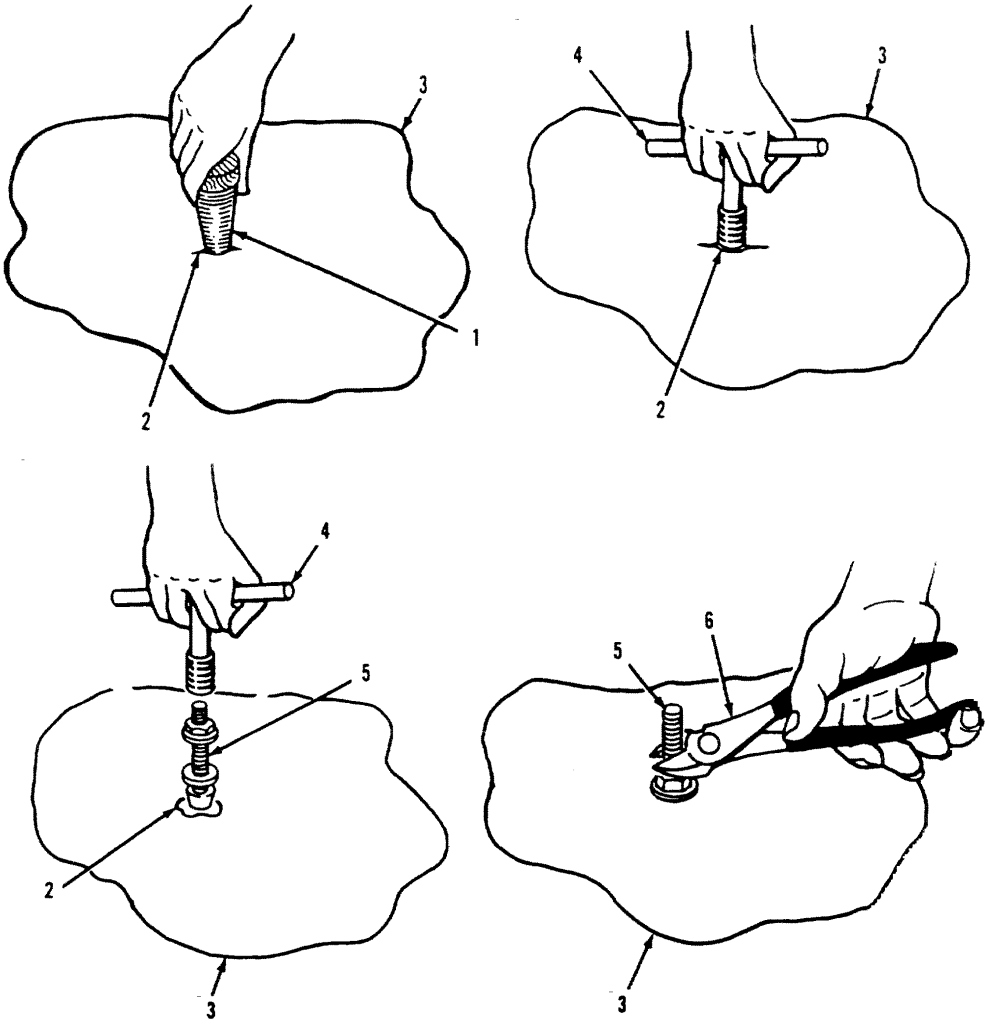
1. When necessary, insert a wood plug (1) into hole (2) of tank (3) to temporarily stop the leak. Select correct size of plug required:

Hole Size	Plug
Up to 3/8 inch (.95cm)	5/8 inch (1.59cm)
3/8 to 1 inch (.95 to 2.54cm)	1 1/2 inch (3.8cm)
1 to 1 1/2 inch (2.54 to 3.8cm)	2-inch (5.08cm)

2. Push small end of wood plug (1) in hole (2). Turn wood plug (1) until tight. Leak in tank (3) should slow down, and then stop as wood plug is tightened.

3. Continue your mission. Check wood plug (1) during operation. If repair begins to leak, tighten wood plug again.

4. When mission is complete, replace wood plug (1) with mechanical patch.



WARNINGS

Do not allow fuel to come in contact with face and eyes. Put on protective hood provided in repair kit to protect face and eyes from escaping fuel. Fuels are toxic and can cause illness or death. If fuel contacts face or eyes, flush and get medical attention immediately.

Do not breathe fuel vapors. Fuel vapors are toxic and can cause serious illness or death. If dizziness occurs, leave area and get fresh air.

Avoid spillage of fuel. Drain fuel in an adequate container, otherwise a fire hazard or environmental contamination could result.

Petroleum Tank Empty

1. Remove wood plug (1) from hole (2) in tank (3).

2. Use rotary cutter (4) to remove damaged fabric from tank (3) and prepare hole (2) for mechanical patch (5).

3. Select correct size of mechanical patch (5) required.

Hole Size	Patch
Up to 3/8 inch (.95cm)	3/4 inch (1.91cm)
3/8 to 1 1/2 inch (.95 to 3.8cm)	2-inch (5.08cm)

4. Screw mechanical patch (5) into end of rotary cutter (4).

5. Push cone shaped end of mechanical patch (5) through prepared hole (2) and pull tight to inside of tank (3) container wall.

6. Screw aluminum cap of mechanical patch (5) and rotary cutter (4) handle down tight. Use socket end of rotary cutter (4) to tighten cap.

7. Cut off excess shank of mechanical patch (5) with pliers (6).

8. If hole (2) is too large to be repaired with mechanical patch (5), notify unit maintenance.

TYPE II EMERGENCY REPAIRS

When holes in the fuel tank are more than 2 inches (5.08cm), repairs will be as follows;

WARNINGS

Do not allow fuel to come in contact with face and eyes. Put on protective hood provided in repair kit to protect face and eyes from escaping fuel. Fuels are toxic and can cause illness or death. If fuel contacts face or eyes, flush and get medical attention immediately.

Do not breathe fuel vapors. Fuel vapors are toxic and can cause serious illness or death. If dizziness occurs, leave area and get fresh air.

Avoid spillage of fuel. Drain fuel in an adequate container, otherwise a fire hazard or environmental contamination could result.

Fuel Tank Empty

NOTE

The repair kit supplied with the collapsible fabric petroleum tank contains mechanical patches that can be used for repairs to the tank fabric. These can be used to seal punctures, slits or tears up to 6 inches (15.24cm) in size.

1. Select correct size of mechanical patch required:

Hole Size	Mechanical Patch
Up to 1 7/8 inch (4.76cm)	3-inch (7.62cm) mechanical patch
1 7/8 to 3 7/8 inch (4.76 to 9.84cm)	5-inch (12.7cm) mechanical patch
3 7/8 to 6 inches (9.84 to 15.24cm)	7 1/2-inch (19.05cm) mechanical patch

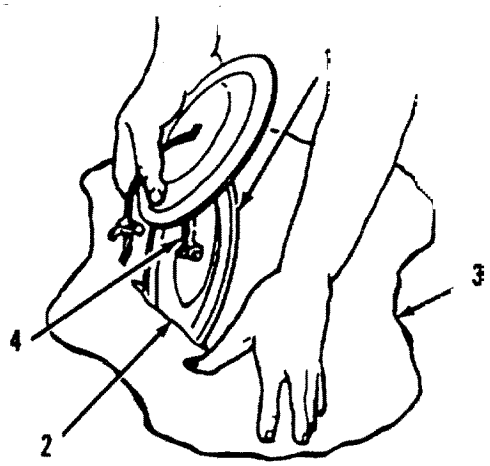
2. Insert bottom plate (1) through hole (2) in tank (3). Use a knife to enlarge hole (2) if clamp bottom plate (1) will not fit through hole. Enlarge hole equally on both sides.

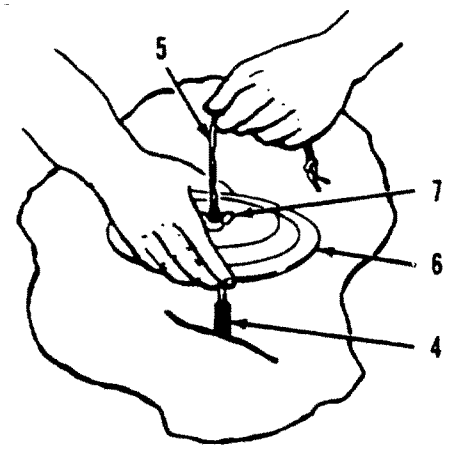
3. Rotate clamp bolt (4) on bottom plate (1) 1/4 turn or as required to center bottom plate under hole (2). Pull and hold lanyard (5) to keep top plate (6) centered.

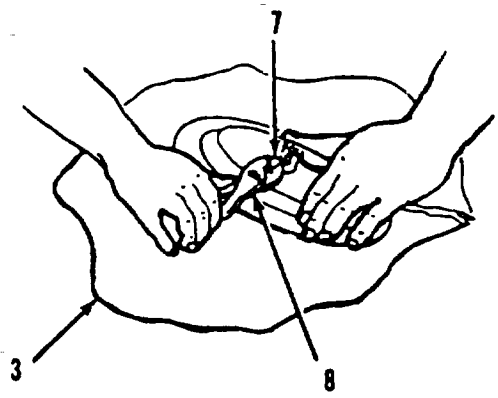
4. Slide top plate (6) and wing nut (7) down onto threaded portion of clamp bolt (4). Position top plate (6) directly over bottom plate (1).

5. Tighten wing nut (7) with pliers (8) until tank (3) fabric is securely clamped and leak has stopped.

6. If hole is too large to be repaired with mechanical patch, replace tank.







END OF WORK PACKAGE

CHAPTER 4

UNIT MAINTENANCE INSTRUCTIONS
FOR
TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON

OPERATOR AND UNIT MAINTENANCE INSTRUCTION
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
UNIT REPAIR; TOOLS; SPECIAL TOOLS; TEST, MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT QEUIPMENT

COMMON TOOLS AND EQUIPMENT

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

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to the Maintenance Allocation Chart (MAC) (WP 0030 00) for maintenance tasks authorized at unit level and for special tools, TMDE, and support equipment required to perform these tasks.

REPAIR PARTS

Repair parts are listed and illustrated in WP 0032 00 of this manual.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE INSTRUCTIONS
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
UNIT SERVICE UPON RECEIPT

SERVICE UPON RECEIPT

SITING

Transport
The tank, berm liner, and ground cloth are designed and shipped in packing crates. Transport these only on equipment compatible with the tank, berm liner, and ground cloth transportation requirements.

Site Selection
When selecting a site installation for the tanks, consider overall operating area. Site should be level and large enough to contain the filled tank, berm liner, ground cloth, associated hoses and drain valves. It should also provide adequate space for movement of receiving trucks.

SHELTER REQUIREMENTS

When not in use, the tank assembly does not require special shelter. However, if shelter is available, storing the tank assembly under cover will prevent damage or minimize routine maintenance.

CHECKING UNPACKED EQUIPMENT

General Information
The tank berm liner and ground cloth are packed and shipped in packing crates. All other accessory components are shipped inside of these crates. Retain packing crates for reuse unless otherwise directed.

Unpacking Tank

WARNINGS

Lifting or moving heavy equipment incorrectly can cause serious injury. Do not try to lift or move more than 50 pounds (22.7kg) by yourself. Always use assistants during lifting operations. Bend legs while lifting. Do not support heavy weight with your back.

Steel banding, cut under tension, can snap free and cause injury. Be careful when uncrating the equipment to prevent injury or damage to equipment. Leather gloves and face shield are required.

The top cover is heavy and difficult to handle. Two personnel are required to lift top cover from packing crate.

To prevent injury to personnel and damage to equipment, a hoist, crane, or similar type lifting equipment must be used to lift tank from the packing crate.

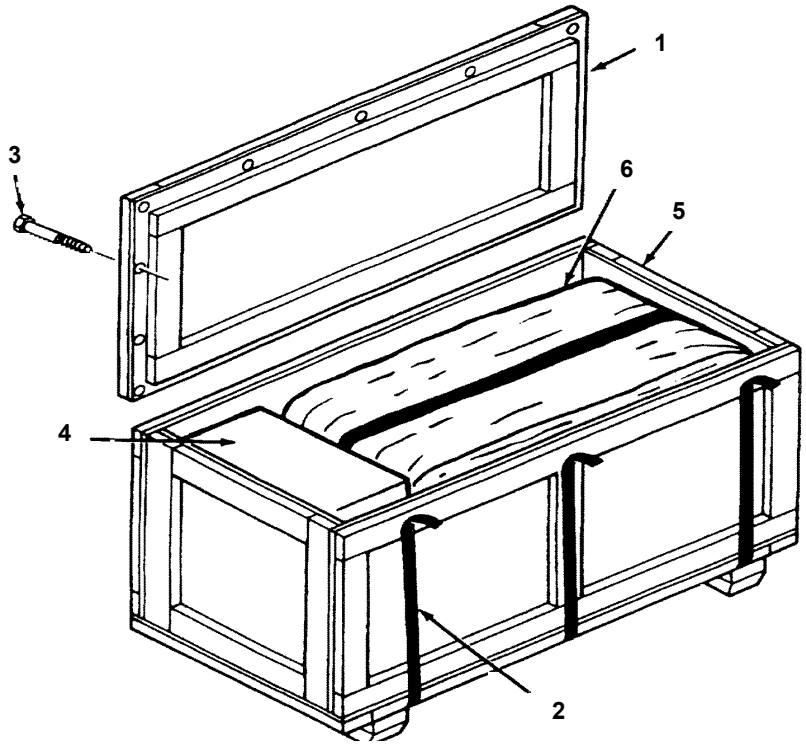
CAUTION

Be careful when unpacking the tank to avoid damage. Do not slide tank over the side of the packing crate. Failure to comply may result in damage to the equipment.

NOTE

Unpacking of the collapsible fabric petroleum tank is shown. Unpacking of remaining crates for the berm liner and ground cloth is similar.

1. Remove top cover (1) by cutting reinforcement bands (2) and unscrewing bolts (3).
2. Remove accessory components (4) from packing crate (5).
3. Lift tank (6) from the packing crate (5).



Checking and Processing Unpacked Equipment

1. Inspect tank stencils, markings, identification and informational plates. All items should be clear and readable.

2. Remove all tape, paper wrapping, plastic sheeting and packing materials from the equipment.

3. Inspect the equipment for any damage incurred during shipment. If the equipment has been damaged, report the damage on SF 361, Transportation Discrepancy Report, or SF 364, Report of Discrepancy.

4. Check the equipment against the packing slip to see if the shipment is complete. Report all discrepancies in accordance with the instructions of DA Pam 738-750 or DA Pam 738-751.

5. Check to see whether the equipment has been modified.

END OF WORK PACKAGE

UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
PMCS PROCEDURES INTRODUCTION

INTRODUCTION

There are no Unit Preventive Maintenance Checks and Services (PMCS) for the collapsible fabric petroleum tanks.

END OF WORK PACKAGE

UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
TROUBLESHOOTING PROCEDURES

INTRODUCTION TO TROUBLESHOOTING

The Troubleshooting Malfunctions list the common malfunctions which you may find during the operation or maintenance of the collapsible fabric petroleum tank assembly or its components. Perform the tests/inspections and corrective actions in the order listed.

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

TROUBLESHOOTING PROCEDURE

HOSE ASSEMBLY

SYMPTOM

Hose assembly leaks.

MALFUNCTION

Inspect hose assembly for leakage.

CORRECTIVE ACTION

If coupling is damaged, replace coupling half (WP 0025 00).
If coupling gasket is missing or damaged, replace gasket (WP 0025 00).

TROUBLESHOOTING PROCEDURE

GATE VALVE

SYMPTOM

Gate valve leaks.

MALFUNCTION

Inspect gate valve assembly coupling half for leakage.

CORRECTIVE ACTION

If coupling is damaged, replace coupling (WP 0026 00).
If coupling gasket is missing or damaged, replace gasket (WP 0026 00).

TROUBLESHOOTING PROCEDURE

TANK VENT FITTING ASSEMBLY

SYMPTOM

Vent fitting assembly leaks.

WARNING

To prevent injury to personnel and damage to the equipment, do not open coupling arms when fuel is stored in tank.

MALFUNCTION

Inspect for distorted, cracked, cut, or missing vent cap gasket.

CORRECTIVE ACTION

Replace vent cap gasket (WP 0019 00).

Inspect for bent or broken vent cap hinge pin.

CORRECTIVE ACTION

Replace vent cap (WP 0019 00)

Check for loose or missing screws on tank coupling half.

CORRECTIVE ACTION

Replace missing screws and washers (WP 0019 00).
Torque screws to 96 inch-pounds (10.84Nm) (WP 0019 00).

Remove flanged coupling half from tank (WP 0019 00). Inspect coupling half for cracks or scratched seating surface. Inspect preformed packing for cuts, tears, or distortion.

CORRECTIVE ACTION

Replace coupling half, if damaged (WP 0019 00).
Replace preformed packing, if damaged (WP 0019 00).

Inspect tank compression fitting for cuts, punctures, elongated holes, and tears.

CORRECTIVE ACTION

If compression fitting or tank fabric is damaged, replace tank.

TROUBLESHOOTING PROCEDURE

TANK FILLER/DISCHARGE ASSEMBLY

SYMPTOM

Filler/discharge assembly leaks.

MALFUNCTION

Inspect filler/discharge elbows for cracked, torn, distorted or missing coupling half gaskets, screws and washers.

CORRECTIVE ACTION

Replace elbows or coupling half gaskets, if damaged (WP 0020 00 or WP 0021 00).
Replace missing screws or washers (WP 0020 00 or WP 0021 00).
Torque loose screws to 120 inch-pounds (13.56Nm) (WP 0020 00 or WP 0021 00).

Check for loose or missing screws on compression plate fitting.

CORRECTIVE ACTION

Replace missing screws and washers (WP 0020 00 or WP 0021 00)
Torque loose screws to 96 inch-pounds (10.84Nm) (WP 0020 00 or WP 0021 00).

Remove tank flanged male coupling half from compression plate. Inspect gasket for cuts and distortions.

CORRECTIVE ACTION

Replace gasket (WP 0020 00 or WP 0021 00).

Remove compression plate from tank (WP 0020 00 or WP 0021 00). Inspect plate for cracks. Inspect preformed packing for cuts and distortion.

CORRECTIVE ACTION

Replace preformed packing, if damaged (WP 0020 00 or WP 0021 00).
Replace compression plate, if damaged (WP 0020 00 or WP 0021 00).

Inspect tank compression fitting for cuts, punctures, elongated holes and tears.

CORRECTIVE ACTION

If compression fitting or tank fabric is damaged, replace tank.

TROUBLESHOOTING PROCEDURE

DRAIN FITTING ASSEMBLY

SYMPTOM

Drain fitting assembly leaks.

MALFUNCTION

Check for loose or missing screws and washers on drain fitting assembly.

CORRECTIVE ACTION

Replace missing screws and washers (WP 0022 00).
Torque loose screws to 96 inch-pounds (10.84Nm) (WP 0022 00).

Inspect preformed packing for cuts and distortion.

CORRECTIVE ACTION

Replace preformed packing, if damaged (WP 0022 00).

Inspect tank compression fitting for cuts, punctures, elongated holes and tears.

CORRECTIVE ACTION

If compression fitting or tank fabric is damaged, replace tank.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
UNIT MAINTENANCE PROCEDURES

GENERAL INSTRUCTIONS

Maintenance instructions in this section will list resources required and equipment condition for start of procedure, except as noted below:

- Personnel required are listed only if the task requires more than one.
- The normal standard equipment condition to start a maintenance task is collapsible tank and berm liner drained empty. Equipment condition is not listed unless some other condition is required.

CAUTION

The collapsible tank and berm liner must be empty before performing maintenance on these units. Be careful when walking on fabric. Gravel and sand on the bottom of boots will damage fabric.

PERSONNEL SAFETY

To ensure safety of personnel, proper care should be used when handling assemblies and parts. Many assemblies are heavy. The assistance of additional personnel, lifting device or other support equipment may be required to move or position heavy items.

Personnel must remove all items of jewelry (rings, bracelets, watches, necklaces, etc.) and loose clothing before working on the equipment. Jewelry and loose clothing can get caught in equipment and result in damage to equipment or injury to personnel.

When performing maintenance on the collapsible fuel tank, keep in mind that the purpose of the equipment is to store liquid fuel. Cleaning fluids, lubricants, preservatives, paint or other chemicals must not be allowed to contaminate the fuel.

Operate the equipment after performing maintenance to ensure repairs have been performed correctly and equipment can be returned to service.

PROPER EQUIPMENT

Obtain proper equipment before beginning maintenance. This includes hand tools and/or special tools, receptacles for storing small parts and expendable materials required by the maintenance task. Maintenance of the collapsible fuel tank system is limited to replacement and repair. Replacement consists of turning the equipment in at the proper supply point and then requisitioning a replacement unit. Repair is accomplished by replacing or repairing components that make up the system.

EQUIPMENT	MAINTENANCE PROCEDURE
Vent Fitting Assembly	WP 0019 00
Filler Assembly	WP 0020 00
Discharge Assembly	WP 0021 00
Tank Drain Fitting Assembly	WP 0022 00
Berm Liner Strainer	WP 0023 00
Berm Liner Drain Fitting Assembly	WP 0024 00
Hose Assembly	WP 0025 00
Gate Valve Assembly	WP 0026 00
Emergency Repair Kit Maintenance	WP 0027 00

END OF WORK PACKAGE

UNIT MAINTENANCE
VENT FITTING ASSEMBLY
REPLACEMENT AND REPAIR

INITIAL SETUP

Tools
General Mechanics Tool Kit
(Item 1, WP 0030 00)
Torque Wrench, 0-300 in-lb
(Item 2, WP 0030 00)
Pipe Wrench (2)
(Item 3, WP 0030 00)

Material/Parts
Detergent, General Purpose
(Item 3, WP 0034 00)
Rag, Wiping
(Item 2, WP 0034 00)
Silicone Compound
(Item 4, WP 0034 00)

Mandatory Replacement Parts
Gasket
(Item 2, WP 0037 00) (two required)
Preformed Packing
(Item 1, WP 0037 00)
Preformed Packing
(Item 3, WP 0037 00)

General Safety Instructions

WARNING

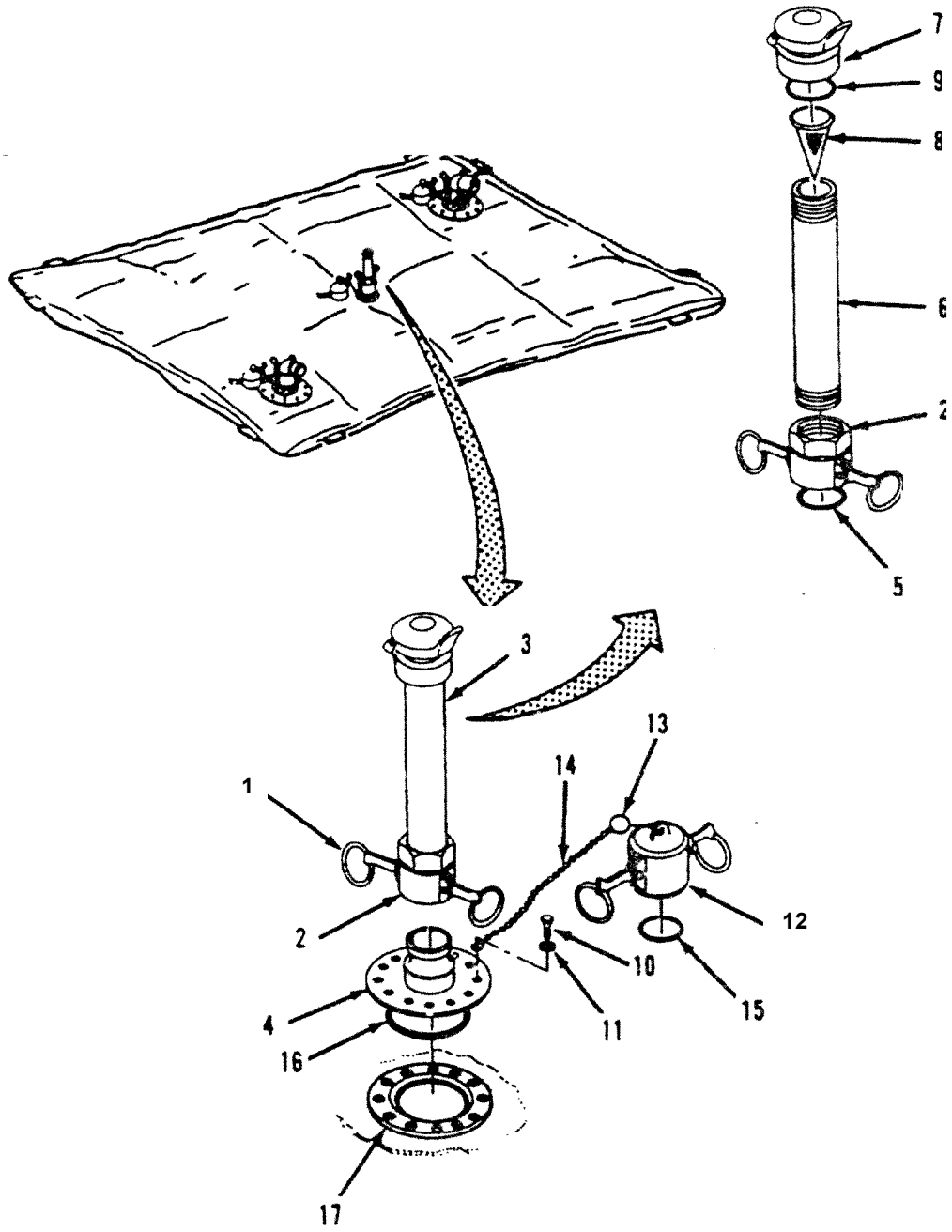
Do not smoke within 100 feet (30.5m) of tanks.
Fuel is toxic to skin, eyes, and respiratory tract.

REMOVAL

1. Open lock arms (1) on coupling half (2).
2. Disconnect vent assembly (3) from flanged coupling half (4).

DISASSEMBLY

1. Remove coupling gasket (5) from coupling half (2). Discard gasket (5).
2. Unscrew coupling half (2) from vent pipe (6) using pipe wrench.
3. Unscrew strainer element (7) from pipe (6).
4. Unscrew flame arrestor (8) from strainer element (7). Remove preformed packing (9) from strainer element (7). Discard packing (9).
5. Remove eight screws (10), eight flat washers (11) and dust cap (12) from flanged coupling half (4).
6. Remove key holder (13) and chain assembly (14) from dust cap (12).
7. Remove gasket (15) from dust cap (12). Discard gasket (15).
8. Separate flange coupling half (4) and remove preformed packing (16) from tank compression fitting (17). Discard packing (16).


7
9
8
6
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17

CLEANING

1. Clean all components with clean water and detergent.
2. Rinse components in clean water and dry with wiping rag.

INSPECTION

1. Inspect coupling half (2) for cracks, corrosion and stripped threads.
2. Inspect pipe (6) for cracks, stripped threads and corrosion.
3. Inspect strainer element (7) for bent or damaged pivot pin. Check for freedom of movement.
4. Inspect flame arrestor (8) for breaks or clogging. Unclog flame arrestor (8), if required. Replace if broken.
5. Inspect tank compression fitting (17) for stripped threads.
6. Inspect chain assembly (14) for damaged or broken connector and links.

REPAIR

Replace damaged components.

ASSEMBLY

1. Install new gasket (15) in dust cap (12).
2. Connect chain assembly (14) to dust cap (12) with key holder (13).
3. Lubricate new packing (16) with silicone compound before assembly. Position packing (16) and flanged coupling (4) on compression fitting (17).
4. Position terminal end of chain assembly (14) on flange coupling half (4) and secure flange coupling half (4) on compression fitting (17) with eight screws (10) and washers (11). Torque screws (10) to 96 in-lbs (10.84Nm). Refer to WP 0036 00 for torquing sequence.
5. Position new packing (9) in strainer element (7). Screw flame arrestor (8) into strainer element (7). Screw strainer (7) on pipe (6) hand tight.
6. Screw coupling half (2) on pipe (6).
7. Install new gasket (5) in coupling half (2).

INSTALLATION

1. Position vent assembly (3) on flanged coupling half (4).
2. While pushing vent assembly (3) on flanged coupling half (4), close locking arms (1). Make sure coupling half (4) is securely locked.

END OF WORK PACKAGE

UNIT MAINTENANCE
FILLER ASSEMBLY
REPLACEMENT AND REPAIR

INITIAL SETUP

Tools
General Mechanics, Tool Kit
(Item 1, WP 0030 00)
Torque Wrench, 0-300 in-lb
(Item 2, WP 0030 00)

Materials/Parts
Detergent, General Purpose
(Item 3, WP 0034 00)
Rag, Wiping
(Item 2, WP 0034 00)
Silicone Compound
(Item 4, WP 0034 00)

Mandatory Replacement Parts
Gasket
(Item 4, WP 0037 00) (two required)
Gasket
(Item 6, WP 0037 00)
Lockwasher
(Item 5, WP 0037 00) (eight required)
Preformed Packing
(Item 7, WP 0037 00)
Packing with Retainer
(Item 8, WP 0037 00) (eight required)

General Safety Instructions

WARNING

Do not smoke within 100 feet (30.5m) of tanks.

Fuel is toxic to skin, eyes, and respiratory tract.

REMOVAL

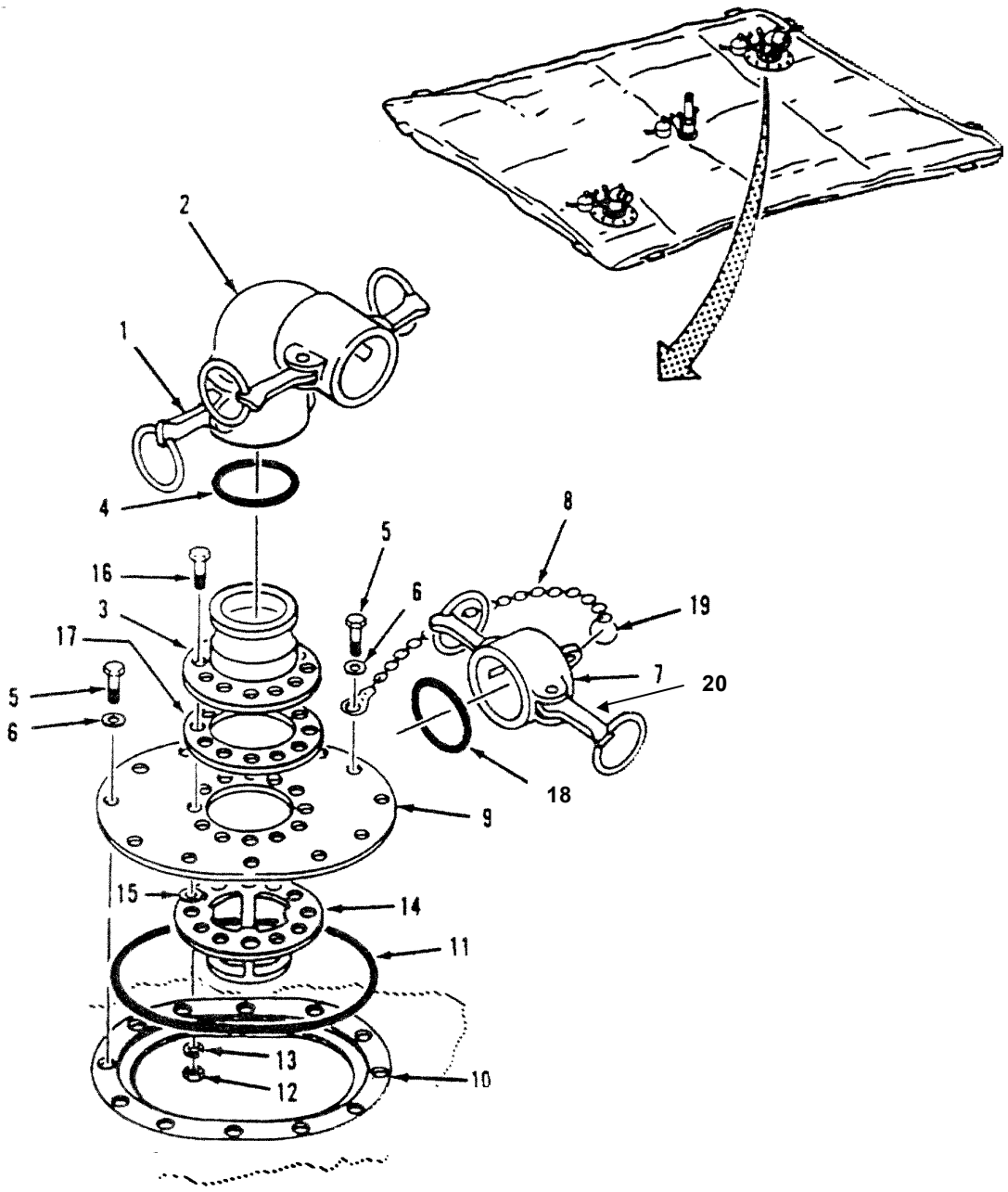
Open locking arms (1) on filler elbow (2). Separate filler elbow (2) from flanged coupling half (3).

DISASSEMBLY

1. Remove two gaskets (4) from filler elbow (2). Discard gaskets (4).
2. Remove twenty screws (5), flat washers (6), and dust cap (7) with chain assembly (8) from compression plate (9).
3. Separate compression plate (9) and attached parts from tank compression fitting (10). Remove preformed packing (11). Discard preformed packing (11).
4. Remove eight nuts (12), lockwashers (13) and suction stub (14). Remove eight packings with retainers (15), screws (16), flanged coupling half (3), and gasket (17) from compression plate (9). Discard gasket (17), lockwashers (13), and packings with retainers (15).
5. Remove gasket (18) from dust cap (7). Discard gasket (18).
6. Remove chain assembly (8) and key holder (19) from dust cap (7).

CLEANING

1. Clean all components with clean water and detergent.
2. Rinse components in clean water and dry with wiping rag.



INSPECTION

1. Inspect filler elbow (2) for cracks, corrosion, scored mating surfaces and broken locking arms (1).

2. Inspect flanged coupling half (3) for cracks, corrosion and scored mating surface.

3. Inspect compression plate (9) for cracks, corrosion and elongated bolt holes.

4. Inspect suction stub (14) for cracks, corrosion and bent support arms.

5. Inspect dust cap (7) for cracks or broken locking arms (20).

6. Inspect chain assembly (8) for damaged or broken connector and links.

REPAIR

Replace damaged components.

ASSEMBLY

1. Install new gasket (18) in dust cap (7).

2. Position new gasket (17) and flanged coupling half (3) on top of compression plate (9). Position suction stub (14) with eight new packings with retainers (15) on bottom of compression plate (9). Secure flanged coupling half (3) and gasket (17) to compression plate (9) with eight screws (16), new lockwashers (13) and nuts (12).

3. Torque screws (16) to 96 in-lbs (10.84Nm). Refer to WP 0036 00 for torquing sequence.

4. Connect chain assembly (8) on dust cap (7) with key holder (19).

5. Install new gasket (18) in dust cap (7).

6. Lubricate new preformed packing (11) with silicone compound before assembly. Position preformed packing (11) and compression plate (9) on compression fitting (10).

7. Position terminal end of chain assembly (8) on compression plate (9) and secure compression plate (9) on compression fitting (10) with twenty screws (5) and flat washers (6).

8. Torque screws (5) to 120 in-lbs (13.56Nm). Refer to WP 0036 00 for torquing sequence.

9. Install two new gaskets (4) in filler elbow (2).

INSTALLATION

Open locking arms (1) on filler elbow (2). Push filler elbow (2) on flanged coupling half (3) and close locking arms (1).

END OF WORK PACKAGE

UNIT MAINTENANCE
DISCHARGE ASSEMBLY
REPLACEMENT AND REPAIR

INITIAL SETUP

Tools
General Mechanics Tool Kit
(Item 1, WP 0030 00)
Torque Wrench, 0-300 in-lb
(Item 2, WP 0030 00)

Materials/Parts
Detergent, General Purpose
(Item 3, WP 0034 00)
Rag, Wiping
(Item 2, WP 0034 00)
Silicone Compound
(Item 4, WP 0034 00)

Mandatory Replacement Parts
Gasket
(Item 9, WP 0037 00) (two required)
Performed Packing
(Item 7, WP 0037 00)
Lockwashers
(Item 5, WP 0037 00) (twelve required)
Preformed Packing
(Item 10, WP 0037 00)
Packing with Retainer
(Item 8, WP 0037 00) (twelve required)

General Safety Instructions

WARNING

Do not smoke within 100 feet (30.5m) of tanks.
Fuel is toxic to skin, eyes, and respiratory tract.

.

REMOVAL

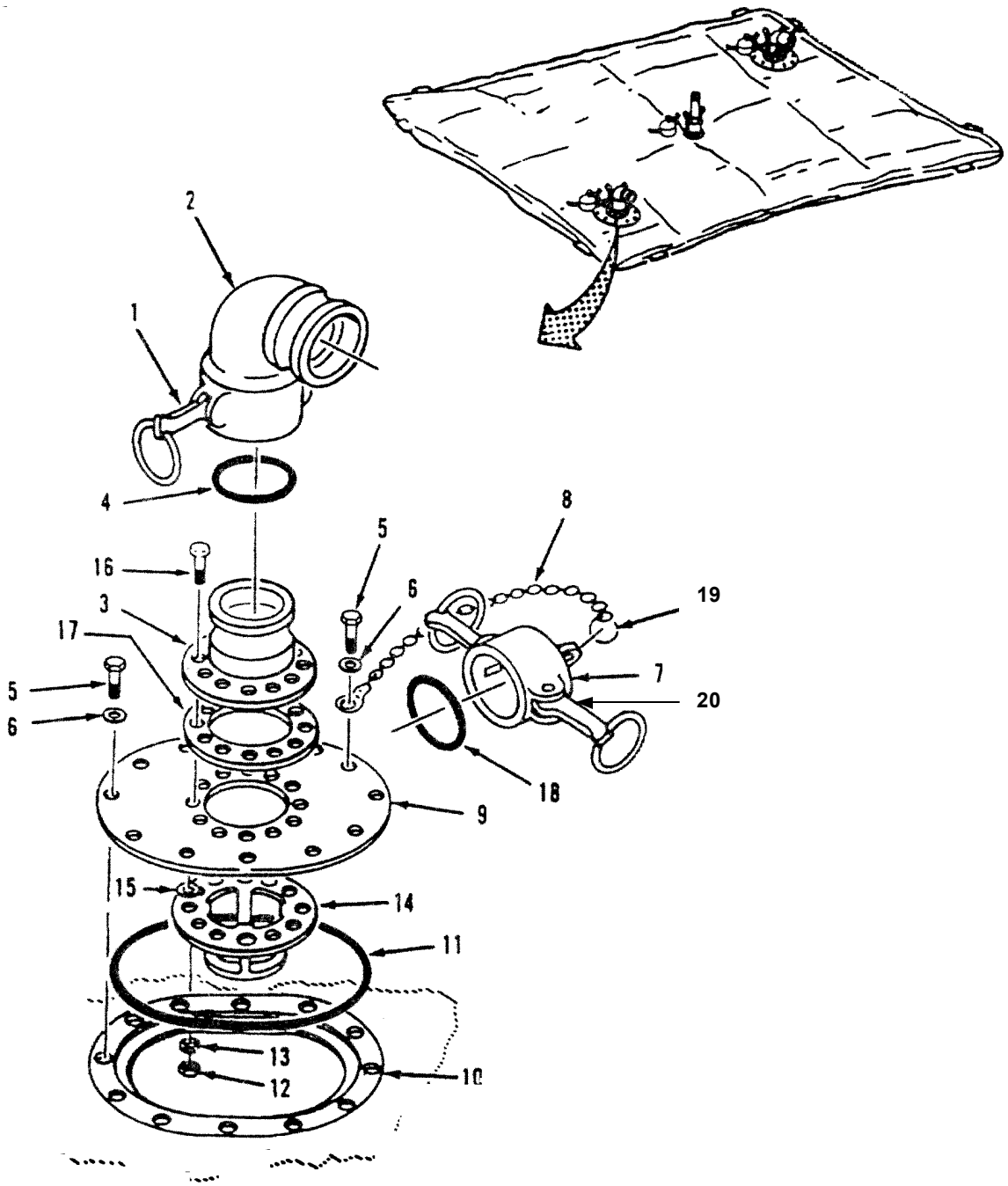
Open locking arms (1) on discharge elbow (2). Separate discharge elbow (2) from flanged coupling (3).

DISASSEMBLY

1. Remove gasket (4) from discharge elbow (2). Discard gasket (4).
2. Remove twenty screws (5) and flat washers (6), dust cap (7) and chain (8) from compression plate (9).
3. Separate compression plate (9) and attached parts from tank compression fitting (10). Remove preformed packing (11). Discard preformed packing (11).
4. Remove twelve nuts (12), twelve lockwashers (13) and suction stub (14). Remove twelve packings with retainers (15) and twelve screws (16), flanged coupling half (3) and gasket (17) from compression plate (9). Discard gasket (17), packings with retainers (15), and lockwashers (13).
5. Remove gasket (18) from dust cap (7). Discard gasket (18).
6. Remove chain assembly (8) and key holder (19) from dust cap (7).

CLEANING

1. Clean all components with clean water and detergent.
2. Rinse components in clean water and dry with wiping rag.



INSPECTION

1. Inspect discharge elbow (2) for cracks, corrosion, scored mating surfaces and broken locking arms (1).
2. Inspect flanged coupling half (3) for cracks, corrosion and scored mating surface.
3. Inspect compression plate (9) for cracks, corrosion and elongated bolt holes.

4. Inspect suction stub (14) for cracks, corrosion and bent support arms.

5. Inspect dust cap (7) for cracks and broken locking arms (20).

6. Inspect chain assembly for damaged or broken connector and links.

REPAIR

Replace damaged components.

ASSEMBLY

1. Install new gasket (18) in dust cap (7).

2. Position new gasket (17) and flanged coupling half (3) on top of compression plate (9). Position suction stub (14) with twelve new packings with retainers (15) on bottom of compression plate (9). Secure flanged coupling half (3) and gasket (17) to compression plate (9) with twelve screws (16), twelve new lockwashers (13) and twelve nuts (12).

3. Torque screws (16) to 96 in-lbs. (10.84Nm). Refer to WP 0036 00 for torquing sequence.

4. Connect chain assembly (8) on dust cap (7) with key holder (19).

5. Install new gasket (18) in dust cap (7).

6. Lubricate new preformed packing (11) with silicone compound before assembly. Position preformed packing (11) and compression plate (9) on compression fitting (10).

7. Position terminal end of chain assembly (8) onto compression plate (9) and secure compression plate (9) on compression fitting (10) with twenty screws (5) and twenty flatwashers (6).

8. Torque screws (5) to 120 in-lbs (13.56Nm). Refer to WP 0036 00 for torquing sequence.

9. Install new gasket (4) in discharge elbow (2).

INSTALLATION

Open locking arms (1) on discharge elbow (2). Push discharge elbow (2) on flanged coupling half (3) and close locking arms (1).

UNIT MAINTENANCE
TANK DRAIN FITTING ASSEMBLY
REPLACEMENT AND REPAIR

INITIAL SETUP

Tools
General Mechanics Tool Kit
(Item 1, WP 0030 00)
Torque Wrench, 0-300 in-lb
(Item 2, WP 0030 00)

Materials/Parts
Detergent, General Purpose
(Item 3, WP 0034 00)
Rag, Wiping
(Item 2, WP 0034 00)
Sealing Compound
(Item 1, WP 0034 00)
Silicone Compound
(Item 4, WP 0034 00)

Mandatory Replacement Parts
Gasket
(Item 2, WP 0037 00) (two required)
Preformed Packing
(Item 7, WP 0037 00)

General Safety Instructions

WARNING

Do not smoke within 100 feet (30.5m) of tanks.
Fuel is toxic to skin, eyes, and respiratory tract.

REMOVAL

1. Remove eight screws (1) and flat washers (2) from drain fitting (3).

NOTE
Note location of drain fitting before removing.

2. Remove drain fitting (3) and preformed packing (4) from tank compression fitting (5). Discard preformed packing (4).
3. Remove two key holders (6) and chain (7) from coupling half (8) and cap (9).
4. Remove gasket (10) from cap (9). Discard gasket (10).
5. Remove coupling half (8) from drain fitting (3).

CLEANING

1. Wash all components with clean water and detergent.
2. Rinse components in clean water and dry with wiping rag.

INSPECTION

1. Inspect drain fitting (3) and compression fitting (5) for damage.
2. Inspect coupling half (8) for damaged threads.
3. Inspect chain (7) for broken or damaged links.

REPAIR

Replace damaged components. Refer to WP 0035 00 for fabrication of chain.

ASSEMBLY

1. Connect chain (7) to coupling half (8) and cap (9) with two key holders (6).

2. Install new gasket (10) in cap (9).

INSTALLATION

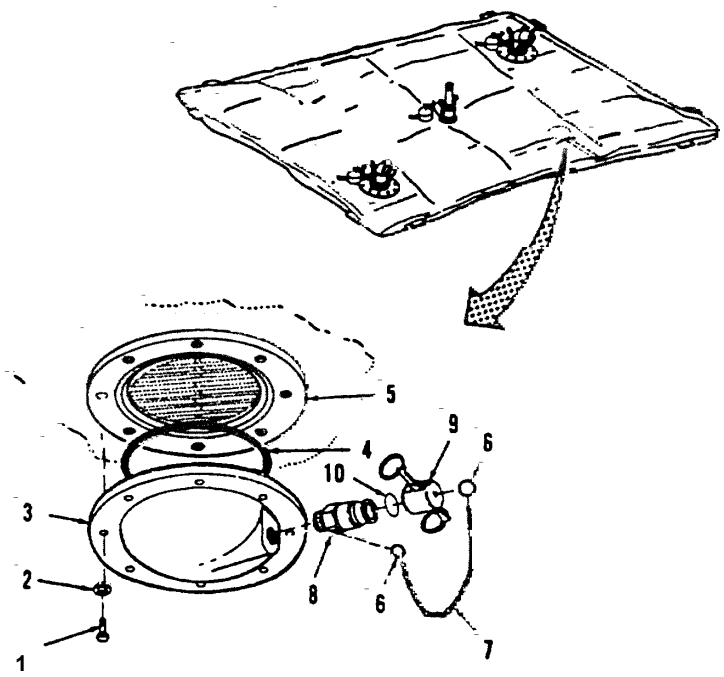
1. Lubricate new preformed packing (4) with silicone compound. Position preformed packing (4) and drain fitting (3) on compression fitting (5). Install drain fitting (3) in same location as noted in removal.

2. Install eight screws (1), and flat washers (2). Torque screws (1) to 96 in-lbs (10.84Nm). Refer to WP 0036 00 for torquing sequence.

WARNING

Do not use excessive pressure when applying sealing compound onto threads. Sharp thread edges can cause serious injury.

3. Coat threads of coupling half (8) with sealing compound and install coupling half (8) in drain fitting (3).



END OF WORK PACKAGE

UNIT MAINTENANCE
BERM LINER STRAINER
REPLACEMENT

INITIAL SET UP

Tools

Automotive Maintenance and Repair Shop Equipment
(Item 3, WP 0030 00)

General Safety Instructions

WARNING

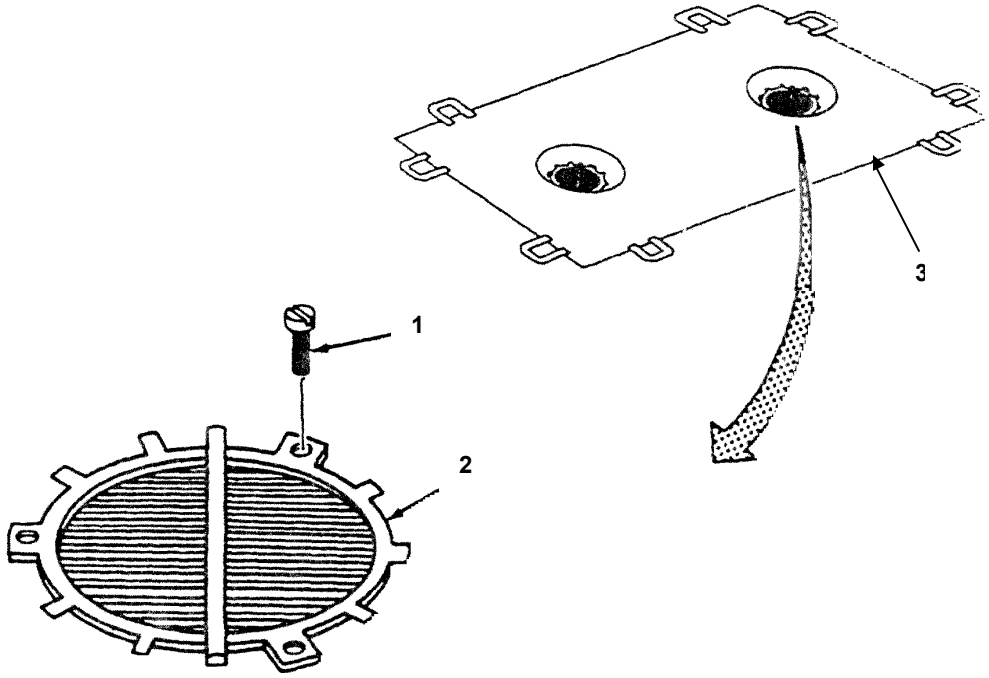
Do not smoke within 100 feet (30.5m) of tanks.
Fuel is toxic to skin, eyes, and respiratory tract.

REMOVAL

Remove three screws (1) and strainer (2) from berm liner (3).

INSTALLATION

Position strainer (2) on berm liner (3). Install three screws (1).



END OF WORK PACKAGE

UNIT MAINTENANCE
BERM LINER DRAIN FITTING ASSEMBLY
REPLACEMENT AND REPAIR

INITIAL SETUP

Tools
General Mechanic's Tool Kit
(Item 1, WP 0030 00)
Torque Wrench, 0-300 in-lb
(Item 2, WP 0030 00)

Equipment Condition
Berm liner removed (WP 0008 00).

Materials/Parts
Detergent, General Purpose
(Item 3, WP 0034 00)
Rag, Wiping
(Item 2, WP 0034 00)
Sealing Compound
(Item 1, WP 0034 00)
Silicone Compound
(Item 4, WP 0034 00)

Mandatory Replacement Parts
Gasket
(Item 2, WP 0037 00) (two required)
Preformed Packing
(Item 3, WP 0037 00)

General Safety Instructions

WARNING

Do not smoke within 100 feet (30.5m) of tanks.
Fuel is toxic to skin, eyes, and respiratory tract.

REMOVAL

1. Remove eight screws (1), and washers (2) from drain fitting (3).
2. Remove drain fitting (3) and preformed packing (4) from berm liner compression fitting (5). Discard preformed packing (4).
3. Remove key holders (6) and chain (7) from coupling half (8) and dust cap (9).
4. Remove gasket (10) from dust cap (9). Discard gasket (10).
5. Remove coupling half (8) from drain fitting (3).

CLEANING

1. Wash all components with clean water and detergent.
2. Rinse components in clean water and dry with wiping rag.

INSPECTION

1. Inspect drain fitting (3) and compression fitting (5) for cracks, corrosion and stripped threads.
2. Inspect coupling half (8) for damaged threads.
3. Inspect chain (7) for damaged or broken links.

REPAIR

Replace damaged components.

INSTALLATION

1. Connect chain (7) to coupling half (8) and dust cap (9) with two key holders (6).

2. Install new gasket (10) in dust cap (9).

3. Lubricate new preformed packing (4) with silicone compound. Position preformed packing (4) and drain fitting (3) on compression fitting (5).

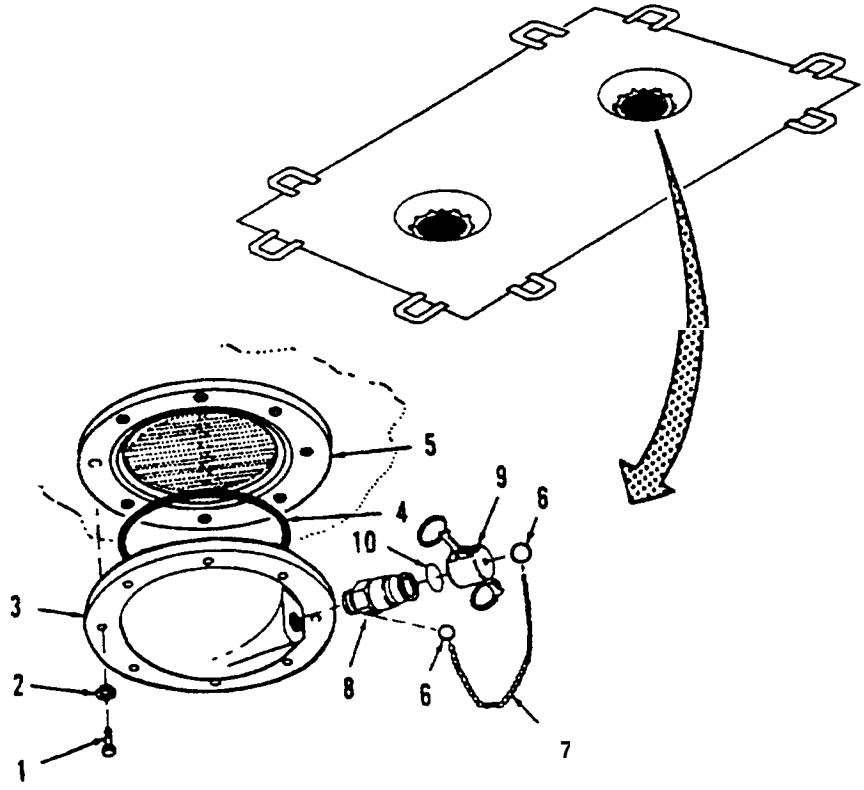
4. Install eight screws (1) and washers (2). Torque screws (1) to 96 in-lbs (10.84Nm). Refer to WP 0036 00 for torquing sequence.

WARNING

Do not use excessive pressure when applying sealing compound onto threads. Sharp thread edges can cause serious injury.

5. Coat threads of coupling half (8) with sealing compound. Install coupling half (8) in drain fitting (3).

6. Install berm liner (WP 0007 00).



END OF WORK PACKAGE

UNIT MAINTENANCE
HOSE ASSEMBLY
REPAIR

INITIAL SETUP

Tools
General Mechanics Tool Kit
(Item 1, WP 0030 00)
Clamping Tool, Strap Band, Hose
(Item 4, WP 0030 00)

Equipment Condition
Hose assembly removed (WP 0008 00).
Drain valve removed (WP 0008 00).

Materials/Parts
Detergent, General Purpose
(Item 3, WP 0034 00)
Rag, Wiping
(Item 2, WP 0034 00)

Mandatory Replacement Parts
Determine materials required by hose size.

Hose Size	
2-inch (5.08cm)	Gasket (Item 2, WP 0037 00) (two required) Seal (Item 14, WP 0037 00) (four req'd) Strapping Seal (Item 12, WP 0037 00)
4-inch (10.16cm)	Gasket (Item 4, WP 0037 00) (two required) Seal (Item 15, WP 0037 00) (four req'd) Strapping Seal (Item 13, WP 0037 00)
6-inch (15.24cm)	Gasket (Item 9, WP 0037 00) (two required) Seal (Item 15, WP 0037 00) (four req'd) Strapping Seal (Item 13, WP 0037 00)

General Safety Instructions

WARNING

Do not smoke within 100 feet (30.5m) of tanks.

Fuel is toxic to skin, eyes, and respiratory tract.

NOTE

The following procedures apply to all hose assemblies used with the collapsible fabric petroleum tanks.

DISASSEMBLY

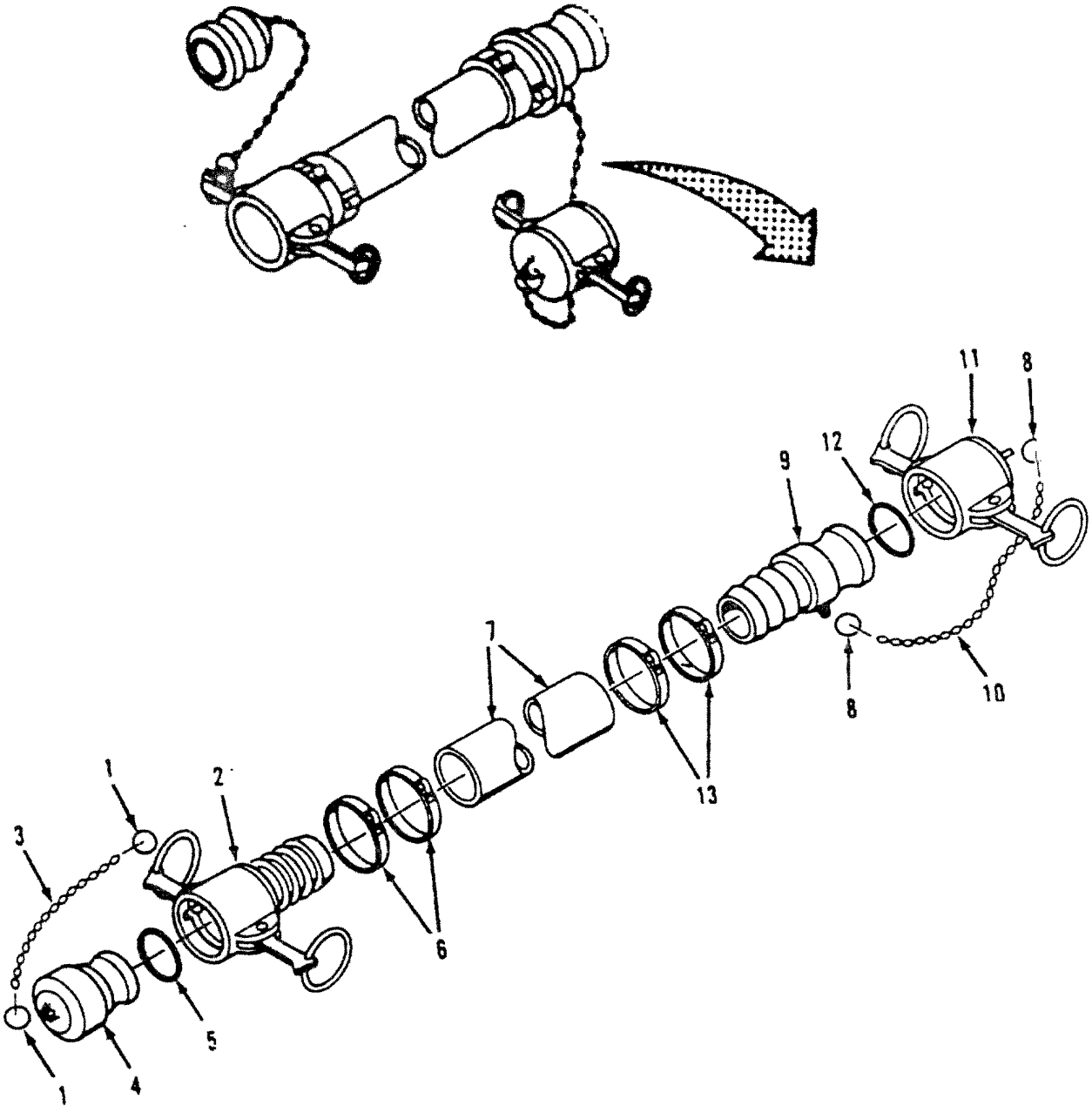
1. Disconnect two key holders (1) from coupling half (2), chain (3), and dust plug (4).
2. Remove gasket (5) from coupling half (2). Discard gasket (5).
3. Cut two strappings (6) off hose (7). Remove coupling half (2). Discard strappings (6).
4. Disconnect two key holders (8) from coupling half (9), chain (10), and dust cap (11).
5. Remove gasket (12) from dust cap (11). Discard gasket (12).
6. Cut two strappings (13) off hose (7). Remove coupling half (9). Discard strappings (13).

REPAIR

Replace damaged components. Refer to WP 0035 00 for fabrication of chains.

ASSEMBLY

1. Insert coupling half (9) in hose (7).
2. Install new gasket (12) in dust cap (11). Install dust cap (11) on coupling half (9).
3. Attach two key holders (8) to coupling half (9), chain (10), and dust cap (11).
4. Insert coupling half (2) in hose (7).
5. Install new gasket (5) in coupling half (2).
6. Attach two key holders (1) to coupling half (2), chain (3), and dust plug (4).
7. Install dust plug (4) in coupling half (2).

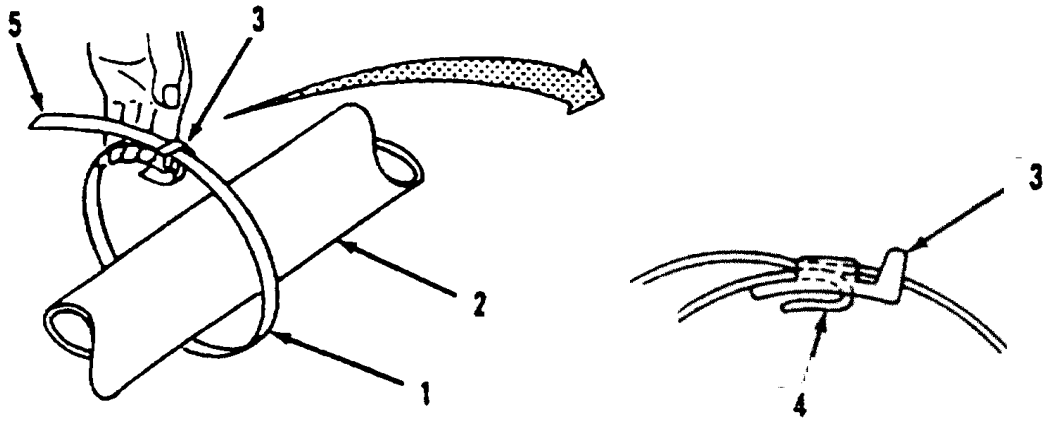


ASSEMBLY – Continued

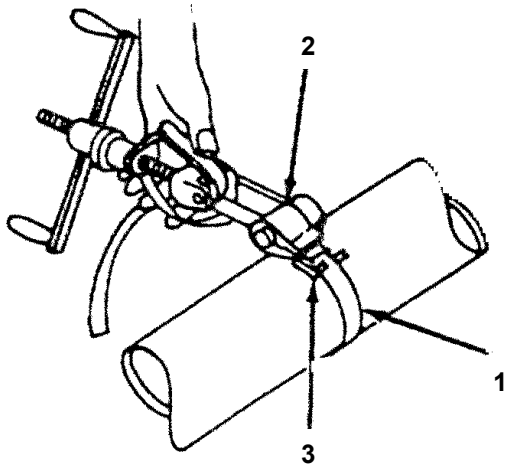
8. Cut a piece of strapping (1) long enough to wrap around hose (2). Allow 12 inches (30.48cm) excess for sealing. Refer to WP 0035 00 for fabrication of strappings.

9. Slide seal (3) onto strapping (1) and bend strapping end (4) under seal (3).

10. Wrap strapping (1) around hose (2) about one inch (2.54cm) from hose end and slide strapping end (5) through seal (3).



11. Insert strapping (1) in slot of clamping tool nose (2). Tool nose should fit snug against seal (3).



ASSEMBLY - Continued

CAUTIONS

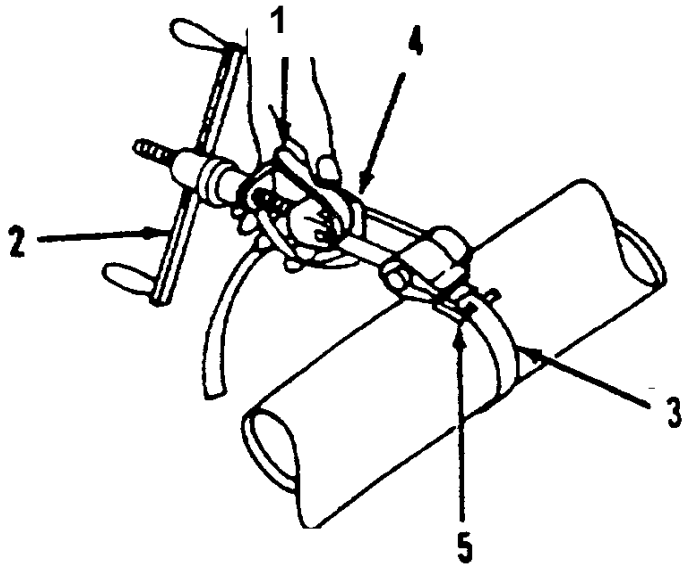
Strapping may break if operator does not release tension on handle when bending over seal.

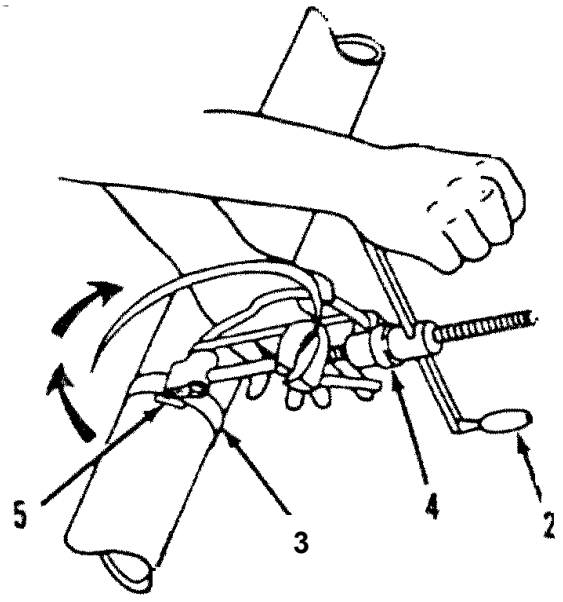
Strapping can damage hose if over tightened.

12. Apply pressure to gripper lever (1) and turn handle (2) until strapping (3) is snug. Tool (4) will lock in place when correct tension is applied. Reposition tool as required.

13. Turn handle (2) to tighten strapping (3) until strapping (3) stops moving through slide seal (5).

14. Reverse handle (2) 3/4-turn, then roll tool (4) to opposite side of slide seal (5). (This will bend strapping (3) and prevent it from slipping through seal (5) when tool is removed.)



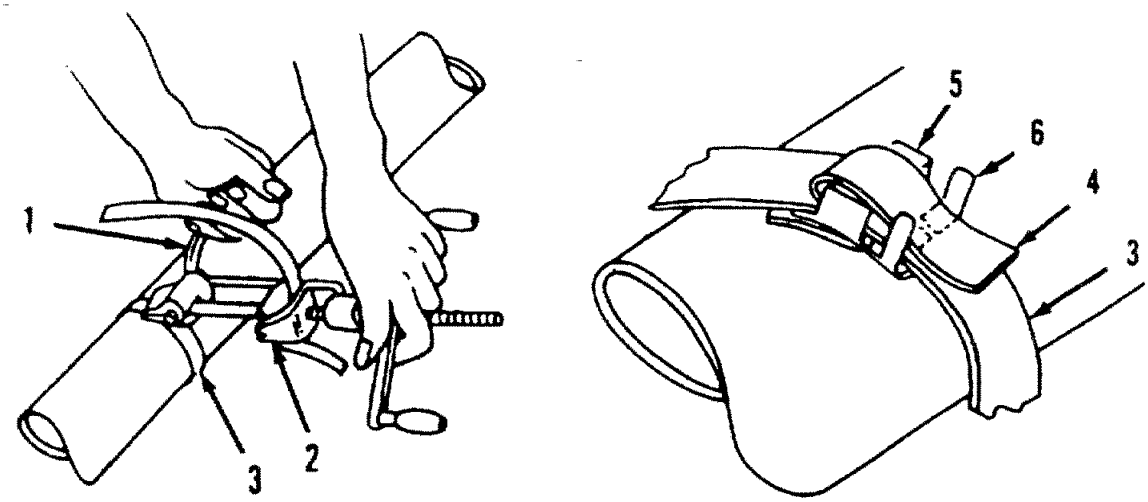


ASSEMBLY - Continued

15. Pull cutting handle (1) on tool (2) to cut strapping (3),

16. Remove tool (2) while holding strapping stub (4) down on seal (5) with thumb.

17. Clinch end of strapping (3) by hammering down tabs (6) of seal (5) over strapping stub (4).



NOTES

Position adjacent strapping on hose next to the first strapping.
For the 6-inch (15.24cm) discharge hose assembly only, install another loop of strapping on hose.

18. Repeat steps 1 through 4 for remaining strappings (3) on hose.

19. Install hose assembly (WP 0007 00).

20. Install drain valve (WP 0007 00).

END OF WORK PACKAGE

UNIT MAINTENANCE
GATE VALVE ASSEMBLY
REPAIR

INITIAL SETUP

Tool
General Mechanics Tool Kit
(Item 1, WP 0030 00)
Pipe Wrench
(Item 3, WP 0030 00)

Equipment Condition
Gate valve assembly removed (WP 0008 00).

Materials/Parts
Sealing Compound
(Item 1, WP 0034 00)

Mandatory Replacement Parts
Gasket
(Item 2, WP 0037 00) (two required)
Packing
(Item 11, WP 0037 00)

General Safety Instructions

WARNING

Do not smoke within 100 feet (30.5m) of tanks.
Fuel is toxic to skin, eyes, and respiratory tract.

DISASSEMBLY

NOTE

This procedure is typical for both gate valve assemblies on the berm liner and tank.

1. Disconnect two key holders (1) from chain (2), dust plug (3), and female coupling half (4).
2. Pull out locking arms (5) on female coupling half (4) and remove dust plug (3).
3. Remove gasket (6) from female coupling half (4). Discard gasket (6).
4. Remove female coupling half (4) from gate valve assembly (7).
5. Disconnect two key holders (8) from chain (9), dust cap (10), and male coupling half (11).
6. Pull out locking arms (12) on dust cap (10) and remove dust cap (10) from male coupling half (11).
7. Remove gasket (13) from dust cap (10). Discard gasket (13).
8. Remove male coupling half (11) from valve assembly (7).
9. Unscrew hand wheel nut (14) and pull hand wheel (15) off valve stem (16).
10. Unscrew packing nut (17) from bonnet (18). Remove packing gland (19) and packing (20) from bonnet (18). Discard packing (20).

REPAIR

Replace all defective parts. Refer to WP0035 00 for fabrication of chain.

ASSEMBLY

1. Slide new packing (20) and packing gland (19) over stem (16) and install in bonnet (18).

WARNING

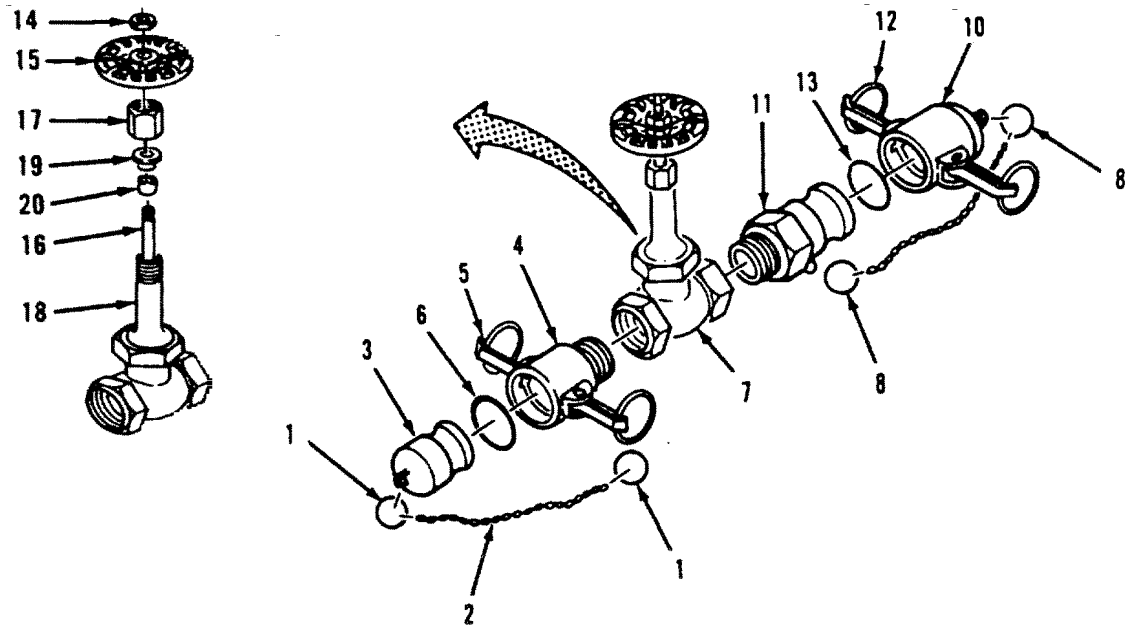
Do not use excessive pressure when applying sealing compound onto threads. Sharp thread edges can cause injury.

2. Apply sealing compound to threads of male coupling half (11) and install in valve assembly (7).
3. Connect two key holders (8) on chain (9), dust cap (10), and male coupling half (11).
4. Insert new gasket (13) in dust cap (10).
5. Install dust cap (10), male coupling half (11), and lock in place with locking arms (12).
6. Apply sealing compound to threads of female coupling half (4) and install in valve assembly (7).

CAUTION

Ensure gasket is fully seated in groove of female coupling half to prevent leaks in assembled components.

7. Insert new gasket (6) in female coupling half (4).
8. Connect two key holders (1), on chain (2), dust plug (3), and female coupling half (4).
9. Install dust plug (3) in female coupling half (4) and lock in place with locking arms (5).
10. Install gate valve assembly (WP 0007 00).



END OF WORK PACKAGE

EMERGENCY REPAIR KITS MAINTENANCE

Unit maintenance on the type I and type II emergency repair kit is limited to replacement of missing or damaged components. Inspect mechanical patches for missing plates, gaskets, wing nuts, and bent or stripped threaded rods. Inventory the repair kits to determine if parts are missing and replace as required.

END OF WORK PACKAGE

PREPARATION FOR STORAGE OR SHIPMENT

SECURITY PROCEDURES

Refer to AR 190-1 or AR 190-13.

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 as determined by the directing authority. During the storage period, appropriate maintenance records will be kept.

Before placing the equipment in administrative storage, current Preventive Maintenance Checks and Services (PMCS) 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.

END OF WORK PACKAGE

CHAPTER 5

SUPPORTING INFORMATION FOR TANK, PETROLEUM 3,000, 10,000, AND 20,000 GALLON

REFERENCES

This work package lists all forms, field manuals, technical manuals and miscellaneous publications references in this manual. Also listed are publications that should be consulted for additional information.

MAINTENANCE

AR 190-1, AR 190-13	Security Procedures
AR 700-138	Army Logistics Readiness and Sustainability.
DA PAM 738-750	The Army Maintenance Management Systems (TAMMS)
DA PAM 738-751	Functional Users Manual for TAMMS
TM 750-244-3	Destruction of Equipment to Prevent Enemy Use

FORMS

DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2404	Equipment Inspection and Maintenance Worksheet
SF Form 361	Transportation Discrepancy Report
SF Form 364	Report of Discrepancy
SF Form 368	Quality Deficiency Report

FIELD MANUALS

FM 10-68, FM 10-69	Petroleum Supply Point Equipment and Operation
FM 21-11	First Aid
FM 3-3, FM 3-4, FM 3-5	Detailed Decontamination Procedures
FM 31-70	Basic Cold Weather Manual
FM 31-71	Northern Operations

MISCELLANEOUS

SB 740-99-1	Storage Serviceability Standard
CTA 50-970	Expendable/Durable Items (except medical, Class V repair parts, and heraldic items)
CTA 8-100	Army Medical Expendable/Durable Items

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
MAINTENANCE ALLOCATION CHART

MAINTENANCE ALLOCATION CHART (MAC)

The Army Maintenance System MAC

This introduction provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army/Marine Corps Maintenance System concept.

The MAC (immediately following the introduction) designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit – includes two sub columns, C (operator/crew) and O (unit) maintenance.

Direct Support – includes an F sub column.

General Support – includes an H sub column.

Depot – includes a D sub column.

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

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

Maintenance Functions

Maintenance functions will be limited to and defined as follows:

1. Inspect - To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination; e.g., by sight, sound, or feel.

2. Test - To verify serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with prescribed standards.

3. Service - Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or gases.

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

5. Align - To adjust specified variable elements of an item to bring out optimum or desired performance.

6. Calibrate - To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

7. Remove/Install - To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of equipment or system.

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

9. Repair - The application of maintenance services, including fault location/troubleshooting, 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.

10. Overhaul - That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of material maintenance preformed by the Army. Overhaul does not normally return an item to like new condition.

11. Rebuild - Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of 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.

Columns In The MAC Table 1

1. Column 1, Group Number, 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."

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

3. Column 3, Maintenance Functions, lists the functions to be performed on the item listed in Column 2.

4. Column 4, Maintenance Level, specifies each level of maintenance authorized to perform each function listed in Column 3, by indicating work time required (expressed as man-hours in whole hours or decimals) in the appropriate sub column. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work-time figures will be shown for each level. The work-time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC.

5. Column 5, Tools and Test Equipment, specifies, by code, required tool and test equipment requirements.

6. Column 6, Remarks, when applicable, contains a letter code, in alphabetical order.

Explanation of Columns In Table 2. Tool and Test Equipment Requirements

1. Column 1, Reference Code correlates with a code used in the MAC, Column 5.

2. Column 2, Maintenance Level is the lowest level of maintenance authorized to use the tool or test equipment.

3. Column 3, Nomenclature, names or identifies the tool or test equipment.

4. Column 4, National Stock Number of the tool or test equipment.

5. Column 5, Tool Number is the manufacturer's part number, model number, or type number.

Explanation of Columns In Table 3. Remarks

1. Column 1, Remarks Code is recorded in Column 6 of Table 1.

2. Column 2, Remarks, lists information pertinent to the maintenance function being performed as indicated in the MAC Table 1.

Table 1. MAC FOR 3K, 10K, AND 20K GALLON COLLAPSIBLE FABRIC TANKS

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQIUP	(6) REMARKS
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
00	3K, 10, AND 20K TANK ASSEMBLY	INSPECT	0.7						
		SERVICE		1.5					A
01	VENT FITTING ASSEMBLY	INSPECT	0.5						
		REPLACE		1.0					
		REPAIR		1.0				1,2,3	B
0101	STRAINER ELEMENT SET	INSPECT	0.2						
		REPLACE		0.5					
		REPAIR		0.5				1	B
0102	DUST CAP ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
02	FILLER ASSEMBLY	INSPECT	0.5						
		REPAIR		1.0				1,2	B
0201	DUST CAP ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
03	DISCHARGE ASSEMBLY	INSPECT	0.5						
		REPAIR		1.0				1,2	B
0301	DUST CAP ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
04	DRAIN FITTING ASSEMBLY	INSPECT	0.5						
		REPAIR		1.0				1,2	B
0401	DUST CAP ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5					
		REPAIR		0.5				1	B
05	3K, 10, AND 20K TANK	INSPECT	0.5						
		REPAIR	1.5						A
06	BERM LINER ASSEMBLY	INSPECT	0.5						
		REPLACE	0.5						
		REPAIR		3.0				1,2,3	B
0601	STRAINER	INSPECT	0.5						
		REPLACE		0.5				3	B
0602	DRAIN FITTING ASSEMBLY	INSPECT	0.5						
		REPAIR		1.0				1,2	B
060201	DUST CAP ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B

Table 1. MAC FOR 3K, 10K, AND 20K GALLON COLLAPSIBLE FABRIC TANKS - continued

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQIUP	(6) REMARKS
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
0603	VALVE, GATE, 2-INCH ASSEMBLY	INSPECT	0.5						
		REPLACE	0.5					1	
		REPAIR		1.0				1,3	B
0604	DUST PLUG ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
0605	DUST CAP ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
0606	2-INCH HOSE ASSEMBLY	INSPECT	0.5						
		REPLACE	0.5						
		REPAIR		1.0				1,4	B
060601	DUST PLUG ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
060602	DUST CAP ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
07	GROUND CLOTH	INSPECT	0.5						
		REPLACE	0.5						B
08	VALVE, GATE, TANK, 2-INCH ASSEMBLY	INSPECT	0.5						B
		REPLACE	0.5						
		REPAIR		1.0				1,3	
09	HOSE ASSEMBLIES	INSPECT	0.5						
		REPLACE	0.5						
		REPAIR		1.0				1,4	B
0901	DUST CAP	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
0902	DUST PLUG	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B

Table 1. MAC FOR 3K, 10K, AND 20K GALLON COLLAPSIBLE FABRIC TANKS - continued

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQIUP	(6) REMARKS
			UNIT		DS	GS	DEPOT		
			C	O	F	H	D		
10	DUST CAP ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
11	DUST PLUG ASSEMBLY	INSPECT	0.2						
		REPLACE		0.5				1	
		REPAIR		0.5				1	B
12	REPAIR KIT, TYPE II	INSPECT	0.5						
		REPLACE		0.2					
		REPAIR		0.5					B
1201	REPAIR KIT, TYPE I	INSPECT	0.5						
		REPLACE		0.2					
		REPAIR		0.5					C

Table 2. TOOLS AND TEST EQUIPMENT FOR 3K, 10K, AND 20K GALLON COLLAPSIBLE FABRIC TANKS

(1) REFERENCE CODE	(2) MAINTENANCE CATEGORY	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER (NSN)	(5) TOOL NUMBER
1	O	Tool kit (1), general mechanics	5180-00-177-7033	SC-5180-90-CL-N26
2	O	Wrench, torque 0-300 in-lb	5120-00-776-1841	
3	O	Shop Equipment (1), Automotive Maintenance and Repair	4910-00-754-0654	SC-4910-95-CL-A74
4	O	Clamping Tool, Strap Band Hose	5120-00-278-9925	C001

Table 3. REMARKS FOR 3K, 10K, AND 20K GALLON COLLAPSIBLE FABRIC TANKS

Remarks Code	Remarks
A	Crew level repair limited to installation of clamp patches.
B	Repair limited to replacement of defective components.
C	Replace components as required.

END OF WORK PACKAGE

UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, 20,000 GALLONS
REPAIR PARTS SPECIAL TOOLS LIST INTRODUCTION

SCOPE

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

GENERAL

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

1. Repair Parts List Work Packages. Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts that 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 in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.

2. Special Tools List Work Packages. Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII shall not be listed.

3. Cross-Reference Indexes Work Packages. There are two cross-reference index work packages in this RPSTL: the National Stock Number (NSN) Index work package and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

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

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

SMR Code (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout:

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

*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.

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

Source Code	Application/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 level 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 level 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/ AVIM level MH-Made at GS level ML-Made at 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 P/N in the DESCRIPTION AND USABLE ON CODE (UOC) column and list in the bulk material group work package of the 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 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 level AL-Assembled by SRA AD-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 of the SMR code, authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
XA	Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to the NOTE below.)
XB	If an item is not available from salvage, order it using the CAGEC and P/N.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's P/N.
XD	Item is not stocked. Order an XD-coded item through normal supply channels using the CAGEC and P/N 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 items source coded “XA” or those aircraft support items restricted by requirements of AR 750-1.

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

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

Maintenance Code		Application/Explanation
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.

Fourth Position. 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 (perform all authorized repair functions).

NOTE

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

Maintenance Code		Application/Explanation
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 maintenance of a "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

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 the third position of the SMR Code.
O	Reparable item. When uneconomically reparable, condemn and dispose of the item at the unit level.
F	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support 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 are 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 (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

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

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

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

NOTE

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

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

1. The federal item name and, when required, a minimum description to identify the item.

2. P/Ns of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.

3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.

4. The statement END OF FIGURE appears just below the last item description in Column (6) for a given figure in both the repair parts list and special tools list work packages.

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

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

1. National Stock Number (NSN) Index Work Package.

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.

NSN
(e.g., 5385-01-574-1476)
NIIN

When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.

ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

2. Part Number (P/N) Index Work Package. P/Ns in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

PART NUMBER Column. Indicates the P/N assigned to the item.

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.

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

SPECIAL INFORMATION

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

Code	Used On
FHZ	3,000 Gallon Tank, Model X-4851
FJA	10,000 Gallon Tank, Model X-4756A
FJB	20,000 Gallon Tank, Model X-4757A

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

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

Illustrations List. The illustrations in this RPSTL contain unit authorized items.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or P/Ns Are Not Known.

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

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN Is Known.

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When P/N Is Known.

First. If you have the P/N and not the NSN, look in the PART NUMBER column of the P/N index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

END OF WORK PACKAGE

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON

TANK VENT FITTING ASSEMBLY

REPAIR PARTS LIST

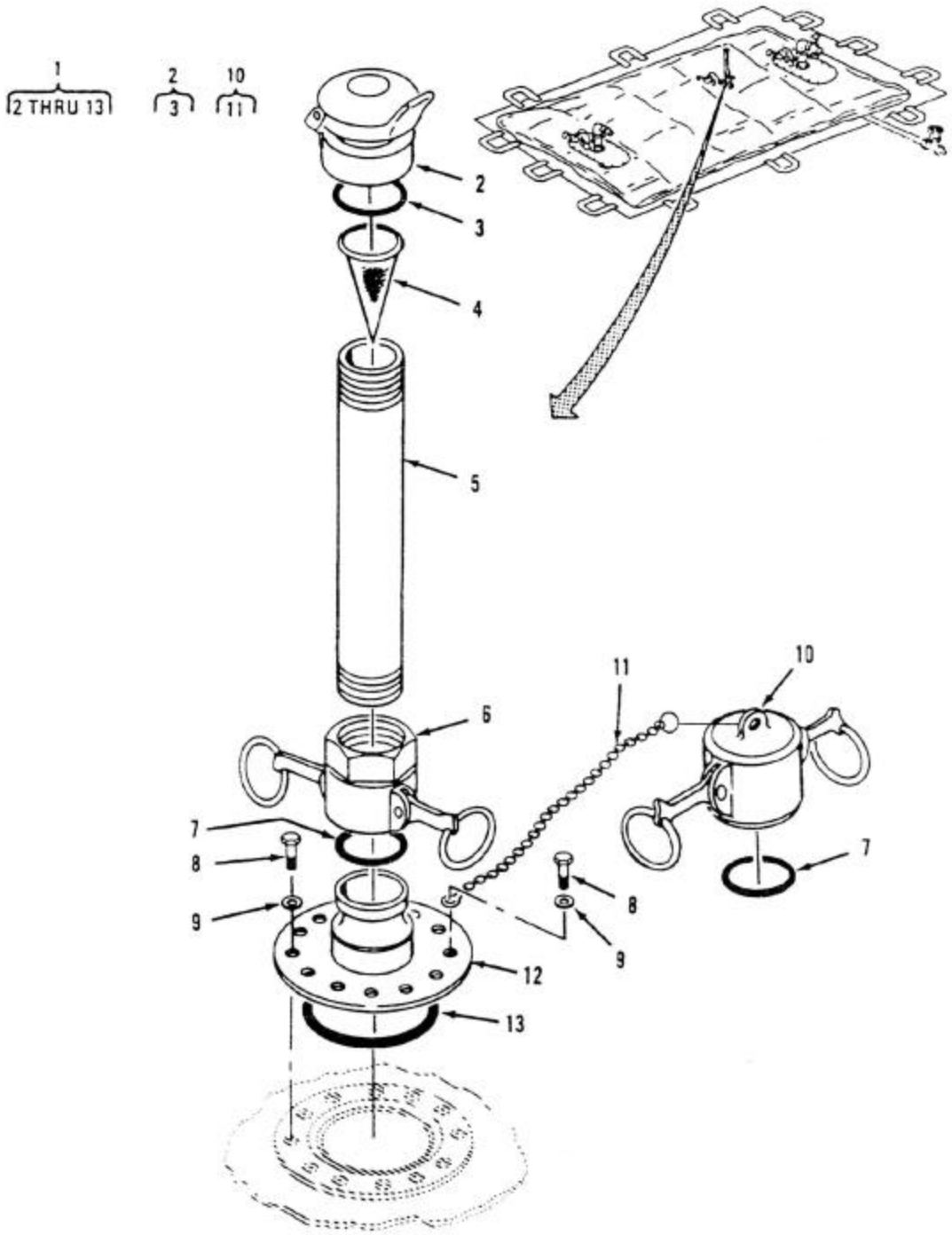


Figure 1. Tank Vent Fitting Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01 VENT FITTING ASSEMBLY	
					FIG 1. TANK VENT FITTING ASSEMBLY	
1	XBOOO		66618	X-4765A	FITTING, VENT ASSEMBLY ……	1
2	XBOZO	4930-00-734-0180	49234	EX1333B	STRAINER ELEMENT, S ……..	1
3	PCOZZ		49234	EX13338-10	PACKING, PREFORMED …….	1
4	XBOZZ		66618	X-4765A-9	ARRESTOR, FLAME …….	1
5	XBOZZ		66618	X-4765A-8	PIPE, THREADED ……..	1
6	XBOZZ	4730-00-649-9103	96906	MS27024-11	COUPLING HALF, QUICK …….	1
7	PCOZZ	5330-01-413-2126	97403	13228E1768-6	GASKET ……...	2
8	XBOZZ	5305-00-225-3842	80204	B1821BH025C 113N	SCREW, CAP, HEXAGON …….	8
9	XBOZZ	5310-00-809-4058	96906	MS27183-10	WASHER, FLAT ……..	8
10	PBOZZ	4730-00-649-9100	96906	MS27028-11	CAP, QUICK DISCONNEC ……... USED TO COVER ITEM 12 WHEN VENT NOT IN PLACE	1
11	PBOZZ	4010-00-360-0596	81718	H06683M	CHAIN ASSEMBLY, SING …….	1
12	XBOZZ	4730-01-416-1533	96906	MS27023-21	COUPLING HALF, QUICK …….	1
13	PCOZZ	5331-01-281-3847	81349	M25988/1-250	PACKING, PREFORMED …….	1

END OF FIGURE

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON

TANK FILLER ASSEMBLY

REPAIR PARTS LIST

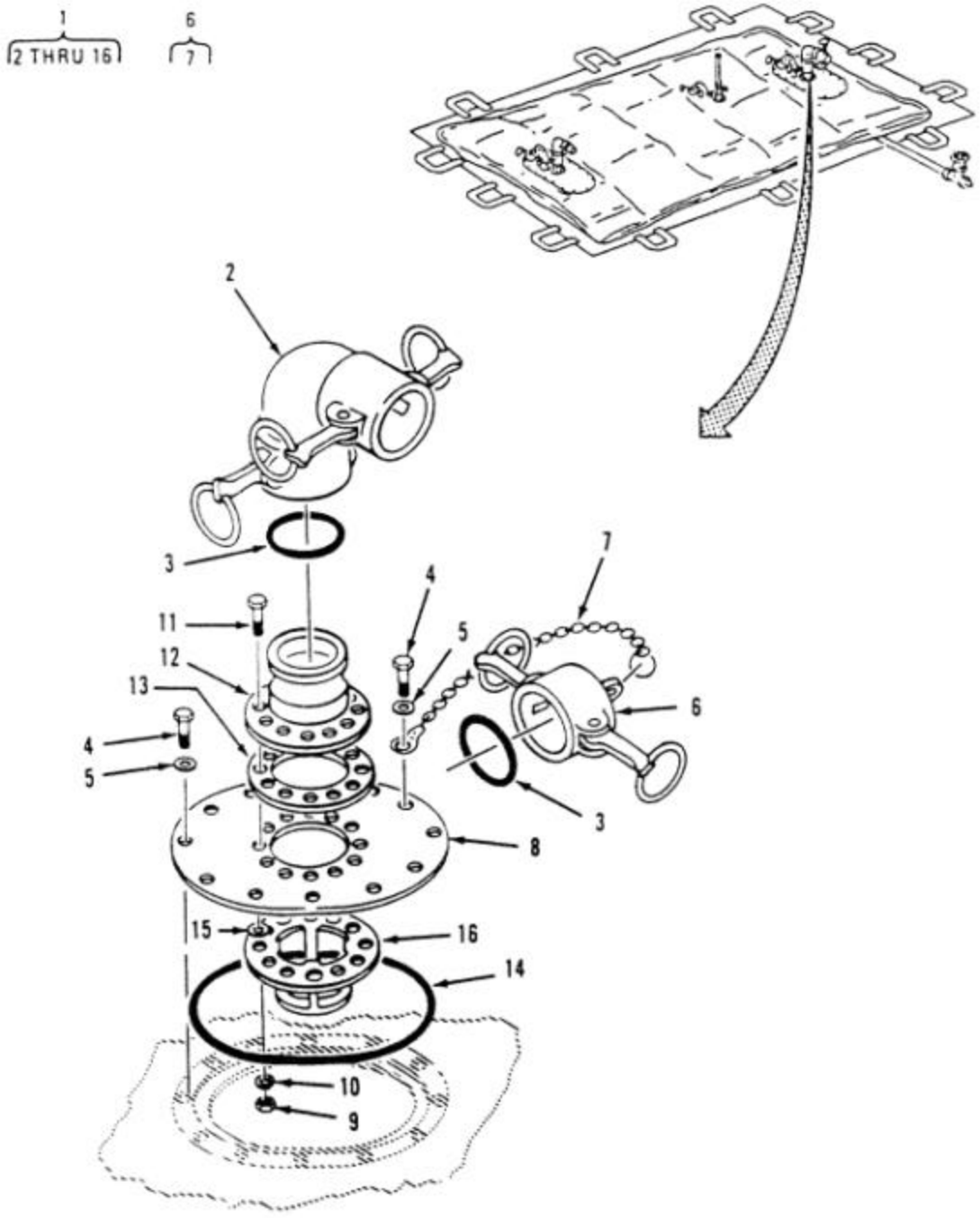


Figure 2. Tank Filler Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 FILLER ASSEMBLY	
					FIG. 2 TANK FILLER ASSEMBLY	
1	XBOOO		66618	X-4758A	FILLER ASSEMBLY	1
2	XBOZZ		81718	633-4	ELBOW, FEMALE TO FEMALE ...	1
3	PCOZZ		97403	13228E1768-9	GASKET, COUPLING HALF	2
4	PBOZZ	5305-00-225-3843	0AT62	35A2C5	SCREW, CAP, HEXAGON	20
5	PBOZZ	5310-00-809-4058	96906	MS27183-10	WASHER, FLAT	20
6	PBOZZ	4730-00-640-6156	96906	MS27028-17	CAP, QUICK DISCONNECT ..... USED TO COVER ITEM 12 WHEN ELBOW NOT IN PLACE	1
7	PBOZZ	4010-00-360-0596	81718	H06683M	CHAIN ASSEMBLY, SING	1
8	XBOZZ		66618	X-4761A	PLATE-COMPRESSION	1
9	PBOZZ	5310-00-056-3395	96906	MS35649-2382	NUT, PLAIN, HEXAGON	8
10	PBOZZ	5310-00-637-9541	96906	MS35338-46	WASHER, LOCK	8
11	PBOZZ	5305-00-725-2317	80204	B1821BH038C150N	SCREW, CAP, HEXAGON	8
12	XBOZZ	4730-00-840-5347	96906	MS27023-17	COUPLING HALF, QUICK	1
13	PCOZZ		97403	13228E1827-4	GASKET, COUPLING HALF	1
14	PCOZZ		81349	M25988/1-383	PACKING, PREFORMED	1
15	PCOZZ	5330-01-128-6071	80205	NAS1523-6R	PACKING WITH RETAIN	8
16	XBOZZ		66618	X-4763A	SUCTION STUB	1

END OF FIGURE

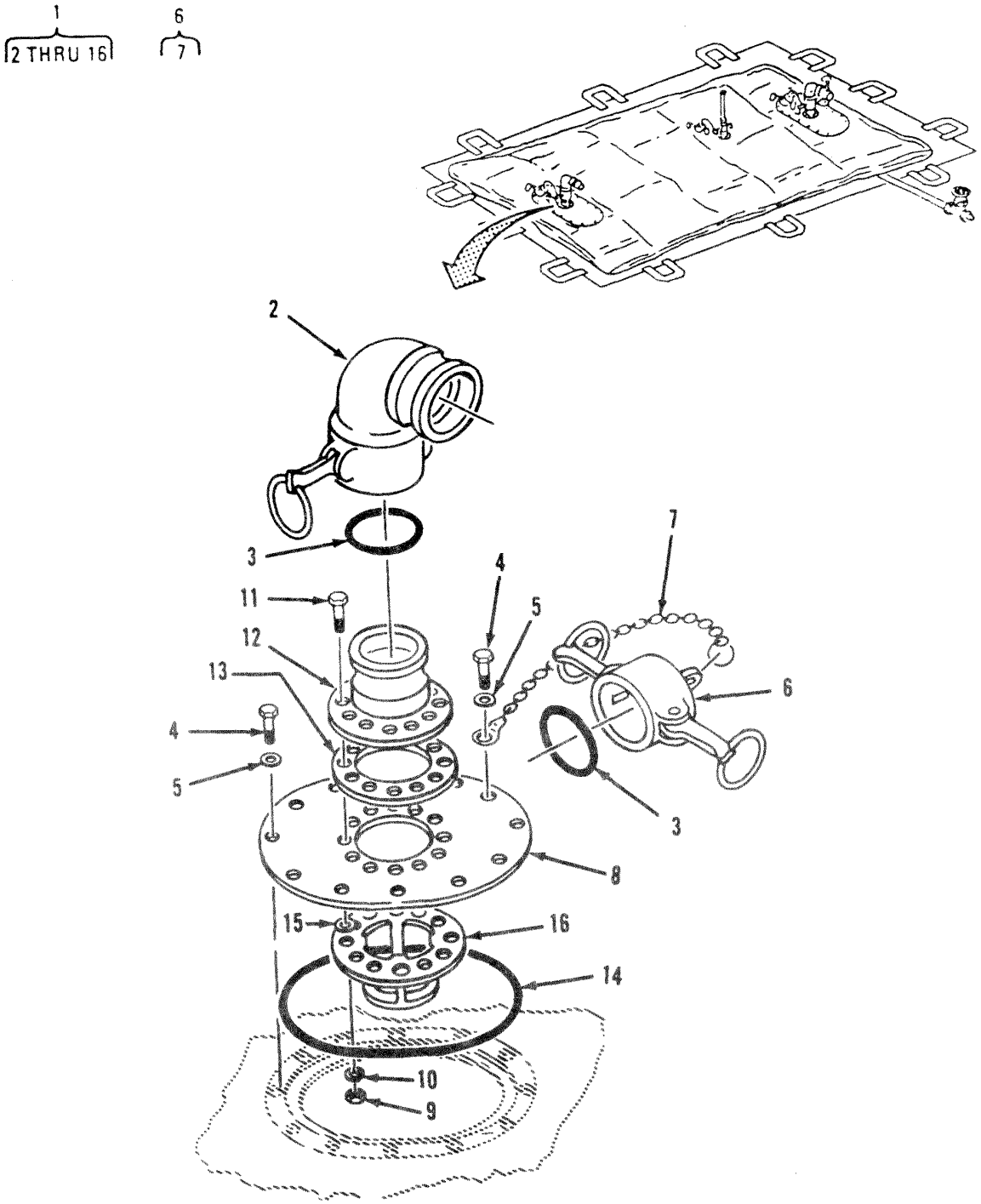


Figure 3. Tank Discharge Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 03 DISCHARGE ASSEMBLY	
					FIG. 3 TANK DISCHARGE ASSEMBLY	
1	XBOOO		66618	X-4759A	DISCHARGE ASSEMBLY …….	1
2	XBOZZ		81718	633-K-6	ELBOW, FEMALE TO MALE ……	1
3	PCOZZ		97403	13228E1768-10	GASKET, COUPLING HALF ……	2
4	PBOZZ	5305-00-225-3843	0AT62	35A2C5	SCREW, CAP, HEXAGON …….	20
5	PBOZZ	5310-00-809-4058	96906	MS27183-10	WASHER, FLAT ……..	20
6	PBOZZ	4730-00-064-4435	96906	MS27028-19	CAP, QUICK DISCONNECT ……. USED TO COVER ITEM 2 OR ITEM 12	1
7	PBOZZ	4010-00-360-0596	81718	H06683M	CHAIN ASSEMBLY, SING …….	1
8	XBOZZ		66618	X-4762A	PLATE-COMPRESSION ……...	1
9	PBOZZ	5310-00-056-3395	96906	MS35649-2382	NUT, PLAIN, HEXAGON ……...	12
10	PBOZZ	5310-00-637-9541	96906	MS35338-46	WASHER, LOCK ……	12
11	PBOZZ	5305-00-725-2317	80204	B1821BH038C150N	SCREW, CAP, HEXAGON …….	12
12	XBOZZ	4730-00-402-5955	96906	MS27023-19	COUPLING HALF, QUICK …….	1
13	PCOZZ		97403	13228E1827-5	GASKET, COUPLING HALF …….	1
14	PCOZZ		81439	M25988/1-383	PACKING, PREFORMED …….	1
15	PCOZZ	5330-01-128-6071	80205	NAS1523-6R	PACKING WITH RETAIN ……...	12
16	XBOZZ		66618	X-4764A	SUCTION STUB ……	1

END OF FIGURE

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON

TANK DRAIN FITTING ASSEMBLY

REPAIR PARTS LIST

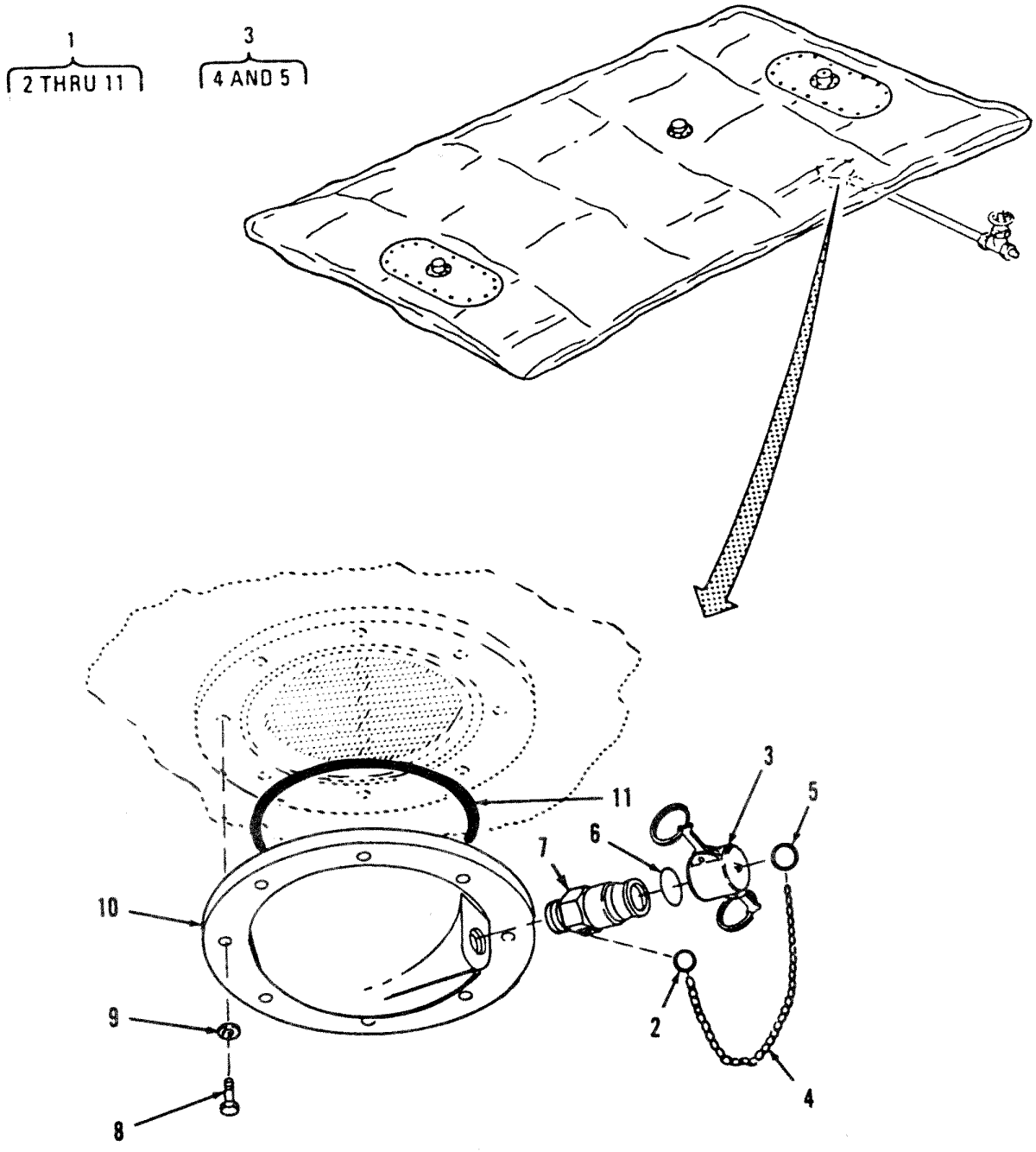


Figure 4. Tank Drain Fitting Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04 DRAIN FITTING ASSEMBLY	
					FIG. 4 TANK DRAIN FITTING ASSEMBLY	
1	XBOOO		66618	X-4768A	FITTING, DRAIN ASSEMBLY …..	2
2	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……	1
3	PBOOZ	4730-00-649-9100	96906	MS27028-11	CAP, QUICK DISCONNECT …….	1
4	PBOZZ	4010-00-360-0596	81718	H06683M	CHAIN ASSEMBLY, SING …….	1
5	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……	1
6	PCOZZ	5330-01-413-2126	97403	13228E1768-6	GASKET ……...	1
7	XBOZZ	4730-00-938-7997	96906	MS27022-11	COUPLING HALF, QUICK …….	1
8	PBOZZ	5305-00-225-3843	0AT62	35A2C5	SCREW, CAP, HEXAGON …….	8
9	PBOZZ	5310-00-809-4058	96906	MS27183-10	WASHER, FLAT ……	8
10	XBOZZ		66618	X-4769A	FITTING, DRAIN ……	1
11	PCOZZ	5331-01-281-3847	81349	M25988/1-250	PACKING, PREFORMED …….	1

END OF FIGURE

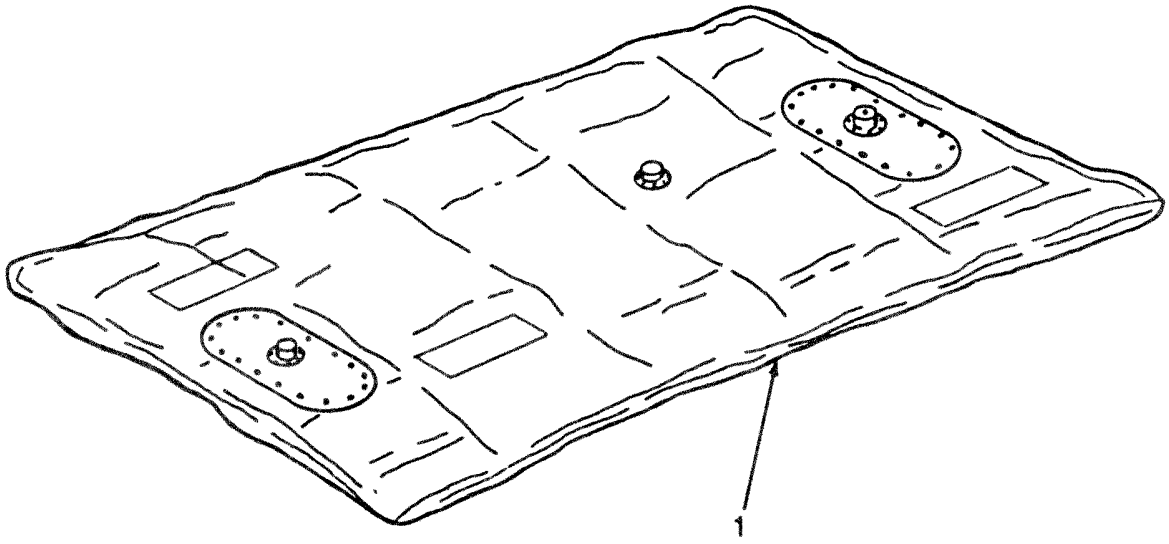


Figure 5. Tank, Fabric Collapsible

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 05 3K, 10K, AND 20K TANK	
					FIG. 5 TANK, FABRIC COLLAPSIBLE	
1	XAOZZ		66618	MM93164001	TANK, FABRIC, 3K ……. UOC: FHZ	1
1	XAOZZ		66618	MM93165001	TANK, FABRIC, 10K …….. UOC: FJA	1
1	XAOZZ		66618	MM93166001	TANK, FABRIC, 20K …….. UOC: FJB	1
					END OF FIGURE	

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON

BERM LINER ASSEMBLY

REPAIR PARTS LIST

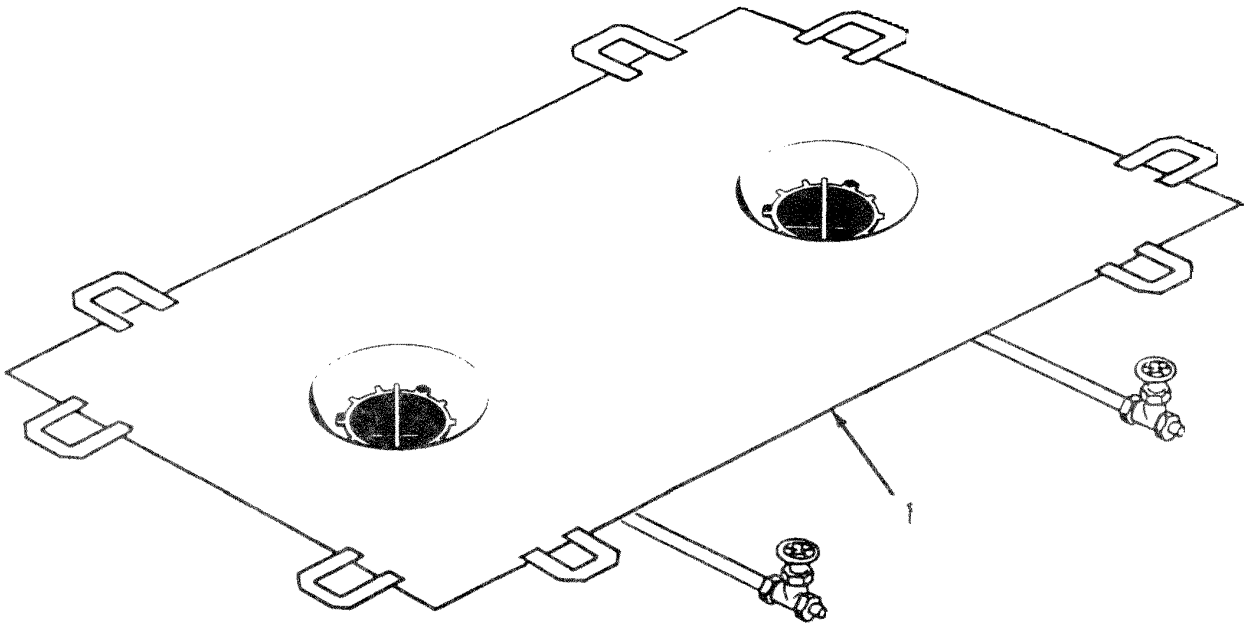


Figure 6. Berm Liner Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 06 BERM LINER ASSEMBLY	
					FIG. 6 BERM LINER ASSEMBLY	
1	XBOOO		66618	M53102-03	BERM LINER ASSEMBLY ..... UOC: FHZ	1
1	XBOOO		66618	M53102-10	BERM LINER ASSEMBLY ..... UOC: FJA	1
1	XBOOO		66618	M53102-20	BERM LINER ASSEMBLY ..... UOC: FJB	1
					END OF FIGURE	

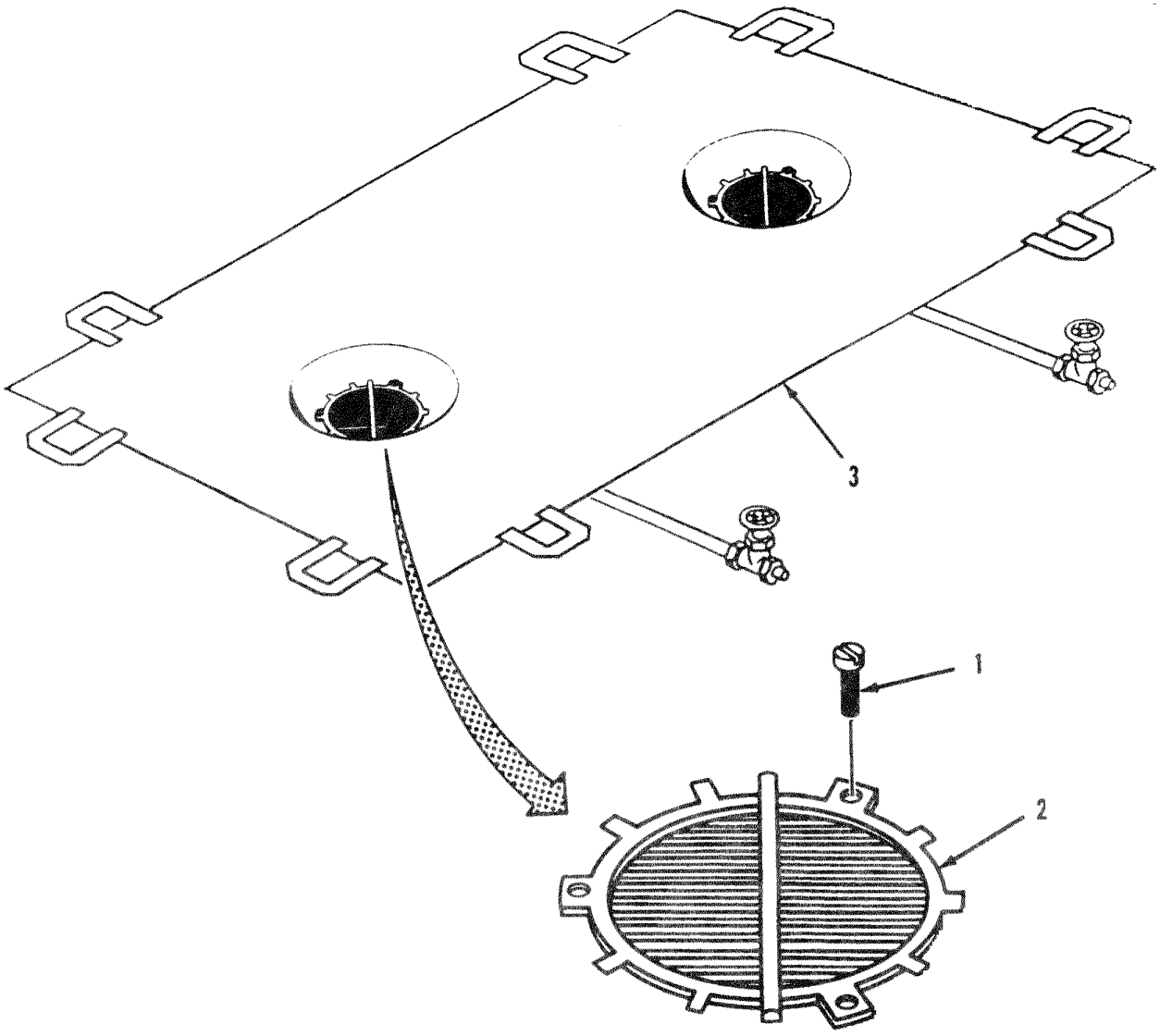


Figure 7. Berm Liner

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 06 BERM LINER ASSEMBLY	
					FIG. 7 BERM LINER	
1	XBOZZ		OA6K1	19318	SCREW, BRASS……	6
2	XBOZZ		OA6K1	192018	STRAINER……..	2
3	XAOZZ		66618	X-4772B-03	BERM LINER…….. UOC: FHZ	1
3	XAOZZ		66618	X-4772B-10	BERM LINER…….. UOC: FJA	1
3	XAOZZ		66618	X-4772B-20	BERM LINER…….. UOC: FJB	1
					END OF FIGURE	

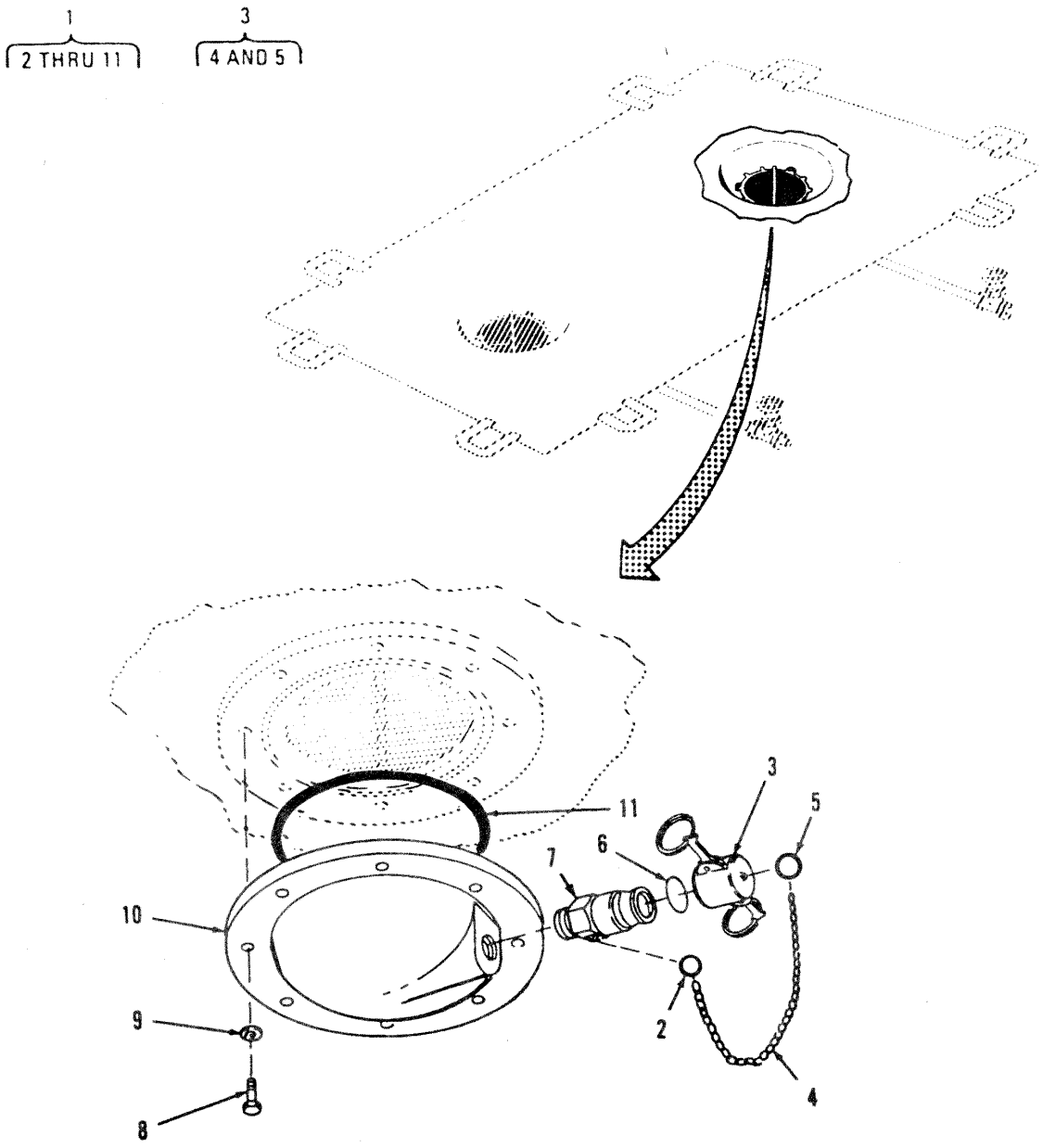


Figure 8. Berm Liner Drain Fitting Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 06 BERM LINER ASSEMBLY	
					FIG. 8 BERM LINER DRAIN FITTING ASSEMBLY	
1	XBOOO		66618	X-4768A	FITTING, DRAIN ASSEMBLY …..	2
2	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……	1
3	PBOOZ	4730-00-649-9100	96906	MS27028-11	CAP, QUICK DISCONNECT ……	1
4	PBOZZ	4010-00-360-0596	81718	H06683M	CHAIN ASSEMBLY, SING ……	1
5	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……	1
6	PCOZZ	5330-01-413-2126	97403	13228E1768-6	GASKET ……...	1
7	XBOZZ	4730-00-938-7997	96906	MS27022-11	COUPLING HALF, QUICK ……	1
8	PBOZZ	5305-00-225-3843	0AT62	35A2C5	SCREW, CAP, HEXAGON ……	8
9	PBOZZ	5310-00-809-4058	96906	MS27183-10	WASHER, FLAT ……..	8
10	XBOZZ		66618	X-4769A	FITTING, DRAIN ……	1
11	PCOZZ	5331-01-281-3847	81349	M25988/1-250	PACKING, PREFORMED ……	1
					END OF FIGURE	

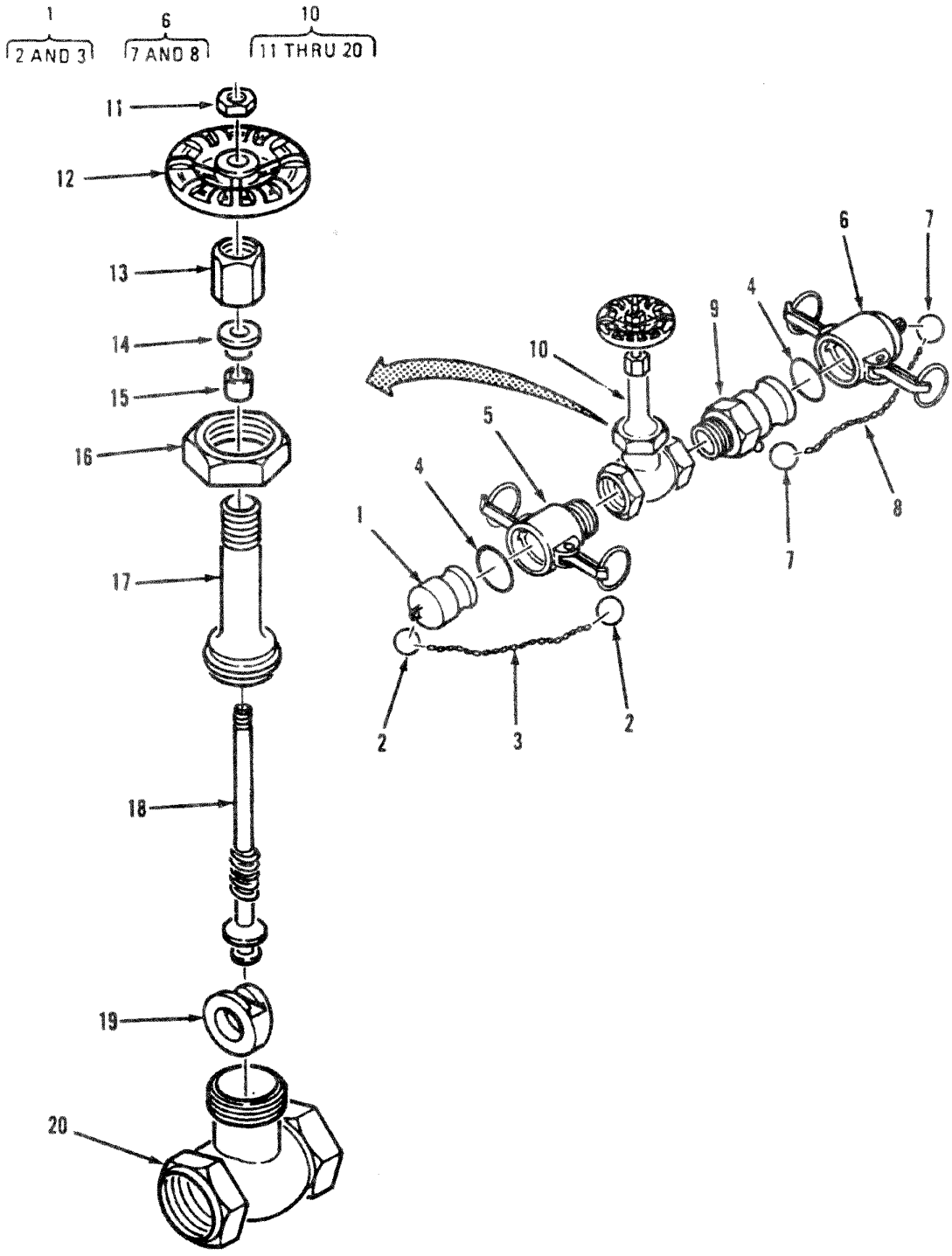


Figure 9. Berm Liner 2-Inch Gate Valve Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 06 BERM LINER ASSEMBLY	
					FIG. 9 BERM LINER 2 INCH GATE VALVE ASSEMBLY	
1	PBOOZ	4730-00-915-5127	96906	MS27029-11	PLUG, QUICK DISCONNECT ...	1
2	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY	2
3	MOOZZ		19099	RR-C-271-3	CHAIN MAKE FROM ..... P/N RR-C-271, TYPE II, CLASS 3 (81343) CUT TO LENGTH	1
4	PCOZZ	5330-01-413-2126	97403	13228E1768-6	GASKET	2
5	XBOZZ	4730-00-088-9285	96906	MS27026-11	COUPLING HALF, QUICK	1
6	PBOOZ	4730-00-649-9100	96906	MS27028-11	CAP, QUICK DISCONNECT	1
7	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY	2
8	MOOZZ		19099	RR-C-271-8	CHAIN MAKE FROM ..... P/N RR-C-271, TYPE II CLASS 3 (81343), CUT TO LENGTH	1
9	XBOZZ	4730-00-938-7997	96906	MS27022-11	COUPLING HALF, QUICK	1
10	XBOOO		82666	B-122-2	VALVE, GATE	2
11	PBOZZ		82666	B-122-2-6	NUT, HANDWHEEL	1
12	PBOZZ		82666	B-122-2-5	HANDWHEEL	1
13	XBOZZ		82666	B-122-2-10	PACKING, NUT	1
14	PBOZZ		82666	B-122-2-9	PACKING, GLAND	1
15	PBOZZ		82666	B-122-2-8	PACKING	1
16	XBOZZ		82666	B-122-2-3	RING, BONNET	1
17	XAOZZ		82666	B-122-2-2	BONNET	1
18	XAOZZ		82666	B-122-2-11	STEM	1
19	XAOZZ		82666	B-122-2-4	DISC	1
20	XAOZZ		82666	B-122-2-1	BODY	1
					END OF FIGURE	

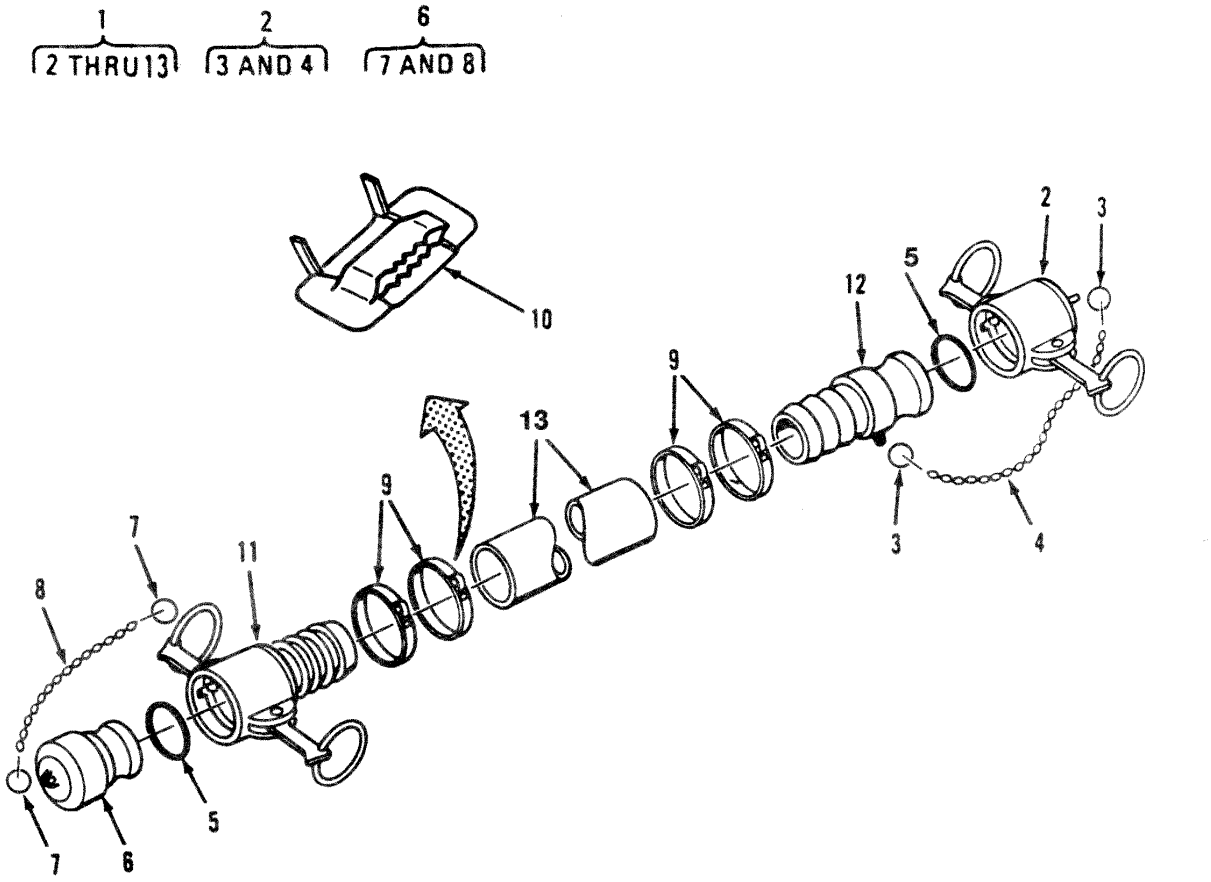


Figure 10. Berm Liner Hose Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 06 BERM LINER ASSEMBLY	
					FIG. 10 BERM LINER HOSE ASSEMBLY	
1	XBOOO		81349	M53096-06B2A200	HOSE ASSEMBLY ……..	4
2	PBOOZ	4730-00-649-9100	96906	MS27028-11	CAP, QUICK DISCONNECT …….	1
3	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……..	2
4	MOOZZ		19099	RR-C-271-4	CHAIN, MAKE FROM …….. P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
5	PCOZZ	5330-01-413-2126	97403	13228E1768-6	GASKET ……..	2
6	PBOOZ	4730-00-915-5127	96906	MS27029-11	PLUG, QUICK DISCONNECT …..	1
7	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……..	2
8	MOOZZ		19099	RR-C-271-8	CHAIN, MAKE FROM …….. P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
9	MOOZZ		19099	C204-1	STRAPPING, MAKE FROM ……. P/N MCD4122ITEM6 (76427), CUT TO LENGTH	4
10	PBOZZ	5340-00-244-7325	70847	C254	SEAL, STRAPPING ……..	4
11	XBOZZ	4730-00-360-0943	96906	MS27025-11	COUPLING HALF, QUICK ……..	1
12	XBOZZ	4730-00-938-7996	96906	MS27021-11	COUPLING HALF, QUICK ……..	1
13	PCOZZ		81349	M53096-06A1D200	HOSE, RUBBER LIQUID ……..	1
					END OF FIGURE	

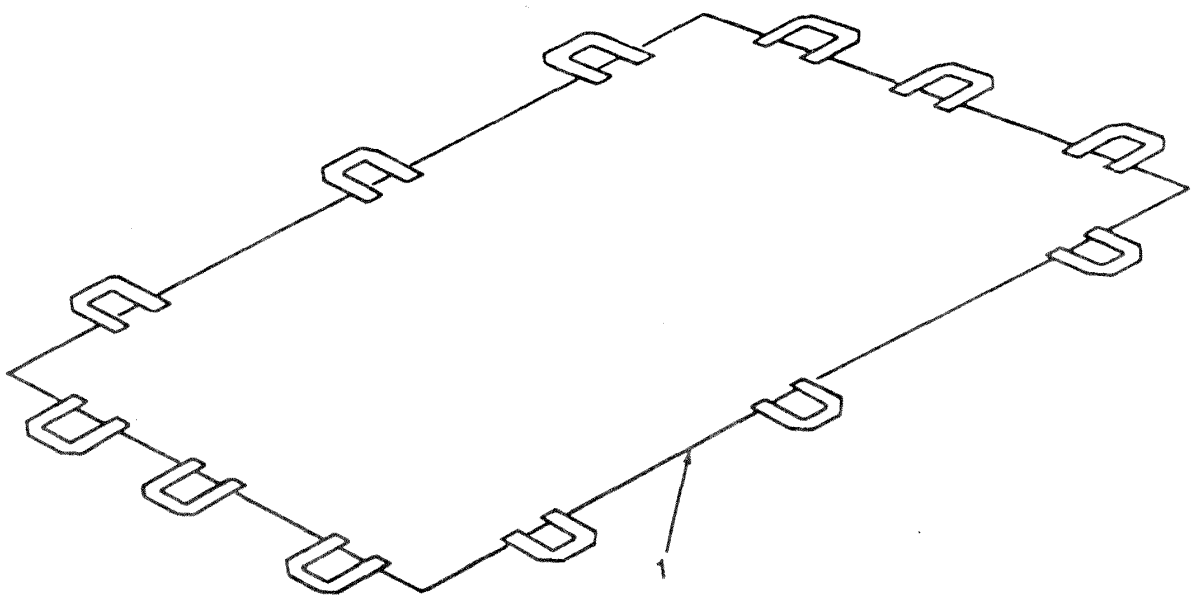


Figure 11. Ground Cloth

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 07 GROUND CLOTH	
					FIG. 11 GROUND CLOTH	
1	XBOZZ		66618	X-4848-3	CLOTH, GROUND ..... UOC: FHZ	1
1	XBOZZ		66618	X-4848-10	CLOTH, GROUND ..... UOC: FJA	1
1	XBOZZ		66618	X-4771A	CLOTH, GROUND ..... UOC: FJB	1

END OF FIGURE

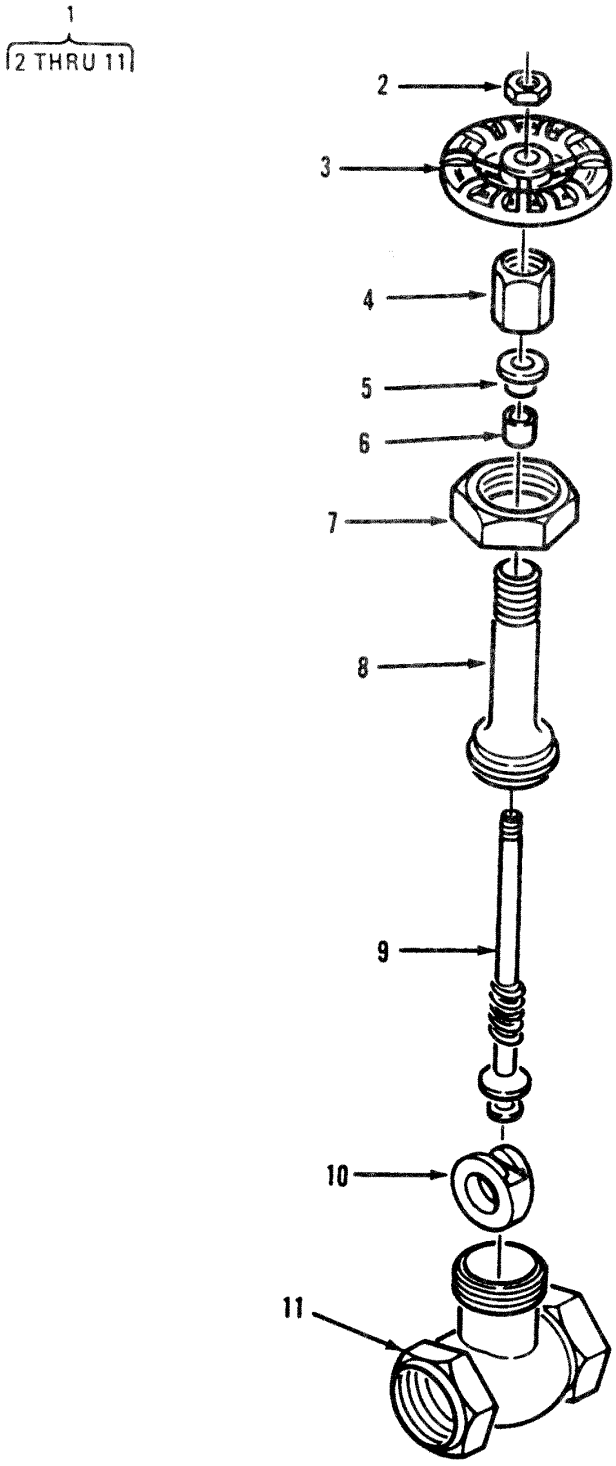


Figure 12. Tank, 2-Inch Gate Valve Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 08 VALVE, GATE, TANK, 2-INCH ASSEMBLY	
					FIG. 12 TANK, 2-INCH GATE VALVE ASSEMBLY	
1	XBOOO		82666	B-122-2	VALVE, GATE	2
2	PBOZZ		82666	B-122-2-6	NUT, HANDWHEEL	1
3	PBOZZ		82666	B-122-2-5	HANDWHEEL	1
4	XBOZZ		82666	B-122-2-10	PACKING, NUT	1
5	PBOZZ		82666	B-122-2-9	PACKING, GLAND	1
6	PBOZZ		82666	B-122-2-8	PACKING	1
7	XAOZZ		82666	B-122-2-3	RING, BONNET	1
8	XAOZZ		82666	B-122-2-2	BONNET	1
9	XAOZZ		82666	B-122-2-11	STEM	1
10	XAOZZ		82666	B-122-2-4	DISC	1
11	XAOZZ		82666	B-122-2-1	BODY	1
					END OF FIGURE	

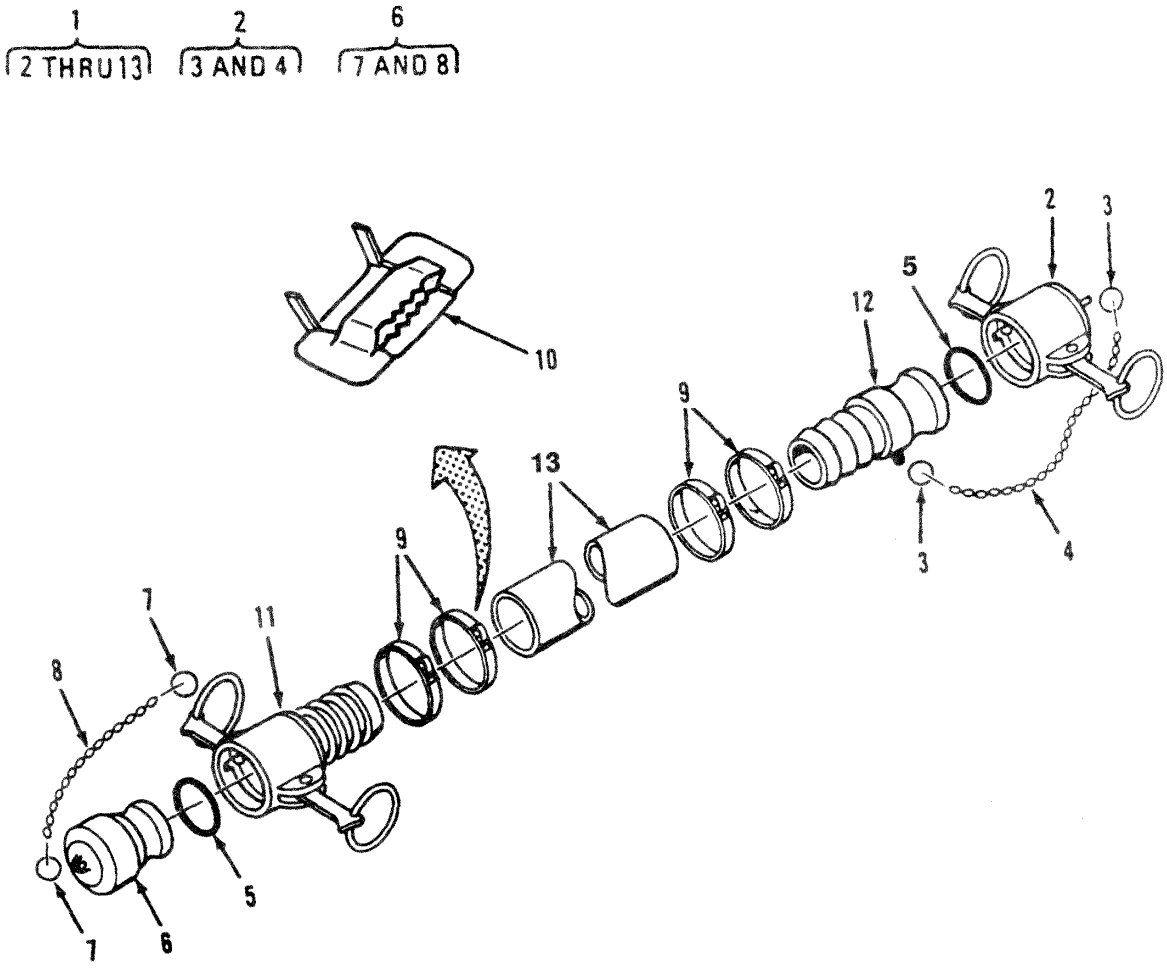


Figure 13. Tank, 2-Inch Hose Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 09 HOSE ASSEMBLIES	
					FIG. 13 TANK, 2-INCH HOSE ASSEMBLY	
1	XBOOO		81349	M53096-06B2A100	HOSE ASSEMBLY	2
2	PBOOZ	4730-00-649-9100	96906	MS27028-11	CAP, QUICK DISCONNECT	1
3	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY	2
4	MOOZZ		19099	RR-C-271-4A	CHAIN, MAKE FROM ..... P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
5	PCOZZ	5330-01-413-2126	97403	13228E1768-6	GASKET	2
6	PBOOZ	4730-00-915-5127	96906	MS27029-11	PLUG, QUICK DISCONNECT	1
7	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY	2
8	MOOZZ		19099	RR-C-271-8A	CHAIN, MAKE FROM ..... P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
9	MOOZZ		19099	C204-1	STRAPPING, MAKE FROM ..... P/N MCD4122ITEM6 (76427), CUT TO LENGTH	4
10	PBOZZ	5340-00-244-7325	70847	C254	SEAL, STRAPPING	4
11	XBOZZ	4730-00-360-0943	96906	MS27025-11	COUPLING HALF, QUICK	1
12	XBOZZ	4730-00-938-7996	96906	MS27021-11	COUPLING HALF, QUICK	1
13	PCOZZ		81349	M53096-06A1D100	HOSE, RUBBER LIQUID	1

END OF FIGURE

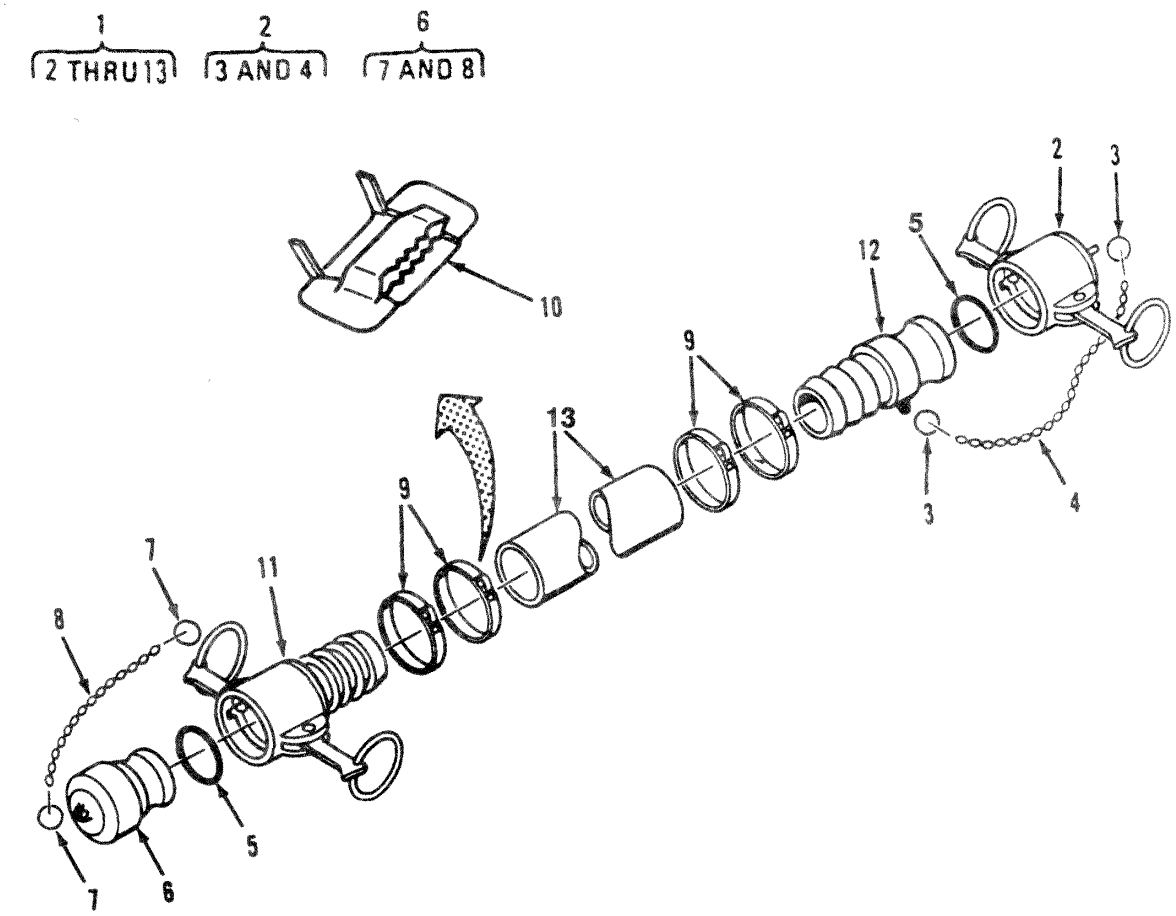


Figure 14. Tank, 4-Inch Hose Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 09 HOSE ASSEMBLIES	
					FIG. 14 TANK, 4-INCH HOSE ASSEMBLY	
1	XBOOO		81349	M53095-03G200	HOSE ASSEMBLY ……..	1
2	PBOOZ	4730-00-640-6156	96906	MS27028-17	CAP, QUICK DISCONNECT …….	1
3	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……..	2
4	MOOZZ		19099	RR-C-271-4B	CHAIN, MAKE FROM …….. P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
5	PCOZZ		97403	13228E1768-9	GASKET, COUPLING HALF …….	2
6	PBOOZ	4730-00-640-6188	96906	MS27029-17	PLUG, QUICK DISCONNECT …..	1
7	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……..	2
8	MOOZZ		19099	RR-C-271-8B	CHAIN, MAKE FROM …….. P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
9	MOOZZ		19099	J213	STRAPPING, MAKE FROM …….. P/N C206 (70847), CUT TO LENGTH	4
10	PBOZZ	5340-00-244-7327	70847	C256	SEAL, STRAPPING ……..	4
11	XBOZZ	4730-01-235-9769	96906	MS27025-17	COUPLING HALF, QUICK ……..	1
12	XBOZZ	4730-00-649-7388	96906	MS27021-17	COUPLING HALF, QUICK ……..	1
13	PCOZZ		90598	M53095-03G200-Y	HOSE, RUBBER LIQUID ……..	1

END OF FIGURE

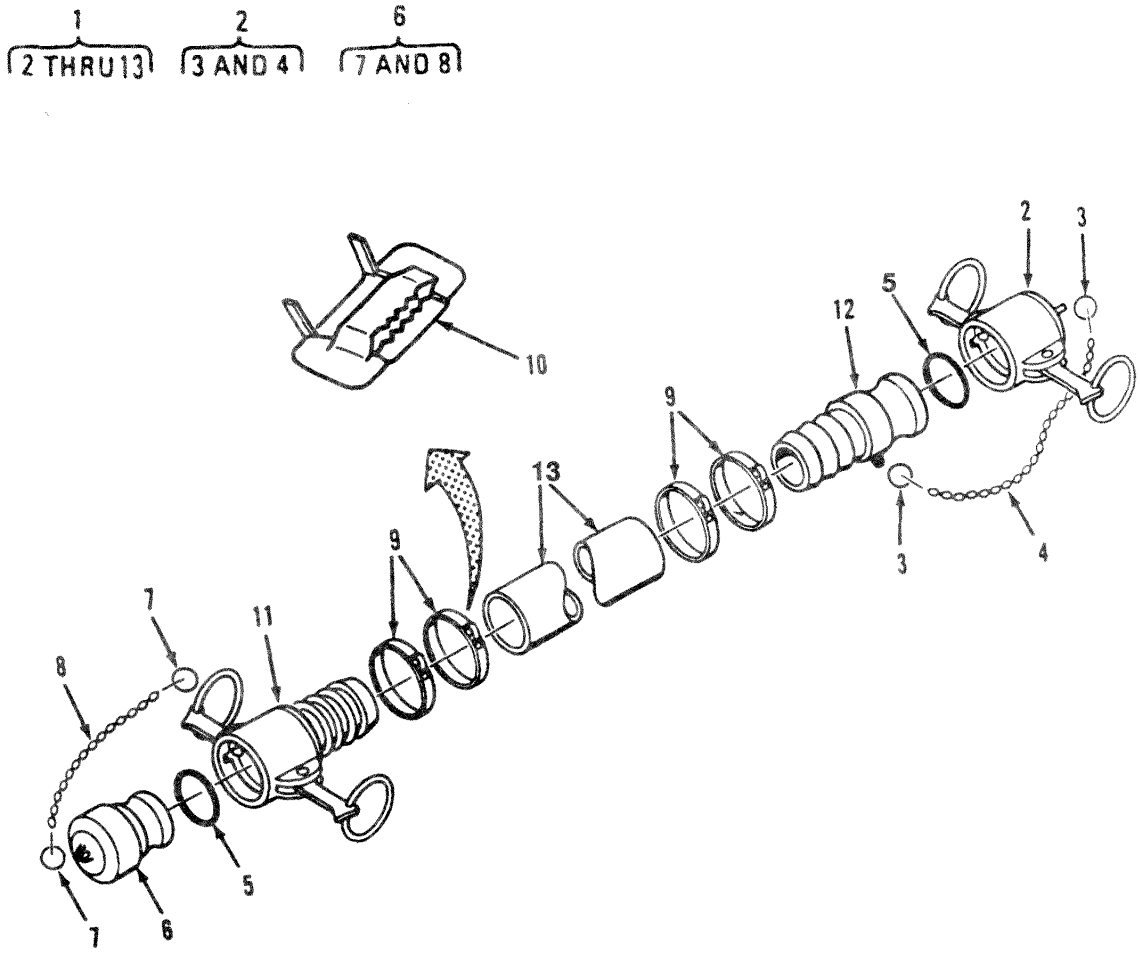


Figure 15. Tank, 6-inch Hose Assembly

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 09 HOSE ASSEMBLIES	
					FIG. 15 TANK, 6-INCH HOSE ASSEMBLY	
1	XBOOO		81349	M53096-10B2A100	HOSE ASSEMBLY	1
2	PBOOZ	4730-00-064-4435	96906	MS27028-19	CAP, QUICK DISCONNECT	1
3	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY	2
4	MOOZZ		19099	RR-C-271-4C	CHAIN, MAKE FROM ..... P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
5	PCOZZ		97403	13228E1768-10	GASKET, COUPLING HALF	2
6	PBOOZ	4730-00-064-4434	96906	MS27029-19	PLUG, QUICK DISCONNECT ...	1
7	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY	2
8	MOOZZ		19099	RR-C-271-8C	CHAIN, MAKE FROM ..... P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
9	MOOZZ		19099	J213	STRAPPING, MAKE FROM ..... P/N C206 (70847), CUT TO LENGTH	4
10	PBOZZ	5340-00-244-7327	70847	C256	SEAL, STRAPPING	4
11	XBOZZ	4730-00-950-9638	96906	MS27025-19	COUPLING HALF, QUICK	1
12	XBOZZ		96906	MS27021-19	COUPLING HALF, QUICK	1
13	PCOZZ		81349	M53096-10A1D100	HOSE, RUBBER LIQUID	1
					END OF FIGURE	

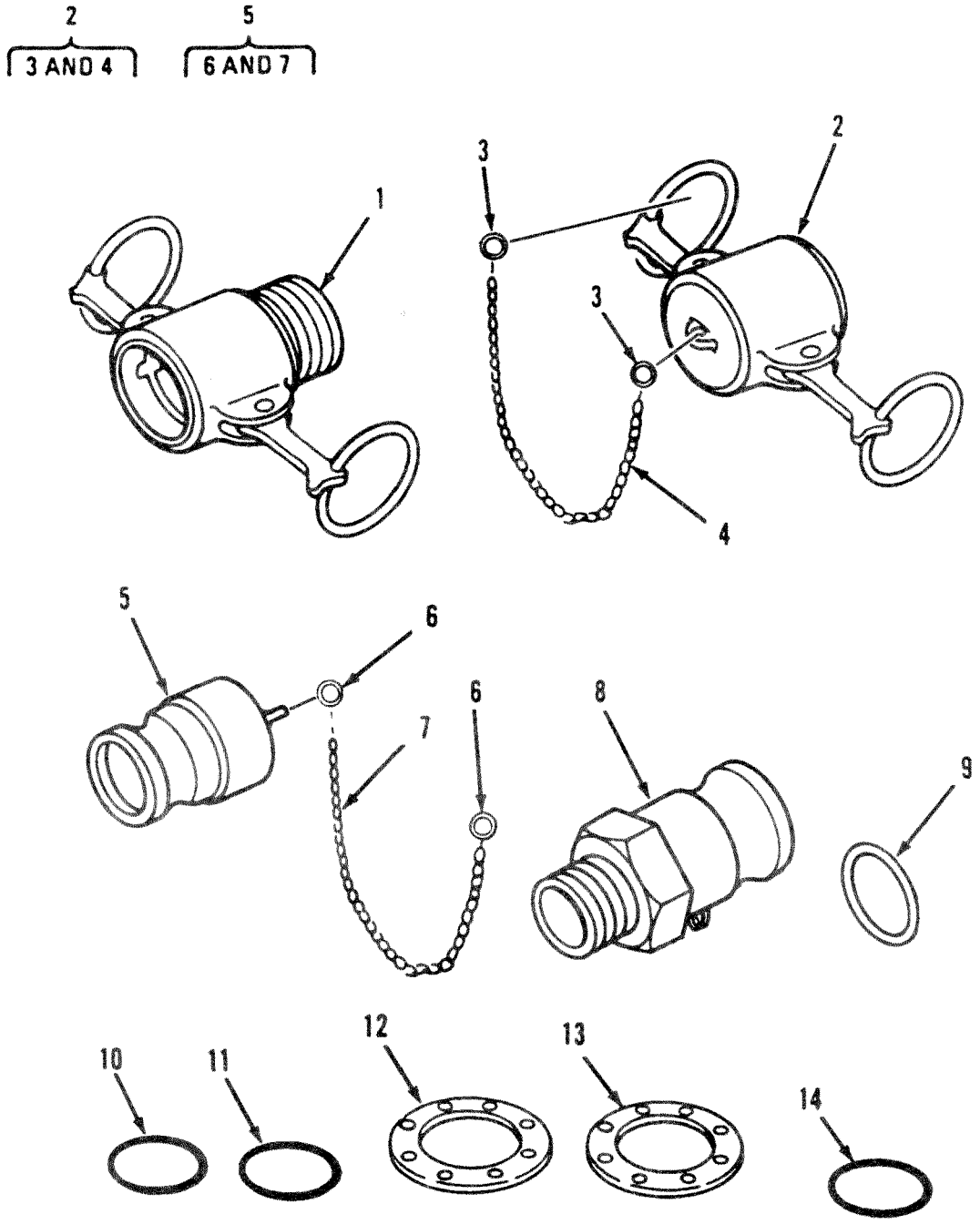


Figure 16. Cam-Locking Couplings and Gaskets

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 10 DUST CAP AND PLUG ASSEMBLIES	
					FIG. 16 CAM-LOCKING COUPLINGS AND GASKETS	
1	XBOZZ	4730-00-088-9285	96906	MS27026-11	COUPLING HALF, QUICK ……..	2
2	PBOOZ	4730-00-649-9100	96906	MS27028-11	CAP, QUICK DISCONNECT …..	2
3	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……..	2
4	MOOZZ		19099	RR-C-271-4D	CHAIN, MAKE FROM …….. P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
5	PBOOZ	4730-00-915-5127	96906	MS27029-11	PLUG, QUICK DISCONNECT …	2
6	PBOZZ	5340-01-177-8975	39428	90177A218	HOLDER, KEY ……..	2
7	MOOZZ		19099	RR-C-271-4E	CHAIN, MAKE FROM …….. P/N RR-C-271, TYPE II, CLASS 3 (81343), CUT TO LENGTH	1
8	XDOZZ	4730-00-938-7997	96906	MS27022-11	COUPLING HALF, QUICK ……..	2
9	PCOZZ	5330-01-413-2126	97403	13228E1768-6	GASKET ……..	4
10	PCOZZ	5331-01-281-3847	81349	M25988/1-250	PACKING, PREFORMED ……..	2
11	PCOZZ		81349	M25988/1-383	PACKING, PREFORMED ……..	2
12	PCOZZ		97403	13228E1827-4	GASKET, COUPLING HALF …..	2
13	PCOZZ		97403	13228E1827-5	GASKET, COUPLING HALF …..	2
14	PCOZZ	5330-01-413-2126	97403	13228E1768-6	GASKET …….. UOC: FHZ	2

END OF FIGURE

1
2 THRU 19

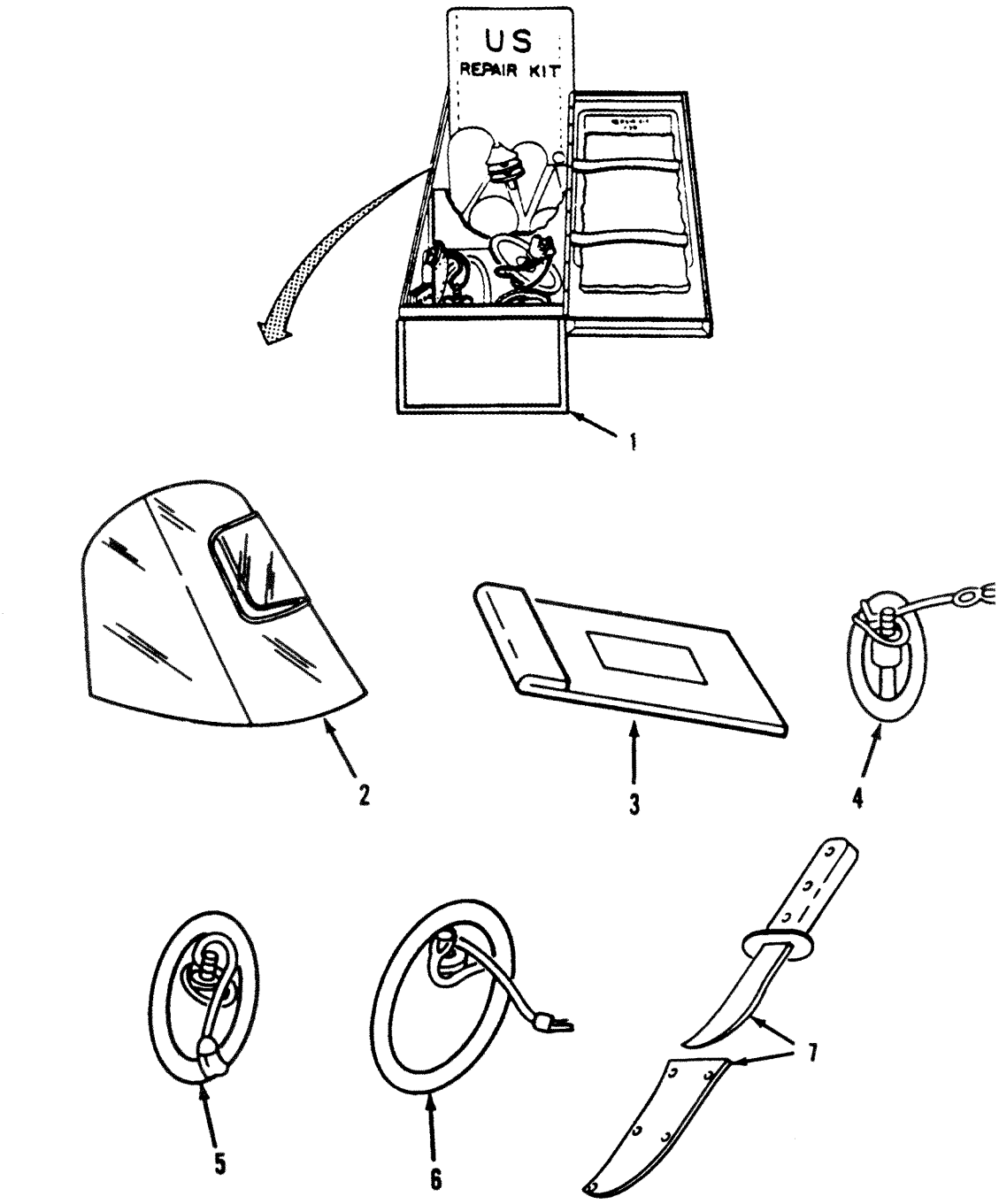


Figure 17. Emergency Repair Kits, Type I and Type II (Sheet 1 of 2)

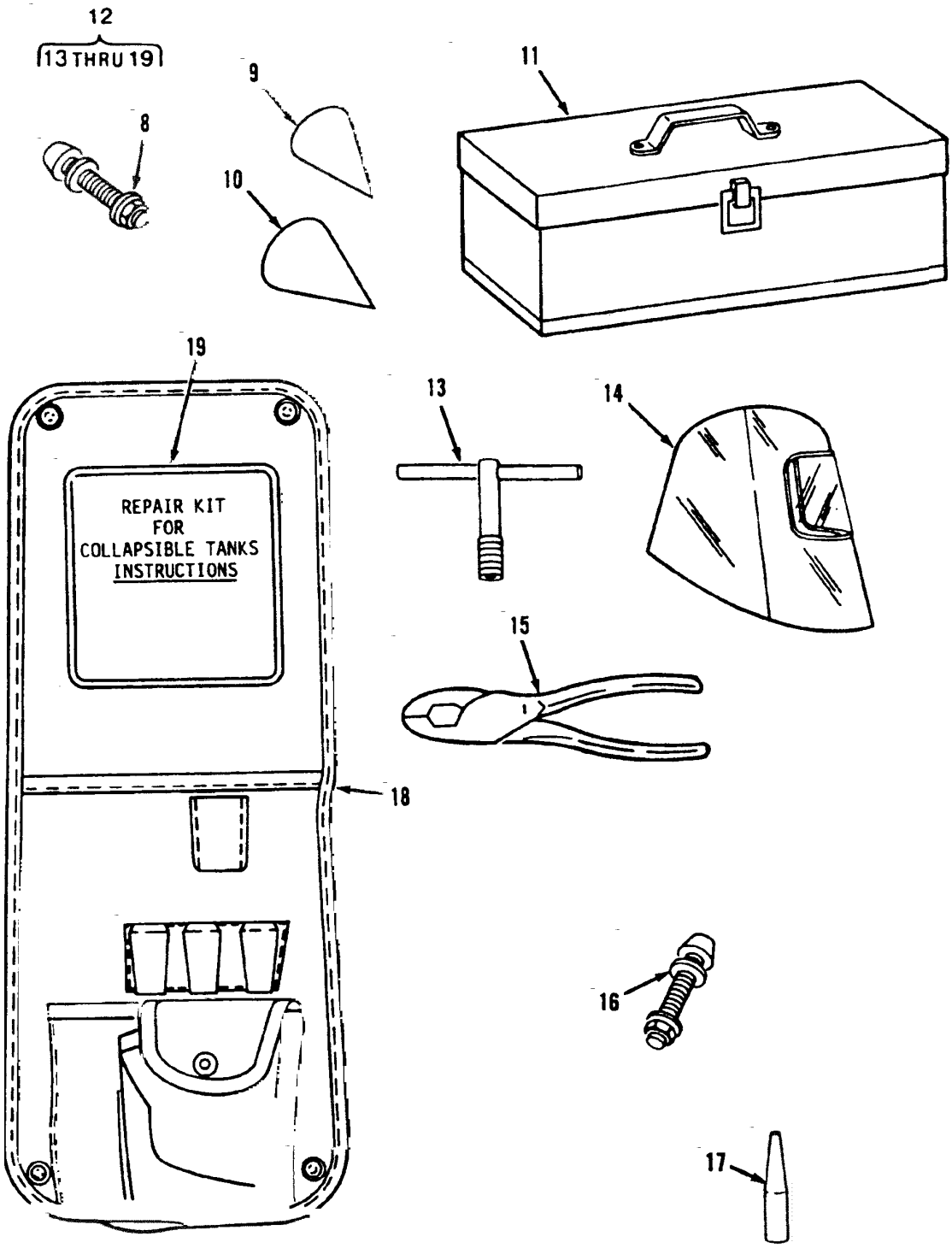


Figure 17. Emergency Repair Kits, Type I and II (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 12 REPAIR KIT, TYPE II	
					FIG. 17 EMERGENCY REPAIR KITS, TYPE I AND II	
1	PBOOO	8110-00-856-6246	81349	MIL-R-52255	REPAIR KIT, COLLAPSI ..... TYPE II	1
2	PBOZZ	8110-01-120-7824	81349	M52255 FIG11ITEM11	HOOD, FLEXIBLE	1
3	XBOZZ	7610-01-128-1852	81349	M52255FIG9	SHEET, TECHNICAL	1
4	PBOZZ	5342-00-720-8864	81349	13202E2870-1	PATCH, MECHANICAL, ... FL 3 IN	2
5	PBOZZ	5342-00-720-8863	81349	13202E2870-2	PATCH, MECHANICAL, ... FL 5 IN	2
6	PBOZZ	5342-00-720-8858	81349	13202E2870-3	PATCH, MECHANICAL, ... FL 7.50 IN	2
7	PBOZZ	5430-01-123-3082	81349	M52255FIG8	KNIFE AND SHEATH ASSY	1
8	PBOZZ	5430-01-245-5983	81349	M52255FIG5-TYPEII	PATCH ASSEMBLY, ... MECH 2 IN	2
9	PBOZZ	5510-01-412-0264	81349	M52255FIG3-1/2	PLUG, WOOD 1.50 IN	1
10	PBOZZ	5510-01-119-5995	81349	M52255FIG3-2	PLUG, WOOD 2 IN	1
11	XBOZZ	5430-01-248-1662	81349	M52255FIG10	CONTAINER, REPAIR KIT	1
12	PBOOO	8110-00-856-6244	81349	MIL-R-52255	REPAIR KIT, COLLAPSI, TYPE I ...	1
13	PBOZZ	5430-01-114-4597	81349	M52255 FIG. 2	ROTARY CUTTER, WRENC	1
14	PBOZZ	8110-01-120-7824	81349	M52255 FIG11ITEM11	HOOD, FLEXIBLE	1
15	XDOZZ	5120-01-119-4173	19207	11655790	PLIERS, SLIP JOINT	1
16	PBOZZ	5430-01-114-4598	81349	M52255 FIG 4	PATCH ASSEMBLY, ... MECH 0.75 IN	6
17	PBOZZ	5510-01-115-0893	81349	M52255 FIG3-5/8	PLUG, WOOD 0.625 IN	3
18	XBOZZ	5430-01-114-5392	81349	M52255 FIG. 1	POUCH, REPAIR KIT	1
19	XBOZZ	7610-01-122-3771	81349	M52255FIG6	SHEET, TECHNICAL	1

END OF FIGURE

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 13 BULK MATERIALS	
					FIG. BULK	
1	PAOZZ	4010-00-171-4512	81348	RR-C-271	CHAIN, WELDLESS	V
2	PAOZZ	5340-00-245-9438	76427	MCD4122ITEM6	STRAPPING	V
3	PAOZZ	5340-00-245-9440	70847	C206	STRAPPING	V

END OF FIGURE

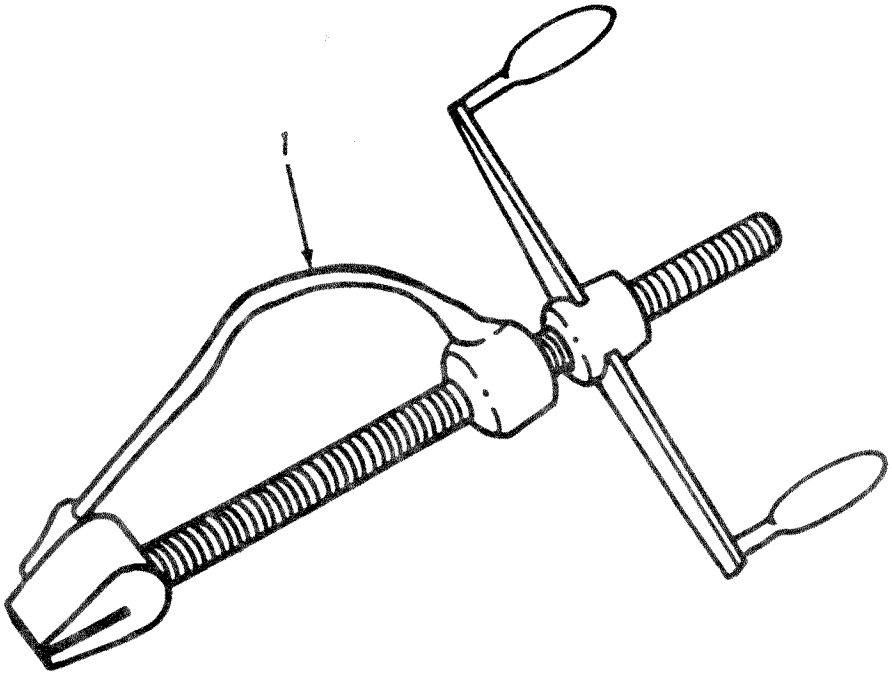


Figure 18. Special Tools

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 14 SPECIAL TOOLS	
					FIG. 18 SPECIAL TOOLS	
1	PBOZZ	5120-00-278-9925	70847	C001	CLAMPING TOOL, STRAP …….	1
					END OF FIGURE	

UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM 3,000, 10,000, AND 20,000 GALLON
NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5310-00-056-3395	2	9
	3	9
4730-00-064-4434	15	6
4730-00-064-4435	3	6
	15	2
4730-00-088-9285	9	5
	16	1
4010-00-171-4512	BULK	1
5305-00-225-3842	1	8
5305-00-225-3843	2	4
	3	4
	4	8
	8	8
5340-00-244-7325	10	10
	13	10
5340-00-244-7327	14	10
	15	10
5340-00-245-9438	BULK	2
5340-00-245-9440	BULK	3
5120-00-278-9925	18	1
4010-00-360-0596	1	11
	2	7
	3	7
	4	4
	8	4
4730-00-360-0943	10	11
	13	11
4730-00-402-5955	3	12
5310-00-637-9541	2	10
	3	10
4730-00-640-6156	2	6
	14	2
4730-00-640-6188	14	6
4730-00-649-7388	14	12
4730-00-649-9100	1	10
	4	3
	8	3
	9	6
	10	2
	13	2
	16	2
4730-00-649-9103	1	6
5342-00-720-8858	17	6
5342-00-720-8863	17	5
5342-00-720-8864	17	4
5305-00-725-2317	2	11
	3	11
4930-00-734-0180	1	2
5310-00-809-4058	1	9
	2	5
	3	5
	4	9
8110-00-856-6246	17	1
4730-00-915-5127	9	1
	10	6
	13	6
	16	5
4730-00-938-7996	10	12
	13	12
4730-00-938-7997	4	7
	8	7
	9	9
	16	8
4730-00-950-9638	15	11
5430-01-114-4597	17	13
5430-01-114-4598	17	16
5430-01-114-5392	17	18
5510-01-115-0893	17	17
5120-01-119-4173	17	15
5510-01-119-5995	17	10
8110-01-120-7824	17	2
	17	14
7610-01-122-3771	17	19
5430-01-123-3082	17	7
7610-01-128-1852	17	3
5330-01-128-6071	2	15
	3	15
5340-01-177-8975	4	2
	4	5
	8	2
	8	5
	9	2
	9	7
	10	3
	10	7
	13	3
	13	7
	14	3
	14	7
	15	3
	15	7
	16	3
	16	6
4730-01-235-9769	14	11
5430-01-245-5983	17	8
5430-01-248-1662	17	11
5331-01-281-3847	1	13
	4	11
	8	11
	16	10
5510-01-412-0264	17	9

STOCK NUMBER	FIG.	ITEM
5330-01-413-2126	1	7
	4	6
	8	6
	9	4
	10	5
	13	5
	16	9
	16	14
4730-01-416-1533	1	12

UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,00 GALLON
PART NUMBER INDEX

PART NUMBER	FIG.	ITEM
B-122-2	9	10
	12	1
B-122-2-1	9	20
	12	11
B-122-2-2	9	17
	12	8
B-122-2-3	9	16
	12	7
B-122-2-4	9	19
	12	10
B-122-2-5	9	12
	12	3
B-122-2-6	9	11
	12	2
B-122-2-8	9	15
	12	6
B-122-2-9	9	14
	12	5
B-122-2-10	9	13
	12	4
B-122-2-11	9	18
	12	9
B1821BH025C113N	1	8
B1821BH038C150N	2	11
	3	11
C001	18	1
C204-1	10	9
	13	9
C206	BULK	3
C254	10	10
	13	10
C256	14	10
	15	10
EX1333B	1	2
EX13338-10	1	3
HO6683M	1	11
	2	7
	3	7
	4	4
	8	4
J213	14	9
	15	9
MCD4122ITEM6	BULK	2
MIL-R-52255	17	1
	17	12
MM93164001	5	1
MM93165001	5	1
MM93166001	5	1
MS27019-19	15	6
MS27021-11	10	12
	13	12
MS27021-17	14	12
MS27021-19	15	12
MS27022-11	4	7
	8	7
	9	9
	16	8
MS27023-17	2	12
MS27023-19	3	12
MS27023-21	1	12
MS27024-11	1	6
MS27025-11	10	11
	13	11
MS27025-17	14	11
MS27025-19	15	11
MS27026-11	9	5
	16	1
MS27028-11	1	10
	4	3
	8	3
	9	6
	10	2
	13	2
	16	2
MS27028-17	2	6
	14	2
MS27028-19	3	6
	15	2
MS27029-11	9	1
	10	6
	13	6
	16	5
MS27029-17	14	6
MS27029-19	15	6
MS27183-10	1	9
	2	5
	3	5
	4	9
	8	9
MS35338-46	2	10
	3	10
MS35649-2382	2	9
	3	9
M25988/1-250	1	13
	4	11
	8	11
	16	10
M25988/1-383	2	14
	3	14
	16	11
M52255 FIG 1	17	18
M52255 FIG. 2	17	13
M52255 FIG. 4	17	16

PART NUMBER	FIG.	ITEM
M52255 FIG3-5/8	17	17
MS52255FIG3-1/2	17	9
M52255FIG3-2	17	10
M52255FIG5-TYPE II	17	8
M52255FIG6	17	19
M52255FIG8	17	7
M52255FIG9	17	3
M52255FIG10	17	11
M52255FIG11ITEM11	17	2
	17	14
M53095-03G200-Y	14	13
M53096-06A1D100	13	13
M53096-06A1D200	10	13
M53096-06B2A100	13	1
M53096-06B2A200	10	1
M53096-10A1D100	15	13
M53096-10B2A100	15	1
M53102-03	6	1
M53102-10	6	1
M53102-20	6	1
NAS1523-6R	2	15
	3	15
RR-C-271 TYPEII CLASS3	BULK	1
RR-C-271-3	9	3
RR-C-271-4	10	4
RR-C-271-4A	13	4
RR-C-271-4B	14	4
RR-C-271-4C	15	4
RR-C-271-4D	16	4
RR-C-271-4E	16	7
RR-C-271-8	9	8
	10	8
RR-C-271-8A	13	8
RR-C-271-8B	14	8
RR-C-271-8C	15	8
X-4758A	2	1
X-4759A	3	1
X-4761A	2	8
X-4762A	3	8
X-4763A	2	16
X-4764A	3	16
X-4765A	1	1
X-4765A-8	1	5
X-4765A-9	1	4
X-4768A	4	1
	8	1
X-4769A	4	10
	8	10
X-4771A	11	1
X-4772B-03	7	3
X-4772B-10	7	3
X-4772B-20	7	3
X-4848-3	11	1
X-4848-10	11	1

PART NUMBER	FIG.	ITEM
11655790	17	15
13202E2870-1	17	4
13202E2870-2	17	5
13202E2870-3	17	6
13228E1768-6	1	7
	4	6
	8	6
	9	4
	10	5
	13	5
	16	9
	16	14
13228E1768-9	2	3
	14	5
13228E1768-10	3	3
	15	5
13228E1827-4	2	3
	16	12
13228E1827-5	3	13
	16	13
192018	7	2
19318	7	1
35A2C5	2	4
	3	4
	4	8
	8	8
633-K-6	3	2
633-4	2	2
90177A218	4	2
	4	5
	8	2
	8	5
	9	2
	9	7
	10	3
	10	7
	13	3
	13	7
	14	3
	14	7
	15	3
	15	7
	16	3
	16	6

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

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

This work package lists COEI and BII for the collapsible petroleum tanks to help you inventory items for safe and efficient operation of the equipment.

General

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

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

Basic Issue Items (BII). These essential items are required to place the collapsible fabric petroleum tanks in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the collapsible fabric petroleum tanks 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 the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

Column (1) – Illus Number. Gives you the number of the item illustrated.

Column (2) – National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

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

Column (4) – Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment. These codes are identified blow:

Code	Used On
FHZ	Model X-4851
FJA	Model X-4756A
FJB	Model X-4757A

Column (5) – Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (2).

Column (6) – Qty Req. Indicates the quantity required.

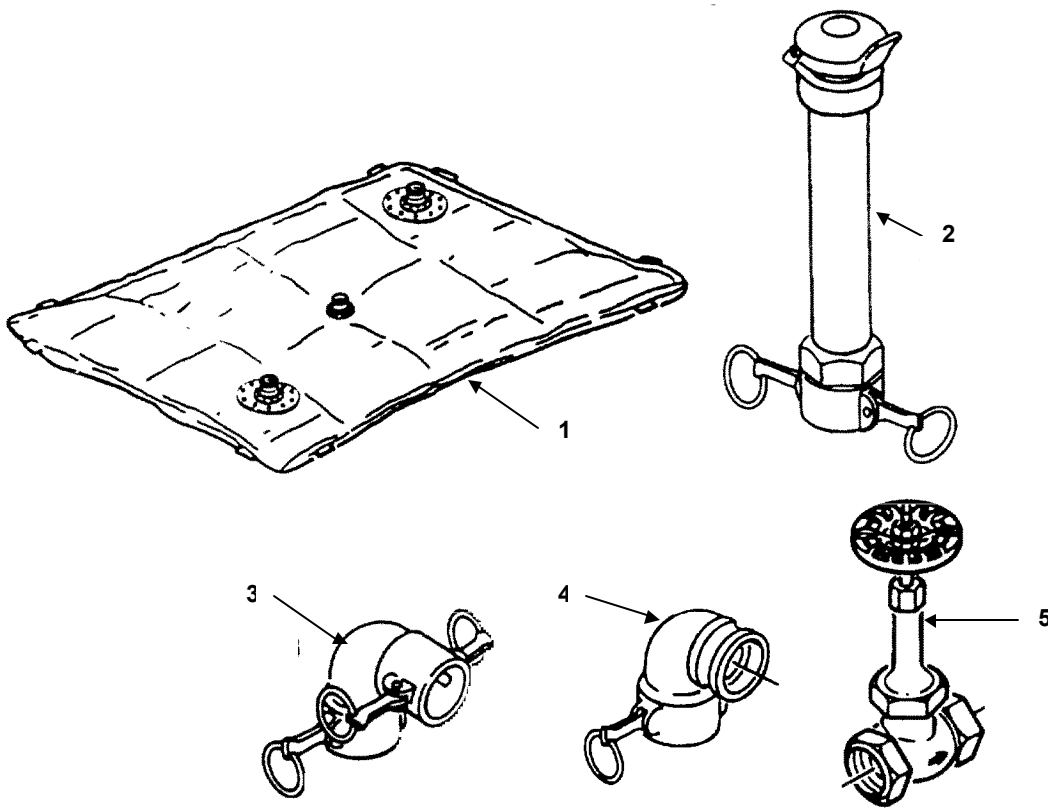


Table 1. Components of End Items List

(1) ILLUS NUBMER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
1		Tank, Fabric, Collapsible:		EA	1
		3,000 Gallon Tank (66618) MM93164001	FHZ		
		10,000 Gallon Tank (66618) MM93165001	FJA		
		20,000 Gallon Tank (66618) MM93166001	FJB		
2		Vent Pipe Assembly (66618) X-4765A		EA	1
3		Filler Elbow, Female to Female (81718) 633-4		EA	1
4		Discharge Elbow. Female to Male (81718) 633-K-6		EA	1
5		Gate Valve, 2-Inch (82666) B-122-2		EA	4

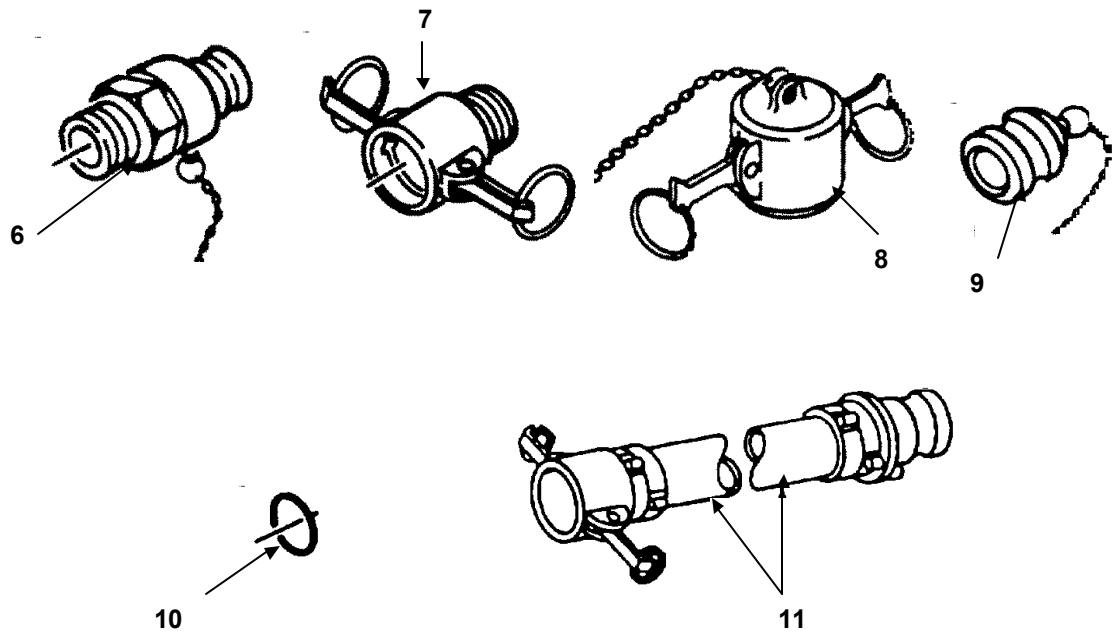


Table 1. Components of End Items List - continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NIMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
6	4730-00-938-7997	Coupling Half, 2-Inch, Male (96906) MS27022-11		EA	4
7	4730-00-088-9285	Coupling Half, 2-Inch, Female (96906) MS27026-11		EA	4
8	4730-00-649-9100	Coupling Dust Cap, 2-Inch (96906) MS27028-11		EA	4
9	4730-00-915-5127	Coupling Dust Plug, 2-Inch (96906) MS27029-11		EA	4
10	5330-01-413-2126	Gasket, Coupling, 2-Inch (97403) 13228E1768-6	FJA, FJB	EA	4
		Gasket, Coupling, 2-Inch (97403) 13228E1768-6	FHZ	EA	6
11		Hose Assembly, Non-collapsible, 2-Inch x 10 Ft. (81349) M53096-06B2A100		EA	2

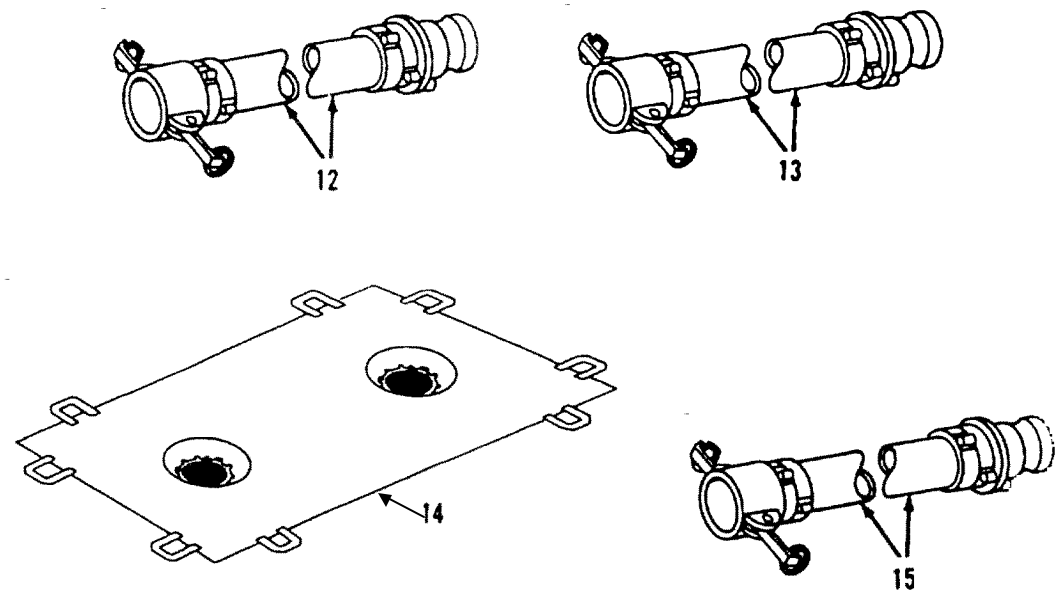


Table 1. Components of End Items List – continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
12		Hose Assembly, Collapsible, 4-Inch x 20 ft. (81349) M53095-03G200		EA	1
13		Hose Assembly, Non-collapsible, 6-inch x 10 ft. (81349) M53096-10B2A100		EA	1
14		Berm Liner 3,000 Gallon Tank Berm Liner (66618) X-4772B-03-1	FHZ	EA	1
		10,000 Gallon Tank Berm Liner (66618) X-4772B-10-1	FJA		
		20,000 Gallon Tank Berm Liner (66618) X-4772B-20-1	FJB		
15		Hose Assembly, Non-collapsible, 2-inch x 20ft. (81349) M53096-06B2A200		EA	4

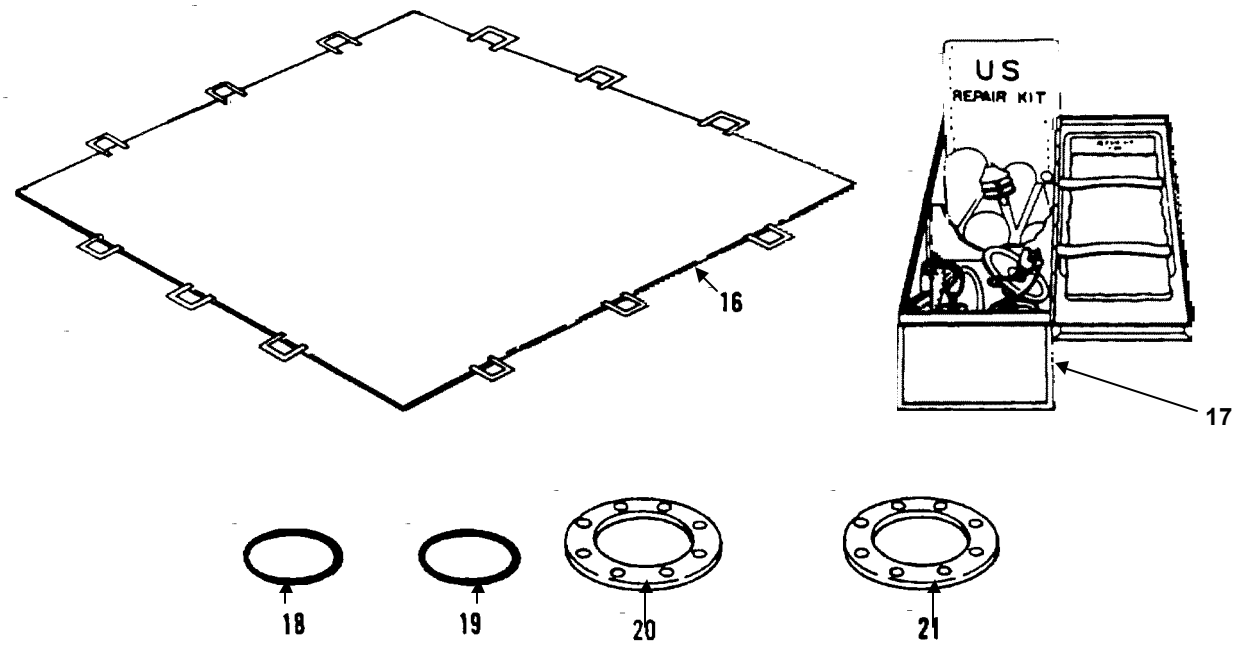


Table 1. Components of End Items List - continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
16		Ground Cloth:		EA	1
		3,000 Gallon Tank Ground Cloth (66618) X-4848-3	FHZ		
		10,000 Gallon Tank Ground Cloth (66618) X-4848-10	FJA		
		20,000 Gallon Tank Ground Cloth (66618) X-4771A	FJB		
17		Repair Kit, Collapsible (81349) (MIL-R-52255)		EA	1
18	5331-01-281-3847	Preformed Packing (81349) M25988/1-250		EA	2
19		Preformed Packing (81349) M25988/1-383		EA	2
20		Gasket, 4-Inch Flange (97403) 13228E1827-4		EA	2
21		Gasket, 6-Inch Flange (97403) 13228E1827-5		EA	2

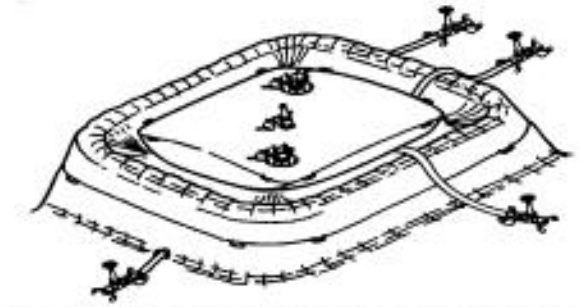
TM 10-5430-236-12&P

TECHNICAL MANUAL

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

TANK, FABRIC, COLLAPSIBLE: PETROLEUM,
LOW TEMPERATURE

3,000 GALLON, MODEL X-4851 (EIC-ZF5)
NSN 5430-01-327-2117
10,000 GALLON, MODEL X-4756A (EIC-ZF6)
NSN 5430-01-327-7787
20,000 GALLON, MODEL X-4757A (EIC-ZF7)
NSN 5430-01-327-7788



HEADQUARTERS, DEPARTMENT OF THE ARMY

30 JUNE 2000

Table 2. Basic Issue Items List

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQR
1		Technical Manual, Operator's and Unit Maintenance, TM 10-5430-236-12&P		EA	1

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
EXPENDABLE AND DURABLE ITEMS LIST

EXPENDABLE AND DURABLE ITEMS LIST

This work package lists expendable and durable items that you will need to operate and maintain the collapsible fabric petroleum tanks. This list is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns in the Expendable/Durable Items List

Column (1) – Item Number. This number is assigned to the entry in the list and is referenced in narrative instructions to identify the item (e.g. "(Use LUBRICATING OIL, Item 25, WP5230)").

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

C – Operator/Crew
O – Unit Maintenance

Column (3) – National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) – Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). This column provides the other information you need to identify the item.

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

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEME NAME, DESCRIPTION, CAGE, PART NUMBER	(5) U/M
1	O	8030-00-543-4384	Sealing Compound, Thread, Gasket, Fuel Oil and Water Resistant (81349) MIL-S-7916	PT
2	C	7920-00-205-1711	Rag, Wiping, Cotton and Cotton Synthetic (81349) A-A-531	BE
3	O	7930-00-985-6911	Detergent, General Purpose (81349) MIL-D-16791	GL
4	O	6850-00-177-5094	Silicone Compound (81349) MIL-S-8660	OZ

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
ILLUSTRATED LIST OF MANUFACTURED ITEMS

ILLUSTRATED LIST OF MANUFACTURED ITEMS

Contents

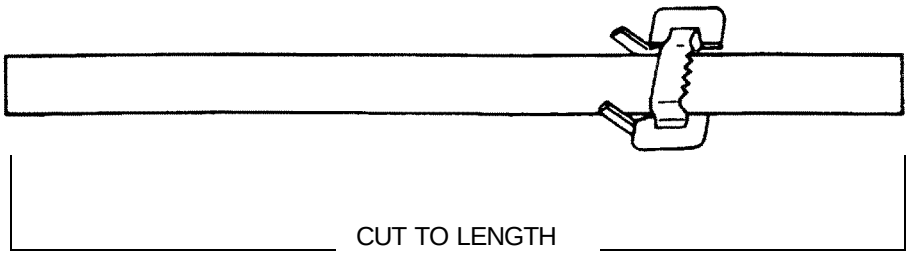
This work package includes complete instructions for making items authorized to be manufactured or fabricated at the unit maintenance level.

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

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

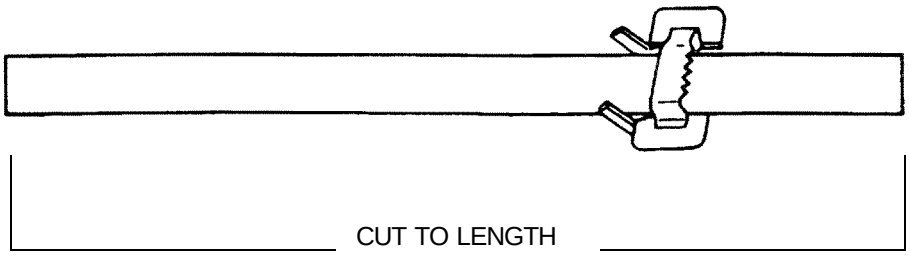
MANUFACTURED ITEMS PART NUMBER INDEX

PART NO.	FIGURE NO.
C204-1	1
J213	2
RR-C-271-3	3
RR-C-271-4	3
RR-C-271-4A	3
RR-C-271-4B	3
RR-C-271-4C	3
RR-C-271-4D	3
RR-C-271-4E	3
RR-C-271-8	3
RR-C-271-8A	3
RR-C-271-8B	3
RR-C-271-8C	3



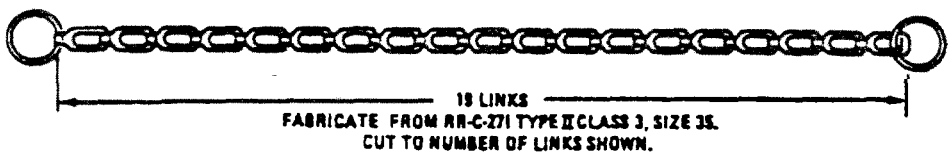
MATERIAL	
DESCRIPTION	**NSN**
STRAPPING, MCD4122 ITEM6 (76427)	5340-00-245-9438

Figure 1. Strapping



MATERIAL	
DESCRIPTION	**NSN**
STRAPPING, C206 (70847)	5340-00-245-9440

Figure 2. Strapping



MATERIAL	
DESCRIPTION	**NSN**
CHAIN, WELDLESS RR-C-271, TYPE II, CLASS 3 SIZE 35 (81343)	4010-00-171-4512

Figure 3. Chain

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 3,000, 10,000, AND 20,000 GALLON
TORQUE LIMITS

TORQUE LIMITS

This work package provides general torque limits for fasteners. Special torque values are indicated in the maintenance procedures for applicable components. Special torque values are established using the torque sequence in this work package. The general torque values given in this work package shall be used when specific torque values are not indicated in the maintenance procedures.

Torque Limits

Torque limits are listed in Table 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 molydisulphide greases or other extreme pressure lubricants are applied to the threads. Table 2 lists the minimum breakaway torque values for locknuts.

Table 1. General Torque Requirements for Dry Fasteners*

	Torque Requirements in ft-lb (Nm)			
Bolt/Screw Size	**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	7 (8)	10 (14)	12 (16)	14 (19)
5/16-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 UNF	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 (750)
7/8-9 UNC	160 (217)	395 (536)	440 (597)	605 (820)
7/8-14 UNF	175 (237)	435 (590)	555 (753)	675 (915)
1-8 UNC	235 (319)	590 (800)	660 (895)	910 (1234)
1-4 UNF	250 (339)	660 (865)	825 (1119)	999 (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 2. Locknut Breakaway Torque Values

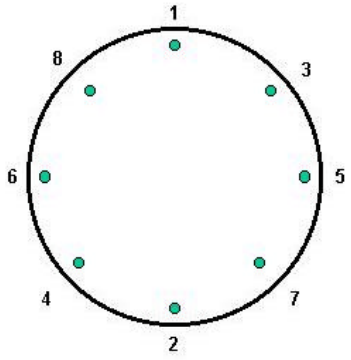
NOTE

To determine breakaway torque, thread locknut 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 breakaway torque. Do not reuse locknuts that do not meet minimum breakaway torque.

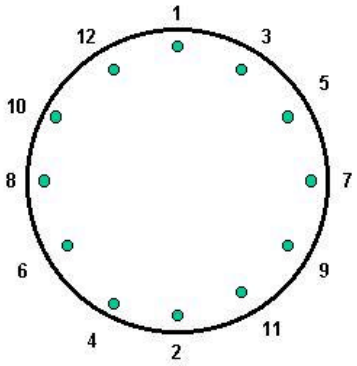
Thread Size	Minimum Breakaway lb-in.	Torque (Nm)
10-32	2.0	(0.23)
1/4-28	3.5	(0.40)
5/16-24	6.5	(0.73)
3/8-24	9.5	(1.07)
7/16-20	14.0	(1.58)
1/2-20	18.0	(2.03)
9/16-18	24.0	(2.71)
5/8-18	32.0	(3.62)
3/4-16	50.0	(5.65)
7/8-14	70.0	(7.91)
1-12	90.0	(10.17)
1-1/8-12	117.0	(13.22)

SEQUENCING

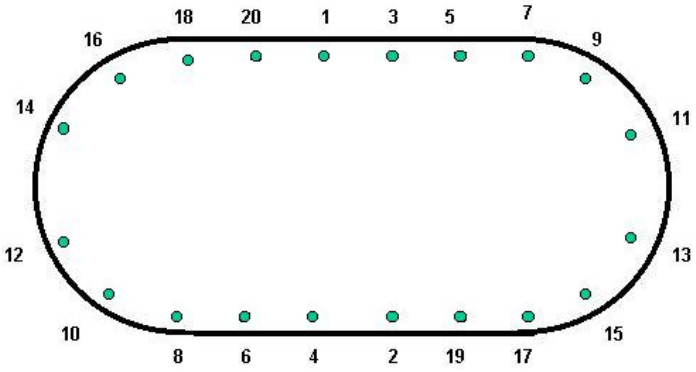
Torque values are established using the bolt pattern sequence below:



For 8 Hole Pattern



For 12 Hole Pattern



For 20 Hole Pattern

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM 3,000, 10,000, AND 20,000 GALLON
MANDATORY REPLACEMENT PARTS LIST

MANDATORY REPLACEMENT PARTS

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

MANDATORY REPLACEMENT PARTS LIST

Table 1. Mandatory Replacement Parts List

ITEM NO.	PART NUMBER/ CAGEC	NSN	NOMENCLATURE	QTY
1	EX13338-10		PACKING, PREFORMED	
2	13228E1768-6	5330-01-413-2126	GASKET	
3	M25988/1-250	5331-01-281-3847	PACKING, PREFORMED	
4	13228E1768-9		GASKET	
5	MS35338-46	5310-00-637-9541	LOCKWASHER	
6	13228E1827-4		GASKET	
7	M25988/1-383		PACKING, PREFORMED	
8	NAS1523-6R	5330-01-128-6071	PACKING WITH RETAINER	
9	13228E1768-10		GASKET	
10	13228E1827-5		PACKING, PREFORMED	
11	B-122-2-8		PACKING	
12	C204-1		STRAPPING, MAKE FROM MCD4122ITEM6	
13	J213		STRAPPING, MAKE FROM C206	
14	C254	5340-00-244-7325	SEAL, STRAPPING	
15	C256	5340-00-244-7327	SEAL, STRAPPING	

END OF WORK PACKAGE

GLOSSARY

ABBREVIATIONS

AR ..... Army Regulation
BII ..... Basic Issue Item
BOI ..... Basis of Issue
^{o}C ..... Degree Celsius
CAGEC ..... Commercial and Government Entity Code
cm ..... Centimeter
COEI ..... Component of End Item
CPC ..... Corrosion Prevention and Control
DA ..... Department of the Army
EIC ..... Equipment Identification Code
EMP ..... Electromagnetic Pulse
^{o}F ..... Degree Fahrenheit
FIG ..... Figure
FM ..... Field Manual
gal ..... Gallon
HCI ..... Hardness Critical Item
K ..... Kilo or Thousand
Kg ..... Kilogram
L ..... Liter
LBS ..... Pounds
m ..... Meters
MAC ..... Maintenance Allocation Chart
MTOE ..... Modified Table of Organization and Equipment
MWO ..... Modified Work Order
NBC ..... Nuclear, Biological and Chemical
NC ..... National Coarse
NIIN ..... National Item Identification Number
Nm ..... Newton Meters
NSN ..... National Stock Number
PAM ..... Pamphlet
PMCS ..... Preventive Maintenance Checks and Services
PN or P/N ..... Part Number
PSI ..... Pounds-force per Square Inch
PSIG ..... Pounds-force per Square Inch, Gage
QA/QC ..... Quality Assurance/Quality Control
QTY ..... Quantity
RPSTL ..... Repair Parts and Special Tools List
SMR ..... Source, Maintenance and Recoverability
TM ..... Technical Manual
TMDE ..... Test, Measurement and Diagnostic Equipment
TOE ..... Table of Organization and Equipment
UNC ..... Unified National Course
UNF ..... Unified National Fine
UOC ..... Usable on Code
U/M ..... Unit of Measurement
WP ..... Work Package

DEFINITIONS OF TERMS

A

AMBIENT - Surrounding on all sides (environmental).
APPENDIX - -A collection of supplementary material at the end of a book.
APPROVED – Permitted to be used for a specific purpose by the person or group who is authorized to grant approval.
ASSEMBLY - - A combination of parts that may be taken apart without destruction, which has no application or use of its own but is needed for the completeness of a more complex item with which it is combined, or to which it is attached.

C

COMPONENT – A part or a combination of parts which together accomplish a function.

E

EXPENDABLE – An item that is not repairable and is discarded if damaged.
EXPOSURE – Being in the presence of something, or in contact with something. Skin is exposed to cleaning solvent when the solvent contacts the skin during cleaning operations.

L

LEGIBLE – Capable of being read. A legible nameplate can be read; an illegible plate can not.

M

MALFUNCTION – Occurs when a unit fails to operate normally.
MANUFACTURER - The company which makes an item or piece of equipment for sale.
MATERIEL – Equipment, apparatus and supplies of an organization, such as an army.

R

RECOMMENDATIONS – Suggestions for change; advice given usually to make an improvement.
REQUIRE - To demand or need.

S

SCOPE - The extent of an activity or concept; the amount of information covered as in a book.
SOLVENT – A liquid that can dissolve another substance.

T

TORQUE – Force around an axis. It produces a rotary or twisting motion, and is measured in foot-pounds (ft-lbs), inch-pounds (in-lbs), or Newton-meters (Nm).

V

VENTILATE – To provide with a source of fresh or unconditioned air.
VISUAL – Visible; detected by the unaided eye.

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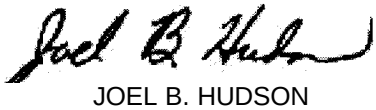
By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0011903

To be distributed in accordance with the initial distribution number (IDN) 256612 requirements for TM 10-5430-236-12&P

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: **tacom-tech-pubs@ria.army.mil**

Subject: **DA Form 2028**

1. ***From:*** Joe smith
2. ***Unit:*** home
3. ***Address:*** 4300 Park
4. ***City:*** Hometown
5. ***St:*** MO
6. ***Zip:*** 77777
7. ***Date Sent:*** 19-Oct-00
8. ***Pub no:*** 10-5430-236-12&P
9. ***Pub Title:*** TM
10. ***Publication Date:*** 30-JAN-00
11. ***Change Number:*** 12
12. ***Submitter Rank:*** MSG
13. ***Submitter Fname:*** Joe
14. ***Submitter Mname:*** T
15. ***Submitter Lname:*** Smith
16. ***Submitter Phone:*** 123-123-1234
17. ***Problem:*** 1
18. ***Page:*** 1
19. ***Paragraph:*** 3
20. ***Line:*** 4
21. ***NSN:*** 5
22. ***Reference:*** 6
23. ***Figure:*** 7
24. ***Table:*** 8
25. ***Item:*** 9
26. ***Total:*** 123
27 ***Text:***
This is 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)
PFC John Doe
Co A, 3d Engineer Bn
Ft. Leonardwood, MO 63108

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 10-5430-236-12&P	30 June 2000	Tank, Fabric, Collapsible, Petro., 3K, 10K, & 20K

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
6	2-1a		
B1		4-3	
125		line 20	

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

In line 6 of paragraph 2-1a the manual states the engine has 6 cylinders. The engine on my set only has 4 cylinders. Change the manual to show 4 cylinders.

Callout number 16 in figure num[illegible] 4-[illegible] called a bolt. In key for figure 4-3, item [illegible] a[illegible]. Please correct one or the other.

I ord[illegible] item 19 on figure B-16 by NSN 2010-00-762-30[illegible] got a gasket but it doesn't fit. Supply says I got what I ordered, so the NSN is wrong. Please give me a good NSN.

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER
JOHN DOE, PFC (268) 317-7111

SIGN HERE
John Doe

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.

REVERSE OF DA FORM 2028-2 Reverse of DRSTS-M Overprint 2, 1 Nov 80

TEAR ALONG PERFORATED LINE

FILL IN YOUR UNITS ADDRESS

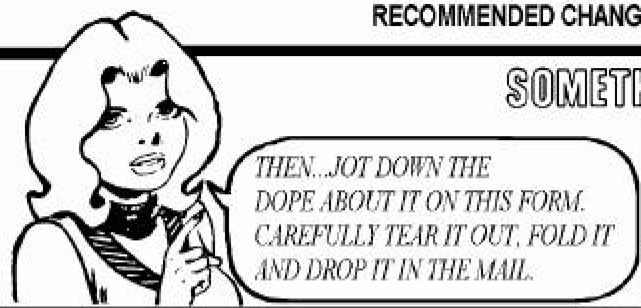
FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

COMMANDER
U.S. TANK-AUTOMOTIVE AND ARMAMENTS COMMAND
ATTN: AMSTA-LC-CIP-WT
ROCK ISLAND, IL 61299-7630

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



SOMETHING WRONG WITH PUBLICATION

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OFFICIAL BUSINESS

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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 dekameters = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

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

Liquid Measure

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

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. decameter (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. Centimeter = 61.02 cu. Inches
1 cu. Meter = 1000 cu. Decimeters = 35.31 feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1,609	meters	yards	1.094
square miles	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	millimeters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallon	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)

^{o}F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	^{o}C

PIN: 078059-000