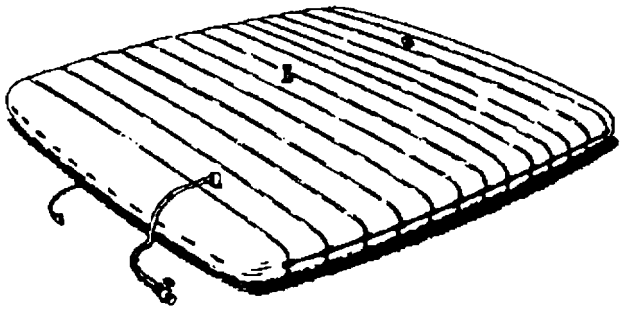
TECHNICAL MANUAL

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



5,000 BARREL FABRIC COLLAPSIBLE PETROLEUM TANK
MODEL BA91-142 (EIC-ZFU)
NSN 5430-01-374-5656

MODEL RCF0210000
NSN 5430-01-433-6246

HEADQUARTERS DEPARTMENT OF THE ARMY
29 APRIL 1994

CHANGE

NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 6 January 1997

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

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2-5 through 2-10	2-5 through 2-10
C-5 and C-6	C-5 and C-6
C-25 through C-28	C-25 through C-28
- - - - - - - - - -	C-28.1 and C-28.2
C-29 through C-32	C-29 through C-32
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CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 30 SEPTEMBER 1994

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

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3-9/(3-10 blank)	3-9/(3-10 blank)
4-9 and 4-10	4-9 and 4-10
4-15 through 4-28	4-15 through 4-28
4-33 through 4-35/(4-36 blank)	4-33 through 4-35/(4-36 blank)
B-3 and B-4	B-3 and B-4
C-1/(C-2 blank)	C-1 through C-35/(C-36 blank)
D-1 through D-5/(D-6 blank)	D-1 through D-5/(D-6 blank)
F-1 and F-2	F-1 and F-2
G-1 through G-4	G-1 through G-4

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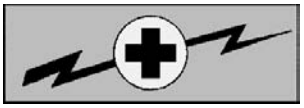
WARNING



WARNING

Do not allow smoking within 100 feet (30.50 meters) of the storage area. Death or serious injury may result if personnel fail to strictly observe safety precautions.

WARNING

Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Position fire extinguishers at readily accessible positions around the tank(s). Failure to observe this warning may result in death or serious injury.

WARNING

Avoid getting fuel on the body or clothing. If clothing becomes saturated, remove it immediately and wash the body thoroughly with hot, soapy water. Failure to observe this warning may result in death or serious injury.

WARNING

Safety berms must have capacities of less than one and one-half times that of their tank capacities. Failure to construct a secure safety berm may result in death or serious injury.

WARNING

Cleaning solvent, P-D-680 Type III, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only In well-ventilated areas. Avoid repeated and prolonged skin contact. Do not use near an open flame or excessive heat. The flash point of solvent is 100°F to 138°F (38°C to 59°C).

WARNING

Sludge that accumulates in the bottom of the fuel tank gives off toxic and explosive vapors. Inhaling these vapors can cause lead poisoning. When cleaning tanks, provide ample ventilation to carry off harmful fumes.

WARNING

Always wear protective goggles, breathing apparatus, and other protective gear when cleaning the tank interior. Fuel vapors are toxic and can damage eyes, skin and lungs.

WARNING

Fuel vapors are extremely flammable. Exercise care to prevent sparks when working near or in the tank. Death or severe personal injury can result if safety precautions are not strictly observed.

WARNING

Make certain that the berm gate valve is closed and locked after installation and after draining the berm. In the event of tank rupture, an open berm valve would permit fuel to drain from the berm. Undetected fuel leakage could result in an explosion and cause death, severe personal injury, and damage to equipment.

WARNING

Make sure that the gate valve handwheel has been rotated fully to the right to the closed position before filling that tank. Undetected draining of the tank could result in an explosion that can cause death or severe personal injury.

WARNING

Be careful when installing a sealing clamp in the tank. Fuel will pour out when a larger slit is made. Leaking fuel can cause personal injury and loss of Government property.

For first aid procedures, refer to FM 21-1 1.

TECHNICAL MANUAL
NO. 10-5430-232-12&P

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DEPARTMENT OF THE ARMY
WASHINGTON D.C., 29 April 1994

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

5,000 BARREL FABRIC COLLAPSIBLE PETROLEUM TANK
MODEL BA91-142 (EIC-ZFU)
NSN 5430-01-374-5656
MODEL RCF0210000
NSN 5430-01-433-6246

Current as of 15 April 1996

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know of a way to improve these procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual directly to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. You may also submit your recommended changes by E-mail directly to <mpmt%avma28Cst-louis-emh7.army.mil>. A reply will be furnished directly to you. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

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LIST OF TABLES

HOW TO USE THIS MANUAL

Section I. OVERVIEW

This manual is divided into four chapters and nine appendices, providing all necessary information to operate and maintain the collapsible fabric petroleum tank assembly.

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. Front Cover Index. Located on the front cover of your manual, this index lists the most frequently needed areas of instruction. To find the area quickly, black tabs are provided which line up with black tabs in the manual, where the listed area begins. The index also lists the page number to turn to.

b. Table of Contents. Lists all chapters, sections, and appendices contained in the manual, along with the page numbers where they begin. Entries which correspond to the front cover index are boxed, for use if the front cover of the manual is lost.

c. List of Illustrations. Lists all illustrations in the manual in order by figure number, gives the titles, and identifies the page number where they are located.

d. Chapter Index. At the beginning of each chapter, this index lists all sections and paragraphs contained in the chapter.

e. 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", an "Records, Maintenance Forms and"). This increases the likelihood of finding the information the first place you look. Each entry also lists the paragraph where the information can be found.

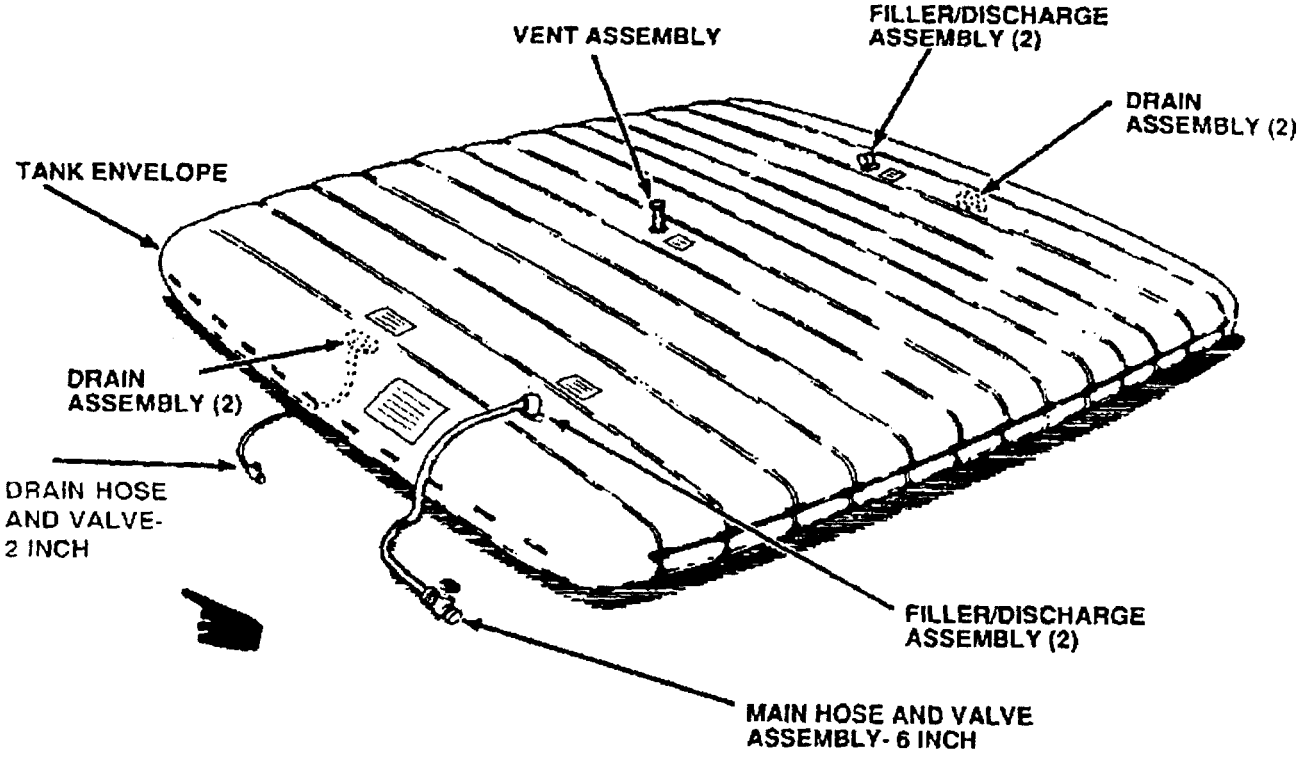


Figure 1-0. 5,000 Barrel Petroleum Tank

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION.

1-1. SCOPE.

a. Type of Manual. Operator's and Unit Maintenance Manual.

b. Equipment Name. 5,000 Barrel Petroleum Fabric Tank, Model BA91-142 and Model RCF0120000.

c. Purpose of Equipment. The 5,000 barrel collapsible fabric tank is a container designed to store a variety of petroleum liquids.

(1) The tank will be used to store fuel as part of a bulk fuel terminal.

(2) Fuel will be available for use in a quick-response deployment operation.

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

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

1-4. PREPARATION FOR STORAGE OF SHIPMENT. Refer to paragraph 4-18 for storage and paragraph 4-19 for shipment procedures.

1-5. OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS. The following list contains cross-references to nomenclature used in this manual.

Common Name	Official Nomenclature
Tank	Tank, Fabric, Collapsible 5,000 barrel

1-6. WARRANTY INFORMATION. One Year Warranty. The 5,000 barrel collapsible fabric tank is warranted by the Manufacturer for one year after acceptance of the equipment. Report all defects in material or workmanship to your supervisor, who will take appropriate action through your unit maintenance shop.

SECTION II. EQUIPMENT DESCRIPTION AND DATA.

1-7. EQUIPMENT CHARACTERISTICS, CAPABILIT IES, AND FEATURES.

a. Characteristics. The tank is made of tough polymer-coated nylon fabric. Chafing patches beneath all fitting and hardware locations provide triple-wall thickness protection.

(1) Handles on each tank are vulcanized for easy tank positioning.

(2) The various assemblies, except for the drain hose assembly, vent and pipe assembly, and drain gate valve, all attach to hoses and related hardware using quick-disconnect mechanisms.

b. Capabilities and Features.

(1) The filled tank expands vertically.

(2) Internal pressure is vented.

(3) Water and residual fuel may be drained form the bottom of the tank.

(4) Reducing capabilities to 4" for filling and discharge operations.

(5) Has NATO adapter, providing capability to receive of discharge NATO fuel.

1-8. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS. (See figure 1-1.)

TANK ENVELOPE (1)	5,000 barrel, collapsible, polymer-coated nylon fabric tank. Used for fuel storage. Comes with emergency repair kit.
VENT ASSEMBLY (2)	Opens automatically when internal vapor pressure reaches 0.1 psi (0.0068 atmospheres) to relieve pressure inside tank.
FILLER/DISCHARGE ASSEMBLY (3)	Allows hose assembly to be connected to tank. Discharge fitting requires female/male elbow. Filler fitting requires female/female elbow.
MAIN HOSE AND VALVE ASSEMBLY 6-INCH (4)	Allows fuel to flow to and from tank. Valve is normally closed-when tank is not being filled or fuel not being discharged from tank.
DRAIN HOSE AND VALVE-2 INCH (5)	Allows fuel, water, and sludge to drain from tank. Valve is normally closed.
DRAIN ASSEMBLY (6)	Allows drain hose to be connected to tank.

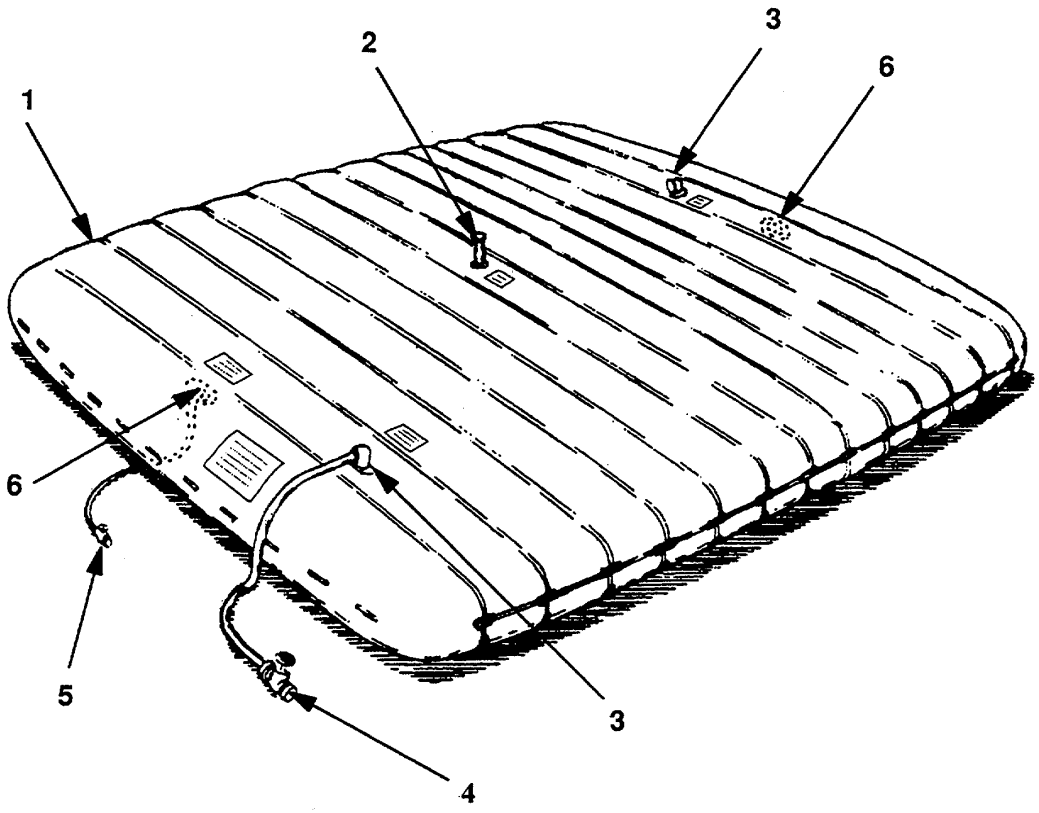


Figure 1-1. 5,000 Barrel Tank Filled

1-9. EQUIPMENT DATA (Refer to Figure 1-2)

a. Identification Plate.

The tanks are fitted with a bonded identification label (1) which lists the following:

(1) Tank, fabric, collapsible: 5,000 barrel fuel

(2) NSN 5430-01-374-5656 (Model BA91-142); NSN 5430-01-433-6246 (Model RCF0210000)

(3) Serial Number

(4) Manufacturer's Name and Plant Location

(5) Date of Manufacture

(6) 3,000 lbs. (1,361 kg)

(7) Contract Number: DAAK01-92-C-0081 (Model BA91-142); DAAK01-95-D-0049 (Model RCF0210000)

b. Stencils.

CAUTION

Overfill of this tank will result In permanent damage to or failure of the tank. Do not overfill. This tank can hold 5,000 barrels (210,000 gallons) of fuel. The maximum tank height Is 6-feet, 8-Inches. Not recommended for long term gasoline storage. Attach drain hose and valve before filling tank.

(1) Fitting Location (2):
Drain fitting is under this label.

(2) Fill Discharge (3):
Connect drain hose before filling tank.

(3) Torque Data (4):

Maximum Torque Limits
1/4"-20 = 16 ft. lbs.
3/8"-16 = 30 ft. lbs.

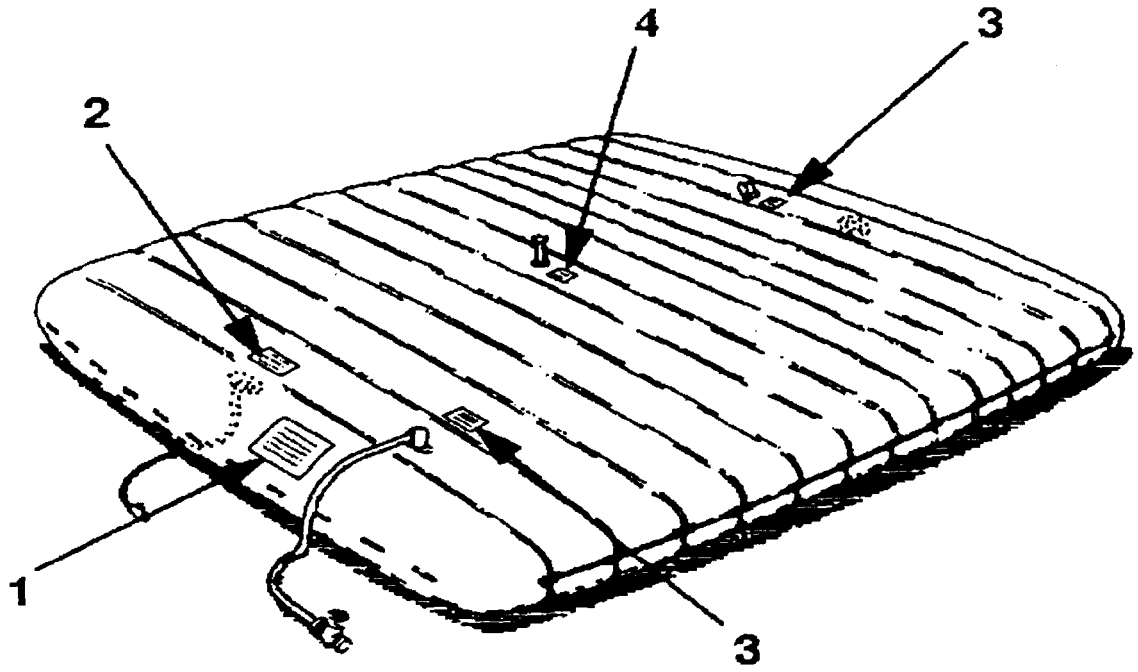


Figure 1-2. 5,000 Barrel Tank Decals and Data Plates

c. Dimensions and Weights (approximate). For 5,000 barrel tank (Models BA91-142 and RCF0210000):

(1)	Dry (empty) dimensions	68.5 ft. by 68.5 ft. (20.87 m by 20.87 m)
(2)	Filled dimensions	68 ft. by 68 ft. by 6 ft., 8 in. (20.72 m by 20.72 m by 2.03 m)
(3)	Dry weight (tank only)	3,000 lbs. (1,361 kg)
(4)	Crated weight	4,100 lbs. (approximate)
(5)	Crated dimensions	16 ft. (length) by 6 ft. (width) by 4 ft. (height) (4.88 m by 1.83 m by 1.22 m)
(6)	Temperature Range, Operating	-25°F to +125°F (-32°C to +49°C)

SECTION III. PRINCIPLES OF OPERATION.

1-10. FUNCTIONAL DESCRIPTION.

a. Filling Tank.

(1) The tank is filled by connecting a hose from a fuel source to the filler and discharge hose assembly.

(2) This assembly is connected, in turn, to the gate valve that has been connected to the filler/discharge assembly. Gate valves are used to control the flow of the fuel.

b. Discharging Tank.

WARNING

Failure to perform safety procedures correctly may result in damage to equipment, and to injury or death to personnel. The fuels are extremely hazardous, and all safety procedures must be strictly followed.

Fuel is discharged by connecting the filler and discharge hose assembly and gate valve to the filler/discharge assembly. Water, sludge, and residual fuel are drained through the drain hose assembly at the bottom of tank.

CHAPTER 2

OPERATING INSTRUCTIONS

SECTION/Paragraph **Page**

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

2-1. CONTROLS. (See figure 2-1.) The operator should be thoroughly familiar with the location and function of every control before operating the system.

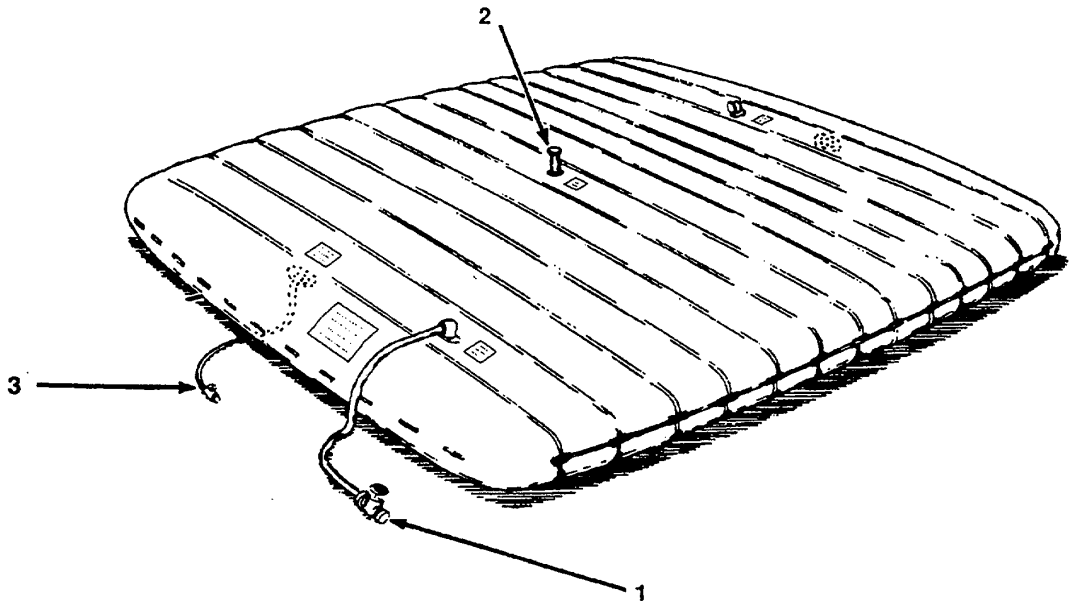


Figure 2-1. Controls for 5,000 Barrel Petroleum Tank.

Key	Control or Indicator	Function
1	Gate Valve	Shuts fuel flow on and off between the tank and any other portion of the system.
2	Vent and Pipe Assembly	Allows relief cap to open automatically when the tank vapor reaches an internal pressure of 0.1 psi (0.0068 atmospheres).
3	Drain Valve	Allows residual fuel, sludge, or water to be drained from the tank when needed.

SECTION II. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-2. GENERAL

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

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

b. Do your BEFORE (B) PMCS just before you operate the tank. Pay attention to WARNINGs, CAUTIONs, and NOTEs.

c. Do your DURING (D) PMCS while you operate the tank. During operation means to monitor the tank and its related components while It is actually being operated. Pay attention to WARNINGs, CAUTIONs, and NOTEs.

d. Do your AFTER (A) PMCS right after operating the tank. Pay attention to WARNINGs, CAUTIONs, and NOTEs.

e. Do your WEEKLY (W) PMCS once a week.

f. Do your MONTHLY (M) PMCS once a month.

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

h. Be prepared to assist unit maintenance when they maintain the tank. Perform any other services when required by unit maintenance.

2-3. PMCS PROCEDURES.

a. Your Preventive Maintenance Checks and Services, Table 2-1, lists inspections and care required to keep your tank in good condition. It is set up so you can make your BEFORE (B) OPERATION checks as you walk around the tank.

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

NOTE

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

d. The "EQUIPMENT IS NOT READY/AVAILABLE IF" column in Table 2-1 tells you when your tank is nonmission capable and why the truck cannot be used.

e. If the tank does not perform as required, refer to Chapter 3. Section II, Troubleshooting.

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

g. When you do your PMCS, you will always need a rag or two. Following are checks that are common to the entire tank:

(1) Keep It Clean. Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent PD680 on all metal surfaces. Use soap and water when you clean rubber or plastic material.

(2) Rust and Corrosion. Check tank connections. If any bare metal or corrosion exists, clean, and apply a thin coat of oil. Report H to your supervisor.

(3) Bolts, Nuts and Screws. Check them all for obvious looseness, missing bent, or broken condition. You can't try them all with a tool, but look for chipped paint, bare metal, or rust around bolt heads. If you find a bolt, nut, or screw you think is loose, tighten it or report it to your supervisor.

(4) Hoses. Look for wear, damage, and leaks, and make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector can also mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to your supervisor.

h. When you check for "operating condition," you look at the component to see if it's serviceable.

2-4. LEAKAGE DEFINITIONS FOR OPERATOR'S PMCS.

It is necessary for you to know how fluid leakage affects the status of the truck. Following are types/classes of leakage an operator needs to know to be able to determine the status of the tank. Learn these leakage definitions and remember- when in doubt, notify your supervisor.

CAUTION

Equipment operation Is allowable with minor leakages (Class I or II). Of course, consideration must be given to fluid capacity in the item/system being checked inspected. When In doubt, nothing your supervisor. When operating with Class I or II leaks, continue to check fluid levels as required In your PMCS. Class IH1 leaks should be reported immediately to your supervisor.

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

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

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

Table 2-1. Operator Preventive Maintenance Checks and Services for 5,000 Barrel Fabric Collapsible Petroleum Tank Models BA91-142 and RCF0210000

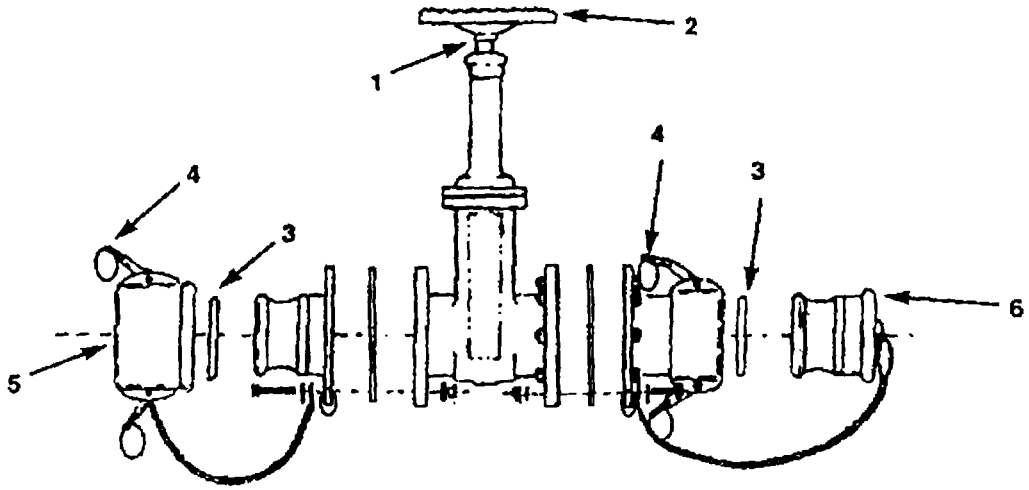
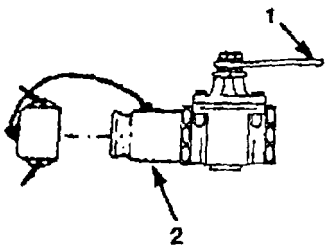
Item No.	Interval	Location Item to be checked or serviced	Procedure	Not Fully Mission Capable If:
1	Before	Tank	Inspect for tears or punctures.	Tank is torn or punctured.
2	Before	Gate Valve	Check for bent or binding stem (1), broken handwheel (2). Check gaskets (3) and cam-lever arms (4) for damage. Check dust cap (5) and dust plug (6) for damaged or missing chain.	Stem, handwheel, gasket, or cam-lever arms are damaged or missing.
				
3	Before	Filler and discharge hose assembly	Check for cuts and tears. Check fittings for distortion and damaged or missing gaskets.	Hose assembly is damaged. Gaskets are damaged or missing.
4	Before	Drain Valve	Check for broken handle (1). Check for broken cam-lock adapter (2). 	Stem and/or handle are damaged or missing. Cam-lock adapter is damaged or missing

Table 2-1. Operator Preventive Maintenance Checks and Services for 5,000 Barrel Fabric Collapsible Petroleum Tank Models BA91-142 and RCF0210000

Item No.	Interval	Location Item to be checked or serviced	Procedure	Not Fully Mission Capable If:
5	Before	Drain hose assembly	Check hose for cuts and tears. Check fittings for distortion and damage.	Hose assembly is damaged.
6	Before	Vent and pipe assembly	Check relief cap (1), flame arrestor (2), cap gasket (3), gaskets (4), and cam-lever arms (5) for damage or missing parts. Check relief cap for cleanliness and freedom of operation. Check for damaged dust cap (6) or missing chain (7).	Relief cap or flame arrestor is damaged or missing. Relief cap gasket, or cam-lever arms are damaged or missing.

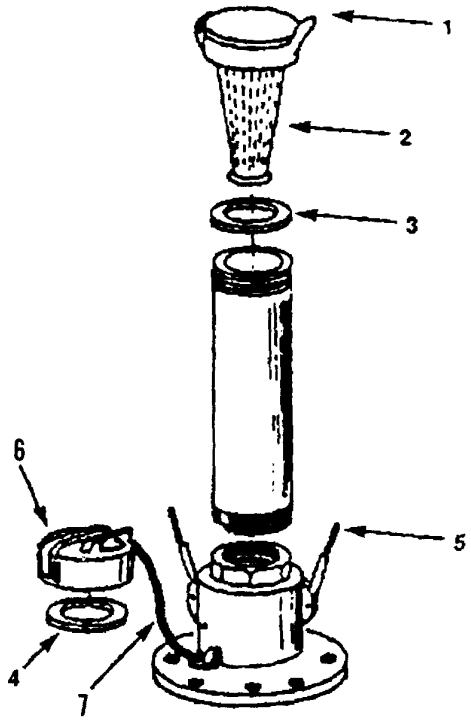


Table 2-1. Operator Preventive Maintenance Checks and Services for 5,000 Barrel Fabric Collapsible Petroleum Tank Models BA91-142 and RCF0210000

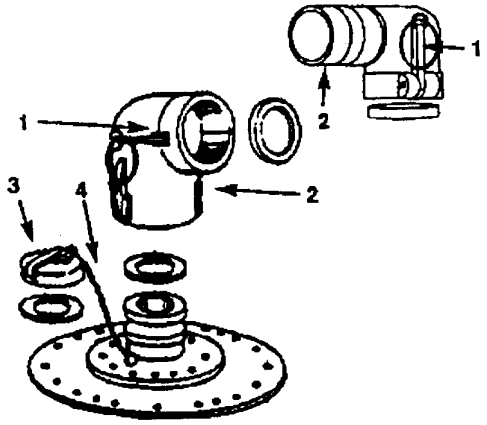
Item No.	Interval	Location Item to be checked or serviced	Procedure	Not Fully Mission Capable If:
7	Before	Filler/ discharge assembly	Check cam-lever arms (1) or elbow body (2) for damage. Check for damaged or missing gaskets. Check dust cap (3) for damaged or missing chains (4).	Cam-lever arms are damaged or missing. Elbow body is cracked. Elbow sealing surface is badly dented.
				
6	Before	Drain fitting assembly	Check drain plug, drain hose and drain valve for damaged or missing parts.	Drain plug, drain hose, and drain valve are missing or damaged.
7	Before	Accessory items	Check for components: NATO adapters, 6" - 4" reducers, t-assembly, repair kit, deployment straps and lifting slings.	Components are missing or damaged.

Table 2-1. Operator Preventive Maintenance Checks and Services for 5,000 Barrel Fabric Collapsible Petroleum Tank Models BA91-142 and RCF0210000

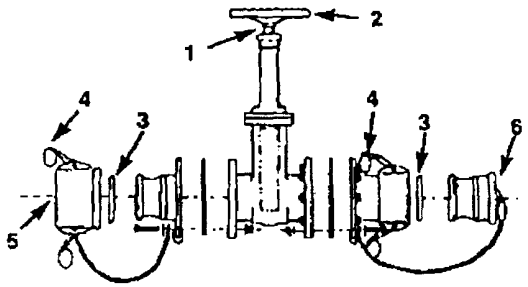
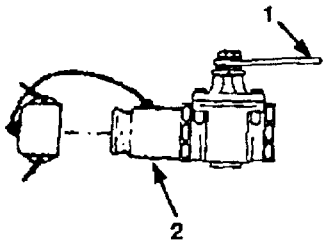
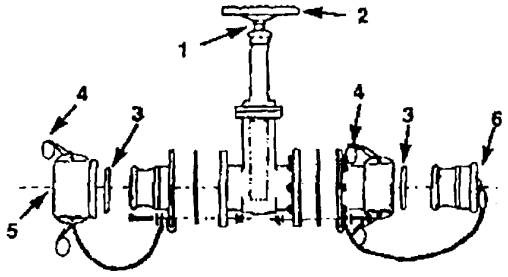
Item No.	Interval	Location Item to be checked or serviced	Procedure	Not Fully Mission Capable If:
10	During	Tank	Inspect for tears, punctures or leaks.	Tank is torn, punctured, or has Class III leaks (exclude wet spots).
11	During	Gate Valve	Check for leaks, bent or binding stem (1), broken handwheel (2). Check gaskets (3) and cam-lever arms (4) for damage. Check dust cap (5) and dust plug (6) for damaged or missing chain. 	Stem, handwheel, gasket, or cam-lever arms are damaged missing, or has, Class III leaks.
12	During	Filler and discharge hose assembly	Check for leaks, cuts and tears.	Hose assembly leaks or is damaged.
13	During	Drain valve	Check for leakage, broken handle (1), and for damaged or broken cam lock adapter (2). 	Stem and/or handle are damaged, missing, or drain valve has Class III leaks.
14	During	Drain hose assembly	Check for leaks, cuts and tears. Check fittings for distortion and damage.	Hose assembly is damaged or has Class III leaks.

Table 2-1. Operator Preventive Maintenance Checks and Services for 5,000 Barrel Fabric Collapsible Petroleum Tank Models BA91-142 and RCF0210000

Item No.	Interval	Location Item to be checked or serviced	Procedure	Not Fully Mission Capable If:
15	After	Tank	Inspect for tears or punctures.	Tank is torn or punctured.
16	After	Gate Valve	Check for bent or binding stem (1), broken handwheel (2). Check gaskets (3) and cam-lever arms (4) for damage. Check dust cap (5) and dust plug (6) for damaged or missing chain.	Stem, handwheel, gasket, or cam-lever arms are damaged or missing.
17	After	Filler and discharge hose assembly	Check for cuts and tears. Check fittings for distortion and damaged or missing gaskets.	Hose assembly is damaged. Gaskets are damaged or missing.
18	After	Drain valve	Check for broken handle (1). Check for damaged or broken cam-lock adapter (2).	Stem and/or handle are damaged or missing.
19	After	Drain hose assembly	Check hose for cuts and tears. Check fittings for distortion and damage.	Hose assembly is damaged.



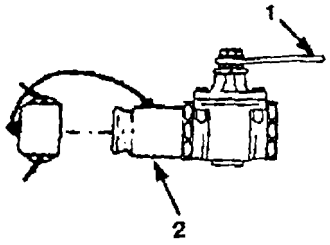
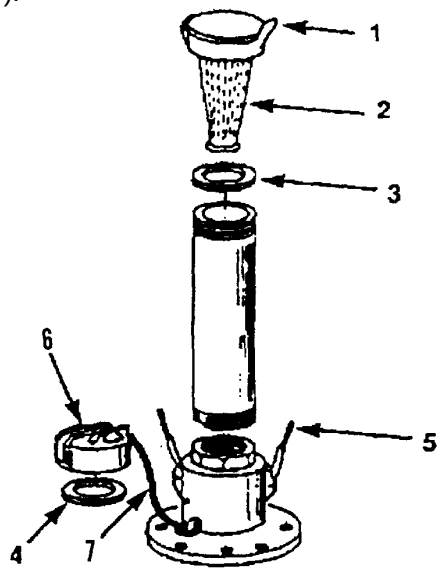
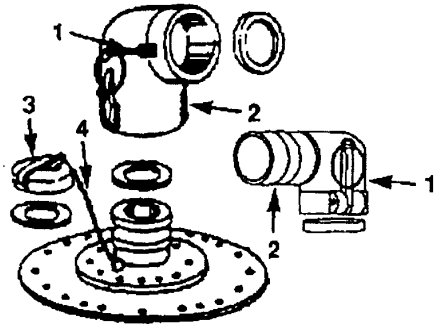


Table 2-1. Operator Preventive Maintenance Checks and Services for 5,000 Barrel Fabric Collapsible Petroleum Tank Models BA91-142 and RCF0210000

Item No.	Interval	Location Item to be checked or serviced	Procedure	Not Fully Mission Capable If:
20	After	Vent and pipe assembly	Check relief cap (1), flame arrestor (2), cap gasket (3), gaskets (4), and cam-lever arms (5) for damage or missing parts. Check relief cap for cleanliness and freedom of operation. Check for damaged dust cap (6) or missing chain (7).  	Relief cap or flame arrestor is damaged or missing. Relief cap gasket, or cam- lever arms are damaged or missing.
21	After	Filler/ discharge assembly	Check cam-lever arms (1) or elbow body (2) for damage. Check for damaged or missing gaskets. Check dust cap (3) for damaged or missing chains (4).  	Cam-lever arms are damaged or missing. Elbow body is cracked. Elbow sealing surface is badly dented.
22	After	Drain fitting assembly	Check drain plug, drain hose and drain valve for damaged or missing parts.	Drain plug, drain hose, and drain valve are missing or damaged.

SECTION III OPERATING UNDER USUAL CONDITIONS

2-5. FILLING TANK, DISCHARGING FUEL AND DRAINING TANK.

a. Pre-fill Tank Check.

WARNING

FUELS ARE HAZARDOUS FLAMMABLE LIQUIDS
Do not smoke or bring open flame within 100 feet (30.48 meters) of the tank.

If fuel spills on or around a tank or within the diked area, shut down any nearby engine-driven equipment. Do not resume operation until It has been determined that the vapor concentrations are below the explosive range.

If fuel spills onto clothing, remove clothing before entering area with engine-driven equipment or area where smoking is permitted. Fuels and fuel sludge can cause injury to skin or eyes.

If fuel or sludge comes into contact with skin, flush eyes with water. For further information on first aid, refer to FM 21-11.

(1) Check to see that tank is properly installed. It should be lying flat and smooth.

(2) Check that the drain hoses are attached and the drain valves are closed.

(3) Check that vent assembly is operational.

(4) Check filler/discharge elbow not used in filling. Make sure it is covered by a dust cap or plug.

b. Fill Tank

(1) Connect hose from fuel source to filler/discharge gate valve to be used for filling.

(2) Open filler/discharge gate valve.

CAUTION

Do not overfill the tank. Overfilling the tank may result in rupture or leakage. The required quantity of fuel should be measured by using range poles.

NOTE

If the tank begins to roll or creep when being filled, place sandbags along the lower edge of the tank to prevent further creeping or rolling.

(3) Activate fuel source. Fill tank. Tank is filled to capacity when it reaches a height of 6 feet, 8 inches (2.03 meters). Do not overfill tank.

(4) When tank is full, stop pumping.

(5) Close filler/discharge gate valve.

(6) Disconnect fuel source hose from filler/discharge gate valve.

(7) Check tank for leakage. If tank leaks, follow troubleshooting procedures in table 3-1. 2-11

c. Discharging Fuel.

WARNING

FUELS ARE HAZARDOUS FLAMMABLE LIQUIDS.
Do not smoke or bring open flame to within 100 feet (30.48 meters) of the tank.

If fuel spills on or around a tank or within the diked area, shut down any nearby engine-driven equipment. Do not resume operation until it has been determined that the vapor concentrations are below the explosive range.

If fuel spills onto clothing, remove clothing before entering area with engine-driven equipment or area where smoking is permitted. Fuels and fuel sludge can cause injury to skin or eyes. If fuel or sludge comes into contact with skin, flush skin with soap and water. If fuel or sludge comes into contact with eyes, flush eyes with water. For further information on first aid, refer to FM 21 -11.

Fumes from stored fuels are hazardous.

(1) Attach line from user to gate valve.

(2) Open gate valve.

(3) Activate pumping source.

(4) Monitor metering source.

(5) When user's requirement is fulfilled, stop pumping.

(6) Close gate valve.

d. Draining Tank.

(1) Empty fuel from tank following procedures in paragraph 2-5 c, emptying fuel.

(2) Pump out tank as completely as possible. Open drain valves.

(3) Fold sides of tank toward middle. Roll end of tank farthest from the lowest drain assembly toward the drain to squeeze out residual fuel.

e. Operation with tee assembly. The tee assembly is used to fill or empty more than one tank without disconnecting and reconnecting lines.

(1) Connect the tee assembly straight nun male quick-disconnect (Q-D) coupling to tank #1 gate valve female Q-D coupling.

(2) Connect other tee assembly male Q-D coupling to tank #2 gate valve female Q-D coupling.

(3) Connect service line to the tee assembly female Q-D coupling.

(4) Remove dust cap prior to connecting service line to target tank.

(5) Operate gate valves as necessary to perform tank fill or discharge operations.

f. Preparation for storage and shipment. Refer to paragraphs 4-18 and 4-19.

SECTION IV. OPERATING UNDER UNUSUAL CONDITIONS

2-6. GENERAL.

a. Operating in Extreme Cold.

(1) Do not deploy tank when temperature is below -25°F (-310C).

(2) Keep snow and ice from building up on top of tank or on vent assembly.

(3) Keep snow and ice off couplings to ensure proper assembly and disassembly.

(4) Avoid any unnecessary folding, unfolding, or rolling of tank, which might cause flaking, cracking, or delamination of coating material.

b. Operating in Extreme Heat.

(1) Do not deploy tank when temperature is above 125°F (51.70C).

(2) Avoid any unnecessary handling of tank, which might cause coating material separation.

c. Operating in dusty or sandy areas.

(1) Keep tank clean. Make sure vent assembly and filler/discharge assemblies are clean.

(2) Keep all hoses and fittings covered with dust caps when not in use.

(3) Wipe ail couplings clean before assembling.

d. Operating after nuclear, biological, or chemical (NBC) contamination. Nuclear. If nuclear, biological or chemical contamination (fallout) occurs, refer to FM-3, FM-4, FM-5 for decontamination procedures.

e. Emergency shut down. Emergency shut down of fueling operations can be accomplished by performing the following:

(1) Close all gate valves.

(2) Disconnect servicing hoses.

(3) Clear area of equipment and personnel.

NOTE

For emergency destruction to prevent enemy use, refer to para. 1-12.

f. Emergency Procedures.

(1) General Emergency repair is performed when cuts or punctures occur in the tank when it is in use.

WARNING

Fuels are hazardous flammable liquids.

Do not smoke or bring open flame within 100 feet (30.34 meters) of the tank.

If fuel spills on or around a tank or within the diked area, shut down any nearby engine-driven equipment. Do not resume operation until it has been determined that the vapor concentrations are below the explosive range.

If fuel spills onto clothing, remove clothing before entering area with engine-driven equipment or where smoking Is permitted. Fuels and fuel sludge can cause injury to skin or eyes.

If fuel or sludge comes into contact with skin, flush skin with soap and water. If fuel or sludge comes into contact with eyes, flush with water. For further information on first aid, refer to FM 21-11.

Fumes from stored fuels are hazardous.

(2) Emergency repairs with wooden plugs (refer to figure 2-2).

(a.) In emergencies, as an immediate temporary measure, the wood plugs may be used for sealing small holes or punctures.

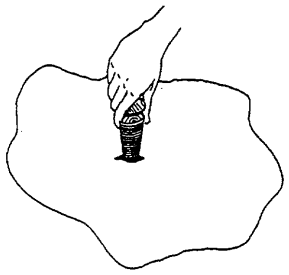


Figure 2-2. Installation of wood plug.

(b.) The size of hole or tear will determine the size of wood plug to be used.

1 For holes (tears) up to approximately 0.5 inch (1,27 cm) in size, use the 3- inch (7.62 cm) long plug.

2 For holes (tears) up to approximately 1.5 inch (3.81 cm) in size, use the 5- inch (12.7 cm) long plug.

(c.) Select the size plug needed to fit (seal) the tank puncture, wet and insert in the hole. Twist plug clockwise (to the right) until the leak is either stopped or slowed. Follow-up regular inspection should be made of the wood plugs, as possible tightening may be necessary if the leaks resume. Later, if a leak is not totally stopped, the use of a small sealing clamp may become necessary.

(3) Emergency repairs with sealing clamps (refer to figure 2-3)

a. Small slits, tears, or cuts (not to exceed 6 inches (15.24 cm) in length) may be repaired with sealing clamps.

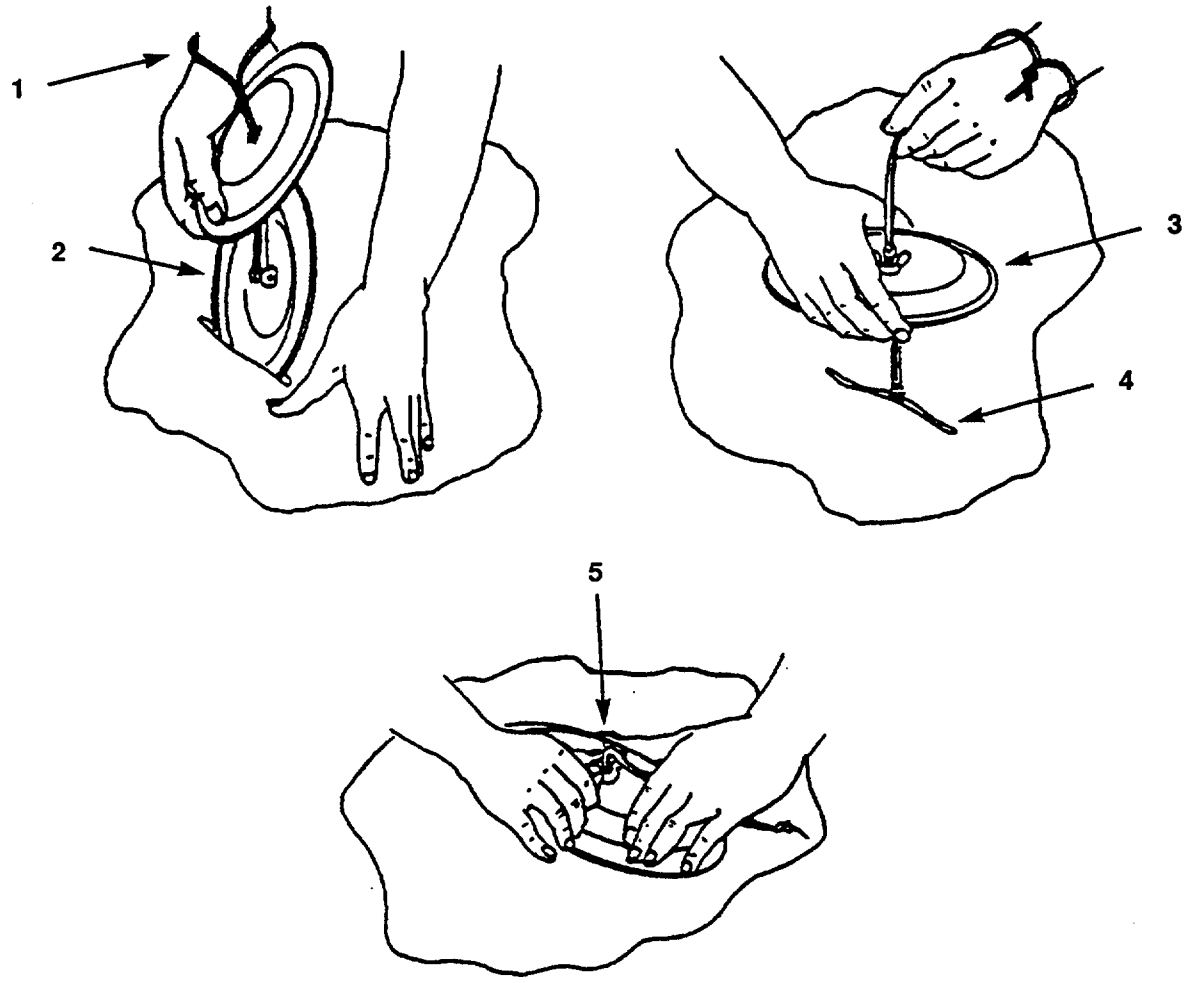


Figure 2-3. Installation of sealing clamps.

(b.) The size of the damaged area (opening) needing repair will govern the size of the clamp needed. Select the size as follows:

1 For holes (tears) less than 2 inches (5.08 cm) in length, use the 3-inch (7.6 cm) clamp.

2 For holes (tears) 2 to 4 inches (5.08 to 10.16 cm) in length, use the 5-inch (12.7 cm) clamp.

3 For holes (tears) 4 to 6 inches (10.1 6 to 15.24 cm) in length, use the 7 1/2- inch (19 cm) clamp.

4 It may be necessary to increase the size of the tears in order to be able to insert the bottom plate of the clamp.

CAUTION

Use extreme care when enlarging a tear. Tension in the fabric may cause the fabric to rip further. Ideally, tank height should not be greater than two feet (0.61 meters) when you make this repair.

(c.) Loop cord around wrist (1) to prevent loss of clamp into tank.

(d.) Slip the bottom plate of the clamp (2) through the hole or tear and rotate it until it is centered and its length runs with he tear.

(e.) Pull bottom plate up against fabric, and slide top plate and wingnut (3) down cord and onto threaded stud (4) of bottom plate.

(f.) With plates aligned, tighten wingnut (5) to clamp the tank wall between the two plates. Tighten enough to stop leak. Do not overtighten, as stud threads may be stripped, or damage to tank fabric may occur.

CHAPTER 3. OPERATOR MAINTENANCE INSTRUCTIONS

SECTION I. LUBRICATION

3-1. LUBRICATION. There is no lubrication required for the 5,000 Barrel Collapsible Fuel Tank.

SECTION II. OPERATOR TROUBLESHOOTING.

3-2. INTRODUCTION TO TROUBLESHOOTING.

a. Table 3-1 lists the common malfunctions which you may find during the operation or maintenance of the collapsible fabric water tank assembly or its components. Perform the tests/inspections and corrective actions in the order listed in the table.

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

3-3. MALFUNCTION INDEX

TABLE 3-1 OPERATOR TROUBLESHOOTING.

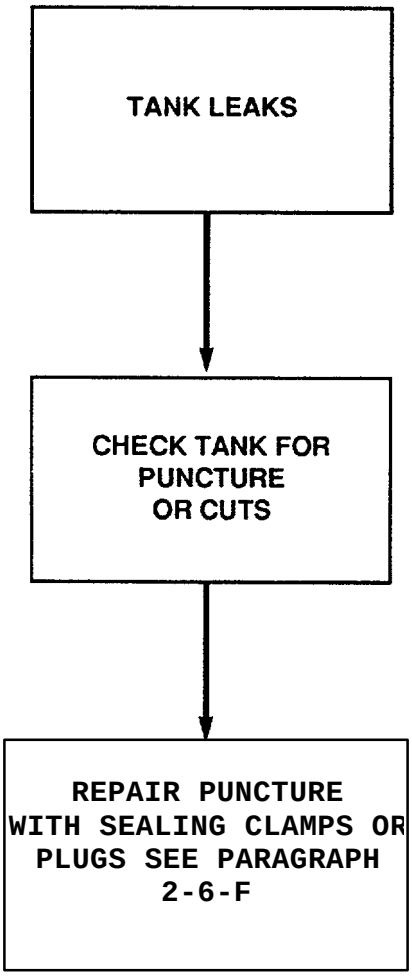


TABLE 3-1 OPERATOR TROUBLESHOOTING (CONTINUED).

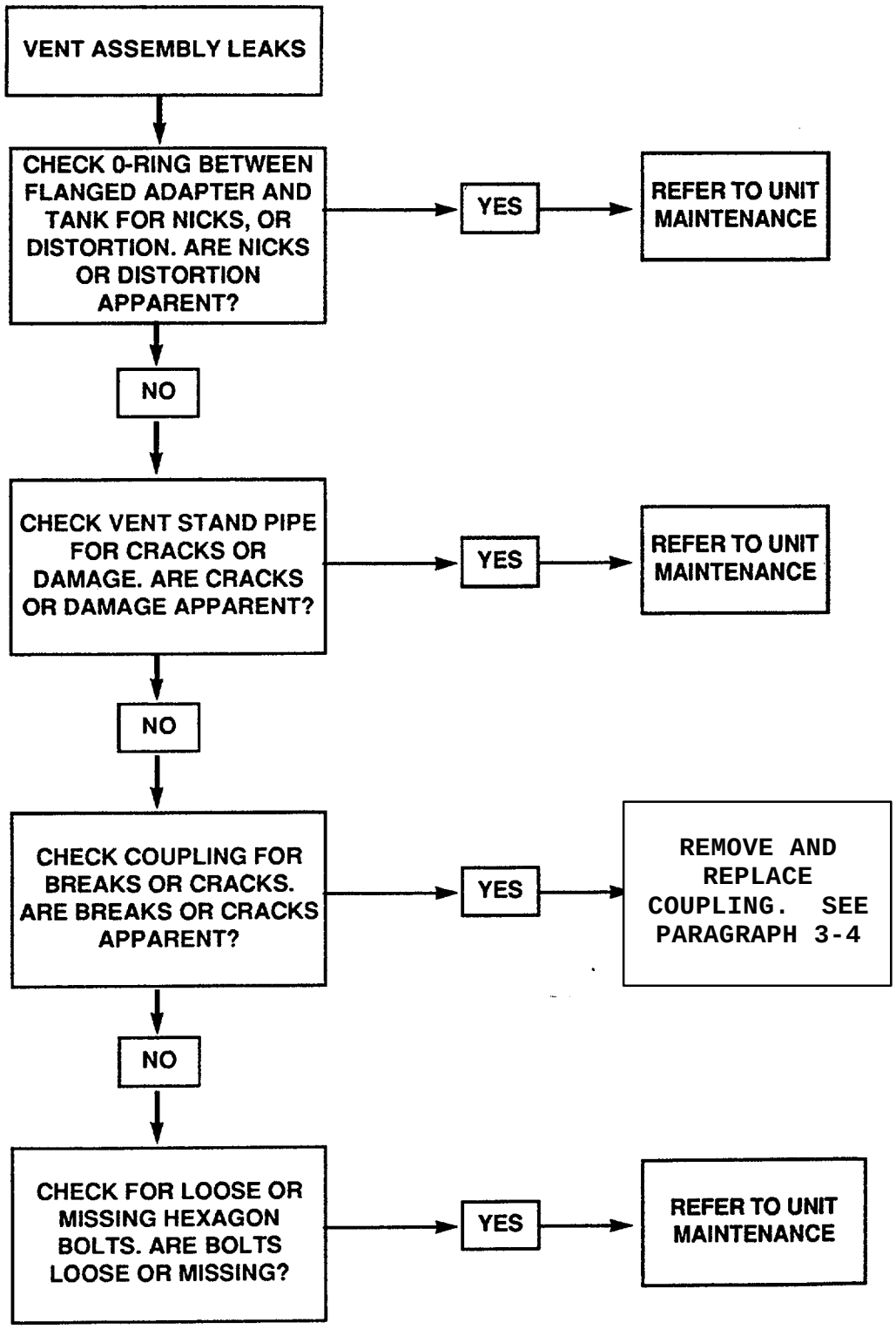


TABLE 3-1 OPERATOR TROUBLESHOOTING (CONTINUED).

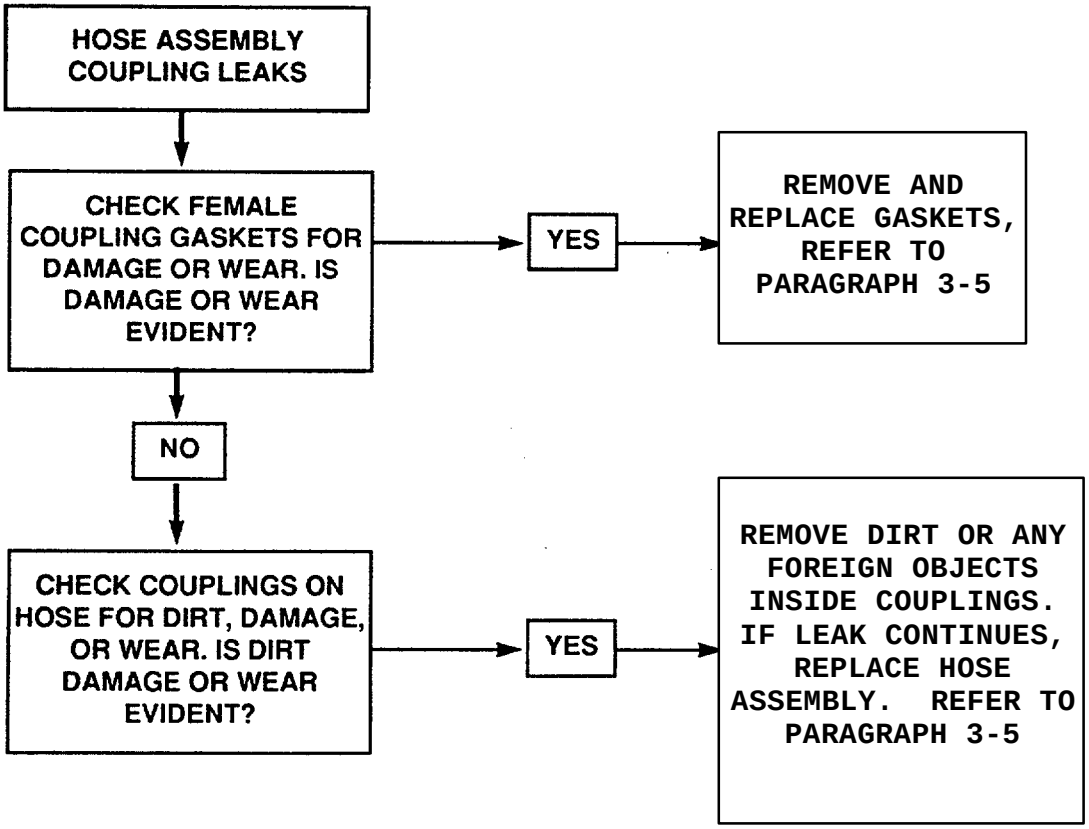


TABLE 3-1 OPERATOR TROUBLESHOOTING (CONTINUED).

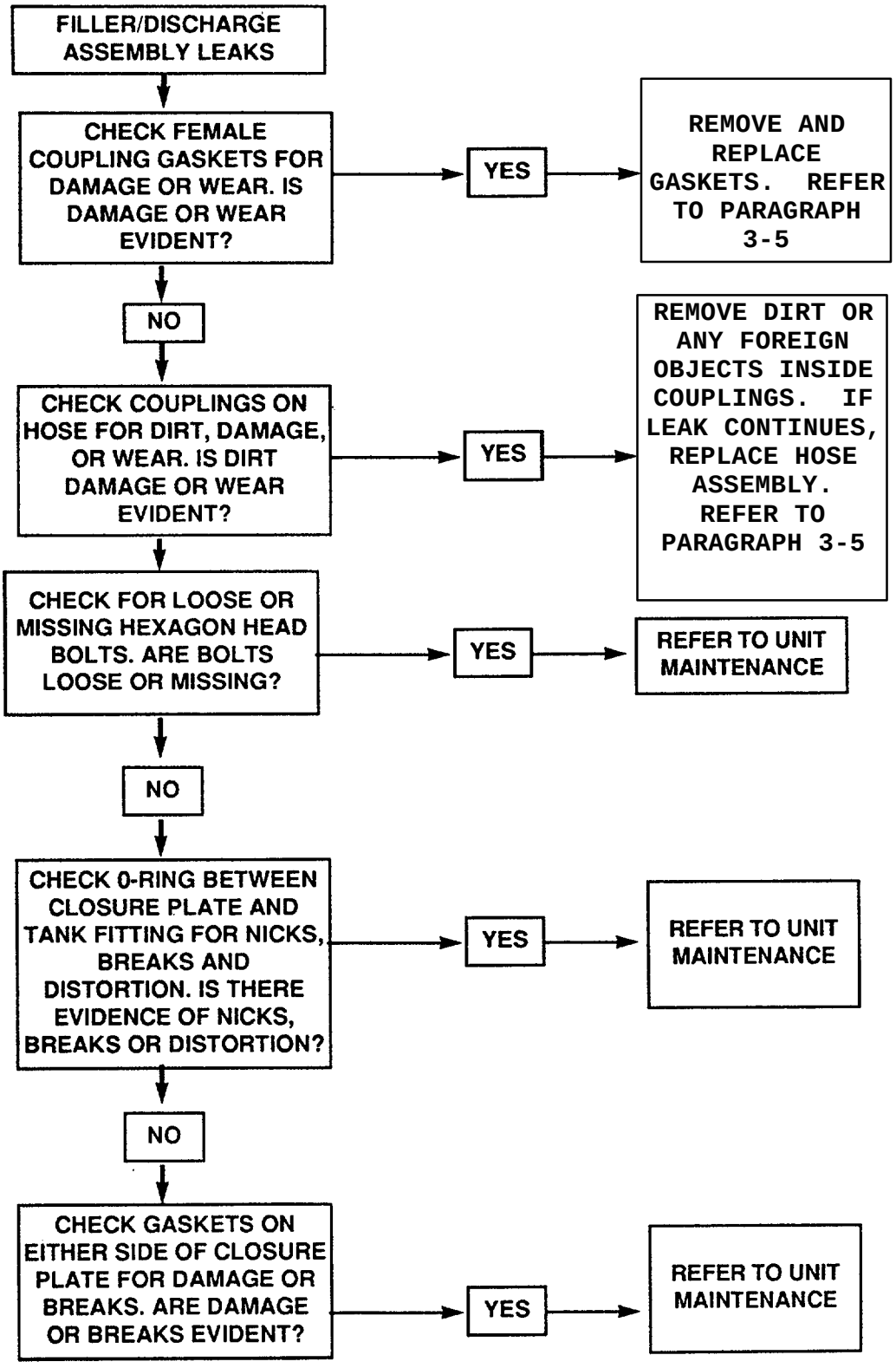


TABLE 3-1 OPERATOR TROUBLESHOOTING (CONTINUED).

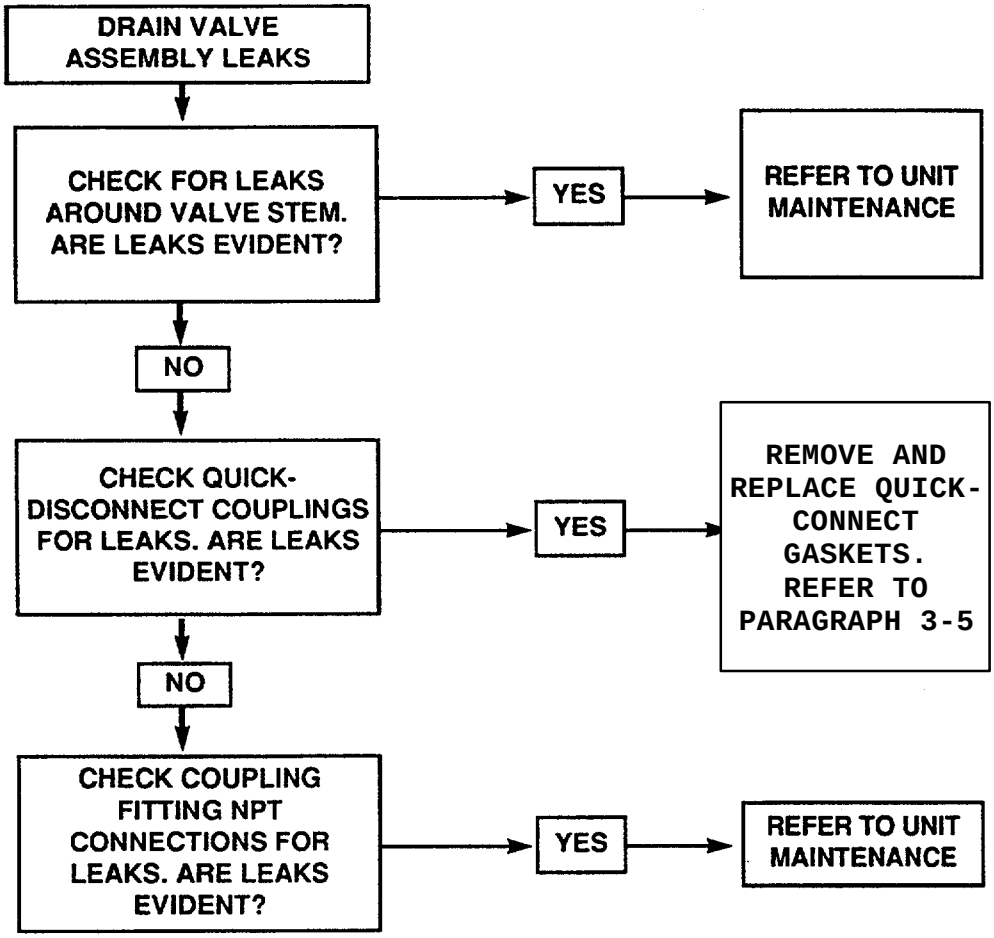


TABLE 3-1 OPERATOR TROUBLESHOOTING (CONTINUED).

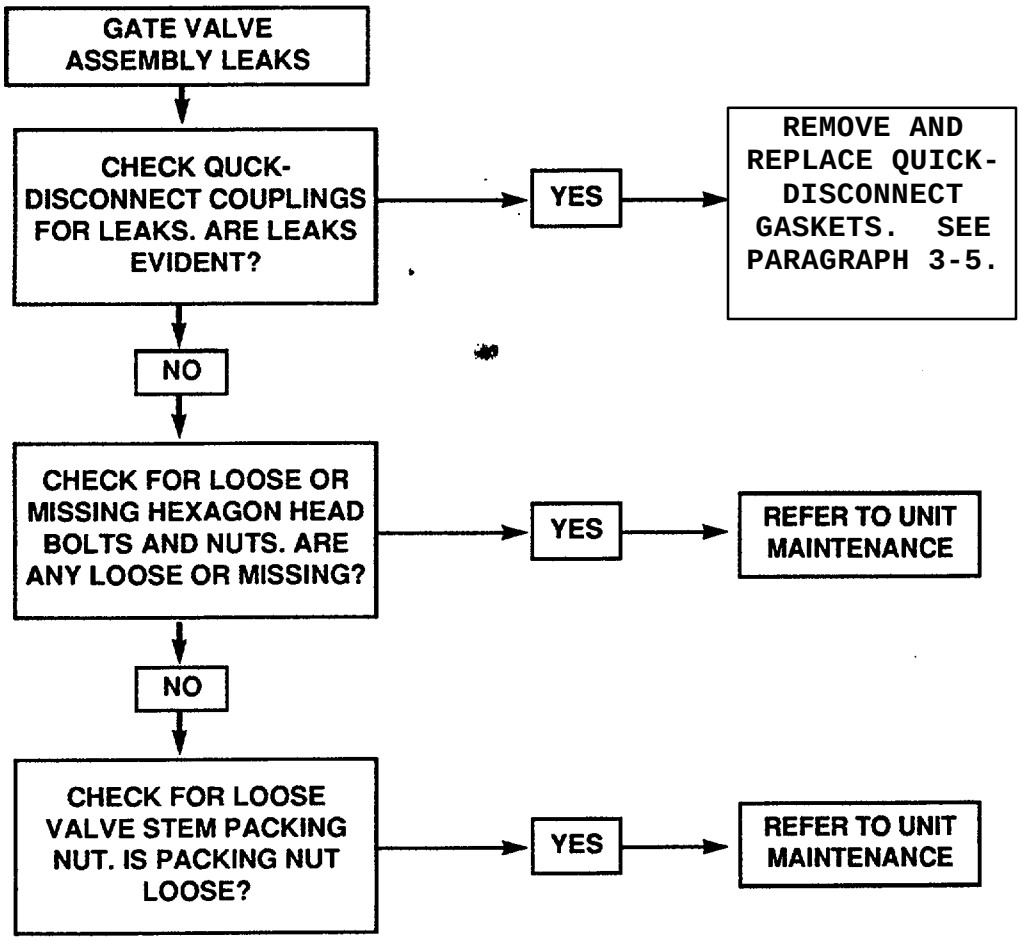
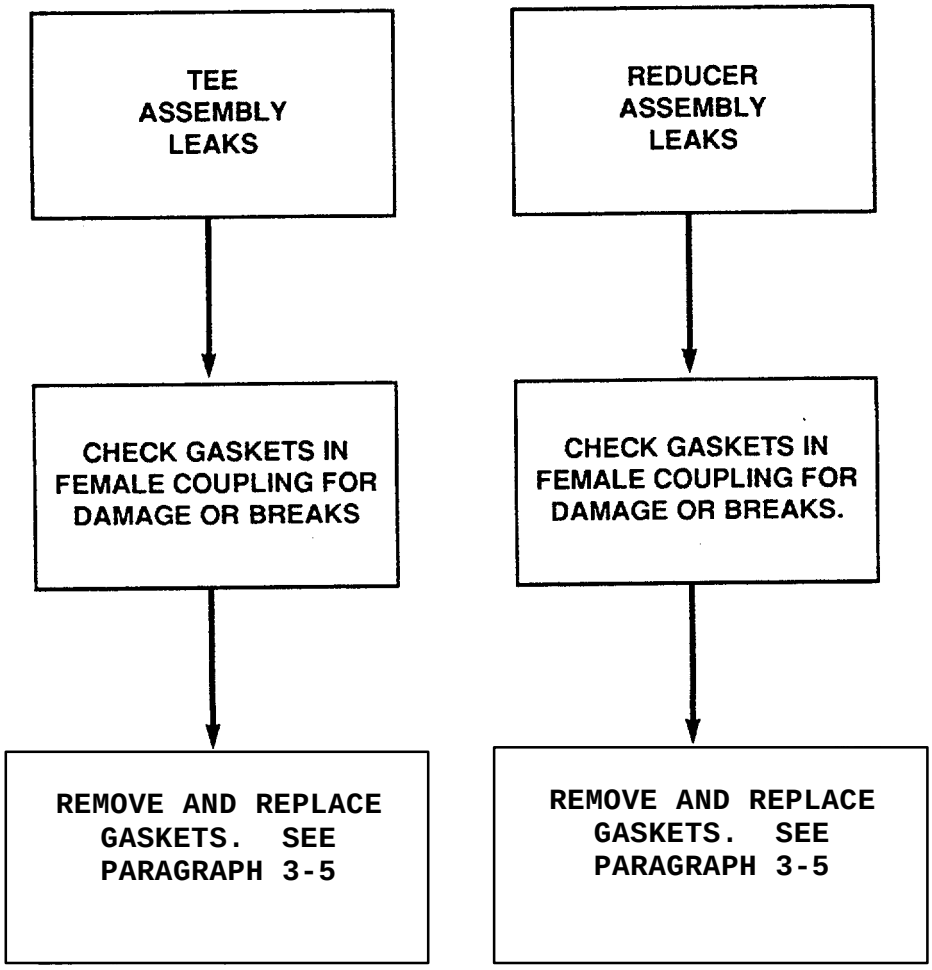


TABLE 3-1 OPERATOR TROUBLESHOOTING (CONTINUED).



SECTION III OPERATOR MAINTENANCE

3-4. GENERAL INSTRUCTIONS. Maintenance instructions in this section will list resources required, personnel required, and equipment condition for start of procedure, except as noted below:

a. Personnel required are listed only if the task requires more than one.

b. The normal standard equipment condition to start a maintenance task is fuel tank drained and deflated. EQUIPMENT CONDITION is not listed unless some other condition is required.

3-5. Quick-is connect Coupling Maintenance

This task covers: **Repair**

INITIAL SETUP

Tools: N/A

Materials/Parts
Gasket, Appendix D, Section II item 16
Key Rings, Appendix F, Section II, items 10 and 11

Equipment Condition: Quick Disconnect coupling removed from tank and/or valve.

Repair: Refer to Figure 3-1

1. Remove gasket (1) from female coupling half (2).
2. Remove key rings (3) from cam-lock levers (4).
3. Install key rings (3) onto cam-lock levers (4).
4. Install gasket (1) into female coupling half (2).

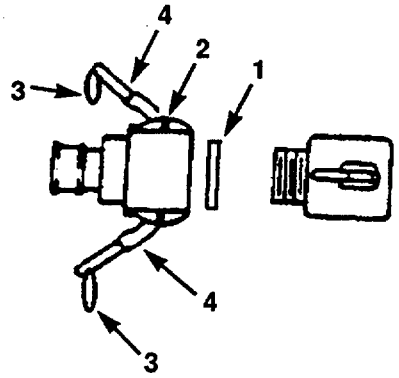


Figure 3-1. Quick-Disconnect Coupling

CHAPTER 4
UNIT MAINTENANCE INSTRUCTIONS

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

4-1. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

4-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. Special tools or TMDE required for operation or maintenance of the collapsible fabric water tank are the tire valve tool and the stitcher. (Refer to RPSTL, Appendix C.) Support equipment consists of the repair kit.

4-3. REPAIR PARTS. Repair parts are listed and illustrated in Appendix C of this manual.

SECTION II. UNIT SERVICE UPON RECEIPT

4-4. SERVICE UPON RECEIPT OF MATERIEL.

a. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage in accordance with the instructions of DA PAM 738-750.

b. 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.

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

4-5. SITE SELECTION.

a. Dimensions.

(1) Select or grade a level area of at least 95 X 95 feet; this will provide the desired 13-foot perimeter around the empty flat tank.

NOTE

If berm liner is used, install in accordance with unit standard operating procedure.

(2) For tank operation, the tank bed area will have a slope of 3 inches in 100 feet. Do not exceed 12 inches in 100 feet. The site must not be subject to flooding or high water.

CAUTION

Clear the site of all sharp objects that might puncture or scuff the tank.

(3) Place one of the tank sides and a filler/discharge fitting at the lowest end.

4-6. DEPLOYMENT.

a. Skid Placement. (refer to figure 4-1)

(1) Place the skid (1) containing the tank (2) in the middle of the prepared site.

(2) The length of the skid (1) must be parallel to the slope fail line.

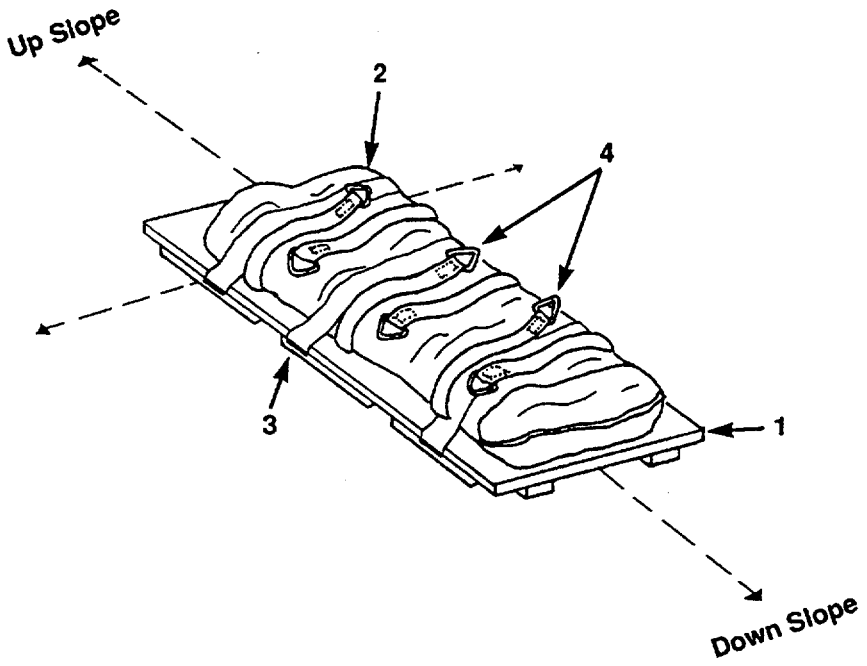


Figure 4-1. Skid Placement

NOTE

Make sure that skid is in the proper position before beginning deployment. It is very difficult to move tank once it has been deployed.

b. Tank Removal. (refer to figure 4-1)

(1) Remove 3, 3 inch tiedown straps (3) from skid and tank. Retain for future deployment.

CAUTION

Do not lift tank without the use of slings and authorized lifting equipment. Damage to tank may result.

NOTE

If authorized lifting equipment is available, lift tank using lifting slings (4) and remove skid from area. When lowering tank to ground, be sure to return it to its original position. Proceed to step 5 to complete tank deployment. If authorized lifting equipment is not available, continue with step (2).

(2) Fold back lifting slings. Make sure lifting slings (4) are laying flat. The slings and line will be used during re-deployment.

CAUTION

Do not drop sharp objects on the tank. Walk on tank as little as possible. Do not drive vehicles over tank. Failure to observe these precautions may result In punctures, tears or scuffs on the tank body.

(3) Unroll one end of tank by pushing on roll. (See figure 4-2.)

NOTE

Do not unroll both ends. Wait until shipping skid has been removed and placed outside site area.

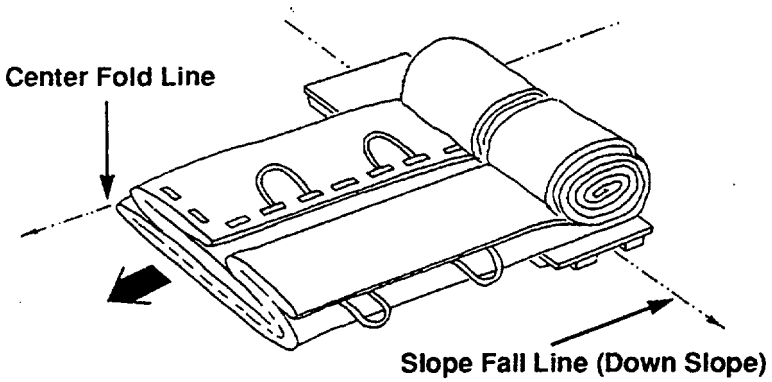


Figure 4-2. Skid Removal-A

(4) Roll remaining section off shipping skid toward the unrolled section(Figure 4-3). When skid is free from tank, remove skid and place skid outside site area.

Figure 4-3. Skid Removal-B

(5) After skid is removed, unroll tank by pushing on roll.

(6) Unfold tank by pulling each row of deployment straps (1) in opposite directions. (See Figure 4-4.) This will extend the two top folded layers.

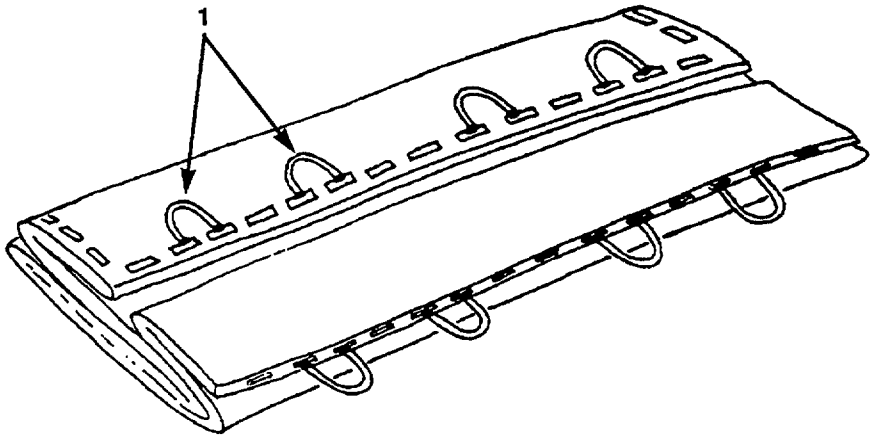


Figure 4-4. Deployment

(7) (Refer to figure 4-5) Use deployment straps (1) and tank handles (2) to fully unfold tank (3). Tank should be laying smooth without folds.

(8) Tank (3) should be centered within the deployment site with one drain assembly (4) at low end of site. Use tank handles (2) to move tank, as necessary (see figure 4-5).

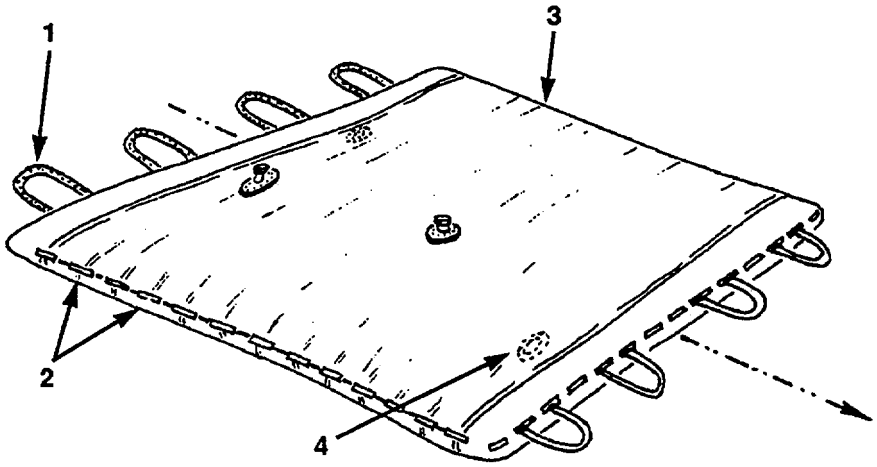


Figure 4-5. Tank fully deployed

c. Preassembly Inspection. To ensure that the tank has not been damaged during shipment, conduct an inspection before assembly.

(1) Unpack consolidation box and check that all components are present.

(2) Check that each female coupling has a sealing gasket. Replace all missing gaskets.

(3) Check cam arm operation for all female couplings. Do not use couplings with broken, bent, or faulty cam arms.

(4) Check that the gate valves open and close.

(5) Check tank for punctures or tears.

4-7. ASSEMBLY. After the tank has been unpacked, deployed, and inspected, perform the following steps in order.

a. Site Preparation.

CAUTION

All metals on the tank and the tank accessories are aluminum alloy. Do not drop or strike these items. Scuffed or bent accessories will not assemble properly.

(1) For ease in emptying the tank completely, dig a hole under the down slope drain fitting.

(a) Fold about 10 feet (3.05 meters) of each end of tank back over the rest of the tank to expose connections for drain assemblies located on the bottom of the tank.

(b) At the point where the drain fitting strikes the ground, dig a hole approximately 36 inches (91.5 centimeters) long by 36 inches (91.5 centimeters) wide and 3 inches (7.5 centimeters) deep. Keep the drain fittings contact points centered.

(c) Dig a 3 inch (7.5 centimeters) wide by 3 inch (7.5 centimeters) deep by 10 inch (3.05 meters) long.

(2) Attach Drain Hoses and Fittings.

(a) When attaching drain hoses to the drain fittings, wrap the drain hose male threads with 3 or 4 layers of Teflon tape to ensure a positive seal.

(b) Remove drain valves from drain hoses by unscrewing drain valve from hose (if attached):

(c) Remove drain plug from each drain assembly and attach a drain hose to each drain assembly.

(d) Unfold tank ends to lie flat in original position. Hoses should extend from bottom of tank.

(e) Connect drain valves to drain hoses. Ensure that valves are closed. When attaching drain valve to drain hose, wrap the drain hose male threads with three or four layers of teflon tape to ensure a positive seal.

(f) Remove dust caps and dust plugs from tank, vent fitting and filler discharge fittings. Remove dust plug and dust cap from 6 inch gate valve. If the sealing surfaces of the couplings are dirty, wipe with a clean cloth.

(g) Inspect female coupling half (1) and vent pipe (2) for cleanliness. (See figure 4-6)

NOTE

Normally the vent pipe and female coupling half will be received preassembled.

(h) Check to see that relief cap (3) operates freely.

(i) Check to see that flame arrestor (4) is installed.

(j) Check to see that relief cap (3) is installed tightly on vent pipe (2).

(k) Check to see that gasket (5) is in place and correctly seated.

(l) Insert female coupling half (1) over flanged adapter (6) with cam-lever arms (7) in outward position.

(m) Press cm-lever arms (7) upward and inward to lock vent pipe assembly into operating position.

(n) Connect filler/discharge elbows to tank. Close both cam arms on each assembly at the same time by hand.

(o) Select one filler/discharge elbow to be used in operation. Place dust cap or plug on the filler/discharge elbow that will not be used.

(p) Connect hose to elbow. Close both cam arms at the same time by hand.

(q) Connect valve to hose. Close both cam arms at the same time by hand.

(r) Close the gate valve.

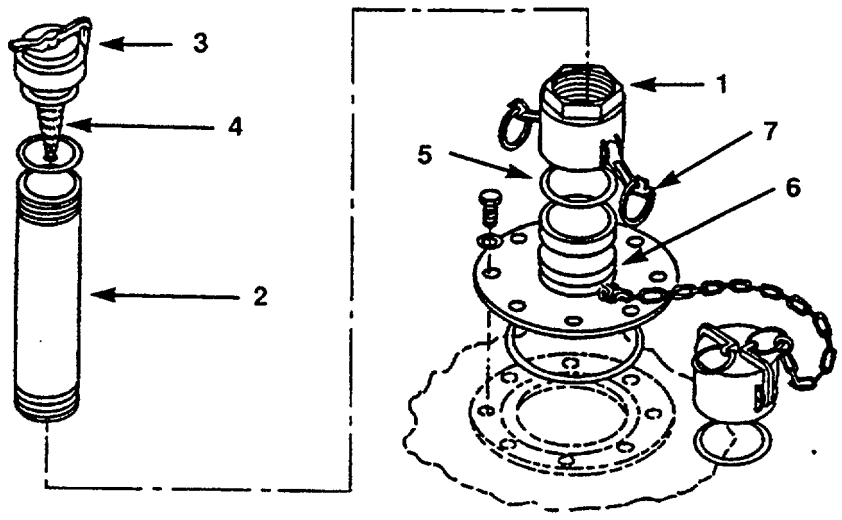


Figure 4-6. Vent and pipe assembly

(3) Berm Construction. The site area must be bermed to stop the flow of fuel in case of rupture or leakage. An erected dike (Figure 4-7) should have the following characteristics:

(a) At least a 104oot (3.05 meter) working area between the tank and the walls.

(b) Walls 5 feet, 6 inches (1.68 meters) high (high enough for the internal volume to be 1-1/2 times greater than the volume oft he tank).

(c) Walls protected against erosion with sod or stone. Wall height should not fall below 4 feet, 6 inches (1.37 meters).

(d) A drain pipe and valve at the low end of the site to remove accumulated rain water. The drain should normally be kept closed. It can be opened as needed.

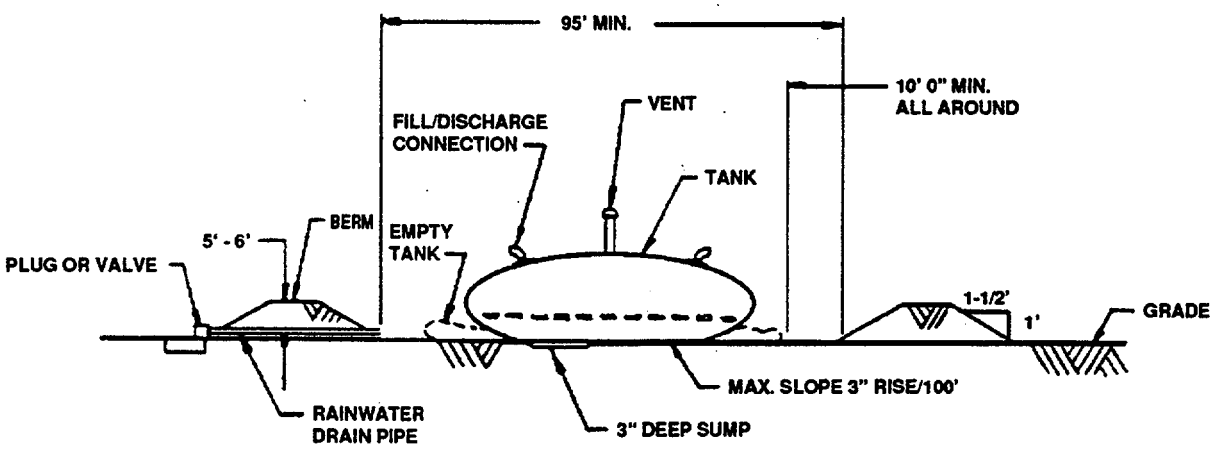


Figure 4-7. Berm Construction

SECTION III UNIT PMCS

There are no PMCS procedures at Unit Level.

SECTION IV. UNIT TROUBLESHOOTING

4-8. INTRODUCTION TO UNIT TROUBLESHOOTING.

(1) Table 4-1 lists the common malfunctions which you may find during the operation or maintenance of the collapsible fabric fuel tank assembly or its components. Perform the tests/inspections and corrective actions in the order listed in the table.

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

4-9. MALFUNCTION INDEX

TABLE 4-1 UNIT TROUBLESHOOTING.

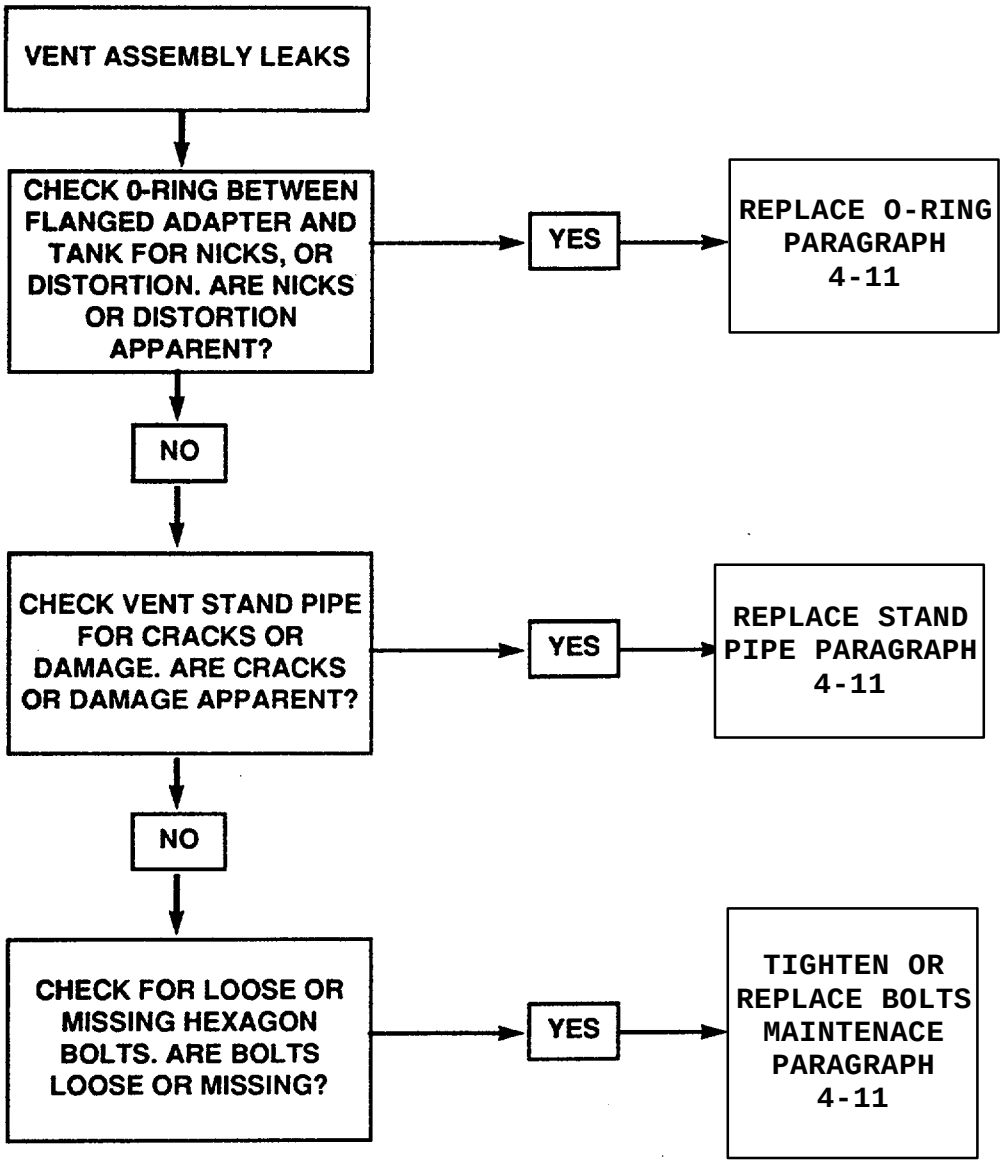


TABLE 4-1 UNIT TROUBLESHOOTING (CONTINUED).

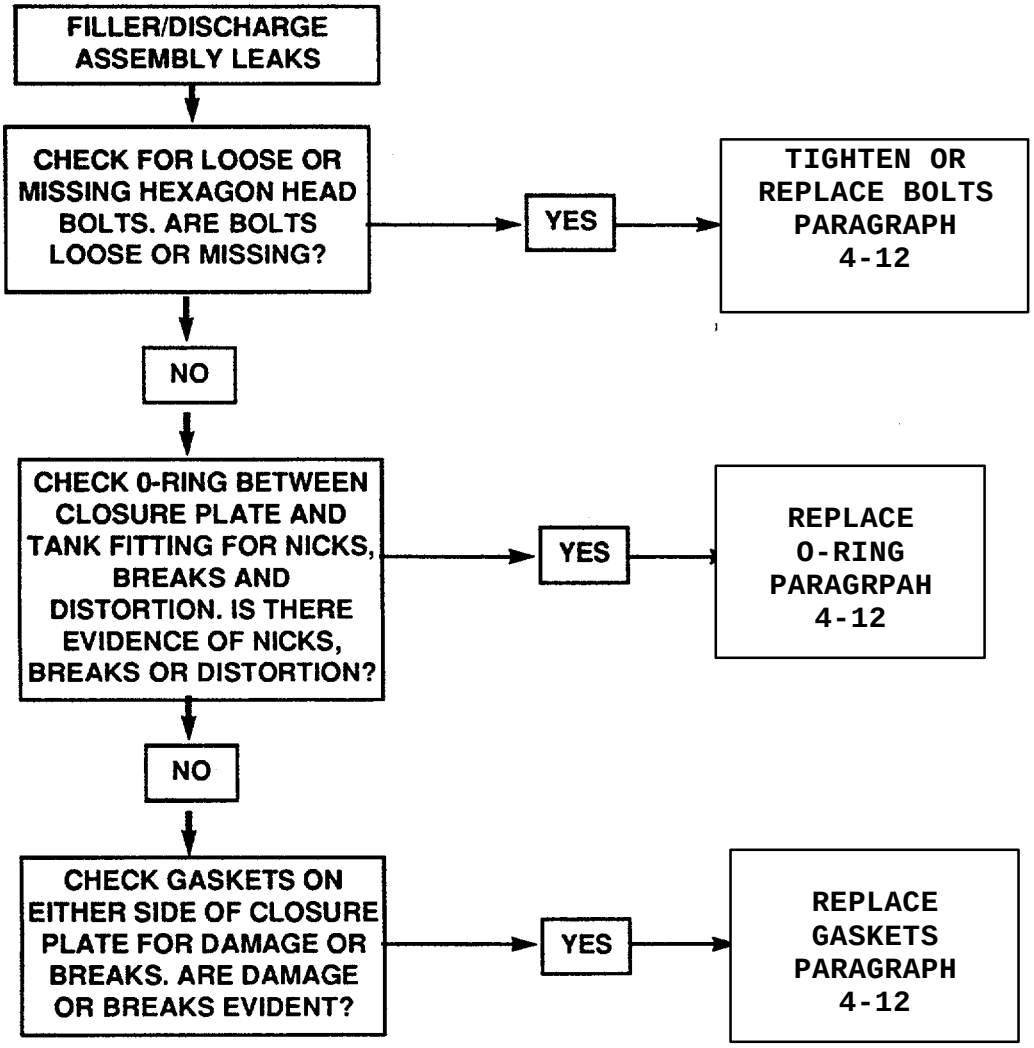


TABLE 4-1 UNIT TROUBLESHOOTING (CONTINUED).

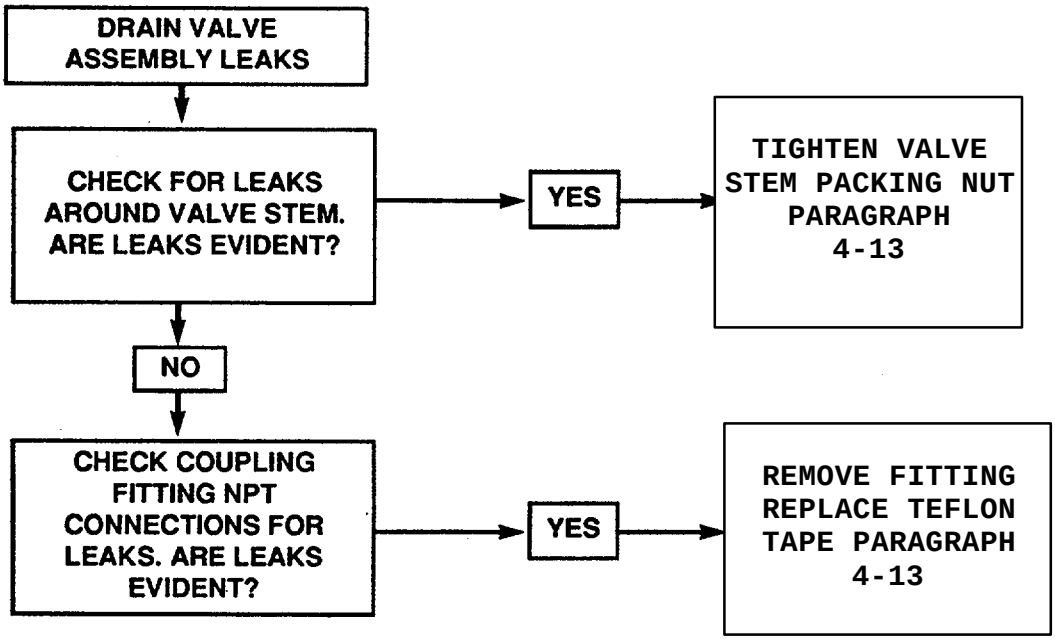
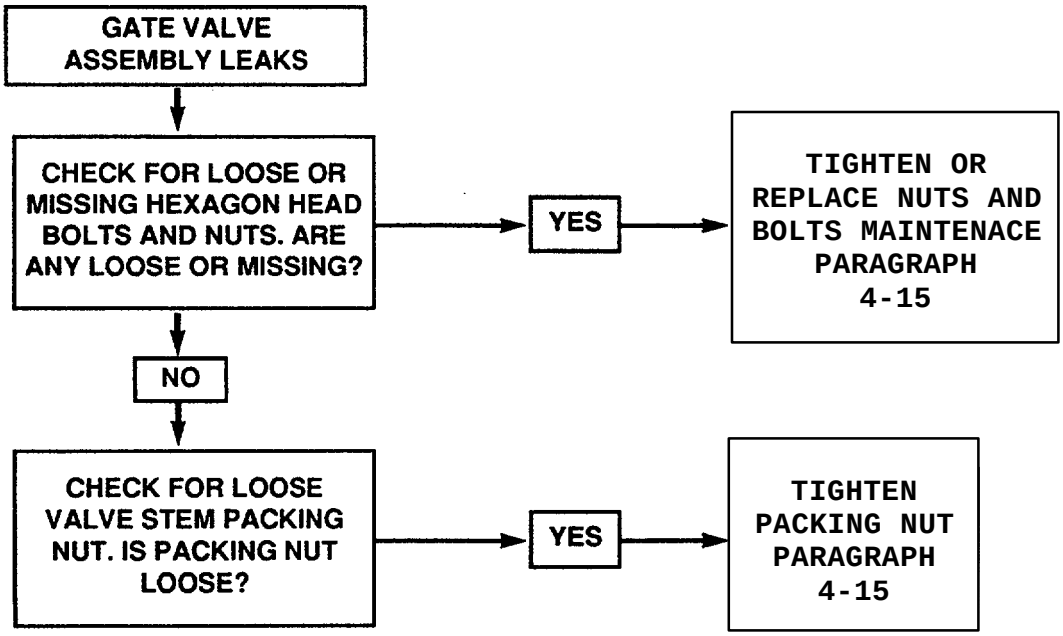


TABLE 4-1 UNIT TROUBLESHOOTING (CONTINUED).



SECTION V
MAINTENANCE PROCEDURES

4-10. GENERAL INSTRUCTIONS Maintenance instructions listed in this section will list resources required, personnel required, and equipment condition for start of procedure, except as noted below:

(1) Personnel required are listed only if the task requires more than one.

(2) The normal standard equipment condition to start a maintenance task is fuel tank drained and deflated. EQUIPMENT CONDITION is not listed unless some other condition is required.

4-11 Vent and Pipe Assembly

This task covers: Repair

INITIAL SETUP

Tools
Tool Kit, General Mechanics
Appendix B, Section III, item 1
Torque Wrench
Appendix B Section III, Item 2

Materials Parts
Cleaning solvent, item 1, appendix F
Rags, item 6, appendix F
Silicone compound, item 7, appendix F

Materials/Parts
Preformed Packing, Appendix D, Sect II Item 16

Equipment Condition: N/A

REMOVAL (see figure 4-8)

1 Remove eight screws (1) and washers (2) from vent and pipe assembly (3).

2 Lift male flanged adapter (4) from tank fitting (5).

3 Remove preformed packing (6) from packing groove (7) in tank fitting (5).

DISASSEMBLY (see figure 4-8)

1 Disconnect female quick-disconnect coupling (8) from flanged male adapter (4).

a. Pull outward on cam-lever arms (9).

b. Lift female quick-disconnect coupling (8) from flanged male adapter (4).

c. Remove gasket (10).

2 Disconnect female quick-disconnect coupling (8) from vent pipe (11). Turn vent pipe to left until threads disengage.

3 Disconnect relief cap (12) from vent pipe (11). Turn relief cap to left until threads disengage.

4 Remove flame arrestor (14) from relief cap (12). Turn flame arrestor to left until threads disengage from relief cap (12).

5 Remove relief cap gasket (13) from inside relief cap (12).

6 Remove gasket (15) from inside dust cap (16).

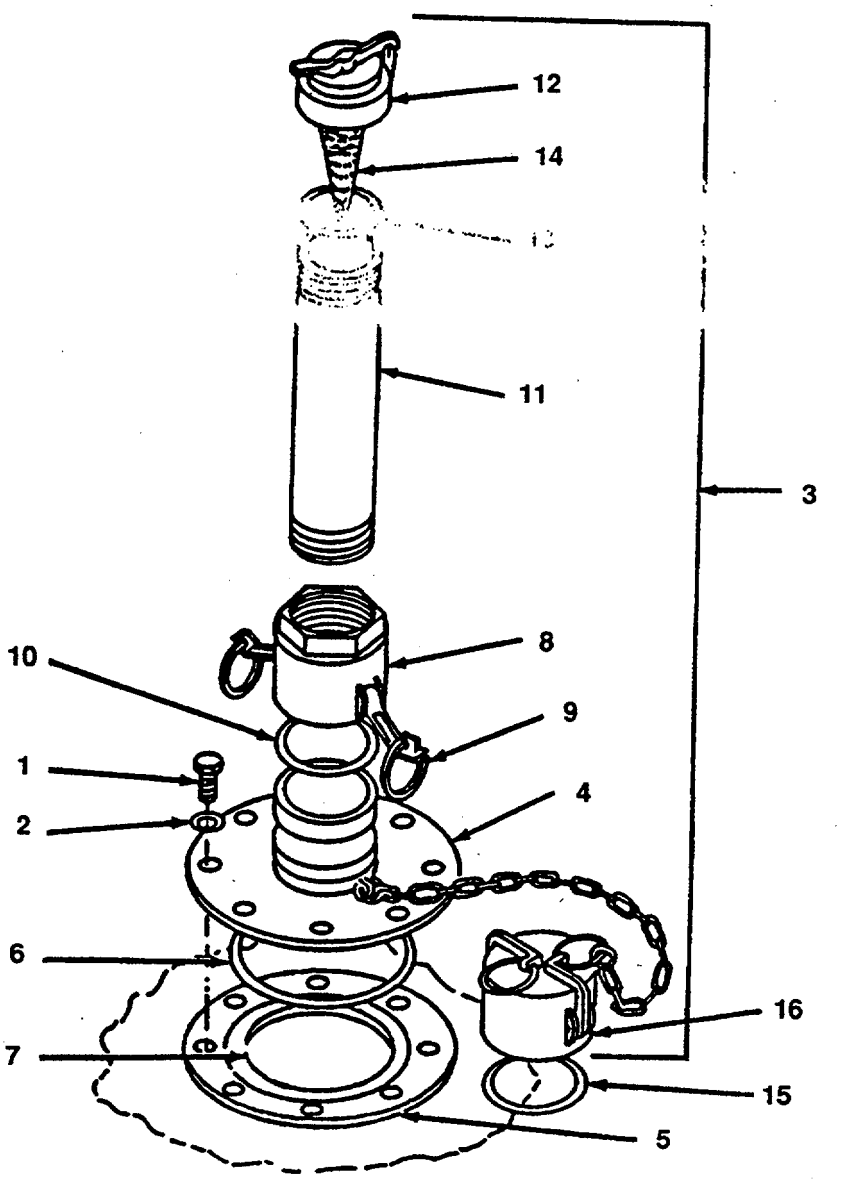


Figure 4-8. Vent and Pipe Assembly

SERVICE

WARNING

Cleaning solvent, P-D-680, used to clean parts, Is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only In well-ventilated areas. Avoid repeated and prolonged skin contact. Do not use near an open flame or excessive heat. The flash point of solvent Is 100°F to 138°F (38°C to 59°C).

1 Clean all parts with cleaning solvent and dry thoroughly.

2 Clean out preformed packing grooves with cleaning solvent and dry thoroughly.

3 Inspect all mechanical parts for cracks, dents, breaks, or wear. Replace or repair if unserviceable.

4 Carefully inspect gaskets and preformed packings for deterioration, distortion, cracks, or breaks. Replace when service is doubtful.

5 Ensure that vent hole in flame arrestor is clear.

ASSEMBLY (see figure 4-8)

1 Place relief cap gasket (13) inside relief cap (12).

2 Install flame arrestor (14) on relief cap (12); turn flame arrestor to right until two pieces are joined tightly together.

3 Install flame arrestor (14) and the relief cap (12) on the vent pipe (11) until vent pipe contacts relief cap. Rotate relief cap to right until vent pipe and relief cap are pinned tightly together.

4 Insert vent pipe (11) in quick-disconnect coupling (8); rotate pipe to right until two pieces are joined tightly together.

5 Insert gasket (10) into female quick-disconnect coupling (8).

6 With cam-lever arms (9) in outward position, install quick-disconnect coupling (8) on male flanged adapter (4). Pull cam-lever arms in until they lock in place.

7 Install gasket (15) into dust cap (16).

INSTALLATION (See figure 4-8)

1 Lubricate preformed packing (6) with silicone compound; install into packing groove (7) in tank fitting (5).

2 Install eight washers (2) and screws (1) through vent and pipe assembly (3) and tank flitting (5). Torque screws to 30 in-lb (3.41 Nm) in accordance with 8 bolt torque pattern.

4-12 Filler/Discharge Assembly.

This task covers: Repair

INITIAL SETUP

Tools
Tool Kit, General Mechanic's, Appendix B, Section III, item 2
Torque wrench (ft-lb), Appendix B, Section III, item 2

Materials/Parts
Cleaning solvent, item 1, Appendix F
Cleaning Compound, item 4, Appendix F
Rags, item 6, Appendix F
Silicone compound, item 7, Appendix F
Preformed patching, Appendix D, Section II, item 16

CAUTION

Be sure to take off the closure plate before removing the flanged adapter. The flanged adapter Is bolted to the closure plate and suction stub. If It Is removed first, the suction stub will fall Into the tank.

NOTE

The filler/discharge fitting on the discharge end requires a female/male elbow. The filler/discharge fitting on the fill end requires a female/female elbow.

DISASSEMBLY (see figure 4-9)

1 Remove 6-inch elbow (1) by pulling outward on cam-lever arms (2). Lift elbow from flanged adapter (3).

2 Remove elbow gasket (4) from inside of elbow (1).

3 Remove 20 screws (5) and washers (6) and lift closure plate (7) from collapsible tank fitting (8).

4 Lift preformed packing (9) from inside packing groove in tank fitting (8).

5 Remove screws (10), and washers (11) from remaining assembly. This releases suction stub (12) from bottom of closure plate (7) and flanged adapter (3) and flange gasket (13) from top and bottom of closure plate (7).

6 Remove gasket (14) from inside of dust cap (15).

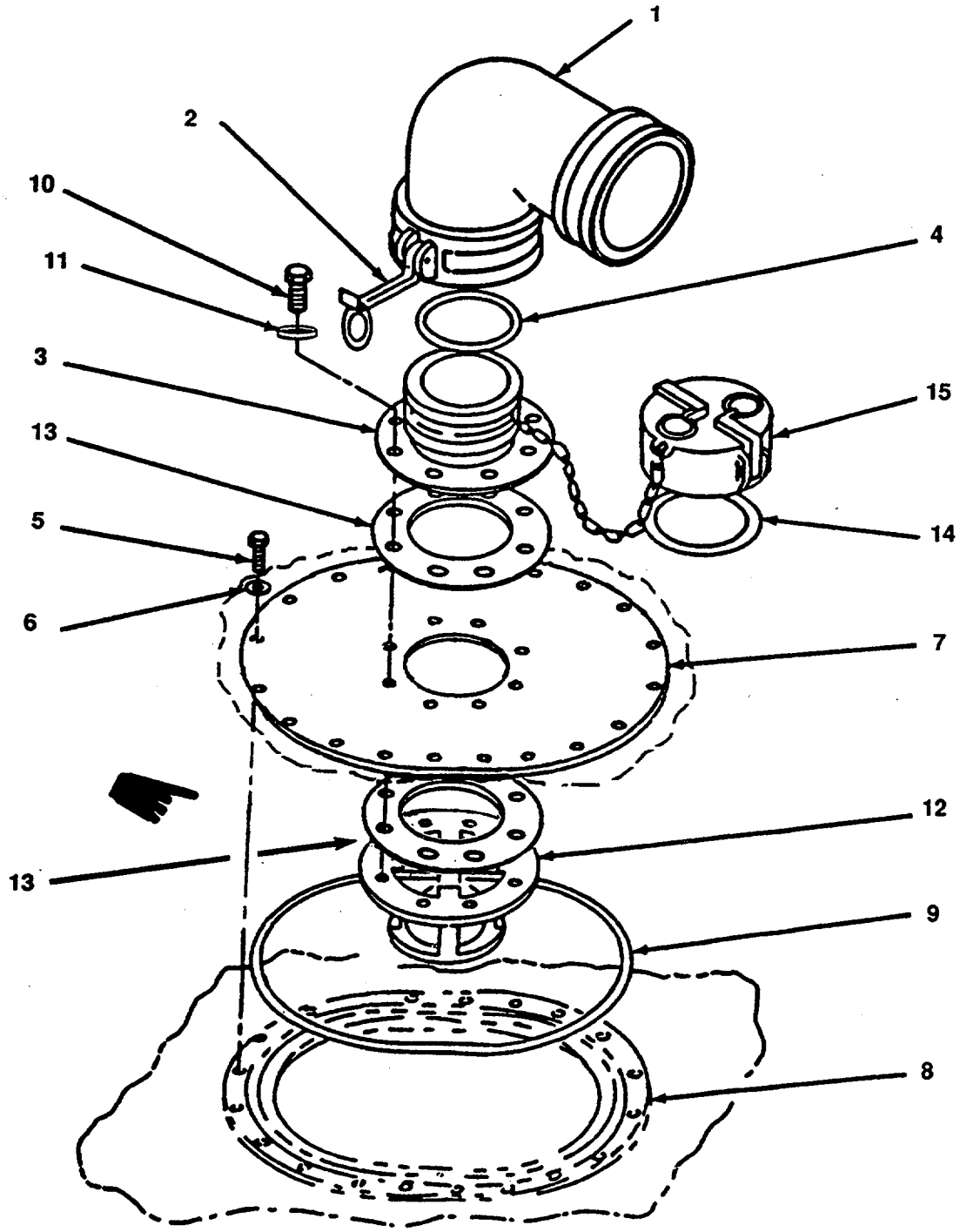


Figure 4-9. Filler/Discharge Assembly

SERVICE

WARNING

Cleaning solvent, P-D-680, used to clean parts, Is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only In well-ventilated areas. Avoid repeated and prolonged skin contact. Do not use near an open flame or excessive heat. The flash point of solvent Is 100°F to 138°F (38 ° C to 59 ° C).

1 Clean all parts with cleaning solvent and dry thoroughly.

2 Clean out packing grooves thoroughly with cleaning compound and hot water.

3 Inspect all mechanical parts for cracks, dents, breaks, or wear. Replace or repair if unserviceable.

4 Carefully inspect gaskets and packing for deterioration, distortion, cracks, or breaks. Replace when serviceability is doubtful.

ASSEMBLY (See figure 4-8)

1 Place gasket (14) into dust cap (15).

2 Place elbow gasket (4) into elbow (1).

3 Place suction stub (1 2) on flat hard surface with bolt holes on top.

4 Place one flange gasket (13) on the suction stub (12) and align the bolt holes.

5 Place closure plate (7) on top of suction stub (12) and flange gasket (13) being careful to keep all holes aligned.

6 Place the other Mange gasket (13) on dosure plate (7) and align holes.

7 Place flanged adapter (3) on flange gasket (13) and align holes. Place flat washers (11) over holes in flanged adapter (3).

8 Insert screws (10) through holes in flanged adapter (3) and torque to 10 ft.-lbs. (14 N•m).

9 Lubricate preformed packing (9) with silicone compound and place in packing groove in collapsible tank fitting.

10 Place closure plate (7) and attached components on tank and insert suction stub (12) through opening in tank until closure plate (7) contacts tank fitting (8).

11 Place flat washers (6) over holes in closure plate (7). If tank is lying completely flat, lift tank to closure plate (7) to start screws (5) in tank fitting (8).

12 Torque to 30 in-lb (3.41 N•m).

13 Place elbow (1) on flanged adapter (3). Pull inward on cam-lever arms (2) to lock items together.

4-13 Drain Fitting Assembly

This task covers: Repair

INITIAL SETUP

Tools
Tool Kit, General Mechanics, Appendix B, Section III, item 2
Torque wrench (ft-lb), Appendix B, Section III, item 2

Materials/Parts
Cleaning solvent, Item 1, Appendix F
Cleaning Compound, item 4, Appendix F
Rags, item 6, appendix F
Silicone Compound, Item 7, Appendix F
Sealing Compound, Item 2, Appendix F

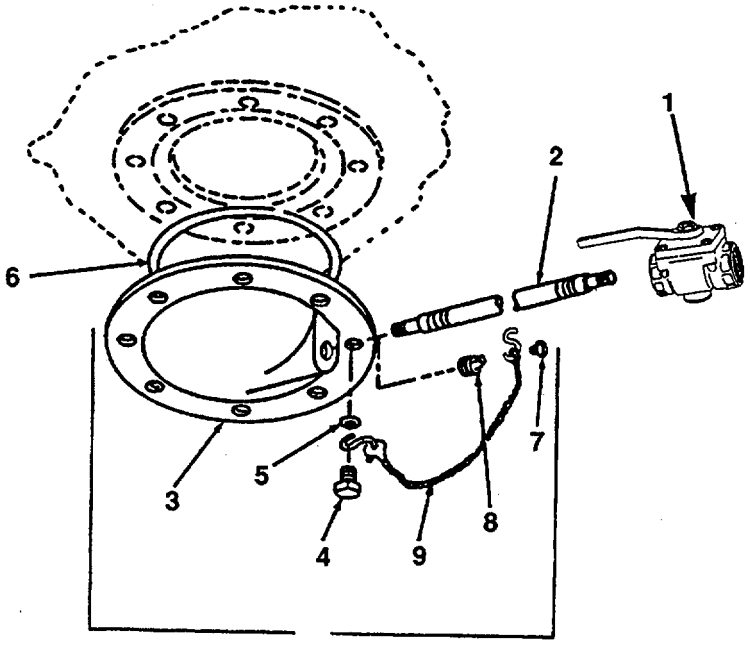


Figure 4-10. Drain Fitting Assembly

DISASSEMBLY (see figure 4-10)

1 Disconnect ball valve (1) from drain hose (2) by rotating ball valve to left until threads disengage.

2 Disconnect drain hose (2) from drain fitting (3) by rotating drain hose to left until threads disengage.

3 Remove screws (4) and washers (5) that hold drain fitting assembly (3) to tank fitting.

4 Remove drain fitting (3).

5 Remove preformed packing (6) from packing groove in tank fitting.

6 Remove roundhead screw (7) from drain plug (8) and remove chain assembly (9).

SERVICE

WARNING

Cleaning solvent, P-D-680, used to clean parts, Is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only In well-ventilated areas. Avoid repeated and prolonged skin contact. Do not use near an open flame or excessive heat. The flash point of solvent Is 100°F to 138°F (38 ° C to 59 ° C).

1 Clean parts with cleaning solvent and dry thoroughly.
2 Clean packing groove thoroughly with cleaning compound and hot water.
3 Inspect all mechanical parts for cracks, dents, breaks, or wear. Replace or repair if unserviceable.
4 Carefully inspect preformed packing for deterioration, distortion, cracks or breaks. Replace when serviceability is doubtful.

ASSEMBLY (See figure 4-10)

1 Lubricate preformed packing (6) with silicone compound and place in packing groove on tank fitting.
2 Place drain cover plate (3) on tank fitting. Align holes.
3 Install screws (4) with washers (3) and hand-tighten.
4 Insert one S-hook of chain assembly (9) under head of screw (4) and torque using 8 bolt torquing pattern
5 Attach remaining S-hook of chain assembly (9) to drain plug (8) with roundhead screw (7).
6 Apply sealing compound or antiseize tape to threads of hose (2).
7 Assemble drain hose (2) to drain cover plate (3). Engage threads and rotate hose to right until components are tightly joined.
8 Attach ball valve (1) to drain hose (2). Engage threads and rotate ball valve to right until components are tightly joined.

4-14 Ball Valve

This task covers: Repair

INITIAL SETUP

	Materials/Parts N/A
Tools Tools: Kit, General Mechanic's Appendix B, Section 111, Item 1	Equipment Condition Ball valve removed from drain hose

DISASSEMBLY (see figure 4-11)

1 Remove lever nut (1) from valve (2) and remove lever (3)
2 Remove male coupling hag (4) from valve (2)

INSTALL (see figure 4-11)

1 Apply sealing compound to threads of coupling half (4).

2 Install coupling half onto valve body (2)

3 Install lever (3) on to valve (2) with nut (1)

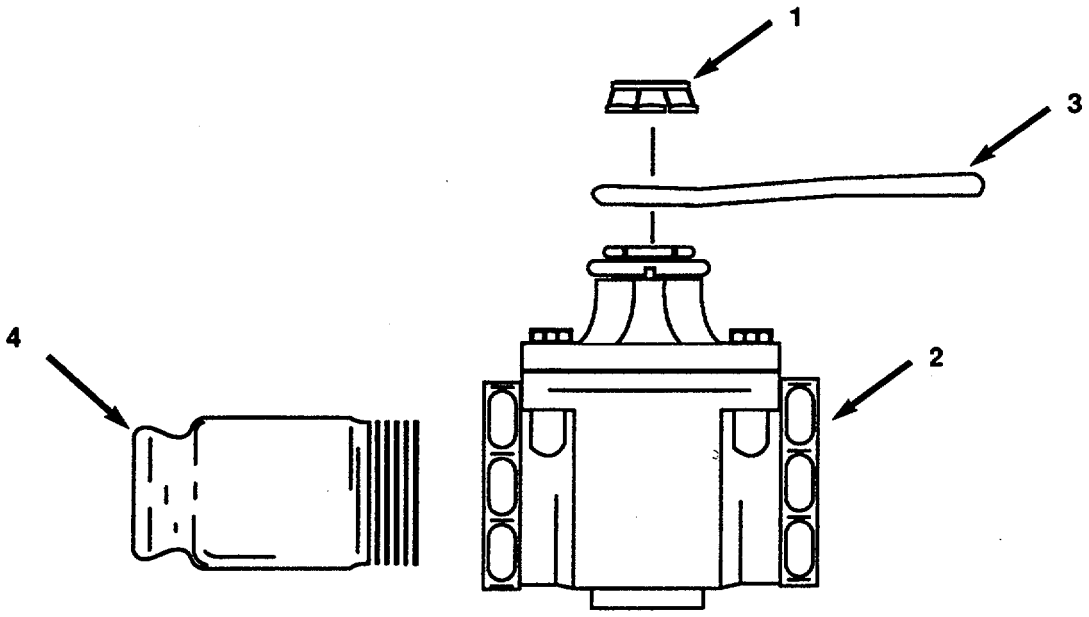


Figure 4-11. Ball Valve

4-15 Gate Valve

This task covers: Repair

INITIAL SETUP

Tools
General Mechanic's Tool Kit,
appendix B, section 111, item 1
Torque wrench (ft-lb), Appendix B, Section 111, Item 2

Materials/Parts
Cleaning solvent, item 1, Appendix F
Crocus cloth, item 3, Appendix F
Cleaning Compound, item 4, Appendix F
Grease, item 5, Appendix F

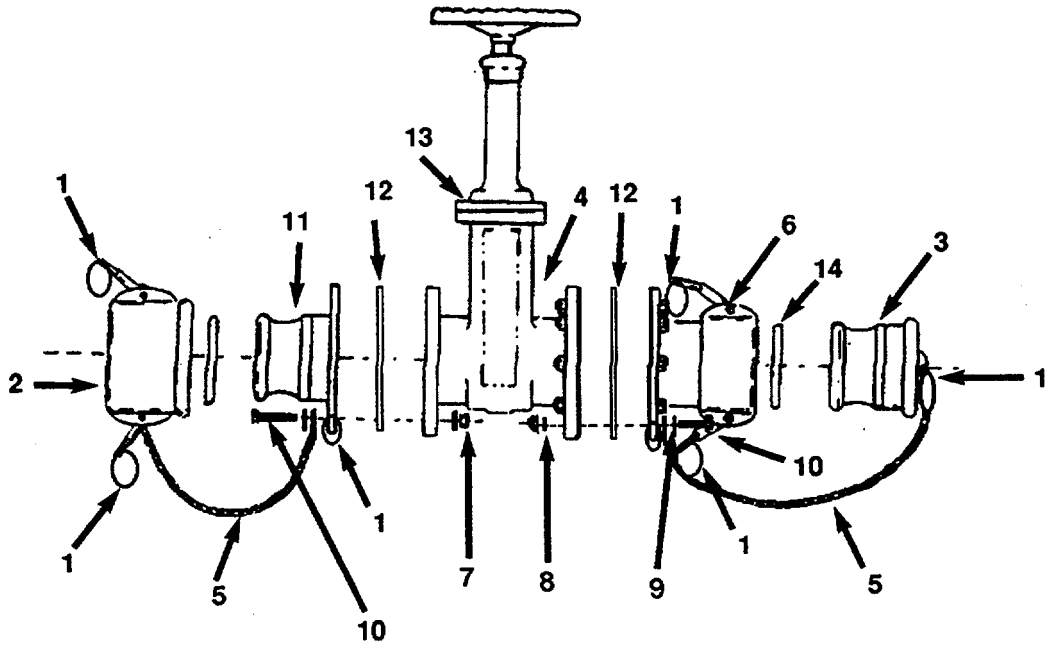


Figure 4-12. Gate Valve, Side View

REMOVAL (see figure 4-12)

1 Remove key rings (1) from dust cap (2), dust plug (3) and valve assembly (4).

2 Remove chains (5) from key rings.

3 Remove gasket from female quick-disconnect coupling (6) and dust cap (2).

4 Remove hex nuts (7), lockwashers (8), washers (9), and bolts (10).

5 Remove female quick-disconnect coupling (6) and flange gasket (12) from face of gate valve (13).

6 Remove hex nuts (7), lockwashers (8), bolts (10), and washers (9), from opposite end of gate valve (4).

7 Remove male flanged adapter (11) and flange gasket (12).

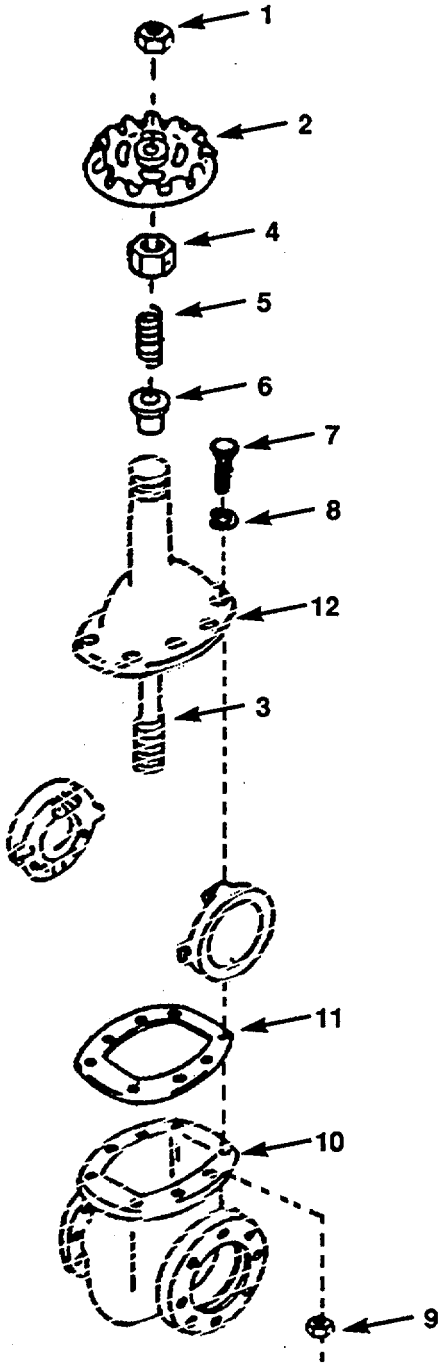


Figure 4-13. Gate Valve, Exploded

REMOVAL (see figure 4-13)

1 Remove jam nut (1) from top of handwheel (2).

2 Remove handwheel (2) from top of valve stem (3).

3 Remove packing nut (4), spring (5) and packing gland (6).

4 Remove 1 0 bolts (7), lockwashers (8) and nuts(9) from valve assembly.

5 Lift valve from valve housing (10).

6 Remove bonnet gasket (11) from bonnet (12).

NOTE

The packing should be removed only when It Is to be replaced.

SERVICE

WARNING

Cleaning solvent, P-D-680, used to clean parts, Is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only In well-ventilated areas. Avoid repeated and prolonged skin contact. Do not use near an open flame or, excessive heat. The flash point of solvent Is 100°F to 138°F (38 ° C to 59 ° C).

1 Clean all parts with cleaning solvent and dry thoroughly.

2 Clean all gasket surfaces thoroughly with cleaning compound and hot water.

3 Inspect all mechanical parts for cracks, dents, breaks, or wear. Replace or repair if unserviceable.

4 Carefully inspect gasket for deterioration, distortion, cracks, or breaks. Replace when service is doubtful.

5 Polish bonnet stem with a crocus cloth; then coat with grease.

ASSEMBLY (see figure 4-13)

1 Install bonnet gasket (11) onto valve housing (10). Bring valve housing (l) and bonnet (12) to erect position.

2 Align screw holes and bonnet gasket (11) holes; install 10 bolts (7), lockwashers (8), and nuts (9) until finger-tight. Using 10 bolt torquing pattern, torque to 10 ft. Ibs (14 Nm).

3 Install packing nut (4) on valve stem (3); manually push packing nut down on neck of bonnet.

4 Remove packing nut (4); install gland spring (5) and packing gland (6) on valve stem,

5 Install packing nut (4), handwheel (2), and jam nut (1) on to valve stem (3).

INSTALLATION (See figure 4-12.)

1 Place flange gasket (12) on face of gate valve (4) and align holes.

2 Place male flanged adapter (11) against flange gasket (I 2) and align holes.

3 Install washers (9) and bolts (10) on male flanged adapter (11), flange gaskets (12), and gate valve (4).

4 Install lockwashers (8) and plain hex nut (7): torque to 30 foot-lb (40.95 N•m).

5 Repeat steps 1 through 4 to install female quick disconnect coupling (6). Install dust cap (2), dust plug (3), chains (5), and key rings (1).

4-16 Tee Assembly

This task covers: Repair

INITIAL SETUP

Tools
Tool Kit General Mechanic's, Appendix B, Section III, Item 1
Torque wrench (ft - lb), Appendix B, Section III, Item 2

Materials/Parts
Cleaning solvent, item 1, appendix F
Crocus cloth, item 3. appendix F
Grease, item 4, appendix F

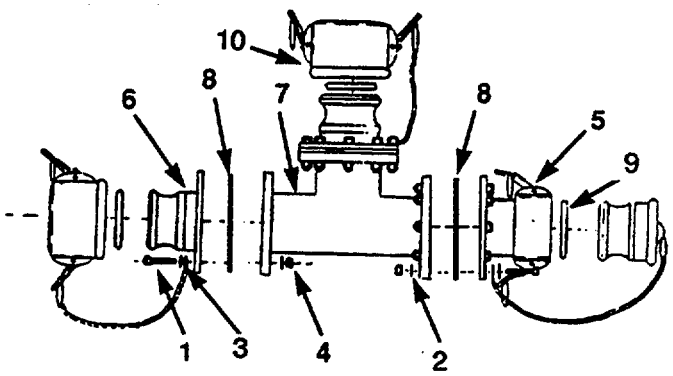


Figure 4-14. Tee Assembly

DISASSEMBLY (See figure 4-14.)

1 Remove bolts (1), lockwashers (2), flatwashers (3) and nuts (4).

2 Separate female coupling (5) and male adapters (6) from tee assembly (7).

SERVICE

1 Replace flange gaskets (8) between tee (7) and both the female coupling (5) and the male adapter (6).
2 Replace gaskets (9) in female coupling (5) and dust caps (10).

ASSEMBLY (See figure 4-14.)

1 Reattach female coupling (5) and male adapters (6), using bolts (1), lockwashers (2), flatwashers (3) and nuts (4); torque to 30 ft lb. (40.95 Nm).

SECTION VI. PREPARATION FOR STORAGE OR SHIPMENT

4-17. FOLDING TANK. Prior to storage, the 5000 Barrel Collapsible Fuel Tank will be emptied and refolded.

WARNING

Fuels are hazardous flammable liquids. Do not smoke or bring open flame within 100 feet (30.48 meters) of the tank. If fuel spills on or around a tank or within the diked area, shut down any nearby engine- driven equipment. Do not resume operation until it has been determined that the vapor concentrations are below the explosive range. If fuel spills onto clothing, remove clothing before entering area with engine-driven equipment or area where smoking is permitted.

WARNING

Fuels and fuel sludge can cause injury to skin or eyes. If fuel or sludge comes Into contact with skin, flush skin with soap and water. If fuel or sludge comes Into contact with eyes, flush with water. For further Information on first aid, refer to FM 21-11.

WARNING

Fumes from stored fuels are hazardous. Do not carry or store anything edible near tank. Food will absorb vapors. After leaving area, wash before eating or smoking.

a. Empty tank. Refer to draining procedure in paragraph 2-30 of this manual.

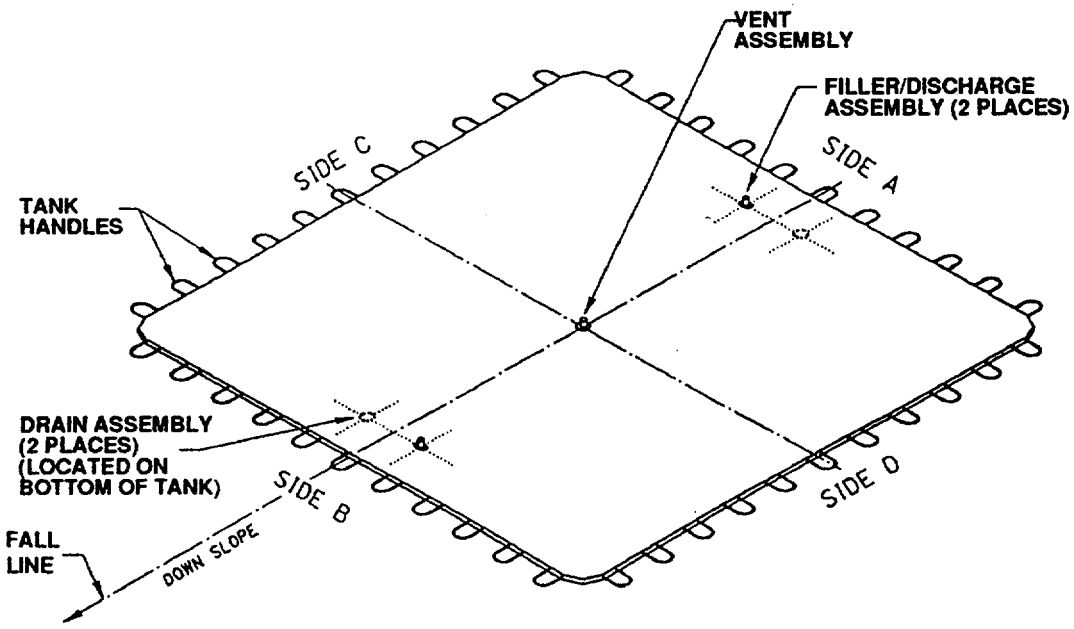


Figure 4-15. Tank Flat

b. Using the tank handles and the deployment straps, pull the tank out to make it as flat as possible. Refer to figure 4-15.

c. Use a pump to evacuate as much products and air as possible.

d. Remove filler/discharge elbow, hose and valve. Install dust plugs.

e. Remove drain assembly, valve and hose.

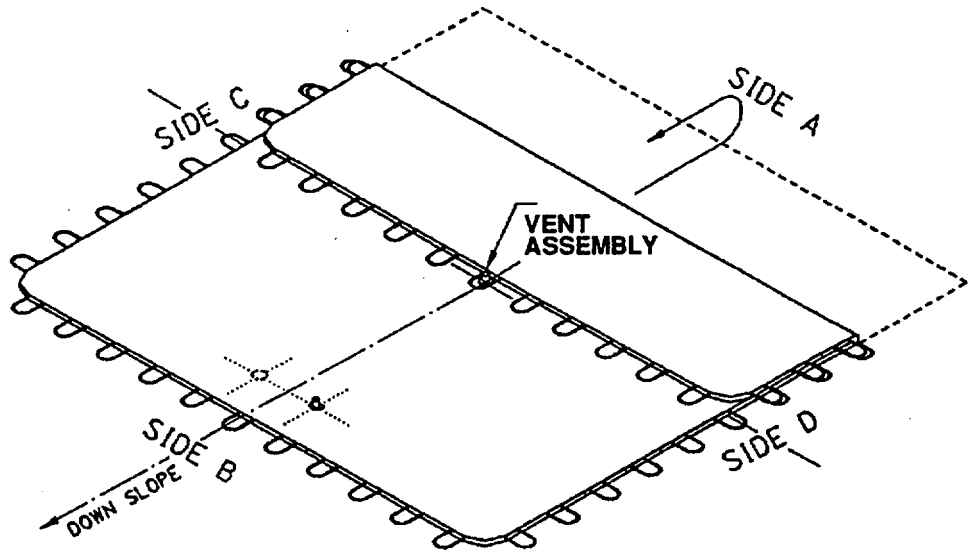
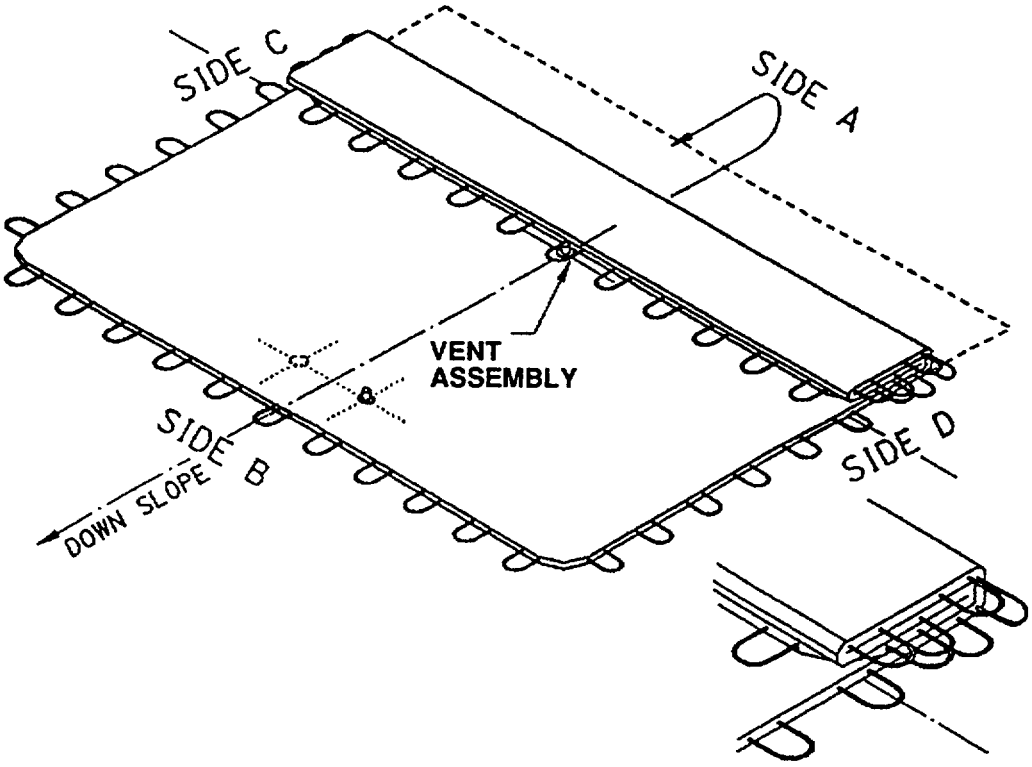


Figure 4-16. First Fold



STEP 2-SIDE A
ENLARGED VIEW-DOUBLE FOLDED

Figure 4-17. Second Fold

f. Screw dust plug into drain assembly.

g. Remove vent assembly (do not install dust cap).

h. Fold side A (see figure 4-16.) toward the center of the tank bringing that side flush with the vent opening.

(1) Make certain that the vent opening is unobstructed. Continue to remove air from the tank by evacuating by walking back and forth across the tank after it is folded.

(2) Fold from side A (see figure 4-17.) again toward the center of the tank bringing the folded edge from Step h flush with the vent opening. Make certain that the vent opening remains unobstructed.

(3) Continue to remove product and air from the tank by evacuating with a pump and walking back and forth across the tank after it is folded.

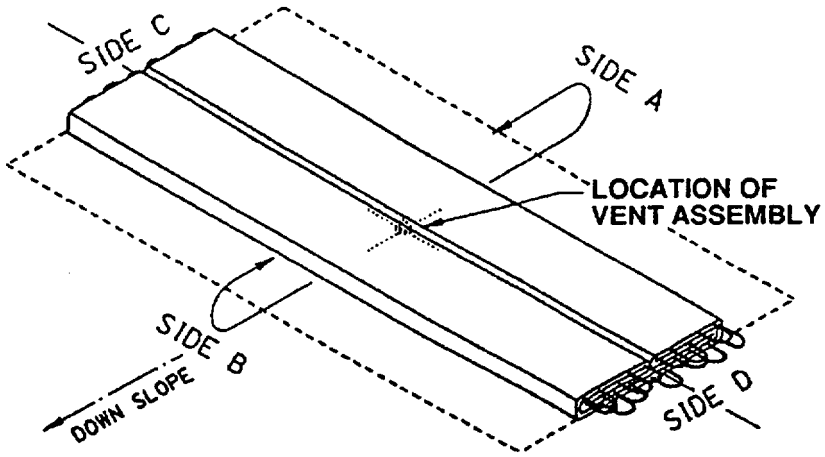


Figure 4-18. Double folded

i. Repeat step h for side B (see figure 4-18.).

j. After sides A and B are properly folded, begin rolling from side C (see figure 4-19.).

(1) Keep the vent opening clear in order to continue evacuating air as the tank is being rolled.

(2) The tank must be rolled very tightly to ensure that it will fit within the dimensions of the skid.

(3) Roll at least one full roll past the vent opening. Maintain the width of the folded tank while rolling.

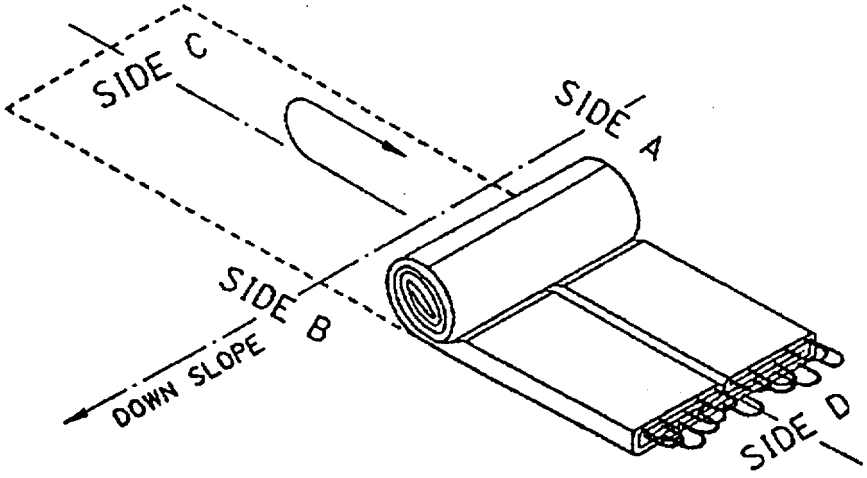


Figure 4-19. Rolling for storage

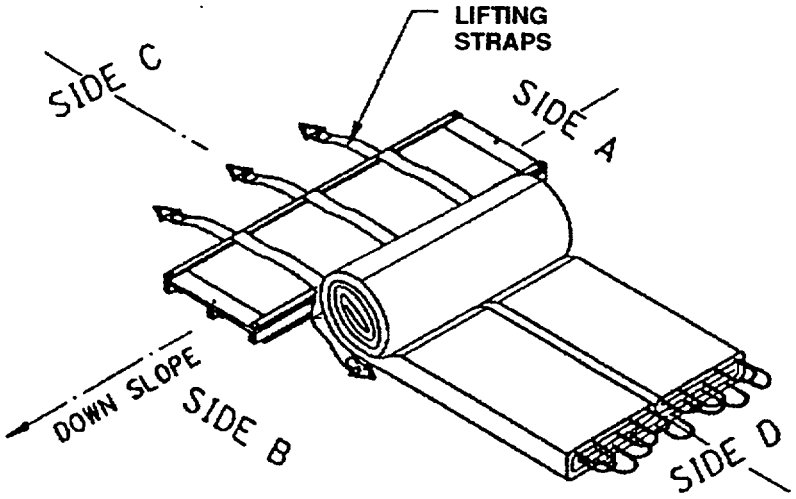


Figure 4-20. Tank against skid.

k. Place an empty tank skid against the tank (see figure 4-20.). Place the lifting straps across the skid. (These straps are used to lift the tank off the skid; they do not hold the tank to the skid.)

l Unroll the rolled end of the tank backward onto the skid until the vent opening is clear again (see figure 4-21.) and in the center of the skid.

(1) Roll the tank from side D, evacuating product and air and maintaining the width of the folded tank.

(2) Before the final roll, place the vent and dust cap on the vent and wrap with protective barrier material.

m. When properly folded and rolled, the tank will fit within the dimensions of the skid.

(1) Place the three tie-down straps under the floor of the skid (see figure 4-22.)

(2) Wrap the straps with cushioning material, then winch them until the tank is secure on the skid.

(3) Be careful to not winch so tight that the tank is creased.

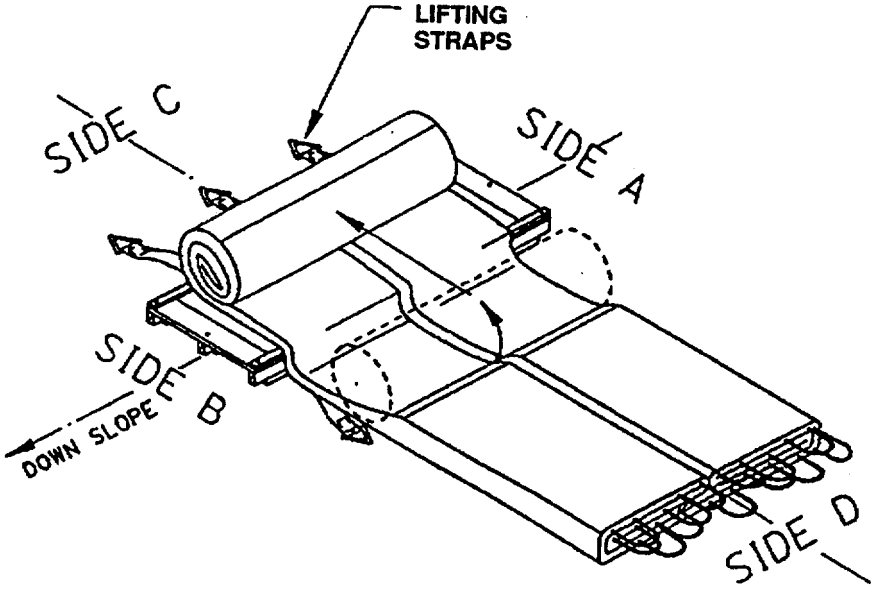


Figure 4-21. Placing end on skid.

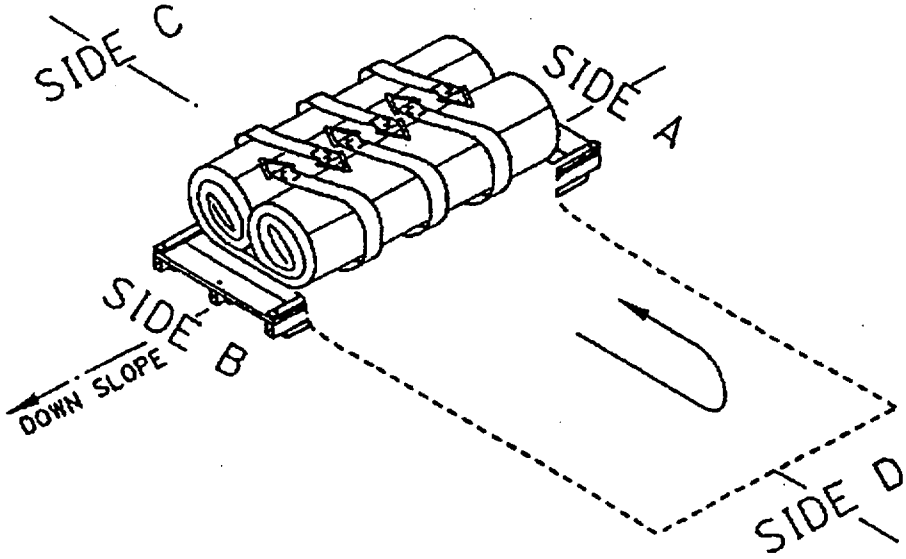


Figure 4-22. Rolling tank onto skid.

4-18. PRESERVATION FOR STORAGE.

WARNING

Sludge that accumulates In the bottom of the fuel tank gives off toxic and explosive vapors. Inhaling these vapors can cause lead poisoning. When cleaning tanks, provide ample ventilation to carry off harmful fumes.

WARNING

Always wear protective goggles, breathing apparatus, and other protective gear when cleaning the tank Interior. Fuel vapors are toxic and can damage eyes, skin and lungs.

WARNING

Fuel vapors are extremely flammable. Exercise care to prevent sparks when working near or In the tank. Death or severe personal Injury can result If safety precautions are not strictly observed.

CAUTION

Always handle the tank carefully. Pad components stored with the tank to avoid chafing It during storage or transportation. Rough handling or careless storage can damage the tank.

a. Drain fuel from tank (para 2-3, d.)

b. Remove drain hose assembly from drain fitting and install drain plug.

c. Remove filler/discharge elbows from filler and discharge adapters.

d. Remove vent and pipe assembly from flanged adapter and install dust cap.

e. Inflate tank with air and air dry for 24 hours.

f. Install dust caps on flanged adapters of filler and discharge fitting assemblies.

g. Pad or wrap components before placing in separate storage container or storing with tank.

h. Brush off stones or debris clinging to tank.

i. Apply technical talc (item 8, appendix F) to tank exterior.

j. Fold tank according to procedures in para 4-17.

k. Plug exposed hose assembly openings with suitable, clean materials to keep them dirt-free.

l. Place tank in suitable storage container.

4-19. PRESERVATION FOR SHIPPING.

WARNING

Sludge that accumulates In the bottom of the fuel tank gives off toxic and explosive vapors. Inhaling these vapors can cause lead poisoning. When cleaning tanks, provide ample ventilation to carry off harmful fumes.

WARNING

Always wear protective goggles, breathing apparatus, and other protective gear when cleaning the tank Interior. Fuel vapors are toxic and can damage eyes, skin and lungs.

WARNING

Fuel vapors are extremely flammable. Exercise care to prevent sparks when working near or in the tank. Death or severe personal Injury can result If safety precautions are not strictly observed.

CAUTION

Always handle the tank carefully. Pad components stored with the tank to avoid chafing it during storage or transportation. Rough handling or careless storage can damage the tank.

a. Drain fuel from tank (para 2-3, d.)

b. Remove drain hose assembly from drain fitting and install drain plug.

c. Remove filler/discharge elbows from filler and discharge adapters.

d. Remove vent and pipe assembly from flanged adapter and install dust cap.

e. Inflate tank with air and air dry for 24 hours.

f. Remove filler/discharge assembly from tank (para 4-12)

g. Flush tank with clear water

h. Air dry tank.

i. Apply technical talc (item 8, appendix F) to tank exterior.

j. Install filler/discharge assembly on tank (para 4-12).

k. Install dust caps on flanged adapters of filler and discharge fitting assemblies.

l. Pad or wrap components before placing in separate storage container or storing with tank.

APPENDIX A
REFERENCES

A-1. SCOPE.

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

A-2. MAINTENANCE.

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 4700-15/1	Equipment Record Procedures
TM 750-244-3	Destruction of Equipment to Prevent Enemy Use

A-3. FORMS.

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

A-4. FIELD MANUALS.

FM 21-11	First Aid
FM-3, FM-4, FM-5	Detailed Decontamination Procedures

A-5. MISCELLANEOUS.

SB 740-99-1	storage Serviceability Standard
CTA 50-790	Expendable/Durable Items (except medical, Class V repair parts, and heraldic items
CTA 8-100	Army Medical Dept. Expendable/Durable Items

Appendix B. MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. THE ARMY MAINTENANCE SYSTEM MAC.

a. This introduction (section 1) provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

b. The Maintenance Allocation Chart (MAC) in Section 11 designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be constant with the capacities and capabilities of the designated maintenance levels, which are shown in the MAC in column (4) as:

Unit - includes two subcolumns, C (operator/crew) and O (unit) maintenance.
Direct Support - includes an F subcolumn.
General Support - includes an H subcolumn.
Depot - includes an D subcolumn.

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

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

B-2. MAINTENANCE FUNCTIONS. MAINTENANCE FUNCTIONS WILL BE LIMITED TO AND DEFINED AS FOLLOWS:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (i.e., by sight, sound or feel).

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

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

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

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

f. Calibrate. To determine and cause corrections to be made onto 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.

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

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

i. Repair. The application of maintenance services' including fault location/troubleshooting[2], removal/installation, and disassembly/assembly[3] procedures, and maintenance actions[4] 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), and item, or system.

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

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like-new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

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

a. Column 1-Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

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

c. Column 3-Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph NO TAG-2.)

---

[1]Service - Inspect, test, service, adjust, aline, calibrate, and/or replace

[2]Fauit location/troubleshooting - The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or unit undertest (UUT).

[3]Disassembly/assembly - The step-by-step breakdown (taking apart) of a saare/functional group coded item to the level of its least component, that is assigned as SMR code for the level of maintenance under consideration (ile/, identification as maintenance significant).

[4]Actions-Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

d. Column 4 - Maintenance Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number of complexity of the tasks within the listed maintenance function varies at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

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

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

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

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

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

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

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

d. Column 4 - National Stock Number. The National Stock number of the tool or test equipment.

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

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

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

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

SECTION II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY C	O	F	H	D	(5) TOOLS AND EQPT	(6) REMARKS
00	TANK, FABRIC, COLLAPSIBLE 5000 BARREL ASSEMBLY								...
01	TANK ENVELOPE	Inspect	.2						...
		Repair	.1						
02	VENT ASSEMBLY	Inspect	.2						...
		Replace		.2				1, 2	
		Repair		.5				1, 2	
		Service	.1	.8					
03	FILLER/DISCH ASSMB.	Inspect	.2						
		Replace		.2				1, 2	
		Repair	.1	.5				1, 2	
04	DRAIN ASSEMBLY	Inspect	.2						...
		Replace	.2					1, 2	
		Repair	.1	.5				1, 2	...
05	GATE VALVE	Inspect	.2						...
		Replace	.2					1, 2	...
		Repair	.5					1, 2	...
06	TEE ASSEMBLY	Inspect	.2						
		Replace	.2					1, 2	
		Repair	.1	.5				1, 2	
07	HOSES & ACCESSORIES	Inspect	.2						...
		Replace							
		Repair	.1						
08	REPAIR KIT	Inspect	.2						
		Repair		.1					A

SECTION III. TOOLS AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	O	TOOL KIT, GENERAL MECHANICS	5180-00-177-7033	
2	O	SHOP EQUIPMENT, AUTOMOTIVE MAINTENANCE AND REPAIR: UNIT MAINTENANCE COMMON NO. 1	4910-00-754-0654	

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	REPAIR IS LIMITED TO REPLACEMENT OF ITEMS

APPENDIX C
UNIT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

SECTION I. INTRODUCTION

C-1. SCOPE. This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of unit maintenance of the 5,000 Barrel Collapsible 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.

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

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed in item name sequence. Items are shown in the associated illustration(s)/figure(s).

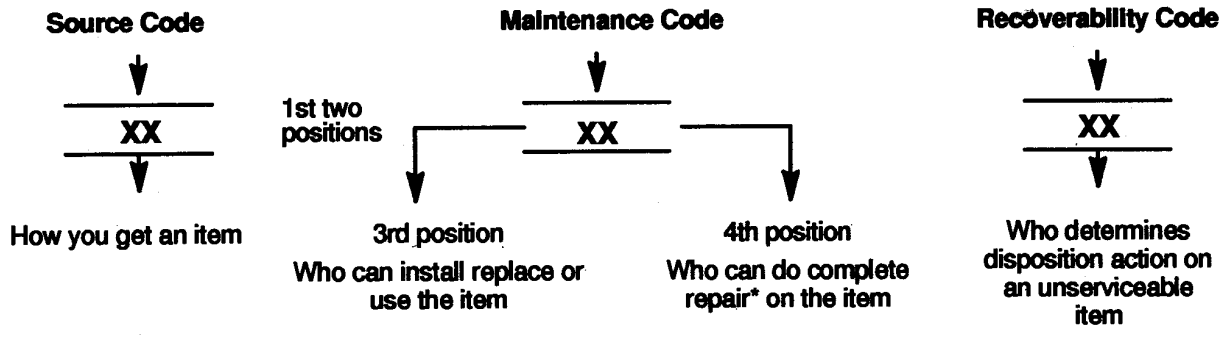
b. Section III. Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USABLE ON CODE column) for the performance of maintenance.

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

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

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

b. SMR Code (Column (2)). The Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout: looking for, then locate the item number in the repair parts list for the figure.



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

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

Code	Explanation
PA PB PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3d position of the AMR code. **NOTE: Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be request/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 3d position of the SMR code. The complete kit must be requisitioned and applied.

	Explanation
MO--(Made at org. AVUM Level MF--(Made at DS/ AVUM Level MH--(Made at GS Level) ML--Made at Specialized Repair Activity (SRA)) MD--(Made at Depot)	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the Bulk Material group of the repair parts list in this RPSTL. If the item is authorized to you by the ed position code of the SMR code, but the source code indicates it is made at a higher level, order the item for the higher level of maintenance.

	Explanation
AO--(Assembled by org/AVUM Level) AF--(Assembled by DS/AVIM Level) AH--(Assembled by GS Category) 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 3d of the SMR code authorizes you to replace the item, but the source code indicates the items are assembled at a higher level, order the item for the higher level maintenance.

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

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

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

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

Code	Application/Explanation
C	Crew or operator maintenance done within organizational or aviation unit maintenance.
O	Organizational or aviation unit category can remove, replace, and use the item.
F	Direct support level or aviation intermediate level can remove, replace, and use the item.
H	General support level can remove, replace, and use the item.
L	Specialized repair activity can remove, replace, and use the item.
D	Depot level can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tills whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (i.e., perform all authorized repair functions). NOTE: Some limited repair may be sone on the item at a lower level of maintenance, it authorized by the Maintenance Allocation Chart (MAC) and AMR codes. This position will contain one of the following maintenance codes.

Code	Application/Explanation
O	Organizational or (aviation unit) is the lowest level that can do complete repair of the item.
F	Direct support or aviation intermediate is the lowest level that can do complete repair of the item.
H	General support is the lowest level that can do complete repair of the item.
L	Specialized repair activity is the lowest level that can do complete repair of the item.
D	Depot is the lowest level that can do complete repair of the item.
Z	Nonreparable. No repair is authorized.
B	No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B" coded item.) However, the item may be reconditioned by adjusting, lubrication, etc., at the user level.

(3) Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is interred in the fifth position of the AMR 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 3rd position of SMR code.
O	Reparable item. When uneconomically reparable, condemn and dispose of the item at organizational or aviation unit level.
F	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or aviation intermediate level.
H	Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.

Recoverability Codes	Application/Explanation

D-Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal if item not authorized below depot level.
L-Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).
A-Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

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

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

NOTE: Then you use a NSN to requisition an item, the item received may have a different part number from the part ordered.

e. DESCRIPTION AND USABLE ON CODE (UOC) (Column (5)). This column includes the following information:

(1) The Federal item name and, when required, a minimum description to identify the item.
(2) The physical security classification of the item is indicated by the parenthetical entry, e.g., Phy Sec C1
(C) -Confidential, Phy Sec C1 (S) -Secret, Phy Sec C1 (T)-Top Secret).
(3) Items that are included in kits and sets are listed below the name of the kit or set.
(4) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry.
(5) Part numbers for bulk materials are referenced in this column in the line entry for the item to be manufactured/fabricated.
(6) When the item is not used with all serial numbers of the same model, the effective serial numbers are shown on the last line(s) of the description (before UOC).
(7) The usable on code, when applicable (see paragraph C-5, Special Information).
(8) In the Special Tools List section, the basis of issue (BOI) appears as the last line(s) in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.
(9) The statement "END OF FIGURE" appears just below the last item description in Column 5 for a given figure in both Section II and Section lll.
(10) The indenture, shown as dots appearing before the repair part, indicates that the item is a repair part of the next higher assemble.

f. QTY (Column (6)). The QTY (quantity per figure column) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A “V" appearing in this column is lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

C-4. EXPLANATION OF COLUMNS (SECTION IV).

a. NATIONAL STOCK NUMBER (NSN) INDEX

(1) STOCK NUMBER column. This column lists the NSN by National item identification number (NIN) NSN sequence. The NIIN consist of the last nine digits of the NSN (i.e., 5305-01-574-1467). When using this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

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

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

b. Part Number Index. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter of digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

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

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

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

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

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

c. Figure and item Number Index.

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

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

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

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

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

C-5 SPECIAL INFORMATION.

a. Usable on Code. The usable on code appears in the lower corner of the Description column heading. Usable on codes are shown as "UOC: ....." in the Description column (justified left) on the first line applicable item description/nomenclature. Uncode J items are applicable to all models. Identification of the usable codes used in this publication are:

CODE	USED ON
FFD	BA91-142
FNW	RCF0210000

b. Associated Publications. There are no associated publications for the 5,000 Barrel Collapsible Tank.

C-6 HOW TO LOCATE REPAIR PARTS.

a. When National Stock Number or Part Number is Not Known.

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

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

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

(4) Fourth. Refer to the Repair Parts Lists for the figure to find the part number for the item noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

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

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

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

C-7. ABBREVIATIONS.

Abbreviations used in this manual are listed in MIL-STD-12, except for the following:

Abbreviations	Explanation
NIIN	National Item Identification Number (consists of the last 9 digits of the NSN)
RPSTL	Repair Parts and Special Tools Lists

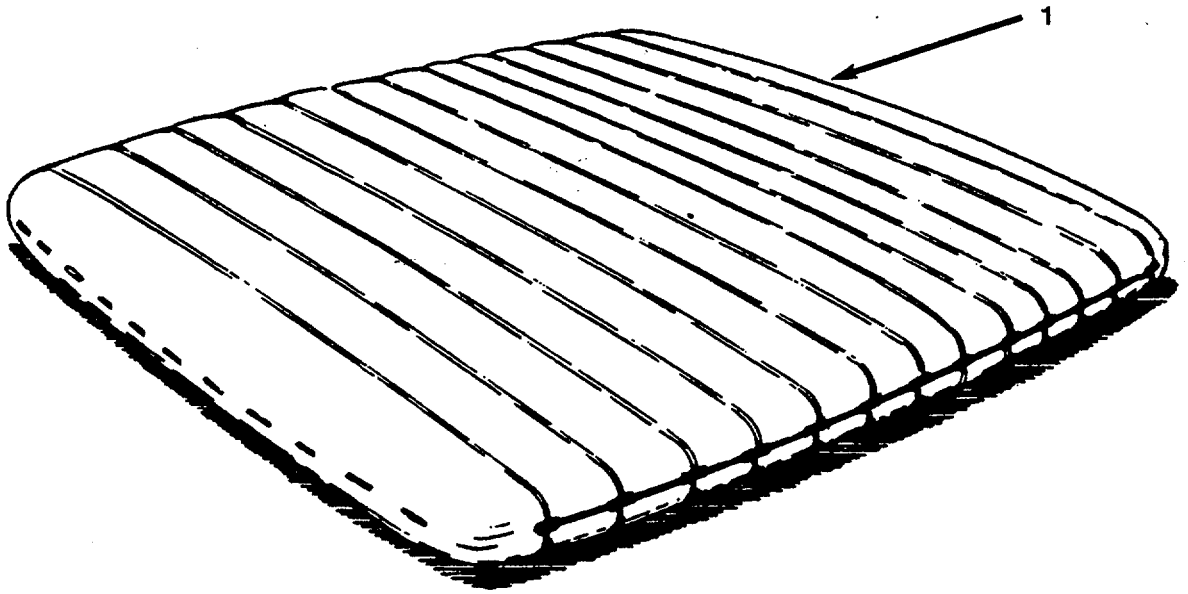


Figure C-1. Tank Envelope

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 01. TANK ENVELOPE	
				FIG. C-1 TANK ENVELOPE	
1	XAOOO	66618	BAI91142	FUEL TANK	1
				END OF FIGURE	

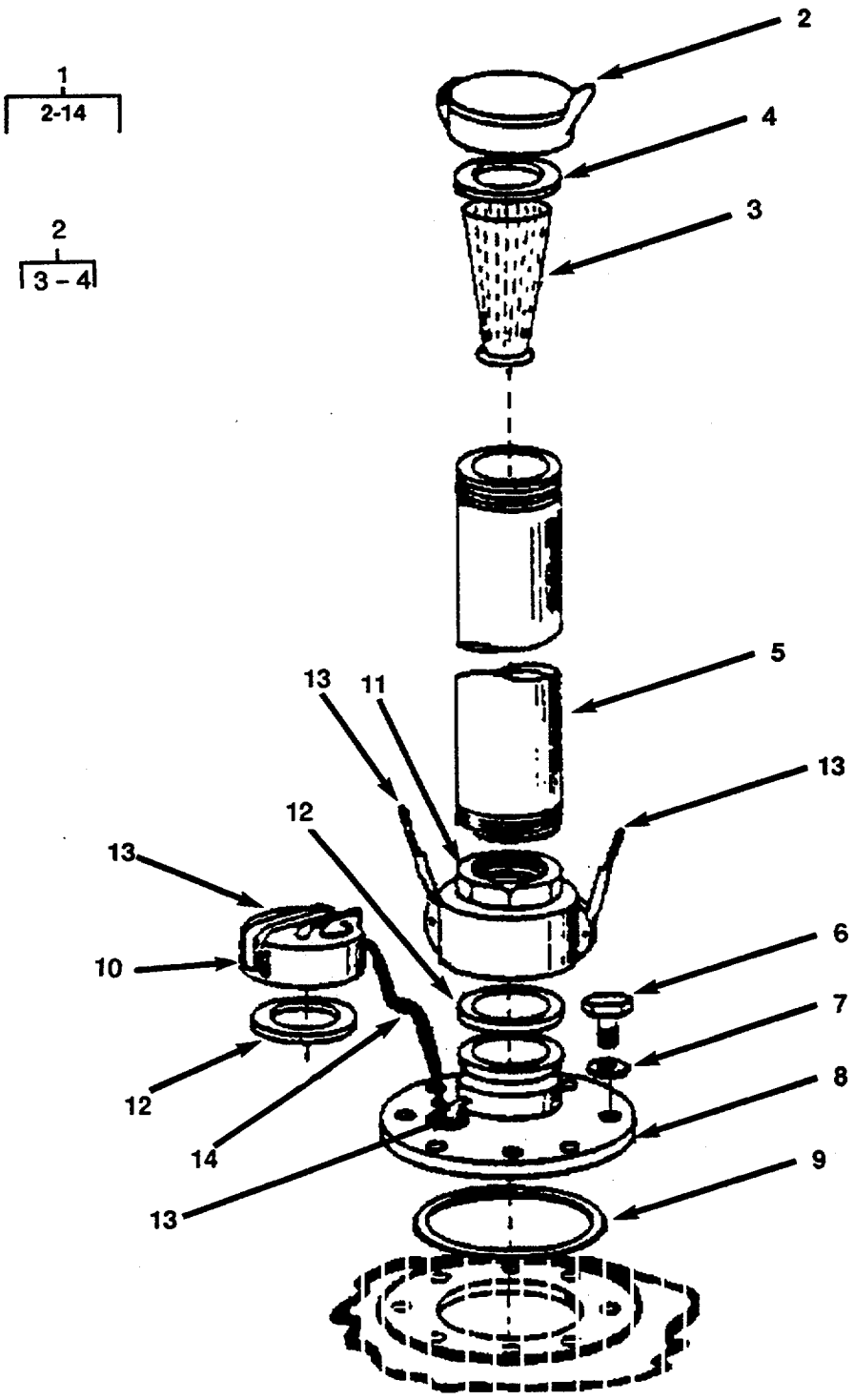


Figure C-2. Vent Assembly

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 02. VENT ASSEMBLY	
				FIG. C-2 VENT ASSEMBLY	
1	XBOOO	66618	X-3325J	VENT FITTING ASSY	1
2	PBOZZ	41592	EX1333-21N	CAP, RELIEF	1
3	XBOOO	41592	B-6258-0 FN 11	FLAME ARRESTER	1
4	PCOZZ	41592	B-6258-0 FN 10	GASKET RELIEF CAP	1
5	XBOZZ	10068	064-2400	PIPE, 2 INCH SCD 40	1
6	PAOZZ	8R639	APN1666	BOLT, HEX HEAD	8
7	PAOZZ	8R639	APN9875	WASHER, PLAIN	8
8	PBOZZ	96906	MS27023-21	COUPLING, QUICK DISC 2 INCH MALE	1
9	PCOZZ	96906	MS29513-250	PACKING, PREFORMED	1
10	PAOZZ	96906	MS27028-11	CAP, QUICK DISCONNEC	1
11	PBOZZ	96906	MS27024-11	COUPLING HALF QUICK 2 INCH FEMALE	1
12	PCOZZ	96906	MS27030-6	GASKET	2
13	PBOZZ	0KVE6	90177A223	RING KEY	5
14	MOOOO	19099	CHAIN, DUST	CHAIN, DUST CAP MAKE FROM BULK CHAIN P/N 3607T27, CUT TO LENGTH	1

END OF FIGURE

1
2-17

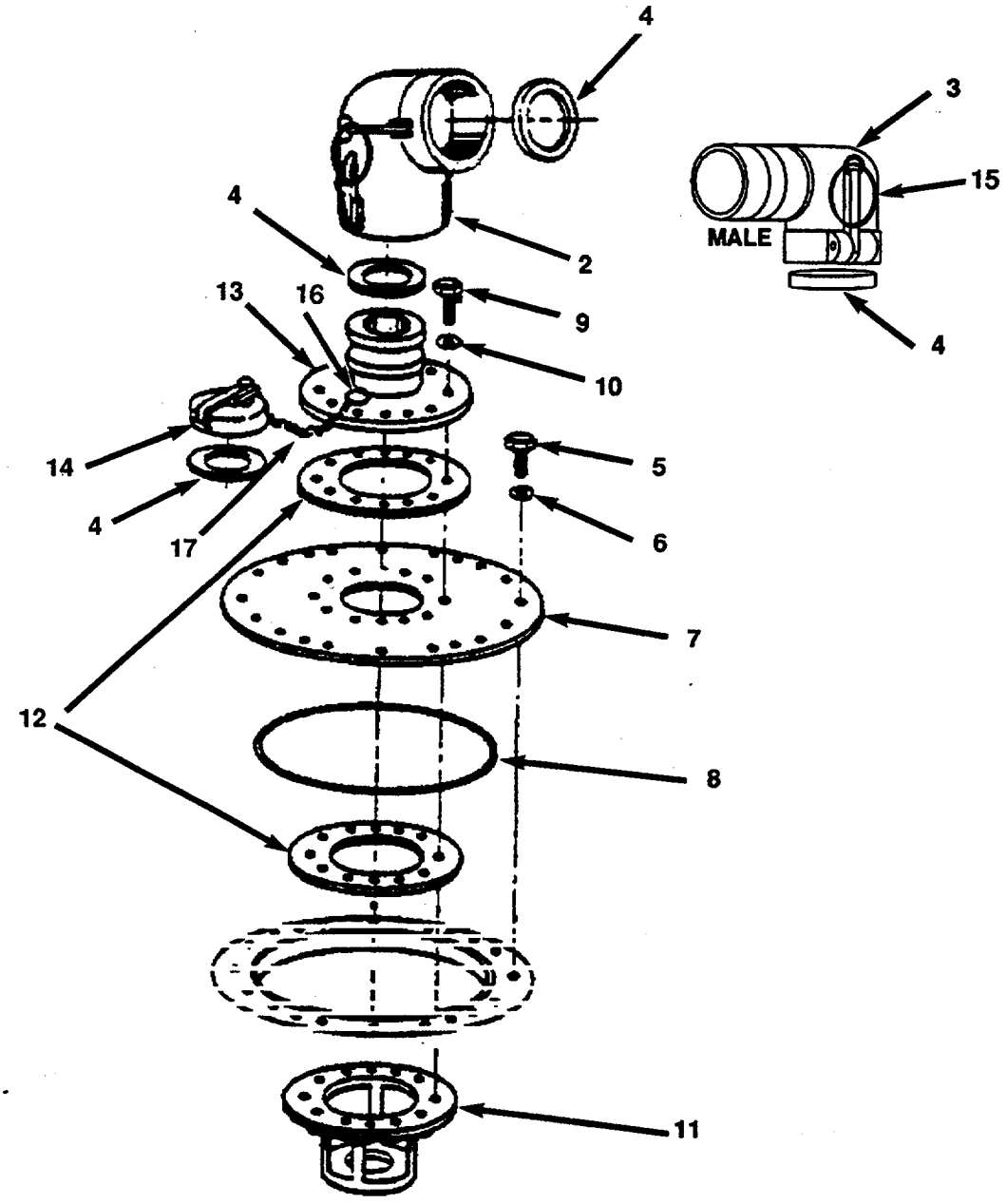


Figure C-3. Filler/Discharge Assembly

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 03. FILLER/DISCHARGE ASSEMBLY	
				FIG. C-3 FILLER/DISCHARGE ASSEMBLY	
1	XDOOO	66618	X-4959	FILL/ DISCHARGE ASSY	2
2	PBOZZ	10068	81718-633 KB-6	ELBOW, QUICK DISCONN. 6 INCH FEMALE/ FEMALE	1
3	PBOZZ	10068	81718-633 K-6	ELBOW, QUICK DISCON 6 INCH FEMALE/ MALE	1
4	PCOZZ	96906	MS27030-10	GASKET. 6 INCH	5
5	PAOZZ	8R639	APN1666	BOLT, HEX HEAD	40
6	PAOZZ	8R639	APN9875	WASHER, PLAIN	40
7	XDOZZ	85109	X-4128A	CLOSURE PLATE	2
8	PCOZZ	96906	MS29513-383	PACKING, PREFORMED	2
9	PAOZZ	8R639	APN1814	BOLT	24
10	PAOZZ	8R639	APN9884	WASHER, PLAIN	24
11	PBOZZ	OA6K1	F19192	SUCTION STUB	2
12	PCOZZ	OA6K1	FB7661	GASKET. 6 INCH FLANGE	4
13	PBOZZ	96906	MS27023-19	COUPLING HALF, QUICK	2
14	PBOZZ	96906	MS27028-19	CAP, QUICK DISCONNEC	2
15	PBOZZ	OKVE6	90177A223	RING, KEY	10
16	PBOZZ	39428	90177A221	RING, RETAINING	2
17	HOOOO	19099	CHAIN, DUST	CHAIN, DUST CAP MAKE FROM BULK CHAIN P/N 3607T27, CUT TO LENGTH	2

END OF FIGURE

1
2-9

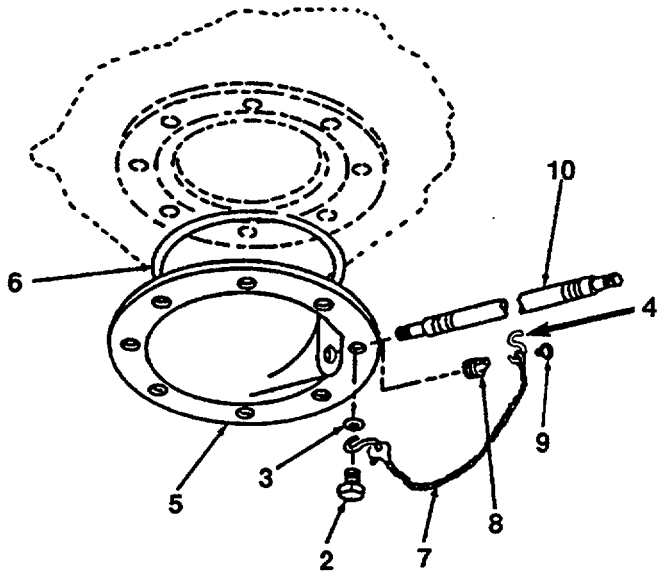


Figure C-4. Drain Assembly and Ball Valve (Sheet 1 of 2)

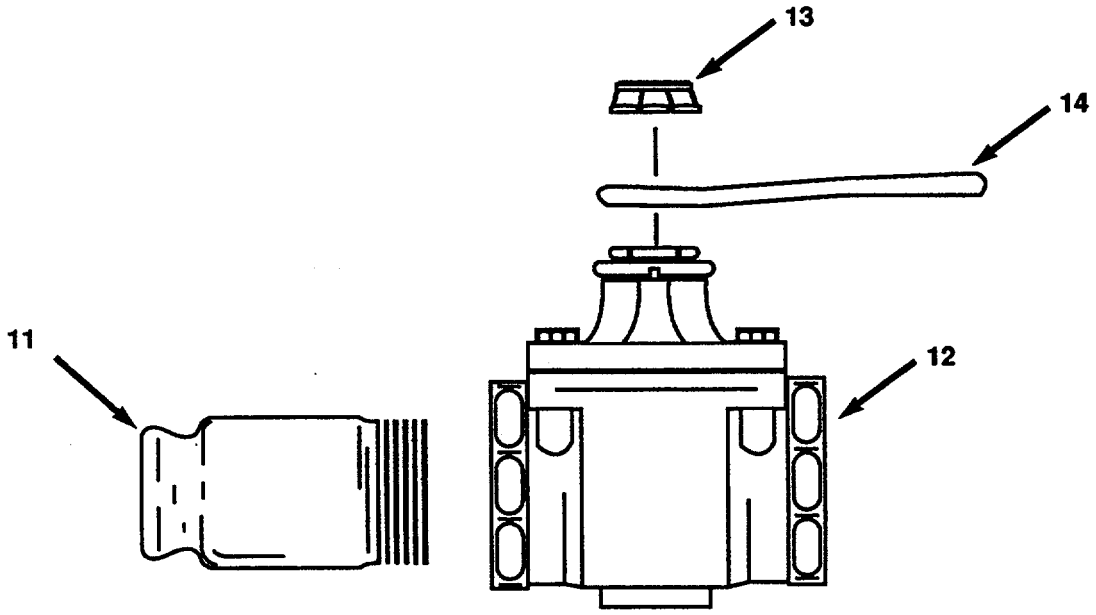


Figure C-4. Drain Assembly and Ball Valve (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 04. DRAIN ASSEMBLY	
				FIG. C-4 DRAIN ASSEMBLY AND BALL VALVE	
1	XDDOO	66618	X-5022A	DRAIN FITTING ASSY	2
2	PAOZZ	8R639	APN1666	BOLT, HEX HEAD	16
3	PAOZZ	8R639	APN9875	WASHER PLAIN	16
4	XDOZZ	OKVE6	9381T56	S-HOOK	4
5	PBDZZ	OA6K1	46474	DRAIN FTG	2
6	PCOZZ	96906	MS29513-250	PACKING, PREFORMED	2
7	MOOOO	19099	CHAIN,DRAIN	CHAIN, DRAIN PLUG MAKE FROM BULK CHAIN P/N 3603T36, CUT TO LENGTH	2
8	PBOZZ	81349	M52618/7P09XC	PLUG, DRAIN	2
9	XDOZZ	OKVE6	92446A825	SCREW	2
10	PCOZZ	OA6K1	B1021313	HOSE 10 FOOT X 2 INCHES THREADED	2
11	PBOZZ	96906	MS27022-11	COUPLING HALF, QUICK	2
12	PBOOO	DAK61	319205	BALL VALVE, WWV35 /CS	2
13	PBOZZ	OA6K1	319205-FN13	NUT, LEVER	2
14	PBOZZ	OA6K1	319205-FN12	LEVER	2

END OF FIGURE

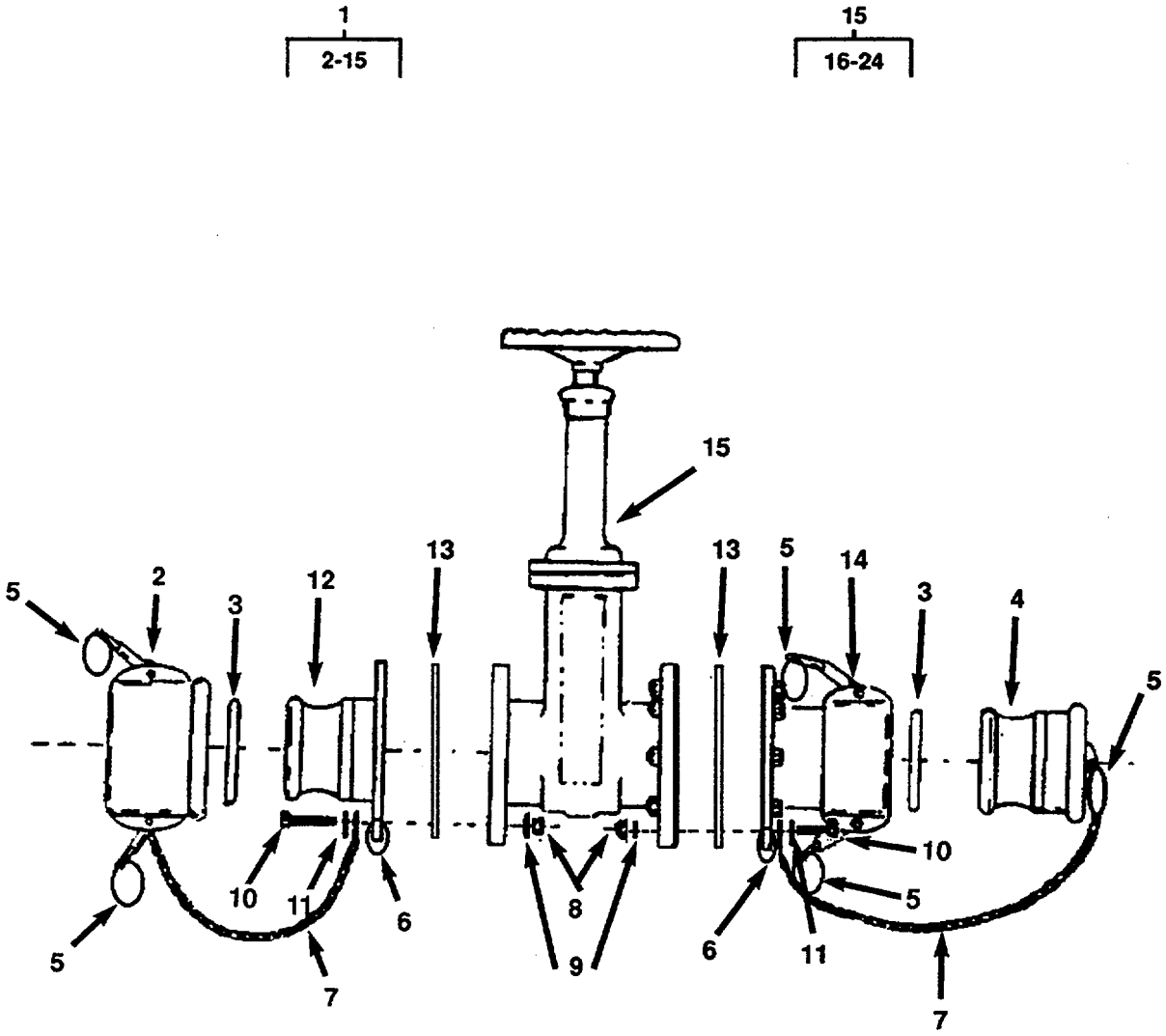


Figure C-5. Gate Valve (Sheet 1 of 2)

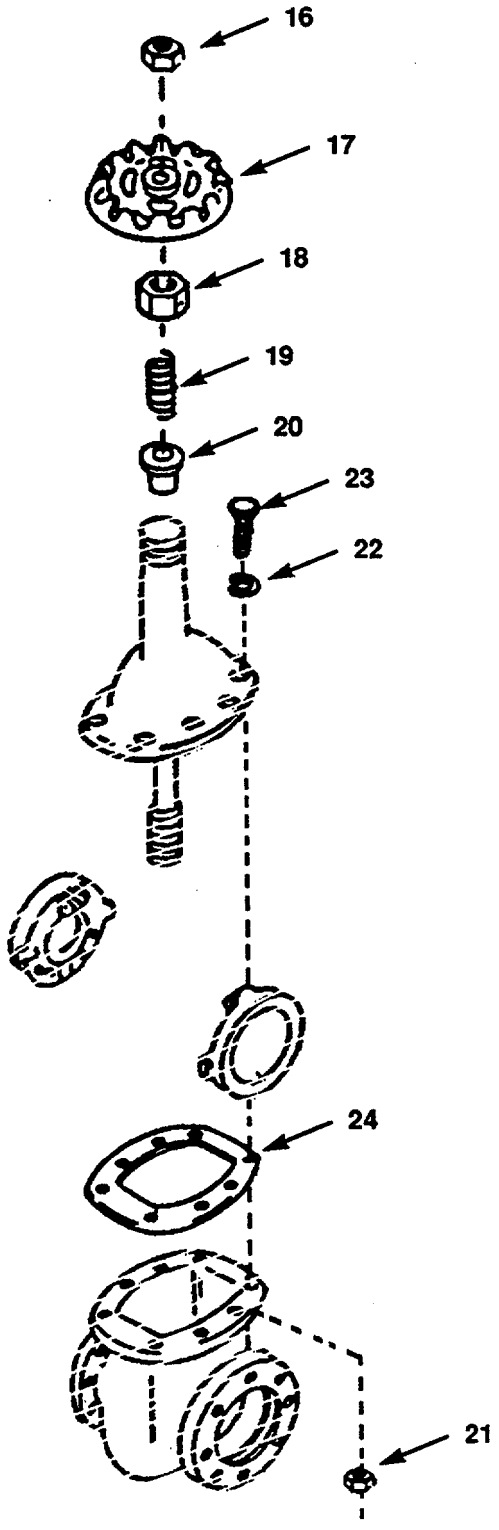


Figure C-5. Gate Valve (Sheet 2 of 2)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 05 GATE ASSEMBLY	
				FIG. C-5 GATE VALVE	
1	XDOOO	66618	C00816VA	VALVE ASSY, GATE	2
2	PBOZZ	96906	MS27028-19	CAP QUICK DISCONNEC	2
3	PCOZZ	96906	MS27030-10	GASKET 6 INCH	4
4	PBOZA	96906	MS27029-19	PLUG, QUICK DISCONNE	2
5	PBOZZ	OKVE6	90177A223	RING, KEY	10
6	PBOZZ	39428	90177A221	RING, RETAINING	4
7	MOOOO	19099	CHAIN, DUST	CHAIN, DUST CAP MAKE FROM BULK CHAIN PJN 3607T27, CUT TO LENGTH	4
8	PAOZZ	8R639	APN2491	NUT	48
9	PAOZZ	8R639	110007	LOCKWASHER	48
10	PAOZZ	8R639	APN1814	BOLT	48
11	PAOZZ	8R639	APN9884	WASHER, PLAIN	48
12	PBOZZ	96906	MS27023-19	COUPLING HALF, QUICK	2
13	PCOZZ	OA6K1	FB7661	GASKET 6 INCH FLANGE	2
14	PBOZZ	96906	MS27027-19	COUPLING HALF, QUICK	2
15	PBOOO	41592	235-RF	DEP REPORTED STK-NO	2
16	PBOZZ	41592	235-RF-FN5	NUT, HAND WHEEL	2
17	PBOZZ	41592	235-RF-FN4	HAND WHEEL	2
18	XAOZZ	41592	235-RF-FN7	NUT, PACKING	2
19	XAOZZ	41592	235-RF-FN16	SPRING, PACKING GLAN	2
20	PBOZZ	41592	235-RF-FN6	GLAND, PACKING	2
21	PBOZZ	41592	235-RF-FN21N	NUT, HEX	2
22	PBOZZ	41592	235-RF-FN21W	LOCKWASHER	2
23	PBOZZ	41592	235-RF-FN21S	SCREW, CAP	2
24	MOOOO	41592	235-RF-FN9	GASKET, BONNET MAKE FROM BULK GASKET, (OKEV6) P/N/ 9487 KEP CUT TO LENGTH	2

END OF FIGURE

1
2-15

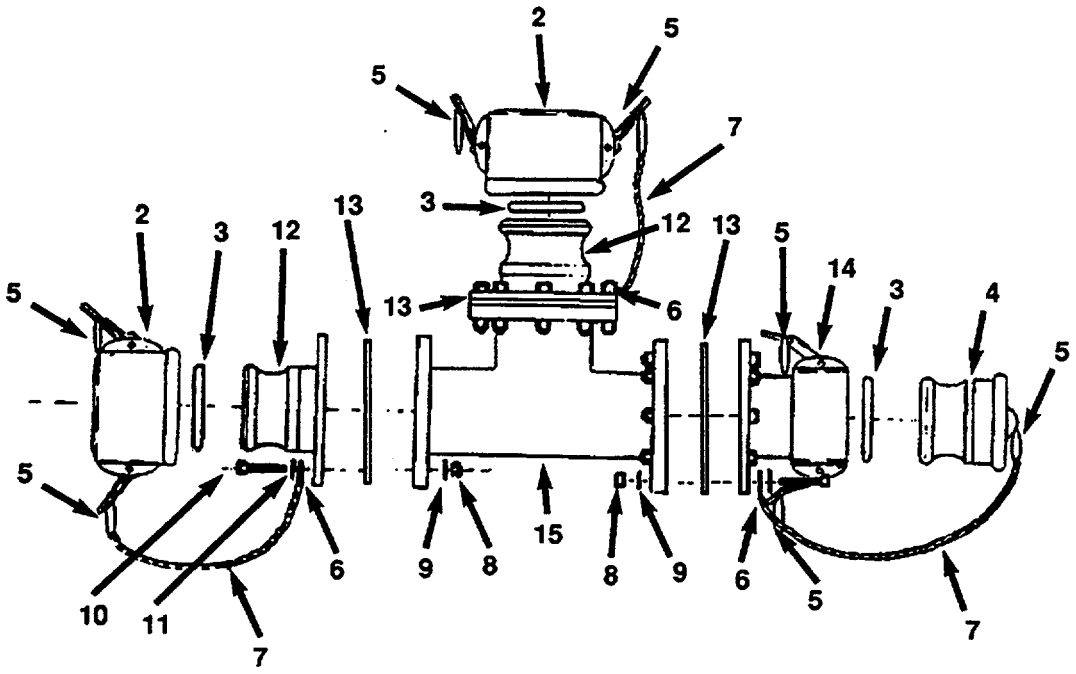


Figure C-6. Tee Assembly, 6"

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 06 TEE ASSEMBLY	
				FIG. C-6 TEE ASSEMBLY, 6 INCH	
1	XDOOO	66618	BAI91142-46	TEE ASSY	2
2	PBOZZ	96906	MS27028-19	CAP, QUICK DISCONNEC	4
3	PCOZZ	96906	MS27030-10	GASKET 6 INCH	6
4	PBOZA	96906	MS27029-19	PLUG, QUICK DISCONNE	2
5	PBOZZ	OKVE6	90177A223	RING, KEY	14
6	PBOZZ	39428	90177A221	RING, RETAINING	6
7	MOOOO	19099	CHAIN, DUST	CHAIN, DUST CAP MAKE FROM BULK CHAIN, P/N 3607T27, CUT TO LENGTH	6
8	PAOZZ	8R639	APN2491	NUT	72
9	PAOZZ	8R639	110007	LOCKWASHER	72
10	PAOZZ	8R639	APN1814	BOLT	72
11	PAOZZ	8R639	APN9884	WASHER, PLAIN	72
12	PBOZZ	96906	MS27023-19	COUPLING HALF, QUICK	4
13	PCOZZ	OA6K1	FB7661	GASKET 6 INCH FLANGE	6
14	PBOZZ	96906	MS27027-19	COUPLING HALF, QUICK	2
15	XDOZZ	10068	064-2455	TEE 6 INCH	2

END OF FIGURE

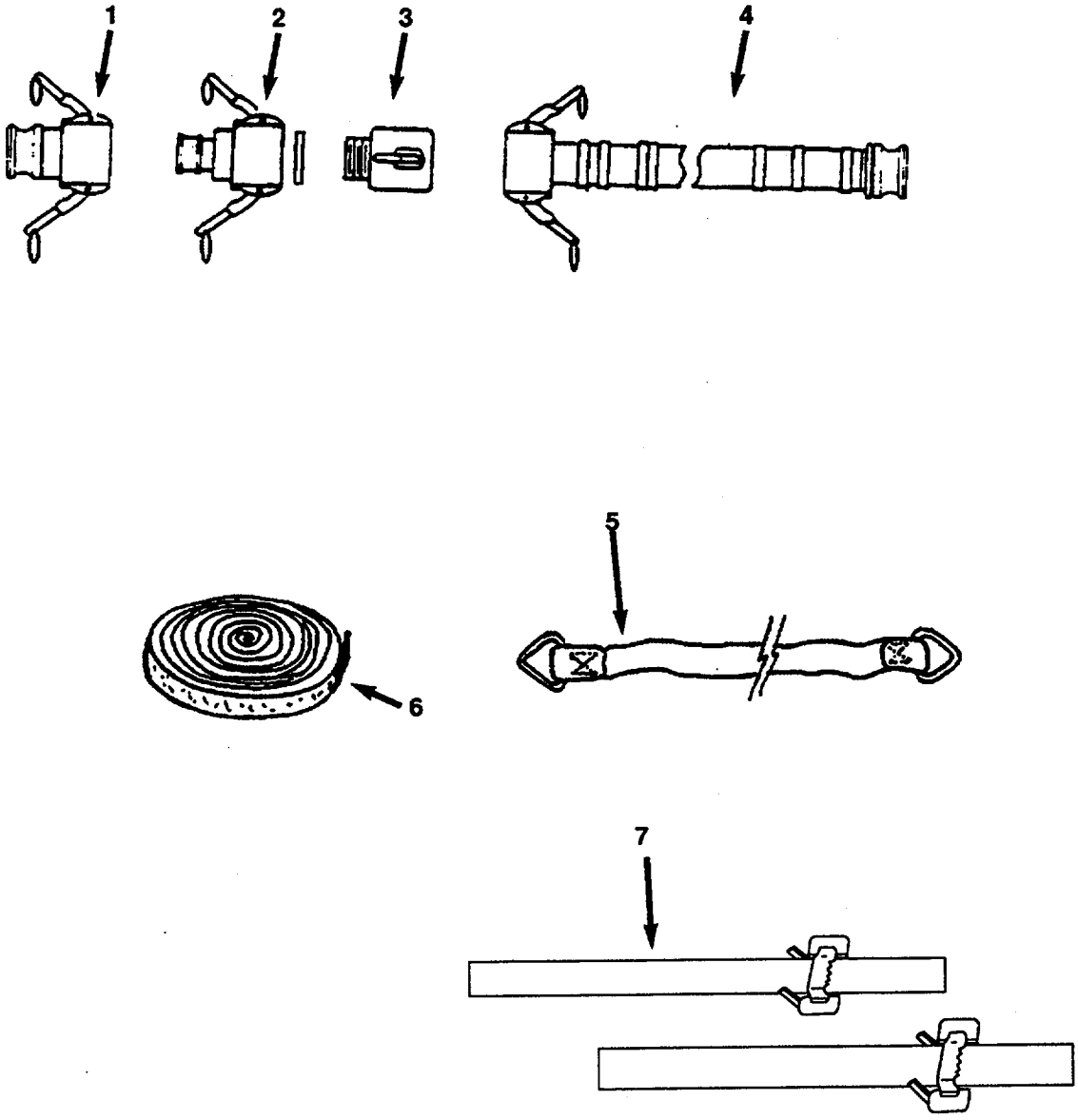


Figure C-7. Hoses and Accessories

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 07 HOSES AND ACCESSORIES	
				FIG. C-7 HOSES AND ACCESSORIES	
1	PBOZZ	96906	MS49000-23	REDUCER, QUICK DISCO 6 INCH MALE TO 4 INCH FEMALE	1
2	PBOZZ	96906	MS49000-21	REDUCER, QUICK DISCO 6 INCH FEMALE TO 4 INCH MALE	1
3	PBOZZ	10068	MS70096-7	ADAPTER, NATO	1
4	PCOZZ	OA6K1	F102635	HOSES 10 FEET X 6 INCHES	4
5	XDOZZ	66618	BAI91142-19	LIFT SLING	3
6	XDOZZ	66618	BAI91142-20	DEPLOYMENT STRAP	8
7	XDOZZ	66618	BAI91142-21	STRAP, TIE DOWN INCLUDES HANDLE	3

END OF FIGURE

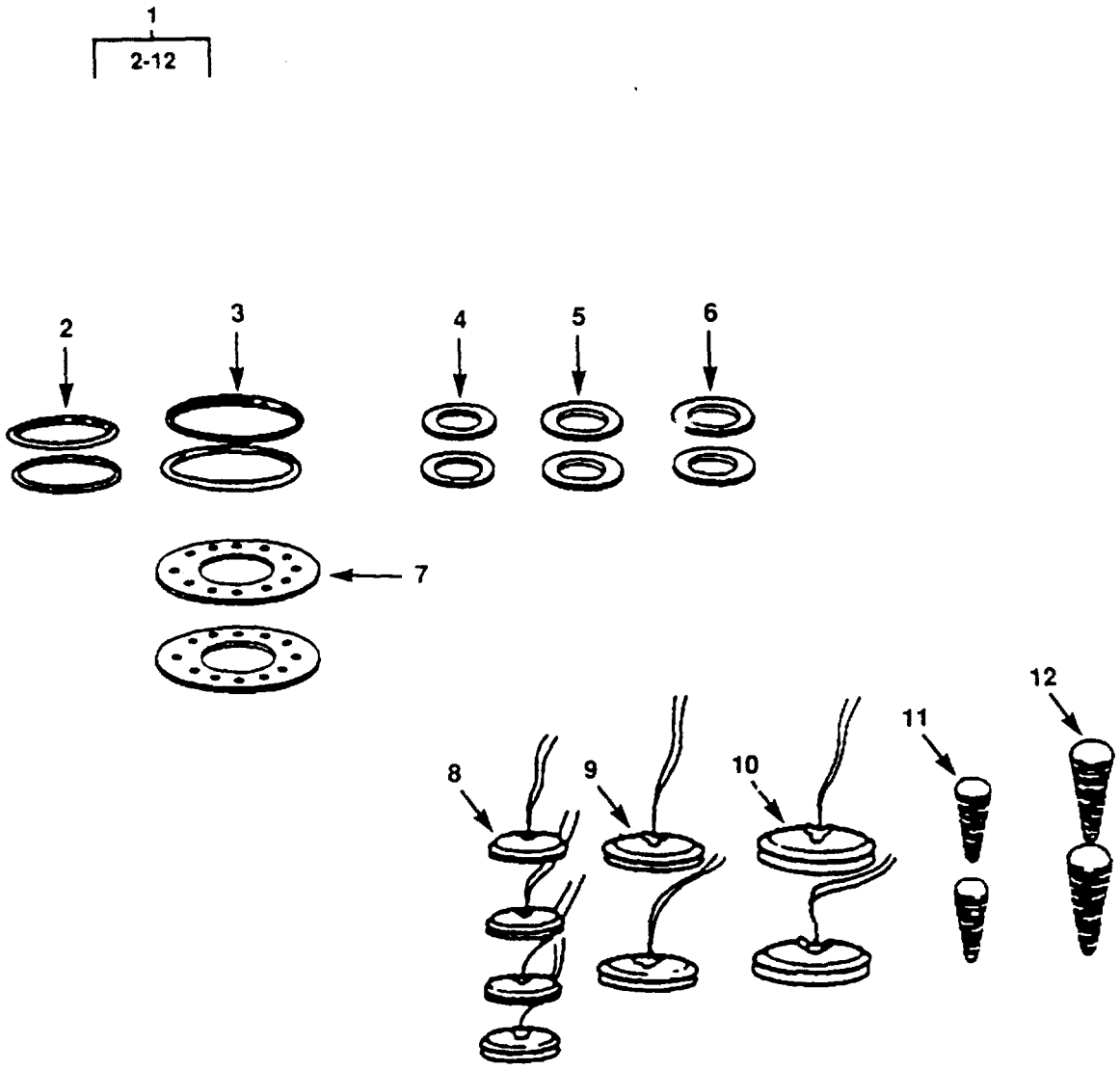


Figure C-8. Emergency Repair Items (Model BA91-142)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 08 REPAIR KIT	
				FIG. C-8 EMERGENCY REPAIR ITEMS (MODEL BA91-142)	
1	XDOZZ	66618	BAI91142-45	REPAIR ITEMS ..... UOC: FFD	1
2	PCOZZ	96906	MS29513-250	.PACKING, PREFORMED . ..... UOC: FFD	2
3	PCOZZ	96906	MS29513-383	.PACKING, PREFORMED . ..... UOC: FFD	2
4	PCOZZ	96906	MS27030-6	.GASKET..... UOC: FFD	2
5	PCOZZ	96906	MS27030-9	.GASKET..... UOC: FFD	2
6	PCOZZ	96906	MS27030-10	.GASKET 6 INCH ..... UOC: FFD	2
7	PCOZZ	0A6K1	FB7661	.GASKET 6 INCH FLANGE ..... UOC: FFD	2
8	PBOZZ	64691	1-03-00-5016	.CLAMP SEALING 3 INCH ..... UOC: FFD	4
9	PBOZZ	64691	1-03-00-5017	.CLAMP SEALING 5 INCH ..... UOC: FFD	2
10	PBOZZ	64691	1-03-00-5018	.CLAMP SEALING 7.5 INCH ..... UOC: FFD	2
11	PBOZZ	64691	1-03-00-5019	.PLUG, WOOD 3 INCH ..... UOC: FFD	2
12	PBOZZ	64691	1-03-00-5020	.PLUG, WOOD 5 INCH ..... UOC: FFD	2

END OF FIGURE

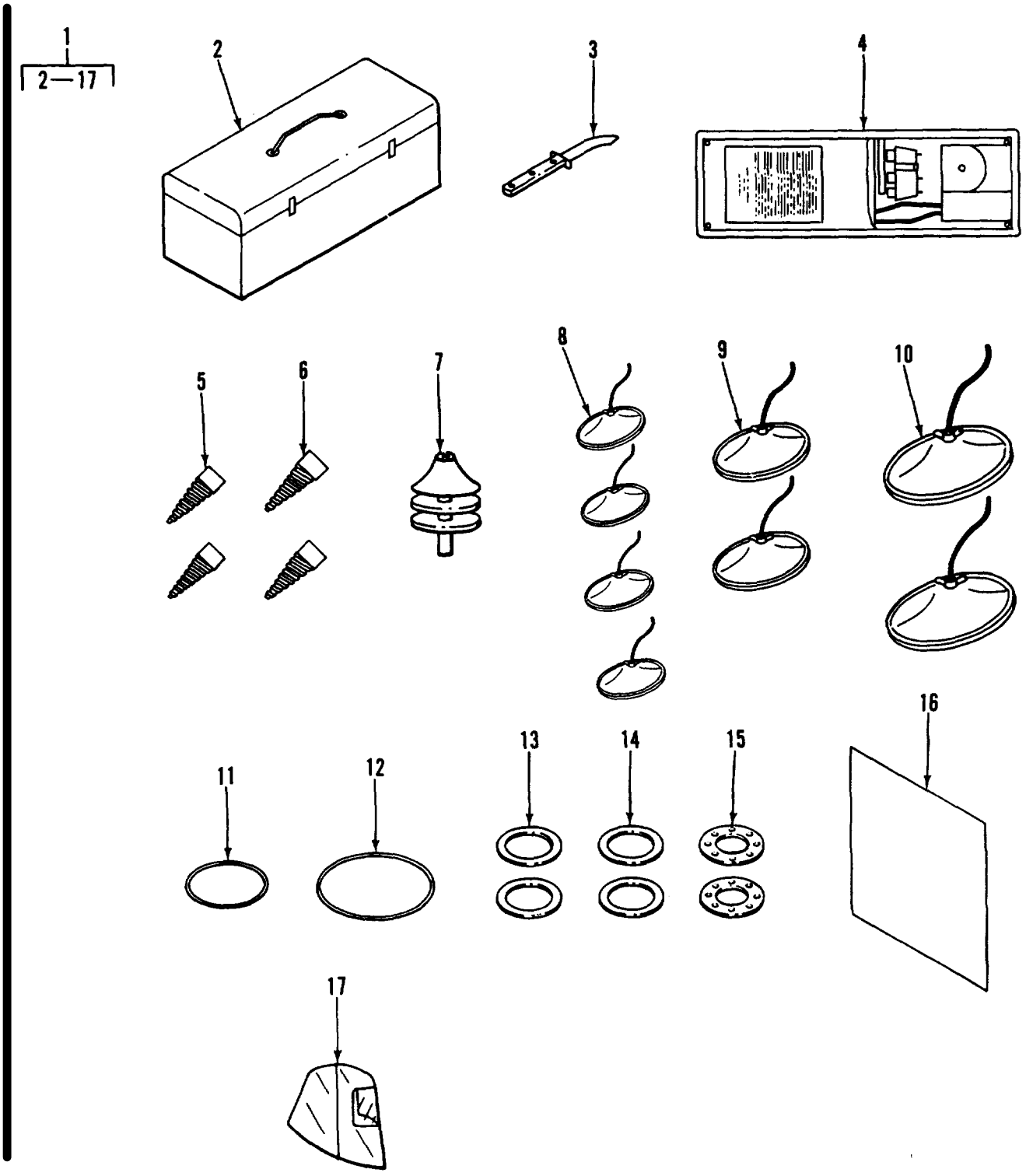


Figure C-9. Emergency Repair Kit (Model RCF0210000)

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 08 REPAIR KIT	
				FIG. C-9 EMERGENCY REPAIR KIT (MODEL RCF0210000)	
1	XDOZZ	OTAN3	9050	REPAIR KIT ..... UOC: FNW	1
2	XBOZZ	OTAN3	9033	.TOOL BOX, PORTABLE . ..... UOC: FNW	1
3	XBOZZ	84583	9029	.KNIFE, CRAFTSMAN'S . ..... UOC: FNW	1
4	XBOZZ	84583	9051	.REPAIR KIT, TYPE 1 . ..... UOC: FNW	1
5	PBOZZ	84583	9001	.PLUG, WOOD 1.5 INCH ..... UOC: FNW	2
6	PBOZZ	84583	9002	.PLUG, WOOD 2 INCH ..... UOC: FNW	2
7	PBOZZ	84583	9005	.PATCH, MECHANICAL 2 INCH..... UOC: FNW	2
8	PBOZZ	84583	9007	.PATCH, MECHANICAL 3 INCH..... UOC: FNW	2
9	PBOZZ	84583	9008	.PATCH, MECHANICAL 5 INCH..... UOC: FNW	2
10	PCOZZ	84583	9009	.PATCH, MECHANICAL 7.5 INCH ..... UOC: FNW	2
11	PCOZZ	96906	MS29513-250	.PACKING, PREFORMED..... UOC: FNW	2
12	PCOZZ	96906	MS29513-383	.PACKING, PREFORMED ..... UOC: FNW	2
13	PCOZZ	96906	MS27030-6	.GASKET..... UOC: FNW	8
14	PCOZZ	96906	MS27030-9	.GASKET..... UOC: FNW	6
15	PCOZZ	96906	MS27030-10	.GASKET..... UOC: FNW	14
16	XBOZZ	OTAN3	31001	.FABRIC, COATED ..... UOC: FNW	1
17	XBOZZ	84583	9028	.HOOD, PROTECTIVE . ..... UOC: FNW	1

END OF FIGURE

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 09 BULK ITEMS	
				FIG. BULK	
1	PBOZZ	0KVE6	3607T27	CHAIN, SASH	V
2	PBOZZ	0KVE6	3603T36	CHAIN, SINGLE JACK	V
3	PCOZZ	0KVE6	9787K3	GASKET, CORK	V

END OF FIGURE

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
4730-00-064-4434	C-5	4
	C-6	4
4730-00-64-4435	C-3	14
	C-5	2
	C-6	2
4730-00-068-0393	C-7	1
5330-00-291-3085	C-2	9
	C-4	6
	C-8	2
	C-9	11
5330-00-412-9780	C-3	4
	C-5	3
	C-6	3
	C-8	6
	C-9	15
5330-00-612-2414	C-2	12
	C-8	4
	C-9	13
4730-00-649-9100	C-2	10
4730-00-649-9103	C-2	11
5330-00-899-4509	C-8	5
	C-9	14
4730-00-938-7997	C-4	11
4730-00-983-6789	C-5	14
	C-6	14
5330-01-067-3449	C-3	8
	C-8	3
	C-9	12
4730-01-079-8234	C-7	2
4820-01-189-2809	C-5	15

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
8R639	APN1666		C-2	6
			C-3	5
			C-4	2
8R639	APN1814		C-3	9
			C-5	10
			C-6	10
8R639	APN2491		C-5	8
			C-6	8
8R639	APN9875		C-2	7
			C-3	6
			C-4	3
8R639	APN9884		C-3	10
			C-5	11
			C-6	11
41592	B-6258-0 FN 10		C-2	4
41592	B-6258-0 FN 11		C-2	3
66618	BAI91142		C-1	1
66618	BAI91142-19		C-7	5
66618	BAI91142-20		C-7	6
66618	BA191142-21		C-7	7
66618	BAI91142-45		C-8	1
66618	BAI91142-46		C-6	1
OA6K1	B1021313		C-4	10
19099	CHAIN. DRAIN		C-4	7
19099	CHAIN, DUST		C-2	14
			C-3	17
			C-5	7
			C-6	7
66618	C00816VA		C-5	1
41592	EX1333-2IN		C-2	2
OA6K1	FB7661		C-3	12
			C-5	13
			C-6	13
			C-8	7
OA6K1	F102635		C-7	4
OA6K1	F19192		C-3	11
96906	MS27022-11	4730-00-938-7997	C-4	11
96906	MS27023-19		C-3	13
			C-5	12
			C-6	12
96906	MS27023-21		C-2	8
96906	MS27024-11	4730-00-649-9103	C-2	11
96906	MS27027-19	4730-00-983-6789	C-5	14
			C-6	14
96906	MS27028-11	4730-00-649-9100	C-2	10
96906	MS27028-19	4730-00-064-4435	C-3	14
			C-5	2
			C-6	2
96906	MS27029-19	4730-00-064-4434	C-5	4
			C-6	4
96906	MS27030-10	5330-00-412-9780	C-3	4

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS27030-10	5330-00-412-9780	C-5	3
			C-6	3
			C-8	6
			C-9	15
96906	MS27030-6	5330-00-612-2414	C-2	12
			C-8	4
			C-9	13
96906	MS27030-9	5330-00-899-4509	C-8	5
			C-9	14
96906	MS29513-250	5330-00-291-3085	C-2	9
			C-4	6
			C-8	2
			C-9	11
96906	MS29513-383	5330-01-067-3449	C-3	8
			C-8	3
			C-9	12
96906	MS49000-21	4730-01-079-8234	C-7	2
96906	MS49000-23	4730-00-068-0393	C-7	1
10068	MS70096-7		C-7	3
81349	M52618/7P09XC		C-4	8
66618	X-3325J		C-2	1
85109	X-4128A		C-3	7
66618	X-4959		C-3	1
66618	X-5022A		C-4	1
10068	064-2400		C-2	5
10068	064-2455		C-6	15
64691	1-03-00-5016		C-8	8
64691	1-03-00-5017		C-8	9
64691	1-03-00-5018		C-8	10
64691	1-03-00-5019		C-8	11
64691	1-03-00-5020		C-8	12
8R639	110007		C-5	9
			C-6	9
41592	235-RF	4820-01-189-2809	C-5	15
41592	235-RF-FN16		C-5	19
41592	235-RF-FN21N		C-5	21
41592	235-RF-FN21S		C-5	23
41592	235-RF-FN21W		C-5	22
41592	235-RF-FN4		C-5	17
41592	235-RF-FN5		C-5	16
41592	235-RF-FN6		C-5	20
41592	235-RF-FN7		C-5	18
41592	235-RF-FN9		C-5	24
0TAN3	31001		C-9	16
0A6K1	319205		C-4	12
0A6K1	319205-FN12		C-4	14
0A6K1	319205-FN13		C-4	13

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
0KVE6	3603T36		BULK	2
0KVE6	3607127		BULK	1
0A6K1	46474		C-4	5
10068	81718-633 K-6		C-3	3
10068	81718-633-KB-6		C-3	2
84583	9001		C-9	5
84583	9002		C-9	6
84583	9005		C-9	7
84583	9007		C-9	8
84583	9008		C-9	9
84583	9009		C-9	10
39428	90177A221		C-3	16
			C-5	6
			C-6	6
0KVE6	90177A223		C-2	13
			C-3	15
			C-5	5
			C-6	5
84583	9028		C-9	17
84583	9029		C-9	3
0TAN3	9033		C-9	2
0TAN3	9050		C-9	1
84583	9051		C-9	4
0KVE6	92446A825		C-4	9
0KVE6	9381T56		C-4	4
0KVE6	9487K3		BULK	3

CROSS REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
BULK	1		OKVE6	3607T27
BULK	2		OKVE6	3603T36
BULK	3		OKVE6	9487K3
C-1	1		66618	BAI91142
C-2	1		66618	X-3325J
C-2	2		41592	EX1333-2IN
C-2	3		41592	B-6258-0 FN 11
C-2	4		41592	B-6258-0 FN 10
C-2	5		10068	064-2400
C-2	6		8R639	APN1666
C-2	7		8R639	APN9875
C-2	8		96906	MS27023-21
C-2	9	5330-00-291-3085	96906	MS29513-250
C-2	10	4730-00-649-9100	96906	MS27028-11
C-2	11	4730-00-649-9103	96906	MS27024-11
C-2	12	5330-00-612-2414	96906	MS27030-6
C-2	13		OKVE6	90177A223
C-2	14		19099	CHAIN, DUST
C-3	1		66618	X-4959
C-3	2		10068	81718-633 KB-6
C-3	3		10068	81718-633 K-6
C-3	4	5330-00-412-9780	96906	MS27030-10
C-3	5		8R639	APN1666
C-3	6		8R639	APN9875
C-3	7		85109	X-4128A
C-3	8	5330-01-067-3449	96906	MS29513-383
C-3	9		8R639	APN1814
C-3	10		8R639	APN9884
C-3	11		OA6K1	F19192
C-3	12		OA6K1	FB7661
C-3	13		96906	MS27023-19
C-3	14	4730-00-064-4435	96906	MS27028-19
C-3	15		OKVE6	90177A223
C-3	16		39428	90177A221
C-3	17		19099	CHAIN, DUST
C-4	1		66618	X-5022A
C-4	2		8R639	APN1666
C-4	3		8R639	APN9875
C-4	4		OKVE6	9381TS6
C-4	5		OA6K1	46474
C-4	6	5330-00-291-3085	96906	MS29513-250
C-4	7		19099	CHAIN, DRAIN
C-4	8		81349	M52618/7P09XC
C-4	9		OKVE6	92446A825
C-4	10		OA6K1	B1021313
C-4	11	4730-00-938-7997	96906	MS27022-11
C-4	12		OAK61	319205
C-4	13		OA6K1	319205-FN13
C-4	14		OA6K1	319205-FN12
C-5	1		66618	C00816VA
C-S	2	4730-00-064-4435	96906	MS27028-19

CROSS REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
C-5	3	5330-00-412-9780	96906	MS27030-10
C-5	4	4730-00-064-4434	96906	MS27029-19
C-5	5		0KVE6	901177A223
C-5	6		39428	90177A221
C-5	7		19099	CHAIN, DUST
C-5	8		8R639	APN2491
C-5	9		8R639	110007
C-5	10		8R639	APN1814
C-5	11		8R639	APN9884
C-5	12		96906	MS27023-19
C-5	13		0A6K1	FB7661
C-5	14	4730-00-983-6789	96906	M527027-19
C-5	15	4820-01-189-2809	41592	235-RF
C-5	16		41592	235-RF-FN5
C-5	17		41592	235-RF-FN4
C-5	18		41592	235-RF-FN7
C-5	19		41592	235-RF-FN16
C-5	20		41592	235-RF-FN6
C-5	21		41592	235-RF-FN21N
C-5	22		41592	235-RF-FN21W
C-5	23		41592	235-RF-FN21S
C-5	24		41592	235--RF-FN9
C-6	1		66618	BAI91142-46
C-6	2	4730-00-064-4435	96906	M527028-19
C-6	3	5330-00-412-9780	96906	MS27030-10
C-6	4	4730-00-064-4434	96906	MS27029-19
C-6	5		0KVE6	90177A223
C-6	6		39428	90177A221
C-6	7		19099	CHAIN, DUST
C-6	8		8R639	APN2491
C-6	9		8R639	110007
C-6	10		8R639	APN1814
C-6	11		8R639	APN9884
C-6	12		96906	MS27023-19
C-6	13		0A6K1	FB7661
C-6	14	4730-00-983-6789	96906	MS27027-19
C-6	15		10068	064-2455
C-7	1	4730-00-068-0393	96906	M549000-23
C-7	2	4730-01-079-8234	96906	MS49000-21
C-7	3		10068	MSY0096-7
C-7	4		0A6K1	F102635
C-7	5		66618	BAI91142-19
C-7	6		66618	BAI91142-20
C-7	7		66618	BAI91142-21
C-8	1		66618	BAI91142-45
C-8	2	5330-00-291-3085	96906	MS29513-250
C-8	3	5330-01-067-3449	96906	MS29513-383
C-8	4	5330-00-612-2414	96906	MS27030-6
C-8	S	5330-00-899-4509	96906	MS27030-9
C-8	6	5330-00-412-9780	96906	MS27030-10
C-8	7		0A6K1	FB7661

CROSS REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-8	8		64691	1-03-00-5016
C-8	9		64691	1-03-00-5017
C-8	10		64691	1-03-00-5018
C-8	11		64691	1-03-00-5019
C-8	12		64691	1-03-5020
C-9	1		0TAN3	9050
C-9	2		0TAN3	9033
C-9	3		84583	9029
C-9	4		84583	9051
C-9	5		84583	9001
C-9	6		84583	9002
C-9	7		84583	9005
C-9	8		84583	9007
C-9	9		84583	9008
C-9	10		84583	9009
C-9	11		96906	MS29513-250
C-9	12		96906	MS29513-383
C-9	13		96906	MS27030-6
C-9	14		96906	MS27030-9
C-9	15		96906	MS27030-10
C-9	16		0TAN3	31001
C-9	17		84583	9028

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

SECTION 1. INTRODUCTION

D-1. SCOPE.

This appendix lists components of end items and basic issue items for the 5,000 barrel collapsible petroleum tank to help you inventory items required for safe and efficient operation of the equipment.

D-2. GENERAL.

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

a. Section II. Components of End Item. This Listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the 5,000 barrel collapsible tank, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the 5,000 barrel collapsible fabric tank in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the 5,000 barrel collapsible fabric tank during operation and whenever it is transferred between property accounts. The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement basic issue items (BII), based on TOE/MTOE authorization of the end item.

D-3. EXPLANATION OF COLUMNS.

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

a. Column (1) - Illustration Number, gives you the number of the item illustrated.

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

c. Column (3) - Description and Useable On Code, identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (commercial and Government entity code) (in parenthesis) and the part number.

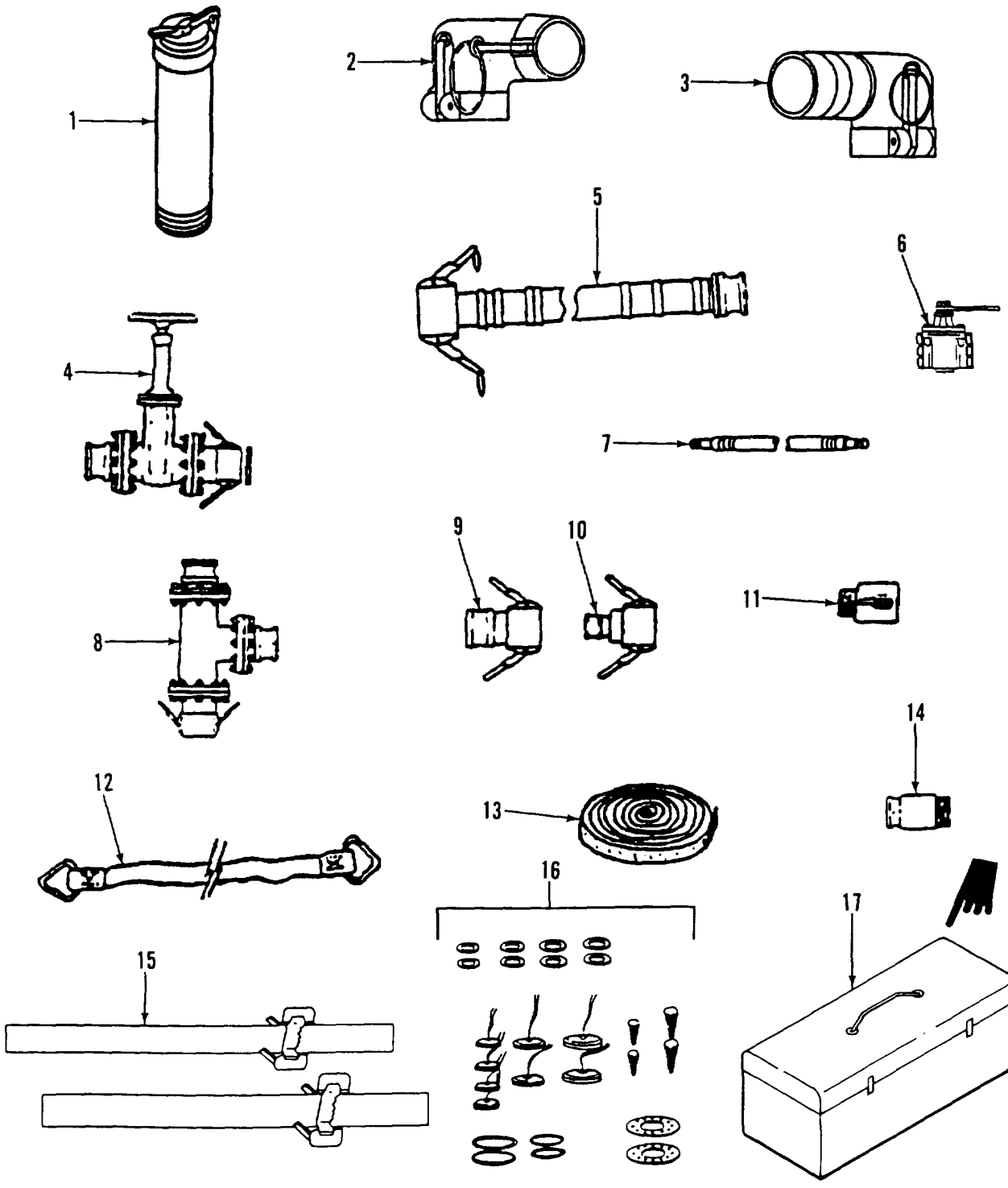
If the item you need is not the same for different models of the equipment, a Usable On Code will appear on the right side of the description column on the same line as the part number. These codes are identified below as:

UOC	MODEL
FFD	BA91-142
FNW	RCF0210000

d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).

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

Section II. COMPONENTS OF END ITEM



Section II. COMPONENTS OF END ITEMS LIST

(1) Illustration Number:	(2) National Stock Number	(3) Description, CAGEC And Part Number	Use On Code	(4) UM	(5) Qty Req.
01		CAP 8 VENT ASSY WITH 2 X 10 PIPE WITH Q/D FTG. (41592) X-3325J	FFD	EA.	1
02		ELBOW FEM/FEM 60BD90A (80691)	FFD	EA.	1
03		ELBOW FEM/MALE 60BA90AL (80691)	FFD	EA.	1
04		VALVE ASSY 6" FILL/DISCHARGE (66618) C00816VA	FFD	EA.	2
05		HOSE ASSEMBLY 6" (OA6K1) F-102635	FFD	EA.	4
06		DRAIN VALVE ASSY 2" (66618) C00812DBVA	FFD	EA.	2
07		HOSE ASSEMBLY 2" (OA6K1) B10211313	FFD	EA.	2
08		TEE ASSEMBLY 6" (66618) C00816TA	FFD	EA.	2
09	4730-00-068-0393	REDUCER 6nM TO 4"F (96906) MS49000-23	FFD	EA.	1
10	4730-00-079-8234	REDUCER 6"F TO 4"M (96906) MS49000-21	FFD	EA.	1
11		NATO ADAPTER 4" THREADED (10068) MS70096-7	FFD	EA.	1
12		LIFTING SLING (66618) BAI91142-19	FFD	EA.	3
13		DEPLOYMENT STRAPS (66618) BAI91142-20	FFD	EA.	8
14		COUPLING HALVES 2" (96906) MS27022-11	FFD	EA.	2
15		TIE DOWN STRAPS (66618) BAI91142-21	FFD	EA.	3

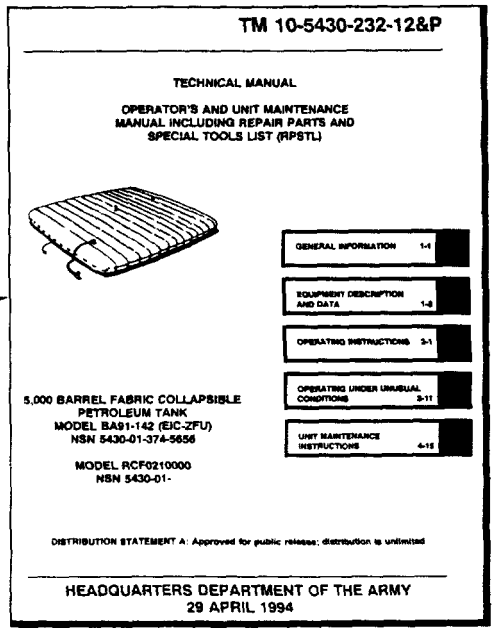
Section II. COMPONENTS OF END ITEMS LIST

(1) Illustration Number:	(2) National Stock Number	(3) Description, CAGEC And Part Number	Use On Code	(4) UM	(5) Qty Req.
16		REPAIR KIT, CONSISTING			
		OF THE FOLLOWING	FFD		
		(66618) BA1142-45		EA.	1
		GASKET, 6" FLANGE			
		(OA6K1) FB7661			
	5330-00-291-3085	O-RING	FFD	EA.	2
		(96906) MS29513-250			
	5330-01-067-3449	O-RING	FFD	EA.	2
		(96906) MS29513-383			
	5310-00-612-2414	GASKET, Q/D COUPLING 2"	FFD	EA.	2
		(96906) MS27030-6			
	5330-00-899-4509	GASKET, Q/D COUPLING 4"	FFD	EA.	2
		(96906) MS27030-9			
	5330-00-412-9780	GASKET, Q/D COUPLING 6"	FFD	EA.	2
		(96906) MS27030-10			
	5430-00-591-6863	CLAMP, SEALING, 3-IN.	FFD	EA.	4
		(64691) 1-03-00-5016			
	5430-00-591-6864	CLAMP, SEALING, 5-IN.	FFD	EA.	2
		(64691) 1-03-00-5017			
		CLAMP, SEALING, 7.5 IN.	FFD	EA.	2
		(64691) 1-03-00-5018			
		PLUG, TAPERED 3-IN.	FFD	EA.	2
		(64691) 1-03-00-5019			
		PLUG, TAPERED 5-IN.	FFD	EA.	2
		(64691) 1-03-00-5020			

Section II. COMPONENTS OF END ITEMS LIST

(1) Illustration Number:	(2) National Stock Number	(3) Description, CAGEC And Part Number	Use On Code	(4) UM	(5) Qty Req.
17		REPAIR KIT, - CONSISTING OF THE FOLLOWING: (0TAN3) 9050	FNW	EA	1
		TOOL BOX, PORTABLE (84583) 9030	FNW	EA	1
		KNIFE, CRAFTSMAN'S (84583) 9029	FNW	EA	1
		REPAIR KIT, TYPE 1 (84583) 9051	FNW	EA	1
		PLUG, WOOD, 1.5 INCH (84583) 9001	FNW	EA	2
		PLUG, WOOD, 2 INCH (84583) 9002	FNW	EA	2
		PATCH, MECHANICAL, 2 INCH (84583) 9005	FNW	EA	2
		CLAMP, SEALING, 3 INCH (84583) 9007	FNW	EA	2
		CLAMP, SEALING, 5 INCH (84583) 9008	FNW	EA	2
		CLAMP, SEALING, 7.5 INCH (84583) 9009	FNW	EA	2
	5330-01-067-3449	O-RING (96906) MS29513-383	FNW	EA	2
	5330-00-291-3085	O-RING (96906) MS29513-250	FNW	EA	2
	5330-00-612-2414	GASKET, Q/D COUPLING 2" (96906) MS29030-6	FNW	EA	8
	5330-00-412-9780	GASKET, Q/D COUPLING 6" (96906) MS29030-10	FNW	EA	14
	5330-00-899-4509	GASKET, Q/D COUPLING 4" (96906) MS29030-9	FNW	EA	6
		COATED FABRIC (0TAN3) 1001	FNW	EA	1
		HOOD, PROTECTIVE (83583) 9028	FNW	EA	1

Section III. BASIC ISSUE ITEMS



1 →

(1) Illustration Number:	(2) National Stock Number	(3) Description, CAGEC And Part Number	Use On Code	(4) UM	(5) Qty Req.
1		TM 10-5430-232-12&P Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools List (RPSTL) for 5, 000 Barrel Fabric Collapsible Petroleum Tank Model BA 91-142 (EIC-ZFU) NSN 5430-01-374-5656 and Model RCF0210000 NSN 5430-01-433-6246		EA	

APPENDIX E

ADDITIONAL AUTHORIZATION LIST

SECTION I. INTRODUCTION

E-1. SCOPE.

This appendix lists additional items that you are authorized for the support of the 5,000 barrel collapsible fabric tank.

E-2. GENERAL.

This list identifies items that do not have to accompany the 5,000 barrel collapsible fabric tank and that do not have to be turned in with it. These items are ail authorized to you by CTA, MTOE, TDA, or JTA.

E-3. EXPLANATION OF LISTING.

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

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION CAGEC AND PART NUMBER USABLE ON CODE	(3) U/I	(4) QTY RECM
5430-01-237-3657	Berm Liner	EA	1

APPENDIX F

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

SECTION I. INTRODUCTION

F-1. SCOPE.

This appendix lists expendable/durable supplies and materials you will need to operate and maintain the 5,000 barrel collapsible fabric tank. This listing is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-790, Expendable/Durable Items (except Medical, Class V, Repair Parts and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

F-2. FXPLANATION OF COLUMNS.

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

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

O - Operator/Crew

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

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

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

APPENDIX F

SECTION II.
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	0	6850-01-377-1809	DRY CLEANING SOLVENT P-D-680, (81348)	GL
2	0	8030-00-543-4384	COMPOUND, SEALING, THREAD, GASKET, FUEL OIL AND WATER RESISTANT	LB
3	0	5350-00-221-0872	CROCUS CLOTH	EA
4	0	7930-01-350-7034	CLEANING COMPOUND, SOLVENT-DETERGENT 185024 (56883)	GL
5	0	9150-60-261-8291	GREASE, MIL-G-6032 (81349)	OZ
6	0	7920-00-205-1711	RAGS, WIPING, COTTON AND COTTON SYNTHETIC, A-A-531	EA
7	0	6850-01-137-8525	SILICONE COMPOUND, DC 340	OZ
8	0	6810-00-270-9988	TALC, TECHNICAL, T1 AND T3, MIL-T-50036 (81349)	LB
9	0	8030-00-889-3534	TAPE, ANTISIEZE, POLYTETRA FLOURESETHYLENE, MIL-T-27730 (81349)	EA
10	0		RING, KEY (LARGE) (OKVE6) 90177A223	EA
11	0		RING, KEY (SMALL) (OKVE6) 90177A221	EA

APPENDIX G
ILLUSTRATED LIST OF MANUFACTURED ITEMS

SECTION I. INTRODUCTION

G-1. PURPOSE.

This appendix provides information required to fabricate or manufacture components of the tank.

G-2. CONTENTS.

(1) This appendix includes complete instructions for making Hems authorized to be manufactured or fabricated at unit maintenance level.

(2) 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.

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

Figure G-1. Sash Chain

MATERIAL	
DESCRIPTION	**NSN**
CHAIN, SASH. CAGEC OKVE6, PART NUMBER 3607T27, CUT 8 INCHES FROM BULK STOCK	

Figure G-2. Link Chain

MATERIAL	
DESCRIPTION	**NSN**
CHAIN, SINGLE JACK, CAGEC OKVE6, PART NUMBER 3603T36, CUT 8-10 INCHES FROM BULK STOCK	

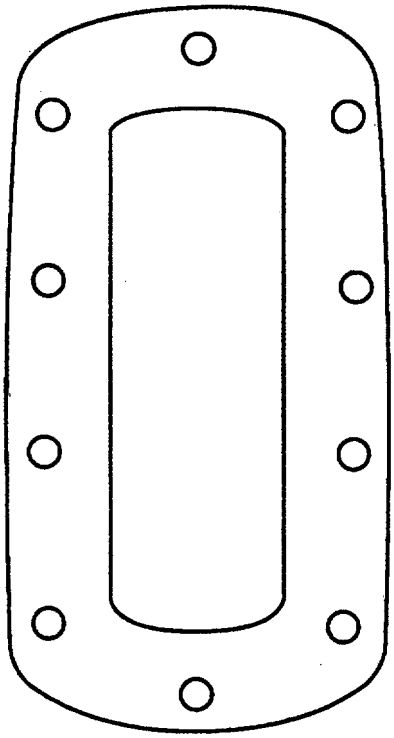


Figure G-3. Gate Valve Gasket

MATERIAL	
DESCRIPTION	**NSN**
GATE VALVE GASKET, Y CORK SHEET, PN 9487K3 (OKVE6). TRACE OLD GASKET TO MAKE PATTERN, CUT PATTERN IN CORK MATERIAL	

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APPENDIX H

MANDATORY REPLACEMENT PARTS

ITEM NUMBER	NOMENCLATURE	CAGEC	PART NUMBER
1	PACKING, PREFORMED, 14 INCH ID	96906	MS29513-383
2	PACKING, PREFORMED, 5 INCH ID	96906	MS29513-250
3	GASKET, 6" FLANGE	OA6K1	FB7661
4	GASKET, 2 INCH QUICK DISCONNECT	96906	MS27030-6
5	GASKET, 4 INCH QUICK DISCONNECT	96906	MS27030-9
6	GASKET, 6 INCH QUICK DISCONNECT	96906	MS27030-10
7	LOCKWASHER	41592	235-RF FIND#21W
8	LOCKWASHER	8R639	110007

APPENDIX I

TORQUE LIMITS

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

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

Bolt/Screw Size	Torque Requirement in lb ft (N-m)			
	AE 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)
5/16-18 UNC	11 (15)	17 (23	19 (26)	24 (33)
5/16-24 UNF	13 (18)	19 (26)	23 (31)	27 (37)
3/8-16 UNC	18 (24)	31 (42)	34 (46)	44 (60)
3/8-24 UNF	30 (41)	55 (75)	67 (91)	78 (106)
7/16-14 UNC	28 (38)	49 (66)	55 (75)	70 (95)
7/16-20 UNF	30 (41)	55 (75)	67 (91)	78 (106)
1/2-13 UNC	39 (53)	75 (102)	85 (115)	105 (142)
1/2-20 UNF	41 (56)	85(115)	102 (138)	120 (163)
9/16-12 UNC	51 (69)	110 (149)	120 (163)	155 (210)
9/16-18 UNF	55 (75)	120 (163)	145 (197)	170 (231)
5/8-11 UNC	63 (85)	150 (203)	167 (226)	210 (285)
5/8-18 UNF	95 (129)	170 (231)	205 (278)	240 (325)
3/4-10 UNC	105 (142)	270 (366)	280 (380)	375 (509)
3/4-16 UNF	115 (156)	295 (400)	357 (484)	420 (570)
7/8-9 UNC	160 (217)	395 (536)	440 (597)	605 (820)
7/8-14 UNF	175 (237)	435 (590)	555 (753)	675 (915)
1-8 UNC	235 (319)	590 (800)	660 (895)	910 (1234)
1-14 UNF	250 (339)	660 (865)	825 (1119)	999 (1342)

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

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

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

Table I-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 the breakaway torque. Do not reuse locknuts that do not meet minimum breakaway torque.

Thread Size	Minimum Breakaway Torque	
	lb.-in.	(N m)
10-32	2.0	(0.23)
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)

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Index (cont.)

By Order of the Secretary of the Army:

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

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
03024

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25-E, block no. 6211, requirements for TM 10-5430-232-12&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: mpmt%avma28@st-louis-emh7.army.mil

Subject: DA Form 2028
1. ***From:*** Joe Smith
2. *Unit:* home
3. ***Address:*** 4300 Park
4. ***City:*** Hometown
5. ***St:*** MO
6. ***Zip:*** 77777
7. ***Date Sent:*** 19-OCT-93
8. ***Pub no:*** 55-2840-229-23
9. ***Pub Title:*** TM
10. ***Publication Date:*** 04-JUL-85
11. *Change Number:* 7
12. *Submitter Rank:* MSG
13. ***Submitter FName:*** Joe
14. *Submitter MName:* T
15. ***Submitter LName:*** Smith
16. ***Submitter Phone:*** 123-123-1234
17. ***Problem:*** **1**
18. *Page*: 2
19. *Paragraph*: 3
20. *Line*: 4
21. *NSN:* 5
22. *Reference:* 6
23. *Figure:* 7
24. *Table:* 8
25. *Item:* 9
26. *Total:* 123
27. ***Text:***

This is the text for the problem below line 27.

***U.S. GOVERNMENT PRINTING OFFICE: 1997-555-121/60001**

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

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PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

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

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

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TEAR ALONG PERFORATED LINE

DA FORM 1 JUL 79 **2028-2**

PREVIOUS EDITIONS ARE OBSOLETE.

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

The Metric System and Equivalents

Linear Measure

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

Weights

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

Liquid Measure

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

Square Measure

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

Cubic Measure

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

Approximate Conversion Factors

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

Temperature (Exact)

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

PIN: 072676-000