OPERATOR AND ORGANIZATION

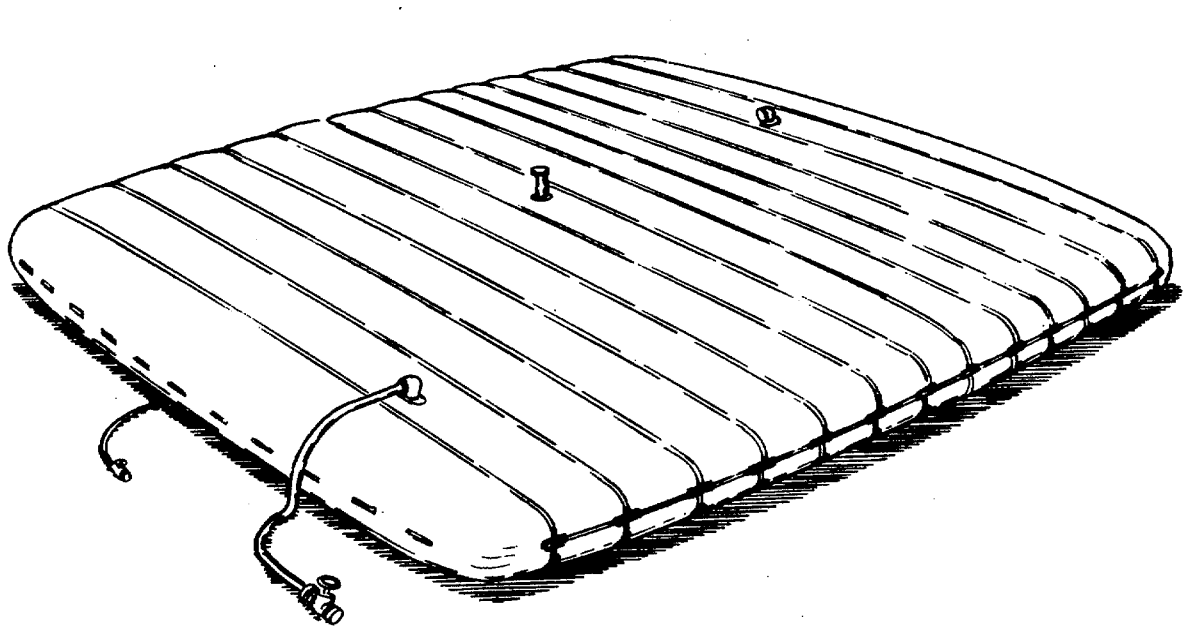
MAINTENANCE INSTRUCTION

REPAIR PARTS AND SPECIAL TOOLS LIST

FOR

TANK, FABRIC, COLLAPSIBLE 5,000 BARREL PETROLEUM

NSN 5430-01-160-3528



This copy Is a reprint which Includes current pages from Change 1.

H E A D Q U A R T E R S , D E P A R T M E N T O F T H E A R M Y

31 DECEMBER 1986

WARNING

FLAMMABLE AND TOXIC FUEL HAZARD

This equipment is used to store flammable and toxic fuels.

- Dangerous and explosive conditions can exist anytime excessive fuel vapors are present.

- Fuel vapors can be absorbed by clothing and other materials, making them highly flammable.

- Use of electrical or spark producing devices within 100 feet of the tank may ignite fuel vapors resulting in explosion or fire.

- Skin exposed to liquid fuels is subject to toxic chemical reaction which can cause injury to skin or eyes.

CHANGE

NO 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 31 October 1994

Operator and Organization Maintenance Instruction
Repair Parts and Special Tools List

for

TANK, FABRIC, COLLAPSIBLE 5,000 BARREL PETROLEUM
NSN 5430-01-160-3528

DISTRIBUTION STATEMENT A Approved for public release, distribution Is unlimited

TM 5-5430-214-13&P, 31 December 1986, is changed as follows:

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

Remove pages	Insert pages
iii and iv	iii and iv
E-1 and E-2	E-1 and E-2

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

By Order of the Secretary of the Army:

GORDON R SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
07633

DISTRIBUTION:

To be distributed In accordance with DA Form 12-25-E, block no 3826, requirements for TM 5-5430-214-13&P.

OPERATOR AND ORGANIZATION

MAINTENANCE INSTRUCTION

REPAIR PARTS AND SPECIAL TOOLS LIST

FOR

TANK, FABRIC, COLLAPSIBLE, 5,000 BARREL PETROLEUM

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake or if you know of away to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located In the back of this manual direct to: Commander, U.S. Army Aviation and Troop Command, ATTN: AMSAT-I-MP, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

CHAPTER 1. INTRODUCTION

Section I. GENERAL INFORMATION

1-1. PURPOSE AND FUNCTION. The 5,000 barrel tank is a collapsible fabric container designed to store petroleum-based fuels. The collapsible tank is intended for use as a fuel storage container when large capacity quick storage facilities are needed, and where permanent fuel storage facilities are not available. It will store fuel that is off loaded from shipping tankers and then dispense the fuel to support operations. The tank is primarily used in quick-response deployment operations.

1-2. CAPABILITIES. The tank has a capacity of 5,000 barrels or 210,000 gallons (794.94 kiloliters). The tank is compatible with all standard military fuel storage and handling equipment. The tank can be quickly deployed on flat ground with a minimum of surface preparation.

1-3. PERFORMANCE CHARACTERISTICS. The tank is composed of a single ply nylon cloth coated on both sides with an elastomer. Five fittings are bonded into the tank for attaching one vent assembly, two filler/discharge assemblies, and two drain assemblies. The tank and components are suitable for operational use at ambient temperatures from plus 125°F (51.7°C) to minus 25°F (-31.7°C). The tank materials are designed to resist exposure effects from extreme temperatures, rain, snow, ice, fungi growth and high humidity conditions. Access to the inside of the tank can be made through either filler/discharge fitting. The tank is self-supporting and does not require earth-embankment support.

1-4. DIMENSIONS, WEIGHT, VOLUME.

a. The following dimensions are for the tank when empty and folded, prior to deployment.

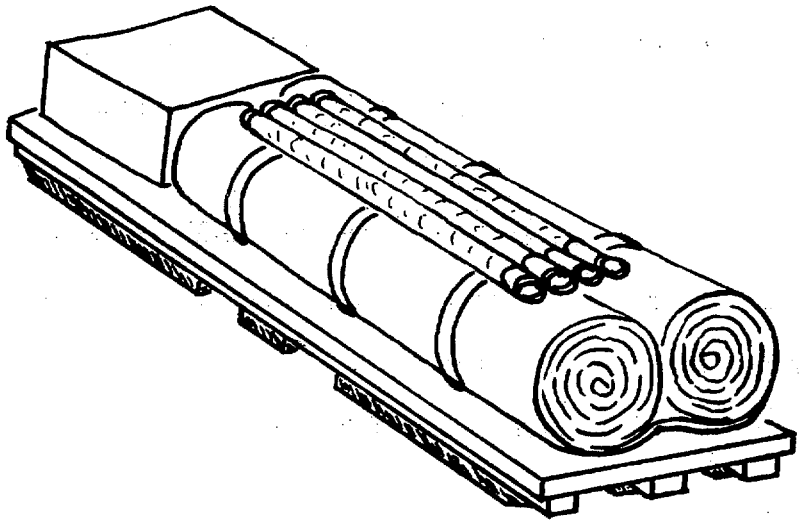


Figure 1-1. Tank Empty and Folded

Height:	4 ft	(1.22 m)
Width:	6 ft	(1.83 m)
Length:	16 ft	(4.88 m)
Weight:	3,000 lb	(1,361 kg)

1-4. DIMENSIONS, WEIGHT, VOLUME (continued).

b. The following dimensions are for the tank when deployed.

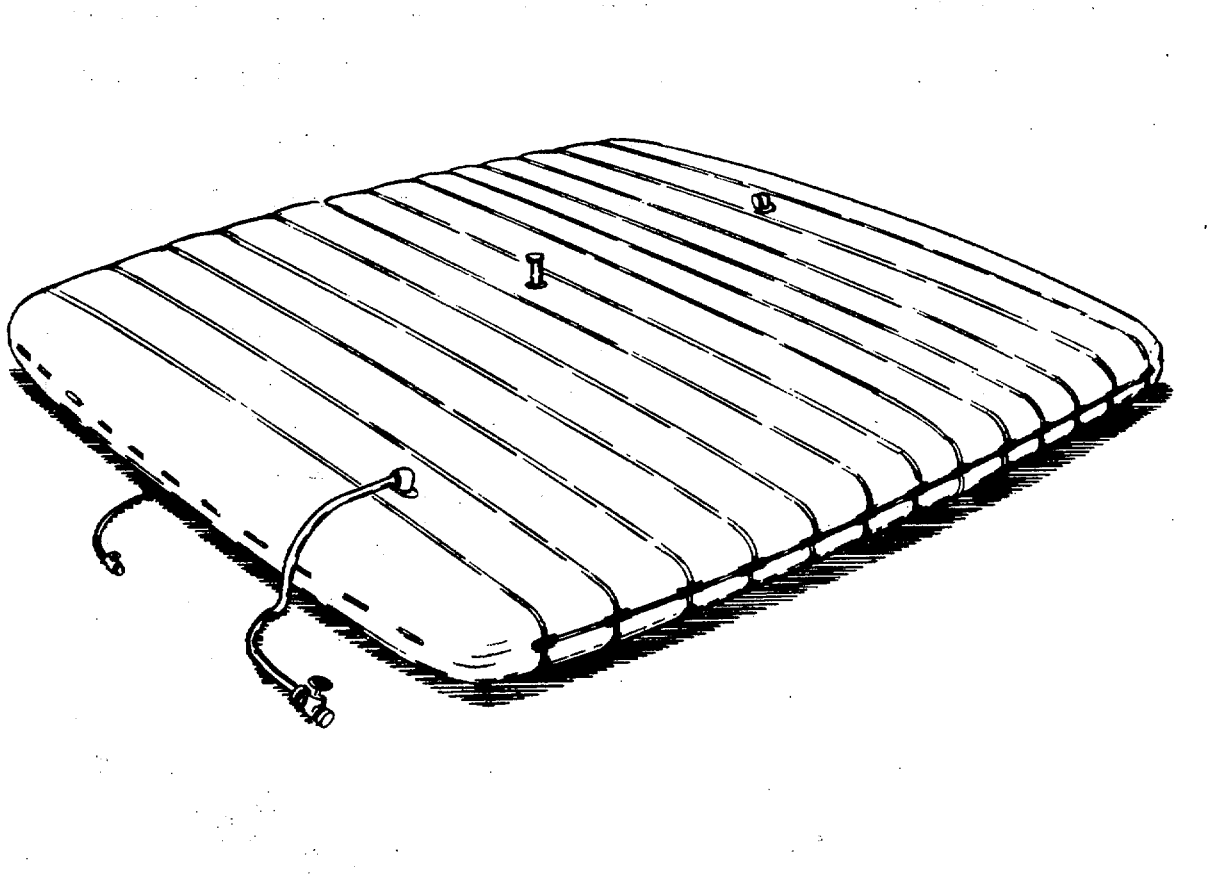


Figure 1-2. Tank Filled

Capacity (Fuel):	5,000 barrels or 210,000 gal. (794.93 kl)
Height at Capacity (Fuel):	6 ft, 8 in. (2.03 m)
Length:	68 ft (20.72 m)
Width:	68 ft (20.72 m)

1-5. POWER AND UTILITY REQUIREMENTS. None

1-6. ENVIRONMENTAL REQUIREMENTS. Fuels are environmental pollutants. The interior of the tank should be cleaned only when necessary to ensure the proper cleanliness of the fuel. When interior cleaning is required, do not allow the fuel to flow into waterways. In some locations, it may be permissible to allow it to drain into sanitary sewers. Follow all local regulations.

1-7. LIST OF ITEMS FURNISHED.

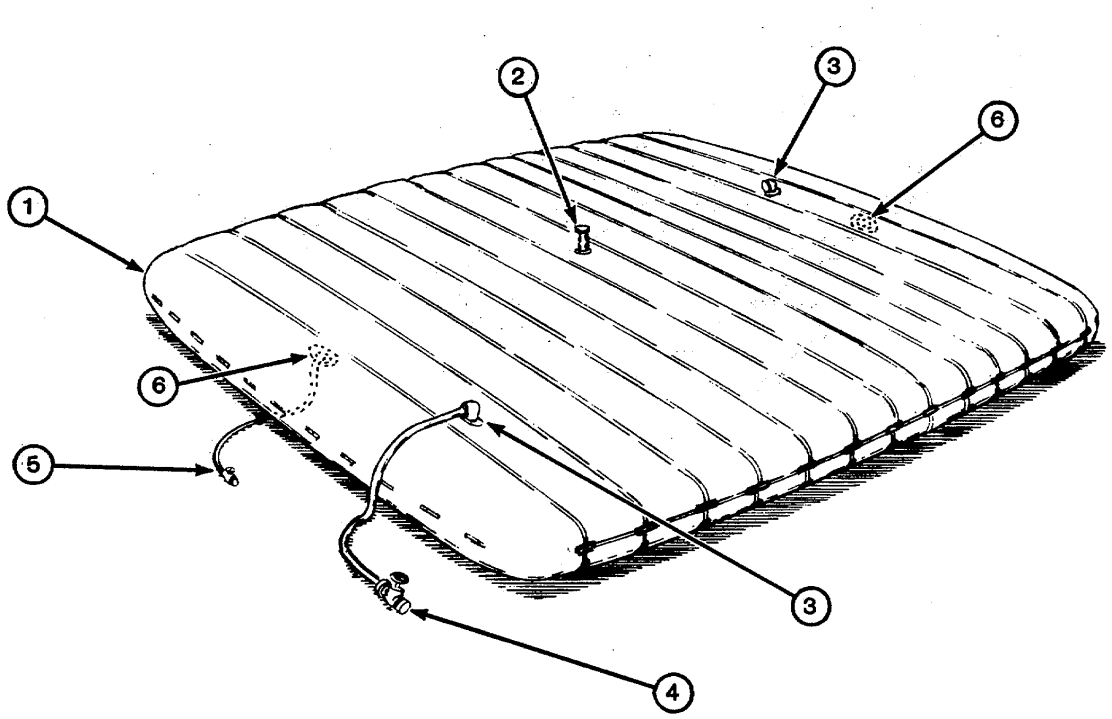


Figure 1-3. Tank Parts

Item	Name
1	Tank Envelope
2	Vent Assembly
3	Filler/Discharge Assembly (2)
4	Main Hose and Valve Assembly - 6-inch
5	Drain Hose and Valve - 1 1/2-inch (2)
6	Drain Assembly (2)

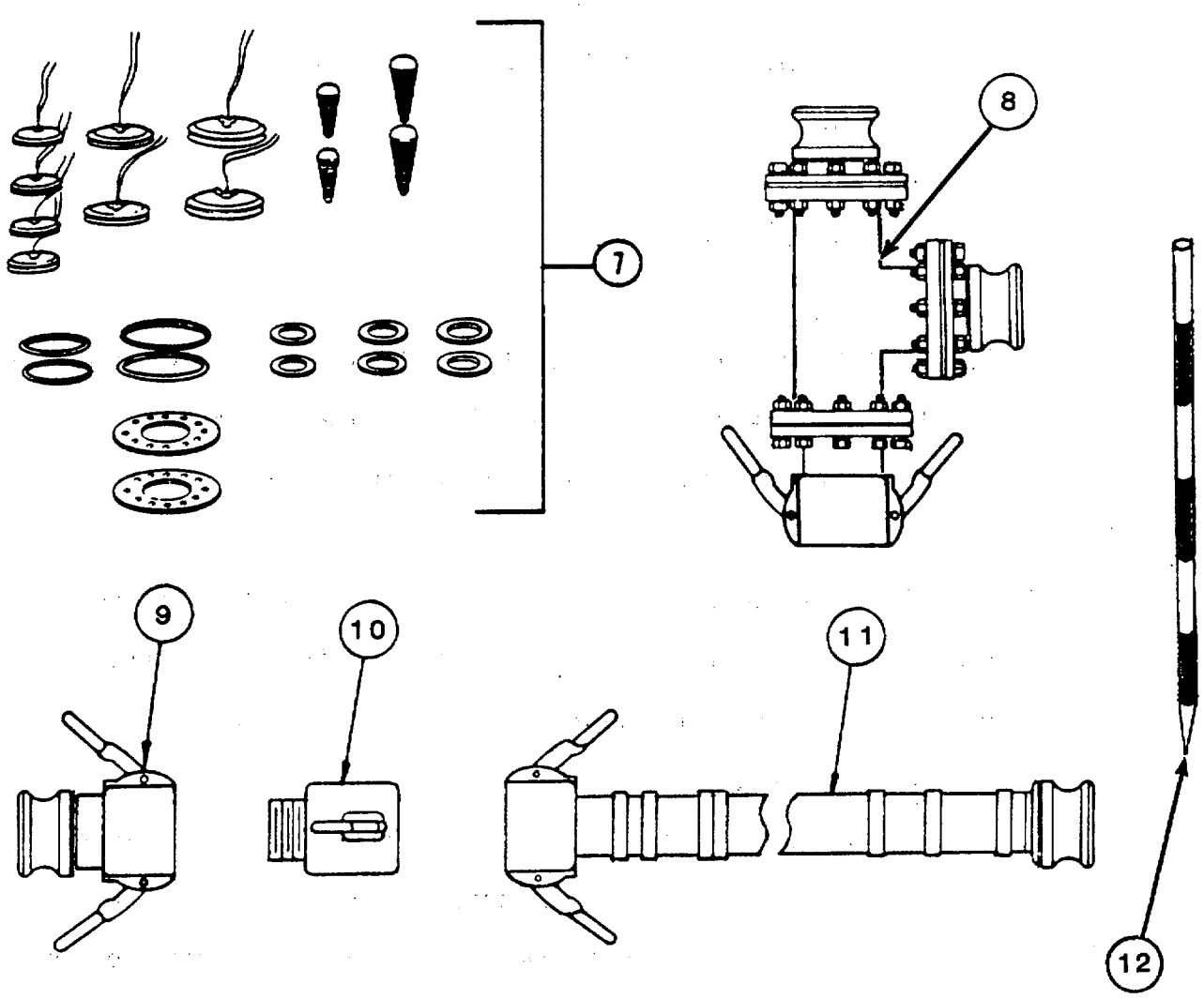


Figure 1-4. Tank Accessories

Item	Name
7	Emergency Repair Items
8	Tee Assembly (2)
9	Reducer (2) [6" male to 4" female/4" male to 6" female]
10	NATO Adapter
11	Spare 6-inch Hose (3)
12	Range Poles (2)

1-8. STORAGE DATA. Refer to Chapter 5 of this manual.

1-9. TOOLS AND TEST EQUIPMENT. Tool Kit, General Mechanics, NSN 5180-00-177-7033.

1-10. WARRANTY INFORMATION. None.

1-11. MAINTENANCE FORMS AND RECORDS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed in DA PAM 738-750, The Army Maintenance Management System (TAMMS).

1-12. DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE. Methods of destruction should achieve such damage to equipment that it will not be possible to restore the equipment to a usable condition in the combat zone either by repair or cannibalization.

a. Mechanical Destruction. Using a pick, an ax, or another sharp, heavy instrument, damage tank connections. Cut fabric with pocket knife.

b. Fire. The tank may be destroyed by setting fire to the fuel in the tank.

Section II. SAFETY PRECAUTIONS

1-13. SAFETY SUMMARY.

1-14. The following is a general safety precaution that is not related to any specific procedure and therefore does not appear elsewhere in this publication.

WARNING

DO NOT ENTER TANK WITHOUT AUTHORIZED BREATHING APPARATUS. DEATH MAY RESULT.

NOTE

Tank entry is restricted to authorized maintenance personnel only. Should tank condition arise which would require tank entry, notify your supervisor.

1-15. The following warnings and cautions appear in the text and are repeated here for emphasis.

WARNING

Fuels are hazardous and 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 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.

- Do not carry or store anything edible near tank. Food will absorb vapors. After leaving area, wash before eating or smoking.

CAUTION

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

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 2 feet (0.61 meters) when you make this type of repair.

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.

CAUTION

Electrical equipment used within 50 feet (15.24 meters) of the tank should be approved for use in Class 1, Group D, Division 1, hazardous locations as defined by the National Electrical Code, NFPA No. 70 (ANSI C1).

CAUTION

Do not drop sharp objects on the tank. Walk on tank as little as possible. When walking on the tank, wear soft-soled shoes. Do not drive vehicles over tank. Failure to observe these precautions may result in punctures, tears, or scuffs on the tank body.

Do not drop or strike tank fittings or accessories. All metal items are aluminum and bend easily.

CAUTION

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

CAUTION

The cam arms on the drain hose female quick-disconnect coupling should be safety wired in the closed position to prevent valve and hose separation when tank is full of fuel.

CHAPTER 2. PREPARATION FOR USE AND INSTALLATION

Section I. SITE SELECTION AND PREPARATION

2-1. SITE SELECTION. Select or grade a level area of at least 90 x 90 feet; this will provide the desired 10-foot perimeter around the empty flat tank. If the site selected has a slight slope, place one of the tank sides with a drain fitting and a filler/discharge fitting at the lowest end. For best tank operation, the tank bed area should 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. Clear the site of all sharp objects that might puncture or scuff the tank.

2-2. DEPLOYMENT. Place the crate containing the tank in the middle of the pre pared site. Place the end of the crate marked "Consolidation Box" in the center of the deployment site. If the site has any slope, the length of the crate must be parallel to the slope fall line. (See Figure 2-1).

NOTE

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

a. Locate and remove 30 lag bolts securing crate top to sides (11 lag bolts on each side and 4 lag bolts on each end). Lift off crate top and place top outside of site area.
b. Remove the 4 Filler/Discharge hoses from inside crate and place hoses outside site area.

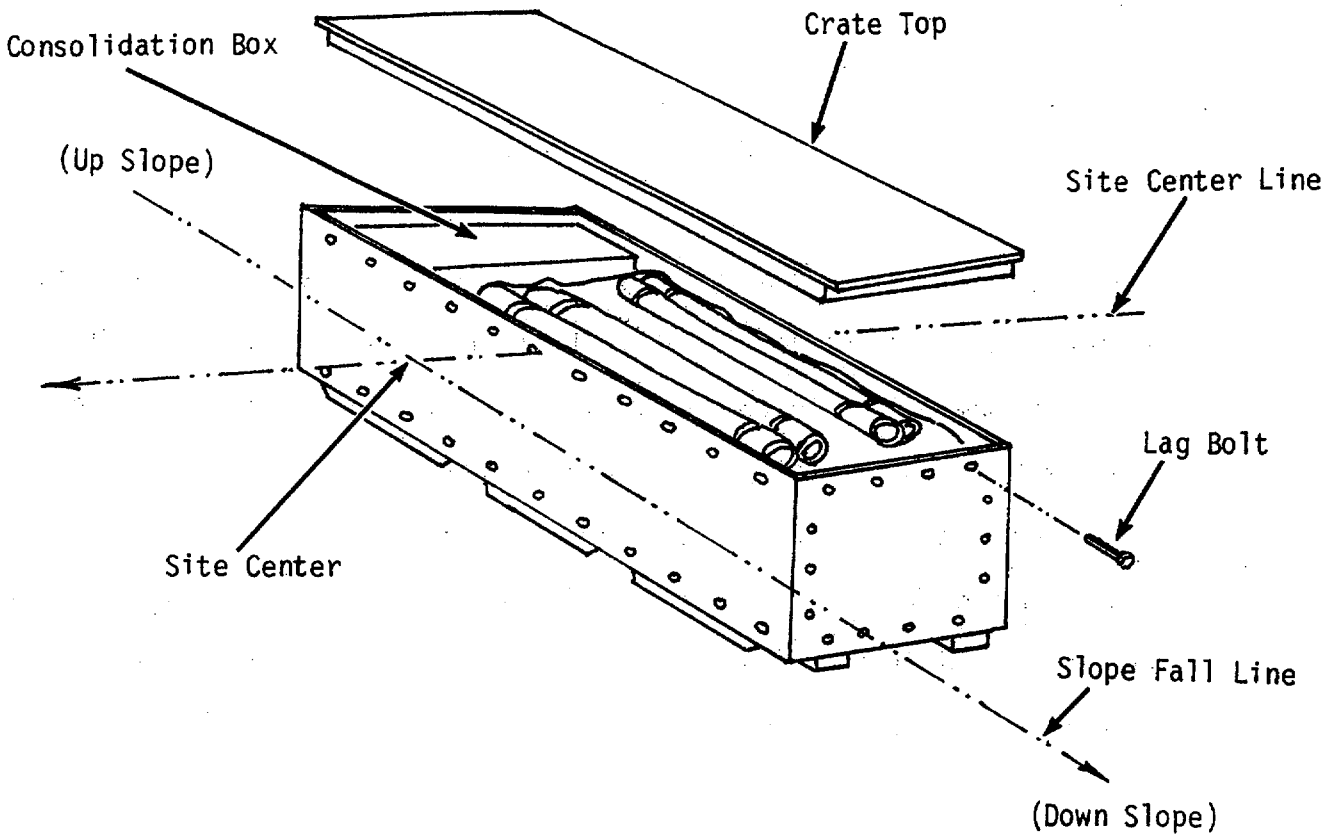


Figure 2-1. Removing Lag Bolts from Crate

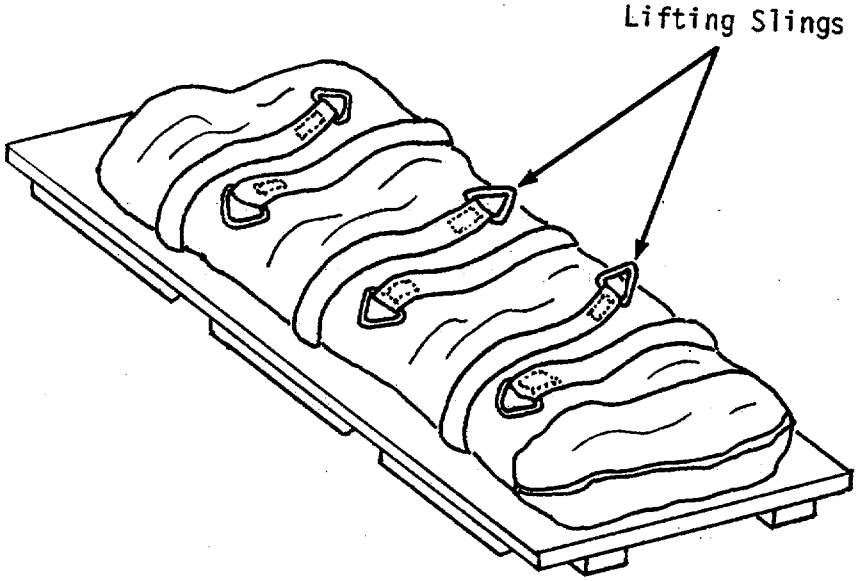


Figure 2-2. Tank on Skid

c. Loosen tape which secures the crate liner to the crate sides and ends.

d. Locate and remove the remaining lag bolts from the crate sides and ends (11 lag bolts on each side and 10 lag bolts on each end). Remove crate sides and ends, and place them outside site area.

e. Remove consolidation box from skid and place box outside site area. Only tank and slings remain on skid (Figure 2-2).

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 and remove skid from area. When lowering tank to ground, be sure to return it to its original position. Proceed to step g. to complete tank deployment.

If authorized lifting equipment is not available, continue with step f.

f. Fold back crate liner and lifting slings. Make sure liner, lifting straps and D-rings are laying flat. The slings and liner will be used during re-deployment.

CAUTION

Do not drop sharp objects on the tank. Walk on tank as little as possible. When walking on tank, wear soft soled shoes. Do not drive vehicles over tank. Failure to observe these precautions may result in punctures, tears or scuffs on the tank body.

g. Cut the top of the tank protective bag down the center and peel bag away to expose tank.

h. Remove all desicant bags and materials and place outside site area.

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

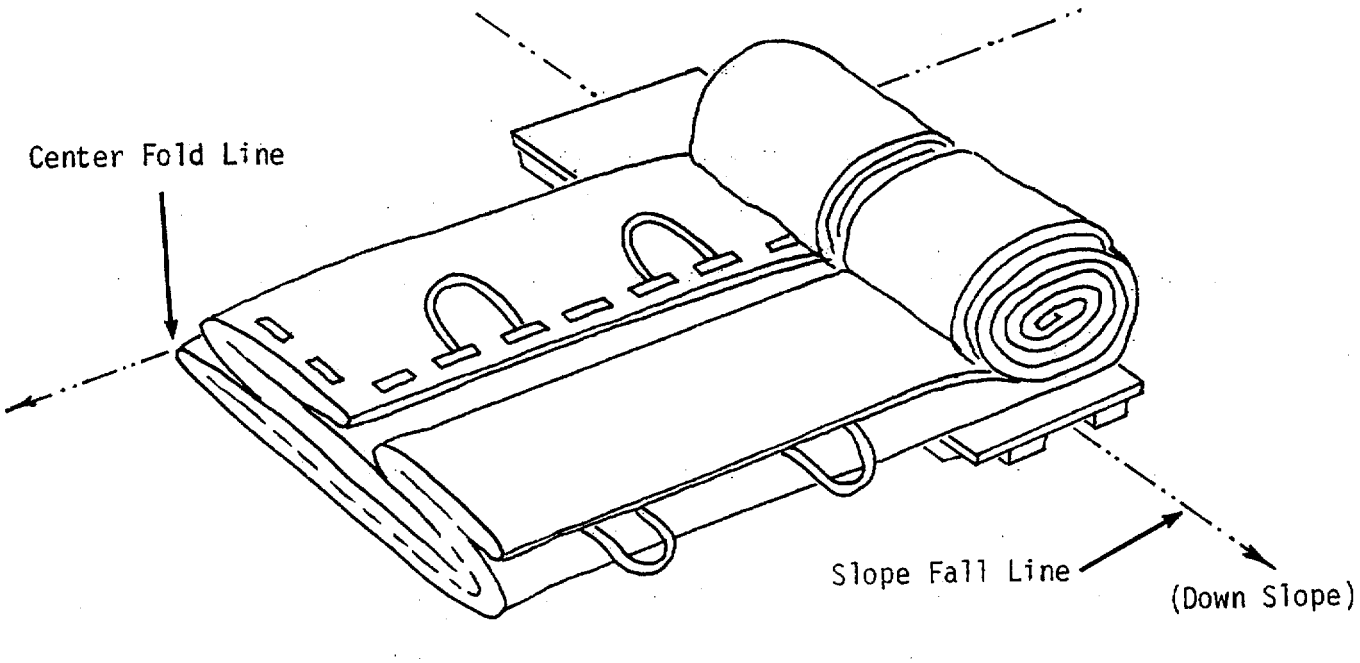


Figure 2-3. One Tank End Unrolled

NOTE

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

j. Roll remaining section off shipping skid toward the unrolled section. (See Figure 2-4.) When skid is free from tank, remove skid and place skid outside site area. (See Figure 2-5).

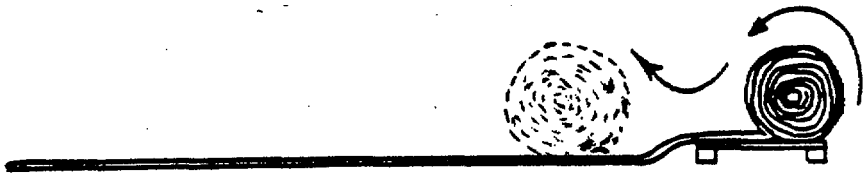


Figure 2-4. Rolling Tank Off Skid

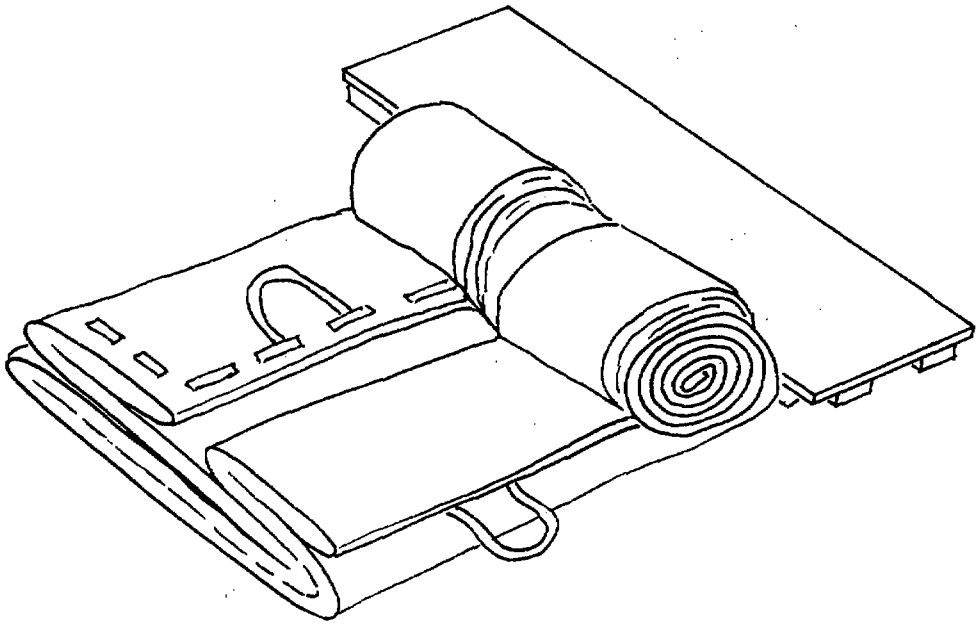


Figure 2-5. Removing Skid

NOTE

If unable to perform step j., proceed to step n. and perform the alternate deployment procedures.

k. After skid is removed, unroll the remaining section of tank by pushing on roll. (See Figure 2-6).

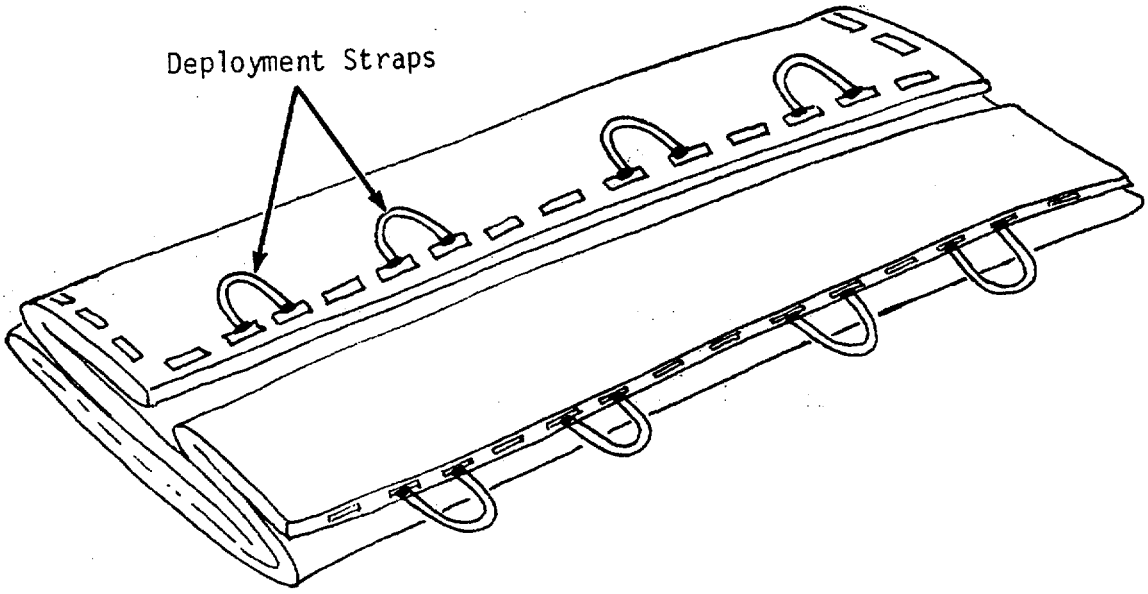


Figure 2-6. Tank Fully Unrolled (Two S Folds)

1. Unfold tank by pulling each row of deployment straps in opposite directions. (See Figure 2-6 and 2-7.) This will extend the two top folded layers. (See Figure 2-8.)

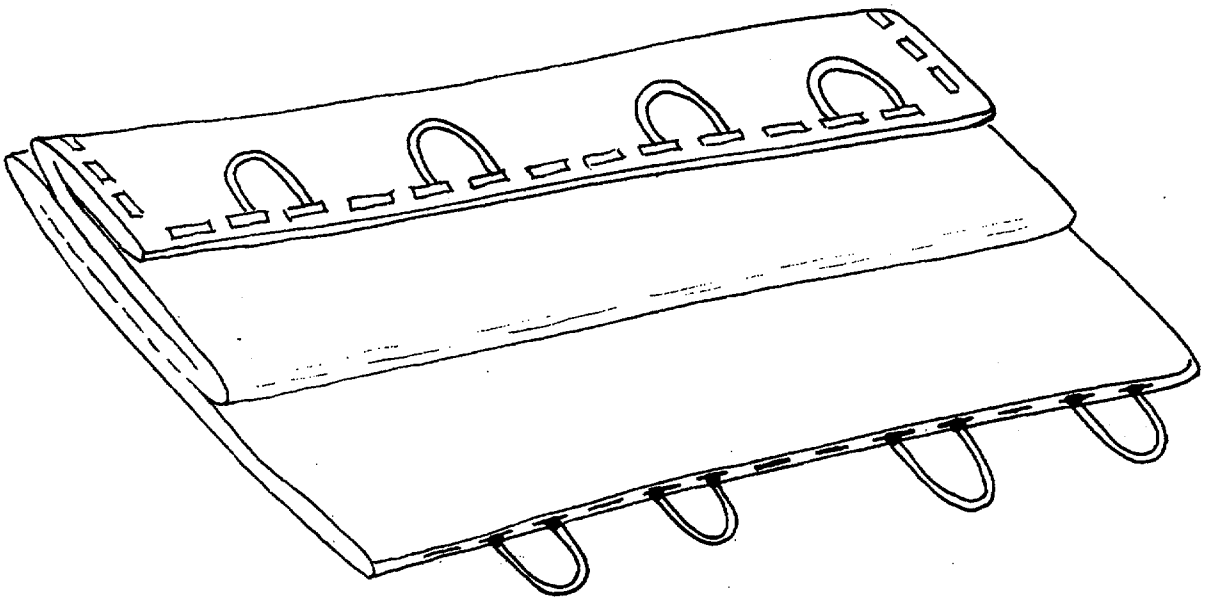


Figure 2-7. Tank with One S Fold

m. Use deployment straps and tank handles to fully unfold tank. Tank should be laying smooth without folds.

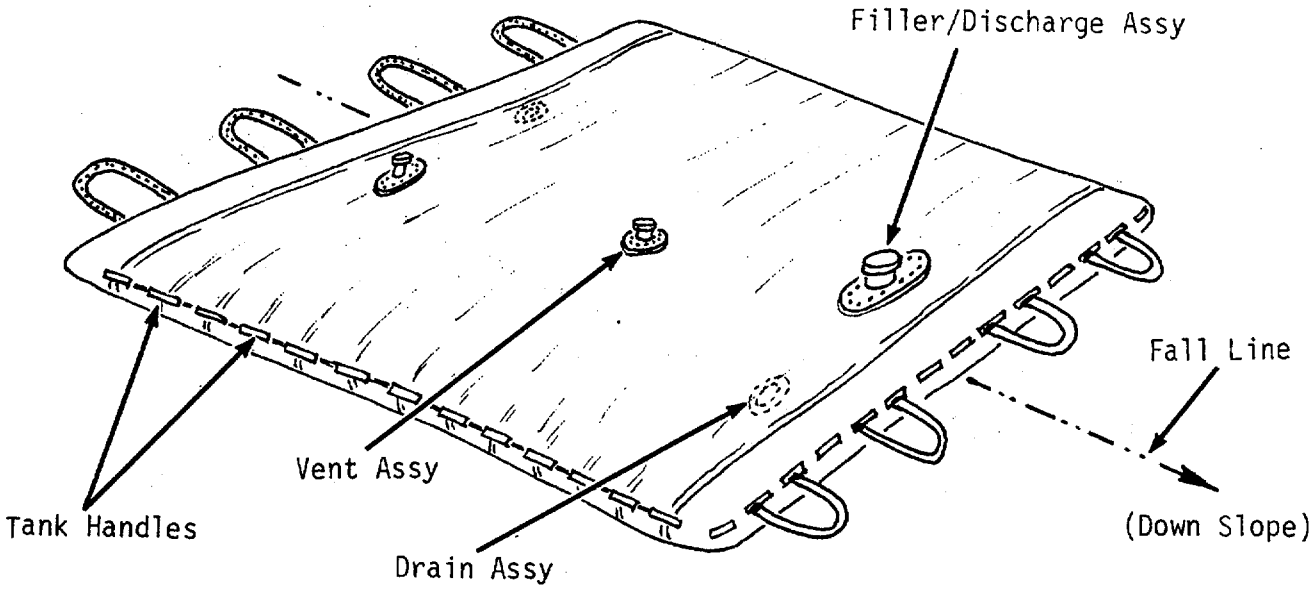


Figure 2-8. Tank Fully Unfolded

NOTE

Tank should be centered within the deployment site with one drain assembly at low end of site. Use tank handles to move tank, if necessary.

n. Alternate Deployment Procedures.

NOTE

The following procedures are provided as an alternate method for off-loading tank from skid.

(1) Unroll remaining section of tank by pushing roll in opposite direction; tank will be fully unrolled. (See Figure 2-9.)

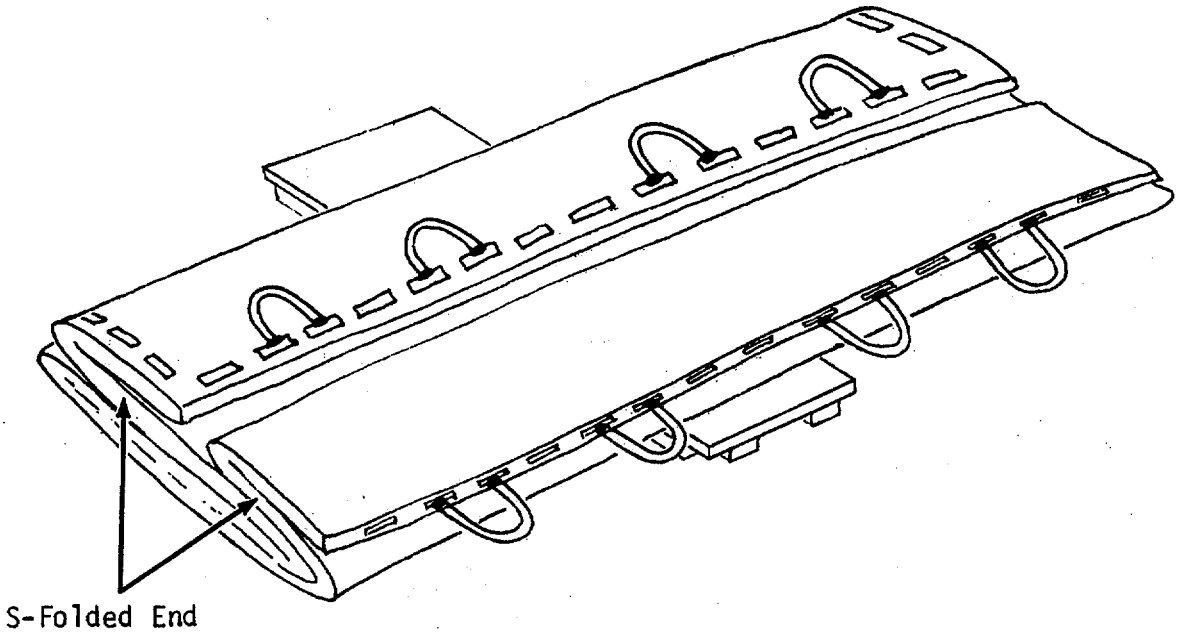


Figure 2-9. Tank Fully Unrolled

(2) Using tank handles located on the S-folded end, fold tank back length-wise until skid is exposed (free). See Figure 2-10.

(3)) Remove skid from deployment site.

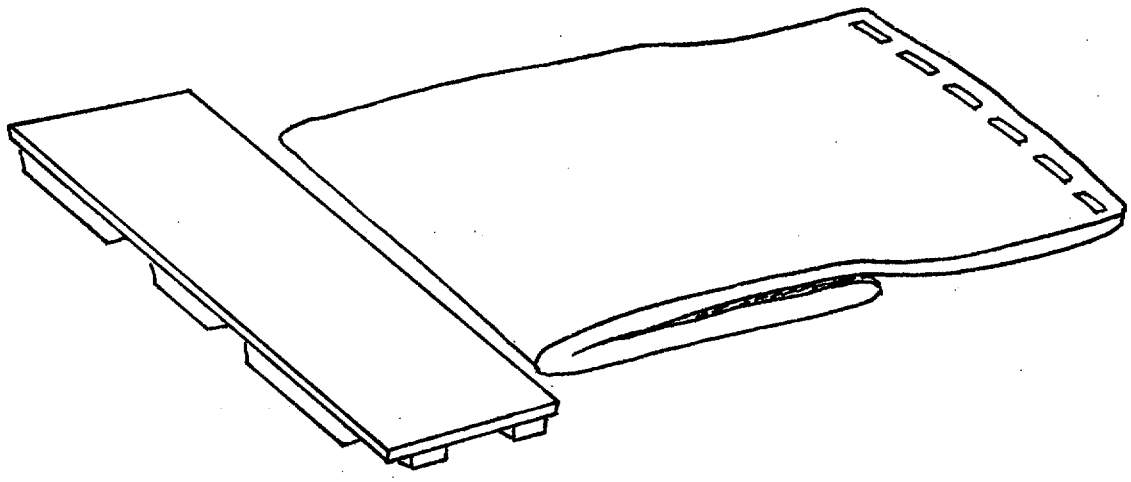


Figure 2-10. Unrolled Tank Folded Back

(4) Once skid has been removed from site area, unfold tank by returning the top layers to their original position. Tank should now be in the same position as illustrated in Figure 2-6.

(5) Perform steps 1 and m.

2-3. PREASSEMBLY INSPECTION. To ensure that the tank has not been damaged during shipment, conduct an inspection before assembly.

a. Unpack consolidation box and check that all components are present.

b. Check that each female coupling has a sealing gasket. Replace all missing gaskets. Refer to Chapter 4 of this manual for replacement.

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

d. Check that the gate valves open and close. Refer to Chapter 4 of this manual for replacement ofgate valves.

e. Check tank for punctures or tears.

Section II. ASSEMBLY AND INSTALLATION

2-4. ASSEMBLY. After the tank has been unpacked, deployed, and inspected, perform the following steps in order.

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.

NOTE

For ease in emptying the tank completely, dig a hole under each 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 fittings strike 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.

NOTE

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. Make sure both male and female quick-disconnect fittings are clean. Check female couplings for clean gasket.

c. Remove drain valves from drain hoses by pulling out on cam arms.

d. Attach a drain hose to each drain assembly.

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

CAUTION

The cam arms on the hose female quick-disconnect coupling should be safety wired in the closed position to prevent valve and hose separation when tank is full of fuel. Use .010" (inch) stainless steel safety wire.

NOTE

Do not close quick-disconnect cam arms one at a time, as this tends to cause misalignment of the mating parts and prevents cam arms from closing properly.

f. Connect drain valves to drain hoses. Ensure that valves are closed (full clockwise position) and dust caps are secure.

g. Remove dust caps and dust plugs from tank, vent assembly, elbows, 6" (inch) hoses and valve. If the sealing surfaces of the couplings are dirty, wipe with a clean cloth.

h. Connect vent assembly to tank. Close both cam arms at the same time by hand. Do not close cam arms one at a time, as this tends to cause misalignment of the mating parts and prevents cam arms from closing properly.

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

j. 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.

k. Connect hose to elbow. Close both cam arms at the same time by hand.

l. Connect valve to hose. Close both cam arms at the same time by hand.

m. Close the gate valve.

2-5. DIKE CONSTRUCTION

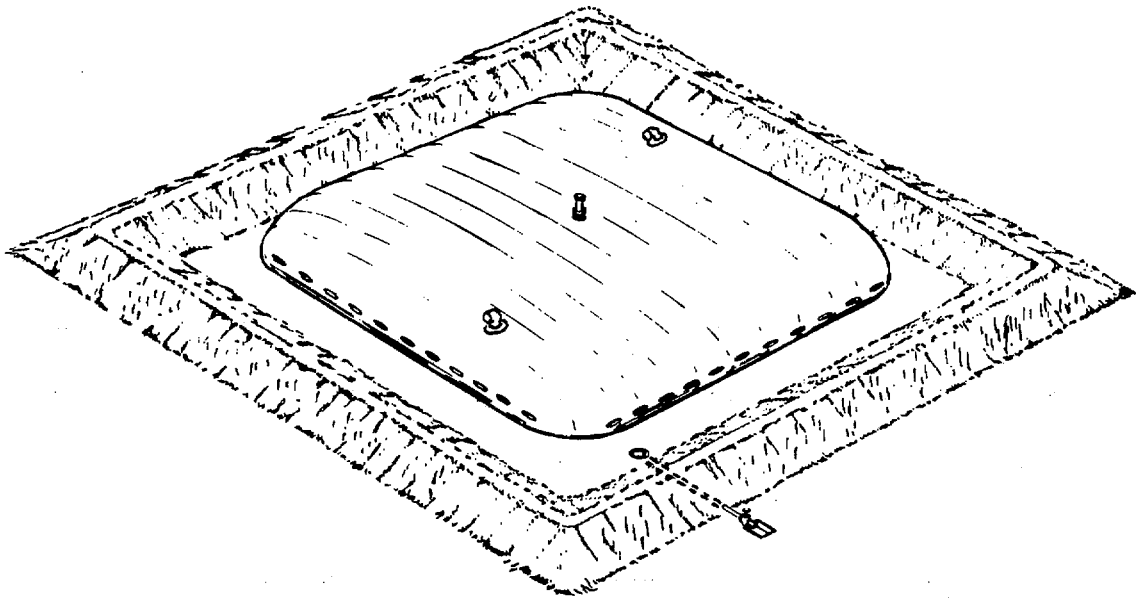


Figure 2-11. Diked Site Area

The site area must be diked to stop the flow of fuel in case of rupture or leakage. The tank may be filled before it is diked if the situation dictates. Normal procedure is to dike the site area before filling. An erected dike (Figure 2-9) should have the following characteristics:

- At least a 10-foot (3.05 meter) working area between the tank and the walls.
- 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 of the tank).
- Walls protected against erosion with sod or stone. Wall height should not fall below 4 feet, 6 inches (1.37 meters).
- 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.

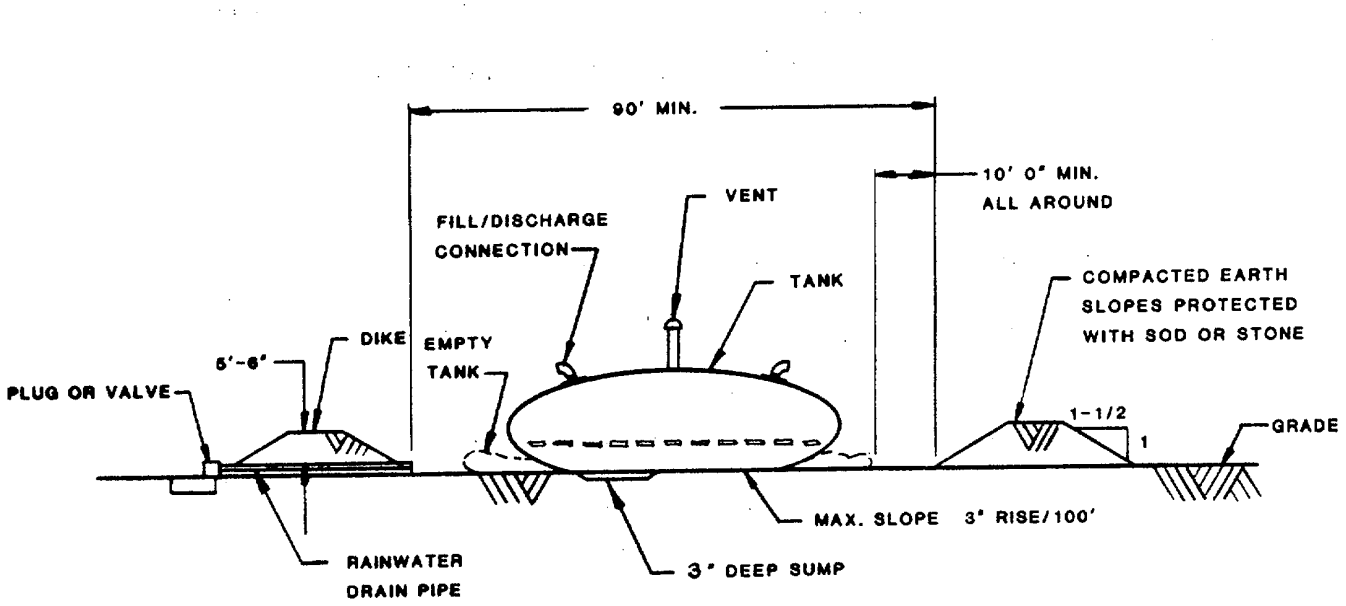


Figure 2-12. Tank Site Detail

2-6. FINAL SITE PREPARATION.

CAUTION

Electrical equipment used within 50 feet (15.24 meters) of the tank should be approved for use in Class 1, Group D, Division 1, hazardous locations as defined by the National Electrical Code.

a. Clear the site area within 100 feet (30.48 meters) of the tank of all dry grass, brush, and weeds. Remove all spark-producing equipment or devices from the cleared area. Post signs stating "FLAMMABLE LIQUID - NO SMOKING OR OPEN FLAME WITHIN 100 FEET OF TANK".

b. Have fire extinguishing equipment on hand. Equipment should include a quick-smothering type of extinguishing agent, such as carbon dioxide or dry chemical, or a permanent type of extinguishing agent, such as foam. Locate equipment approximately 50 feet (15.24 meters) from tank.

c. Secure area by fencing or other means to prevent access by unauthorized personnel.

d. Post signs indicating where to seek help in case of emergency.

CHAPTER 3. OPERATING INSTRUCTIONS

Section I. INTRODUCTION

3-1. GENERAL THEORY OF OPERATION. The tank is filled by connecting a line from a shipping tanker or other fuel source to a filler/discharge assembly. Manually operated gate valves are used to limit the flow of the fuels. Fuel is discharged by connecting a line to the filler/discharge assembly. Condensation and residual fuel are drained using the two drain assemblies on the bottom of the tank. The fuels are hazardous. Follow all safety procedures carefully when operating the tank.

3-2. CONTROLS AND INSTRUMENTS.

a. Vent Assembly. The vent assembly is located in the middle of the tank. It contains a relief valve which opens when the tank is subject to internal vapor pressure greater than 3 inches (7.62 centimeters) of water.

b. Drain Gate Valve. The drain gate valves allow residual fuel or condensation to be drained from the tank when necessary.

c. Filler/Discharge Gate Valve. The filler/discharge gate valve is in- stalled on the line attached to the filler/discharge elbow selected for use. When open, it allows fuel to flow into or out of the tank. When closed, it blocks fuel flow.

Section II. NORMAL OPERATING PROCEDURES

3-3. FILLING TANK.

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 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.

- Do not carry or store anything edible near tank. Food will absorb vapors. After leaving area, wash before eating or smoking.

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

b. Check that the drain hoses are attached and the gate valves are closed.

3-3. FILLING TANK. (Cont'd)

c. Check that vent assembly is operational.

d. Check filler/discharge elbow that will not be used in filling. Make sure it is covered by a dust cap or plug.

e. Attach fuel source line to filler/discharge gate valve to be used for filling.

f. Open 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.

g. 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.

h. When tank is full, stop pumping.

i. Close gate valve.

j. Check tank for leakage. If tank leaks, follow troubleshooting procedures in table 4-2.

3-4. DISCHARGING FUEL.

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 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.

- Do not carry or store anything edible near tank. Food will absorb vapors. After leaving area, wash before eating or smoking.

a. Attach line from user to gate valve.

b. Open gate valve.

c. Activate pumping source.

d. Monitor Metering source.

e. When user's requirement is fulfilled, stop pumping.

f. Close gate valve.

3-5. DRAINING TANK.

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 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.

- Do not carry or store anything edible near tank. Food will absorb vapors. After leaving area, wash before eating or smoking.

a. Empty fuel from tank following procedures in paragraph 3-4.

b. Pump out tank as completely as possible. Open drain gate valves.

c. Fold sides of tank toward middle. Roll end of tank farthest from the lowest drain assembly toward the drain to squeeze our residual fuel.

3-6. OPERATION WITH TEE ASSEMBLY. The tee assembly is used to fill or empty more than one tank without disconnecting and reconnecting lines.

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 ore 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.

- Do not carry or store anything edible near tank. Food will absorb vapors. After leaving area, wash before eating or smoking.

a. Connect the tee assembly straight run male quick-disconnect (Q-D) coupling to tank #1 gate valve female Q-D coupling (See Figure 3-1).

3-6. OPERATION WITH TEE ASSEMBLY. (Cont'd)

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

c. Connect service line to the tee assembly female Q-D coupling.

d. Remove dust cap prior to connecting service line to target tank.

e. Operate gate valves as necessary to perform tank fill or discharge operations.

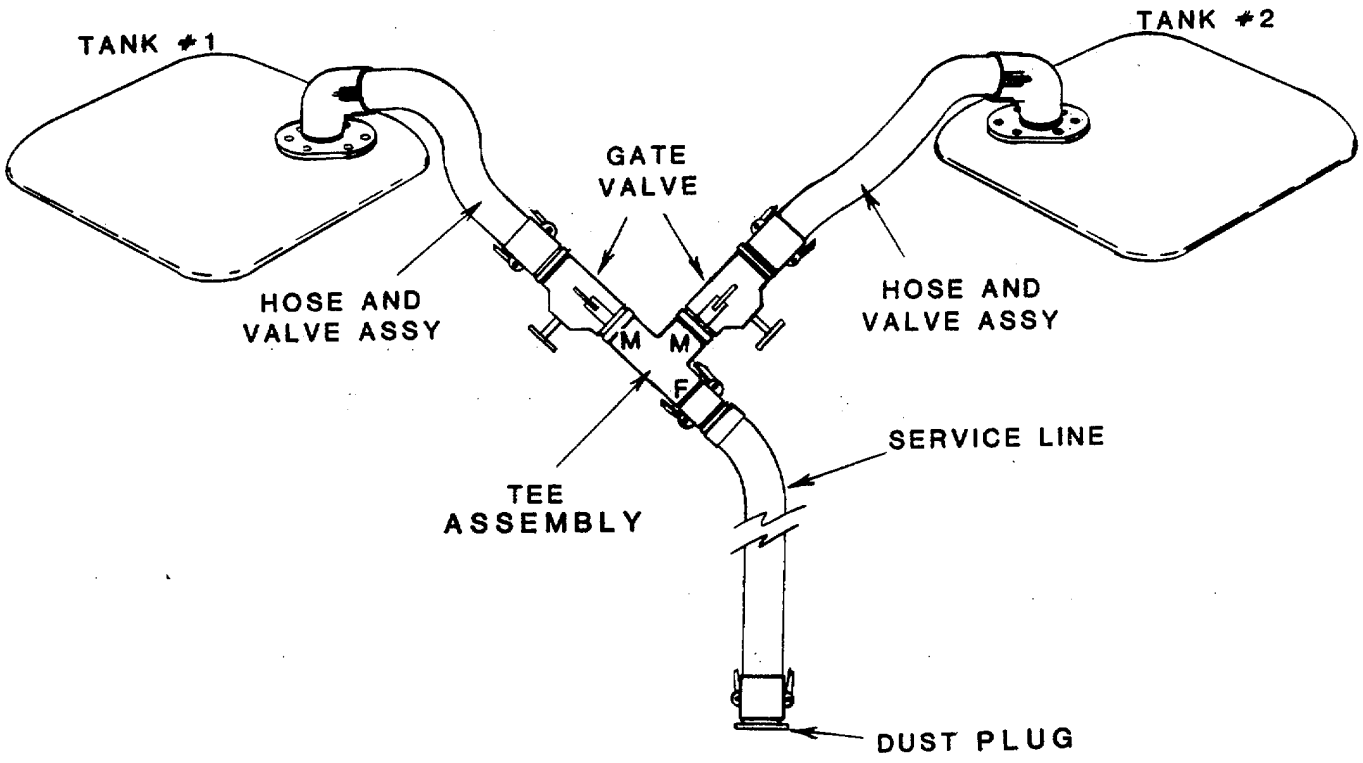


Figure 3-1. Tee Assembly Operation

3-7. OPERATION WITH REDUCER OR NATO ADAPTER. The reducer and adapter allow the 5000 Barrel Collapsible Fuel Tank to interface with other fuel storage and handling equipment.

a. Reducer. One reducer is a 6" male to a 4" female quick disconnect coupling. The other reducer is a 6" female to a 4" male quick disconnect coupling. These reducers are used to adapt odd size hoses used during filling or discharge operations.

b. NATO Adapter. The NATO adapter has a four-inch female quick-disconnect coupling on one end and four-inch straight threads on the opposite end. The threaded end mates with equipment to be fueled.

Section III. OPERATING UNDER UNUSUAL CONDITIONS

3-8. GENERAL.. The tank is designed to operate in extreme temperature conditions ranging from -25°F to 125°F (-31.7°C to 51.7°C).

3-9. OPERATING IN EXTREME COLD.

a. Try to deploy tank only when temperature is above -25°F (-31.7°C).

b. Keep snow and ice from building up on top of tank or on vent assembly.

c. Keep snow and ice off couplings to ensure proper assembly and disassembly.

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

3-10. OPERATING IN EXTREME HEAT. Avoid any unnecessary handling of tank, which might cause coating material separation.

3-11. OPERATING IN DUSTY OR SANDY ARES.

a. Keep tank clean. Make sure vent assembly and filler/discharge assemblies are clean.

b. Keep all hoses and fittings covered with dust caps when not in use.

c. Wipe all couplings clean before assembling.

3-12. OPERATING AFTER NUCLEAR, BIOLOGICAL, OR CHEMICAL (NBC) CONTAMINATION.

a. Nuclear. If nuclear contamination (fallout) comes down dry, decontaminate using dry methods. Brush off tank or shipping container with brooms or vacuum. If nuclear contamination comes down wet, decontaminate with high pressure water hoses.

b. Biological and Chemical. Neutralize with Super Tropical Bleach (STB). Wash off with high pressure water.

c. For further information on NBC decontamination, refer to FM 21-40.

3-13. EMERGENCY SHUT DOWN. Emergency shut down of fueling operations can be accomplishing by performing the following:

a. Close all gate valves.

b. Disconnect servicing hoses.

c. Clear area of equipment and personnel.

NOTE

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

CHAPTER 4. MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION AND CLEANING

4-1. LUBRICATION. There is no lubrication required for the 5000 Barrel Collapsible Fuel Tank.

4-2. EXTERIOR CLEANING. Dirt on the tank and tank accessories should be flushed off with water daily.

4-3. INTERIOR CLEANING. The interior of the tank requires little cleaning if it is used for the same fuel. If cleaning is needed, use an external fuel line loop with a pump and filter/separator capable of recirculating 350 gallons (1.32 kiloliters) per minute. Continue to circulate fuel until dirt or contamination is removed.

Section II. PREVENTIVE MAINTENANCE

4-4. INSPECTION. The tank will be inspected weekly to ensure that the equipment is ready for operation at all times. Through regular inspection, defects can be found and corrected before serious damage occurs. Defects found during operation should be noted and corrected as soon as fueling operations have stopped. Refer to table 4-1 for inspection procedures.

Table 4-1. Inspection Procedures

ITEM NO.	ITEMS TO BE INSPECTED	PROCEDURES
1	Installation area	Inspect installation area. Remove sharp objects that might cause punctures or leaks.

Table 4-1. Inspection Procedures - Continued

ITEM NO.	ITEMS TO BE INSPECTED	PROCEDURES
2	Tank Envelope	Inspect tank envelope for tears, punctures, and leaks. Refer to paragraph 4-8 for maintenance procedures.
3	Vent assembly	Inspect vent assembly for damage or leakage. Inspect relief valve for freedom of operation. Refer to paragraph 4-9 for maintenance procedures.
4	Filler Assembly	Inspect filler assembly for damage or leakage. Inspect gaskets for damage. Refer to paragraph 4-10 for maintenance procedures.
5	Discharge Assembly	Inspect discharge assembly for damage or leakage. Refer to paragraph 4-10 for maintenance procedures.

Table 4-1. Inspection Procedures - Continued

ITEM NO.	ITEMS TO BE INSPECTED	PROCEDURES
6	Drain Assemblies	Inspect drain valves and hoses for leakage. Refer to paragraph 4-11 for maintenance procedures.
7	Valve Assembly., 6"	Inspect parts for leakage. Inspect gaskets for damage. Refer to paragraph 4-12 for maintenance procedures.
8	Tee Assembly	Inspect parts for leakage. Inspect gaskets for damage. Refer to paragraph 4-13 for maintenance procedures.
9	Reducers	Inspect reducers for damage or leakage. Refer to paragraph 4-13 for maintenance procedures.
10	NATO Adapter	Inspect adapter for damage or leakage. Refer to paragraph 4-13 for maintenance procedures.

Section III. TROUBLESHOOTING

4-5. This section contains troubleshooting information for locating and correcting most operating problems. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which help you determine probable cause and corrective actions to take. You should perform the tests/inspections and corrective actions in the order listed. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

4-6. TROUBLESHOOTING. For troubleshooting, refer to table 4-2.

Table 4-2. Troubleshooting

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. Tank leaks	- Check tanks for punctures or cuts	- Repair puncture with sealing clamps or plugs (Ref . para. 4-8).
2. Vent Assembly leaks	- Check O-Ring between flanged adapter and tank for nicks, or distortion. - Check vent stand pipe for cracks or damage	- Remove coupling from tank fitting and replace O-ring (Ref . para. 4-9). - Remove and replace vent stand pipe (Ref . para. 4-9).

Table 4-2. Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. Vent Assembly leaks (cont'd)	- Check coupling for breaks or cracks. - Check for loose or missing hexagon head bolts.	- Remove and replace coupling (Ref . para. 4-9). - Tighten or replace bolts.
3. Pressure Relief Valve remains open	- Check relief valve for debris in tube or on pivot pin.	- Clean relief valve (Ref. para. 4-9).
4. Hose Assembly Coupling leaks	- Check female coupling gaskets for damage or wear. - Check couplings on hose for dirt, damage, or wear.	- Remove and replace gaskets - Remove dirt or any foreign objects inside couplings. If leak continues, replace hose assembly.
5. Filler Assembly leaks	- Check for loose or missing hexagon head bolts.	- Tighten or replace bolts as necessary

Table 4-2. Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. Filler Assembly leaks (Cont'd)	- Check O-Ring between closure plate and tank fitting for nicks, breaks and distortion.	-- Replace O-Ring (Ref. para. 4-10).
	- Check gaskets on either side of closure plate for damage or breaks.	-- Replace gaskets (Ref. para. 4-10).
6. Discharge Assembly leaks	- Check for loose or missing hexagon head bolts.	-- Tighten or replace bolts as necessary
	- Check O-Ring between closure plate and tank fitting for nicks, breaks and distortion.	-- Replace O-Ring (Ref. para. 4-10).
	- Check gaskets on either side of closure plate for damage or breaks.	-- Replace gaskets (Ref. para. 4-10).

Table 4-2. Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
7. Drain Assembly leaks	- Check for loose or missing hexagon head bolts. - Check O-Ring between drain fitting and tank metal face for nicks, breaks and distortion.	- Tighten or replace bolts as necessary. - Remove and replace O-Ring (Ref . para. 4-11).
8. Drain Valve Assembly leaks	- Check for leaks around valve stem. - Check quick-disconnect couplings for leaks. - Check coupling fitting NPT connections for leaks.	Tighten valve stem B-Nut. - Remove and replace quick disconnect gaskets, (Ref. paragraph 4-11). - Remove fitting and replace Teflon tape, (Ref. paragraph 4-11).
9. Gate Valve Assembly leaking	- Check for loose or missing hexagon head bolts and nuts. - Check for loose valve stem B-Nut.	- Tighten or replace nuts and bolts as necessary. - Tighten B-Nut.

Table 4-2. Troubleshooting - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
9. cont'd	- Check female coupling gaskets for damage or wear. - Check male coupling for dirt, damage or wear,	- Remove and replace gaskets (Ref. para. 4-12). - Remove dirt or foreign objects from coupling. If leak continues, replace male coupling.
10. Tee Assembly leaks	- Check gaskets in female couplings for damage or breaks.	- Remove and replace gaskets (Ref. para. 4-13).
11. Reducer Assembly leaks	- Check gaskets in female coupling for damage or breaks.	- Remove and replace gaskets (Ref. para. 4-13).
12. NATO Adapter	- Check gaskets in female coupling for damage or breaks.	- Remove and replace gaskets (Ref. para. 4-13).

Section IV. CORRECTIVE MAINTENANCE

4-7 GENERAL. This section contains disassembly, repair and replace, and reassembly instructions for the tank.

4-8 EMERGENCY REPAIRS TO TANK ENVELOPE. There are two ways to repair the tank envelope. Wooden plugs should be used as an immediate repair to stop the flow of fuel from the tank until it is possible to install a sealing clamp. Replacement may not be possible until the fuel height and internal pressure of the tank have been reduced by discharging or draining fuel. Plugs can be used for tears up to 1 1/2 inches (3.81 centimeters). Sealing clamps can be used for tears up to 6 inches (15.24 centimeters).

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 are 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.
- Do not carry or store anything edible near tank. Food will absorb vapors. After leaving area, wash before eating or smoking.

a. Repairs with Wooden Plugs.

(1) Insert small end of plug into puncture. Turn clockwise until leak stops or slows.

(2) Remove plug and install clamp when operation permits.

b. Repairs with Clamps. See figure 4-1.

(1) Select proper size clamp using these guidelines for tears:

less than 2-inch (5.08 centimeter).	use 3-inch clamp
2- to 4-inch (5.08 - to 10.16 centimeter).	use 5-inch clamp
4- to 6-inch (10.16 - to 15.24 centimeter).	use 7 1/2-inch 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 2 feet (0.61 meters) when you make this type of repair.

4-8 EMERGENCY REPAIRS TO TANK ENVELOPE. (Cont'd)

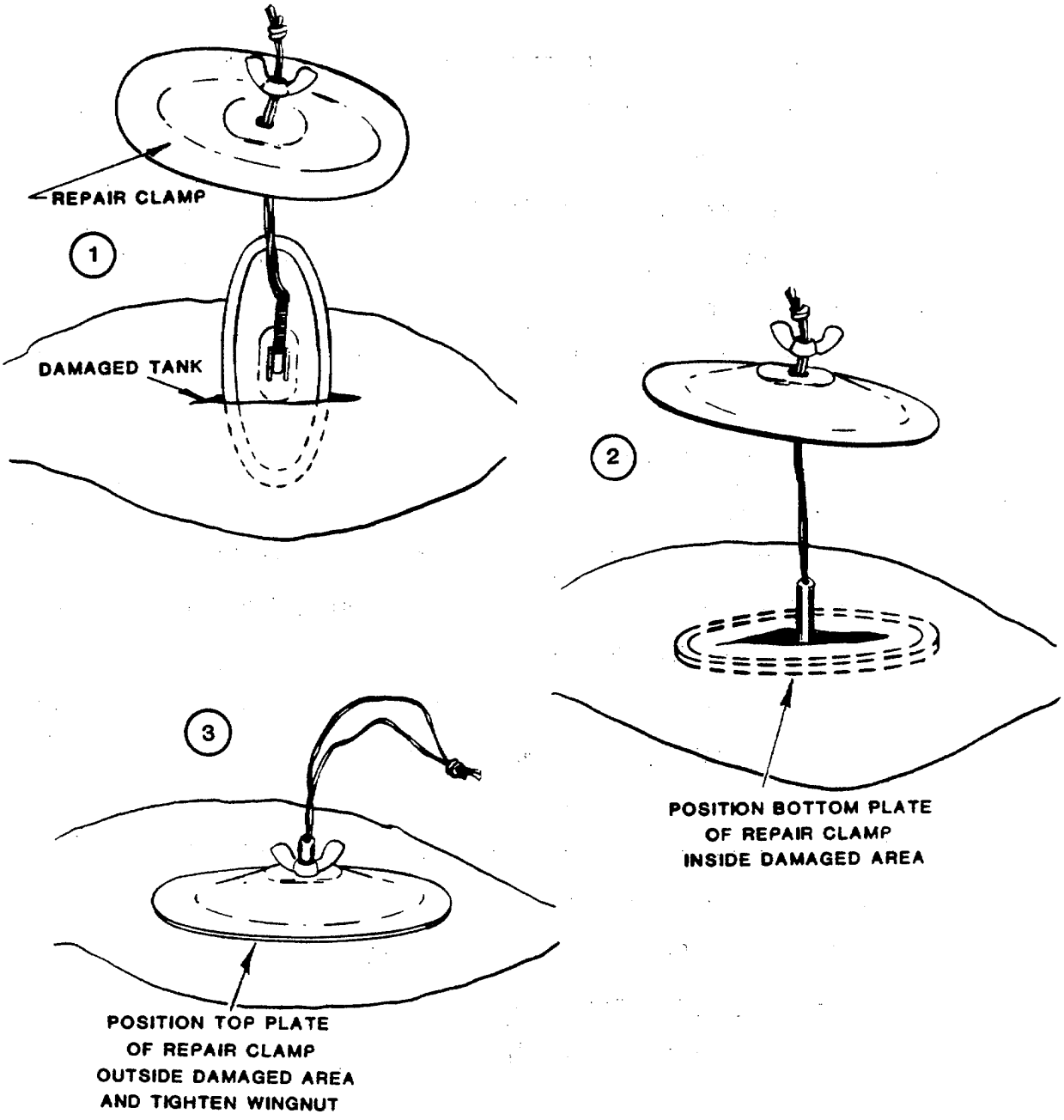


Figure 4-1. Repairing Tank Envelope with Sealing Clamp

4-8. EMERGENCY REPAIRS TO TANK ENVELOPE. (Cont'd)

(2) Loop cord at top of clamp around wrist to prevent loss of clamp into tank.

(3) Slip bottom half of clamp inside tank. If tear is too small for clamp to slip through, use a pocket knife to enlarge tear to accommodate width of clamp.

(4) Rotate clamp so that its length runs with tear. Pull bottom half of clamp up against fabric. Slide top half down and over stud.

(5) Tighten wingnut by hand until leak stops. If more tightening is necessary,use pliers. Do not overtighten.

4-9. VENT ASSEMBLY. See figure 4-2.

a. Disassembly.

(1) Disconnect female coupling from flange adapter by pulling outward on cam arms. Lift female coupling from adapter. Remove gasket from female coupling.

(2) Remove vent standpipe from coupling by turning counterclockwise.

(3) Separate relief valve from vent pipe by turning valve counterclockwise.

(4) Using wrench, remove bolts and washers. Lift flanged adapter from tank fitting.

(5) Remove O-ring from groove in tank fitting.

b. Repair and Replacement.

(1) Clean all parts by wiping with a cloth.

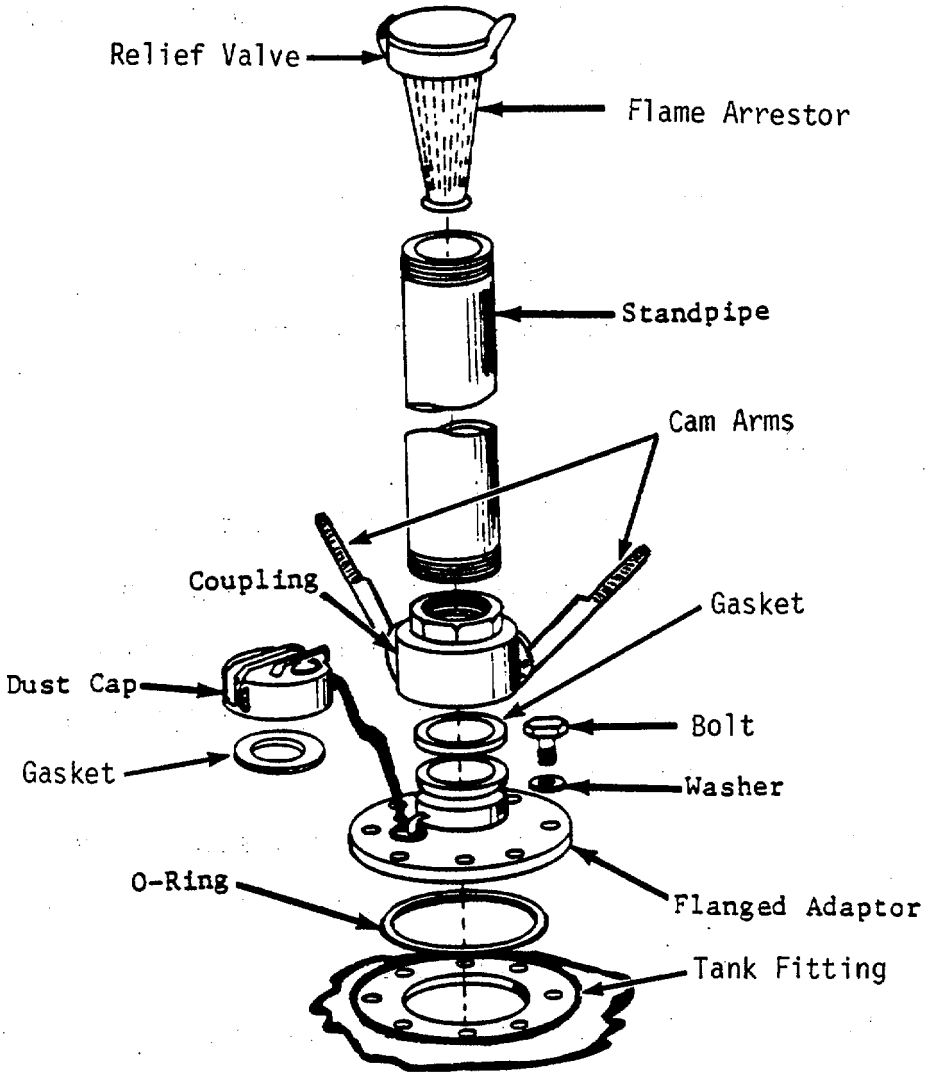


Figure 4-2. Vent Assembly

NOTE

An O-ring that has absorbed oil or hydrocarbon fuel may expand when removed from its groove. If O-ring does not fit easily back into its groove, do not try to reinstall it immediately. Wait until it has dried out, or install a new O-ring.

(2) Inspect all parts for cracks, dents, breaks, or wear. If any parts are no longer serviceable, replace before reassembly.

(3) Check that vent hole in relief valve is clear.

c. Reassembly.

(1) Place O-ring into groove in tank fitting.

(2) Place flanged adapter on tank fitting. Rotate until holes in flange are in line with tapped holes in fitting. Place washers over bolts. Place bolts through holes in flange. Using wrench, tighten bolts.

(3) Place relief valve with flame arrestor into vent standpipe until standpipe contacts O-ring gasket at top of flame arrestor. Turn relief valve clockwise until tight.

(4) Insert vent standpipe into coupling and turn standpipe clockwise until tight.

(5) Insert coupling gasket into female coupling. Check that cam lever arms of coupling are in an outward position. Place female coupling onto flanged adapter. Pull cam arms inward until they lock.

4-10. FILLER/DISCHARGE ASSEMBLY. See figure 4-3.

a. Disassembly.

(1) Pull outward on cam arms. Remove elbow from flanged adapter.

(2) Remove elbow gasket from inside of elbow.

(3) Using wrench, remove hexagon-head bolts and washers. Remove closure plate from tank fitting.

(4) Remove O-ring from groove in tank fitting.

(5) Using wrench, remove hexagon-head bolts and washers from remaining assembly. Remove flanged adapter and gasket from top of closure plate. Remove suction stub from gasket from bottom of closure plate.

b. Repair and Replacement.

(1) Clean all parts by wiping with a cloth.

(2) Inspect all parts for cracks, dents, or wear. If any parts are no longer serviceable, replace before reassembly.

c. Reassembly.

(1) Place suction stub on flat, hard surface with holes on top.

(2) Place gasket and closure plate onto suction stub.

(3) Place flanged adapter gasket on closure plate.

(4) Place flanged adapter on gasket.

(5) Place washers on bolts. Insert bolts through holes of flanged adapter and mate with holes in closure plate. Using a wrench, tighten bolts.

(6) Place O-ring into groove in tank fitting.

NOTE

An O-ring that has absorbed oil or hydrogen fuel may expand when removed from its groove. If an O-ring does not fit easily back into its groove,

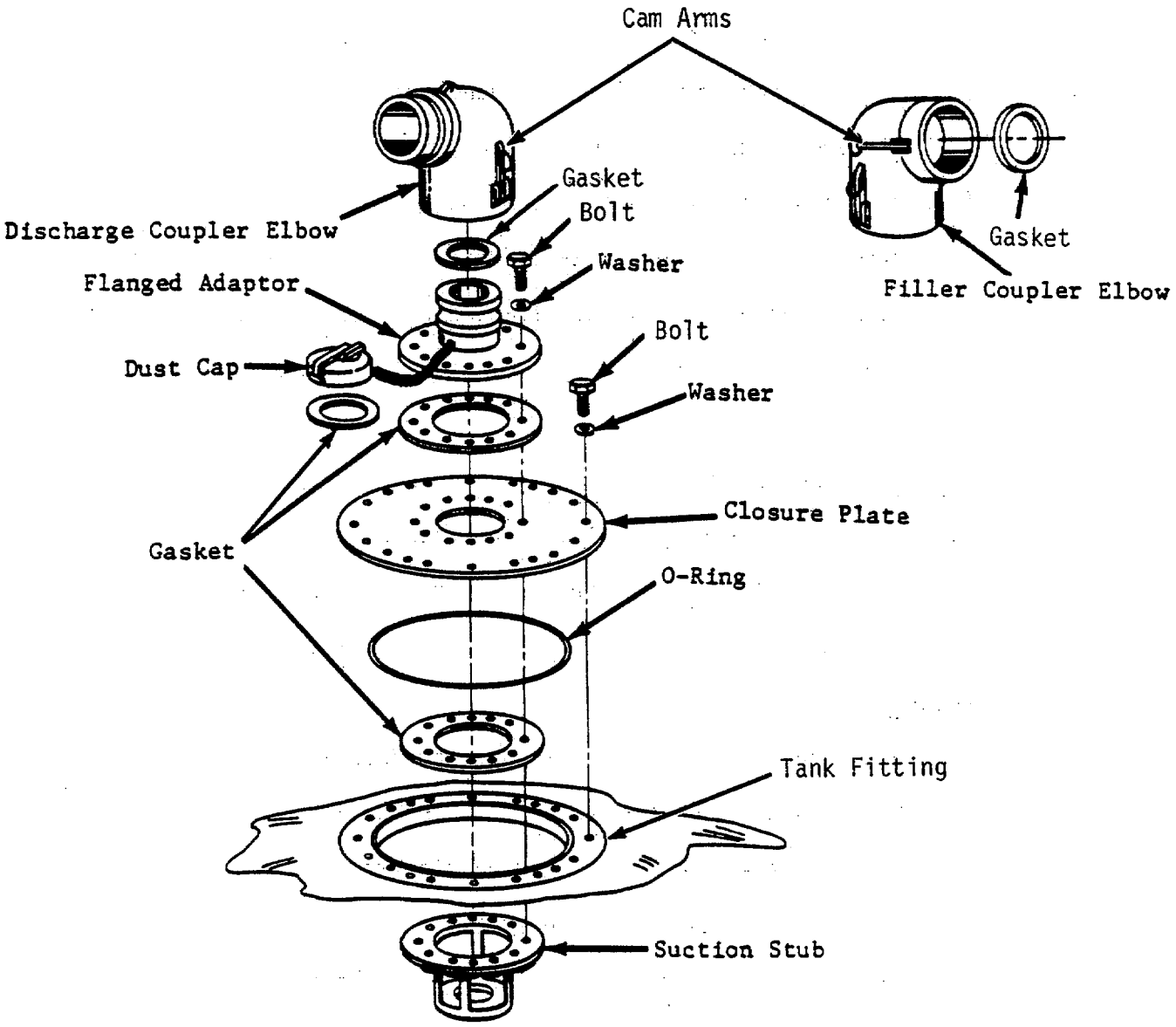


Figure 4-3. Filler/Discharge Assemblies

do not try to reinstall it immediately. Wait until it has dried out, or install a new O-ring.

(7) Place closure plate onto tank plate assembly.

(8) Place washers over bolts. Insert bolts through closure plate and into tapped holes in tank fitting. Using wrench, tighten bolts.

(9) Place elbow gasket into elbow.

(10) Place elbow onto flanged adapter. Pull cam arms inward until they lock.

4-11. DRAIN ASSEMBLY. See figure 4-4.

a. Disassembly.

(1) Using wrench, remove bolts and washers attaching drain assembly to tank fitting.

(2) Remove drain fitting and attached hardware.

(3) Remove O-ring from groove in tank fitting.

(4) Turn valve counterclockwise to disconnect it from drain hose. Remove valve.

(5) Turn drain hose counterclockwise to disconnect it from drain fitting. Remove hose.

b. Repair and Replacement.

(1) Clean all parts by wiping with a cloth.

(2) Inspect all parts for cracks, dents, breaks, or wear. If any parts are no longer serviceable, replace before reassembly.

(3) Pull cam arms on hose assembly female coupling outward. Remove hose assembly from valve assembly.

(4) Remove gaskets from hose assembly female coupling and valve assembly female dust cap.

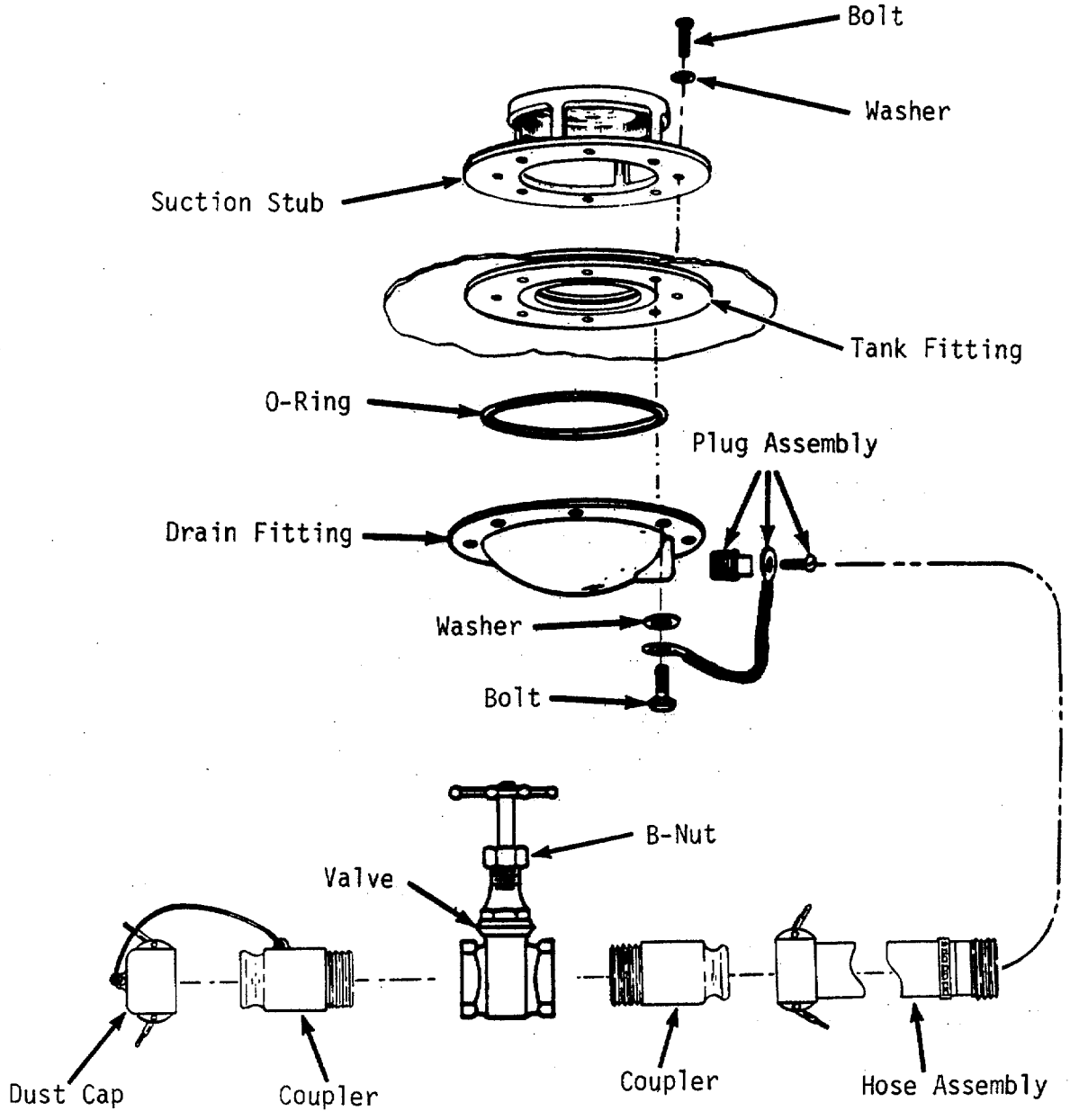


Figure 4-4. Drain Assembly

4-11. DRAIN ASSEMBLY. (Cont'd)

c. Reassembly.

(1) Place drain hose on drain fitting. Turn hose clockwise until tight.

(2) Place O-ring into groove on tank fitting.

NOTE

An O-ring that has absorbed oil or hydrocarbon fuel may expand when removed from its groove. If an O-ring does not fit easily back into its groove, do not try to reinstall it immediately. Wait until it has dried out, or install a new O-ring.

(3) Place drain fitting on tank fitting. Make sure hose and valve will extend from underneath tank.

(4) Place washers over bolts. Insert bolts through drain fitting and into tank fitting. Using wrench, tighten bolts.

(5) Replace gaskets in female quick-disconnect couplings.

CAUTION

The cam arms on the hose female quick-disconnect coupling should be safety wired in the closed position to prevent valve and hose separation when tank is full of fuel. Use .010" (inch) stainless steel safety wire.

(6) Connect valve to hose and install dust cap.

(7) Check that valve is closed (full clockwise position).

4-12 VALVE ASSEMBLY. See figure 4-5.

a. Disassembly.

(1) Pull cam arms on hose assembly female coupling outward. Remove hose assembly from valve assembly.

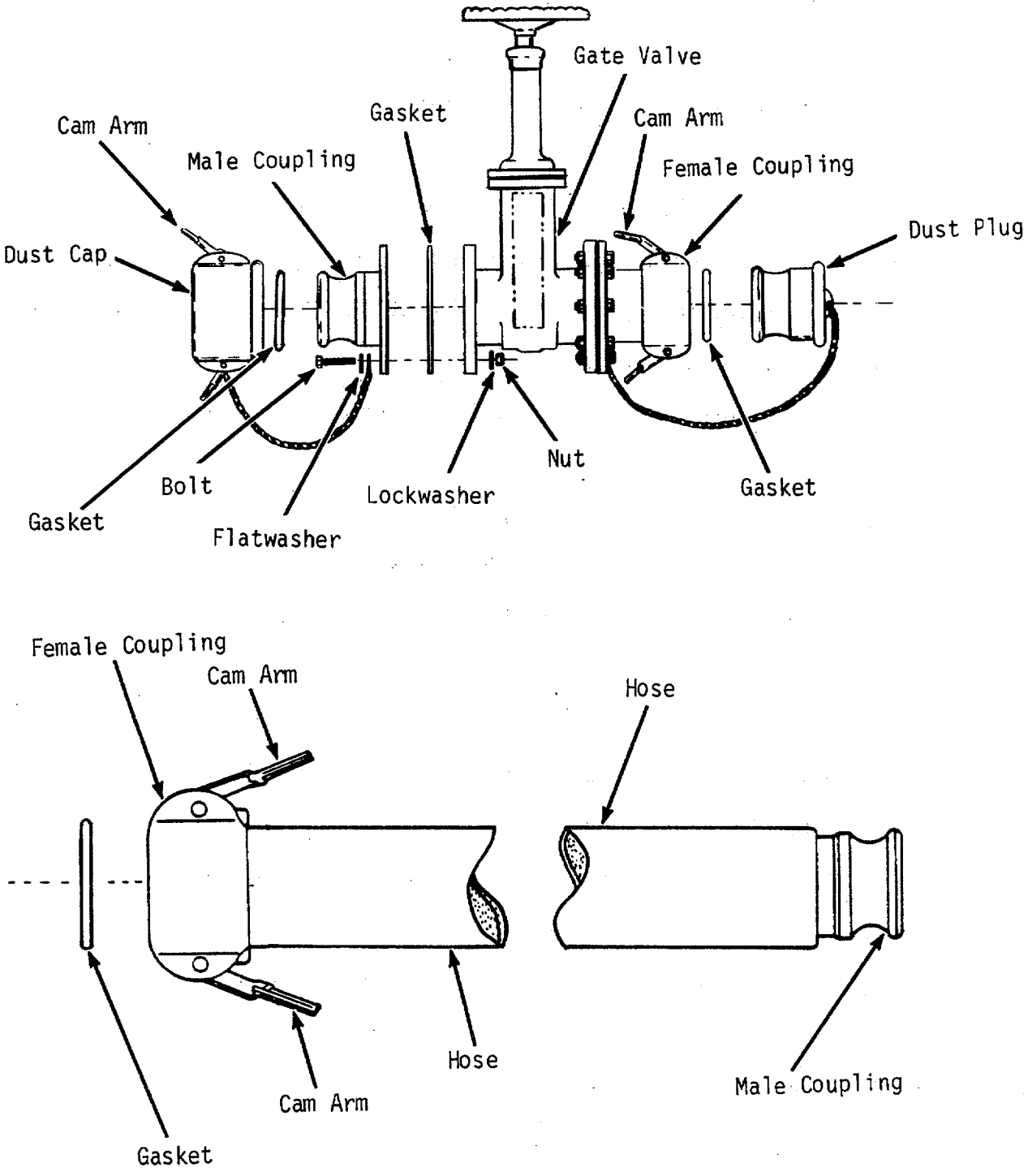


Figure 4-5. Valve and Hose Assembly

(2) Using wrench, remove hexagon nuts and lockwashers from hexagon head bolts on male coupling on valve assembly. Remove bolts and flatwashers. Remove male coupling and gasket from valve assembly.

(3) Using a wrench, remove hexagon nuts and lockwashers from hexagon head bolts securing female coupling to valve assembly. Remove bolts and flatwashers. Remove female coupling and gasket.

(4) Remove gaskets from hose assembly female coupling and valve assembly female coupling.

b. Repair and Replacement.

(1) Clean all parts by wiping with a cloth.

(2) Inspect all parts for cracks, dents, breaks, or wear. If any parts are no longer serviceable, replace before reassembly.

c. Reassembly.

(1) Place gasket in valve assembly female coupling and in hose assembly female coupling.

(2) Place gasket and female coupling on valve assembly.

(3) Assemble with flatwashers on bolts. Insert bolts through coupling, gasket, and valve assembly.

(4) Place lockwashers and nuts on bolts. Using a wrench, tighten nuts.

(5) Place gasket and male coupling on valve assembly.

(6) Assemble with flatwashers on bolts. Insert bolts through coupling, gasket, and valve assembly.

(7) Place lockwashers and nuts on bolts. Using wrench, tighten nuts.

4-12. VALVE ASSEMBLY (Cont'd)

(8) Insert male coupling of valve assembly into female hose assembly coupling. Pull cam arms on female coupling inward until they lock.

4-13. TEE ASSEMBLY, REDUCER, AND NATO ADAPTER. See figure 4-6.

a. Disassembly.

Remove gasket from female coupling.

b. Repair and Replacement.

(1) Clean all parts by wiping with a cloth.

(2) Inspect all parts for cracks, dents, breaks, or wear. If any parts are no longer serviceable, replace before reassembly.

c. Reassembly

Place gaskets in female couplings.

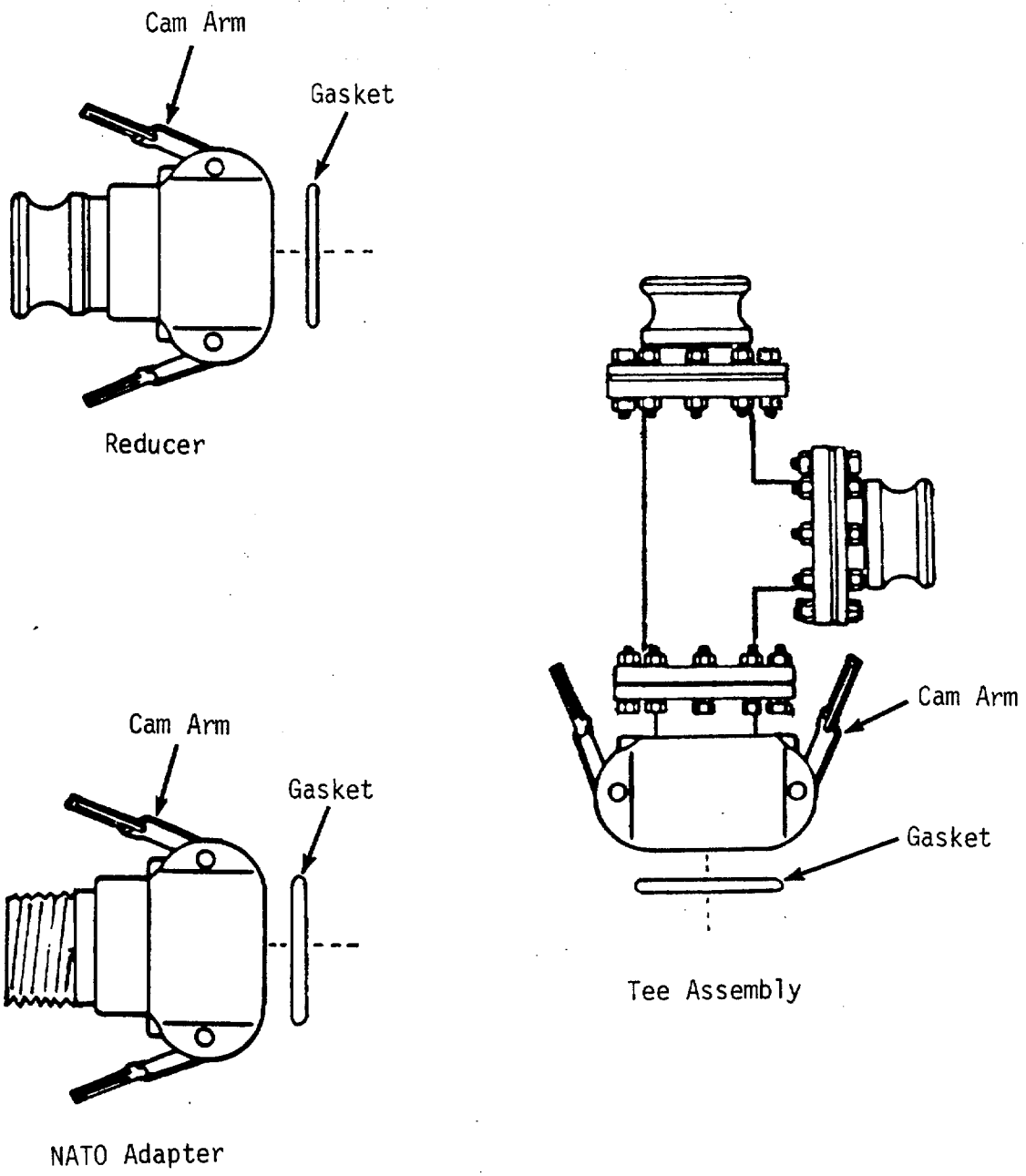


Figure 4-6. Tee Assembly, Reducer, NATO Adapter

4-14 PERFORMANCE VERIFICATION. The only performance verification for the 5000 Barrel Collapsible Fuel Tank is a visual inspection of the part or parts that have been repaired. If the procedures in this manual do not repair the equipment, notify your supervisor.

5-1. REMOVING TANK FROM SERVICE. Prior to reshipment and 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 fuels 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 sledge 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.

- 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 3-5 of this manual.

5-1. REMOVING TANK FROM SERVICE. (Cont'd)

b. Disconnect all hoses, elbows, and vent assemblies from tank by pulling outward on cam arms and separating couplings.

c. Install all dust caps and dust plugs on couplings and fittings.

d. Remove drain hoses and valves.

e. Fold the up-slope end of tank to opposite side. (Reverse procedures shown in Figures 2-6 and 2-8 to fold tank.) Tank should now be half size in width.

f. Fold ends with straps to opposite side. Tank should now be one- quarter size in width. Continue to pull the top two layers past the center fold until the bottom layers are 15.5 ft. to 16 ft. in width (4.7m to 4.9m).

g. Fold the top two layers back toward the top center of the folded portion of the tank. The final fold should represent an S pattern as illustrated in Figure 2-6.

h. Roll each end of folded tank in toward the center.

i. Place lifting straps and delta rings around tank rolls. Use straps and rings as sling if lifting equipment is available.

5-2 STORAGE.

a. Storage Data.

Temperature Range: -25°F to 125°F (-31.7°C to 51.7°C).

b. Storage Before Use.

(1) Keep tank and accessories in crate when tank is not in use.

(2) If possible, store crated tank in cool, dark, and dry area.

c. Storage After Use. If the tank will be stored prior to disposal, store it in a well-ventilated area to prevent accumulation of explosive vapors.

APPENDIX A

REFERENCES

A-1. SCOPE

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

A-2. FORMS

Quality Deficiency Report ..... SF 368

Recommended Changes to Equipment

Technical Publications ..... DA Form 2028-2

Report of Discrepancy (ROD) ..... SF 364

A-3 FIELD MANUALS

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

Planning and Conducting Chemical,

Biological, Radiological (CBR), and

Nuclear Defense Training ..... FM 21-48

A-4 TECHNICAL MANUALS

Administrative Storage of Equipment ..... TM 740-90-1

The Army Maintenance Management System (TAMMS) ..... DA PAM 738-750

APPENDIX B

MAINTENANCE ALLOCATION CHART

SECTION I

INTRODUCTION

B-1. GENERAL

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

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions to the end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

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

B-2. MAINTENANCE FUNCTIONS. Maintenance functions will be limited to and defined as follows:

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

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

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

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

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

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

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

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

i. Repair. The application of maintenance services[1], 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), end item or system.

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

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

[1]Services - inspect, test, service, adjust, align, calibrate, and/or replace.

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

[3]Disassemble/assemble - encompasses the step-by-step taking apart (or break- down) or a spare/functional group coded item to the level of its least componency identified as maintenance significant (i.e., assigned an SMR code) for the category of maintenance under consideration.

[4]Actions - welding, grinding, riveting, straightening, facing, remachinery, and/or resurfacing.

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

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

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

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

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

The system designations for the various maintenance categories are as follows:

C	Operator or crew
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
L	Specialized Repair Activity (SRA)[5]
D	Depot Maintenance

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

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

[5]This maintenance category is not included in Section II, column (4) of the Maintenance Allocation Chart. To identify functions to this category of maintenance, enter a work time figure in the "H" column of Section II, column (4), and use an associated reference code in the Remarks column (6). Key the code to Section IV, Remarks, and explain the SRA complete repair application there. The explanatory remarks(s) shall reference the specific Repair Parts and Special Tools List (RPSTL) TM which contains additional SRA criteria and the authorized spare/repair parts.

8-4. EXPLANATION OF COLUMNS IN TOOL AND TEST EQUIPMENT REQUIREMENTS, SECTION III

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

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

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

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

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

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

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

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

Section II. MAINTENANCE ALLOCATION CHART

FOR

TANK, FABRIC, COLLAPSIBLE, 5000 BARREL PETROLEUM

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL C	O	F	H	D	(5) TOOLS AND EQUIPMENT	(6) REMARKS
00	TANK, FABRIC, COLLAPSIBLE - 5000 BARREL ASSEMBLY	Inspect Replace Repair	.2 .5	 1.0 				1	. . .
01	TANK ENVELOPE	Inspect Replace Repair	.2	 1.0 	 .1			1	. . .
02	VENT ASSEMBLY	Inspect Replace Repair	.2	 .2 .5				1	. . .
03	FILLER ASSEMBLY	Inspect Replace Repair	.2	 .2 .5				1	. . .
04	DISCHARGE ASSEMBLY	Inspect Replace Repair	.2	 .2 .5				1	. . .
05	DRAIN ASSEMBLY	Inspect Replace Repair	.2	 .2 .5				1 1	. . . .
06	GATE VALVE	Inspect Replace Repair	.2	 .2 .5				1	. . . .
07	TEE ASSEMBLY	Inspect Replace Repair	.2	 .2 .5				1	. . .
08	HOSES	Inspect Replace Repair	.2	 .2 .5				1	. . .

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS

FOR

TANK, FABRIC, COLLAPSTBLE, 5000 BARREL PETROLEUM

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1		TOOL KIT, GENERAL MECHANICS	5180-00-177-7033	

APPENDIX C

REPAIR PARTS AND SPECIAL TOOLS LIST

Section I. INTRODUCTION

C-1. SCOPE. This manual 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 organization- al, direct support, and general support maintenance of the 5000 Barrel Collapsible Fuel Tank.

C-2 GENERAL. 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. Part 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 NSN sequence.

b. Section III, Special Tools List. Not applicable

c. Section IV. National Stock Number and Part Number Index. A list, in National item identification number (NIIN) sequence, of all National stock numbers (NSN) appearing in the listings, 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.

C-3 EXPLANATION OF COLUMNS.

a. Illustration (Column (1)). This column is divided as follows:

(1) ((a) FIG. NO.) Figure Number. Indicates the figure number illustrating an exploded view of a functional group.

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

b. SMR CODE (Column (2)). Not applicable.

c. National Stock Number (Column (3)). Lists the National stock number (NSN) assigned to the item. Use the NSN for requests/requisitions.

d. FSCM (Column (4)). The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

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

NOTE

When you use an NSN to requisition an item, the item you receive may have a different part number from the part ordered, but go ahead and use or furnish it as the replacement part.

f. Description (Column (6)). This column includes the following information:

(1) The Federal item name, and when required, a minimum description to identify the item.

C-3 EXPLANATION OF COLUMNS. (Cont'd)

(2) Items that are included in kits and sets are listed below the name of the kit or set.

(3) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry.

(4) NSN's for bulk materials are referenced in the description column in the line item entry for the item to be manufactured/fabricated.

(5) When the part to be used differs between serial numbers of the same model, the effective serial numbers are shown as the last line of the description.

g. U/M (Column (7)). The Unit of Measure (U/M) indicates the measure (e.g., foot, gallon, pound) or count (e.g., each, dozen, gross) of a listed item. A two-character alpha code (e.g., FT, GL, LB, EA, DZ, GR) appears in this column differs from the Unit of Issue (U/I) code listed in the Army Master Data File (AMDA), request the lowest U/I that will satisfy your needs.

h. QTY INC IN UNIT (Column (8)). The Quantity Incorporated in Unit (QTY INC IN UNIT) 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 in lieu of a quantity indicates that no specific quantity is applicable (e.g., shims, spacers).

C-4. SPECIAL INFORMATION. Not applicable.

C-5. HOW TO LOCATE REPAIR PARTS.

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

C-5. HOW TO LOCATE REPAIR PARTS. (Cont'd)

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

(2) Second. Find the figure covering the functional group or sub- functional group to which the item belongs.

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

(4) Fourth. Refer to the Repair Parts List for the figure to find the line item entry for the item number noted on the figure.

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. The part numbers in the Part Number Index are listed in ascending alphanumeric sequence. Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

NSN

*The NIIN consists of the last 9 digits of the NSN (i.e., 5303-01-674-1467)

NIIN

(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-6 ABBREVIATIONS. Not applicable.

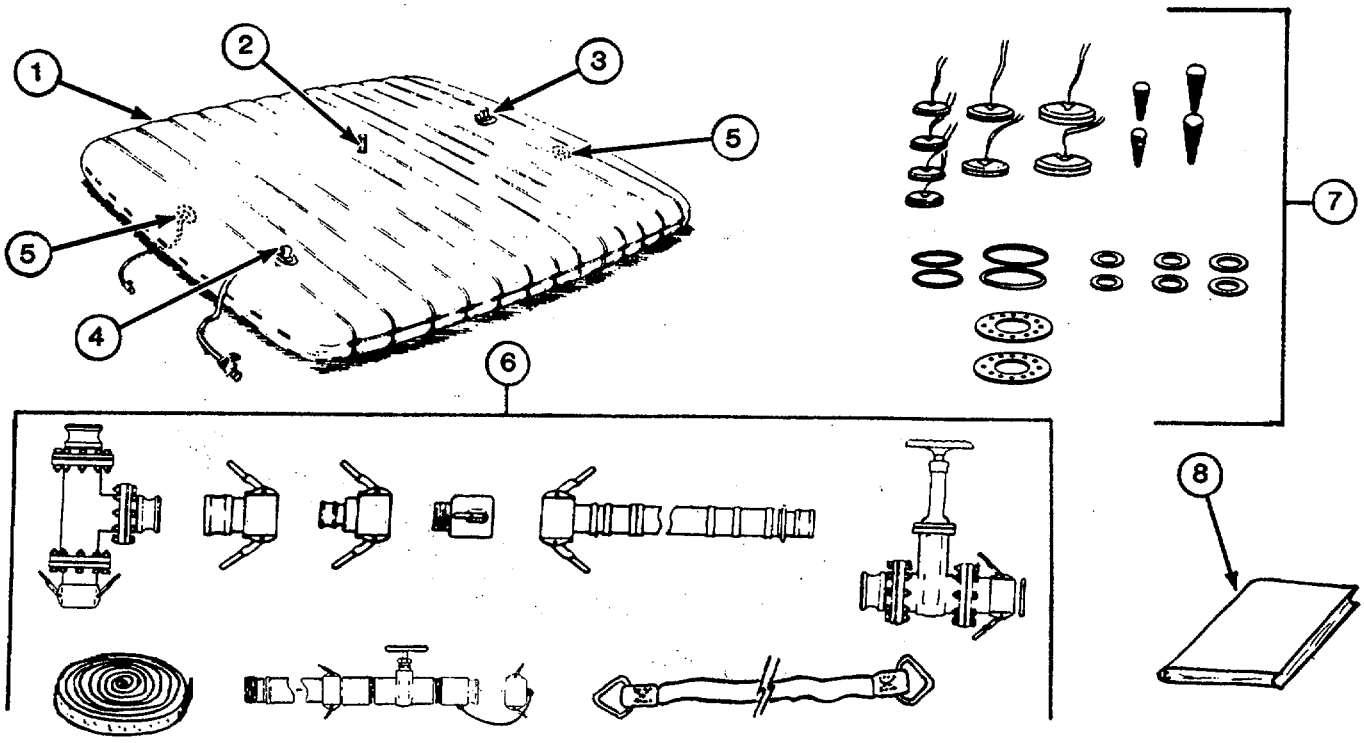


Figure C-1. Tank, Fabric, Collapsible, 5000 Barrel Petroleum

LIST OF FUNCTIONAL GROUPS

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						Group 00		
C-1						Tank, Fabric, Collapsible, 5000 Barrel Petroleum		
C-1	1					Tank Envelope	Ea	1
C-1	2					Vent Assembly	Ea	1
C-1	3					Filler Assembly	Ea	1
C-1	4					Discharge Assembly	Ea	1
C-1	5					Drain Assembly	Ea	2
C-1	6					Accessories	Ea	1
C-1	7					Emergency Repair Items	Ea	1
C-1	8					Technical Manual	Ea	1

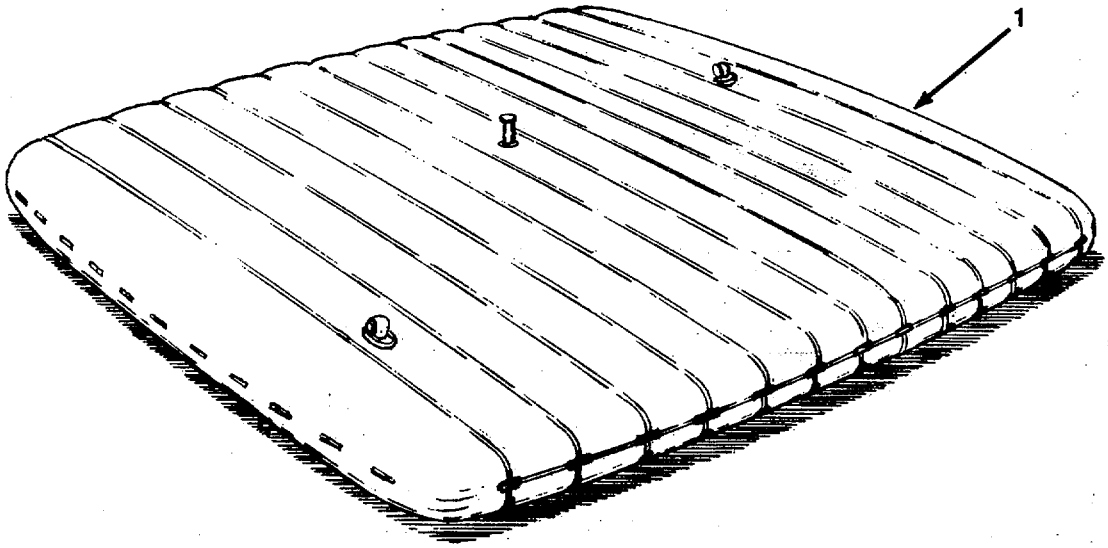


Figure C-2. Tank Envelope

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
C-2	1				TBD	GROUP 01 TANK TANK ENVELOPE	Ea	1

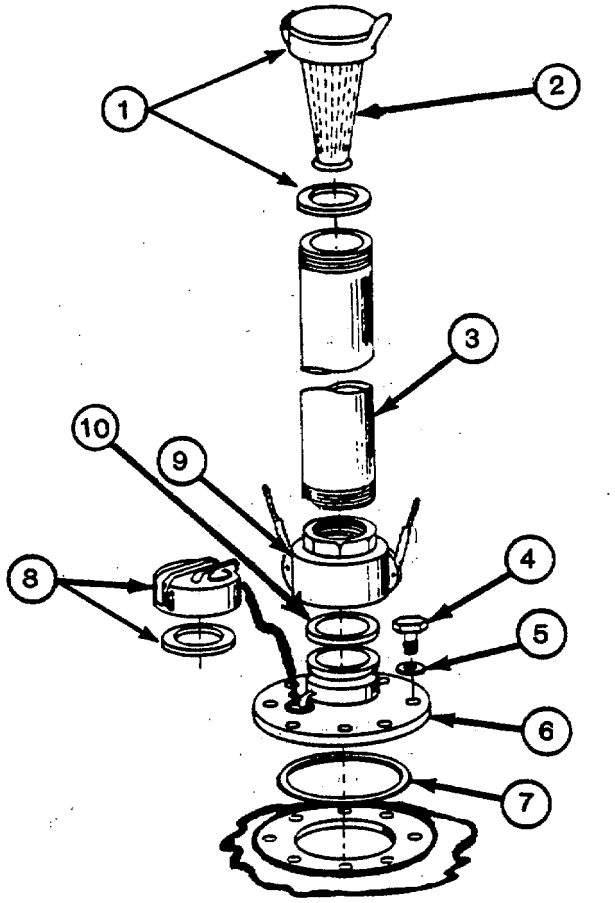


Figure C-3. Vent Assembly

(1) ILLUSTRATION (a) FIG NO.	(b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 02 VENT ASSEMBLY		
C-3	1			49234	EX13338-2	CAP, RELIEF WITH GASKET	EA	1
C-3	2		4930-00-653-0434	49234	EX1333B-36	ARRESTOR, FLAME	EA	1
C-3	3			81718	710OA2X1	STANDPIPE, 2" NOM, SCHEDULE 40	EA	1
C-3	4		5305-00-225-3839	96906	MS90725-8	SCREW, HEX-HD, 1/4-IN.	EA	8
C-3	5		5310-00-809-4058	96906	MS27183-10	WASHER, FLAT, 1/4-IN.	EA	8
C-3	6			96906	MS27023-21	FLANGED ADAPTOR	EA	1
C-3	7		5330-00-291-3085	96906	NS29513-250	O-RING	EA	1
C-3	8		4730-00-649-9100	96906	MS27028-11	DUST CAP WITH CABLE AND GASKET	EA	1
C-3	9		4720-00-649-9103	96906	MS27024-11	COUPLING, C-D FEMALE, 2"	EA	1
C-3	10		5310-00-612-2414	96906	MS27030-6	CASKET, 2"	EA	I

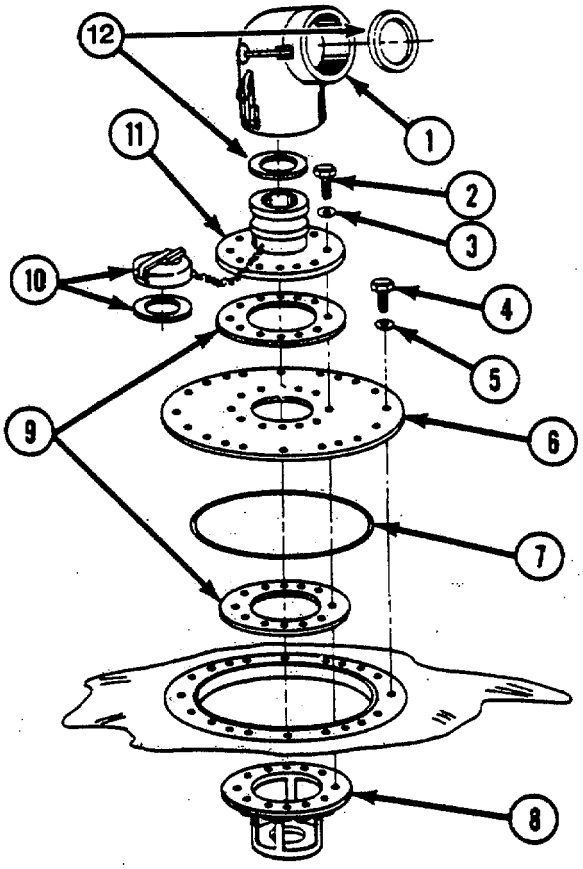


Figure C-4. Filler Assembly

(1) ILLUSTRATION (a) FIG NO.	(b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 03 FILLER ASSEMBLY		
C-4	1			80691	60BD90A	CPLR.-CPLR. ELBOW WITH CASKETS	EA	1
C-4	2		5305-00-269-2807	96906	MS90726-64	BOLT, HEX-HD, 3/8-IN.	EA	12
C-4	3		5310-00-087-7493	96906	MS27183-13	WASHER, FLAT, 3/8-iN.	EA	12
C-4	4		5305-00-225-3839	96906	MS90725-8	SCREW, HEX-HD, 1/4-IN.	EA	20
C-4	5		5310-00-809-4058	96906	MS27183-10	WASHER, FLAT, 1/4-IN.	EA	20
C-4	6			74897	ST20F1967-02	CLOSURE PLATE	EA	1
C-4	7		5330-00-524-0718	96906	MS9021-383	O-RING	EA	1
C-4	8			74897	ST20F1968-02	SUCTION STUB	EA	1
C-4	9			41592	B-5984-20	GASKET	EA	2
C-4	10		4730-00-064-4435	96906	MS27028-19	DUST CAP WITH GASKET AND CABLE	EA	1
C-4	11		4730-00-402-5955	96906	MS27023-19	ADAPTOR, FLANGED	EA	1
C-4	12		5330-00-412-9780	96906	MS27030-10	GASKET	EA	2

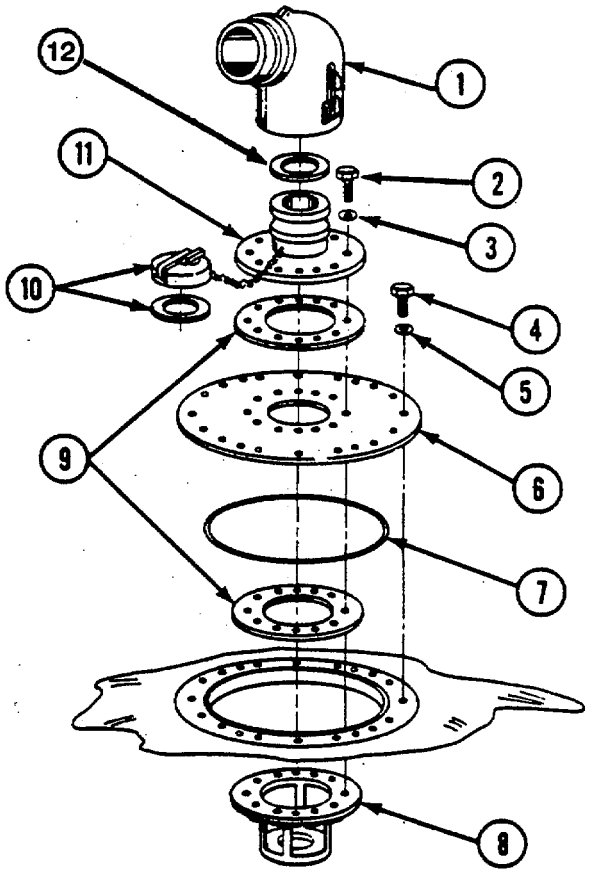


Figure C-5. Discharge Assembly

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 04 DISCHARGE ASSEMBLY		
C-5	1			80691	60BA9OALBUB	CPLR. ADAPTOR ELBOW	EA	1
C-5	2		5305-00-268-2807	96906	MS90726-64	BOLT, HEX-HD, 3/8-IN.	EA	12
C-5	3		5310-00-087-7493	96906	MS27183-13	WASHER, FLAT, 3/8-IN.	EA	12
C-5	4		5305-00-225-3839	96906	MS90725-8	SCREW, HEX-HDO, 1/4-IN.	EA	20
C-5	5		5310-00-809-4058	96906	MS27183-10	WASHER, FLAT, 1/4-IN.	EA	20
C-5	6			74897	ST20F1967-02	CLOSURE PLATE	EA	1
C-5	7		5330-00-524-0718	96906	MS9021-383	O-RING	EA	1
C-5	8			74897	ST20F1968-02	SUCTION STUB	EA	1
C-5	9			41592	B-5984-20	GASKET	EA	2
C-5	10		4730-00-064-4435	96906	MS27028-19	DUST CAP WITH GASKET AND CABLE	EA	1
C-5	11		4730-00-402-5955	96906	MS27023-19	ADAPTOR, FLANGED	EA	1
C-5	12		5330-00-412-9780	96906	MS27030-10	GASKET	EA	1

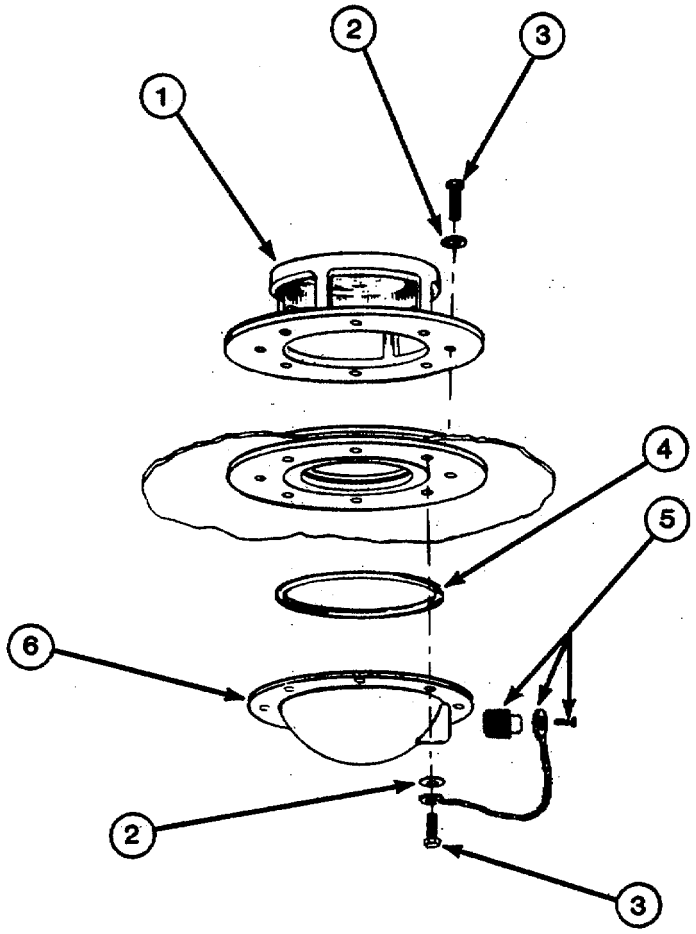


Figure C-6. Drain Assembly.

(1) ILLUSTRATION (a) FIG NO.	(b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 05 DRAIN ASSEMBLY		
C-6	1			74897	ST20F1968-03	SUCTION STUB	EA	1
C-6	2		5310-00-809-4058	96906	MS27183-10	WASHER, FLAT, 1/4-IN.	EA	8
C-6	3		5305-00-225-3839	96906	MS90725-8	BOLT, HEX-HD, 1/4-IN.	EA	8
C-6	4		5330-00-291-3085	96906	MS29513-250	O-RING	EA	1
C-6	5			00333	FCC-52608-4	PLUG ASSEMBLY	EA	1
C-6	6			00333	FCC-52608-5	DRAIN FITTING	EA	1

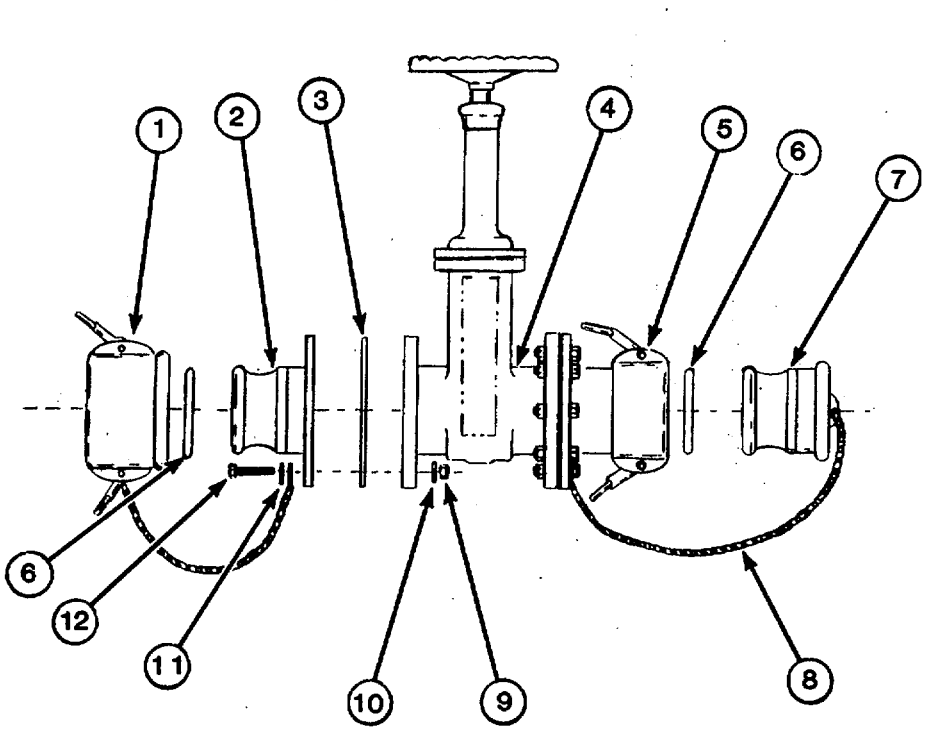


Figure C-7. Valve Assembly, 6"

(1) ILLUSTRATION (a) FIG NO.	(b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 06 VALVE ASSEMBLY, 6"		
C-7	1		4730-00-064-4435	96906	MS27029-19	DUST CAP WITH GASKET AND CABLE	EA	1
C-7	2		4730-00-402-5955	96906	MS27023-19	COUPLING HALF, O-D MALE, FLANGED	EA	1
C-7	3			41592	B-5984-20	GASKET	EA	2
C-7	4			81349	MIL-V-58039	GATE VALVE, 6" TYPE I	EA	1
C-7	5		4730-00-983-6789	96906	MS27027-19	COUPLING HALF, O-D FEMALE, FLANGED	EA	1
C-7	6		5330-00-412-9780	96906	MS27030-10	GASKET	EA	2
C-7	7		4730-00-064-4434	96906	MS27029-19	DUST PLUG	EA	1
C-7	8		4010-00-228-9933	81348	RR-C-271	CABLE, COATED TYPE II, CLASS 3	EA	1
C-7	9		5310-01-052-1793	96906	MS51967-8	NUT, HEX	EA	16
C-7	10		5310-00-637-9541	96906	MS35338-46	WASHER, LOCK	EA	16
C-7	11		5310-00-080-6004	96906	MS27183-14	WASHER, FLAT	EA	16
C-7	12		5305-00-269-4511	96906	MS90725-63	BOLT, HEX-HD	EA	16

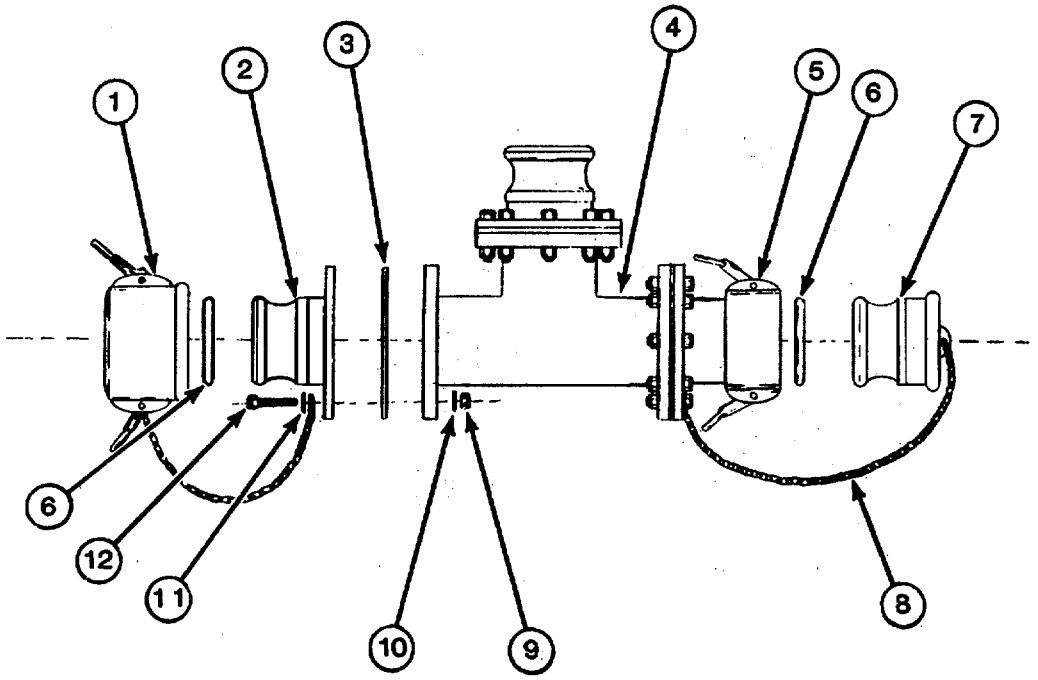


Figure C-8. Tee Assembly, 6"

(1) ILLUSTRATION (a) FIG NO.	(b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 07 TEE ASSEMBLY, 6"		
C-8	1		4730-00-064-4435	96906	MS27028-19	DUST CAP WITH GASKET AND CABLE	EA	1
C-8	2		4730-00-402-5955	96906	MS27023-19	COUPLING HALF, O-D MALE, FLANGED	EA	2
C-8	3			41592	B-5984-20	CASKET, 6"	EA	3
C-8	4			94559	60T	TEE FITTING	EA	1
C-8	5		4730-00-983-6789	96906	MS27027-19	COUPLING HALF, Q-D FEMALE, FLANGED	EA	1
C-8	6		5330-00-412-9780	96906	MS27030-10	GASKET	EA	2
C-8	7		4730-00-064-4434	96906	MS27029-19	DUST PLUG	EA	1
C-8	8		4010-00-228-9933	81348	RR-C-271	CABLE, COATED TYPE II, CLASS 3	EA	1
C-8	9		5310-01-052-1793	96906	MS51967-8	NUT, HEX	EA	24
C-8	10		5310-00-637-9541	96906	MS35338-46	WASHER, LOCK	EA	24
C-8	11		5310-00-080-6004	96906	MS27183-14	WASHER, FLAT	EA	24
C-8	12		5305-00-269-4511	96906	MS90725-63	BOLT, HEX-HD	EA	24

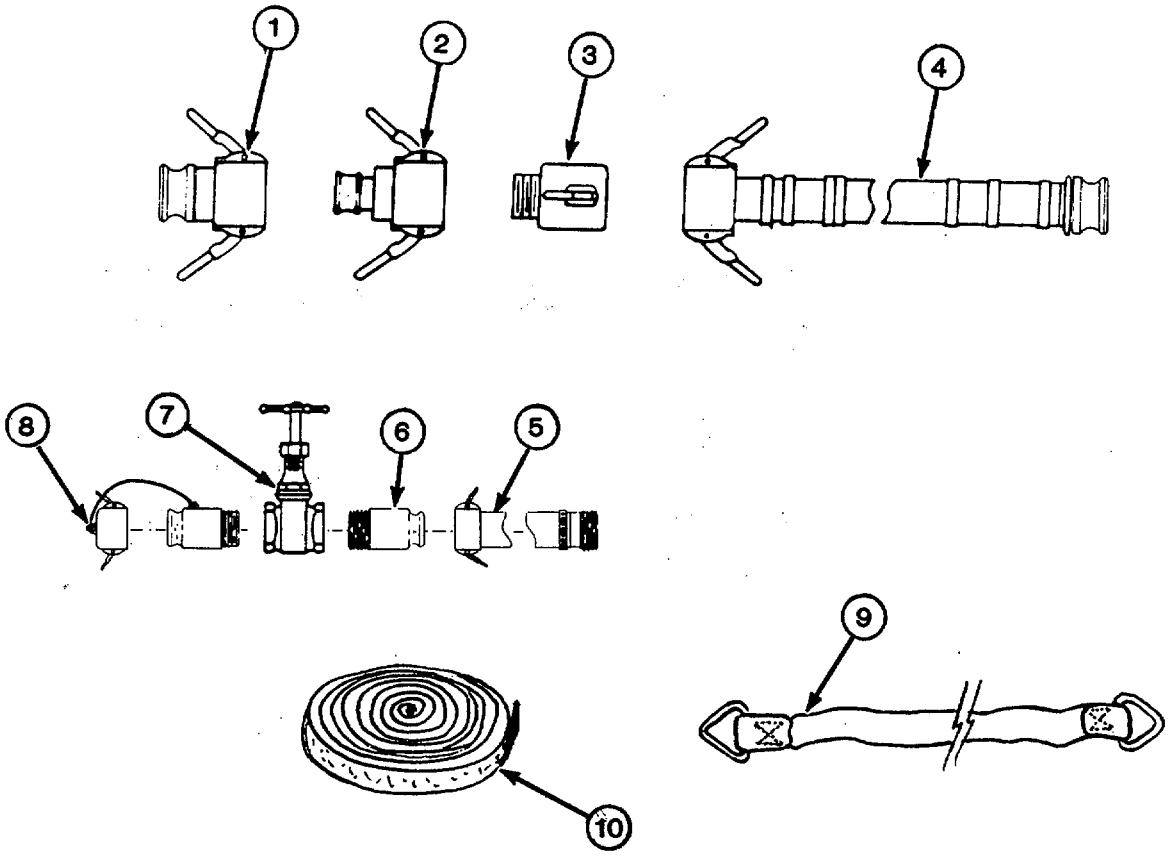


Figure C-9. Hoses And Accessories

(1) ILLUSTRATION (a) FIG NO.	(b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 08 HOSES AND ACCESSORIES		
C-9	1		4730-00-068-0393	96906	MS49000-23	Reducer, 6" male to 4" female	Ea	1
C-9	2		4730-01-079-8234	96906	MS49000-21	Reducer, 6" female to 4" male	Ea	1
C-9	3			96906	MS70096-7	NATO Adapter 4" threads	Ea	1
C-9	4				TBD	Hose Assembly 6", MIL-H-370, Type I	Ea	4
C-9	5				TBD	Hose Assembly, 1-1/2", MIL-H-370, Type II	Ea	2
C-9	6			96906	MS27022-10	Coupler, Male Q-D to 1-1/2" NPT	Ea	4
C-9	7		4820-00-287-6041	76364	1148	Valve, 1-1/2"	Ea	1
C-9	8			96906	MS27028-10	Dust Cap with Cable	Ea	2
C-9	9				TBD	Lifting Sling	Ea	3
C-9	10				TBD	Deployment Straps	Ea	8

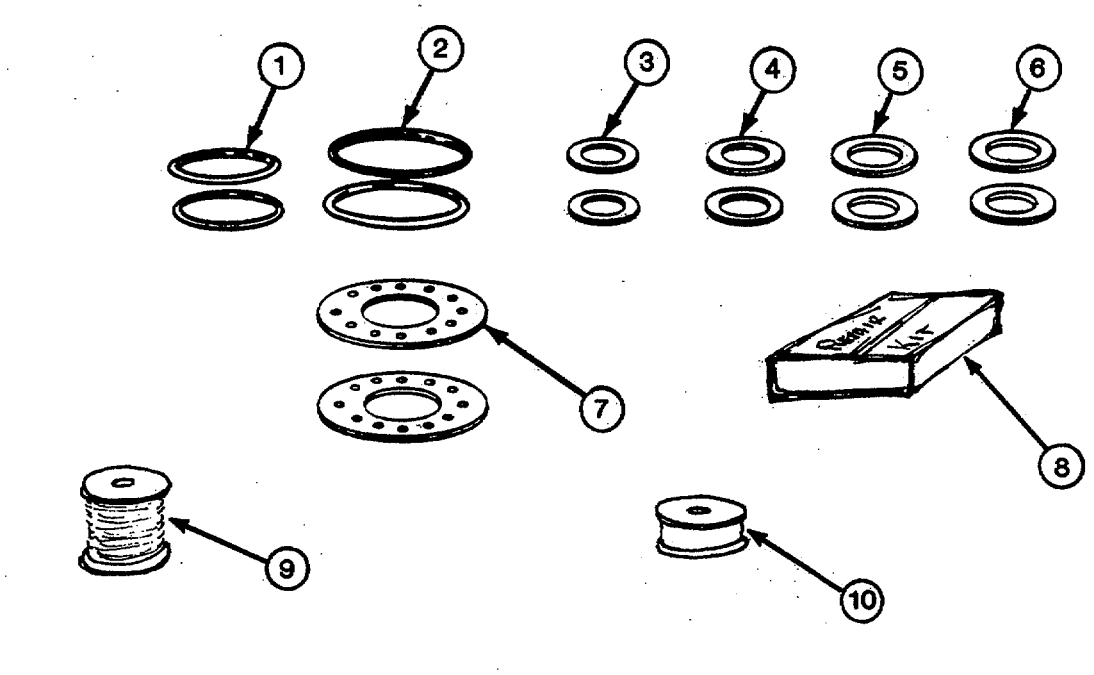


Figure C-10. Emergency Repair Items

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 09 EMERGENCY REPAIR ITEMS		
C-10	1		5330-00-291-3085	96906	MS29513-250	O-RING	EA	2
C-10	2		5330-00-524-0718	96906	MS9021-383	O-RING	EA	2
C-10	3				TBD	GASKET, Q-D COUPLING, 1 1/2"	EA	2
C-10	4			96906	MS27030-6	GASKET, Q-D COUPLING, 2"	EA	2
C-10	5			96906	MS27030-9	GASKET, Q-D COUPLING, 4"	EA	2
C-10	6		5330-00-412-9780	96906	MS27030-10	GASKET, Q-D COUPLING, 6"	EA	2
C-10	7			41592	B-5984-20	GASKET, 6-INCH FLANGE	EA	2
C-10	8		5430-00-641-8957			EMERGENCY REPAIR KIT	EA	1
C-10	9				TBD	.010 INCH SS SAFETY WIRE	RL	1
C-10	10				TBD	1/2 INCH TEFLON TAPE	RL	1

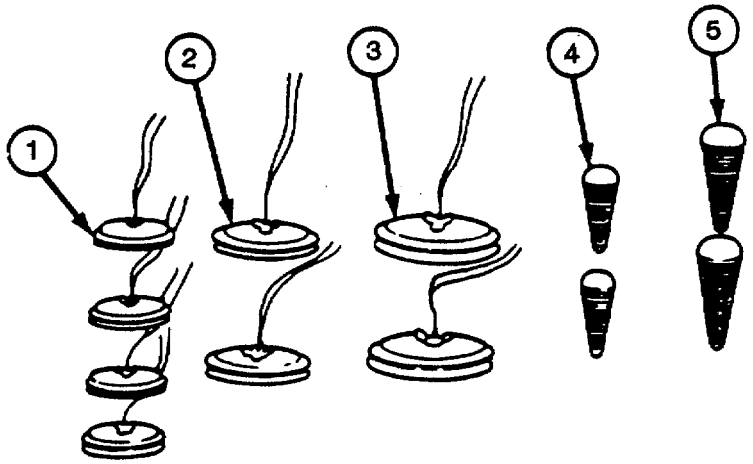


Figure C-11. Emergency Repair Kit

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION *USABLE ON CODE*	(7) U/M	(8) QTY INC IN UNIT
						GROUP 0901 EMERGENCY REPAIR KIT		
C-11	1		5430-00-591-6863			CLAMP, SEALING, 3-IN.	EA	4
C-11	2		5430-00-591-6864			CLAMP, SEALING, 5-IN.	EA	2
C-11	3		5430-00-591-6865			CLAMP, SEALING, 7-1/2-IN.	EA	2
C-11	4		5510-00-255-9493			PLUG, TAPERED, 3-IN.	EA	2
C-11	5		5510-00-255-9692			PLUG, TAPERED, 5-IN.	EA	2

Section III. SPECIAL TOOLS LIST

NOT APPLICABLE

Section IV. NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIGURE NO.	ITEM NO.
5430-00-641-8957	C-10	7

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NO.	FIGURE NO.	ITEM NO.
41592	B-5984-20		C-4	9
			C-5	9
			C-7	3
			C-8	3
			C-10	6
49234	EX-1333B-2		C-3	1
49234	EX-1333B-36	4930-00-653-0434	C-3	2
00333	FCC-52608-4		C-6	5
00333	FCC-52608-5		C-6	6
81349	MIL-V-58039		C-7	4
	6 in., Type I			
96906	MS 27022-10		C-9	6
96906	MS 27023-19	4730-00-402-5955	C-4	11
			C-5	11
			C-7	2
			C-8	2
96906	MS 27023-21		C-3	6
96906	MS 27024-11	4720-00-649-9103	C-3	9
96906	MS 27027-19	4730-00-983-6789	C-7	5
			C-8	5

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NO.	FIGURE NO.	ITEM NO.
96906	MS 27028-10		C-9	8
96906	MS 27028-11	4730-00-649-9100	C-3	8
96906	MS 27028-19	4730-00-064-4435	C-4	10
			C-5	10
			C-7	1
			C-8	1
96906	MS 27029-19	4730-00-064-4434	C-7	7
			C-8	7
96906	MS 27030-6	5310-00-612-2414	C-3	10
			C-10	3
96906	MS 27030-10	5330-00-412-9780	C-4	12
			C-5	12
			C-7	6
			C-8	6
			C-10	5
96906	MS 27183-10	5310-00-809-4058	C-3	5
			C-4	5
			C-5	5
			C-6	2
96906	MS 27183-13	5310-00-087-7493	C-4	3
			C-5	3
96906	MS 27183-14	5310-00-080-6004	C-7	11
			C-8	11

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NO.	FIGURE NO.	ITEM NO.
96906	MS 2729513-250	5330-00-291-3085	C-3	7
			C-6	4
			C-10	1
96906	MS 35338-46	5310-00-637-9541	C-7	10
			C-8	10
96906	MS 49000-21	4730-01-079-8234	C-9	2
96906	MS 49000-23	4730-00-068-0393	C-9	1
96906	MS 51967-8	5310-01-052-1793	C-7	9
			C-8	9
96906	MS 70096-7		C-9	3
96906	MS 9021-383	5330-00-524-0718	C-4	7
			C-5	7
			C-10	2
96906	MS 90725-63	5305-00-269-4511	C-7	12
			C-8	12
96906	MS 90725-8	5305-00-225-3839	C-3	4
			C-4	4
			C-5	4
			C-6	3
96906	MS 90726-64	5305-00-269-2807	C-4	2
			C-5	2
81348	RR-C-271	4010-00-228-9933	C-7	8
	Type II, Class 3		C-8	8
74897	ST20F1967-02		C-4	6
			C-5	6

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NO.	FIGURE NO.	ITEM NO.
74897	ST20F1968-02		C-4	8
			C-5	8
74897	ST20F1968-03		C-6	1
76364	1148	4820-00-287-6041	C-9	5
80691	60BA90ALBUB		C-5	1
80691	60BD90A		C-4	1
94559	60T		C-8	4
81718	710A2X10		C-3	3

APPENDIX D

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

D-1. SCOPE. This appendix lists all components of end item and basic issue items for the 5K Barrel Tank to help you inventory items required for safe and efficient operation.

D-2. GENERAL.. The Components of End Item and Basic Issue Items Lists are divided into the following sections:

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. 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 5K Barrel Tank in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the 5K Barrel Tank during operation whenever it is transferred between property accounts.

D-2 GENERAL (Cont'd).

The illustrations will assist you with hard-to-identify items. This manual is your authority to request/requisition replacement 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 (Illus Number). This column indicates the number of the illustration in which the item is shown.

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

c. Column (3) - Description. Indicates the Federal item name and, required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number. If item needed differs for different models of this equipment, the model is shown under the "Usable On" heading in this column. These codes are identified as:

Code	Used On
PAA	Model TBD
PAB	Model TBD
PAC	Model TBD

d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operation/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 of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM

Components of End Items are identical to parts list, Appendix C.

Section III. BASIC ISSUE ITEMS

TM 5-5430-214-13SP, Operator and Organizational Maintenance Manual for Tank Fabric, Collapsible 5,000 Barrel Petroleum is the only Basic Issue Item for this equipment.

APPENDIX E

ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

E-1. SCOPE. This appendix lists additional items you are authorized for the support of the Tank Fabric, Collapsible, 5,000 Barrel Petroleum.

E-2. GENERAL This list identifies items that do not have to accompany the tank, fabric, collapsible, 5,000 barrel petroleum and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA

E-3. EXPLANATION OF LISTING National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are tested in alphabetical sequence by items name. If the item you require differs between the serial numbers of the same model, effective serial numbers are shown in the last line of the description. If the item required differs for different models of this equipment, the model number is shown under the Usable On" heading in the description column.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION CAGEC & PART NUMBER USABLE ON	(3) U/M	(4) QTY AUTH
5430-01-237-3657	Liner, Berm, Tank Fabric (81349) M53081 -5	EA	1
5430-01 -352-6073	Repair Kit, Collapsible Fabric Tank (ROCTAD) (63775) 201225	EA	1
5430-01-359-1078	Repair Kit, Collapsible Fabric Tank ROCTAD) (OF6E1) BOY-USA-1	EA	1

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

R. L.. DILWORTH
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25A, Operator and Organizational Maintenance requirements for Tank, Fabric, Collapsible, POL, 50,000, 10,000, 3,000 GAL).

*US GOVERNMENT PRINTING OFFICE 1996 - 406-421/52042

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

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

SOMETHING WRONG WITH PUBLICATION

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

BE EXACT PIN-POINT WHERE IT IS

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

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

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER	SIGN HERE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

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

The Metric System and Equivalents

Linear Measure

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

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 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 milliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

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

Cubic Measure

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

Approximate Conversion Factors

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

Temperature (Exact)

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

PIN: 061040-000