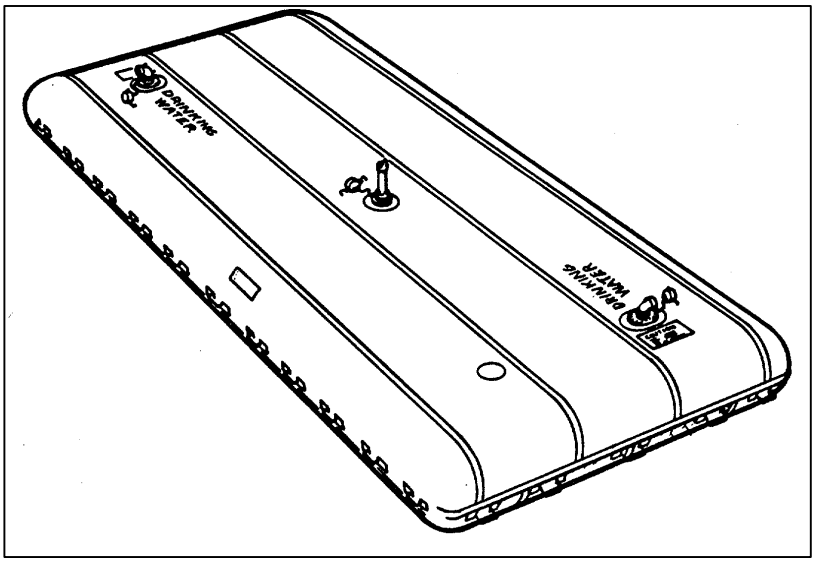
TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL AND DIRECT SUPPORT MAINTENANCE MANUAL, INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

FOR



TANK, FABRIC, COLLAPSIBLE, PILLOW TYPE, 50,000 GALLONS, DRINKING WATER

NSN 5430-01-200-4831

Approved for public release; distribution is unlimited

HEADQUARTERS, DEPARTMENT OF THE ARMY
29 JANUARY 1988

This copy is a reprint which includes current pages from Changes 1 and 2.

CHANGE
NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 2 April 1991

Operator's, Organizational, and Direct Support
Maintenance Manual,
Including Repair Parts and Special Tools List

for

TANK, FABRIC, COLLAPSIBLE, PILLOW TYPE,
50,000 GALLONS, DRINKING WATER
NSN 5430-01-200-4831
NSN 5430-01-106-9677

Approved for public release; distribution is unlimited

TM 5-5430-211-13&P, 29 January 1988, 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
B-5 and B-6	B-5 and B-6

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

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

THOMAS F. SIKORA
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25E, (qty rqr block no. 2485)

CHANGE

NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 31 October 1989

Operator's, Organizational, and Direct Support
Maintenance Manual,
Including Repair-Parts and Special Tools List
For
TANK, FABRIC, COLLAPSIBLE, PILLOW TYPE,
50,000 GALLONS, DRINKING WATER
NSN 5430-01-200-4831
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1. Title is changed as shown above.

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

Remove pages	Insert pages
1-3 and 1-4	1-3 and 1-4
2-0	2-0
D-1 through D-4	D-1 through D-4
E-1 and E-2	E-1 and E-2
F-1 and F-2	F-1 and F-2

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

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CARL E. VUONO
General, United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN, II
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

To be distributed in accordance with DA Form 12-25A, Operator, Unit, Direct Support and General Support Maintenance requirements for Tank, Fabric, Collapsible, Pillow Type, 50,000 (FAB 253) TM 5-5430-211-13&P.

WARNING

- Do not overfill the tank as it may burst and cause personal injury. The maximum safe height is 5 feet.
- Use tank for drinking water only. Other liquids will contaminate the water.
- DO NOT set up the tank on sloping ground. Water collecting at one end may cause it to roll over.
- Personal injury could occur if filling assembly coupling is not tight before filling. Under pressure, coupling may fly apart.
- Dry cleaning solvent P-D-680 (Safety or Stoddard's Solvent) is potentially dangerous. Avoid repeated and prolonged breathing of vapors and skin contact with the liquid. DO NOT use near open flames, arcing equipment or other ignition sources. Always wear eye protection. The flash point of P-D-680 is 100 to 138 degrees F (30 to 59 degrees C).
- Do not allow dirt or foreign matter to get into the tank. The tank is to hold drinking water only.
- To avoid contamination, hands, tools and replacement parts must be clean. Do not permit bolts, washers, gaskets, small items or foreign matter to fall into the tank.

TECHNICAL MANUAL
TM 5-5430-211-13 & P

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 29 January 1988

OPERATOR'S, ORGANIZATIONAL, AND DIRECT SUPPORT MAINTENANCE MANUAL, INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

**TANK, FABRIC, COLLAPSIBLE, PILLOW TYPE,
50,000 GALLONS, DRINKING WATER
NSN 5430-01-200-4831
NSN 5430-01-106-9677
Current as of 20 October 1989**

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistake or if you know of a way 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 Troop Support Command, ATTN: AMSTR-MCTS, 4300 Goodfellow Boulevard, St. Louis, MO 63120-1798. A reply will be furnished directly to you.

Approved for public release; distribution Unlimited.

CHAPTER 1

INTRODUCTION I

SECTION I GENERAL INFORMATION

1-1 SCOPE

Type of Manual:	Operator's, Organizational, and Direct Support Maintenance.
Equipment Name:	Tank, Fabric, Collapsible, Pillow Type, 50,000 gallons, Drinking Water.
Purpose of Equipment:	Storage of Drinking Water.
Advantages of Equipment:	Easy to install. Easily transported when empty.
Limitation of Equipment:	Cannot stand rough handling as can metal tanks.

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 MATERIAL TO PREVENT ENEMY USE

Refer to TM 750-244-3, Procedure for Destruction of Equipment to Prevent Enemy Use.

1-4 PREPARATION FOR STORAGE OR SHIPMENT

Refer to Chapter 3 Section VII of this Manual.

1-5 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (B.I.R.)

If your water tank needs improvement, let us know. Send us an E.I.R. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, U.S. Army Troop Support Command, ATTN: AMSTR-QX, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be mailed to you.

SECTION II EQUIPMENT DESCRIPTION

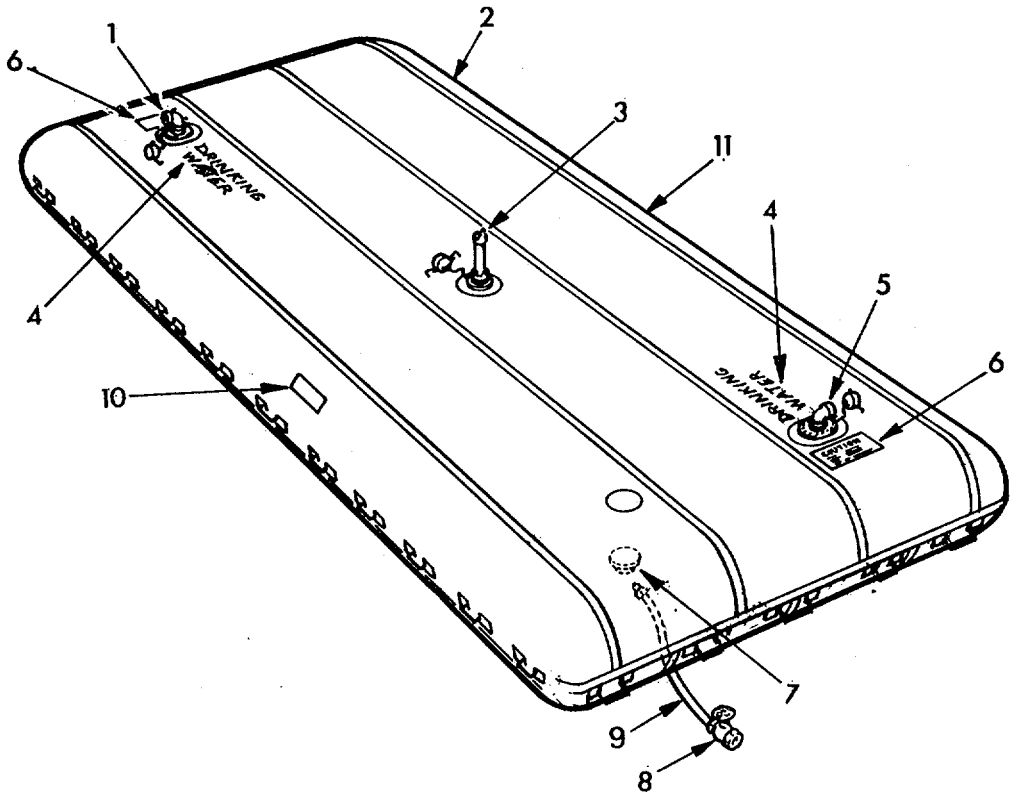
1-6 PURPOSE OF TANK

Storage of drinking water.

1-7 CHARACTERISTICS, CAPABILITIES AND FEATURES

- Can hold up to 50,000 gallons (189 cubic meters) of water.
- Easy and inexpensive to install.
- Easily transported when empty.
- Tank body is made from tough, flexible synthetic rubbers and nylon.
- Made from materials suitable for contact with drinking water.
- Long life in both hot and cold climates.
- Exercise care to prevent damaging the tank.
- Small cuts and holes easily repaired with kit supplied.
- Quick disconnect line couplings.

1-8 LOCATION AND DESCRIPTION OF EXTERNAL COMPONENTS



1. FILLER ASSEMBLY
2. TANK BODY
3. VENT ASSEMBLY
4. DRINKING WATER LABEL
5. DISCHARGE ASSEMBLY
6. CAUTION LABEL
7. DRAIN ASSEMBLY (under tank)
8. DRAIN VALVE
9. DRAIN HOSE
10. IDENTIFICATION LABEL
11. BA88-004 DRINKING WATER LABEL

1-9 EQUIPMENT DATA

Manufacturer	Dunlop PLC, U.K.
Model Number	FAB 253, BA88-004
Weight (dry)	1, 600 pounds (665 kilograms), 860 pounds (390.44 kilograms)
Length (empty)	65 feet (19.81 meters)
Width (empty)	25 feet (7.62 meters)
Filled Height (maximum)	5 feet (1.52 meters)
Capacity	50,000 gallons
Maximum initial and final input rate	100 gallons/minute' (0.37 cubic meters/minute)
Maximum input rate	350 gallons/minute (1.32 cubic meters/minute)
Input Coupling, female to MS27019	4 inch nominal
Output Coupling, male to MS27019	4 inch nominal
Operating Temperature	35 - 120 degrees F (1- 50 degrees C)
Weight of crated tank with accessories, etc	2, 700 pounds (1, 225 kgs), 1, 770 pounds (803.58 kilograms)
Shelf life	5 years

IDENTIFICATION LABEL

TANK, FABRIC, COLLAPSIBLE,
50,000 GALLONS, DRINKING WATER,
N.S.N.: 5430-01-200-4831, 5430-01-106-9677
SERIAL NO.: 001
MFR.: DUNLOP LTD., MANCHESTER, ENGLAND
BELL AVON, INC., PICAYUNE, MS.
WEIGHT EMPTY: 1, 600 LB, 860 LB
CONTRACT NO.: DAAJ10-84-C-A-226
DAAKO 1 -88-D-0024

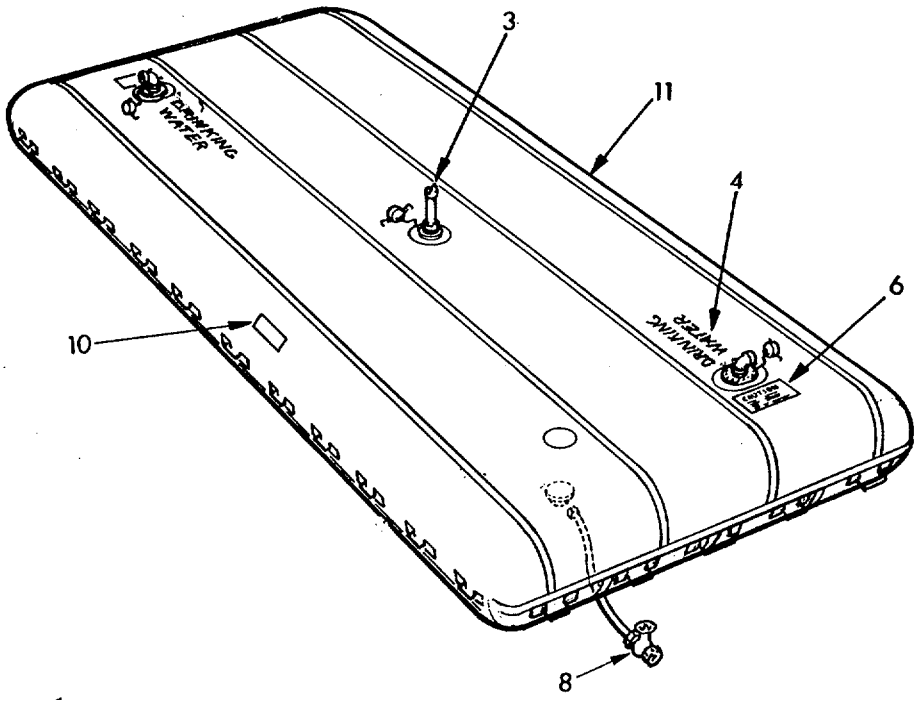
LOT: 0001
MFR. DATE 00-00-00

CAUTION LABEL

CAUTION
OVERFILLING WILL RESULT IN PERMANENT
DAMAGE AND FAILURE OF TANK
DO NOT OVERFILL
MAXIMUM CAPACITY 50,000 GALLONS. WHEN FULL,
TANK HEIGHT IS 60 INCHES (152 CENTIMETERS)

DRINKING WATER LABEL

DRINKING
WATER



CHAPTER 2

OPERATING INSTRUCTIONS

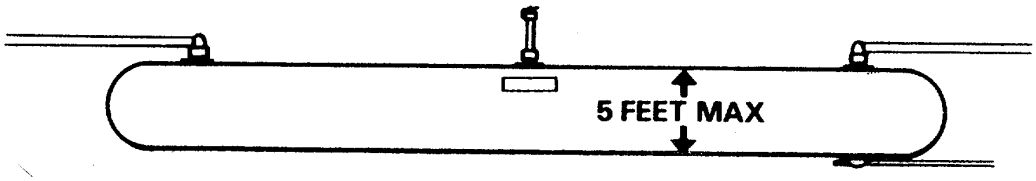
SECTION I DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

TABLE 2-1

KEY	CONTROL OR INDICATOR	FUNCTION
3	Vent Assembly	Cap opens under pressure and allows air pumped into the tank to escape.
4	Drinking Water Label	Warns only drinking water should be put into tank and advises contents are safe to drink.
6	Caution Label	Gives caution notice, tank capacity and maximum safe height.
8	Drain Valve	Used to drain contents of the tank.
10	Identification Label	Tank identification giving NSN, manufacturer, date of manufacture, etc.

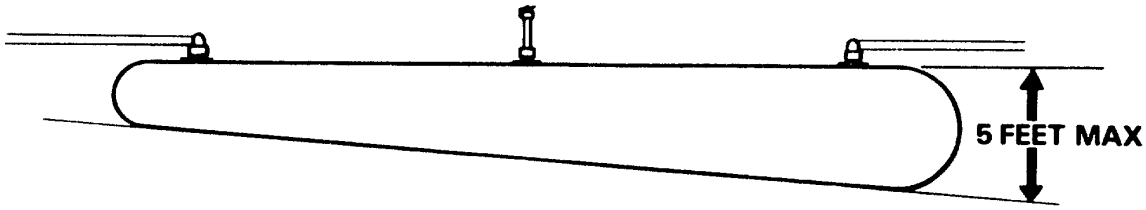
WARNING

Tank may rupture if filled higher than 5 feet. Serious injury may result from the ruptured tank.



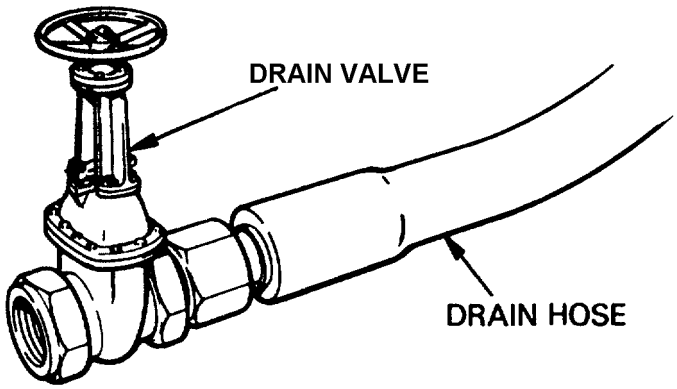
WARNING

If tank is situated on sloping ground the highest point will be down slope from the vent assembly. Measure the height at this point. The maximum permitted slope is 1 degree.



2-2 DRAIN VALVE

This is found at the end of the drainhose. It must be kept closed except when draining water from the tank.



SECTION II OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-3 GENERAL

a. Before you operate always keep in mind the WARNINGS and CAUTIONS. Perform your before (B) PMCS.

b. While you operate always keep in mind the WARNINGS and CAUTIONS. Perform your during (D) PMCS.

c. After you operate perform your after (A) PMCS.

d. If your equipment fails to operate. Troubleshoot with proper equipment. Report any deficiencies using the proper form. See DA PAM 738 - 750, The Army Maintenance Management System (TAMMS).

2-4 PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Table 2-2, your Preventive Maintenance Checks and Services Table lists the inspections and care of your equipment required to keep it in good operating condition.

TABLE 2-2 OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Leak definitions for operator/crew PMCS shall be classified as follows:-

Class	I	Seepage of water (as indicated by wetness or discoloration) not great enough to form drops.
Class	II	Leaks of water great enough to form drops but not enough to cause drops to drip or run from the faulty area.
Class	III	Leak of water great enough to form drops that fall or run or collect in puddles near the faulty area.
Class	IV	Leak from under the tank. Shown by:- i) Dampness of the ground around the tank. ii) Volume of water in the tank less than it should be.

CAUTION

- **Equipment operation is allowable with minor leak. (class I or II)**
- **When operating with class I or** II **leaks continue to check** them **visually at regular intervals.**
- **Class III and class IV leaks should be reported to your supervisor.**

CAUTION

DO NOT WALK UNNECESSARILY ON THE TANK

The fabric of the tank may cut or abrade. Walk on the tank wearing soft soled shoes, which have been wiped clean of all abrasive materials.

TABLE 2-2 OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES - CONTINUED

B - Before D - During A - After W - Weekly

ITEM NO	INTERVAL B	D	A	W	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
1	•	•			Filler Check that filler assembly elbow is properly connected Assembly elbow. to hose & tank coupling Check for leaks during filling.	Not properly connected. Gasket leaks
2	•				Rigid pipes are not directly connected to the filler and discharge assemblies.	Rigid pipes are connected directly to the tank.
3	•				Discharge Assemblies. Check that hoses are not pulling on the assemblies. The fabric around the assembly will be strained and may tear. When the tank is full a support under the hose may be necessary to prevent pulling.	Hose to Filler and Fabric is strained.
4				•	Leaks of class III or class IV are not present from the tank body.	Leak is present
5		•			Leaks of class III are not present from any coupling or assembly.	Leak is present

TABLE 2-2 OPERATOR/CREW PREVENTATIVE MAINTENANCE CHECKS AND SERVICES - CONTINUED

B - Before D - During A - After W - Weekly

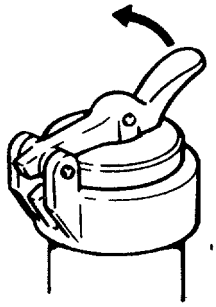
ITEM NO	INTERVAL B	D	A	W	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
6				•	Bolts in Vent Assembly, Discharge Assembly, and Filler Assembly are all present.	Bolts are missing.
7				•	Flap of Vent Assembly cap. This must be free to move. Flap must be in closed position. 	Flap moves with difficulty or not at all. Flap in open position.
8				•	Dust caps of Filler, Discharge, and Vent Assemblies are present and their gaskets in place.	
12				•	All 32 handles of tank body are present and undamaged.	

TABLE 2-2 OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES - CONTINUED

B - Before D - During A - After W - Weekly

ITEM NO	INTERVAL B	D	A	W	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
13				•	Be sure dust or snow has now blown under one side of tank.	Ground on one side of tank covered with wind driven snow or dust.
14				•	The tank and the surrounding area are in a clean condition.	
15				•	Drain valve.	If class III leak present.
16				•	Drain valve/hose joint.	If class III leak present.

SECTION III OPERATION UNDER USUAL CONDITIONS

2-5 PREPARATION FOR USE

Personnel required: 6 including team leader.
Before unpacking the tank, prepare a site for its installation.
The area must be 75 feet by 35 feet minimum, reasonably level, firm and free from major obstructions.

WARNING

Turbulence of the water in the tank during filling or high winds, if the tank is only partially filled, may cause the tank to roll if it has been placed on sloping ground. The steepest slope on which tank is to be situated is 1 degree.

CAUTION

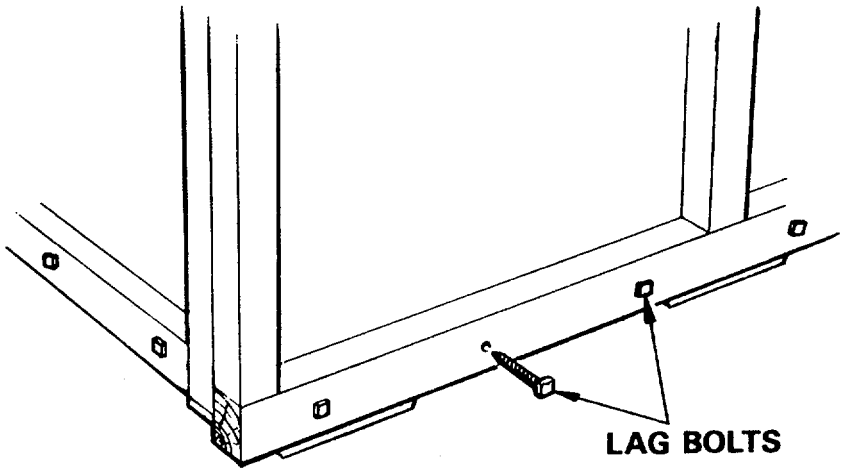
- **Clear the area of sticks, stumps, stones and heavy vegetation. These may puncture or abrade the tank fabric.**
- **Before being placed on concrete or asphalt, the area should be swept clean of all sharp stones, etc., which may puncture the fabric.**

A Site Preparation

1. Fill holes and depressions and flatten ground.
2. Lay a smooth bed of sand or light soil if the ground is very rough or rocky.
3. Lay a ground sheet if sand or light soil is not available.
4. If the tank is to be used on the site for a long period, a minimum of 4 inches of sand or soil should always be put down on the site before the tank is placed in position.
5. Lay two 75 feet lengths of nylon webbing 4 feet either side of the centerline of the cleared area. This webbing is to assist in rolling the tank up when it is to be removed. The webbing is not supplied.

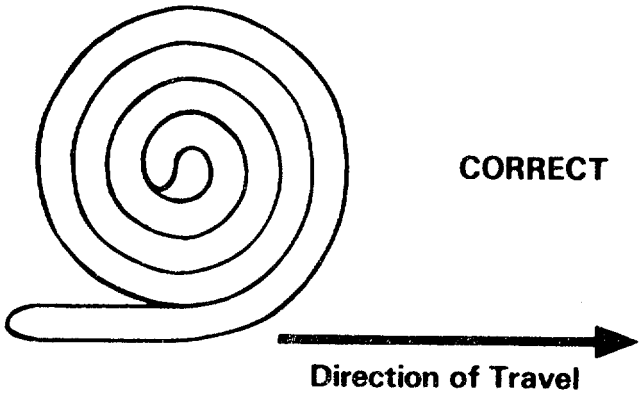
B Uncrating and Positioning the Tank

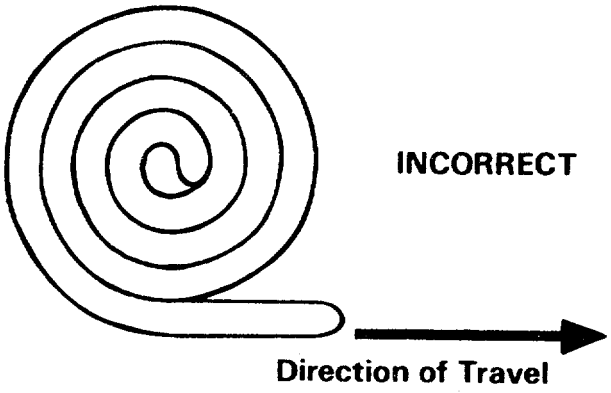
1. Place the tank crate near one end of the prepared site using a fork lift. If the site is sloping the crate should be placed at the lower end of the slope.
2. Remove lag bolts from the bottom of the crate sides.



3. Lift off crate lid. Remove accessories, repair kit etc., and place them on one side.

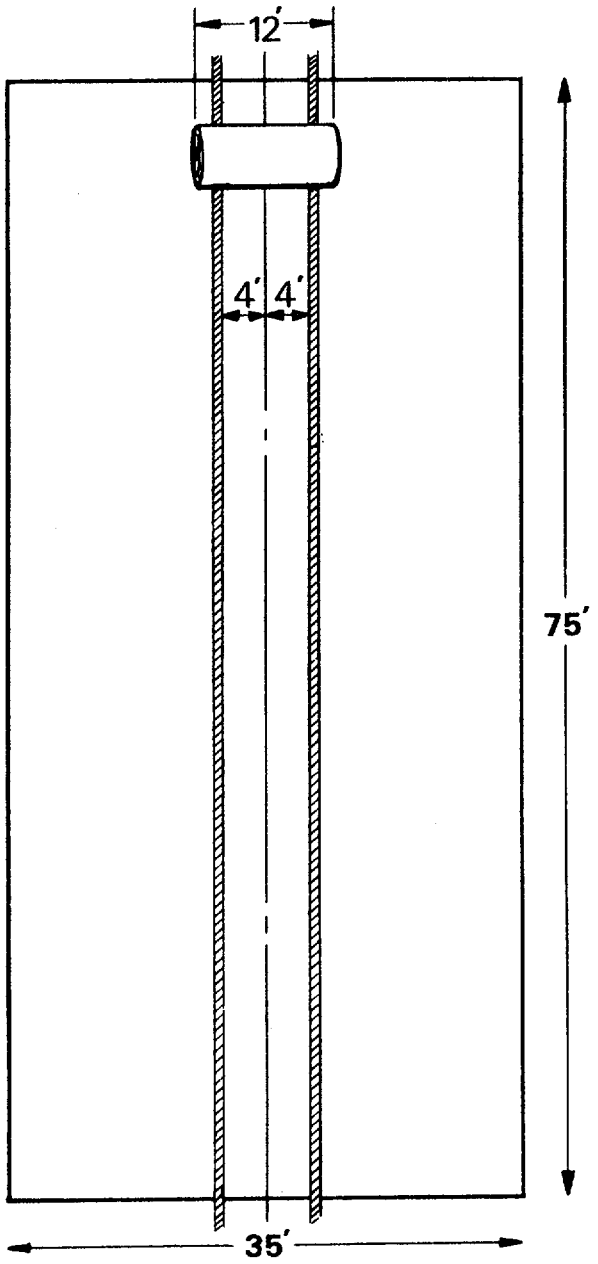
4. Place crate base so that tank will automatically unroll when pushed along prepared site.





5. Roll the tank off the crate base and onto the nylon webbing so that it is square with the prepared site and symmetrically placed over the nylon webbing.

6. Roll the tank five feet into the prepared site.



7. Remove the ties around the tank and unroll it along the nylon webbing.

8. Unfold the sides of the tank.

9. Move the tank into its final position by pulling on the handles.

WARNING

Do not allow dirt or foreign matter to get into the tank. The tank is to hold drinking water only.

CAUTION

- **THE HANDLES ARE FOR MANHANDLING ONLY.**
- **DO NOT CONNECT THEM TO A MECHANICAL PULLING DEVICE**
- **DO NOT WALK UNNECESSARILY ON THE TANK**
- **The fabric of the tank may cut or abrade.**

  Walk on the tank wearing soft soled shoes, which have been wiped clean of all abrasive materials.

C Assembling components

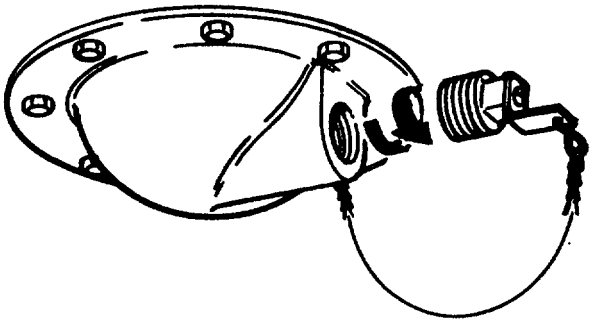
1. Drain Assembly

a. Fold back one end of the tank to expose the drain assembly. Dig a shallow hole in the ground to house the drain assembly.

b. From this hole dig an inch deep channel to hold the drain hose.

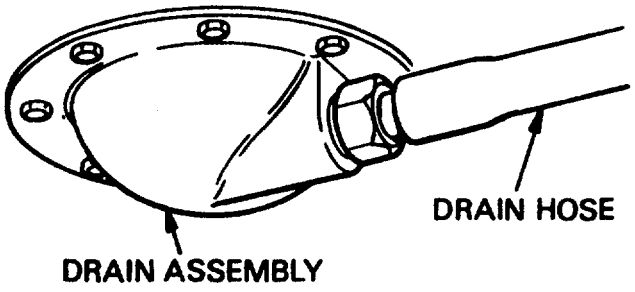
c. This hole and channel will prevent stresses in the rubberized fabric when the tank is filled with water.

d. If tank has been positioned on hard ground make a bed of soft sand or soil to hold drain assembly and drain hose.



e. Unscrew the plug in the drain assembly.

f. Screw the drain hose into the drain assembly.



g. Return the tank end to its normal flat position being careful to place the drain assembly and the hose in the prepared holes.

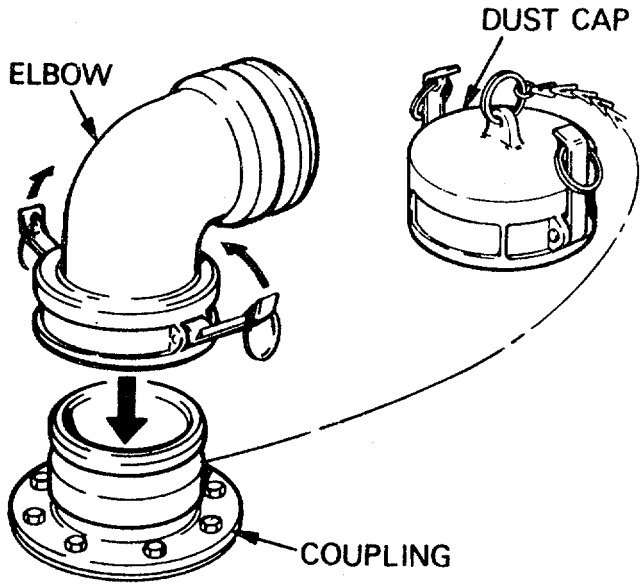
2. Discharge Assembly (Female/Male Elbow Fitting)

a. Remove packing from around the coupling assembly above the drain assembly.

b. Remove the dust cap.

c. Remove packing from around all the accessory metals - remembering to keep them clean.

Put the Female/Male Elbow on the coupling assembly. Clamp into position using the camlock arms and pointing the male part of the coupling in the direction the discharge hose will lie.

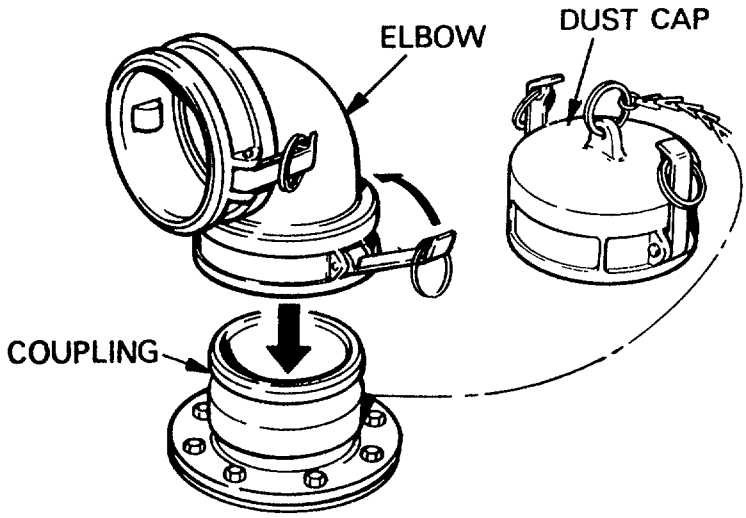


3. Filler Assembly (Female/Female Elbow Fitting)

a. Remove packing from around the coupling assembly at the other end of the tank.

b. Remove the dust cap.

c. Put the Female/Female Elbow on the coupling assembly. Clamp into position using the camlock arms and pointing it in the direction the filler hose will lie.



WARNING

- **This elbow must be correctly attaching to the coupling assembly and the filler hose, otherwise pressure build up during filling could cause the fittings to fly apart and injure personnel.**

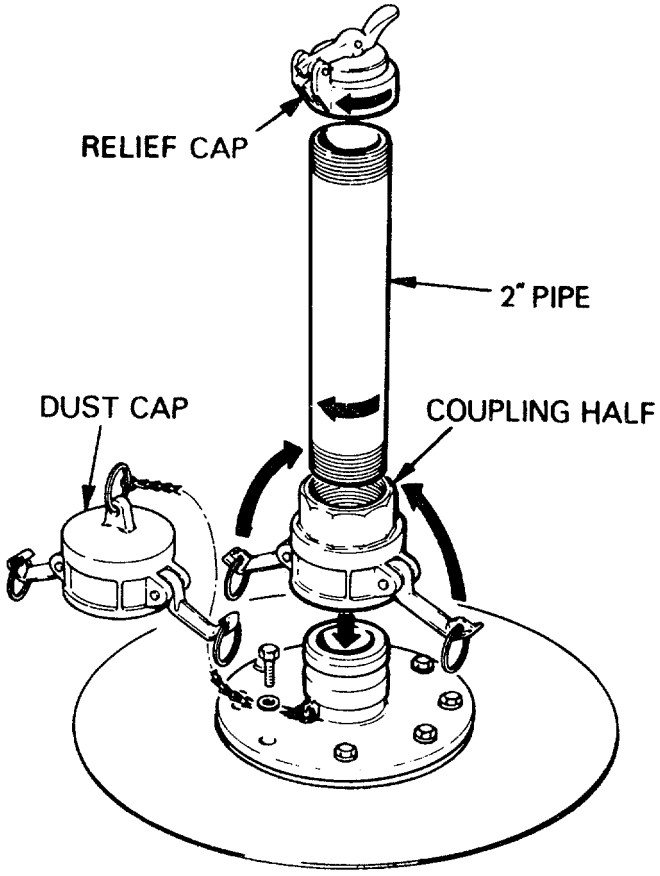
4. Vent Assembly

a. Remove packing from around the vent assembly coupling.

b. Remove dust cap and clamp the coupling half in place.

c. Screw in the pipe, HAND TIGHT ONLY.

d. Screw on the relief cap, hand tight only. Make sure the flap is free to move. The flap must be in the closed position.



5. Storage

a. The spares and repair kit should be put into storage.

b. The packing and consolidating material should be placed in the tank crate. The crate is re-bolted and returned to base stores.

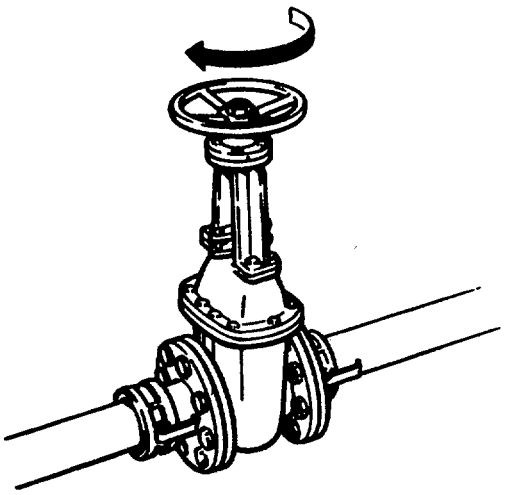
6. Filling of Tank

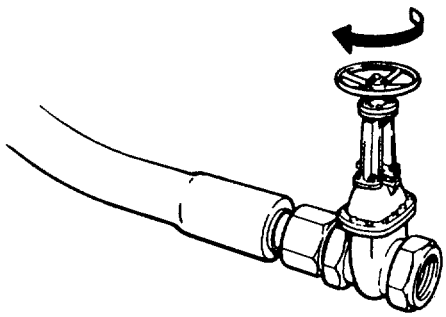
a. Connect the inlet and outlet hoses.

b. Connect the 4 inch gate valve.

c. Close the valve on the outlet hose.

d. Close the valve on the drain hose.





e. Pump 2000 gallons of water into the tank at 100 gallons/minute.

f. Examine the tank and accessories for leaks.

g. If any leaks are present stop filling the tank.

h. Reseat couplings correctly if they leak.

i. Report all other leaks to your supervisor.

j. If no leaks are present continue filling the tank.

k. Maximum rate of filling is 350 gallons/minute.

l. When the tank contains 47,500 gallons cut the filling rate to 100 gallons/minute.

m. Do not pump in more than 50,000 gallons.

n. Do not let the height at any point exceed 5 feet.

o. Prop up the inlet and/or outlet coupling with a block of wood if they are straining the fabric.

p. Do not let the hoses pull on the couplings.

SECTION IV OPERATION UNDER UNUSUAL CONDITIONS

2-6 OPERATION IN EXTREME HEAT

The tank will withstand temperatures of up to 50 degrees C (120 degrees F).

Shade the tank with a shield to prolong the life of the tank at these elevated temperatures the water will also remain cooler.

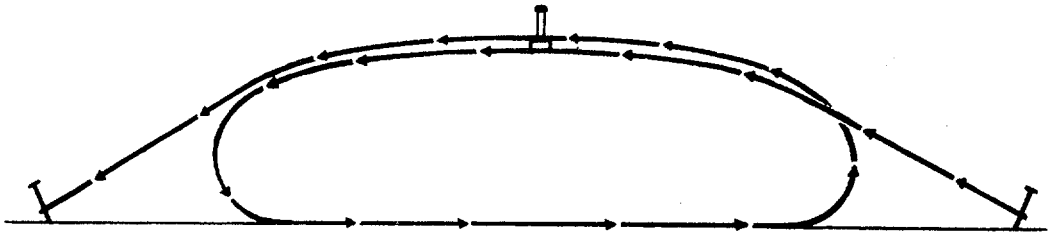
2-7 OPERATION IN WINDY CONDITIONS

If only partially filled, the tank may roll over in windy conditions.

Secure the tank with guy ropes if high winds are expected.

Pass the guy ropes under and over the tank and fasten them securely to stakes in the ground.

DO NOT attach the guy ropes to the handles.



2-8 OPERATION IN DUSTY OR SNOWY CONDITIONS

Wind may blow dust, sand or snow under one side of the tank. This makes in effect a sloping site which may cause the tank to roll sideways.

Remove all accumulations of dust, sand or snow whenever they occur.

2-9 OPERATION IN SALT WATER AREAS

Salt water causes corrosion. Use fresh water to wash salt deposits off all fittings.

Examine fittings for corrosion after washing.

Report any corrosion to your supervisor.

CHAPTER 3

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

SECTION I LUBRICATION INSTRUCTIONS

Lubrication is not applicable to this equipment.

SECTION II REPAIR PARTS, SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

3-1 COMMON TOOLS AND EQUIPMENT

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

3-2 SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

Organizational Maintenance require no special tools, TMDE, or support equipment for this tank.

3-3 REPAIR PARTS

Repair parts are listed and illustrated in Appendix C of this manual.

SECTION III SERVICE ON RECEIPT OF EQUIPMENT

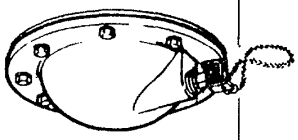
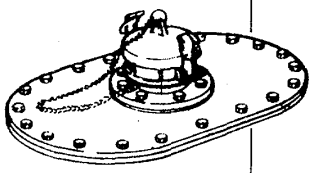
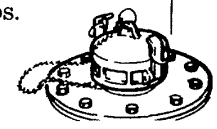
3-4 Various aspects of the service and assembly on receipt of the equipment has been given in SECTION 2.

3-4 SERVICE ON RECEIPT OF EQUIPMENT - CONTINUED

Check the following items for condition and availability.

TABLE 3-1

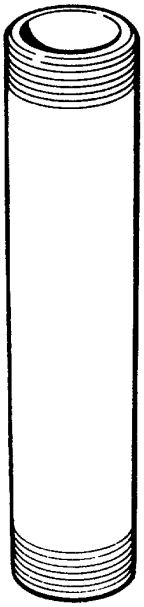
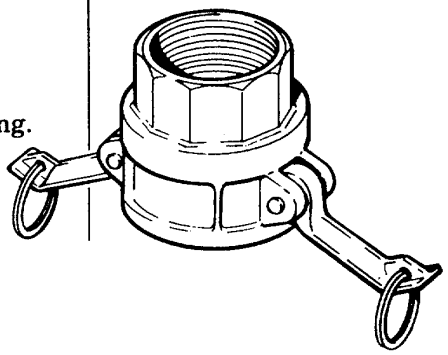
MAJOR ITEMS

NO	LOCATION	ITEM	ACTION
1	Tank Body	Tank Body	Present. No cuts or cracks.
2	Tank Body	Drain Assembly	Assembly is present and sealed by plug. Tighten all bolts to 100 inch lbs. 
3	Tank Body	Filler & Discharge Couplings	Assemblies are both present and sealed by their dust caps. Gasket present inside dust cap. Tighten all bolts to correct torque. 
4	Tank Body	Vent Coupling	Assembly present and sealed by its dust cap. Gasket present inside dust cap. Tighten all bolts to 100 inch lbs. 

3-4 SERVICE ON RECEIPT OF EQUIPMENT - CONTINUED

TABLE 3-1 - CONTINUED

ATTACHMENTS

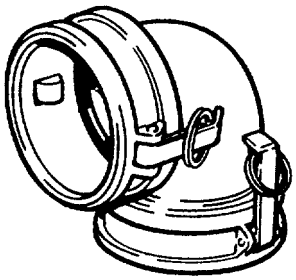
NO	ITEM	ACTION	
5	Relief Cap	Cap is present and flap easily moves. Gasket present inside cap.	
6	Pipe 2 inch O.D.	Present. Threads undamaged.	
7	Coupling half	Present. Thread undamaged. Gasket present inside coupling.	

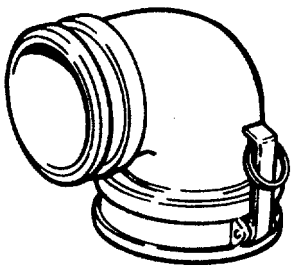
3-4 SERVICE ON RECEIPT OF EQUIPMENT - CONTINUED

TABLE 3-1 - CONTINUED

ATTACHMENTS - CONTINUED

NO	ITEM	ACTION
8	Elbow female/female	Present. 2 gaskets present.
9	Elbow female/male	Present. Gasket present.



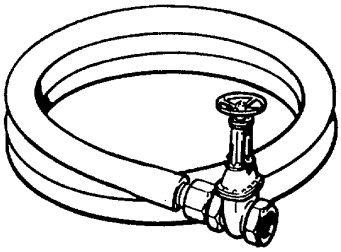


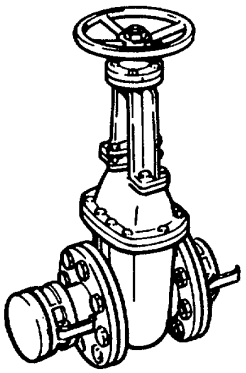
3-4 SERVICE ON RECEIPT OF EQUIPMENT - CONTINUED

TABLE 3-1 - CONTINUED

ACCESSORIES

NO	ITEM	ACTION
10	8 Feet hose with Gate Valve	Present and undamaged.
11	4 inch Gate Valve with 2 coupling halves, 2 x 4 inch flange gaskets, 1 dust cap and 1 dust plug.	Present, undamaged and containing 4 gaskets.
12	16 x 1/4 inch bolts, 1.5 inch long.	Present
	16 x 0.375 inch washers, plain.	Present
	16 x 0.375 inch lock washers.	Present
	16 x 0.375 inch nuts.	Present
13	Commercial Manual.	Present





3-4 SERVICE ON RECEIPT OF EQUIPMENT - CONTINUED

TABLE 3-1 - CONTINUED

REPAIR ITEMS

NO	ITEM	ACTION
13	Boxed Repair Kit composed of:	Present
	2 x Gaskets O Ring	Present
	2 x Gaskets quick disconnect	Present
	Gasket 4 inch flange	Present

SECTION IV ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

Table 3-2 lists the preventive maintenance checks and services which shall be performed at specified intervals by organizational maintenance personnel. It includes and expands upon the preventive maintenance services performed by operator/crew maintenance and included additional services which are allocated to organizational maintenance.

If your equipment does not perform as required, refer to Chapter 3, Section V - Troubleshooting for possible problems.

Report any malfunctions or failures on the proper DA Form 2404, or refer to DA PAM 738-750, The Army Management Maintenance System (TAMMS).

The interval column of your PMCS table tells you when to do a certain check or service.

If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be taken out of service.

Leak definitions shall be classified as follows:-

CLASS I Seepage of water (as indicated by wetness or discoloration) not great enough to form drops.
CLASS II Leaks of water great enough to form drops but not enough to cause drops to drip or run from the faulty area or form puddles.
CLASS III Leaks of water great enough to form drops that fall or run or collect in puddles near the faulty area.

CLASS IV Leaks from under the tank. These will make their presence felt by:-

(i) Dampness of the ground around the tank.
(ii) Volume of water in the tank less than it should be.

CAUTION

- **Equipment operation is allowable with minor leaks, class I or** II. **If they are present have them checked at regular intervals.**
- **Class III leaks on the top and sides of the tank body should be repaired immediately.**
- **Class III leaks on the assemblies and class IV on the body should be repaired as soon as the equipment can be taken out of service.**

TABLE 3-2 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

M - Monthly S - Semi annually

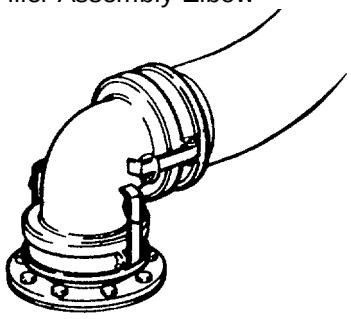
ITEM NO	INTERVAL M	INTERVAL S	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
1	•		Filler Assembly Elbow  Check that filler assembly elbow is properly connected to hose and tank coupling.	Not properly connected
2	•		Check that rigid pipes are not directly connected to the Filler and discharge Assemblies.	Rigid pipes are directly connected to the assemblies.

TABLE 3-2 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES - CONTINUED

M - Monthly S - Semi Annually

ITEM NO	INTERVAL M	INTERVAL S	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
3	●		Hoses to Filler and Discharge Assemblies. Check that hoses are not pulling on the assemblies. The fabric around the assemblies will be strained and may tear. When the tank is full, support hose with a block of wood or styrofoam to prevent straining.	Fabric is strained
4	●		Leaks of class III or class IV are not present from the tank body.	Leak is present
5	●		Leaks of class I or II are not present.	
6	●		Leaks of class III are not present from any coupling or assembly.	Leak is present
7	●		Bolts in Vent Assembly, Discharge Assembly and Filler Assembly are all present.	Any bolts are missing

TABLE 3-2 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES-CONTINUED

M-Monthly **S-Semi Annually**

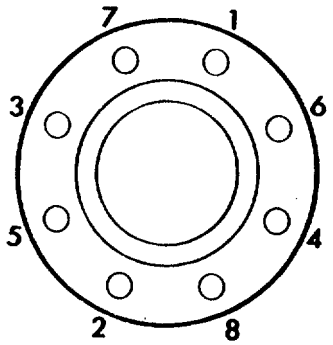
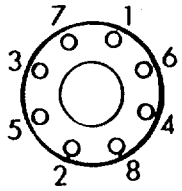
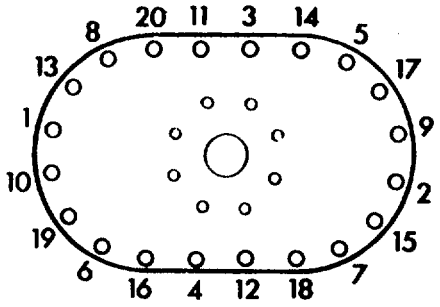
ITEM NO	INTERVAL M	INTERVAL S	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
8	•		Tighten all bolts in Vent Assembly in the sequence shown to 100 inch lbs. *This should be done for the first 3 months only. 	
9	•		Tighten 8 bolts on Discharge Assembly and Filler Assembly in sequence shown to 100 inch lbs. Tighten 20 bolts in sequence shown to 100 inch lbs. *This should be done for the first 3 months only.  	

TABLE 3-2 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES-CONTINUED

M-Monthly **S-Semi Annually**

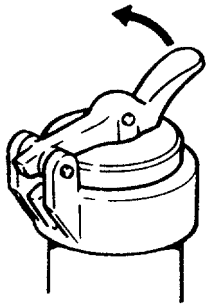
ITEM NO	INTERVAL M	INTERVAL S	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
10	•		Flap of Vent Assembly cap must move freely and is in closed position. 	If flap moves with difficulty or not at all.
11	•		Dust cap of Filler, Discharge and Vent Assemblies are present and their gaskets in place.	
12	•		All 32 handles of the tank are present.	
13	•		Dust or snow has not blown or collected under one side of the tank.	Ground on one side of tank covered by snow or dust.

TABLE 3-2 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES-CONTINUED

M-Monthly **S-Semi Annually**

ITEM NO	INTERVAL M	INTERVAL S	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
14	•		The tank and the surrounding area are in a clean hygenic condition.	
15	•		Check drain valve for damage or leaks.	If class III leak present
16	•		Check drain valve/drain hose joint for leak.	If class III leak present

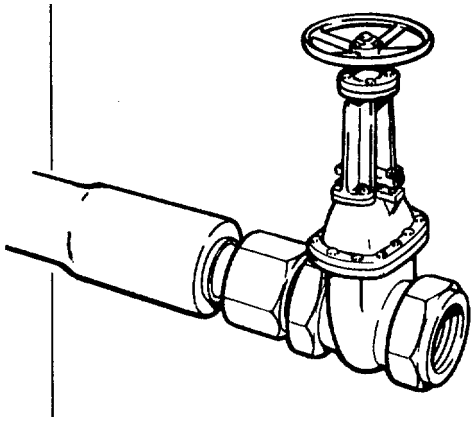


TABLE 3-2 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES-CONTINUED

M-Monthly S-Semi Annually

ITEM NO	INTERVAL M	INTERVAL S	ITEM TO BE INSPECTED PROCEDURE	EQUIPMENT IS NOT READY/AVAILABLE IF:
			NOTE The following inspections and procedures can only be performed when the tank has been taken out of service and drained.	
17		•	Drain Assembly. Visually inspect for leakages. Tighten bolts to 100 inch lbs.	Class III leakages present.
18		•	Check join between Drain Assembly and hose for tightness and evidence of leaks.	Class III leakage present.
19		•	Repair hole in ground and/or sand bedding to hold Drain Assembly and drain hose.	
20		•	Check drain hose for damage, cracks and leaks.	Hose not in good repair.

SECTION V ORGANIZATIONAL TROUBLESHOOTING

3-5 TROUBLESHOOTING

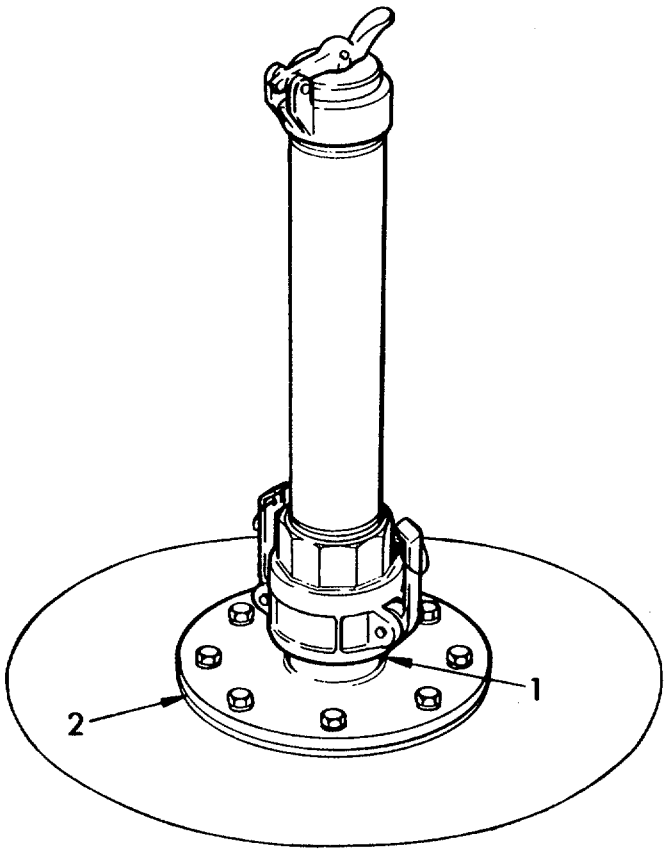
The water tank and its assemblies are simple systems.

They are therefore trouble free except for:-

- Water leaks from fitting assemblies
- Water leaks from tank body
  See Section IV for definition of leaks.

ORGANIZATIONAL TROUBLESHOOTING-CONTINUED

3-6 WATER LEAKS FROM VENT ASSEMBLY



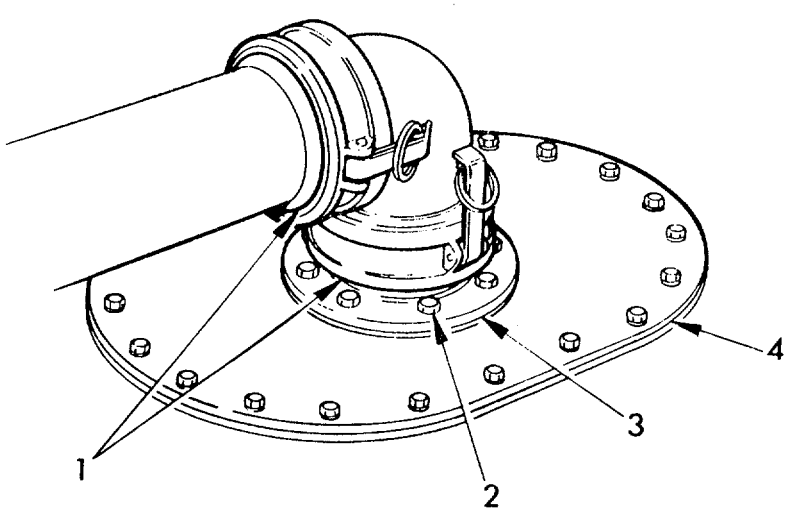
1. Leak between coupling half, female threaded and coupling half, male flanged.
   Replace Gasket

2. Leak from between coupling half male flanged and tank body.
   - Torque down bolts to 100 inch lbs.
   - If not effective replace 'O' ring gasket.

SEE PARAGRAPH 3-13 FOR MAINTENANCE OF VENT ASSEMBLY.

ORGANIZATIONAL TROUBLESHOOTING-CONTINUED

3-7 WATER LEAKS FROM FILLER ASSEMBLY



1. Leaks from between female/female elbow and adjacent metal:
   Replace gasket in elbow.

2. Leaks from around bolt holes:
   Replace thread seals and cork composition gaskets.

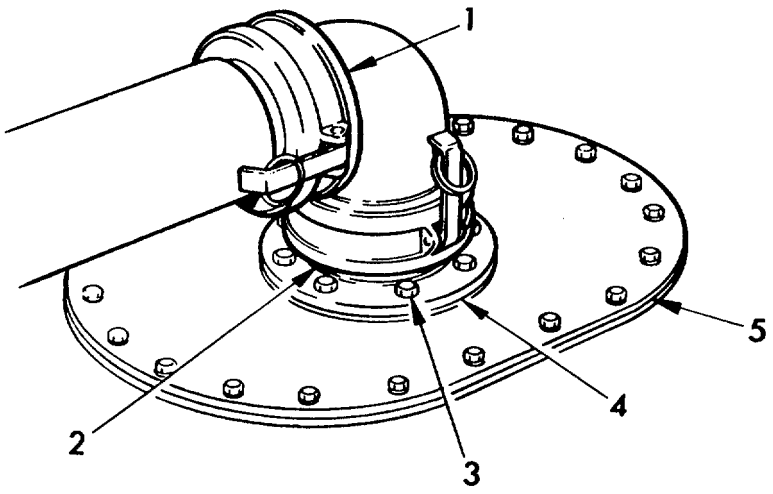
3. Leaks from between coupling half and oval closure plate:
   - Torque down 8 bolts to 100 inch lbs.
   - If not effective replace thread seals and cork composition gaskets.

4. Leaks from between oval closure plate and tank body:
   - Torque down 20 bolts to 100 inch lbs.
   - If 'O' ring gasket does not seal, replace.

SEE PARAGRAPH 3-14 FOR MAINTENANCE OF FILLER ASSEMBLY

ORGANIZATIONAL TROUBLESHOOTING-CONTINUED

3-8 WATER LEAKS FROM DISCHARGE ASSEMBLY



1. Leaks from between male/female elbow and hose:
   Replace gasket in hose metal end.

2. Leaks between male/female elbow and coupling half:
   Replace gasket in elbow.

3. Leaks from around bolt holes:
   Replace thread seals and cork composition gaskets.

4. Leaks from between coupling half and oval closure plate:
   - Torque down 8 bolts to 100 inch lbs.
   - If not effective replace thread seals and cork composition gaskets.

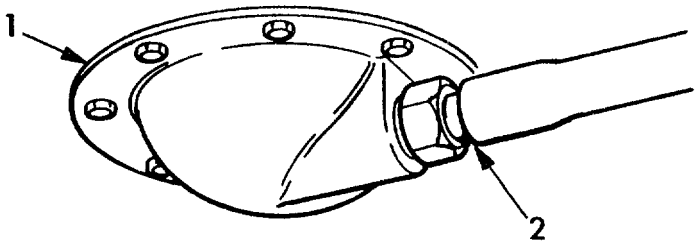
5. Leaks from between oval closure plate and tank body:
   - Torque down 20 bolts to 100 inch lbs.
   - If not effective replace '0' ring gasket.

SEE PARAGRAPH 3-15 FOR MAINTENANCE OF DISCHARGE ASSEMBLY

ORGANIZATIONAL TROUBLESHOOTING-CONTINUED

3-9 WATER LEAKS FROM DRAIN ASSEMBLY

THIS ASSEMBLY CAN ONLY BE EXAMINED AND REPAIRED WHEN THE TANK IS EMPTY



1. Leaks from between drain fitting and tank body:
   - Torque bolts to 100 inch lbs.
   - If not effective replace 'O' ring gasket.

2. Leaks from between drain fitting and drain hose:
   - Tighten.
   - If not effective unscrew hose. Clean both threads.
   - Screw back into place.

SEE PARAGRAPH 3-16 FOR MAINTENANCE OF DRAIN ASSEMBLY

ORGANIZATIONAL TROUBLESHOOTING-CONTINUED

3-10 WATER LEAKS FROM TANK BODY

Damage to the fabric which causes water to leak from the tank is classed as follows:

Class I Holes up to 2 inch length.

Class II Tears up to 5 inch in length.

Class III Tears or holes larger than class I and II.

Damage of class III must be reported to Direct Support Maintenance.

SEE PARAGRAPH 3-18 FOR MAINTENANCE OF TANK BODY.

SECTION VI ORGANIZATIONAL MAINTENANCE PROCEDURES

3-11 GENERAL INSTRUCTIONS

Most maintenance instructions in this section will list resources required and equipment condition for the start of the procedure. Note the following:-

- Resources required are not listed unless they apply to the procedure.
- Personnel required are listed only if the task requires more than one. If PERSONNEL is not listed, it means one person can do the task.
- Certain tasks require that the tank is emptied before work is started. Check EQUIPMENT CONDITION before starting.

WARNING

- **To avoid contamination, hands, tools and replacement parts must be clean. Do not permit bolts, washers, gaskets, small items or foreign matter to fall into the tank.**

CAUTION

- **Do not walk unnecessarily on the tank. The fabric of the tank may cut or abrade. Walk on the tank wearing soft-soled shoes, which have been wiped clean of all abrasive materials.**

3-12 WATER TANK INSPECTION

Leak definitions shall be as follows:-

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

CLASS II Leaks of water great enough to form drops but not enough to cause drops to drip or run from the faulty area.

CLASS III Leaks of water great enough to form drops that fall, run from or collect in puddles near the faulty area.

Class IV Leaks from under tank body. Indicated by:-

- Dampness of the ground around the tank.
- Volume of water in the tank is lower than it should be.

TABLE 3-3 ORGANIZATIONAL MAINTENANCE INSPECTION

COMPONENT	ACCEPTABLE	REPARABLE	NOT REPARABLE
Vent Assembly	No leaks	Loose bolts	Threads stripped
Vent Assembly	No leaks	Deformed or missing gaskets	Damaged fittings
Vent Assembly flap	Vent cap moves freely		Jammed or does not move freely
Filler Assembly	Female/female elbow. No cracks or holes	None	Damaged fittings
Filler Assembly	No leaks	Loose bolts	Threads stripped
Filler Assembly	No leaks	Deformed or missing gaskets or thread seals	Damaged fittings
Discharge Assembly	Female/male elbow. No cracks or holes.	None	Damaged fittings
Discharge Assembly	No leaks	Loose bolts	Threads stripped
Discharge Assembly	No leaks	Deformed or missing gaskets or thread seals	Damaged fittings
Drain Assembly	No leaks	Loose bolts	Threads stripped
Drain Assembly	No leaks	Deformed or missing gasket	Damaged fittings

TABLE 3-3 ORGANIZATIONAL MAINTENANCE INSPECTION-CONTINUED

COMPONENT	ACCEPTABLE	REPARABLE	NOT REPARABLE
Tank body	No leaks	Cuts up to 5 inches long away from assemblies and seams	Cuts greater than 5 inches long and cuts near assemblies and seams
Drain Hose	No leaks	None	
4 inch Gate Valve Assembly	No leaks	Loose bolts	Threads stripped
4 inch Gate Valve Assembly	No leaks	Deformed or missing gaskets	Damaged fittings

3-13 VENT ASSEMBLY

This task covers:-

a. Removal
b. Inspection
c. Cleaning
d. Installation

INITIAL SETUP

Test Equipment

None

Tools

Kit, general mechanic
NSN 5180-00-177-7033
Strap Wrench
End Wrench 2 3/4 inch
Socket, 7/16 inch and handle
Torque Wrench 200 inch lbs.

Equipment Condition

If the male, flanged, coupling half, has to be removed, the water must be drained from the tank before work can begin.

Materials/Parts

Gasket, Coupling
(Appendix C, fig 1,)

Gasket, Coupling
(Appendix C, fig 1,)

Gasket, 2 inch
(Appendix C, fig 1,)

Gasket 'O' ring
(Appendix C, fig 1,)

Washer, Flat
(Appendix C, fig 2,)

3-13 VENT ASSEMBLY-CONTINUED

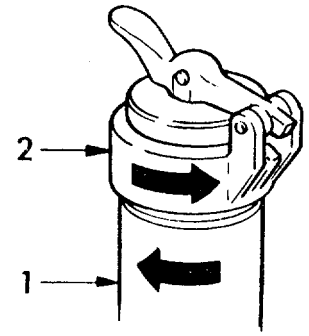
ITEM	ACTION	REMARKS

REMOVAL

1. Relief Cap

Hold the 2 inch pipe (1) in one hand and unscrew the relief' cap (2) with the other.

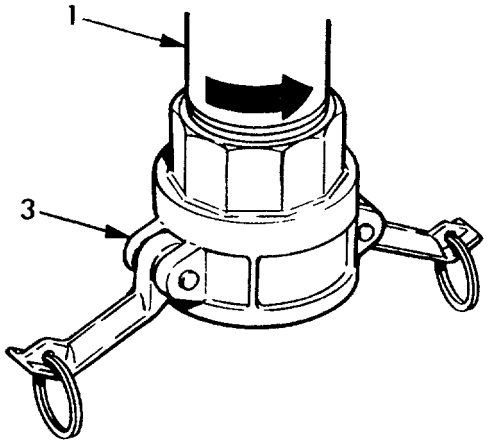
If the joint is tight, hold the 2 inch pipe with a strap wrench.



2. 2 inch Pipe

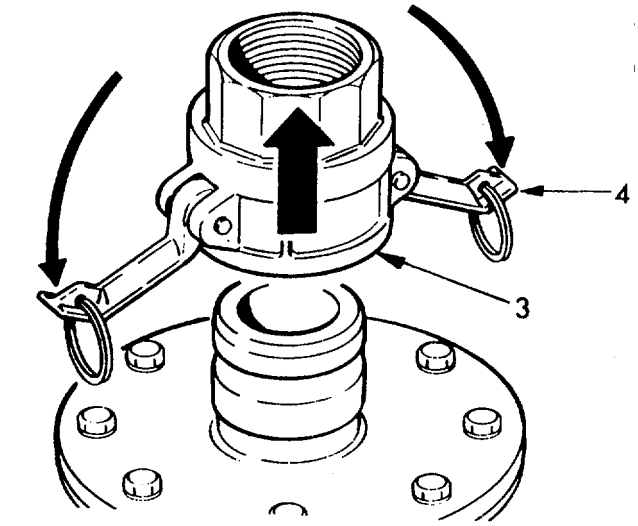
Hold the coupling half, (3) female threaded in one hand and the 2 inch pipe with the other and unscrew the 2 inch pipe.

If the joint is tight, use a 2 3/4 inch endwrench on the coupling half and a strap wrench on the pipe.

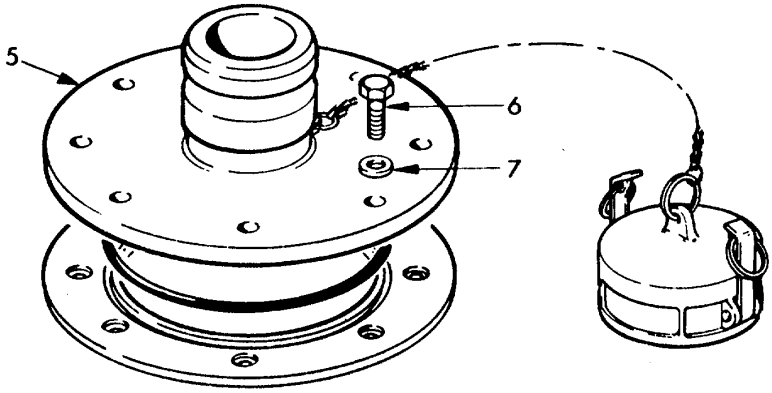


3-13 VENT ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
3. Coupling half, female threaded	Move the two Camlock arms (4) down and lift the coupling half (3) clear.	This gives access to the 2 inch gasket inside the coupling.



4. Coupling half, quick disconnect, male flanged and dust cap.	Use 7/16 inch socket and handle to remove eight bolts (6) and eight washers (7) holding the coupling half (5) to the compression ring on the tank.	



Lift off the coupling half (5) Remove the 'O' ring gasket from the compression ring and discard.

3-13 VENT ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSPECTION		
1. Relief Cap	Inspect flap for freedom of movement.	Replace if freedom of movement is restricted.
	Inspect gasket.	Replace if damaged.
	Inspect thread.	Replace cap if damaged.
2. 2 inch Pipe	Examine for damaged threads.	Replace if damaged.
3. Coupling half, female threaded	Examine thread for damage.	Replace if damaged.
	Examine camlock arms	Replace if damaged or missing.
	Examine gasket.	Replace if damaged or has been leaking.
4. Coupling half, quick disconnect, male flanged.	Examine for distortion of metal or damage.	Replace if damaged or distorted.
5. 'O' Ring Gasket	Replace	
6. Bolts	Examine for damaged thread	Replace if damaged.
	Examine for damaged head	Replace if damaged.

3-13 VENT ASSEMBLY-CONTINUED

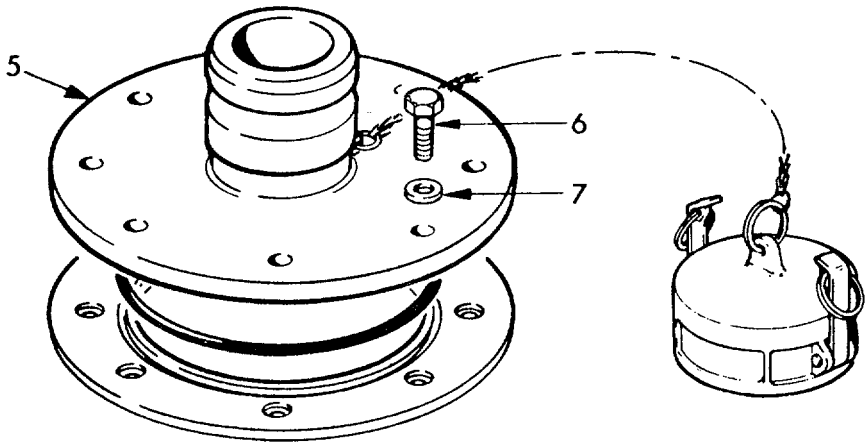
ITEM	ACTION	REMARKS
INSPECTION-CONTINUED		
7. Washers	Examine for damage	Replace if damaged.
8. Dust Cap	Examine for damage	Replace if damaged.
	Examine gasket	Replace if damaged.
CLEANING		
All items except bolts and washers.	If any item is particularly dirty wash with soap and water. Rinse all items in clean water.	ALL ITEMS WHICH COME INTO CONTACT WITH THE DRINKING WATER MUST BE CLEAN.
INSTALLATION		
1. 'O' Ring Gasket	Smear the new gasket with a THIN film of petroleum jelly. Place it in the groove of the compression ring.	The petroleum jelly helps the gasket to bed down evenly.
2. Coupling half, quick disconnect, male flanged, and dust cap.	Align the holes in the coupling half with the holes in the compression ring of the tank. Coat the bolts and washers with a thin film of epoxy-polyamide primer coating.	The epoxy-polyamide primer prevents electrolytic corrosion.

3-13 VENT ASSEMBLY-CONTINUED

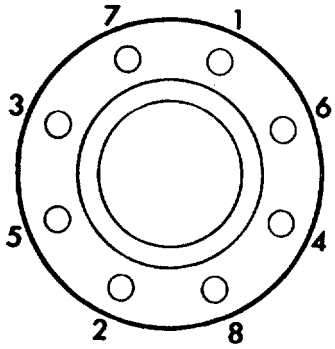
ITEM	ACTION	REMARKS

INSTALLATION-CONTINUED

2-Continued



Replace washers (7) and bolts (6). Tighten the bolts evenly but finger tight only.



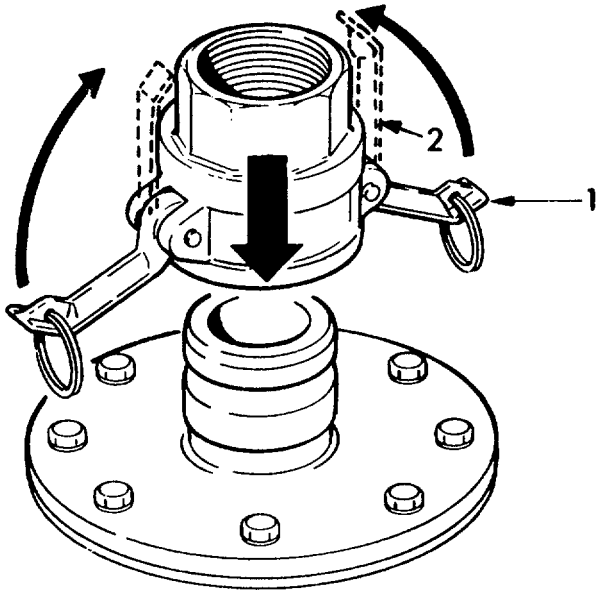
If the bolts are not tightened evenly the coupling will not be parallel to the compression rings and water will leak from the joint.

Torque the bolts down to 40 in.-lbs. in the sequence shown. Torque the bolts down to 100 in.-lbs. in the sequence shown.

DO NOT OVER TIGHTEN.

3-13 VENT ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION-CONTINUED		
3. Coupling half, female threaded.	Move the camlock arms to the open position (1). Place on the flanged coupling. Move the arms to the closed position (2).	
4. 2 inch pipe	Screw in place **HAND TIGHT ONLY**	
5. Relief Cap	Screw in place **HAND TIGHT ONLY**	Check the flap moves easily. Flap must rest in the down position.
6. Completed Vent Assembly	Check for absence of leaks when tank is refilled with water.	



3-14 FILLER ASSEMBLY

ITEM	ACTION	REMARKS

This task covers:-

a. Removal
b. Inspection
c. Cleaning
d. Installation

INITIAL SETUP

Test Equipment

None

Tools

Tool Kit, general mechanic
NSN 5180-00-177-7033
Socket 7/16 inch and handle
Socket 9/16 inch and handle
End Wrench 5/8 inch
Torque Wrench 200 inch lbs.

Equipment Condition

Water must be drained from the tank before this item is disassembled.

Materials/Parts

Gaskets coupling half
(Appendix C, fig 2,)

Gasket coupling half
(Appendix C, fig 2 ,)

'0' Ring Gasket
(Appendix C, fig 2,)

Thread seal,
(Appendix C, fig 2,)

Cork gaskets
(Appendix C, fig 2,)

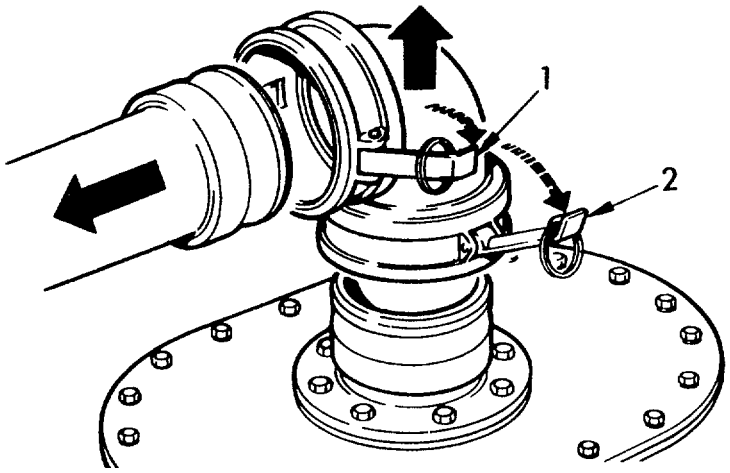
3-14 FILLER ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS

REMOVAL

1. Elbow, female/female

Move the camlock arms (1) to the open position. Pull the hose from the elbow.

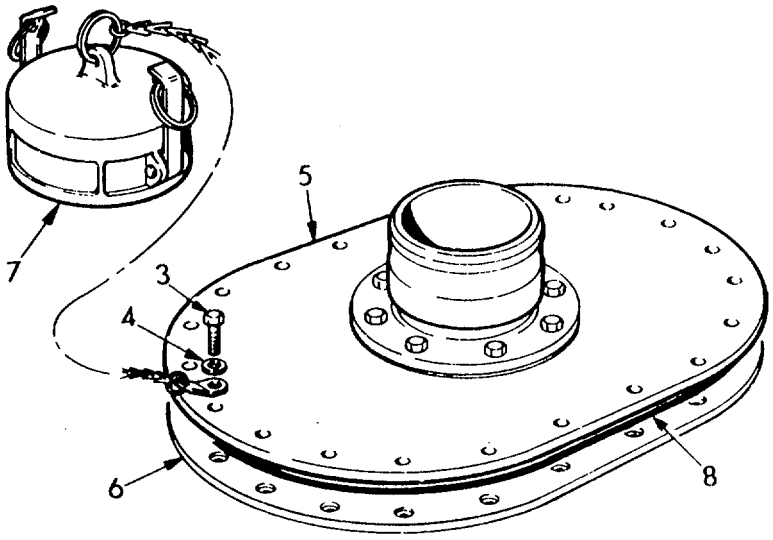


Move the arms (2) to the open position. Pull the elbow from the coupling half.

2. Coupling Assembly

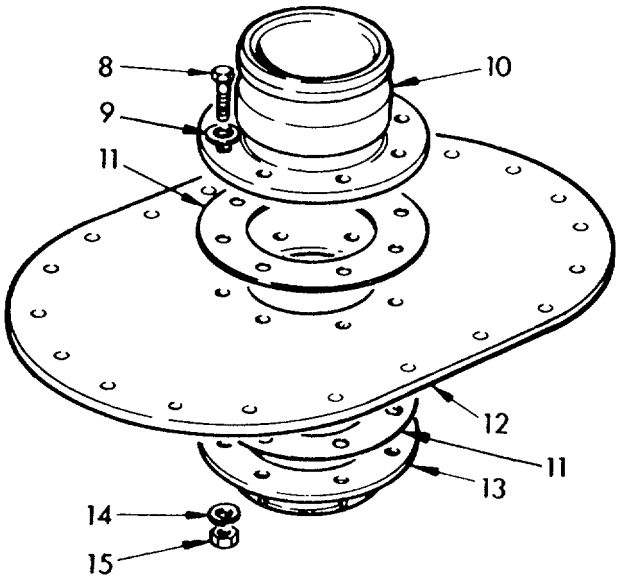
Use 7/16 inch socket and handle to remove 20 bolts (3) and 20 washers (4).

These bolts hold the coupling assembly (5) to the compression ring (6) on the tank.



3-14 FILLER ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
REMOVAL-CONTINUED		
2. Coupling Assembly-cont'd	Lift off the coupling assembly. Remove 'O' ring gasket (8) and discard.	
3. Coupling Assembly	Hold the bolt (8) with the 5/8 inch end wrench. Use the 9/16 inch socket and handle to unscrew nut (15).	Thread seal (9) and lock washer (14) are removed at same time.



	Continue for the other seven nuts and bolts. Discard gaskets.	The flanged coupling (10), gaskets (11), oval plate (12) and suction stub (13) separate as shown in the illustration.

3-14 FILLER ASSEMBLY-CONTINUED

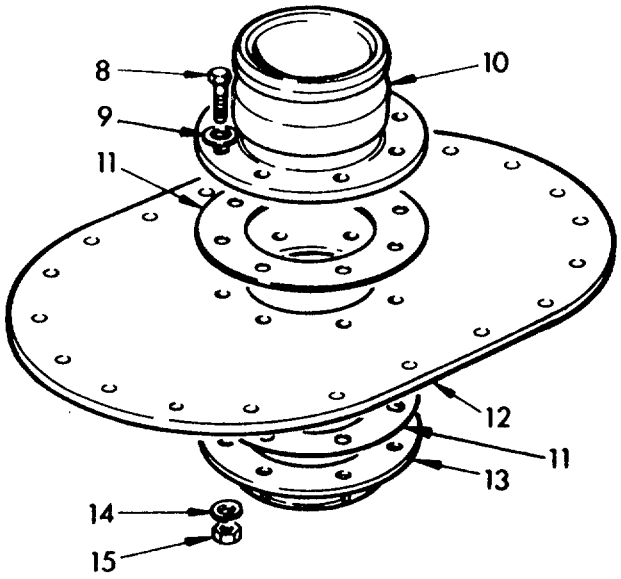
ITEM	ACTION	REMARKS
INSPECTION		
	WARNING **Personal injury could occur if filling assembly coupling is not tight before filling. Under pressure, the coupling could fly apart.**	
1. Elbow, female/female	Examine mating faces for damage or wear.	Replace if faces damaged.
	Examine elbow for distortions.	Replace if elbow distorted.
	Examine for cracks.	Replace if cracked.
	Examine camlock arms for damage or wear.	Replace if damaged or worn.
	Examine gaskets.	Replace if distorted or cut.
2. Bolts 0.88 inch	Examine head and thread for damage or corrosion.	Replace if damaged or corroded.
3. Washers 1/4 inch	Examine for damage.	Replace if damaged.
4. 'O' ring gasket		Replace
5. Dust cap	Examine for damage.	Replace if damaged.
	Examine gasket.	Replace if damaged.

3-14 FILLER ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSPECTION-CONTINUED		
6. Coupling half	Examine mating faces for damage.	Replace if damaged.
	Examine for cracks	Replace if damaged.
7. Cork composition gaskets		Replace
8. Oval closure plate	Examine for distortion or damage.	Replace if distorted or damaged.
9. Suction stub	Examine for distortion or cracks.	Replace if cracked or distorted.
10. Bolts 1.5 inch	Examine head and thread for damage or corrosion.	Replace if damaged or corroded.
11. Thread seals		Replace
12. Lock washers	Examine for damage	Replace if damaged
13. Nuts	Examine for damage	Replace if damaged
CLEANING		
All items except 0.88 inch bolts, 1/4 inch washers and dust cap.	If any item is dirty wash with soap and water. Rinse all items in clean water.	ALL ITEMS WHICH COME INTO CONTACT WITH THE DRINKING WATER MUST BE CLEAN.

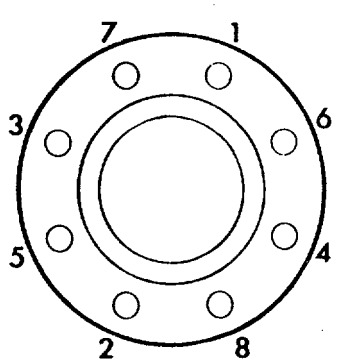
3-14 FILLER ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION		
1. Coupling Assembly	Place the coupling half (10), the composition gaskets (11), oval closure plate (12) and suction stub (13) so that their holes are aligned. Coat the bolts (8), washers (14) and nuts (15) with a thin film of epoxy-polyamide primer coating.	The epoxy-polyamide primer prevents electrolytic corrosion.



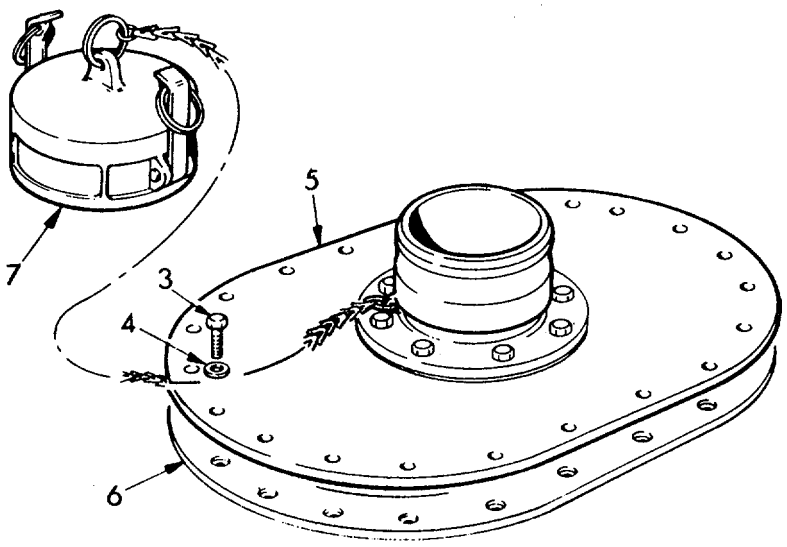
Replace a 1.5 inch bolt (8) with thread seal (9) through one of the holes.
Put the lock washer (14) on the bolt.
Put the nut (15) on the bolt a few turns only.
Replace the other bolts, seals, washers and nuts.
Tighten all bolts finger tight only.

3-14 FILLER ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION-CONTINUED		
		
	Put the 5/8 inch end wrench on a bolt. Torque the nuts down to 40 inch lbs. in the sequence shown. Torque the nuts down to 100 inch lbs. in the same sequence. through. **DO NOT OVER TIGHTEN**	If the bolts are not tightened evenly and in the correct sequence, the parts will not be parallel and water will leak
2. 'O' Ring Gasket	Smear the new gasket with a THIN film of petroleum jelly. Place it in the groove of the compression ring.	The petroleum jelly helps the gasket to bed down evenly.

3-14 FILLER ASSEMBLY-CONTINUED

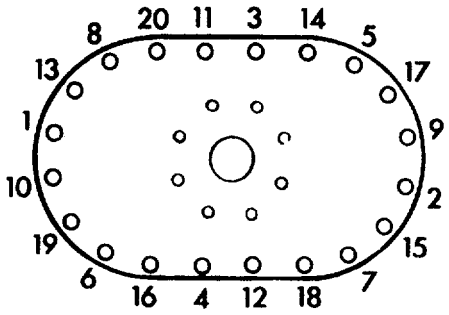
ITEM	ACTION	REMARKS
INSTALLATION-CONTINUED		
3. Coupling Assembly Installation	Place the coupling assembly (5) over the compression fitting in the tank body. Coat the bolts (3) and washers (4) with a film of epoxy-polyamide primer coating. Align the holes of the closure plate with the holes in the compression ring. Replace the washers (4).	The epoxy-polyamide primer prevents electrolytic corrosion.



Replace the bolts (3). Tighten down evenly.

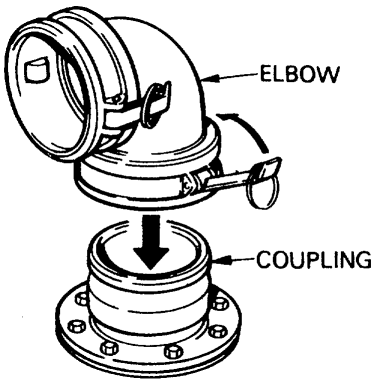
FINGER TIGHT ONLY.

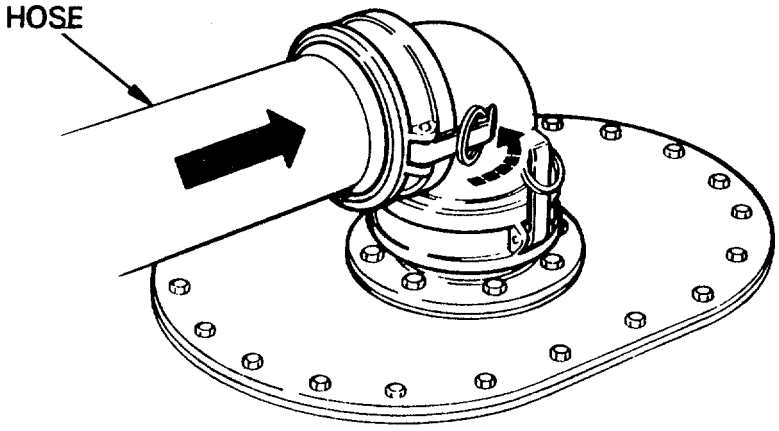
3-14 FILLER ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION-CONTINUED		
3. Coupling Assembly Installation-Cont'd		
	Torque the bolts down to 40 inch lbs. in the sequence shown. Torque the bolts down to 100 inch lbs. in the same sequence. **DO NOT OVER TIGHTEN**	If the bolts are not tightened down evenly the coupling will not be parallel with the compression ring and water will leak from the joint.

3-14 FILLER ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION-CONTINUED		
4. Elbow female/female	Place the elbow on the coupling assembly. Point the elbow in the direction the hose lies.	THESE UNITS MUST BE SECURELY COUPLED TOGETHER.
	Push the camlock arms up to lock the elbow in position.	
5. Filler Hose	Push the filler hose coupling into the elbow. Push the camlock arms into position.	THESE UNITS MUST BE SECURELY COUPLED TOGETHER.
6. Completed Assembly	Check for absence of leaks when tank is refilling with water.	





3-15 DISCHARGE ASSEMBLY

This task covers:-

a. Removal
b. Inspection
c. Cleaning
d. Installation

INITIAL SETUP

Test Equipment

None

Tools

Tool Kit, general mechanical
NSN 5180-00-177-7033
Socket 7/16 inch and handle
Socket 9/16 inch and handle
End wrench 5/8 inch
Torque Wrench 200 inch lbs.

Equipment Condition

Water must be drained from the tank before this item is disassembled.

Materials/Parts

Gasket, coupling half
(Appendix C, fig 3,)

Gasket, coupling half
(Appendix C, fig 3,)

'O' Ring gasket
(Appendix C, fig 3,)

Thread seal,
(Appendix C, fig 3,)

Cork gaskets
(Appendix C, fig 3,)

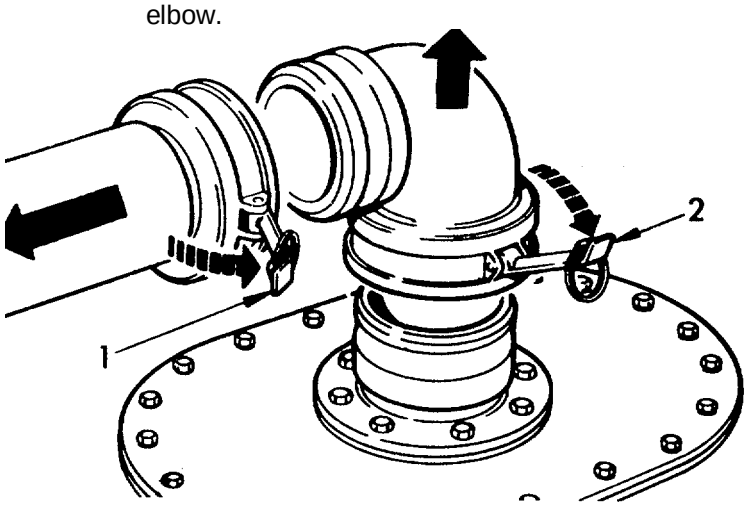
3-15 DISCHARGE ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS

REMOVAL

1. Elbow, female/male

Move the arms (1) to the open position. Pull the hose from the elbow.

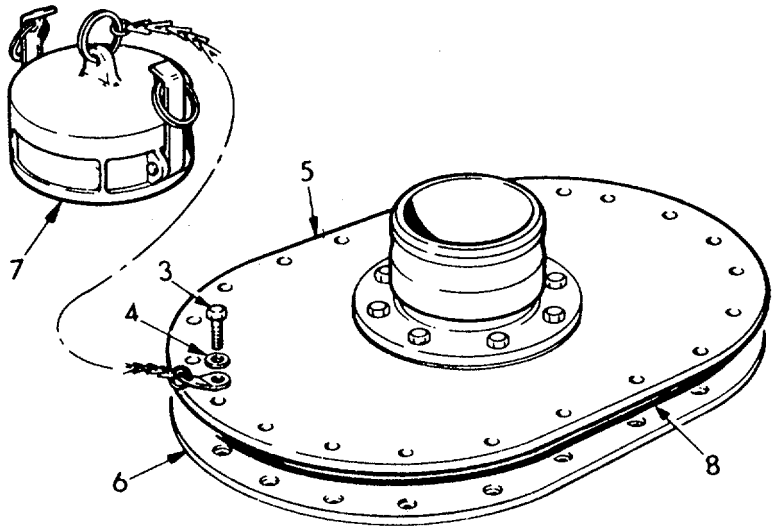


Move the arms (2) to the open position. Pull the elbow from the coupling half.

2. Coupling Assembly removal

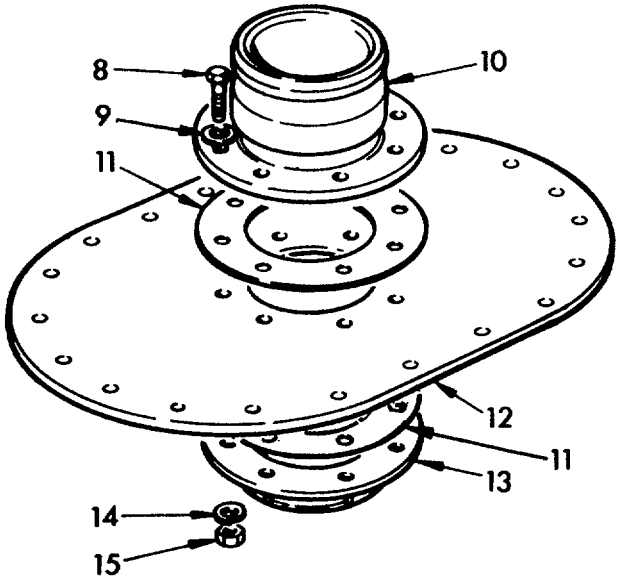
Use 7/16 inch socket and handle to remove 20 bolts (3) and 20 washers (4).

These bolts hold the coupling assembly (5) to the compression ring (6) on the tank.



3-15 DISCHARGE ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
REMOVAL-CONTINUED		
2. Coupling Assembly removal-cont'd	Lift off the coupling assembly. Remove the 'O' ring gasket (8) and discard.	
3. Coupling Assembly	Hold the nut (15) with the 5/8 inch end wrench. Use the 9/16 inch socket and handle to unscrew bolt (8).	Thread seal (9) and helical lock washer (14) are removed at the same time.



	Continue for the other seven nuts and bolts. Discard gaskets.	The flanged coupling (10), gaskets (11), oval plate (12) and suction stub (13) separate.

3-15 DISCHARGE ASSEMBLY-CONTINUED

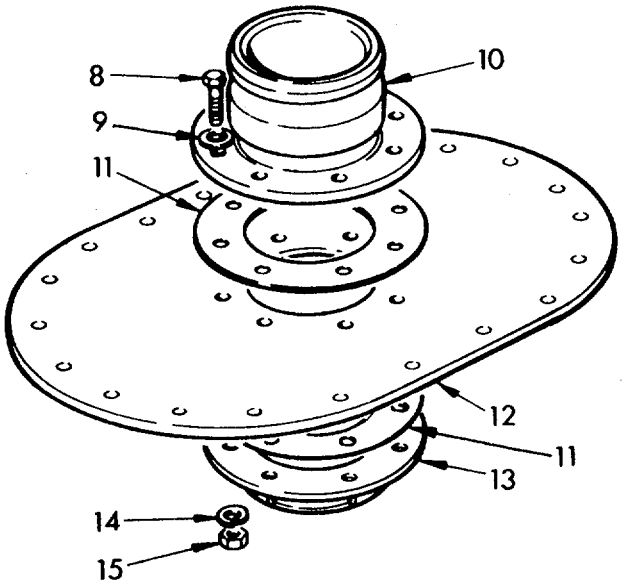
ITEM	ACTION	REMARKS
INSPECTION		
1. Elbow, female/male	Examine mating faces for damage or wear.	Replace if faces damaged or worn.
	Examine elbow for distortions.	Replace if elbow distorted.
	Examine for cracks.	Replace if cracked.
	Examine camlock arms for damage or wear.	Replace if damaged or worn.
	Examine gaskets.	Replace if distorted or cut.
2. Bolts 0.88 inch	Examine head and thread for damage or corrosion.	Replace if damaged or corroded.
3. Washers 1/4 inch	Examine for damage.	Replace if damaged.
4. 'O' ring gasket		Replace
5. Dust cap	Examine for damage.	Replace if damaged.
	Examine gasket.	Replace if damaged.
6. Coupling half	Examine mating faces for damage.	Replace if damaged.
	Examine for cracks.	Replace if cracked.
7. Cork composition gasket		Replace.

3-15 DISCHARGE ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSPECTION-CONTINUED		
8. Oval Closure Plate	Examine for distortion or damage.	Replace if distorted or damaged.
9. Suction Stub	Examine for distortion or cracks. distorted.	Replace if cracked or
10. Bolts 1.5 inch	Examine head and thread for damage or corrosion.	Replace if damaged.
11. Thread seals		Replace
12. Lock Washers	Examine for damage.	Replace if damaged
13. Nuts	Examine for damage	Replace if damaged
CLEANING		
All items except 1/4 inch bolts, 1/4 inch washers and dust cap.	If any item is dirty wash with soap and water. Rinse all items in clean water.	ALL ITEMS WHICH COME INTO CONTACT WITH THE DRINKING WATER MUST BE CLEAN.

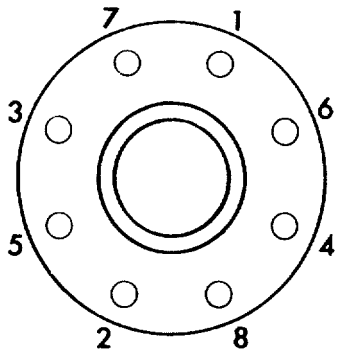
3-15 DISCHARGE ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION		
1. Coupling Assembly	Place the coupling half (10), the composition gaskets (11), oval closure plate (12) and suction stub (13) so that their holes are aligned. Coat the bolts (8), washers (14) and nuts (15) with a thin film of epoxy-polyamide primer coating.	The epoxy-polyamide primer prevents electrolytic corrosion.



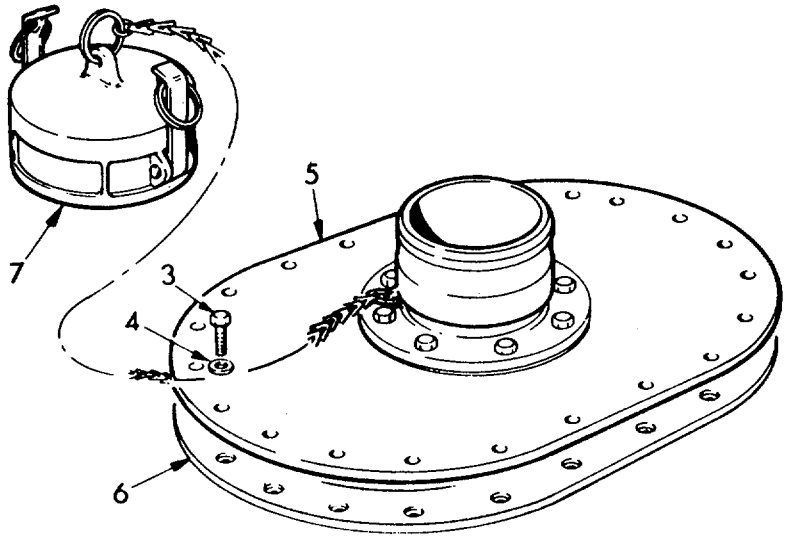
Replace a 1.5 inch bolt (8) with thread seal (9) through one of the holes.
Put the lock washer (14) on the bolt.
Put the nut (15) on the bolt a few turns only.
Replace the other bolts, seals, washers and nuts.
Tighten all bolts.
FINGER TIGHT ONLY

3-15 DISCHARGE ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION-CONTINUED		
		
	Put the 5/8 inch end wrench on a bolt. Torque the nuts down to 40 inch lbs. in the sequence shown. Torque the bolts down to 100 inch lbs. in the same sequence. through. **DO NOT OVER TIGHTEN**	If the bolts are not tightened evenly and in the correct sequence, the parts will not lie parallel and water will leak
2. 'O' Ring Gasket	Smear the new gasket with a THIN film of petroleum jelly. Place it in the groove of the compression ring.	The petroleum jelly helps the gasket to bed down evenly.

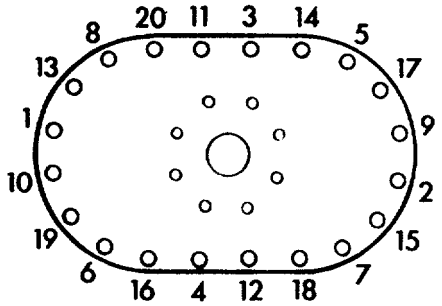
3-15 DISCHARGE ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION-CONTINUED		
3. Coupling Assembly Installation	Place the coupling assembly (5) over the compression ring in the tank body. Coat the bolts (3) and washers (4) with a thin film of epoxy-polyamide primer coating. Align the holes in the compression ring. Replace the washers (4).	The epoxy-polyamide primer prevents electrolytic corrosion.



Replace the bolts (3). Tighten down evenly.
FINGER TIGHT ONLY.

3-15 DISCHARGE ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS
INSTALLATION-CONTINUED		
3. Coupling Assembly Installation-Cont'd	 Torque the bolts down to 40 inch lbs. in the sequence shown. Torque the bolts down to-100 inch lbs. in the same sequence. **DO NOT OVER TIGHTEN**	If the bolts are not tightened evenly the coupling will not be parallel with the compression ring and water will leak from the joint.

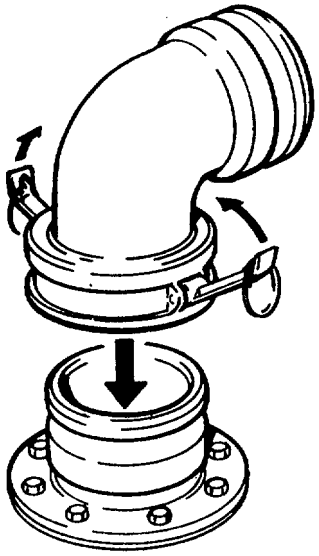
3-15 DISCHARGE ASSEMBLY-CONTINUED

ITEM	ACTION	REMARKS

INSTALLATION-CONTINUED

4. Elbow female/male

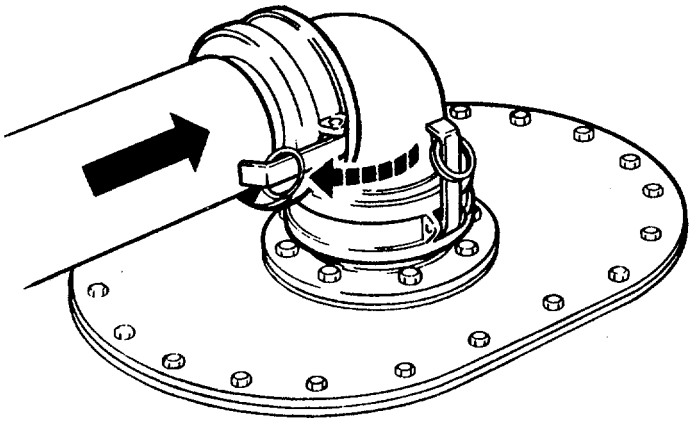
Place the elbow on the coupling assembly. Point the elbow in the direction the discharge hose lies.



Push the camlock arms up to lock the elbow in position.

5. Filler Hose

Push the filler hose coupling onto the elbow. Push the camlock arms into position.



6. Completed Assembly

Check for absence of leaks when tank is delivering water.

3-16 DRAIN ASSEMBLY AND DRAIN HOSE

This task covers:-

a. Removal
b. Inspection
c. Cleaning
d. Installation

INITIAL SETUP

Test Equipment

None

Materials/Parts

'O" Ring Gasket
(Appendix C, fig 4,)

Tools

Tool Kit, general mechanic
NSN 5180-00-177-7033
Socket 7/16 inch and handle
End wrench 7/8 inch
Screwdriver-medium
Torque Wrench 200 inch lbs.
Shovel

Equipment Condition

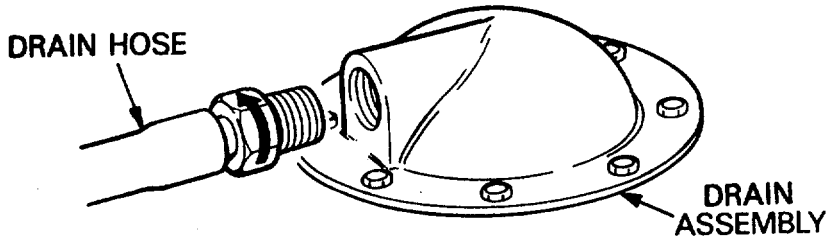
Water must be drained from the tank before this item can be disassembled.

Personnel-3

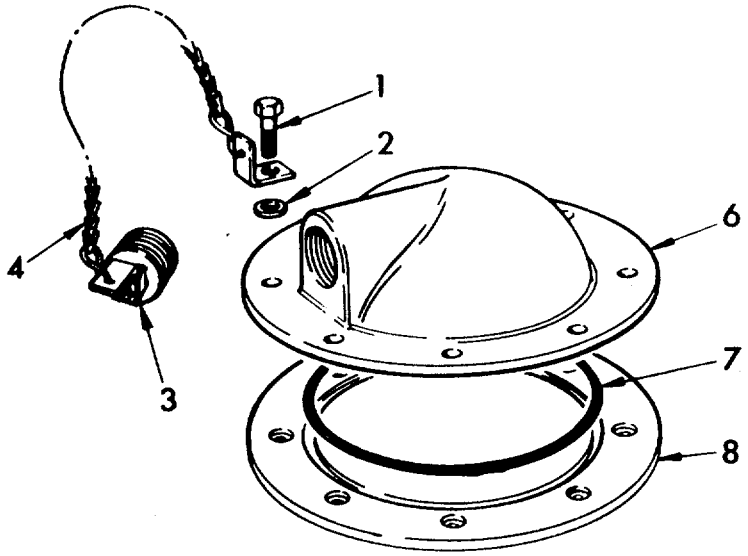
2 will assist in turning over the corner of the tank.

3-16 DRAIN ASSEMBLY AND DRAIN HOSE - CONTINUED

ITEM	ACTION	REMARKS
REMOVAL		
	Pull back the end of the tank using the handles.	This will expose the drain assembly. DO NOT ATTACH A MECHANICAL PULLING DEVICE TO THE HANDLES.
1. Drain hose	Using a 7/8 inch end wrench unscrew the drain hose.	



2. Drain fitting and plug	Use 7/16 inch socket and handle to remove eight bolts (1) and eight washers (2).	The plug (3) with the chain (4), become detached.

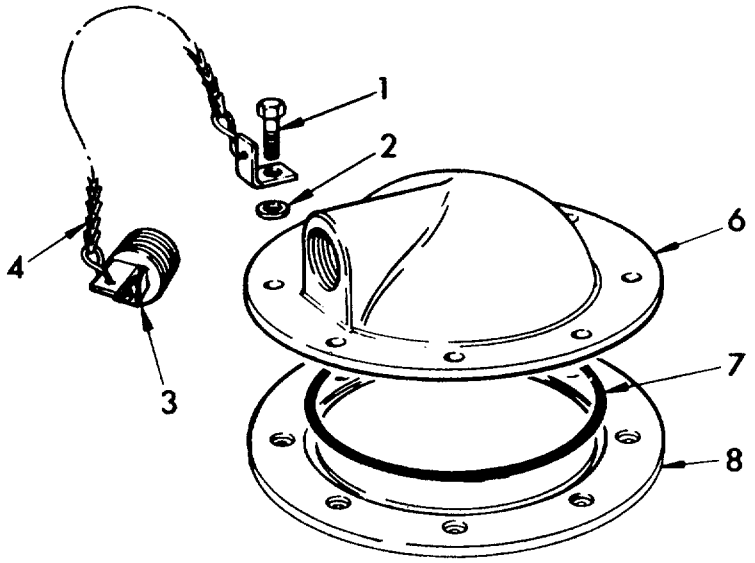


3-16 DRAIN ASSEMBLY AND DRAIN HOSE - CONTINUED

ITEM	ACTION	REMARKS
2. Drain fitting and plug - Cont'd		
	Lift off the drain assembly (6). Lift the 'O' ring gasket (7) from the compression ring and discard.	
INSPECTION		
1. Drain fitting	Examine for distortion of metal or damage.	Replace if distorted or damaged.
	Examine thread which holds drain hose.	Replace fitting if damaged.
2. Plug and chain	Examine for damage of both parts.	Replace if either damaged.
3. Bolts	Examine for damaged thread.	Replace if damaged.
	Examine for damaged head.	Replace if damaged.
4. Washers	Examine for damage.	Replace if damaged.
5. 'O' Ring Gasket		Replace
6. Drain hose	Examine for damaged thread.	Replace if damaged.
	Examine hose for cracks or holes.	Replace if any present.

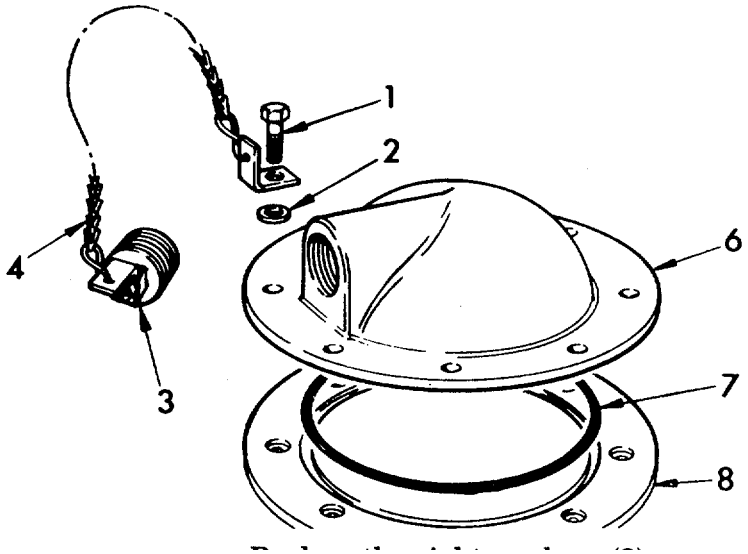
3-16 DRAIN ASSEMBLY AND DRAIN HOSE - CONTINUED

ITEM	ACTION	REMARKS
CLEANING		
Drain fitting	Wash with soap and water. Rinse in clean water.	ALL ITEMS WHICH COME INTO CONTACT WITH THE DRINKING WATER MUST BE CLEAN.
INSTALLATION		
1. 'O' Ring Gasket	Smear the new gasket (7) with thin film of petroleum jelly. Place it in the groove of the compression ring (8).	The petroleum jelly helps the gasket to seat evenly.



3-16 DRAIN ASSEMBLY AND DRAIN HOSE - CONTINUED

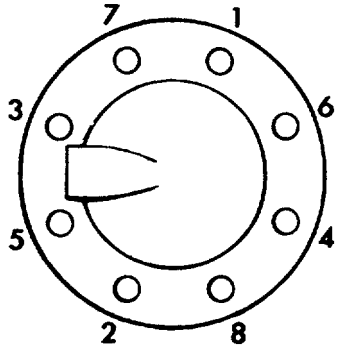
ITEM	ACTION	REMARKS
INSTALLATION - CONTINUED		
2. Drain fitting	Align the holes in the drain fitting (6) with the holes in the compression ring of the tank. Coat the bolts (1) and washers (2) with a thin film of epoxy-polyamide primer.	The epoxy-polyamide primer prevents electrolytic corrosion.



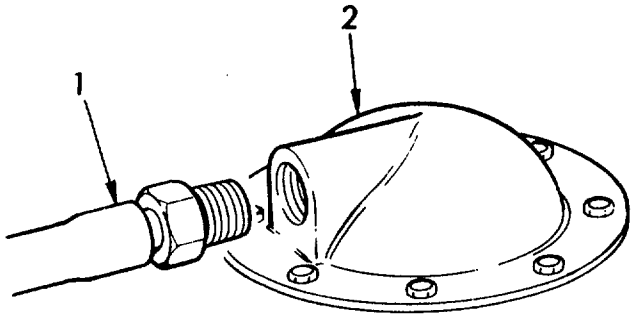
Replace the eight washers (2).
Replace the chain (4) with the plug (3).
Replace the eight bolts (1).
Tighten the bolts down evenly.

FINGER TIGHT ONLY.

If the bolts are not tightened in sequence the drain fitting and the compression rings will be distorted causing leaks.



3-16 DRAIN ASSEMBLY AND DRAIN HOSE - CONTINUED

ITEM	ACTION	REMARKS
2. Drain fitting - Cont'd	Torque down the bolts to 40 inch lbs. in the sequence shown. Then torque down the bolts to 100 inch lbs. in the sequence shown. **DO NOT OVER TIGHTEN.**	
3. Drain hose	Screw the hose (1) into the drain fitting (2). Tighten with a 7/8 inch end wrench.	
		
	Be sure the drain assembly hole and hose channel in the ground are intact. Clean out if necessary.	The hole and channel prevent strain on the tank fabric.
	If the tank is sited on asphalt or concrete remake the sand bed to house the drain assembly and drain hose.	
	Turn back the end of the tank, laying the drain hose in the prepared channel.	
	Close the drain valve.	
	Refill the tank with water.	

3-17 DRAIN VALVE 1/2 INCH

This task covers:-

a. Removal
b. Inspection
c. Cleaning
d. Installation

INITIAL SETUP

Test Equipment

None

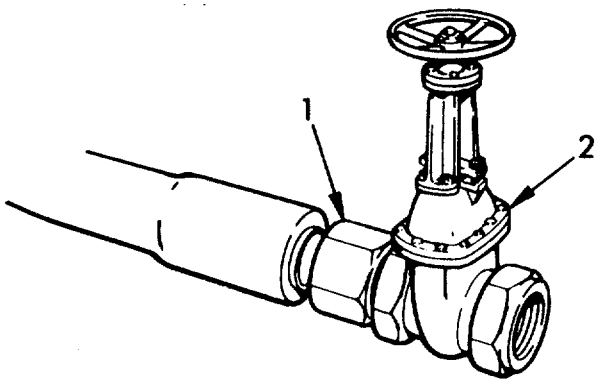
Tools

Tool Kit, general mechanic
NSN 5180-00-177-7033
End wrench 7/8 inch

Special Environmental Conditions

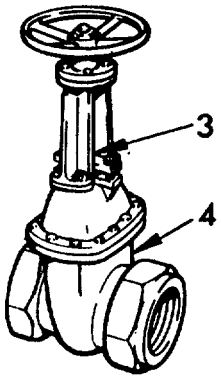
None

ITEM	ACTION	REMARKS
REMOVAL		
	Place the end wrench on the end of the drain hose (1).	



3-17 DRAIN VALVE 1/2 INCH - Continued

ITEM	ACTION	REMARKS
REMOVAL - CONTINUED		
	Hold the end wrench still and unscrew the valve (2).	
	Plug the end of the hose with a wooden plug.	This will prevent unnecessary loss of water.
INSPECTION		
1. Drain hose	Examine thread for damage.	If damaged replace hose.
2. Drain Valve	Examine thread for damage.	Replace valve if damaged.



3. Stuffing Box		If stuffing box (3) has been leaking replace valve.
	Examine valve (4) for dirt and grit.	If present clean seating and gate.

ITEM	ACTION	REMARKS
CLEANING		
1. Drain hose	Use water to clean threaded end of all dirt and grit.	
2. Drain valve	Use water to clean screwed threads, valve gate and seatings of all dirt and grit.	
RELOCATION		
	Hold the end of the hose in the spanner. Screw on the valve. Replace the valve on the ground.	

3-18 TANK BODY

This task covers:-

Repair of holes in the tank body using the Repair Kit.

INITIAL SETUP

Tools

Tool Kit, general mechanic
NSN 5180-00-177-7033
Knife, small

Materials/Parts

Repair Kit
(Appendix C, Fig 8,)

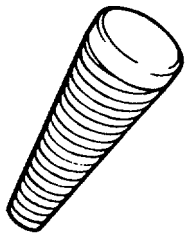
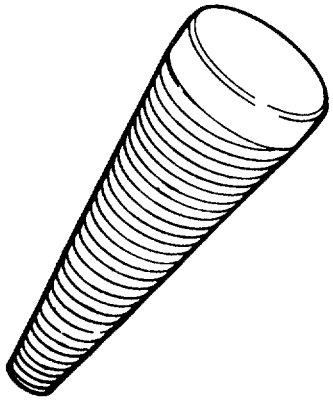
LEAKS ON TOP OR SIDES OF THE TANK

Damage to the fabric which causes water to leak from the tank is classed as follows:-

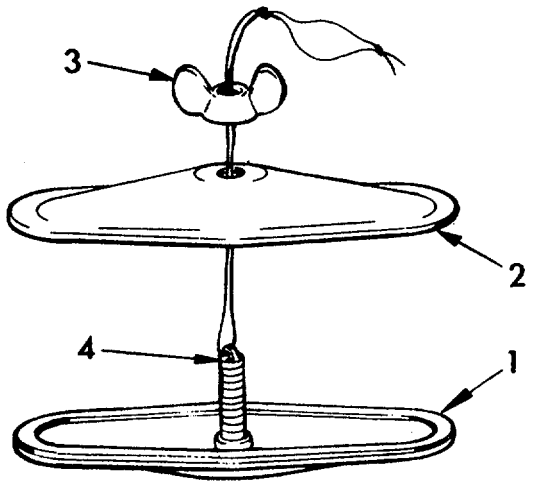
Class I	Holes up to 2 inch length
Class II	Tears up to 5 inch in length
Class III	Tears or holes larger than class II.

Damage of class III must be reported to Direct Support Maintenance.

3-18 TANK BODY - CONTINUED

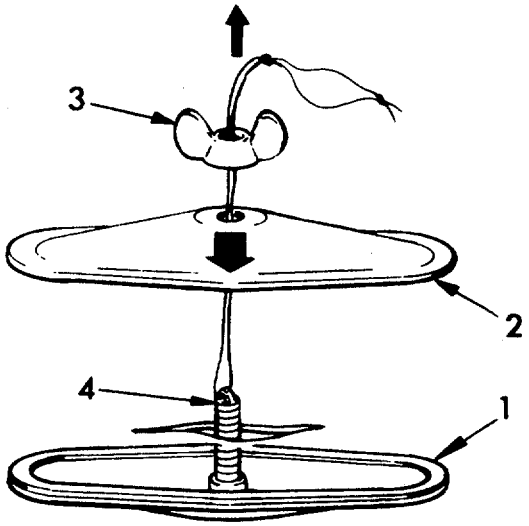
ITEM	ACTION	REMARKS
1. Class I damage	If the hole or tear is 2 inch or less use a 3 inch plug. Force it into the hole with a twisting motion.	
		If the flow of water cannot be stopped treat as class II damage.
		
	If the hole or tear is between 2 inch and 3 inches, use the 5 inch plug. Force it into the hole with a twisting motion.	
		If the flow of water cannot be stopped treat as a class II damage.
		

3-18 TANK BODY - CONTINUED

ITEM	ACTION	REMARKS
2. Class II damage		The Repair Sealing Clamps come in 3 lengths:- 3 inch, 5 inch and 7 1/2 inch. Use the clamp 2 inches longer than the tear.
		
	Compare the width of the Repair Sealing Clamp with the size of the damage. If the clamp is larger, carefully use a sharp knife to enlarge the hole so that the inner plate (1) can just pass through. Push the inner plate (1) through the hole into the tank.	

3-18 TANK BODY - CONTINUED

ITEM	ACTION	REMARKS
	Twist the loop (4) so that the inner plate covers the tear.	



	Pull on the loop (4). Push the outer plate (2) against the tank body so that it lies over the inner plate. Tighten up the wing nut (3).	If the outer plate does not lie exactly over the inner plate water will continue to leak.

3-19 4 INCH GATE VALVE ASSEMBLY

This task covers:-

a. Removal
b. Inspection
c. Cleaning
d. Installation

INITIAL SETUP

Test Equipment

None

Tools

Tool Kit, general mechanic
NSN 5180-00-177-7033
Socket 9/16 inch with handle
End wrench 5/8 inch
Torque wrench 0-200 inch lbs.

Materials/Parts

Composition Gaskets
(Appendix C, fig 7,)

Gaskets, Coupling
(Appendix C, fig 7,)

Equipment Condition

No water flowing through the valve.
The valve can be disconnected from the hoses without losing much water by lifting it to a level higher than the tank.

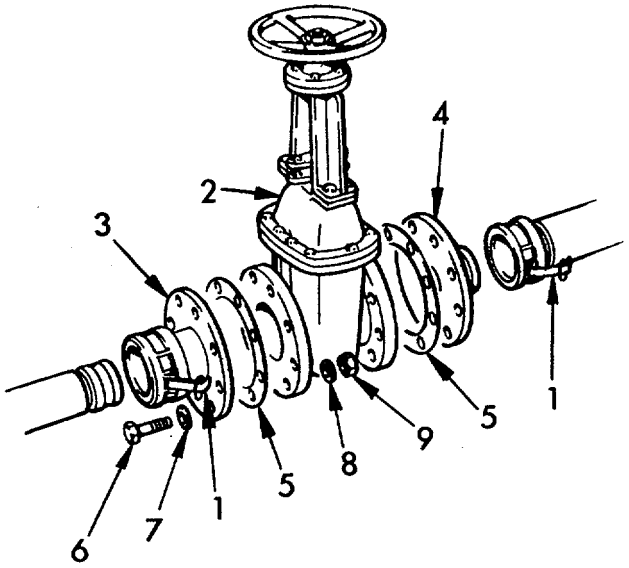
WARNING

To avoid contamination, hands, tools and replacement parts must be clean. Do not permit bolts, washers, small items or foreign matter to remain in the valve.

3-19 4 INCH GATE VALVE ASSEMBLY - CONTINUED

ITEM	ACTION	REMARKS

REMOVAL



Valve Assembly

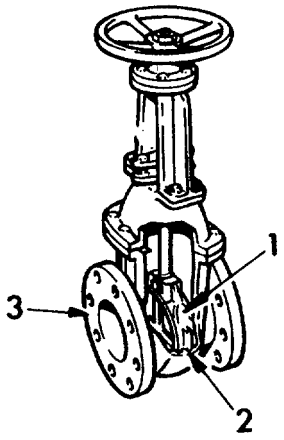
Open the camlock arms (1). Disconnect the gate valve assembly from the hoses.

Hold the bolt (6) with the 9/16 inch end wrench. Use the 5/8 inch socket wrench to remove the nut (9), plain washer (7) and lock washer (8).

Repeat for the other 15.

Lift the coupling halves (3 and 4) and gaskets (5) from the gate valve (2). Discard gaskets.

3-19 4 INCH GATE VALVE ASSEMBLY - CONTINUED

ITEM	ACTION	REMARKS
INSPECTION		
1. Gate Valve	Examine valve for dirt or grit. Wash all foreign matter from the valve.	Foreign matter between the gate (1) and the groove (2) will prevent the valve sealing properly.
		
	Examine the mating faces (3) for damage.	Replace valve if damaged.
	Examine packing box for evidence of water leakage.	Replace if faulty.
2. Gaskets		Replace.
3. Coupling halves	Examine flat mating faces for damage.	Replace a coupling if too damaged.
	Examine camlock faces for damage.	Replace if damaged.
	Examine camlock arms on female coupling.	Replace if damaged or missing.
	Remove and discard all gaskets.	Replace gaskets.

3-19 4 INCH GATE VALVE ASSEMBLY - CONTINUED

ITEM	ACTION	REMARKS
INSPECTION - CONTINUED		
4. Bolts	Examine for damaged threads and heads.	Replace if damaged.
5. All washers	Examine for damage.	Replace if damaged.
6. Nuts	Examine for damage.	Replace if damaged.
CLEANING		
All items except bolts, nuts and washers.	Wash, if necessary, in soap and water. Wash valve gate and seating. Wash inside of coupling halves. Rinse all in clean water.	

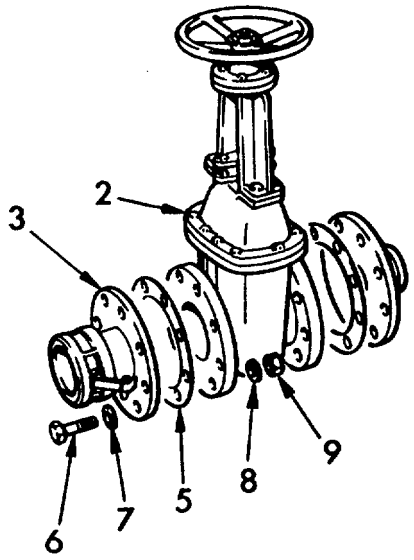
3-19 4 INCH GATE VALVE ASSEMBLY - CONTINUED

ITEM	ACTION	REMARKS

INSTALLATION

1. Gate Valve/female coupling half.

Align the holes in the female coupling half (3), gasket (5) and the gate valve (2).



Hold the nut (9) and lock washer (8) in place against the gate valve.
Thread through the bolt (6) with washer (7).
Turn the bolt into the nut a few turns only.
Replace the other bolts, washers and nuts.
Tighten all bolts finger tight.
Tighten the nuts using the torque wrench to 150 inch lbs.

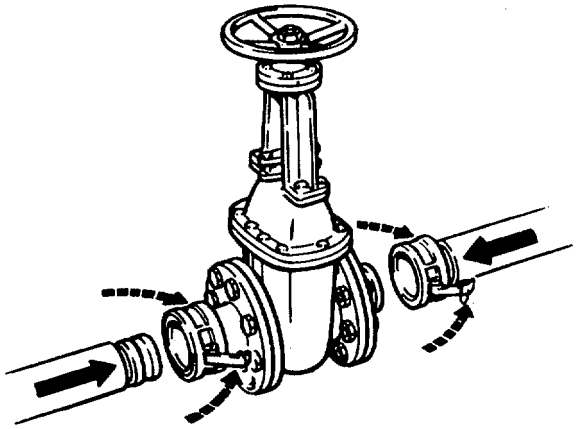
3-19 4 INCH GATE VALVE ASSEMBLY - CONTINUED

ITEM	ACTION	REMARKS

INSTALLATION - CONTINUED

2. Male coupling half — Repeat the above procedures to replace the male coupling half on the gate valve.

3. Hoses



Recouple the gate valve assembly to the hoses. Push the camlock arms into the locked position.

Replace gate valve on the ground.

4. Completed Assembly — Check for leaks when water flow begins again.

SECTION VII PREPARATION FOR STORAGE OR SHIPMENT

3-20 EMPTYING THE TANK

1 Pump the tank as dry as possible.

2 Open the Drain Valve until water stops flowing.

3 Lift the four corners of the tank in turn.

4 Pump the tank as dry as possible.

5 Close the Drain Valve.

CAUTION

DO NOT WALK UNNECESSARILY ON THE TANK

The fabric of the tank may cut or abrade. Walk on the tank wearing soft soled shoes, which have been wiped clean of all abrasive materials.

3-21 DISASSEMBLY OF FITTINGS

1 Disconnect the hoses from the tank.

2 Remove both elbows from the tank and pack them in soft packing (retained in crate when unpacking). Secure the packing with adhesive tape.

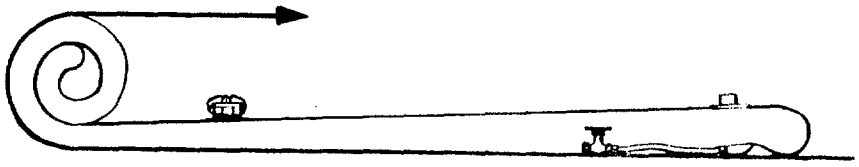
3 Remove the relief cap, 2 inch pipe and coupling half from the vent assembly. Pack them in soft packing and secure the packing with adhesive tape.

4 Place the dust caps on the filler coupling and the vent coupling. Pack them with soft packing and secure the packing with adhesive tape.

3-22 DRAINING OF TANK

1 Slowly roll the tank up from the filler assembly end.

Use the nylon webbing to assist.



Water left in the tank will drain from the discharge coupling and the drain valve.

2 Unroll the tank 15 feet.

3 Place dust cap on discharge coupling and pack with packing material. Secure the packing with duct tape.

4 Unscrew the drain valve and drain hose.

5 Screw the plug into the drain assembly.

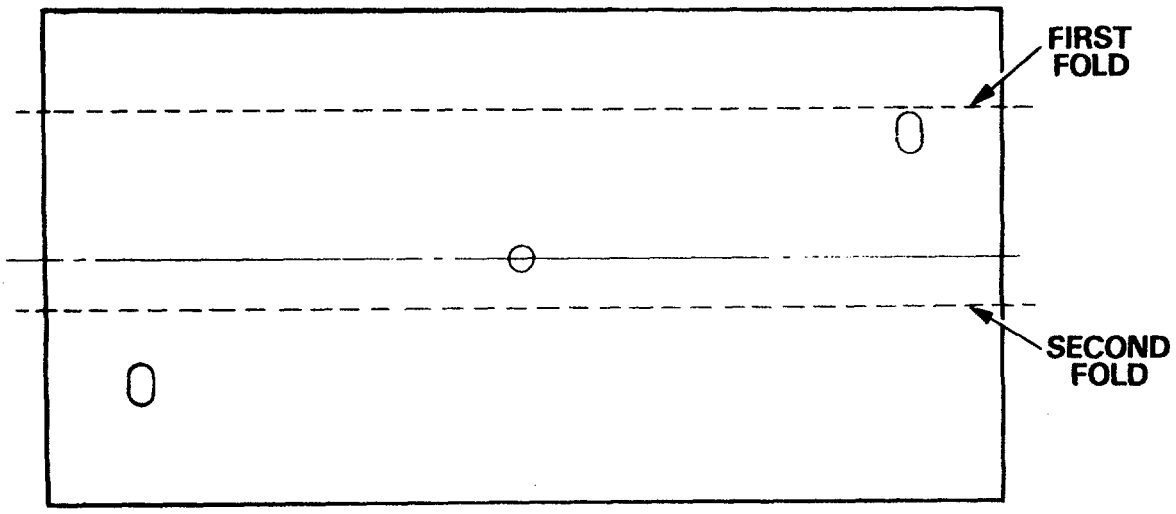
6 Pack threaded ends of hose in packing and secure the packing.

7 Pack drain valve in packing and secure the packing.

8 Completely unroll the tank.

3-23 PACKING OF TANK

1 Fold the sides of the tank over, as shown.



3-23 PACKING OF TANK - CONTINUED

2 Roll up the tank using the nylon webbing for assistance.

3 Secure the roll with tape or ties.

4 Roll the tank onto the container base.

5 Add the boxed repair kit and repair items.

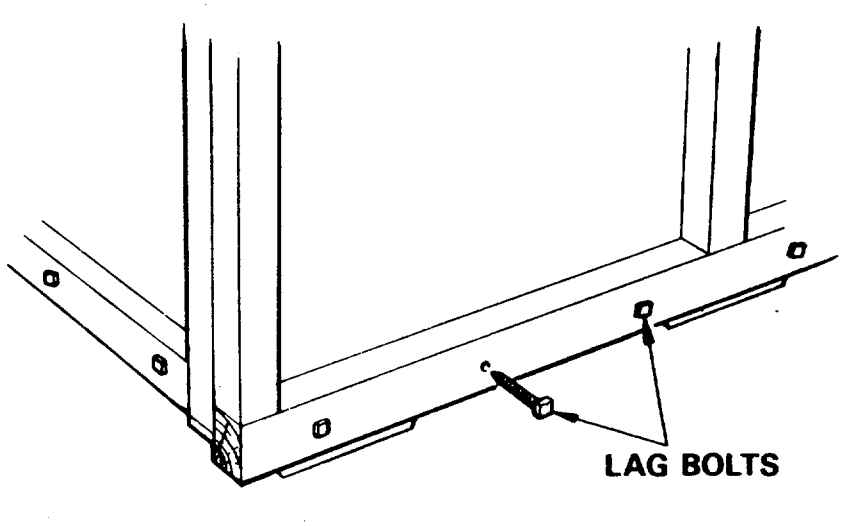
6 Add the drain hose and valve.

7 Add the 4 inch gate valve and other metals from the tank.

8 Overpack the manual.

9 Lift on the container superstructure.

10 Replace the lag bolts.



CHAPTER 4

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

SECTION I TROUBLESHOOTING

4-1 No troubleshooting is authorized for Direct Support Maintenance.

SECTION II

4-2 COMMON TOOLS AND EQUIPMENT

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

4-3 SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

Refer to Appendix C, Appendix E and Appendix F.

4-4 REPAIR PARTS

Repair parts are listed and illustrated in Appendix C of this manual.

4-5 PERMANENT REPAIR OF DAMAGE TO TANK BODY

This task covers:-

Patching of holes and tears to the tank body which are too large to be repaired by Organizational Maintenance using the standard Repair Kit.

INITIAL SETUP

Test Equipment

None

Tools

Scissors
Brush, hand
Roller, small

Troubleshooting Reference

Para 3-10

Equipment Condition

Tank must be empty and allowed to dry for 3 days.

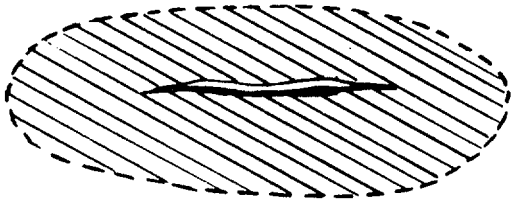
Materials/Parts

4-5 PERMANENT REPAIR OF DAMAGE TO TANK BODY - CONTINUED

1 Trim away any loose threads from the damaged area using scissors.

2 Mark out a circular or oval area around the tear or cut. A 3 inch overlap must be allowed around the damaged area.

3 Buff the marked area with emery paper, hard enough to provide a good bond, but light enough so that the nylon fabric under the rubber surface will not be abraded.



4 Cut out a patch the same size and shape as the abraded area.

5 Buff one side of the patch as above.

6 Brush off all buffing dust from the tank and patch.

WARNING

Dry cleaning solvent P-D-680 (Safety or Stoddard's Solvent) is potentially dangerous. Avoid repeated and prolonged breathing of vapors and skin contact with liquid. DO NOT use near open flames, arcing equipment or other ignition sources. Always wear eye protection. The flash point of P-D-680 is 100 to 138 degrees F (30 to 59 degrees C).

7 Wipe both areas with P-D-680 and allow to dry.

4-5 PERMANENT REPAIR OF DAMAGE TO TANK BODY - CONTINUED

8 Mix the adhesive (2 parts) in a suitable container.

9 Apply the mixture with a brush to the buffed areas.

10 Allow the adhesive to dry until tacky.

11 Apply a second coat of adhesive.

12 When tacky apply the patch to the tank body.

13 Ensure no air is trapped between the body and the patch .

14 Roll the patch down well starting from the center and working outwards.

15 Allow the patch to cure for 12 hours before use or testing for leaks.

4-6 TESTING OF TANK FOR LEAKS

This task covers:-

a. Inflation of tank to ½ p.s.i.

b. Testing for leaks.

INITIAL SETUP

Test Equipment

Pressure gauge 0 - 3 p.s.i.
with 1/2 inch-14 NPT

Tools

Soapy water and brush
Blower fan with output tube
4 5/8 inch O.D.

Equipment Condition

The Vent, Discharge and Filler Assemblies must be covered by their dust caps.

The drain hose must be screwed into the Drain Assembly.
Pressure gauge screwed into drain valve and gate opened.

Siting

The work should be conducted out of doors when there is little or no wind.

Materials/Parts

25' of Tubing 4 5/8 inch I.D.

4-6 TESTING THE TANK FOR LEAKS - CONTINUED

A Tank Deployment

1 Lay out the tank.

2 If outdoors the site must be sheltered from the wind.

3 Make sure the vent, discharge and filler assembly dust caps are in position.

B Setting up Equipment

1 Place the blower fan near the drain end of the tank.

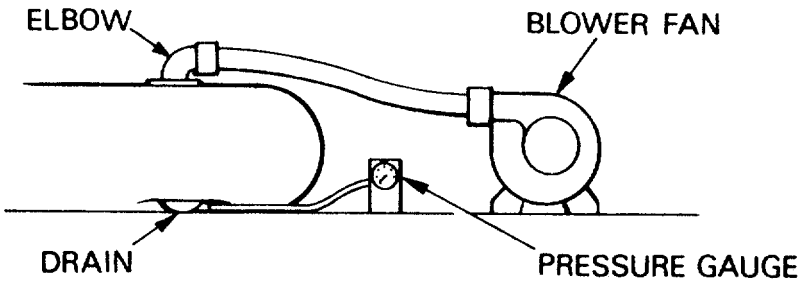
2 Remove the discharge assembly dust cap.

3 Connect the 4 5/8 inch I.D. tubing to the blower fan outlet and to the assembly.

4 Clamp the tubing in place using hose clamps.

5 Attach the pressure gauge and drain hose to the drain valve.

6 Screw the drain hose and valve into the drain assembly and open the valve.



4-6 TESTING THE TANK FOR LEAKS - CONTINUED

C Inflation

1 Turn on the blower.

2 Pump air into the tank until the pressure reaches 1/2 p.s.i. DO NOT OVER INFLATE.

3 Use saw-horse to support the tubing.

4 Turn off the blower.

D Testing for Leaks

1 Apply the soapy water to all repairs, assemblies and seams with a brush.

2 Leaks are indicated by bubbles appearing from a faulty area.

3 If any leaks are present mark the position with a crayon.

4 Allow tank to dry.

5 Deflate tank by removing tubing.

6 Repair any leaks before returning tank to service or storage.

E Disassembly

1 Disconnect the pressure gauge, the drain valve and drain hose.

2 Disconnect the tubing from blower fan.

3 Replace dust cap on discharge assembly.

4 Return tank to service or storage.

APPENDIX A

REFERENCES

A-1. SCOPE

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

A-2. FORMS

Quality Deficiency Report .....SF 368
Recommended Changes to Publications and Blank Forms ..... DA 2028
Equipment Inspection and Maintenance Work Sheet ..... DA 2404

A-3. TECHNICAL MANUALS

Procedures for Destruction of Equipment to Prevent Enemy Use .....TM 750-244-3
The Army Maintenance Management System .....DA PAM 738-750
Supply Bulletin..... SB 708-42

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 responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III lists the special tools and the test equipment 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.

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 decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

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

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

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

g. **Install.** The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow 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 or other maintenance actions to 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) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. **Rebuild.** Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipments/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 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 B-2.).

d. Column 4. Maintenance Category. Column 4 specifies, by the listing of work time figure in the appropriate subcolumn(s), the lowest level 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, troubleshooting 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.....Organizational maintenance.

F .....Direct support maintenance.

H..... General support maintenance.

D .....Depot maintenance.

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

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

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

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

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

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

d. **Column 4.** National Stock Number. The national stock number is 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			(5) TOOLS AND EQUIP	(6) REMARKS
			C	O	F		
00	Tank Assembly	Service	0.5			1, 2	A
		Inspect	0.5				
		Test			4.0	3, 4	B
		Install		2.0			
		Replace		4.0			
01	Vent Assembly	Inspect	0.1				
		Replace		0.5		5	
		Repair		1.0			C
	Relief Cap	Inspect	0.1				
		Test			0.5		D
		Replace		0.1			
02	Filler Assembly	Inspect	0.1				
		Replace		0.7		5	
		Repair		1.0			C
	Coupling Assembly	Inspect	0.1				
		Replace		0.8		5	
		Repair		1.0			C
03	Discharge Assembly	Inspect	0.1				
		Replace		0.7		5	
		Repair		1.0			C
	Coupling Assembly	Inspect	0.1				
		Replace		0.8		5	
		Repair		1.0			C
04	Drain Assembly	Inspect		0.1			
		Replace		0.5		5	
		Repair		0.5			C
05	Tank Body	Inspect	0.1				
		Test			5.0	3, 4	
		Repair		0.2	5.0		E
06	Gate Valve	Inspect	0.1				
		Repair		0.5		5	

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF. CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/ NATO STOCK NO.	TOOL NUMBER
1	C	Shovel		
2	C	Broom		
3	F	Pressure Gauge		
4	F	Tool Kit, General Mechanics Automotive (W33004)	5180-00-177-7033	
5	O	Torque Wrench 0-200 inch pounds		

SECTION IV. REMARKS

REFERENCE CODE	REMARKS
A	Remove sand or snow.
B	*All tanks* will be tested *semiannually* as *follows:* 1. Inflate tank air pressure and allow it to stand for *30 minutes.* 2. Apply a water and detergent solution generously to all seams and fittings. 3. Any evidence of air leakage will cause the tank to be considered to be defective.
C	Repair by replacing defective components.
D	Cap must open at pressure of 3 inches of water.
E	Temporary repairs are made by Organizational Maintenance and permanent repairs by Direct Support Maintenance.

APPENDIX C

ORGANIZATIONAL AND DIRECT SUPPORT

MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

SECTION I. INTRODUCTION

1. SCOPE. This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of organizational, direct support, general support and depot maintenance of the 50,000 gallon, water tank, fabric. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

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

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. 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. Repair parts kits are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in this section. Items listed are shown on the associated illustration(s)/figure(s).

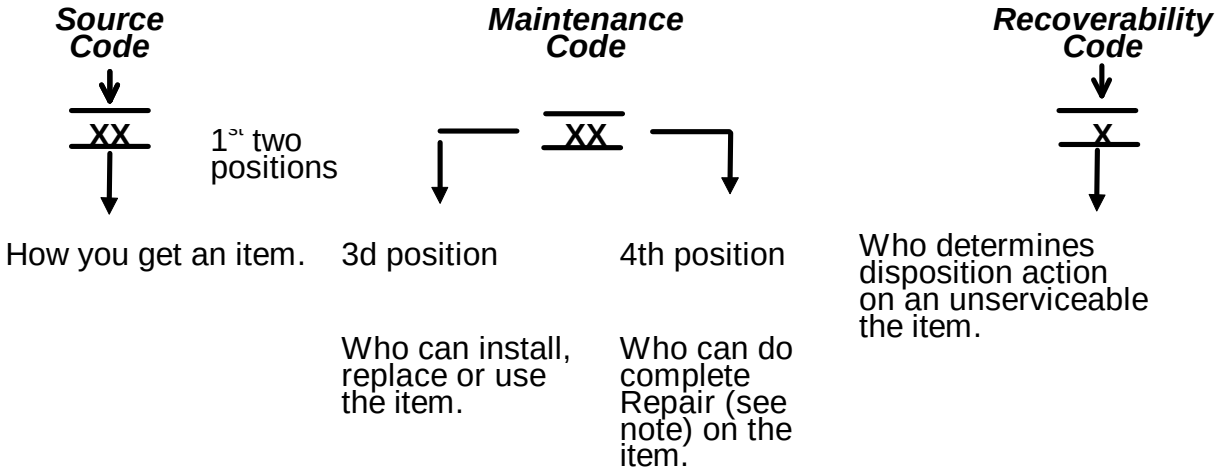
b. Section III. Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USABLE ON CODE column) for the performance of maintenance.

c. Section IV. Cross-references Indexes. 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 number in alphanumeric sequence and cross- references NSN, FSCM and part number.

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

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

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



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

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

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 SMR code. **NOTE: Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 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 3d position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.

AO-(Assembled by Unit/AVUM Level)
AF-(Assembled by DS/AVIM Level)
AH-(Assembled by GS Category)
AL-(Assembled by SRA)
AD-(Assembled by Depot)

Explanation

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 position code of the SMR code authorizes you to replace the item, but the source code indicates the items are assembled at a higher level, order the item from the higher level of maintenance.

Code	Explanation
XA--	Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)
XB--	If an "XB" item is not available from salvage, order it using the FSCM 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 an "XD"-coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 700-42.

(2) Maintenance Code. Maintenance codes tells 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 or aviation intermediate level can remove, replace, and use the item.

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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 tells whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (i.e., perform all authorized repair functions.) NOTE: Some limited repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes. 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, lubricating, etc., at the user level.

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

Recoverability Codes	Application/Explanation
Z --	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3d position of SMR Code.

Recoverability Codes **Application/Explanation**

0 -- 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.

D -- Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.

L -- Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).

A -- Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. FSCH (Column (3)). 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.

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

NOTE

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

(10) The indenture, shown as dots appearing before the repair part, indicates that the item is a repair part of the next higher assembly.

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 in lieu of a quantity indicates that the quantity is variable and may vary from application to application.

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 (NIIN) sequence. The NIIN consists of the last nine digits of the

NSN, i.e. (5305-01-574-1467).
NSN
NIIN

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 or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) FSCM column. The Federal Supply Code for Manufacturer (FSCM) 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 FSCM columns to the left.

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

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

5. SPECIAL INFORMATION.

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

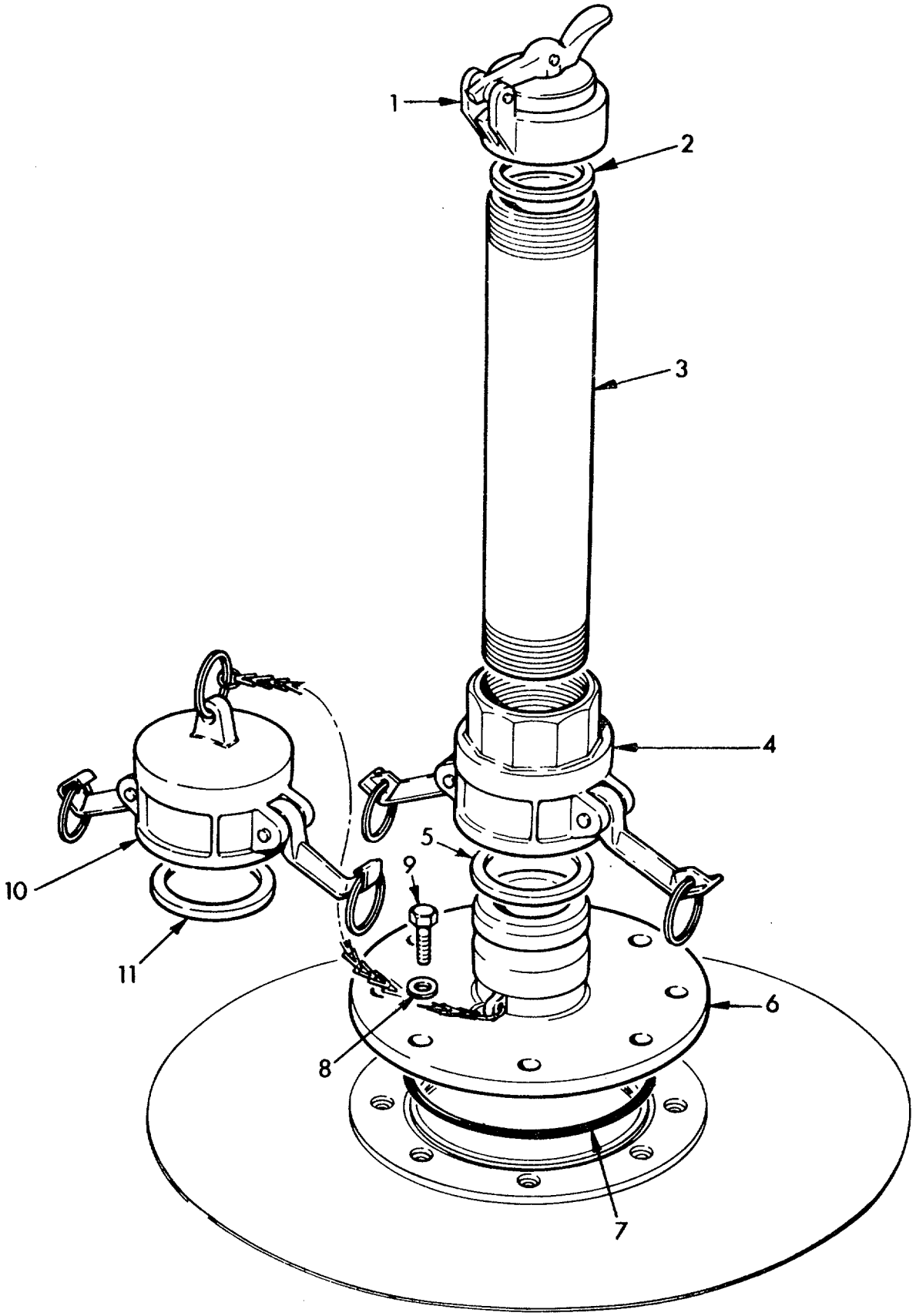

Figure C-1. VENT ASSEMBLY

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 00 TANK ASSEMBLY	
				GROUP 01 VENT ASSEMBLY	
				FIG. C-1 VENT ASSEMBLY	
	PBOOO	97403	13227E6594	VENT UNIT, RELIEF	1
1	PBOZZ	97403	13227E6600	.CAP, VENT, FUEL STORAGE ALUMINUM ALLOY	1
2	PAOZZ	97403	13227E6601	..GASKET	1
3	XDOZZ	97403	13227E6599	.PIPE SCHEDULE 40 ALUMINUM ALLOY 2 INCH	1
4	PBOZZ	96906	MS27024-11	.COUPLING HALF, QUICK DISCONNECT CAMLOCK TYPE FEMALE THREAD ALUMINUM ALLOY.	1
5	PAOZZ	96906	MS27030-6	..GASKET HALF 2 IN. RUBBER	2
6	PBOZZ	96906	MS27023-21	.FLANGED COUPLING HALF QUICK DISCONNECT CAMLOCK TYPE MALE FLANGED ALUM ALLOY	1
7	PAOZZ	96906	MS29513-250	.PACKING, PREFORMED	1
8	PAOZZ	96906	MS27183-9	.WASHER, FLAT.	8
9	PAOZZ	96906	MS90728-8	.SCREW, CAP, HEX HD.	8
10	XDOZZ	96906	MS27028-11	.CAP, QUICK DISCONNECT WITH SECURITY CHAIN STYLE B 2 INCH	1
11	PAOZZ	96906	MS27030-6	..GASKET HALF 2 INCH RUBBER	1

END OF FIGURE

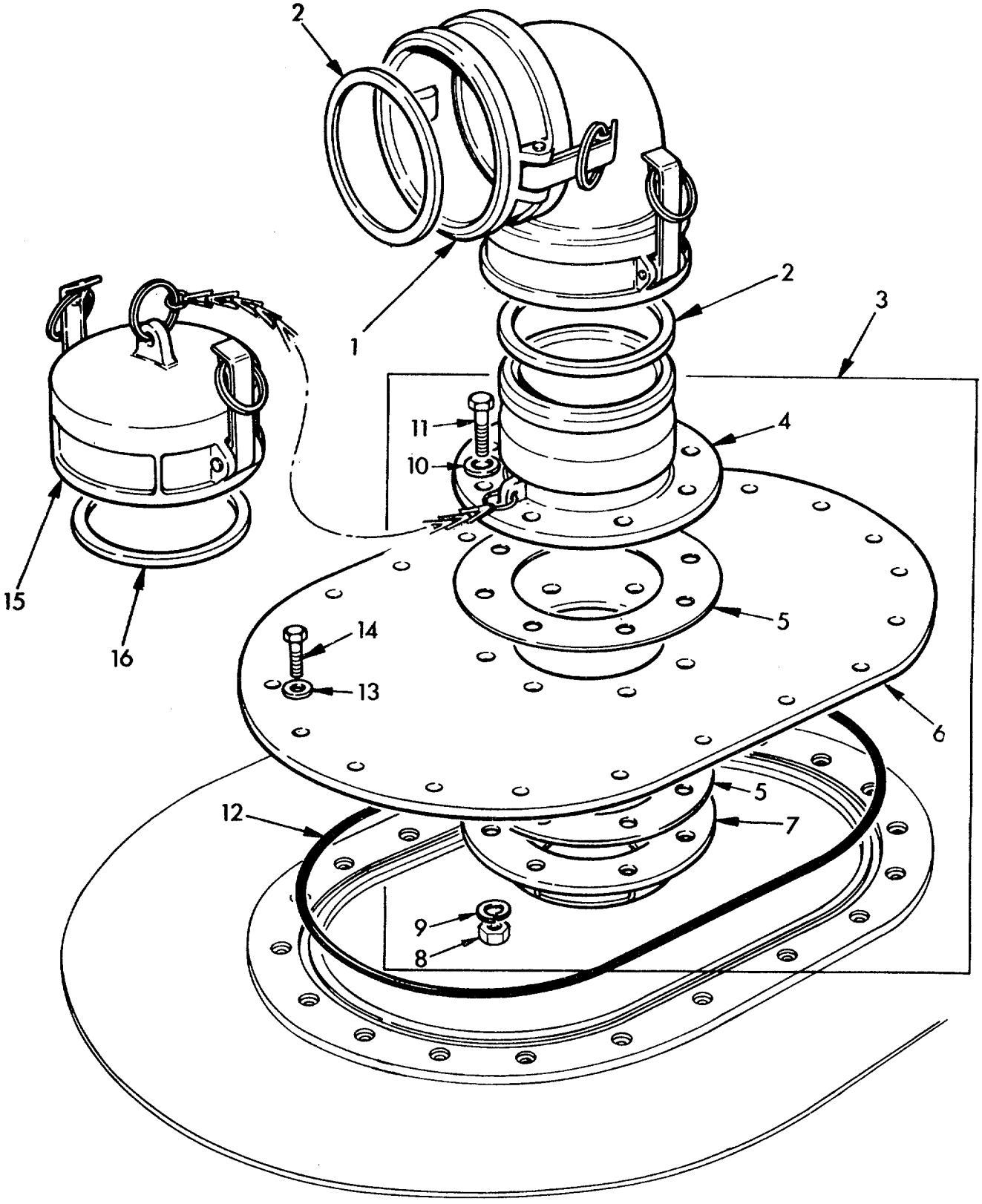

Figure C-2. Filler Assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 02 FILLER ASSEMBLY	
				FIG. C-2 FILLER ASSEMBLY	
	PDOOO	97403	13227E6588	FILLER ASSEMBLY	1
1	XDOZZ	9740'3	13227E6610	.ELBOW FEMALE 4 INCH 90 DEGREE AL ALLOY	1
2	PAOZZ	96906	MS27030-9	.GASKET HALF 4 INCH RUBBER	2
3	PBOOO	97403	13227E6591	.COUPLING TANK ASSEMBLY	1
4	PBOZZ	96906	MS27023-17	..COUPLING HALF, QUICK FLANGED 4 INCH AL ALLOY	1
5	PAOZZ	97403	13227E6605	..GASKET CORK COMPOSITION MIL-C-6183 TYPE 2 CLASS 1 GRADE B	2
6	XDOZZ	97403	13227E6604	..CLOSURE PLATE OVAL AL ALLOY	1
7	XDOZZ	97403	13227E6603	..SUCTION STUB AL ALLOY 4 INCH	1
8	PAOZZ	96906	MS51971-3	..NUT, PLAIN, HEXAGON	8
9	PAOZZ	96906	MS35338-84	..WASHER-LOCK, HELICAL 0.375 INCH STEEL ZINC COATED J489	8 1
10	PAOZZ	97403	13227E6606	..THREAD SEAL 0.375 INCH PARKER OR EQUIVALENT	8
11	PAOZZ	96906	MS35307-364	..SCREW, CAP, HEXAGON H 0.375 16 UNC STEEL ZINC COATED J105 1.5 INCH	8
12	PAOZZ	96906	MS9021-383	.O RING GASKET RUBBER	1
13	PAOZZ	96906	MS27183-9	.WASHER, FLAT 0.25 INCH ID STEEL ZINC COATED SAE J488.	20
14	PAOZZ	96906	MS90728-7	.SCREW, CAP, HEXAGON H 0.25 INCH 20 UNC 0.88 INCH SAE J105 STEEL ZINC COATED.	20 1
15	XDOZZ	96906	MS27028-17	.CAP, QUICK DISCONNECT WITH SECURITY CHAIN AL ALLOY CAP 4 INCH	1
16	PAOZZ	96906	MS27030-9	.GASKET HALF 4 INCH RUBBER	1

END OF FIGURE

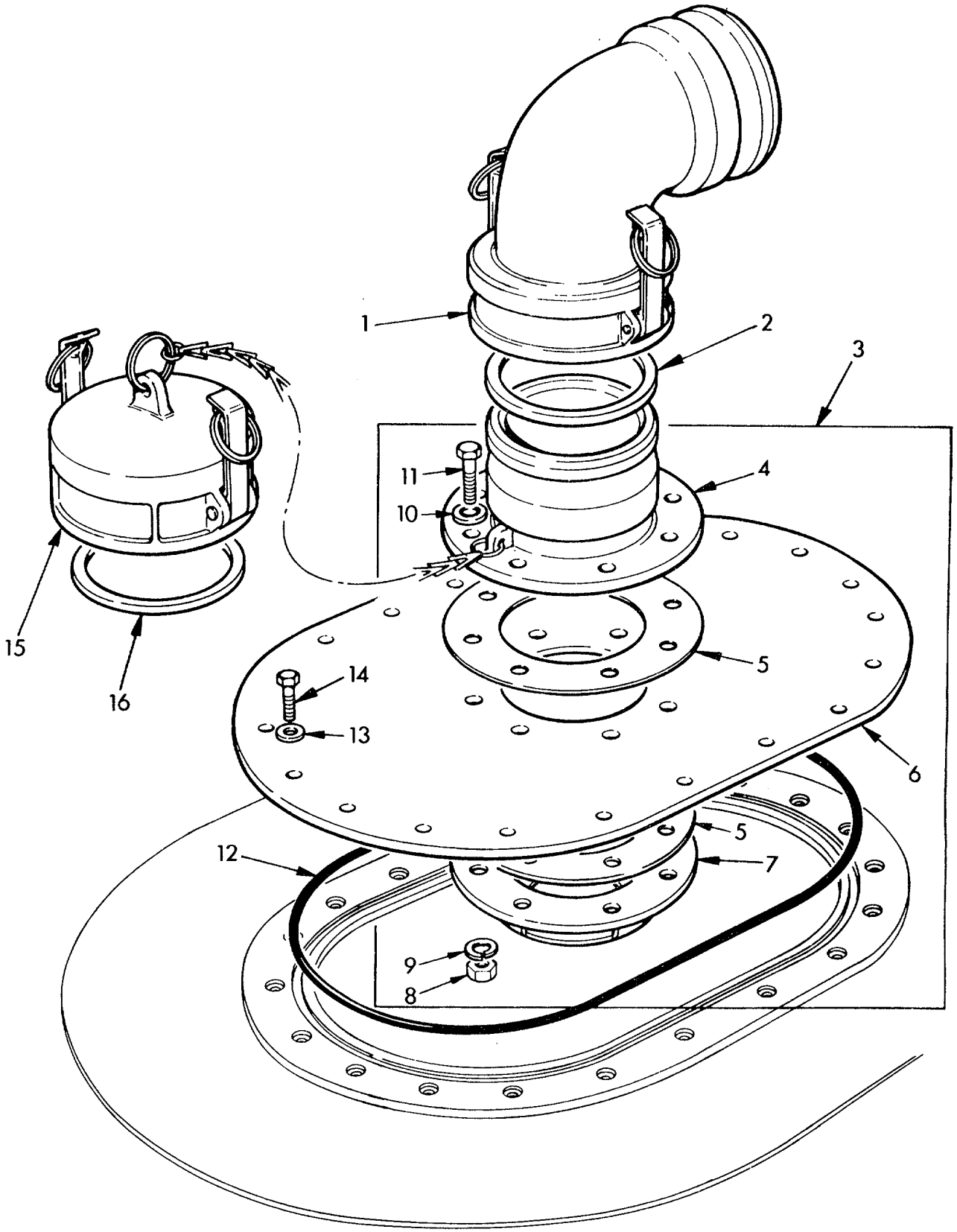

Figure C-3. Discharge Assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 03 DISCHARGE ASSEMBLY	
				FIG. C-3 DISCHARGE ASSEMBLY	
	PDOOO	97403	13227F6589	DISCHARGE ASSEMBLY	1
1	XDOZZ	97403	13227E6611	.ELBOW FEMALE	1
2	PAOZZ	96906	M527030-9	.GASKET, HALF 4 IN. RUBBER	1
3	PBOOO	97403	13227E6591	.COUPLING TANK ASSY	1
4	PBOZZ	96906	MS27023-17	..COUPLING HALF, QUICK FLANGED 4 INCH AL ALLOY	1
5	PAOZZ	97403	13227E6605	..GASKET CORK COMPOSITION MIL-C-6183 TYPE 2 CLASS I GRADE B	2
6	XDOZZ	97403	13227E6604	..CLOSURE PLATE OVAL AL ALLOY	1
7	XDOZZ	97403	13227E6603	..SUCTION STUB AL ALLOY 4 INCH	1
8	PAOZZ	96906	MS51971-3	..NUT, PLAIN, HEXAGON	8
9	PAOZZ	96906	MS35338-84	..WASHER-LOCK, HELICAL	8
10	PAOZZ	97403	13227E6606	..THREAD SEAL 0.375 INCH PARKER OR EQUAL	8
11	PAOZZ	96906	MS35307-364	..SCREW, CAP, HEXAGON	8
12	PAOZZ	96906	MS9021-383	.0 RING GASKET RUBBER	1
13	PAOZZ	96906	MS27183-9	.WASHER, FLAT.	20
14	PAOZZ	96906	MS90728-7	.SCREW, CAP, HEXAGON H	20
15	XDOZZ	96906	MS27028-17	.CAP, QUICK DISC WITH SECURITY CHAIN AL ALLOY CAP 4 INCH	1
16	PAOZZ	96906	M1S27030-9	.GASKET, HALF 4 INCH RUBBER	1
	XCOZZ	97403	13227E6619	DISCHARGE ASSY KIT	1

END OF FIGURE

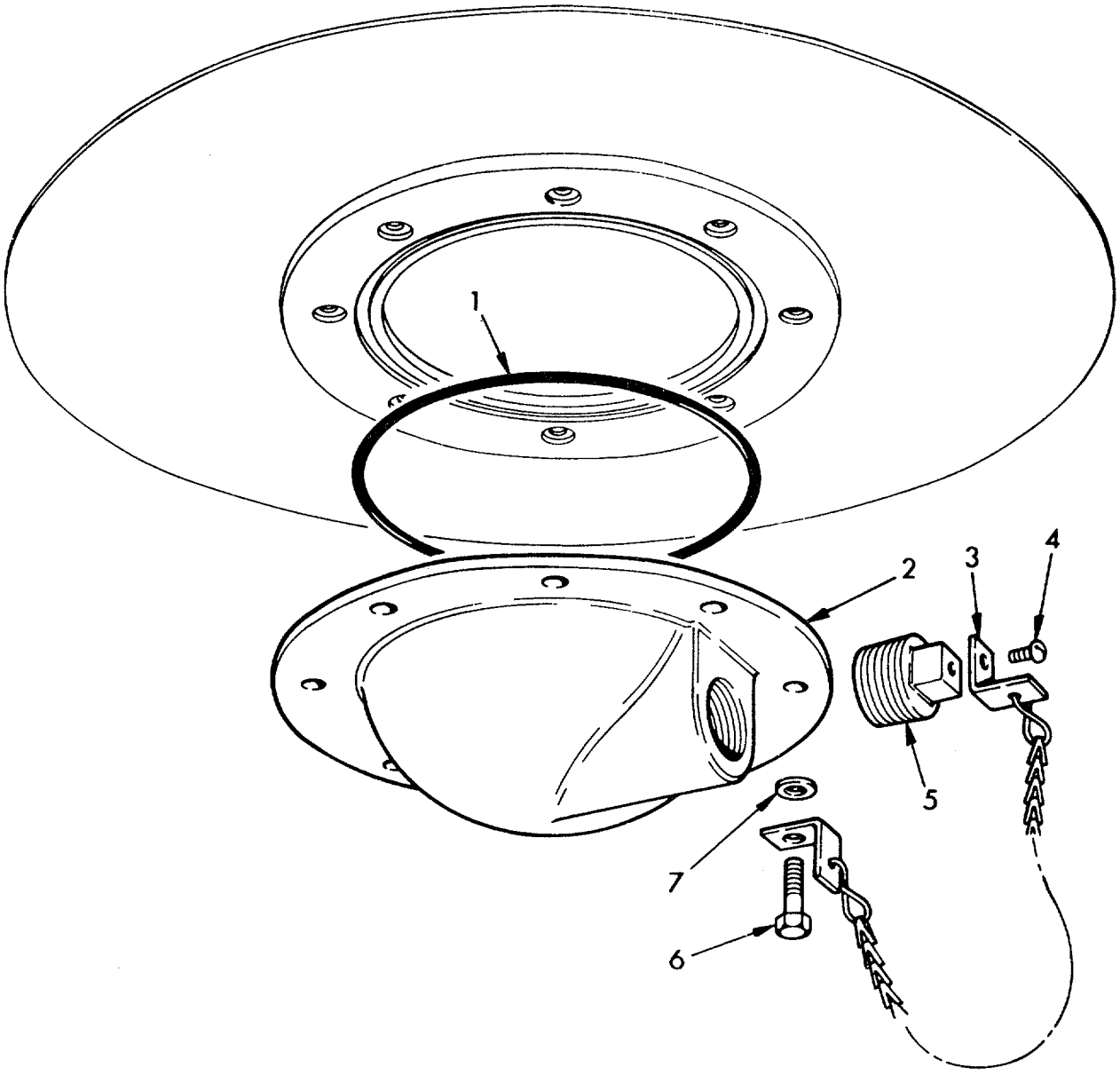

Figure C-4. Drain Assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 04 DRAIN ASSEMBLY	
				FIG. C-4 DRAIN ASSEMBLY	
	POOOO	97403	13227E6590	DRAIN ASSEMBLY	1
1	PAOZZ	96909	MS29513-250	.0 RING GASKET	1
2	XDOZZ	97403	13227E6602	.FITTING, DRAIN AL ALLOY	1
3	PBOZZ	97403	13227E6613	.CHAIN, SECURITY 6 INCH	1
4	PAOZZ	97403	13227E6612	.SCREW, 0.19-10 UNF 0.25 INCH STEEL	1
5	XDOZZ	97403	13227E6614	.PLUG, SQUARE HEAD STEEL ZINC COATED 0.5-14 NPT	1
6	PAOZZ	96906	MS90728--7	.SCREW, CAP, HEXAGON H	8
7	PAOZZ	96906	MS27183-9	.WASHER, FLAT	8

END OF FIGURE

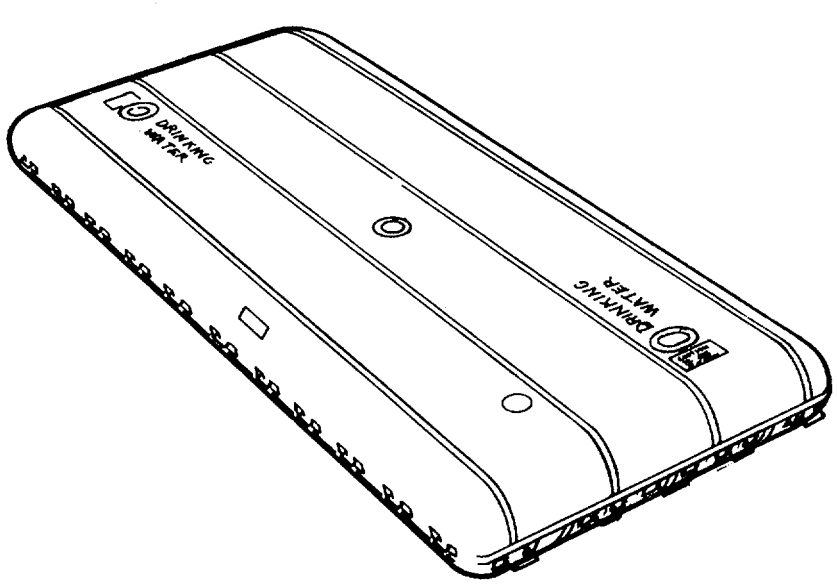

Figure C-5. Tank Body

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 05 TANK BODY	
				FIG. C-5 TANK BODY	
	PDOFF	97403	13227E6570	TANK BODY WITH HANDLES LABELS AND COMPRESSION RINGS	1
				END OF FIGURE	

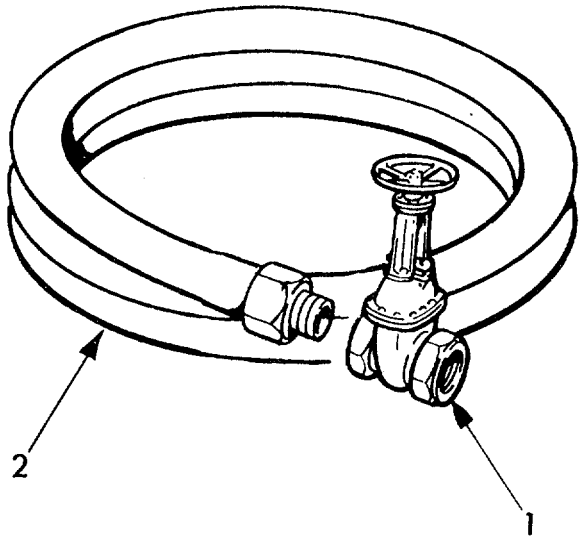

Figure C-6. Drain Hose and Valve

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 06 GATE VALVE	
				FIG. C-6 DRAIN HOSE AND VALVE	
1	PDOZZ	97403	13227E6608	.GATE VALVE RISING STEM WW-V-54 ..... TYPE II 0.5 INCH CLASS A STYLE 1	1
2	PBOZZ	97403	13227E6607	.HOSE ASSEMBLY 8 FEET 0.5 INCH NPT ..... SHANKS TO ZZ-H-601 GRADE 3 CLASS 2 0.75 IN.....	1
				END OF FIGURE	

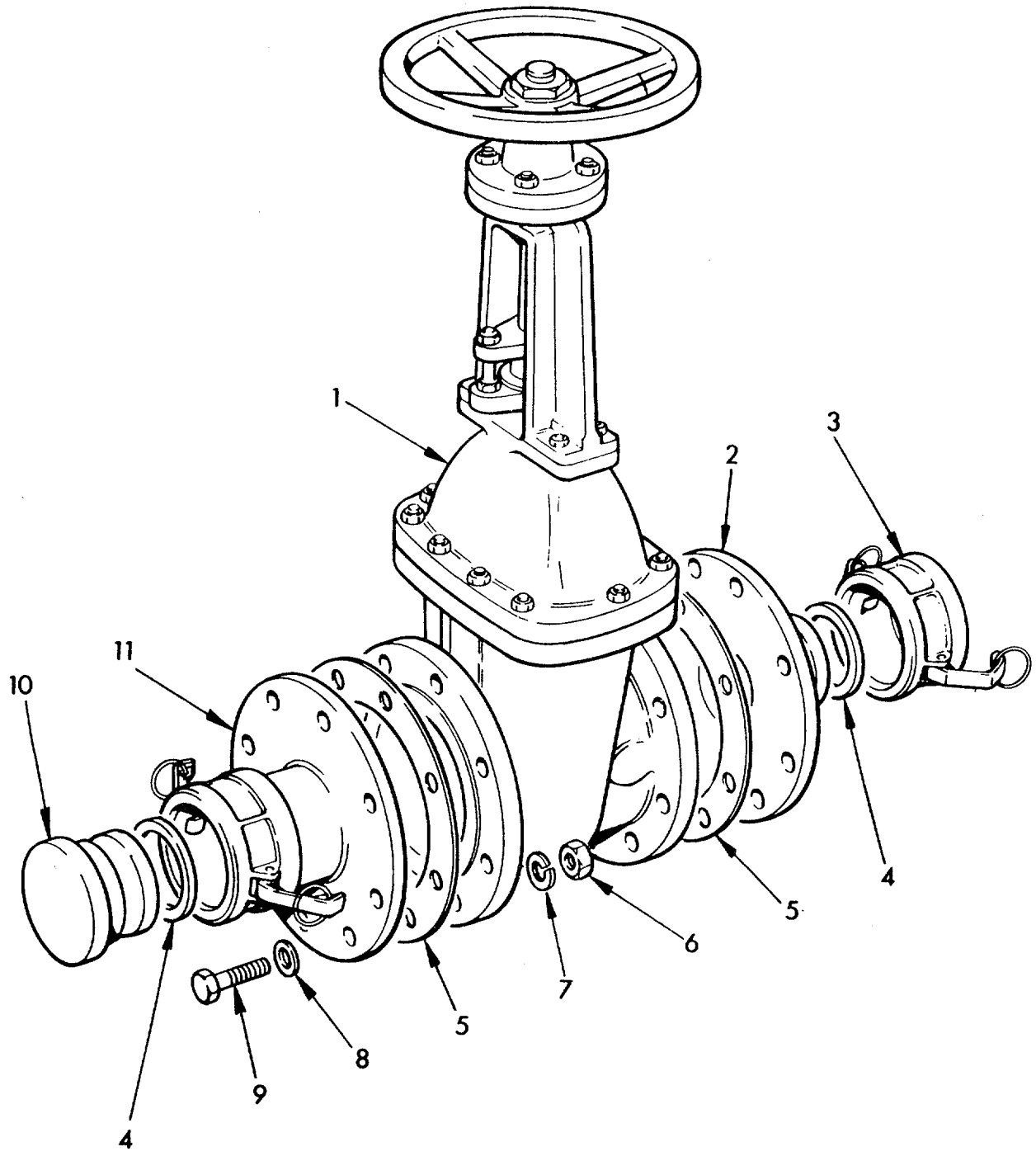

Figure C-7. 4 Inch Gate Valve Assembly

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 06 GATE VALVE	
				FIG. C-7 4 INCH GATE VALVE ASSEMBLY	
1	PAOFF	97403	13227E6561	.GATE VALVE 4 INCH MIL-V-58039 TYPE 1	1
2	XDOZZ	96906	MS27028-17	.CAP, QUICK DISCONNECT	1
3	PBOZZ	96906	MS27023-17	.COUPLING HALF, QUICK DISCONNECT MALE	1
4	PAOZZ	97403	13227E6605	.GASKET, CORK COMPOSITION MIL-C- 6183 TYPE 2 CLASS 1 GRADE B	2
5	PAOZZ	96906	MS27030-9	.GASKET HALF 4 INCH RUB8ER	2
6	PAOZZ	97403	13227E6598	.NUT, HEX, MACHINE SCREW 0.375-16 UNC J 104	16 4
7	PAOZZ	97403	13227E6609	.WASHER, LUCK, HELICAL 0.375 INCH STEEL ZINC COATED J489	16
8	PAOZZ	97403	13227E6593	.WASHER, PLAIN J488 0.375 INCH	16
9	PAOZZ	97403	13227E6596	.BOLT, HEX HEAD 0.375 INCH-16 UNC STEEL ZINC COATED J105 1.5 INCH	16
10	XDOZZ	96906	MS27029-17	.PLUG, QUICK DISCONNECT	1
11	PBOZZ	96096	MS27027-17	.COUPLING HALF QUICK DISCONNECT FEMALE	1
				END OF FIGURE	

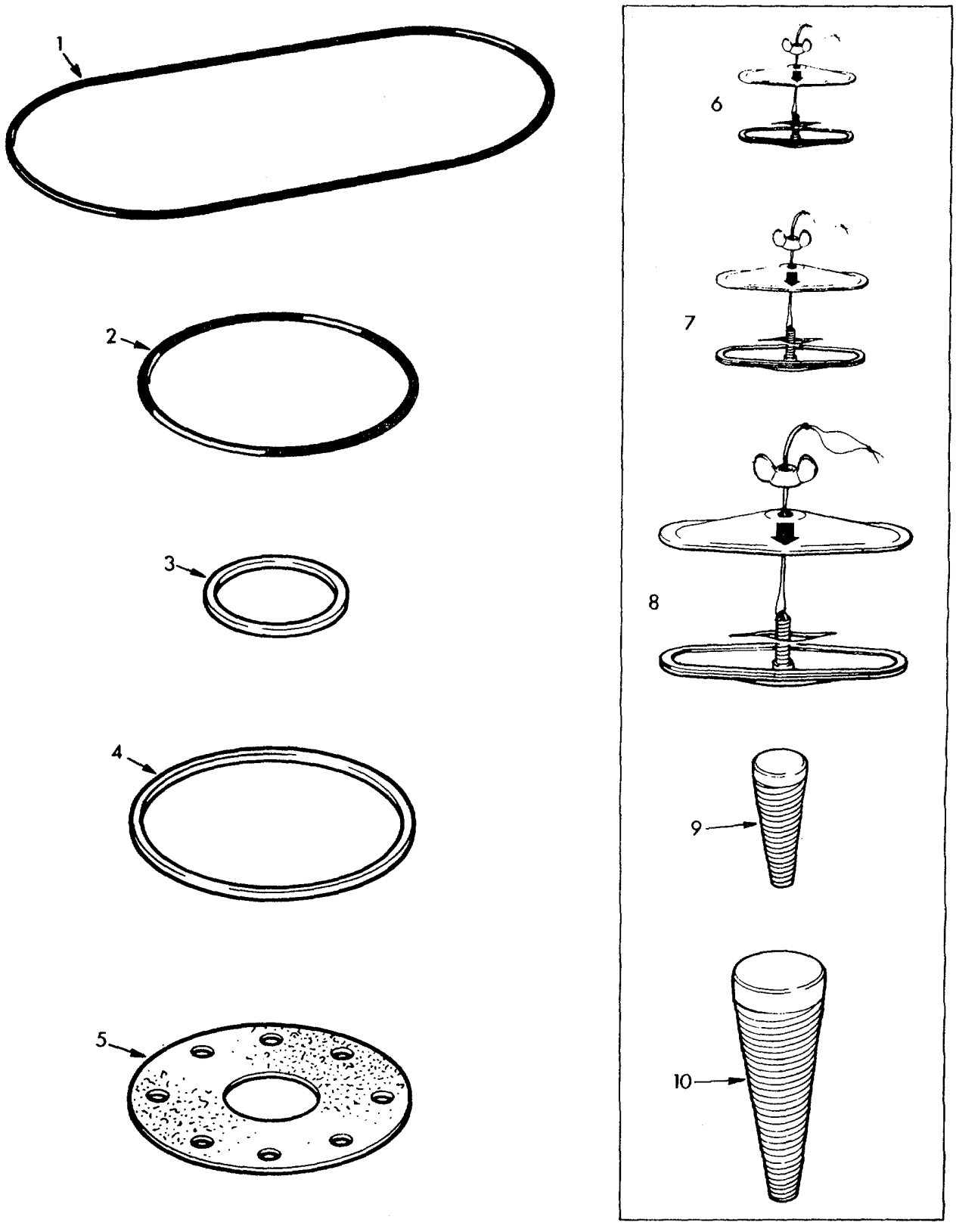

Figure C-8. Repair Items

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES(UOC)	(6) QTY
				GROUP 07 EMERGENCY REPAIR ITEMS	
				FIG. C-8 EMERGENCY REPAIR ITEMS	
	XCOZZ	97403	13227F6616	EMERGENCY REPAIR ITEMS	1
1	PAOZZ	96906	MS29513-250	.PACKING, PREFORMED RUBBER	2
2	PAOZZ	96906	MS9021-383	.RING GASKET RUBBER	2
3	PAOZZ	96906	MS27030-6	.WASHER, FLAT HALF 2 INCH RUBBER	2
4	PAOZZ	96906	MS27030-9	.GASKET HALF- 4 IN. RUBBER	2
5	PAOZZ	97403	13227F6605	.GASKET, CORK COMPOSITION MIL-C-6183 TYPE II CLASS 1 GRADE B	2
6	PAOZZ	97403	13227E6564	.SEALING CLAMP ASSY	4
7	PAOZZ	97403	13227E6565	.SEALING CLAMP ASSY	2
8	PAOZZ	97403	13227E6566	.SEALING CLAMP ASSY 7.5 INCH	2
9	PAOZZ	97403	13227E6567	.PLUG, 3 IN. WOOD	2
10	PAOZZ	97403	13227E6568	.PLUG, 5 IN. WOOD	2

END OF FIGURE

Section III. SPECIAL TOOLS LIST

(Not Applicable)

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM.	STOCK NUMBER	FIG.	ITEM.
5305-00-021-3740	C-2	11			
	C-3	11			
5305-00-071-2505	C-2	14			
	C-3	14			
	C-4	6			
5305-00-225-3843	C-1	9			
5330-00-291-3085	C-1	7			
	C-8	1			
5330-00-612-2414	C-1	5			
	C-1	11			
	C-8	3			
4730-00-649-9103	C-1	4			
5310-00-823-8804	C-1	8			
	C-2	13			
	C-3	13			
	C-4	7			
4730-00-840-5347	C-2	4			
	C-3	4			
	C-7	3			
5330-00-899-4509	C-2	2			
	C-2	16			
	C-3	2			
	C-3	16			
	C-7	5			
	C-8	4			
5310-00-913-8881	C-2	8			
	C-3	8			
5310-00-984-7042	C-2	9			
	C-3	9			
5330-01-252-6412	C-1	2			
5430-01-252-6434	C-1	1			
4930-01-252-6452	C-1				

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS27023-17	4730-00-840-5347	C-2	4
			C-3	4
			C-7	3
96905	MS27023-21		C-1	6
96906	MS27024-11	4730-00-649-9103	C-1	4
96096	MS27027-17		C-7	11
96096	MS27028-11		C-1	10
96096	MS27028-17		C-2	15
			C-3	15
			C-7	2
96906	MS27029-17		C-7	10
96906	MS27030-6	5330-00-612-2414	C-1	15
			C-1	11
			C-8	3
96906	MS27030-95331-00-899-4509	C-2	2	
			C-2	16
			C-3	2
			C-3	16
			C-7	5
			C-8	4
96906	MS27183-9	5310-00-823-8804	C-1	8
			C-2	13
			C-3	13
			C-4	7
96906	MS29513-250	5330-00-291-3085	C-1	7
			C-4	1
			C-8	1
96906	MS35307-364	5305-00-021-3740	C-2	11
			C-3	11
96906	MS35338-84	5310-00-984-7042	C-2	9
			C-3	9
96906	MS51971-3	5310-00-913-8881	C-2	8
			C-3	8
96906	MS9021-383		C-2	12
			C-3	12
			C-8	2
96906	M590728--7	5305-00-071-2505	C-4	6
96906	MS90728-7	5305-00-071-2505	C-2	14
			C-3	14
96906	MS90728-8	5305-00-225-3843	C-1	9
97403	13227E6561		C-7	1
97403	13227E6564		C-8	6
97403	13227E6565		C-8	7
97403	13227E6566		C-8	8
97403	13227E6567		C-8	9
97403	13227E6568		C-8	10
97403	13227E6570		C-5	
97403	13227E6588		C-2	
97403	13227E6589		C-3	
97403	13227E6590		C-4	
97403	13227E6591		C-2	3

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
97403	13227E6591		C-3	3
97403	13227E6593		C-7	8
97403	13227E6594	4930-01-252-6452	C-1	
97403	13227E6596		C-7	9
97403	13227E6598		C-7	6
97403	13227E6599		C-1	3
97403	13227E6600	5430-01-252-6434	C-1	1
97403	13227E6601	5330-01-252-6412	C-1	2
97403	13227E6602		C-4	2
97403	13227Eb603		C-2	7
			C-3	7
97403	13227E6604		C-2	6
			C-3	6
97403	13227E6605		C-2	5
			C-3	5
			C-7	4
			C-8	5
97403	13227F6606		C-2	10
			C-3	10
97403	13227E6607		C-6	2
97403	13227E6608		C-6	1
97403	13227E6609		C-7	7
97403	13227E6610		C-2	I
97403	13227E6611		C-3	1
97403	13227E6612		C-4	4
97403	13227E6613		C-4	3
97403	13227E6614		C-4	5
97433	13227E6616		C-8	
97403	13227E6619		C-3	

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-1		4930-01-252-6452	97403	13227E6594
C-1	1	5430-01-252-6434	97403	13227E6600
C-1	2	5330-01-252-6412	97403	13227E6601
C-1	3		97403	13227E6559
C-1	4	4730-00-649-9103	96906	MS27024-11
C-1	5	5330-00-612-2414	96906	MS27030-6
C-1	6		96906	MS27023-21
C-1	7	5330-00-291-3085	96906	MS29513-250
C-1	8	5310-00-823-8804	96906	MS27183-9
C-1	9	5305-00-225-3843	96906	MS90728-8
C-1	10		96906	MS27028-11
C-1	11	5330-00-612-2414	96906	MS27030-6
C-2			97403	13227E6588
C-2	1		97403	13227E6610
C-2	2	5330-00-899-4509	96906	MS27030-9
C-2	3		97403	13227E6591
C-2	4	4730-00-840-5347	96906	MS27023-17
C-2	5		97403	13227E6605
C-2	6		97403	13227E6604
C-2	7		97403	13227E6603
C-2	8	5310-00-913-8881	96906	MS51971-3
C-2	9	5310-00-984-7042	96906	MS35338-84
C-2	10		97403	13227E6606
C-2	11	5305-00-021-3740	96906	MS35307-364
C-2	12		96906	MS9021-383
C-2	13	5310-00-823-8804	96906	MS27183-9
C-2	14	5305-00-071-2505	96906	MS90728-7
C-2	15		96906	MS27028-17
C-2	16	5330-00-899-4509	96906	MS27030-9
C-3			97403	13227E6589
C-3			97403	13227E6619
C-3	1		97403	13227E6611
C-3	2	5330-00-899-4509	96906	MS27030-9
C-3	3		97403	13227E6591
C-3	4	4730-00-840-5347	96906	MS27023-17
C-3	5		97403	13227E6605
C-3	6		97403	13227E6604
C-3	7		97403	13227E6603
C-3	8	5310-00-913-8881	96906	MS51971-3
C-3	9	5310-00-984-7042	96906	MS35338-84
C-3	10		97403	13227E6606
C-3	11	5305-00-021-3740	96906	MAS35307-364
C-3	12		96906	MS9021-383
C-3	13	5310-00-823-8804	96906	MS27183-9
C-3	14	5305-00-071-2505	96906	MS90728-7
C-3	15		96906	MS27028-17
C-3	16	5330-00-899-4509	96906	MS27030-9
C-4			97403	13227E6590
C-4	1		96909	MS29513-250
C-4	2		97403	13227E6602
C-4	3		97403	13227E6613

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
C-4	4		97403	13227F6612
C-4	5		97403	13227E6614
C-4	6	5305-00-071-2505	96906	M590728--7
C-4	7	5310-00-823-8804	96906	MS27183-9
C-5			97403	13227E6570
C-6	1		97403	13227E6608
C-6	2		97403	13227E6607
C-7	1		97403	13227E6561
C-7	2		96906	MS27028-17
C-7	3	4730-00-840-5347	96906	MS27023-17
C-7	4		97403	13227E6605
C-7	5	5330-00-899-4509	96906	MS27030-9
C-7	6		97403	13227E6598
C-7	7		97403	13227E6609
C-7	8		37403	13227E6593
C-7	9		97403	13227E6596
C-7	10		96906	MS27029-17
C-7	11		96906	MS27027-17
C-8			97403	13227E6616
C-8	1	5330-00-291-3085	96906	MS29513-250
C-8	2		96906	MS9321-383
C-8	3	5330-00-612-2414	96906	MS27030-6
C-8	4	5330-00-899-4509	96906	MS27030-9
C-8	5		97403	13227E6605
C-8	6		97403	13227E6564
C-8	7		97403	13227E6565
C-8	8		97403	13227E6566
C-8	9		97403	13227E6567
C-8	10		97403	13227E6568

APPENDIX D

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LIST

SECTION I. INTRODUCTION

D-1 SCOPE

This appendix lists components of end item and basic issue items for the Water Tank FAB 253 andBA88-004 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 Water Tank FAB 253 or BA88-004 in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the Water Tank FAB 253 or BA88-004 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 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.

SECTION I. INTRODUCTION - CONTINUED

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. Indicates the Federal item name and, if 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.

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 of the item authorized to be used with/on the equipment.

SECTION II COMPONENTS OF END ITEM

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM and PART NUMBER	USABLE ON CODE	(4) U/M	(5) QTY rqr
	4930-01-252-6452	Vent Assembly, (97403) 13227E6594		EA	1
		Filler Assembly, (97403), 13227E6588		EA	1
		Discharge Assembly, (97403) 13227E6589		EA	1
		Drain Assembly, (97403), 13227E6590		EA	1
		Tank Body, (97403) 13227E6570		EA	1
		Drain Hose and Valve Assembly, (97403), 13227E6608		EA	1
		4-inch Gate Valve Assembly, (97403), 13227E6561		EA	1
		Emergency Repair Items, (97403), 13227E6616		EA	1

SECTION III BASIC ISSUE ITEMS

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION FSCM and PART NUMBER / USABLE ON CODE	(4) U/M	(5) QTY REQUIRED
1	5430-01-200-4831	TM 5-5430-211-13&P,	BA	1
1	FAB 253	Operator's, organizational, and Direct Support Maintenance Manual including Repair Parts and Special Tools List (RPSTL).		
1	5430-01-106-9677 BA88-004			

APPENDIX E

ADDITIONAL AUTHORIZATION LIST

SECTION I. INTRODUCTION

E-1 SCOPE

This appendix lists additional items you are authorized for the support of the Water Tank FAB 253 and BA88-004.

E-2 GENERAL

This list identifies items that do not have to accompany the Water Tank FAB 253 or BA88-004 and that do not have to be turned in with it. These items are 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 under the type document (i.e., CTA, MTOE, TDA or JTA) which authorizes the item(s) to you.

SECTION II ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM and PART NUMBER USABLE ON CODE	(3) U/M	(4) QTY AUTH
	MTOE AUTHORIZED ITEMS NOT APPLICABLE TO THIS EQUIPMENT.		
	CTA AUTHORIZED ITEMS NOT APPLICABLE TO THIS EQUIPMENT.		

APPENDIX F

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

SECTION I. INTRODUCTION

F-1 SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the Water Tank FAB 253 or BA88-004.

THIS LISTING IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT AUTHORITY TO REQUISITION THE LISTED ITEMS. THESE ITEMS ARE AUTHORIZED TO YOU BY CTA 50970, EXPENDABLE/DURABLE ITEMS (EXCEPT MEDICAL, CLASS V, REPAIR PARTS AND HERALDIC ITEMS), OR CTA 8-100, ARMY MEDICAL DEPARTMENT EXPENDABLE/DURABLE ITEMS.

F-2 EXPLANATION OF COLUMNS

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

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

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

c. Column (3) - National Stock Number. This is the National stock number assigned to the item: use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parentheses followed by the part number.

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

SECTION II EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST-CONTINUED

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
	NOT APPLICABLE TO THIS EQUIPMENT			

APPENDIX G

ILLUSTRATED LIST OF MANUFACTURED ITEMS

Not applicable to this equipment.

APPENDIX H

TORQUE LIMITS

The torque limit for bolts is:-

ASSEMBLY	NUMBER OF BOLTS	TORQUE LIMIT
Vent	8	100 inch lbs. (11.3 N•m)
Filler	20	100 inch lbs.
Filler	8	100 inch lbs.
Discharge	20	100 inch lbs.
Discharge	8	100 inch lbs.
Drain	8	100 inch lbs.
Valve Assembly	16	150 inch lbs. (16.95 N•m)

GLOSSARY

SECTION I. ABBREVIATIONS

BOI	Basis of Issue
BII	Basic Issue Items
CTA	Common Table of Allowance
DMWR	Depot Maintenance Works Requirements
EIR	Equipment Improvement Recommendations
Fig	Figure
FSCM	Federal Supply Code for Manufacturer
hex.	Hexagon
I.D.	Internal Diameter
inch-lb.	Inch pound
JTA	Joint Table of Allowance
kg	Kilogram
MAC	Maintenance Allocation Chart
MTOE	Modified Table of Organi7ation and Equipment
NIIN	National Item Identification Number
NPT	National Pipe Thread
NSN	National Stock Number
O.D.	Outer Diameter
PMCS	Preventive Maintenance Checks and Services
psi	Pounds per square inch
QTY rqr	Quantity Required
SMR Codes	Source, Maintenance and Recoverability Codes
TAMMS	The Army Maintenance Management System

TMDE	Test, Measurement and Diagnostic Equipment
TOE	Table of Organization and Equipment
U/M	Unit of Measure

SECTION II. DEFINITION OF UNUSUAL TERMS

A

ABRADE	To scrape or scuff. The tank surface may become abraded if grit is ground in by walking on it with uncleaned soles of shoes.
ALPHAMERIC	Alphabetical order. This glossary is in alphabetical order.

B

BUFF	Abrade or grind a surface to roughen it. The tank body is buffed before adhesive is applied to it so that the adhesive will give a good bond.

C

CAMLOCK	A type of locking system on a quick connect coupling.
COMPRESSION RING	A system which holds a rubber gasket and which when bolted to another item compresses the gasket and gives a water tight joint. The vent assembly is bolted to the tank via a compression ring.
COUPLING	A device which connects one item to another. A coupling elbow is used to connect the tank to a hose.
CUBIC METER	A volume of 1 meter by 1 meter by 1 meter. It is equivalent to 268 gallons.

D

DISASSEMBLY	Take into its component parts. The 4” gate valve is disassembled by removing 16 nuts and bolts.
DISTORTION	A bending or twisting of a shape or surface.
DUST CAP	Covering or lid put onto a coupling to prevent foreign matter getting into the tank.

E

ELECTROLYTIC CORROSION	Corrosion of a metal which occurs when two different metals are in contact. When steel bolts are in contact with aluminum the aluminum will corrode unless an electrical insulator is placed between them.

F

FAN BLOWER	Device used to inflate the tank to test for leaks similar to a hair dryer but larger. It is not capable of producing a high pressure in the tank and so burst it.
FLANGE	Projecting rim or disc. Quick disconnect couplings are bolted onto the tank via a flange.
FLOW METER	Instrument to measure the quantity of liquid or gas which passes a certain point. A flow meter can be used to measure the quantity of water which is pumped into or out of the tank.
FOREIGN MATTER	Not belonging to or introduced from outside. The tank is to hold water suitable for drinking. Foreign matter which may contaminate the water must not be introduced into the tank.

G

GATE VALVE	System to prevent the flow of liquid by screwing a plate or gate into a matched seating. Both the drain valve and the 4" valve use gates to stop water flow.
GUY ROPE	Rope used as a stay. A partially filled tank in an exposed position should be held down by guy ropes if high winds are possible.

I

INITIAL	The first or starting condition.

K

KILOGRAM	Units of weight of the metric system. 1 kilogram is equivalent to 2.20 lbs.

L

LOCKWASHER	Washer used to hold a nut or bolt so that it will not turn.

M

MALFUNCTION	Occurs when a unit fails to operate normally.
MANEUVER	Move skillfully by small movements into a final position. The tank must be maneuvered into position by hand. Mechanical pulling devices must not be used.

N

NMTRILE	A synthetic rubber material used to line the tank.
NUMERIC	In ascending numerical order.

0

OPERATIONAL	Available for use in accordance with the applicable specification.
OVERHAUL	Examine thoroughly, looking for faults and replacing faulty items so as to bring an item to a nearly new condition.

P

PETROLEUM JELLY	A lubricant used to coat the '0' rings which allows them to seat smoothly.
PRESSURE GAUGE	Instrument used to measure the pressure in the system and test the tank. It is inflated to 0.5 psi which is determined using a pressure gauge.
PUNCTURE	Action of piercing the surface of a hollow object. Sharp objects must not come into contact with the tank body as they may puncture it.

R

RIGID	Stiff or not easily bent. Rigid pipes must not be directly attached to the tank.

S

SEAM	Joint between two items. The tank is made from lengths of material which are held together by seams.

T

TURBULENCE	Disturbance of water in tank. May be caused by high winds or water flow.

W

WEBBING	Strong wide tape, used for rolling up the tank.

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By Order of the Secretary of the Army:

CARL E. VUONO
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, Unit, Direct Support and General Support Maintenance Requirements for Tank, Fabric, Collapsible, Pillow Type, 50,000 (FAB 253)

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The Metric System and Equivalents

Linear Measure

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

Weights

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

Liquid Measure

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

Square Measure

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

Cubic Measure

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

Approximate Conversion Factors

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

Temperature (Exact)

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

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.

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