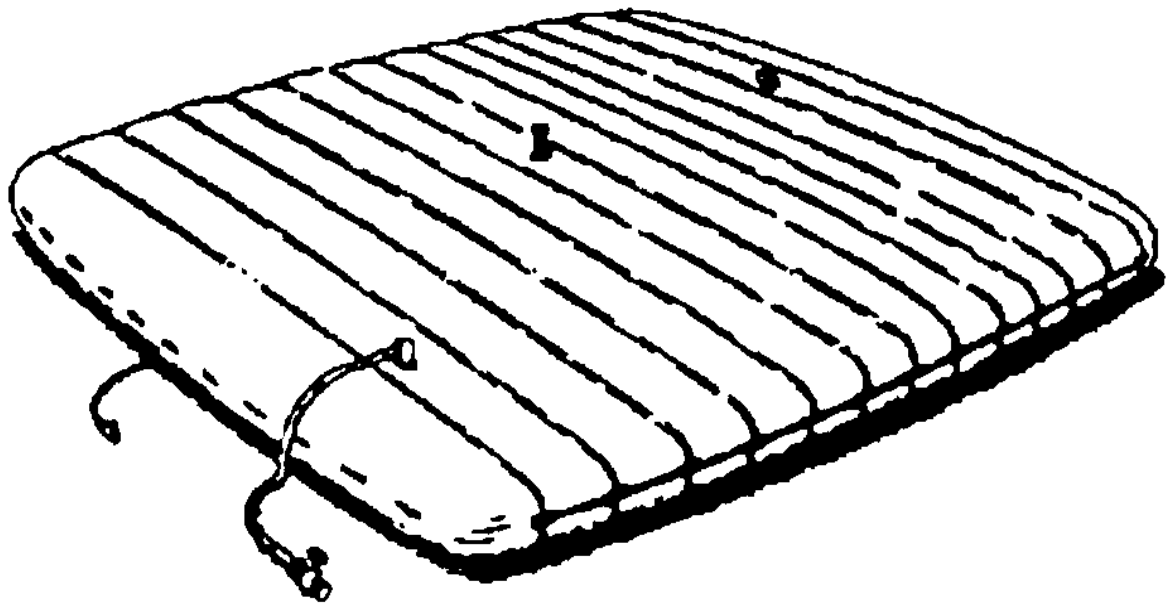
TM 10-5430-239-12&P

TECHNICAL MANUAL

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

TANK, COLLAPSIBLE, FABRIC: PETROLEUM, 5,000 BARREL

MODEL BA91-142 (EIC: ZFU)
NSN 5430-01-374-5656
MODEL RCF0210000 (EIC: ZF9)
NSN 5430-01-433-6246
MODEL PD5430-0001 (EIC: ZFQ)
NSN 5430-01-160-3528
MODEL GTA-210KF (EIC: GTA)
NSN 5430-01-505-4249



This manual supersedes TM 10-5430-232-12&P, dated 29 April 1994 and TM 10-5430-214-13&P dated 31 December 1986 including all changes.

HEADQUARTERS, DEPARTMENT OF THE ARMY

SEPTEMBER 2005

WARNING SUMMARY

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

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

Safety berms must have capacities of not less than one and one-half times that of their tank capacities. Failure to construct a secure safety berm may result in death or serious injury.

Dry cleaning solvent A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well ventilated areas. Avoid repeated and prolonged skin contact. Do not use near an open flame or excessive heat. The flash point of solvent is 100°F to 138°F (38°C to 59°C).

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

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

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

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

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

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

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

Lifting or moving fuel tanks, berm liners or heavy equipment incorrectly can cause serious injury. Do not lift or move more than 50 pounds (22.7 kg) alone. Always get help from additional personnel or use proper lifting equipment during lifting operations.

For first aid procedures, refer to FM 4-25.11.

DESTROY SUPERSEDED DATA

LIST OF EFFECTIVE PAGES/WORK PACKAGES

Dates of issue for the original manuals are:

Original 2 September 2005, TM 10-5430-232-12&P

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 30 AND TOTAL NUMBER OF WORK PACKAGES IS 44 CONSISTING OF THE FOLLOWING:

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Title	0
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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 2 SEPTEMBER 2005

TECHNICAL MANUAL

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

TANK, COLLAPSIBLE, FABRIC; PETROLEUM
5,000 BARREL
MODEL BA91-142 (EIC-ZFU) NSN 5430-01-374-5656
MODEL RCF0210000 (EIC-XXX) NSN 5430-01-433-6246
MODEL PD5430-0001 (EIC-ZFQ) NSN 5430-01-160-3528
MODEL GTA-210KF (EIC-GTA) NSN 5430-01-505-4249

CURRENT AS OF 29 AUGUST 2003

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or email your letter or DA Form 2028 direct to: AMSTA-LC-CI/TECH PUBS, TACOM-RI, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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

TABLE OF CONTENTS

HOW TO USE THIS MANUAL

Section I. OVERVIEW -This manual is divided into seven chapters consisting of 44 work packages that provide all the information necessary to operate and maintain the collapsible fabric petroleum tank assemblies.

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

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

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

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL GENERAL INFORMATION

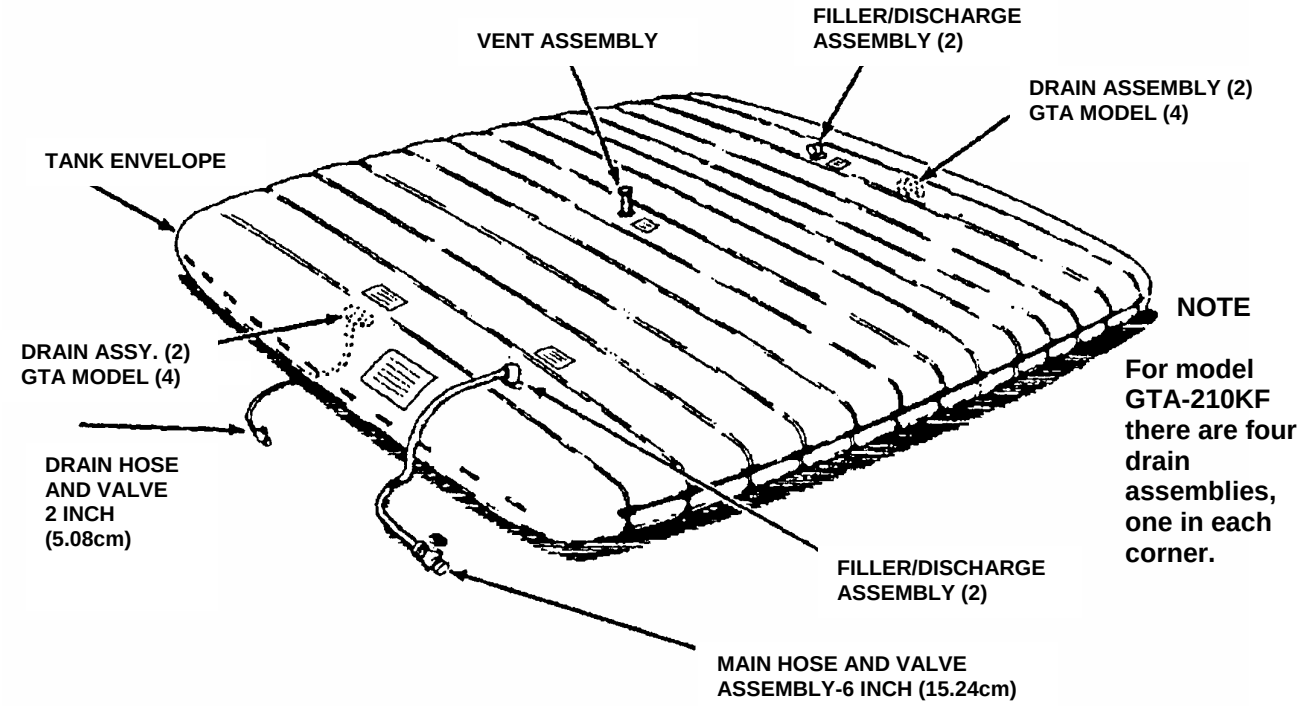
SCOPE

This technical manual contains instructions for operations, checks and corrective maintenance for the 5,000 Barrel (794,850L) Collapsible Fabric Petroleum Tanks.

Type of Manual: Operator and Unit Maintenance including Repair Parts and Special Tools List.

Model Number and Equipment Names: BA91-142, RCF0210000, PD5430-0001 and GTA-210KF, 5,000 Barrel Collapsible Fabric Petroleum Tanks.

Purpose of Equipment: The 5,000 barrel collapsible petroleum tank is a container designed to store a variety of petroleum liquids. The tank is intended for use as a fuel storage container when large capacity quick storage facilities are needed and where permanent fuel storage facilities are not available or when the storage of fuel is needed only on a temporary basis. The tank will be used to store fuel as part of a bulk fuel terminal. Fuel will be available for use in quick response deployment operations.



Typical Fuel Tank

MAINTENANCE FORMS, RECORDS AND REPORTS

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

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs)

If your collapsible fabric petroleum tank assemblies need improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to the address specified in DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS), or as specified by the acquiring activity. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

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

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

If a corrosion problem is identified, it can be reported using SF 368, Product Quality Deficiency Report. Use of key words such as "rust," "deterioration," "corrosion," or "cracking" will ensure that the information is identified as a CPC problem.

The form should be submitted to the address specified in DA Pam 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS).

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Command decisions, according to tactical situations, will determine when destruction of the collapsible fabric petroleum tank assembly will be accomplished. A destruction plan will be prepared by the using organization, unless one has been prepared by higher authority. For general destruction procedures for this equipment, refer to TM 750-244-3, Procedures for Destruction of Equipment to Prevent Enemy Use.

PREPARATION FOR STORAGE OR SHIPMENT

Refer to WP 0031 00 for storage and shipment procedures.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

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

END OF WORK PACKAGE

CHAPTER 1

DESCRIPTION AND THEORY OF OPERATION FOR COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABIC TANK, PETROLEUM, 5,000 BARREL EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Characteristics, capabilities, and features of the 5,000 barrel (794,850 L) collapsible fabric petroleum tank include:

a. The tanks are made of tough polymer-coated nylon fabric which is designed to resist exposure effects from extreme temperatures, rain, snow, ice, fungi growth, and high humidity conditions.

b. Chafing patches beneath all fitting and hardware locations provide triple-wall thickness protection.

c. Handles on each tank are vulcanized for easy tank positioning.

d. Fittings are bonded into each tank for attaching a vent assembly, filler/discharge assemblies, and drain assemblies.

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

f. The filled tanks expand vertically.

g. Internal pressure is vented to prevent over pressurization.

h. Water and residual fuel may be drained from the bottom of the tanks.

i. Has NATO adapter, providing capability to receive or discharge NATO fuel. (Tank Model GTA-210KF does not have a NATO adapter.)

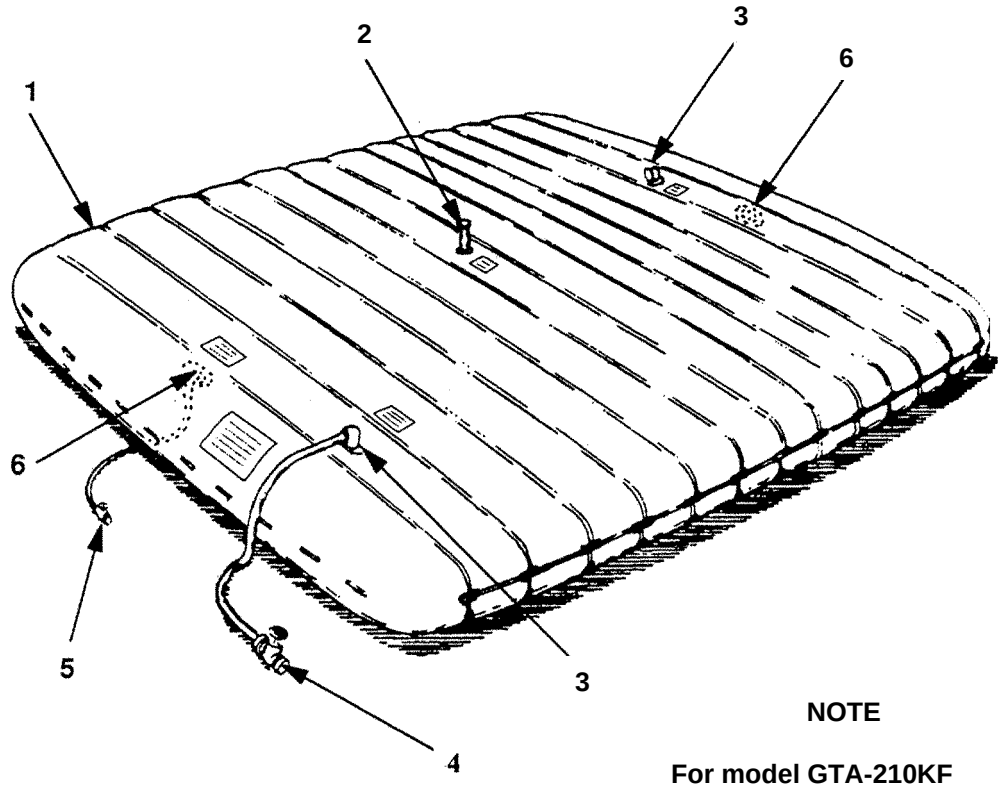
j. The tanks are self-supporting and do not require earth embankment support.

k. Each tank is supplied with emergency repair kits for emergency repairs.

l. The berm liner assembly prevents spillage of fuel on the ground due to leaks in the tank. The berm liner is supplied with drain assemblies, drain hose assemblies and ball valves.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

TANK ENVELOPE (1)	5,000 barrel (794,850 L), collapsible, polymer-coated nylon fabric tank. Used for fuel storage. Comes with emergency repair kit.
VENT ASSEMBLY (2)	Opens automatically when internal vapor pressure reaches 0.1 psi (0.0068 atmospheres) to relieve pressure inside tank.
FILLER/DISCHARGE ASSEMBLY (3)	Allows hose assembly to be connected to tank. Discharge fitting requires female/male elbow. Filler fitting requires female/female elbow.
MAIN HOSE AND VALVE ASSEMBLY 6-INCH (4)	Allows fuel to flow to and from tank. Valve is normally closed when tank is not being filled or fuel is not being discharged from tank.
DRAIN HOSE AND VALVE 2-INCH (5)	Allows fuel, water, and sludge to drain from tank. Valve is normally closed.
DRAIN ASSEMBLY (6)	Allows drain hose to be connected to tank.



NOTE

For model GTA-210KF there are four drain assemblies, one in each corner.

Typical Fuel Tank

EQUIPMENT DATA

Identification Plate

The tanks are fitted with a bonded identification label, which lists the following:

a. Tank, fabric, collapsible: 5,000 barrel fuel

b. NSN 5430-01-374-5656 (Model BA91-142); NSN 5430-01-433-6246 (Model RCF0210000); NSN 5430-01-160-3528 (Model PD5430-0001); NSN 5430-01-505-4249 (Model GTA-210KF)

c. Serial Number

d. Manufacturer's Name and Plant Location

e. Date of Manufacture

f. 3,000 lbs. (1,362 kg)

Stencils

a. Overfill Caution (1):

CAUTION

Overfill of this tank will result in permanent damage to or failure of the tank. Do not overfill. This tank can hold 5,000 barrels (210,000 gallons/794,850 liters) of fuel. The maximum tank height is 6-feet, 8-inches (2.06 meters). For model GTA-210KF, 6-feet, 0-inches (1.83 meters). Not recommended for long-term gasoline storage. Attach drain hose and valve before filling tank.

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

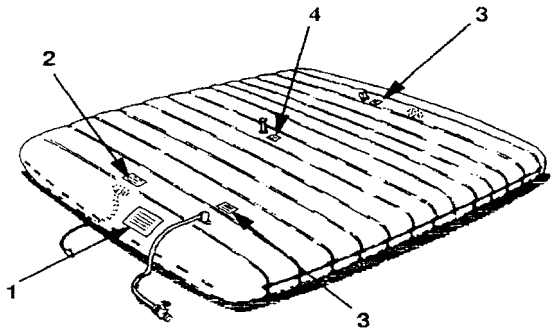
c. Fill Discharge (3):
Connect drain hose before filling tank

d. Torque Data (4):
Maximum Torque Limits
1/4"-20 = 16 ft. lbs. (21.7 N·m)
3/8"-16 = 30 ft. lbs. (40.7 N·m)

For Model GTA-210KF:
1/4"-20 = 10 ft. lbs. (13.5 N·m)
3/8"-16 = 10 ft. lbs. (13.5 N·m)

NOTE

For model GTA-210KF there are four drain assemblies, one in each corner.



EQUIPMENT DATA (Continued)

Operating Temperature, Dimensions, Weights (approximate) and Capacity

For Models BA91-142, RCF0210000 and PD5430-0001:

OPERATING TEMPERATURE (AMBIENT)
- LOW ..... -25°F (-32°C)
- HIGH ..... +125°F (+52°C)

DIMENSIONS, OUTSIDE (PACKAGED)
- HEIGHT (DEPTH) ..... 4 ft (1.2 m)
- WIDTH ..... 6 ft (1.8 m)
- LENGTH ..... 16 ft (4.9 m)
- WEIGHT ..... 4,100 pounds (1,861.4 kg)

DIMENSIONS, OUTSIDE (UNPACKAGED, EMPTY)
- WIDTH ..... 68.5 ft (20.9 m)
- LENGTH ..... 68.5 ft (20.9 m)
- WEIGHT ..... 3,000 pounds (1,362 kg)

DIMENSIONS, OUTSIDE (FILLED)
- HEIGHT (DEPTH) ..... 6 ft. 8 in (2.06 m)
- WIDTH ..... 68 ft (20.7 m)
- LENGTH ..... 68 ft (20.7 m)

FUEL STORAGE CAPACITY ..... 5,000 barrels (794,850 liters)

For Model GTA-210KF:

OPERATING TEMPERATURE (AMBIENT)
- LOW ..... -25°F (-32°C)
- HIGH ..... +130°F (+54.4°C)

DIMENSIONS, OUTSIDE (PACKAGED)
- HEIGHT (DEPTH) ..... 4.6 ft (1.4 m)
- WIDTH ..... 7 ft (2.1 m)
- LENGTH ..... 9.5 ft (2.9 m)
- WEIGHT ..... 5,700 pounds (2,587.8 kg)

DIMENSIONS, OUTSIDE (UNPACKAGED, EMPTY)
- WIDTH ..... 69.4 ft (21.2 m)
- LENGTH ..... 71.0 ft (21.7 m)
- WEIGHT ..... 3,800 pounds (1,724 kg)

DIMENSIONS, OUTSIDE (FILLED)
- HEIGHT (DEPTH) ..... 6.2 ft (1.9 m)
- WIDTH ..... 70.65 ft (21.5 m)
- LENGTH ..... 71 ft (21.7 m)

BERM LINER
PART NUMBER ..... GTA-210K BERM

DIMENSIONS (OPEN)
WIDTH ..... 108 ft (32.92 m)
LENGTH ..... 108 ft (32.92 m)
WEIGHT (UNCRATED) ..... 1,865 pounds (845.9 kg)
WEIGHT (CRATED) ..... 2,795 pounds (1,268.9 kg)

DIMENSIONS, OUTSIDE (PACKAGED)
HEIGHT (DEPTH) ..... 2.6 ft (80.64 cm)
WIDTH ..... 5.4 ft (1.6 m)
LENGTH ..... 8 ft (2.4 m)

END OF WORK PACKAGE

Filling Tank

The tank is filled by connecting a hose from a fuel source to the filler and discharge hose assembly. This assembly is connected, in turn, to the gate valve that has been connected to the filler/discharge assembly. Gate valves are used to control the flow of the fuel.

Discharging Tank

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

Fuel is discharged by connecting the filler and discharge hose assembly and gate valve to the filler/discharge assembly.

Draining Tank

Water, sludge, and residual fuel are drained through the drain hose assembly at the bottom of tank.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS FOR COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL DESCRIPTION AND USE OF OPERATOR CONTROLS AND INDICATORS

GENERAL

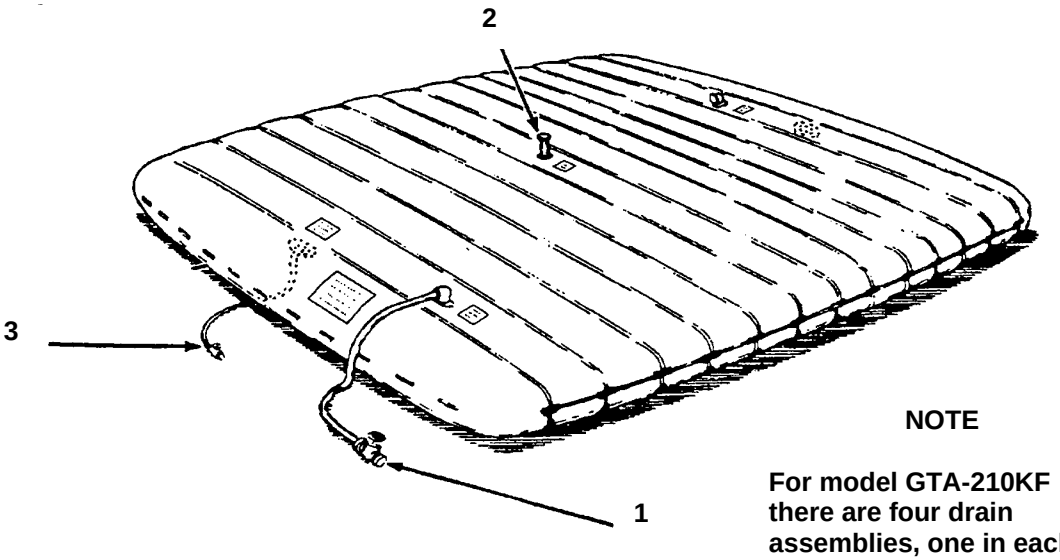
This section provides the operator with information needed to locate, identify, and use the controls and indicators required to operate the collapsible fabric petroleum tanks. The operator should be thoroughly familiar with the location and function of every control before operating the system.

DESCRIPTION AND USE OF MAJOR COMPONENTS

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

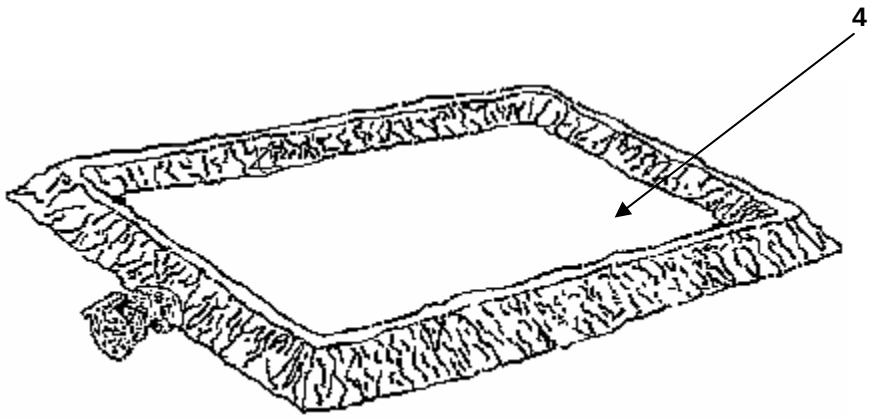
Table 1. Major Components, Controls, and Indicators

Key	Control or Indicator	Function
1	Fill/Discharge Gate Valve	Shuts fuel on and off between the tank and any other portion of the system.
2	Vent and Pipe Assembly	Allows relief cap to open automatically when the tank vapor reaches an internal pressure of 0.1 psi (0.0068 atmospheres).
3	Drain Ball or Gate Valve	Allows residual fuel or sludge to be drained from the tank when needed.
4	Berm Liner	Used for secondary containment if fuel tank fails.



NOTE

For model GTA-210KF there are four drain assemblies, one in each corner.



END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
OPERATION UNDER USUAL CONDITIONS

SITING REQUIREMENTS

For proper tank function, an appropriate site must be chosen.

Dimensions

1. Select or grade a level area of at least 95 x 95 feet (29 x 29 m). This will provide the desired 13-foot (4 m) perimeter around the empty flat tank.

NOTE

Berm liner must be used.

2. For tank operation, the tank bed area will have a slope of 3 inches (7.62 cm) in 100 feet (30.5 m). Do not exceed 12 inches (30.5 cm) in 100 feet (30.5 m). The site must not be subject to flooding or high water.

CAUTION

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

3. If the site selected has a slight slope, place one of the tank sides with a drain fitting and filler/discharge fitting at the lowest end.

Final Site Preparation

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

CAUTION

Electrical equipment used within 50 feet (15.25 m) of the tank should be approved for use in Class 1, Group D, Division 1, hazardous locations as defined by the National Electrical Code.

1. Clear the site area within 100 feet (30.5 m) of the tank of all dry grass, brush and weeds. Remove all spark-producing equipment or devices from the cleared area. Post signs stating "**FLAMMABLE LIQUID – NO SMOKING OR OPEN FLAME WITHIN 100 FEET OF TANK**."

2. Have fire extinguishing equipment on hand. Equipment should include a quick-smothering type of extinguishing agent, such as carbon dioxide or dry chemical, or a permanent type of extinguishing agent, such as foam. Locate equipment approximately 50 feet (15.25 m) from tank.

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

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

Siting Requirements

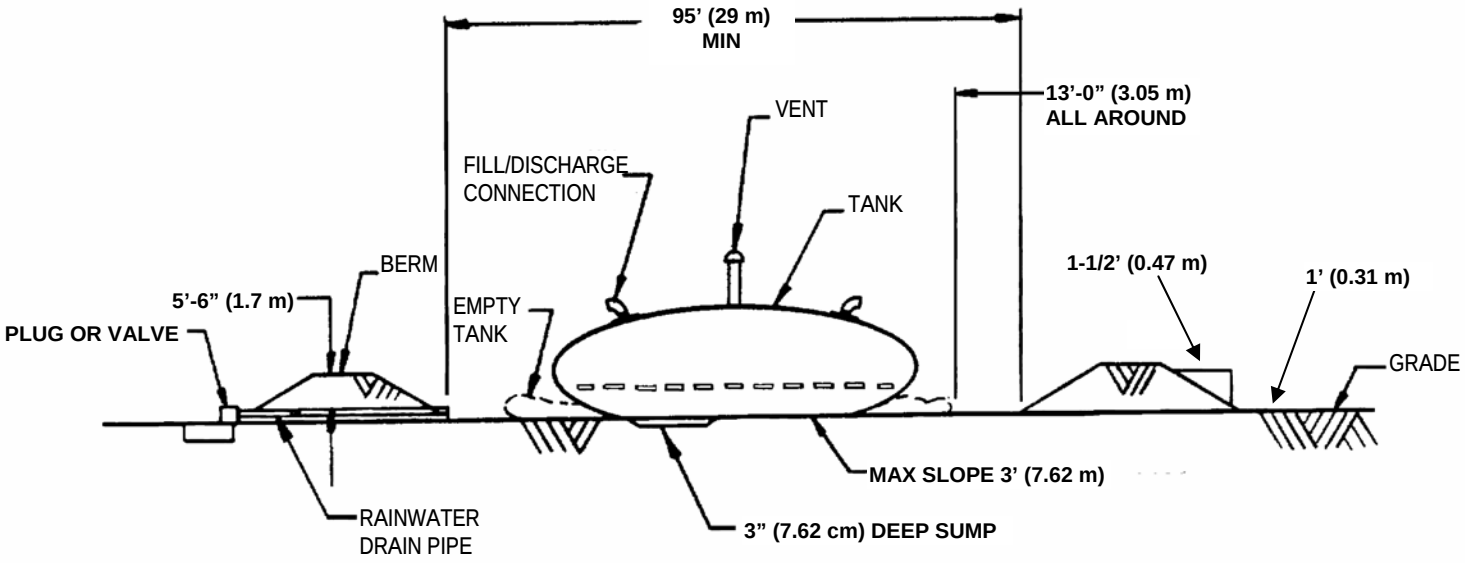
The site area must be bermed to stop the flow of fuel in case of rupture or leakage. An erected dyke should have the following characteristics:

1. At least a 13 foot (3.05 m) working area between the tank and walls.

2. Walls 5 feet, 6 inches (1.7 m) high (high enough for the internal volume to be 1-1/2 times greater than the volume of the tank).

3. Walls protected against erosion with sod or stone. Wall heights should not fall below 4 feet, 6 inches (1.4 m).

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



ASSEMBLY AND PREPARATION FOR USE

Installation Instructions

NOTE

If the tank is crated, perform removal from crate steps 1 through 9. If not, go to skid placement steps.

Removal from the Crate

WARNING

Lifting or moving fuel tanks, berm liners or heavy equipment incorrectly can cause serious injury. Do not lift or move more than 50 pounds (22.7 kg) alone. Always get help from additional personnel or use proper lifting equipment during lifting operations.

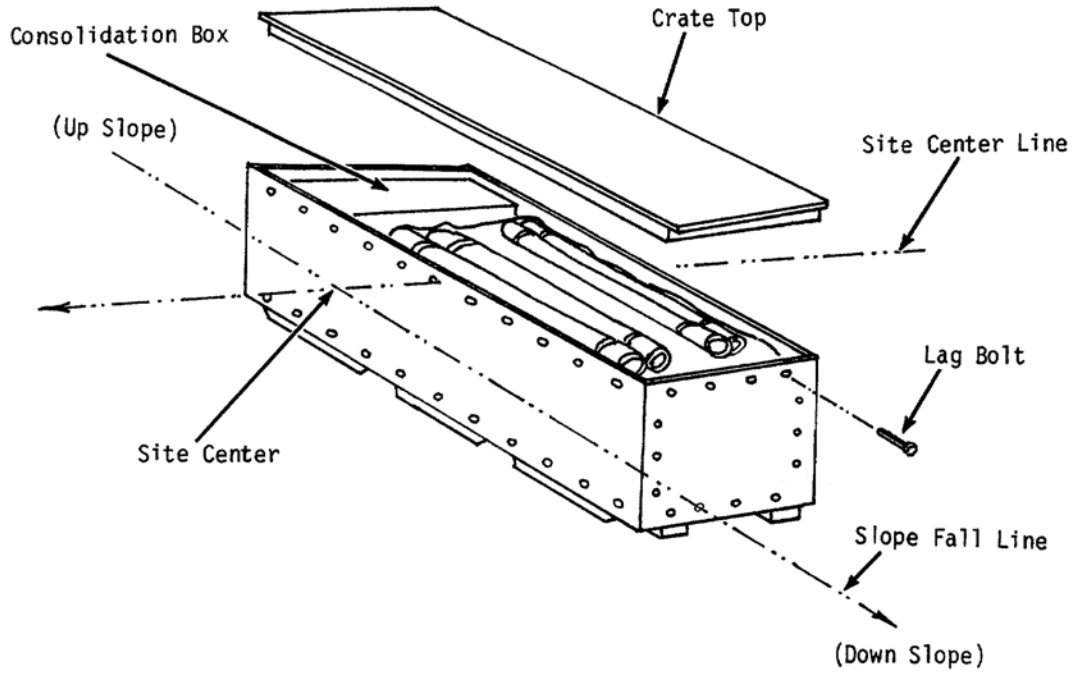
NOTE

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

1. Place the crate containing the tank in the middle of the prepared side. Place the end of the crate marked “Consolidation Box” in the center of the deployment site. If the site has any slope, the length of the crate must be parallel to the slope fall line.

2. Locate and remove lag bolts securing crate top to the sides. Lift crate top off and place outside of site area.

3. Remove four filler/discharge hoses from inside crate and place outside of site area.



Typical Crate Setup

4. Loosen tape that secures crate liner to the crate sides and ends.

5. Remove the remaining lag bolts from the crate sides and ends. Remove crate sides and ends and place them outside of the site area.

6. Remove consolidation box from skid and place box outside of the site area. Only tank and slings should remain on the skid.

7. Fold back crate liner and lifting slings. Make sure liner lifting straps and D-rings are laying flat. The slings and liner will be used for redeployment.

8. Cut the top of the protective bag down the center and peel away bag from the tank.

9. Remove all desiccant bags and materials and place outside of site area.

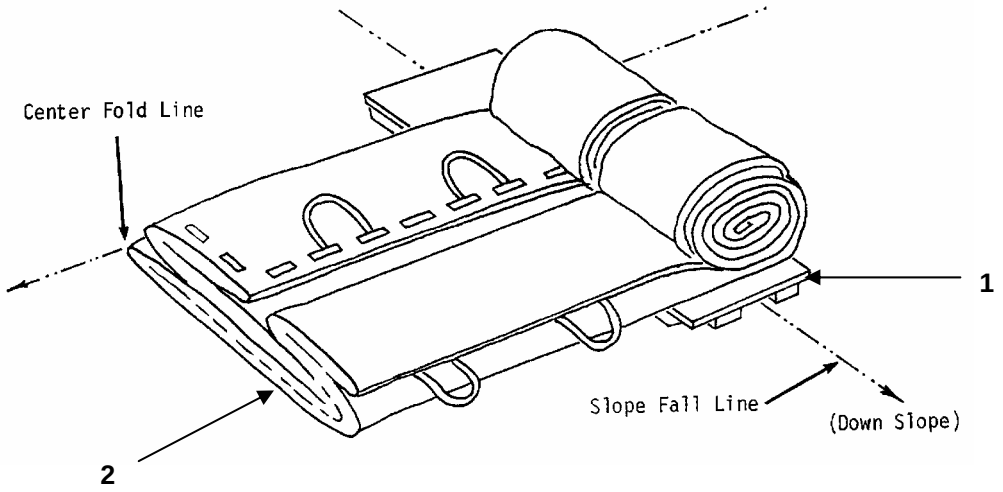
Skid Placement

NOTE

- For model GTA-210KF skip this task.
- Make sure the skid is in the proper position before beginning deployment. It is very difficult to move the tank once it has been deployed.

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

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



Tank Removal

NOTE

Model GTA-210KF does not have a skid.

1. Remove the three 3-inch (7.62 cm) tie-down straps (3) from skid (1) and tank (2). Retain for future deployment.

WARNING

Lifting or moving fuel tanks, berm liners or heavy equipment incorrectly can cause serious injury. Do not lift or move more than 50 pounds (22.7 kg) alone. Always get help from additional personnel or use proper lifting equipment during lifting operations.

CAUTION

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

NOTE

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

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

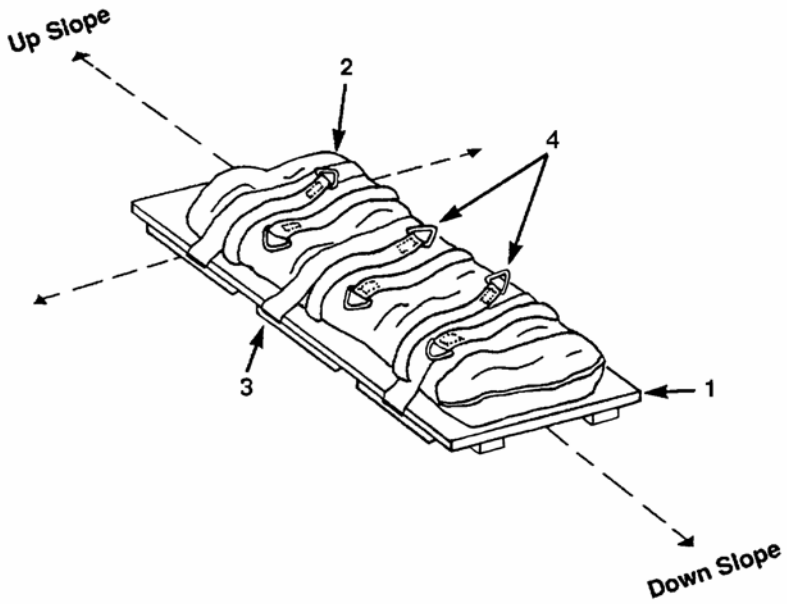
CAUTION

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

3. Unroll one end of tank (2) by pushing on roll.

NOTE

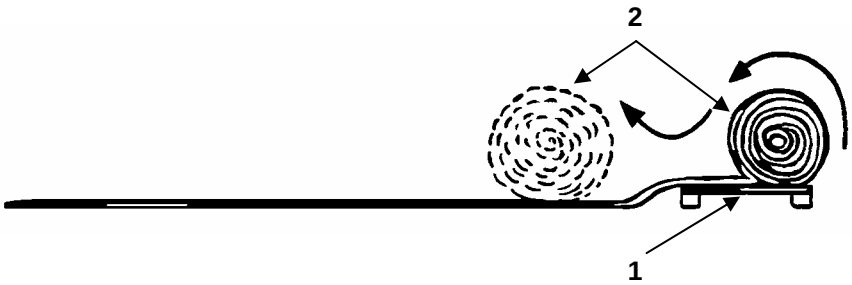
Do not unroll both ends. Wait until shipping skid has been removed and placed outside site area.



NOTE

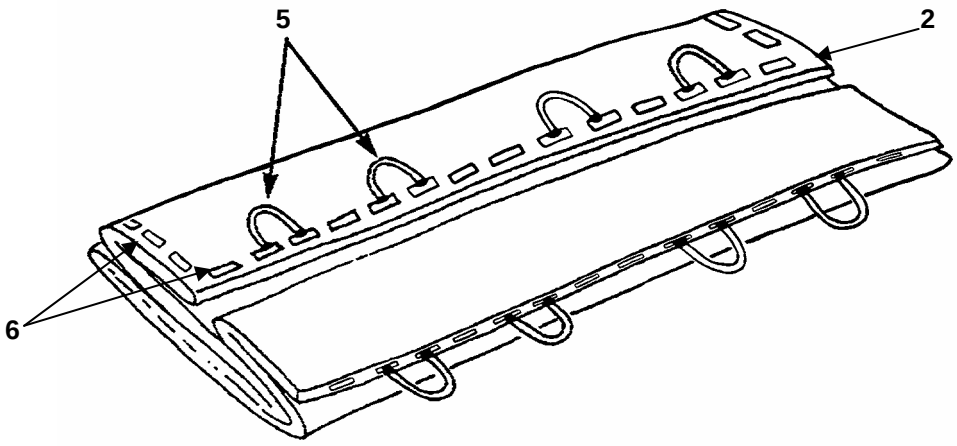
If unable to perform step 4, go to alternate deployment procedure step 9.

4. Roll remaining section of tank (2) off shipping skid (1) toward the unrolled section. When skid (1) is free from tank (2), remove skid (1) and place outside site area.



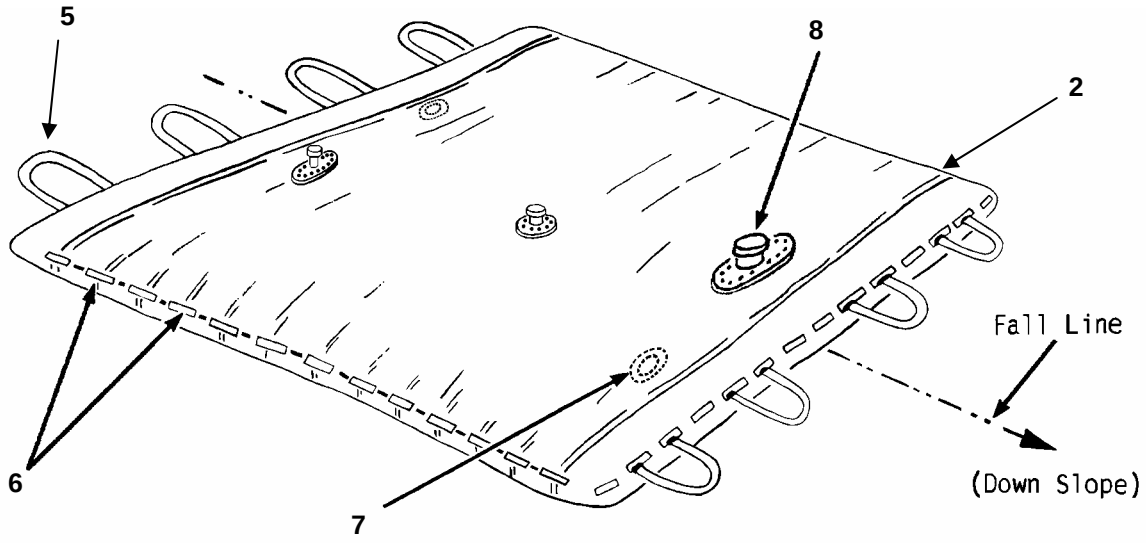
5. After skid (1) is removed, unroll tank (2) by pushing on roll.

6. Unfold tank (2) by pulling each row of deployment straps (5) in opposite directions. This will extend the two top folded layers.



7. Use deployment straps (5) and tank handles (6) to fully unfold tank (2). Tank (2) should be laying smooth without folds.

8. Tank (2) should be centered within the deployment site with one drain assembly (7) and filler/discharge assembly (8) at low end of site. Use tank handles (5, 6) to move tank (2) as necessary.



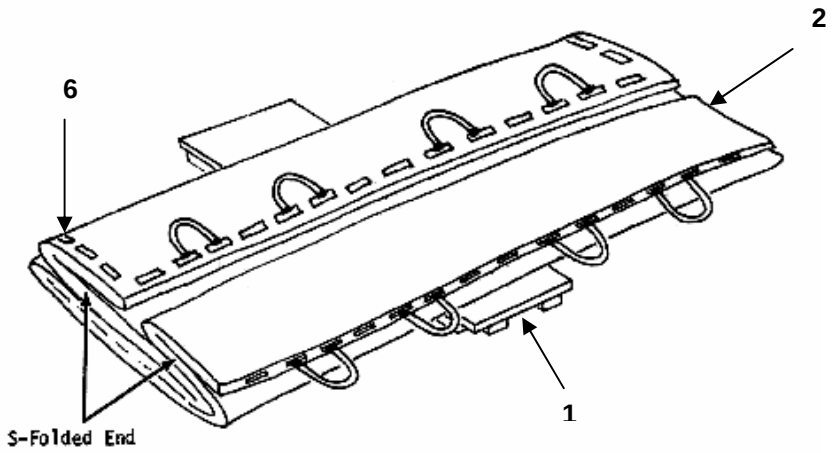
Typical Fuel Tank Setup

NOTE

The following procedure is provided as an alternative method for off-loading tank from skid.

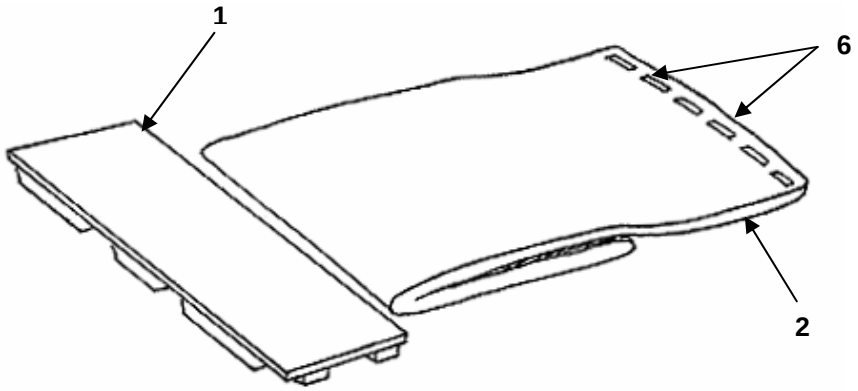
9. Alternate Deployment Procedure:

   a. Unroll remaining section of tank (2) by pushing roll in opposite direction. Tank (2) will be fully unrolled.



   b. Using tank handles (6), located on the S-folded end, fold tank (2) back length-wise until skid (1) is exposed (free).

   c. Remove skid (1) from deployment site.



   d. Once skid (1) has been removed from site area, unfold tank (2) by returning the top layers to their original position. Go back and perform steps 6 through 8.

Assembly

Attach Drain Hoses, Valves and Fittings

NOTE

If equipped with drain ball valves, perform steps 1, 2, 4, 5, 6 and 8.
If equipped with drain gate valves, perform steps 1, 3, 4, 5, 7 and 9.

1. When attaching drain hoses (1 or 2) to drain or fitting assemblies (3), wrap the male threads of drain hoses (1 or 2) with three or four layers of antiseize tape to ensure a positive seal.

2. Remove drain ball valves (4) from drain hoses (1), if attached, by unscrewing drain ball valves (4) from hoses (1).

3. Remove drain gate valves (5) from drain hoses (2), if attached, by unscrewing drain gate valves (5) from hoses (2).

4. Fold tank back to access drain plug (6).

5. Remove drain plug (6) from each drain or fitting assembly (3) and attach a drain hose (1 or 2) to each drain fitting assembly (3) by screwing in hose (1 or 2).

6. Unfold tank ends to lie flat in original position. Hoses (1 or 2) should extend from the bottom of tank.

7. Wrap the male threads of drain hoses (1) with three or four layers of antiseize tape to ensure a positive seal.

8. Screw ball valves (4) clockwise on hoses (1). For model GTA-210KF connect female end of quick-disconnect of ball valves (4) to male end of hoses (1). Ensure the ball valves (4) are closed (with handle pulled out and away from the valve) and dust caps (7) are installed.

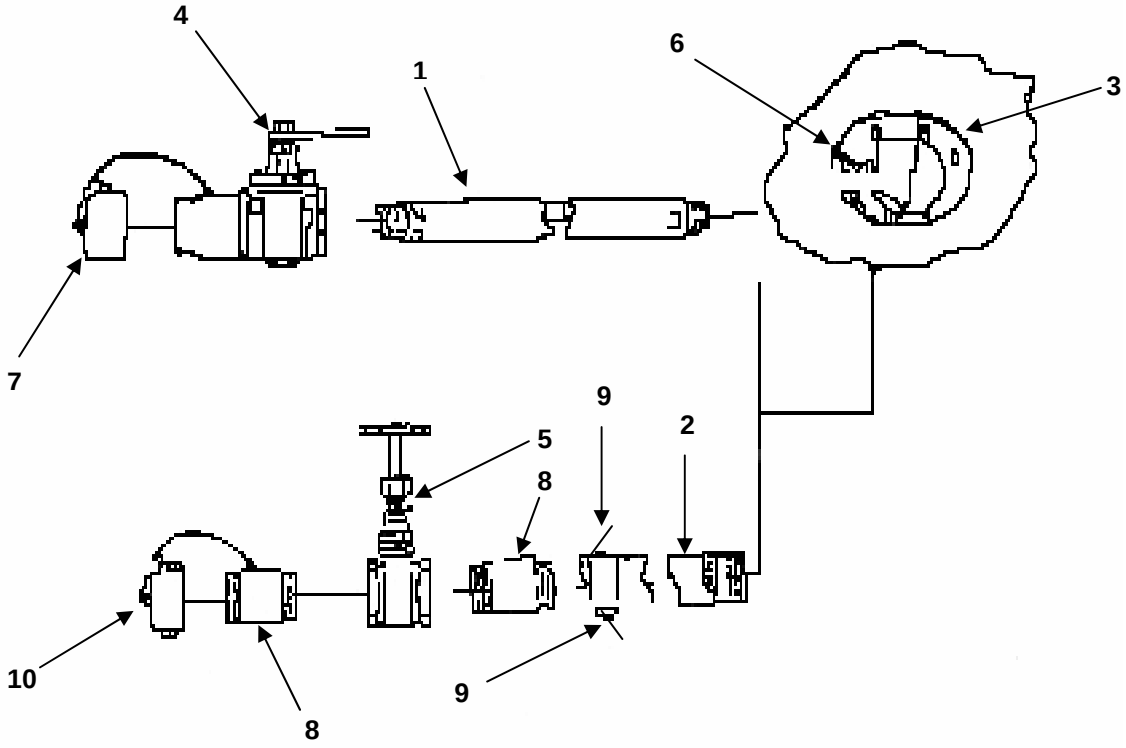
CAUTION

The cam lever arms on hose coupling halves should be safety wired in the closed position to prevent valves and hoses from separating when the tank is full of fuel. Use .010 inch stainless steel safety wire.

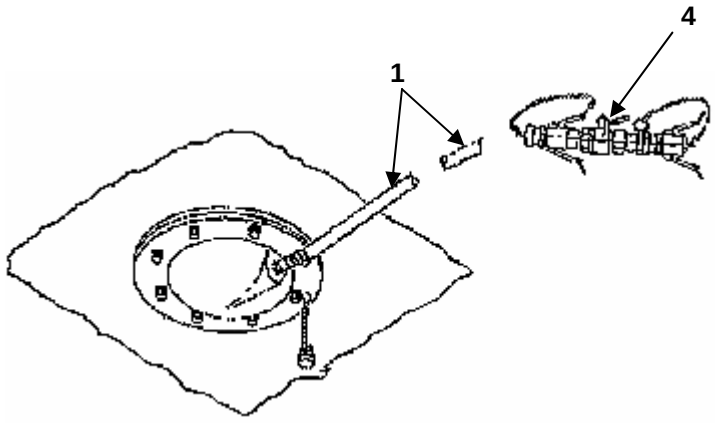
NOTE

Close both lever arms at the same time to prevent misalignment of mating parts and ensure the lever arms close properly.

9. Make sure gaskets inside coupling halves (8) are not damaged or missing. Connect gate valves (5) to hoses (2) and push down lever arms (9) to secure in place. Make sure gate valves (5) are closed (hand-wheel turned to full clockwise position) and dust caps (10) are installed.



Typical Assemblies



Model GTA-210KF

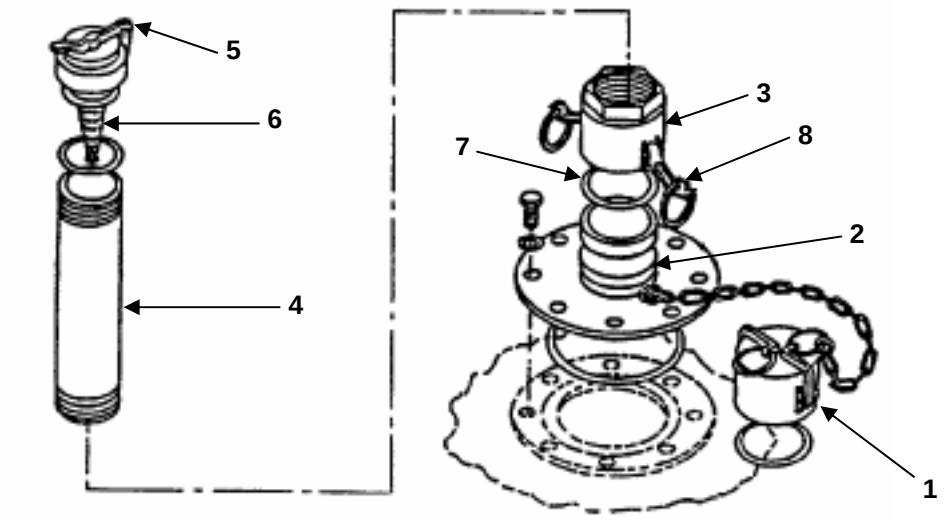
Attach Vent Assembly

1. Remove dust cap (1) from male coupling half (2).
2. Inspect female coupling half (3) and vent standpipe (4) for cleanliness. If dirty, wipe off with a clean rag.

NOTE

Normally coupling half and vent standpipe will be received pre-assembled.

3. Make sure relief cap (5) operates freely and flame arrester (6) is installed.
4. Check to see that relief cap (5) is lightly installed on vent standpipe (4).
5. Check to see that gasket (7) is in place in female coupling half (3) and correctly sealed.
6. Insert female coupling half (3) on male coupling half (2) with cam-lever arms (8) in outward position. At the same time, press cam-lever arms (8) upward and inward to lock vent standpipe (4) in operating position.



Attach Filler/Discharge Assemblies, Hoses and Gate Valves

1. Remove dust caps (1) from male coupling halves (2). If sealing surfaces of male coupling halves (2) are dirty, wipe clean with a clean rag.

2. Check to see that gaskets (3) are in place in filler/discharge elbows (4, 5) and correctly seated.

3. Insert elbows (4, 5) over male coupling halves (2) and close both cam-lever arms (6) on each elbow (4, 5) at the same time, by hand.

NOTE

Female/Female elbow is used during fill operation.
Female/Male elbow is used during discharge operation.

4. Select one filler/discharge elbow (4 or 5) to be used in operation. Place dust cap on elbow (4 or 5) that will not be used.

NOTE

If installing hose on female elbow, perform step 5. If installing hose on male elbow, go to step 6.

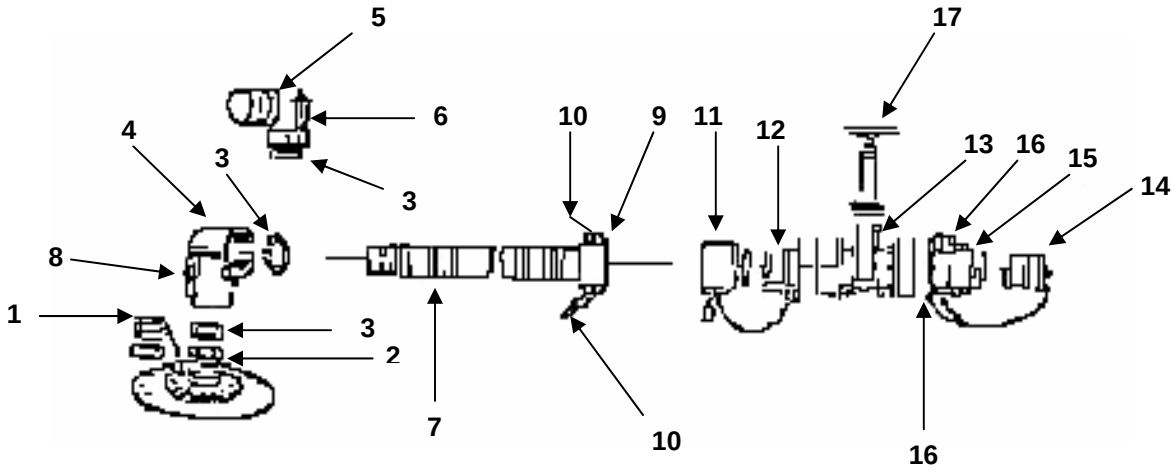
5. Insert male end of hose (7) in elbow (4). Close both cam-lever arms (8) on elbow (4) at the same time, by hand, to lock hose (7) into place.

6. Insert female coupling half (9) of hose (7) on elbow (5). Close both cam-lever arms (10) on coupling half (9) at the same time, by hand, to lock hose (7) into place.

7. If performing fill operation, remove dust cap (11) from male coupling half (12) on gate valve (13). Insert female end of hose (7) in female coupling half (15). Close both cam-lever arms (16) at the same time to lock the gate valve (13) into place.

8. If performing discharge operation, remove dust plug (14) from female coupling half (15) on gate valve (13). Insert male end of hose (7) in female coupling half (15). Close cam-lever arms (16) at the same time, by hand, to lock the gate valve (13) into place.

9. Close gate valve (13) by turning hand-wheel (17) to the full clockwise position.



OPERATING PROCEDURES

Pre-Fill Tank Check

1. Check to see that tank is properly installed. It should be lying flat and smooth.
2. Check that the drain hoses are attached and the drain valves are closed.
3. Check that vent assembly is operational.
4. Check filler/discharge elbow not used in filling. Make sure it is covered by a dust cap or plug.

WARNINGS

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

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

Fuels and fuel sludge can cause injury to skin or eyes.
If fuel or sludge comes into contact with skin, flush with soap and water.
If fuel or sludge comes into contact with eyes, flush with water.
For further information on first aid, refer to FM 4-25.11.

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

Fill Tank

CAUTION

During filling, vent cap must be open at all times. Failure to do so will result in permanent damage to the tank.

1. Prop open vent assembly cap.
2. Connect hose from fuel source to filler/discharge gate valve to be used for filling.
3. Open filler/discharge gate valve.

CAUTION

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

NOTE

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

4. Activate fuel source. Fill tank. Tank is filled to capacity when it reaches a height of 6 feet, 8 inches (2.06 meters). For model GTA-210KF, capacity is 6 feet, 0 inches (1.8 meters). Do not overfill tank.

5. When tank is full, stop pumping.

6. Close filler/discharge gate valve.

7. Disconnect fuel source hose from filler/discharge gate valve.

8. Close vent assembly cap.

9. Check tank for leakage. If tank leaks, follow troubleshooting procedures in WP 0007 00.

WARNINGS

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Discharging Fuel

1. Attach line from user’s container to gate valve.

2. Open gate valve.

3. Activate pumping source.

4. Monitor metering source.

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

6. Close gate valve.

Draining Tank

1. Empty fuel from tank following procedures for discharging fuel.
2. Pump out tank as completely as possible. Open drain gate or ball valves.
3. Fold sides of tank toward middle. Roll end of tank farthest from the lowest drain assembly toward the drain to squeeze out residual fuel.

OPERATING AUXILIARY EQUIPMENT

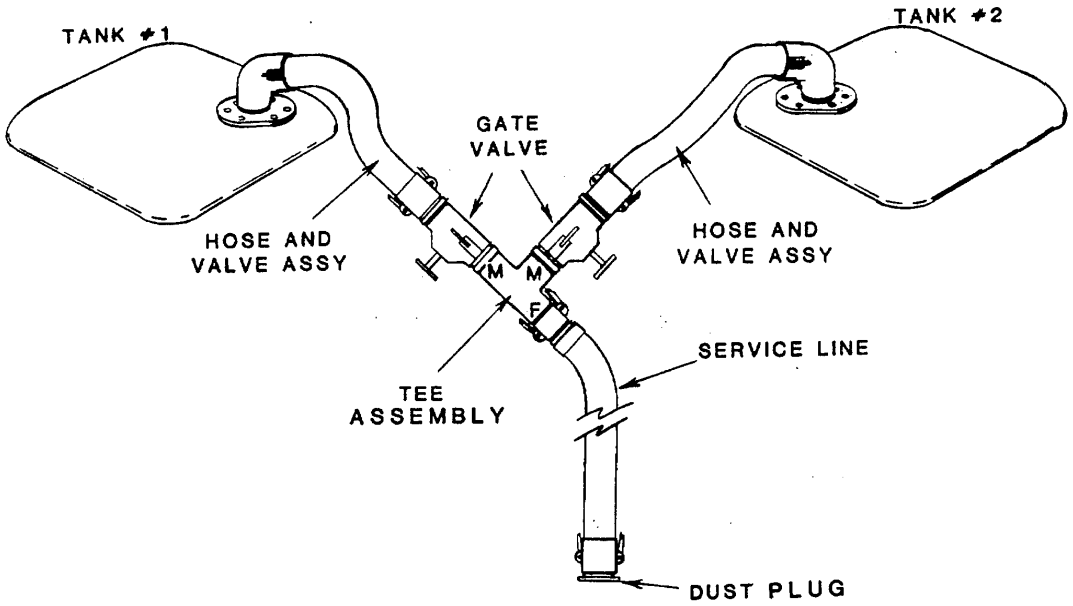
NOTE

Model GTA-210KF does not have a tee assembly.

Operation with Tee Assembly (Models BA91-142 and PD5430-0001)

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

1. Connect the tee assembly straight run male quick-disconnect (Q-D) coupling to tank #1 gate valve female Q-D coupling.
2. Connect other tee assembly male Q-D coupling to tank #2 gate valve female Q-D coupling.
3. Connect service line to the tee assembly female Q-D coupling.
4. Remove dust cap prior to connecting service line to target tank.
5. Operate gate valves as necessary to perform tank fill or discharge operations.



Operation with Reducer or NATO Adapter (Models BA91-142 and PD5430-0001)

NOTE

Model GTA-210KF does not have a reducer or NATO adapter.

The reducer and adapter allow the 5,000 Barrel Collapsible Petroleum tank to interface with other fuel storage and handling equipment.

Reducer

One reducer is a six inch (15.24 cm) male to a four inch (10.16 cm) female quick-disconnect coupling. The other reducer is a six inch (15.24 cm) female to a four inch (10.16 cm) male quick-disconnect coupling. These reducers are used during filling and discharge operations.

NATO Adapter

The NATO adapter has a four inch (10.16 cm) female quick-disconnect coupling on one end and four inch (10.16 cm) straight threads on the other end. The threaded end mates with equipment to be fueled.

PREPARATION FOR MOVEMENT

Folding Instructions (Models BA91-142, RCF0210000, and PD5430-0001)

Prior to movement or storage, the collapsible fabric tank must be emptied and refolded.

WARNINGS

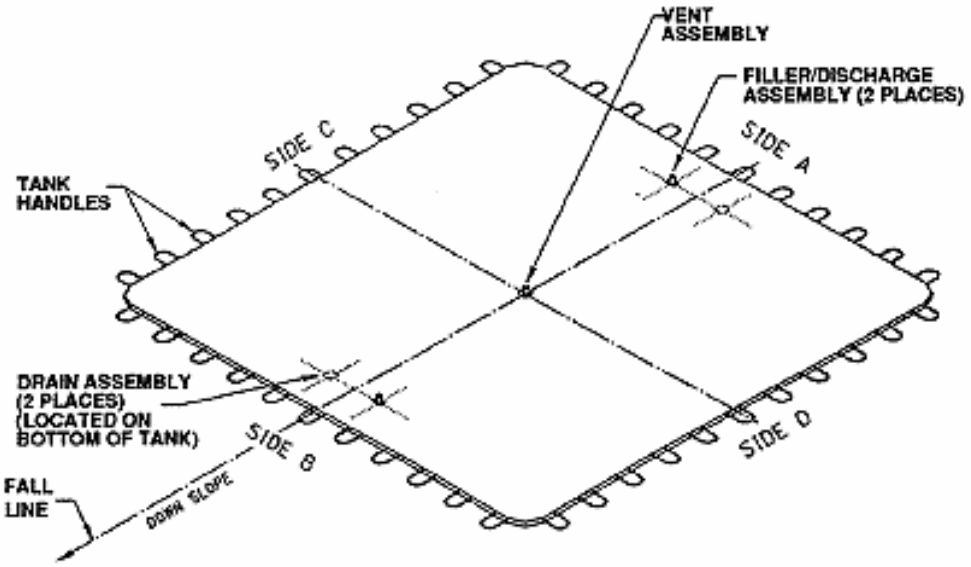
FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

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

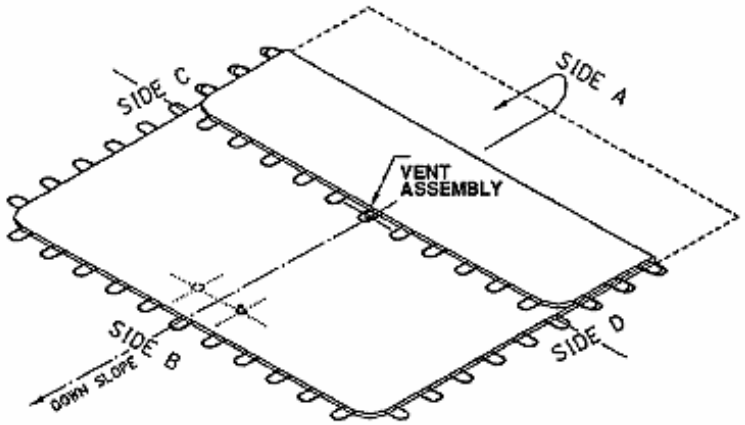
Fuels and fuel sludge can cause injury to skin or eyes.
If fuel or sludge comes into contact with skin, flush with soap and water.
If fuel or sludge comes into contact with eyes, flush with water.
For further information on first aid, refer to FM 4-25.11.

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

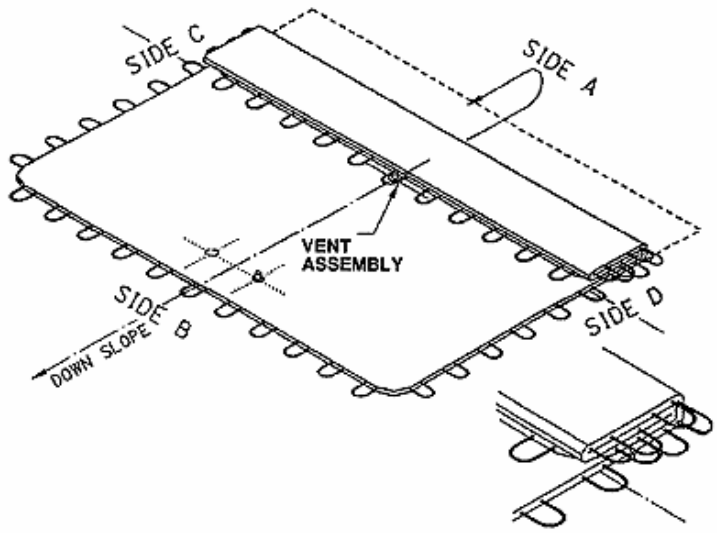
1. Drain tank until empty.



2. Using the tank handles and the deployment straps, pull the tank out to make it as flat as possible.
3. Use a pump to evacuate as much product as possible.
4. Remove filler/discharge elbow, hose and valve. Install dust plugs.
5. Remove drain assembly, valve and hose.
6. Screw dust plug into drain assembly.
7. Remove vent assembly (do not install dust cap).
8. Fold side A toward the center of the tank bringing that side flush with the vent opening.
    a. Make certain that the vent opening is unobstructed. Continue to remove air from the tank, evacuating by walking back and forth across the tank after it is folded.



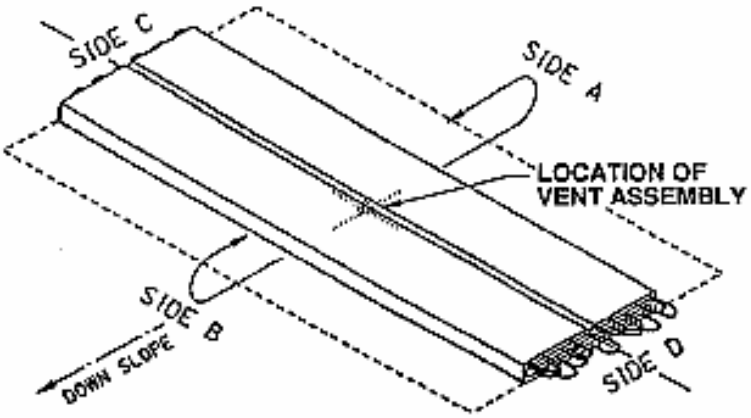
b. Fold from side A again toward the center of the tank bringing the folded edge from step 8a flush with the vent opening. Make certain that the vent opening remains unobstructed.



SIDE A ENLARGED VIEW DOUBLE FOLDED

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

9. Repeat step 8 for side B.

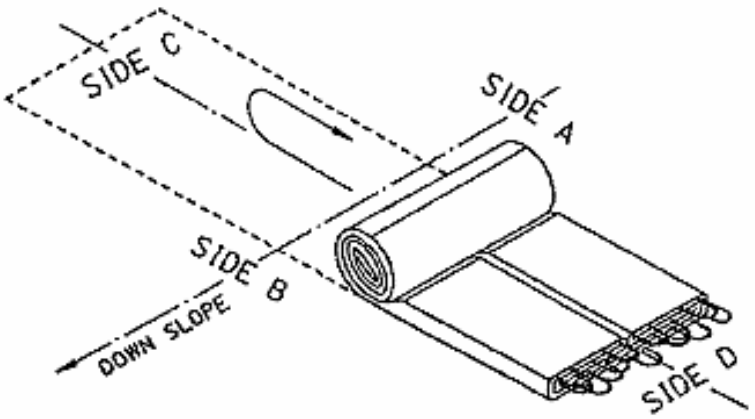


10. After sides A and B are properly folded, begin rolling from side C.

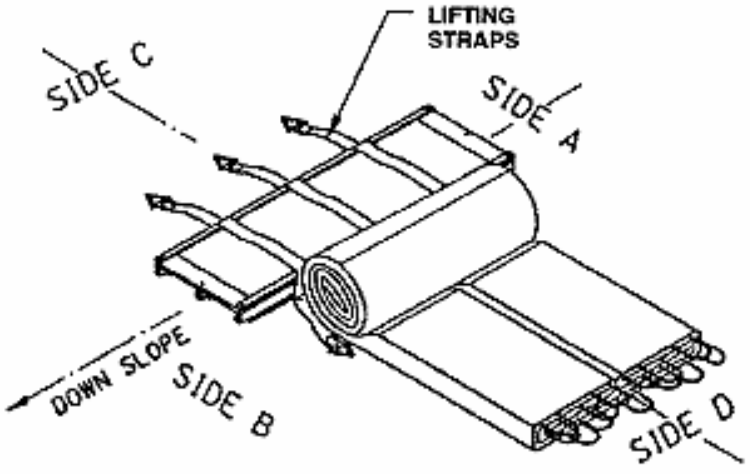
    a. Keep the vent opening clear in order to continue evacuating air as the tank is being rolled.

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

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



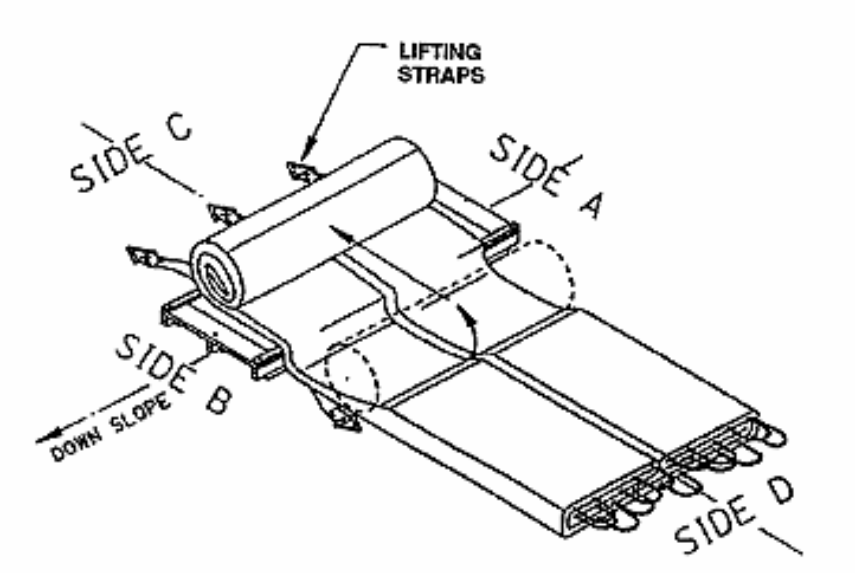
11. Place an empty tank skid against the tank. Place the lifting straps across the skid. (These straps are used to lift the tank off the skid; they do not hold the tank to the skid).



12. Unroll the rolled end of the tank backward onto the skid until the vent opening is clear again and in the center of the skid.

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

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

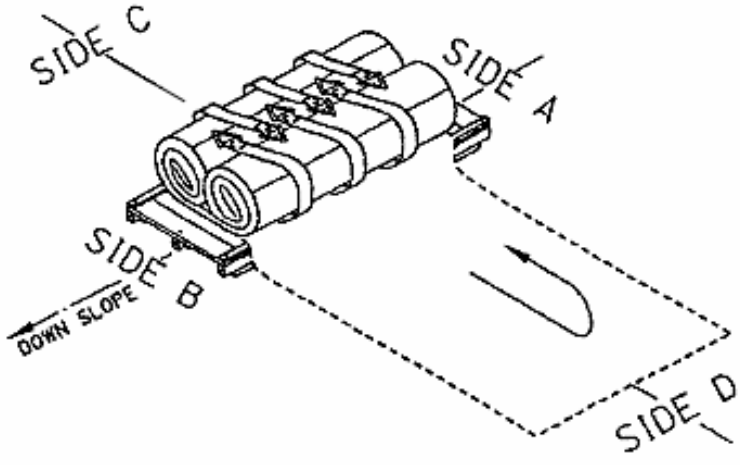


13. When properly folded and rolled, the tank will fit within the dimensions of the skid.

    a. Place the three tie-down straps under the floor of the skid.

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

    c. Be careful to not winch so tight that the tank is creased.



Folding Instructions (Model GTA-210KF)

WARNINGS

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

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

Fuels and fuel sludge can cause injury to skin or eyes.
If fuel or sludge comes into contact with skin, flush with soap and water.
If fuel or sludge comes into contact with eyes, flush with water.
For further information on first aid, refer to FM 4-25.11.

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

Lifting or moving fuel tanks, berm liners or heavy equipment incorrectly can cause serious injury. Do not lift or move more than 50 pounds (22.7 kg) alone. Always get help from additional personnel or use proper lifting equipment during lifting operations.

1. Empty the tank completely.
2. Lay the tank flat. Apply cushioning material to drain fittings.
   a. Lift corner of the tank and flip over to expose drain fitting.
   b. Disconnect drain hose and connect dust cap in place.
   c. Wrap drain fitting with the permanently attached cushioning material and secure with 2-inch pressure sensitive tape (WP 0041).
   d. Lay corner back so that tank is flat.
3. Apply cushioning material to vent fitting assembly.
   a. Locate vent fitting assembly in center top of tank.
   b. Remove upper portion of vent assembly by releasing quick disconnect. Wrap upper portion with cushioning material, secure with tape.
   c. Secure dust cap on vent fitting assembly.
   d. Apply cushioning material to vent fitting, and secure with tape.

4. Remove air from inside tank and cushion filler/discharge assemblies.

   a. Locate filler/discharge assemblies located on top of tank.

   b. Remove upper portion (6 inch 90º elbow) of each filler/discharge assembly by releasing quick disconnect.

   c. Wrap upper portion with cushioning material, secure with tape. Set aside.

   d. Secure dust cap on one of the filler/discharge assemblies.

   e. Insert a vacuum hose inside opening of filler/discharge assembly. Angle the hose so that it does not suck directly against the tank fabric. Wrap vacuum hose with a rag to cover any openings. Suck air out of tank for 5 to 7 minutes.

   f. Count to three and remove vacuum hose and immediately secure dust cap on filler/discharge assembly.

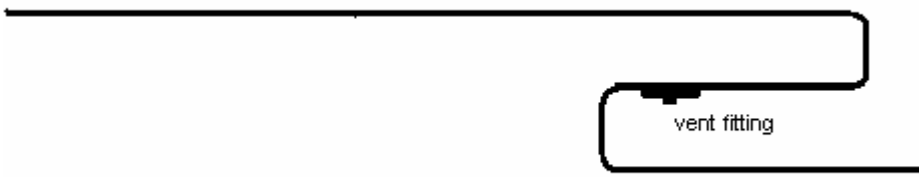
   g. Wrap permanently attached cushioning material around filler/discharge fitting and secure in place with tape.

   h. Repeat steps 4b through 4g for each filler/discharge assembly.

5. Tank is now ready for folding. Orient yourself to the tank. Stand facing the edge of the tank, such that there is a filler/discharge fitting closest to your left. There is another filler/discharge fitting on the right, but further away. This will be referred to as the West side of the tank. Tank is folded wig-wag, as follows.

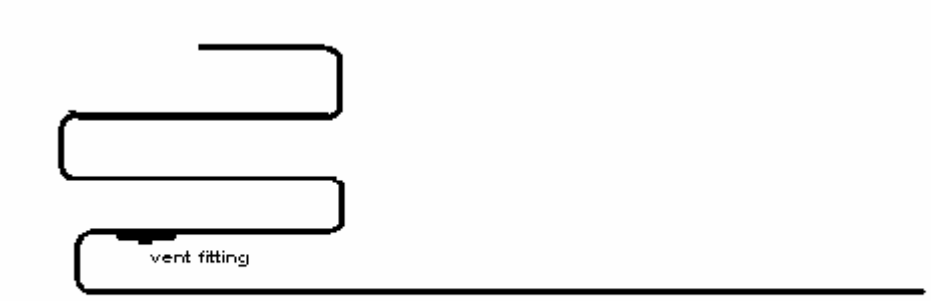
   a. 1st Fold: Start with the North side edge of the tank. Lift up the North side of the tank, and fold over the opposite edge of tank until vent fitting turns over and chafing patch on underside of tank is exposed; distance from the center of the chafing patch to the outside fold is approximately 20 inches (50.8 cm).

   b. 2nd Fold: Lifting the same long side edge as in the 1st Fold, fold back over the outside edge approximately 72 inches (182.88 cm).

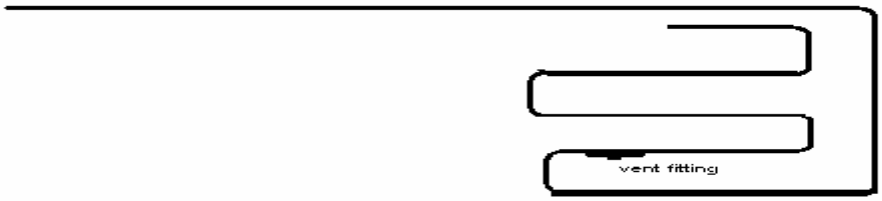


c. 3rd Fold: Lifting the same long side edge as in Folds #1 and #2, fold back over center of the tank, such that top fold measures 72 inches (182.88 cm).

d. 4th Fold: Lift same side again and fold back over previous folds.



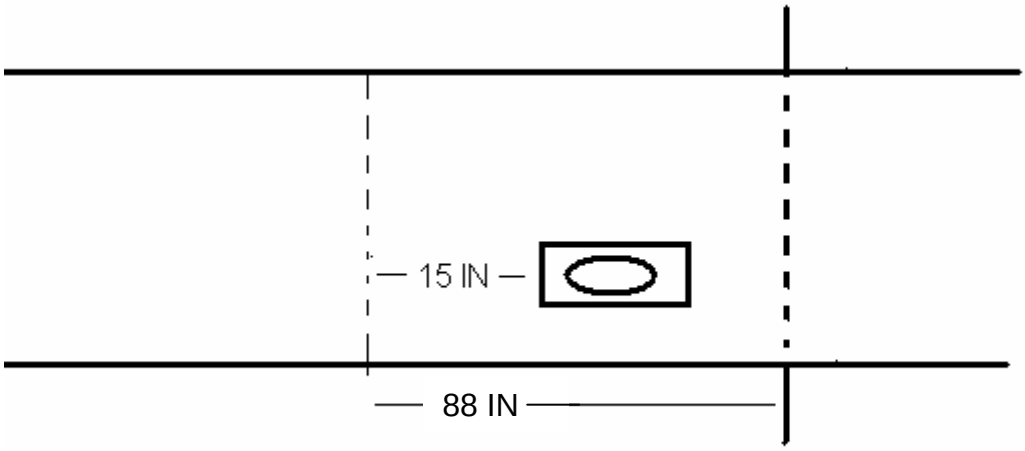
e. Go to the South side of the tank. Fold South side over the folded tank, and then back and forth, wig-wag, in folds 72 inches (182.88 cm) in width until tank is folded into a long narrow rectangle.



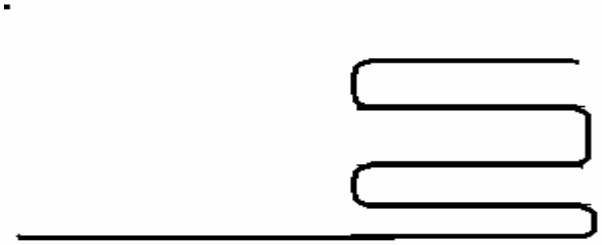
WARNING

Lifting or moving fuel tanks, berm liners or heavy equipment incorrectly can cause serious injury. Do not lift or move more than 50 pounds (22.7 kg) alone. Always get help from additional personnel or use proper lifting equipment during lifting operations.

f. Measure 15 inches (38.1 cm) from edge of access fitting on top of tank towards West end. From this point, measure 88 inches (223.52 cm) towards East end of tank and insert metal bar or wooden plank under folded tank and lift up and fold to line 15 inches (38.1 cm) West of access fitting, creating a pleated fold.



g. Go to East end. Lift and fold over folded tank bundle. Fold back and forth, wig-wag.



h. Measure 99 inches (251.46 cm) from edge of folded bundle towards West end. At this point, insert bar under tank and lift up onto top of bundle. Fold to edge of tank bundle.

i. Lift West end and fold back and forth, wig-wag, until tank is folded into a compact bundle.

j. Insert lifting straps, as follows: Measure approximately 30 inches (76.2 cm) from center of tank in both East and West directions. At these points, lift folded tank with bar and insert lifting straps.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL OPERATION UNDER UNUSUAL CONDITIONS

UNUSUAL ENVIRONMENTAL/WEATHER CONDITIONS

The tank is designed to operate in extreme temperature conditions ranging from -25°F to 125°F (-32°C to 52°C).

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

CAUTION

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

Operation in Extreme Cold

1. Do not deploy tank when temperature is below -25°F (-32°C).
2. Keep snow and ice from building up on top of tank or on vent assembly.
3. Keep snow and ice off couplings to ensure proper assembly and disassembly.
4. Avoid any unnecessary folding, unfolding, or rolling of tank, which might cause flaking, cracking, or delaminating of coating material.

Operation in Extreme Heat

1. Do not deploy tank when temperature is above 125°F (52°C).
2. Avoid any unnecessary handling of tank, which might cause coating material separation.

Operation in Dusty or Sandy Areas

1. Keep tank clean. Make sure vent assembly and filler/discharge assemblies are clean.
2. Keep all hoses and fittings covered with dust caps when not in use.
3. Wipe all couplings clean before assembling.

EMERGENCY SHUTDOWN

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

1. Close all gate valves.
2. Disconnect servicing hoses.
3. Clear area of equipment and personnel.

NOTE

For emergency destruction of Army materiel to prevent enemy use, refer to WP 0001 00.

INTERIM NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) DECONTAMINATION PROCEDURES

NOTE

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

General

The following emergency procedures can be performed until field NBC decontamination facilities are available.

Emergency Procedures

WARNING

If an NBC attack is known or suspected, mask at once and continue the mission. Do not unmask until told to do so.

1. Nuclear decontamination: Brush fallout from skin, clothing, and equipment with available brushes, rags, and tree branches. Wash skin and have radiation check made as soon as tactical situation permits.
2. Biological decontamination: Remain masked and continue mission until told to unmask.

CAUTION

Tank should only be cleaned with compatible cleaners. Incompatible cleaners will damage tank and cause immediate deterioration.

3. Chemical detection and decontamination.

WARNING

Do not use decontamination spray on personnel. It could cause personal injury.

a. Use M8 paper from the M256 chemical agent detector kit or M9 paper to determine if liquid agent is present on the surface of the equipment.

b. If exposure to liquid agent is known or suspected, clean the exposed skin, clothing, and personal gear, in that order, using M258A1 kit. Use the buddy system. Wash exposed skin and thoroughly decontaminate as soon as tactical situation permits.

c. If the M8 or M9 paper indicates that liquid chemical agent is present, rinse the exposed portion of the collapsible tank with a liberal amount of water. When the tactical situation permits, wash the collapsible tank with soapy water, and rinse thoroughly.

d. Decontamination procedures take time. Do as much as you can, depending on the tactical situation.

EMERGENCY PROCEDURES

General

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

WARNINGS

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

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

Fuels and fuel sludge can cause injury to skin or eyes.
If fuel or sludge comes into contact with skin, flush with soap and water.
If fuel or sludge comes into contact with eyes, flush with water.
For further information on first aid, refer to FM 4-25.11.

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

Emergency Repairs With Wood Plugs

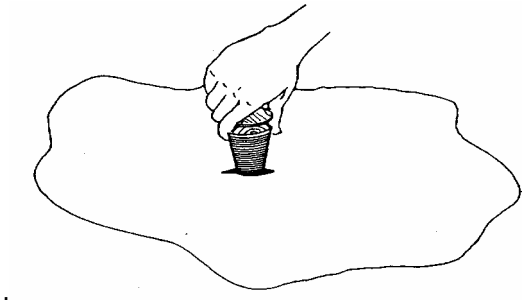
In emergencies, as an immediate temporary measure, the wood plugs may be used for sealing small holes or punctures.

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

1. For holes (tears) up to approximately 0.5 inch (1.27 cm) in size, use the 3-inch (7.62 cm) long plug.

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

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



Emergency Repairs With Sealing Clamps

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

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

1. For holes (tears) less than 2 inches (5.08 cm) in length, use the 3-inch (7.6 cm) clamp.
2. For holes (tears) 2 to 4 inches (5.08 to 10.16 cm) in length, use the 5-inch (12.7 cm) clamp.
3. For holes (tears) 4 to 6 inches (10.16 to 15.24 cm) in length, use the 7-1/2-inch (19 cm) clamp.

CAUTION

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

NOTE

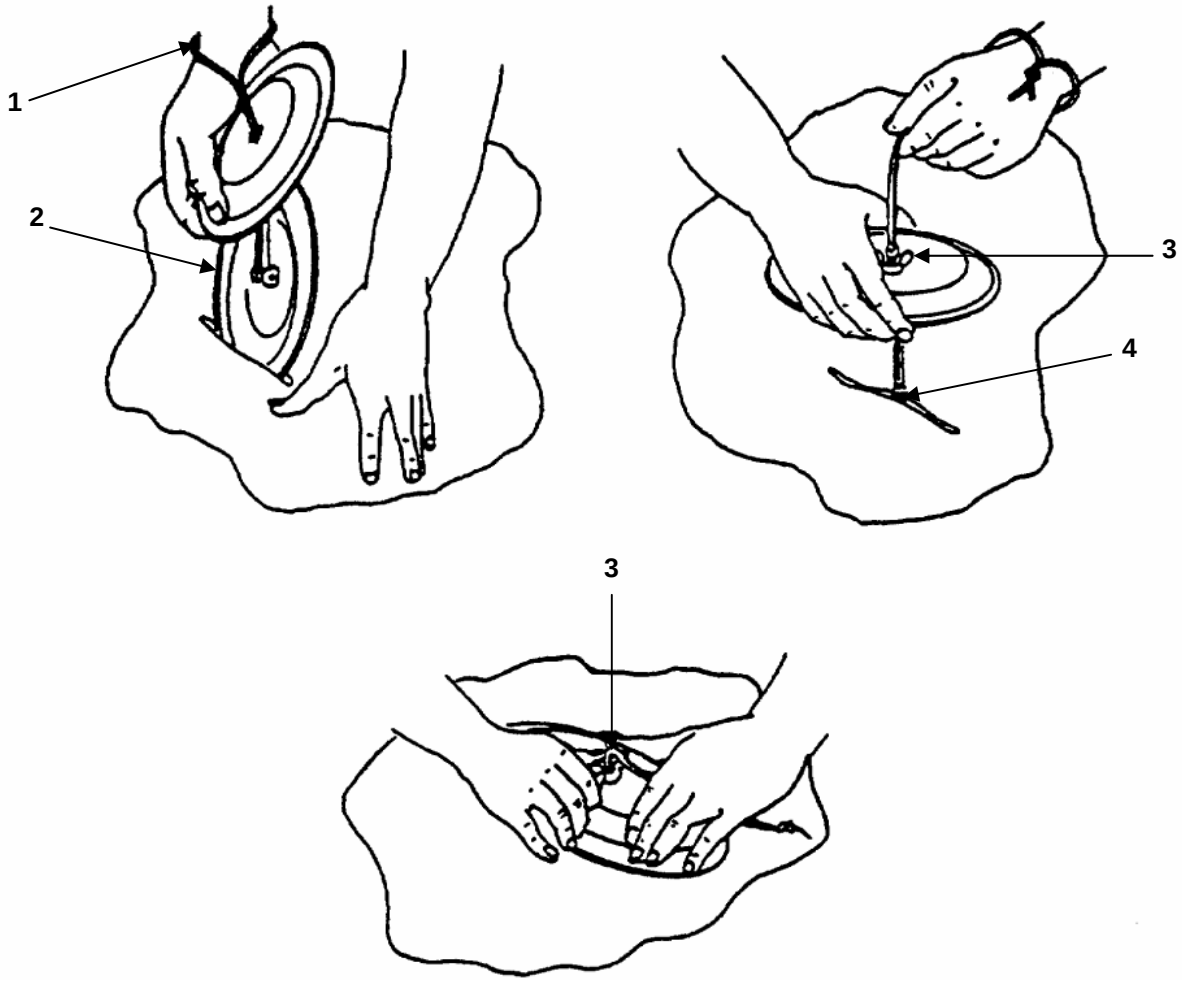
It may be necessary to increase the size of the tears in order to be able to insert the bottom plate of the clamp.

4. Loop cord around wrist (1) to prevent loss of clamp into tank.
5. Slip the bottom plate of clamp (2) through the hole or tear and rotate it until it is centered and its length runs with the tear.
6. Pull bottom plate up against fabric, and slide top plate and wing nut (3) down cord and onto threaded stud (4) of the bottom plate.

CAUTION

Do not over tighten, as stud threads may be stripped, or damage to tank fabric may occur.

7. With plates aligned, tighten wing nut (3) to clamp the tank wall between the two plates. Tighten enough to stop leak.



END OF WORK PACKAGE

CHAPTER 3

OPERATOR TROUBLESHOOTING PROCEDURES FOR COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

OPERATOR AND UNIT MAINTENANCE
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
OPERATOR TROUBLESHOOTING PROCEDURES

INTRODUCTION TO OPERATOR TROUBLESHOOTING

The Operator Troubleshooting Procedures chapter lists common malfunctions that may be found during the operation or maintenance of the collapsible fabric petroleum tank assembly or its components. Perform the tests/inspections and corrective actions in the order listed in the table.

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

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

TANK

SYMPTOM

Tank leaks.

MALFUNCTION

Check tank for punctures or cuts.

CORRECTIVE ACTION

Repair puncture or cuts with sealing clamps or plugs (WP 0006 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

VENT ASSEMBLY

SYMPTOM

Vent assembly leaks.

MALFUNCTION

Check preformed packing between flanged adapter and tank for nicks or distortion.

CORRECTIVE ACTION

Notify unit maintenance for repair.

Check vent stand pipe for cracks or damage.

CORRECTIVE ACTION

Notify unit maintenance for repair.

Check coupling half for breaks, cracks, damaged cam-lever arms, or damaged and missing gasket.

CORRECTIVE ACTION

Replace damaged or missing gasket (WP 0012 00).
If coupling half is damaged, notify unit maintenance for repair.

Check for loose or missing hexagon bolts.

CORRECTIVE ACTION

Notify unit maintenance for repair.

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

VENT ASSEMBLY PRESSURE RELIEF CAP

SYMPTOM

Pressure relief cap remains open.

MALFUNCTION

Check for debris in tube or on pivot pin.

CORRECTIVE ACTION

Clean out tube, cap, and pivot pin.

Check cap for bent pivot pin.

CORRECTIVE ACTION

Notify unit maintenance for repair.

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

HOSE ASSEMBLY COUPLING HALF

SYMPTOM

Hose assembly coupling half leaks.

MALFUNCTION

Check female coupling half for damage, wear, or damaged and missing gasket.

CORRECTIVE ACTION

Replace gaskets (WP 0011 00).

Check coupling half on hose for dirt, damage, or wear.

CORRECTIVE ACTION

Remove any dirt or foreign objects inside coupling.
If leak continues, notify unit maintenance for repair.

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

FILLER/DISCHARGE ASSEMBLY

SYMPTOM

Filler/discharge assembly leaks.

MALFUNCTION

Check female coupling half gaskets for damage or wear.

CORRECTIVE ACTION

Replace gaskets (WP 0013 00).

Check coupling halves on hoses for dirt, damage, or wear.

CORRECTIVE ACTION

Remove any dirt or foreign objects inside coupling halves. If leak continues, notify unit maintenance for repair.

Check for loose or missing hexagon head bolts.

CORRECTIVE ACTION

Notify unit maintenance for repair.

Check preformed packing between closure plate and tank fitting for nicks, breaks, or distortion.

CORRECTIVE ACTION

Notify unit maintenance for repair.

Check gasket on both sides of closure plate for damage or breaks.

CORRECTIVE ACTION

Notify unit maintenance for repair.

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DRAIN ASSEMBLY

SYMPTOM

Drain assembly leaks.

MALFUNCTION

Check for loose or missing hexagon head bolts.

CORRECTIVE ACTION

Notify unit maintenance for repair.

Check for leaks between drain assembly and tank fitting.

CORRECTIVE ACTION

Notify unit maintenance for repair.

Check for leaks on hose fitting.

CORRECTIVE ACTION

Notify unit maintenance for repair.

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DRAIN BALL OR GATE VALVE ASSEMBLY

SYMPTOM

Drain ball or gate valve assembly leaks.

MALFUNCTION

Check for leaks around valve stem.

CORRECTIVE ACTION

Notify unit maintenance for repair.

Check NPT male coupler connections for leaks.

CORRECTIVE ACTION

Notify unit maintenance for repair.

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

GATE VALVE ASSEMBLY

SYMPTOM

Gate valve assembly leaks.

MALFUNCTION

Check quick-disconnect coupling halves for leaks.

CORRECTIVE ACTION

Replace gaskets (WP 0011 00).

Check for loose or missing hexagon head bolts and nuts.

CORRECTIVE ACTION

Notify unit maintenance for repair.

Check for loose valve stem packing nut.

CORRECTIVE ACTION

Notify unit maintenance for repair.

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

TEE ASSEMBLY (Tank Models BA91-142, RCF0210000 and PD5430-0001)

SYMPTOM

Tee assembly leaks.

MALFUNCTION

Check gasket in female coupling half for damage or breaks.

CORRECTIVE ACTION

Replace gasket (WP 0014 00).
If leak continues, notify unit maintenance for repair.

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

REDUCER ASSEMBLY (Tank Models BA91-142, RCF0210000 and PD5430-0001)

SYMPTOM

Reducer assembly leaks.

MALFUNCTION

Check gaskets in female couplings for damage or breaks.

CORRECTIVE ACTION

Replace gaskets (WP 0014 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

NATO ADAPTER (Tank Models BA91-142, RCF0210000 and PD5430-0001)

SYMPTOM

NATO adapter leaks.

MALFUNCTION

Check gasket in female coupling for damage or breaks.

CORRECTIVE ACTION

Replace gasket (WP 0014 00).

END OF WORK PACKAGE

CHAPTER 4

UNIT TROUBLESHOOTING PROCEDURES FOR COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

OPERATOR AND UNIT MAINTENANCE
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
UNIT TROUBLESHOOTING PROCEDURES

INTRODUCTION TO UNIT TROUBLESHOOTING

The Unit Troubleshooting Procedures chapter lists common malfunctions that may be found during the operation or maintenance of the collapsible fabric petroleum tank assembly or its components. Perform the tests/inspections and corrective actions in the order listed in the table.

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

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

VENT ASSEMBLY

SYMPTOM

Vent assembly leaks.

MALFUNCTION

Check o-ring between flanged adapter and tank for nicks or distortion.

CORRECTIVE ACTION

Replace o-ring (WP 0019 00).

Check vent stand pipe for cracks or damage.

CORRECTIVE ACTION

Replace vent stand pipe (WP 0019 00).

Check coupling half for breaks, cracks, damaged cam-lever arms, or damaged and missing gasket.

CORRECTIVE ACTION

Replace gasket (WP 0019 00).

Check for loose or missing hexagon head bolts.

CORRECTIVE ACTION

Tighten or replace bolts (WP 0019 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

VENT ASSEMBLY PRESSURE RELIEF CAP

SYMPTOM

Pressure relief cap remains open.

MALFUNCTION

Check cap for bent pivot pin.

CORRECTIVE ACTION

Replace cap gasket (WP 0019 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

HOSE ASSEMBLY COUPLING HALF

SYMPTOM

Hose assembly coupling half leaks.

MALFUNCTION

Check coupling half on hose for dirt, damage, or wear.

CORRECTIVE ACTION

Remove any dirt or foreign objects inside coupling.
If leak continues, replace or repair (WP 0021 00 or 0022 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

FILLER/DISCHARGE ASSEMBLY

SYMPTOM

Filler/discharge assembly leaks.

MALFUNCTION

Check coupling halves on hoses for dirt, damage, or wear.

CORRECTIVE ACTION

Remove any dirt or foreign objects inside coupling halves. If leak continues, replace or repair (WP 0020 00).

Check for loose or missing hexagon head bolts.

CORRECTIVE ACTION

Tighten or replace bolts (WP 0020 00).

Check o-ring between closure plate and tank fitting for nicks, breaks, or distortion.

CORRECTIVE ACTION

Replace o-ring (WP 0020 00).

Check gasket on both sides of closure plate for damage or breaks.

CORRECTIVE ACTION

Replace gasket (WP 0020 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DRAIN BALL VALVE ASSEMBLY (TANK MODELS BA91-142 and RCF0210000)

SYMPTOM

Drain ball valve assembly leaks.

MALFUNCTION

Check for leaks around valve stem.

CORRECTIVE ACTION

Tighten valve stem packing nut (WP 0024 00).

Check coupling half NPT connections for leaks.

CORRECTIVE ACTION

Remove coupling half and replace antiseize tape (WP 0024 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DRAIN GATE VALVE ASSEMBLY (TANK MODEL PD5340-0001)

SYMPTOM

Drain gate valve assembly leaks.

MALFUNCTION

Check for leaks around valve stem.

CORRECTIVE ACTION

Tighten valve stem B-nut.

Check quick-disconnect couplings for leaks.

CORRECTIVE ACTION

Remove and replace quick-disconnect gaskets (WP 0025 00).

Check coupling fitting NPT connections for leaks.

CORRECTIVE ACTION

Remove fitting and replace antiseize tape (WP 0025 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

TANK OR BERM LINER DRAIN BALL VALVE (MODEL GTA-210KF)

SYMPTOM

Drain ball valve leaks.

MALFUNCTION

Check the drain ball valve for damage or wear.

CORRECTIVE ACTION

Service, replace or repair the drain ball valve (WP 0026 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

FILLER/DISCHARGE GATE VALVE ASSEMBLY

SYMPTOM

Gate valve assembly leaks.

MALFUNCTION

Check for loose or missing hexagon head bolts and nuts.

CORRECTIVE ACTION

Tighten or replace nuts and bolts (WP 0027 00).

Check for loose valve stem packing nut.

CORRECTIVE ACTION

Tighten packing nut (WP 0027 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

TEE ASSEMBLY (Tank Models BA91-142 and RCF0210000)

SYMPTOM

Tee assembly leaks.

MALFUNCTION

Check all parts for cracks, dents, breaks or wear.

CORRECTIVE ACTION

Repair or replace if unserviceable (WP 0028 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

BERM LINER DRAIN HOSE ASSEMBLY (MODEL GTA-210KF)

SYMPTOM

Drain hose assembly does not drain properly.

MALFUNCTION

Check for dirt, grime, cracks or wear.

CORRECTIVE ACTION

Service the drain hose (WP 0029 00).

TROUBLESHOOTING PROCEDURE

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

BERM LINER DRAIN FITTING ASSEMBLY (MODEL GTA-210KF)

SYMPTOM

Drain fitting assembly leaks between drain fitting and berm liner.

MALFUNCTION

Check for missing or loose washers and hex head cap screws.

CORRECTIVE ACTION

Replace missing screws or washers. Torque the fastening hardware to 10 ft-lb (13.5 N·m).
See WP 0030 00. Check the gaskets between the male disconnect coupling and the berm liner for nicks, breaks and tears.

CORRECTIVE ACTION

Replace the gaskets or o-ring. See WP 0030 00.

END OF WORK PACKAGE

CHAPTER 5

OPERATOR MAINTENANCE INSTRUCTIONS FOR COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL OPERATOR PMCS PROCEDURES

INTRODUCTION

General

Preventive Maintenance Checks and Services (PMCS) are performed to keep the collapsible fabric fuel tank assembly in operating condition. The checks are used to find, correct, or report problems. Be sure to perform PMCS each time the tank assembly is serviced. Using the PMCS table, always do PMCS in the same order, so it gets to be a habit. With practice, problems can be easily detected. Pay attention to WARNING and CAUTION statements. A WARNING means someone could be hurt. A CAUTION means the equipment could be damaged.

Before using the tank assembly, do “Before” PMCS.

During use, do “During” PMCS.

After the tank assembly is used, do “After” PMCS.

Do “Semi-annual” PMCS once every six months.

If something is wrong when performing PMCS, fix it if possible, using troubleshooting procedures and/or maintenance procedures.

Use DA Form 2404 (Equipment Inspection and Maintenance Worksheet) to record any faults discovered before, during, or after operation, unless the faults can be fixed. It is not required to record faults that you can fix. For further information on how to use this form, see DA PAM 738-750.

If tools required to perform PMCS are not listed in Table 2, WP 0034 00, the Maintenance Allocation Chart, notify Unit Maintenance.

PMCS Procedures

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

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

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

The "Equipment Not Ready/Available If" column of Table 1 explains when and why your equipment cannot be used.

PMCS Leakage Definitions

It is necessary to know how fluid leakage affects the status of the collapsible fabric fuel tank. The following are types/classes of leakage needed to be able to determine the status of the collapsible fabric petroleum tank. Learn these leakage definitions and remember – when in doubt, notify the supervisor.

CAUTION

Report Class III and IV leaks to the supervisor or to unit maintenance. Failure to heed this caution can damage the equipment.

NOTE

Equipment operation is allowed with minor leakages (Class I or Class II). Consideration must be given to fluid capacity in the item/system being checked/inspected. When in doubt, notify the supervisor.

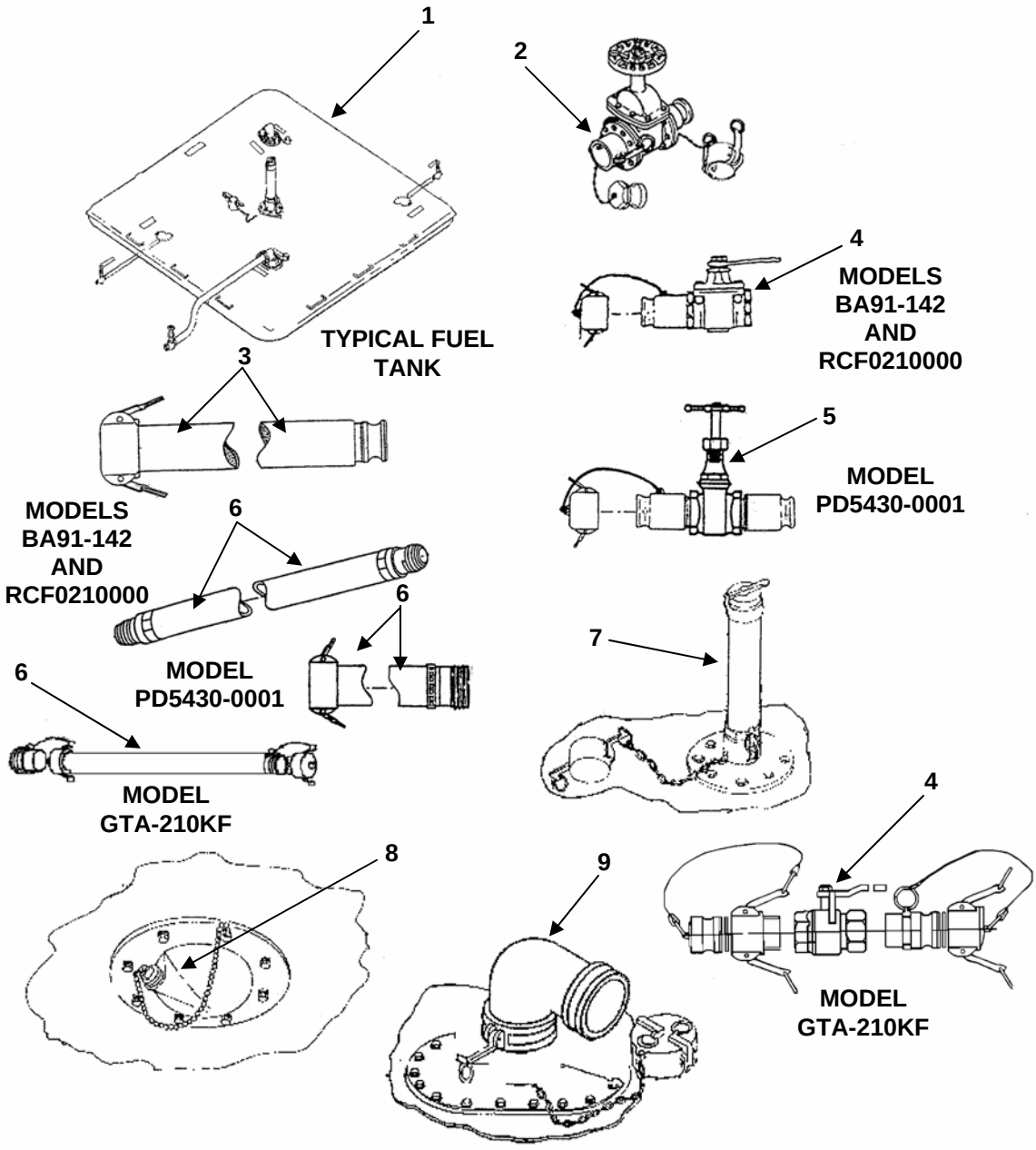
When operating with Class I or Class II leaks, continue to check fluid levels as required in the PMCS.

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

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

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

Class IV Leakage found under the tank. There is evidence of dampness on the ground around the tank. Volume of fuel in tank is less than it should be.



Operator PMCS Components

Table 1. Operator Preventive Maintenance Checks and Services for Fuel Storage Tank.

NOTE

Within designated intervals, these checks are to be performed in the order listed.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before		Installation Area	Inspect the installation area for sticks and other sharp objects that might cause punctures and leaks.	Sharp objects are present.
2	Before		Tank (1)	Inspect for tears or punctures. If torn or punctured, perform emergency repairs (WP 0006 00).	Tank has tears or punctures that cannot be repaired.
3	Before		Filler/Discharge Gate Valve (2)	Check for bent or binding stem and broken hardware. Check gasket and cam-lever arms for damage. Check for missing or damaged dust caps and plugs.	Stem, hand-wheel or handle, gasket, or cam-lever arms are damaged or missing.
4	Before		Filler/Discharge Hose Assembly (3)	Check for cuts and tears. Check fittings for distortion and damage, or missing gaskets, dust caps and plugs.	Hose assembly is damaged. Gaskets, dust caps or plugs are damaged or missing.
5	Before		Tank Drain Ball Valve (4)	Check for bent or binding stem and broken handle. Check for missing or damaged quick-disconnect coupling.	Stem or handle is damaged or missing. Coupling damaged or missing.
6	Before		Tank Drain Gate Valve (5)	Check for bent or binding stem, missing hand wheel, and damaged or missing quick-disconnect couplings.	Stem, hand wheel or couplings damaged or missing.

Table 1. Operator Preventative Maintenance Checks and Services for Fuel Storage Tank (continued).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	Before		Tank Drain Hose Assembly (6)	Check hose for cuts and tears. Check fittings for distortion or damage.	Hose assembly is damaged.
8	Before		Vent Fitting Assembly (7)	Check relief cap, flame arrestor, cap gasket, rubber gasket, and cam-lever arms for evidence of leakage, damage, or missing parts. Check relief cap for cleanliness and freedom of operation. Check for damaged or missing gaskets.	Relief cap or flame arrestor is damaged or missing. Relief cap, gasket, flat rubber gasket, or cam-lever arms are damaged or missing.
9	Before		Tank Drain Fitting Assemblies (8)	Check drain plug, drain hose, drain gate, or ball valve for damaged or missing parts.	Drain plug, drain hose, and drain ball valve are missing, not properly connected, or damaged.
10	Before		Filler/Discharge Assembly (9)	Check cam-lever arms and elbow for damage.	Cam-lever arms damaged or missing. Elbow body is cracked or worn.
11	During		Installation Area	Inspect the installation area for sticks and other sharp objects.	Sharp objects are present.
12	During		Tank (1)	Inspect for tears, punctures, or leaks. If torn or punctured, perform emergency repairs (WP 0006 00).	Tank has tears, punctures, or leaks that cannot be repaired.
13	During		Filler/Discharge Gate Valve (2)	Check for bent or binding stem, broken hardware, and leakage. Check gasket and cam-lever arms for damage.	Stem, hand wheel or handle, gasket, or cam-lever arms are damaged, missing, or leaking.

Table 1. Operator Preventative Maintenance Checks and Services for Fuel Storage Tank (continued).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
14	During		Filler/Discharge Hose Assembly (3)	Check hose for leaks, cuts and tears. Check fittings for distortion or damage.	Hose assembly leaks or is damaged.
15	During		Tank Drain Ball Valve (4)	Check for bent or binding stem, broken handle, and leakage.	Stem or handle is damaged, missing, or leaking.
16	During		Tank Drain Gate Valve (5)	Check for bent or binding stem, broken hardware, and leakage.	Stem, hand wheel, or couplings damaged or leaking.
17	During		Tank Drain Hose Assembly (6)	Check hose for leaks, cuts and tears. Check fittings for distortion or damage.	Hose assembly leaks or is damaged.
18	During		Vent Fitting Assembly (7)	Check relief cap, flame arrestor, cap gasket, gasket, and cam-lever arms for evidence of leakage, damage, or missing parts. Check relief cap for cleanliness and freedom of operation. Check for damaged or missing gaskets.	Relief cap or flame arrestor is damaged or missing. Relief cap, gasket, flat rubber gasket, or cam-lever arms are damaged or missing.
19	During		Tank Drain Fitting Assemblies (8)	Check immediate area for evidence of leakage. Check drain plug, drain hose, and drain ball valve for damaged or missing parts.	Drain plug, drain hose, or drain ball valve is missing, not properly connected, or damaged.
20	During		Filler/Discharge Assembly (9)	Check cam-lever arm and elbow body for damage or leakage.	Cam-lever arms are damaged or missing. Elbow body is cracked. Elbow sealing surface is badly dented.

Table 1. Operator Preventative Maintenance Checks and Services for Fuel Storage Tank (continued).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
21	After		Tank (1)	Inspect for tears and punctures. If torn of punctured, perform emergency repairs (WP 0006 00).	Tank has tears or punctures that cannot be repaired.
22	After		Filler/Discharge Gate Valve (2)	Check for bent or binding stem or broken hardware. Check gaskets and cam-lever arms for damage. Check for missing or damaged dust caps and plugs.	Stem, hand-wheel or handle, gasket, or cam-lever arms are damaged or missing. Dust caps or plugs missing or damaged.
23	After		Filler/Discharge Hose Assembly (3)	Check for cuts and tears. Check fittings for distortion and damage, or missing gaskets, dust caps and plugs.	Hose assembly is damaged. Gaskets, dust caps and plugs are damaged or missing.
24	After		Tank Drain Ball Valve (4)	Check for bent or binding stem, or broken handle. Check for missing or damaged quick-disconnect coupling.	Stem or handle is damaged or missing. Coupling missing or damaged.
25	After		Tank Drain Gate Valve (5)	Check for bent or binding stem or broken and missing hardware.	Stem, hand-wheel or couplings damaged or missing.
26	After		Tank Drain Hose Assembly (6)	Check hose for cuts and tears. Check fittings for distortion and damage.	Hose assembly is damaged.
27	After		Vent Fitting Assembly (7)	Check relief cap, flame arrestor, cap gasket, gasket, and cam-lever arms for damage or missing parts. Check relief cap for cleanliness and freedom of operation. Check for damaged or missing gaskets.	Relief cap or flame arrestor is damaged or missing. Relief cap, gasket, flat rubber gasket, or cam-lever arms are damaged or missing.

Table 1. Operator Preventative Maintenance Checks and Services for Fuel Storage Tank (continued).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
28	After		Tank Drain Fitting Assemblies (8)	Check drain plug, drain hose, or drain ball valve for damaged or missing parts.	Drain plug, drain hose, or drain ball valve are missing, not properly connected, or damaged.
29	After		Filler/Discharge Assembly (9)	Check cam-lever arm and elbow body for damage.	Cam-lever arms damaged or missing. Elbow body cracked or worn.
30	Semi-annually		Tank (1) Interior	Check coating for cracking.	Coating is cracked allowing leakage.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANKS, PETROLEUM, 5,000 BARREL
OPERATOR MAINTENANCE PROCEDURES

GENERAL INSTRUCTIONS

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

NOTE

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

EQUIPMENT	MAINTENANCE PROCEDURE
Filler/Discharge Gate Valve and Hose Assembly Coupling and Dust Cap Gasket	WP 0011 00
Vent Fitting Assembly Coupling and Dust Cap Gasket	WP 0012 00
Filler/Discharge Assembly Elbow and Dust Cap Gasket	WP 0013 00
Tee Assembly, NATO Adapter, or Reducer and Dust Cap Gasket (For Models BA91-142, RCF0210000 and PD5430-0001)	WP 0014 00

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL FILLER/DISCHARGE GATE VALVE AND HOSE ASSEMBLY COUPLING AND DUST CAP GASKET REPLACEMENT

INITIAL SETUP

Mandatory Replacement Parts
Gasket
(Item 5, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

REMOVAL

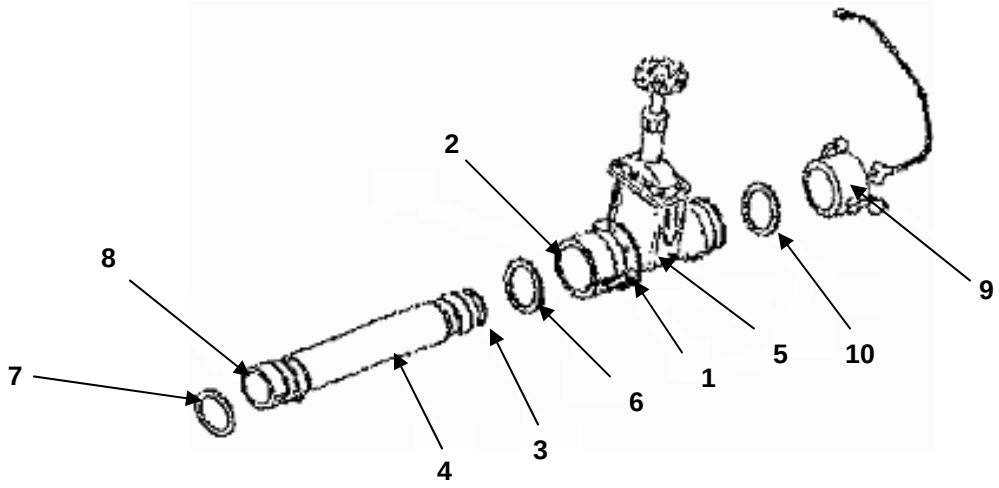
The filler/discharge hose is fitted with a female quick-disconnect coupling on one end and a male quick-disconnect adapter on the other end.

1. Pull two cam-lever arms (1) outward on female quick-disconnect coupling (2), and hose assembly coupling (3). Disconnect hose assembly (4) from filler/discharge valve assembly (5).

2. Remove coupling gasket (6) from inside female quick-disconnect coupling (2). Discard gasket (6).

3. Remove hose assembly gasket (7) from inside hose coupling (8). Discard gasket (7).

4. Remove dust cap (9). Remove gasket (10) from dust cap (9). Discard gasket (10).



INSTALLATION

1. Install new gasket (10) in dust cap (9). Install dust cap (9).
2. Install new hose assembly gasket (7) inside hose coupling (8).
3. Install new coupling gasket (6) inside female quick-disconnect coupling (2).
4. Connect hose assembly (4) to filler/discharge valve assembly (5).
5. Push in on cam-lever arms (1) to lock hose assembly (4) in place.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
VENT FITTING ASSEMBLY COUPLING AND DUST CAP GASKET REPLACEMENT

INITIAL SETUP

Mandatory Replacement Parts
Gasket
(Item 7, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

NOTE

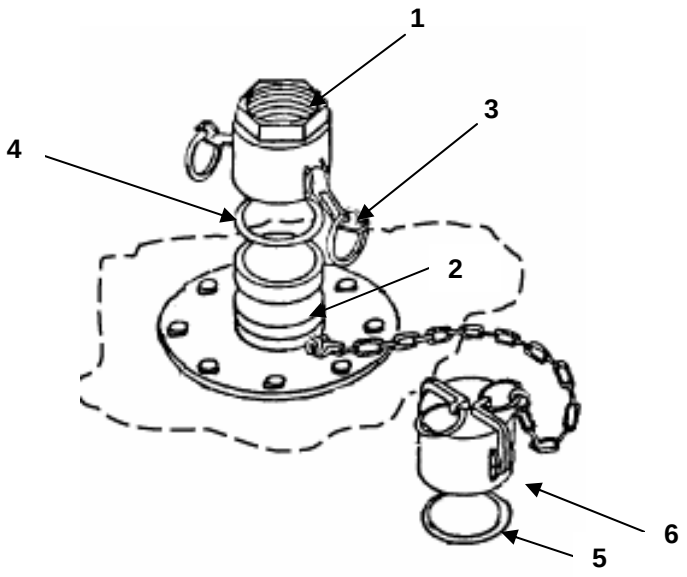
Vent pipe, relief cap, and flame arrestor removed for clarity.

REMOVAL

1. Disconnect female quick-disconnect coupling (1) from male-flanged adapter (2) by pulling outward on cam-lever arms (3). Lift female quick-disconnect coupling (1) from male-flanged adapter (2).

2. Remove female quick-disconnect coupling gasket (4). Discard gasket (4).

3. Remove gasket (5) from inside dust cap (6). Discard gasket (5).



INSTALLATION

1. Seat new coupling gasket (4) into female quick-disconnect coupling (1).
2. With cam-lever arms (3) in the outward position, install female quick-disconnect coupling (1) to male-flanged adapter (2).
3. Push cam-lever arms (3) inward until locked in place.
4. Seat new gasket (5) into dust cap (6).

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL FILLER/DISCHARGE ASSEMBLY ELBOW AND DUST CAP GASKET REPLACEMENT

INITIAL SETUP

Mandatory Replacement Parts
Gasket
(Item 5, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

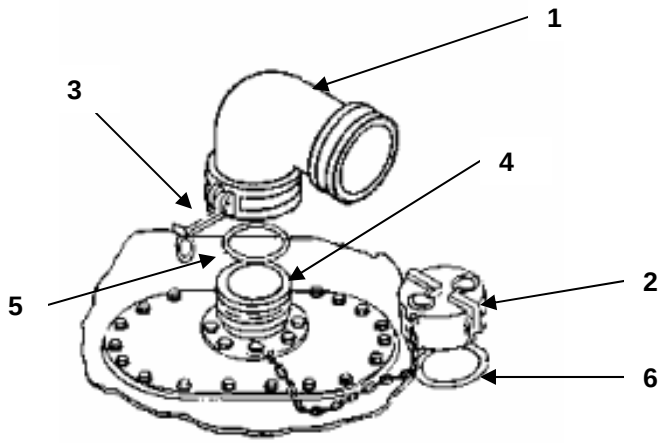
REMOVAL

1. Remove elbow (1) or dust cap (2) by pulling outward on cam-lever arms (3), and lifting elbow (1) or dust cap (2) from flanged adapter (4).

NOTE

Fill end female/female elbow has two gaskets

2. Remove gasket (5) from elbow (1) and gasket (6) from dust cap (2). Discard gaskets (5) and (6).



INSTALLATION

NOTE

Fill end female/female elbow will require two new gaskets.

1. Place new gasket (5) into elbow (1) and new gasket (6) in dust cap (2).

2. Install elbow (1) onto flanged adapter (4), by pushing inward on cam-lever arms (3) to lock elbow (1) into position.

3. Install the dust cap (2) onto the elbow (1) by pushing inward on the cam-lever arms (3) on dust cap (2) to lock into position.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL TEE ASSEMBLY, NATO ADAPTER, OR REDUCER AND DUST CAP GASKET REPLACEMENT (FOR MODELS BA91-142, RCF0210000 AND PD5430-0001)

INITIAL SETUP

Mandatory Replacement Parts
Gasket
(Item 5, WP 0044 00)
Gasket
(Item 8, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

REMOVAL

Tee Assembly

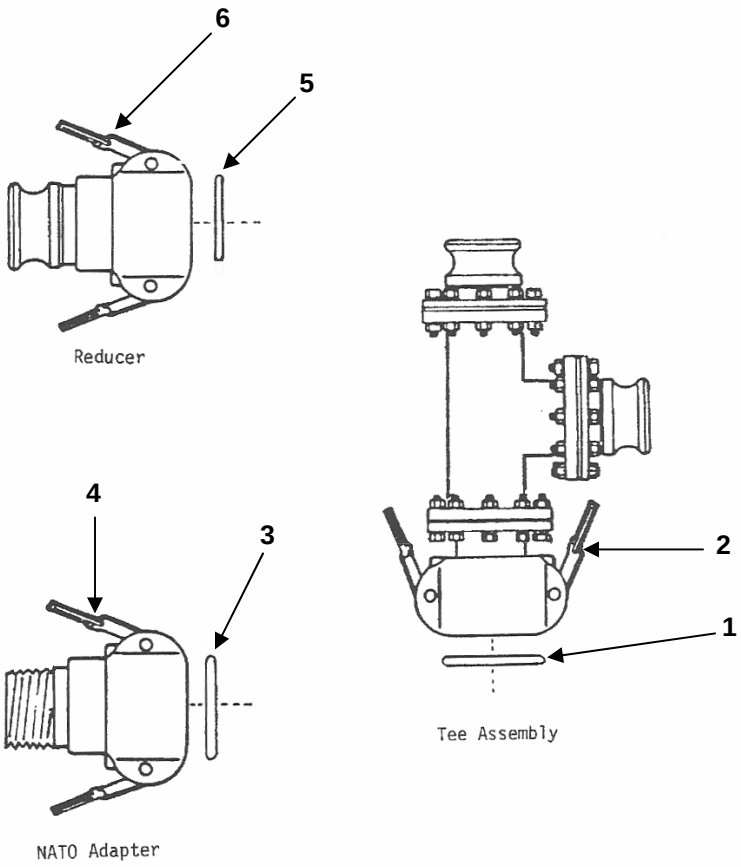
Remove gasket (1) from coupling (2). Discard gasket (1).

NATO Adapter

Remove gasket (3) from NATO adapter (4). Discard gasket (3).

Reducer

Remove gasket (5) from reducer (6). Discard gasket (5).



INSTALLATION

Tee Assembly

Install new gasket (1) inside coupling (2).

NATO Adapter

Install new gasket (3) inside NATO adapter (4).

Reducer

Install new gasket (5) inside reducer (6).

END OF WORK PACKAGE

CHAPTER 6

UNIT MAINTENANCE INSTRUCTIONS FOR COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL UNIT REPAIR; TOOLS, SPECIAL TOOLS; TEST MEASUREMENT AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

COMMON TOOLS AND EQUIPMENT

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

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

For special tools required for use with the Collapsible Fabric Fuel Tanks, refer to WP 0034 00, Maintenance Allocation Chart. No TMDE or support equipment is required for the Collapsible Fabric Fuel Tanks.

REPAIR PARTS

Repair parts are listed and illustrated in WP 0036 00 of this manual.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
UNIT SERVICE UPON RECEIPT**

SITING

Site Preparation

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

CAUTION

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

1. For ease of emptying the tank completely, dig a hole under the slope drain fitting, approximately 10 feet (3.05 m) long, 3 inches (7.62 cm) wide and 3 inches (7.62 cm) deep for the drain fitting.

2. Fold approximately 10 feet (3.05 m) of each of the tank back over the rest of the tank to expose connections for drain assemblies located on the bottom of the tank.

3. At the point where the drain fitting strikes the ground, dig a hole approximately 36 inches (91.5 cm) long, 36 inches (91.5 cm) wide and 3 inches (7.62 cm) deep.

For additional siting information refer to WP 0005 00.

BERM LINER INSTALLATION

Refer to WP 0005 00.

SERVICE UPON RECEIPT OF MATERIEL

Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage in accordance with the instructions of DA PAM 783-750.

Check the equipment against the packing slip to determine whether the shipment is complete. Report all discrepancies in accordance with the instructions of DA PAM 738-750.

Check to determine whether the equipment has been modified.

INSTALLATION INSTRUCTIONS

Refer to WP 0005 00.

PRELIMINARY SERVICING OF EQUIPMENT

No preliminary servicing or adjustment is required.

PRELIMINARY CHECKS AND ADJUSTMENT OF EQUIPMENT

Pre-assembly Inspection

1. To make sure the tank has not been damaged during shipment, conduct an inspection before assembly. Unpack the consolidation box and check to see if all components are present.
2. Check that each female coupling has a sealing gasket. Replace all missing gaskets.
3. Check cam arm operation of all female couplings. Do not use couplings with broken, bent or faulty cam arms.
4. Check that the gate valves open and close.
5. Check tank for punctures or tears.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
UNIT PMCS PROCEDURES

INTRODUCTION

General

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

Before using the tank assembly, do “Before” PMCS.

During use, do “During” PMCS.

After the tank assembly is used, do “After” PMCS.

Do “Semi-annual” PMCS once every six months.

If something is found to be wrong when performing PMCS, fix it if possible, using troubleshooting procedures and/or maintenance procedures.

Use DA Form 2404 (Equipment Inspection and Maintenance Worksheet) to record any faults discovered before, during, or after operation, unless the faults can be fixed. You do not need to record faults that you can fix. For further information on how to use this form, see DA PAM 738-750.

PMCS Procedures

The Preventive Maintenance Checks and Services, Table 1, lists the inspections and care required to keep the fuel tank assembly in good operating condition.

The “Interval” column of Table 1 indicates when a certain check or service should be performed.

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

The "Equipment Not Ready/Available If" column of Table 1 explains when and why your equipment cannot be used.

PMCS Leakage Definitions

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

CAUTION

Report Class III and IV leaks to the supervisor or unit maintenance. Failure to heed this caution can damage the equipment.

NOTE

Equipment operation is allowed with minor leakages (Class I or Class II.) Consideration must be given to fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.

When operating with Class I or Class II leaks, continue to check fluid levels as required in the PMCS.

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

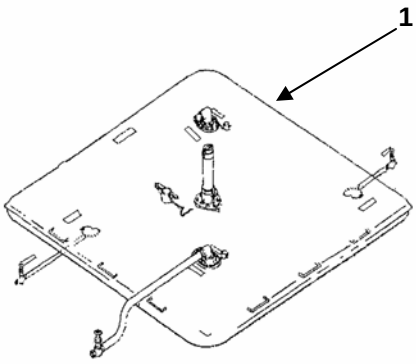
Class II Leaks of fluid great enough to form drops but not enough to cause the drops to drip from item being checked/inspected.

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

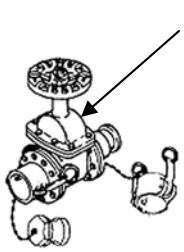
Class IV Leakage found under the tank. There is evidence of dampness on the ground around the tank. Volume of fuel in tank is less than it should be.

LUBRICATION INSTRUCTIONS

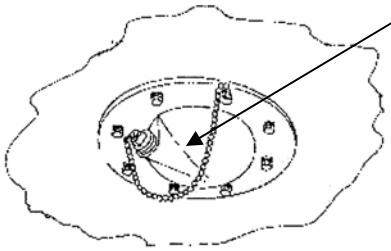
Lubricate all cam-lever arms and lobes systematically with two drops of lubricating oil (Item 7, WP 0041 00). These instructions are mandatory.

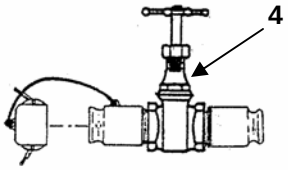


TYPICAL FUEL TANK

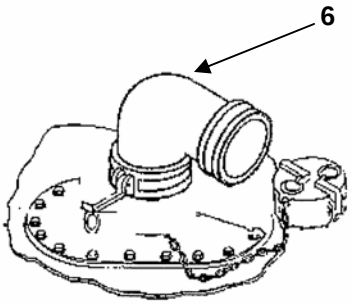


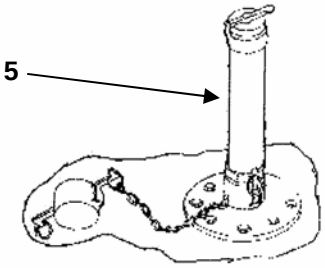
MODELS
BA91-142
AND
RCF0210000

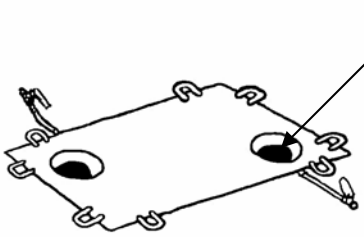




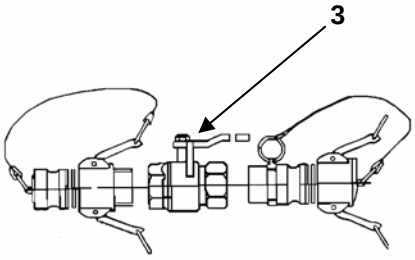
MODEL
PD5430-0001







MODEL GTA-210KF



MODEL GTA-210KF

Unit Preventive Maintenance Checks and Services Components

Table 1. Unit Preventive Maintenance Checks and Services for Fuel Storage Tank.

NOTE

Within designated intervals, these checks are to be performed in the order listed.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before		Tank (1)	Inspect for tears or punctures.	Torn or punctured.
2	Before		Filler/Discharge Gate Valve (2)	Check for bent or binding stem or broken hand-wheel.	Stem or hand-wheel is damaged or missing.
3	Before		Drain Ball Valve (3)	Check for bent or binding stem or broken handle.	Stem or handle is damaged or missing.
4	Before		Drain Gate Valve (4)	Check for bent or binding stem or broken hand-wheel.	Stem or hand-wheel is damaged or missing.
5	Before		Vent and Pipe Assembly (5)	Check for evidence of damaged or missing parts. Check the relief cap for cleanliness and freedom of operation. Check if the flame arrestor, relief cap gasket, flat rubber gasket or cam-lever arms are damaged or missing.	Relief cap or flame arrestor is damaged or missing. Relief cap, gasket, flat rubber gasket, or cam-lever arms are damaged or missing.
6	Before		Filler/Discharge Assembly (6)	Check for evidence of damage. Check if cam-lever arms are damaged or missing. Check if the elbow body is cracked or sealing surface is badly dented. Check for loose, damaged or missing screws and gaskets.	Cam-lever arms are damaged or missing. Elbow body is cracked. Elbow sealing surface is badly dented. Hardware is damaged or missing.
7	Before		Drain Fitting Assembly (7)	Check drain plug, drain hose, or drain ball or gate valve, for damaged or missing parts.	Drain plug, drain hose, drain or gate valve is missing, improperly connected, or damaged.

Table 1. Unit Preventive Maintenance Checks and Services for Fuel Storage Tank (continued).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before		Berm Liner Drain Fitting Assembly (8)	Check drain plug, drain hose or drain ball valve for damaged or missing parts.	Drain plug, drain hose or drain ball valve is missing, improperly connected or damaged.
9	During		Tank (1)	Inspect for tears, leaks or punctures (Exclude weeping/wicking where the tank seams are not involved and droplets do not form or run down the side of the tank.)	Tank has tears or punctures that cannot be repaired.
10	During		Filler/Discharge Gate Valve (2)	Check for bent or binding stem, broken hand-wheel and leakage.	Stem, hand-wheel gasket or cam-lever arms are damaged, missing or leaks.
11	During		Drain Ball Valve (3)	Check for bent or binding stem, broken hand-wheel and leakage.	Stem or handle damaged, missing or leaks.
12	During		Drain Gate Valve (4)	Check for bent or binding stem, broken hand-wheel and leakage.	Stem or hand-wheel damaged or leaks.
13	During		Vent and Pipe Assembly (5)	Check for evidence of leakage, damage or missing parts. Check the relief cap for cleanliness and freedom of operation. Check if the flame arrestor, relief cap gasket, flat rubber gasket or cam-lever arms are damaged or missing.	Relief cap or flame arrestor is damaged or missing. Relief cap gasket, flat rubber gasket or cam-lever arms are damaged or missing.
14	During		Filler/Discharge Assembly (6)	Check for evidence of damage or leakage. Check if cam-lever arms are damaged or missing. Check if the elbow body is cracked or sealing surface is badly dented. Check for loose, damaged or missing screws and gaskets.	Cam-lever arms are damaged or missing. Elbow body is cracked. Elbow sealing surface is badly dented.

Table 1. Unit Preventive Maintenance Checks and Services for Fuel Storage Tank (continued).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
15	During		Drain Fitting Assembly (7)	Check immediate area for evidence of leaks. Check the drain plug, drain hose or drain valve for damaged or missing parts.	Drain plug, drain hose or drain ball valve are missing, improperly connected or damaged.
16	During		Berm Liner Drain Fitting Assembly (8)	Check immediate area for evidence of leaks. Check the drain plug, drain hose or drain ball valve for damaged or missing parts.	Drain plug, drain hose or drain ball valve are missing, improperly connected, damaged or leaks.
17	After		Tank (1)	Inspect for tears, punctures or leaks.	Tank has tears or punctures that cannot be repaired.
18	After		Filler/Discharge Gate Valve (2)	Check for bent or binding stem or broken hand-wheel.	Stem or hand-wheel is damaged or missing.
19	After		Drain Ball Valve (3)	Check for bent or binding stem or broken handle.	Stem or handle is damaged or missing.
20	After		Drain Gate Valve (4)	Check for bent or binding stem or broken hand-wheel.	Stem or hand-wheel is damaged or missing.
21	After		Vent and Pipe Assembly (5)	Check for evidence of leakage, damage or missing parts. Check the relief cap for cleanliness and freedom of operation. Check if the flame arrestor, relief cap gasket, flat rubber gasket or cam-lever arms are damaged or missing.	Evidence of leakage. Relief cap or flame arrestor is damaged or missing. Relief cap gasket, flat rubber gasket or cam-lever arms are damaged or missing.

Table 1. Unit Preventive Maintenance Checks and Services for Fuel Storage Tank (continued).

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
22	After		Filler/Discharge Assembly (6)	Check for evidence of damage or leakage. Check if cam-lever arms are damaged or missing. Check if elbow body is cracked or sealing surface is badly dented. Check for loose, damaged or missing screws and gaskets.	Evidence of leakage. Cam-lever arms damaged or missing. Elbow body cracked or worn.
23	Semi-annually		Drain Fitting Assembly (7)	Check immediate area for evidence of leakage. Check the drain plug, drain hose or drain ball valve for damaged or missing parts.	Evidence of leakage. Drain plug, drain hose or drain valve are missing, improperly connected or damaged.
24	Semi-annually		Berm Liner Drain Fitting Assembly (8)	Check immediate area for evidence of leakage. Check drain plug, drain hose or drain valve for damaged or missing parts.	Evidence of leakage. Drain plug, drain hose or drain ball valve are missing, improperly connected, damaged or leaks.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
UNIT MAINTENANCE PROCEDURES

GENERAL INSTRUCTIONS

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

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

CAUTION

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

- The normal standard equipment condition to start a maintenance task is collapsible tank and berm liner drained and empty. Equipment condition is not listed unless some other condition is required.

PERSONNEL SAFETY

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

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

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

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

PROPER EQUIPMENT

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

EQUIPMENT	MAINTENANCE PROCEDURE
Vent Fitting Assembly	WP 0019 00
Filler/Discharge Assembly	WP 0020 00
Drain Fitting Assembly (Tank Models BA91-142 and RCF0210000)	WP 0021 00
Drain Fitting Assembly (Tank Model GTA-210KF)	WP 0022 00

EQUIPMENT	MAINTENANCE PROCEDURE
Drain Fitting Assembly (Tank Model PD5430-0001)	WP 0023 00
Drain Ball Valve (Tank Models BA91-142 and RCF0210000)	WP 0024 00
Drain Gate Valve (Tank Model PD5430-0001)	WP 0025 00
Tank or Berm Liner Drain Ball Valve (Tank Model GTA-210KF)	WP 0026 00
Filler/Discharge Gate Valve Assembly	WP 0027 00
Tee Assembly (Tank Models BA91-142 and RCF0210000)	WP 0028 00
Berm Liner Drain Hose Assembly (Tank Model GTA-210KF)	WP 0029 00
Berm Liner Drain Fitting Assembly (Tank Model GTA-210KF)	WP 0030 00
Preparation for Storage or Shipment	WP 0031 00

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
VENT FITTING ASSEMBLY
SERVICE, REPLACEMENT, REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00)
Torque Wrench (in-lb)
(Item 2, WP 0034 00)
Torque Wrench (ft-lb)
(Item 3, WP 0034 00)

Mandatory Replacement Parts
Gasket, Cap
(Item 3, WP 0044 00)
Gasket
(Item 7, WP 0044 00)
O-ring
(Item 1, WP 0044 00)

Materials/Parts
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)
Silicone Compound
(Item 10, WP 0041 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

REMOVAL

1. Remove eight screws (1) and washers (2) from vent and stand pipe assembly (3).
2. Lift male-flanged adapter (4) from tank fitting (5).
3. Remove o-ring (6) from packing groove (7) in tank fitting (5). Discard o-ring (6).

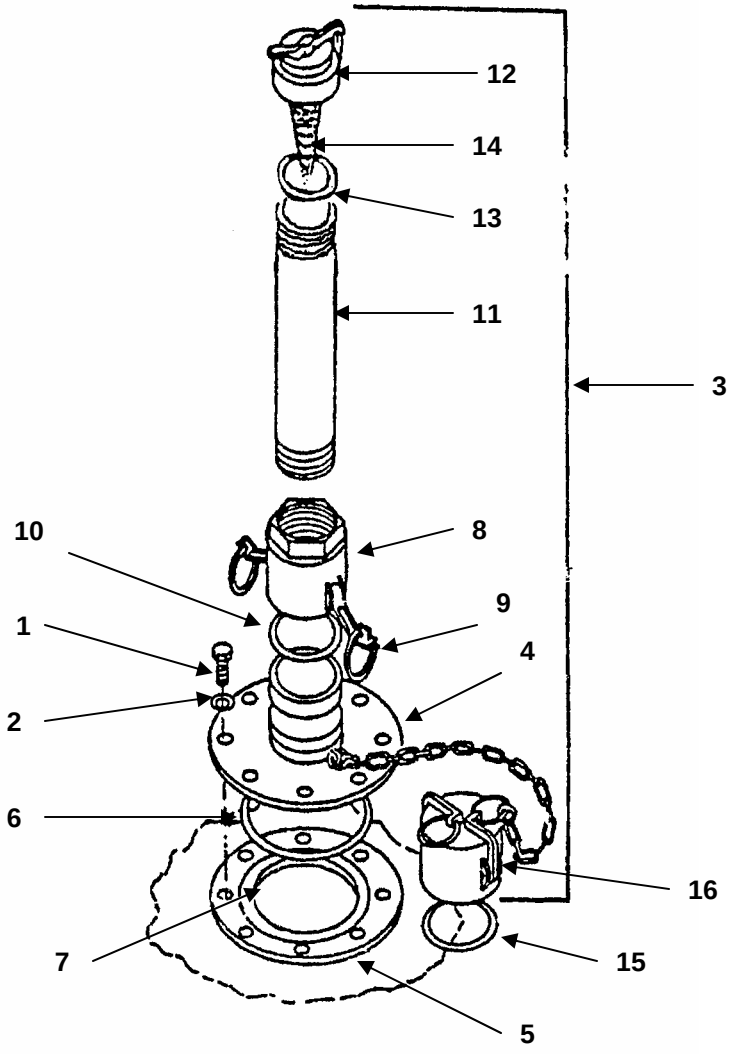
DISASSEMBLY

1. Pull outward on cam-lever arms (9).
2. Lift female quick-disconnect coupling (8) from male-flanged adapter (4).
3. Remove gasket (10). Discard gasket (10).
4. Turn vent stand pipe (11) counterclockwise until threads disengage and remove female quick-disconnect coupling (8) from vent stand pipe (11).
5. Turn relief cap (12) counterclockwise until threads disengage and remove relief cap (12) from vent stand pipe (11).

6. Turn flame arrestor (14) counterclockwise until threads disengage from relief cap (12) and remove flame arrestor (14) from relief cap (12).

7. Remove gasket (13) from inside relief cap (12). Discard gasket (13).

8. Remove gasket (15) from inside dust cap (16). Discard gasket (15).



SERVICE

WARNING

Dry cleaning solvent A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well-ventilated areas. Avoid repeated and prolonged skin contact. Do not use near an open flame or excessive heat. The flash point of solvent is 100°F to 138°F (38°C to 59°C).

1. Clean all parts with dry cleaning solvent and dry thoroughly.
2. Clean out o-ring grooves with dry cleaning solvent and dry thoroughly with rags.
3. Inspect all mechanical parts for cracks, dents, breaks or wear. Replace or repair if unserviceable.
4. Ensure that vent hole in flame arrestor (14) is clear.

ASSEMBLY

1. Place new gasket (13) inside relief cap (12).
2. Install flame arrestor (14) on relief cap (12) by turning flame arrestor clockwise until the two pieces are joined tightly together.
3. Install flame arrestor (14) and relief cap (12) on vent stand pipe (11) until vent stand pipe contacts relief cap (12).
4. Rotate relief cap (12) clockwise until vent stand pipe (11) and relief cap (12) are joined together tightly.
5. Insert vent stand pipe (11) in quick-disconnect coupling (8) and rotate pipe clockwise until the two pieces are joined tightly together.
6. Insert new gasket (10) into female quick-disconnect coupling (8).
7. With cam-lever arms (9) in outward position, install female quick-disconnect coupling (8) on male-flanged adapter (4). Push cam-lever arms (9) in until locked in place.
8. Install new gasket (15) in dust cap (16).

INSTALLATION

1. Lubricate new o-ring (6) with silicone compound. Install o-ring (6) in packing groove (7) in tank fitting (5).
2. Install eight screws (1) and washers (2) through vent and stand pipe assembly (3) and tank fitting (5). Torque screws (1) to 30 in-lb (3.41 N·m) in accordance with 8 bolt torque pattern. For GTA model, torque screws (1) to 10 ft-lb (13.5 N·m).

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL FILLER/DISCHARGE ASSEMBLY SERVICE AND REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00)
Torque Wrench (in-lb)
(Item 2, WP 0034 00)
Torque Wrench (ft-lb)
(Item 3, WP 0034 00)

Materials/Parts
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Cleaning Compound
(Item 3, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)
Silicone Compound
(Item 10, WP 0041 00)

Mandatory Replacement Parts
Gasket
(Item 5, WP 0044 00)
Gasket, Flange
(Item 4, WP 0044 00)
O-ring
(Item 2, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

CAUTION

Be sure to remove the closure plate before removing the flanged adapter. The flanged adapter is bolted to the closure plate and suction stub. If it is removed first, the suction stub will fall into the tank.

NOTE

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

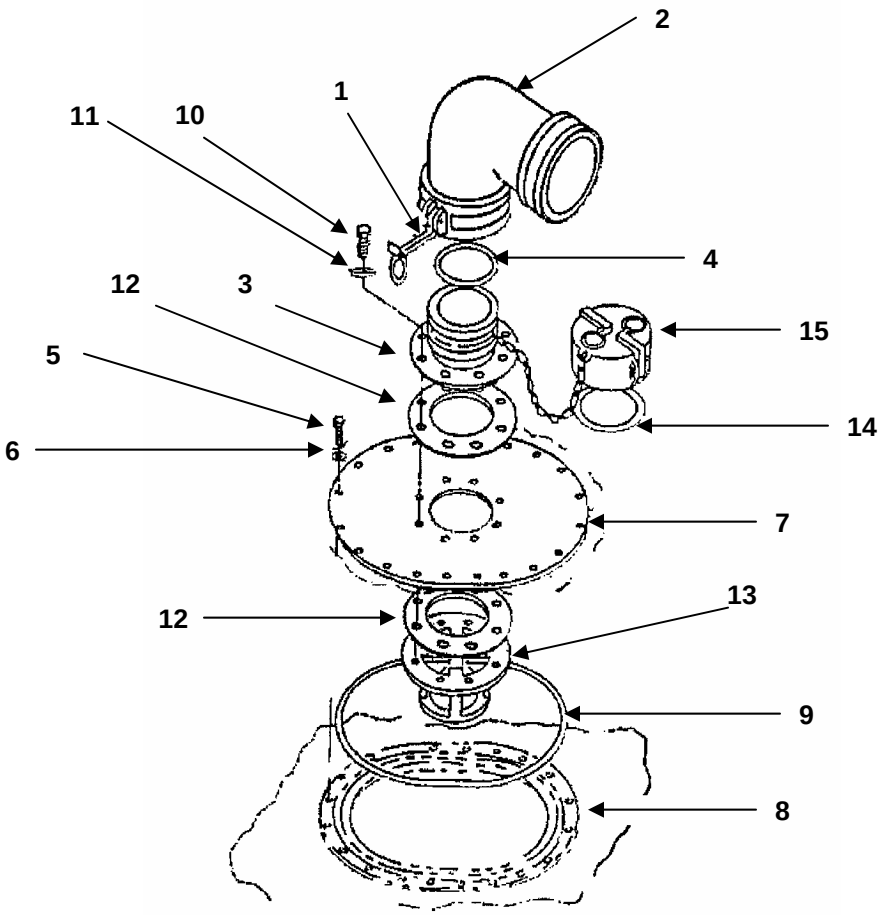
DISASSEMBLY

1. Pull outward on cam-lever arms (1) and lift elbow (2) off flanged adapter (3).
2. Remove gasket (4) from inside of elbow (2). Discard gasket (4).
3. Remove twenty screws (5) and washers (6) and lift closure plate (7) from collapsible tank fitting (8).

4. Remove o-ring (9) from inside o-ring groove in tank fitting (8). Discard o-ring (9).

5. Remove twelve screws (10) and washers (11) and remove flanged adapter (3), two gaskets (12) and suction stub (13) from closure plate (7). Discard gaskets (12).

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



SERVICE

WARNING

Dry cleaning solvent A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well-ventilated areas. Avoid repeated and prolonged skin contact.
Do not use near an open flame or excessive heat. The flash point of solvent is 100°F to 138°F (38°C to 59°C).

1. Clean all parts with dry cleaning solvent and dry thoroughly.

2. Clean out o-ring grooves thoroughly with cleaning compound and hot water.

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

ASSEMBLY

1. Place new gasket (14) in dust cap (15).
2. Place new gasket (4) in elbow (2).
3. Place suction stub (13) on flat hard surface with bolt holes on top.
4. Place one new flange gasket (12) on the suction stub (13) and align the bolt holes.
5. Place closure plate (7) on top of suction stub (13) and flange gasket (12) and align the bolt holes.
6. Place the other new flange gasket (12) on closure plate (7) and align holes.
7. Place flanged adapter (3) on flange gasket (12) and align holes. Place flat washers (11) over holes in flanged adapter (3).
8. Insert screws (10) through holes in flanged adapter (3). Torque screws (10) to 10 ft-lbs. (14 N·m).
9. Lubricate new o-ring (9) with silicone compound and place in o-ring groove in tank fitting (8).
10. Place closure plate (7) and attached components on tank and insert suction stub (13) through opening in tank until closure plate (7) contacts tank fitting (8).
11. If tank is lying completely flat, lift tank toward closure plate (7) to start screws (5) in tank fitting (8). Loosely install twenty screws (5) and washers (6).
12. Torque screws (5) to 30 in-lb (3.41 N·m). For GTA-210KF model, torque screws (5) to 10 ft-lb (13.5 N·m).
13. Place elbow (2) on flanged adapter (3). Pull inward on cam-lever arms (1) to lock items together.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL DRAIN FITTING ASSEMBLY (TANK MODELS BA91-142 AND RCF0210000) SERVICE AND REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00)
Torque Wrench (ft-lb)
(Item 3, WP 0034 00)

Materials/Parts
Anti-seize Tape
(Item 2, WP 0041 00)
Cleaning Compound
(Item 3, WP 0041 00)
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Silicone Compound
(Item 10, WP 0041 00)
Sealing Compound
(Item 9, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)

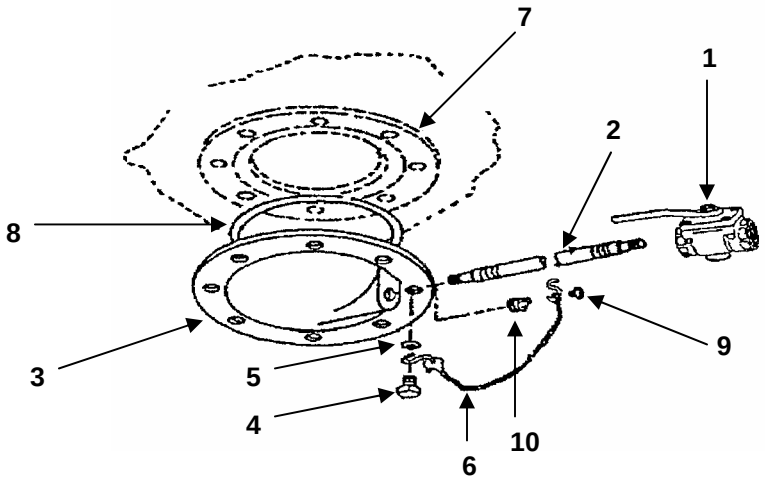
Mandatory Replacement Parts
O-ring
(Item 1, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DISASSEMBLY

1. Turn ball valve (1) counterclockwise until threads disengage and remove ball valve (1) from drain hose (2).
2. Turn drain hose (2) counterclockwise until threads disengage and remove drain hose (2) from drain fitting (3).
3. Remove eight screws (4), washers (5), chain assembly (6) and drain fitting (3) from the tank fitting (7).
4. Remove o-ring (8) from the o-ring groove in tank fitting (7). Discard o-ring (8).
5. Remove roundhead screw (9) from drain plug (10) and remove chain assembly (6).



SERVICE

WARNING

Dry cleaning solvent A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well-ventilated areas. Avoid repeated and prolonged skin contact.
Do not use near an open flame or excessive heat. The flash point of solvent is 100°F to 138°F (38°C to 59°C).

1. Clean all parts with dry cleaning solvent and dry thoroughly with rags.
2. Clean o-ring groove with cleaning compound and hot water.
3. Inspect all mechanical parts for cracks, dents, breaks or wear. Replace or repair if unserviceable.

ASSEMBLY

1. Lubricate new o-ring (8) with silicone compound. Position o-ring (8) in the o-ring groove on tank fitting.
2. Align drain fitting (3) on tank fitting (7).
3. Loosely install eight screws (4) and washers (5).
4. Insert one S-hook of chain assembly (6) under head of screw (4). Torque screws (4) to 15 ft-lbs (20.34 N·m) using eight bolt tightening pattern.
5. Install screw (9) and other S-hook of chain assembly (6) to drain plug (10).
6. Apply sealing compound or anti-seize tape to threads of drain hose (2).
7. Engage threads of drain hose (2). Turn hose (2) clockwise until tight.
8. Engage threads of ball valve (1) and drain hose (2). Turn ball valve (1) clockwise until tight.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL DRAIN FITTING ASSEMBLY (TANK MODEL GTA-210KF) SERVICE AND REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00
Torque Wrench (ft-lb)
(Item 3, WP 0034 00)

Materials/Parts
Anti-seize Tape
(Item 2, WP 0041 00)
Detergent
(Item 4, WP 0041 00)
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)
Sealing Compound
(Item 9, WP 0041 00)
Silicone Compound
(Item 10, WP 0041 00)

Mandatory Replacement Parts
O-ring
(Item 1, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DISASSEMBLY

1. Turn ball valve (1) counterclockwise until threads disengage and remove ball valve (1) from drain hose (2).

2. Turn drain hose (2) counterclockwise until threads disengage and remove drain hose (2) from drain cover plate (3).

3. Disconnect the S-hook of chain assembly (4) from bracket (5). Remove drain plug screw (6), bracket (5) and drain plug (7) from drain cover plate (3).

4. Disconnect the S-hook on the other end of chain assembly (4) from bracket (8). Remove eight screws (9), bracket (8) and washers (10) from drain cover plate (3) and tank fitting.

5. Remove drain cover plate (3).

6. Remove o-ring (11) from the packing groove located in the tank fitting. Discard o-ring (11).

SERVICE

WARNING

Dry cleaning solvent, A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well ventilated areas. Avoid repeated and prolonged skin contact. Do not use solvent near an open flame or near excessive heat. The flash point of the solvent is 100°F to 130°F (38°C to 59°C).

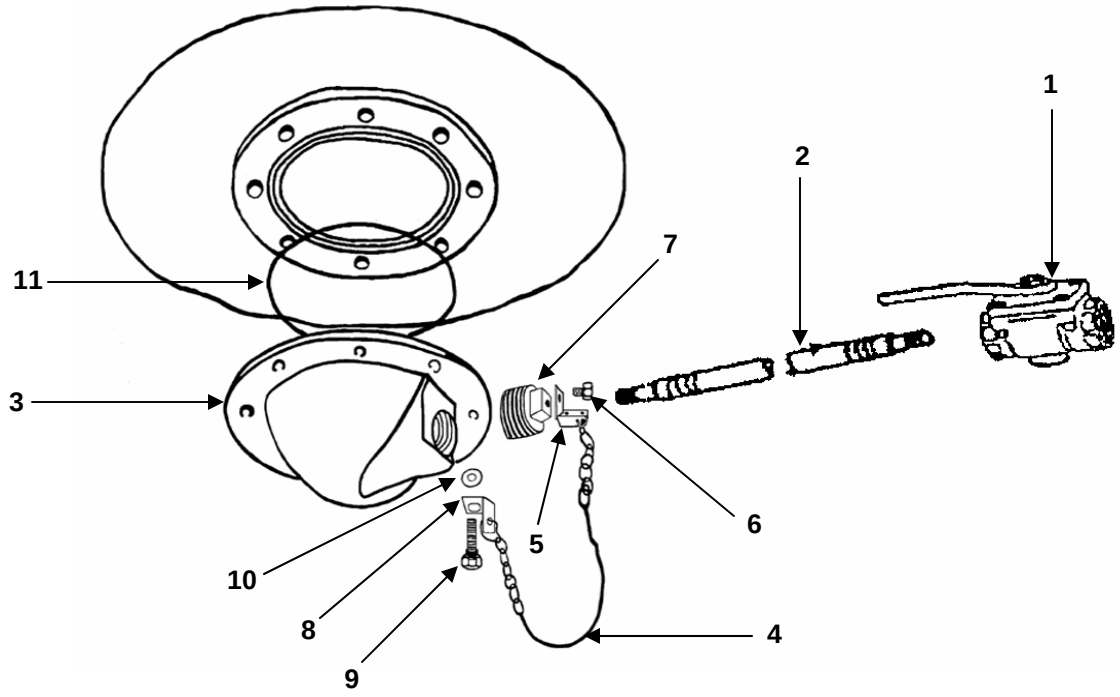
CAUTION

Dry cleaning solvent, A-A-59601, used to clean parts, must not come into contact with any part of the fuel tank fabric. Damage to the fabric will occur.

1. Clean all parts with dry cleaning solvent and dry thoroughly with rags.

2. Clean packing grooves thoroughly with detergent and hot water.

3. Inspect all mechanical parts for cracks, dents, breaks, and wear. Replace the component if unserviceable.



ASSEMBLY

1. Lubricate new o-ring (11) with silicone compound. Position o-ring (11) into the packing groove located on the tank fitting.

2. Position drain cover plate (3) on the tank fitting, and align the fastening holes.

3. Install drain cover plate (3) and bracket (8) to the tank fitting with eight screws (9) and washers (10), by hand tightening screws (9).

4. Attach the S-hook of chain assembly (4) to bracket (8). Torque all screws (9) to 10 ft-lbs (13.5 N·m).

5. Apply sealing compound or anti-seize tape to drain plug screw (6) threads.

6. Install drain plug screw (6), bracket (5), and drain plug (7) to drain cover plate (3). Attach the S-hook of chain assembly (4) to bracket (5).

7. Apply sealing compound or anti-seize tape to threads of drain hose (2).

8. Engage threads of drain hose (2). Turn drain hose (2) clockwise until tight.

9. Engage threads of ball valve (1) and drain hose (2). Turn ball valve (1) clockwise until tight.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL DRAIN FITTING ASSEMBLY (TANK MODEL PD5430-0001) SERVICE AND REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00)
Torque Wrench (ft-lb)
(Item 3, WP 0034 00)

Mandatory Replacement Parts
Gasket
(Item 6, WP 0044 00)
O-ring
(Item 1, WP 0044 00)

Materials/Parts
Anti-seize Tape
(Item 2, WP 0041 00)
Cleaning Compound
(Item 3, WP 0041 00)
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Sealing Compound
(Item 9, WP 0041 00)
Silicone Compound
(Item 10, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DISASSEMBLY

1. Pull outward on cam-lever arms (1) and remove gate valve (2) and valve coupler (18) from hose assembly (3).
2. Remove eight screws (4), washers (5) and one end of chain assembly (6) from drain fitting (7) and tank fitting (8). Remove drain fitting (7).
3. Remove o-ring (9) from groove in tank fitting (8). Discard o-ring (9).
4. Turn hose assembly (3) counterclockwise and remove hose assembly (3) from drain fitting (7).
5. Remove gasket (10) from hose quick-disconnect coupling half (11).
6. Pull outward on cam-lever arms (12) and remove dust cap (13) from coupler (14). Remove gasket (15) from dust cap (13). Discard gasket (15).
7. Remove screw (16) and chain assembly (6) from plug (17).

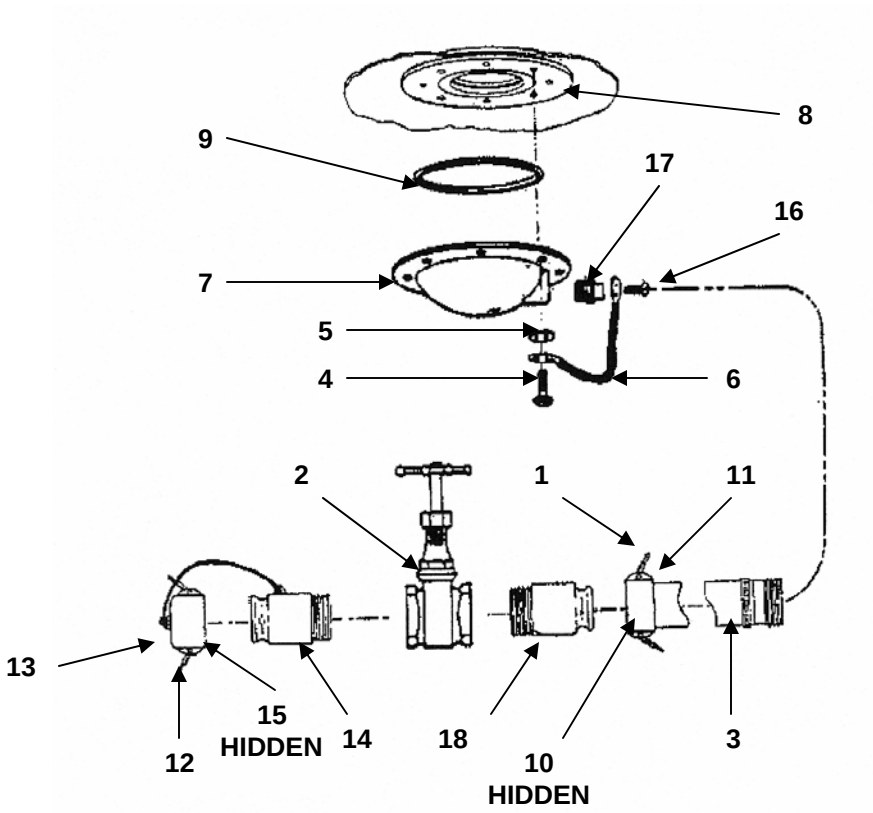
SERVICE

WARNING

Dry cleaning solvent A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well-ventilated areas. Avoid repeated and prolonged skin contact.
Do not use near an open flame or excessive heat. The flash point of solvent is 100°F to 138°F (38°C to 59°C).

1. Clean parts with dry cleaning solvent and dry thoroughly with rags.

2. Clean packing groove thoroughly with cleaning compound and hot water.



ASSEMBLY

1. Install screw (16) and one end of chain assembly (6) on plug (17).

2. Lubricate new o-ring (9) with silicone compound. Position o-ring (9) in groove on tank fitting (8).

3. Align drain fitting (7) on tank fitting (8). Place other end of chain assembly (6) and one washer (5) on one screw (4). Install and torque eight screws (4) and washers (5) to 15 ft-lbs (20.34 N·m) using eight bolt tightening pattern.

4. Apply sealing compound or anti-seize tape to threads of hose assembly (3). Engage threads of hose assembly (3) and drain fitting (7). Turn hose assembly (3) clockwise until tight. Make sure hose assembly (3) and gate valve (2) will extend from under tank.

5. Position new gasket (10) in hose quick-disconnect coupling half (11). Insert coupling half (11) on valve coupler (18). Push both cam-lever arms (1) in at the same time to lock hose assembly (3) on valve coupler (18).

6. Position new gasket (15) in dust cap (13) and insert dust cap (13) on coupler (14). Push in both cam-lever arms (12) at the same time to lock dust cap (13) on coupler (14).

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL DRAIN BALL VALVE (TANK MODELS BA91-142 AND RCF0210000) REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00)

Equipment Condition
Drain ball valve removed
(WP 0021 00)

Materials/Parts
Sealing Compound
(Item 9, WP 0041 00)

WARNING

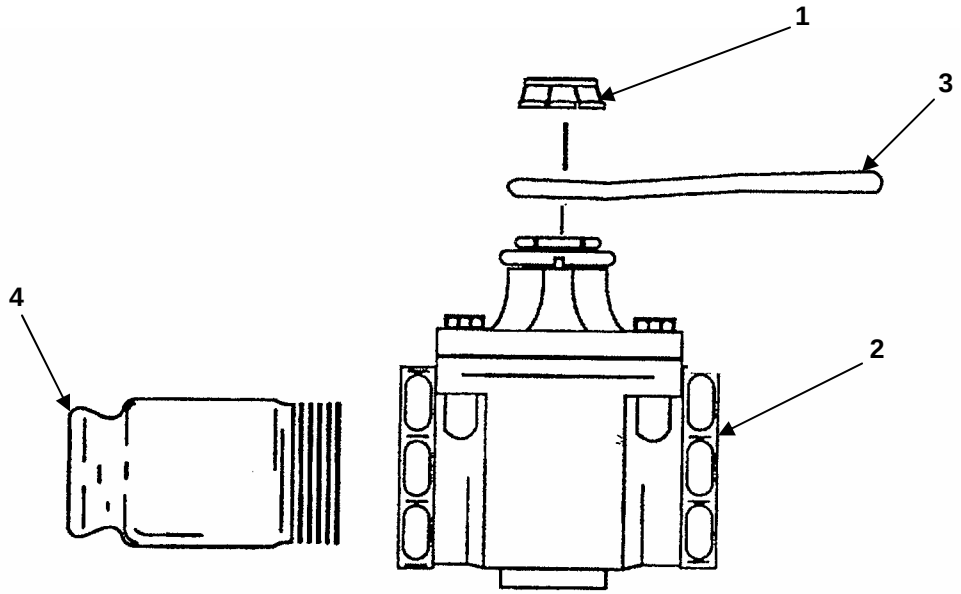
FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DISASSEMBLY

1. Remove lever nut (1) from valve (2) and remove lever (3).
2. Remove male coupling half (4) from valve (2).
3. Inspect parts for damage, dents and wear. Replace as required.

ASSEMBLY

1. Apply sealing compound to threads of male coupling half (4).
2. Install coupling half (4) on valve body (2).
3. Install lever (3) on valve (2) with nut (1).
4. Install drain ball valve (WP 0021 00).



END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
DRAIN GATE VALVE (TANK MODEL PD5430-0001)
REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00)

Materials/Parts
Sealing Compound
(Item 9, WP 0041 00)
Antiseize Tape
(Item 2, WP 0041 00)

Mandatory Replacement Parts
Gasket
(Item 6, WP 0044 00)

Equipment Condition
Drain gate valve removed
(WP 0023 00)

WARNING

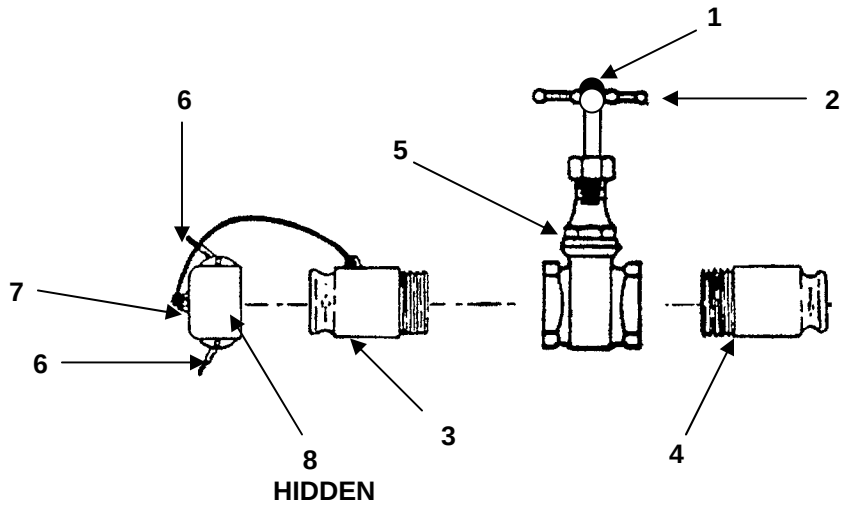
FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DISASSEMBLY

1. Remove nut (1) from hand-wheel (2). Remove hand-wheel (2).
2. Turn couplings (3, 4) counterclockwise and remove couplings (3, 4) from valve (5).
3. Pull outward on two cam-lever arms (6) and remove dust cap (7) from coupling (3). Remove gasket (8) from inside dust cap (7). Discard gasket (8).
4. Inspect parts for damage, dents and wear. Replace as required.

ASSEMBLY

1. Apply sealing compound on threads of couplings (3, 4) or wrap threads with antiseize tape. Engage threads of couplings (3, 4) with threads of valve (5) and turn clockwise until tight.
2. Position new gasket (8) inside dust cap (7). Insert dust cap (7) over coupling (3). Push in cam-lever arms (6) to lock dust cap (7) on coupling (3).
3. Install hand-wheel (2) on valve (5) with nut (1).
4. Install drain gate valve (WP 0023 00).



END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL TANK OR BERM LINER DRAIN BALL VALVE (TANK MODEL GTA-210KF) SERVICE, REPLACEMENT, REPAIR

INITIAL SETUP

Tools
Tool Kit General Mechanics
(Item 1, WP 0034 00)
Wrench, Pipe
(Item 4, WP 0034 00)

Materials/Parts
Anti-seize Tape
(Item 2, WP 0041 00)
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)
Thread Sealing Compound
(Item 9, WP 0041 00)

Mandatory Replacement Parts
Gasket
(Item 7, WP 0044 00)

WARNING

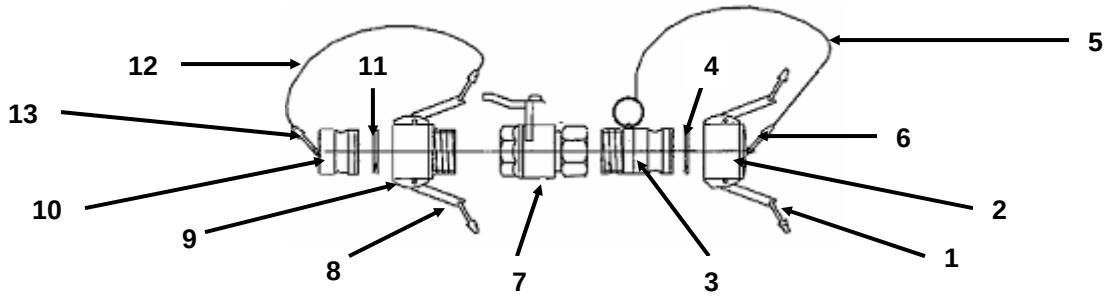
FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

REMOVAL

Remove the drain ball valve from the drain hose assembly.

DISASSEMBLY

1. Pull cam-lever arms (1) on dust cap (2) out, away from body of dust cap (2).
2. Remove dust cap (2) from male coupling (3). Remove gasket (4) from dust cap (2).
3. Disconnect chain (5) and two key rings (6) from dust cap (2) and male coupling (3).
4. Unthread male coupling (3) from ball valve (7).
5. Pull cam-lever arms (8) on female coupling (9) out, away from body of female coupling (9).
6. Remove dust plug (10) from female coupling (9). Remove gasket (11) from dust plug (10).
7. Disconnect chain (12) and two key rings (13) from dust plug (10) and female coupling (9).
8. Unthread female coupling (9) from ball valve (7).



SERVICE

WARNING

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CAUTION

Dry cleaning solvent, A-A-59601, used to clean parts, must not come into contact with any part of the fuel tank fabric. Damage to the fabric will occur.

1. Clean all parts with dry cleaning solvent and dry thoroughly with rags.
2. Inspect all mechanical parts for cracks, dents, breaks, and wear. Replace the component if unserviceable.

ASSEMBLY

1. Coat threads of female coupling (9) with thread sealing compound or anti-seize tape, and install female coupling (9) in ball valve (7).
2. Connect chain (12) and two key rings (13) to dust plug (10) and female coupling (9).
3. Install new gasket (11) on dust plug (10).
4. Push cam-lever arms (8) on female coupling (9) outward, away from body of female coupling (9).
5. Install dust plug (10) in female coupling (9).
6. Push cam-lever arms (8) on female coupling (9) inward toward body of female coupling (9) until locked.
7. Coat threads of male coupling (3) with thread sealing compound or anti-seize tape, and install male coupling (3) in ball valve (7).
8. Connect chain (5) and two key rings (6) to male coupling (3) and dust cap (2).
9. Push cam-lever arms (1) on dust cap (2) outward, away from body of dust cap (2).

10. Install dust cap (2) on male coupling (3).

11. Push cam-lever arms (1) on dust cap (2) inward toward body of dust cap (2) until locked.

INSTALLATION

Install the drain ball valve on the drain hose assembly.

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL FILLER/DISCHARGE GATE VALVE ASSEMBLY SERVICE, REPLACEMENT, REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00)
Torque Wrench (ft-lb)
(Item 3, WP 0034 00)

Materials/Parts
Cleaning Compound
(Item 3, WP 0041 00)
Abrasive Cloth
(Item 1, WP 0041 00)
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Grease
(Item 6, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)

Mandatory Replacement Parts
Gasket, Flange
(Item 4, WP 0044 00)
Gasket
(Item 5, WP 0044 00)
Gasket, Bonnet
(Item 10, WP 0044 00)
Lockwasher
(Item 9, WP 0044 00)
Lockwasher
(Item 11, WP 0044 00)

WARNING

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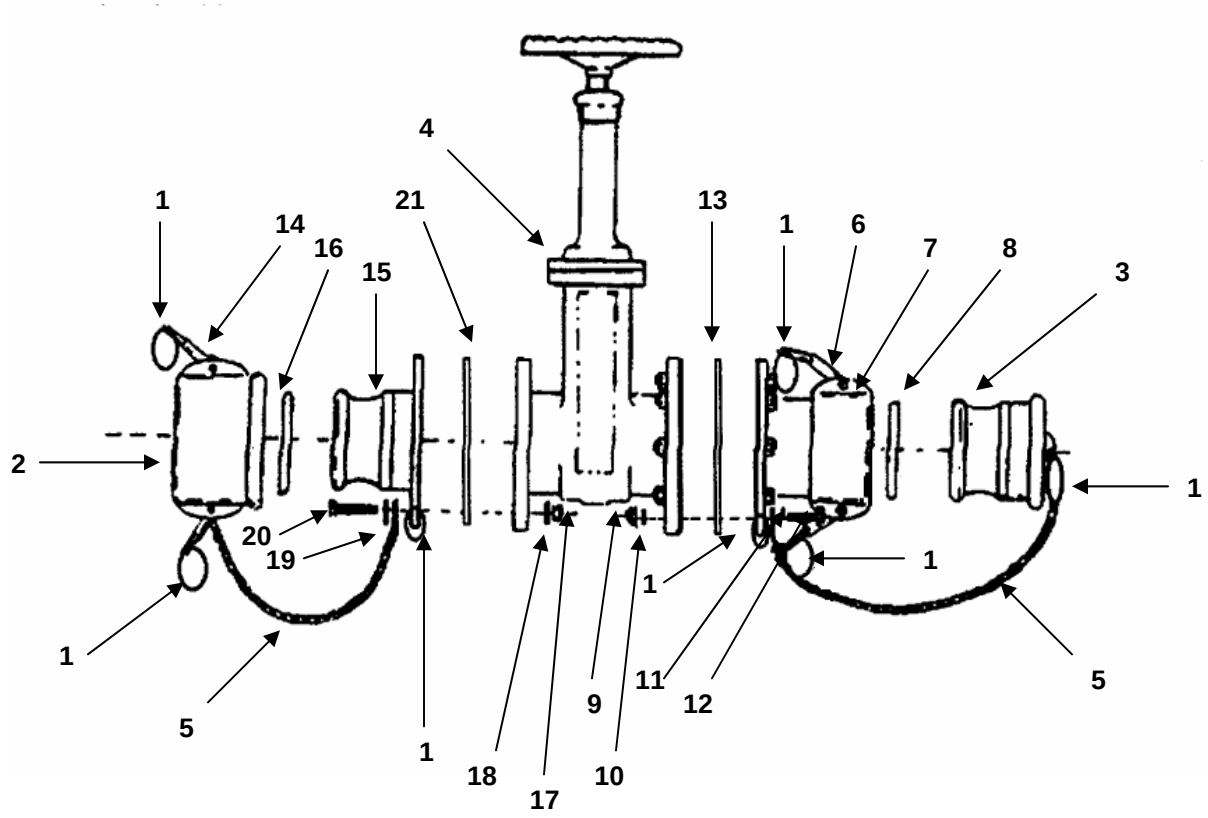
REMOVAL

1. Remove eight key rings (1) from dust cap (2), dust plug (3) and gate valve (4).
2. Remove two chains (5) from four key rings (1).
3. Pull outward on two cam-lever arms (6) and remove dust plug (3) from female quick-disconnect coupling half (7).
4. Remove gasket (8) from inside of coupling half (7). Discard gasket (8).
5. Remove twelve hex nuts (9), lockwashers (10), washers (11) and bolts (12) from gate valve (4) and coupling half (7). Discard lockwashers (10).
6. Remove coupling half (7) and flange gasket (13) from face of gate valve (4).
7. Pull outward on two cam-lever arms (14) and remove dust cap (2) from male coupling half (15).
8. Remove gasket (16) from inside of dust cap (2). Discard gasket (16).

9. Remove twelve hex nuts (17), lockwashers (18), washers (19) and bolts (20) from opposite end of gate valve (4). Discard lockwashers (18).

10. Remove male coupling half (15) and flange gasket (21). Discard gasket (21).



DISASSEMBLY

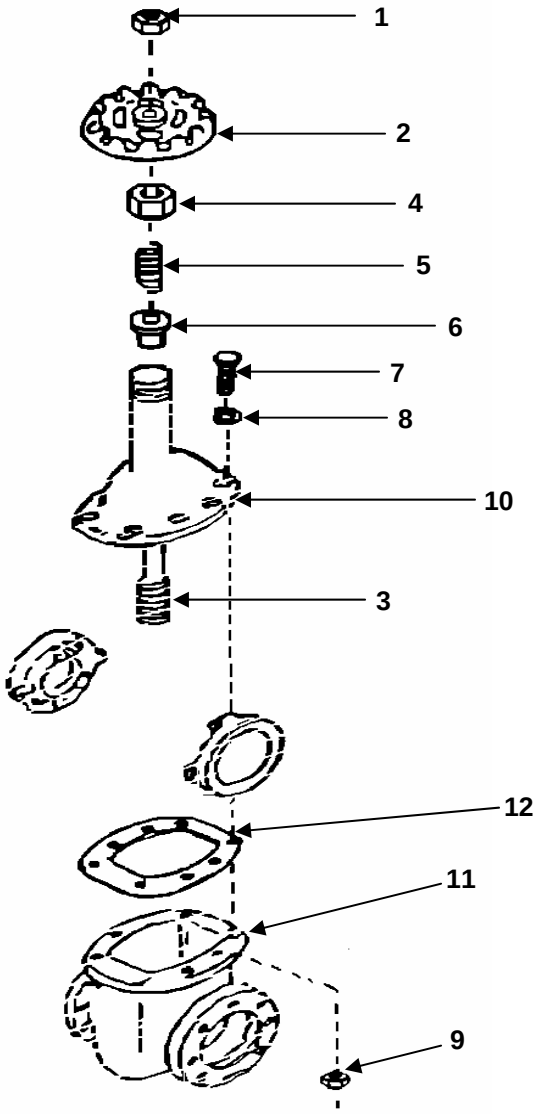
NOTE

For GTA Model, skip steps 1 thru 4.

NOTE

The packing should only be removed when it is going to be replaced.

1. Remove jam nut (1) from top of hand-wheel (2). Remove hand-wheel (2) from top of valve stem (3).
2. Remove packing nut (4), spring (5) and packing gland (6).
3. Remove ten bolts (7), lockwashers (8) and nuts (9) from bonnet (10) and valve housing (11). Lift bonnet (10) from valve housing (11).
4. Remove gasket (12) from bonnet (10). Discard gasket (12).



SERVICE

WARNING

Dry cleaning solvent A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well-ventilated areas. Avoid repeated and prolonged skin contact.
Do not use near an open flame or excessive heat. The flash point of solvent is 100°F to 138°F (38°C to 59°C).

1. Clean all parts with dry cleaning solvent and dry thoroughly with rags.
2. Clean all gasket surfaces thoroughly with cleaning compound and hot water.
3. Inspect all mechanical parts for cracks, dents, breaks or wear. Replace or repair if unserviceable.
4. Polish bonnet stem with an abrasive (crocus) cloth then coat with grease.

ASSEMBLY

NOTE

For GTA Model, skip steps 1 thru 5.

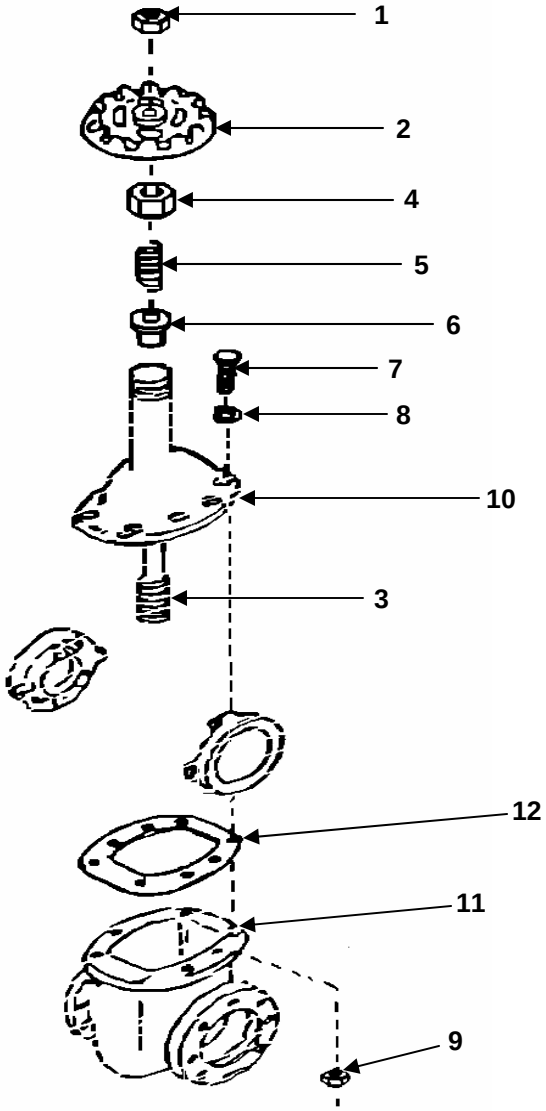
1. Position new gasket (12) on valve housing (11). Align bonnet (10) on valve housing (11).

2. Install ten bolts (7), new lockwashers (8) and nuts (9). Hand tighten using a ten bolt-tightening pattern. Torque bolts (7) to 10 ft-lbs (13.56 Nm).

3. Install spring (5) and packing gland (6) on valve stem (3).

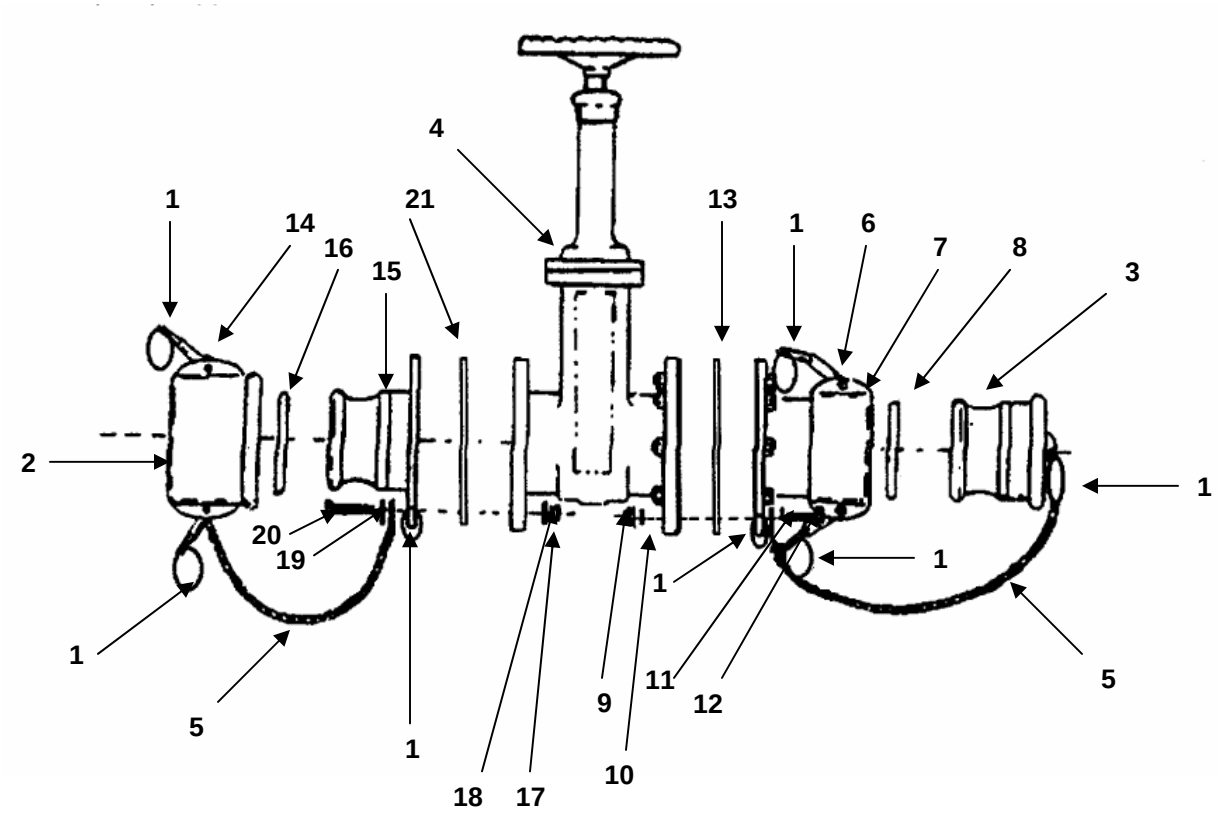
4. Install packing nut (4) on valve stem (3) by manually pushing packing nut (4) down on bonnet (10).

5. Install hand-wheel (2) and jam nut (1) on valve stem (3).



INSTALLATION

1. Align new flange gasket (21) and male coupling half (15) on face of gate valve (4).
2. Install twelve bolts (20), washers (19), new lockwashers (18) and nuts (17) hand tight.
3. Torque bolts (20) to 30 ft-lbs (40.68 N·m). For GTA Model, torque bolts (20) to 10 ft-lbs (13.5 N·m).
4. Align new flange gasket (13) and coupling half (7) on face of the gate valve (4).
5. Install twelve bolts (12), washers (11), new lockwashers (10) and nuts (9) hand tight.
6. Torque bolts (12) to 30 ft-lbs (40.68 N·m). For GTA Model, torque bolts (12) to 10 ft-lbs (13.5 N·m).
7. Install new gasket (8) inside coupling half (7).
8. Install dust plug (3) in coupling half (7). Push down two cam-lever arms (6) to lock dust plug (3) in place.
9. Install gasket (16) inside of dust cap (2).
10. Install dust cap (2) on male coupling half (15). Push down two cam-lever arms (14) to lock dust cap (2) in place.
11. Install four key rings (1) on two chains (5). Install chains on dust cap (2), dust plug (3) and gate valve (4).
12. Install four key rings (1) on cam-lever arms (6, 14).



END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL TEE ASSEMBLY (TANK MODELS BA91-142 AND RCF0210000) SERVICE AND REPAIR

INITIAL SETUP

Tools
Tool Kit, General Mechanics
(Item 1, WP 0034 00)
Torque Wrench (ft-lb)
(Item 3, WP 0034 00)

Materials/Parts
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)

Mandatory Replacement Parts
Gasket
(Item 5, WP 0044 00)
Gasket, Flange
(Item 4, WP 0044 00)
Lockwasher
(Item 9, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DISASSEMBLY

1. Remove seven key rings (1) from two dust caps (2), dust plug (3) and female coupling half (4).

2. Pull outward on two cam-lever arms (6) and remove dust cap (2) from male coupling half (7). Remove gasket (8) from inside dust cap (2). Discard gasket (8).

3. Remove twelve screws (9), washers (10), one end of chain (5), lockwashers (11) and nuts (12) from coupling half (7) and tee (13). Remove coupling half (7) and flange gasket (14). Discard gasket (14).

4. Repeat steps two and three to remove other dust cap (2) and male coupling half (7).

5. Pull outward on two cam-lever arms (15) and remove dust plug (3) from female coupling half (4). Remove gasket (16) from inside female coupling half (4). Discard gasket (16).

6. Remove twelve screws (17), washers (18), one end of chain (5), lockwashers (19) and nuts (20) from coupling half (4) and tee (13). Remove coupling half (4) and flange gasket (21). Discard gasket (21).

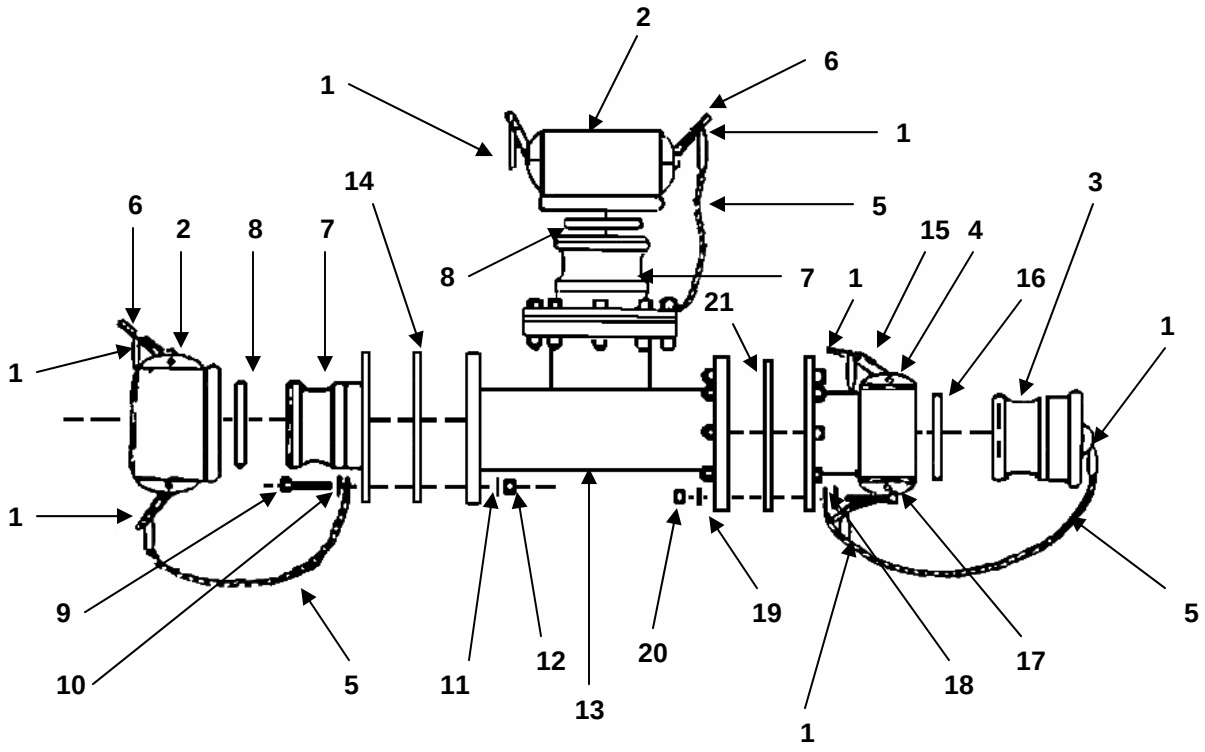
SERVICE

WARNING

Dry cleaning solvent A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well-ventilated areas. Avoid repeated and prolonged skin contact.
Do not use near an open flame or excessive heat. The flash point of solvent is 100°F to 138°F (38°C to 59°C).

1. Clean all parts with dry cleaning solvent and dry thoroughly with rags.

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



ASSEMBLY

1. Install new gasket (16) inside female coupling half (4). Align new flange gasket (21) and coupling half (4) on tee (13). Install twelve screws (17), washers (18), retainer end of one chain (5), new lockwashers (19) and nuts (20).

2. Torque screws (17) to 30 ft-lbs (40.68 N·m).

3. Position dust plug (3) in coupling half (4). Push down two cam-lever arms (15) to lock dust plug in place.

4. Align new flange gasket (14) and coupling half (7) on tee (13). Install twelve screws (9), washers (10), retainer end of one chain (5), new lockwashers (11) and nuts (12).

5. Torque screws (9) to 30 ft-lbs (40.68 N·m).

6. Install new gasket (8) in dust cap (2). Position dust cap (2) on coupling half (7). Push down two cam-lever arms (6) to lock dust cap (2) in place.

7. Repeat steps four through six to install other coupling half (7) and dust cap (2).

8. Put three key rings (1) on three chains (5). Install seven key rings (1) and chains (5) on dust plug (3), two dust caps (2) and coupling half (4).

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL BERM LINER DRAIN HOSE ASSEMBLY (TANK MODEL GTA-210KF) SERVICE AND REPAIR

INITIAL SETUP

Materials/Parts
Detergent
(Item 4, WP 0041 00
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)

Equipment Condition
Berm liner drain ball valve removed
(WP 0026 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

SERVICE

1. Pull outward on cam-lever arms (1) and remove berm liner drain hose assembly (2) from male disconnect coupling (3).
2. Flush berm liner drain hose assembly (2) with hot, soapy water.
3. Rinse out berm liner drain hose assembly (2) thoroughly and air dry.

WARNING

Dry cleaning solvent, A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well ventilated areas. Avoid repeated and prolonged skin contact. Do not use solvent near an open flame or near excessive heat. The flash point of the solvent is 100°F to 130°F (38° C to 59° C).

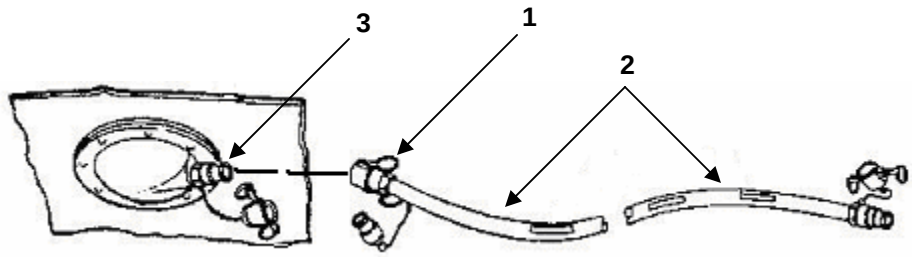
CAUTION

Dry cleaning solvent, A-A-59601, used to clean parts, must not come into contact with any part of the fuel tank fabric. Damage to the fabric will occur.

4. Clean the end of male disconnect coupling (3) with dry cleaning solvent and dry thoroughly with rags.
5. Inspect berm liner drain hose assembly (2) for cracks, tears or wear.

6. Push berm liner drain hose assembly (2) on male disconnect coupling (3). Push inward on cam-lever arms (1) and lock berm liner drain hose assembly (2) in place.

7. Install the berm liner drain ball valve. See WP 0026 00.



END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL BERM LINER DRAIN FITTING ASSEMBLY (TANK MODEL GTA-210KF) SERVICE AND REPAIR

INITIAL SETUP

Tools
Tool Kit General Mechanics
(Item 1, WP 0034 00)
Torque Wrench (ft-lb)
(Item 3, WP 0034 00)

Materials/Parts
Detergent
(Item 4, WP 0041 00)
Dry Cleaning Solvent
(Item 5, WP 0041 00)
Rags, Wiping
(Item 8, WP 0041 00)
Silicone Compound
(Item 10, WP 0041 00)

Equipment Condition
Berm liner drain hose assembly removed (WP 0029 00)

Mandatory Replacement Parts
Gasket
(Item 7, WP 0044 00)
Gasket
(Item 12, WP 0044 00)

WARNING

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

DISASSEMBLY

1. Pull outward on cam-lever arms (1) and remove drain fitting assembly elbow (2) from male disconnect coupling (3).
2. Remove and discard gasket (4) from dust cap (5).
3. Disconnect chain assembly (6) from male disconnect coupling (3) and dust cap (5).
4. Remove eight screws (7) and washers (8) from male disconnect coupling (3) and berm liner (9).
5. Remove male disconnect coupling (3), two gaskets (10) and strainer (11).
6. Discard gaskets (10).

SERVICE

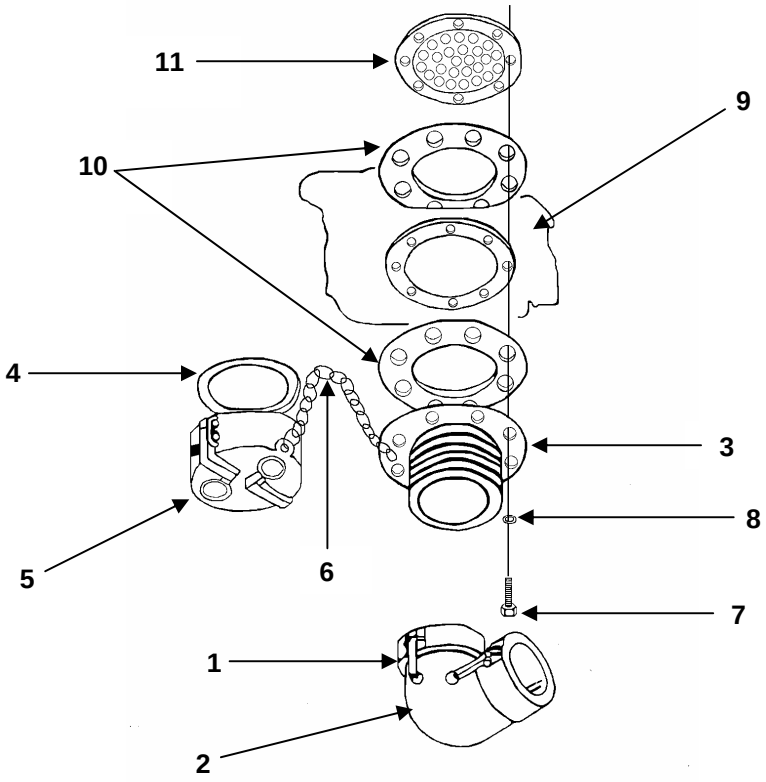
WARNING

Dry cleaning solvent, A-A-59601, used to clean parts, is potentially dangerous to personnel and property. It produces toxic and flammable fumes. Use only in well ventilated areas. Avoid repeated and prolonged skin contact. Do not use solvent near an open flame or near excessive heat. The flash point of the solvent is 100°F to 130°F (38° C to 59° C).

CAUTION

Dry cleaning solvent, A-A-59601, used to clean parts, must not come into contact with any part of the fuel tank fabric. Damage to the fabric will occur.

1. Clean all parts with dry cleaning solvent and dry thoroughly with rags.
2. Clean mating surfaces thoroughly with detergent and hot water.
3. Inspect all mechanical parts for cracks, dents, breaks and wear. Replace the component if unserviceable.



ASSEMBLY

1. Lubricate new gaskets (10) with silicone compound.

2. Place one gasket (10) on male disconnect coupling (3). Position other gasket (10) on strainer (11) of berm liner (9).

3. Position male disconnect coupling (3) on berm liner (9) and align the fastening holes.

4. Install male disconnect coupling (3) to berm liner (9) with eight screws (7) and washers (8), by hand tightening screws (7).

5. Torque all screws (7) to 10 ft-lbs (13.50 N·m).

6. Install new gasket (4) in dust cap (5).

7. Attach chain assembly (6) to male disconnect coupling (3) and dust cap (5).

8. Place drain fitting assembly elbow (2) on male disconnect fitting (3). Push inward on cam-lever arms (1) to lock drain fitting assembly elbow (2) onto male disconnect coupling (3).

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
PREPARATION FOR STORAGE OR SHIPMENT**

PREPARATION FOR STORAGE OR SHIPMENT

WARNINGS

FLAMMABLE FUEL. Do not allow smoking within 100 feet (30.50 meters) of the storage area. Post NO SMOKING signs around the area. Avoid getting fuel on the body or clothing. If clothing becomes saturated with fuel, remove the clothing immediately and wash body with hot soapy water and soak clothing in soapy water. Avoid spillage of fuel. When spillage occurs, cover the affected area with dry soil to reduce its rate of vaporization. Be certain a suitable fire extinguisher is present and that it is properly charged and positioned so as to be readily available in case of fire. Death or serious injury may result if personnel fail to strictly observe safety precautions.

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

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

CAUTION

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

NOTE

Prior to storage the tank should be disassembled, purged of all residual fuel and fumes, cleaned and preserved with all its components for future use.

1. Drain the tank until empty (WP 0005 00).
2. Remove the tank drain hose assembly from the tank drain fitting and install the drain plug (WP 0021) (Tank Models BA91-142 and RCF0210000).
3. Remove the filler/discharge elbows from the filler/discharge adapters (WP 0020).
4. Remove the vent fitting assembly from the flanged adapter and install the dust cap (WP 0019).
5. Inflate the tank with air and air-dry the tank for twenty-four hours.
6. Remove the filler/discharge assembly from the tank (WP 0020).
7. Flush the tank with detergent solution (WP 0041).

NOTE

Contact unit/local safety office for disposal of fuel tank cleaning residue.

8. Drain the detergent solution from the tank.
9. Flush the tank with clear water.
10. Air-dry the tank.
11. Install the filler/discharge assembly on the tank (WP 0020).

NOTE

All fittings attached to the tank must be wrapped prior to folding using cushioning materials provided with the tank.

12. Install the dust caps on the flanged adapters of the filler/discharge assemblies.
13. Brush off all debris clinging to the fabric material of the tank.
14. Apply technical TALC (Item 12, WP 0041 00) to the tank exterior.
15. Fold the tank from the sides towards the middle.
16. Roll the tank from the end opposite the drain fitting.
17. Plug the exposed hose assembly openings with suitable, clean materials.

CRATING INSTRUCTIONS

1. Make sure the tank has been properly folded (WP 0005 00).

CAUTION

Use care when packing the tank. The tank will be easily damaged by tools, packing box nails or other sharp objects.

2. Pack the tank in a close-fitting box or container. When the tank is disassembled and refolded, it is to be replaced in the original box or container.
3. Each tank is provided with suitable packing around the tank to prevent the tank fabric from being damaged by contact with the inside of the box or container. When the tank is replaced in the original box or container, the packing material is replaced around the tank in the same manner as received.

ADMINISTRATIVE STORAGE

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

2. Before placing the equipment in administrative storage, current preventive maintenance checks and services should be completed, shortcomings and deficiencies should be corrected, and all Modification Work Orders (MWO) should be applied.

3. Inside storage is preferred for items selected for administrative storage. If inside storage is not available, trucks, vans, conex containers, and other containers may be used. Refer to WP 0002 00 for ambient storage temperature range.

END OF WORK PACKAGE

CHAPTER 7

SUPPORTING INFORMATION FOR COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

REFERENCES

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

TECHNICAL MANUALS

AR 700-138	Army Logistics Readiness and Sustainability.
AR 750-1	Army Materiel Maintenance Policy and Retail Maintenance Operations
DA PAM 738-750	Functional Users Manual for The Army Maintenance Management System (TAMMS)
DA PAM 738-751	Functional Users Manual for The Army Maintenance Management System Aviation (TAMMS-A)
TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use

FORMS

DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 2407	Maintenance Request
DA Form 2407-1	Maintenance Request Continuation Sheet
DA Form 2028	Recommended Changes to Equipment Technical Publications
SF Form 368	Product Quality Deficiency Report

FIELD MANUALS

FM 3-3, FM 3-4, FM 3-5	Detailed Decontamination Procedures
FM_4-25.11	First_Aid

MISCELLANEOUS

CTA 8-100	Common Table of Allowances, Army Medical Dept. Expendable/Durable Items
CTA 50-970	Common Table of Allowances, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items)

END OF WORK PACKAGE

MAINTENANCE ALLOCATION CHART (MAC)

INTRODUCTION

The Army Maintenance System MAC

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

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

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

Direct Support – includes an F subcolumn.

General Support – includes an H subcolumn.

Depot – includes a D subcolumn.

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

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

Maintenance Functions

Maintenance functions will be limited to and defined as follows:

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

2. Test - To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis.

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

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

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

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

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

8. Replace - To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.

9. Repair - The application of maintenance services, including fault location/troubleshooting, removal/installation, disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

NOTE

The following definitions are applicable to the "Repair" maintenance function:

Services — Inspect, test, service, adjust, align, calibrate, and/or replace.

Fault location/troubleshooting — The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Disassembly/assembly — The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

Actions — Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

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

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

Explanation of Columns In The MAC

Column (1) — Group Number. Column (1) lists functional group code (FGC) numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA). End item group number shall be "00.""

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

Column (3) — Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions refer to "Maintenance Functions" outlined above.)

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

C — Operator or crew maintenance

O — Unit maintenance

F — Direct support maintenance

L — Specialized repair activity (SRA)

H — General support maintenance

D — Depot maintenance

NOTE

The “L” maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by a work time figure in the “H” column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) — Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) — Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) — Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) — Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) — Nomenclature. Name or identification of the tool or test equipment.

Column (4) — National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) — Tool Number. The manufacturer’s part number, model number, or type number.

Explanation of Columns in the Remarks

Column (1) — Remarks Code. The code recorded in column (6) of the MAC.

Column (2) — Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC.

Table 1. MAC for 5,000 Barrel Collapsible Fabric Tanks

(1) Group Number	(2) Component/ Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Reference Code	(6) Remarks
			Unit		DS	GS	Depot		
			C	O	F	H	D		
00	Tank, Fabric, Collapsible, 5,000 Barrel Assembly								
01	Tank Envelope	Inspect	0.2						
		Repair	0.5						C
02	Vent Fitting Assembly	Inspect	0.2	0.2					A
		Replace		0.2				1,2	
		Repair	0.1	0.5				1,2	B
		Service	0.1						
03	Filler/Discharge Assembly	Inspect	0.2	0.2					A
		Replace		0.2				1,2,3	
		Repair	0.1	0.5				1,2,3	B
04	Drain Fitting Assembly	Inspect	0.2	0.2					A
		Replace		0.2				1,2	
		Repair		0.5				1,2	
05	Gate Valve Assembly	Inspect	0.2	0.2					A
		Replace		0.2				1,3	
		Repair	0.1	0.5				1,3	B
06	Tee Assembly	Inspect	0.2						
		Replace		0.2				1,3	
		Repair		0.5				1,3	
07	Berm Liner Assembly	Inspect	0.2						A
		Replace		0.5				1,3	
		Repair		3.0				1,3	
0701	Drain Fitting Assembly	Inspect	0.1	1.0					A
		Replace		0.2				1,3	
		Repair		0.5				1,3	
0702	Ball Valve Assembly, 2 IN	Inspect	0.1	0.1					A
		Replace		0.2				1	
		Repair	0.1	0.2				1,4	
0703	Hose Assembly Drain	Inspect	0.1	0.1					
		Replace		0.2					
		Repair	0.1						B
08	Hoses and Accessories	Inspect	0.2	0.2					A
		Replace		0.2					
		Repair	0.1						B
09	Emergency Repairs	Inspect	0.2						
		Repair		0.1					

Table 2. Tools and Test Equipment Requirements for 5,000 Barrel Collapsible Fabric Tank, Fuel.

Tool or Test Equipment Ref. Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
1	O	Tool Kit, General Mechanics Automotive	5180-00-177-7033	(50980) SC5180-90-CL-N26
2	O	Torque Wrench (inch-pounds)	5120-01-075-2597	(80204) B107.14MTY1CLBST3
3	O	Torque Wrench (foot-pounds)	5120-00-242-3264	(80204) B107.14M
4	O	Wrench, Pipe	5120-00-061-3185	(55719) CW15

Table 3. Remarks for 5,000 Barrel Collapsible Fabric Tank, Fuel.

Remarks Code	Remarks
A	Operator inspection occurs with assembly intact. Unit level inspection occurs after the assembly has been disassembled and cleaned.
B	Operator repair is limited to replacement of gaskets on quick-disconnect couplings.
C	Operator repair is limited to use of the clamps and plugs included with the emergency repair items.

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
REPAIR PARTS AND SPECIAL TOOLS LIST**

INTRODUCTION

SCOPE

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

GENERAL

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

1. Repair Parts List Work Packages. Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include parts 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. Sending units, brackets, filters and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.

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

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

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

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

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

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

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

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

Source Code	Application/Explanation
PA PB PC PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the level indicated by the code entered in the 3rd position of the SMR code. **NOTE** Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.
MO - Made at unit/AVUM level MF - Made at DS/AVIM level MH - Made at GS level ML - Made at SRA MD - Made at depot	Items with these codes are not to be requested/ requisitioned individually. They must be made from bulk material which is identified by the P/N in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at 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 level AL - Assembled by SRA AD - Assembled by depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position of the SMR code authorizes your to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
XA	Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to the NOTE below.)
XB	If an item is not available from salvage, order it using the CAGEC and P/N.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's P/N.
XD	Item is not stocked. Order an XD-coded item through normal supply channels using the CAGEC and P/N given, if no NSN is available.

NOTE

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

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

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

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

Fourth Position. The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

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

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

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

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

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

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

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

NOTE

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

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

1. The federal item name and, when required, a minimum description to identify the item.
2. P/Ns of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.
3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in Column (6) for a given figure in both the repair parts list and special tools list work packages.

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

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

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

STOCK NUMBER Column. This column lists the NSN in National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN.

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

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

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

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

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

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

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

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

SPECIAL INFORMATION

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

Code	Used On
FFD	Model BA91-142
FNW	Model RCF0210000
ENQ	Model PD5430-0001
GTA	Model GTA-210KF

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

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

HOW TO LOCATE REPAIR PARTS

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

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

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

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

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

2. When NSN Is Known.

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

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

3. When P/N Is Known.

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

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

END OF WORK PACKAGE

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

TANK ENVELOPE

REPAIR PARTS LIST

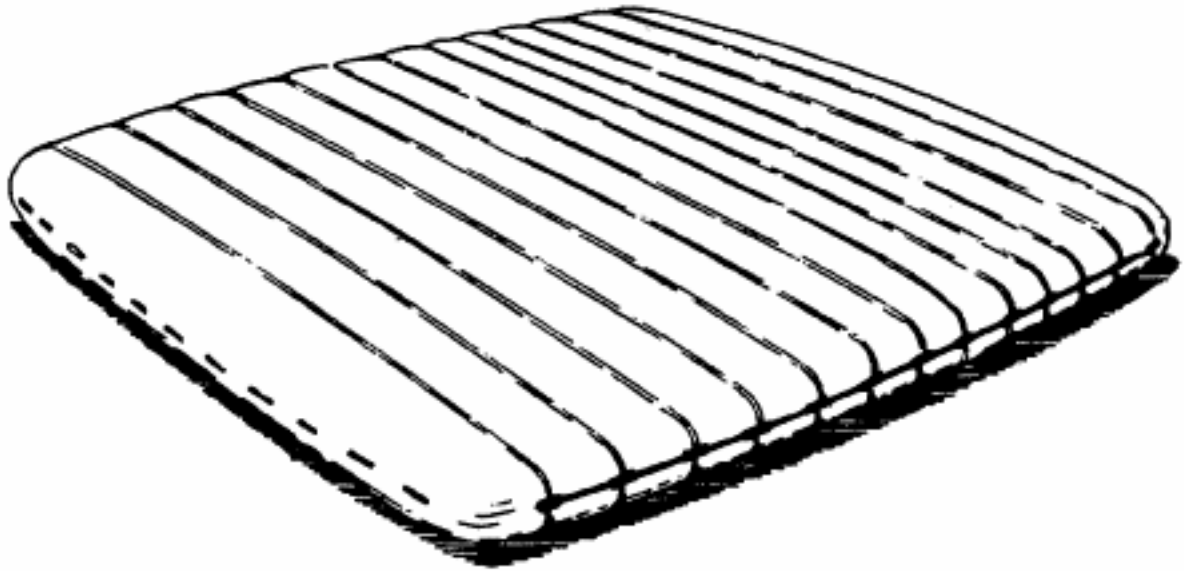


Figure 1. Tank Envelope

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 01 TANK ENVELOPE	
					FIGURE 1 TANK ENVELOPE	
1	XAOOO		66618	BA191142	FUEL TANK..... UOC: ENQ, FFD, FNW	1
1	PBOOO		1YFX5	GTA-210KF-TO	FUEL TANK..... UOC: GTA	1

END OF FIGURE

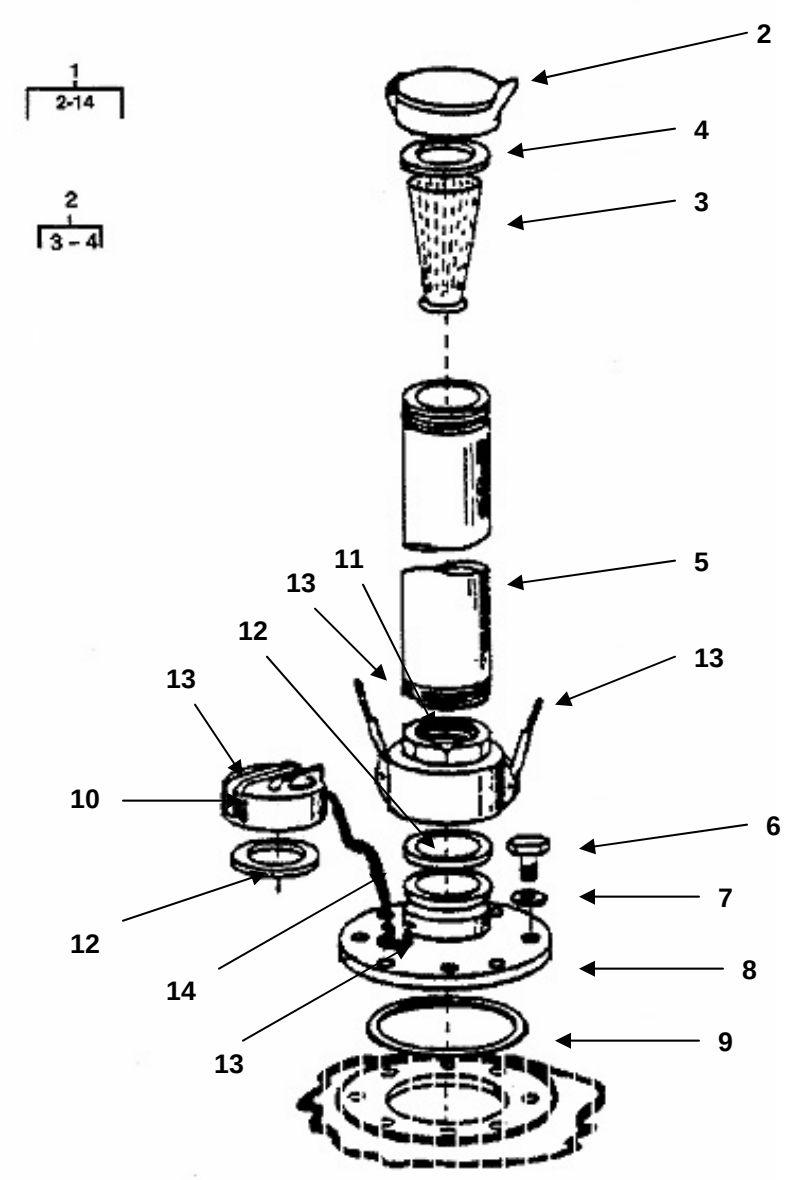


Figure 2. Vent Fitting Assembly (Models BA91-142, PD5430-001 and RCF0210000)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 VENT FITTING ASSY.	
					FIGURE 2 VENT FITTING ASSY. (MODELS BA91-142, PD5430-001 AND RCF0210000)	
1	XBOOO		66618	X-3325J	VENT FITTING ASSEMBLY..... UOC: ENQ, FFD, FNW	1
2	PBOZZ	5430-01-252-6434	49234	EX1333B-2IN	.CAP, VENT, FUEL STORAGE.....	1
3	XBOOO		41592	B-6258-0 FN 11	..FLAME ARRESTER.....	1
4	PCOZZ	5330-01-262-1361	49234	EX1333B-18-95	..GASKET.....	1
5	XBOZZ		10068	064-2400	.PIPE, 2 INCH SCD 40.....	1
6	XDOZZ		8R639	APN1666	.BOLT, HEX HEAD.....	8
7	XDOZZ		8R639	APN9875	.WASHER, PLAIN	8
8	PBOZZ	4730-01-416-1533	96906	MS27023-21	.COUPLING, QUICK DISCON..... 2 INCH MALE.....	1
9	PCOZZ	5331-00-291-3085	81343	AS29513-250	.O-RING	1
10	PAOZZ	4730-00-649-9100	58536	AA59326IX16	.CAP, QUICK DISCONNECT	1
11	PBOZZ	4730-00-649-9103	58536	AA59326V16	.COUPLING HALF, QUICK DISC..... 2 INCH FEMALE	1
12	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET.....	2
13	PBOZZ		OKVE6	90177A223	.RING, KEY	5
14	MOOOO		19099	RRC271	.CHAIN, DUST, CUT TO ..... LENGTH	1

END OF FIGURE

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

VENT FITTING ASSEMBLY (MODEL GTA-210KF)

REPAIR PARTS LIST

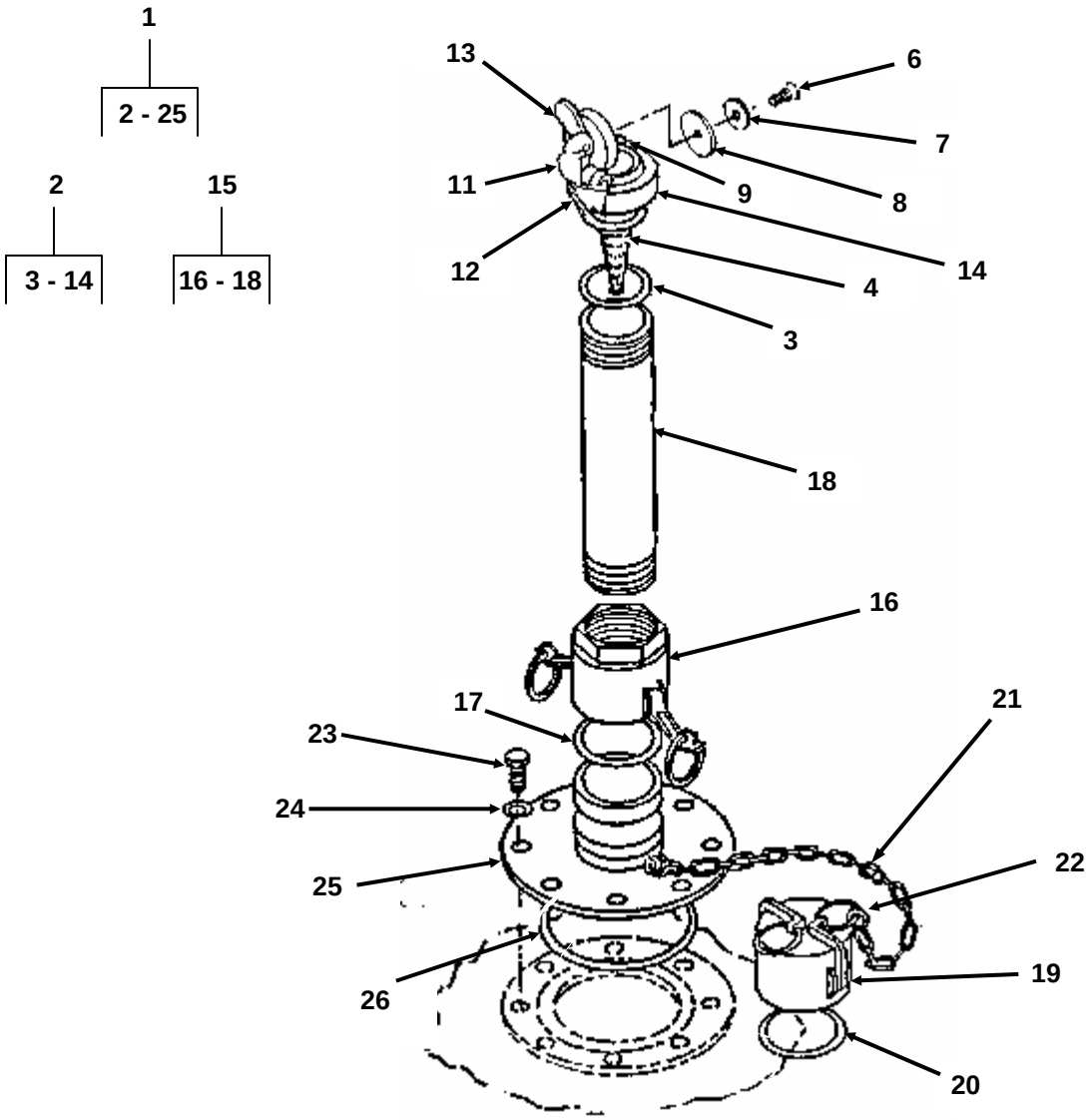


Figure 3. Vent Fitting Assembly (Model GTA-210KF)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION/USABLE ON CODE (UOC)	(7) QTY
					GROUP 02 VENT FITTING ASSEMBLY	
					FIG. 3 VENT FITTING ASSY (GTA-210KF)	
1	XDOOO		1YFX5	GTA-V-ASY-F	VENT FITTING ASSEMBLY UOC: GTA	1
2	PAOOO	4930-00-734-0180	49234	EX1333B	.STRAINER ELEMENT, SE ARRESTOR, VENT	1
3	XAOZZ	5330-01-262-1361	49234	EX1333B-18-95	..GASKET, CAP	1
4	XAOZZ		49234	EX1333B-36-13	..SCREEN, FLAME ARRESTOR	1
5	XAOOO		41592	780-0100AC-7	..CAP ASSEMBLY, RELIEF	1
6	XAOZZ	5305-01-262-5080	49234	4447101620	..SCREW, VENT RELIEF CAP	1
7	XAOZZ	5310-01-262-1351	49234	EX1333B-17	..WASHER, RELIEF CAP	1
8	XAOZZ	5330-01-262-1349	49234	205-18-98	..GASKET, RELIEF CAP ASSEMBLY	1
9	XAOZZ		49234	EX1333B-40-68	..CAP, RELIEF	1
10	XAOOO	4930-00-786-9566	49234	EX1333B39	..HEAD ASSEMBLY, CAP ASSEMBLY	1
11	XAOZZ	5320-01-262-1352	49234	4201232400	..RIVET HEAD ASSEMBLY (96906) MS20450C10AD24	1
12	XAOZZ	5320-01-262-1353	49234	4201035000	..RIVET (96906) MS20450C12AD50	1
13	XAOZZ		49234	EX1333B-3-607	..LEVER HEAD ASSEMBLY	1
14	XAOZZ		49234	EX1333B-1-607	..BODY, HEAD ASSEMBLY	1
15	XDOOO		63711	ATPD2266-VFA	.VENT ASSEMBLY, PIPE ASSEMBLY	1
16	PAOZZ	4730-00-649-9103	58536	AA59326V16	..COUPLING HALF,QUICK DISC. 2 INCH	1
17	PAOZZ	5330-00-612-2414	96906	MS27030-6	..GASKET, 2 INCH	1
18	PAOZZ		63711	P-2-10	..PIPE, 2 INCH	1
19	PAOOO	4730-00-649-9100	58536	AA59326IX16	.CAP, QUICK DISCONNECT	1
20	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET, 2 INCH	1
21	MOOOO		63711	CAR-12	.CHAIN, CUT TO 12 INCH LENGTH FROM BULK, CHAIN P/N RRC271	1
22	PAOZZ		63711	RK-1	.RING, KEY	1
23	PAOZZ	5305-00-068-0509	80204	B1821BH025 C125N	.SCREW, CAP, HEXAGON H 1/4-20 X 1 1/4 IN	8
24	PAOZZ	5310-00-809-4058	96906	MS27183-10	.WASHER, FLAT 1/4 IN	8
25	PAOZZ	4730-01-416-1533	96906	MS27023-21	.COUPLING HALF, QUICK 2 IN FLANGED	1
26	PCOZZ	5331-00-291-3085	81343	AS29513-250	.O-RING	1
					END OF FIGURE	

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

FILLER/DISCHARGE ASSEMBLY

REPAIR PARTS LIST

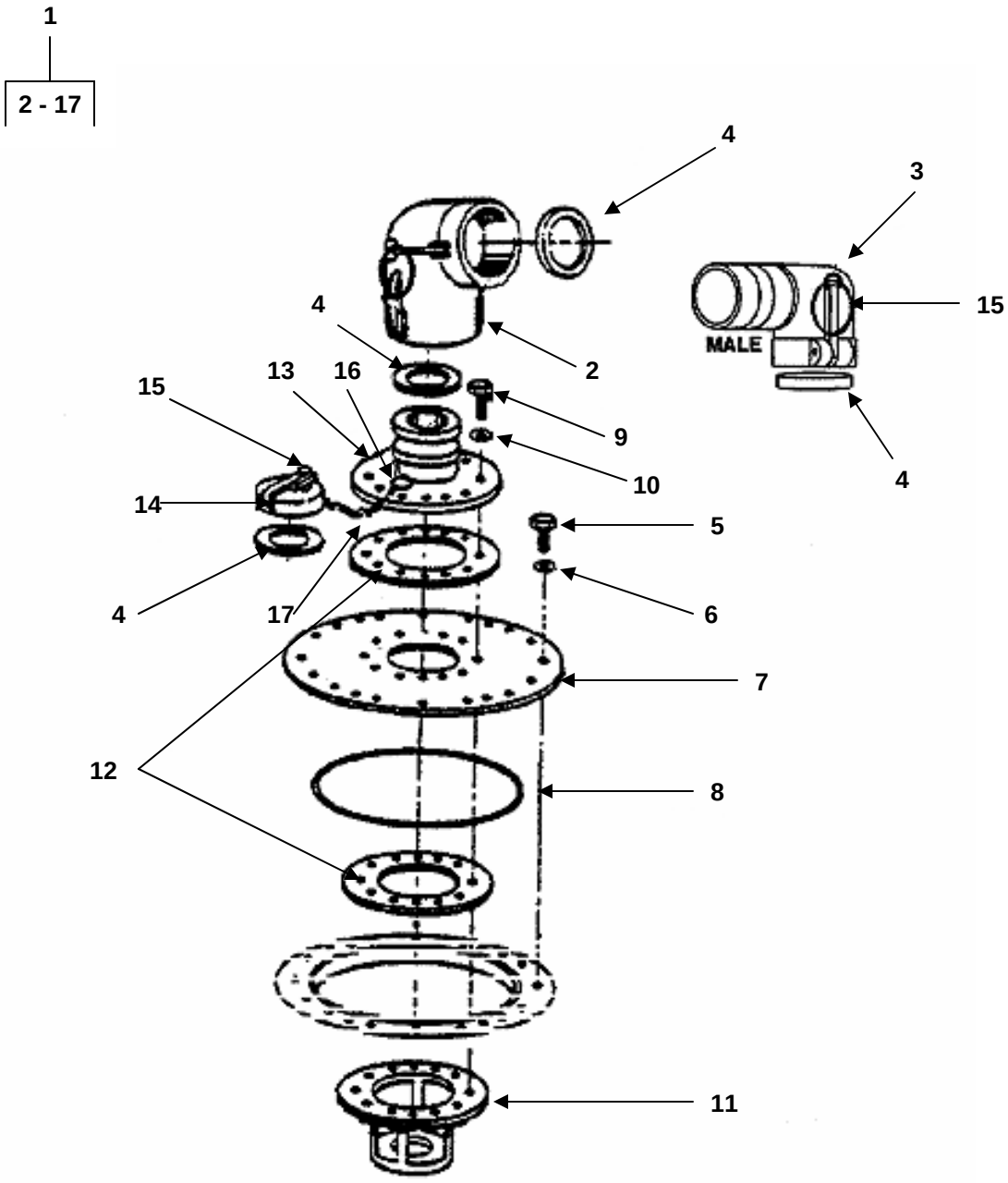


Figure 4. Filler/Discharge Assembly

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 03 FILLER/DISCHARGE ASSEMBLY	
					FIGURE 4 FILLER/DISCHARGE ASSEMBLY	
1	XDOOO		66618	X-4959	FILLER/DISCHARGE ASSY ..... UOC: ENQ, FFD, FNW	1
1	XCOOO		1YFX5	GTA-6-FD-ASY	FILLER/DISCHARGE ASSY ..... UOC: GTA	1
2	XDOZZ		10068	60BB90AL	.ELBOW, QUICK DISCONNECT ..... 6 INCH FEMALE/FEMALE UOC: ENQ, FFD, FNW	1
2	PAOZZ		63711	EFF-90-6	.ELBOW, QUICK DISCONNECT ..... FEMALE TO FEMALE, 6 INCH, 90 DEGREE UOC: GTA	1
3	XDOZZ		10068	60BA90AL	.ELBOW, QUICK DISCONNECT ..... 6 INCH FEMALE/MALE UOC: ENQ, FFD, FNW	1
3	PAOZZ		63711	EFM-90-6	.ELBOW, QUICK DISCONNECT ..... FEMALE TO MALE, 6 INCH, 90 DEGREE UOC: GTA	1
4	PCOZZ	5330-00-412-9780	96906	MS27030-10	.GASKET, 6 INCH	4
5	XDOZZ		8R639	APN1666	.BOLT, HEX HEAD..... UOC: ENQ, FFD, FNW	20
5	PAOZZ	5305-00-225-3843	80204	B1821BH025C100N	.SCREW, CAP, HEXAGON H, ... 1/4-20 x 1 INCH UOC: GTA	20
6	XDOZZ		8R639	APN9875	.WASHER, PLAIN ..... UOC: ENQ, FFD, FNW	20
6	PAOZZ	5310-00-809-4058	96906	MS27183-10	.WASHER, FLAT, 1/4 INCH ..... UOC: GTA	20
7	XDOZZ		85109	X-4128A	.CLOSURE PLATE..... UOC: ENQ, FFD, FNW	1
7	PBOZZ		1YFX5	GTA-063	.PLATE, CLOSURE..... UOC: GTA	1
8	PCOZZ	5330-01-067-3449	81343	AS29513-383	.O-RING ..... UOC: ENQ, FFD, FNW	1
8	PCOZZ	5331-00-364-9862	81343	AS3578-383	.O-RING, 6 INCH..... UOC: GTA	1
9	XDOZZ		8R639	APN1814	.BOLT..... UOC: ENQ, FFD, FNW	12

9	PAOZZ	5305-00-725-2317	80204	B1821BH038C150N	.SCREW CAP, HEXAGON H 3/8-16 x 1 1/2 INCH UOC: GTA	12
10	XDOZZ		8R639	APN9884	.WASHER, PLAIN UOC: ENQ, FFD, FNW	12
10	PCOZZ		63711	THREADSEAL3/6IN	.GASKET, 3/8 INCH UOC: GTA	12
11	XDOZZ		OA6K1	F19192	.SUCTION STUB UOC: ENQ, FFD, FNW	1
11	PBOZZ		1YFX5	GTA-6-SUC	.SUCTION STUB UOC: GTA	1
12	PCOZZ	5330-01-415-8850	OA6K1	FB7661	.GASKET 6 INCH FLANGE	2
13	PBOZZ	4730-00-402-5955	96906	MS27023-19	.COUPLING HALF, QUICK	1
14	PBOZZ	4730-00-064-4435	96906	MS27028-19	.CAP, QUICK DISCONNECT	1
15	XDOZZ		OKVE6	90177A223	.RING, KEY UOC: ENQ, FFD, FNW	5
15	PFOZZ		63711	RK-1	.RING, KEY UOC: GTA	2
16	PBOZZ	5325-01-328-4742	39428	90177A221	.RING, RETAINING UOC: ENQ, FFD, FNW	1
17	MOOOO		19099	RRC271	.CHAIN, DUST, CUT TO LENGTH UOC: ENQ, FFD, FNW	1
17	MOOOO		63711	CAR-12	.CHAIN ASSEMBLY, SING 12 INCH UOC: GTA	1

END OF FIGURE

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

DRAIN FITTING ASSEMBLY AND BALL VALVE (MODELS BA91-142 AND RCF0210000)

REPAIR PARTS LIST

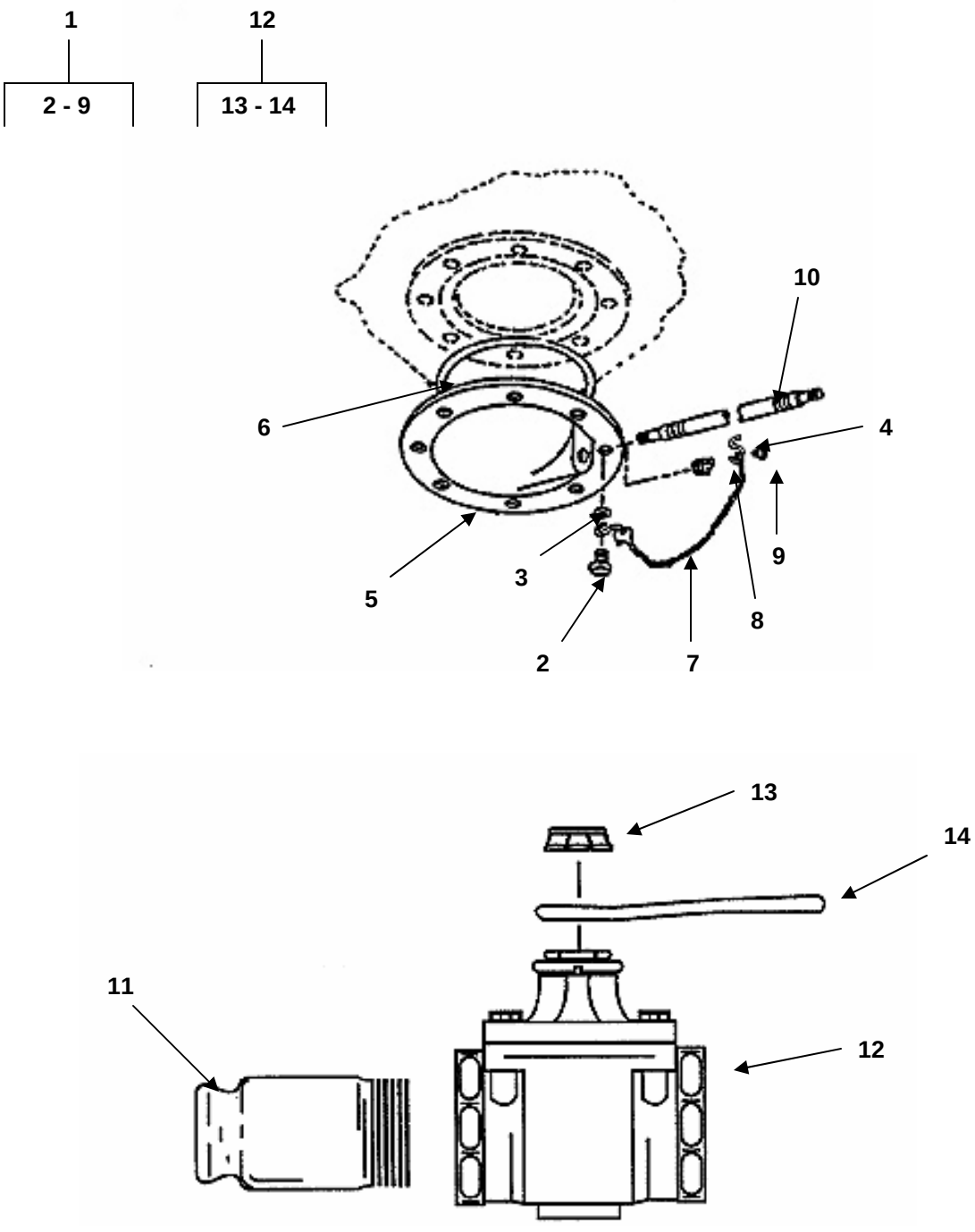


Figure 5. Drain Fitting Assembly and Ball Valve (Models BA91-142 and RCF0210000)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04 DRAIN FITTING ASSEMBLY	
					FIGURE 5 DRAIN FITTING ASSEMBLY AND BALL VALVE (MODELS BA91-142 AND RCF0210000)	
1	XDOOO		66618	X-5022A	DRAIN FITTING ASSEMBLY ..... UOC: FFD, FNW	2
2	XDOZZ		8R639	APN1666	.BOLT, HEX HEAD.....	16
3	XDOZZ		8R639	APN9875	.WASHER, PLAIN	16
4	XDOZZ		OKVE6	9381T56	.S-HOOK	4
5	XDOZZ		OA6K1	46674	.DRAIN FITTING	2
6	PCOZZ	5331-00-291-3085	81343	AS29513-250	.O-RING	2
7	MOOOO		19099	18GA	.CHAIN, DRAIN PLUG, MAKE ..... FROM BULK, SINGLE JACK CHAIN	2
8	PBOZZ	4730-01-416-3230	81349	M52618/7P09XC	.BUSHING, PIPE.....	2
9	XDOZZ		OKVE6	92446A825	.SCREW.....	2
10	PCOZZ	4720-01-416-9635	81349	M370-B06C21200	HOSE ASSEMBLY, 10 FOOT ..... X 2 INCHES THREADED	2
11	PBOZZ	4730-00-938-7997	58536	AA59326III16	COUPLING HALF, QUICK	2
12	PBOZZ	4820-01-416-6751	OA6K1	319205	VALVE, BALL, WWV35/CS	2
13	XDOZZ		OA6K1	319205-FN13	.NUT, LEVER	2
14	XDOZZ		OA6K1	319205-FN12	.LEVER.....	2

END OF FIGURE

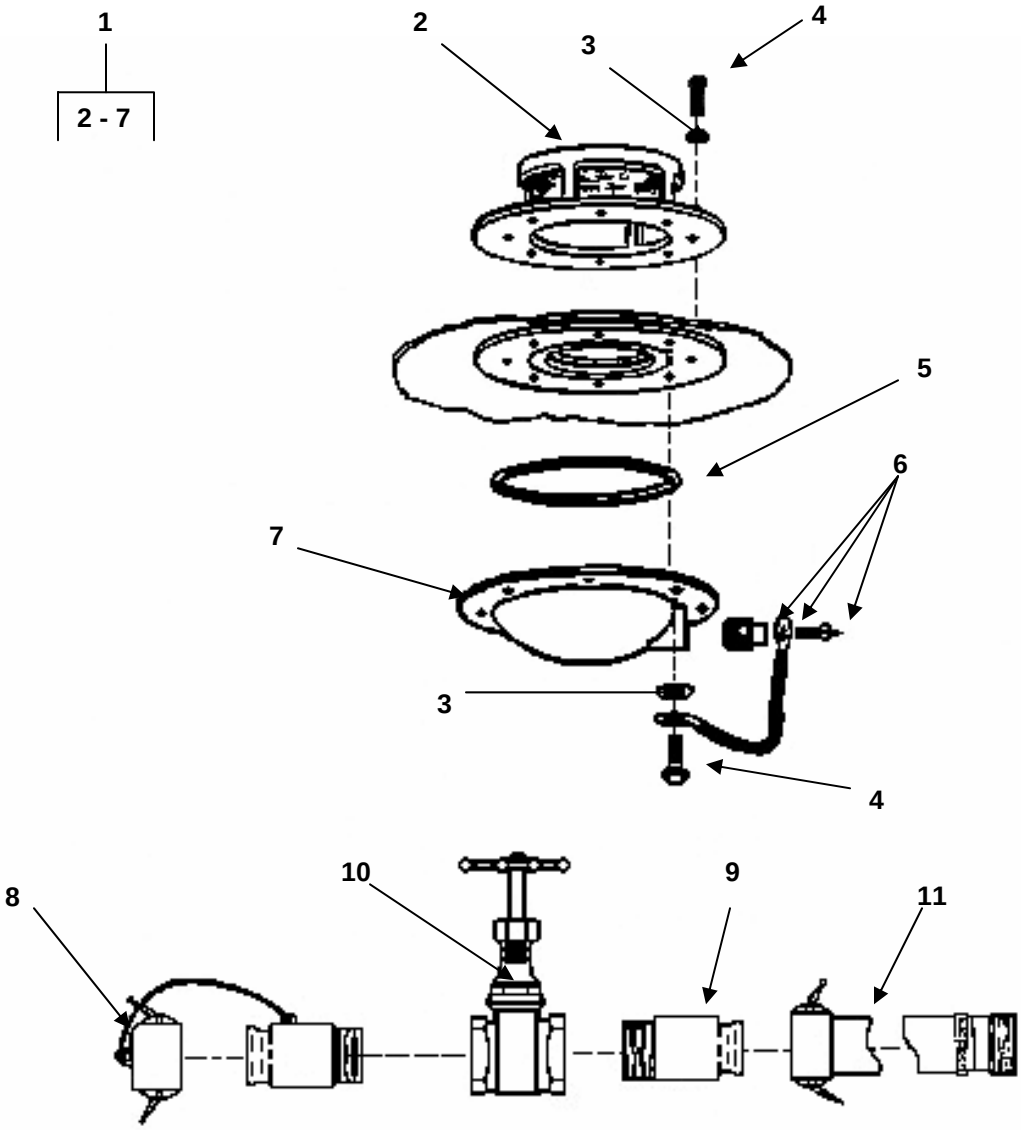


Figure 6. Drain Fitting Assembly and Gate Valve (Model PD5430-0001)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04 DRAIN FITTING ASSEMBLY	
					FIGURE 6 DRAIN FITTING ASSEMBLY AND GATE VALVE (MODEL PD5430-0001)	
1	XDOOO	5430-01-262-9476	00333	FCC-52608	DRAIN FITTING ASSEMBLY ..... UOC: ENQ	1
2	XDOZZ		74897	ST20F1968-03	.SUCTION STUB.....	1
3	PAOZZ	5310-00-809-4058	96906	MS27183-10	.WASHER, FLAT, 1/4 INCH	8
4	PAOZZ	5305-00-225-3839	80205	MS90725-8	.SCREW, CAP, HEXAGON HEAD...	8
5	PCOZZ	5330-00-291-3085	81343	AS29513-250	.O-RING	1
6	XDOZZ		00333	FCC-52608-4	.PLUG ASSEMBLY	1
7	XDOZZ		00333	FCC-52608-5	.DRAIN FITTING	1
8	PAOZZ	4730-00-936-4584	58536	AA59326IX25	CAP, QUICK DISCONNECT.....	1
9	PAOZZ	4730-00-958-7117	58536	AA59326III25	COUPLING HALF, QUICK ..... DISCONNECT	2
10	PAOZZ	4820-01-418-4096	76364	1148	VALVE, GATE.....	1
11	XDOZZ				HOSE ASSEMBLY, 1 1/2 INCH ..... MIL-H-370, TYPE II	1

END OF FIGURE

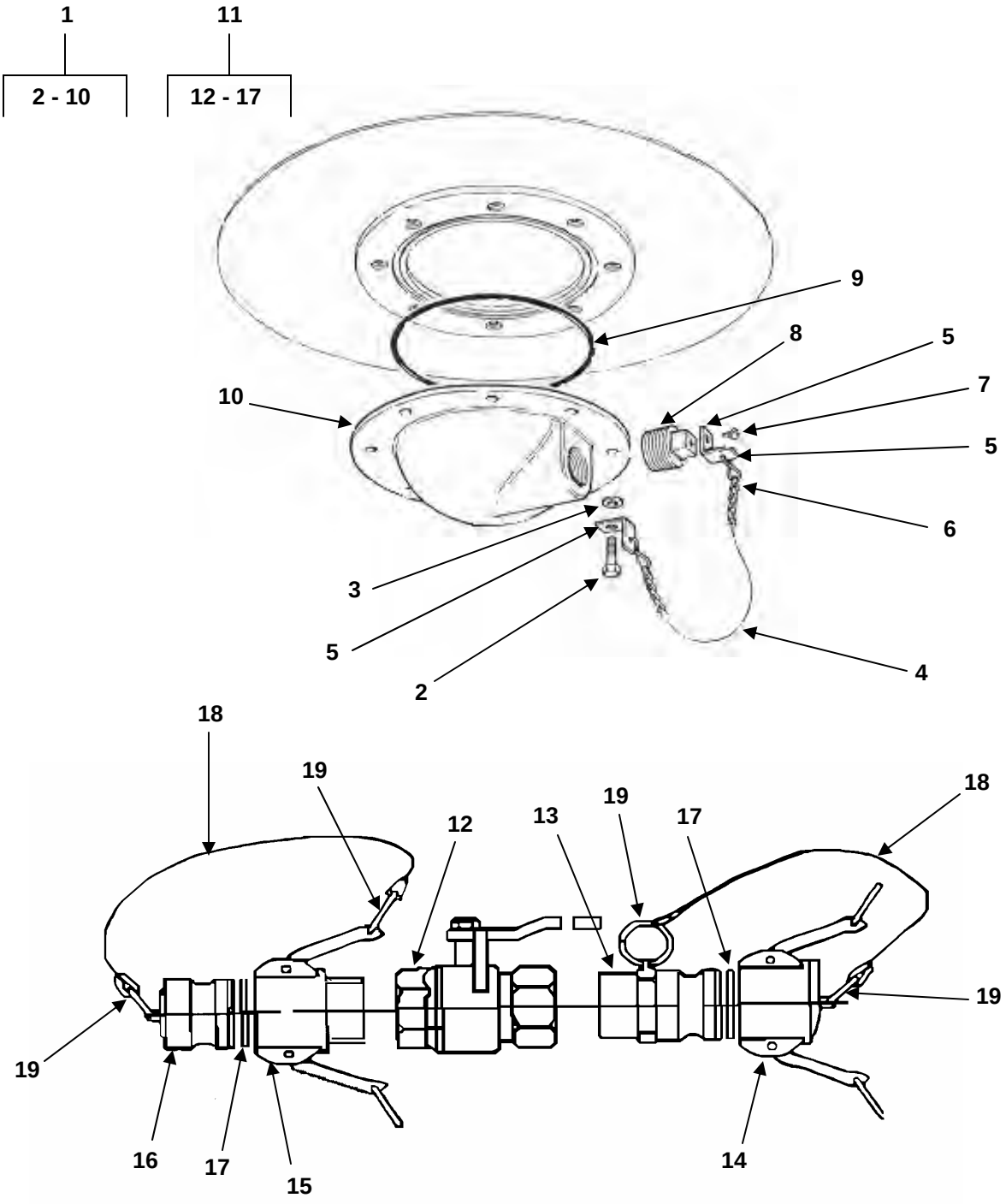


Figure 7. Drain Fitting Assembly and Ball Valve Assembly (Model GTA-210KF)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 04 DRAIN FITTING ASSEMBLY	
					FIGURE 7 DRAIN FITTING ASSEMBLY AND BALL VALVE ASSEMBLY (MODEL GTA-210KF)	
1	XDOOO		1YFX5	GTA-D-ASY	DRAIN FITTING ASSEMBLY ..... UOC: GTA	1
2	PAOZZ	5305-00-225-3843	80204	B1821BH025C100N	.SCREW, CAP, HEXAGON H, ... 1/4 - 20 x 1 INCH	8
3	PAOZZ	5310-00-809-4058	96906	MS27183-10	.WASHER, FLAT, 1/4 INCH	8
4	PAOZZ		63711	PC-PP-713	.CHAIN	1
5	PAOZZ		1YFX5	GTA-LB	.BRACKET	2
6	PAOZZ		1YFX5	GTA-SH	.S-HOOK	2
7	PAOZZ		1YFX5	GTA1032RD	.CAP SCREW, 10 - 32 x 0.5 IN	1
8	PAOZZ		63711	PP-713	.PLUG, DRAIN COVER PLATE	1
9	PCOZZ	5331-00-291-3085	81343	AS29513-250	.O-RING	1
10	PBOZZ		63711	ATPD2266-DFA	.DRAIN FITTING, 2 INCH.....	1
11	AOOOO		1YFX5	GTA-2-D-VAL-ASY	BALL VALVE ASSEMBLY, 2 IN	1
12	PAOZZ		63711	ATPD2266-BVA-26D	.BALL VALVE, 2 INCH	1
13	PAOZZ	4730-00-938-7997	58536	AA59326III16	.COUPLING HALF, QD, MALE x..... MALE NPT	1
14	PAOZZ	4730-00-649-9100	58536	AA59326IX16	.CAP, DUST, QUICK..... DISCONNECT	1
15	PAOZZ	4730-00-088-9285	58536	AA59326VII16	.COUPLING HALF QD, FEMALE.... x MALE NPT	1
16	PAOZZ	4730-00-915-5127	58536	AA59326X16	.PLUG, DUST, QUICK..... DISCONNECT	1
17	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET, 2 INCH	2
18	MOOOO		63711	CAR-12	.CHAIN, CUT TO 12 IN LENGTH.... FROM BULK, CHAIN P/N RRC271	2
19	PAOZZ		63711	RK-1	.RING, KEY	4

END OF FIGURE

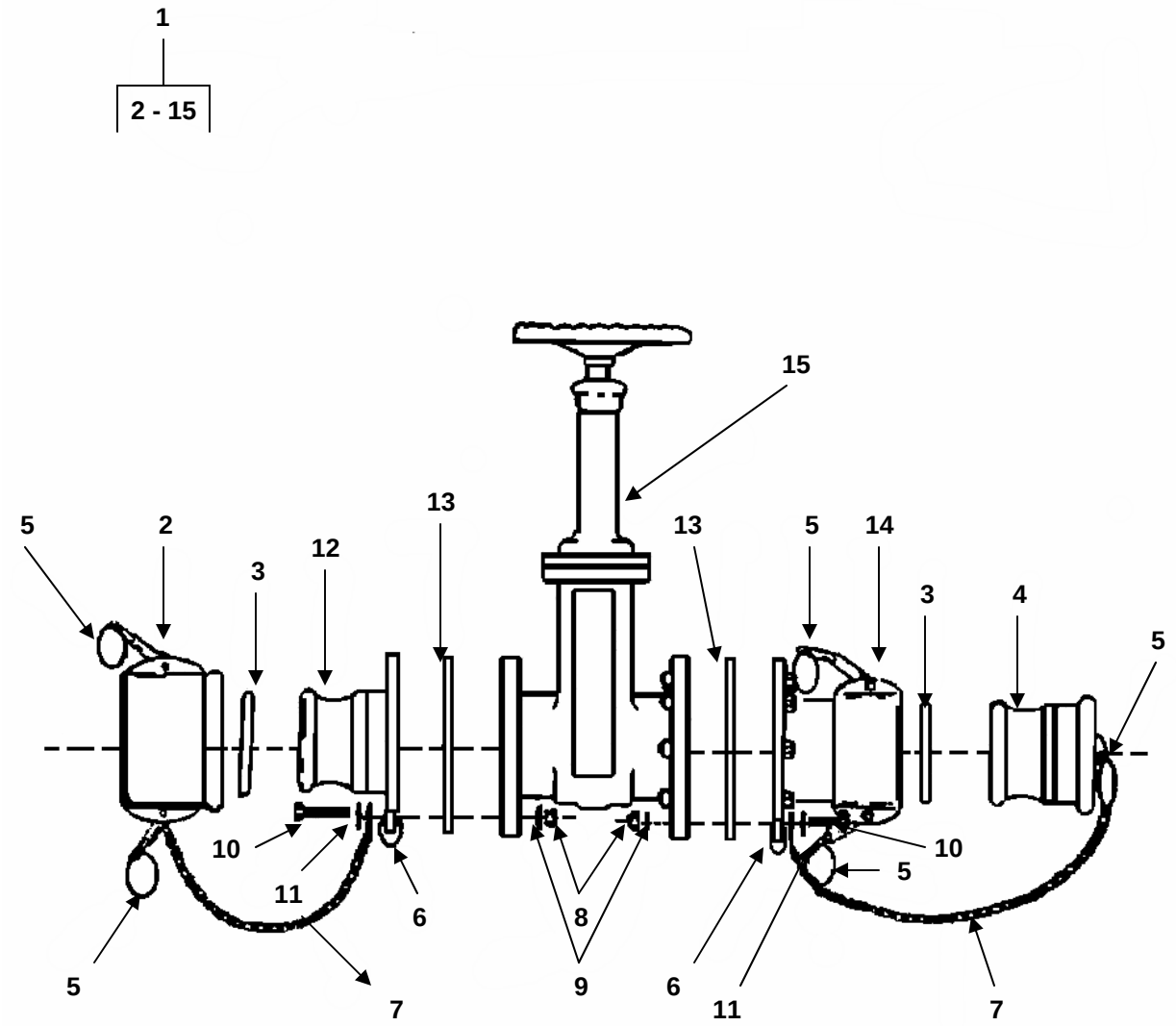


Figure 8. Gate Valve Assembly (Sheet 1 of 2)

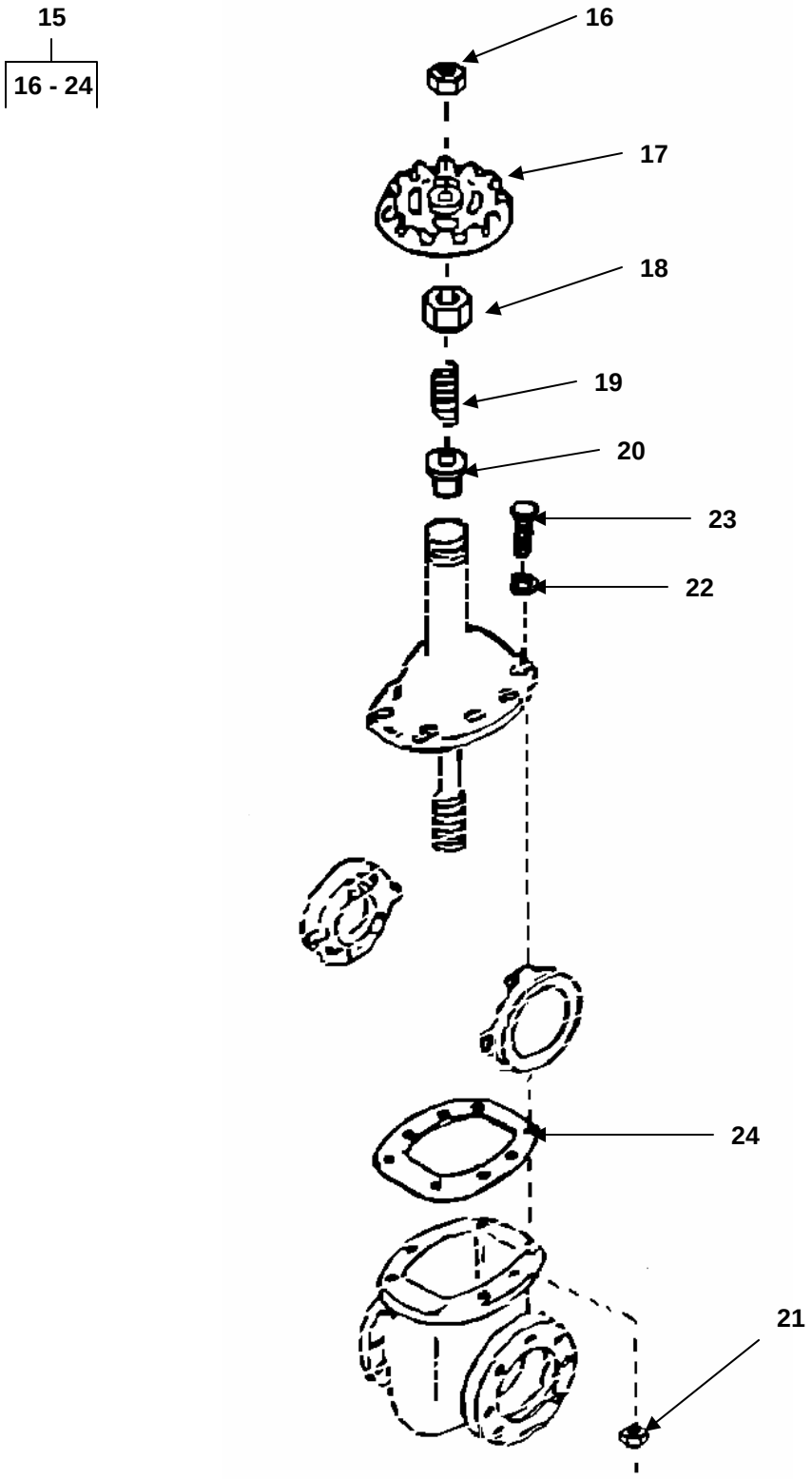


Figure 8. Gate Valve Assembly (Sheet 2 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 05 GATE VALVE ASSEMBLY	
					FIGURE 8 GATE VALVE ASSEMBLY	
1	XDOOO	5430-01-262-9476	66618	C00816VA	VALVE ASSEMBLY, GATE UOC: ENQ, FFD, FNW	1
1	XDOOO		1YFX5	GTA-6-FD-VAL-ASY	VALVE ASSEMBLY, GATE UOC: GTA	1
2	PBOZZ	4730-00-064-4435	96906	MS27028-19	.CAP, QUICK DISCONNECT	1
3	PCOZZ	5330-00-412-9780	96906	MS27030-10	.GASKET, 6 INCH	2
4	PBOZA	4730-00-064-4434	58536	AA59326X110	.PLUG, QUICK DISCONNECT	1
5	XDOZZ		OKVE6	90177A223	.RING, KEY UOC: ENQ, FFD, FNW	5
5	XDOZZ		63711	RK-1	.RING, KEY UOC: GTA	4
6	PBOZZ	5325-01-328-4742	39428	90177A221	.RING, RETAINING UOC: ENQ, FFD, FNW	2
7	MOOOO		19099	RRC271	.CHAIN, DUST CAP, MAKE FROM BULK , CUT TO LENGTH UOC: ENQ, FFD, FNW	2
7	MOOOO		63711	CAR-12	.CHAIN, CUT TO 12 IN LENGTH FROM BULK, CHAIN P/N RRC271 UOC: GTA	2
8	XDOZZ		8R639	APN2491	.NUT UOC: ENQ, FFD, FNW	24
8	PAOZZ	5310-00-732-0558	96906	MS51967-8	.NUT, PLAIN, HEXAGON, 3/8 - 16 UOC: GTA	24
9	XDOZZ		8R639	110007	.LOCKWASHER UOC: ENQ, FFD, FNW	24
9	PAOZZ	5310-00-637-9541	80205	MS35338-46	.WASHER, LOCK, SPLIT 3/8 INCH UOC: GTA	24
10	XDOZZ		8R639	APN1814	.BOLT UOC: ENQ, FFD, FNW	24
10	PAOZZ	5305-00-725-2317	80204	B1821BH038C150N	.SCREW, CAP, HEXAGON H 3/8-16 x 1 1/2 INCH UOC: GTA	24

11	XDOZZ		8R639	APN9884	.WASHER, PLAIN UOC: ENQ, FFD, FNW	24
11	PAOZZ	5310-00-087-7493	96906	MS27183-13	.WASHER, FLAT 3/8 INCH UOC: GTA	24
12	PBOZA	4730-00-402-5955	96906	MS27023-19	.COUPLING HALF, QUICK DISC	1
13	PCOZZ	5330-01-415-8850	OA6K1	FB7661	.GASKET, 6 INCH FLANGE	2
13	PCOZZ		63711	G-QD-6	.GASKET, 6 INCH FLANGE UOC: GTA	2
14	PBOZZ	4730-00-983-6789	58536	AA59326VII15	.COUPLING HALF, QUICK DISC	1
15	PBOOO	4820-01-416-6752	41592	235-RF-6IN	.VALVE, GATE	1
16	PBOZZ	5310-01-415-5243	41592	235RF-0305-2N	..NUT, PLAIN, HEXAGON UOC: ENQ, FFD, FNW	1
17	PBOZZ	5340-01-415-9601	41592	235RF-0304-3A	..HANDWHEEL UOC: ENQ, FFD, FNW	1
18	XAOZZ		41592	235-RF-FN7	..NUT, PACKING UOC: ENQ, FFD, FNW	1
19	XAOZZ		41592	235-RF-FN16	..SPRING, PACK, GLAN UOC: ENQ, FFD, FNW	1
20	PBOZZ	5330-01-415-8852	41592	235-RF-6IN-6	..RETAINER, PACKING UOC: ENQ, FFD, FNW	1
21	PBOZZ	5310-01-415-5247	41592	235-RF-6IN-2N	..NUT, PLAIN, HEX UOC: ENQ, FFD, FNW	10
22	PBOZZ	5310-01-265-5044	41592	235RF-02212W	..WASHER, LOCK UOC: ENQ, FFD, FNW	10
23	PBOZZ	5305-01-262-1365	41592	235RF-02212S	..SCREW, CAP HEX UOC: ENQ, FFD, FNW	10
24	MOOOO		41592	235-RF-FN9	..GASKET, BONNET, MAKE FROM BULK CORK SHEET (39428 P/N 9487K3 CUT TO LENGTH UOC: ENQ, FFD, FNW	1

END OF FIGURE

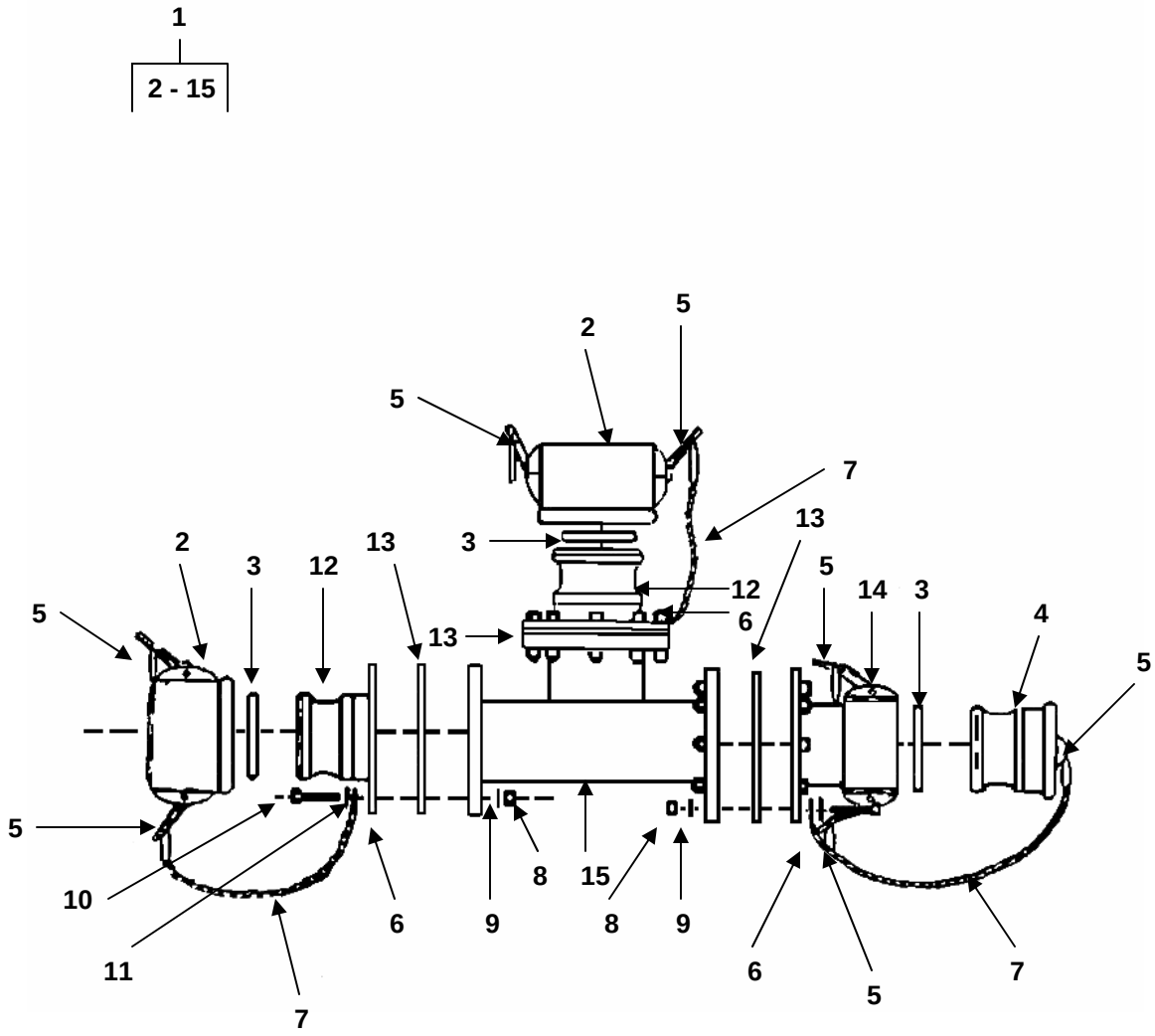


Figure 9. Tee Assembly, 6 Inch (Models PD5430-0001 and BA91-142)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 06 TEE ASSEMBLY	
					FIGURE 9 TEE ASSEMBLY, 6 IN. (MODELS PD5430-0001 AND BA91-142)	
1	XDOOO		66618	BA191142-46	TEE ASSEMBLY ..... UOC: ENQ, FFD	1
2	PBOZZ	4730-00-064-4435	96906	MS27028-19	.CAP, QUICK DISCONNECT	2
3	PCOZZ	5330-00-412-9780	96906	MS27030-10	.GASKET, 6 INCH	3
4	PBOZA	4730-00-064-4434	58536	AA59326X110	.PLUG, QUICK DISCONNECT.....	1
5	XDOZZ		OKVE6	90177A223	.RING, KEY	7
6	PBOZZ	5325-01-328-4742	39428	90177A221	.RING, RETAINING	3
7	MOOOO		19099	RRC271	.CHAIN, DUST CAP, MAKE ..... FROM BULK, CUT TO LENGTH	3
8	XDOZZ		8R639	APN2491	.NUT	36
9	XDOZZ		8R639	110007	.LOCKWASHER	36
10	XDOZZ		8R639	APN1814	.BOLT	36
11	XDOZZ		8R639	APN9884	.WASHER, PLAIN	36
12	PBOZA	4730-00-402-5955	96906	MS27023-19	.COUPLING HALF, QUICK	2
13	PCOZZ	5330-01-415-8850	OA6K1	FB7661	.GASKET, 6 INCH FLANGE.....	3
14	PBOZZ	4730-00-983-6789	58536	AA59326VII15	.COUPLING HALF, QUICK	1
15	XDOZZ		10068	064-2455	.TEE, 6 INCH.....	1

END OF FIGURE

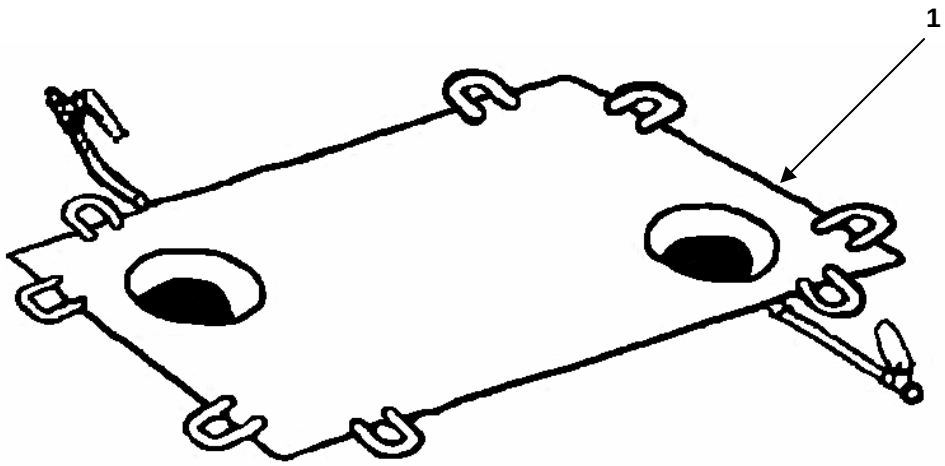


Figure 10. Berm Liner Assembly (Model GTA-210KF)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 07 ASSEMBLY, BERM LINER FIGURE 10. BERM LINER ASSY. (MODEL GTA-210KF)	
1	PBOOO		1YFX5	GTA-210KBERM	BERM LINER ASSEMBLY ..... UOC: GTA	1

END OF FIGURE

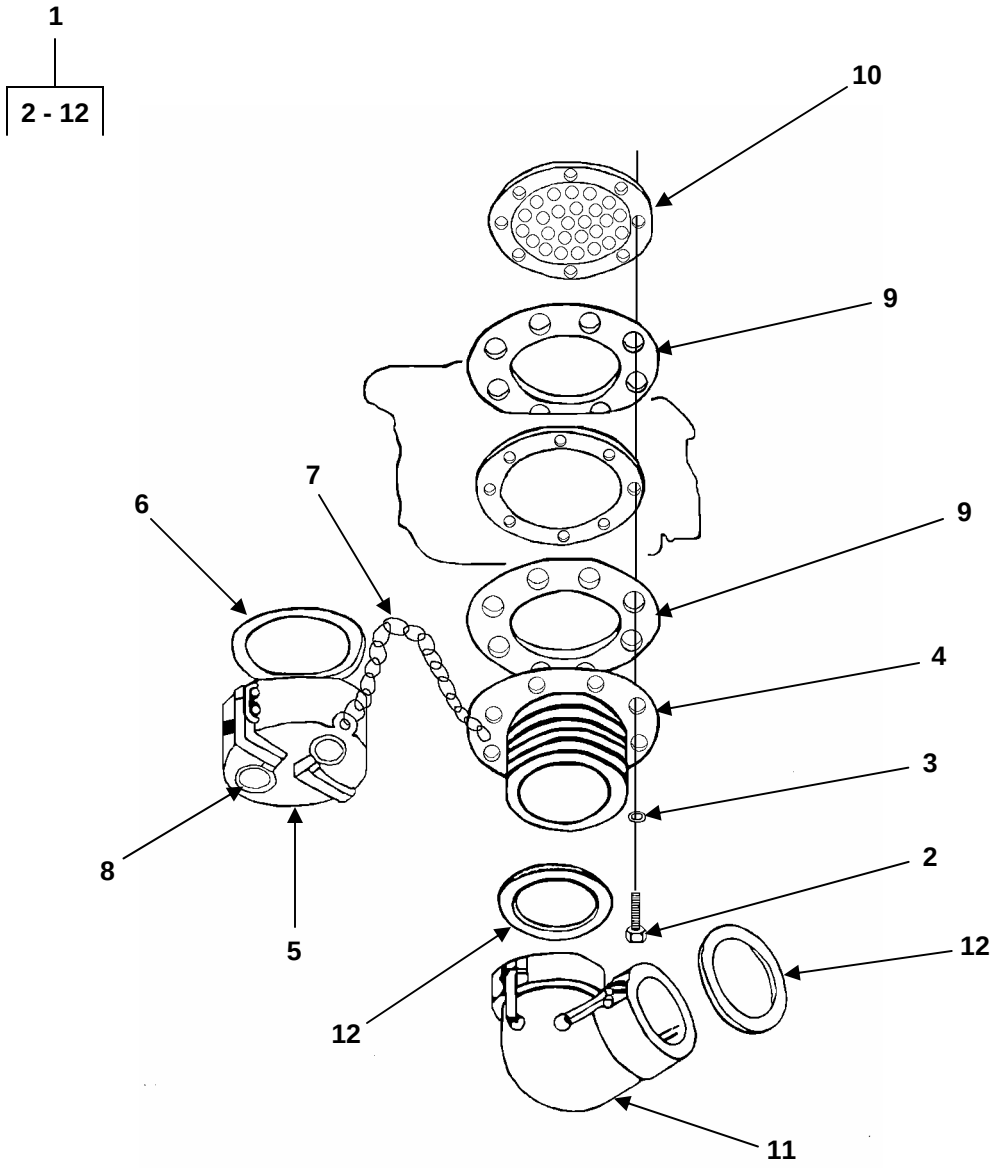


Figure 11. Berm Liner Drain Fitting Assembly (Model GTA-210KF)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 07 ASSEMBLY, BERM LINER	
					FIGURE 11 BERM LINER DRAIN FITTING ASSEMBLY (MODEL GTA-210KF)	
1	XDOOO		1YFX5	GTA-BL-DF	DRAIN ASSEMBLY ..... UOC: GTA	1
2	PAOZZ	5305-00-225-3843	80204	B1821BH025C100N	.SCREW, CAP, HEXAGON H ..... 1/4-20 x 1 1/4 INCH	8
3	PAOZZ	5310-00-809-4058	96906	MS27183-10	.WASHER, FLAT 1/4 INCH	8
4	PAOZZ	4730-01-416-1533	96906	MS27023-21	.COUPLING HALF, QUICK ..... 2 INCH FLANGED	1
5	PAOZZ	4730-00-649-9100	58536	AA59326IX16	.CAP, QUICK DISCONNECT ..... DUST CAP	1
6	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET, 2 INCH	1
7	MOOOO		63711	CAR-12	.CHAIN, CUT TO 12 IN LENGTH..... FROM BULK, CHAIN P/N RRC271	1
8	PAOZZ		63711	RK-1	.RING, KEY CAP ASSEMBLY.....	2
9	PAOZZ	5330-01-262-5120	05476	FCC-62398/50609735	.GASKET.....	2
10	PAOZZ		1YFX5	GTA-CF-S	.STRAINER	1
11	PAOZZ		1YFX5	GTA-2-FXF	.ELBOW, 2 INCH,..... FEMALE TO FEMALE, QUICK	1
12	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET, 2 INCH	2

END OF FIGURE

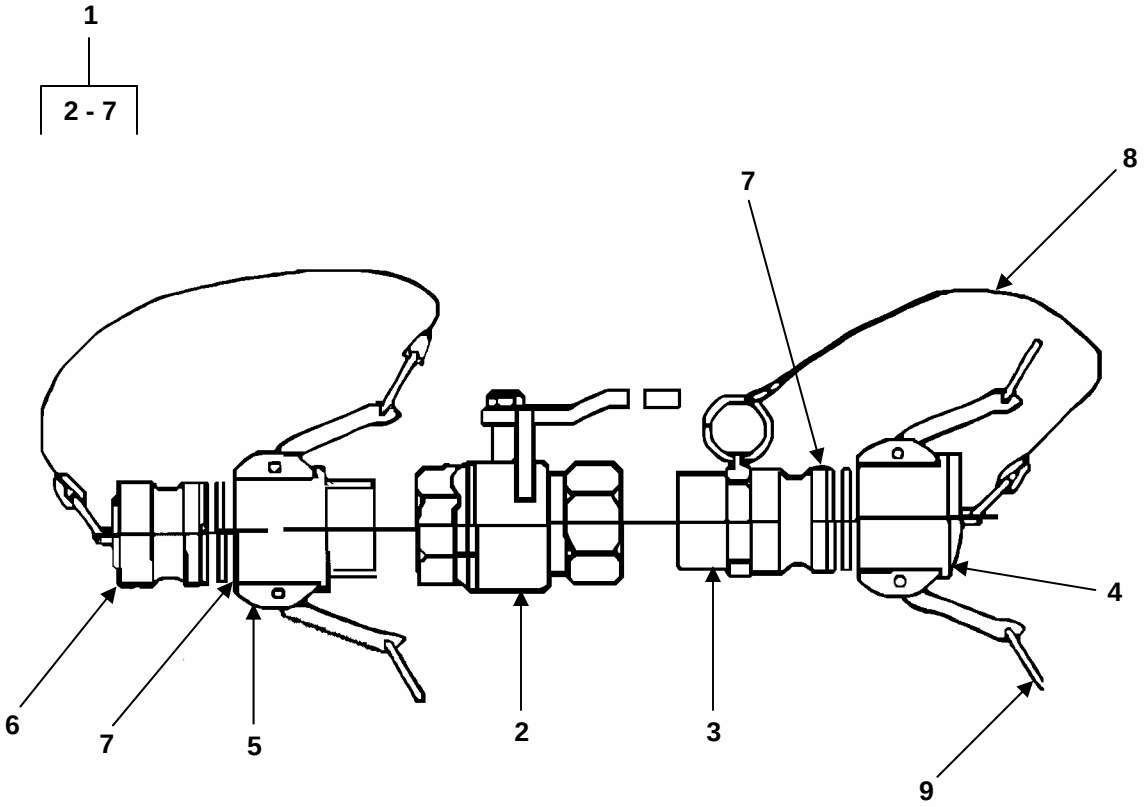


Figure 12. Berm Liner Drain Ball Valve Assembly (Model GTA-210KF)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 07 ASSEMBLY, BERM LINER	
					FIGURE 12 BERM LINER DRAIN BALL VALVE ASSEMBLY (MODEL GTA-210KF)	
1	AOOOO		1YFX5	GTA-2-D-VAL-ASY	BALL VALVE ASSY, 2 INCH..... UOC: GTA	1
2	PAOZZ		63711	ATPD2266-BVA-26D	.BALL VALVE, 2 INCH	1
3	PAOZZ	4730-00-938-7997	58536	AA59326III16	.COUPLING HALF, QUICK DISC..... MALE x MALE NPT	1
4	PAOZZ	4730-00-649-9100	58536	AA59326IX16	.CAP, DUST, QUICK DISC	1
5	PAOZZ	4730-00-088-9285	58536	AA59326VII16	.COUPLING HALF, QUICK DISC..... FEMALE x MALE NPT	1
6	PAOZZ	4730-00-915-5127	58536	AA59326X16	.PLUG, DUST, QUICK DISC.....	1
7	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET.....	2
8	MOOOO		63711	CAR-12	.CHAIN, CUT TO 12 IN LENGTH..... FROM BULK, CHAIN P/N RRC271	2
9	PAOZZ		63711	RK-1	.RING, KEY	4

END OF FIGURE

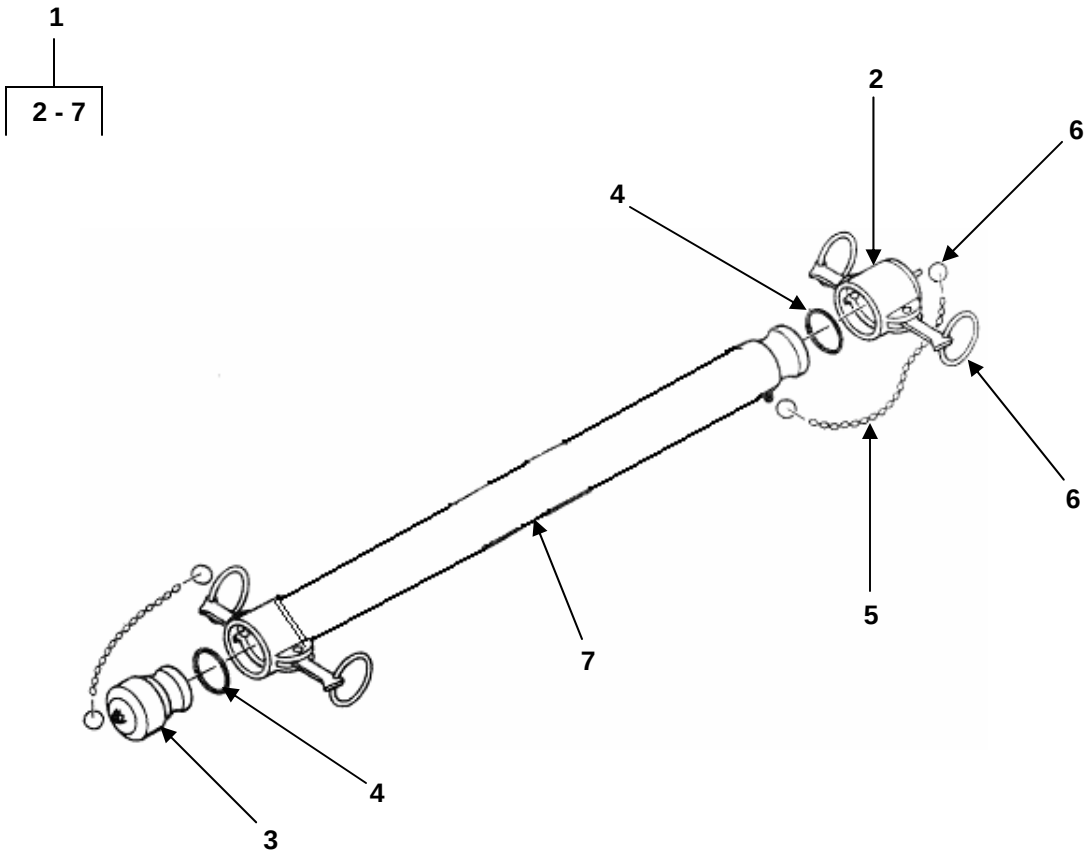


Figure 13. Berm Liner Drain Hose Assembly (Model GTA-210KF)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 07 ASSEMBLY, BERM LINER	
					FIGURE 13 BERM LINER DRAIN HOSE ASSEMBLY (MODEL GTA-210KF)	
1	AOOOO		1YFX5	GTA-2X10-H-ASY	HOSE ASSEMBLY, 2 IN x 10 FT ..... WITH MALE AND FEMALE QUICK DISCONNECT FITTINGS UOC: GTA	1
2	PAOZZ	4730-00-649-9100	58536	AA59326IX16	.CAP, DUST, QUICK DISC ..... 2 INCH	1
3	PAOZZ	4730-00-915-5127	58536	AA59326X16	.PLUG, DUST, QUICK DISC ..... 2 INCH	1
4	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET, 2 INCH	2
5	MOOOO		63711	CAR-12	.CHAIN, CUT TO 12 IN LENGTH..... FROM BULK, CHAIN P/N RRC271	2
6	PAOZZ		63711	RK-1	.RING, KEY	4
7	PAOZZ		63711	HA2-10-F	.HOSE, 2IN x 10FT, WITH MALE..... AND FEMALE QUICK DISCONNECTS	1

END OF FIGURE

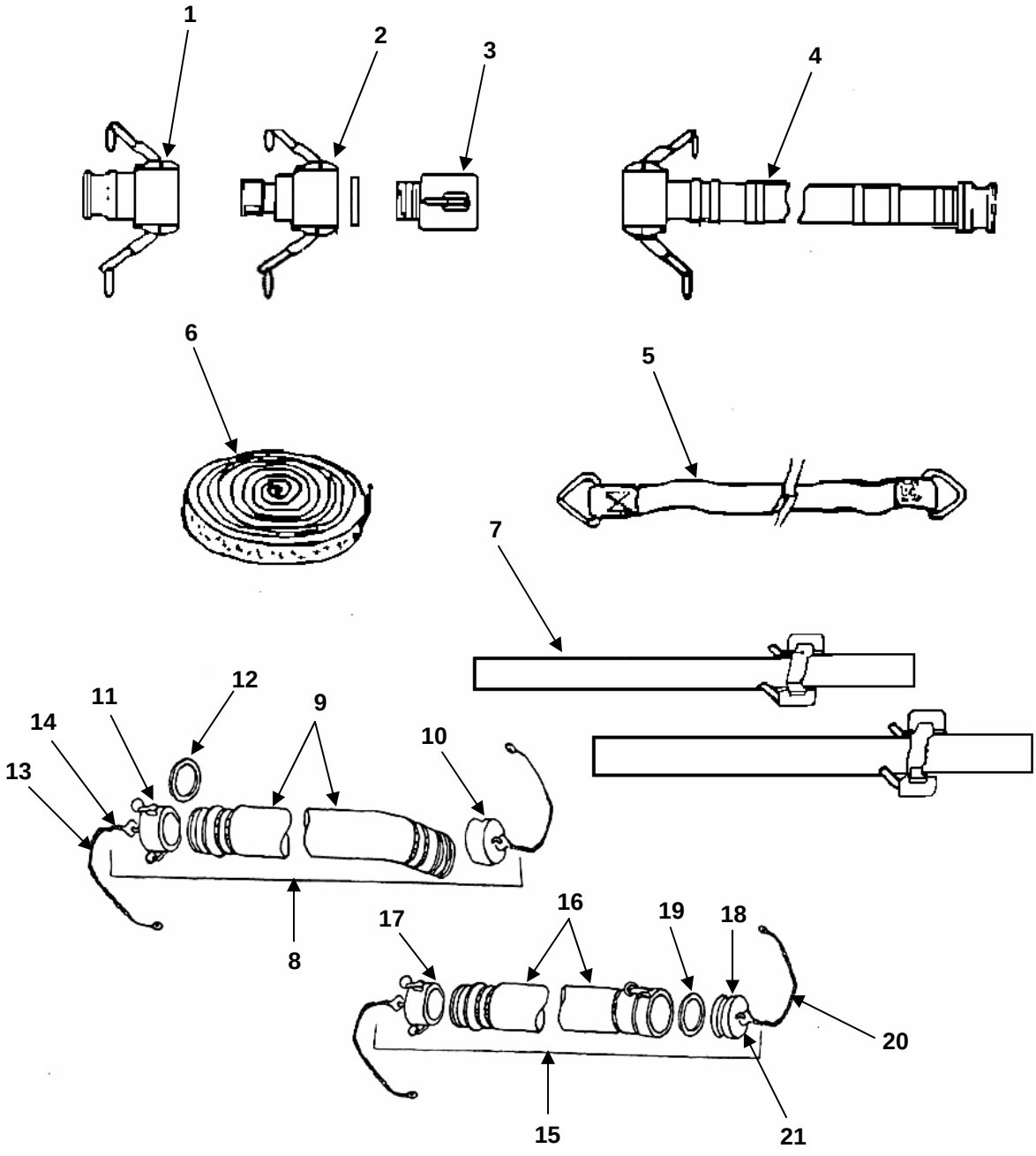


Figure 14. Hoses and Accessories

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 08 HOSES AND ACCESSORIES	
					FIGURE 14 HOSES AND ACCESSORIES	
1	PBOZZ	4730-00-068-0393	58536	AA59326XI112	REDUCER, QUICK DISC 6 INCH MALE TO 4 INCH FEMALE UOC: ENQ, FFD	1
2	PBOZZ	4730-01-079-8234	58536	AA59326XI111	REDUCER, QUICK DISC 6 INCH FEMALE TO 4 INCH MALE UOC: ENQ, FFD	1
3	PBOZZ	4730-01-416-1539	58536	AA59356XVI27	COUPLING HALF, QUICK DISC (NATO ADAPTER) UOC: ENQ, FFD	1
4	PCOZZ	4720-01-416-1563	81349	M370B101A0100A	HOSES 10 FEET X 6 INCHES UOC: ENQ, FFD, FNW	4
5	XDOZZ		66618	BA191142-19	LIFT SLING UOC: ENQ, FFD, FNW	4
6	XDOZZ		66618	BA191142-20	DEPLOYMENT STRAP UOC: ENQ, FFD, FNW	8
7	XDOZZ		66618	BA191142-21	STRAP, TIE DOWN INCLUDES HANDLE UOC: ENQ, FFD, FNW	3
8	AOOOO		1YFX5	GTA-2X8-H-ASY	HOSE ASSY, TANK DRAIN 2 IN x 8 FT, MALE NPT AND MALE QUICK DISCONNECT UOC: GTA	1
9	PAOZZ		63711	HA2-8-F	.HOSE ASSEMBLY UOC: GTA	1
10	PBOZZ		63711	TC-2	.CAP, DUST, THREADED UOC: GTA	1
11	PAOZZ	4730-00-649-9100	58536	AA59326IX16	.CAP, QUICK DISCONNECT UOC: GTA	1
12	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET, 2 INCH UOC: GTA	1
13	MOOOO		63711	CAR-12	.CHAIN, CUT TO 12IN LENGTH FROM BULK, CHAIN P/N RRC271 UOC: GTA	2
14	PAOZZ		63711	RK-1	.RING, KEY UOC: GTA	4

15	AOOOO		1YFX5	GTA-6X10-FD-H-ASY	HOSE ASSEMBLY FILLER/DISCHARGE, 6 IN x 10FT WITH MALE AND FEMALE QUICK DISCONNECT FITTINGS UOC: GTA	1
16	PAOZZ		1YFX5	GTA-H-6X10	.HOSE ASSEMBLY UOC: GTA	1
17	PAOZZ	4730-00-064-4435	96906	MS27028-19	.CAP, QUICK DISCONNECT UOC: GTA	1
18	PAOZZ	4730-00-064-4434	58536	AA59326X110	.PLUG, QUICK DISCONNECT UOC: GTA	1
19	PCOZZ	5330-00-412-9780	96906	MS27030-10	.GASKET, 6 INCH UOC: GTA	2
20	MOOOO		63711	CAR-12	.CHAIN, CUT TO 12IN LENGTH FROM BULK, CHAIN P/N RRC271 UOC: GTA	2
21	PAOZZ		63711	RK-1	.RING, KEY UOC: GTA	4

END OF FIGURE

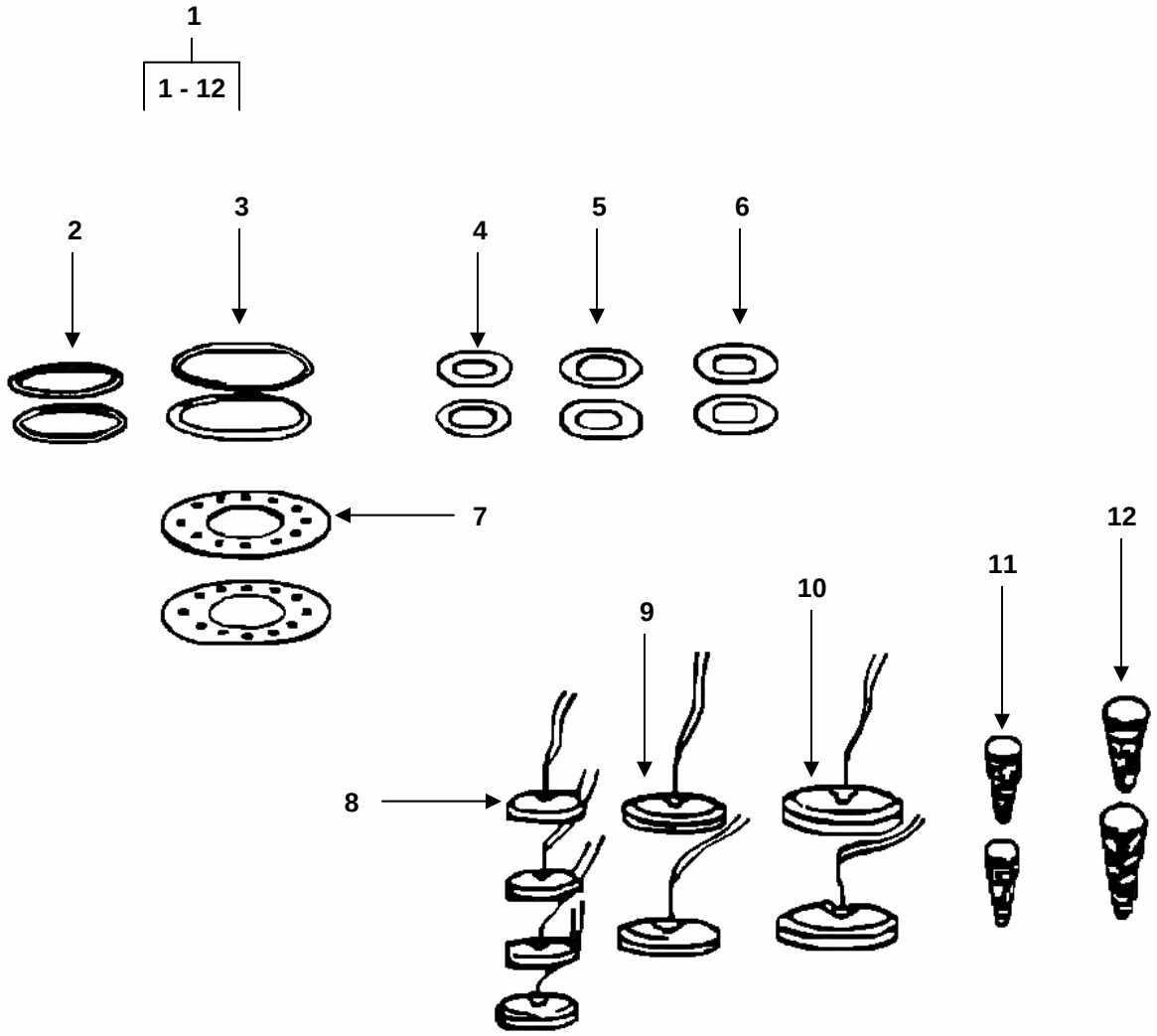


Figure 15. Emergency Repair Items (Models BA91-142 and PD5430-0001)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 09 EMERGENCY REPAIR ITEMS	
					FIGURE 15 EMERGENCY REPAIR ITEMS (MODELS BA91-142 AND PD5430-0001)	
1	XDOZZ		66618	BA191142-45	REPAIR ITEMS UOC: ENQ, FFD	1
2	PCOZZ	5331-00-291-3085	81343	AS29513-250	.O-RING UOC: ENQ, FFD	2
3	PCOZZ	5330-01-067-3449	81343	AS29513-383	.O-RING UOC: ENQ, FFD	2
4	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET UOC: ENQ, FFD	2
5	PCOZZ	5330-00-899-4509	96906	MS27030-9	.GASKET UOC: ENQ, FFD	2
6	PCOZZ	5330-00-412-9780	96906	MS27030-10	.GASKET, 6 INCH UOC: ENQ, FFD	2
7	PCOZZ	5330-01-415-8850	OA6K1	FB7661	.GASKET, 6 IN FLANGE UOC: ENQ, FFD	2
8	PBOZZ	5342-00-720-8864	81336	13202E2870-1	.PATCH, MECHANICAL, FL 3 INCH UOC: ENQ, FFD	4
9	PBOZZ	5342-00-720-8863	81336	13202E2870-2	.PATCH, MECHANICAL, FL 5 INCH UOC: ENQ, FFD	2
10	PBOZZ	5342-00-720-8858	81336	13202E2870-3	.PATCH, MECHANICAL, FL 7.5 INCH UOC: ENQ, FFD	2
11	PBOZZ	5510-00-255-9493	97403	13211E3085	.PLUG, WOOD 3 INCH UOC: ENQ, FFD	2
12	PBOZZ	5305-00-255-9692	95105	756-8609-002	.SCREW, EXTERNALLY RE UOC: ENQ, FFD	2

END OF FIGURE

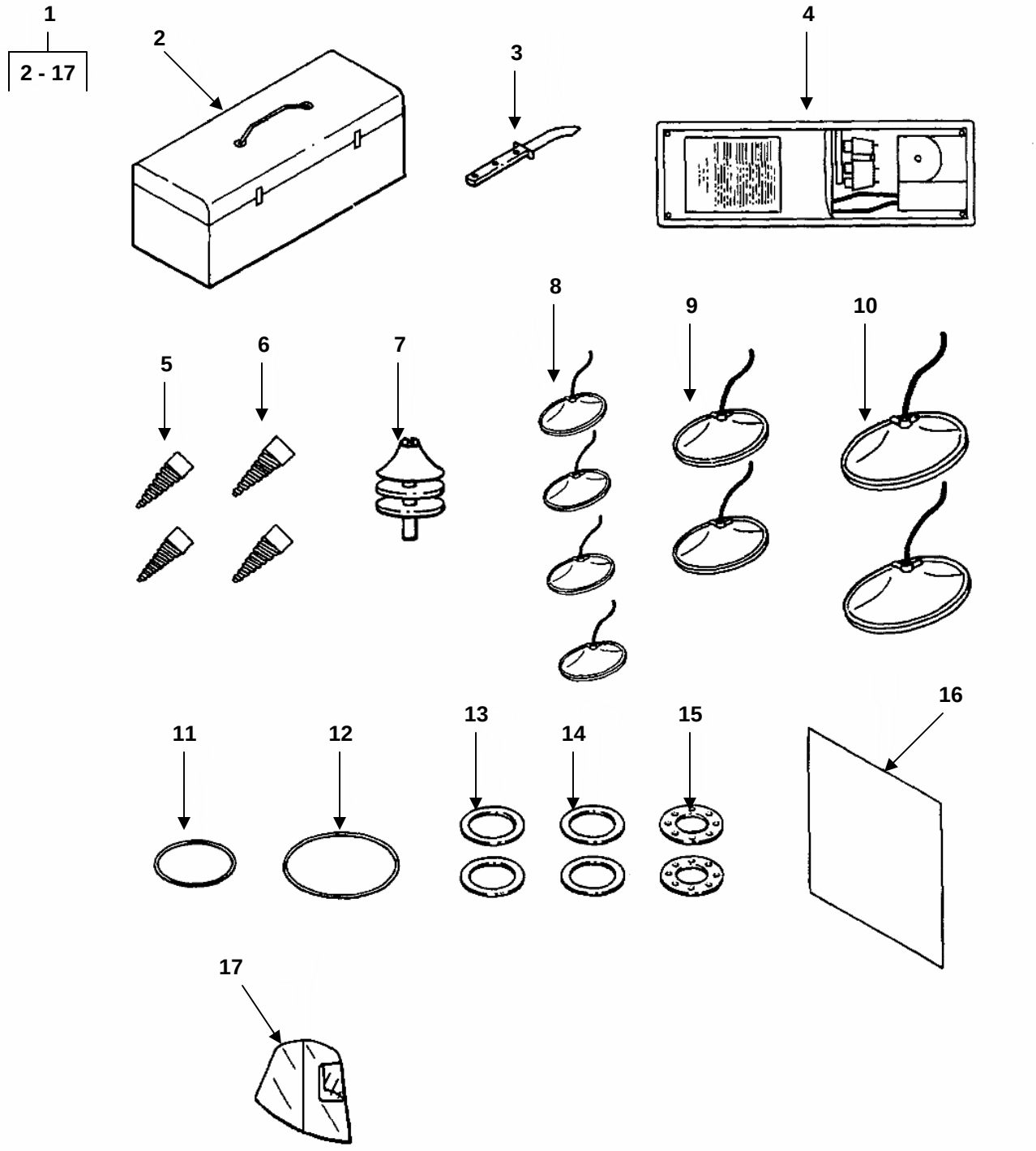


Figure 16. Emergency Repair Items (Model RCF0210000)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 09 EMERGENCY REPAIR ITEMS	
					FIGURE 16 EMERGENCY REPAIR ITEMS (MODEL RCF0210000)	
1	XDOZZ		OTAN3	9050	REPAIR KIT ..... UOC: FNW	1
2	XDOZZ		84583	9033	.TOOL BOX, PORT ..... UOC: FNW	1
3	XDOZZ		84584	9029	.KNIFE, CRAFTSMAN..... UOC: FNW	1
4	XDOZZ		84583	9051	.REPAIR KIT, TYPE 1. ..... UOC: FNW	1
5	XDOZZ		84583	9001	.PLUG, WOOD 1.5 INCH ..... UOC: FNW	2
6	XDOZZ		84584	9002	.PLUG, WOOD 2 INCH ..... UOC: FNW	2
7	XDOZZ		84583	9005	.PATCH, MECH, FL 2 IN..... UOC: FNW	2
8	XDOZZ		84583	9007	.PATCH, MECH, FL 3 IN..... UOC: FNW	2
9	XDOZZ		84583	9008	.PATCH, MECH, FL 5 IN..... UOC: FNW	2
10	XDOZZ		84583	9009	.PATCH, MECH, FL 7.5..... INCH, UOC: FNW	2
11	PAOZZ	5331-00-291-3085	81343	AS29513-250	.O-RING ..... UOC: FNW	2
12	PAOZZ	5330-01-067-3449	81343	AS29513-383	.O-RING ..... UOC: FNW	2
13	PAOZZ	5330-00-612-2414	96906	MS27030-6	.GASKET..... UOC: FNW	8
14	PAOZZ	5330-00-899-4509	96906	MS27030-9	.GASKET..... UOC: FNW	6
15	PAOZZ	5330-00-412-9780	96906	MS27030-10	.GASKET..... UOC: FNW	14
16	XBOZZ		OTAN3	1001	.FABRIC, COATED ..... UOC: FNW	1
17	XDOZZ		84583	9028	.HOOD, PROTECTIVE..... UOC: FNW	1

END OF FIGURE

UNIT MAINTENANCE

COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL

EMERGENCY REPAIR ITEMS (MODEL GTA-210KF)

REPAIR PARTS LIST

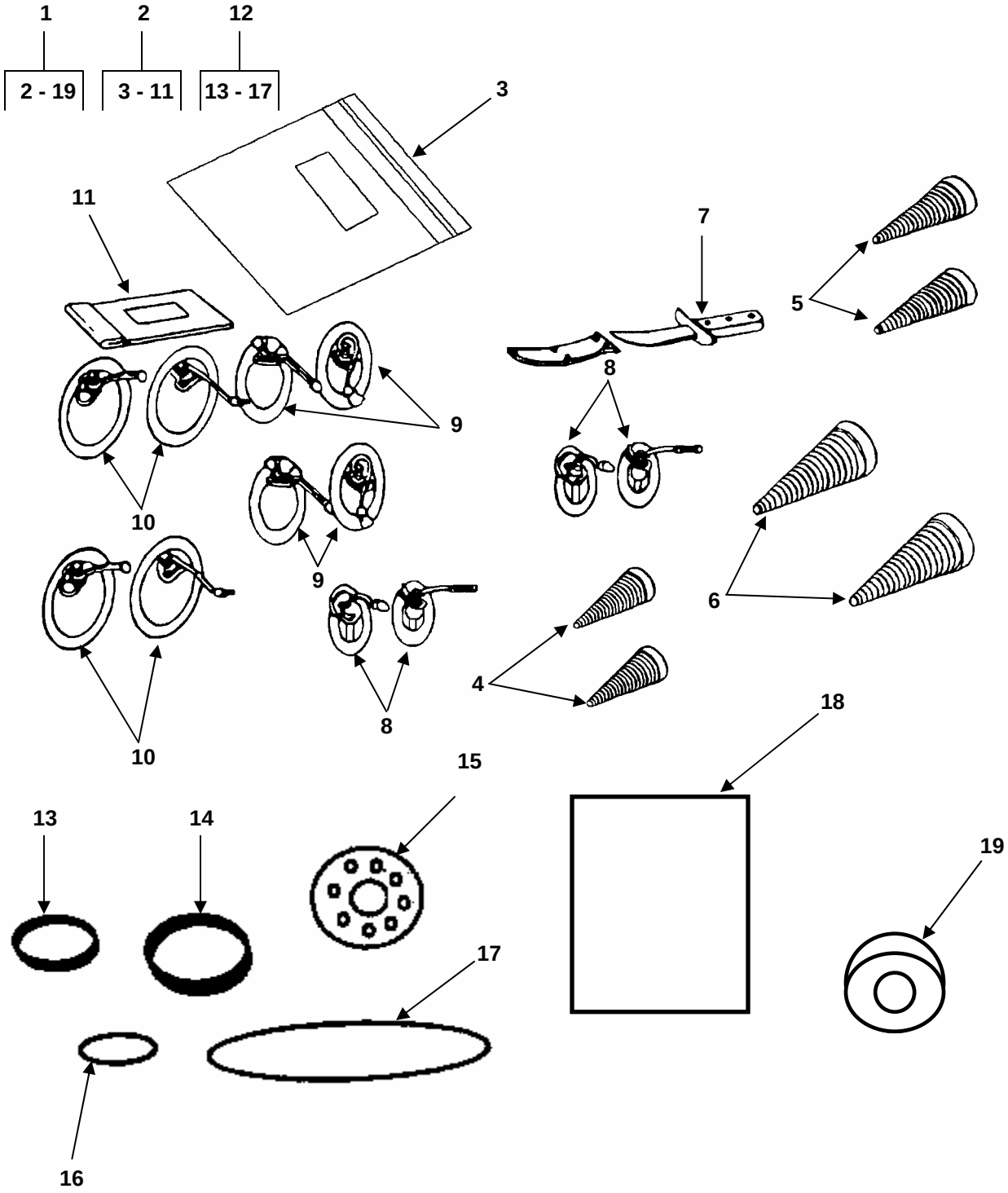


Figure 17. Emergency Repair Items (Model GTA-210KF)

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					GROUP 09 EMERGENCY REPAIR ITEMS	
					FIGURE 17 EMERGENCY REPAIR ITEMS, TYPE III REPAIR KIT (MODEL GTA-210KF)	
1	AOOOO		1YFX5	GTA-IIIR-210K	REPAIR ITEMS UOC: GTA	1
2	KFOZZ		84583	52255-III	.REPAIR KIT, COLLAPSIBLE EMERGENCY	1
3	XDOZZ		84583	52255-001	..CONTAINER	1
4	PAOZZ		84583	52255-002	..PLUG, WOOD, 3 INCH	2
5	PAOZZ		84583	52255-003	..PLUG, WOOD, 4 1/2 INCH	2
6	PAOZZ		84583	52255-004	..PLUG, WOOD, 5 1/4 INCH	2
7	PAOZZ		84583	52255	..RAZOR/KNIFE	1
8	PAOZZ		84583	8864	..PATCH, MECHANICAL, FL	2
9	PAOZZ		84583	8863	..PATCH, MECHANICAL, FL	2
10	PAOZZ		84583	8858	..PATCH, MECHANICAL, FL	3
11	PBOZZ		84583	52255-005	..INSTRUCTION SHEET	2
12	KFOZZ		1YFX5	GTA-6-ORINGS	.REPLACEMENT GASKETS AND O-RINGS KIT	1
13	PAOZZ	5330-00-612-2414	96906	MS27030-6	..GASKET, 2 INCH	4
14	PCOZZ	5330-00-412-9780	96906	MS27030-10	..GASKET, 6 INCH	2
15	PCOZZ	5330-01-415-8850	OAK61	FB7661	..GASKET, 6 INCH FLANGE	2
16	PCOZZ	5331-00-291-3085	81343	AS29513-250	..O-RING	5
17	PCOZZ	5331-00-364-9862	81343	AS3578-383	..O-RING	2
18	PAOZZ		1YFX5	GTA-210K-CF	.COATED FABRIC, 1 SQ. YARD	1
19	PAOZZ	8030-00-889-3535	58536	AA58092-2-2	.TAPE, ANTISEIZING, 50 IN WIDE	1

END OF FIGURE

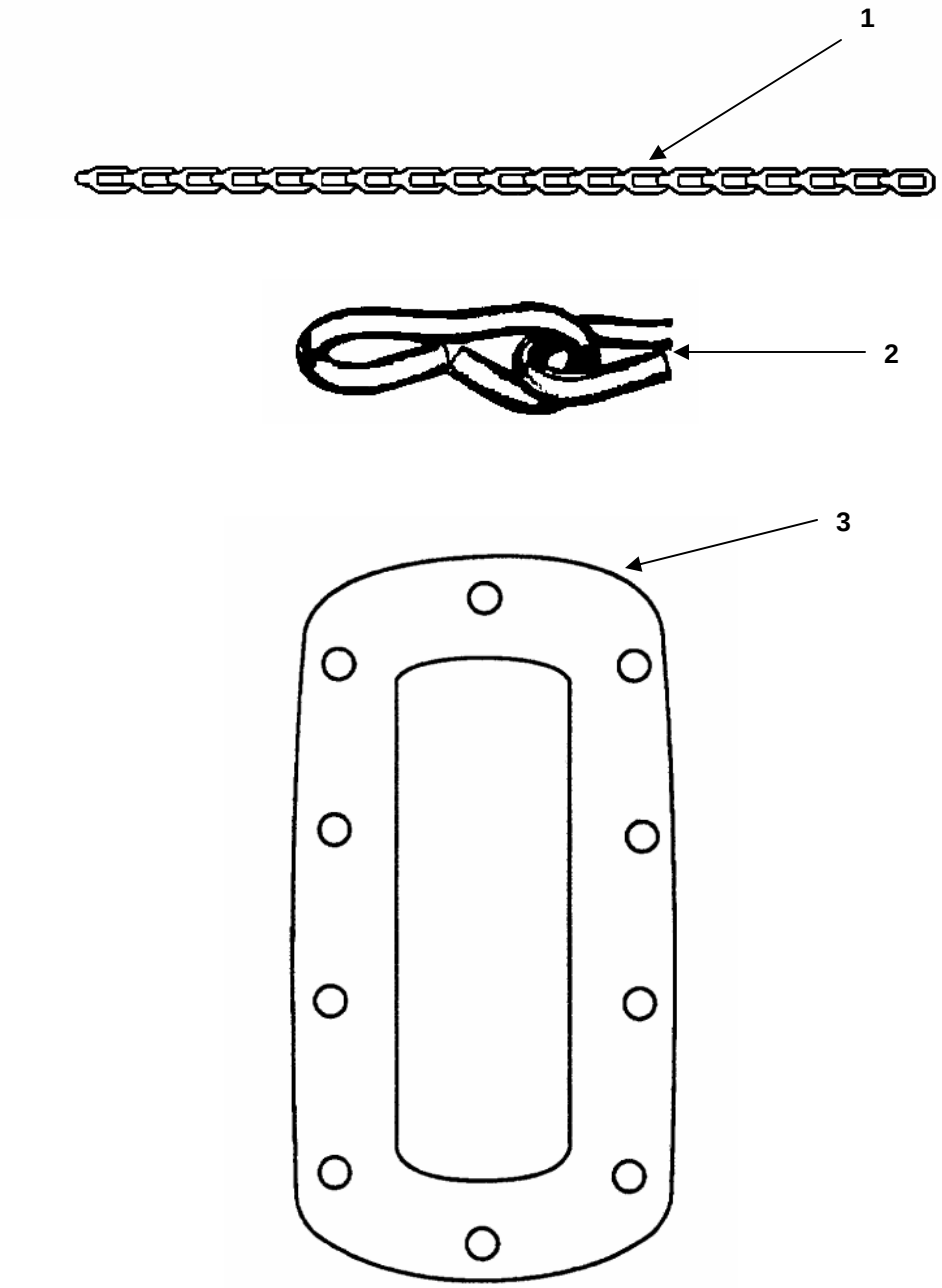


Figure 18. Bulk Items

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
					BULK ITEMS	
					FIGURE 18 BULK ITEMS	
1	PBOZZ	4010-00-228-9933	81348	RRC271	CHAIN, WELDLESS.....	V
2	PBOZZ	4010-00-171-3781	01976	18GASINGLJACKCHAIN	CHAIN, WELDLESS.....	V
3	PBOZZ	5330-00-297-1096	39428	9487K3	CORK SHEET.....	V

END OF FIGURE

UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
4730-00-064-4434	8	4	5330-00-612-2414	2	12
	9	4		3	17
	14	18		3	20
4730-00-064-4435	4	14		7	17
	8	2		11	6
	9	2		11	12
	14	17		12	7
4730-00-068-0393	14	1		13	4
5305-00-068-0509	3	23		14	12
5310-00-087-7493	8	11		15	4
4730-00-088-9285	7	15		16	13
	12	5		17	13
4010-00-171-3781	18	2	5310-00-637-9541	8	9
5305-00-225-3839	6	4	4730-00-649-9100	2	10
5305-00-225-3843	4	5		3	19
	7	2		7	14
	11	2		11	5
4010-00-228-9933	18	1		12	4
5510-00-255-9493	15	11		13	2
5305-00-255-9692	15	12		14	11
5331-00-291-3085	2	9	4730-00-649-9103	2	11
	3	26		3	16
	5	6	5342-00-720-8858	15	10
	6	5	5342-00-720-8863	15	9
	7	9	5342-00-720-8864	15	8
	15	2	5305-00-725-2317	4	9
	16	11		8	10
	17	16	5310-00-732-0558	8	8
5330-00-297-1096	18	3	4930-00-734-0180	3	2
5331-00-364-9862	4	8	4930-00-786-9566	3	10
	17	17	5310-00-809-4058	3	24
4730-00-402-5955	4	13		4	6
	8	12		6	3
	9	12		7	3
5330-00-412-9780	4	4		11	3
	8	3	8030-00-889-3535	17	19
	9	3	5330-00-899-4509	15	5
	14	19		16	14
	15	6			
	16	15			
	17	14			

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
4730-00-915-5127	7	16	4730-01-416-1539	14	3
	12	6	4720-01-416-1563	14	4
	13	3	4730-01-416-3230	5	8
4730-00-936 4584	6	8	4820-01-416-6751	5	12
4730-00-938-7997	5	11	4820-01-416-6752	8	15
	7	13	4720-01-416-9635	5	10
	12	3	4820-01-418-4096	6	10
4730-00-958-7117	6	9			
4730-00-983-6789	8	14			
	9	14			
5330-01-067-3449	4	8			
	15	3			
	16	12			
4730-01-079-8234	14	2			
5430-01-252-6434	2	2			
5330-01-262-1349	3	8			
5310-01-262-1351	3	7			
5320-01-262-1352	3	11			
5320-01-262-1353	3	12			
5330-01-262-1361	2	4			
	3	3			
5305-01-262-1365	8	23			
5305-01-262-5080	3	6			
5330-01-262-5120	11	9			
5430-01-262-9476	6	1			
	8	1			
5310-01-265-5044	8	22			
5325-01-328-4742	4	16			
	8	6			
	9	6			
5310-01-415-5243	8	16			
5310-01-415-5247	8	21			
5330-01-415-8850	4	12			
	8	13			
	9	13			
	15	7			
	17	15			
5330-01-415-8852	8	20			
5340-01-415-9601	8	17			
4730-01-416-1533	2	8			
	3	25			
	11	4			

UNIT MAINTENANCE
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
PART NUMBER INDEX

PART NUMBER	FIG.	ITEM
F19192	4	11
FB7661	4	12
	8	13
	9	13
	15	7
	17	15
FCC-52608	6	1
FCC-52608-4	6	6
FCC-52608-5	6	7
FCC-62398/50609735	11	9
G-QD-6	8	13
GTA1032RD	7	7
GTA-063	4	7
GTA-210KBERM	10	1
GTA-2-D-VAL-ASY	7	11
	12	1
GTA-2-FXF	11	11
GTA-210K-CF	17	18
GTA-210KF-TO	1	1
GTA-2X10-H-ASY	13	1
GTA-2X8-H-ASY	14	8
GTA-6-FD-ASY	4	1
GTA-6-FD-VAL-ASY	8	1
GTA-6-ORINGS	17	12
GTA-6-SUC	4	11
GTA-6X10-FD-H-ASY	14	15
GTA-BL-DF	11	1
GTA-CF-S	11	10
GTA-D-ASY	7	1
GTA-H-6X10	14	16
GTA-IIIR-210K	17	1
GTA-LB	7	5
GTA-SH	7	6
GTA-V-ASY-F	3	1
HA2-10-F	13	7
HA2-8-F	14	9
M370-B06C21200	5	10
M370B101A0100A	14	4
M52618/7P09XC	5	8
MS27023-19	4	13
	8	12
	9	12
MS27023-21	2	8
	3	25
	11	4
MS27028-19	4	14
	8	2
	9	2
	14	17
MS27030-10	4	4
	8	3
	9	3
	14	17
	15	6
	16	15
	17	14
MS27030-6	2	12
	3	17
	3	20
	7	17
	11	6
	11	12
	12	7
	13	4
	14	12
	15	4
	16	13
	17	13
MS27030-9	15	5
	16	14
MS27183-10	3	24
	4	6
	6	3
	7	3
	11	3
MS27183-13	8	11
MS35338-46	8	9
MS51967-8	8	8
MS90725-8	6	4
P-2-10	3	18
PC-PP-713	7	4
PP-713	7	8
RK-1	3	22
	4	15
	7	19
	8	5
	11	8
	12	9
	13	6
	14	14
	14	21
RRC271	18	1
ST20F1968-03	6	2
TC-2	14	10
THREADSEAL3/8IN	4	10
X-3325J	2	1
X-4128A	4	7
X-4959	4	1
X-5022A	5	1
064-2400	2	5
064-2455	9	15
1001	16	16
110007	8	9
	9	9

PART NUMBER	FIG.	ITEM
1148	6	10
13202E2870-1	15	8
13202E2870-2	15	9
13202E2870-3	15	10
13211E3085	15	11
18GASINGLJACKCHAIN	18	2
205-18-98	3	8
235-RF-FN16	8	19
235-RF-FN7	8	18
235-RF-FN9	8	24
235-RF-6IN	8	15
235-RF-6IN-2N	8	21
235-RF-6IN-6	8	20
235-RF-02212S	8	23
235RF-02212W	8	22
235RF-0304-3A	8	17
235RF-0305-2N	8	16
319205	5	12
319205-FN12	5	14
319205-FN13	5	13
4201035000	3	12
4201232400	3	11
4447101620	3	6
46674	5	5
52255	17	7
52255-001	17	3
52255-002	17	4
52255-003	17	5
52255-004	17	6
52255-005	17	11
52255-III	17	2
60BA90AL	4	3
60BB90AL	4	2
7500-3-8	4	10
756-8609-002	15	12
780-0100AC-7	3	5
8858	17	10
8863	17	9
8864	17	8
9001	16	5
9002	16	6
9005	16	7
9007	16	8
9008	16	9
9009	16	10
90177A221	4	16
	8	6
	9	6
90177A223	2	13
	4	15
	8	5
	9	5
9028	16	17
9029	16	3
9033	16	2
9050	16	1
9051	16	4
92446A825	5	9
9381T56	5	4
9487K3	18	3

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS**

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

INTRODUCTION

Scope

This work package lists COEI and BII for the 5,000 barrel collapsible fabric fuel tank to help you inventory items for safe and efficient operation of the equipment.

General

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

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

Basic Issue Items (BII). These essential items are required to place the 5,000 barrel collapsible fabric fuel tank in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the collapsible fabric fuel tank during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List and BII List

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

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

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

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

Code	Used on
ENQ	PD5430-0001
FFD	BA91-142
FNW	RCF0210000
GTA	GTA-210KF

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

Column (6) — Qty Rqr. Indicates the quantity required.

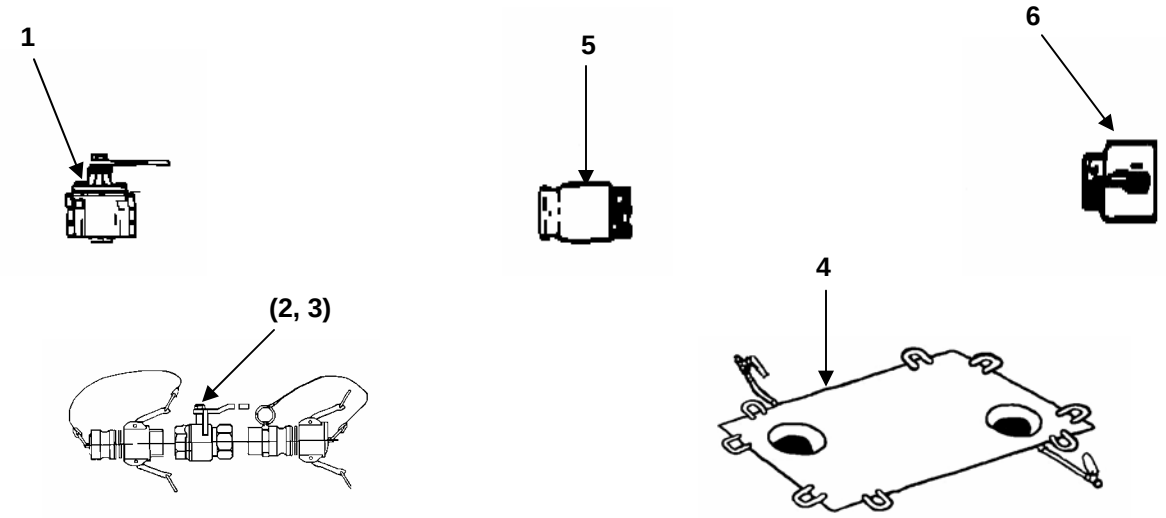


Table 1. Components of End Items List

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) UNIT OF MEASURE (U/M)	(6) QTY RQR.
1	4820-01-416-6751	Ball Valve, Drain (OA6K1)319205	FFD,FNW	EA	2
2		Ball Valve Assembly, Tank Drain (1YFX5) GTA-2-D-VAL-ASY	GTA	EA	4
3		Ball Valve Assy., Berm Liner Drain (1YFX5) GTA-2-D-VAL-ASY	GTA	EA	2
4		Berm Liner Assembly (1YFX5) GTA-210KBERM	GTA	EA	1
5	4730-00-938-7997	Coupling Half, Quick Disconnect (58536)AA59326III16	FFD,FNW	EA	2
	4730-00-958-7117	Coupling Half, Quick Disconnect (58536)AA59326III25	ENQ	EA	4
6	4730-01-416-1539	Coupling Half, Quick Disconnect	ENQ,FFD	EA	1

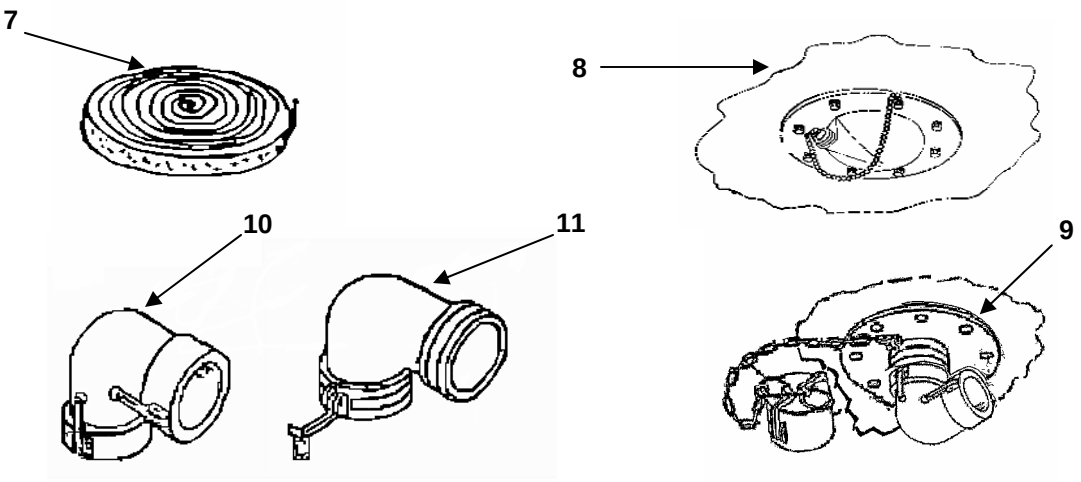


Table 1. Components of End Items List - continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) UNIT OF MEASURE (U/M)	(6) QTY RQR.
7		Deployment Strap (66618)BA191142-20	ENQ, FFD, FNW	EA	8
8	5430-01-262-9476	Drain Fitting Assembly (00333)FCC-52608	ENQ	EA	2
		Drain Fitting Assembly (66618)X-5022A	FFD, FNW	EA	2
		Drain Fitting Assembly, Tank (1YFX5) GTA-D-ASY	GTA	EA	4
9		Drain Fitting Assembly, Berm Liner (1YFX5) GTA-BL-DF	GTA	EA	2
10		Elbow, Quick Disconnect, Female/Female, 6 Inch (10068)60BB9OAL		EA	1
		Elbow, Quick Disconnect, Female/Female, 6 Inch (63711) EFF-90-6	GTA	EA	1
11		Elbow, Quick Disconnect, Female/Male, 6 Inch (10068)60BA9OAL		EA	1
		Elbow, Quick Disconnect, Female/Male, 6 Inch (63711) EFM-90-6	GTA	EA	1

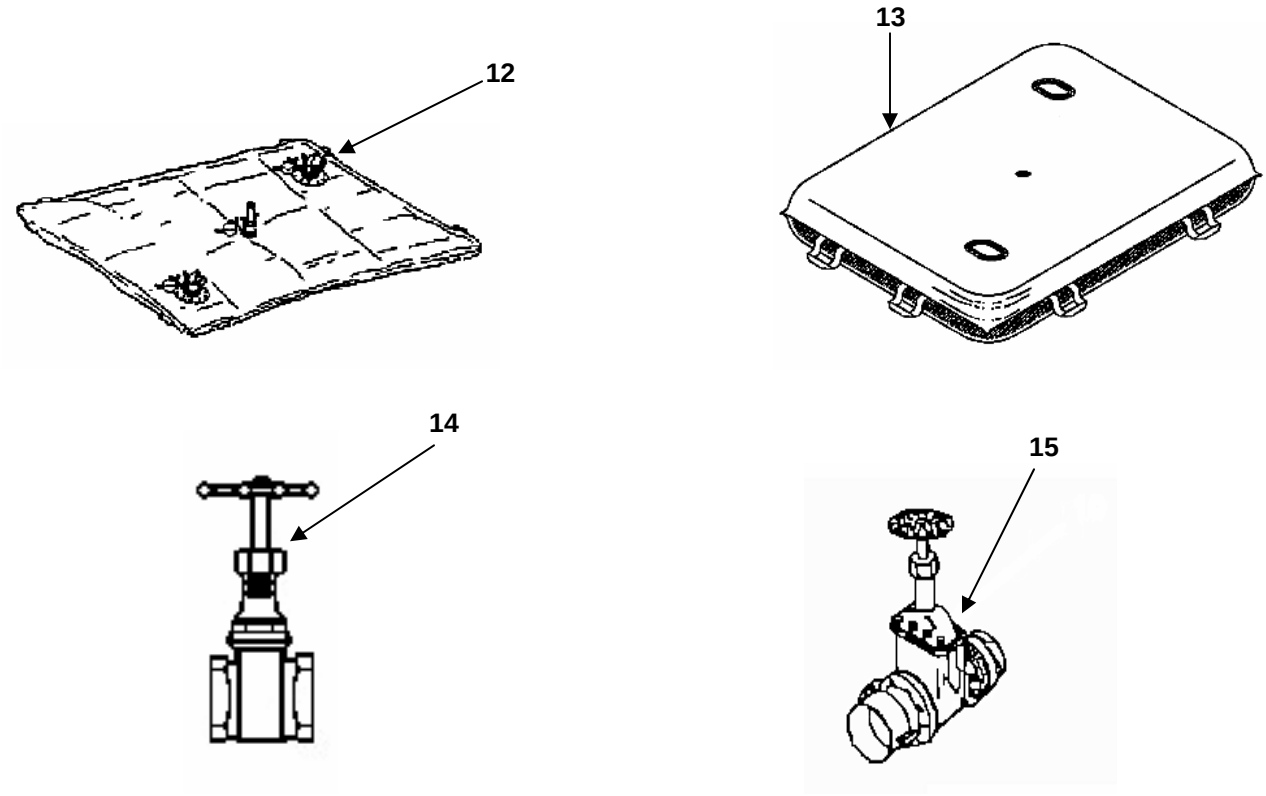


Table 1. Components of End Items List - continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) UNIT OF MEASURE (U/M)	(6) QTY RQR.
12		Filler/Discharge Assembly (66618)X-4959	ENQ, FFD, FNW	EA	2
		Filler/Discharge Assembly (1YFX5) GTA-6-FD-ASY	GTA	EA	2
13		Fuel Tank Envelope (66618)BA191142	ENQ, FFD, FNW	EA	1
14	4820-01-418-4096	Gate Valve, Drain (76364)1148	ENQ	EA	2
15		Gate Valve Assembly, Filler/Discharge (66618)C00816VA	ENQ, FFD, FNW	EA	1
		Gate Valve Assembly, Filler/Discharge (1YFX5) GTA-6-FD-VAL-ASY	GTA	EA	2

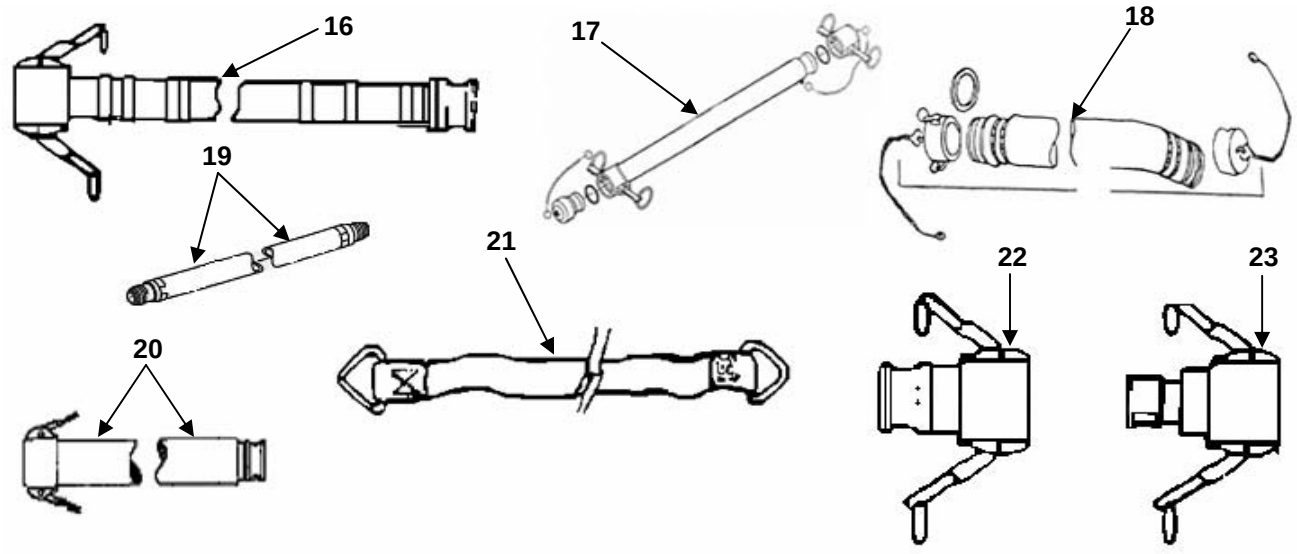


Table 1. Components of End Items List - continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) UNIT OF MEASURE (U/M)	(6) QTY RQR.
16	4720-01-416-1563	Hose Assembly, 10 ft x 6 inches (81349)M370B1A0100A	ENQ, FFD, FNW	EA	4
		Hose Assembly, 10 ft x 6 inches (1YFX5) GTA-6X10-FD-H-ASY	GTA	EA	1
17		Hose Assembly, Berm Liner Drain 2 inches x 10 ft (1YFX5) GTA-2X10-H-ASY	GTA	EA	2
18		Hose Assembly, Tank Drain 2 inches x 8 ft (1YFX5) GTA-2X8-H-ASY	GTA	EA	4
19	4720-01-416-9635	Hose Assembly, Nonmetallic, 10 foot x 2 inches Threaded (81349)M370-B06C21200	FFD, FNW	EA	2
20		Hose Assembly, 1 1/2 inch, MIL-H-370, Type II	ENQ	EA	2
21		Lift Sling (66618)BA191142-19	ENQ, FFD, FNW	EA	4
22	4730-01-079-8234	Reducer, Quick Disconnect, 6 inch Female to 4 inch Male (58536)AA59326XI111	ENQ, FFD	EA	1
23	4730-00-068-0393	Reducer, Quick Disconnect 6 inch Male to 4 inch Female (58536)AA59326XI112	ENQ, FFD	EA	1

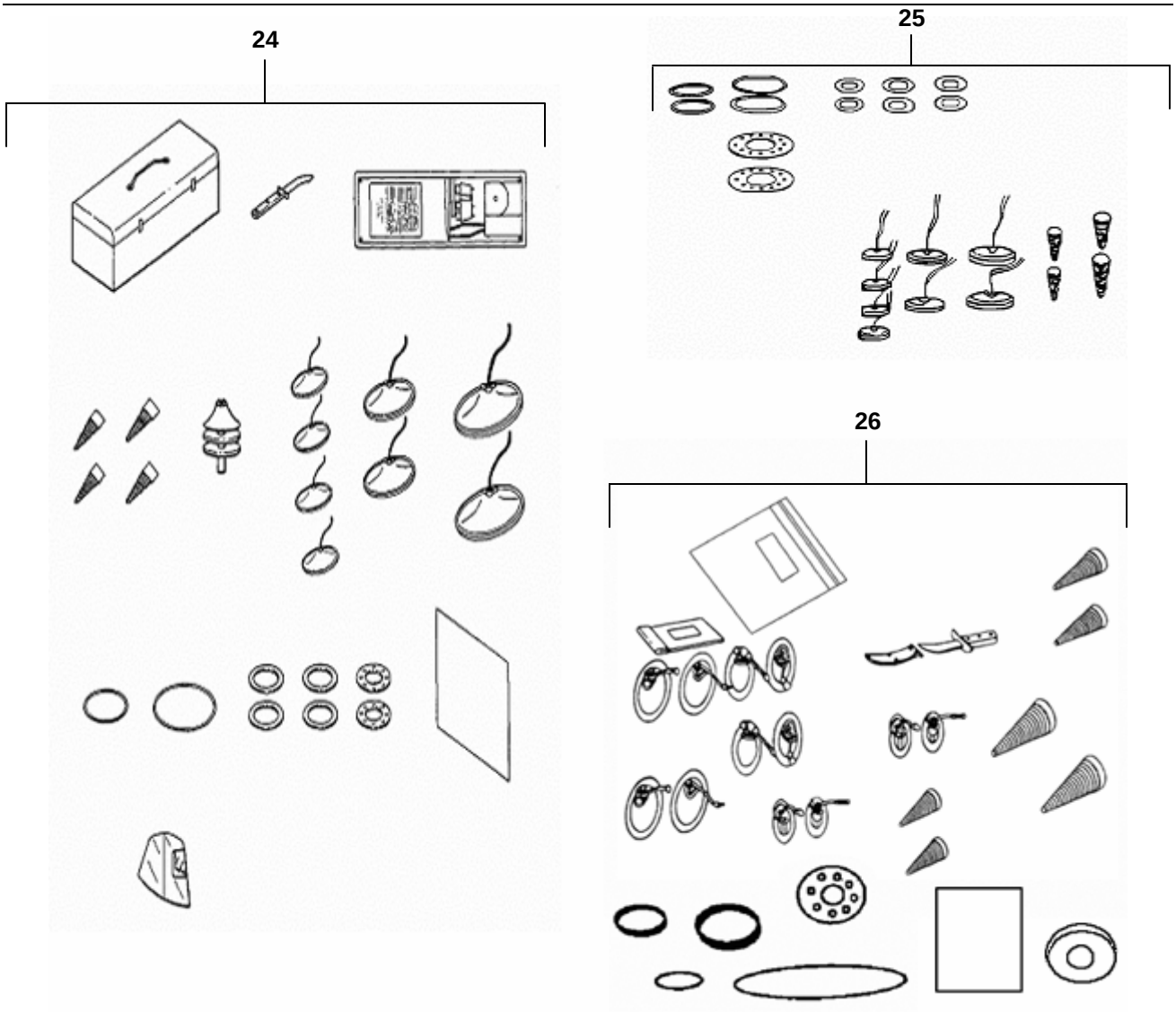


Table 1. Components of End Items List - continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) UNIT OF MEASURE (U/M)	(6) QTY RQR.
24		Repair Kit, Emergency (See WP 0036 00 for Component Parts) (OTAN3) 9050	FNW	EA	1
25		Repair Kit, Emergency (See WP 0036 00 for Component Parts) (66618) BA19114245	ENQ, FFD	EA	1
26		Repair Kit, Emergency (See WP 0036 00 for component parts) (1YFX5) GTA-IIIR-210K	GTA	EA	1

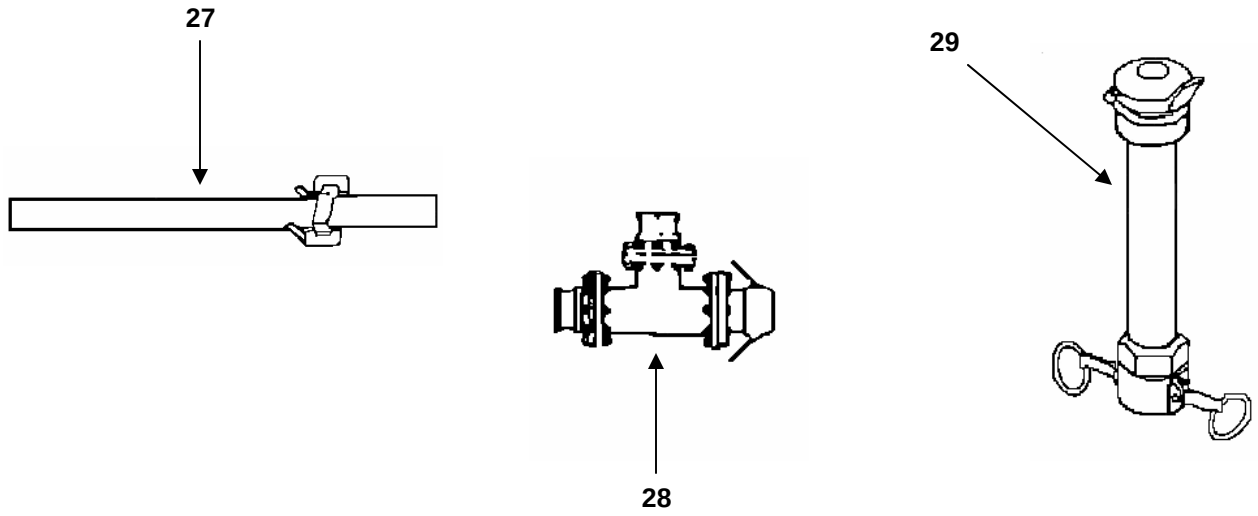


Table 1. Components of End Items List - continued

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) UNIT OF MEASURE (U/M)	(6) QTY RQR.
27		Strap, Tie Down includes Handle (66618)BA191142-21	ENQ, FFD FNW	EA	3
28		Tee Assembly (66618)BA191142-46	ENQ, FFD	EA	1
29		Vent Fitting Assembly (66618)X-3325J	ENQ, FFD, FNW	EA	1
		Vent Fitting Assembly (1YFX5) GTA-V-ASY-F	GTA	EA	1

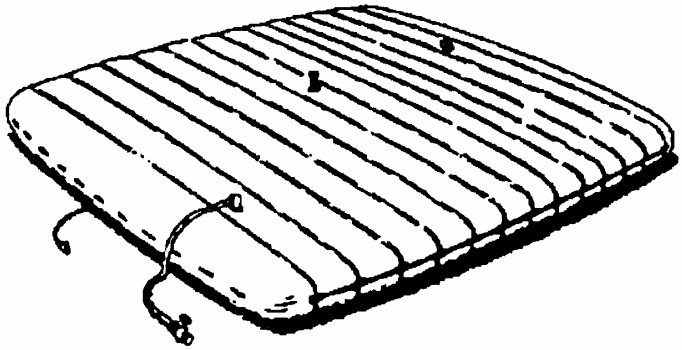
TM 10-5430-239-12&P

TECHNICAL MANUAL

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

TANK, COLLAPSIBLE, FABRIC: PETROLEUM, 5,000 BARREL

MODEL BA91-142 (EIC-ZFU)
NSN 5430-01-374-5656
MODEL RCF0210000 (EIC-XXX)
NSN 5430-01-433-6246
MODEL PD5430-0001 (EIC-ZFQ)
NSN 5430-01-160-3528
MODEL GTA-210KF (EIC-GTA)
NSN 5430-01-505-4249



This manual supersedes TM 10-5430-232-12&P, dated 29 April 1994 and TM 10-5430-214-13&P dated 31 December 1986 including all changes.

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

HEADQUARTERS, DEPARTMENT OF THE ARMY

29 August 2003

Table 2. Basic Issue Items List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER (NSN)	(3) DESCRIPTION, CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) UNIT OF MEASURE (U/M)	(6) QTY RQR.
1		TECHNICAL MANUAL, OPERATOR AND UNIT MAINTENANCE (INCL. RPSTL) TM 10-5430-239-12&P		EA	1

END OF WORK PACKAGE

**OPERATOR AND UNIT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
ADDITIONAL AUTHORIZATION LIST (AAL)**

ADDITIONAL AUTHORIZATION LIST (AAL)

INTRODUCTION

Scope

This work package lists additional items authorized for the support of the collapsible fabric fuel storage tanks.

General

This list identifies items that do not have to accompany the collapsible fabric fuel storage tank, as well as, items that do not have to be turned in with it. These items are all authorized by CTA, MTOE, TDA, or JTA.

Explanation of Columns in the AAL

Column (1) — National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) — Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (in parentheses) and the part number.

Column (3) — Usable On Code. When applicable, gives a code if the item needed is not the same for different models of equipment.

Column (4) — Unit of Measure (U/M). Indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) — Qty Recm. Indicates the quantity recommended.

ADDITIONAL AUTHORIZED LIST ITEMS

Table 1. Additional Authorization List.

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY RECM.
5430-01-237-3657	LINER, BERM, FABRIC TANK (81349) M53081-5	ENQ, FFD, FNW	EA	1
4210-00-775-0127	FIRE EXTINGUISHER (19207) 7015266		EA	1
6675-00-442-3129	POLE, RANGE (66796) 81-1171		EA	1

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL EXPENDABLE AND DURABLE ITEMS LIST

INTRODUCTION

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

Explanations of Columns in the Expendable/Durable Items List

Column (1) — Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., "Use lubricating oil (item 10, WP 0039 00).").

Column (2) — Level. This column identifies the lowest level of maintenance that requires the listed item. (C=Operator/Crew).

Column (3) — National Stock Number (NSN). This is the NSN assigned to the item used to requisition it.

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

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

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List.

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
1	O	5350-00-221-0872	Abrasive Cloth (80204) ANSI B74-18	SH
2	O	8030-00-889-3534	Anti-seize Tape, Polyterafluorsethylene (81349) MIL-T-27730	EA
3	O	7930-01-350-7034	Cleaning Compound, Solvent-Detergent (56883)185024	CN
4	O	5350-00-221-0872	Detergent (81349) MIL-D-16791	GL

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List. - continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGEC, AND PART NUMBER	(5) U/M
5	O	6850-00-281-1985	Dry Cleaning Solvent (58536) A-A-59601	GL
6	O	9150-00-261-8291	Grease, Plug Valve (81343) SAE AMS-G-6032	EA
7	C	9150-00-231-6689	Lubricating Oil, General Purpose (81349) MIL-PRF-32033	QT
8	O	7920-00-205-1711	Rags, Wiping (80244)	LB
9	O	8030-00-543-4384	Sealing Compound, Thread and Gasket, Fuel, Oil and Water (81343) AMS-S-7916	LB
10	O	6850-00-880-7613	Silicone Compound (81343) SAE-A58660	OZ
11	C	7510-00-007-4551	Tape, Pressure Sensitive Adhesive	ROLL
12	O	6810-01-080-9589	Technical TALC, T1 and T3 (81349) MIL-T-50036	LB

END OF WORK PACKAGE

**OPERATOR, UNIT AND DIRECT SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL
ILLUSTRATED LIST OF MANUFACTURED ITEMS**

Illustrated List of Manufactured Items

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

Contents

This work package includes complete instructions for making items authorized to be manufactured or fabricated at unit maintenance level. A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the figure, which covers fabrication criteria. All bulk materials needed for manufacture of an item are listed by part number or specification number in a tabular list on the illustration.

MANUFACTURED ITEMS PART NUMBER INDEX

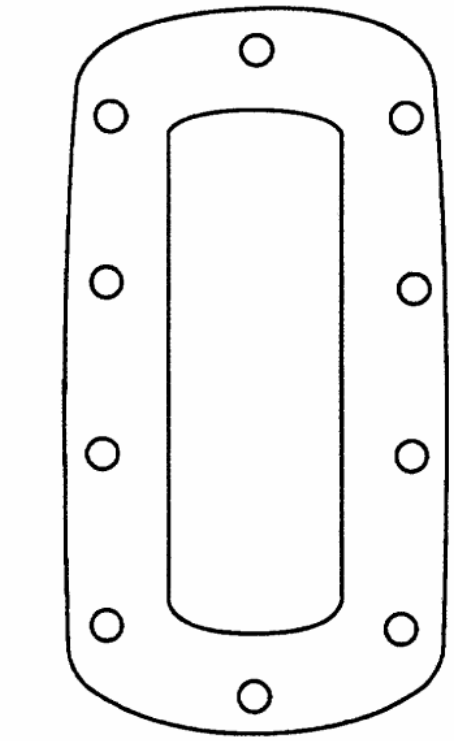
PART NO.	FIGURE NO.
Chain, Drain, 18GASINGLEJACKCHAIN	1
Chain, Dust Cap, RRC271	2
Gasket, 9487K3	3

MATERIAL	
DESCRIPTION	**NSN**
CHAIN, WELDLESS, CAGEC 01976, PART NUMBER 18GASINGLEJACKCHAIN, CUT 8-10 INCHES FROM BULK STOCK	4010-00-171-3781

Figure 1. Link Chain, Drain

MATERIAL	
DESCRIPTION	**NSN**
CHAIN, WELDLESS, CAGEC 81348, PART NUMBER RRC271, CUT 8 INCHES FROM BULK STOCK	4010-00-228-9933

Figure 2. Sash Chain, Dust Cap



MATERIAL	
DESCRIPTION	**NSN**
CORK SHEET, PART NO. 9487K3 (39428) TRACE OLD GASKET TO MAKE PATTERN, CUT PATTERN IN CORK MATERIAL	5330-00-297-1096

Figure 3. Gasket, Gate Valve Bonnet

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL TORQUE LIMITS

INTRODUCTION

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

Torque Limits

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

Table 1. General Torque Requirements for Dry Fasteners*

	Torque Requirement in lb ft (N·m)			
Bolt/Screw Size	**SAE Grade 1 or 2**	**SAE Grade 5**	**SAE Grade 6 or 7**	**SAE Grade 8**
1/4-20 UNC	5 (7)	8 (11)	10 (14)	12 (16)
1/4-28 UNF	7 (8)	10 (14)	12 (16)	14 (19)
5/16-18 UNC	11 (15)	17 (23)	19 (26)	24 (33)
5/16-24 UNF	13 (18)	19 (26)	23 (31)	27 (37)
3/8-16 UNC	18 (24)	31 (42)	34 (46)	44 (60)
3/8-24 UNF	20 (27)	35 (47)	42 (57)	49 (66)
7/16-14 UNC	28 (38)	49 (66)	55 (75)	70 (95)
7/16-20 UNF	30 (41)	55 (75)	67 (91)	78 (106)
1/2-13 UNC	39 (53)	75 (102)	85 (115)	105 (142)
1/2-20 UNF	41 (56)	85 (115)	102 (138)	120 (163)
9/16-12 UNC	51 (69)	110 (149)	120 (163)	155 (210)
9/16-18 UNF	55 (75)	120 (163)	145 (197)	170 (231)
5/8-11 UNC	63 (85)	150 (203)	167 (226)	210 (285)
5/8-18 UNF	95 (129)	170 (231)	205 (278)	240 (325)
3/4-10 UNC	105 (142)	270 (366)	280 (380)	375 (509)
3/4-16 UNF	115 (156)	295 (400)	357 (484)	420 (570)
7/8-9 UNC	160 (217)	395 (536)	440 (597)	605 (820)
7/8-14 UNF	175 (237)	435 (590)	555 (753)	675 (915)
1-8 UNC	235 (319)	590 (800)	660 (895)	910 (1234)
1-14 UNF	250 (339)	660 (865)	825 (1119)	999 (1342)
1-1/8-7 UNC	350 (475)	800 (1085)	1000 (1356)	1280 (1736)
1-1/8-12 UNF	400 (542)	880 (1193)	1050 (1424)	1440 (1953)
1-1/4-7 UNC	500 (678)	1080 (1464)	1325 (1797)	1820 (2468)
1-1/4-12 UNF	550 (746)	1125 (1526)	1325 (1797)	1820 (2712)
1-3/8-6 UNC	660 (895)	1460 (1980)	1800 (2441)	2380 (3227)
1-3/8-12 UNF	740 (1003)	1680 (2278)	1960 (2658)	2720 (3688)
1-1/2-6 UNC	870 (1180)	1940 (2631)	2913 (3950)	3160 (4285)
1-1/2-12 UNF	980 (1329)	2200 (2983)	3000 (4068)	3560 (4827)

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

Table 2. Locknut Breakaway Torque Values

NOTE

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

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

END OF WORK PACKAGE

OPERATOR AND UNIT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) COLLAPSIBLE FABRIC TANK, PETROLEUM, 5,000 BARREL MANDATORY REPLACEMENT PARTS LIST

INTRODUCTION

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

MANDATORY REPLACEMENT PARTS LIST

Table 1. Mandatory Replacement Parts List

ITEM NO.	PART NUMBER/CAGEC	NSN	NOMENCLATURE	QTY.
1	AS29513-250	5331-01-324-5262	O-RING	4
2	AS29513-383	5331-01-067-3449	O-RING	1
3	EX1333B-18-95	5330-01-262-1361	GASKET, CAP	1
4	FB7661	5330-01-415-8850	GASKET, FLANGE	6
5	MS27030-10	5330-00-412-9780	GASKET	14
6	MS27030-4	5330-00-551-4572	GASKET	3
7	MS27030-6	5330-00-612-2414	GASKET	4
8	MS27030-9	5330-00-899-4509	GASKET	1
9	110007		LOCKWASHER	60
10	235-RF-FN9		GASKET, BONNET	1
11	235-RF-02212W	5310-01-265-5044	LOCKWASHER	10
12	FCC-62398/50609735	5330-01-262-5120	GASKET	4

END OF WORK PACKAGE

GLOSSARY

ABBREVIATIONS

AAL ..... Additional Authorization List
Assy ..... Assembly
BII ..... Basic Issue Items
bu ..... Bundle
°C ..... Degree Celsius
CAGEC ..... Commercial and Government Entity Code
COEI ..... Components of End Item
EIR ..... Equipment Improvement Recommendation
ESC ..... Equipment Serviceable Criteria
°F ..... Degree Fahrenheit
Fed ..... Federal
gl ..... Gallon
Illus ..... Illustration
MTOE ..... Modified Table of Organization and Equipment
MWO ..... Modification Work Order
NSN ..... National Stock Number
PMCS ..... Preventive Maintenance Checks and Services
QA/QC ..... Quality Assurance/Quality Control
Qty ..... Quantity
Rqr ..... Required
Spec ..... Specification
TAMMS ..... The Army Maintenance Management System
TMDE ..... Test, Measurement, and Diagnostic Equipment
U/M ..... Unit of Measure

DEFINITION OF TERMS

A

APPROVED - Permitted to be used for a specific purpose by the person or group who is authorized to grant approval.

ASSEMBLY - A combination of parts that may be taken apart without destruction, which has no application or use of its own but is needed for the completeness of a more complex item with which it is combined, or to which it is attached.

C

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

E

EXPENDABLE - An item that is not repairable and is discarded if damaged.

EXPOSURE - Being in the presence of something, or in contact with something. Skin is exposed to cleaning solvent when the solvent contacts the skin during cleaning operations.

L

LEGIBLE - Capable of being read. A legible nameplate can be read; an illegible plate cannot.

M

MALFUNCTION - Occurs when a unit fails to operate normally.

MANUFACTURER - The company, which makes an item or piece of equipment for sale.

MATERIEL - Equipment, apparatus, and supplies of an organization, such as an army.

R

RECOMMENDATIONS - Suggestions for change; advice given usually to make an improvement.

REQUIRE - To demand or need.

S

SCOPE - The extent of an activity or concept; the amount of information covered, as in a book.

SOLVENT - A liquid that can dissolve another substance.

T

TORQUE - Force around an axis. It produces a rotary or twisting motion, and is measured in foot-pounds (ft-lb) or Newton-meters (N•m).

V

VENTILATE - To provide with a source of fresh or uncontaminated air.

VISUAL - Visible; detected by the unaided eye.

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By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

SANDRA R. RILEY
Administrative Assistant to the
Secretary of the Army
0524101

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These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however, only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17 and 27.

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To: **TACOM-TECH-PUBS@RIA.army.mil**

Subject DA Form 2028

1. ***From:*** Joe Smith
2. ***Unit:*** home
3. ***Address:*** 4300 Park
4. ***City:*** Hometown
5. ***St:*** MO
6. ***Zip:*** 77777
7. ***Date Sent:*** 19-OCT-93
8. ***Pub no:*** 55-1915-200-10
9. ***Pub Title:*** TM
10. ***Publication Date:*** 11-APR-88
11. ***Change Number:*** 12
12. ***Submitter Rank:*** MSG
13. ***Submitter Fname:*** Joe
14. ***Submitter Mname:*** T
15. ***Submitter Lname:*** Smith
16. ***Submitter Phone:*** 123-123-1234
17. ***Problem:*** 1
18. ***Page:*** 1
19. ***Paragraph:*** 3
20. ***Line:*** 4
21. ***NSN:*** 5
22. ***Reference:*** 6
23. ***Figure:*** 7
24. ***Table:*** 8
25. ***Item:*** 9
26. ***Total:*** 123
27. ***Text:***

This is the text for the problem below line 27.

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* AMSTA-LC-LMIT / TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 10-5430-239-12&P	2 September 2005	Tank, Collapsible, Fabric: Petroleum, 5,000 Barrel

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM 10-5430-239-12&P	2 September 2005	Tank, Collapsible, Fabric: Petroleum, 5,000 Barrel

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS (*Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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TO: *(Forward to proponent of publication or form) (Include ZIP Code)* AMSTA-LC-LMIT / TECH PUBS, TACOM-RI 1 Rock Island Arsenal Rock Island, IL 61299-7630	**FROM:** *(Activity and location) (Include ZIP Code)*	

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**Reference to line numbers within the paragraph or subparagraph.*

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DA FORM 2028, FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. USAPPC V3.00

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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLYCATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM 10-5430-239-12&P	2 September 2005	Tank, Collapsible, Fabric: Petroleum, 5,000 Barrel

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

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PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

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ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*

**Reference to line numbers within the paragraph or subparagraph.*

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DA FORM 2028, FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. USAPPC V3.00

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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

The Metric System and Equivalents

Linear Measure

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

Weights

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

Liquid Measure

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

Square Measure

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

Cubic Measure

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

Approximate Conversion Factors

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

Temperature (Exact)

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

PIN: 082708-000