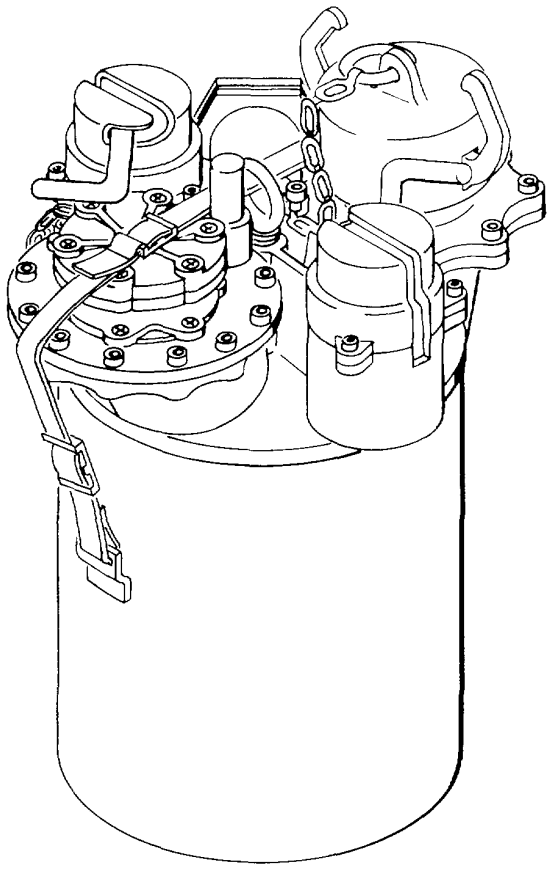
TECHNICAL MANUAL

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

for

CONVERTER ASSEMBLY, VAPOR RECOVERY PART NUMBER F428A

NSN 2590-01-090-7659



HEADQUARTERS, DEPARTMENT OF THE ARMY

APRIL 1984

WARNING PAGE

Chapter 1, Section I, para 1-8.

WARNING

Prior to removing converter assembly from tank, drain fuel in converter assembly by depressing drain button in top of converter assembly for 10 seconds minimum.

Chapter 2, Section II, para 2-3.
Chapter 3, Section II, para 3-5.
Chapter 5, Section III, para 5-9.

WARNING

Dry Cleaning Solvent (P-D-680), used to clean parts, is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of dry cleaning solvent is 138°F (59°C).

Chapter 5, Section III, para 5-9.

WARNING

Compressed air used for cleaning purposes will not exceed 20 psi. Use only with effective chip guarding and personnel protection equipment (goggles/shield, gloves, etc.).

Chapter 5, Section III, para 5-12.

WARNING

Use extreme care while removing pin from hole B. The latch is spring loaded and will move up quickly and could cause injury to personnel.

TECHNICAL MANUAL)
No. 9-2560-506-13&P)

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, *6 April 1984*

Operator's, Organizational and Direct Support Maintenance Manual for CONVERTER ASSEMBLY, VAPOR RECOVERY

PART NUMBER F428A
NSN 2590-01-090-7659
Current as of 15 NOVEMBER 83

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Tank-Automotive Command, ATTN: DRSTA-MB, Warren, MI 48090. A reply will be furnished to you.

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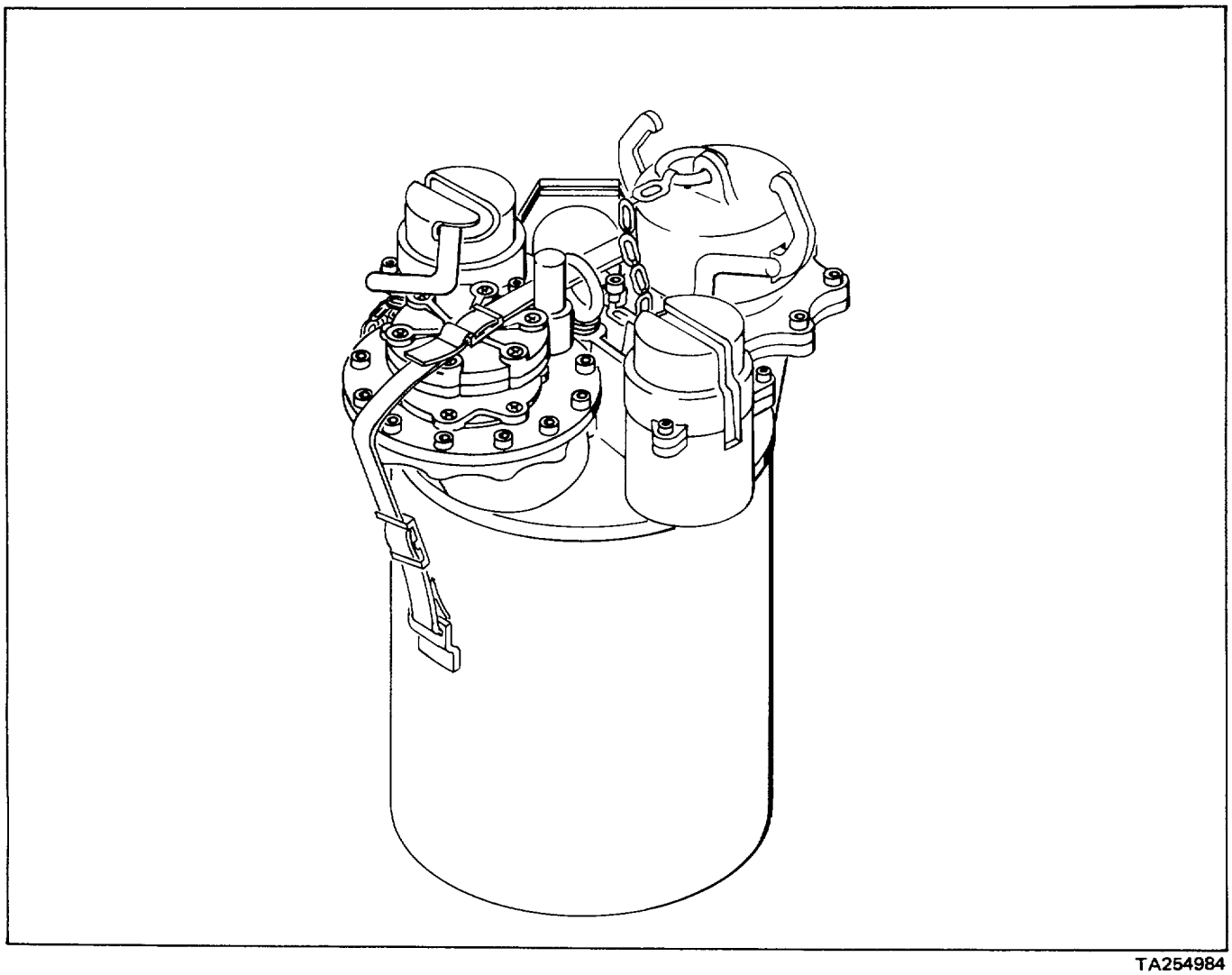
CHAPTER 1

INTRODUCTION

Section I. GENERAL INFORMATION



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1-1. SCOPE.

a. **Type of Manual.** Operator's, organizational, direct support maintenance (including repair parts and special tools list (RPSTL)).

b. **Model Numbers and Equipment Name:** Part Number F428A - Vapor Recovery Converter Assembly.

c. **Purpose of Equipment:** Designed to collect vapors and control fuel level during tank filling operation.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by TM 38-750, The Army Maintenance Management System (TAMMS).

1-3. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S). If your converter assembly needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at: Commander, US Army Tank Automotive Command, ATTN: DRSTMA-MB, Warren, MI 48090. We will send you a reply.

1-4. LIST OF ABBREVIATIONS. Abbreviations used in this manual can be found in MIL-STD-12C.

Section II. EQUIPMENT DESCRIPTION AND DATA

1-5. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

a. **Characteristics.**

(1) Vapor recovery adaptor mates with a standard 3 inch cam lock.

(2) Pressure adaptor mates with a standard 3-lug bayonet type fuel nozzle.

(3) Electrical receptacle mates with SAE J560a Cable Plug.

(4) Converter fits standard 10 inch manhole.

b. **Capabilities and Features.**

(1) Operating temperature - -65^{o}F to +160^{o}F.

(2) Operating pressure - 120 psig.

(3) Flow rating - 300 gpm.

(4) Fluid temperature - -65^{o}F to +135^{o}F.

(5) External leakage - zero.

1-6. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

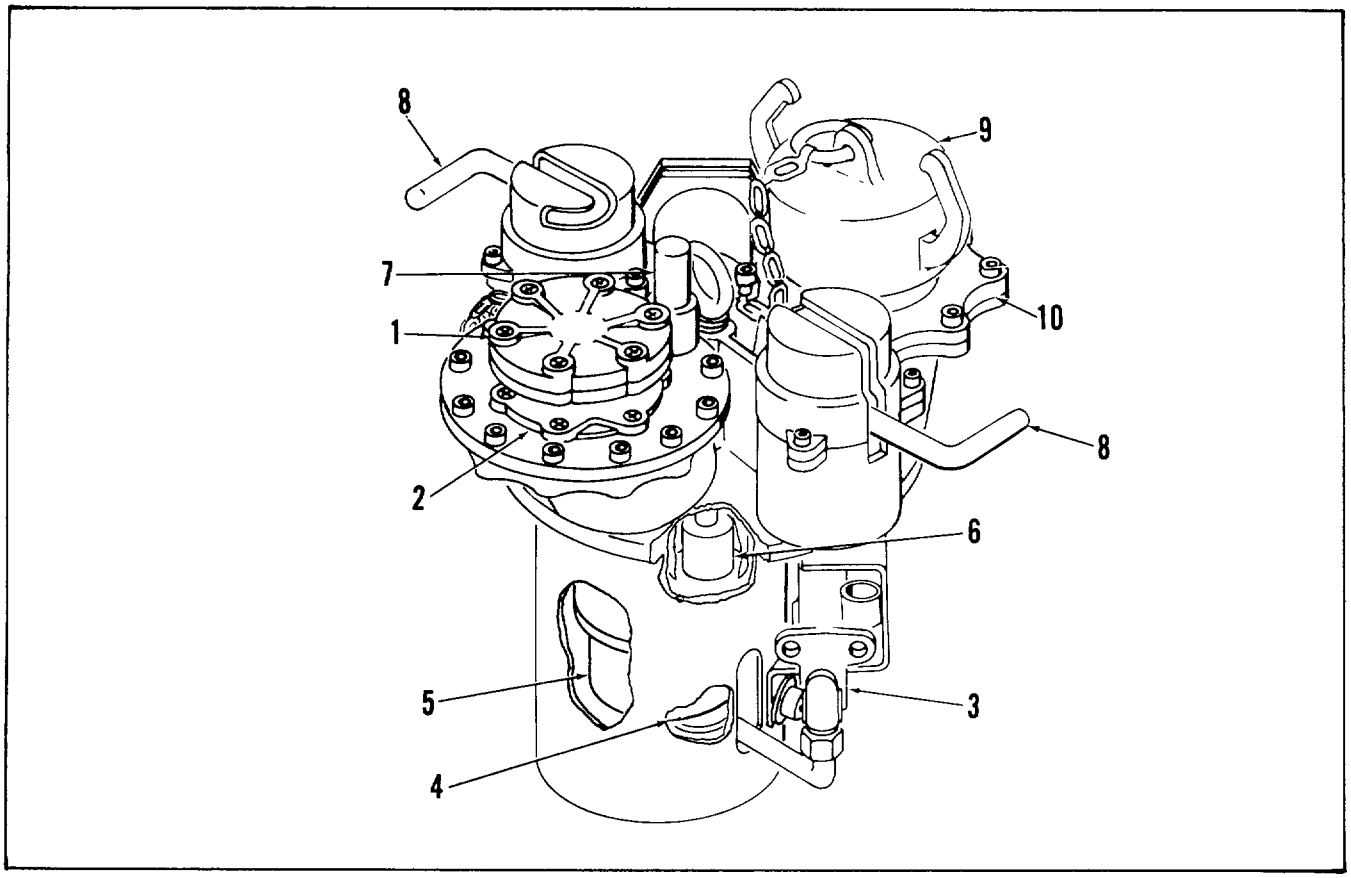
a. **Major Components.**

(1) PRESSURE CAP (1). Attached to the refueling adaptor to seal off the converter assembly from entry of contaminants.

(2) FUEL PRESS ADAPTOR (2). Designed to operate with standard refueling nozzles, it has a poppet which is spring loaded in the closed position. When the nozzle is engaged, the poppet opens allowing fuel to enter the tank.

(3) JET SENSOR (3). A single level sensor which detects the fuel level in the tank.

1-6. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued).



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(4) PILOT ASSEMBLY (4). Pressure from the jet sensor pushes the pilot off of the seat allowing the internal valve to open. With the internal valve open the tank will fill. When the tank is full the jet sensor pressure will shut down closing the internal valve.

(5) INTERNAL VALVE (5). Contains a piston which opens to allow the tank to fill. The pilot assembly opens the piston.

(6) LEVEL CONTROL SWITCH (6). Controls fuel level in tank. As fuel rises, the float (with magnet) opens the reed switch shutting down fuel delivery.

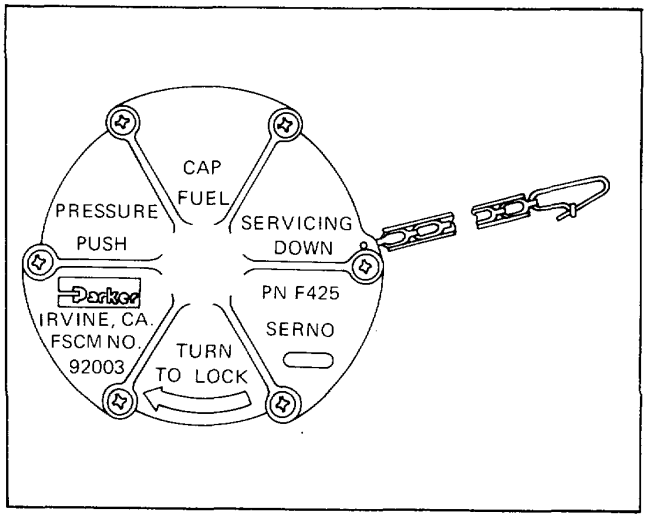
(7) DRAIN BUTTON (7). Depressed after tank filling to drain fuel from converter assembly by opening piston.

(8) LATCH COVER LEVERS (8). Engages latches with tank opening to secure converter assembly during fueling operation. Allows converter assembly to unseat from tank when internal pressure exceeds 3.5 psig to prevent tank rupture.

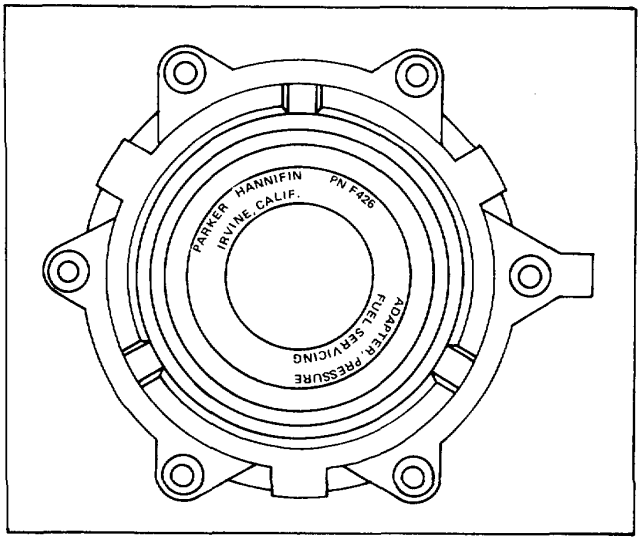
(9) DUST COVER ASSEMBLY (9) AND VENT (10). The dust cover assembly covers the vent opening when the converter assembly is not in use. The vent provides a means of attaching the vent line to remove vapors during the filling operation.

1-6. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (Continued).

b. **Data Plates**



Located on pressure cap



TA254986 Located on fuel press adaptor

1-7. EQUIPMENT DATA.

Dimensions
Diameter with levers in
open position ..... 20 inches maximum

Diameter at base (part which
fits in tank with standard
10 inch manhole) .....9.75 inches

Height ..... 15 inches maximum

Weight ..... Approximately 40 pounds

1-8. SAFETY, CARE, AND HANDLING.

WARNING

Prior to removing converter assembly from tank, drain fuel in converter assembly by depressing drain button in top of converter assembly for 10 seconds minimum.

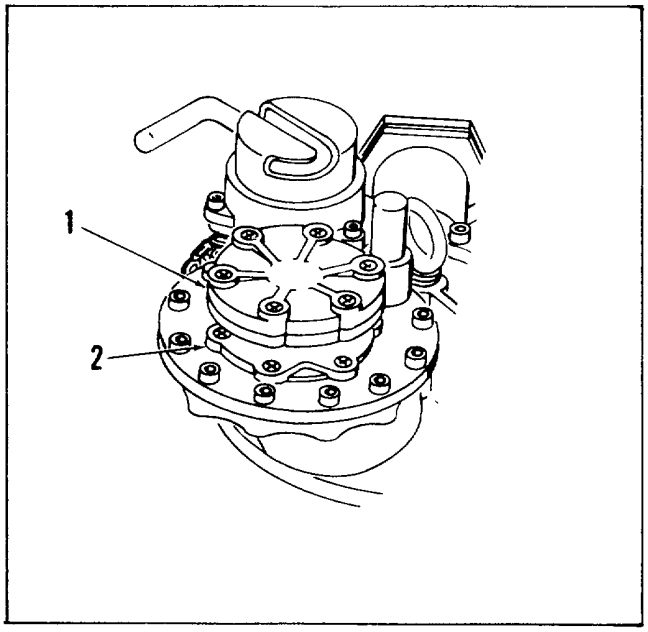
a. Care should be taken that fuel is not in the converter assembly while it is being transported.

Section III. PRINCIPLES OF OPERATION

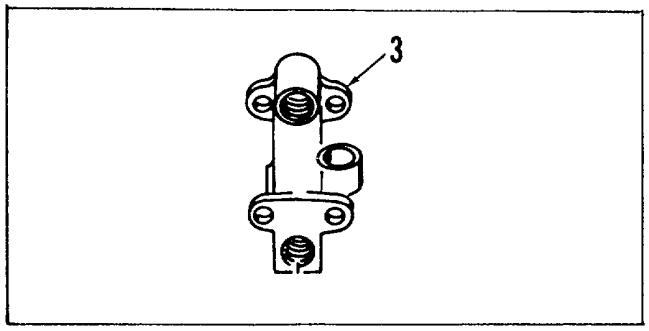
1-9. MAJOR COMPONENTS PRINCIPLES OF OPERATION.

a. **Pressure Cup (1).** The pressure cap attaches to the fuel press adaptor (2) to seal off the converter assembly from entry of contaminants. The pressure cap is attached to the converter assembly with a safety chain so it is not lost during use. To install the pressure cap on the fuel press adaptor, engage the cap in the adaptor, press down on the cap and turn the cap clockwise until it locks in place. To remove the cap, press down on the cap and turn the cop counter-clockwise until it is free to lift off of the adaptor.

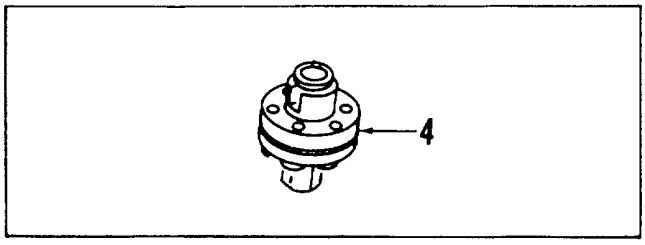
b. **Fuel Press Adaptor (2).** The fuel press adaptor mates with a standard refueling nozzle which opens the poppet when engaged with the adaptor, allowing fuel to enter the converter assembly.



c. **Jet Sensor (3).** The jet sensor supplies pressure to the pilot assembly which opens the piston of the internal valve during the refueling operation. When the tank is full, the jet sensor shuts off the pressure to the pilot assembly), closing the piston.



d. **Pilot Assembly (4).** Pressure from the jet sensor opens the pilot assembly allowing pressure to unseat the piston in the internal valve, allowing fuel to enter the tank. When the tank is full the jet sensor will shut down the pilot assembly, closing the piston of the internal valve.



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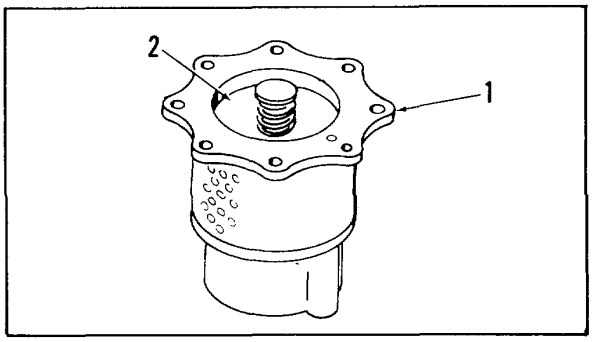
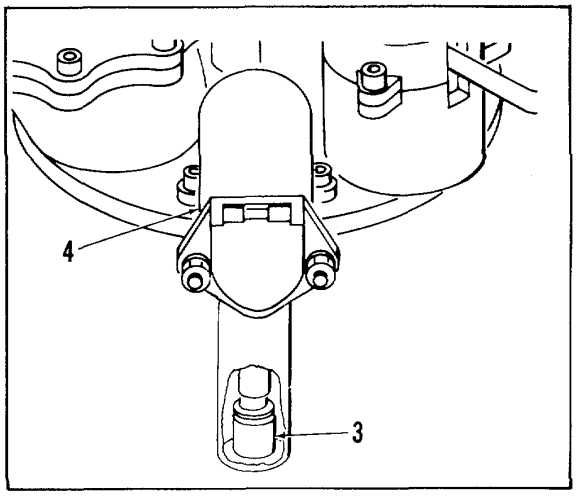
1-9. MAJOR COMPONENTS PRINCIPLES OF OPERATION (Continued)

e. **Internal Valve Assembly (1).** The internal valve assembly contains a spring loaded piston (2) which closes the internal valve when in contact with the seat. When the pilot valve assembly is pressurized, it opens the piston allowing fuel to enter the tank through the internal valve assembly.

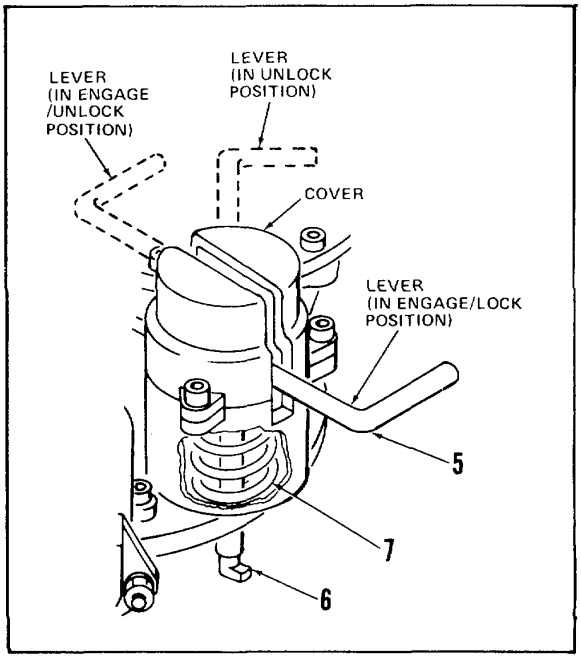


f. **Level Control Switch (3).** When the converter assembly is used in a commercial operation, an electrical connection to the electrical receptacle (4) shall be made. This allows the level control switch to interrupt electrical power when the tank is full.



g. **Latch Cover Levers (5).** The levers are used to engage/disengage and lock/unlock the latches (6). When the lever is rotated clockwise (toward the center of the converter assembly) the latch is unlocked, allowing the converter assembly to be installed into or removed from the tank. When the lever is rotated counter clockwise it engages the latch and when the lever is lifted toward the outside of the converter assembly it locks the latch in the tank.

h. **Latches (6).** With the latches in the engaged/ locked position (lever (5) toward outside of converter assembly) the converter assembly is locked into the tank. If the tank internal pressure exceeds 3.5 psig, the spring (7) will allow the converter assembly to lift off of the tank opening, relieving the pressure.



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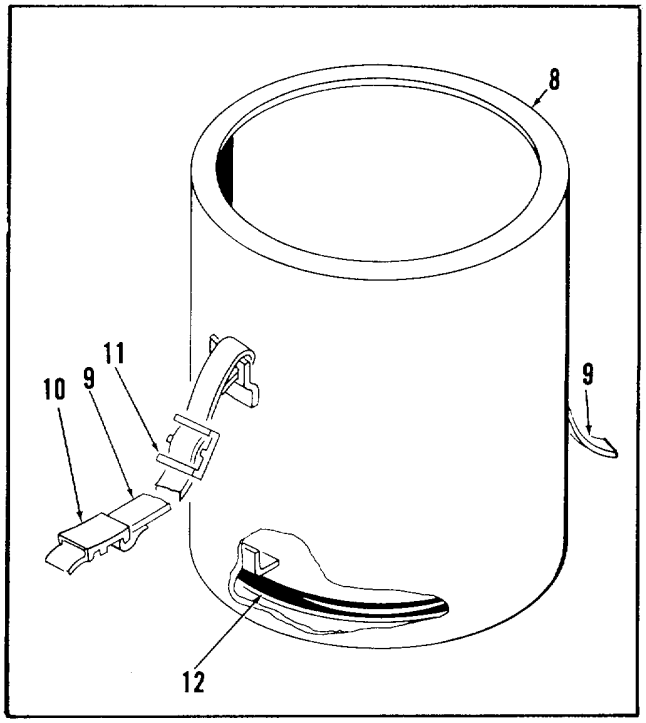
1-9. MAJOR COMPONENTS PRINCIPLES OF OPERATION (Continued).

i. **Bucket Assembly (8).** The bucket assembly is used to store the converter assembly when it is not in use. It is fitted with two nylon straps (9), a 2 bar buckle (10) and two I bar buckles (11) for securing the bucket assembly to the converter assembly. A spare housing gasket (12) is stored in the bottom of the bucket assembly.



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CHAPTER 2

OPERATING INSTRUCTIONS

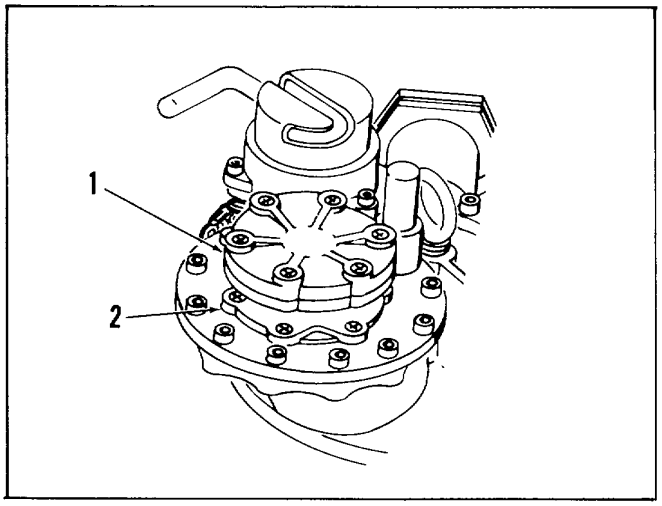
Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS.

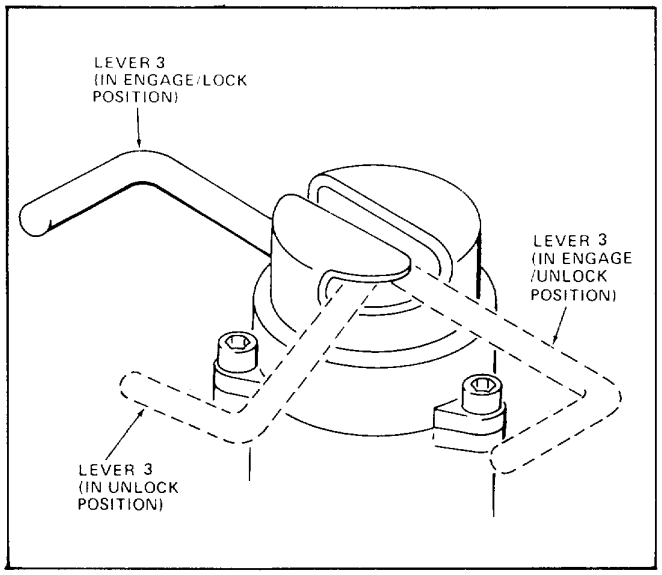
2-1. GENERAL. This section describes, illustrates, and furnishes the operator with information pertaining to the controls required for operation of the converter assembly.

2-2. CONTROLS.

a. **Pressure Cap (1).** The pressure cap attaches to the fuel press adaptor (2) to seal off the converter assembly from entry of contaminants. A safety chain is attached to the pressure cap and fuel press adaptor. The pressure cap should be installed on the fuel press adaptor whenever the converter assembly is not being used to fuel a tank.

b. **Levers (3).** There are two levers which are used to engage the latches to lock the converter assembly in the tank during the fueling operation. The levers rotate the latches to the engaged position and then when engaged lock the latches against the under side of the manhole flange to apply pressure to the sealing gasket.





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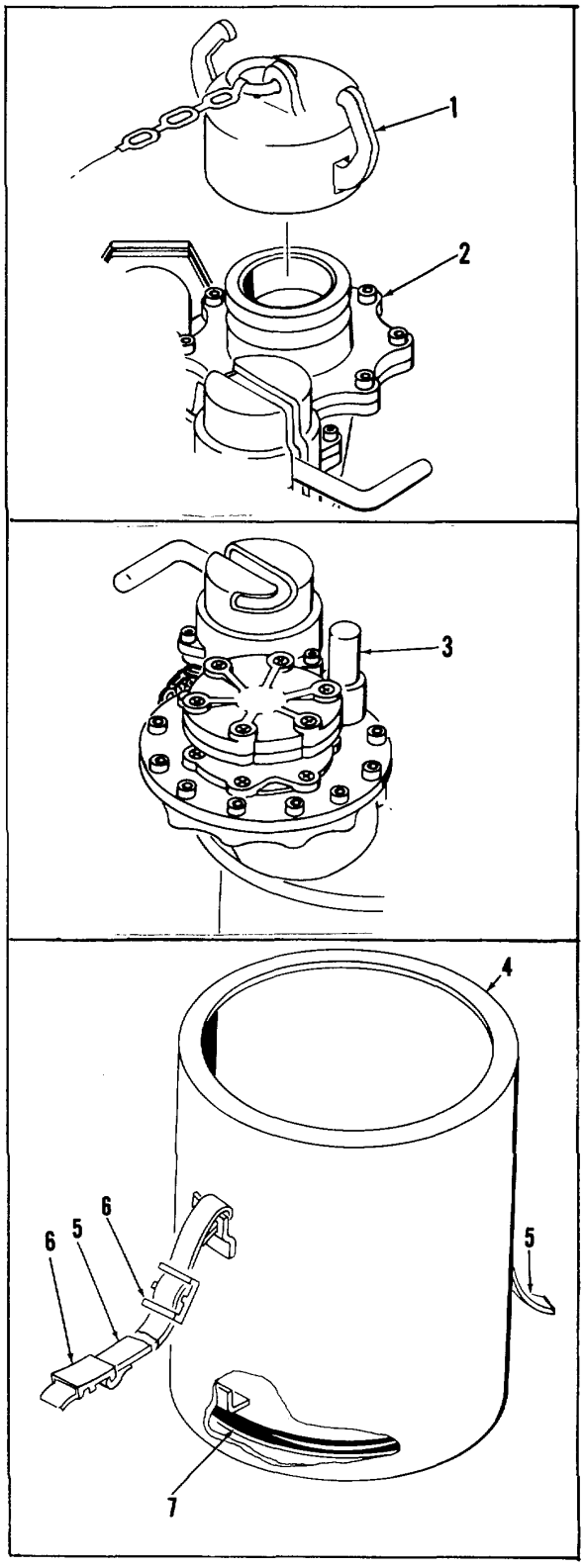
2-2. CONTROLS (Continued).

c. **Dust Cover Assembly (1).** The dust cover assembly seals off the tank vent adaptor (2) when the converter is not attached to the vent line. The dust cover assembly fits over the vent adaptor and is secured by engaging two cam type levers on the dust cover. A safety chain is attached to the dust cover assembly and to the adaptor.

d. **Drain Button (3).** The drain button provides a means to drain fuel which is retained in the top of the converter during fueling operations. Prior to removing converter assembly from tank, depress the drain button a minimum of 10 seconds, allowing the fuel in the converter assembly to drain into the tank.

e. **Bucket Assembly (4).** The bucket assembly provides a means for storing the converter assembly when not in use, and also protects the internal components of the converter assembly during handling. The bucket assembly consists of a cylinder type container with two nylon straps (5) and three buckles (6). The straps and buckles are to secure the bucket to the converter. A spare housing gasket (7) is stored in the bottom of the bucket.



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Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-3. GENERAL. This section contains preventive maintenance checks and services to be performed by the operator.

a. **Before you operate.** Always keep in mind the CAUTIONS and WARNINGS. Perform your before (B) PREVENTIVE MAINTENANCE just before you use the converter.

b. **While you operate.** Always keep in mind the CAUTIONS and WARNINGS. Perform your during (D) PREVENTIVE MAINTENANCE during operation.

c. **After you operate.** Always keep in mind the CAUTIONS and WARNINGS.

d. Always do your PREVENTIVE MAINTENANCE in the same order so it gets to be a habit. Once you've had some practice you'll spot anything wrong in a hurry.

e. If anything looks wrong and you can't fix it, write it on your DA Form 2404. If you find something wrong, report it to direct support maintenance RIGHT NOW.

f. When you do your PREVENTIVE MAINTENANCE, take along a wiping rag or two (item 5, Appendix E).

WARNING

Dry Cleaning Solvent (P-D-680), used to clean parts, is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of dry cleaning solvent is 138°F (59°C).

(1) Keep it clean: Dirt, grease, oil, and debris only gets in the way and may cover up a serious problem. Clean your work as needed. Use dry cleaning solvent (item 3, Appendix E) on all metal exterior surfaces.

(2) Bolts, nuts, and screws: Check them all for obvious looseness and missing, bent, or broken condition. Look for bare metal or rust around bolt heads. If you find one you think is loose, report it to direct support maintenance RIGHT NOW.

g. It is necessary for you to know how fuel leakage affects the status of the converter. The following are definitions of the classes of leakage you need to know to be able to determine the status of the converter. Learn then be familiar with them; and REMEMBER - WHEN IN DOUBT, NOTIFY YOUR SUPERVISOR!

CAUTION

Converter operation is allowable with minor leakages (Class I). Consideration must be given to the location of the leakage, and the nature of the source of leakage. When in doubt, notify your supervisor.

Leakage Definitions for Crew/Operator PMCS

Class I - Seepage of fuel (as indicated by wetness or discoloration) not great enough to form a drop.

Class II - Leakage of fuel great enough to form a drop but not enough to drip from the item being checked/inspected.

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

2-3. GENERAL (Continued).

(1) When operating with a Class I leak, continue to check the area where the leak is noted. If the leakage increases to Class II, notify your supervisor.

(2) Class II and III leaks should be reported to your supervisor or direct support maintenance immediately.

2-4. Crew/Operator Preventive Maintenance Checks and Services. The required PMCS for the crew/operator are described in table 2-1. The following is an explanation of the column headings in table 2-1.

a. **Item number column.** Checks and services are numbered in order by item to be checked or serviced. This column provides the item number to be used in the "TM Number" column on DA Form 2404. Equipment Inspection and Maintenance Worksheet, in recording the results of PMCS.

b. **Interval column.** The two sub-column titles are: B - before, and D - during. When a dot (o) appears in one of these columns, the procedure to the right should be performed at that interval.

c. **Item to be inspected column.** This column will describe the item to be inspected by identifying the item by its common name, e.g.; pressure cap, drain button.

d. **Procedures column.** This column, included in the "Item to be inspected" column, contains a brief description of the procedure by which the check is to be performed.

e. **Equipment is not ready/available if: column.** This column contains the criteria that will cause the converter to be classified as not ready or available to perform as intended. This column will identify conditions that make the converter not ready/available for service, and will deny use of the converter until corrective maintenance has been performed.

Table 2-1. Operator/Crew Preventive Maintenance Checks and Services

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

B - Before D - During

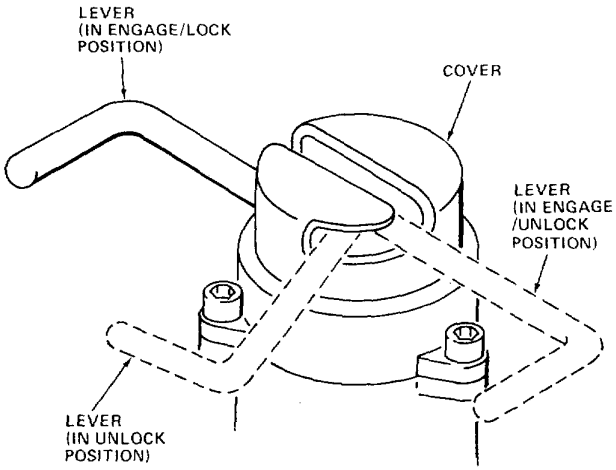
Item No.	Interval B	Interval D	ITEM TO BE INSPECTED Procedure: Check For and Have Repaired as Needed	Equipment is Not READY/AVAILABLE IF:
1			LATCH COVER LEVERS 	
		•	a. Check for smooth operation making sure there is no binding.	
		•	b. Check that converter is securely locked in tank opening with levers in LOCK position.	Latch cover levers fail to secure converter into tank opening.

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Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

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

B - Before D - During

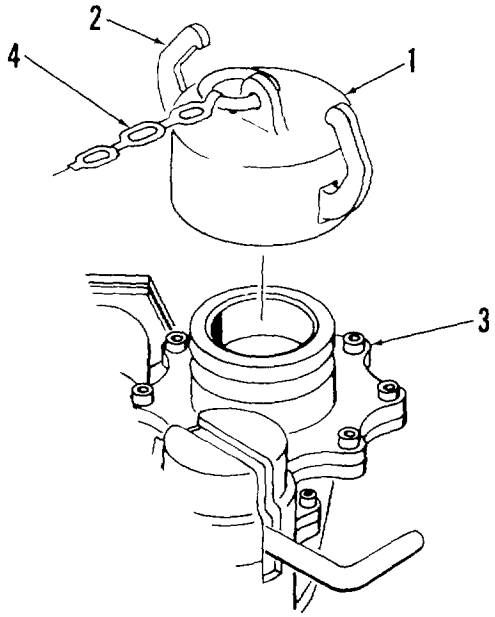
Item No.	Interval B	Interval D	ITEM TO BE INSPECTED Procedure: Check For and Have Repaired as Needed	Equipment is Not READY/AVAILABLE IF:
2			VENT HOSE COUPLING AND DUST COVER ASSEMBLY 	
		•	a. Check dust cover assembly (1) for free operation of latches (2).	Cap cannot be removed.
			NOTE: Check that dust cover assembly shall be able to be lifted off of and placed onto adaptor (3) without difficulty.	
		•	b. Check safety chain (4) for secure mounting and obvious damage.	
	•		c. Check adaptor (3) for damage.	Damage impairing hose coupling.

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Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

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

B - Before D - During

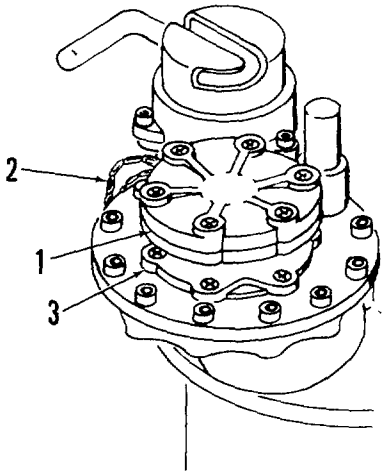
Item No.	Interval B	Interval D	ITEM TO BE INSPECTED Procedure: Check For and Have Repaired as Needed	Equipment is Not READY/AVAILABLE IF:
3			PRESSURE CAP AND FUEL PRESS ADAPTOR 	
		•	a. Check that pressure cap (1) operation is smooth and free and there is no binding and that it locks securely.	Pressure cap cannot be removed.
		•	b. Check safety chain (2) for secure mounting or obvious damage.	
	•		c. Check fuel press adaptor (3) for damage.	Damage impairing 3-lug bayonet type nozzle.

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Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

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

B - Before D - During

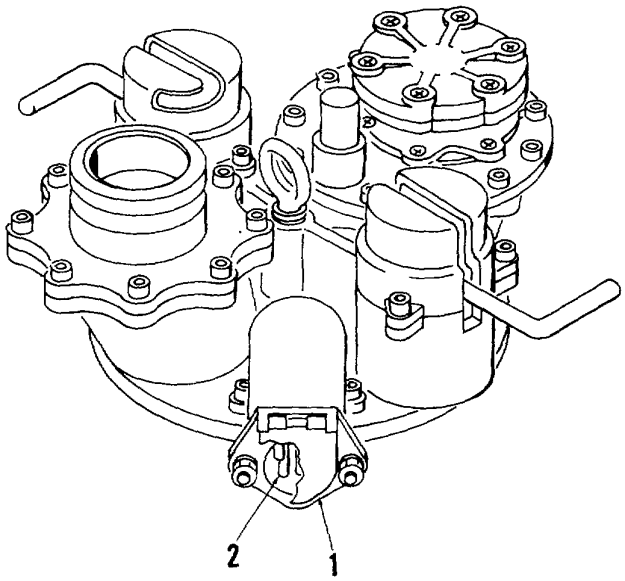
Item No.	Interval B	Interval D	ITEM TO BE INSPECTED Procedure: Check For and Have Repaired as Needed	Equipment is Not READY/AVAILABLE IF:
4			ELECTRICAL RECEPTACLE 	
	•		a. Check junction box cover (1) for smooth hinge action and positive locking onto the plug.	
	•		b. Visually check connector pins (2) for corrosion or other damage.	Connector pins are corroded or damaged.

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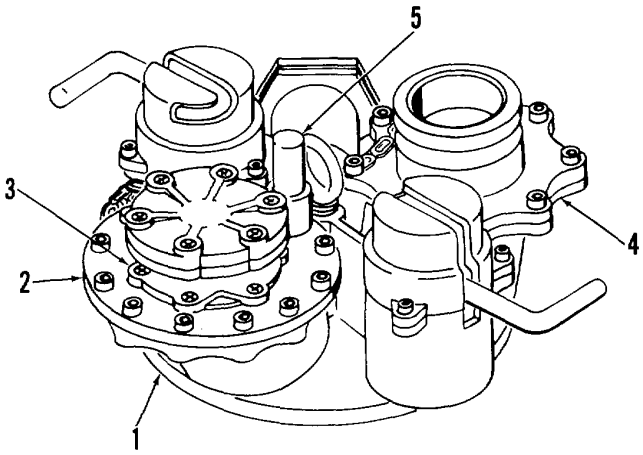
Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (Continued)

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

B - Before D - During

Item No.	Interval B	Interval D	ITEM TO BE INSPECTED Procedure: Check For and Have Repaired as Needed	Equipment is Not READY/AVAILABLE IF:
5			LEVEL CONTROL SWITCH	
		•	During refueling operation, insure that level control switch functions properly by allowing fuel to enter tank and shuts off fuel flow when tank is full.	Fuel flow does not stop when tank is full.
6			DRAIN BUTTON	
		•	Check drain button (5) operates properly and does not stick in the down position.	Drain button does not operate or sticks in down position.
7			GASKETS AND PACKINGS	
		•	Visually check converter for leakage, paying particular attention to housing interface with tank opening (1) between housing and adaptor plate (2), between adaptor plate and fuel press adaptor (3), and between housing and adaptor (4).	Class II or III leaks are found.



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Section III. OPERATION UNDER USUAL CONDITIONS

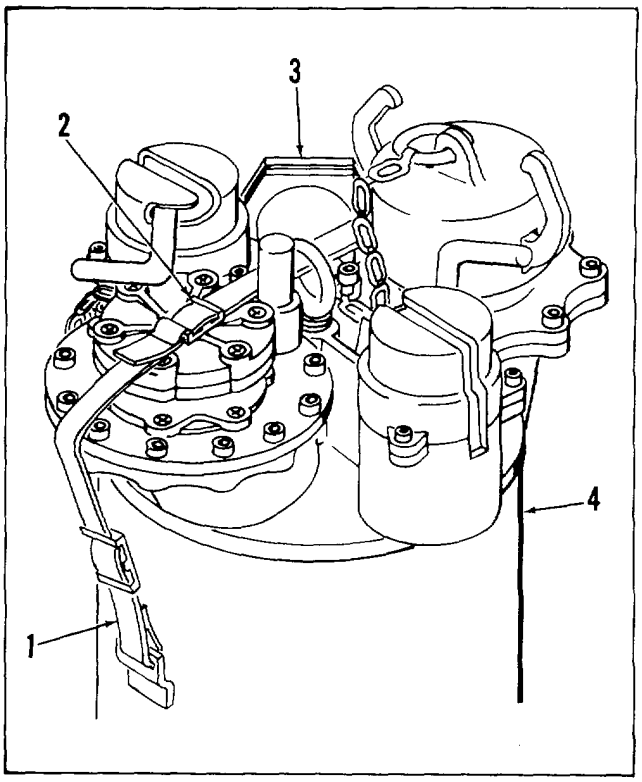
2-5. GENERAL. This section contains instructions for operating the converter assembly under usual conditions. Instructions for operating the converter assembly under unusual conditions are found in Section IV (para 2-11, p 2-16).

2-6. PREPARATION FOR USE. Prepare the converter assembly for use as follows:

a. Unbuckle nylon strap (1) from two bar buckle (2).

b. Lift straps from top of converter assembly (3) and lay off to side of bucket (4).

c. Carefully remove converter assembly (3) from bucket (4) and carry it over to tank opening.



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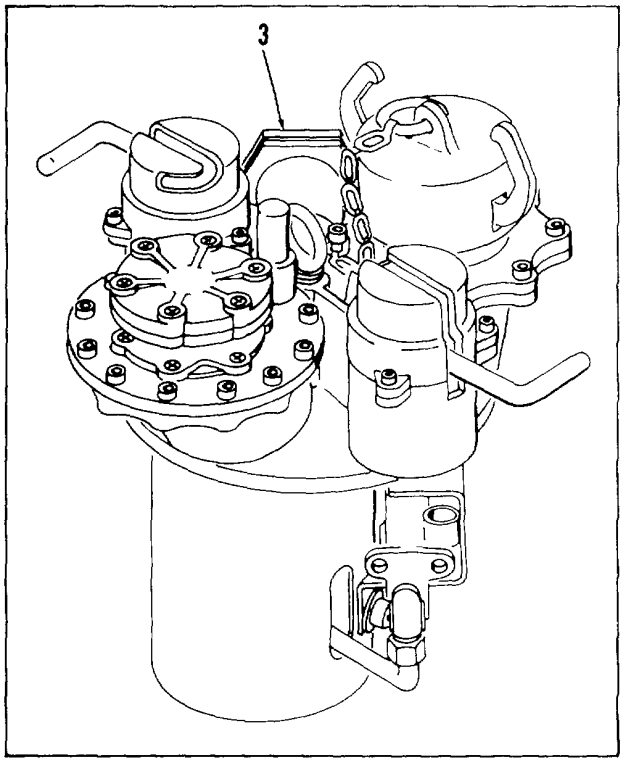
2-6. PREPARATION FOR USE (Continued).

d. Place converter assembly (3) on a clean, flat surface.



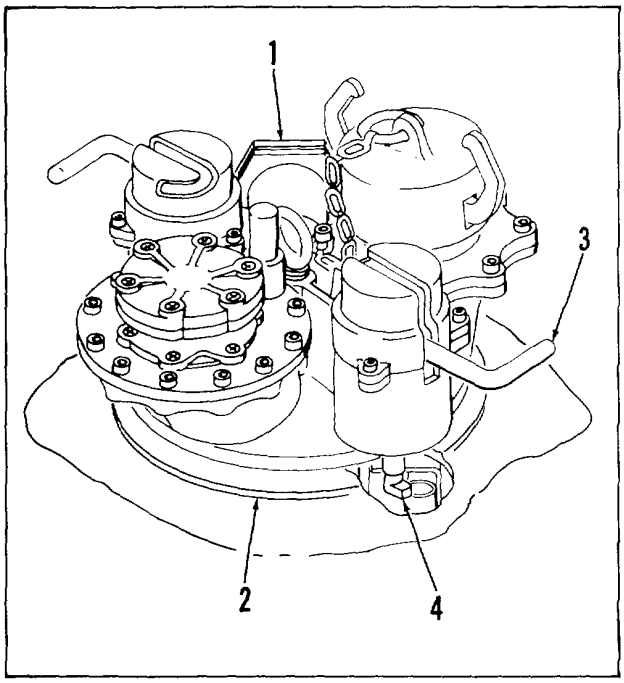
2-7. OPENING THE TANK. Open the tank and install the converter assembly as follows:

a. Remove cover from tank manhole.

b. Carefully insert converter assembly (1) into tank opening (2).

c. Rotate latch levers (3) counter-clockwise making sure locking latches (4) are engaged.

d. Lift levers (3) up and towards outside of converter assembly (1) to the LOCK position.



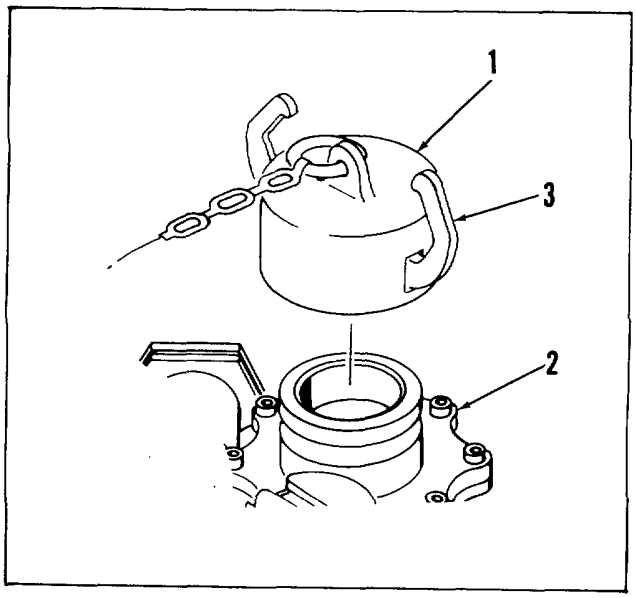
TA254998

2-8. FILLING THE TANK. Prepare the converter assembly as follows to accomplish the filling of the tank:

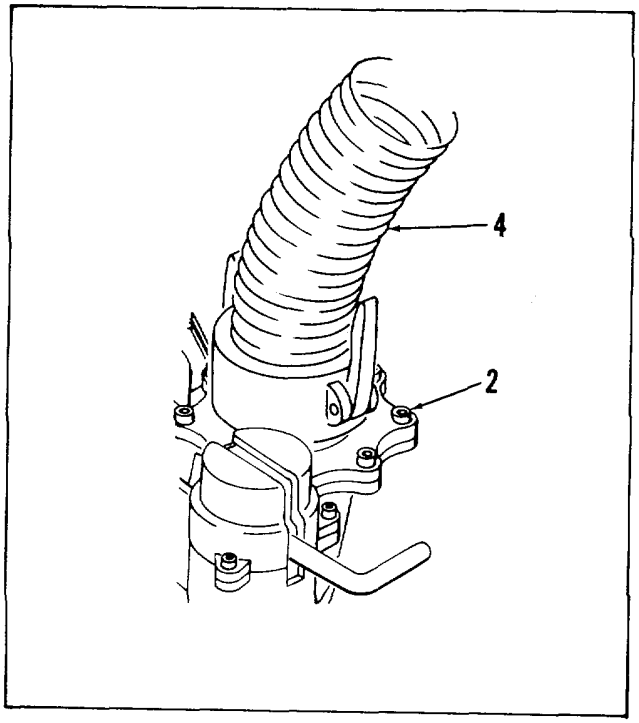
CAUTION

Handle dust cover assembly carefully. Do not drop dust cover assembly, it can be damaged easily. Do not allow safety chain to become twisted or kinked.

a. Remove dust cover assembly (1) from vapor adaptor (2) by pressing levers (3) away from center and lifting dust cover assembly straight up.



b. Install vent hose (4) onto vapor adaptor (2).



TA254999

2-8. FILLING THE TANK (Continued).

CAUTION

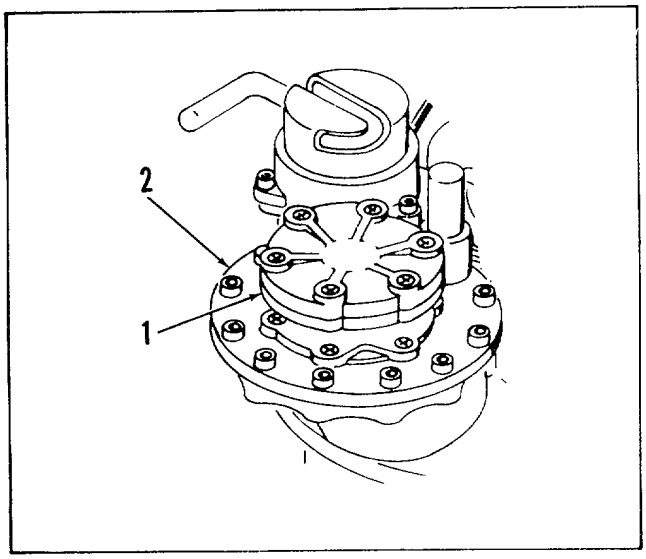
Handle pressure cap carefully. Do not drop pressure cap, it can be damaged easily. Do not allow safety chain to become twisted or kinked.

c. Remove pressure cap as follows:

(1) Press down and rotate pressure cap (1) counter-clockwise.

(2) Lift pressure cap (1) straight up and off of pressure adaptor plate (2).

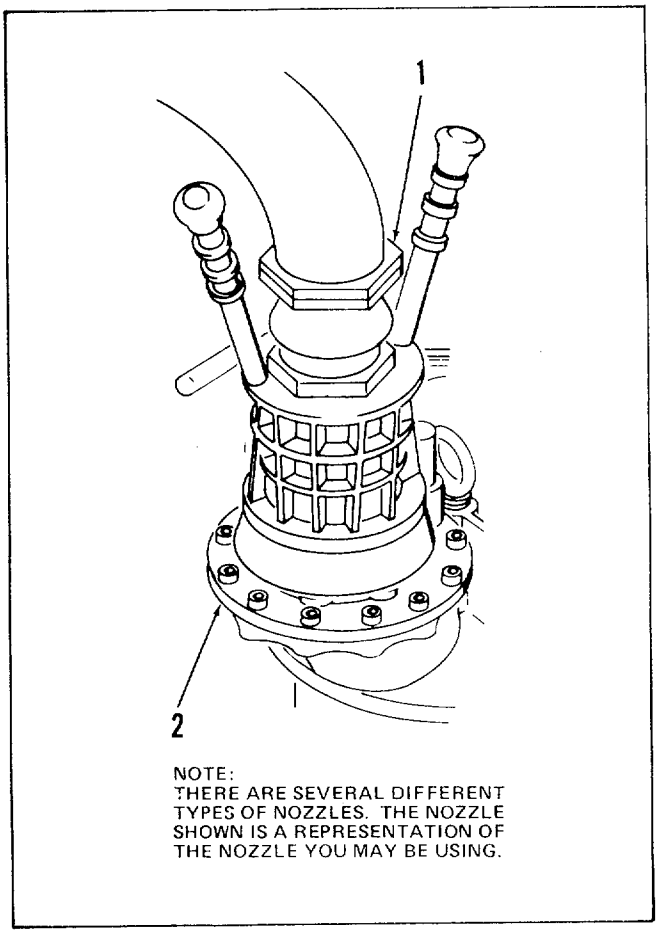
(3) Carefully set pressure cap (1) down along side converter assembly.



NOTE

Insure 3-lug bayonet type nozzle is in closed and locked condition and remove dust cap from nozzle.

d. Install 3-lug bayonet type nozzle (1) onto pressure adaptor plate (2) and open nozzle.



TA255000

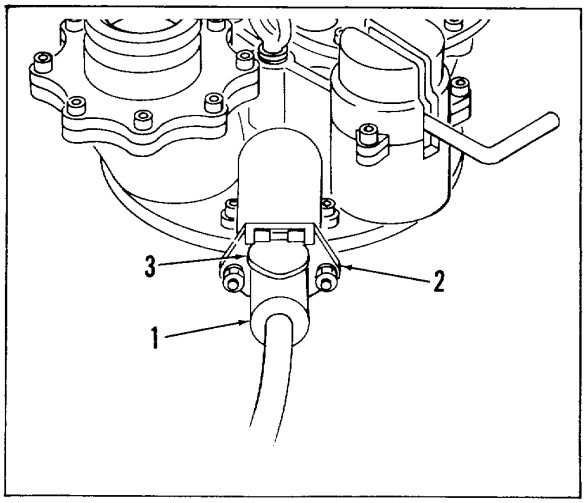
2-8. FILLING THE TANK (Continued)

e. If required, install electrical plug (1) into electrical receptacle (2).

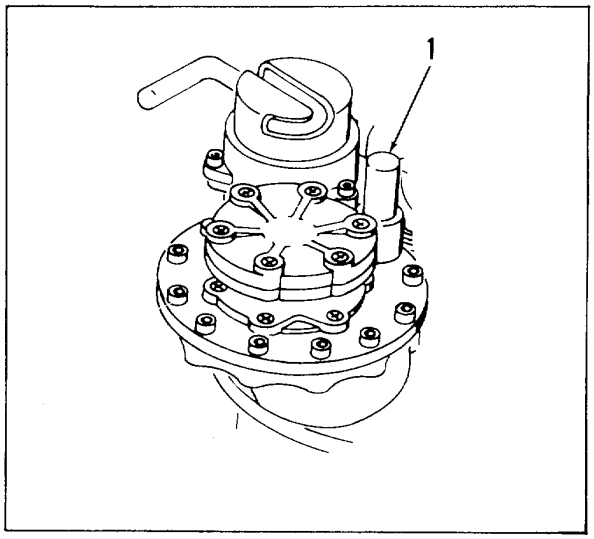
f. When tank is full, immediately close 3-lug bayonet type nozzle.

g. Remove 3-lug bayonet type nozzle from refueling adaptor and install dust cap on nozzle.

h. Remove plug (1) from electrical receptacle (2) by lifting junction box hinged cover (3) up and pulling plug straight out.



i. Depress drain button (1) for a minimum of 10 seconds.

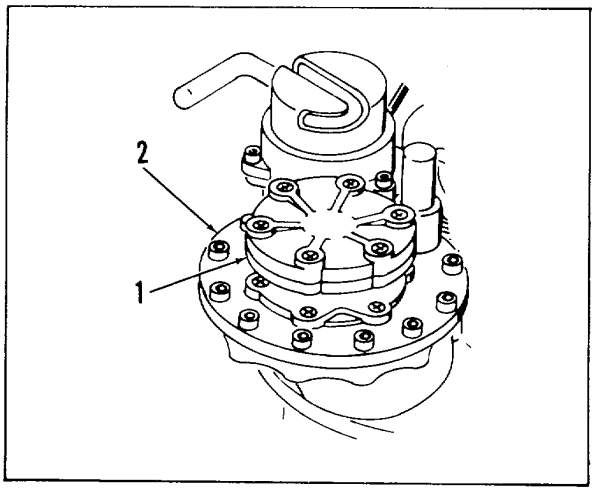


2-9. CLOSING THE TANK. After the fueling operation is complete, close the tank as follows:

a. Install pressure cap (1) on pressure adaptor plate (2) as follows:

(1) Carefully place pressure cap (1) on pressure adaptor plate (2), making sure cams are engaged.

(2) Press straight down on the pressure cap (1) and rotate the cap clockwise until it is locked.

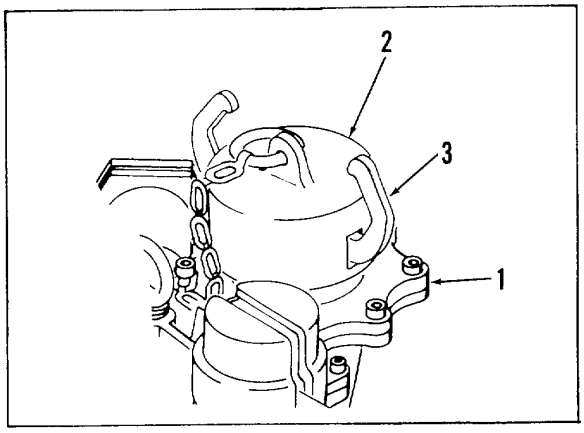


TA255001

2-9. CLOSING THE TANK (Continued).

b. Remove vent line from vapor adaptor (1).

c. Install dust cover assembly (2) onto vapor adaptor (1) by pushing straight down over vapor adaptor until the latches (3) engage and then lift latches to lock cover on adaptor.



d. Lift latch levers (1) up and over, towards center of converter assembly (2).

e. Rotate latch levers (1) clockwise making sure the locking latches (3) are disengaged.

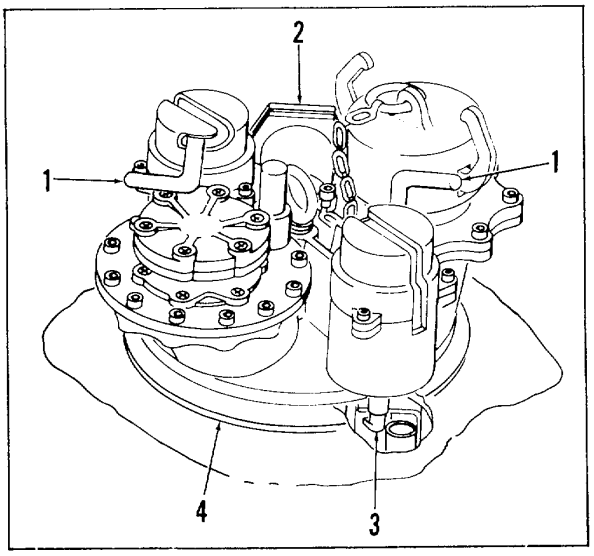
f. Carefully lift converter assembly (2) straight out of tank opening (4).

g. Carefully place converter assembly (2) on a clean, flat surface.

h. Place manhole cover over tank opening and secure in place.

i. If converter assembly is to be reused to refuel another tank, refer to para 2-7.

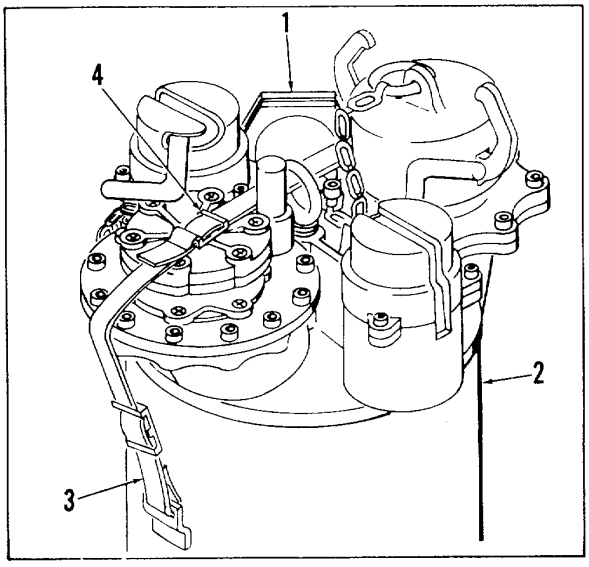
j. If converter assembly is to be stored, proceed to para 2-10.



2-10. PREPARING THE CONVERTER ASSEMBLY FOR STORAGE AND SHIPMENT. If the converter assembly is to be stored or shipped, proceed as follows:

a. Carefully lower converter assembly (1) into bucket assembly (2).

b. Place nylon straps (3) over converter assembly (1) and secure by engaging 2-bar buckles (4) with end of nylon strap (3) and pulling until the strap is tight.



TA255002

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-11. GENERAL. This section contains special instructions for operating and servicing the converter assembly under unusual conditions. Special care must be taken in cleaning and operating when extremes in temperature, humidity and possible contaminants are present or anticipated, in addition to performing all normal preventive maintenance checks and services.

2-12. OPERATION IN EXTREME HEAT. Operation in extreme heat is the same as described in Section III, except the following should be observed:

a. Caution should be used when handling the converter assembly if it has been exposed to the direct rays of the sun. The surfaces can become extremely hot and cause possible skin damage during handling. Wear protective clothing (gloves) while handling under these conditions.

b. Care should be taken during refueling operations to keep the converter assembly from becoming heated to the point the fuel could become ignited. Use some means of protective covering, to shade the converter assembly from the direct rays of the sun.

2-13. OPERATION IN EXTREME COLD. Operation in the extreme cold is the some as described in Section III, except the following should be observed:

a. Care should be taken to ensure that moisture does not accumulate and become frozen, obstructing the function of the converter assembly.

2-14. OPERATION IN RAINY OR HUMID CONDITIONS. Operation in rainy or humid conditions is the same as described in Section III, except the following should be observed:

a. Provide a means of protection over the converter assembly and tank opening to ensure that moisture does not enter either item.

b. Provide a means of protection over the converter assembly during shipping and storage to ensure that moisture does not enter into the converter assembly.

2-15. OPERATION IN SANDY OR DUSTY AREAS. Operation in sandy or dusty areas is the same as described in Section III, except the following should be observed:

a. Provide a shelter around the converter and tank opening to prevent sand and dust from entering either item. It is advisable to carry the converter assembly up to tank opening in the bucket assembly. This will minimize the possibility of sand and dust from entering the internal components of the converter assembly.

b. Provide a means of protection over the converter assembly during shipping and storage to ensure that dust and sand does not enter the converter assembly.

2-16. OPERATION IN THE SNOW. Operation in the snow is the same as described in Section III, except the following should be observed:

a. Care should be taken to ensure that moisture does not accumulate on or enter into the converter assembly or tank opening causing the fuel to become contaminated.

b. Provide a means of protection over the converter assembly during shipping and storage to ensure that moisture does not enter into the converter assembly.

CHAPTER 3

OPERATOR MAINTENANCE INSTRUCTIONS

3-1. GENERAL. This chapter describes the required troubleshooting procedures and operator maintenance procedures for the converter assembly.

Section I. TROUBLESHOOTING PROCEDURES

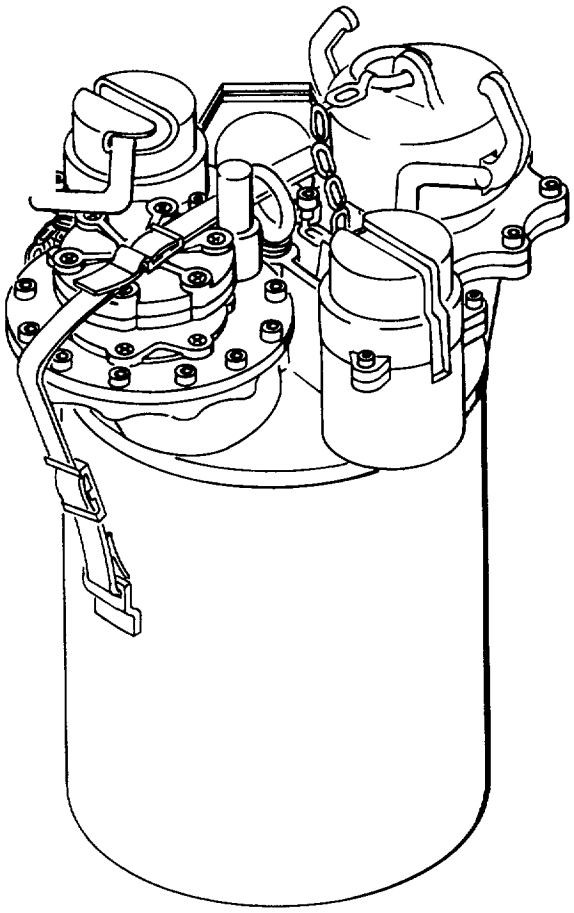
3-2. TROUBLESHOOTING. This section contains locating and correcting some of deficiencies that may develop with the converter assembly. Troubleshooting is the systematic isolation of defective components by analysis of trouble symptoms (malfunctions), testing or inspecting to determine the defective component or cause of malfunction, and then taking the appropriate corrective action. In most cases the operator can only note the malfunctions by detecting irregularities and reporting them to direct support maintenance.

3-3. TROUBLESHOOTING TABLE.

a. The troubleshooting table (table 3-1) lists the common malfunctions which you may find during the operation or maintenance of the converter assembly. You should perform the tests/ inspections and corrective actions in the order listed.

b. The 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 the listed corrective actions, notify your supervisor.

Table 3-1. Troubleshooting

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. NYLON STRAP WILL NOT UNBUCKLE. Check to see if strap is twisted or kinked, causing buckle to jam. a. If strap is twisted or kinked straighten strap and release buckle. b. If strap will not unbuckle, notify direct support maintenance.   

TA255003

Table 3-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

2. LATCH COVER LEVER WILL NOT MOVE.

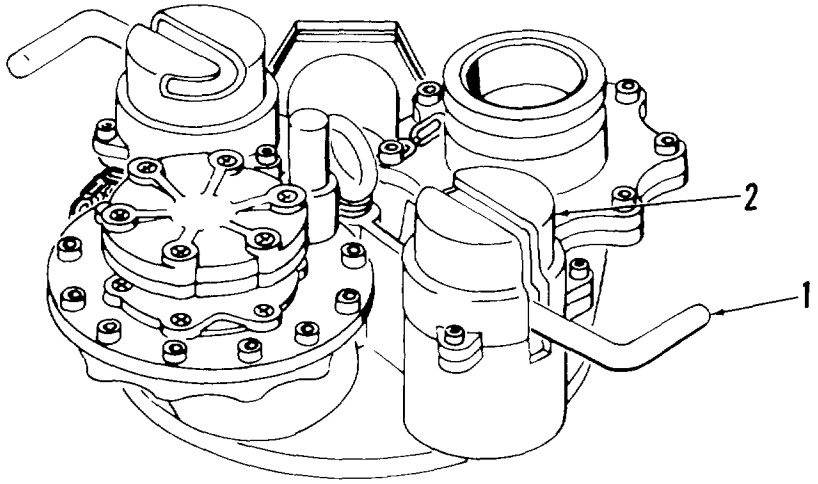
CAUTION

Do not try to force or pry latch cover levers, they are spring loaded and can be damaged if excessive force is used.

Check lever (1) and cover (2) for any foreign object which may interfere with lever movement.

a. If foreign object is present, clear it from lever and cover area.

b. If lever will still not move, notify direct support maintenance.



3. CONVERTER ASSEMBLY CANNOT BE REMOVED FROM BUCKET.

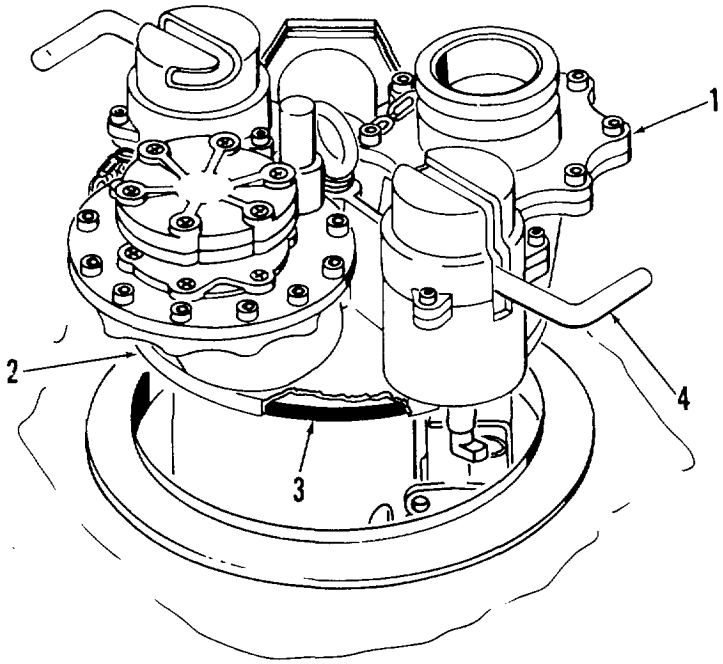
Check that levers (1) are in UNLOCK/DISENGAGE position.

a. If levers in UNLOCK/DISENGAGE position, move levers to LOCK position and then back to UNLOCK/DISENGAGE position.

b. If converter assembly still cannot be removed from bucket, notify direct support maintenance.

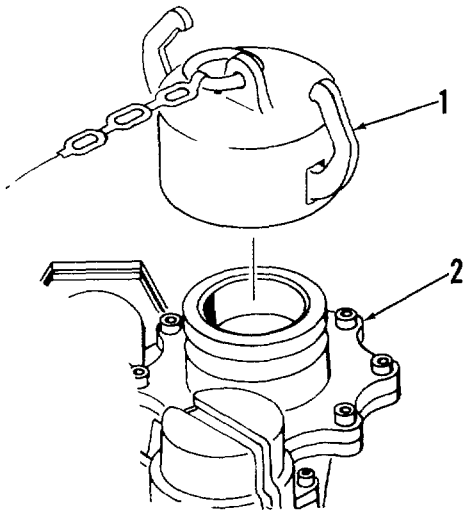
TA255004

Table 3-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
4. LATCHES WILL NOT ENGAGE IN LOCK POSITION. Check that converter assembly and tank opening are alined and the housing gasket is uniformly seated completely around the tank opening. a. If converter assembly (1) and tank opening (2) are misalined, aline them. b. If any obstruction is preventing housing gasket (3) from seating around tank opening, remove obstruction. c. If latches will still not engage in lock position, notify direct support maintenance. Check that levers (4) are in LOCK position. a. If in LOCK position, move to UNLOCK/DISENGAGE position and then back to LOCK position. b. If latches will still not engage in lock position, notify direct support maintenance.   

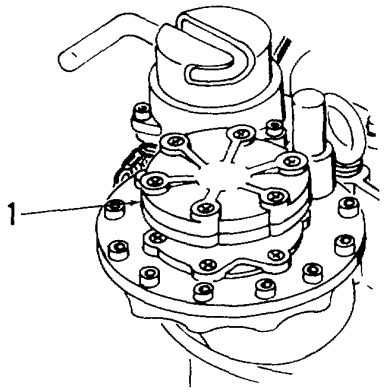
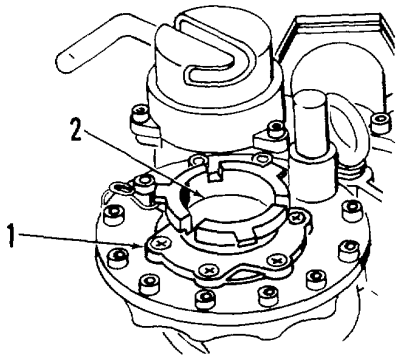
TA255005

Table 3-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
5. DUST COVER ASSEMBLY CANNOT BE REMOVED. Check that levers (1) are not obstructed by foreign matter. a. If foreign matter is obstructing levers, remove it. b. If dust cover still cannot be removed, notify direct support maintenance.      6. VENT HOSE CANNOT BE INSTALLED. Check that adaptor (2) is clean and free of foreign matter. a. Clean adaptor. If clean, inspect to determine if defective. b. If adaptor is defective, notify direct support maintenance.

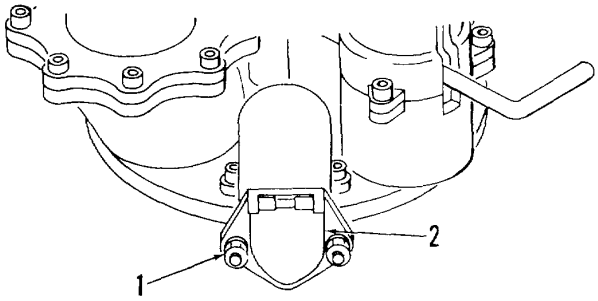
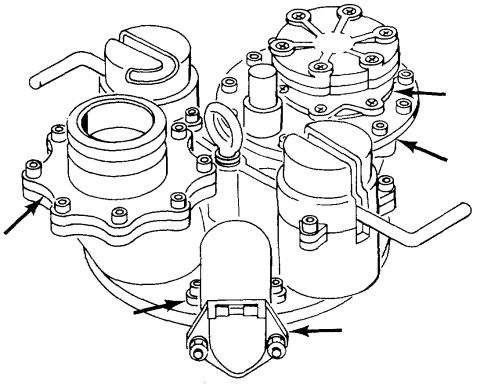
TA255006

Table 3-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
7. PRESSURE CAP CANNOT BE REMOVED FROM FUEL PRESS ADAPTOR. Check that pressure cap (1) is clean and free of foreign matter. a. Clean pressure cap. If clean, lightly tap pressure cap and rotate it counter-clockwise. b. If pressure cap still cannot be removed, notify direct support maintenance.      8. 3-LUG BAYONET TYPE NOZZLE CANNOT BE INSTALLED ON FUEL PRESS ADAPTOR. Check that fuel press adaptor (1) is clean and free of foreign matter. a. Check 3-lug bayonet type nozzle to ensure it is in the closed and locked condition. b. Clean fuel press adaptor. If clean, inspect to determine if defective. c. Check poppet (2) for freedom of movement, press straight down on poppet. d. If nozzle still cannot be installed, notify direct support maintenance.   

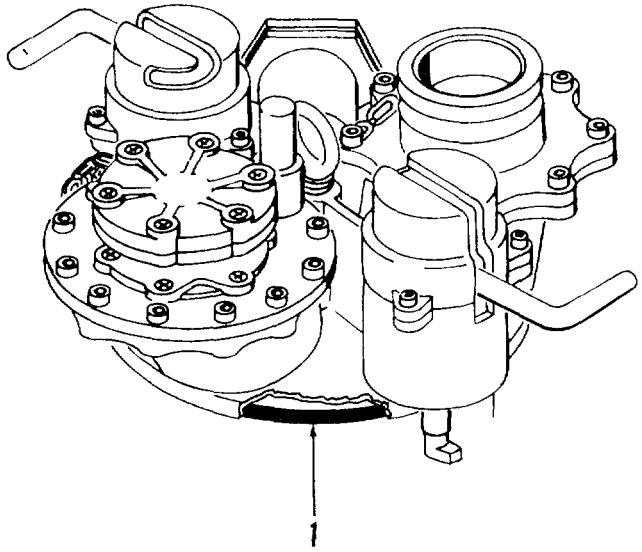
TA255007

Table 3-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
9. ELECTRICAL RECEPTACLE WILL NOT ACCEPT ELECTRICAL PLUG. Check that plug which mates with electrical receptacle has a 7-pin connector. If plug and receptacle do not mate, obtain correct plug or use an adapter. Check that electrical receptacle (1) is clean and free of foreign matter. a. Clean electrical receptacle. If clean, inspect to determine if defective. b. Check that operation of hinged cover (2) does not interfere with electrical plug. c. Request direct support maintenance repair electrical receptacle.      10. FUEL OR AIR LEAKS (CLASS II OR III) OBSERVED DURING FUELING OF TANK. Check around areas indicated by arrows, observing and listening for leaks during tank fueling operation. a. If Class I leak detected, monitor area during tank fueling operation. b. If leak detected, notify direct support maintenance.   

TA255008

Table 3-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
11. HOUSING GASKET LEAKS (AIR) DURING FUELING OF TANK. Visually inspect housing gasket (1) for cuts, tears, and deterioration. a. If defective, refer to para 3-5.a and replace housing gasket. b. If not defective, notify direct support maintenance.      12. FUEL WILL NOT ENTER TANK WITH FUEL LINE PROPERLY CONNECTED. Determine if fuel is entering tank during fueling operation. If fuel does not enter tank, notify direct support maintenance.

TA255009

Section II. MAINTENANCE PROCEDURES

3-4. GENERAL. This section describes the maintenance procedures the operator may perform on the converter assembly.

a. **Responsibility.** The converter assembly operator is responsible for the crew maintenance of the converter assembly.

b. **Repairs.** Repairs by the crew will be limited to those listed in this section.

c. **Repair Parts.** Repair parts needed by the operator are listed in Appendix C, Section III, Basic Issue Items. No special tools are required for crew maintenance.

3-5. CONVERTER ASSEMBLY MAINTENANCE. Maintenance of the converter assembly at crew level is limited to replacement of the housing gasket, cleaning the converter assembly, and properly storing the converter assembly.

a. **Housing Gasket Replacement.** Housing gasket replacement is accomplished by removing the defective gasket and installing a new gasket in its place as follows:

(1) Remove defective housing gasket (1) from groove in housing.

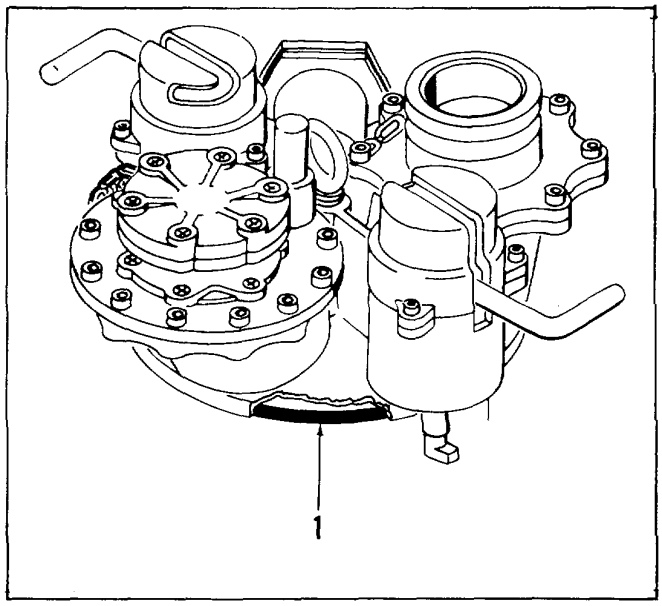
WARNING

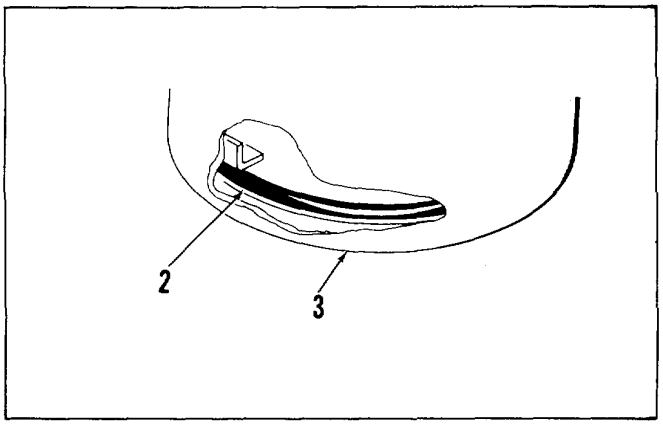
Dry Cleaning Solvent (P-D-680), used to clean parts, is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of dry cleaning solvent is 138°F (59°C).

(2) Using a wiping rag (item 5, Appendix E) moistened in dry cleaning solvent (item 3, Appendix E), clean groove in housing.

(3) Install housing gasket (1) in groove of housing, making sure gasket seats in groove as shown. (Spare housing gasket (2) is stored in the bottom of the bucket assembly.)

(4) Order a housing gasket (2) (Section III, Appendix C) and insert it into the bottom of the bucket assembly (3).





TA255010

3-5. CONVERTER ASSEMBLY MAINTENANCE (Continued).

b. **Cleaning the Converter Assembly.** Clean the converter assembly as follows:

WARNING

Dry Cleaning Solvent (P-D-680), used to clean parts, is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of dry cleaning solvent is 138°F (59°C).

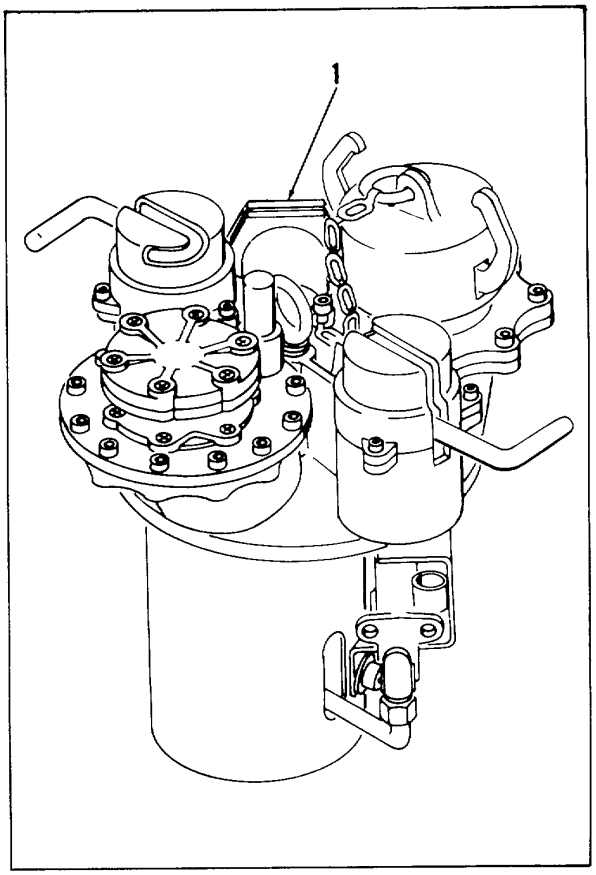
(1) Using a wiping rag (item 5, Appendix E) moistened in dry cleaning solvent (item 3, Appendix E) clean the exterior surface of the converter assembly (1).

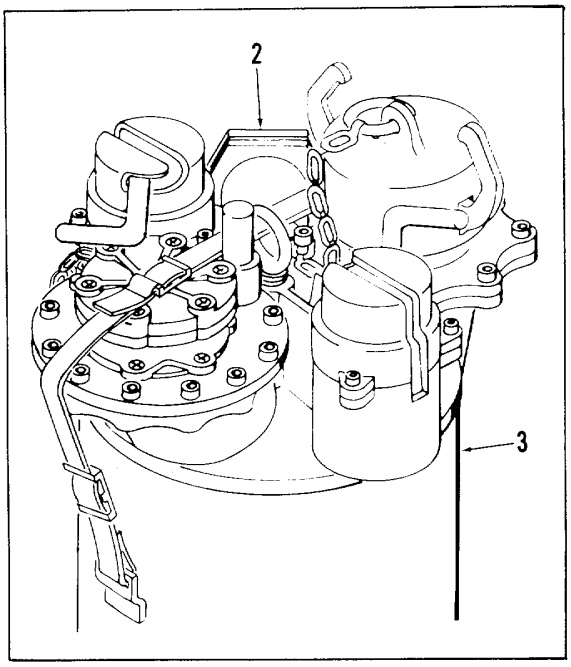
(2) Using a nylon bristle brush (item 2, Appendix E) and dry cleaning solvent (item 3, Appendix E) clean the hard-to-reach areas and parts of the converter assembly (1).

(3) Using a clean wiping rag (item 5, Appendix E) dry the converter assembly (1) of any residual solvent or moisture.

c. **Storing the Converter Assembly.** Store the converter assembly after completion of refueling operations as follows:

(1) With the converter assembly (2) installed in the bucket assembly (3) as instructed in para 2-10, store the converter assembly in a dust free area protected from the elements.





TA255011

CHAPTER 4

ORGANIZATIONAL MAINTENANCE

There is no maintenance authorized at the organizational maintenance level.

CHAPTER 5

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

5-1. GENERAL. This chapter provides maintenance instructions for direct support of the converter assembly. The instructions will allow the maintenance personnel to troubleshoot, repair and test the converter assembly.

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

5-2. GENERAL. This section contains information pertaining to repair parts, special tools, test, measurement and diagnostic equipment (TMDE), and support equipment.

5-3. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment, refer to Modified Table of Organization and Equipment (MTOE) applicable to your unit.

5-4. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT. Special tools are listed and illustrated in Appendix D of this manual.

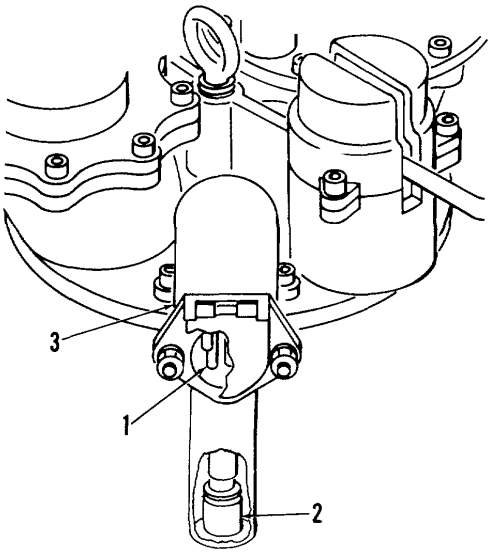
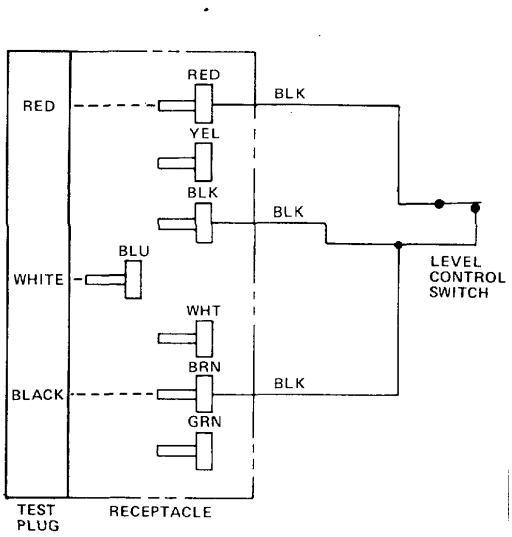
5-5. REPAIR PARTS. Repair parts are listed and illustrated in Appendix D of this manual.

Section II. TROUBLESHOOTING

5-6. GENERAL. This section contains troubleshooting information for the converter assembly.

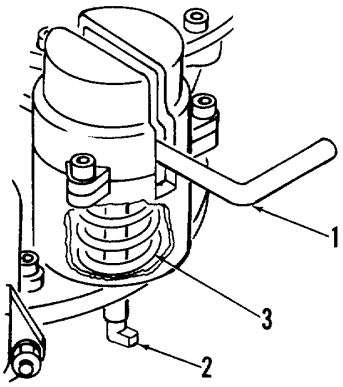
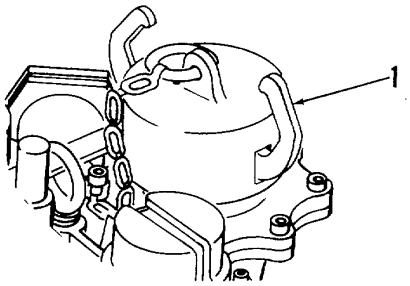
5-7. TROUBLESHOOTING. Troubleshooting instructions are listed and illustrated in table 5-1.

Table 5-1. Troubleshooting

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. LEVEL CONTROL SWITCH INOPERATIVE. **NOTE** **With converter assembly in the upright position, the level control switch is closed.** a. Check continuity of switch circuit with switch (2) closed using test plug (item 3, Appendix B, Section III) and ohmmeter. (1) Ohmmeter shows an open circuit across white and black lead of test plug. If wire lead disconnected, reconnect to electrical receptacle (1). If damaged, replace electrical receptacle (para 5-10). (2) Ohmmeter shows an open circuit across white and red lead of test plug. If wire lead disconnected, reconnect to electrical receptacle (1). If damaged, replace electrical receptacle (1) (para 5-10). (3) Resistance of white lead to junction box (3) must be less than 10 ohms. If wire lead disconnected, reconnect to electrical receptacle (1). If damaged, replace electrical receptacle (1) (para 5-10). (4) Resistance of black lead to red lead must be less than 10 ohms. If wire lead disconnected, reconnect to electrical receptacle (1) (para 5-10). b. Check continuity of switch circuit with switch (2) open using test plug (item 3, Appendix B, Section III) and ohmmeter. To open circuit, manually raise switch (2). Ohmmeter shows an open circuit across black and red lead of test plug. If damaged, replace level control switch (2) (para 5-11).    

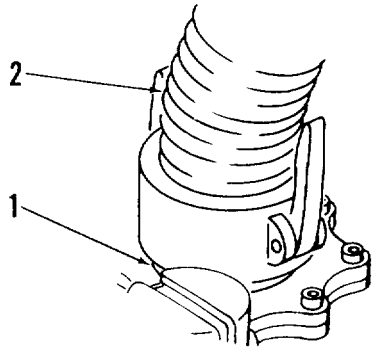
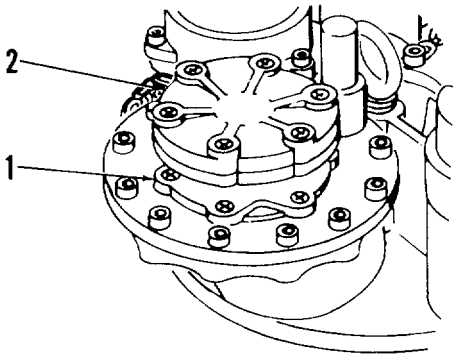
TA255012

Table 5-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
2. LATCH COVER LEVER WILL NOT ENGAGE OR LOCK/UNLOCK. a. Actuate latch cover lever (1) from DISENGAGE to ENGAGE position while observing foot of latch (2). (1) Foot shall point away from center of converter assembly with lever in ENGAGE position. If damaged, replace latch (2) and/or lever (1) (para 5-12). (2) Foot shall point to the left with lever (1) in DISENGAGE position. If damaged, replace latch (2) and/or lever (1) (para 5-12). b. Actuate lever (1) to LOCK position and observe foot of latch (2). (1) Foot shall raise up when in the LOCK position. If damaged, replace spring (3) (para 5-12).      3. DUST COVER ASSEMBLY CANNOT BE INSTALLED. Check that dust cover assembly latches (1) do not interfere with other parts of converter assembly. If damaged, replace dust cover assembly (1) (para 5-13).   

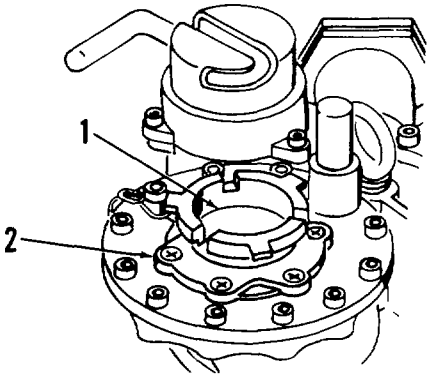
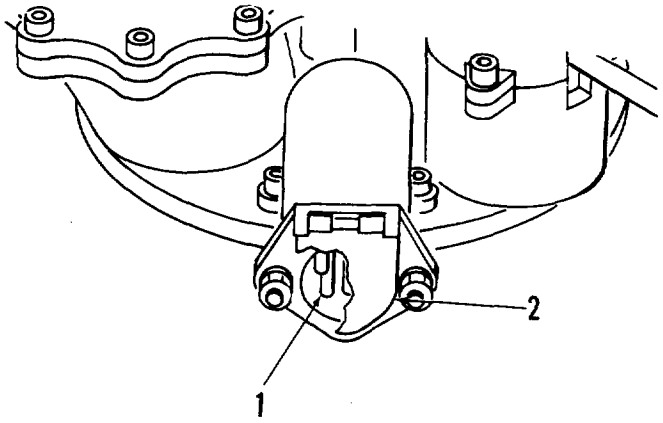
TA255013

Table 5-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
4. VENT HOSE CANNOT BE REMOVED FROM ADAPTOR. a. Aline vent hose (2) so latches do not interfere with other parts of converter assembly. b. Check adaptor (1) for damage. If damaged, replace adaptor (1) (para 5-16).    5. PRESSURE CAP CANNOT BE REMOVED FROM FUEL PRESSURE ADAPTOR. Check fuel pressure adaptor (1) and/or pressure cap (2) for damage. Replace pressure cap (2) and/or fuel pressure adaptor (1) (para 5-14 and/or 5-15). **NOTE** **If pressure cap can not be removed, disassemble pressure cap (para 5-14).** 

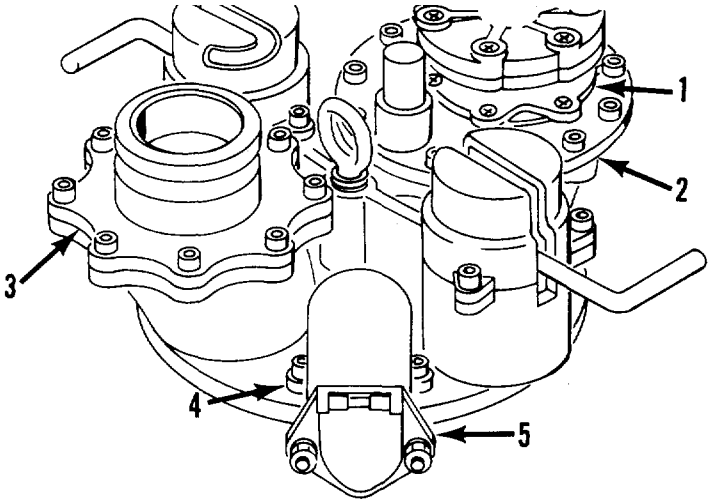
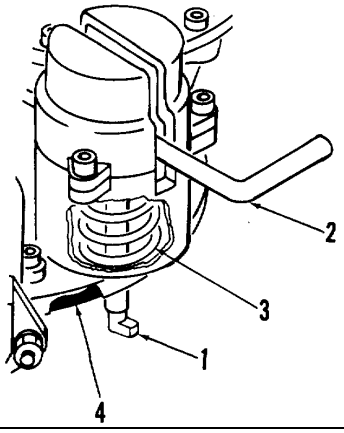
TA255014

Table 5-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
6. FUEL NOZZLE CANNOT BE INSTALLED IN FUEL PRESSURE ADAPTOR. Check fuel pressure adaptor poppet (1) for freedom of movement. It shall depress straight down. If damaged, replace fuel pressure adaptor (2) (para 5-15).      7. ELECTRICAL RECEPTACLE WILL NOT ACCEPT ELECTRICAL PLUG. a. Check electrical receptacle pin (1) for damage. If damaged, replace electrical receptacle (1) (para 5-10). b. Check operation of hinged cover (2). If damaged, replace electrical receptacle (1) (para 5-10).   

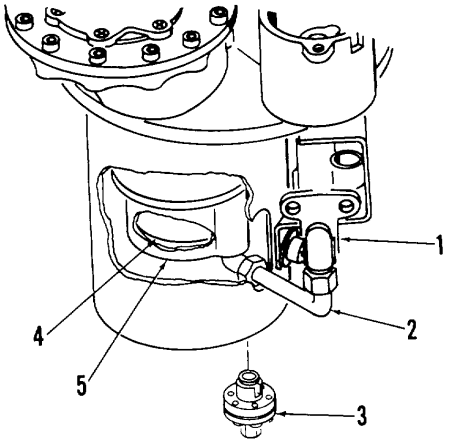
TA255015

Table 5-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
8. FUEL LEAKS (CLASS II OR Ill) OBSERVED DURING FUELING OF TANK. Check interface between fuel pressure adaptor (1), housing and adaptor plate (2), housing and adaptor (3), housing and junction box (4), and junction box and receptacle (5). If leaks are observed, replace defective packing (5) (para 5-10, 5-13, 5-15, 5-16 and 5-17).      9. HOUSING GASKET LEAKS (AIR) DURING REFUELING OF TANK. a. Check pressure on foot of latch (1) with lever (2) in LOCK position. If damaged, replace spring (3). b. Check gasket (4) for cuts, tears, breaks or other damage. If damaged, replace gasket (para 3-5).   

TA255016

Table 5-1. Troubleshooting (Continued)

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
10. FUEL WILL NOT ENTER TANK DURING FUELING OF TANK. a. Check jet sensor (1) passages for obstructions. If obstructed, remove and clear passages (para 5-18). b. Check tubes (2) for kinks, breaks or obstructions. If damaged, replace tubes (2) (para 5-19). c. Check pilot valve (3) for freedom of movement. If damaged, replace pilot valve (3) (para 5-20). d. Check piston (4) for freedom of movement. Refer to para 5-21 for method of determining piston movement. If test fails, refer to para 5-19 for removal, inspection and replacement of internal valve components.   

Section III. CONVERTER ASSEMBLY MAINTENANCE

TA255017

5-8. GENERAL. This section provides maintenance instructions for direct support personnel. The instructions cover removal, repair, installation and checkout of components of the converter assembly.

5-9. CLEANING. Clean the converter assembly parts and/or components as follows:

WARNING

Dry cleaning solvent is toxic and flammable. Avoid prolonged contact with skin and keep away from open flame. Use only in well-ventilated area.

a. Clean all parts with a wiping rag (item 5, Appendix E) moistened in dry cleaning solvent (item 3, Appendix E).

WARNING

Compressed air used for cleaning purposes will not exceed 20 psi. Use only with effective chip guarding and personnel protection equipment (goggles/shield, gloves, etc.).

b. Using compressed air with maximum nozzle pressure of 20 psi, or a clean dry wiping rag (item 5, Appendix E) dry all parts cleaned.

5-10. ELECTRICAL RECEPTACLE MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Cleaning**

c. **Repair**

d. **Installation**

e. **Checkout**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Socket, Socket Wrench, 1/2-inch Drive, 9/16-inch

Socket Handscrew Key, 1/4-inch

Socket Handscrew Key, 3/16-inch

Fixed Open End Wrench, 9/16-inch

Socket, Socket Wrench, 1/2-inch Drive, 3/16-inch

Flat Tip Screwdriver, 1/4-inch tip, 4-inch long blade

Torque Wrench, 1/2-inch Drive, 150 pound-inches

Material/Parts

Gasket, Electrical Receptacle
Packing, Junction Box

Personnel Required

One

Condition Description

None

Special Environmental Conditions

None

5-10. ELECTRICAL RECEPTACLE MAINTENANCE INSTRUCTIONS (Continued)

a. **Removal.**

(1) Remove two nuts (1), and two washers (2) from two screws (3).

(2) Remove receptacle (4) from junction box (5). If not damaged, save gasket (6) for reinstallation.

(3) Disconnect wire leads from electrical receptacle (4).

(4) Remove three screws (7) and then separate junction box (5) from housing (9). Remove and discard junction box packing (8).

b. **Cleaning.** Clean electrical receptacle parts as instructed in para 5-9.

c. **Repair.** Repair of the electrical receptacle is limited to the following:

(1) Clean electrical contacts.

(2) If receptacle is damaged, replace receptacle.

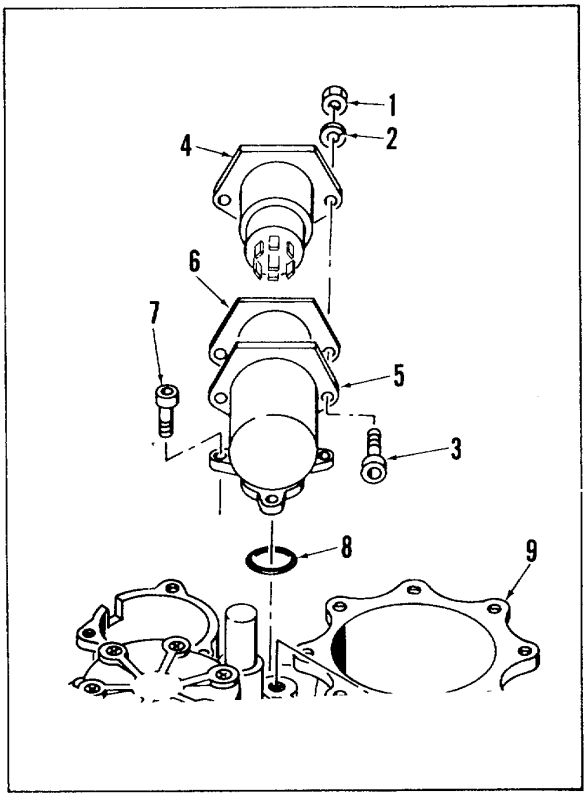
d. **Installation.**

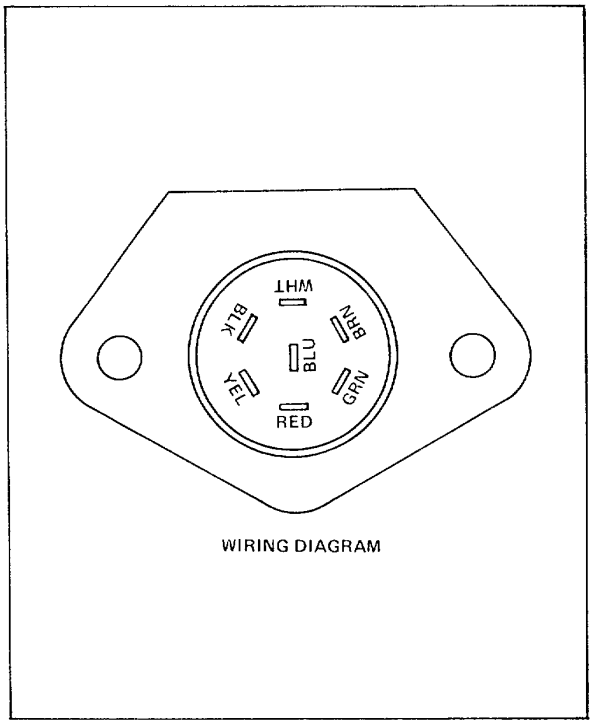
(1) Install junction box packing (8) in groove of housing (9).

(2) Place junction box (5) on housing (9) and install three screws (7). Tighten screws to 51 to 64 pound-inches.

(3) Make sure wire leads are inserted through hole in gasket (6), and then attach wire leads to electrical receptacle (4) terminals. See wiring diagram.

(4) Position electrical receptacle (4) in junction box (5) with gasket (6) in place making sure wire leads are not trapped between receptacle and junction box.





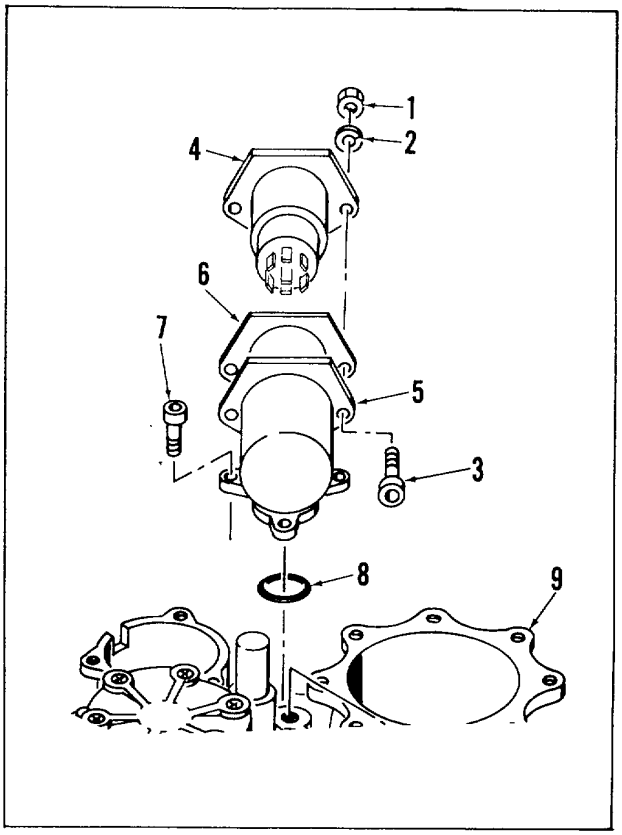
WIRING DIAGRAM

TA255018

5-10. ELECTRICAL RECEPTACLE MAINTENANCE INSTRUCTIONS (Continued)

(5) Insert two screws (3) through junction box (5), gasket (6), and electrical receptacle (4) and install two washers (2), and two nuts (1) on screws. Tighten nuts to 90 to 112 pound-inches.

e. **Checkout.** Refer to table 5-1, item 1, LEVEL CONTROL SWITCH INOPERATIVE, for electrical receptacle checkout procedure.



TA255019

5-11. LEVEL CONTROL SWITCH MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Cleaning**

c. **Repair**

d. **Installation**

e. **Checkout**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Strap Wrench, 3-inch diameter

Fixed Open End Wrench, 9/16-inch

Water Pump Pliers, Channel Lock Type

Torque Wrench, 1/2-inch drive, 150 pound-inches.

Crowfoot Wrench, 1/2-inch drive, 9/16-inch

Material/Parts

None

Personnel Required

One

Condition Description

Electrical Receptacle Removed (para 5-10)

Special Environmental Conditions

None

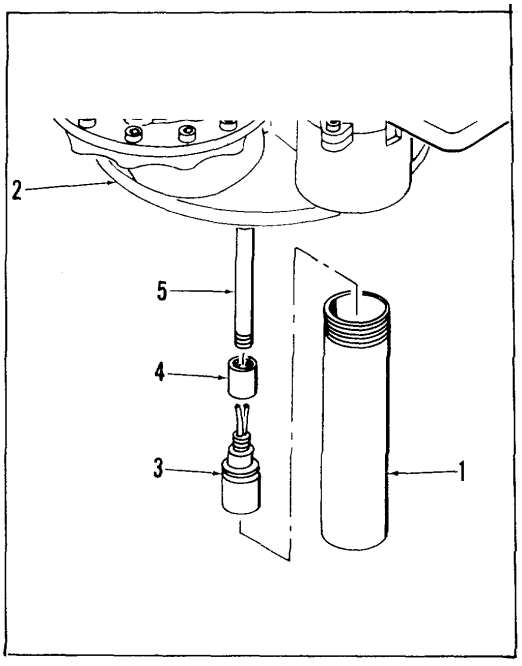
a. **Removal.**

(1) Using strap wrench, unscrew shield (1) from housing (2).

(2) Unscrew level control switch (3) from coupling (4) and pull wires through nipple (5) and coupling.

b. **Cleaning.** Clean level control switch parts as instructed in para 5-9.

c. **Repair.** Repair is limited to replacement of defective parts.



TA255020

5-11. LEVEL CONTROL SWITCH MAINTENANCE INSTRUCTIONS (Continued)

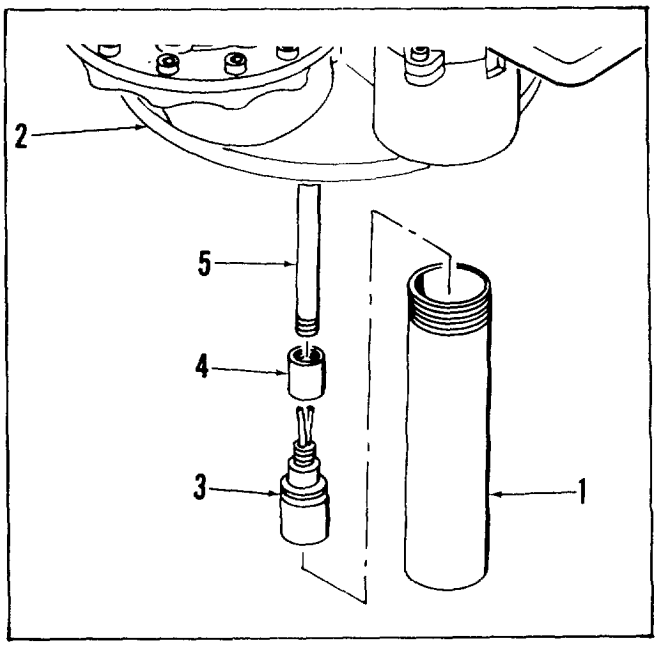
d. **Installation.**

(1) Feed lead wires through coupling (4) and nipple (5) and install level control switch (3) in coupling. Tighten level control switch to 90 to 100 pound-inches.

(2) Using strap wrench, screw shield (1) into housing (2).

(3) Refer to para 5-10.d and install electrical receptacle.

c. **Checkout.** Refer to table 5-1, item 1, LEVEL CONTROL SWITCH INOPERATIVE MAINTENANCE INSTRUCTIONS, for level control switch checkout procedure.



5-12. LATCH COVER LEVER MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Cleaning**

c. **Inspection**

d. **Repair**

e. **Installation**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Drive Pin Punch, 1/4-inch diameter (2 required)

Socket Handset Key, 3/16-inch

Torque Wrench, 3/8-inch drive, 100 pound-inches

Socket, Socket Handset Wrench, 3/8-inch drive, 3/1 6-inch

Materials/Parts

Lever packing

Personnel Required

Two

Condition Description

None

Special Environmental Conditions

None

TA255021

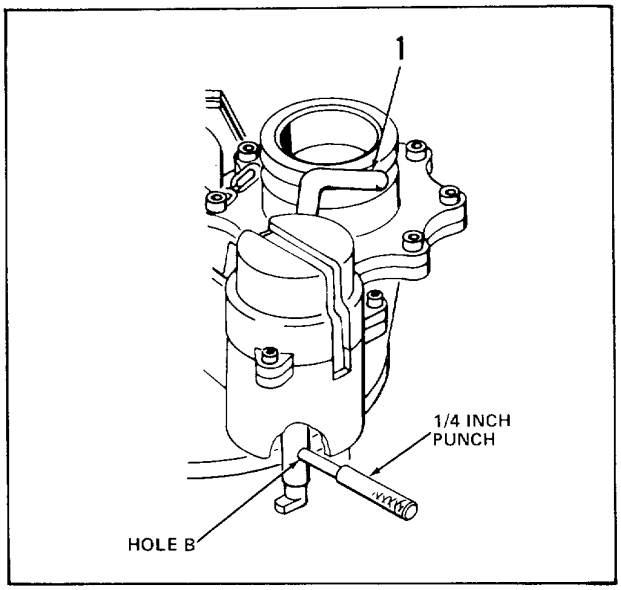
5-12. LATCH COVER LEVER MAINTENANCE INSTRUCTIONS (Continued)

NOTE

There are two identical latch cover levers. The following procedures describe the maintenance of one of the latch cover levers.

a. **Removal.**

(1) Place the lever (1) in UNLOCK position and insert 1/4-inch diameter punch in hole B of latch (6).

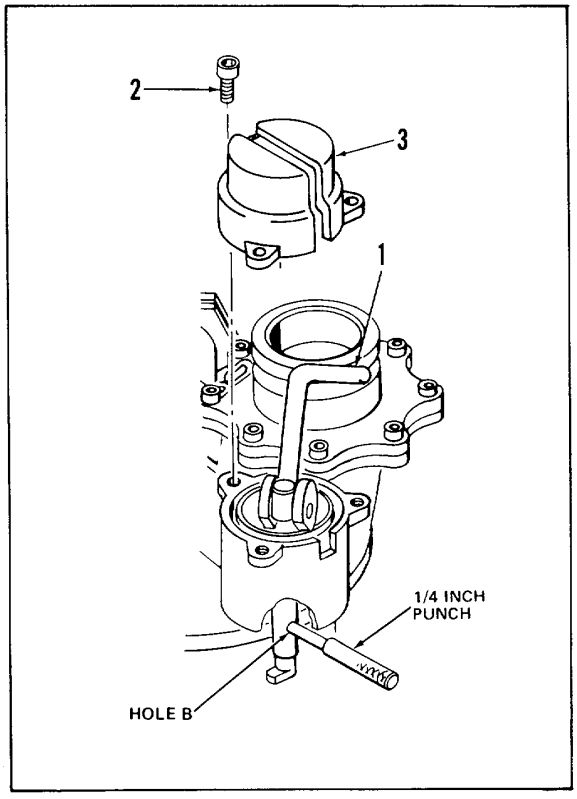


(2) Remove three socket head screws (2), and then remove latch cover (3).

WARNING

Use extreme care while removing pin from hole B. The latch is spring loaded and will move up quickly and can cause injury to personnel.

(3) Remove 1/4-inch diameter punch from hole B.



TA255022

5-12. LATCH COVER LEVER MAINTENANCE INSTRUCTIONS (Continued)

(4) Depress spring (4) and thrust washer (5) by hand until hole A is visible above thrust washer.

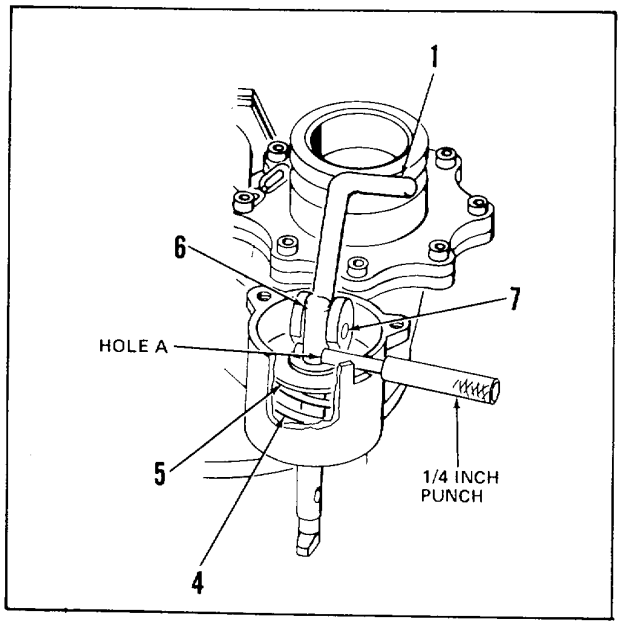
(5) Insert 1/4-inch diameter punch in hole A.

(6) Remove spring pin (7) from lever (1) and remove lever from latch (6).

WARNING

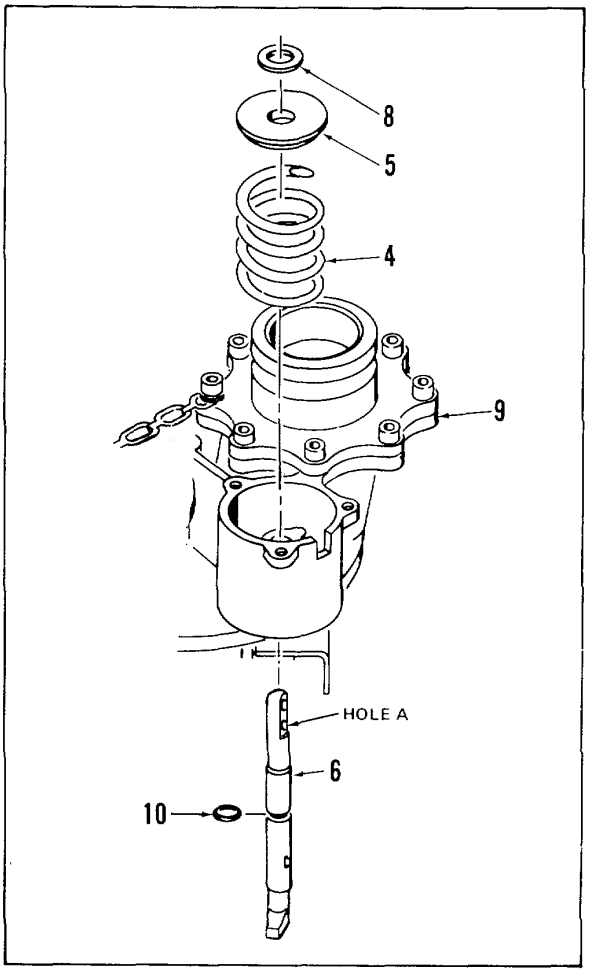
Use extreme care while removing pin from hole A. The spring (4) is under tension and can move up quickly and cause injury to personnel.

(7) Depress spring (4) by pressing down on thrust washer (5) and remove 1/4-inch diameter punch from hole A.



(8) Remove washer (8), thrust washer (5), spring (4) and latch (6) from housing (9).

(9) Remove and discard latch packing (10) from latch (6).



b. **Cleaning.** Clean the latch cover lever parts as instructed in para 5-9.

c. **Inspection.**

(1) Inspect all parts for evidence of wear or damage.

(2) Spring (4). Inspect spring as follows:

(a) There shall be no kinks, deformation, or permanent set.

(b) If free length is not 6.36 ±0.10 inches, discard spring.

d. **Repair.** Repair is limited to replacement of defective parts.

TA255023

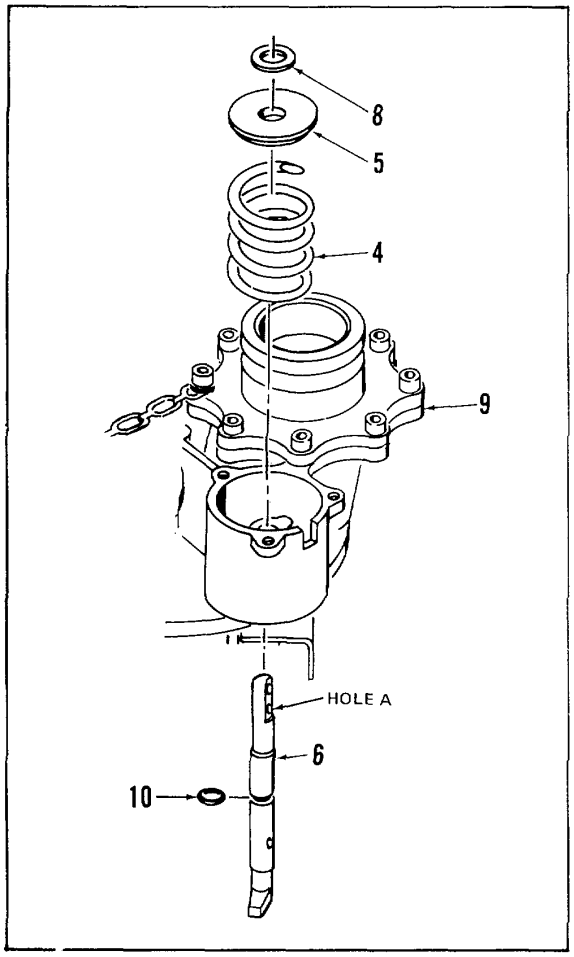
5-12. LATCH COVER LEVER MAINTENANCE INSTRUCTIONS (Continued)

d. **Installation.**

(1) Lightly lubricate new latch packing (10) and groove of latch (6) with petrolatum (item 4, Appendix E) and install latch packing in groove of latch.

(2) Install spring (4), thrust washer (5) and washer (8) in housing (9).

(3) Insert latch (6) into hole in bottom of housing (9).



(4) Push down on thrust washer (5) to compress spring (4) until hole A is visible above thrust washer.

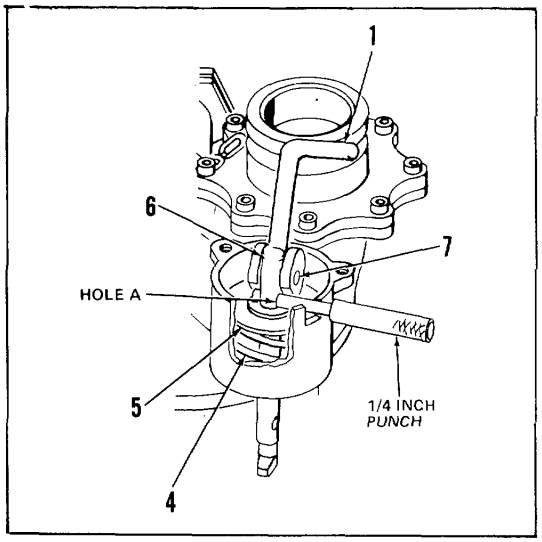
(5) Insert 1/4-inch diameter punch into hole A of latch (6).

NOTE

Locking tab of latch (6) shall be directly opposite and in line with handle of lever (1) when lever is in UNLOCK position. In DISENGAGE position, locking tab of latch shall point to the left.

(6) Attach lever (1) to latch (6) with spring pin (7), making sure lever and latch are properly alined and with spring pin centered in lever.

(7) Depress spring (4) and remove 1/4 inch diameter punch from hole A.



TA255024

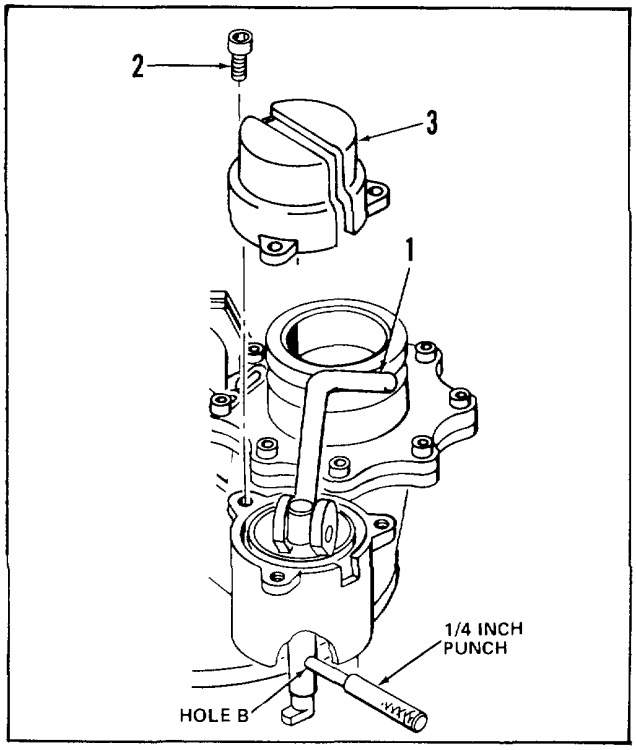
5-12. LATCH COVER LEVER MAINTENANCE INSTRUCTIONS (Continued)

(8) Depress spring (4) and latch (6), with lever (1) in UNLOCK position, until hole B in latch is visible below housing (9).

(9) Insert 1/4-inch diameter punch in hole B.

(10) Install latch cover (3) on housing (9) and secure with three screws (2). Tighten screws to 51 to 64 pound-inches.

(11) Remove 1/4-inch diameter punch from hole B.



5-13. DUST COVER ASSEMBLY MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Cleaning**

c. **Inspection**

d. **Repair**

e. **Installation**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Torque Wrench, 1/2-inch drive, 500 pounds

Socket Handset Key, 3/8-inch

Socket, Socket Handset Wrench, 1/2-inch drive, 3/8-inch

Materials/Parts

None

Personnel Required

One

Condition Description

None

Special Environmental Conditions

None

TA255025

5-13. DUST COVER ASSEMBLY MAINTENANCE INSTRUCTIONS (Continued)

a. **Removal**.

(1) Remove screw (1), washer (2) and safety chain (5) from adaptor (3).

(2) Separate dust cover assembly (4) from adaptor (3).

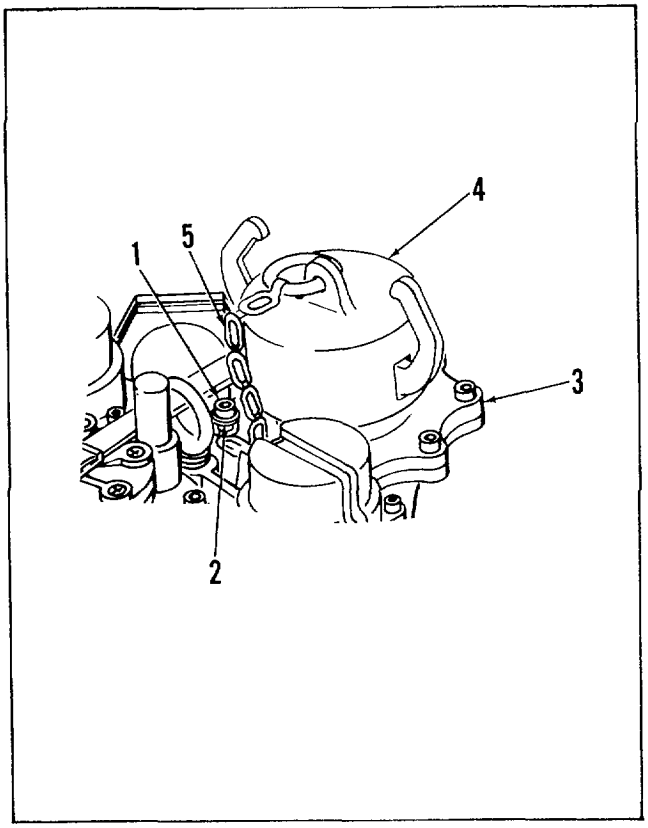
b. **Cleaning**. Clean dust cover assembly parts as instructed in para 5-9.

c. **Repair**. Repair is limited to replacement of dust cover assembly.

d. **Installation**.

(1) Attach safety chain (5) to adaptor (3) with washer (2) and screw (1). Tighten screw to 160 to 200 pound-inches.

(2) Install dust cover assembly (4) on adaptor (3).



5-14. PRESSURE CAP MAINTENANCE INSTRUCTIONS.

This task covers:

a. **Removal**

b. **Cleaning**

c. **Inspection**

d. **Repair**

e. **Installation**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Cross Tip Screwdriver, No. 2

Materials/Parts

None

Personnel Required

One

Condition Description

None

Special Environmental Conditions

None

TA255026

5-14. PRESSURE CAP MAINTENANCE INSTRUCTIONS (Continued)

a. **Removal**.

NOTE

If the pressure cap is stuck onto the fuel press adaptor, refer to step (1) below to remove the pressure cap.

(1) Remove six screws (1) and lift cover (2) off of pressure cap. Lift backup (3) and poppet assembly (4) off of fuel pressure adaptor. Free ring (5) from lugs of fuel pressure adaptor and remove. Discard pressure cap parts.

(2) Unhook clip (6) from fuel press adaptor (7).

(3) Remove pressure cap (8) from fuel pressure adaptor (7) by pressing down and rotating pressure cap counter clockwise. Lift pressure cap off of fuel press adaptor.

b. **Cleaning**. Clean the pressure cap as instructed in para 5-9.

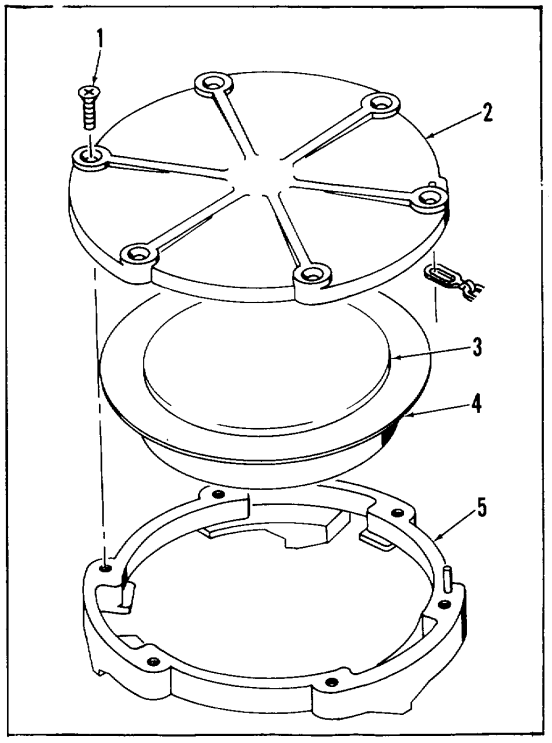
c. **Inspection**. Inspect pressure cap for evidence of wear or damage.

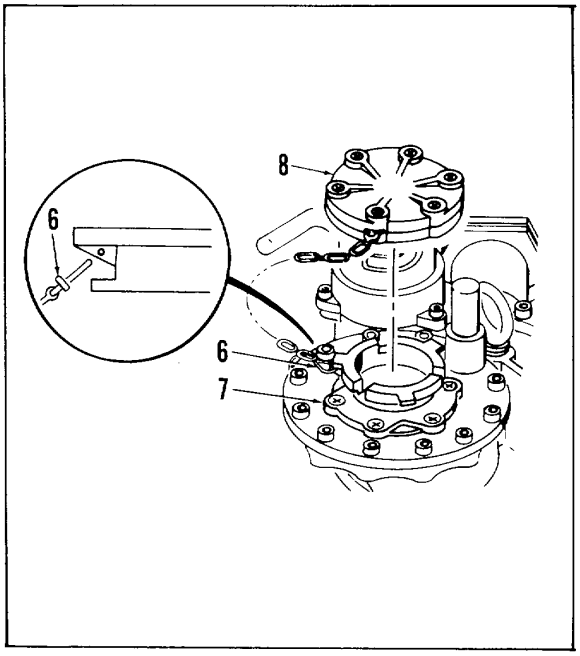
d. **Repair**. Repair is limited to replacement of the pressure cap.

e. **Installation**.

(1) Install pressure cap (8) on fuel pressure adaptor (7) by pressing down and rotating clockwise until pressure cap locks in place.

(2) Hook clip (6) into hole in fuel pressure adaptor (7).





TA255027

5-15. FUEL PRESSURE ADAPTOR MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Cleaning**

c. **Inspection**

d. **Repair**

e. **Installation**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Cross Tip Screwdriver No. 2

Torque Wrench, 1/4-inch drive, 50 pound-inches

No. 2 Cross Tip Adapter, 1/4-inch drive

Materials/Parts

Fuel Press Adaptor Packing

Personnel Required

One

Condition Description

Pressure Cap Removed (para 5-14a)

Special Environmental Conditions

None

a. **Removal**.

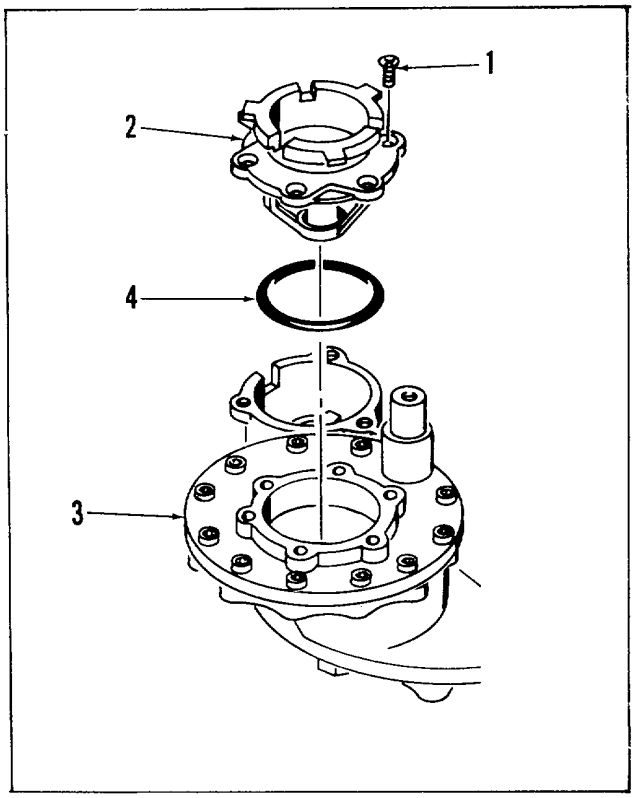
(1) Remove six screws (1) from fuel pressure adaptor plate (2) and separate fuel pressure adaptor from adaptor plate (3).

(2) Remove and discard fuel pressure adaptor packing (4) from fuel pressure adaptor (2).

b. **Cleaning**. Clean fuel press adaptor as instructed in para 5-9.

c. **Inspection**. Inspect fuel press adaptor for evidence of wear or damage.

d. **Repair**. Repair is limited to replacement of fuel press adaptor.



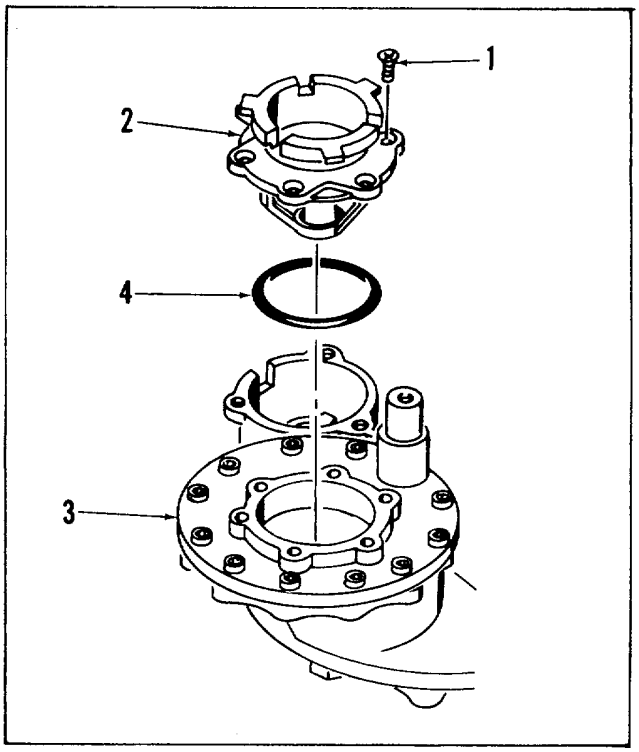
TA255028

5-15. FUEL PRESSURE ADAPTOR MAINTENANCE INSTRUCTIONS (Continued)

e. **Installation**.

(1) Place new fuel pressure adaptor packing (4) in groove of fuel pressure adaptor (2).

(2) Place fuel pressure adaptor (2) on adaptor plate (3) and install six screws (1). Tighten screws to 20 to 25 pound-inches.



5-16. ADAPTOR (VENT) MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Disassembly**

c. **Cleaning**

d. **Repair**

e. **Installation**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Socket Handset Key, 5/16-inch

Socket Handset Key, 5/16-inch

Torque Wrench, 1/2-inch drive, 500 pound-inches

Socket, Socket Handset Wrench, 1/2-inch drive, 5/16-inch

Socket, Socket Handset Wrench, 1/2-inch drive, 3/8-inch

Personnel Required

Vent Adaptor Packing

Personnel Required

One

Condition Description

Dust Cover Assembly Removed (para 5-13)

Special Environmental Conditions

None

TA255029

5-16. ADAPTOR (VENT) MAINTENANCE INSTRUCTIONS (Continued)

a. **Removal**.

(1) Remove seven screws (1), one screw (2), one washer (3), and chain (7), then separate adaptor (4) from housing (5).

(2) Remove and discard vent adaptor packing (6) from adaptor (4).

b. **Cleaning**. Clean adaptor as instructed in para 5-9.

c. **Inspection**. Inspect adaptor for evidence of wear or damage.

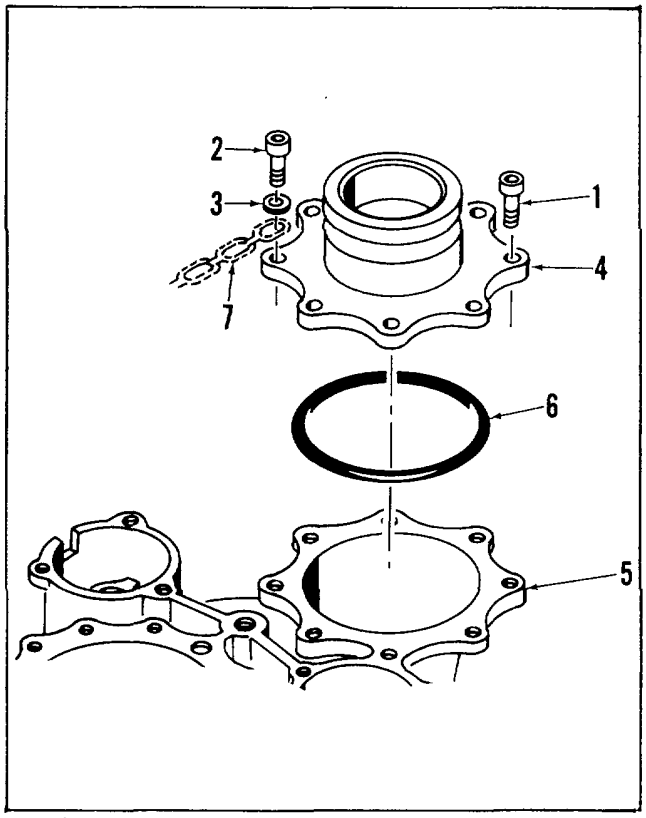
d. **Repair**. Repair is limited to replacement of adaptor.

e. **Installation**.

(1) Install new adaptor packing (6) in groove of adaptor (4).

(2) Place adaptor (4) on housing (5) and install seven screws (1), one screw (2) and one washer (3). Make sure screw (2) is through washer (3) and last link of chain (7) before installing screw. Tighten screws (1 and 2) to 160 to 200 pound-inches.

(3) Install dust cover.



5-17. DRAIN BUTTON MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Cleaning**

c. **Inspection**

d. **Repair**

e. **Installation**

TA255030

5-17. DRAIN BUTTON MAINTENANCE INSTRUCTIONS (Continued)

INITIAL SETUP

Tools, Special Tools and Test Equipment

Socket Handset Key, 3/16-inch

Torque Wrench, 3/8-inch drive, 100 pound-inches

Socket, Socket Handset Wrench, 3/8-inch drive, 3/16-inch

Materials/Parts

Adaptor Plate Packing

Drain Button Packing

Personnel Required

One

Condition Description

Pressure Adaptor Removed (para 5-15)

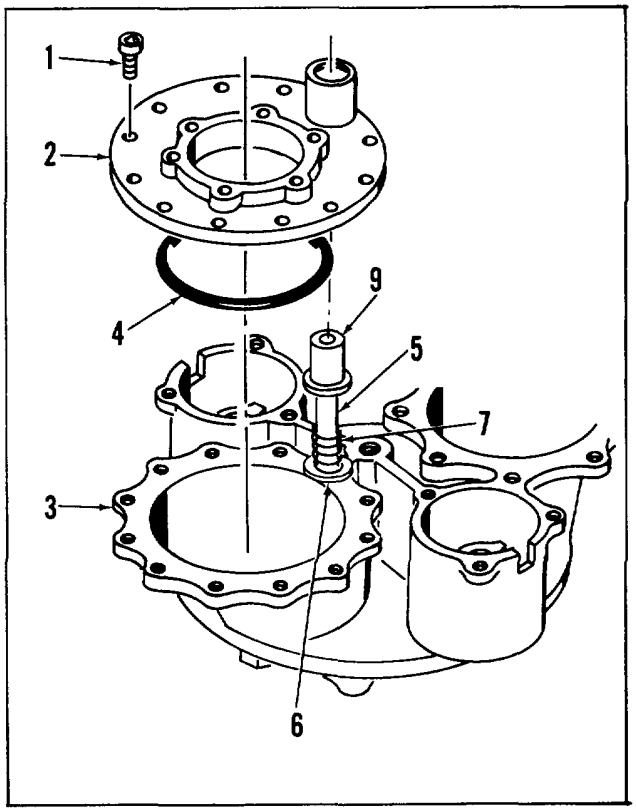
Special Environmental Conditions

None

a. **Removal**.

(1) Remove eleven screws (1) and separate adaptor plate (2) from housing (3).

(2) Remove and discard adaptor plate packing (4) from adaptor plate.



TA255031

5-17. DRAIN BUTTON MAINTENANCE INSTRUCTIONS (Continued)

(3) Remove shaft (5), washer (6), spring (7) and packing (8) from housing (3). Discard drain button packing (8).
(4) Unscrew cap (9) from shaft (5).

b. **Cleaning.** Clean the drain button parts as instructed in para 5-9.

c. **Inspection.**

(1) Spring (7). Inspect spring as follows:

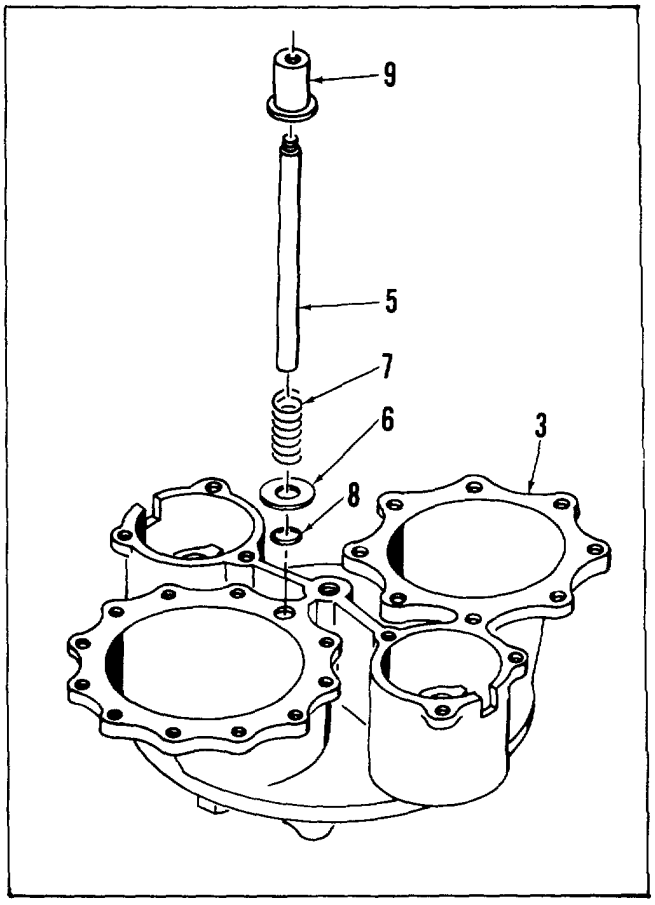
(a) There shall be no kinks, deformation or permanent set.
(b) If free length is not 2.25 ±0.20 inches, discard spring.

(2) Inspect drain button parts for evidence of wear or damage.
(3) Inspect shaft (5) and cap (9) for damaged or missing threads.

d. **Repair**. Repair is limited to replacement of defective parts.

e. **Installation**.

(1) Apply a thin coat of adhesive (item I, Appendix E) to threads of shaft (5) and screw cap (9) onto shaft. Lightly lubricate shaft with petrolatum (item 4, Appendix E).
(2) Install new drain button packing (8) washer (6), spring (7) and shaft (55 into housing (3).



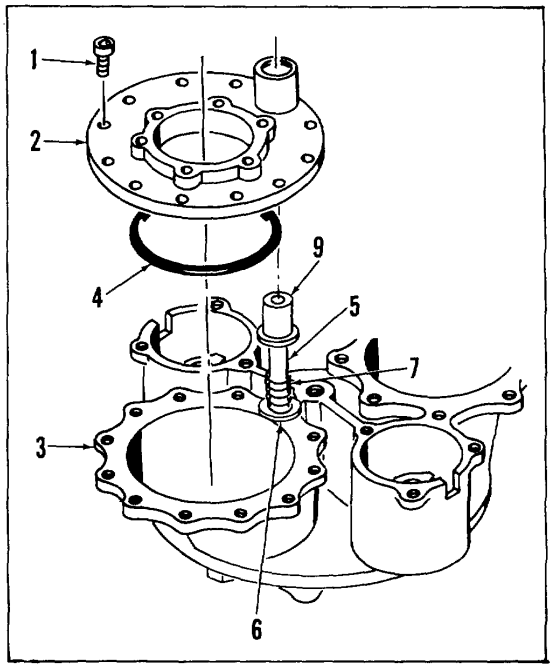
TA255032

5-17. DRAIN BUTTON MAINTENANCE INSTRUCTIONS (Continued)

(3) Install new adaptor plate packing (4) in groove of adaptor plate (2).
(4) Position adaptor plate (2) on housing (3) with cap (9) through hole in adaptor plate.
(5) Install eleven screws (1) in adaptor plate (2) and tighten screws to 51 to 64 pound-inches.

f. **Checkout.** Manually depress drain button, it shall operate freely. There shall be no binding or sticking and the drain button shall return to its original position when released.

g. Reinstall fuel pressure adaptor.



5-18. JET SENSOR MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**
b. **Cleaning**
c. **Inspection**
d. **Repair**
e. **Installation**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Socket Handscrew Key, 1/4-inch
Fixed Open End Wrench, 9/1 6-inch
Fixed Open End Wrench, 5/8-inch
Fixed Open End Wrench, 7/16-inch
Torque Wrench, 1/2-inch drive, 250 pound-inches
Socket, Socket Wrench, 1/2-inch drive, 1/4-inch
Socket Wrench, 1/2-inch drive, 9/16 inch
Crowfoot Wrench, 1/2-inch drive, 5/3-inch

Materials/Parts

None

Personnel Required

One

Condition Description

None

Special Environmental Conditions

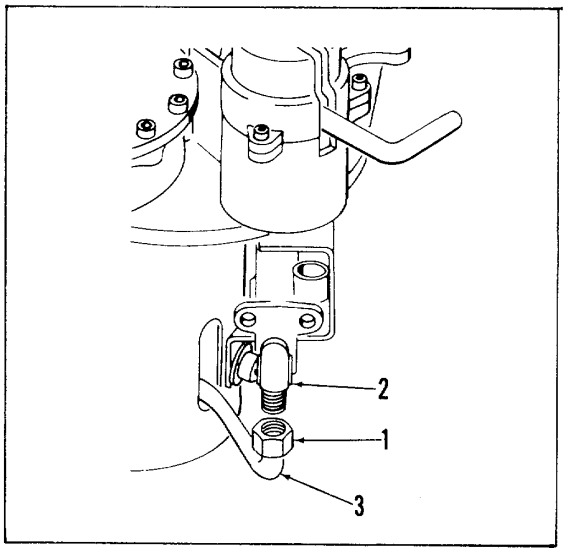
None

TA255033

5-18. JET SENSOR MAINTENANCE INSTRUCTIONS (Continued)

a. **Removal**.

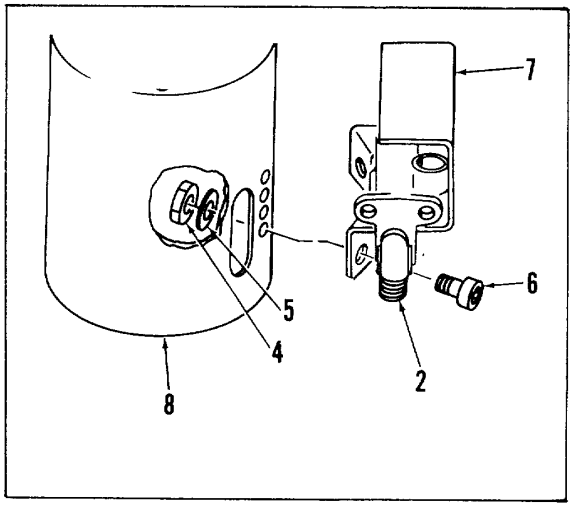
(1) Remove nuts and sleeves (1) from male elbows (2), and then remove tubes (3) from male elbows.



NOTE

Mark location of holes in extension (8) for screws (6) to aid during installation.

(2) Remove two nuts (4), two washers (5) and two screws (6), and separate deflector bracket (7) from extension (8).

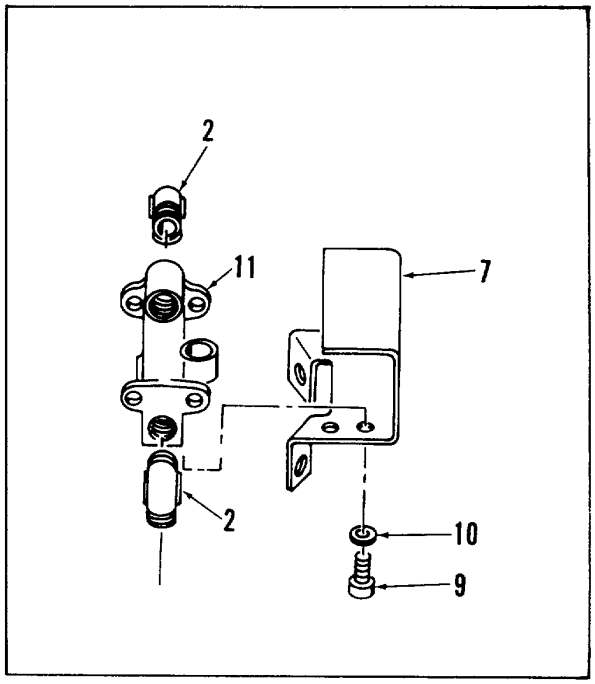


TA255034

5-18. JET SENSOR MAINTENANCE INSTRUCTIONS (Continued)

(3) Remove two screws (9) and two washers (10) and separate jet sensor (11) from deflector bracket (7).

(4) Remove two male elbows (2) from jet sensor (11).



CAUTION

During cleaning, use only compressed air to dislodge contamination from jets of jet sensor. If the jet sensor is damaged, the converter assembly will not operate properly.

b. **Cleaning**. Clean the jet sensor parts as instructed in para 5-9.

c. **Inspection**. Inspect jet sensor parts for evidence of wear, contamination, nicks, burrs, scratches or other damage.

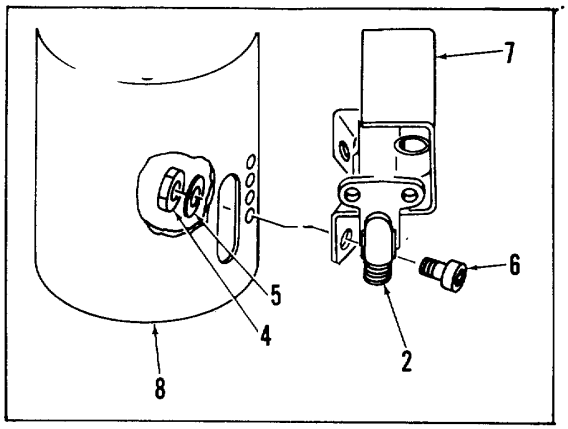
d. **Repair**. Repair is limited to replacement of defective parts.

e. **Installation**.

(1) Install two male elbows (2) in jet sensor (11).

(2) Position jet sensor (11) on deflector bracket (7) and install two screws (9) and two washers (10). Tighten screws to 90 to 112 pound-inches.

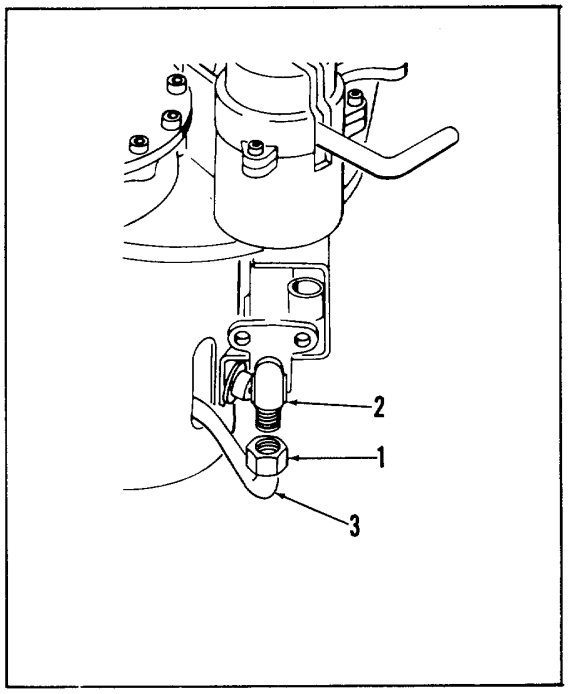
(3) Using holes marked during removal (see NOTE after para 5-18.a.(1)), place deflector bracket (7) on extension (8) and install two screws (6), two washers (5) and two nuts (4). Tighten nuts to 90 to 120 pound-inches.



TA255035

5-18. JET SENSOR MAINTENANCE INSTRUCTIONS (Continued)

(4) Install tubes (3) and nuts and sleeves (1) on male elbows (2) and tighten nuts to 120 to 160 pound-inches.



TA255036

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Disassembly**

c. **Cleaning**

d. **Inspection**

e. **Repair**

f. **Assembly**

g. **Testing**

h. **Installation**

INITIAL SETUP

Tools, Special Tools and Test Equipment

Test Fixture, F65-0-4271

Fixed Open End Wrench, 5/8-inch

Socket Handscrew Key, 5/16-inch

Socket Handscrew Key, 1/4-inch

Socket Handscrew Key, 3/16-inch

Fixed Open End Wrench, 7/1 6-inch

No. 2 Cross Tip Adapter, 1/4-inch drive

Cross Tip Screwdriver, No. 2

Torque Wrench, I/4-inch drive, 160 pound-inches

Convertible Retaining Ring Pliers, Waldes Truarc, No. 1120

Drive Pin Punch, 1/8 inch

Materials/Parts

Plug, pipe, 1/4 inch NPT (1 required)

Gasket, Housing to Extension

Screw, Socket Head, MS16995-8L (4 required)

Personnel Required

Two

Condition Description

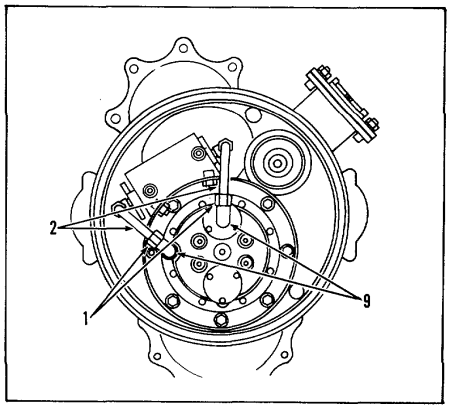
None

Special Environmental Conditions

None

a. **Removal.**

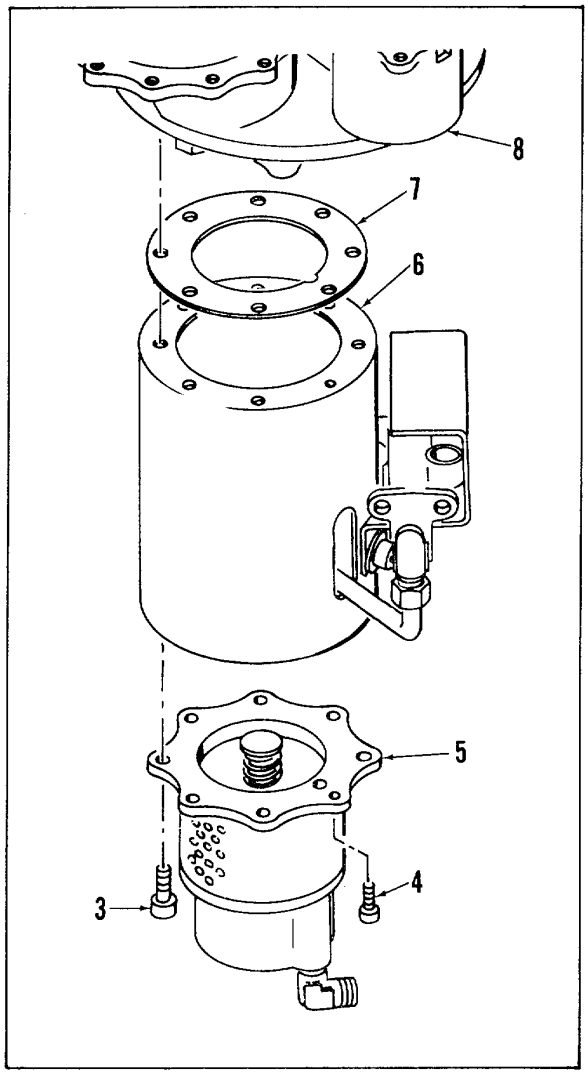
(1) Unscrew nuts and sleeves (1) and pull tubes (2) away from male elbows (9).



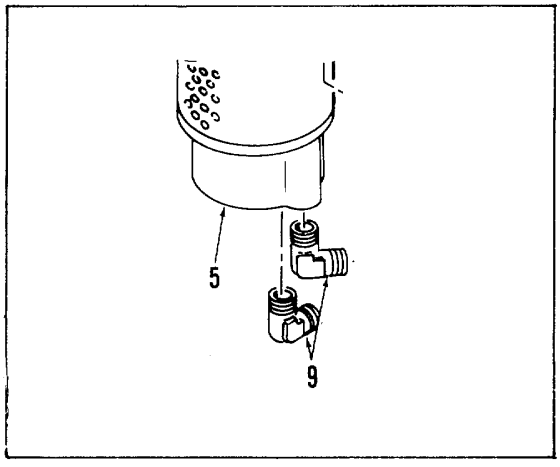
TA255037

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

(2) Remove seven screws (3) and one screw (4) and then remove internal valve (5), internal valve extension 6), and housing to extension gasket 7) from vapor recovery housing (8).



(3) Remove male elbows (9) from internal valve (5).



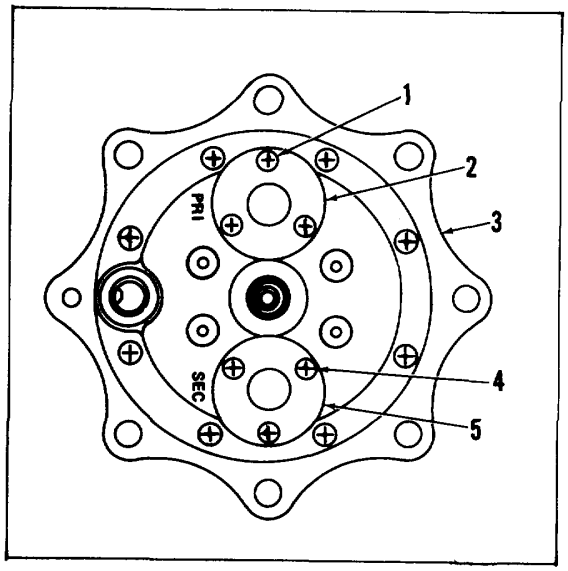
TA255038

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

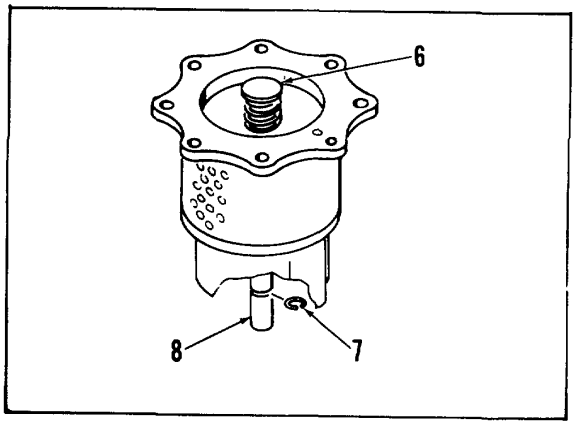
b. **Disassembly.**

(1) Remove three screws (1) and separate valve plug (2) from valve cap (3).

(2) Remove three screws (4) and separate piston pilot assembly (5) from valve cap (3).



(3) Depress drain orifice (6) and remove retaining ring (7) from piston shaft (8).



TA255039

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

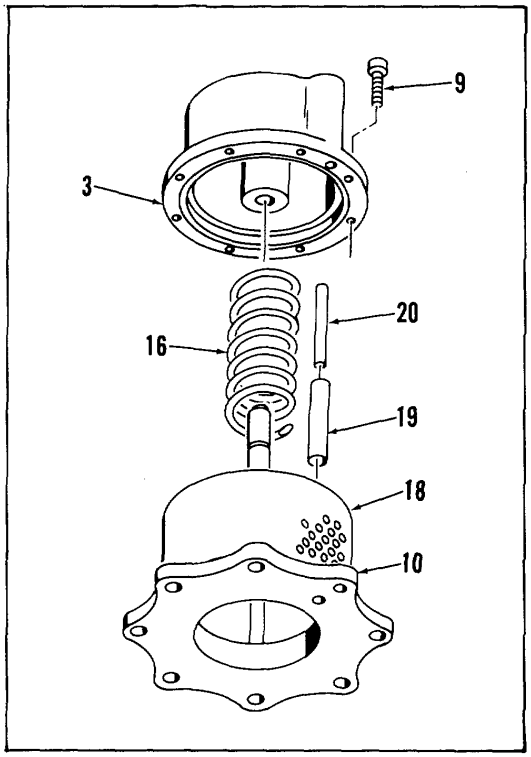
WARNING

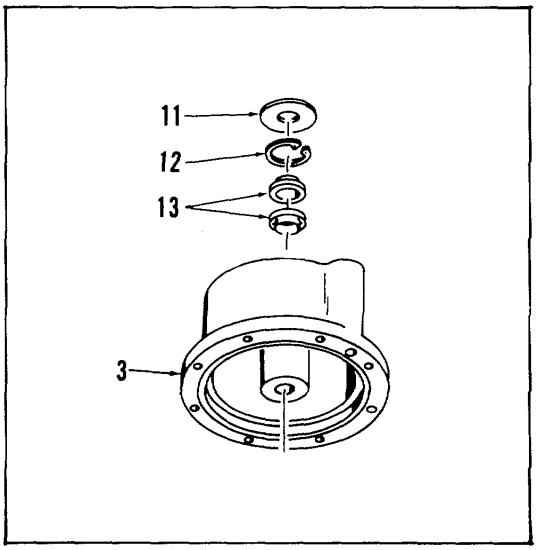
Use extreme care while removing valve cap from valve body. The valve cap is under spring tension and could cause injury to personnel.

(4) With internal valve face down on a clean, flat surface, hold down on valve cap (3) while removing eight screws (9). When all screws are removed, slowly lift valve cap from valve body (10).

(5) Remove piston spring (16), screen assembly (18) and tubes (19 and 20) from valve cap (3) or valve body (10).

(6) Remove shaft washer (11), retaining ring (12) and two shaft seals (13) from valve cap (3).

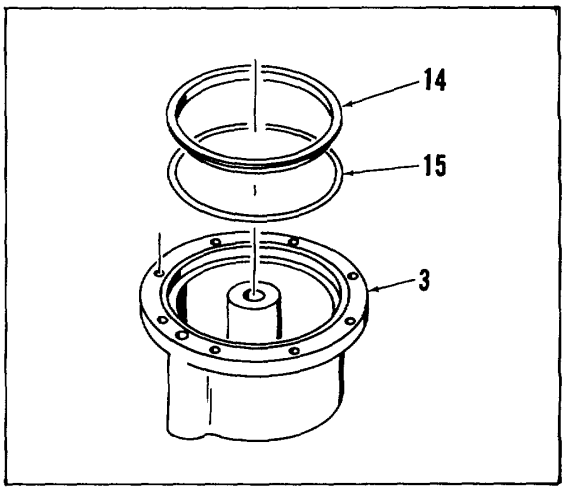




TA255040

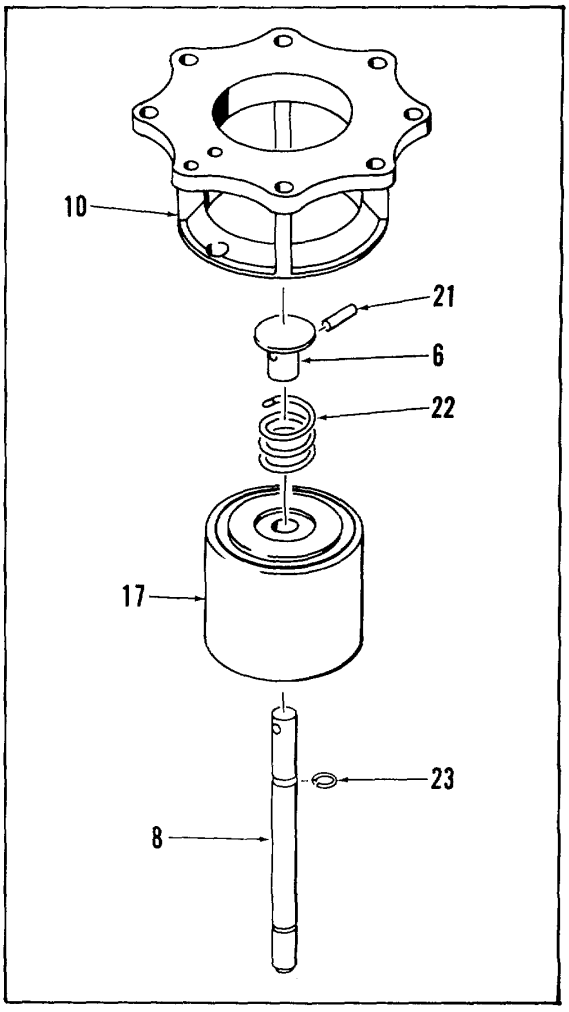
5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

(7) Remove piston seal (14) and two piston seal garter springs (15) from valve cap (3).



(8) Remove valve piston assembly (17) with parts (6, 8, 21 and 22) from valve body (10).

(9) Remove limit pin (21) from drain orifice (6) and piston shaft (8). Remove retaining ring (23) from piston shaft (8) and separate drain orifice, orifice spring (22) and valve piston assembly (17) from piston shaft.



TA255041

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

c. **Cleaning.** Clean the internal valve parts as instructed in para 5-9.

d. **Inspection.**

(1) Valve Cap. Inspect surface of valve cap (3) that mates with piston shaft (8), shaft seals (13) and tube (20) for scratches, scoring, nicks or other damage.

(2) Piston Pilot Assembly. Refer to para 5-20.d. for inspection requirements of piston pilot assembly (5).

(3) Piston Shaft. Inspect surface of outside diameter of piston shaft (8) for scratches, scoring, nicks or other damage.

(4) Valve Body. Inspect surface of valve body (10) that mates with valve piston assembly (17), piston seal (14) and tube (20) for scratches, scoring, nicks or other damage.

(5) Piston Seal Garter Spring. Inspect piston seal garter springs (15) for kinks, deformation or permanent set.

(6) Piston Spring. Inspect piston spring (16) as follows:

(a) Inspect for kinks, deformation or permanent set.

(b) Free length shall be 7.0 ±0.3 inches.

(7) Valve Piston Assembly. Inspect valve piston assembly (17) as follows:

(a) Surface finish of major outside diameter shall not have any scratches, scoring, nicks or other damage.

(b) Surface of piston seal (14) shall not have any nicks, cuts, tears or deterioration.

(8) Screen Assembly. Inspect screen assembly (18) for tears or breaks.

(9) Tubes. Inspect tubes (19 and 20) for kinks, bends, cuts or breaks.

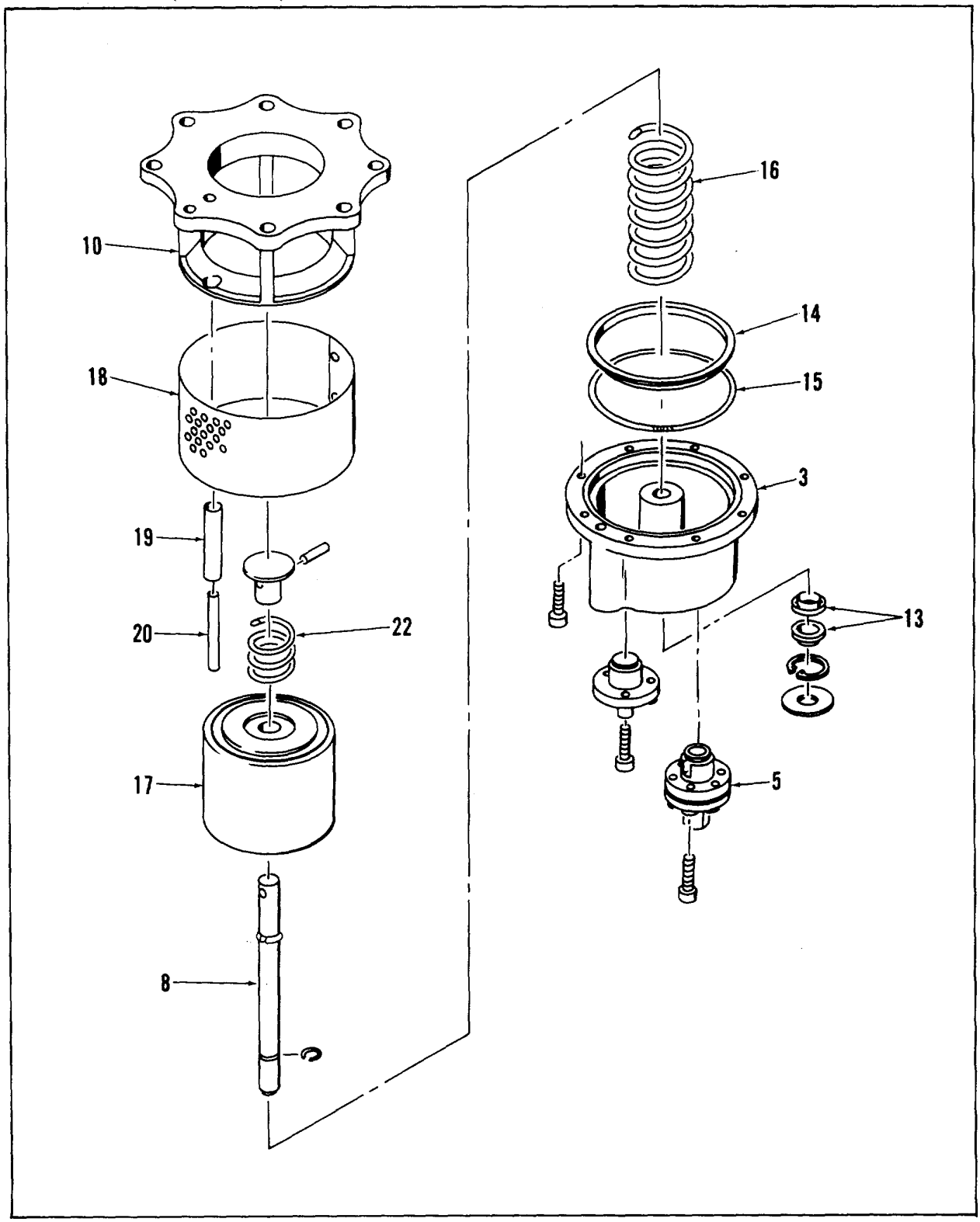
(10) Orifice Spring. Inspect orifice spring (22) as follows:

(a) Inspect for kinks, deformation or permanent set.

(b) Free length shall be 2.00 ±0.20 inches.

e. Repair. Repair is limited to replacement of defective parts.

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)



TA255042

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

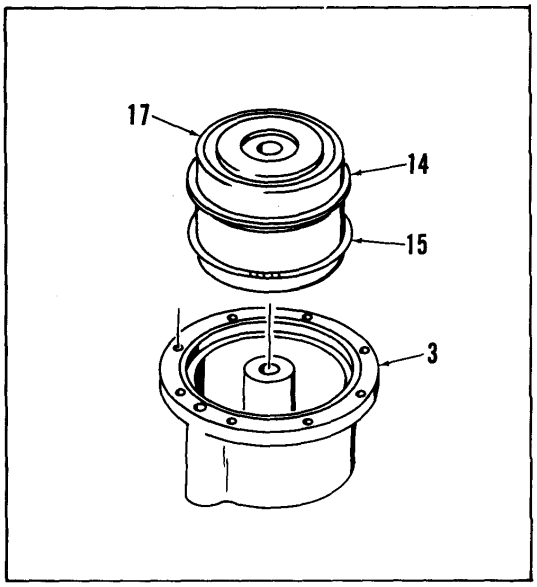
f. **Assembly.**

NOTE

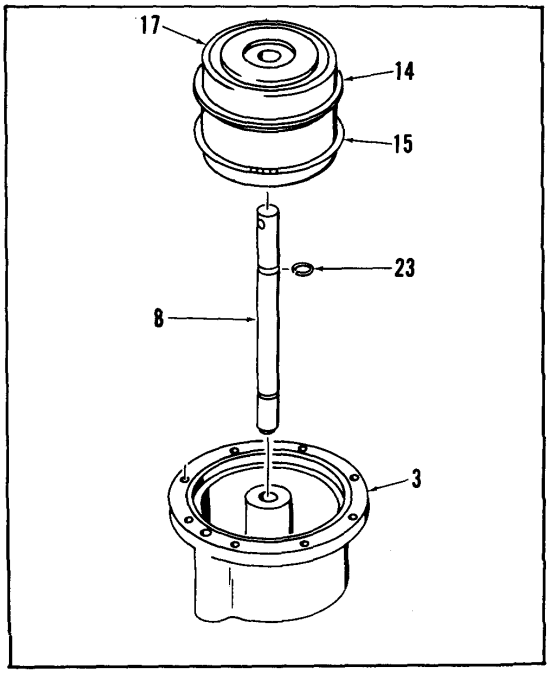
If piston seal garter springs (15) do not require replacement, proceed to step (2).

(1) Join piston seal garter springs (15) together at one end by screwing the small end of one spring into the large end of the other spring. Then form a loop with the two springs and join the other two ends together in a similar manner.

(2) Place piston seal (14) over valve piston assembly (17) and install piston seal garter springs (15) around piston seal and insert piston seal into valve cap (3).



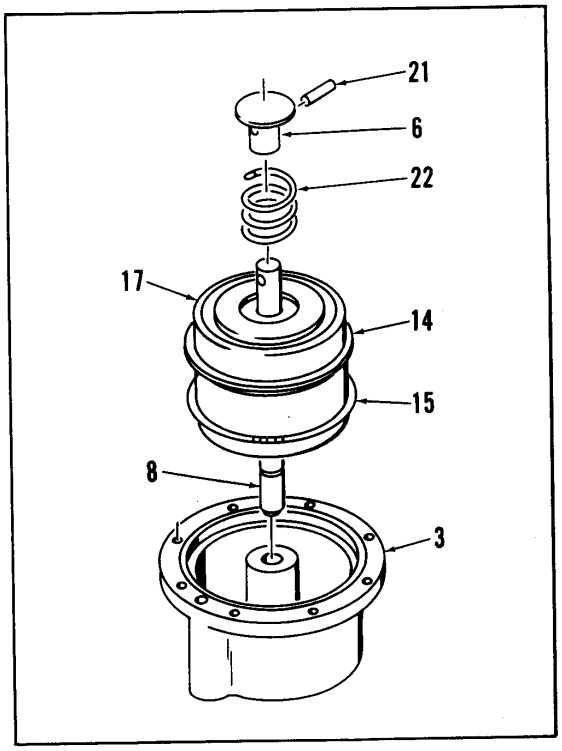
(3) Install retaining ring (23) in groove of piston shaft (8) and install piston shaft in valve piston assembly (17).



TA255043

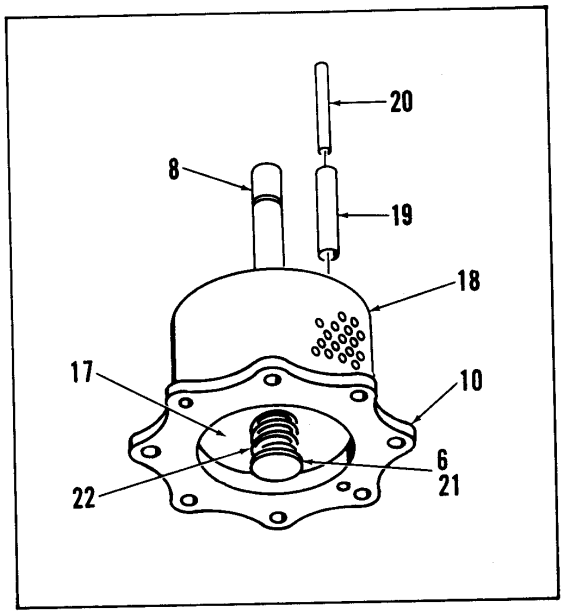
5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

(4) Install drain orifice (6), and orifice spring (22) on piston shaft (8), aline holes in drain orifice and piston shaft and install limit pin (21) in holes.



(5) Lightly lubricate outside diameter of valve piston assembly (17) and piston shaft (8) with petrolatum (item 4, Appendix E).

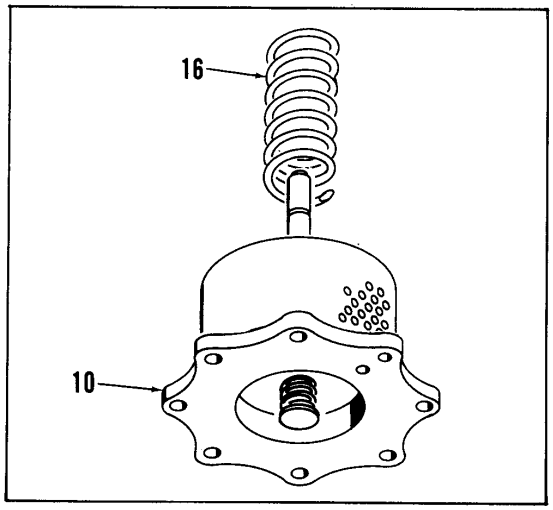
(6) With valve body (10) positioned face down on a clean, flat surface install valve piston assembly (175 with parts (6, 8, 21 and 22), tubes (19 and 20) and screen assembly (18) in valve body.



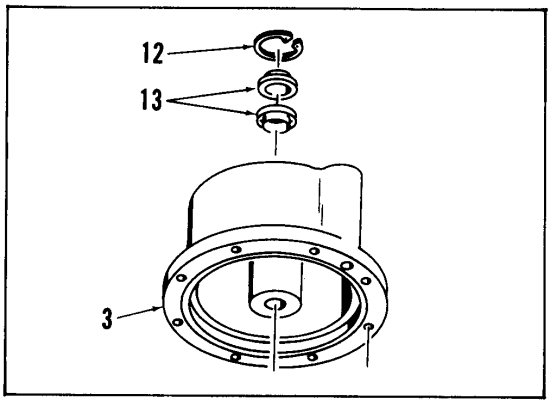
TA255044

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

(7) Install piston spring (16) in valve body (10).

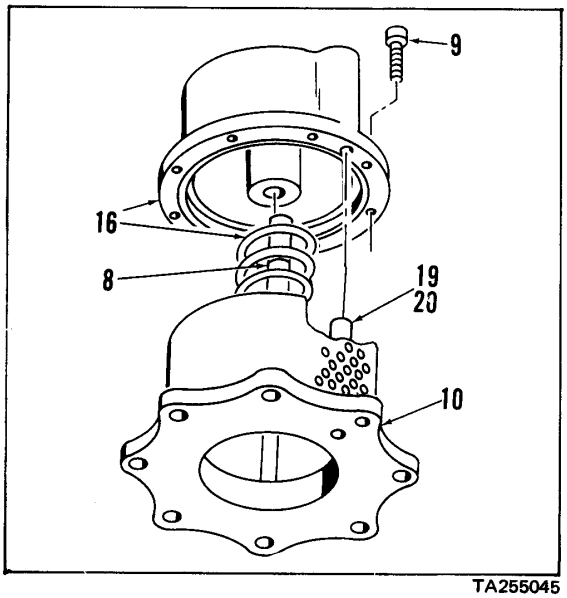


(8) Position shaft seals (13) back-to-back and insert them in valve cap (3) and secure with retaining ring (12) in groove of valve cap.



(9) With valve body (10) positioned face down on a clean, flat surface, carefully lower valve cap (3) onto piston shaft (8) making sure tube (20) is alined with its mating hole in cap.

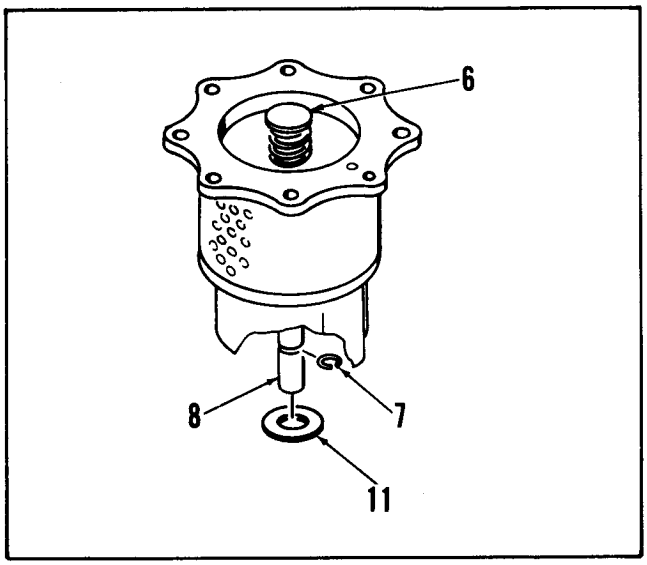
(10) While applying sufficient force to compress piston spring (16), start screws (9) into their respective holes. Uniformly tighten screws to 22 to 30 pound-inches.



TA255045

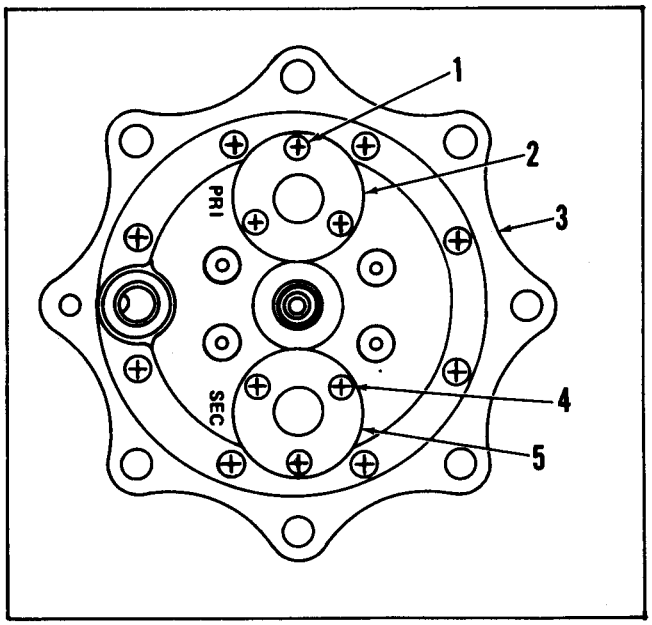
5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

(11) Install shaft washer (11) over piston shaft (8) and install retaining ring (7) in groove of piston shaft while depressing drain orifice (6).



(12) Install piston pilot assembly (5) in SEC port of valve cap (3) and secure with three screws (4). Tighten screws to 22 to 30 pound inches.

(13) Install valve plug (2) in PRI port of valve cap (3) and secure with three screws (1). Tighten screws to 22 to 30 pound-inches.



TA255046

5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

g. **Testing**.

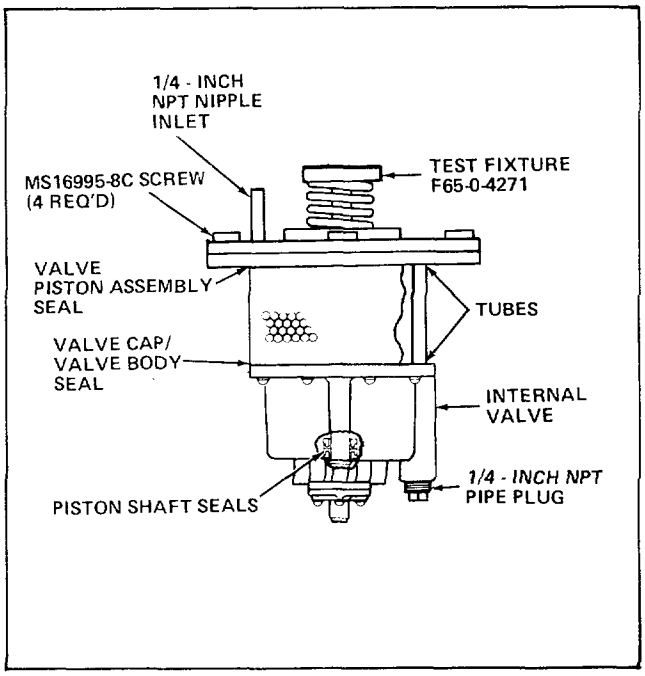
(1) Aline 1/4-inch index pin with 1/4inch hole in internal valve and install test fixture (item 1, Appendix B, Section III) on internal valve and secure with four MS16995-8L socket head screws.

(2) Install 1/4-inch NPT pipe plug in pilot assembly port and apply 60 psig air pressure to inlet port of test fixture.

(3) Submerge unit in dry cleaning solvent (item 3, Appendix E).

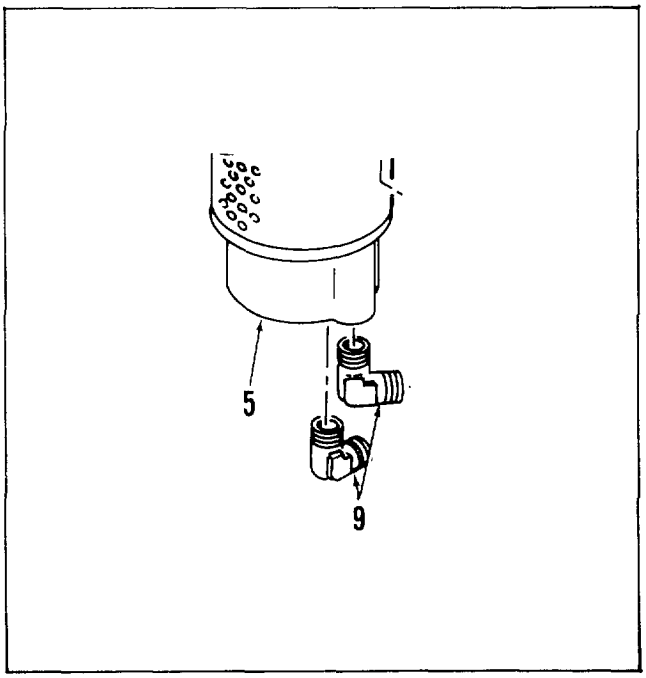
(4) Measure leakage using an inverted funnel positioned as follows:

Measure Leakage At	Maximum Allowable Leakage/ Time Allowed for Leakage
Shaft Seal	4 cc/15 seconds
Valve Piston Assembly Seal	4 cc/15 seconds
Valve Cap/Valve Body Seal	4 cc/15 seconds
Tubes	4 cc/15 seconds



h. **Installation.**

(1) Install male elbows (9) in internal valve (5).



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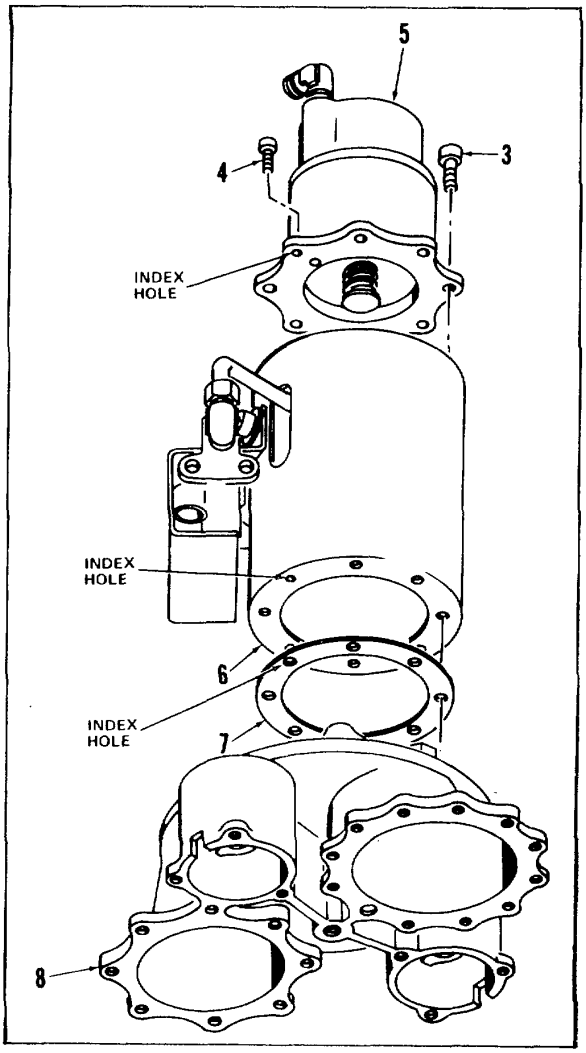
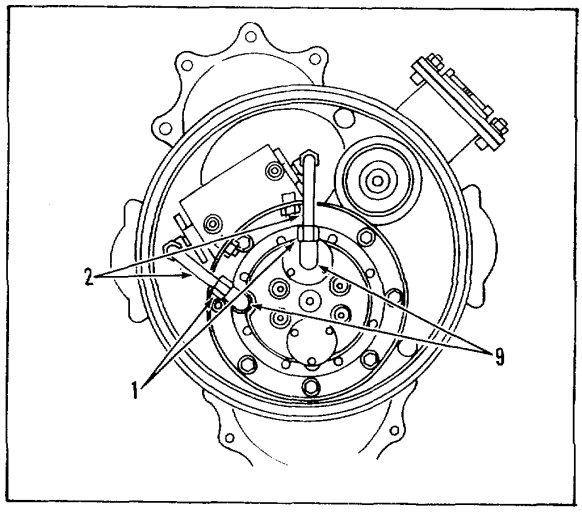
5-19. INTERNAL VALVE MAINTENANCE INSTRUCTIONS (Continued)

(2) With vapor recovery housing (8) upside down on a clean, flat surface, position housing to extension gasket (7), internal valve extension (6) and internal valve assembly (5) on vapor recovery housing making sure index holes for screw (4) are alined.

(3) Install one screw (4) and seven screws (3) into vapor recovery housing (8). Tighten screws to 51 to 64 pound-inches.



(4) Install tubes (2) on male elbows (9) and screw nuts and sleeves (1) onto male elbows. Tighten nuts to 120 to 160 pound-inches.



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5-20. PILOT ASSEMBLY MAINTENANCE INSTRUCTIONS

This task covers:

a. **Removal**

b. **Disassembly**

c. **Cleaning**

d. **Inspection**

e. **Repair**

f. **Assembly**

g. **Checkout**

h. **Installation**

INITIAL SETUP

Tools, Special Tools and Test Equipment
Cross Tip Screwdriver, No. 2

Torque Wrench, 1/4-inch drive, 50 pounds-inches

No. 2 Cross Tip Adapter, 1/4-inch drive

Personnel Required
One

Condition Description

Internal Valve Maintenance Instructions (para 5-19)

Materials/Parts
None

Special Environmental Conditions
None

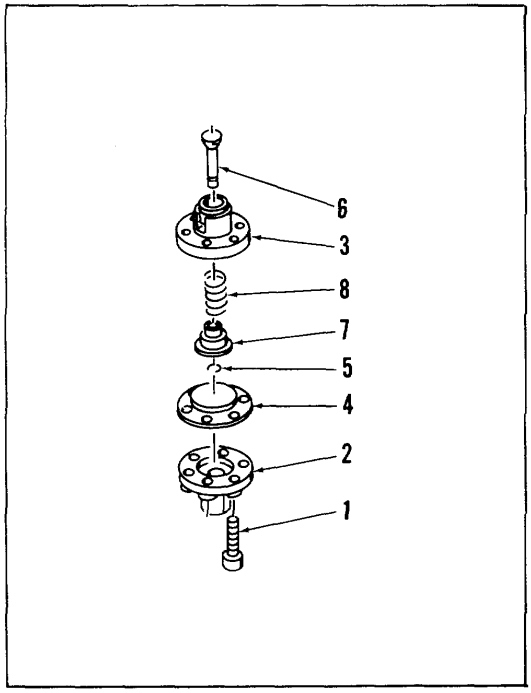
a. **Removal.** Refer to para 5-19.b.(2) for pilot assembly removal instructions.

b. **Disassembly.**

(1) Remove six screws (1) and separate cover (2) from base (3), and then remove diaphragm (4).

(2) Remove retaining ring (5) from poppet (6), and then remove backup (7), spring (8) and poppet (6) from base (3).

c. **Cleaning**. Clean the pilot assembly as instructed in para 5-9.



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5-20. PILOT ASSEMBLY MAINTENANCE INSTRUCTIONS (Continued)

d. **Inspection.**

(1) Cover (2). Inspect cover as follows:
  (a) Flat surface that mates with diaphragm (4) shall not have any scratches, nicks, scoring or other damage.
  (b) Circumference of radial surface that mates with diaphragm (4) shall not have any scratches, nicks, scoring or other damage.

(2) Base (3). Surface that mates with poppet (6) shall not have any scratches, nicks, scoring or other damage.

(3) Diaphragm (4). Diaphragm shall not have any tears, cuts, breaks or deterioration.

(4) Poppet (6). Spherical surface that mates with base (3) shall not have any scratches, nicks, scoring or other damage.

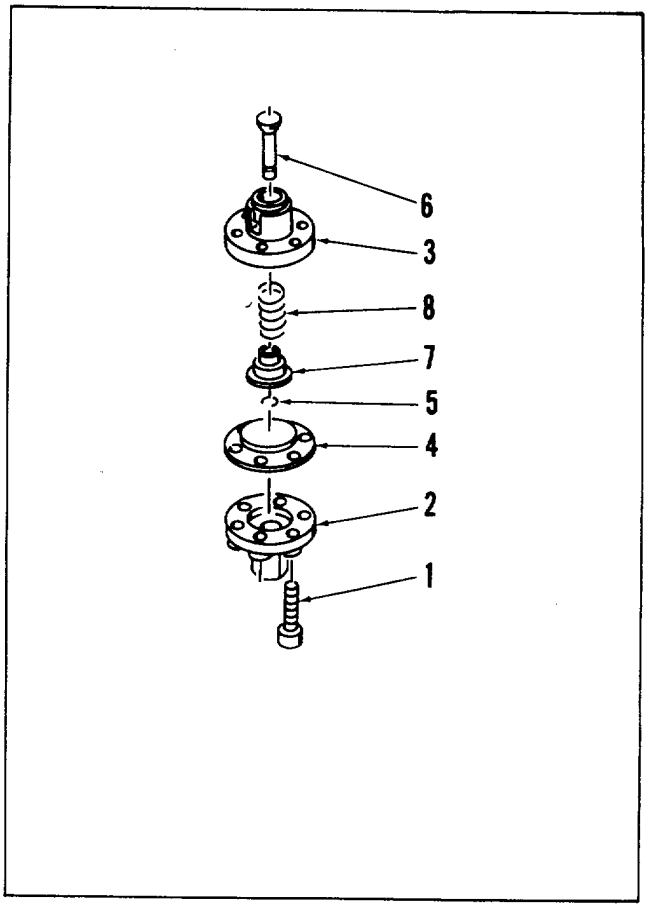
(5) Spring (8). Inspect spring as follows:
  (a) There shall be no kinks, deformation, or permanent set.
  (b) If free length is not 0.75 ±0.15 inch, discard spring.

e. **Repair.** Repair is limited to replacement of defective parts.

f. **Assembly.**

(1) Install poppet (6) in base (3) and install spring (8) and backup (7) over poppet stem.

(2) Install retaining ring (5) in groove of poppet (6).



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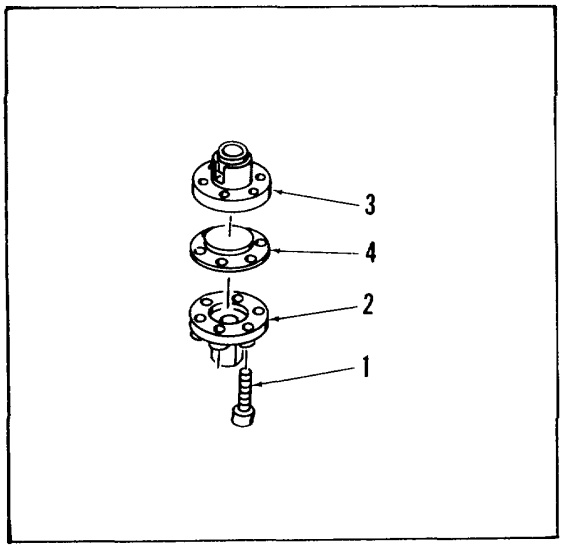
5-20. PILOT ASSEMBLY MAINTENANCE INSTRUCTIONS (Continued)

(3) Install diaphragm (4) on base (3), aline holes in diaphragm and base, and then position cover (2) on diaphragm and aline holes in cover with other holes.
(4) Install three screws (1) in cover (2). Tighten screws to 22 to 30 pound-inches.

g. **Checkout**. Pull poppet (6) up and down several times. The poppet shall move freely, without sticking or binding.

h. **Installation**. Refer to para 5-19.f.(12) for pilot assembly installation instructions.



5-21. CONVERTER ASSEMBLY TESTING INSTRUCTIONS.

This task covers:

a. **Checkout**

b. **Testing**

INITIAL SETUP

Tools, Special Tools and Test Equipment
Test Fixture, F65-0-4273

Pressure Gage, 0-10 psig

Materials/Parts
None

Personnel Required
One

Condition Description
None

Special Environmental Conditions
None

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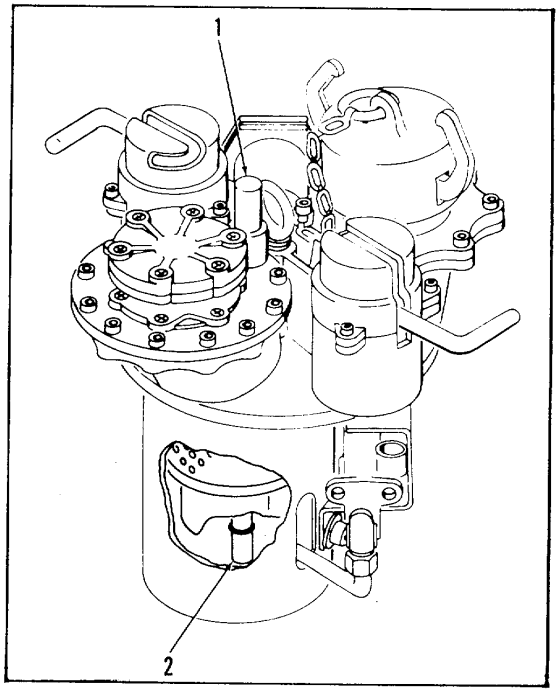
5-21. CONVERTER ASSEMBLY TESTING INSTRUCTIONS (Continued)

a. **Checkout.**

(1) Step on drain button (1) and observe that shaft (2) of internal valve moves down as the drain button is depressed.

(2) The shaft (2) shall return to its original position after the drain button (1) is released.



b. **Testing.**

(1) Install converter assembly in test fixture (item 2, Appendix B, Section III) and place latches in the LOCK position.

(2) Check that latches securely lock converter assembly to test fixture.

(3) Apply 2.75 psig air pressure to inlet port with outlet port plugged.

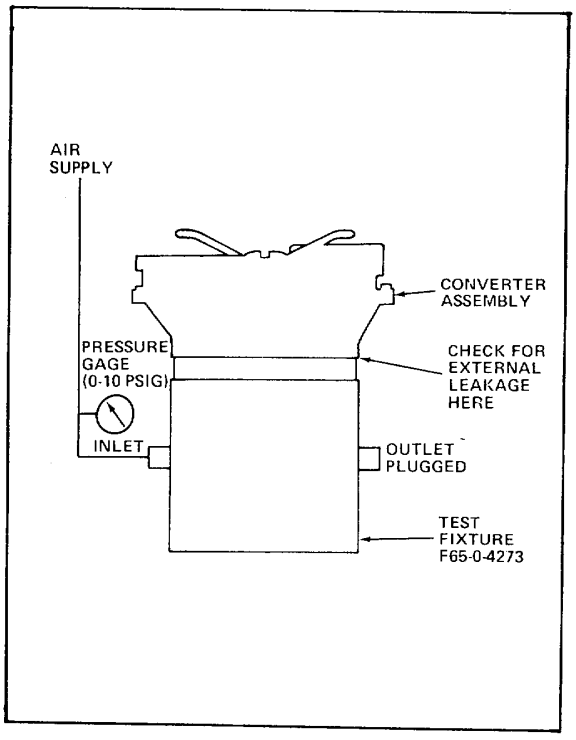
(4) Pressure shall not drop below 2.25 psig at the end of a three minute period.

(5) Slowly increase air pressure at inlet port with outlet port plugged.

(6) Converter assembly shall relieve at pressure below 3.5 psig, as evidenced by air leaking between converter assembly and test fixture.

(7) Reduce air pressure to zero.

(8) Place latches in UNLOCK position and remove converter assembly from test fixture.



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APPENDIX A
REFERENCES

A-1. PUBLICATION INDEXES AND GENERAL REFERENCES.

Index should be consulted frequently for latest changes, revisions, or references given in this appendix and for new publications relating to material covered in this publication.

a. Military Publication Indexes.

Consolidated Index of Publications and Blank Forms	DA PAM 310-1

b. General References.

Techniques of Military Instruction	FM21-6
Military Symbols	FM21-30

A-2. FORMS.

Refer to TM38-750. The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to the material.

A-3. OTHER PUBLICATIONS.

The following publications contain information pertinent to the major item material and associated equipment.

a. Maintenance and Repair.

Description, Use, Bonding Techniques, and Properties of Adhesives.	TM ORD 1032
Materials used for Cleaning, Preserving, Abrading, and Cementing Ordnance Material and Related Materials Including Chemicals.	TM 9-247
Welding Theory and Application	TM 9-237

b. Fuel Handling

Petroleum Supply Point Equipment Operations	FM 10-68
Elimination of Combustibles from Interiors of Metal or Plastic Gasoline and Diesel Fuel Tanks	TB 750-1047

c. General.

Basic Cold Weather Manual	FM 31-70
Operation and Maintenance of Ordnance Material in Cold Weather (0° to -65°F)	FM 9-207
Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use	TM 750-244-6

d. Administrative Storage.

Administrative Storage of Equipment	TM 740-90-1

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL.

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

b. The Maintenance Allocation Chart (MAC) in Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III lists the special tools and test equipment required for each maintenance function as referenced from Section II.

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

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

a. **Inspect**. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

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

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

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

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

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

g. **Install**. The act of emplacing, seating, or fixing into position an item, part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. **Replace**. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. **Repair.** The application of maintenance services or other maintenance actions3 to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

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

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

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

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

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

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

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

C .....Operator or crew
F.....Direct support maintenance

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

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

[2]Services - inspect, test, service, adjust, aline, calibrate, or replace.
[3]Actions - welding, grinding, riveting, straightening, facing, remachining, or resurfacing.

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

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

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

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

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

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

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

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

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

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQPT.	(6) REMARKS
			C	O	F	H	D		
06	ELECTRICAL SYSTEM								
0610	Switch, Level Control	Test			0.2				
		Repair			1.0				
33	SPECIAL PURPOSE KIT								
3307	Fuel Vapor Recovery	Replace			0.2				
	Convertor Assy	Test			1.0				
		Repair			2.0				

Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS

Tool or Test Equipment Ref Code	Maintenance Category	Nomenclature	National/ NATO Stock Number	Tool Number
1	F	FIXTURE, Test, internal valve		F65-0-4271
2	F	FIXTURE, Test, converter assembly		F65-0-4273
3	F	PLUG, Test		F65-0-4274

Section IV. REMARKS

Reference Code	Remarks
	NONE

APPENDIX C

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

C-1. SCOPE. This appendix lists components of end item and basic issue items for the converter assembly to help you inventory items required for safe and efficient operation.

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

a. **Section II. Components of End Item.** This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end items, these items must be within the end item whenever it is issued or transferred between property accounts.

Illustrations are furnished to assist you in identifying the items.

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

C-3. EXPLANATION OF COLUMNS. The following provides an explanation of columns found in the tabular listings:

a. **Column (1) Illustration Number (Illus. Number).** This column indicates the number of the illustration in which the item is shown.

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

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

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

e. **Column (5) Quantity Required (Qty Rqr)**. Indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
		NONE			

Section III. BASIC ISSUE ITEMS

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
C-1		GASKET, Housing (92003) 2732132		EA	1

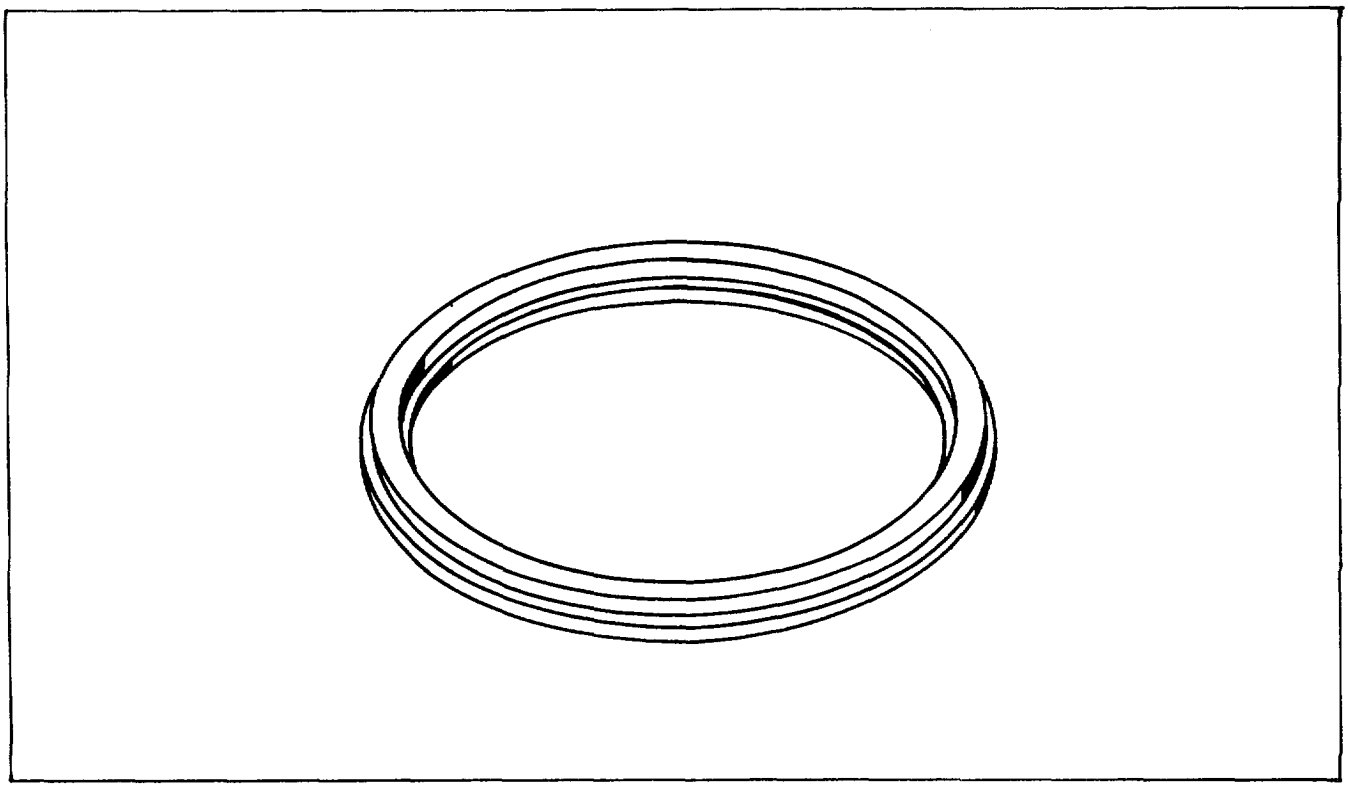

Figure C-1. Housing Gasket

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APPENDIX D

ORGANIZATIONAL DIRECT SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST (INCLUDING DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS)

Section I. INTRODUCTION

D-1. SCOPE. This manual lists spares and repair parts and special support equipment required for performance of organizational, direct support, and general support maintenance of the converter assembly. It authorizes the requisitioning and issue of spares and repair parts as indicated by the source and maintenance codes.

D-2. GENERAL. This repair parts and special tools list is divided into the following sections:

a. **Section II, Repair Parts List**. A list of spares and repair parts authorized for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in numeric sequence, with the parts in each group listed in figure and item number sequence. Bulk materials are listed in NSN sequence.

b. Section III, Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized for the performance of maintenance.

c. **Section IV, National Stock Number and Part Number Index**. A list, in National item identification number (NIIN) sequence, of all National stock numbers (NSN) appearing in the listings, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are crossreferenced to each illustration figure and item number appearance.

D-3. EXPLANATION OF COLUMNS.

a. Illustration. This column is divided as follows:

(1) Figure Number. Indicates the figure number of the illustration on which the item is shown.

(2) Item Number. The number used to identify item called out in the illustration.

b. Source, Maintenance, and Recoverability (SMR) Codes.

(1) Source Code. Source codes indicate the manner of acquiring support items for maintenance, repair, or overhaul of end

items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code Definition

PA .....Item procured and stocked for anticipated or known usage.

PB .....Item procured and stocked for insurance purposes because essentiality dictates that a minimum quantity be available in the supply system.

PC .....Item procured and stocked and which otherwise would be coded PA except that it is deteriorative in nature.

PD .....Support item, excluding support equipment, procured for initial issue or outfitting and stocked only for subsequent or additional initial issue or outfittings. Not subject to automatic replenishment.

PE .....Support equipment procured and stocked for initial issue or outfitting to specified maintenance repair activities.

PF .....Support equipment which will not be stocked but which will be centrally procured on demand.

PG .....Item procured and stocked to provide for sustained support for the life of the equipment. It is applied to an item peculiar to the equipment, which, because of probable discontinuance or shutdown of production facilities, would prove uneconomical to reproduce at a later time.

KD .....An item of a depot overhaul/repair kit and not purchased separately. Depot kit defined as a kit that provides items required at the time of overhaul or repair.

KF .....An item of a maintenance kit and not purchased separately. Maintenance kit defined as a kit that provides an item that can be replaced at organizational or intermediate level of maintenance.

KB .....Item included in both a depot overhaul/repair kit and maintenance kit.

MO .....Item to be manufactured or fabricated at organizational level.

MF .....Item to be manufactured or fabricated at the direct support maintenance level.

MH .....Item to be manufactured or fabricated at the general support maintenance level.

MD .....Item to be manufactured or fabricated at the depot maintenance level.

AO .....Item to be assembled at organizational level.

AF .....Item to be assembled at direct support maintenance level.

AH .....Item to be assembled at general support maintenance level.

AD .....Item to be assembled at depot maintenance level.

XA .....Item is not procured or stocked because the requirements for the item will result in the replacement of the next higher assembly.

XB .....Item is not procured or stocked. If not available through salvage, requisition.

XC .....Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.

XD .....A support item that is not stocked. When required, item will be procured through normal supply channels.

NOTE

Cannibalization or salvage may be used as a source of supply for any items coded above except those coded XA and aircraft support items as restricted by AR 700-42.

(2) Maintenance Code. Maintenance codes are assigned to indicate the levels of maintenance authorized by USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the Uniform SMR Code format as follows:

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

Code Application/Explanation

C .....Crew or operator maintenance performed within organizational maintenance.

O .....Support item is removed, replaced, used at the organizational level.

F.....Support item is removed, replaced, used at the direct support level.

H .....Support item is removed, replaced, used at the general support level.

D .....Support items that are removed, replaced, used at depot, mobile depot, or specialized repair activity only.

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This position will contain one of the following maintenance codes.

Code Application/Explanation

O .....The lowest maintenance level capable of complete repair of the support item is the organizational level.

F.....The lowest maintenance level capable of complete repair of the support item is the direct support level.

H .....The lowest maintenance level capable of complete repair of the support item is the general support level.

D .....The lowest maintenance level capable of complete repair of the support item is the depot level.

L.....Repair restricted to specialized repair activity.

Z.....Nonreparable. No repair is authorized.

B .....No repair is authorized. The item may be reconditioned by adjusting, lubricating, etc., at the user level. No parts or special tools are procured for the maintenance of this item.

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

Recoverability
Codes Definition

Z.....Nonreparable item. When unserviceable, condemn and dispose at the level indicated in position 3.

O .....Reparable item. When uneconomically reparable, condemn and dispose at organizational level.

F.....Reparable item. When uneconomically reparable, condemn and dispose at the direct support level.

H .....Reparable item. When uneconomically reparable, condemn and dispose at the general support level.

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

L.....Reparable item. Repair, condemnation, and disposal not authorized below depot/specalized repair activity level.

A .....Item requires special handling or condemnation procedures because

of specific reasons (i.e., precious metal content, high dollar value, critical material or hazardous material). Refer to appropriate manuals/ directives for specific instructions.

c. National Stock Number. Indicates the National stock number assigned to the item and which will be used for requisitioning.

d. Part Number. 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 a stock-numbered item is requisitioned, the item received may have a different part number than the part being replaced.

e. Federal Supply Code for Manufacturer (FSCM). The FSCM is a 5-digit numeric code listed in SB 708-42 which is used to identify the manufacturer, distributor, or Government agency, etc.

f. Description. Indicates the Federal item name and, if required, a minimum description to identify the item. Items that are included in kits and sets are listed below the name of the kit or set with the quantity of each item in the kit or set indicated in the quantity incorporated in unit column. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased accordingly.

g**. Unit of Measure (U/M).** Indicates the standard of the basic quantity of the listed item as used in performing the actual maintenance functions. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

h. Quantity Incorporated in Unit. Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable (e.g., shims, spacers, etc.).

D-4. SPECIAL INFORMATION.

a. The USABLE ON CODE title appears in the lower right corner of column (6), Description. Usable on codes are shown in the right-hand margin of the description column. Uncoded items are applicable to all models. Identification of the usable on codes used in this publication are:

Code	Used On
PAR	Model

b. Detailed manufacturing instructions for items source coded to be manufactured or fabricated are found in appendix G of this manual. Bulk materials required to manufacture items are listed in the Bulk Material Group of this manual.

c. Repair parts kits and gaskets sets appear as the last entries in the repair parts listing for the figure in which its parts are listed as repair parts.

D-5. HOW TO LOCATE REPAIR PARTS.

a. When National Stock Number or Part Number is Unknown:

(1) First. Using the table of contents, determine the applicable functional group or subgroup within which the item belongs. This is necessary since illustrations are prepared for applicable functional groups or subgroups and listings are divided into the same groups.

(2) Second. Find the illustration covering the applicable functional group or subgroup to which the item belongs.

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

(4) Fourth. Using the Repair Parts Listing, find the figure and item number noted on the illustration.

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

(1) First. Using the Index of National Stock Numbers and Part Numbers, find the

pertinent National stock number or part number. This index is in NIIN sequence followed by a list of part numbers in alphanumeric sequence cross-referenced to the illustration figure number and item number.

(2) Second. After finding the figure and item number, locate the figure and item number in the repair parts list.

D-6. ABBREVIATIONS. Not applicable.

NOTE

National Stock Numbers (NSN) that are missing for "P" source coded items have been applied for and will be added to this manual by a change/revision when they are entered in the Army Master Data File (AMDF). Until the NSNs are established and published, submit exception requisitions to: Commander, Defense Logistics Agency, Defense Construction Supply Center, ATTN: DCSC-LI, Columbus, Ohio 43215 for the part required to support your equipment.

Section II. REPAIR PARTS LIST

D-7. This section lists and illustrates the repair parts required for direct support maintenance of the converter assembly.

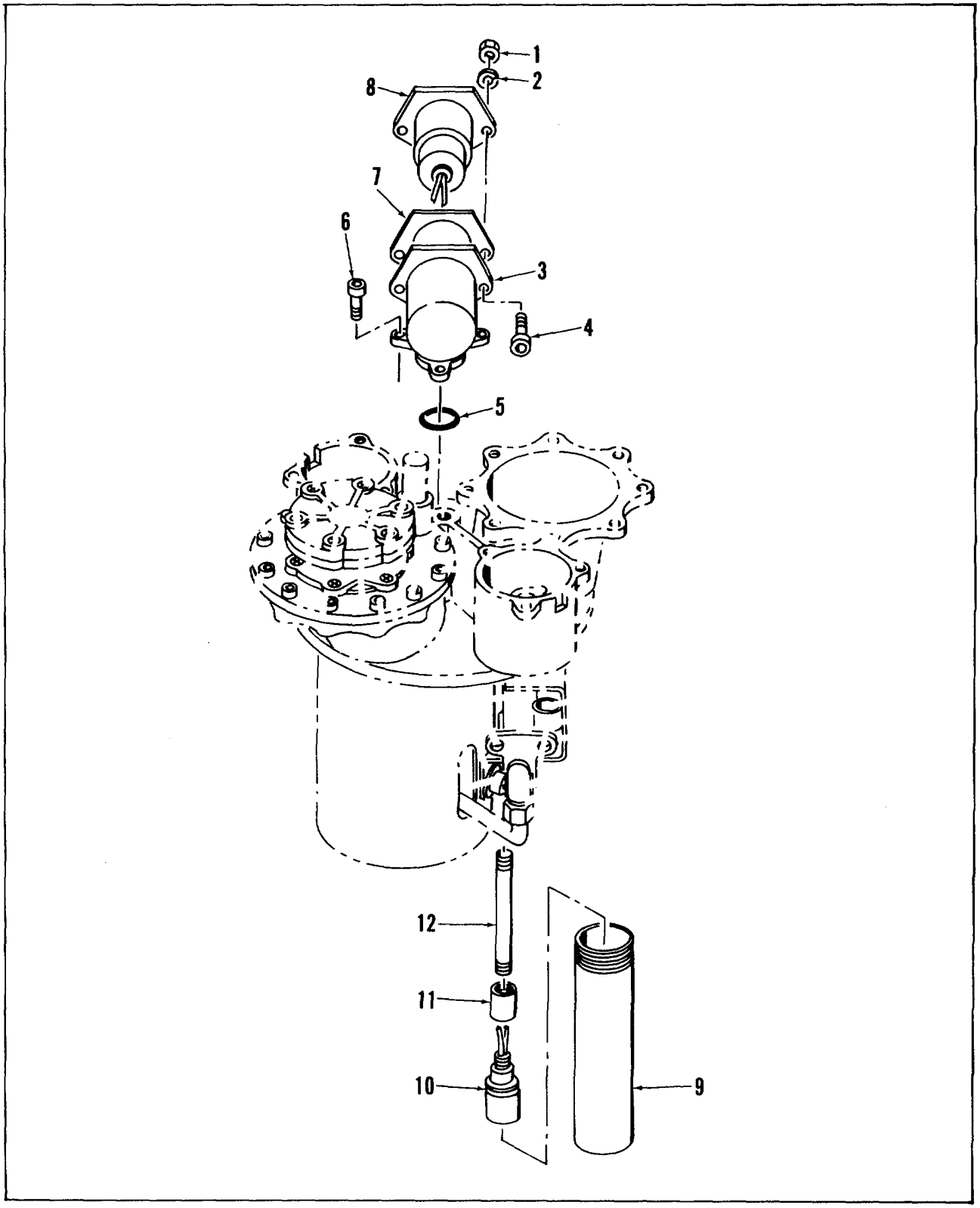


Figure 1. Electrical Assembly

TA255054

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODES	(7) U/M	(8) QTY INC IN UNIT
						GROUP 06 ELECTRICAL SYSTEM		
						GROUP 0610 SENDING UNITS AND SWITCHES		
1	1	PAFZZ	5310-00-829-9581	96906	MS35649-2312	NUT, PLAIN, HEXAGON	EA	2
1	2	PAFZZ	5310-00-974-6623	96906	MS35338-140	WASHER, LOCK	EA	2
1	3	PFFZZ	2590-01-160-0664	92003	2733387	BOX, JUNCTION	EA	1
1	4	PAFZZ	5305-00-988-7839	96906	MS16995-65	SCREW, CAP, SOCKET HE	EA	2
1	5	PAFZZ	5330-01-119-3279	92003	2661058A212	PACKING	EA	1
1	6	PAFZZ	5305-00-988-7612	96906	MS16995-48	SCREW, CAP, SOCKET HE	EA	3
1	7	PAFZZ	2590-01-160-0666	92003	2706143-102	GASKET, JUNCTION BOX	EA	1
1	8	PAPFZ	2590-01-160-0665	92003	2706143-101	RECEPTACLE, ELECTRICAL	EA	1
1	9	PFFZZ	2550-01-160-0663	92003	2793254-101	SHIELD, SWITCH	EA	1
1	10	PAFZZ	6680-01-160-0730	92003	2706094	SWITCH, FLOAT, LIQUID CONTROL	EA	1
1	11	PFFZZ	4730-01-160-0707	92003	2706138-102	COUPLING, PIPE 1/4 IN. NPT	EA	1
1	12	PFFZZ	4730-01-160-0693	92003	2706133-105	NIPPLE, PIPE 1/4 IN, NPT X 4 IN	EA	1

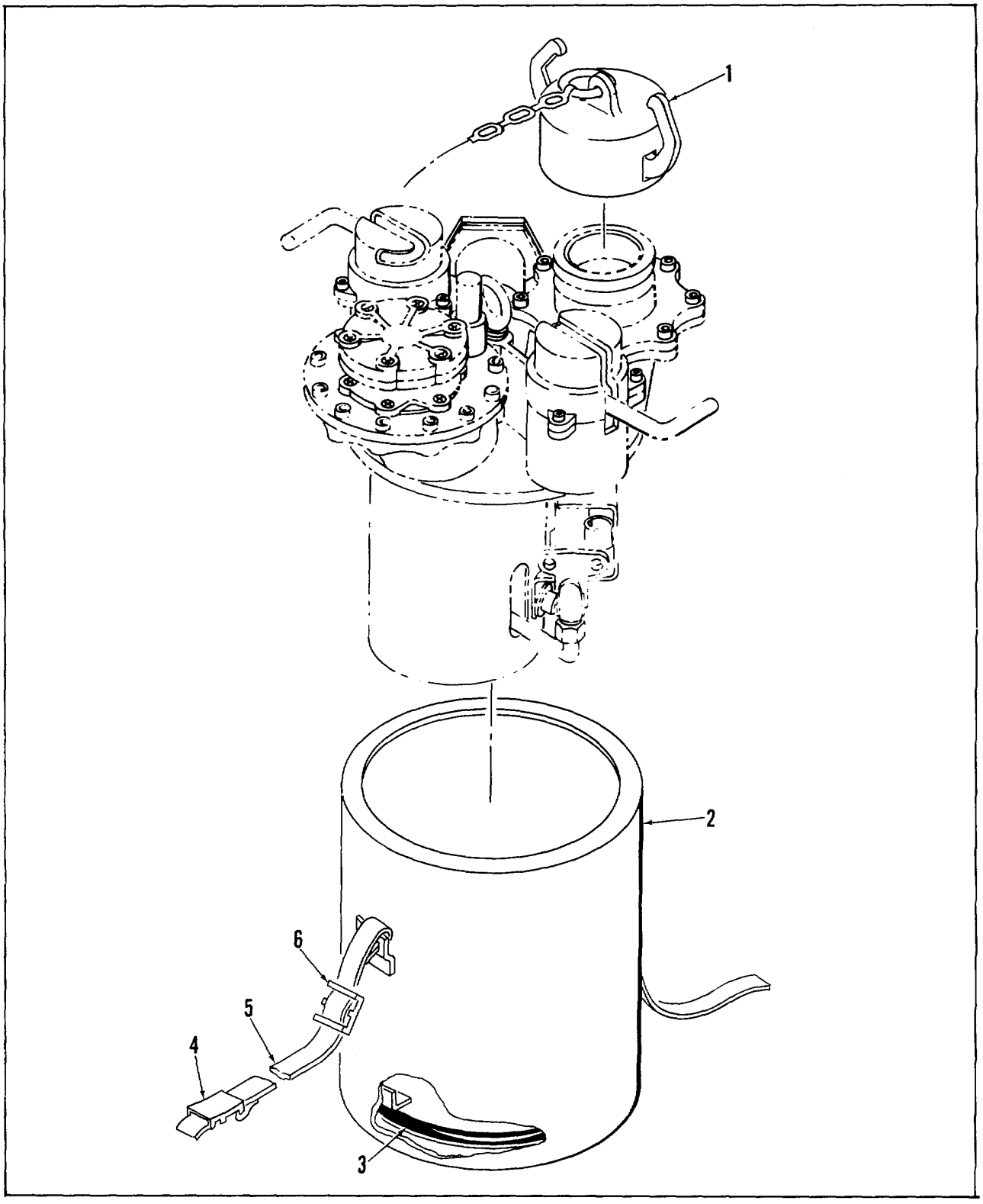


Figure 2. Bucket Assembly

TA255055

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODES	(7) U/M	(8) QTY INC IN UNIT
						GROUP 33 SPECIAL PURPOSE KITS		
						GROUP 3307 SPECIAL PURPOSE KITS		
2	1	PAFZZ	2590-01-160-0659	92003	2706154-101	COVER ASSEMBLY, DUST WITH CHAIN AND S-HOOK ...	EA	1
2	2	PFFZZ	2590-01-160-0643	92003	2793251-101	BUCKET ASSEMBLY (USED FOR SHIPPING & STORAGE	EA	1
2	3	PAFZZ	5330-01-160-0703	92003	2732132	GASKET.....	EA	1
2	4	PAFZZ	5340-00-290-0970	96906	MS51944-4	BUCKLE	EA	1
2	5	PAFZZ		92003	2793264-101	WEBBING, TEXTILE	EA	2
2	6	PAFZZ	5340-00-297-6645	96906	MS51927-3	BUCKLE	EA	2

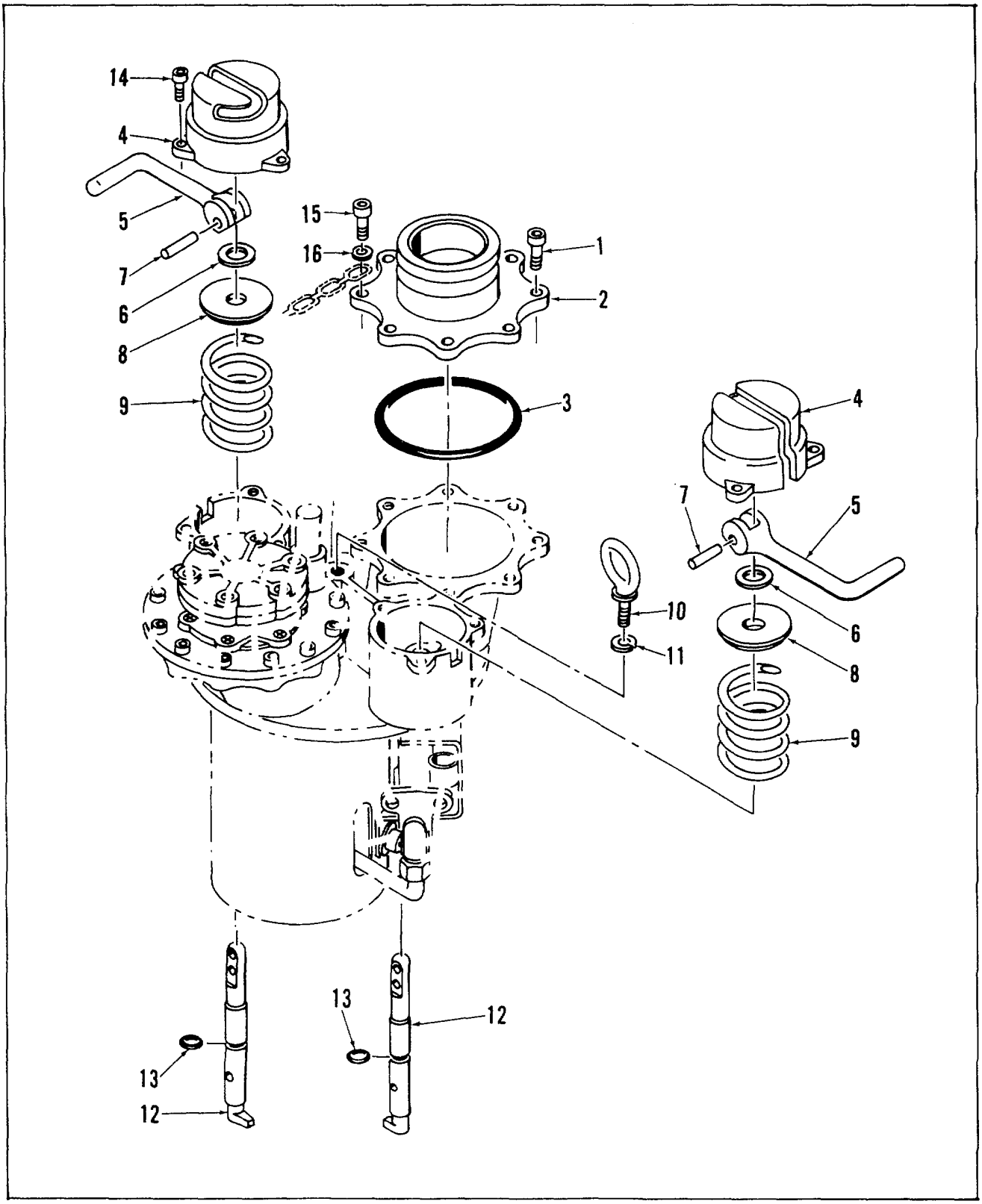


Figure 3. Converter Assembly

TA255056

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODES	(7) U/M	(8) QTY INC IN UNIT
3	1	PAFZZ	5305-00-988-7844	96906	MS16995-80	SCREW, CAP, SOCKET HE	EA	7
3	2	PFFZZ	2590-01-160-0658	92003	2793234-101	ADAPTOR, VAPOR CONNECTION	EA	1
3	3	PAFZZ		92003	266105880247	PACKING	EA	1
3	4	PFFZZ	5340-01-160-0661	92003	2731058	COVER, LATCH	EA	2
3	5	PFFZZ	5340-01-160-0660	92003	231054	LEVER, LATCH	EA	2
3	6	PAFZZ	5310-00-167-0807	88044	AN560C916	WASHER, FLAT	EA	2
3	7	PAFPZ	5315-00-805-0300	96906	MS171663	PIN, SPRING	EA	2
3	8	PAFZZ	5310-01-160-0722	92003	12731060	WASHER, SHOULDERED	EA	2
3	9	PFFZZ	5360-01-160-0699	92003	2731051	SPRING,HELICAL, COMP	EA	2
3	10	PAFZZ	5306-01-160-0682	92003	2706541-101	BOLT, EYE	EA	1
3	11	PAFZZ	5310-00-584-5272	96906	MS35338-48	WASHER, LOCK	EA	1
3	12	PAFZZ	5340-01-160-0662	92003	2731053	LATCH, LOCKING	EA	2
3	13	PAFZZ	5330-01-119-4399	92003	2661058A111	PACKING, PREFORMED	EA	7
3	14	PAFZZ	5305-00-988-7614	96906	MS16995-50	SCREW, CAP, SOCKET HE 1/4-20 UNC X 3/4 IN. LG	EA	6
3	15	PAFZZ	5305-00-988-7614	96006	MS16995-50	SCREW, CAP, SOCKET HE	EA	6
3	16	PAFZZ	5310-00-167-0823	88044	AN960-816	WASHER, FLAT	EA	1

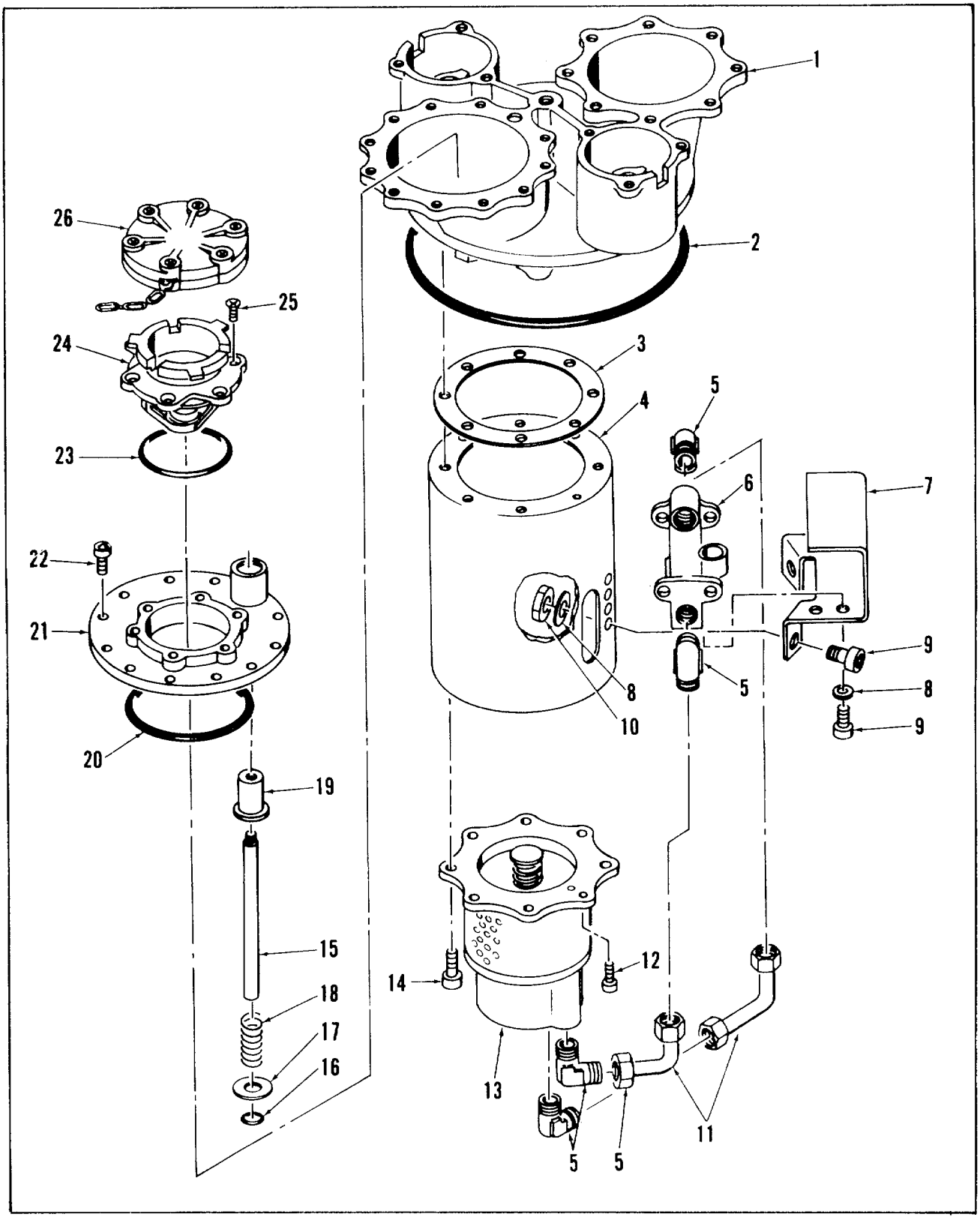
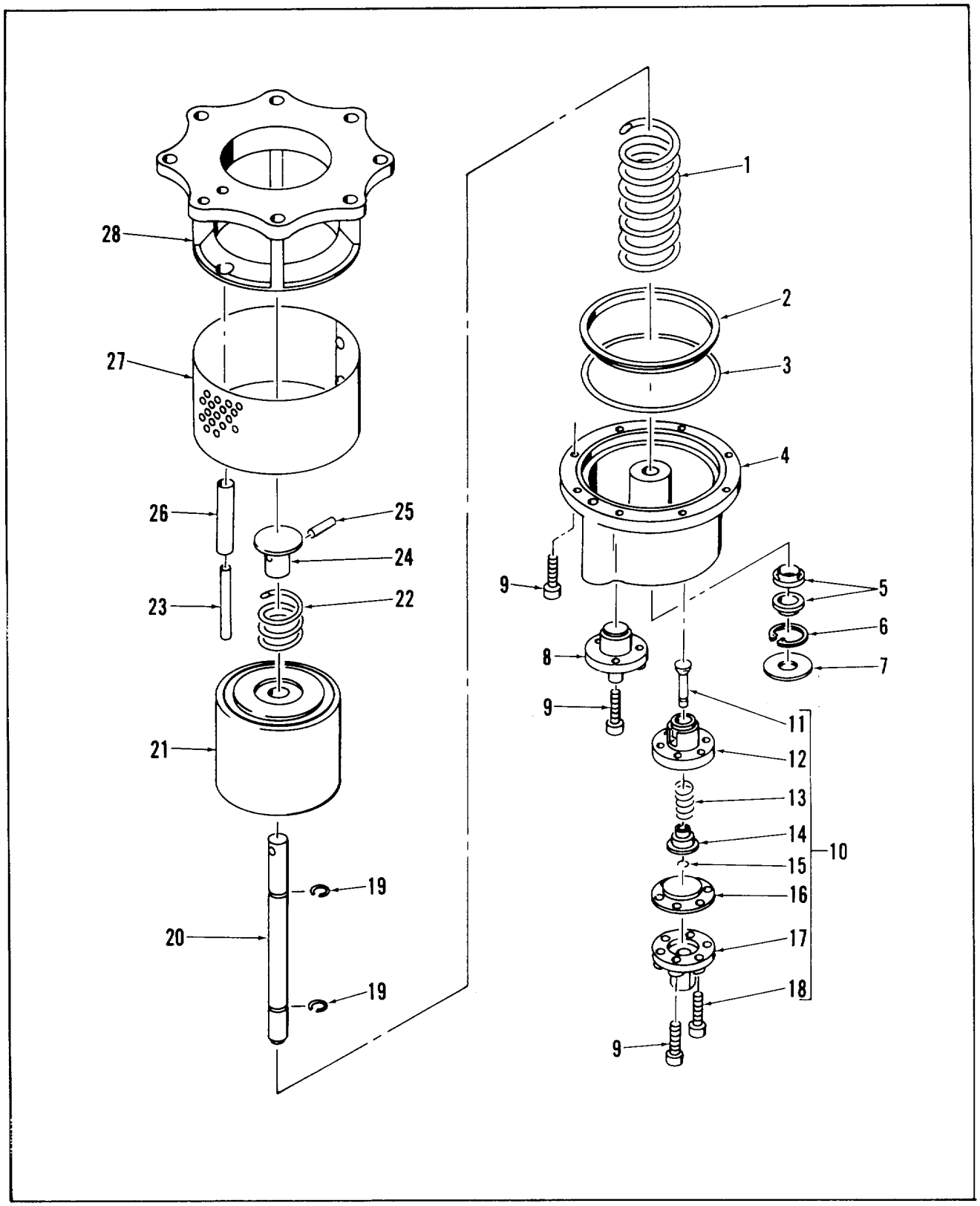


Figure 4. Main Valve Assembly

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODES	(7) U/M	(8) QTY INC IN UNIT
4	1	PFFZZ	2590-01-160-0642	92003	2722993	HOUSING VAPOR RECOVERY	EA	1
4	2	PAFZZ	5330-01-160-0703	92003	2732132	GASKET	EA	1
4	3	PAFZZ	5330-01-160-0704	92003	2793253-101	GASKET EXTENSION	EA	1
4	4	PFFZZ	2590-01-160-0644	92003	2793223-101	EXTENSION, INTERNAL VALVE	EA	1
4	5	PAFZZ	4730-01-099-6162	93061	269NTA-6-4	ELBOW. PIPE TO TUBE (INCLUDES NUT SLEEVE)	EA	4
4	6	PFFZZ	4930-01-134-2189	92003	F613A	SENSOR, LEVEL., JET	EA	1
4	7	PFFZZ	2590-01-160-0667	92003	2803127-101	BRACKET, DEFECTOR	A	1
4	8	PAFZZ	5310-00-974-6623	96906	MS35338-140	WASHER, LOCK	EA	4
4	9	PAFZZ	5305-00-225-7210	96906	MS16995-62	SCREW, CAP, SOCKET HE	EA	4
4	10	PAFZZ	5310-00-829-9981	96906	MS35649-2312	NUT, PLAIN, HEXAGON	EA	2
4	11	PAFZZ		87373	PFT-6B	TUBE, 12 IN. LONG	EA	2
4	12	PAFZZ	5305-00-988-7616	96906	MS16995-52	SCREW, CAP, SOCKET HE	EA	1
4	13	PFFFF	2590-01-160-0645	92003	F660M	VALVE, ASSEMBLY INTE (SEE FIG. 5 FOR DETAILED BREAKDOWN	EA	1
4	14	PAFZZ	5305-00-990-0668	96906	MS16995-81	SCREW, CAP, SOCKET HE	EA	7
4	15	PFFZZ	3040-01-160-0746	92003	2793226-101	SHAFT, STRAIGHT	EA	1
4	16	PAFZZ		92003	2661058A011	PACKING ,DRAIN	EA	1
4	17	PAFZZ	5310-00-177-0978	96906	MS25440-5	WASHER, FLAT	EA	1
4	18	PFFZZ	5360-01-161-5351	92003	2706155-113	SPRING, DRAIN	EA	1
4	19	PFFZZ	2590-01-160-0657	92003	2793225-101	CAP, DRAIN BUTTON	EA	1
4	20	PAFZZ		92003	2661058BD158	PACKING, PRESSURE ADAPTOR	EA	1
4	21	PFFZZ	9905-01-160-0671	92003	2803235-101	PLATE, INSTRUCTION PRESSURE	EA	1
4	22	PAFZZ	5305-00-988-7614	96906	MS16995-50	SCREW, CAP, SOCKET HE 1/4-20 UNC X 3/4 IN. LG	EA	11
4	23	PAFZZ		92003	2661058A153	PACKING, PRESSURE ADAPTOR	EA	1
4	24	PAFZZ	4930-01-143-4382	92003	2671129	FLANGE, FUEL ADAPTER PRESSURE	EA	1
4	25	PFFZZ	5305-00-637-8382	02615	NK509-8R9	SCREW, SELF-LOCKING	EA	6
4	26	PAFZZ	5430-01-160-0753	92003	F425	CAP, FILLER OPENING SERVICING 2-1/2 IN	EA	1



TA255058

Figure 5. Internal Valve Assembly

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODES	(7) U/M	(8) QTY INC IN UNIT
5	1	PFFZZ	5360-01-160-0698	92003	2775035-101	SPRING, HELICAL, COMP	EA	1
5	2	PAFZZ	2590-01-160-0647	92003	2775039-102	SEAL, PISTON	EA	1
5	3	PAFZZ	5360-01-160-0695	92003	2775041-101	SPRING, GARTER, EXTEN PISTON SEAL	EA	2
5	4	PFFZZ	4820-01-160-0760	92003	2775029-101	CAP, VALVE	EA	1
5	5	PAFZZ	2590-01-160-0649	92003	2775040-103	SEAL, SHAFT	EA	2
5	6	PAFZZ	5365-00-838-3054	96906	MS16627-1081	RING, RETAINING	EA	1
5	7	PAFZZ	5310-01-160-0715	92003	2793275-101	WASHER, FLAT	EA	1
5	8	PFFZZ	2590-01-160-0684	92003	2775247-101	PLUG, VALVE	EA	1
5	9	PFFZZ	5305-01-160-0684	92003	270656000832075	SCREW, TAPPING, THREA	EA	14
5	10	PFFFF	2590-01-160-0652	92003	2775237-104	PILOT ASSEMBLY, PIST	EA	1
5	11	PFFZZ	2590-01-160-0654	92003	2775236-101	POPPET, PILOT	EA	1
5	12	XAFZZ		92003	2775234-101	BASE, PILOT	EA	1
5	13	PAFZZ		84830	LO-035F-3MW	SPRING, HELICAL COMP	EA	1
5	14	PFFZZ	2590-01-160-0653	92003	2775235-101	BACKUP, PILOT	EA	1
5	15	PAFZZ	5365-00-725-0969	96906	MS16633-4018	RING, RETAINING	EA	1
5	16	PAFZZ	2590-01-160-0655	92003	2775233-101	DIAPHRAGM, PILOT	EA	2
5	17	XAFZZ		92003	2681197	COVER, PILOT	EA	1
5	18	PFFZZ	5305-01-160-0684	92003	270656000832075	SCREW, TAPPING, THREA	EA	3
5	19	PAFZZ		80756	RSN-50	RING, RETAINING	EA	2
5	20	PFFZZ	3040-01-160-0745	92003	2793274-101	SHAFT, STRAIGHT	EA	1
5	21	PAFZZ	2590-01-160-0648	92003	2775031-101	PISTON ASSEMBLY, VAL	EA	1
5	22	PFFZZ		92003	2706155-102	SPRING, PISTON	EA	1
5	23	PFFZZ	4720-01-160-0754	92003	2775052-101	TUBING, NONMETALLIC	EA	1
5	24	PFFZZ	2590-01-160-0651	92203	2793276-101	ORIFICE	EA	1
5	25	PAFZZ	5315-00-761-0657	96906	MS9390-460	PIN, STRAIGHT, HEADLE DIA X 1 IN. LONG	EA	1
5	26	PFFZZ	2590-01-160-0650	92003	2775053-101	TUBE, OUTER	EA	1
5	27	PFFZZ	2590-01-160-0646	92003	2775153-111	SCREEN ASSY (RIVETED)	EA	1
5	28	XAFZZ		92003	2793273-101	BODY, VALVE	EA	1

--------END OF REPORT------

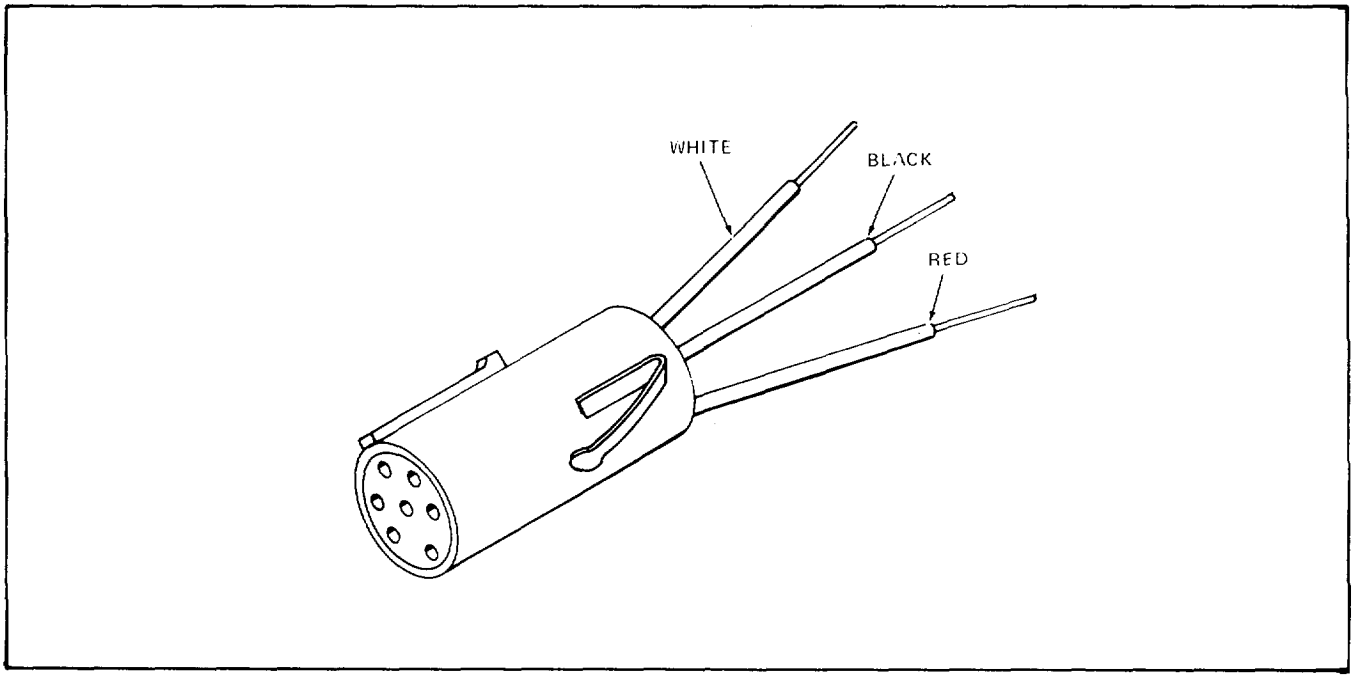
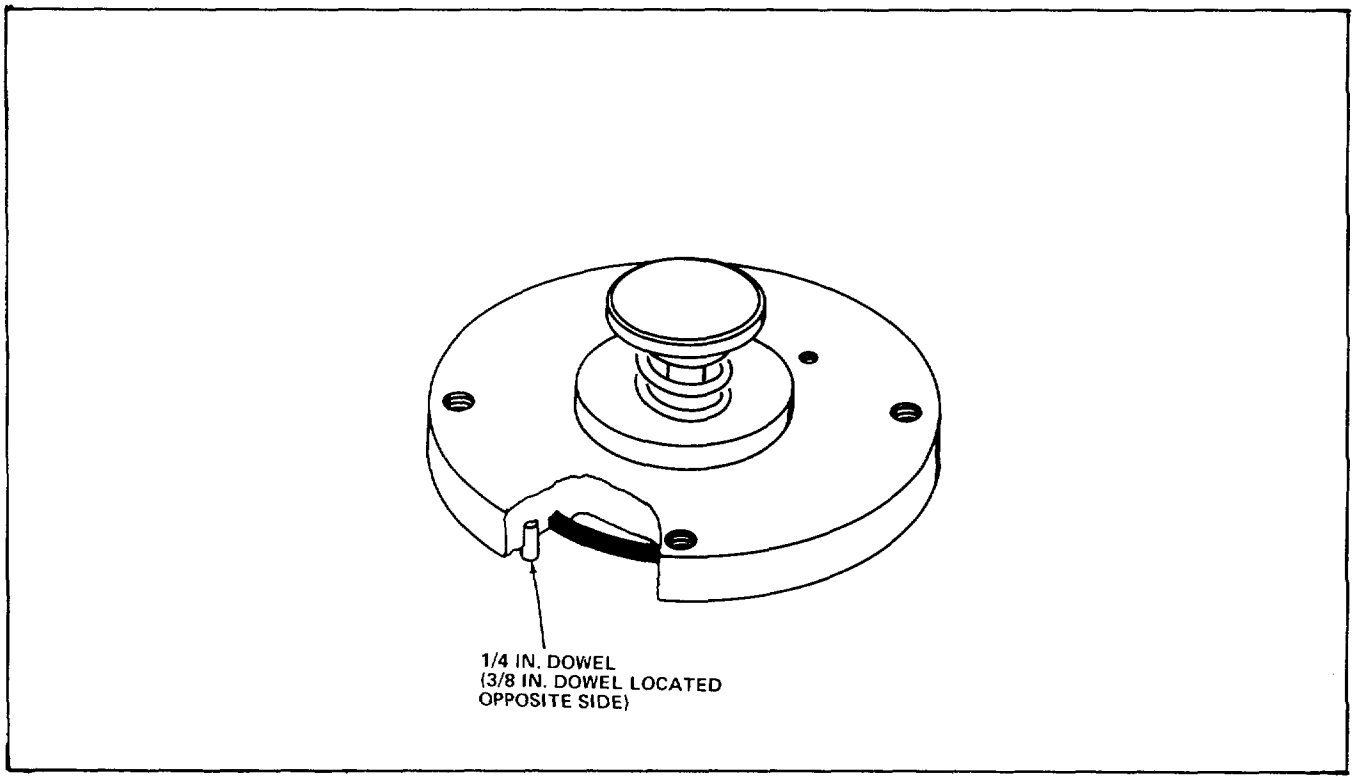


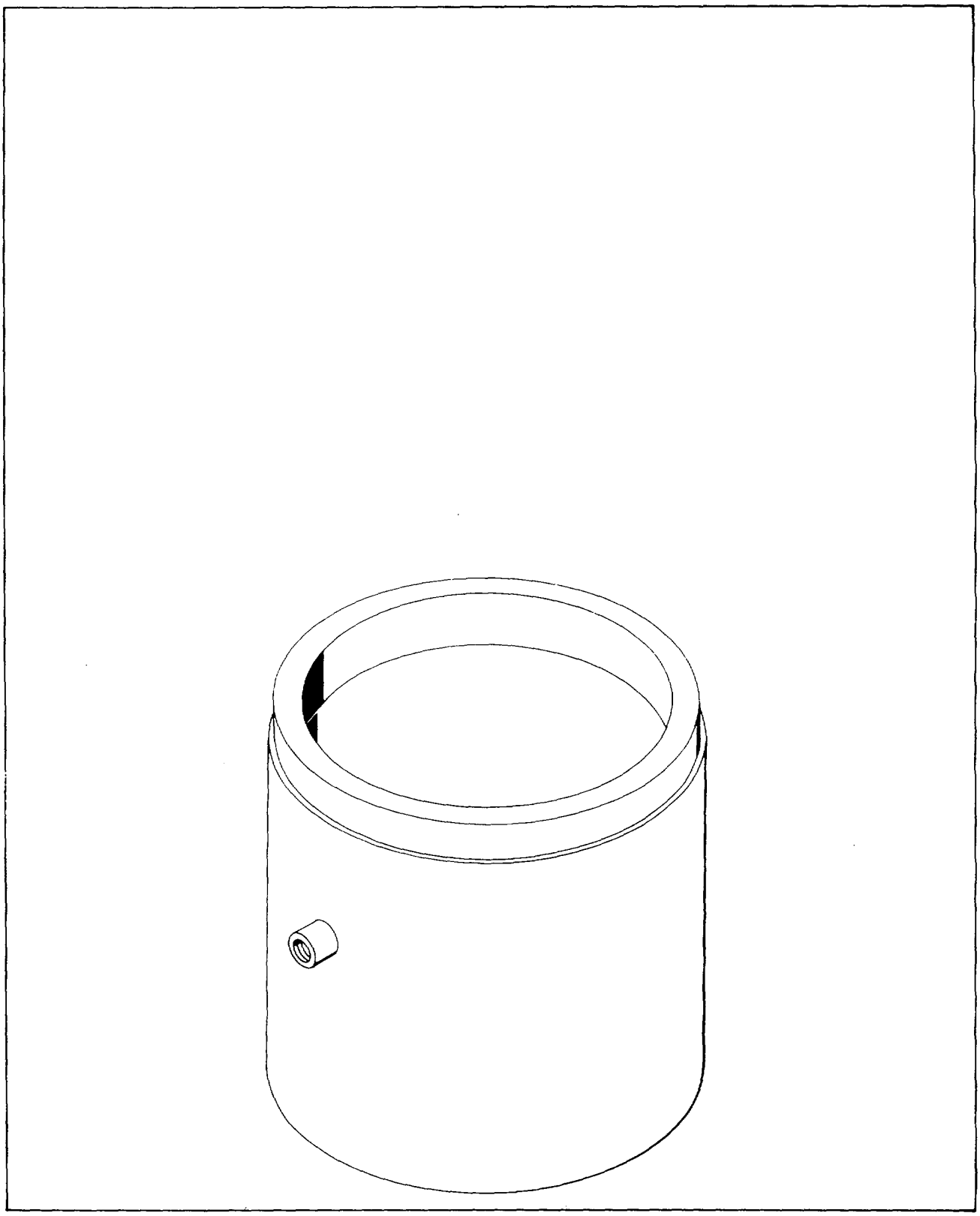
Figure 6. Test Plug



TA255059

Figure 7. Internal Valve Test Fixture

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODES	(7) U/M	(8) QTY INC IN UNIT
6	1	PAFZZ	2590-01-160-0668	92003	F65-0-4274	PLUG, TEST	EA	1
7	1	PAFZZ	2590-01-160-0669	92003	F65-0-4271	FIXTURE, TEST INTERN	EA	1
8	1	PAFZZ	2590-01-160-0670	92003	F65-0-4273	FIXTURE, TEST	EA	1



TA255060

Figure 8. Converter Assembly Test Fixture

(1) ILLUSTRATION (a) FIG NO.	(1) ILLUSTRATION (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION USABLE ON CODES	(7) U/M	(8) QTY INC IN UNIT
8	1	PAFZZ	2590-01-160-0670	92003	F65-0-4273	FIXTURE, TEST	EA	1

STOCK NUMBER	FIGURE NO.	ITEM NO.
5310-00-167-0807	3	6
5310-00-161-0823	3	16
5310-00-177-0078	4	17
5305-00-225-7210	4	9
5340-00-290-0970	2	4
5340-00-297-6645	2	6
5310-00-564-5272	3	11
5305-00-637-8382	4	25
5365-00-725-0969	5	15
5315-00-761-0657	5	25
5315-00-805-0300	3	7
5310-00-829-9981	1	1
5310-00-629-9981	4	10
5365-00-838-3054	5	6
5310-00-974-6623	1	2
5310-00-974-6623	4	8
5305-00-988-7612	1	6
5305-00-988-7614	3	14
5305-00-988-7614	3	15
5305-00-988-7614	4	22
5305-00-988-7616	4	12
5305-00-988-7839	1	4
5305-00-988-7844	3	1
5305-00-990-0668	4	14
4730-01-099-1692	4	5
5330-01-119-3279	1	5
5330-01-119-4399	3	13
4930-01-134-2189	4	6
4930-01-143-4382	4	24
2590-01-160-0642	4	1
2590-01-160-0643	2	2
2590-01-160-0644	4	4
2590-01-160-0645	4	13
2590-01-160-0646	5	27
2590-01-160-0647	5	2
2590-01-160-0648	5	21
2590-01-160-0649	5	5
2590-01-160-0650	5	26
2590-01-160-0651	5	24
2590-01-160-0652	5	10
2590-01-160-0653	5	14
2590-01-160-0654	5	11
2590-01-160-0655	5	16
2590-01-160-0656	5	8
2590-01-160-0657	4	19
2590-01-160-0658	3	2
2590-01-160-0659	2	1
5340-01-160-0660	3	5
5340-01-160-0661	3	4
5340-01-160-0662	3	12
2590-01-160-0663	1	9
2590-01-160-0664	1	3
2590-01-160-0665	1	8
2590-01-160-0666	1	7
2590-01-160-0667	4	7
2590-01-160-0668	6	1
2590-01-160-0669	7	1
2590-01-160-0670	8	1
9905-01-160-0671	4	21
5306-01-160-0682	3	10
5305-01-160-0684	5	9
5305-01-160-0684	5	18
4730-01-160-0693	1	12
5360-01-160-0695	5	3
5360-01-160-0698	5	1
5360-01-160-0699	3	9
5330-01-160-0703	2	3
5330-01-160-0703	4	2
5330-01-160-0704	4	3
4730-01-160-0707	1	11
5310-01-160-0715	5	7
5310-01-160-0722	3	8
6680-01-160-0730	1	10
3040-01-160-0745	5	20
3040-01-160-0746	4	15
5430-01-160-0753	4	26
4720-01-160-0754	5	23
4820-01-160-0760	5	4
5360-01-161-5351	4	18

FSCM	PART NUMBER	FIGURE NO.	ITEM NO.
88044	AN960-816	3	16
88044	AN9600916	3	6
92003	F425	4	26
92003	F613A	4	6
92003	F65-0-4271	7	1
92003	F65-0-4273	8	1
92003	F65-0-4274	6	1
92003	F660M	4	13
84830	L0-035F-3MW	5	13
96906	MS16627-1081	5	6
96906	MS16633-4018	5	15
96906	MS16995-48	1	6
96906	MS16995-50	3	14
96906	MS16995-50	3	15
96906	MS16995-50	4	22
96906	MS16495-52	4	12
96906	MS16995-62	4	9
96906	MS16995-65	1	4
96906	MS16995-80	3	1
96906	MS16995-81	4	14
96906	MS171663	3	7
96906	MS25440-5	4	17
96406	MS35338-140	1	2
96906	MS35338-140	4	8
96906	MS35338-48	3	11
96906	MS35649-2312	1	1
96906	MS35649-2312	4	10
96906	MS51927-3	2	6
96906	MS51944-4	2	4
96906	MS9390-460	5	25
02615	NK509-8R9	4	25
87373	PFT-6B	4	11
80756	RSN-50	5	19
92003	2661058A011	4	16
92003	2661058A111	3	13
92003	26610586A153	4	23
92003	2661058A212	1	5
92003	2661058BD158	4	20
92003	2661058BD247	3	3
92003	2671129	4	24
92003	2681197	5	17
93061	269NTA-6-4	4	5
92003	2706094	1	10
92003	2706133-105	1	12
92003	2706138-102	1	11
92003	2706143-101	1	8
92003	2706143-102	1	7
92003	2706154-101	2	1
92003	2706155-102	5	22
92003	2706155-113	4	18
92003	2706541-101	3	10
92003	270656000832075	5	9
92003	270656000832075	5	18
92003	2722993	4	1
92003	2731051	3	9
92003	2731053	3	12
92003	2731054	3	5
92003	2731058	3	4
92003	2731060	3	8
92003	2732132	2	3
92003	2732132	4	2
92003	2733387	1	3
92003	2775029-101	5	4
92003	2775031-101	5	21
92003	2775035-101	5	I
92003	2775039-102	5	2
92003	2775040-103	5	5
92003	2775041-101	5	3
92003	2775052-101	5	23
92003	2775053-101	5	26

FSCM	PART NUMBER	FIGURE NO.	ITEM NO.
92003	2775153-111	5	27
92003	2775233-101	S	16
92003	2775234-101	5	12
92003	2775235-101	5	14
92003	2775236-101	5	11
92003	2775237-101	5	10
92003	2775247-101	5	8
92003	2793223-101	4	4
92003	2793225-101	4	19
92003	2793226-101	4	15
92003	2793234-101	3	2
92003	2793251-101	2	2
92003	2793253-101	4	3
92003	2793254-101	1	9
92003	2793264-101	2	5
92003	27932T3-101	5	28
92003	2793274-101	5	20
92003	2793275-101	5	7
92003	2793276-101	5	24
92003	2803127-101	4	7
92003	2803235-101	4	21

APPENDIX E
EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. SCOPE. This appendix lists expendable supplies and materials required to operate and maintain the converter assembly. These items are authorized by CTA 50-970, Expendable Items (Except Medical Class V, Repair Parts and Heraldic Items).

E-2. EXPLANATION OF COLUMNS.

a. Column 1 - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions of this manual to identify the material (e.g., "Use dry cleaning solvent, item 1, App F").

b. Columns 2 - Level. This column identifies the lowest level of maintenance authorized to use the item listed.

C ..... Operator/Crew
F.....Direct Support Maintenance

c. Column 3 National Stock Number. This column identifies the National Stock Number assigned to the item. The National Stock Number should be used to request or requisition the item.

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

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

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) Item No.	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	F		ADHESIVE, Loctite (60647) 242	OZ
2	C	7920	BRUSH, Cleaning, tools and parts MIL-B-43871	EA
3	C		DRY CLEANING SOLVENT, SD (81348) P-D-680, type II	
		6850-00-664-5685	1-qt can	QT
		6850-00-281-1985	1-gal can	GL
4	F		PETROLATUM, VV-P-236	OZ
5	C	7920-00-205-1711	RAG, WIPING, Cotton, white, bleached, 50 lb bale (81348) DDD-R-30	LB

ALPHABETICAL INDEX

C

D

By Order of the Secretary of the Army:

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

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:
To be distributed in accordance with DA Form 12-39, Operator's, Organizational and Direct Support for Converter Assembly, Vapor Recovery.

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

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A Troop 4/9 Cav.
APO, San Francisco 84351

DATE SENT
5 Nov 84

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-2590-506-13&P	16 April 1984	Operator's, Org. and DS for Converter Assy, Vapor Reco

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.
400		183	
512		191	

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

Change illustration. Reason: Tube end shown assembled on wrong side of lever cam.

Figure 191, item 3 has the wrong NSN. Supply rejects orders for this item. The NSN shown here is not listed in the AMDF or the MCRL.

Please give us the correct NSN and P/N.

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
John Smith S. SGT (317) 793-4714

SIGN HERE: John Smith

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DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 9-2590-506-13&P	16 April 1984	Operator's, Org and DS, Converter Assy, Vapor Recovery

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

SQUARE MEASURE

1 Sq Centimeter = 100 Sq. Millimeters = 0.155 Sq Inches
1 Sq. Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

WEIGHTS

1 Gram = 0 001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0 06 Cu Inches
1 Cu Meter= 1,000,000 Cu Centimeters = 35 31 Cu. Feet

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

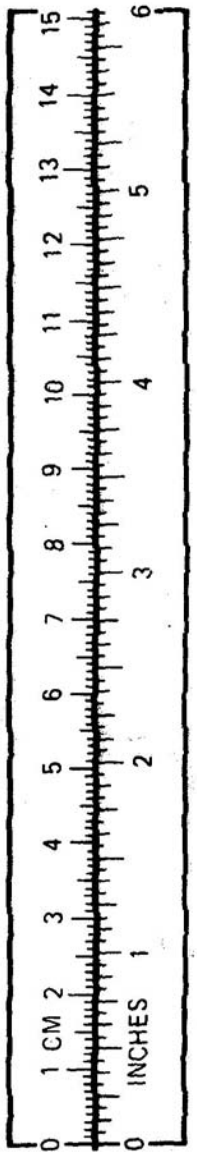
TEMPERATURE

5/9 (°F - 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32 2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 °C + 32 = °F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid	Ounces Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Quarts.	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.45
Short Tons	Metric Tons	0.0907
Pound-Feet	Newton-Meters	1.356
Pounds per Square	Inch Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0 155
Square Meters	Square Feet .	10.764
Square Meters	Square Yards	1.195
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters Fluid	Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2 205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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