

**TECHNICAL MANUAL**

**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL  
SUPPORT MAINTENANCE MANUAL**

**(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS)**

**FOR**

**SEMITRAILER, TANK: FUEL, 5000 GALLON, 4 WHEEL,  
M131A4 (NSN 2330-00-994-9459)**

**SEMITRAILER, TANK: FUEL SERVICING,  
5000 GALLON, 4 WHEEL,  
M131A4C (NSN 2330-00-994-9458)**

**SEMITRAILER, TANK: FUEL 5000 GALLON, 4 WHEEL,  
M131A5 (NSN 2330-00-226-6079) AND  
SEMITRAILER, TANK: FUEL SERVICING,  
5000 GALLON, 4 WHEEL,  
M131A5C (NSN 2330-00-226-6080)**

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

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**HEADQUARTERS, DEPARTMENT OF THE ARMY**  
**JULY 1983**



### **WARNING**

When stenciling, avoid excessive inhalation of vapors. All cleaning and stenciling procedures must be performed in a well-ventilated room or outdoors. A CO<sub>2</sub> fire extinguisher must be positioned adjacent to the area where cleaning and stenciling procedures are performed.

### **WARNING**

Under no circumstances is welding or soldering to be attempted on any part of a fuel tank semitrailer unless the interior of the tank has been steam cleaned, tested with an explosion meter, and determined to be safe. Failure to heed this warning is likely to result in injury to personnel and destruction of materiel.

### **WARNING**

Extreme care must be exercised at all times when preparing fuel tank for maintenance and performing tank maintenance operations.

### **WARNING**

None of the following operations are to be performed on the fuel tank semitrailer unless it is properly steamed:

- Welding.

- Cutting with acetylene torch.

- Drilling.

- Troubleshooting on wiring system with test light, voltmeter, or ammeter.

- Cutting with chisel or hammer.

- Using a wrench where slippage may take place, thus permitting wrench handle to strike the semitrailer, causing a spark,

- Driving hot or cold rivets.

### **WARNING**

- Driving on manhole cover with steel hammer which can very easily create a spark.

- Soldering.

- Using abrasive tools.

- Coupling a welder or any other electrical ground to any part of the semitrailer.

- Striking an arc against semitrailer.

### **WARNING**

Transporting two or more types of fuel simultaneously is extremely hazardous and should never be attempted.

### **WARNING**

When pumping fuel through the filter-segregator always pump from No. 2 compartment on the M131A4C, and No. 1 compartment on the M131A5C first. The filter-segregator is vented into these compartments and could cause overflowing if any other compartment is emptied first.

### **WARNING**

Before receiving or delivering fuel, the first step is to ground the semitrailer and vehicle or container to be fueled or defueled to a suitable ground using the static ground lines. Failure to heed this warning is likely to result in injury to personnel and destruction of material due to an explosion caused by static electricity.

### **WARNING**

Only DS (Direct Support) personnel are authorized to test, weigh, and/or refill fixed or portable fire extinguishers. Failure to heed this warning may result in injury to personnel.

### **WARNING**

Dry cleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well ventilated area. Avoid contact with skin, eyes, and clothes and don't breath vapors. Do not use near open flame or excessive heat. The flash point is 100 F -138 F (38 C -50 C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately. Reason To prevent personal injury.



**CHANGE**

**No. 1**

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, DC, 11 October 1985

**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT,  
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FOR  
SEMITRAILER, TANK FUEL, 5000 GAL., 4 WHEEL  
M131A4 (NSN 2330-00-994-9459)  
SEMITRAILER, TANK: FUEL SERVICING, 5000 GAL., 4 WHEEL,  
M131A4C NNSN 2330-00-994-9458)  
SEMITRAILER, TANK FUEL, 5000 GAL., 4 WHEEL,  
M131A5 (NSN 2330-00-226-6079)  
SEMITRAILER, TANK FUEL SERVICING, 5000 GAL., 4 WHEEL,  
M131A5C (NSN 2330-00-226-6080)**

TM 9-2330-272-14&P, 21 July 1983, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. New or revised illustrations are indicated by a vertical bar adjacent to the illustration identification number.

<i>Remove Pages</i>	<i>Insert Pages</i>	<i>Remove Pages</i>	<i>Insert Pages</i>
a. and b.	a. and b.	C-1 and c-2	C-1 and C-2
iii (iv blank)	iii (iv blank)	E-3 and E-4	E-3 and C-4
1-1 and 1-2	1-1 and 1-2	E-13 thru E-16	E-13 thru E-16
1-7 and 1-8	1-7 and 1-8	E-19 thru E-22	E-19 thru E-22
2-11 and	2-11 and	E-31 and E-32	E-31 and E-32
2-12	2-12	E-35 and E-36	E-35 and E-36
2-25 and 2-26	2-25 and 2-26	E-45 and E-46	E-45 and E-46
3-1 and 3-2	3-1 and 3-2	E-55 thru E-58	E-55 thru E-58
3-5 through 4-2	3-5 through 4-2	E-61 and E-62	E-61 and E-62
4-11 and 4-12	4-11 and 4-12	E-65 thru E-70	E-65 thru E-70
4-19 and 4-20	4-19 and 4-20	E-73 and E-74	E-73 and E-74
4-39 thru 4-42	4-39 thru 4-42	E-79 thru E-82	E-79 thru E-82
8-1 thru 8-4	8-1 thru 8-4	E-85 thru E-94	E-85 thru E-94
A-1 (A-2 blank)	A-1 (A-2 blank)	E-97 thru E-108	E-97 thru E-108
		E-111 thru E-132	E-111 thru E-132

2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.  
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Distribution:

To be distributed in accordance with DA Form 12-39-R Operator, Organizational, DS/GS maintenance requirements for Semitrailer, Tank, Fuel Servicing, 5,000 Gallon, 4-wheel, M131A4, M131A5, M131A4C, M131A5C.

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DEPARTMENT OF THE ARMY  
WASHINGTON, DC 21 July 1983

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M131 AS (NSN 2330-00-226-6079)  
SEMITRAILER, TANK: FUEL SERVICING, 5000 GAL., 4 WHEEL,  
M131A5C (NSN 2330-00-226-6080)**

Current as of 1 December 1982

**REPORTING OF ERRORS**

**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, Michigan 48090. A reply will be furnished to you.**

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# CHAPTER 1

## INTRODUCTION

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### Section I. GENERAL

#### 1-1. Scope

This manual contains operating instructions, operator, organizational, and direct support and general support maintenance instructions, and repair parts and special tools list for the 12-ton, 4-wheel, 5000-gallon fuel tank semitrailers M131A4, M131A4C, M131A5, and M131A5C.

#### 1-2. Maintenance Forms and Records

Equipment maintenance forms and records, and procedures for their use are contained in DA PAM 738-750. The Army Maintenance Management System (TAMMS).

#### 1-3. Administrative Storage

For information on administrative storage, refer to TM 740-90-1, Administrative Storage of Equipment.

#### 1-4. Destruction of Army Materiel to Prevent Enemy Use

For information on destruction of Army materiel to prevent enemy use, refer to TM 750-244-6, Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use.

#### 1-5. Reporting Equipment Improvement Recommendations (EIR).

EIR will be prepared on Standard Form 368, Quality Deficiency Report. Instructions for preparing EIR's are provided in DA PAM 738-750. The Army Maintenance Management System. EIR's should be mailed direct to Commander, US Army Tank Automotive Command, ATTN: DRSTA-MV, Warren, MI 48090. A reply will be furnished direct to you.

### Section II. DESCRIPTION AND DATA

#### 1-6. Description (fig 1-1 through 1-8)

a. The 12-ton, 4-wheel, 5000-gallon fuel tank semitrailers M131A4, M131A4C, M131A5, and M131A5C are designed to be towed by a 5-ton 6x6 tractor or similar vehicle equipped with a fifth wheel.

b. All semitrailers are equipped with a 24-volt electrical system, air-over-hydraulic brake system, spare wheel and tire carrier, landing gear, tank body, auxiliary engine and fuel dispensing pump assembly, portable and fixed fire extinguishing systems, and three sections of 3-inch fuel transfer hose.

#### 1-7. Differences Among Models

a. The M131A4 and M131A4C semitrailers have four fuel tank compartments. Each compartment has a capacity of 1250 gallons.

b. The M131A5 and M131A5C semitrailers have two fuel tank compartments. Each compartment has a capacity of 2500 gallons.

c. The M131A4 and M131A5 semitrailers are used for fuel transport or fuel transfer only.

d. The M131A4C and M131A5C semitrailers are used for fuel transport, fuel transfer, or fuel servicing of containers, ground vehicles, or aircraft having over-

the-wing fueling facilities with a maximum fuel acceptance rate of 225 gpm.

e. The M131A4 and M131A5 semitrailers consist of an integral fuel tank with one curbside cabinet, housing an air-cooled auxiliary engine and fuel dispensing pump unit, fuel manifold, flow control valves, and static reel.

f. The M131A4C and M131A5C semitrailers consist of an integral fuel tank with one curbside cabinet, housing an air-cooled auxiliary engine and fuel dispensing pump unit and one roadside cabinet, housing a fuel manifold, flow control valves, volumetric meter, static reel, hose reels, and nozzles.

g. Differences on the M131A4C areas follows:

(1) *Instrument panel.* Semitrailers with serial numbers 1 through 340 house the instrument panel in the curbside cabinet. Semitrailers with serial numbers after 340 have the instrument panel on the roadside of the trailer near the equipment cabinet.

(2) *Filter-segregator.* Semitrailers with serial numbers 1 thru 113 are equipped with Warner Lewis designed filter-segregators; those with serial numbers after 113 are equipped with Bowser, Inc. designed filter-segregators.

h. Similar models of semitrailers were produced by

different manufacturers and as a result some minor differences in design among these semitrailers do exist. The serial numbers and contract numbers listed be-

low should be indicated in any reports, inquiries, or recommendations.

Serial No.	Manufacturer	Contract No, 20-113-AMC	Vehicle Model
1 thru 115	City Tank Corp.	DA-11-022-AMC-1894 (T)	M131A4
1 thru 113	The Heil Co.	DA-11-022-AMC-2012 (T)	M131A4C
114 thru 340	Butler Mfg. Co.	DA-11-022-AMC-1864 (T)	M131A4C
341 thru 396	The Heil Co.	DA-11-022-AMC-2012 (T)	M131A4C
397 thru 497	Butler Mfg. Co.	DA-11-022-AM-1864 (T)	M13A4C
498 thru 607	The Heil Co.	DA-11-022-AMC-2264 (T)	M131A4C
1 thru 840	The Heil Co.	DA-11-022-AMC-5431 (T)	M131A5
841 thru 1640	The Heil Co.	DA-11-022-AMC-10112 (T)	M131A5
1641 thru 2635	Fruehauf Trailer Co.	DA-11-022-AMC-10420 (T)	M131A5
2636 thru 2644	The Heil Co.	DA-11-022-AMC-10112 (T)	M131A5
1 thru 428	Fruehauf Trailer Co.	DA-11-022-AMC-11226 (T)	M131A5C

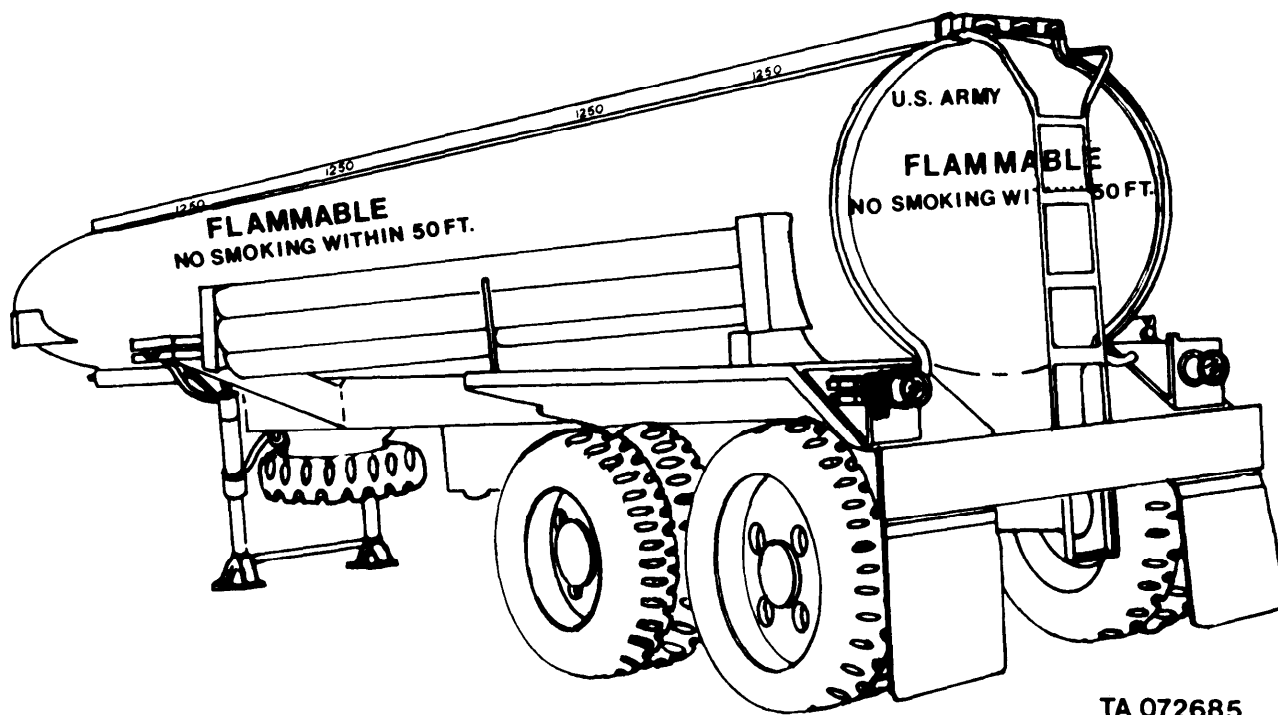


Figure 1-1 Fuel tank semitrailer M131A4-left rear view.

## 1-8. Electrical System

a. The semitrailer chassis is equipped with a 24-volt electrical system. For operation with a towing vehicle having a 6- or 12-volt system, the using organization will ensure that lamp bulbs of the proper voltage are installed.

b. Clearance lights, taillights, stoplights, and turn signals on the semitrailer chassis are controlled from the towing vehicle through the intervehicular cable on the rear of the towing vehicle and the wiring harness assembly on the semitrailer chassis. The system is protected by a circuit breaker on the towing vehicle.

c. Early model taillight, stoplight, and turn signal

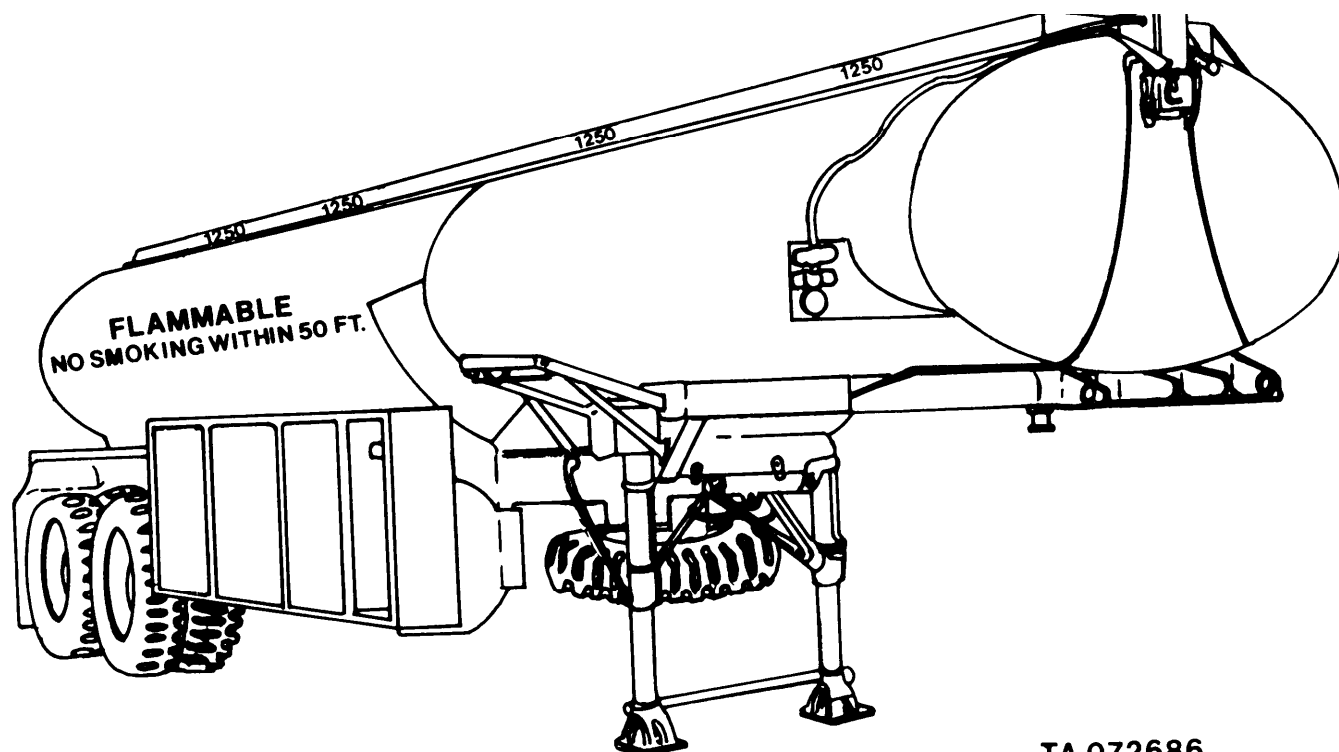
systems consist of two service taillights, stoplights, and blackout taillight assemblies which are mounted at the rear of the semitrailer on each side of the frame. Each taillight is used as a turn signal indicator in both service and blackout mode of operation. A blackout stoplight is mounted by the side of the right taillight.

d. Late model systems have two composite tail, stop, turn, and marker lights instead of the old taillight and blackout stoplight.

## 1-9. Hubs and Brake Drums

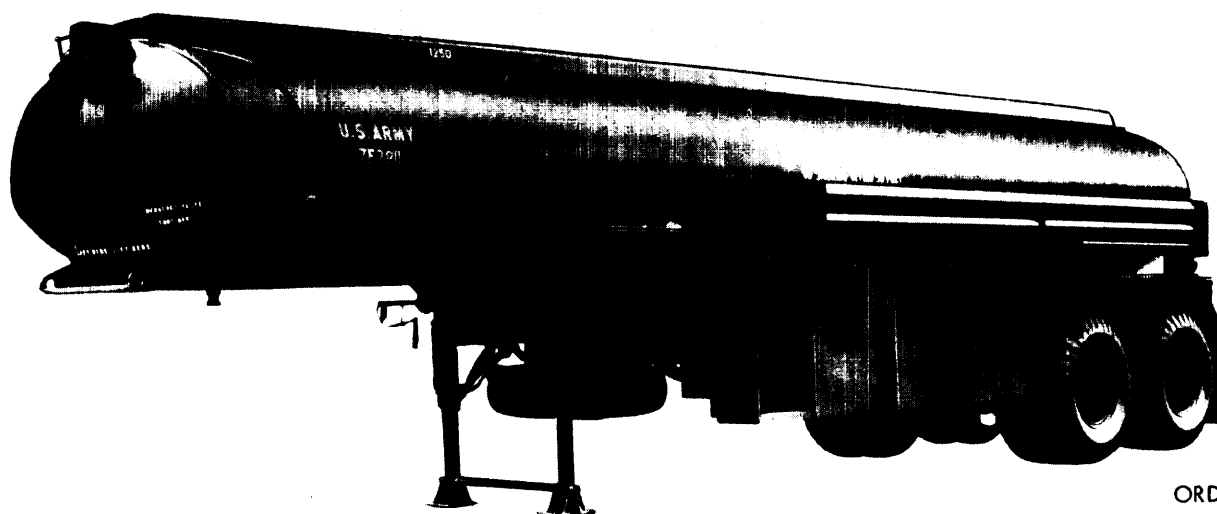
a. Each hub is mounted on the spindle of the axle on two adjustable, tapered roller bearings. The bearing





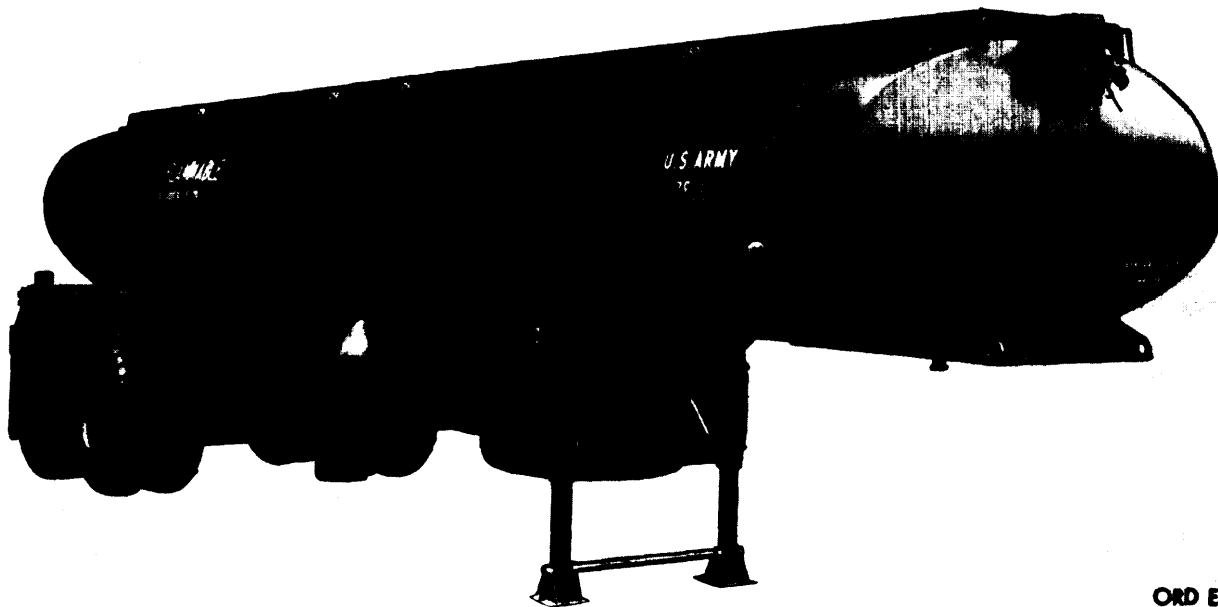
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Figure 1—2. Fuel tank semitrailer M131A4-right front view.



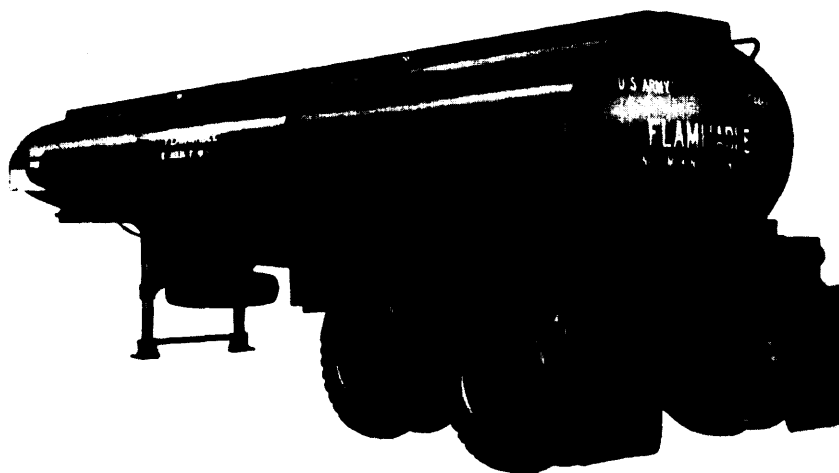
ORD E47652

Figure 1—3. Fuel tank semitrailer M13A4C-left front view.



ORD E47653

Figure 1-4. Fuel tank semitrailer M131A4C-right front view.



ORD E44271

Figure 1-5. Fuel tank semitrailer M131A5-left rear view.

cones and rollers are removable for cleaning, inspection, or replacement. The bearing cups are pressed into the hubs.

*b.* The brake drums are mounted on the hubs and are secured through a dished brake drum adapter. A hub cap and hub cap gasket fastened to the outside of the hub keep moisture and foreign matter out of the hub.

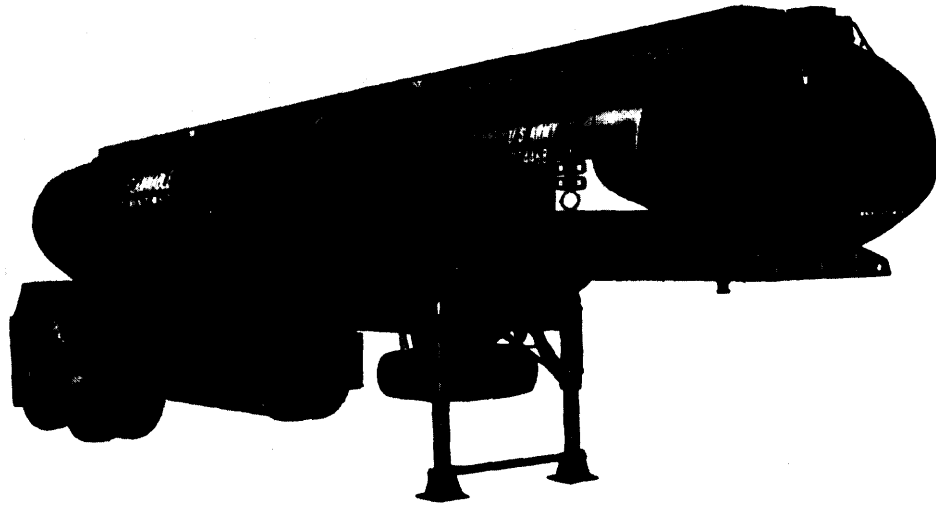
#### 1-10. Service Brakes

*a.* The service brake system is air-over-hydraulic. Air pressure operates the hydraulic braking system. When the semitrailer braking system is connected to the service braking system of the towing vehicle, the

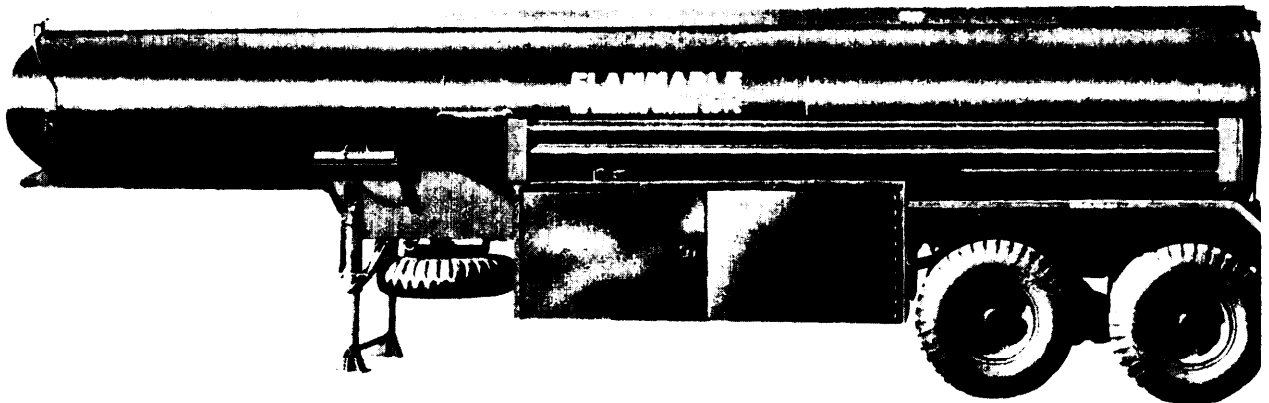
service brake pedal on the towing vehicle operates the brakes on both vehicles.

*b.* The system consists of a relay emergency valve, air-hydraulic master cylinders, air reservoir, hydraulic wheel cylinders, service air lines, emergency air lines, air filters, and air hose couplings.

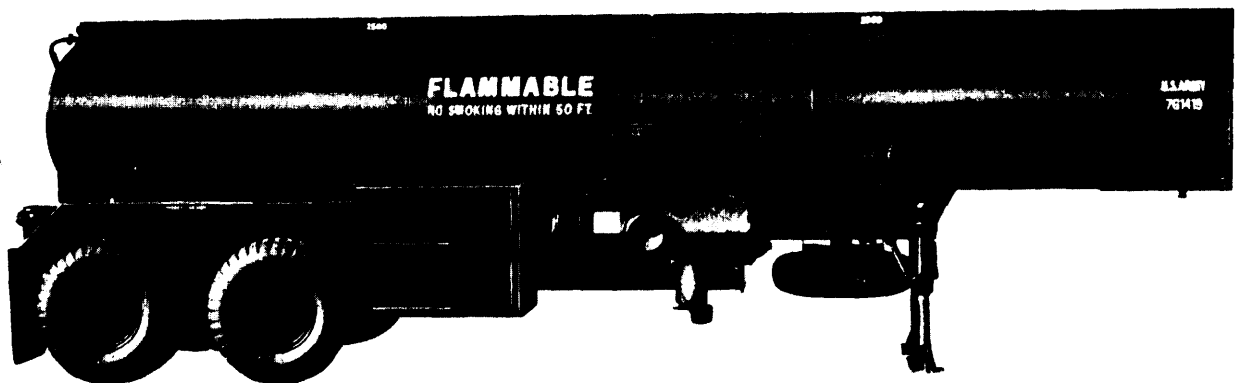
*c.* To produce and maintain a constant supply of compressed air to control and actuate the hydraulic brake system, the towing vehicle must be equipped with an air compressor, air reservoirs, a governor for controlling the air pressure, air gage, and safety valve. Air lines, air hose couplings, air hose, and shutoff valves supply compressed air to the semitrailer service brake control system.



*Figure 1-6. Fuel tank semitrailer M131A5-right front view.*



*Figure 1-7. Fuel tank semitrailer M131A5C-left side view.*



*Figure 1-8. Fuel tank semitrailer M131A5C-right side view.*

## 1-11. Wheels and Tires

*a.* The wheels for the semitrailer chassis are offset disk-type rim with split-type retaining side ring. Nuts for the right wheels (marked R) have right-hand threads and those for the left wheels (marked L) have left-hand threads. The studs are similarly marked.

*b.* The tires are military 11.00 by 20, Load Range D, pneumatic type, non-directional, cross-country tread design.

## 1-12. Spare Wheel and Tire Carrier

The spare wheel and tire carrier is mounted on the frame under the front of the semitrailer chassis. The carrier incorporates a one-way cable lift to facilitate raising and lowering of the spare wheel and tire.

## 1-13. Chocks Block

Two triangular chock blocks are provided to prevent accidental movement of the semitrailer when parked. They are attached to brackets by chains and are stowed in brackets on each side of the semitrailer chassis adjacent to the springs,

## 1-14. Landing Gear and Ground Boards

*a.* A retractable handcrank-type adjustable landing gear is used to support the semitrailer chassis when not coupled to a towing vehicle. It is also used to raise and lower the chassis when preparing to couple or uncouple it from the towing vehicle. The handcrank is a ratchet type that can be operated in either direction. When not in use, the crank is stowed in holding clips on the front apron of the chassis.

*b.* Two landing gear ground boards are provided for use when uncoupling the semitrailer in muddy, sandy, or snow-covered areas. The primary function of the ground boards is to distribute the weight imposed on the landing gear leg foot pad over a large surface area, thereby minimizing the chance of the semitrailer bogging down. The boards are attached to the landing gear legs by a chain and are stowed in brackets on each side of the semitrailer chassis near the landing gear.

## 1-15. Springs and Suspension

*a.* The semitrailer chassis has a single point, one spring, tandem axle suspension system.

*b.* Each spring consists of twelve spring leaves. Each end of the spring rests on wear pads mounted on spring guide brackets attached to the axles.

*c.* The tandem suspension is the connecting member between the axles and frame and acts to absorb road shock.

## 1-16. Tank Body

*a.* The tank body is constructed of stainless steel and is divided into either two or four compartments depending upon the model of the semitrailer. Each

compartment has a removable manhole cover and filler cover. The filler cover is equipped with a vent valve and a locking device.

*b.* A, load-level indicator is welded to each manhole collar. Each compartment has an emergency dump valve and drain pipes.

*c.* On top of the tank body is a steel grating that provides a slip-resistant footing for the walkway. The walkway, which is reached by a ladder, gives access to the manholes. Two drain plugs are provided at front of walkway for draining water from the top of the tank,

## 1-17. Auxiliary Engine and Fuel Dispensing Pump Assembly

The engine and pump assembly is used to pump fuel from or into the individual compartments. The assembly includes a two-cylinder, four-cycle, horizontally-opposed, air-cooled engine and a self-priming centrifugal pump. The pump is direct-connected to the engine with a bearing mounted shaft. The engine and pump are separated by a firewall.

## 1-18. Filter-Segregator

*a.* The filter-segregator system used on the M131A4C consists of a water slug valve and a two-stage filter. The water slug valve opens at a certain pressure and allows fuel to flow through first- and second-stage filters. The first-stage filter elements remove solid contaminants and coalesces any water in the fuel. The second-stage filter separates water from fuel and lets it drain into the sump where it collects and is drained out a drain port.

*b.* The filter-segregator used on the M131A5C consists of a water slug valve and a three-stage filter. The water slug valve and the first- and second-stage filters serve the same function as those on the M131A4C. The third-stage filter is a go-no-go fuse system which acts as a safety device to shut off the flow of fuel if the other two stages allow water or solid contaminants to exceed a safe level.

## 1-19. Fire Extinguisher Systems

*a.* The portable fire extinguisher system consists of two 2-1/2-pound and one 15-pound portable carbon dioxide fire extinguishers. The 2-1/2-pound extinguishers are mounted on brackets on the roadside cabinet doors. The 15-pound extinguisher is mounted within the equipment cabinet on some models; on other models it is mounted in a niche near the cabinet.

*b.* The fixed fire extinguisher system includes a 10-pound carbon dioxide cylinder, three nozzles, control head, and remote control. The system can be operated by the automatic release valve within the cabinet or by the remote control handle. Operation by either means releases carbon dioxide gas from the extinguisher into the cabinets.

## 1-20. Identification Plates

a. *Semitmiler Identification Plate.* This plate is located on the right-hand side of the semitrailer frame, near the front end.

b. *Fixed Fire Extinguisher System Plate.* This plate is located at the fire pullhandle box located on the front face of the fire extinguisher niche on the right side of the M131A4 semitrailer (fig 1-2), and the left side of the M131A4C semitrailer (fig 1-3). The fire pull-handle box is located inside the fire extinguisher niche on the right side of the M131A5 semitrailer (fig 1-6), and on the outside face of the front end of the cabinet on the left side of the M131A5C semitrailer (fig 1-7).

c. *Control Valve and Lever Identification Plate.* This plate is located on the door of the curbside cabinet on the M131A4 and M131A5 semitrailers and on the door of the roadside cabinet on the M131A4C and M131A5C semitrailers.

d. *Engine Data Plate.* This plate is mounted on the auxiliary engine flywheel housing.

e. *Pump Data Plate.* This plate is mounted on the fuel dispensing pump.

## 1-21. Tabulated Data

### a. Data Common to all Models.

#### (1) Dimensions overall.

Length	373-518 in.
Width	96-3/4 in.
Height (empty)	107-518 in.

#### (2) Track.

Dual wheel centers	72 in.
--------------------	--------

#### (3) Towing facility

kingpin

#### (4) Kingpin location.

Vehicle nose to kingpin center	21-5/8 in.
Kingpin center to landing gear center	78-3/16 in.

#### (5) Angle of departure.

Loaded	70 degrees
--------	------------

#### (6) Fuel tank capacity.

Cross-country (recommended load)	3300 gal
Hard surface roads (recommended load)	5000 gal

#### (7) Springs.

Type	semielliptic
Quantity	2
Normal load	14,000 lb
Number of leaves (each)	12

#### (8) Axle.

Diameter (nominal)	5-1/2 in.
Capacity	18,000 lb

#### (9) Brakes.

Type	self-centering
Actuation	air-over-hydraulic
Operating pressure	69-90 psi

#### (10) Wheels.

Quantity	9
Type	dual, military disk
Rim size	20 x 7.5
Number of stud holes	10
Stud circle diameter	11-1/4 in.

#### (11) Tires.

Quantity	9
Type	NDCC military
Size	11.00X20-12 ply

#### (12) Tire inflation.

Hard surface roads	60 psi
Cross-country and sand	45 psi

#### (13) Landing gear.

Type	two-speed with foot pads
Operation	handcrank

#### (14) Spare wheel and tire carrier.

Type	one-way cable lift
Operation	wheel nut wrench

#### (15) Fuel transfer hose.

Quantity	3
Nominal size	3 in.
Length	15 ft

#### (16) Transfer hose stowage.

Type	horizontal tube
Number of tubes	3
Tube length	16 ft.

#### (17) Fuel dispensing pump.

Type	centrifugal
Power source	auxiliary engine
Delivery rate	225 gpm max.
(The pump is direct-connected with a bearing mounted shaft.)	

#### (18) Auxiliary engine.

Model	2A042-11
(See TM 5-2805-258-14 for tabulated engine data.)	

#### (19) Electrical system.

Lamps	24 volts
Clearance lights	3 cp
Taillights (blackout)	3 cp
Taillights (service)	3 cp
Stoplights (service)	32 cp

(20) <i>Portable-fire extinguishers.</i>		(recommended load)	1250 gal
Type	CO <sub>2</sub>	(4) <i>Manholes and filler covers.</i>	
Quantity:	2	Number	4
Size	2-1/2 lb	Manhole cover size	
Quantity:	1	(nominal)	16 in.
Size	15 lb	Filler cover size	
(21) <i>Fixed fire extinguisher system.</i>		(nominal)	10 in.
Type	CO <sub>2</sub>	(5) <i>Fuel dispensing hose.</i>	
Size	10 lb	Length	50 ft
b. M131A4.		Quantity:	2
(1) <i>Weight.</i>		1	1-1/2 in.
Empty	12,900 lb	1	2-1/2 in.
Cross-country		(6) <i>Fuel dispensing nozzles.</i>	
(recommended load)	36,165 lb	Type	trigger control
Hard surface roads		Quantity:	1
(recommended load)	48,150 lb	Nominal size	1-1/2 in.
(2) <i>Center of gravity.</i>		Capacity	0-55 gpm
Empty (forward of		Quantity:	1
suspension center)	127-5/8 in,	Nominal size	2-1/2 in.
Loaded (forward of		Capacity	0-255 gpm
suspension center)	96-1/8 in.	(7) <i>Meter.</i>	
(3) <i>Fuel tank data.</i>		Flow rate	300 gpm
Number of		Material	aluminum
compartments	4	(8) <i>Filter-segregator.</i>	
Compartment		Weight (dry)	226 lb
capacity:		Operating pressure	75 psi
Cross-country		Capacity	300 gpm
(recommended load)	825 gal	d. M131A5.	
Hard surface roads		(1) <i>Weight.</i>	
(recommended load)	1250 gal	Empty	12,900 lb
(4) <i>Manholes and filler covers.</i>		Cross-country	
Number	4	(recommended load)	36,165 lb
Manhole cover size		Hard surface roads	
(nominal)	16 in.	(recommended load)	48.150 lb
Filler cover size		(2) <i>Center of gravity.</i>	
(nominal)	10 in.	Empty (forward of	
c. M131A4C.		suspension center)	127-5/8 in.
(1) <i>Weight.</i>		Loaded (forward of	
Empty	13,850 lb	suspension center)	96-1/8 in.
Cross-country		(3) <i>Fuel tank data.</i>	
(recommended load)	36,950 lb	Number of	
Hard surface roads		compartments	2
(recommended load)	49,100 lb	Compartment	
(2) <i>Center of gravity.</i>		capacity:	
Empty (forward of		Cross-country	
suspension center)	111-5/8 in,	(recommended load)	1650 gal
Loaded (forward of		Hard surface roads	
suspension center)	77-518 in.	(recommended load)	2500 gal
(3) <i>Fuel tank data.</i>		(4) <i>Manholes and filler covers,</i>	
Number of		Number	2
compartments	4	Manhole cover size	
Compartment		(nominal)	16 in.
capacity:		Filler cover size	
Cross-country		(nominal)	10 in.
(recommended load)	825 gal	e. M131A5C,	
Hard surface roads		(1) <i>Weight.</i>	

Empty	13,850 lb	Filler cover size	10 in.
Cross-country		(nominal)	
(recommended load)	36,950 lb	(5) <i>Fuel dispensing hose.</i>	50 ft
Hard surface roads		Length	2
(recommended load)	49,100 lb	Quantity:	1-1/2 in.
(2) <i>Center of gravity.</i>		1	2-1/2 in.
Empty (forward of		1	
suspension center)	111-5/8 in.	(6) <i>Fuel dispensing nozzles.</i>	
Loaded (forward of		Type	trigger control
suspension center)	77-5/8 in.	Quantity:	1
(3) <i>Fuel tank data.</i>		Nominal Size	1-1/2 in.
Number of		Capacity	0-55 gpm
compartments	2	Quantity:	1
Compartment		Nominal size	2-1/2 in.
capacity:		Capacity	0-225 gpm
Cross-country		(7) <i>Meter.</i>	
(recommended load)	1650 gal	Flow rate	300 gpm
Hard surface roads		Material	aluminum
(recommended load)	2500 gal	(8) <i>Filter-Segregator.</i>	
(4) <i>Manholes and filler covers.</i>		Weight (dry)	226 lb
Number	2	Operating pressure	75 psi
Manhole cover size		Capacity	300 gpm
(nominal)	20 in.		





## CHAPTER 2

### OPERATING INSTRUCTIONS

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#### Section I. OPERATING PROCEDURES

##### 2-1. General

a. This chapter provides the instructions for safe and efficient operation of the fuel tank semitrailer. Sections I through III pertain to operation under normal conditions; section IV pertains to operation under unusual conditions.

b. Before operating a new or reconditioned fuel tank semitrailer, make sure that the organizational "Service upon Receipt of Material" has been performed in accordance with the procedures in chapter 4, section 1.

c. If the equipment fails to operate properly, refer to the troubleshooting procedures in chapter 3.

##### 2-2. Landing Gear

a. The landing gear (fig 2-1) supports the front end of the semitrailer whenever it is not coupled to a towing vehicle. The landing gear is a two-speed type. The gear housing at the top of the right leg houses a two-speed transmission connected to the gear housing at the top of the left leg by a drive shaft. This permits synchronized raising and lowering of the telescopic portion of both legs through the bevel gear driven jack screws within the legs. The operating crank is hinged to the drive shaft on the right leg and when not in use is swung out of the way and held by a holding clip.

b. To engage the high-speed drive, push inward on the crank handle as far as it will travel. To engage the low-speed drive, pull outward on the crank handle as far as it will travel. The high-speed drive is provided for fast raising or lowering of the legs when the semitrailer is coupled to a towing vehicle and the low-speed drive is provided for greater ease in raising or lowering the legs when the semitrailer is not coupled to a towing vehicle. Turning the crank handle clockwise will raise the legs and turning it counterclockwise will lower them.

##### 2-3. Coupling Semitrailer to Towing Vehicle

a. Remove the wheel chock blocks from their stowage brackets and place them firmly behind the wheels on both sides of the semitrailer to prevent rearward movement when coupling.

b. Back the towing vehicle slowly toward the nose of the semitrailer. Line up the fifth wheel coupling

jaws on the towing vehicle with the fifth wheel kingpin of the semitrailer. Stop the towing vehicle before its fifth wheel plate contacts the nose skid plate of the semitrailer. If the coupling jaws and kingpin line up, back the towing vehicle sharply into contact with the kingpin, triggering the jaw lock which will automatically unite the two vehicles.

c. Remove the dummy couplings (fig 2-2) from the air line connectors on the semitrailer. Connect the towing vehicle air hose lines to the semitrailer. The air connections on the semitrailer are tagged EMERGENCY on the right side and SERVICE on the left side. Make sure the hose lines are properly connected, EMERGENCY to EMERGENCY and SERVICE to SERVICE. Open the air line shutoff valves on the towing vehicle. Apply the brakes at the towing vehicle to prevent movement of the semitrailer and towing vehicle.

d. Plug the intervehicular cable from the towing vehicle into the receptacle (fig 2-2) on the nose of the semitrailer. Operate the light switch at the towing vehicle and check to make sure all lights are in proper working order.

e. Release the landing gear crank (fig 2-1) from its holding clip and engage it on the crankshaft. Rotate the crank clockwise, raising the landing gear support legs to their maximum height. Disengage the crank and return it to its holding clip.

f. If the landing gear ground boards (fig 2-1) were used, return them to their stowage brackets.

g. Return the wheel chock blocks to their stowage brackets.

##### 2-4. Operating Towing Vehicle with Semitrailer Attached

a. *Driving.* When driving a towing vehicle with a semitrailer, the overall length of the unit must be kept in mind when passing other vehicles and when turning. Because the unit is hinged in the middle, turning and backing are affected. The distribution of weight has its effect on stopping.

b. *Turning.* When turning corners, allow for the fact that the semitrailers' wheels turn inside the turning radius of the towing vehicle. To make a right turn at a road intersection, it is necessary for the towing vehicle to continue forward to approximate the center of

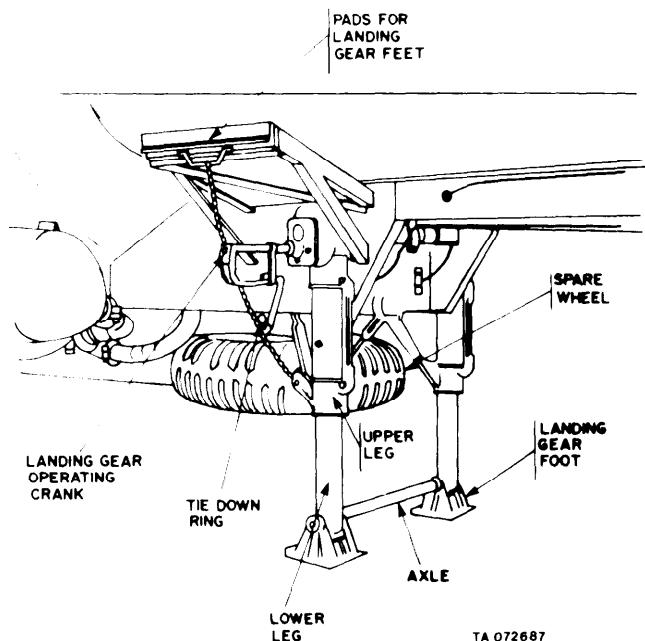


Figure 2-1. Landing gear.

the intersection and then cut sharply to the right to allow for the shorter turning radius of the semitrailer. If these semitrailer is to be backed to the right, the steering wheel of the towing vehicle should be turned to the left, or counterclockwise.

c. *Stopping.* During normal operation, the brakes of the towing vehicle and those of the semitrailer are applied simultaneously. Brake pressure should be applied gradually and smoothly. On steep grades and slippery surfaces, the semitrailer brakes should be applied first; then the brakes of the towing vehicle should be ap-

plied. This will tend to reduce the possibility of the semitrailer jack-knifing or swinging out of the line of travel.

d. *Parking.* When the towing-vehicle-with-semi-trailer combination is to be parked, do not set the air brakes and depend upon them to hold the vehicles. If the unit is to be left unattended, place the chock blocks in front or behind the wheels, as required, to prevent the unit from rolling.

e. *Load Distribution.* During either cross-country or highway operation under partial load conditions (i.e., less than 5000 gallons), the load should be equally distributed between compartments. This can be accomplished by closing all outlet valves and opening all emergency dump valves and manifold valves. Allow several minutes for the fuel level to stabilize. Close all emergency dump valves and manifold valves.

## 2-5. Uncoupling Semitrailer from Towing Vehicle

a. Remove the wheel chock blocks from their stowage brackets and place them firmly in front of the wheels on both sides of the semitrailer to prevent forward movement when uncoupling.

b. If the semitrailer is to be uncoupled in muddy, sandy, or snow-covered areas, remove the landing gear ground boards from their stowage brackets and place them on the ground directly beneath the landing gear leg foot pads.

c. Release the landing gear crank (fig 2-1) from its holding clip and engage it on the crankshaft. Rotate it counterclockwise to lower the landing gear legs until their foot pads rest solidly on the ground surface or

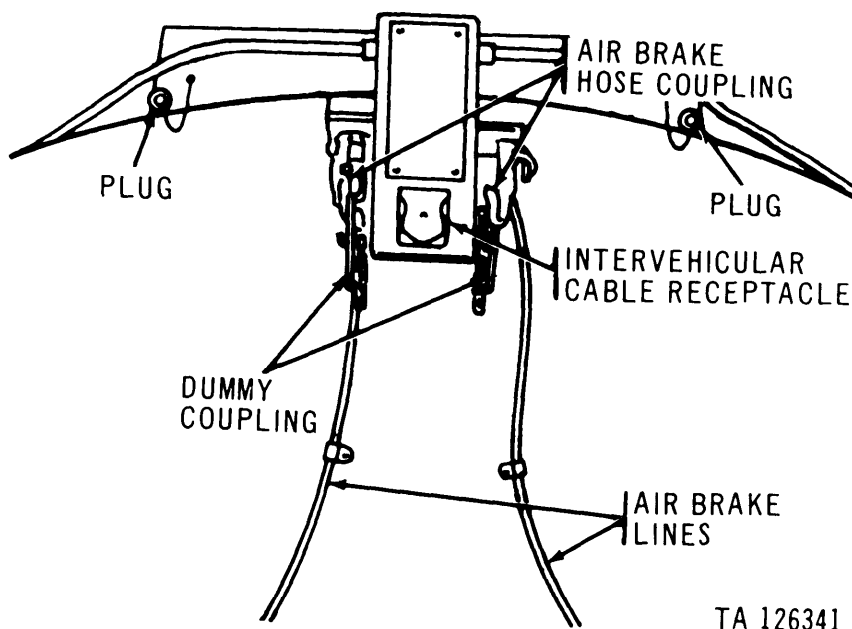


Figure 2-2. Front of semitrailer.

the ground boards. Disengage the crank and return it to its holding clip.

d. Unplug the intervehicular cable of the towing vehicle from the receptacle (fig 2-2) located on the nose of the semitrailer.

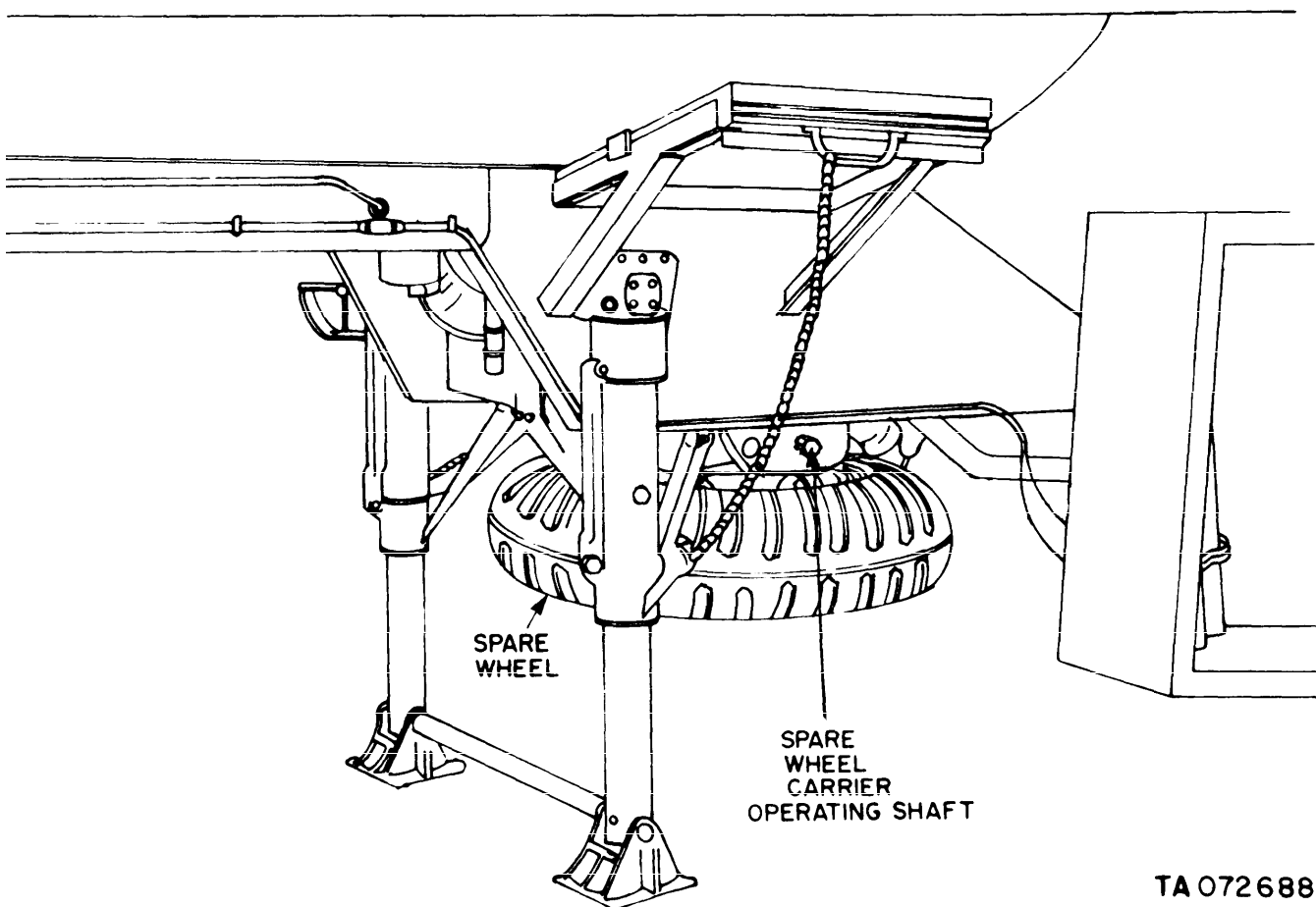
e. Close the air line shutoff valves on the towing vehicle. Uncouple the air hose couplings (fig 2-2) from the semitrailer. The semitrailer brakes will set automatically when the EMERGENCY air line coupling is uncoupled. Fit the dummy couplings on the semitrailer air line couplings.

f. Release the semitrailer from the towing vehicle by pulling outward on the jaw release handle of the towing vehicle's lower fifth wheel plate until the hook releases the kingpin. Drive the towing vehicle forward until the semitrailer is disengaged and resting on its landing gear.

## 2-6. Spare Wheel and Tire Carrier

a. To remove the spare wheel and tire (fig 2-3) from its carrier, remove the four safety nuts securing the spare wheel and tire to the main member. Fit the wheel stud nut wrench onto the operating shaft. Grip the wrench handle firmly. Rotate the shaft enough to permit releasing the lock pawl and slowly lower the wheel and tire to the ground.

b. To install the spare wheel and tire on its carrier, insert the pickup member through the wheel hub opening. Fit the wheel stud nut wrench onto the operating shaft and rotate it clockwise to raise the wheel and tire on the pickup member into position. Rotate the wheel as necessary to pass the four safety studs on the main member through the stud holes in the wheel. Engage the lockpawl on the operating shaft. Install and tighten the four safety nuts securing the spare wheel and tire in place.



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Figure 2—3. Spare wheel and tire carrier.

## Section II. OPERATION OF FIRE EXTINGUISHING EQUIPMENT

## 2-7. Fixed Fire Extinguisher System

a. The control head locking pin and lever are located on the control head of the fixed fire extinguishing system cylinder (fig 2-4) in the roadside cabinet. In the event of an emergency the system is operated at the control head by pulling the locking pin out of the control head and rotating the control lever upward 90 degrees.

b. The remote control handle (fig 2-5) is located in the fire extinguisher niche. This handle is provided to operate the system when the control head locking pin and lever is not accessible. This handle is pulled out to operate.

c. Resetting and recharging instructions are given on a plate mounted near the fire-pull handle. For complete instructions, refer to TB 5-4200-200-10, Hand Portable Fire Extinguisher Approved for Army Users, and TM 5-315, Firefighting and Rescue Procedures in Theaters of Operations.

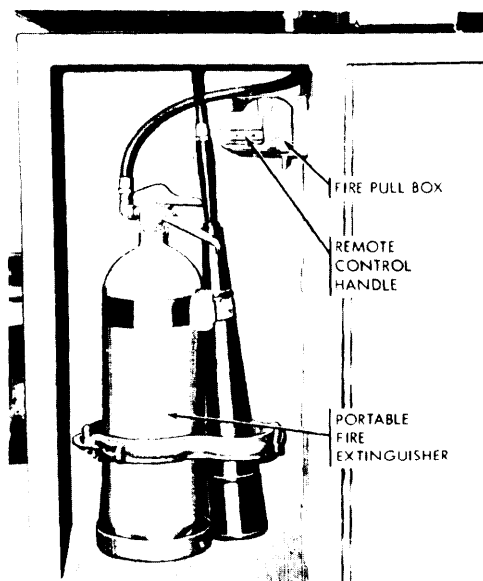


Figure 2-5. Fire extinguisher-system controls.

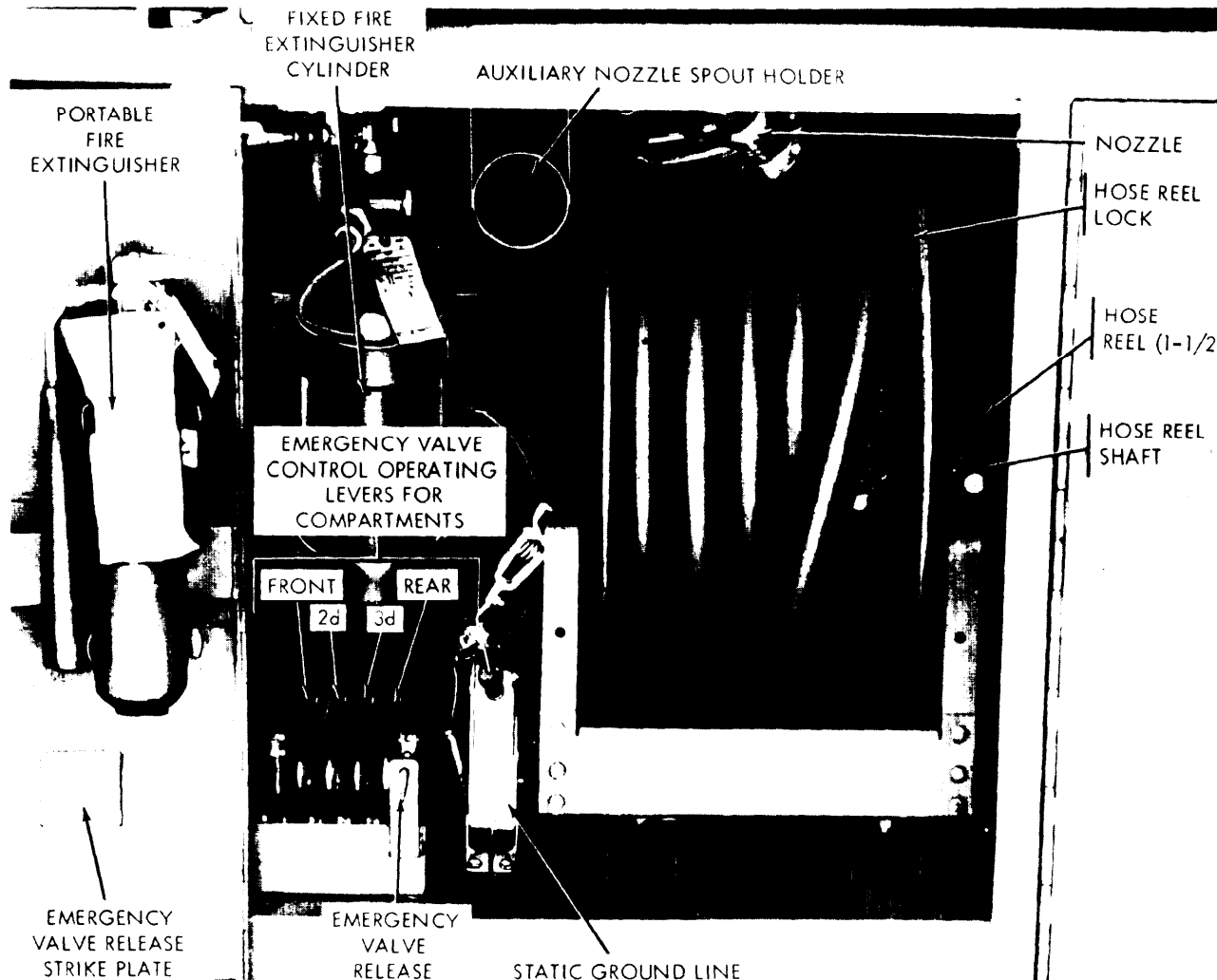


Figure 2-4. Forward roadside cabinet-M131A4C.

## 2-8. Portable Fire Extinguishers

Operating instructions are given on a plate mounted

on the extinguisher. For complete instructions, refer to TB 5-4200-200-10.

## Section III. OPERATION OF FUEL EQUIPMENT

### 2-9. General

The M131A4, M131A4C, M131A5, and M131A5C semitrailers are designed primarily for use as fuel transporters. Each semitrailer has its own pumping system which has a maximum delivery rate of 225 gpm. Bottom loading the semitrailers is the preferred method although top loading is also possible. Each semitrailer can be unloaded by gravity or by use of its pumping system. Each semitrailer is capable of transferring fuel from one source to another using its pumping system. The M131A4 and M131A5 semitrailers are not equipped with a meter or filter-segregator unit and are incapable of performing a fuel servicing operation. The M131A4C and M131A5C semitrailers are equipped with a meter and filter-segregator unit and are capable of servicing containers, ground vehicles, and aircraft with over-the-wing refueling facilities.

### 2-10. Controls and Instruments

*a. General.* Paragraphs *b* through *q* below describe, locate, and illustrate the various controls and instruments provided for the operation of the fuel equip-

ment. Refer to the appropriate figure for your particular model of semitrailer.

*b. Static Reel* (fig 2-4, 2-6 and 2-7). The static ground line is attached to the unit being serviced and to a ground plug or clamp.

*c. Manhole Covers* (fig 2-8). The manhole covers are equipped with a locking device to hinge, latch, and lock the fill covers.

*d. Engine Controls and Instruments* (fig 2-7, 2-9, 2-10 and 2-11). All engine controls and instruments are located on the instrument panel.

*e. Emergency Dump Valve Operating Levers* (fig 2-4, 2-6 and 2-7). There is one operating lever for each emergency dump valve.

*f. Manifold Values* (fig 2-6, 2-7, 2-11 and 2-12). There is one manifold valve for each compartment controlling the fuel flow between the compartment and

*g. Emergency Release Handle* (fig 2-13). Pulling outward on this handle releases the engaged operating control lever of any open emergency dump valve, allowing it to close immediately.

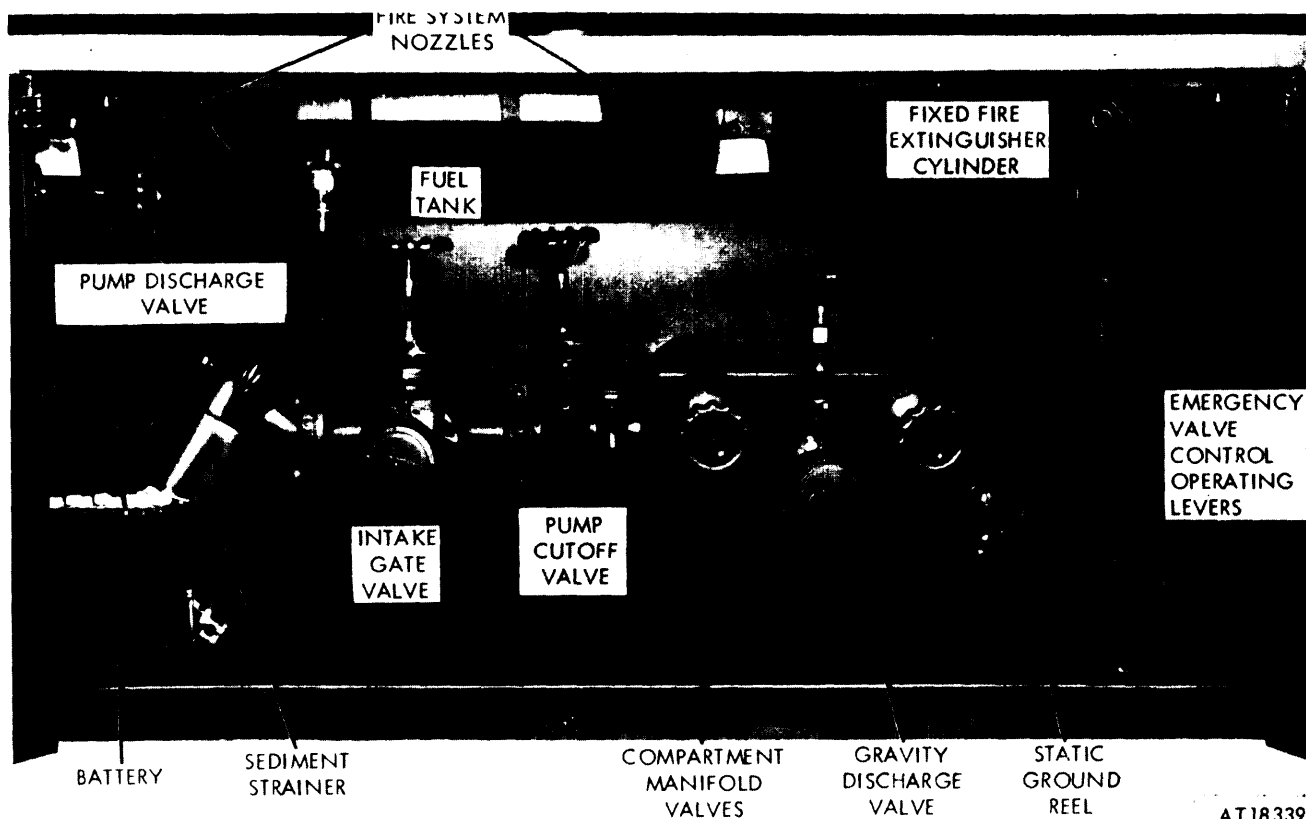


Figure 2-6. Forward curbside cabinet-M131A5.

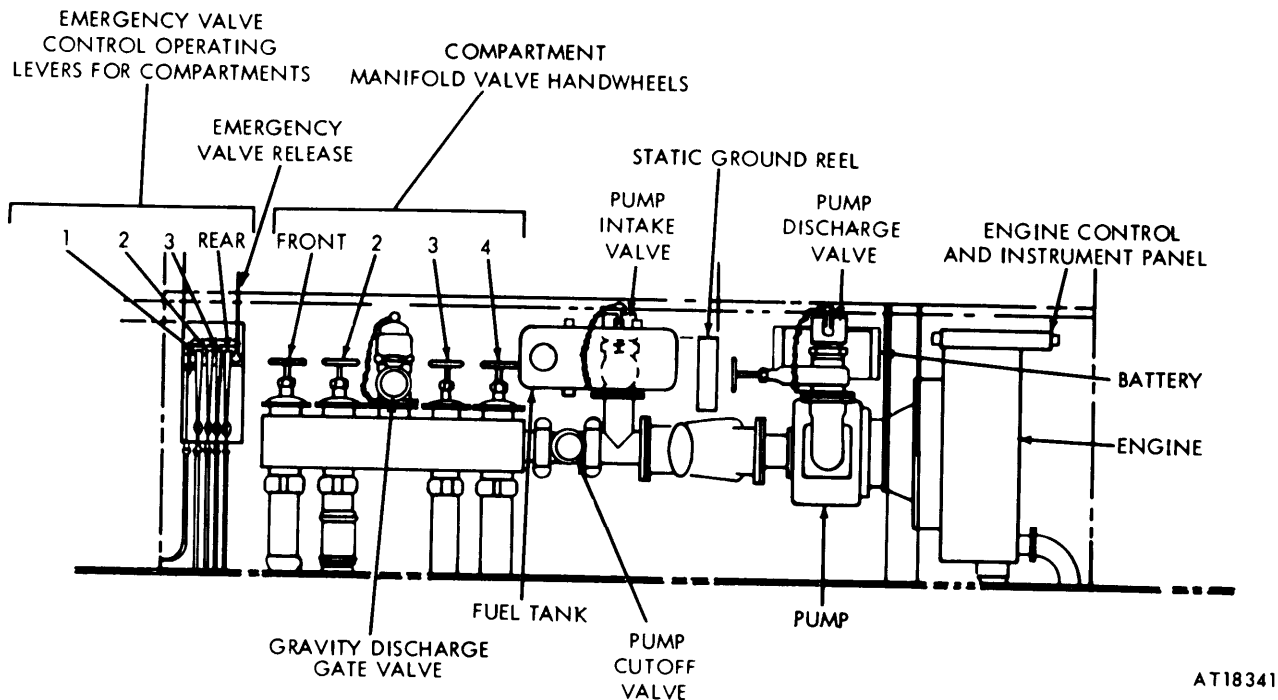


Figure 2- 7. Curbside cabinet top view-M131A4

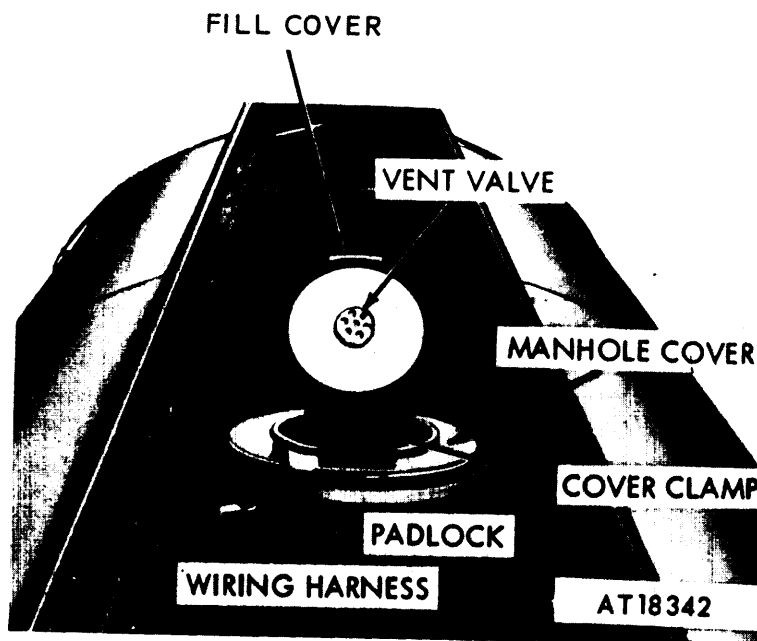


Figure 2-8. Manhole covers.

*h. Gravity Discharge Valve (fig 2-6, 2-7, 2-11, and 2-12).* This valve is used to control the gravity flow of fuel from the manifold.

*i. Pump Intake Valve (fig 2-6, 2-7, 2-11, and 2-12).* This valve is used to control the fuel flow to the pump when bottom loading the semitrailer by use of its pumping system.

*j. Pump cutoff Valve (fig 2-6, 2-7, 2-11, and 2-12).* This valve is used to control the fuel flow from

the manifold to the pump during the fuel servicing operations.

*k. Pump Discharge Valve (fig 2-6, 2-7, (2-10), 2-11, and 2-12).* This valve is used to control the fuel delivery from the pump through the outlet of the pump discharge valve.

*l. Defuel Cutoff Valve (fig 2-11 and 2-12).* This valve is used to control the fuel flow to the pump from the source being defueled.

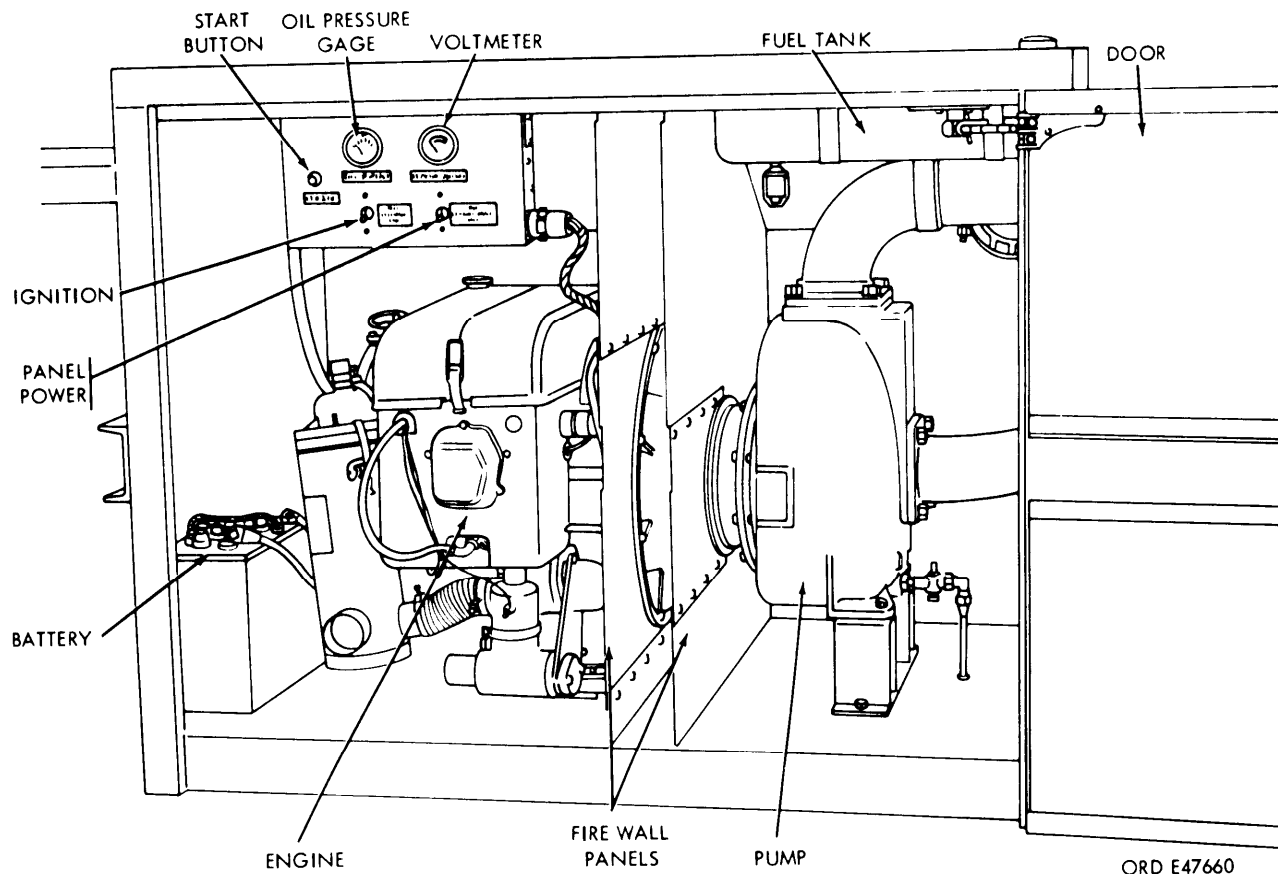


Figure 2-9. Curbside cabinet-M131A4C, serial numbers 1 through 340.

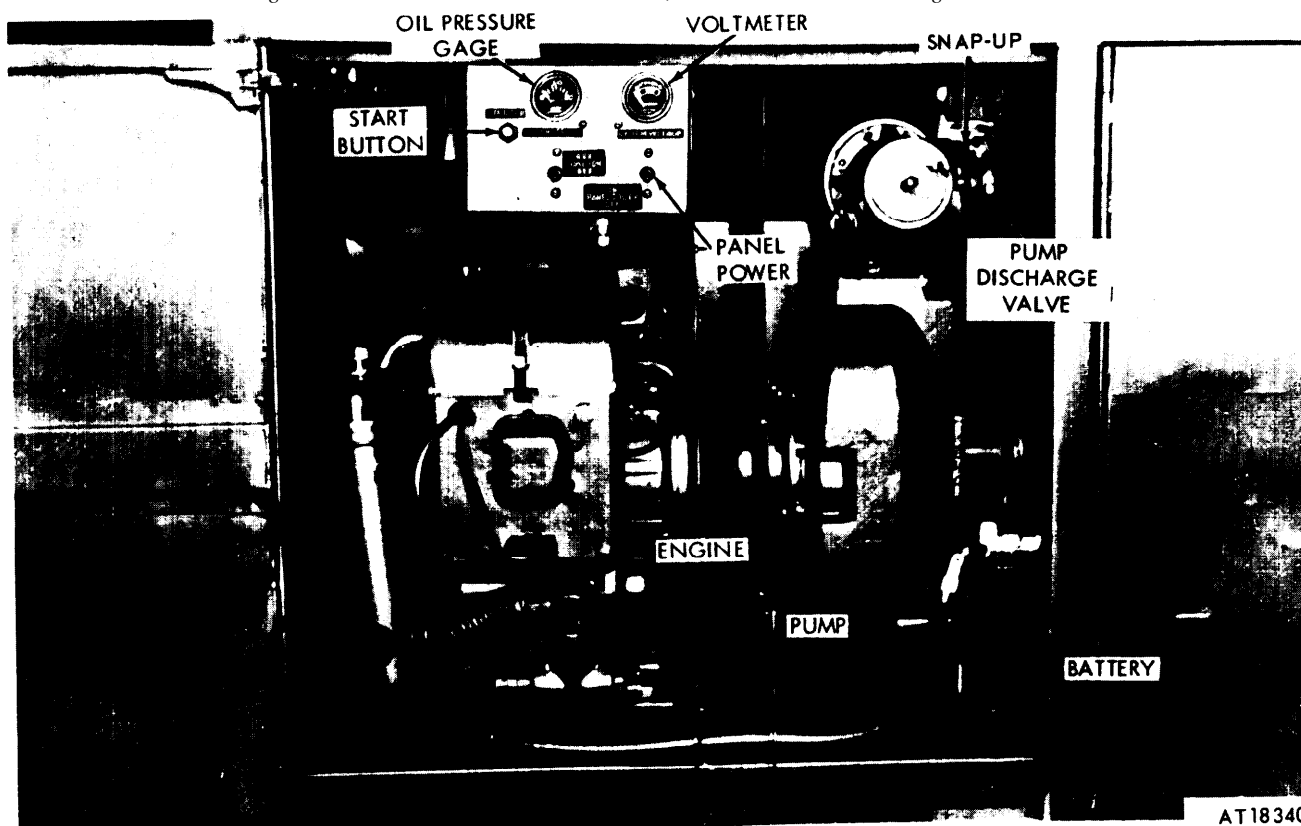


Figure 2-10. Rearward curbside cabinet-M131A5.

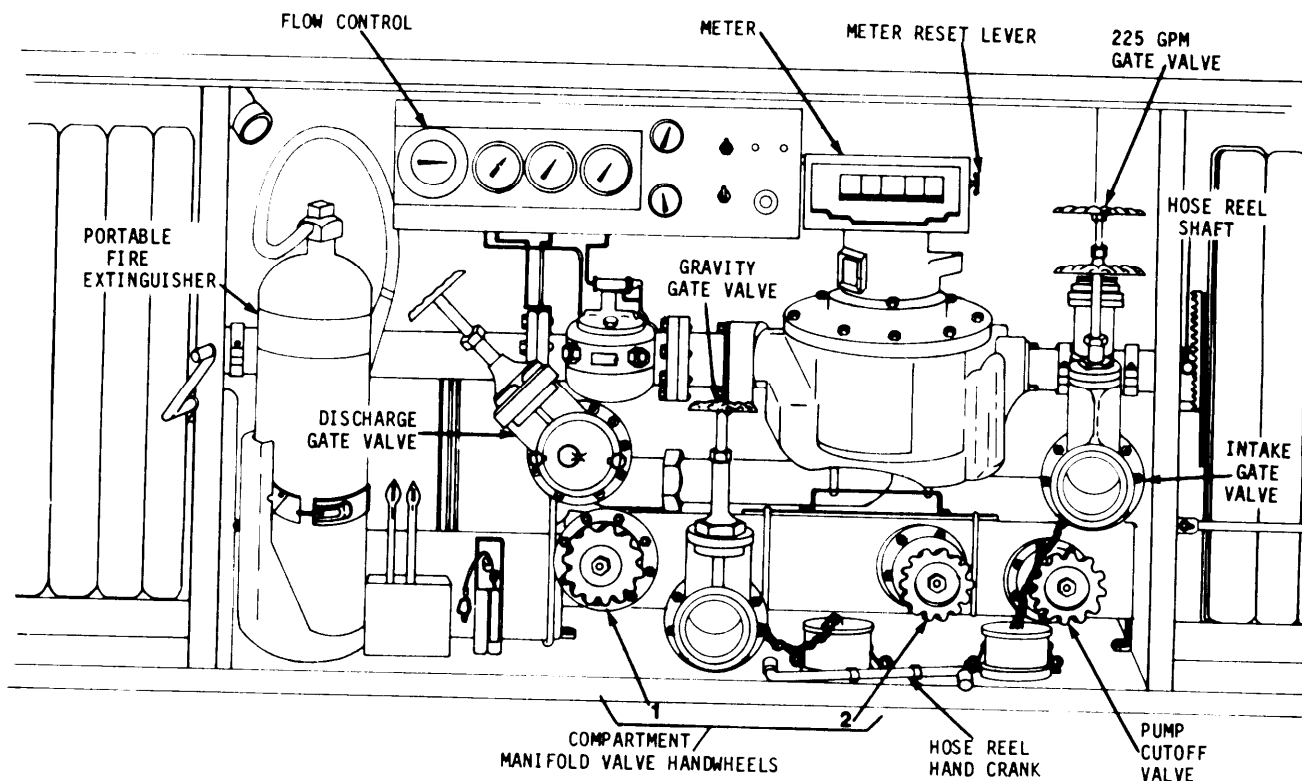


Figure 2-11. Forward roadside cabinet--M131A5C

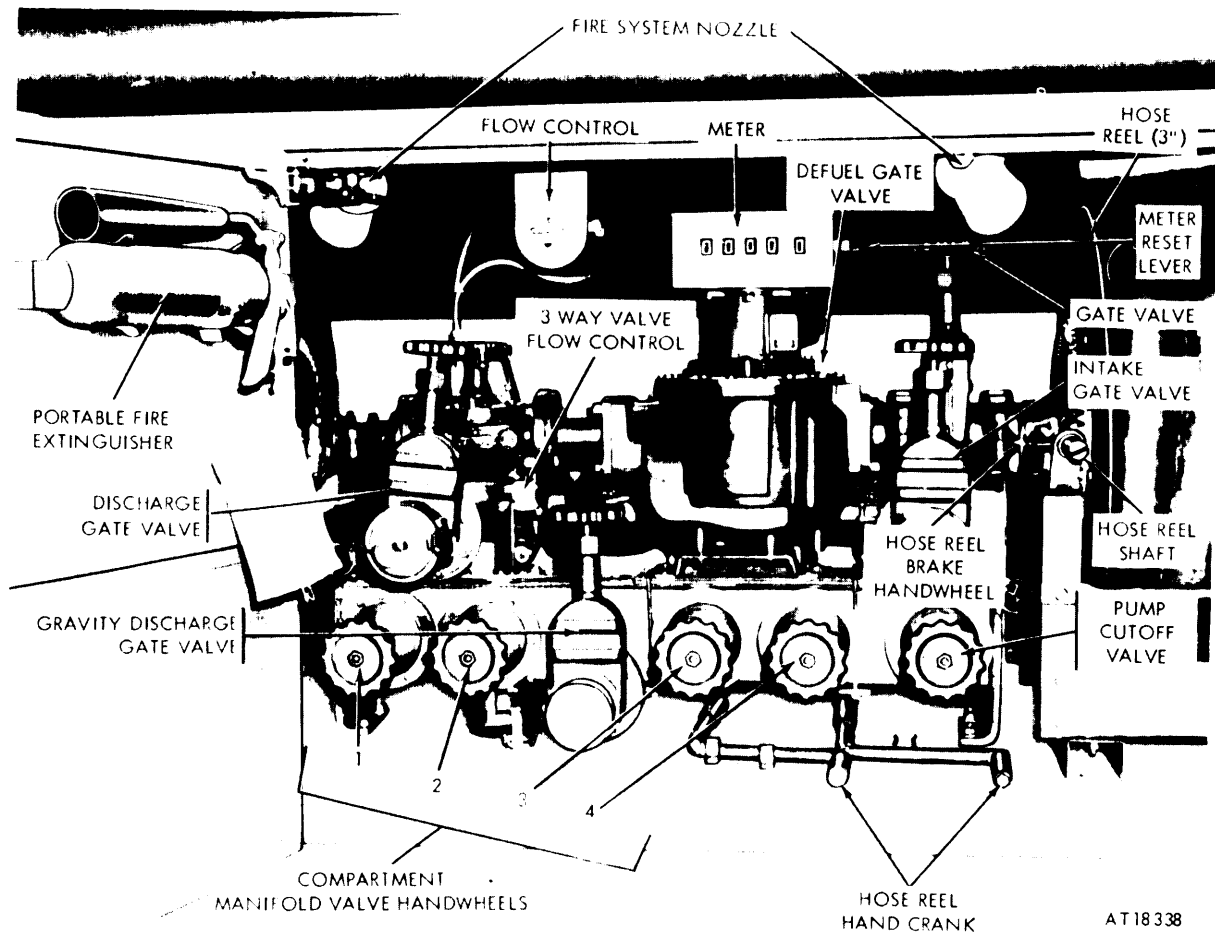


Figure 2-12. Rearward roadside cabinet--M131A4C.

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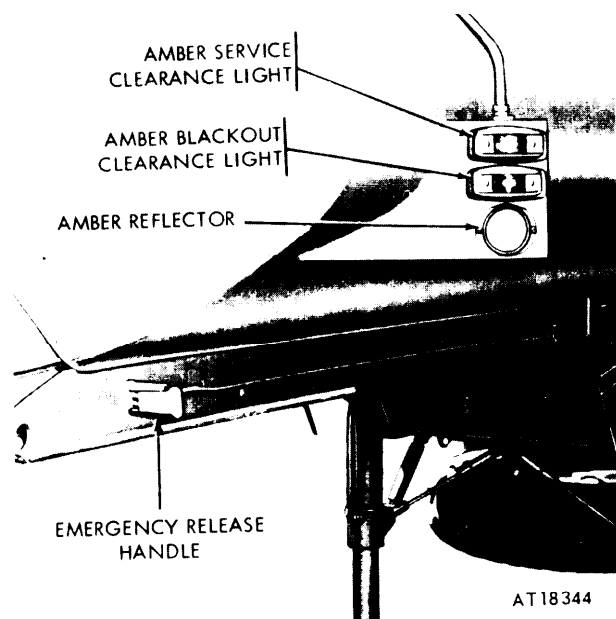


Figure 2-13. Left front end of semitrailer.

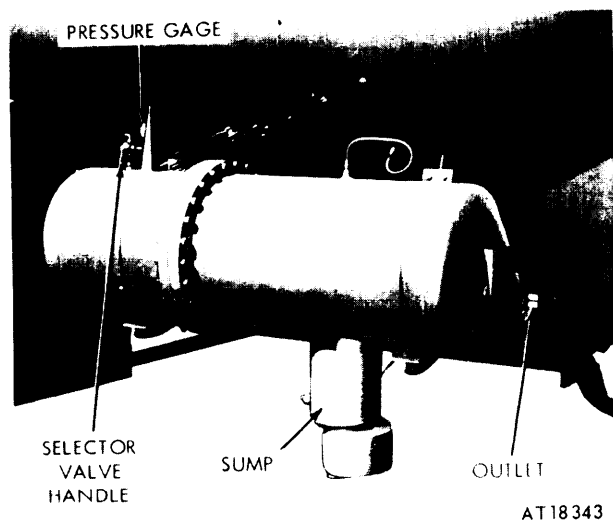


Figure 2-14. Filter-segregator assembly-M131A4C.

*m. Meter Reset Lever* (fig 2-11 and 2-12). This lever is used to reset the meter delivery dial back to zero.

*n. Hose Reel Hand Cranks* (fig 2-11 and 2-12). These hand cranks are used to rewind the hose on the hose reels. When not in use, they are secured in clips on the cabinet floor.

*o. Hose Reel Brake Handwheels* (fig 2-12). These handwheels are used to apply braking pressure to the hose reel drums when unwinding the hose. Turning the handwheels clockwise applies pressure and turning counterclockwise releases it.

*p. Selector Value* (fig 2-14). This valve is used to obtain gage readings of inlet and outlet fuel pressures in

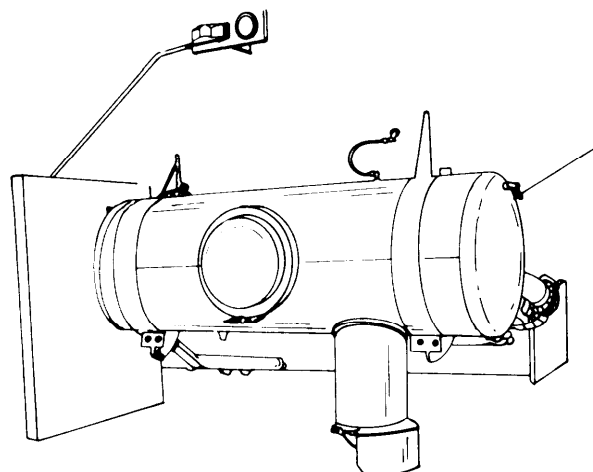


Figure 2-15. Filter-segregator assembly-M131A5C.

the filter-segregator unit on the M131A4C semitrailer to help determine when to change the elements.

*q. Rate-of-Flow Selector Value* (fig 2-12 and 2-16). This valve is used for selecting and maintaining a specific fuel flow rate through the 0-55-gpm fuel dispensing system. The rate-of-flow selector valve is opened and closed by the rate selector knob. Some selector valves are equipped with a read-out rate-of-flow selector dial. The selector valve must be closed when the semitrailer is in transit. If the valve is equipped with a read-out rate-of-flow dial, set the dial at zero.

## 2-11. Auxiliary Engine and Fuel Dispensing Pump (fig 2-7, 2-11, 2-10, and 2-17).

*a. General.* The engine and pump assembly is used to pump fuel from or into individual compartments. The assembly is comprised of a two-cylinder, four-cycle, air-cooled engine and a self-priming centrifugal pump.

### *b. Starting.*

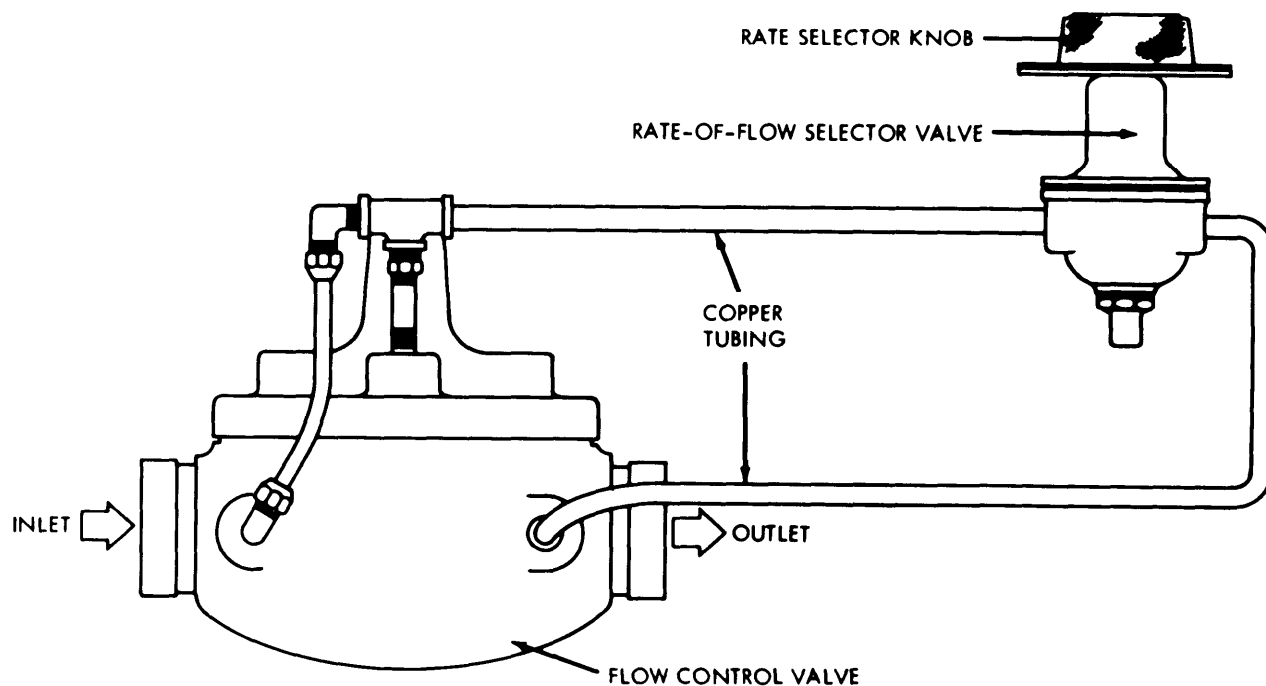
(1) Make sure that the fuel valve is turned on at the engine fuel tank.

(2) Set both the panel power switch and the ignition switch to their ON position.

(3) Push in on the start button. If the engine does not start within 5 seconds, release button and wait a few seconds before pushing it again. If the engine does not start after four or five attempts, notify organizational maintenance.

### *c. Operating.*

(1) Allow a brief period for the engine temperature to stabilize after the engine is started.



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Figure 2-16. Rate-of-flow selector valve (0-55 gpm)—M131A4C and M131A5C.

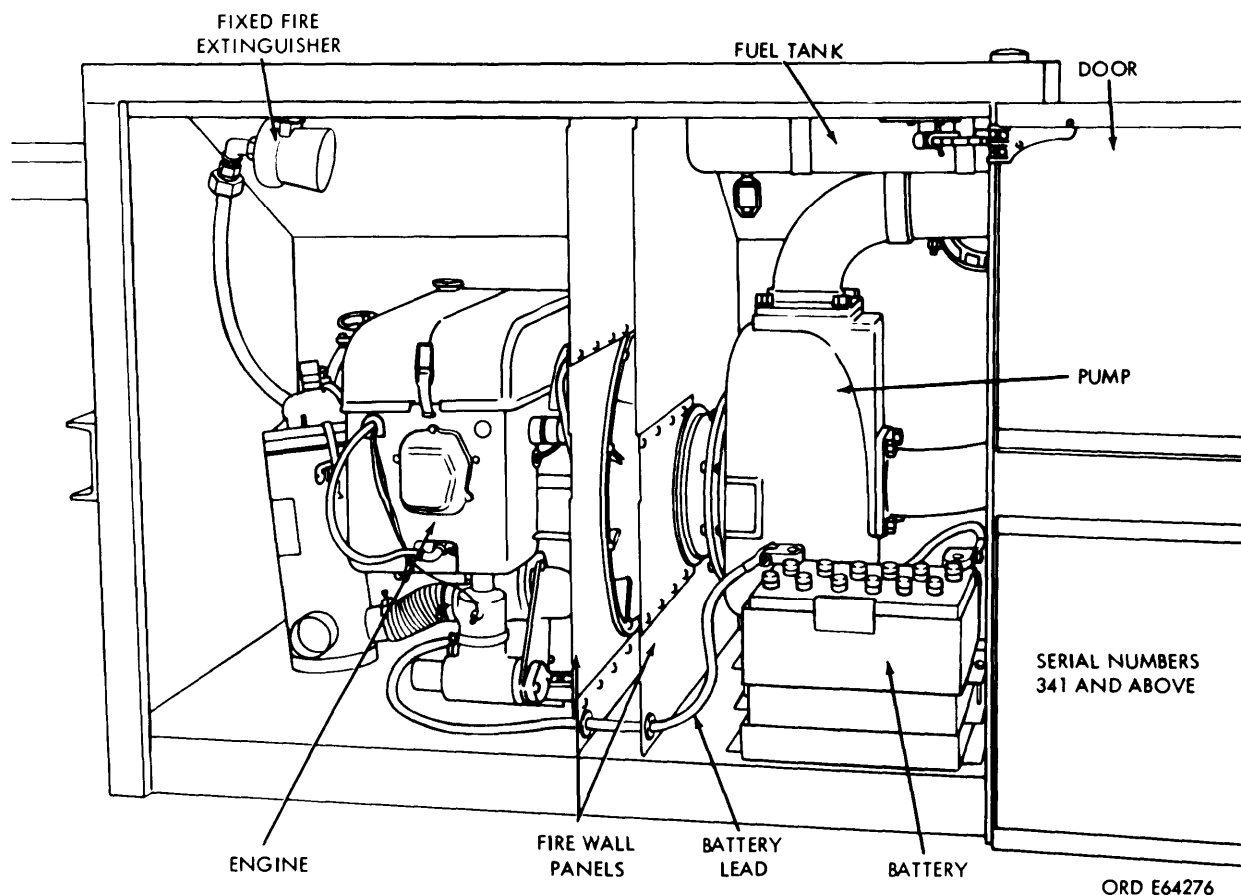


Figure 2-17. Curbside cabinet—M131A4C, serial numbers 341 and up, and M131A5C.

(2) Check the engine oil pressure and the voltage indicator gages.

(3) Check alinement of engine and pump, and check for fuel leakage and loose connections while the engine is operating.

*d. Stopping.* Set the ignition switch and the panel power switch to OFF.

## 2-12. The 0-55 GPM Delivery System

The 0-55 gpm delivery system has a flow control valve that limits the maximum amount of fuel flow available at the delivery hose nozzle up to 55 gpm. The flow control valve is controlled by the rate-of-flow selector valve (fig 2-16). How far the rate selector knob is open determines the fuel flow rate between 0-55 gpm. The fuel acceptance rate of the unit to be serviced is the governing factor. This system is used to service all units with a delivery acceptance rate of less than 225 gpm. Some rate-of-flow selector valves are equipped with a read-out rate-of-flow selector dial. When the selector knob on the readout rate-of-flow selector dial is set at a desired delivery rate, the selector valve will automatically control the flow of fuel through the flow control valve to the delivery hose nozzle. Triggering the nozzle fully open will deliver fuel at the dialed rate, unscrew the nozzle spout and remove and clean the nozzle filter screen. If the dialed flow rate is still not obtained, notify organizational maintenance and have the valve recalibrated.

## 2-13. The 225 GPM Delivery System

The 225 gpm delivery system's nozzle is the open-close type, with no provision to govern the flow rate between zero and maximum. Based on 2650 rpm engine speed and 43 psi relief valve setting, it will deliver 225 gpm. Approximately 40 psi exerted on the nozzle operating lever is required to trigger the nozzle valve open. Release of this pressure closes the valve. This nozzle is intended primarily for use in fueling ground vehicles or aircraft having a fuel acceptance rate of at least 225 gpm. The standard military auxiliary engine supplied is factory governed at 2650 rpm, and the relief valve is factory set at 43 psi. Should the nozzle fail to deliver full capacity, unscrew the nozzle spout and remove and clean the nozzle filter screen. If it still fails to deliver full capacity, notify organizational maintenance.

## 2-14. Filter-Segregator (fig 2-14 and 2-15)

*a. Description.* The filter-segregator unit is designed to provide fuel quality of specification MIL-F-8901. The filter-coalescer elements are military standard, meeting specification MIL-F-52308.

*b. General.*

(1) The filter-coalescer elements have a limited capacity for retaining solids. As the amount of solids re-

tained increases, a pressure drop occurs across the elements. This pressure drop is measured by the difference in pressure gage readings taken at the inlet port and midsection of the filter-segregator case.

M131A4C vehicle is equipped with a single pressure gage connected to a selector valve (fig 2-14) on the filter-segregator case for checking both the inlet port and midsection pressures. The pressure drop is determined by turning the pointer on the handle of the selector valve to the inlet port end and recording the reading on the gage. The handle is then rotated to the midsection end and the reading recorded. The difference in the readings is the pressure differential across the first-stage elements.

(3) The M131A5C is equipped with three pressure gages mounted on the instrument and control panel (fig 2-11) to provide constant pressure readings at the inlet port, midsection, and outlet port of the filter-segregator case without the use of a selector valve. Pressure differential across the entire unit is the difference in pressure readings between FILTER INLET PRESSURE and FILTER OUTLET PRESSURE. Pressure differential across the first-stage elements is the difference in pressure readings between FILTER INLET PRESSURE and FIRST STAGE OUTLET PRESSURE. Pressure differential across the go-no-go fuses is the difference in pressure readings between FIRST STAGE OUTLET PRESSURE and FILTER OUTLET PRESSURE.

(4) Operating pressure readings should be taken and recorded at the start of the first operation of the filter-segregator unit and each day thereafter when the unit is operated.

(5) When changing from one type of fuel to another refer to FM 10-71, Petroleum Tank Vehicle Operation's, Table 8-1. Drain the filter segregator case and flush the entire pumping system with 50 gallons of the fuel to be transported. During the flushing operation, discharge the fuel alternately through both hose reel nozzles. Discard the flushing liquid in accordance with local regulations.

## 2-15. Ground System

*a.* The grounding system contains four separate bonds or grounds; two are incorporated as a Y-connection on the static reel; one is attached to the 1-1/2-inch nozzle; and one is an integral part of the 2-1/2-inch dispensing hose.

*b.* In normal low-rate fueling of ground vehicles, one of the leads from the static reel is attached to the vehicle being serviced. The remaining ground lines are inoperative.

*c.* When fueling aircraft at hardstand installations, connect one of the static reel lines to the aircraft being serviced and the other to a ground lug. Connect the nozzle grounding wire to the aircraft before opening the aircraft fuel tank filler.

## 2-16. Fuel Equipment Preparation instruction

### WARNING

To avoid the possibility of servicing a vehicle with the wrong fuel, the transportation of two or more fuel types simultaneously is strictly prohibited.

To avoid contamination of fuel if the intended load is different from the previous load, the tank and entire pumping system must be flushed with at least 50 gallons of intended fuel.

### NOTE

A local method of tagging the fuel type of a given semitrailer is recommended.

a. Whenever a transfer hose is required, remove the necessary lengths from the hose stowage compartment (fig 2-18) and couple them as required.

b. Each compartment has its own manhole, equipped with a liquid level gage to indicate the correct fuel level when loading.

c. Prior to starting the auxiliary engine, the following precautions must be taken:

### WARNING

Due to the possibility of an explosion caused by static electricity causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines. When used, the fuel dispensing nozzle's grounding line will be connected to the fuel tank before the fuel filler is opened.

(1) Connect the static ground lines to the vehicle, aircraft, or equipment to be serviced (pars 2- 15).

(2) Remove the portable 15-pound fire extinguisher (fig 2-5) and take it to the point of operation.

(3) Make sure all manually operated valves are closed. On the M131A4C and M131A5C semitrailer, set the 3-way flow valve in position No. 1 (the operating handle pushed inward as far as possible). Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero. This is a must when the semitrailer is in transit or after completing operations.

(4) To prevent collapse of the tank, always open the manhole fill cover of any compartment to be filled or emptied. All semitrailers can be either top or bottom loaded. Bottom loading is the preferred method.

(5) To prevent overheating of the engine, the engine compartment door must be kept open during operation unless the compartment is sufficiently ventilated,

(6) Open only the valves required to perform a specific operation; all other valves must remain closed. Close all valves after completing the operation.

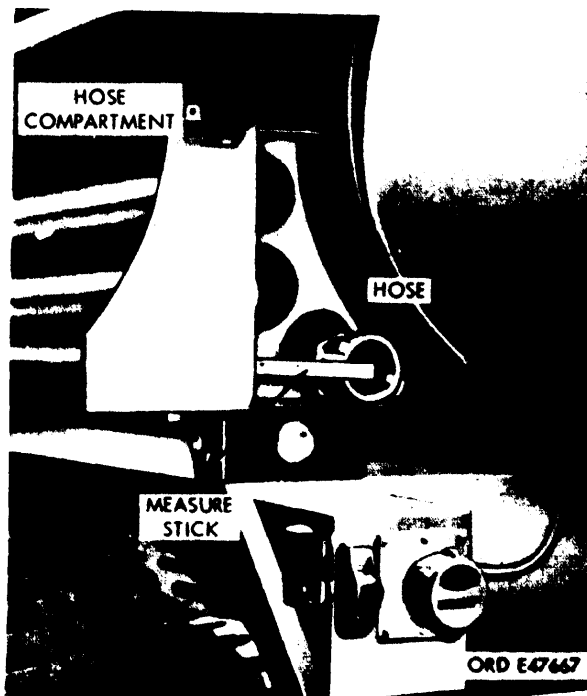


Figure 2-18. Hose compartment.

## 2-17. Fuel Equipment Operating Instructions

### WARNING

To prevent possible injury to personnel and damage to equipment it is imperative that all fuel handling and operating procedures be followed precisely. Study FM 10-69, Petroleum Supply Point Equipment and Operations.

### NOTE

The correct referenced figure for each model's operations must be used to identify the valves and outlets designated by the key letters in the instructions.

a. *tiding*. When loading the semitrailer from a fuel source below the level of the semitrailer, the unprimed suction lift capacity of the pumping system is approximately 19 feet. A suction lift of 30 feet maybe developed with priming but a two-minute wait will be required to eliminate all the air from the pumping systems before the fuel can flow freely. Generally, pumping from a fuel source more than 19 feet below the semitrailer is not recommended.

(1) *Top loading (NOT recommended)*.

### WARNING

Due to the possibility of an explosion caused by static electricity causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines. The fuel dispensing nozzle's grounding line will be connected to the fuel tank before the fuel filler is opened.

- (a) Connect the static ground lines (para 2- 15).
- (b) Make sure all manually operated valves are closed. On the M131A4C and M131A5C semitrailers, make sure the 3-way flow valve is set in position No. 1 (the operating handle pushed inward as far as possible). Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.
- (c) Open the manhole fill cover of the compartment to be filled.
- (d) Direct the flow of fuel into the compartment, stopping it as soon as the level reaches the marker on the liquid level gage.
- (e) Close and latch the manhole fill cover.
- (f) Disconnect the static ground lines.
- (2) *Bottom loading (preferred method).*

### WARNING

Due to the possibility of an explosion caused by static electricity causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines.

### NOTE

Use figure 2-19 for M131A4, 2-20 for M131AC, 2-21 for M131A5, and 2-22 for M1315C. The key letters in the instructions designating valves and outlets are identified in these figures.

- (a) Connect the static ground lines (para 2- 15).
- (b) Make sure all manually operated valves are closed. On the M131A4C and M131A5C semitrailers, make sure the 3-way flow valve (H) is set in position

No. 1 (the operating handle pushed inward as far as possible), Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(c) Open the manhole fill cover of the compartment to be filled.

(d) Remove the caps from the outlets of gravity discharge valve (A) and pump discharge valve (E). Connect a section of 3-inch transfer hose from the outlet of valve (A) to the outlet of valve (E).

(e) Remove the cap from the outlet of pump intake valve (C) and connect a section of 3-inch transfer hose from the outlet of valve (C) to the fuel source.

(f) Open the emergency dump valve of the compartment to be filled by pulling outward on its control lever handle.

(g) Open the manifold valve of the compartment to be filled.

(h) Open gravity discharge valve (A), pump intake valve (C), and pump discharge valve (E).

(i) Start the auxiliary engine (para 2-11) and check the engine oil pressure and the voltage indicator gages.

(j) When the fuel level reaches the marker on the liquid level gage, close all manually operated valves and shut off the auxiliary engine (para 2- 11).

(k) lose and latch the manhole fill cover.

(l) Disconnect the 3inch transfer hose sections and return them to the hose stowage compartment.

(m) Recap the outlets of gravity discharge valve (A), pump intake valve (C), and pump discharge valve (E).

(n) Disconnect the static ground lines.

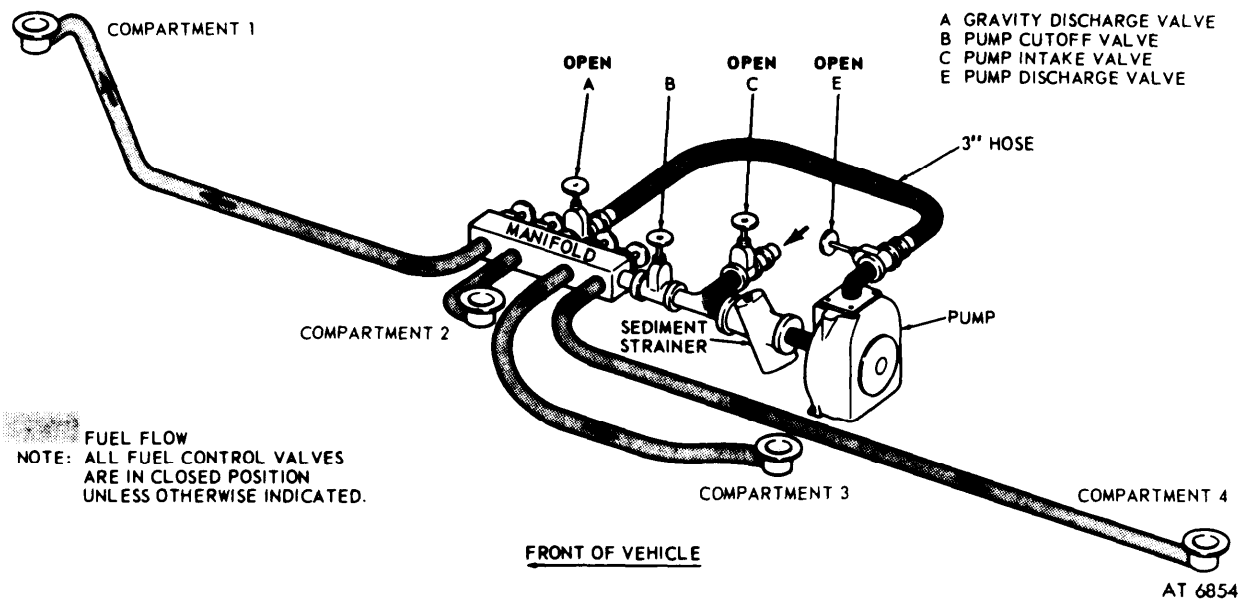


Figure 2-19. Bottom loading-flow diagram-M131A4.

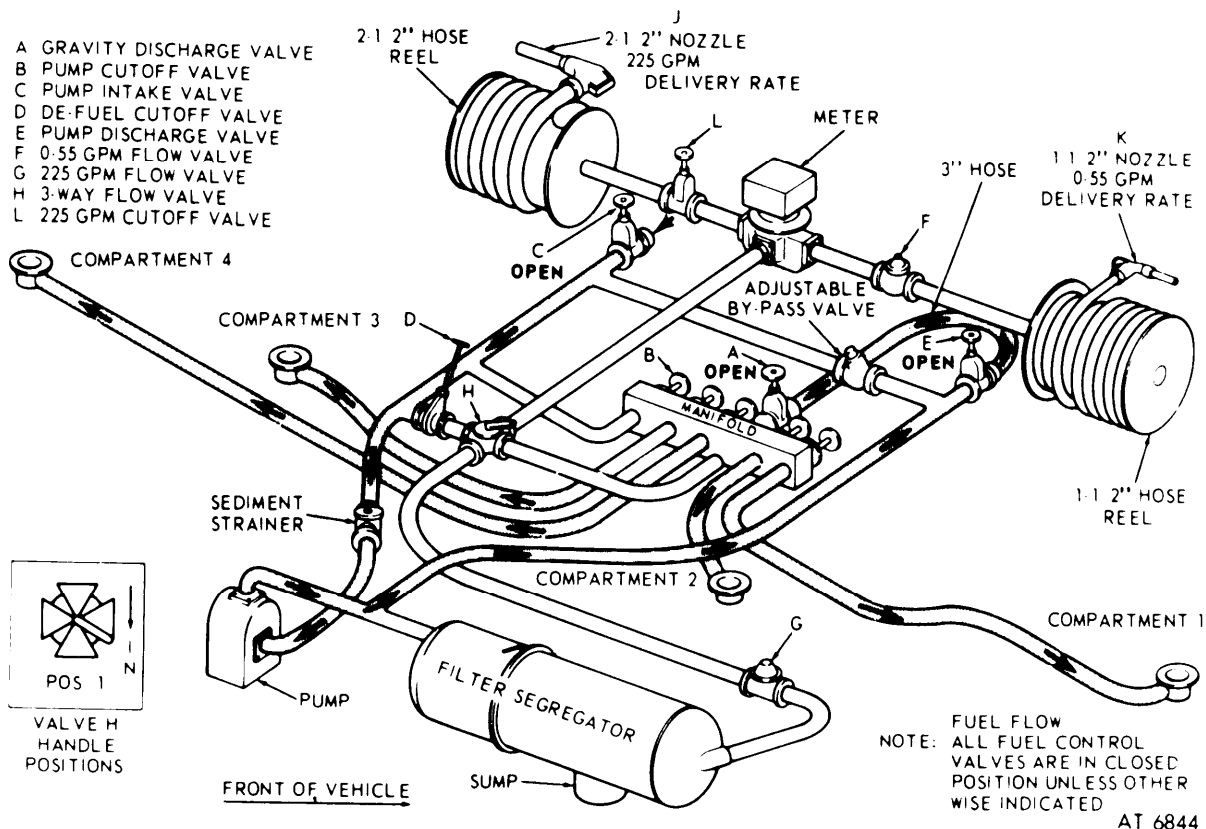


Figure 2-20. Bottom loading-flow diagram-M131A4C.

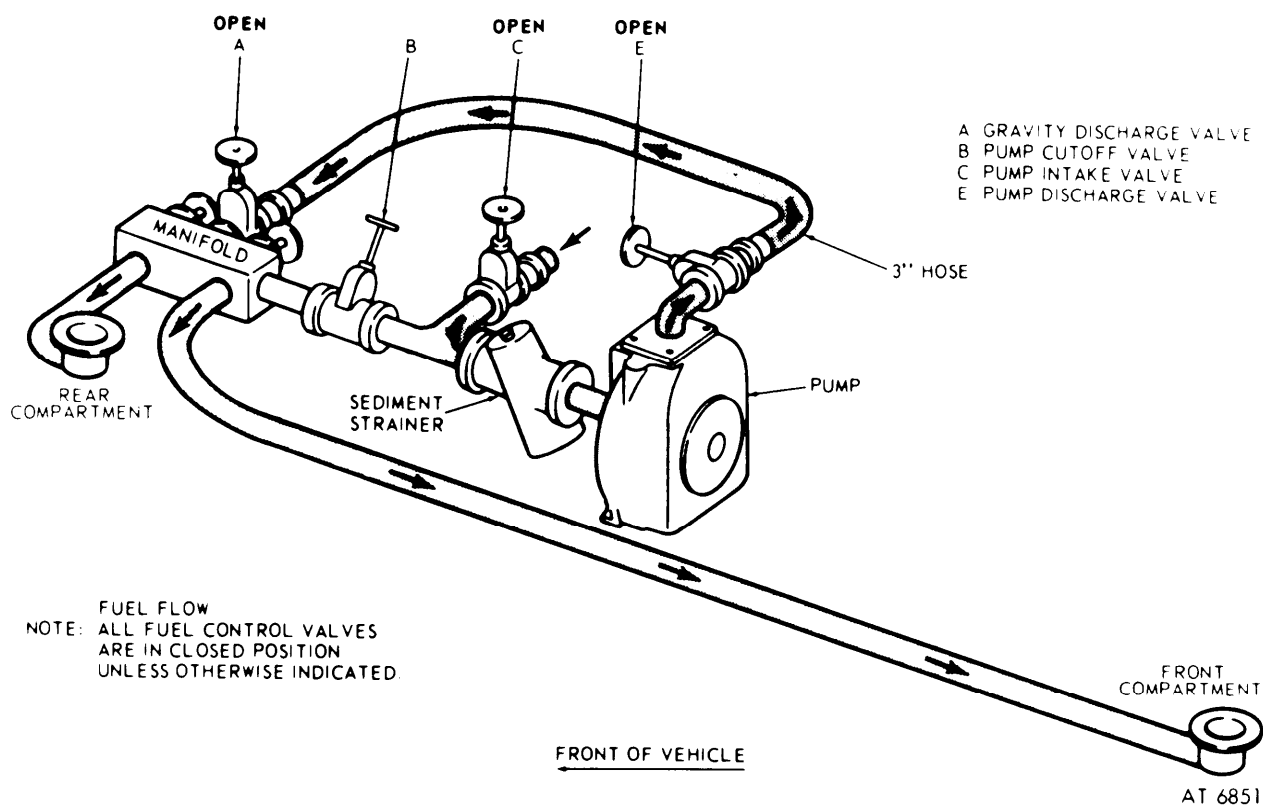


Figure 2-21. Bottom loading-flow diagram-M131A5.

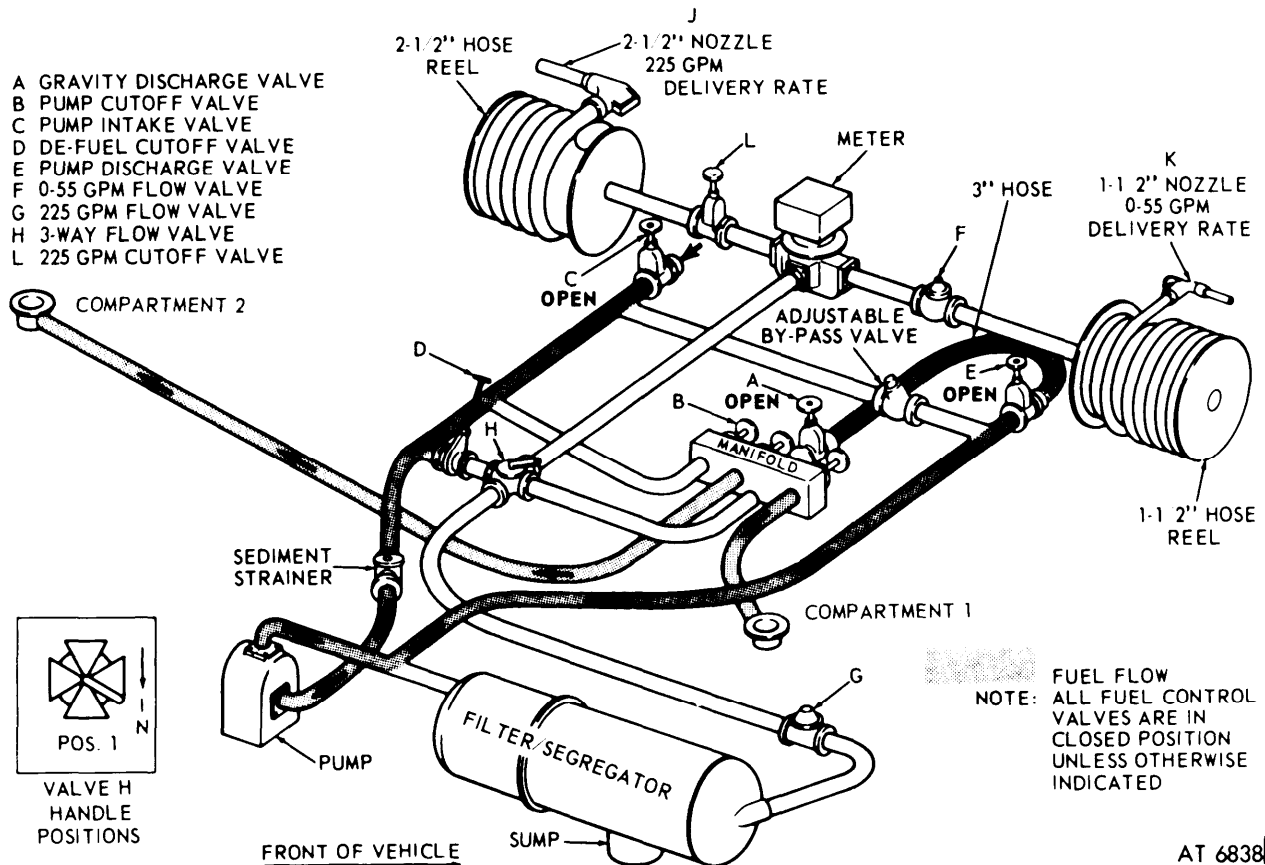


Figure 2-22 Bottom loading-flow diagram-M131A5C.

**b. Unloading.****(1) Gravity discharge (unmetered and unfiltered).****WARNING**

Due to the possibility of an explosion caused by static electricity causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines.

**NOTE**

Use figure 2-23 for M131A4, 2-24 for M131A4C, 2-25 for M131A5, and 2-26 for M131A5C. The key letters in the instructions designating valves and outlets are identified in these figures. The meter and filter-segregator unit on the M131A4C and M131A5C semitrailers are not used during this operation.

(a) Connect the static ground lines (para 2-15).

(b) Make sure all manually operated valves are closed. On the M131A4C and M131A5C vehicles, make sure the 3-way flow valve (H) is set in position No. 1 (the operating handle pushed inward as far as possible). Close rate-of-flow selector valve. If

equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(c) Open the manhole fill cover of the compartment to be emptied.

(d) Remove the cap from the outlet of gravity discharge valve (A) and connect a section of 3-inch transfer hose from the outlet of valve (A) to the fuel receptacle.

(e) Open the emergency dump valve of the compartment to be emptied by pulling outward on its control lever handle.

(f) Open the manifold valve of the compartment to be emptied.

(g) Open gravity discharge valve (A).

(h) After completing the operation, close all manually operated valves.

(i) Close and latch the manhole fill cover.

(j) Disconnect the 3-inch transfer hose section and return it to the hose stowage compartment.

(k) Recap the outlet of gravity discharge valve (A).

(l) Disconnect the static ground lines.

**(2) Pressure discharge (unmetered and unfiltered).**

**WARNING**

Due to the possibility of an explosion

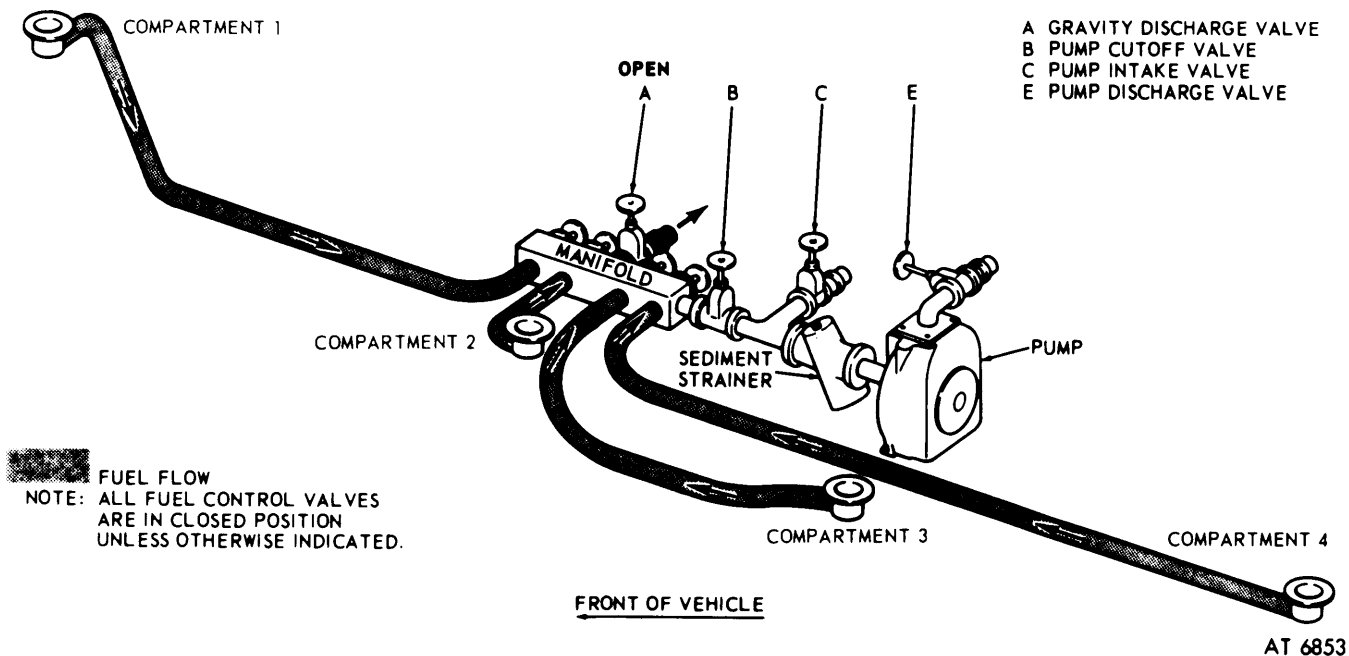


Figure 2-23. Gravity discharge-flow diagram-M131A4.

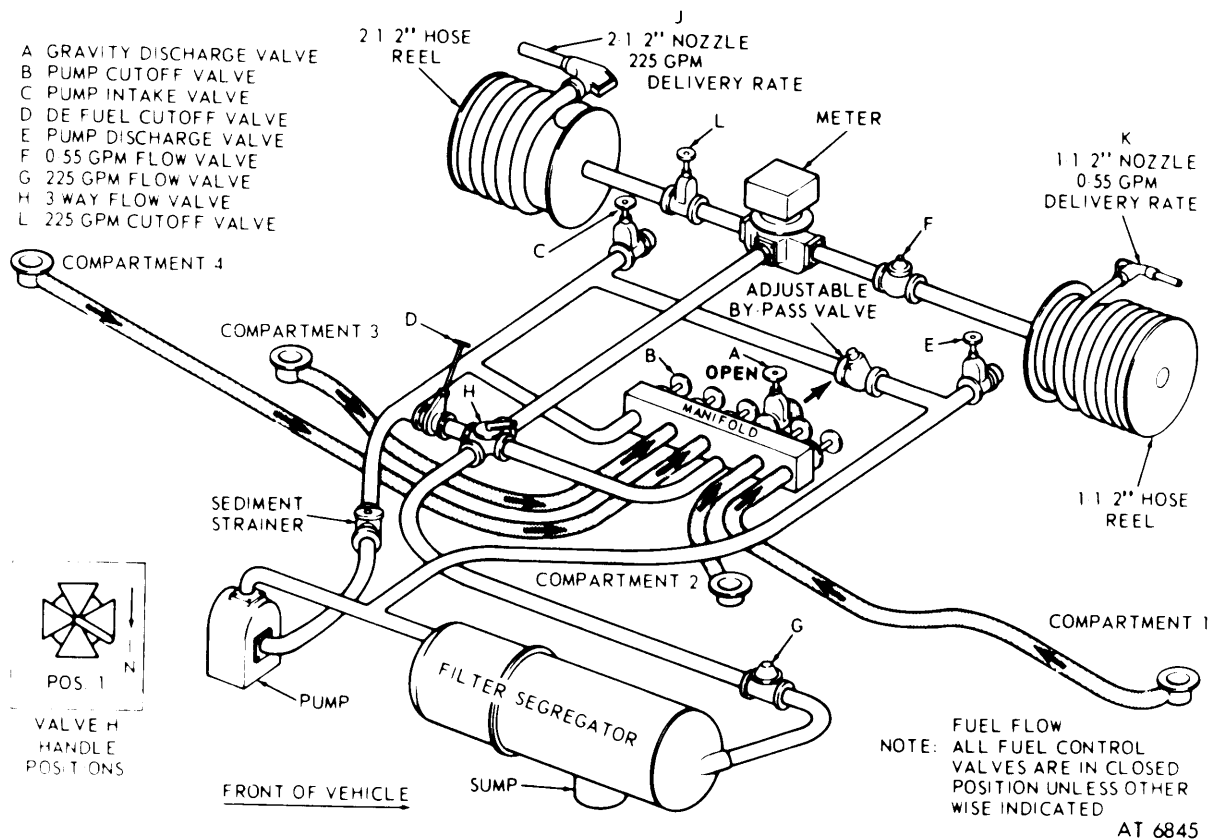


Figure 2-24. Gravity discharge, unmetered, unfiltered-flow diagram-M131A4C.



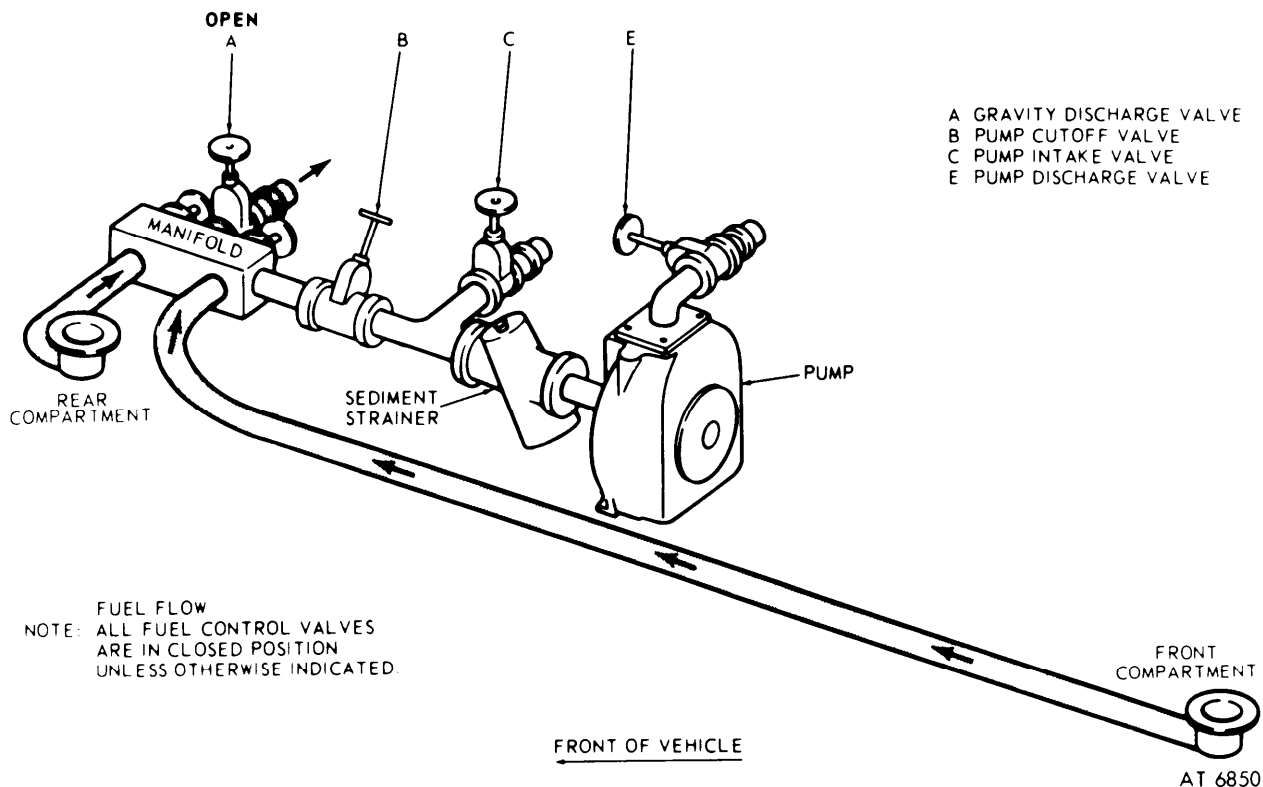


Figure 2-25. Gravity discharge-flow diagram-M131A5.

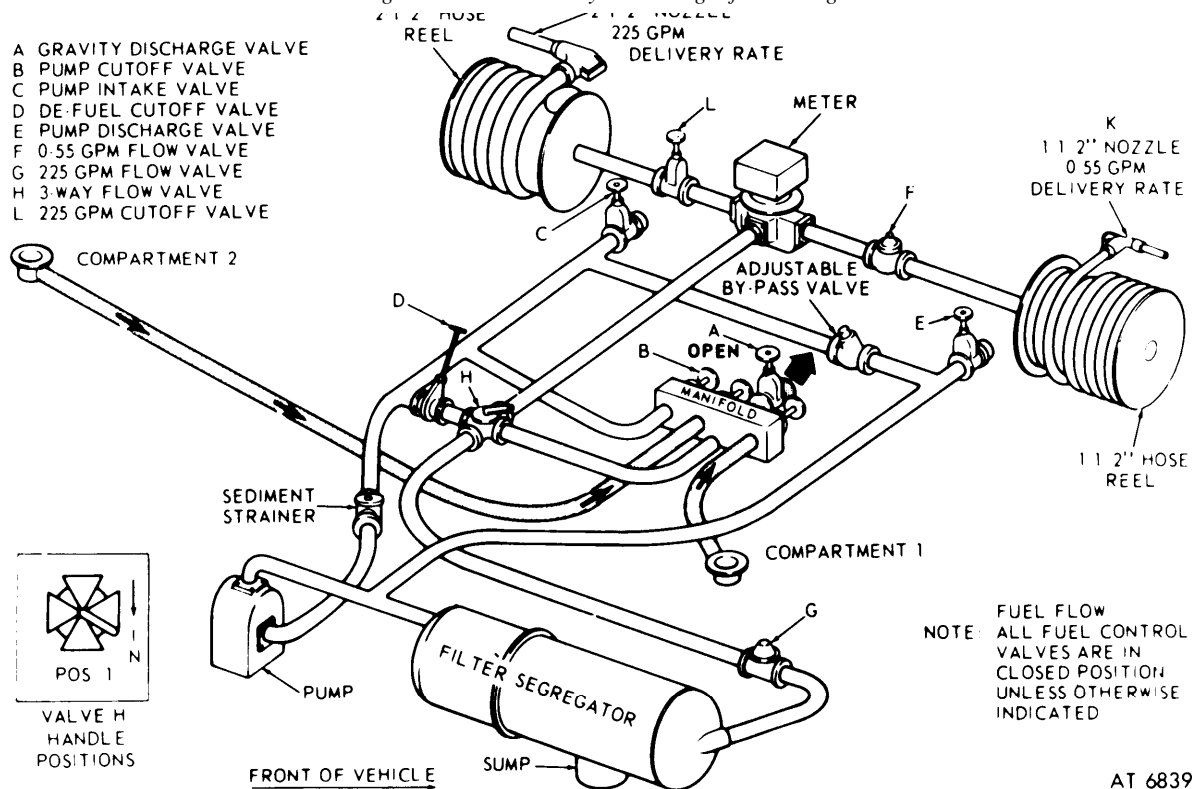


Figure 2-26. Gravity discharge, unmetered unfiltered-flow diagram-M131A5C.

caused by static electricity causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines.

**NOTE**

Use figure 2-27 for M131A4, 2-28 for M13A4C, 2-29 for M131A5, and 2-30 for M131A5C. The key letters in the instructions designating valves and outlets are identified in these figures. The meter and filter-segregator unit on the M131A4C and M131A5C semitrailers are not used during this operation.

(a) Connect the static ground lines (para 2-15).

(b) Make sure all manually operated valves are closed. On the M131A4C and M131A5C semitrailers, make sure the 3-way flow valve (H) is set in position No. 1 (the operating handle pushed inward as far as possible). Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(c) Open the manhole fill cover of the compartment to be emptied.

(d) Remove the cap from the outlet of pump discharge valve (E). Connect a section of 3-inch transfer hose from the outlet of valve (E) to the fuel receptacle.

(e) Open the emergency dump valve of the compartment to be emptied by pulling outward on its control lever handle.

(f) Open the manifold valve of the compartment to be emptied.

(g) Open pump cutoff valve (B) and pump discharge valve (E).

(h) Start the auxiliary engine (para 2-11) and check the engine oil pressure and the voltage indicator gages.

(i) After completing the operation, close all manually operated valves and shut off the auxiliary engine (para 2-11).

(j) Close and latch the manhole fill cover.

(k) Disconnect the 3-inch transfer hose section and return it to the hose stowage compartment.

(l) Recap the outlet of pump discharge valve (E).

(m) Disconnect the static ground lines.

*c. Fuel Transfer.*

**WARNING**

Due to the possibility of an explosion caused by static electricity y causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines.

**NOTE**

Use figure 2-27 for M131A4, 2-28 for M13A4C, 2-29 for M131A5, and 2-30 for M131A5C. The key letters in the instructions designating valves and outlets are identified in these figures. The meter and filter-segregator unit on the M131A4C and M131A5C semitrailers are not used during this operation.

(1) Connect the static ground lines (para 2- 15).

(2) Make sure all manually operated valves are closed. On the M131A4C and M131A5C vehicles, make sure the 3-way flow valve (H) is set in position No. 1 (the operating handle pushed inward as far as possible). Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(3) Open all manhole fill covers.

(4) Remove the cap from the outlet of pump intake valve (C) and connect a section of 3-inch transfer hose from the outlet of valve (C) to the fuel source.

(5) Remove the cap from the outlet of pump discharge valve (E) and connect a section of 3-inch transfer hose from the outlet of valve (E) to the fuel receptacle.

(6) Start the auxiliary engine (para 2-11) and check the engine oil pressure and voltage indicator gages.

(7) Open pump intake valve (C) and pump discharge valve (E).

(8) After completing the operation, close all manually operated valves and shut off the auxiliary engine (para 2-11).

(9) Close and latch the manhole fill covers.

(10) Disconnect the 3-inch transfer hose sections and return them to the hose stowage compartment.

(11) Recap the outlets of pump intake valve (C) and pump discharge valve (E).

(12) Disconnect the static ground lines.

*d. Fuel Servicing (M131A4C and M131A5C only).*

The 0-55 gpm fuel delivery system is used for servicing containers, ground vehicles, or aircraft whose fuel acceptance rate is less than 225 gpm. The 225 gpm fuel delivery system is used for servicing containers, ground vehicles, or aircraft whose fuel acceptance rate is at least 225 gpm. Fuel delivery through either system is accomplished by triggering the delivery hose nozzle.

(1) *Gravity discharge through 225 gpm system (metered but unfiltered).*

**WARNING**

Due to the possibility of an explosion caused by static electricity y causing injury to personnel and damage to equipment,

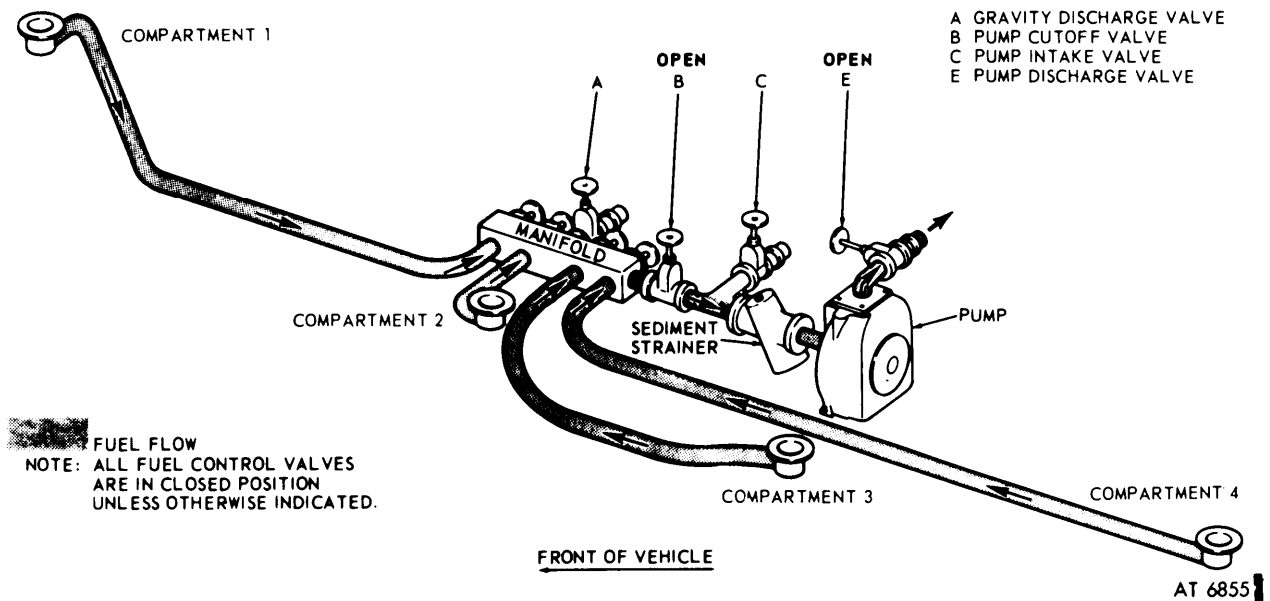


Figure 2-27. Pressure discharge-flow diagram-M131A4

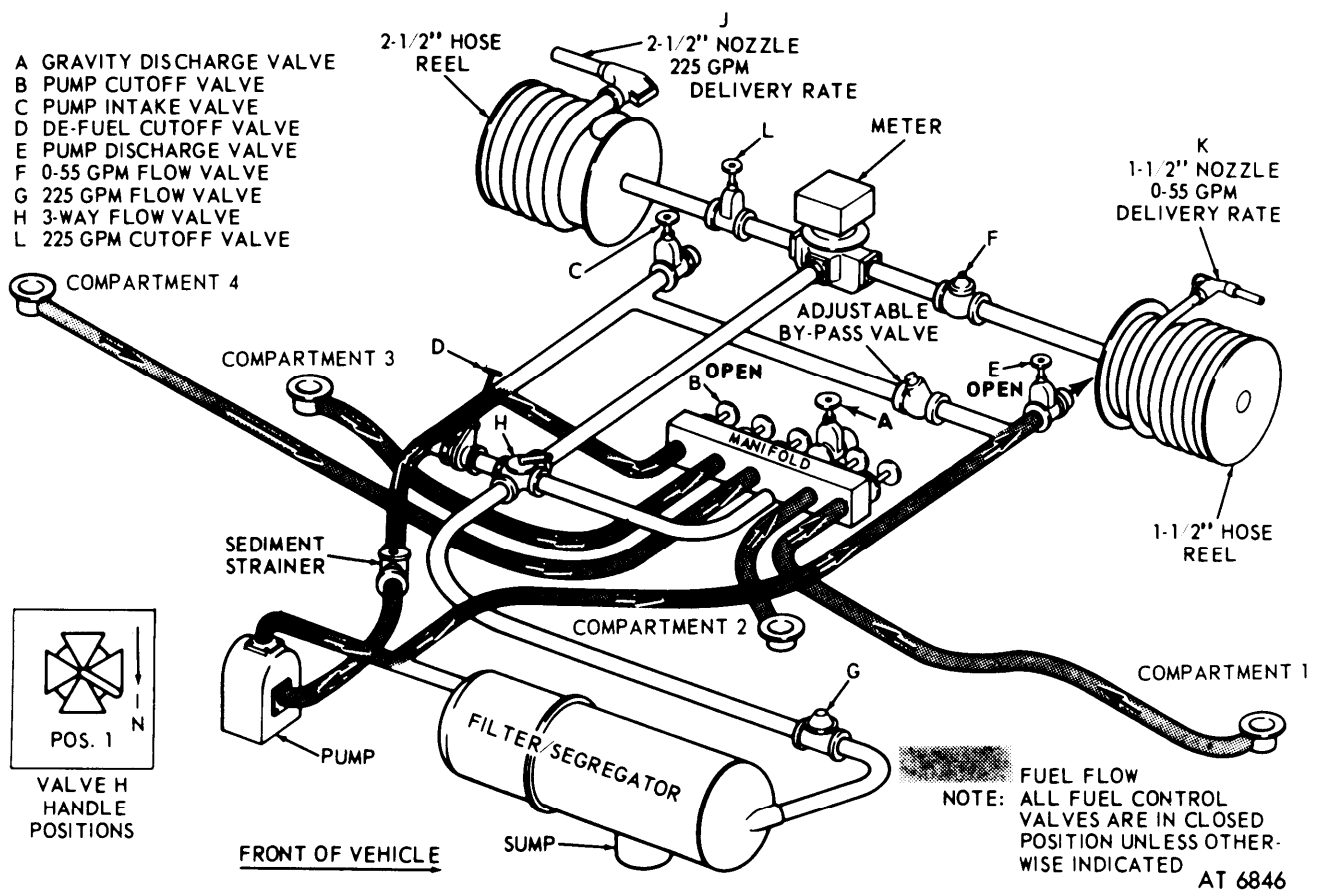


Figure 2-28. Pressure discharge, unmetered, unfiltered-flow diagram-M131A4C.

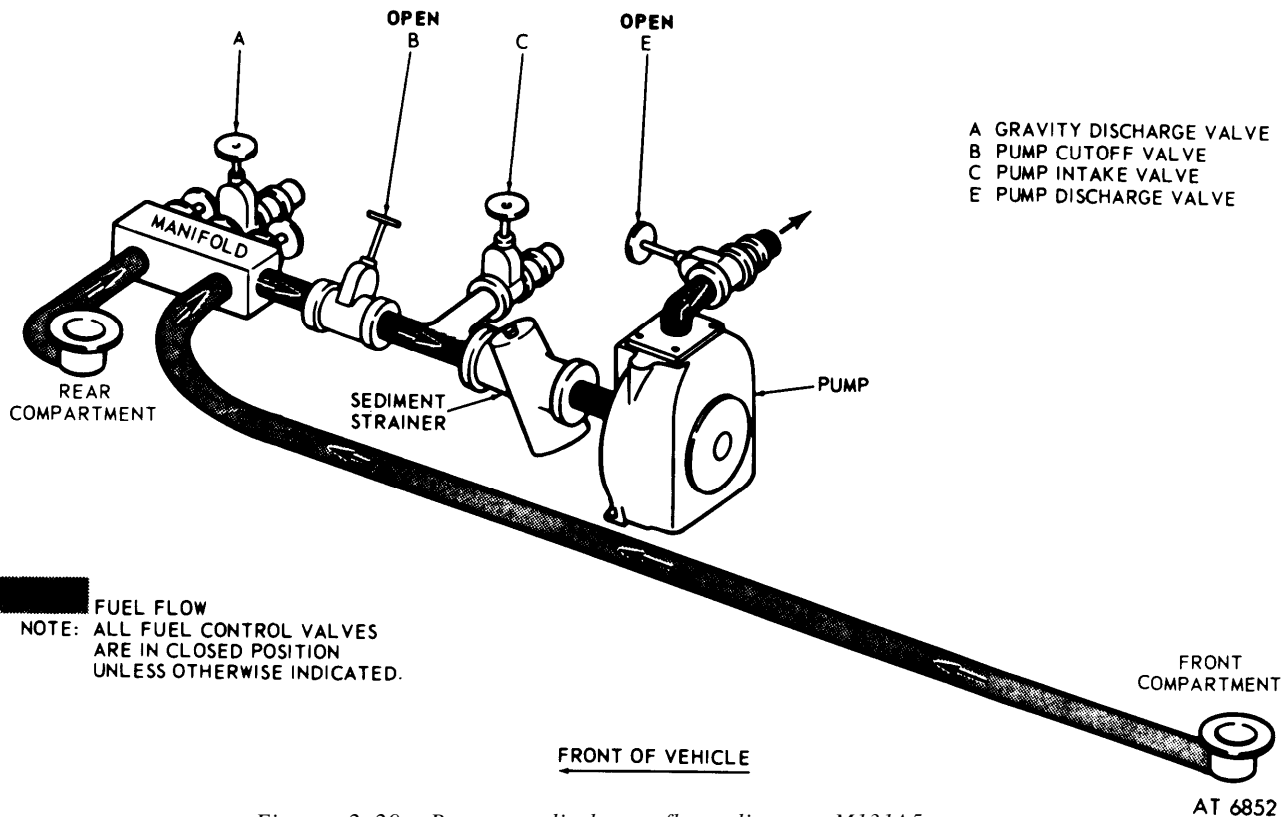


Figure 2-29. Pressure discharge-flow diagram-M131A5.

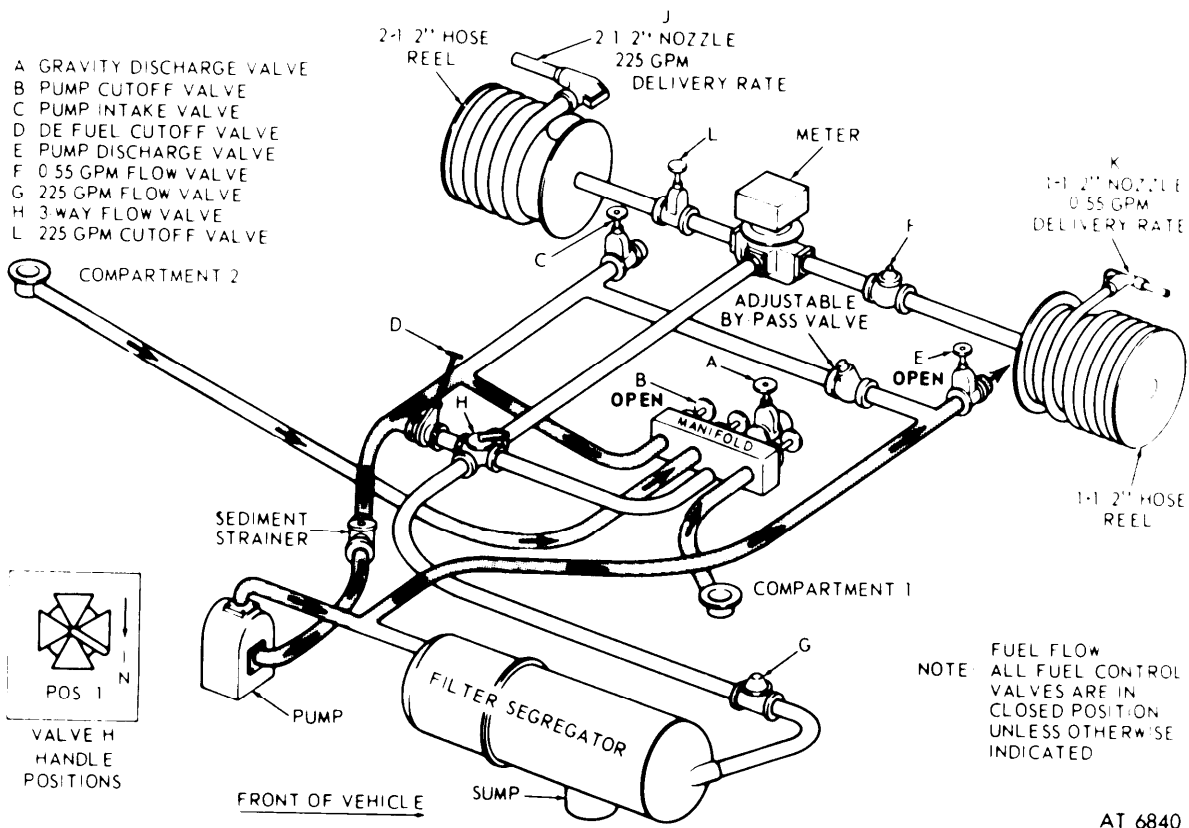


Figure 2-30. Pressure discharge, unfiltered-flow diagram-M131A5C.

care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines. The fuel dispensing nozzle's grounding line will be connected to the fuel tank before the fuel filler is opened.

### CAUTION

This method cannot be used for fueling aircraft since aviation fuels must be filtered.

### NOTE

Use figure 2-31 for M131A4C, and 2-32 for M131A5C. The key letters in the instructions designating valves and outlets are identified in these figures. The filter-segregator unit is not used during this operation.

(a) Connect the static ground lines (para 2-15).

(b) Make sure all manually operated valves are closed, and the 3-way flow valve (H) is set in position No. 1 (the operating handle pushed inward as far as possible). Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(c) Open the manhole fill cover of the compartment to be emptied.

(d) Open the emergency dump valve of the compartment to be emptied by pulling outward on its control lever handle.

(e) Open the manifold valve of the compartment to be emptied.

(f) Open pump cutoff valve (B), de-fuel cutoff valve (D), and 225 gpm cutoff valve (L).

(g) Unwind the hose from the 2-1/2-inch hose reel and take nozzle (J) to the point of delivery. Start and stop the fuel flow into the receptacle by triggering the delivery hose nozzle.

(h) After completing the operation, close all manually operated valves.

(i) Close and latch the manhole fill cover.

(j) Rewind the hose on the 2-1/2-inch hose reel.

(k) Disconnect the static ground lines.

(2) *Pressure discharge through 225 gpm system (metered and filtered).*

### WARNING

To prevent fuel overflowing, causing possible injury to personnel and damage to equipment, compartment No. 2 on the M131A4C semitrailer and compartment No. 1 on the M131A5C semitrailer must be emptied first.

Due to the possibility of the explosion caused by static electricity causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being

served with the static ground lines. The fuel dispensing nozzle's grounding line will be connected to the fuel tank before the fuel filler is opened.

### NOTE

Use figure 2-33 for M131A4C and 2-34 for M131A5C. The key letters in the instructions designating valves and outlets are identified in these figures.

(a) Connect the static ground lines (para 2-15).

(b) Make sure all manually operated valves are closed and the 3-way flow valve (H) is set in position No. 1 (the operating handle pushed inward as far as possible). Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(c) Open the manhole fill cover of the compartment to be emptied.

(d) Open the emergency dump valve of the compartment to be emptied by pulling outward on its control lever handle.

(e) Open the manifold valve of the compartment to be emptied.

(f) Set the 3-way flow valve (H) in position No. 2 (the operating handle pulled outward as far as possible).

(g) Open pump cutoff valve (B) and 225 gpm cutoff valve (L).

(h) Start the auxiliary engine (para 2-11) and check the engine oil pressure and voltage indicator gages.

(i) Unwind the hose from the 2-1/2-inch hose reel and take nozzle (J) to the point of delivery. Start and stop the fuel flow into the receptacle by triggering the delivery hose nozzle.

(j) After completing the operation, close all manually operated valves and shut off the auxiliary engine (para 2-11).

(k) Set the 3-way flow valve (H) in position No. 1 (the operating handle pushed inward as far as possible).

(l) Close and latch the manhole fill cover.

(m) Rewind the hose on the 2-1/2-inch hose reel.

(n) Disconnect the static ground lines.

(3) *Pressure discharge through 55 gpm system (metered and filtered).*

### WARNING

To prevent fuel overflowing, causing possible injury to personnel and damage to equipment, compartment No. 2 on the M 131A4C semitrailer and compartment No. 1 on the M131A5C semitrailer must be emptied first.

Due to the possibility of the explosion

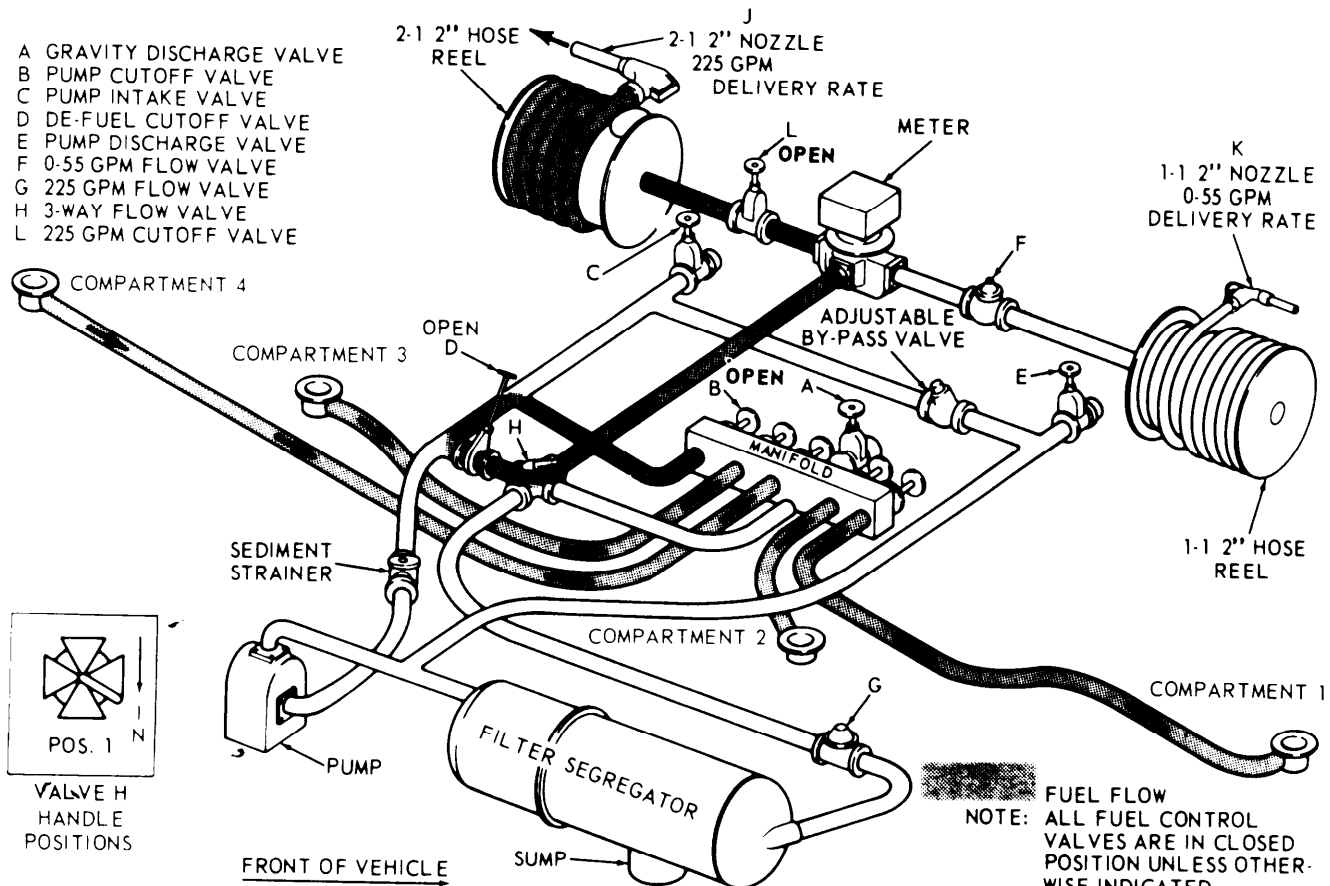


Figure 2-31. Gravity discharge, metered, using 2.25gpm system-flow, diagram-M131A4C.

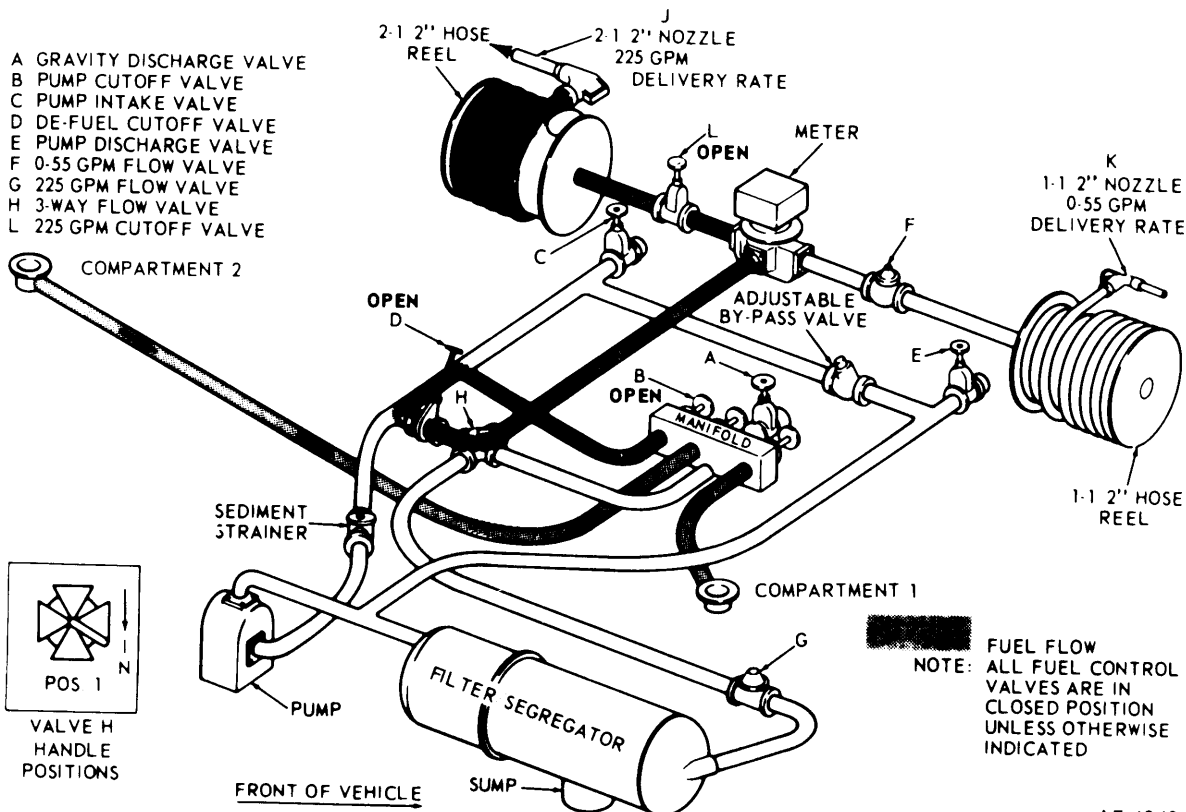


Figure 2-32. Gravity discharge, metered, using 225 gpm system-flow diagrams-M131A5C.

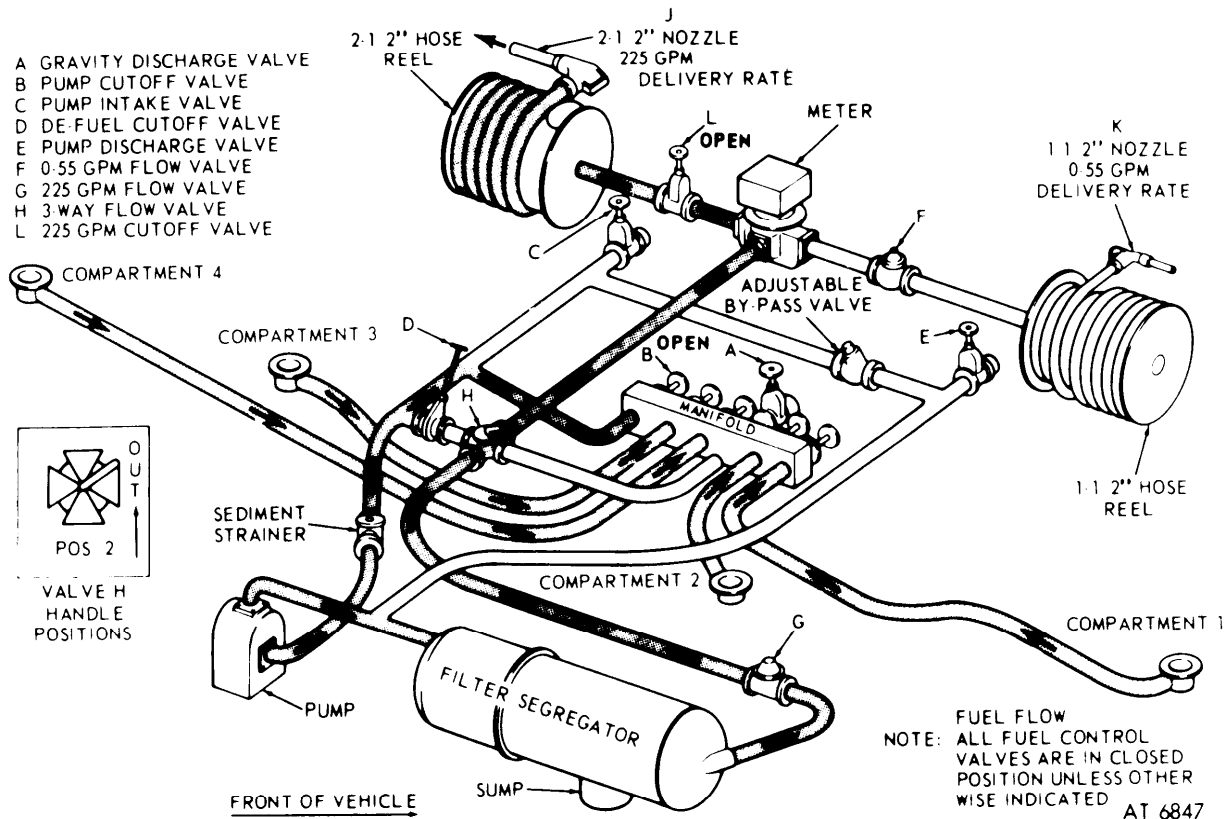


Figure 2-33. Pressure discharge, metered, filtered, using 22.5 gpm system-flow diagram-M131A4C.

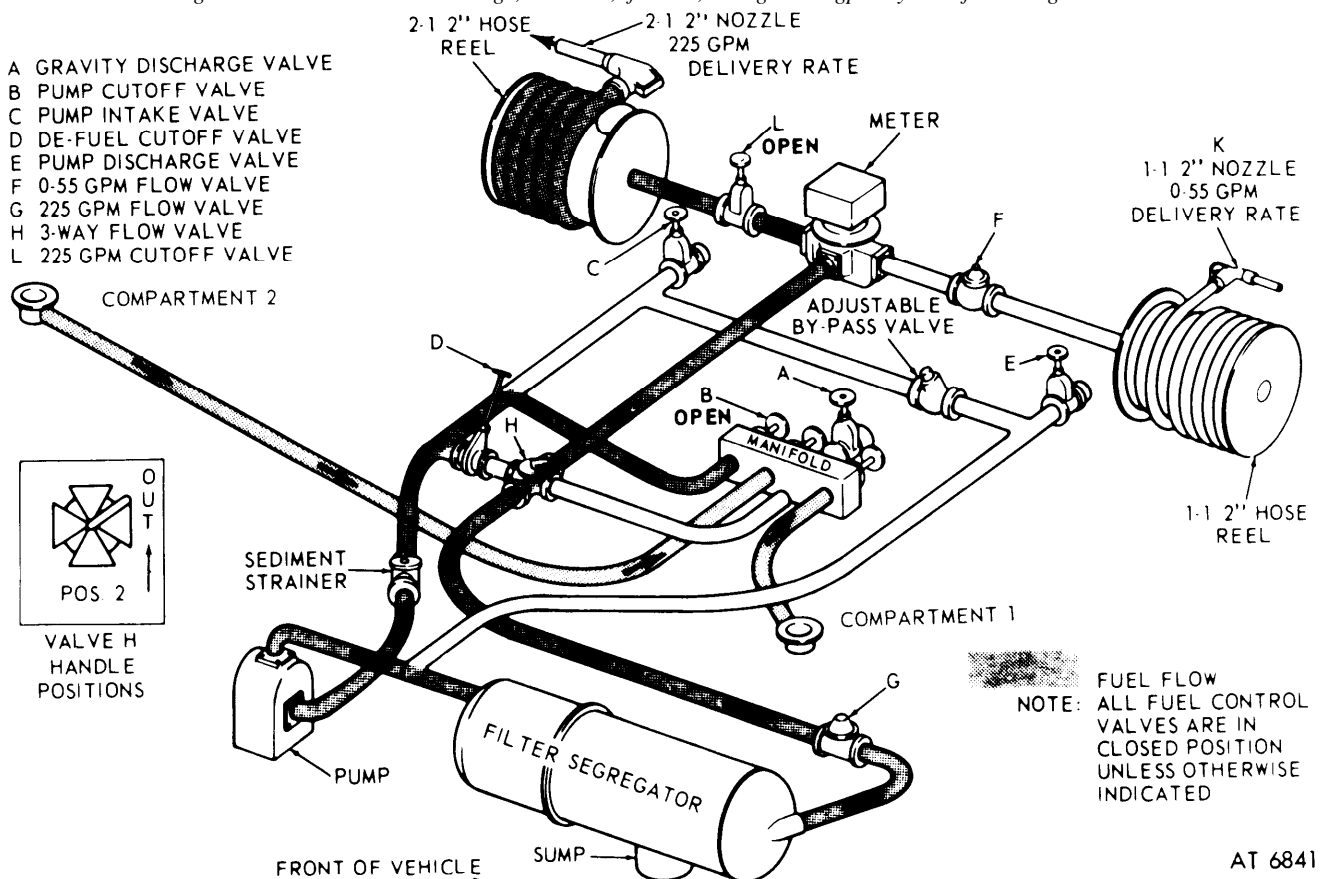


Figure 2-34. Pressure discharge, metered, filtered, using 225 gpm system-flow diagram-M131A5C.

caused by static electricity causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines. The fuel dispensing nozzle's grounding line will be connected to the fuel tank before the fuel filler is opened.

**NOTE**

Use figure 2-35 for M131A4C and 2-36 for M131A5C. The key letters in the instructions designating different valves and outlets are identified in these figures.

(a) Connect the static ground lines (para 2-15).

(b) Make sure all manually operated valves are closed and the 3-way flow valve (H) is set in position No. 1 (the operating handle pushed inward as far as possible). Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(c) Open the manhole fill cover of the compartment to be emptied.

(d) Open the emergency dump valve of the compartment to be emptied by pulling outward on its control lever handle.

(e) Open the manifold valve of the compartment to be emptied.

(f) Set the 3-way flow valve (H) in position No. 2 (the operating handle pulled outward as far as possible).

(g) Open pump cutoff valve (B).

(h) Open rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob to the desired delivery rate (0-55 gpm).

(i) Start the auxiliary engine (para 2-11) and check the engine oil pressure and voltage indicator gages.

(j) Unwind the hose from the 1-1/2-inch hose reel and take nozzle (K) to the point of delivery. Start and stop the flow of fuel into the receptacle by triggering the delivery hose nozzle.

(k) After completing the operation, close all manually operated valves and shut off the auxiliary engine (para 2-11).

(l) Set the 3-way flow valve (H) in position No. 1 (the operating handle pushed inward as far as possible).

(m) Close and latch the manhole filler cover.

(n) Close rate-of-flow selector valve. If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(o) Rewind the hose on the 1-1/2-inch hose reel.

(p) Disconnect the static ground line.

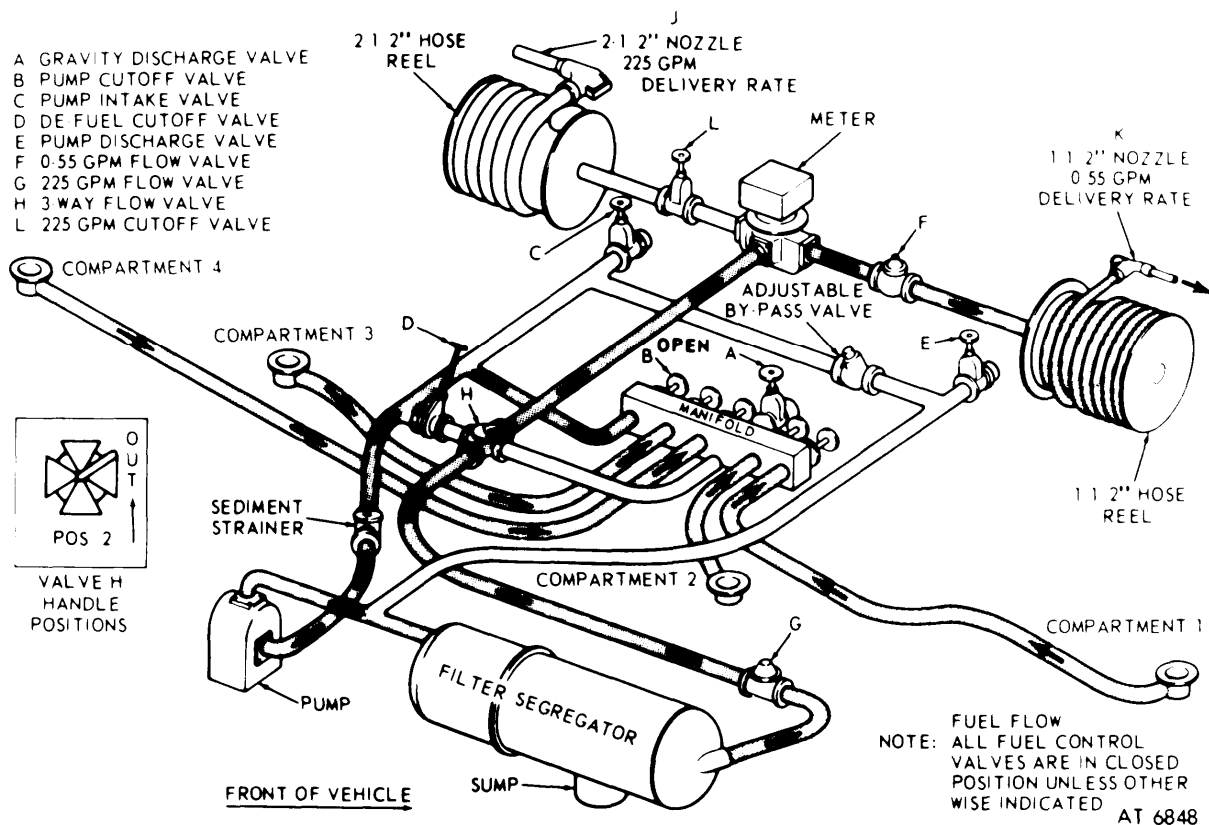


Figure 2-35. Pressure discharge, metered, filtered using 0-55 gpm system-flow diagram-M131A4C.



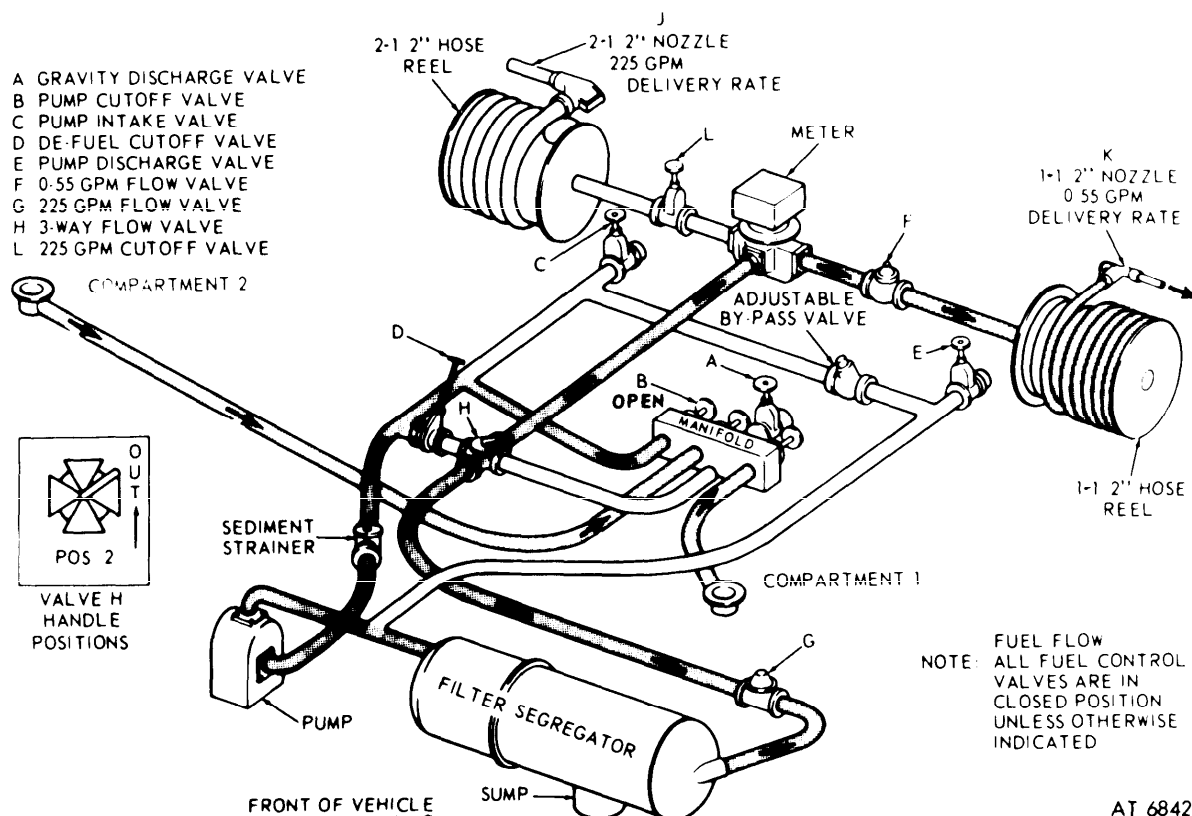


Figure 2-36. Pressure discharge, metered, filtered, using 0-55gpm system-flow diagram-M131A5C.

(4) Refueling through the 225gpm system (metered and filtered).

### WARNING

Due to the possibility of an explosion caused by static electricity causing injury to personnel and damage to equipment, care must be taken to properly ground both the servicing vehicle and the item being serviced with the static ground lines. The fuel dispensing nozzle's grounding line will be connected to the fuel tank before the fuel filter is opened.

### NOTE

Use figure 2-35 for M131A4C and 2-36 for M131A5C. The key letters in the instructions designating different valves and outlets are identified in these figures.

(a) Connect the static ground lines (para 2-15).

(b) Make sure all manually operated valves are closed and the 3-way flow valve (H) is set in position No. 1 (the operating handle pushed inward as far as possible). If equipped with a read-out rate-of-flow selector dial, set the selector knob at zero.

(c) Open the manhole fill cover of the compartment to be filled.

(d) Open the emergency dump valve of the

compartment to be filled by pulling outward on its control lever handle.

(e) Open the manifold valve of the compartment to be filled.

(f) Remove the short spout from nozzle (J) and replace it with the auxiliary long spout (fig 2-9).

(g) Unwind the hose from the 2-1/2-inch hose reel and take nozzle (J) to the point of defueling.

(h) Start the auxiliary engine (para 2-11) and check the engine oil pressure and voltage indicator gages.

(i) Open de-fuel cutoff valve (D) and 225 gpm cutoff valve (L).

(j) Insert the spout on nozzle (J) into the container to be emptied, and trigger the nozzle open. Release the trigger to close the nozzle when the container is empty.

(k) After completing the operation, close all manually operated valves and shut off the auxiliary engine (para 2-11).

(l) Close and latch the manhole fill cover.

(m) Remove auxiliary long spout from nozzle (J) and replace it with the short spout. Place the auxiliary long spout in its holder (fig 2-9).

(n) Rewind the hose on the 2-1/2-inch hose reel.

(o) Disconnect the static ground lines.

## Section IV. OPERATION UNDER UNUSUAL CONDITIONS

### 2-18. General

a. Special care in cleaning and lubrication must be observed where extremes of temperature, humidity, and unusual terrain conditions are present or anticipated. In addition to the normal preventive maintenance service, proper cleaning, lubrication, storage, and handling of fuels and lubricants not only insure proper operation, but also guard against excessive wear of working parts and deterioration of materials.

b. FM 55-30, Army Motor Transport Units, and Operations contains instructions on driver selection, training and supervision for operating wheeled vehicles under unusual conditions. A detailed study of FM 55-30 is essential for the use of this material under unusual conditions.

c. When chronic failure of materials results from subjection to extreme conditions, report the condition in accordance with DA PAM 738-750.

### 2-19. Extreme Cold

#### a. General

(1) Extensive preparation of a semitrailer scheduled for operation in extreme cold weather is necessary. Generally, extreme cold causes lubricants to thicken or congeal; cracks insulation; causes electrical short circuits; and various construction materials to become hard, brittle, and easily damaged or broken.

(2) The driver must always be on the alert for indications of the effect of cold weather on the semitrailer chassis and body.

(3) The driver must be very cautious when placing the semitrailer in motion after a shutdown. Congealed lubricants may cause failure of parts. Tires frozen to the ground or frozen to the shape of the flat spot while underinflated must be considered. One or more brakeshoes may be frozen fast and require preheating to avoid damage to the towing vehicle clutch surfaces.

(4) Refer to FM 9-207, Operation and Maintenance of Ordnance Material in Cold Weather for description of operation in extreme cold.

#### b. At Halt or Parking.

(1) When possible, park the semitrailer in a sheltered spot out of the wind. For long shut down periods, if high and dry ground is not available, prepare a footing of planks or brush.

(2) Gage tires for correct pressure.

#### c. Lubricants (Storage, Handling, and Use).

(1) The operation of equipment at arctic temperatures will depend to a great extent upon the condition of the lubricants. Immediate effects of careless storage and handling or improper use of the

materials are not always apparent, but any deviation from proper procedures may cause trouble at the least expected time.

(2) Refer to FM 9-207 for detailed instructions on storage, handling, and use of lubricants.

### 2-20. Extreme Heat

a. Semitrailers inactive for long periods in hot, humid weather are subject to rapid rusting and accumulation of fungi growth. Frequently inspect, clean, and lubricate to prevent deterioration.

b. Do not park the semitrailer in the sun for long periods as the heat and sunlight will shorten the life of the tires. If possible, park the semitrailer under cover to protect it from the sun, sand, and dust.

c. Cover inactive semitrailers with tarpaulins if no other suitable shelter is available. Canvas covers or other items are subject to deterioration from mildew or attacks by insects or vermin. Shake out and air for several hours weekly. Clean mildewed canvas by scrubbing with a dry brush. Do not use water to remove dirt until mildew has been removed. If mildew is present, examine material carefully by stretching and pulling to check for evidence of rotting or weakening. Replace canvas if fabric shows weakness. If not damaged, treat canvas as outlined in FM 10-267, General Repair for Clothing and Textiles.

#### NOTE

Do not use gasoline, drycleaning solvent, or mineral spirits paint thinner to remove oil or grease spots from canvas. Use only water and a scrubbing brush.

### 2-21. Dust or Sandy Areas

a. For emergency operations in beach and desert sand, refer to the tabulated data in chapter 1 for correct tire pressure.

b. Operation under extremely sandy or dusty conditions necessitates frequent inspection, cleaning, and lubrication of the chassis working parts.

### 2-22. Mud and Snow

a. Reduce tire inflation to the proper pressure as prescribed in tabulated data in chapter 1.

b. After each operation, remove ice, snow, and mud from underneath the semitrailer and from hoses, lines, tubes, and electrical connections.

### 2-23. Rainy or Humid Conditions

a. Keep moisture from entering the fuel supply. Clean fuel filter before each operation to remove accumulated moisture.

b. Dampness increases corrosive action. Inspect

painted surfaces and electrical connections frequently for corrosion.

#### **2-24. Saltwater Areas**

Wash salt deposits from all equipment with fresh water, Observe the instructions in paragraph 2-21.

#### **2-25. Fording Operations**

*a.* Instructions pertaining to fording operations for the towing vehicle apply also to the semitrailer.

*b.* Clean wheel bearings and hand pack with lubricant specified on lubrication chart (fig 3-1) after each submersion.



## CHAPTER 3

### OPERATOR/CREW MAINTENANCE INSTRUCTIONS

#### Section I. LUBRICATION

##### 3-1. General

This section contains a lubrication chart (fig 3- 1) and lubrication points (fig 3-2 and 3-3) showing location, intervals, and proper materials for lubricating the fuel tank semitrailer.

##### 3-2. Detailed Lubrication Information

- a. Service intervals specified on lubrication chart (fig 3-1) are for normal operations, and where moderate temperature, humidity, and atmospheric conditions prevail.
- b. For instructions on lubrication in weather below 0°F, refer to FM 9-207, Operation and Maintenance of Ordnance Materiel in Cold Weather.
- c. For after fording operations, lubricate semitrailer in accordance with lubrication chart (fig 3- 1).
- d. After operating under dusty or sandy conditions, clean and inspect all lubrication points and check for fouled lubricants. Lubricate as necessary.
- e. Keep all lubricants in closed containers and stored in a clean, dry place, away from external heat. Allow no foreign material to mix with the lubricants. Keep all lubrication equipment clean and ready to use.

##### NOTE

A lubricant fouled by dust and sand acts as an abrasive mixture and causes rapid wear of parts.

- f. Maintain a record of semitrailer lubrication and report any discrepancies noted during lubrication. Refer to DA PAM 738-750, The Army Maintenance Management System (TAMMS) for maintenance forms and recording procedures.

##### 3-3. Cleaning

##### NOTE

The use of diesel fuel, gasoline, paint thinner, or benzene (benzol) for cleaning is prohibited.

- a. Keep all parts not requiring lubrication free of lubricants. Before lubricating the semitrailer, wipe all lubrication points free of dirt and grease. Clean all lubrication points after lubricating to prevent accumulation of foreign matter.

##### WARNING

Drycleaning solvent (item 6, app F), used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 138°F.

- b. Use drycleaning solvent (item 6, app F) to clean or wash grease or oil from metal parts.
- c. After parts are cleaned, rinse and dry them thoroughly. Apply a light grade of oil (item 5, app F) to all polished metal surfaces to prevent rusting.

#### Section II. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

##### 3-4. Maintenance and Records

Every mission begins and ends with the paperwork. There isn't much of it, but you have to keep it up. The forms and records you fill out have several uses. They are a permanent record of the services, repairs, and modifications made on your equipment. They are reports to organizational maintenance and to your commander. And they are a checklist for you when you want to know what is wrong with the equipment after its last use, and whether those faults have been fixed. For the information you need on forms and records, see DA PAM 738-750.

##### 3-5. Preventive Maintenance Checks and Services

- a. Do your (B) PREVENTIVE MAINTENANCE just

before you operate the equipment. Pay attention to the CAUTIONS and WARNINGS.

- b. Do your (D) PREVENTIVE MAINTENANCE during operation. (During operation means to monitor the semitrailer while it is actually being used).

- c. Do your (A) PREVENTIVE MAINTENANCE right after operating the equipment. Pay attention to the CAUTIONS and WARNINGS.

- d. Do your (W) WEEKLY PREVENTIVE MAINTENANCE Weekly.

- e. Do your (M) MONTHLY PREVENTIVE MAINTENANCE once a month.

- f. If something doesn't work, troubleshoot it with the instructions in this manual or notify your supervisor.

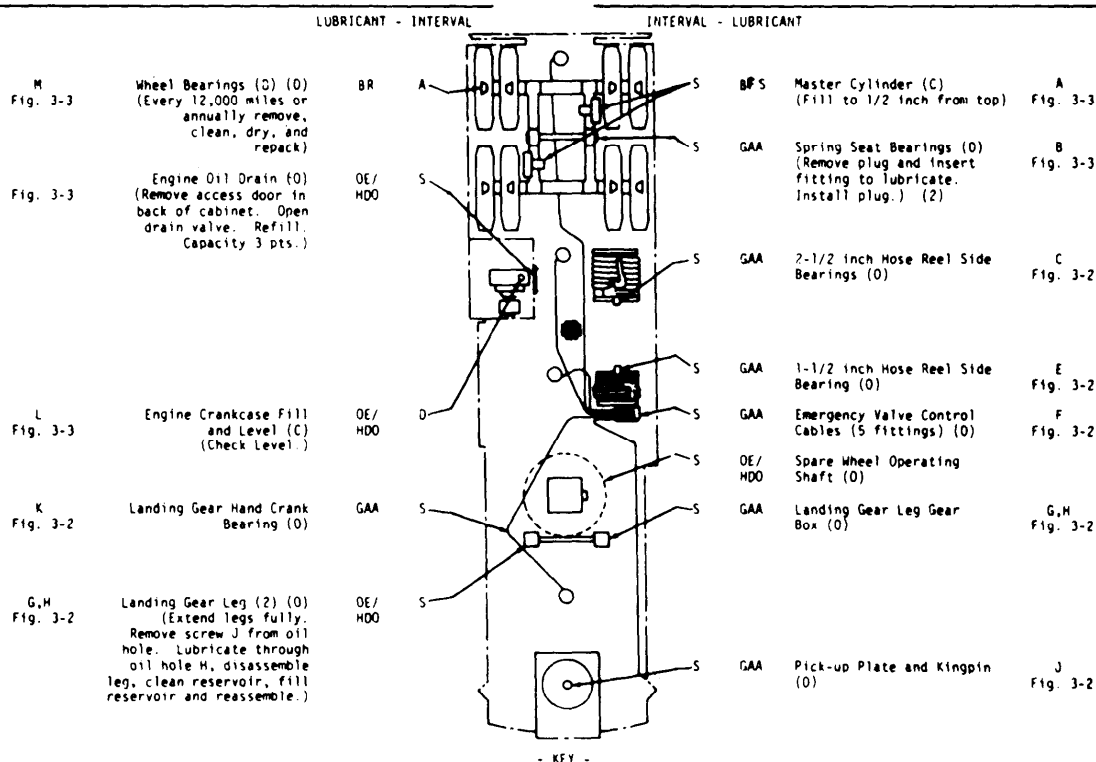
- g. Always do your PREVENTIVE MAINTENANCE

# LUBRICATION CHART

## SEMITRAILER, TANK: FUEL SERVICING, 5000 GAL, 4-WHEEL, M131A4, M131A4C, M131A5 AND M131A5C

Intervals and the related man-hour times are based on normal operations. The man-hour time specified is the time you need to do all the services prescribed for a particular interval. Change the interval if your lubricants are contaminated or if you are operating the semitrailer under adverse operating conditions, including longer-than-usual operating hours. You may extend the interval during periods of low activity, but you must take adequate preservation precautions.

Relubricate after washing or fording. Clean fittings before lubricating. Clean parts with SOLVENT, drycleaning (SD-II). Dry before lubricating. Dotted arrow point indicate lubrication on both sides of the semitrailer. The lowest level of maintenance authorized to lubricate point is indicated by one of the following symbols as appropriate: Operator/Crew (C) and Organizational Maintenance (O).



- KEY -

LUBRICANTS	EXPECTED TEMPERATURES			INTERVALS	TOTAL MAN-HOURS
	above 32°F	40°F to -10°F	0°F to -65°F		
OE/HDO - OIL, lubr., engine - MIL-L-2104 or OEA - OIL, lubr., engine, arctic - MIL-L-46167	OE/HDO-30	OE/HDO-10	OEA		
BFS - FLUID, brake, silicone - MIL-B-46176	All Temperatures			Daily ----- D	0.5 hr
GAA - GREASE, auto and artillery - MIL-G-10924				Semiannual - S	6.0 hr
BR - GREASE, ball and roller bearing - MIL-G-18739				Annual ----- A	5.0 hr
SD-II - SOLVENT, drycleaning - P-D-583					

- NOTES -

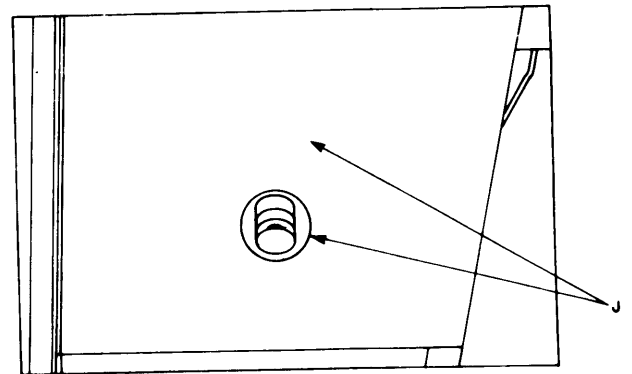
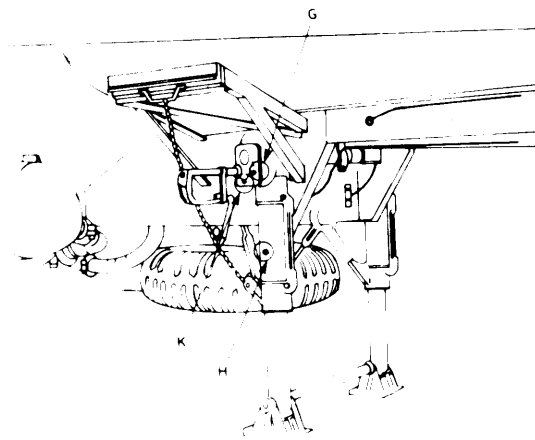
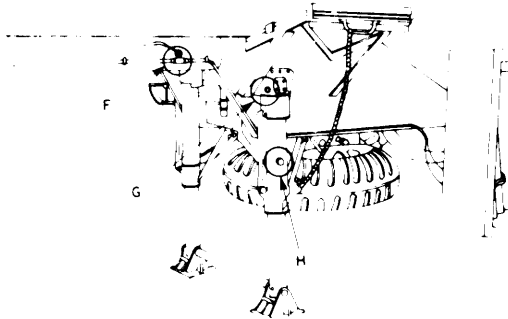
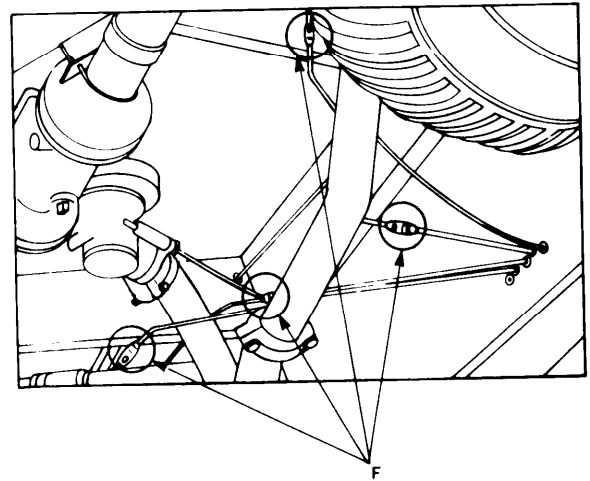
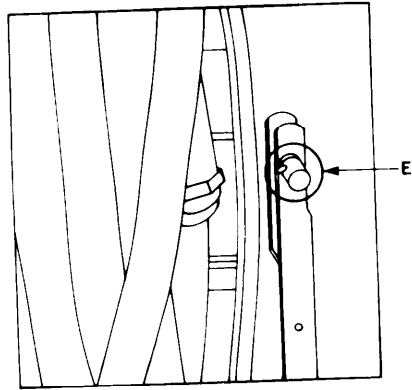
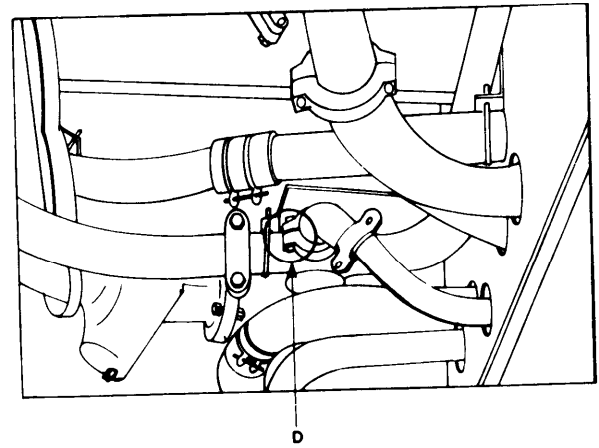
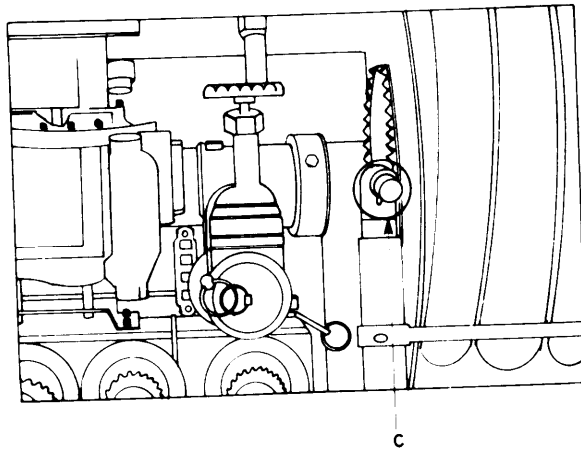
1. OIL CAN POINTS (C) - Monthly, lubricate cabinet door, hose tube, filler cap, and fire extinguisher latches and hinges; landing gear foot, crank assemblies, and spare wheel tire carrier with OE/HDO.

2. DO NOT LUBRICATE - Springs.

Copy of this lubrication chart will remain with the equipment at all times. Instructions contained herein are mandatory and supersede all conflicting lubrication instructions data prior to the date of the lubrication chart.

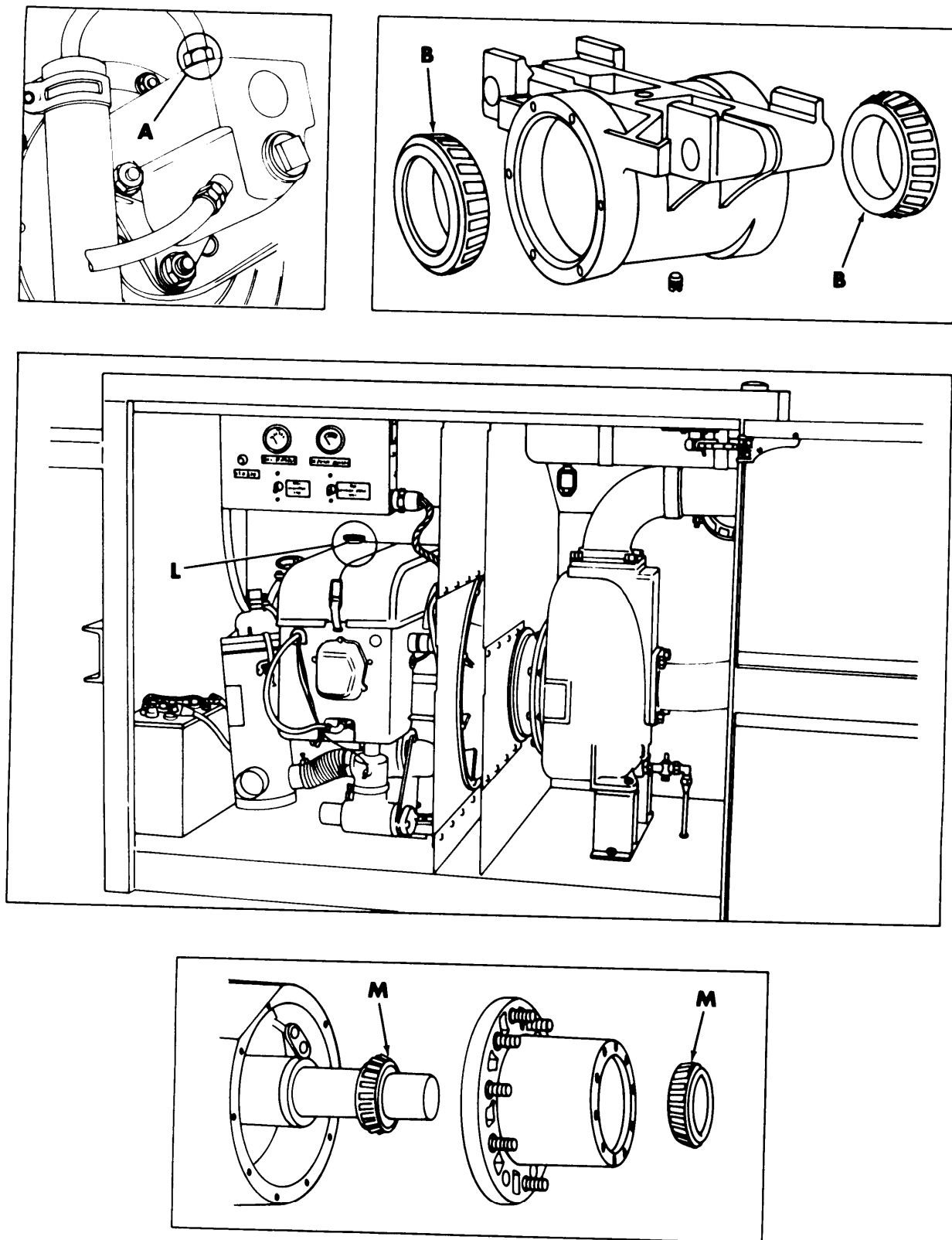
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Figure 3-1. Lubrication chart.



TA 072690

Figure 3-2. Lubrication points.



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Figure 3-3. Lubrication points.



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.

*h.* If anything looks wrong and you can't fix it, write it on your DA Form 2404. If you find something seriously wrong, report it to organizational maintenance RIGHT NOW.

*i.* When you do your PREVENTIVE MAINTENANCE, take along the tools you need to make all the checks. You always need a rag or two.

(1) *Keep it clean:* Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use drycleaning solvent (item 6, app F) to clean metal surfaces. Use soap and water when you clean rubber or plastic material.

(2) *Bolts, nuts, and screws:* Check them all for obvious looseness, missing, bent, or broken condition. You can't try them all with a tool, of course. But look for chipped paint, bare metal, or rust around bolt heads. If you find one you think is loose, tighten it or report it to organizational maintenance.

(3) *Welds:* Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to organizational maintenance.

(4) *Electric wires and connectors:* Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and make sure the wires are in good shape.

(5) *Hoses and fluid lines:* Look for wear, damage, and leaks, and make sure clamps and fittings are tight. Wet spots show leaks, of course, but a stain around a

fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to organizational maintenance.

*j.* It is necessary for you to know how fluid leakage affects the status of your equipment. The following are definitions of the types/classes of leakage you need to know to be able to determine the status of your equipment. Learn, then be familiar with them and REMEMBER-WHEN IN DOUBT, NOTIFY YOUR SUPERVISOR!

*Leakage definitions for Operator/Crew PMCS.*

- CLASS I Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
- CLASS II Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.
- CLASS III Leakage of fluid great enough to form drops that drip from the item being checked/inspected.

#### CAUTION

- Equipment operation is allowable with minor leakage (Class I or II). Of course, consideration must be given to the fluid capacity in the item/system being checked/inspected. When in doubt, notify your supervisor.
- When operating with class I or II leaks, continue to check fluid levels as required in your PMCS.
- Class III leaks should be reported to your supervisor or to organizational maintenance.

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services

Item no.	Interval					ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/available if
	B	D	A	W	M		
						<p><b>NOTE</b></p> <p>PERFORM WEEKLY AS WELL AS BEFORE PMCS IF:</p> <ul style="list-style-type: none"> <li>a. You are assigned driver but have not operated semitrailer since the last weekly.</li> <li>b. You are operating the semitrailer for the first time.</li> </ul> <p>MAKE THE FOLLOWING WALK AROUND CHECKS:</p> <p>(Exterior of semitrailer)</p> <ul style="list-style-type: none"> <li>a. Check under chassis for evidence of oil, hydraulic fluid, or fuel leakage.</li> <li>b. Check kingpin, air connections, and electrical connections to towing vehicle.</li> <li>c. Check landing gear for damage.</li> <li>d. Visually check tires for damage or low pressure (correct pressure is 60 psi hard surface, 45 psi cross-country).</li> <li>e. Check springs, suspension, and torque rods to see if they are loose or have been damaged.</li> <li>f. Check transfer hose compartment and locks. Check transfer hoses for damage.</li> <li>g. Check compartment locks, door handles, and doors for damage.</li> </ul>	<p>Class III oil or hydraulic fluid leaks (drip) found.</p> <p>Tires have cuts or abrasions which would result in tire failure during operation. One or more tires missing, unserviceable, or flat.</p>

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services-continued

Item no.	Interval					ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed	Equipment is not ready/ available if:
	B	D	A	w	M		
1						h. Check portable and fixed fire extinguishers, lines, and nozzles for damage and corrosion. Notify DS Maint. of due date for qtrly inspection.	Both fixed and portable fire extinguisher missing. Fixed fire extinguisher pull handle seal broken or missing. Fixed fire extinguisher lines or couplings cracked or missing.
	•					i. Check auxiliary engine gas tank and lines for leaks and damage.	No fuel leaks allowed.
		•				j. Check hose reels, hoses, static ground reel, nozzles, gate valves, and manifold valves for damage or leaks.	No fuel leaks allowed.
					•	k. Check manhole covers and gaskets for damage.	
2					•	l. Check catwalk drains for clogs.	
					•	m. Check tank interior for signs of discoloration.	
3	•					n. Check frame crossmembers and siderails for cracks or signs of damage.	Cracked, loose, or broken crossmembers, welds, bolts, or rivets
4			•			<b>FILTER-SEGREGATOR</b> Open segregator drain cock on the dump valve and drain water.	
5	•					<b>AIR RESERVOIR</b> Open drain cocks momentarily to release accumulated moisture.	
6	•					<b>BATTERIES</b> Check level of electrolyte. If low, fill with clean water (distilled if possible) to the split ring. In freezing weather, run auxiliary engine at least one hour after adding water.	Battery missing or un-serviceable. Damaged or missing battery cables or clamps.
7	•					<b>LIGHTS</b> Check tail, turn, and brake lights for proper operation.	
8		•				<b>TRACKING</b> With the towing vehicle moving straight ahead, see if there is any tendency for the semitrailer to wander or pull to one side. These conditions may be caused by axle misalignment, improperly adjusted wheel bearings, or brakes.	
9		•				<b>BRAKES</b> Apply semitrailer brakes and observe that they operate effectively. During halts, feel brake drums and hubs cautiously. An overheated wheel hub and brake drum indicates an improperly adjusted, defective, or dragging brake, or a dry wheel bearing.	No air leaks allowed.
10		•				<b>ATTACHMENTS AND WHEELS</b> Be alert for unusual or excessive noise during operation that may indicate damage, looseness, defects, or deficient lubrication in attachments and wheels.	
11						<b>FILTER-SEGREGATOR ELEMENTS</b> Check pressure differential of elements after each fuel servicing operation.	
12					•	<b>SEDIMENT STRAINER</b> If semitrailer is used daily the sediment strainer will require organizational maintenance monthly. If semitrailer is used occasionally the sediment strainer will require organizational maintenance quarterly.	
13	•					<b>ENGINE</b> a. Visually inspect engine for signs of damage.	Engine will not start and run properly.
14	•					b. Check engine spark arrestor (muffler) for signs of damage or deterioration.	Engine spark arrestor (muffler) missing.
15	•					<b>ANTRIFUGAL PUMP</b> Check pump for proper ground.	Pump cannot be properly grounded.

## Section III. TROUBLESHOOTING

### 3-6. Introduction

a. This section contains troubleshooting information for locating and correcting most of the operating troubles that may develop in the fuel tank semitrailer. Each malfunction for an individual component; unit, or system is followed by a list of tests or inspections that will help you to determine corrective actions to take.

b. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective

actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify organizational maintenance.

### 3-7. Troubleshooting

Table 3-2 lists the common malfunctions that you may find during the operation or maintenance of the semitrailer or its components. You should perform the tests/inspections and corrective actions in the order listed.

Table 3-2. Troubleshooting

Malfunction	Test or inspection	Corrective action
<b>NOTE</b>		
Before you use this table, be sure you have performed all applicable operating checks.		
<b>ELECTRICAL SYSTEM</b>		
1.	<b>ALL LAMPS FAIL TO LIGHT.</b>	
	Step 1.	Check to see if the intervehicular cable is improperly plugged into the semitrailer receptacle. Pull the cable plug out of the receptacle and insert it properly.
	Step 2.	Check the light switch on the towing vehicle for the improper mode. Place the light switch on the towing vehicle in the proper mode of operation.
	Step 3.	Check for a tripped circuit breaker on the towing vehicle. Reset the circuit breaker.
2.	<b>ONE OR MORE LAMPS WILL NOT LIGHT.</b>	
	step 1.	Inspect for dirty or corroded terminals on the intervehicular cable. Clean connections, receptacle, and plug.
	Step 2.	Check for loose cable connections. Tighten connections.
3.	<b>DIRECTIONAL SIGNALS INOPERATIVE.</b>	
	Inspect for dirty or corroded cable socket and contacts. Clean socket and contacts.	
<b>BRAKE SYSTEM</b>		
4.	<b>BRAKES WILL NOT RELEASE.</b>	
	step 1.	Check to see if the relay emergency valve is in the applied position. If the semitrailer is coupled, wait until the air pressure gage on the towing vehicle reads a normal operating pressure. If the semitrailer is uncoupled, open the reservoir drain cock.
	step 2.	Check intervehicular air hose for improper connections. Connect hose(s) properly (para 2-3c).
	step 3.	Check for an open air reservoir drain cock. Close air reservoir drain cock.
	Step 4.	Check to see if the shutoff valves on the towing vehicle are closed. Open shutoff valves on towing vehicle.

Table 3-2, Troubleshooting-continued

Malfunction	Test or inspection	Corrective action
	step 5.	Check intervehicular air lines for restrictions, Straighten out any kinks, bends, or restrictions.
5.	NO BRAKES OR WEAK BRAKES.	
	step 1.	Check to see if the intervehicular air lines are im- properly connected. Connect the air lines properly (para 2-3c).
	step 2.	Check air supply for low air pressure and lines for leaks. Tighten loose connections.
6.	SLOW BRAKE APPLICATION OR SLOW RELEASE.	Check the master cylinder for insufficient fluid. Fill the master cylinder according to lubrication chart (fig 3- 1).
7.	GRABBING BRAKES.	Check the air system for moisture. Open the drain cock on the air reservoir and drain moisture from the system.
		WHEELS, HUBS, BEARINGS, AND TIRES
8.	SEMITRAILER SAGS TO ONE SIDE.	Check tires to see if the air pressure is low or uneven. Inflate tires to correct pressure (45 psi hard surface, 25 psi cross-country).
9.	EXCESSIVELY WORN, SCUFFED, OR CUPPED TIRE(S).	step 1. Check for improper tire pressure. Inflate to correct pressure (45 psi hard surface, 25 psi cross country).
	step 2.	Check wheels for looseness. Tighten the wheel stud nuts.
10.	NOISY WHEELS.	Check wheels for looseness. Tighten the wheel stud nuts.
11.	WOBBLY WHEELS.	Check wheels for looseness. Tighten the wheel stud nuts.
12.	AIR LEAKAGE FROM TIRES.	step 1. Check valve core for damage or looseness. Tighten or replace valve core.
	step 2.	Check tire for puncture. Replace a punctured tire with a spare (para 2-6).
		LANDING GEAR
13.	ABNORMAL OPERATION.	Check for inadequate lubrication. Lubricate in accordance with lubrication chart (fig. 3- 1).

## Section IV. MAINTENANCE PROCEDURES

There are no maintenance procedures allocated for operator/crew.



## CHAPTER 4

### ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

#### Section I. SERVICE UPON RECEIPT OF MATERIEL

##### 4-1. Inspecting and Servicing the Equipment

When a new or reconditioned fuel tank semitrailer is first received by the using organization, the organizational mechanics must determine whether the semitrailer has been properly prepared for service by the supplying unit and is able to perform any mission to which it may be assigned. For this purpose, inspect all assemblies, subassemblies, and accessories to be sure that they are properly assembled, secure, clean, correctly adjusted, and lubricated. Check all tools and equipment to be sure every item is present, in good condition, clean, and properly mounted or stowed. Read DD Form 1397, Processing and Reprocessing Record for Shipment, Storage, and Issue of Vehicles and Spare Engines, and follow all precautions checked thereon. This tag should be on the semitrailer, securely attached, and in a prominent location.

##### 4-2. Specific Procedures

*a.* If any exterior surfaces are coated with rust preventive compound, remove it with drycleaning solvent (item 6, app F).

*b.* If any deficiencies are noted which appear to involve faults in design, operations, and manufacture or are a direct result of below standards quality of workmanship, report such deficiencies on Standard Form 368 Quality Deficiency Report.

*c.* Perform preventive maintenance checks and services in accordance with table 4-1.

*d.* Lubricate all lubrication points illustrated on the lubrication chart (fig 3-1) regardless of interval,

*e.* Schedule second preventive maintenance service on DD Form 314, Preventive Maintenance Schedule and Record. See DA PAM 738-750.

*f.* Perform a break-in of at least 25 miles on all new or reconditioned semitrailers and a sufficient number of miles on used semitrailers to completely check their operation.

#### Section II. REPAIR PARTS, SPECIAL TOOLS, AND EQUIPMENT

##### 4-3. General

Tools, equipment, and maintenance parts over and above those available to the using organization are supplied to Direct Support and General Support maintenance units for maintaining, repairing, and/or overhauling the fuel tank semitrailer.

##### 4-4. Tools and Equipment

No special equipment is required for maintenance of

the semitrailer. Special tools are listed and illustrated in the Repair Parts and Special Tools List, appendix E, of this manual.

##### 4-5. Maintenance Repair Parts

Repair parts are listed and illustrated in the Repair Parts and Special Tools List, appendix E, of this manual.

#### Section III. LUBRICATION, CLEANING, AND PAINTING INSTRUCTIONS

##### 4-6. Lubrication

*a.* Paragraph 3-2, lubrication chart (fig 3-1), and lubrication points (fig 3-2 and 3-3) prescribe cleaning, lubricating procedures, location of items to be serviced, types of lubricant to be used, and servicing frequency.

*b.* Clean and lubricate bearings as specified in TM 9-214, Inspection, Care, and Maintenance of Antifriction Bearings.

*c.* When authorized to install new parts, remove any preservative materials, such as rust preventive com-

pound or protective grease, prior to installation. Apply lubricant prescribed on the lubrication chart if required.

##### 4-7. Cleaning

Clean the interior of stainless steel tanks as follows:

##### WARNING

Because of harmful vapors do not enter the tank before it is rendered completely safe by steam cleaning. Constantly air the tank while working in it. Have a safety man check the

tank with proper safety equipment prior to entering it.

a. Keep the surface clean. Sediments, solid deposits, or foreign matter of any kind should be removed from stainless steel surfaces as frequently as is practical. If cleaning is postponed, the task of removal may become more difficult and corrosion and pitting may result.

b. Do not enter the tank with shoes that are dirty or contain heavy iron nails. Do not scratch the tank surfaces with metal tools, such as files, scrapers, ordinary steel wire brushes, or coarse abrasives. To avoid rust or contamination, tools or wet objects should not be left lying on the metal surfaces.

c. For simple cleaning, warm water with or without soap is sufficient. Next in order, use mild abrasives in powder form and soap. These are used with warm water, bristle or stainless steel brushes, and clean cloths. Treatment of this kind should always be followed by rinsing with clean hot water and then drying.

## Section IV. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

### 4-9. General

Preventive maintenance is detecting/correcting problems before they happen, or fixing little problems before they become big problems. Table 4-1 contains a list of preventive maintenance checks and services to be performed by organizational maintenance personnel. Attention to these checks and services will increase the useful life of the semitrailer, but every possible problem cannot be covered in the PMCS. You need to be alert for anything that might cause a problem. If anything does look wrong, and you can't fix it, write it on a DA Form 2404 and report it to your supervisor. Be sure to record any corrective action.

### 4-10. Organizational Preventive Maintenance Checks and Services

a. Perform the checks and services at the intervals shown in table 4-1.

(1) Do the (Q) checks and services once each three months.

(2) Do the (S) checks and services twice a year, or each six months.

(3) Do the (A) checks and services once each year.

(4) Do the (B) checks and services once each two years.

(5) Do the (H) checks and services at the hour interval listed.

(6) Do the (MI) checks and services when the mileage of the vehicle reaches the amount listed.

b. If the semitrailer doesn't work properly and you can't see what is wrong, refer to section V for troubleshooting instructions.

#### WARNING

Drycleaning solvent (item 6, app F), used to

### 4-8. Painting and Identification Marking

a. General instructions are included in TEI 43-0209 Color, Marking and Camouflage Pattern Painting, and TM 43-0139 Painting Instructions for field use.

#### WARNING

Because of harmful vapors, all painting and stenciling procedures must be performed in a well-ventilated room or outdoors. A CO, fire extinguisher must be positioned adjacent to the area where painting and stenciling procedures are performed.

b. Spot painting and marking (stenciling) of tactical vehicles will be performed under the control of organizational maintenance personnel. Drivers are not authorized to perform this function except in cases where the driver is also a mechanic or mechanic's helper. See figures 4-1 through 4-4 for stencil marking location.

clean parts, is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 138°F.

c. Make cleanup a part of your preventive maintenance. Dirt, grease, oil, and debris may cover up a serious problem. Use drycleaning solvent (item 6, app F) to clean metal surfaces. Wipe off excess grease and spilled oil. Use soap and water when you clean rubber or plastic material.

d. Watch for and correct anything that might cause a problem with the semitrailer. Some things you should watch for are:

(1) Bolts, nuts, and screws that are loose, missing, bent, or broken.

(2) Welds that are bad or broken.

(3) Electric wires and connectors that are bare, broken, or loose.

(4) Hoses and fluid lines that leak, or show signs of damage or wear.

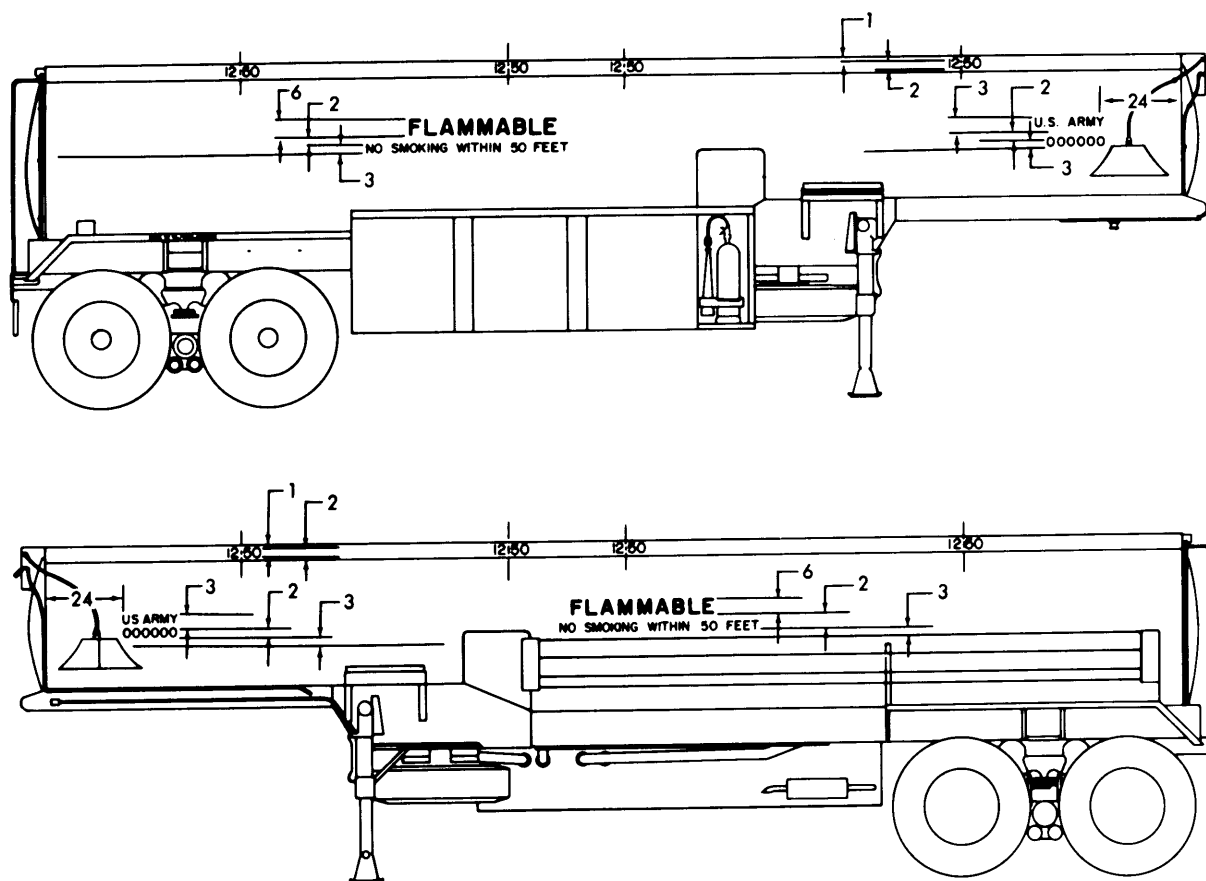
e. You should know how fluid leaks affect the status of your equipment. Learn and be familiar with the following definitions of the types/classes of leakage.

*Leakage definitions for PMCS are:*

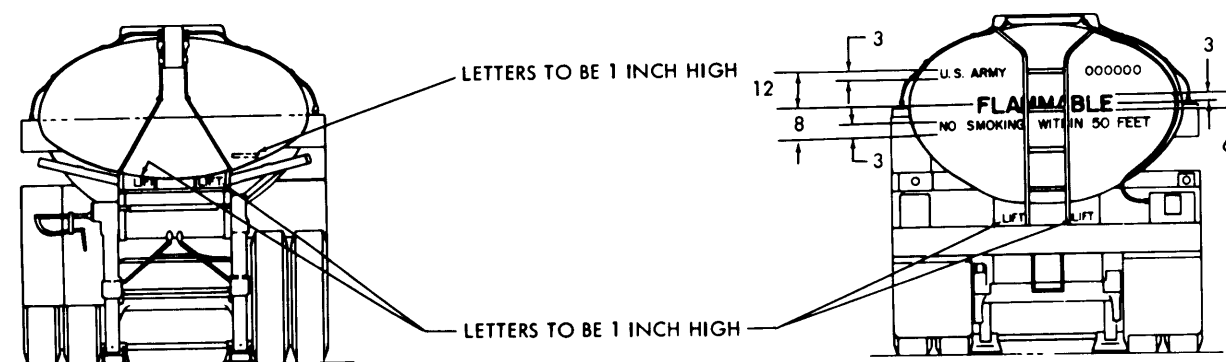
CLASS I	Seepage of fluid (indicated by wetness or discoloration) not great enough to form drops.
CLASS II	Leakage of fluid great enough to form drops but not enough to cause drops to drip from the item being checked/inspected.
CLASS III	Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

#### CAUTION

• Equipment operation is allowable with minor leakage (Class I or II). Of course, consideration must be given to the fluid capacity

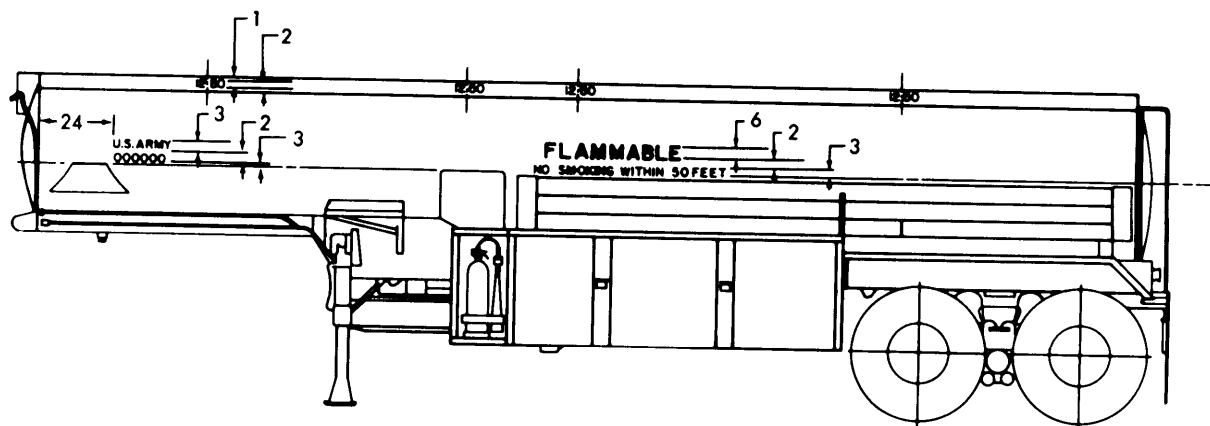


NOTE:  
DIMENSIONS SHOWN ARE IN INCHES

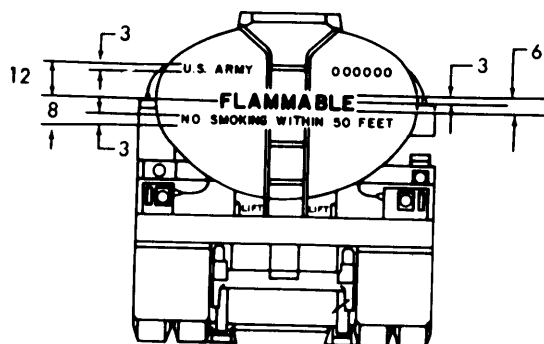
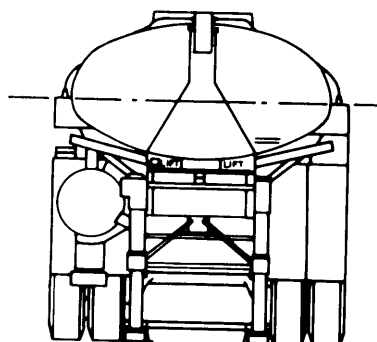
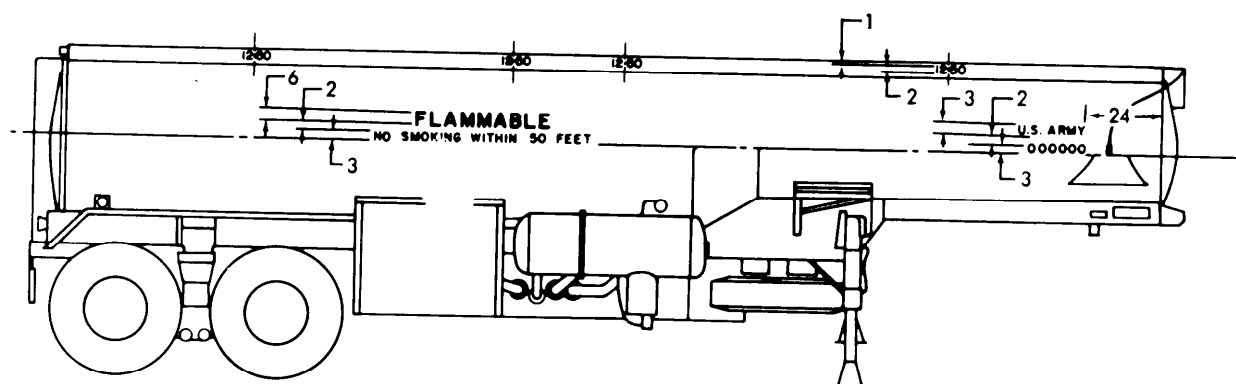


ORD E47675

Figure 4-1. Stenciling-M131A4.



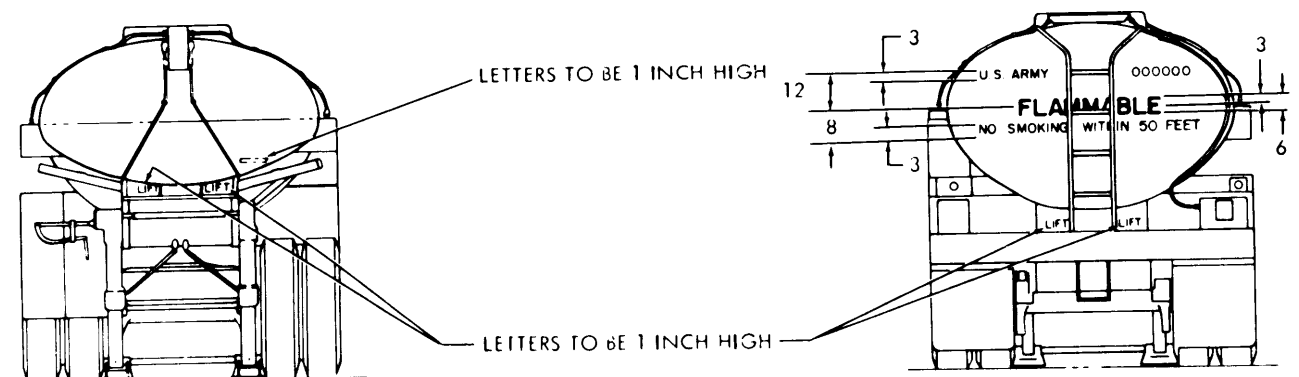
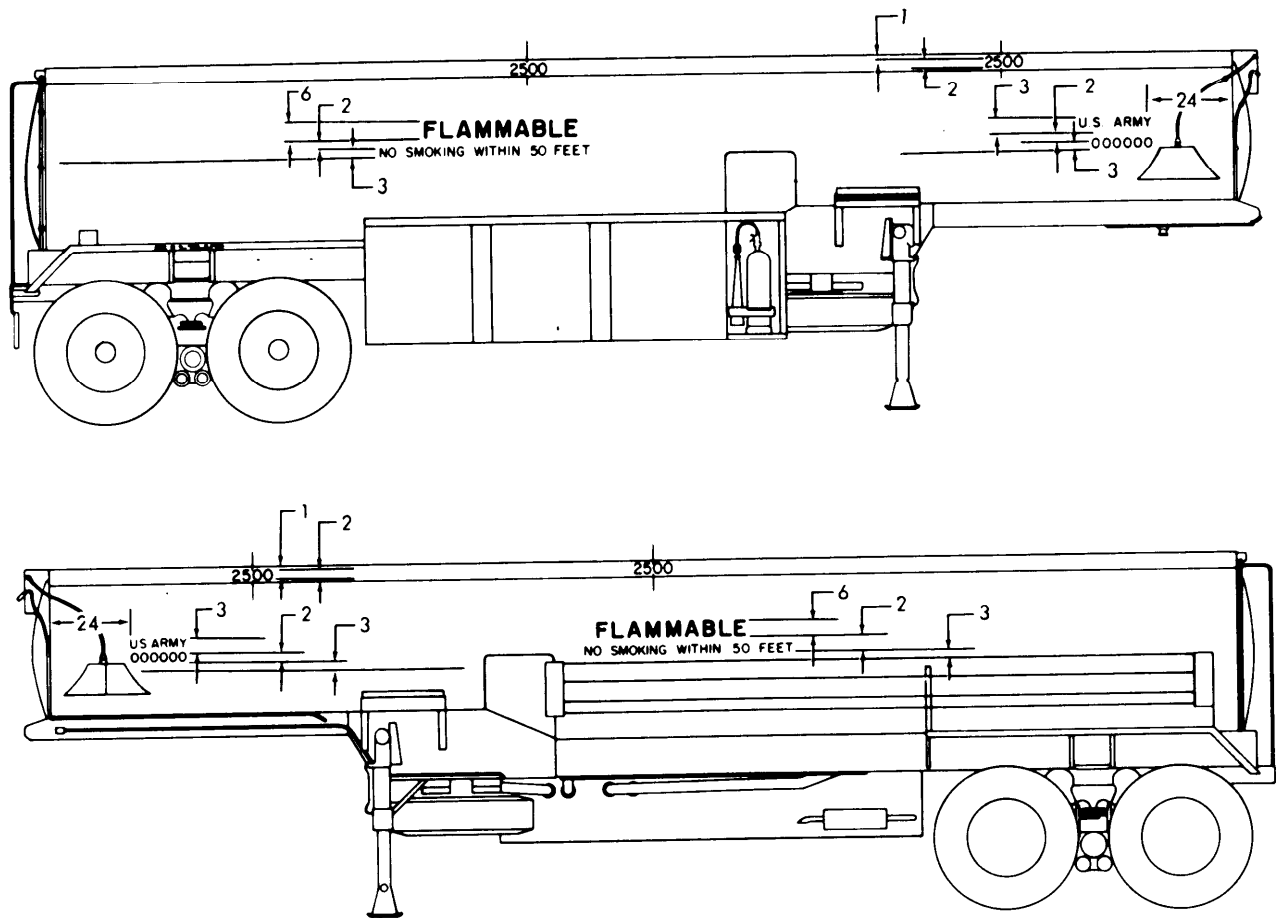
NOTE:  
DIMENSIONS SHOWN ARE IN INCHES



ORD E47674

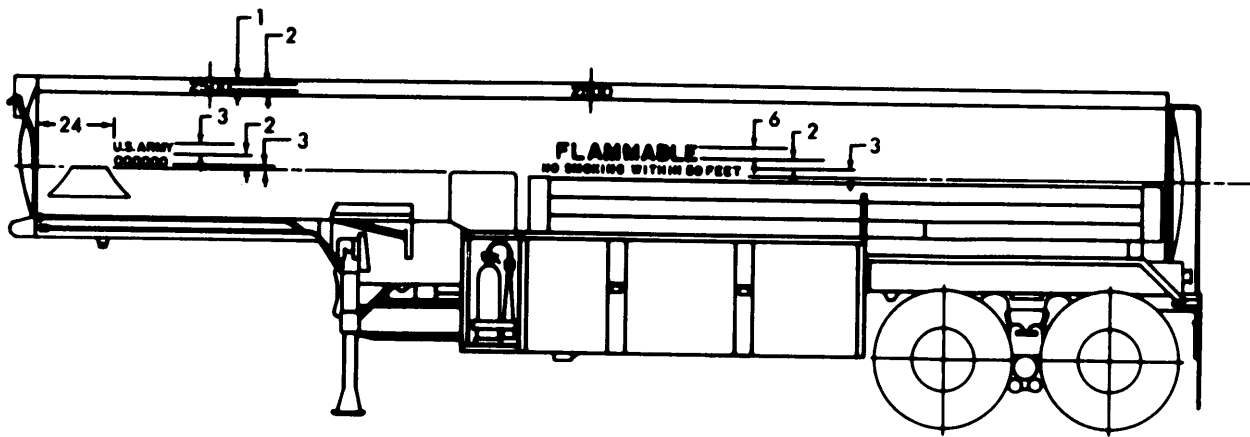
Figure 4-2. Stenciling-M131A4C.



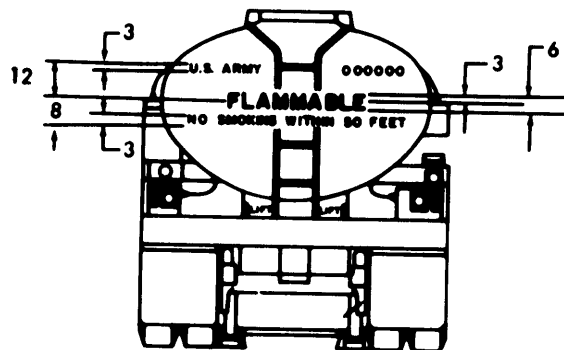
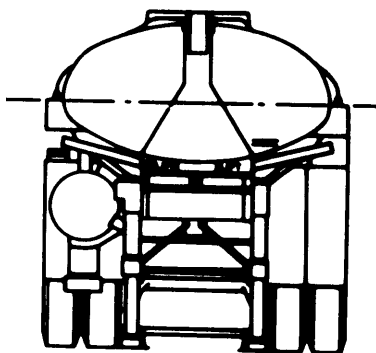
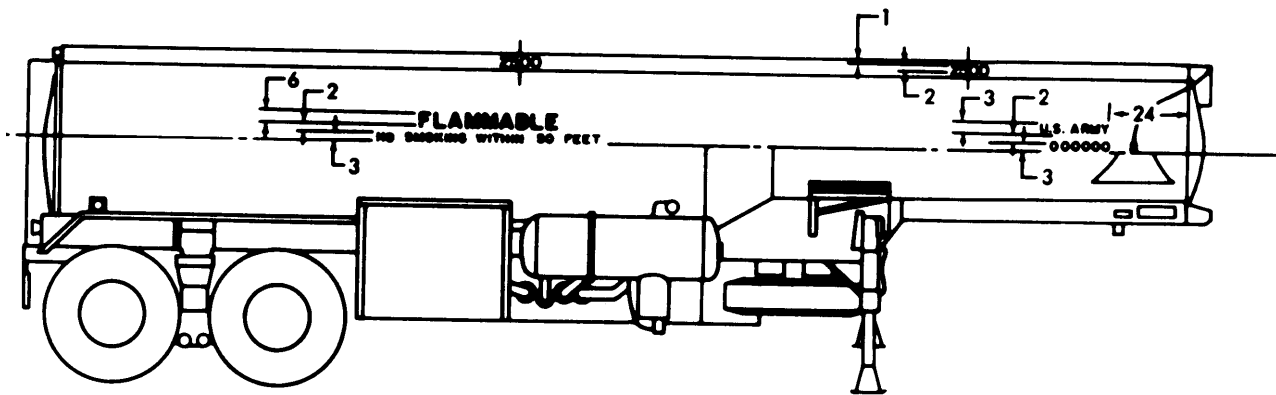


ORD E74454

Figure 4-3. Stenciling-M131A5.



NOTE:  
DIMENSIONS SHOWN ARE IN INCHES



ORD E74453

Figure 4-4. Stenciling-M131A5C.

in the item/system being checked/inspected.  
When in doubt, notify your supervisor.

- When operating with Class I or II leaks, continue to check fluid levels as required by

the PMCS.

- Class III leaks should be corrected before releasing equipment for operation.

Table 4-1. Organizational Preventive Maintenance Checks and Services  
Legend

Item no.	Interval						ITEM TO BE INSPECTED Procedure
	Q	S	A	B	H	MI	
							<p><b>NOTE</b></p> <p>PERFORM OPERATOR/CREW PMCS PRIOR TO OR IN CONJUNCTION WITH ORGANIZATIONAL PMCS.</p> <p>PERFORM VISUAL INSPECTION OF THE FOLLOWING:</p> <ol style="list-style-type: none"> <li>Check to see if fire extinguishers are in proper place.</li> <li>Check frame and retractable landing gear for evidence of damage (breaks, cracks, bent members, or broken welds). Check for freedom of movement where called for and lubricate as necessary.</li> <li>Prior to hookup of towing vehicle, visually inspect tools, mounted equipment, publications, and necessary forms.</li> </ol> <p>ENGINE AND PUMP ASSEMBLY</p> <p>See TM 5-2805-258-14 for engine before operation services. Check compartment floor for signs of oil leaks. Check engine mounting and exhaust system for damage or loose connections. Check pump for damage.</p> <p>BATTERIES</p> <ol style="list-style-type: none"> <li>Add water, if necessary, to bring level up to split ring. Clean vent holes in caps before installing.</li> <li>Remove corrosion from clamps and posts.</li> <li>Tighten loose cables and mountings.</li> </ol> <p>RELAY EMERGENCY VALVE</p> <p>Remove drain plug and drain moisture.</p> <p>ELECTRICAL SYSTEM</p> <p>Check wiring conduit, light assemblies, clips, receptacles, shells, grommets, and electrical access covers for correct assembly and good condition. Have operator of towing vehicle operate light controls and check lights for operation.</p> <p>SIDE COMPARTMENTS</p> <p>Check valves, manifold, meter, connections, and pipes for damage and leaks.</p> <p>SEDIMENT STRAINER</p> <p>Check filter for deterioration. Check for sediment remaining in strainer body and filter. If vehicle is used daily, perform check monthly. If vehicle is used occasionally, perform check quarter] y.</p> <p>BRAKE SYSTEM</p> <ol style="list-style-type: none"> <li>Check fluid level in the master cylinder. Fluid level should be 1/2 inch from the filler opening.</li> <li>Check hoses, lines, tank, and fittings for leaks.</li> <li>Check service brakes for proper operation. Adjust as necessary.</li> </ol> <p>EMERGENCY VALVE</p> <p>Check control levers and linkage. Check for proper operation, damage, and loose connections.</p> <p>REAR AXLES</p> <p>Check for lubricant leaks.</p> <p>WHEELS AND TIRES</p> <ol style="list-style-type: none"> <li>Check torque of lug nuts. Tighten nuts to torque of 450 to 500 pound-feet.</li> <li>Check tires for damage, excessive wear (no tread). Inflate to 45 psi (max).</li> <li>Wheel bearings will be disassembled, cleaned, and repacked. While servicing the wheel bearings remove wheels and hubs and check condition of brake internal components. Adjust brakes.</li> </ol> <p>SEMITRAILER</p> <ol style="list-style-type: none"> <li>Wash and clean semitrailer if required, Observe condition of paint and check legibility of marking on data plates.</li> <li>Perform final road test. Give special attention to repaired and adjusted items.</li> </ol>
1		•					
2		•					
3		•					
4		•					
5		•					
6		•					
7							
8		•					
9		•					
10		•					
11		•					
12		•					

## Section V. TROUBLESHOOTING

## 4-11. General

This section contains troubleshooting information for locating and correcting most of the operating troubles which may develop in the fuel tank semitrailer. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections which will help you to determine corrective actions to take.

## 4-12. Procedures

This manual cannot list all possible malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious) or is not corrected by listed corrective actions, notify your supervisor or a higher level of maintenance. Table 4-2 lists the common malfunctions which you may find during the operation or maintenance of the semitrailer or its components. You should perform the test/inspections and corrective actions in the order listed.

Table 4-2 Troubleshooting

Malfunction	Test or inspection	Corrective action
<b>ELECTRICAL SYSTEM</b>		
1. ALL 24 VOLT LIGHTS FALL TO OPERATE.	Step 1. Inspect intervehicular cable for improper connection. connect cable properly.	
	Step 2. Inspect for dirty or corroded terminals in intervehicular cable.	Clean terminals in plug and receptacle.
	Step 3. Check to see if light switch on towing vehicle is in wrong position.	Place towing vehicle light switch in proper mode of operation
	Step 4. Check wiring harness for short circuit.	Repair wiring harness. Replace if necessary.
	Step 5. Check light switch on towing vehicle.	Replace towing vehicle light switch if defective.
2. ONE OR MORE 24-VOLT LAMPS WILL NOT LIGHT.	Step 1. Inspect for burned out lamp.	Replace defective lamp (para 4-14 thru 4-17).
	Step 2. Inspect for dirty or corroded cable contacts in sleeves or lamp sockets.	Remove lamps and clean contacts.
	Step 3. Check for broken or loose connections.	Tighten, repair, or replace as necessary.
	Step 4. Check to see if light assembly is defective.	Replace defective light assembly (para 4-14 thru 4-17).
	Step 5. Inspect intervehicular cable for dirty or corroded terminals.	Clean receptacle and plug.
3. DIM OR FLICKERING 24-VOLT LIGHTS	Step 1. Check for defective lamp.	Replace defective lamp 4-14 thru 4-17).
	Step 2. Inspect for poor or loose ground connections.	Clean ground cable terminal and tighten connections.
	Step 3. Inspect for loose, dirty, or corroded terminals.	Clean and tighten terminals.

Table 4-2. Troubleshooting

Malfunction	Test or inspection	Corrective action
	Step 4.	Check for dirty or corroded lamp sockets, cable connectors, or harness contacts. Clean as necessary.
4. DIRECTIONAL SIGNALS INOPERATIVE.	step 1.	Check for defective flasher or switch in towing vehicle. Replace defective part.
	step 2.	Check for defective light assembly. Replace defective light assembly (para 4-14 or 4-17).
	step 3.	Inspect for dirty or corroded lamp sockets or contacts. Remove lamp and clean socket and contacts.
5. ENGINE WILL NOT CRANK.	Step 1.	Check for defective battery. Replace battery.
	Step 2.	Check for defective or loose cables. Replace or tighten cables.
	<b>BRAKE SYSTEM</b>	
6. BRAKES WILL NOT RELEASE.	Step 1.	Check to see if relay valve is in applied position. Build up pressure in semitrailer brake system if trailer is coupled. Open drain cock in semitrailer air reservoir (fig 4-20) if trailer is uncoupled.
	Step 2.	Inspect intervehicular air hose for improper connection. Connect hose properly (para 2-3).
	Step 3.	Check to see if brake on towing vehicle is in applied position. Release towing vehicle brake.
	Step 4.	Check for restrictions in service and emergency air lines, or intervehicular hose. Straighten kinks and bends in lines or hose.
	Step 5.	Check to see if shutoff valves on towing vehicle are in closed position. Open towing vehicle shutoff valves.
	Step 6.	Check to see if air reservoir drain cock is open. Close air reservoir drain cock (fig 4-20).
	Step 7.	Inspect brake shoe retraction spring to determine if spring is weak or broken. Replace brake shoe return spring (para 4-25).
7. NO BRAKES OR WEAK BRAKES.	Step 1.	Check to see if shutoff valves on towing vehicle are closed. Open towing vehicle shutoff valves.
	Step 2.	Inspect intervehicular air hose for improper connection. Connect air hose properly (para 2-3).
	Step 3.	Check to see if semitrailer air reservoir drain cock is open. Close air reservoir drain cock (fig 4-20).
	Step 4.	Check to see if air pressure is low. Check air pressure gage on towing vehicle. Remove any restrictions in air lines. Make leakage test. With air hose couplings connected and brakes applied, coat couplings, connectors, and fitting with soap and water solution. No leakage is permissible.
	Step 5.	Check relay emergency valve for defects. Make operating test (para 4-31). Replace if necessary.

Table 4-2. Troubleshooting

Malfunction	Test or inspection	Corrective action
		<p>Step 6. Check for clogged air filter. Clean element (para 4-30).</p> <p>Step 7. Check for air in hydraulic brake system. Bleed hydraulic brake system (para 4-24).</p> <p>Step 8. Check for leaks in hydraulic system. Tighten connections.</p> <p>Step 9. Inspect for grease on brake lining. Replace brake shoe (para 4-25). Check and replace oil seal if necessary (para 4-35).</p> <p>Step 10. Check if brakes are out of adjustment. Adjust brakes (para 4-23).</p> <p>Step 11. Check for worn brake linings. Replace brake shoes if linings are worn (para 4-25).</p> <p>Step 12. Check for defective master cylinder. Replace defective master cylinder (para 4-27).</p> <p>Step 13. Check for defective wheel cylinder. Replace defective wheel cylinder (para 4-26).</p>
8. SLOW BRAKE APPLICATION OR SLOW RELEASE.		<p>Step 1. Check to see if air pressure is low. Check air supply. Make leakage test.</p> <p>Step 2. Check if air filter element is clogged. Clean element (para 4-30).</p> <p>Step 3. Check for defective relay emergency valve. Make operating test (para 4-31) and replace if necessary.</p> <p>Step 4. Check for air in hydraulic brake system. Bleed hydraulic brake system (para 4-24).</p> <p>Step 5. Check for weak or broken brake shoe retraction spring. Replace spring (para 4-25).</p> <p>Step 6. Check for insufficient brake fluid in master cylinder. Fill master cylinder with brake fluid according to lubrication chart (3-1).</p> <p>Step 7. Check for defective master cylinder. Replace defective master cylinder (para 4-27).</p> <p>Step 8. Check for defective wheel cylinder. Replace defective wheel cylinder (para 4-26).</p>
9. GRABBING BRAKES.		<p>Step 1. Check for moisture in air filters or air reservoir. Drain air filters and drain air reservoir.</p> <p>Step 2. Check for defective relay emergency valve. Make operating test (para 4-31). Replace if necessary.</p> <p>Step 3. Check for grease on brake lining. Replace brake shoe (para 4-25). Replace oil seal if necessary (para 4-35).</p> <p>Step 4. Check if brakes are out of adjustment. Adjust brakes (para 4-23).</p> <p>Step 5. Check for cracked, scored, or deformed brake drum. Replace defective brake drum (para 4-35).</p> <p>Step 6. Check for loose or worn brake lining. Replace brake shoes (para 4-25).</p> <p>Step 7. Check for loose or worn wheel bearings. Adjust wheel bearings (para 4-35). If they cannot be adjusted properly, replace wheel bearings (para 4-35).</p>
10. BRAKE DRUM RUNNING HOT,		<p>Step 1. Check if brakes are adjusted too tightly. Adjust brakes (para 4-23).</p> <p>Step 2. Check for weak or worn brake shoe retraction spring. Replace brake shoe retraction spring (para 4-25).</p> <p>Step 3. Check for deformed brake drum. Replace deformed brake drum (para 4-35).</p>

Table 4-2. Troubleshooting

Malfunction	Test or inspection	Corrective action
11. UNEVEN BRAKING.		<p>Step 1. Check if brakes are out of adjustment. Adjust brakes (para 4-23).</p> <p>Step 2. Check for grease on brake lining. Replace brake shoe (para 4-25). Replace oil seal if necessary (para 4-35).</p> <p>Step 3. Check for defective wheel cylinder. Replace defective wheel cylinder (para 4-26).</p>
12. NOISY BRAKES.		<p>Step 1. Check for loose rivets or loose lining. Replace brake shoe (para 4-25).</p> <p>Step 2. Check for scored or deformed brake drum. Replace defective brake drum (para 4-35).</p> <p>Step 3. Check for road grit, rust, or metal particles in brake drum. Clean brake drum and brake components.</p>
LANDING GEAR		
13. ERRATIC OPERATION (BINDING AND GRINDING).		<p>Step 1. Check for grit and dirt on working parts. Clean working parts.</p> <p>Step 2. Check for inadequate lubrication. Lubricate in accordance with lubrication chart (fig 3-1).</p> <p>Step 3. Check for bent operating shaft. Notify direct support maintenance.</p> <p>Step 4. Check for bent lower leg. Replace leg (para 4-37).</p>
<b>NOTE</b>		
Legs should always be adjusted so they are equal in length.		
WHEELS AND HUBS		
14. WHEEL NOISE.		<p>Step 1. Check if wheel bearings are too tight. Adjust or replace wheel bearings (para 4-35).</p> <p>Step 2. Check for worn brake lining or lining that has been adjusted too tight against drum. Adjust brakes (para 4-23) or replace brake shoes (para 4-25).</p> <p>Step 3. Check for worn wheel bearings. Replace worn wheel bearings (para 4-35).</p>
15. WHEEL WOBBLE.		<p>Step 1. Check if wheel bearings are too loose. Adjust or replace loose wheel bearings (para 4-35).</p> <p>Step 2. Check wheel bearings for wear or damage. Replace worn or damaged wheel bearings (para 4-35).</p> <p>Step 3. Check for bent or deformed wheel. Replace bent or deformed wheel.</p>
SPRINGS AND SUSPENSION		
16. PULLING TO LEFT OR RIGHT.		<p>step 1. Check for dragging brakes. Adjust brakes (para 4-23).</p> <p>step 2. Check for improper wheel bearing adjustment. Adjust bearings (para 4-35).</p> <p>step 3. Check for loose suspension springs. Tighten U-bolt nuts.</p>
17. EXCESSIVELY WORN, SCUFFED, OR CUPPED TIRES.		<p>step 1. Check for improper tire pressure. Inflate to proper pressure.</p> <p>step 2. Check for loose wheels. Tighten wheel nuts.</p> <p>step 3. Check for loose wheel bearings. Adjust wheel bearings (para 4-35).</p>

Table 4-2. Troubleshooting

Malfunction	Test or inspection	Corrective action
	Step 4.	Check for deformed wheel or rim. Replace defective wheel (para 4-33).
	Step 5.	Check for deformed brake drum. Replace deformed brake drum (para 4-35).
18. IMPROPER SPRING ACTION.	Step 1.	Check for loose U-bolts. Tighten U-bolts.
	Step 2.	Check for broken leaves, center bolts or clips. Replace springs (para 4-19).
19. CENTRIFUGAL DISPENSING PUMP FAILS TO DELIVER FUEL.		FUEL SERVING SYSTEM
	Step 1.	Check if pump has lost prime or has not been primed. Prime pump.
	Step 2.	Check for leakage of air into pump or at connections. Tighten all connections. Replace gaskets if necessary.
	Step 3.	Check for defective pump shaft seal. Notify direct support maintenance.
20. EMERGENCY VALVE WILL NOT OPEN OR CLOSE. FLOW RESTRICTED, OR LEAKS OCCUR.	Step 1.	Check for loose cable in connector bolt. Tighten cable connector bolt. If this does not correct condition, notify direct support maintenance.
	Step 2.	Check for clogged screen. Remove valve and clean screen (para 4-67).
	Step 1.	Check for loose stuffing box nut. Tighten, If this does not correct condition. notify direct support maintenance.
	Step 4.	Check for loose nuts attaching valve to flange. Tighten, If this does not correct condition notify direct support maintenance.
	Step 5.	Check for leaking valve. Notify direct support maintenance.
21. EMERGENCY VALVE CONTROL OPERATES IMPROPERLY.	Step 1.	Check for loose cable at lever or handle. Tighten nut on connector bolt.
	step 2.	Check for broken cable in tubing. Notify direct support maintenance.

Table 4-2. Troubleshooting

Malfunction	Test or inspection	Corrective action
	Step 3.	Check for no tension on trip lever or front release lever. Broken spring. Replace appropriate spring. Tighten trip link adjusting bolt and nut.
22. MANIFOLD OPERATES IMPROPERLY.	Step 1.	Check for leak at rear of manifold. Tighten nuts on bolts of split couplings which join compartment piping to manifold.
	Step 2.	Check for leaks around hand wheel stems. Tighten stuffing nuts, If this does not correct condition, notify direct support maintenance.
	Step 3.	Check for leaky manifold valve. Notify direct support maintenance.
23. GATE VALVES OPERATE IMPROPERLY.	Step 1.	Check for leak around hand wheel stem. Open valve to raise lock housing and tighten stuffing box nut. If this does not correct condition, notify direct support maintenance.
24. MANIFOLD COVERS AND FILLER CAPS OPERATE IMPROPERLY.	Step 1.	Check for loose manhole cover. Tighten clamp screw and nut. Replace vent valve.
		ENGINE
25. ENGINE WILL NOT START WHEN CRANKED.	Step 1.	Check if shutoff switch is grounding magneto. Replace defective switch.
	step 2.	Check for grounded magneto lead. Replace lead.
26. ENGINE WILL NOT SHUT OFF WHEN SHUTOFF SWITCH IS ACTUATED.	Step 1.	Check for poor ground lead connection between magneto and switch. Tighten connections.
	Step 2.	Check for defective switch. Replace switch.

**NOTE**

Refer to TM 5-2805-258-14 for specific engine troubleshooting information.

**Section VI. MAINTENANCE OF ELECTRICAL SYSTEM****4-13. General**

a. This section covers removal, installation, and repair of clearance lights, blackout stoplight, stoplight and taillight assemblies, and wiring harness.

b. The 24-volt system is operated and controlled from the towing vehicle. This system supplies current for the service and blackout marker lights, and for the service and blackout taillights and stoplights. The system is protected by a circuit breaker mounted in the towing vehicle. Refer to figures 4-5 and 4-6 for wiring diagrams,

**4-14. Clearance Light  
(fig 4-7)****a. Removal and Disassembly.**

- (1) Remove two screws (1) that secure door (2) to

base (3) and remove door.

- (2) Remove four screws (4) that secure base (3) and pad (5) to the semitrailer.

- (3) Disconnect clearance light contact (6) from chassis harness.

- (4) Remove lamp (7) by pushing in on lamp and turning counterclockwise.

**b. Cleaning, Inspection, and Repair.**

- (1) Clean all parts, except rubber items or gaskets, with drycleaning solvent (item 6, app F).

- (2) Inspect door (2) for cracks, warping, cracked or broken lens, or evidence of leakage around gasket.

- (3) Replace defective lens (8) by removing two push nuts (9) from studs on door (2) which secure lens in door. Install new lens and secure with two push nuts.

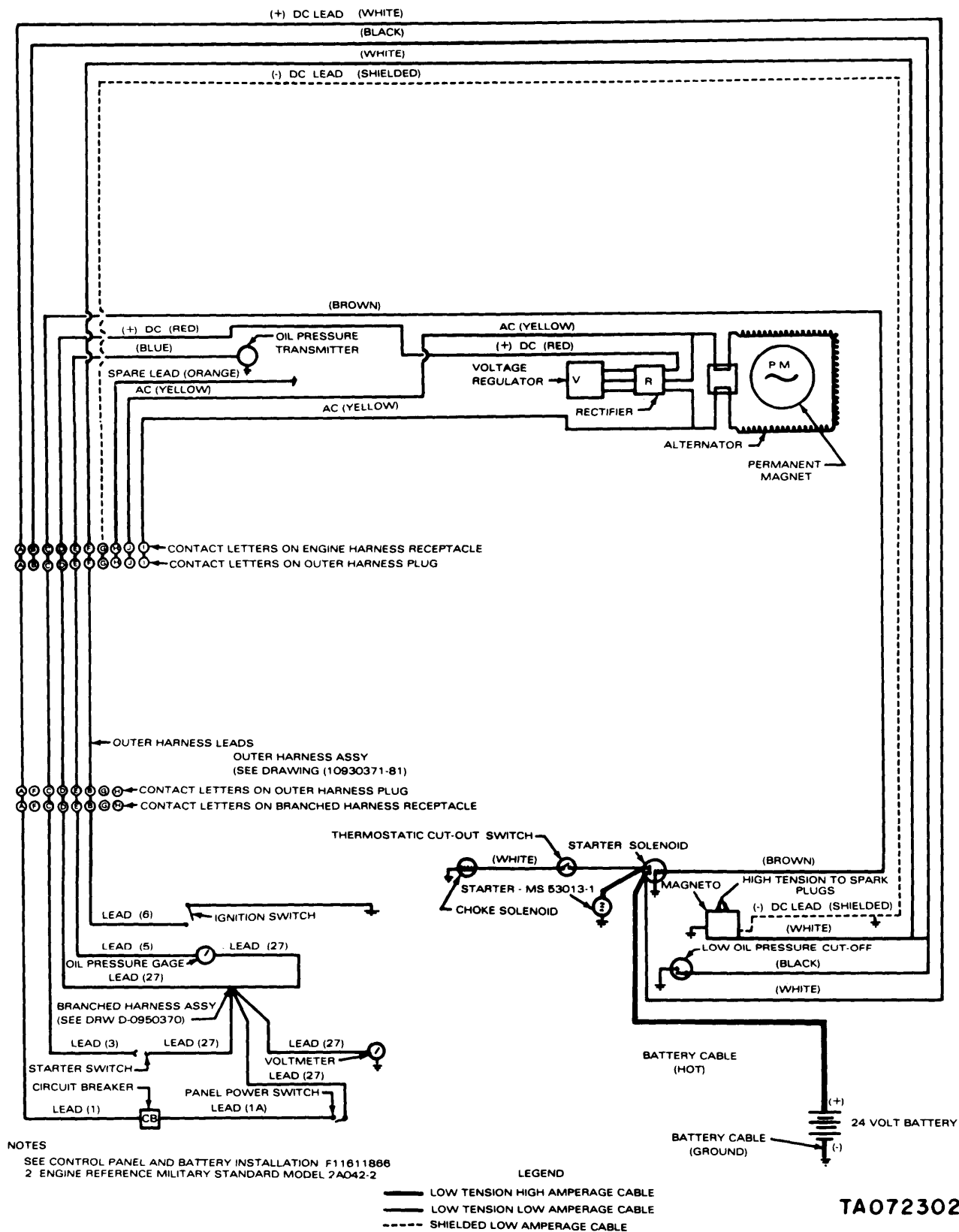


Figure 4-5. Wiring diagram-engine and controls circuit- M131A5C.

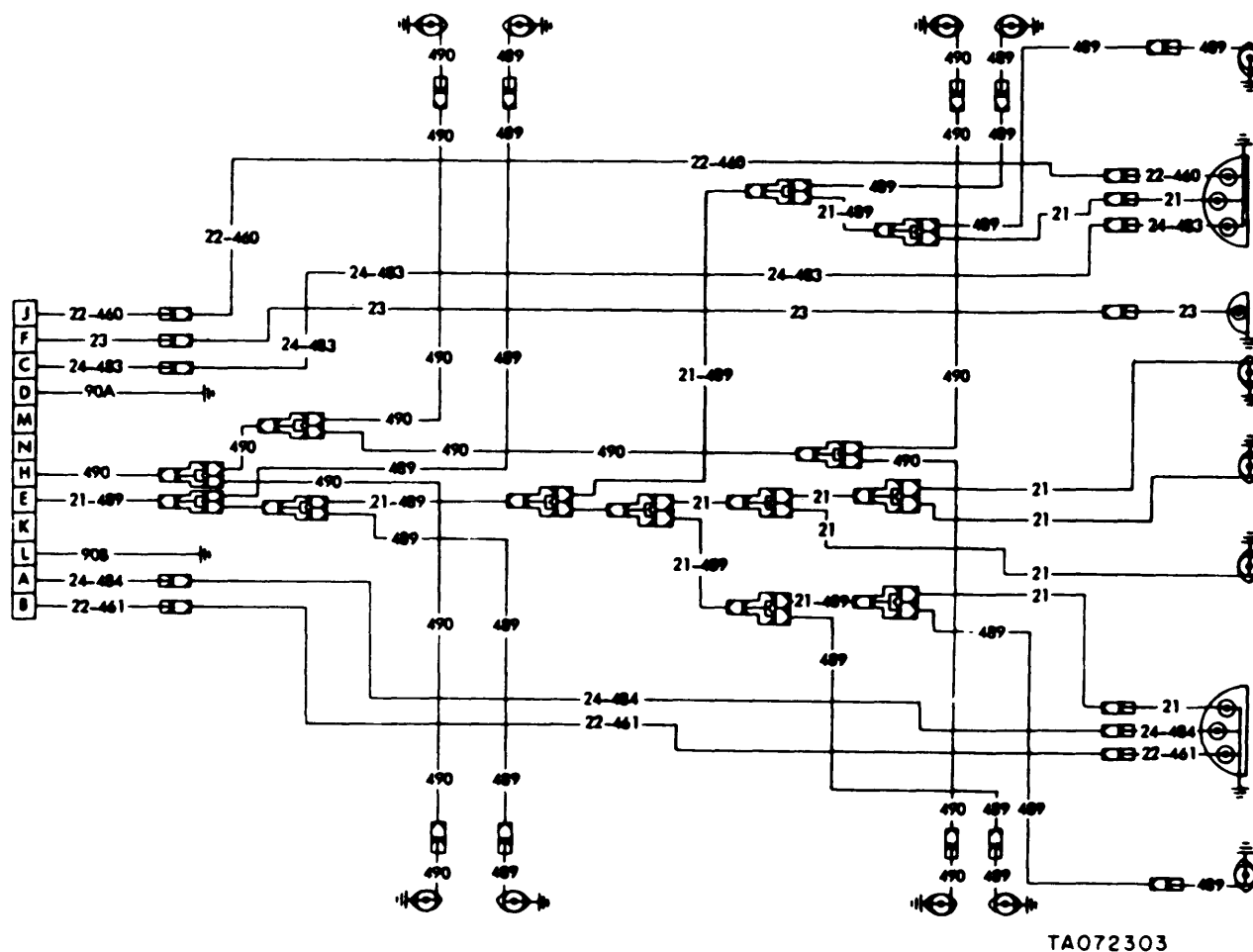


Figure 4-6. Wiring diagram-harness assembly.

(4) Check socket to make sure all parts are in good condition and will make good electrical and watertight connections.

(5) Replace light if defective.

(6) Straighten any bent or dented parts Sandpaper scratches and paint if required.

*c. Assembly and Installation.*

(1) Connect clearance light contact (6) to the semitrailer cable assembly, making certain that matching cables (identified by numbered markers) are joined.

(2) Position base (3) and pad (5) on semitrailer and secure with four screws (4).

(3) Install lamp (7) by inserting the lamp in the socket and turning clockwise.

(4) Test operation of light by turning on switch in towing vehicle.

(5) Install door (2) and secure with two screws (1).

#### 4-15. Stoplight-Taillight Assembly (Early Model) (fig 4-8)

*a. Removal,*

(1) Remove eight capscrews and lockwashers that secure the taillight mounting bracket to the semitrailer,

(2) Disconnect taillight assembly connectors (1) from the chassis harness connectors.

(3) Remove two screws (2) and lockwashers (3) which secure the taillight to the mounting bracket and remove taillight.

*b. Disassembly.*

(1) Loosen captive screws (4) securing door (5) and preformed packing (6) to body (7) and remove door.

(2) Remove lamps (8 and 9) by pushing in on the lamps and turning them counterclockwise.

*c. Cleaning.*

(1) Clean exterior of body (7) with drycleaning solvent (item 6, app F).

(2) If necessary to clean interior of body (7) or socket, use a clean water and soap solution, Dry thoroughly.

(3) Clean door (5) and preformed packing (6) with soap and water. Dry thoroughly.

*d. Inspection and Repair.*



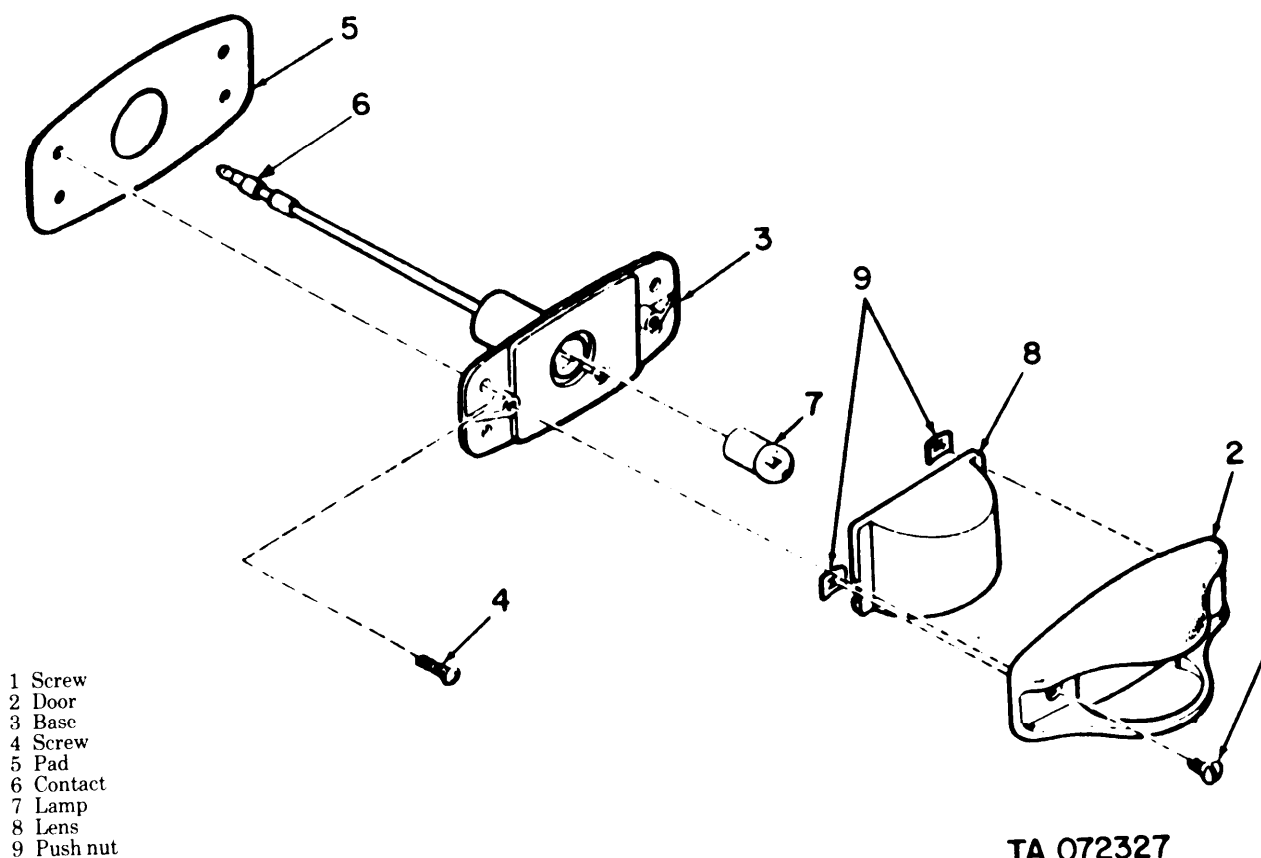


Figure 4- 7 Clearance light.

(1) Inspect door assembly for cracks, warping, cracked or broken lens, or evidence of leakage around lens gasket.

#### NOTE

It is not practical to replace lens or gasket in door assembly since these parts are clinched in place to make a watertight seal.

(2) Inspect housing for cracks or evidence of leakage. Replace light if housing is damaged.

(3) Check lampholder and wiring assembly to make sure grommets, socket, ground strap, cable, and connectors are in good condition and will make good electrical and watertight connections when installed. Replace assembly if components of assembly are defective.

(4) Check the body grommet at rear of lampholder and make sure that wiring assembly is cemented securely to the grommet; grommet should make watertight seal in body when installed.

e. *Assembly.* Install lamps (8 and 9) by inserting the lamps in their sockets and turning clockwise.

f. *Installation.*

(1) Thread cable of stoplight-taillight assembly through hole in mounting bracket.

(2) Attach taillight to mounting bracket with two

screws (2) and two lockwashers (3).

(3) Connect taillight assembly connectors (1) to the chassis harness connectors.

(4) Secure mounting bracket on semitrailer with eight capscrews and lockwashers.

(5) Test operation of lights.

(6) Position door assembly (5) with preformed packing (6) on body (7) and secure with captive screws (4).

#### 4-16. Blackout Stoplight Assembly (Early Model) (fig 4-9)

##### a. Removal.

(1) Remove the four screws that secure the mounting bracket to the semitrailer.

(2) Disconnect the blackout stoplight cable connector (1) from the chassis harness.

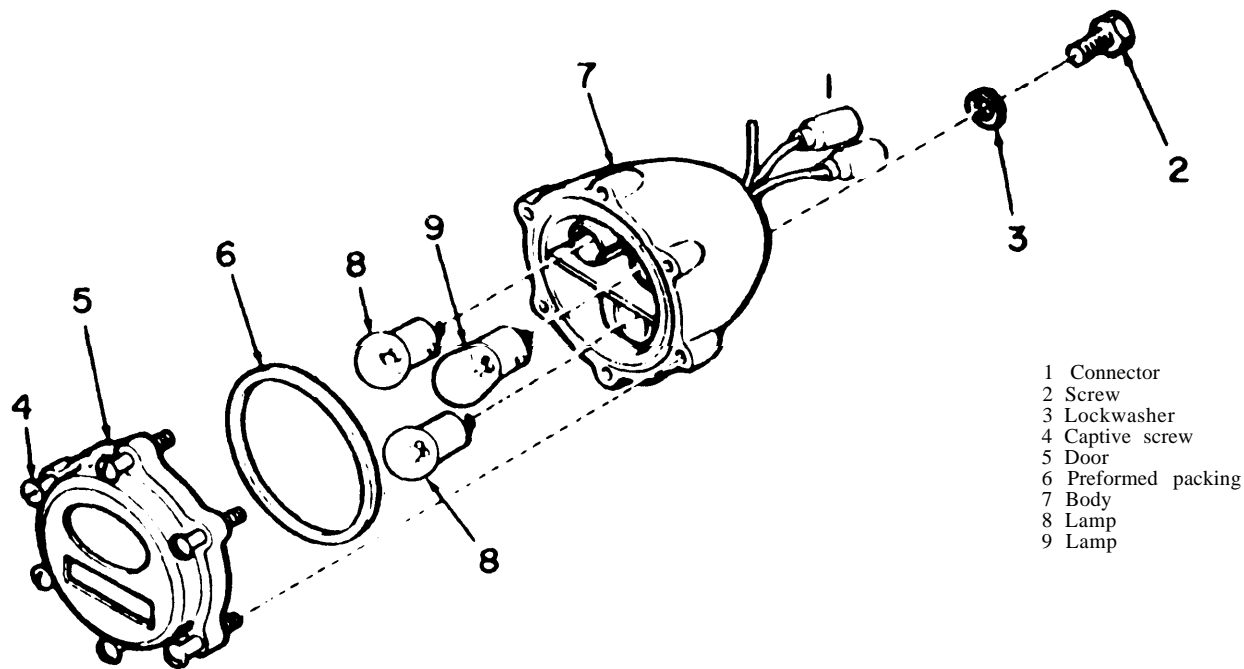
(3) Remove screw (2) and lockwasher (3) which secure blackout stoplight to mounting bracket.

(4) Remove light.

##### b. Disassembly.

(1) Remove two screws (4) securing door (5) and gasket (6) to body (7) and remove door.

(2) Remove lamp (8) by pushing in on lamp and



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Figure 4-8. Stoplight-taillight assembly (early model).

turning counterclockwise.

*c. Cleaning.*

(1) Clean exterior of body with drycleaning solvent (item 6, app F).

(2) If necessary to clean interior of body or socket, use a clean water and soap solution. Dry thoroughly.

(3) Clean door and gasket with soap and water. Dry thoroughly.

*d. Inspection and Repair.*

(1) Inspect door assembly for cracks, warping, cracked or broken lens, or evidence of leakage around lens gasket.

**NOTE**

It is not practical to replace lens or gasket in door assembly since these parts are clinched in place to make a watertight seal.

(2) Inspect housing for cracks or evidence of leakage. Replace light if housing is damaged.

(3) Check lampholder and wiring assembly to make sure grommets, socket, ground strap, cable, and connector are in good condition and will make good electrical and watertight connections when installed. Replace assembly if components of assembly are defective.

(4) Check the body grommet at rear of lampholder and make sure that wiring assembly is cemented securely to the grommet; grommet should make watertight seal in body when installed.

*c. Assembly.* Install lamp (8) by inserting the lamp

in the socket and turning the lamp clockwise.

*f. Installation.*

(1) Secure blackout stoplight to mounting bracket with screw (2) and lockwasher (3).

(2) Connect cable connector (1) to chassis wiring harness.

(3) Attach mounting bracket to semitrailer with four mounting screws.

(4) Test operation of light.

(5) Position door (5) and gasket (6) on body (7) and secure with two screws (4), making certain lens is positioned properly.

**4-17. Composite Stoplight-Taillight Assembly (fig 4-10)**

*a. Removal.*

(1) Remove eight capscrews and lockwashers that secure the taillight mounting bracket to the semitrailer.

(2) Disconnect four taillight connectors (1) from chassis harness.

(3) Remove two screws (2) and lockwashers (3) securing stoplight-taillight assembly to mounting bracket and remove light.

*b. Disassembly.*

(1) Loosen six captive screws (4) securing lens (5) to body (6). Remove lens and preformed packing (7).

(2) Remove lamps (8, 9, and 10) by pushing in on

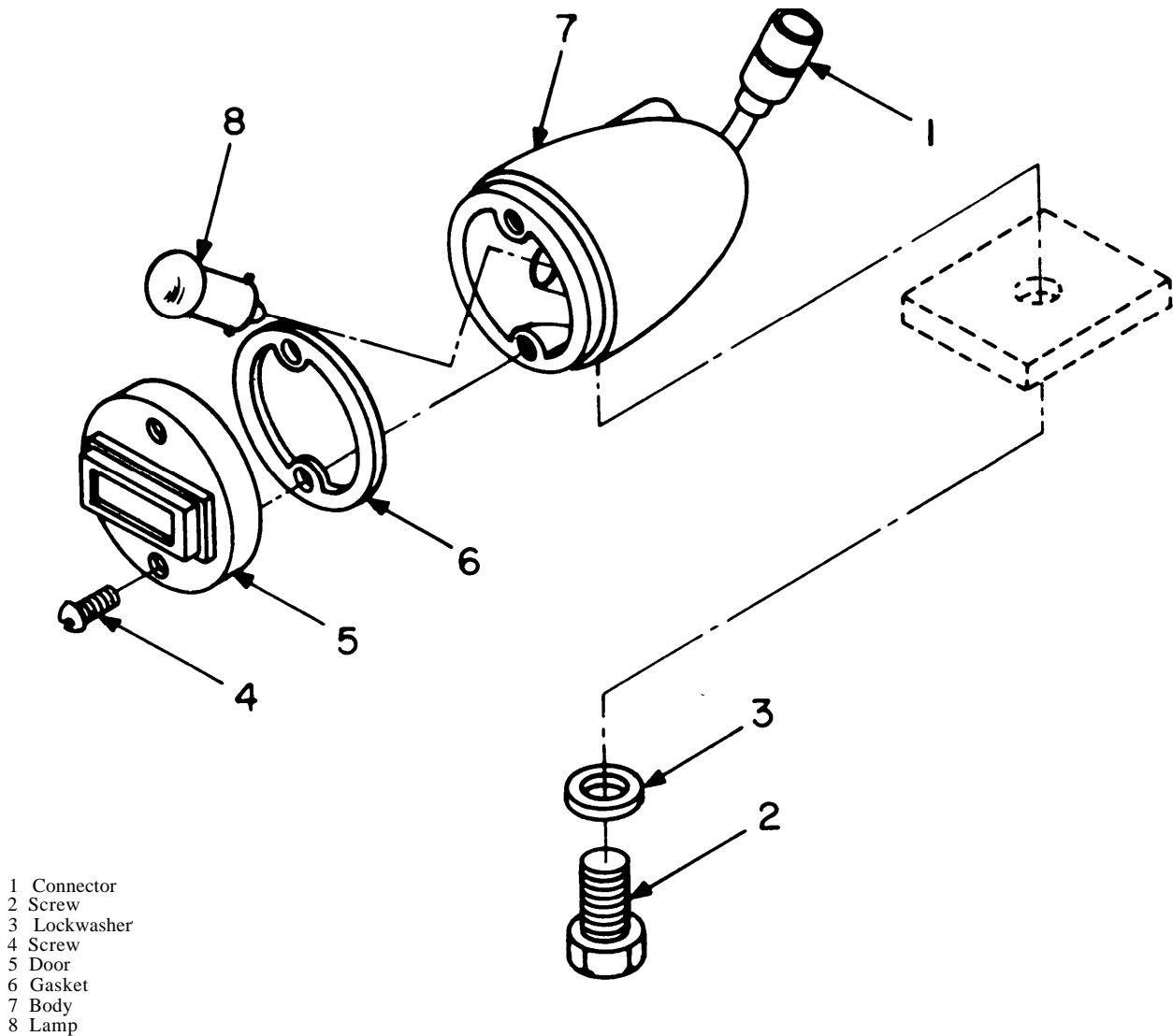


Figure 4-9. Blackout stoplight assembly (early model).

the lamps and turning them counterclockwise.

*c. Cleaning.*

(1) Clean exterior of body with drycleaning solvent (item 6, app F).

(2) If necessary to clean interior of body or socket, use a clean water and soap solution. Dry thoroughly.

(3) Clean lens and packing with soap and water. Dry thoroughly.

*d. Inspection and Repair.*

(1) Inspect lens assembly for cracks, warping, cracked or broken glass, or evidence of leakage around preformed packing.

**NOTE**

It is not practical to replace glass or packing in lens assembly since these parts are clinched in place to make a watertight seal.

(2) Inspect housing for cracks or evidence of leakage. Replace light if body is damaged.

(3) Check lampholder and wiring assembly to make sure grommets, socket, ground strap, cable, and connectors are in good condition and will make good electrical and watertight connections when installed. Replace light assembly if components of assembly are defective.

(4) Check the body grommet at rear of lampholder and make sure that wiring assembly is cemented securely to the grommet; grommet should make watertight seal in body when installed.

*e. Assembly.* Install lamps (8, 9, and 10) by inserting lamps in their sockets and turning clockwise.

*f. Installation.*

(1) Position body (6) on mounting bracket and se-

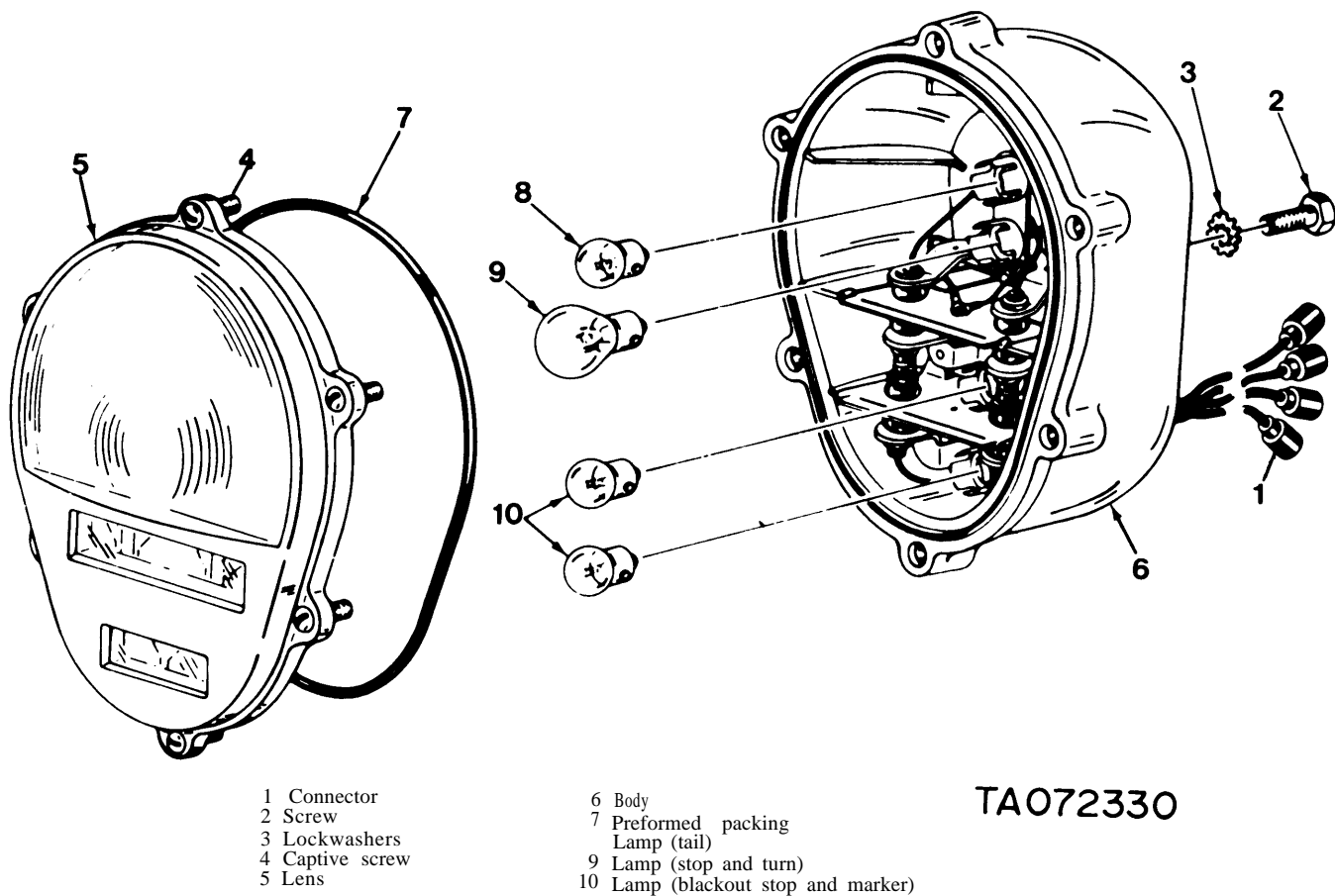


Figure 4-10, Composite stoplight-tailight assembly,

cure with two screws (2) and lockwashers (3).

(2) Connect the four connectors (1) to the chassis harness connectors.

(3) Secure mounting bracket to semitrailer with eight capscrews and lockwashers.

(4) Test operation of lights.

(5) Position preformed packing (7) and lens (5) on body (6) and secure with six captive screws (4).

#### 4-18. Storage Battery (fig 4-11)

*a. Removal.* Disconnect cables, loosen battery hold downs, and lift battery from box.

*b. Installation.* Place battery in box, secure battery hold downs, and connect cables.

*c. Service.* Refer to TM 9-6140-200-14, Operator and Organizational Maintenance Manual for Lead-Acid Storage Batteries.

#### 4-19. Wiring Harness (fig 4-5 and 4-6)

*a. Removal.*

(1) Remove connectors at intervehicular cable receptacle.

(2) Remove clamps and grommets.

(3) Remove connectors from lamp assemblies.

(4) Remove harness from semitrailer.

*b. Cleaning and Inspection.*

(1) Clean wiring harness with soap and water. Dry thoroughly.

(2) Inspect harness, terminal assemblies, shells, and sleeves. Replace if damage is found.

*c. Repair.* If any of the individual cables of the wir-

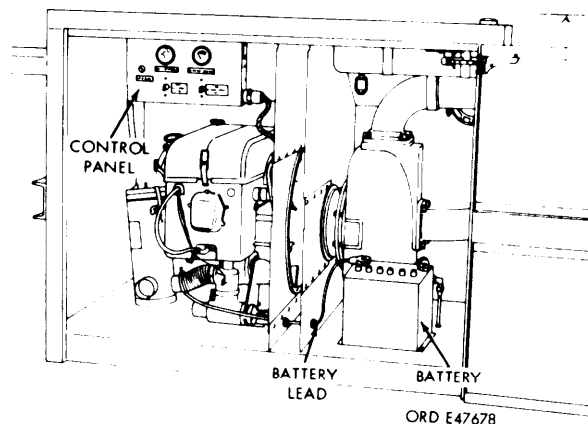


Figure 4-11. Engine electrical installation-M131A4.

ing harness are damaged, the complete harness assembly should be replaced.

*d. Installation.*

**NOTE**

Make sure harness assembly cable circuit numbers are matched correctly with intervehicular cable and taillight cable connectors.

(1) Install harness assembly through holes of frame members.

(2) Install grommets around harness in holes, and secure harness to semitrailer with clamps and screws.

(3) Connect light assembly cables and secure connectors in strap assemblies.

(4) Connect harness assembly to intervehicular cable receptacle and secure connectors in strap assemblies.

## 4-20. Intervehicular Cable Receptacle

*a. Removal.*

(1) Disconnect connectors.

(2) Remove ground wire and cable retaining nut.

(3) Separate intervehicular cable receptacle from harness assembly.

(4) Remove receptacle from box.

*b. Installation.*

(1) Place receptacle in proper location.

(2) Connect to proper terminals on harness assembly and install.

(3) Secure ground wire.

(4) Secure receptacle to frame with retaining nut.

## Section VII. MAINTENANCE OF BRAKE SYSTEM

### 4-21. General

The fuel tank semitrailers use an air-over-hydraulic brake system. Service information supplied in this section to all fuel tank semitrailers.

### 4-22. Brake Test (fig 4-12)

*a.* With brakes released, insert test rod through one of two inspection air chamber holes. When test rod contacts push rod return spring retainer in chamber, mark rod at surface of support.

*b.* Apply brakes and again mark test rod at surface of support with test rod in contact with push rod return spring retainer.

*c.* Withdraw rod and measure distance between marks. This indicates the amount of push rod travel.

*d.* Adjust brakes (para 4-23), if necessary, to obtain a minimum of 1/2-inch travel and a maximum of 7/8-inch travel.

### 4-23. Brake Shoe Adjustment (fig 4-13)

**NOTE**

Brake shoe adjustment to compensate for lining wear is made by turning the adjusting cams only (fig 4-13), and is termed "minor adjustment". Following overhaul or when new linings are installed, each brake shoe must be adjusted to center the brake shoe arc in relation to the drum. This involves turning both the anchor pins and the adjusting cams and is termed "major adjustment".

*a. Minor Adjustment.*

(1) Open drain cock on air reservoir. Place a jack under the axle and raise the semitrailer so that the wheels may be turned freely.

**NOTE**

Always check the wheel bearing adjustment (para 4-33) before adjusting the brakes. Satisfactory brake adjustment cannot be obtained unless the wheel bearings are in proper adjustment. However, it is not necessary to disturb properly adjusted wheel bearings to adjust the brakes. Do not adjust the brakes when drums are hot.

(2) Turn the forward shoe adjusting cam (fig 4-13) clockwise to bring brake lining in contact with drum until brake drags slightly when wheel or drum is

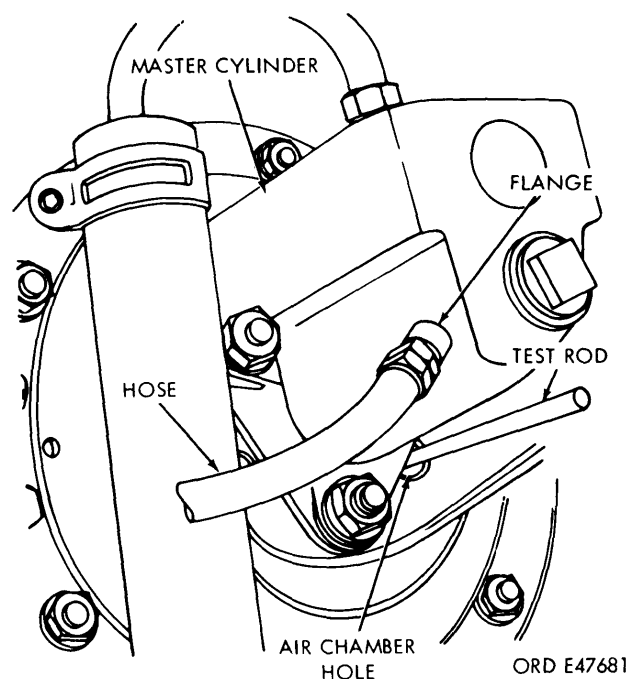


Figure 4-12. Brake test.

turned by hand. Back off adjusting cam just enough to allow wheel or drum to rotate freely.

(3) Repeat this procedure at rear shoe adjusting cam by turning the cam counterclockwise. Make both adjustments as uniform as possible.

(4) Close drain cock on air reservoir.

(5) Lower the semitrailer and remove the jack.

*b. Major Adjustment.*

(1) Open drain cock on air reservoir. Place jack under axle and raise the semitrailer.

(2) Remove wheels (para 4-33).

(3) Remove inspection hole cover from outside of brake drum,

(4) Rotate the drum until inspection hole is 1-1/2 inches from bottom end of the forward brake shoe.

(5) Check brake lining clearance by inserting 0.010-inch feeler gage between the drum and bottom end of the shoe (fig 4-14).

(6) Loosen the locknut on the forward shoe anchor pin (fig 4-13).

(7) Hold the locknut with a wrench and turn the anchor pin with a second wrench until 0.010-inch clearance is obtained. To reduce clearance, turn anchor pin clockwise. To increase clearance, turn anchor pin counterclockwise. Tighten the locknut.

(8) Rotate the drum until inspection hold is 1-1/2 inches from the top end of the forward brake shoe.

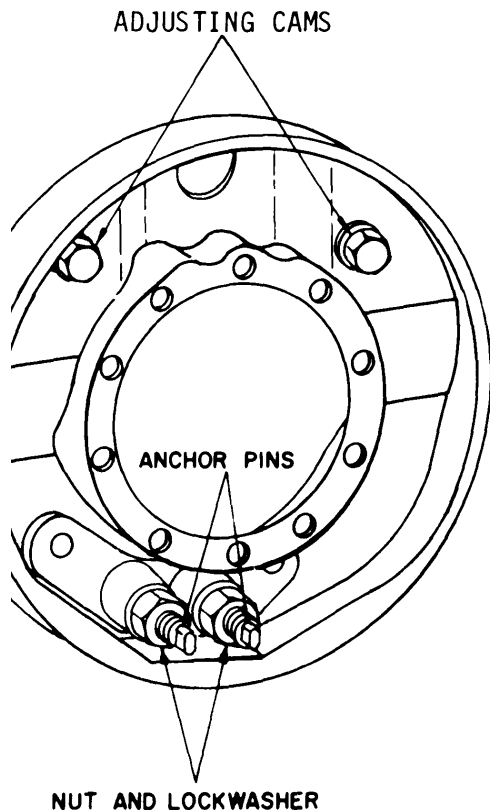


Figure 4-13. Brake shoe adjustment.

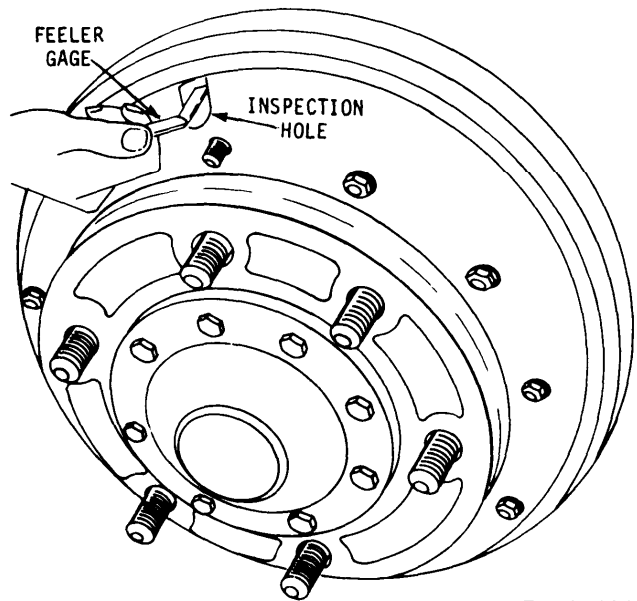


Figure 4-14. Check brake lining clearance.

(9) Insert 0.020-inch feeler gage and turn the forward shoe adjusting cam (fig 4-13) until 0.020-inch clearance is obtained. To reduce clearance, turn cam counterclockwise. To increase clearance, turn cam clockwise. While holding anchor pins to prevent turning, tighten anchor pin locknut and check the top clearance again.

(10) Check the lower clearance again in (5) above.

(11) Repeat procedures (2) through (10) for rear brake shoe.

(12) Install the inspection hole cover on brake drum.

(13) Install the wheels (para 4-33).

(14) Lower the semitrailer and remove the jack.

#### 4-24. Brake System Bleeding (fig 4-15)

*a. Manual Bleeding.*

(1) Connect semitrailer braking system to towing vehicle braking system for manual bleeding operations since brake pedal on towing vehicle must be depressed and released to actuate system. The hydraulic master cylinder reservoir must be kept full during bleeding operations.

(2) Clean the bleeder valve and attach a bleeder tube to the bleeder valve. Place end of tube in a jar or bottle so that end is submerged in hydraulic brake fluid.

(3) Fill reservoir with brake fluid as required on lubrication chart (fig 3-1).

(4) Open the bleeder valve by turning it three-quarters of a turn counterclockwise and depress brake pedal on towing vehicle to expel air which will show as bubbles in fluid coming out of tube.

(5) Watch flow, keep tube submerged in fluid, and repeat the operations until air bubbles do not appear.

(6) When air bubbles have ceased, close bleeder valve firmly. Remove bleeder tube.

(7) Repeat the above procedures on the other three wheel cylinders,

(8) Fill master cylinder reservoir with clean brake fluid as required on lubrication chart (fig 3-1).

*b. Pressure Feed Filler Bleeding.*

(1) Install pressure feed adapter in hydraulic master cylinder filler plug hole and connect pressure feed filler hose to adapter. Filler should contain from 10 to 20 psi air pressure and sufficient clean fluid to maintain a constant fluid level in master cylinder.

(2) Bleed system as in manual bleeding in *a* above except that replenishing of brake fluid in the master cylinder and manual operation of brake pedal are not required.

(3) Fill master cylinder reservoir with clean brake fluid in accordance with lubrication chart (fig 3-1).

#### 4-25. Service Brake Assembly (fig 4-16)

*a. Removal.*

(1) Open air reservoir drain cock.

(2) Remove hub and brake drum (para 4-35).

(3) Remove upper shoe return spring (1) from forward shoe (2) and rear shoe (3).

(4) Remove nut (4), washer (5), spring (5A), and Washer (5).

(5) Remove slotted washers (6) and anchor link (7). Simultaneously lift shoes away from link (8) at end of wheel cylinder push rods and slide shoes from grooved pin (9) and shoulder pins (10).

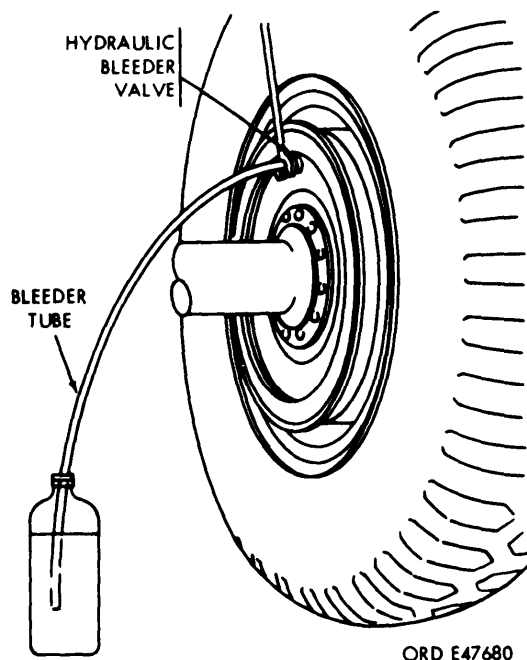


Figure 4-15. Brake system bleeding.

*b. Installation.*

(1) Position shoes (2 and 3) on pins (9 and 10). Slide top end of shoes to a position opposite link (8) at end of wheel cylinder push rod. Rotate grooved pin (11) in large opening of upper anchor support and adjuster to align cutout in pin with cutout in support. Slide top end of shoes into push rod link (8) and cutouts of pin and support.

(2) Install anchor link (7) and secure with slotted washers (6).

(3) Install washer (5), spring (5A), washer (5), and nut (4). Tighten nut (4) until it bottoms on thread runout.

(4) Install upper shoe return spring (1) on grooved pins (11) on forward and rear shoes.

(5) Install hub and brake drum (para 4-35).

(6) Adjust brakes (para 4-23).

(7) Close air reservoir drain cock.

(8) Bleed brake system (para 4-24).

#### 4-26. Wheel Cylinders (fig 4-16)

*a. Removal.*

(1) Remove brake shoes (para 4-25).

(2) Disconnect intercylinder tube assembly (12) from wheel cylinder (13).

(3) Remove capscrews (14) and lockwashers (15) securing wheel cylinder spark shield (16) and wheel cylinder (13) to brake backing plate (17). Remove cylinder and shields from plate.

*b. Installation.*

(1) Position wheel cylinder spark shield (16) and wheel cylinder (13) on brake backing plate (17) and secure with lockwashers (15) and capscrews (14).

(2) Connect intercylinder tube assembly (12) to wheel cylinder (13).

(3) Assemble brake shoes (para 4-25).

(4) Bleed brake system (para 4-24).

(5) Adjust brakes (para 4-23).

#### 4-27. Hydraulic Master Cylinder and Air Chamber Assembly (fig 4-17)

*a. Removal.*

(1) Open air reservoir drain cock.

(2) Disconnect air line (1) from air chamber (2).

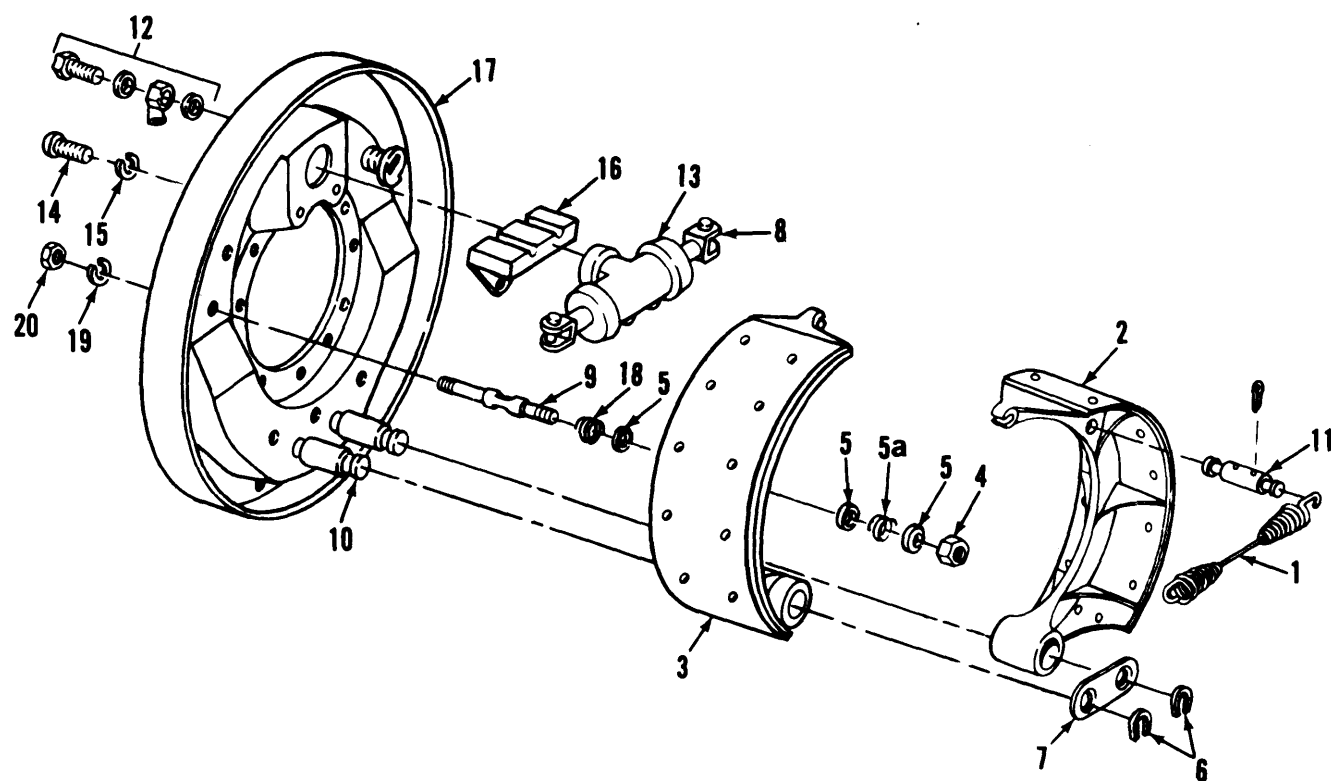
(3) Disconnect hydraulic line (3) from hydraulic master cylinder (4).

(4) Remove nuts (5) and lockwashers (6) from stud (8) securing hydraulic master cylinder (4) and air chamber (2) to support bracket (7).

(5) Remove hydraulic master cylinder (4) and air chamber (2).

*b. Installation,*

(1) Position air chamber (2) on inside of support bracket (7) with studs (8) projecting through support. Position hydraulic master cylinder (4) on projecting



- 1 Return spring
- 2 Forward shoe
- 3 Rear shoe
- 4 Nut
- 5 Washer
- 5A Spring
- 6 Slotted washer
- 7 Anchor link
- 8 Link
- 9 Grooved pin
- 10 Shoulder pin

- 11 Grooved pin
- 12 Tub assembly
- 13 Wheel cylinder
- 14 Capscrew
- 15 Lockwasher
- 16 Spark shield
- 17 Backing plate
- 18 Spring
- 19 LockWasher
- 20 Locknut

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Figure 4-16. Service brake assembly.

studs and secure both to support bracket (7) with lockwashers (6) and nuts (5).

(2) Connect hydraulic line (3) to rear of hydraulic master cylinder (4).

(3) Connect air line (1) to air chamber (2).

(4) Bleed brake system (para 4-24).

#### 4-28. Air and Hydraulic Hoses, Lines, and Fittings

*a. General.* Air and hydraulic lines and tube fittings are not ordinarily removed except for replacement. Replace bent, kinked, or damaged lines and tube fittings. Keep lines tightly attached.

*b. Test and Check for Serviceability.*

(1) With brake air hose couplings of intervehicular air hose connected and brakes applied, coat air hose

couplings and connectors, air hose tube fittings, and air emergency and service lines with a soap suds solution. No leakage is permissible.

(2) Examine hydraulic lines, hoses, and tube fittings. Tighten tube fittings if leakage is found. No leakage is permissible.

*c. Removal of Hydraulic Hose.*

(1) To remove hydraulic hose from wheel cylinder line connecting tee on front or rear axle, disconnect it at support on tandem suspension assembly first.

(2) Unscrew tube fitting nut from hose,

(3) Pry slotted clip off hose and pull hose through hole in support,

(4) Unseat externally threaded end of hose in tee on axle assembly and unscrew the hose from fittings at both ends.



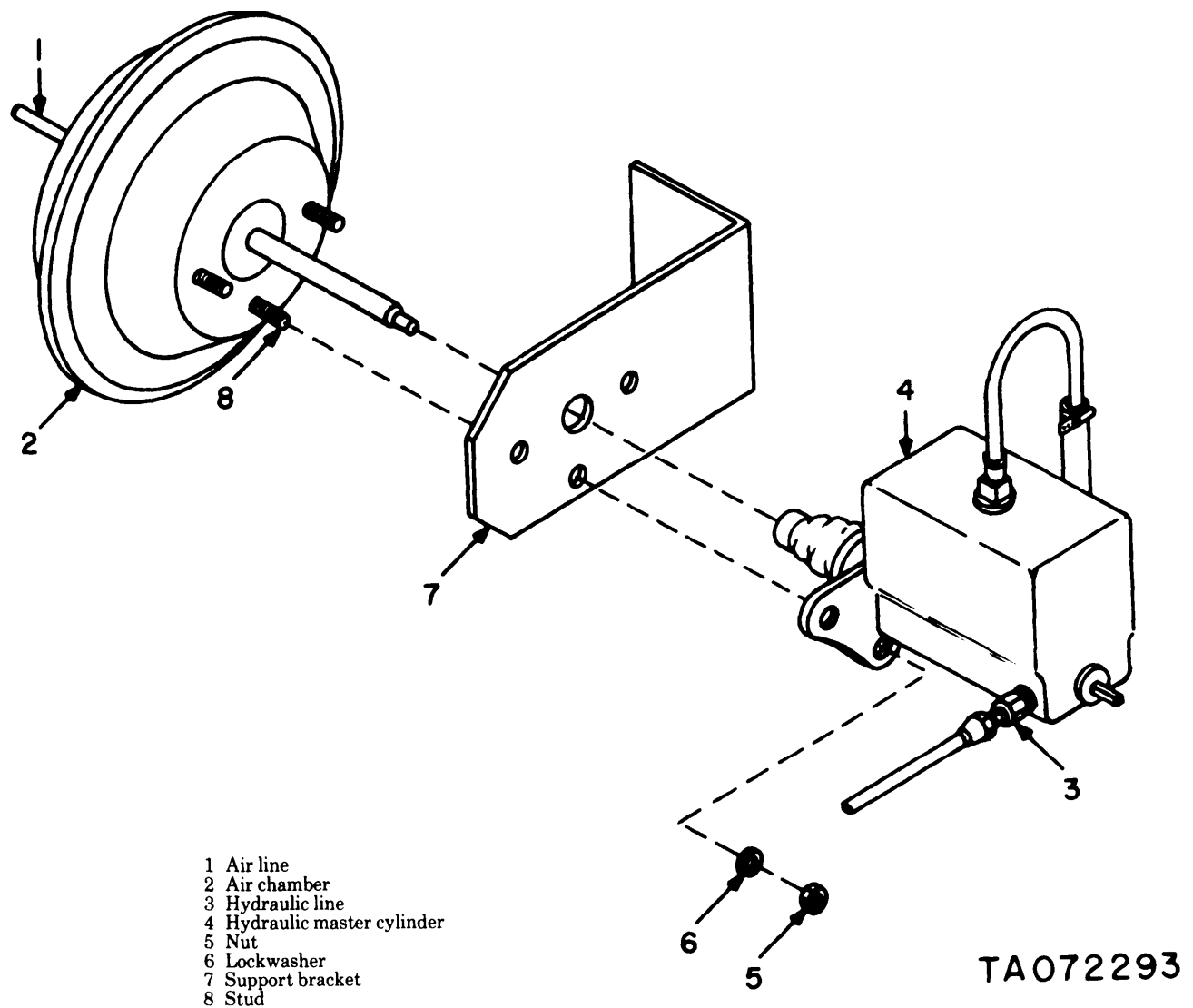


Figure 4-17. Hydraulic master cylinder and air chamber assembly.

*d. Installation of Hydraulic Hose.*

(1) Insert externally threaded end of hose in tee on axle and tighten until snug. Do not cross thread.

(2) Insert internally threaded end of hose through hole in support on suspension assembly.

(3) Place slotted clip in groove on hose end and press downward until clip stops.

(4) Insert line in hose and screw tube fitting nut into hose until snug.

(5) Perform leakage test (b above).

*e. Removal of Tube Fittings.* Unscrew tube nut from tube fitting. Serviceable tube fittings and tube nuts may be reused but compression sleeves must be replaced.

*f. Installation of Tube Fittings.*

(1) Cut tubing with hacksaw or tube cutter, making sure end is smooth and cut squarely. Do not crimp or partially close ends. Ream and file tubing end to re-

move burs. Blow out to remove cuttings or filings.

(2) Place nut and new sleeve on tube and insert end of tube into recess in fitting body.

(3) Hold tube at bottom of recess and tighten tube nut until sufficient pressure is placed on sleeve to prevent leakage. Do not cross thread.

#### 4-29. Half-Coupling (fig 4-18)

*a. Removal and Disassembly.*

(1) Hold fitting stationary with a wrench and unscrew half-coupling.

(2) Pry packing ring out of body.

(3) Remove retainer, spring, plunger, and pin.

*b. Cleaning.*

(1) Clean mud and dirt from all exposed surfaces with water and a stiff brush.

(2) Remove grease with drycleaning solvent (item

6, app F).

*c. Inspection and Repair.*

- (1) Inspect half-coupling body for damaged threads or cracks. Replace coupling if damaged.
- (2) Inspect spring for corrosion and deterioration.
- (3) Check plunger for ease of operation.
- (4) Inspect pin for tightness,
- (5) Replace any damaged parts.

*d. Assembly and Installation.*

- (1) Install plunger and spring and secure with retainer.
- (2) Install new packing ring.
- (3) Screw threads of half-coupling over externally threaded fitting until an airtight seal is made. Make sure face of coupling is vertical and toward leftside of Semitrailer.

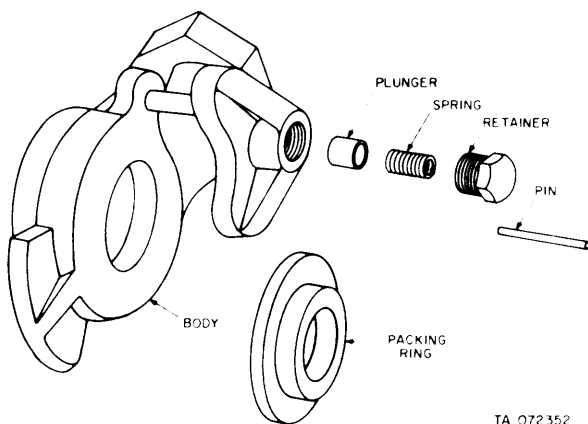


Figure 4-18. Half-coupling.

#### 4-30. Air Filter Assembly (fig 4-19)

**NOTE**

Air filters are no longer required. They can function without the element, center washer, and spring or be replaced as described in c below.

*a. Service.*

When performing routine air filter maintenance, the filter element, centering washer, and spring, may be removed without replacement.

*b. Removal.*

- (1) Disconnect intervehicular hose from towing vehicle.
- (2) Open drain cock on air reservoir.
- (3) Unscrew airline connectors from air filter assembly.
- (4) Remove nuts and lockwashers securing the U-bolt. Remove U-bolt.
- (5) Remove air filter assembly

*c. Replacement.*

When replacement of the 3/8-inch metal lines or filter assemblies is required, substitute a suitable length of nylon tubing using the following materials:

Item	P/N
Nylon, Tubing	CPR103709-3 (19207)
Union Assembly	MS39187-2 (96906)
Insert	CPR102321-1 (19207)

*d. Procedure for splicing air line:*

- (1) Disconnect air line connector from both sides of air filter. Remove U-bolt securing air filter to cross member and remove air filter assembly.

**NOTE**

Insert not needed on copper tube.

- (2) Cut 12 inches from copper tube going forward and install new nut and sleeve. Install sleeve 1/4 inch from end of tube.

- (3) Cut required length of nylon tubing and install nut, sleeve, and insert on both ends.

**NOTE**

The tubing on rear side of cross member need not be cut. Original nut and sleeve can be used.

- (4) Install nylon tubing in place of removed filter assembly.

- (5) Upon completion of splicing, final check for air using leak detector solution, P/N MIL-L-25567, Type 2 .

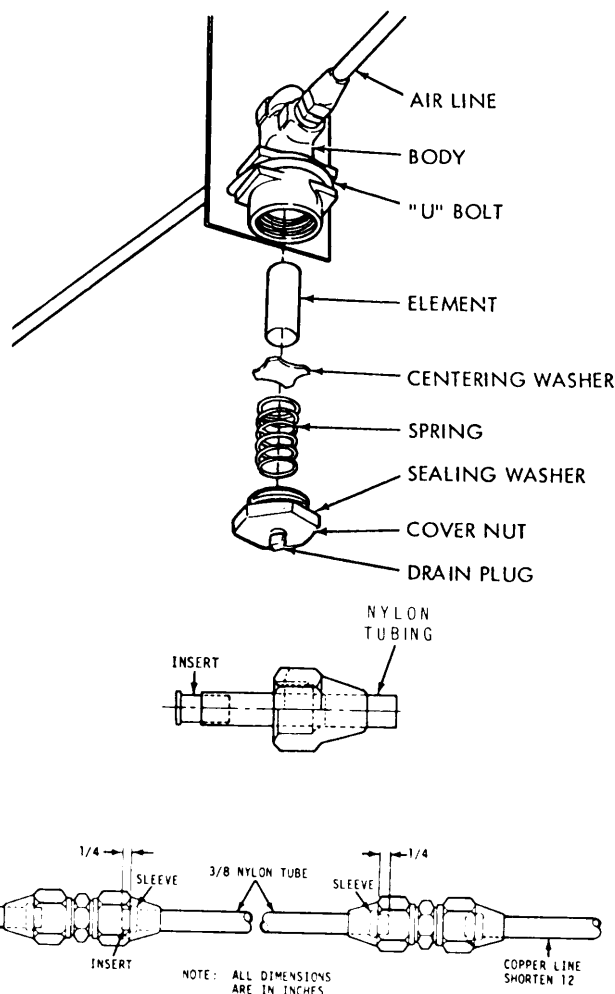


Figure 4-19. Air falter and replacement tubing.

#### 4-31. Relay-Emergency Valve (fig 4-20)

##### a. Removal.

(1) Uncouple intervehicular hose assemblies from towing vehicle. Open drain cock and disconnect all tube connections to relay-emergency valve.

(2) Remove nuts and capscrews securing relay-emergency valve to bracket on air chamber. Remove relay-emergency valve.

##### h. Installation.

(1) Position relay-emergency valve on bracket on air chamber and secure with capscrews and nuts.

(2) Connect and tighten all tube connections.

(3) Close drain cock on air reservoir and connect intervehicular hoses to towing vehicle.

##### c. Leakage test.

(1) With brake air system of semitrailer connected and charged, apply a soap and water solution to flanges that hold diaphragms and to brake air hose coupling tagged SERVICE. There shall be no leakage. Tighten nuts on flanges and tighten coupling as required.

(2) Coat exhaust port with a soap and water solution. Apply brakes and check for leakage.

(3) Release brakes and apply a soap and water solution to exhaust port and check for leakage.

(4) With relay-emergency valve in EMERGENCY position, coat exhaust port with a soap and water solution and check for leakage.

(5) Leakage in test ((2), (3), and (4) above) must not exceed a 1-inch bubble in 2 seconds. If excess leakage is found, replace relay-emergency valve.

##### d. Operating test.

(1) With brake air system of semitrailer connected and charged, check that brakes on wheels apply properly.

(2) Release brakes and check if air pressure is being exhausted properly.

(3) With semitrailer chassis brake system fully charged, close shutoff cock in emergency line on towing vehicle and disconnect brake air hose coupling tagged EMERGENCY. Check if semitrailer chassis brakes apply automatically.

(4) Connect brake air hose coupling tagged EMERGENCY; open shutoff cock on towing vehicle and check for an automatic release of the brakes.

#### 4-32. Air Reservoir (fig 4-20)

##### a. Removal.

(1) Open drain cock on air reservoir.

(2) Disconnect relay-emergency valve (para 4-31).

(3) Remove air tube.

(4) Remove hexagon nuts, lockwashers, and capscrews attaching air reservoir.

(5) Remove air reservoir.

##### b. Installation.

(1) Position air reservoir so that the drain cock is pointing down and relay-emergency bracket is facing toward front of semitrailer. Secure with capscrews, lockwashers, and hexagon nuts.

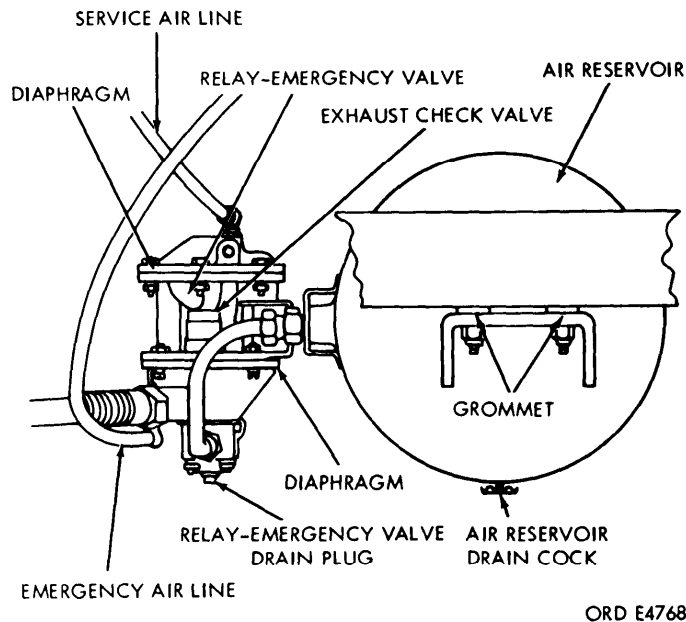
(2) Connect air tube to air reservoir.

(3) Install relay-emergency valve (para 4-31).

(4) Perform leakage test.

##### c. Test and Check for Serviceability.

(1) Charge brake system.



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Figure 4-20. Relay-emergency valve and air reservoir.

(2) Coat drain cock on air reservoir, tube connector, elbow attaching air tube to reservoir, and outside of air reservoir with a soap and water solution. There shall be no leakage.

- (3) Tighten leaking connections,
- (4) Inspect for damage or corrosion.
- (5) Replace reservoir if it leaks or if any damage or corrosion is found.

## Section VIII. MAINTENANCE OF WHEELS, HUBS, AND BRAKE DRUMS

### 4-33. Wheels

#### a. Removal.

- (1) Apply chock blocks.

#### NOTE

Both the outer cap nuts and the inner lug nuts on the right side (marked R) have right-hand threads and those on the left side (marked L) have left-hand threads. To loosen right-hand nuts, turn counterclockwise. To loosen left-hand nuts, turn clock-wise.

- (2) Loosen ten outer wheel cap nuts using a wheel nut wrench.

(3) Raise semitrailer and remove wheel cap nuts. Remove outer wheel.

- (4) Remove ten inner wheel lug nuts. Remove inner wheel.

#### b. Installation.

- (1) Slide inner wheel on hub over ten studs with convex side of wheel facing out.

(2) Install ten inner wheel lug nuts. Alternately tighten nuts on opposite sides of wheel to insure even tightness of all nuts,

(3) Make certain that valve stem for outer wheel does not align with valve stem of inner wheel. Slide outer wheel on hub over ten inner lug nuts with convex side of wheel facing in and against the inner wheel.

(4) Install ten outer wheel cap nuts and alternately tighten nuts on opposite sides of wheel to insure even tightness of all nuts.

(5) Before lowering semitrailer to ground, check nuts to make certain they are all firmly seated.

(6) Lower semitrailer to the ground and torque nuts to 450-500 foot-pounds.

### 4-34. Tire and Tube

Refer to TM 9-2610-200-20 Organizational Care, Maintenance and Repair of Pneumatic Tire and Inner Tube, for instructions for removal, repair, and installation of tire and tube on wheel.

### 4-35. Hub and Brake Drum Assembly (fig 4-21)

#### a. Removal.

- (1) Place a jack under the axle and raise the semitrailer until wheels are off the ground and remove wheels (para 4-33).

- (2) Remove bolts (1), lockwashers (2), access cover (3), and gasket (4).

(3) Remove jamnut (5), keywasher (6), adjusting nut (7), and outer tapered cone and roller (8).

(4) Remove hub and brake drum as an assembly. Remove oil seal (9) and inner tapered cone and roller (10) from hub(n).

#### b. Disassembly.

- (1) Remove nuts (12), lockwashers (13), and ribbed bolts (14) securing brake drum (15) to adapter (16) and remove brake drum from adapter and hub (11).

(2) If bearing cups (17 and 18) must be removed, pull from hub (11), using bearing puller,

(3) If ribbed bolts (19) are loose or damaged, drive out of hub (11) and adapter (16).

#### c. Cleaning and Inspection.

- (1) Clean and inspect all parts.

(2) Replace or repair all damaged or worn parts.

#### d. Assembly.

- (1) If any ribbed bolts (19) were removed from hub (11) and adapter (16), drive new bolts into place.

(2) If bearing cups (17 and 18) were removed from hub (11), press cups into ends of hub until seated on shoulders.

(3) Position brake drum (15) on adapter (16) with bolt holes aligned and secure with ribbed bolts (14), lockwashers (13), and nuts (12).

#### e. Installation.

- (1) Lubricate inner tapered cone and roller (10) with grease (item 3, app F). Install bearing and oil seal (9) in inner end of hub (11).

(2) Slide brake drum assembly onto spindle. Lubricate outer tapered cone and roller (8) with grease (item 3, app F). Install bearing and adjusting nut (7), flat side in.

(3) Rotate hub and drum assembly and tighten adjusting nut (7) until a distinct drag is felt in hub and drum. Loosen nut until hub and drum starts to turn freely. Install keywasher (6) and jamnut (5), flat side out.

- (4) When adjustment is satisfactory, bend tab of keywasher (6) into groove of jamnut (5).

(5) Position gasket (4) and access cover (3) on hub (11) and secure with lockwashers (2) and bolts (1).

(6) Install wheels (para 4-33).

(7) Lower semitrailer to the ground.

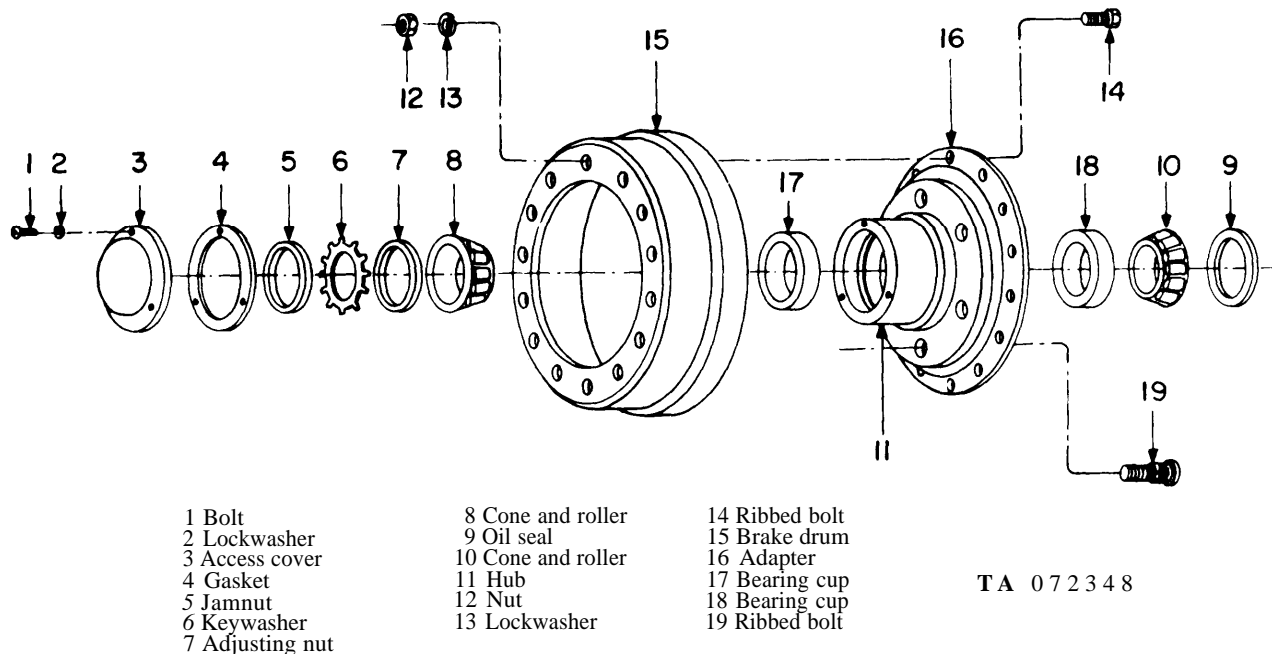


Figure 4-21. Hub and brake drum assembly.

## Section IX. MAINTENANCE OF FRAME AND BRACKETS

**4-36. Spore Wheel and Tire Carrier***a. Removal.*

- (1) Remove tire and wheel from carrier (para 2-6).
- (2) Remove four nuts, lockwashers, and capscrews securing carrier to frame (fig 2-3).
- (3) Remove tire carrier.

*b. Cleaning.* Remove all surface dirt with water and stiff brush.

*c. Inspection and Repair.*

- (1) Check upper member for cracks or breaks in welds and for twists. Straighten member and weld cracks.
- (2) Check shaft for wear and proper alignment. Check the ratchet and nut on the shaft for cracks or excessive wear. Reweld to shaft if necessary.
- (3) Replace shaft by removing cotter pin and cable. Slide worn shaft out and new one in; then secure with cotter pin and attach cable.
- (4) Check pawl for wear and looseness of rivet which attaches pawl to upper member. Replace pawl if worn, and tighten or replace rivet if necessary.
- (5) Check lower member for dents or twisted parts.
- (6) Check U-bolts for tightness. Check attaching capscrews and nuts for stripped threads or looseness and replace if necessary.
- (7) Check cable for frayed wire or excessive wear and replace if necessary.
- (8) Repair damaged surfaces and repaint where paint has been removed.

(9) Lubricate all points according to lubrication chart (fig 3-1).

*d. Installation.*

- (1) Aline four holes in carrier upper member with holes in frame of chassis.
- (2) Secure carrier to frame (fig 2-3) with four capscrews, lockwashers and nuts.
- (3) Raise spare wheel and tire carrier (para 2-6).

*e. Replacement of Cable.*

- (1) Remove spare wheel and tire carrier (*a* above).
- (2) Release cable from lower member by removing nuts and lockwashers from U-bolts.
- (3) Withdraw cable from holes in shaft.
- (4) Make a cable from six feet of 3/16-inch diameter, 7 by 10 aircraft type, preformed cable. Fasten ends with ferrules to prevent unraveling.
- (5) Thread through holes in shaft until both ends are of equal length. Thread ends through holes in lower member. Overlap ends in a loose, single knot under lower member in such a manner that both ends may be clamped with both U-bolts.
- (6) Install lockwashers and nuts on two U-bolts.
- (7) Install spare wheel and tire carrier (*d* above).

**4-37. Landing Gear  
(fig 4-22)***a. Removal of Landing Gear Foot.*

- (1) Block wheels to prevent movement of semi-trailer.
- (2) Jack up front end of semitrailer with jacks and block.

(3) Remove safety nuts (1) and capscrews (2) from lower ends of both legs (3) and tube (4).

(4) Withdraw tube (4) from the foot (5) you want to remove.

*b. Installation of Landing Gear Foot.*

(1) Position foot (5) at end of landing gear leg (3).

(2) Insert tube (4) through one side of foot, through leg, and through other side of foot.

(3) Match screw holes in legs and tube and insert capscrews (2).

(4) Screw safety nuts (1) onto screws and tighten.

(5) Remove blocking and jacks.

*c. Removal of Landing Gear Leg with Gear Box.*

(1) Remove foot of leg to be removed (*a* above).

(2) Remove capscrew (6) and lockwasher (7) attaching clevis rod (8) to leg (3),

(3) Remove capscrew (9), lockwasher (10), and nut (11) attaching brace (12) to leg (3). If the rod and the brace cannot be swung out of the way, loosen the nuts on the ends attached to the semitrailer frame.

(4) Remove safety nut (13) and capscrew (14) through connecting shaft (15) between legs and through drive shaft (16) extending from gear box of leg.

(5) Remove seven nuts (17), lockwashers (18), and capscrews (19) which attach gear box of leg to transition frame. Slide leg with gear box outward,

*d. Installation of Landing Gear Leg with Gear Box.*

(1) Position leg by inserting drive shaft (16) extending from gear box of leg through opening in transition frame and into end of connecting shaft (15) between legs. Aline holes in the leg gear box with holes in the transition frame and insert seven capscrews (19), lockwashers (18), and nuts (17). Hand tighten.

(2) Aline hole in connecting shaft (15) between legs and hole in drive shaft (16) extending from gear box, and insert capscrew (14). Screw on safety nut (13) and tighten by hand. Alinement of these holes can be effected by turning shaft with operating crank.

**NOTE**

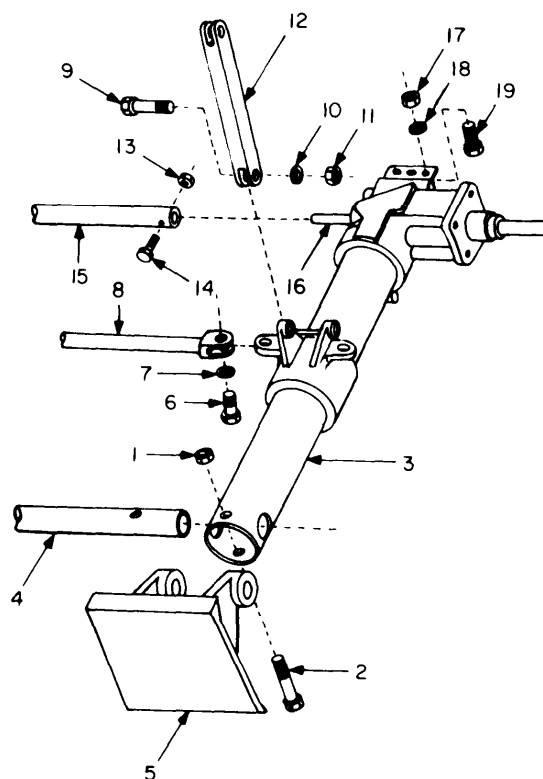
Make certain that legs are extended equally before holes are alined and screw inserted. This can be checked by measuring between the axle and the fittings at lower end of outer leg.

(3) Attach end of brace (12) to landing gear leg (3) with capscrew (9), lockwasher (10), and nut (11).

(4) Attach end of clevis rod (8) to leg with capscrew (6), lockwasher (7) and safety nut (7).

(5) Tighten nuts (17) on capscrews (19) which secure gear box to transition frame.

(6) Tighten nut (11) on capscrew (9) attaching



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- |               |                     |
|---------------|---------------------|
| 1 Safety nut  | 11 Nut              |
| 2 Capscrew    | 12 Brace            |
| 3 Leg         | 13 Safety nut       |
| 4 Tube        | 14 Capscrew         |
| 5 Foot        | 15 Connecting shaft |
| 6 Capscrew    | 16 Drive shaft      |
| 7 Lockwasher  | 17 Nut              |
| 8 Clevis rod  | 18 Lockwasher       |
| 9 Capscrew    | 19 Capscrew         |
| 10 Lockwasher |                     |

Figure 4-22. Landing gear leg.

brace (12) to frame.

(7) Tighten capscrew (6) attaching clevis rod (8) to frame.

(8) Install foot (*b* above).

**4-38. Chock Blocks**

(1) Clean with water and stiff brush.

(2) Use drycleaning solvent (item 6, app F) to remove grease.

*b. Inspection.* Inspect chain, fastener, and block for damage, wear, and deterioration.

*c. Repair.*

(1) Adjust chain fastener to allow chain to turn freely.

(2) Replace damaged chain links.

(3) Replace damaged wood blocks.

## Section X. MAINTENANCE OF SPRINGS AND SUSPENSION

### 4-39. Springs (fig 4-23)

#### *a. Removal.*

- (1) open air reservoir drain cock.
- (2) Position semitrailer on level surface with front end resting on landing gear.
- (3) Jack up on forward-rear axle on side from which spring is to be removed.
- (4) Place jacks or hydraulic dolly under trunnion cross tube and take up weight.
- (5) Block up rear corners of body frame with support stands or support with an overhead crane.
- (6) Remove wheels (para 4-33).
- (7) Disconnect hydraulic lines from the rear-rear axles.
- (8) Adjust jacks under trunnion cross tube to take weight of spring from axle. Remove four nuts and lockwashers from U-bolts (1). Remove U-bolts and raise and remove spring saddle (2).
- (9) Loosen two bolts which secure spring (3) in spring seat (4) and lift spring from seat.

#### **NOTE**

If spring is seized in seat, jack rear-rear axle higher to force it out. Be sure force required to free spring from seat does not lift semitrailer off supports under body frame.

- (10) Remove upper torque rod (5) on rear-rear axle. Refer to paragraph 4-41.
- (11) Move axle rearward to free ends of spring from spring guide bracket (6).
- (12) Lift spring (3) and withdraw end from spring guide bracket (7) on forward-rear axle.

#### *b. Installation.*

(1) Lubricate spring bearing plate. Insert end of spring (3), with larger leaf down, into spring guide bracket (7) on forward-rear axle. Position spring, with center bolt over recess in spring seat (4), and press or drive into place, making sure head of center bolt is in recess and spring is seated.

(2) Position spring saddle (2), making sure center bolt nut fits into recess in saddle and saddle seats on spring. Position U-bolts (1) over saddle and through holes in spring seat (4). Install two 1-inch lockwashers and 1-inch double nuts on U-bolts (1) and tighten. Tighten two hexagon head bolts which clamp spring in spring seat.

(3) Move rear-rear axle so ends of spring will enter opening in spring guide bracket (6). Adjustment of jacks under the axle will help this operation.

- (4) Install upper torque rod (5) (para 4-41).
- (5) Connect hydraulic lines on the rear-rear axle.
- (6) Install wheels (para 4-33) and remove jacks and supports.
- (7) Close air reservoir drain cock.

- (8) Bleed brake system (para 4-24).

### 4-40. Spring Seat (fig 4-23)

#### *a. Removal.*

(1) Jack up rear of frame and block securely. Position jack under cross tube bracket on side to be worked on to take up weight of that end of cross tube.

- (2) Remove wheels (para 4-33).
- (3) Adjust jacks under axles to relieve weight of axles on springs.
- (4) Removing four double nuts and lockwashers from U-bolts (1). Remove U-bolts.
- (5) Remove spring saddle (2).
- (6) Loosen spring clamping bolts, permitting spring (3) to lift from spring seat (4). Should spring be seized in its seat, jack up axle to force it out.

(7) Remove spring seat access cover (8) by removing capscrews and lockwashers which hold cover and gasket (9) to seat.

(8) Remove outer seat bearing jamnut (10). Slide off nut locking key washer and remove inner adjusting nut.

(9) Move spring seat (4) slightly on shaft to loosen outer cone and roller (11). Remove from shaft.

(10) Using a slight rocking motion, carefully slide spring seat (4) out. Inner cone and roller (12) and oil seal (13) will remain in seat.

(11) With offset screwdriver, pry out oil seal (13) and lift out inner cone and roller (12).

(12) Do not remove felt seal retainer, felt seals, felt seal retaining washer, or oil seal wiper from trunnion tube (14) unless damaged.

#### *b. Cleaning and Inspection.*

(1) Clean spring seat, spindle of trunnion tube, and bearings with drycleaning solvent (item 6, app F). Use stiff brush to remove old lubricant.

(2) Inspect spring seat for cracks or damage which might impair its serviceability.

(3) Inspect bearings in accordance with TM 9-214.

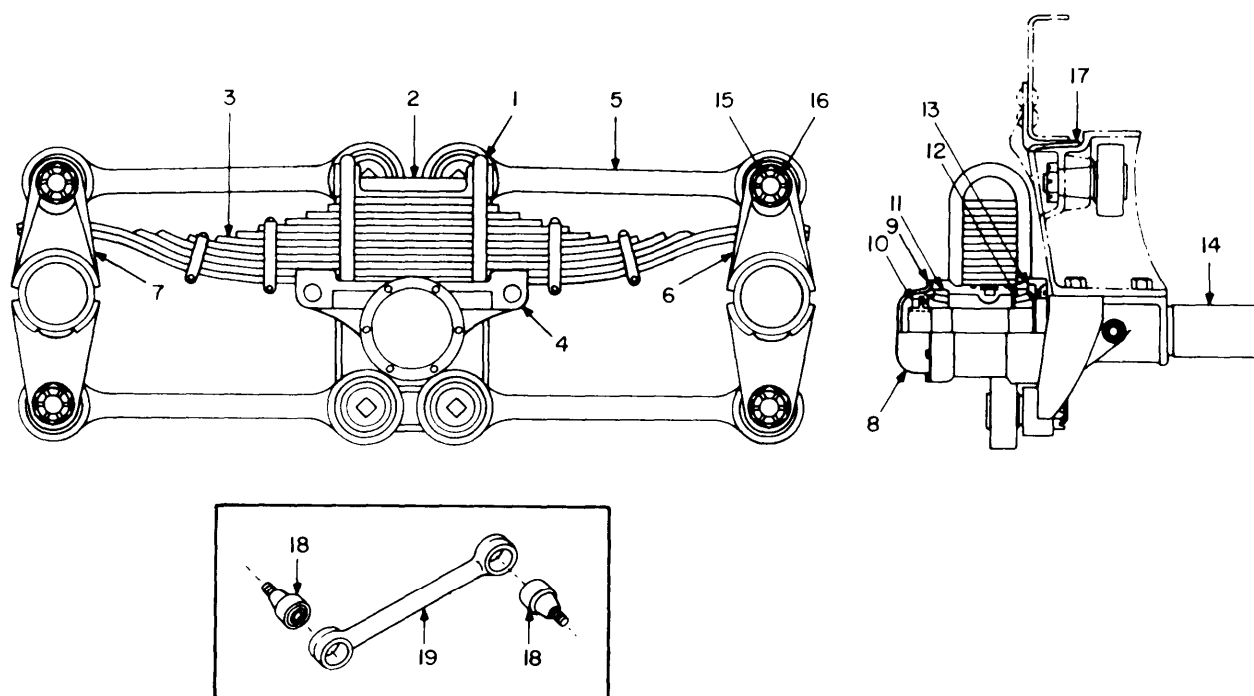
(4) Apply thin coating (not over 1/16 inch thick) of bearing lubricant (item 2, app F) to inside of spring seat and spindle of trunnion tube.

(5) Lubricate bearings as specified on lubrication chart (fig 3-1).

(6) Inspect oil seal (13) for damage or lack of pliability of sealing material.

#### *c. Installation.*

(1) Position inner cone and roller (12) in spring seat (4) and press oil seal (13) into position. Use wooden block or discarded seal to press seal into place. Place spring seat on solid surface; if seal must be forced into place, press or tap carefully. Make certain seal is kept



- 1 U-bolt
- 2 Spring saddle
- 3 Spring
- 4 Spring seat
- 5 Torque rod
- 6 Spring guide bracket
- 7 Spring guide bracket

- 8 Access cover
- 9 Gasket
- 10 Jamnut
- 11 Outer cone and roller
- 12 Inner cone and roller
- 13 Oil seal

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- 14 Trunnion tube
  - 15 Cotter pin
  - 16 Slotted nut
  - 17 Torque rod bracket
  - 18 Ball and bushing assembly
  - 19 Rod

Figure 4-23. Suspension system.

level with inner surface of spring seat while being seated. It seal gets slightly out of level, apply force on high side. If condition becomes extreme, remove seal and start over.

(2) Slide spring seat (4) onto trunnion tube (14). Hold seat level with trunnion tube and, with rocking motion, work spring seat into position carefully so that opening in spring seat will slip over felt seal retainer and oil seal (13) will slip over oil seal wiper without damage. Spring seat should cover retainer when fully positioned.

(3) Position outer cone and roller (11) and install inner adjusting nut with wheel bearing nut wrench. Tighten nut securely to force inner bearing into place and then back off nut until spring seat (4) can be rocked freely by hand, but without lateral movement of spring seat being apparent. Some drag will be noted in rocking a well-adjusted seat due to oil seal and lubricant in bearings.

(4) Position key washer on spindle of trunnion tube (14), mating pin of bearing adjusting nut on hole of washer. Check bearing adjustment again. If adjustment is not satisfactory, slide washer outward and turn nut to mate with next hole in washer to attain more suitable adjustment.

(5) Install outer bearing jam nut (10), tighten, and check bearing adjustment again.

(6) Install gasket (9) and access cover (8) and attach with capscrews and lockwashers.

(7) Lower spring (3) into position, locating it so lower protruding end of spring center bolt will fit into recess in spring seat (4). Position spring saddle (2), making certain recess in saddle is located over upper protruding end of center bolt. Install two U-bolts (1) with lockwashers and double nuts. After U-bolts have been tightened securely to bring spring down into spring seat, tighten spring clamping bolts of spring seat securely.

(8) Install wheels (para 4-33),

(9) Remove blocking, lower axles, and remove jack from under trunnion cross tube.

*d. Removal of Bearing Cup From Spring Seat.* Proceed as in removal of bearing cup from hub (para 4-35b(2)).

*e. Installation of Bearing Cup in Spring Seat.* Proceed as in installation of bearing cup in hub (para 4-35d(2)).

#### 4-41. Torque Rods (fig 4-23)



*a. Removal.*

(1) Position semitrailer on hard level surface with front resting on landing gear.

(2) Jack up vehicle by placing jack under trunnion tube on the side that the torque rods are being replaced and raise vehicle approximately 1-1 1/2 inches.

(3) Position jack stand under trunnion tube for safety support.

(4) For upper torque rod nuts remove four nuts and washers from two U-Bolts. Remove the U-Bolts and spring saddle from spring.

(5) Remove cotter pins and slotted nuts from threaded end of ball assemblies.

(6) Tap threaded end of ball assembly with a soft hammer to loosen ball assembly from bracket.

(7) Use a crowbar or cold chisel to pry the torque rod from the brackets. The ball assemblies are mounted in rubber and can be moved out of normal alignment for removal or installation.

*b. Cleaning.*

(1) Clean rubber with water and soft brush.

(2) Clean metal parts with drycleaning solvent (item 6, app F) to remove grease and dirt.

*c. Inspection and Repair.*

(1) Examine rubber for loss of elasticity or breaks in material. Make certain ball and brushing assembly (18) is securely mounted in rod (19).

(2) Remove burs and hand chase damaged threads.

(3) If damage to threads cannot be corrected, if rubber is hard or cracked, or if ball and bushing assembly (18) is loose in rod, install new ball and bushing assembly. To install new assembly, mount rod (19) in arbor press and press out ball and bushing assembly. Position new ball and bushing assembly and press into rod.

*d. Installation.*

(1) Insert threaded end of ball assembly in hole of bracket on bogie assembly. Using torque rod as a lever, bend the ball assembly out of normal alignment so ball assembly on other end is near the hole in the axle bracket.

(2) Use crowbar or cold chisel and position the ball assembly so it can be inserted into the hole in the axle bracket. Use care not to damage ball assembly or threads.

(3) Install slotted nuts on torque rod and tighten to a torque of 350-400 16-ft.

(4) Install cotter pins to secure slotted nuts.

(5) For upper torque rods install spring saddle using two U-Bolts, four nuts and washers. Tighten nuts evenly to a torque of 200-320 16-ft.

(6) Raise vehicle and remove jackstand.

(7) Lower vehicle to ground.

## Section XI. MAINTENANCE OF BODY AND ASSOCIATED PARTS

### 4-42. Hose Reel, 2-1/2-Inch (fig 2-9)

*a. Removal.*

(1) Remove two hexagon nuts, bolts, and split coupling connecting tube from fuel-defuel valve to hose reel swing joint. Slide gasket back.

(2) Remove four hexagon nuts, washers, and screws attaching hose reel to cabinet floor.

*b. Cleaning and Inspection.*

(1) Inspect swing joint for leakage before cleaning.

(2) Clean metal parts with drycleaning solvent (item 6, app F). Dry thoroughly.

(3) Inspect gear teeth for proper mesh.

*c. Installation.*

(1) Attach hose reel to cabinet floor with four screws, washers, and hexagon nuts. Do not tighten nuts.

(2) Aline tube from gate valve with hose reel swing joint.

(3) Slide gasket over joint and position coupling halves over gasket.

(4) Secure coupling with two bolts and hexagon nuts.

(5) Tighten mounting nuts.

*d. Adjustment of Swing Joint.*

(1) Turn the two adjusting screws equally, clockwise, until leakage stops.

(2) Turn each screw on additional one-half turn to allow for packing wear.

*e. Adjustment of Gear Mesh.*

(1) Loosen pinion bearing block retaining screws.

(2) Adjust pinion so that about two-thirds of the gear tooth depth meshes with ring gear.

(3) Tighten the bearing block screws.

### 4-43. Hose Reel, 1-1/2-inch (fig 2-11)

*a. Removal.*

(1) Remove two hexagon nuts, bolts, and split coupling connecting tube from rate-of-flow selector valve to hose reel swing joint. Slide gasket back.

(2) Remove four hexagon nuts, washers, and screws attaching hose reel to cabinet floor.

*b. Cleaning and Inspection.*

(1) Inspect swing joint for leakage before cleaning.

(2) Clean metal parts with drycleaning solvent (item 6, app F). Dry thoroughly.

(3) Inspect gear teeth for proper mesh.

*c. Installation.*

(1) Attach hose reel to cabinet floor with four

screws, washers, and hexagon nuts. Do not tighten nuts.

(2) Aline tube from rate-of-flow selector valve with hose reel swing joint.

(3) Slide gasket over joint and position coupling halves over gasket.

(4) Secure coupling with two bolts and hexagon nuts,

(5) Tighten mounting nuts.

*d. Adjustment of Gear Mesh.*

(1) Loosen pinion bearing block retaining screws.

(2) Adjust pinion so that about two-thirds of the gear tooth depth meshes with ring gear,

(3) Tighten the bearing block screws.

#### 4-44. Static Reel

(fig 2-7)

*a. Removal.* Remove hexagon nuts, washers, and screws to remove static reel from cabinet.

*b. Installation.* Attach static reel to cabinet with screws, washers, and nuts,

#### 4-45. Emergency Valve Controls

(fig 2-7)

*a. Removal.*

(1) Loosen the emergency pull cable U-bolt clamp on the trip assembly and remove the cable,

(2) Loosen the cable locknut on each of the trip lever adjusting screws and remove the cables.

(3) Remove the anchor pins from the ends of the

trip lever shaft and remove the trip lever shaft.

(4) Remove the trip levers and the trip assembly.

*b. Installation.*

(1) Place the trip assembly and trip levers in position in the frame,

(2) Insert the trip lever shaft through one side of the frame, and the trip assembly and trip levers into the opposite side of the frame.

(3) Insert the securing pins through the frame and trip lever shaft pin holes.

(4) Connect the valve control cables to the trip lever adjusting screws and lock in place with the cable locknuts.

(5) Connect the emergency pull cable to the trip assembly and clamp it tight with the U-bolt clamp.

#### 4-46. Manhole Covers

(fig 2-8)

*a. Removal.*

(1) Remove nut, washer, and bolt securing clamping ring that retains manhole cover to trailer.

(2) Lift off retaining ring to free manhole cover and gasket.

(3) Remove cover and gasket.

*b. Installation.*

(1) Position manhole cover gasket.

(2) Position manhole cover and retain with clamping ring.

(3) Secure clamp ring with bolt, washer, and nut.

### Section XII. MAINTENANCE OF MISCELLANEOUS BODY ACCESSORIES

#### 4-47. Reflector

*a. Removal.* Remove screws attaching reflector to trailer.

*b. Installation.* Attach reflector to trailer with screws.

#### 4-48. Nozzle Assembly

*a. Removal.* Turn nozzle counterclockwise with pipe wrench while holding the male coupler in a secure position.

*b. Installation.* Thread nozzle onto male coupler and

turn clockwise with a pipe wrench holding coupler securely to avoid twisting hose.

#### 4-49. Hose Assembly

*a. Removal.*

(1) Remove nozzle assembly (para 4-48a).

(2) Unwind hose from hose reel and remove from elbow.

*b. Installation.*

(1) Connect hose to elbow and wind hose on hose reel.

(2) Install nozzle assembly (para 4-48b).

### Section XIII. MAINTENANCE OF AUXILIARY ENGINE AND FUEL DISPENSING PUMP ASSEMBLY

#### 4-50. General

The maintenance of the engine is covered in TM 5-2805-258-14, Operator, Organizational, Direct Support and General Support Maintenance Manual: Engine, Gasoline, 10 HP Military Standard Models. Refer to that manual for detailed information on engine maintenance.

#### 4-51. Auxiliary Engine and Fuel Dispensing Pump Assembly (fig 2-9)

*a. Removal.*

(1) Disconnect positive and negative cables from battery terminals.

(2) Disconnect electrical harness from engine.

(3) Shutoff engine fuel supply at fuel strainer and disconnect fuel supply line from engine.

(4) Remove battery hold down frame, battery, and battery cradle from cabinet.

(5) Disconnect positive battery cable from engine.

(6) Unbolt front section of both engine and pump firewalls and remove them from cabinet.

(7) Unbolt pump outlet tube connection from pump.

(8) Unbolt pump inlet tube connection from pump.

(9) Unscrew connector nut on pump housing drain tube and remove both tube and nut.

(10) Unscrew connector nut on engine crankcase drain tube and remove both tube and nut.

(11) Unbolt exhaust pipe from engine exhaust manifold.

(12) Unbolt engine and pump assembly from cabinet floor. Remove assembly and negative battery cable from cabinet.

*b. Separation of Pump From Engine.*

(1) Remove screws and lockwashers attaching pump intermediate housing to engine.

(2) Pull pump straight away from engine to disengage splined pump shaft from pump and engine coupling.

*c. Installation of Pump on Engine.*

(1) Aline splined pump shaft with splined coupling on engine drive shaft, and slide pump shaft through coupling until pump intermediate housing is tight against engine bolt flange.

(2) Secure pump to engine with bolts and lockwashers.

*d. Installation.*

(1) Position engine and pump assembly in cabinet with mounting holes of assembly alined with mounting holes in cabinet floor. Attach assembly and negative battery cable to cabinet floor with bolts, lockwashers, and nuts.

(2) Use a new gasket between bolt flanges and bolt exhaust pipe to engine exhaust manifold.

(3) Install engine crankcase drain tube.

(4) Install pump housing drain tube.

(5) Use a new gasket between flanges and bolt pump inlet tube connection to pump inlet.

(6) Use a new gasket between flanges and bolt pump outlet tube connection to pump outlet.

(7) Bolt front section of both engine and pump firewalls in position.

(8) Connect positive battery cable to engine.

(9) Install battery cradle, battery, and battery hold down frame in cabinet.

(10) Connect fuel supply line to engine.

(11) Connect electrical harness to engine.

(12) Connect positive and then negative battery cable to battery.

#### 4-52. Oil Drain (fig 4-24)

*a. Removal.*

(1) Open oil shutoff drain cocks on engine and drain oil.

(2) Unscrew drain tubes from shutoff cocks.

(3) Remove shutoff cock, nipple, and adapter from engine crankcase.

(4) Remove shutoff cock, nipple, and bushing from pump housing.

*b. Installation.*

(1) Install bushing, nipple, and shutoff cock in pump housing.

(2) Install adapter, nipple, and shutoff cock in engine crankcase.

(3) Connect drain tubes to shutoff cocks and close cocks.

(4) Refill engine crankcase in accordance with lubrication chart (fig. 3-1).

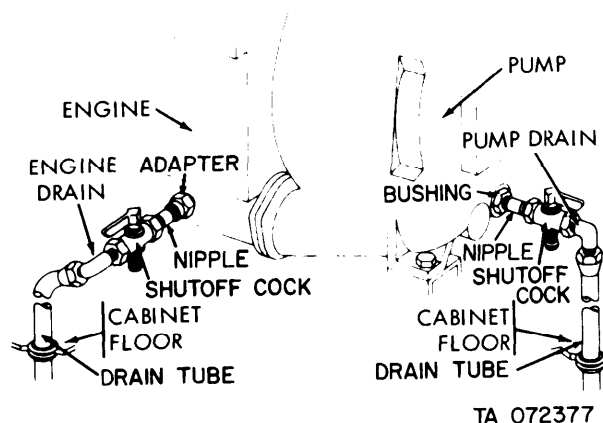


Figure 4—24. Oil drain—engine compartment rear view.

#### 4-53. Fuel Tank Lines and Fittings (fig 4-25)

*a. Removal.*

(1) Close fuel strainer shutoff cock.

(2) To disconnect fuel line, unscrew fittings at fuel strainer and fuel pump. Line need not be removed from firewalls unless inspection dictates replacement.

*b. Cleaning and Inspection.*

(1) Clean fuel line with drycleaning solvent (item 6, app F). Blow through fuel line with compressed air.

(2) Inspect fuel line for cracks and kinks.

(3) Inspect fittings for stripped or worn threads.

*c. Installation.*

(1) Connect fuel line and tighten fittings.

(2) open shutoff cock and check for leaks.

#### 4-54. Fuel Tank (fig 4-25)

*a. Draining.*

(1) Close fuel strainer shutoff cock and remove bowl, gasket, and strainer element, Refer to figure 4-26.

(2) Open shutoff cock on fuel strainer and drain fuel from tank.

*b. Cleaning and Inspection.*

(1) Inspect fuel tank for leaks before cleaning.

(2) Clean tank inside and out with drycleaning solvent (item 6, app F). Dry thoroughly.

(3) Inspect for cracks, corrosion, and rust.

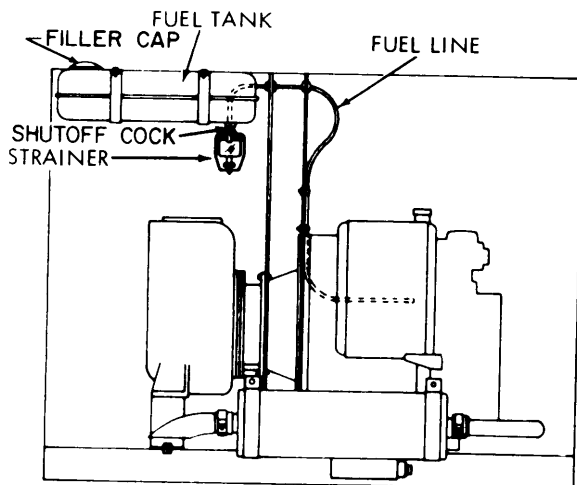
*c. Filling.*

(1) Remove filler cap and fill tank until level of fuel is just below top of filler neck.

**WARNING**

Do not overfill, since room for expansion must be provided to prevent tank from rupturing, causing injury to personnel and damage to the fuel tank.

(2) Replace filler cap.



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Figure 4-25. Fuel tank lines and fittings.

**4-55. Engine Fuel Strainer  
(fig 4-26)**

*a. Removal.*

- (1) Remove connection from fuel strainer outlet,
- (2) Remove fuel strainer from bottom of gas tank.
- (3) Drain gas from fuel tank.

**NOTE**

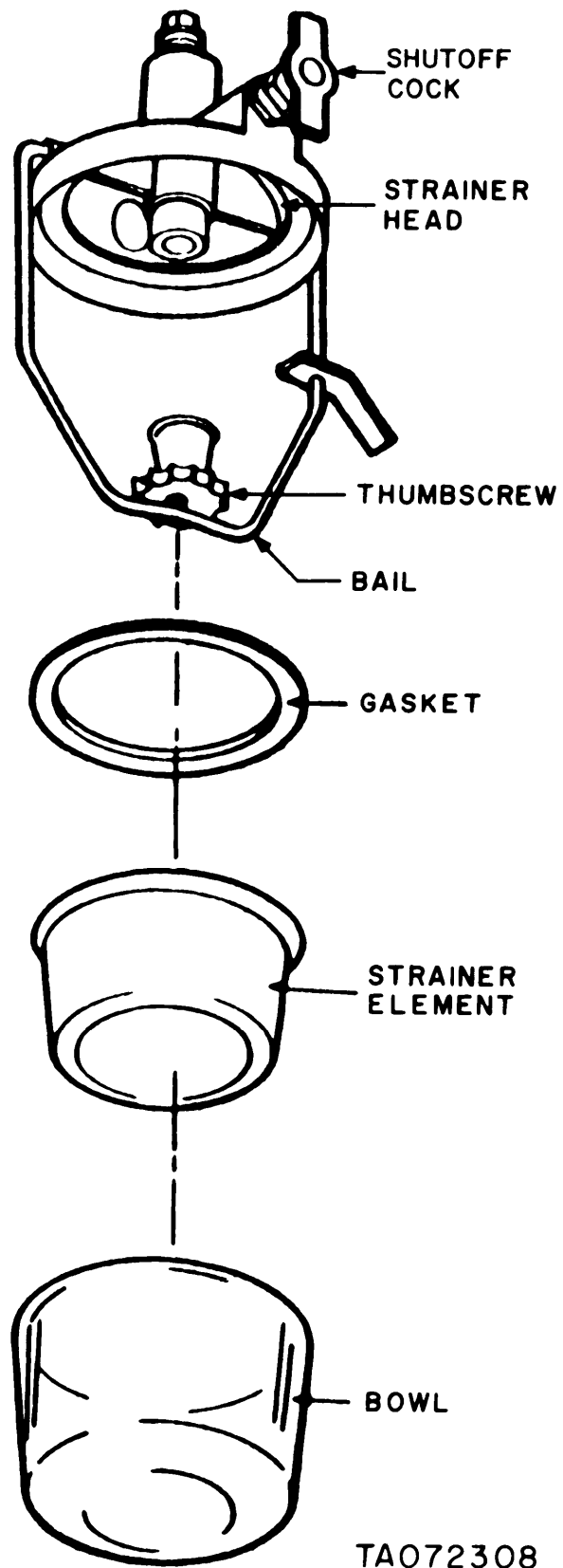
Replacement of the strainer element does not require removal of the assembly from the gas tank.

*h. Disassembly.*

- (1) Loosen thumbscrew and swing bail to one side,
- (2) Remove bowl and gasket from strainer head.
- (3) Remove strainer element from bowl.

*c. Cleaning and Inspection.*

(1) Clean strainer head, strainer element, and bowl with drycleaning solvent (item 6, app F). Dry thoroughly.



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Figure 4-26. Engine fuel strainer.

(2) Inspect head and bowl for cracks, breaks, or other damage.

(3) Inspect gasket and strainer element for corrosion and deterioration.

(4) Replace all defective parts.

*d. Assembly.*

(1) Install strainer element in bowl.

(2) Install gasket and bowl in strainer head.

**NOTE**

Tighten thumbscrew only enough to prevent fuel leakage. Do not overtighten.

(3) Position bail under bowl and tighten thumbscrew.

*e. Installation.*

(1) Install fuel strainer in bottom of gas tank.

(2) Install strainer outlet connection.

## 4-56. Muffler and Exhaust Pipe (fig 4-27)

*a. Removal.*

(1) Remove muffler shroud (1) from cabinet.

(2) Loosen clamp (2) attaching tail pipe (3) to muffler (4). Remove tail pipe and clamp.

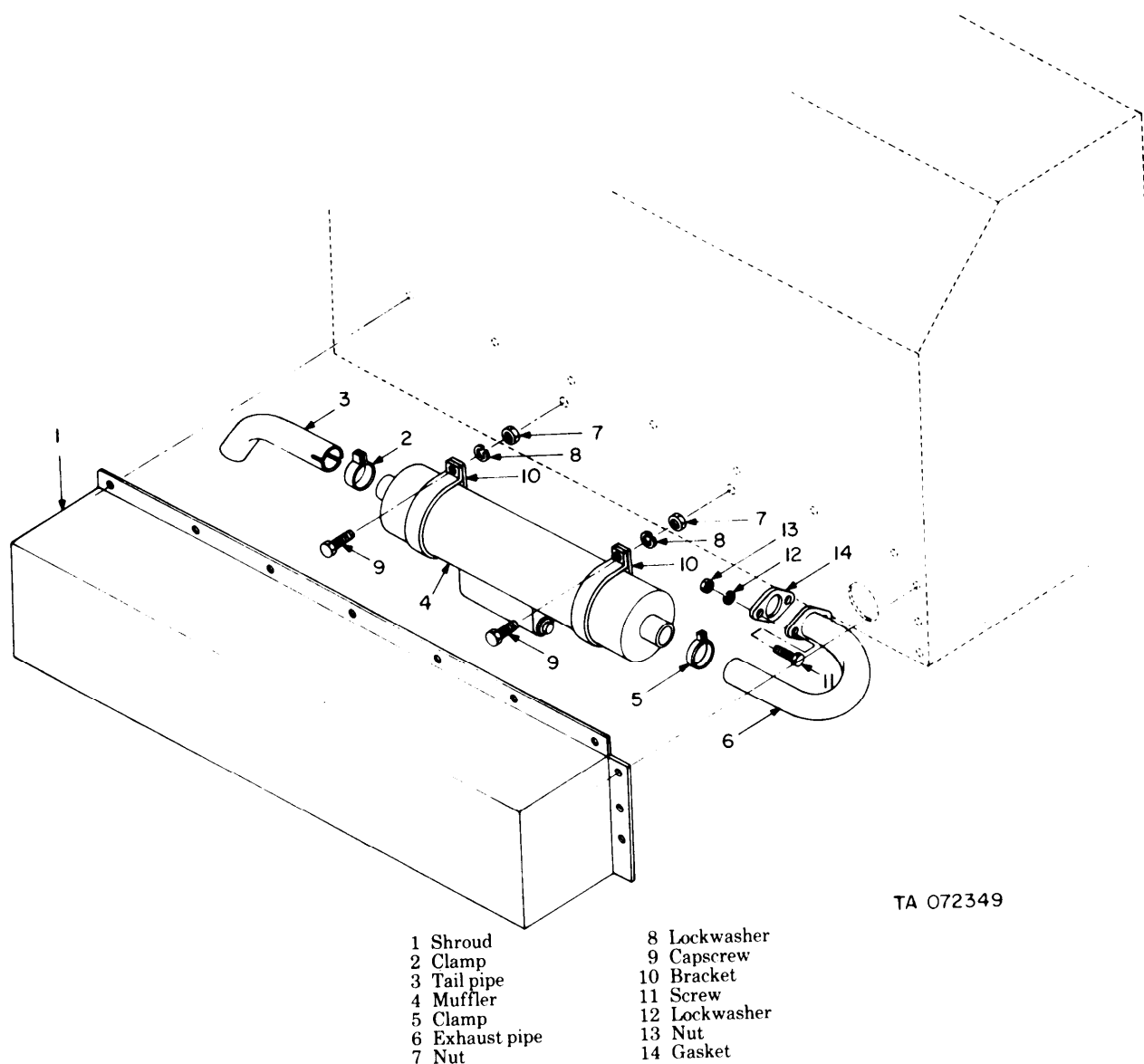
(3) Loosen clamp (5) attaching muffler (4) to exhaust pipe (6).

(4) Remove nuts (7), lockwashers (8), and cap-screws (9) attaching muffler clamps (10) to cabinet. Remove muffler and clamps.

(5) Remove screws (11), lockwashers (12), and nuts (13) attaching exhaust pipe (6) and gasket (14) to auxiliary engine exhaust manifold.

*b. Installation.*

(1) Position gasket (14) and exhaust pipe (6)



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Figure 4-27. Exhaust system.

against auxiliary engine exhaust manifold and secure with screws (11), lockwashers (12), and nuts (13).

(2) Position clamp (5) around exhaust pipe end of muffler (4).

(3) Position two mounting brackets (10) around muffler (4).

(4) Slide muffler (4) over exhaust pipe (6) and attach muffler brackets (10) to the cabinet with cap-screws (9), lockwashers (8), and nuts (7). Tighten exhaust pipe clamp (5).

(5) Place clamp (2) over split end of tail pipe (3). Slide tail pipe and clamp over muffler (4) with tail pipe outlet facing down.

(6) Tighten clamp (2) securely.

(7) Bolt muffler shroud (1) to cabinet.

#### 4-57. Tail Pipe (fig 4-27)

##### a. Removal.

(1) Loosen tail pipe clamp (2).

(2) Pull tail pipe (3) and clamp (2) from muffler (4).

##### b. Installation.

(1) Place clamp (2) over split end of tail pipe (3).

(2) Slide tail pipe (3) over muffler (4), with outlet facing down.

(3) Tighten clamp (2) securely.

#### 4-58. Starter Switch (fig 4-20, 4-29, and 4-30)

##### a. Removal.

(1) Disconnect positive lead at battery terminal.

(2) Remove hexagon nut and push switch out through back of panel.

(3) Unplug two-wire connector from switch.

##### b. Installation.

(1) Plug the two-wire connector with leads number 3 and 27 into switch.

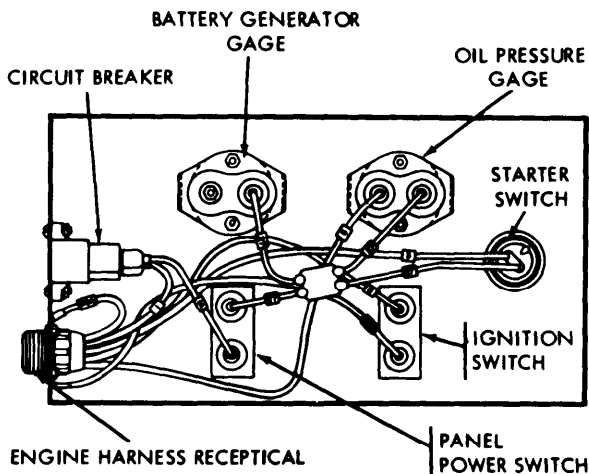
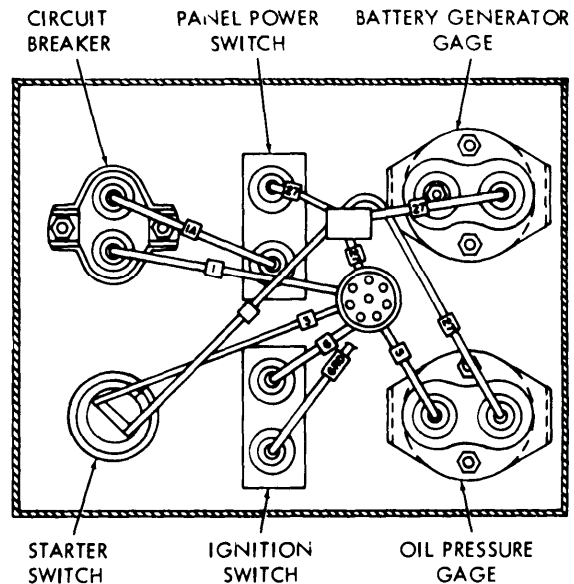


Figure 4-28. Rear of engine control panel.



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Figure 4-29. Rear of engine control panel-M131A5C.

(2) Position switch through control panel from back and attach with hexagon nut.

(3) Connect positive lead to battery terminal.

#### 4-59. Engine Panel Gages (fig 4-28, 4-29, and 4-30)

##### a. Removal.

(1) Disconnect positive lead at battery terminal and unplug wiring harness from control panel.

(2) Remove four hexagon nuts, washers, and screws securing control panel to cabinet.

(3) Unplug number 27 lead from either battery generator gage or oil pressure gage.

(4) Remove two hexagon nuts and bracket to release gage. Pull gage out through the front of panel.

##### b. Installation.

(1) Position gage in panel and secure with bracket and four hexagon nuts.

(2) Plug number 27 lead into gage.

(3) Secure control panel to cabinet with four screws, lockwashers, and nuts.

(4) Connect engine harness assembly to panel and connect positive lead at battery terminal.

#### 4-60. Cables

##### a. Removal.

(1) *Battery Cables* (fig 4-11), Disconnect at battery terminals and engine starter motor and ground.

(2) *Engine harness assembly* (fig 4-28 thru 4-30). Unscrew connector nuts at control panel and engine.

(3) *Control panel leads and harness*. Remove four hexagon nuts, lockwashers, and screws securing control panel, and disconnect leads and harness connectors.

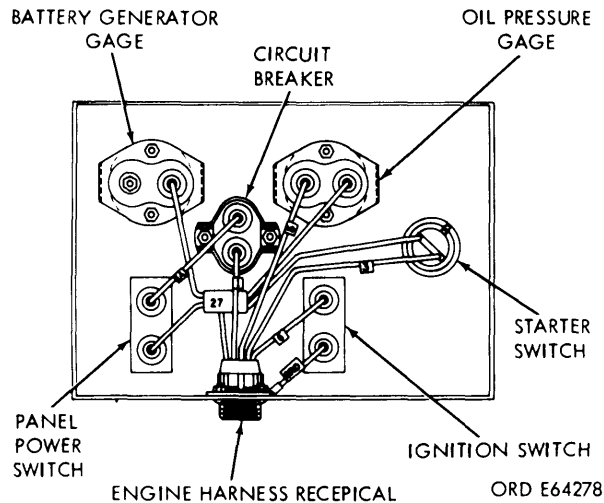


Figure 4-30. Roar of engine control panel-M131A5.

## Section XIV. MAINTENANCE OF FILTER-SEGREGATOR

### 4-61. General

#### a. M131A4C.

(1) Two different filter-segregators were furnished on original production models of the M131A4C fuel tank semitrailers. Semitrailers with serial numbers 1 thru 113 were equipped with Warner Lewis designed filter-segregators; those with serial numbers after 113 were equipped with filter-segregators designed by Bowser, Inc.

(2) Normal maintenance, including replacement of the 15 first-stage (coalescer) elements in the rear section of units is identical. The major difference is in the number, size, and mounting of the second-stage (separator) elements in the front section of the units. Those designed by Warner Lewis contain six 6-inch-diameter second-stage elements, which are retained on axially mounted studs. The units designed by Bowser, Inc. contain fourteen 2-inch-diameter second-stage elements, which are supported in the front of the unit in counterbored recesses and in the rear by thumbscrews mounted on a retainer plate.

(3) Filter-segregator cases may or may not have a flange at the outlet end of the case. This flange is of no importance in any maintenance function. The flange should never be unbolted unless necessary for physical repairs to the case. The gasket should be replaced whenever the flange is unbolted.

b. *Criteria for Replacing Elements M131A4C.* Replace elements of filter-segregator on the M131A4C fuel tank semitrailer under the following conditions:

#### (1) First-stage elements.

(a) When the pressure drop exceeds 15 psi across the elements.

(b) Every 18 months.

(c) When laboratory analysis of the effluent stream reveals that solids content exceeds the allow-

#### b. Cleaning and Inspection.

(1) Clean with drycleaning solvent (item 6, app F) and dry thoroughly.

(2) Inspect wiring for frayed or worn insulation

(3) Inspect connectors and terminals for oxidation, corrosion, and wear.

#### c. Installation.

(1) *Control panel leads and harness.* Plug in cable, observing number coding, and connect harness to receptacle in side panel (fig 4-5).

(2) *Engine harness assembly.* Connect harness between control panel receptacle and engine and turn harness connector finger tight.

(3) Connect battery ground cable between ground and battery ground terminal.

(4) Connect battery positive cable between engine starter motor and battery positive terminal.

able limit (2.0 mg/l). Samples should be taken when filter elements are initially installed or changed and every month thereafter, and whenever the filter-segregator is suspected of being faulty.

(2) *Second-stage elements.* Second-stage elements are to be replaced only when there is visual evidence of damage to the screen or its teflon coating.

c. *Criteria for Replacing Elements and Fuses M131A5C.* Replace elements and fuses of filter-segregator on the M131A5C fuel tank semitrailer under the following conditions:

(1) When the pressure differential across the entire filter-segregator exceeds 20 psi, replace all of the first-stage (coalescer) elements and fuses.

(2) When the pressure drop across the first stage elements exceeds 15 psi replace all 15 first-stage elements.

(3) When the pressure drop across the fuses exceeds 15 psi, replace all 15 fuses. (It is not always necessary to replace both the first-stage elements and fuses; however, the pressure across the entire filter-segregator should *never* exceed 20 psi. Discretion must be used in determining when to replace both).

(4) Even though the go-no-go fuses virtually eliminate the possibility of dirty fuel at the filter outlet, fuel samples should be taken when elements and fuses are changed and every month thereafter. If laboratory analysis of the samples shows solids content in excess of (2.0 mg/l), all first stage elements and fuses should be replaced.

### 4-62. Filter-Segregator M131 A4C (fig 4-31)

#### a. Removal.

#### CAUTION

The filter-segregator weighs approximately 260 pounds (dry). To prevent dropping and

damaging the filter-segregator, provide adequate support while removing the unit.

#### NOTE

Before removing filter-segregator, drain fuel from all compartments. Remove drain plugs at filter-segregator, sludge control valve, pump, meter, and strainer, and open drain cock on filter-segregator automatic dump valve.

(1) Disconnect all copper lines attached to filter-segregator.

(2) Remove the split couplings at the filter-segregator inlet and outlet pipes, and slide gaskets back.

(3) Remove hexagon nuts, washers, and bolts to release filter-segregator from mounting brackets.

#### b. Disassembly.

(1) Remove 26 bolts, nuts, and washers from center flange of filter-segregator and separate the two sections. Remove flange gasket,

(2) Stand first-stage section of the filter-segregator on the inlet end and remove four retainer plate bolts from around the outer edge of the retainer plate.

(3) Remove nut from center rod of first-stage retainer plate and remove plate.

(4) Remove the 15 metal studs from the ends of the first-stage filter elements and keep for reuse.

(5) Remove the fifteen first-stage filter elements.

#### c. Cleaning and Inspection.

(1) Clean interior of first-stage housing with clean wiping cloth.

(2) Check the second-stage elements for cleanliness and damage. Clean with clean wiping cloths if

necessary. If any elements are damaged, replace the 2-inch-diameter elements as described in (a) thru (e) below; the 6-inch-diameter elements as described in (f) thru (i) below:

(a) Remove three nuts from second-stage retainer plate and remove plate.

(b) Remove elements; take care not to damage the screen surface or front o-ring.

(c) Install the second-stage retainer plate on retainer plate rods but do not tighten the nuts.

(d) Install the new elements; work from the top-rear down. Push end on which O-ring is installed into recess in forward bulkhead, and turn clockwise. As each element is installed, retain it in position at the retainer plate by use of the thumbscrews.

#### CAUTION

Do not extend the thumbscrews any farther than necessary for retention. If the screw is advanced too far, subsequent tightening of the retainer plate nut will puncture the grid of the element.

(e) When all elements are aligned, tighten the second-stage retainer plate.

(f) Remove six nuts that retain the second-stage elements on axially mounted studs.

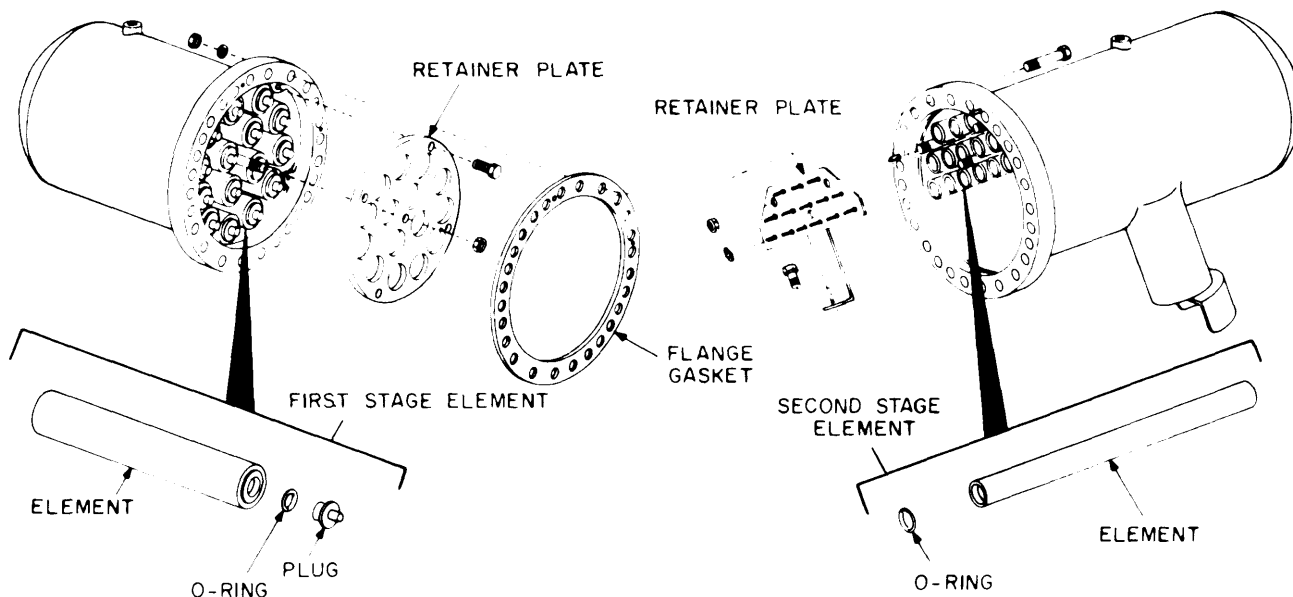
(g) Slide the six elements off the studs.

(h) Slide new elements over the studs and seat into the forward bulkhead.

(i) Attach with stud nuts. Do not overtighten.

#### d. Assembly,

(1) Insert metal studs in end of the first-stage elements,



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Figure 4-31. Filter-segregator-M131A4C.



(2) Position elements over element retainer mounts in bulkhead.

(3) Position first-stage retainer plate over element studs and center rod, and attach plate with bolts and nut.

(4) Tighten retaining rod nut and bolts firmly but do not overtighten.

(5) Position flange gasket over dowel pins.

(6) Position first-stage and second-stage housing together with dowel pins in dowel pin holes and install 26 bolts, nuts, and washers. Tighten all nuts gradually and alternately to 50 foot-pounds torque.

*e. Installation.*

(1) Position filter-segregator against mounting supports on vehicle using hydraulic jack.

(2) Install mounting straps and tighten bolts just finger tight.

(3) Connect two tubes to automatic dump valve.

(4) Connect fuel inlet and outlet pipes, using split clamps.

(5) Connect vent tube to filters-segregator.

(6) Tighten mounting strap bolts.

#### **4-63. Filter-Segregator M131A5C (fig 4-32)**

*a. Removal.*

#### **CAUTION**

The filter-segregator weighs approximately 260 pounds (dry). To prevent dropping and damaging the filter-segregator, provide adequate support while removing the unit.

#### **NOTE**

Before removing filter-segregator, drain fuel from all compartments. Remove drain plugs at filter-segregator, sludge control valve, pump, meter, and strainer, and open drain cock on filter-segregator automatic dump valve.

(1) Disconnect all copper lines attached to filter-segregator.

(2) Remove the split couplings at the filter-segregator inlet and outlet pipes, and slide gaskets back.

(3) Remove hexagon nuts, washers, and bolts to release filter-segregator from mounting brackets.

*b. Disassembly.*

(1) Loosen coupling clamp nut on coupling clamp (1) securing cover (2). Expand and remove coupling clamp.

(2) Remove cover (2) and preformed packing (3).

(3) Unscrew four wingnuts (4), and remove wingnuts, lockwashers (5) and flat washers (6).

(4) Remove baffle plate (7).

(5) Starting with the lower second-stage canister (9) nearest the service port, remove wire spacer (8) and pull the canister to the left until it drops down so that it can be removed through the service port. Remove

the four remaining canisters the same way.

(6) Pull fuse elements (11) from canister (9) and remove fuse clip (10).

(7) Remove canister adapter (13) with gaskets (12 and 14).

(8) Remove element retainer (15) from 15 first-stage element guide pipes on the left side of the housing.

(9) Slide 15 first-stage elements (16) off the guide pipes,

*c. Cleaning and Inspection.*

(1) Clean interior of first and second stage housing with clean wiping cloth.

(2) Inspect the second-stage canister elements and adapter for damage.

(3) Replace all defective parts.

*d. Assembly.*

(1) Install 15 new first-stage elements (16) on the guide pipes, starting farthest from service port.

(2) Install element retainer (15) and handtighten only. Do not over tighten.

(3) Place gasket (12) in canister adapter (13). Insert three fuse elements (11) in canister adapter. Push fuses down into holes and place fuse clip (10) on fuses. Place gasket (14) on adapter.

(4) Slide second-stage canister (9) over fuse assembly and push canister into adapter.

(5) Insert a second-stage canister (9) through the service port with the adapter end slanted downward toward the bottom of housing. Turn canister slightly to the right and lift it into position on the upper guide pipe farthest from the service port. Slide canister to the right until it fits into the outlet hole.

(6) Hold up left end of canister and install wire spacer (8) near end of canister.

(7) Install the next canister (9) on the top guide pipe and install other end of wire spacer (8).

(8) Install three remaining canisters (9) on the guide pipes, starting with farthest pipe from the service port. Install remaining wire spacers (8).

(9) Install baffle plate (7) and secure with four wingnuts (4), lockwashers (5) and flat washers (6). Handtighten only.

(10) Install preformed packing (3) and cover (2).

(11) Install coupling clamp (1).

(12) Tighten clamp nut to 260 inch-pounds.

*e. Installation.*

(1) Position filter-segregator against mounting supports on vehicle, using hydraulic jack.

(2) Install mounting straps and tighten bolts just finger tight.

(3) Connect two tubes to automatic dump valve.

(4) Connect fuel inlet and outlet pipes using split clamps.

(5) Connect vent tube to filter-segregator.

(6) Tighten mounting strap bolts.

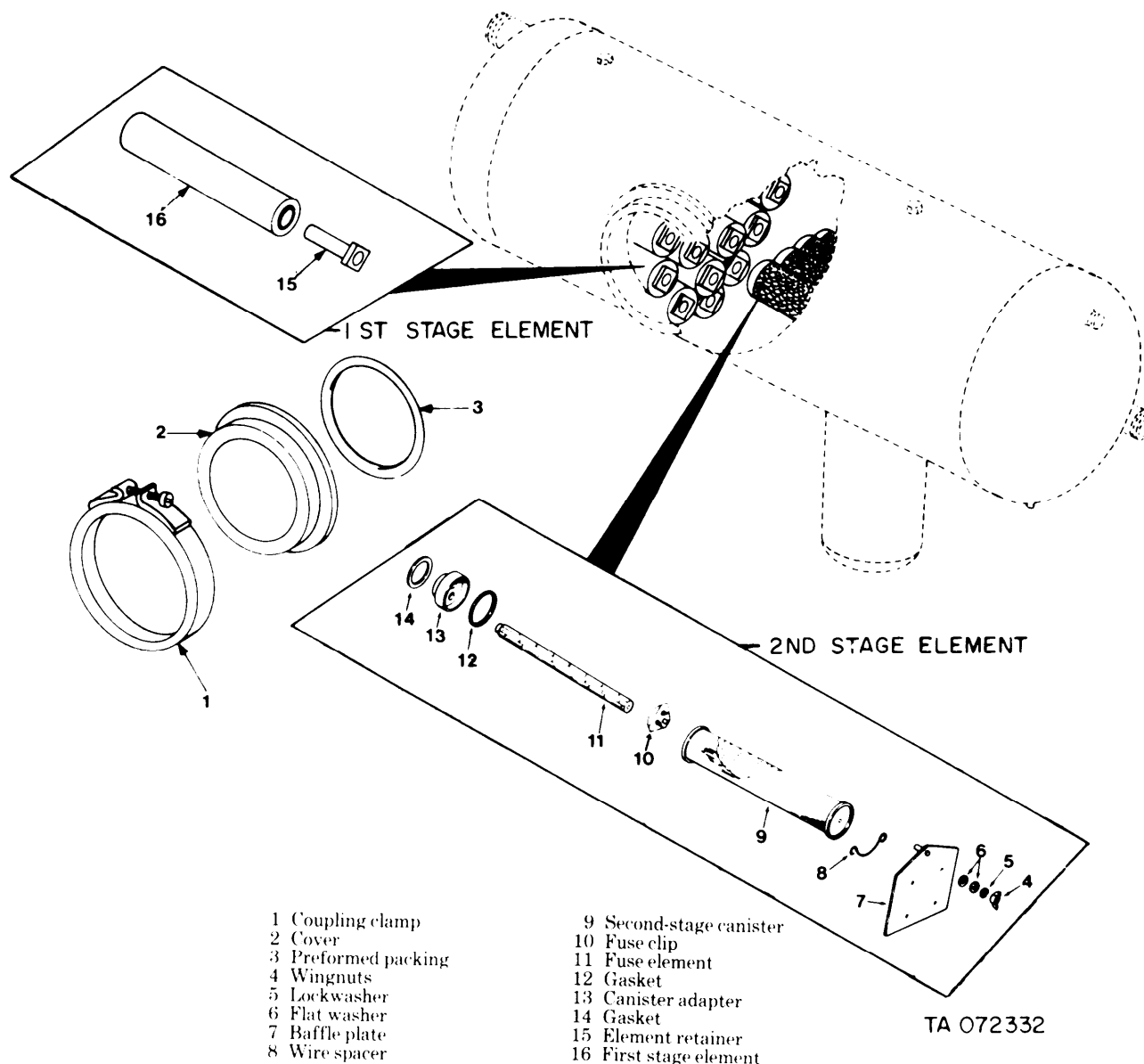


Figure 4-32. Filter-segregator-M131A5C.

#### 4-64. Sump Components (fig 4-33)

- (1) Disconnect the two copper lines to sump.
- (2) Remove nuts attaching drain valve and control assembly and guard to filter-segregator.

##### b. Disassembly.

- (1) Disconnect fittings to remove lines.
- (2) Remove strainers and sump drain valve.

##### c. Cleaning and Inspection.

- (1) Clean components in dry cleaning solvent (item 6, app F). Blow out lines and passages with low pressure air.

- (2) Inspect for sediment deposits in valve passages and strainers.

- (3) Check float arm for free movement on pin.

- (4) Inspect check valves for leakage.

##### d. Assembly.

- (1) Attach strainers, drain valve, and gasket,
- (2) Connect fittings to install lines.

##### e. Installation.

- (1) Attach drain valves and control assembly and guard to filter-segregator with nuts.
- (2) Connect the two copper lines.

#### 4-65. Pressure Gage M131A4C

- a. Removal. Unscrew gage from elbow in counter-clockwise direction.

- b. Installation. Screw gage into elbow by turning in a clockwise direction,

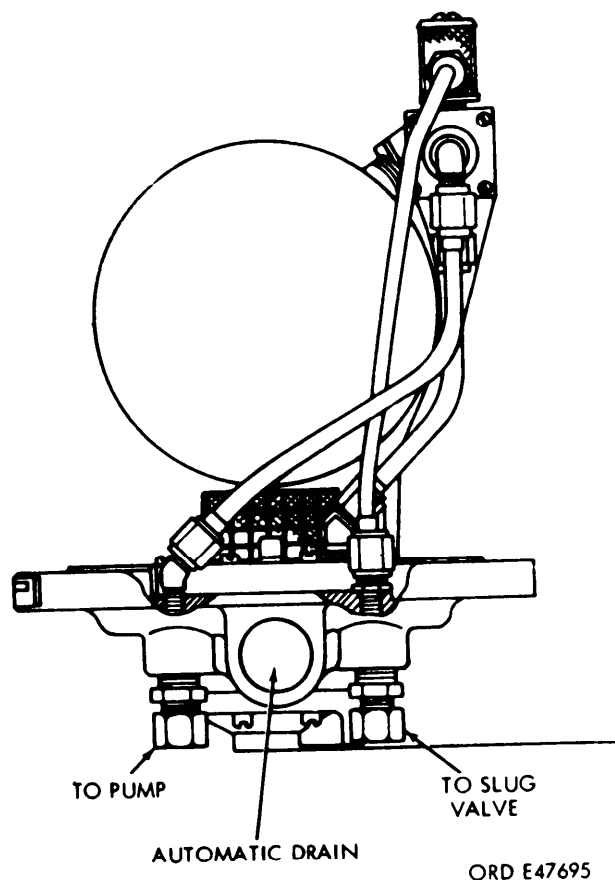


Figure 4-33. Float assembly -M131A4C.

## Section XV. MAINTENANCE OF VALVES, LINES, AND FITTINGS

### 4-66. General

Consider the location of the unit to be serviced and drain the affected compartments, valves, and piping.

### 4-67. Valves

*a. Manifold Values* (fig 4 -34).

(1) *Removal.* Remove nuts, lockwashers, and screws and pull the valve and gasket from manifold.

(2) *Cleaning and inspection.* Clean with drycleaning solvent (item 6, app F). Inspect gasket and packing gland. Inspect valve seat in manifold.

(3) *Installation.* Attach valves to manifold with screws, lockwashers, and nuts.

*b. Gate Valves.*

(1) *Removal.* Remove connecting nuts, washers, and bolts or split couplings.

(2) *Cleaning and Inspection.* Clean with drycleaning solvent (item 6, app F). Inspect gaskets and valves.

(3) *Installation.* Install valves and new gaskets and attach with bolts, washers, and nuts or split couplings.

*c. Adjustable Bypass Valve* (M131A4C and M131A5C).

(1) *Removal.* Remove split couplings and slide gas-

kets back to release valve. Unscrew nipples.

(2) *Cleaning and inspection.* Clean with drycleaning solvent (item 6, app F). Inspect coupling gaskets, valve seat, and body.

(3) *Installation.* Screw nipples into valve and tighten with pipe wrench. Position valve, slide gaskets over joints, and attach split couplings.

(4) *Adjustment.*

(a) Remove bolt and lock cap from valve.

(b) Operate system as described in paragraph 2-13.

(c) Adjust engine governor to  $2650 \pm 50$  rpm.

(d) Adjust valve to obtain a pressure reading of  $43 \pm 3$  psi on filter-segregator gage. To adjust, loosen locknut and turn screw clockwise to increase pressure or counterclockwise to decrease pressure. Tighten locknut.

(e) Install lock cap and screw on valve.

### NOTE

The bypass valve is adjusted at zero flow rate. When pumping at high delivery rate, pressure may exceed 43 psi.

All pressure readings are taken at the first-stage filter outlet. When elements are exces-

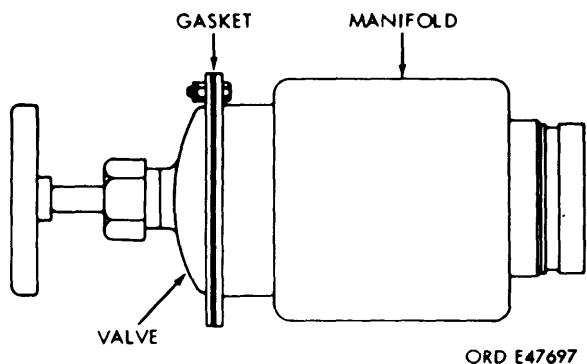


Figure 4-34. Manifold valve.

sively dirty, an outlet pressure of 43 psi may correspond to nearly 60 psi at filter inlet.

*d. Flow Control Valve (M131A4 Cand M131A5C).*

(1) *Removal.* Disconnect copper lines to valve and remove nuts, lockwashers, and bolts attaching valve.

(2) *Cleaning and inspection.* Clean with drycleaning solvent (item 6, app F). Inspect valve for cracks, distortion, and wear.

(3) *Installation.* Position valve and gaskets and attach with bolts, lockwashers, and nuts. Use new gaskets. Connect copper lines.

**NOTE**

Not all semitrailers are equipped with a read-out rate-of-flow selector dial.

(4) *Adjustment.*

(a) operate 0-55 gpm system as described in paragraph 2-12.

(b) Set control dial at 55 gpm.

(c) Remove screws retaining spring loaded dial nameplate. Back off inner adjustment locking screw.

(d) If the determined flow rate is over 55 gpm, turn adjusting screw counterclockwise, and operate system until a 55 gpm flow is obtained (allow flow to stabilize after each turn of screw). Turn screw clockwise if rate is below 55 gpm.

(e) Set control dial at 20 gpm, Operate system to determine flow rate (allow flow to stabilize).

**NOTE**

If flow rate is not within  $\pm 5$  gpm at either setting, turn adjusting screw until a compromise reading is obtained at 20 and 55 gpm settings. If additional adjustment beyond limit of adjustment screw is needed, pull out dial stop pawl. Rotate dial 180° in desired direction.

(f) Lock adjusting screw and replace nameplate if flow rate stabilizes at  $\pm 5$  gpm at 20 and 55 gpm.

*e. Emergency Valve (fig 4-35).*

(1) *Removal.*

(a) Remove bolt, lockwasher, and nut attaching control cable to clamping arm.

(b) Remove cable from clamping arm.

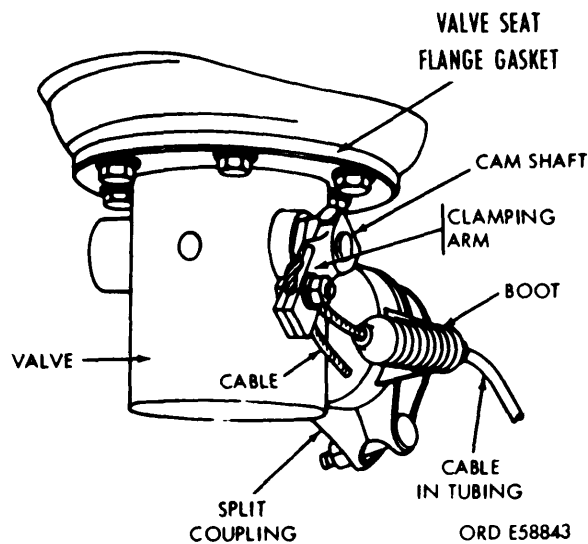


Figure 4-35. Emergency valve.

(c) Remove boot from cable.

(d) Loosen cable tubing connector.

(e) Remove split coupling and slide coupling gasket back.

(f) Remove screws and washers holding valve and gasket. Remove valve and gasket. Remove coupling gasket from pipe.

(2) *Cleaning and inspection.*

(a) Clean valve with drycleaning solvent (item 6, app F).

(b) Inspect gaskets for deterioration and valves for cracks, distortion, and deterioration. Inspect screen for sediment deposits and deterioration.

(3) *Installation.*

(a) Slide coupling gasket onto pipe.

(b) Install valve and gasket and attach with screws and lockwashers.

(c) Slide gasket over joint and attach split coupling.

(d) Tighten tubing cable connector.

(e) Place boot on cable. Thread cable through coupling arm and secure with screw, lockwasher, and nut.

*f. Emergency Value Control and Cable (Fig. 4-35A)*

(1) *Cleaning and Inspection*

(a) Clean control handle and connecting parts, cable, and emergency valve with dry cleaning solvent.

(b) Inspect for cracks in control handle, frayed cables, loose U-bolts, loose or bent cable runways, cotter pins and control mounting bolts.

(2) *Service.*

(a) Tighten any loose U-bolt cable connectors, adjusting bolts bracket mounting bolts, and vent valve actuator. Adjust if necessary.

(b) Oil all linkage.

(3) *Adjustment*

- (a) Loosen U-bolt connector until cable is loose.
- (b) Pull cable tight and then tighten U-bolt connector.

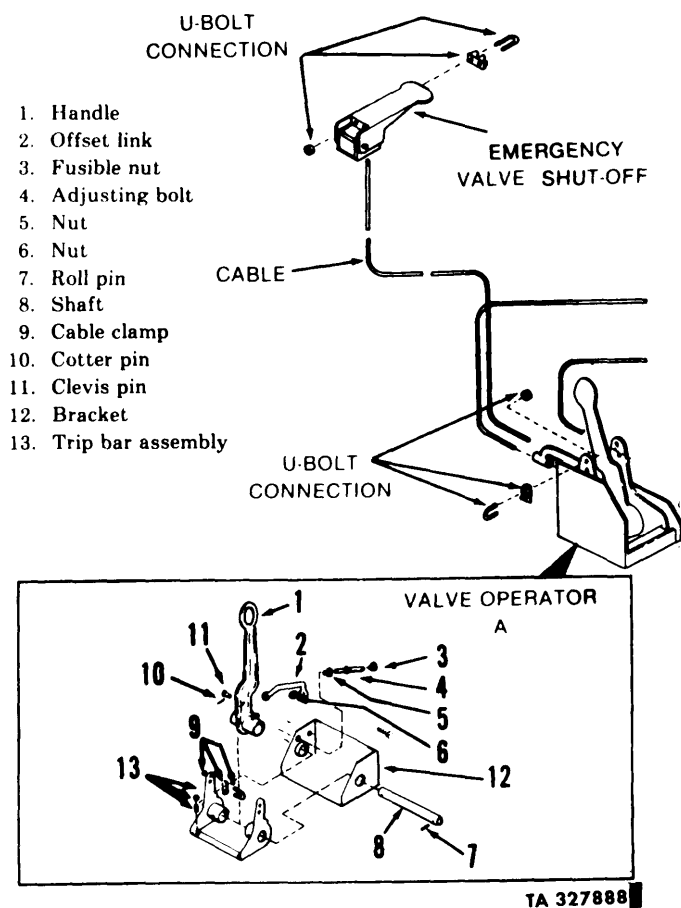


Figure 4-35A. Emergency Valve Control and Cables.

(c) Test that emergency valve will open and close. Repeat steps (1) and (2) if valve does not open or close.

(4) *Removal.* Tag and disconnect control cables from the emergency valve control. Remove two cap screws and nuts that secure control to side of cabinet. Remove valve control.

(5) *Disassembly and Assembly (Fig. 4-76).*

- (a) Remove roll pin (7, Fig. 4-76) securing shaft (8) to bracket (12).
- (b) Remove shaft (8), this will allow the lever (1) and the trip bar assembly (13) to be removed.
- (c) Remove cotter pin (10) and clevis pin (11) that secures the offset link (2) to handle (1). Remove offset link (2).
- (d) Disassemble further if needed using figure 4-76 as a guide.
- (e) Reassemble reversing steps (1) thru (4).

- (6) Installation Mount emergency valve control in place using two nuts and cap screws. Reconnect the cables and adjust per instructions in c above.

#### 4-68. Sediment Strainer (fig 4-36)

a. *Removal.*

- (1) Remove drain plug and drain strainer.
- (2) Loosen nut and screw to remove clamp, cap, and gasket.
- (3) Depress retainer spring and pull element from strainer.

b. *Cleaning and Inspection.*

- (1) Clean filter and strainer body with drycleaning solvent (item 6, app F).
- (2) Inspect element for deterioration,
- (3) Inspect strainer body and element for sediment.
- (4) If tank vehicle is used daily, perform inspection monthly. If vehicle is used occasionally, perform inspection quarterly.

c. *Installation.*

- (1) Insert element in strainer body and secure with retainer spring,
- (2) Attach cap and gasket with clamp, screw, and nut.
- (3) Install drain plug in strainer body.

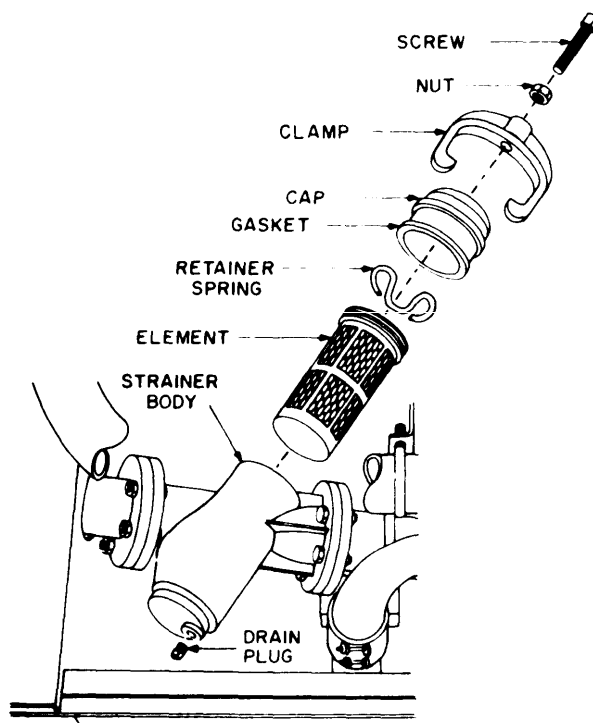


Figure 4-36. Sediment strainer

#### 4-69. Lines, Couplings, and Fittings

*a. Removal.* Unscrew fittings, coupling nuts, and bolts. Remove lines and gaskets.

*b. Cleaning and Inspection.*

(1) Clean metal parts with drycleaning solvent (item 6, app F). Blow through lines with low pressure compressed air.

(2) Inspect all metal parts for cracks and distortion.

(3) Inspect fittings, nuts, and bolts for stripped threads.

(4) Inspect coupling gaskets and replace if deteriorated.

*c. Installation.*

(1) Attach lines with fittings and tighten.

(2) Install gaskets and attach couplings with bolts, washers, and nuts. Tighten securely.

#### 4-70. Fuel Manifold

*a. Removal.*

(1) Close all emergency valves. Drain piping and manifold.

(2) Remove split couplings that connect piping to manifold.

(3) Remove meter:

(a) Remove the nuts, washers, and bolts attaching the volumetric meter to the pipe from the 3-way flow control valve.

(b) Remove the nuts, washers, and bolts attaching the meter outlet pipe to the 0-55 gpm flow control valve.

(c) Remove the nuts, washers, and bolts attaching the meter outlet pipe to the gate valve. Slide the gasket back on the gate valve to expose the joint.

(d) Remove the nuts, washers, bars, and U-bolts attaching the meter and pad to the manifold. Remove the meter.

(4) Remove nuts, washers, and screws and remove manifold from cabinet.

*b. Cleaning and Inspection.*

(1) Clean outside and flush inside with drycleaning solvent (item 6, app F).

(2) Inspect for sediment deposits. Inspect for cracked or worn valve seats.

*c. Installation.*

(1) Install manifold in cabinet and secure with bolts, lockwashers, and nuts.

(2) Slide gasket over piping joints and attach split connectors with bolts, washers, and nuts.

(3) Install meter:

(a) Position the meter on the manifold, and secure with U-bolts, bars, washers, and nuts.

(b) Slide the gasket on the gate valve and connect the meter with bolts, washers, and nuts.

(c) Connect the meter to the outlet pipe from the 0-55 gpm flow control valve with bolts, washers, and nuts.

(d) Connect the pipe from the 3-way flow control valve to the meter with bolts, washers, and nuts.

## Section XVI. MAINTENANCE OF FIRE EXTINGUISHER SYSTEMS

### WARNING

Only DS (Direct Support) personnel are authorized to test, weigh, and/or refill fire extinguishers, fixed or portable. Failure to heed this warning may result in personal injury.

#### 4-71. General

Inspect lines, fittings, and nozzles periodically for loose or defective parts.

#### 4-72. Cylinder

*a.* Clean with drycleaning solvent (item 6, app F).

*b.* Inspect connections, controls, and mounting bracket for wear.

## CHAPTER 5

### DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE

#### Section I. REPAIR PARTS, SPECIAL TOOLS, AND EQUIPMENT

##### 5-1. Repair Parts

Repair parts that cover Direct Support and General Support maintenance for the fuel tank semitrailer are listed and illustrated in appendix E.

##### 5-2. Special Tools and Equipment

Special tools and equipment are listed and illustrated in appendix E.

#### Section II. TROUBLESHOOTING

##### 5-3. Introduction

*a.* This section contains troubleshooting information for locating and correcting most of the operating troubles which may develop in the fuel tank semitrailer. Each malfunction for an individual component, unit, or system is followed by a list of tests or inspections that will help you to determine probable causes and corrective actions to take.

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

##### 5-4. Troubleshooting

Table 5-1 lists the common malfunctions that you may find during the operation or maintenance of the semitrailer or its components. You should perform the test/inspections and corrective actions in the order listed.

Table 5-1. Troubleshooting

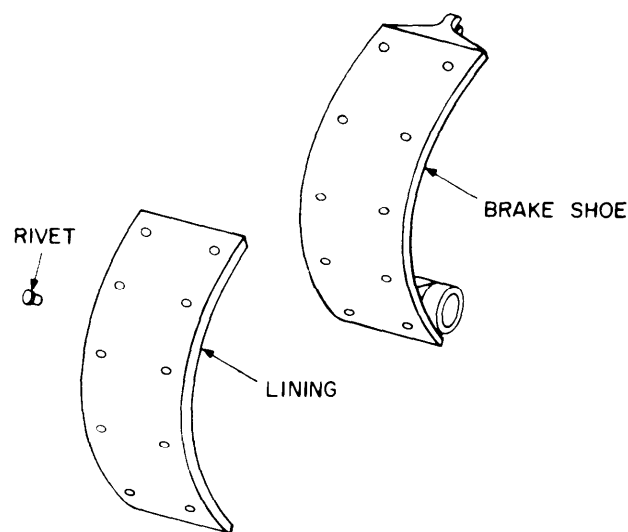
Malfunction	Test or inspection	Corrective action
1. HARD PULLING.		
Step 1.	Check for dragging brakes.	Adjust brakes (para 4-23).
Step 2.	Check for improper wheel bearing adjustment.	Adjust bearings (para 4-35).
Step 3.	Check for loose suspension springs.	Tighten U-bolt nuts.
2. IMPROPER SPRING ACTION.		
Step 1.	Check for loose U-bolt.	Tighten U-bolt nuts.
Step 2.	Check for broken spring leaves, center bolt, or clips.	Replace spring, bolt, or clips as necessary (pat-a 439).

Table 5-1. Troubleshooting-continued

Malfunction	Test or inspection	Corrective action
3. EXCESSIVELY WORN, SCUFFED, OR CUPPED TIRES		
Step 1.	Check for improper tire pressure	Inflate to proper pressure (45 psi hard surface, 25 psi cross country).
Step 2.	Check for loose wheels.	Tighten wheel nuts.
Step 3.	Check for loose wheel bearings.	Adjust wheel bearings (para 4-35).
Step 4.	Check for deformed wheel or rim.	Replace defective wheel (para 4-33).
Step 5.	Check for deformed brake drum.	Replace deformed brake drum (para 4-35).
Step 6.	Check for bent axle.	Replace defective axle (para 5-17).
LANDING GEAR		
4. ERRATIC OPERATION (BINDING AND GRINDING).		
Step 1.	Check for grit and dirt on working parts.	Clean working parts.
Step 2.	Check for inadequate lubrication.	Lubricate in accordance with lubrication chart (fig 3-1).
5. RATCHET CRANK DOES NOT TURN LANDING GEAR SHAFT FREELY.		
Step 1.	Check for inadequate lubrication.	Lubricate in accordance with lubrication chart (fig 3-1).
Step 2.	Check for broken gear in gear train.	Replace defective gear (para 6-3 and 6-4).
Step 3.	Check to see if landing gear is out of alignment.	Adjust landing gear (para 4-37).
6. LEGS DO NOT RETRACTOR EXTEND FREELY.		
Step 1.	Check for inadequate lubrication.	Lubricate in accordance with lubrication chart (fig 3-1).
Step 2.	Check for defective gear train in leg.	Replace defective part of gear train (para 6-3 and 6-4).
Step 3.	Check for damaged leg.	Replace defective leg.
Step 4.	Check to see if cross tube or diagonal braces are bent or distorted.	Straighten bent cross tube or diagonal brace.

## 5-5. Brake Shoe and Lining Assembly (fig 5-1)

- a. *Removal.* Refer to paragraph 4-25.
- b. *Disassembly.* Drive out rivets and remove lining from the brake shoe.
- c. *Cleaning and Inspection.*
  - (1) Clean the brake shoe with drycleaning solvent (item 6, app F).
  - (2) Inspect the brake shoe for cracks or breaks.
- d. *Repair.* There is no repair except replacement of unusable parts.
- e. *Assembly.* Position new lining on the brake shoe and secure with No. 8 X 1/2-inch rivets.
- f. *Installation.* Refer to paragraph 4-25.



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Figure 5—1. Brake shoe and lining assembly.

## 5-6. Air Chamber Assembly (fig 5-2)

- a. *Removal.* Refer to paragraph 4-27.
- b. *Disassembly.*
  - (1) Remove 16 nuts, lockwashers, and capscrews holding the body, diaphragm, and cover together.
  - (2) Separate the body, diaphragm, and cover. Remove the collar, spring, and spring retainer and rod.
  - (3) Remove the preformed packing from the collar.
- c. *Cleaning and Inspection.*
  - (1) Clean metal parts with drycleaning solvent (item 6, app F). Wash diaphragm and preformed packing with soap and water.
  - (2) Inspect the cover, body, and spring retainer and rod for cracks, breaks, and distortion. Replace parts as necessary.
  - (3) Inspect the diaphragm and preformed packing

for softness and flexibility. Check for cuts.

d. *Repair.* The only authorized repair is replacement of parts.

e. *Assembly.*

(1) Install the spring on the rod and against the spring retainer.

(2) Install the preformed packing in the collar and install the collar on the rod.

(3) Position the diaphragm inside the cover. Aline the capscrew holes.

(4) Position the spring retainer and rod with the spring inside the diaphragm. Position the body over the spring and against the diaphragm. Secure with 16 capscrews, lockwashers, and nuts.

f. *Installation.* Refer to paragraph 4-27.

## 5-7. Brake Drums

a. *Removal and Disassembly.* Refer to paragraph 4-35.

b. *Cleaning and Inspection.*

(1) Clean the brake drums with drycleaning solvent (item 6, app F).

(2) Inspect the brake drums for serviceability. Inspect inside diameter of the drum for out-of-round or excessive scoring.

c. *Repair.* If inspection showed the brake drum to be out-of-round or excessively scored, have the brake drum turned. Remove as little metal as necessary to true the friction surface. After turning, check that the drum meets the requirements of repair and overhaul standards (para 5-18). If refinishing requires removal of more than 1/16 inch of material or increases the diameter more than 1/8 inch, replace the drum.

d. *Assembly and Installation.* Refer to paragraph 4-35.

## 5-8. Hose Reels (fig 5-3)

a. *Removal.* Refer to paragraph 4-42.

b. *Disassembly.*

(1) Unscrew handwheel (1) and remove. Remove spring (2) and brake (3).

(2) Loosen the setscrew in collar (4) and remove the collar.

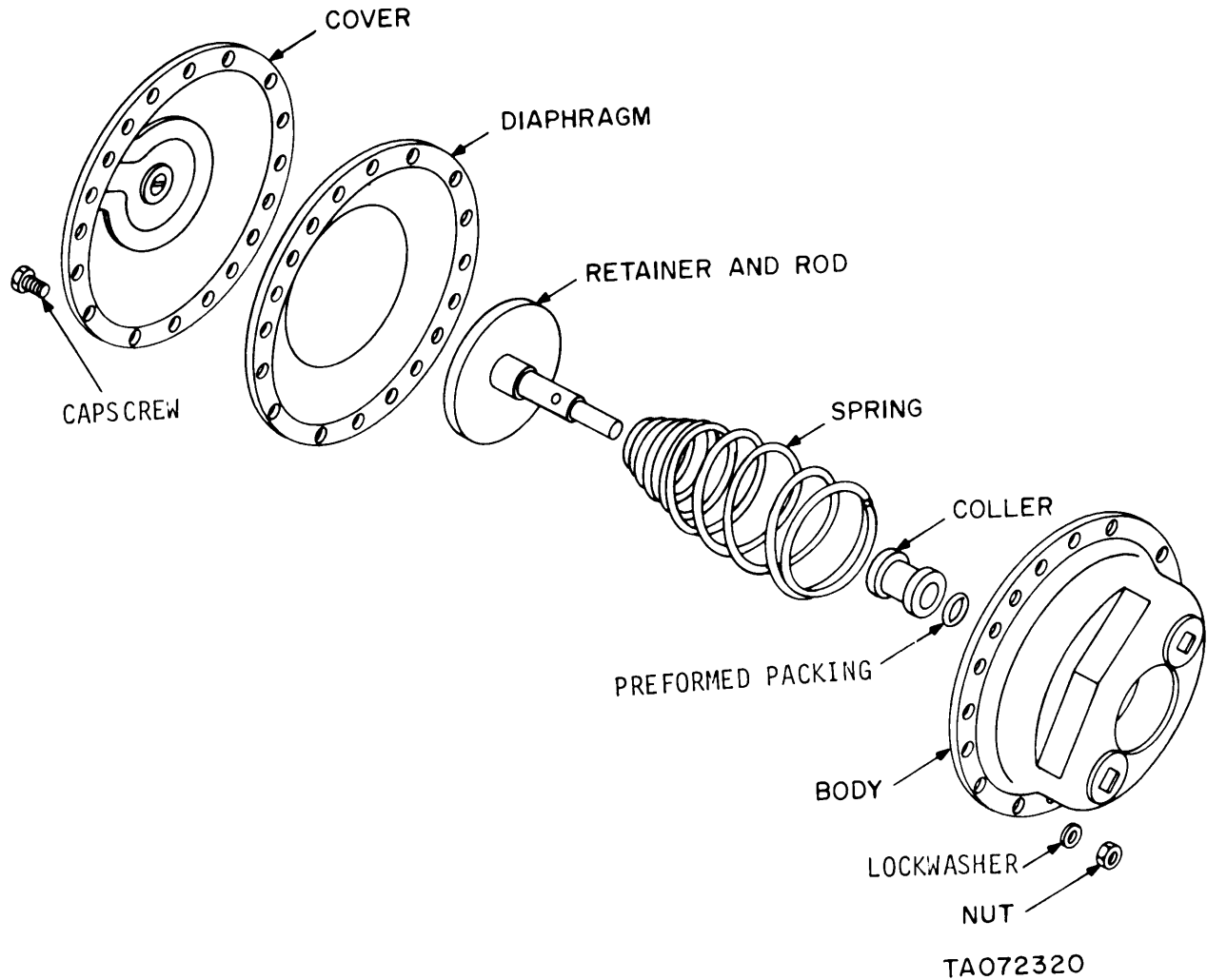
(3) Remove nut (5) from drive shaft (6) and pull shaft from bearing (7) to release pinion gear (8) and washer (9).

(4) Remove the bolts and washers that secure packing joint (10) to the frame and remove the packing joint.

(5) Remove the bolts and washers that secure rear bearing (11) to the frame. Loosen the setscrew and remove the rear bearing.

(6) Remove the bolts to release hose adapter (12)





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Figure 5-2. Air chamber assembly.

and gasket (13) from hub (14).

(7) Remove the nuts and screws that secure ring gear (15) to drum (16) and remove the ring gear.

(8) Remove capscrews (17) and lockwashers (18) from packing joint (10) and hub (20) and remove packing set (19).

*c. Cleaning and Inspection.*

(1) Clean metal parts in drycleaning solvent (item 6, app F).

(2) Inspect for wear, distortion, and cracks.

(3) Roll drive shaft (6) on a flat surface to determine if bent.

(4) Inspect the teeth of pinion gear (8) and ring gear (15) for wear or breakage.

(5) Check pliability and condition of packing set (19).

(6) Check bearing (11) for wear or evidence of binding.

(7) Inspect lubrication fitting (21).

*d. Repair.* The only repair is replacement of damaged parts.

*e. Assembly.*

(1) Position packing set (19) inside of packing joint (10) and secure to hub (20) with lockwashers (18) and capscrews (17).

(2) Install and secure ring gear (15) to drum (16) with bolts and nuts.

(3) Install and secure packing joint (10) to frame with bolts and washers.

(4) Install rear bearing and secure with setscrew. Position and secure rear bearing (11) to frame with bolts and washers.

(5) Install washer (9) and pinion gear (8) on drive shaft (6) and secure with nut (5).

(6) Slide drive shaft (6) through bearing (7). Install collar (4) and tighten the setscrew.

(7) Install brake (3), spring (2), and handwheel (1).

(8) Install gasket (13) and adapter (12) on hub (14) and secure with bolts.

*f. Installation.* Refer to paragraph 4-42.

## 5-9. Doors and Latches

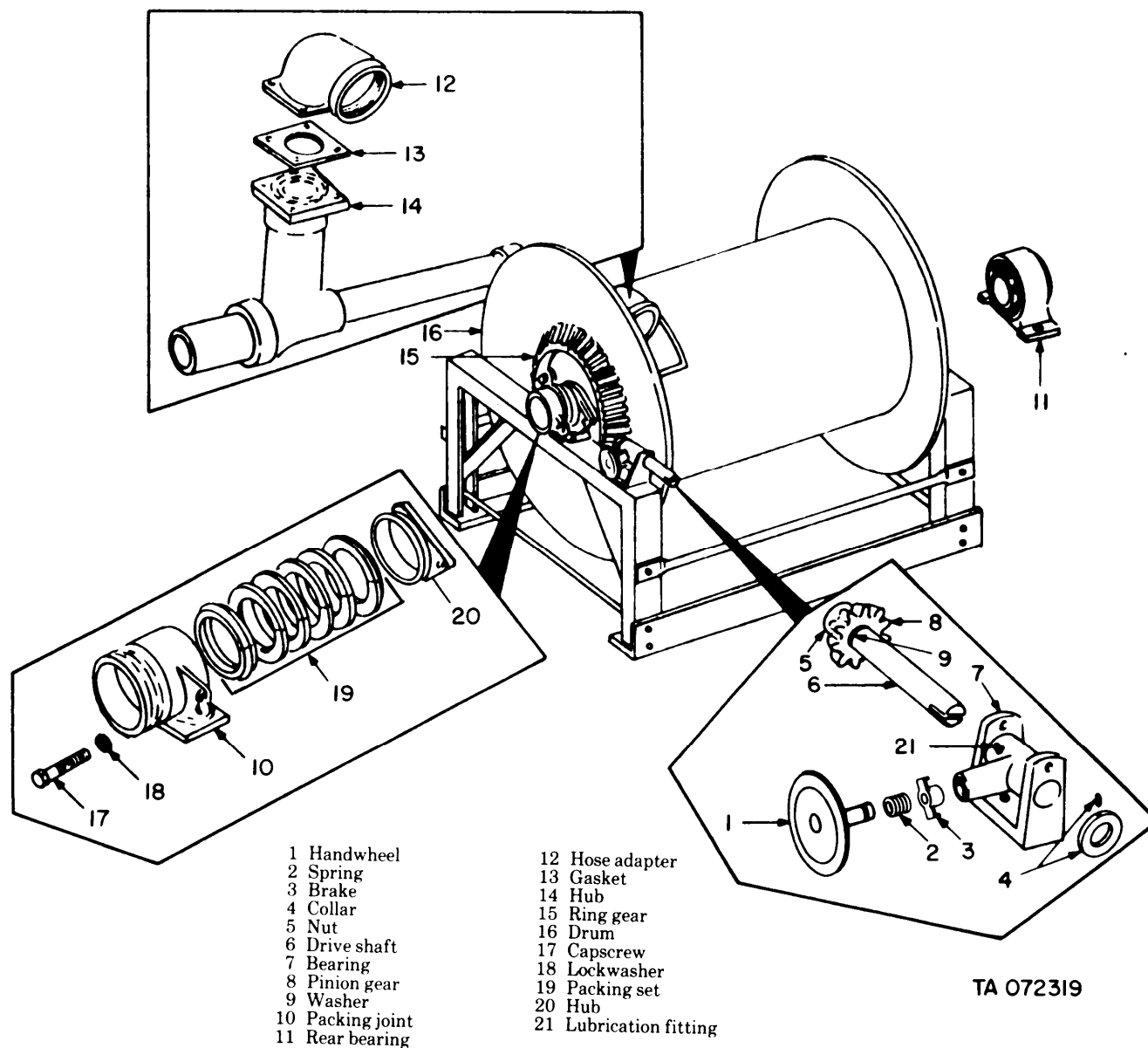


Figure 5-3. Hose reel.

**a. Removal.**

(1) Remove three hexagon nuts and flat head screws attaching the door stop to the door.

(2) Remove nuts and screws attaching door and hinge to cabinet.

(3) File or grind and drive out four rivets attaching latch assembly to door.

**b. Repair.** Repair door, latch, and hinge by straightening, welding, or replacing. Replacement doors must be obtained by cannibalization or must be fabricated.

**c. Installation.**

(1) Attach latch assembly to door with four rivets.

(2) Attach door and hinge to cabinet with screws and nuts.

(3) Attach door stop to door with three flat head screws and hexagon nuts.

**5-10. Load Level Indicator**

**a. General.** A load level indicator is welded to the manhole collar in each tank compartment. Unless severely bent or broken off, only adjustment may be required.

**b. Check and Adjustment.**

(1) Empty compartment and refill with 1250 gallons of fuel per four-compartment tank, or 2500 gallons per two-compartment tank.

**NOTE**

For check and adjustment, the temperature of the fuel should be as near to 60°F as possible.

(2) Check the load level indicator. If the indicator is adjusted correctly, the bottom of the gage indicator will just touch the surface of the fuel.

(3) If check shows adjustment is required, loosen the locknut and adjust the load level indicator until the bottom of the indicator just touches the surface of the fuel.

(4) Tighten the locknut. Check the gage indicator again to see if it is still just touching the fuel.

### 5-11. Tank Compartment

*a. Cleaning.* Refer to paragraph 4-7 and Chapter 9.

*b. Inspection.* Inspect tank for leaks, punctures, and dents.

#### WARNING

Under no circumstances is welding or soldering to be attempted on any part of the fuel tank semitrailer unless the interior of the tank has been steam cleaned, tested with an explosion meter, and determined to be safe. Failure to heed this warning is likely to result in injury to personnel and destruction of material.

*c. Repair.* Straighten bent and dented metal. Repair cracks by welding.

### 5-12. Auxiliary Engine Fuel Tank

*a. Removal.*

(1) Close the fuel strainer shutoff cock. Remove the bowl, gasket, and strainer element from the strainer head (fig 4-26).

(2) Remove the filler cap. Open the fuel strainer shutoff cock and drain the fuel tank.

(3) Disconnect the fuel line from the fuel strainer head. Remove the fuel strainer head from the tank.

(4) Remove the nuts, washers, screws, and brackets that secure the tank to the compartment. Remove the tank.

*b. Cleaning and Inspection.*

(1) Clean the tank and metal parts with drycleaning solvent (item 6, app F).

(2) Check straps for cracks.

(3) Check the condition of pads and gasket.

(4) Check filler cap for proper venting.

#### WARNING

Under no circumstances is welding or soldering to be attempted on the auxiliary engine fuel tank unless the interior of the tank has been steam cleaned, tested with an explosion meter, and determined to be safe. Failure to heed this warning is likely to result in injury to personnel and destruction of material.

*c. Repair.* Repair cracks by welding. Replace deteriorated pads and gasket.

*d. Installation.*

(1) Secure the tank with straps, pads, screws, washers, and nuts.

(2) Install the fuel strainer head. Install the strainer element, gasket, and bowl.

(3) Connect the fuel line to the fuel strainer.

(4) Fill the fuel tank and install the filler cap.

### 5-13. Filter-Segregator

*a. Removal and Disassembly.* Refer to paragraph 4-62 or 4-63.

*b. Cleaning and Inspection.*

(1) Clean with drycleaning solvent (item 6, app F).

(2) Inspect for dents, punctures, and cracks.

(3) Inspect the straps and brackets for cracks.

#### WARNING

Under no circumstances is welding or soldering to be attempted on the filter-segregator unless the interior of the segregator has been steam cleaned, tested with an explosion meter, and determined to be safe. Failure to heed this warning is likely to result in injury to personnel and destruction of material.

*c. Repair.* Straighten bent or dented metal. Weld punctures and cracks. Replace if damaged severely.

*d. Assembly and Installation.* Refer to paragraph 4-62 or 4-63.

### 5-14. Sump Components

*a. Removal and Disassembly.* Refer to paragraph 4-64.

*b. Cleaning and Inspection.*

(1) Clean metal parts with drycleaning solvent (item 6, app F).

(2) Inspect parts for cracks or dents.

(3) Inspect the strainers for corrosion and deterioration.

(4) Inspect the valves for leakage.

*c. Repair.*

(1) Repair bent or cracked guard by straightening or welding.

(2) Replace deteriorated strainers.

(3) Replace leaking or corroded float.

(4) Replace leaking valves.

*d. Assembly and Installation.* Refer to paragraph 4-64.

### 5-15. Slug Control Valve (fig 5-4)

*a. Removal.* Disconnect the lines to the valve. Remove nuts, lockwashers, and capscrews to release the valve and gaskets from the piping.

*b. Disassembly.*

(1) Remove plugs (1 and 2).

(2) Remove cover bolts (3) and cover (4).

(3) Remove locknut (5), diaphragm retainer (6), diaphragm (7), preformed packing (8), spring retainer (9), and spring (10). Avoid damaging surfaces when removing parts.

(4) Unscrew seat (11) from body and remove with attached parts.

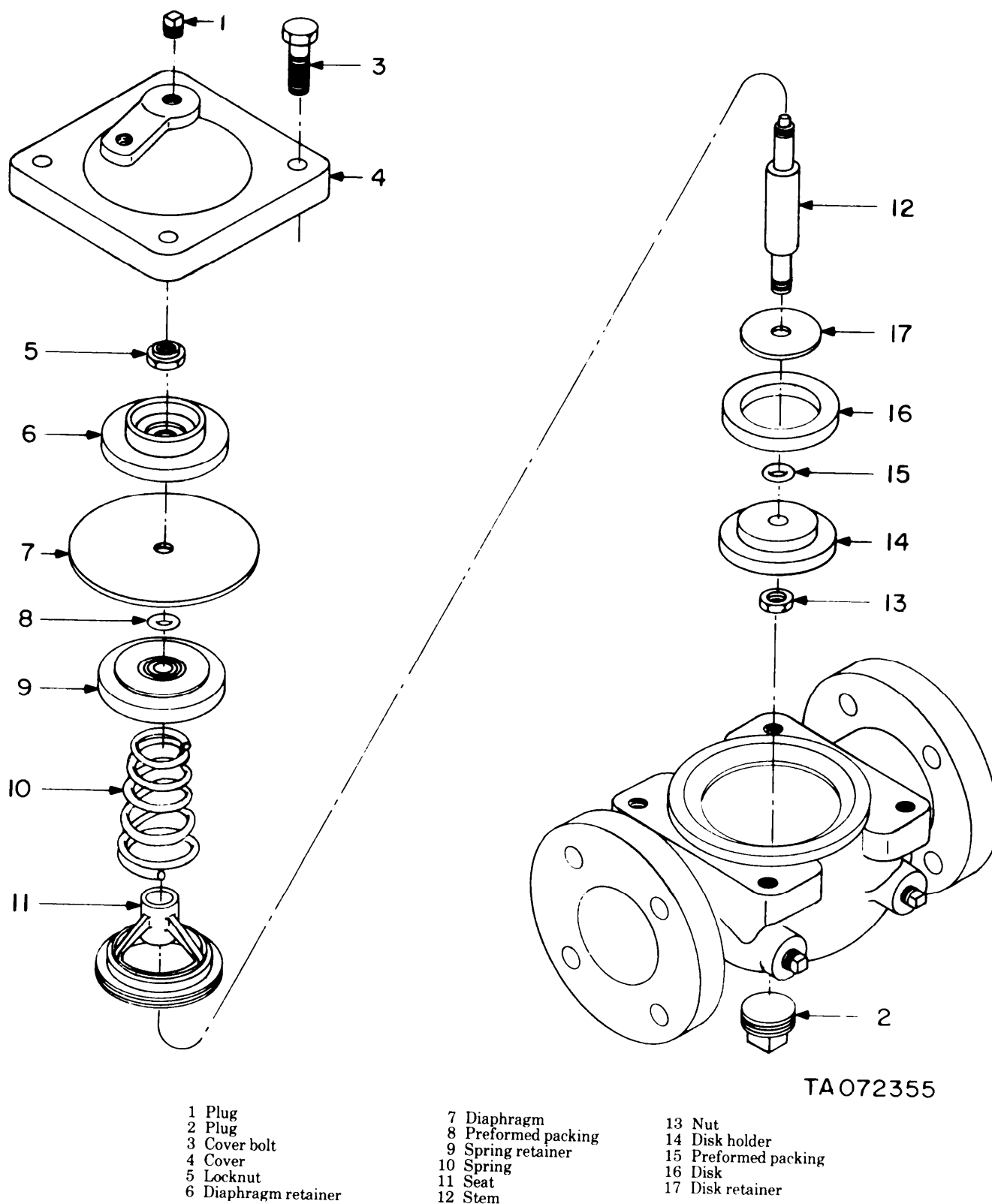


Figure 5-4. Slug control valve.

(5) Remove stem (12) and attached parts from seat (11). Remove nut (13), disk holder (14), preformed packing (15), disk (16), and disk retainer (17) from stem. Avoid damaging surfaces when removing parts.

*c. Cleaning and Inspection.*

(1) Clean metal components in drycleaning solvent (item 6, app F). Clean diaphragm and preformed packing with soap and water.

(2) Inspect for wear, distortion, and cracks.

(3) Check diaphragm (7) for deterioration.

(4) Inspect disk holder (14) and seat (11) for scratches, nicks, burs, and cracks.

*d. Repair.*

(1) Remove nicks and burs on seats (11) and disk holder.

(2) Replace the slug control valve if deteriorated beyond repair.

*e. Assembly.*

(1) Place disk retainer (17) on bottom end of stem (12).

(2) Install preformed packing (15) on disk holder (14).

(3) Place disk (16) on disk holder (14) and slide them onto stem (12).

(4) Screw nut (13) on stem (12) and tighten.

(5) Insert stem (12) with attached parts into seat (11). Screw seat into the body and tighten.

(6) Place spring (10) over seat (11).

(7) Place spring retainer (9), preformed packing (8), diaphragm (7), diaphragm retainer (6), and locknut (5) on stem (12) and tighten locknut.

(8) Place cover (4) on the body. Install four cover bolts (3) and finger tighten. Insert a screwdriver

through the plug hole on top of the cover to depress the stem assembly until diaphragm (7) lies flat. Maintain pressure on the stem assembly and tighten the four cover bolts. Release pressure and screw plugs (1 and 2) in place.

*f. Installation.*

(1) Attach the valve and gaskets to the piping with capscrews, lockwashers, and nuts.

(2) Attach the connecting lines,

## **5-16. Volumetric Meter (M131A4C and M131A5C)**

*a. Removal.*

(1) Remove meter from manifold. Refer to paragraph 4-70.

(2) Remove the nuts, washers, and screws attaching pad to the meter. Remove pad.

*b. Cleaning and Inspection.*

(1) Clean the outside of the meter with drycleaning solvent (item 6, app F). Avoid getting drycleaning solvent in the recording mechanism of the meter.

(2) Inspect the body for cracks and sediment deposits.

(3) Operate the recording device reset mechanism. Examine the dial and number wheels for legibility. Examine the pad for deterioration.

*c. Repair.* If the meter is cracked, deteriorated, or malfunctions, replace it.

*d. Installation.*

(1) Attach the pad to the meter and secure with screws, washers, and nuts.

(2) Install meter on the manifold. Refer to paragraph 4-70.

## **Section IV. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS AND ASSEMBLIES**

### **5-17. Axle**

*a. Removal.*

(1) Position the semitrailer on a level surface with the front end resting on the landing gear. Jack up the axle to be removed to allow for removal of the wheels. Lift the rear of the semitrailer until the weight of the springs has been taken off the axle. Block the frame securely.

(2) Remove the wheels (para 4-33).

(3) Remove the hubs and drums (para 4-35).

(4) Disconnect the hydraulic brake lines from the wheel cylinders.

(5) Remove the bolts and locknuts securing the brake backing plate to the axle. Remove the backing plate.

(6) Disconnect the flexible hydraulic hose from the hydraulic tee on the rear of the axle.

(7) Disconnect the two hydraulic lines from the tee. Remove four capscrews, lockwashers, and cushioned clips that secure the hydraulic lines to the axle. Remove the lines.

(8) Remove the screw and washer securing the hydraulic tee to the axle. Remove the tee.

(9) Disconnect the torque rods from the axle to be removed (para 4 - 41).

(10) Move the axle to free the springs from the spring guide brackets. Remove the axle from the semitrailer.

*b. Installation.*

(1) Position the axle with the ends of each spring over the spring bearing plates in the spring guide brackets and attach the torque rods (para 4 - 41).

(2) Install the hydraulic tee and secure with screw and washer. Position and connect the hydraulic lines leading to the tee on the axle. Secure the lines to the axle with four cushioned clips, lockwashers, and capscrews.

(3) Connect the flexible hose to the hydraulic tee.

(4) Install the brake backing plate and secure with bolts and locknuts.

(5) Connect the hydraulic lines to the wheel cylinders.

- (6) Install the hub and drums on the axle (para 4-35).
- (7) Refill and bleed the hydraulic system (para

- 4-24).
- (8) Install the wheels (para 4-33).
- (9) Lower the semitrailer to the floor.

Section V. REPAIR AND OVERHAUL STANDARDS

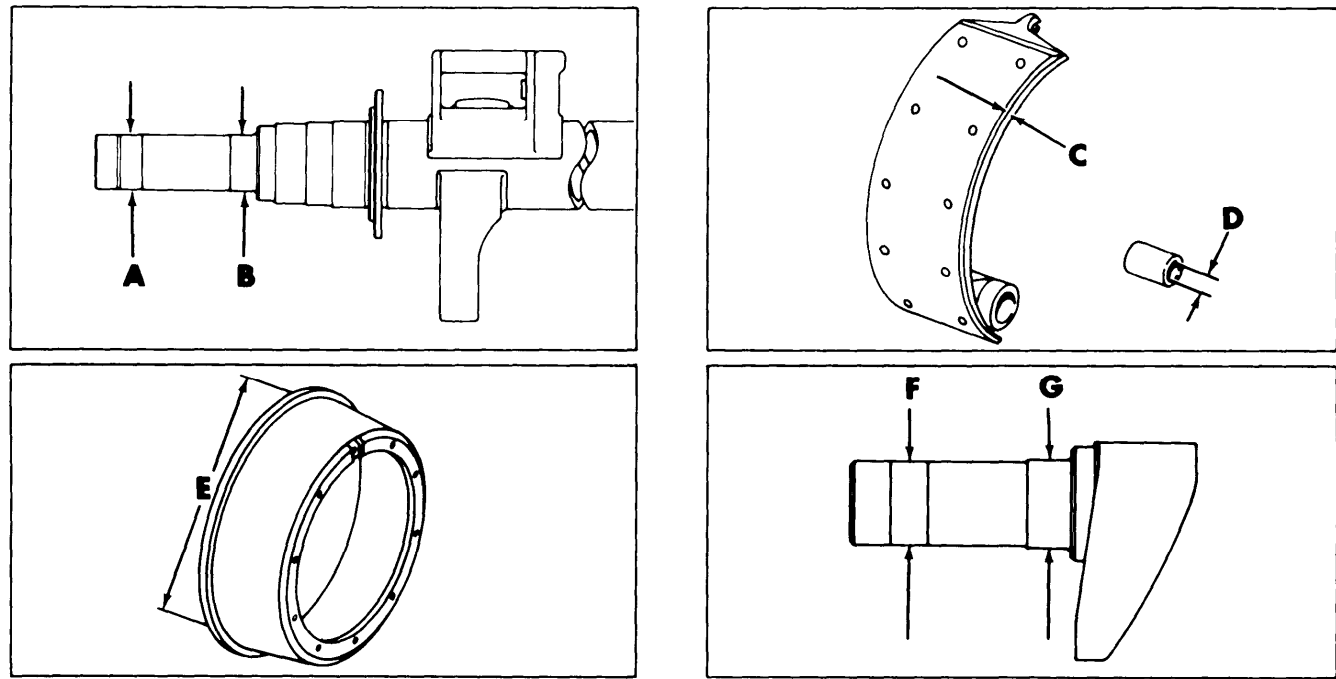
5-18. General

The repair and overhaul standards included herein give the minimum, maximum, and key clearances for new or overhauled parts. They also give field wear limits which indicate that point to which a part or parts may be worn before replacement.

5-19. Points of Measurement (fig 5-5)

Repair and overhaul points of measurement should be carefully checked using the proper instruments, Example: Inside and outside caliper or micrometer, depth gage, thread gage, or dial indicator.

Item	Point of Measurement	Size of new Part fit	Field wear Limit
A	Axle spindle outer bearing surface OD	3.3748 to 3.3738	3.348
B	Axle spindle inner bearing surface OD	3.4998 to 3.4988	3.464
C	Brake lining thickness	0.400	Min. of 0.030 above rivet heads
D	Brake shoe bushing ID	1.373 to 1.374	1.406
E	Brake drum ID	16.495 to 16.505	16.880
F	Cross tube spindle outer bearing surface OD	3.3748 to 3.3738	3.348
G	Cross tube spindle inner bearing surface OD	3.4998 to 3.4988	3.464



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Figure 5-5. Repair and overhaul standards of measurement.

## CHAPTER 6

### REPAIR OF LANDING GEAR

#### 6-1. General

The landing gear is retractable and adjustable. It is used to support the semitrailer when it is not coupled to a towing vehicle. It is also used to raise and lower the semitrailer when preparing to couple or uncouple the semitrailer from the towing vehicle.

#### 6-2. Landing Gear Leg (fig 6-1)

*a. Removal.* Remove landing gear leg and gear box assembly (para 4-37).

##### NOTE

The oil reservoir is partially filled with oil.

*b. Disassembly.*

(1) Drain oil from the reservoir before disassembly.

(2) Rest gear box assembly on a block and remove nuts (1) and capscrews (2) to detach tie rod (3).

(3) Withdraw leg from gear box assembly.

(4) Unscrew operating screw assembly (4). Remove ring (5) from upper leg (6). If collar binds on upper leg, pry open the slot in the collar. Withdraw lower leg (7) from upper leg.

(5) Remove two dowels (8) from the upper end of lower leg (7) and remove stop plate (9), operating screw nut (10), and oil reservoir (11). Slide oil seal (12) from operating screw (13).

(6) Remove nut (15) from operating screw (13) by filing off the punch marks at the end of the screw and unscrewing the nut.

(7) Pull bevel gear (14) from operating screw (13) and remove woodruff key (16). Slide off upper cone and roller (17).

(8) Remove retainer (18). Remove lower cone and roller (19).

(9) Remove upper cup (20) and lower cup (21) from retainer (18).

*c. Cleaning.*

(1) Clean interior parts and surfaces with a lint-free cloth.

(2) Clean exterior surfaces and remove old lubricant that has hardened with drycleaning solvent (item 6, app F).

(3) Clean bearings in accordance with TM 9-214.

*d. Inspection and Repair.*

(1) Inspect parts for wear, distortion, and cracks. With a fine file, hand chase threads on operating

screw (13) if necessary.

(2) Check nut (15) for damage and replace if necessary.

(3) Check operating screw (13) for straightness by rolling on a flat surface.

(4) Inspect bearings in accordance with TM 9-214.

(5) Inspect bevel gear (14) and replace if it is worn or damaged.

(6) Check oil seal (12) to make sure contact material is intact and pliable. If not, replace with a new seal. Make sure the surface of operating screw (13), which contacts the seal, is smooth. If not, remove burs with a fine file and finish sanding with a fine abrasive.

(7) Check felt strip (22) in ring (5) to make sure it is pliable and not compressed or worn below the inner surface of the collar.

(8) Inspect exterior surfaces for chipped or cracked paint. Scrape loose paint from metal and repaint.

*e. Assembly.*

(1) Lubricate lower cone and roller (19) with grease (item 3, app F) working the grease thoroughly into all openings.

(2) Install lower cone and roller on operating screw (13).

(3) Install upper cup (20) and lower cup (21) in retainer (18). Install retainer on operating screw (13).

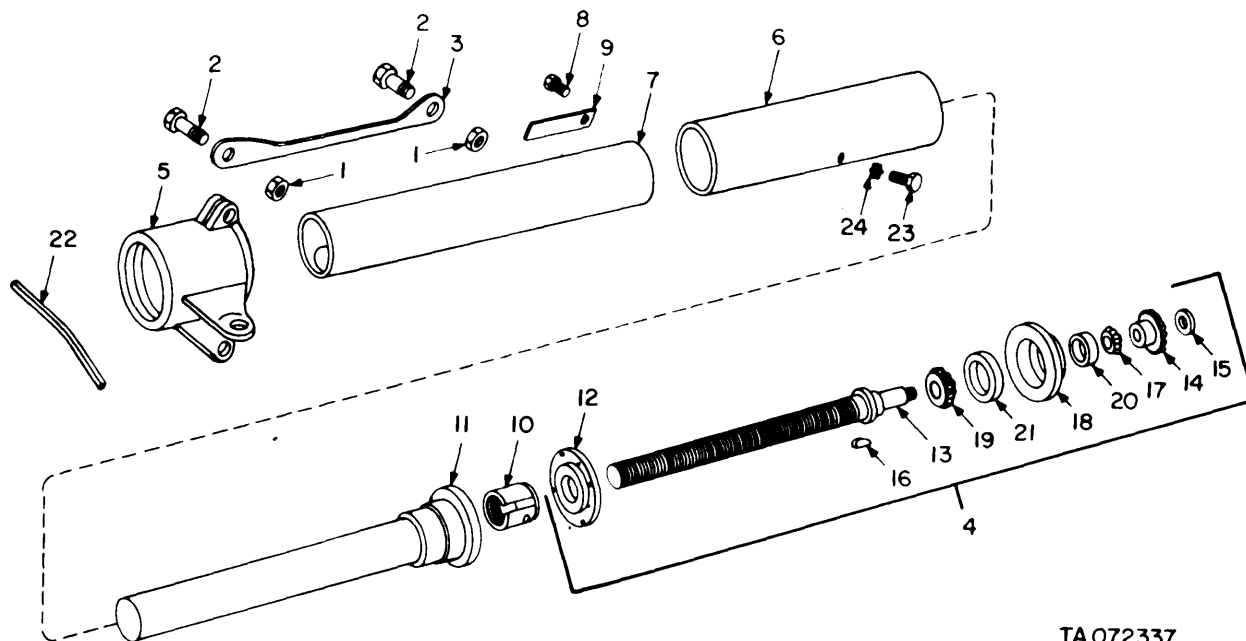
(4) Lubricate upper cone and roller (17) with grease (item 3, app F), working thoroughly into all openings, and position on operating screw.

(5) Install woodruff key (16) on operating screw (13). Press bevel gear (14) onto screw and secure with nut (15). Secure the nut by making two punch marks on the end of the screw.

(6) Position oil seal (12) and install operating screw nut (10) on operating screw (13). Screw the nut about three-fourths up the length of the screw. Align the holes in operating screw nut (10), oil reservoir (11), lower leg (7), and stop plate (9). Secure with two dowels (8).

(7) Position ring (5) on upper leg (6). Insert lower leg (7) and attached parts into the upper end of the upper leg and through the ring. Use care in passing the end of the lower leg through the ring so as not to displace felt strip (22) in the ring.

(8) Screw operating screw assembly (4) into lower leg (7) until oil seal (12) is seated.



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- 1 Nut
- 2 Capscrew
- 3 Tie rod
- 4 Operating screw assembly
- 5 Ring
- 6 Upper leg
- 7 Lower leg
- 8 Dowel

- 9 Stop plate
- 10 Operating screw nut
- 11 Oil reservoir
- 12 Oil seal
- 13 Operating screw
- 14 Bevel gear
- 15 Nut
- 16 Woodruff key

- 17 Upper cone and roller
- 18 Retainer
- 19 Lower cone and roller
- 20 Upper cup
- 21 Lower cup
- 22 Felt strip
- 23 Machine screw
- 24 Lockwasher

Figure 6 — 1. Landing gear leg

(9) Position the gear box on the leg. Position tie rod (3) on the gear box and ring (5). Secure the tie rod with capscrews (2) and nuts (1).

(10) Refill the oil reservoir with oil (item 5, app F) and install machine screw (23) and lockwasher (24).

*f. Installation.* Install landing gear leg and gear box assembly (para 4-37).

### 6-3. Right Landing Gear Leg Gear Box (fig 6-2)

#### *a. Disassembly.*

(1) Remove shoulder bolt (1), nut (2), and two washers (3) attaching operating crank (4) to operating shaft (5). Remove crank.

(2) Remove retainer ring (6) and washer (7) from sleeve (8).

(3) Remove screws (9) which secure gear box cover (10) to gear box housing (11). Hold operating shaft (5) and sleeve (8) in place and slide off the cover and gasket (12).

(4) Withdraw screw drive shaft (13) and attached parts from gear box housing (11). Be careful that ball bearing (14) does not fall out.

(5) Remove ball bearing (14) and flat washers (15) from gear box housing (11).

(6) Remove retainer ring (16) and washer (17), and slide sleeve (8) from operating shaft (5). Remove re-

tainer ring (18) from the gear end of the operating shaft and remove spur gear (19), spur gear (20), and machine key (21).

(7) Remove needle bearings (22) and oil seal (23) from gear box cover (10) with a puller. Remove ball bearing (24), Remove gasket (12).

(8) Remove bearing sleeve (25), bearing sleeve (26), large spur gear (27), small spur gear (28), long gear spacer (29), short gear spacer (30), woodruff keys (31), spring pin (32), and bevel gear (33) from screw drive shaft (13). Remove retainer ring (34).

#### *b. Cleaning.*

(1) Wipe off grease and clean parts thoroughly with drycleaning solvent (item 6, app F). Dry thoroughly.

(2) Clean bearings in accordance with TM 9-214.

#### *c. Inspection and Repair.*

(1) Inspect ball bearings (14 and 24) and needle bearing (22) in accordance with TM 9-214, Replace if unserviceable.

(2) Roll operating shaft (5) and screw drive shaft (13) on a flat surface to inspect for straightness. Remove burrs with a fine file. Replace damaged parts.

(3) Inspect locking spring (35) for cracks or loss of resiliency. Spring can be removed by prying out with a screwdriver. Replace if unserviceable.



(4) Check lubrication fitting (36) for serviceability.

(5) Lubricate ball bearings (14 and 24) and needle bearing (22) with grease (item 3, app F). Work the grease thoroughly into all openings.

*d. Assembly.*

(1) Coat parts with alight film of oil (item 5, app F).

(2) Install retainer ring (34) and bevel gear (33) on screw drive shaft (13) and secure with spring pin (32).

(3) Slide short gear spacer (30) on screw drive shaft (13). Install one woodruff key (31) and press on small spur gear (28).

(4) Slide on long gear spacer (29). Install one woodruff key (31) and install large spur gear (27) on screw drive shaft (13).

(5) Slide bearing sleeve (25) and bearing sleeve (26) into position on each end of screw drive shaft (13).

(6) Install flat washers (15) and ball bearing (14) into the seat in gear box housing (11). Install ball bearing (24) into the seat in gear box housing (11). Install ball bearing (24) into the seat in gear box cover (10).

(7) Make sure locking spring (35) is in place on operating shaft (5) and slide sleeve (8) onto the shaft. Install retainer ring (16) on the sleeve.

(8) Install machine key (21) on operating shaft (5). Press spur gear (19) and spur gear (20) onto the shaft

over the key. Install retainer ring (18) on the end of the shaft.

(9) Position needle bearings (22) into each end of the hole in gear box cover (10) and press into position. Bearing in inner side of cover should be pressed in, flush with surface. Bearing in outer side of cover should be pressed in, 1/8 inch past surface.

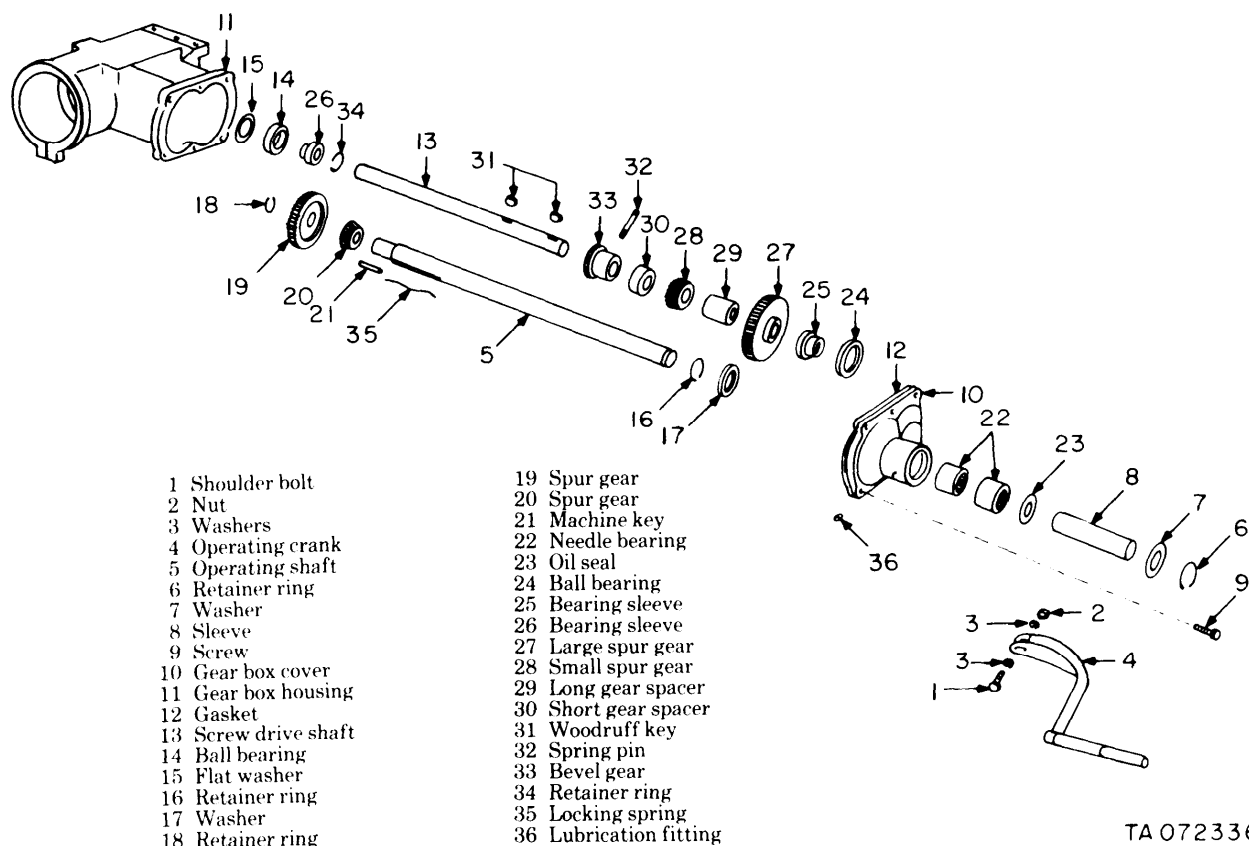
(10) Position oil seal (23) over recessed outer bearing. Slide washer (17) onto sleeve (8) and against retainer ring (16).

(11) Insert operating shaft (5) and attached parts through the inside face of gear box cover (10) and hold in position. Apply washer (7) and retainer ring (6) on outer end of shaft.

(12) Insert screw drive shaft (13) into ball bearing (14) in gear box housing (11). Hold in position. Place gasket (12) on housing.

(13) Place operating shaft (5) and attached parts in their approximate position in relation to screw drive shaft (13). Position spur gear (19) on the operating shaft, behind large spur gear (27) on the screw drive shaft.

(14) Place the spur gear end of screw drive shaft (13) into ball bearing (24) in gear box cover (10) and slide the entire assembly into position. The gear box cover should fit tightly against the face of gear box housing (11).



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Figure 6 — 2. Right landing gear leg gear box.

(15) Hold cover (10) in position tightly and test the fit of ball bearing (14) and ball bearing (24) on screw drive shaft (13) by turning the protruding end of the shaft. The shaft should turn freely and have slight end play. If the shaft is restricted while turning, remove the shaft and take out flat washer (15) behind ball bearing (14) in gear box housing (11). If end play is excessive, install another flat washer behind the bearing.

(16) Secure the gear box mechanism by attaching gear box cover (10) with screws (9).

(17) Install operating crank (4) on operating shaft (5) and secure with shoulder bolt (1), two flat washers (3), and nut (2).

(18) Lubricate lubrication fitting (36) with grease (item 2, app F).

#### 6-4. Left Landing Gear Leg Gear Box (fig 6-3)

##### a. Disassembly.

(1) Remove gear box cover (1) by removing four screws (2). Be careful ball bearing (3) does not fall out.

(2) Withdraw screw drive shaft (4) and attached parts from gear box housing (5).

(3) Remove ball bearing (6) and flat washer (7) from gear box housing (5). Remove ball bearing (3) from gear box cover (1).

(4) Slide off bearing sleeve (8) and bearing sleeve (9). Pull off bevel gear (10) and remove woodruff key

(11). Remove retainer ring (12) and retainer ring (13).

##### b. Cleaning.

(1) Wipe off grease and clean parts thoroughly with drycleaning solvent (item 6, app F). Dry Thoroughly.

(2) Clean bearings in accordance with TM 9-214.

##### c. Inspection and Repair.

(1) Inspect ball bearings (3 and 6) in accordance with TM 9-214. Replace if unserviceable.

(2) Inspect screw drive shaft (4) and bevel gear (10) for wear, burs, and distortion.

(3) Roll screw drive shaft (4) on a flat surface to inspect for straightness. Remove burs with a fine file. Replace damaged parts.

(4) Check lubrication fitting (14) to make sure it is free of obstructions.

(5) Lubricate ball bearings (3 and 6) with grease (item 3, app F). Work the grease thoroughly into all openings.

##### d. Assembly.

(1) Install retainer rings (12 and 13) on screw drive shaft (4).

(2) Install woodruff key (11) on screw drive shaft (4). Press bevel gear (10) onto the shaft, over the key. Slide bearing sleeve (8) and bearing sleeve (9) into position.

(3) Install flat washer (7) and ball bearing (6) in gear box housing (5).

(4) Install ball bearing (3) into gear box cover (1).

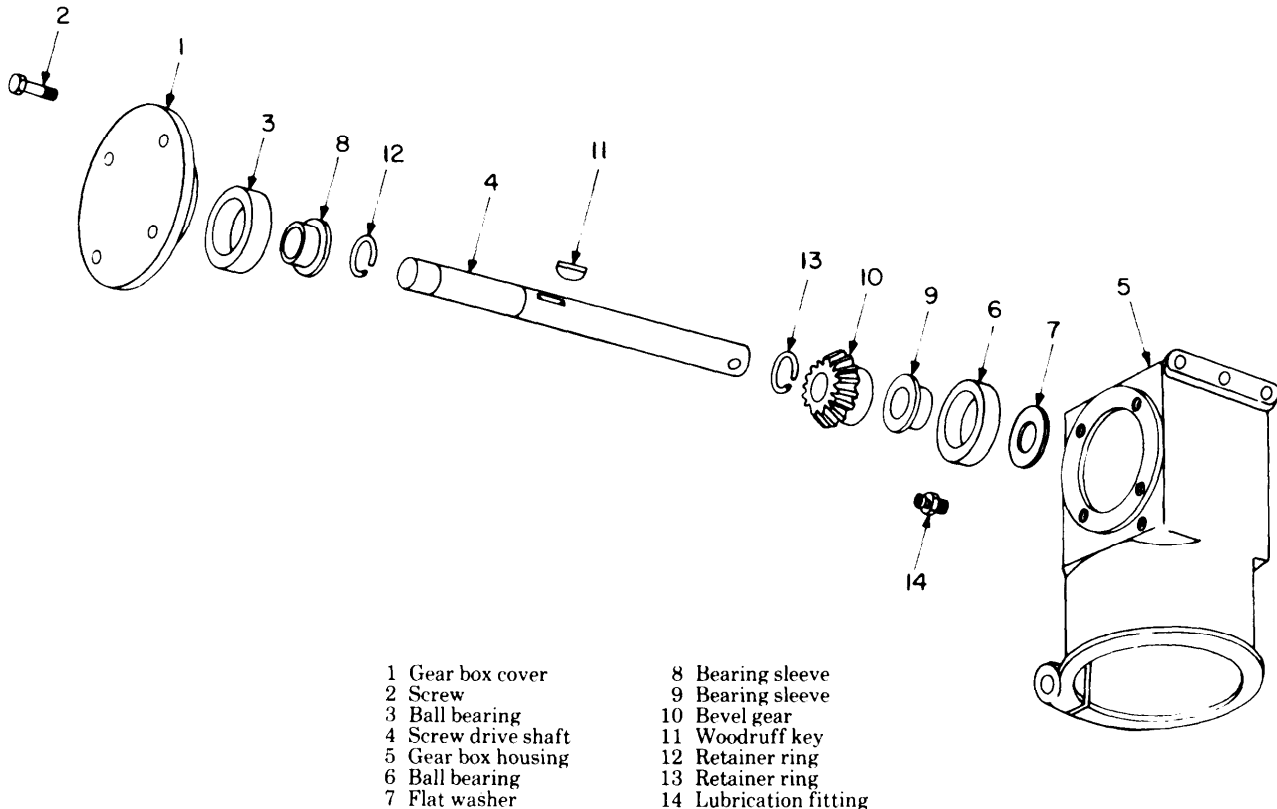


Figure 6-3. Left landing gear leg gear box.

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Insert the end of screw drive shaft (4) into ball bearing (6) in gearbox housing (5). Position the other end of the screw drive shaft into the bearing in the gear box cover. Press the entire assembly into position.

(5) Hold gear box cover (1) tightly in position and test the fit of ball bearing (3) and ball bearing (6) on screw drive shaft (4) by turning the protruding end of the shaft. The shaft should turn freely and have slight end play. Should the shaft appear to be restricted

while turning, remove the shaft and take out flat washer (7) behind the ball bearing (6). Should end play be excessive, install another flat washer behind bearing.

(6) Secure the gear box mechanism by attaching gear box cover (1) with four screws (2).

(7) Lubricate lubrication fitting (14) with grease (item 2, app F).



## CHAPTER 7

## REPAIR OF FUEL DISPENSING PUMP

## 7-1. General

The fuel dispensing pump is housed in the curbside cabinet on all models of the semitrailer. It is direct-coupled to the auxiliary engine.

7-2. Fuel Dispensing Pump  
(fig 7-1)

a. *Removal.* Refer to paragraph 4-51.

b. *Disassembly.*

(1) Remove nuts (1).

(2) Remove intermediate housing assembly (2) as a unit and disassemble as follows:

(a) Unscrew impeller (3) from shaft (4).

(b) Remove shims (5), seal assembly (6), sleeve bearing (7), plate (8), and ring (9) from shaft (4). Note the number of shims removed.

(c) Remove retainer ring (10) from intermediate housing (11). Press bearing (12) out toward the engine side of the intermediate housing. Apply pressure to the bearing outer race only.

(d) Remove retainer rings (13) from shaft (4)

and press the shaft out toward the impeller end, while supporting the center race of bearing (12).

(3) Remove gasket (14) from volute (15).

(4) Remove ring (16) from volute (15) by pressing it out toward the impeller side of the volute.

(5) Remove machine bolt (17) and lockwashers (18). Remove pump coupling and bushing (19) and bearing (20) from the engine half coupling.

c. *Cleaning and Inspection.*

(1) Clean parts in drycleaning solvent (item 6, app F).

(2) Clean and inspect bearing in accordance with TM 9-214.

(3) Check spline fit in coupling.

(4) Inspect the fit of the bearing on the end of the shaft.

d. *Repair.* Replace worn or damaged components.

e. *Assembly.*

(1) Attach pump coupling and bushing (19) and bearing (20) to the engine half coupling and secure with lockwashers (18) and machine bolt (17).

(2) Insert one retainer ring (13) in groove on im-

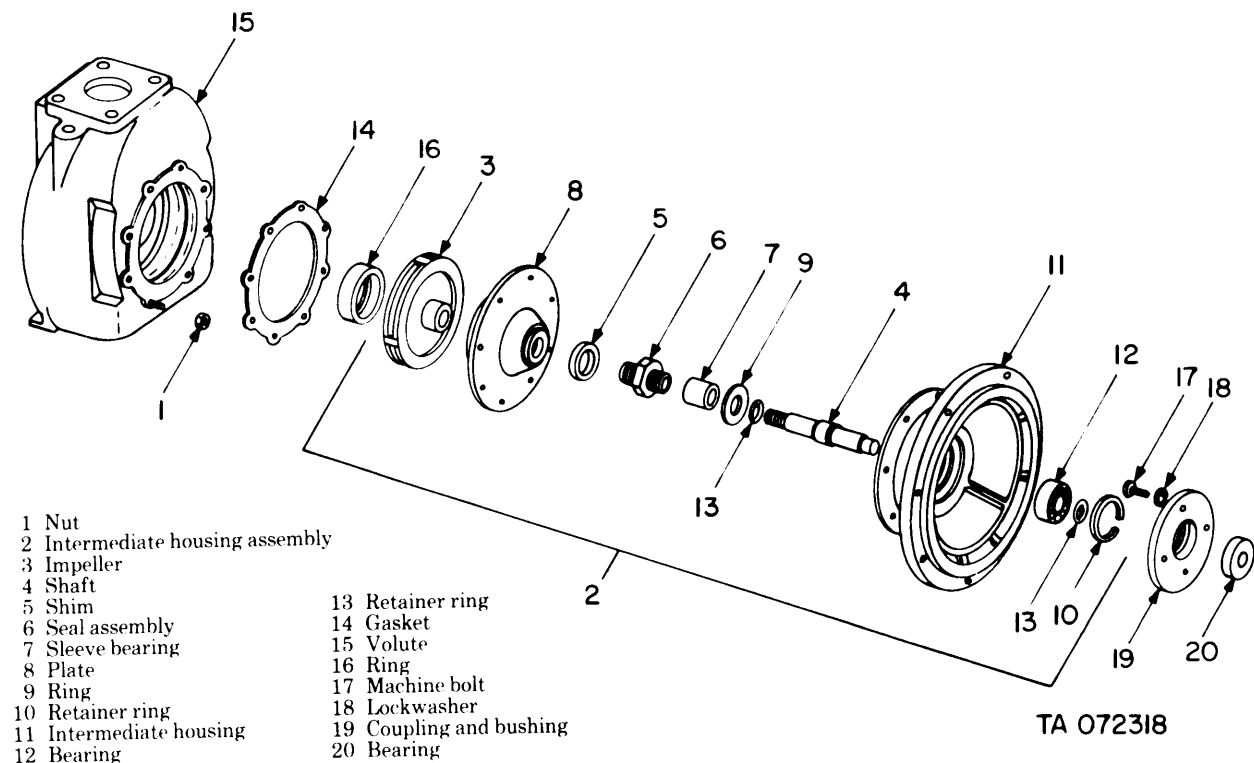


Figure 7-1. Fuel dispensing pump.

PELLER end of shaft (4). Press bearing (12) onto shaft. Apply pressure to the bearing center race only. Insert other retainer ring (13) in the groove in the shaft on the coupling end.

(3) Insert shaft (4) with bearing (12) into intermediate housing(n). Press the bearing into the housing until it bears against the shoulder. Apply pressure on the outer race of the bearing only, Insert retainer ring (10) in the groove in the housing.

(4) Install ring (9), plate (8), and sleeve bearing (7) on shaft (4). Install seal assembly (6) on the sleeve. In-

STALL shims (5) and impeller (3) on the shaft. Make sure all parts have been drawn up tight by the impeller.

(5) Press ring (16) into volute (15).

(6) Place gasket (14) over volute (15) studs and install intermediate housing unit assembly (2). Secure to volute with nuts (1), Torque nuts to 8 foot-pounds.

(7) Rotate shaft (4) to check for binding. If impeller (3) rubs, disassemble and either add or remove shims (5) as required.

*f. Installation.* Refer to paragraph 4-51.

## CHAPTER 8

### REPAIR OF FIRE EXTINGUISHER SYSTEMS

#### 8-1. General

The M131A4, M131A4C, M131A5, and M131A5C fixed fire extinguisher systems are similar except for their nozzle feed lines.

#### 8-2. Weight Check of Fire Extinguisher Cylinders

Weigh the cylinders at each quarterly check in accordance with the following procedures:

- a. Remove cylinders.
- b. Using a common spring scale of sufficient capacity, carefully weigh each cylinder.
- c. Recharge or replace a cylinder if its weight loss exceeds 10 percent of the difference between the full and empty weight marked on the cylinder. If the cylinder is to be recharged, it is to be accomplished at Direct Support level. After recharging, weigh the cylinder and record the date and weight on the Fire Extinguisher Record Tag, DA Form 253, which is in a waterproof envelope attached to each cylinder.
- d. If the weight of the cylinder is satisfactory, record the latest weight and date on Fire Extinguisher Record Tag, DA Form 253.
- e. Install cylinders.

#### 8-3. Portable Fire Extinguisher (fig 8-1)

- a. *Removal.*
  - (1) Release front latch (1).
  - (2) Remove cylinder (2) from bracket (3).
  - (3) Remove screws (4) and nuts (5) securing the bracket to the semitrailer.
  - (4) Remove bracket (3).
- b. *Disassembly.*
  - (1) Cylinder.
    - (a) Disconnect hose assembly (6) from control head (13).
    - (b) Remove discharge horn (7) from hose assembly (6).
    - (c) Remove screw (8), releasing outer horn clamp (9) and inner horn clamp (10), nameplate (11), and clamp nut (12).
    - (d) Make certain cylinder (2) is completely discharged.
    - (e) Remove control head (13).
  - (2) *Bracket.*
    - (a) Remove take-up bolt (14), nuts (15 and 16),

lockwasher (17), and flat washer (18) securing front clamp (19) to bracket (3).

(b) Remove button-head rivet (20) securing take-up bolt (14) to front clamp (19).

(c) Remove button-head rivet (21) securing latch link (22) to bracket (3).

(d) Remove button-head rivet (23) securing front latch (1) to latch link (22).

c. *Cleaning and Inspection.*

(1) Clean metal parts with drycleaning solvent (item 6, app F).

(2) Inspect parts for cracks or breaks.

(3) Perform weight check (para 8-2).

d. *Repair.* The only repair is replacement of defective parts.

e. *Assembly.*

(1) *Cylinder.*

(a) Install control head (13) on cylinder (2).

(b) If weight check indicates low, recharge cylinder in accordance with TB 5-4200-200-10.

(c) Position clamp nut (12), nameplate (11), inner horn clamp (10), and outer horn clamp (9) on cylinder (2) and secure with screw (8).

(d) Install discharge horn (7) on hose assembly (6). Connect hose assembly to control head (13).

(2) *Bracket.*

(a) Secure latch link (22) to bracket (3) with button-head rivet (21).

(b) Secure front latch (1) to latch link (22) with button-head rivet (23).

(c) Secure take-up bolt (14) to front clamp (19) with button-head rivet (20).

(d) Install take-up bolt (14) with front clamp (19) to bracket (3) and secure with nuts (15 and 16), lockwasher (17), and flat washer (18). Do not tighten nuts.

f. *Installation.*

(1) Install bracket (3) in its niche and secure with screws (4) and nuts (5).

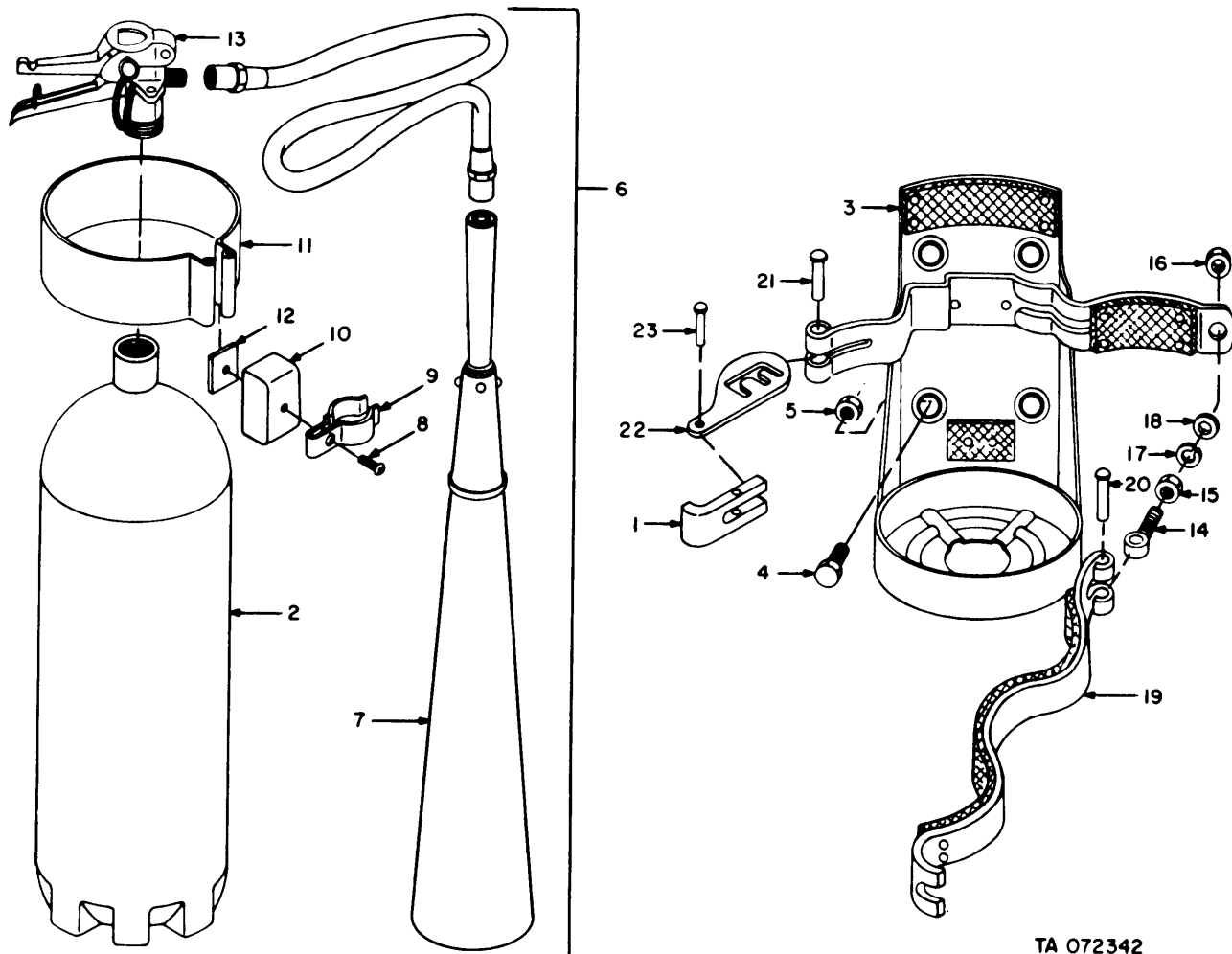
(2) Position fire extinguisher in bracket (3). Lock front clamp (19) with front latch (1).

(3) Adjust nuts (15 and 16) on take-up bolt (14) until front clamp (19) holds cylinder (2) securely in place.

(4) Tighten nut (16).

#### 8-4. Fixed Fire Extinguisher System (fig 8-2)

a. *Removal.*



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1 Front latch  
2 Cylinder  
3 Bracket  
4 Screw  
5 Nut  
6 Hose assembly

7 Discharge horn  
8 Screw  
9 Outer horn clamp  
10 Inner horn clamp  
11 Nameplate  
12 Clamp nut

13 Control head  
14 Take-up bolt  
15 Nut  
16 Nut  
17 Lockwasher  
18 Flat washer

19 Front clamp  
20 Button-head rivet  
21 Button-head rivet  
22 Latch link  
23 Button-head rivet

Figure 8-1. Portable fire extinguisher.

(1) Control valve and pull box.

- (a) Disconnect control valve (1) from cylinder
- (2).
- (b) Release pull cable (3) from control valve (1).
- (c) Remove pull handle (4) and pull cable (3).
- (d) Disconnect tube nut (5) from straight adapter (6).
- (e) Remove straight adapter (6) from adapter nut (32).
- (f) Working from backside of pull box (7), remove nut (8) and washer (9) from adapter nut (32), and pull adapter nut (32) through front side of pull box (7). Drive out retaining pin (10) and remove pull box from niche.
- (g) Disconnect tube nut (12) from control valve
- (1).

(2) Cylinder.

- (a) Unscrew tube nut (13) attaching discharge

line (14) to cylinder straight adapter (15).

- (b) Remove nuts (16), washers (17), and bracket (18) securing cylinder (2) to the cabinet.

(3) Lines and fittings.

(a) Unscrew tube nuts (19) securing discharge lines (14, 20, and 21) to tees (22). Unscrew tube nuts (23) from straight adapter (24) that connects discharge lines (21 and 25) under the tank between the road and curbside cabinets (M131A4C and M131A5C only).

- (b) Unscrew tube nut (26) from straight adapter (27).

(c) Unscrew elbow (28) and straight adapter (27) from nozzles (29).

- (d) Unscrew tees (22) from nozzles (30 and 31).

(4) Nozzles. Remove the bolts and washers securing nozzles (29, 30, and 31) to the cabinet.



*b. Cleaning and Inspection.*

(1) Clean parts with drycleaning solvent (item 6, app F).

(2) Flush lines, fittings, and nozzles with drycleaning solvent (item 6, app F). Dry thoroughly with low pressure air.

(3) Inspect parts for cracks and bends. Test cable for freedom of movement in tube.

(4) Inspect the control valve to see that the arrow on the self resetting shaft points upward and that the pullout pin is in place.

(5) Check for damage and corrosion.

(6) Perform weight check (para 8-2).

*c. Repair.* The only repair is replacement of defective parts.

*d. Installation.*

(1) Nozzles. Secure nozzles (29, 30, and 31) to the cabinet with washers and bolts.

(2) Lines and fittings.

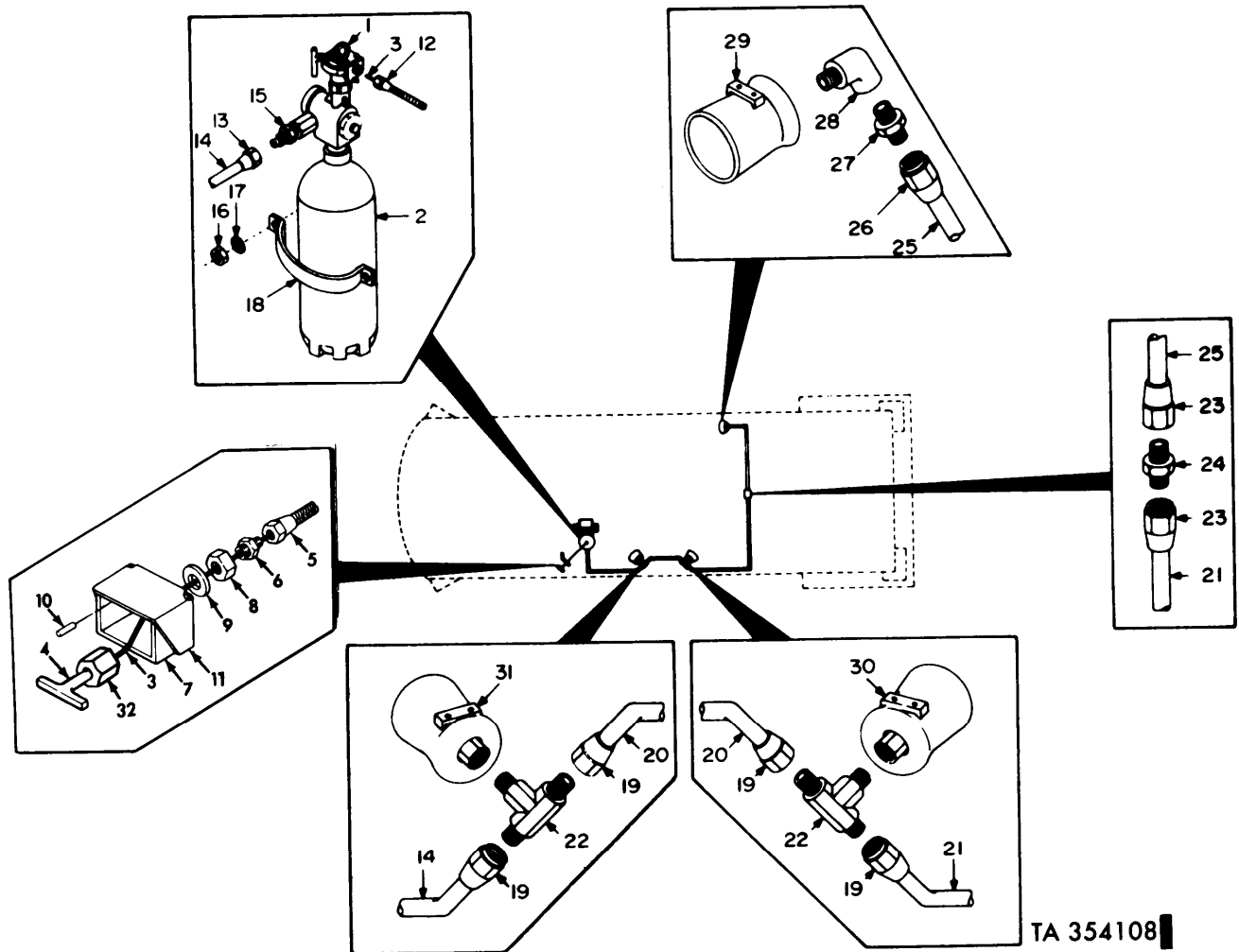
(a) Screw tees (22) into nozzles (30 and 31).

(b) Screw elbow (28) and straight adapter (27) into nozzle (29).

(c) Secure discharge lines (14, 20, and 21) to tees (22) with tube nuts (19). Route discharge lines (21 and 25) under the tank to straight adapter (24) and secure with tube nuts (23). Connect tube nut (26) to straight adapter (27) (M131A4C and M131A5C only).

(3) Cylinder.

(a) If weight check indicates low, recharge cylinder in accordance with TB 5-4200-200-10.



1 Control valve  
2 Cylinder  
3 Pull cable  
4 Pull handle  
5 Tube Nut  
6 Straight adapter  
7 Pull box  
8 Nut

9 Washer  
10 Retaining pin  
11 Cover  
12 Tube nut  
13 Tube nut  
14 Discharge line  
15 Straight adapter  
16 Nut

17 Washer  
18 Bracket  
19 Tube nut  
20 Discharge line  
21 Discharge line  
22 Tee  
23 Tube nut  
24 Straight adapter

25 Discharge line  
26 Tube nut  
27 Straight adapter  
28 Elbow  
29 Nozzle  
30 Nozzle  
31 Nozzle  
32 Nut

Figure 8-2. Fixed fire extinguisher system.

(b) Install cylinder (2) in the cabinet and secure with bracket (18), washers (17), and nuts (16). Connect control valve (1) to cylinder.

(c) Secure discharge line (14) to straight adapter (15) with tube nut (13).

(4) *Control valve and pull box.*

(a) Holding pull box (7) in place, insert retaining pin (10) positioning pull box in niche.

(b) Install adapter nut (32) through front side of hole in pull box (7). Working from backside install

washer (9) and nut (8) onto adapter nut (32) and tighten. This will secure pull box to bracket, and provide reinforcement for handle and cable assembly.

(c) Connect tube straight adapter (6) to adapter nut (32).

(d) Connect the tubing to straight adapter (6) and control valve (1) and secure with tube nuts (5 and 12),

(e) Feed pull cable (3) through the tube and connect it to control valve (1).

## CHAPTER 9

### DRAINING AND PURGING OF TANK INTERIOR

#### 9-1. General

Removal of combustible vapors and liquids requires a coordinated effort of properly skilled safety and maintenance personnel. This maintenance procedure is to be performed at Direct Support or higher level and may include assistance by the operator or Organizational maintenance personnel. There are several methods available to eliminate combustibles from fuel tankers. The primary method is by the use of a purging chemical. Using a chemical to purge saves time, labor, and material, compared to other methods. It greatly reduces the possibility of a combustible vapor build-up after the purging procedure has been completed and after vapor test readings show a safe level. Alternate methods include steam, forced air, and oil purge. The methods described here will be chemical, steam and forced air. If the semitrailer is to be shipped after draining and purging, refer to Chapter 10 for supplemental instructions.

#### 9-2. Draining Tank

##### **WARNING**

Discontinue all operations if an electrical storm is threatening or in progress. Open flames or other sources of ignition such as welding and cutting torches and ordinary electrical equipment should not be introduced in areas where flammable vapor may be present. The tank being cleaned must be statically grounded prior to, and during all operations.

*a.* Before any vapor-freeing (purging) is started, all compartments and connecting piping systems must be drained into suitable containers, or an oil/water separator.

*b.* Select a level area 100 feet from any building, source of ignition *or* sewer system. Position semitrailer so that the tank sump is in the lowest position possible.

*c.* Have sufficient fire extinguishers available, placed 50 feet upwind, manned by qualified individuals.

*d.* Static ground the vehicle to an approved (earth) ground.

*e.* Place conductive metal or galvanized containers under drain points. Ground containers to tank and to tank's common ground. Grounding connections shall be made to clean unpainted surfaces.

*f.* Completely drain each fuel tank compartment, all piping, pumps, meters, filters, and segregators. Remove all accessory items, such as gages and floats, which might entrap fuel. Drain the equipment that has been removed. Connections should be wiped dry and cloths or mops used are to be washed, dried and stored, or disposed of safely.

#### 9-3. Purging Tank

##### **WARNING**

Before climbing onto the fuel tank semitrailer, discharge all static from the body by grasping the static ground wire.

*a.* Do not wear wool, nylon, silk, rayon or other clothing having a tendency to generate static electricity.

*b.* Wear clean cotton clothing with no metal buttons, zippers, or fasteners. Remove all contents from pockets.

*c.* Wear rubber boots and rubber gloves.

*d.* Use cotton waste for cleaning purposes (other material may generate static electricity).

##### **WARNING**

Should an emergency arise requiring entry into a tank which is not vapor-free, or which has an oxygen content less than 19.5 percent, personnel who enter the tank should have an attached lifeline and wear protective respiratory equipment in the form of self-contained breathing apparatus or a full facepiece mask with a pressure supply of respirable air. Another person, also provided with respiratory equipment, should be stationed at the tank opening and remain there with full ability to watch personnel in the tank and summon assistance in the event a rescue operation becomes necessary. Personnel should not enter a tank which is in the explosive range.

##### **WARNING**

Personnel exposed to hydrocarbon or toxic vapors who exhibit weakness, nausea, coughing or intoxication, have nosebleed or cramps, or any other unusual conditions, should get immediate medical attention. There should be someone available who is qualified to administer artificial respiration and simple first aid.

**WARNING**

Unless adequate mechanical ventilation is provided indoors and sources of ignition are eliminated, all vapor-freeing work by any method should be carried on outdoors, remote from vehicles and other known sources of ignition, and the tank unit must be stationed where flammable vapors will not blow or drift indoors.

**CAUTION**

Combustible vapor testing must be conducted as prescribed in this manual and current Technical Bulletins. Vapor testing should not be conducted *during steam cleaning* since excess moisture or lack of oxygen may cause false readings.

*a. Materials required.*

(1) Adequate source of water with a large diameter hose long enough to reach the vehicle or fuel tank.

(2) Compressed air source and air hose of sufficient length to reach depth of fuel tank.

(3) Sufficient quantity of gas tank purger chemical obtainable through local procurement. Purging chemical No 913, Product-Sol Inc., 2010 Cole Avenue, Birmingham, Michigan 48008 is the only known source available to date. Purging chemicals can be procured at a cost of approximately \$70.00 per 5 gallons or \$420.00 per 55 gallons plus shipping cost.

(4) Combustible gas indicator set (NSN 6665-00-664-4650 or NSN 6665-00-292-9945), The equipment is listed as a Common Table of Allowance (CTA) item in SB 700-20 and is line number E57351.

(5) Entry into a tank compartment which is not vapor-free or which has an oxygen content less than 19.5 percent will require the following: Protective respiratory equipment; lifeline; approved extension light or flashlight; steam or air-operated venture-type air mover or a fan-type blower with an air duct.

*b. Purging-Chemical Method.*

(1) Close or seal drains (after draining fuel as described in para 9-2 above).

(2) Fill fuel tank and overflow for five minutes with cold water or until all traces of flammable material are removed. (Fill the rear compartment first and continue to fill each compartment, filling the front compartment last. Reverse the procedure, when emptying the tank.) Drain fuel tank completely.

(3) Close or seal drains.

(4) Add to the fuel tank, 40-fluid ounces of the chloro-carbon base purging chemical for each 100-gallon capacity (for a 5,000 gallon tank, it will take approximately 17 gallons of purging chemical).

**CAUTION**

Insufficient amount of chemical will result in an incomplete purging. Once purging has begun, do not stop until process is complete.

(5) Fill fuel tank to top with water—do not overflow.

(6) Insert air line into fuel tank filler neck opening and agitate pollution with 3 to 5 psi of air for 40 minutes. Frequently move air hose around in tanks, covering as much area as possible, especially near the bottom and around baffles. Remove air line and drain solution from fuel tanks.

(7) Fill fuel tank and overflow for 5 minutes with cold water or until water is clear. Drain fuel tank completely.

(8) Conduct a combustible vapor test to determine if fuel tank is safe to repair, clean, paint, store, change material or ship. If test reading indicate tank is not safe, repeat procedure cited in (7) above.

*c. Purging—Steam Method.*

This method is an alternate to the chemical method. It is effective for the removal of high viscosity petroleum products. Low-pressure steam is injected into the compartment for a period which should bring the temperature of the tank to approximately 76 degrees Centigrade (170 degrees Fahrenheit). Prior to injecting steam and during the entire steaming operation, the metallic connection on the discharge end of the steam hose should be bonded to the tank shell and the tank should be grounded.

(1) After draining fuel as described in para 9-2 above, insure all drains remain open.

(2) Steam clean tank by introducing steam through the manhole and baffle plate opening into each tank compartment in sufficient volume to raise the temperature of the tank to approximately 76 degrees Centigrade (170 degrees Fahrenheit). Close manhole cover to the extent steam line will permit.

(3) Steam the tank for at least three hours. Precautionary measures should be taken to insure steam does not come in contact with electrical wiring and components. The heat of steam can be destructive to the painted surface of the tank, can weaken fusible plugs, and damage valve seats, gaskets and diaphragms.

(4) Measure explosive vapor level. Reading should be 20 percent lower explosive level (LEL) or less. If LEL is greater than 20 percent, repeat steam cleaning for one hour. Continue steaming until 20 percent LEL or less is obtained. After the tank has been freed of combustible vapors, it should be ready to repair, clean, paint, store, change material or ship.

*d. Purging—Forced Air.*

Blower/air supply to be used with this procedure shall be an explosion proof blower conforming to MIL-B-7619 or MIL-H-27507. If these blowers are not available, local safety personnel may authorize the use of another type blower.

(1) After draining fuel from tank as described in para. 9-2 above, leave drains open and grounded drain

containers in place to catch fuel during the purging operation. This is to facilitate maximum air circulation.

(2) Place blower/air supply 50 feet upwind of fuel servicing vehicle. Ground the blower to the static ground and connect duct to outlet side of blower.

(3) Start blower before inserting duct into manhole opening (this is to prevent fuel vapors from entering duct and into blower).

(4) Ground duct to the vehicle.

(5) Install duct in manhole; secure with tape or tie to vehicle.

(6) Purge tank for two hours. During purging operation, observe the air is being expelled at all drain openings. Trapped fuel may prevent air from being circulated through all drains. In the event air is not coming out of a drain, temporarily close all other drains and observe if trapped fuel is expelled. Reopen drains.

### CAUTION

Remove duct from manhole opening before shutting off air supply when taking combustible vapor readings. Allow 10 minutes after removing duct before taking reading.

(7) Measure explosive vapor level of tank. Reading should be 20 percent LEL or less. Take readings in several areas of the tank. If reading is above 20 percent LEL, resume purging operation at (3) above.

(8) Purge for one hour after safe reading is obtained.

(9) Remove duct from manhole opening before shutting off blower.

(10) Close all valves and drains. Leave manhole cover open. Tank should now be ready to repair, clean, paint, store, change material or ship.



## CHAPTER 10

### SHIPMENT AND LIMITED STORAGE

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#### 10-1. General

Commanders are responsible for insuring that all materiel issued or assigned to their command is maintained in a serviceable condition and properly cared for, and that personnel under their command comply with technical instructions. Lack of time, lack of trained personnel, or lack of proper tools result in a unit being incapable of performing maintenance for which it is responsible. In such cases, unit commander, with the approval of major commanders, may place materiel that is beyond the maintenance capability of the unit, in administrative storage or return it to supply agencies. When preparing the trailer for administrative storage or for shipment, the unit commander will be responsible for processing the materiel, including all tools and equipment, in such a manner as to protect it against corrosion, deterioration, and physical damage during periods of administrative storage.

#### 10-2. Administrative Storage Instructions

*a. Time Limitations.* Administrative storage is restricted to a period of 90 days and must be extended unless the vehicle is processed (b. below).

*b. Storage Procedure.* Disassembly will be limited to that necessary to clean and preserve surfaces. Except as otherwise noted, and to the maximum extent consistent with safe storage, materiel will be placed in administrative storage in as nearly a completely assembled condition as practicable. Equipment will be installed and adjustments made so that the materiel may be placed in service and operated with a minimum of delay.

(1) Materiel must be stored on level ground in the most favorable location available, preferably one which affords protection from exposure to the elements and from pilferage.

(2) Perform a semiannual preventive-maintenance (PM) service on materiel intended for administrative storage. This maintenance will consist of inspecting, cleaning, servicing, preserving, lubricating, adjusting, and minor replacement of repair parts if required.

(3) Provide adequate drainage for materiel.

(4) All boxed materiel in outdoor storage will be stored on suitable dunnage.

(5) Provide access to the materiel to permit in-

spection, servicing, and subsequent removal from storage.

(6) Mark the materiel ADMINISTRATIVE STORAGE (tagged, or other convenient method). Materiel so marked will not be operated while in this category.

##### *c. Inspection in Administrative Storage.*

(1) Visual inspection of materiel in administrative storage must be conducted at least once each month and immediately following hard rains, heavy snow storms, wind storms, or other severe weather conditions. Disassembly will be performed as necessary to ascertain fully the extent of any deterioration or damage found. A record of these inspections will be maintained for all materiel in administrative storage and attached to the materiel in such a manner as to protect the record from the elements.

(2) When rust or deterioration is found on any unpainted area, necessary reprocessing for administrative storage will be immediately accomplished. Damages caused to the materiel by severe weather conditions will be promptly repaired. Deterioration or damage to on-vehicle equipment (OVE) packaging will be repaired as necessary. Painted surfaces showing evidence of deterioration will be thoroughly cleaned, dried, and repainted, using paint of the same quality and color as the original paint.

#### 10-3. Shipping Instructions

*a. Preparation for Shipment.* Preservation and other protective measures taken in the preparation of materiel and accompanying tools and equipment for shipment must be sufficient to protect the materiel against deterioration and physical damage during shipment.

(1) Cleaning. Clean materiel.

(2) Drying. Dry materiel.

(3) Lubrication. Lubricate materiel (para 3-2).

(4) Preservation. All critical unpainted metal surfaces must be protected during shipment. Oil or grease covered in the lubrication section (para 3-2) may be used for this purpose, but it is effective for only a few days and equipment so protected must be clearly watched for signs of corrosion. Selection of preservatives will be such that their application, use, or removal will not damage the surface to which they are applied.

(5) Marking. Marking and identification of semi-

trailer will be accomplished in accordance coexisting regulations.

(6) Purging. All fuel must be drained and purged from the tank prior to shipment. An exception to this requirement may include tactical movement by water utilizing a roll-on, roll-off (RORO) type vessel. (See para 9-5 for purging procedures and this chapter for special instructions on contingency airlift requirements), Always coordinate with the responsible Installation Transportation Officer (ITO) for advanced shipping information and guidance applicable for the mode(s) to be used.

*b. Army Shipping Documents.* Prepare all Army shipping documents accompanying freight in accordance with TM 38-750.

*c. Modes of Shipment.* There are various modes or a combination of modes by which the equipment can be moved either by commercial means or by the Defense Transportation System (DTS). Regardless of the mode or system, the Installation Transportation Officer (ITO) normally has the responsibility to provide the Traffic Management expertise for the military shipper. Numerous military and commercial agencies have specific responsibilities for insuring the equipment moves in the manner and with the priority specified. The ITO and the military shipper must coordinate closely with each of the agencies. Normally, a Government Bill of Lading (GBL) is issued by the ITO to a commercial carrier to pay for movement of the military equipment. Regardless of the transportation system used (Defense or commercial), the ITO prepares a Transportation Control and Movement Document (TCMD) which controls the movement of the equipment to destination. Also, TCMD data is used by the Transportation Officer to trace the shipment through the transportation system.

(1) Air Movement–Rapid deployment of equipment may require Tactical or Contingency Airlift. TM 38-250 requires bulk fuel to be drained by the shipper prior to acceptance into the military airlift system. If the equipment was used to carry nonflammable liquids, it must be drained but is not required to be purged. If the equipment carried flammable liquids, it must be drained and purged in accordance with procedures in this manual, TB 43-0212, and TB 70-1047. The following additional instructions apply:

(a) Coordinate with local transportation, medical, and safety personnel, as appropriate, for all preparations as specified herein. The latest Air Force requirements should be verified by the transportation office and instructions herein modified accordingly.

(b) Regardless of the method used to purge the fuel tank, hazardous cargo certification must be provided in accordance with TM 38-250 (AFR 71-4).

(c) Explosive vapor level measurements are to be accomplished by trained personnel and readings

must be less than 20 percent lower explosive level (LEL). If the reading ever reaches or exceeds 20 percent LEL, resume purging operation. Local Fire and Safety personnel can advise on the latest explosive meter equipment available.

(d) The fuel tanker must be placed in a covered and ventilated area with the manhole(s) open until such time as the fuel tanker is to be loaded aboard an aircraft.

(e) To maintain the fuel tanker in a safe condition, the tank must be checked for combustible vapor every 12 hours until the vehicle is loaded for shipment. One half hour prior to loading a reading will be taken. If the reading ever reaches 20 percent of the LEL, the tank must be repurged.

(f) Certification of this hazardous material will be accomplished on DD Form 1387-2 by the qualified specialist or technician who actually prepares, packs, or inspects the item for air shipment. The unit commander will authorize in writing those individuals who have received prescribed training for certification of DD Form 1387-2.

(2) Rail Movement–The equipment is to be prepared for shipment by proper draining and purging of tank compartment, cleaning, and preservation of all accompanying components. Loading, blocking, tie-down and bracing on railcars will be accomplished with technical guidance from Installation Transportation Officer (ITO) and in accordance with the Association of American Railroad (AAR) published “Rules Governing the Loading of Department of Defense Material on Open-Top Cars”. Final inspections and acceptance of loading, blocking, bracing and tiedown of equipment on railcars will be performed by the origin railroad representative as coordinated by the ITO.

(3) Water Movement–When rail movement is the first mode used in conjunction with a water movement, the ITO must coordinate with unit personnel for any special equipment preparation or markings required by the Port of Embarkation (POE). Those requirements must be met prior to loading or departure of the equipment via the rail mode. If the equipment is driven to the POE by unit personnel, there maybe preparations required to be accomplished prior to departure for and after arrival of the equipment at the Port. Under tactical deployment conditions unit personnel may be required to accomplish tasks at the POE, such as, battery disconnects, draining fuel from engine tank, taping glass surfaces, etc. The ITO is responsible for initial coordination with the POE to determine special requirements and for providing the shipper with port call information.

(4) Highway movement–The semitrailer may be moved via the highway mode either in a military convoy, as drive away by commercial tractor, or loaded aboard commercial trailer and tractor. If the equip-



ment is moved in a military convoy, the Division Transportation Office (DTO) or ITO will coordinate with necessary local and state authorities for proper

highway clearances, Movement by commercial means will require shipper coordination with the ITO to get equipment preparation instructions.



## APPENDIX A

### References

#### A-1. Publication Index

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

Consolidated Index of Army  
Publications and Forms. . . . . DA PAM 310-1

#### A-2. Forms

Refer to DA PAM 738-750, 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. Camouflage.

Camouflage . . . . . FM 5-20

Color, Marking, and Camouflage  
Painting of Military Vehicles,  
Construction Equipment, and  
Materials Handling Equip-  
ment . . . . . TB 43-0209

Painting instructions  
for field use . . . . . TM 43-0139

##### b. Decontamination.

Chemical, Biological, and Radio-  
logical (CBR) Decontamina-  
tion . . . . . TM 3-220

Chemical, Biological, Radiolog-  
ical, and Nuclear Defense. . . . . FM 21-40

##### c. General.

Basic Cold Weather Manual . . . . . FM 31-70

Manual for Wheeled Vehicle  
Driver . . . . . FM 21-305

Northern Operations. . . . . FM 31-71

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. Maintenance and Repair.

Organizational Care, Mainte-  
nance, and Repair of Pneu-  
matic Tires and Inner Tubes. . . . . TM 9-2610-200-20

Inspection, Care, and Mainte-  
nance of Antifriction Bearings . . . . . TM 9-214

Materials Used for Cleaning,  
Preserving, Abrading, and Ce-  
menting Ordnance Material  
and Related Materials Includ-  
ing Chemicals. . . . . TM 9-247

Welding Theory and Application . . . . . TM 9-237

##### e. Fuel Handling.

Aircraft Refueling. . . . . FM 10-68

Petroleum Supply Point Equip-  
ment and Operations . . . . . FM 10-69

Petroleum Tank Vehicle Opera-  
tions . . . . . FM 10-71

Elimination of Combustibles  
from Interiors of Metal or  
Plastic Gasoline and Diesel  
Fuel Tanks . . . . . TB 750-1047

##### f. 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 H designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

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

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

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

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

*e. 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 equipment used in precise measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

*g. Remove/install.* To remove and install the same

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

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

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

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

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

##### B-3. Explanation of Columns in the MAC, Section II

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

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

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

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

Code	Explanation
C .....	Operator or crew
O .....	Organizational maintenance

Code	Explanation
------	-------------

F .....	Direct support maintenance
H .....	General support maintenance
D .....	Depot maintenance

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

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

#### B-4. Explanation of Columns in Tool and Test Equipment Requirements, Section III

There are no special tools or test equipment required,

#### 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 on the MAC, section II.

### Section II. MAINTENANCE ALLOCATION CHART

(1) Group Number	(2) Components/Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment	(6) Remarks
			C	O	F	H	D		
06	ELECTRICAL SYSTEM								
0609	Lamps	Replace		0.1					
0609	Lights	Replace		0.2					
		Repair		0.5					
0612	Battery, storage	Inspect	0.1						
		Replace		0.3					
0613	Harness, wiring, chassis	Inspect	0.1						
		Replace		2.5					
0613	Receptacle, intervehicular cable	Replace		0.5					
		Repair			1.0				
11	REAR AXLE								
1100	Axle	Replace			8.0				
12	BRAKES								
1202	Shoes, brake	Inspect		0.3					
		Replace		4.0					
		Repair			6.0				
1204	Hydraulic brake system								
	Cylinder, master	Replace		1.0					
	Cylinder, wheel	Replace		1.0					
	Lines, fittings, and hoses (hyd)	Inspect	0.2						
		Replace		1.0					
		Repair		1.5					
1208	Air brake system								
	Coupling, air	Replace		1.0					
		Repair		2.0					
	Chamber, air	Replace		1.0					
		Repair			2.0				
	Lines, fittings, and hose (air)	Inspect	0.1						
		Replace		1.0					
		Repair		1.5					

(1) Group Number	(2) Components/Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment	(6) Remarks
			C	O	F	H	D		
13 1311	Valve, relay-emergency Reservoir, air	Replace		2.0					
	WHEELS								
	Wheel assembly	Inspect		0.3					
	Bearing, hub	Replace		2.0					
		Inspect		0.2					
	Drum, brake	Replace		3.0					
		Repair			4.0				
	Hub, wheel	Inspect		0.2					
		Replace		3.0					
	Seal, oil, and wiper	Inspect		0.3					
1313	Stud, wheel	Replace		2.0					
		Replace		3.5					
	Tires and tubes								
	Tires	Inspect	0.1						
		Replace		1.0					
		Repair			1.5				
		Replace		1.0					
	Tubes	Replace		1.5					
		Repair							
15 1504	FRAME								
	Carrier, spare wheel	Replace		0.5					
		Repair		1.0					
		Inspect	0.1						
	Gear, landing	Replace		2.0					
		Repair			6.0				
	SPRINGS								
	Springs	Replace		8.0					
		Replace		3.5					
1605	Rod, torque	Repair			4.0				
	BODY								
	Guard, splash	Replace		0.5					
		Replace		0.5					
	Plug, drain	Inspect	0.5						
	Reels, hose	Replace		1.5					
		Repair			2.0				
		Inspect	0.1						
1801 1804 1808	Reels, static	Replace		0.5					
		Inspect	0.5						
	Controls	Replace							
		Inspect	0.5						
		Replace							
		Repair			2.0				
		Repair							
	Doors	Replace		0.5					
	Latch, door	Inspect	0.1						
	Cover, manhole	Replace		0.5					
1811	Indicator, level, load	Inspect					1.0		
		adjust					1.0		
	Tank, fuel	Repair					4.0		
	BODY CHASSIS AND ACCESSORY ITEMS								
	Accessory items								
	Reflectors	Replace		0.2					
	Nozzle assembly	Replace		0.5					
		Repair		1.0					
	Hose assembly	Replace		1.0					
	Plates, vehicle data	Replace		0.2					
22 2202	AUXILIARY ENGINE								
	Engine and pump assembly	Inspect		0.3					
		Replace		2.5					
		Repair			4.0				
		Inspect		0.2					
		Replace		2.5					
	Engine								

(1) Group Number	(2) Components/Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment	(6) Remarks
			C	O	F	H	D		
2916	Drain, oil	Replace		0.5					
2935	Lines and fittings, fuel tank	Inspect		0.1					
		Replace		0.3					
2935	Tank, fuel	Replace		0.5					
		Repair			1.0				
2937	Strainer, fuel	Inspect		0.2					
		Replace		0.2					
2941	Muffler, exhaust	Replace		0.5					
2941	Pipe, trail	Replace		0.3					
2967	Instrument panel, switches, and gages	Replace		1.0					
56	FILTER-SEGREGATOR								
5600	Segregator	Replace		4.0					
		Repair			6.0				
5601	Sump components, automatic water drain	Replace		1.0					
		Repair			2.5				
5601	Element, filter	Inspect		0.3					
		Replace		1.5					
5601	Gage, pressure	Replace		0.2					
5601	Lines, drain, couplings and fittings	Inspect		0.1					
		Replace		1.0					
5601	Valves	Replace		1.0					
72	PUMPS, METERS, VALVES, LINES, AND FITTINGS								
7202	Pump, dispensing	Replace		2.0					
		Repair			3.5				
7202	Meter	Replace			1.0				
7203	Valves	Replace		0.5					
		Repair			1.0				
7203	Strainers and filters	Inspect		0.2					
		Replace		1.0					
7203	Lines and fittings	Inspect		0.1					
		Replace		1.0					
7203	Manifold, fuel	Replace		0.5					
76	FIRE EXTINGUISHER SYSTEM								
7630	Bulb, quartzoid, automatic release	Replace			0.5				
7630	Controls	Replace			0.5				
		Repair			1.0				
7630	Cylinder, fixed and portable	Inspect		0.1					
		Service			1.0				
		Replace			0.3				
7630	Lines and fittings	Inspect		0.2					
		Replace			1.5				
7630	Nozzles	Replace			0.4				



## 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 fuel tank semitrailer to help you inventory items required for safe and efficient operation.

##### C-2. General

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

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

*b. Section III. Basic Issue Items.* These are the minimum essential items required to place the fuel tank semitrailer in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the fuel tank semitrailer 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 which will be used for requisitioning purposes.

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

Code	Used On
026	M131A4
025	M131A4C
049	M131A5
047	M131A5C

*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.

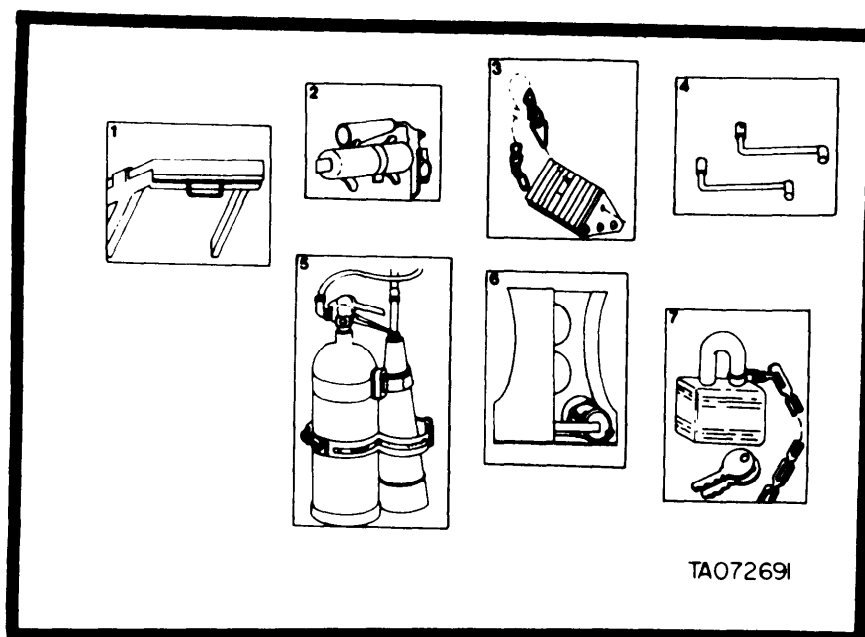
#### Section II. COMPONENTS OF END ITEM

These items are installed in the vehicle at time of manufacture or rebuild. They are securely fastened, permanently attached, or placed behind cover. (None authorized.)

#### 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
1	2150-00-741-7585	BOARD, GROUND: landing gear leg pad (19207) 7417585		EA	2
2	4210-00-595-4085	BRACKET: fire extinguisher, 2-1/2 lb (19207) 7537907		EA	2
3	2540-00-678-3469	CHOCK, WHEEL: w/chain (19207) 7979235		EA	2
	2590-00-933-3597	CORD: door retaining (19207) 11611900	049	EA	2
4	5340-00-903-1114	CRANK, HAND: 1-1/2 in. hose reel (19207) 10936998	026,049	EA	1
4	5340-00-961-9796	CRANK, HAND: 2-1/2 in. hose reel (19207) 1091721C	026,049	EA	1
2	4210-00-555-8837	EXTINGUISHER, FIRE: hand, portable 2-1/2 lb (18876) 10596569-1		EA	2
5	4210-00-202-7858	EXTINGUISHER, FIRE: hand portable, 15 lb (81348) OE910		EA	1

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
6	2540-00-678-5363	GAGE, STICK, PETROLEUM: 70 in. long (19207) 8360470	025,026	EA	1
6	5210-00-178-1411	GAGE, STICK, PETROLEUM: 70 in. long (19207) 10959923	047,049	EA	1
6	2590-00-937-8157	HOSE ASSEMBLY, FUEL: fuel transfer (19207) 11611898		EA	3
7	5340-00-912-4089	PADLOCK SET: w/clevis and chain (composed of 6 padlocks and 3 keys) (96906) MS21313-163		EA	1
7	5340-00-912-4088	PADLOCK SET: w/clevis and chain (composed of 4 padlocks and 2 keys) (96906) MS21313-162		EA	1



Appendix "C" illustrations.

**APPENDIX D**  
**ADDITIONAL AUTHORIZATION LIST**

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(NONE AUTHORIZED)



## APPENDIX E

# ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST

### Section I. INTRODUCTION

#### E-1. Scope

This manual lists spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of organizational, direct support, and general support maintenance of the fuel tank semi-trailer. It authorizes the requisitioning and issue of spares and repair parts as indicated by the source and maintenance codes.

#### E-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 cross-referenced to each illustration figure and item number appearance.

#### E-3. Explanation of Columns

The following provides an explanation of columns in the Repair Parts List.

*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.* Indicates the identity of each 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 purpose 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 issues or outfittings. Not subject to automatic replenishment.
PE . . . . .	Support equipment procured and stocked for initial issue of 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 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 levels of maintenance.
KB . . . . .	Item included in both a depot overhaul/repair kit and a 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 depot maintenance level.
AO . . . . .	Item to be assembled at organizational level.
AF . . . . .	Item to be assembled at the direct support maintenance level.
AH . . . . .	Item to be assembled at the 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.

Code	Definition
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 to 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 designated 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:

Codes	Definition
Z.....	Nonreparable item. When unserviceable, condemn and dispose at the level indicated in position 3.
O.....	Reparable item. When uneconomically repairable, condemn and dispose at the organizational level.
F.....	Reparable item. When uneconomically repairable, condemn and dispose at the direct support level.
H.....	Reparable item. When uneconomically repairable, 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/specialized repair activity level.
A.....	Items 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 purposes.

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 five-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 the part to be used differs between serial numbers of the same model, the effective serial numbers are shown as the last line of the description. In the Special Tools List, the initial basis of issue (BOI) appears as the last line in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased 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 function. This mess-

ure is expressed by a two-character alphabetical abbreviation (i.e., 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 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.).

#### E-4. Special Information

*a.* Usable on Codes are included in this column. Uncoded items are applicable to all models. Identification of the Usable on Codes of this publication are:

<i>Code</i>	<i>Used on</i>
026	M131A4
025	M131A4C
049	M131A5
047	M131A5C

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

*c.* Action change codes indicated in the left-hand margin of the listing page denote the following:

N—Indicates an added item.

C—Indicates a change in data.

R—Indicates a change in NSN only.

*d.* A vertical solid bar in left or right margin indicates change data (change, deletion, or addition).

#### E-5. How to Locate Repair Parts

*a. When National Stock Number or Reference Number is Unknown.*

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

(2) *Second.* Find the illustration covering the functional group or subgroup to which the repair part belongs.

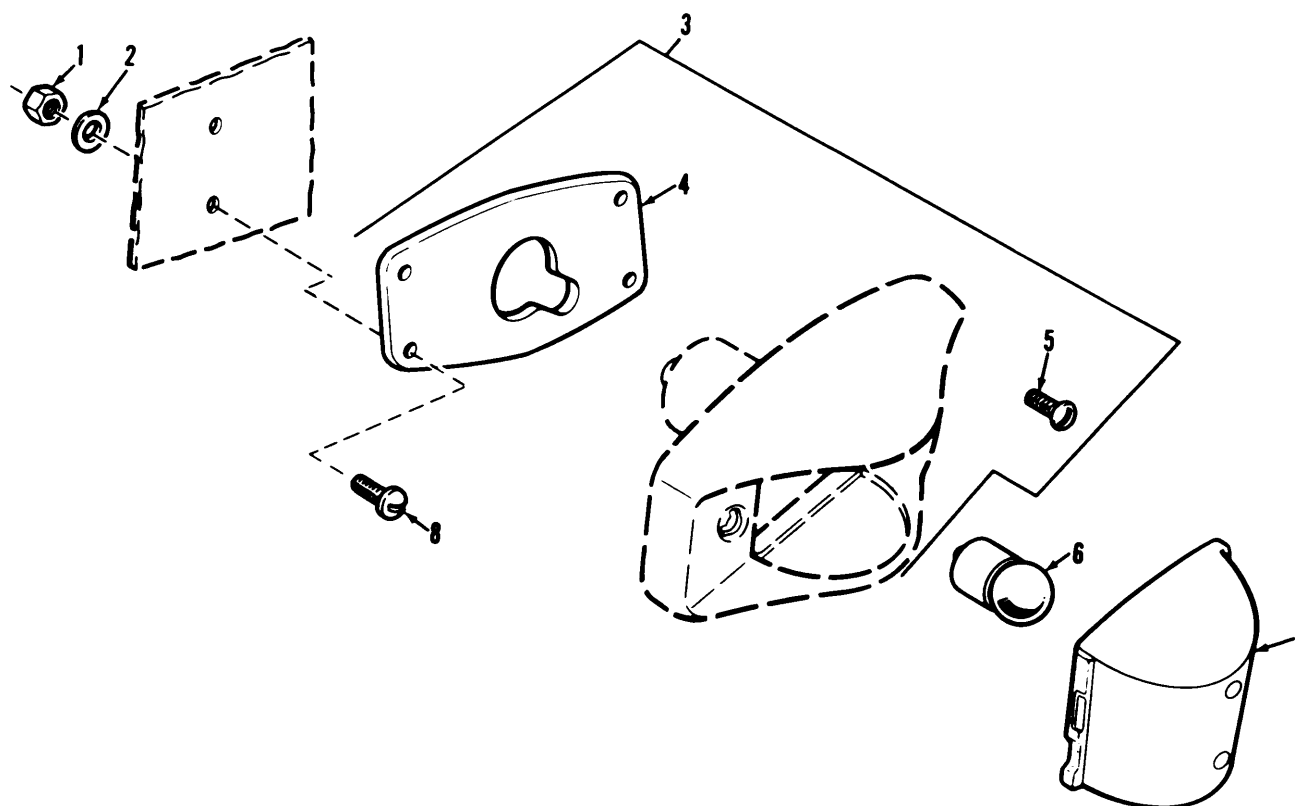
(3) *Third.* Identify the repair part on the illustration and note the illustration figure and item number of the repair part.

(4) *Fourth.* Using the Repair Parts Listing, find 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 ascending alphanumeric sequence, cross-referenced to each 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.

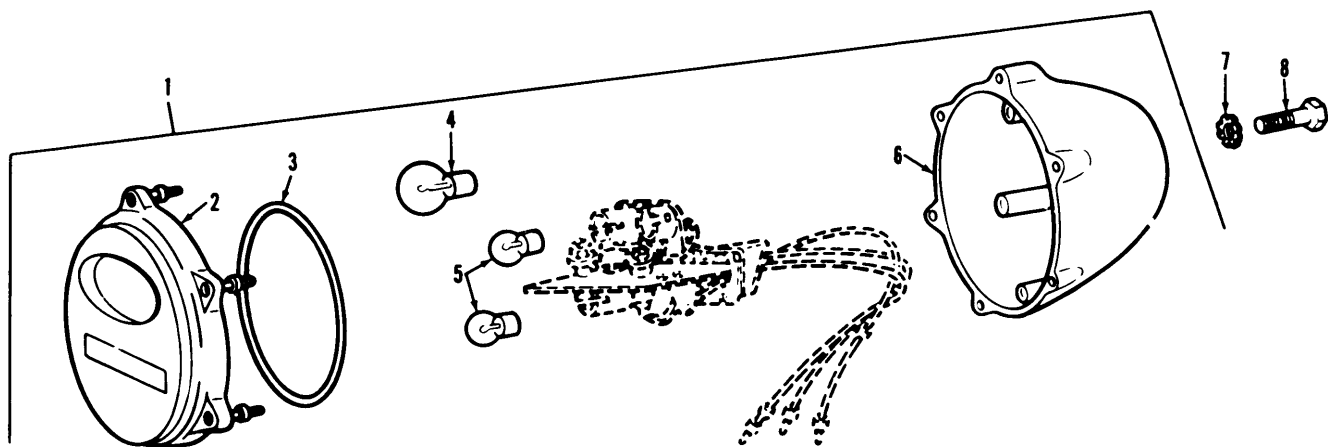


AT 35330

Figure 1. Clearance light assembly.



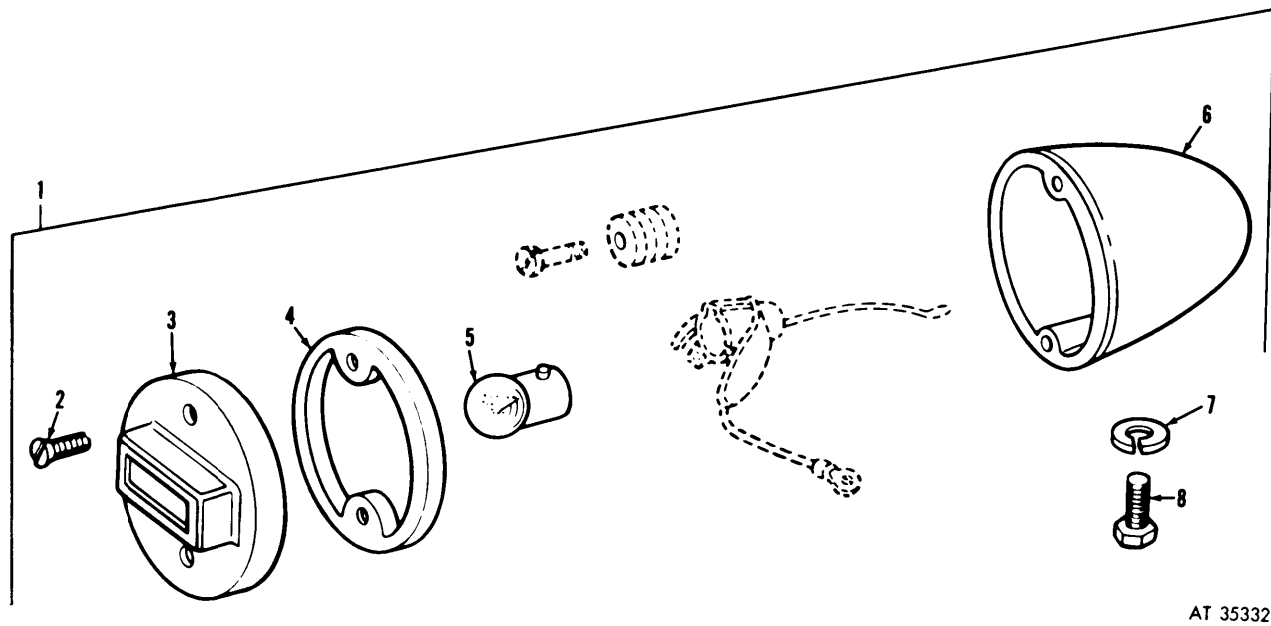
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	QTY INC IN UNIT
R						SECTION II. REPAIR PARTS LIST GROUP 06—ELECTRICAL SYSTEM GROUP 0609—CLEARANCE LIGHT ASSEMBLY		
						<b>NOTE</b> ELECTRICAL TOOL KIT, NSN 5180-00-876-9336, AUTHORIZED BY TOE WILL BE UTILIZED FOR APPLICABLE REPLACEMENT PARTS NOT SPECIFIED IN THIS GROUP.		
	1	1	PAOZZ 5310-00-934-9758	96906	MS35649-202	NUT, PLAIN, HEXAGON: NO 10-24 UNC-2B	EA	26
	1	2	PAOZZ 5310-00-045-3296	96906	MS35338-43	WASHER, LOCK: NO. 10	EA	26
	1	3	PAOOO 6220-00-729-9295	96906	MS35422-1	LIGHT, MARKER, CLEARANCE: WITHOUT LAMP, LENS, OR FILTER	EA	13
	1	4	PAOZZ 6220-00-025-3703	19207	8330285	PAD: CLEARANCE LIGHT MOUNTING	EA	1
	1	5	PAOZZ 5305-00-958-5246	96906	MS35190-289	SCREW, MACHINE: 1/4-20 UNC-2A × 3/4, DOOR	EA	2
	1	6	PAOZZ 6240-00-019-0877	96906	MS15570-1251	LAMP, INCANDESCENT: CLEARANCE LIGHT	EA	13
	1	7	PAOZZ 6220-00-299-7425	96906	MS35421-1	LENS, LIGHT: SERVICE (AMBER)	EA	2
	1	7	PAOZZ 6220-00-299-7426	96906	MS35421-2	LENS, LIGHT: SERVICE (RED)	EA	7
	1	7	PAOZZ 6220-00-752-5992	96906	MS35420-1	LENS, LIGHT: BLACKOUT (AMBER)	EA	2
	1	7	PAOZZ 6220-00-752-5993	96906	MS35420-2	LENS, LIGHT: BLACKOUT (RED)	EA	2
	1	8	PAOZZ 5305-00-984-6212	96906	MS35206-265	SCREW MACHINE: NO. 10-24 UNC-2A × 3/4	EA	26



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Figure 2. Stoplight-tailight assembly (early model).

(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6)  DESCRIPTION  USABLE ON CODE	(7)  U/M	(8)  QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO							
2	1	PAOOO	6220-00-669-5623	96906	MS51329-1	GROUP 0609—STOPLIGHT-TAILLIGHT ASSEMBLY (EARLY MODEL)	EA	2
2	2	PAOZZ	6220-00-752-6020	19207	7526020	STOPLIGHT-TAILLIGHT: VEHICULAR	EA	1
2	3	PAOZZ	5330-00-297-7106	19207	7320658	DOOR ASSEMBLY: STOPLIGHT-TAILLIGHT	EA	1
2	4	PAOZZ	6240-00-044-6914	96906	MS35478-1683	PACKING, PREFORMED: STOPLIGHT-TAILLIGHT	EA	1
2	5	PAOZZ	6240-00-019-0877	96906	MS15570-1251	LAMP, INCANDESCENT: STOPLIGHT	EA	2
2	6	XAOZZ		19207	7525997	LAMP, INCANDESCENT: TAILLIGHT	EA	1
2	7	PAOZZ	5310-00-637-9541	96906	MS35338-46	BODY, STOPLIGHT-TAILLIGHT	EA	2
2	8	PAOZZ	5305-00-269-3208	96906	MS90725-57	WASHER, LOCK: 3/8 NOMINAL SIZE	EA	2
						SCREW, CAP, HEXAGON: 3/8-16 UNC-2A × 5/8		

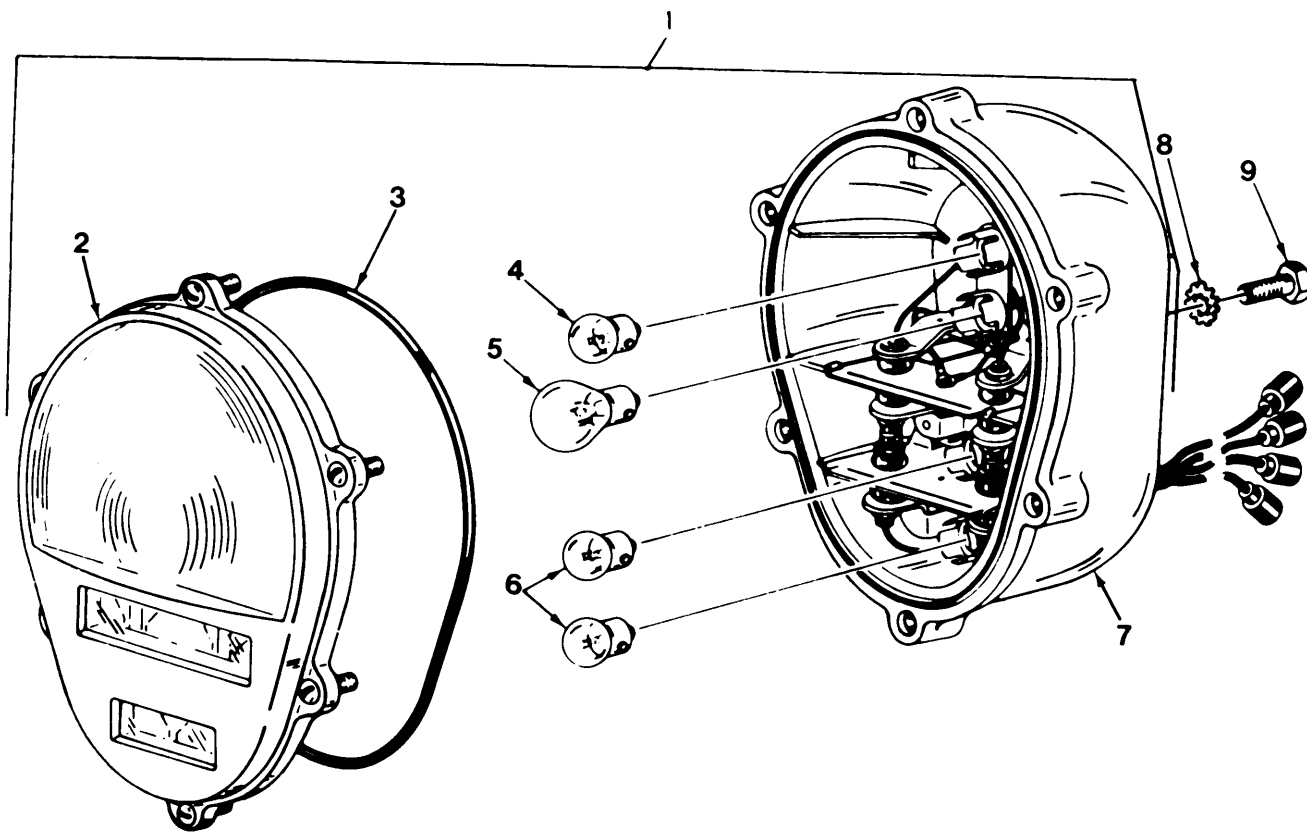


AT 35332

Figure 3. Blackout stoplight assembly (early model).

R

(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO							
3	1	PAOOO	6220-00-846-9745	96906	MS51302-1	GROUP 0609—BLACKOUT STOPLIGHT ASSEMBLY (EARLY MODEL)	EA	1
3	2	PAOZZ	5305-00-764-0070	96906	MS51959-46	STOPLIGHT, BLACKOUT: VEHICULAR	EA	2
3	3	PAOZZ	6220-00-775-2384	19207	8741646	SCREW, MACHINE: DOOR ASSEMBLY	EA	1
3	4	PAOZZ	5330-00-019-0877	19207	8694464	DOOR ASSEMBLY: BLACKOUT STOPLIGHT	EA	1
3	5	PAOZZ	6240-00-019-0877	96906	MS15570-1251	GASKET: BLACKOUT STOPLIGHT DOOR	EA	1
3	6	XAOZZ		19207	8741650	LAMP, INCANDESCENT: STOPLIGHT ASSEMBLY	EA	1
3	7	PAOZZ	5310-00-407-9566	96906	MS35338-45	BODY: BLACKOUT STOPLIGHT	EA	1
3	8	PAOZZ	5305-00-958-0605	96906	MS35207-298	WASHER, LOCK: 5/16 NOMINAL SIZE	EA	1
						SCREW MACHINE: 5/16-24 UNF-2A × 1		



TA072304

Figure 4. Composite stoplight-taillight assembly.

(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO							
C	4	1	PAOOO 6220-00-880-1625	19207	11614157	GROUP 0609—COMPOSITE STOPLIGHT-TAILLIGHT ASSEMBLY	EA	2
	4	2	PAOZZ 6220-00-179-4324	19207	11639535	COMPOSITE STOPLIGHT-TAILLITE: VEHICULAR	EA	1
	4	3	PAOZZ 5330-00-462-0907	19207	11639519-2	LENS, LIGHT	EA	1
	4	4	PAOZZ 6240-00-019-3093	96906	MS15570-623	PACKING, PREFORMED: DOOR	EA	1
	4	5	PAOZZ 6240-00-044-6914	96906	MS35478-1683	LAMP INCANDESCENT: TAILLIGHT	EA	1
	4	6	PAOZZ 6240-00-019-0877	96906	MS15570-1251	LAMP, INCANDESCENT: STOP AND TURN	EA	2
	4	7	XAOZZ	19207	11639520	LAMP, INCANDESCENT: BLACKOUT MARKER AND STOP	EA	1
	4	8	PAOZZ 5310-00-627-6128	96906	MS35335-35	BODY ASSEMBLY	EA	2
	4	9	PAOZZ 5305-00-269-3208	96906	MS90725-57	WASHER, LOCK: 3/8 NOMINAL SIZE	EA	2
						SCREW, CAP, HEXAGON: 3/8-16 UNC-2A × 5/8		

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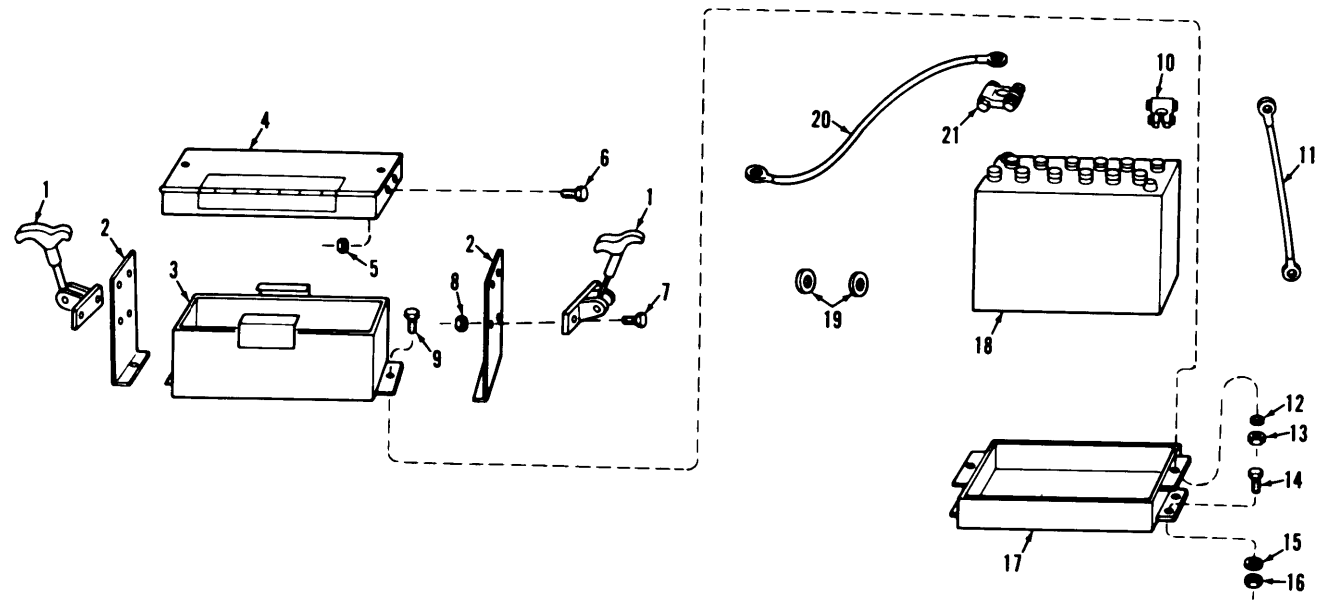


Figure 5. Storage battery and related parts.



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	
						GROUP 0612—STORAGE AND BATTERY AND RELATED PARTS		
						CATCH	049	EA 2
						BRACKET: FASTENER MOUNTING	049	EA 2
						FRAME: BATTERY BOX		EA 1
						COVER ASSEMBLY: BATTERY BOX	049	EA 1
						NUT, SELF-LOCKING: 5/16-18 UNC	049	EA 4
						BOLT, MACHINE: 5/16-18 UNC-2A x 3/4	049	EA 4
						SCREW, CAP, HEXAGON: 1/4-20 UNC-2A x 1/2	049	EA 4
						NUT, SELF-LOCKING: 1/4-20 UNC	049	EA 2
						SCREW, CAP, HEXAGON 3/8-16 UNC-2A x 3		EA 1
						ADAPTER, BATTERY: POSITIVE TERMINAL		EA 1
						LEAD, ELECTRICAL: STORAGE BATTERY	025, 047, 049	EA 1
						LEAD, ELECTRICAL: STORAGE BATTERY (THRU SERIAL NO. 340)	026	EA 1
						LEAD, ELECTRICAL: STORAGE BATTERY (AFTER SERIAL NO. 340)	026	EA 2
						WASHER, LOCK: 3/8 NOMINAL SIZE	025, 047	EA 2
						NUT, PLAIN, HEXAGON: 3/8-16 UNC-2B	025, 047	EA 4
						SCREW, CAP, HEXAGON: 1/4-20 UNC-2A x 3/4	025	EA 4
						WASHER, LOCK: 1/4 NOMINAL SIZE	025	EA 4
						NUT, PLAIN, HEXAGON: 1/4-20 UNC-2B	025	EA 1
						RACK, BATTERY	025	EA 1
						BATTERY, STORAGE: AUXILIARY ENGINE		EA 2
						GROMMET, NONMETALLIC: ELECTRICAL LEAD		EA 1
						LEAD, ELECTRICAL: STORAGE BATTERY (THRU SERIAL NO. 340)	026	EA 1
						LEAD, ELECTRICAL: STORAGE BATTERY (026 AFTER SERIAL NO. 340)	025, 047, 049	EA 1
						ADAPTER, BATTERY: NEGATIVE TERMINAL		

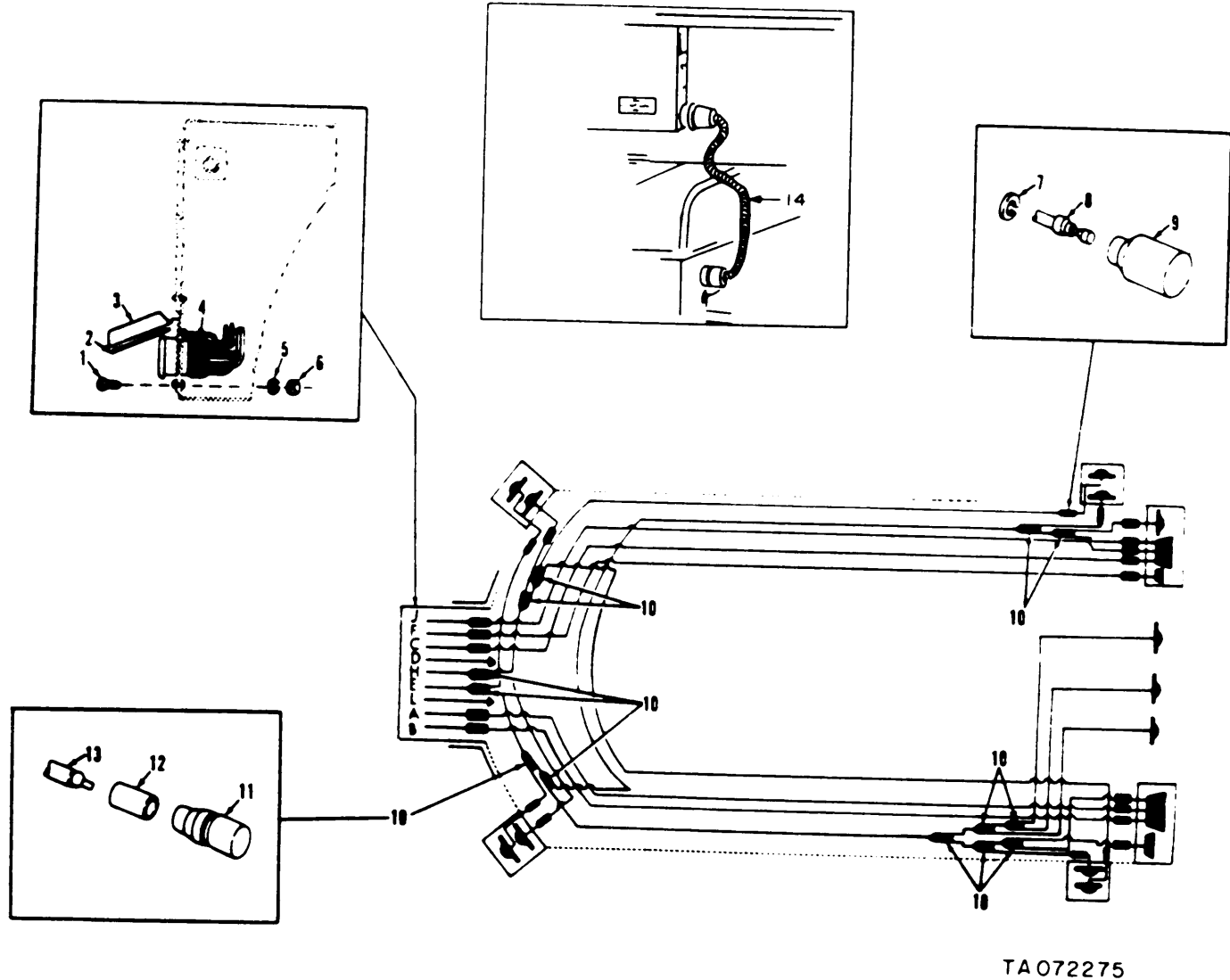
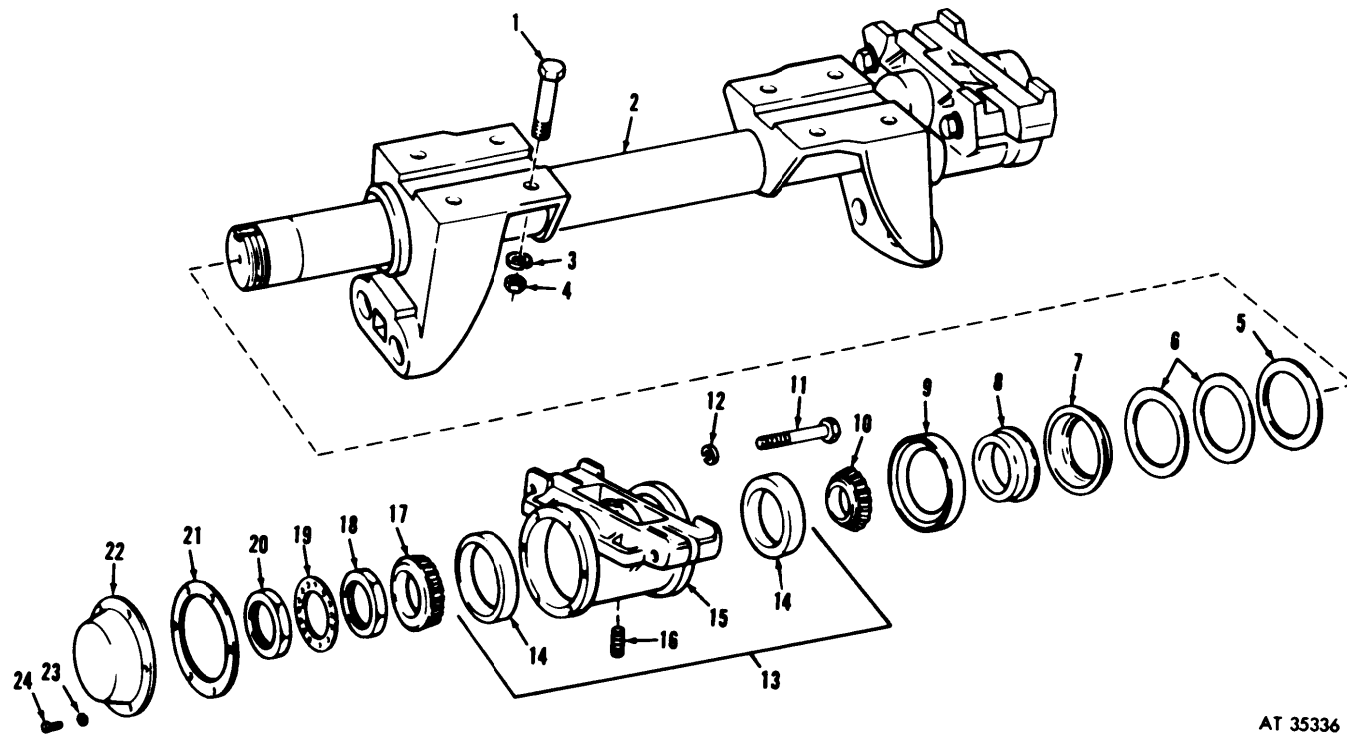


Figure 6. Wiring harness.

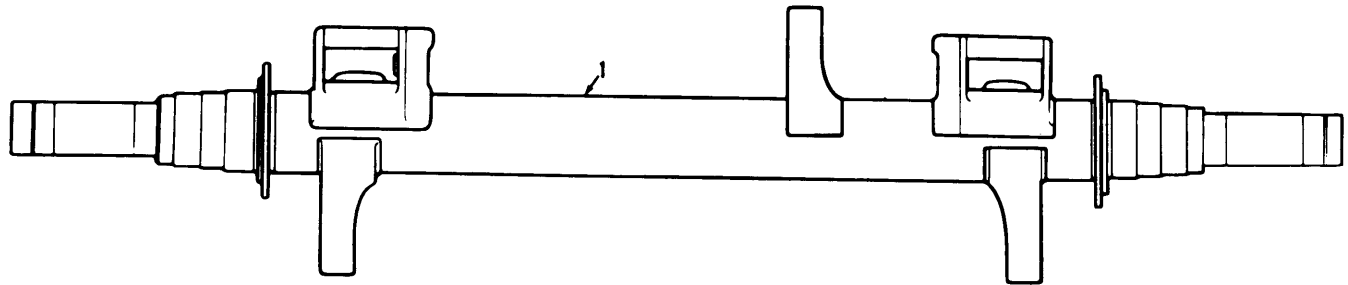
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
R ■ C N	6	1	PAOZZ 5305-00-988-1727	96906	MS35206-283	GROUP 0613—WIRING HARNESS <b>NOTE</b> ELECTRICAL TOOL KIT, NSN 5180-00-876-9336, AUTHORIZED BY TOE WILL BE UTILIZED FOR APPLICABLE REPLACEMENT PARTS NOT SPECIFIED IN THIS GROUP.	EA	4
	6	2	PAOZZ 5330-00-784-0749	19207	8681826	SCREW, MACHINE: 1/4-20 UNC-2A x 1	EA	1
	6	3	PAOZZ 5935-00-773-1428	19207	7731428	GASKET: HINGED COVER, MOUNTING	EA	1
	6	4	PAOZZ 2590-00-757-2753	19207	8360412	COVER, ELECTRICAL CONNECTOR: WITH HINGE LEAD ASSEMBLY, ELECTRICAL: INTERVEHICULAR CABLE WIRING	EA	1
	6	5	PAOZZ 5310-00-582-5965	96906	MS35338-44	WASHER, LOCK: 1/4 IN. NOMINAL SIZE	EA	4
	6	6	PAOZZ 5310-00-761-6882	96906	MS51967-2	NUT, PLAIN, HEXAGON: 1/4-20 UNC-2B	EA	4
	6	7	PAOZZ 5310-00-833-8567	19207	8338567	WASHER, SLOTTED: WIRING HARNESS	EA	32
	6	8	PAOZZ 5999-00-057-2929	96906	MS27148-2	CONTACT, ELECTRICAL: WIRING HARNESS	EA	10
	6	9	PAOZZ 5935-00-572-9180	19207	8338566	SHELL, ELECTRICAL CONNECTOR	EA	32
	6	10	PAOZZ 5935-00-900-6281	96906	MS27147-1	ADAPTER, ELECTRICAL: WIRING HARNESS	EA	13
	6	11	PAOZZ 5935-00-833-8561	19207	8338561	SHELL, ELECTRICAL CONNECTOR: WIRING HARNESS	EA	32
	6	12	PAOZZ 5970-00-833-8562	19207	8338562	INSULATOR, BUSHING: WIRING HARNESS	EA	16
	6	13	PAOZZ 5940-00-399-6676	19207	8338564	TERMINAL ASSEMBLY: WIRING HARNESS	EA	32
	6	14	PAOZZ 2920-00-168-2217	19207	10950371-2	WIRING HARNESS: ENGINE TO INSTRUMENT PANEL 049	EA	1



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Figure 7. Tube and spring seat assembly.

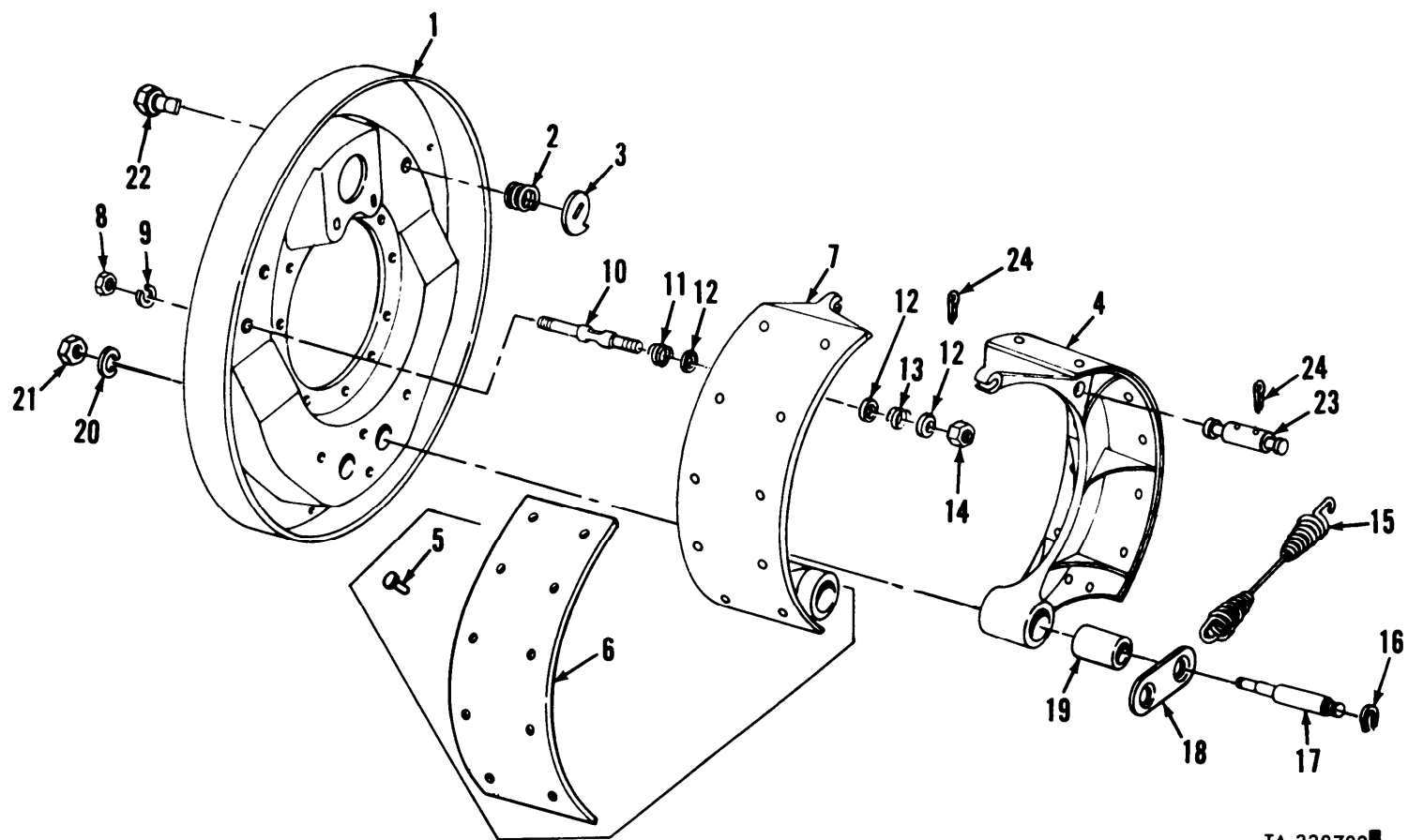
(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO							
						GROUP 11—REAR AXLE		
						GROUP 1100—TUBE AND SPRING SEAT ASSEMBLY		
	7	1	PAOZZ 5306-00-444-8480	19207	7979377	BOLT, MACHINE: TUBE BRACKET	EA	8
	7	2	PAFZZ 2510-00-740-9607	19207	7409607	TUBE ASSEMBLY	EA	1
	7	3	PAOZZ 5310-00-850-1611	96906	MS35338-54	WASHER, LOCK: 1-1/8 NOMINAL SIZE	EA	8
	7	4	PAOZZ 5310-00-762-6213	96906	MS51968-32	NUT, PLAIN, HEXAGON: 1-1/8-12 UNF-2B	EA	8
	7	5	PAOZZ 5310-00-740-9615	19207	7979265	WASHER, FLAT: INNER BEARING SEAL	EA	2
	7	6	PAOZZ 5330-00-740-9312	19207	7979267	FELT, MECHANICAL, PREFORMED: INNER BEARING	EA	4
	7	7	PAOZZ 5330-00-740-9606	19207	7979264	RETAINER, PACKING: INNER BEARING OIL SEAL	EA	2
	7	8	PAOZZ 2530-00-740-9553	19207	7409553	RING, WIPER: INNER BEARING OIL SEAL	EA	2
	7	9	PAOZZ 5330-00-740-9550	19207	7979349	SEAL, PLAIN, ENCASED: INNER SPRING SEAT BEARING	EA	2
	7	10	PAOZZ 3110-00-198-1468	19207	7409349	CONE AND ROLLERS, TAPERED: INNER SPRING SEAT	EA	2
	7	11	PAOZZ 5306-00-740-9608	19207	7979329	BOLT, MACHINE: LEAF SPRING CLAMP	EA	4
	7	12	PAOZZ 5310-00-060-9435	96906	MS35338-55	WASHER, LOCK: 1-1/4 NOMINAL SIZE	EA	4
	7	13	PAOZZ 2510-00-797-9305	19207	7979305	SEAT: SPRING ASSEMBLY WITH BEARING CUPS	EA	2
	7	14	PAOZZ 3110-00-142-4390	78500	1228D186	CUP, TAPERED, ROLLER: INNER AND OUTER BEARING	EA	2
	7	15	XAOZZ	19207	7979312	SEAT, SPRING	EA	1
	7	16	PAOZZ 4730-00-018-9566	96906	MS49005-2	PLUG, PIPE: 1/8-27 NPT, SPRING SEAT	EA	1
	7	17	PAOZZ 3110-00-100-0649	24617	121468	CONE AND ROLLERS, TAPERED: OUTER SPRING SEAT	EA	2
	7	18	PAOZZ 5310-00-374-0836	50513	16046F	NUT, PLAIN, OCTAGON: BEARING ADJUSTING	EA	2
	7	19	PAOZZ 5310-00-700-7089	19207	5139123	WASHER, KEY: LOCK HOUSING	EA	2
	7	20	PAOZZ 5310-00-353-2427	19207	7979263	NUT, PLAIN, OCTAGON: BEARING LOCK	EA	2
	7	21	PAOZZ 5330-00-740-9600	19207	7979274	GASKET: SPRING SEAT BEARING COVER	EA	2
	7	22	PAOZZ 2510-00-740-9391	19207	7979306	COVER, ACCESS: SPRING SEAT BEARING	EA	2
	7	23	PAOZZ 5310-00-407-9566	96906	MS35338-45	WASHER, LOCK: 5/16 NOMINAL SIZE	EA	12
	7	24	PAOZZ 5306-00-225-8494	96906	MS90725-29	BOLT, MACHINE: 5/16-18 UNC-2A × 1/2	EA	12



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Figure 8. Rear axle assembly.

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	
8	1	PAFZZ	2530-00-757-9955	19207	10950323	GROUP 1100—REAR AXLE ASSEMBLY AXLE, VEHICULAR: NONDRIVING	EA	2

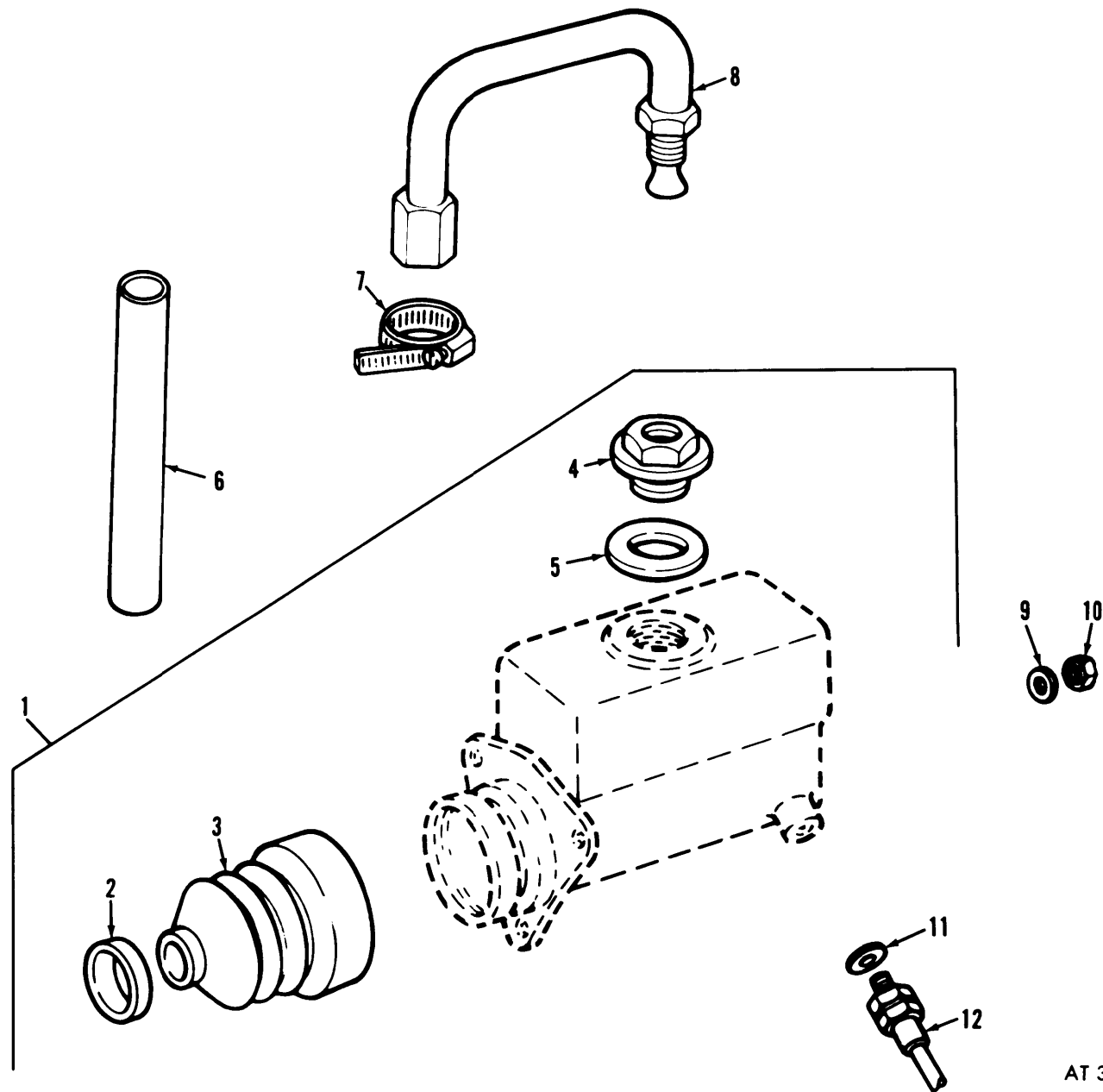


TA 328782

Figure 9. Service brake assembly.



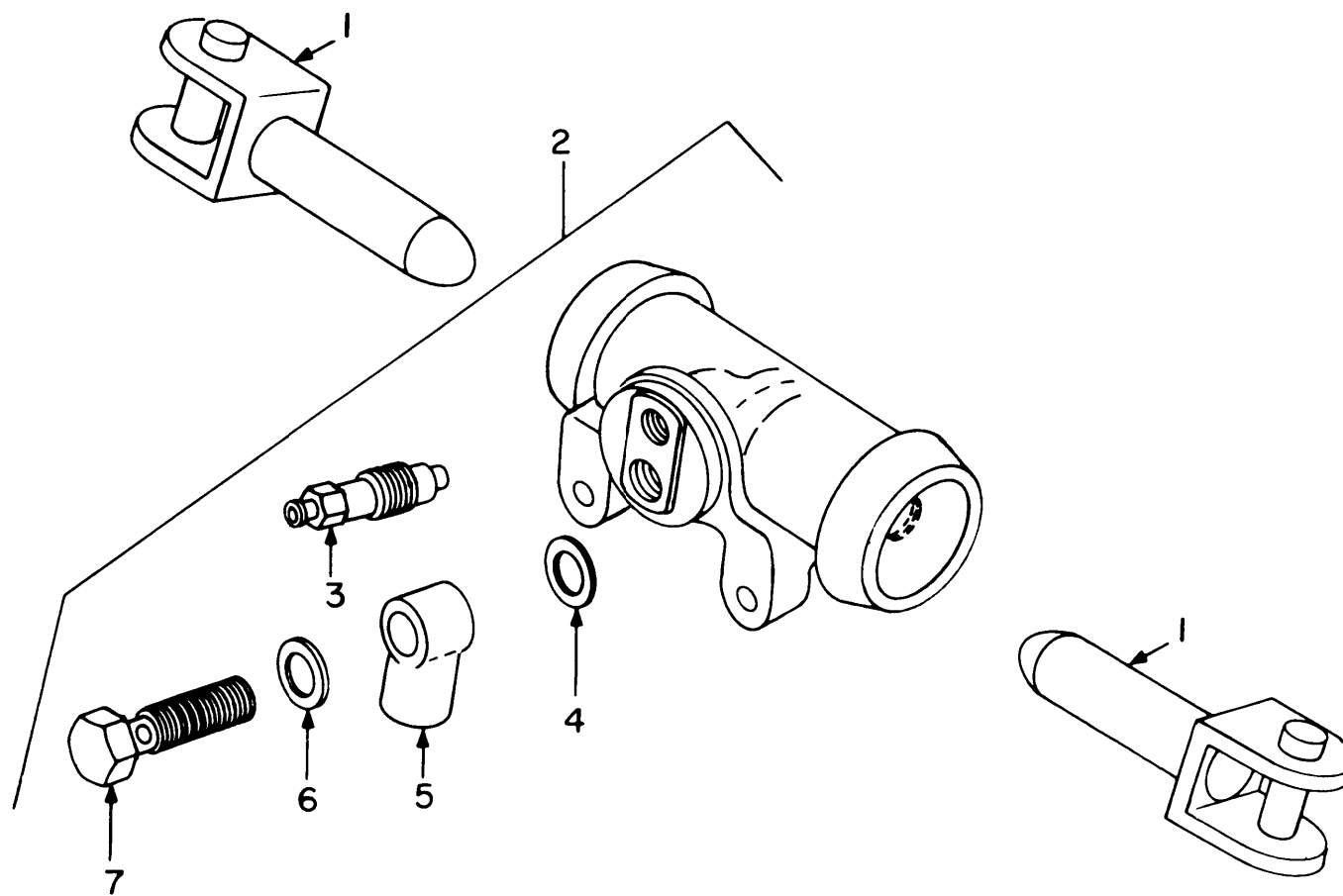
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
R  C	9	1	PAOZZ	2530-00-740-9381	19207	7409381	GROUP 12—BRAKES	
	9	2	PAOZZ	5360-00-740-9382	19207	7409382	GROUP 1202—SERVICE BRAKE ASSEMBLY	
	9	3	PAOZZ	2530-00-457-1676	19207	5282725	PLATE BACKING, BRAKE: BRAKESHOE MOUNTING	EA 1
	9	4	PAOZZ	2530-00-864-2990	19207	7409380	SPRING, HELICAL, COMPRESSION: SHOEADJUSTING	EA 2
	9	5	PAFZZ	5320-00-058-9883	96906	MS16536-172	CAM	EA 2
	9	6	PAFZZ	2530-00-832-6043	19207	8758256	CAM, ADJUSTING, BRAKE	EA 2
	9	7	XAOFF		19207	8758318	SHOE ASSEMBLY	EA 10
	9	8	KFOZZ		96906	MS51968-8	RIVET, TUBULAR: 3/16 DIA x 3/8	EA 1
	9	9	KFOZZ		96906	MS35333-42	LINING, FRICTION: BRAKESHOE	EA 1
	9	10	KFOZZ		19207	11663231	BRAKESHOE	EA 2
	9	11	KFOZZ		19207	11663025	NUT, PLAIN, HEX, PART OF KIT P/N 11677781	EA 2
	9	12	KFOZZ		19207	11663232	WASHER, LOCK, PART OF KIT P/N 11677781	EA 2
	9	13	KFOZZ		19207	11663233	PIN, GUIDE, BRAKE SHOE PART OF KIT P/N 11677781	EA 2
	9	14	KFOZZ		19207	11663236	SPRING, PART OF KIT P/N 11677781	EA 2
	9	15	PAOZZ	5360-00-797-9339	19207	7979339	SPRING, PART OF KIT P/N 11677781	EA 2
	9	16	PAOZZ	5310-00-797-9332	19207	7979332	NUT, PART OF KIT P/N 11677781	EA 4
	9	17	PAOZZ	5315-00-740-9378	19207	7409378	SPRING, HELICAL: SHOE RETRACTING	EA 8
	9	18	PAOZZ	2530-00-204-3622	19207	7979340	WASHER, SLOTTED: BRAKESHOE PIVOT PIN	EA 16
	9	19	PAOZZ	3120-00-740-9567	19207	7979280	PIN, SHOULDER, HEADLESS: GUIDE	EA 4
	9	20	PAOZZ	5310-00-584-7888	96906	MS35338-51	LINK, ANCHOR, BRAKE: BRAKESHOE	EA 8
	9	21	PAOZZ	5310-00-275-9460	19207	7207919	BUSHING, SLEEVE: SHOULDER PIN	EA 8
	9	22	PAOZZ	5315-00-740-9376	19207	7409376	WASHER, LOCK, 3/4 NOMINAL SIZE	EA 8
R  C	9		PAOZZ	2530-00-137-9275	19207	11677781	NUT, PLAIN, HEXAGON: BRAKESHOE PIN	EA 8
	9	8					PIN, SHOULDER, HEADED: BRAKESHOE ADJUSTING	EA 8
	9	9					CAM	
	9	10					PARTS KIT, BRAKE SHOE GUIDE PIN	
	9	11					NUT	
	9	12					WASHER, LOCK	
	9	13					PIN, GUIDE	
C	9	14					SPRING	
	9						WASHER	
	9						SPRING	
	9						NUT	



AT 35339

Figure 10. Hydraulic master cylinder.

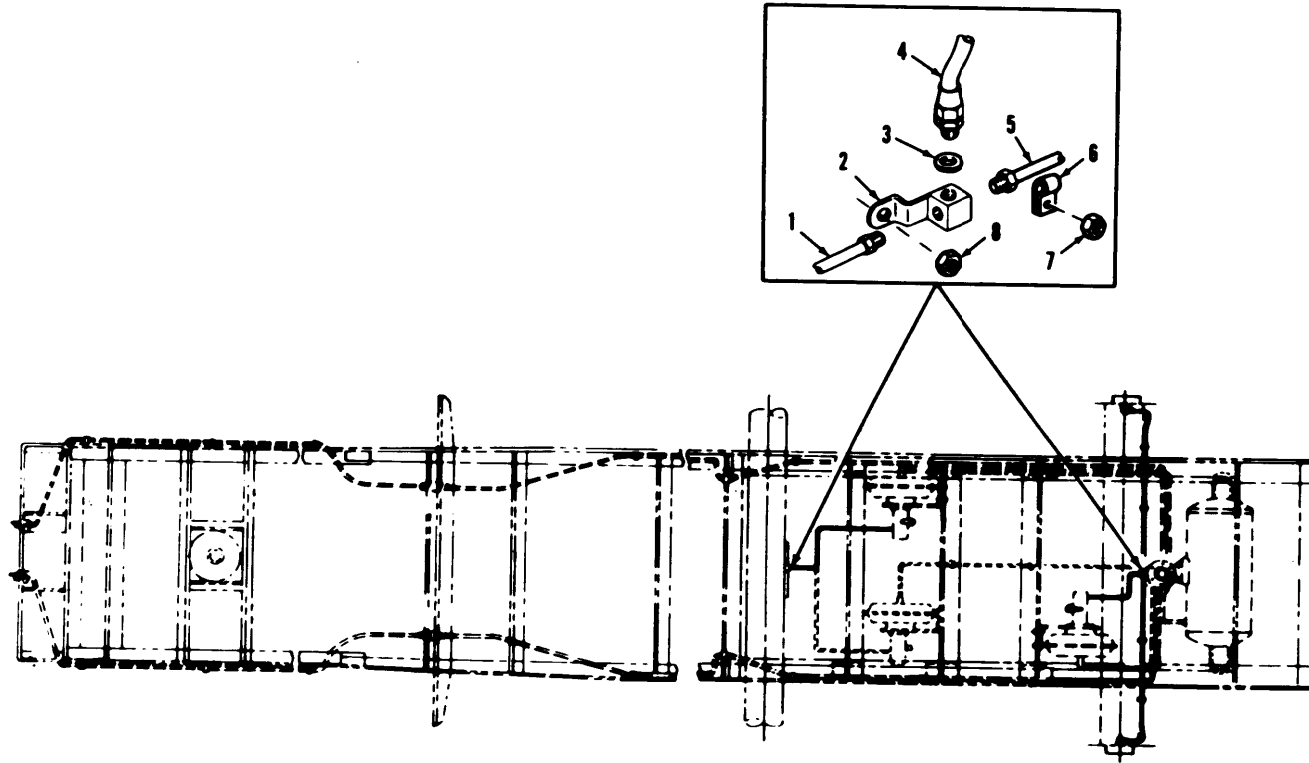
(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6)  DESCRIPTION  USABLE ON CODE	(7)  U/M	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO							
C	10	1	PAOZZ 2530-00-278-2243	19207	8332086	GROUP 1204—HYDRAULIC MASTER CYLINDER CYLINDER ASSEMBLY: HYDRAULIC BRAKE (MASTER)	EA	2
	10	2	PAOZZ 5365-00-516-7878	19207	167880	RING, RETAINING: BELLOWS	EA	2
	10	3	PAOZZ 2530-00-753-9308	19207	7539308	BELLOWS, PROTECTION: CYLINDER ASSEMBLY	EA	2
C	10	4	PAOZZ 4730-00-773-3354	19207	7979691	FILLER CAP ASSEMBLY: CYLINDER ASSEMBLY	EA	2
C	10	5	PAOZZ 5365-00-737-3354	19207	7373354	SPACER, RING: FILLER CAP	EA	2
	10	6	PAOZZ 4720-00-809-2750	19207	8365425	HOSE, PREFORMED, NONMETALIC: CYLINDER ASSEMBLY BREATHER	EA	2
	10	7	PAOZZ 4730-00-908-3193	96906	MS35842-12	CLAMP, HOSE: CYLINDER ASSEMBLY BREATHER	EA	2
R	10	8	PAOZZ 4710-00-511-1692	19207	8365426	TUBE ASSEMBLY, METAL: CYLINDER ASSEMBLY	EA	2
	10	9	PAOZZ 5310-00-732-9541	96906	MS35338-46	WASHER, LOCK: 3/8 NOMINAL SIZE	EA	6
	10	10	PAOZZ 5310-00-732-0559	96906	MS51968-8	NUT, PLAIN, HEXAGON: 3/8-24 UNF-2B	EA	6
R	10	11	PAOZZ 5330-00-930-5292	19207	5156636	GASKET: CYLINDER ASSEMBLY HOSE CONNECTION	EA	2
C	10	12	PAOZZ 4730-00-278-8873	19207	5186963	ADAPTER, STRAIGHT: ASSEMBLY OUTLET	EA	2



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Figure 11. Hydraulic wheel cylinder.

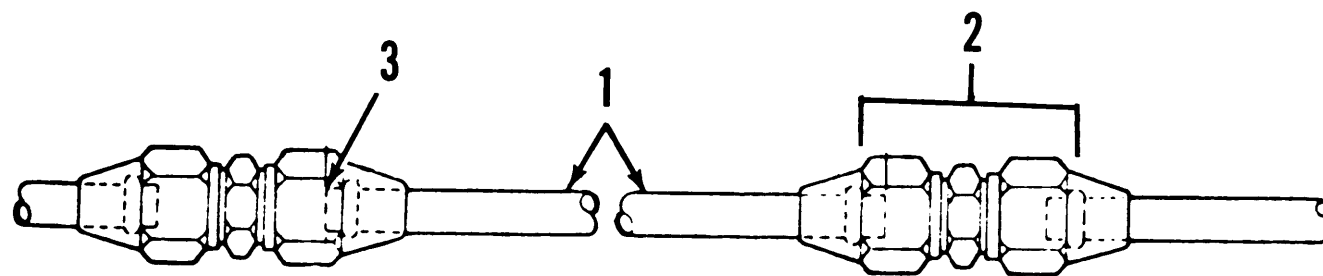
(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6)  DESCRIPTION  USABLE ON CODE	(7)  U/M	(8)  QTY INC IN UNIT
(a) FIG NO.	(b) ITEM NO.							
11	1	PAOZZ	2530-00-272-8106	19207	7413486	GROUP 1204—HYDRAULIC WHEEL CYLINDER	EA	8
11	2	PAOZZ	2530-00-920-7568	19207	8758259	LINK, WHEEL CYLINDER: HYDRAULIC BRAKE	EA	4
11	3	PAOZZ	2530-00-278-6555	19207	7411071	CYLINDER ASSEMBLY: HYDRAULIC BRAKE	EA	4
11	4	PAOZZ	5310-00-275-6635	19207	5214539	VALVE, BLEEDER, HYDRAULIC: WHEEL CYLINDER	EA	4
11	5	PAOZZ	4730-00-209-1761	19207	5282743	WASHER, FLAT: WHEEL CYLINDER INLET FITTING INNER	EA	4
11	6	PAOZZ	5310-00-209-1719	19207	5160323	CONNECTOR, MULTIPLE: WHEEL CYLINDER INLET	EA	4
11	7	PAOZZ	4730-00-516-7419	19207	7409324	WASHER, FLAT: WHEEL CYLINDER INLET FITTING OUTER	EA	4
						BOLT, FLUID PASSAGE: WHEEL CYLINDER INLET	EA	4



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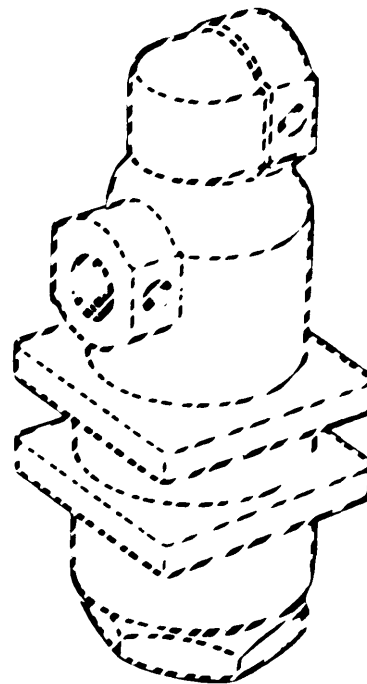
Figure 12. Hydraulic lines, fittings, and hoses.

	(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
	(a) FIG NO.	(b) ITEM NO.							
R	12	1	PAOZZ	4710-00-758-2689	19207	10950318	GROUP 1204—HYDRAULIC LINES, FITTINGS, AND HOSES TUBE ASSEMBLY, METAL: TEE TO LEFT WHEEL CYLINDER CONNECTOR	EA	2
	12	2	PAOZZ	4730-00-737-3252	19207	7373252	CONNECTOR, MULTIPLE: AXLE TUBE ASSEMBLY	EA	2
R	12	3	PAOZZ	5330-00-930-5292	19207	5156636	GASKET: HOSE ASSEMBLY	EA	2
	12	4	PAOZZ	4720-00-740-9331	19207	7409331	HOSE ASSEMBLY, NONMETALLIC	EA	2
R	12	5	PAOZZ	4710-00-758-2688	19207	10950319	TUBE ASSEMBLY, METAL: TEE TO RIGHT WHEEL CYLINDER CONNECTOR	EA	2
	12	6	PAOZZ	5340-00-282-7519	96906	MS21333-34	CLAMP, LOOP: TUBE ASSEMBLY	EA	4
	12	7	PAOZZ	5310-00-807-1468	96906	MS21042-4	NUT, SELF-LOCKING: 1/4-28 UNF-3B, LOOP CLAMP	EA	4
	12	8	PAOZZ	5310-00-106-6360	72582	443336	NUT, SELF-LOCKING, HEXAGON: MULTIPLE CONNECTOR	EA	2



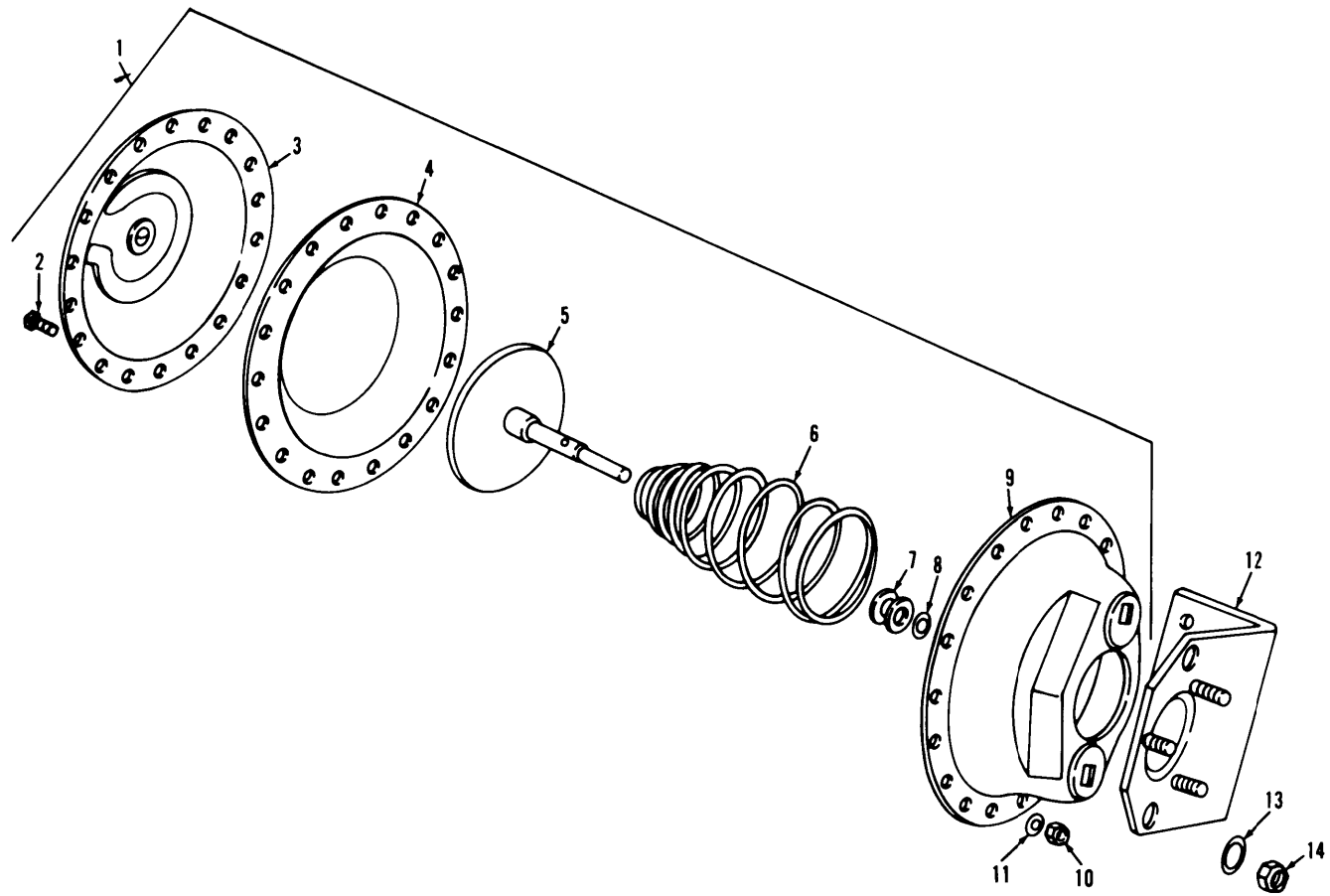
TA 173938

Figure 13. Air filter replacement tubing.





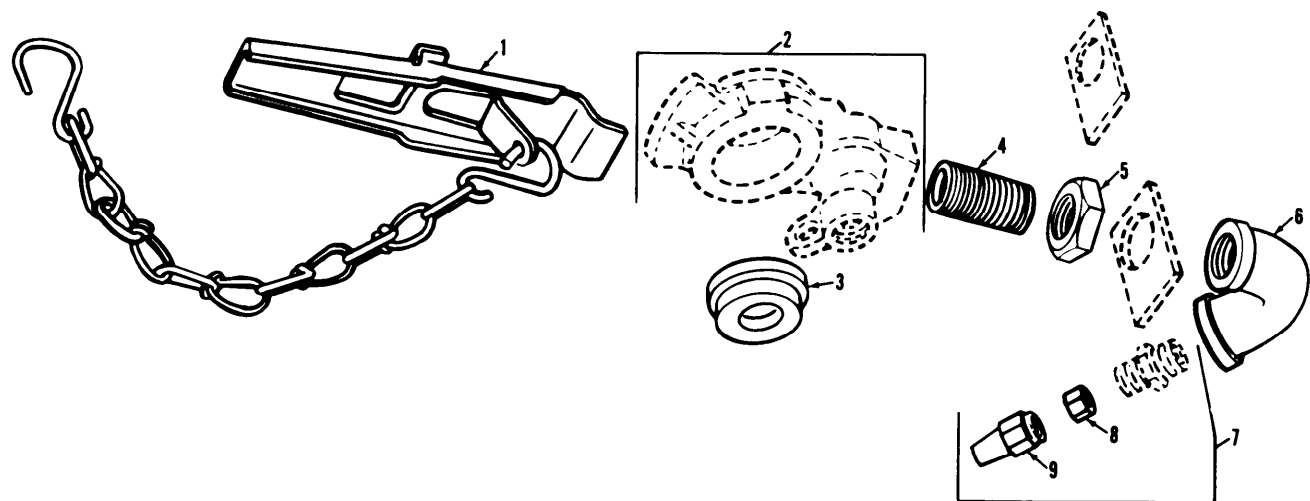
	(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
	(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	QTY INC IN UNIT
N N N	13	1	PAOZZ	4720-00-177-0102	19207	CPR103709	GROUP 1208—AIR FILTER REPLACEMENT TUBING TUBING, NYLON SLEEVE INSERT	FT EA EA	V 2 4
	13	2	PAOZZ	4730-00-278-3213	96906	MS39187-2			
	13	3	PAOZZ	4730-00-177-8445	19207	CPR102321-1			



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Figure 14. Air chamber.

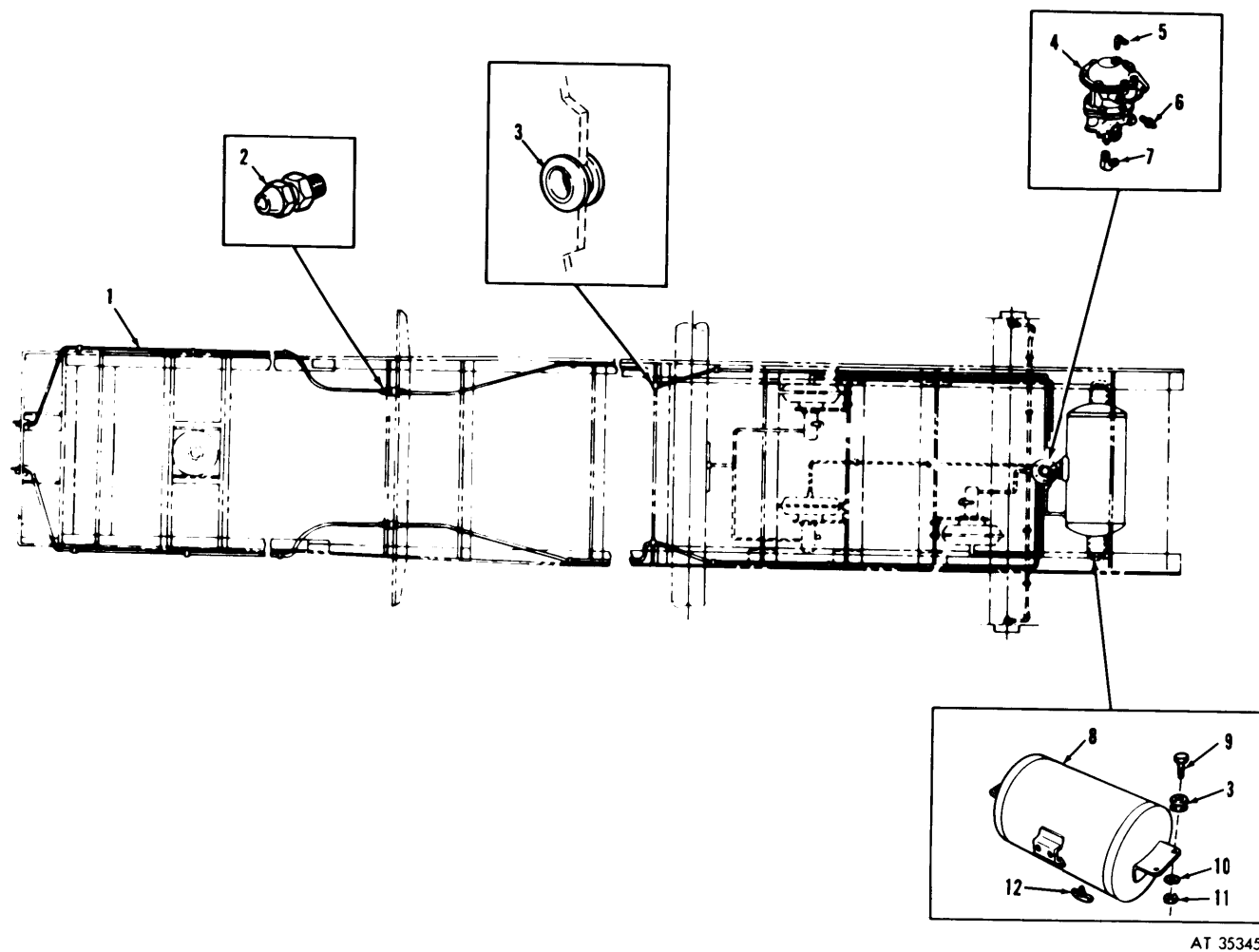
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
R	14	PAOFF	2530-00-142-6045	19207	11668361	GROUP 1208—AIR CHAMBER	EA	2
	14	PAFZZ	5305-00-269-2803	96906	MS90726-60	CHAMBER ASSEMBLY, AIR BRAKE	EA	18
	14	XAFZZ		19207	8380817	SCREW, CAP, HEXAGON: 3/8-24 UNF-2A × 1	EA	1
	14	XAFZZ		19207	8380805	COVER ASSEMBLY: AIR CHAMBER	EA	1
	14	XAFZZ		19207	8380816	DIAPHRAGM, CHAMBER: AIR CHAMBER	EA	1
	14	PAFZZ	5360-00-780-0508	19207	8380802	ROD ASSEMBLY: AIR CHAMBER	EA	1
	14	XAFZZ		19207	8380814	SPRING, HELICAL, COMPRESSION: AIR CHAMBER RETURN	EA	1
	14	PAFZZ	5330-00-618-0801	96906	MS28775-114	COLLAR, PUSH ROD: AIR CHAMBER	EA	1
	14	XAFZZ		19207	8380801	PACKING, PREFORMED: AIR CHAMBER	EA	1
	14	PAFZZ	5310-00-732-0559	96906	MS51968-8	BODY ASSEMBLY: AIR CHAMBER	EA	1
	14	PAFZZ	5310-00-637-9541	96906	MS35338-46	NUT, PLAIN, HEXAGON: 3/8-24 UNF -28	EA	18
	14	PAOZZ	2530-00-157-1396	19207	8730456	WASHER, LOCK: 3/8 NOMINAL SIZE	EA	18
	14	PAOZZ	5310-00-820-6653	96906	MS35338-50	BRACKET, MOUNTING: AIR BRAKE	EA	2
	14	PAOZZ	5310-00-763-8905	96906	MS51968-20	WASHER, LOCK: 5/8 NOMINAL SIZE	EA	4
						NUT, PLAIN, HEXAGON: 5/8-18 UNF-2B	EA	4



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Figure 15. Air hose coupling.

	(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
	(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	QTY INC IN UNIT
R C	15	1	PAOZZ	2530-0-137-9235	19207	7411021	GROUP 1208—AIR HOSE COUPLING	EA	2
	15	2	PAOZZ	4730-00-595-0083	96906	MS35746-1	COUPLER, DUMMY, AUTOMOTIVE: AIR BRAKE LINE	EA	2
	15	3	PAOZZ	5330-00-090-2128	96906	MS35748-1	COUPLING HALF, QUICK DISCONNECT: AIR BRAKE LINE	EA	1
	15	4	PAOZZ	4730-00-784-3762	19207	8360455	PACKING, PREFORMED: QUICK DISCONNECT COUPLING	EA	2
	15	5	PAOZZ	5310-00-971-7990	96906	MS35691-69	NIPPLE, PIPE: COUPLING TO ELBOW	EA	2
	15	6	PAOZZ	4730-00-036-4481	19207	8330288	NUT, PLAIN, HEXAGON: 7/8-14 UNF-2B, NIPPLE	EA	2
	15	7	PAOZZ	4730-00-270-4616	96906	MS39179-6	ELBOW, PIPE TO TUBE	EA	2
	15	8	PAOZZ	4730-00-293-7108	96906	MS39197-3	ADAPTER, STRAIGHT PIPE: LINE TO ELBOW	EA	1
	15	9	PAOZZ	4730-00-278-8825	96906	MS39196-3	SLEEVE, COMPRESSION: ADAPTER NUT, TUBE COUPLING: 3/8 ADAPTER	EA	1



AT 35345

Figure 16. Air reservoir, valve, lines, and fittings.

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY INC IN UNIT
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	
16	1	PAOZZ	4710-00-277-5527	81346	ASTMB280-80	GROUP 1208--AIR RESERVOIR, VALVE, LINES, AND FITTINGS. TUBE, METALLIC: AIR LINE 3/8 INCH (2) FROM COUPLING TO AIR FILTER-175 INCHES (2) FROM AIR FILTER TO EMERGENCY VALVE-300 INCHES (1) FROM EMERGENCY VALVE TO AIR CHAMBER, RIGHT-80 INCHES (1) FROM EMERGENCY VALVE TO AIR CHAMBER, LEFT-28 INCHES	FT	V
C 16	2	PAOZZ	4730-00-069-1186	96906	MS39179-5	ADAPTER, STRAIGHT PIPE PART OF KIT P/N MS53004-2	EA	4
C 16	3	PAOZZ	5325-00-797-9287	19207	7979287	GROMMET, NONMETALLIC: AIR LINES	EA	10
C 16	4	PAOZZ	2530-00-021-2366	96906	MS53004-2	VALVE, EMERGENCY, RELAY PART OF KIT P/N MS53004-2	EA	1
C 16	5	PAOZZ	4730-00-069-1187	96906	MS39182-3	ELBOW, PIPE TO TUBE PART OF KIT P/N MS53004-2	EA	3
C 16	6	PAOZZ	4730-00-270-4616	96906	MS39179-6	ADAPTER, STRAIGHT PIPE: EMERGENCY RELAY	EA	4
C 16	7	PAOZZ	4730-00-289-0155	96906	MS39182-5	ELBOW, PIPE TO TUBE PART OF KIT P/N MS53004-2	EA	1
16	8	PAOZZ	2530-00-797-9298	19207	7979298	TANK, PRESSURE: AIR RESERVOIR (026 THRU SERIAL NO. 340)	EA	1
16	8	PAOZZ	2530-00-464-0973	19207	11597380	TANK, PRESSURE: AIR RESERVOIR (026 AFTER SERIAL NO. 340)	EA	1
16	9	PAOZZ	5305-00-269-2808	96906	MS90726-65	SCREW, CAP, HEXAGON: 3/8-24 UNF-2A x 1-3/4	EA	4
16	10	PAOZZ	5310-00-809-4061	96906	MS27183-15	WASHER, FLAT: 7/16 NOMINAL SIZE	EA	4
16	11	PAOZZ	5310-00-106-6360	72582	443336	NUT, SELF-LOCKING: PRESSURE TANK	EA	4
16	12	PAOZZ	4820-00-849-1220	96906	MS35782-5	COCK, DRAIN: PRESSURE TANK	EA	1

Change 1

E-35

TM 9-2330-272-100P

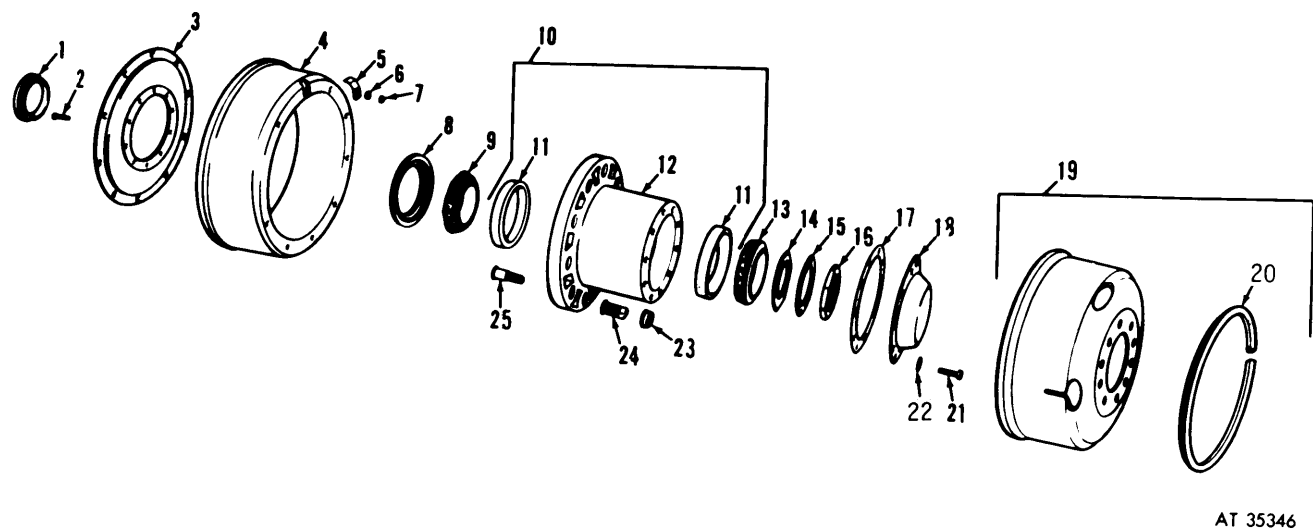
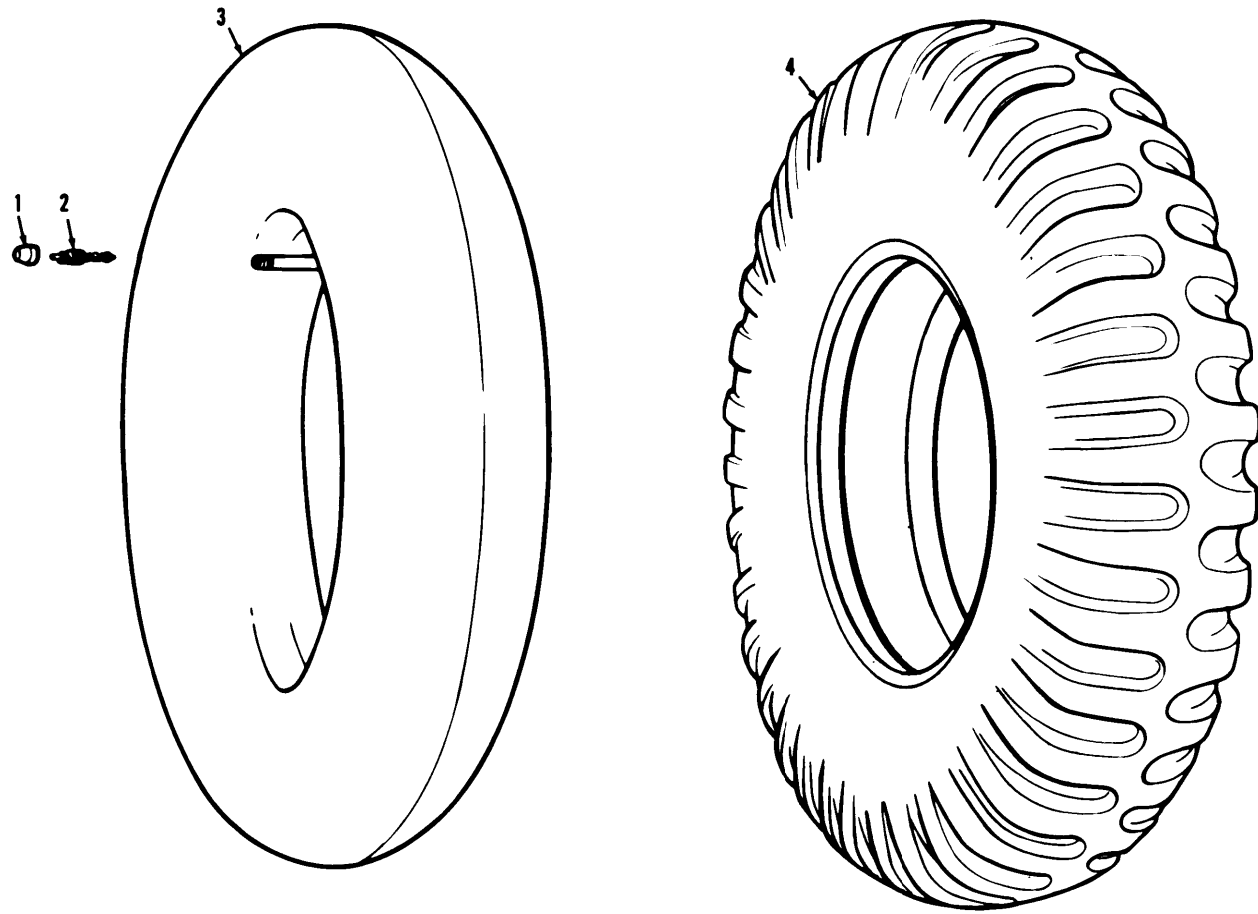


Figure 17. Hub, drum, and wheel assembly.

AT 35346



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY INC IN UNIT
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	
						GROUP 13—WHEELS		
						GROUP 1311—HUB, DRUM, AND WHEEL ASSEMBLY		
C	17	1	PAOZZ 2530-00-740-9553	19207	7409553	RING, WIPER: HUB BEARING OIL SEAL	EA	4
	17	2	PAOZZ 5306-01-062-2334	19207	7979179	BOLT, RIBBED, SHOULDER: BRAKEDRUM TO ADAPTER	EA	40
	17	3	PAOZZ 2530-00-404-4440	19207	8710724	ADAPTER, BRAKEDRUM: TO HUB	EA	4
	17	4	PAOZZ 2530-00-093-5597	19207	7979233	BRAKEDRUM: WHEEL	EA	4
	17	5	PAOZZ 2530-00-211-6129	19207	7979315	COVER, ACCESS: BRAKEDRUM	EA	4
	17	6	PAOZZ 5310-00-209-0965	96906	MS35338-47	WASHER, LOCK: 7/16 NOMINAL SIZE	EA	40
	17	7	PAOZZ 5310-00-234-7815	96906	MS35690-724	NUT, PLAIN, HEXAGON: 7/16-20 UNF-2B	EA	40
R	17	8	PAOZZ 5330-00-740-9550	19207	7979349	SEAL, PLAIN, ENCASED: OIL HUB BEARING	EA	4
	17	9	PAOZZ 3110-00-198-1468	19207	7409349	CONE AND ROLLER, TAPERED: WHEEL HUB (INNER)	EA	4
	17	10	PAOZZ 2530-00-091-9773	19207	8333869	HUB ASSEMBLY, WHEEL: WITH BEARING CUPS	EA	4
	17	11	XAOZZ	12742	706691	CUP, TAPERED, ROLLER BEARING: WHEEL HUB	EA	2
C	17	12	XAOZZ	19207	8710723	HUB: TRAILER WHEEL	EA	1
	17	13	PAOZZ 3110-00-100-0649	24617	121468	CONE AND ROLLERS, TAPERED: WHEEL HUB (OUTER)	EA	4
C	17	14	PAOZZ 5310-00-374-0836	19207	7001725	NUT, PLAIN, OCTAGON: WHEEL BEARING ADJUSTING	EA	4
	17	15	PAOZZ 5310-00-700-7089	19207	5139123	WASHER, KEY: BEARING ADJUSTING NUT	EA	4
N	17	16	PAOZZ 5310-00-353-2427	19207	7346885	NUT, PLAIN, OCTAGON: WHEEL BEARING JAM	EA	4
R	17	17	PAOZZ 5310-00-290-8521	19207	8710726	GASKET: HUB CAP	EA	4
R	17	18	PAOZZ 5340-00-287-8220	19207	8710725	COVER, ACCESS: WHEEL HUB	EA	4
	17	19	PAOZZ 2530-00-603-5768	96906	MS53044-6	WHEEL ASSEMBLY: WITH SIDE RING	EA	8
	17	20	PAOZZ 2530-00-738-9061	96906	MS53045-3	RING, SIDE, AUTOMOTIVE: WHEEL DISK	EA	1
C	17	21	PAOZZ 5306-00-225-8494	96906	MS90725-29	BOLT, MACHINE: 5/16-18 UNC-2A × 1/2	EA	24
	17	22	PAOZZ 5310-00-407-9566	96906	MS35338-45	WASHER, LOCK: 5/16 NOMINAL SIZE	EA	24
C	17	23	PAOZZ 5310-00-880-2005	96906	MS51983-4	NUT, CAP: RIGHT OUTER WHEEL	EA	20
C	17	23	PAOZZ 5310-00-880-2004	96906	MS51983-3	NUT, CAP: LEFT OUTER WHEEL	EA	20
N	17	24	PAOZZ 2530-00-359-1162	96906	MS53068-2	NUT, CAP, DUAL WHEEL: RIGHT INNER WHEEL	EA	20
C	17	24	PAOZZ 2630-00-693-1029	96906	MS53068-1	NUT, CAP, DUAL WHEEL: LEFT INNER WHEEL	EA	20
C	17	25	PAOZZ 5306-00-383-4957	96906	MS51946-2	BOLT, RIBBED SHOULDER: RIGHT WHEEL HUB	EA	20
C	17	25	PAOZZ 5306-00-733-9239	96906	MS51946-1	BOLT, RIBBED SHOULDER: LEFT WHEEL HUB	EA	20



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Figure 18. Tire and tube.

(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6)  DESCRIPTION   USABLE ON CODE	(7)  U/M	(8)  QTY INC IN UNIT
(a) FIG NO.	(b) ITEM NO.							
C	18	1	PAOZZ	2640-00-060-3550	96906	MS51375-1	EA EA EA EA	8 8 8 8
	18	2	PAOZZ	2640-00-050-1229	53477	6100E		
	18	3	PAOZZ	2610-00-051-9450	81348	ZZ-I-550		
	18	4	PAOFF	2610-00-262-8653	96906	MS35388-21		
						GROUP 1313—TIRE AND TUBE CAP, PNEUMATIC VALVE CORE, VALVE: PNEUMATIC TIRE TUBE, INNER, PNEUMATIC TIRE: 11.00 × 20 TIRE, PNEUMATIC: 11.00 × 20, 12 PLY, NDCC-TREAD, NYLON CORD		

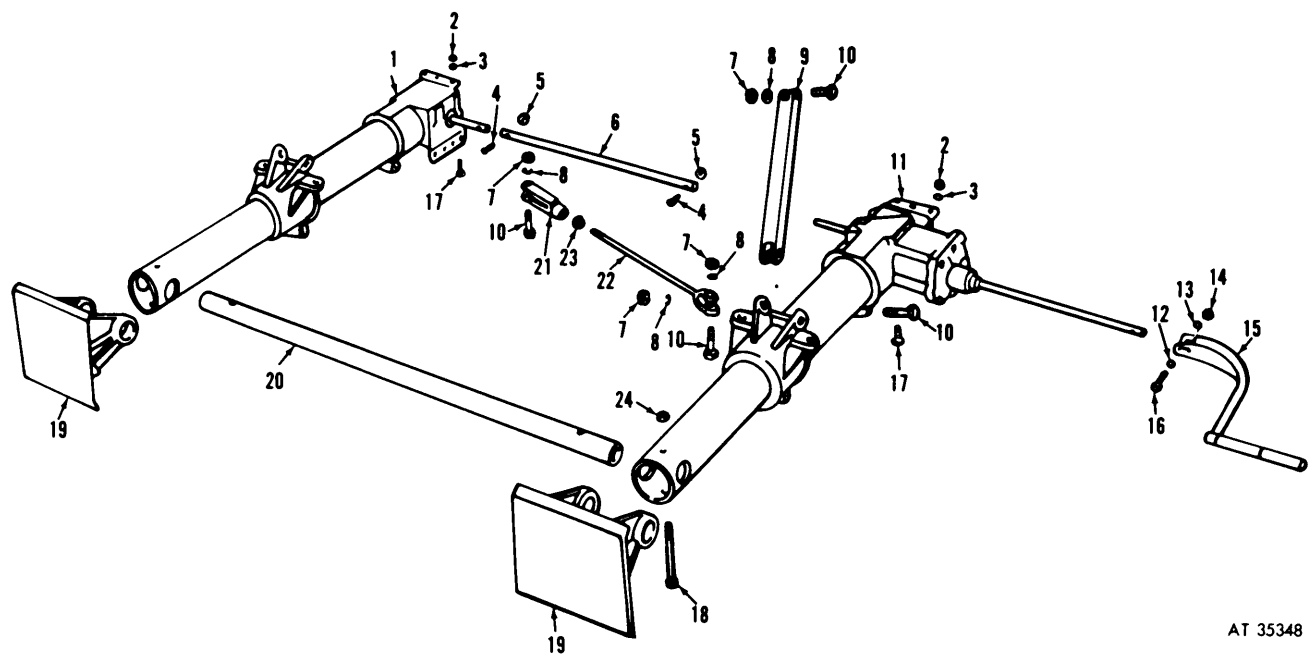
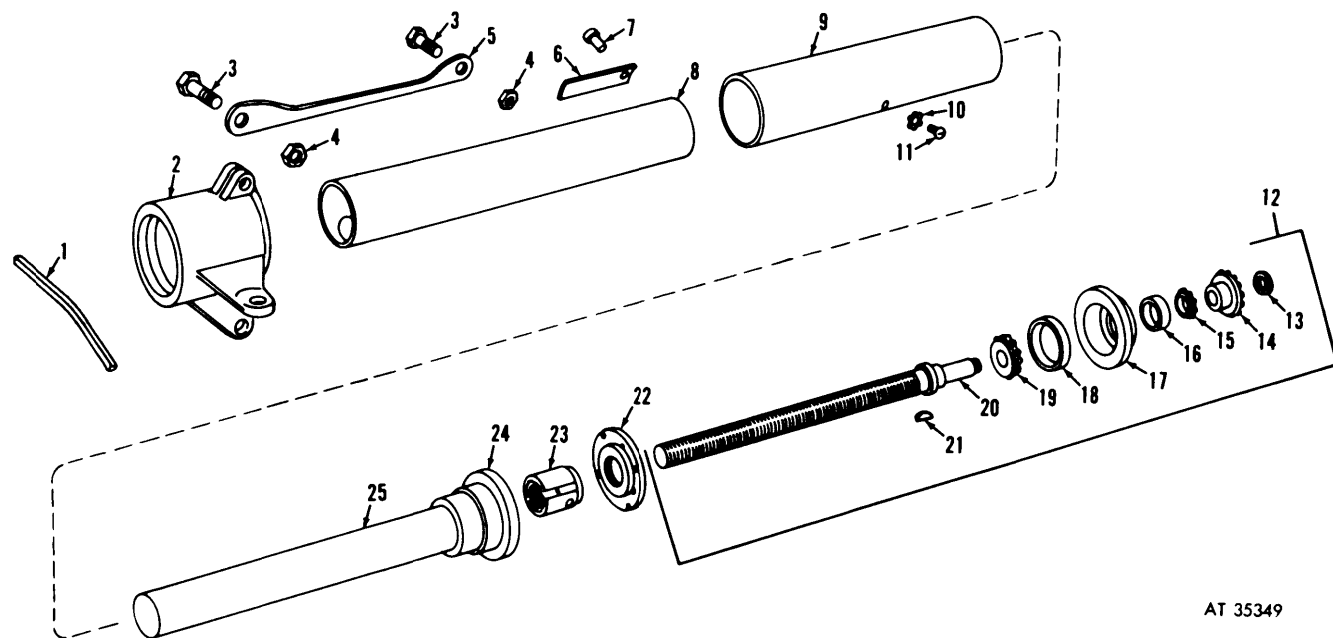


Figure 19. Landing gear assembly.

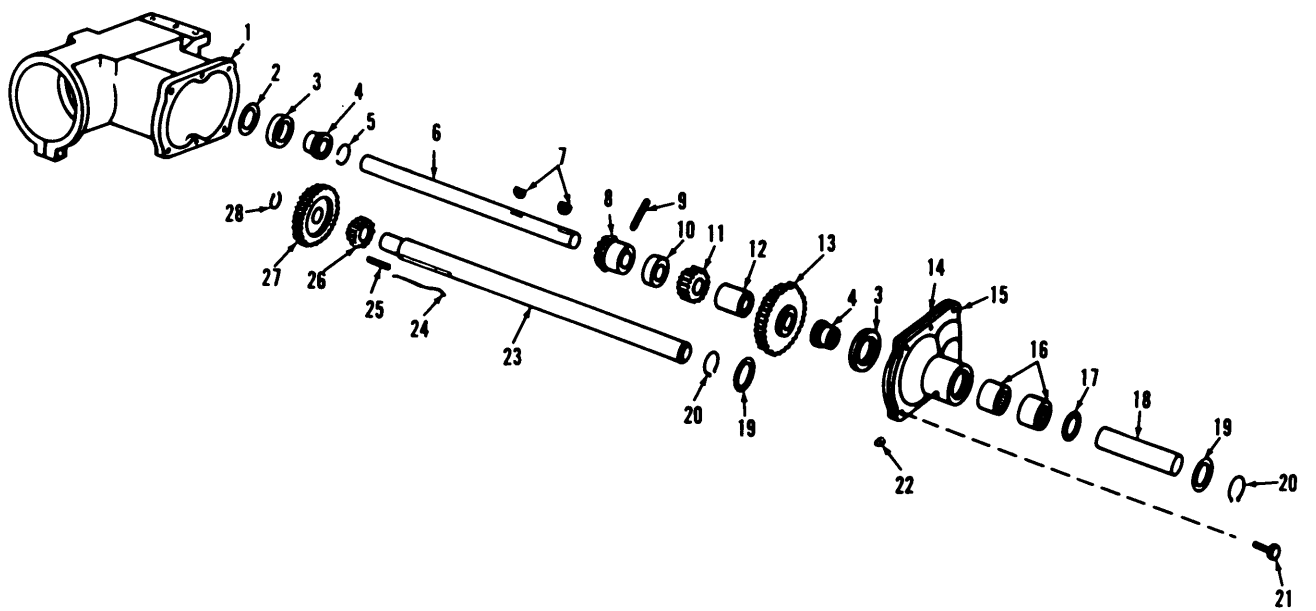
	(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6)  DESCRIPTION   USABLE ON CODE	(7)  U/M	(8)  QTY INC IN UNIT
	(a) FIG NO.	(b) ITEM NO.							
R	19	1	PAOFF	2590-00-534-2337	19207	8724591	GROUP 15—FRAME		
	19	2	PAOZZ	5310-00-732-0560	96906	MS51968-14	GROUP 1507—LANDING GEAR ASSEMBLY		
	19	3	PAOZZ	5310-00-584-5272	96906	MS35338-48	LEG, RETRACTABLE: LEFT HAND SUPPORT	EA	1
	19	4	PAOZZ	5305-00-269-2809	96906	MS90726-66	NUT, PLAIN, HEXAGON: 1/2-20 UNF-2B	EA	14
	19	5	PAOZZ	5310-00-106-6360	72582	443336	WASHER, LOCK: 1/2 NOMINAL SIZE	EA	14
	19	6	PAOZZ	2530-00-087-9549	19207	8360173	SCREW, CAP, HEXAGON: 3/8-24 UNF-2A × 2	EA	2
	19	7	PAOZZ	5310-00-763-8901	96906	MS51968-23	NUT, SELF-LOCKING: CONNECTING DRIVE SHAFT	EA	2
	19	8	PAOZZ	5310-00-584-7888	96906	MS35338-51	SHAFT, LANDING GEAR: CONNECTING DRIVE	EA	1
	19	9	PAOZZ	2590-00-087-9191	19207	8360178	NUT, PLAIN, HEXAGON: 3/4-16 UNF-2B	EA	8
	19	10	PAOZZ	5305-00-727-8817	96906	MS90726-189	WASHER, LOCK: 3/4 NOMINAL SIZE	EA	8
R	19	11	PAOFF	2590-00-534-2338	19207	8724590	BRACE, LANDING GEAR	EA	2
	19	12	PAOZZ	5310-00-081-4219	96906	MS27183-12	SCREW, CAP, HEXAGON: 3/4-16 UNF-2A × 2-1/2	EA	8
	19	13	PAOZZ	5310-00-080-6004	96906	MS27183-14	LEG, RETRACTABLE: RIGHT HAND SUPPORT	EA	1
	19	14	PAOZZ	5310-00-880-7746	96906	MS51968-5	WASHER, FLAT: 11/32 NOMINAL SIZE	EA	1
	19	15	PAOZZ	2530-00-087-9547	19207	7739770	WASHER, FLAT: 13/32 NOMINAL SIZE	EA	1
	19	16	PAOZZ	5306-00-706-8318	19207	7068318	NUT, PLAIN, HEXAGON: 5/16-24 UNF-2B	EA	1
	19	17	PAOZZ	5305-00-725-4183	96906	MS90726-113	CRANK, HAND: LANDING GEAR	EA	1
	19	18	PAOZZ	5305-00-716-8166	96906	MS90726-126	BOLT, SHOULDER: LANDING GEAR CRANK MOUNTING	EA	1
	19	19	PAOZZ	2530-00-797-9015	19207	7979015	SCREW, CAP, HEXAGON: 1/2-20 UNF-2A × 1-1/2	EA	14
C	19	20	PAOZZ	2530-00-933-3594	19207	8360174	SCREW, CAP, HEXAGON: 1/2-20 UNF-2A × 4-3/4	EA	2
	19	21	PAOZZ	2530-00-015-6702	96906	MS35812-8	FOOT, LANDING GEAR	EA	2
R	19	22	PAOZZ	5340-00-087-9195	19207	8360176	TUBE: RETRACTABLE LEG	EA	1
	19	23	PAOZZ	5310-00-265-9237	96906	MS35690-1224	CLEVIS, TRAVEL LOCK: LANDING GEAR	EA	2
	19	24	PAOZZ	5310-00-044-3340	24617	443340	CLEVIS, ROD END: LANDING GEAR	EA	2
							NUT, PLAIN, HEXAGON: 3/4-16 UNF-2B	EA	2
							NUT, SELF LOCKING: LANDING GEAR FOOT SCREW	EA	2



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Figure 20. Landing gear leg.

	(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6)  DESCRIPTION   USABLE ON CODE	(7)  U/M	(8)  QTY INC IN UNIT
	(a) FIG NO.	(b) ITEM NO.							
R	20	1	PAFZZ	8305-00-534-2351	19207	7979049	GROUP 1507—LANDING GEAR LEG	EA	2
	20	2	XBFZZ		19207	8724585	STRIP, FELT: LEG SEAL	EA	2
R	20	3	PAFZZ	5305-00-948-0803	96906	MS90726-191	RING: LANDING GEAR LEG	EA	4
	20	4	PAFZZ	5310-00-832-9719	96906	MS51922-61	SCREW, CAP, HEXAGON: 3/4-16 UNF-2A × 3	EA	4
	20	5	XBFZZ		19207	8724593	NUT, SELF-LOCKING, HEXAGON: 3/4-16 UNF	EA	2
	20	6	XBFZZ		19207	7979031	TIE: LANDING GEAR LEG	EA	2
	20	7	XBFZZ		19207	7979050	STOP: LANDING GEAR LEG	EA	2
	20	8	XBFZZ		19207	7979034	DOWEL: LANDING GEAR LEG STOP	EA	2
	20	9	XBFZZ		19207	7979017	LEG, LOWER: LANDING GEAR	EA	2
	20	10	PAFZZ	5310-00-584-5272	96906	MS35338-48	LEG, UPPER: LANDING GEAR	EA	2
	20	11	XBFZZ		89074	112799	WASHER, LOCK: 1/2 NOMINAL SIZE	EA	2
	20	12	PAFFF	2530-00-797-9032	19207	7979032	SCREW, MACHINE	EA	2
							LEG ASSEMBLY, LOWER LANDING: WITH GEAR AND BEARING	EA	2
R	20	13	PAFZZ	5310-00-736-6485	19207	7366485	NUT, PLAIN, HEXAGON: BEVEL GEAR	EA	1
	20	14	PAFZZ	3020-00-797-9023	19207	7979023	GEAR, BEVEL: OPERATING SCREW SHAFT	EA	1
	20	15	PAFZZ	3110-00-100-3700	24617	116476	CONE AND ROLLER, TAPERED: OUTER SCREW SHAFT	EA	1
C	20	16	PAFZZ	3110-00-100-0637	31007	E13995	CUP, TAPERED, ROLLER: OUTER SCREW SHAFT	EA	1
	20	17	PAFZZ	2530-00-693-0568	19207	7366490	RETAINER, BEARING: INNER SCREW SHAFT	EA	2
C	20	18	PAFZZ	3110-00-100-0585	24617	136843	CUP, TAPERED, ROLLER: INNER SCREW SHAFT	EA	1
	20	19	PAFZZ	3110-00-100-3598	21450	705496	CONE AND ROLLER, TAPERED: LOWER LEG	EA	1
	20	20	XAFZZ		19207	7979025	SCREW: LOWER LANDING GEAR ASSEMBLY	EA	2
	20	21	PAFZZ	5315-00-616-5529	96906	MS35756-16	KEY, WOODRUFF: SCREW SHAFT	EA	1
R	20	22	PAFZZ	5330-00-534-2344	19207	7979003	SEAL, PLAIN, ENCASED: INNER BEARING	EA	1
	20	23	PAFZZ	5310-00-797-9018	19207	7979018	NUT, PLAIN, ROUND: SCREW SHAFT	EA	2
	20	24	PAFZZ	2530-00-797-9006	19207	7979006	RETAINER, SCREW: SCREW SHAFT NUT	EA	1
	20	25	XBFZZ		19207	7979372	TUBE: RESERVOIR ASSEMBLY	EA	1

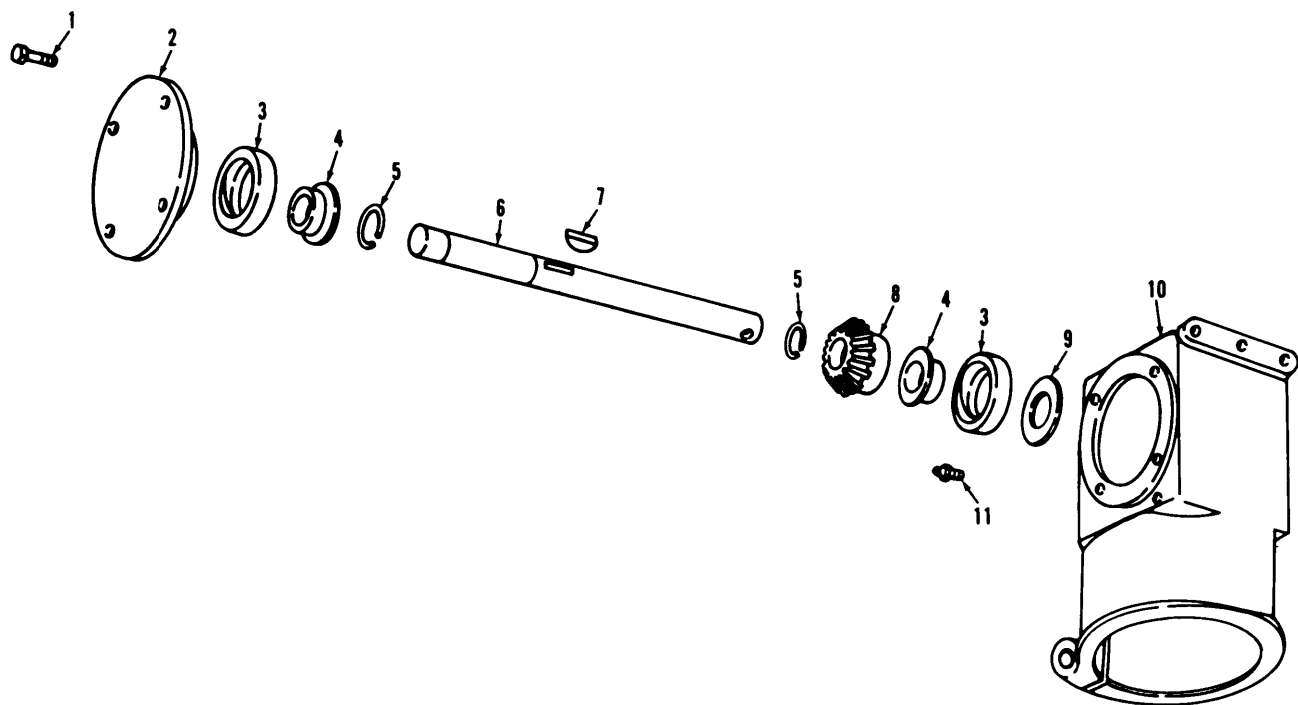


AT 35350

Figure 21. Right landing gear leg gear box.



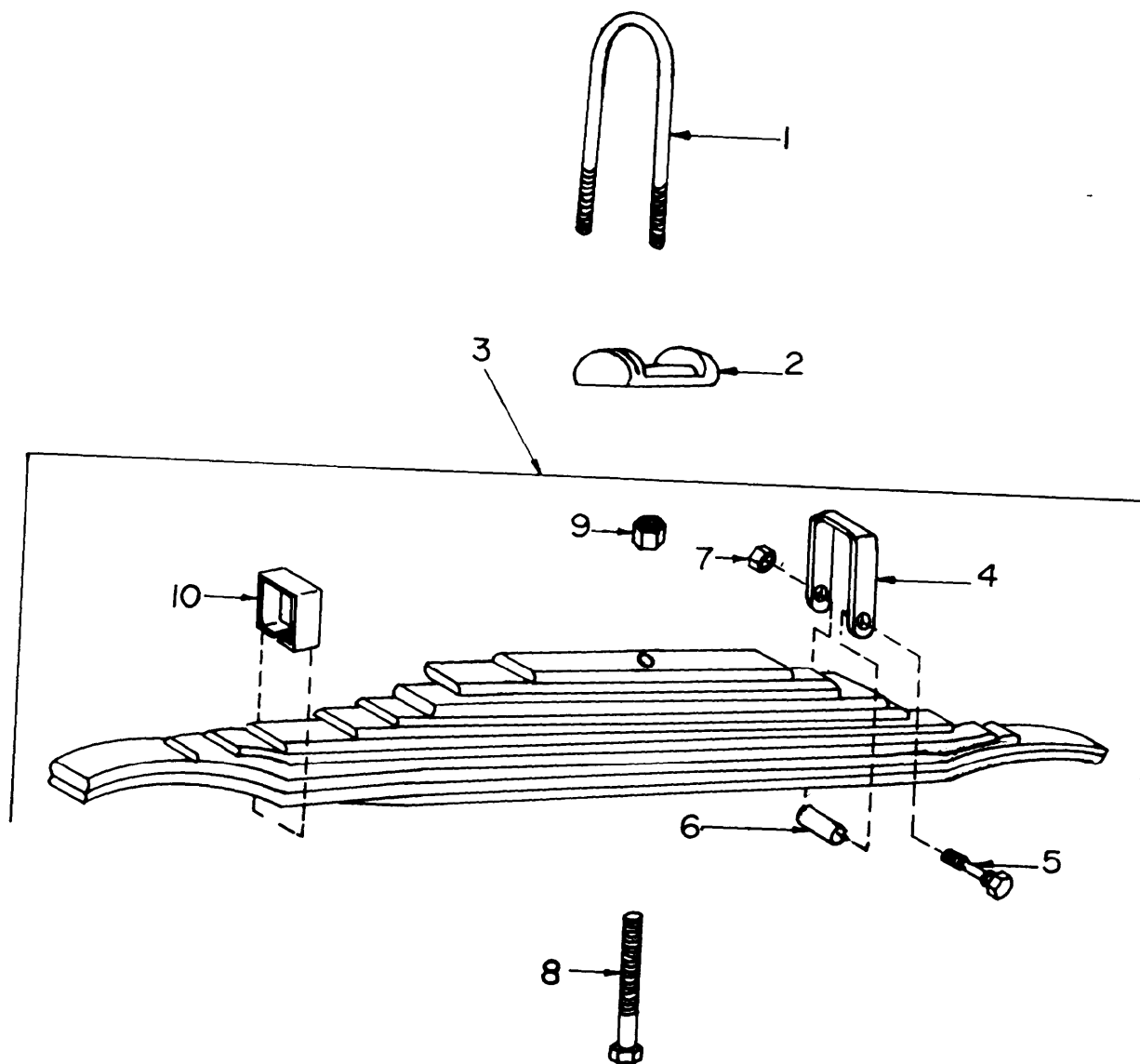
(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 1507—RIGHT LANDING GEAR LEG GEAR BOX		
21	1	XBFZZ		19207	8724587	HOUSING: RIGHT LANDING GEAR LEG	EA	1
21	2	PAFZZ	5310-00-736-6475	19207	7366475	WASHER, FLAT	EA	1
21	3	PAFZZ	3110-00-151-8176	21450	709692	BEARING, BALL, ANNULAR	EA	2
21	4	PAFZZ	3120-00-534-2346	19207	8724774	BEARING, SLEEVE	EA	2
21	5	PAFZZ	5365-00-281-9885	96906	MS16626-1100	RING, RETAINING: BALL BEARING	EA	1
21	6	XBFF		19207	8724776	SHAFT	EA	1
21	7	PAFZZ	5315-00-616-5520	96906	MS35756-14	KEY, WOODRUFF	EA	2
21	8	PAFZZ	3020-00-797-9019	19207	7979019	GEAR, BEVEL	EA	1
21	9	PAFZZ	5315-00-810-3704	96906	MS16562-80	PIN, SPRING: 3/8 DIA × 1-3/4	EA	1
21	10	XBFZZ		19207	8724592	SPACER	EA	1
21	11	PAFZZ	3020-00-569-9880	19207	7979020	GEAR, SPUR	EA	1
21	12	XBFZZ		19207	8724775	SPACER	EA	1
21	13	PAFZZ	3020-00-797-9016	19207	7979016	GEAR, SPUR	EA	1
21	14	PAFZZ	5330-00-135-4474	19207	7018059	GASKET: GEAR HOUSING COVER	EA	1
21	15	XBFZZ		19207	8724739	COVER, GEAR HOUSING	EA	1
21	16	PAFZZ	3110-00-902-3775	96906	MS17131-40	BEARING, ROLLER, NEEDLE	EA	2
21	17	PAFZZ	5330-00-534-2342	19207	7979038	SEAL, PLAIN, ENCASED: SHAFT SLEEVE	EA	1
21	18	PAFZZ	2530-00-797-9029	19207	7979029	SLEEVE, LANDING GEAR	EA	1
21	19	XBFZZ		19207	7979061	WASHER	EA	2
21	20	PAFZZ	5365-00-803-7316	96906	MS16624-1137	RING, RETAINING: SHAFT AND BEARING	EA	2
21	21	PAFZZ	5305-00-042-5600	24617	425600	SCREW, ASSEMBLED WASHER	EA	6
21	22	PAZZ	4730-00-050-4208	96906	MS15003-1	FITTING, LUBRICATION: GEAR HOUSING GEAR	EA	2
21	23	XBFZZ		19207	7979030	SHAFT: LANDING GEAR LEG	EA	1
21	24	PAFZZ	5360-01-054-6059	19207	7979036	SPRING, SPECIAL: LANDING LEG SHAFT	EA	1
21	25	PAFZZ	5315-00-050-5682		NO REF	KEY, MACHINE: DRIVE GEAR AND PINION	EA	1
21	26	PAFZZ	3020-00-797-9021	19207	7979021	GEAR, SPUR: GEAR BOX	EA	1
21	27	PAFZZ	3020-00-797-9022	19207	7979022	GEAR, SPUR: LANDING GEAR	EA	1
21	28	PAFZZ	5365-00-803-7302	96906	MS16624-1081	RING, RETAINING: DRIVE GEAR SHAFT	EA	1



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Figure 22. Left landing gear leg gear box.

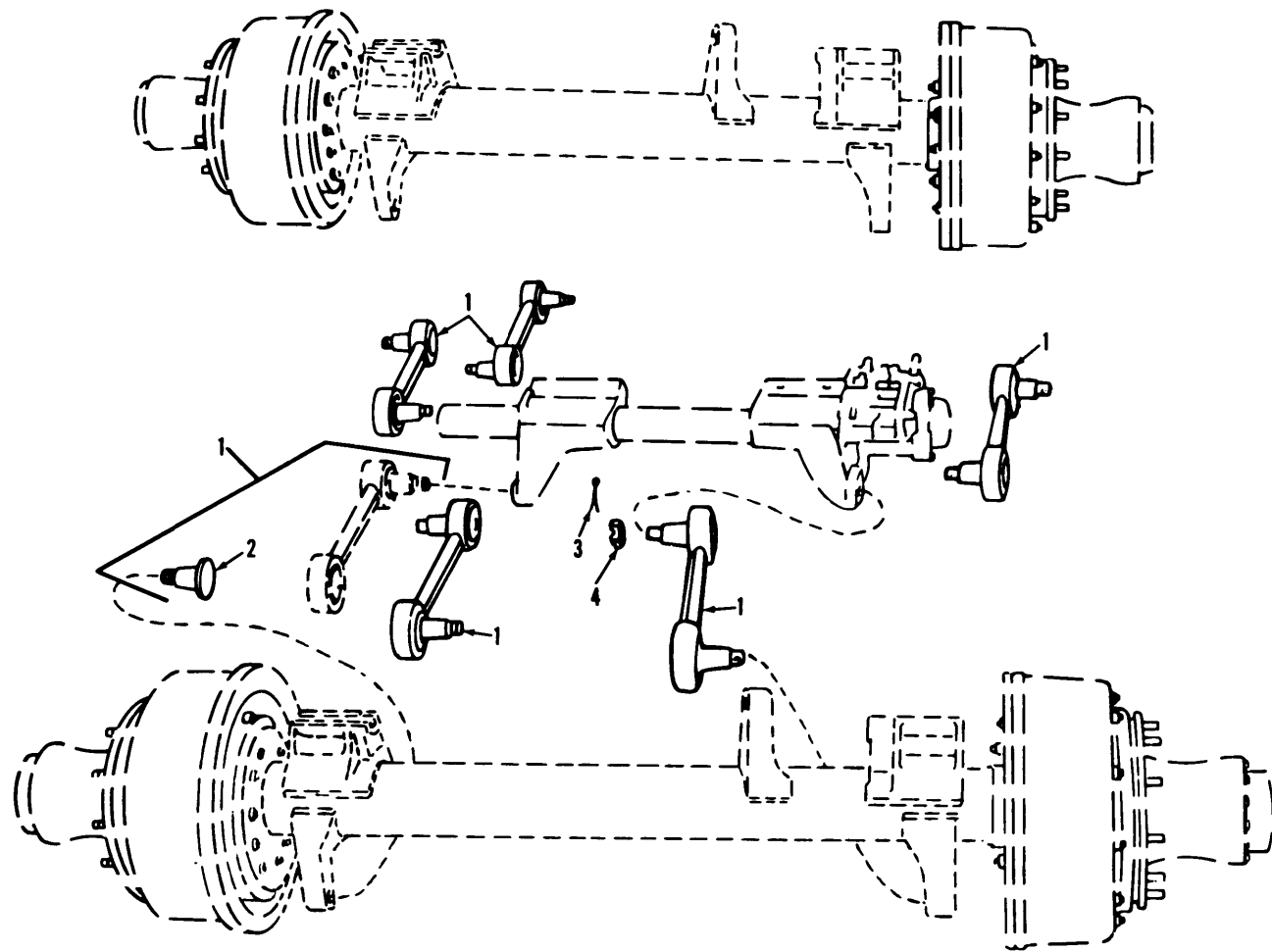
	(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
	(a) FIG NO.	(b) ITEM NO.							
C	22	1	PAFZZ	5305-00-042-5600	24617	425600	GROUP 1507—LEFT LANDING GEAR LEG GEAR BOX	EA	4
	22	2	XBFZZ		19207	8724738	SCREW, ASSEMBLED WASHER: GEAR HOUSING COVER	EA	1
	22	3	PAFZZ	3110-00-151-8176	21450	709692	COVER: LEFT LANDING GEAR LEG GEAR BOX	EA	2
R	22	4	PAFZZ	3120-00-534-2346	19207	8724774	BEARING, BALL, ANNULAR: LEFT GEAR BOX	EA	2
	22	5	PAFZZ	5365-00-281-9885	96906	MS16626-1100	BEARING, SLEEVE: LEFT GEAR BOX	EA	2
	22	6	XBFZZ		19207	8724777	RING, RETAINER: LEFT GEAR BOX DRIVEN SHAFT	EA	1
	22	7	PAFZZ	5315-00-616-5529	96906	MS35756-16	SHAFT: LEFT LANDING GEAR LEG GEAR BOX	EA	1
R	22	8	PAFZZ	3020-00-569-9882	19207	7979024	KEY, WOODRUFF: BEVEL GEAR	EA	1
	22	9	PAFZZ	5310-00-736-6475	19207	7366475	GEAR, BEVEL: LEFT GEAR BOX	EA	1
	22	10	XBFZZ		19207	8724586	WASHER, FLAT: BEARING SPACER	EA	1
	22	11	PAOZZ	4730-00-050-4208	96906	MS15003-1	HOUSING: LEFT LANDING GEAR LEG GEAR BOX	EA	1
							FITTING, LUBRICATION: GEAR HOUSING		



TA072 681

Figure 23. Spring assembly.

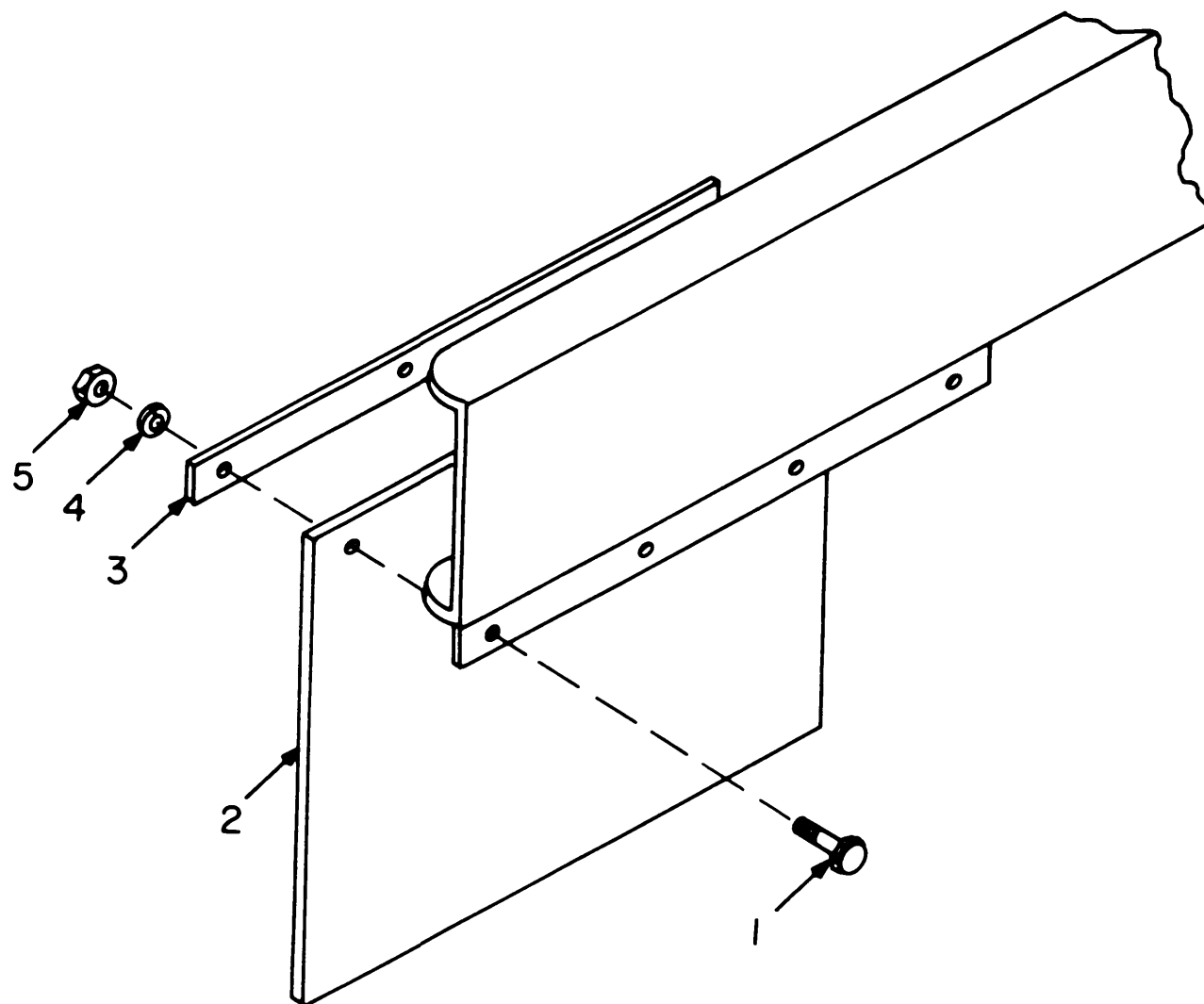
	(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
	(a) FIG NO.	(b) ITEM NO.							
N	23	1	PAOZZ	5306-00-797-9365	19207	7979365	GROUP 16—SPRINGS AND TORQUE RODS	EA	4
N	23	2	PAOZZ	2510-00-117-9286	19207	7979316	GROUP 1601—SPRING ASSEMBLY	EA	2
N	23	3	PAOZZ	2510-00-797-9217	19207	7979217	BOLT, U: SPRING ANCHOR	EA	2
N	23	4	PAOZZ	2510-00-207-9386	19207	7979421	SADDLE, LEAF SPRING	EA	2
N	23	5	PAOZZ	5305-00-042-9477	96906	MS90725-91	SPRING ASSEMBLY, LEAF	EA	2
N	23	6	PAOZZ	2510-00-003-8344	19207	7979423	ALINEMENT CLIP: SPRING	EA	2
N	23	7	PAOZZ	5310-00-891-1711	96906	MS35691-25	SCREW, CAP, HEXAGON: CLIP	EA	2
N	23	8	PAOZZ	5306-00-206-7279	19207	7979425	SPACER, ALINEMENT: CLIP	EA	2
N	23	9	PAOZZ	5310-00-010-3028	96906	MS35690-824	NUT, PLAIN, HEXAGON: CLIP	EA	1
N	23	10	PAOZZ	2510-00-030-6595	19207	7979422	BOLT, MACHINE: SPRING CENTER	EA	1
							NUT, PLAIN, HEXAGON: 1/2-20 UNC-2B	EA	1
							ALINEMENT CLIP: SPRING	EA	2



AT 35353

Figure 24. Torque rod.

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
24	1	PAOFF	2530-00-797-9189	19207	7979189	GROUP 1605—TORQUE ROD	EA	6
24	2	PAFZZ	2530-00-740-9620	19207	7979185	ROD ASSEMBLY, TORQUE: SUSPENSION	EA	2
24	3	PAOZZ	5315-00-187-9567	96906	MS24665-500	BALL ASSEMBLY: TORQUE ROD	EA	12
24	4	PAOZZ	5310-00-740-9621	19207	7979183	PIN, COTTER: 3/16 DIA × 2-1/2 NUT, PLAIN, SLOTTED, HEXAGON: TORQUE ROD	EA	12



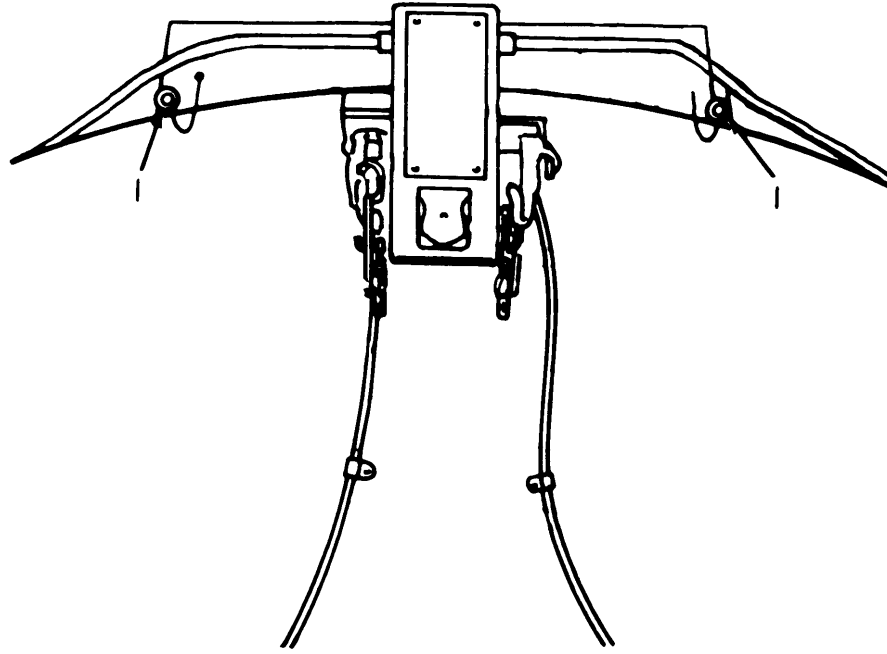
TA 072277

Figure 25. Splash guard.



N  
N  
N  
N  
N  
N

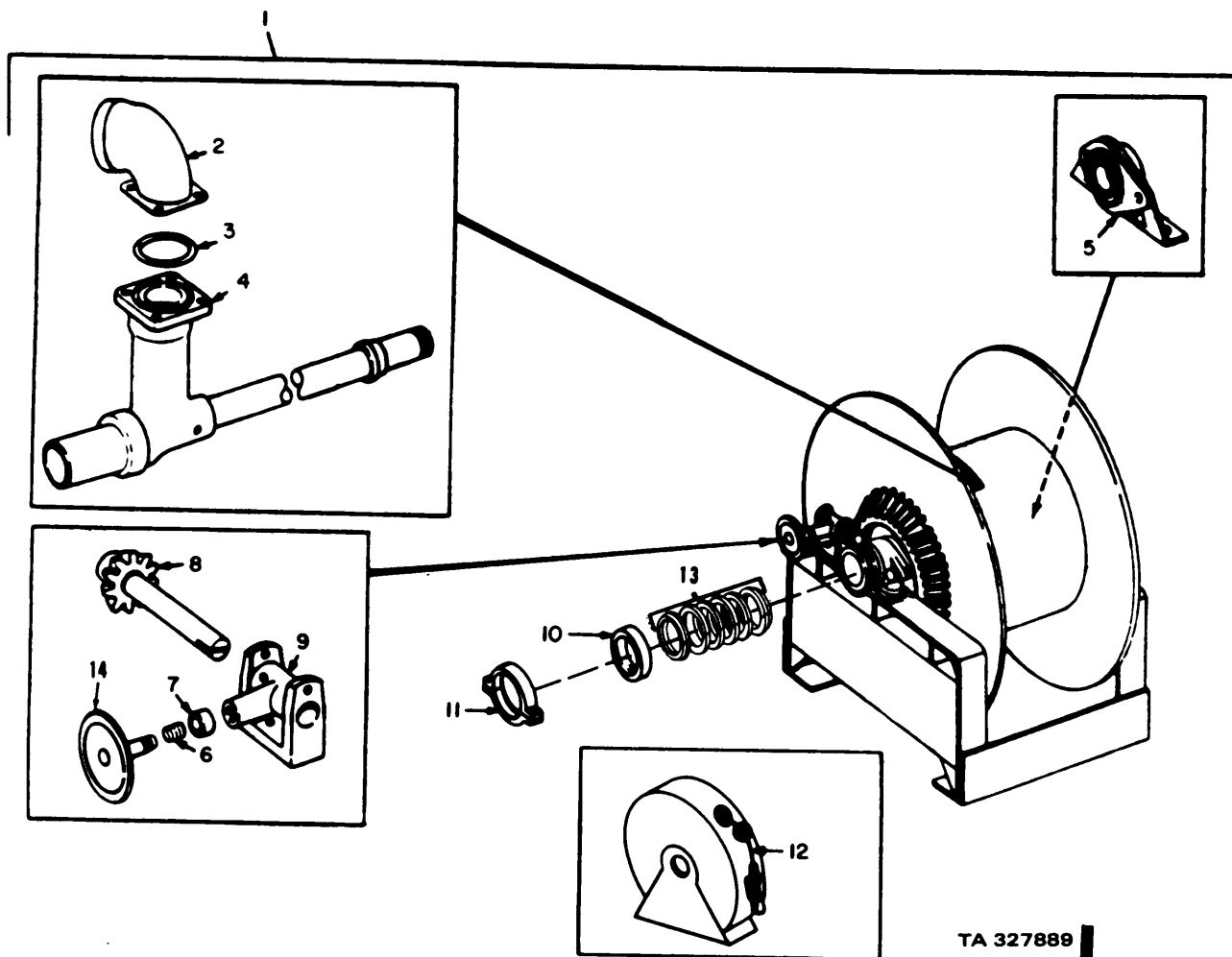
(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
(a) FIG NO.	(b) ITEM NO.							
25	1	PAOZZ	5305-00-456-2430	96906	MS35308-310	GROUP 18—BODY		
25	2	PAOZZ		19207	11635316	GROUP 1801—SPLASH GUARD		
25	3	XBOZZ	2540-01-041-0708	19207	10959859	SCREW, CAP, HEXAGON	049	EA 8
25	4	PAOZZ	5310-00-582-5965	96906	MS35338-44	GUARD, SPLASH		EA 2
25	5	PAOZZ	5310-00-768-0319	96906	MS51968-2	BRACKET, SPLASH GUARD		EA 8
						WASHER, LOCK		EA 8
						NUT, PLAIN, HEXAGON: 1/4-28 UNF		



TA 072322

*Figure 26. Drain plug.*

(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6)  DESCRIPTION   USABLE ON CODE	(7)  U/M	(8)  QTY INC IN UNIT
(a) FIG NO.	(b) ITEM NO.							
26	1	PAOZZ	4730-00-923-0909	31007	444584	GROUP 1804—DRAIN PLUG PLUG, PIPE: FRONT CATWALK DRAIN	EA	2



TA 327889

Figure 27. Hose reel assembly (1-1/2-in.) and static reel assembly.

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
C  R     N  N C	27	1	PAOFF	2590-00-757-9936	19207	10936924	GROUP 1808—HOSE REEL (1-1/2-IN.) AND STATIC REEL HOSE AND REEL ASSEMBLY: 1-1/2-IN. FUEL DISPENSING 026,049	EA 1
	27	2	PAFZZ	2590-00-764-6288	19207	10950440	ELBOW, HOSE: ADAPTER	EA 1
	27	3	PAFZZ	5330-00-029-9773	96906	MS9068-227	PACKING, PREFORMED: ELBOW HOSE ADAPTER	EA 1
	27	4	PAFZZ	2590-00-763-2398	19207	10950439	ELBOW, HOSE ADAPTER: SWING JOINT OUTLET	EA 1
	27	5	PAFZZ	2590-00-763-2417	19207	10950438	BEARING: HOSE REEL AXLE	EA 1
	27	6	PAFZZ	5360-00-759-3557	19207	10950443	SPRING, HELICAL, COMPRESSION: HOSE REEL LOCK	EA 1
	27	7	PAFZZ	2590-00-763-2400	19207	10950442	SPACER, BRAKE PLUG: HOSE REEL	EA 1
	27	8	PAFZZ	2590-00-763-2416	19207	10950441	GEAR, PINION: HOSE REEL CRANK	EA 1
	27	9	PAFZZ	2590-00-763-2399	19207	10950437	BEARING, PINION: HOSE REEL CRANK	EA 1
	27	10	PAFZZ	5330-00-912-3380	19207	10959962	SEAL, RUBBER, SPECIAL: INLET PIPE TO 1-1/2-IN. HOSE REEL 026,049	EA 1
	27	11	PAFZZ	2590-00-912-4700	19207	10936967	COUPLER, FUEL LINES 026,049	EA 1
	27	12	PAFZZ	2590-00-792-8621	19207	10917215	REEL ASSEMBLY, STATIC: TWIN LEAD	EA 1
	27	13	PAFZZ	5330-01-128-9546	82366	223508-3	RING & PACKING (SEAL) 026,049	EA 1
	27	14	XDOZZ		82366	1-224415	HANDLE, LOCKING 026,049	EA 1

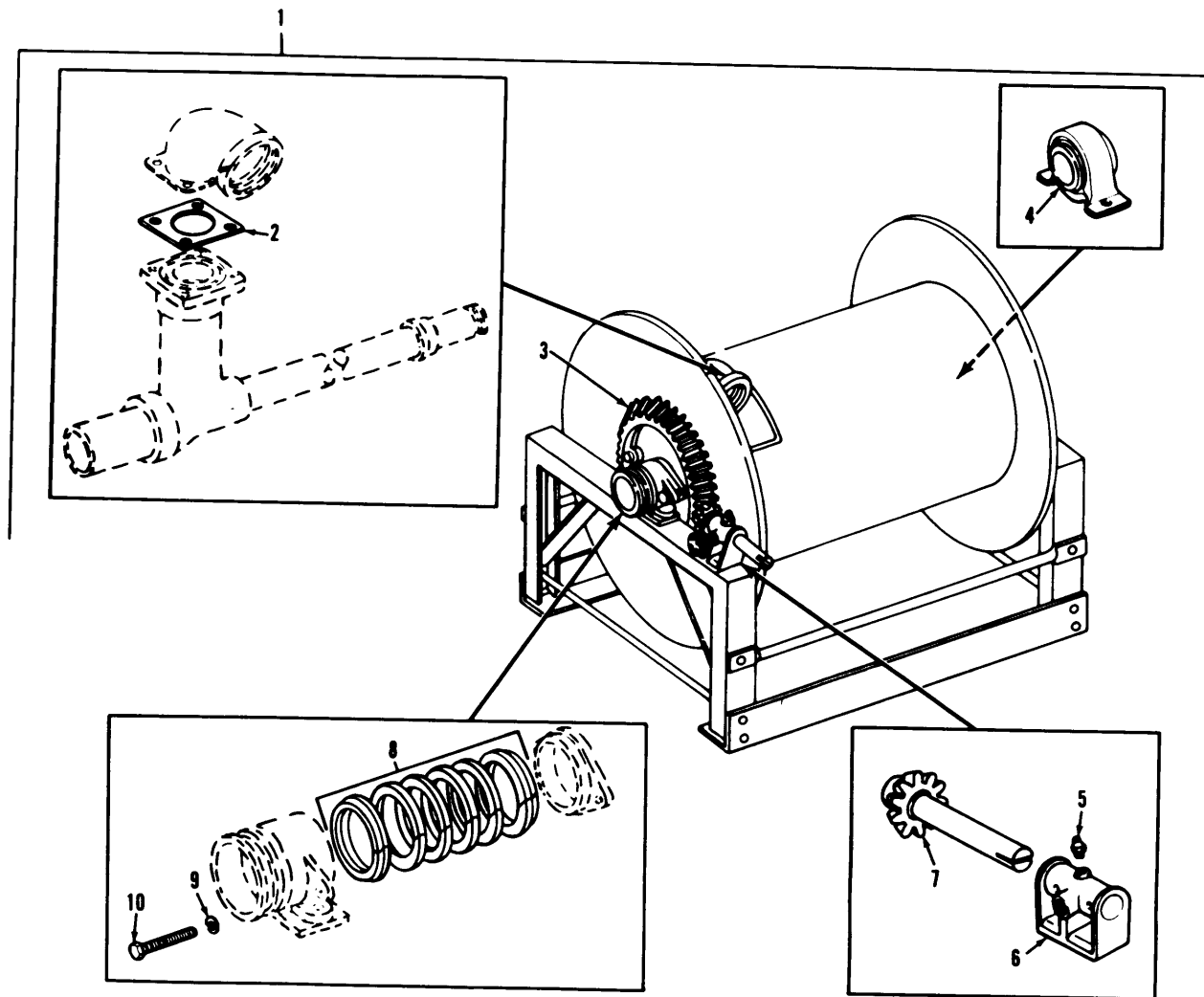
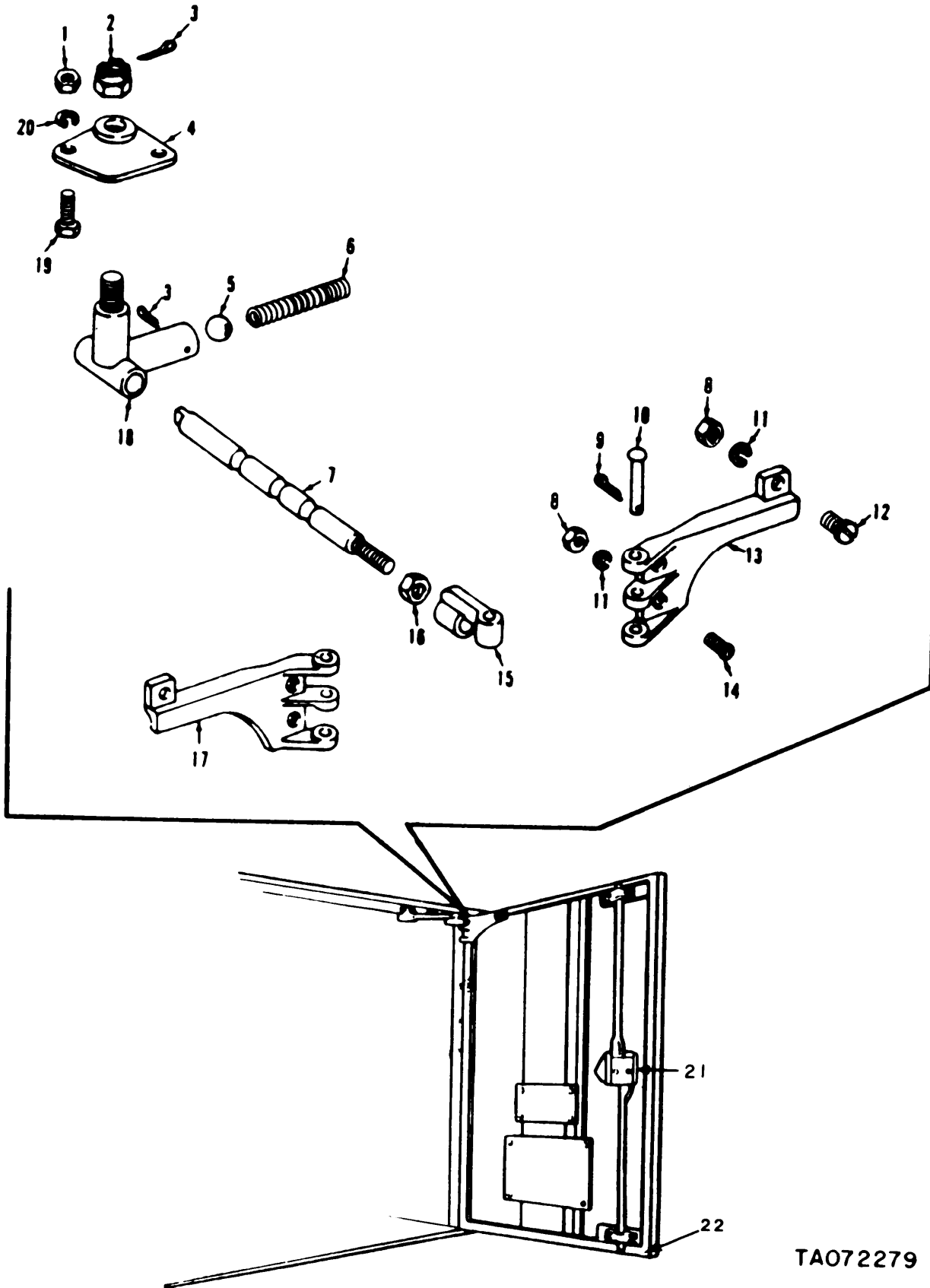


Figure 28. Hose reel assembly (2-1/2-in.).

AT 35355

	(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
R      C	28	1	PAOFF	2590-00-757-9938	19207	10917217	GROUP 1808—HOSE REEL ASSEMBLY (2-1/2-IN.) HOSE REEL ASSEMBLY: 2-1/2 IN. FUEL DISPENSING 026,049	EA	1
	28	2	XBFZZ		19207	10959889	GASKET: ELBOW HOSE ADAPTER	EA	1
	28	3	PAFZZ	2590-00-763-2396	19207	10959886	GEAR, HOSE REEL	EA	1
	28	4	PAFZZ	2590-00-764-6283	19207	10959885	BEARING, CENTRIFUGAL: HOSE REEL SHAFT	EA	1
	28	5	PAOZZ	4730-00-050-4208	96906	MS15003-1	FITTING, LUBRICATION: DRIVE SHAFT BEARING	EA	1
	28	6	PAFZZ	2590-00-763-2427	19207	10959884	BEARING, CENTRIFUGAL: CRANKSHAFT DRIVE	EA	1
	28	7	PAFZZ	2590-00-763-2421	19207	10959887	GEAR, PINION: CRANK DRIVE	EA	1
	28	8	PAFZZ	5330-00-764-5379	19207	10959888	PACKING SET: HOSE REEL PACKING JOINT	EA	1
	28	9	PAFZZ	5310-00-637-9541	96906	MS35338-46	WASHER, LOCK: 3/8 NOMINAL SIZE	EA	2
	28	10	PAFZZ	5305-00-269-2810	96906	MS90726-68	SCREW, CAP, HEXAGON: 3/8-24 UNF-2A × 2-1/2	EA	2



TA072279

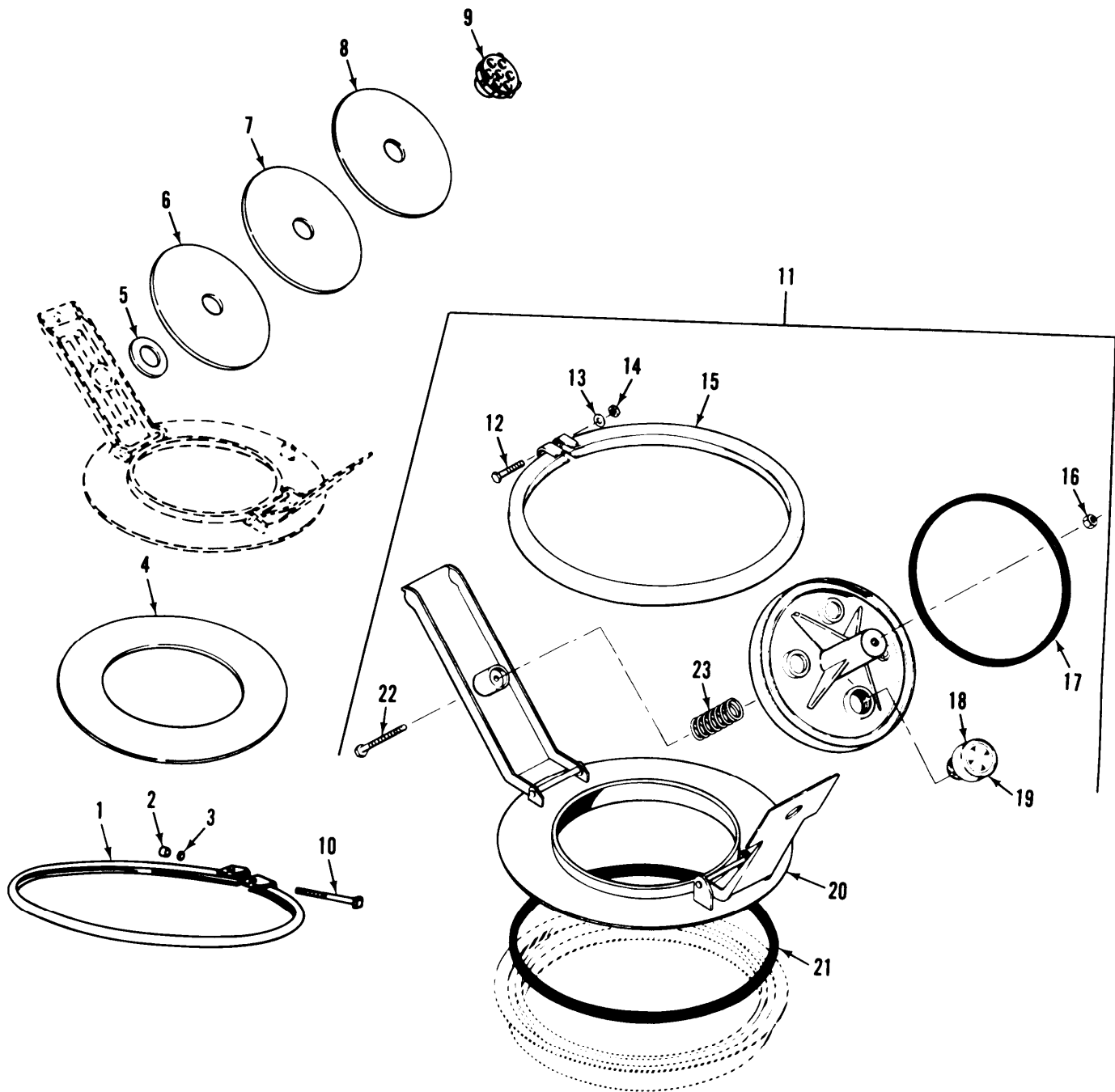
Figure 29. Cabinet door.



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO.	(b) ITEM NO.	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
29	1	PAOZZ	5310-00-768-0319	96906	MS51968-2	GROUP 1811—CABINET DOOR NUT, PLAIN, HEXAGON: 1/4-28 UNF-2B 026	EA	8
29	2	PAOZZ	5310-00-842-1295	96906	MS35692-29	025,047,049 026	EA	6
29	3	PAOZZ	5315-00-187-9376	96906	MS24665-315	NUT, PLAIN, SLOTTED: 7/16-20 UNF-2B 026	EA	4
29	4	PAOZZ	2510-00-235-4376	19207	10950339	025,047,049 026	EA	3
29	5	PAOZZ	3110-00-100-6156	96906	MS19059-55	PIN, COTTER: 3/32 DIA × 1/2 026	EA	8
29	6	PAOZZ	5360-00-477-8331	19207	10950330	025,047,049 026	EA	6
29	7	PAOZZ	2510-00-235-4378	19207	10950336	PLATE, MOUNTING: DOOR CHECK 026	EA	4
29	8	PAOZZ	5310-00-934-9758	96906	MS35649-202	025,047,049 026	EA	3
29	9	PAOZZ	5315-00-234-1619	96906	MS24665-170	BALL, BEARING: CABINET DOOR STOP HOUSING 026	EA	4
29	10	PAOZZ	5315-00-192-9449	19207	10950337	025,047,049 026	EA	3
29	11	PAOZZ	5310-00-576-5752	96906	MS35333-39	SPRING, HELICAL: CABINET DOOR STOP HOUSING 026	EA	4
29	12	PAOZZ	5305-00-984-6210	96906	MS35206-263	025,047,049 026	EA	3
29	13	PAOZZ	5340-00-437-7185	19207	10950343-1	ROD, DOOR STOP: CABINET DOOR 026	EA	4
29	14	PAOZZ	5305-00-954-3487	96906	MS35190-271	025,047,049 026	EA	3
29	15	XBOZZ		19207	10950342	NUT, PLAIN, HEXAGON: NO. 10-24 UNC-2B 026	EA	12
29	16	PAOZZ	5310-00-880-7746	96906	MS51968-5	025,047,049 026	EA	9
29	17	PAOZZ	5340-00-437-7186	19207	10950343-2	PIN, COTTER: 1-1/16 DIA × 1/2 026	EA	4
29	18	XBOZZ		19207	10950338	025,047,049 026	EA	3
29	19	PAOZZ	5305-00-068-0505	96906	MS90726-5	PIN, STRAIGHT HEADED: BODY HINGE 026	EA	3
29	20	PAOZZ	5310-00-550-1130	96906	MS35333-40	025,047,049 026	EA	12
29	21	PAOZZ	2540-00-792-8620	19207	10936971	WASHER, LOCK, INTERNAL TOOTH: NO. 10 026	EA	9
29	22	PAOZZ	9390-00-903-5302	19207	11597491	025,047,049 026	EA	4
						SCREW, MACHING, PAN: NO. 10-24 UNC-2A × 1/2 026	EA	9
						025,047,049 026	EA	4
						LEAF, BUTT HINGE: TANK BODY 026,047	EA	2
						025,049	EA	1
						SCREW, MACHINE: NO. 10-24 UNC-2A × 1/2 026	EA	8
						025,047,049 026	EA	6
						LINK, ADJUSTING: DOOR CHECK 026	EA	4
						025,047,049 026	EA	3
						NUT, PLAIN, HEXAGON: 5/16-24 UNF-2B 026	EA	4
						025,047,049 026	EA	3
						LEAF, BUTT HINGE: TANK BODY 026	EA	2
						HOUSING: CABINET DOOR STOP 026	EA	4
						025,047,049 026	EA	3
						SCREW, CAP, HEXAGON: 1/4-28 UNF-2A × 5/8 026	EA	8
						025,047,049 026	EA	6
						WASHER, LOCK, INTERNAL TOOTH: 1/4 NOMINAL SIZE 026	EA	8
						025,047,049 026	EA	6
						DOOR LATCH ASSEMBLY	EA	3
						SEAL, RUBBER, 1/2-IN.	FT	V

TM 9-2330-272-148P

Change 1 E-61



TA251611

Figure 30. Manhole cover assemblies.

	(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
	(a) FIG NO.	(b) ITEM NO.							
R	30	1	PAOZZ	2510-01-067-8955	19207	7739796	GROUP 1811—MANHOLE COVER ASSEMBLY		
C	30	2	PAOZZ	5310-00-143-6227	21450	7739811	RING ASSEMBLY: 16-IN. MANHOLE COVER	025,026	EA 4
	30	3	PAOZZ	5310-00-110-2667	19207	7739810	NUT, PLAIN, HEXAGON: RING ASSEMBLY BOLT	025,026	EA 4
R	30	4	PAOZZ	5330-00-627-8312	19207	7739793	WASHER, FLAT: RING ASSEMBLY BOLT	025,026	EA 4
R	30	4	PAOZZ	5330-00-168-2180	19207	11611929	GASKET: 16-IN. MANHOLE COVER	025,026	EA 4
	30	5	PAOZZ	5310-00-401-1507	19207	7739800	GASKET: 20-IN. MANHOLE COVER	047,049	EA 2
R	30	6	XBOZZ		19207	7739795	WASHER, FLAT: 16-IN. MANHOLE COVER	025,026	EA 4
	30	7	PAOZZ	5330-00-610-2329	19207	7739801	COVER, MANHOLE	025,026	EA 4
	30	7	PAOZZ	5330-00-168-2178	19207	11611925	GASKET: 10-IN. FILL COVER	025,026	EA 4
	30	8	XBOZZ		19207	7739802	SEAL, RUBBER SPECIAL: 10-IN. FILL COVER	047,049	EA 2
C	30	9	PAOZZ	4820-00-630-9929	19207	7739803	RETAINER: FILL COVER GASKET	025,026	EA 4
	30	9	PAOZZ	2510-00-168-2182	19207	11611930	VALVE, PRESSURE EQUALIZER: MANHOLE COVER	025,026	EA 4
	30	10	PAOZZ	5306-00-143-1638	19207	8360466	VENT, MANHOLE COVER	047,049	EA 2
	30	11	PAOOO	2510-01-031-6342	19207	11597597	BOLT, MACHINE: RING ASSEMBLY	025,026	EA 4
	30	12	PAOZZ	5306-00-143-1638	19207	8360466	MANHOLE COVER ASSEMBLY	047,049	EA 2
	30	13	PAOZZ	5310-00-110-2667	19207	7739810	SCREW	047,049	EA 1
	30	14	PAOZZ	5310-00-143-6227	19207	7739811	WASHER	047,049	EA 1
	30	15	PAOZZ	2510-00-168-2184	19207	11611931	NUT	047,049	EA 1
	30	16	PAOZZ	5310-00-543-5080	96906	MS35690-802	RING, CLAMP	047,049	EA 1
	30	17	PAOZZ	2510-00-168-2178	19207	11611925	NUT, SELF-LOCKING	047,049	EA 1
	30	18	PAOZZ	2510-00-086-6820	19207	11612085	SEAL, GASKET	047,049	EA 1
	30	19	PAOZZ	2510-00-168-2182	19207	11611930	COVER, DOOR	047,049	EA 1
	30	20	PAOZZ	2540-00-052-1324	19207	11635332	VENT, PRESSURE	047,049	EA 1
	30	21	PAOZZ	5330-00-168-2180	19207	11611929	COVER ASSEMBLY	047,049	EA 1
	30	22	PAOZZ	5305-00-071-1781	96906	MS90725-128	GASKET	047,049	EA 1
	30	23	PAOZZ	5360-00-168-2179	19207	11611928	SCREW, CAP, HEXAGON HEAD	047,049	EA 1
							SPRING	047,049	EA 1

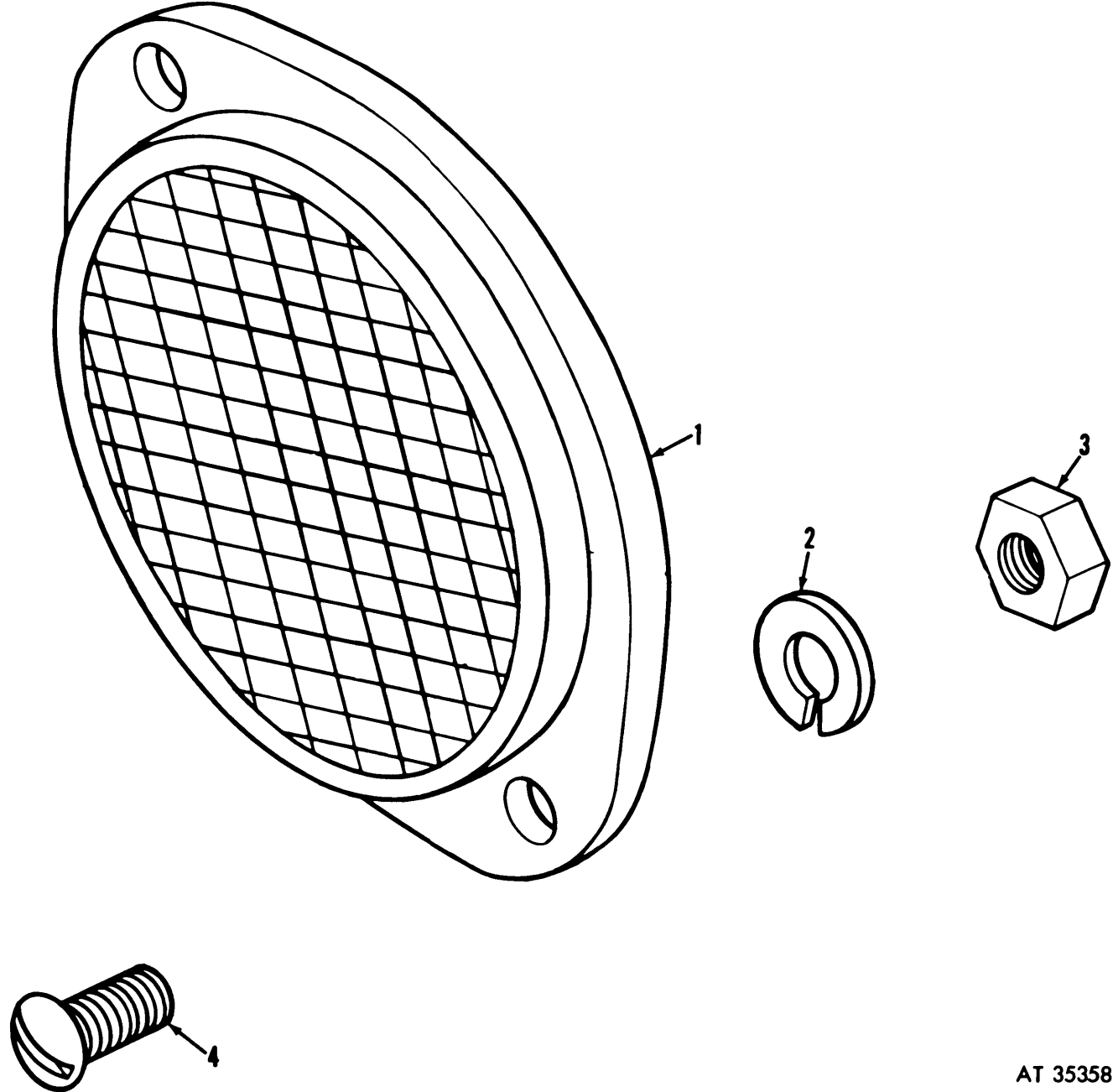
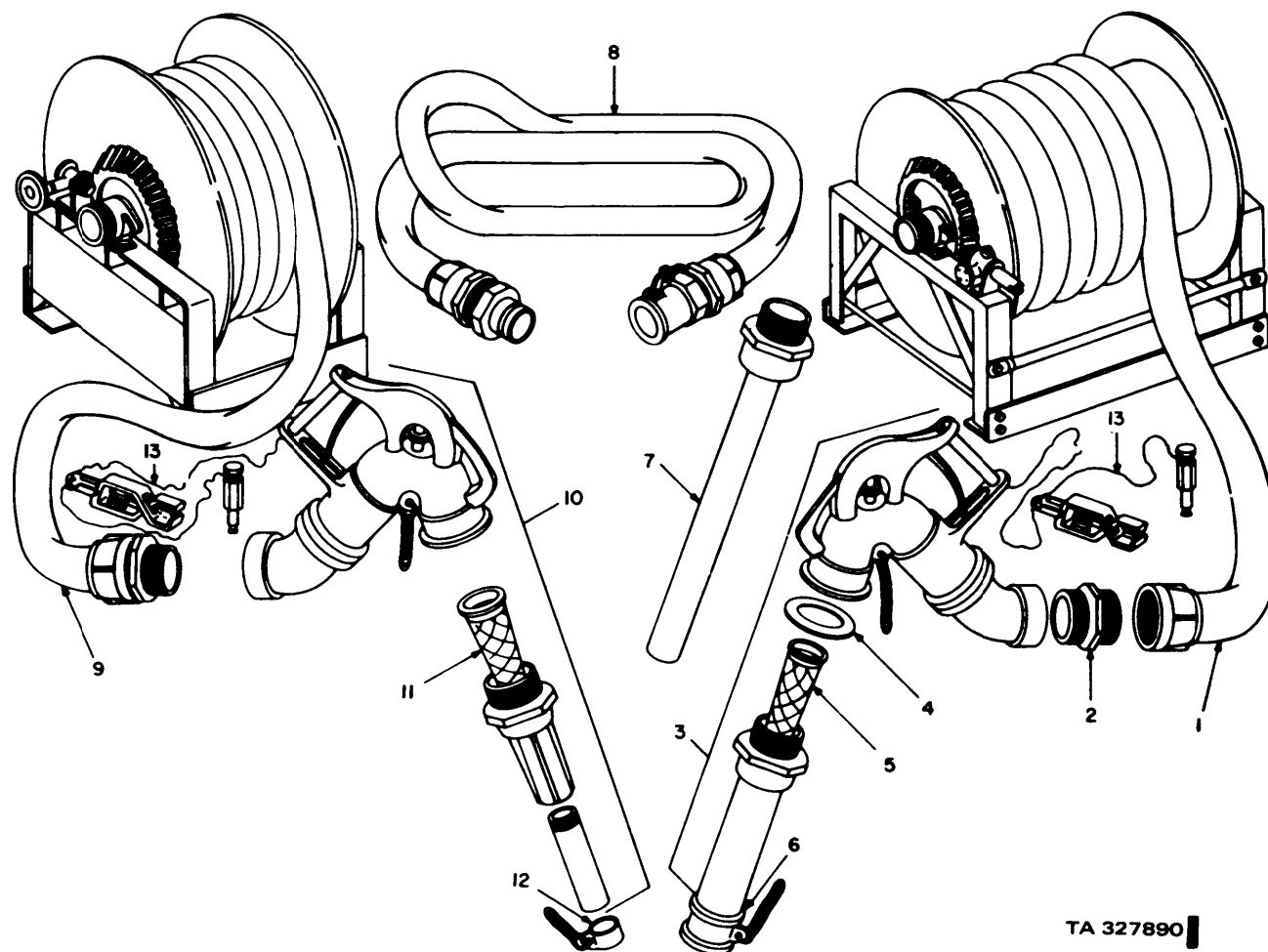


Figure 31. Reflector.

AT 35358

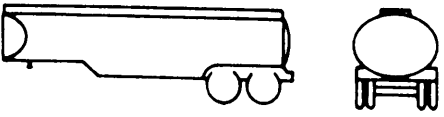
(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO							
31	1	PAOZZ	9905-00-205-2795	96906	MS35387-1	GROUP 22—BODY ACCESSORY ITEMS	EA	4
31	1	PAOZZ	9905-00-202-3639	96906	MS35387-2	GROUP 2202—REFLECTORS	EA	2
31	2	PAOZZ	5310-00-582-5965	96906	MS35338-44	REFLECTOR, INDICATING, CLEARANCE: RED	EA	12
31	3	PAOZZ	5330-00-761-6882	96906	MS51967-2	REFLECTOR, INDICATING, CLEARANCE: AMBER	EA	12
31	4	PAOZZ	5305-00-988-1723	96906	MS35206-279	WASHER, LOCK: 1/4 NOMINAL SIZE	EA	12
						NUT, PLAIN, HEXAGON: 1/4-20 UNC-2B		
						SCREW, MACHINE: 1/4-20 UNC-2A × 1/2		



TA 327890

Figure 32. Hoses and nozzles.

	(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
	(a) FIG NO	(b) ITEM NO							
C	32	1	PAOZZ	4720-00-919-7266	19207	10959950	GROUP 2202—HOSES AND NOZZLES		
N	32	2	PAOZZ	4730-01-026-2986	19207	11597379	HOSE ASSEMBLY, NONMETALLIC: 2-1/2-IN.	026,049	EA 1
N	32	3	PAOOO	2540-00-808-3239	19207	10959970	ADAPTER, STRAIGHT SWIVEL: 2-1/2-IN. NPT	026,049	EA 1
							NOZZLE ASSEMBLY: 2-1/2-INCH WITH STRAINER		EA 1
							AND SPOUT	026,049	
N	32	4	PAOZZ	5330-00-089-2905	19207	10923240	GASKET: 2-1/2-IN. NOZZLE	026,049	EA 1
N	32	5	PAOZZ	2910-01-104-8967	19207	10959971	STRAINER: 2-1/2-IN. NOZZLE	026,049	EA 1
N	32	6	PAOZZ	5340-00-720-8866	76364	P84262	CAP, PROTECTIVE, DUST: 2-1/2-IN. NOZZLE	026,049	EA 1
N	32	7	PAOZZ	4930-00-079-5996	19207	10910565	ADAPTER ASSEMBLY: 2-1/2-IN. NOZZLE	026,049	EA 1
C	32	8	PAOZZ	4720-00-937-8157	19207	11611898	HOSE ASSEMBLY, NONMETALLIC: FUEL TRANSFER		EA 3
							WITH QUICK COUPLINGS		
C	32	9	PAOZZ	4720-00-757-9939	19207	10936925	HOSE ASSEMBLY, NONMETALLIC: 1-1/2-IN.	026,049	EA 1
C	32	10	PAOOO	4930-00-471-0288	19207	10896274	NOZZLE ASSEMBLY: 1-1/2-IN. WITH STRAINER		EA 1
							AND SPOUT	026,049	
N	32	11	PAOZZ	4930-00-954-1317	76364	7225H	STRAINER ELEMENT: 1-1/2-IN. NOZZLE	026,049	EA 1
N	32	12	PAOZZ	4930-01-046-7027	19207	11611857-4	CAP, NOZZLE: 1-1/2-IN. NOZZLE	026,049	EA 1
R	32	13	PAOZZ	9505-00-023-4467	81348	QQW470	WIRE, STEEL, CARBON: HOSE ASSY GROUND	026,049	FT V

<p><b>SEMI-TRAILER, TANK FUEL SERVICING, 5000 GAL</b> FEDERAL STOCK NO.</p> <p>MFG. SERIAL NO. <span style="border: 1px solid black; display: inline-block; width: 100px; height: 15px;"></span></p> <p>MFG. MODEL - CONTRACT NO.</p>	<p><b>WEIGHT AND DIMENSION DATA</b></p> <div style="text-align: center;">  </div>
<p><b>PUBLICATIONS</b></p> <p>PARTS LIST TECHNICAL MANUAL LUBRICATION ORDER</p>	<p>WEIGHTS    EMPTY CROSSCOUNTRY PAYLOAD ON WHEELS ON KINGPIN TOTAL</p>
<p>DELIVERY DATE <span style="border: 1px solid black; display: inline-block; width: 80px; height: 15px;"></span> INSPECTED <span style="border: 1px solid black; display: inline-block; width: 80px; height: 15px;"></span></p>	<p><b>SHIPPING CUBAGE 2280 CU. FT.</b></p>

**FIRE EXTINGUISHING SYSTEM**  
**RESET AFTER USE**

- 1- UNSCREW CONTROL HEAD AT CYLINDER AND REMOVE CYLINDER.
- 2- RECHARGE WITH 10 LBS. OF CARBON DIOXIDE. FOR INTERCHANGING CYLINDERS 7714476 AND 6183325, USE ELBOWS AND/OR CONNECTORS PROVIDED AS O.V.M. AND STOWED IN THE VEHICULAR TOOL BAG.
- 3- RESET REMOTE CONTROL HANDLE.
- 4- RESET CONTROL HEAD BY INSERTING A PIN IN SHAFT AND TURNING COUNTERCLOCKWISE UNTIL CLUTCH PIN AND ARROW ARE LINED UP.
- 5- RE-INSTALL CYLINDER IN TANK, CLAMP IN PLACE AND CONNECT DISCHARGE TUBING.
- 6- ASSEMBLE CONTROL HEAD TO RECHARGED CYLINDER.

CARRIERS SERIAL NO.

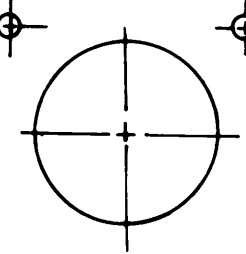
DATE OF MANUFACTURE

NOMINAL CAP'Y U.S. GAL

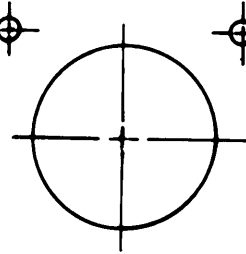
RESNSIBLE AGENCY	PROCURE- MENT	DEPT MAINTENANCE
CHASSIS	<span style="border: 1px solid black; display: inline-block; width: 80px; height: 15px;"></span>	<span style="border: 1px solid black; display: inline-block; width: 80px; height: 15px;"></span>
BODY	<span style="border: 1px solid black; display: inline-block; width: 80px; height: 15px;"></span>	<span style="border: 1px solid black; display: inline-block; width: 80px; height: 15px;"></span>
MTD. EQPT	<span style="border: 1px solid black; display: inline-block; width: 80px; height: 15px;"></span>	<span style="border: 1px solid black; display: inline-block; width: 80px; height: 15px;"></span>
U.S. PROPERTY		7979375

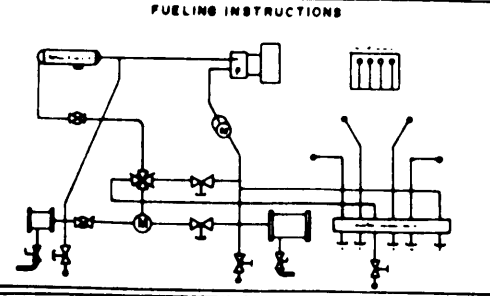
SERVICE



EMERGENCY



FUELING INSTRUCTIONS





**CAUTION:**


**WARNING IN CASE OF FIRE:**

FOR HIGH VOLUME DELIVERY, 225 GPM.

FOR LOW VOLUME DELIVERY, 0 TO 60 GPM.

TO DEFUEL:

9  11 

10 

TA072281

Figure 33. Data plates.



**GENERAL OPERATING INSTRUCTIONS****A. TO DISCHARGE FROM TANK BY GRAVITY THROUGH OUTLET A:**

- 1-OPEN EMERGENCY VALVE OF DESIRED COMPARTMENT BY PULLING PROPER OPERATOR LEVER TO OPEN POSITION.
- 2-OPEN MANIFOLD VALVE OF DESIRED COMPARTMENT.
- 3-OPEN GATE VALVE A.

**B. TO DISCHARGE FROM TANK BY PUMPING THROUGH OUTLET E:**

- 1-OPEN EMERGENCY VALVE OF DESIRED COMPARTMENT BY PULLING PROPER OPERATOR LEVER TO OPEN POSITION.
- 2-OPEN MANIFOLD VALVE OF DESIRED COMPARTMENT.
- 3-OPEN GATE VALVES B & E.

**C. TO PUMP FROM EXTERNAL SOURCE THROUGH OUTLET E TO EXTERNAL CONTAINER:**

- 1-USE VALVE C AS AN INLET.
- 2-OPEN GATE VALVES C & E.

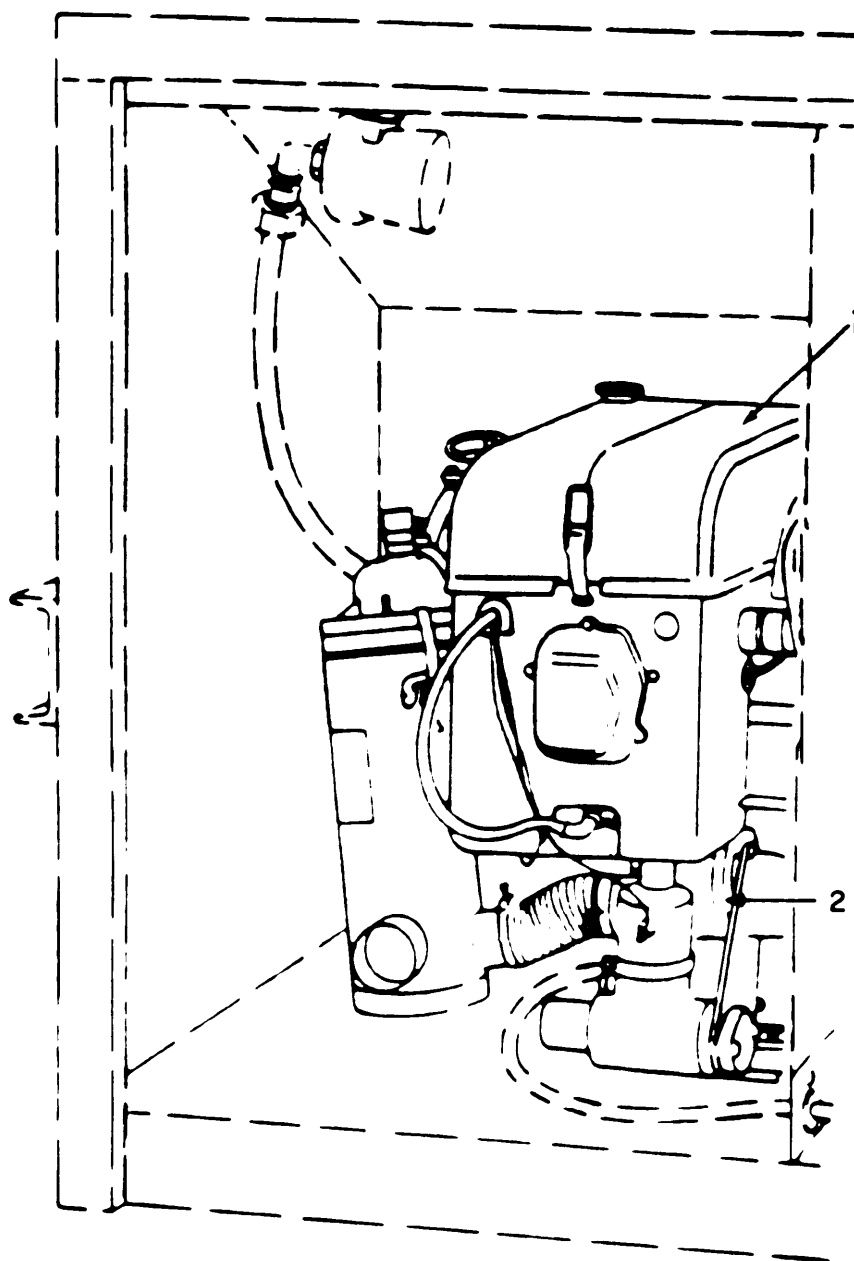
**D. TO FILL TANK BY PUMPING FROM EXTERNAL SOURCE:**

- 1-CONNECT HOSE FROM EXTERNAL SOURCE TO INLET C.
- 2-OPEN GATE VALVE C.
- 3-OPEN MANIFOLD VALVE TO DESIRED COMPARTMENT.
- 4-PULL OPERATOR LEVER FOR DESIRED COMPARTMENT.

TA 354109



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 2210—DATA PLATES		
	33	1	XBOZZ	19207	10959818	PLATE, IDENTIFICATION: VEHICLE	025	EA 1
	33	1	PAOZZ	19207	10936997	PLATE, IDENTIFICATION: VEHICLE	026	EA 1
R	33	1	PAOZZ	19207	10959924	PLATE, IDENTIFICATION: VEHICLE	047	EA 1
R	33	1	PAOZZ	19207	11597390	PLATE, IDENTIFICATION: VEHICLE	049	EA 1
	33	2	PAOZZ	96906	MS24629-45	SCREW, TAPPING: SERVICE AND IDENTIFICATION PLATE		EA 8
R	33	3	PAOZZ	19207	7979373	PLATE, IDENTIFICATION: VEHICLE SERVICE		EA 1
R	33	4	PAOZZ	19207	5244918	PLATE, INSTRUCTIONS: FIRE EXTINGUISHER INSTRUCTIONS		EA 1
	33	5	PAOZZ	96906	MS24629-10	SCREW, TAPPING: FIRE EXTINGUISHER PLATE		EA 4
	33	6	PAOZZ	19207	10936743	PLATE, IDENTIFICATION: VEHICLE SERIAL NUMBER		EA 1
R	33	7	PAOZZ	96906	MS21318-42	SCREW, DRIVE: NO. 8 × 1/2 SERIAL NUMBER PLATE		EA 4
	33	8	PAOZZ	19207	10936768	PLATE, INSTRUCTION	025	EA 1
R	33	8	PAOZZ	19207	10936993	PLATE, INSTRUCTION: FUEL-DEFUEL	026	EA 1
R	33	8	PAOZZ	19207	10959903	PLATE, INSTRUCTION	047	EA 1
	33	8	PAOZZ	19207	10959906	PLATE, INSTRUCTION: FUEL-DEFUEL	049	EA 1
	33	9	PAOZZ	96906	MS35649-202	NUT, PLAIN, HEXAGON: 10-24 UNC-2B		EA 4
	33	10	PAOZZ	96906	MS35338-43	WASHER, LOCK: NO. 10		EA 4
	33	11	PAOZZ	96906	MS35206-263	SCREW, MACHINE: NO. 10-24 UNC-2A × 1/2		EA 4
C	33	12	PAOZZ	96906	MS53007-2	PLATE, IDENTIFICATION: EMERGENCY AIR LINE		EA 1
C	33	13	PAOZZ	96906	MS53007-1	PLATE, IDENTIFICATION: SERVICE AIR LINE		EA 1
	33	14	PAOZZ	19207	10936994	PLATE, INSTRUCTION	025	EA 1

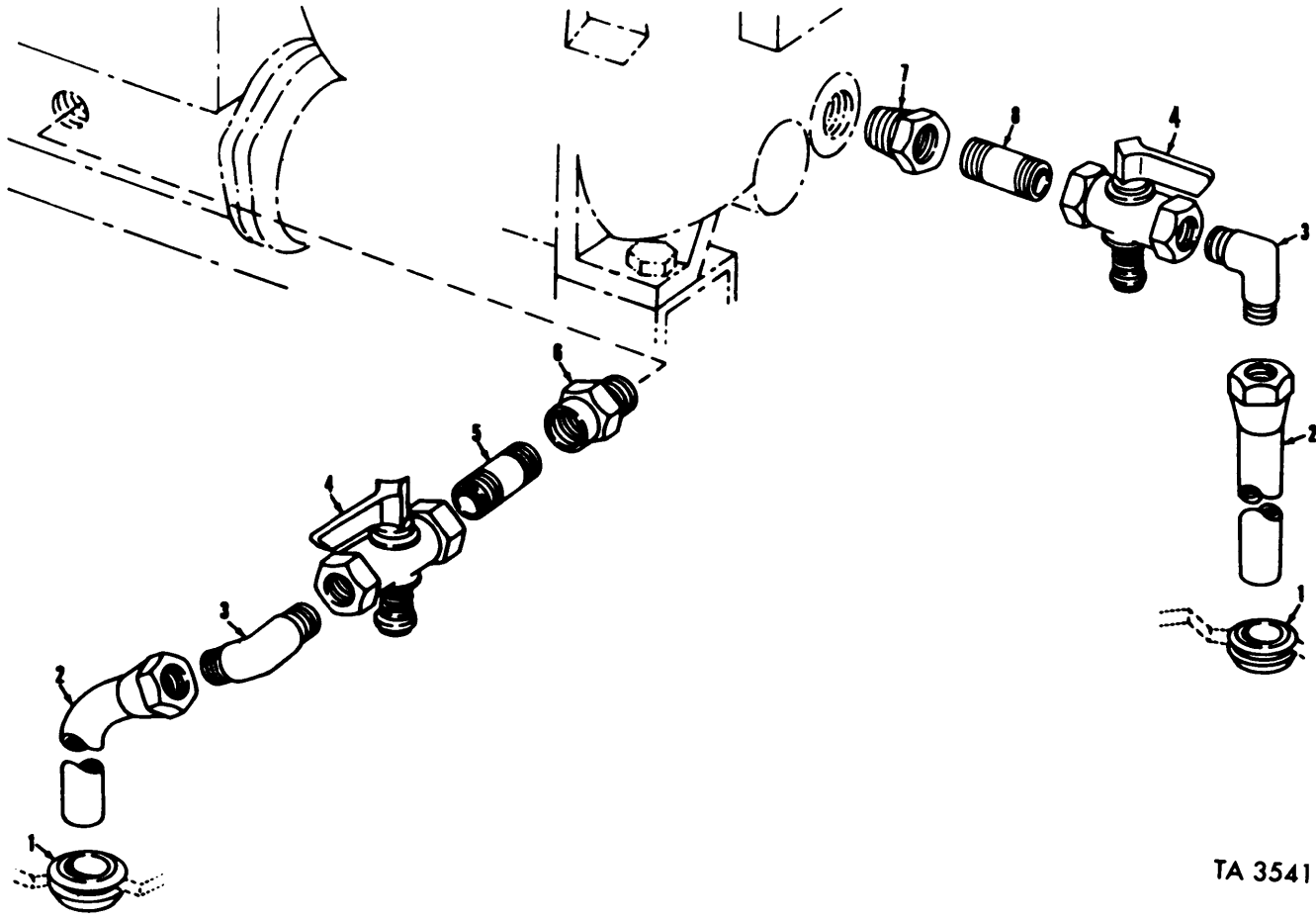


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Figure 34. Engine assembly.

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(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
34	1	PAOZZ	2805-00-952-3927	97403	2A042-2	GROUP 29—AUXILIARY ENGINE AND CONTROLS		
34	2	PAOZZ	2920-00-882-3401	96906	MS53013-1	GROUP 2910—ENGINE ASSEMBLY	EA	1
34		XBOZZ		19207	10950365	ENGINE, GASOLINE: FUEL DISPENSING PUMP DRIVE STARTER, ENGINE, ELECTRICAL MOUNT, ENGINE	EA EA	1 2



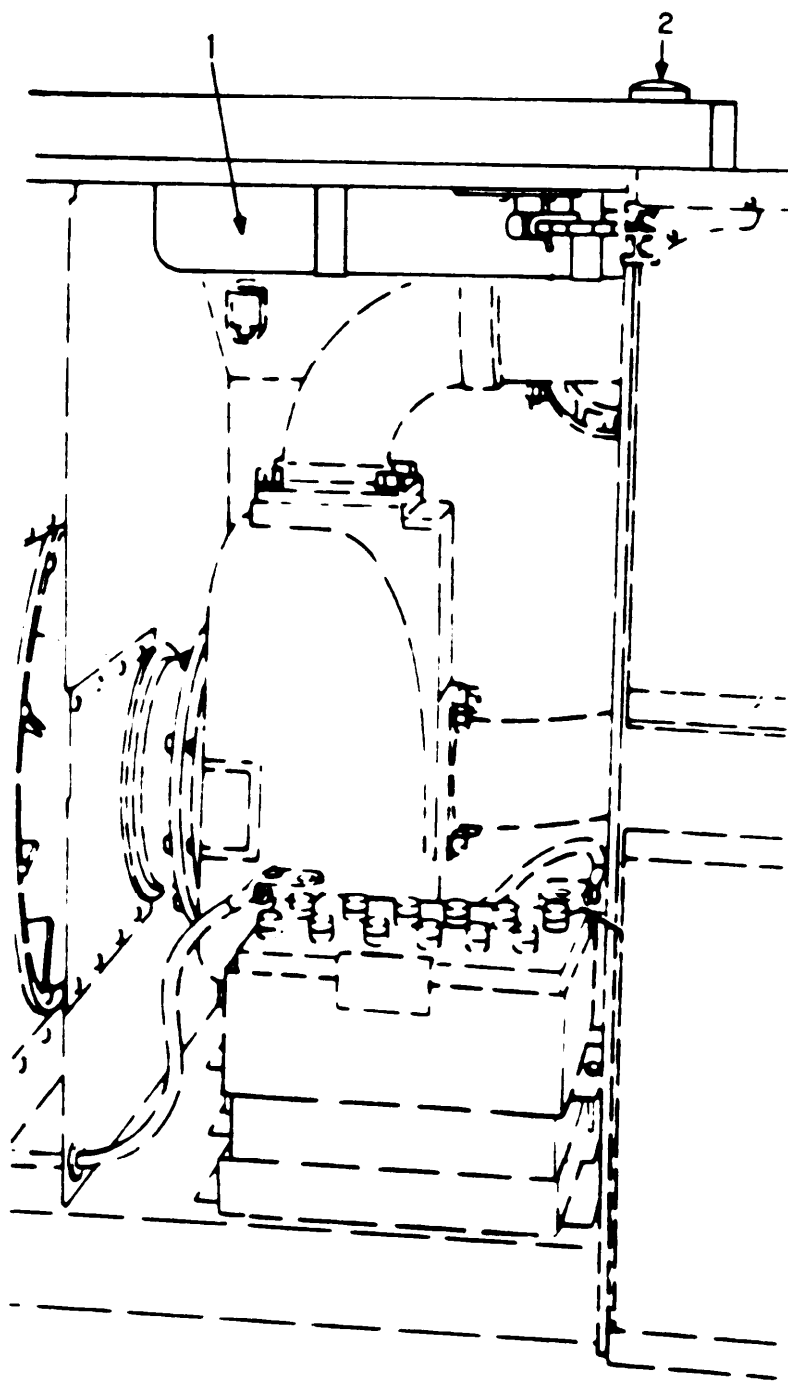
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Figure 35. Lubrication drain system.

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
35	1	PAOZZ	5325-00-185-0004	96906	MS35490-34	GROMMET, NONMETTALIC	EA	2
35	2	PAOZZ	4710-00-277-5527	81346	ASTM B280-80	TUBE, METTALIC	FT	V
35	3	PAOZZ	4730-00-289-0155	96906	MS39182-5	ELBOW, PIPE TO TUBE	EA	2
35	4	PAOZZ	4820-00-913-5909	19207	10950497	COCK, SHUTOFF	EA	2
35	5	PAOZZ	4730-00-196-1989	96906	MS51846-54	NIPPLE, PIPE	EA	1
35	6	PAOZZ	4730-00-764-6292	96906	MS39203-6	ADAPTER, STRAIGHT	EA	1
35	7	PAOZZ	4730-00-289-1839	21450	120322	BUSHING, PIPE	EA	1
35	8	PAOZZ	4730-00-222-1839	96906	MS51846-58	NIPPLE, PIPE	EA	1

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Figure 36. Engine fuel tank.



	(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
	(a) FIG NO	(b) ITEM NO							
C	36	1	PAOFF	2910-00-358-5582	19207	8331589	GROUP 2935—ENGINE FUEL TANK TANK, FUEL, ENGINE: (BEFORE FEBRUARY, 1966 PRODUCTION)	EA	1
N	36	1	PAOFF	2910-00-168-2214	19207	11597595	TANK, FUEL, ENGINE: (AFTER FEBRUARY, 1966 PRODUCTION)	EA	1
N	36	2	PAOZZ	2910-00-294-1579	19207	8331702	CAP, FUEL TANK	EA	1

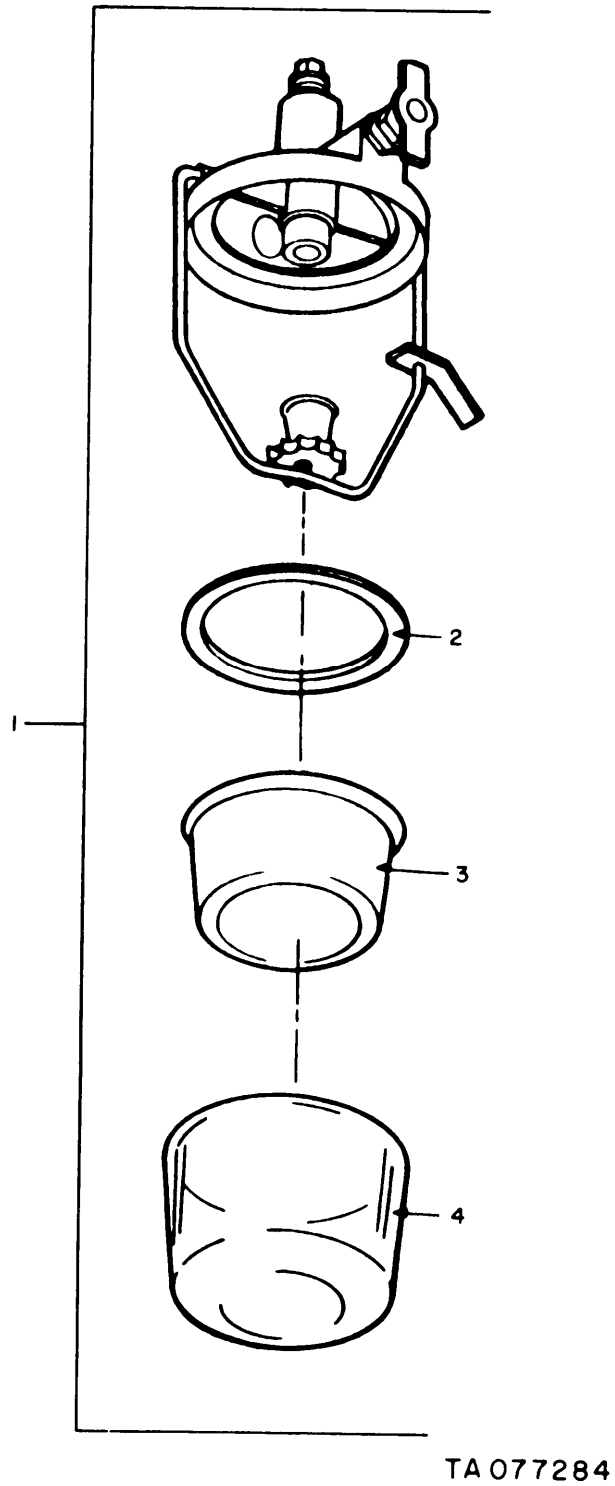


Figure 37. Engine fuels trainer.

	(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY INC IN UNIT
	(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	
C R	37	1	PAOZZ	2910-00-905-9792	96906	MS51086-1	GROUP 2937—ENGINE FUEL STRAINER	EA	1
	37	2	PAOZZ	5330-00-087-3612	96906	MS51091-4	STRAINER, SEDIMENT: ENGINE FUEL SUPPLY	EA	1
	37	3	PAOZZ	2910-00-168-2213	19207	8360475	GASKET	EA	1
	37	4	PAOZZ	2910-00-269-7126	44940	1098	STRAINER ELEMENT BOWL, SEDIMENT	EA	1

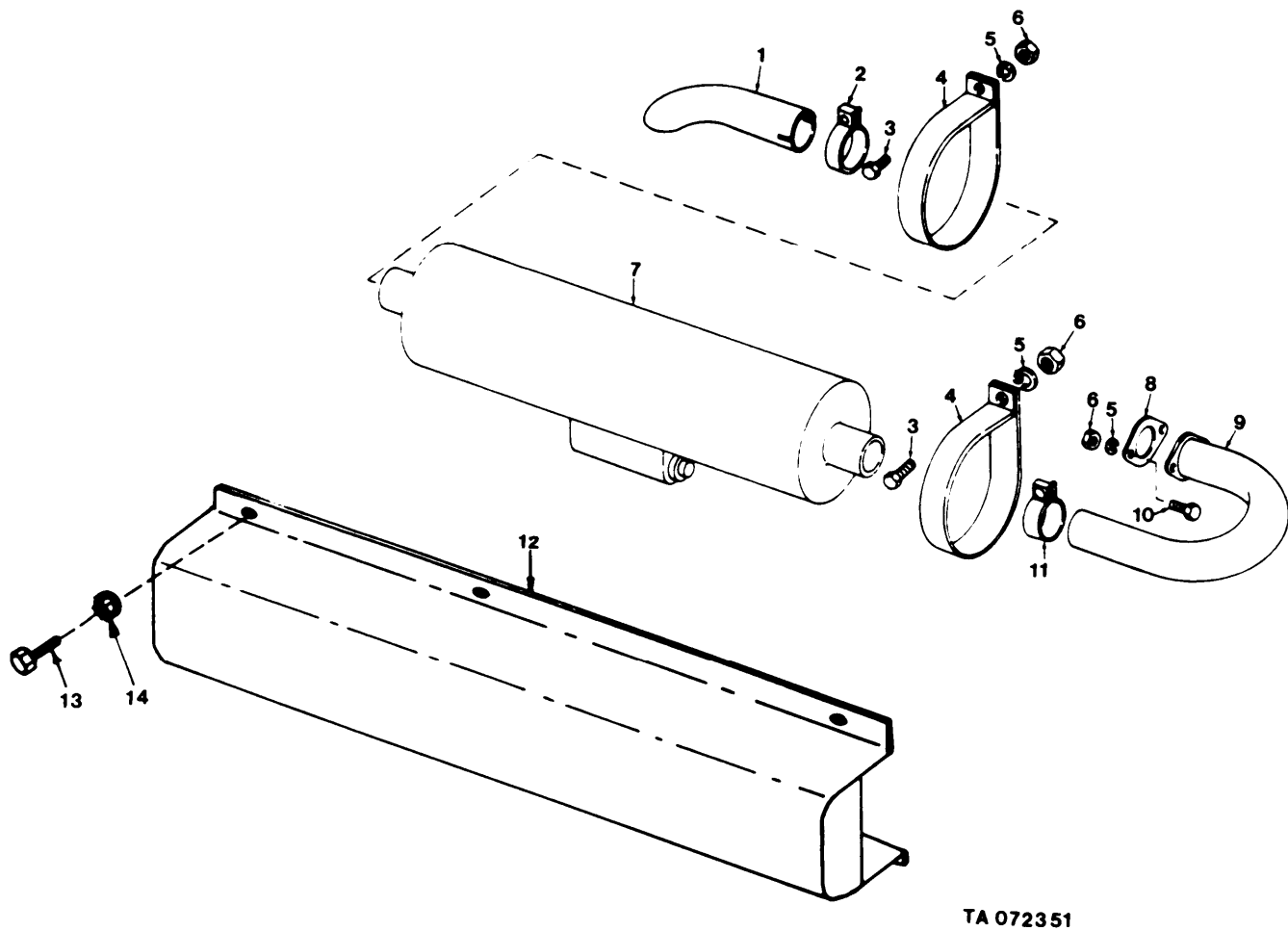
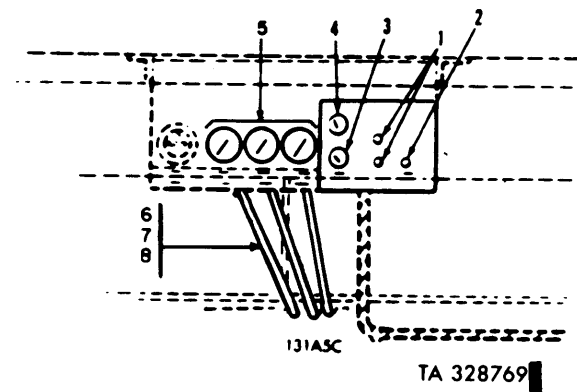
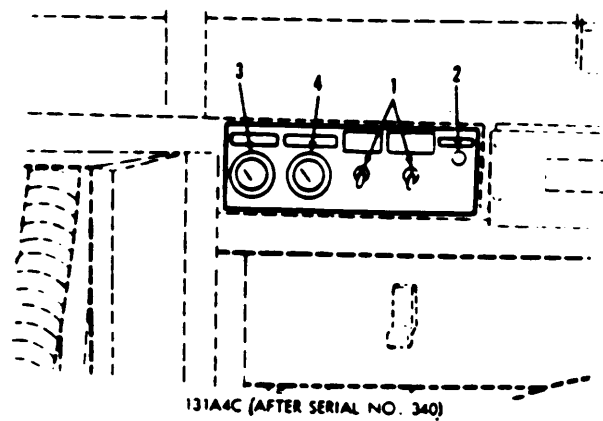
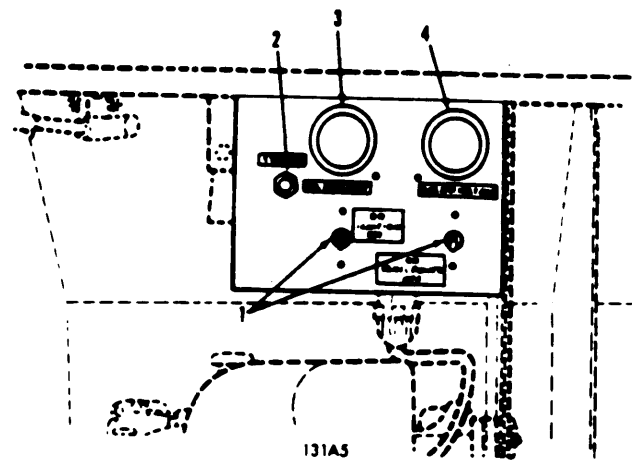
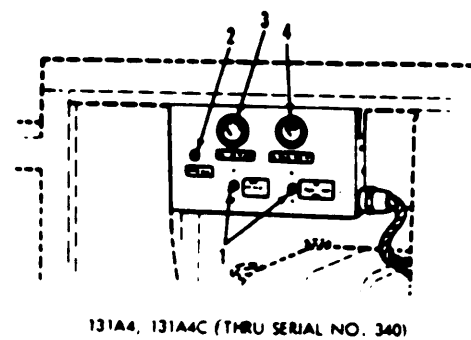


Figure 38. Engine exhaust system.

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(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
38	1	PAOZZ	2990-00-764-6289	19207	10950325	GROUP 2941—ENGINE EXHAUST SYSTEM PIPE, TAIL	EA	1
38	2	PAOZZ	5340-00-792-1616	19207	10950326-2	CLAMP, LOOP: EXHAUST PIPE	EA	1
38	3	PAOZZ	5305-00-269-3209	96906	MS90725-58	SCREW, CAP, HEXAGON: 3/8-16 UNC-2A × 3/4	EA	2
38	4	XBOZZ		19207	10950327	BRACKET: MUFFLER	EA	2
38	5	PAOZZ	5310-00-637-9541	96906	MS35338-46	WASHER, LOCK: 3/8 NOMINAL SIZE	EA	4
38	6	PAOZZ	5310-00-732-0558	96906	MS51967-8	NUT, PLAIN, HEXAGON: 3/8-16 UNC-2B	EA	4
38	7	PAOZZ	2990-00-759-3639	19207	10936691	MUFFLER, EXHAUST: ENGINE	EA	1
38	8	PAOZZ	5330-00-764-6291	19207	10936675	GASKET: EXHAUST PIPE	EA	1
38	9	PAOZZ	2990-00-763-2391	19207	10959863	PIPE, EXHAUST: ENGINE 025,047	EA	1
38	9	PAOZZ	2990-00-903-0359	19207	10950328	PIPE, EXHAUST: ENGINE 026	EA	1
38	9	PAOZZ	2990-00-134-8304	19207	11597573	PIPE, EXHAUST: ENGINE 049	EA	1
38	10	PAOZZ	5305-00-269-3212	96906	MS90725-61	SCREW, CAP, HEXAGON: 3/8-16 UNC-2A × 1-1/8	EA	2
38	11	PAOZZ	5340-00-792-1615	19207	10950326-1	CLAMP, LOOP	EA	1
38	12	PAOZZ	2990-00-168-2220	19207	11597520	SHROUD, MUFFLER 049	EA	1
38	13	PAOZZ	5305-00-068-0502	96906	MS90725-6	SCREW, CAP, HEXAGON: MUFFLER SHROUD 049	EA	6
38	14	PAOZZ	5310-00-582-5965	96906	MS35338-25	WASHER, LOCK: MUFFLER SHROUD 049	EA	6

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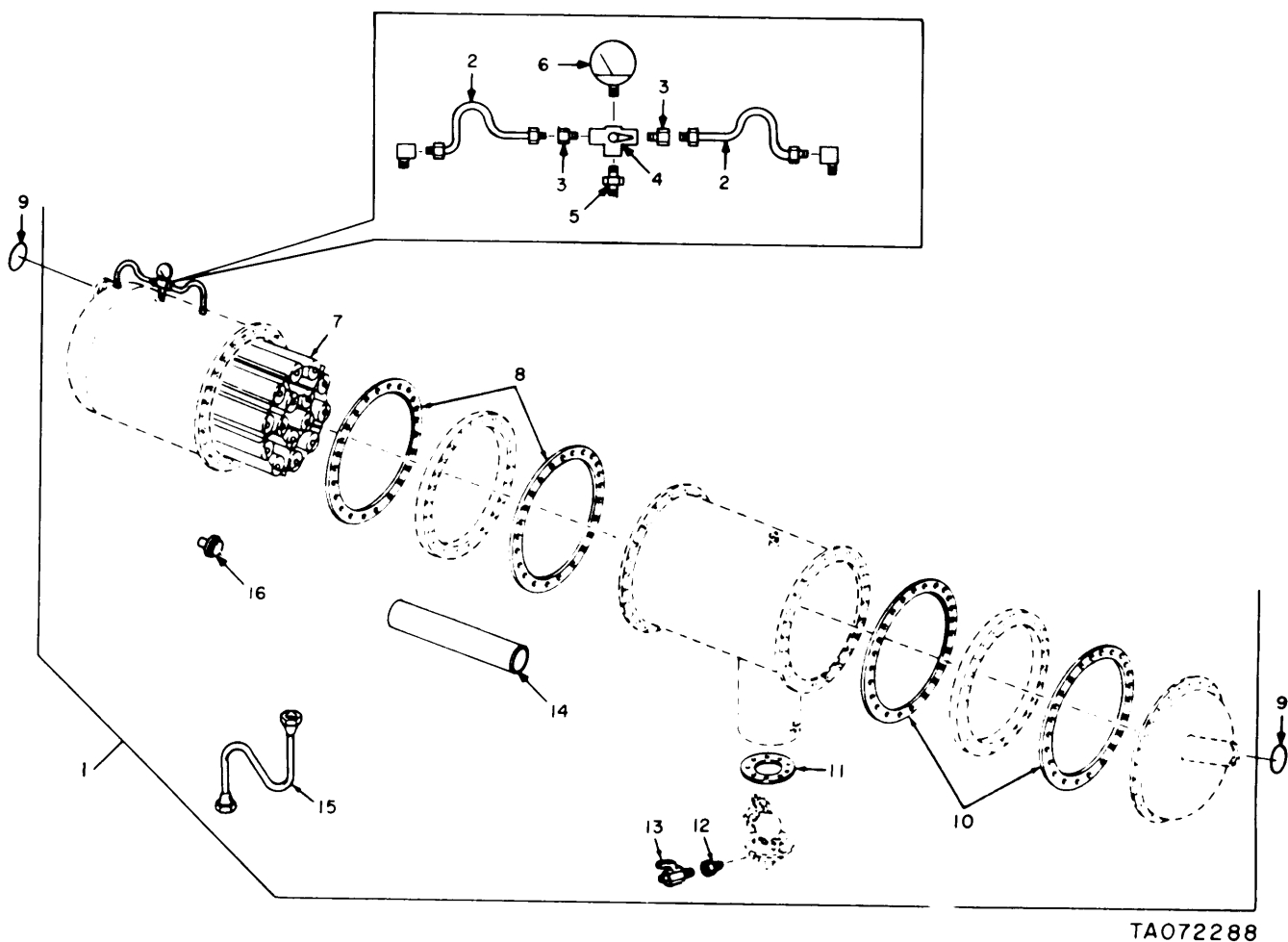


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Figure 39. Instrument panel.

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(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
39	1	PAOZZ	5930-00-296-6318	96906	MS39061-1	GROUP 2967—INSTRUMENT PANEL	EA	2
39	2	PAOZZ	2920-00-781-1953	19207	8389470	SWITCH, TOGGLE: IGNITION	EA	1
39	3	PAOZZ	6620-00-514-5492	96906	MS24541-1	SWITCH, ENGINE START: AUXILIARY ENGINE	EA	1
39	4	PAOZZ	6625-00-321-6365	96906	MS24532-2	INDICATOR, PRESSURE: AUXILIARY ENGINE OIL	EA	1
39	5	PAOZZ	6685-01-078-5874	19207	11611881	METER, BATTERY-GENERATOR: AUXILIARY ENGINE	EA	1
39	6	MOOZZ		17590	305087-0116	GAGE, PRESSURE: FILTER-SEGREGATOR, 0-160 PSI	EA	3
39	7	PAOZZ	4730-00-069-1187	96906	MS39179-5	TUBING MPR FROM NSN 4710-00-203-3172	IN	V
39	8	PAOZZ	4730-00-069-1186	96906	MS39182-3	ADAPTER	EA	1
						ELBOW	EA	1



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Figure 40. Filter-segregator assembly (M131A4C).



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
40	1	XBOZZ		19207	10910682	GROUP 56—FILTERS, SEPARATORS, AND PURIFIERS GROUP 5600—FILTER-SEGREGATOR ASSEMBLY (M131A4C) FILTER-SEGREGATOR ASSEMBLY (THRU SERIAL NO. 113) 026	EA	1
40	2	PAOZZ	4710-00-277-5525	50513	BB3338	TUBE, METALLIC: SEGREGATOR LINE	FT	V
40	3	PAOZZ	4730-00-270-4616	96906	MS39179-6	ADAPTER, STRAIGHT, PIPE TO TUBE: SEGREGATOR VALVE	EA	1
40	4	PAOZZ	4820-00-761-1103	19207	5216239	VALVE, 3-WAY: FILTER-SEGREGATOR DIFFERENTIAL	EA	1
40	5	XBOZZ		21450	190605	NIPPLE: SEGREGATOR LINE	EA	1
40	6	PAOZZ	6685-00-763-2392	19207	5344947	GAGE, PRESSURE: FILTER-SEGREGATOR	EA	1
40	7	PAOZZ	4330-00-983-0998	81349	MILF52308	FILTER ELEMENT: FIRST-STAGE FILTER	EA	15
40	8	PAOZZ	5330-00-732-8543	19207	10936693	GASKET: BODY FLANGE	EA	1
40	9	PAOZZ	5330-00-789-1405	19207	10936669	SEAL, PLAIN: INLET AND OUTLET	EA	2
40	10	PAOZZ	5330-00-903-1190	19207	10936694	GASKET: BODY FLANGE, OUTLET END	EA	2
40	11	PAOZZ	5330-00-930-5311	19207	10936690	GASKET: SEGREGATOR SUMP	EA	1
40	12	PAOZZ	5940-00-930-5310	19207	10950345	ADAPTER: DRAIN COCK	EA	1
40	13	PAOZZ	4820-00-554-8391	96906	MS35785-4	COCK, DRAIN: AUTOMATIC WATER DRAIN	EA	1
40	14	PAOZZ	2940-00-930-5308	19207	11597377	FILTER ELEMENT: SECOND-STAGE FILTER (THRU SERIAL NO. 113)	EA	6
40	15	PAOZZ	4710-00-277-5527	81346	ASTM B280-80	TUBE, METALLIC: SEGREGATOR	FT	V
40	16	PAOZZ	2590-00-168-5527	19207	11611954	PLUG, RETAINER: FIRST-STAGE FILTER ELEMENT	EA	15

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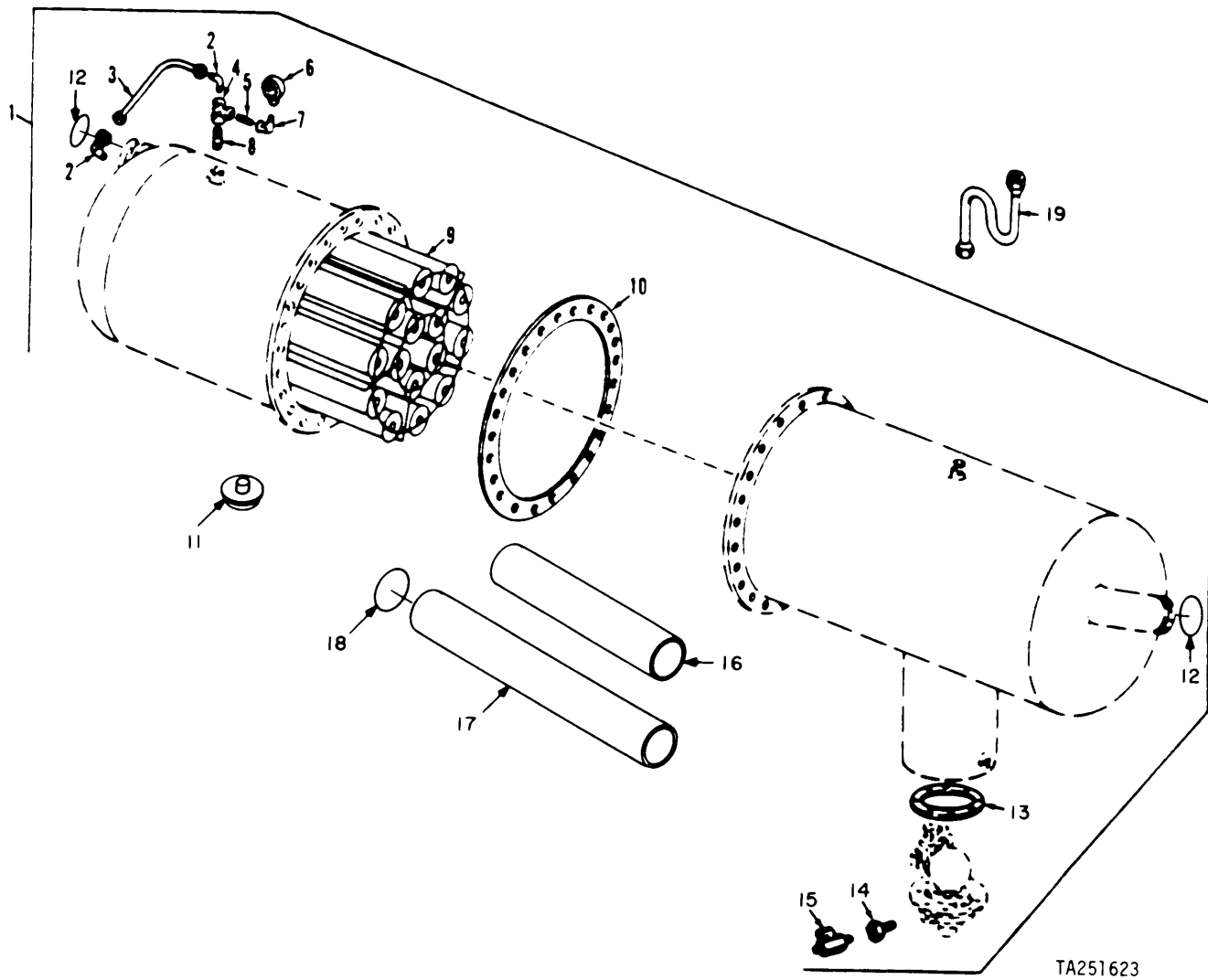


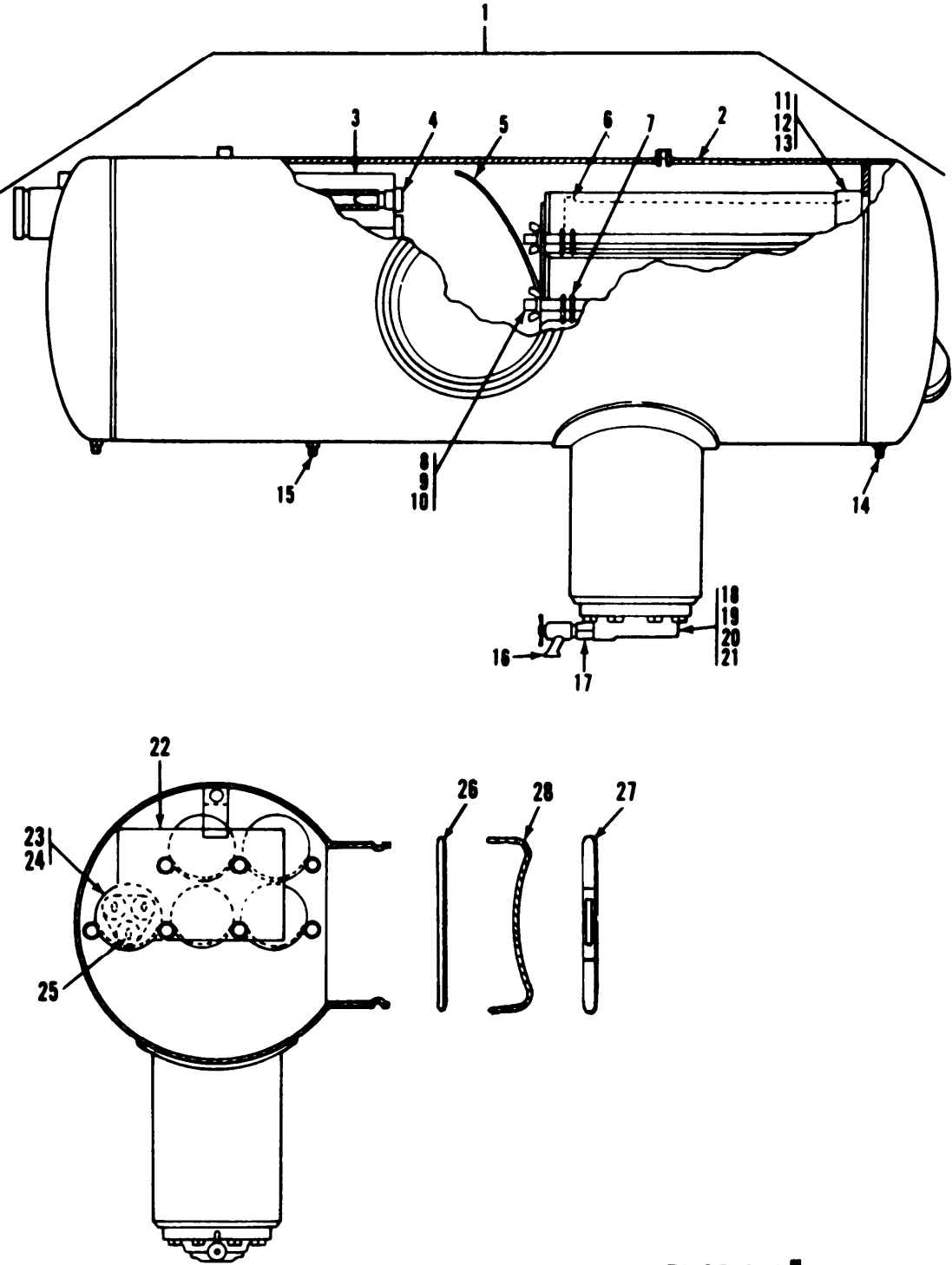
Figure 41. Filter-segregator assembly (M131A4C).

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 5600—FILTER-SEGREGATOR ASSEMBLY (M131A4C)		
41	1	XBOZZ		19207	10950320	FILTER-SEGREGATOR ASSEMBLY: (SERIAL NO. 114 THRU 340)	EA	1
41	1	XBOZZ		19207	10950320-1	FILTER-SEGREGATOR ASSEMBLY: (AFTER SERIAL NO. 340)	EA	1
41	2	PAOZZ	4730-00-903-0358	19207	10950335	ELBOW, PIPE TO TUBE: SEGREGATOR LINE	EA	2
41	3	PAOZZ	4710-00-277-5525	50513	BB3338	TUBE, METALLIC: SEGREGATOR LINE	FT	V
41	4	PAOZZ	4820-00-761-1103	19207	5216239	VALVE, 3-WAY: FILTER-SEGREGATOR DIFFERENTIAL	EA	1
41	5	XBOZZ		21450	502000	NIPPLE: 3-WAY VALVE MOUNTING	EA	1
41	6	PAOZZ	6685-00-763-2392	19207	5344947	GAGE, PRESSURE: FILTER-SEGREGATOR	EA	1
41	7	PAOZZ	4730-00-763-2395	19207	10950334	ELBOW, PIPE: GAGE MOUNTING	EA	1
41	8	XBOZZ		21450	190605	NIPPLE: SEGREGATOR LINE	EA	1
41	9	PAOZZ	4330-00-983-0998	81349	MILF52308	FILTER ELEMENT: FIRST-STAGE FILTER	EA	15
41	10	PAOZZ	5330-00-732-8543	19207	10936693	GASKET: BODY FLANGE	EA	1
41	11	PAOZZ	2590-00-168-2197	19207	11611954	PLUG, RETAINER: FIRST-STAGE FILTER ELEMENT	EA	15
41	12	PAOZZ	5330-00-903-1190	19207	10936694	GASKET: FILTER-SEGREGATOR INLET AND OUTLET	EA	2
41	13	PAOZZ	5330-00-930-5311	19207	10936690	GASKET: SEGREGATOR SUMP	EA	1
41	14	PAOZZ	2940-00-930-5310	19207	10950345	ADAPTER: DRAIN COCK	EA	1
41	15	PAOZZ	4820-00-554-8391	96906	MS35785-4	COCK, DRAIN: AUTOMATIC WATER DRAIN	EA	1
41	16	PAOZZ	2940-00-930-5308	19207	11597377	FILTER ELEMENT: SECOND-STAGE FILTER (THRU SERIAL NO. 113)	EA	6
41	17	PAOZZ	2910-00-903-1191	19207	10959995	FILTER ELEMENT: SECOND-STAGE FILTER (AFTER SERIAL NO. 113)	EA	14
41	18	PAOZZ	5330-00-260-9338	96906	MS29513-227	PACKING, PREFORMED: SECOND-STAGE FILTER ELEMENT (AFTER SERIAL NO. 113)	EA	14
41	19	PAOZZ	4710-00-277-5527	81346	ASTM B280-80	TUBE, METALLIC: SEGREGATOR	FT	V

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Figure 42. Filter-segregator assembly (M131A5C).

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 5600—FILTER-SEGREGATOR ASSEMBLY (M131A5C)		
	42	PBOZZ	4330-00-139-4589	19207	11597528	FILTER-SEGREGATOR ASSEMBLY 047	EA	1
N	42	XBOZZ		19207	11611942	SHELL: FILTER SEGREGATOR	EA	1
C	42	PAOZZ	4330-00-983-0998	31381	2037-3	FILTER ELEMENT: FIRST-STAGE FILTER	EA	15
N	42	PAOZZ	2590-00-168-2191	19207	11611954	RETAINER, ELEMENT: FIRST-STAGE FILTER	EA	15
	42	XBOZZ		19207	11649331	PLATE, BAFFLE: SECOND-STAGE FILTER	EA	1
N	42	PAOZZ	2590-00-168-2193	19207	11611956	CLIP, FUSE: SECOND-STAGE FILTER	EA	5
N	42	PAOZZ	2590-00-119-0661	19207	11611957	SPACER, WIRE: CANISTER	EA	5
N	42	PAOZZ	5310-00-110-2737	19207	11612071	NUT, PLAIN, WING: BAFFLE PLATE	EA	4
N	42	PAOZZ	5310-00-614-3505	96906	MS15795-820	WASHER, FLAT: BAFFLE PLATE	EA	4
N	42	PAOZZ	5310-00-058-3134	96906	MS35338-08	WASHER, LOCK: BAFFLE PLATE	EA	4
N	42	PAOZZ	2590-00-168-2194	19207	11611958	ADAPTER, CANISTER: SECOND-STAGE FILTER	EA	5
N	42	PAOZZ	5330-00-110-2706	19207		GASKET: CANISTER ADAPTER	EA	5
N	42	PAOZZ	5330-00-110-2716	19207	11612067	GASKET: CANISTER ADAPTER	EA	5
	42	PAOZZ	4730-00-221-2139	96906	MS20913-4S	PLUG, PIPE: 1/2 NPT, FILTER	EA	2
	42	PAOZZ	4730-00-221-2140	96906	MS20913-6S	PLUG, PIPE: 3/4 NPT, FILTER SHELL DRAIN	EA	1
N	42	PAOZZ	2930-01-101-0080	19207	10923515	COCK, DRAIN: AUTOMATIC WATER DRAIN	EA	1
N	42	PAOZZ	4730-01-106-0630	19207	11649474	ADAPTER, STRAIGHT: DRAIN COCK	EA	1
N	42	PAOZZ	2940-00-930-5311	19207	10959819	FLOAT ASSEMBLY	EA	1
R	42	PAOZZ	5330-00-930-5311	19207	10936690	GASKET: FLOAT ASSEMBLY	EA	1
N	42	PAOZZ	5305-00-269-3211	96906	MS90725-60	SCREW, CAP, HEXAGON: FLOAT ASSEMBLY	EA	8
N	42	PAOZZ	5310-00-004-5033	96906	MS35338-46	WASHER, LOCK: FLOAT ASSEMBLY	EA	8
N	42	PAOZZ		19207	11612063	RETAINER, ELEMENT	EA	1
	42	PAOZZ	2590-00-168-2192	19207	10937955	CANISTER, FUEL: SECOND-STAGE FILTER	EA	5
R	42	PAOZZ	2590-01-102-3493	19207	11649367	JACKET AND SPRING ASSEMBLY: SECOND-STAGE FILTER	EA	5
N	42	PAOZZ	4330-00-872-1779	19207	10947585	FUSE ASSEMBLY: THIRD-STAGE FILTER	EA	15
	42	PAOZZ	5330-00-107-7376	19207	11611961	O-RING: COVER	EA	1
C	42	PAOZZ	5340-00-109-7896	19207	11611960	COUPLING, CLAMP: V-BAND	EA	1
	42	PAOZZ	2540-00-139-4586	19207	11611959	COVER, FILTER-SEGREGATOR	EA	1

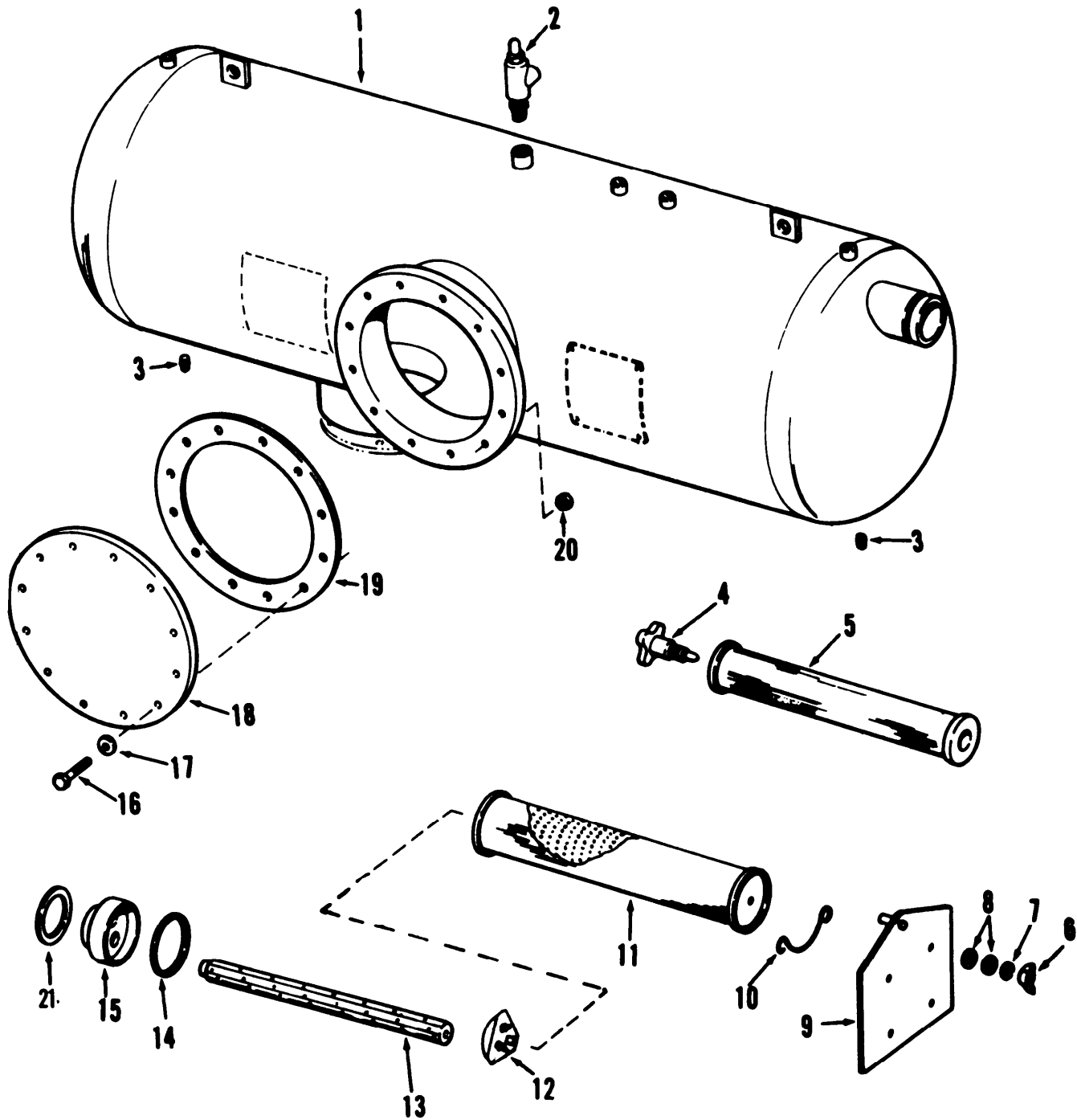
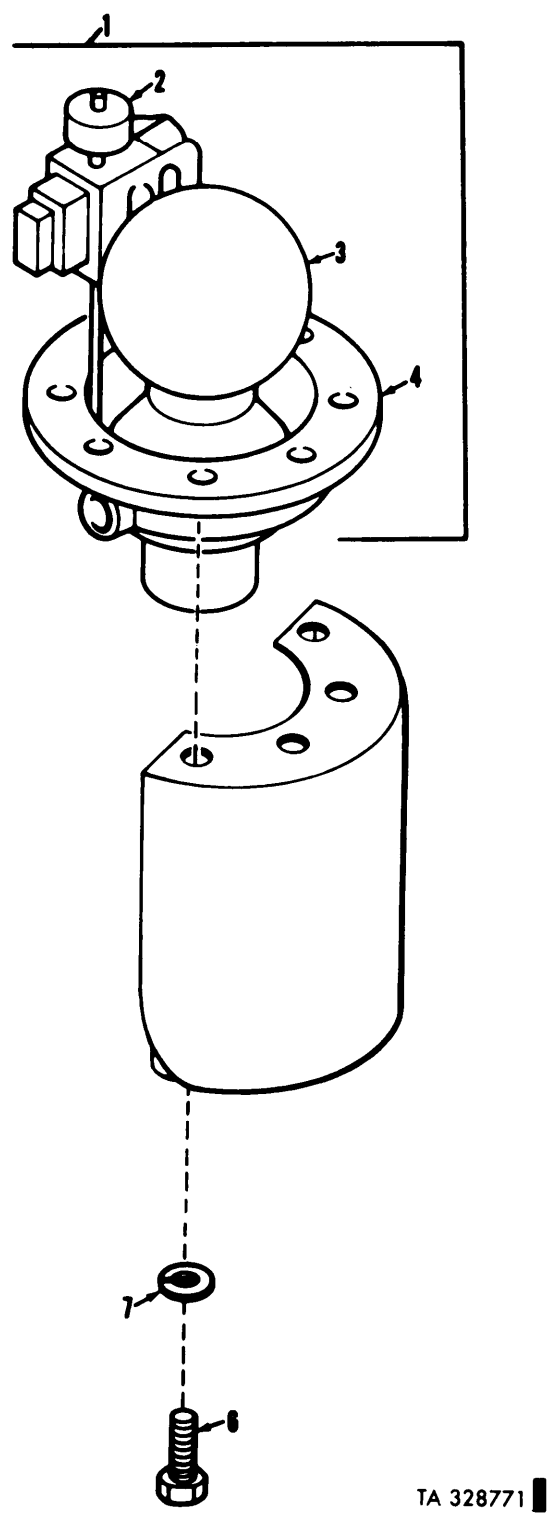


Figure 43. *Filter separator (M131A5C)*

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	
						GROUP 5600—FILTER SEPARATOR (M131A5C)		
N	43	1	PBOZZ	90005	054880-49	FILTER SEPARATOR	047	EA 1
N	43	2	PAOZZ	4820-01-086-8687	90005	055705-05	VALVE, RELIEF	EA 1
N	43	3	PAOZZ	2940-00-137-2023	73370	3736	PLUG SQ HD	EA 2
N	43	4	PAOZZ	5310-00-465-6213	90005	054888	RETAINER, ELEMENT	EA 15
N	43	5	PAOZZ	4330-00-983-0998	90005	045800-10	D.O.D. ELEMENT	EA 15
N	43	6	PAOZZ	5310-01-060-7213	90005	055067	WINGNUT	EA 4
N	43	7	PAOZZ	5310-01-061-0716	90005	901054K7	WASHER, LOCK	EA 4
N	43	8	PAOZZ	5310-01-060-7231	90005	901168K7	WASHER, FLAT	EA 8
N	43	9	PAOZZ	4330-01-083-0969	90005	055053-01	PLATE, RETAINER ASSY	EA 1
N	43	10	PAOZZ	5340-01-081-5024	90005	054907	SPACEWIRE	EA 5
N	43	11	PAOZZ	4330-01-062-3836	90005	050205-10	CANISTER ASSY	EA 5
N	43	12	PAOZZ	5999-01-063-9296	90005	054904	CLIP, FUSE	EA 5
N	43	13	PAOZZ	4330-01-034-0773	90005	041420-02	FUSE ASSY	EA 15
N	43	14	PAOZZ	5330-00-778-7248	90005	055019	GASKET, CANISTER	EA 5
N	43	15	PAOZZ	4330-01-083-7364	90005	054889	ADAPTER ASSY	EA 5
N	43	16	PAOZZ	5306-01-078-0776	90005	900613K7	BOLT, CLEVIS	EA 12
N	43	17	PAOZZ	5310-01-089-9162	90005	901144K7	WASHER, FLAT	EA 24
N	43	18	PAOZZ	4330-01-060-7091	90005	055283-01	COVER, ACCESS	EA 1
N	43	19	PAOZZ	5330-00-778-7229	90005	055285	GASKET	EA 1
N	43	20	PAOZZ	5310-01-077-9431	06853	901615-K7	NUT	EA 12
N	43	21	PAOZZ	5330-00-477-2563	90005	055021	GASKET, ADAPTER	EA 5



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Figure 44. Automatic discharge valve.

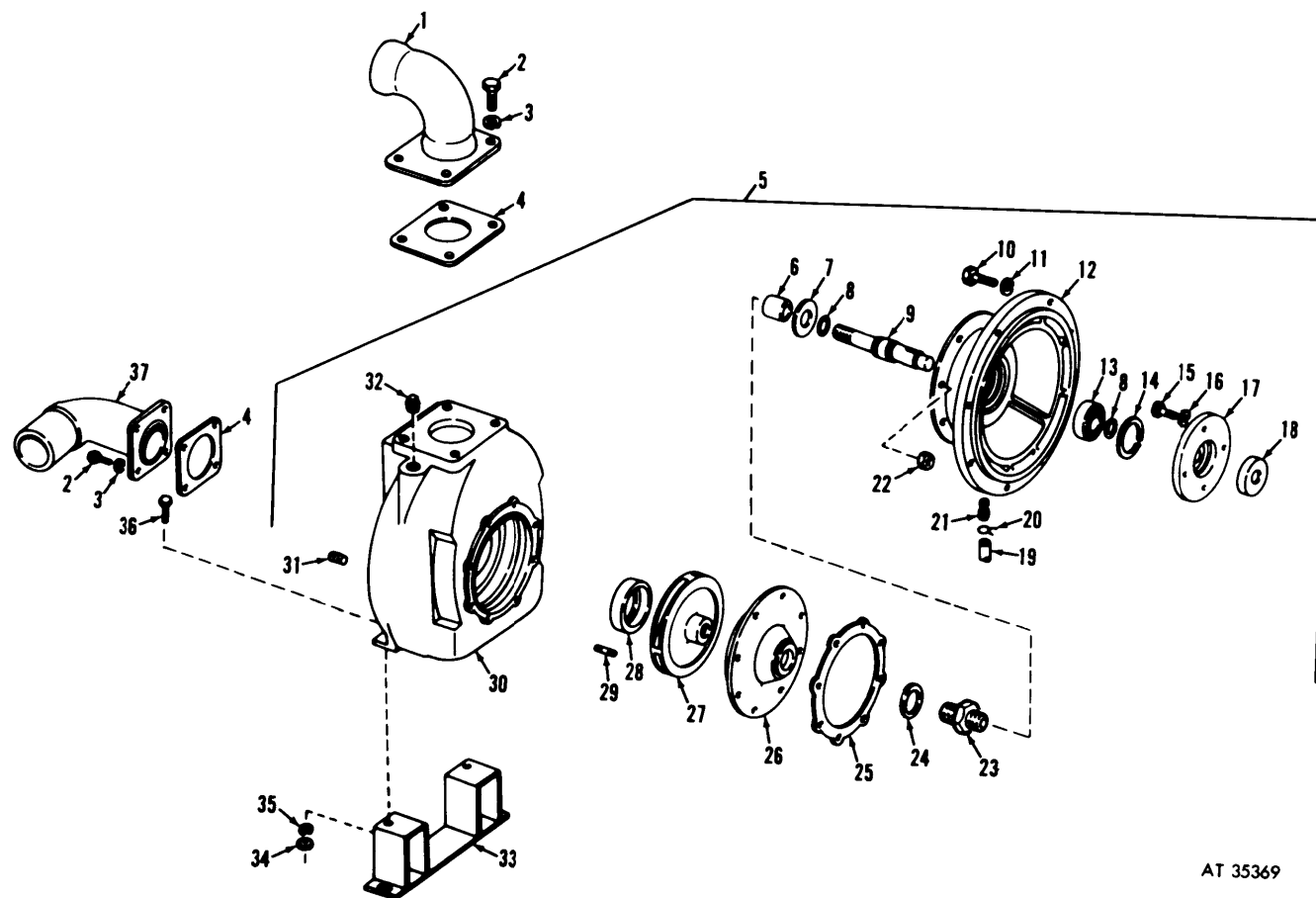


(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO							
R	44	1	PAOZZ 2940-00-930-5309	19207	10959819	GROUP 5601—AUTOMATIC DISCHARGE VALVE FLOAT ASSEMBLY: AUTOMATIC WATER DRAIN 025,047	EA	1
	44	2	PAOZZ 2590-00-757-2752	19207	10950461	VALVE SUMP	EA	1
	44	3	PAOZZ 2590-00-757-2751	19207	10950460	STRAINER ASSEMBLY: AUTOMATIC WATER DRAIN	EA	1
	44	4	PAOZZ 5330-00-089-2686	19207	10950458	STRAINER	EA	1
	44	5	XBOZZ	19207	10950331	GASKET	EA	1
	44	6	PAOZZ 5305-00-269-3213	96906	MS90725-62	GUARD: AUTOMATIC WATER DRAIN 025,047	EA	8
	44	7	PAOZZ 5310-00-637-9541	96906	MS35338-46	SCREW, CAP, HEXAGON: 3/8-16 UNC-2A x 1-1/4 025,047 WASHER, LOCK: 3/8 NOMINAL SIZE 025,047	EA	8

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TM 9-2330-272-144P



AT 35369

Figure 45. Dispensing pump assembly.

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 72—FUEL DISPENSING AND SERVICING EQUIPMENT COMPONENTS GROUP 7202—DISPENSING PUMP ASSEMBLY		
45	1	PAOZZ	4730-00-803-5666	19207	10936936	ELBOW, FLANGE TO HOSE: DISPENSING PUMP 026,049	EA	1
45	1	XBOZZ		19207	10959831	ELBOW, FLANGE TO HOSE: DISPENSING PUMP 025,047	EA	1
45	2	PAOZZ	5305-00-724-5909	96906	MS90725-161	SCREW, CAP, HEXAGON: 5/8-11 UNC-2A x 1-3/8	EA	8
45	3	PAOZZ	5310-00-820-6653	96906	MS35338-50	WASHER, LOCK: 5/8 NOMINAL SIZE	EA	8
45	4	PAOZZ	5330-00-933-3595	19207	7739783	GASKET: ELBOW TO VOLUTE	EA	2
45	5	PAOFF	4320-00-757-9940	19207	10950321	PUMP CENTRIFUGAL: FUEL DISPENSING	EA	1
45	6	PAFZZ	3120-00-764-6284	19207	10950450	BEARING, SLEEVE: SHAFT	EA	1
45	7	PAFZZ	2590-00-763-2423	19207	7739786	RING: DISPENSING PUMP PART OF KIT P/N 5703444	EA	1
45	8	PAFZZ	5365-00-803-7316	96906	MS16624-1137	RING, RETAINER: DISPENSING PUMP PART OF KIT P/N 5703444	EA	2
45	9	PAFZZ	2590-00-764-5381	19207	10950453	SHAFT, SHOULDERED: DISPENSING PUMP	EA	1
45	10	PAFZZ	5306-00-225-8503	96906	MS90725-39	BOLT, MACHINE: 5/16-18 UNC-2A x 1-3/4	EA	8
45	11	PAFZZ	5310-00-407-9566	96906	MS35338-45	WASHER, LOCK: 5/16 NOMINAL SIZE	EA	8
45	12	XAFZZ		19207	10950367	INTERMEDIATE: CENTRIFUGAL PUMP	EA	1
45	13	PAFZZ	3110-00-141-9994	19207	10947130	BEARING, BALL: PUMP IMPELLER SHAFT	EA	1
45	14	PAFZZ	5365-00-579-6297	96906	MS16631-1315	RING, RETAINING: DISPENSING PUMP PART OF KIT P/N 5703444	EA	1
45	15	PAFZZ	5306-00-225-8499	96906	MS90725-34	BOLT, MACHINE: 5/16-18 UNC-2A x 1	EA	4
45	16	PAFZZ	5310-00-974-6623	96906	MS35338-140	WASHER, LOCK: 5/16 NOMINAL SIZE	EA	4
45	17	PAFZZ	2520-00-914-6055	19207	10950452	COUPLING AND BUSHING: PUMP TO ENGINE	EA	1
45	18	PAFZZ	3120-00-763-2428	19207	10950451	BEARING, WASHER: SHAFT	EA	1
45	19	PAFZZ	4720-01-106-2275	19207	10926217	HOSE, NONMETALLIC: INTERMEDIATE	EA	1
45	20	PAFZZ	4720-01-106-2227	19207	10936729	CLAMP, HOSE, INTERMEDIATE	EA	1
45	21	PAFZZ	4720-01-106-2196	19207	10936730	ADAPTER, STRAIGHT: INTERMEDIATE	EA	1
45	22	PAFZZ	5310-00-732-0558	96906	MS51967-8	NUT, PLAIN, HEXAGON: 3/8-16 UNC-2B	EA	8
45	23	KFFZZ		19207	10950445	SEAL, SHAFT PART OF KIT P/N 5703444	EA	1
45	24	XAFZZ		19207	7739787	SHIM: DISPENSING PUMP	FT	V
45	24	XAFZZ		19207	7739788	SHIM: DISPENSING PUMP	FT	V
45	24	XAFZZ		19207	7739789	SHIM: DISPENSING PUMP	FT	V
45	25	PAFZZ	5330-00-764-6285	19207	7739784	GASKET: PLATE PART OF KIT P/N 5703444	EA	1
45	26	XAFZZ		19207	10950444	PLATE: CENTRIFUGAL PUMP	EA	1
45	27	PAFZZ	2590-00-612-1251	19207	7739781	IMPELLER, CENTRIFUGAL: PUMP	EA	1
45	28	PAFZZ	2590-00-763-2423	19207	7739786	RING: IMPELLER PILOT	EA	1
45	29	XAFZZ		21450	530921	STUD: VOLUTE	EA	8
45	30	XAFZZ		19207	7739780	VOLUTE: DISPENSING PUMP	EA	1
45	31	PAOZZ	4730-00-221-2139	96906	MS20913-45	PLUG, PIPE: 1/2 NPT, VOLUTE	EA	1
45	32	PAOZZ	4730-00-044-4715	21450	444715	PLUG, PIPE: VOLUTE	EA	1
45	33	XBOZZ		19207	10950368	BRACKET, PUMP	EA	1
45	34	PAOZZ	5310-00-761-0654	96906	MS51967-9	NUT, PLAIN, HEXAGON: 3/8-16 UNC-2B	EA	2
45	35	PAOZZ	5310-00-637-9541	96906	MS35338-46	WASHER, LOCK: 3/8 NOMINAL SIZE	EA	5

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION		QTY INC IN UNIT
45	36	PAOZZ	5305-00-269-3213	96906	MS90725-62	SCREW, CAP, HEXAGON: 3/8-16 UNC-2A × 1-1/4		
45	37	XBOZZ		19207	10936937	TUBE ASSEMBLY	026,049	EA 2
45	37	XBOZZ		19207	10959830	TUBE ASSEMBLY	025,047	EA 1
45		PAFZZ	2590-00-763-2424	19207	5703444	PARTS KIT, CENTRIFUGAL		EA 1
45	7					RING		EA 1
45	8					RING		EA 1
45	14					RING		EA 2
45	23					SEAL		EA 1
45	25					GASKET		EA 1



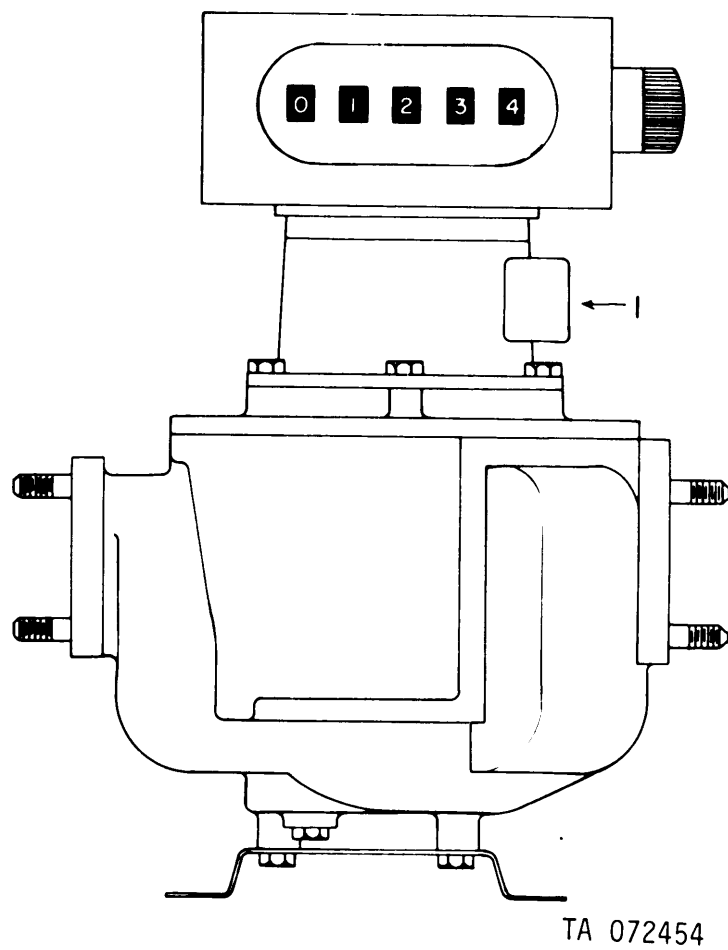
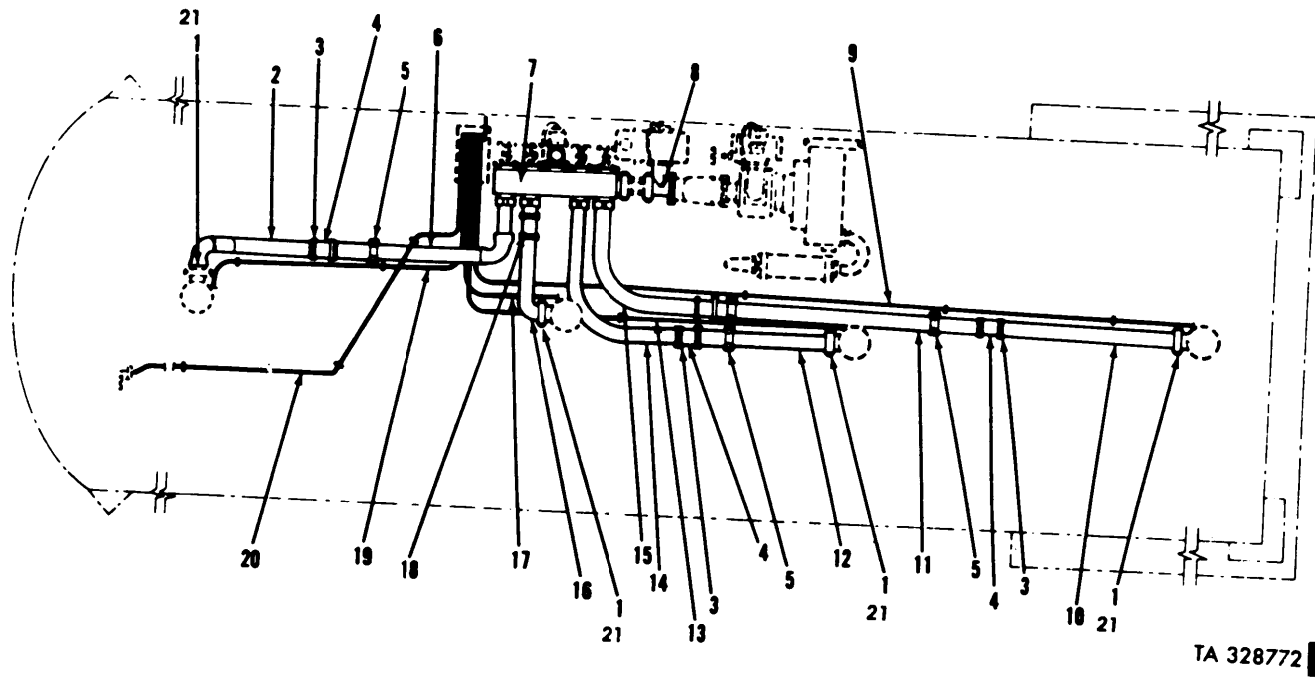


Figure 46. Volumetric assembly.

	(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6) DESCRIPTION  <
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Figure 47. Fuel lines and fittings (M131A4).



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
R						GROUP 7203—FUEL LINES AND FITTINGS (M131A4)		
	47	1	PAOZZ 2590-00-912-4699	19207	8384482	COUPLER, FUEL LINE	025	EA 4
	47	2	XBOZZ	19207	10959838	TUBE ASSEMBLY	025	EA 1
	47	3	PAOZZ 4730-00-838-2379	96906	MS21920-35	CLAMP, HOSE	025	EA 10
	47	4	PAOZZ 4720-00-796-4705	19207	10936934	HOSE, NONMETALLIC	025	EA 5
	47	5	PAOZZ 5306-00-335-4699	19207	8330918	BOLT, U	025	EA 4
	47	6	XBOZZ	19207	10959839	TUBE ASSEMBLY	025	EA 1
	47	7	PAOZZ 4730-01-076-4241	19207	10959845	MANIFOLD, FUELING	025	EA 1
	47	8	XBOZZ	19207	10959829	TUE ASSEMBLY: TEE	025	EA 1
	47	9	PAOZZ 2590-00-422-2022	19207	10936972-4	CONTROL ASSEMBLY: RELIEF VALVE	025	EA 1
	47	10	XBOZZ	19207	10959835	TUBE ASSEMBLY	025	EA 1
	47	11	XBOZZ	19207	10959834	TUBE ASSEMBLY	025	EA 1
	47	12	XBOZZ	19207	10959837	TUBE ASSEMBLY	025	EA 1
	47	13	PAOZZ 2590-00-199-7090	19207	10936972-3	CONTROL ASSEMBLY: RELIEF VALVE	025	EA 1
	47	14	XBOZZ	19207	10959836	TUBE ASSEMBLY	025	EA 1
	47	15	XBOZZ	19207	10959833	TUBE ASSEMBLY	025	EA 1
	47	16	XBOZZ	19207	10959832	TUBE ASSEMBLY	025	EA 1
	47	17	PAOZZ 2590-00-121-6167	19207	10936972-2	CONTROL ASSEMBLY: RELIEF VALVE	025	EA 1
	47	18	XBOZZ	19207	10959841	TUBE ASSEMBLY	025	EA 1
	47	19	PAOZZ 2590-01-067-1919	19207	10936972-1	CONTROL ASSEMBLY: RELIEF VALVE	025	EA 1
	47	20	XBOZZ	19207	8360414	CABLE INSTALLATION	025	EA 1
	47	21	PAOZZ 5330-00-789-1405	19207	10936669	SEAL	EA	4

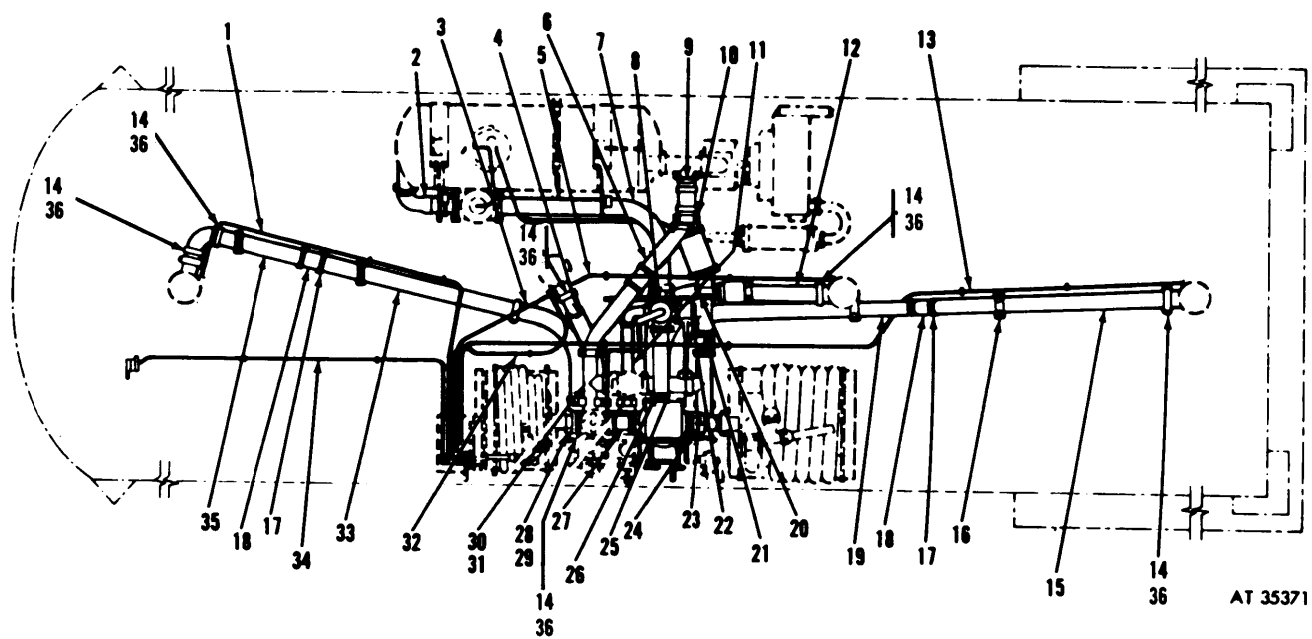


Figure 48. Fuel lines and fittings (M131A4C).

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	
						GROUP 7203—FUEL LINES AND FITTINGS (M131A4C)		
48	1	PAOZZ	2590-01-067-1919	19207	10936972-1	CONTROL ASSEMBLY: RELIEF VALVE	026	EA 1
48	2	XBOZZ		19207	10936985	ELBOW, FLANGED	026	EA 1
48	3	XBOZZ		19207	10936933	TUBE ASSEMBLY	026	EA 1
48	4	XBOZZ		19207	10936945	TUBE ASSEMBLY	026	EA 1
48	5	PAOZZ	2590-00-199-7090	19207	10936972-3	CONTROL ASSEMBLY: RELIEF VALVE	026	EA 1
48	6	XBOZZ		19207	10936932	TUBE ASSEMBLY	026	EA 1
48	7	XBOZZ		19207	10936948	TUBE ASSEMBLY	026	EA 1
48	8	PAOZZ	2590-00-757-9922	19207	10936944	VALVE, CONTROL: 3-WAY	026	EA 1
48	9	XBOZZ		19207	10936937	ELBOW, FLANGED	026	EA 1
48	10	XBOZZ		19207	10936938	TUBE ASSEMBLY	026	EA 1
48	11	XBOZZ		19207	10936949	TUBE ASSEMBLY	026	EA 1
48	12	XBOZZ		19207	10936931	TUBE	026	EA 1
48	13	PAOZZ	2590-00-422-2022	19207	10936972-4	CONTROL ASSEMBLY: RELIEF VALVE	026	EA 1
48	14	PAOZZ	2590-00-912-4699	19207	8384482	COUPLER, FUEL LINE	026	EA 6
48	15	XBOZZ		19207	10936930	TUBE	026	EA 1
48	16	PAOZZ	5306-00-143-1736	19207	10936984	BOLT, U	026	EA 3
48	17	PAOZZ	4730-00-838-2379	96906	MS21920-35	CLAMP, HOSE: PIPE CONNECTOR	026	EA 12
48	18	PAOZZ	4720-00-796-4705	19207	10936934	HOSE, NONMETALLIC	026	EA 6
48	19	XBOZZ		19207	10936929	TUBE	026	EA 1
48	20	XBOZZ		19207	10936947	TUBE	026	EA 1
48	21	XBOZZ		19207	10936939	TUBE ASSEMBLY: TEE	026	EA 1
48	22	PAOZZ	4820-00-757-9926	19207	10936958	VALVE, GATE	026	EA 1
48	23	XBOZZ		19207	10936942	TUBE ASSEMBLY	026	EA 1
48	24	XBOZZ		19207	10936935	TUBE ASSEMBLY	026	EA 1
48	25	XBOZZ		19207	10926150-4	TUBE	026	EA 1
48	26	PAOZZ	4710-00-231-7433	19207	10936943	TUBE ASSEMBLY, METAL	026	EA 1
48	27	XBOZZ		19207	10936965	TUBE ASSEMBLY	026	EA 1
48	28	PAOZZ	2590-00-912-4700	19207	10936967	COUPLER, FUEL LINE	026	EA 2
48	29	XBOZZ		19207	10936960	TUBE ASSEMBLY	026	EA 1
48	30	XBOZZ		19207	10936946	TUBE ASSEMBLY	026	EA 1
48	31	XBOZZ		19207	10926150-3	TUBE	026	EA 1
48	32	PAOZZ	2590-00-121-6167	19207	10936972-2	CONTROL ASSEMBLY: RELIEF VALVE	026	EA 1
48	33	XBOZZ		19207	10936927	TUBE	026	EA 1
48	34	XBOZZ		19207	10936976	CABLE INSTALLATION	026	EA 1
48	35	XBOZZ		19207	10936926	TUBE ASSEMBLY	026	EA 1
48	36	PAOZZ	5330-00-789-1405	19207	10936669	SEAL	EA	6

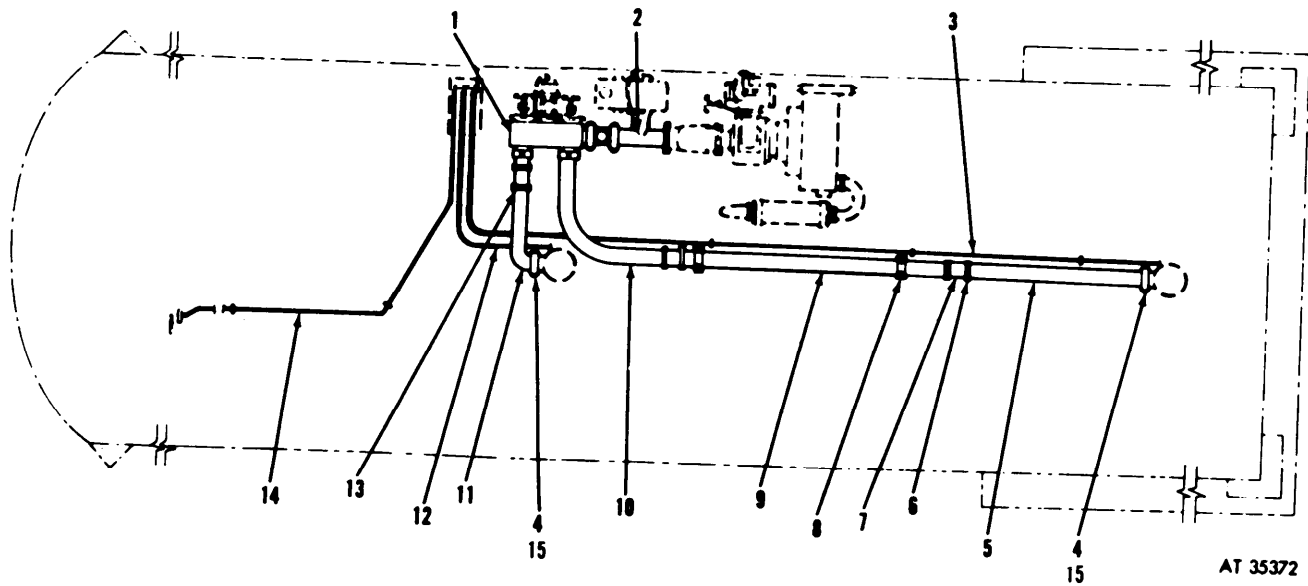


Figure 49. Fuel lines and fittings (M131A5).

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 7203—FUEL LINES AND FITTINGS (M131A5)		
49	1	PAOZZ	4730-00-439-6078	19207	10959921	MANIFOLD, FUELING	047	EA 1
49	2	XBOZZ		19207	10959919	TUBE	047	EA 1
49	3	PAOZZ	2590-00-422-2022	19207	10936972-4	CONTROL ASSEMBLY: RELIEF VALVE	047	EA 1
49	4	PAOZZ	2590-00-912-4699	19207	8384482	COUPLER, FUEL LINE	047	EA 2
49	5	XBOZZ		19207	10959835	TUBE	047	EA 1
49	6	PAOZZ	4730-00-838-2379	96906	MS21920-35	CLAMP, HOSE: PIPE CONNECTOR	047	EA 6
49	7	PAOZZ	4720-00-796-7405	19207	10936934	HOSE, NONMETALLIC	047	EA 3
49	8	PAOZZ	5306-00-143-1736	19207	10936984	BOLT, U	047	EA 2
49	9	XBOZZ		19207	10959834	TUBE	047	EA 1
49	10	XBOZZ		19207	10959918	TUBE	047	EA 1
49	11	XBOZZ		19207	10959999	TUBE	047	EA 1
49	12	PAOZZ	2590-00-121-6167	19207	10936972-2	CONTROL ASSEMBLY: RELIEF VALVE	047	EA 1
49	13	XBOZZ		19207	10959841	TUBE	047	EA 1
49	14	XBOZZ		19207	8360414	CABLE INSTALLATION	047	EA 1
49	15	PAOZZ	5330-00-789-1405	19207	10936669	SEAL	047	EA 2

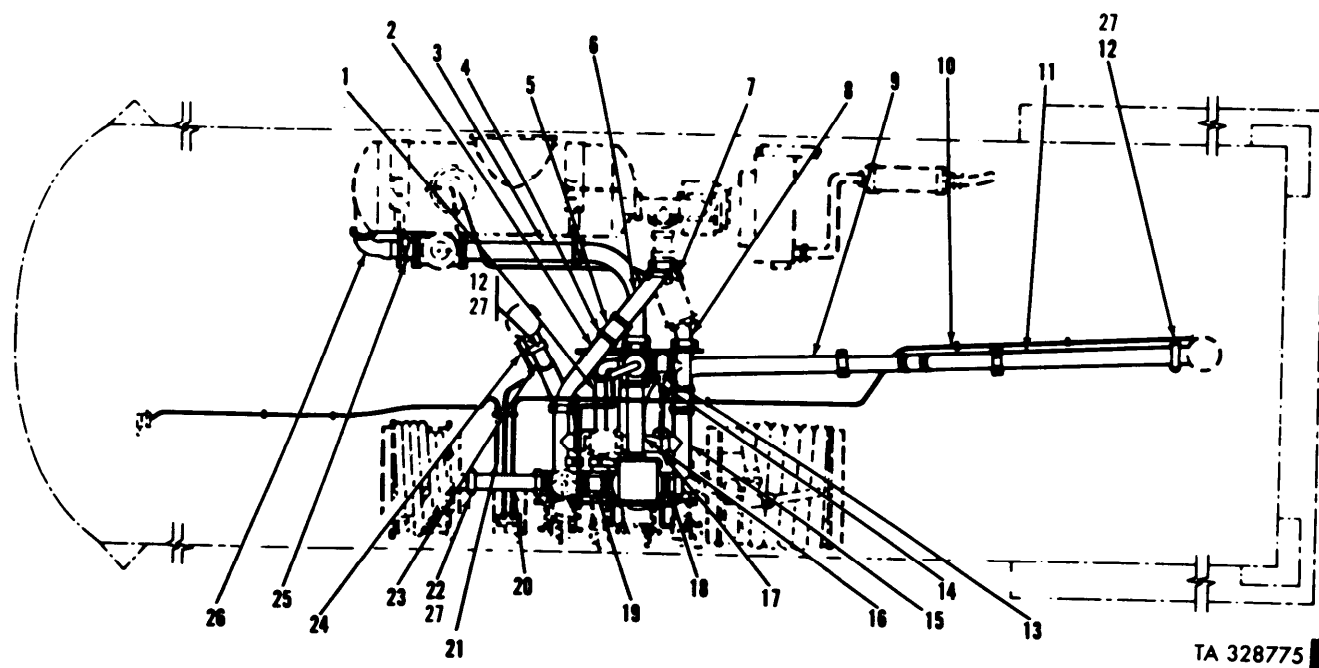
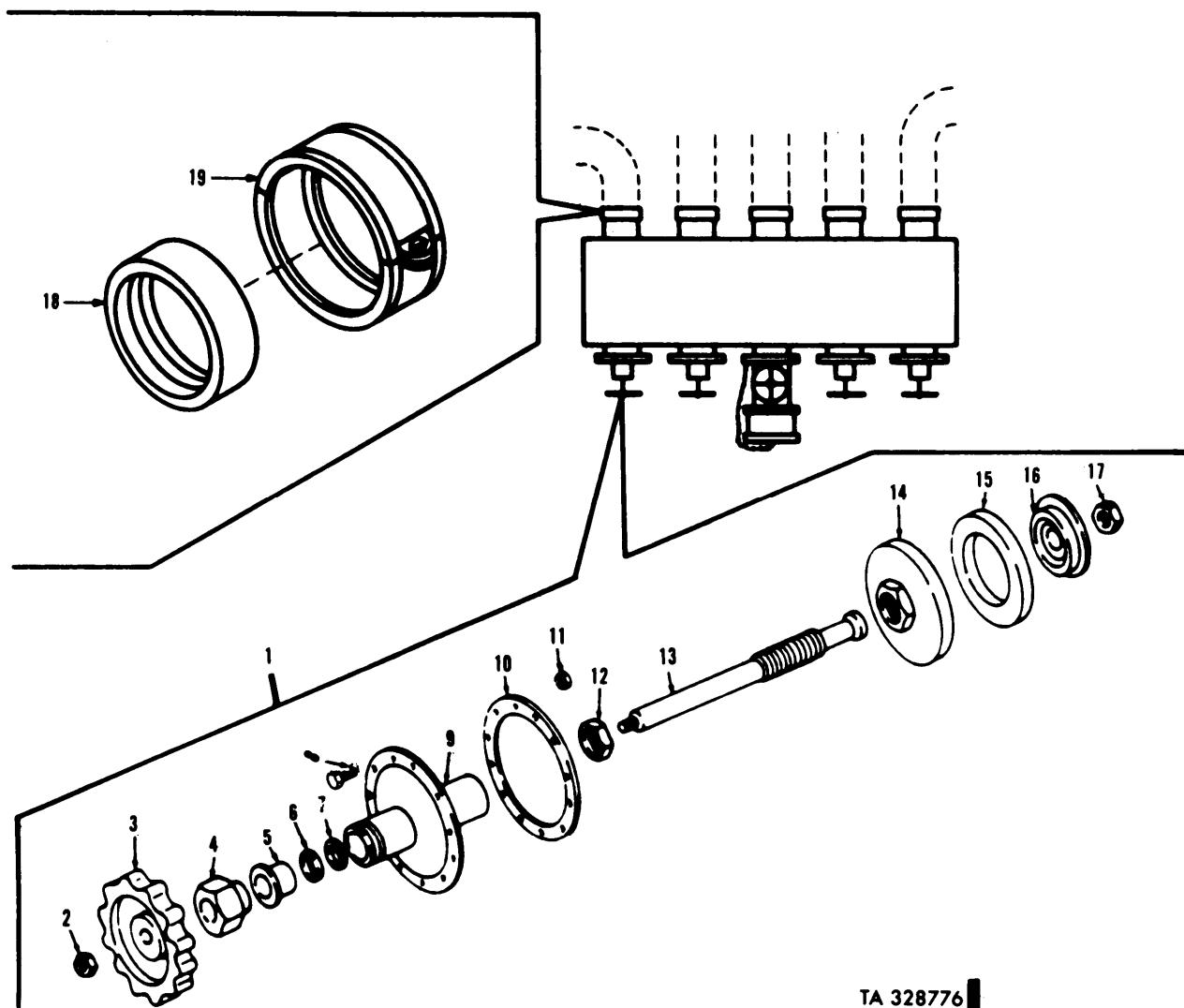


Figure 50. Fuel lines and fittings (M131A5C).

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 7203—FUEL LINES AND FITTINGS (M131A5C)		
50	1	XBOZZ		19207	10936949	TUBE ASSEMBLY 049	EA	1
50	2	XBOZZ		19207	10936946	TUBE ASSEMBLY 049	EA	1
50	3	XBOZZ		19207	10936948	TUBE ASSEMBLY 049	EA	1
50	4	PAOZZ	4730-00-838-2379	96906	MS21920-35	CLAMP, HOSE: PIPE CONNECTION 049	EA	8
50	5	PAOZZ	4720-00-796-4705	19207	10936934	HOSE, NONMETALLIC 049	EA	1
50	6	XBOZZ		19207	10936932	TUBE 049	EA	1
50	7	XBOZZ		19207	10936938	ELBOW ASSEMBLY 049	EA	1
50	8	XBOZZ		19207	10936939	TUBE ASSEMBLY: TEE 049	EA	1
50	9	XBOZZ		19207	10936929	TUBE 049	EA	1
50	10	XBOZZ		19207	11611873-2	CABLE INSTALLATION 049	EA	1
50	11	XBOZZ		19207	10936930	TUBE 049	EA	1
50	12	PAOZZ	2590-00-912-4699	19207	8384482	COUPLER, FUEL LINE 049	EA	2
50	13	PAOZZ	4820-00-757-9926	19207	10936958	VALVE, GATE 049	EA	1
50	14	PAOZZ	2590-00-757-9922	19207	10936944	VALVE, CONTROL: 3-WAY 049	EA	1
50	15	XBOZZ		19207	10936942	TUBE ASSEMBLY 049	EA	1
50	16	PAOZZ	4710-00-231-7433	19207	10936943	TUBE ASSEMBLY, METAL 049	EA	1
50	17	XBOZZ		19207	10926150-4	NIPPLE, PIPE 049	EA	1
50	18	XBOZZ		19207	10936935	TUBE ASSEMBLY 049	EA	1
50	19	XBOZZ		19207	10936965	TUBE ASSEMBLY 049	EA	1
50	20	XBOZZ		19207	11597403	TUBE ASSEMBLY 049	EA	1
50	21	XBOZZ		19207	11611877	CABLE INSTALLATION 049	EA	1
50	22	PAOZZ	2590-00-912-4700	19207	10936967	COUPLER, FUEL LINE 049	EA	2
50	23	XBOZZ		19207	10936945	TUBE ASSEMBLY 049	EA	1
50	24	XBOZZ		19207	11611873-1	CABLE INSTALLATION 049	EA	1
50	25	PAOZZ	5306-00-143-1736	19207	10936984	BOLT, U 049	EA	4
50	26	XBOZZ		19207	10936985	ELBOW, FLANGED 049	EA	1
50	27	PAOZZ	5330-00-789-1405	19207	10936669	SEAL 049	EA	3

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Figure 51. Fuel manifold and valve.

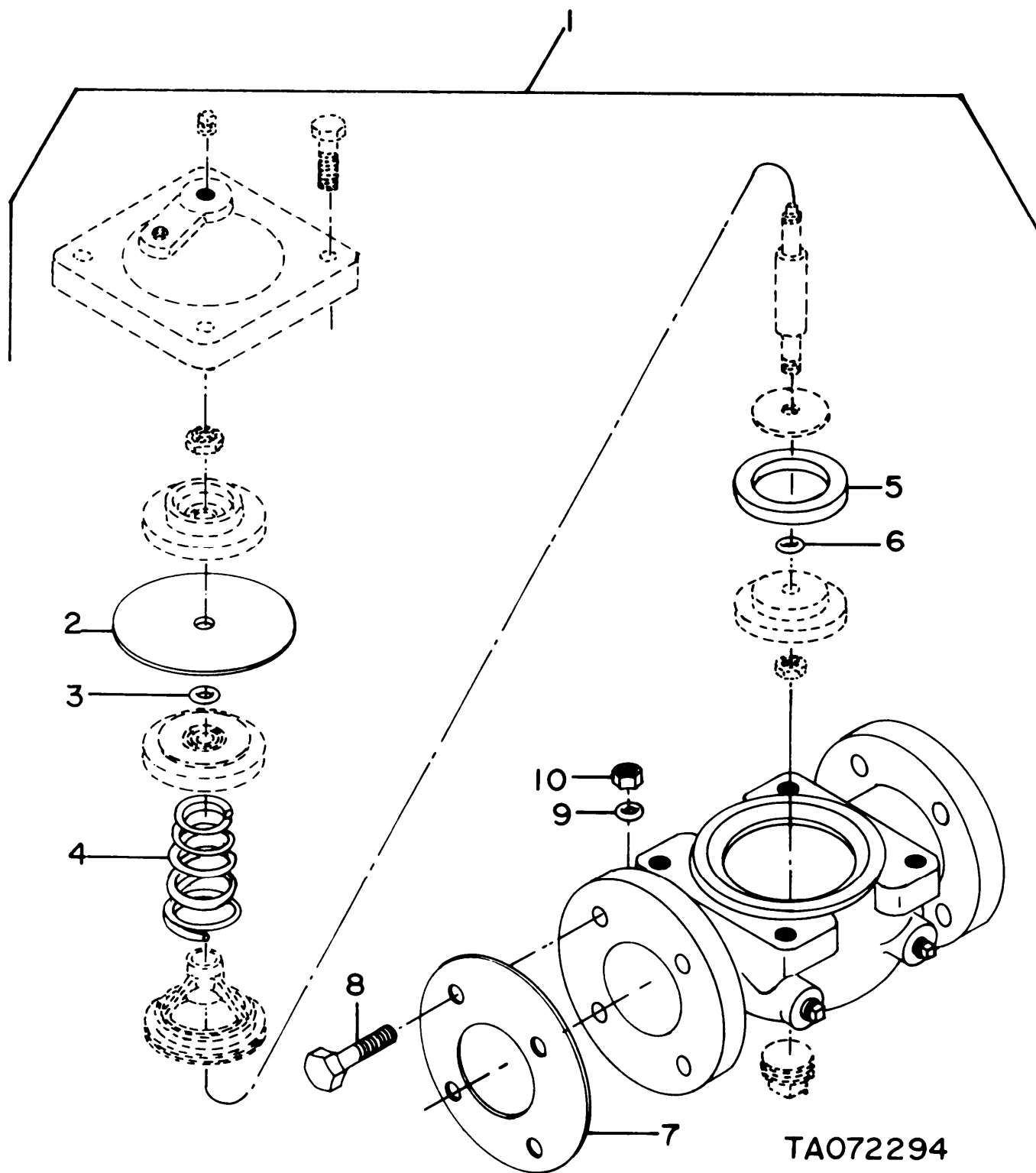


(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION	USABLE ON CODE	QTY INC IN UNIT
51	1	PAOOO	4930-01-124-8894	13226	WV17594ALB	GROUP 7203—FUEL MANIFOLD AND VALVE VALVE ASSY, MANIFOLD	025	EA 4
51	2	PAOZZ	5310-00-902-7835	96906	MS35691-28	.NUT, PLAIN, HEXAGON: 7/16-14 UNC-2B	025 026 047 049	EA 4 EA 5 EA 2 EA 3
51	3	XBOZZ		19207	7739529	.HANDWHEEL: VALVE	025 026 047 049	EA 4 EA 5 EA 2 EA 3
51	4	XBOZZ		19207	7739519	.NUT, STUFFING BOX: VALVE BONNET	025 026 047 049	EA 4 EA 5 EA 2 EA 3
51	5	PAOZZ	5330-00-792-9014	19207	7739518	.RETAINER, PACKING: VALVE BONNET	025 026 047 049	EA 4 EA 5 EA 2 EA 3
51	6	PAOZZ	5330-00-318-4325	19207	8330902	.PACKING, PREFORMED: VALVE BONNET	025 026 047 049	EA 12 EA 6 EA 9
51	7	XBOZZ		19207	7739644	.WASHER, PACKING: VALVE BONNET	025 026 047 049	EA 4 EA 5 EA 2 EA 3
51	8	PAOZZ	5305-00-267-8974	96906	MS90726-8	.SCREW, CAP, HEXAGON: 1/4-28 UNF-2A x 1	025 026 047 049	EA 48 EA 60 EA 24 EA 36
51	9	PAOZZ	2540-00-139-4587	19207	10936726	.BONNET, MANIFOLD VALVE	025 026 047 049	EA 4 EA 5 EA 2 EA 3
51	10	PAOZZ	5330-00-728-3076	19207	7739520	.GASKET: VALVE BONNET	025 026 047 049	EA 4 EA 5 EA 2 EA 3
51	11	PAOZZ	5310-00-959-7600	96906	MS51922-5	.NUT, SELF-LOCKING: 1/4-28 UNF	025 026 047 049	EA 48 EA 60 EA 24 EA 36
51	12	XBOZZ		19207	7739531	.LOCKNUT, STEM: MANIFOLD	025 026 047	EA 4 EA 5 EA 2

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(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8) QTY INC IN UNIT	
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M		
51	13	XBOZZ	4820-00-333-7540	19207	7739530	. STEM, VALVE: MANIFOLD	049 025 026 047 049	EA EA EA EA EA	3 4 5 2 3
51	14	XBOZZ		19207	7739522	. HOLDER, DISK: MANIFOLD	025 026 047 049	EA EA EA EA	4 5 2 3
51	15	PAOZZ		19207	8330919	. DISC, VALVE, NONMETALLIC	025 026 047 049	EA EA EA EA	4 5 2 3
51	16	XBOZZ		19207	7739524-1	. RETAINER, DISK: MANIFOLD VALVE	025 026 047 049	EA EA EA EA	4 5 2 3
51	17	XBOZZ		19207	7739523	. NUT, RETAINER	025 026 047 049	EA EA EA EA	4 5 2 3
51	18	PAOZZ	5330-00-789-1405	19207	10936669	. SEAL, PLAIN: COUPLER	025, 026 047, 049	EA EA	5 3
51	19	PAOZZ	2590-00-912-4699	19207	8384482	. COUPLER, FUEL LINE	025, 026 047, 049	EA EA	5 3

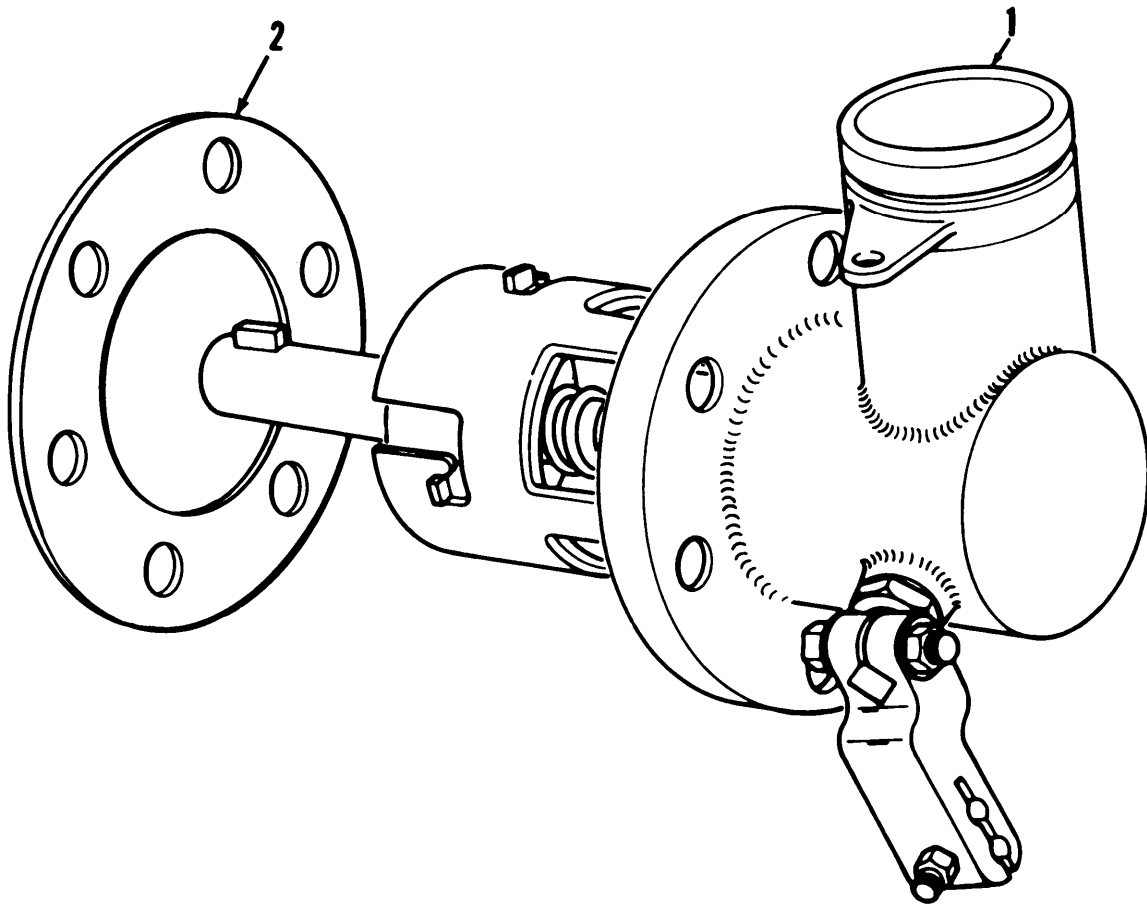




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Figure 52. Slug control valve.

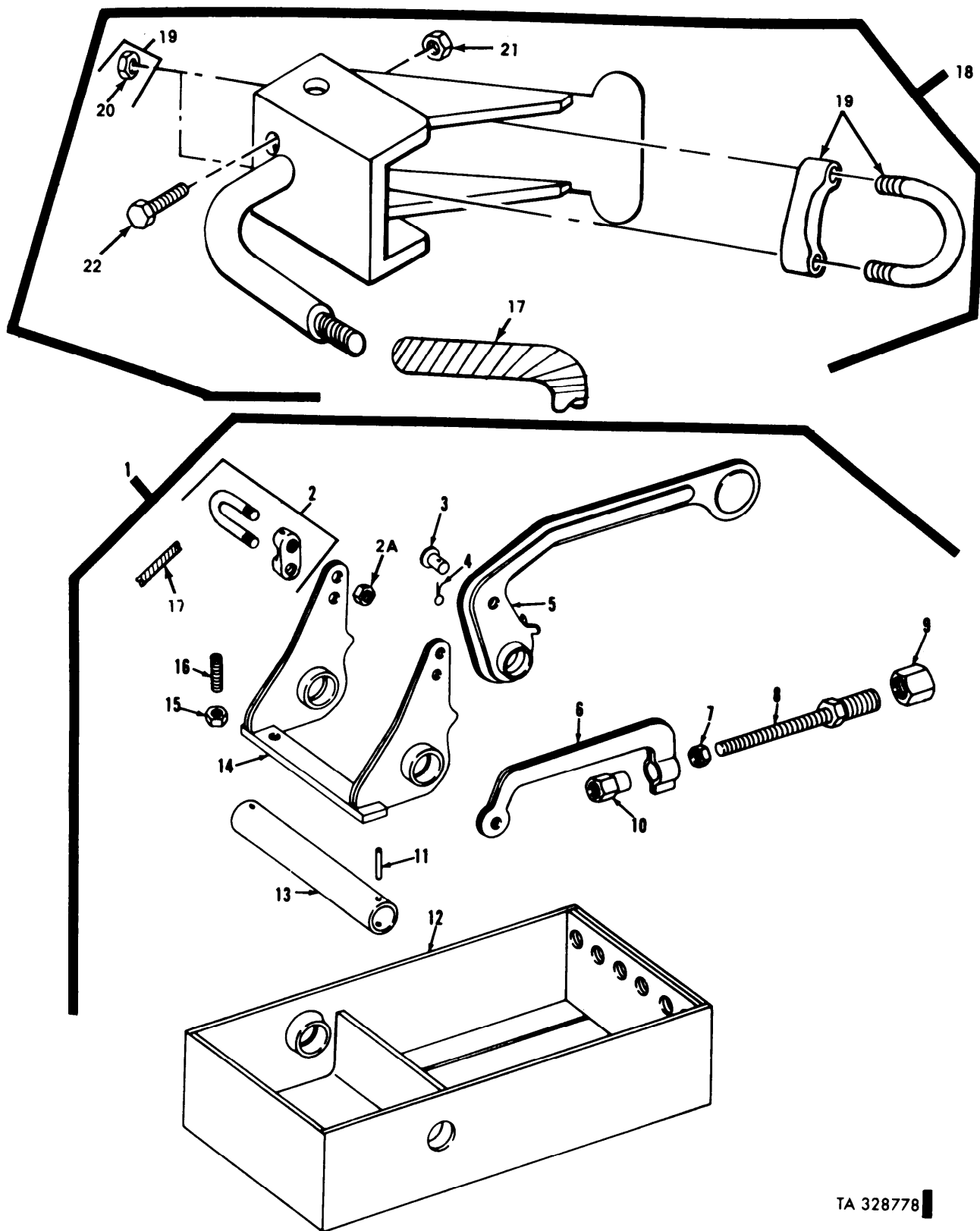
(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
(a) FIG NO	(b) ITEM NO							
C	52	1	PAOFF	2590-00-854-4453	19207	10913213	GROUP 7203—SLUG CONTROL VALVE	
	52	2	PAFZZ	2590-00-763-2426	19207	10959882	VALVE ASSEMBLY: SLUG CONTROL	026, 049
	52	3	PAFZZ	5330-00-724-4286	96906	MS29513-16	. DIAPHRAGM, PUMP: CONTROL VALVE	EA
	52	4	XBFZZ		19207	10959883	. PACKING, PREFORMED: CONTROL VALVE	EA
	52	5	PAFZZ	2590-00-763-2397	19207	10959897	. SPRING, HELICAL: CONTROL VALVE	EA
	52	6	PAFZZ	5330-00-248-3846	96906	MS29513-114	. DISK, RUBBER: CONTROL VALVE	EA
	52	7	PAOZZ	5330-00-627-8321	19207	8360377	. PACKING, PREFORMED: CONTROL VALVE	EA
	52	8	PAOZZ	5305-00-727-3804	96906	MS90725-165	GASKET: MOUNTING FLANGE	026, 049
	52	9	PAOZZ	5310-00-232-8194	96906	MS35338-50	SCREW, CAP, HEXAGON: 5/8-11 UNC-2A x 2-1/4	026, 049
	52	10	PAOZZ	5310-00-763-8920	96906	MS51967-20	WASHER, LOCK: 5/8-NOMINAL SIZE	026, 049
C							NUT, PLAIN, HEXAGON: 5/8-11 UNC-2B	026, 049



TA 328777

Figure 53. *Emergency relief valve.*

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
53	1	PAOZZ	2590-00-757-9934	19207	8737780	GROUP 7203—EMERGENCY RELIEF VALVE VALVE, RELIEF, EMERGENCY	025, 026 047, 049	EA EA 4 2
53	2	PAOZZ	5330-00-627-8322	19207	8384490	GASKET	EA	1



TA 328778

Figure 54. Emergency relief valve control



R

R

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
GROUP 7203—EMERGENCY RELIEF VALVE CONTROL								
54	1	XBOZZ	4030-01-080-9311	19207	7739688	OPERATOR ASSEMBLY 025, 026	EA	1
54	1	XBOZZ		19207	10959901	OPERATOR ASSEMBLY 047, 049	EA	1
54	2	PAOZZ		19207	7739667	CLAMP, WIRE ROPE	EA	1
54	2a	PAOZZ		96906	MS35690-402	NUT, HEX	EA	2
54	3	XBOZZ	5310-00-761-6882	19207	7739665	PIN: VALVE CONTROL 025, 026	EA	4
						047, 049	EA	2
54	4	PAOZZ		96906	MS24665-317	PIN, COTTER: 3/32 DIA x 3/4 025, 026	EA	4
						047, 049	EA	2
54	5	PAOZZ	2590-00-133-0849	19207	7739675	LEVER ASSEMBLY: VALVE CONTROL 025, 026	EA	4
						047, 049	EA	2
54	6	XBOZZ	5310-00-880-7748	19207	7739668	LINK ASSEMBLY: VALVE CONTROL 025, 026	EA	4
						047, 049	EA	2
54	7	PAOZZ		96906	MS51968-5	NUT, PLAIN, HEXAGON: 5/16-24 UNF-2B 025, 026	EA	4
						047, 049	EA	2
54	8	PAOZZ	5307-00-182-5329	19207	7739676	STUD, SHOULDER 025, 026	EA	4
						047, 049	EA	2
54	9	PAOZZ	5310-00-220-2628	19207	7739680	NUT, SLEEVE 025, 026	EA	4
						047, 049	EA	2
54	10	PAOZZ	2590-00-933-3552	19207	7739679	NUT, ADJUSTING VALVE 025, 026	EA	4
						047, 049	EA	2
54	11	PAOZZ	5315-00-543-3716	96906	MS9048-111	PIN, SPRING: 1/8 DIA x 1-1/8	EA	2
54	12	XBOZZ		19207	7739687	FRAME ASSEMBLY: VALVE CONTROL 025, 026	EA	1
54	12	XBOZZ		19207	10936973	FRAME ASSEMBLY: VALVE CONTROL 047, 049	EA	1
54	13	XBOZZ		19207	7739674	SHAFT: VALVE CONTROL 025, 026	EA	1
54	13	XBOZZ	5310-00-880-7744	19207	10959902	SHAFT: VALVE CONTROL 047, 049	EA	1
54	14	XBOZZ		19207	7739681	TRIP ASSEMBLY: VALVE CONTROL 025, 026	EA	1
54	14	XBOZZ		19207	10959907	TRIP ASSEMBLY: VALVE CONTROL 047, 049	EA	1
54	15	PAOZZ		96906	MS51967-5	NUT, PLAIN, HEXAGON: 5/16-18 UNC-2B, TRIP ASSEMBLY	EA	2
54	16	PAOZZ	5305-00-724-5836	96906	MS51963-89	SETSCREW: TRIP ASSEMBLY	EA	2
54	17	MOOZZ	2590-01-054-0253	19207	8360373	WIRE, ROPE, MFR FROM BULK NSN 4010-01-090-4931	FT	V
54	18	PAOZZ		19207	7739753	CONTROL ASSY	EA	1
54	19	PAOZZ		96906	7739667	CLAMP, WIRE ROPE	EA	2
54	20	PAOZZ		96906	MS35690-402	NUT, HEX	EA	2
54	21	PAOZZ	5310-00-903-8282	19207	MS21083N4	NUT, HEX	EA	1
54	22	PAOZZ	5305-00-068-0502	96906	MS90725-6	SCREW, CAP, HEX HD	EA	2

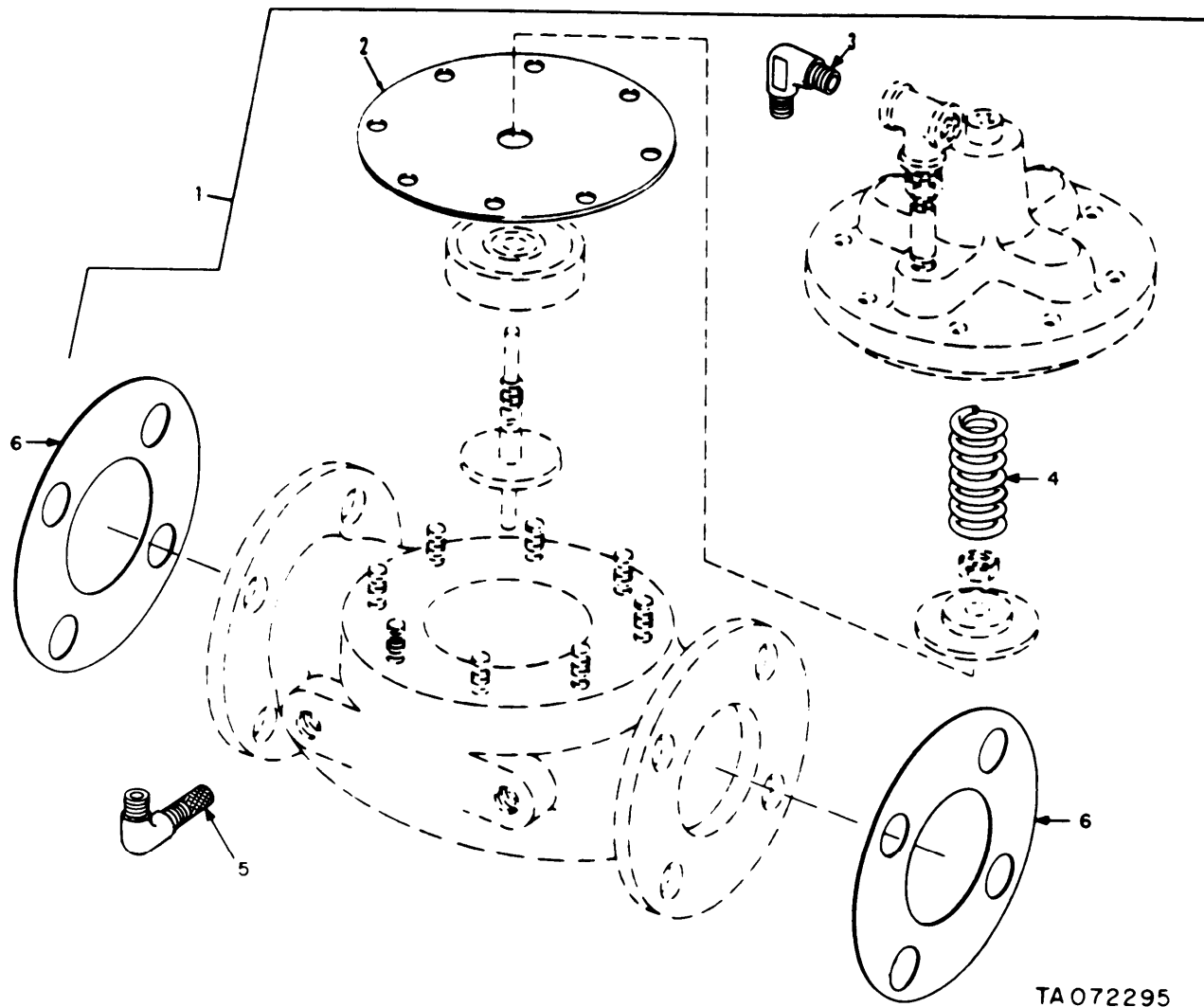


Figure 55. Flow control valve.

R  
N

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
55	1	PAOFF	2590-00-757-9923	19207	10936966	GROUP 7203-FLOW CONTROL VALVE		
55	2	PAFZZ	2590-00-764-6293	19207	10950463	VALVE ASSEMBLY: FLOW CONTROL	026,049	EA 1
55	3	PAFZZ	4730-00-763-2393	19207	10950462	DIAPHRAGM: FLOW CONTROL VALVE		EA 1
55	4	PAFZZ	5360-00-764-5382	19207	10950464	ELBOW,PIPE TO TUBE: FLOW CONTROL VALVE		EA 1
55	5	PAFZZ	2590-00-764-5380	19207	10950465	SPRING,HELICAL COMPRESSION: FLOW CONTROL VALVE		EA 1
55	6	PAOZZ	5330-00-089-3011	19207	10936990	STRAINER,FUEL PUMP: FLOW CONTROL VALVE		EA 1
						GASKET: MOUNTING FLANGE	026,049	EA 2

TM 9-2330-272-14&amp;P

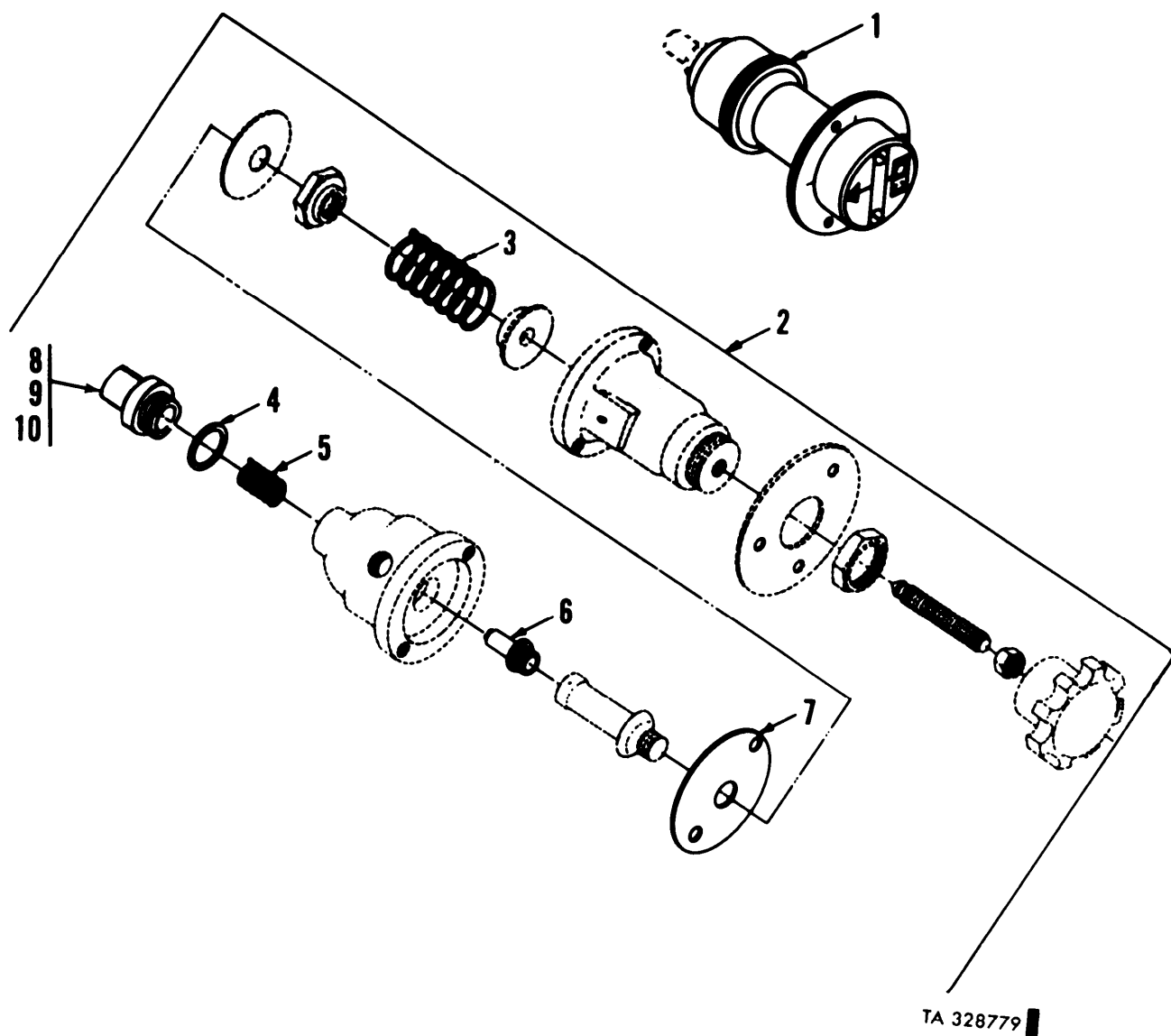
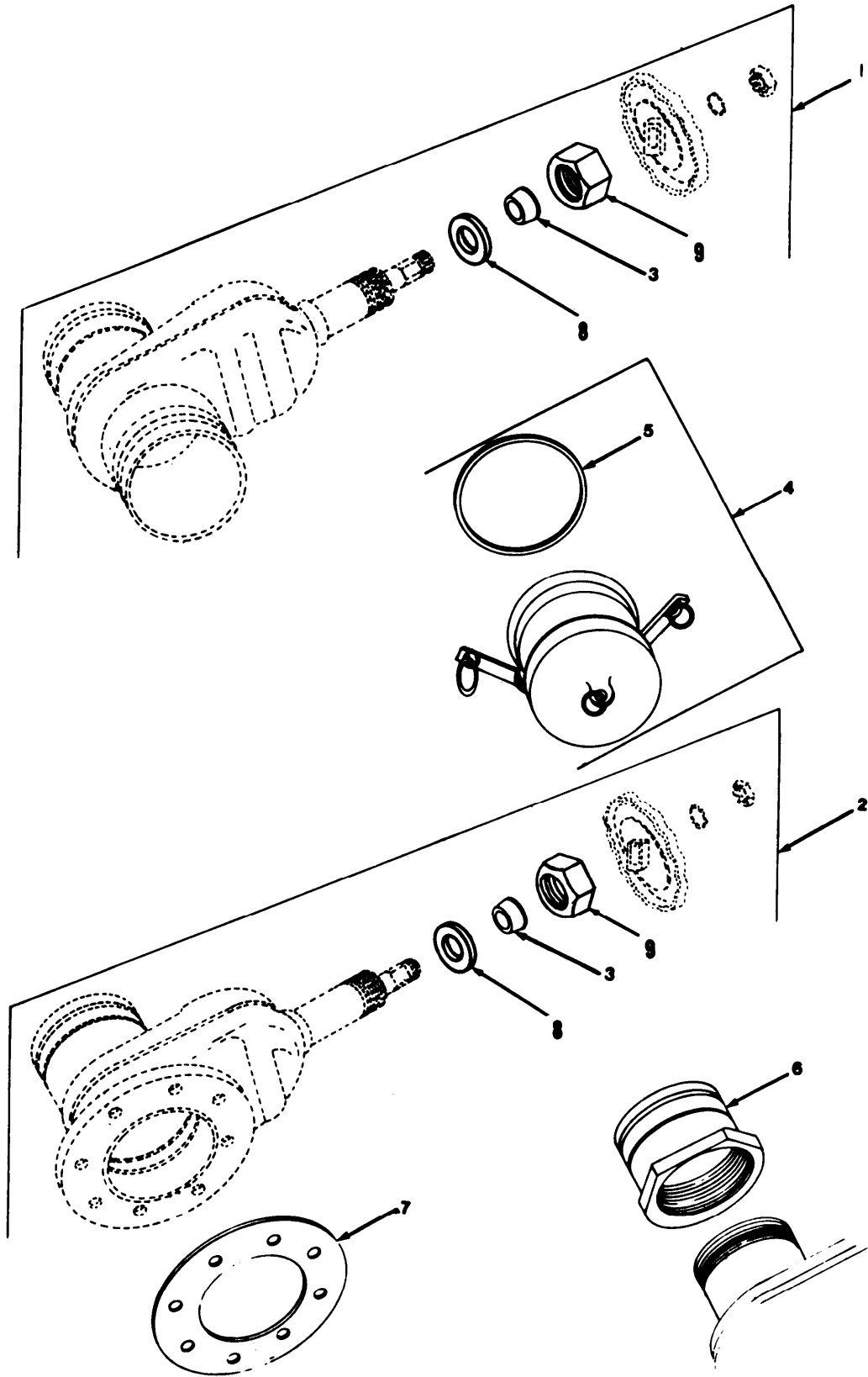


Figure 56. Rate-of-flow selector valve.

C  
C  
N  
N  
N  
N  
N  
N  
N

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION	USABLE ON CODE	QTY INC IN UNIT
56	1	<del>PAFFZ</del>	2590-00-757-2754	19207	10936995	GROUP 7203—RATE-OF-FLOW SELECTOR VALVE VALVE, SELECTOR, RATE-OF-FLOW (WITH READ-OUT RATE-OF-FLOW SELECTOR DIAL)	026,049	EA 1
56	2	<del>PAFFZ</del>	4820-00-400-6799	19207	11611979	VALVE, PRESSURE REDUCING (REPLACEMENT FOR VALVE P/N 10936995—THIS VALVE HAS NO READ-OUT RATE-OF-FLOW SELECTOR DIAL)	026,049	EA 1
56	3	<del>XBFFZ</del>		19207	11611983	SPRING		EA 1
56	4	<del>PAFZZ</del>	5330-00-649-9131	19207	11611982	GASKET		EA 1
56	5	PAFZZ	5340-00- 109-7606	19207	11611964	SPRING, SPECIAL		EA 1
56	6	PAFZZ	4820-00-111-5103	19207	11611961	DISK RETAINER ASSY		EA 1
56	7	PAFZZ	4320-00-451-0014	19207	11611980	DIAPHRAGM		EA 1
56	8	MFFZZ		17590	305087-0116	TUBING, MFR FROMNSN 4710-00-203-3172		EA 1
56	9	PAFZZ	4730-00-069-1187	96906	MS39179-5	ELBOW		EA 1
56	10	PAFZZ	4730-00-069-1186	96906	M539182-3	ADAPTER		EA 1

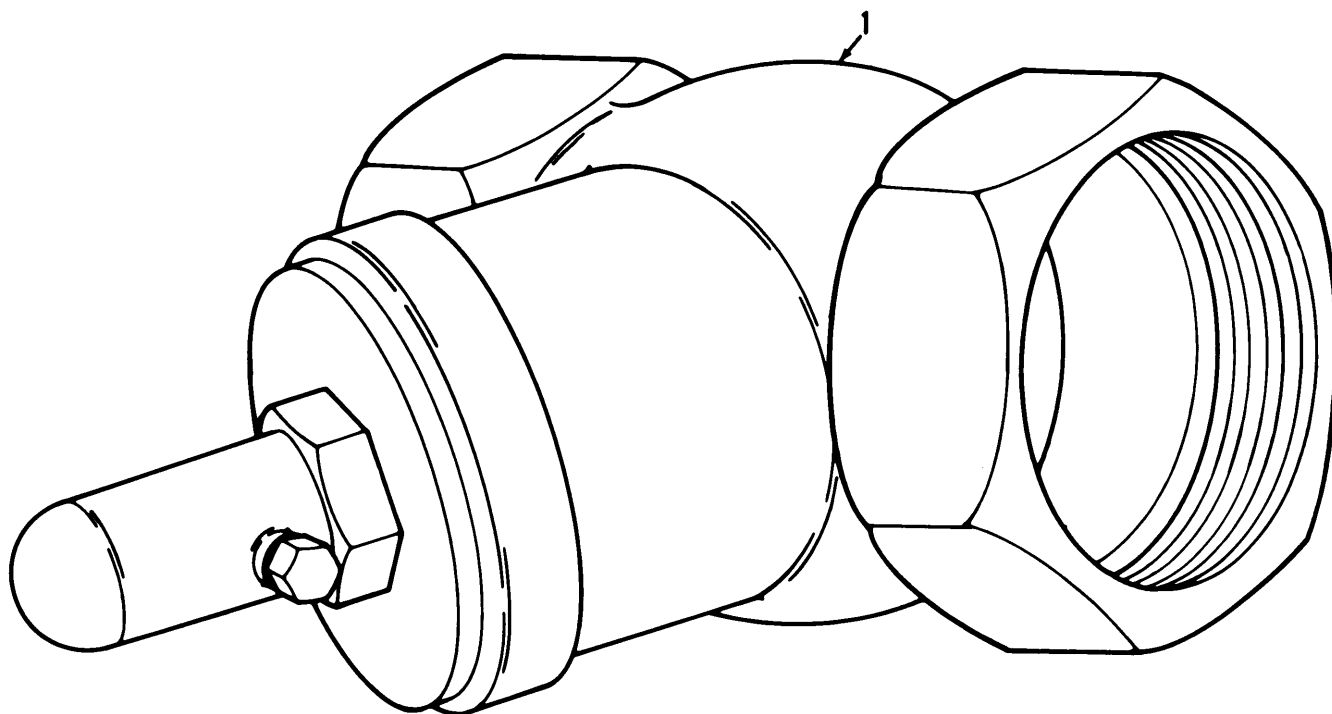


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Figure 57. Gate Valves.

R  
R  
N  
N  
C  
C

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
57	1	PAOZZ	4820-00-757-9925	9207	8737731	GROUP 7203—GATE VALVES	EA	1
57	2	PAOZZ	4820-00-757-9930	9207	0737734	VALVE, GATE: 3-IN. VALVE FLANGE	EA	3
57	3	PAOZZ	5330-00-792-9014	9207	7739518	VALVE, GATE: INTAKE, GRAVITY, AND DISCHARGE	EA	i
57	4	PAOZZ	4730-00-088-0787	6906	MS27028-15	RETAINER, PACKING: GATE VALVE	EA	3
						CAP, QUICK DISCONNECT: INTAKE, GRAVITY AND DISCHARGE GATE VALVE		
57	5	PAOZZ	5330-00-088-9166	96906	MS27030-8	GASKET: QUICK DISCONNECT CAP	EA	1
57	6	PAOZZ	4730-00-079-1364	96906	MS27020-15	COUPLING, HALF, QUICK: THREADED ADAPTER	EA	1
57	7	PAOZZ	5330-00-089-3010	19207	10936959	GASKET: Z-WAY GATE VALVE FLANGE	EA	4
57	8	PAOZZ	5330-00-068-7333	05443	10048-A	PACKING SET	EA	i
57	9	PAOZZ		05443	SS10046-B	NUT, PACKING	EA	1

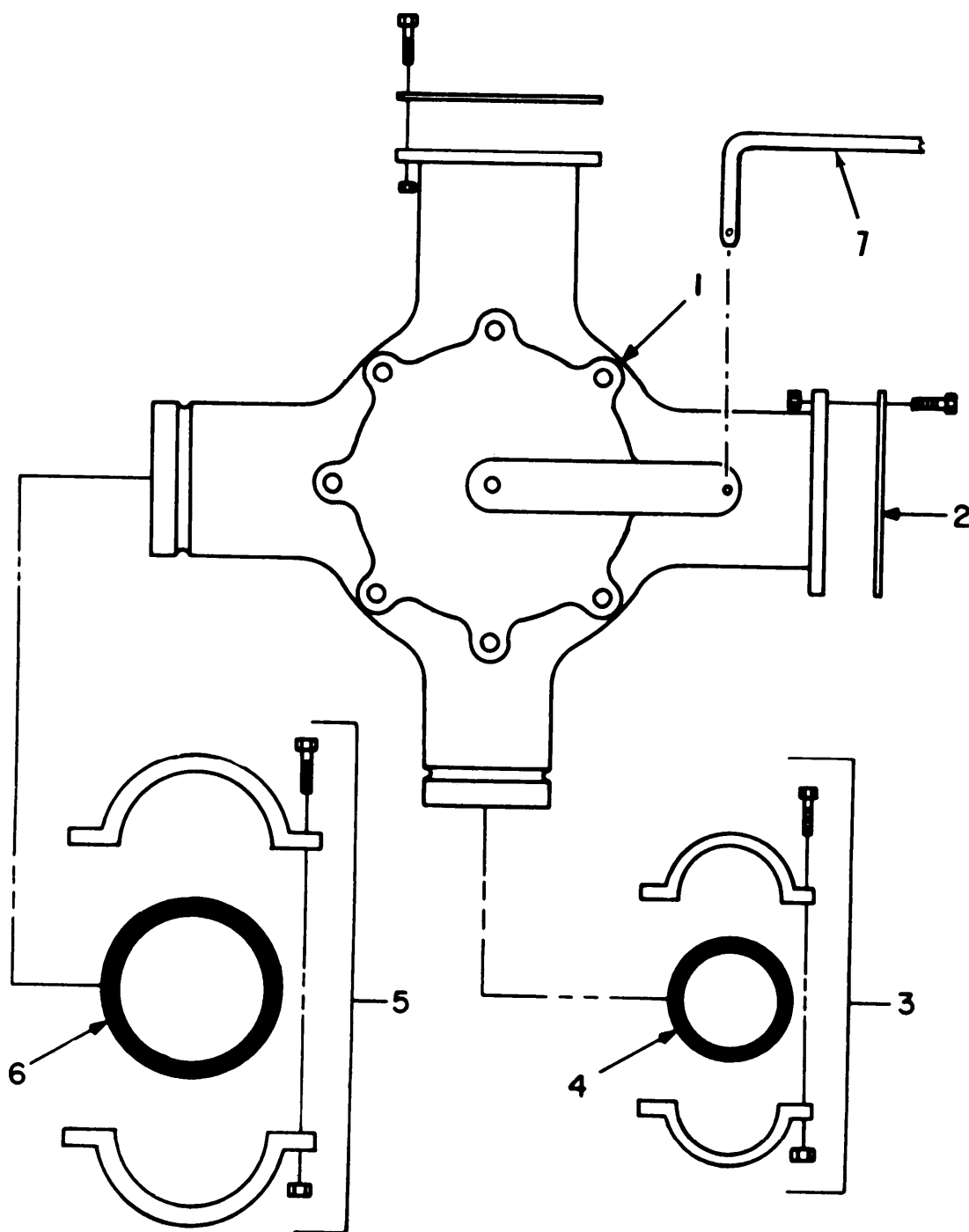


AT 35380

Figure 58. Adjustable bypass valve (3-inch).



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6) DESCRIPTION	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	USABLE ON CODE	U/M	QTY INC IN UNIT
58	1	PAOZZ	2590-00-757-9920	19207	8737781	GROUP 7203—ADJUSTABLE BYPASS VALVE (3-IN.) VALVE, BYPASS, ADJUSTABLE: 3-IN.	EA	1



TA 328770

Figure 59. Three-way control valve

	(1) ILLUSTRATION		(2)  SMR CODE	(3)  NATIONAL STOCK NUMBER	(4)  FSCM	(5)  PART NUMBER	(6)  DESCRIPTION   USABLE ON CODE	(7)  U/M	(8)  QTY INC IN UNIT
	(a) FIG NO	(b) ITEM NO							
C	59	1	PAOZZ	2590-00-757-9922	19207	10936944	GROUP 7203—THREE-WAY CONTROL VALVE		
R	59	2	PAOZZ	5330-00-318-4318	19207	8330883	VALVE, CONTROL: THREE-WAY	025,047	EA 1
C	59	3	PAOZZ	2590-00-912-4700	19207	10936967	GASKET: THREE-WAY VALVE FLANGE	025,047	EA 1
							COUPLING, FUEL LINE: THREE-WAY VALVE	025,047	EA 1
							TO MANIFOLD		
C	59	4	PAOZZ	5330-00-912-3380	19207	10959962	SEAL, RUBBER, SPECIAL: FUEL LINE COUPLING	025,047	EA 1
C	59	5	PAOZZ	2590-00-912-4699	19207	8384482	COUPLING, FUEL LINE: THREE-WAY VALVE		
							TO SLUG VALVE	025,047	EA 1
							SEAL, PLAIN: FUEL LINE COUPLING	025,047	EA 1
C	59	6	PAOZZ	5330-00-789-1405	19207	10936669	ROD, (3-WAY CONTROL VALVE)	025,047	EA 1
■	59	7	PAOZZ	2590-01-152-0183	19207	10936964			

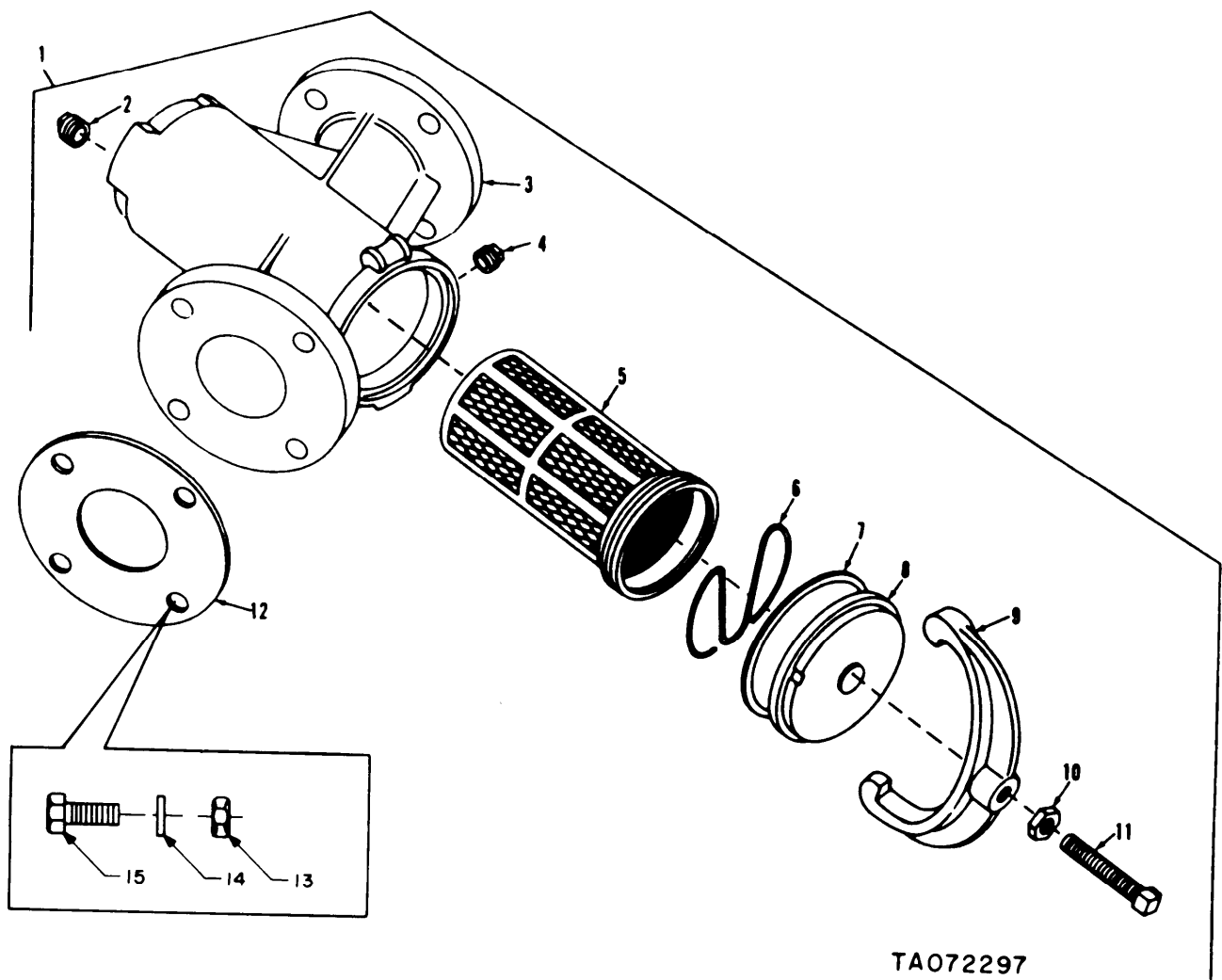
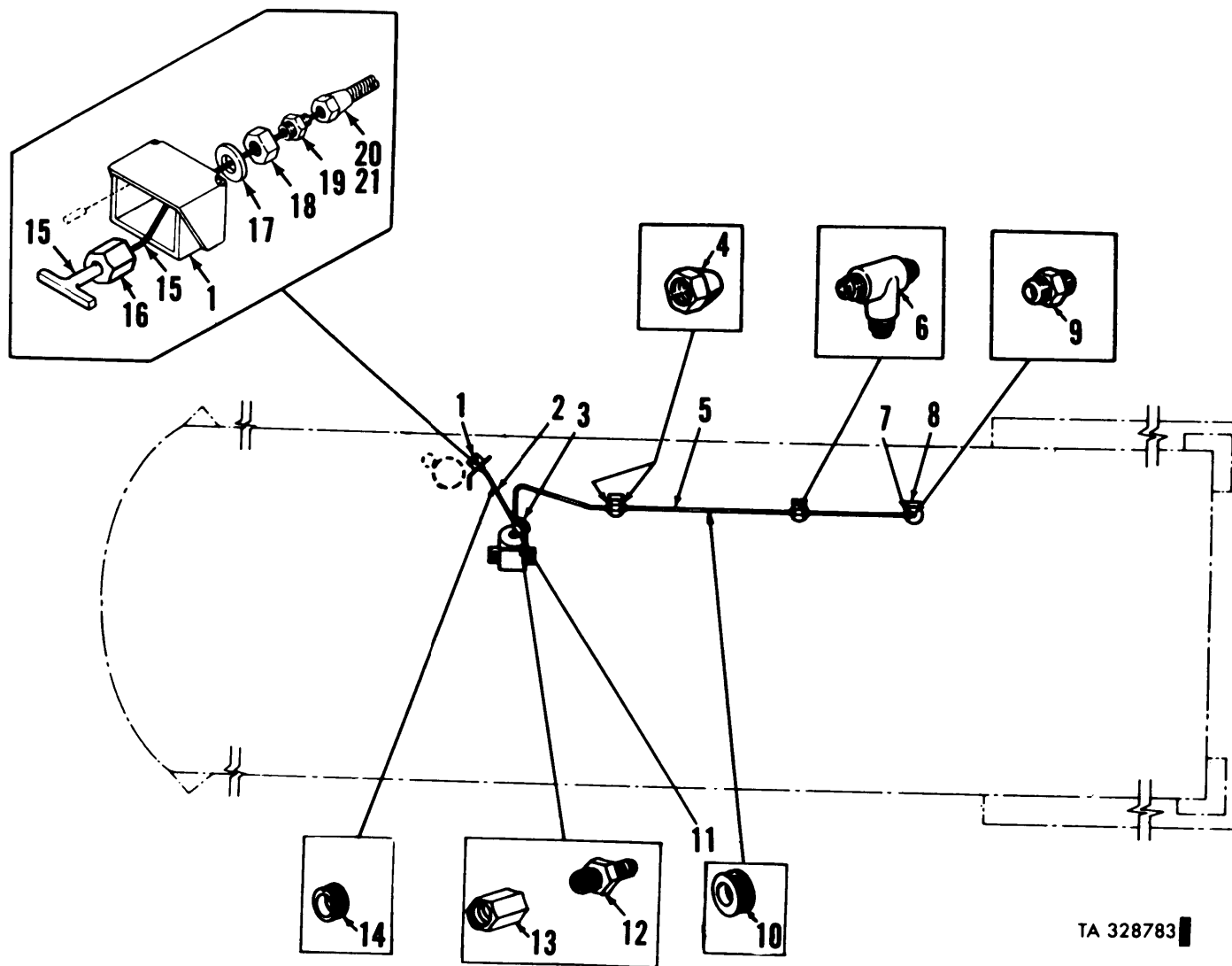


Figure 60. Sediment strainer.

	(1) ILLUSTRATION		(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION  USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
	(a) FIG NO	(b) ITEM NO							
R	60	1	PAOZZ	2910-00-134-7553	19207	8737732	GROUP 7203—SEDIMENT STRAINER	EA	1
	60	2	XAOZZ		19207	7739725	STRAINER, SEDIMENT	EA	1
	60	3	XAOZZ		19207	10936738	PLUG, DRAIN: STRAINER BODY	EA	1
	60	4	XAOZZ		19207	7739723	BODY: SEDIMENT STRAINER	EA	1
	60	5	PAOZZ	2590-00-758-2692	19207	8737730	PLUG: STRAINER BODY	EA	1
R	60	6	XAOZZ		19207	10936755	ELEMENT, STRAINER	EA	1
	60	7	PAOZZ	5330-00-627-8320	19207	7739720	WIRE, LOCK: STRAINER COVER	EA	1
	60	8	XAOZZ		19207	10936752	GASKET: STRAINER COVER	EA	1
	60	9	XAOZZ		19207	7739722	CAP: SEDIMENT STRAINER BODY	EA	1
	60	10	PAOZZ	5310-00-834-8732	96906	MS35691-33	CLAMP: CAP	EA	1
R C C C	60	11	XAOZZ		19207	7739721	NUT, PLAIN, HEXAGON: 1/4-13 UNC-28, PRESSURE SCREW, JAM	EA	1
	60	12	PAOZZ	5330-00-627-8321	19207	8360377	SCREW, PRESSURE: SEDIMENT STRAINER CAP	EA	2
	60	13	PAOZZ	5310-00-763-8920	96906	MS51967-20	GASKET: SEDIMENT STRAINER MOUNTING FLANGE	EA	8
	60	14	PAOZZ	5310-00-232-8194	96906	MS35338-50	NUT, PLAIN, HEXAGON: 5/8-11 UNC-2B	EA	8
	60	15	PAOZZ	5305-00-727-3804	96906	MS90725-165	WASHER, LOCK: 5/8 NOMINAL SIZE	EA	8
							SCREW, CAP, HEXAGON: 5/8-11 UNC-2A × 2-1/4		



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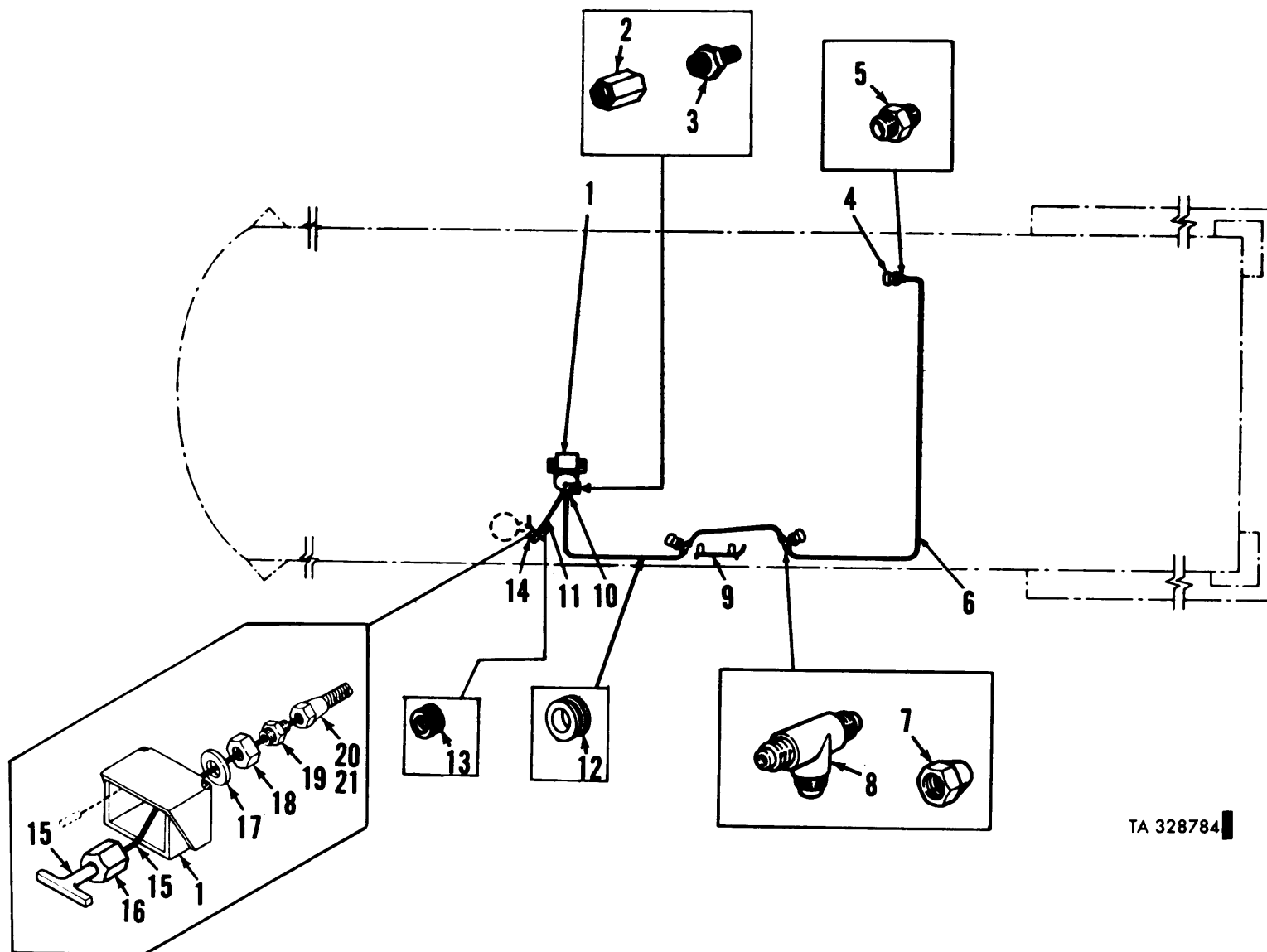
Figure 61. Fixed fire extinguisher system (M131A4 and M131A5).

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
						GROUP 76-FIRE FIGHTING EQUIPMENT CONTENTS GROUP 7630-FIXED FIRE EXTINGUISHER SYSTEM (M131A4 AND M131A5)		
61	1	XB0ZZ		19207	7405938	BOX: FIRE EXTINGUISHER 025,047	EA	1
61	2	PAFZZ	4710-00-277-5525	50513	BB3338	TUBE, METALLIC 025,047	EA	2
61	3	PAFZZ	2540-00-678-4177	19207	8386355	VALVE: AUTO RELEASE FIRE EXTINGUISHER 025,047	FT	V
61	4	PAFZZ	4730-00-014-4309	96906	MS39166-9	NUT, TUBE: 1-1/16-14 UNS-2B 025,047	EA	1
61	5	PAFZZ	4710-00-289-0640	19207	8360226	TUBE, METALLIC: FIRE EXTINGUISHER 025,047	EA	6
61	6	PAFZZ	4730-01-003-5108	96906	MS39163-9	TEE, PIPE TO TUBE 025,047	FT	V
61	7	PAFZZ	4730-00-540-2575	24617	444484	ELBOW: FIRE EXTINGUISHER 025,047	EA	2
61	8	XBFZZ		19207	8376887	NOZZLE: FIRE EXTINGUISHER 025,047	EA	1
61	8	PAFZZ	4210-00-737-9340	19207	7379340	NOZZLE: FIRE EXTINGUISHER 025,047	EA	3
61	9	PAFZZ	4730-00-927-7272	96906	MS39158-9	ADAPTER, STRAIGHT: 1-1/16-14 UNS-2A 025,047	EA	3
61	10	PAOZZ	5325-00-174-9038	81336	MS35489-20	GROMMET, RUBBER 025,047	EA	1
61	11	PAFZZ	4210-00-202-6465	19207	7714476	EXTINGUISHER, FIRE, C 025,047	EA	2
61	12	PAFZZ	4730-00-116-6677	19207	10950310	ADAPTER, STRAIGHT 025,047	EA	1
61	13	PAFZZ	4730-00-804-0451	19207	10950324	ADAPTER, STRAIGHT 025,047	EA	1
61	14	PAOZZ	5325-00-263-6632	96906	MS35489-6	GROMMET, RUBBER 025,047	EA	1
61	15	KFFZZ		19207	7967965	HANDLE AND CABLE ASSY, PART OF KIT P/N 12314333 025,047	EA	3
61	16	KFFZZ		19207	12314329	NUT, PART OF KIT P/N 12314333	EA	1
61	17	KFFZZ		96906	MS27183-21	WASHER, FLAT PART OF KIT P/N 12314333	EA	1
61	18	KFFZZ		96906	MS21083-N10	NUT, PART OF KIT P/N 12314333	EA	1
61	19	PAFZZ	4730-00-900-3296	96906	MS39158-3	ADAPTER, STRAIGHT: 7/16-20 UNF-2A,PIPE TO TUBE PART OF KIT P/N 12314333	EA	1
61	20	KFFZZ		96906	MS39177-3	SLEEVE, PART OF KIT P/N 12314333	EA	1
61	21	KFFZZ		96906	MS39176-3	NUT PART OF KIT P/N 12314333	EA	1

Change 1

E-129

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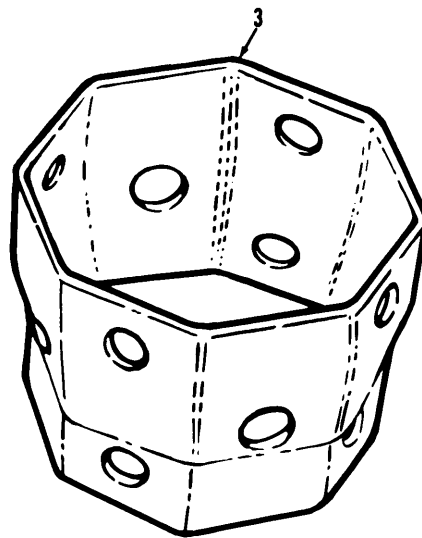


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Figure 62. Fixed fire extinguisher system (M131A4C and M131A5C).



(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
C  R C  R R C C	62	1	PAFZZ 4210-00-202-6465	96906	7714476	GROUP 7630-FIXED FIRE EXTINGUISHER SYSTEM (M131A4C AND M131A5C)		
	62	2	PAFZZ 4730-00-116-6677	19207	10950310	EXTINGUISHER, FIRE, C	026, 049	EA 1
	62	3	PAFZZ 4730-00-804-0451	19207	10950324	ADAPTER, STRAIGHT	026, 049	EA 1
	62	4	XBFZZ	19207	8376887	ADAPTER, STRAIGHT		EA 1
	62	4	PAFZZ 4210-00-737-9340	19207	7379340	NOZZLE: FIRE EXTINGUISHER	026, 049	EA 3
	62	5	PAFZZ 4730-00-927-7272	19207	MS39158-9	NOZZLE: FIRE EXTINGUISHER	026, 049	EA 3
				96906		ADAPTER, STRAIGHT: 1-1/16-14 UNS-2A, PIPE TO TUBE	026, 049	EA 1
	62	6	PAFZZ 4710-00-289-0604	19207	8360226	TUBE, METALLIC: FIRE EXTINGUISHER	026, 049	FT V
	62	7	PAFZZ 4730-00-014-4309	96906	MS39166-9	NUT, TUBE: 1-1/16-14 UNS-2B	026, 049	EA 5
	62	8	PAFZZ 4730-01-003-5108	96906	MS39163-9	TEE, PIPE TO TUBE	026, 049	EA 2
	62	9	PAFZZ 4210-00-595-4085	19207	7357907	BRACKET: FIRE EXTINGUISHER	026, 049	EA 1
	62	10	PAFZZ 2540-00-678-4177	19207	8386355	VALVE: AUTO RELEASE FIRE EXTINGUISHER	026, 049	EA 1
	62	11	PAFZZ 4710-00-277-5525	50513	BB3338	TUBE, METALLIC: FIRE EXTINGUISHER	026, 049	FT V
	62	12	PAOZZ 5325-00-174-9038	81336	MS35489-20	GROMMET, RUBBER	026, 049	EA 2
	62	13	PAOZZ 5325-00-263-6632	96906	MS35489-6	GROMMET, RUBBER	026, 049	EA 3
	62	14	XBFZZ	19207	7405938	BOX: FIRE EXTINGUISHER	026, 049	EA 1
	62	15	KFFZZ	19207	7967965	HANDLE AND CABLE ASSY; PART OF KIT P/N 12314333		EA 1
	62	16	KFFZZ	19207	12314329	NUT, PART OF KIT P/N 12314333		EA 1
	62	17	KFFZZ	96906	MS27183-21	WASHER FLAT; PART OF KIT, P/N 12314333		EA 1
	62	18	KFFZZ	96906	MS21083-N10	NUT; PART OF KIT P/N 12314333		EA 1
	62	19	PAFZZ 4730-00-900-3296	96906	MS39158-3	ADAPTER STRAIGHT: 7/16-20 UNF-2A, PIPE TO TUBE PART OF KIT P/N 12314333	026, 049	EA 2
	62	20	KFFZZ	96906	MS39177-3	SLEEVE PART OF KIT P/N 12314333		EA 1
	62	21	KFFZZ	96906	MS39176-3	NUT, PART OF KIT P/N 12314333		EA 1
			PAFZZ 4210-01-177-4575	19207	12314333	KIT, MODIFICATION		EA 1
	61	15				HANDLE AND CABLE ASSY; PART OF KIT P/N 12314333		EA 1
	61	16				NUT, PART OF KIT P/N 12314333		EA 1
	61	17				WASHER, FLAT; PART OF KIT, P/N 12314333		EA 1
	61	18				NUT; PART OF KIT P/N 12314333		EA 1
	61	19				SLEEVE PART OF KIT P/N 12314333		EA 1
	61	20				NUT, PART OF KIT P/N 12314333		EA 1
	61	21				COVER PART OF KIT P/N 12314333		EA 1
	62	15				HANDLE AND CABLE ASSY; PART OF KIT P/N 12314333		EA 1
	62	16				NUT, PART OF KIT P/N 12314333		EA 1
	62	17				WASHER, FLAT; PART OF KIT, P/N 12314333		EA 1
	62	18				NUT; PART OF KIT P/N 12314333		EA 1
	62	19				SLEEVE PART OF KIT P/N 12314333		EA 1
	62	20				NUT, PART OF KIT P/N 12314333		EA 1
	62	21				COVER PART OF KIT P/N 12314333		EA 1
						GROUP 95 GENERAL		
						9501 BULK MATERIAL		
BULK	1	PAOZZ	4710-00-203-3172	17590	305087-0116	TUBING, METALLIC	FT	V
BULK	2	PAOZZ	4010-01-090-4931	19207	8360373	WIRE, ROPE	FT	V



AT 35384

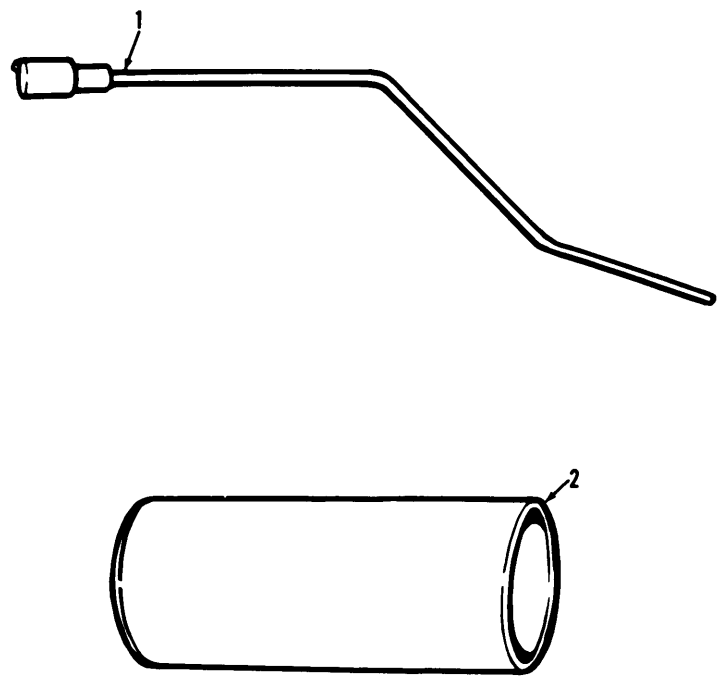


Figure 63. Special tools.

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	FSCM	PART NUMBER	DESCRIPTION  USABLE ON CODE	U/M	QTY INC IN UNIT
63	1	PAOZZ	5120-00-795-0060	19207	7950060	SECTION III—SPECIAL TOOLS LIST GROUP 26—TOOLS GROUP 2604—SPECIAL TOOLS REMOVER AND REPLACER: BRAKESHOE RETURN	EA	1
63	2	PAOZZ	5120-00-795-0136	19207	7950136	REPLACER, OIL, SEAL: AXLE	EA	1
63	3	PAOZZ	5120-00-378-3139	19207	7076968	WRENCH, SOCKET: WHEEL BEARING ADJUSTING NUT	EA	1

## SECTION IV. National Stock Number and Part Number Index

NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.	NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.
2510-00-003-8344	23	6	5330-00-090-2128	15	3
5310-00-004-5033	42	21	2530-00-091-9773	17	10
5310-00-010-3028	23	9	2530-00-093-5597	17	4
4730-00-014-4309	61	5	3110-00-100-0585	20	18
4730-00-014-4309	62	8	3110-00-100-0637	20	16
2530-00-015-6702	19	21	3110-00-100-0649	7	17
4730-00-018-9566	7	16	3110-00-100-0649	17	13
6240-00-019-0877	1	6	3110-00-100-3598	20	19
6240-00-019-0877	2	5	3110-00-100-3700	20	15
6240-00-019-0877	3	5	3110-00-100-6156	29	5
6240-00-019-0877	4	6	5310-00-106-6360	12	8
6240-00-019-3093	4	4	5310-00-106-6360	16	11
2530-00-021-2366	16		5310-00-106-6360	19	5
9505-00-023-4467	32	14	5330-00-107-7376	42	26
6220-00-025-3703	1	4	5340-00-109-7896	42	27
5330-00-029-9773	27	3	5310-00-110-2667	30	3
2510-00-030-6595	23	10	5330-00-110-2706	42	12
4730-00-036-4481	15	6	5330-00-110-2716	42	13
5305-00-042-5600	21	21	5310-00-110-2737	42	8
5305-00-042-5600	22	1	5310-00-109-7606	56	5
5305-00-042-9477	23	5	4810-00-111-5103	56	6
5310-00-044-3340	19	24	4730-00-116-6667	61	13
4730-00-044-4715	45	32	4730-00-116-6677	62	3
6240-00-044-6914	2	4	2510-00-117-9286	23	2
6240-00-044-6914	4	5	2530-00-118-8589	16	4
5310-00-045-3296	1	2	2590-00-119-0661	42	7
5310-00-045-3296	33	10	2590-00-121-6167	47	17
2640-00-050-1229	18	2	2590-00-121-6167	48	32
4730-00-050-4208	21	22	2590-00-121-6167	49	12
4730-00-050-4208	22	11	2590-00-133-0849	54	5
4730-00-050-4208	28	5	2910-00-134-7553	60	1
5315-00-050-5682	21	25	2990-00-134-8304	38	9
2610-00-051-9450	18	3	5330-00-135-4474	21	14
5999-00-057-2929	6	8	2940-00-137-2023	43	3
5310-00-058-3134	42	10	2530-00-137-9235	15	1
5320-00-058-9883	9	5	2530-00-137-9275	9	
6140-00-059-3528	5	18	2540-00-139-4586	42	9
5310-00-059-4261	9	9	2540-00-139-4587	51	8
2640-00-060-3550	18	1	4330-00-139-4589	42	1
5310-00-060-9435	7	12	3110-00-141-9994	45	13
5305-00-068-0500	5	7	3110-00-142-4390	7	14
5305-00-068-0502	5	14	5306-00-143-1638	30	10
5305-00-068-0502	54	22	5306-00-143-1736	48	16
5305-00-068-0502	38	13	5306-00-143-1736	49	8
5305-00-068-0505	29	19	5306-00-143-1736	50	25
6150-00-068-2529	5	20	5310-00-143-6227	30	2
5330-00-068-7333	57	8	3110-00-151-8176	21	3
4730-00-069-1186	16	2	3110-00-151-8176	22	3
4730-00-069-1186	39	8	2530-00-157-1396	14	12
4730-00-069-1187	16	5	5330-00-168-2178	30	7
4730-00-069-1187	39	7	5330-00-168-2180	30	4
4930-00-076-5996	32	7	2510-00-168-2182	30	9
4730-00-079-1364	57	6	2590-00-168-2191	42	4
5310-00-080-6004	19	13	2590-00-168-2192	42	23
2590-00-080-7096	5	20	2590-00-168-2193	42	6
5310-00-081-4219	19	12	2590-00-168-2194	42	11
5330-00-087-3612	37	2	2590-00-168-2197	40	16
2590-00-087-9191	19	9	2590-00-168-2197	41	11
5340-00-087-9195	19	22	2910-00-168-2213	37	3
2530-00-087-9547	19	15	2910-00-168-2214	36	1
2530-00-087-9549	19	6	2920-00-168-2217	6	14
5310-00-088-1251	5	8	2990-00-168-2220	38	12
5330-00-088-9166	57	5	9905-00-168-2758	33	6
5330-00-089-2686	44	4	5325-00-174-9038	61	11
5380-00-089-2905	32	4	5325-00-174-9038	62	13
5330-00-089-3010	57	7	4732-00-177-0102	13	1
5330-00-089-3011	55	6			

NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.	NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.
4730-00-177-8445	13	3	4730-00-270-4616	40	3
6220-00-179-4324	4	2	2630-00-272-8106	11	1
5307-00-182-5329	54	8	5310-00-275-6635	11	4
5325-00-185-0004	35	1	6310-00-275-9460	9	19
6315-00-187-9376	29	3	6325-00-276-6091	5	19
5315-00-187-9377	54	4	4710-00-277-5525	40	2
5315-00-187-9567	24	3	4710-00-277-5525	41	3
5315-00-192-9449	29	10	4710-00-277-5525	61	3
4730-00-196-1989	35	5	4710-00-277-5525	62	12
3110-00-198-1468	7	10	4710-00-277-5527	16	1
3110-00-198-1468	17	9	4710-00-277-5527	35	2
2590-00-199-7090	47	13	4710-00-277-5527	40	16
2590-00-199-7090	48	5	4710-00-277-5527	41	19
9905-00-202-3639	31	1	2530-00-278-2243	10	1
4210-00-202-6465	61	12	4730-00-278-3213	13	2
4210-00-202-6465	62	2	2530-00-278-6555	11	3
4710-00-203-3172	BULK	6	4730-00-278-8825	15	9
4710-00-203-3172	BULK	8	4730-00-278-8873	10	12
2530-00-204-3622	9	16	5365-00-281-9885	21	5
9905-00-205-2795	31	1	5365-00-281-9885	22	5
5306-00-206-7279	23	8	9905-00-282-7489	33	3
2510-00-207-9386	23	4	5340-00-282-7519	12	6
5310-00-209-0965	17	6	5340-00-287-8220	17	18
5310-00-209-1761	11	6	4730-00-289-0147	35	7
2530-00-211-6129	17	6	4730-00-289-0155	16	7
5310-00-220-2628	54	9	4730-00-289-0155	35	3
4730-00-221-2139	42	14	4710-00-289-0640	61	6
4730-00-221-2139	45	31	4710-00-289-0640	62	7
4730-00-221-2140	42	15	5330-00-290-8521	17	17
4730-00-222-1839	35	8	4730-00-293-7108	16	8
5306-00-225-8494	7	24	2910-00-294-1579	36	2
5306-00-225-8494	17	21	5930-00-296-6318	39	1
5306-00-225-8497	5	6	5330-00-297-7106	2	3
5306-00-225-8499	45	15	6220-00-299-7425	1	7
6306-00-225-8503	45	10	6220-00-299-7426	1	7
4710-00-231-7433	48	26	2530-00-318-1227	14	4
4710-00-231-7433	50	16	5330-00-318-4318	59	2
5310-00-232-8194	52	9	5330-00-318-4326	51	6
5310-00-232-8194	60	14	6625-00-321-6365	39	4
5315-00-234-1619	29	9	4820-00-333-7540	51	15
5310-00-234-7815	17	7	5306-00-335-4699	47	5
2510-00-235-4376	29	4	5310-00-353-2427	7	20
2510-00-235-4378	29	7	5310-00-353-2427	17	16
5330-00-248-3846	52	6	2910-00-358-5582	36	1
5305-00-253-5623	33	7	2630-00-359-1162	17	24
5330-00-260-9338	41	18	5310-00-374-0836	7	18
2610-00-262-8653	18	4	5310-00-374-0836	17	14
5325-00-263-6632	61	15	5120-00-378-3139	63	3
5325-00-263-6632	62	14	5306-00-383-4957	17	25
5310-00-265-9237	19	23	5940-00-399-6676	6	13
5306-00-267-8974	51	8	4820-00-400-6799	56	2
5305-00-269-2803	14	2	9905-00-400-7152	33	1
5306-00-269-2808	16	9	9905-00-400-7153	33	8
5306-00-269-2809	19	4	5310-00-401-1507	30	5
5306-00-269-2810	28	10	9905-00-402-9587	33	14
5306-00-269-3208	2	8	2530-00-404-4440	17	3
5306-00-269-3208	4	9	5310-00-407-9566	3	7
5306-00-269-3209	38	3	5310-00-407-9566	7	23
5306-00-269-3211	42	20	5310-00-407-9566	17	22
5306-00-269-3212	38	10	4320-00-467-0014	66	7
6306-00-269-3213	44	6	5310-00-407-9566	45	11
5306-00-269-3213	45	36	2590-00-422-2022	47	9
5305-00-269-3220	5	9	2590-00-422-2022	48	13
2910-00-269-7126	37	4	2590-00-422-2022	49	3
4730-00-270-4616	15	7	5340-00-437-7185	29	13
4730-00-270-4616	16	6			

NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.	NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.
5340-00-437-7186	29	17	5310-00-637-9541	10	9
4730-00-439-6078	49	1	5310-00-637-9541	14	11
5306-00-444-8480	7	1	5310-00-637-9541	28	9
5305-00-456-2430	25	1	5310-00-637-9541	38	5
2530-00-457-1676	9	3	5310-00-637-9541	44	7
5330-00-462-0907	4	3	5310-00-637-9541	45	35
5310-00-465-6213	43	4	5330-00-649-9131	56	4
4930-00-471-0288	32	10	6220-00-669-5623	2	1
5330-00-477-2563	43	24	2540-00-678-4177	61	4
5360-00-477-8331	29	6	2540-00-678-4177	62	11
5840-00-480-7638	35	4	5330-00-678-9047	3	4
4710-00-511-1692	10	8	2530-00-693-0568	20	17
6620-00-514-5492	39	3	2530-00-693-1029	17	24
4730-00-516-7419	11	7	5340-00-459-3282	29	15
5365-00-516-7878	10	2	5310-00-700-7089	7	19
9905-00-524-4918	33	4	5310-00-700-7089	17	15
4730-00-528-2743	11	5	5306-00-706-8318	19	16
2590-00-534-2337	19	1	5305-00-716-8166	19	18
2590-00-534-2338	19	11	5340-00-720-8866	32	6
5330-00-534-2342	21	17	5330-00-724-4286	52	3
5330-00-534-2344	20	22	5305-00-724-5836	54	16
3120-00-534-2346	21	4	5305-00-724-5909	45	2
3120-00-534-2346	22	4	5605-00-725-4183	19	17
8305-00-534-2351	20	1	5305-00-727-3804	52	8
4730-00-540-2575	61	8	5305-00-727-3804	60	15
5315-00-543-3716	54	11	5305-00-727-8817	19	10
5940-00-549-6581	5	10	5330-00-728-3076	51	10
5940-00-549-6583	5	21	6220-00-729-9295	1	3
5310-00-550-1130	29	20	5310-00-732-0668	5	13
4820-00-554-8391	40	13	5310-00-732-0658	38	6
4820-00-554-8391	41	15	5310-00-732-0558	45	22
2530-00-562-8816	14	1	5310-00-732-0559	10	10
3020-00-569-9880	21	11	5310-00-732-0559	14	10
3020-00-569-9882	22	8	5310-00-732-0560	19	2
5935-00-572-9180	6	9	5330-00-732-8543	40	8
5310-00-576-5752	29	11	5330-00-732-8543	41	10
5365-00-579-6297	45	14	5306-00-733-9239	17	25
5310-00-582-5965	5	15	5310-00-736-6475	21	2
5310-00-582-5966	6	5	5310-00-736-6475	22	9
5310-00-582-5965	25	4	5310-00-736-6485	20	13
5310-00-582-5965	31	2	4730-00-737-3252	12	2
5310-00-582-5965	38	14	5365-00-737-3354	10	5
5310-00-584-5272	19	3	4210-00-737-9340	61	9
5310-00-584-5272	20	10	4210-00-737-9340	62	5
5310-00-584-7888	9	18	2530-00-738-9061	17	20
5310-00-584-7888	19	8	5330-00-740-9312	7	6
4730-00-595-0083	15	2	4720-00-740-9331	12	4
4210-00-595-4085	62	10	5315-00-740-9376	9	20
2530-00-603-5768	17	19	5315-00-740-9378	9	15
5330-00-610-2329	30	7	5315-00-740-9379	9	11
2590-00-612-1251	45	27	2530-00-740-9381	9	1
5310-00-614-3505	42	9	5360-00-740-9382	9	2
5315-00-616-5520	21	7	5310-00-740-9385	9	8
5315-00-616-5529	20	21	2510-00-740-9391	7	22
5315-00-616-5529	22	7	5330-00-740-9550	7	9
5330-00-618-0801	14	8	5330-00-740-9550	17	8
5310-00-627-6128	4	8	2590-00-740-9553	7	8
5330-00-627-8312	30	4	2530-00-740-9553	17	1
5330-00-627-8320	60	7	3120-00-740-9567	9	17
5330-00-627-8321	52	7	5330-00-740-9600	7	21
5330-00-627-8323	53	2	5300-00-740-9606	7	7
5330-00-627-8321	60	12	2510-00-740-9607	7	2
4820-00-630-9929	30	9	5306-00-740-9608	7	11
5310-00-637-9541	2	7	5310-00-740-9615	7	5
5310-00-637-9541	5	12			

NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.	NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.
2530-00-740-9620	24	2	2690-00-764-6283	28	4
5310-00-740-9621	24	4	3120-00-764-6284	45	6
6220-00-752-5992	1	7	5330-00-764-6285	45	25
6220-00-752-5993	1	7	2590-00-764-6288	27	2
6220-00-752-6020	2	2	2990-00-764-6289	38	1
2540-00-753-9214	5	1	5330-00-764-6291	38	8
2530-00-753-9308	10	3	4730-00-764-6292	35	6
2590-00-757-2751	44	3	2590-00-764-6293	55	2
2590-00-757-2752	44	2	5310-00-768-0319	25	5
2590-00-757-2753	6	4	5310-00-768-0319	29	1
2590-00-757-2754	56	1	5935-00-773-1428	6	3
2590-00-757-9920	58	1	4730-00-773-2163	10	4
2590-00-757-9922	48	8	6220-00-775-2384	3	3
2590-00-757-9922	50	14	5330-00-778-7229	43	19
2590-00-757-9922	59	1	5330-00-778-7248	43	14
2590-00-757-9923	55	1	5360-00-780-0508	14	6
4820-00-757-9925	57	1	2920-00-781-1953	39	2
4820-00-757-9926	48	22	5330-00-784-0749	6	2
4820-00-757-9926	50	13	4730-00-784-3762	15	4
4820-00-757-9930	57	2	5330-00-789-1405	40	9
2590-00-757-9934	53	1	5330-00-789-1405	47	21
2590-00-757-9936	27	1	5330-00-789-1405	48	36
2590-00-757-9938	28	1	5330-00-789-1405	49	15
4720-00-757-9939	32	9	5330-00-789-1405	50	27
4320-00-757-9940	45	5	5330-00-789-1405	51	17
2530-00-757-9955	8	1	5330-00-789-1405	59	6
4710-00-758-2688	12	5	5340-00-792-1615	38	11
4710-00-758-2689	12	1	5340-00-792-1616	38	2
2590-00-758-2692	60	6	2540-00-792-8620	29	21
5360-00-759-3557	27	6	2590-00-792-8621	27	12
2990-00-759-3639	38	7	5330-00-792-9014	51	5
5310-00-761-0654	45	34	5330-00-792-9014	57	3
4820-00-761-1103	40	4	5120-00-795-0060	63	1
4820-00-761-1103	41	4	5120-00-795-0136	63	2
5310-00-761-6882	5	16	4720-00-796-4705	47	4
5310-00-761-6882	6	6	4720-00-796-4705	48	18
5310-00-761-6882	54	2a	4720-00-796-4705	49	7
5310-00-761-6882	54	20	4720-00-796-4705	50	5
5330-00-761-6882	31	3	2540-00-796-7965	61	16
5310-00-762-6213	7	4	2540-00-796-7965	62	16
2990-00-763-2391	38	9	2530-00-797-9006	20	24
6685-00-763-2392	40	6	2530-00-797-9015	19	19
6685-00-763-2392	41	6	3020-00-797-9016	21	13
4730-00-763-2393	55	3	5310-00-797-9018	20	23
4730-00-763-2395	41	7	3020-00-797-9019	21	8
2590-00-763-2396	28	3	3020-00-797-9021	21	26
2590-00-763-2397	52	5	3020-00-797-9022	21	27
2590-00-763-2398	27	4	3020-00-797-9023	20	14
2590-00-763-2399	27	9	2530-00-797-9029	21	18
2590-00-763-2400	27	7	2530-00-797-9032	20	12
2590-00-763-2416	27	8	2530-00-797-9189	24	1
2590-00-763-2417	27	5	2510-00-797-9217	23	3
2590-00-763-2421	28	7	6325-00-797-9287	16	3
2590-00-763-2423	45	7	2530-00-797-9298	16	8
2590-00-763-2423	45	28	2510-00-797-9305	7	13
2590-00-763-2424	45		5310-00-797-9332	9	14
2590-00-763-2426	52	2	5360-00-797-9339	9	13
2590-00-763-2427	28	6	5306-00-797-9365	23	1
3120-00-763-2428	45	18	4730-00-803-5666	45	1
5310-00-763-8901	19	7	5365-00-803-7302	21	28
5310-00-763-8905	14	14	5365-00-803-7316	21	20
5310-00-763-8920	52	10	5365-00-803-7316	45	8
5310-00-763-8920	60	13	4730-00-804-0451	61	14
5305-00-764-0070	3	2	4730-00-804-0451	62	4
5330-00-764-5379	28	8	5310-00-807-1468	12	7
2590-00-764-5380	55	5	2540-00-808-3239	32	3
2590-00-764-5381	45	9	4720-00-809-2750	10	6
5360-00-764-5382	55	4			

NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.	NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.
5310-00-809-4061	16	10	4730-00-927-7272	61	10
5315-00-810-3704	21	9	4730-00-927-7272	62	6
5310-00-820-6653	14	13	4730-00-929-0787	57	4
5310-00-820-6653	45	3	2590-00-930-5152	5	11
2530-00-832-6043	9	6	6330-00-930-5292	10	11
5310-00-832-9719	20	4	5330-00-930-5292	12	3
5935-00-833-8561	6	11	9905-00-930-5304	33	8
5970-00-833-8562	6	12	9905-00-930-5305	33	8
5310-00-833-8567	6	7	9905-00-930-5306	33	1
5310-00-834-8732	60	10	9905-00-930-5307	33	1
4730-00-838-2379	47	3	2940-00-930-5308	40	14
4730-00-838-2379	48	17	2940-00-930-5308	41	16
4730-00-838-2379	49	6	2940-00-930-5309	42	18
4730-00-838-2379	50	4	2940-00-930-5309	44	1
5310-00-842-1295	29	2	2940-00-930-5310	40	12
5315-00-842-3044	9	12	2940-00-930-5310	41	14
6220-00-846-9745	3	1	5330-00-930-5311	40	11
4820-00-849-1220	16	12	5330-00-930-5311	41	13
5310-00-850-1611	7	3	5330-00-930-5311	42	19
2590-00-854-4453	52	1	2590-00-933-3552	54	10
5305-00-855-0958	33	2	2530-00-933-3594	19	20
5305-00-855-0968	33	5	5330-00-933-3595	45	4
2530-00-864-2990	9	4	5310-00-934-9758	1	1
4330-00-872-1779	42	25	5310-00-934-9758	29	8
6220-00-880-1625	4	1	5310-00-934-9758	33	9
5310-00-880-2004	17	23	4720-00-937-8157	32	8
5310-00-880-2005	17	23	5305-00-948-0803	20	3
5310-00-880-7744	54	15	2805-00-952-3927	34	1
5310-00-880-7746	19	14	4930-00-954-1317	32	12
5310-00-880-7746	29	16	5305-00-954-3487	29	14
5310-00-880-7746	54	7	5305-00-958-0605	3	8
2920-00-882-3401	34	2	5305-00-958-5246	1	5
5310-00-891-1711	23	7	2590-00-958-9409	5	11
4730-00-900-3296	61	2	5310-00-959-7600	51	11
4730-00-900-3296	62	1	6310-00-971-7990	15	5
5935-00-900-6281	6	10	5310-00-974-6623	45	16
3110-00-902-3775	21	16	4330-00-983-0998	40	7
5310-00-902-7835	51	2	4330-00-983-0998	41	9
4730-00-903-0358	41	2	4330-00-983-0998	42	3
2990-00-903-0359	38	9	4330-00-983-0998	43	5
5330-00-903-1190	40	10	5310-00-984-3806	5	5
5330-00-903-1190	41	12	5305-00-984-6210	29	12
2910-00-903-1191	41	17	5305-00-984-6210	33	11
5310-00-903-8282	29	22	5305-00-984-6212	1	8
9390-00-903-5302	54	21	5305-00-988-1723	31	4
2910-00-905-9792	37	1	5305-00-988-1727	6	1
4730-00-908-3193	10	7	9905-00-999-7369	33	12
5330-00-912-3380	27	10	9905-00-999-7370	33	13
5330-00-912-3380	59	4	4730-01-003-5108	61	7
2590-00-912-4699	47	1	4730-01-003-5106	62	9
2590-00-912-4699	48	14	6140-01-005-6844	5	17
2590-00-912-4699	49	4	4730-01-026-2986	32	2
2590-00-912-4699	50	12	4330-01-034-0773	43	13
2590-00-912-4699	51	19	6680-01-036-6734	46	1
2590-00-912-4699	59	5	4930-01-046-7027	32	13
2590-00-912-4700	27	11	9905-01-052-8981	33	8
2590-00-912-4700	48	28	2590-01-054-0253	54	18
2590-00-912-4700	50	22	5360-01-054-6059	21	24
2590-00-912-4700	59	3	4330-01-060-7091	43	18
2590-00-913-5905	5	11	5310-01-060-7213	43	6
4820-00-913-5909	35	9	5310-01-060-7231	43	8
2520-00-914-6055	45	17	5310-01-061-0716	43	7
4720-00-919-7266	32	1	5306-01-062-2334	17	2
2530-00-920-7568	11	2	4330-01-062-3836	43	11
4730-00-923-0909	26	1	5999-01-063-9296	43	12



NATIONAL STOCK NUMBER	FIGURE NO.	ITEM NO.	NATIONAL PART NUMBER	FSCM	FIGURE NO.	ITEM NO.
2590-01-067-1919	47	19	MS24629-45	96906	33	2
2590-01-067-1919	48	1	MS24665-170	96906	29	9
2510-01-067-8955	30	1	MS24665-315	96906	29	3
4730-01-076-4241	47	7	MS24665-317	96906	54	4
5306-01-078-0776	43	16	MS24665-500	96906	24	3
6685-01-078-5874	39	5	MS27020-15	96906	57	6
4030-01-080-9311	64	2	MS27028-15	96906	57	4
4030-01-080-9311	64	19	MS27030-8	96906	57	5
4330-01-083-0969	43	9	MS27147-1	96906	6	10
4330-01-083-7364	43	9	MS27148-2	96906	6	8
5310-01-089-9162	43	17	MS27183-12	96906	19	12
4010-01-090-4931	BULK	17	MS27183-14	96906	19	13
2930-01-101-0080	42	16	MS27183-15	96906	16	10
2910-01-104-8967	32	5	MS27183-21	96906	61	17
4730-01-106-0630	42	17	MS27183-21	96906	62	17
4930-01-124-8894	51	1	MS28775-114	96906	14	8
5330-01-128-9546	27	13	MS29513-114	96906	52	6
2590-01-152-0183	59	7	MS29513-16	96906	52	3
4210-01-177-4575	61	KIT	MS29513-227	96906	41	18
4210-01-177-4575	62	KIT	MS35190-271	96906	29	14
NATIONAL		FIGURE	ITEM			
PART NUMBER	FSCM	NO.	NO.			
ASTM B280-80	81346	16	1	MS35190-289	96906	1
ASTM B280-80	81346	17	22	MS35206-263	96906	29
ASTM B280-80	81346	35	2	MS35206-263	96906	33
ASTM B280-80	81346	40	15	MS35206-265	96906	1
ASTM B280-80	81346	41	19	MS35206-279	96906	31
BB3338	50513	40	2	MS35206-283	96906	6
BB3338	50513	41	3	MS35207-298	96906	3
BB3338	50513	61	3	MS35308-310	96906	25
BB3338	50513	62	12	MS35333-39	96906	29
CPR102321-1	19207	13	3	MS35333-40	96906	29
CPR103709	19207	13	1	MS35333-42	96906	9
E13995	31007	20	16	MS35336-35	96906	4
MILF52308	81349	40	7	MS35338-140	96906	45
MILF52308	81349	41	9	MS36338-25	96906	38
MS15003-2	96906	21	22	MS35338-43	96906	1
MS15003-2	96906	22	11	MS35338-43	96906	33
MS15003-2	96906	28	6	MS35338-44	96906	5
MS15570-1251	96906	1	6	MS35338-44	96906	6
MS15570-1251	96906	2	6	MS35338-44	96906	25
MS15570-1251	96906	3	6	MS35338-44	96906	31
MS15570-1251	96906	4	6	MS35338-45	96906	3
MS15570-623	96906	4	4	MS35338-45	96906	7
MS15795-820	96906	42	9	MS35338-45	96906	45
MS16536-172	96906	9	5	MS35338-46	96906	2
MS16562-80	96906	21	9	MS35338-46	96906	5
MS16624-1137	96906	21	20	MS35338-46	96906	10
MS16624-1137	96906	45	8	MS35338-46	96906	3
MS16624-1081	96906	21	28	MS35338-46	96906	7
MS16626-1100	96906	21	5	MS35338-46	96906	44
MS16626-1100	96906	22	5	MS35338-46	96906	28
MS16631-1315	96906	45	14	MS35338-46	96906	38
MS17131-40	96906	21	16	MS35338-46	96906	42
MS19059-55	96906	29	5	MS35338-47	96906	17
MS20913-4S	96906	42	14	MS35338-48	96906	19
MS20913-4S	96906	45	31	MS35338-48	96906	20
MS20913-6S	96906	42	15	MS35338-50	96906	14
MS21042-4	96906	12	7	MS35338-50	96906	45
MS21083-N10	96906	61	18	MS35338-50	96906	62
MS21083-N10	96906	62	18	MS35338-51	96906	60
MS21318-42	96906	33	7	MS35338-51	96906	9
MS21333-34	96906	12	6	MS35338-54	96906	19
MS21920-35	96906	47	3	MS35338-55	96906	7
MS21920-35	96906	48	17	MS35338-88	96906	7
MS21920-35	96906	49	6	MS35387-1	96906	42
MS21920-35	96906	50	4	MS35387-2	96906	31
MS24532-2	96906	39	4	MS35388-2L	96906	31
MS24541-1	96906	39	3	MS35420-1	96906	18
				MS35420-2	96906	1

NATIONAL PART NUMBER	FSCM	FIGURE NO.	ITEM NO.	NATIONAL PART NUMBER	FSCM	FIGURE NO.	ITEM NO.
MS35421-1	96906	1	7	MS51375-1	96906	18	1
MS35421-2	96906	1	7	MS51846-54	96906	35	5
MS35422-1	96906	1	3	MS51846-58	96906	35	8
MS35478-1683	96906	2	4	MS51922-1	96906	5	8
MS35478-1683	96906	4	5	MS51922-5	96906	51	11
MS35489-19	96906	5	19	MS51922-61	96906	20	4
MS35489-20	81336	61	11	MS51922-9	96906	5	5
MS35489-20	81336	62	13	MS51946-1	96906	17	25
MS35489-6	96906	61	16	MS51946-2	96906	17	25
MS35489-6	96906	62	14	MS51959-46	96906	3	2
MS35490-34	96906	35	1	MS51963-89	96906	54	16
MS35649-202	96906	1	1	MS51967-2	96906	5	16
MS35649-202	96906	29	8	MS51967-2	96906	6	6
MS35649-202	96906	33	9	MS51967-2	96906	31	3
MS35690-1224	96906	19	23	MS51967-20	96906	52	10
MS35690-402	96906	54	2a	MS51967-20	96906	60	13
MS35690-402	96906	54	20	MS51967-5	96906	54	15
MS35690-724	96906	17	7	MS51967-8	96906	5	13
MS35690-824	96906	23	9	MS51967-8	96906	38	6
MS35691-25	96906	23	7	MS51967-8	96906	45	22
MS35691-28	96906	51	2	MS51967-9	96906	45	34
MS35691-33	96906	60	10	MS51968-14	96906	19	2
MS35691-69	96906	15	6	MS51968-2	96906	25	5
MS35692-29	96906	29	2	MS51968-2	96906	29	1
MS35746-1	96906	15	2	MS51968-20	96906	14	14
MS35748-1	96906	15	a	MS51968-23	96906	19	7
MS35756-14	96906	21	-	MS51968-23	96906	7	4
MS35756-16	96906	20		MS51968-23	96906	19	14
MS35756-16	96906	22	/	MS51968-23	96906	29	16
MS35782-5	96906	16		MS51968-23	96906	54	7
MS35785-4	96906	40		MS51968-23	96906	9	8
MS35785-4	96906	41	15	MS51968-8	96906	10	10
MS35812-8	96906	19	21	MS51968-8	96906	14	10
MS35842-12	96906	10	7	MS51983-3	96906	17	23
MS35915-10	96906	5	11	MS51983-4	96906	17	23
MS35915-12	96906	5	20	MS53004-1	96906	16	4
MS35915-14	96906	5	20	MS53004-2	96906	16	
MS35915-4	96906	5	11	MS53007-1	96906	33	13
MS35915-9	96906	5	11	MS53007-2	96906	33	12
MS39061-1	96906	39	1	MS53013-1	96906	34	2
MS39158-3	96906	61	2	MS53044-6	96906	17	19
MS39158-3	96906	62	1	MS53045-3	96906	17	20
MS39158-9	96906	61	10	MS53068-1	96906	17	24
MS39158-9	96906	62	6	MS53068-2	96906	17	24
MS39163-9	96906	61	7	MS75004-1	96906	5	10
MS39163-9	96906	62	9	MS75004-2	96906	5	21
MS39166-9	96906	61	5	MS75047-1	96906	5	18
MS39166-9	96906	62	8	MS9048-111	96906	54	11
MS39176-3	96906	61	21	MS9068-227	96906	27	3
MS39177-3	96906	61	20	MS90725-161	96906	45	2
MS39176-3	96906	62	21	MS90725-165	96906	52	8
MS39177-3	96906	62	20	MS90725-165	96906	60	15
MS39179-5	96906	16	2	MS90725-29	96906	7	24
MS39179-5	96906	39	7	MS90725-29	96906	17	21
MS39179-5	96906	56	9	MS90725-3	96906	5	7
MS39179-6	96906	15	7	MS90725-32	96906	5	6
MS39179-6	96906	16	6	MS90725-34	96906	45	15
MS39179-6	96906	40	3	MS90725-39	96906	45	10
MS39182-3	96906	16	5	MS90725-57	96906	2	8
MS39182-3	96906	39	8	MS90725-57	96906	4	9
MS39182-3	96906	56	10	MS90725-58	96906	38	3
MS39182-5	96906	16	7	MS90725-6	96906	5	14
MS39182-5	96906	35	3	MS90725-6	96906	38	13
MS39187-2	96906	13	2	MS90725-6	96906	54	22
MS39196-3	96906	15	9	MS90725-60	96906	42	20
MS39197-3	96906	15	8	MS90725-61	96906	38	10
MS39203-6	96906	35	6	MS90725-62	96906	44	6
MS49005-2	96906	7	16	MS90725-62	96906	46	36
MS51086-1	96906	37	1	MS90725-70	96906	5	9
MS51091-4	96906	37	2	MS90725-91	96906	23	5
MS51302-1	96906	3	1				
MS51329-1	96906	2	1				

MS90726-113	96906	19	17	10936730	19207	45	21
MS90726-126	96906	19	18	10936738	19207	60	3
MS90726-189	96906	19	10	10936743	19207	33	6
MS90726-191	96906	20	3	10936752	19207	60	8
MS90726-5	96906	29	19	10936755	19207	60	6
MS90726-60	96906	14	2	10936768	19207	33	8
MS90726-65	96906	16	9	10936924	19207	27	1
MS90726-66	96906	19	4	10936925	19207	32	9
MS90726-68	96906	28	10	10936926	19207	48	35
MS90726-8	96906	51	8	10936927	19207	48	33
NO REF		21	25	10936929	19207	48	19
P84262	76364	32	6	10936929	19207	50	9
QQW470	81348	32	14	10936930	19207	48	15
WV17594ALB	05433	57	3	10936930	19207	50	11
SS10046-B	13326	51	1	10936931	19207	48	12
ZZ-I-550	81348	18	3	10936932	19207	48	6
041420-02	90005	43	13	10936932	19207	50	6
045800-10	90005	43	5	10936933	19207	48	3
050205-10	90005	43	11	10036934	19207	47	4
054880-49	90005	43	1	10936934	19207	48	18
054888	90005	43	4	10936934	19207	49	7
054889	90005	43	15	10936934	19207	50	5
054904	90005	43	12	10938935	19207	48	24
054907	90005	43	10	10936935	19207	50	18
055019	90005	43	14	10936936	19207	45	1
055021	90005	43	24	10936937	19207	45	37
055053-01	90005	43	9	10936937	19207	48	9
055067	90005	43	6	10936938	19207	48	10
055283-01	90005	43	18	10936938	19207	50	7
055285	90005	43	19	10936939	19207	48	21
055705-05	90005	43	2	10936939	19207	50	8
1-224415	82366	27	13	10936942	19207	48	23
10048-A	05443	57	8	10936942	19207	50	15
				10936943	19207	48	26
				10936943	19207	50	16
10896274	19207	32	10	10936944	19207	48	8
10910565	19207	32	7	10936944	19207	50	14
10910682	19207	40	1	10936944	19207	59	1
10913213	19207	52	1	10936945	19207	48	4
10913215	19207	46	1	10936945	19207	50	23
10917215	19207	27	12	10936946	19207	48	30
10917217	19207	28	1	10936946	19207	50	2
10923240	19207	32	4	10936947	19207	48	20
10923515	19207	42	16	10936948	19207	48	7
10926150-3	19207	48	31	10936948	19207	50	3
10926150-4	19207	48	25	10936949	19207	48	11
10926150-4	19207	50	17	10936949	19207	50	1
10926217	19207	45	19	10936958	19207	48	22
10936669	19207	40	9	10936958	19207	50	13
10936669	19207	47	21	10936959	19207	57	7
10936669	19207	48	36	10936960	19207	48	29
10936669	19207	49	15	10936964	19207	59	7
10936669	19207	50	27	10936965	19207	48	27
10936669	19207	51	17	10936965	19207	50	19
10936669	19207	59	6	10936966	19207	55	1
10936675	19207	38	8	10936967	19207	27	11
10936690	19207	40	11	10936967	19207	48	28
10936690	19207	41	13	10936967	19207	50	22
10936690	19207	42	19	10936967	19207	59	3
10936691	19207	38	7	10936971	19207	29	21
10936693	19207	40	8	10936972-1	19207	47	19
10936693	19207	41	10	10936972-1	19207	48	1
10936694	19207	40	10	10936972-2	19207	47	17
10936694	19207	41	12	10936972-2	19207	48	32
11611954	19207	40	16	10936972-2	19207	49	12
11611954	19207	41	11	10936972-3	19207	47	13
10936726	19207	51	9	10936972-3	19207	48	5
10936729	19207	45	20	10936972-4	19207	47	9

10936972-4	19207	48	13	10950462	19207	55	3
10936972-4	19207	49	3	10950463	19207	55	2
10936973	19207	54	12	10950464	19207	55	4
10936976	19207	48	34	10950465	19207	55	5
10936984	19207	48	16	10950497	19207	35	9
10936984	19207	49	8	10959818	19207	33	1
10936984	19207	50	25	10959819	19207	42	18
10936985	19207	48	2	10959819	19207	44	1
10936985	19207	50	26	10959829	19207	47	8
10936990	19207	55	6	10959830	19207	45	37
10936993	19207	33	8	10959831	19207	45	1
10936994	19207	33	14	10959832	19207	47	16
10936995	19207	56	1	10959833	19207	47	15
10936997	19207	33	1	10959834	19207	47	11
10937955	19207	42	23	10959834	19207	49	9
10947130	19207	45	13	10959835	19207	47	10
10947585	19207	42	25	10959835	19207	49	5
10950310	19207	61	13	10959836	19207	47	14
10950310	19207	62	3	10959837	19207	47	12
10950318	19207	12	1	10959838	19207	47	2
10950319	19207	12	5	10959839	19207	47	6
10950320	19207	41	1	10959841	19207	47	18
10950320-1	19207	41	1	10959841	19207	49	13
10950321	19207	45	5	10959845	19207	47	7
10950323	19207	8	1	10959858	19207	25	3
10950324	19207	61	14	10959863	19207	38	9
10950324	19207	62	4	10959882	19207	52	2
10950325	19207	38	1	10959883	19207	52	4
10950326-1	19207	38	11	10959884	19207	28	6
10950326-2	19207	38	2	10959885	19207	28	4
10950327	19207	38	4	10959886	19207	28	3
10950328	19207	38	9	10959887	19207	28	7
10950330	19207	29	6	10959888	19207	28	8
10950331	19207	44	5	10959889	19207	28	2
10950334	19207	41	7	10959897	19207	52	5
10950335	19207	41	2	10959901	19207	54	1
10950336	19207	29	7	10959902	19207	54	13
10950337	19207	29	10	10959903	19207	33	8
10950338	19207	29	18	10959906	19207	33	8
10950339	19207	29	4	10959907	19207	54	14
10950342	19207	29	15	10959918	19207	49	10
10950343-1	19207	29	13	10959919	19207	49	2
1D960343-2	19207	29	17	10959921	19207	49	1
10960345	19207	40	12	10959924	19207	33	1
10950345	19207	41	14	10959938	19207	5	17
10950365	19207	34	X	10959942	19207	5	3
10960367	19207	45	12	10959950	19207	32	1
10950368	19207	45	33	10959962	19207	27	10
10950371-2	19207	6	14	10959962	19207	59	4
10950437	19207	27	9	10959970	19207	32	3
10950438	19207	27	5	10959971	19207	32	5
10950439	19207	27	4	10959995	19207	41	17
10950440	19207	27	2	10959999	19207	49	11
10950441	19207	27	8	1098	44940	37	4
10950442	19207	27	7	112799	89074	20	11
10950443	19207	27	6	11597377	19207	40	14
10950444	19207	45	26	11597377	19207	41	16
10950445	19207	45	23	11597379	19207	32	2
10950450	19207	45	6	11597390	19207	33	1
10950451	19207	45	18	11597403	19207	50	20
10950452	19207	45	17	11597491	19207	29	22
10950453	19207	45	9	11597520	19207	38	12
10950458	19207	44	4	11597528	19207	42	1
10950460	19207	44	3	11597573	19207	38	9
10950461	19207	44	2				

11597595	19207	36	1	443336	72582	19	5
11611857-4	19207	32	13	443340	24617	19	24
11611873-1	19207	50	24	444484	24617	61	8
11611873-2	19207	50	10	444584	31007	26	1
11611877	19207	50	21	444715	21450	45	32
11611881	19207	39	5	502000	21450	41	5
11611898	19207	32	8	5139123	19207	7	19
11611925	19207	30	7	5139123	19207	17	15
11611929	19207	30	4	5166636	19207	10	11
11611930	19207	30	9	5156836	19207	12	3
11611942	19207	42	2	5160323	19207	11	6
11611954	19207	42	4	5186963	19207	10	12
11611954	19207	41	11	5214539	19207	11	4
11611956	19207	42	6	5216239	19207	40	4
11611957	19207	42	7	5216239	19207	41	4
11611958	19207	42	11	5244918	19207	33	4
11611959	19207	42	28	5282725	19207	9	3
11611960	19207	42	27	5282743	19207	11	5
11611961	19207	42	26	530921	21450	45	29
11611979	19207	56	2	5344947	19207	40	6
11611980	19207	56	7	5344947	19207	41	6
11611981	19207	56	6	5703444	19207	45	
11611982	19207	56	4	6100E	53477	18	2
11611983	19207	56	3	7001725	19207	17	14
11611984	19207	56	5	7003403	19207	35	4
11612063	19207	42	22	7018069	19207	21	14
11612066	19207	42	12	706496	21450	20	19
11612067	19207	42	13	706691	12742	17	11
11612071	19207	42	8	7068318	19207	19	16
11614157	19207	4	1	7076968	19207	63	3
11635316	19207	25	2	709692	21450	21	3
11639519-2	19207	4	3	709692	21450	22	3
11639520	19207	4	7	7207919	19207	9	19
11639535	19207	4	2	7225H	76384	32	12
116476	24617	20	15	7320658	19207	2	3
11649327	19207	5	2	7346885	19207	17	16
11649330	19207	5	4	7357907	19207	62	10
11649331	19207	42	5	7366475	19207	21	2
11649367	19207	42	24	7366475	19207	22	9
11649474	19207	42	17	7366485	19207	20	13
11663025	19207	9	11	7366490	19207	20	17
11663231	19207	9	10	7573252	19207	12	2
11663232	19207	9	12	7373354	19207	10	5
11663233	19207	9	13	7379340	19207	61	9
11663236	19207	9	14	7379340	19207	62	5
11677781	19207	9	KIT	7405938	19207	61	1
120322	21450	35	7	7405938	19207	62	15
121468	24617	7	17	7409324	19207	11	7
121468	24617	17	13	7409331	19207	12	4
1228D186	78500	7	14	7409349	19207	7	10
12314329	19207	61	16	7409349	19207	17	9
12314329	19207	62	16	7409376	19207	9	20
12314333	19207	62	KIT	7409378	19207	9	15
12314334	19207	61	22	7409380	19207	9	4
12314334	19207	62	22	7409381	19207	9	1
136843	24617	20	18	7409382	19207	9	2
16046F	50513	7	18	7409553	19207	7	8
167880	19207	10	2	7409553	19207	17	1
190605	21450	40	5	7409607	19207	7	2
190605	21450	41	8	7411021	19207	15	1
2A042-2	97403	34	1	7411071	19207	11	3
2037-3	31381	42	3	7413486	19207	11	1
223508-3	07666	27	13	7525997	19207	2	6
305087-0116	17590	BULK	6	7526020	19207	2	2
305087-0116	17590	BULK	8	7539214	19207	5	1
31096R	24617	35	2	7539308	19207	10	3
3736	73370	43	3	7714476	19207	61	12
425600	24617	21	21	7714476	19207	62	2
425600	24617	22	1	7731428	19207	6	3
443336	72582	12	8				
443336	72582	16	11				

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7739518	19207	51	6	7979031	19207	20	6
7739518	19207	57	3	7979032	19207	20	12
7739519	19207	51	4	7979034	19207	20	8
7739520	19207	51	10	7979036	19207	21	24
7739522	19207	61	14	7979038	19207	21	17
7739523	19207	51	17	7979049	19207	20	1
7739524-1	19207	51	16	7979050	19207	20	7
7739529	19207	51	3	7979061	19207	21	19
7739530	19207	51	13	7979179	19207	17	2
7739531	19207	51	12	7979183	19207	24	4
7739644	19207	51	7	7979185	19207	24	2
7739666	19207	54	3	7979189	19207	24	1
7739667	19207	54	2	7979217	19207	23	3
7739667	19207	64	19	7979233	19207	17	4
7739668	19207	54	6	7979263	19207	7	20
7739674	19207	54	13	7979264	19207	7	7
7739675	19207	54	5	7979265	19207	7	5
7739676	19207	54	8	7979267			
7739679	19207	54	10	7979274			
7739680	19207	54	9	7979280			
7739681	19207	54	14	7979287			
7739687	19207	54	12	7979298			
7739688	19207	54	1	7979306	19207	7	13
7739720	19207	60	7	7979306	19207	7	22
7739721	19207	60	11	7979312	19207	7	15
7739722	19207	60	9	7979315	19207	17	5
7739723	19207	60	4	7979316	19207	23	2
7739725	19207	60	2	7979329	19207	7	11
7739753	19207	54	18	7979332	19207	9	14
7739770	19207	19	15	7979339	19207	9	13
7739780	19207	45	30	7979340	19207	9	16
7739781	19207	45	27	7979349	19207	7	9
7730783	19207	45	4	7979349	19207	17	8
7739784	19207	45	25	7979365	19207	23	1
7739786	19207	45	7	7979372	19207	20	25
7739786	19207	45	28	7979373	19207	33	3
7739787	19207	45	24	7979377	19207	7	1
7739788	19207	45	24	7979421	19207	23	4
7739789	19207	45	24	7979422	19207	23	10
7739793	19207	30	4	7979423	19207	23	6
7739795	19207	30	6	7979425	19207	23	8
7739796	19207	30	1	7979691	19207	10	4
7739800	19207	30	5	8330285	19207	1	4
7739801	19207	30	7	8330288	19207	15	6
7739802	19207	30	8	8330883	19207	59	2
7739803	19207	30	9	8330902	19207	51	6
7739810	19207	30	3	8330918	19207	47	5
7739811	21450	30	2	8330919	19207	51	16
7950060	19207	63	1	8331589	19207	36	1
7950136	19207	63	2	8331702	19207	36	2
7967965	19207	61	16	8332086	19207	10	1
7967965	19207	62	15	8333869	19207	17	10
7979003	19207	20	22	8338561	19207	6	11
7979006	19207	20	24	8338562	19207	6	12
7979015	19207	19	19	8338564	19207	6	13
7979016	19207	21	13	8338566	19207	6	9
7979017	19207	20	9	8338567	19207	6	7
7979018	19207	20	23	8360173	19207	19	6
7979019	19207	21	8	8360174	19207	19	20
7979020	19207	21	11	8360176	19207	19	22
7979021	19207	21	26	8360178	19207	19	9
7979022	19207	21	27	8360226	19207	61	6
7979023	19207	20	14	8360226	19207	62	7
7979024	19207	22	8	8360373	19207	54	17
7979025	19207	20	20	8360377	19207	52	7
7979029	19207	21	18	8360377	19207	60	12
7979030	19207	21	23	8360412	19207	6	4

8360414	19207	47	20	8724586	19207	22	10
8360414	19207	49	14	8724687	19207	21	1
8360455	19207	15	4	8724590	19207	19	11
8360466	19207	30	10	8724591	19207	19	1
8360475	19207	37	3	8724592	19207	21	10
8365425	19207	10	6	8724593	19207	20	5
8365426	19207	10	8	8724738	19207	22	2
8376887	19207	61	9	8724739	19207	21	15
8376887	19207	62	5	8724774	19207	21	4
8380801	19207	14	9	8724774	19207	22	4
8380802	19207	14	6	8724775	19207	21	12
8380805	19207	14	4	8724776	19207	21	6
8380814	19207	14	7	8724777	19207	22	6
8380816	19207	14	5	8730456	19207	14	12
8380817	19207	14	3	8735773	19207	14	1
8384482	19207	47	1	8737730	19207	60	5
8384482	19207	48	14	8737731	19207	57	1
8384482	19207	49	4	8737732	19207	60	1
8384482	19207	50	12	8737734	19207	57	3
8384482	19207	51	19	8737780	19207	53	1
8384482	19207	59	5	8737781	19207	58	1
8384490	19207	53	2	8741646	19207	3	3
8386355	19207	61	4	8741650	19207	3	6
8386355	19207	62	11	8758256	18207	9	6
8389470	19207	39	2	8758269	19207	11	2
8681826	19207	6	2	8758318	19207	9	7
8694464	19207	3	4	900613K7	90005	43	16
8710723	19207	17	12	901054K7	90005	43	7
8710724	19207	17	3	901144K7	90006	43	17
8710725	19207	17	18	901168K7	90006	43	8
8710726	19207	17	17	901615-K7	06853	43	20
8724585	19207	20	2				





## APPENDIX F

## EXPENDABLE SUPPLIES AND MATERIALS LIST

## Section I. INTRODUCTION

## F-1. Scope

This appendix lists expendable supplies and materials you will need to operate and maintain the fuel tank semitrailer. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

## F-2. Explanation of Columns

*a. Column 1—Item Number.* This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use drycleaning solvent (item 6, app F)").

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

C—Operator/Crew

O—Organizational Maintenance

F—Direct Support Maintenance

*c. Column 3—National Stock Number.* This is the National stock number assigned to the item; use it to request or requisition the item.

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

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

## Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) Item No.	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	C	9130-00-264-6218	Gasoline, bulk, regular VV-G-76	V
		9130-00-264-6215	1 gal	V
2	O	9150-00-190-0907	54 gal drum	V
3	O	9150-00-526-4205	Grease, automotive and artillery (GAA) MIL-L-10924	V
4	C	9150-00-059-2586	35 lb can	V
5	O		Grease, ball and roller bearing (BR) MIL-G-18709	V
			1 lb can	V
			Fluid, brake, silicone (HB) MIL-B-46176	V
			1 gal can	
			Oil, Lubricating, internal combustion engine, heavy duty	
			(OE/HDO) MIL-L-2104)	
			or	
			(OEA) MIL-L-46167	V
		9150-00-189-6727	OE/HDO 10, 10 qt can	V
		9150-00-186-6681	EO/HDO 30, 1 qt can	V
		9150-00-402-4478	OEA, 1 qt can	V
6	O	6850-00-664-5685	Solvent, drycleaning (SD-II) P-D-680	V
		6850-00-274-5421	1 qt can	V
		6850-00-264-9037	5 gal pail	V
			55 gal drum	V



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