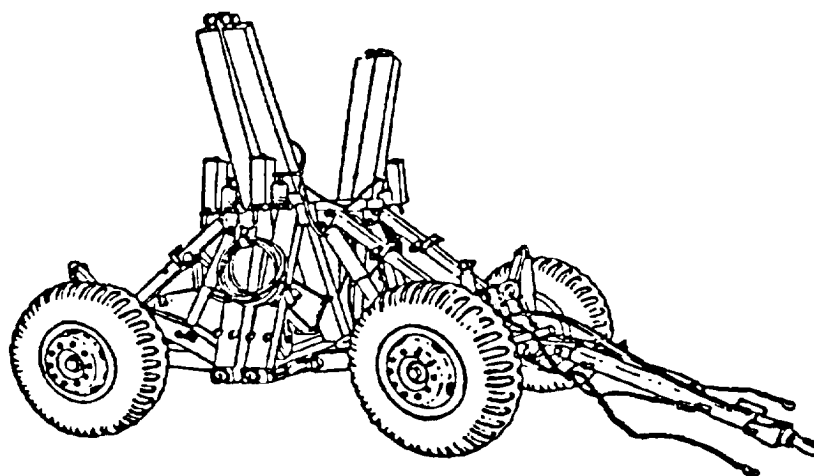


**Operator's, Unit, Direct Support, and  
General Support Maintenance Manual  
(Including Repair Parts and Special Tools Lists)**

**DOLLY SET, LIFT, TRANSPORTABLE  
SHELTER, 7 1/2-TON, M1022  
(NSN 2330-01-167-7262)**



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INSTRUCTIONS  
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**OPERATOR/CREW  
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**UNIT  
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**DIRECT SUPPORT  
GENERAL SUPPORT  
MAINTENANCE  
PAGE 5-1**

**MAINTENANCE  
ALLOCATION CHART  
PAGE B-1**

**REPAIR PARTS AND  
SPECIAL TOOLS LISTS  
PAGE F-1**

**Approved for Public Release; Distribution is Unlimited**

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**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**15 DECEMBER 1988**

**WARNING**

**USING DRY-CLEANING SOLVENT**

Dry-cleaning solvent PD-680 is both toxic and flammable. Avoid prolonged breathing of vapors and avoid skin contact. do not use near open flame or excessive heat. Flash point of solvent is 138°F (59°C). Serious injury or death could result.

**WARNING**

**WEAR GOGGLES WHEN DRAINING HIGH PRESSURE AIR**

Failure to wear goggles when opening air reservoir draincock could cause serious eye injury.

**WARNING**

Brake lining material contains asbestos. Breathing of dust from brake linings is extremely hazardous. Wear a filter mask whenever working with brake shoes.

**WARNING**

Operating the dolly set on the highway without the struts and clamps attached could cause loss of control and serious injury to personnel.

**WARNING**

All personnel not involved with task of lowering the dolly should stay clear. When dolly set is lowered, personnel performing task should keep limbs from under dolly set to prevent injury.

**WARNING**

The brake shoe return springs inside the brake assembly are under very heavy tension. The two halves of the assembly must be clamped together in a vise before removing all of the screws and nuts which hold it together. Failure to do so could cause serious injury.

**WARNING**

Particles blown by compressed air are hazardous. Do not exceed 30 psi (207 kPa) air pressure. Make certain air stream is directed away from user and other personnel in the area. To prevent injury, user must also wear safety eye goggles or face shield when using compressed air.

OPERATOR'S, UNIT,  
DIRECT SUPPORT AND GENERAL SUPPORT  
MAINTENANCE MANUAL  
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS)

DOLLY SET, LIFT, TRANSPORTABLE SHELTER, 7 1/2-TON, M1022  
(NSN 2330-01-167-7262)

Current as of December 1988

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find 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 back of this publication, direct to: US Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

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CHAPTER 1  
INTRODUCTION

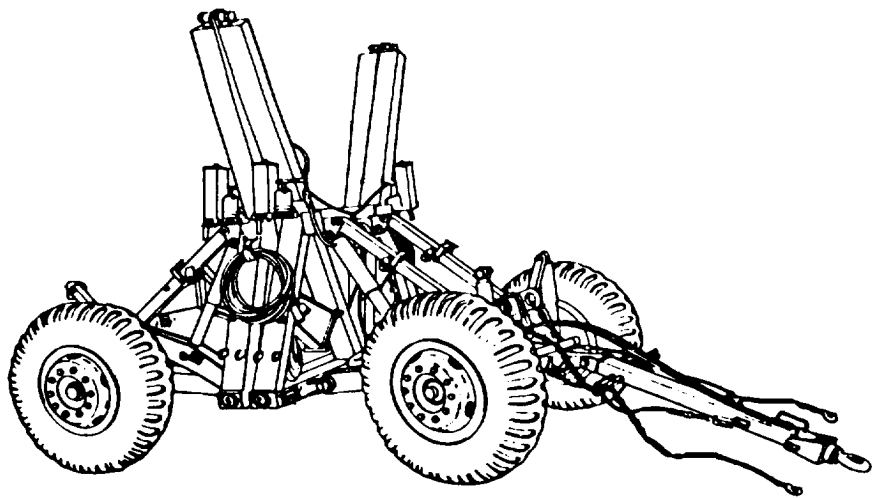
OVERVIEW

The purpose of this chapter is to give you information on the 7 1/2-ton, transportable shelter dolly set size, shape, features, major equipment, and how it works.

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Section I GENERAL INFORMATION

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## **SCOPE**

Type of Manual: Operator's, Unit, Intermediate Direct Support, and Intermediate General Support Maintenance Manual (Including Repair Parts and Special Tools Lists).

Equipment Name: Dolly Set, Lift, Transportable Shelter, 7 1/2-Ton, M1022, Composed of: Dolly, Front and Dolly, Rear.

Purpose of Equipment: The dolly set is used to move a transportable International Standards Organization (ISO) shelter.

## **MAINTENANCE FORMS AND RECORDS**

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS)

## **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 (US Army Tank-Automotive Command).

## **PREPARATION FOR STORAGE OR SHIPMENT**

Refer to page 4-193.

## **REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)**

If your dolly set needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at US Army Tank-Automotive Command ATTN: AMSTA-MP, Warren, MI 48397-5000. We will send you a reply.

Section II EQUIPMENT DESCRIPTION AND DATA

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EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Characteristics

The dolly set consists of one front dolly for attaching to the International Standards Organization (ISO) shelter front and one rear dolly for attaching to the ISO shelter rear.

The dolly set can operate with either a 12- or 24-volt direct current (VDC) electrical system power supply.

The rear dolly has a non-quick release towing pintle assembly.

The dolly set can raise and lower the transportable ISO shelter by means of hand-operated hydraulic pumps and two hydraulic lift cylinders on each dolly. Provisions are also available to operate the hydraulic pumps from air motors included with the hydraulic pump assemblies.

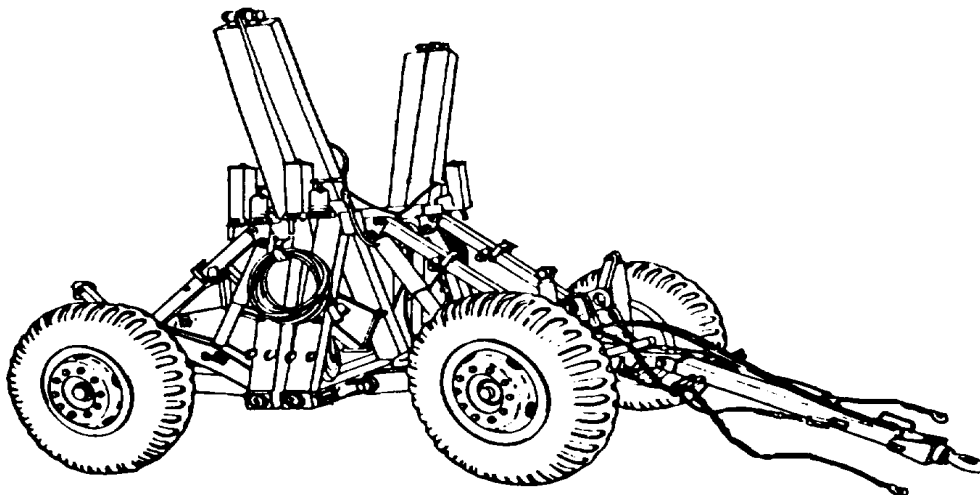
The front dolly has a toolbox containing four upper lock pins, four lower lock lugs, four pump handles, one air chuck hose assembly, two sockets, two strap assemblies, one strong arm, four nuts, two plugs, and two wrenches. The intervehicular wiring harnesses and air hose assemblies are coiled and secured to both the curbside and roadside of the rear dolly. A pneumatic hose to be used for connecting the air motors (on the hydraulic pumps) to a suitable air supply is also stowed on the front dolly.

Capabilities and Features

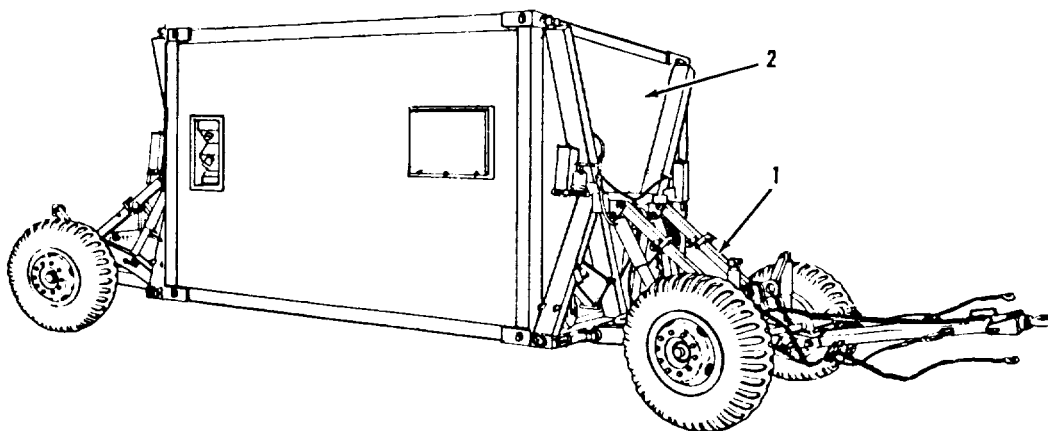
Towing speed limitations are as follows:

- Highway: 55 mph (88 kph)
- Cross-country: 15 mph (24 kph)

## EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES - CONTINUED

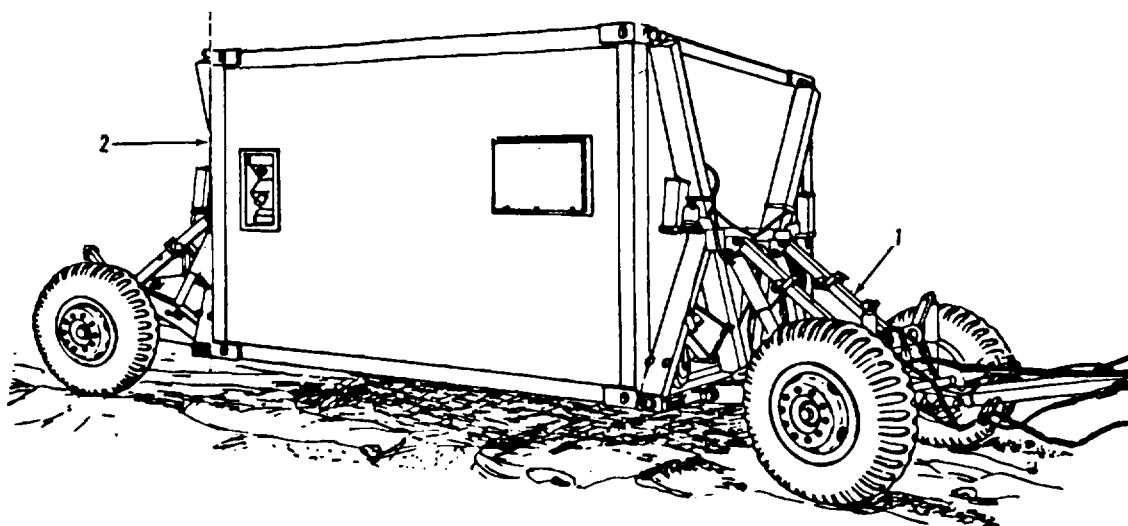


The M1022 dolly set can be transported or stored while coupled together.

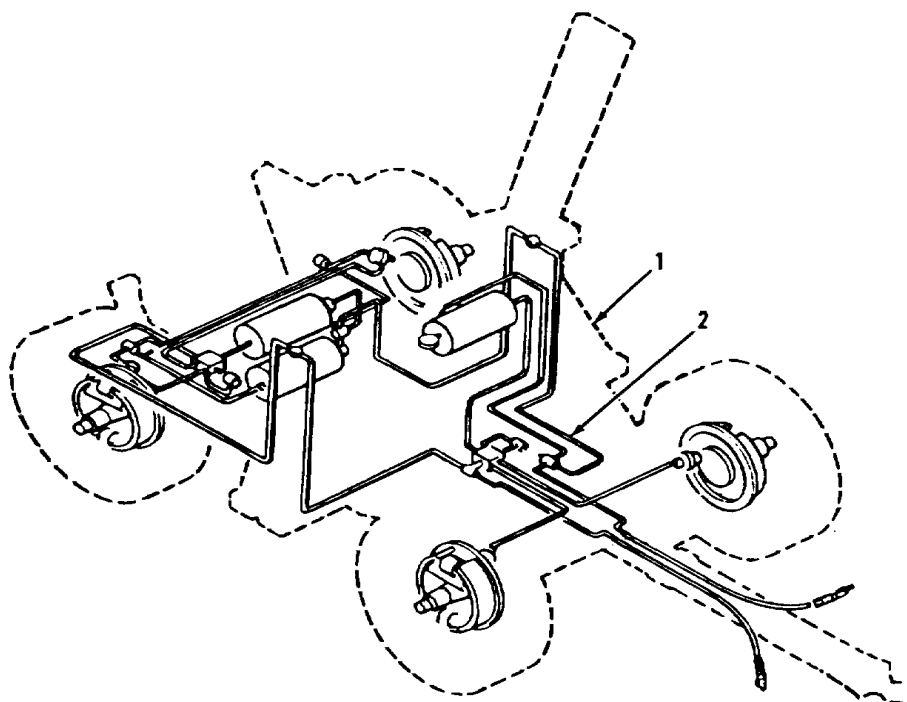


The M1022 dolly set (1) can be used to move a transportable ISO shelter (2).



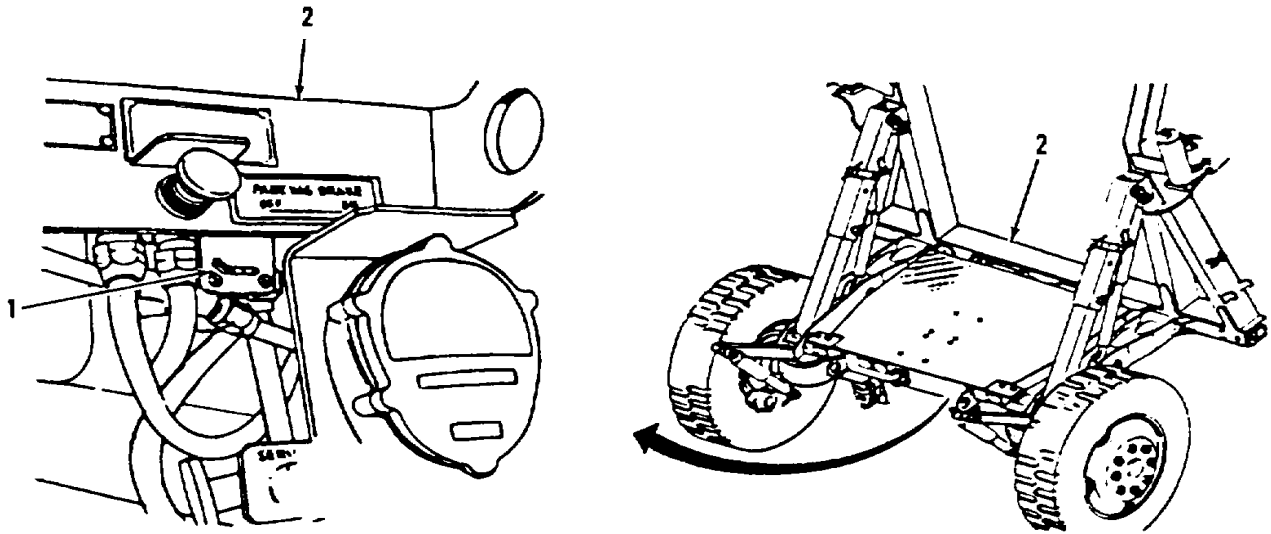
**EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES - CONTINUED**

The M1022 dolly set (1) can be used to level a shelter (2) on uneven ground.

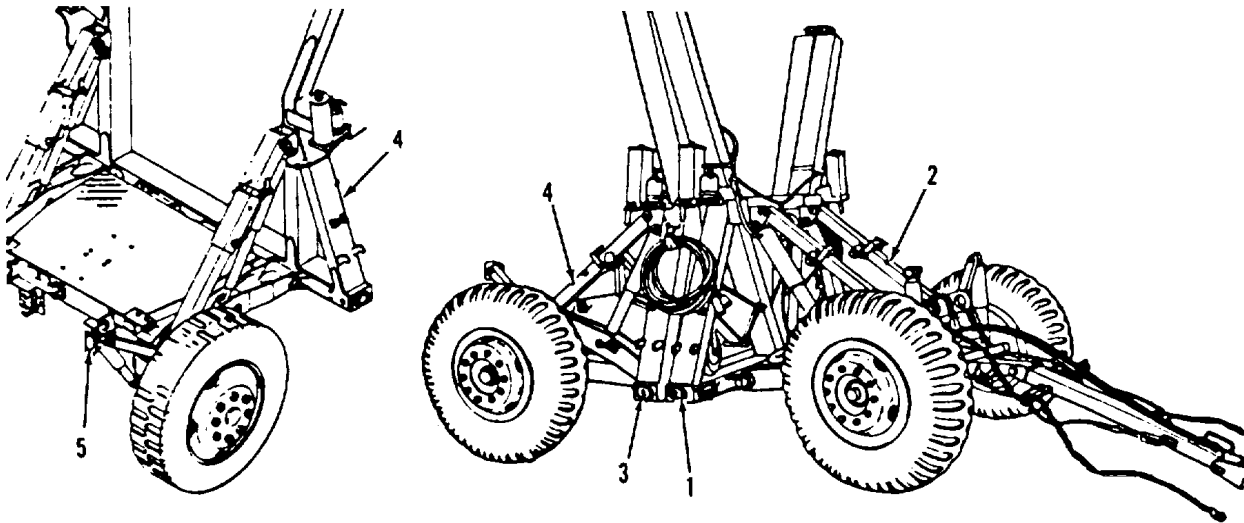
**LOCATION AND DESCRIPTION OF MAJOR COMPONENTS**

The M1022 dolly set (1) has a straight air braking system (2).

## LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - CONTINUED

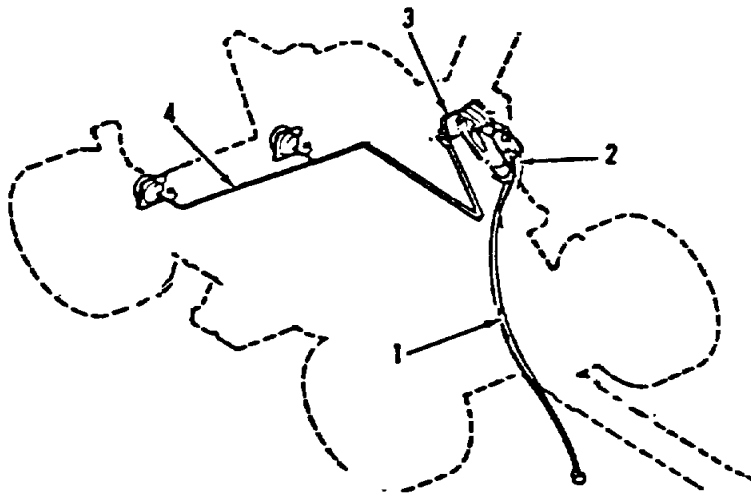


The M1022 dolly set has a mechanical parking brake (1) on the rear dolly (2).

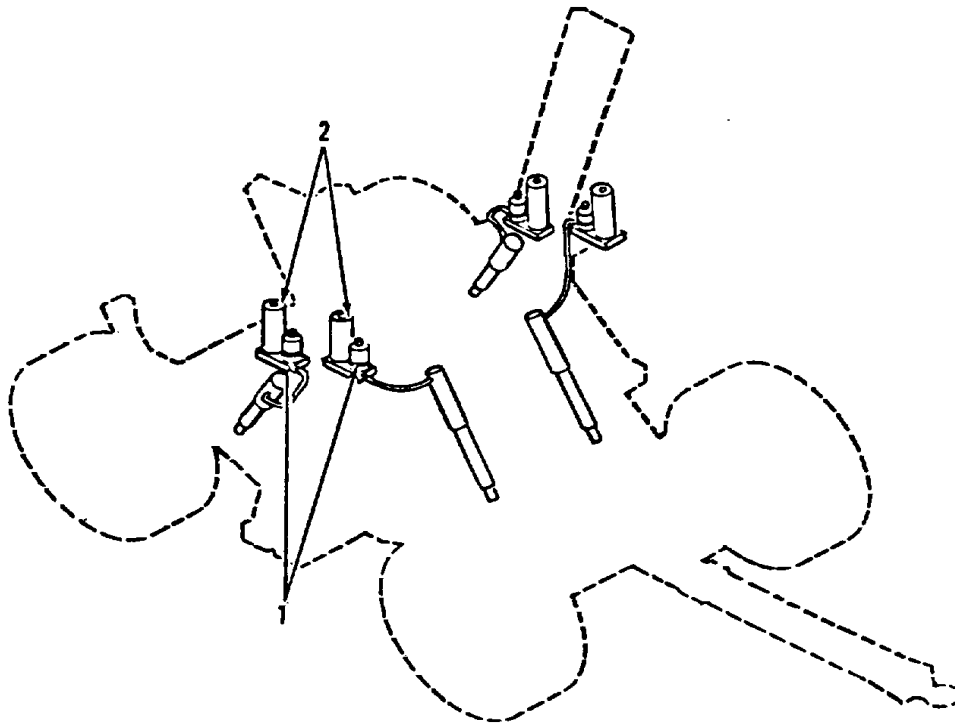


The M1022 dolly set has one amber reflector (1) on each side of the front dolly (2) and one red reflector (3) on each side of the rear dolly (4). In addition, the rear dolly (4) contains two red reflectors (5), one on each side of the lower portion of the rear dolly. The dolly set is equipped (on the rear dolly) with two, composite 12-volt light assemblies, each consisting of a stop and turn signal, taillight, blackout marker and blackout stoplight.

## LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - CONTINUED

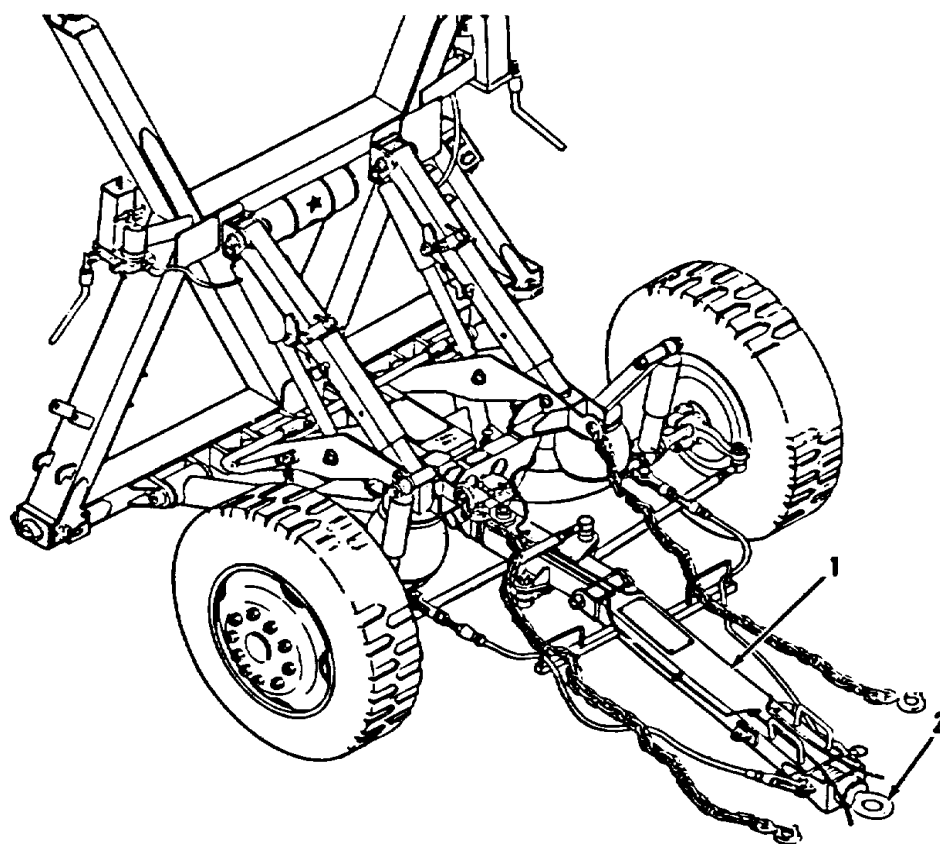


The M1022 dolly set has an electrical intervehicular connector cable (1) (a front dolly harness), an electrical junction box (2), an interdolly cable (3), and a rear dolly harness assembly (4).



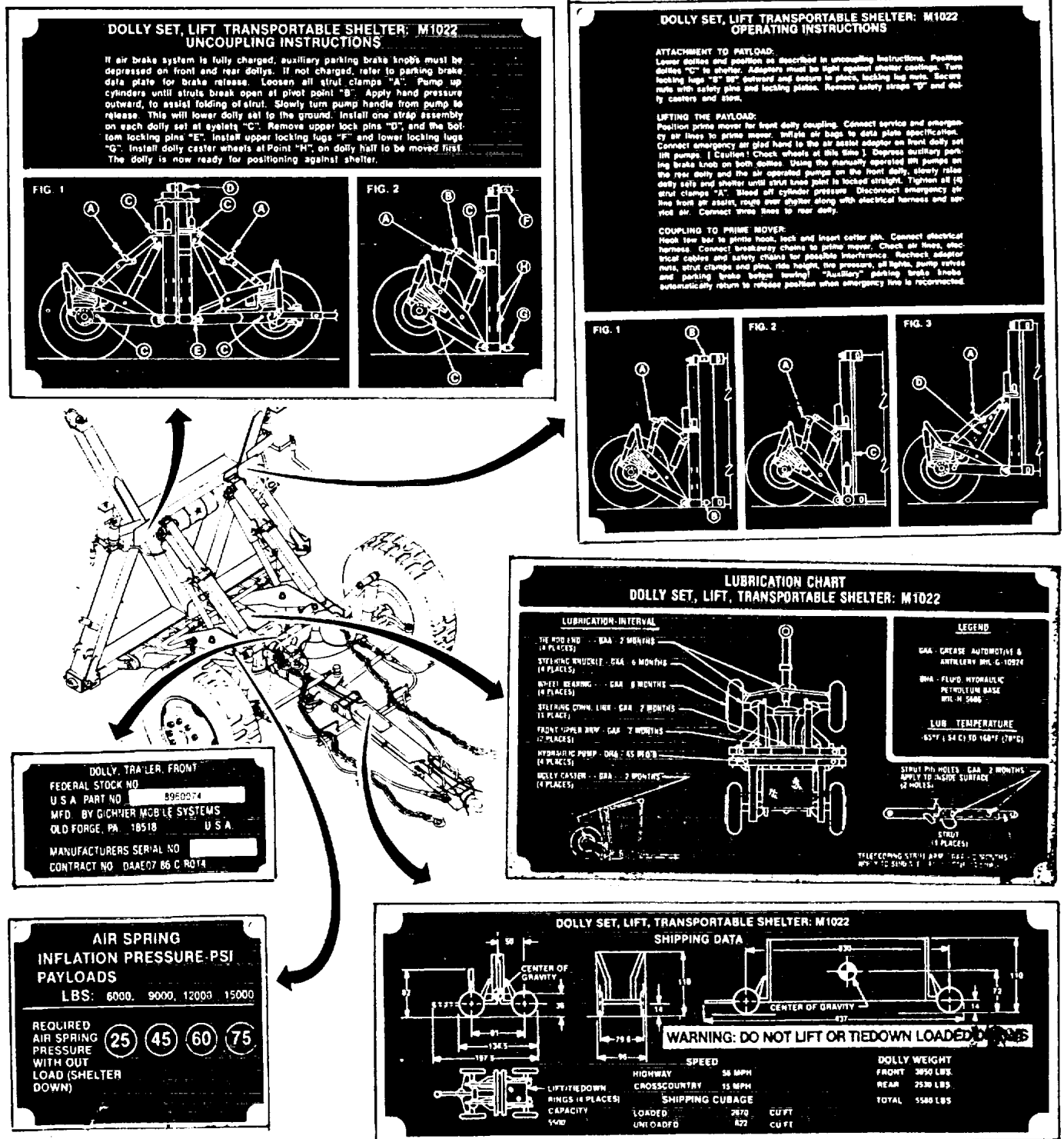
The M1022 dolly set has a hydraulic lift system to lift the shelter. Air motors (1) are included on the hydraulic pump assemblies (2) to allow an external air source to power the lift system if desired.

## LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - CONTINUED



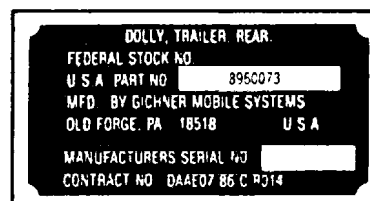
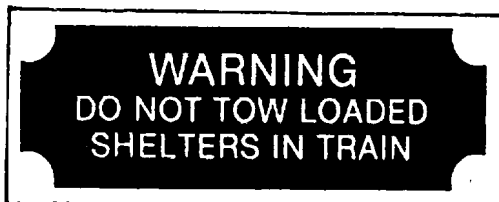
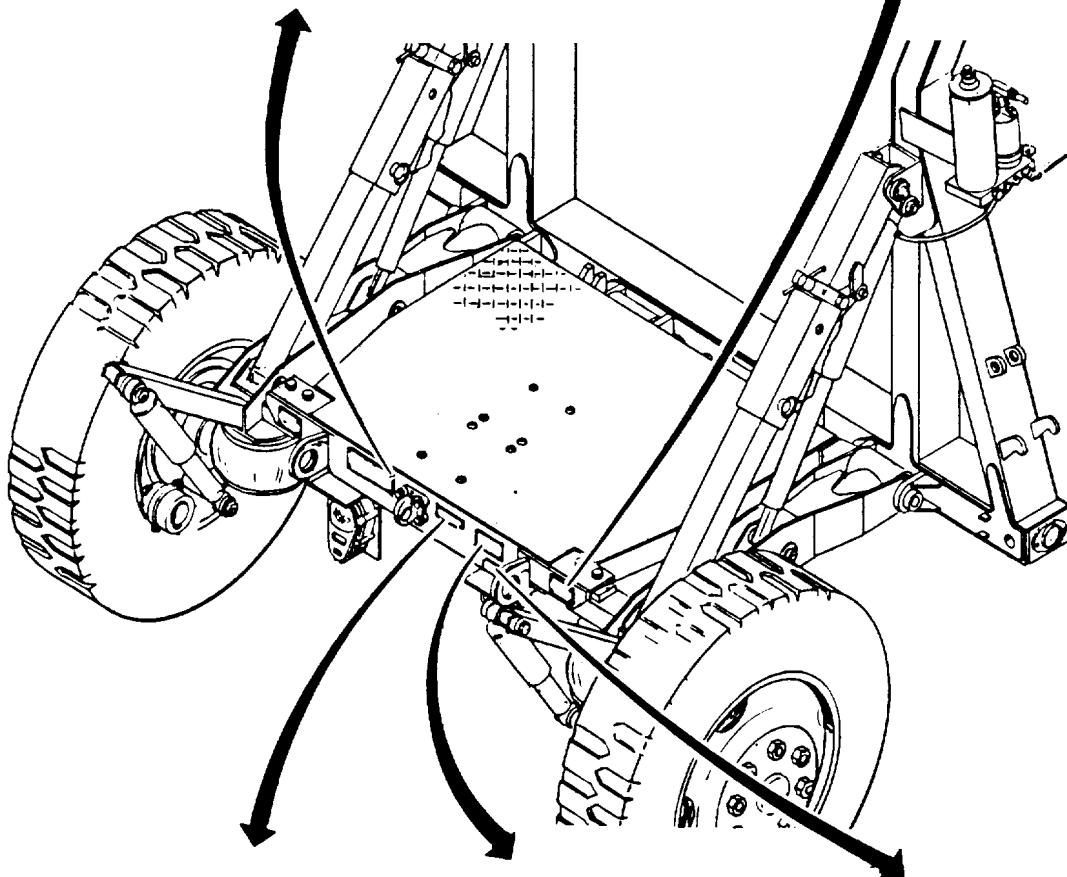
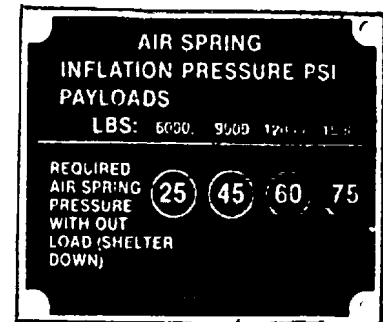
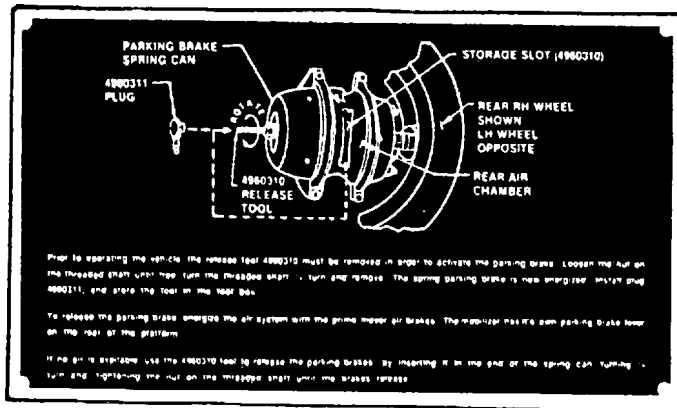
The towbar (1) is used to steer the dolly set. The lunette (2) is provided with five cushions to absorb towing shock loads.

# LOCATION AND DESCRIPTION OF DATA PLATES



The front dolly data plates consist of a front dolly identification plate, uncoupling instructions, operating instructions, a shipping plate, two air spring data plates, and a lubrication plate.

# LOCATION AND DESCRIPTION OF DATA PLATES - CONTINUED



The rear dolly data plates consist of a rear dolly identification plate, two air spring data plates, a parking brake manual release plate, and a towing warning plate.

**EQUIPMENT DATA**

## Operator/Crew

Model number .....	M1022
Towing vehicle.....	2 1/2- or 5-ton Military Prime Mover
Operating temperature range .....	-60°F (-51°C) to 145°F (62.80C)
Weight	
Empty .....	5, 580 lb (2536.3 kg)
Payload.....	15, 000 lb (6818.1 kg)
Total .....	10, 580 lb (4809 kg)
Overall dimensions	
Ground clearance .....	16 in. (40.6 cm)
Coupled to .....	14 in. (35.6 cm)
Height (towing bar lowered).....	110 in. (279.4 cm)
Width .....	96 in. (243.9 cm)
Length (without load)	
Towing bar lowered.....	197 1/2 in. (490.7 cm)
Towing bar raised .....	137 in. (343.7 cm)
Angle of departure.....	30° slope
Shipping cubage	
Loaded.....	2, 670 cu. ft.
Unloaded .....	822 cu. ft.
Stream fording ability (maximum) .....	33 inches (84 cm)
Maximum towing speed	
Highway.....	55 mph (88 kph)
Cross-country .....	15 mph (24 kph)
Tire pressures	
Highway service .....	50 psi (344.8 kPa)
Cross-country service and air transport .....	25 psi (172.4 kPa)
Caster Tires.....	90 psi
Voltage at dolly lights.....	12 vdc
Air spring inflation pressure	

Payload	Load on
6000 lb	25 psi
9000 lb	45 psi
12000 lb	60 psi
15000 lb	75 psi

## Unit/Direct and General Support

## Brakes

Actuation.....	Air
Type of mechanism .....	Automatic adjustment, Stopmaster spring brake unit

Manufacturer ..... Rockwell International

**EQUIPMENT DATA - CONTINUED**

## Unit/Direct and General Support - Continued

## Air Spring Assembly

Quantity ..... 4 each  
 Manufacturer ..... Firestone Industrial Products  
 Type..... ITISL-1.5

## Hand Hydraulic Pump

Rated pressure..... 6000 psi (41370 kPa)  
 Manufacture ..... Applied Power Industries, Inc.

## Hydraulic Cylinder

Operating pressure (maximum) ..... 6000 psi (41370 kPa)

## Shock Absorber

CPM	Rebound	Comp
85	920 lb	100 lb
70	1260 lb	170 lb

Manufacturer ..... Gabriel of Canada  
 Manufacturer's Part Number ..... 680093

Air Reservoir..... 3 (1 on Front Dolly, 2 on Rear Dolly) (614 cu. in. each)

## Tires

Type..... Non-Directional, Cross Country, 12 ply  
 Size..... 11:00 x 20 (12.25 in. x 43.5 in.) ALT 14:00 R20  
 Number..... 4

Parking Brake..... Hand actuated mechanical spring brake on rear dolly (actuates spring brake on both rear wheels).



### Section III PRINCIPLES OF OPERATION

	Page		Page
Air Brake System.....	1-13	Hydraulic Lift System.....	1-14

#### AIR BRAKE SYSTEM

INTERVEHICULAR EMERGENCY HOSE - Supplies air from the towing vehicle to the dolly set to fill the air reservoirs and initiates an emergency brake application.

INTERVEHICULAR SERVICE HOSE - Provides an air pressure signal from the towing vehicle which can tell the emergency relay valves to apply or release the dolly set brake system.

AIR RESERVOIRS - Separate reservoirs on front and rear dollies provide the air pressure supply to apply the brakes. (Also, separate air reservoir on rear dolly for parking brake.)

EMERGENCY RELAY VALVE (One on front dolly and one on rear dolly) - Applies and releases the dolly set braking system.

PARKING BRAKE - Hand activated lever to control mechanized spring brakes (parking brake) on rear dolly wheels.

BRAKE ASSEMBLIES - Operated by air pressure to stop the dolly set. There is one brake assembly on each wheel. (Rear brakes also actuated from manually operated parking brake lever for the two rear dolly brake assemblies.)

## **HYDRAULIC LIFT SYSTEM**

**PUMPS** - Provide the hydraulic pressure to operate the hydraulic lift system. Operated by hand pump (or from remote air source through an air motor mounted on the pump assembly).

**PUMP RELEASE VALVE** - Places the pump in an operating position (PUMP) or releases the pump pressure (REL) depending on its position.

**CYLINDERS** - Provide the system lifting power. They are independently actuated by hydraulic pressure, each from a dedicated hydraulic pump. The dolly set has four hydraulic cylinders.

**MANUAL BLEEDER VALVES** - Allow each hydraulic cylinder to be independently bled as desired.

**AIR MOTORS** - Provide pneumatic power (when attached to external source of air power (70 to 120 psi)) for automatic operation of hydraulic pumps.

## CHAPTER 2

## OPERATING INSTRUCTIONS

## OVERVIEW

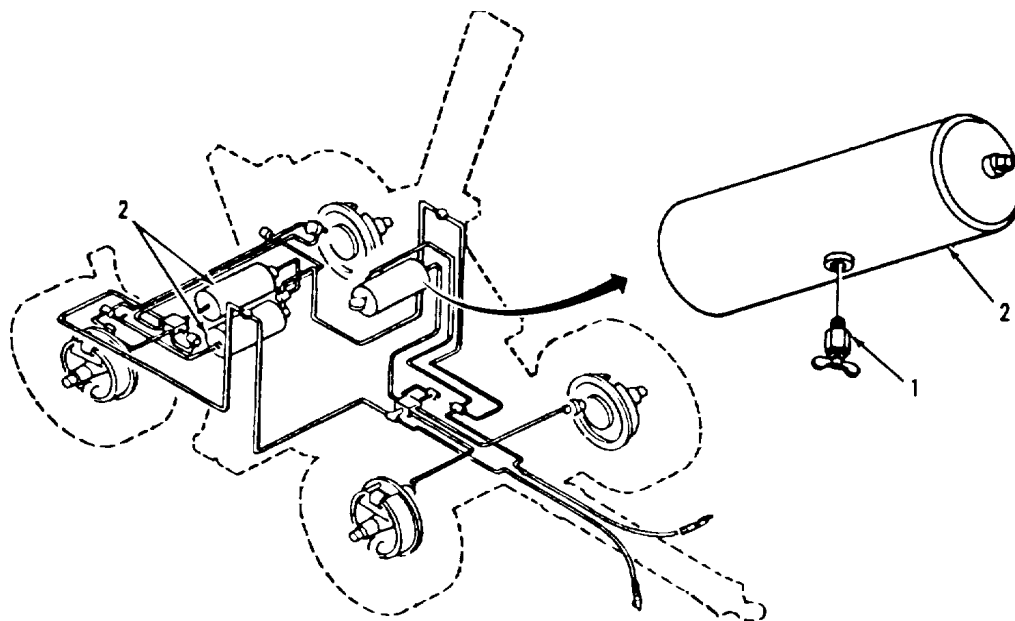
This chapter describes the dolly set controls and contains operator/crew preventive maintenance procedures. There are instructions for driving, stopping, parking and backing. There are also instructions for coupling and uncoupling the dolly set to a shelter. Instructions are provided for operation under usual and unusual conditions.

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

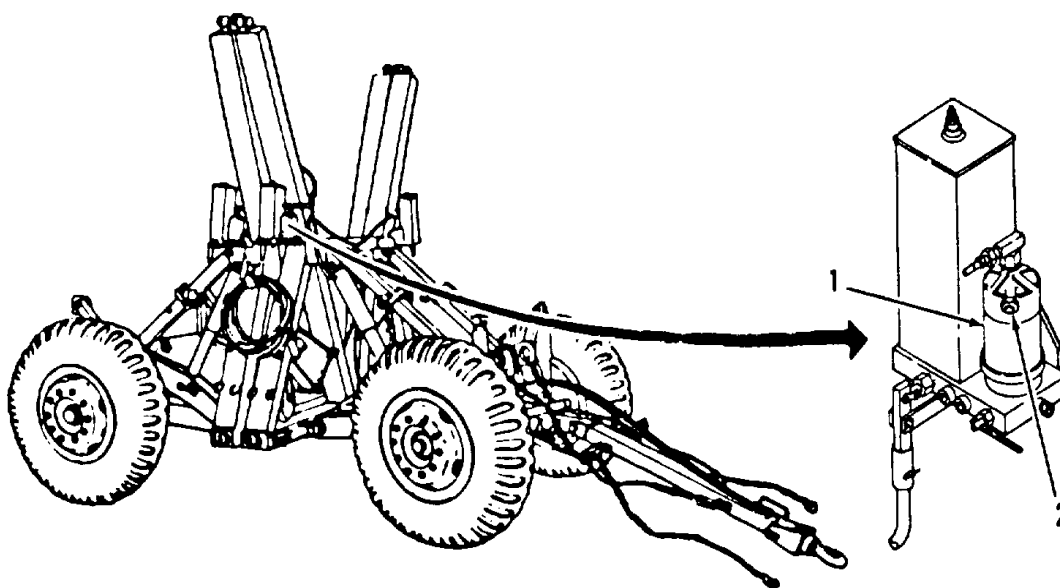
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Dolly to Dolly Air Connections .....	2-5	Toolbox .....	2-10
		Towing Vehicle to Dolly Connections.....	2-11

## AIR RESERVOIRS



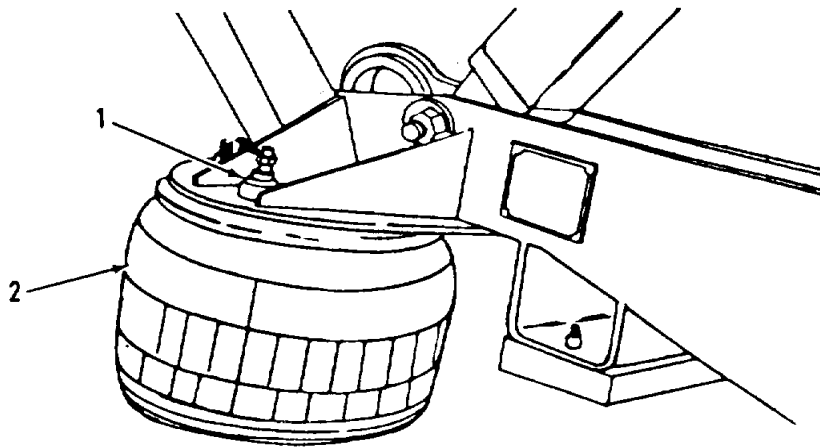
Key	Control or Indicator	Function
1	Reservoir draincock	Used to drain air and/or water from dolly brake system. Located at the bottom of each reservoir (2) (one air reservoir on the front dolly; two air reservoirs on the rear dolly).
2	Air reservoir	Contains air supply for brake system.

## AIR MOTORS



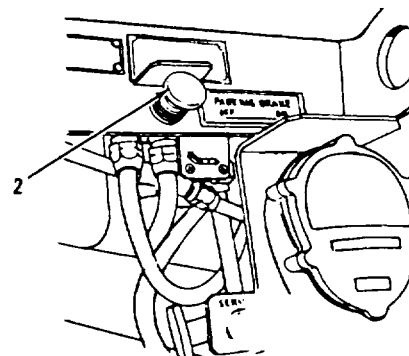
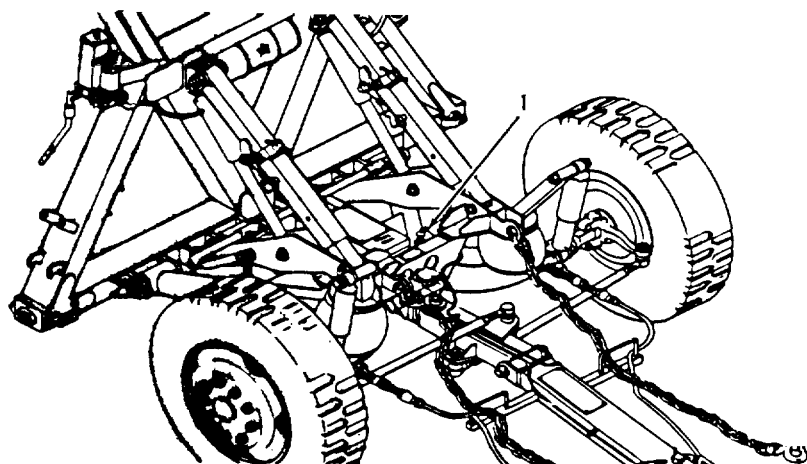
Key	Control or Indicator	Function
1		Air motor Provides alternate source of power for hydraulic system.
2	Start/Stop button	A start/stop button (2) is mounted on the air motor (1) housing on each of the four hydraulic pump assemblies. Pressing the button starts the air motor when a high pressure air supply is connected to the air motors. Releasing the button causes the air motor to stop operating.

## AIR SPRINGS



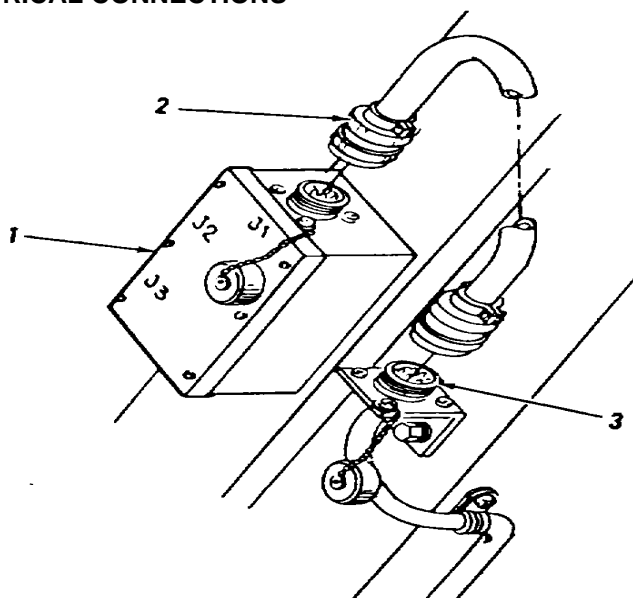
Key	Control or Indicator	Function
1	Four air spring valves (one valve on each air spring)	Used to let air into or out of the air springs (2). Pressing the center of the valve stem down releases air and deflates the air springs. An air source must be connected to the valves to inflate the air springs.
2	Air Springs	Provides air suspension for portions of dolly set.

## AUXILIARY BRAKE CONTROLS

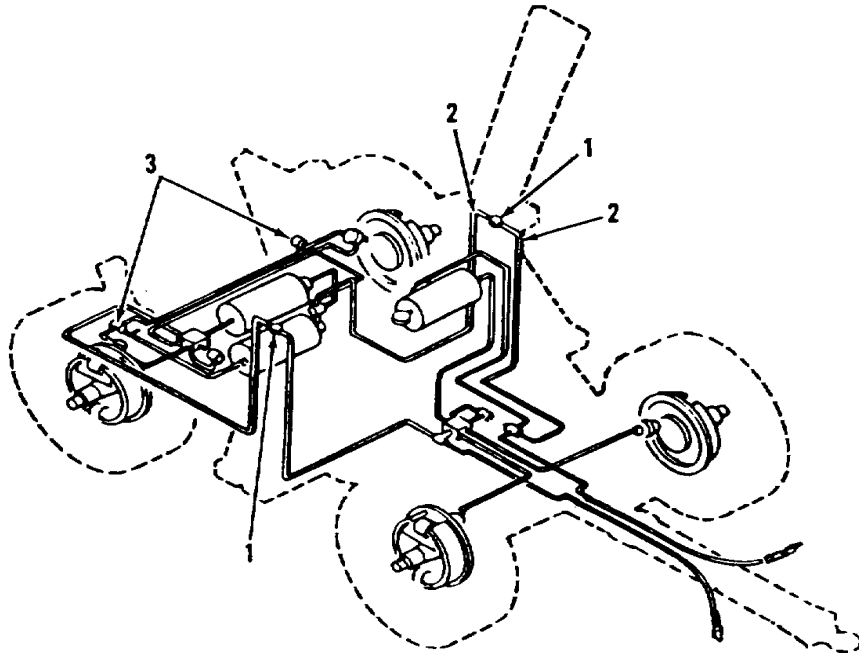


Key	Control or Indicator	Function
1	Manually operated, PULL TO APPLY/PUSH TO RELEASE control knob (front dolly)	Provides additional means of controlling application of service brakes on both wheels of front dolly.
2	Manually operated, PULL TO APPLY/PUSH TO RELEASE control knob (rear dolly)	Provides additional means of controlling application of service brakes on both wheels of rear dolly.

## DOLLY TO DOLLY ELECTRICAL CONNECTIONS

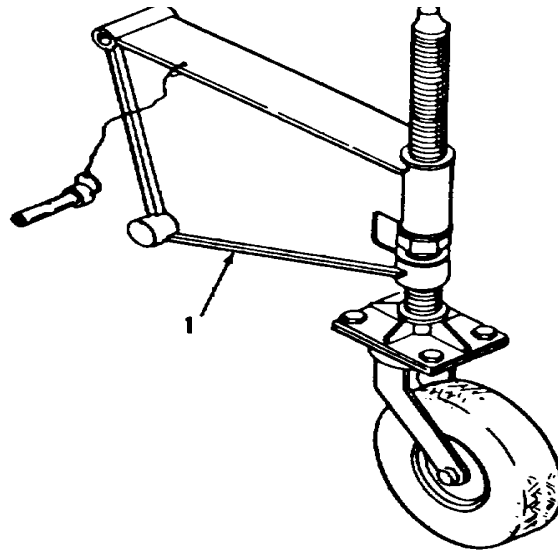


Key	Control or Indicator	Function
1	Front dolly junction box electrical receptacles (J2 or J3)	Connects intervehicular electrical cable to front dolly. Located on junction box (J2 is 12 VDC; J3 is 24 VDC).
2	Interdolly electrical cable	Supplies electrical power from front dolly to rear dolly.
3	Rear dolly receptacle	Connects interdolly electrical cable to the rear dolly. Located on rear adapter of rear dolly.



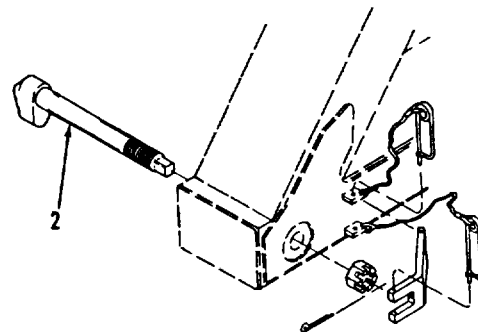
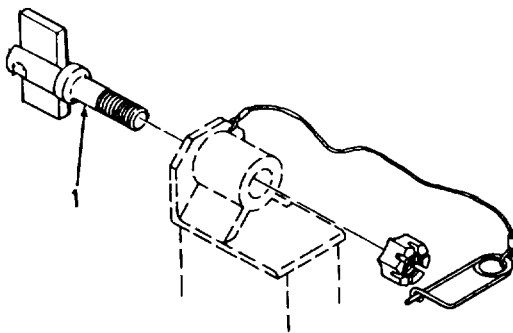
Key	Control or Indicator	Function
1	Rear dolly gladhand connectors	Connects interdolly airhoses to the rear dolly braking system.
2	Interdolly service and emergency airhoses	Connects braking systems of front and rear dollies together.
3	Rear dolly external gladhand connectors	Provides connections from dolly set airhoses to additional dolly set (when towing second empty dolly set).

## DOLLY CASTER ASSEMBLIES



Key	Control or Indicator	Function
1	Dolly Caster Assemblies	Used to individually maneuver the front and rear dollies when attaching dollies to the shelter.

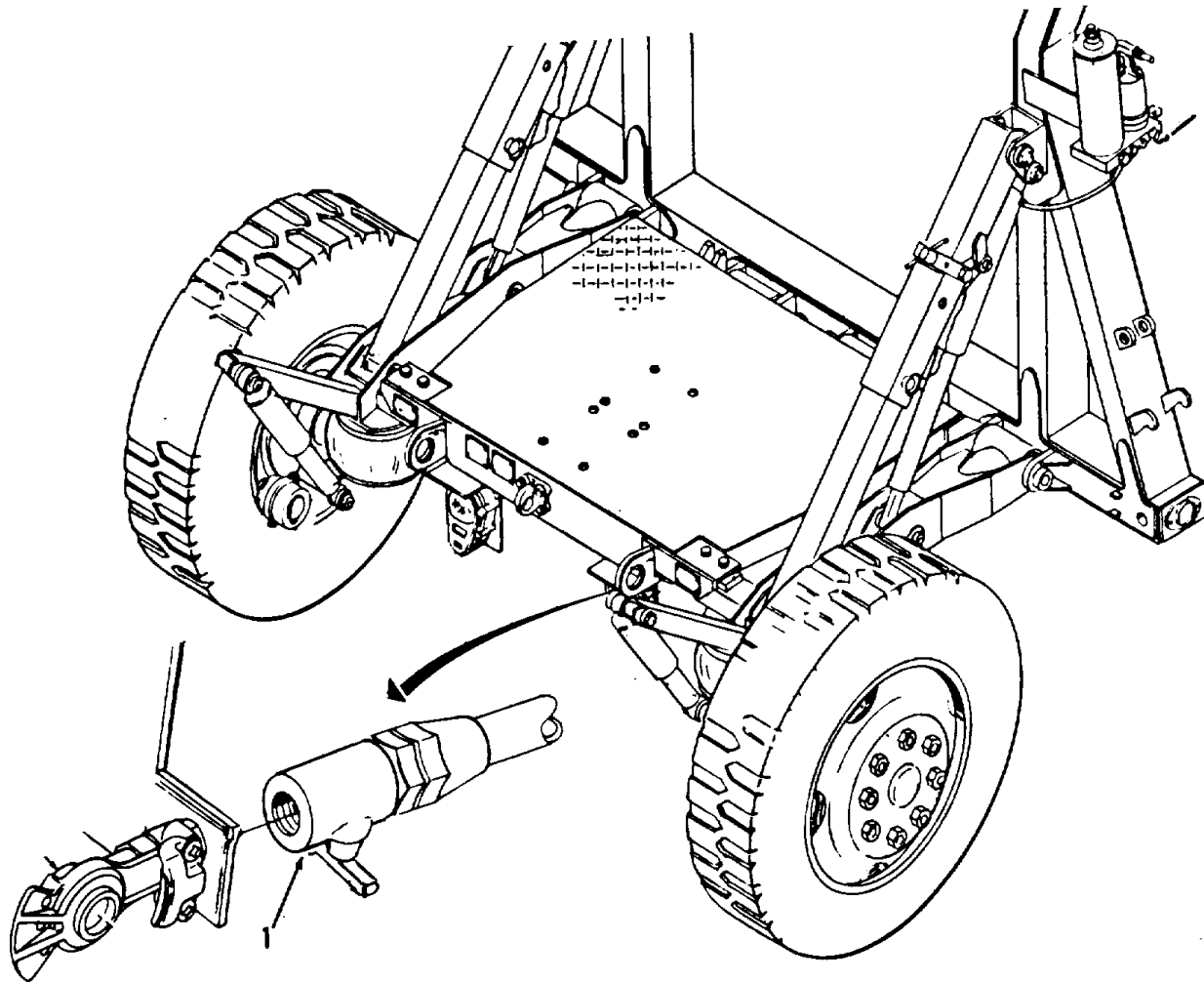
## DOLLY TO SHELTER CONNECTIONS



Key	Control or Indicator	Function
1	Plate and ISO locking pins	Used to secure dollies to the upper portion of the ISO shelter.
2	Locking pins	Used to support the weight of the lower portion of the ISO shelter.

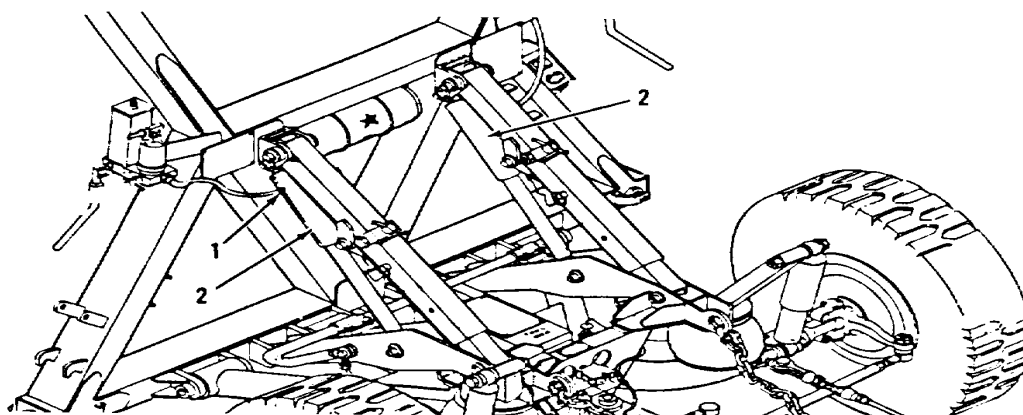


## GLADHANDS CUT-OUT COCK

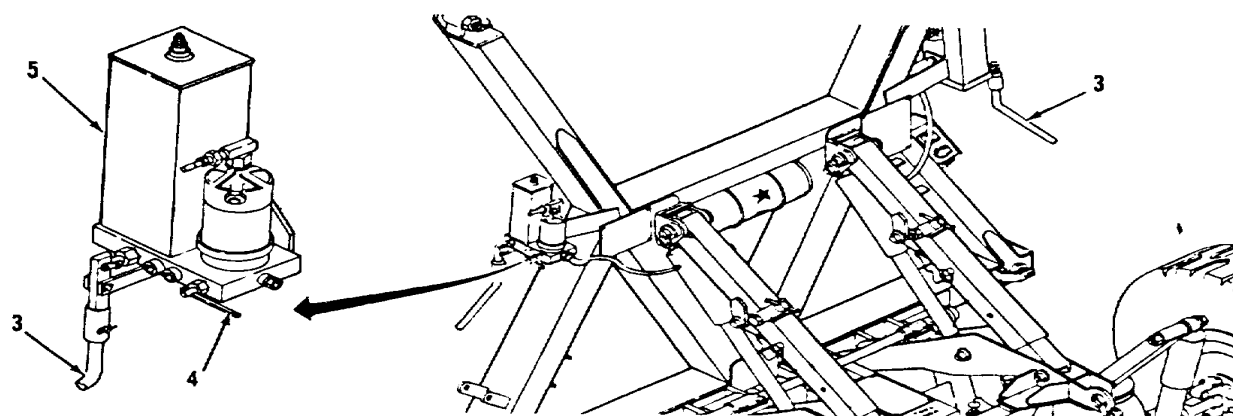


Key	Control or Indicator	Function
1	Gladhand cut-out cocks	Used to provide air-supply for brake operations to second dolly set when towing two dollies in tandem. Cut-out cock (1) opens or isolates air supply as needed. Turning cocks to the right opens air supply to second towed dolly set brake system; turning the cocks to the left secures the air supply, thus preventing leakage.

## HYDRAULIC LIFT SYSTEM

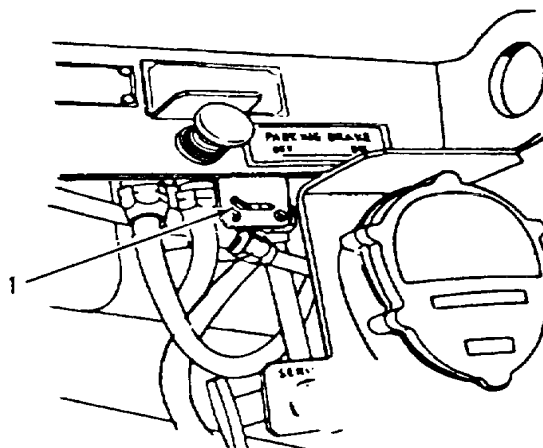


Key	Control or Indicator	Function
1	Hydraulic cylinder bleeder valve	Used to bleed air from individual hydraulic cylinders in hydraulic lift system.
2	Hydraulic cylinder	Used to raise the dolly to the proper position after shelter is loaded.

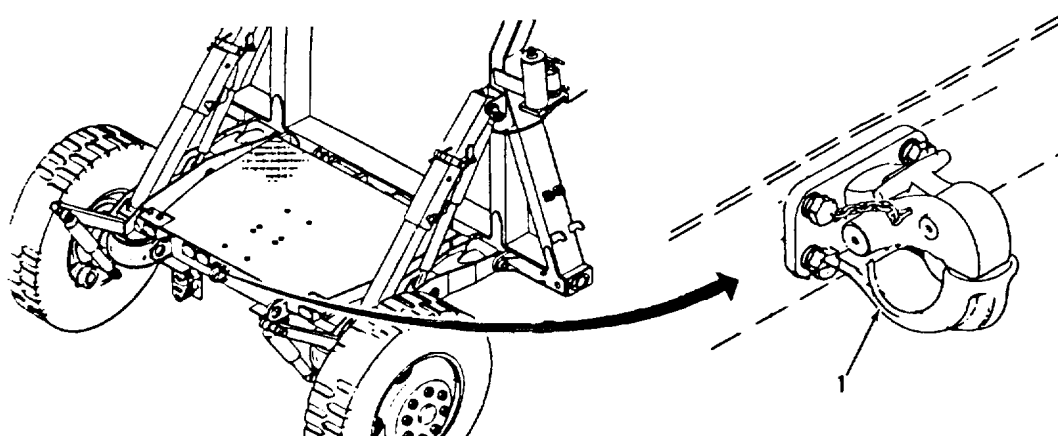


Key	Control or Indicator	Function
3	Pump handle	Used to operate hydraulic pumps (5). Pumping the handle will raise hydraulic system when pump lever (4) is in PMP position.
4	Hydraulic pump lever (PMP/REL)	Used to control the raising and lowering of hydraulic system. Placing pump lever in PMP position allows the system to be raised when the pump handle is actuated (or when air motor is operated by external air supply to drive pump). Placing pump lever in REL position allows the system to be lowered by releasing hydraulic pressure.

## PARKING BRAKE

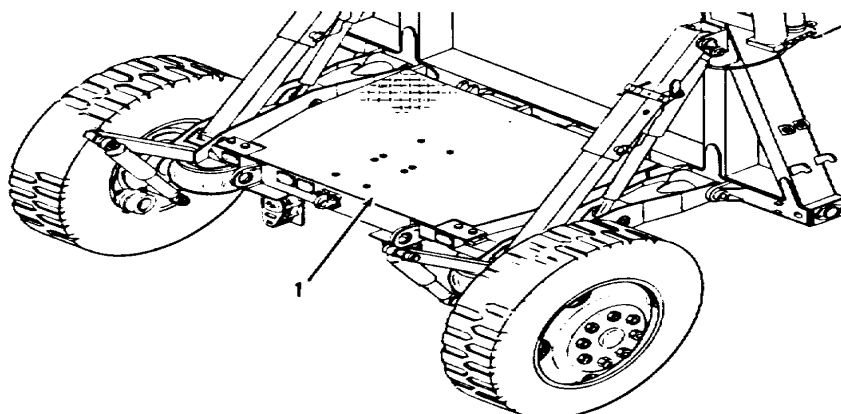


Key	Control or Indicator	Function
1	Manually operated parking brake lever	Used to apply and release mechanical spring brake parking brake on rear dolly wheels. Pushing lever to right (ON) applies parking brake; pushing lever to left (OFF) releases parking brake.

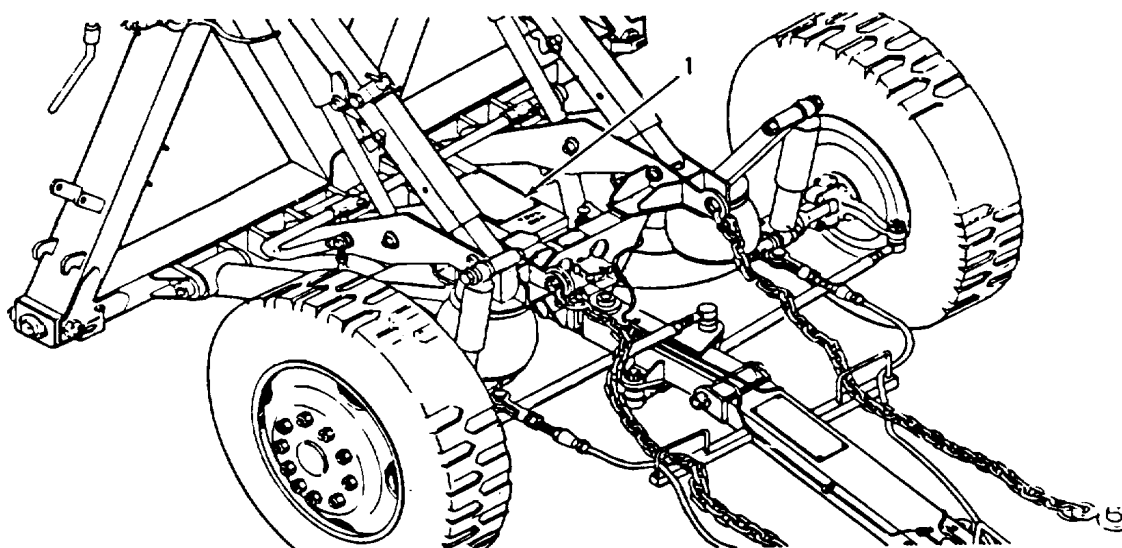


Key	Control or Indicator	Function
1	Pintle	Used to secure tow bar from a second dolly set when two dolly sets (without shelters) are being towed together.

## PLATFORM

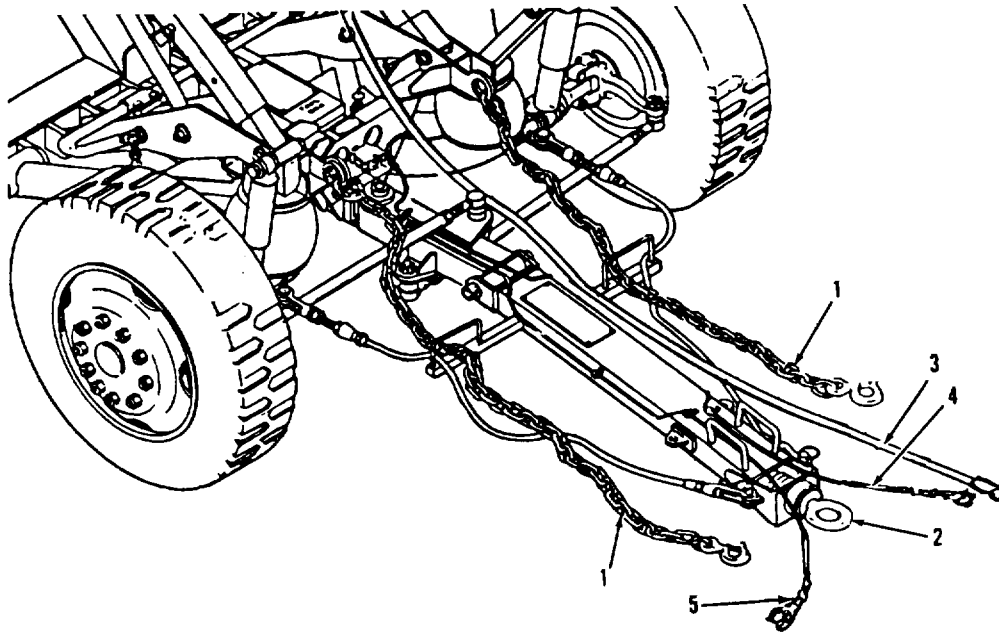


Key	Control or Indicator	Function
1	Platform (floor)	Allows easy access to rear door of shelter when dolly set is attached to shelter. Also provides elevated surface for reaching upper portions of rear dolly.



Key	Control or Indicator	Function
1	Toolbox	Used to stow basic issue items (Appendix C). Located on the front dolly.

## TOWING VEHICLE TO DOLLY CONNECTIONS



Key	Control or Indicator	Function
1	Safety chains	Used to secure dolly to the towing vehicle if dolly tow bar should accidentally become unhooked.
2	Lunette	Used to attach the dolly to the towing vehicle.
3	Intervehicular electrical cable (front harness)	Used to carry electrical power from towing vehicle to front dolly.
4	Intervehicular emergency brake airhose	Used to provide emergency brake control from towing vehicle to the dolly.
5	Intervehicular service brake airhose	Used to connect service brake system of towing vehicle to the dolly.

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

	Page		Page
General .....	2-12	PMCS column Description .....	2-14
Operator PMCS .....	2-15	Special Instructions .....	2-12

### GENERAL

This section contains PMCS for the M1022 Dolly Set. The procedure lists checks, services, and criteria to ensure that the dolly set is prepared for operation. Perform the checks and services at the specified intervals, keeping in mind the following guidelines:

Do your before (B) PMCS just before you operate the vehicle. Pay attention to the CAUTIONS and WARNINGS.

Do your during (D) PMCS during operation. (During operation means to monitor the vehicle and its related components while it is actually being operated.)

Do your after (A) PMCS right after operating the vehicle. Pay attention to the CAUTIONS and WARNINGS.

Do your (W) PMCS weekly.

Do your (M) PMCS monthly.

### SPECIAL INSTRUCTIONS

If something doesn't work, troubleshoot the item using the instructions in this manual. Notify your supervisor.

Always do your preventive maintenance in the same order so it becomes a habit. Once you've had some practice, you'll soon spot anything wrong.

If anything looks wrong and you can't fix it, complete DA Form 2404. If you find something seriously wrong, report it to your supervisor immediately.

When you do your preventive maintenance, take along the tools you need to make all the checks. You always need a rag or two.

### **WARNING**

Drycleaning solvent PD-680 is both toxic and flammable. Avoid prolonged breathing of vapors and avoid skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 138°F (59°C). Serious injury or death may result if precautions are not followed.

**SPECIAL INSTRUCTIONS - CONTINUED**

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 dry cleaning solvent PD- 680 on all 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, 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 your supervisor if you can't tighten it.
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 your supervisor.
4. Electric cables, 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 crimp and fittings are tight. Wet spots show leaks of course, but a stain around a fitting or connector can also mean a leak. If a leak comes from a loose fitting or connector, tighten the fitting or connector. If something is broken or worn excessively, report it to your supervisor.

It is necessary for you to know how fluid leakage affects the status of your vehicle. The following are definitions of the types/classes of leakage you need to know to determine the status of your vehicle. Learn and 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 dripping from item being checked/ inspected.
Class III	Leakage of fluid great enough to cause drippage from the item being checked/inspected.

**CAUTION**

When operating with class I or II leaks, continue to check fluid levels in addition to those checks required in PMCS. Parts without necessary fluid will stop working and/or cause damage to the parts.

**NOTE**

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

## PMCS COLUMN DESCRIPTION

Item - The order that PMCS should be performed. It is also used as a source of item numbers for the TM number column on DA Form 2404 Equipment Inspection and Maintenance worksheet when recording results of PMCS.

Interval - Tells when each check is to be performed.

Item To Be Inspected - Lists the checks to be performed.

Equipment is Not Ready/Available - Has an entry only when the dolly set should not be operated or accepted with that problem.



## OPERATIVE/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

B - Before

D - During

A - After

W - Weekly

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		•				<p>NOTE Perform weekly (W) as well as before (B) PMCS if:</p> <ul style="list-style-type: none"> <li>a. You are the assigned operator but have not operated the vehicle since the last weekly inspection.</li> <li>b. You are operating the vehicle for the first time.</li> </ul> <p>MAKE THE FOLLOWING WALK AROUND CHECKS</p> <ul style="list-style-type: none"> <li>a. Visually check for evidence of leakage (hydraulic fluid).</li> <li>b. Check for loose, missing, or damaged parts.</li> </ul>	Class III Leak
2	•					<p>TIRES</p> <ul style="list-style-type: none"> <li>a. Check tires for deep cuts, foreign objects, or unusual tread wear. Remove stones from between treads. Reference Tire manual TM9-2610-200-24.</li> <li>b. Check tires for correct air pressure.</li> </ul> <p>Highway 50 psi; off road and air transportation 25 psi</p> <ul style="list-style-type: none"> <li>c. Dolly caster tire - 90 psi.</li> </ul>	One or more tires are flat, missing, or unserviceable.

## OPERATIVE/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

B - Before

D - During

A - After

W - Weekly

ITEM NO	INTERVAL				M	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			
3						WHEELS	
						<ul style="list-style-type: none"> <li>a. Check wheels for damage.</li> <li>b. Check wheel nuts for presence.</li> </ul>	One or more wheels are damaged. One or more wheel nuts are missing on one wheel.
4						BRAKE LINES AND AIR HOSES	
						<ul style="list-style-type: none"> <li>a. Check for evidence of air leakage.</li> <li>b. Check all lines (1) for kinks which may restrict proper air flow.</li> <li>c. Inspect condition of hoses (2) and connections (3). damaged.</li> </ul>	Sound of leaking air.   Hoses leaking or
5						BRAKE SYSTEM AND BRAKE ASSEMBLIES	
						<ul style="list-style-type: none"> <li>a. Check for effective braking, even braking action at all wheels, and absence of noise when the brakes (4) are engaged during normal operation of the dolly set.</li> <li>b. Check operation of spring brake chamber (5) by actuating control valve in towing vehicle cab.</li> <li>c. Set parking brake lever (6) to ON and try to move dolly set. Be sure both wheels lock on rear dolly.</li> <li>d. Push auxiliary brake lever (7) on front and on rear dolly, and try to move dolly set.</li> </ul>	Dolly set pulls to any side when brakes are engaged.   One or both wheels do not lock on the rear dolly.  When either front dolly or rear dolly brakes do not hold.

# OPERATIVE/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

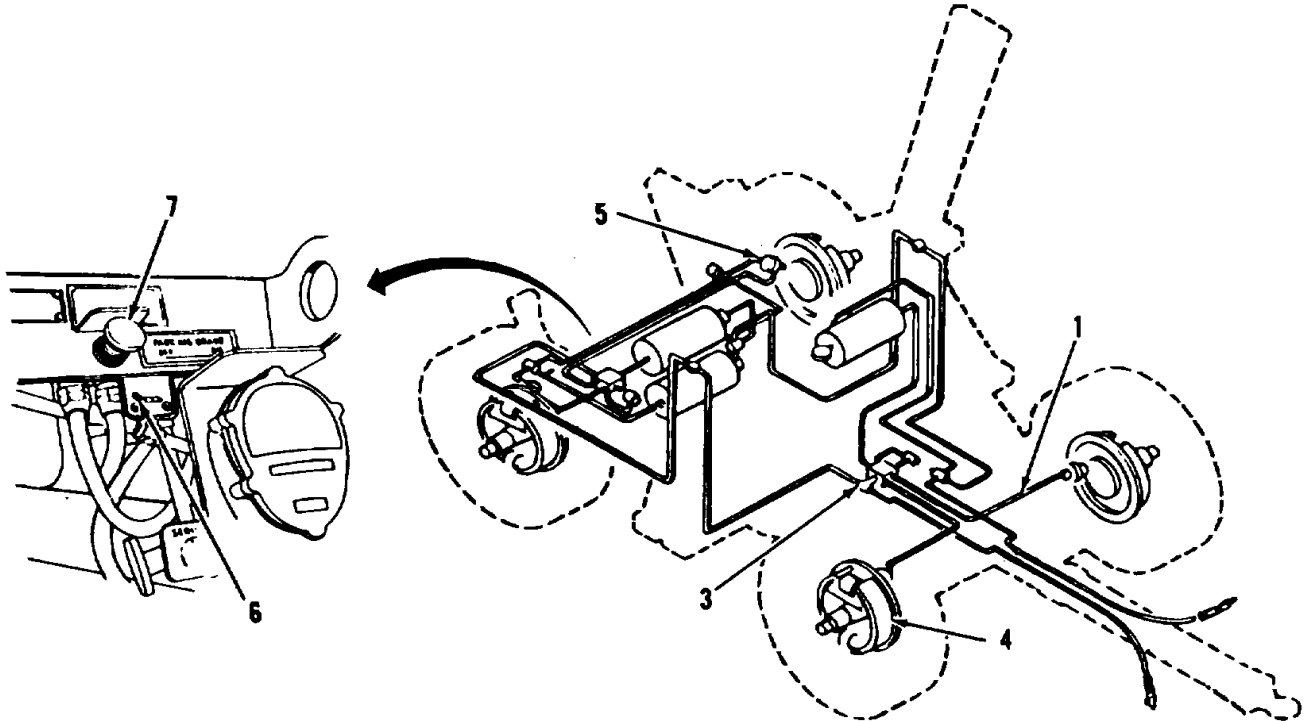
B - Before

D - During

A - After

W - Weekly

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		
						BRAKE SYSTEM AND BRAKE ASSEMBLIES (CONT)	



6						<p>TOOL BOX (1)</p> <ul style="list-style-type: none"> <li>Check contents against Basic Items List (Appendix C) missing. to insure all items are present.</li> </ul>	One or more items Issue
7						<p>TOWBAR AND RELATED PARTS</p> <ul style="list-style-type: none"> <li>a. Check for cracked or bent towbar (2).                      cracked or bent.</li> <li>b. Check lunette (3) for wear, wear, loose or broken mountings. mountings.</li> </ul>	<p>Any parts are worn,</p> <p>Lunette has evidence of wear, loose, or broken</p>

## OPERATIVE/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

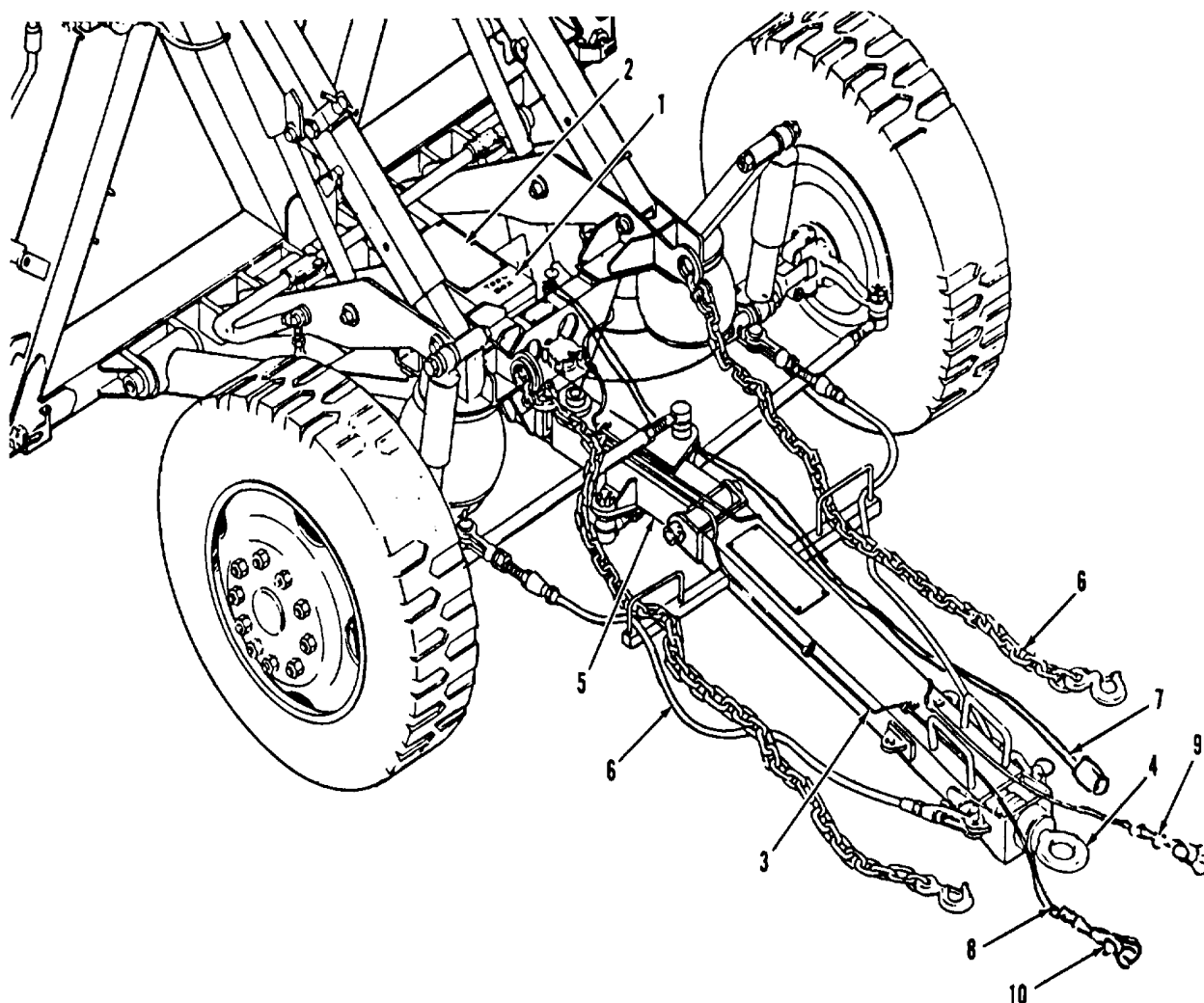
B - Before

D - During

A - After

W - Weekly

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>TOWBAR AND RELATED PARTS (CONT)</p> <ul style="list-style-type: none"> <li>c. Check for missing or broken safety chains (4).</li> <li>d. Check for damaged electrical cable (5) or air hoses (6 and 7).</li> <li>e. Check for damaged or leaking glad-hands (8).</li> </ul>	<p>One or both safety chains are missing or broken.</p> <p>Damaged electrical cable or leaking hoses.</p> <p>Damaged or leaking Glad hands</p>



## OPERATIVE/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

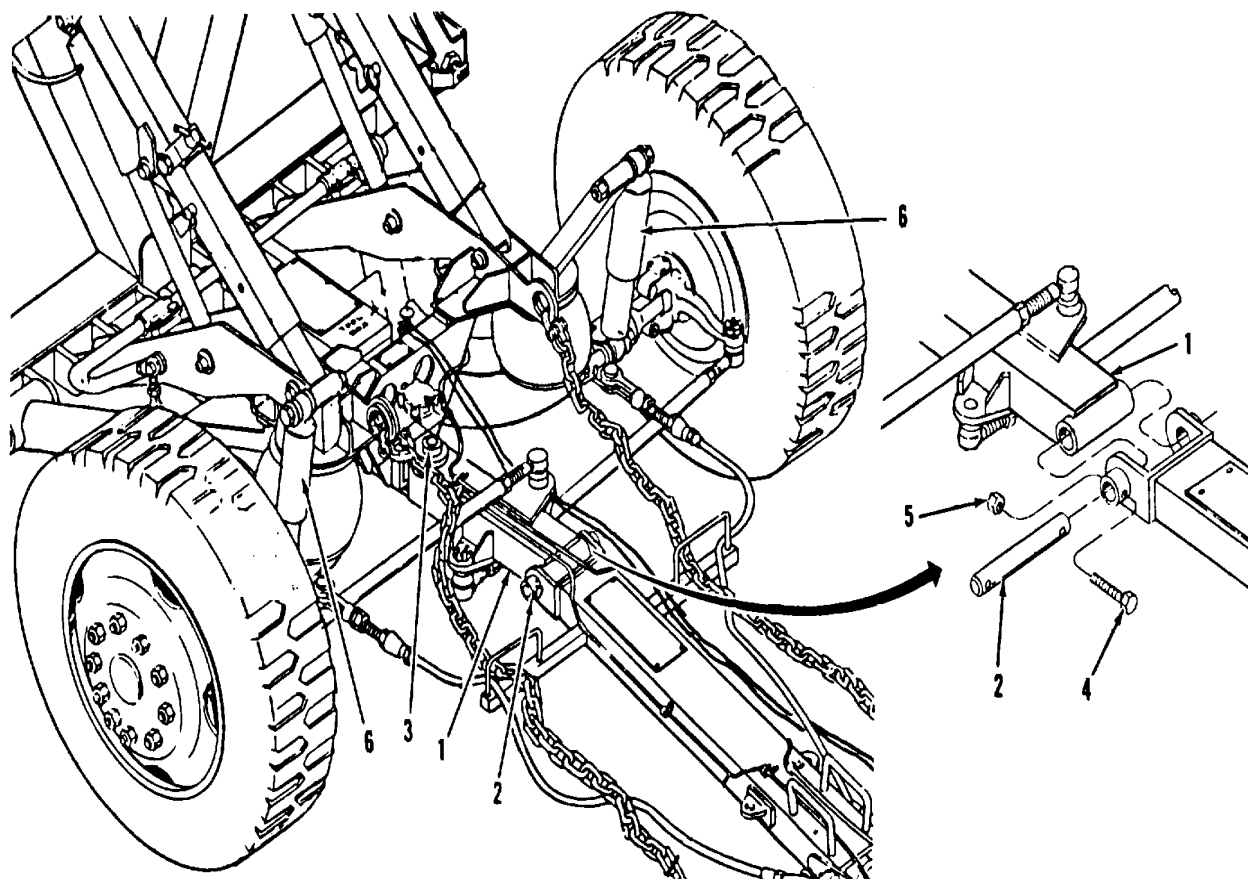
B - Before

D - During

A - After

W - Weekly

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		
8						<b>STEERING</b>  a. Inspect steering link assembly (1) for damage or distortion.  Inspect drawbar pin (2) and steering pin (3) for damage, and secure mounting.	Any parts are worn, cracked or bent.  Bolt (4) and nut (5) attaching each pin (2 and 3) are loose or missing.
9						<b>SHOCK ABSORBERS</b>  Check for broken shock absorbers (6).	One or more shock absorbers are broken



## OPERATIVE/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

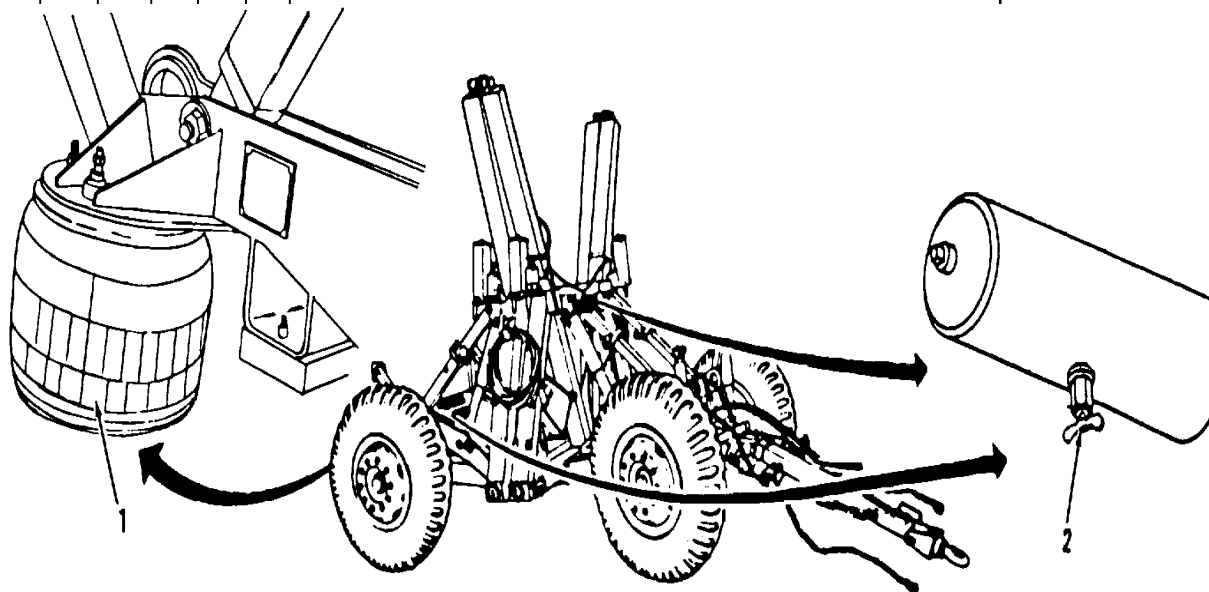
B - Before

D - During

A - After

W - Weekly

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												
10						<p>AIR SPRINGS</p> <p>Adjust all air springs (1) to the correct pressure for the load being carried. Reference page 2-34.</p> <table><tr><td>Payload</td><td>Load on</td></tr><tr><td>6000 lb.</td><td>25 psi</td></tr><tr><td>9000 lb.</td><td>45 psi</td></tr><tr><td>12000 lb.</td><td>60 psi</td></tr><tr><td>15000 lb.</td><td>75 psi</td></tr></table>	Payload	Load on	6000 lb.	25 psi	9000 lb.	45 psi	12000 lb.	60 psi	15000 lb.	75 psi	One or more air springs are damaged or cannot be inflated to proper pressure
Payload	Load on																
6000 lb.	25 psi																
9000 lb.	45 psi																
12000 lb.	60 psi																
15000 lb.	75 psi																
11						<p>AIR RESERVOIRS</p> <p><u><b>WARNING</b></u></p> <p>Wear goggles when opening drain-cock (2) on air reservoirs</p> <p>•</p> <p>a. Inspect air reservoir for signs of leakage or damage.</p> <p>•</p> <p>b. Open draincocks (2) and drain all moisture from reservoirs.</p> <p>•</p> <p>c. Close draincocks</p>	One or more air reservoirs is damaged or leaking.										



## OPERATIVE/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

B - Before

D - During

A - After

W - Weekly

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		
12						<p>LIGHTS AND REFLECTORS</p> <p><b>NOTE</b></p> <p>An assistant is required while checking the brake lights.</p> <ul style="list-style-type: none"> <li>a. With the towing vehicle connected, check operation of all lights.</li> <li>b. Check for any broken lenses and reflectors.</li> </ul>	Any lights (including turn signals) are inoperative.
13						<p>HYDRAULIC LIFT SYSTEM</p> <ul style="list-style-type: none"> <li>a. Check if hydraulic pumps (1) raise and lower adapters (2) properly using both the manual pump handles (3) and the air motors (4).</li> <li>b. Check that hydraulic PUMP/REL valves (5) allow smooth control of load when lowered.</li> <li>c. Inspect all hydraulic lines (6) for evidence of damage, leakage, and for kinks which could restrict proper flow of fluid.</li> <li>d. Check pumps (1), cylinders (7), and hydraulic PUMP/REL valves (5) for proper operation and any evidence of leakage.</li> </ul>	<p>Pumps do not work using either manual pump handles or air motors.</p> <p>Load is not lowered smoothly.</p> <p>Any leaking hydraulic fluid is detected.</p>

OPERATIVE/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

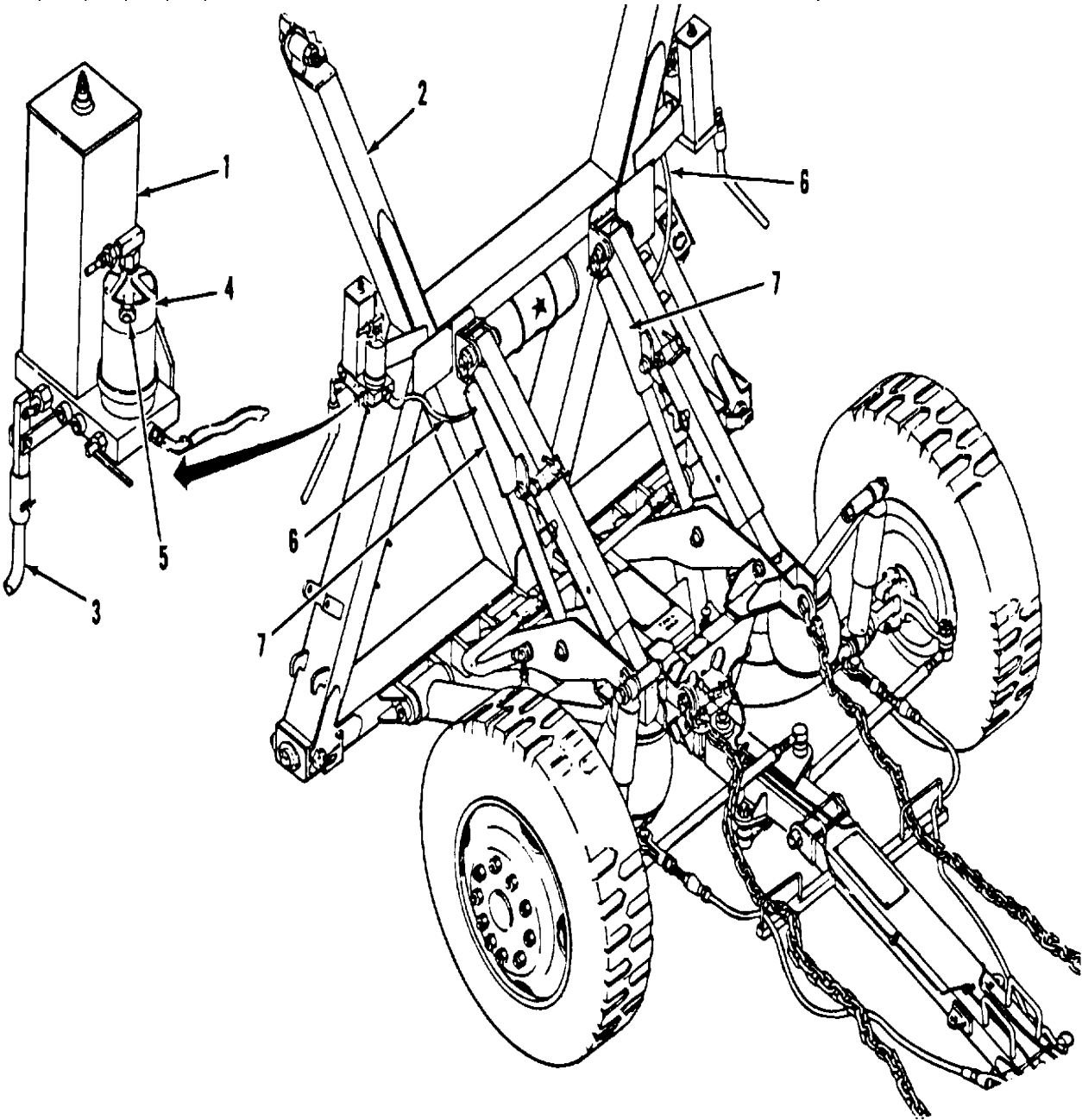
B - Before

D - During

A - After

W - Weekly

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		
						HYDRAULIC LIFT SYSTEM	





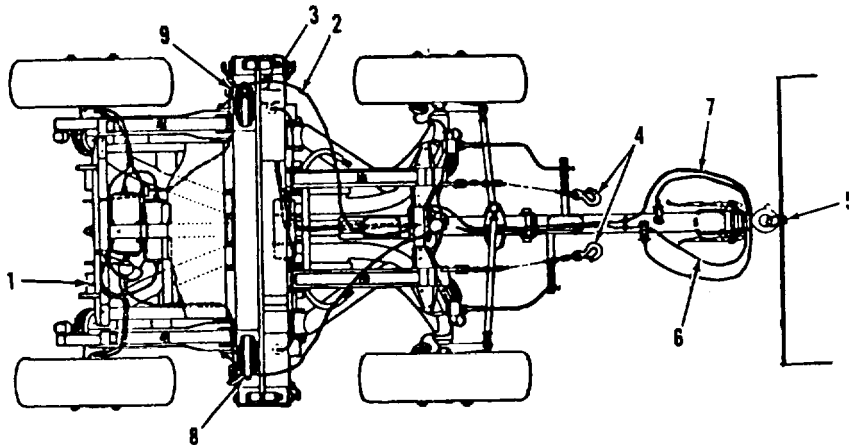
### Section III OPERATION UNDER USUAL CONDITIONS

	Page		Page
After Use .....	2-40	Operation . ....	2-39
Before Use .....	2-23	Preparation for Use .....	2-25

#### BEFORE USE

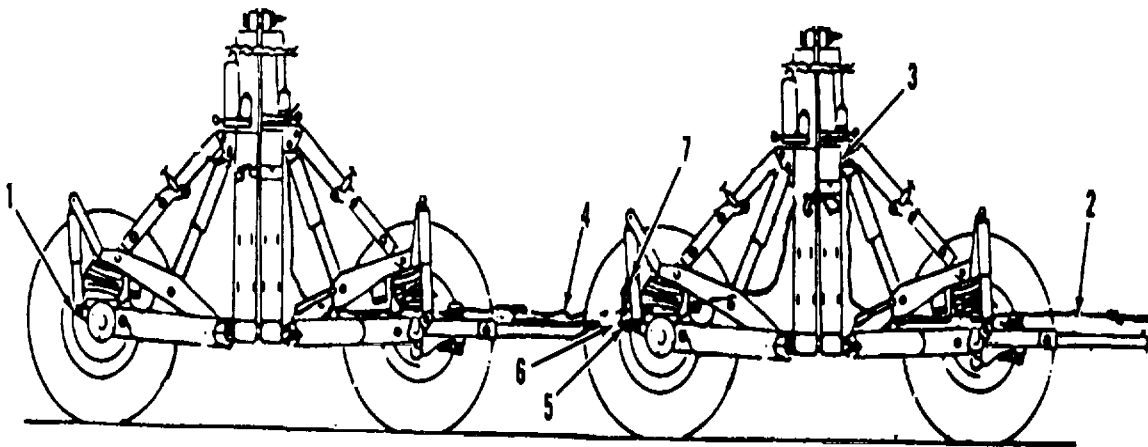
##### Uncoupling Empty Dolly Set from Tow Vehicle

1. Park the dolly set as close to the shelter as possible.
2. After tow vehicle has completely stopped, apply parking brake on rear dolly set by placing parking brake lever (1) to ON position. Brakes are applied automatically when dolly set is disconnected from prime mover.
3. Disconnect the intervehicular electrical cable (front harness) (2) from the tow vehicle and from the electrical junction box (3) on the front dolly. Coil harness and stow in place on left side of rear dolly adapter.
4. Remove safety chains (4) from tow vehicle and stow them by connecting to eye holes on the end of tow bar rail.
5. Disconnect dolly set tow bar lunette (5) from the pintle assembly of the tow vehicle.
6. Close service and emergency air valves on tow vehicle.
7. Disconnect service (6) and emergency (7) air hoses from the tow vehicle.
8. Disconnect the ends of the service (8) and emergency (9) air hoses from the rear dolly.
9. Coil and stow the air hoses on the tool box until needed for coupling procedures.



**BEFORE USE - CONTINUED****Uncoupling Two Empty Dolly Sets Towed In Train**

1. After tow vehicle has completely stopped, apply the hand-operated parking brake (1) on the rear dolly by placing lever to ON position. Brakes are applied automatically when dolly is disconnected from prime mover.
2. Remove the intervehicular electrical cable (front harness) (2) between the tow vehicle and the junction box (3) on the first dolly set and the interdolly cable(4) between the junction box and the rear dolly harness (and the intervehicular connection cable between the two dolly sets).
3. Coil the electrical cable and stow in strap mounted on curbside of rear dolly adapter.
4. Remove service and emergency brake air hoses between quick disconnect glad-hand (5) on platform of first dolly and connect to quick disconnect glad-hand on tow bar (6) of second dolly.
5. Coil the service and emergency brake air hoses and stow in strap mounted on roadside of rear dolly adapter.
6. Remove safety chains of second dolly set from lifting shackles (7) on platform of first dolly set.

**PREPARATION FOR USE**

Perform the operator/crew preventive maintenance checks and services in the before (B) column before doing the procedures.

**Lowering Empty Dolly Set to Ground**

1. Check that all personnel in the area are standing clear of dolly set (combined front dolly and rear dolly).
2. Chock the wheels loosely and release the service brakes and parking brakes.
3. Assign four crewmen to perform procedure, one crewman on each hydraulic pump and strut.

**WARNING**

Turning the hydraulic pump valves too quickly will allow the dolly set to drop rapidly, possibly causing damage to the dolly set and/or injury to the operating crew.

---

**WARNING**

Crew should stand clear of dolly set during lowering operation.

4. Slowly close all four hydraulic pump valves by turning handles (1) clockwise to PUMP position

**NOTE**

Adapter arms must remain vertical until contact is made with the ground. If adapter arms are tilted, the sides are not being lowered at the same rate.

5. Each crewman should loosen his strut assembly by unscrewing clamps (5). Carefully, with hands and fingers away from struts (2), pump hydraulic pump levers (3) until cylinders open strut knee joints at pivot points (4). Apply hand pressure on the inside of pivot point (4) to open struts, being extremely careful not to allow fingers in a potential "pinch" point. The struts (2) must break open at this point.

---

**WARNING**

Pushing the safety pins from the strut assemblies using the fingers should not be attempted under any circumstances as the fingers could be severed if the strut released with a finger in the pin hole.

6. An alternate method to break the strut can be accomplished by applying hydraulic pressure to cylinders that will remove pressure from the pins (6). DO NOT ATTEMPT TO PUSH OUT SAFETY PINS WITH FINGERS!).

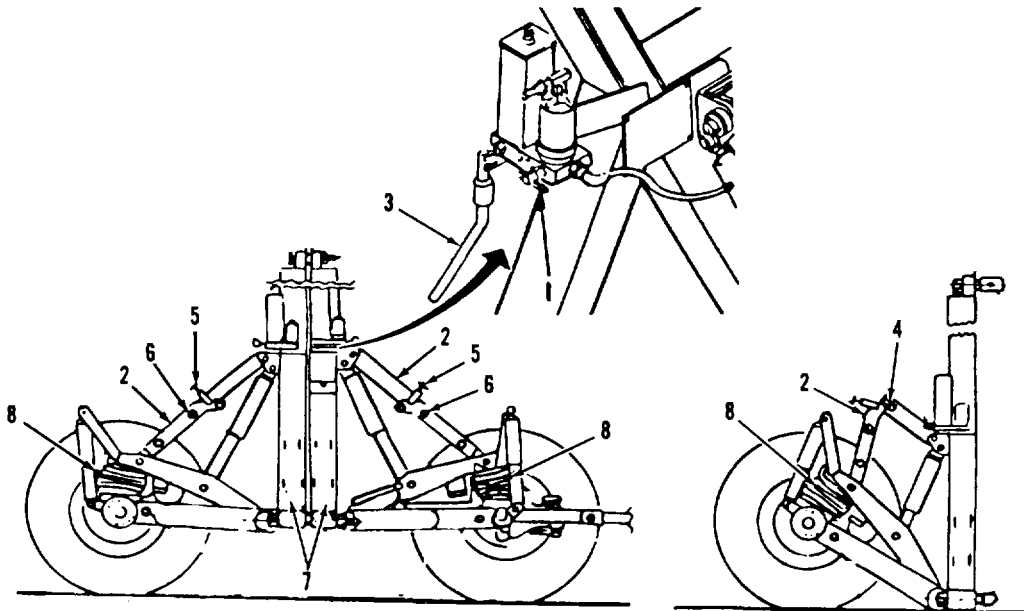
**PREPARATION FOR USE - CONTINUED**

## Lowering Empty Dolly Set to Ground - Continued

**CAUTION**

Serious damage to dolly set can result if only one strut knee joint is locked straight and lowering operation is continued. Lowering operation should be stopped immediately if strut knee joint remains locked straight. Raise dolly set and again try lowering.

7. Slowly, in unison (all four crewmen), open the hydraulic pump valves by turning handles (1) counterclockwise to the REL (Release) position. This will lower all cylinders in unison ensuring that the strut knee joint (4) is bending and is not locked straight.
8. Check for obstructions that could prevent strut knee joints from bending.
9. Ensure that strut knee joints (4) are bending. Stop operation immediately if strut knee joints are not bending and are locked straight. Raise immediately and try again.
10. Lower all four sides of dolly set to ground in unison, ensuring that adapter arms(7) remain vertical (not tilted) while lowering dolly set until contact is made with the ground. Tilted adapter arms means that one side is lowering faster or lower than the others. However, to correct this condition, open the valves on the pumps of the tilted adapter and close the valves on the other. Activate hydraulic pumps until adapters are in a vertical (straight) position.
11. Reduce pressure in all four air springs (8) to 10 PSI after contact is made with the ground



**PREPARATION FOR USE - CONTINUED**

## Uncoupling Front and Rear Dolly

**NOTE**

The next two preparation procedures listed in this section, Uncoupling Front and Rear Dolly sets, and Positioning Dolly Set for Coupling to container/shelter, are performed sequentially for each side separately. Because there are only two dolly caster assemblies, once the casters are mounted on the front or rear dolly it is more practical to complete uncoupling/positioning/ coupling of one dolly (front or rear) before removing casters to install on the other dolly.

1. Remove dolly caster assemblies (1) from storage location on front dolly adapter.
2. Disconnect interdolly air hose and remove along with electrical cables.
3. Install the two dolly casters (1) on the mounting bosses (2) on the outside of the adapter arms (3) of the front dolly. (The two crewmen on the front dolly should perform this task.)

**NOTE**

Dolly casters cannot be removed after shelter is coupled to dolly set if pins are not installed on the opposite side of the adapter mating surface.

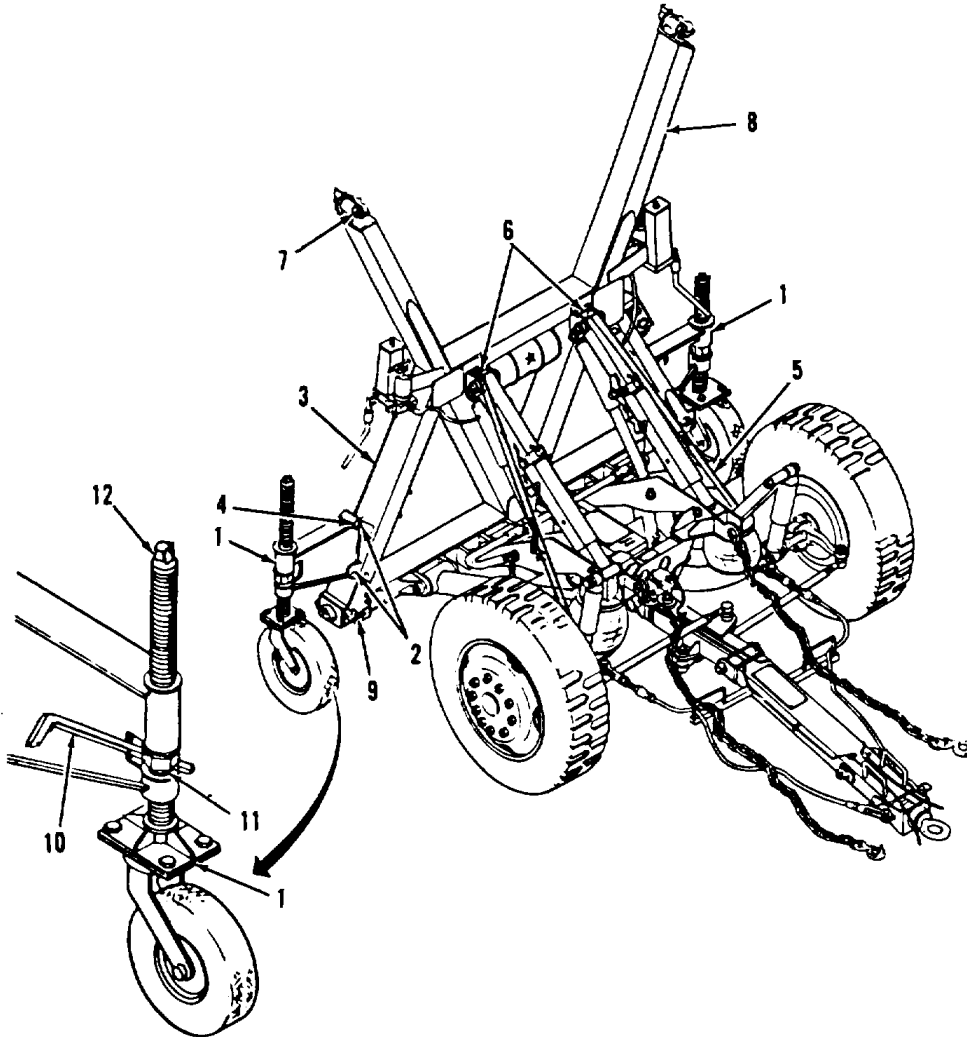
4. Ensure that the dolly caster pins (4) are installed on the opposite side of the adapter mating surface. (Dolly caster pin is attached to caster assembly to prevent loss.)
5. Remove the safety restraining straps (5) from tool box and install (one on front and one on rear dolly) from pad eyes on adapter (6) to pad eyes on lower arm of front dolly.
6. Adjust the straps (5), keeping tension on strap to retain adapter (6) and lower arm in 45° position. (This facilitates movement of the dolly set and provides a safety feature since the whole weight of the dolly set is suspended by the mechanical linkage; the strap keeps the adapter from falling forward.)
7. Remove the upper attaching bolts (7) from the front dolly adapter.

**NOTE**

Upper bolts may be used as a punch to help remove lower bolts.

**PREPARATION FOR USE - CONTINUED**

8. Remove the lower bolts (9) attaching front dolly adapter. Stop attempt to remove lower bolts if more force than the use of a bolt as a punch is required.
9. Check the alignment of the adapters. Both adapters should be resting on the ground with no tension.
10. Adjust the dolly casters (1) to obtain sufficient ground clearance to allow dolly to roll. Insert breaker bar (strong arm) (10), as shown, and apply pressure to nut (11), while turning the top of the screw (123) with wrench from tool box.



**PREPARATION FOR USE - CONTINUED**

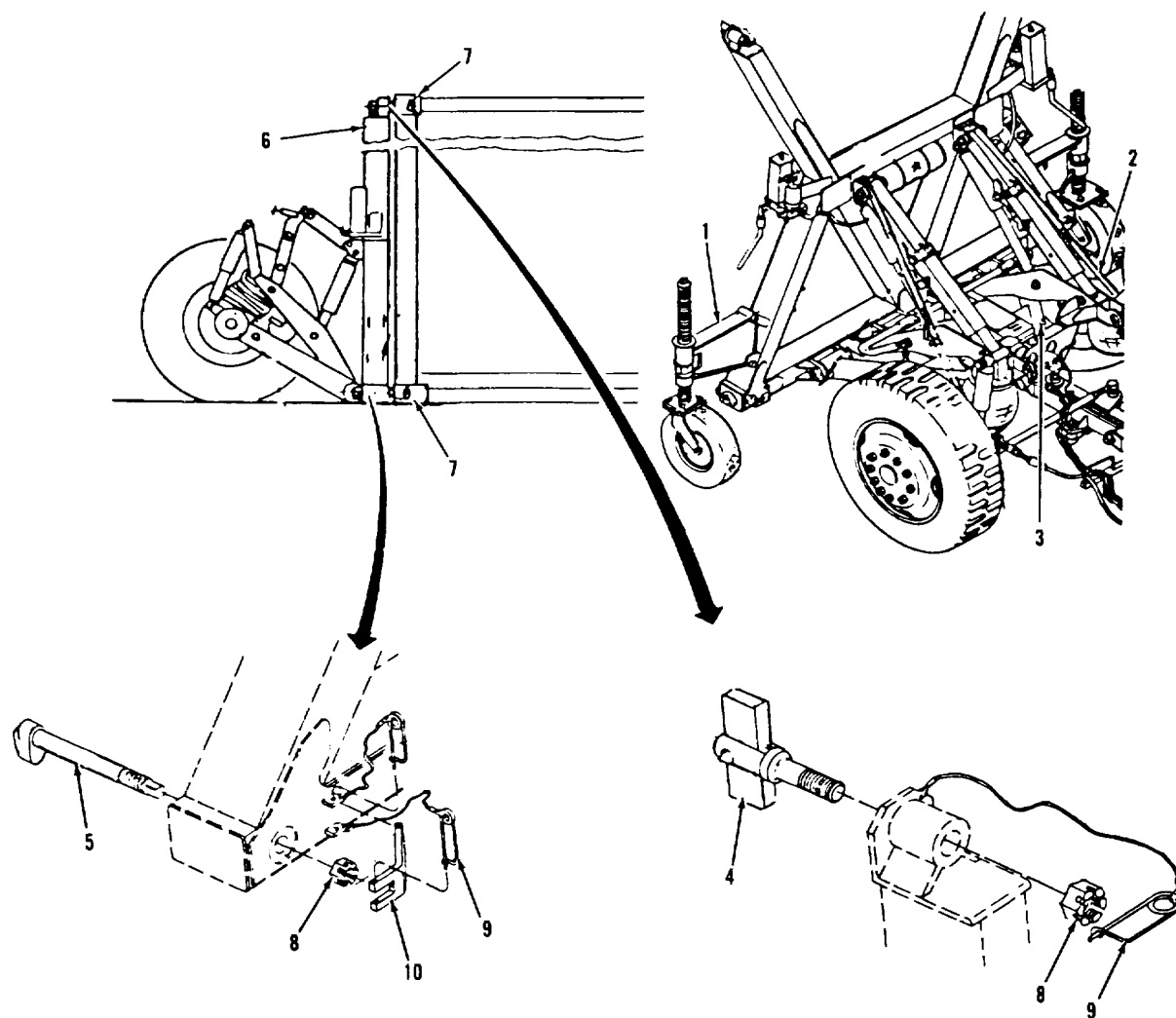
## Positioning Dollies for Coupling to Shelter

**NOTE**

If air brake system is fully charged, auxiliary brake control knobs must be depressed on front and rear dollies to release brakes. If air brake system is not charged, refer to parking brake data plate for brake release instructions for rear wheel spring brakes (manually operated parking brake).

1. Attach dolly casters (1) to front or rear dolly set and disengage the dolly adapters as previously described.
2. Secure safety straps (2) between the hydraulic cylinder mounting brackets and the lower arms.
3. Release brakes (3) before attempting to roll dolly into position. (Ensure that parking brake is also released on rear dolly.)
4. Push the dolly on dolly casters, in position against the end of the shelter, and align in place with shelter.
5. Install upper (4) and lower (5) ISO locking pins on dolly adapter (6).
6. Align the dolly to mate all ISO pins on adapter to ISO sockets (7) on shelter, using dolly casters to obtain ground clearance. If it is necessary to bring the dolly adapter to a vertical position, adjust the safety strap (2).
7. Remove dolly casters from positioned dolly, attach to the other dolly, and push other dolly to other end of shelter.
8. Align and mate each dolly to shelter, ensuring that ISO pins offset matches the elongation of the ISO sockets (7).
9. Rotate ISO pins 90 degrees outward and secure each pin in place with a castle nut (8). Secure castle nuts with attached safety pins (9) and, at the bottom of the adapter, ensure that the safety pins are inserted in both the locking plate (10) and the castle nut. (Ensure that the arrows on the locking pins are horizontal (-- >)).
10. Remove the safety straps and dolly casters, and store on front dolly.
11. Repeat the Uncoupling/Positioning/Coupling procedure for the rear dolly.
12. Stow the safety straps and dolly casters on the front dolly trailer in the space provided.

PREPARATION FOR USE - CONTINUED





**PREPARATION FOR USE - CONTINUED**

## Raising Dolly Set and Shelter

**WARNING**

Hands and feet should be kept clear of dolly and shelter when dolly is raised or is being raised.

**CAUTION**

Never lift the shelter until both dollies are securely attached to shelter. When raising the shelter, lifting must be done in unison to allow equal weight distribution.

1. Position tow vehicle for front dolly coupling.
2. Connect emergency (1) and service (2) air lines from the front dolly to the tow vehicle, ensuring proper routing.
3. Apply rear parking brakes by placing parking brake lever (3) on rear dolly to ON position.
4. Inflate all four air spring bags (4) until the black mark on each shock absorber is visible.
5. Connect the emergency air glad-hand (5) to the air assist adapter on the top of the air motors (6) for the air motors on the front dolly set hydraulic lift pumps (7).
6. Place the hydraulic pump release valves (8) to the PUMP position.
7. Manually pump rear dolly up in unison with front dolly to raise the dolly set. The front dolly will be pumped up using the air assist buttons on the hydraulic pump air motors. The air motors on the rear hydraulic pumps may be used if desired.

**CAUTION**

It is extremely important to raise the loaded dolly set evenly to avoid undesired stresses in portions of the dolly set.

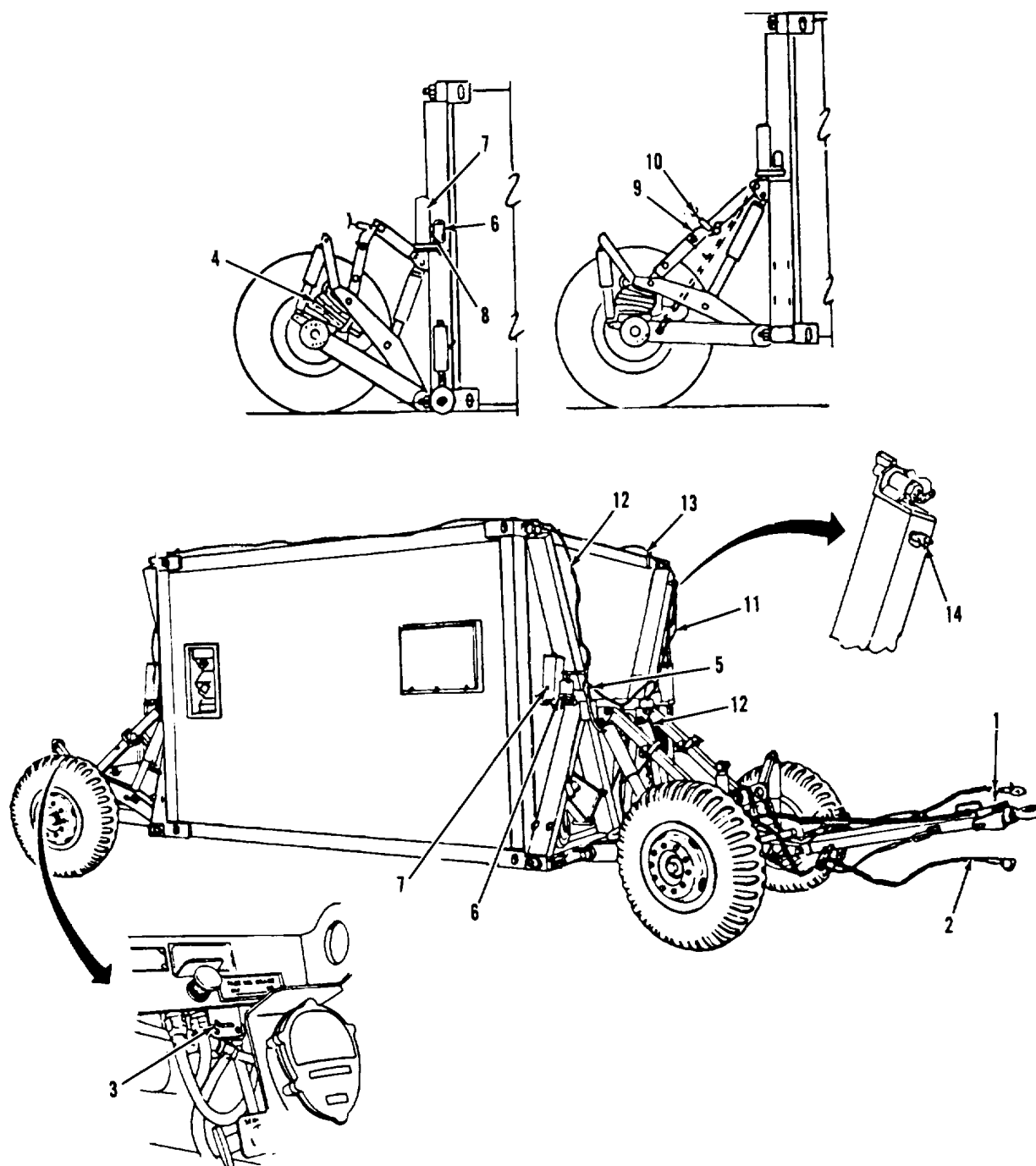
8. Continue to raise dolly set and shelter until strut knee joint (9) is locked straight. Lock all four strut clamps (10) when the strut knee joints are straight.

## PREPARATION FOR USE - CONTINUED

### Raising Dolly Set and Shelter - Continued

9. After all four struts are locked, bleed the pressure from the hydraulic cylinders by placing the hydraulic pump release valves to the REL position. This allows the hydraulic cylinders to collapse.
10. After the hydraulic cylinders have collapsed, retighten the valves finger tight.
11. Disconnect the emergency air source (5) from air assist adapter on the air motors (6) and route the interdolly electrical harness, and emergency and service air lines over shelter.
12. Connect emergency (11) and service (12) air lines and interdolly electrical harness (13) to the rear dolly glad-hands and electrical receptacle.
13. Route the intervehicular electrical harness (13), and emergency (11) and service (12) air lines over the shelter through the upper adapter safety clips (14).
14. Make the connections between dollies to the rear dolly receptacles. The brake air lines are connected to glad-hands on the vertical uprights of the rear adapter (9).
15. Connect one end of the intervehicular electrical cable (11) to the junction box (15) and the other end to the plug (16) on the rear electrical harness.

PREPARATION FOR USE - CONTINUED



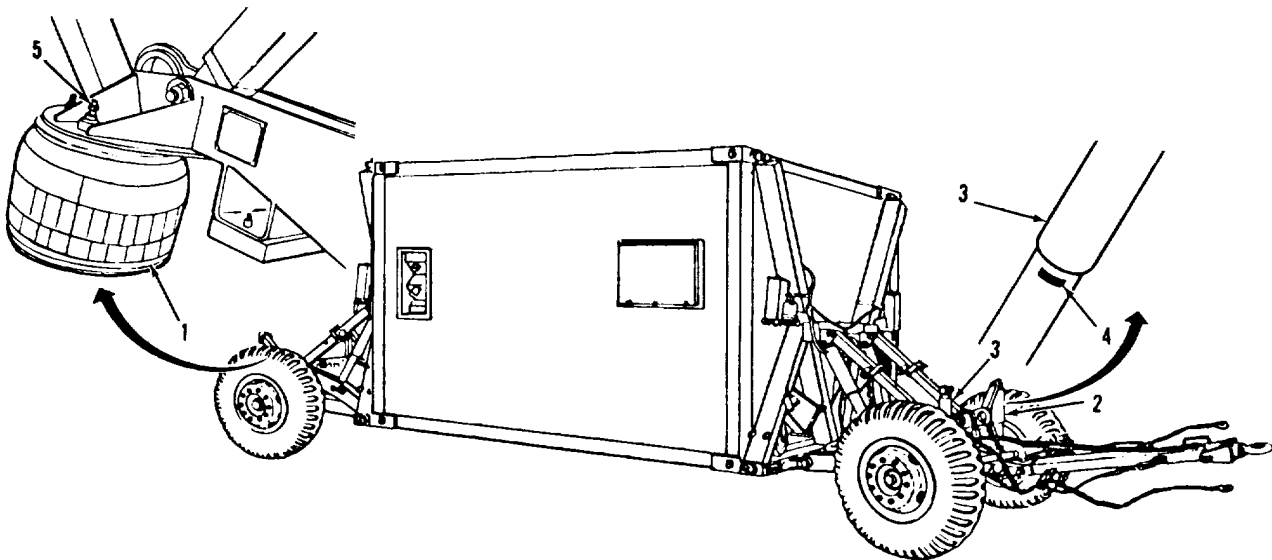
**PREPARATION FOR USE - CONTINUED**

## Adjusting Air Spring Riding Height

**NOTE**

Air springs should be checked for proper riding height only when the shelter has been raised and locked in place.

1. Ensure that the dolly set with attached shelter is on level ground.
2. Check all air spring (1) riding heights by observing the position of the black rectangles painted on the shock absorbers (2).
3. When the bottom edge of the shield (3) on the shock absorber, is above the black rectangle (4) painted on the body of the shock absorber, the air spring inflation is too high (over inflated).
4. If the air spring is over inflated, let air out of the air spring (by pressing the valve stem (5) on the air spring) until the bottom edge of the shield (3) and the top of the black rectangle (4) line up.
5. If the shock absorber shield (3) covers the black rectangle, the air spring pressure is too low.
6. If the air spring pressure is too low, add air (inflate) to each low air spring until the shield and the black rectangle line up.
7. When any one air spring is adjusted, check the other three air springs.
8. Inflate or remove air until all four air springs are at the correct riding height.



**PREPARATION FOR USE - CONTINUED****Shelter Leveling**

The shelter payload is leveled by raising or lowering the four hydraulic cylinders independently as necessary. There are two ways the shelter must be leveled: end-to-end and side-to-side.

1. To level shelter, close all hydraulic pump release valves (1) by moving valves clockwise to PUMP position.
2. Open all hydraulic cylinder valves.
3. Extend all hydraulic cylinders (2) by operating manual hydraulic pumps until all cylinders are extended (leave pump control lever closed).
4. Remove the individual safety lockout pins (3) from struts (4) and free the individual mechanical struts.
5. Close all hydraulic cylinders by placing hydraulic pump release valve in PUMP position.

**WARNING**

Turning the pump release valve too quickly will allow the shelter to drop rapidly, causing possible damage to equipment and/or personnel injuries. Stand clear of the dolly set and shelter during lowering operation

6. To level the shelter end-to-end, SLOWLY open the hydraulic pump release valves for both cylinders to be raised/lowered at the high end of the shelter by moving the associated hydraulic pump release valves to the REL position(counter-clockwise).
7. Slowly turn pump release valve back and forth between PUMP and RELEASE positions as required.
8. Gently lower shelter at high end until both ends of the shelter are at the same height (level).
9. To level the shelter side-to-side, decide which side of the shelter is higher.
10. Open the hydraulic cylinders, one on each dolly, on the cylinders on the high side of the shelter by placing pump release valve to REL position.
11. Slowly turn pump release valves on the hydraulic pumps on the high side of the shelter back and forth between PUMP and RELEASE positions as required.

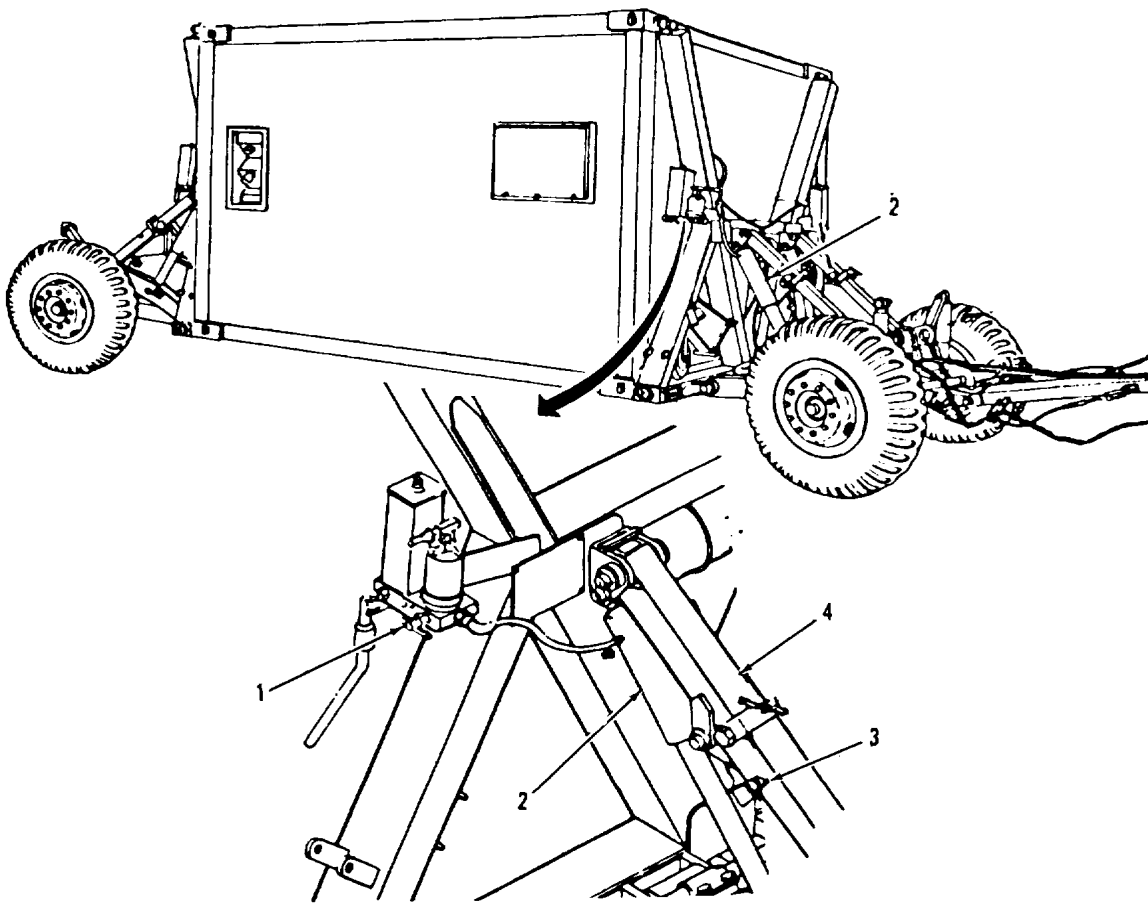
**PREPARATION FOR USE - CONTINUED**

## Shelter Leveling - Continued

**NOTE**

Additional leveling adjustment can be obtained by removing the bolts attaching the platform at either side on the rear dolly. This will lower arm assembly. The bolts at the front dolly can also be removed to provide additional leveling adjustment.

12. Gently lower shelter at high side until both sides of shelter are at the same level.
13. Close all hydraulic cylinders by placing hydraulic pump release valves to the PUMP position.



## PREPARATION FOR USE - CONTINUED

### Coupling Dolly Set With or Without Shelter to Tow Vehicle

1. Back up tow vehicle and position near tow bar (1) on front dolly.
2. Hook dolly set tow bar (1) to pintle hook on tow vehicle.
3. Hook up safety chains (2) to tow vehicle.
4. Connect intervehicular electrical cable (front harness) (3) between tow vehicle and front dolly junction box (4).

#### NOTE

If tow vehicle voltage is 12 VDC use connector J2 on the dolly junction box; if tow vehicle voltage is 24 VDC use connector J3. (Connector J3 uses resistors to step the voltage down to 12 VDC.)

5. Ensure chains and electrical cables don't drag. Prior to Towing Check List

### Prior to Towing Check List

#### WARNING

Failure to accomplish the necessary checks listed below could result in damage to the dolly set and/or injury to personnel. Prior to towing the dolly set, complete the following checklist to ensure that the dolly set and tow vehicle are ready.

1. Check chains (2) and cables (3) between tow vehicle and front dolly for proper routing, and ground clearance.
2. Check all air hoses (5) and (6) and electrical cable connections between tow vehicle and dolly set and between front dolly and rear dolly. The air hoses and electrical cables should be routed over the top of the shelter and clipped to the top of the front adapter.
3. Make sure clamps (7) on mechanical struts (8) are tight, and strut assembly lockout pins are fully inserted in the RIDE position for towing vehicle.
4. Check tire air pressures (9) and inflate/deflate to proper pressure. (See stencil on dolly for proper inflation.)
5. Check air springs (10) riding height as indicated on shock absorbers (11) to ensure that air pressure is correct. Correct any discrepancies.
6. Make sure dolly parking brakes are off on rear dolly.

**PREPARATION FOR USE - CONTINUED**

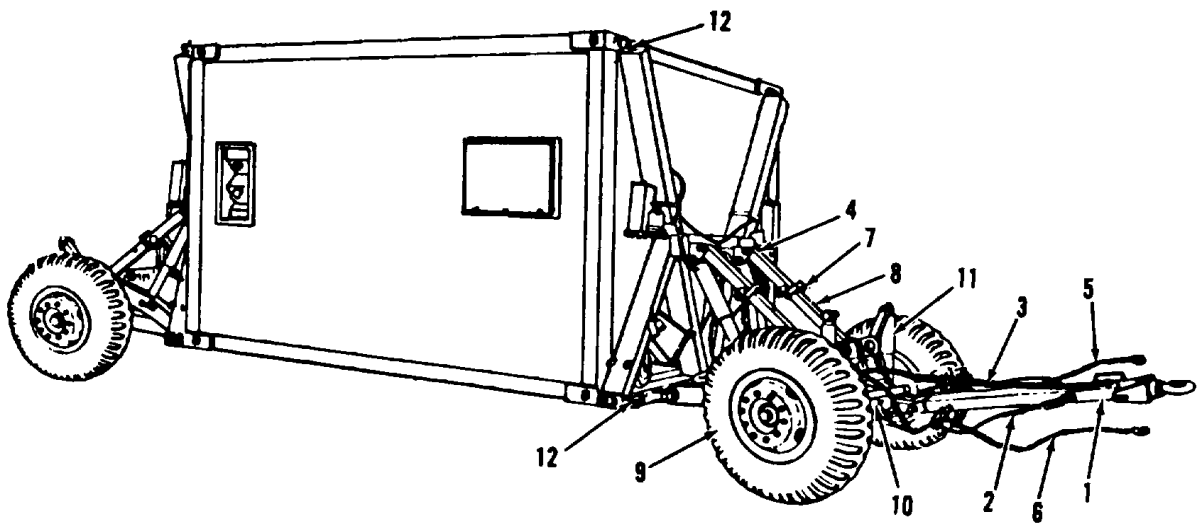
## Prior to Towing Check List - Continued

7. Make an operational check of the electrical system by checking tow vehicle and dolly set brake lights, running lights, turn signals, and blackout lights.
8. Double check that all ISO interface bolts (12) are tight and properly installed, and that all castle nuts are tight and all safety pins are correctly inserted and locked. If properly installed, the arrows on the ends of the pins will be horizontal to the right or left.

**CAUTION**

Never tow more than one loaded dolly set.

9. Make sure that only one loaded dolly is being towed.
10. Ensure that front and rear auxiliary brake control valves are in the extended position. That indicates sufficient air pressure from prime mover for dolly set brake system.





**OPERATION****Driving**

When driving towing vehicle with dolly set coupled, the overall length of the unit must be kept in mind when passing other vehicles or turning.

**Turning**

When turning corners, allow for the fact that dolly wheels turn inside the turning radius of the towing vehicle. Make a right turn at a road intersection by driving the towing vehicle about halfway into the intersection and then cut sharply to the right. This will keep dolly wheels off the curb.

**Stopping**

The brakes of the towing vehicle and dolly set are applied at the same time when stopping. Pressure to the brake pedal must be applied gradually and smoothly.

**Parking**

When leaving the towing vehicle and dolly set unattended, set the parking brakes on the towing vehicle and rear dolly. Turn off engine before leaving cab of towing vehicle.

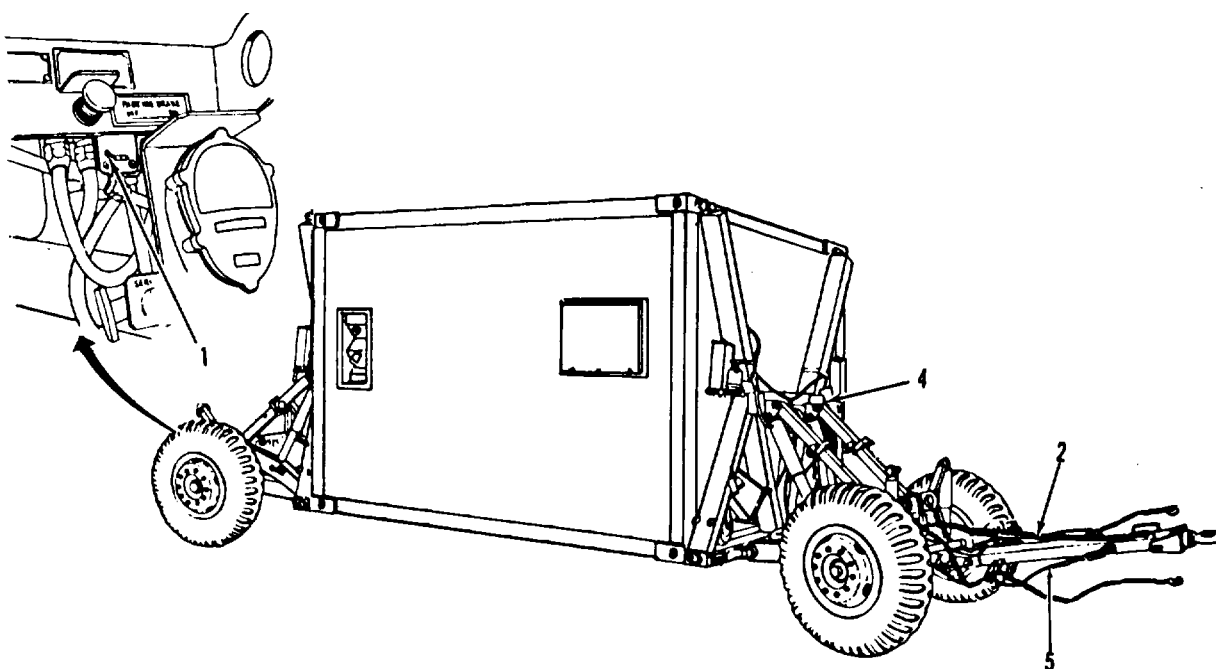
**Backing Up****CAUTION**

Avoid reverse motion (backing up) of the dolly set whenever possible. When backing up is necessary, remove restraining cables from the second mounting position to forward. This prevents the towbar from misalignment.

**AFTER USE**

## Uncoupling Loaded Dolly Set from Tow Vehicle

1. Park the shelter as close as possible to its final position.
2. Apply dolly set parking brakes by moving parking brake lever (1) to ON position.
3. Disconnect intervehicular electrical cable (front harness) (2) between tow vehicle and dolly junction box (3).
4. Disconnect emergency and service air hoses.
5. Disconnect safety chains (4) from tow vehicle and stow on tow bar.
6. Release dolly tow bar lunette from pintle hook of tow vehicle.



**AFTER USE - CONTINUED**

## Lowering Dolly Set and Container/Shelter

**WARNING**

Attempting to lower a dolly set and attached shelter, while dolly set is still coupled to the tow vehicle could result in personal injury and/or damage to the dolly set and the container/shelter.

1. Ensure the loaded dolly set (transporting the container/shelter) has been uncoupled from the tow vehicle and is not attached to the tow vehicle in any way (electrical cables, brake cables (air hoses), safety chains, etc.)
2. Ensure the dolly set tow bar lunette (1) has been detached from the pintle hook on the tow vehicle.

**CAUTION**

Never lower a dolly set with the tow bar in the raised position as damage may occur to the shelter front wall.

3. Place the dolly set tow bar (2) on the ground.
4. Ensure that all hydraulic pump release valves (3) are closed in the PUMP position.

**WARNING**

Pushing the safety pins from the strut assemblies using the fingers should not be attempted under any circumstances as the fingers could be severed if the strut released with a finger in the pin hole.

**NOTE**

Adapter arms must remain vertical until contact is made with the ground. If adapter arms are tilted, the sides are not being lowered at the same rate.

5. Each crewman should loosen his strut assembly by unscrewing clamps (4). Care fully, with hands and fingers away from struts (5), pump hydraulic pump handles (6) until cylinders open strut knee joints at pivot points (7). Apply hand pressure on the inside of pivot point (7) to open struts, being extremely careful not to allow fingers in a potential "pinch point. The struts (5) must break open at this point.
6. An alternate method to break the strut can be accomplished by applying hydraulic pressure to cylinders (8) that will remove pressure from the pins so the pins can be easily removed. (DO NOT ATTEMPT TO PUSH OUT SAFETY PINS WITH FINGERS!).

**AFTER USE - CONTINUED**

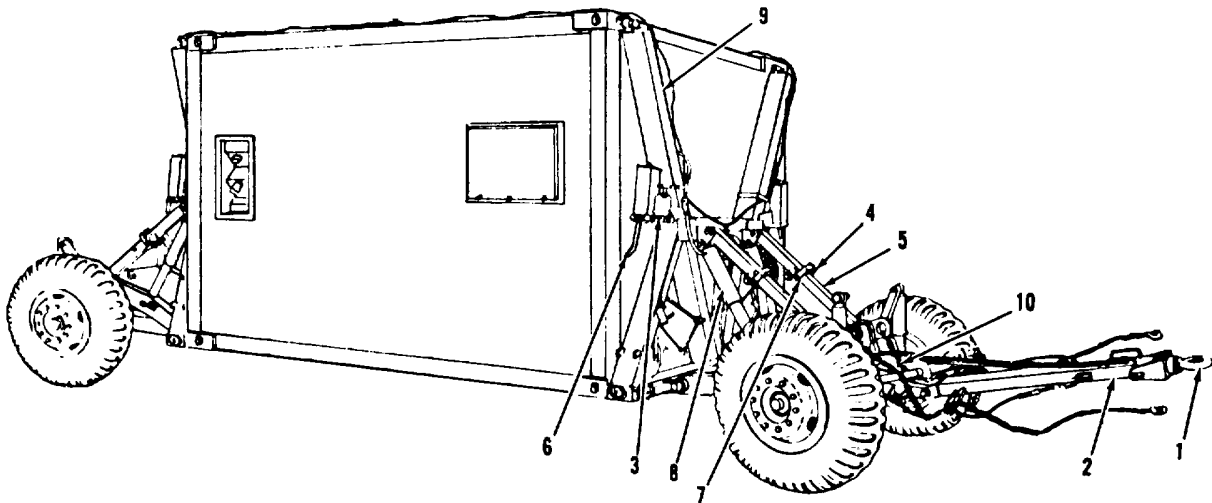
## Lowering Dolly Set and Container/Shelter - Continued

7. Slowly, in unison (all four crewmen), open the hydraulic pump release valves by turning valves (3) counterclockwise to the REL (Release) position. This will lower all cylinders in unison ensuring that the strut knee joint (7) is bending and is not locked straight.

**CAUTION**

Serious damage to dolly set can result if only one strut knee joint is locked straight and lowering operation is continued. Lowering operation should be stopped immediately if strut knee joint remains locked straight.

8. Check for obstructions that could prevent strut knee joints from bending.
9. Ensure that strut knee joints (7) are bending. Stop operation immediately if strut knee joints are not bending and are locked straight.
10. Lower all four sides of dolly set to ground in unison, ensuring that adapter arms (9) remain vertical (not tilted) while lowering dolly sets until contact is made with the ground. Tilted adapter arms means that one side is lowering faster or slower than the others. However, to correct this condition, open the valves (REL position) on the pumps of the tilted adapter and close the valves (PUMP position) on the other. Activate hydraulic pumps until adapters are in a vertical (straight) position.
11. Reduce pressure in all four air springs (10) to 10 PSI after contact is made with the ground.



**AFRER USE - CONTINUED**

## Uncoupling Dolly Set From Shelter

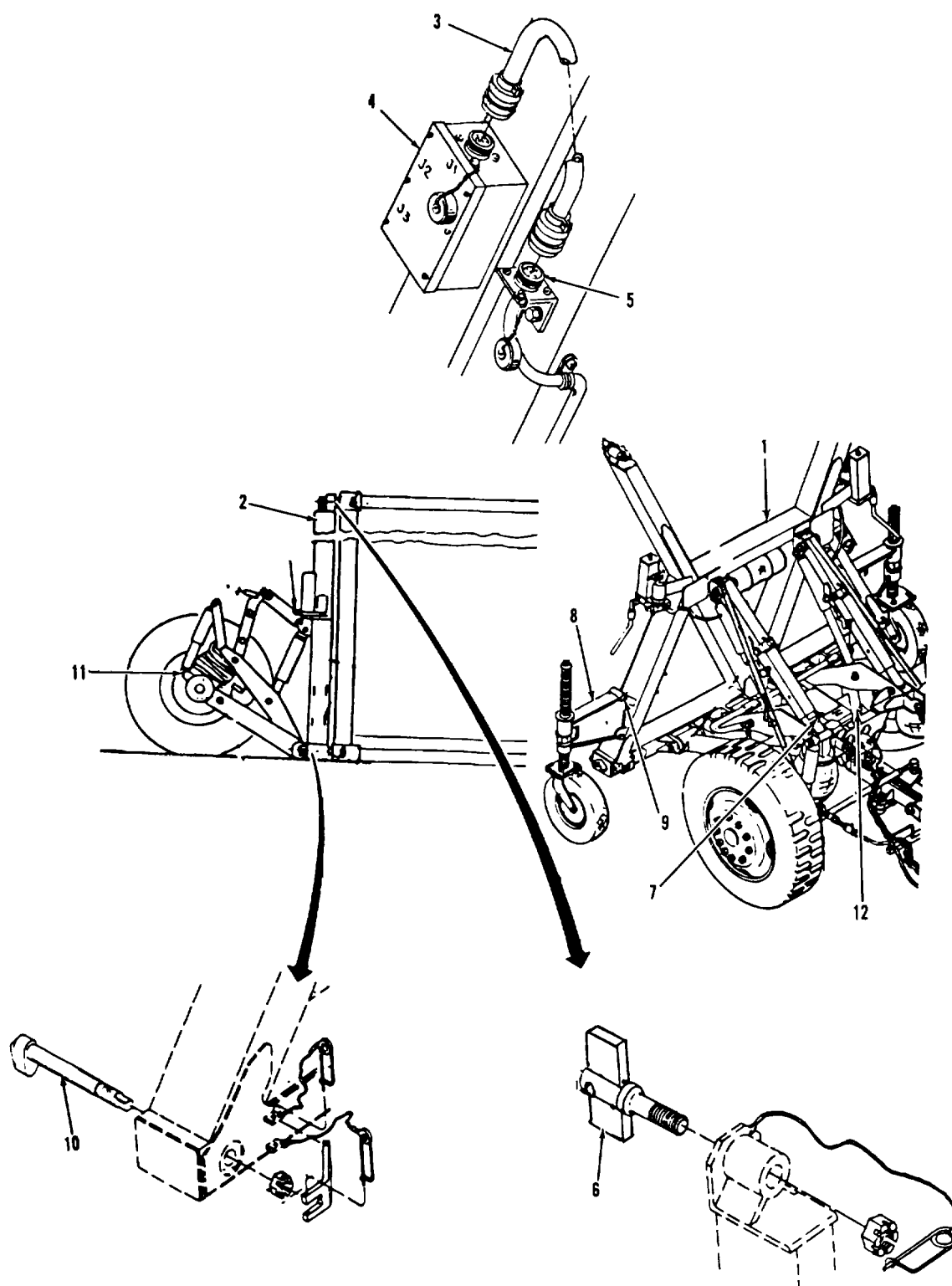
**WARNING**

Uncoupling the dolly set from the shelter should not be attempted unless the shelter is resting firmly on the ground.

1. When the shelter is resting firmly on the ground, disconnect the intervehicular brake air lines from the front (1) and rear (2) dollies.
2. Stow the brake air hoses on the rear dolly (2).
3. Disconnect the interdolly electrical cable (3) between front dolly junction box (4) and rear dolly connector (5).
4. Stow the interdolly electrical cable on the rear dolly (2).
5. Remove the upper ISO pins (6) from both the front and rear shelter ISO.
6. Stow the pins and sockets in the tool box (7).
7. Remove the dolly caster assemblies (8) from stowage on the front dolly by pulling out retaining pins (9).
8. Install the dolly casters on the rear dolly (2).
9. Adjust the dolly caster (8) to permit movement of lower ISO pins.
10. Remove the lower ISO pins (10) from the shelter.
11. Release rear dolly parking brake by moving parking brake lever (11) to OFF position.
12. Depress auxiliary brake control knob (12) to release service brakes.
13. Pull rear dolly away from container/shelter.
14. Set rear dolly parking brake by moving parking brake lever (11) to ON position, or pull out auxiliary brake control knob (12) to apply service brakes.
15. Adjust dolly caster assemblies (8) to allow rear dolly to rest on the ground.
16. Remove dolly caster assemblies (8) from rear dolly.
17. Install dolly caster assemblies on front dolly (1).
18. Remove the lower ISO pins from the front of the container/shelter.

# AFTER USE - CONTINUED

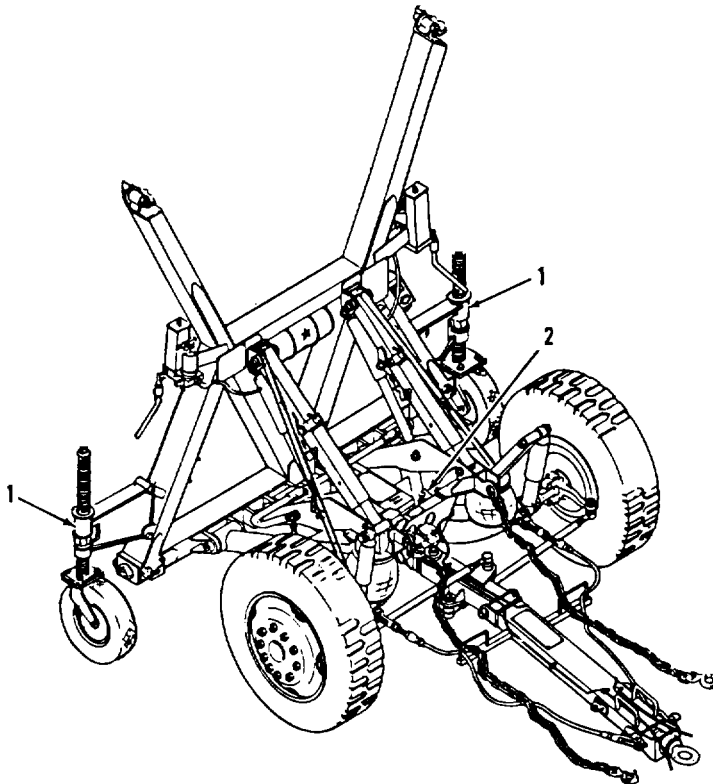
## Uncoupling Dolly Set From Shelter - Continued



## AFTER USE - CONTINUED

### Uncoupling Dolly Set From Shelter - Continued

19. Depress auxiliary brake control knob (2) to release service brakes. Adjust the dolly caster assemblies (1) to permit dolly movement.
20. Pull front dolly away from container/shelter.
21. Adjust dolly caster assemblies (1) to allow front dolly to rest on the ground.



**AFTER USE - CONTINUED****Coupling Front and Rear Dollies Together**

1. Remove the dolly caster assemblies from the front dolly.
2. Line up front dolly adapter (1) with rear dolly adapter (2).
3. Place mounting bolts (3) on top and bottom of adapters and secure adapters with nuts (4) and safety pins (5), making sure nuts are tight.

**NOTE**

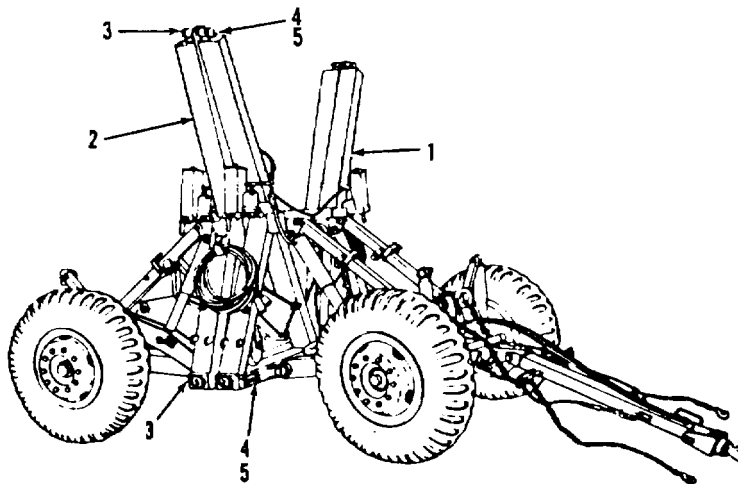
Tow bar and positioning casters should be used to move dollies into place as necessary.

4. Turn all hydraulic pump release valves to the PUMP position.
5. Pump up all hydraulic cylinders in unison until the mechanical struts for each are fully extended straight out.
6. Lock struts in position by screwing down the strut clamps.
7. Turn the hydraulic pump release valves to the REL position. Then, tighten the valves finger tight.

**CAUTION**

Air spring riding height should be checked before attempting to tow empty dolly sets.

8. Check air spring riding height.





**AFTER USE - CONTINUED**

## Towing in Train (Two Empty Dolly Sets Maximum)

1. Couple front empty dolly set tow bar (1) to tow vehicle and safety chains.

**CAUTION**

Pinching or mashing of air brake line could result in brake failure.

2. Attach brake lines of first dolly to tow vehicle.
3. Attach electrical cable (2) from first dolly to tow vehicle.
4. Connect brake jumper cable from front half to rear half on first dolly set.
5. Hook up second empty dolly set tow bar (6) to pintle (7) of first dolly set.
6. Connect rear dolly set safety chains (8) to lifting eyes (9) at rear of front dolly set.
7. Connect intervehicular electrical cable (4) from first dolly junction box (3) to rear of second dolly set. Ensure that cables are not dragging on ground, or in danger of being cut or damaged.
8. Connect brake air hoses from second dolly to rear of first dolly.

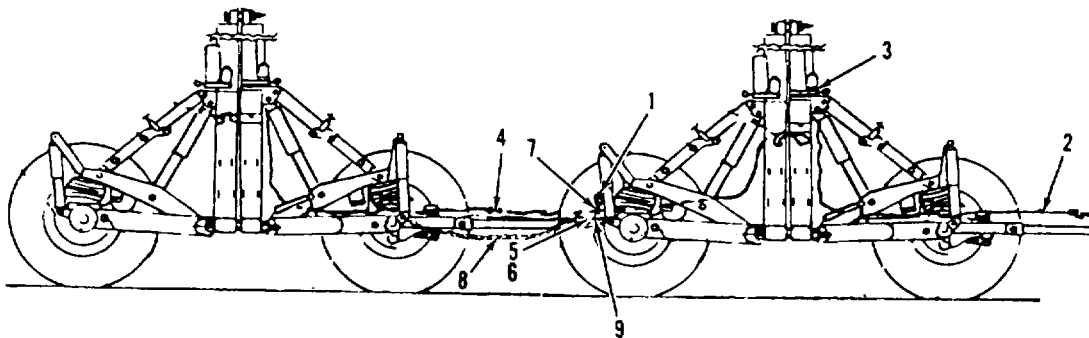
**WARNING**

Failure to open cut-out valves on quick disconnect air lines at the rear (platform) of the front dolly set will inhibit air supply from being available for second dolly brake system.

9. Open shut-off cocks at rear brake air lines gladhands (5) at the rear (platform) of the front dolly set.
10. Perform complete tow check (page 2-33) prior to towing empty dolly sets in tandem.

**AFTER USE - CONTINUED****Uncoupling Two Empty Dolly Sets Towed In Train**

1. After tow vehicle has completely stopped, apply the hand-operated parking brake (1) on the rear dolly by placing lever to ON position. Brakes are applied automatically when dolly is disconnected from prime mover.
2. Remove the intervehicular electrical cable (front harness) (2) between the tow vehicle and the junction box (3) on the first dolly set and the interdolly cable (4) between the junction box and the rear dolly harness (and the intervehicular connection cable between the two dolly sets).
3. Coil the electrical cable and stow in strap mounted on curbside of rear dolly adapter.
4. Remove service and emergency brake air hoses between quick disconnect gladhand (5) on platform of first dolly and connect to quick disconnect gladhand on tow bar (6) of second dolly.
5. Coil the service and emergency brake air hoses and stow in strap mounted on roadside of rear dolly adapter.
6. Remove safety chains of second dolly set from lifting eyes (9) on platform of first dolly set.



## Section IV OPERATION UNDER UNUSUAL CONDITIONS

	Page		Page
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Operation in Extreme Cold .....	2-49	Operation in Saltwater Areas .....	2-49
Operation in Extreme Heat .....	2-49	Operation in Sandy or	
Operation in Mud .....	2-50	Dusty Areas .....	2-50
Operation in Rainy or Humid .....		Operation in Snow .....	2-50
Conditions .....	2-50		

### OPERATION IN EXTREME HEAT

1. Do not park dolly set in sunlight for long periods of time. Heat and sunlight shorten the life of tires. If possible, shelter or cover dolly set.
2. Maintain correct tire inflation pressure.

### OPERATION IN EXTREME COLD

1. Extreme cold can cause lubricants to thicken or congeal, insulation to crack, and cause electrical short circuits, and construction materials to become hard, brittle, and easily damaged or broken. Tow the dolly set very slowly for the first 100 yards. Normal operation temperature for the lubricant should be reached by then.
2. Tires may freeze to the ground or have a flat spot if under inflated.
3. Brake shoes may freeze to the brake drums and need to be heated to prevent damage to mating surfaces. Check brakes before operation. After moving the initial 100 yards, normal operating temperatures should be reached.
4. Refer to FM 9-207 and FM 21-305 for special instructions on driving hazards in extreme cold.
5. When parking short term, if high, dry ground is not available, place a footing of planks or brush under dolly wheels.
6. Clean all parts of the dolly set immediately after operation.

### OPERATION IN SALTWATER AREAS

Saltwater will cause rust and corrosion. Clean, inspect, and lubricate often.

### OPERATION ON ROCKY TERRAIN

1. Tires must be fully inflated to 50 psi (344 kPa) when moving on rough or rocky terrain. Underinflation will cause internal ruptures of the tires and damage to the tubes.

**OPERATION ON ROCKY TERRAIN . CONTINUED**

2. Before driving over stumps or rocks, make sure the dolly set can clear them. Such objects can damage components on the under side of the dolly set. Beware of low hanging tree limbs that can cause damage to the shelter.

**FORDING****Before Fording**

1. Before entering water, check the bottom surface condition. If bottom surface is too soft, do not attempt fording.

**After Fording**

2. After coming out of water, apply the brake a few times to help dry out the brake linings. Make sure the dolly brakes are working properly before driving at normal speeds.
3. Drain or dry all wet areas.
4. Lubricate all unpainted surfaces. See lubrication chart, page 4-2.
5. Dry all lubricating points and lubricate them. See lubrication chart, page 4-2.

**OPERATION IN RAINY OR HUMID CONDITIONS**

Inspect, clean, and lubricate inactive equipment often to stop rust and fungus.

**OPERATION IN SANDY OR DUSTY AREAS**

1. Clean, inspect, and lubricate more often in dusty or sandy areas.
2. Reduce tire inflation to 25 psi for operation in beach and desert sand.
3. Be sure to return tire air pressure to normal after sand operation (50 psi/344.8 kPa).

**OPERATION IN SNOW**

Refer to FM 21-305 for special instructions on operations in snow.

**OPERATION IN MUD**

1. Reduce tire inflation to 25 psi while operating in soft mud, if practical.
2. If one or more wheels sink into the mud, you may need to jack up the mired wheel and put planking or matting under it.
3. Clean off all mud after operation.

## CHAPTER 3

### OPERATOR MAINTENANCE

#### OVERVIEW

This chapter contains all the lubrication, troubleshooting, and maintenance instructions and procedures authorized at operator level.

		Page
Section I.	Lubrication Instructions .....	3-1
Section II.	Operator Troubleshooting Procedures .....	3-1
Section III.	Operator Maintenance Procedures .....	3-4

#### Section I LUBRICATION INSTRUCTIONS

Lubrication under usual and unusual conditions and the lubrication chart for the dolly set are contained in organizational maintenance, chapter 4.

#### Section II OPERATOR TROUBLESHOOTING PROCEDURES

	Page		Page
Explanation of Columns .....	3-1	Operator Troubleshooting	
Introduction .....	3-1	Table .....	3-2
		Symptom Index .....	3-2

#### INTRODUCTION

This section lists the common malfunctions that may be found during the operation of the dolly set or components. Perform the test/inspection and corrective action in the order listed.

This table cannot list all the malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed, or if it is not corrected by the listed corrective action, notify your supervisor.

#### EXPLANATION OF COLUMNS

MALFUNCTION	Visual or operational indication that something is wrong with your equipment.
TEST OR INSPECTION	Procedure used to isolate the problem to a system or component.
CORRECTIVE ACTION	Procedure used to correct the problem.

#### SYMPTOM INDEX

This symptom index is provided as a quick way to get you to the part of the trouble-shooting table that will help you solve the problem you are having. It lists all the malfunctions covered in the organizational troubleshooting table.

**SYMPTOM INDEX - CONTINUED**

	Page
<b>BRAKES</b>	
Brakes will not hold or brakes are locked.....	3-3
Parking brake will not hold .....	3-3
Parking brake will not release .....	3-4
<b>ELECTRICAL SYSTEM</b>	
One or more lamps do not light, are dim, or flicker .....	3-2
<b>TIRES</b>	
Tires are scuffed or excessively worn .....	3-4

**OPERATOR TROUBLESHOOTING****MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****ELECTRICAL SYSTEM****1. ONE OR MORE LAMPS DO NOT LIGHT, ARE DIM, OR FLICKER**

Step 1. Turn on towing vehicle lights. (See operator's manual for towing vehicle.)

- a. If lamps on the towing vehicle light, go to step 2.
- b. If lamps on the towing vehicle do not light, notify organizational maintenance.

Step 2. Disconnect intervehicular cable (front harness) from towing vehicle. Check for damaged or corroded pins.

- a. If connector pins are damaged or corroded, notify organizational maintenance.
- b. If connector pins are not damaged or corroded, reconnect the intervehicular cable to towing vehicle. If lamps still malfunction, go to step 3.

Step 3. Disconnect the interdolly cable on the dolly set. Check connectors for damaged or corroded pins.

- a. If connector pins are damaged or corroded, notify organizational maintenance.
- b. If connector pins are not damaged or corroded, reconnect the interdolly cable. If lamps still malfunction, notify organizational maintenance.

## OPERATOR TROUBLESHOOTING - CONTINUED

---

<b>MALFUNCTION</b>
<b>TEST OR INSPECTION</b>
<b>CORRECTIVE ACTION</b>

---

### BRAKES

#### 2. BRAKES WILL NOT HOLD OR BRAKES ARE LOCKED

Step 1. Check air pressure gage in towing vehicle for a minimum of 80 psi.

- a. If pressure is sufficient, go to step 2.
- b. If pressure is too low and will not build up, notify organizational maintenance.

Step 2. If towing vehicle is equipped with airline shut off valves (cut-off cocks) at the gladhands, make sure they are turned on all the way. (Refer to operator's manual for towing vehicle.)

- a. If towing vehicle is not equipped with airline shut off valves, go to step 3.
- b. If airline shut off valves are turned on all the way, go to step 3.

Step 3. Make sure that intervehicular air brake hoses (both service and emergency brake lines) are properly connected to the towing vehicle.

- a. If hoses are not connected properly, disconnect and reconnect the gladhands.
- b. If hoses are properly connected, notify organizational maintenance.

Step 4. Check that auxiliary brake controls are operating properly.

- a. If auxiliary brake control valves are operating properly, notify organizational maintenance.
- b. If auxiliary brake controls are not operating properly, notify organizational maintenance to replace auxiliary brake controls.

#### 3. PARKING BRAKE WILL NOT HOLD

Check parking brake lever for correct operation.

- a. If parking brake lever is not operating properly, notify organizational maintenance.
- b. If parking brake needs adjustment, notify organizational maintenance.

## OPERATOR TROUBLESHOOTING - CONTINUED

---

<b>MALFUNCTION</b>
<b>TEST OR INSPECTION</b>
<b>CORRECTIVE ACTION</b>

---

### 4. PARKING BRAKE WILL NOT RELEASE

Step 1. Check that parking brake air system is charged to at least 80 psi.

- a. If pressure is sufficient, go to step 2.
- b. If pressure is too low and will not build up, notify organizational maintenance. (Parking brake may be manually released by following procedure on rear dolly platform data plate or page 4-92.)

Step 2. Check that air is being introduced into the brake spring chamber via the parking brake lever.

- a. If air is not being released into the spring chamber notify organizational maintenance.
- b. If air is being released into the spring chamber, but the brake is still not being released, manually release the parking brake using the manual release tool and notify organizational maintenance.

## TIRES

### 5. TIRES ARE SCUFFED OR EXCESSIVELY WORN

Check that tire pressure is 25 psi (172.4 kPa) for cross-country and 50 psi (344.8 kPa) for highway.

- a. If tire pressure is incorrect, inflate or deflate tires to the correct pressure.
- b. If the tire pressure is correct, notify organizational maintenance.

## Section III OPERATOR MAINTENANCE PROCEDURES

	Page		Page
Casters.....	3-7	Introduction .....	3-4
Intervehicular Cable .....	3-9	Wheel, Tire and Tube .....	3-5

## INTRODUCTION

This section contains the maintenance procedures which may be accomplished by the operator.



## WHEEL, TIRE, AND TUBE

---

This task covers:

- a. Service
  - b. Removal
  - c. Installation
- 

### INITIAL SETUP

#### Tools

General mechanics tool set  
Air pressure gage  
Hydraulic jack  
Wheel nut socket wrench

#### Equipment Condition

No special requirements

---

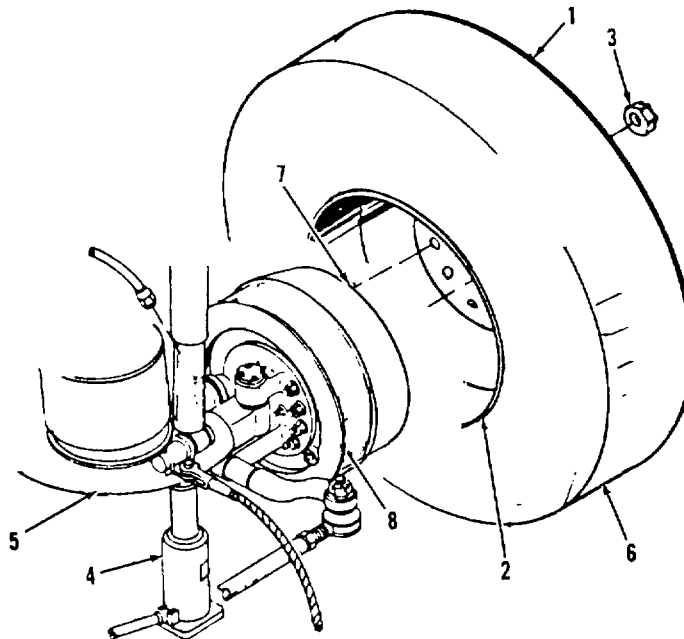
LOCATION	ITEM	ACTION	REMARKS
SERVICE			
1 Wheel and tire (1)	Inner tube valve stem (2)	<ul style="list-style-type: none"> <li>a. Check air pressure in each tire.</li> <li>b. Inflate tire to proper pressure as necessary (page 1-11).</li> <li>c. If tire continues to lose air, proceed to removal of wheel and tire below.</li> </ul>	
REMOVAL			
<p style="text-align: center;"><b><u>CAUTION</u></b></p> <p>Chock other wheels and tires of dolly before removing any wheel and tire.</p>			
2 Wheel and tire (1)	Ten nuts (3)	<p>Using wheel nut socket wrench, loosen nuts (3).</p> <p><b>Do not remove at this time.</b></p> <p style="text-align: center;"><b><u>CAUTION</u></b></p> <p>Ensure that applicable lower adapter is fully supported prior to raising damaged tire with hydraulic jack to avoid possible equipment damage.</p>	
3 Hydraulic jack (4)		Using hydraulic jack (4) placed under lower adapter (5), raise lower adapter (5) until wheel (6) is off the ground.	
4 Ten nuts (3)		Using wheel nut socket wrench, take off nuts (3) from hub studs (7).	

## WHEEL, TIRE, AND TUBE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
5	Wheel and tire (1)	Take off wheel and tire (1).
INSTALLATION		
6	Wheel and tire (4)	Place wheel and tire (1) on hub (8).
7	Ten nuts (3)	Using wheel nut socket wrench, screw nuts (3) on hub studs (7) until snug.
8	Hydraulic jack	a. Using hydraulic jack (4) lower, lower adapter. b. Take hydraulic jack (4) from under lower adapter (5).
9 Frame	Ten nuts (3)	Using wheel nut wrench, tighten nuts (3).

### NOTE

Have organizational maintenance torque nuts (3) to 450-500 lb ft as part of your after operation PMCS.



**TASK ENDS HERE**

## CASTERS

---

This task covers:

- a. Removal
  - b. Service
  - c. Installation
- 

### INITIAL SETUP

#### Tools

General mechanics tool set  
Tire pressure gage  
External air source

#### Equipment Conditions

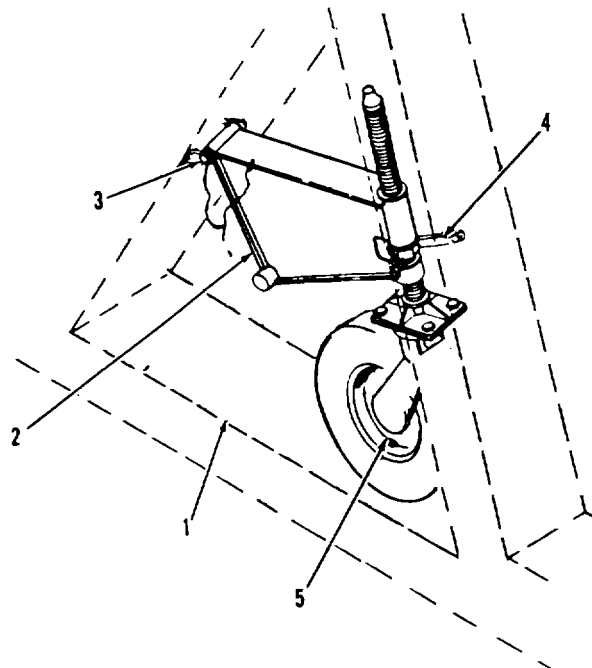
No special requirements

---

LOCATION	ITEM	ACTION REMARKS
REMOVAL		
1 Front adapter (1)	Caster assembly (2), pin (3) and strap (4)	Remove casters (2) from stored position on front adapter (1) by: a. Removing pin (3) securing caster to front adapter, and b. Releasing strap (4) holding caster assembly (2) in place.
2 Caster assembly (2)		Place on solid surface.
SERVICE		
3 Caster (2)	Valve stem (5)	Check air pressure in tire for correct pressure (90 psi).
4		Inflate tire as necessary.

## CASTERS - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
INSTALLATION			
5 Front adapter (1)	Caster assembly (2)	Place caster assembly (2) in storage position on front adapter (1).	
6 Caster assembly (2)	Pin (3)	Attach caster assembly (2) to front adapter by inserting pin (3).	
7	Strap (4)	Secure caster assembly (2) to front adapter (1) with strap (4).	



**TASK ENDS HERE**

INTERVEHICULAR CABLE

This task covers

- a. Removal
- b. Installation

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

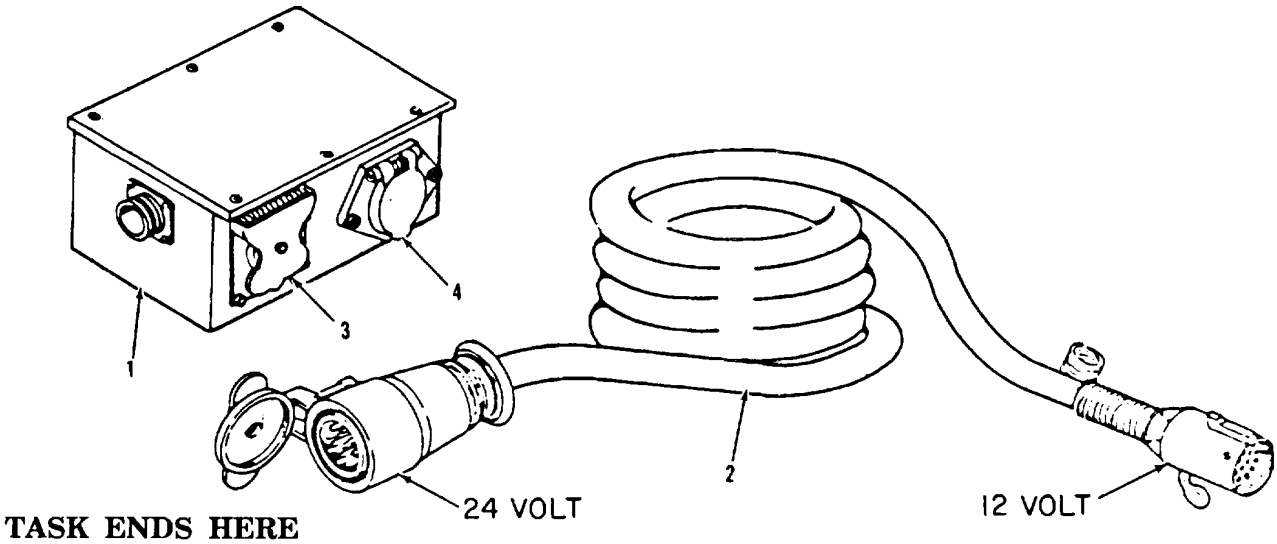
NOTE

When dolly set is connected together without a shelter, the front harness assembly (intervehicular cable) is coiled and secured to the roadside of the rear dolly.

1 Junction box (1)	Intervehicular cable harness (2), 12 volt connector J2 (3), and 24 volt connector J3 (4) on junction box	Remove front intervehicular harness connector P2 from junction box 12 volt connector J2, or remove front intervehicular harness connector P3 from junction box 24 volt connector J3, as applicable.
--------------------	--	---

INSTALLATION

1 Junction box (1)	Connectors J2 (3) and J3 (4) on junction box	Connect front intervehicular harness connector P2 to junction box connector J2 (3), or connect front intervehicular connector P3 to junction box connector J3 (4), as applicable, depending upon towing vehicle battery voltage.
--------------------	--	--



## CHAPTER 4 UNIT MAINTENANCE

### OVERVIEW

This chapter contains all the maintenance authorized to be performed by unit maintenance.

		Page
Section I	Lubrication Instructions .....	4-1
Section II	Repair Parts; Special Tools; Test, Measurement, and Diagnostic Equipment (TMDE); and Support Equipment .....	4-7
Section III	Service Upon Receipt .....	4-7
Section IV	Unit Preventive Maintenance Checks and Services (PMCS) .....	4-9
Section V	Unit Troubleshooting Procedures .....	4-16
Section VI	Cleaning and Inspection Instructions .....	4-41
Section VII	Electrical System Maintenance .....	4-43
Section VIII	Steering System Maintenance .....	4-62
Section IX	Brake System Maintenance .....	4-79
Section X	Hub and Brake Drum maintenance .....	4-145
Section XI	Frame and Towing Attachment Maintenance .....	4-151
Section XII	Suspension System Maintenance .....	4-167
Section XIII	Accessory Item Maintenance .....	4-176
Section XIV	Hydraulic Lift System Maintenance .....	4-182
Section XV	Preparation for Storage or Shipment .....	4-191

### Section I LUBRICATION INSTRUCTIONS

Lubrication Instructions .....	4-1	Lubrication Chart .....	4-2
--------------------------------	-----	-------------------------	-----

### LUBRICATION INSTRUCTIONS

#### General

Keep all lubricants in closed containers and store in a clean, dry place, away from external heat. Keep container covers clean and allow no dust, dirt, or other foreign material to mix with the lubricants. Keep all lubrication equipment clean and ready for use.

#### Cleaning

Keep all external parts not requiring lubrication free of lubricants. Before lubricating the equipment, wipe all lubrication points free of dirt and grease. Clean all lubrication points after servicing to prevent accumulation of foreign matter. Lubrication Interval

Service the lubrication points at the proper intervals as specified in the lubrication chart. The intervals specified are based on operation under normal conditions. Modification of the recommended intervals may be required under unusual operating conditions.

## LUBRICATION CHART

1. For lubrication under normal conditions, refer to the lubrication chart on the following page.
2. For instructions on lubrication in weather below 0° (-18°C), refer to FM 9-207.
3. After operating in mud, dust, sand, or other unusual conditions, clean and inspect all lubrication points. Lubricate dolly set in accordance with the lubrication chart.

### LUBRICATION CHART

#### DOLLY SET, TRANSPORTABLE SHELTER M1022

Intervals (on-condition or hard-time) 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 hard-time interval if your lubricants are contaminated or if you are operating the equipment under adverse operating conditions, including fording. The interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken.

##### NOTE

LV is Localized View.

Dotted leader lines indicate lubrication is required on both sides of the equipment.

##### WARNING

Drycleaning solvent PD-680 used to clean parts is potentially dangerous. Do not use near an open flame excessive heat. Flash point of solvent is 138°F (58°C).

Clean all fittings and the area around lube points with dry-cleaning solvent PD-680 or equivalent, before lubricating.

#### TOTAL MAN-HOURS\*

##### INTERVAL

M  
2M  
S

##### MAN-HOURS

1.5  
2.0  
2.5

\*The time specified is the time required to perform all services at the particular level.

## **LUBRICATION BEFORE AND AFTER FORDING**

1. Refer to TM 9-238 for detailed lubrication instructions for before and after fording.
2. After fording operation in water not exceeding 33 inches deep, lubricate all grease fittings to clear bearings of water and/or grit.
3. If the dolly set has been in deep water for at least 24 hours or was submerged beyond its fording capabilities (33 inches), perform a complete lubrication service as soon as practical, regardless of time interval.

### **NOTE**

Operation in bodies of salt water increases the rapid accumulation of rust and corrosion, especially on unpainted surfaces. It is most important to remove all traces of salt water and salt deposits from every part of the vehicle.

4. Disassemble, clean and relubricate all moving parts exposed to salt water.
5. Wheel bearings must be removed, cleaned and repacked after every submersion over 33 inches.

## **LUBRICATION AFTER DUSTY OR SANDY OPERATION**

### **NOTE**

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

1. Clean and inspect all lubrication points for fouled lubricants.
2. Lubricate as necessary after inspection.



LUBRICATION • INTERVAL

INTERVAL • LUBRICATION

TIE ROD END  
(See LV-A)(O)

GAA 2M

STEERING  
KNUCKLE  
(See LV-B)(O)

GAA S

WHEEL  
BEARING  
(See LV-C)(O)

GAA S

STEERING  
CONNECTING  
LINK  
(See LV-G)(O)

GAA 2M

FRONT UPPER  
ARM  
(See LV-D)(O)

GAA 2M

HYDRAULIC  
PUMP  
(See LV-E)(C)

OHA M

ADAPTER  
PIVOT PIN  
(See LV-F)(C)

OGP M

WHEEL  
BEARING  
(See LV-C)(O)

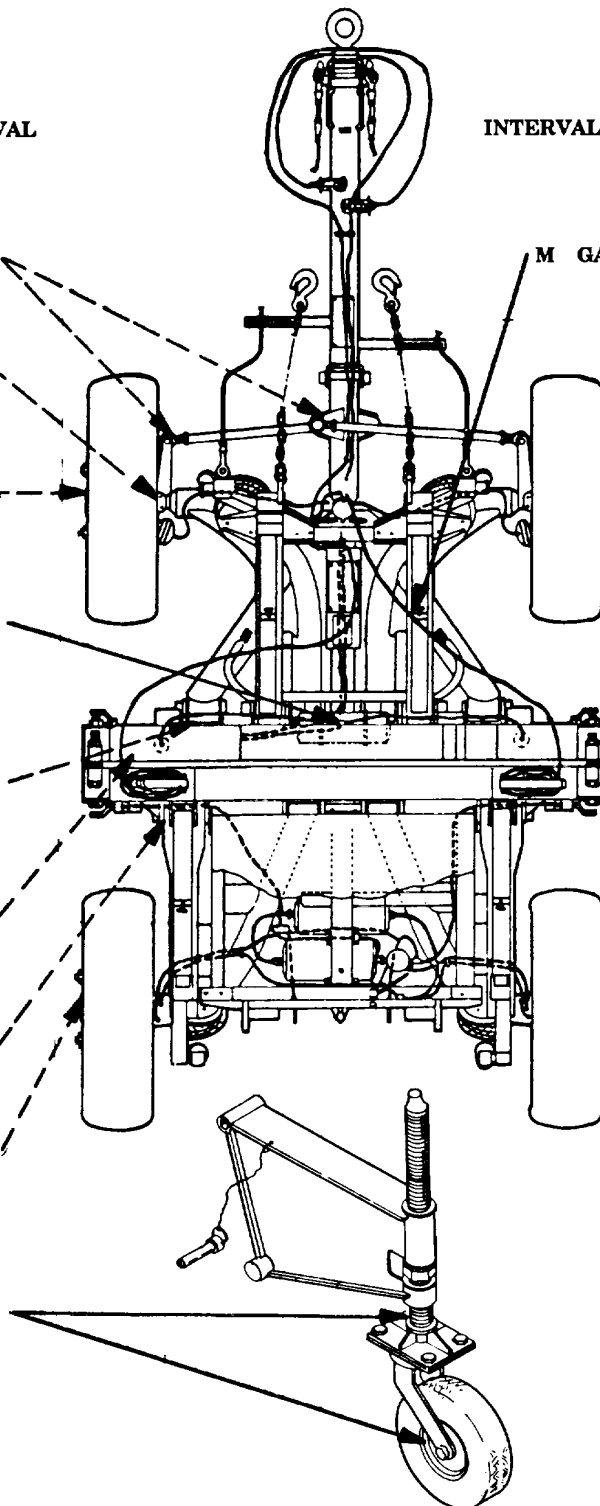
GAA S

DOLLY  
CASTER  
(See LV-H)(O)

GAA 2M

M GAA

STRUT  
ASSEMBLY  
(SEE LV-I)(O)

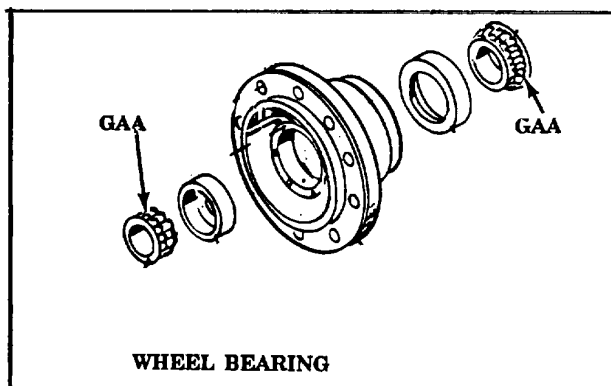


**-KEY-**

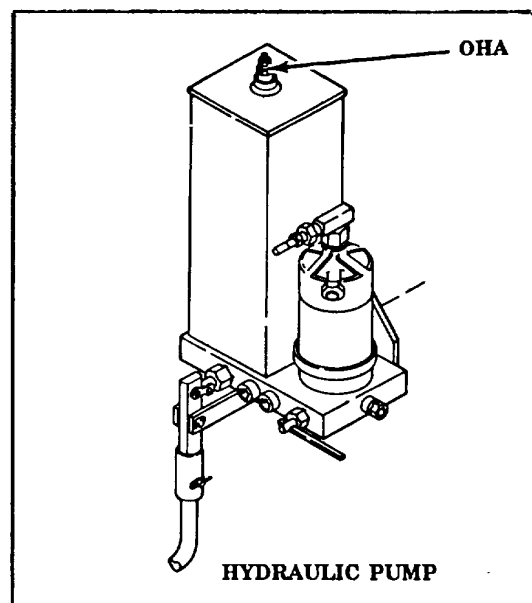
EXPECTED TEMPERATURES					INTERVALS
LUBRICANTS	ABOVE -32°F	-40°F to 10°F	0° TO 65°F		
GAA Grease, lubr, automotive and artillery	GAA	GAA	GAA	M-Monthly  2M-Every two months  S-Semi-annually	
BFS Hydraulic fluid, non-petroleum base, automotive	BFS	BFS	BFS		
OHA Hydraulic fluid, petroleum base, corrosion inhibited	OHA	OHA	OHA		
OGP Lubricating oil, general purpose	OGP	OGP	OGP		

**NOTES:**

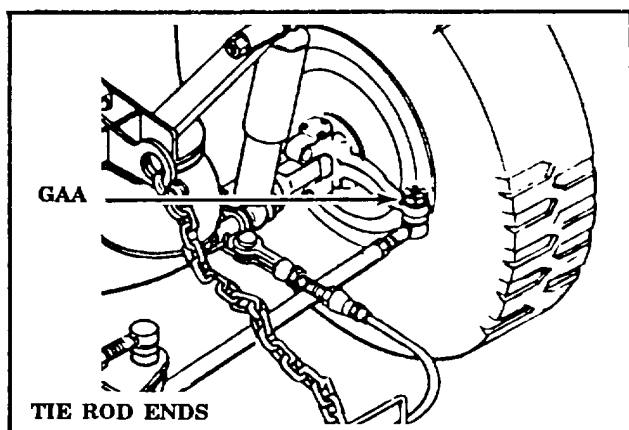
1. OILCAN POINTS. Lubricate brake linkage and latches with OE lubricating oil.
2. Do not lubricate springs.
3. See page 4-147, Wheel Bearing Removal and Installation.
4. Lubrication instructions are mandatory requirements.
5. For Arctic operations, refer to FM 9-207.



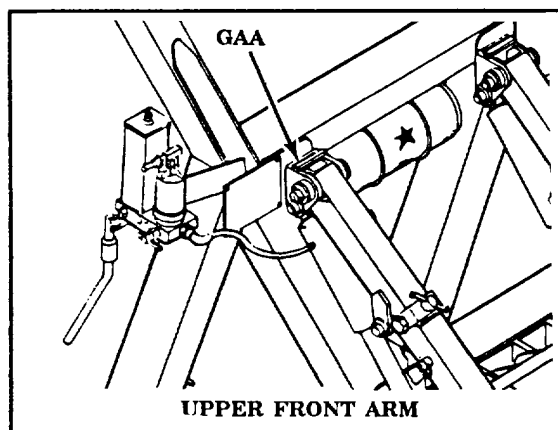
LV-C



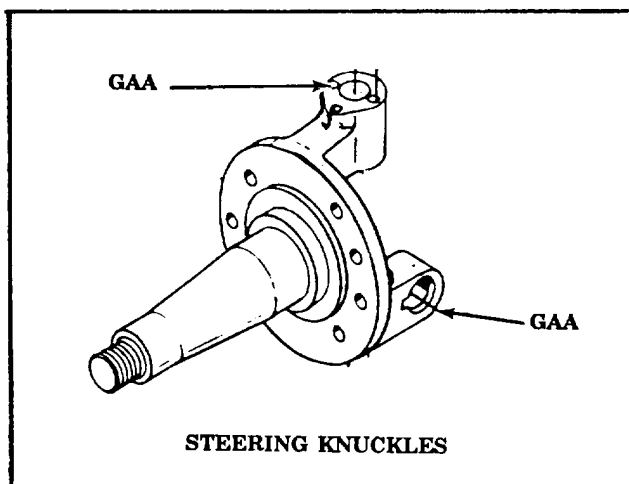
LV-E



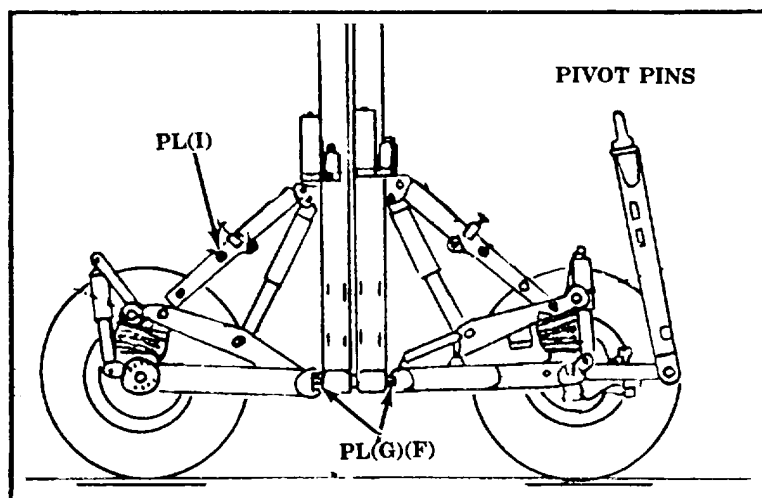
LV-A



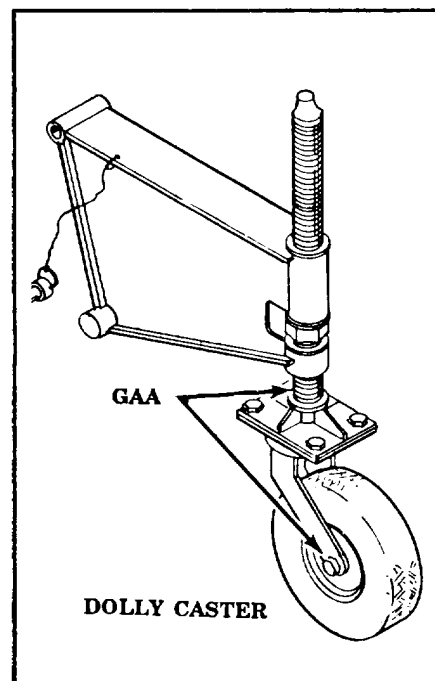
LV-D



LV-B



LV-E, G, I



LV-H

## Section II REPAIR PARTS; SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

	Page		Page
Common Tools and Equipment .....	4-7	Special Tools, TMDE, and	
Repair Parts .....	4-8	Support Equipment .....	4-7
Special Handling Equipment .....	4-7		

### COMMON TOOLS AND EQUIPMENT

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

### SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools, TMDE, or support equipment are required to maintain the dolly set.

### REPAIR PARTS

Repair parts are listed and illustrated in appendix F of this manual.

### SPECIAL HANDLING EQUIPMENT

Special support and handling equipment may be needed when performing some maintenance operations on the dolly set.

## Section III SERVICE UPON RECEIPT

	Page		Page
Preliminary Servicing and.....		Service Upon, Receipt of	
Adjustment of Equipment.....	4-8	Materiel .....	4-7

### SERVICE UPON RECEIPT OF MATERIEL

LOCATION	ITEM	ACTION REMARKS
1 Attached to conspicuous part of dolly set	DD Form 1397	Read and follow all instructions.
2	Metal strapping, tapes, seals, and wrappings	Remove.

**SERVICE UPON RECEIPT OF MATERIEL - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b><u>WARNING</u></b>			
Drycleaning solvent PD-680 is both toxic and flammable. Avoid prolonged breathing of vapors and avoid skin contact. Use only in well ventilated area and keep away from open flame. Flash point of solvent is 138°F (58.8°C). Serious injury or death could result.			
3	Coated exterior parts	Remove rust preventive compound with dry cleaning solvent.	
4	Dolly set	a. Inspect for damage that may have occurred during shipping. b. If damage is found, submit DD Form 6, Package Improvement Report.	
5	Equipment packing slip	a. Check against equipment to see if shipment is complete. b. Report all discrepancies in accordance with instructions in DA PAM 738-750.	

**PRELIMINARY SERVICING AND ADJUSTMENT OF EQUIPMENT**

Perform the operator and unit preventive maintenance checks and services contained in chapters 2 and 4.

Lubricate all points as shown in the Lubrication Chart (page 4-2) regardless of interval.

Schedule the next preventive maintenance checks and services on DD Form 314, Preventive Maintenance Schedule and Record.

Report all deficiencies on DA Form 2407 if the deficiencies appear to involve unsatisfactory design.

Perform a break-in road test of 25 miles (40.23 km) on new or reconditioned materiel, or a sufficient number of miles on used materiel to completely check operation.

## Section IV UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

	Page		Page
PMCS Column Description.....	4-10	Unit PMCS .....	4-11
General .....	4-9	Special Instructions .....	4-9

### GENERAL

The dolly set must be inspected systematically to ensure that it is ready for operation at all times. Inspection will allow defects to be discovered and corrected before they result in serious damage or failure. This section contains a tabulated list of preventive maintenance checks and services to be performed by organizational maintenance personnel. All deficiencies and corrective actions taken will be recorded on DA Form 2404.

1. Do your quarterly (Q) PMCS once every 3 months.
2. Do you semiannual (S) PMCS once every 6 months.
3. Do your annual (A) PMCS once every year.

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

Always do your preventive maintenance in the same order, so it gets to be a habit. Once you have had some practice, you will quickly spot anything wrong.

### SPECIAL INSTRUCTIONS

If anything looks wrong and you can't fix it, describe it on your DA Form 2404. If you find something seriously wrong, report the situation to direct support personnel promptly.

#### **WARNING**

Drycleaning solvent PD-680 is both toxic and flammable. Avoid prolonged breathing of vapors and avoid skin contact. Use only in well ventilated areas and keep away from open flame or excessive heat. Flash point of solvent is 138°F (58.8°C).

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 PD-680 to clean metal surfaces. Use soap and water when you clean rubber or plastic material.
2. Bolts, nuts, and screws: Check that they are not loose, missing, bent, or broken. You can't try them all with a tool of course, but look for chipped paint, bare metal, or rust around boltheads. Tighten any that you find loose.
3. Welds: Look for loose or chipped paints, rust, or gaps where parts are welded together. If you find a bad weld, report it to direct support personnel.

**SPECIAL INSTRUCTIONS - CONTINUED**

4. Electrical wires and connectors: Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connections and make sure the wires are in good condition.
5. Hoses and fluid lines: Look for wear, damage, and leaks. Make sure clamps and fittings are tight. Wet spots show leaks of course, but a stain around a fitting or connector can also mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, either correct it or report it to direct support (refer to appendix B, MAC).

It is necessary for you to know how fluid leaks affect the status of your equipment. The following are definitions of the types/classes of leakage you need to know to determine the status of you equipment. Learn them and be familiar with them. Remember - when in doubt, notify your supervisor!

#### Leakage Definitions for Organizational 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 the item being checked/inspected.
CLASS III	Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

#### **CAUTION**

When operating with class I or II leaks, continue to check fluid levels in addition to that required in PMCS. Parts without fluid will stop working and/or cause damage to the parts.

#### **NOTE**

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

**PMCS COLUMN DESCRIPTION**

**Item** - The order that PMCS should be performed, and also used as a source of item numbers for the TM number column on DA Form Equipment Inspection and Maintenance Worksheet when recording results of PMCS.

**Interval** - Tells when each check should be performed.

**Item to Be Inspected** - Lists the checks to be performed.

# UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Q-Quarterly

S-Semiannually

A-Annually

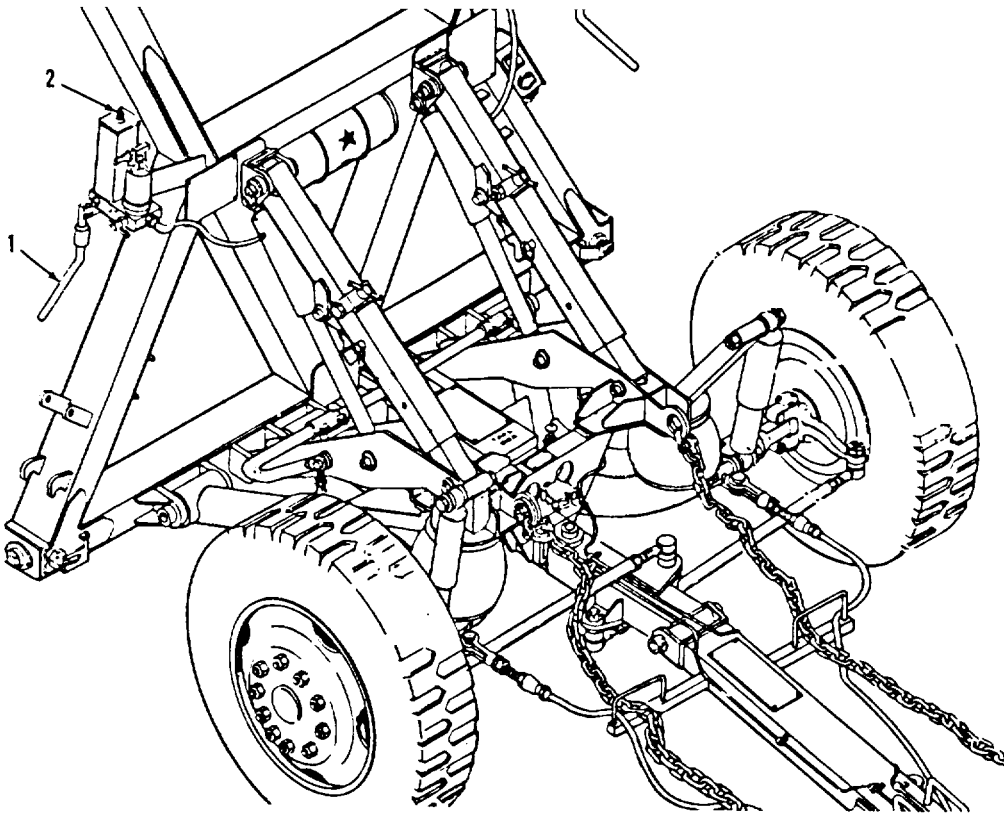
ITEM NO.	INTERVAL			ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED, <del>REPLACED, OR ADJUSTED AS NEEDED</del>
	Q	S	A	
PMCS.				<p><b>NOTE</b></p> <p>Perform operator/crew PMCS prior to, or in conjunction with, unit</p>
1	•			<p>FRAME</p> <p>Look for cracks, bent members, broken welds, tightness of bolts and structural clearances.</p>
2	•			<p>PLATFORM</p> <p>Look for cracks, bends or broken welds.</p>
3	•			<p>DOLLY CASTER ASSEMBLIES</p> <p>Check to insure tires are properly inflated and frame work is not bent or cracked.</p>



# UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES - CONTINUED

Q-Quarterly S-Semiannually A-Annually

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED, REPLACED, OR ADJUSTED AS NEEDED
	Q	S	A	
4 4-147).		•		WHEEL BEARINGS a. Take off the wheels, hubs, and wheel bearings (page 4-135 and b. Clean, inspect, and repack wheel bearings (page 4-148).
5 (page 4-103).			•	BRAKE SYSTEM AND BRAKE ASSEMBLIES a. Clean and inspect internal brake mechanism and brake linings b. Adjust brake shoes (page 4-119).
6		•		HYDRAULIC SYSTEM a. Bleed hydraulic system if necessary (if pump handle (1) feels soft or mushy in operation) (page 4-189). b. Check level of hydraulic fluid (2) (refer to page 2-21).



## UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES - CONTINUED

Q-Quarterly

S-Semiannually

A-Annually

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED, REPLACED, OR ADJUSTED AS NEEDED
	Q	S	A	
7		•		<p>WHEELS AND TIRES</p> <p>a. Rotate and match tires according to tread design and degree of wear (refer to TM 9-2610-200-24).</p> <p>b. Inspect wheel for damage or deformation. Using a torque wrench, tighten lugnuts to 450-500 lb ft.</p>
8	•			<p>SUSPENSION</p> <p>a. Check suspension for bent or cracked parts, loose mountings, or worn bushings.</p> <p>b. Check shock absorbers for secure mountings, damages, or leakage.</p> <p>c. Check condition of shock absorbers rubber mountings and bracket. Tighten loose mounting hardware on shock absorbers.</p>

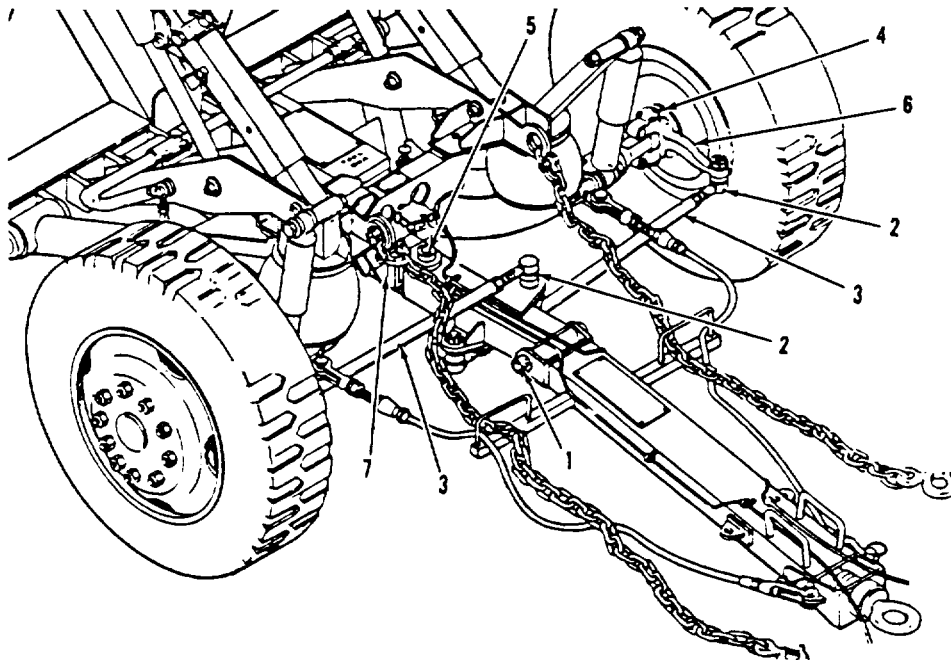
## UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES - CONTINUED

Q-Quarterly

S-Semiannually

A-Annually

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED, REPLACED, OR ADJUSTED AS NEEDED
	Q	S	A	
9	• • • • • • • •			<p>STEERING</p> <ol style="list-style-type: none"> <li>Inspect bushings (1).</li> <li>Check tie rod ends (2) for broken seals or looseness and for missing nuts and cotter pins.</li> <li>Check tie rod (3) for bends and loose hardware.</li> <li>Check kingpins (4) for looseness, damage and/or wear.</li> <li>Check steering arm pivot pin (5) for looseness.</li> <li>Inspect hub and knuckle assemblies (6) for damage or wear.</li> <li>Check for proper toe-in (page 4-73).</li> <li>Check for upper arms securely bolted to steering connecting link (7).</li> </ol>



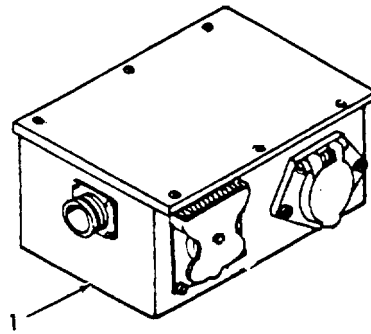
# UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES - CONTINUED

Q-Quarterly

S-Semiannually

A-Annually

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED, REPLACED, OR ADJUSTED AS NEEDED
	Q	S	A	
10	• •			<p>ELECTRICAL SYSTEM</p> <ol style="list-style-type: none"> <li>Check junction box (1) for damaged or missing components.</li> <li>Check electrical harnesses and cables, tightness of clamps, and condition of connectors. Repair/replace as necessary.</li> </ol>



4-15

## Section V UNIT TROUBLESHOOTING PROCEDURES

	Page		Page
Explanation of Columns .....	4-16	Symptom Index .....	4-16
Introduction .....	4-16	Unit Troubleshooting Table .....	4-18

### INTRODUCTION

This section lists the common malfunctions that may be found during the operation or maintenance of the dolly set or components. Perform the test/inspection and corrective action in the order listed.

This table cannot list all the malfunctions that may occur, nor all tests or inspections and corrective actions. If a malfunction is not listed, or if it is not corrected by the listed corrective action, notify your supervisor.

### EXPLANATION OF COLUMNS

MALFUNCTION	Visual or operational indication that something is wrong with your equipment.
TEST OR INSPECTION	Procedure used to isolate the problem to a system or component.
CORRECTIVE ACTION	Procedure used to correct the problem.

### SYMPTOM INDEX

This symptom index is provided as a quick way to get you to the part of the troubleshooting table that will help you solve the problem you are having. It lists all the malfunctions covered in the unit troubleshooting table.

	Page
<b>BRAKES</b>	
Brakes do not hold - front or rear dolly only .....	4-25
Brakes drag .....	4-28
Brakes grab or are locked - one wheel .....	4-27
Brakes will not release - both dollies .....	4-22
Hand parking brake (spring brakes) will not hold dolly set.....	4-21
Hand parking brake drags .....	4-21
Service brakes do not hold sufficiently on front and/or rear dollies .....	4-23
Slow application or slow release of brakes .....	4-29
<b>DOLLY SET</b>	
Dolly set pulls to one side .....	4-18
Dolly set pulls to one side .....	4-18

## SYMPTOM INDEX - CONTINUED

## ELECTRICAL SYSTEM

All lamps fail to light, are dim, or flicker .....	4-19
One or more (but not all) lamps fail to light, are dim, or flicker .....	4-20
One or more taillights fail to light on 24-volt input .....	4-21

## HYDRAULIC SYSTEM

Air motor fails to cycle .....	4-35
Air motor cycles slowly .....	4-36
Hydraulic cylinder does not hold pressure when hand valve is closed .....	4-33
Hydraulic pump action will not raise adapter to full height, adapter may start down while pumping .....	4-34
Hydraulic pump action soft or mushy .....	4-34
Hydraulic pump action solid for several strokes, then mushy .....	4-35

## SUSPENSION SYSTEM

Air spring loses pressure .....	4-31
Air spring over-compressed under load .....	4-32
Chattering noise during ride localized in shock mount .....	4-33
Ride vibrations not smoothed out sufficiently .....	4-34

## TIRES

One or more tires wear unevenly .....	4-30
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## WHEELS

Wheels shimmy .....	4-31
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## UNIT TROUBLESHOOTING

---

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

---

## TRACKING

## 1. DOLLY SET PULLS TO ONE SIDE

Step 1. Check adjustment of service brakes (1).

Adjust service brakes as necessary (page 4-103).

Step 2. Check for low pressure in one or more tires (2).

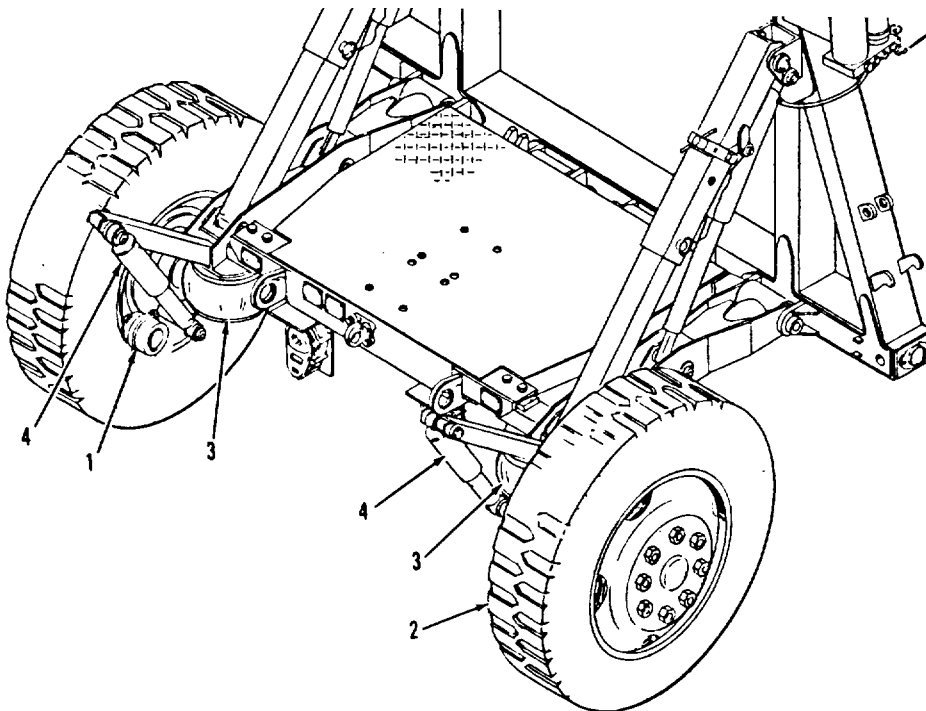
Inflate tires to correct pressure (50 psi normal highway; 25 psi cross-country).

Step 3. Check for low pressure in one or more air springs (3).

Inflate air springs to proper pressure/height (page 2-34).

Step 4. Check for defective shock absorber(s) (4).

Replace defective shock absorber(s) (page 4-170).



## UNIT TROUBLESHOOTING - CONTINUED

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<b>MALFUNCTION</b>
<b>TEST OR INSPECTION</b>
<b>CORRECTIVE ACTION</b>

---

## ELECTRICAL SYSTEM

## 2. ALL LAMPS FAIL TO LIGHT, ARE DIM, OR FLICKER

Step 1. Check fuses and circuit breakers in towing vehicle.

Replace any bad fuses or reset any tripped circuit breakers (refer to TM applicable to towing vehicle). If fuses and circuit breakers are good, go to step 2.

Step 2. Check for power at the towing vehicle receptacle.

Connect black lead of multimeter to pin D of towing vehicle receptacle. Use red lead to probe all other pins in receptacle. If multimeter shows that power is present at the receptacle with the light switches on, go to step 3. If no power is available at the towing vehicle receptacle, repair towing vehicle electrical system (refer to applicable TM).

Step 3. Check for corroded or damaged cable connectors, pins, or cables.

- following:
- a. Check the condition of the receptacles, pins, and connectors on the
    1. Both intervehicular cable (front harness) connectors.
    2. All junction box receptacles.
    3. Both interdolly cable connectors.
    4. Rear receptacle.
  - b. Check the condition of all electrical cables.
  - c. Repair any bad connectors, pins, or receptacles replace defective cables. If no bad connectors, pins, or receptacles are found, go to step 4.

**NOTE**

See page 4-60 for proper pin connector to wire identification.

Step 4. Check ground wire 90 for continuity between front intervehicular cable (front harness) connector plug and rear dolly frame (page 4-60).

- a. Repair break in ground wire 90 in the intervehicular cable (front harness), junction box, interdolly cable or rear harness as applicable.



## UNIT TROUBLESHOOTING - CONTINUED

---

<b>MALFUNCTION</b>
<b>TEST OR INSPECTION</b>
<b>CORRECTIVE ACTION</b>

---

## 2. ALL LAMPS FAIL TO LIGHT, ARE DIM, OR FLICKER - CONTINUED

- b. Repair broken or faulty connection between the rear dolly frame and ground wire 90 in the rear harness (page 4-61).

## 3. ONE OR MORE (BUT NOT ALL) LAMPS FAIL TO LIGHT, ARE DIM, OR FLICKER

Step 1. Check switches, fuses, and circuit breakers in the towing vehicle.

Replace bad switches, fuses or reset tripped circuit breakers (refer to applicable TM). If fuses and circuit breakers are good, go to step 2.

**NOTE**

The following references are needed for step 2:

Composite light information (page 4-52) and schematic diagram (page 4-38).

Step 2. Check for faulty lamps or corroded lamp sockets.

- a. Replace faulty lamp(s). If lamp(s) are good, leave the composite lights(s) disassembled and go to (b).
- b. Clean corroded lamp sockets. If sockets are clean, go to step 3.

Step 3. Check the wiring circuit that powers the affected lamps(s) for continuity between the intervehicular cable (front harness), junction box, resistors (as applicable), interdolly cable, rear harness, and through the composite light assembly (page 4-57).

- a. Repair open circuit in wiring (page 4-61).
- b. Replace faulty composite light (page 4-52).
- c. Replace open resistors (page 4-44).

## UNIT TROUBLESHOOTING - CONTINUED

**MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION****4. ONE OR MORE TAILLIGHTS FAIL TO LIGHT ON 24-VOLT INPUT**

Check for defective resistors or wiring in junction box.

Replace defective resistors (page 4-44) and/or replace defective wiring in junction box.

**BRAKES****5. HAND PARKING BRAKE (SPRING BRAKES) WILL NOT HOLD DOLLY SET**

Step 1. Check operation of parking brake lever.

- a. Check that parking brake lever (page 2-9) moves freely from side-to-side. If defective, replace (page 4-90).
- b. If parking brake lever is operating properly, go to step 2.

Step 2. Check parking brake air supply (in emergency air reservoir) and air hoses between parking brake lever and spring brakes on rear wheels.

- a. If air hoses or parking brake air supply components are defective, replace hoses and/or components (page 4-126).
- b. If air hoses and parking brake air supply components are not damaged or leaky, go to step 3.

Step 3. Check for proper operation of spring brake assemblies (page 4-97).

- a. If defective, replace defective spring brake assembly (page 4-97).
- b. If spring brake is operational, refer to page 4-79 for additional brake system maintenance information.

**6. HAND PARKING BRAKE DRAGS**

Step 1. Check operation of parking brake lever.

- a. Check that parking brake lever (page 2-9) moves freely from side-to-side. If defective, replace (page 4-90).
- b. If parking brake lever is operating properly, go to step 2.

## UNIT TROUBLESHOOTING - CONTINUED

---

<b>MALFUNCTION</b>
<b>TEST OR INSPECTION</b>
<b><del>CORRECTIVE ACTION</del></b>

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## 6. HAND PARKING BRAKE DRAGS - CONTINUED

Step 2. Check parking brake air supply (in emergency air reservoir) and air hoses between parking brake lever and spring brakes on rear wheels.

- a. If air hoses or parking brake air supply components are defective, replace hoses and/or components (page 4-126).
- b. If air hoses and parking brake air supply components are not damaged or leaking, go to step 3.

Step 3. Check that spring brake is completely released (page 4-93).

- a. If spring brake is not completely released, manually release spring brake as per data plate on rear platform. If spring brake cannot be released manually, replace spring brake unit.
- b. If spring brake is completely released, refer to page 4-79 for additional brake system information.

## 7. BRAKES WILL NOT RELEASE - BOTH DOLLIES

Step 1. Ensure that dolly set has not become separated from towing vehicle and that air brake supply line to the front dolly air reservoir (4) and the rear dolly air reservoir (5) is not disconnected or ruptured.

- a. Make proper air brake line connection to tow vehicle as applicable.
- b. Repair/replace disconnected/ruptured air brake hoses/connection (page 4-

126).

Step 2. Attempt to release brakes with auxiliary brake control valve on front dolly (1), or on rear dolly (2).

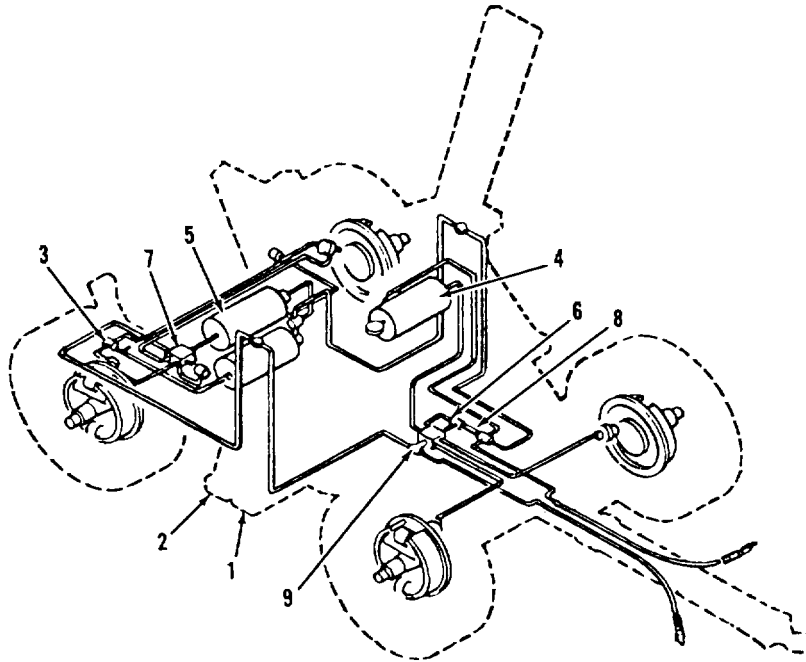
Step 3. Check that parking brake ON/OFF lever (3) on rear dolly is not at ON position.

Step 4. Check for bad emergency relay valve (6) on front dolly and (7) on rear dolly.

Loosen service brake air line (8) on emergency relay valves (6) and (7). If air escapes and brakes release, replace emergency relay valve. If brakes don't release, repair restriction in service brake line (8) to brake chamber tee (9).

## UNIT TROUBLESHOOTING - CONTINUED

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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## 7. BRAKES WILL NOT RELEASE - BOTH DOLLIES - CONTINUED

Step 5. If problem appears to be that parking brakes on rear dolly wheels are applied and cannot be released, release the spring brakes manually as per data plate on rear platform (page 4-93). If spring brakes cannot be released manually, replace the spring brake units (page 4-95).

## 8. SERVICE BRAKES DO NOT HOLD SUFFICIENTLY ON FRONT AND REAR DOLLIES

Step 1. Check connection of intervehicular service air brake hose (1) and emergency air brake hose (2).

Connect intervehicular brake hoses properly as applicable, service to service, emergency to emergency.

## UNIT TROUBLESHOOTING - CONTINUED

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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## 8. SERVICE BRAKES DO NOT HOLD SUFFICIENTLY ON FRONT AND REAR DOLLIES - CONTINUED

Step 2. Check service brake air system up to the emergency relay valve.

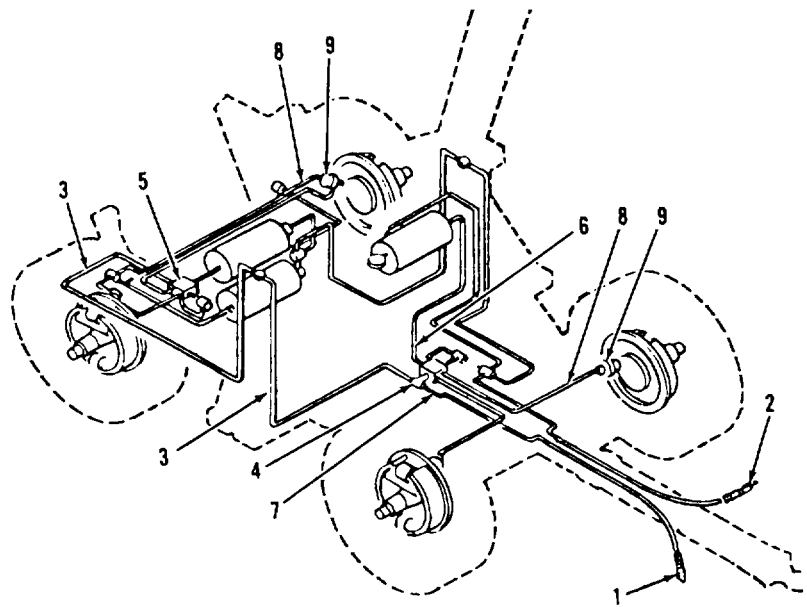
- a. Loosen emergency air line (3) slightly at the emergency relay valve ((4) on front dolly and/or (5) on rear dolly). If air escapes, tighten line (3) and go on to (b). If no air escapes, replace restricted emergency air line (6).
- b. Loosen service air line (7) slightly at the emergency relay valve. Apply brakes on towing vehicle. If air escapes from line (7), tighten and go to step 3. If no air escapes, replace restricted service air brake line (7).

Step 3. Check emergency relay valve.

Loosen air line (8) to brake chamber (9) slightly at the emergency relay valve (4) or (5) for each brake (one at a time). Apply brakes on towing vehicle. If air escapes, replace restricted brake chamber line (8). If no air escapes, replace the emergency relay valve (page 4-131).

Step 4. Check adjustment of brakes.

Adjust brakes as necessary (page 4-119)



4-24

## UNIT TROUBLESHOOTING - CONTINUED

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<b>MALFUNCTION</b>		
<b>TEST OR INSPECTION</b>		
<b>CORRECTIVE ACTION</b>		

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## 9. BRAKES DO NOT HOLD - FRONT OR REAR DOLLY ONLY

Step 1. Check adjustment of brakes.

Adjust brakes as necessary (page 4-119). If brakes are adjusted properly go to step 2.

Step 2. Check for grease on brake linings (1).

Replace brake linings and grease seal if necessary (page 4-103). If there is no grease on the brake linings go to step 3.

Step 3. Check amount of brake linings remaining.

Replace brake shoe if amount of lining remaining is less than 1/16 inch. If enough brake lining remains go to step 5.

Step 4. Check for restricted air lines.

Loosen air line (2) at individual wheel brake air chamber (3). Apply brakes. If air escapes, go to step 5. If no air escapes, locate and remove restriction. If problem is on the rear dolly, also check for restricted interdolly hose (4).

Step 5. Check for proper braking action of individual brake in wheel end assembly (5).

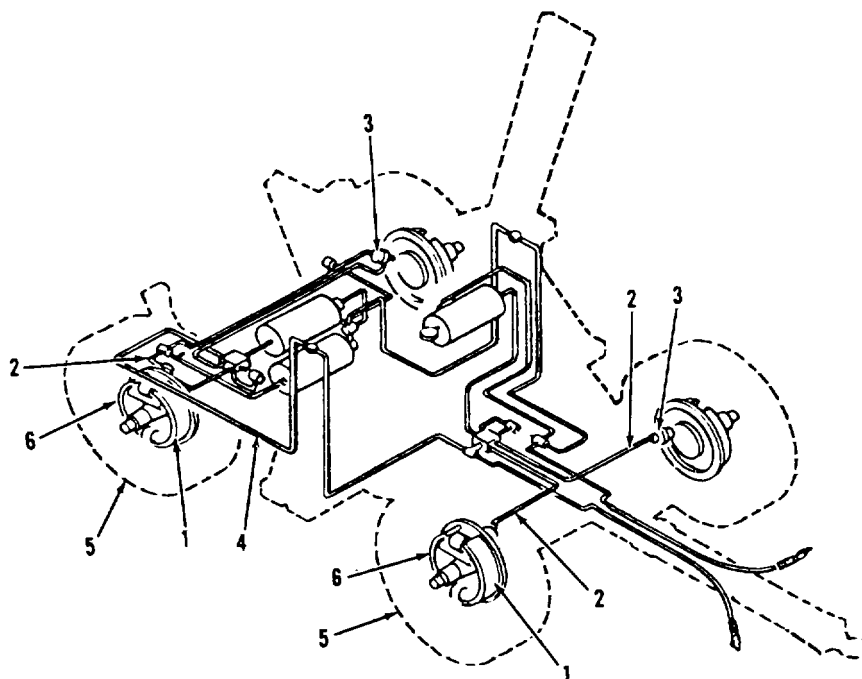
Slightly loosen wheel end assembly so braking action of brake assembly (6) can be observed. Gently apply brakes. If the parts of the brake assembly move apart, it indicates the brake assembly is working. If there is no movement in the brake assembly there is air leakage, replace the brake assembly (6) (page 4-103).

Step 6. Refer to Section IX for additional brake system maintenance information.

# UNIT TROUBLESHOOTING - CONTINUED

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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## 9. BRAKES DO NOT HOLD - FRONT OR REAR DOLLY ONLY - CONTINUED





## UNIT TROUBLESHOOTING - CONTINUED

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<b>MALFUNCTION</b>
<b>TEST OR INSPECTION</b>
<b>CORRECTIVE ACTION</b>

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## 10. BRAKES GRAB OR ARE LOCKED - ONE WHEEL

**NOTE**

If wheel is locked, go to step 1. If brake is grabbing on affected wheel, go directly to step 2.

Step 1. Check brake adjustment (page 4-119).

a. Adjust brake on locked wheel to free it. If unable to free wheel, go on to b.

b. If rear wheel is affected, check operation of spring brake unit.

1. Release spring brake unit manually as per instructions on data plate on rear platform.

2. If spring brake unit cannot be released manually, replace spring brake unit.

3. If spring brake unit is released, go on to step 2.

c. If rear wheel is not affected, go on to step 2.

Step 2. Check for malfunction in service brake assembly (page 4-103).

a. Check service brake assembly for:

1. Cracked, broken, worn, loose, or contaminated linings.

2. Frozen wheel bearings.

3. Broken return spring(s).

4. Cracked, scored, or deformed brake drum.

b. Repair service brake assembly (page 4-103).

Step 3. Refer to Section IX for additional brake system maintenance information.

UNIT TROUBLESHOOTING - CONTINUED

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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11. BRAKES DRAG

Step 1. Check brake shoe (1) adjustment.

Adjust brakes (page 4-119). If brakes are adjusted properly go to step 2.

Step 2. Check for weak or broken brake shoe return spring(s) (2) (page 4-82).

Replace defective brake shoe return spring(s) (2). If brake shoe return springs are not defective go to step 3.

Step 3. Check that brake drum(s) (3) are out of round.

Replace defective brake drum(s) (3). If brake drums are not out of round, go to step 4.

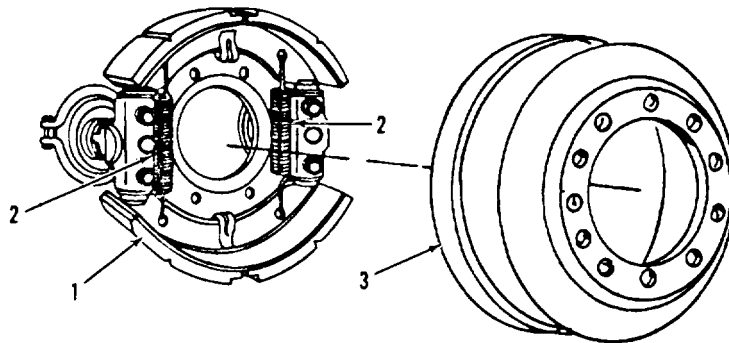
Step 4. If rear brakes, check if parking brake lever operates properly.

Replace if not operating properly (page 4-90).

Step 5. If rear brakes, check operation of spring brake unit (page 4-95).

If spring brake units are not operating properly with proper air pressure (and cannot be released manually), replace spring brake chambers (page 4-95).

Step 6. Refer to page 4-79 for additional brake system maintenance information.



## UNIT TROUBLESHOOTING - CONTINUED

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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### 12. SLOW APPLICATION OR SLOW RELEASE OF BRAKES

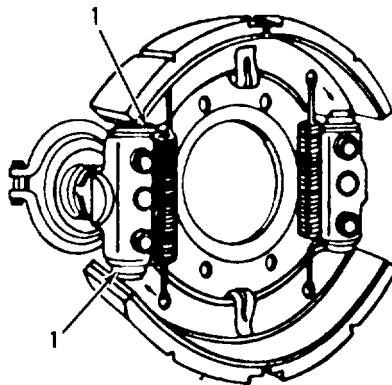
Step 1. Check for proper operation of air supply system components.

Repair/replace defective air supply system components. If air supply system operates properly go to step 2.

Step 2. Check for weak or broken brake shoe return spring(s) (1) (page 4-103).

Replace brake shoe return spring(s) (page 4-103).

Step 3. Refer to page 4-79 for additional brake system maintenance information.



## UNIT TROUBLESHOOTING - CONTINUED

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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## TIRES

## 13. ONE OR MORE TIRES WEAR UNEVENLY

**NOTE**

If the rear dolly is wearing tires unevenly, proceed to step 4.

Step 1. Check front wheel toe-in and align if necessary (page 4-73). If alignment is good, go to step 2. If unable to align, go to step 4.

Step 2. Check for loose kingpins (1), tie rod ends (2) and steering arm pivot bushing (3).

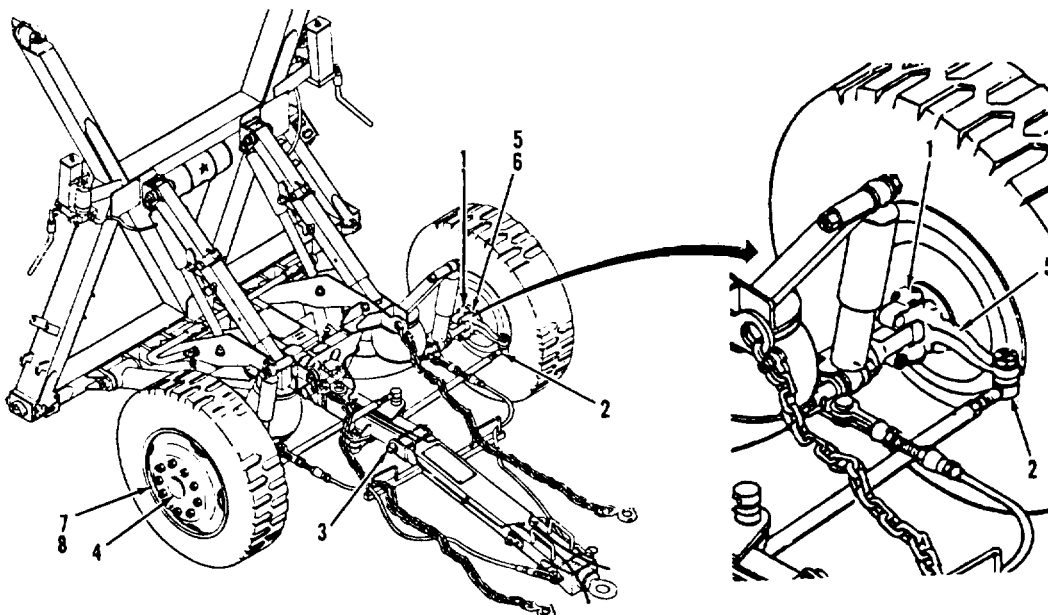
Tighten/replace any loose or maladjusted parts in steering mechanism (page 4-70). If no parts are loose, go on to step 4.

Step 3. Check for loose or defective wheel bearings (4).

Remove wheel and check bearings (page 4-147). Replace defective parts.

Step 4. Check for bent knuckles (5), spindles (6), rim (7), wheel (8), etc.

Replace defective parts as necessary and align front end (page 4-73). For tire replacement, refer to TM 9-2610-200-24.



## UNIT TROUBLESHOOTING - CONTINUED

**MALFUNCTION****TEST OR INSPECTION****CORRECTIVE ACTION**

## WHEELS

## 14. WHEELS SHIMMY

Step 1. Check for loose or worn wheel bearings (1).

Adjust or replace wheel bearings (1) (page 4-147). If wheel bearings were not worn or loose, go on to step 2 for front wheels.

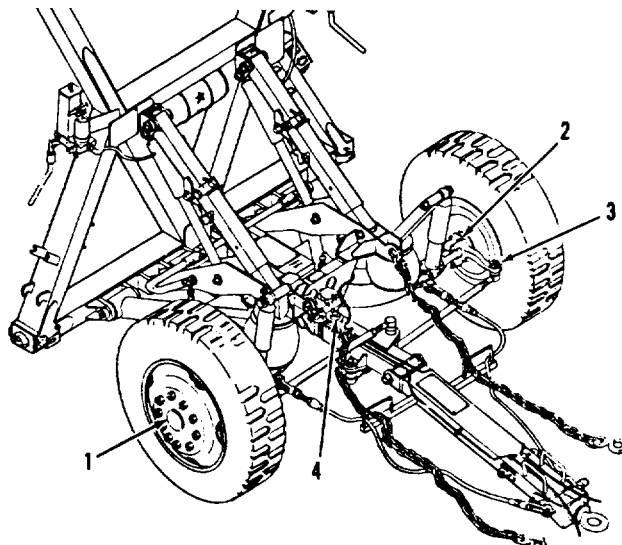
Step 2. Check for loose kingpins (2), tie rod ends (3) or steering arm pivot bushing (4) and worn steering pin assembly.

Replace any defective parts in steering system (page 4-70) and make any necessary adjustments. If all parts are good and adjustments are not necessary, go to step 3.

Step 3. Check front wheel alignment if front wheels shimmy.

Aline front wheels (page 4-73)

## SUSPENSION SYSTEM



## 15. AIR SPRING LOSES PRESSURE

Test for leakage.

Using soapy water, test for leaks. If leak is at valve stem, tighten or replace the valve stem. If the air spring is leaking, replace the entire air spring (page 4-167).

## UNIT TROUBLESHOOTING - CONTINUED

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
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## SUSPENSION SYSTEM

## 16. AIR SPRING OVER-COMPRESSED UNDER LOAD

Check air pressure of air springs against values on air spring data plate.

Adjust air spring air pressure for load by inflating or deflating as necessary (page 2-34).

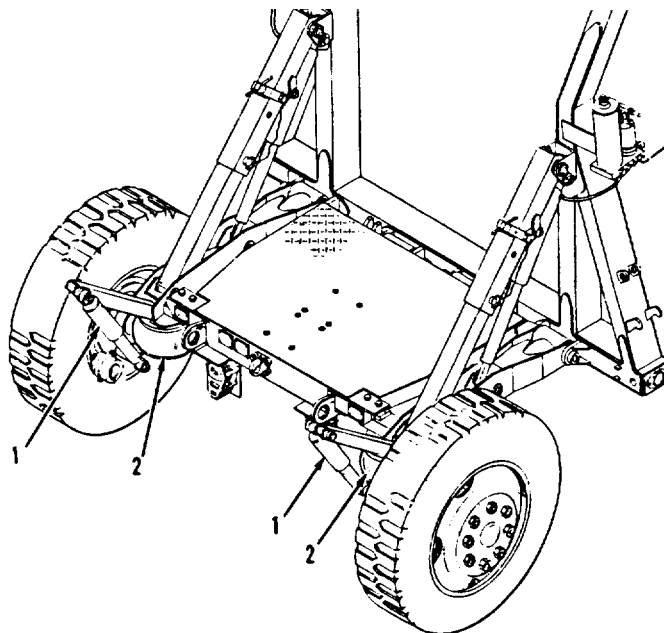
## 17. RIDE VIBRATIONS NOT SMOOTHED OUT SUFFICIENTLY

Step 1. Check action of shock absorber (1).

If defective, replace shock absorber (page 4-170). If shock absorber is operating properly, go to step 2.

Step 2. Check pressure of air springs (2) against values on air spring data plate and check pressure of tires.

Inflate or deflate air springs and/or tires as necessary. (Tire pressure for road is 50 psi; for cross-country, 25 psi.



## UNIT TROUBLESHOOTING - CONTINUED

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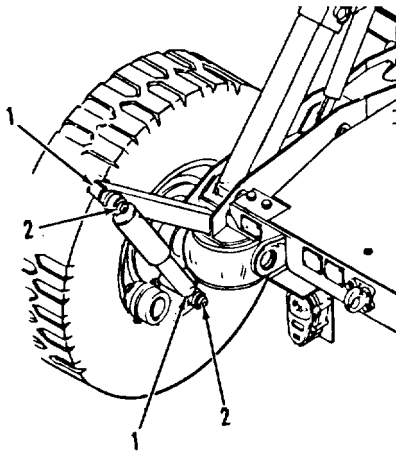
<b>MALFUNCTION</b>
<b>TEST OR INSPECTION</b>
<b>CORRECTIVE ACTION</b>

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## 18. CHATTERING NOISE LOCALIZED IN SHOCK MOUNT DURING RIDE

Check tightness of shock assembly mounting stud (1) and attaching hardware (2).

Tighten hardware as necessary.



## HYDRAULIC CYLINDERS

## 19. CYLINDER DOES NOT HOLD PRESSURE WHEN HAND VALVE IS CLOSED

Step 1. Check for leaks at cylinder packing (1).

Tighten cylinder head nut. If leaking continues, replace hydraulic cylinder (page 4-187).

Step 2. Check for air in hydraulic cylinders.

Bleed air from hydraulic cylinders system (page 4-189).

Step 3. Check hand valve (2) operation.

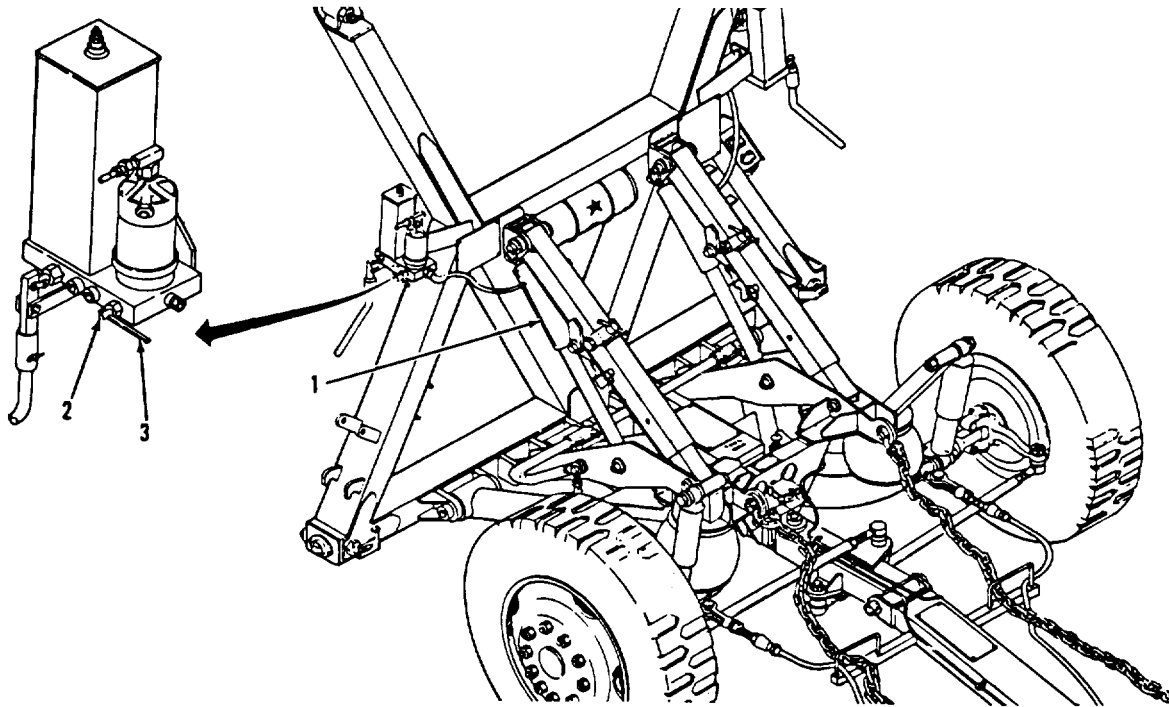
- a. Raise adapter and close hand valve (2). Open pump release lever (3).
- b. If adapter lowers and fluid level in reservoir raises, hand valve is bad. Replace hand valve (page 4-187).

## UNIT TROUBLESHOOTING - CONTINUED

## MALFUNCTION

## TEST OR INSPECTION

## CORRECTIVE ACTION



HYDRAULIC PUMP

20. HYDRAULIC PUMP ACTION WILL NOT RAISE ADAPTER TO FULL HEIGHT ADAPTER MAY BE DOWN WHILE PUMPING

Step 1. Check fluid level in hydraulic pump assembly reservoir (1) (page 4-189).

- a. If fluid level is low, fill reservoir with hydraulic fluid to proper level and visually inspect for external leakage.
- b. If fluid level is good, proceed to step 2. If leakage is indicated, replace leaking part(s).

Step 2. Check for air in the system.

Bleed any air from the system (page 4-189). If no air is found in system, replace the hydraulic pump assembly (page 4-182).

21. HYDRAULIC PUMP ACTION SOFT OR MUSHY

Check for air in hydraulic lines (1).

Bleed air from hydraulic lines (page 4-189).



## UNIT TROUBLESHOOTING - CONTINUED

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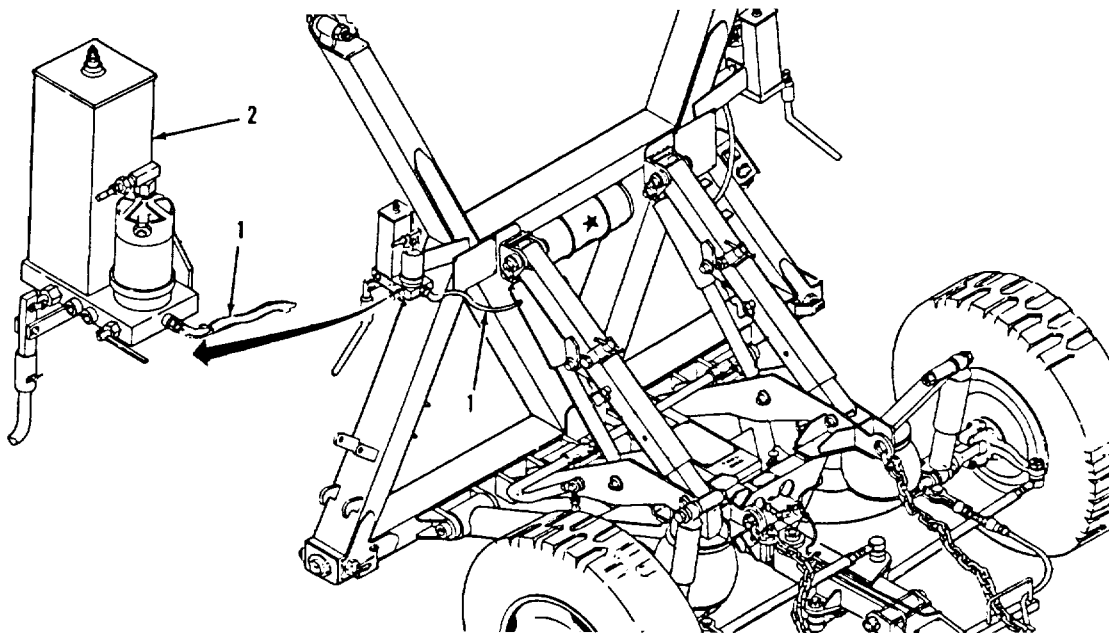
<b>MALFUNCTION</b>
<b>TEST OR INSPECTION</b>
<b>CORRECTIVE ACTION</b>

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## 22. HYDRAULIC PUMP ACTION SOLID FOR SEVERAL STROKES, THEN MUSHY

Check hydraulic fluid level in reservoir (2).

Refill hydraulic fluid in reservoir (2) up to line.



## 23. AIR MOTOR FAILS TO CYCLE

Step 1. Check external air pressure applied to hydraulic pump assembly air motor (1).

If air pressure is low (less than 60 psi), increase air pressure (60 to 120 psi is desirable). If air pressure is within desired range, go to step 2.

Step 2. Check if air lines leak or are clogged.

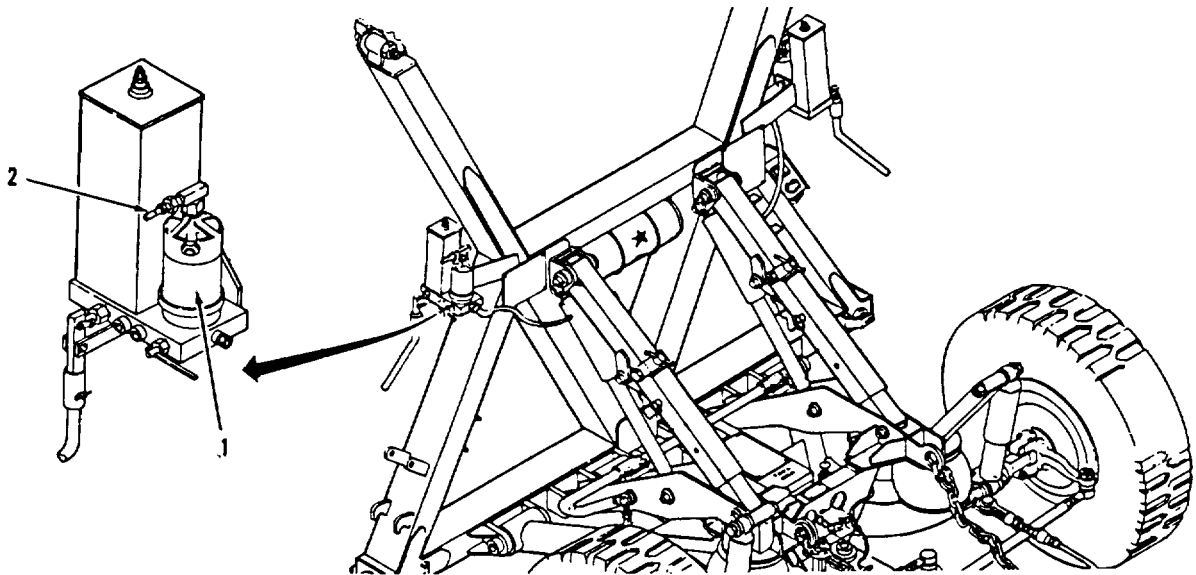
- a. Replace lines or remove restrictions in air lines.
- b. If lines remain restricted, add small amount of SAE 30 oil through air inlet (2). Plug exhaust with fingers and allow pressure to build up. Then, remove fingers quickly.

## UNIT TROUBLESHOOTING - CONTINUED

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MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

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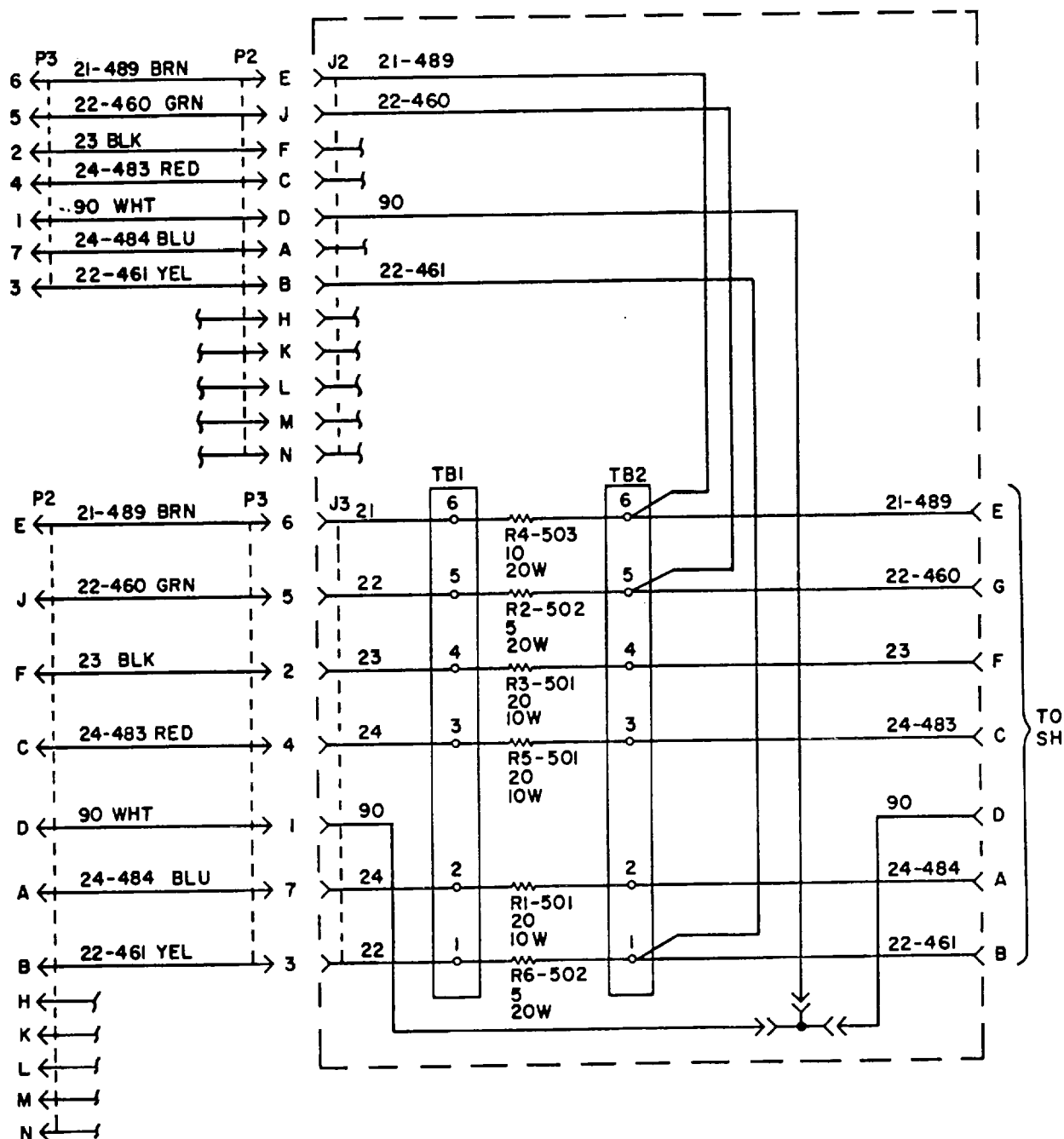
## 24. AIR MOTOR CYCLES SLOWLY

Step 1. Check external air pressure applied to hydraulic pump assembly air motor (1).

If air pressure is low (less than 60 psi), increase air pressure (60 to 120 PSI is desirable). If air pressure is within desired range, go to step 2.

Step 2. Check if air orifice (2) is partially restricted.

Remove air line fitting and clean orifice (2).



- NOTES: 1. UNLESS OTHERWISE SPECIFIED, ALL CABLE SHALL CONFORM TO SAE-J129Z,
2. HARNESS 5961321 IS SUPPLIED IN A QUANTITY OF ONE SHOWN IN BOTH 12V AND 24VOLT HOOKUP POSITIONS.

Figure 1. Dolly Set Schematic Wiring Diagram (Sheet 1 of 2)

**4-38**

DELIVERY \_\_\_\_\_  
 EMERGENCY \_\_\_\_\_  
 SERVICE \_\_\_\_\_  
 RETURN \_\_\_\_\_

1. HOSE COUPLING (GLADHANDS)
2. VALVE CONTROL PP-1
3. RELAY EMERGENCY VALVE RE-6
4. SAFETY VALVE 1/2 NPT (150 PSI)
5. SINGLE CHECK VALVE 1/2 NPT
6. DUMMY COUPLING
7. AIR RESERVOIR 7" X 18 (615CU. INCH)
8. VALVE RESERVOIR FILL
9. CONTROL VALVE TW-3 PARKING BRAKE



HYD PUMP AIR LINE HOSE  
 (LOOSE STORE IN FRONT PUMPS)

20'  
 SHELTER

FRONT DOLLY

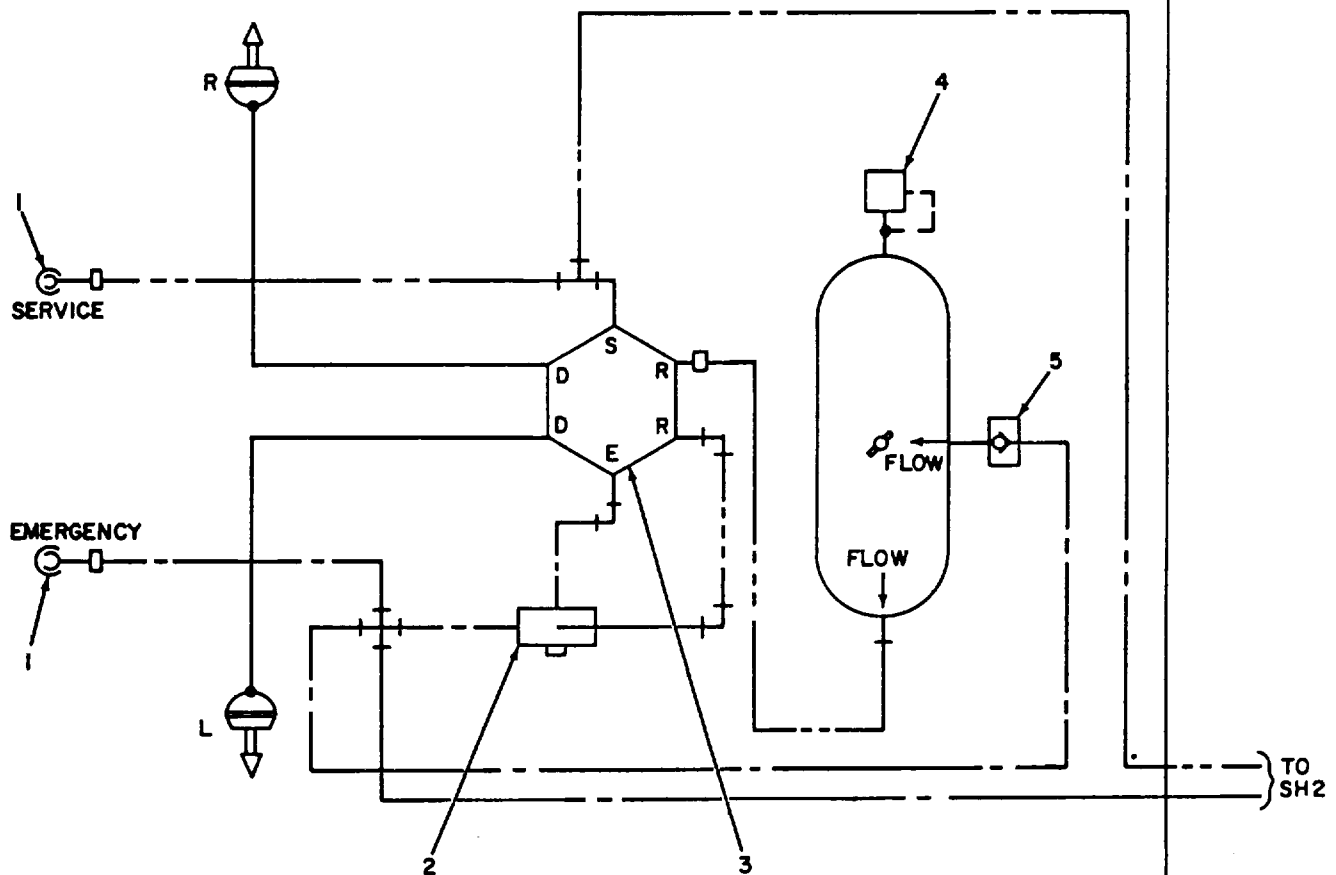


Figure 2. Dolly Set Air System Diagram (Sheet 1 of 2)

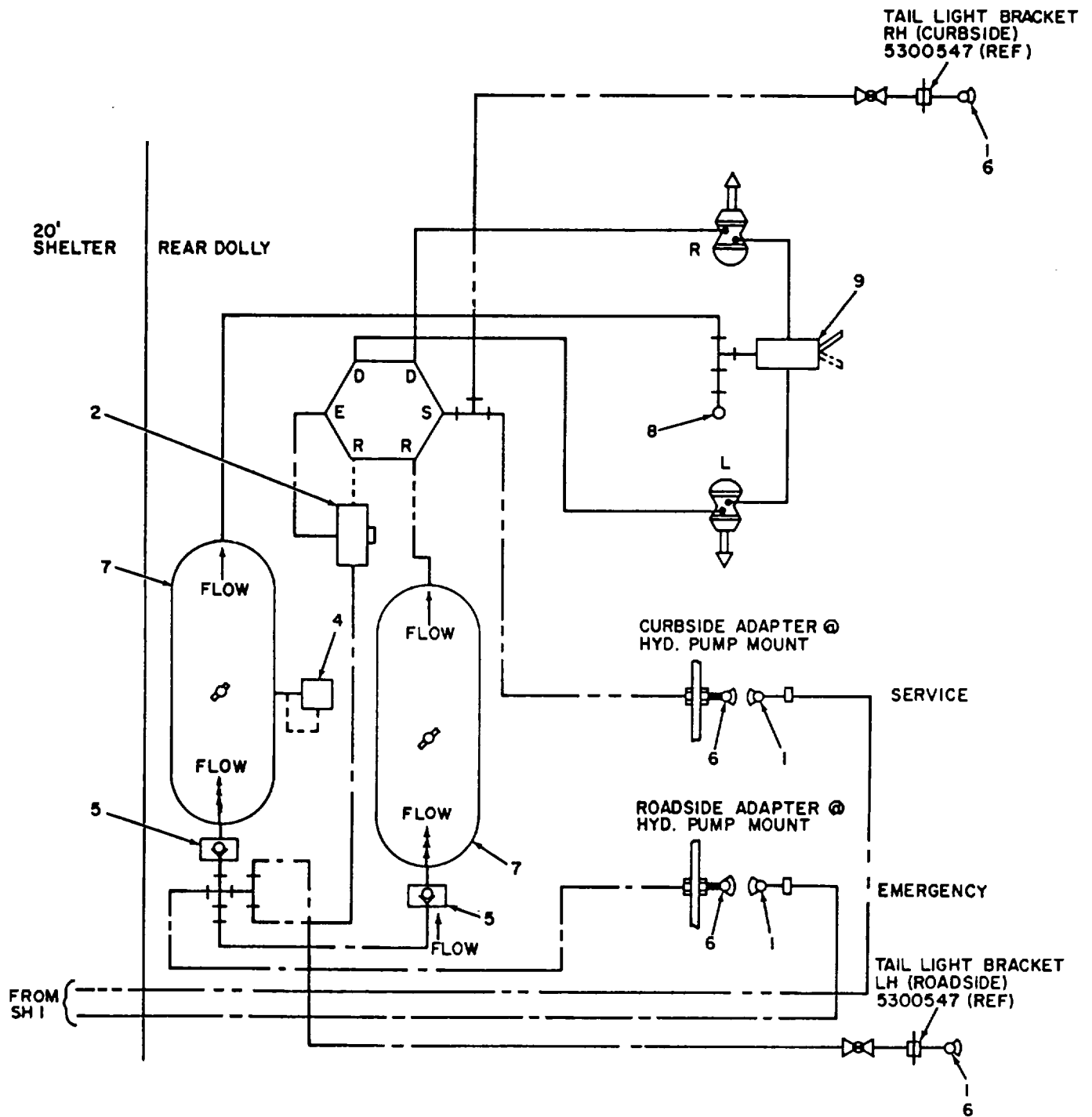


Figure 2. Dolly Set Air System Diagram (Sheet 2 of 2)

## Section VI CLEANING AND INSPECTION INSTRUCTIONS

	Page		Page
Cleaning Instructions.....	4-41	Inspection Instructions .....	4-42

### **WARNING**

Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment.

### **CLEANING INSTRUCTIONS**

- a. The cleaning instructions will be the same for the majority of parts and components which make up the M1022 dolly set.
- b. The importance of cleaning must be thoroughly understood by maintenance personnel. Great care and effort are required in cleaning. Dirt and foreign material are a constant threat to satisfactory maintenance. The following should apply to all cleaning, inspection, repair, and assembly operations.
  1. Clean all parts before inspection, after repair, and before assembly.
  2. Hands should be kept free of any accumulation of grease, which can collect dust, dirt, or grit.
  3. After cleaning, all parts should be covered or wrapped to protect them from dust and dirt, as applicable. Parts that are subject to rust should be lightly oiled.

#### Steam Cleaning

- a. Protect all electrical equipment which could be damaged by steam or moisture before steam cleaning the exterior of the dolly set.
- b. Place disassembled parts in a suitable container to steam clean.
- c. After cleaning, dry and cover (or lightly oil) all parts subject to rust.

#### Castings, Forgings, and Machined Metal Parts

### **WARNING**

Drycleaning solvent PD-680 is both toxic and flammable. Avoid prolonged breathing of vapors and avoid skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 138°F (58.8°C). Serious injury or death could result if this warning is not heeded.

- a. Clean inner and outer surfaces with drycleaning solvent.
- b. Remove grease and accumulated deposits with a stiff bristle brush.

**CLEANING INSTRUCTIONS - CONTINUED****WARNING**

Particles blown by compressed air are hazardous. Do not exceed 30 psi (207 kPa) air pressure. Make certain the air stream is directed away from user and other personnel in the area. To prevent injury, user must wear safety goggles or face shield when using compressed air.

- c. Blow out all tapped (threaded) holes with compressed air to remove dirt and cleaning fluids.

**Electrical Cables, Flexible Hose, and Oil Seals****CAUTION**

Washing electrical cables and flexible hoses with drycleaning solvents or mineral spirits will cause serious damage or destroy the cable/hose material.

Wash electrical cables and flexible hoses with water and a mild soap solution, and wipe dry. Oil seals are generally damaged during removal, so cleaning will not be necessary since new seals will be used in assembly.

**Bearings**

Refer to TM 9-214 for instructions and procedures covering care and maintenance of bearings.

**INSPECTION INSTRUCTIONS**

All components and parts must be carefully checked to determine:

- a. If they are serviceable for reuse.
- b. If they can be repaired.
- c. If they must be scrapped.

**Drilled and Tapped (Threaded) Holes**

- a. Inspect for wear, distortion, cracks, or any other damage in, or around holes.
- b. Inspect threaded areas for wear, distortion (stretched), or evidence of cross-threading.
- c. Mark all damaged areas for repair or replacement.



## Section VII ELECTRICAL SYSTEM MAINTENANCE

	Page		Page
Component Testing .....	4-59	Junction Box.....	4-43
Composite Light .....	4-52	Rear Harness and Receptacle .....	4-57
Composite Light Assembly .....	4-54	Wiring Harness Repair .....	4-62
Interdolly Cable .....	4-66		

### JUNCTION BOX

---

#### This task covers:

- |   |  |
|---|--|
| a. Junction box cover removal<br>(page 4-43)  | e. Installation of junction box<br>(page 4-47)     |
| b. Removal of resisters (page 4-44)           | f. Installation of resisters (page 4-48)           |
| c. Removal of other components<br>(page 4-45) | g. Installation of other components<br>(page 4-47) |
| d. Removal of junction box<br>(page 4-46)     | h. Junction box cover installation<br>(page 4-51)  |
- 

#### INITIAL SETUP:

##### Tools

General mechanics tool set

##### Equipment Condition

No special requirements

##### Materials/Parts

Resistors (as required)  
Adhesive sealant (Appendix E,  
Item 10)

---

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

---

#### JUNCTION BOX COVER REMOVAL

- |                       |  |         |
|-----------------------|--|---------|
| 1 Junction box<br>(6) | Six screws (1), six<br>lock washers (2),<br>and six nuts (3) | Remove. |
| 2                     | Cover (4) and<br>gasket (5)                                  | Remove. |

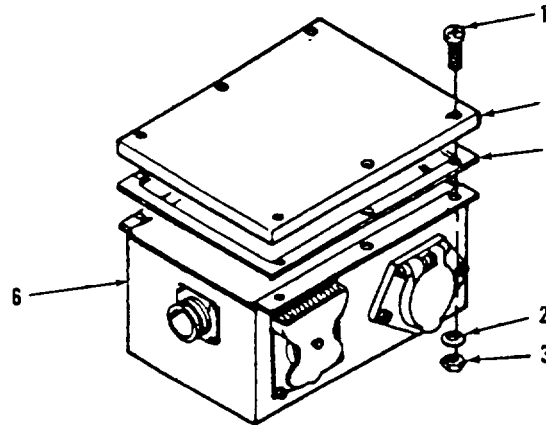
#### NOTE

Junction box can be removed from front adapter without removing any components from within the junction box. Refer to page 4-46 for direct removal of junction box.

## JUNCTION BOX - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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### JUNCTION BOX COVER REMOVAL - CONTINUED

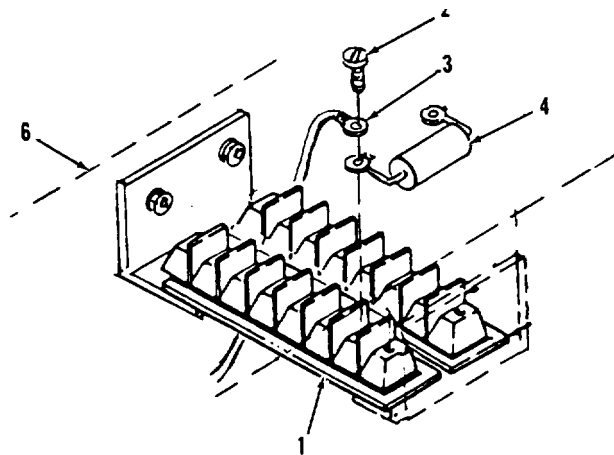


### REMOVAL OF RESISTORS

#### NOTE

If the harness is to be used again, check that identification tags are not missing before removing wires from terminal blocks. If any tags are missing, be sure to tag wires before removing wires.

3 Junction box terminal boards (1)	Twelve screws (2), fifteen terminals (3), and six resistors(4)	Remove.
------------------------------------	--	---------



**JUNCTION BOX - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL OF OTHER COMPONENTS</b>		
4 Junction box (1)	Two terminal boards (2), two terminal strips (3), four screws (4), four lock washers (5) and four nuts (6)	Remove.
5	Two brackets (7), four screws (8), four lock washers (9), and four nuts (10)	Remove.
6	Connector J3 (11), two screws (12), two lock washers (13) and two nuts (14)	Remove connector J3 (11) with harness (15) and attaching hardware.
7	Harness (15) and connector J3 (11)	Remove ends of harness wires (15) from connector J3 (11).
8	Receptacle cover assembly (16), harness and receptacle J2 (17), gasket (18), four screws (19), four lock washers (20) and four nuts (21)	Remove receptacle cover assembly (16), harness assembly J2 (17), and attaching hardware.
9	Harness and receptacle J1 (22), four screws (23), four lock washers (24), and four nuts (25)	Remove harness and receptacle J1 (22) and associated hardware.

# JUNCTION BOX - CONTINUED

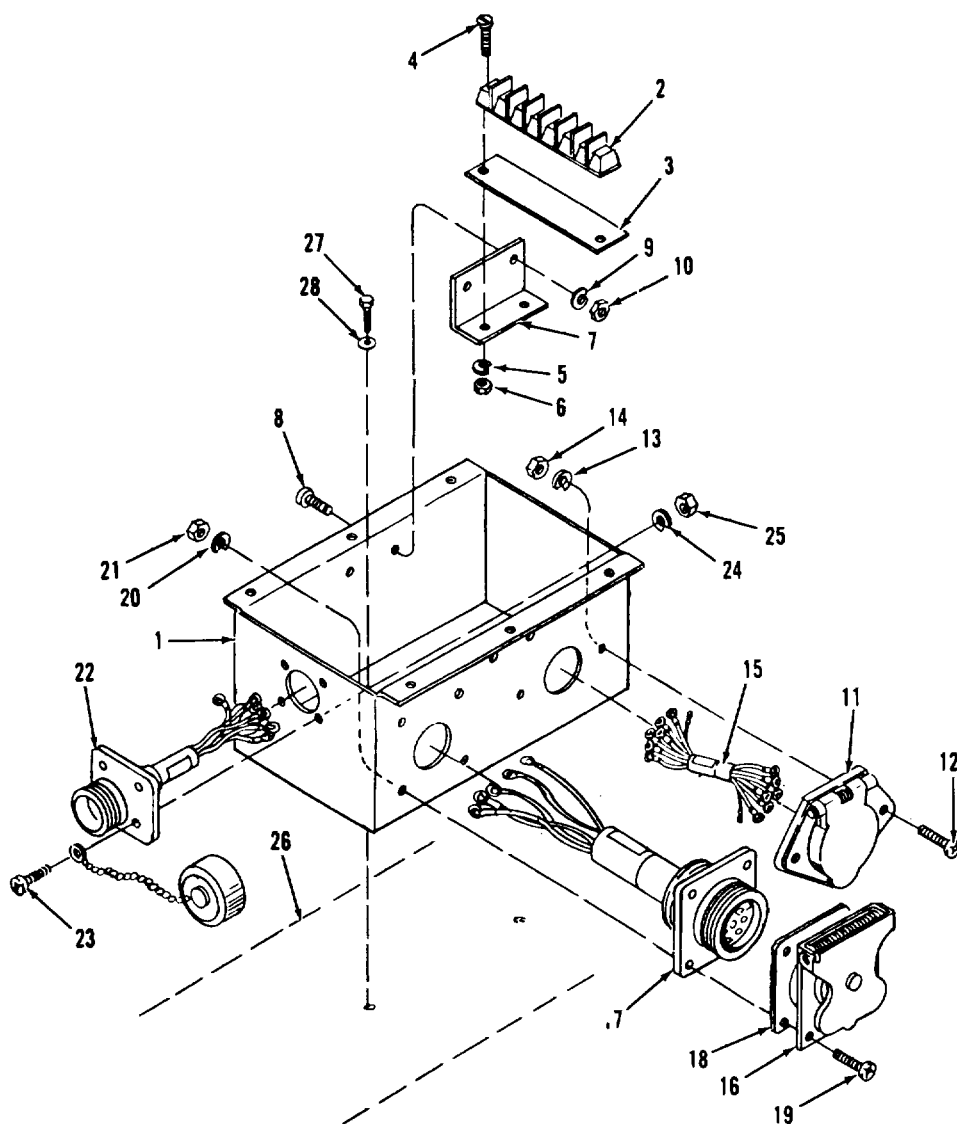
LOCATION	ITEM	ACTION	REMARKS
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## REMOVAL OF JUNCTION BOX

10 Front Adapter  
(26)

Junction box (1),  
two screws (27),  
and two washers  
(28)

Remove junction box (1) from front  
adapter (26).



## JUNCTION BOX - CONTINUED

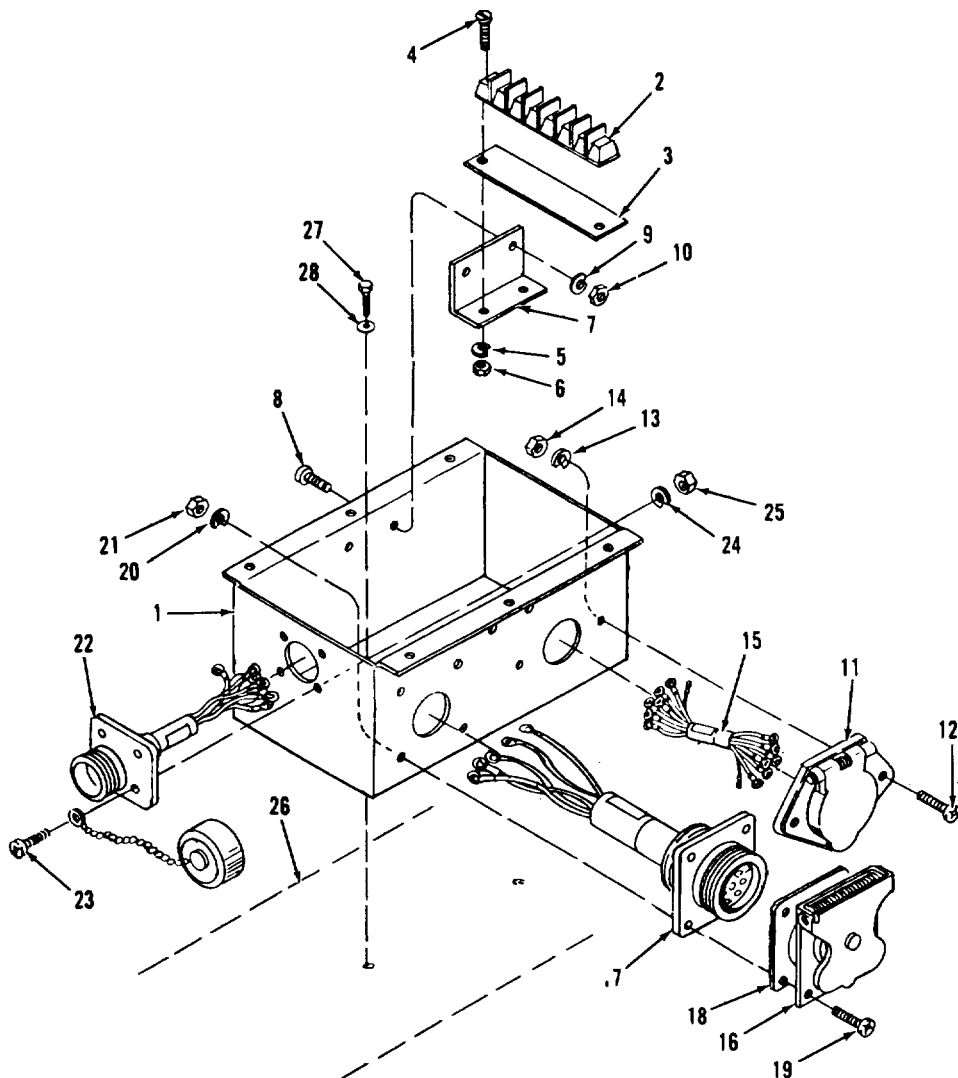
LOCATION	ITEM	ACTION REMARKS
INSTALLATION OF JUNCTION BOX		
11 Front adapter (26)	Junction box (1), two screws (27), and two washers (28)	Secure junction box (1) to front adapter (26) with two screws (27) and two washers (28).
INSTALLATION OF OTHER COMPONENTS		
12 Junction box (1)	Harness and receptacle J1 (22), four screws (23), four lock washers (24), and four nuts (25).	<ol style="list-style-type: none"> <li>Carefully route harness attached to receptacle J1 (22) through "J1" opening on junction box (1).</li> <li>Secure receptacle J1 (22) and cover to junction box (1) with four screws (23), four lock washers (24), and four</li> </ol>
13	Receptacle cover assembly (16), harness and receptacle J2 (17), gasket (18), four screws (19), four lock washers (20), and four nuts (21)	<ol style="list-style-type: none"> <li>Place gasket (18) over receptacle J2 (17) and hold in place.</li> <li>Carefully place receptacle J2 (17) through "J2" opening on junction box (1).</li> <li>Secure receptacle cover assembly (16), gasket (18) and harness and receptacle J2 (17) to junction box (1) using four screws (19), four lock washers (20), and four nuts (21).</li> </ol>
14	Harness (15) and connector J3 (11)	<ol style="list-style-type: none"> <li>Install individual harness wires (15) to proper pins on connector J3 (11).</li> </ol>
15	Connector J3 (11), two screws (12), two lock washers (13) and two nuts (14)	<ol style="list-style-type: none"> <li>Carefully place connector J3 (11) through "J3" opening on junction box (1) from exterior of junction box. Secure connector J3 (11) to junction box (1) with two screws (12), two lock washers (13), and two nuts (14).</li> </ol>

# JUNCTION BOX - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

## INSTALLATION OF OTHER COMPONENTS - CONTINUED

16	Two brackets (7), four screws (8), four lock washers (9) and four nuts (10)	Secure two brackets (7) to junction box (1) using four screws (8), four lock washers (9) and four nuts (10).
17	Two terminal boards (2), two terminal strips (3), two screws (4), lock washers (5), two nuts (6) for each terminal strip	Secure two terminal boards (2), two terminal strips (3) to brackets (7) with two screws (4), two lock washers (5) and two nuts (6) for each terminal strip.



**JUNCTION BOX - CONTINUED****INSTALLATION OF OTHER COMPONENTS - CONTINUED****NOTE**

Use this chart to properly locate the leads from connector J3.

WIRE IDENTIFICATION TAG	NUMBER ON TERMINAL BOARDS
	TB-2 (FROM J2) TB-1 (FROM
24-484	1 (R1)
22-460	2 (R2)
23	3 (R3)
21-489	4 (R4)
24-483	5 (R5)
22-461	6 (R6)
90	Ground lug

**NOTE**

Use this chart to properly locate the leads from connectors J1 and J2.

WIRE IDENTIFICATION TAG	NUMBER ON TERMINAL BOARDS
TB-2 (FROM J2) TB-1 (FROM J3)	
24-484	1
22-460	2
23	3
21-489	4
24-483	5
22-461	6
90	Ground lug

## JUNCTION BOX - CONTINUED

### INSTALLATION OF OTHER COMPONENTS - CONTINUED

#### NOTE

All wires should have identification tags. If any wires do not have an identification tag, refer to the schematic diagram (page 4-37) to locate the destination of the wire.

### INSTALLATION OF RESISTORS

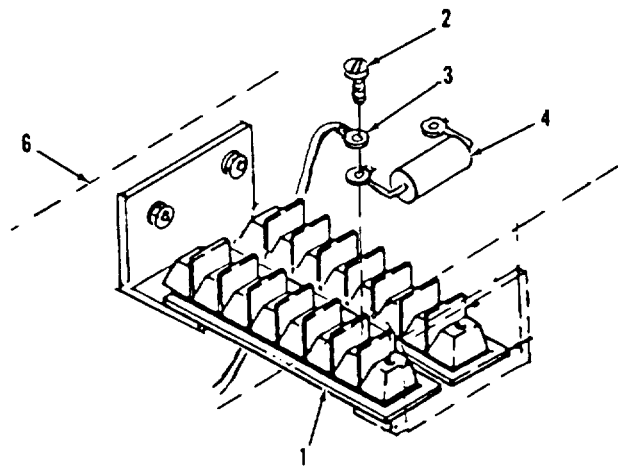
- 18 Junction box Twelve screws  
terminal (2), fifteen  
boards (1) terminals (3),  
and six  
resistors (4)
- a. Refer to schematic wiring diagram (page 4-37) and note location of all resistors (4) and wiring to terminal strips TB-1 and TB-2.
  - b. Secure terminals (3) from wiring harnesses and resistors (4) to terminal boards (1) using screws (2).

#### NOTE

Use this chart to properly locate the resistors to the terminal boards.

RESISTOR PART NUMBER	TERMINAL BOARD LOCATION		
	TB-2	TB-1	
20 ohms 10 w	5600342-501	1	1
5 ohms 20 w	5600342-502	2	2
20 ohms 10 w	5600342-501	3	3
10 ohms 20 w	5600342-503	4	4
20 ohms 10 w	5600342-501	5	5
5 ohms 20 w	5600342-502	6	6

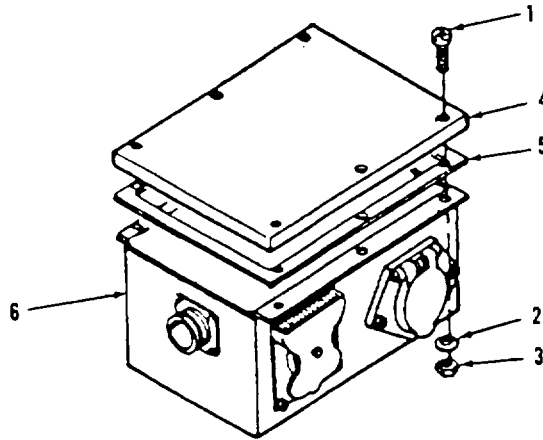




4-50

## JUNCTION BOX - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
JUNCTION BOX COVER INSTALLATION			
19 Junction box (6)	Cover (4) and gasket (5)	Place gasket (5) and cover (4) on junction box (6).	
20	Six screws (1), six lock washers (2), and six nuts (3)	Secure cover (4) and gasket (5) to junction box (6) using cross-tip screwdriver.	



**TASK ENDS HERE**

## COMPOSITE LIGHT

---

### This task covers:

- a. Lamp and lens removal (page 4-52)
  - b. Cleaning and inspection (4-52-)
  - c. Lamp and lens installation (page 4-53)
- 

### INITIAL SETUP:

#### Tools

General mechanics tool set

#### Equipment Condition

No special requirements

#### Materials/Parts

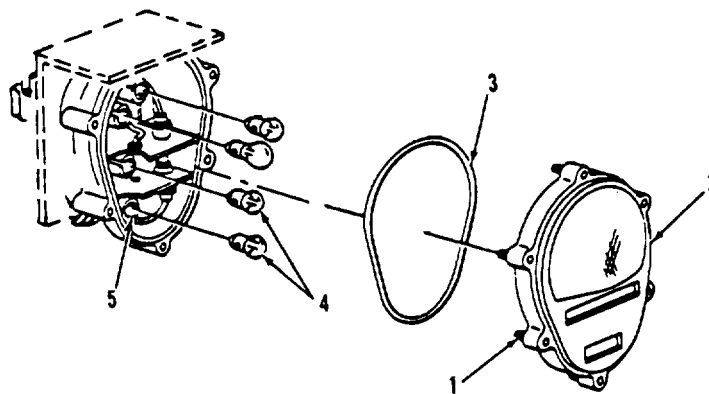
Lamps (as required)  
Preformed packing (if required)  
Sandpaper, 00

---

LOCATION	ITEM	ACTION	REMARKS
LAMP AND LENS REMOVAL			
1 Composite light	Six screws (1) and door and lens (2)	Unscrew captive screws (1) and remove door and lens (2).	
2 Door and lens (2)	Preformed packing (3)	Inspect for damage. If damaged, remove packing and throw away.	
<b>NOTE</b> Only remove lamps that do not work.			
3 Composite light	Four lamps (4) b.	a. Push in and turn counterclockwise. Remove lamp.	
CLEANING AND INSPECTION			
4 Light assembly	Lamp sockets (5)	Inspect for corrosion after lamp is removed. If corroded, clean with 00 sandpaper.	

## COMPOSITE LIGHT- CONTINUED

LOCATION	ITEM	ACTION	REMARKS
LAMP AND LENS INSTALLATION			
5 Composite light	Lamps (4)	Put each lamp (4) into individual socket (5), push in and turn clockwise to lock.	
6 Door and lens (2)	Preformed packing (3)	Install into groove in door and lens (2), if removed.	
7 Composite light	Door and lens (2) and six screws (1)	Install door and lens (2) and secure with six captive screws (1)	



**TASK ENDS HERE**

## COMPOSITE LIGHT ASSEMBLY

---

This task covers:

- a. Removal (page 4-54)
  - b. Installation (page 4-55)
- 

### INITIAL SETUP:

#### Tools

General mechanics tool set

#### Equipment Conditions

No special requirements

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LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

---

### REMOVAL

#### NOTE

Make sure marker bands are not missing from wiring and that bands are readable before taking electrical connectors apart. Tag wiring if necessary.

- |  |   |  |
|--|---|--|
| 1 Bracket (1)<br>(part of<br>platform) | Four connectors<br>(2)                  | a. Pull from clip assembly (6).<br>b. Separate halves of connectors (2) from<br>rear harness assembly. |
| 2 Composite<br>light (3)               | Two screws (4<br>and two washers<br>(5) | Remove.  |

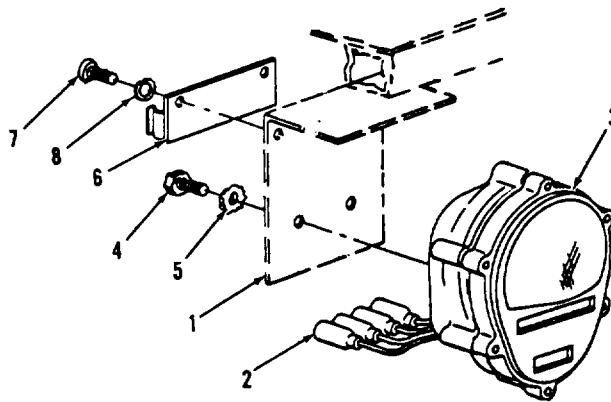
#### NOTE

Do step 3 only if clip assembly (6) is damaged.

- |                          |   |         |
|--------------------------|---|---------|
| 3 Clip assem-<br>bly (6) | Clip assembly<br>(6), two screws<br>(7), and two<br>washers (8) | Remove. |
|--------------------------|---|---------|

## COMPOSITE LIGHT ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
INSTALLATION			
NOTE			
Omit step 4 if clip assembly (6) was not previously removed.			
4 Bracket (1)	Clip assembly (6), two screws (7), and two lock washers (8)	Install.	
5 Composite Light (3)	Two screws (4), and two washers (5)	Install.	
6 Clip assembly (6)	Four connectors (2)	a. Match identification tags with wires on rear harness assembly and snap together. b. Snap four connectors (2) into clip assembly (6).	



**TASK ENDS HERE**

## INTERDOLLY CABLE

This task covers:

- a. Removal (page 4-56)
- b. Installation (page 4-56)

### INITIAL SETUP:

Tools

General mechanics tool set

Equipment Conditions

No special requirements

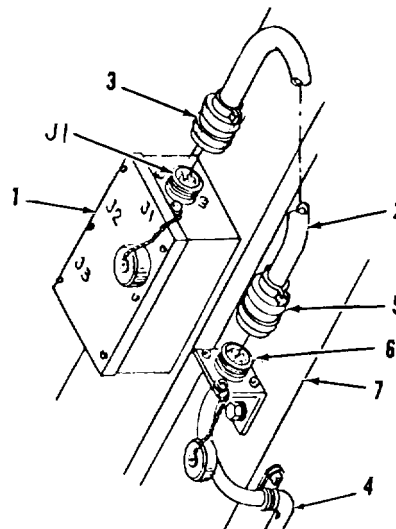
LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

### REMOVAL

1 Junction box (1)	Interdolly cable (2) and plug P1 (3)	Disconnect from receptacle J1 on junction box (1).
2 Rear harness assembly (4)	Interdolly cable plug P4 (5)	Disconnect from rear harness assembly connector (6).

### INSTALLATION

3 Frame (7)	Interdolly cable (2)	Position interdolly cable (2) with respect to dolly set frame (7), junction box (1), and rear harness assembly (4).
4 Junction Box (1)	Interdolly cable plug P1 (3)	Plug into receptacle J1 on junction box (1) and tighten.
5 Rear harness assembly (4)	Interdolly cable plug P4 (5)	Plug into receptacle (6) on rear harness assembly and tighten



TASK ENDS HERE

REAR HARNESS AND RECEPTACLE

- This task covers:
- a. Removal (page 4-57)
  - b. Installation (page 4-57)

INITIAL SETUP:

Tools	Equipment Condition
General mechanics tool set	Composite lights removed (page 4-54).
	Materials/Parts
	Clamps and screws (as required)

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
1 Rear adapter	Four screws (1), four nuts (2), four lockwashers (3), cap (4), and receptacle (5)	Take off.	
2 Rear adapter (6) and frame (7)	Rear harness (8), clamps (9), and screws (10)	Take off of rear adapter and frame.	
3 Composite tail light	Rear harness assembly (8)	Disconnect from both composite tail lights if composite tail lights have not been removed.	
4 Receptacle bracket (11)	Two screws (12) and lockwashers (13)	Remove.	

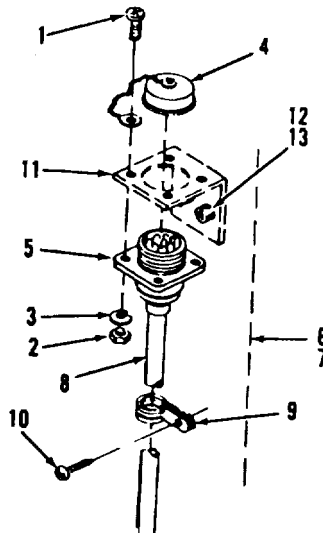
INSTALLATION

NOTE			
Ensure wiring between rear harness assembly leads and composite tail lights are properly mated and that all tagged wires are properly connected.			
5 Composite tail light	Rear harness assembly (8)	Connect both rear harness assembly leads to respective composite tail lights.	



# REAR HARNESS AND RECEPTACLE - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
6 Rear adapter (6) and frame (7)	Rear harness (8) frame.	Position harness on rear adapter and	
7 Rear adapter (6), frame (7) and receptacle clamps (9)	Rear harness (8), clamps (9), and screws (10)	Secure rear harness (8) to rear adapter (6) and frame (7).	
8 Rear adapter (6)	Receptacle bracket (11), two screws (12) and lockwashers (13)	Position bracket (11) in place on adapter (6) and secure with two screws (12) and lockwashers (13).	
9 Rear adapter (6)	Four screws (1), four nuts (2), four lockwashers (3), cap (4), and receptacle (5)	Secure receptacle (5) and cap (4) with four screws (1), four lockwashers (3), and four nuts (2).	



## NOTE

FOLLOW-ON MAINTENANCE: Install composite lights (page 4-55).

**TASK ENDS HERE**

COMPONENT TESTING

- This task covers:
- a. Removal (page 4-59)
  - b. Installation (page 4-60)

INITIAL SETUP:

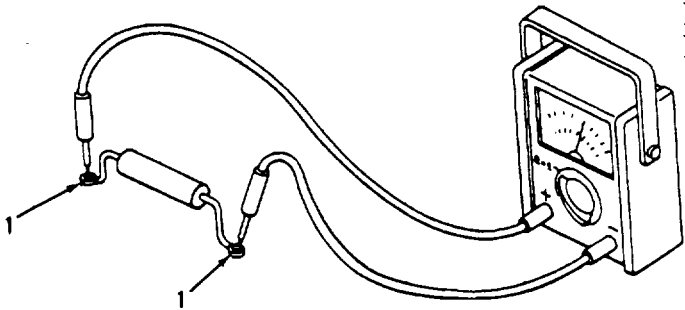
Tools	Equipment Condition
General mechanics tool set	Lamps removed (page 4-52)
Multimeter	Harnesses removed (page 4-57)
	Resistors removed (page 4-44)
	All power sources disconnected.
	Multimeter set to ohms position.

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

TESTING RESISTORS

- |            |  |   |
|------------|--|---|
| 1 Resistor | Two terminals<br>(1) terminal of resistor. | a. Attach one lead of multimeter to each          |
|            |  | b. Read resistance value indicated on multimeter. |
- If meter indicates infinite resistance, discard resistor and replace.
- If meter indicates no resistance (zero ohms; short circuit) discard resistor and replace.
- If resistance values differ by more than 20% from proper values listed below, discard resistor and replace.

- R1 20 ohms; 10 W
- R2 5 ohms; 20 W
- R3 20 ohms; 10 W
- R4 10 ohms; 20 W
- R5 20 ohms; 10 W
- R6 5 ohms; 20 W



## COMPONENT TESTING - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

### TESTING HARNESS

#### NOTE

This is a typical test procedure for a wiring harness. Refer to wiring schematic (page 4-37).

Step 3 is a continuity check. Use the following charts to identify each individual wire in the harness.

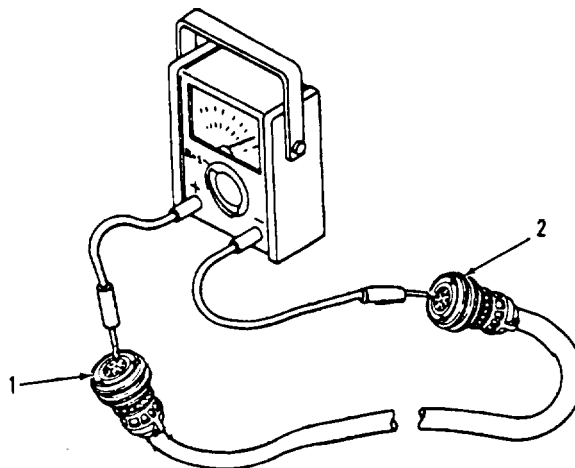
Connectors J2 and J3 referenced in the TERMINAL DESIGNATION column below reference the connectors on the junction box that mate with the intervehicular cable that provides power from the towing vehicle. Mating connectors P2 and P3 reference the connectors on the intervehicular cable. There are no blackout lighting circuits associated with the 12-Volt commercial wiring circuit.

#### Commercial (12-Volt) Wiring (P2/J2)

TERMINAL DESIGNATION	CIRCUIT NUMBER	CONNECTS TO
(Connector P2/J2)		
D	90	Ground
B	22-461	Stop and left directional light
J	22-460	Stop and right directional light
E	21-489	Service Clearance
Military (24-Volt) Wiring (P3/J3)		
(Connector P3/J3)		
7	24-484	Left blackout taillight
3	22-461	Left stop and directional light
4	24-483	Right blackout taillight
1	90	Ground
6	21-489	Service clearance
2	23	Blackout stoplight
5	22-460	Right stop and directional light

## COMPONENT TESTING - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
TESTING HARNESS - CONTINUED			
2 Wiring harness	Harness terminals (1) and (2)	<ol style="list-style-type: none"> <li>Attach one lead of the multimeter to each common terminal (1) and (2) for the same wire. If the multimeter indicator does not indicate zero ohms for every wire, the harness is bad.</li> <li>Repeat (a) while bending and twisting the harness. If the multimeter indicator fluctuates (indicating infinite resistance; an open circuit) for any wire, the harness is bad.</li> </ol>	
3 Wiring harness	Harness terminals (1) and (2)	<ol style="list-style-type: none"> <li>Attach one lead of the multimeter to one terminal (1). Probe all other terminals (2) with the other lead of the multimeter. If the needle of the multimeter indicates zero ohms for any two different wires, it indicates that the harness is shorted.</li> <li>Repeat (a) while bending and twisting the harness. If the multimeter needle indicates zero ohms, the harness is bad.</li> <li>Repeat steps (a) and (C) for each terminal (1).</li> </ol>	



TASKS END HERE

## Section VIII STEERING SYSTEM MAINTENANCE

	Page		Page
Front Wheel Toe-in .....	4-73	Steering Knuckle Assembly.....	4-62
Rear Spindles.....	4-77	Tie Rod Assembly .....	4-70
Steering Link .....	4-75		

### STEERING KNUCKLES

This task covers:

- Bushing inspection (page 4-65)
- Removal (page 4-62)
- Installation (page 4-67)

### INITIAL SETUP:

#### Tools

General mechanics tool set  
Lifting jack  
Tie rod separator

#### Materials/Parts

New cotter pins  
Grease, GAA (item 2, Appendix E)

#### Equipment Conditions

Wheel, hub and brake drum removed  
(page 4-145).  
Air brake system depressurized  
(page 4-93).

LOCATION	ITEM	ACTION	REMARKS
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### REMOVAL

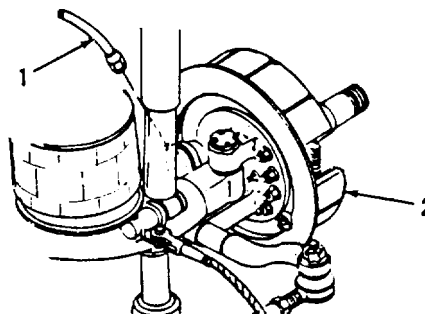
#### NOTE

Procedure is for the removal of one steering knuckle. Although both knuckles are different the procedure for both sides is identical.

1 Front wheel  
brake  
assembly (1)

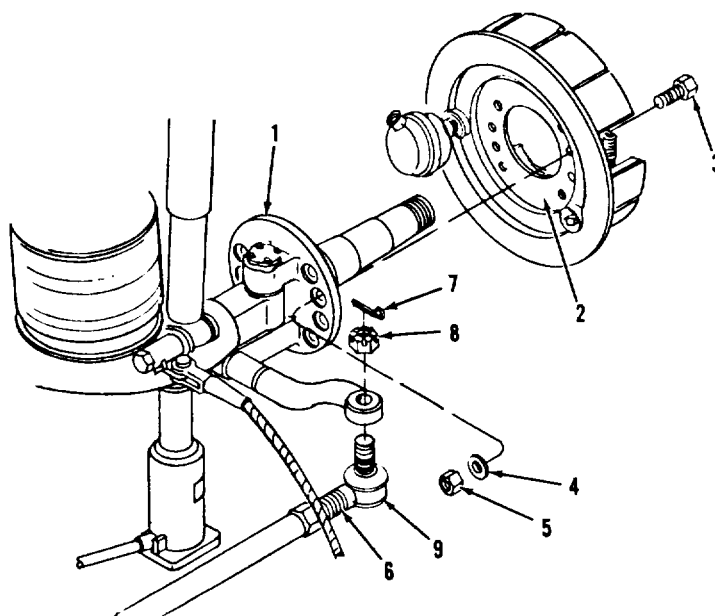
Air brake hose  
(2)

Remove air brake hose (2) from front



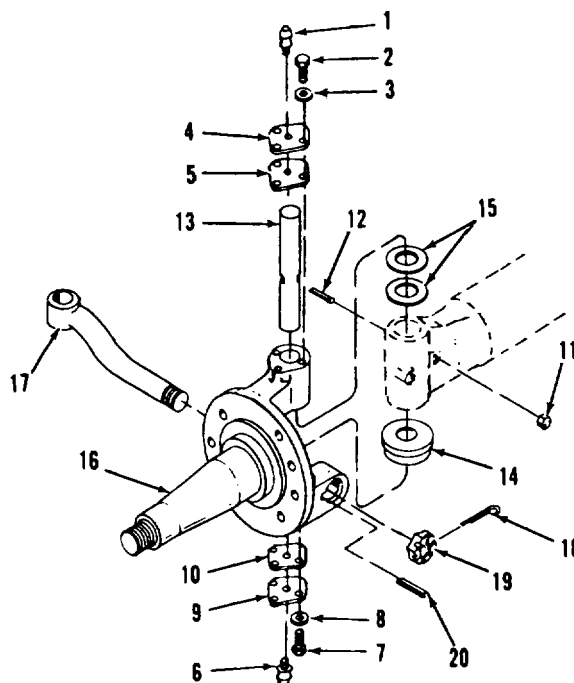
## STEERING KNUCKLES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
REMOVAL - CONTINUED			
2 Steering knuckle assembly (1)	Spider (2), eight capscrews (3), eight flat washers (4), and eight nuts (5)	Remove mounting hardware.	
3 Steering knuckle assembly (1)	Spider (2)	Remove.	
4 Steering knuckle assembly (1) and tie rod socket (6)	Cotter pin (7) and nut (8)	a. Remove and discard cotter pin (7). b. Unscrew nut (8) and take off.	
5 Steering knuckle assembly (1)	Tie rod end (9)	Using hammer and tie rod separator, separate tie rod end (9) from steering knuckle assembly (1).	



# STEERING KNUCKLES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
REMOVAL - CONTINUED			
6 Steering knuckle assembly, top side	Grease fitting (1), two cap-screws (2), two lockwashers (3), steering knuckle cap (4), and gasket (5)	a. Remove grease fitting (1). b. Remove capscrews (2) and lockwashers (3). c. Remove cap (4) and gasket (5).	
7 Steering knuckle assembly, bottom side	Grease fitting (6), two cap-screws (7), two lockwashers (8), steering knuckle cap (9), and gasket (10)	a. Remove grease fitting (6). b. Remove capscrews (7) and lockwashers (8). c. Remove cap (9) and gasket (10).	



## STEERING KNUCKLES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
REMOVAL - CONTINUED		
8 Steering knuckle assembly	Draw key nut (11) and draw key (12)	a. Unscrew and remove draw key nut (11) part way. b. Tap draw key (12) from nut side and push out. c. Remove draw key nut (11) and draw key (12).
9 Lower arm assembly	Knuckle pin (13), thrust bearing (14), shims (15), and steering knuckle (16)	a. Using hammer and punch, take out knuckle pin (13). b. Take off remaining parts.
10 Steering knuckle (16)	Steering arm (17), cotter pin (18), steering arm nut (19), and key (20)	a. Remove cotter pin (18). b. Unscrew steering arm nut (19). c. Pull key (20) out and remove steering arm (17).

## BUSHING INSPECTION

- Inspect the steering knuckles, king pins, steering arms and tie rod arms and replace if indications of weakness, cracks or excessive wear are found. Cracks can be located by dye check, magnetic particle or fluorescent particle inspection performed by a qualified technician.
- Check spindle bearing diameters for size and condition. Replace spindle if bearing diameters are under wear limits, discolored from heat or severely scored.
- If tie rod arm or steering arm has been removed, inspect tapers for fretting pits. If the tapered hole in the knuckle is fretted and pitted replace both the knuckle and the arm. If only the arm taper is fretted, replace only the arm.
- If the king pin has worn through the bushing and into the knuckle, replace the knuckle.



## STEERING KNUCKLES - CONTINUED

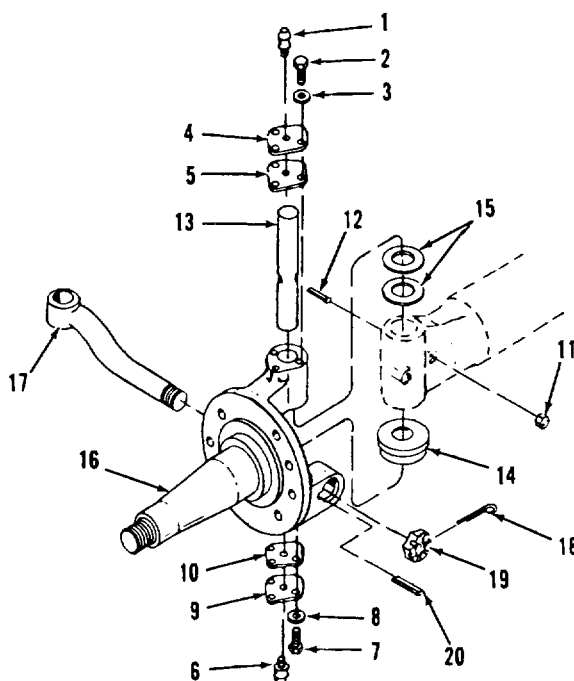
LOCATION	ITEM	ACTION	REMARKS
BUSHING INSPECTION - CONTINUED			
		e. Check the tightness of the steering connections such as cross tube arms, steering arm, etc. For units with sealed knuckle pins, check knuckle pin seal for rips, tears and excessive wear. Do not remove the seals from the steering knuckle unless replacement is necessary or the knuckle is to be rebushed. g. Remove the thrust bearing seal from the thrust bearing case and inspect the seal for wear, rips and tears. On aluminum axles with integral seals, do not remove seal. h. Check thrust bearing. i. Check knuckle pin bushings for wear, flaking or scoring. Compare diameter with correct wear limit. If the bushing diameter is .010" greater than the new bushing dimension, replace the bushings. j. Check axle center bore for condition and size. Replace center if bore is 0.001" greater than wear limit.	

**CAUTION**

Any indication of looseness in the total steering linkage arrangement under normal steering loads is sufficient cause to immediately check all pivot points for wear, regardless of accumulated mileage. Steering linkage pivot points should be checked each time the axle assembly is lubricated.

## STEERING KNUCKLES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
INSTALLATION			
11 Steering knuckle (16)	Steering arm (17), steering arm nut (19), cotter pin (18), and key (20)	a. Attach steering arm (17) to steering knuckle (16), and install key (20). b. Secure steering arm (17) to steering knuckle (16) with steering arm nut (19) and cotter pin (18).	
12 Lower arm assembly	Steering knuckle assembly (16), thrust bearing (14), shims (15), knuckle pin (13), and draw key (20)	a. Place steering knuckle assembly (16), thrust bearing (14), and shims (15), in position on lower arm assembly. b. Coat inside of bearing surfaces with grease and put in knuckle pin (13). Make sure flat portion on knuckle pin (13) is aligned to draw key (20).	
13 Knuckle assembly (16)	Draw key (12) and draw key nut (11)	a. Install draw key (12) and tighten. b. Screw in draw key nut (11) and tighten.	
14 Knuckle assembly, top side	Gasket (5), steering knuckle cap (4), two lockwashers (3), and two cap-screws (2)	Position steering knuckle cap (4) and gasket (5) on top of steering knuckle assembly (16) and secure with two lockwashers (3), and two capscrews (2).	

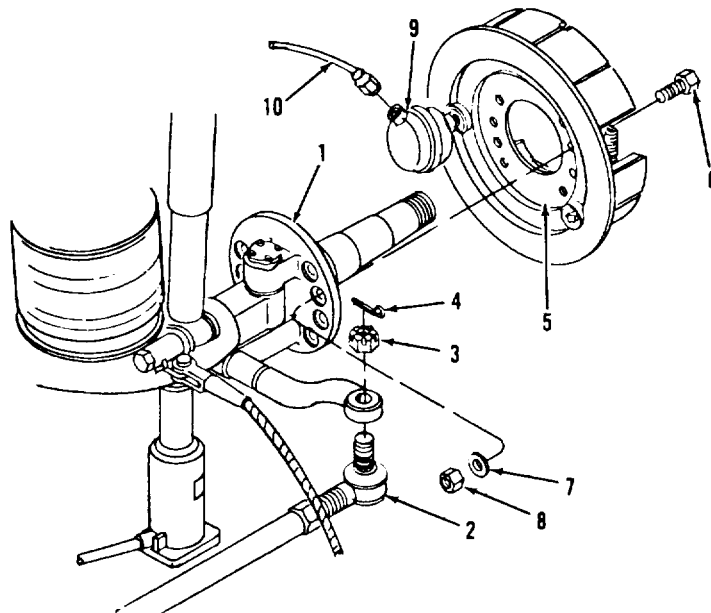


## STEERING KNUCKLES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
15	Grease fitting (1)	a. Lubricate (with grease) top of knuckle assembly through hole in steering knuckle cap (4). b. Secure grease fitting (1) to steering knuckle cap (4).
16 Knuckle assembly, bottom side	Gasket (10), steering knuckle cap (9), two lockwashers (8), and two capscrews (7)	Position steering knuckle cap (9) and gasket (10) on bottom of knuckle assembly (16) and secure with two lockwashers (8) and two capscrews (7).
17	Grease fitting (6)	a. Lubricate (with grease) bottom of steering knuckle assembly through hole in steering knuckle cap (9). b. Secure grease fitting (6) to steering knuckle cap (9).

## STEERING KNUCKLES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
INSTALLATION - CONTINUED			
18 Knuckle assembly (1)	Tie rod end (2), nut (3) and cotter pin (4)	<ol style="list-style-type: none"> <li>Lubricate tie rod ends (2).</li> <li>Push tie rod end (2) into steering knuckle assembly (1).</li> <li>Screw on nut (3) and tighten.</li> <li>Install new cotter pin (4).</li> </ol>	
19 Knuckle assembly (1)	Spider (5), eight capscrews (6), eight flat-washers (7), and eight nuts (8)	<ol style="list-style-type: none"> <li>Install spider (5).</li> <li>Secure with eight capscrews (6), eight flat washers (7), and eight nuts (8).</li> <li>Torque nuts (8) to 160 lb. ft.</li> </ol>	
20 Front wheel brake air chamber (9)	Air brake hose (10)	<ol style="list-style-type: none"> <li>Attach air brake hose (10) to front brake air chamber (9).</li> </ol>	



**NOTE**  
FOLLOW ON MAINTENANCE

1. Install hub and drum (page 4-148).
2. Pressurize air brake system (page 4-93).

**TASK ENDS HERE**

**TIE ROD ASSEMBLY**


---

This task covers:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>a. Removal</li> <li>b. Service (page 4-71)</li> </ul> | <ul style="list-style-type: none"> <li>c. Repair (Disassembly/Replacement/Reassembly) ( page 4-71_</li> <li>d. Installation (page 4-71)</li> </ul> |
|--|--|
- 

**INITIAL SETUP:**

## Tools

General mechanics tool set  
Hammer, hand, 2 pounds

## Equipment Conditions

No special requirements

## Materials/Parts

Cotter pin (two required)  
Tie rod ends (two required)

---

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

---

## REMOVAL

**NOTE**

Removal and installation procedures are given for one tie rod.

- |                        |                                      |   |
|------------------------|--------------------------------------|---|
| 1 Steering knuckle (1) | Cotter pin (2) and nut (3)           | <ul style="list-style-type: none"> <li>a. Using pliers, pull out and discard cotter pin (2).</li> <li>b. Using box wrench, unscrew nut (3) and remove.</li> </ul> |
| 2                      | Tie rod end (4)                      | Using a hammer, remove tie rod end (4) from steering knuckle (1).   |
| 3 Steering link (5)    | Tie rod end (6) and tie rod tube (7) | <ul style="list-style-type: none"> <li>a. Repeat steps 1 and 2 for tie rod end (6).</li> <li>b. Remove tie rod tube (7).</li> </ul>                               |

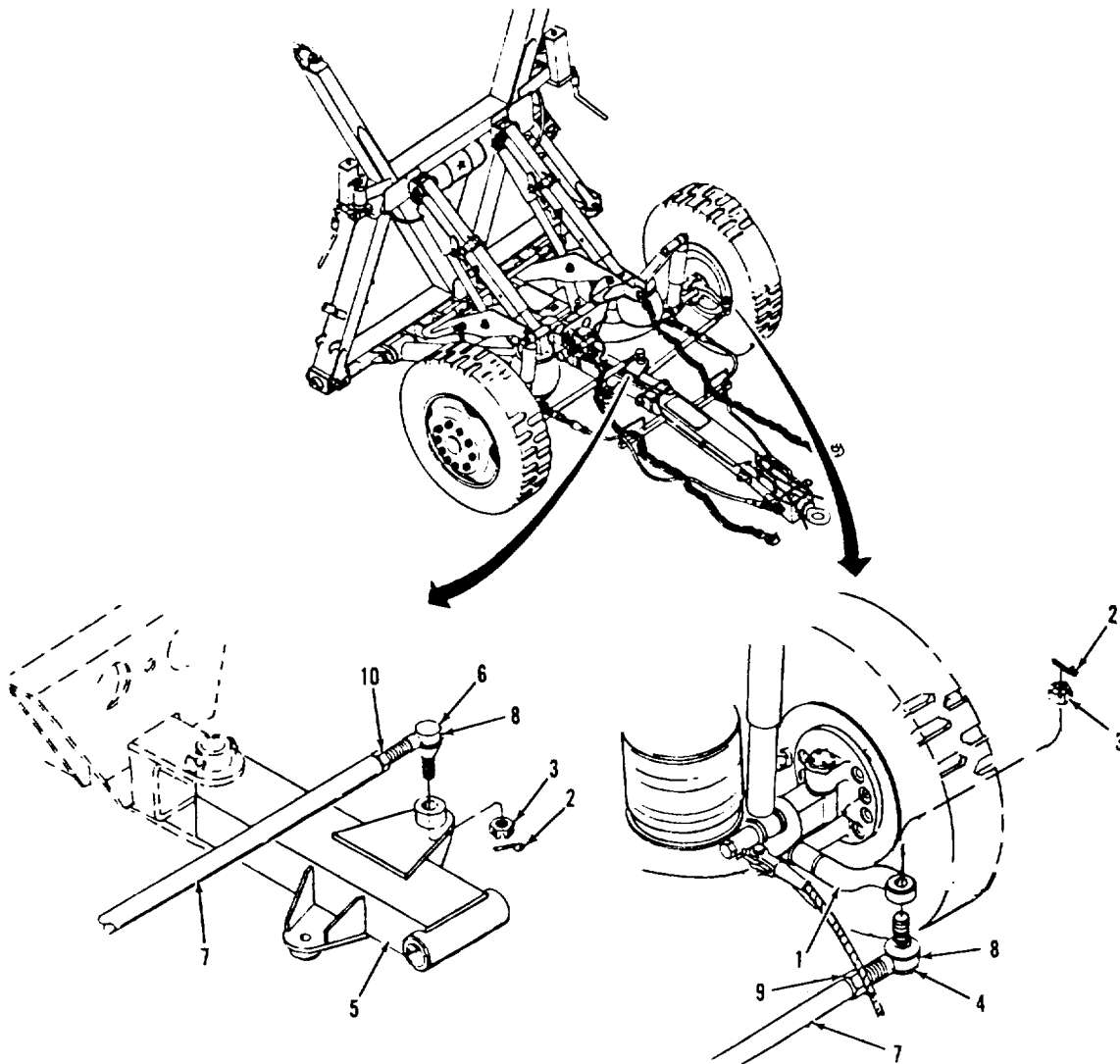
## TIE ROD ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION REMARKS
REPAIR		
4 Tie rod tube (7)	Jam hex nuts (9) and (10)	Back-off jam hex nuts (9) and (10).
5	Tie rod ends (4) and (6)	Unscrew tie rod ends (4) and (6) and remove from tie rod tube (7).
6	Tie rod component parts b.	a. Inspect all tie rod component parts for wear and damage. Replace any worn or damaged parts.
7 Tie rod tube (7)	Tie rod ends (4) and (6), and jam hex nuts (9) and (10)	a. Thread jam hex nuts (9) and (10) onto tie rod ends (4) and (6). b. Thread tie rod ends (4) and (6) onto tie rod tube (7).
SERVICE		
8	Tie rod ends (4) and (6) and lubricating grease fittings (8)	Lubricate grease fittings (8) in tie rod ends (4) and (6).
INSTALLATION		
9 Steering knuckle (1) and steering link (5)	Tie rod tube (7)	Place tie rod tube (7) in position at steering knuckle (1) and steering link (5).
10 Steering knuckle (1)	Tie rod end (4), nut (3) and cotter pin (2)	a. Push tie rod end (4) into steering knuckle (1). b. Using box wrench, screw on nut (3) and tighten. c. Using pliers, install cotter pin (2).
11 Steering link (5)	Tie rod end (6), nut (3) and cotter pin (2)	a. Push tie rod end (6) into steering link (5). b. Using box wrench, screw on nut (3) and tighten. c. Using pliers, install cotter pin (2).

# TIE ROD ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## INSTALLATION - CONTINUED



### NOTE

FOLLOW-ON MAINTENANCE: Do front wheel toe-in (page 4-73).

TASK ENDS HERE

FRONT WHEEL TOE-IN

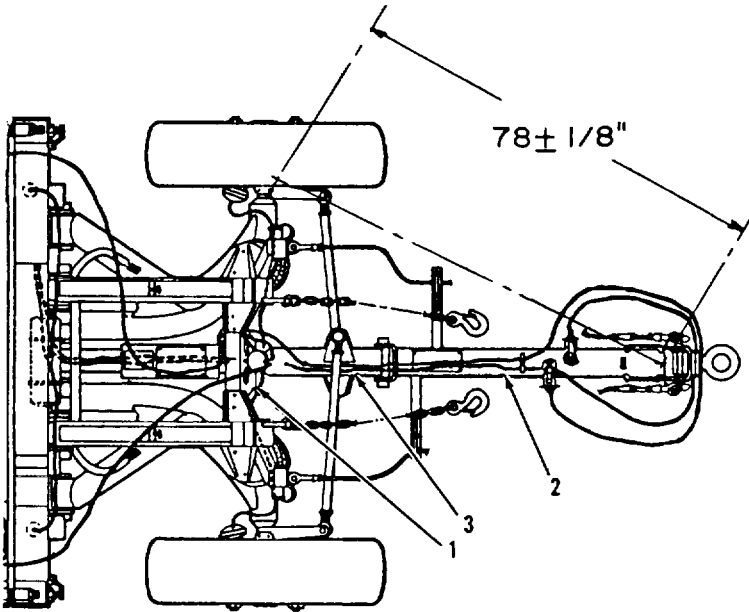
This task covers:

Adjustment/Front End Adjustment (page 4-73)

INITIAL SETUP

Tools	Equipment Conditions
General mechanics tool set	Front dolly set brakes released
Pipe wrench	(page 2-3)
Toe-in bar	
12-inch chains (2)	

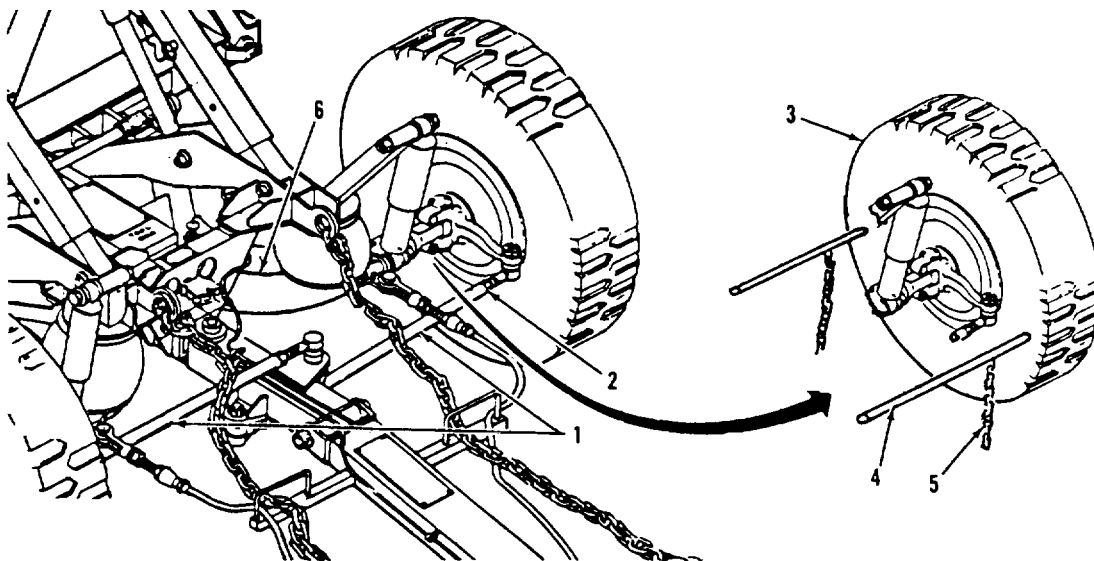
LOCATION	ITEM	ACTION	REMARKS
1	Connecting link cross member (1)	Towbar (2), steering link (3)	a. Raise towbar 30 inches off ground. b. Measure 78 inches (+1/8 inch) from front center of towbar to lube fittings on top of steering knuckles.





## FRONT WHEEL TOE-IN - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
2 Left and right side tie rod assemblies (1)	Four hex jam nuts (2)	Loosen.	
3 Rear inside edges of front tires (3)	Toe-in bar (4) and 12 inch reference chains (5)	Attach toe-in bar (4) to rear inside edges of tire (3). Bar should be situated so that two 12-inch reference chains (5) just touch the ground. Record toe-in bar reading.	
4 Lower arm assembly (6)	Toe-in bar (4)	Slowly roll the dolly set backwards until the toe-in bar (4) is in front of the lower arm assembly (6). The bar should be at the height where the 12-inch reference chains (5) just touch the ground. The reading on the toe-in bar should be 1/4 inch less in front of the lower arm assembly than it was behind the lower arm assembly.	
5 Left and right tie Rods	Two tie rod tubes (1)	Turn the tie rod tubes (1) using a pipe wrench to adjust the toe-in. The wheels should toe in 1/4 inch.	
6	Four hex jam nuts (2)	Tighten	



TASK END HERE

## STEERING LINK

This task covers:

- a. Removal (page 4-75)
- b. Installation (page 4-75)

### INITIAL SETUP

#### Tools

General mechanics tool set

#### Equipment Conditions

Towbar removed (page 4-161).  
Tie rod removed (page 4-70).

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

### REMOVAL

- |   |                     |  |   |
|---|---------------------|--|---|
| 1 | Connecting link (1) | Two bolts (2), two nuts (3), and pin (4)                               | Remove two bolts (2) and two nuts (3) attaching pin (4) to connecting link (1) and remove pin (4).                                      |
| 2 |                     | Steering link (5), two center link bushings (6), and center spacer (7) | Separate steering link (1) from connecting link (5). Using a hammer and a punch remove two center bushings (6) and a center spacer (7). |

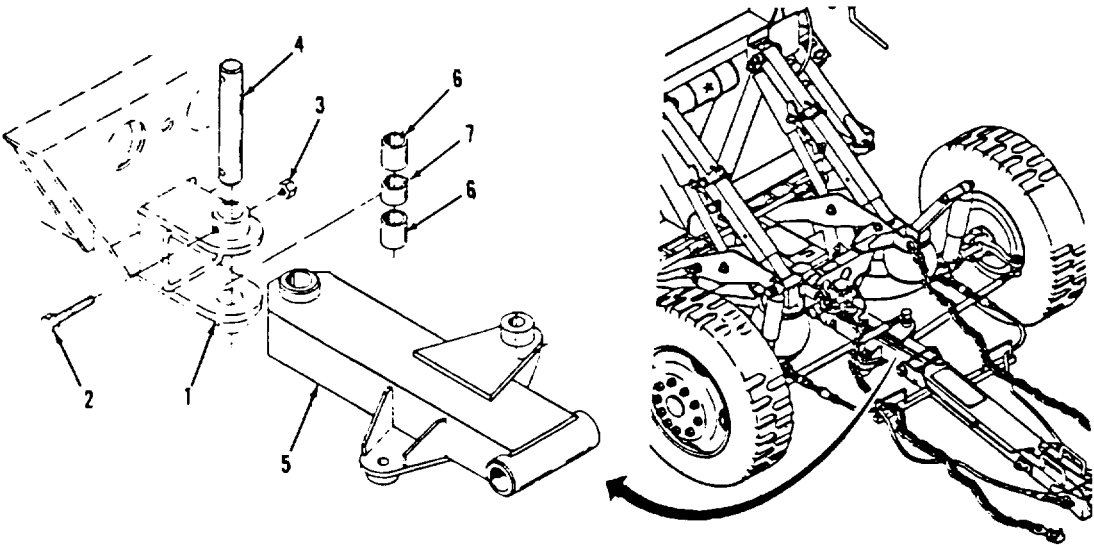
### INSTALLATION

- |   |                     |  |   |
|---|---------------------|--|---|
| 3 | Connecting link (1) | Steering link (5), two center link bushings (6), and center spacer (7) | Insert center spacer (7) and two center bushings (6) into pivot flange of steering link (5).  |
| 4 |                     | Steering link (5), pin (4), two bolts (2), and two nuts (3)            | Position steering link (5) in place in connecting link (1), insert pin (4) and secure pin to connecting link (1) with two bolts (2) and two nuts (3). |

STEERING LINK - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

INSTALLATION - CONTINUED



NOTE

FOLLOW ON MAINTENANCE:

- Install towbar (page 4-164).
- Install tie rod (page 4-71).
- Adjust front wheel toe-in (page 4-73)

TASK ENDS HERE

## REAR SPINDLES

This task covers:

- a. Removal (page 4-77)
- b. Installation (page 4-77)

### INITIAL SETUP

#### Tools

General mechanics tool set

#### Equipment Conditions

Air reservoirs drained (page 2-2).  
Rear hub and brake drum removed (page 4-145).  
Spring brake manually caged (page 4-93).

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

### REMOVAL

- |   |   |   |   |
|---|---|---|---|
| 1 | Rear wheel cylinder and brake assembly (1)                          | Service brake air hose (2) and parking brake air hose (3)               | Remove air hoses (2 and 3) from service brake air chamber.  |
| 2 | Spindle (4) to brake assembly (1) and rear dolly lower arm assembly | Eight special studs (5), eight flat washers (6) and eight lock nuts (7) | <ol style="list-style-type: none"> <li>a. Remove eight special studs (5), eight flat washers (6), and eight lock nuts (7).</li> <li>b. Remove brake assembly (1) and spindle (4) from rear dolly lower arm assembly.</li> </ol> |

### INSTALLATION

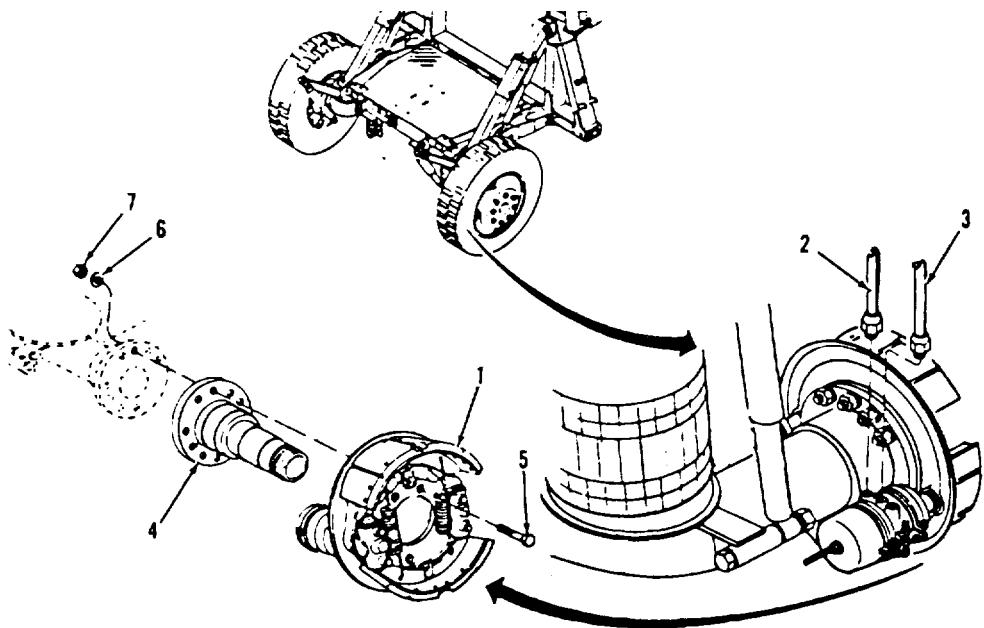
- |   |  |             |   |
|---|--|-------------|---|
| 3 | Brake assembly (1) to spindle (4), and rear dolly lower arm assembly | Spindle (4) | Position spindle (4) into brake assembly and rear dolly lower arm assembly. |
|---|--|-------------|---|

REAR SPINDLES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS

INSTALLATION - CONTINUED

4	Eight special studs (5), eight flat washers (6), and eight lock nuts (7)	Install eight special studs (5), eight eight flat washers (6), and eight lock nuts (7).
5	Rear wheel cylinder and brake assembly (1) Service brake air hose (2) and parking brake air hose (3)	Install.



NOTE

FOLLOW-ON MAINTENANCE:

- 1. Install hub and brake drum (page 4-148).
- 2. Pressurize brake system (page 4-93).
- 3. Manually uncage spring brake (page 4-93).

TASK ENDS HERE

Section IX BRAKE SYSTEM MAINTENANCE

	Page		Page
Air Brake Chamber .....	4-125	Gladhands .....	4-129
Air Lines and Fittings .....	4-126	Handbrake System .....	4-90
Auxiliary Brake Lever .....	4-97	Manual Release of Spring Brake.....	4-93
Detailed Troubleshooting .....	4-79	Rear Dolly Air Reservoirs .....	4-140
Drain Cock.....	4-144	Service Brake Assembly.....	4-103
Emergency Relay Valves .....	4-131	Spring Brake Chamber .....	4-95
Front Dolly Air Reservoirs.....	4-138	Wedge Assembly.....	4-121

DETAILED TROUBLESHOOTING

This task covers:

Detailed troubleshooting of the brake system.

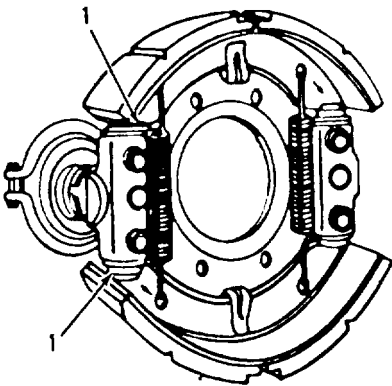
INITIAL SETUP

- |  |                                      |
|--|--------------------------------------|
| Tools                                    | Equipment conditions                 |
| General mechanics tool set               | Spring brake manually caged (if rear |
| brake) (page 4-93).                      |                                      |
| Service brake disassembled (page 4-103). |                                      |

NOTE

The information contained in this section pinpoints many of the most common brake problems and lists the most probable causes of the problem. It is impossible to list all of the possible problems that may occur and their causes. This information should be reviewed with respect to the information presented on pages 4-18 and 4-29 to determining the cause of the problem.

LOCATION	ITEM	ACTION
1.	Automatic adjuster (1) not working.	(This condition can be isolated by the following)



## DETAILED TROUBLESHOOTING - CONTINUED

## LOCATION

## ITEM

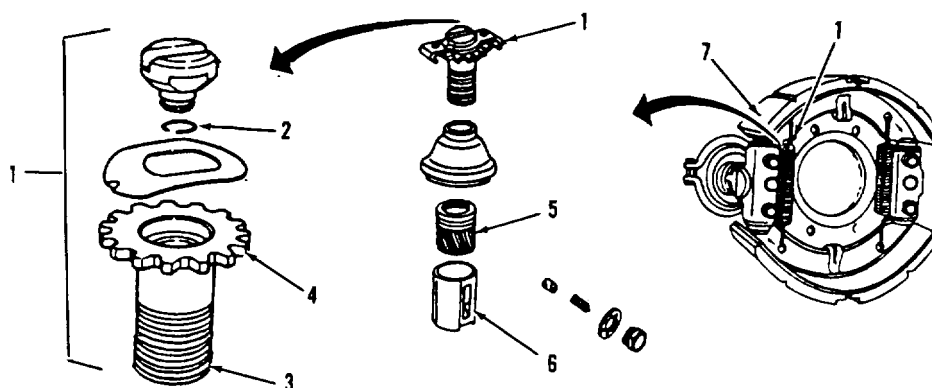
## ACTION

1. Check if the detent spring (2) on adjusting bolt (1) assembly is damaged or broken.
2. Check if the bolt threads (3) are too tight 2. in the actuator. The bottom of the adjusting bolt (4) must not extend beyond the bottom of the actuator (5), and the actuator must seat on the abutment shoulder in the adjusting plunger (6).
3. Check that the adjusting plunger (6) is at the right end of the brake shoe (7). The rotation arrow stamped on the brake shoe should point away from the adjusting plunger.

1. Replace detent spring (page 4-106).

Readjust adjusting bolt in actuator (page 4-119).

3. Readjust adjusting plunger (page 4-114).

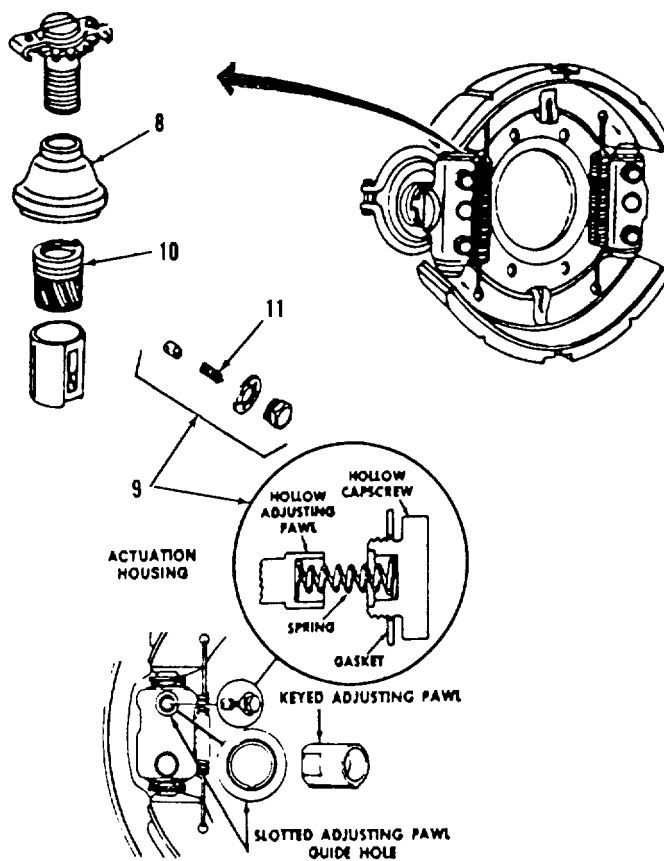


## DETAILED TROUBLESHOOTING - CONTINUED

LOCATION	ITEM	ACTION
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Additional probable causes for automatic adjusters not working are:

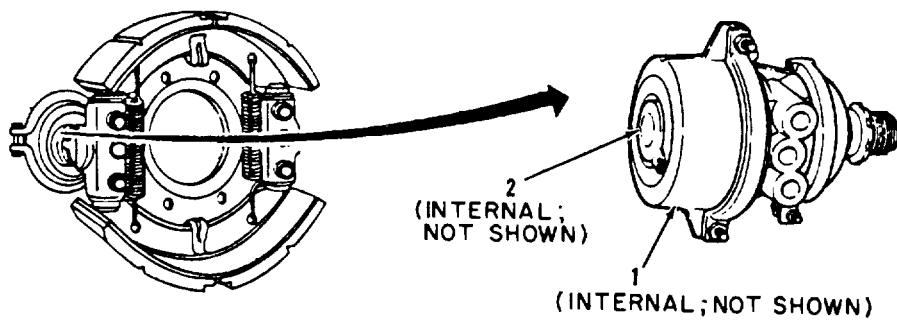
- |  |   |
|--|---|
| 4. Seals (8) not installed correctly (for example, seal element jammed into threads causing binding).  | 4. Remove seals and then install the seals properly (page 4-114).               |
| 5. Damaged pawl (9) or actuator teeth (10) due to improper lubrication.  | 5. Properly lubricate and replace pawl in or actuator as required (page 4-114). |
| 6. Adjusting pawl springs (11) collapsed or missing (the tension on the spring should check out at approximately 7-1/2 lbs. compressed to 9/16" of an inch). | 6. Replace adjusting pawl springs (page 4-114).                                 |





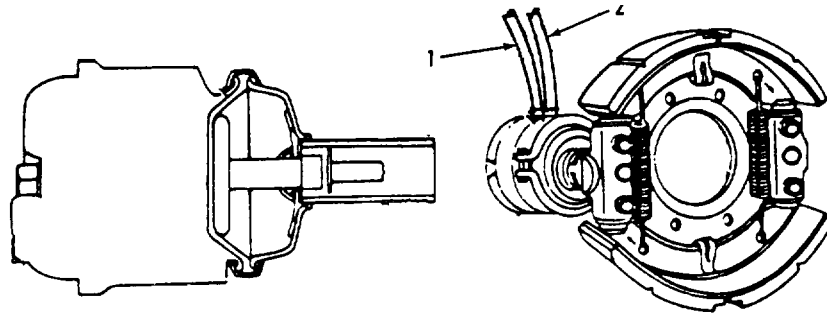
## DETAILED TROUBLESHOOTING - CONTINUED

LOCATION	ITEM	ACTION
2.	Parking brake (spring brake) not holding.	
1.	Spring brake power spring (1) broken or partially caged, resulting in a partially applied spring braking force.	1. Replace spring brake chamber (page 4-95).
2.	Hold-off air not fully releasing because the air lines may be plugged or the relay valve may be malfunctioning.	2. Clean air lines and/or replace relay
3.	Caging bolt (2) damaged. (Caging bolt should turn freely approximately 18 to 22 turns in either direction.)	3. Replace spring
4.	Brakes not properly adjusted.	4. Adjust brakes (page 4-119).



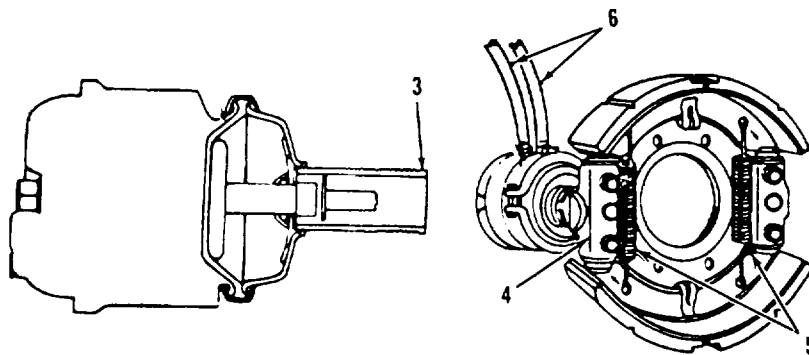
## DETAILED TROUBLESHOOTING - CONTINUED

LOCATION	ITEM	ACTION
3.	Brakes dragging.	
	1. Low spring brake hold-off air pressure.	1. Provide proper hold-off air pressure.
	2. Spring brake chamber power spring not releasing fully.	2. Replace spring brake chamber if necessary (page 4-95).
	3. Improper connection of service brake (1) air line and parking brake (2) air line resulting from improperly identified service and parking brake air lines.	3. Insure that service brake lines are properly connected (page 4-40).



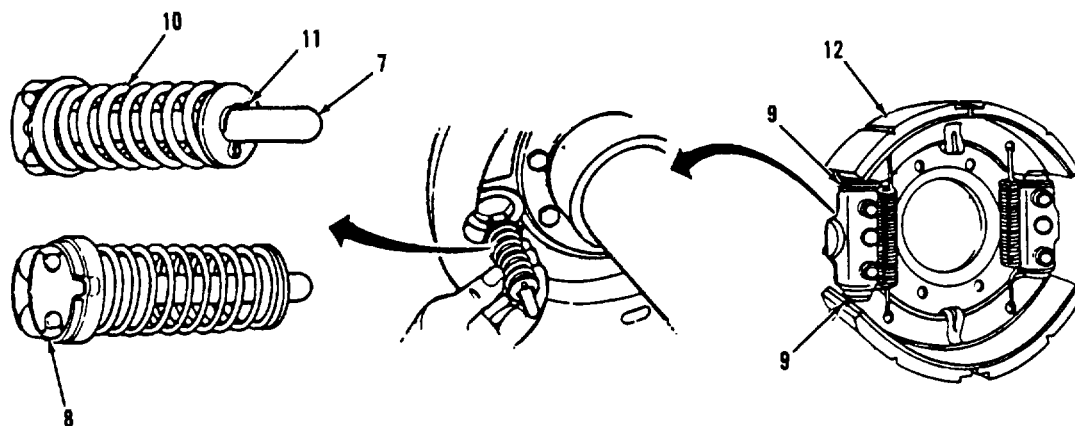
## DETAILED TROUBLESHOOTING - CONTINUED

LOCATION	ITEM	ACTION
3.	Brakes dragging. (Cont.)	
4.	Chamber neck (3) threaded too deeply into plunger housing (4). Chambers are designed to bottom in the housing.	4. Readjust threading of chambers into plunger housing (page 4-117).
5.	Brake shoe return springs (5) not fully returning. The spring tension on return springs should check out at approximately 75-90 lbs. pull at 9 1/2" inches.	5. Replace spring if improper tension or elongation (page 4-105).
6.	Leaking air lines (6) or leaking seals.	6. Repair leaks in air lines or seals (page 4-109).
7.	Trapped air behind spring brake unit piston in "standard" brake units.	7. Repair malfunction in air release service lines (page 4-126).
8.	Loose wheel bearings.	8. Adjust wheel bearings (page 4-149).



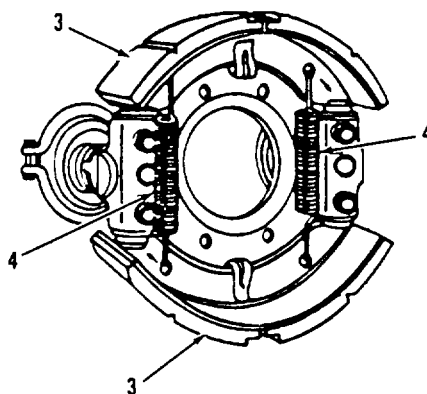
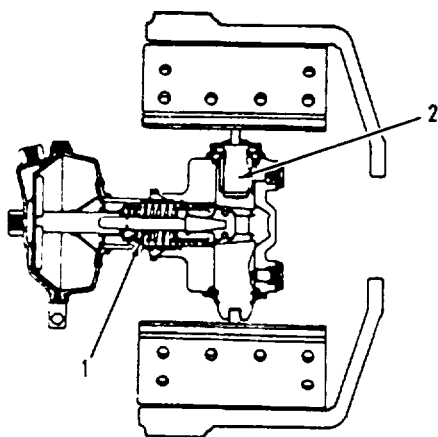
## DETAILED TROUBLESHOOTING - CONTINUED

LOCATION	ITEM	ACTION
Brakes dragging. (Cont.)		
	9. Wedge shaft (7) out of push rod socket (8) because of improper assembly or because wedge guide inside air chamber assembly is missing or broken.	9. If wedge guide is broken or missing replace air chamber unit (page 4-95).
	10. Adjustable plunger (9) too tight or sticking (may be caused by corrosion due to seal failure or inadequate lubrication).	10. Properly lubricate and seat correctly (page 4-114).
	11. Broken wedge return spring (10) and/or cotter pin (11).	11. Replace wedge assembly (page 4-121).
	12. Grease or dirt on brake lining (12) (due to bad wheel seals or lack of dust shield usage).	12. Remove grease or dirt on lining. Replace seals and/ or install dust shield as necessary (page 4-103).



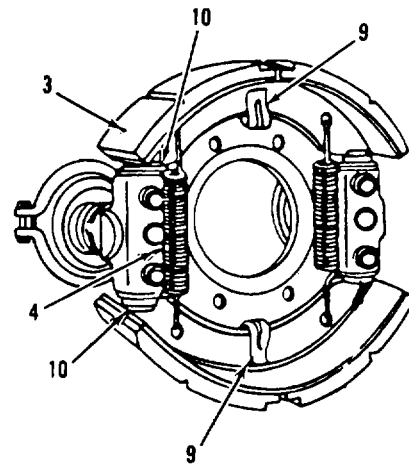
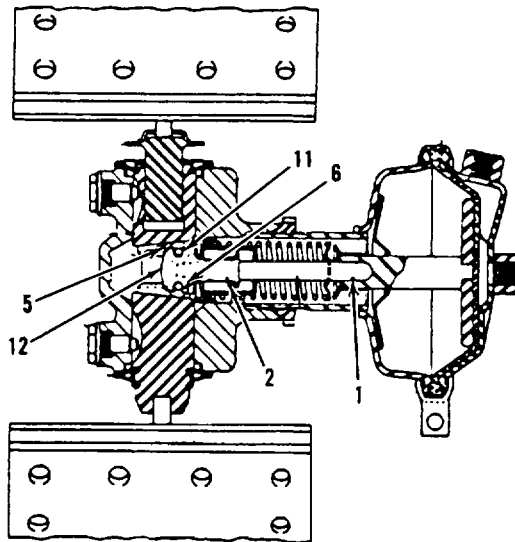
## DETAILED TROUBLESHOOTING . CONTINUED

LOCATION	ITEM	ACTION
4.	Brakes grabbing.	
1.	Poor delivery of service air to brakes.	1. Check for proper flow of service air to brakes (page 4-127).
2.	Grease or dirt on linings.	2. Replace brake shoes (page 4-103).
3.	Misalignment of wedge (1) and adjustable plunger parts (2).	3. Realign wedge and plunger parts (page 4-111).
4.	Improper brake lining (3).	4. Install proper brake lining.
5.	Binding of brake shoes due to improper assembly or worn out shoes or return springs (4).	5. Check and replace as necessary brake shoes and/or return springs (page 4-103).



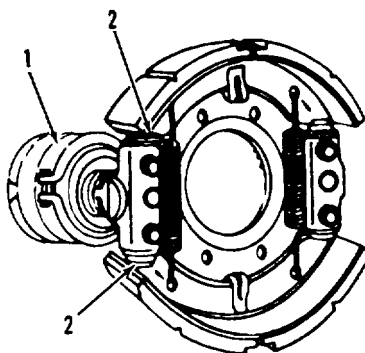
## DETAILED TROUBLESHOOTING - CONTINUED

LOCATION	ITEM	ACTION
5.	Uneven brake lining wear.	
	1. Wedge shaft (1) out of push rod socket (2) because of improper assembly, or because wedge guide inside air chamber is missing or broken.	1. Replace wedge guide (page 4-119).
	2. Brake shoes (3) installed backwards.	2. Install brake shoes
	3. Weak brake shoe return springs (4) not fully releasing brake shoe.	3. Install new brake shoe return spring (page 4-103).
	4. Wedge and roll assembly (5) not engaged with plunger slots (6).	4. Properly align wedge and roller assembly with respect to plunger slots (page 4-111).
	5. Brake linings are not same mix.	5. Insure brake linings are all the same mix (page 4-111).
	6. Check for grease or dirt on brake shoe (3)	6. Replace brake shoes (nanop 4-10.R



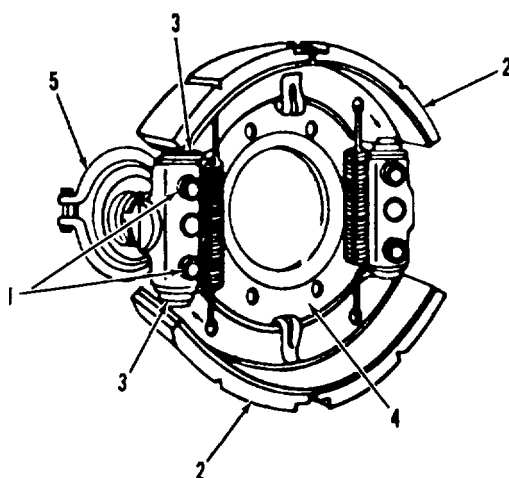
## DETAILED TROUBLESHOOTING - CONTINUED

LOCATION	ITEM	ACTION
5.	Uneven lining wear.	(Continued)
	7. Brake shoe hold down clips (9) not properly holding shoe against shoe support pads.	7. Insure that hold-down clips properly hold shoe against shoe support pads (page 4-111).
	8. Automatic pawl adjuster (10) not functioning properly.	8. Repair/replace automatic adjuster as applicable (page 4-103).
	9. A roller (11) out of its cage (12).	9. Place roller properly in cage (page 4-122).
6.	Brakes frozen or locked.	
	1. Spring brakes (1) not releasing.	1. Replace spring brake chamber (page 4-95).
	2. Air not released from brake chamber because of malfunction of air system service lines.	2. Repair malfunction in air release service lines (page 4-128).
	3. Seized adjustable plungers (2).	3. Free adjustable plungers (page A 11AN)



## DETAILED TROUBLESHOOTING - CONTINUED

LOCATION	ITEM	ACTION
7. Insufficient brake torque to stop the vehicle.		
	1. Automatic pawl adjusters (1) not functioning properly.	1. Repair/replace automatic adjusters as necessary (page 4-103).
	2. Brake linings (2) worn out.	2. Replace worn out brake linings.
	3. Adjustable plungers (3) frozen in spider (4).	3. Free plungers (page 4-119).
	4. Grease on brake lining (2).	4. Remove grease from brake linings (page 4-41).
	5. Ruptured diaphragm inside air chamber (5).	5. Replace air chamber (page 4-95).
	6. Air chamber (5) not fully threaded into plunger housing.	6. Readjust threading of chambers into plunger housing (page 4-117).
	7. Leaks in the air system.	7. Repair leaks in air lines or seals or replace as necessary.





## HANDBRAKE SYSTEM

---

This task covers:

- a. Handbrake (parking brake) lever removal (page 4-90)
  - b. Handbrake (parking brake) lever installation (page 4-91)
- 

### INITIAL SETUP

#### Tools

General mechanics tool set

#### Materials/Parts

Antiseize tape, (item 8, Appendix E)

#### Equipment Conditions

Wheels chocked and rear dolly properly supported.  
Air reservoir drained (page 2-2).

---

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

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### HANDBRAKE LEVER REMOVAL

- |   |                   |                                  |  |
|---|-------------------|----------------------------------|--|
| 1 | Brake system (1)  | Control valve lever (2)          | Place control valve lever (2) to OFF position.                       |
| 2 | Platform (4)      | Control valve and two screws (5) | Remove two screws (5) that secure control valve (3) to platform (4). |
| 3 | Control valve (3) | Hose assemblies (6) and (7)      | Tag and remove hose assemblies (6) and (7) from control valve (3).   |
| 4 |                   | Male branch tee (8)              | Remove male branch tee (8) from control valve (3).                   |

**HANDBRAKE SYSTEM - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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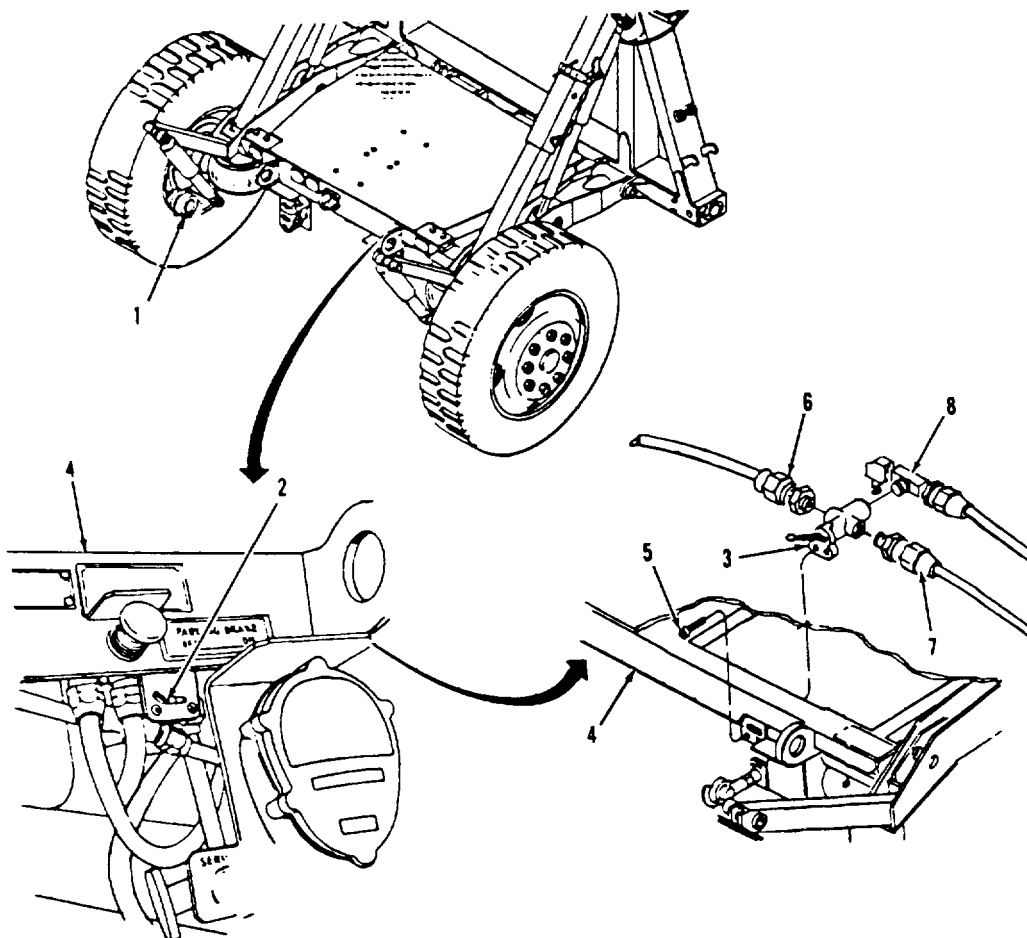
**HANDBRAKE LEVER INSTALLATION****NOTE**

Antiseize tape, (item 8, Appendix E), should be applied to all threads when assembling fittings unless otherwise noted.

5	Control valve (3)	Male branch tee (8)	Apply antiseize tape to threads of male branch tee (8) and screw male branch tee (8) into control valve (3).
6		Hose assemblies (6) and (7)	Apply antiseize tape to threads on the end of hose assemblies (6) and (7) and attach the hose assemblies to the control valve (3).
7	Platform (4)	Control valve (3) and two screws (5)	Secure control valve (3) to platform (4) with two screws (5).
8	Control valve		Place control valve lever (2) to ON position. lever (2)

# HANDBRAKE SYSTEM - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## NOTE

FOLLOW ON MAINTENANCE:

Pressurize parking brake system (page 4-96) by applying pressurized air to air reservoir fill valve on parking brake lever. Test for air leaks. TASK ENDS HERE

MANUAL RELEASE OF SPRING BRAKE (CAGING)

This task covers:

- a. Manual release of spring brake (page 4-93)

INITIAL SETUP

Tools	Materials/Parts
General mechanics tool set	
Caging tool	Equipment Conditions
	Wheels chocked and rear dolly properly supported.
	Air reservoir drained (page 2-2).

LOCATION	ITEM	ACTION	REMARKS
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SPRING BRAKE RELEASE

NOTE

It should only be necessary to manually cage the spring brake(s) if the air pressure in the parking brake (7) air reservoir is below 80 psi.

NOTE

If a source of pressurized air is available, the parking brake air reservoir can be pressurized sufficiently (via the air reservoir (2) fill valve on the parking brake lever) to release the spring brake.

1	Parking brake lever (1)	Air reservoir fill valve (2)	If practical, pressurize parking brake air reservoir sufficiently (greater than 80 psi) to release spring brakes.
2	Tool box (3) or spring brake storage slot (4)	Caging tool (5)	Remove caging tool (5) from tool box (3) or storage slot (4) on side of spring brake unit.
3	Rear wheel (6)	Caging tool (5) and spring brake unit (7)	a. Insert caging tool (5) in hole in rear of spring brake unit (7). b. Rotate caging tool clockwise 18 to 21 full turns to manually release spring brake by caging power spring.

# MANUAL RELEASE OF SPRING BRAKE (CAGING) - CONTINUED

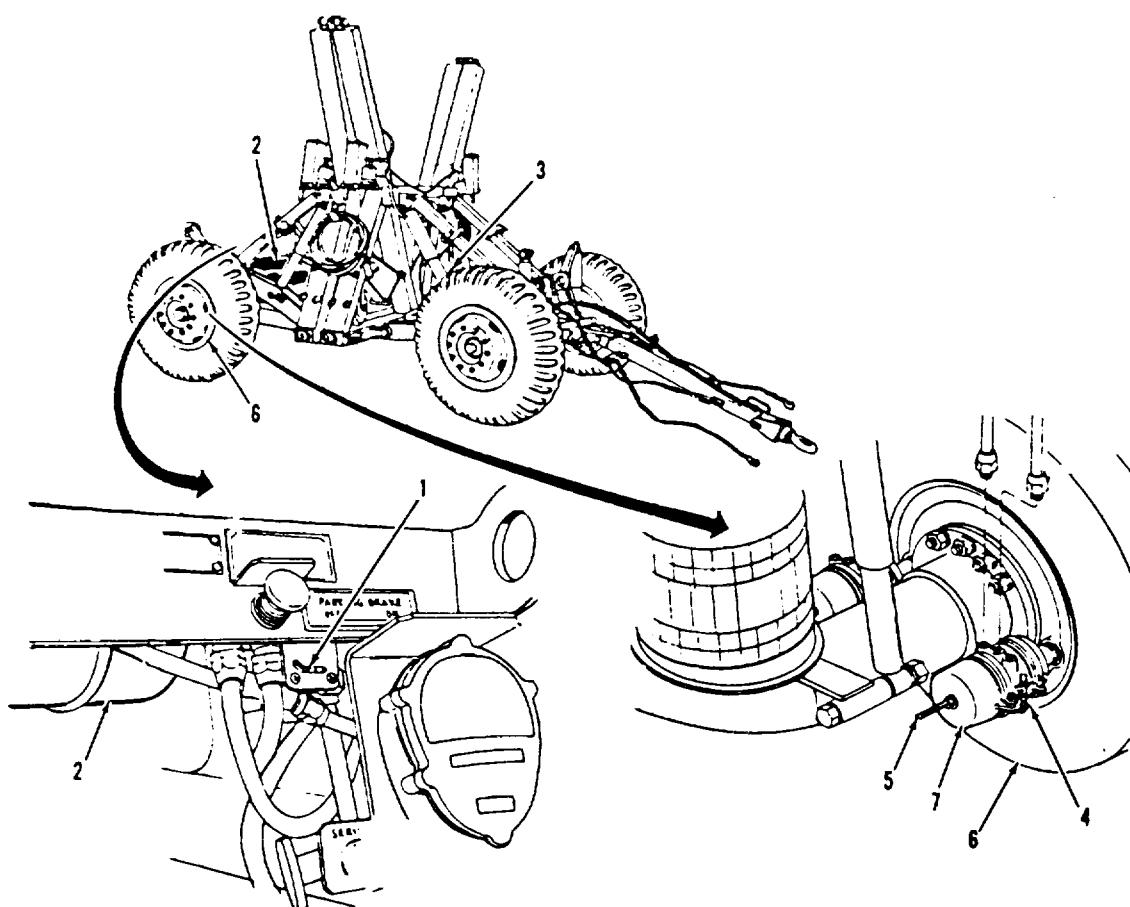
LOCATION	ITEM	ACTION	REMARKS
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## SPRING BRAKE RELEASE - CONTINUED

4	Tool box (3) or spring brake unit storage slot (4)	Caging tool (5)	Return caging tool (5) to storage location.
---	--	-----------------	---

### NOTE

At this point spring brake unit power spring remains manually caged (spring brake released).



## SPRING BRAKE CHAMBER

This task covers:

- a. Spring brake chamber removal (page 4-95)
- b. Spring brake chamber installation (page 4-95)

### INITIAL SETUP

#### Tools

General mechanics tool set

#### Materials/Parts

Antiseize tape, (item 8, Appendix E)

#### Equipment Conditions

Wheels chocked and rear dolly properly supported.  
Air reservoir drained (page 2-2).

LOCATION	ITEM	ACTION	REMARKS
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### SPRING BRAKE CHAMBER REMOVAL

- |   |                               |  |   |
|---|-------------------------------|--|---|
| 1 | Spring brake chamber (2)      | Parking brake (spring brake) air hose (4) and service brake air hose (5) | Remove parking brake air hose (4) and service brake emergency air hose (5) from spring brake chamber (2). |
| 2 | Rear wheel brake assembly (6) | Spring brake chamber (2)   | Unscrew spring brake chamber (2) and remove from rear wheel brake assembly (6).                           |

### SPRING BRAKE CHAMBER INSTALLATION

- |   |                               |  |  |
|---|-------------------------------|--|--|
| 3 | Rear wheel brake assembly (6) | Spring brake chamber (2)   | Screw the spring brake chamber (2) into the rear wheel brake assembly (6).                                   |
| 4 | Spring brake chamber (2)      | Parking brake (spring brake) air hose (4) and service brake air hose (5) | Attach parking brake (spring brake) air hose (4) and service brake air hose (5) to spring brake chamber (2). |

## SPRING BRAKE CHAMBER - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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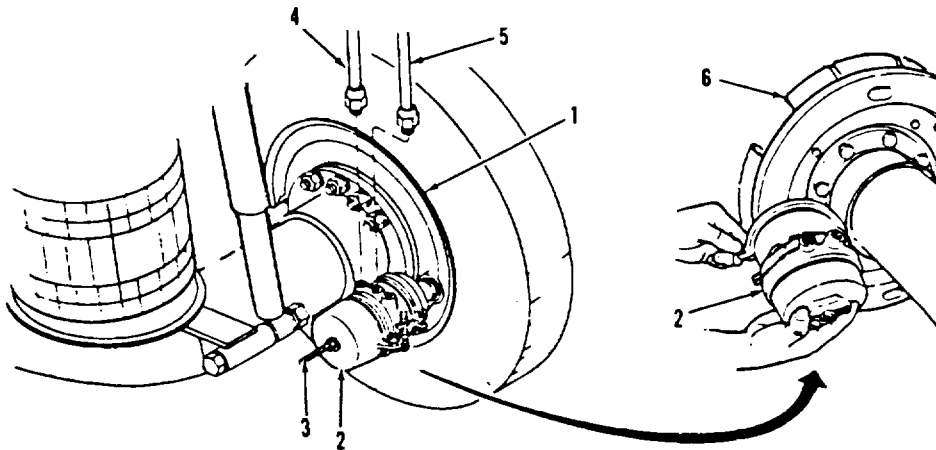
### SPRING BRAKE CHAMBER INSTALLATION - CONTINUED

- |   |                        |   |
|---|------------------------|---|
| 5 | Manual caging bolt (3) | Using the caging bolt (3), uncage the spring brake chamber (2). |
|---|------------------------|---|

#### NOTE

Desired air pressure for the spring brake air reservoir is between 80 psi and 120 psi.

- |   |                         |                              |  |
|---|-------------------------|------------------------------|--|
| 6 | Parking brake lever (6) | Air reservoir fill valve (7) | Pressurize the parking brake air system by applying pressurized air to the air reservoir fill valve (7). Test for leaks. |
|---|-------------------------|------------------------------|--|



TASK ENDS HERE

AUXILIARY BRAKE LEVERS

This task covers:

- a. Removal (page 4-97)
- b. Installation (page 4-100)

INITIAL SETUP

Tools

General mechanics tool set

Materials/Parts

Antiseize tape, (item 8, Appendix E)

Equipment Conditions

Dolly wheels chocked and dolly properly supported.  
Air reservoirs drained.

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL (FRONT DOLLY)

NOTE

The auxiliary brake levers on both the front and rear dollies are referred to as control valves in Appendix F.

1	Control valve (2) lever handle (4) brakes.	Front dolly (1) auxiliary brake	a. Drain air reservoirs in air brake system. b. Push front dolly auxiliary brake lever handle (4), "in", to release
2	Connecting link (3)	Front dolly auxiliary brake lever (2), and air hose assemblies (7) and (8)	Tag and remove air hose assemblies (7) and (8) from auxiliary brake control valve (2).
3	Front trailer dolly (1) auxiliary brake control valve (2)	Nipple (10) and 900 street elbow (9)	Remove nipple (10) from auxiliary brake control valve (2), and 900 street elbow (9).

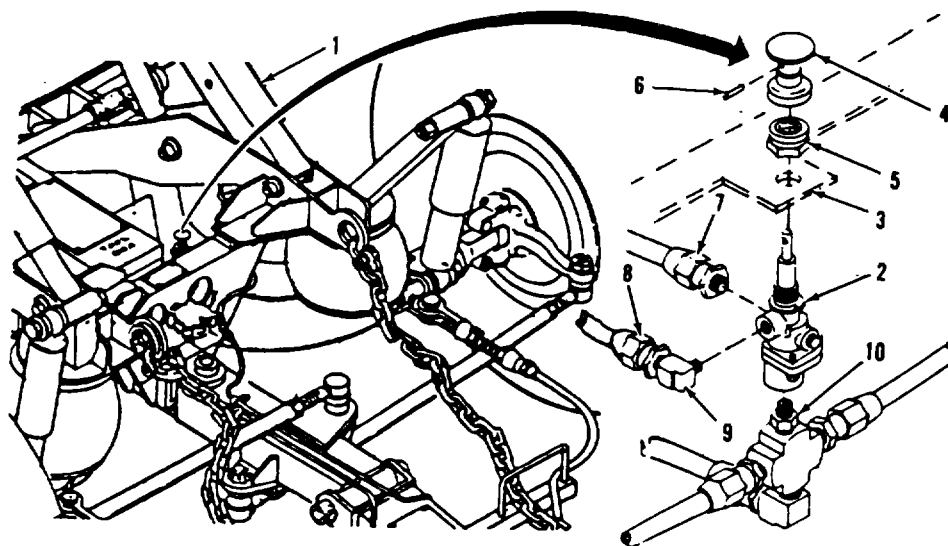


## AUXILIARY BRAKE LEVERS - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## REMOVAL (FRONT DOLLY) - CONTINUED

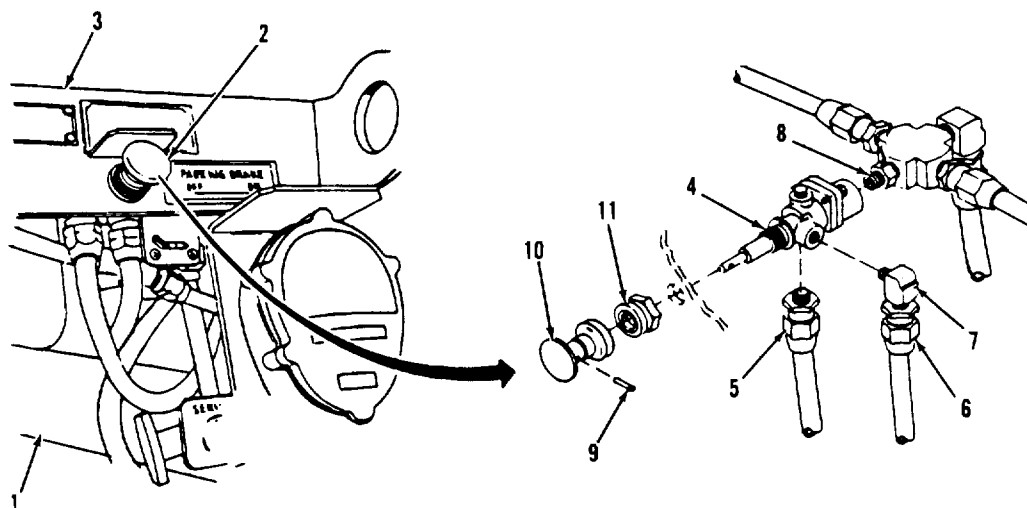
4	Pin (6), handle (4) and nut (5)	Remove pin (6), handle (4) and nut (5) securing front dolly auxiliary brake control valve (2) to connecting link (3).
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4-98

**AUXILIARY BRAKE LEVERS - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>REMOVAL I (REAR DOLLY)</b>			
5 Brake system	Rear dolly (1) auxiliary brake control valve (4)	a.	Drain air reservoirs in air brake system.
		b.	Push rear dolly auxiliary brake lever handle (10), "in", to release brakes.
6 Platform (3)	Rear dolly auxiliary brake control valve (4), and air hose assemblies (5) and (6)		Tag and remove air hose assemblies (5) and (6) from auxiliary brake control valve (4).
7 Rear dolly auxiliary brake control valve (4)	90° street elbow (7) and nipple (8)		Remove 90° street elbow (7) and nipple (8) from auxiliary brake control valve (4).
8	Pin (9), handle (10) and nut (11)		Remove pin (9), handle (10) and nut (11) securing rear dolly auxiliary brake control valve (4) to platform (3).



**AUXILIARY BRAKE LEVERS - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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**INSTALLATION (REAR DOLLY)****WARNING**

Dolly wheels should be chocked or vehicle might roll and cause personal injury.

9	Platform (1)	Rear dolly auxiliary brake control valve (2), nut (3), handle (4), and cotter pin (5)	Mount rear dolly auxiliary brake control valve (2) on platform (1) and secure with nut (3), handle (4) and pin (5).
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**NOTE**

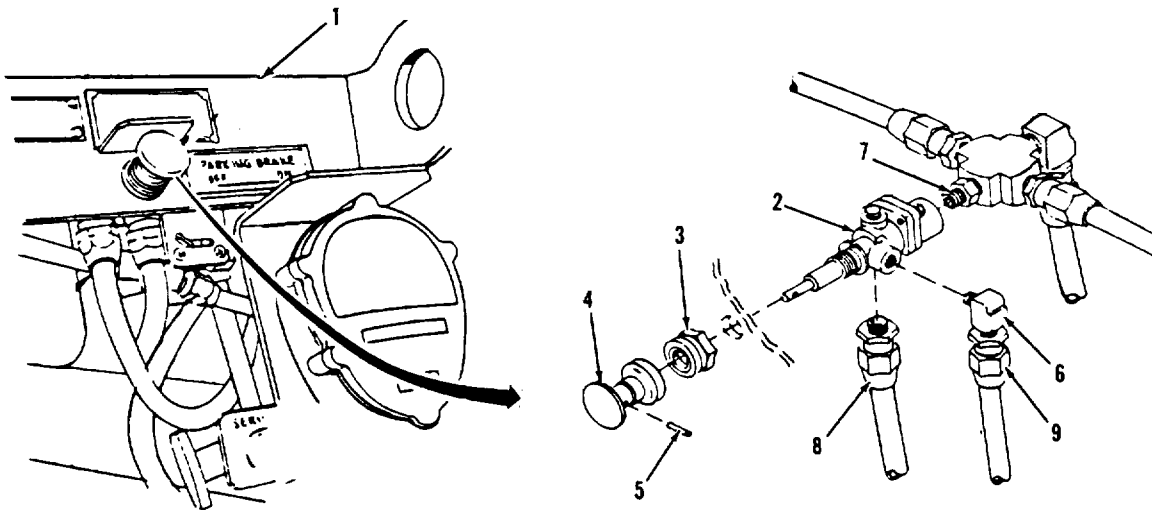
Antiseize tape (item 8, Appendix E), should be applied to all threads when assembling fittings unless otherwise noted.

10		Rear dolly auxiliary brake control valve (2) and 900 street elbow (6)	Apply antiseize tape to threads of street elbow (6) and screw street elbow (6) into rear dolly auxiliary brake control valve (2).
11		Nipple (7) and 900 street elbow (6)	Apply antiseize tape to threads on the ends of nipple (7) and 90° street elbow (6) and attach to the rear dolly auxiliary brake control valve (2).
12	Rear dolly auxiliary brake control valve (2)	Hose assemblies (8) and (9)	Apply antiseize tape to threads on the ends of hose assemblies (8) and (9) and attach hose assembly (8) to the rear dolly auxiliary brake control valve (2) and hose (9) to 900 street elbow.
13			Pull rear dolly auxiliary brake handle (2), "out", to apply brakes when system is pressurized.

AUXILIARY BRAKE LEVERS - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION (REAR DOLLY) - CONTINUED



INSTALLATION (FRONT DOLLY)

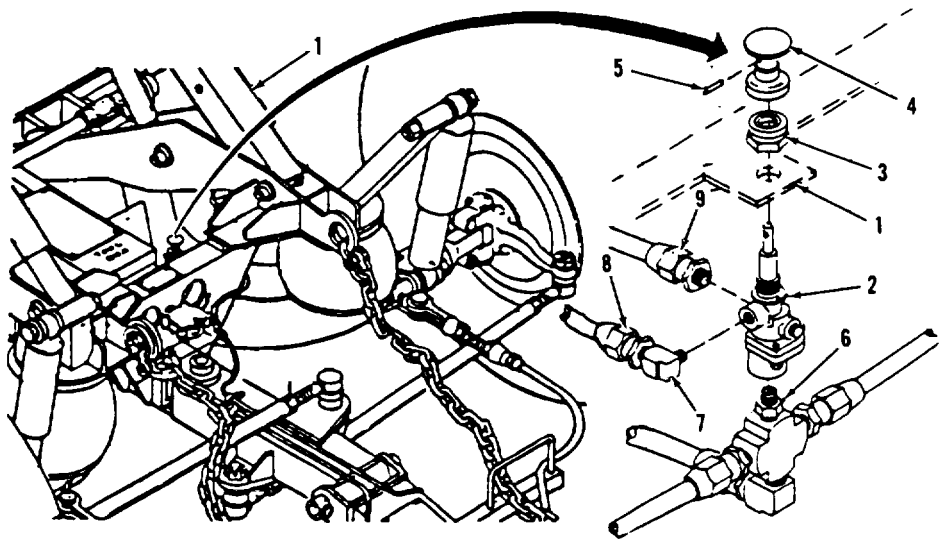
14 Connecting link (1)	Front dolly auxiliary brake control valve (2), nut (3), handle (4) and pin (5)	Mount front dolly auxiliary brake control valve (2) on connecting link (1) and secure with nut (3), handle (4) and pin (5).
<b>NOTE</b>		
Antiseize tape (item 8, Appendix E), should be applied to all threads when assembling fittings unless otherwise noted.		
15 Front dolly auxiliary brake control valve (2)	Nipple (6) and 90° street elbow (7)	Apply antiseize tape to threads of nipple (6) and 900 street elbow (7) and screw both into front dolly auxiliary brake control valve (2).

AUXILIARY BRAKE LEVERS - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION (FRONT DOLLY) - CONTINUED

- |    |                             |  |
|----|-----------------------------|--|
| 16 | Hose assemblies (8) and (9) | Apply antiseize tape to threads on the ends of hose assemblies (8) and (9) and attach the hose assembly (9) to the front dolly auxiliary brake control valve (2), and hose assembly (8) to 900 street elbow (7). |
| 17 |                             | Pull front dolly auxiliary brake lever handle (2), "out", to apply brakes when system is pressurized.  |



NOTE

FOLLOW ON MAINTENANCE:  
Pressurize brake system (page 4-95).

TASK END HERE

SERVICE BRAKE ASSEMBLY

This task covers:

- a. Disassembly (page 4-103)
- b. Inspection criteria (page 4-108)
- c. Reassembly (page 4-111)
- d. Automatic brake adjustment (page 4-119)

INITIAL SETUP:

Tools  
General mechanics tool set  
Brake spring pliers  
Brake shoe adjust tool  
Seal driver tool  
Diagonal cutting pliers  
Brake shoe retaining spring tool

Materials/Parts  
Grease, lubr, automotive and artillery (Item 2, Appendix E)  
  
Equipment Conditions  
  
Air reservoirs drained.  
Hub and brake drum removed (page 4-145).  
Spring brake chamber power spring caged and chamber removed (page 4-95) for rear wheel only.

		ACTION	
LOCATION	ITEM		REMARKS

DISASSEMBLY

**WARNING**  
The power spring on the spring brake chamber must be caged before attempting to remove the brake shoes or perform maintenance on the rear wheel brakes.

SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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DISASSEMBLY - CONTINUED

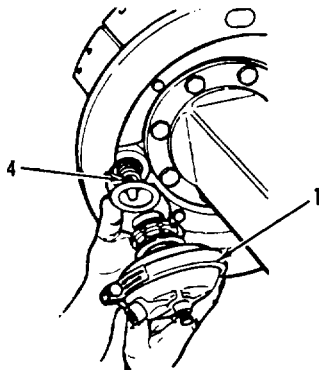
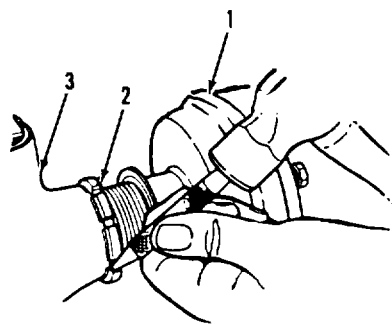
NOTE

During disassembly, all parts should be carefully placed on a clean, solid surface to minimize the possibility of creating airborne dust. Dust should first be cleaned from the brake drums, dust shields, and brake assemblies using an industrial type vacuum cleaner equipped with a high efficiency filter system.

NOTE

After vacuum cleaning, any remaining dust should be removed by using a damp rag.

1	Air chamber assembly (1)	Collett nut (2)	Loosen the collet nut (2) using a drift or other blunt tool and hammer.
2	Brake assembly	Brake air chamber assembly (1), plunger housing (3) and wedge assembly (4)	a. Unscrew the brake air chamber assembly (1) out of the plunger housing (3). b. Remove and inspect the wedge assembly (4).



## SERVICE BRAKE ASSEMBLY - CONTINUED

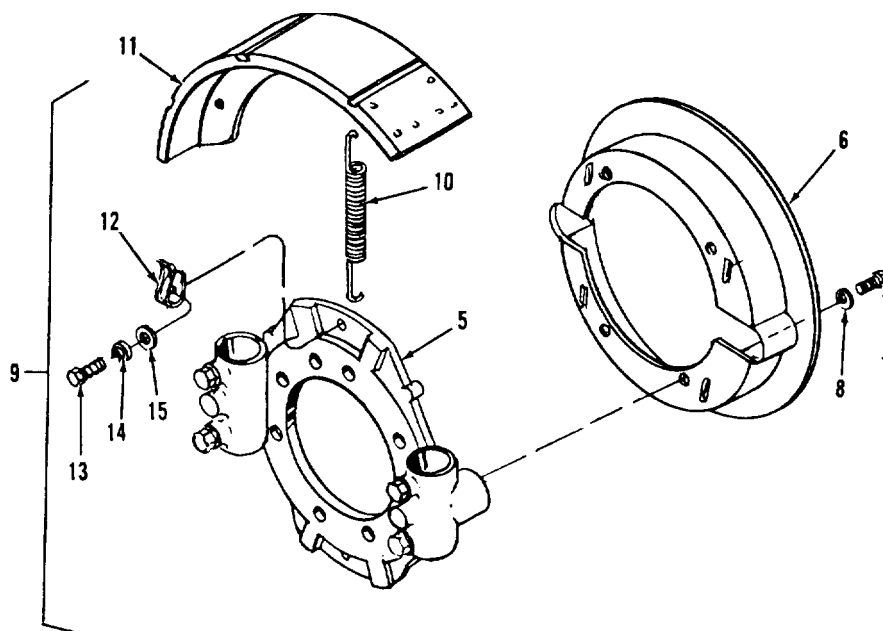
LOCATION	ITEM	ACTION	REMARKS
3 Brake assembly spider (5)	Dust shield (6), four capscrews (7) and four lockwashers (8)	Remove four capscrews (7) and four lockwashers (8) to remove dust shield (6).	
4 Brake assembly (9)	Brake shoe return springs (10)	Remove brake shoe return springs (10) using brake spring pliers.	

5	Brake shoes (11), brake shoe hold down clip (12), hold down spring bolt (13), lockwashers (14), and nut (15)	Remove brake shoes (11) from brake assembly (9).
---	--	--

**NOTE**

Brake shoe hold down clip, hold down spring bolt, lockwasher, and nut should not be removed unless damaged or malfunctioning.

If necessary, remove brake shoe hold down clip (12) by removing hold down spring bolt (13), lockwasher (14) and nut (15).





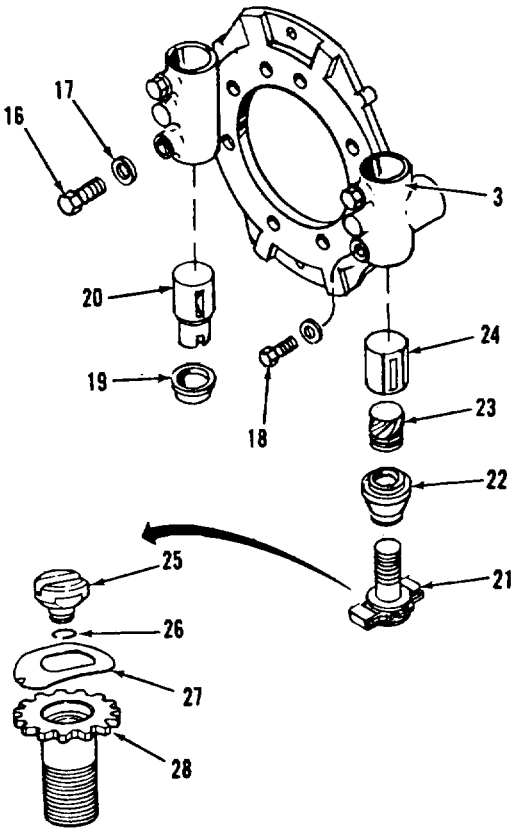
## SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>DISASSEMBLY - CONTINUED</b>			
6 Plunger housing (3)	Two plunger guide screws (16) and two gaskets (17)	Remove two guide screws (16) and two gaskets (17) from the plunger housing (3) on left side of brake assembly. This plunger housing contains two non-adjusting anchor plungers (solid).	
7	Two plunger guide and adjusting pawl assemblies (18)	Remove adjusting pawl assemblies (18). (Use a small magnet to remove pawl if necessary from the plunger housing (3) on the right side of the brake assembly.) This plunger housing contains two adjusting plungers.	
8 Left side plunger housing (3)	Two plunger anchor seals (19) and two anchor (solid) plungers (20)	Pry two plunger anchor seals (19) loose and remove two anchor (solid) plungers (20).	
9 Right side plunger housing (3)	Two adjusting bolt assemblies (21), two plunger seals and retainers (22), two adjusting sleeves (actuators) (23), and two adjusting plungers (24)	Pry two plunger seals and retainers (22) loose and remove two adjusting bolt assemblies (21), two adjusting sleeves (actuators) (23) and two adjusting plungers (24).	
<b>NOTE</b>			
Proceed to next step to determine proper function of adjusting bolt assembly.			
10 Adjusting bolt assembly (21)	Retainer (25), spring (26), detent washer (27) and adjusting bolt (28)	Disassemble adjusting bolt assembly (21) into components, retainer (25), spring (26), detent washer (27) and adjusting bolt (28).	

SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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DISASSEMBLY - CONTINUED



## SERVICE BRAKE ASSEMBLY - CONTINUED

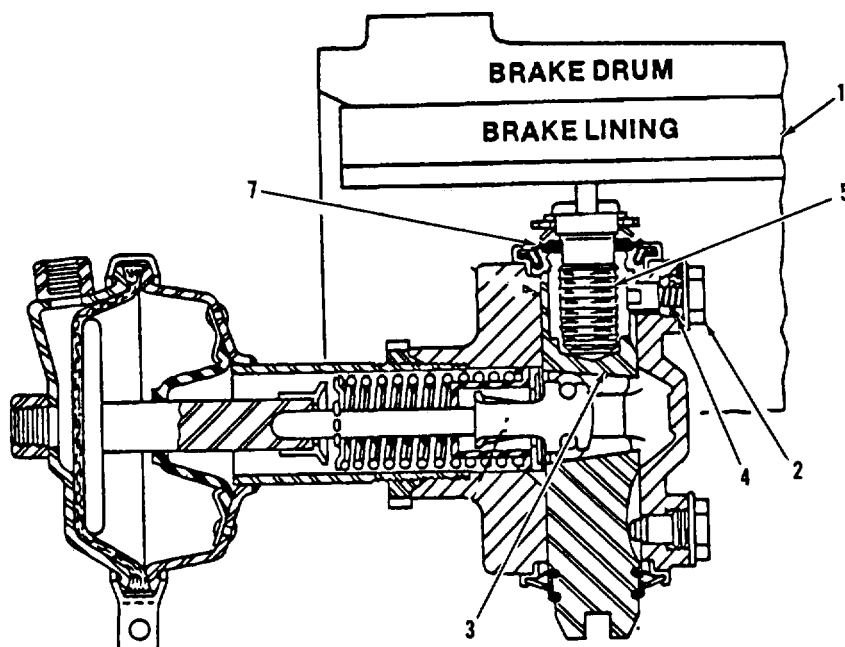
LOCATION	ITEM	ACTION	REMARKS
INSPECTION CRITERIA			
NOTE			
Highly polished parts do not mean replacement is necessary. Only components that are scored or show other unusual signs of wear must be replaced.			
1	Brake assembly (1)	Adjusting pawl (2)	If the teeth of the adjusting pawl are scored or rounded, replace the adjusting pawl. If there is any doubt, replace the adjusting pawl.
2		Adjusting plunger (3)	a. If the internal scoring has rough ridges, or the pawl guide slot is deeply scored, replace the adjusting plunger.  b. If the roller ramp of the adjusting plunger is brinelled, replace the adjusting plunger.
3		Adjusting pawl spring (4)	Check for proper tension on spring (tension on spring should be 7.5 lbs. with spring compressed to 9/16 of an inch).
4		Actuator (5)	If there is abnormal wear or damage such as metal displacement along the tooth axis or damaged teeth, replace the actuator.
5	Automatic adjusting bolt assembly (7)		Check for proper operation of the automatic brake adjusters by checking the brake lining to brake drum clearance. The automatic adjusters are working properly if clearance at the dust shield inspection holes is between 0.010" to 0.060".

## SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## INSPECTION CRITERIA - CONTINUED

6	Plunger seals (7)	Inspect plunger seals (7).	<p>If seals are cut, torn, or leaking--disassemble and overhaul brake actuating components.</p> <p>If seals are in good condition, remove pawl assembly and then remove the adjusting plunger and its seal to check internal condition.</p> <p>If grease is contaminated or hardened, or if parts are dry--disassemble and overhaul brake actuating components.</p> <p>If internal parts are satisfactory or overhauled, regrease the unit, reassemble the adjusting plunger, replace the seal using an appropriate seal driver, reassemble the pawl, and manually adjust the brake to the proper specification.</p>
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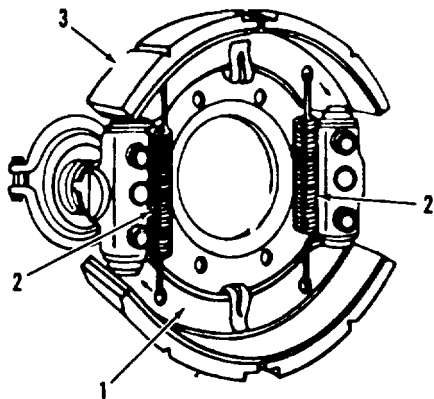
SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
INSPECTION CRITERIA - CONTINUED			
7	Brake shoe spider (1)	Brake shoe return springs (2)	Check brake shoe return spring tension. Tension should be between 75 to 90 pounds pull with a spring length of 9.5 inches. Replace spring if improper tension or elongation.

NOTE

For visual inspection of the brake lining wear, the brake linings can be grooved on the side, or chamfered on the four inner corners. This makes it easier to determine how much the lining has been worn and when the vehicle should be scheduled for relining.

8	Brake shoe assemblies (3)	Shoe, lining, and rivets	Inspect: a. Shoes for cracks. b. Linings for cracks, looseness to shoes, or a thickness of at least 1/8 inch (3.2 millimeters). c. Rivets looseness. Rivets should also be at least 1/16 inch (1.6 millimeters) below the surface of the lining.
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## SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
REASSEMBLY			
<p><b>WARNING</b></p> <p>If the rear wheels are being worked on, the power spring in the spring brake chamber must be caged before attempting to install the air chamber and wedge assemblies in the rear wheel brake assembly or before performing any maintenance on the rear wheel brake assemblies, to avoid possible personnel injury.</p>			
<p><b><u>CAUTION</u></b></p> <p>Do not clean any rubber parts (plunger seals or gaskets) using solvent.</p>			
1 Plunger housing components	Plunger housing (1) and adjusting bolt threads (2)	<ul style="list-style-type: none"> <li>a. Thoroughly inspect and clean all parts including the plunger housing (1), seal bores, and shoe rest pads.</li> <li>b. Clean the plunger parts and adjusting bolt threads (2) with a wire brush to remove caked on dirt and corrosion.</li> </ul>	
2	Plunger seals (3) and angled plunger roller faces (4)	<ul style="list-style-type: none"> <li>a. Carefully inspect plunger seals (3) for tears, cuts, or deterioration and replace if necessary.</li> <li>b. Check angled plunger roller faces (4) for pits, grooves, or nicks and replace if necessary.</li> </ul>	
<p><b><u>CAUTION</u></b></p> <p>Seals should not be assembled into housing first. Doing so would result in complete lack of sealing of internal plunger housing components.</p>			
<p><b>NOTE</b></p> <p>The brakes have two adjusting plungers on one side and two anchor (solid) plungers on the other side of the spider assembly as seen when facing the brake release springs. DO NOT MIX THE PLUNGER TYPES DURING REASSEMBLY</p>			

## SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>REASSEMBLY - CONTINUED</b>		
3 Left side plunger housing (1)	Plunger seals (3)	Apply film of grease to inside surface of seals (3).
4	Anchor (solid) plungers (4), brake shoe web slot, and plunger nose	a. Inspect anchor (solid) plunger nose for burrs. b. Mask brake shoe web slot on plunger nose with masking tape to protect seal.
5		a. Carefully push the double lip seal onto the plunger, stretching the outer seal lip over the plunger nose end, until the inner seal lip is completely in the second plunger groove and the outer seal lip is in the first plunger groove. b. Remove masking tape.
6 Left side plunger housing (1)	Plunger bore	Coat all plunger bores with grease.

**CAUTION**

Both anchor (solid) plungers must be installed  
in left side plunger assembly; one of the top,  
and one on the bottom.

7	Anchor (solid) plunger (4) and plunger seal (3)	Coat entire anchor (solid) plunger (4) with grease, packing cavity behind seal.
8	Plunger key-way slot and guide guide screw hole	Insert plunger (4) and plunger seal (3) into housing with plunger key-way slot aligned with guide screw hole.
9	Plunger bore and bosses	Ensure the plunger goes all the way into the plunger bore and seats on bosses at the bottom.

**CAUTION**

Driver must be centered over seal retainer to  
prevent damage to seal assembly.

SERVICE BRAKE ASSEMBLY - CONTINUED

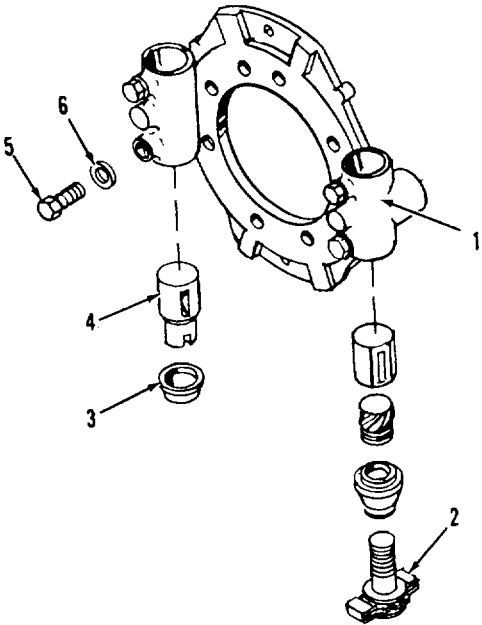
LOCATION	ITEM	ACTION	REMARKS
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REASSEMBLY - CONTINUED

NOTE

If seal driver is not available, a 1-3/4 inch wrench socket can be used.

10	Seal driver tool	Seat plunger seal (3) in plunger housing (1) with correct seal driver tool.
11	Two gaskets (6) and two guide screws (5)	<div>a. Assemble two gaskets (6) and two guide screws (5) into left side plunger housing (1). Ensure guide screw ends enter the plunger key-way slot so plunger can slide freely in housing bore.</div> <div>b. Tighten guide screws to 15 to 25 lb. ft. torque.</div>





## SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>REASSEMBLY - CONTINUED</b>			
12	Two adjusting plungers (1), seals (2), adjusting bolt thread (3) and adjusting sleeves (4), adjusting pawl assemblies (5), keyed hollow adjusting pawls (6), hollow capscrews (7), springs (8), and gaskets (9)	<ul style="list-style-type: none"> <li>a. Apply coat of grease to the inner and outer surfaces of the two adjusting plungers (1).</li> <li>b. Place the two adjusting plungers (1) into the right side plunger housing (10), aligning plunger key-way slot with the guide hole.</li> <li>c. Grease the seals (2) and adjusting bolt threads (3) and carefully assemble the seals (2) on the adjusting bolt (3) making sure the seals are not damaged.</li> <li>d. Grease the adjusting sleeve (4) and thread the sleeves (4) into the bolts (3).</li> </ul>	

**CAUTION**

The adjusting sleeve must bottom on the shoulder inside of the plunger. If the bolt is threaded too far into the sleeve, the bolt will bottom in the plunger and the automatic adjuster will not function.

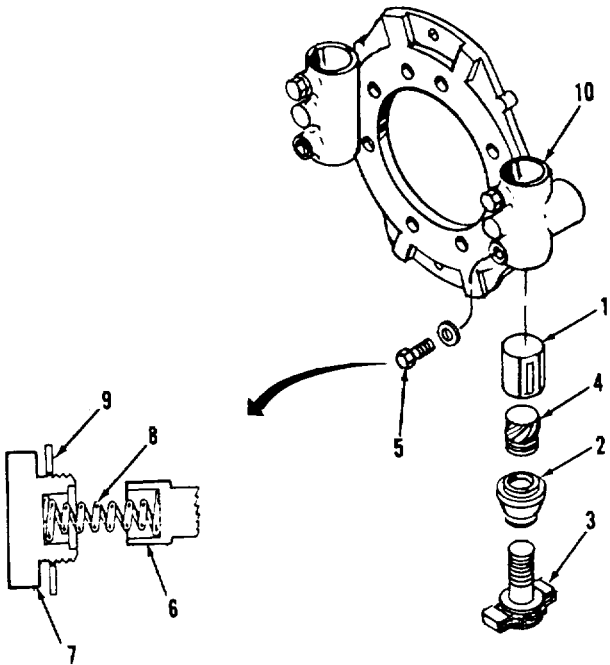
- e. Insert adjusting sleeves (4), bolt (3), and seals (2) into adjusting plungers (1) already in right side plunger housing (10).

**NOTE**

The adjusting pawl assembly (5) employs an integral key which mates with a slot in the adjusting pawl guide hole of the actuator housing. This assures correct positioning of the pawl inside the plunger to allow the brake to adjust automatically. The keyed adjusting pawl (6), spring (8) and hollow capscrew (7) are pre-assembled to facilitate reassembly of these parts into the actuator housing. The capscrew and pawl have hollow ends, and the spring has one large diameter coil at each end which force-fits (pre-snaps) into the open ends of the pawl and capscrew.

SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
REASSEMBLY - CONTINUED			
		f.	Coat keyed adjusting pawl (6) with grease and insert into plunger housing (10).
13	Pawl capscrew (8)		Tighten pawl capscrew (7) to 15 to 25 ft. lbs. torque.
14	Seal seating tool		Using proper tool, seat seal into plunger housing.



## SERVICE BRAKE ASSEMBLY - CONTINUED

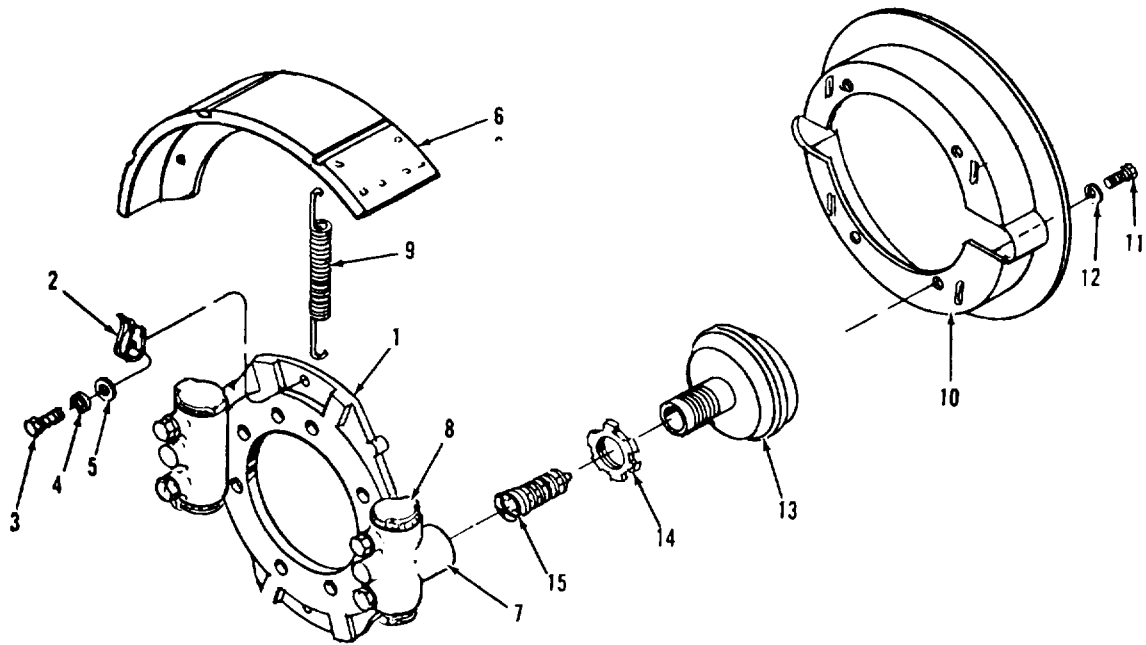
LOCATION	ITEM	ACTION	REMARKS
<b>REASSEMBLY- CONTINUED</b>			
15 Brake assembly spider (1)	Brake shoe hold down clip (2), hold down spring bolt (3), lockwasher (4) and nut (5)	If previously removed, secure brake shoe hold down clips (2) to spider (1) with hold down spring bolt (3), lockwasher (4) and nut (5).	
<p style="text-align: center;"><b><u>WARNING</u></b></p> <p>Brake linings contain asbestos fibers. Extreme caution must be observed during handling of asbestos material.</p>			
16 Left side plunger housing (7)	Brake shoe rest pads, anchor (solid) plungers and bolt slots	Apply film of grease to the brake shoe rest pads, anchor (solid) plungers and bolt slots.	
17 Right side plunger housing (7)	Adjusting bolts (8), bolt retainer slot, and brake shoe web (6)	Rotate adjusting bolts (8) to align slots with the brake shoe (6) webs, being certain that bolts are not bottomed in adjusting plungers.	
18	Brake shoes (6)	Install brake shoes (6).	
19	Brake shoe return spring (9)	Attach brake shoe return spring (9) to brake shoe assemblies using brake spring pliers.	
20 Brake assembly spider (1)	Dust shield (10), four capscrews (11), and four lockwashers (12)	Attach dust shield (10) to brake assembly spider (1) with four capscrews (11) and four lockwashers (12).	

## SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>REASSEMBLY- CONTINUED</b>			
<b>NOTE</b>			
Before reinstalling the brake air chamber assembly power unit, reposition the wedge assembly so the rollers and roller cage are engaged in the plunger slots. This is accomplished automatically by simply aligning the two tabs on the wedge spring retainer with corresponding grooves in the wedge bore of the plunger housing.			
21 Brake assembly	Brake air chamber assembly (13), collet nut (14) wedge assembly (15) and plunger housing (7)	Position brake air assembly (13), collet nut (14), and wedge assembly (15) in proper order for insertion in rear of right side plunger housing (7) (plunger housing containing adjustable plunger).	
<b>NOTE</b>			
The air chamber power unit should be threaded into the wedge bore of the plunger housing to a depth such that the wedge is ready to lift the plungers off of the abutment seats at the first movement of the diaphragm. The bottoming out power unit is designed to "bottom out" in the wedge bore and provide this optimum adjustment automatically.			
22	Brake air chamber assembly (13), wedge assembly (15), plunger housing (17)	<ul style="list-style-type: none"> <li>a. Install brake air chamber assembly (13) and wedge assembly (15) into rear of right side plunger housing (7) by screwing air chamber assembly into position.</li> <li>b. After the wedge assembly has been installed in the plunger housing, check roller-plunger for correct engagement by pushing on wedge rod by hand, while checking for plunger and brake shoe lift.</li> <li>c. Measure the standout of the wedge rod from the end of the threaded housing bore. When properly assembled, the wedge standout is 1-1/4 inch.</li> </ul>	

SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION		ITEM	ACTION	REMARKS
REASSEMBLY - CONTINUED				
23	Brake air chamber assembly (13)	Collet nut (14)	Tighten collet nut (14).	
24	Brake Assembly	Brake lines	Connect brake lines to brake assembly.	
25		Automatic brake Adjuster	Adjust brakes (page 4-119).	
26	Spring brake unit (rear wheels only)	Caging bolt	Using manual release tool, release power spring of spring brake unit by turning manual release tool between 18 and 21 turns in the counterclockwise direction.	



NOTE

FOLLOW-ON MAINTENANCE: Install wheels, hubs, and drums (page 4-148).

## SERVICE BRAKE ASSEMBLY - CONTINUED

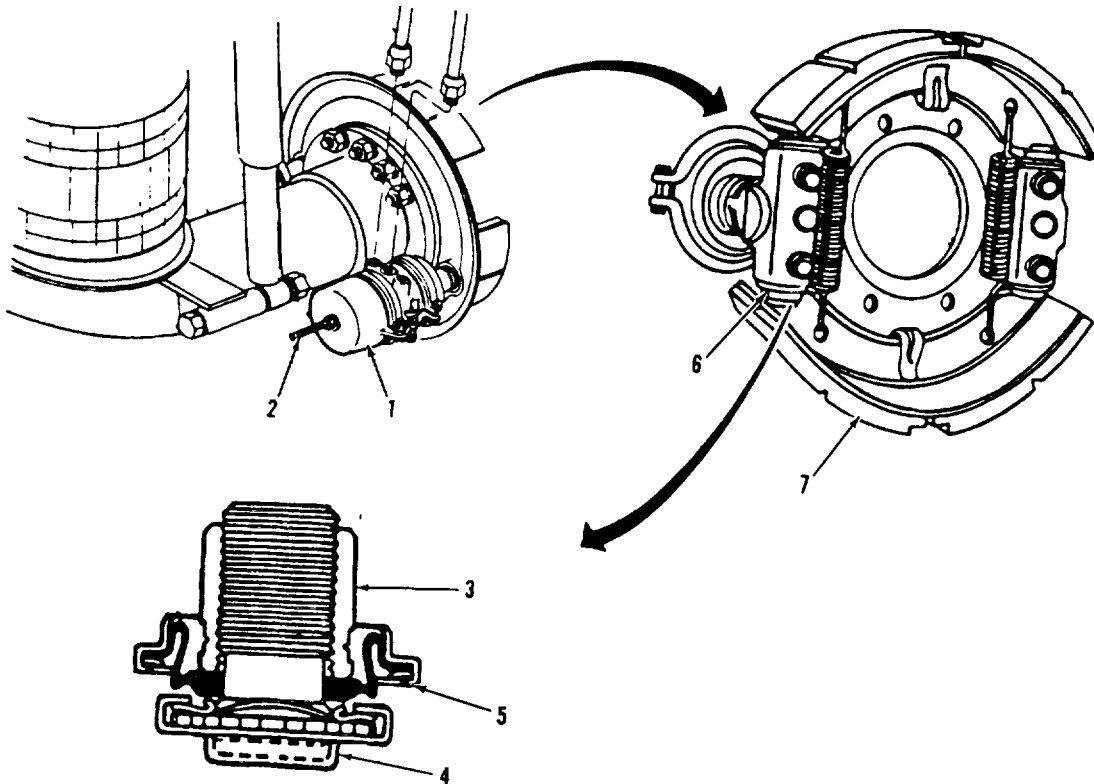
LOCATION	ITEM	ACTION	REMARKS
<b>AUTOMATIC BRAKE ADJUSTMENT</b>			
<b><u>CAUTION</u></b>			
Automatic adjusters cannot be depended upon to take up excessive initial clearance. Adjusters may not function if adjusting bolts are tight against the plunger. Dual actuated brakes will not adjust on a stationary vehicle.			
1	Spring brake chamber (1)	Caging tool (2)	Cage spring brake chamber (1) power spring by installing manual release tool (2) and turning manual caging bolt 18 to 21 turns clockwise.
2	Actuator housing (3)	Adjusting bolt assembly (4), adjusting sleeve (5), and adjusting plunger (6)	Check, clean, and regrease actuator housing (3), adjusting bolt assembly (4), adjusting sleeve (5), and adjusting plunger (6).
3	Spring brake chamber (1)	Brake shoes (7)	Manually adjust brakes for heavy drag using a brake shoe adjust tool to move the adjusting bolt on adjusting bolt assembly (4). The adjusting bolts have right hand threads.
4	Adjusting bolt assembly (4)	a. Back off adjusters 0.020" to 0.040" clearance. b. Measure at the crown (center) of the brake shoe using a long feeler gauge to permit checking the entire lining width. A light drum drag should be evident. c. If a light drum drag is not evident, check for misalignment or bent shoes, improper lining grind, drum runout, etc.	

SERVICE BRAKE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

AUTOMATIC BRAKE ADJUSTMENT - CONTINUED

- |   |                                  |                             |   |
|---|----------------------------------|-----------------------------|---|
| 5 | Floating brake shoe assembly (7) | Adjusting bolt assembly (4) | <p>a. To check the adjustment, record the number of "clicks" of the adjusting bolt assembly (4) for the floating brake shoe off of a tight fit.</p> <p>b. All adjustments, on any one brake, should be within six "clicks" of one another. If not, repeat procedure and re-examine components for damage.</p> |
|---|----------------------------------|-----------------------------|---|



TASK ENDS HERE

WEDGE ASSEMBLY

- This task covers:
- a. Removal (page 4-121)
  - b. Inspection (page 4-122)
  - c. Installation (page 4-124)

INITIAL SETUP:

Tools

General mechanics tool set

Materials/Parts

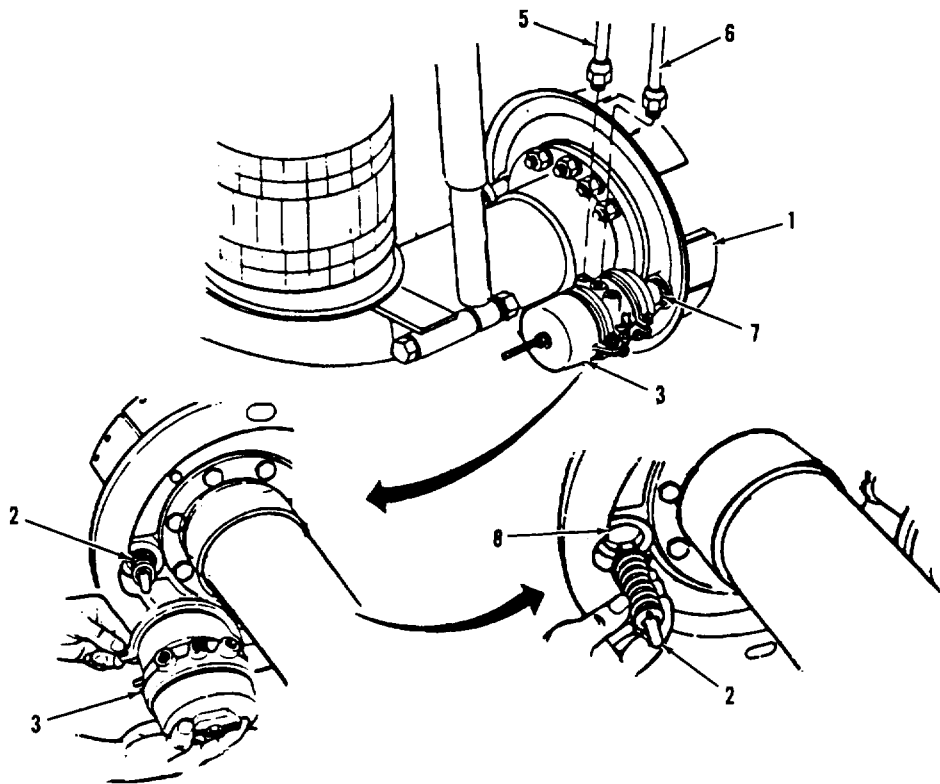
Equipment Conditions  
Spring brake chamber power spring caged  
(if rear wheel brake) (page 4-91).

LOCATION		ITEM	ACTION REMARKS
REMOVAL			
1	Brake assembly (1)	Wedge assembly (2)	Remove wedge assembly (2) from disassembled brake assembly by pulling wedge assembly straight out of brake housing. If brake assembly has not been disassembled, proceed to steps 2 through 5.
2		Service brake air hose (5) and parking brake air hose (6)	Remove air hoses (5 and 6) from spring brake chamber.
3		Collet nut (7)	Using a drift or other blunt tool and a hammer, loosen collet nut (7).
4	Brake assembly plunger housing	Spring brake chamber (3) and wedge assembly (2)	Unscrew and remove the spring brake chamber (3) from the plunger housing (8). Pull wedge assembly (2) straight out of plunger housing.



WEDGE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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INSPECTION

5 Wedge assembly (2)

Angled faces of wedge (3) marks.  
Roller retainer cage (4) properly.  
Spring (5)

Clean wedge assembly thoroughly and inspect the items listed below. Replace entire wedge assembly if any parts are defective or worn excessively.

- a. Check angled faces of wedge (3) to see that they are free of pits or
- b. Inspect roller retainer cage (4) to make sure it will contain rollers
- c. Inspect the spring (5) for marks that could cause breakage.

## WEDGE ASSEMBLY - CONTINUED

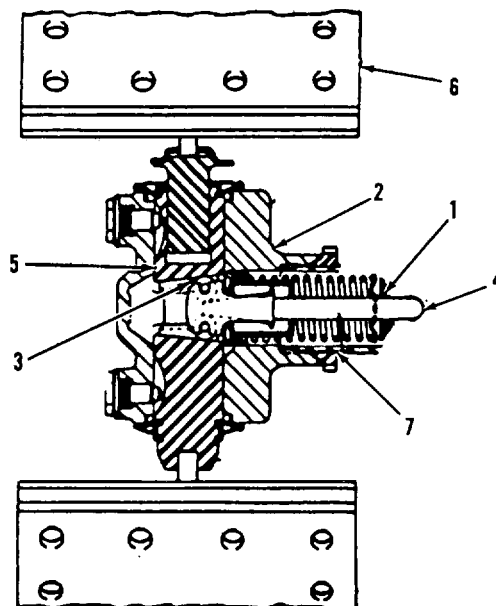
LOCATION	ITEM	ACTION	REMARKS
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## INSPECTION - CONTINUED

## NOTE

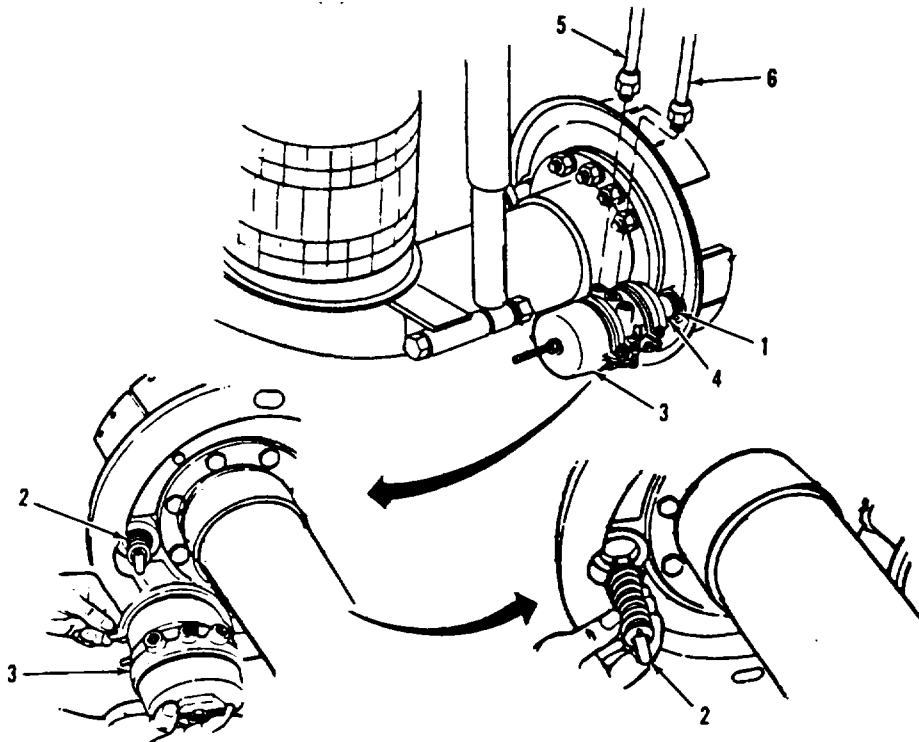
The wedge assembly spring retainer has two tabs or protrusions on the outer diameter. These tabs serve to align the wedge assembly as it is installed into the plunger housing by engaging grooves in the wedge bore.

- |   |                |   |   |
|---|----------------|---|---|
| 6 | Brake assembly | Wedge assembly (1) and plunger housing (2)                        | a. Install the wedge assembly (1) into the plunger housing (2).   |
|   |                | Roller-plunger (3), wedge rod (4), plunger (5) and brake shoe (6) | b. Check for correct roller-plunger (3) engagement by pushing on wedge rod (4) by hand, while checking for plunger (5) and brake shoe (6) lift.   |
|   |                | Wedge rod (4) and end of threaded housing bar (7)                 | c. Measure the standout of the wedge rod from the end of the threaded housing bar (7). When properly assembled, the wedge standout is 2-1/4 inch. |



WEDGE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
7	Brake assembly plunger housing (1)	Wedge assembly (2) plunger housing (1).	Install the wedge assembly (2) into the
8	Spring brake chamber (3)		Position spring brake chamber (3) against plunger housing opening (1) and screw in place.
9	Spring brake chamber (3)	Collet nut (4)	Using a drift or other blunt tool and a hammer, tighten collet nut (4).
10	Service brake air hose (5) and parking brake		Attach air hoses (5 and 6) to spring brake chamber (3).



**NOTE**

FOLLOW - ON MAINTENANCE: Uncage spring brake chamber (as applicable) (page 4-93)

**TASK ENDS HERE**

AIR BRAKE CHAMBER

This task covers:

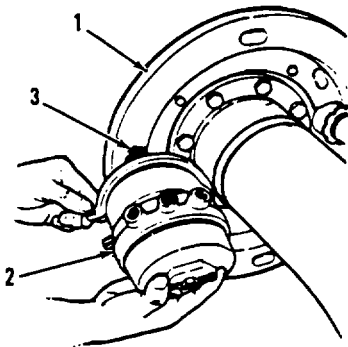
- a. Removal (page 4-125)
- b. Installation (page 4-125)

INITIAL SETUP:

Tools  
General mechanics tool set

Materials/Parts  
  
Equipment Conditions  
Brakes caged and air lines disconnected  
(page 4-93).

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
1	Brake assembly (1)	Air brake chamber assembly (2) and plunger housing (3)	Remove air brake chamber assembly (2) from brake assembly (1) by unscrewing air brake chamber assembly out of the plunger housing (3).
INSTALLATION			
2	Brake assembly	Air brake chamber assembly (2) and plunger housing (3)	Install the air brake chamber assembly (2) in the air brake assembly plunger housing (3)



NOTE

FOLLOW - ON MAINTENANCE: Attach air hoses  
Uncage brakes (page 4-93)

TASK ENDS HERE

AIR LINES AND FITTINGS

This task covers:

Removal (page 4-126)

INITIAL SETUP:

Tools  
General mechanics tool set

Materials/Parts  
  
Equipment Conditions  
Gladhands disconnected (page 4-129).  
Air brake system drained (page 2-2).

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

**WARNING**

The air brake system must be drained before attempting to remove any air lines and air system fittings.

**NOTE**

Air lines and fittings are located throughout the dolly set. Refer to page 4-128 for an illustration of the physical interconnections of the various air hoses and fittings throughout the dolly set.

1	Front dolly emergency relay valve (1)	Attached air hoses and fittings	Refer to the removal procedures for the front dolly emergency relay valve (page 4-131) for procedures for removing air hoses and fittings attached to the emergency relay valve.
2	Rear dolly emergency relay valve (2)	Attached air hoses and fittings	Refer to the removal procedures for the rear dolly emergency relay valve (page 4-132) for procedures for removing air hoses and fittings attached to the emergency relay valve.

**AIR LINES AND FITTINGS - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>REMOVAL - CONTINUED</b>			
3	Front dolly auxiliary brake lever (control valve) (3)	Attached air hoses and fittings	Refer to the removal procedures for the front dolly auxiliary brake lever (page 4-97) for procedures for removing air hoses and fittings attached to the front dolly auxiliary brake lever.
4	Rear dolly auxiliary brake lever (control valve) (4)	Attached air hoses and fittings	Refer to the removal procedures for the rear dolly auxiliary brake lever (page 4-99) for procedures for removing air hoses and fittings attached to the rear dolly auxiliary brake lever.
5	Gladhands (5)	Attached air hoses and fittings	Refer to the removal procedures for the various dolly set gladhands (page 4-129) for procedures for removing air hoses and fittings attached to the gladhands.
6	Front dolly air reservoir (6)	Attached air hoses and fittings	Refer to the removal procedures for the front dolly air reservoir (page 4-138) for procedures for removing air hoses and fittings attached to the front dolly air reservoir.
7	Rear dolly air reservoirs (7) and (8)	Attached air hoses and fittings	Refer to the removal procedures for the two rear dolly air reservoirs (page 4-140) for procedures for removing air hoses and fittings attached to the two rear dolly air reservoirs.
8	Dolly set frame flat washers (11) set components.	Hose clamp (9), screws (10), and	a. Remove various clamps (9), screws (10), and fiat washers (11) securing air hoses to frame and various dolly  b. Remove air hoses and place in safe area for stowage.

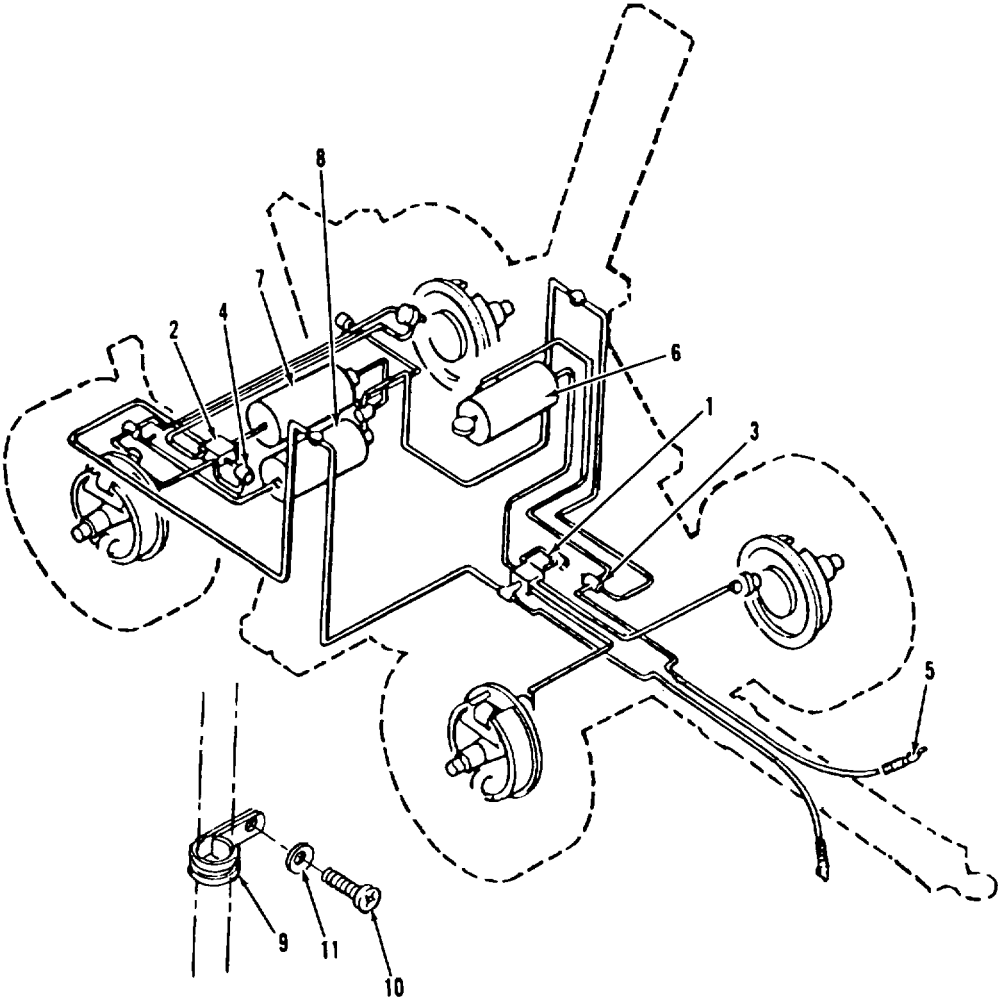
**INSTALLATION**

Use the above procedures in reverse for installation.

AIR LINES AND FITTINGS - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL - CONTINUED



TASK ENDS HERE

GLADHANDS

- This task covers:
- a. Removal (page 4-129)
  - b. Installation (page 4-130)
  - c. Repair (page 4-130)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set	Air brake system drained (page 2-2).

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

NOTE

The following two procedures for removal and installation of gladhands is typical for all gladhand installations on dolly set.

1	Towbar (1)	Brake air hose gladhand (2), hose assembly (3) and tag (4)	Unscrew gladhands from air hoses.
2	Platform (5)	Brake air hose gladhand (for connection to a second empty dolly set service air line) (6), dummy coupling (7), bulkhead fitting (8), and tag (9)	Disconnect gladhand (6) and tag (9) from dummy coupling (7), and bulkhead fitting (8).

INSTALLATION

3	Platform	Gladhand (6) (5) tag (9), dummy coupling (7), and bulkhead fitting (8)	Attach gladhand (6), tag (9) and dummy coupling (7) to bulkhead fitting (8) and secure to platform (5).
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GLADHANDS - CONTINUED

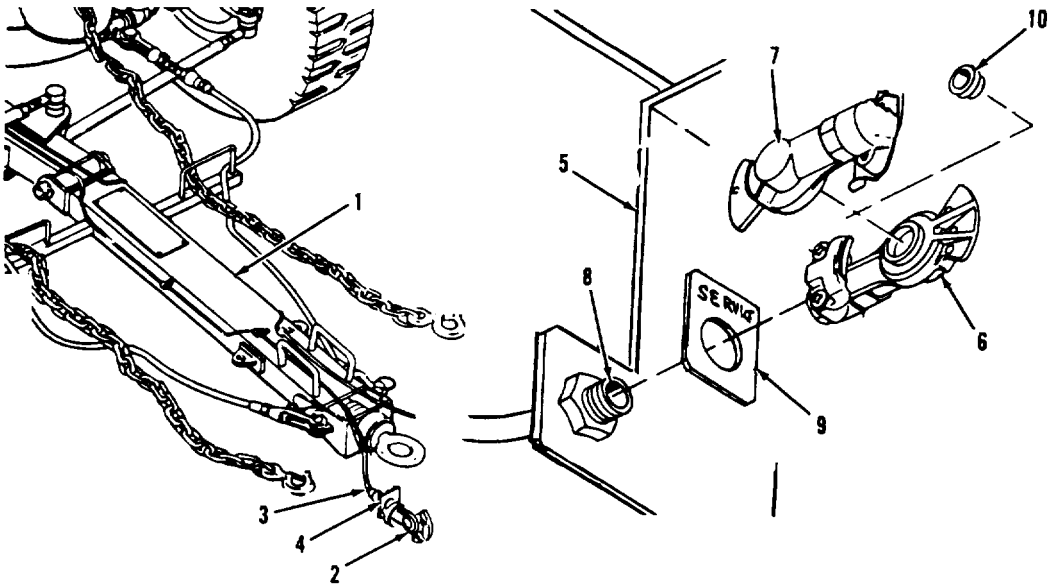
LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION - CONTINUED

4	Towbar (1)	Brake air hose gladhand (2), tag (4), and air hose assembly (3)	Attach brake air hose gladhand (2) and tag (4) to air hose assembly (3).
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REPAIR

5	Gladhand(s)	Preformed packing (10)	Using a screwdriver, pry damaged packing (10) out of gladhand opening. Place new packing (10) in opening and snap in place.
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TASK ENDS HERE

EMERGENCY RELAY VALVES

This task covers:

- a. Removal (page 4-131)
- b. Installation (page 4-134)

INITIAL SETUP:

Tools  
General mechanics tool set

Materials/Parts  
Antiseize tape (item 8, Appendix E)  
Pipe sealant (item 9, Appendix E)

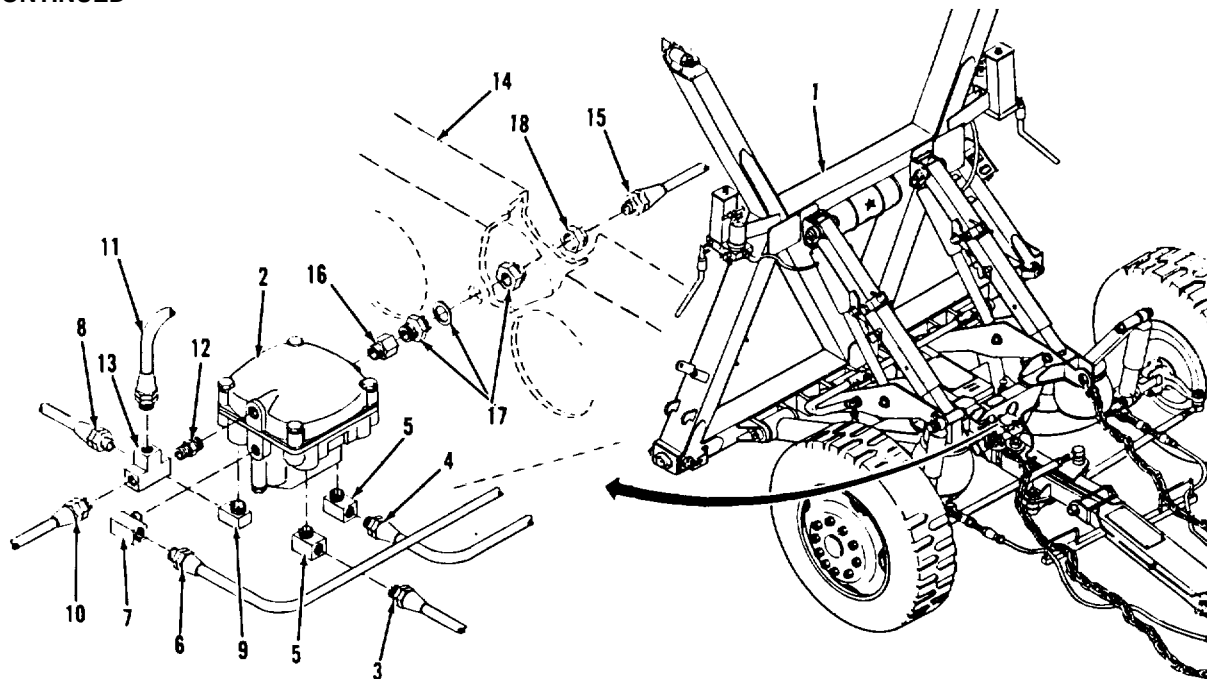
Equipment Conditions  
  
Wheels chocked.  
Air brake system drained.

LOCATION		ITEM	ACTION	REMARKS
REMOVAL				
1	Front dolly (1) emergency relay valve (2)	Hose assemblies (3) and (4) from front wheel brakes and two 3/8 street elbows (5)	Tag hose assemblies (3) and (4) and remove hose assemblies and two 3/8 street elbows (5) from front dolly (1).	
2		Hose assembly (6) and 3/8 street elbow (7)	Tag hose assembly (6), and remove hose assembly and 3/8 street elbow (7) from emergency relay valve (2).	
3		Hose assembly (8) and 3/8 street elbow (9)	Tag hose assembly (8) and remove hose assembly and 3/8 street elbow (9) from emergency relay valve (2).	
4		Two hose assemblies (10) and (11), 3/8 to 1/4 nipple (12) and 3/8 tee (13)	Tag two hose assemblies (10) and (11), and remove hose assemblies, nipple (12) and tee (13) from front dolly emergency relay valve (2).	
5	Connecting link (14)	Hose assembly (15), pipe bushing (18), bulkhead fitting (17) and reducer coupling (16)	Tag hose assembly (15) and remove pipe bushing (18), bulkhead fitting (17), and reducer coupling (16) and remove emergency relay valve (2).	

## EMERGENCY RELAY VALVES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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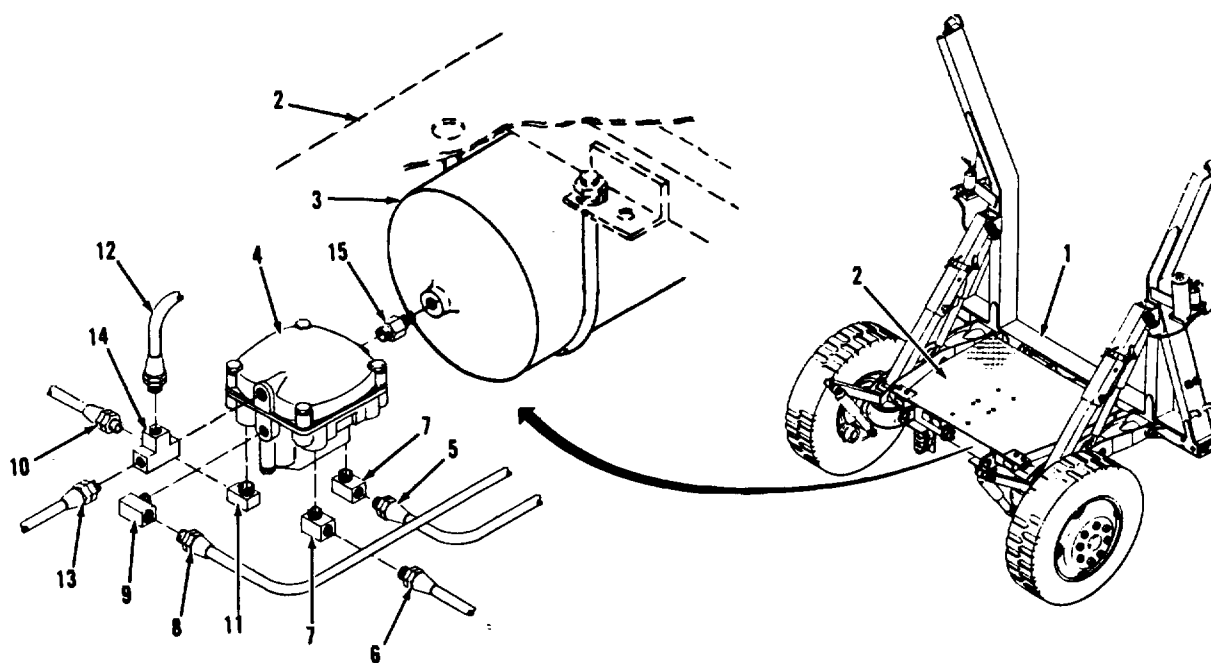
## REMOVAL - CONTINUED



6	Rear dolly (1) and service brakes air reservoir tank (3)	Platform (2), rear dolly emergency relay valve (4), two hose assemblies (5) and (6), and two 3/8 street elbows (7)	Tag hose assemblies (5) and (6) and remove hose assemblies and two street elbows (7) from emergency relay valve (4).
7	Emergency relay valve (4), hose assembly (8) and 900 street elbow (9)	Tag hose assembly (8) and remove hose assembly and 900 street elbow (9) from emergency relay valve (4).	
8	Emergency relay valve (4), hose assembly (10) and 3/8 street elbow (11)	Tag hose assembly (10) and remove hose assembly and 3/8 street elbow (11) from emergency relay valve (4).	

**EMERGENCY RELAY VALVES - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>REMOVAL CONTINUED</b>			
9	Emergency relay valve (4), two hose assemblies (12) and (13), and street tee (14)	Tag hose assemblies (12) and (13), and remove hose assemblies and street tee (14) from emergency relay valve (4).	
10	Emergency relay valve (4) and 1/2 x 3/4 adapter (15)	Remove emergency relay valve (4) from 1/2 x 3/4 adapter (15) attaching relay valve to service brakes air reservoir tank (3).	



## EMERGENCY RELAY VALVES - CONTINUED

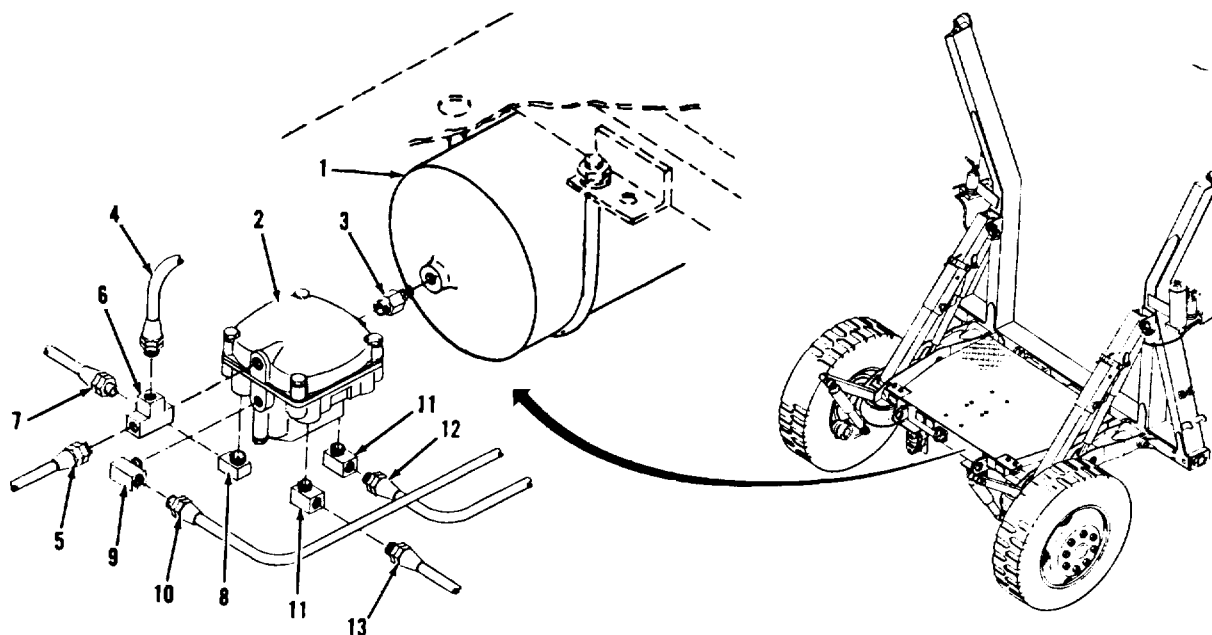
LOCATION	ITEM	ACTION	REMARKS
<b>INSTALIATION</b>			
<p style="text-align: center;"><b>NOTE</b></p> <p>Anti-seize tape, type II (item 8, Appendix E) shall be applied to all threads when assembling fittings except on emergency relay valve.</p> <p style="text-align: center;"><b>NOTE</b></p> <p>Apply pipe sealant (item 9, Appendix E) to all threads when assembling fittings in emergency relay valves.</p>			
11	Service brakes air reservoir tank (1)	Rear dolly emergency relay valve (2) and 1/2 x 3/4 adapter (3)	a. Apply Antiseize tape to threads on 1/2 x 3/4 adapter (3) that will mate with service brakes air reservoir tank (1) and screw adapter into air reservoir tank. b. Attach rear emergency relay valve (2) to other end of adapter (3).
12	Emergency relay valve (2), two hose assemblies (4) and (5), and street tee (6)	Emergency relay valve (2), two hose assemblies (4) and (5), and street tee (6)	a. Attach street tee (6) to emergency relay valve (2). b. Apply Antiseize tape to threads on two hose assemblies (4) and (5) and attach two hose assemblies to street tee (6).
13	Emergency relay valve (2), hose assembly (7) and 3/8 street elbow (8)	Emergency relay valve (2), hose assembly (7) and 3/8 street elbow (8)	a. Attach 3/8 street elbow (8) to emergency relay valve (2). b. Apply Antiseize tape to threads of other end of street elbow (8) and attach hose assembly (7).
14	Emergency relay valve (4)	90° street elbow (9) and hose assembly (10)	a. Attach 90° street elbow (9) to emergency relay valve (4). b. Apply Antiseize tape to threads of other end of 90° street elbow (9) and attach hose assembly (10).

# EMERGENCY RELAY VALVES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## INSTALLATTON - CONTINUED

- |    |  |   |
|----|--|---|
| 15 | Two 3/8 street elbows (11) and two hose assemblies (12) and (13) | <ul style="list-style-type: none"> <li>a. Attach street elbows (11) to emergency relay valve (4).</li> <li>b. Apply antiseize tape to threads of other end of two street elbows (11) and attach hose assemblies (12) and (13).</li> </ul> |
|----|--|---|



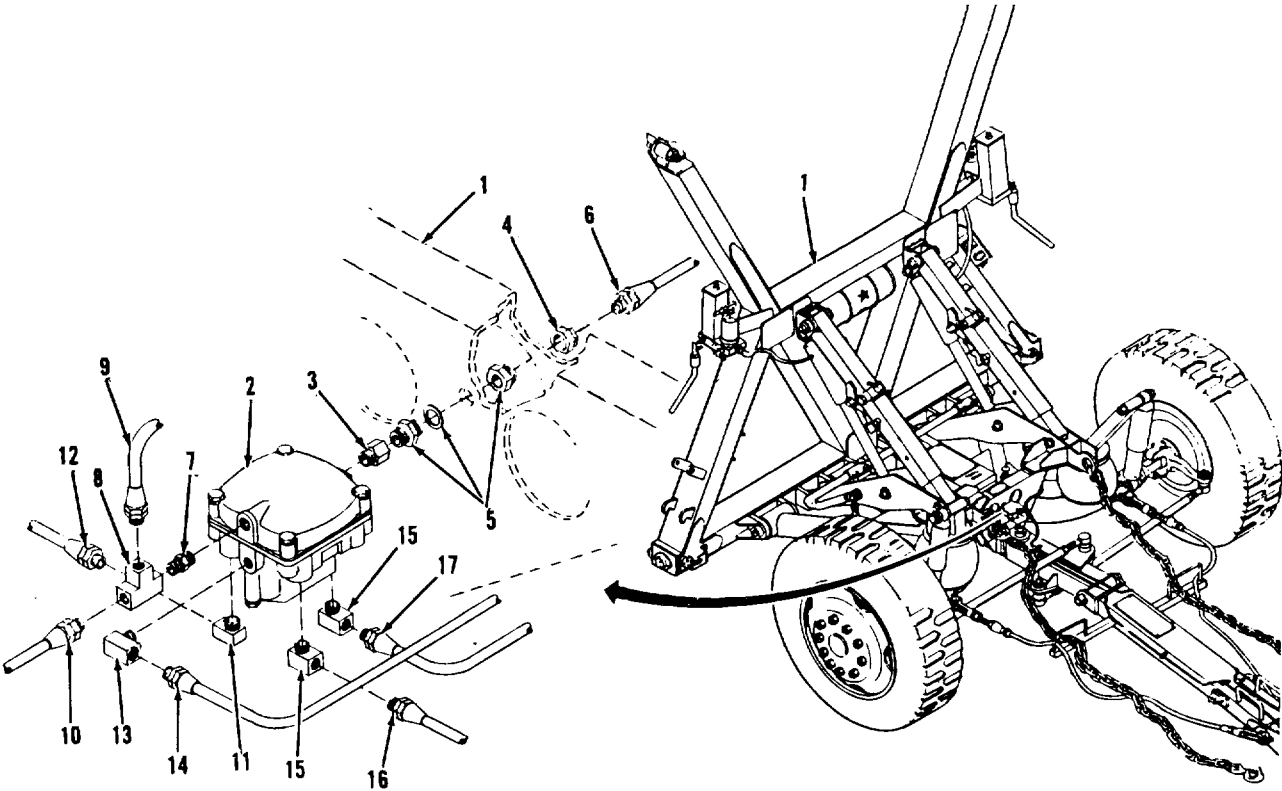
## EMERGENCY RELAY VALVES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION - CONTINUED</b>		
16 Connecting link (1)	Pipe bushing (4), bulkhead fittings (5) and hose assembly (6)	Apply antiseize tape to threads of bulkhead fittings (5) and attach bulkhead fittings (5), pipe bushing (4), and hose assembly (6) to emergency relay valve (2).
17	Reducer coupling	Attach reducer coupling (3) to bulkhead fitting (5).
18	Front dolly emergency relay valve (2)	Attach front dolly emergency relay valve (2) to reducer coupling (3).
19	3/8 to 1/4 nipple (7)	Attach nipple (7) to emergency relay valve (2).
20	3/8 to 1/4 nipple (7), 3/8 tee (8) and two hose assemblies (9) and (10)	a. Apply antiseize tape to threads of tee (8) and attach to nipple (7). b. Attach hose assemblies (9) and (10) to tee (8).
21	3/8 street elbow (11) and hose assembly (12)	a. Attach street elbow (11) to emergency relay valve (2). b. Apply antiseize tape to threads of other end of street elbow (11) and attach hose assembly (12).
22	3/8 street elbow (13) and hose assembly (14)	a. Attach street elbow (13) to emergency relay valve (2). b. Apply antiseize tape to threads of other end of street elbow (13) and attach hose assembly (14).
23	Two 3/8 street elbows (15) and hoses (16 and 17)	a. Attach two street elbows (15) to emergency relay valve (2). b. Apply antiseize tape to threads of the other end of the two street elbows (15) and attach hose assemblies (16 and 17).

EMERGENCY RELAY VALVES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION - CONTINUED



NOTE

FOLLOW ON MAINTENANCE:  
Pressurize air brake system and check for leaks (page 4-95).

TASK ENDS HERE



FRONT DOLLY AIR RESERVOIR

This task covers:

- a Removal (page 4-138)
- b. Installation (page 4-138)

INITIAL SETUP

Tools	Materials/Parts
General mechanics tools set	Antiseize tape (item 8, Appendix E)
Equipment Conditions	Air brake system drained (page 2-2).

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

WARNING

The parking brake should be set and the wheels chocked before attempting to remove air reservoir.

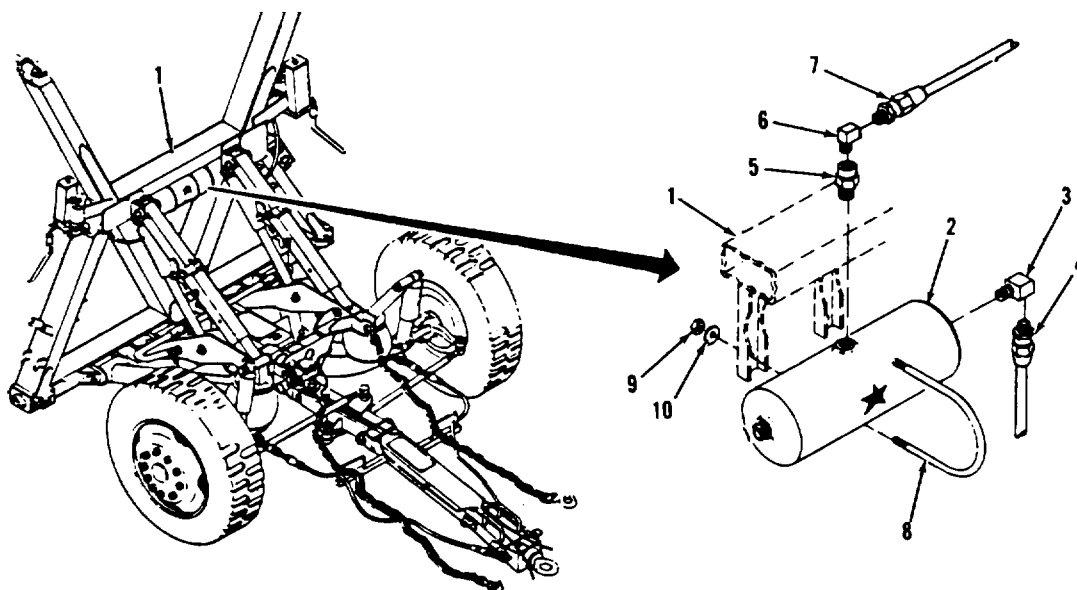
1	Front adapter (1)	Air reservoir (2) 900 street elbow (3), air hose (4), single check valve (5), 900 street elbow (6), and air hose (7)	Tag and remove air hoses (4) and (7) and street elbows (3) and (6) attached to air reservoir (2) and single check valve (5).
2	Air reservoir (2), two U-bolts (8), four nuts (9) and four flat washers (10)	Remove four nuts (9), four flat washers (10), two U-bolts (8), and reservoir (2).	

INSTALLATION

4	Front adapter (1)	Air reservoir (2), and two U-bolts (8)	Place air reservoir (2) in proper position against front adapter (1) and mount with two U-bolts (8).
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## FRONT DOLLY AIR RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION - CONTINUED</b>			
5.	Air reservoir (2), two U-bolts (8), four flat washers (10), and four nuts (9)	Secure air reservoir (2) to front adapter (1) with two U-bolts (8), four flat washers (10) and four nuts (9).	
6	Air reservoir (2)	900 street elbow (3) and air hose (4)	a. Attach 900 street elbow (3) to end of air reservoir (2). b. Attach air hose (4) from relay emergency valve to 900 street elbow (3).
7.	Single check valve (5), air hose (7), and 90° street elbow (6)		a. Attach single check valve (5) to air reservoir (2). b. Attach 900 street elbow (6) to single check valve (5). c. Attach air hose (7) from 3/8 female cross

**NOTE**

FOLLOW-ON MAINTENANCE: Pressurize and test air brake system for leaks (page 4-95).

**TASK ENDS HERE**

## REAR DOLLY AIR RESERVOIRS

This task covers:

- |   |  |
|---|--|
| a. Removal of service brake air reservoir (page 4-141)                | c. Installation of parking brake (spring brake) air reservoir (page 4-142) |
| b. Removal of parking brake (spring brake) air reservoir (page 4-140) | d. Installation of service brake air reservoir (page 4-142)                |

### INITIAL SETUP

#### Tools

General mechanics tools set

Equipment Conditions

#### Materials/Parts

Antiseize tape (item 8, Appendix E)

Air brake system drained (page 2-2).

LOCATION	ITEM	ACTION	REMARKS
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### REMOVAL

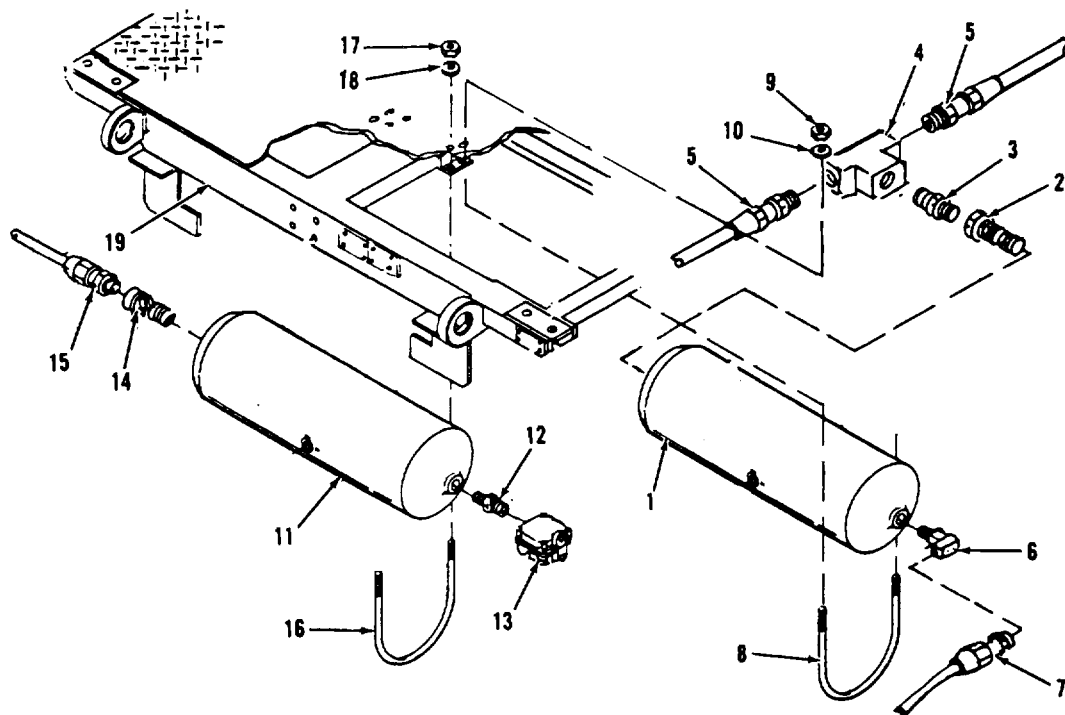
#### WARNING

The parking brake should be set to ON and the wheels chocked before attempting to remove either rear dolly air reservoir.

1	Spring brakes air reservoir (1)	Single check valve (2), reducer hex nipple (3), 3/8 female cross (4) and hoses (5)	a. Tag and remove air hoses (5) from 3/8 female cross (4). b. Remove 3/8 female cross (4), reducer hex nipple (3), and single check valve (2) from spring brakes air reservoir (1).
2		Street elbow (6) and air hose (7)	a. Remove air hoses (7) from street elbow (6) at other end of spring brake air reservoir (1).
3	Platform (19)	Spring brakes air reservoir (1), two U-bolts (8), four nuts (9), and four flat washers (10)	Working through the holes in floor of platform (19), remove four nuts (9) and four flat washers (10) from two U-bolts (8) that attach spring brakes air reservoir (1) to platform (19).

# REAR DOLLY AIR RESERVOIRS - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>REMOVAL - CONTINUED</b>			
4	Service brake air reservoir (11)	1/2 x 3/4 adapter (12) and relay emergency valve (13)	Remove relay emergency valve (13) from service brake air reservoir (11) by unscrewing adapter (12).
5	Single check valve (14) and air hose (15)	a. Tag and remove air hose (15) from single check valve (14). b. Remove single check valve (14) from service brake air reservoir (11).	
6	Platform (19)	Service brake air reservoir (11), two U-bolts (16), four nuts (17), and	Working through the holes in floor of platform (19), remove four nuts (17) and four flat washers (18) from two U-bolts (16) that attach service brake air reservoir (11) to platform (19).



## REAR DOLLY AIR RESERVOIRS - CONTINUED

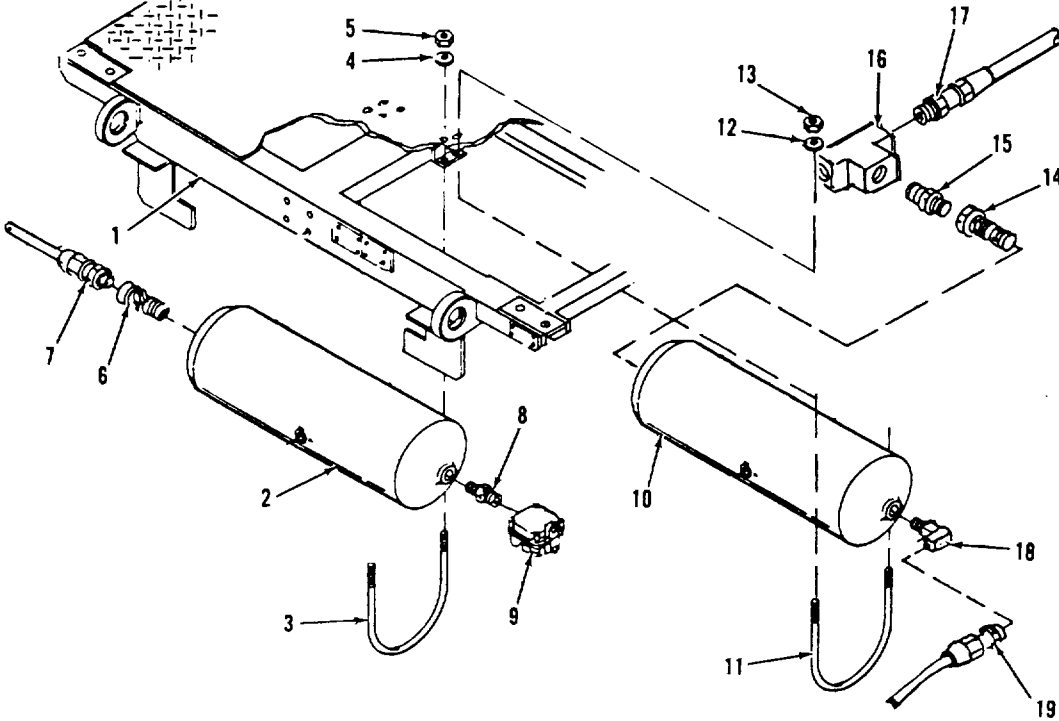
LOCATION		ITEM	ACTION REMARKS
<b>INSTALLATION</b>			
7	Platform (1)	Service brake air reservoir (2) and two U-bolts (3)	Place service brake air reservoir (2) in proper position against platform (1) and mount with two U-bolts (3).
8		Service brake air reservoir (2), two U-bolts (3), four flat washers (4) and four nuts (5)	Working through the holes in floor of platform (1), secure service brake air reservoir (2) with two U-bolts (3), four flat washers (4), and four nuts (5).
9	Service brakes air reservoir (2)	Single check valve (6) and air hose (7)	a. Attach single check valve (6) to service brakes air reservoir (2). b. Attach air hose (7) to single check valve (6).
10		1/2 x 3/4 adapter (8) and relay emergency valve (9)	Attach 1/2 x 3/4 adapter (8) and relay emergency valve (9) to service brake air reservoir (2) by screwing 1/2 x 3/4 adapter (8) into the relay emergency valve (9) and into the service brakes air reservoir (2).
11	Platform (1)	Spring brakes air reservoir (10) and two U-bolts (11)	Place spring brake air reservoir (10) in proper position against platform (1) and mount with two U-bolts (11).
12		Spring brakes air reservoir (10), two U-bolts (11), four flat washers (12) and four nuts (13)	Working through the holes in the floor of the platform (1), secure spring brakes air reservoir (10) with two U-bolts (11), four flat washers (12), and four nuts (13).
13	Spring brakes air reservoir (10)	Single check valve (14), reducer hex nipple (15), 3/8 female cross (16) and hoses (17)	a. Attach single check valve (14), reducer hex nipple (15) and 3/8 female cross (16) to spring brakes air reservoir (10). b. Attach air hoses (17) to 3/8 female cross (16).

REAR DOLLY AIR RESERVOIRS - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION - CONTINUED

14	Street elbow (18) and air hose (19)	a. Attach street elbow (18) to spring brakes air reservoir (10). b. Attach air hose (19) to street elbow (18).	
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NOTE

FOLLOW-ON MAINTENANCE: Pressurize air brake system (page 4-95) and test for leaks.

TASK ENDS HERE

DRAIN COCK

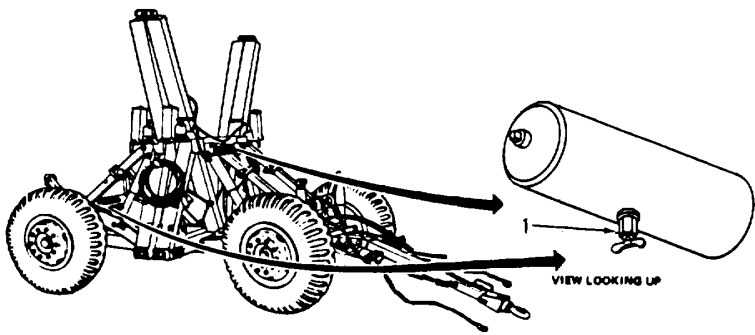
This task covers:

- a. Removal (page 4-144)
- b. Installation (page 4-144)

INITIAL SETUP

Tools	Materials/Parts
General mechanics tools set	Anti-seize tape (item 8, Appendix E)
Equipment Conditions	
	Air reservoirs drained (page 2-2).

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
NOTE			
Procedure applies to drain cocks on all air reservoirs.			
1	Air reservoir	Drain cock (1)	Unscrew drain cock (1) and remove from service brakes air reservoir.
INSTALLATION			
2	Air reservoir	Drain cock (1)	Install drain cock (1) by screwing drain cock (1) into air reservoir



NOTE

FOLLOW-ON MAINTENANCE; Pressurize dolly set air brake system (page 4-95) and test for leaks.

END OF TASK

## Section X HUB AND BRAKE DRUM MAINTENANCE

Page

Hub and Brake Drum..... 4-145

This task covers:

- |   |  |
|---|--|
| a. Hub and brake drum removal<br>(page 4-145) | d. Hub and brake drum installation<br>(page 4-148) |
| b. Wheel bearing removal (page 4-147)         | e. Wheel bearing adjustment<br>(page 4-149)        |
| c. Wheel bearing installation (page 4-148)    |  |

**INITIAL SETUP**

## Tools

General mechanics tool set

## Equipment Conditions

Wheel and tire removed (page 3-5).  
Air drained from brake system.

## Materials/Parts

## References

Dry cleaning solvent (SD-2)  
(item 5, Appendix E)  
New inner bearing cone  
New outer bearing cone  
Grease -Type GAA (item 2,  
Appendix E)

TM 9-214, Care and Maintenance  
of Anti-friction Bearings.

LOCATION	ITEM	ACTION	REMARKS
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**HUB AND BRAKE DRUM REMOVAL**

- |   |                        |   |  |
|---|------------------------|---|--|
| 1 | Wheel end assembly (1) | Lower arm assembly (2)                      | Raise and block end of lower arm assembly (2) to remove load from wheels and chock remaining wheels. |
| 2 | Hubcap (6)             | Six cap screws (4) and six flat washers (5) | Take off.  |
| 3 |                        | Hubcap (6) and gasket (7)                   | Remove hubcap (6) and gasket (7). Discard gasket (7).  |
| 4 | Spindle (16)           | Wheel bearing locknut (9)                   | Remove the wheel bearing locknut (9) using a wheel bearing socket.                                   |
| 5 |                        | Two flat washers (10) and (11)              | Take off.  |



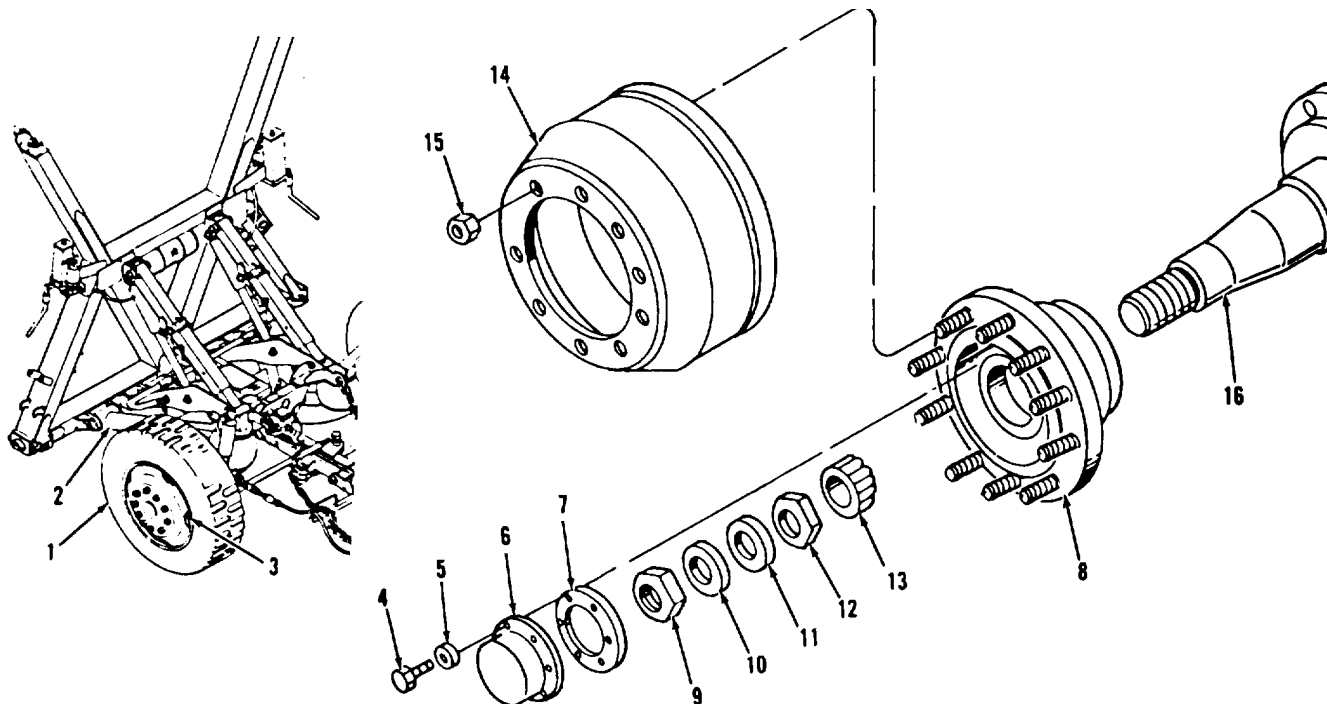
**HUB AND BRAKE DRUM - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>HUB AND BRAKE DRUM REMOVAL - CONTINUED</b>			
6	Inner wheel bearing adjusting nut (12)	Remove inner wheel bearing adjusting nut (12) using a wheel bearing socket.	
7	Hub and drum assembly (3)	Outer bearing cone (13)	Remove.

**WARNING**

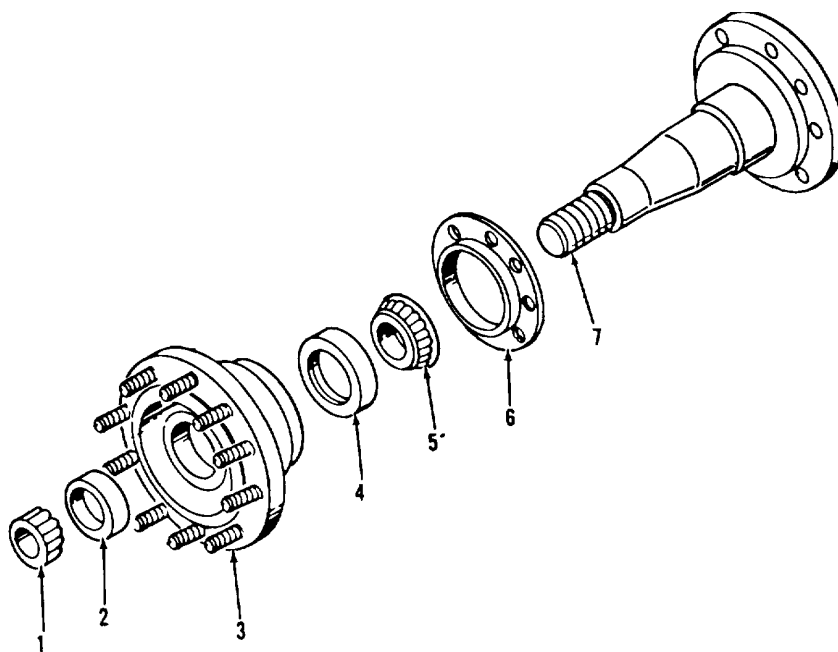
Brake lining material contains asbestos. Breathing of dust from brake linings is extremely hazardous. A filter mask must be worn whenever working with brake shoes or any asbestos material. Under no circumstances should compressed air or dry brushing be used for cleaning.

- |   |              |                        |  |
|---|--------------|------------------------|--|
| 8 | Spindle (16) | Brake drum and hub (3) | a. Remove hub and drum assembly (3).<br>b. Remove ten wheel nuts (15) and separate |
|---|--------------|------------------------|--|



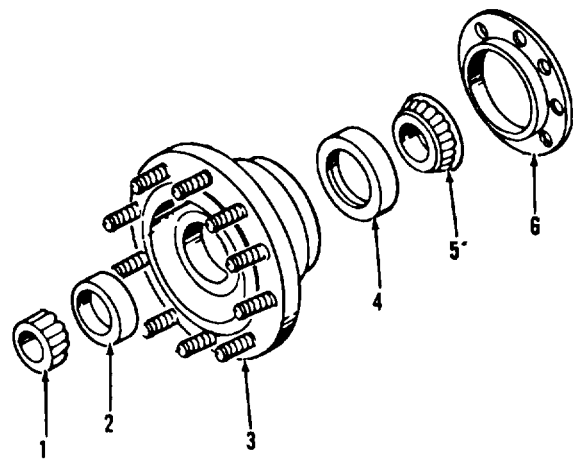
**HUB AND BRAKE DRUM - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
WHEEL BEARING REMOVAL			
9	Spindle (7)	Inner bearing cone (5)	Remove grease seal (6). Take out using a hammer and drift.
NOTE			
Do not perform steps 10 and 11 unless new bearing cups are being installed.			
10		Inner bearing cup (4)	Remove using a hammer and drift.
11		Outer bearing cup (2)	Remove using a hammer and drift.
CAUTION			
Do not dry or spin wheel bearings with compressed air.			
12		Outer bearing cone (1) and inner bearing	a. Clean bearings with dry-cleaning solvent (SD-2). b. Dry bearings with a clean lint-free



HUB AND BRAKE DRUM - CONTINUED

LOCATION		ITEM	ACTION	REMARKS
WHEEL BEARING INSTALLATION				
13		Outer bearing cone (1) and inner bearing cone (4)		Inspect bearings and parts for wear, rough spots, corrosion, cracks and evidence of spinning (bright spots on outside diameter of outer cup).
14	Hub (3)	New inner bearing cup (4)		Install using a hammer and drift.
15		New outer bearing cup (2)		Install using a hammer and drift.
16		Inner bearing cone (5)		Place into hub (3).
17		Grease seal (6)		Install.



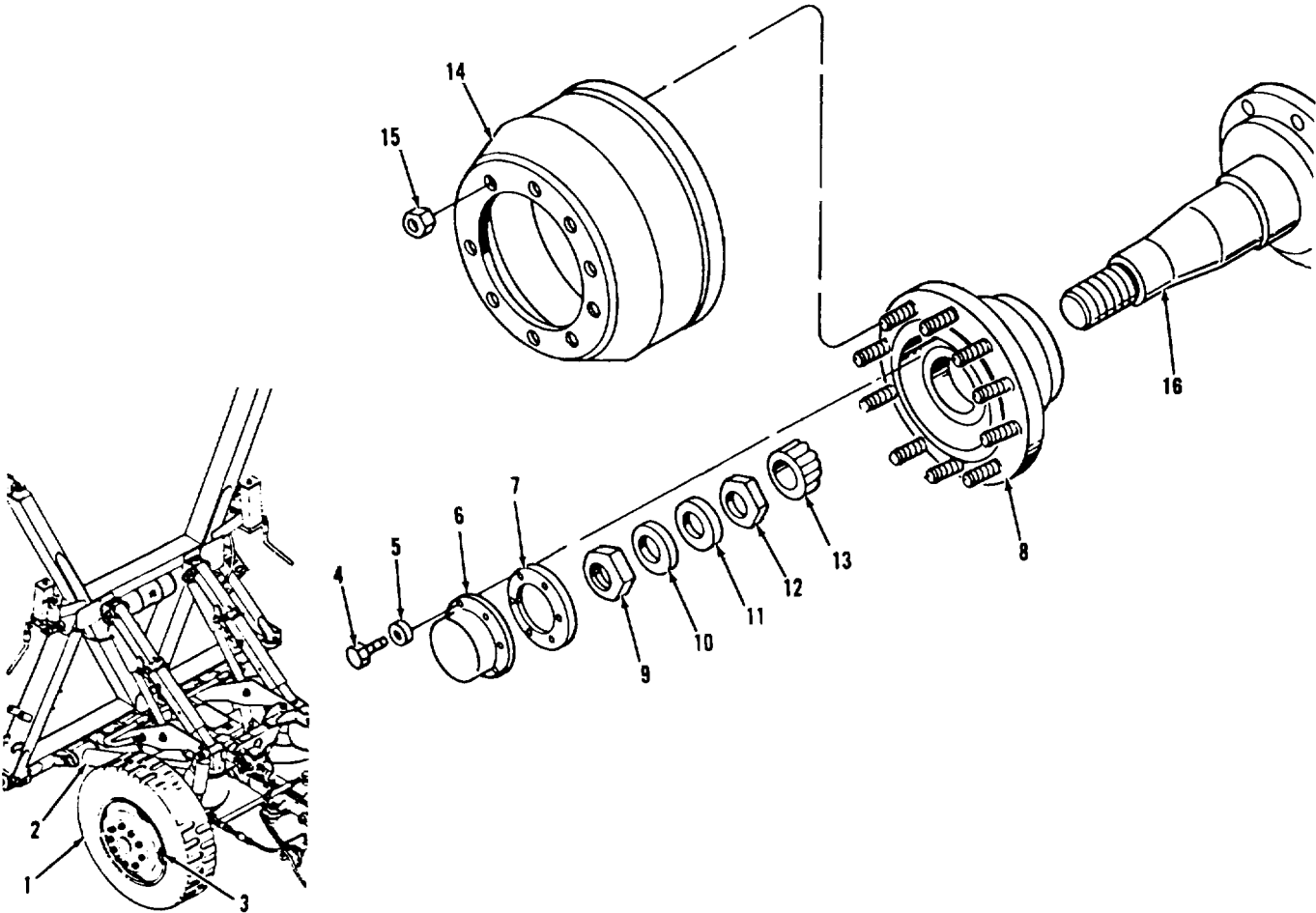
## HUB AND BRAKE DRUM - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
HUB AND BRAKE DRUM INSTALLATION			
18	Spindle (6)	Hub (8) and drum (14)	Slide on.
19	Spindle (16)	Outer bearing cone (13)	Put onto spindle.
20		Inner wheel bearing adjusting nut (12)	Put onto spindle with nipple to outside using wheel bearing socket. Do not tighten.
WHEEL BEARING ADJUSTMENT			
21	Spindle (16)	Inner wheel bearing adjusting nut (12)	Using wheel bearing wrench, adjust the bearings. a. Tighten the adjusting nut (12) until wheel drags slightly. b. .Back the nut off until the wheel spins free and there is no looseness felt when the wheel is rocked.
22	Spindle (16)	Two flat washers (10) and (11)	Slide on.
23		Wheel bearing locknut (9) wrench.	Install wheel bearing locknut (9) on the spindle (16) using a wheel bearing
24	Hub (8)	Six cap screws (4), six flat washers (5), hubcap (6), and new gasket (7)	Install parts using a socket wrench.

HUB AND BRAKE DRUM - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

WHEEL BEARING ADJUSTMENT CONTINUED



NOTE

- FOLLOW-ON MAINTENANCE  
:  
1. Adjust service brakes (page 4-119).  
2. Install wheel and tire (page 3-6).

TASK ENDS HERE

## Section XI FRAME AND TOWING ATTACHMENT MAINTENANCE

Page			Page
Cable Assemblies.....	4-165	Strut Assemblies..	4-152
Locking Lug .....	4-158	Towbar ..	4-162
Pintle .....	4-160	Upper Connectors.....	4-157
Safety Chains.....	4-166		

**STRUT ASSEMBLY**

This task covers:

- |                              |                             |
|------------------------------|-----------------------------|
| a. Removal (page 4-151)      | c. Assembly (page 4-153)    |
| d. Installation (page 4-155) | b. Disassembly (page 4-153) |

**INITIAL SETUP**

## Tools

General mechanics tool set

Equipment Conditions

## Materials/Parts

New cotter pins  
Grease (item 2, Appendix E)

No special requirements.

LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL****WARNING**

Never attempt to remove the strut assemblies and hydraulic cylinders at the same time unless provisions have been made to fully support the adapter and to allow the adapter to be lowered to the ground. Personnel injury could result if proper support is not provided.

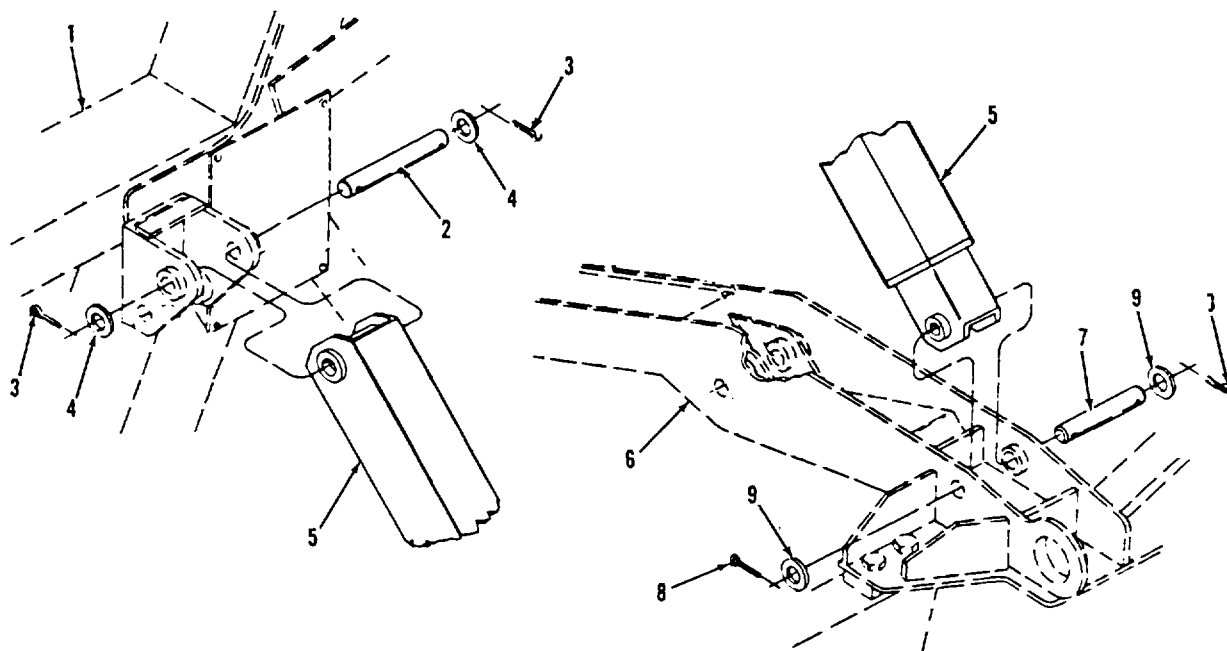
**WARNING**

The dolly should be lowered and the strut assemblies must be in open position before attempting to remove strut assemblies to reduce the possibility of personnel injury.

1	Adapter (1)	Pin (2), two cotter pins (3), and two flat washers (4)	Remove two cotter pins (3) and two flat washers (4) securing pin (2) to adapter (1).
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**STRUT ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>REMOVAL - CONTINUED</b>			
2	Pin (2) and upper portion of strut assembly (5)	Remove pin (2) attaching upper portion of strut assembly (5) to top of adapter (1).	
3 Upper arm assembly (6)	Lower portion of strut assembly (5), pin (7), two cotter pins (8), and two flat washers (9)	Remove two cotter pins (8) and two flat washers (9) securing pin (7) to upper arm assembly (6).	
4	Pin (7) and strut assembly (5)	Remove pin (7) attaching lower portion of strut assembly (5) to upper arm assembly (6).	



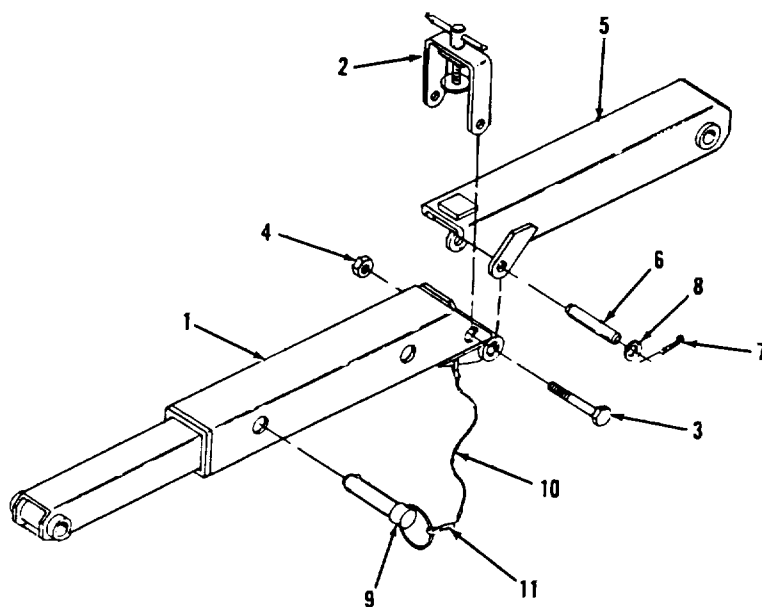
**STRUT ASSEMBLY - CONTINUED**

LOCATION		ITEM	ACTION REMARKS
<b>DISASSEMBLY</b>			
5	Strut weldment (1)	Clamp assembly (2), screw (3), and nut (4)	Remove screw (3) and nut (4) to allow clamp assembly (2) to be removed from strut weldment (1).
6	Strut weldment (1) and strut weldment (5)	Pin (6), cotter pin (7) and flat washer (8)	Remove cotter pin (7) and flat washer (8) that hold two strut weldments (1) and (5) together with pin (6).
7		Pin(6)	Remove pin (6) and separate the two strut weldments (1) and (5).
8	Strut weldment (1)	Quick release pin (9) and cable (10)	Slide quick release pin (9) out of strut weldment (1).
9	Cable (10)	Detach cable (10) from strut weldment (1).	
10	Quick release pin (9)	Cable (10) and sleeve (11)	Detach cable (10) and sleeve (11) from quick release pin (9).
<b>ASSEMBLY</b>			
11	Strut weldment (1)	Strut pin holes	Grease inside surface of both strut pin holes with automotive grease.
12		Telescoping strut arm (5)	Grease entire surface (full length) of telescoping strut arm with automotive grease.
13	Quick release pin (9)	Cable (10) and sleeve (11)	Attach cable (10) and sleeve (11) to quick release pin (9).
14	Strut weldment (1)	Quick release pin (9) and cable (10)	Attach quick release pin (9) and cable (10) to strut weldment (1).
15	Strut weldment (1)	Strut weldment (5) and pin (6)	Place the two strut weldments (1) and (5) in a position to be joined, and secure with pin (6).



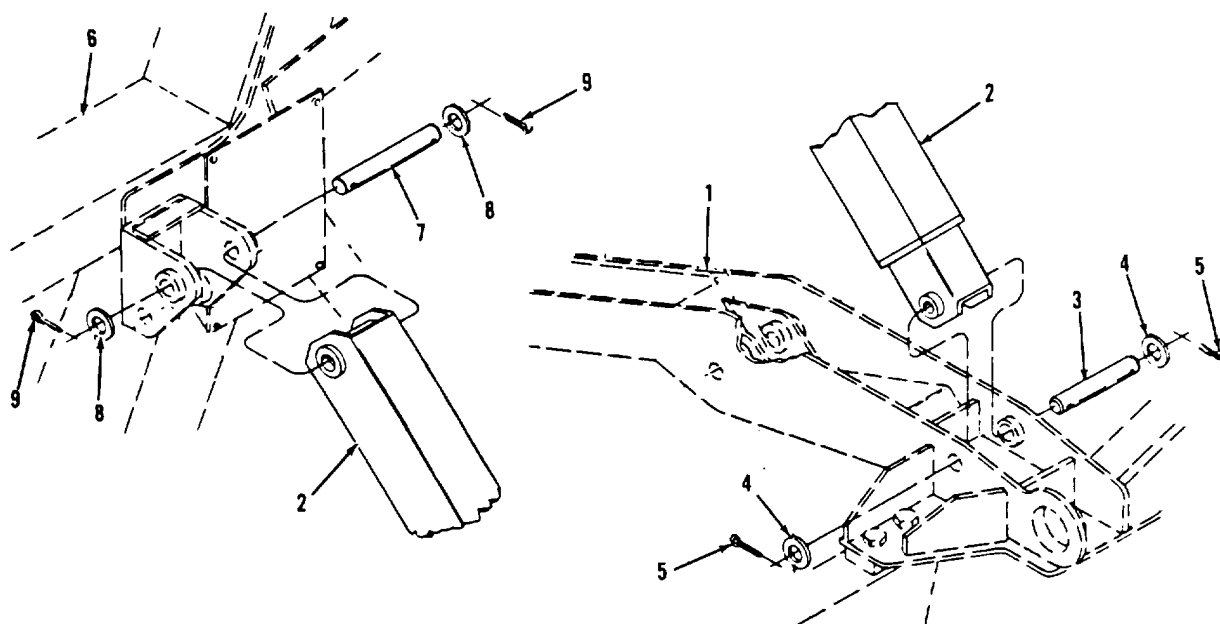
## STRUT ASSEMBLY - CON NUED

LOCATION	ITEM	ACTION	REMARKS
<b>ASSEMBLY - CONTINUED</b>			
16 Strut weldment (1) and strut weldment (5)	Pin (6), two flat washers (8), and two cotter pins (7)	Secure two weldments (1) and (5) by placing two flat washers (8) over pin (6) and secure with new cotter pins (7).	
17 Strut weldment (1)	Clamp assembly (2), screw (3) and nut (4)	Attach clamp assembly (2) to strut weldment (1) with screw (3) and nut (4).	



## STRUT ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
18	Upper arm assembly (1)	Strut assembly (2) and pin (3)	Attach lower portion of strut assembly (2) to upper arm assembly (1) with pin (3).
19		Strut assembly (2), pin (3), two flat washers (4) and two new cotter pins (5)	Secure pin (3), joining lower portion of strut assembly (2) to upper arm assembly (1), with two flat washers (4) and two new cotter pins (5).
20	Adapter (6)	Strut assembly (2) and pin (7)	Attach upper portion of strut assembly (2) to adapter (6) with pin (7).
21		Pin (7), two washers (8) and two new cotter pins (9)	Secure pin (7), joining upper portion of strut assembly (2) to adapter (6), with two flat washers (8) and two new cotter pins (9).



4-155

TASK ENDS HERE

UPPER CONNECTORS

This task covers:

- a. Removal (page 4-156)
- b. Repair (page 42156)
- c. Installation (page 4-157)

INITIAL SETUP

Tools Materials/Parts

General mechanics tool set

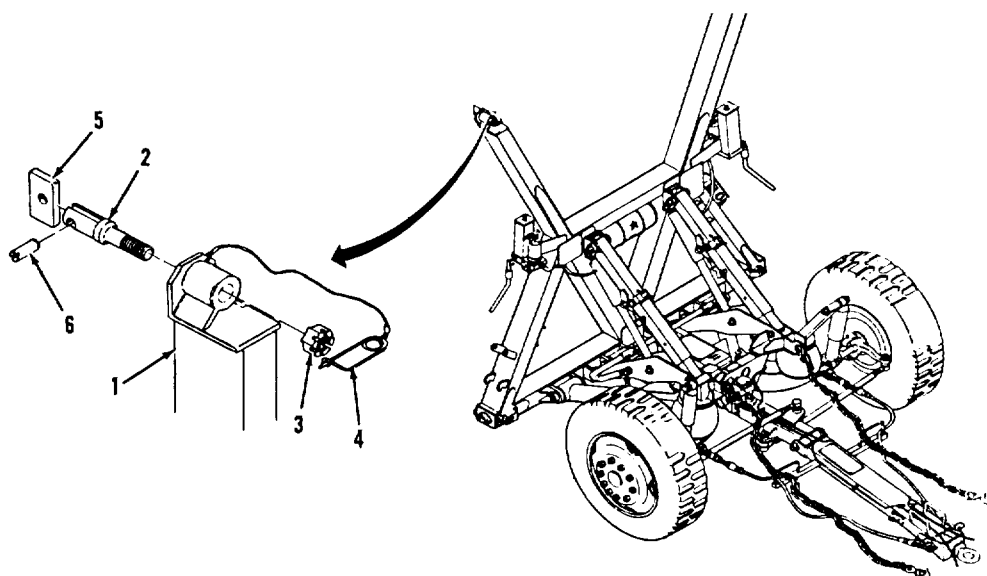
Equipment Conditions

No special requirements.

LOCATION		ITEM	ACTION	REMARKS
REMOVAL				
1	Upper end of adapter (1)	Upper connector lock pin (2), slotted nut (3), and safety pin (4)	a. Remove safety pin (4) securing upper connector lock pin (2) and slotted nut (3) to upper end of adapter (1). b. Unscrew slotted nut (3) off of upper connector lock pin (2). c. Remove upper connector lock pin (2) from upper end of adapter (1).	
2	Upper connector lock pin (2)	Upper connector plate (5) and pin (6)	if desired, remove pin (6) to separate upper connector plate (5) from upper connector lock pin (2).	
REPAIR				
3		Safety pin (4)	Replace bent or damaged safety pin (4) as necessary.	
4	Upper connector lock pin (2)	Upper connector plate (5) and pin (6)	If necessary, attach upper connector plate (5) to upper connector lock pin (2) with pin (6).	

# UPPER CONNECTORS - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
5 Upper end of adapter (1)	Upper connector lock pin (2)	Route upper connector lock pin (2) through hole in upper end of adapter (1).	
6	Upper connector lock pin (2), slotted nut (3) and safety pin (4)	a. Attach upper connector lock pin (2) to upper end of adapter (1) with slotted nut (3). b. Secure upper connector lock pin (2) and slotted nut (3) to upper end of	



TASK ENDS HERE

LOCKING LUG

This task covers:

- a. Removal (page 4-158)
- b. Installation (page 4-158)

INITIAL SETUP

Tools Materials/Parts

General mechanics tool set

New cotter pin

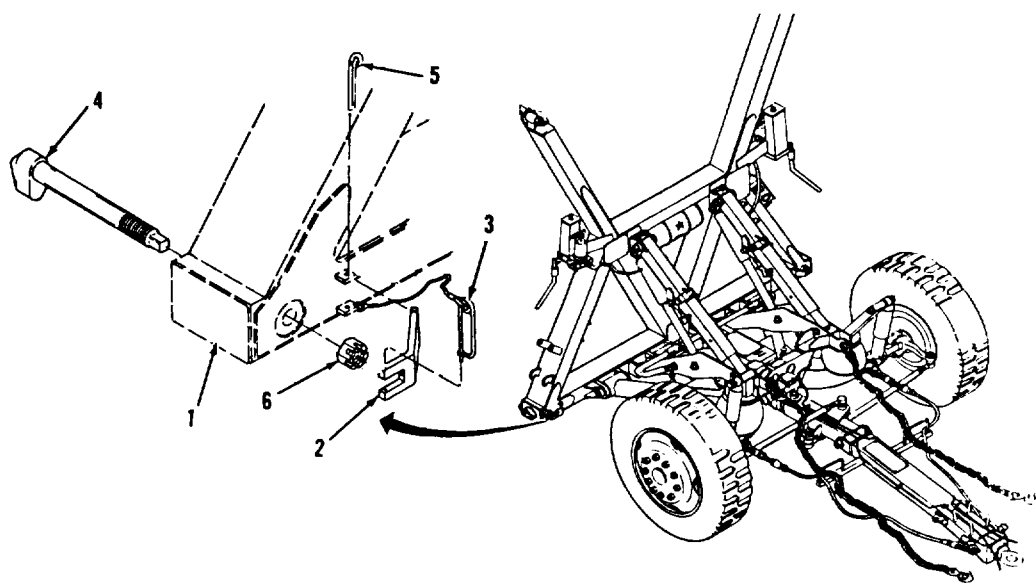
Equipment Conditions

No special requirements.

LOCATION		ITEM	ACTION REMARKS
REMOVAL			
1	Lower end of adapter (1)	Lock plate (2) and safety pin (3)	Open safety pin (3) and lift from lock plate (2).
2		Locking lug (4) and lock plate (2)	Rotate and move lock plate (2) away from locking lug (4).
3		Locking lug (4) cotter pin (5), and slotted nut (6)	a. Remove cotter pin (5) holding slotted nut (6) in place on locking lug (4). b. Discard cotter pin (5). c. Unscrew slotted nut (6) securing locking lug (4) to adapter (1).
4		Locking lug (4)	Remove locking lug (4) from adapter (1).
5		Lock plate (2) and safety pin (3)	Remove lock plate (2) and safety pin (3) if necessary.
INSTALLATION			
6	Lower end of adapter (1)	Locking lug (4)	Place locking lug (4) through lower end of adapter (1), ensuring proper position of locking lug.

## LOCKING LUG - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION - CONTINUED</b>			
7	Locking lug (4) and slotted nut (6)	Attach locking lug (4) to lower end of adapter (1) with slotted nut (6).	
8	Locking lug (4), slotted nut (6) and new cotter pin (5)	Secure locking lug (4) to adapter (1) with slotted nut (6) and new cotter pin (5).	
9	Locking lug (4), a. lock plate (2), and safety pin b. (3)	Rotate lock plate (2) over to contain end of locking lug (4). Secure lock plate (2) in place by inserting safety pin (3) through lock plate (2).	



TASK ENDS HERE

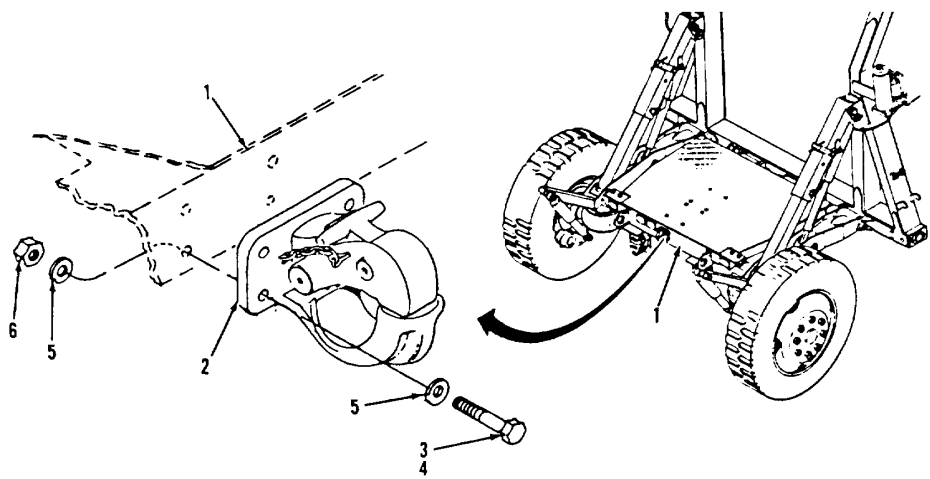
PINTLE

- This task covers:
- a. Removal (page 4-160)
  - b. Installation (page 4-160)

INITIAL SETUP

Tools Equipment Conditions	
General mechanics tool set	No special requirements.

LOCATION		ITEM	ACTION	REMARKS
REMOVAL				
1	Platform (1)	Pintle hook (2), two screws (3), two screws (4), eight flat washers (5), and four nuts (6)	Remove.	
INSTALLATION				
2	Platform (1)	Pintle hook (2), two screws (3), two screws (4), eight flat washers (5) and four nuts (6)	Install with two longer screws on top.	



TASK ENDS HERE

TOWBAR

This task covers:

- a. Removal (page 4-161)
- b. Disassembly (page 4-162)
- c. Assembly (page 4-162)
- d. Installation (page 4-164)

INITIAL SETUP

Tools Materials/Parts

General mechanics tool set

Equipment Conditions

Cotter Pin  
Grease (Item 2, Appendix E)

No special requirements

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

NOTE

Brakes must be on and wheels chocked before attempting to remove towbar.

1	Steering link (1)	Towbar (2), two nuts (3), two bolts (4), and pin (5).	Remove two nuts (3) and two bolts (4) from pin (5) that attach towbar (2) to steering link (1).
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WARNING

Towbar must be fully supported when pin is removed, to prevent personal injury.

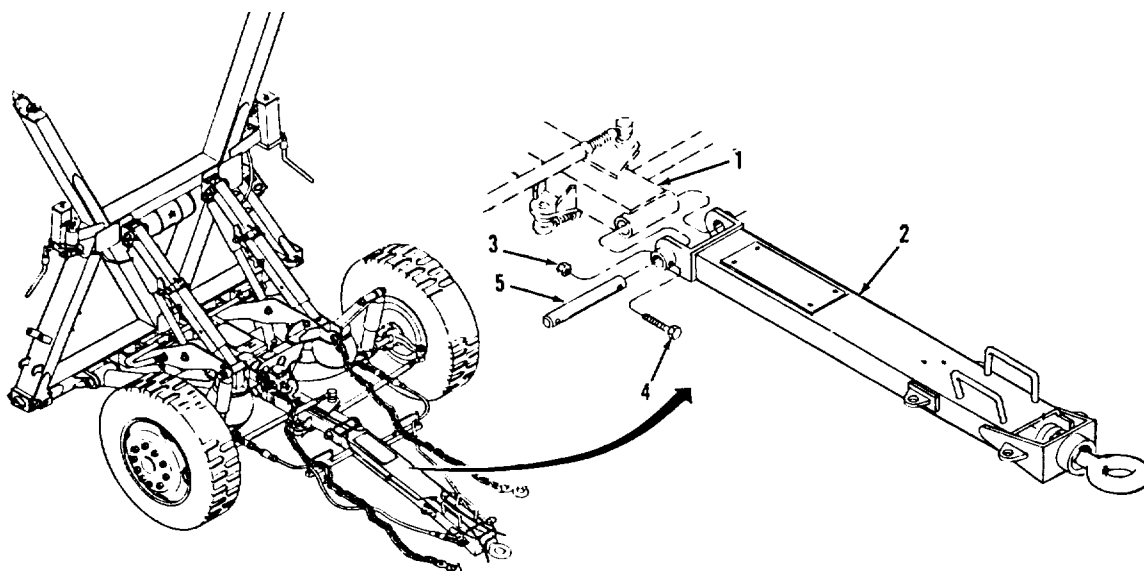
2	Pin (5)	Remove pin (5) attaching towbar (2) to steering link (1).
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## TOWBAR - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## REMOVAL- CONTINUED



## DISASSEMBLY

3	Lunette (1)	Cotter pin (2)	Remove and discard cotter pin (2).
4		Nut (3)	Hold nut (3) in place with a large screwdriver or wrench.
5		Lunette (1), two flat washers (4), and five cushions (5)	a. Place a small diameter pipe through the lunette (1) and unscrew in a counterclockwise direction. b. Remove lunette (1), two flat washers (4) and five cushions (5).
6	Towbar (6)	Two clamps (7) and screw (8)	Remove.

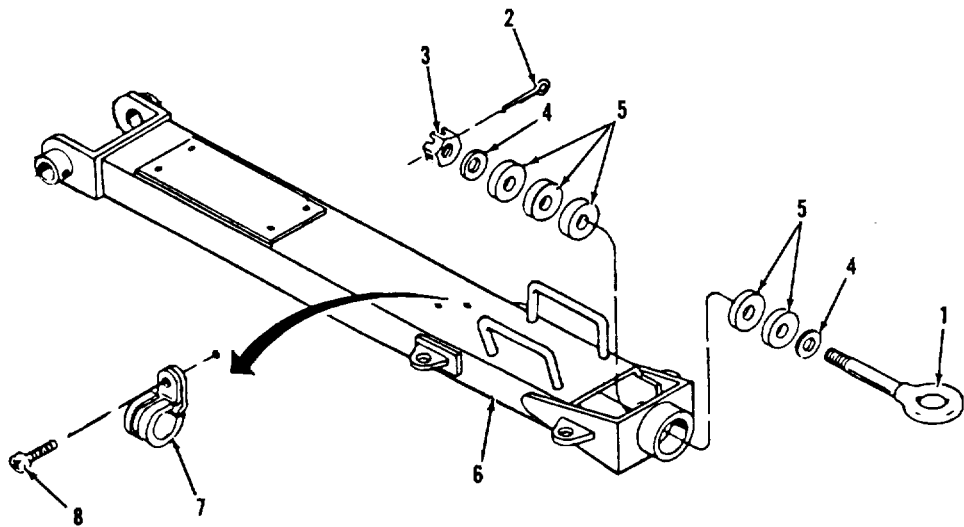
## ASSEMBLY

7	Towbar (6)	Two clamps (7) and screw (8)	Install two clamps (7) with screws (8).
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LOCATION	ITEM	ACTION	REMARKS
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ASSEMBLY - CONTINUED

8	Lunette (1)	Nut (3), two flat washers (4) and five cushions (5)	Put in place and hold nut in place using a box wrench or a large screwdriver.
9	Towbar (6)	Lunette (1)	Place a small diameter pipe through the center of lunette (1) and screw into nut (3) by turning in a clockwise direction.
10	New cotter pin (2)		a. Align hole in lunette (1) with one of the slots in nut (3). b. Install new cotter pin (2).



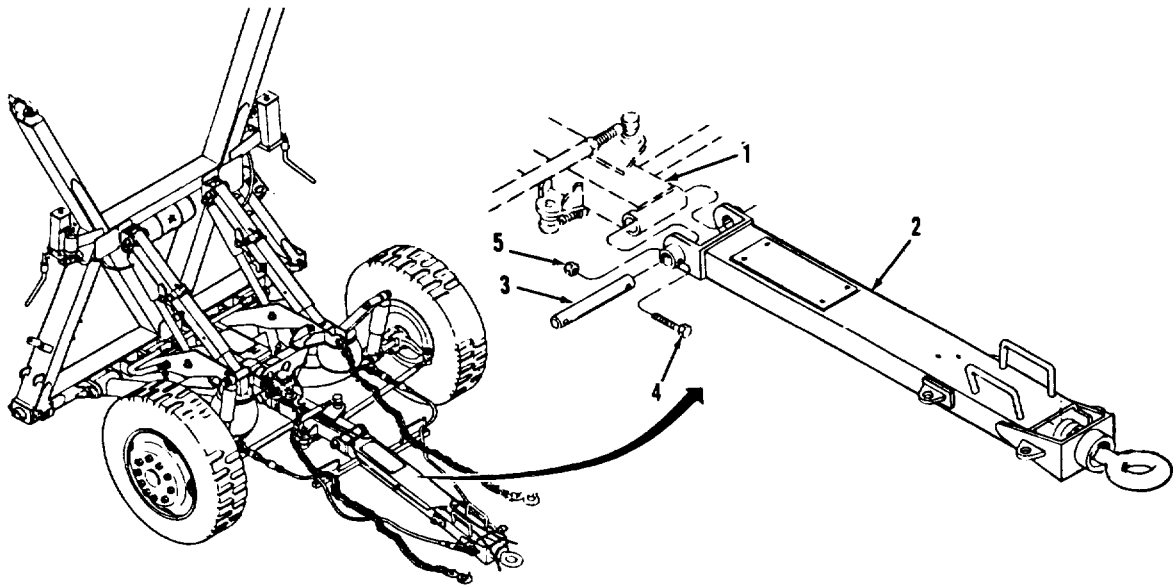
LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION

**WARNING**

Towbar must be fully supported when being connected to steering link.

11	Steering link (1)	Towbar (2) and pin (3)	a. Apply coating of grease to surfaces of pin (3). b. Line up towbar (2) with steering link (1). c. Place pin (3) in position to connect towbar (2) to steering link (1).
12	Pin (3)	Two bolts (4) and two nuts (5)	Secure pin (3) in place with two bolts (4) and two nuts (5).



TASK ENDS HERE

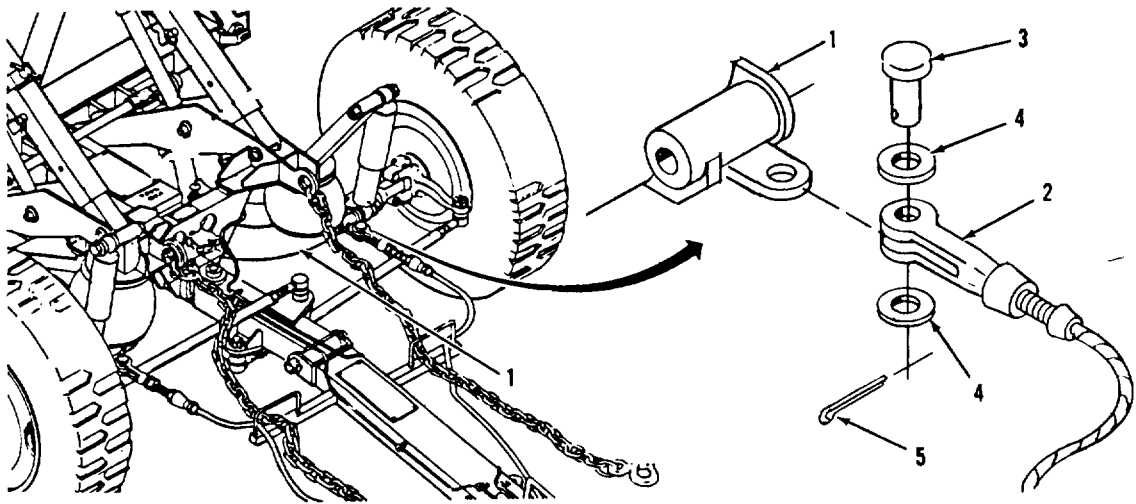
CABLE ASSEMBLIES

- This task covers:
- a. Removal (page 4-165)
  - b. Disassembly (page 4-165)

INITIAL SETUP:

Tools	Materials/Parts
General mechanics tool set	Equipment Conditions
	No special requirements

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
1 Lower assembly (1)	Cable assembly (2), pin (3), two flat washers (4) and cotter pin (5)	a. Remove cable assembly (2) from lower arm assembly (1) by removing cotter pin (5) from pin (3). b. Remove pin (3) and flat washers (4) securing cable assembly (2).	
INSTALLATION			
1 Lower assembly (1)	Cable assembly (2), pin (3), two flat washers (4) and new cotter pin (5)	a. Attach cable assembly (2) to lower arm assembly (1) with pin (3) and two flat washers (4). b. Secure pin (3) with new cotter pin (5).	



TASK ENDS HERE

**SAFETY CHAINS**

This task covers:

- a. Removal (page 4-166)
- b. Installation (page 4-166)

**INITIAL SETUP**

Tools	Materials/Parts
General mechanics tool set	Equipment Conditions
	No special requirements

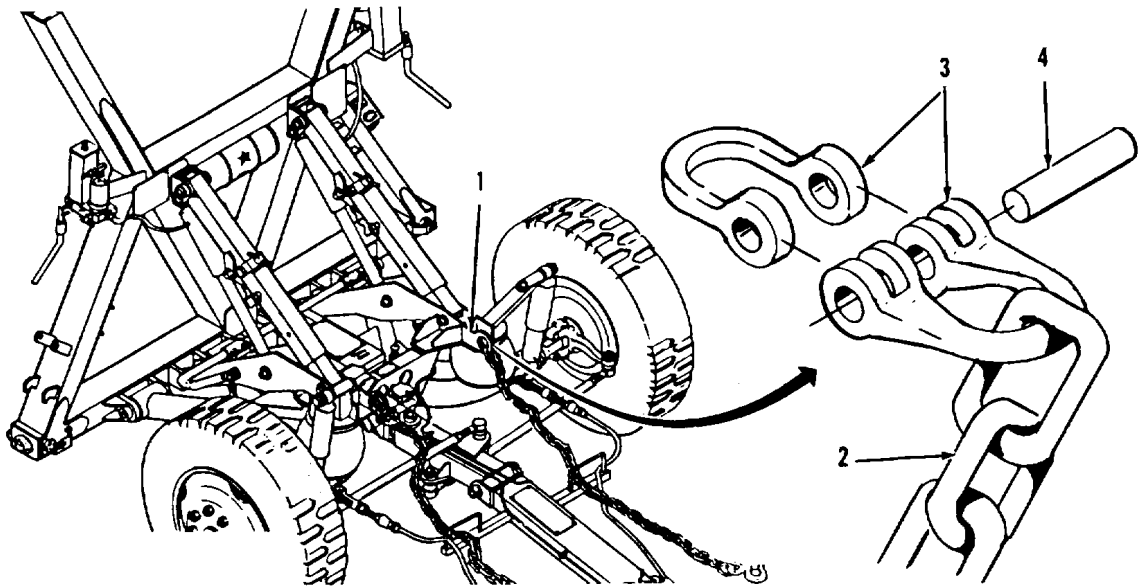
LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

**REMOVAL**

- |                          |  |  |
|--------------------------|--|--|
| 1 Upper arm assembly (1) | Safety chain (2), connecting links (3) and pin (4) | a. Using a blunt tool and hammer push out pin (4) attaching two connecting links (3).<br>b. Remove links (3) and chains (2). |
|--------------------------|--|--|

**INSTALLATION**

- |                          |  |  |
|--------------------------|--|--|
| 1 Upper arm assembly (1) | Safety chain (2), connecting links (3) and pin (4) | a. Place one half of connecting link (3) through last connecting link of chain (2) and other half through hook on upper arm assembly (1).<br>b. Align holes of two connecting link halves (3). insert pin (4) and hammer |
|--------------------------|--|--|



**TASK ENDS HERE**

Section XII SUSPENSION SYSTEM MAINTENANCE

	Page		Page
Air Mount Bumper .....	4-167	Shock Absorbers .....	4-170
Air Spring Assembly .....	4-167	Torsion Bars .....	4-172

AIR SPRING ASSEMBLY

- This task covers:
- a. Removal (page 4-166)
  - b. Installation (page 4-167)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set 1 1/2-ton floor type jack	No special requirements.

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

REMOVAL

NOTE

Dolly set should be connected together.

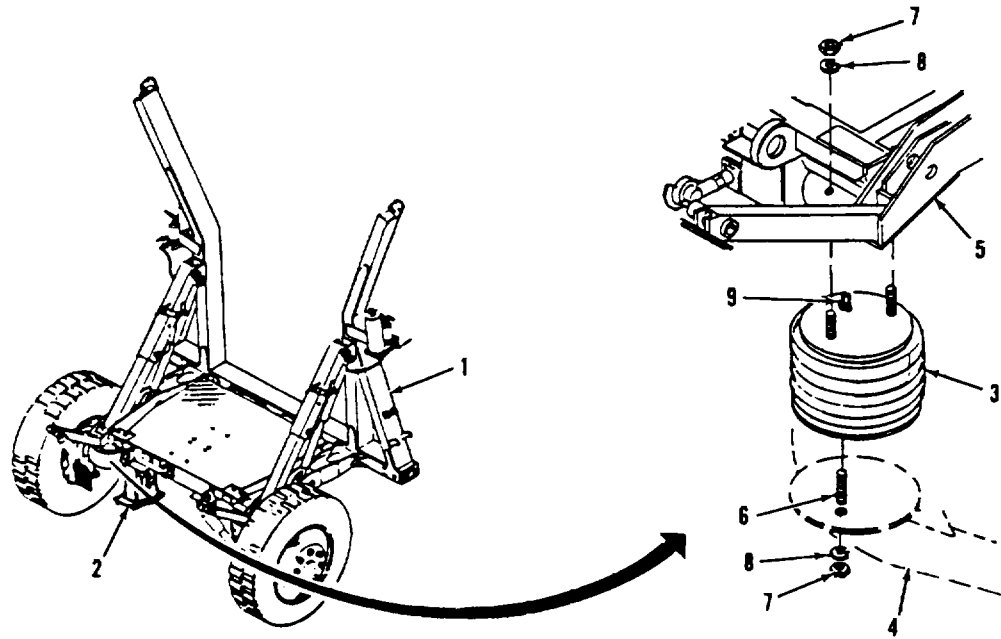
NOTE

Air spring assembly should be deflated prior to removing.

1	Frame adapter (1)	Jack (2), air spring assembly (3), lower arm assembly (4), and upper arm assembly (5)	Raise upper arm assembly (5) so that base of air spring assembly (3) clears the lower arm assembly (4).
2	Air spring assembly (3) to upper arm assembly (5)	Threaded rods (6), nuts (7), and flat washers (8)	Remove.
3		Spring assembly (3)	Remove from between upper arm assembly (5) and lower arm assembly (4).

AIR SPRING ASSEMBLY - CONTINUED

LOCATION		ITEM	ACTION	REMARKS
INSTALLATION				
4	Upper arm assembly (5)	Air spring assembly (3)	Place air spring assembly (3) in position.	
5	Upper arm assembly (5) to air spring assembly (3)	Threaded rods (6), nuts (7), and flat washers (8)	Install using a wrench.	
6	Mir spring assembly (3)	Valve (9) pressure.	Inflate air spring assembly (3) to desired	
7	Frame adapter (1)	Jack (2)	Lower and remove.	



TASK ENDS HERE

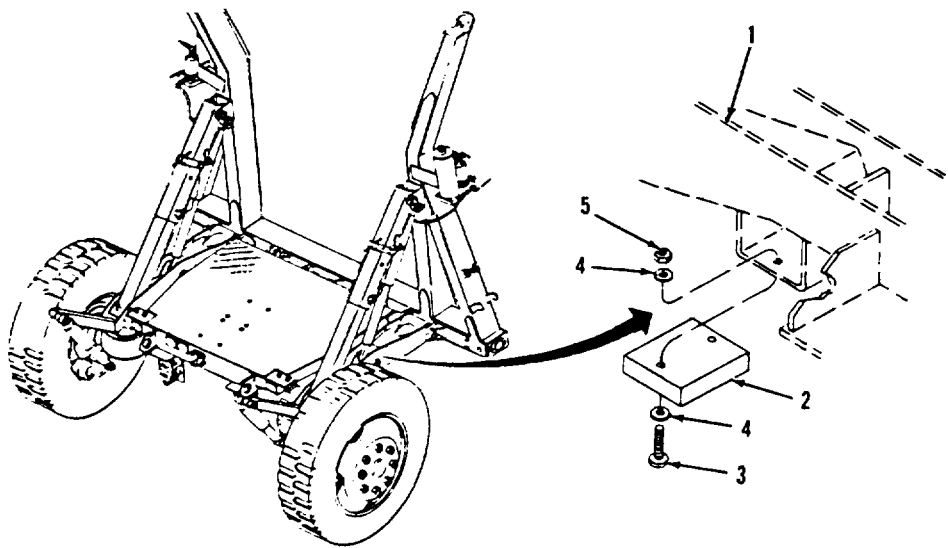
AIR MOUNT BUMPER

- This task covers:
- a. Removal (page 4-169)
  - b. Installation (page 4-169)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set	No special requirements

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
1	Upper arm assembly (1)	Bumper (2), two screws (3), four flat washers (4), and two nuts (5)	Remove two screws (3), four flat washers (4), and two nut, (5) securing bumper (2) to upper arm assembly (1), and remove bumper.
INSTALLATION			
2	Upper arm assembly (1)	Bumper (2), two screws (3), four flat washers (4), and two nuts (5)	Place air mount bumper (2) in proper position on upper arm assembly (1), and secure with two screws (3), four flat washers (4), and two nuts (5).



TASK ENDS HERE



SHOCK ABSORBER

- This task covers:
- a. Removal (page 4-170)
  - b. Installation (page 4-170)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set	No special requirements

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
1	Upper arm assembly (1) to shock absorber (2)	Self-lock nut (3), two washers and bushings (4), shock absorber sleeve (5) and bolt (6)	Remove.
2	Lower arm assembly (7) to shock absorber (2)	Self-lock nut (8), two washers and bushings (9), shock absorber sleeve (10) and bolt (11)	Remove.
3	Upper arm assembly (1) and lower arm assembly (7)	Shock absorber (2)	Remove.
INSTALLATION			
4	Upper arm assembly (1) and lower arm assembly (7)	Shock absorber (2)	Place in proper position.

SHOCK ABSORBER - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

INSTALLATION - CONTINUED

- 5

Lower arm assembly (7) to shock absorber (2)

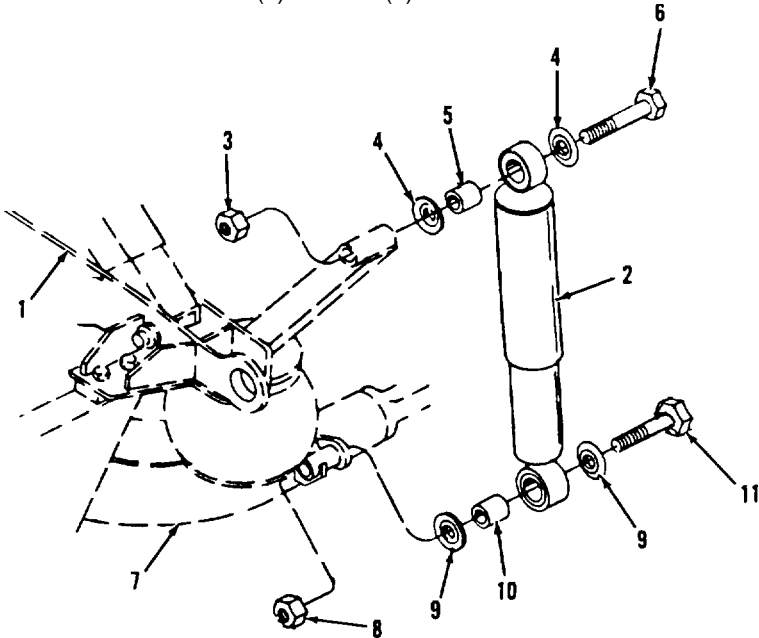
Self-lock nut (8), two washers and bushings (9), shock absorber sleeve (10) and bolt (11)

Install lower portion of shock absorber (2).
- 6

Upper arm assembly (1) to shock absorber (2)

Self-lock nut (3), two washers and bushings (4), shock absorber sleeve (5) and bolt (6)

Install upper portion of shock absorber (2).



TASK ENDS HERE

TORSION BAR

This task covers:

- a. Removal (page 4-172)
- b. Disassembly (page 4-173)
- c. Assembly (page 4-174)
- d. Installation (page 4-175)

INITIAL SETUP:

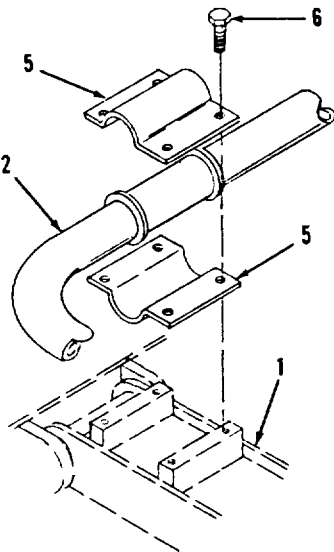
Tools	Equipment Conditions
General mechanics tool set	No special requirements

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
<b>CAUTION</b>			
Care must be exercised when removing the torsion bar because of the various stress forces on the bar.			
<b>NOTE</b>			
Constant pressure must be maintained on the torsion bar when uncoupling the torsion bar from the lower arm assembly.			
1	Lower arm assembly (1) cotter pin (7)	Torsion bar (2), pin (6) and and pin (6).	Release torsion bar (2) from lower arm assembly (1) by removing cotter pin (7)
2		Torsion bar (2), torsion bar bracket (5), and four screws (6)	Loosen screws first and torsion bar (2) from lower arm assembly (1) by removing four screws (6) and top half of torsion bar bracket (5).
3		Torsion bar (2) and lower half of torsion bar bracket (5)	Lift and remove torsion bar (2) and lower half of torsion bar bracket (5).

TORSION BAR - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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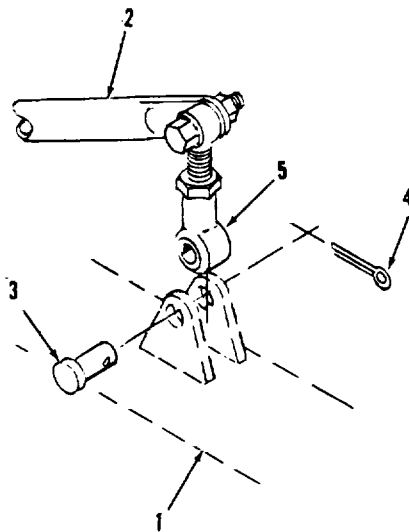
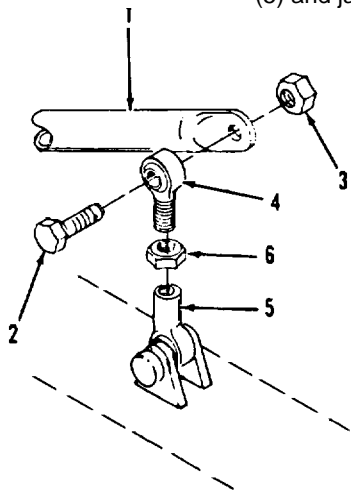
REMOVAL - CONTINUED



DISASSEMBLY

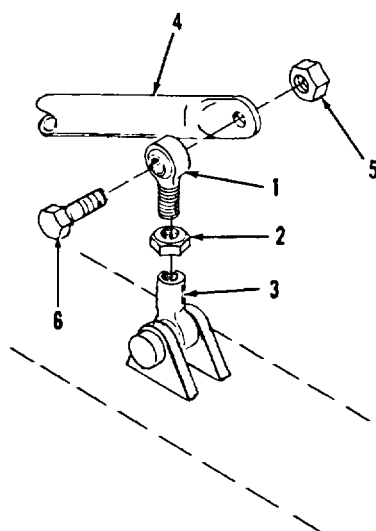
- |   |                  |  |
|---|------------------|--|
| 4 | Torsion bar (1)  | Screw (2), nut (3), and male rod end (4) |
| 5 | Male rod end (4) | Female rod end (5) and jam nut (6)       |

Remove male rod end (4) from torsion bar (1) by removing nut (3) and screw (2). Unscrew male rod end (4) from female rod end (5), and remove jam nut (6).



## TORSION BAR - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>ASSEMBLY</b>			
6	Male rod end (1)	Jam nut (2)	Screw jam nut (2) onto male rod end (1) to desired depth.
7		Female rod end (3) end (3).	Screw male rod end (1) into female rod
8	End of torsion bar (4)	Male rod end (1), nut (5), and pin (6).	Attach male rod end (1) to torsion bar (4) with screw (6) and secure with nut (5).



9	Lower arm assembly (1)	Lower half of torsion bar bracket (2)	Place the lower half of torsion bar bracket (2) in position on the lower arm assembly (1).
10		Torsion bar assembly (3)	Place torsion bar (3) in proper position, seated in lower half of torsion bar bracket, on lower arm assembly (1).
11	Torsion bar assembly (3)	Top half of torsion bar bracket (2) and four bolts (4)	Secure torsion bar assembly to lower arm assembly with four bolts (4).

TORSION BAR - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

INSTALLATION

- 12

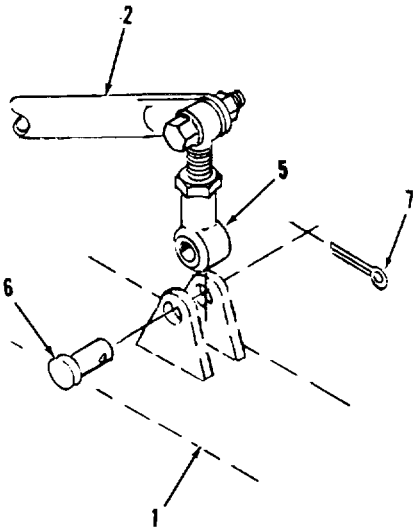
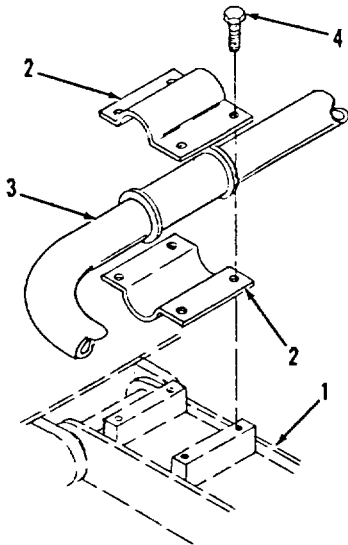
Lower arm assembly (1)

Female rod end (5)

Apply firm gradual pressure to end of torsion bar assembly lowering female rod end (5) to position near holes in lower arm assembly (1).
- 13

Female rod end (5), pin (6), and cotter pin (7)

Secure female rod end (5) (attached to torsion bar assembly) to lower arm assembly (1) with pin (6) and cotter pin (7).



TASK ENDS HERE

## Section XIII ACCESSORY ITEM MAINTENANCE

	Page		Page
Casters .....	4-176	Reflectors .....	4-179
Date Plates .....	4-180	Toolbox.....	4-178

**CASTERS**


---

This task covers:

- a. Disassembly (page 4-175)
  - b. Repair (page 4-175)
  - c. Assembly (page 4-176)
- 

**INITIAL SETUP:**

## Tools

General mechanics tool set

## Equipment Conditions

Caster assemblies removed from storage location.

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LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

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**DISASSEMBLY**

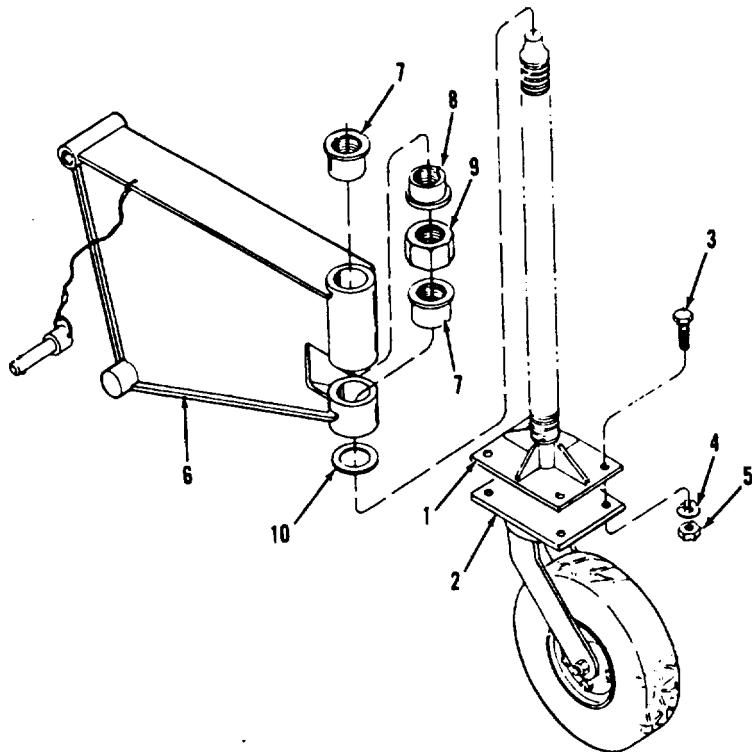
1	Base plate weldment (1)	Swivel caster (2), four screws (3), four lock washers (4), and four nuts (5)	Remove swivel caster (2) from base plate weldment (1) by removing four screws (3), four lock washers (4), and four nuts (5).
2	wheel bracket weldment (6)	Base plate weldment (1), two flanged bearings (7), modified flanged bearing (8), nut (9), and flat washer (10)	Unscrew nut (9), two flanged bearings (7), and modified flanged bearing (8) and separate base plate weldment (1) and washer (10) from wheel bracket weldment (6).

**REPAIR**

3	Swivel caster (2)		Inspect tire and repair or replace as necessary.
4		Threaded components	Inspect and replace any threaded components that are damaged.

CASTERS - CONTINUED

LOCATION		ITEM	ACTION	REMARKS
<b>ASSEMBLY</b>				
5	wheel bracket weldment (6)	Base plate weld- ment (1), two flanged bearings (7), modified flanged bearing (8), nut (9), and flat washer (10)	Screw threaded components together and adjust to desired height.	
6	Base plate weldment (1)	Swivel caster (2), four screws (3), four lock washers (4), and four nuts (5)	Attach swivel caster (2) to base plate weldment (1), with four screws (3), four lock washers (4) and four nuts (5).	



TASK ENDS HERE



TOOLBOX

This task covers:

- a. Removal (page 4-178)
- b. Installation (page 4-178)

INITIAL SETUP

Tools

General mechanics tool set

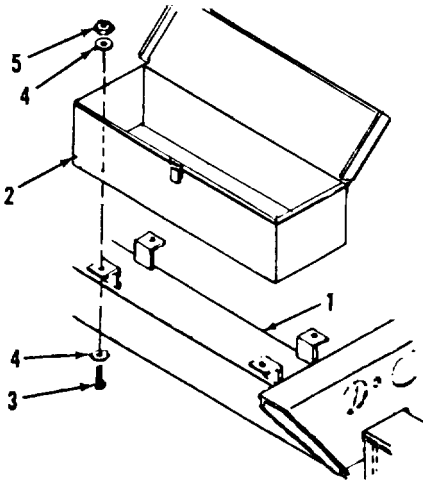
Materials/Parts

Adhesive (item 10, Appendix E)

Equipment Conditions

No special requirements

LOCATION		ITEM	ACTION	REMARKS
REMOVAL				
1	Connecting link (1) to toolbox (2)	Four bolts (3), eight washers (4), and four nuts (5)	Remove.	Toolbox (2) will come off of connecting link (1).
INSTALLATION				
2	Connecting link (1) to toolbox (2)	Four bolts (3) to threads.	Apply adhesive (item 10, Appendix E)	
3		Four bolts (3), eight washers (4), and four nuts (5)	a. Position and hold toolbox (2). b. Secure with four bolts (3), eight washers (4), and four nuts (5).	



TASK ENDS HERE

REFLECTORS

This task covers:

- a. Removal (page 4-179)
- b. Installation (page 4-179)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set	No special requirements

LOCATION		ITEM	ACTION	REMARKS
REMOVAL				
1	Adapter (1) to reflector (2)	Two screws (3) and two washers (4)	Remove.	
2	Adapter (1)	Reflector (2)	Remove.	
INSTALLATION				
3	Adapter (1)	Reflector (2)	Place in position.	
4	Adapter (1) to reflector (2)	Two screws (3) and two washers (4)	Install.	

**DATA PLATES**

This task covers:

- a. Removal (page 4-180)
- b. Installation (page 4-180)

**INITIAL SETUP:****Tools**

General mechanics tool set

**Equipment Conditions**

No special requirements.

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

**REMOVAL****NOTE**

The following procedures for removal and installation are typical for all the data plates on the front and rear dolly. Refer to page 1-9 and 1-10 for location of other data plates.

1	Tow bar (1)	Shipping data plate (2) and four drive screws (3)	Remove four drive screws (3) attaching shipping data plate (2) to tow bar (1).
2	Tool box (4)	Lubrication chart data plate (5), four screws (6) and four nuts (7)	Remove four screws (6) and four nuts (7) attaching lubrication chart data plate (5) to top of tool box.

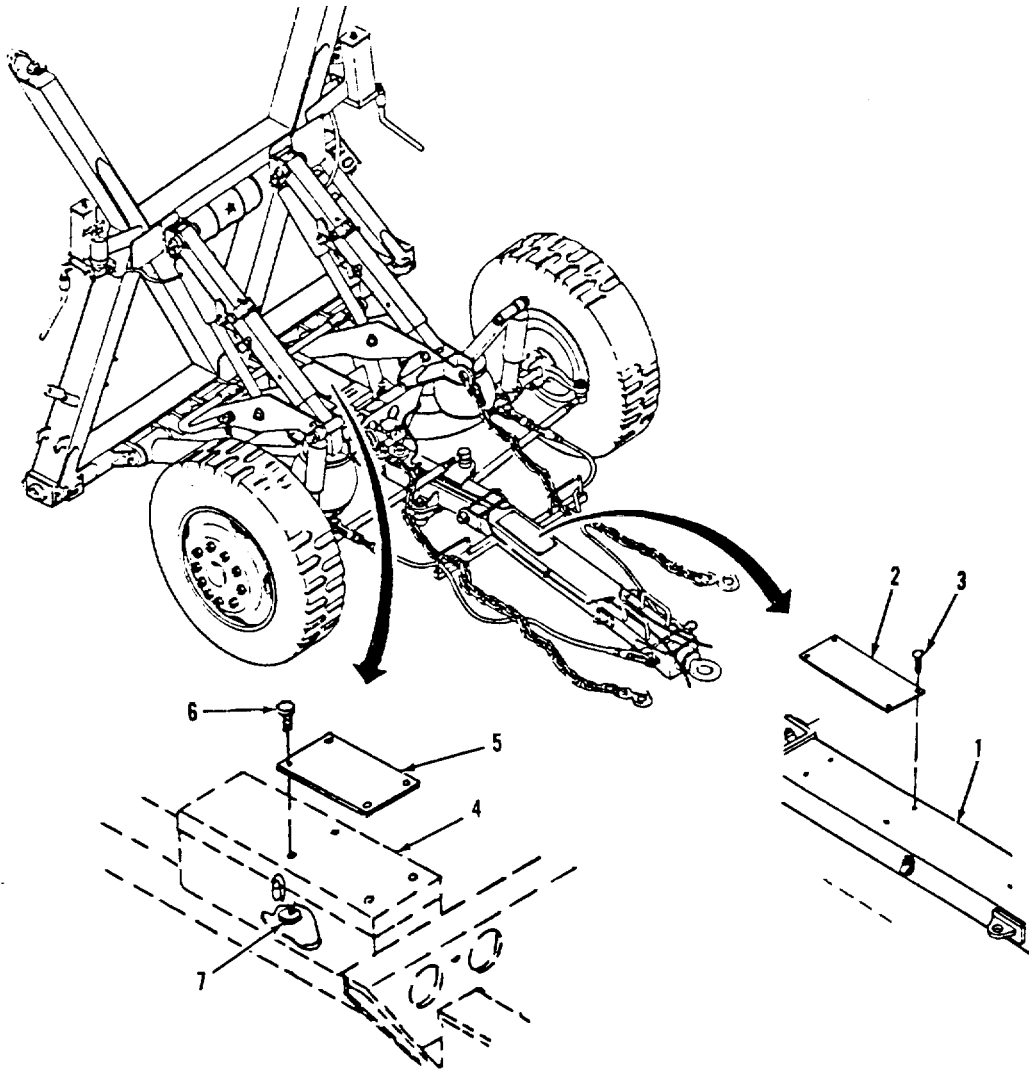
**INSTALLATION**

3	Tool box (4)	Lubrication chart data plate (5), four screws (6), and four nuts (7)	Attach lubrication chart data plate (5) to top of tool box (4) with four screws (6) and four nuts (7).
4	Tow bar (1)	Shipping data plate (2), and four screws (3)	Attach shipping data plate (2) to tow bar (1) with four screws (3).

DATA PLATES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

INSTALLATION - CONTINUED



TASK ENDS HERE

Section XIV HYDRAULIC LIFT SYSTEM MAINTENANCE

	Page		Page
Air Motor .....	4-184	Hydraulic Pump .....	4-182
Hydraulic Cylinder.....	4-187	System Bleeding.....	4-189
Hydraulic Lines .....	4-186		

HYDRAULIC PUMP

This task covers:

- a. Removal (page 4-181)
- b. Installation (page 4-182)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set	Hydraulic fluid removed from pump.

LOCATION		ITEM	ACTION	REMARKS
REMOVAL				
1	Hydraulic pump (1)	Hydraulic line (2)	Remove hydraulic line (2) from pump (1).	
2	Adapter (3)	Hydraulic pump (1), two screws (4) and two lock washers (5)	Remove two screws (4) and lock washers (5) securing hydraulic pump (1) to adapter (3).	
<b>NOTE</b> Hydraulic pumps on the rear dolly are removed in the same manner as the hydraulic pumps on the front dolly.				
3	Adapter (3)	Hydraulic pump (1)	Position hydraulic pump (1) for proper mounting on adapter (3).	

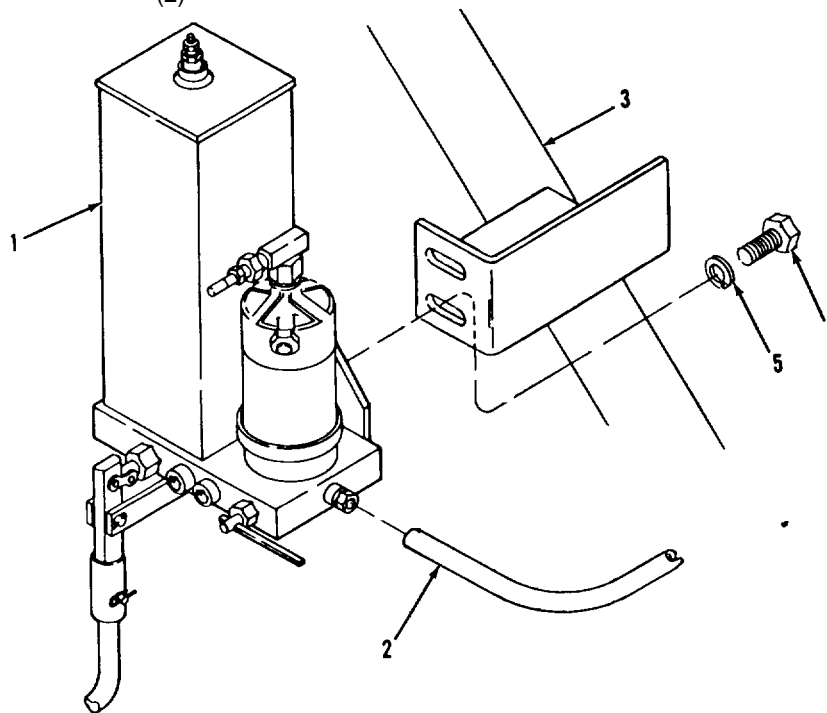
# HYDRAULIC PUMP - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## INSTALLATION

4	Hydraulic pump (1), two screws (4) and two lock washers (5)	Secure hydraulic pump (1) to adapter (3) with two screws (4) and two lock washers (5).	
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5	Hydraulic pump (1)	Attach hydraulic line (2) to pump (1).	
---	--------------------	--	--



## NOTE

FOLLOW-ON MAINTENANCE: Refill pump (1). Replenish hydraulic fluid. Bleed hydraulic system (page 4-189).

TASK ENDS HERE

AIR MOTOR

This task covers:

- a. Removal (page 4-184)
- b. Installation (page 4-185)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set	Air line removed from air motor

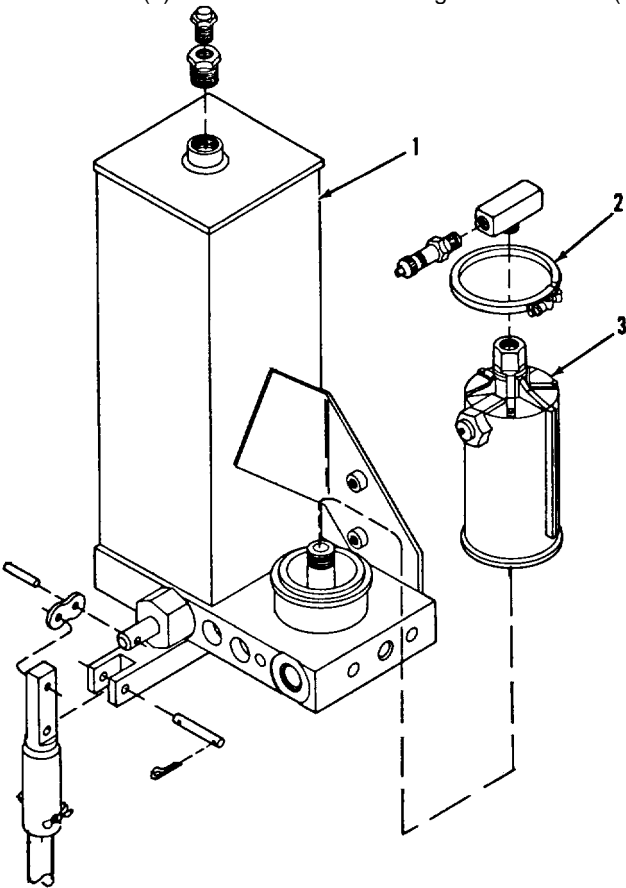
LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
1	Hydraulic pump (1)	V-retainer (2) retainer.	Unscrew V-retainer (2) to release
<b>CAUTION</b>			
Care must be exercised when removing the air motor so none of the internal components of the pump are lost or damaged.			
2	Air motor assembly (3)		Lift and remove air motor assembly (3) from base of hydraulic pump unit (1).

AIR MOTOR - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

INSTALLATION

<p><b>CAUTION</b></p> <p>Care must be exercised when installing the air motor to insure that none of the pump internal parts have been lost or damaged.</p>			
3	Hydraulic pump assembly (1)	Air motor assembly (3)	Install air motor assembly (3) onto base of hydraulic pump assembly (1).
4	Air motor assembly (3)	V-retainer (2)	Secure air motor assembly (3) to hydraulic pump assembly (1) with V-retainer (2).
5		V-retainer (2)	Tighten V-retainer (2).



TASK ENDS HERE



HYDRAULIC LINES

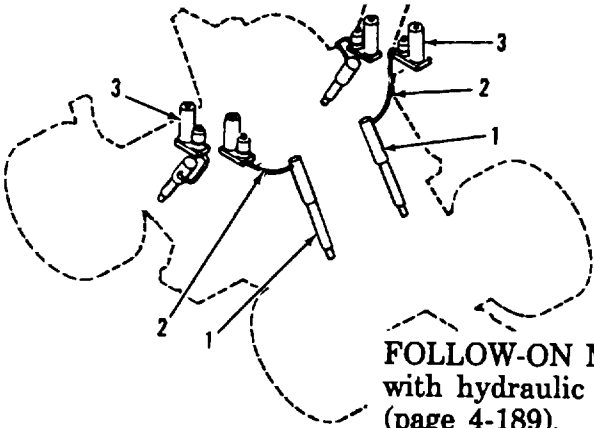
This task covers:

- a. Removal (page 4-186)
- b. Installation (page 4-186)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set	Hydraulic fluid removed from system.

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
1	Hydraulic pump assembly (1)	Hydraulic line (2) hydraulic pump assembly (1).	Remove hydraulic line (2) from side of
2	Corresponding hydraulic cylinder (3)	Hydraulic line (2)	Remove other end of hydraulic line (2) from corresponding hydraulic cylinder (3).
INSTALLATION			
3	Hydraulic cylinder (1)	Hydraulic line (2)	Attach one end of hydraulic line (2) to hydraulic cylinder (1).
4	Hydraulic pump assem-	Hydraulic line (2)	Attach other end of hydraulic line (2) to hydraulic pump assembly (3).



NOTE

**FOLLOW-ON MAINTENANCE:** Fill hydraulic pump with hydraulic fluid. Bleed hydraulic system (page 4-189).

TASK ENDS HERE

**HYDRAULIC CYLINDER**

This task covers:

- a. Removal (page 4-187)
- b. Installation (page 4-187)

**INITIAL SETUP:****Tools**

General mechanics tool set

**Materials/Parts**

New cotter pins

**Equipment Conditions**

No special requirements

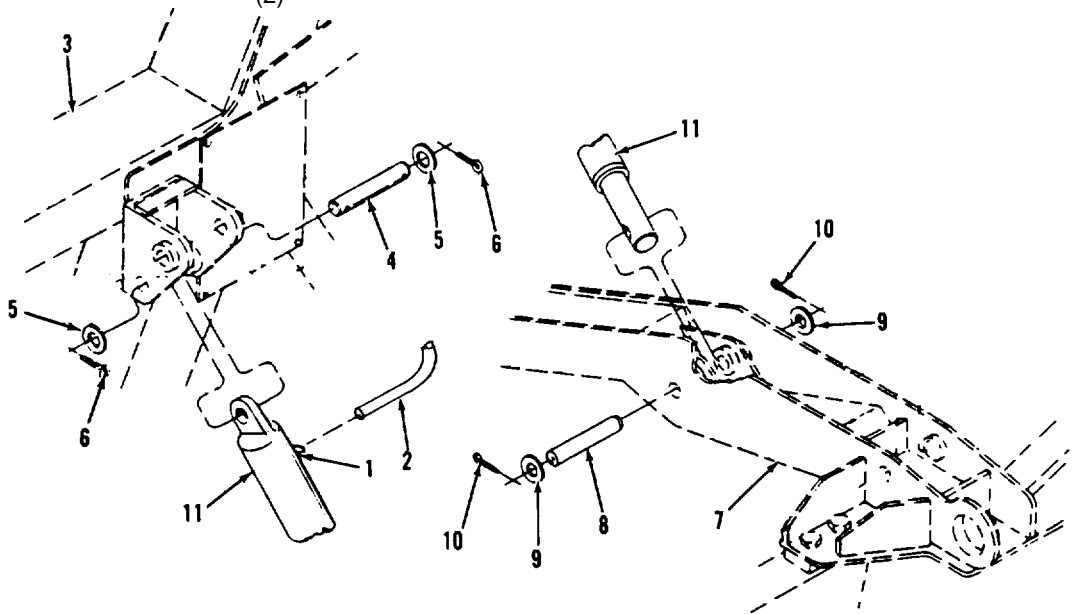
LOCATION		ITEM	ACTION REMARKS
<b>REMOVAL</b>			
1	Manual valve (1)	Hose assembly (2)	Remove.
2	Adapter (3)	Upper pin (4), two flat washers (5) and two cotter pins (6)	a. Remove and discard cotter pins (6). b. Remove two flat washers (5) and slide out upper pin (4).
3	Upper arm assembly (7)	Lower pin (8), two flat washers (9) and two cotter pins (10)	a. Remove and discard cotter pins (10). b. Remove two flat washers (9) and slide out lower pin (8).
4	Adapter (3) and upper arm assembly (7)	Hydraulic cylinder (11)	Remove.
<b>INSTALLATION</b>			
5	Adapter (3) and upper arm assembly (7)	Hydraulic cylinder (11)	Position.
6	Adapter (3) to cylinder (11)	Upper pin (4)	Slide in.

HYDRAULIC CYLINDER - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION - CONTINUED

7	Upper arm assembly (7) to cylinder (11)	Lower pin (8)	Slide in.
8	Upper pin (4)	Two flat washers (5) and two new cotter pins (6)	a. Place two flat washers (5) in position. b. Put two new cotter pins (6) in place.
9	Lower pin (8)	Two flat washers (9) and two new cotter pins (10)	a. Place two flat washers (9) in position. b. Put two new cotter pins (10) in place.
10	Manual valve (1)	Hose assembly (2)	Connect.



NOTE

FOLLOW-ON MAINTENANCE: Bleed hydraulic system (page 4-189). Fill hydraulic system with hydraulic fluid.

TASK ENDS HERE

**SYSTEM BLEEDING****This task covers:****Bleeding****INITIAL SETUP:****Tools**

General mechanics tool set

**Materials/Parts**

Small jar  
 Hose, 5/16-inch I.D. by 24 inches  
 (61 cm.) - oil resistant  
 Oil, hydraulic type OHT  
 Equipment Conditions

No special requirements

LOCATION	ITEM	ACTION	REMARKS
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**NOTE**

This procedure is typical for the front and the rear hydraulic lift systems.

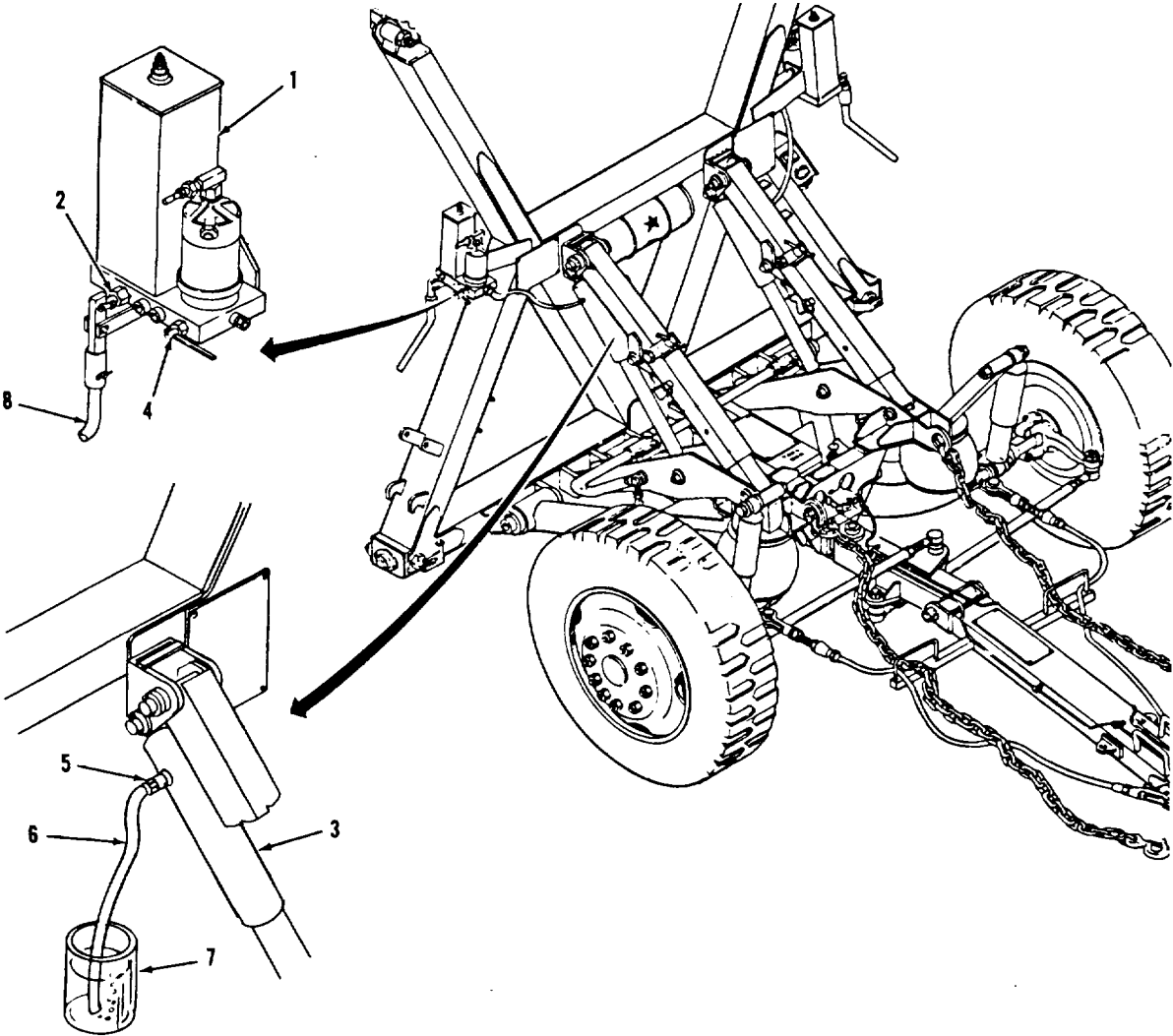
1	Hydraulic pump (1)	Control valve (2)	Move to the PUMP position.
2	Hydraulic cylinder (3)	Manual control valve (4)	Open.
3	Hydraulic cylinder (3)	Bleeder valve (5)	Open using a box wrench.
4	Bleeder valve (5)	Length of hose (6)	Push onto the end of bleeder valve (5).
5		Jar (7)	a. Fill halfway with oil, type OHT. b. Submerge free end of hose (6) in oil in jar (7).
6	Hydraulic pump (1)	Handle (8)	Pump handle until bubbles stop coming from the end of hose (6) that is submerged in oil in jar.
7	Hydraulic cylinder (3)	Bleeder valve (5)	Close using a box wrench.

SYSTEM BLEEDING - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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NOTE

Repeat steps 3 thru 7 on the other lift cylinders in the system.



TASK ENDS HERE

## Section XV PREPARATION FOR STORAGE OR SHIPMENT

ADMINISTRATIVE STORAGE

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This task covers:

- a. Cleaning and drying
  - b. Lubrication
  - c. Preservation
  - d. Army shipping documents
- 

Equipment/Materials Required:

For cleaning, refer to page 4-1.  
For lubrication, refer to page 4-1.

Equipment Conditions:

<u>Ref</u>	<u>Conditions</u>
------------	-------------------

2-46	Front and rear dollies coupled together.
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References:

DA PAM 738-750

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a. Cleaning and Drying.

- (1) Wash dolly set.
- (2) Remove all dirt, grease, and oil.
- (3) Dry thoroughly.

b. Lubrication.

- (1) Lubricate dolly set as required (page 4-1).
- (2) Lubricate accompanying tools and equipment to protect them against deterioration.

c. Preservation.

- (1) All critical unpainted areas must be protected during storage or shipment.
- (2) Oil and grease covered in the lubrication instructions may be used.
- (3) Periodic visual inspections are necessary to discover signs of corrosion.

d. Army Shipping Documents.

Prepare all Army shipping documents accompanying the dolly set in accordance with DA PAM 738-750.

## CHAPTER 5

### DIRECT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

#### OVERVIEW

This chapter contains all the maintenance authorized to be performed by direct support and general support maintenance. Because of the integrated nature of the equipment, maintenance of several major portions of the Dolly Set are addressed in the same section.

		Page
Section I	Repair Parts, Special Tools; TMDE; and Support Equipment.....	5-1
Section II	Rear Dolly Frame Maintenance.....	5-2
Section III	Rear Dolly Frame Maintenance.....	5-9
Section IV	Steering Knuckle Maintenance.....	5-15
Section V	Hub and Brake Drum Maintenance .....	5-17
Section VI	Tire Maintenance.....	5-19
Section VII	Hydraulic Lift System Maintenance.....	5-19
Section VII	Serviceability Standards and Wear Limits.....	5-32

#### Section I REPAIR PARTS; SPECIAL TOOLS; TMDE; AND SUPPORT EQUIPMENT

#### COMMON TOOLS AND EQUIPMENT

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

#### SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

No special tools, TMDE, or support equipment are required to maintain the M1022 dolly set.

#### REPAIR PARTS I

Repair parts are listed in appendix F of this manual.

## Section II FRONT DOLLY FRAME MAINTENANCE

	Page
Front Dolly .....	5-2

**FRONT DOLLY**

This task covers:

- a. Disassembly (page 5-2)
- b. Assembly (page 5-6)

**INITIAL SETUP:**

## Tools

General mechanics tool set  
Tie rod separator

## Personnel Required

Two or more as necessary

## Equipment Conditions

Front dolly separated from rear dolly  
(page 2-27)  
Adapter lowered to ground level (page  
2-25)  
Towbar removed (page 4-160)  
Torsion bar removed (page 4-171)  
Tool box removed (page 4-177)  
Auxiliary brake levers removed (page 4-97)  
Emergency relay valve removed (page 4-130)  
Tie rod assemblies removed (page 4-70)  
Cable assemblies removed (page 4-164)  
Safety chains removed (page 4-165)  
Air spring assemblies removed (page  
4-166)  
Shock absorbers removed (page 4-169)  
Caster assemblies removed (page 3-7)  
Hydraulic pumps removed (page 4-181)  
Hydraulic cylinders removed (page 4-186)  
Steering knuckles removed (page 4-62)  
Air reservoirs removed (page 4-137)  
Strut assemblies removed (page 4-150)  
Steering link removed (page 4-75)

LOCATION	ITEM	ACTION	REMARKS
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DISASSEMBLY

**WARNING**

The fore and aft sections of the front dolly must be firmly supported before attempting to remove any components.



## FRONT DOLLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

## DISASSEMBLY - CONTINUED

1	Front adapter (1)	Equipment supports	Ensure that front adapter (1) is firmly supported by equipment supports.
2	Lower arm assemblies	Equipment supports	Ensure that both lower arm assemblies (3) are firmly supported. (3)
3	Connecting link (4)		Ensure that connecting link (4) is completely supported.
4	Upper arm assemblies (2)	Connecting link (4) and four bolts (5)	Remove two bolts (5) that attach the left and right upper arm assemblies (2) to connecting link (4).

**NOTE**

Because the connecting link, two upper arm assemblies, and two lower arm assemblies are attached to the front adapter via several pins, there are several ways to continue disassembly depending upon what you want to accomplish.

If you wish to completely disassemble the front dolly you can remove the major components attached with pins at the bottom of the adapter, one at a time, while fully supporting the remaining components, until all major components have been removed.

If it is desired to remove only particular components, the desired components can be removed by first removing the pins that connect the components together at the bottom of the adapter, removing the desired components, then placing a narrow pipe or similar object through the other components not being removed, to retain proper positioning of the remaining components.

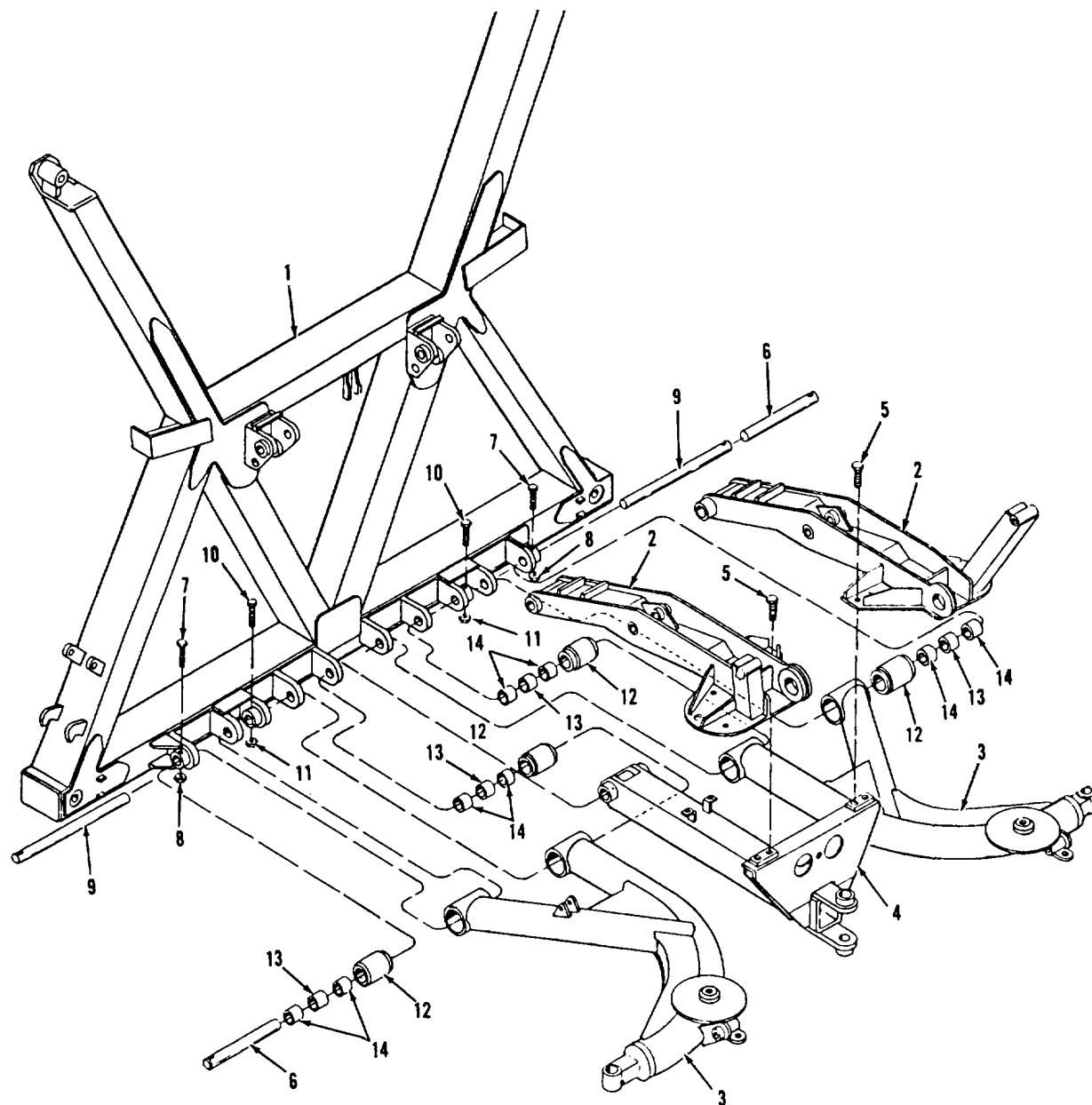
## FRONT DOLLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
DISASSEMBLY - CONTINUED			
<p style="text-align: center;"><b>WARNING</b></p> <p>Enough support must be provided for connecting link, and upper and lower arm assemblies to allow pins to be removed from front adapter without requiring excessive force or personal injury may occur.</p> <p style="text-align: center;"><b>WARNING</b></p> <p>After the connecting pins have been driven out, the pipe or rod used in the process must be removed in order to remove the desired components. At this time all components must be completely supported or suspended or personal injury may occur.</p> <p style="text-align: center;"><b>NOTE</b></p> <p>The easiest way to remove the connecting pins is to drive all of the pins out together using a long pipe, or rod, starting at either end. The limited space will not allow the inside pins to be removed in a different manner.</p>			
5	Front	Lower arm adapter (1) pin (6), bolt (7) and nut (8) side	<ol style="list-style-type: none"> <li>Remove nut (8) and bolt (7) that assembly (3), secure pin (6) attaching lower arm assembly (3) to front adapter (1).</li> <li>Perform same procedure on other of front dolly.</li> </ol>
6		Lower arm assembly (3) upper arm assembly (2), pin (9), bolt (10), and nut (11)	<ol style="list-style-type: none"> <li>Remove nut (11) and bolt (10) that secure pin (9) attaching lower arm assembly (3) and upper arm assembly (2) to front adapter (1).</li> <li>Perform same procedure on other side of front dolly.</li> </ol>
7	Lower arm assemblies (3)	Bonded joint (12), center spacer (13), and two end bushings (14)	Remove two end bushings, (14) center spacer (13), and bonded joint (12) from each pivot tube on each lower arm assemblies (3).

FRONT DOLLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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DISASSEMBLY- CONTINUED



## FRONT DOLLY- CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## ASSEMBLY

## NOTE

The following procedures assume the front dolly major components (front adapter, connecting link, two upper arm assemblies and two lower arm assemblies) have been removed.

- |   |                          |  |  |
|---|--------------------------|--|--|
| 8 | Lower arm assemblies (3) | Bonded joint (12), center spacer (13), and two end bushings (14) | Install on bonded joint (12), on center spacer (13) and two end bushings (14) at each pivot tube on each lower arm assemblies (3). |
|---|--------------------------|--|--|

- |   |             |  |  |
|---|-------------|--|--|
| 9 | Front dolly |  |  |
|---|-------------|--|--|

**WARNING**

Ensure that all front dolly components to be moved or assembled are completely supported/suspended and that adequate manpower is available to move components.

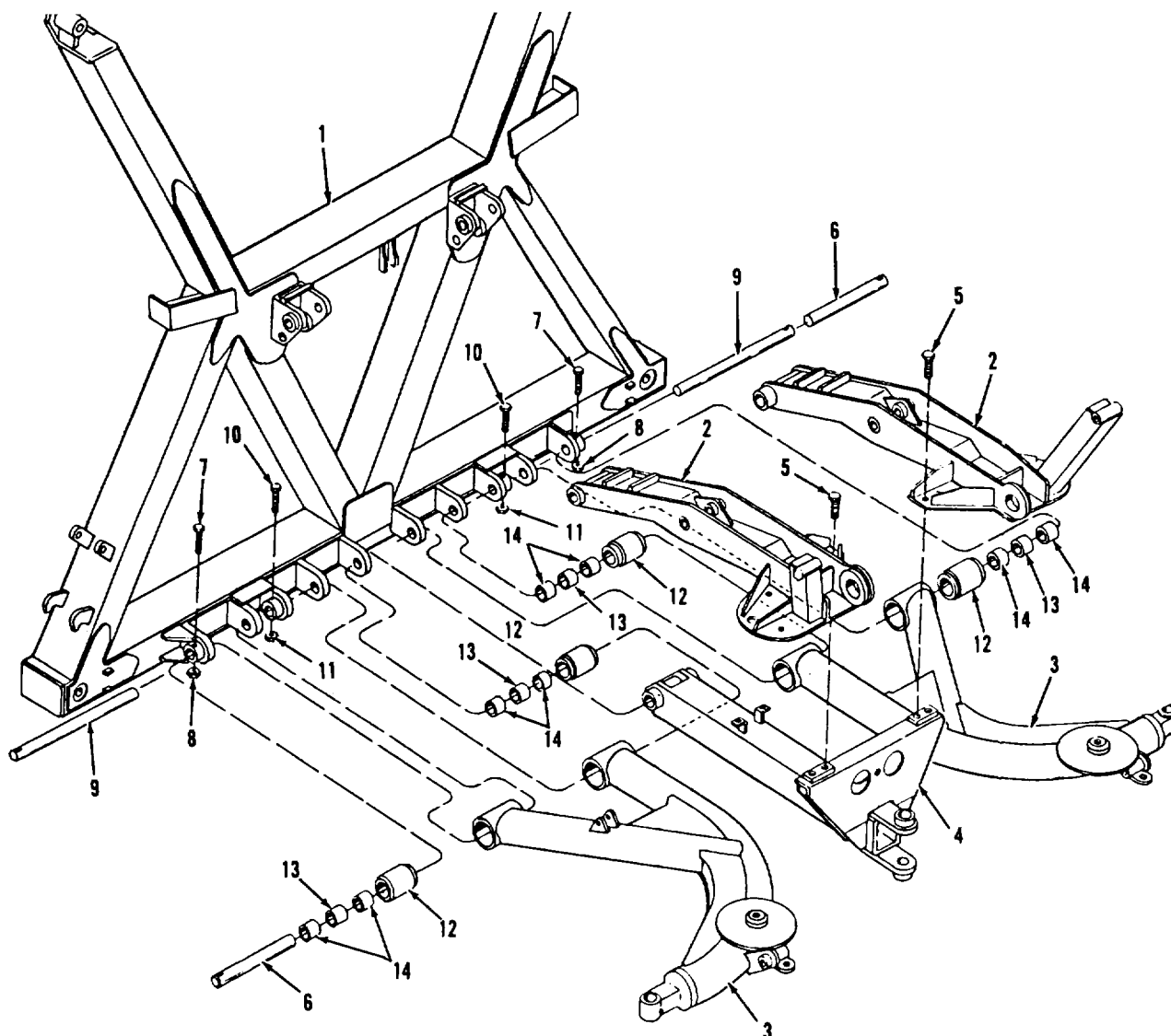
- |    |  |   |   |
|----|--|---|---|
| 10 | Adapter (1), two upper arm assemblies (2), two lower arm assemblies (3), and connecting link (4) | <ul style="list-style-type: none"> <li>a. Place upper arm assemblies (2) and lower arm assemblies (3) in proper position near adapter (1) and remainder of dolly set.</li> <li>b. Place connecting link (4) in position on upper and lower arm assemblies.</li> </ul> |   |
| 11 | Adapter (1)  | Lower arm assemblies (3), upper arm assemblies (2), connecting link (4), pin (9), bolt (10), and nut (11)   | Insert pin (9) through lugs at bottom of adapter (1), center pivot tube of lower arm assembly (3), upper arm assembly (2) and connecting link (4) and secure with bolt (10) and nut (11). |
| 12 | Lower arm assembly (3), pin (6), bolt (7), and nut (8)   |   | Insert pin (6) through lugs at bottom of front adapter (1) and outside pivot tube of lower arm assembly (3). Secure with bolt (7) and nut (8).  |

# FRONT DOLLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

## ASSEMBLY- CONTINUED

- |                         |   |   |
|-------------------------|---|---|
| 13                      | Lower arm assembly (3), upper arm assembly (2), and connecting link (4) | Repeat steps 11 and 12 on opposite side of front adapter (1).                 |
| 14 Upper arm assemblies | Connecting link (4) and four  | Secure each upper arm assembly (2) to connecting link (4) with two bolts (5). |



## FRONT DOLLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## ASSEMBLY- CONTINUED

## NOTE

## FOLLOW-ON MAINTENANCE:

1. Install air spring assemblies (page 4-168).
2. Install strut assemblies (page 4-155).
3. Install hydraulic cylinders (page 4-187).
4. Install hydraulic pump (page 4-183).
5. Install shock absorbers (page 4-170).
6. Install steering knuckles (page 4-67).
7. Install steering link (page 4-75).
8. Install towbar (page 4-164).
9. Install torsion bar (page 4-175).
10. Install tie rod assemblies (page 4-71).
11. Install tool box (page 4-178).
12. Install auxiliary brake lever (page 4-101).
13. Install emergency relay valve (page 4-134).
14. Install air reservoirs (page 4-138).
15. Install caster assemblies (page 3-8).
16. Install safety chains (page 4-166).
17. Install cable assemblies (page 4-165).

TASK ENDS HERE

Section III REAR DOLLY FRAME MAINTENANCE

	Page
Rear Dolly.....	5-9

REAR DOLLY

This task covers:

- a. Disassembly (page 5-10)
- b. Assembly (page 5-11)

INITIAL SETUP:

Tools	Equipment Conditions
General mechanics tool set	Front dolly separated from rear dolly (page 2-27).
Personnel Required	Adapter lower to ground level (page 2-25).
Two or more as necessary	Rear spindles removed (page 4-77).
	Air reservoirs removed (page 4-140).
	Auxiliary relay valve removed (page 4-97).
	Parking brake lever removed (page 4-90).
	Emergency relay valve removed (page 4-132).
	Gladhands removed (page 4-129).
	Pintle removed (page 4-160).
	Air spring assemblies removed (page 4-167).
	Shock absorbers removed (page 4-170).
	Hydraulic pumps removed (page 4-182).
	Hydraulic cylinders removed (page 4-187).
	Strut assemblies removed (page 4-152).
	Rear harness removed (page 4-57).
	Composite lights removed (page 4-54).

## REAR DOLLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## DISASSEMBLY

**WARNING**

The rear adapter and the other portions of the rear dolly must be firmly supported/suspended before attempting to remove the rear adapter.

**NOTE**

Because the connecting link, two upper arm assemblies, and two lower arm assemblies are attached to the rear adapter via several pins, there are several ways to continue disassembly depending upon what you want to accomplish.

If you wish to completely disassemble the rear dolly you can remove the major components attached with pins at the bottom of the adapter, one at a time, while fully supporting the remaining components, until all major components have been removed.

If it is desired to remove only particular components, the desired components can be removed by first removing the pins that connect the components together at the bottom of the adapter, removing the desired components, then placing a narrow pipe or similar object through the other components not being removed, to retain proper positioning of the remaining components.

1	Upper arm assemblies (3)	Platform (2) and four bolts (5)	Remove four bolts (5) securing platform (2) to each upper arm assembly (3).
2	Rear adapter (1) bly (4), pin (6), bolt (7), and nut (8)	Platform (2), lower arm assem-	a. Remove nut (8) and bolt (7) that secure pin (6) attaching platform (2) and lower arm assembly (4) to rear adapter (1). b. Perform same procedure on other side of rear dolly.



## REAR DOLLY - CONTINUED

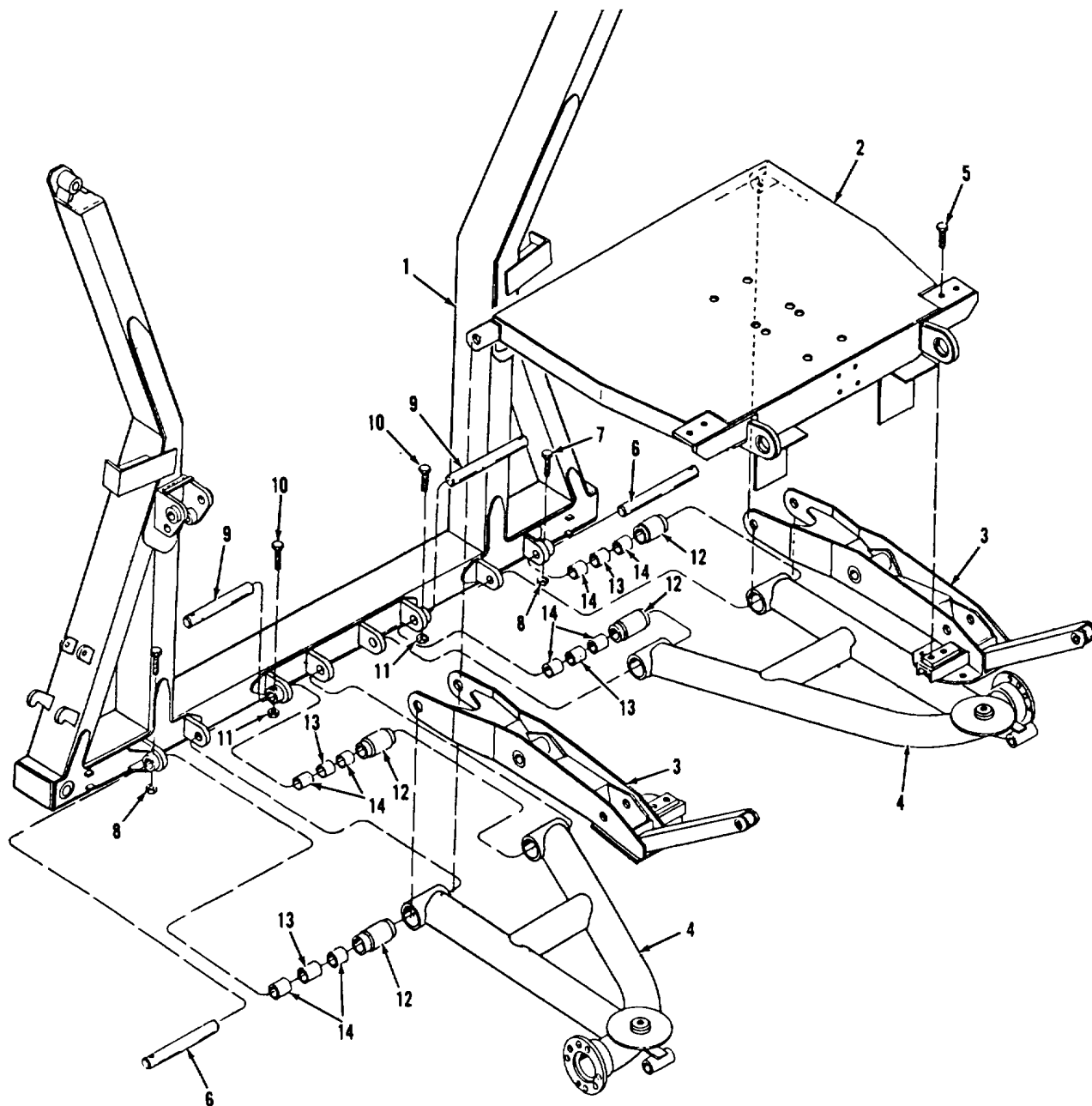
LOCATION	ITEM	ACTION	REMARKS
<b>DISASSEMBLY - CONTINUED</b>			
3	Lower arm assembly (4) upper arm assembly (3), platform (2), pin (9), bolt (10), and nut (11)	a. Remove nut (11) and bolt (10) that secure pin (9) attaching lower arm assembly (4), upper arm assembly (3) and platform (2) to rear adapter (1). b. Perform same procedure on other side of rear dolly.	
4	Lower arm assemblies (4)	Bonded joint (12), center spacer (13), and two end bushings (14)	Remove two end bushings (14), center spacer (13), and bonded joint (12) from each pivot tube on each lower arm assembly (4).
<b>ASSEMBLY</b>			
<b>NOTE</b>			
The following procedures assume the rear dolly major components (front adapter, platform, two upper arm assemblies and two lower arm assemblies) have been removed.			
5	Rear dolly		
<b><u>WARNING</u></b>			
Ensure that all rear dolly components to be moved or assembled are completely supported/suspended and that adequate manpower is available to move components.			
6	Adapter (1), two upper arm assemblies (3), two lower arm assemblies (4), and platform (2)	a. Place upper arm assemblies (3) and lower arm assemblies (4) in proper position near adapter (1) and remainder of dolly set.	
7	Lower arm assemblies (4)	Bonded joint (12), center spacer (13), and two end bushings (14)	Place bonded joint (12), center spacer (13), and two end bushings (14) into each pivot tube on each lower arm assembly (4).

## REAR DOLLY - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>ASSEMBLY- CONTINUED</b>		
8     Rear adapter (1)	Lower arm assembly (4) and upper arm assembly (3)	Carefully position lower arm assembly (4) and upper arm assembly (3) in place to be secured to rear adapter (1).
9	Lower arm assembly (4), upper arm assembly (3), pin (9), bolt (10) and nut (11) b.    Secure pin (9) with bolt (10) and nut (11).	a.    Insert pin (9) through lugs on bottom of rear adapter (1) and through center pivot tube of lower arm assembly (4) and upper arm assembly (3).
10	Lower arm assembly (4) and platform (2) rear adapter (1). b.    Repeat step 9.	a.    Carefully position center pivot tube of second lower arm assembly (4) and platform (2) in place to be secured to
11	Lower arm assembly (4), pin (6), bolt (7), and nut (8) with bolt (7) and nut (8).	a.    Insert pin (6) through lugs on bottom of rear adapter (1) and outside pivot tube of lower arm assembly (4). b.    Secure pin (6) to rear adapter (1)
12	Platform (2), upper arm assemblies (3), and four bolts (5)	Secure each end of platform (2) to each upper arm assembly (3) with two bolts (5).

REAR DOLLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## REAR DOLLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## ASSEMBLY - CONTINUED

## NOTE

## FOLLOW-ON MAINTENANCE:

1. Install rear spindles (page 4-77).
2. Install air reservoirs (page 4-142).
3. Install auxiliary brake lever (4-100).
4. Install parking brake lever (page 4-91).
5. Install emergency relay valve (page 4-134).
6. Install gladhands (4-129).
7. Install air springs (page 4-168).
8. Install shock absorbers (page 4-170).
9. Install hydraulic pumps (page 4-183).
10. Install hydraulic cylinders (page 4-187).
11. Install strut assemblies (page 4-155).
12. Install pintle (page 4-160).
13. Install rear harness (page 4-57).
14. Install composite lights (page 4-55).

TASK ENDS HERE

Section IV STEERING KNUCKLE MAINTENANCE

	Page
Steering Knuckle Assembly.....	5-15

STEERING KNUCKLE ASSEMBLY

- This task covers:
- a. Bushing removal (page 5-15)
  - b. Bushing installation (page 5-16)

INITIAL SETUP:

Tools	Materials/Parts
General mechanics tool set	New knuckle bushings
Arbor press	New kingpin
Bushing driver fixture	
Kingpin bushing reamer	Equipment Conditions
	Steering knuckle removed (page 4-62)

LOCATION	ITEM	ACTION	REMARKS
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BUSHING REMOVAL

1 Knuckle (1)	Two bushings (2) driver fixture.	Remove using an arbor press and bushing	
		5-15	

# STEERING KNUCKLE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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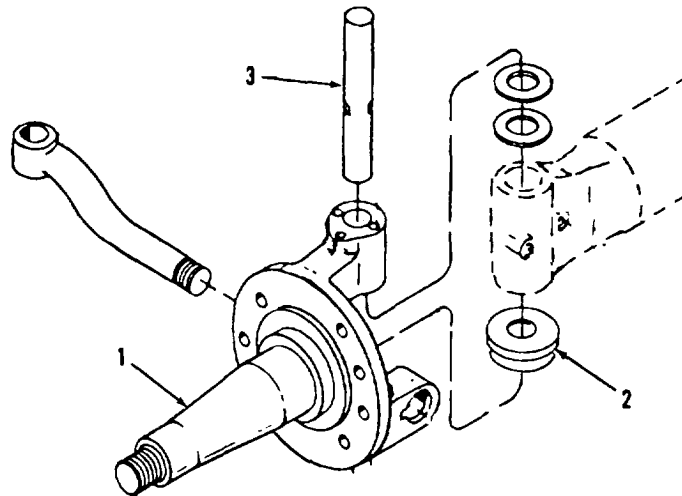
## BUSHING INSTALLATION

2	Knuckle (1)	Two bushings (2)	<p>Install bushings using an arbor press and bushing driver fixture.</p> <p>Be sure that holes in bushings are aligned with holes in knuckle where the grease fittings go.</p>
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### NOTE

The bushings (2) supplied are somewhat smaller than the kingpin (4). After step 3, the bushings must be reamed and fitted to the kingpin (3). After fitting the bushings (2) to the kingpin (3) all parts must not be interchanged but rather supplied to organizational maintenance as a matched set for installation on the dolly set.

3	Two bushings (2) and kingpin (3)	<p>Using a reamer, fit bushings (2) to kingpin (3).</p> <p>The kingpin (3) should slide freely into the bushings with no noticeable looseness from side to side.</p>
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TASK ENDS HERE

Section V HUB AND BRAKE DRUM MAINTENANCE

	Page
Hub and Brake Drum .....	5-17

HUB AND BRAKE DRUM

This task covers:

- a. Disassembly (page 5-17)
- b. Assembly (page 5-18)
- c. Resurfacing (page 5-18)

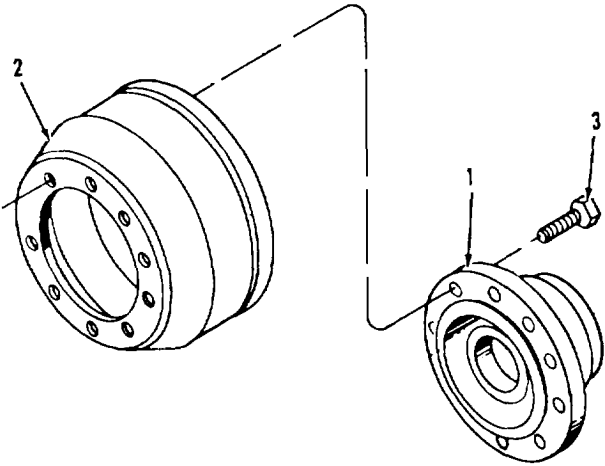
INITIAL SETUP:

Tools	Materials/Parts
General mechanics tool set	New studs - ten per wheel
Arbor press	
Stud removal and installation fixtures	Equipment Conditions
Inside micrometer (11-12 inch)	Hub and drum removed and separated (page 4-145)

LOCATION	ITEM	ACTION	REMARKS
DISASSEMBLY			
1 Hub (1)	Ten studs (3)	Remove using arbor press. Throw away studs (3).	

HUB AND BRAKE DRUM - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
ASSEMBLY			
2	Hub (1) (3)	Ten new studs	Install using arbor press.
3 Drum	Hub and	Brake drum (2) Align stud holes.	Place in position.



RESURFACING

4	Brake drum	Inner braking surface	<p>a. Inspect for scoring, cracks or heat checking. Any drums which are cracked or heat checked must be replaced.</p> <p>b. Check diameter using inside micrometer. Take measurements every 45°. Run-out may not exceed .006 inch (.1588 mm). Drums exceeding runout limits must be "trued" on lathe. Drums which exceed 11.060 inches in diameter at any point must be replaced.</p>
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TASK ENDS HERE



Section VI TIRE MAINTENANCE

	Page
Tires .....	5-22
a. Tire repair (page 5-19) refer to TM 9-2610-200-20	

Section VII HYDRAULIC LIFT SYSTEM MAINTENANCE

	Page		Page
Hydraulic Pump .....	5-19	Hydraulic Cylinder .....	5-29

HYDRAULIC PUMP

This task covers:

- a. Disassembly (page 5-19)
- b. Assembly (page 5-24)

INITIAL SETUP:

Tools

General mechanics tool set

Materials/Parts

Seal Kit (figure 30, Appendix F)  
Lubricating oil, PL (item 4, Appendix E)  
Connecting link pin  
Hairpin

Equipment Conditions

Hydraulic pump removed (page 4-182)

Repair consists of removal and replacement of malfunctioning/inoperative components.

LOCATION	ITEM	ACTION	REMARKS
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DISASSEMBLY

NOTE

All hydraulic fluid should be removed from the pump before the pump is disassembled.

1	Pump handle (1)	Hairpin (3)	Take off using pliers and discard hairpin.
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## HYDRAULIC PUMP - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
DISASSEMBLY - CONTINUED			
2	Clevis pin (2)	Tap out and discard.	
3	Lever assembly (4)	Remove and discard.	
4	Clevis pin (5)	Tap out and discard.	
5	Connecting link pin (7)	Tap out connecting link pin (7) and remove lever assembly (4). Discard connecting link pin (7).	
6	Air motor assembly (8)	Remove retainer (9) using flat-tip screwdriver.	
7	Tee (10) and valve (11)	Remove	
8	Plate weldment (22)	Remove air motor assembly (8) from plate weldment (22).	
9	Air motor assembly (8)	Remove washer (13), spring (14), bearing (16), stem seal (17), modular back-up (18), and stud (20).	
10	Plate weldment (22)	Remove.	
11	Plunger (23), wiper ring (24), back-up ring (25), O-ring (26), sleeve (27), and O-ring (28)	a. Remove from plate weldment (22) by unscrewing sleeve (27). b. After disassembly, discard wiper ring (24), back-up ring (25), O-ring (26), and O-ring (28).	

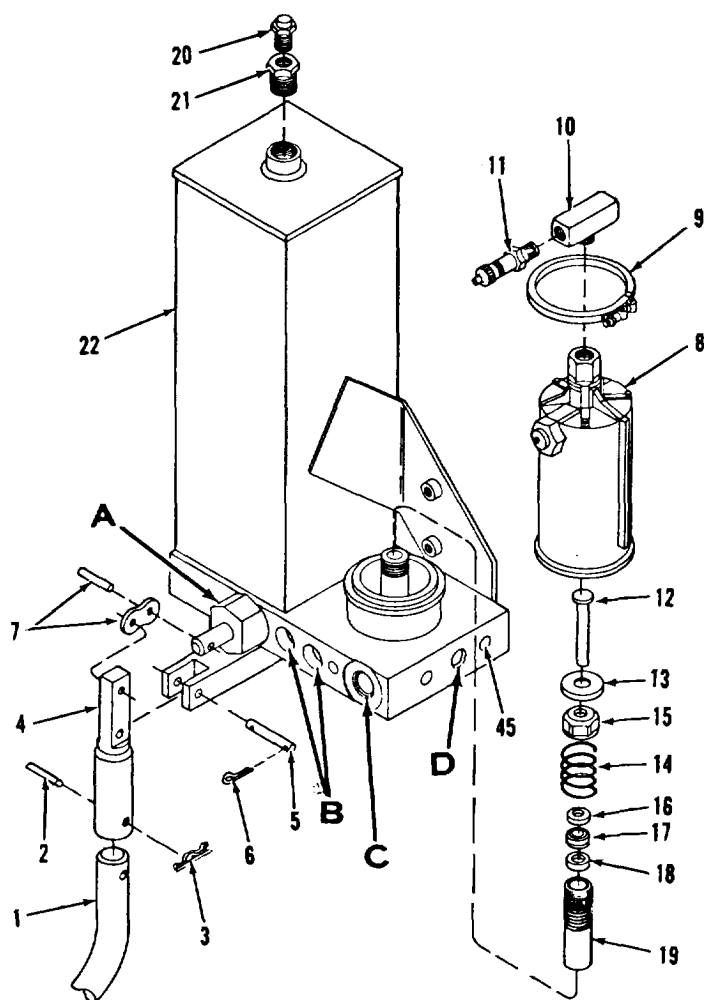
## HYDRAULIC PUMP - CONTINUED

LOCATION	ITEM	ACTION REMARKS
DISASSEMBLY - CONTINUED		
12	Set screw (30), back-up ring (30), O-ring (31) check plug (32), ball seat (33), O-ring (34), back-up ring (35), check tube (36), ball bearings (37), ball seat (38), O-ring (39), and back-up ring (40)	a. Remove from plate weldment (12) by unscrewing set screw (29). b. After disassembly, discard back-up ring (30), O-ring (31), ball seat (33), O-ring (34), back-up ring (35), ball bearings (37), ball seat (38), O-ring (39), and back-up ring (40).
13 Plate weldment (22)	Spring pin (39)	Remove.
14	Valve stem (40), O-ring (37), back- up ring (38), valve sleeve (41) and O-ring (28)	a. Remove by unscrewing valve sleeve (41). b. After disassembly, discard O-ring (37), back-up ring (38), and O-ring (28).
15 Plate weldment (22)	Pressure relief valve assembly (42), ball seat (43) and gasket (44).	a. Remove by unscrewing pressure relief valve assembly (42). b. After disassembly, discard ball seat (43) and gasket (44).
16 Plate weldment (22)	Hex plug (45)	Remove by unscrewing hex plug (45).

## HYDRAULIC PUMP - CONTINUED

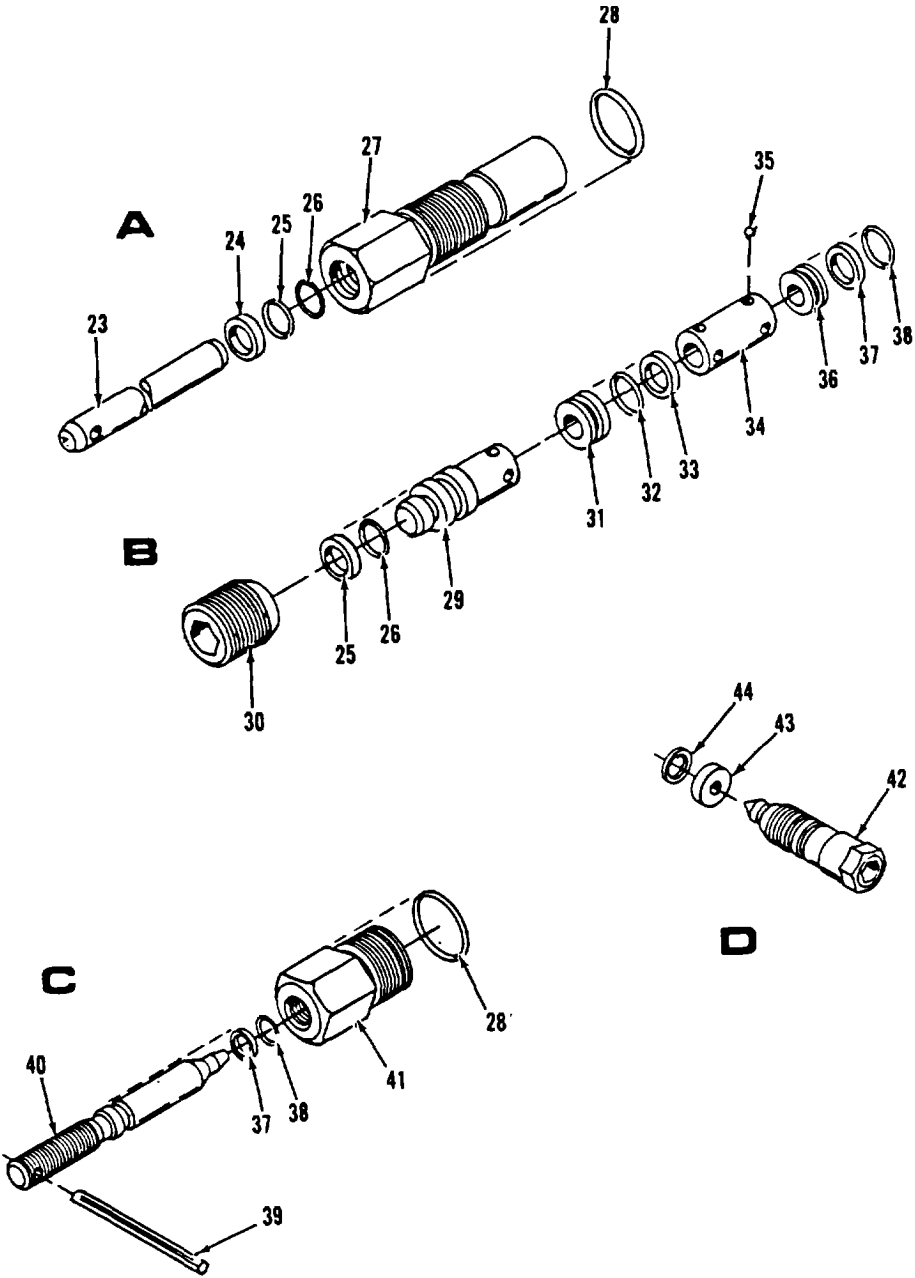
LOCATION	ITEM	ACTION	REMARKS
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## DISASSEMBLY - CONTINUED



HYDRAULIC PUMP - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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## HYDRAULIC PUMP - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>ASSEMBLY</b>		
17 Plate weldment (22)	Hex plug (45)	<b>NOTE</b>
		Coat all parts with PL oil before assembly. Screw into plate weldment (22).
18	Pressure relief valve (42), ball seat (43) and gasket (44)	<b>NOTE</b>
		Ensure new ball seat (43) and gasket (44) are being used. Screw into plate weldment (22).
19	Valve stem (40), O-ring (37), back-up ring (38), valve sleeve (41), and O-ring (28)	<b>NOTE</b>
		Ensure new O-ring (37), back-up ring (38), and O-ring (28) are being used. Screw into plate weldment.
20	Spring pin (39)	Slip through valve stem (40).
		<b>NOTE</b>
		Ensure new O-ring (26), ball seat (31), O-ring (32), back-up ring (33), check tube (34), ball bearings (35), ball seat (36), O-ring (37), and back-up ring (38) are being used.

## HYDRAULIC PUMP - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
ASSEMBLY - CONTINUED			
21	Plate weldment (22)	Back-up ring (25), O-ring (26), check plug (29), ball seat (31), O-ring (32), back-up ring (33), check tube (34), ball bearings (35), ball seat (36) O-ring (37), and back-up ring (38)	Place items (in correct sequence) in plate weldment (22).
22	Plate weldment (22)	Plunger (23)	Screw into plate weldment.
<p><b>NOTE</b></p> <p>Ensure new wiper ring (24), back-up ring (25), O-ring (26), and O-ring (28) are being used.</p>			
23	Plate weldment (22)	Plunger (23), wiper ring (24), back-up ring (25), O-ring (26), sleeve (27) and O-ring (28)	Assemble components and screw sleeve (27) into plate weldment.
24	Plate weldment (22)	Relief fitting (20) and reducer (21)	Screw into plate weldment.
<p><b>NOTE</b></p> <p>Ensure new spring (14), bearing (16), and stem seal (17) are being used.</p>			
25	Air motor assembly (8)	Plunger (12), washer (13), spring (14), nut (15), bearing (16), stem seal (17), modular back-up (18) and stud (19)	Assemble components in proper sequence and place in air motor assembly (8).

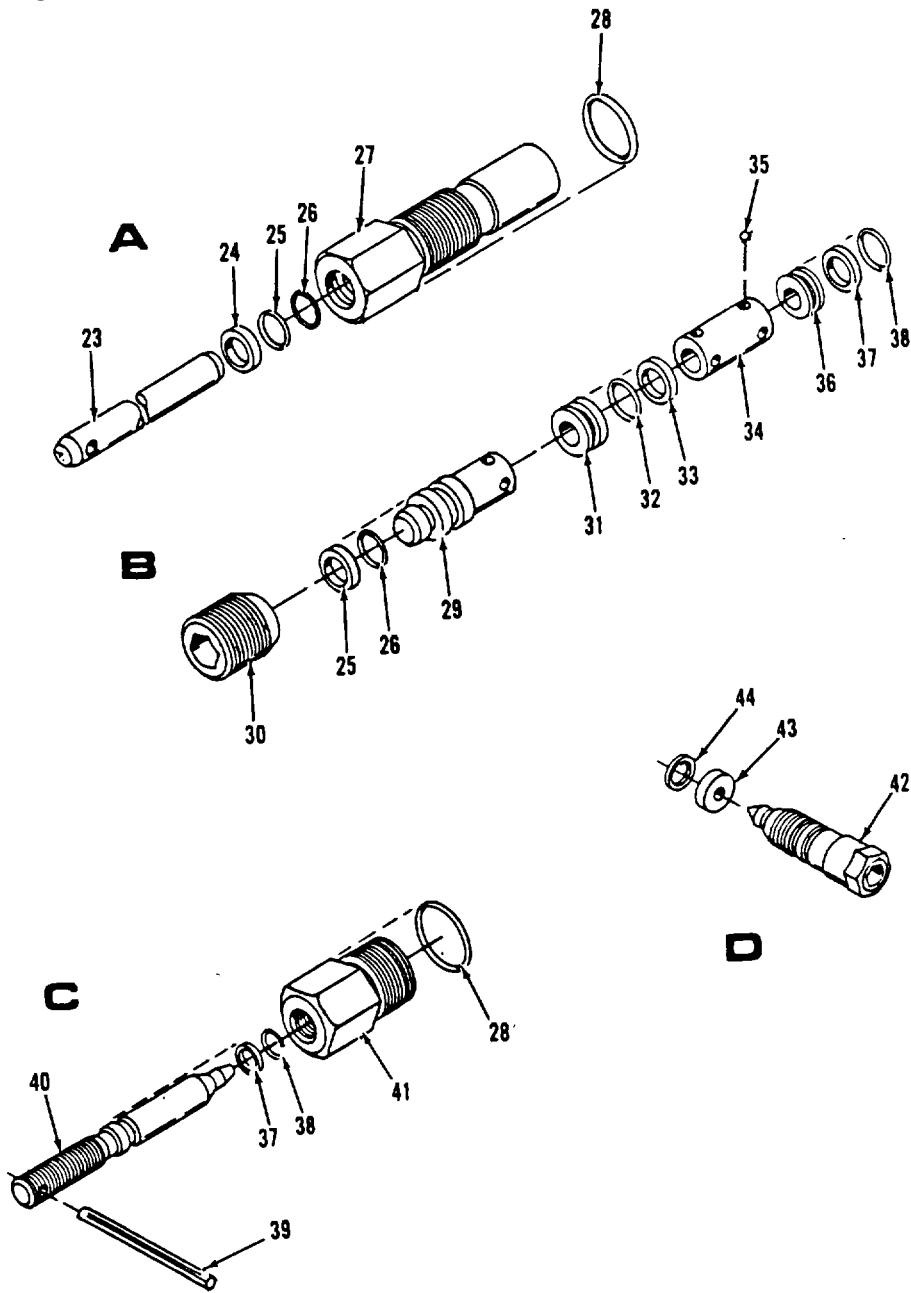
## HYDRAULIC PUMP - CONTINUED

LOCATION		ITEM	ACTION	REMARKS
ASSEMBLY- CONTINUED				
26	Plate weldment (22)	Air motor assembly (8)	Screw air motor assembly (8) onto plate weldment (22).	
27	Air motor assembly (8)	Tee (10) and valve (11)	Attach to air motor assembly (8).	
28		V-retainer (9)	Secure V-retainer (9) with flat-tip screwdriver.	
<b>NOTE</b>				
Ensure new connecting link pin is being used.				
29	Lever assembly (4)	Connecting link pin (7)	Secure lever assembly (4) to plunger (23) using connecting link and pin (7).	
<b>NOTE</b>				
Ensure new clevis pin is being used.				
30	Plate weldment (22)	Clevis pin (5)	Secure lever assembly (4) to plate weldment using clevis pin (5).	
<b>NOTE</b>				
Ensure new cotter pin is being used.				
31	Lever Assembly (4)	Cotter pin (6)	Secure clevis pin (5) with cotter pin (6).	
32		Pump handle (1) and clevis pin (2)	Attach pump handle (1) to lever assembly (4) with clevis pin (2).	
<b>NOTE</b>				
Ensure new hairpin is being used.				
33	Pump handle (1)	Hairpin (3)	Secure clevis pin (2) with hairpin (3).	



HYDRAULIC PUMP - CONTINUED

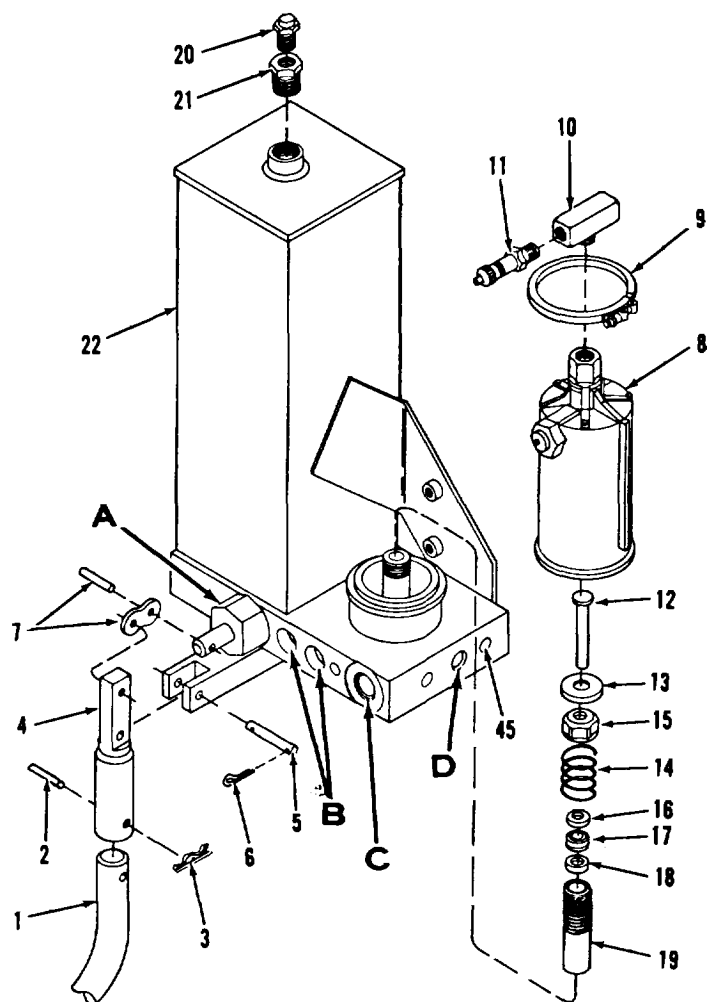
LOCATION	ITEM	ACTION	REMARKS
ASSEMBLY - CONTINUED			



# HYDRAULIC PUMP - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

## ASSEMBLY - CONTINUED



TASK ENDS HERE

**HYDRAULIC CYLINDER**

This task covers:

- a. Disassembly (page 5-29)
- b. Assembly (page 5-30)

**INITIAL SETUP****Tools**

General mechanics tool set  
Adjustable wrench  
Internal retaining ring pliers  
Box wrenches

**Materials/Parts**

Seal Kit 4960211  
Lubricating oil, PL (item 4,  
Appendix E)

**Equipment Conditions**

Hydraulic cylinder removed  
(page 4-187)

Repair consists of removal and replacement of malfunctioning/inoperative components.

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

**DISASSEMBLY****NOTE**

All hydraulic fluid should be removed from hydraulic cylinder before the cylinder is disassembled.

1	Barrel assembly (11)	Air vent valve (12) and pipe plug (13)	Unscrew and remove.
2	Sleeve (7)	Sleeve head (2)	Unscrew sleeve head (2) from sleeve (7) and remove.
3		Rod (1)	Remove rod (1) from sleeve (7).
4	Barrel assembly (11)	Barrel head (8)	Unscrew and remove barrel head (8).
5	Sleeve (7)	Piston sleeve (9)	Remove.

5-29

TM 9-2330-379-14&amp;P

**HYDRAULIC CYLINDER - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

## DISASSEMBLY- CONTINUED

- |              |  |  |
|--------------|--|--|
| 6 Rod (1)    | Piston (3), hex-head screw (4), lock washer (5), retaining ring (6), and rod O-rings (21 and 22).                | Remove by unscrewing. Discard rod O-rings (21 and 22). |
| 7 Sleeve (7) | Back-up seal (15), sleeve seal (16), sleeve wiper (17), back-up ring (18), head O-ring (19), and wiper rod (20). | Remove and discard.                                    |

## ASSEMBLY

### NOTE

Coat all parts with PL oil before assembly.

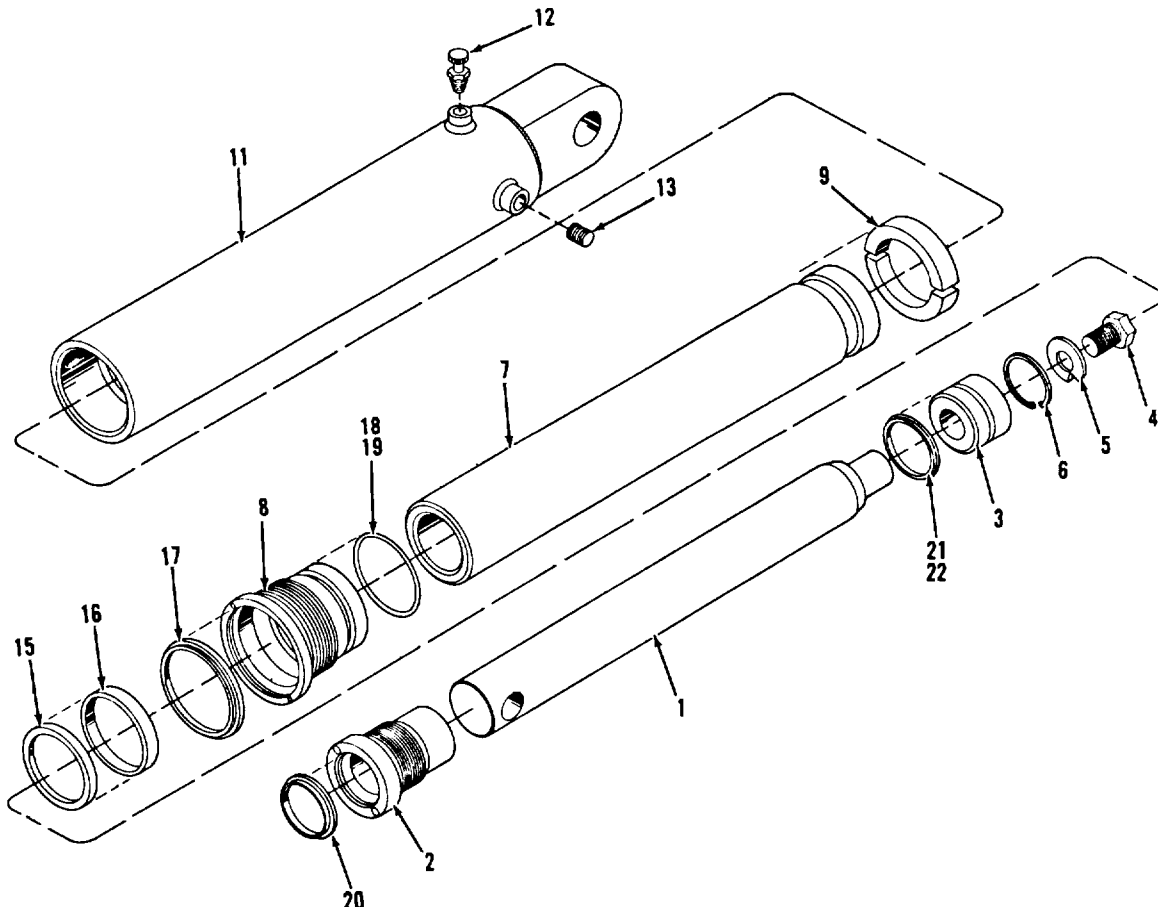
### NOTE

Only use new components from repair seal kit.

- |                         |   |   |
|-------------------------|---|---|
| 8 Sleeve (7)            | Back-up seal (15), sleeve seal (16), sleeve wiper (17), back-up ring (18), and head O-ring (19) | Place on sleeve (7) in proper sequence.                                 |
| 9 Rod (1)               | Rod O-ring (21 and 22), piston (3), retaining ring (6), lock washer (5), and hex head screw (4) | Place on rod (1) in proper sequence and secure with hex head screw (4). |
| 10 Sleeve (7)           | Piston sleeve (9)   | Mount piston sleeve (9) on sleeve (7).                                  |
| 11 Barrel assembly (11) | Barrel head (8)   | Screw in barrel head (8) into barrel assembly (11).                     |

# HYDRAULIC CYLINDER - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
ASSEMBLY - CONTINUED			
12	Sleeve (7) and barrel head (8)	Install sleeve (7) in barrel assembly (11) and secure by screwing barrel head (8) into barrel assembly (11).	
13 Sleeve (7)	Rod (1), sleeve head (2) and wiper rod (20)	Insert rod (1) and wiper rod (20) into sleeve (7), and secure by screwing sleeve head (2) into sleeve (7).	
14 Barrel assembly (11)	Air vent valve (12) and pipe plug (13)	Screw into barrel assembly (11).	



TASK ENDS HERE

## Section VIII SERVICEABILITY STANDARDS AND WEAR LIMITS

### GENERAL

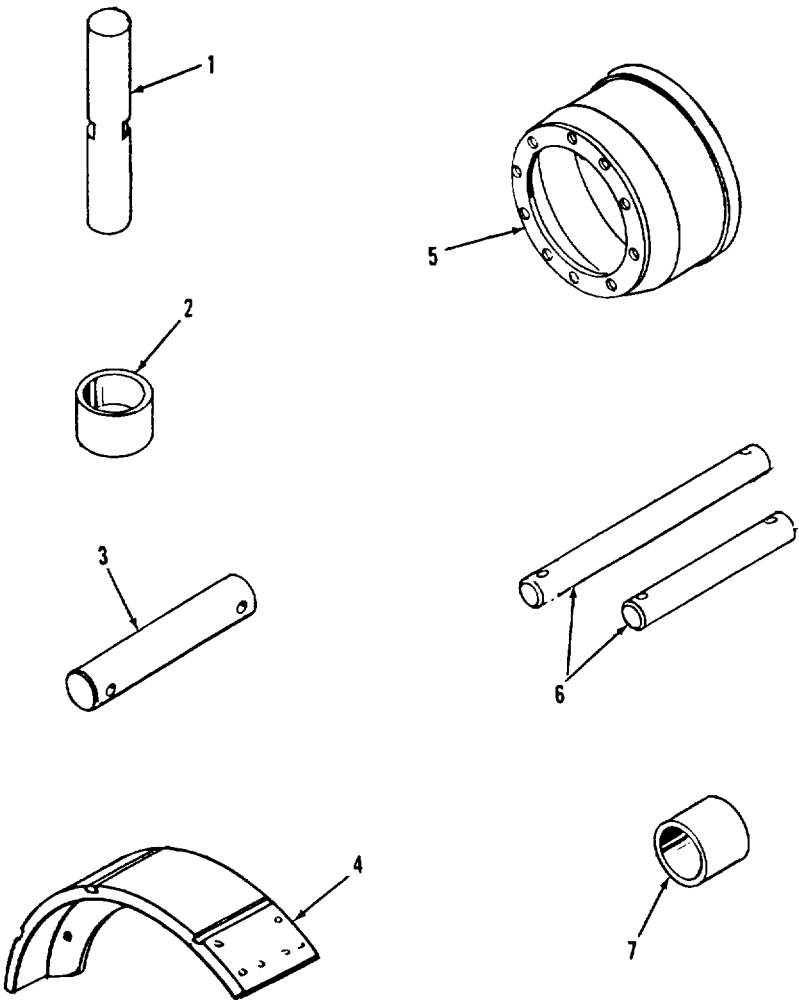
The following table lists the points of measurement of critically dimensioned parts together with the limiting dimensions for new or rebuilt parts and the extent of wear that can be tolerated. Wear limits for mating parts are given as the total combined limit of wear of both parts. Both mating parts should be replaced unless the extent of wear of one part is less than 25 percent of the combined wear, in which case only the most worn part need be replaced.

### POINTS OF MEASUREMENT

The points at which critical dimensions require measurement are illustrated in the accompanying figure.

ITEM	POINT OF MEASUREMENT	SIZE OR FIT OF NEW PARTS	FIELD WEAR LIMITS
1	Outside diameter of kingpin	1.792/1.793	1.787/1.788 (.005 in. max)
2	Inside diameter steering link and tow bar bushings	1.5040/1.5070	0.015 max combined with (3)
3	Outside diameter steering link and tow bar pin	1.4985/1.500	0.015 max combined with (2)
4	Minimum thickness brake lining	.5 in thk (upper non-riveted surface)	.125 in. min thk (upper non-riveted surface)
5	Maximum inside diameter brake drum	14.995/15.005	15.120 max turn down dia.
6	Outside diameter front and rear dolly upper and lower arm pins at adaptor	1.540/1.4985	0.015 max combined with (7)
7	Inside diameter front and rear dolly upper and lower arm bushings at adaptor pins	1.5040/1.5070	0.015 max combined with (6)

ITEM	POINT OF MEASUREMENT	SIZE OR FIT OF NEW PARTS	FIELD WEAR LIMITS
------	----------------------	-----------------------------	----------------------



5-33/(5-34 blank)

## APPENDIX A

## REFERENCES

## PUBLICATON INDEXES

The following indexes should be consulted frequently for latest changes or revisions, and for new publications relating to material covered in this manual.

Index of Army Motion Pictures and Related Audio-Visual Aids.....	DA PAM 108-1
Consolidated Index of Army Publications and Forms.....	DA PAM 310-1

## FORMS

Refer to DA. PAMI 738-750, the Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to the materiel.

## OTHER PUBLICATIONS

## a. Camouflage.

Color, Marking and Camouflage Painting of Military Vehicles, Construction Equipment and Materials Handling Equipment.....	TB 43-0209
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## b. Decontamination.

Chemical, Biological and Radiological (CBR) Decontamination .....	TM 3-220
Nuclear, Biological and Chemical Defense .....	FM 21-40

## C. General

Operation and Maintenance of Ordnance Materiel in Cold Weather (0 to -65°F) .....	FM 9-207
First Aid for Soldiers .....	FM 21-11
Manual for the Wheeled Vehicle Driver.....	FM 21-305
Basic Cold Weather Manual.....	FM 31-70
Northern Operation.....	FM 31-71
Railway Operating and Safety Rules (TO 45-1-5).....	TM 55-220
Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (US Army Tank-Automotive Command) .....	TM750-244-6

## d. Maintenance and Repair.

Inspection, Care and Maintenance of Antifriction Bearings.....	TM 9-214
Operator's Manual: Welding Theory and Application (TO 34W4-1-5) .....	TM 9-237
Deepwater Fording of Ordnance Materiel .....	TM 9-238
Organizational Care, maintenance and Repair of Pneumatic Tires and Inner Tubes .....	TM 9-2610-200-24
Painting Instructions for Field Use.....	TM 43-0139

A-1(A-2 blank)



**APPENDIX B****MAINTENANCE ALLOCATION CHART****Section I INTRODUCTION****B-1. GENERAL**

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

b. The Maintenance Allocation Chart (MAC) in section II designates overall authority and responsibility for the performance of maintenance functions 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 tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from section II.

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

**B-2. MAINTENANCE FUNCTIONS**

Maintenance functions will be limited to and defined as follows:

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

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

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

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

e. 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 adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is 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,

**B-2. MAINTENANCE FUNCTIONS - CONTINUED**

or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. Replace. To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the 3rd position code of the SMB 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 materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/components.

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

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

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

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

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

**B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION H - CONTINUED**

maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

- C - Operator or crew
- O - Organizational
- F - Direct Support
- H - General Support
- D - Depot

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**

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

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

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

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

e. Column 6, Tool Number. The manufacturer's part number.

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

a. Reference Code, The code recorded in column 6, Section UI.

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

## MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
06	ELECTRICAL								
0608	Junction Box	Repair Replace		1.0 0.5					
0608	Resistors	Replace		0.5					
0609	Light Assemblies	Replace		0.2					
0609	Lamp, Incandescent	Replace		0.2					
0613	Wiring Harness	Replace		0.5					
0613	Electrical Receptacles	Replace		1.0					
10	FRONT AXLE								
1000	Upper Arm Assembly	Replace			4.0				
1000	Lower Arm Assembly	Replace			6.0				
1000	Bumper	Replace		0.5					
1004	Steering Knuckle Assembly	Repair Replace		1.0	1.5				
11	REAR AXLE								
1100	Spindles	Replace		2.0					
12	Brakes								
1201	Handbrake Lever	Replace Adjust		0.5 0.2					
1201	Auxiliary Brake Lever	Replace		0.5					
		<b>B-4</b>							

## MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
1202	Service Brake Assembly	Repair		1.5					
1202	Wedge Assembly	Replace		1.0					
1208	Air Brake Chamber	Replace		1.0					
1208	Air Lines and Fittings	Replace		2.0					
1208	Gladhands	Repair		0.5					Packing Performed M4S35748-1
		Replace		0.2					
1208	Emergency-Relay Valve	Replace		0.2					
1208	Reservoir, Air Tank	Replace		1.0					
1208	Drain Cock	Replace		0.2					
13	WHEELS								
1311	Hub and Brake Drum	Replace Repair		0.5	1.5				
1311	Wheel Bearings	Replace Service Adjust		0.7 0.7 0.2					
1311	Wheels	Replace		0.5					
1313	Tires	Replace Repair		0.5	1.0				
1313	Tubes	Replace Repair Service	0.2	0.5 0.5					
		<b>B-5</b>							

## MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
14	STEERING								
1401	Steering Link	Replace		1.0					
1401	Tie Rod	Replace		0.5					
		Repair		0.5					
		Service		0.2					
15	FRAME & TOWING ATTACH- MENTS								
1501	Strut Assemblies	Replace		0.3					
		Repair		0.3					
1501	Upper Connectors	Repair		0.5					
		Replace		0.5					
1501	Connecting Link	Replace			1.5				
1501	Platform	Replace		3.0					
1501	Locking Lug	Repair		0.5					
		Replace		0.5					
1501	Adapter, Front and Rear	Replace		10.0					
1503	Pintle	Replace		0.3					
1503	Towbar	Replace		1.5					
		Repair		0.5					
1507	Casters	Replace	0.2						
		Repair		0.5					
		Service	0.2						
1601	Air Spring	Replace		1.0					
1604	Shock Absorber	Replace		0.5					
		<b>B-6</b>							

## MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
1605	Torsion Bar	Replace Repair		1.0 0.5					
18	BODY								
1808	Toolbox	Replace		0.4					
22	ACCESSORY ITEMS								
2202	Reflectors	Replace		0.2					
2210	Data Plates	Replace		0.2					
24	HYDRAULIC SYSTEM								
2401	Hydraulic Pump	Replace Repair Service	0.5	0.5	1.5				
2401	Air Motor	Replace		0.5					
2406	Hydraulic Lines	Replace		1.0					
2407	Hydraulic Cylinder	Replace Repair		0.5	1.0				
		<b>B-7</b>							

## TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE CATEGORY	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1		Upper Lock Pin		6960645
2		Lower Lock Lug		6300229
3		Air Chuck Hose Assy		5961273
4		Socket		GGG-W-641 1 15/16"
5		Socket		GGG-W-641 15/16"
6		Strap Assy		5961358
7		Strong Arm		5300703
8		Nuts		MIS35692-2202
9		Plugs		4960311
10		Wrench		6300271
B-8				



**APPENDIX C****COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS****Section I INTRODUCTION****SCOPE**

This appendix lists components of end item and basic issue items for the dolly set to help you inventory items required for safe and efficient operation.

**GENERAL**

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.

Section III. Basic Issue items. These are the minimum essential items required to place the dolly set in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the dolly set 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.

**EXPLANATION OF COLUMNS**

The following provides an explanation of columns found in the tabular listings:

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

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

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.

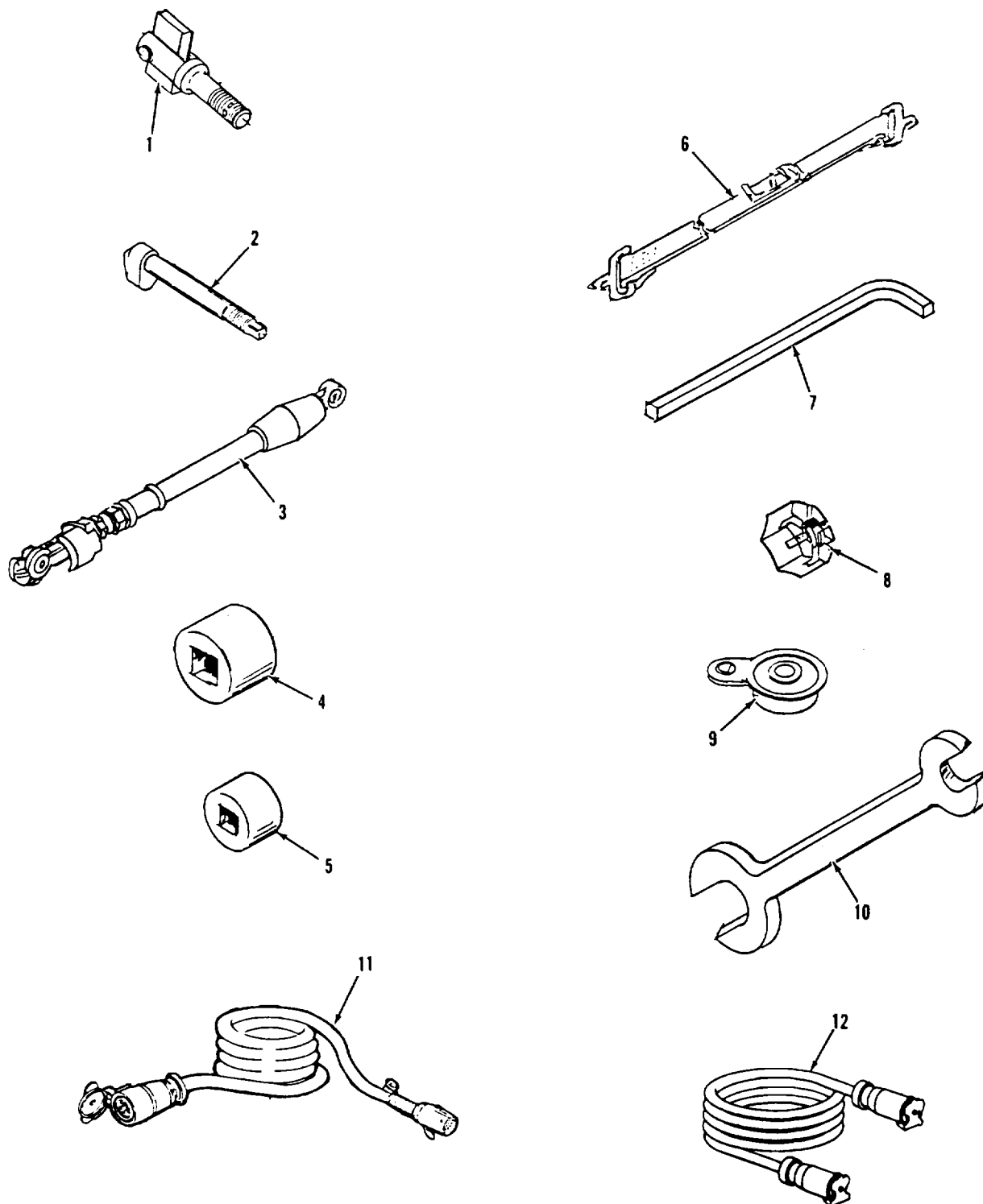
Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr).

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

None authorized.

## Section III BASIC ISSUE ITEMS



## Section III BASIC ISSUE ITEMS - CONTINUED

(1) ILLUS NUMBER	(2) NATO STOCK NUMBER	(3) DESCRIPTION (FSCM ) and Part Number	Usable On Code	(4) U/M	(5) QTY Rqr
1		UPPER LOCK PIN 6960645		Ea	4
2	5307-01-266-9779	LOWER LOCK LUG 6300229 (16128)		Ea	4
3	4730-01-266-5594	AIR CHUCK HOSE ASSY 5961273 (16128)		Ea	1
4	5130-00221-2019	SOCKET IM-423 (28356) 1-15/16"		Ea	1
5	5130-01-026-8330	SOCKET IM-303 (55719) 15/16-		Ea	1
6	5340-01-280-6346	STRAP ASSY 5961358 (16128)		Ea	2
7	5120-01-268-3543	STRONG ARM (HANDLE) 5300703 (16128)		Ea	1
8		NUTS MS35692-2202 (96906)		Ea	4
9		PLUGS 4960311 (16128)		Ea	2
10		WRENCH 6300271 (16128)		Ea	2
11	6150101-77-0088	ELECTRICAL CABLE, INTERVEHICULAR 5300400-002		Ea	1
12	6150101-77-0089	ELECTRICAL CABLE, INTERDOLLY 5300401		Ea	1
		<b>C-3/(C-4 blank)</b>			

**APPENDIX D**

**ADDITIONAL AUTHORIZATION LIST**

**Section I INTRODUCTION**

**SCOPE**

This appendix lists additional items you are authorized for the support of the M1022 Dolly Set.

**GENERAL,**

This list identifies items that do not have to accompany the M1022 Dolly Set and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

**EXPLANATION OF LISTING**

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you.

**Section II ADDITIONAL AUTHORIZATION LIST**

None authorized.

**D-1/(D-2 blank)**

**APPENDIX E****EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST****Section I INTRODUCTION****SCOPE**

This appendix lists expendable/durable supplies and materials you will need to operate and maintain the 1M1022 Dolly Set. This listing is for information purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

**EXPLANATION OF COLUMNS**

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

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

C - Operator/Crew

O - Organizational Maintenance

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

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

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

**Section II EXPENDABLE SUPPLIES AND MATERIALS LIST**

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	0	9150-01-059-2586	Brake fluid, Silicone, Automotive MIL-B-46176 (81349) 1 gallon can	gl
2	0	9150-00-190-0906	Grease, automotive and artillery, GAA, MIL-G-10924 (81349) 1 pound can	ea
<b>E-1</b>				

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
3	0		Hydraulic fluid, petroleum base, OHA, MIL-H-5606 (81349)	
		9150-00-252-6383	1 quart can	ea
		9150-00-223-4134	1 gallon can	ea
		9150-00-082-7524	10 gallon drum	ea
		9150-00-265-9408	55 gallon drum	ea
4	0	9150-00-231-6689	Oil, lubricating preservative PL-S VV-L-800 (81348)	qt
5	C		Solvent, drycleaning type III, federal specification PD-680 (81348)	
		6850-00-664-5685	1 quart can	ea
		6850-00-281-1985	1 gallon can	ea
6	0	5970-01218-6290	Tape, electrical HH-I-595-108-0 (81348) Roll, 108 ft.	ea
7	0	7510-01-242-6476	Tape, masking Roll	ea
8	0	8030-00-889-3534	Tape, antiseize, type II MIL-T-27730 (81349) Roll, 1/4 inch wide x 260 inches long	ea
9	0	8030-00-907-3961	Sealant, liquid pipe, loctite with teflon (05972) 2 oz can	ea
10	0	8040-00-843-0802	Adhesive MIL-A-46106 TY1 (80144) 3 oz tube	ea
E-2				

## APPENDIX F

## REPAIR PARTS AND SPECIAL TOOLS LISTS

## Section I INTRODUCTION

1. Scope.

This manual lists and authorizes spares and repair parts; special tools; special Test, Measurement, and Diagnostic Equipment (TMDE); and other special support equipment required for performance of organizational, direct support, and general support maintenance of the Dolly Set. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the Source, maintenance and Recoverability (SMR) codes.

2. General.

This repair Parts and Special Tools List is divided into the following sections:

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

b. Section III. Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized by the RPSTL for the performance of maintenance. Not applicable.

c. Section IV. National Stock Number and Part Number Index. A list, in National Item Identification Number (NIIN) sequence, of all National Stock Numbers (NSN) appearing in the listings, followed by a list in alphanumeric sequence of all part numbers appearing in the listing. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

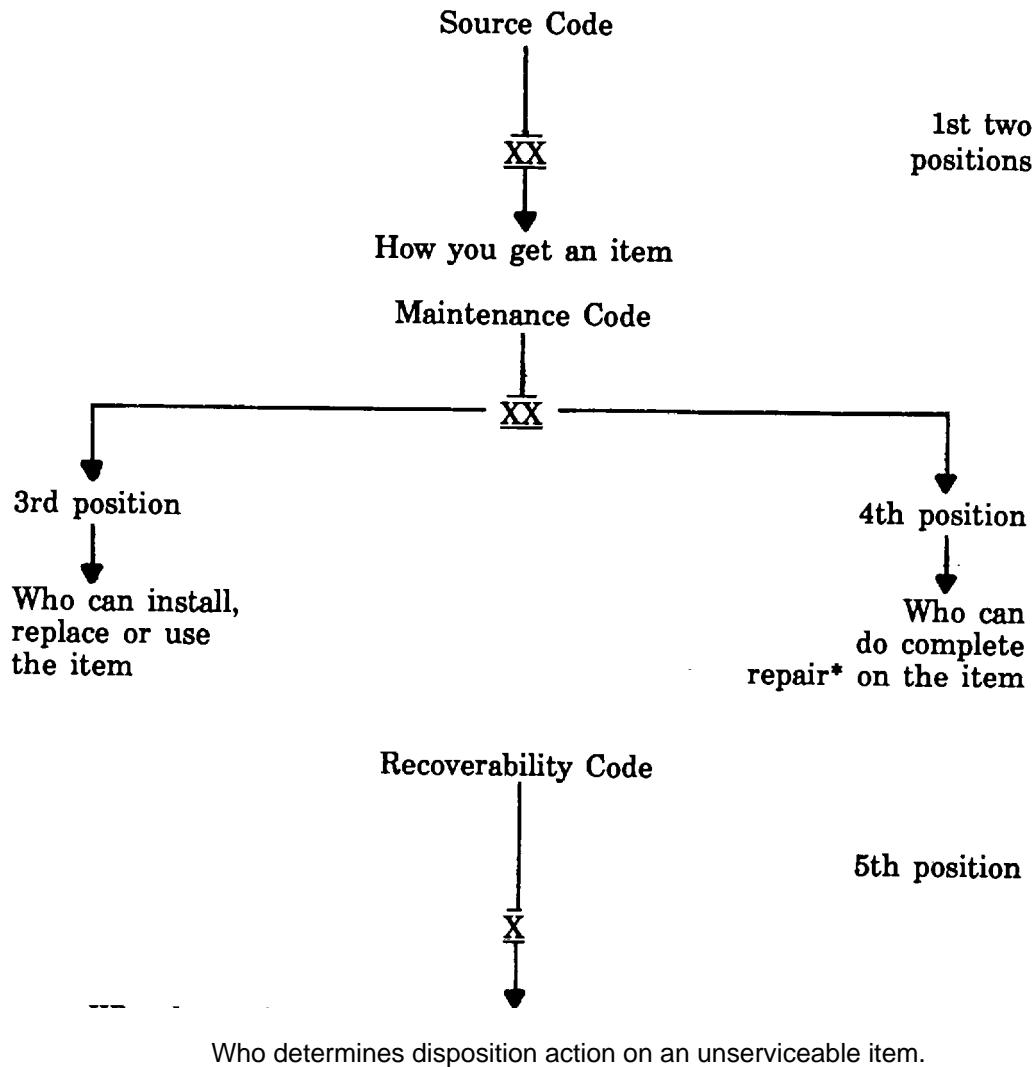
3. Explanation of Columns.

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

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

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

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



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

(2) **Source Code.** The source code tells you how you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Source codes are always the first two positions of the SMR code. Explanations of source codes follow:

Code	Explanation
PA	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3d position of the SMR codes.
PB	
PC	
PD	
PE	
PF	
PG	



KD Items with these codes are not to be requested/requisitioned individually.  
 KF They are part of a kit which is authorized to the maintenance category  
 KB indicated in the 3d position of the SMR code. The complete kit must be requisitioned and applied.

MO-(Made at Org Category) Items with these codes are not to be requested/requisitioned ually. They must be made from bulk material which is identified by NSN in the Description column and listed in the Bulk Material group in the repair parts list in this manual. If the item is MH-authorized to you by the 3d position code of the SMR code, but the source code indicates it is made at a higher category, order the item from the higher category of maintenance.  
 MS-(Made at DS Category)  
 MH-(Made at GS Category)  
 MD-(Made at Depot)

AO-(Assembled by Org Category) Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the category of maintenance indicated by the source code. If the 3d position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher category, order the higher category of maintenance.  
 AF-(Assembled by DS Category)  
 AH-(Assembled by GS Category)  
 AD-(Assembled by Depot)

XA Do not requisition an "XA"-coded item. Order its next higher assembly. (Also, refer to the NOTE below.)  
 XB If an "XB" item is not available from salvage, order it using the FSCM and part number given.  
 XC Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number. Not applicable.  
 XD Item is not stocked. Order an 'XD"-coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

NOTE: Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded 'XA'.

(2) Maintenance Code. Maintenance codes tell you the category(s) of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR Code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance category authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following categories of maintenance.

Code	Application/Explanation
C	-Crew or operator maintenance done within organization maintenance.
O	-Organizational category can remove, replace, and use the item.

- F -Direct support category can remove, replace, and use the item.
- H -General support category can remove, replace, and use the item.
- L -Specialized repair activity can remove, replace, and use the item.
- D -Depot category can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance category with the capability to do complete repair (i.e., perform all authorized repair functions). (NOTE: Some limited repair may be done on the item at a lower category of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes) This position will contain one of the following maintenance codes.

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

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

Recover- ability Codes	Definition
Z	-Nonreparable item. When unserviceable, condemn and dispose of the item at the category of maintenance shown in 3d position of SMR Code.
O	-Reparable item. When uneconomically reparable, condemn and dispose of the item at organization category.
F	-Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support category.

- H category. -Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support category.
- D -Reparable item. When beyond lower category repair capability, return to depot. Condemnation and disposal of item not authorized below depot category.
- L -Reparable item. Condemnation and disposal not authorized below specialized repair activity.
- A -Item requires special handling or condemnation procedures because of specific reasons (i.e., precious metal content, high dollar value, critical material or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. NATIONAL STOCK NUMBER (Column (3)). List the National Stock Number (NSN) assigned to the item. Use the NSN for requests/requisition.

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

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

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

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

- (1) The Federal item name and, when required, a minimum description to identify the item.
- (2) the physical security classification. Not applicable.
- (3) Items that are included in kits and sets are listed below the name of the kit or set.
- (4) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry. If the first item of a figure is indented, the assembly appears as the last item in the previous figure.
- (5) NSN's for bulk materials are referenced in the description column in the line item entry for the item to be manufactured/fabricated.
- (6) 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.
- (7) The USABLE ON CODE. Not applicable.

(8) In the Special Tools List section, the Basis of Issue (1301) appears as the last line(s) in the entry for each special tool, special THME, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.

g. U/M (Column (7)). The Unit of Measure (U/M) indicates the measure (eg, foot, gallon, pound) or count (e.g., FT, GL, LB, EA, DZ, GR) appears in this column to indicate the measure or count. If the U/M code appearing in this column differs from the Unit of Issue (U/I) code listed in the Army Master Data File (AMDF), request the lowest U/I that will satisfy your needs.

h. QTY INC IN UNIT (Column (8)). The Quantity Incorporated in Unit (QTY INC IN UNIT) indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that no specific quantity is applicable (e.g., shims, spacers).

#### 4. SPECIAL INFORMATION.

a. Bulk materials required to manufacture items are listed in the Bulk Material Group of this manual. NSN's for bulk materials are also referenced in the description column of the line item entry for the item to be manufactured/fabricated. Detailed manufacturing instructions for items source coded to be manufactured or fabricated are found in the appropriate appendices of this manual.

b. Detailed assembly instructions for items source coded to be assembled from component spare/repair parts are found in the appropriate appendices of this manual. Items that make up the assembly are listed immediately following the assembled item entry.

c. Line item entries for repair kits and sets appear as the last entries in the repair parts listing for the figure in which their parts are listed as repair parts.

d. Items which have the work BULK in the figure number column will have an index number shown in the item number column. This index number is furnished for use as a cross-reference between the National Stock Number/Part Number Index and the Bulk Material List in Section 11.

#### 5. How to Locate Repair Parts.

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

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

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

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

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

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

(1) first. Using the Index of National Stock Numbers and Part Numbers, find the pertinent National stock number or part number. The NSN index is in National Item Identification Number (NIIN)\* sequence. The part numbers in the Part Number index are listed in ascending alphanumeric sequence. Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

\*The NIIN consists of the last 9 digits of the NSN.

NSN

(i.e., 5305-01-674-1467).

NIIN

(2) Second. After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

6. Abbreviations.

For standard abbreviations see MIL-STD-12D, Military Standard Abbreviations For Use On Drawing, Specifications, Standards And in Technical Documents.

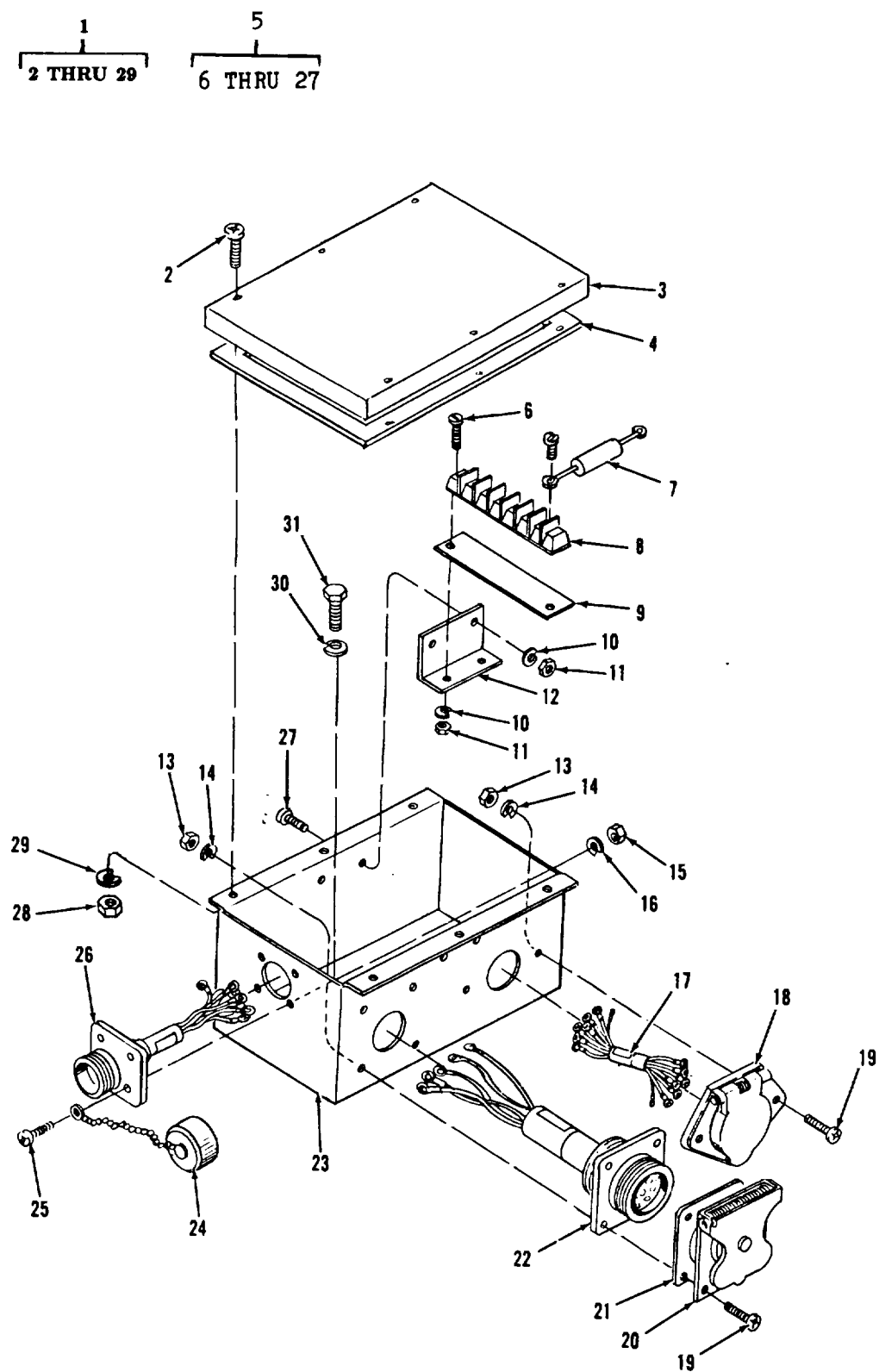


FIGURE 1. JUNCTION BOX

SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 06 ELECTRICAL SYSTEM

0608 JUNCTION BOXC

FIG 1. JUNCTION BOX

1	PFOOO	16128	6960641	DISTRIBUTION BOX .....	1
2	PAOZZ	96906	MS35206-281	SCREW,MACHINE .....	6
3	PFOZZ	16128	5300406	COVER,SPECIAL .....	1
4	PAOZZ	16128	5961190	GASKET .....	1
5	XAOZZ	16128	6960640	JUNCTION BOX .....	1
6	PAOZZ	96906	MS35206-265	SCREW,MACHINE .....	4
7	PAOZZ	12697	VC10F-20	RESISTOR,FIXED,WIRE .....	3
8	PFOZZ	83330	812JJ6	TERMINAL BOARD .....	2
9	PAOZZ	19207	11621410	MARKER STRIP,TERMIN .....	2
10	PAOZZ	96906	MS35338-43	WSAHER, LOCK .....	8
11	PAOZZ	96906	MS35649-202	NUT,PLAIN,HEXAGON .....	8
12	PFOZZ	16128	5300407	BRACKET,ANGLE .....	2
13	PAOZZ	96906	MS51967-2	NUT,PLAIN,HEXAGON .....	6
14	PAOZZ	96906	MS35338-44	WASHER,LOCK .....	6
15	PAOZZ	96906	MS35649-242	NUT,PLAIN,HEXAGON .....	4
16	PAOZZ	96906	MS35338-40	WASHER,LOCK .....	4
17	PFOZZ	16128	5300404	CABLE ASSEMBLY SET .....	1
18	PFOZZ	98343	752HD	CONNECTOR,PLUG,ELEC.....	1
19	PAOZZ	96906	MS35206-281	SCREW MACHINE .....	6
20	PAOZZ	19207	7731428	COVER,ELECTRICAL CO .....	1
21	PAOZZ	19207	7525965	SCREW MACHINE .....	1
22	PFOZZ	16128	5961322	WIRING HARNESS .....	1
23	XAOZZ	16128	6960514	JUNCTION BOX .....	1
24	PAOZZ	96906	MS25043-22DA	COVER,ELECTRICAL CO.....	1
25	PAOZZ	96906	MS35206-216	SCREW, MACHINE .....	4
26	PFOZZ	16128	5961353	WIRING HARNESS .....	1
27	PAOZZ	96906	MS35206-262	SCREW,MACHINE .....	4
28	PAOZZ	96906	MS51967-2	NUT,PLAIN,HEXAGON .....	6
29	PAOZZ	96906	MS35338-44	WASHER,LOCK .....	6
30	PAOZZ	96906	MS35338-44	WASHER, LOCK .....	2
31	PAOZZ	96906	MS51957-81	SCREW, MACHINE .....	2

END OF FIGURE

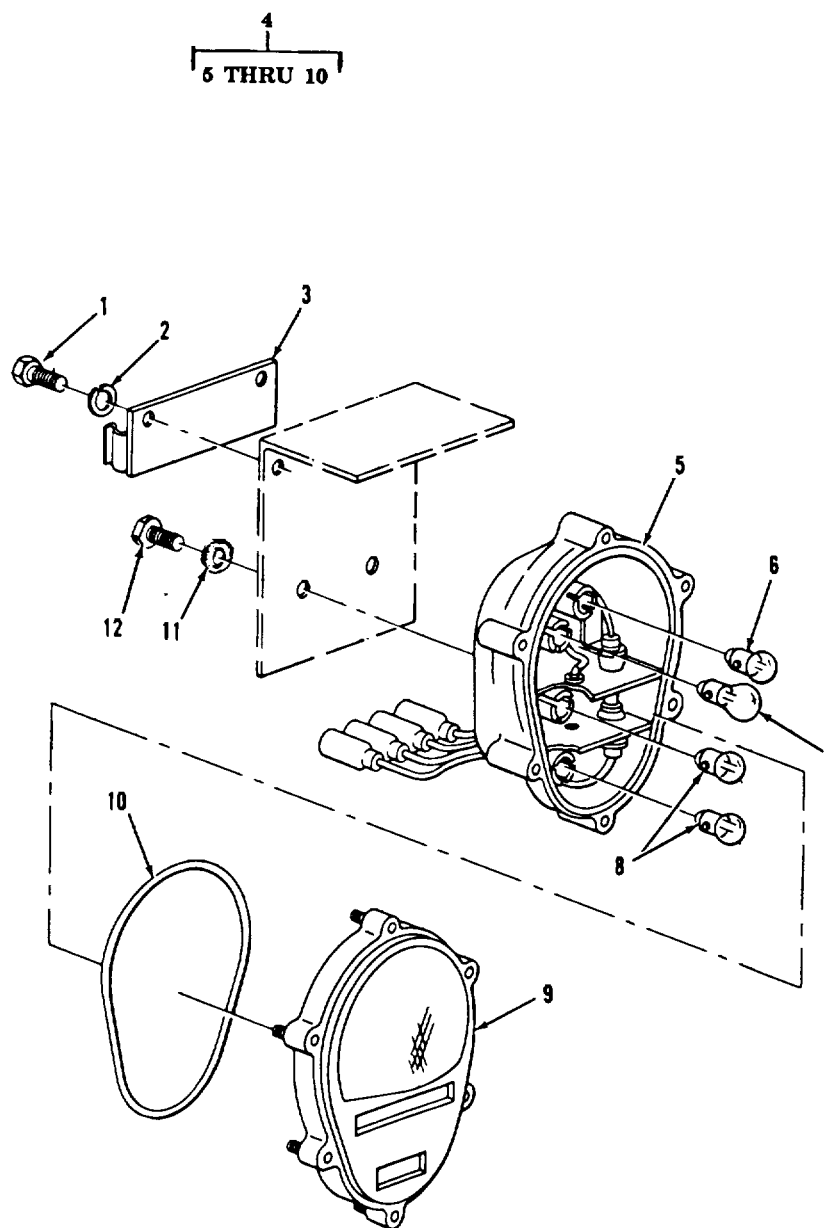


FIGURE 2. LIGHTS



SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

0609 LIGHTS  
FIG. 2 LIGHTS

1	PAOZZ	96906	MS51957-42	SCREW, MACHINE .....	4
2	PAOZZ	96906	MS35338-137	WASHER, LOCK .....	4
3	PAOZZ	19207	8747908-1	CLIP ASSEMBLY .....	1
4	PAOOO	96906	MS52125-1	STOP LIGHT-TAILLIGHT .....	2
5	PAOZZ	19207	11639520	BODY ASSEMBLY .....	1
6	PAOZZ	96906	MS15570-89	LAMP, INCANDESCENT .....	1
7	PAOZZ	96906	MS35470-1073	LAMP, INCANDESCENT .....	1
8	PAOZZ	96906	MS15570-1251	LAMP, INCANDESCENT .....	2
9	PAOZZ	19207	11639535	LENS, LIGHT .....	1
10	PAOZZ	19207	11639519-2	PACKING, PREFORMED .....	1
11	PAOZZ	96906	MS35335-35	WASHER, LOCK .....	4
12	PAOZZ	96906	MS18154-58	SCREW, CAP, HEXAGON H .....	4

END OF FIGURE

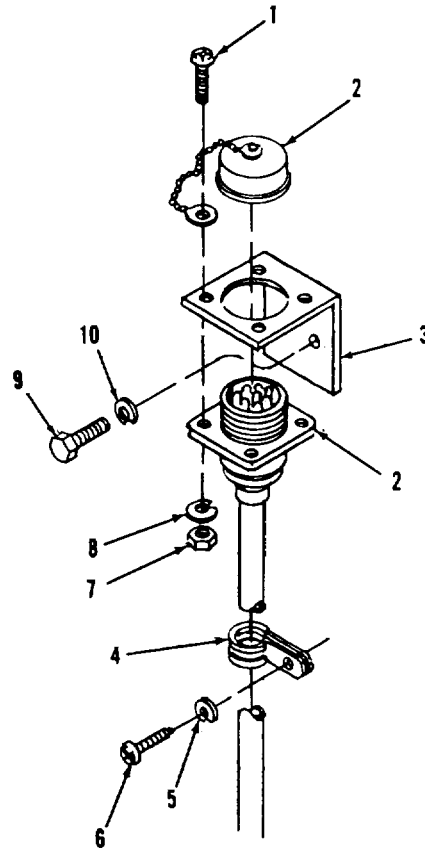


FIGURE 3. REAR WIRING HARNESS

SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

0613 WIRING HARNESSSES  
FIG. 3. REAR WIRING HARNESS

1	PAOZZ	96906	MS35206-218	SCREW,MACHINE .....	4
2	PAOZZ	16128	6960624	CABLE ASSEMBLYPSPEC.....	1
3	PFOZZ	16128	4960108	CLIP,SPECIAL .....	1
4	PAOZZ	96906	MS21919WDG8	CLAMP,LOOP.....	8
5	PAOZZ	96906	MS35338-43	WASHER,LOCK .....	8
6	PAOZZ	96906	MS35207-264	SCREW,MACHINE .....	8
7	PAOZZ	96906	MS35649-242	NUT,PLAIN,HEXAGON .....	4
8	PAOZZ	96906	MS35338-40	WASHER,LOCK .....	4
9	PAOZZ	96906	MS90727-6	SCREW,CAP,HEXAGON H .....	2
10	PAOZZ	96906	M535338-44	WASHER,LOCK .....	2

END OF FIGURE

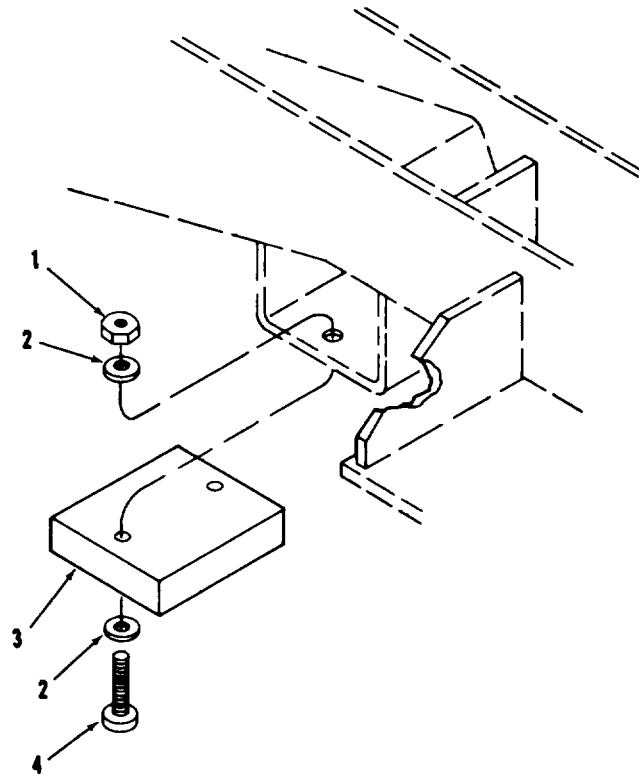


FIGURE 4. BUMPER

SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 10 FRONT AXLE  
1000 FRONT AXLE ASSEMBLY  
FIG. 4. BUMPER

1	PAOZZ	96906	MS51922-1	NUT,SELF-LOCKING,HE .....	8
2	PAOZZ	96906	MS27183-10	WASHER,FLAT .....	16
3	PAOZZ	16128	5300654	BUMPER,NONMETALLIC FRONT AND REAR .....	2
4	PAOZZ	96906	MS35206-285	SCREW.MACHINE .....	8

END OF FIGURE

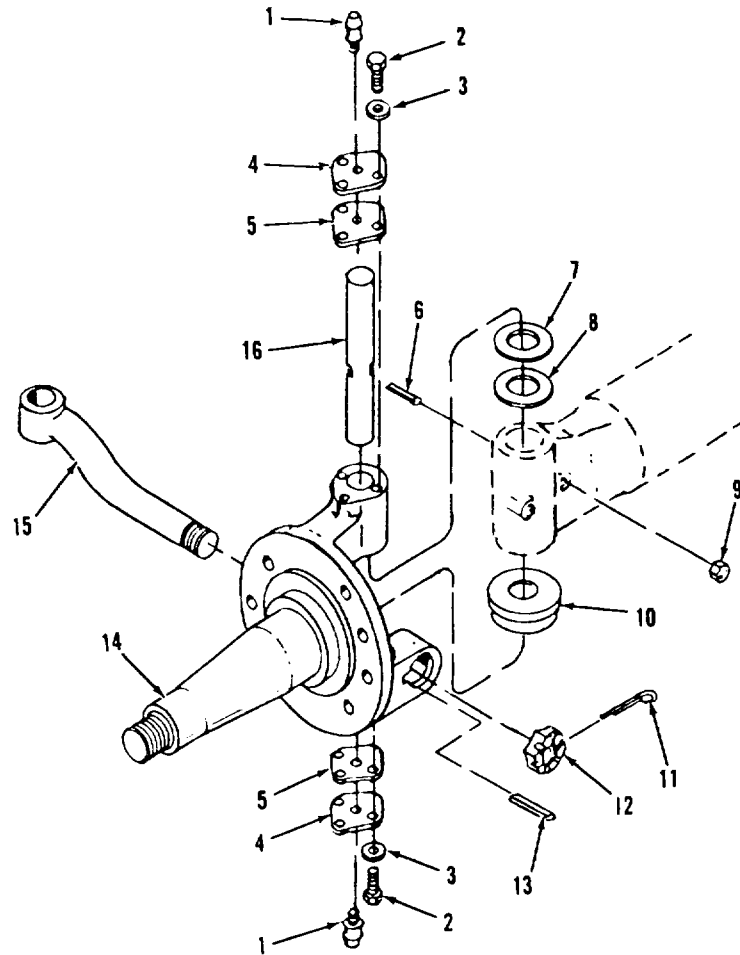


FIGURE 5. KNUCKLE ASSEMBLY

SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

1004 STEERING WHEEL MECHANISM  
FIG. 5. KNUCKLE ASSEMBLY

1	PAOZZ	78500	1199-N-1860	FITTING,LUBRICATION.....	4
2	PAOZZ	96906	MS90728-34	BOLT,MACHINE .....	12
3	PAOZZ	96906	MS9321-11	WASHER,FLAT .....	12
4	PAOZZ	78500	2297-T-4752-S	COVER,ACCESS .....	4
5	PAOZZ	78500	2208-0-823	GASKET .....	4
6	PAOZZ	78500	7X-111	KEY .....	2
7	PAOZZ	78500	2201-K-3001	ISOLATOR,RADIO FREQ .....	2
8	PAOZZ	78500	2203-L-3002	ISOLATOR,RADIO FREQ .....	2
9	PAOZZ	78500	1227-Z-780	NUT,PLAIN,HEXAGON .....	2
10	PAOZZ	78500	A-1205-B-1432	SEAL,PLAIN ENCASED .....	2
11	PAOZZ	96906	MS24665-498	PIN,COTTER .....	2
12	PAOZZ	96906	MS35692-1824	NUT,PLAIN,SLOTTED,H .....	2
13	PAOZZ	78500	16X-202	KEY .....	2
14	PAOOO	78500	A-3111-K-3001	KNUCKLE ASSY,STRG,LH.....	1
14	PAOOO	78500	A-3111-L-3002	SPINDLE,WHEEL,DRIVI RH .....	1
15	PAOZZ	78500	3133-F-6324-S	ARM,STEERING GEAR LH.....	1
15	PAOZZ	78500	3133-H-6326	ARM,STEERING GEAR RH .....	1
16	PAOZZ	78500	3101-W-179	PIN .....	2

END OF FIGURE

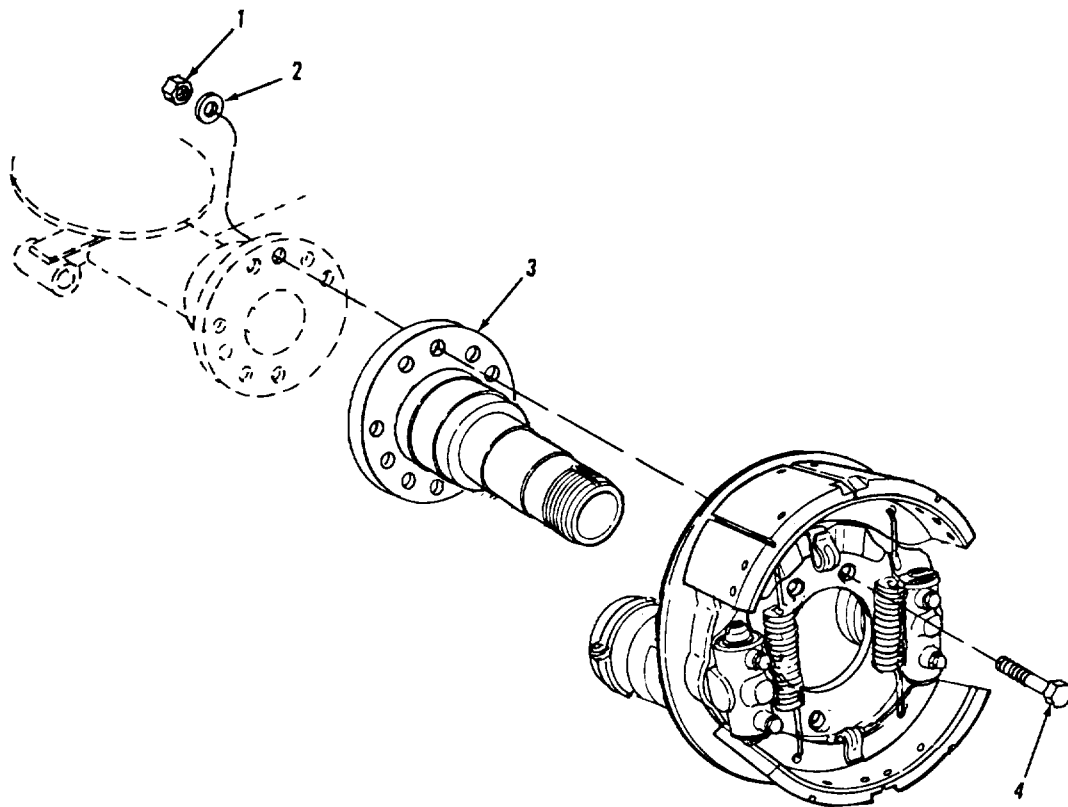


FIGURE 6. REAR SPINDLES



SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 11 REAR AXLE  
 1100 REAR AXLE ASSEMBLY  
 FIG. 6. REAR SPINDLES

1	PAOZZ	78500	NL-110-1	NUT,HEX .....	16
2	PAOZZ	78500	1229-U-1503	WASHER,FLAT .....	16
3	PFOZZ	78500	3213-N-1574-S	SPINDLE,WHEEL,DRIVE.....	2
4	PAOZZ	78500	20-X-253-S	BOLT,DRIVE SHANK .....	16

END OF FIGURE

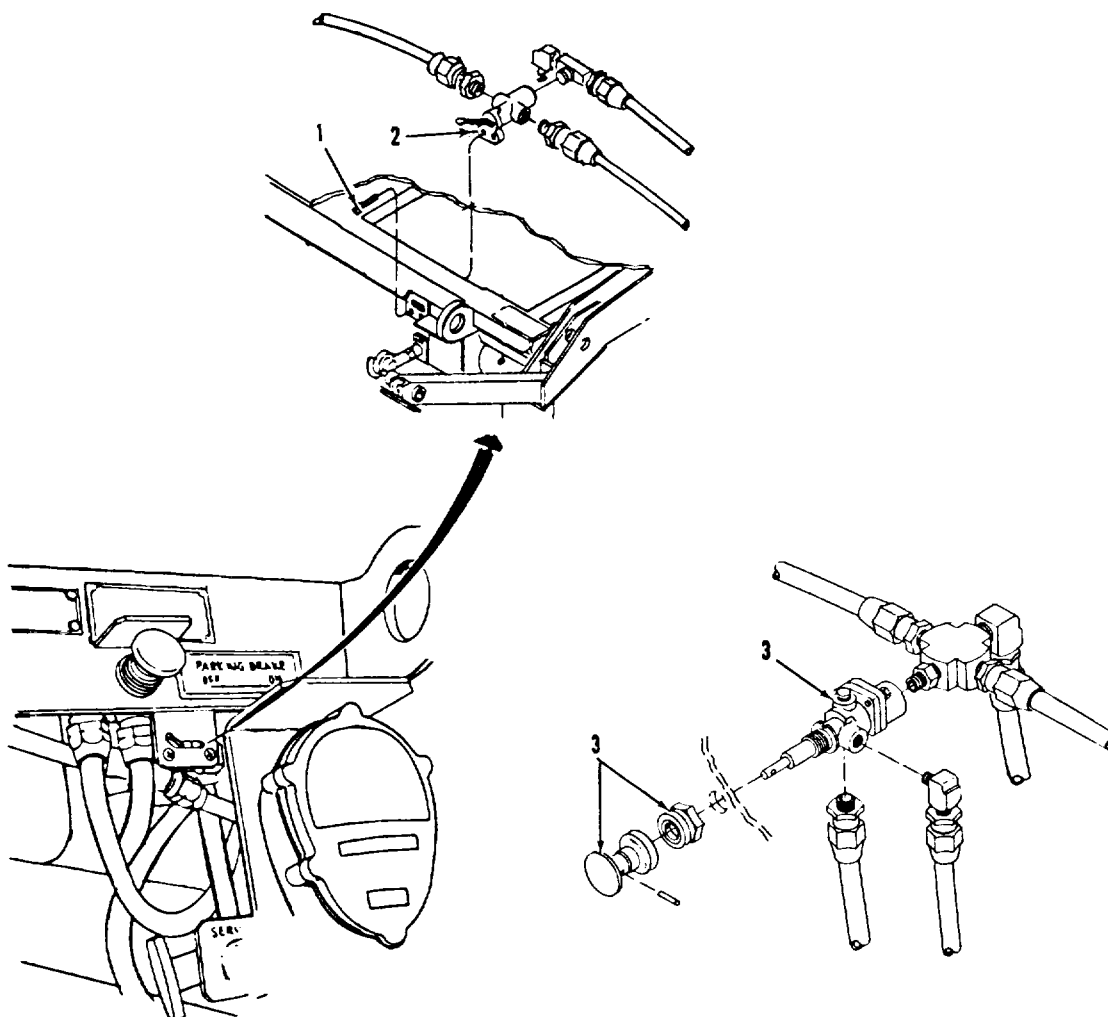


FIGURE 7. HANDBRAKE AND AUXILIARY BRAKE LEVERS

SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 12 BRAKES  
 1201 HANDBRAKES  
 FIG. 7. HANDBRAKES AND AUXILIARY  
 BRAKE LEVERS

1	PAOZZ	96906	MS35206-265	SCREW,MACHINE .....	2
2	PAOZZ	06853	283040	VALVE,CROSS,CONTROL .....	1
3	PAOZZ	06853	104671(PP-1)	VALVE,GATE,CONTROL .....	2

END OF FIGURE

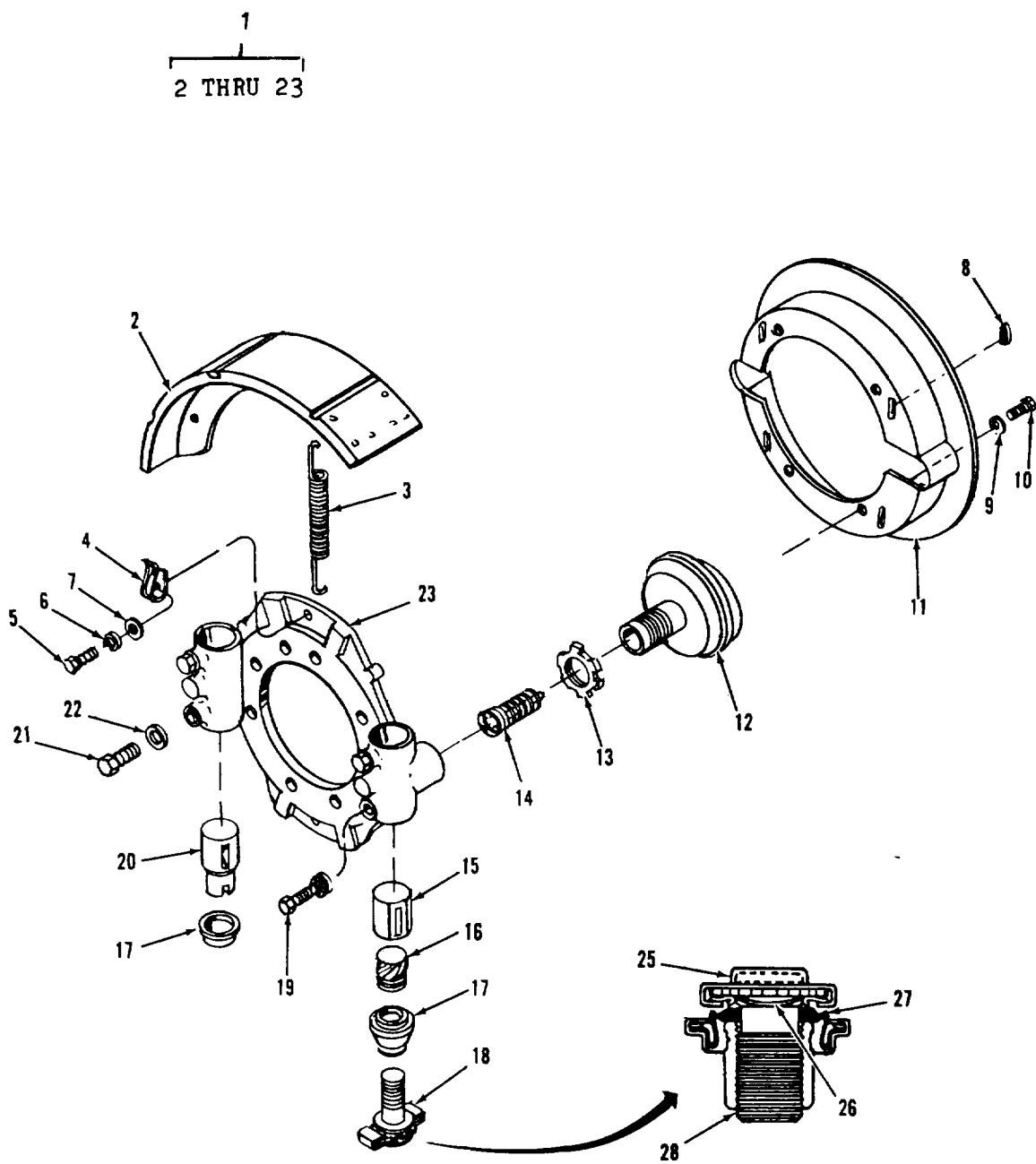


FIGURE 8. SERVICE BRAKE ASSEMBLY

## SECTION II

TM9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
1202 SERVICE BRAKES					
FIG. 8. SERVICE BRAKE ASSEMBLY					
1	XDOZZ	78500	RSA-1550-735	BRAKE ASSY REAR .....	1
1	XDOZZ	3H814	RA-1550-736	BRAKE ASSY,REAR,RH FRONT,LH .....	1
1	XDOZZ	78500	RSA-1550-733	BRAKE ASSY,LH .....	1
1	XDOZZ	78500	RSA-1550-734	BRAKE ASSY,RH .....	1
2	PAOZZ	78500	A8-3722-T-358	BRAKE SHOE SET,INTE .....	2
3	PAOZZ	78500	2258E629	SPRING,HELICAL,COMP .....	2
4	PAOZZ	78500	1718D134	CLIP FRONT DOLLY .....	2
5	PAOZZ	78500	2258E629	SPRING,HELICAL,COMP .....	2
6	PAOZZ	78500	WA-14C	WASHER,LOCK .....	2
7	PAOZZ	78500	N-14	NUT,PLAIN,HEXAGON .....	2
8	PAOZZ	78500	1707-C-3	CAP-PLUG,PROTECTIVE .....	6
9	PAOZZ	93799	WA-15	WASHER,LOCK .....	4
10	PAOZZ	78500	S-255	SCREW .....	4
11	PAOZZ	78500	3736-M-325	PLATE,BACKING,BRAKE .....	1
12	PAOZZ	78500	Y12-3276-L-12	CHAMBER,AIR BRAKE REAR WHEELS .....	2
13	PAOZZ	78500	1727N40	NUT, SELF-LOCKING,SI .....	1
14	PAOZZ	78500	A-2747-H-112	WEDGE ASSEMBLY .....	1
15	PAOZZ	78500	2297J2376	PLUNGER,ADJUSTING .....	2
16	PAOZZ	78500	2297N3212	SEAL .....	2
17	PFOZZ	78500	A1705K219	SEAL,PLAIN ENCASED .....	4
18	PAOZZ	78500	A2297L3158	BOLT .....	2
19	PAOZZ	78500	A-1199-Z-3432	KIT,GUIDE,AIR BRAKE .....	2
20	PAOZZ	78500	2797C419	PLUNGER,ANCHCR,LEFT .....	2
20	PAOZZ	78500	2797B41	PLUNGER,ANCHOR,RH .....	2
21	PAOZZ	78500	1779M195	GUIDE,ANCHOR .....	2
22	PAOZZ	78500	1729B262	WASHER,LOCK .....	4
23	XDOZZ	3H814	A1-3211-5571	SPIDER,REAR LH .....	1
23	XDOZZ	3H814	A1-3211-5571	SPIDER,REAR RH .....	1
23	XDOZZ	3H814	A1-3211-D-5022	SPIDER,FRONT,LH .....	1
23	XDOZZ	3H814	A1-3211-C-5021	SPIDER,FRONT,RH .....	1

END OF FIGURE

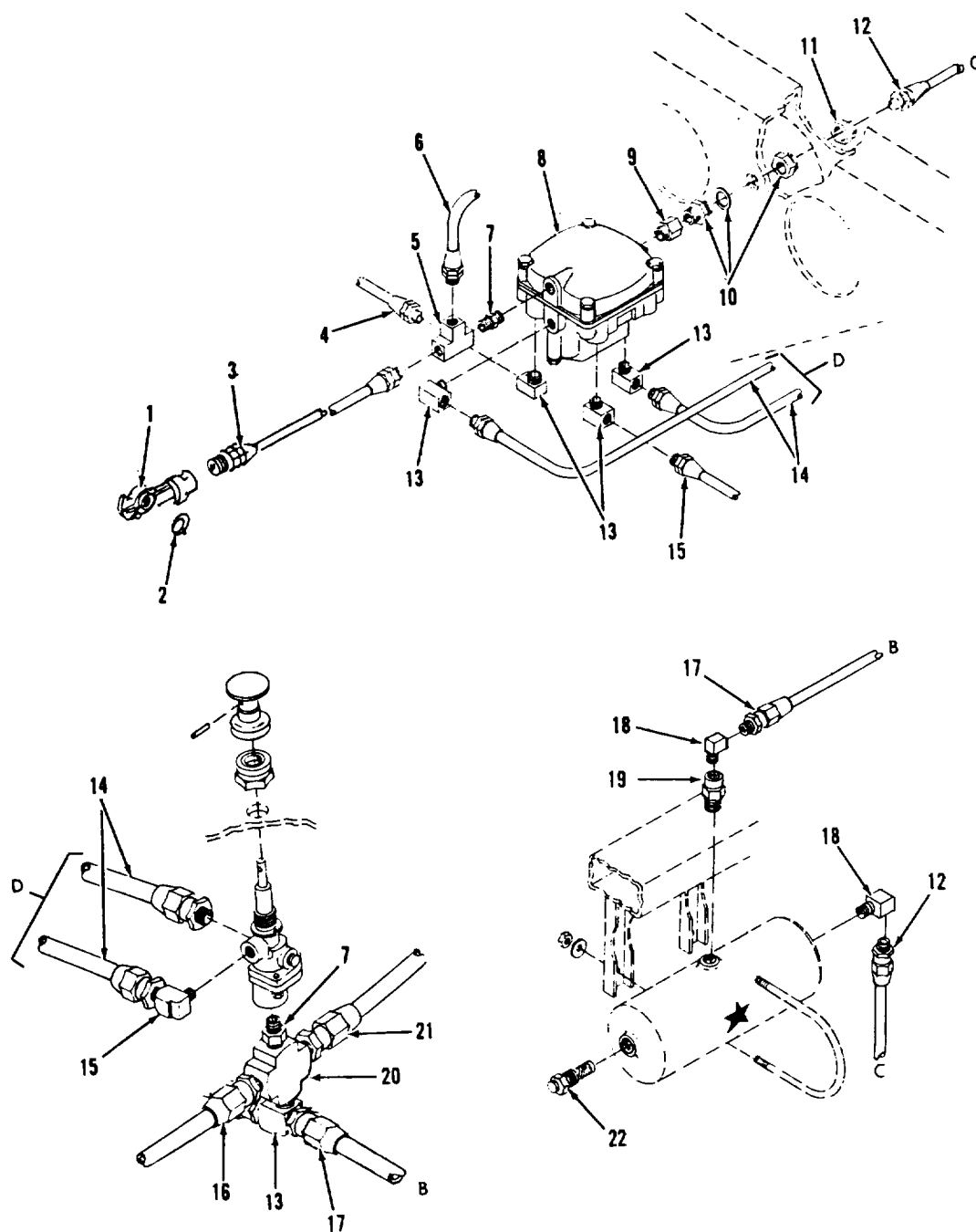


FIGURE 9. AIR LINES AND FITTINGS

SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

1208 AIR BRAKE SYSTEM  
FIG. 9. AIR LINES AND FITTINGS

1	PAOZZ	96906	MS35746-1	COUPLING HALF ,QUICK.....	4
2	PAOZZ	96906	MS35140-1	PACKING ,PREFORMED.....	4
3	PAOZZ	16128	6960644-1	HOSE ASSEMBLY,NONME .....	1
4	PAOZZ	16128	6960644-3	HOSE ASSEMBLY,NONME .....	2
5	PAOZZ	81343	6-6-6 130438B	TEE,PIPE .....	1
6	PAOZZ	16128	6960644-5	HOSE ASSEMBL,NONME .....	1
7	PAOZZ	30327	123b3-8X1-4	REDUCER,PIPE .....	2
8	PAOZZ	06853	281865 (RE-6)	VALVE,RELAY,AIR PRE .....	1
9	PAOZZ	96906	MS14315-7X	BUSHING,PIPE .....	1
10	PAOZZ	40670	11682888	NIPPLE,TANK.....	1
11	PAOZZ	87373	208P-8-6	REDUCER,PIPE .....	1
12	PAOZZ	16128	6960644-4	HOSE ASSEMBL,NONME .....	1
13	PAOZZ	81343	6-6 140239B	ELBOW,PIPE .....	5
14	PAOZZ	16128	6960644-10	HOSE ASSEMBL,NONME .....	2
15	PAOZZ	81343	4-4 140239B	ELBOW,PIPE .....	1
16	PAOZZ	16128	6960644-6	HOSE ASSEMBLY,NONME .....	1
17	PAOZZ	16128	6960644-16	HOSE ASSEMBLY,NONME .....	1
18	PAOZZ	81343	8-8 1403396	ELBOW,PIPE .....	2
19	PAOZZ	06853	227871	VALVE,SINGLE CHECK.....	1
20	PAOZZ	30780	2205P-6	CROSS,PIPE .....	1
21	PAOZZ	16128	6960644-2	HOSE ASSEMBLY,NONME .....	1
22	PAOZZ	06721	N178 AC	VALVE,SAFETY RELIEF .....	1

END OF FIGURE

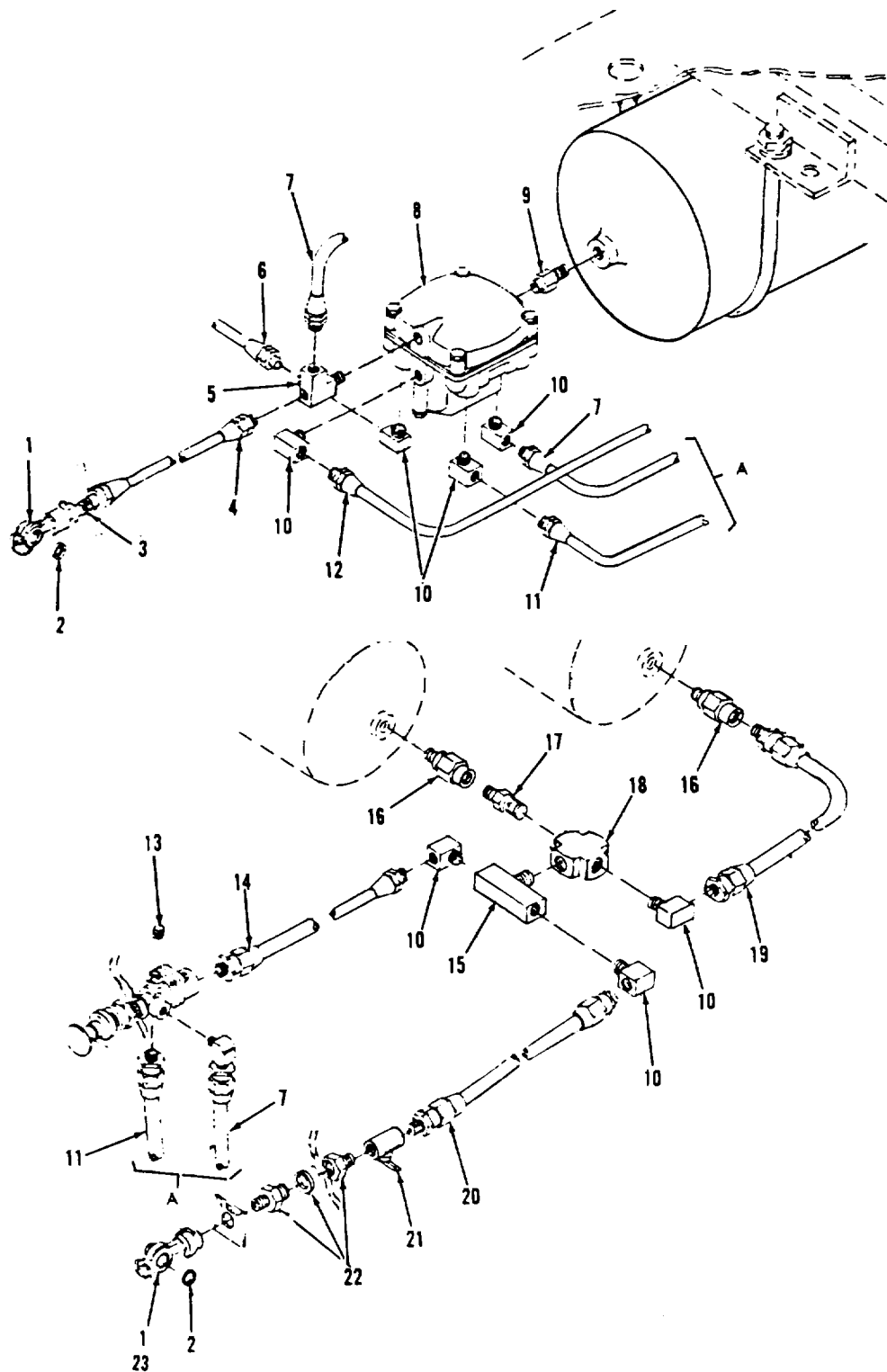


FIGURE 10. AIR LINES AND FITTINGS



## SECTION II

TM9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
1208 AIR BRAKE SYSTEM					
FIG. 10. AIR LINES AND FITTINGS					
1	PAOZZ	96906	MS35746-1	COUPLING HALF,QUICK.....	4
2	PAOZZ	96906	MS35748-1	PACKING PREFORMED.....	4
3	PFOZZ	97914	1031520	CONNECTORVPIPE .....	2
4	PAOZZ	16128	6960644-7	HOSE ASSEMBLYINONME .....	1
5	PAOZZ	30780	2225P-4	TEE,PIPE.....	1
6	PAOZZ	16128	6960644-8	HOSE ASSEMBLY,NONME .....	1
7	PAOZZ	16128	6960644-12	HOSE ASSEMBLY,NONME .....	2
8	PAOZZ	06853	281865 (RE-6)	VALVE,RELAY,AIR PRE .....	1
9	PAOZZ	16717	2083-12-8S	REDUCER,PIPE .....	1
10	XDOZZ	30780	2202P-6-7	ELBOW,90 DEG .....	5
11	PAOZZ	16128	6960644-9	HOSE ASSEMBLY,NONME .....	1
12	PAOZZ	16128	6960644-11	HOSE ASSEMBLY,NONME .....	1
13	PFOZZ	30780	219 P-4	PLUG,PIPE .....	1
14	PAOZZ	16128	6960644-14	HOSE ASSEMBLY,NONME .....	1
15	PAOZZ	81343	6-6-6-130425B	TEE,PIPE .....	2
16	PAOZZ	06853	227871	VALVE,CHECK.....	2
17	PAOZZ	30780	216P8-6	REDUCER,PIPE .....	1
18	XDOZZ	30780	2205P-6	CROSS .....	1
19	PAOZZ	16128	6960644-17	HOSE ASEMBLY,NONME.....	1
20	PAOZZ	16128	6960644-18	HOSE ASSEMBLY,NONME .....	1
21	PAOZZ	06853	285172	VALVE,BALL.....	2
22	PAOZZ	40670	11682888	NIPPLE,TANK.....	2
23	PAOZZ	19207	7411021	DUMMY COUPLING,AUTO.....	4

END OF FIGURE

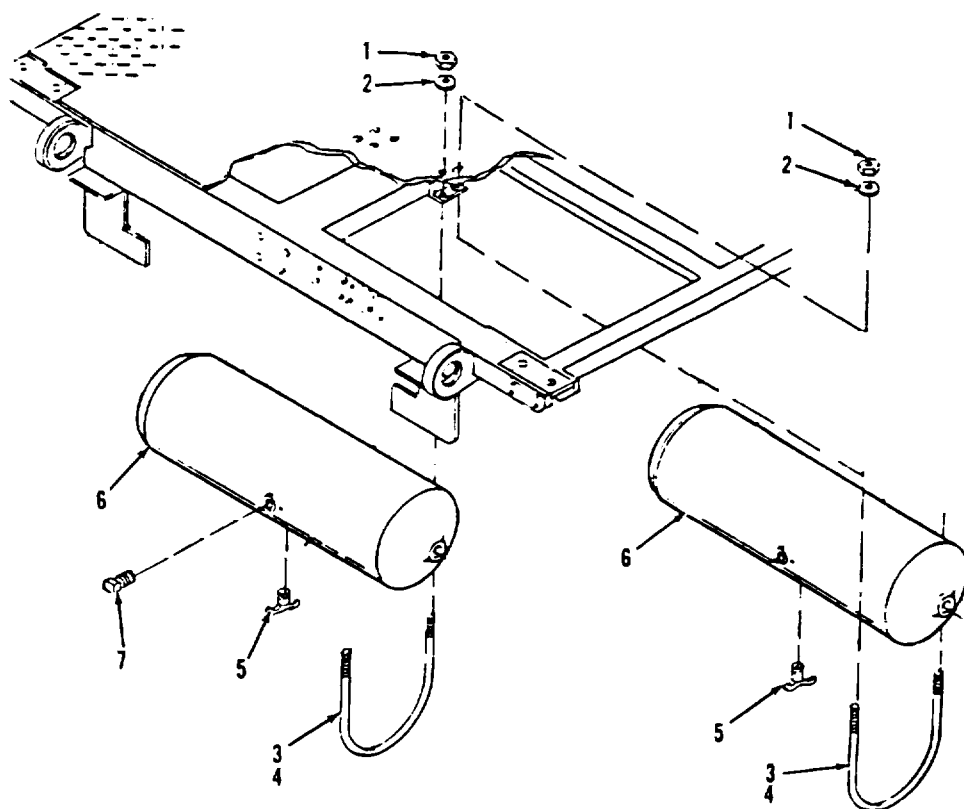


FIGURE 11. AIR RESERVOIR

## SECTION II

TM9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
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1208 AIR BRAKE SYSTEM  
FIG. 11. AIR RESERVOIR

1	PAOZZ	96906	MS51922-17	NUT,SELF-LOCKING,HE .....	12
2	PAOZZ	96906	MS27183-15	WASHER,FLAT .....	20
3	PAOZZ	16128	4900051-1	BOLT,U .....	4
4	PAOZZ	16128	4900051-2	U-BOLT FRONT DOLLY .....	2
5	PAOZZ	06853	221121	COCK,DRAIN .....	3
6	PBOZZ	06853	227783	TANK,PRESSURE.....	3
7	PFOZZ	30780	1-2SHPB	PLUG,PIPE .....	1

END OF FIGURE

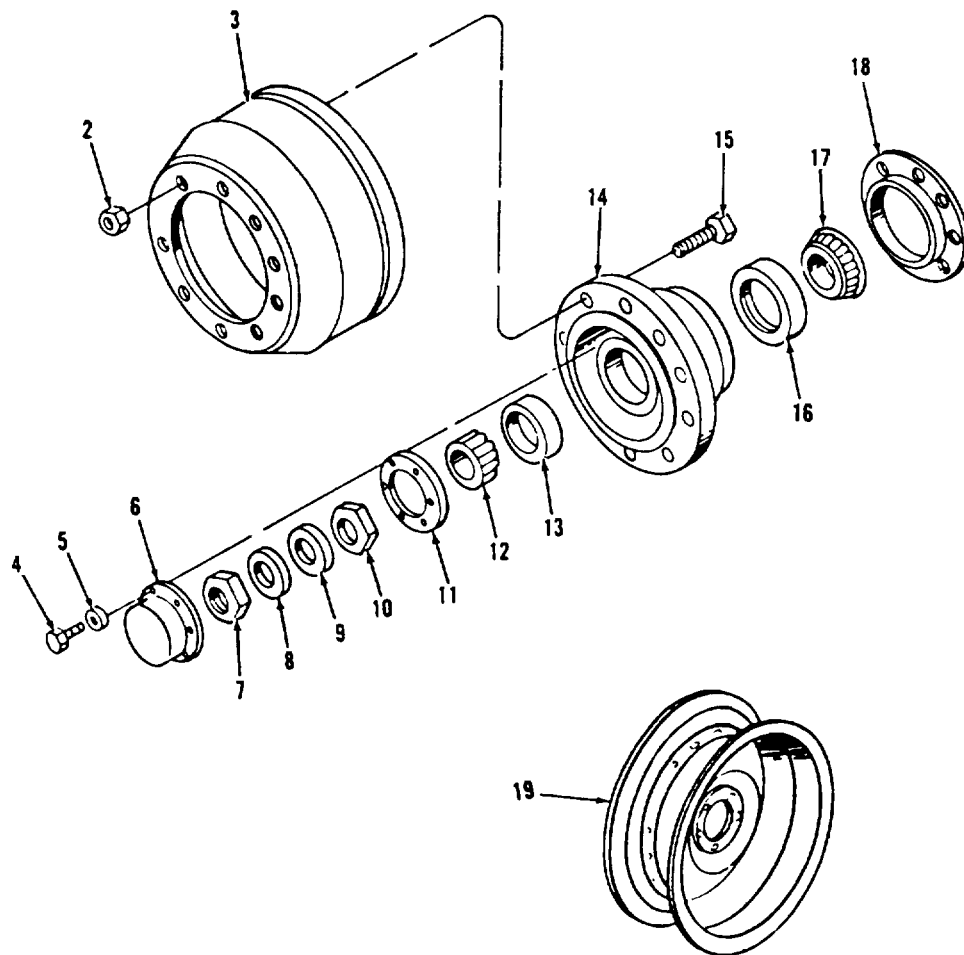


FIGURE 12. WHEELS, HUBS, AND DRUMS

## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
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GROUP 13 WHEELS, HUBS AND DRUMS  
1311 WHEEL, HUB AND DRUM ASSEMBLY  
FIG. 12. WHEEL AND HUB ASSEMBLY

1	XDOOO	78500	5-40527 LH	WHEEL END ASSY, REAR .....	2
1	XDOOO	78500	5-40526 LH	WHEEL END ASSY, FR .....	2
1	PAOZZ	19207	12301115	WHEEL, PNEUMATIC TIR (M9939A1) .....	1
2	PAOZZ	96906	MS51983-3	NUT, PLAIN, SINGLE BA LH .....	10
2	PAOZZ	78500	1199N118	NUT, CAP PUTTER RH .....	10
3	PAOFF	78500	3219-H-3570-S	BRAKE DRM .....	1
4	PAOZZ	78500	S-256-1	SCREW .....	6
5	PAOZZ	96906	MS9321-11	WASHER, FLAT .....	6
6	PAOZZ	78500	3262A53	CAP .....	1
7	PAOZZ	78500	1227B106	NUT, PLAIN, HEXAGCN .....	1
8	PAOZZ	78500	1229F474	LOCK, WHEEL .....	1
9	PAOZZ	78500	1229G475	RING WHEEL BEARING .....	1
10	PAOZZ	78500	1227-U-541	NUT, WHEEL INNER .....	1
11	PAOZZ	78500	2208-M-819	GASKET .....	1
12	PAOZZ	72260	3782	CONE AND ROLLERS, TA. OUTER .....	1
13	PAOZZ	78500	3720	CUP, TAPERED ROLLER. OUTER .....	1
14	XDOZZ	78500	A6-333-M-2821	HUB & DRUM ASSY, RH .....	1
14	XDDZZ	78500	A5-333-M-2821	HUB & DRUM ASSY LH .....	1
15	PAOZZ	78500	20X-1655-SLH	BOLT, DRIVE SHANK LH .....	10
15	PAOZZ	78500	20X-1656-SRH	BOLT, DRIVE SHANK RH .....	10
16	PAOZZ	78500	HM212011	CUP, TAPERED ROLLER INNER .....	1
17	PAOZZ	78500	HM212049	CONE AND ROLLERS, TA INNER .....	1
18	PAOZZ	78500	3286-M-1053-S	SEAL RING, METAL .....	1

END OF FIGURE

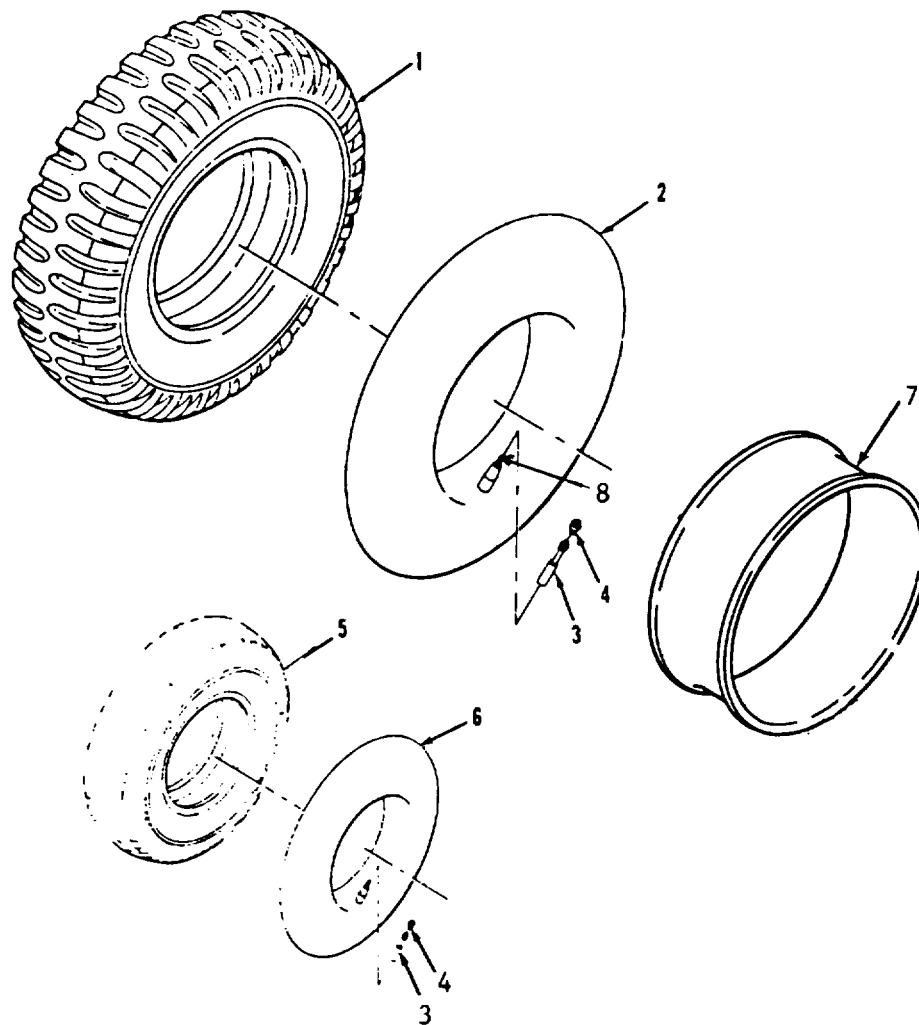


FIGURE 13. TIRES AND TUBES

SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

1313 TIRES AND TUBES  
FIG. 13. TIRES AND TUBES

1	PAOFF	81349	MIL-T-12459/CLCC	TIRE,PNEUMATIC.....	4
			/SA/1100-20/F,CC		
1	PAOFH	19207	12301105	TIRE,PNEUMATIC (M939A1).....	1
2	PAOZZ	81348	ZZ-I-550/G2/11.O	INNER TUBE,PNEUMATI.....	4
			0-20/TR78A/ONCTR		
3	PAOZZ	53477	7381	VALVE EXTENSION,TIR.....	4
4	PAOZZ	51665	US48	CAP,PNEUMATIC VALVE.....	4
5	PAOFH	81348	GP1/TYA/3.40-5/B	TIRE,PNEUMATIC, CASTER.....	2
			/MHHR		
6	PAOZZ	81348	ZZ-1-550/G5/3.40	INNER TUBE,PNEUMATI,CASTER.....	2
			/3.00-5/TR87/ONC		
7	PAOZZ	73808	20R	FLAP,INNER TUBE,PNE.....	4
8	PAOZZ	96906	MS51371-1	VALVE CORE .....	4

END OF FIGURE

6 TIIRU 11

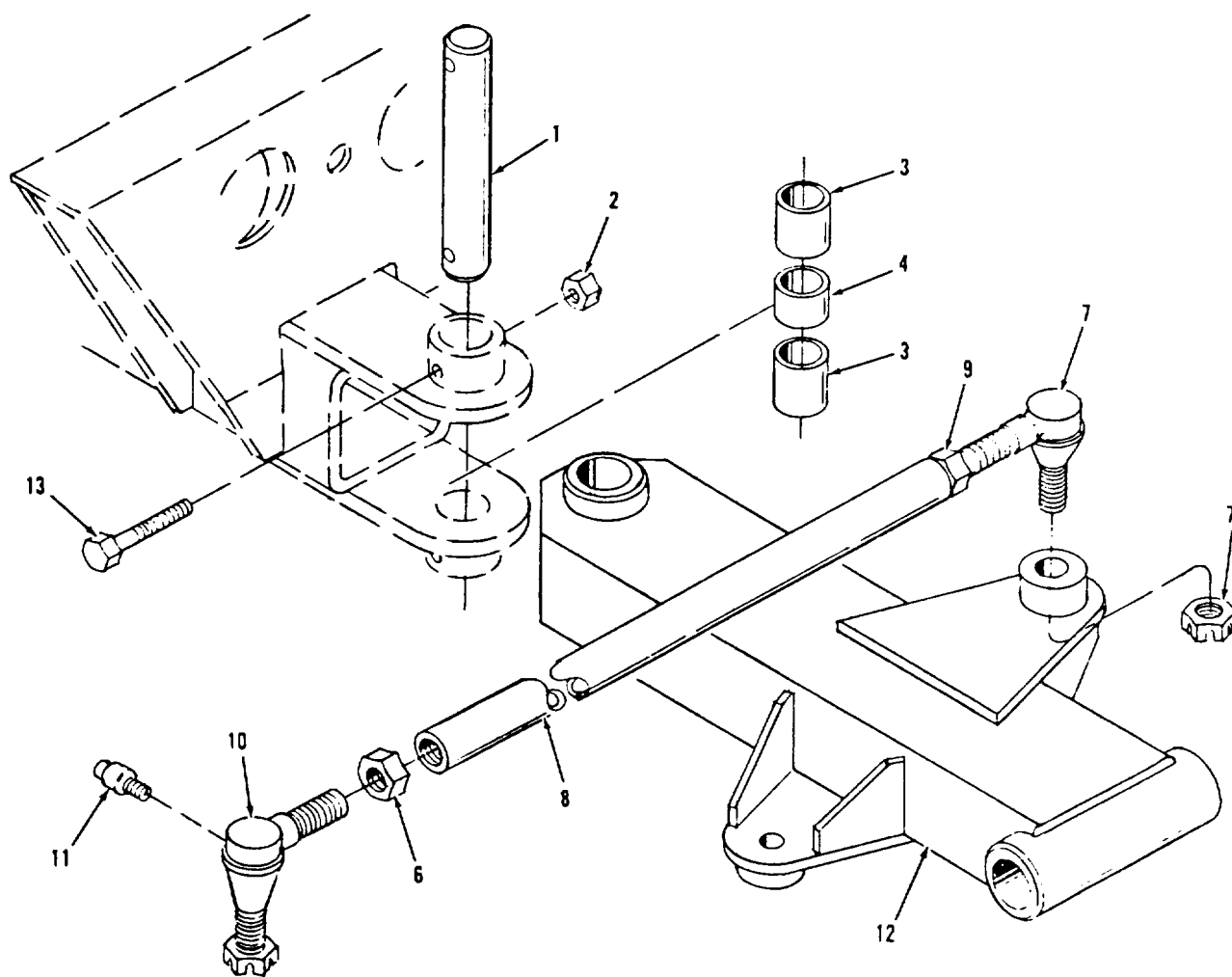


FIGURE 14. STEERING LINK AND TIE ROD ASSEMBLY



SECTION II			TM 9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 14 STEERING  
1401 MECHANICAL STEERING GEAR  
ASSEMBLY  
FIG. 14. STEERING LINK AND TIE  
ROD ASSEMBLY

1	PAOZZ	16128	5300646-2	PIN,STRIAGHT,HEADLE .....	1
2	PAOZZ	96906	MS51922- 17	NUT .....	8
3	PFOZZ	26124	GM2428-24	BUSHING,SLEEVE .....	4
4	PAOZZ	16128	5300636-1	SPACER,SLEEVE .....	1
5	PAOOO	16128	6960639	TIE ROD ,STEERING .....	2
6	PAOZZ	81352	AN315-18R	NUT,PLAIN,HEXAGON .....	1
7	PAOZZ	81285	ES187R	TIE ROD END,STEERIN .....	1
8	PFOZZ	16128	5300634	TUBE,TIE ROD .....	1
9	PAOZZ	88044	AN315-18L	NUT,PLAIN,HEXAGON .....	1
10	PAOZZ	81285	ES187I	TIE ROD END,STEERIN .....	1
11	PAOZZ	96906	MS15003-1	FITTING,LUBRICATION .....	2
12	PFOZZ	16128	7300194	STEERING LINK.....	2
13	PAFZZ	96906	MS90728-68	SCREW,CAP,HEXAGON H .....	8

END OF FIGURE

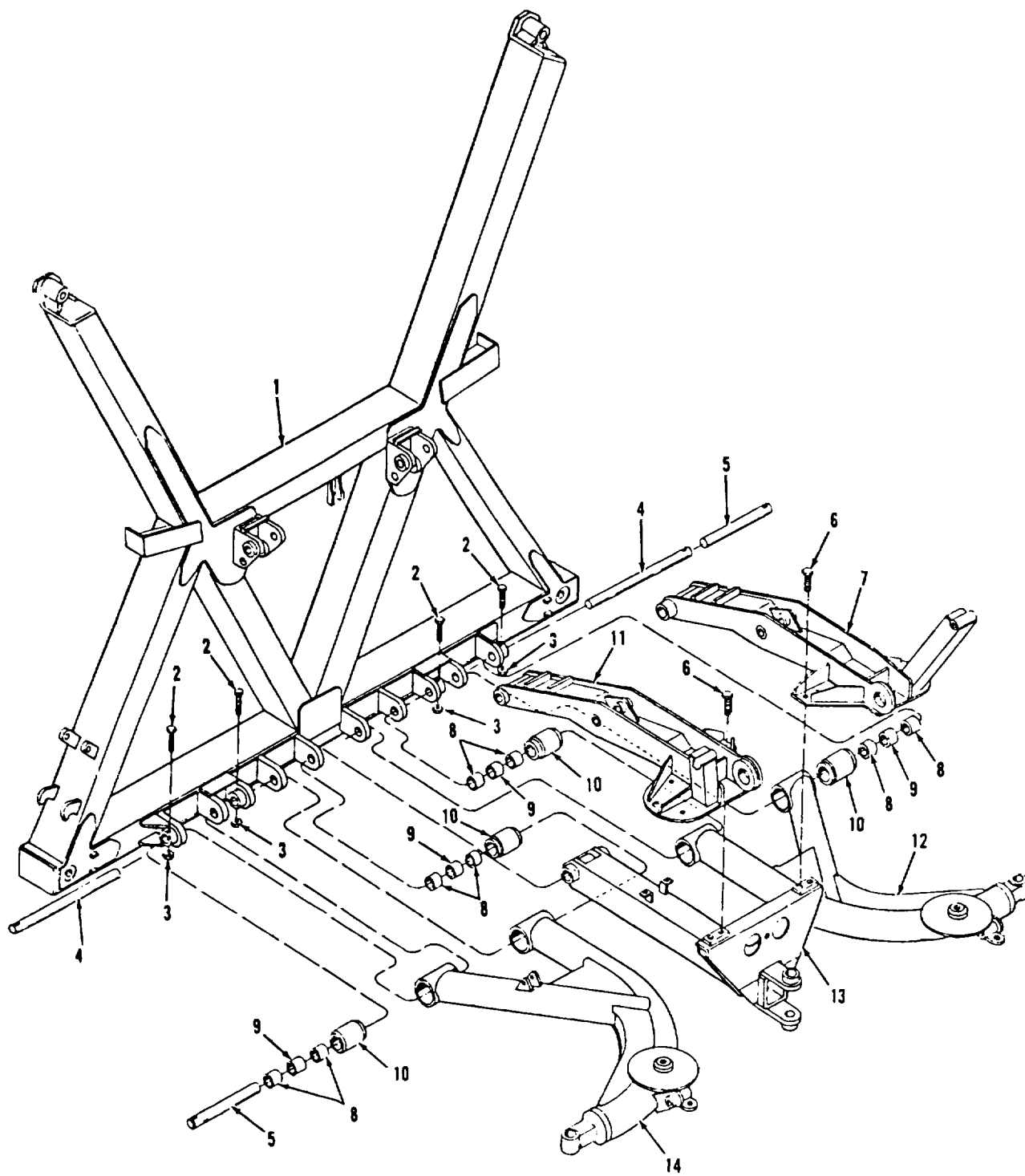


FIGURE 15. FRONT ADAPTER, CONNECTING LINK, AND UPPER AND LOWER ARM ASSEMBLIES

SECTION II			TM9-2330-379-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 15 FRAME AND TOWING  
ATTACHMENTS  
1501 FRAME ASSEMBLY  
FIG. 15. FRONT ADAPTER, CONNECTING  
LINK AND UPPER AND LOWER ARM  
ASSEMBLIES

1	XDFZZ	16128	8960068	ADAPTER,FRONT.....	1
2	PAFZZ	96906	MS90728-68	SCREW,CAP,HEXAGON H .....	4
3	PAFZZ	96906	MS51922-17	NUT.....	4
4	PFFZZ	16128	5300632-2	PIN,STRAIGHT,HEADLE .....	2
5	PAFZZ	16128	5300632-1	PIN,STRAIGHT,HEADLE .....	2
6	PAFZZ	16128	4900065	SCREW,CAP,HEXAGON H .....	4
7	PFFZZ	16128	8960087-2	UPPER ARM ASSEMBLY .....	1
8	PAFZZ	26125	GM2432-24	BUSHING, SUSPENSION.....	8
9	PAFZZ	16128	5300645	SPACER SLEEVE .....	4
10	PAFZZ	15148	J-6145-19	CENTER BONDED JOINT .....	4
11	PFFZZ	16128	8960087-1	UPPER ARM ASSEMBLY,LH.....	1
12	PFFZZ	16128	8960072-2	LOWER ARM ASSY,FRON RH.....	1
13	PFFZZ	16128	8960082	BRAG LINK-TIE ROD .....	1
14	PFFZZ	16128	8960072-1	LOWER ARM ASSEMBLY, LH.....	1

END OF FIGURE

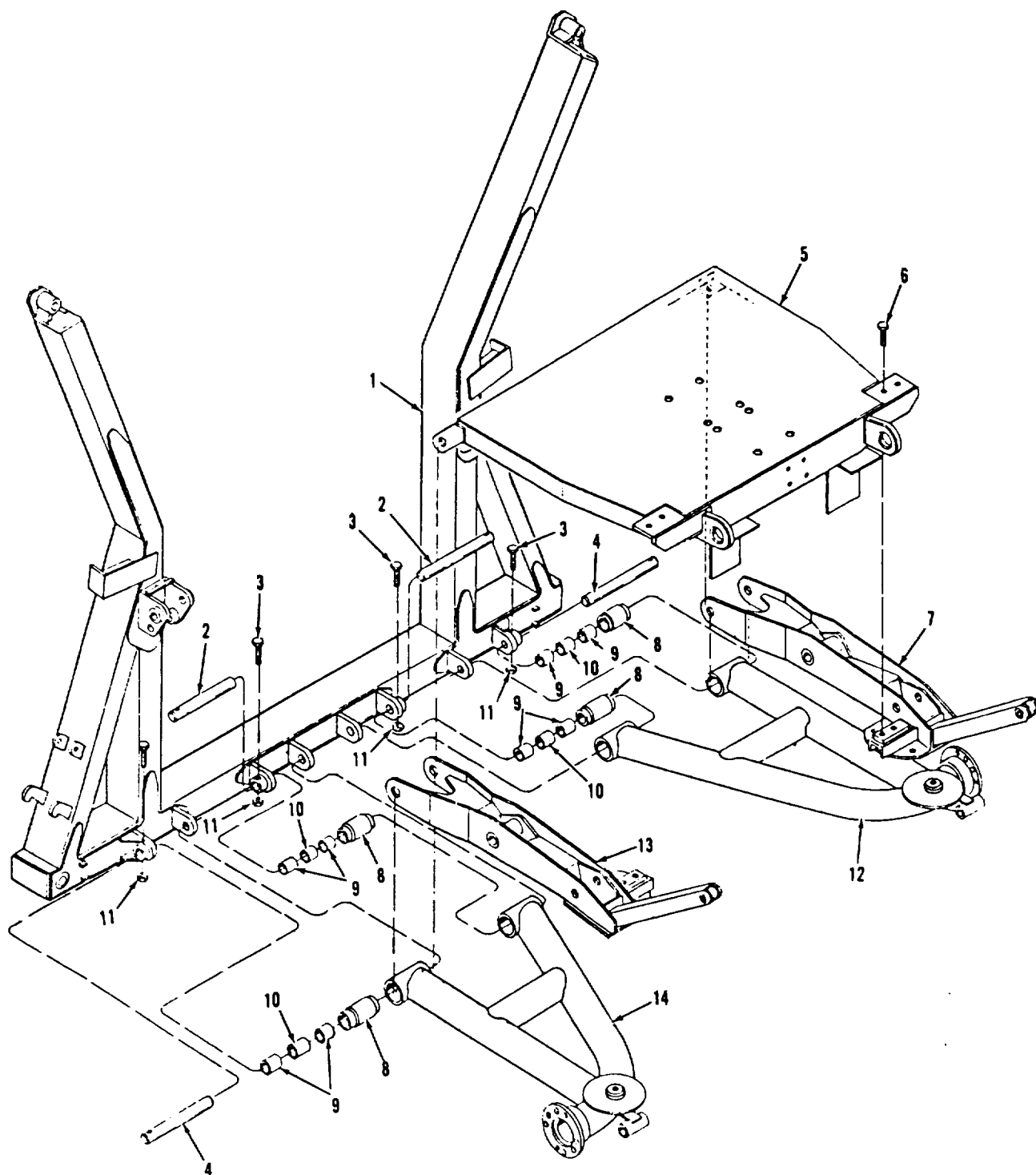


FIGURE 16. REAR ADAPTER, PLATFORM, AND UPPER AND LOWER ARM ASSEMBLIES

SECTION II					
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
				1501 FRAME ASSEMBLY	
				FIG. 16. REAR ADAPTER. PLATFORM,	
				AND UPPER AND LOWER ARM ASSEMBLIES	
1	XDFZZ	16128	8960067	ADAPTER REAR .....	1
2	XDFZZ	16128	5330645	PIN .....	2
3	PAFZZ	96906	M590728-68	SCREW. CAP.HEX HD .....	8
4	PAFZZ	16128	5300632-3	PIN,STRAIGHT,HEADLE .....	2
5	XDFZZ	16128	8960089	PLATFORM .....	1
6	PAFZZ	96906	MS90728-160	SCREW,CAPHEXAGON H .....	4
7	XDFZZ	16128	8960088-2	UPPER ARM ASSY,RH.....	1
8	PAFZZ	15148	J-6145-19	CENTER BONDED JOINT. ....	4
9	PAFZZ	26124	GM2432-24	BUSHING,SLEEVE .....	8
10	PAFZZ	16128	5300645	SPACER,SLEEVE .....	4
11	PAFZZ	96906	MS51922-17	NUT,SELF-LOCKING,HE .....	4
12	XDFZZ	16128	8960071-2	LOWER ARM ASSY,RH.....	1
13	XDFZZ	16128	8960088-1	UPPER ARM ASSY,LH.....	1
14	XDFZZ	16128	8960071-1	LOWER ARM ASSY,LH.....	1

END OF FIGURE

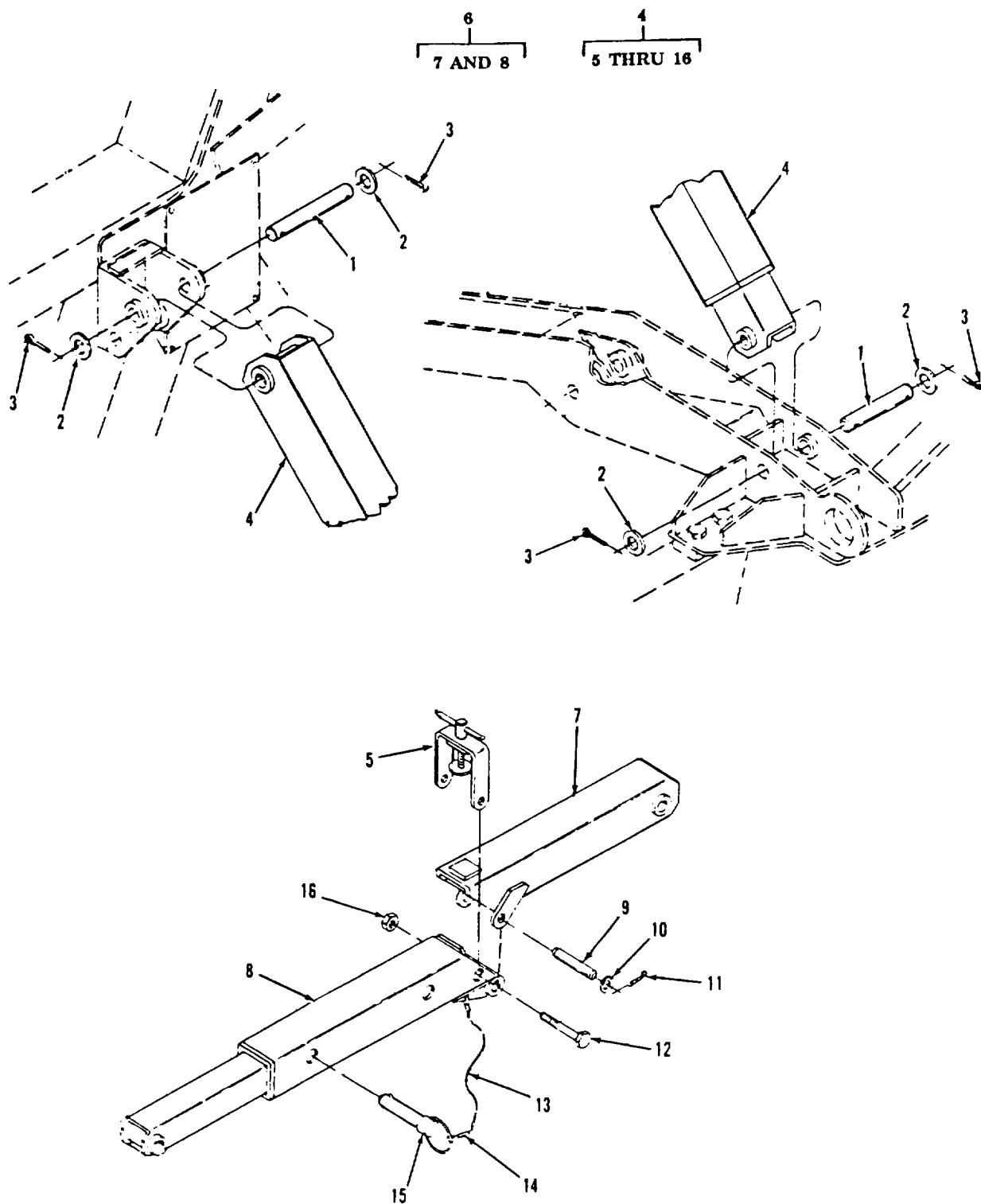


FIGURE 17. STRUT ASSEMBLY

SECTION II					
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
1501 FRAME ASSEMBLY					
FIG. 17. STRUT ASSEMBLY					
1	PAOZZ	16128	5300649-1	PIN,STRAIGHT,HEADLE .....	8
2	PAOZZ	96906	MS27183-27	WASHER,FLAT .....	16
3	PADZZ	96906	M524665-503	PIN,COTTER .....	16
4	PADOO	16128	7967017	STRUT ASSEMBLY,TRAI. ....	4
5	PADZZ	16128	6960635	CLAMP,BRIDGE .....	1
6	XADZZ	16128	6960637	STRUT WELOMENT SET .....	1
7	XAOZZ	16128	6960634	STRUT WELDMENT .....	1
8	XAOZZ	16128	6960636	STRUT WELDMENT .....	1
9	PAOZZ	16128	5300648-1	PIN,STRAIGHT,HEADLE .....	1
10	PAOZZ	96906	MS21206-12	WASHER,FLAT .....	2
11	PAOZZ	96906	MHS24665-493	PIN,COTTER .....	2
12	PAOZZ	96906	MS90727-76	SCREW,CAP,HEXAGON H .....	1
13	PAOZZ	96906	MS20995C47	WRE,NONELECTRICAL (20 IN. LONG).....	1
14	PAOZZ	19207	8537648	SWAGING SLEEVE,WIRE .....	2
15	PAOZZ	96906	M517988-C1630	PIN,QUICK RELEASE .....	1
16	PADZZ	96906	M551922-21	NUT,SELF-LOCKING,HE .....	1

END OF FIGURE

1  
2 THRU 4

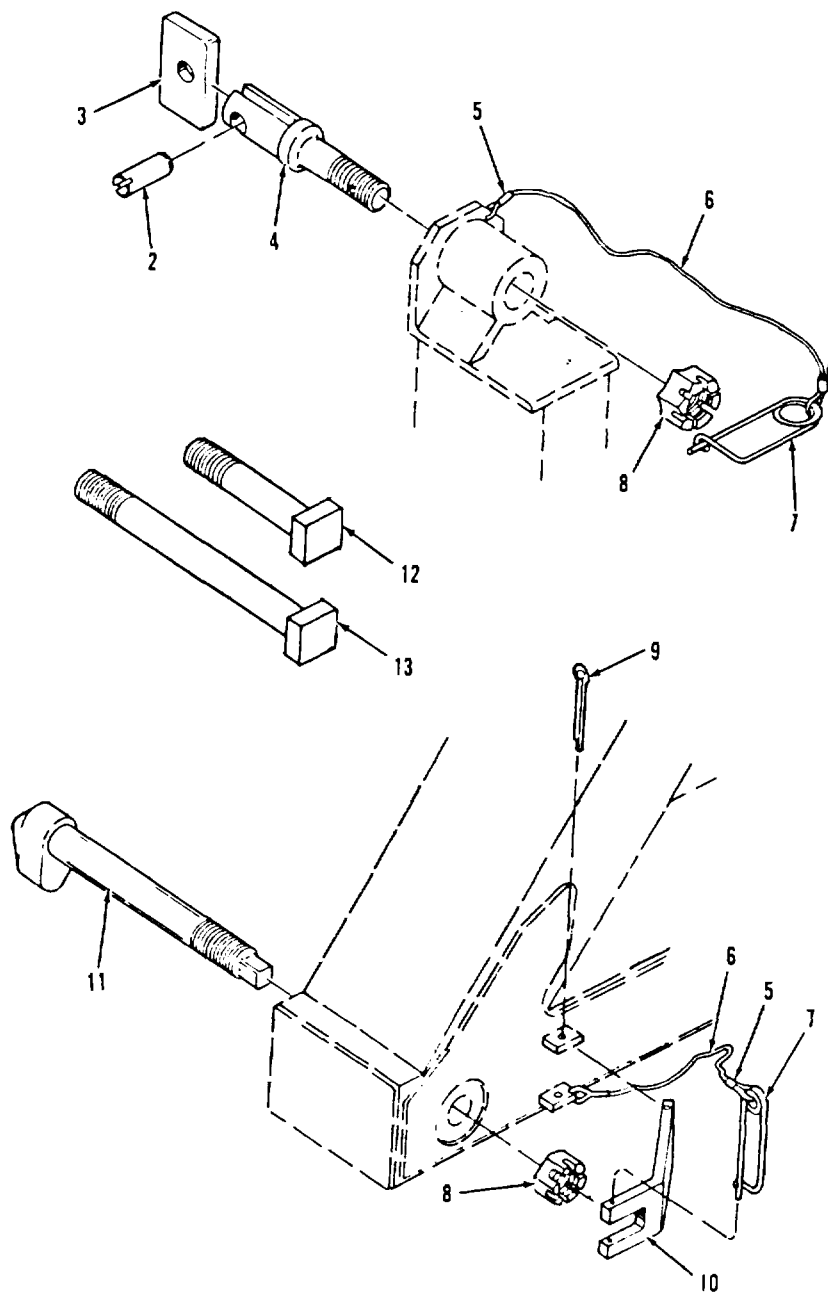


FIGURE 18. UPPER CONNECTOR AND LOCKING LUG



## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
1501 FRAME ASSEMBLY FIG. 18. UPPER CONNECTOR AND LOCKING LUG					
1	PAOZZ	16128	6960645	PIN,SHOULDER,HEADED .....	4
2	PAOZZ	16128	5300597	PINSTRAIGHTHEADLE .....	1
3	PAOZZ	16128	5300598	PLATE,UPPER CONN.....	1
4	PAOZZ	16128	6300231	CONNECTOR,ROD END .....	1
5	PADZZ	19207	8537648	SWAGING SLEEVEWIRE .....	24
6	PAOZZ	96906	MS2099SC47	WIREGNONELECTRICAL (18 IN. LONG) .....	8
7	PADZZ	96652	25-06	PINRETAINING .....	8
9	PAOZZ	96906	MS24665-503	PIN,COTTER .....	4
10	PAOZZ	16128	6300239	LOCK PLATE,LOWER .....	4
11	PAOZZ	16128	6300229	STUD,BALL .....	4
12	PAOZZ	16128	5961354-1	BOLT,FLUID PASSAGE .....	2
13	PAOZZ	16128	596135-2	BOLT,FLUID PASSAGE .....	2

END OF FIGURE

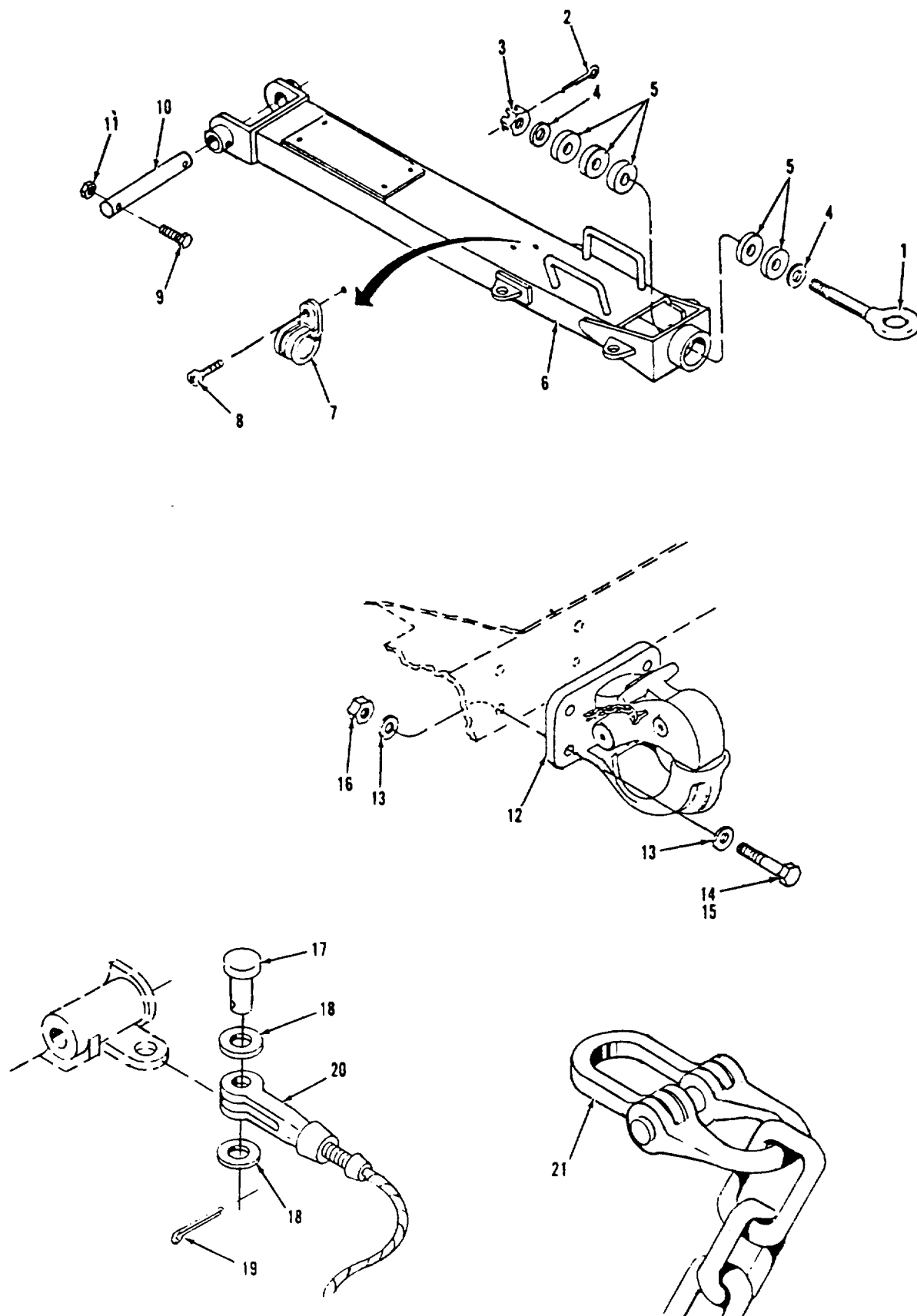


FIGURE 19. TOWBAR ASSEMBLY AND PINTLE

## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
1503 PINTLES AND TOWING ATTACHMENTS FIG. 19. TOWBAR ASSEMBLY AND PINTLE					
1	PFOZZ	16128	5300671	BOLT,EYE .....	1
2	PAOZZ	96906	MS24665-625	PIN,COTTER .....	1
3	PAOZZ	96906	MS535692-105	NUT,PLAIN,SLOTTED,H .....	1
4	PAOZZ	96906	MS27183-33	WASHER,FLAT .....	2
5	PAOZZ	16128	5300670	SPACER,SLEEVE .....	5
6	PFOZZ	16128	7S67019	DRAWBAR .....	1
7	PAOZZ	96906	MNS21919WDG12	CLAMP,LOOP .....	2
8	PAOZZ	96906	MS35207-264	SCREW,MACHINE .....	1
9	PAOZZ	96906	MS90728-68	SCREW,CAP,HEX HD .....	2
10	PFOZZ	16128	5300646-1	PIN,STRAIGHT,HEADLE .....	1
11	PAOZZ	96906	MS51922-17	NUT .....	2
12	PFOZZ	74410	PH-75	HOOK,PINTLE .....	1
13	PAOZZ	96906	MS27183-18	WASHER.FLAT .....	8
14	PAOZZ	96906	MS90728-125	SCREW,CAP (UPPER) .....	2
15	PAOZZ	96906	MS90728-114	SCREW,CAP (LOWER) .....	2
16	PAOZZ	96906	MS51922-33	NUT,SELF-LOCKING,HE .....	4
17	PAOZZ	16128	4900053	PIN,HEADED .....	2
18	PAOZZ	96906	MS27183-27	WASHER,FLAT .....	4
19	PAOZZ	96906	MS2465-425	PIN,COTTER .....	2
20	PADZZ	16128	5300674	CABLE ASSY,RESTRAIN.....	2
21	PAOZZ	16128	5961356	CHAIN,SAFETY .....	2

END OF FIGURE

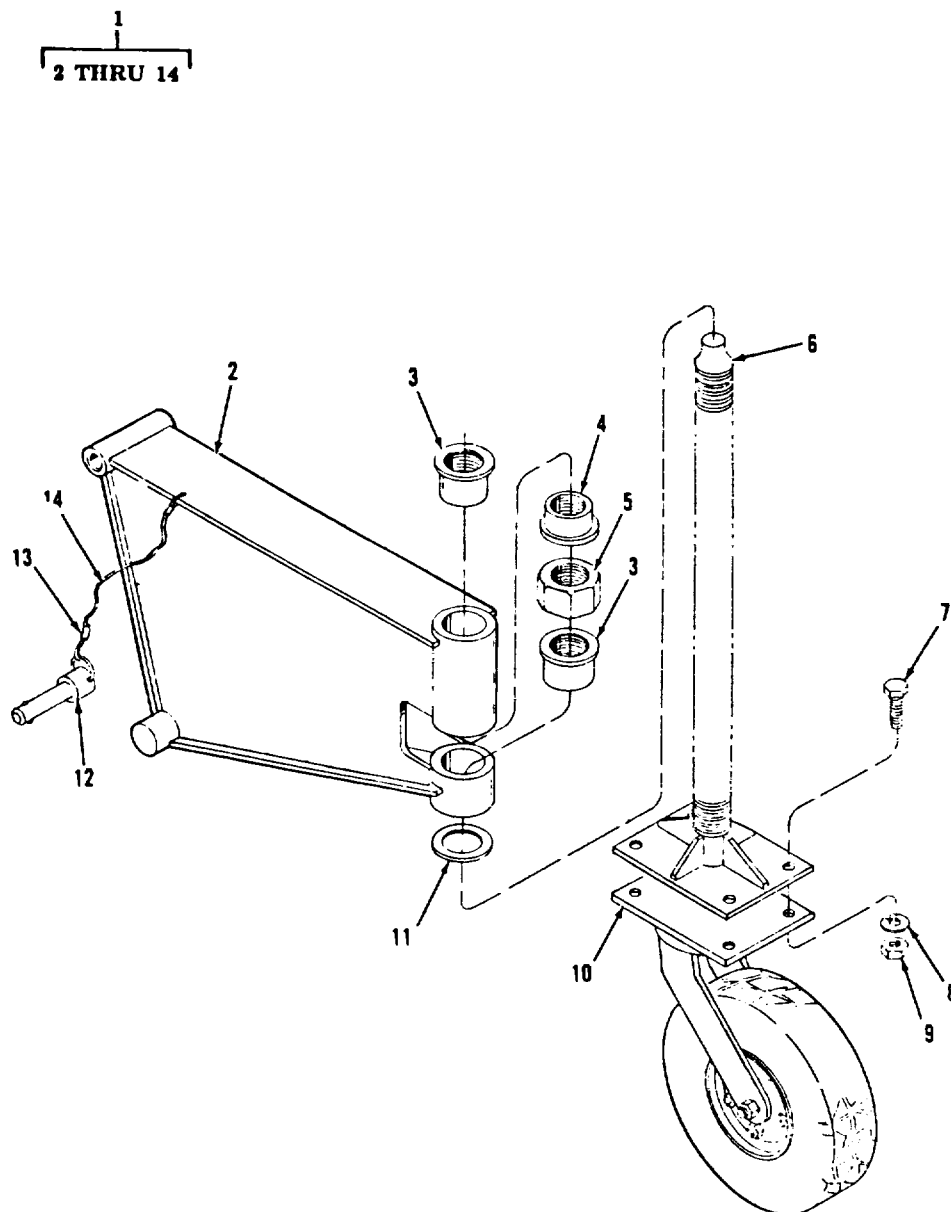


FIGURE 20. CASTER ASSEMBLY

## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
1507 LANDING GEAR AND LEVELING JACKS FIG. 20. CASTER ASSEMBLY					
1	PFOOO	16128	7967016	CASTER,SWIVEL.....	2
2	XAOZZ	16128	7967015	WHEEL BRKT WELDMENT .....	1
3	PAOZZ	71041	FB2428-12	BUSHING,CONVEYOR .....	2
4	PADZZ	71041	FB-242&12	BUSHING,CONVEYOR (MODIFIED) .....	1
5	PAOZZ	16128	4900060	NUT,PLAIN,HEXAGON .....	1
6	XAOZZ	16124	6300246	BASE PLATE WELOMENT .....	1
7	PAOZZ	96906	MS90728-[13	SCREW,CAP,HEXAGON H .....	4
8	PAOZZ	96906	MS35338-48	WASHER,LOCK .....	4
9	PAOZZ	96906	MS51967-14	NUT,PLAIN,HEXAGON .....	4
10	PAOZZ	26935	S-7010	CASTER,SWIVEL.....	1
11	PAOZZ	96906	M5S20002-24	WASHER,FLAT .....	1
12	PADZZ	96906	MS1798CI1045	PIN,QUICK RELEASE .....	1
13	PAOZZ	19207	8537648	SWAGING SLEEVE,WIRE .....	2
14	PAOZZ	96906	M52099547	WIRE ,NONELECTRICAL (14 IN. LG} .....	2

END OF FIGURE

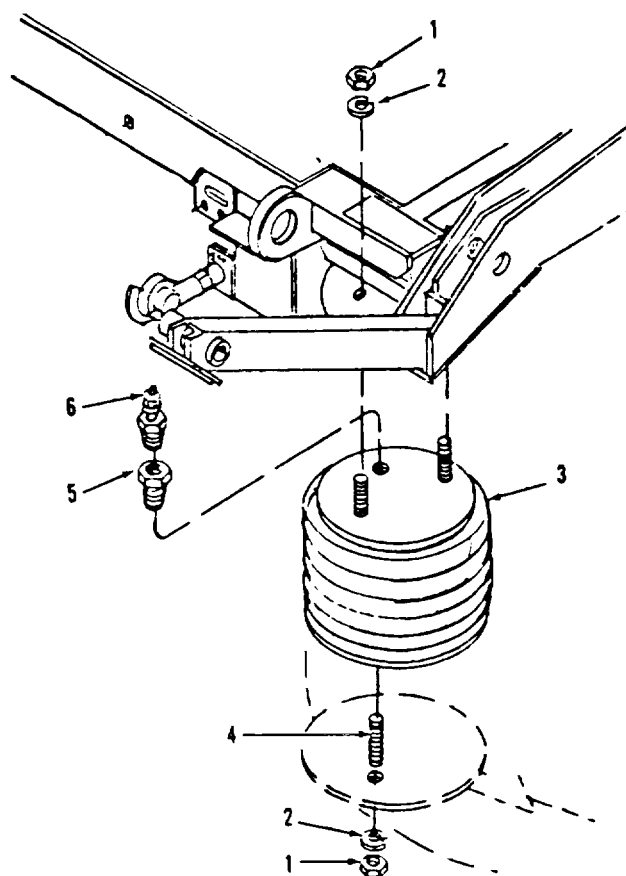


FIGURE 21. AIR SPRING

## SECTION II

TM 9-2330-379-14 P

(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 16 SPRINGS AND SHOCK ABSORBERS					
FIG. 21. AIR SPRING					
1	PAOZZ	96906	MS51922-33	NUT,SELF-LOCKING,HE .....	12
2	PAOZZ	96906	MS27183-18	WASHER,FLAT .....	12
3	PAOZZ	72413	NAD-18263	AIR SPRING,VEHICULA. ....	4
4	PAOZZ	16128	4900067	STUD,CONTINUOUS THR .....	4
5	PAOZZ	30780	2C81-12-4S	REDUCER,TUBE.....	4
6	PAOZZ	72413	W01-358-0003	VALVE,PNEUMATIC TAN .....	4

END OF FIGURE

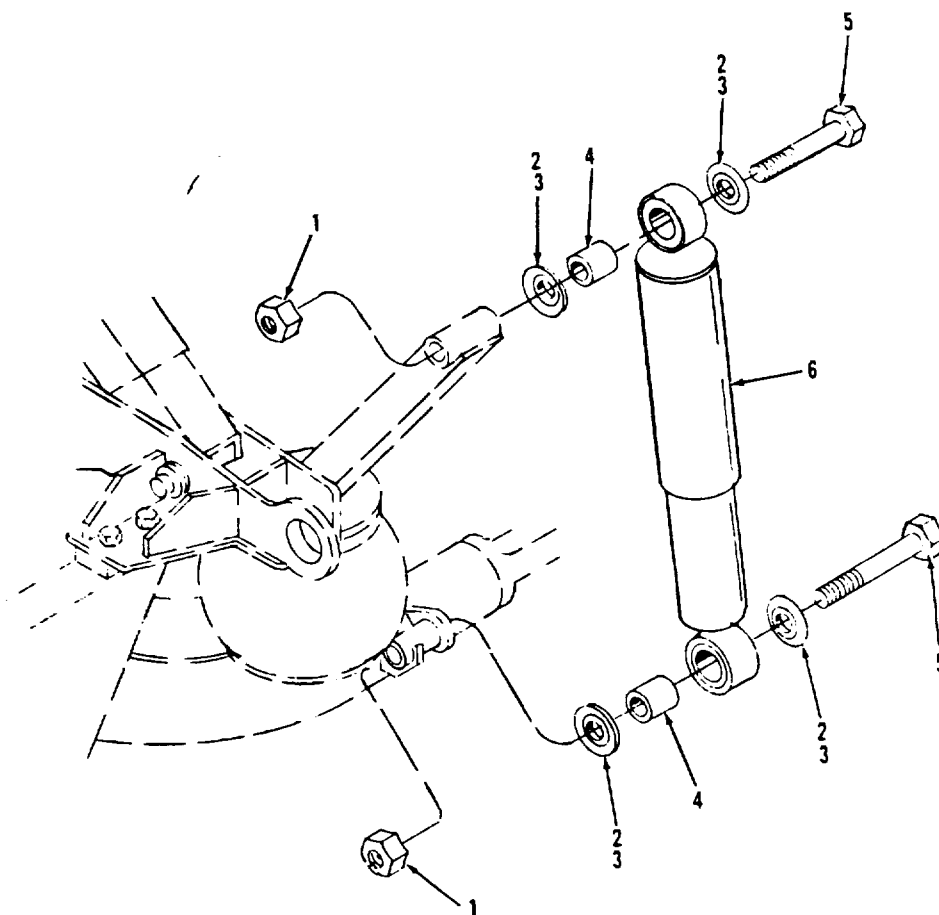


FIGURE 22. SHOCK ABSORBER



## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				1604 SHOCK ABSORBERS FIG. 22. SHOCK ABSORBER	
1	PAOZZ	16128	4900064	NUT,SELF-LOCKING,HE .....	8
2	PAOZZ	16128	5300650	WASHER,SHOCK ASBOR.....	8
3	PAOZZ	76110	401754	BUSHING,RUBBER .....	16
4	PAOZZ	16128	4900033	SPACER,SLEEVE .....	8
5	PADZZ	16128	4900059	SCREW,CAP,HEXAGON H .....	8
6	PAOZZ	37492	680093	SHOCK ABSORBER,DIRE.....	4

END OF FIGURE

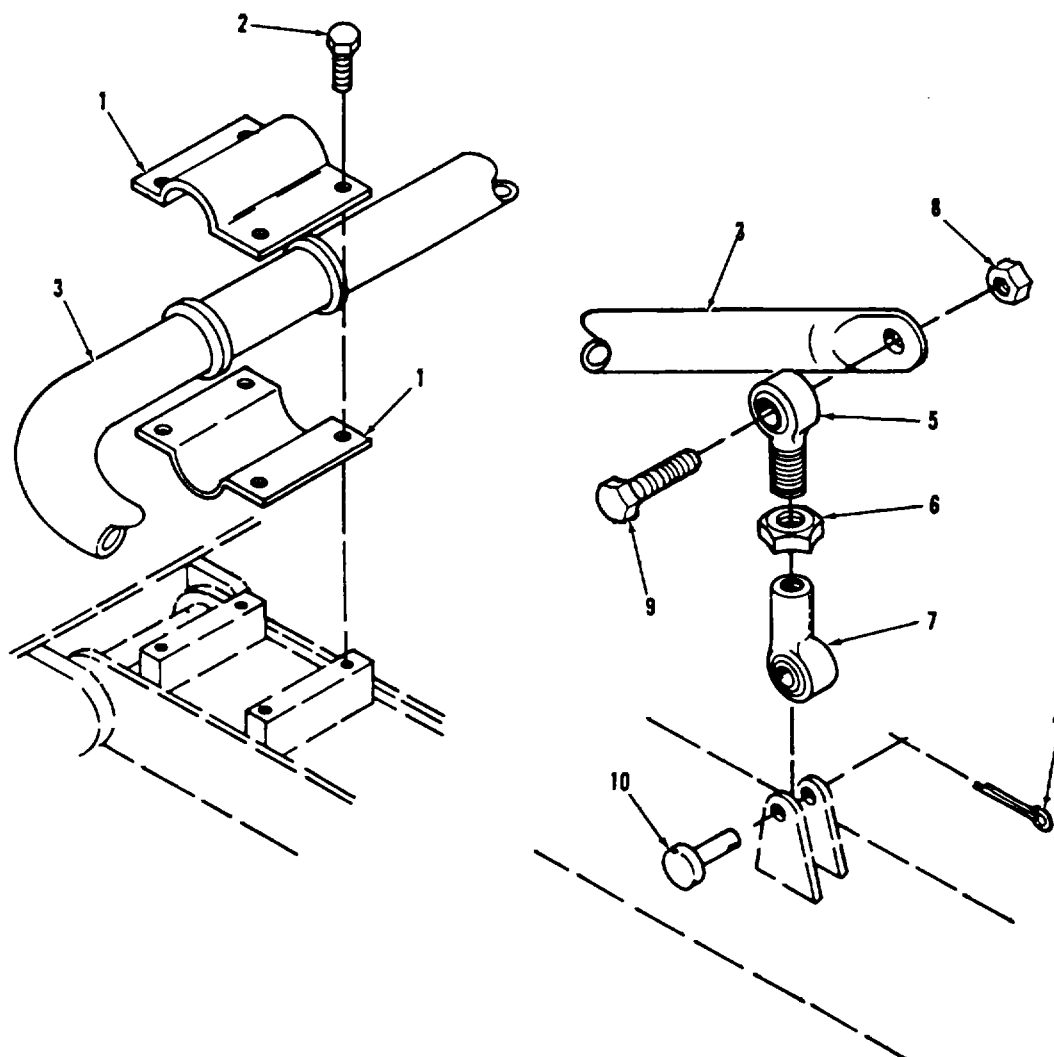


FIGURE 23. TORSION BAR

## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				1605 STABILIZER RODS FIG. 23. TORSION BAR	
1	PAOZZ	16128	5300652	LOCKING PLATE,NUT A FRONT .....	4
2	PAOZZ	96906	MS90728-64	SCREW,CAP,HEXAGON H .....	8
3	PFOZZ	16128	7300200	TORSION BAR,SUSPENS .....	1
4	PADZZ	96906	MS24665-389	PIN,COTTER .....	2
5	PAOZZ	56644	AM-10	CONNECTING LINK,RIG .....	2
6	PAOZZ	96906	MS51968-21	NUT,PLAIN,HEXAGON .....	2
7	PFOZZ	56644	AW-10	CONNECTING LINK,RIG .....	2
8	PAOZZ	96906	MS511922-49	NUT,SELF-LOCKING,HE .....	2
9	PAOZZ	96906	MS90728-164	SCREW,CAP,HEXAGON H .....	2
10	PADZZ	96906	MS20392-9C45	PIN,STRAIGHT,HEADED .....	2

END OF FIGURE

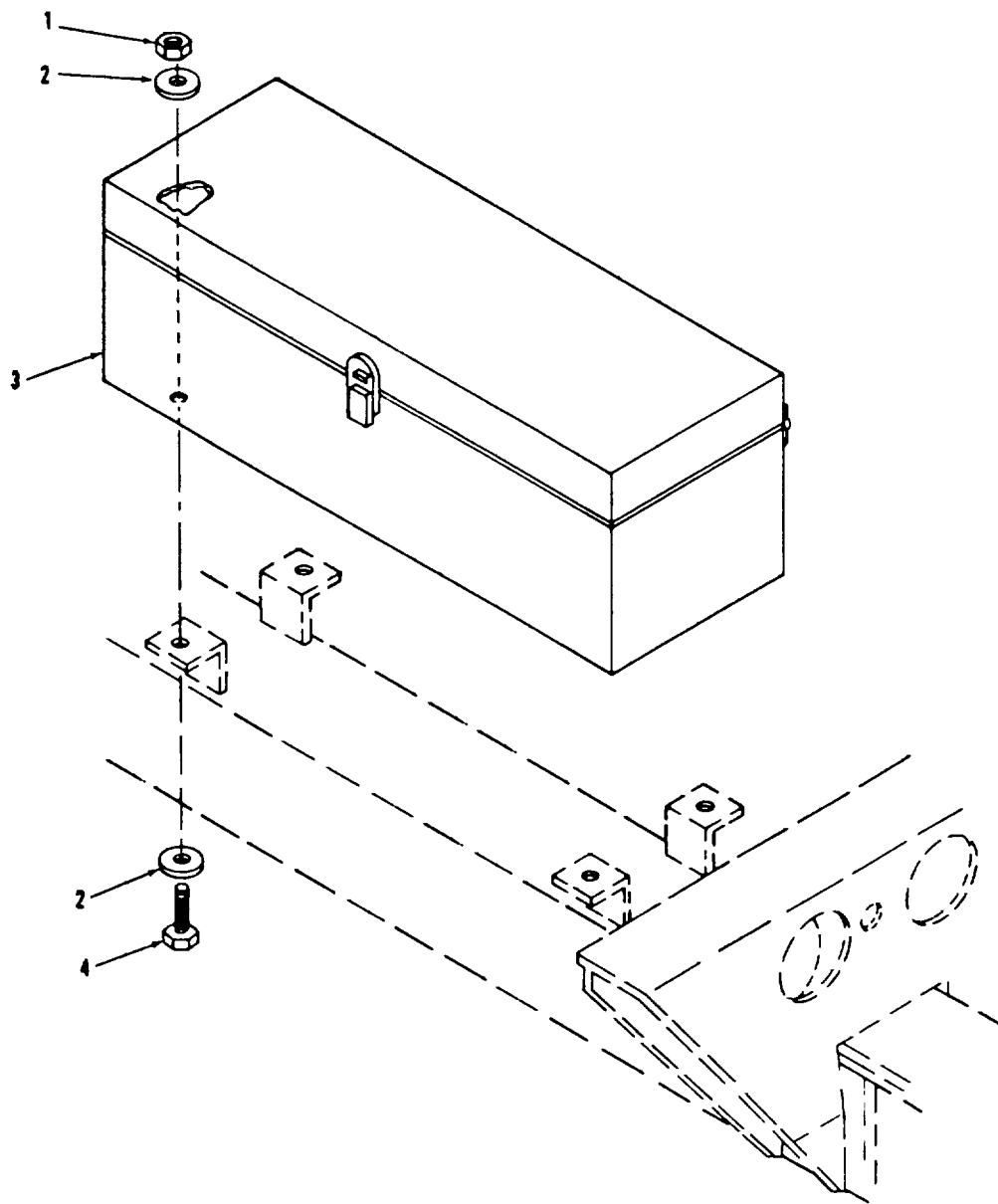


FIGURE 24. TOOL BOX

## SECTION II

TM 9-2330-379-14&amp;P

(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 18 BODY  
1808 STOWAGE BOXES  
FIG. 24. TOOL BOX

1	PAOZZ	96906	MS51922-17	NUT.....	4
2	PAOZZ	96906	MS27183-14	WASHER,FLAT .....	8
3	PAOZZ	16128	5300659	TOOL BOX,PORTABLE .....	1
4	PAOZZ	97403	13222E0109	SCREW,ROLLER ASSEMB .....	4

END OF FIGURE

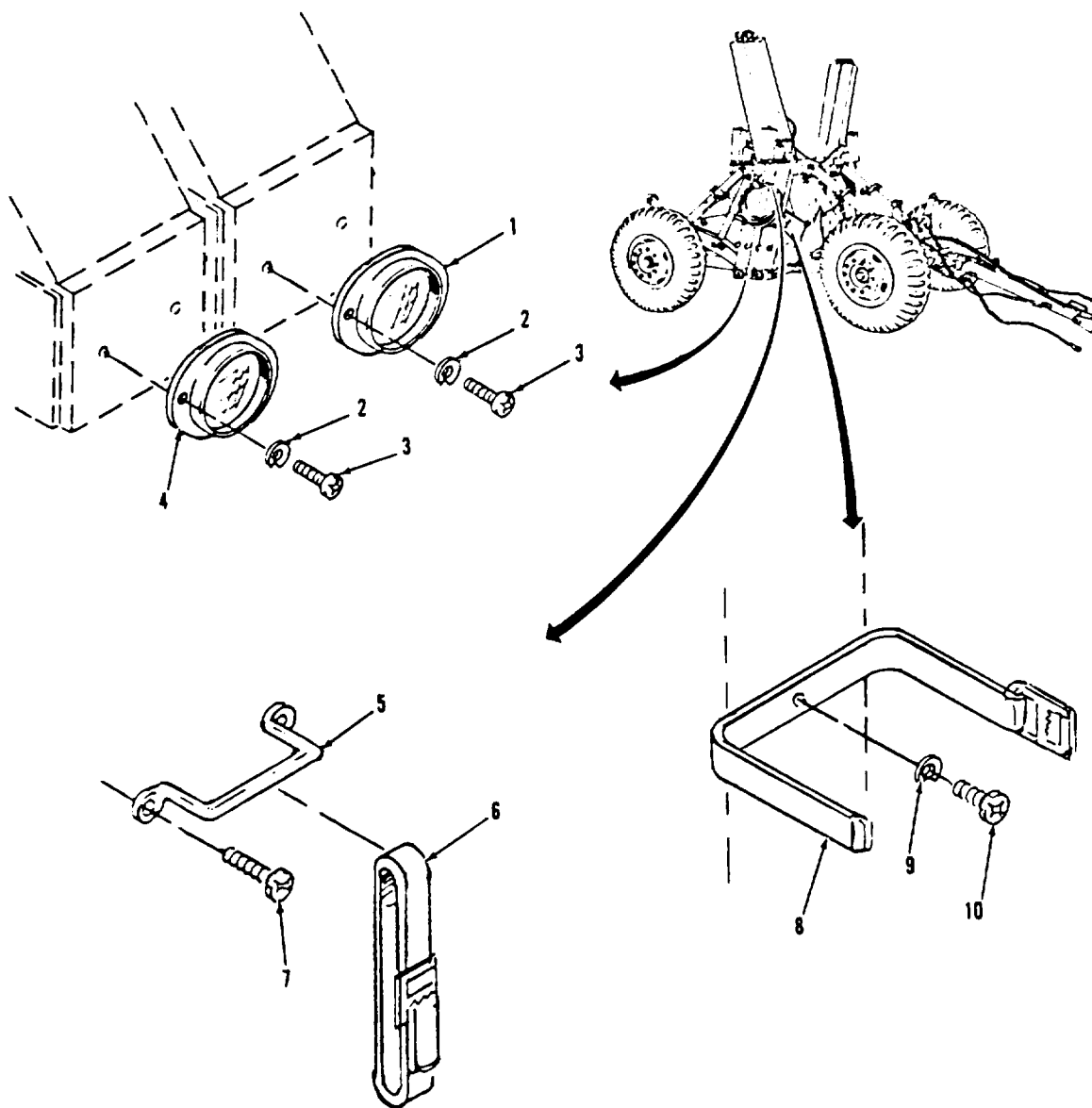


FIGURE 25. ACCESSORY ITEMS

## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
GROUP 22 ACCESSORY ITEMS					
2202 ACCESSORY ITEMS					
FIG. 25. ACCESSORY ITEMS					
1	PAOZZ	96906	MS35387-2	REFLECTOR,INDICATIN AMBER .....	2
2	PAOZZ	96906	MS35338-139	WASHER,LOCK .....	12
3	PAOZZ	96906	NS551957-80	SCREW,MACHINE .....	12
4	PAOZZ	96906	MS3538F1	REFLECTOR,INDICATIN RED .....	4
5	PFOZZ	19220	6411E	LOOP,STRAP FASTENER.....	2
6	PAOZZ	16128	5961355-2	STRAP,WEBBING .....	2
7	PAOZZ	96906	MS35191-272	SCREW,MACHINE .....	4
8	PADZZ	16128	5961355-1	STRAP,WEBBING .....	2
9	PAOZZ	88044	AN9170-3	WASHER,FLAT .....	2
10	PAOZZ	96906	MS35207-263	SCREW,MACHINE .....	2

END OF FIGURE

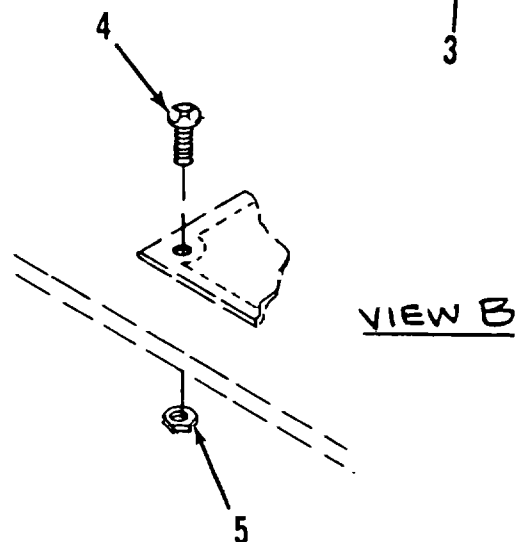
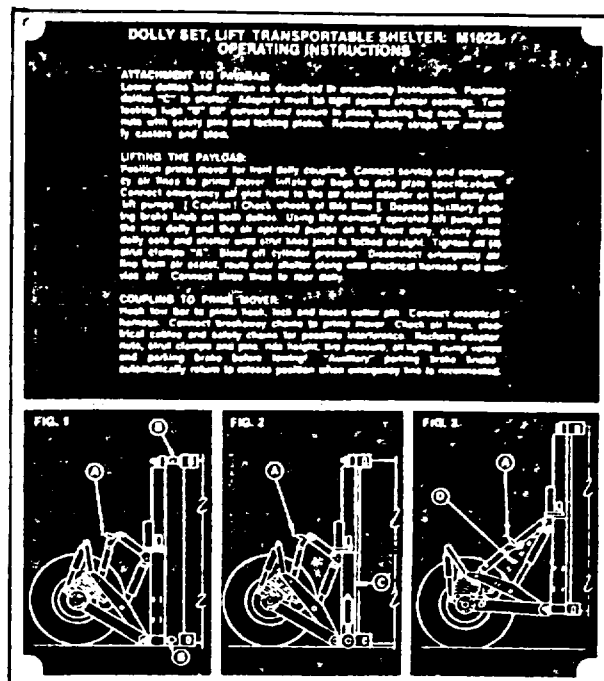
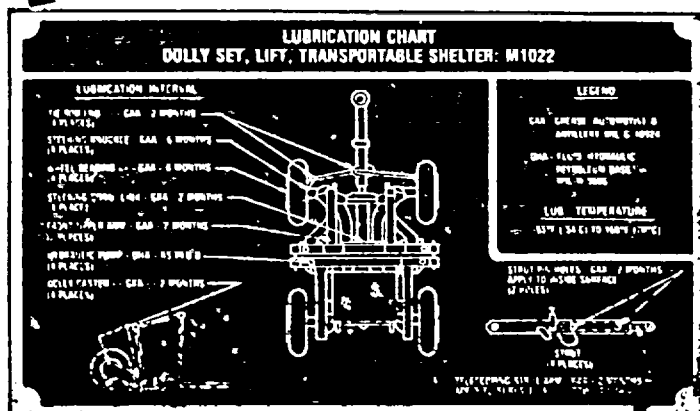
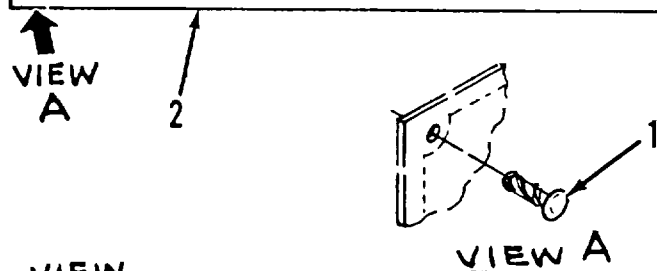
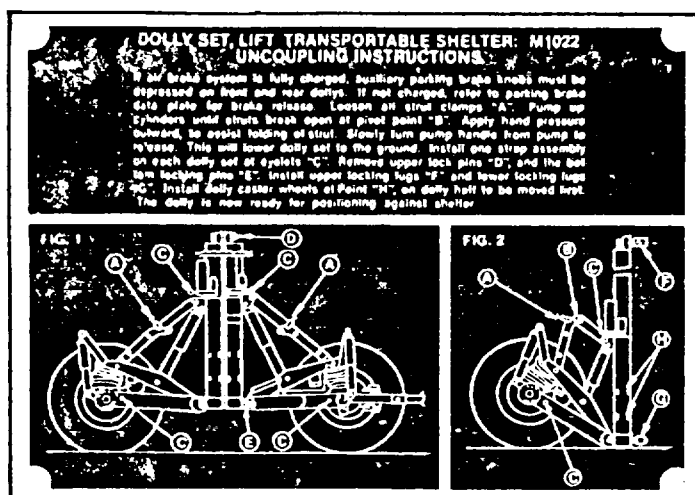


FIGURE 26 . DATA PLATES



## SECTION II

TM 9-2330-379-14 P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
2210 DATA PLATES					
FIG. 26. DATA PLATES					
1	PAOZZ	96906	M521318-47	SCREW,DRIVE .....	8
2	PAOZZ	16128	6960599	PLATE,INSTRUCTION.....	1
3	PAOZZ	16128	6960598	PLATE,INSTRUCTION.....	1
4	PADZZ	96906	MS35207-261	SCREW,MACHINE.....	4
5	PADZZ	96906	MS21083-N3	NUT,SELF-LOCKING,HE .....	4
6	PAOZZ	16128	6960595	PLATE,INSTRUCTION .....	1

END OF FIGURE

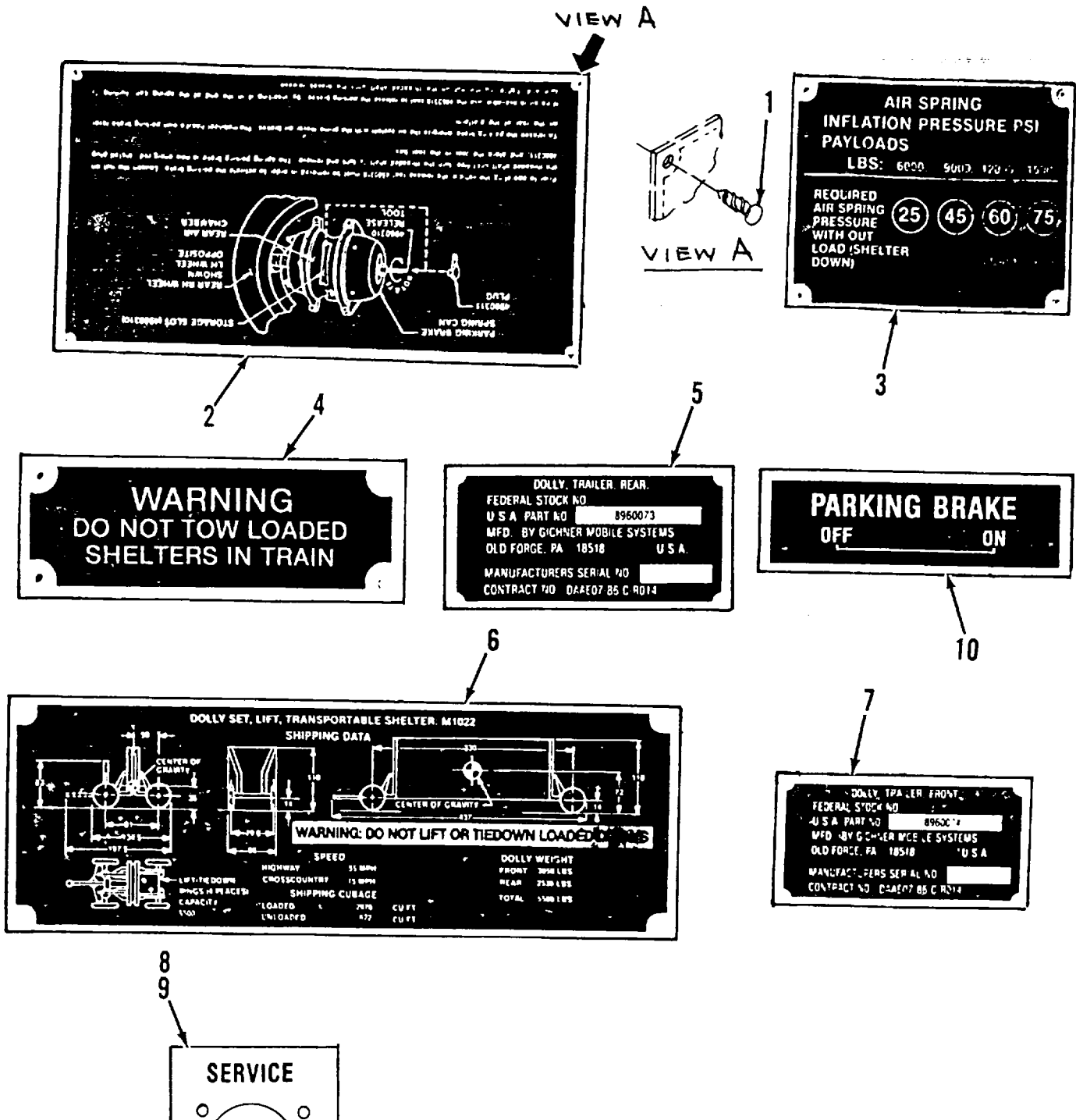


FIGURE 27. DATA PLATES

## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
2210 DATA PLATES					
FIG. 27. DATA PLATES					
1	PAOZZ	96906	MS21318-21	SCREW,DRIVE. ....	32
2	PAOZZ	16128	6300281	PLATE,INSTRUCTION. ....	32
3	PFOZZ	16128	5961298	PLATE,INSTRUCTION. ....	4
4	PAOZZ	19207	11612247	PLATE,INSTRUCTION. ....	1
5	PAOZZ	16128	6960596	PLATE,IDENTIFICATIO. ....	1
6	PAOZZ	16128	6960594	PLATE,INSTRUCTION. ....	1
7	PAOZZ	16128	6960597	PLATE,IDENTIFICATIO. ....	1
8	PAOZZ	96906	M553007-1	PLATE,IDENTIFICATIO SERVICE. ....	1
9	PAOZZ	96906	HS53007-2	PLATE,IDENTIFICATIO EMERGENCY.. ....	1

END OF FIGURE

3  
4 THRU 47

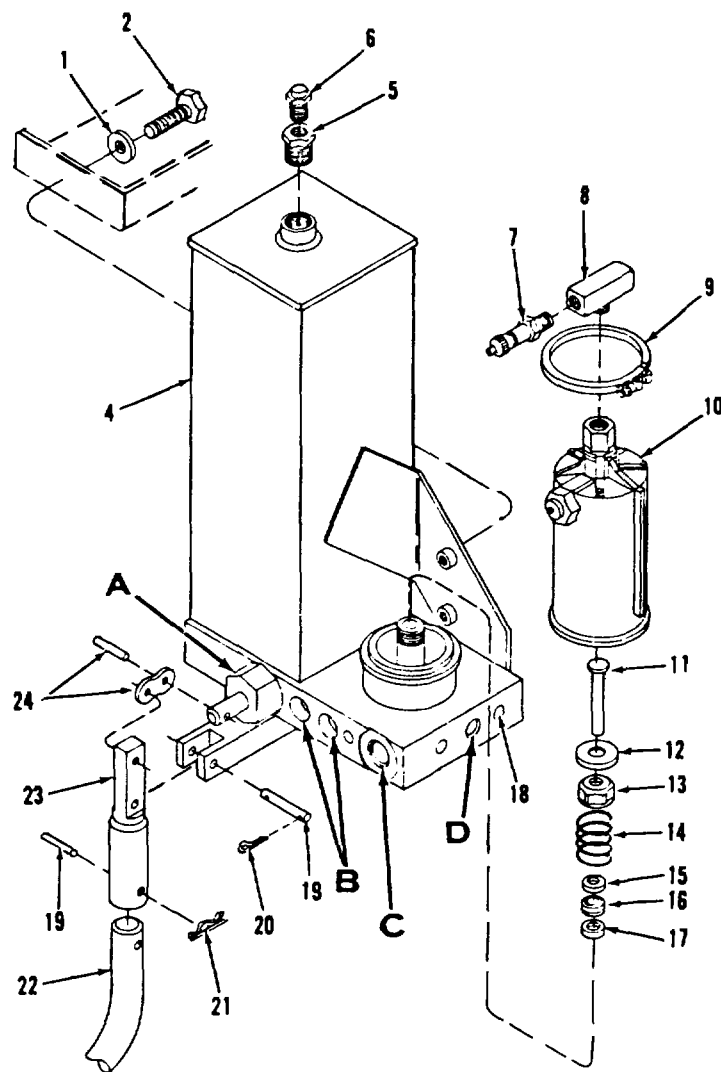


FIGURE 28. HYDRAULIC PUMP (SHEET 1 OF 2)

## SECTION II

TM 9-2330-379-14&amp;P

(1) ITEM NO	(2) SMR CODE	(3) FSCM	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
GROUP 24 HYDRAULIC LIFT COMPONENTS					
2401 HYDRAULIC PUMP					
FIG. 28. HYDRAULIC PUMP					
1	PAOZZ	96906	MS21183-10	WASHER,FLAT .....	8
2	PAOZZ	96906	MS90725-87	SCREW,CAP,HEX HD .....	8
3	PBOFF	16128	7967040	PUMPING UNIT,HYDRAU.....	1
4	XAFZZ	16128	7967020	PLATE WELDMENT .....	1
5	PAOZZ	01276	2081-6-2S	BUSHING,PIPE .....	1
6	PAOZZ	36251	1/8 PTF	VALVE,STOP-CHECK.....	1
7	PAOZZ	72413	W01-358-0003	VALVE,PNEUMATIC TAN .....	1
8	PAOZZ	01276	2091-4-4S	TEE,PIPE .....	1
9	PAOZZ	00671	3111-1-331	CLAMP,LOOP.....	1
10	PAOZZ	26952	CF181.900	MOTOR,DIRECT CURREN.....	1
11	PFFZZ	16128	5400159	PISTON,COMPRESSOR.....	1
12	PFFZZ	16128	5400158	WASHER,RECESSED .....	1
13	PFFZZ	16128	5400151	NUT,PLAIN CLINCH.....	1
14	PAFZZ	26952	CH210.110	SPRING,HELICAL,COMP .....	1
15	PFFZZ	16128	5400154	BEARING,SLEEVE .....	1
16	PAFZZ	02697	125C0250 MB	SPACER,RING .....	1
17	PAFZZ	02697	12500250 MB	SPACER,RING .....	1
18	PFFZZ	30780	1/8-HHP-S	PLUG,PIPE .....	1
19	PAOZZ	96652	11-093	PIN,STRAIGHT,HEADED.....	2
20	PAOZZ	96906	MS24665-351	PIN,COTTER .....	1
21	PAOZZ	96652	21-04	PIN,LOCK .....	1
22	PFOZZ	16128	5400156	HANDLE,MANUAL CONTR.....	1
23	PFOZZ	16128	5400148 .	LEVER,MANUAL CONTRO.....	1
24	PADZZ	71041	NO.60 ¾ PITCH	LINK,ROLLER CHAIN .....	1
25	PAFZZ	16128	5400153	PIN,PISTON.....	1
26	PAFZZ	02697	D-500 .	RING,WIPER .....	1
27	PAFZZ	02697	8-112-N300-90	RETAINER,PACKING.....	3
28	PAFZZ	96906	MS28775-112	PACKING,PREFORMED.....	3
29	PFFZZ	16128	5400152	NUT,SLEEVE.....	1
30	PAFZZ	02697	3-910N304-75	PACKING,PREFORMED.....	2
31	PAFZZ	96906	MS51963-123	SETSCREW .....	1
32	PAFZZ	16128	5400160	PLUG,ROTARY,VALVE.....	2
33	PAFZZ	16128	5400162-2	SEAT,VALVE .....	2
34	PAFZZ	02697	2-C14-N304-75	PACKING,PREFORMED.....	2
35	PAFZZ	02697	8-014-N300-90	RETAINER,PACKING.....	2
36	PFFZZ	16128	5400161 .	TUBE,METALLIC.....	2
37	PAFZZ	96906	M5S19060-1013	BALL,BEARING .....	4
38	PAFZZ	16128	5400162-1	SEAT,VALVE .....	2
39	PAFZZ	96906	M528775-012	PACK[ING,PREFORMED.....	3
40	PAFZZ	02697	8-012-N300-90	RETAINER,PACKING.....	3
41	PAFZZ	96906	M59047-213	PIN,SPRING .....	1
42	PAFZZ	16128	5400171	STEM,NEEDLE VALVE .....	1
43	PFFZZ	16128	5400155	NUT,SLEEVE.....	1
44	PAFZZ	16128	54C0172-36	VALVE,SAFETY RELIEF.....	1
45	PAFZZ	26952	C8576.290	SEAT,BALL SOCKET .....	1
46	PAFZZ	26952	P200.37	GASKET .....	1

END OF FIGURE

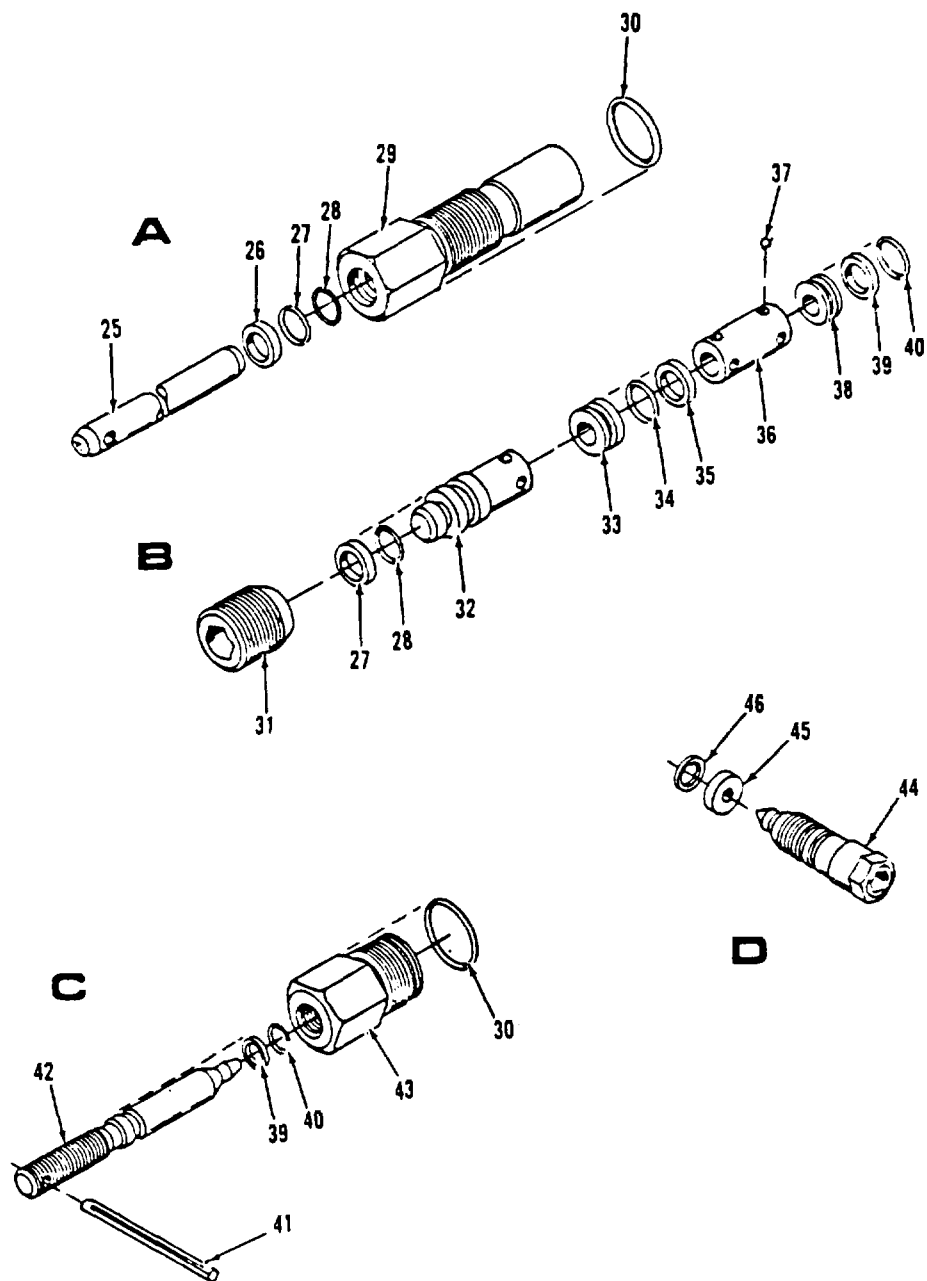


FIGURE 28. HYDRAULIC PUMP (SHEET 2 OF 2)

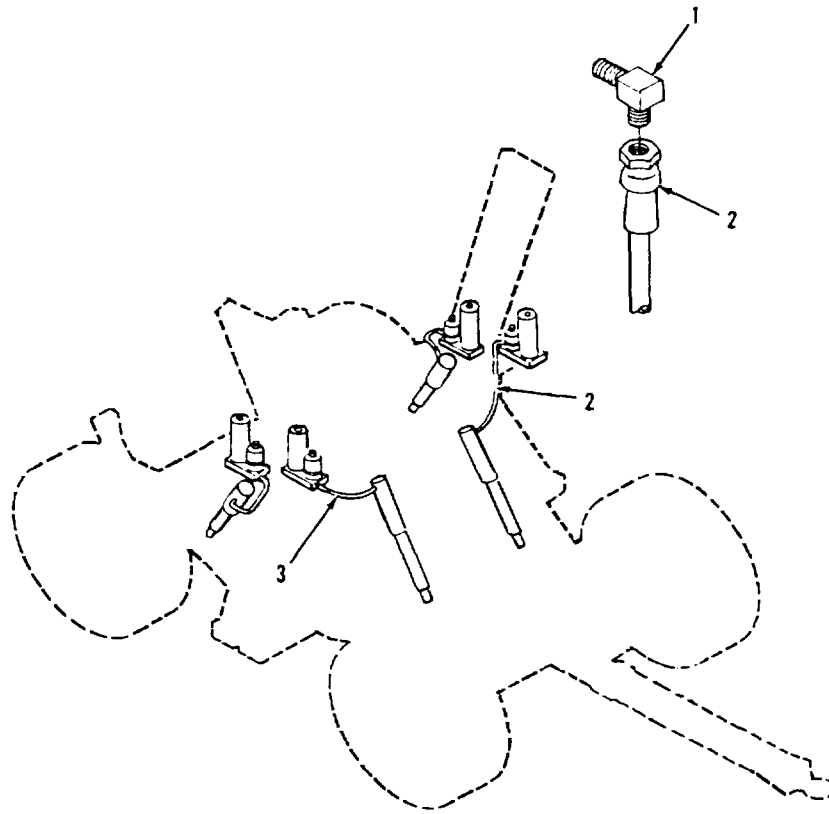


FIGURE 29. HYDRAULIC LINES AND FITTINGS

## SECTION II

TM 9-2330-379-14&amp;P

(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

2406 HYDRAULIC LINES AND FITTINGS  
FIG. 29. HYDRAULIC LINES AND  
FITTINGS

1	PAOZZ	30780	4-4CCTXS	ELBOW,PIPE TO TUBE .....	4
2	PAOZZ	16128	5961317-1	HOSE ASSEMBLY,NONME .....	2
3	PAOZZ	16128	5961317-2	HOSE ASSEMBLY,NONME .....	2

END OF FIGURE



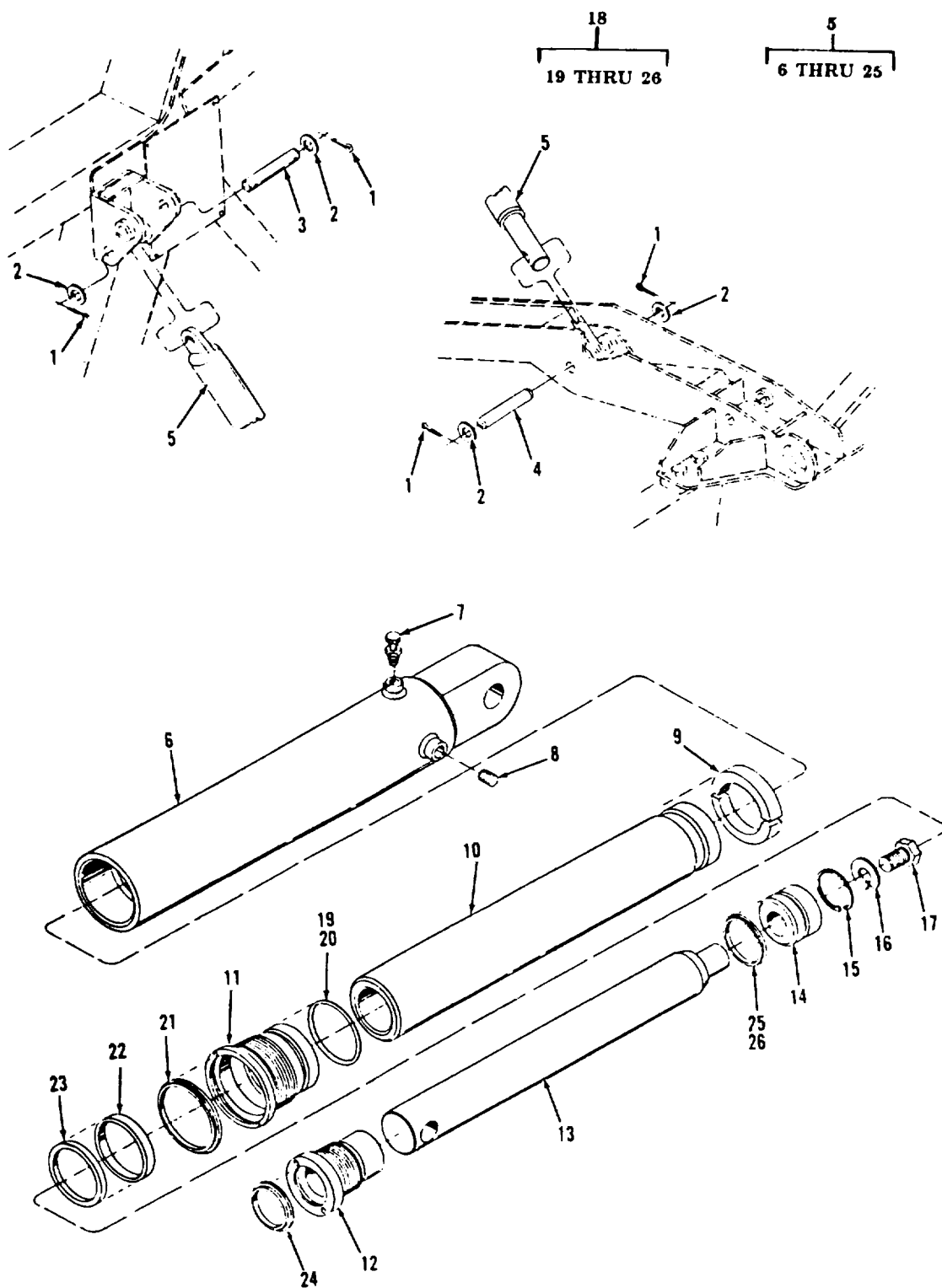


FIGURE 30. HYDRAULIC CYLINDER

SECTION II					
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
2407 HYDRAULIC CYLINDERS					
FIG. 30. HYDRAULIC CYLINDER					
1	PADZZ	96906	MS24665-503	PIN,COTTER .....	16
2	PAOZZ	96906	MS27183-27	WASHER,FLAT .....	16
3	PAOZZ	16128	53C0649-2	PIN,STRAIGHT,HEADLE .....	4
4	PAOZZ	16128	5300649-1	PIN,STRAIGHT,HEADLE .....	6
5	PAOFF	16128	7967041	CYLINDER,ACTUATING .....	4
6	XAFZZ	16128	6300273	BARREL ASSY .....	1
7	PADZZ	21758	H823	VALVE,PNEUMATIC TAN .....	1
8	PAOZZ	96906	MS20913-3S	PLUG,PIPE .....	1
9	XAFZZ	16128	4900082	SLEEVE,PISTON.....	1
10	XAFZZ	16128	6300274	SLEEVE .....	1
11	PFFZZ	16128	6300272	BEARING,SLEEVE .....	1
12	PAFZZ	16128	5400174	BEARING,SLEEVE .....	1
13	XAFZZ	16128	5400175	ROD .....	1
14	PAFZZ	16128	4900081	ROLLER,LINEAR-ROTAR.....	1
15	PFFZZ	96906	MS16625-1225	RING,RETAINING .....	1
16	PAFZZ	96906	MS35335-37	WASHER,LOCK. ....	1
17	PAFZZ	96906	MS90725-109	SCREW,CAP,HEXAGON H .....	1
18	PAFZZ	16128	4960211	PARTS KIT,LINEAR AC .....	1
19	KFFZZ	16128	4960220	BACK UP RING PART OF KIT P/N	
				4960211 .....	1
20	KFFZZ	06297	2-234N304-75	HD O-RING PART OF KIT P/N4960211 .....	1
21	KFFZZ	16128	4960227	WIPER,SLEEVE PART OF KIT P/N	
				4960211 .....	1
22	KFFZZ	16128	4960218	SEAL,SLEEVE,PART OF KIT P/N	
				4960211 .....	1
23	KFFZZ	16128	4960217	SEAL,BACK-UP PART OF KIT P/N	
				496021 .....	1
24	KFFZZ	16128	4960226	WIPER,ROD PART OF KIT P/N 4960211 .....	1
25	KFFZZ	06297	2-120N304-75	ROD,O-RING PART OF KIT P/N 4960211.....	1
26	KFFZZ	16128	4960222	ROD,O-RING PART OF KIT P/N 4960211.....	1

END OF FIGURE

## CROSS- REFERENCE-INDEXES

NATIONAL STOCK NUMBER INDEX					
STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5330-00-010-9639	28	46	6240-00-143-3159	2	6
4730-00-011-3176	11	7	2640-00-158-5617	13	7
2530-00-015-7564	8	21	5310-00-161-9964	12	2
5330-00-015-7565	8	17	5310-00-167-0765	25	9
5315-00-018-7988	17	11	6220-00-179-4324	2	9
6240-00-019-0877	2	8	5340-00-181-1546	8	8
5305-00-044-4153	30	17	2530-00-184-7897	14	7
4730-00-044-4693	10	13	5315-00-187-9569	17	3
5305-00-045-1988	28	2		18	9
5310-00-045-3296	1	10		30	1
	3	5	9905-00-202-3639	25	1
4730-00-050-4208	5	1	9905-00-205-2795	25	4
	14	11	5310-00-209-5116	30	16
2610-00-050-9510	13	5	5315-00-209-7273	19	2
2610-00-051-9110	13	6	4730-00-214-8108	28	8
2610-00-051-9450	13	2	5310-00-225-6992	22	1
5305-00-054-6667	2	1	5310-00-225-6993	19	16
2640-00-060-3550	13	4		21	1
5305-00-068-0513	3	9	5306-00-226-4827	5	2
5305-00-071-1316	25	3	5340-00-228-6361	17	15
5305-00-071-2069	20	7	2640-00-244-0442	13	3
5305-00-071-2070	19	15	4730-00-244-9848	9	10
5305-00-071-2081	19	14		10	22
4820-00-074-2314	30	7	5365-00-252-4763	30	15
3910-00-074-8574	20	3	5305-00-253-5615	27	1
	20	4	5305-00-253-5626	26	1
5310-00-080-6004	24	2	2610-00-262-8653	13	1
5305-00-082-6721	1	31	5310-00-264-1243	14	6
5310-00-087-4652	11	1	5310-00-269-4040	23	8
	14	2	5305-00-269-4529	17	12
	15	3	4730-00-277-7331	9	5
	16	11	4730-00-277-9615	10	5
	19	11	4730-00-278-3917	21	5
	24	1	4730-00-278-4824	9	15
5310-00-088-1251	4	1	5340-00-286-9427	19	7
5330-00-090-2128	9	2	4730-00-289-0232	9	7
	10	2	5340-00-291-5347	3	4
3110-00-100-0376	12	13	3110-00-293-8997	12	16
3110-00-100-3104	12	12	3110-00-293-8998	12	17
4730-00-105-2395	9	11	5310-00-401-5175	5	12
9905-00-18-6215	27	4	4820-00-420-5499	10	21
4820-00-115-3896	9	19	4030-00-431-5536	17	14
	10	16		18	5
5305-00-115-9526	2	12		20	13
2530-00-117-9144	8	14	5330-00-448-6753	28	30
5310-00-123-2572	8	13	5330-00-462-0907	2	10
4730-00-125-7916	29	1	4730-00-469-4254	9	13
4730-00-125-7979	10	15	5310-00-470-9340	18	8
6220-00-134-9098	2	4	2530-00-480-7461	8	20
2530-00-131-9235	10	23	5340-00-522-0381	25	5

## CROSS- REFERENCE-INDEXES

NATIONAL STOCK NUMBER INDEX					
STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
2590-00-529-6199	2	3	5310-00-832-9712	8	9
5310-00-543-2410	1	16	5315-00-839-5821	28	20
	3	8	5310-00-842-7616	19	3
5305-00-543-2866	14	13	5315-00-849-9854	5	11
	15	2	4730-00-873-0110	28	5
	16	3	5310-00-880-2004	12	2
	19	9	5305-00-889-2998	1	25
4730-00-555-0592	30	8	5310-00-933-8119	2	2
9505-00-555-8648	17	13	5310-00-933-8121	25	2
	18	6	5310-00-934-9739	1	15
	20	14		3	7
5310-00-574-0436	14	9	5310-00-934-9758	1	11
5330-00-576-4609	1	21	5305-00-938-1541	15	6
5310-00-582-5965	1	14	3110-00-943-6113	28	37
	1	29	5310-00-945-0528	5	3
	1	30		12	5
	3	10	5310-00-953-5023	6	2
5330-00-584-0265	28	39	5310-00-959-1488	17	16
5330-00-584-1840	28	34	4730-00-959-1628	9	18
5310-00-584-5272	20	8	5315-00-964-0804	23	10
4730-00-595-0083	9	1	5310-00-964-7811	8	22
	10	1	5330-00-975-3550	28	40
5330-00-599-2934	28	28	5310-00-982-6568	19	4
5340-00-613-7784	8	4	5305-00-983-6730	3	1
6240-00-617-0991	2	7	5305-00-984-6209	1	27
5310-00-627-6128	2	11	5305-00-984-6212	1	6
5310-00-638-2830	12	7		7	1
2530-00-700-1705	12	8	5305-00-984-7363	25	7
2530-00-700-1709	12	9	5305-00-988-1171	4	4
5305-00-724-7219	16	6	5305-00-988-1725	1	2
5305-00-724-7222	23	9		1	19
5305-00-724-7865	28	31	5940-00-989-4370	1	8
5305-00-725-2317	23	2	5305-00-989-7434	25	10
5310-00-761-6882	1	13	5305-00-989-7435	3	6
	1	28		19	8
5310-00-763-8904	23	6	5305-00-990-6444	26	4
5935-00-773-1428	1	20	9905-00-999-7369	27	9
2530-00-773-5347	12	6	9905-00-999-7370	27	8
5935-00-773-6571	1	18	2530-01-012-2880	8	19
5365-00-805-9421	22	3	5315-01-025-4511	28	41
5310-00-809-4058	4	2	4730-01-028-1318	9	9
	28	1	4730-01-043-8150	10	9
5310-00-809-4061	11	2	5310-01-059-0711	6	1
5310-00-809-5998	19	13	2530-01-062-8273	8	15
	21	2	5310-01-063-2299	8	6
5310-00-809-8541	17	2	4820-01-063-4828	11	5
	19	18	2510-01-067-4717	2	5
	30	2	5310-01-070-2105	20	9
2640-00-810-5861	13	8	2530-01-070-9220	8	2
5330-00-821-7499	28	35	5310-01-074-7032	17	10

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5315-01-082-6938	5	13	5340-01-266-9780	4	3
5330-01-082-8595	12	11	4720-01-266-9781	29	3
5310-01-091-7768	8	7	4720-01-266-9782	29	2
5306-0-094-97144	8	18	4810-01-266-9784	28	33
2530-01-095-8752	9	8	2530-01-267-5729	14	8
	10	8	2530-01-267-5730	14	12
5330-01-097-5853	1	4	2530-01-267-5731	23	3
5330-01-105-7788	8	16	2540-01-267-5732	19	6
5985-01-107-9290	5	8	2510-01-267-5733	15	12
5985-01-107-9291	5	7	2530-01-267-5734	14	5
5315-01-111-2435	5	6	2510-01-268-3528	17	4
5315-01-112-1505	5	16	2510-01-268-3529	15	14
5310-01-114-5637	12	10	2590-01-268-3530	15	11
5310-01-115-2550	5	9	2590-01-268-3531	15	7
5330-01-115-8112	5	5	5365-01-268-3532	18	3
5330-01-116-1132	5	10	5310-01-268-3533	22	2
5360-01-133-3702	8	3	9905-01-268-3534	27	6
	8	5	5310-01-268-3536	28	13
5305-01-160-7408	8	10	5315-01-268-3537	28	19
5935-01-176-1708	1	24	5315-01-268-3538	18	2
5315-01-190-0430	28	21	5315-01-268-3539	16	4
5305-01-190-1421	12	4	5315-01-268-3540	17	1
5315-01-207-7930	18	7		30	4
5305-01-210-4595	24	4	5315-01-268-3541	30	3
2530-01-210-8837	12	4	5340-01-268-3542	18	4
2610-01-214-1344	13	1	3120-01-268-3546	30	11
2530-01-261-0099	20	10	3120-01-268-3547	30	12
5340-01-263-4147	1	3	3120-01-268-3548	28	15
5340-01-263-4158	3	3	5365-01-268-3549	22	4
4720-01-266-5703	9	12	5365-01-268-3550	15	9
4720-01-266-7622	9	3		16	10
4720-01-266-7623	9	6	5310-01-268-3554	28	12
4720-01-266-7624	9	16	5307-01-268-3555	21	4
4720-01-266-7625	10	4	4320-01-268-3556	28	25
4720-01-266-7626	10	6	4730-01-268-3557	18	12
4720-01-266-7627	10	11	4730-01-268-3558	18	12
4720-01-266-7628	9	14	3040-01-268-3559	30	5
4720-01-266-7629	10	12	4810-01-268-3560	28	38
4720-01-266-7630	10	7	4310-01-268-3561	28	11
4720-01-266-7631	10	14	4320-01-268-3563	28	3
4720-01-266-7633	9	17	3120-01-268-3564	30	14
4720-01-266-7634	10	19	4820-01-268-3565	28	42
4720-01-266-7635	10	20	5310-01-268-3566	28	29
9905-01-266-9770	27	5	5310-01-268-3567	28	43
9905-01-266-9773	27	3	4710-01-268-3569	28	36
9905-01-266-9774	26	3	3040-01-268-3574	28	23
6150-01-266-9775	3	2	4820-01-268-3575	28	32
4810-01-266-9776	28	44	2590-01-268-4723	18	10
5340-01-266-9777	20	1	9905-01-268-4724	27	7
5307-01-266-9779	18	11	9905-01-268-4725	26	6

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5306-01-268-4726	19	1	2540-01-282-1683	22	6
5315-01-268-4727	15	5	4820-01-282-4105	28	6
5315-01-268-4728	15	4	2530-01-282-4989	28	45
5315-01-268-4729	19	10	3120-01-282-6176	16	9
5315-01-268-4730	14	1	3120-01-282-6177	14	3
4010-01-268-4732	19	20	5340-01-283-6745	25	6
4010-01-268-4733	19	21	5360-01-284-0693	28	14
2530-01-268-4734	5	15	5940-01-285-7847	10	3
5365-01-268-4735	19	5	2530-01-286-7857	8	12
5340-01-268-4736	1	12	3040-01-286-7915	23	5
6110-01-268-4737	1	1	3040-01-286-7916	23	7
5330-01-268-4738	12	18	2895-01-287-3982	28	10
6150-01-268-4739	1	17	2530-01-287-3986	5	14
5140-01-268-4740	24	3	5315-01-288-1611	18	1
2530-01-268-4741	8	11	4730-01-288-3873	10	17
5340-01-268-4742	23	1	4730-01-288-3883	9	20
5340-01-268-4745	5	4	5365-01-288-5126	14	4
2530-01-268-4746	6	3			
9905-01-268-8738	26	2			
2530-01-268-8743	5	15			
2530-01-268-8744	12	3			
5306-01-268-8749	6	4			
2530-01-268-8750	15	13			
5340-01-274-1072	17	5			
4720-01-274-9229	9	21			
3040-01-277-0323	30	18			
5340-01-277-0340	28	22			
5340-01-277-5076	20	12			
4720-01-277-5444	9	4			
6150-01-277-5633	1	22			
6150-01-277-5634	1	26			
5306-01-277-6217	11	3			
5315-01-278-2125	17	9			
3020-01-278-6210	28	24			
5306-01-279-2331	11	4			
5940-01-280-3417	1	9			
5305-01-280-5759	22	5			
5340-01-280-7152	25	8			
4810-01-281-7858	9	22			
5340-01-281-7986	28	9			
4320-01-281-9703	28	26			
2510-01-281-9715	21	3			
2530-01-281-9718	11	6			
2540-01-281-9723	19	12			
2530-01-282-0140	7	3			
5310-01-282-0903	20	5			
5315-01-282-0996	19	17			
4810-01-282-1675	7	2			
4820-01-282-1682	21	6			
	28	7			

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FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
78500	A-1199-Z-3432	2530-01-012-2880	8	19
78500	A-1205-B-1432	5330-01-116-1132	5	10
78500	A-2747-H-112	2530-00-117-9144	8	14
78500	A-3111-K-3001		5	14
78500	A-3111-L-3002	2530-01-287-3986	5	14
56644	AM-10	3040-01-286-7915	23	5
88044	AN315-18L	5310-00-574-0436	14	9
81352	AN315-18R	5310-00-264-1243	14	6
88044	AN970-3	5310-00-167-0765	25	9
56644	AW-10	3040-01-286-7916	23	7
3H814	A1-3211-C-5021		8	23
3H814	A1-3211-O-5022		8	23
3H814	A1-3211-5571		8	23
			8	23
78500	A1705K219	5330-00-015-7565	8	17
78500	A2297L3158	5306-01-094-9714	8	18
78500	A5-333-M-2821		12	14
78500	A6-333-M-2821		12	14
18500	A8-3722-T-358	2530-01-070-9220	8	2
26952	CB576.290	2530-01-282-4989	28	45
26952	CF181.900	2895-01-287-3982	28	10
26952	CH210.110	5360-01-284-0693	28	14
02697	O-500	4320-01-281-9703	28	26
81285	ES187L		14	10
81285	ES187R	2530-00-184-7897	14	7
71041	FB-2428-12	3910-00-074-8574	20	4
71041	F82428-12	3910-00-074-8574	20	3
26124	GM2428-24	3120-01-282-6177	14	3
26125	GM2432-24		15	8
	3120-01-282-6176		16	9
81348	GP1/TYA/3.40-5/B	2610-00-050-9510	13	5
	/MHHR			
78500	HM212011	3110-00-293-8997	2	16
78500	HM212049	3110-00-293-8998	12	17
21758	H823	4820-00-074-2314	30	7
15148	J-6145-1[		15	10
			16	8
81349	MIL-T-12459/CLCC	2610-00-262-8653	13	1
	/SA/1100-20/F/CC			
96906	M514315-7X	4730-01-028-1318	9	9
96906	S15003-1	4730-00-050-4208	14	11
96906	M515570-1251	6240-00-019-0877	2	8
96906	MS15570-89	6240-00-143-3159	2	6
96906	MS16625-225	5365-00-252-4763	30	15
96906	MS17987C1045	5340-01-277-5076	20	12
96906	MS17988-C1630	5340-00-228-6361	17	15
96906	MS18154-5e	5305-00-115-9526	2	12
96906	MS19060-13	3110-00-943,-6113	28	37
96906	S20002-24		20	11
96906	4S20392-9C45	5315-00-964-0804	23	10
96906	MS20913-3S	4730-00-555-0592	30	8

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FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS2099SC47	9505-00-555-8648	17	13
			18	6
			20	14
96906	MS21083-N3		26	5
96906	MS21206-12	5310-01-074-7032	17	10
96906	M521318-21	5305-00-253-5615	27	1
96906	MS21318-47	5305-00-253-5626	26	1
96906	MS21919WDG12	5340-00-286-9427	19	7
96906	S21919WDG8	5340-00-291-5347	3	4
96906	MS2465-425		19	19
96906	MS24665-351	5315-00-839-5821	28	20
96906	MS24665-389		23	4
96906	MS24665-493	5315-00-018-7988	17	11
96906	MS24665-48	5315-00-849-9854	5	11
96906	MS24665-503	5315-00-187-9569	17	3
			18	9
			30	1
96906	MS24665-625	5315-00-209-7273	19	2
96906	MS25043-22DA	5935-01-176-1708	1	24
96906	14S27183-10	5310-00-809-4058	4	2
			28	1
96906	MS27183-14	5310-00-080-6004	24	Z
96906	S27183-15	5310-00-809-4061	II	2
96906	MS27183-18	5310-00-809-5998	19	13
			21	2
96906	MS27183-27	5310-00-809-8541	17	2
			19	18
			30	2
96906	MS271183-33	5310-00-982-6568	19	4
96906	MS28775-012	5330-00-584-0265	28	39
96906	MS28775-112	5330-00-599-2934	28	28
96906	MS351S1-272	5305-00-984-7363	25	7
96906	MS35206-216	5305-00-889-2998	1	25
96906	MS35206-218	5305-00-983-6730	3	1
96906	MS35206-262	5305-00-984-6209	1	27
96906	MS35206-265	5305-00-984-6212	1	6
			7	1
96906	MS35206-281	5305-00-988-1725	1	2
			1	19
96906	MS35206-285	5305-00-988-1171	4	4
96906	MS35207-261	5305-00-990-6444	26	4
96906	MS35207-263	5305-00-989-7434	25	10
96906	MS35207-264	5305-00-989-7435	3	6
			19	8
96906	MS35335-35	5310-00-627-6128	2	11
96906	MS35335-37	5310-00-209-5116	30	16
96906	MS35338-137	5310-00-933-8119	2	2
96906	MS535338-139	5310-00-933-8121	25	2
96906	MS35338-40	5310-00-543-2410	1	16
			3	8
96906	MS35338-43	5310-00-045-3296	1	10



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FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS35338-43	5310-00-045-3296	3	5
96906	MS35338-44	5310-00-582-5965	1	14
			1	29
			1	30
			3	10
96906	MS35338-48	5310-00-584-5272	20	8
96906	MS35387-1	9905-00-205-2795	25	4
96906	MS35387-2	9905-00-202-3639	25	1
96906	MS35478-1073	6240-00-617-0991	2	7
96906	MS35649-202	5310-00-934-9758	1	11
96906	MS35649-242	5310-00-934-9739	1	15
			3	7
96906	MS35692-105	5310-00-842-7616	19	3
96906	MS35692-1824	5310-00-401-5175	5	12
96906	MS35692-97	5310-00-470-9340	18	8
96906	MS35746-1	4730-00-595-0083	9	1
			10	1
96906	MS35748-1	5330-00-090-2128	9	2
			10	2
96906	MS51377-1	2640-00-810-5861	13	8
96906	MS51922-1	5310-00-088-1251	4	1
96906	M551922-17	5310-00-087-4652	1	1
			14	2
			15	3
			16	11
			19	11
			24	1
96906	MS51922-21	5310-00-959-1488	17	16
96906	MS51922-33	5310-00-225-6993	19	16
			21	1
96906	MS51922-49	5310-00-269-4040	23	8
96906	MS51957-42	5305-00-054-6667	2	1
96906	MS51957-80	5305-00-071-1316	25	3
96906	MS51957-81	5305-00-082-6721	1	31
96906	MS551963-123	5305-00-724-7865	28	31
96906	MS51967-14	5310-01-070-2105	20	9
96906	MS51967-2	5310-00-761-6882	1	13
			1	28
96906	MS51968-21	5310-00-763-8904	23	6
96906	MS51983-3	5310-00-880-2004	12	2
96906	MS52125-1	6220-00-134-9098	2	4
96906	MS53007-1	9905-00-999-7370	27	8
96906	MS53007-2	9905-00-999-7369	27	9
96906	MS9047-213	5315-01-025-4511	28	41
96906	MS90725-109	5305-00-044-4153	30	17
96906	MS90725-87	5305-00-045-1988	28	2
96906	MS90727-6	5305-00-068-0513	3	9
96906	MS90727-76	5305-00-269-4529	17	12
96906	MS90728-113	5305-00-071-2069	20	7
96906	MS90728-114	5305-00-071-2070	19	15
96906	MS90728-125	5305-00-071-2081	19	14

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96906	MS90728-160	5305-00-724-7219	16	6
96906	MS90728-164	5305-00-724-7222	23	9
96906	MS90728-34	5306-00-226-4827	5	2
96906	MS90728-64	5305-00-725-2317	23	2
96906	MS90728-68	5305-00-543-2866	14	13
			15	2
			16	3
			19	9
96906	MS9321-1	5310-00-945-0528	5	3
			12	5
78500	N-14	5310-01-091-7768	8	7
72413	NAD-18263	2510-01-281-9715	21	3
78500	NL-110-1	5310-01-059-0711	6	1
71041	NO.603/4P/TCH	3020-01-278-6210	28	24
06721	N178AC	4810-01-281-7858	9	22
74410	PH-75	2540-01-281-9723	19	12
26952	P200.37	5330-00-010-9639	28	46
78500	RSA-1550-733		8	1
78500	RSA-1550-735		8	1
3H814	RSA-1550-736		8	1
78500	R5A-1550-734		8	1
78500	S-255	5305-01-160-7408	8	10
78500	S-256-1	5305-01-190-1421	12	4
26935	S-7010	2530-01-261-0099	20	10
51665	US48	2640-00-060-3550	13	4
12697	VCIOF-20		1	7
78500	WA-14C	5310-01-063-2299	8	6
93799	WA-15	5310-00-832-9712	8	9
72413	W01-358-OC03	4820-01-282-1682	21	6
			28	7
78500	Y12-3276-L-12	2530-01-286-7857	8	12
81348	ZZ-I-550/G2/11.0	2610-00-051-9450	13	2
	0-20/TR78A/ONCTR			
81348	ZZ-I-55C/G5/3.40	2610-00-051-9110	13	6
	/3.00-5/TR87/ONC			
30780	1-2SHPB	4730-00-011-3176	11	7
36251	1/8PTF	4820-01-282-4105	28	6
30780	1/8-HHP-S		28	18
97914	1031520	5940-01-285-7847	10	3
06853	104675(PP-1)	2530-01-282-0140	7	3
96652	11-093	5315-01-268-3537	28	19
19207	11612247	9905-00-108-6215	27	4
19207	11621410	5940-01-280-3417	1	9
19207	11639519-2	5330-00-462-0907	2	10
19207	11639520	2510-01-067-4717	2	5
19207	11639535	6220-00-179-4324	2	9
40670	11682888	4730-00-244-9848	9	10
			10	22
78500	1199-N-1860	4730-00-050-4208	5	1
78500	1199N118	5310-00-161-9964	12	2
78500	1227-U-541	5310-01-114-5637	12	10

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78500	1227-Z-780	5310-01-115-2550	5	9
78500	1227B106	5310-00-638-2830	12	7
78500	1229-U-1503	5310-00-953-5023	6	2
78500	1229F474	2530-00-700-1705	12	8
78500	1229G475	2530-00-700-1709	12	9
30327	23B3-8X1-4	4730-00-289-0232	9	7
19207	12301105	2610-01-214-1344	13	1
19207	12301115	2530-01-210-8837	12	1
02697	12500250MB		28	16
			28	17
97403	13222E0109	5305-01-210-4595	24	4
78500	16X-202	5315-01-082-6938	5	13
78500	1707-C-3	5340-00-181-1546	8	8
78500	1718D134	5340-00-613-7784	8	4
78500	1727N40	5310-00-123-2572	8	13
78500	1729B262	5310-00-964-7811	8	22
78500	1719M195	2530-00-015-7564	8	21
02697	2-014-N304-75	5330-00-584-1840	28	34
06297	2-120N304-75		30	25
06297	2-234N304-75		30	20
78500	20-X-253-S	5306-01-268-8749	6	4
73808	20R	2640-00-158-5617	13	7
78500	20X-1655-SLH		12	15
78500	20X-1656-SRH		12	15
87373	208P-8-6	4730-00-105-2395	9	11
30780	2081-12-45S	4730-00-278-3917	21	5
01276	2081-6-2S	4730-00-873-0110	28	5
16717	2083-12-8S	4730-01-043-8150	10	9
01276	2091-4-4S	4730-00-214-8108	28	8
96652	21-04	5315-01-190-0430	28	21
30780	216P8-6	4730-01-288-3873	10	17
30780	219P-4	4730-00-044-4693	13	13
30780	2202P-6-7		10	10
78500	2203-K-3001	5985-01-107-9291	5	7
78500	2203-L-3002	5985-01-107-9290	5	8
30780	2205P-6	4730-01-288-3883	9	20
			10	18
78500	2208-M-819	5330-01-082-8595	12	11
78500	2208-Q-823	5330-01-115-8112	5	5
06853	221121	4820-01-063-4828	11	5
30780	2225P-4	4730-00-277-9615	10	5
78500	2258E629	5360-01-133-3702	8	3
			8	5
06853	227783	2530-01-281-9718	11	6
06853	227871	4820-00-115-3896	9	19
			10	16
78500	2297-T-4752-S	5340-01-268-4745	5	4
78500	2297J2376	2530-01-062-8273	8	15
78500	2297N3212	5330-01-105-7788	8	16
96652	25-06	5315-01-207-7930	18	7
78500	2797B41		8	20

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FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
78500	2797C419	2530-00-480-7461	8	20
06853	281865 (RE-6)	2530-01-095-8752	9	8
			10	8
06853	283040	4810-01-282-1675	7	2
06853	285172	4820-00-420-5499	10	21
02697	3-910N304-75	5330-00-448-6753	28	30
78500	3101-W-17	5315-01-112-1505	5	16
00671	3111-1-331	5340-01-281-7986	28	9
78500	3133-F-6324-S	2530-01-268-4734	5	15
78500	3133-H-6326	2530-01-268-8743	5	15
78500	3213-N-1574-S	2530-01-268-4746	6	3
78500	3219-H-3570-S	2530-01-268-8744	12	3
78500	3262A53	2530-00-773-5347	12	6
78500	3286-M-1053-S	5330-01-268-4738	12	18
78500	3720	3110-00-100-0376	12	13
78500	3736-M-325	2530-01-268-4741	8	11
72260	3782	3110-00-100-3104	12	12
81343	4-4140239B	4730-00-278-4824	9	15
30780	4-4CCTXS	4730-00-125-7916	29	1
76110	401754	5365-00-805-9421	22	3
16128	4900033	5365-01-268-3549	22	4
16128	4900051-1	5306-01-277-6217	11	3
16128	4900051-2	5306-01-279-2331	11	4
16128	4900053	5315-01-282-0996	19	17
16128	4900059	5305-01-280-5759	22	5
16128	4900060	5310-01-282-0903	20	5
16128	4900064	5310-00-225-6992	22	1
16128	4900065	5305-00-938-1541	15	6
16128	4900067	5307-01-268-3555	21	4
16128	4900081	3120-01-268-3564	30	14
16128	4900082		30	9
16128	4960108	5340-01-263-4158	3	3
16128	4960211	3040-01-277-0323	30	18
16128	4960217		30	23
16128	4960218		30	22
16128	4960220		30	19
16128	4960222		30	26
16128	4960226		30	24
16128	4960227		30	21
78500	5-40526LH		12	1
78500	5-40527LH		12	1
16128	5300404	6150-01-268-4739	1	17
16128	5300406	5340-01-263-4147	1	3
16128	5300407	5340-01-268-4736	1	12
16128	5300597	5315-01-268-3538	18	2
16128	5300598	5365-01-268-3532	18	3
16128	5300632-1	5315-01-268-4727	15	5
16128	5300632-2	5315-01-268-4728	15	4
16128	5300632-3	5315-01-268-3539	16	4
16128	5300634	2530-01-267-5729	14	8
16128	5300636-1	5365-01-288-5126	14	4

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FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
16128	5300645	5365-01-268-3550	15	9
			16	10
16128	5300646-1	5315-01-268-4729	19	10
16128	5300646-2	5315-01-268-4730	14	1
16128	5300648-1	5315-01-278-2125	17	9
16128	5300649-1	5315-01-268-3540	17	1
			30	4
16128	5300649-2	5315-01-268-3541	30	3
16128	5300650	5310-01-268-3533	22	2
16128	5300652	5340-01-268-4742	23	1
16128	5300654	5340-01-266-9780	4	3
16128	5300659	5140-01-268-4740	24	3
16128	5300670	5365-01-268-4735	19	5
16128	5300671	5306-01-268-4726	19	1
16128	5300674	4010-01-268-4732	19	20
16128	5330645		16	2
16128	5400148	3040-01-268-3574	28	23
16128	5400151	5310-01-268-3536	28	13
16128	54001.52	5310-01-268-3566	28	29
16128	5400153	4320-01-268-3556	28	25
16128	5400154	3120-01-268-3548	28	15
16128	5400155	5310-01-268-3567	28	43
16128	5400156	5340-01-277-0340	28	22
16128	5400158	5310-01-268-3554	28	12
16128	5400159	4310-01-268-3561	28	1t
16128	5400160	4820-01-268-3575	28	32
16128	5400161	4710-01-268-3569	28	36
16128	5400162-1	4810-01-268-3560	28	38
16128	5400162-2	4810-01-266-9784	28	33
16128	5400171	4820-01-268-3565	28	42
16128	5400172-36	4810-01-266-9776	28	44
16128	5400174	3120-01-268-3547	30	12
16128	5400175		30	13
16128	5961190	5330-01-097-5853	1	4
16128	5961298	9905-01-266-9773	27	3
16128	5961317-1	4720-01-266-9782	29	2
16128	5961317-2	4720-01-266-9781	29	3
16128	5961322	6150-01-277-5633	1	22
16128	5961353	6150-01-277-5634	1	26
16128	5961354-1	4730-01-268-3557	18	12
16128	5961354-2	4730-01-268-3558	18	12
16128	5961355-1	5340-01-280-7152	25	8
16128	5961355-2	5340-01-283-6745	25	6
16128	5961356	4010-01-268-4733	19	21
81343	6-61402398	4730-00-469-4254	9	13
81343	6-6-61304388	4730-00-277-7331	9	5
81343	6-6-6-1304258	4730-00-125-7979	10	15
16128	6300229	5307-01-266-9779	18	11
16128	6300231	5340-01-268-3542	18	4
16128	6300239	2590-01-268-4723	18	10
16128	6300246		20	6

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FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
16128	63002723120-01-268-3546		30	11
16128	6300273		30	6
16128	6300274		30	10
16128	6300281		27	2
19220	6411E	5340-00-522-0381	25	5
37492	680093	2540-01-282-1683	22	6
16128	6960514		1	23
16128	6960594	9905-01-268-3534	27	6
16128	6960595	9905-01-268-4725	26	6
16128	6960596	9905-01-266-9770	27	5
16128	6960597	9905-01-268-4724	27	7
16128	6960598	9905-01-266-9774	26	3
16128	6960599	9905-01-268-8738	26	2
16128	6960624	6150-01-266-9775	3	2
16128	6960634		17	7
16128	6960635	5340-01-274-1072	17	5
16128	6960636		17	8
16128	6960637		17	6
16128	6960639	2530-01-267-5734	14	5
16128	6960640		1	5
16128	6960641	6110-01-268-4737	1	1
16128	6960644-1	4720-01-266-7622	9	3
16128	6960644-10	4720-01-266-7628	9	14
16128	6960644-11	4720-01-266-7629	10	12
16128	6960644-12	4720-01-266-7630	10	7
16128	6960644-14	4720-01-266-7631	10	14
16128	6960644-16	4720-01-266-7633	9	17
16128	6960644-17	4720-01-266-7634	10	19
16128	6960644-18	4720-01-266-7635	10	20
16128	6960644-2	4720-01-274-9229	9	21
16128	6960644-3	4720-01-277-5444	9	4
16128	6960644-4	4720-01-266-5703	9	12
16128	6960644-5	4720-01-266-7623	9	6
16128	6960644-6	4720-01-266-7624	9	16
16128	6960644-7	4720-01-266-7625	10	4
16128	6960644-8	4720-01-266-7626	10	6
16128	6960644-9	4720-01-266-7627	10	11
16128	6960645	5315-01-288-1611	18	1
78500	7X-111	5315-01-111-2435	5	6
16128	7300194	2530-01-267-5730	14	12
16128	7300200	2530-01-267-5731	23	3
53477	7381	2640-00-244-0442	13	3
19207	7411021	2530-00-137-9235	10	23
98343	752HD	5935-00-773-6571	1	18
19207	7525965	5330-00-576-4609	1	21
19207	7731428	5935-00-773-1428	1	20
16128	7967015		20	2
16128	7967016	5340-01-266-9777	20	1
16128	7967017	2510-01-268-3528	17	4
16128	7967019	2540-01-267-5732	19	6
16128	7967020		28	4

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FSCM	PART NUMBER	STOCK NUMBER	FIG.	ITEM
16128	7967040	4320-01-268-3563	28	3
16128	7967041	3040-01-268-3559	30	5
02697	8-012-N300-90	5330-00-975-3550	28	40
02697	8-014-N300-90	5330-00-821-7499	28	35
02697	8-112-N30C-90		28	27
81343	8-8140339B	4730-00-959-1628	9	18
83330	812JJ6	5940-00-989-4370	1	8
19207	8537648	4030-00-431-5536	17	14
			18	5
			20	13
19207	8747908-1	2590-00-529-6199	2	3
16128	8960067		16	1
16128	8960068		15	1
16128	8960071-1		16	14
16128	8960071-2		16	12
16128	8960072-1	2510-01-268-3529	15	14
16128	8960072-2	2510-01-267-5733	15	12
16128	8960082	2530-01-268-8750	15	13
16128	8960087-1	2590-01-268-3530	15	11
16128	8960087-2	2590-01-268-3531	15	7
16128	8960088-1		16	13
16128	8960088-2		16	7
16128	8960089		16	5

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FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
1	1	6110-01-268-4737	16128	6960641
1	2	5305-00-988-1725	96906	MS35206-281
1	3	5340-01-263-4147	16128	5300406
1	4	5330-01-097-5853	16128	5961190
1	5		16128	6960640
1	6	5305-00-984-6212	96906	MS35206-265
1	7		12697	VCIOF-20
1	8	5940-00-989-4370	83330	812JJ6
1	9	5940-01-280-3417	19207	11621410
1	10	5310-00-045-3296	96906	MS35338-43
1	11	5310-00-934-9758	96906	MS35649-202
1	12	5340-01-268-4736	16128	5300407
1	13	5310-00-761-6882	96906	MS51967-2
1	14	5310-00-582-5965	96906	MS35338-44
1	15	5310-00-934-9739	96906	MS35649-242
1	16	5310-00-543-2410	96906	MS35338-40
1	17	6150-01-268-4739	16128	5300404
1	18	5935-00-773-6571	98343	752HD
1	19	5305-00-988-1725	96906	MS35206-281
1	20	5935-00-773-1428	19207	7731428
1	21	5330-00-576-4609	19207	7525965
1	22	6150-01-277-5633	16128	5961322
1	23		16128	6960514
1	24	5935-01-176-1708	96906	MS25043-22DA
1	25	5305-00-889-2998	96906	MS35206-216
1	26	6150-01-277-5634	16128	5961353
1	27	5305-00-984-6209	96906	MS35206-262
1	28	5310-00-761-6882	96906	MS51967-2
1	29	5310-00-582-5965	96906	MS35338-44
1	30	5310-00-582-5965	96906	MS35338-44
1	31	5305-00-082-6721	96906	MS51957-81
2	1	5305-00-054-6667	96906	MS51957-42
2	2	5310-00-933-8119	96906	MS35338-137
2	3	2590-00-529-6199	19207	8747908-1
2	4	6220-00-134-9098	96906	MS52125-1
2	5	2510-01-067-4717	19207	11639520
2	6	6240-00-143-3159	96906	MS15570-89
2	7	6240-00-617-0991	96906	MS35478-1073
2	8	6240-00-019-0877	96906	MS15570-1251
2	9	6220-00-179-4324	19207	11639535
2	10	5330-00-462-0907	19207	11639519-2
2	11	5310-00-627-6128	96906	MS35335-35
2	12	5305-00-115-9526	96906	MS18154-58
3	1	5305-00-983-6730	96906	MS35206-218
3	2	6150-01-266-9775	16128	6960624
3	3	5340-01-263-4158	16128	4960108
3	4	5340-00-291-5347	96906	MS21919WDG8
3	5	5310-00-045-3296	96906	MS35338-43
3	6	5305-00-989-7435	96906	MS35207-264
3	7	5310-00-934-9739	96906	MS35649-242
3	8	5310-00-543-2410	96906	MS35338-40



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## FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
3	9	5305-00-068-0513	96906	MS90727-6
3	10	5310-00-582-5965	96906	MS35338-44
4	1	5310-00-088-1251	96906	MS51922-1
4	2	5310-00-809-4058	96906	MS27183-10
4	3	5340-01-266-9780	16128	5300654
4	4	5305-00-988-1171	96906	MS35206-285
5	1	4730-00-050-4208	78500	199-N-1860
5	2	5306-00-226-4827	96906	MS90728-34
5	3	5310-00-945-0528	96906	MS59321-11
5	4	5340-01-268-4745	78500	2297-T-4752-S
5	5	5330-01-115-8112	78500	2208-O-823
5	6	5315-01-111-2435	78500	7X-III
5	7	5985-01-107-9291	78500	2203-K-3001
5	8	5985-01-107-9290	78500	2203-L-3002
5	9	5310-01-115-2550	78500	1227-Z-780
5	10	5330-01-116-1132	78500	A-1205-B-1432
5	11	5315-00-849-9854	96906	MS24665-498
5	12	5310-00-401-5175	96906	MS35692-1824
5	13	5315-01-082-6938	78500	16X-202
5	14		78500	A-3111-K-3001
5	14	2530-01-287-3986	78500	A-3111-L-3002
5	15	2530-01-268-4734	78500	3t33-F-6324-S
5	15	2530-01-268-8743	78500	3133-H-6326
5	16	5315-01-112-1505	78500	3101-W-179
6	1	5310-01-059-0711	78500	NL-L0O-L
6	2	5310-00-953-5023	78500	1229-U-1503
6	3	2530-01-268-4746	78500	3213-N-1574-S
6	4	5306-01-268-8749	78500	20-X-253-S
7	1	5305-00-984-6212	96906	MS35206-265
7	2	4810-01-282-1675	06853	283040
7	3	2530-01-282-0140	06853	104675(PP-I)
8	1		3H814	RSA-1550-736
8	1		78500	RSA-1550-733
8	1		78500	RSA-t550-735
8	1		78500	R5A-1550-734
8	2	2530-01-070-9220	78500	A8-3722-T-358
8	3	5360-01-133-3702	78500	2258E629
8	4	5340-00-613-7784	78500	17180134
8	5	5360-01-133-3702	78500	2258E629
8	6	5310-01-063-2299	78500	WA-14C
8	7	5310-01-091-7768	78500	N-14
8	8	5340-00-181-1546	78500	1707-C-3
8	9	5310-00-832-9712	93799	WA-I5
8	10	5305-01-160-7408	78500	S-255
8	11	2530-01-268-4741	78500	3736-M-325
8	12	2530-01-286-7857	78500	Y12-3276-L-12
8	13	5310-00-123-2572	78500	1727N40
8	14	2530-00-117-9144	78500	A-2747-H-112
8	15	2530-01-062-8273	78500	2297J2376
8	16	5330-01-105-7788	78500	2297N3212
8	17	5330-00-015-7565	78500	A1705K219

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FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
8	18	5306-01-094-9714	78500	A2297L3158
8	19	2530-01-012-2880	78500	A-1199-Z-3432
8	20		78500	2797B41
8	20	2530-00-480-7461	78500	2797C419
8	21	2530-00-015-7564	78500	1779M[95
8	22	5310-00-964-7811	78500	17298262
8	23		3H814	AI-3211-C-5021
8	23		3H814	AI-3211-D-5022
8	23		3H814	AI-3211-5571
8	23		3H814	A1-3211-5571
9	1	4730-00-595-0083	96906	MS35746-1
9	2	5330-00-090-2128	96906	MS35748-1
9	3	4720-01-266-7622	16128	6960644-1
9	4	4720-01-277-5444	16128	6960644-3
9	5	4730-00-277-7331	81343	6-6-6130438B
9	6	4720-01-266-7623	16128	6960644-5
9	7	4730-00-289-0232	30327	12383-8XI-4
9	8	2530-01-095-8752	06853	281865(RE-6)
9	9	4730-01-028-1318	96906	MS14315-7X
9	10	4730-00-244-9848	40670	11682888
9	11	4730-00-105-2395	87373	208P-8-6
9	12	4720-01-266-5703	16128	6960644-4
9	13	4730-00-469-4254	81343	6-61402398
9	14	4720-01-266-7628	16128	6960644-10
9	15	4730-00-278-4824	81343	4-4140239B
9	16	4720-01-266-7624	16128	6960644-6
9	17	4720-01-266-7633	16128	6960644-16
9	18	4730-00-959-1628	81343	8-8140339B
9	19	4820-00-115-3896	06853	227871
9	20	4730-01-288-3883	30780	2205P-6
9	21	4720-01-274-9229	16128	6960644-2
9	22	4810-01-281-7858	06721	Ni78AC
10	1	4730-00-595-0083	96906	MS35746-L
10	2	5330-00-090-2128	96906	MS35748-1
10	3	5940-01-285-7847	97914	1031520
10	4	4720-01-266-7625	16128	6960644-7
10	5	4730-00-277-9615	30780	2225P-4
10	6	4720-01-266-7626	16128	6960644-8
10	7	4720-01-266-7630	16128	6960644-12
10	8	2530-01-095-8752	06853	281865(RE-6)
10	9	4730-01-043-8150	16717	2083-12-8S
10	10		30780	2202P-6-7
10	11	4720-10-266-7627	16128	6960644-9
10	12	4720-01-266-7629	16128	6960644-11
10	13	4730-00-044-4693	30780	219P-4
10	14	4720-01-266-7631	16128	6960644-14
10	15	4730-00-125-7979	81343	6-6-6-130425B
10	16	4820-00-115-3896	06853	227871
10	7	4730-01-288-3873	30780	216P8-6
10	18		30780	2205P-6
10	19	4720-01-266-7634	16128	6960644-17

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FIG.	ITEM	STOCK NUMBER	FSCM	PART NUMBER
10	20	4720-01-266-7635	16128	6960644-18
10	21	4820-00-420-5499	06853	285172
10	22	4730-00-244-9848	40670	11682888
10	23	2530-00-137-9235	19207	7411021
11	1	5310-00-087-4652	96906	MS51922-17
11	2	5310-00-809-4061	96906	MS27183-15
11	3	5306-01-277-6217	16128	4900051-1
11	4	5306-01-279-2331	16128	4900051-2
11	5	4820-01-063-4828	06853	221121
11	6	2530-01-281-9718	06853	227783
11	7	4730-00-011-3176	30780	1-2SHPB
12	1		78500	5-40526LH
12	1		78500	5-40527LH
12	1	2530-01-210-8837	19207	12301115
12	2	5310-00-161-9964	78500	1199N118
12	2	5310-00-880-2004	96906	MS51983-3
12	3	2530-01-268-8744	78500	3219-H-3570-S
12	4	5305-01-190-1421	78500	5-256-1
12	5	5310-00-945-0528	96906	MS9321-11
12	6	2530-00-7'73-5347	78500	3262A53
12	7	5310-00-638-2830	78500	1227B06
12	8	2530-00-700-1705	78500	1229F474
12	9	2530-00-700-1709	78500	1229G475
12	10	5310-01-114-5637	78500	1227-U-541
12	11	5330-01-082-8595	78500	2208-M-819
12	12	3110-00-100-3104	72260	3782
12	13	3110-00-100-0376	78500	3720
12	14		78500	A5-333-M-2821
12	14		78500	A6-333-M-2821
12	15		78500	20X-1655-SLH
12	15		78500	20X-1656-SRH
12	16	3110-00-293-8997	78500	HM21201
12	17	3110-00-293-8998	78500	HM212049
12	18	5330-01-268-4738	78500	3286-M-1053-S
13	1	2610-00-262-8653	81349	MIL-T-12459/CLCC /SA/1100-20/F/CC
13	1	2610-01-214-1344	19207	12301105
13	2	2610-00-051-9450	81348	ZZ-I-550/G2/11.0 0-20/TR78A/ONCTR
13	3	2640-00-244-0442	53477	7381
13	4	2640-00-060-3550	51665	US48
13	5	2610-00-050-9510	81348	GP/TYA/3.40-5/B /MHHR
13	6	2610-00-051-9110	81348	ZZ-I-550/G5/3.40 /3.00-5/TR87/ONC
13	7	2640-00-158-5617	73808	20R
13	8	2640-00-810-5861	96906	MS51377-1
14	1	5315-01-268-4730	16128	5300640-2
14	2	5310-00-087-4652	96906	MS51922-17
14	3	3120-01-282-6177	26124	GM2428-24
14	4	5365-01-288-5126	16128	5300636-1

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14	5	2530-01-267-5734	16t28	6960639
14	6	5310-00-264-1243	81352	AN315-18R
14	7	2530-00-184-7897	81285	ES187R
14	8	2530-01-267-5729	16128	5300634
14	9	5310-00-574-0436	88044	AN315-18L
14	10		81285	ES1B7L
14	11	4730-00-050-4208	96906	MS15003-1
14	12	2530-01-267-5730	16128	7300194
14	13	5305-00-543-2866	96906	MS90728-68
15	1		16128	8960068
15	2	5305-00-543-2866	96906	MS90728-68
15	3	5310-00-087-4652	96906	MS51922-17
15	4	5315-01-268-4728	16128	5300632-2
15	5	5315-01-268-4727	16128	5300632-1
15	6	5305-00-938-1541	16128	4900065
15	7	2590-01-268-3531	16128	8960087-2
15	8		26125	GM2432-24
15	9	5365-01-268-3550	16128	5300645
15	10		15148	J-6145-19
15	11	2590-01-268-3530	16128	8960087-1
15	12	2510-01-267-5733	16128	8960072-2
15	13	2530-01-268-8750	16128	8960082
15	14	2510-01-268-3529	16128	8960072-1
16	1		16128	8960067
16	2		16128	5330645
16	3	5305-00-543-2866	96906	MS90728-68
16	4	5315-01-268-3539	16128	5300632-3
16	5		16128	8960089
16	6	5305-00-724-7219	96906	MS90728-160
16	7		16128	8960088-2
16	8		15148	J-6145-19
16	9	3120-01-282-6176	26124	GM2432-24
16	10	5365-01-268-3550	16128	5300645
16	11	5310-00-087-4652	96906	MS51922-17
16	12		16128	8960071-2
16	13		16128	8960088-1
16	14		16128	8960071-1
17	1	5315-01-268-3540	16128	5300649-1
17	2	5310-00-809-8541	96906	MS27183-27
17	3	5315-00-187-9569	96906	MS24665-503
17	4	2510-01-268-3528	16128	7967017
17	5	5340-01-274-1072	16128	6960635
17	6		16128	6960637
17	7		16128	6960634
17	8		16128	6960636
17	9	5315-01-278-2125	16128	5300648-1
17	10	5310-01-074-7032	96906	MS21236-12
17	11	5315-00-018-7988	96906	MS24665-493
17	12	5305-00-269-4529	96906	MS90727-76
17	13	9505-00-555-8648	96906	MS20995C47
17	14	4030-00-431-5536	19207	8537648

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17	15	5340-00-228-6361	96906	MS17988-C1630
17	16	5310-00-959-1488	96906	MS551922-21
18	1	5315-01-288-1611	16128	6960645
18	2	5315-01-268-3538	16128	5300597
18	3	5365-01-268-3532	16128	5300598
18	4	5340-01-268-3542	16128	6300231
18	5	4030-00-431-5536	19207	8537648
18	6	9505-00-555-8648	96906	MS20995C47
18	7	5315-01-207-7930	96652	25-06
18	8	5310-00-470-9340	96906	MS35692-97
18	9	5315-00-187-9569	96906	MS24665-503
18	10	2590-01-268-4723	16128	6300239
18	11	5307-01-266-9779	16128	6300229
18	12	4730-01-268-3557	16128	5961354-1
18	12	4730-01-268-3558	16128	5961354-2
19	1	5306-01-268-4726	16128	5300671
19	2	5315-00-209-7273	96906	MS24665-625
19	3	5310-00-842-7616	96906	MS35692-105
19	4	5310-00-982-6568	96906	MS27183-33
19	5	5365-01-268-4735	16128	5300670
19	6	2540-01-267-5732	16128	7967019
19	7	5340-00-286-9427	96906	MS21919WDG12
19	8	5305-00-989-7435	96906	MS35207-264
19	9	5305-00-543-2866	96906	MS90728-68
19	10	5315-01-268-4729	16128	5300646-1
19	11	5310-00-087-4652	96906	MS51922-17
19	12	2540-01-281-9723	74410	PH-75
19	13	5310-00-809-5998	96906	MS27183-18
19	14	5305-00-071-2081	96906	MS90728-125
19	15	5305-00-071-2070	96906	MS90728-114
19	16	5310-00-225-6993	96906	MS51922-33
19	17	5315-01-282-0996	16128	4900053
19	18	5310-00-809-8541	96906	MS27183-27
19	19		96906	MS2465-425
19	20	4010-01-268-4732	16128	5300674
19	21	4010-01-268-4733	16128	5961356
20	1	5340-01-266-9777	16128	7967016
20	2		16128	7967015
20	3	3910-00-074-8574	71041	F82428-12
20	4	3910-00-074-8574	71041	FB-2428-12
20	5	5310-01-282-0903	16128	4900060
20	6		16128	6300246
20	7	5305-00-071-2069	96906	MS90728-113
20	8	5310-00-584-5272	96906	MS35338-48
20	9	5310-01-070-2105	96906	MS51967-14
20	10	2530-01-261-0099	26935	S-1010
20	11		96906	MS20002-24
20	12	5340-01-277-5076	96906	MS17987C1045
20	13	4030-00-431-5536	19207	8537648
20	14	9505-00-555-8648	96906	MS20995C47
21	1	5310-00-225-6993	96906	MS51922-33

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21	2	5310-00-809-5998	96906	MS27183-18
21	3	2510-01-281-9715	72413	NAD-18263
21	4	5307-01-268-3555	16128	4900067
21	5	4730-00-278-3917	30780	2081-12-4S
21	6	4820-01-282-1682	72413	W01-358-0003
22	1	5310-00-225-6992	16128	4900064
22	2	5310-01-268-3533	16128	5300650
22	3	5365-00-805-9421	76110	401754
22	4	5365-01-268-3549	16128	4900033
22	5	5305-01-280-5759	16128	4900059
22	6	2540-01-282-1683	37492	680093
23	1	5340-01-268-4742	16128	5300652
23	2	5305-00-725-2317	96906	MS90728-64
23	3	2530-01-267-5731	16128	7300200
23	4		96906	MS24665-389
23	5	3040-01-286-7915	56644	AM-10
23	6	5310-00-763-8904	96906	MS51968-21
23	7	3040-01-286-7916	56644	AW-10
23	8	5310-00-269-4040	96906	MS51922-49
23	9	5305-00-724-7222	96906	MS90728-164
23	10	5315-00-964-0804	96906	MS20392-9045
24	1	5310-00-087-4652	96906	MS51922-17
24	2	5310-00-080-6004	96906	MS27183-14
24	3	5140-01-268-4740	16128	5300659
24	4	5305-01-210-4595	97403	13222E0109
25	1	9905-00-202-3639	96906	MS35387-2
25	2	5310-00-933-8121	96906	MS35338-139
25	3	5305-00-071-1316	96906	MS51957-80
25	4	9905-00-205-2795	96906	MS35387-1
25	5	5340-00-522-0381	19220	6411E
25	6	5340-01-283-6745	16128	5961355-2
25	7	5305-00-984-7363	96906	MS35191-272
25	8	5340-01-280-7152	16128	5961355-1
25	9	5310-00-167-0765	88044	AN970-3
25	10	5305-00-989-7434	96906	MS35207-263
26	1	5305-00-253-5626	96906	MS21318-47
26	2	9905-01-268-8738	16128	6960599
26	3	9905-01-266-9774	16128	6960598
26	4	5305-00-990-6444	96906	MS35207-261
26	5		96906	MS21083-N3
26	6	9905-01-268-4725	16128	6960595
27	1	5305-00-253-5615	96906	MS21318-21
27	2		16128	6300281
27	3	9905-01-266-9773	16128	5961298
27	4	9905-00-108-6215	19207	1612247
27	5	9905-01-266-9770	16128	6960596
27	6	9905-01-268-3534	16128	6960594
27	7	9905-01-268-4724	16128	6960597
27	8	9905-00-999-7370	96906	MS53007-1
27	9	9905-00-999-7369	96906	MS53007-2
28	1	5310-00-809-4058	96906	MS27183-10

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28	2	5305-00-045-1988	96906	MS90725-87
28	3	4320-01-268-3563	16128	7967040
28	4		16128	7967020
28	5	4730-00-873-0110	01276	2081-6-2S
28	6	4820-01-282-4105	36251	1/8PrF
28	7	4820-01-282-1682	72413	WO1-358-0003
28	8	4730-00-214-8108	01276	2091-4-4S
28	9	5340-01-281-7986	00671	3111-1-331
28	10	2895-01-287-3982	26952	CFIBI.900
28	11	4310-01-268-3561	16128	5400159
28	12	5310-01-268-3554	16128	5400158
28	13	5310-01-268-3536	16128	5400151
28	14	5360-01-284-0693	26952	CH210.110
28	15	3120-01-268-3548	16128	5400154
28	16		02697	12500250MB
28	17		02697	12500250MB
28	18		30780	1/8-HHP-S
28	19	5315-01-268-3537	96652	11-093
28	20	5315-00-839-5821	96906	MS24665-351
28	21	5315-01-190-0430	96652	21-04
28	22	5340-01-277-0340	16128	5400156
28	23	3040-01-268-3574	16128	5400148
28	24	3020-01-278-6210	71041	NO.603/4PI10H
28	25	4320-01-268-3556	16128	5400153
28	26	4320-01-281-9703	02697	D-500
28	27		02697	8-112-N300-90
28	28	5330-00-599-2934	96906	MS28775-112
28	29	5310-01-268-3566	16128	5400152
28	30	5330-00-448-6753	02697	3-910ON304-75
28	31	5305-00-724-7865	96906	MS51963-123
28	32	4820-01-268-3575	16128	5400160
28	33	4810-01-266-9784	16128	5400162-2
28	34	5330-00-584-1840	02697	2-014-N304-75
28	35	5330-00-821-7499	02697	8-014-N300-90
28	36	4710-01-268-3569	16128	5400161
28	37	3110-00-943-6113	96906	MS19060-1013
28	38	4810-01-268-3560	16128	5400162-1
28	39	5330-00-584-0265	96906	MS28775-012
28	40	5330-00-975-3550	02697	8-012-N300-90
28	41	5315-01-025-4511	96906	MS9047-213
28	42	4820-01-268-3565	16128	5400171
28	43	5310-01-268-3567	16128	5400155
28	44	4810-01-266-9776	6128	5400172-36
28	45	2530-01-282-4989	26952	CB576.290
28	46	5330-00-010-9639	26952	P200.37
29	1	4730-00-125-7916	30780	4-4CC1XS
29	2	4720-01-266-9782	16128	5961317-1
29	3	4720-01-266-9781	16128	5961317-2
30	1	5315-00-187-9569	96906	M524665-503
30	2	5310-00-809-8541	96906	MS27183-27
30	3	5315-01-268-3541	16128	5300649-2

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30	4	5315-01-268-3540	16128	5300649-t
30	5	3040-01-268-3559	16128	7967041
30	6		16128	6300273
30	7	4820-00-074-2314	21758	H823
30	8	4730-00-555-0592	96906	MS20913-3S
30	9		16128	4900082
30	10		16128	6300274
30	11	3120-01-268-3546	16128	6300272
30	12	3120-01-268-3547	16128	5400174
30	13		16128	5400175
30	14	3120-01-268-3564	16128	4900081
30	15	5365-00-252-4763	96906	MS16625-1225
30	16	5310-00-209-5116	96906	MS35335-37
30	17	5305-00-044-4153	96906	MS90725-109
30	18	3040-01-277-0323	16128	4960211
30	19		16128	4960220
30	20		06297	2-234N304-75
30	21		16128	4960227
30	22		16128	4960218,
30	23		16128	4960217
30	24		16128	4960226
30	25		06297	2-120N304-75
30	26		16128	4960222



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