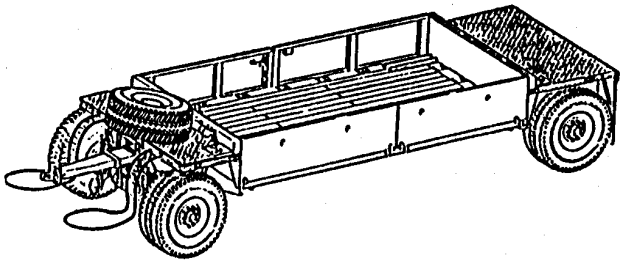
TM 9-2330-383-14&P

TECHNICAL MANUAL

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



TRAILER, AMMUNITION, HEAVY EXPANDED MOBILITY, 11 TON, M989A1 (2330-01-275-7474) (EIC: CAG)

HEADQUARTERS, DEPARTMENT OF THE ARMY

DECEMBER 1991

PIN: 069300-001

WARNING

Dry cleaning solvent (MIL-PRF-680, type I) is extremely flammable, toxic, and is an irritant to the eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Do not breathe the vapors. Use skin and eye protection and work in a well ventilated area. Flash point of the dry cleaning solvent is 140°F.

Protect eyes when opening drain cock and avoid the air stream. Failure to do so could result in personal injury.

A hot brake or drum can cause serious burns. Exercise extreme caution before attempting to touch brake drum after use. Slowly move hand toward drum. If drum is overheated, radiated heat will be felt before the hand actually touches the drum.

Two persons are required to connect towing vehicle and trailer; one operates the towing vehicle, and one lifts the towbar with tiedown strap and acts as a spotter.

Be alert for other moving vehicles in the area. Do not stand between towing vehicle and trailer when towing vehicle is Lacking up. Serious injury can result if personnel are caught between vehicles. Set chocks front and rear of rear tires on trailer.

Make sure cotter pin is properly installed in pintle so trailer does not break loose and cause injury to personnel.

The side panels are heavy and awkward to handle. Use caution and two persons when removing or replacing side panels to avoid injury to personnel.

Do not allow any personnel to stand between the towing vehicle and trailer when backing. Make sure that you can see your ground guides at all times. Serious injury or death can occur if personnel are caught between moving vehicles.

Backing the trailer without locking towbar may cause vehicle to jackknife, injuring personnel and damaging equipment. Perform this procedure only when absolutely necessary.

When trailer has been backed with towbar locked, pull forward to relieve sideload pressure between pintle and towbar before attempting to unlock towbar lockpin or disconnect from pintle. Failure to relieve sideload may result in injury to personnel.

Two people and the davit crane from HEMTT will be required to raise or lower the spare tire. Clear all personnel from the immediate area to prevent possible injury when the tire is lifted from the deck. Use all possible care when handling to prevent injury. The tire weighs approximately 300 pounds.

The tire weighs approximately 300 pounds. Use two people and a suitable lifting device and exercise care in handling to prevent injury.

WARNING

Take care not to get grease on brake shoes or brake linings, as this will cause uneven or poor braking action, and may result in personal injury or equipment damage.

Changing wheels and tires on the trailer requires two people and considerable caution to avoid possible injury. The wheel opposite from the one being changed must be chocked front and rear.

Wheels and tires are heavy. To avoid personal injury, use two people when handling wheels and tires.

When caging brake air chamber, do not remove flange nuts or bolts. High spring pressure inside air chamber can cause injury if released.

Do not attempt to disassemble brake air chambers. The springs inside the chambers are under heavy tension and may cause severe injury if released during disassembly.

To avoid personal injury, never work under a vehicle supported only by a jack. Always use cap on jack when raising axles.

Use two persons when removing brake drum to avoid injury.

Be careful when removing air cleaner top nut because of high spring pressure behind nut.

Towbar is heavy and requires three persons to safely remove it: two persons to support towbar while one person removes pin.

Towbar pivot is heavy and will fall when pin is removed. Support pivot before removing pin.

Pivot bar is heavy. Remove carefully to avoid personal injury.

The resin and hardener contained in the two-part epoxy coating may cause irritation to the skin and eyes. Plastic gloves should be worn while handling these materials. Wipe these materials from the skin using dry cleaning solvent (MIL-PRF-680, type I), and wash with soap and warm water if contact is made. Wear goggles when applying coating to prevent contact with the eyes.

Coatings can cause internal injury during prolonged breathing of vapors. Wear respirator to prevent inhaling vapors. Use adequate ventilation.

To avoid injury to personnel and damage to equipment, connecting the trailer requires two persons.

Do not stand between towing vehicle and trailer or on front deck area when vehicle is backing up. Serious injury can occur

WARNING

When using foldable steps, take care to place foot on center of step. Otherwise foot may slip off side, resulting in serious injury.

Two persons are required to raise or lower side panels.

Two persons are required to remove or install davit crane on HEMTT or trailer, one person on vehicle and one person on ground. Hoist arm weighs 46 pounds and extension weighs 22 pounds. Handle both carefully to avoid injury to personnel.

Do not lean against davit crane while routing cable over end of pulley. Davit crane is designed to move in mount and could cause a fall resulting in serious injury.

When davit crane lifts tire clear of ground, weight will shift. Use all possible caution when guiding tire to avoid possible injury.

Do not stand beneath spare tire at any time. Use caution when repositioning and lowering spare tire.

Do not stand on front deck when raising spare tire.

To prevent tire from slipping and causing personal injury, lifting plate must be installed as shown, with lifting plate lugs in lower holes, and loop in center of tire.

Personnel on front deck must use extreme care to avoid tripping over spare tire, fire extinguisher, and lifting eyes. Otherwise serious injuries may occur.

Two persons are required to reposition davit crane and tire. Use extreme care to avoid tripping over spare tire mount, fire extinguisher, and lifting eyes. Otherwise serious injury could occur.

Do not attempt to dismount tire until tire has been completely deflated. When released suddenly, air under pressure can cause serious injury.

Ensure all personnel are clear of torsion bars.

Tow with the M270 during wartime usage, under emergency conditions only, as a last resort. Injury or death to personnel may result.

Use extreme caution when towing the trailer with the M270. Trailer will have no braking capability. Death or serious injury may result.

To avoid injury to personnel and damage to the equipment, set chocks front and rear of rear tires on trailer when connecting/disconnecting from/to towing vehicle.

WARNING

To avoid injury, personnel must stand clear of trailer suspension when opening drain cocks on air reservoirs. Trailer suspension will drop as air is released.

Do not attempt to move the HEMAT vehicle by hand after it has been disconnected from the towing vehicle. The brake chambers are designed to apply automatically when the trailer is disconnected from the towing vehicle or if loss of air pressure occurs. The brakes are not to be hand activated to override the control valve under any circumstances. Attempting to move the trailer by hand could result in serious injury or death to personnel and damage to equipment.

Drum and tank tiedown kit must be installed before loading fuel bladders or fuel drums onto trailer or injury to personnel and damage to equipment could occur.

Change No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 31 January 2002

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

FOR

TRAILER, AMMUNITION, HEAVY EXPANDED MOBILITY, 11 TON, M989A1 (2330-01-275-7474) (EIC: CAG)

TM 9-2330-383-14&P, 13 December 1991, is changed as follows:

1. Remove old pages and insert new pages as indicated below. New or changed material is indicated by a vertical bar in the margin of the page. Changes to illustrations are indicated by miniature pointing hands.

Remove Pages	Insert Pages
b and c	a thru d
i thru iv	i thru iv
1-3 thru 1-8	1-3 thru 1-8
1-9/(1-10 Blank)	1-9 and 1-10
None	1-11/(1-12 Blank)
2-9 and 2-10	2-9 and 2-10
2-13 thru 2-18	2-13 thru 2-18
None	2-18.1/(2-18.2 Blank)
2-19 thru 2-26	2-19 thru 2-26
None	2-26.1 and 2-26.2
2-27 thru 2-34	2-27 thru 2-34
None	2-34.1/(2-34.2 Blank)
2-35 and 2-36	2-35 and 2-36
2-39 and 2-40	2-39 and 2-40
2-41/(2-42 Blank)	2-41 and 2-42
None	2-43/(2-44 Blank)
3-1 thru 3-14	3-1 thru 3-14
3-17/(3-18 Blank)	3-17/(3-18 Blank)
4-1 thru 4-4	4-1 thru 4-4
4-7 and 4-8	4-7 and 4-8
4-11 thru 4-16	4-11 thru 4-16
None	(4-16.1 Blank)/4-16.2
4-17 and 4-18	4-17 and 4-18
None	4-18.1 and 4-18.2
4-19 and 4-20	4-19 and 4-20
None	4-20.1/(4-20.2 Blank)
4-21 and 4-22	4-21 and 4-22
4-25 thru 4-32	4-25 thru 4-32
4-37 thru 4-42	4-37 thru 4-42
None	4-42.1 and 4-42.2
4-43 and 4-44	4-43 and 4-44
4-55 thru 4-58	4-55 thru 4-58

TM 9-2330-383-14&P
C1

Remove Pages	Insert Pages
None	4-58.1 thru 4-58.18
4-59 thru 4-62	4-59 thru 4-62
4-73 thru 4-78	4-73 thru 4-78
4-91 thru 4-94	4-91 thru 4-94
5-17 and 5-18	5-17 and 5-18
A-1 and A-2	A-1 and A-2
B-9 and B-10	B-9 and B-10
C-1 thru C-4	C-1 thru C-4
D-1/(D-2 Blank)	D-1/(D-2 Blank)
E-1 and E-2	E-1 and E-2
E-3/(E-4 Blank)	E-3/(E-4 Blank)
F-1 thru F-8	F-1 thru F-8
F-9 and Fig. 1 thru	F-9 and Fig. 1 thru
I-19 and I-20	I-19 and I-20
None	I-21 and I-22
G-1 and G-2	G-1 and G-2
None	G-5/(G-6 Blank)
Index 1 and Index 2	Index 1 and Index 2
Index 7 and Index 8	Index 7 and Index 8
2028 Sample Front and Back	2028 Front and Back
2028 Front and Back	2028 Front and Back
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2. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0114501

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Dates of original and changed pages are:
Original ... 0 ... 13 December 1991
Change … 1 …. ..31 January 2002

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 378 CONSISTING OF THE FOLLOWING:

Page No.	*Change No.
Front Cover	1
Blank Back	1
a - d	1
i - iv	1
1-1 - 1-2	0
1-3	1
1-4	0
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1-12 Blank	1
2-1 - 2-8	0
2-9	1
2-10 - 2-13	0
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D-2 Blank	1
E-1	0
E-2 - E-3	1
E-4 Blank	1
F-1 - F-9	1

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TECHNICAL MANUAL

No. 9-2330-383-14&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D. C., 13 December 1991

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

FOR

TRAILER, AMMUNITION,
HEAVY EXPANDED MOBILITY,
11 TON, M989A1
NSN 2330-01-275-7474 (EIC: CAG)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

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CHAPTER 1

INTRODUCTION

OVERVIEW

This chapter provides general information about the type of data, equipment, forms, Army procedures, and reference material used to make up this manual. Also included in this chapter is a description of the capabilities, features, and components that make up the Heavy Expanded Mobility Ammunition Trailer (HEMAT).

Section I. GENERAL INFORMATION

1-1. SCOPE

a. Type of Manual. Operator, unit, direct, and general support maintenance manual including a Maintenance Allocation Chart (MAC) and a Repair Parts and Special Tools List (RPSTL).

b. Model Number and Equipment Name. M989A1 - Heavy Expanded Mobility Ammunition Trailer (HEMAT).

c. Purpose of Equipment. To transport 22,000 pounds of payload.

(1) Eight 40 x 28 inch ammunition pallets.

(2) Four evenly distributed Multiple Launch Rocket System (MLRS) pods.

(3) Two fuel bladders and two fuel pods.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS

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

1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Refer to TM 750-244-6.

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If the HEMAT needs improvement, send an EIR. The user can tell if something in the design or performance could be improved. Mail an SF 368 (Quality Deficiency Report) to U.S. Army Tank Automotive Command AMSTA-MP, Warren, MI 48397-5000. We will reply.

1-5. WARRANTY

Refer to TB-9-2330-383-14 for warranty terms.

1-6. PREPARATION FOR STORAGE OR SHIPMENT

Refer to chapter 5, section III.

1-7. SAFETY, CARE, AND HANDLING

Refer to TM 9-1300-206 for general ammunition care, handling, and safety.

1-8. METRIC UNITS

Metric units are not used in this publication. An English to metric conversion table is included on the inside back cover of this publication.

Section II. EQUIPMENT DESCRIPTION

1-9. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

a. The HEMAT is a four-wheel trailer of lowboy design with a box-beam frame with large tires for off-road capability. The cargo area is constructed of steel with ship lap wood decking. The fore and aft decks are raised above the cargo deck and contain the suspension and steering systems.

b. The suspension is an air-bag type suspension for smooth riding and off-road stability. The steering system is that of a normal front-wheel truck steering linkage and is controlled by the towbar assembly.

c. The raised fore and aft decks are constructed with tread plate to minimize slipping or falling when working on the decks.

d. The side panels are removable for easier loading from either side.

e. There are four cargo tiedown rings at each end of the cargo deck and seven on each side. There are also four evenly distributed MLRS pod stops located at each corner of the deck. These pod stops are removable to allow other types of cargo.

f. Lift rings are located fore and aft on each side of the raised decks to allow the HEMAT to be sling loaded or helicopter transported. There are also four vehicle tiedowns located at each corner of the under deck for railroad transporting.

g. A storage box located in the box beam frame at the rear of the trailer is used to store tool boxes, parts, and accessories for extended use of the trailer.

h. The HEMAT will normally be towed by the M985 Heavy Expanded Mobility Tactical Truck (HEMTT). Load capability of the HEMAT is 22,000 pounds of munitions.

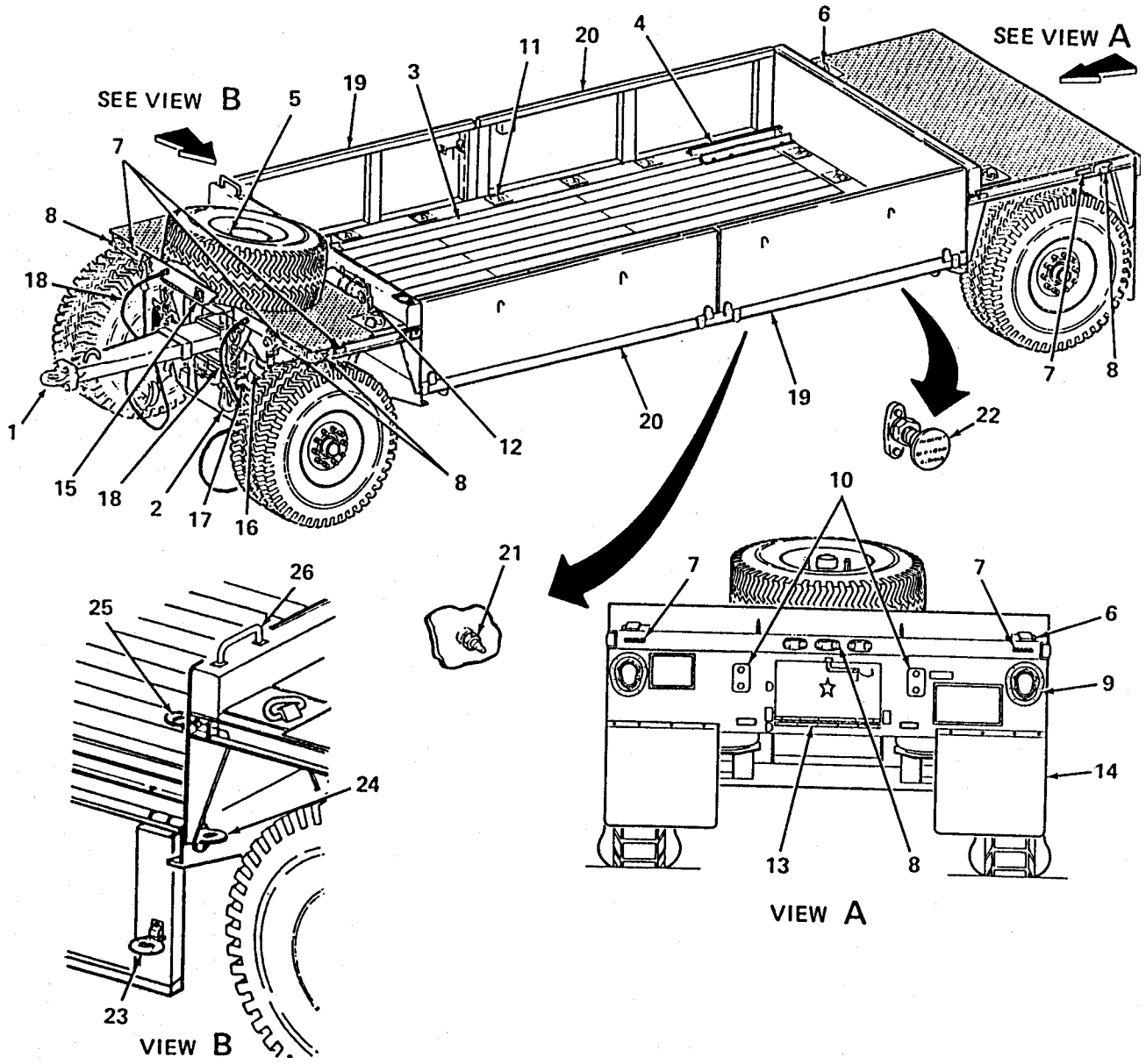
i. The towing vehicle provides electrical power through an intervehicular cable for the HEMAT clearance lights, brake lights, and turn signals.

j. Air is also supplied from the towing vehicle to the HEMAT air system, which includes three air tanks, air lines, four air suspension bags, and the four-wheel air brakes.

k. On-board trailer equipment includes a spare tire, jack, jack stand, lug wrench and handle, eight tiedown straps, and a fire extinguisher. Intervehicular electrical cable is stored in the storage box when not in use. Chocks are provided to stabilize the trailer when parked.

l. The trailer is equipped with an air hose fitting to allow use of the HEMTT air hose to inflate the tires. On old trailers with serial numbers 2000 and below, with bias ply tires, air pressure in tires should be lowered from 100 psi for highway travel to 65 psi for off-road travel. On new trailers with serial numbers 2001 and up, with radial tires, air pressure is 105 psi under all travel conditions, highway and off-road.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS



a. Towbar Assembly. The towbar assembly (1) is used for towing and steering the HEMAT.

b. Safety Chains. The safety chains (2) are attached from the HEMAT to the towing vehicle to prevent breakaway should the pintle and towbar separate during use.

c. Frame. The frame (3) is constructed of steel with a wood cargo deck. The frame also provides mounting for the axles and air suspension system.

d. Multiple Launch Rocket System Shoe Assembly. The cargo deck has one removable MLRS pod stop (4) in each of the four corners.

e. Spare Tire and Mounting Assembly. The spare tire (5) is secured on its mount with two studs and two lug nuts.

f. Lifting Eyes. Lifting eyes (6) are located on each side of the fore and aft decks. They are used to sling hoist or helicopter the HEMAT.

g. Reflectors. The rear (red) and forward (amber) reflectors (7) provide additional visibility of the HEMAT.

h. Lights. HEMAT lights include the rear (red) and forward (amber) clearance lights (8), and also the multipurpose composite taillights (9). The composite taillights (9) function as turn signals and brake lights. They also can be darkened during blackout.

i. Rubber Bumpers. The two rubber bumpers (10) located at the rear of the trailer prevent damage to the HEMAT and the deck when loading and unloading or parking.

j. Cargo Tiedown Rings. Twenty-two tiedown rings (11) are located around the cargo deck to secure cargo.

k. Fire Extinguisher. A fire extinguisher (12) is located on the front deck wall at all times in case of emergency.

1. Storage Box. A storage box (13) is located at the rear of the trailer for storing tools, jack, cable, and other accessories.

m. Splash Guards. Splash guards (14) are provided to prevent debris hitting vehicles behind the HEMAT. There are also splash guards in front to protect the front air bags.

n. Electrical Cable Connector. The electrical cable connector (15) is the HEMAT receptacle for the intervehicular cable, which provides 24 volt dc power for the HEMAT lights.

o. Air Suspension System. The air suspension system (16) consists of four air bags (two front and two rear) supported by the axle suspension systems.

p. Air Brakes. The HEMAT air brakes (17) are controlled by the towing vehicle through intervehicular air hoses to the HEMAT air brake system.

q. Air Hoses. Two air hoses (18) provide air from the towing vehicle for operation of the HEMAT brakes.

r. Side Panels. The four side panels, one short (19) and one long (20) on each side, are removable.

s. Air Hose Fitting (Under Trailer). A fitting (21) is supplied for use in connecting the HEMTT air hose. The hose is then used to inflate the HEMAT tires.

t. Brake Control Valve (Under Trailer). A brake control valve (22) is used to release spring brakes when an air supply for the air brakes is not available.

1-10. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS (CONT)

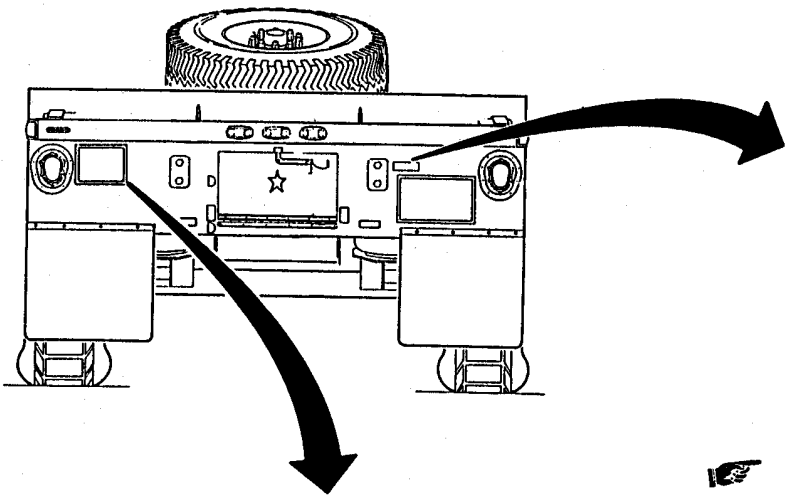
u. Access Steps (Curbside). One foldable access step (23) is mounted inside the curbside short side panel and two foldable access steps (24 and 25) are mounted on the front bulkhead, curbside, and a handle (26) is mounted on the front bulkhead curbside above the steps, to permit ready access to the front deck area when HEMAT is loaded.

1-11. EQUIPMENT DATA

Dimensions	
Height (empty)	57 in. to top of side rail 72 in. over spare tire 34 in. to top of floor
Length	309 in.
Width	98.4 in.
Ground clearance (empty)	14.7 in., front axle, bias ply tires 14.4 in., front axle, radial tires 20.2 in., box beam, all tires
Weight	
Empty	11,000 lbs
Payload	22,000 lbs
Tires	
Size	
Bias ply	15 x 22.5
Radial	385/65R22.5
Inflation pressure	
Bias ply	100 psi highway/65 psi off-road
Radial	105 psi
Plies	10, sidewalls 11, tread
Tread design	Traction road lug
Axles	
Manufacturer	
Front	Westport Axle
Rear	Systems & Electronics Inc.
Capacity	16,900 lbs, front and rear
Brake system	
Type	Straight air
Brakes	
Manufacturer	Eaton
Type	Drum 16-1/2 x 5 in.
Suspension	
Manufacturer	Ridewell
Air bags	Firestone
Electrical system	24 Vdc Negative ground
Fire extinguisher	Amerex Corp. Dry chemical

1-12. DATA PLATES

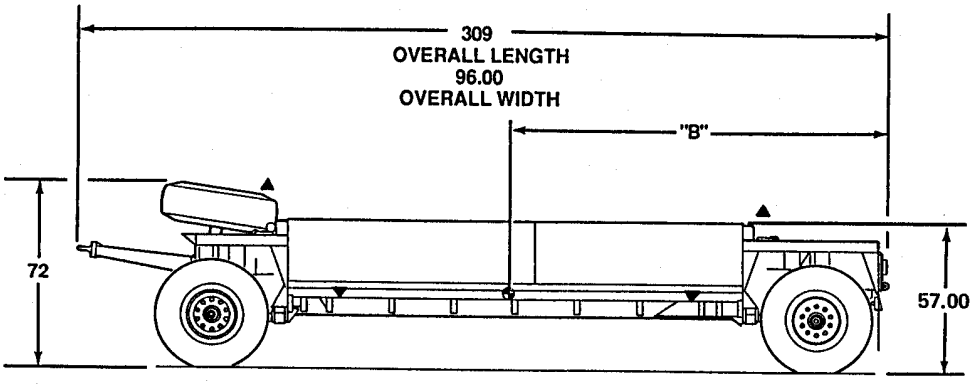
The following data plates are riveted to the trailer.



RUSTINGPROOFING PER MIL-R-46184
M989A1 HEMAT
CONTRACT DAAE07-87-C0J036
PROCESSED DATE:
PROCESSED BY : SOUTHWEST MOBILE SYSTEMS CORP.
RUSTPROOFING MATERIAL: MIL-C-62218
MANUFACTURED BY: ASHLAND OIL CO.
CAUTION: STEAM CLEANING WILL REMOVE RUSTPROOFING

OLD TRAILERS (SER. NO. 2000 AND BELOW)

HEAVY EXPANDED MOBILITY AMMUNITION TRAILER, M989A1



▼ = CARGO TIEDOWN POINTS
CAPACITY = 16,500
▲ = LIFT POINTS

LIFTING DATA
ALL CARGO MUST BE EVENLY DISTRIBUTED ON TRAILER WHEN LIFTING WITH LIFTING EYES. LIFTING CAPACITY OF EACH LIFT EYE IS 26,840 LBS.

TIEDOWN DATA
EACH TIEDOWN MAY BE USED FOR BOTH LONGITUDINAL AND LATERAL RESTRAINT. RESTRAINING CAPITY OF EACH TIEDOWN IS 16.500 LBS. VERTICALLY DOWN.

WEIGHT DISTRIBUTION DATA		
LOCATION	EMPTY	LOADED
AXLE, FRONT	5,621	16,674
AXLE, REAR	5,029	15,976
DIM B	150.5	146.5

SHIPPING CUBE	309 x 72 x 96
MAXIMUM PAYLOAD	22,000 LBS.
SHIPPING WEIGHT (EMPTY)	10,650 LBS.

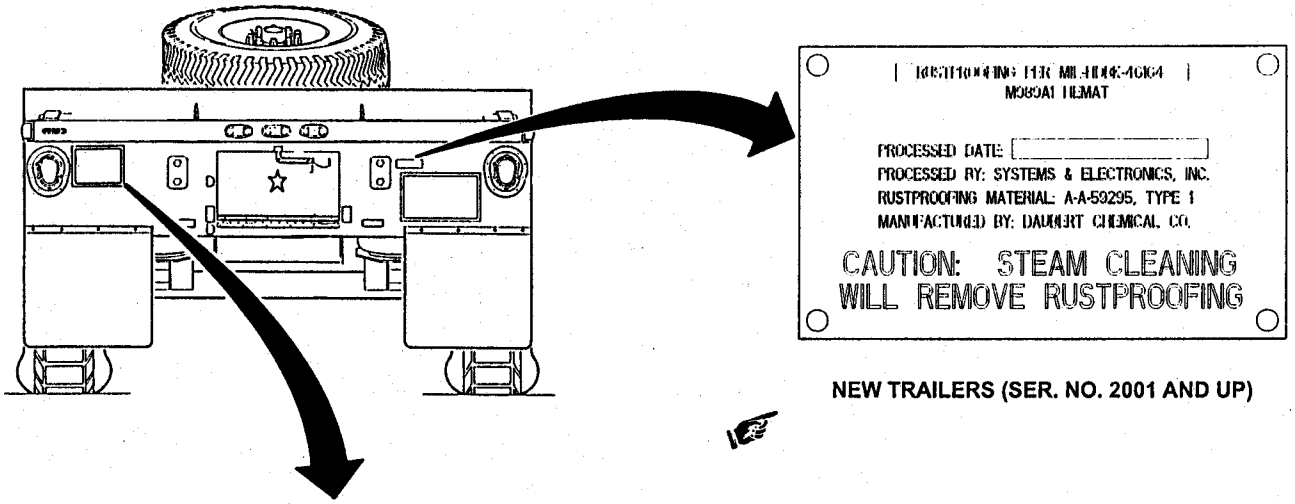
MODEL NO. M989A1
NSN 2330-01-275-7474
CONTRACT NO. DAAE07-87-C-J036
VEHICLE REG. NO.

MFD. BY: SOUTHWEST MOBILE SYSTEMS CORP. ST LOUIS, MO

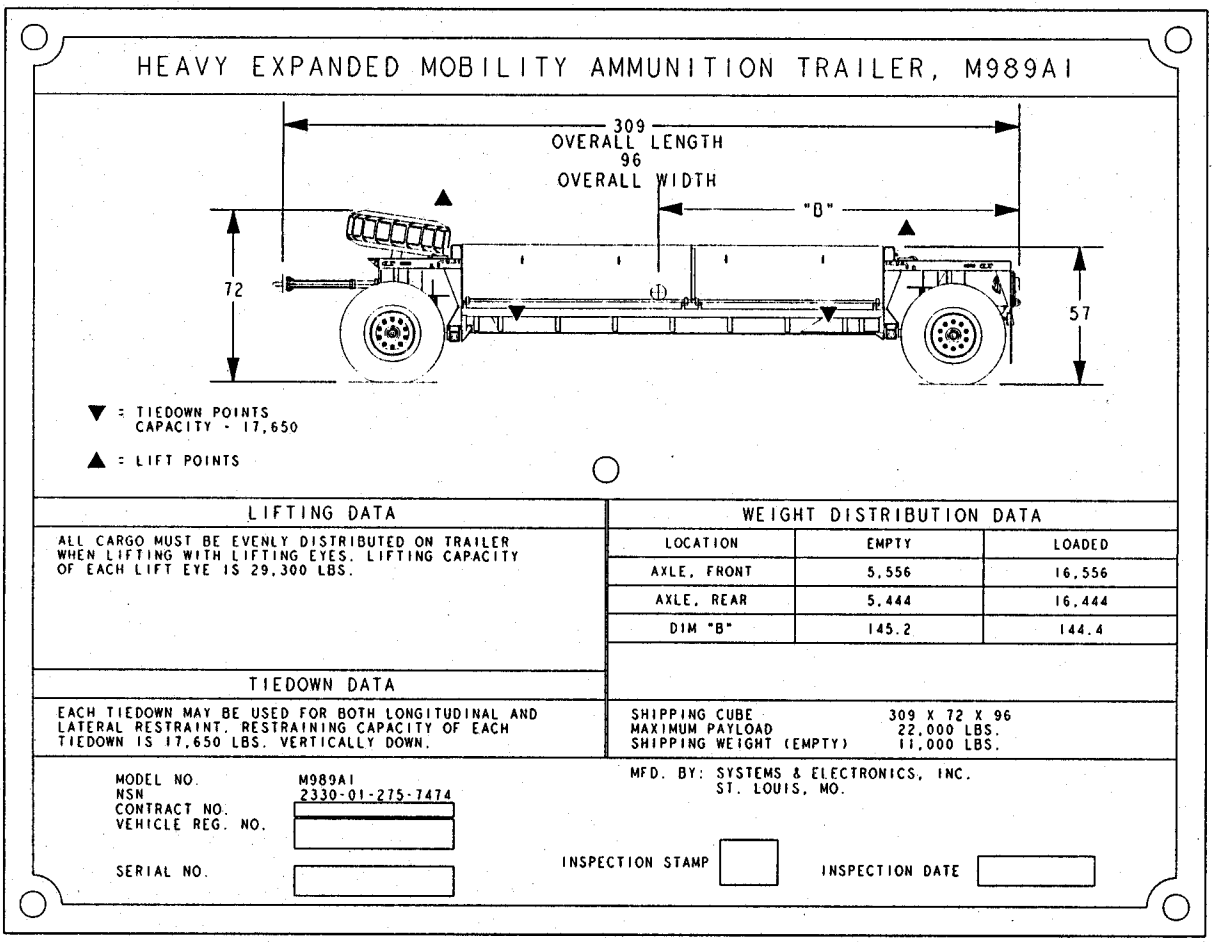
INSPECTION STAMP INSPECTION DATE

OLD TRAILERS (SER. NO. 2000 AND BELOW)

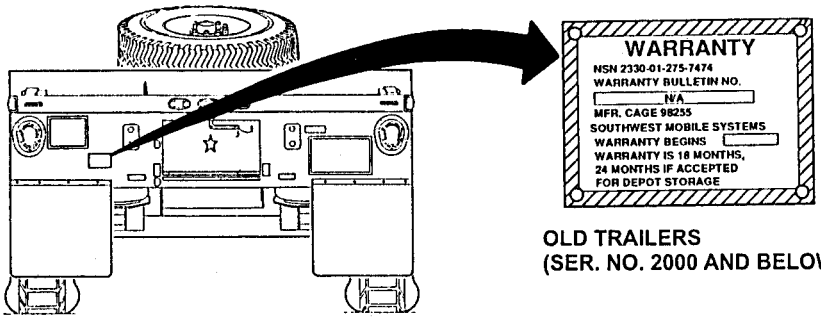
1-12. DATA PLATES (CONT)



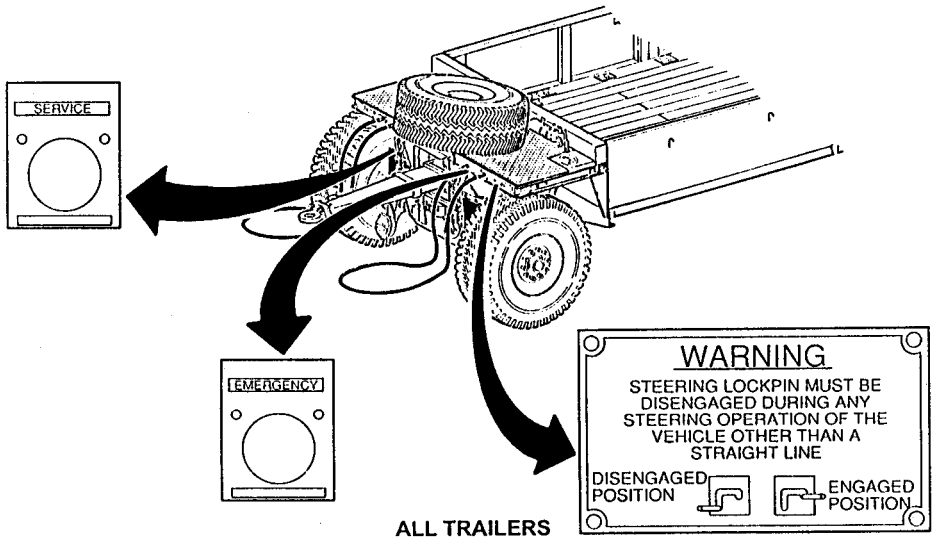
NEW TRAILERS (SER. NO. 2001 AND UP)



NEW TRAILERS (SER. NO. 2001 AND UP)

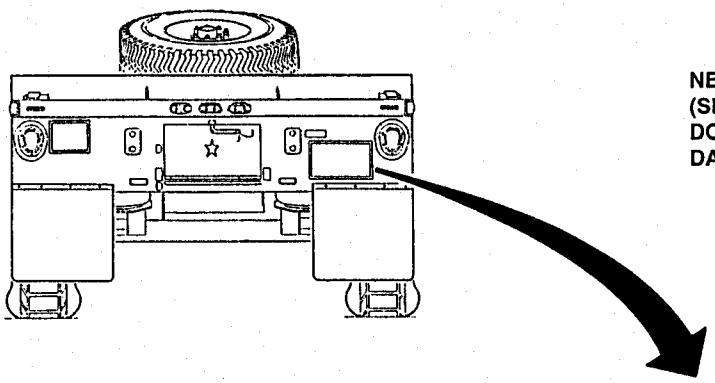


OLD TRAILERS
(SER. NO. 2000 AND BELOW)



ALL TRAILERS

1-12. DATA PLATES (CONT)



NEW TRAILERS (SER. NO. 2001 AND UP) DO NOT HAVE WARRANTY DATA PLATE

LUBRICATION CHART

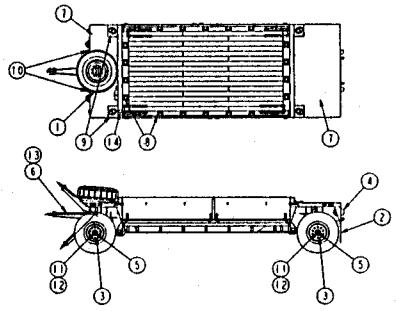
HEAVY EXPANDED MOBILITY AMMUNITIONS TRAILER, M989A1

INTERVAL	REF. NO.	IDENTIFICATION	SERVICE	LUBRICANT	NO. OF SERVICE POINTS
M	1	BACKUP PIN	APPLY TO CONTACT AREAS	GAA	1
M	2	STORAGE BOX HINGES	LUBRICATE WEAR POINTS	OE	1
SA	3	BRAKE ANCHOR PIN IN DRUM	LUBRICATE	GAA	4
M	4	PADLOCKS	CLEAN; LUBRICATE	OE	AR
A	5	WHEEL BEARINGS INNER & OUTER HUB CAP	REMOVE, CLEAN; DRY; REPACK	GAA	4
D	6	TOW BAR PIVOT	LUBRICATE	GAA	3
W	7	SLACK ADJUSTER	LUBRICATE	GAA	4
SA	8	O-RING RETAINER	LUBRICATE	OE	22
SA	9	LIFT RING RETAINER	LUBRICATE	OE	4
Q	10	STEERING LINKAGES	LUBRICATE	GAA	6
SA	11	BRAKE S CAM SHAFT	LUBRICATE	GAA	4
SA	12	BRAKE ROLLERS	LUBRICATE	GAA	4
D	13	TOW BAR PIN	LUBRICATE	GAA	2
SA	14	DAVIT CRANE SOCKET	LUBRICATE	GAA	1

D : DAILY OR BEFORE USE
M : MONTHLY
Q : QUARTERLY
SA : SEMI-ANNUALLY
A : ANNUALLY

SPECIFICATIONS:
OIL MIL-PRF-2104
GREASE MIL-PRF-10924
SOLVENT MIL-PRF-680
ARTIC OPERATION TM-9-207

NOTES:
1. WARNING: SOLVENT MIL PRF-680 IS TOXIC. KEEP OFF SKIN, EYES AND CLOTHES. DO NOT BREATHE THE VAPORS. USE CHEMICAL GOGGLES AND HAVE GOOD VENTILATION.
2. INTERVALS ARE BASED ON NORMAL OPERATION.
3. RELUBRICATE AFTER WASHING.
4. LUBRICATE BOTH SIDES OF EQUIPMENT.
5. TOWBAR PIVOT (6): LUBRICATE WITH GAA. ATTACH GREASE GUN TO LUBRICATION FITTINGS AND LUBRICATE.
6. TOWBAR (13): LUBRICATE WITH GAA. ATTACH GREASE GUN TO LUBRICATION FITTINGS ON PIN AND LUBRICATE UNTIL CLEAN GREASE FLOWS FROM EACH SEGMENT OF JOINT. MOVE TOWBAR UP AND DOWN THROUGH ITS FULL RANGE OF MOTION TO SPREAD GREASE INSIDE JOINT. WIPE OFF EXCESS GREASE.
7. FOR BACKUP PIN, REMOVE HANDLE, REMOVE PIN AND APPLY GREASE.



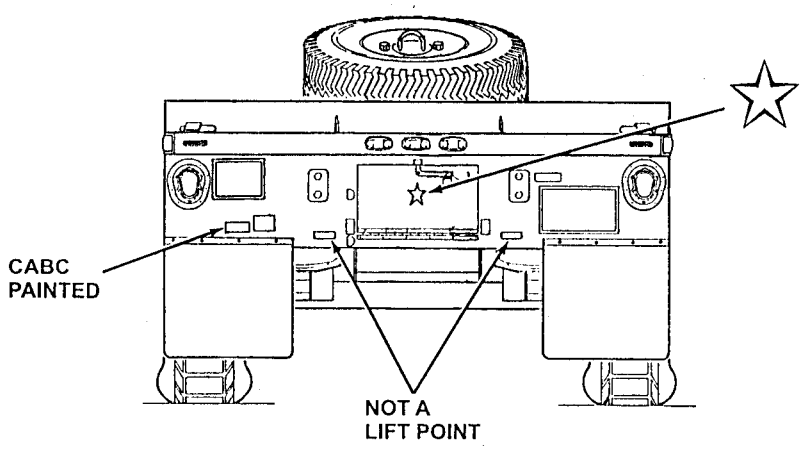
LUBRICANT DATA

LUBRICANT	TEMPERATURES	
	ABOVE + 32°F	+ 40°F TO - 65°F
OE - OIL LUBRICATING ENGINE	OE 30	OE 10W
GAA - GREASE AUTOMOTIVE AND ARTILLERY	GAA	GAA

ALL TRAILERS

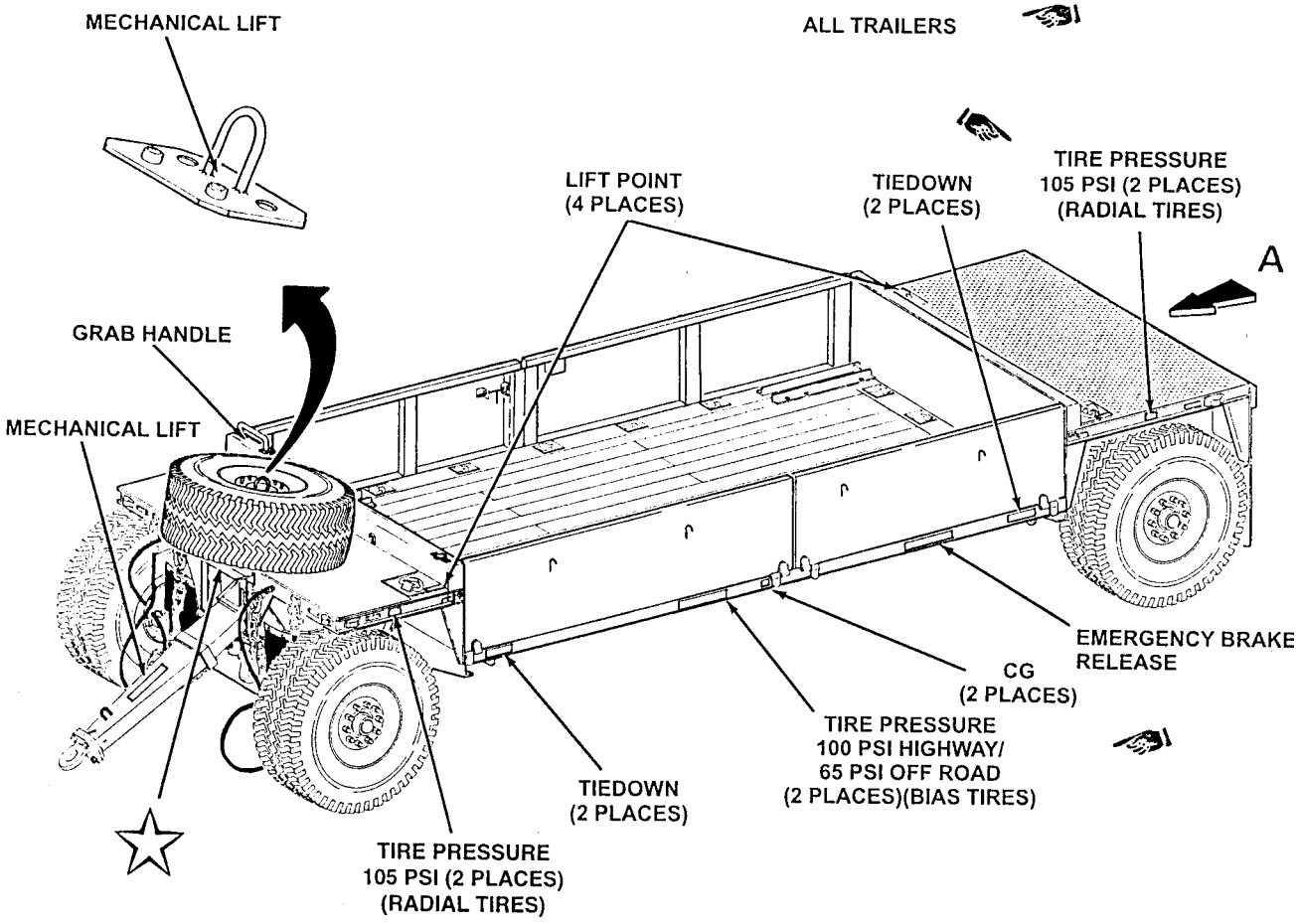
1-13. STENCILS

The following stencils are painted on the trailer.



VIEW A

ALL TRAILERS



CHAPTER 2

OPERATING INSTRUCTIONS

OVERVIEW

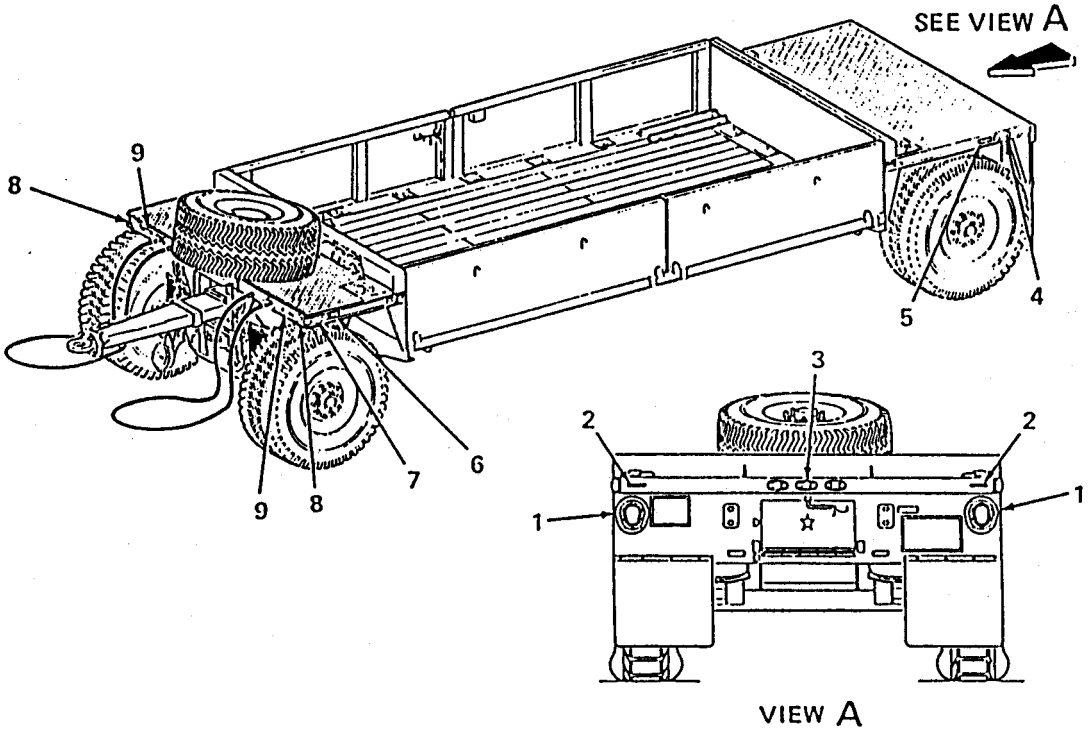
This chapter provides operator instructions for the operation and maintenance of the Heavy Expanded Mobility Ammunition Trailer (HEMAT) and its components. A Preventive Maintenance Checks and Services (PMCS) chart is provided as a guideline. Also, operating procedures for both usual and unusual conditions are included.

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

2-1. LIGHTING SYSTEM

a. Lights. The trailer lights are operated by the towing vehicle through the intervehicular electric cable. Lights include the following:

(1) Two rear composite lights (1), each containing a stoplight, turn signal light, a blackout stoplight, blackout marker light, and taillight.



2-1. LIGHTING SYSTEM (CONT)

(2) Two rear red marker reflectors (2).

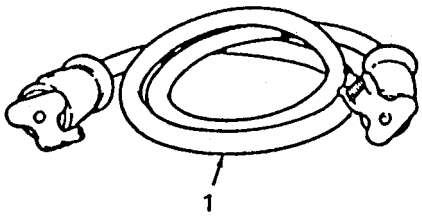
(3) Three rear red marker lights (3).

(4) Two red rear side lights (4) located left and right. Two red reflectors (5) located right and left.

(5) Two amber reflectors (6) and two amber clearance marker lights (7) located on left and right sides of trailer front.

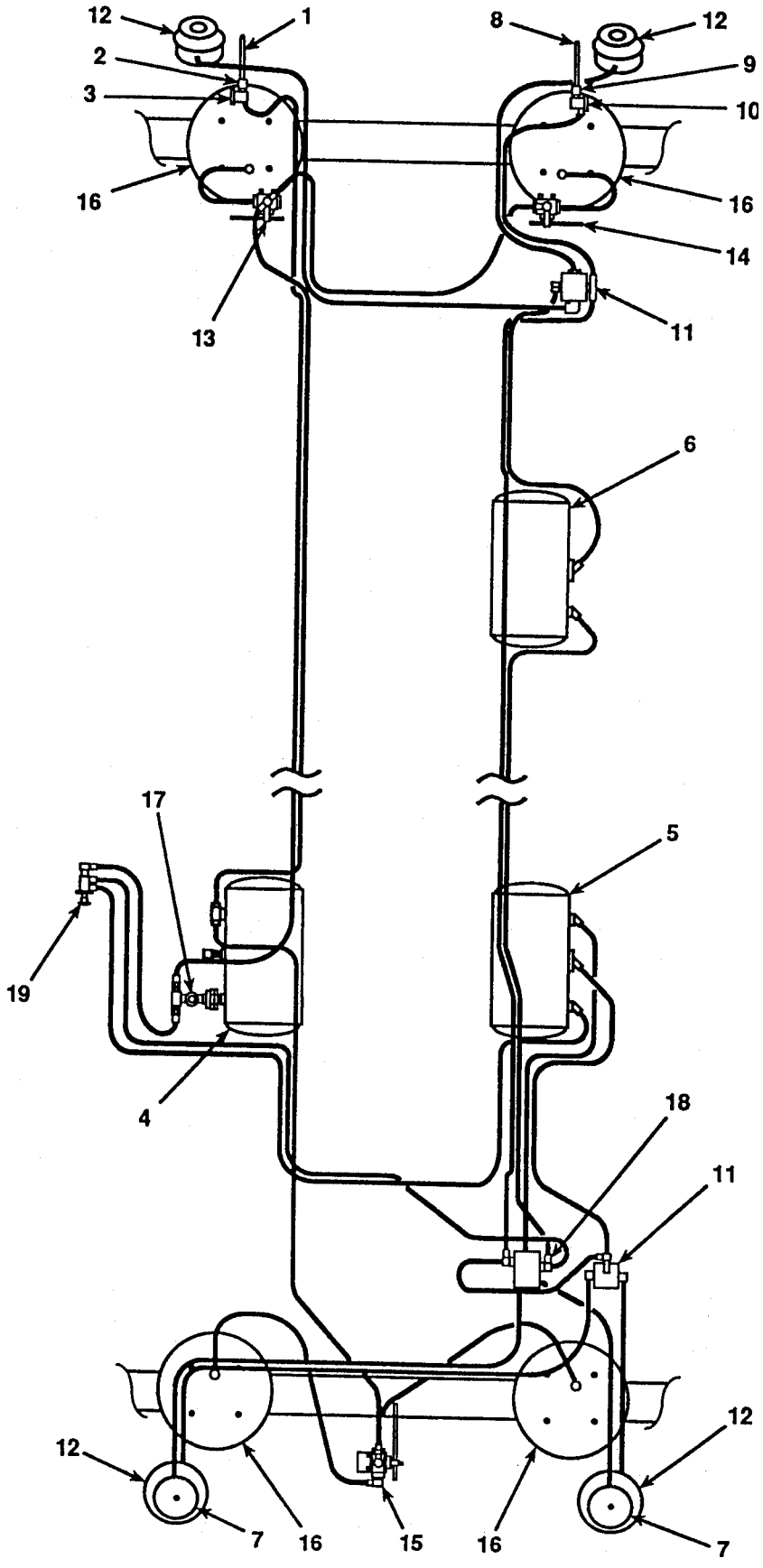
(6) Two amber lights (8) and two amber reflectors (9) located on front end of HEMAT.

b. Intervehicular Cable. The intervehicular cable (1) is used to connect the trailer lighting system to the towing vehicle electrical system during towing operations. The cable plugs are keyed so that they can only be connected to the trailer connector and the towing vehicle connectors in one way. The lights are operated from the towing vehicle. When not in use, the cable is stowed in the storage box.



2-2. AIR SYSTEM

The pneumatic system is a standard two-line air brake system which includes emergency and parking brake features. The system is pressurized by the tractor through the emergency (supply) air line (1), gladhand (2), and air cleaner (3) to the left rear (4), right rear (5), and right front air reservoir (6), where air is stored. Air pressure is automatically applied to the rear spring brakes (7) to release them for normal operation. When any of the brake controls on the tractor are activated, pressure is provided from the tractor through the service (control) air line (8), gladhand (9), and air cleaner (10) to two relay valves (11), which release air pressure from reservoirs (4, 5, and 6) to operate four service brakes (12) for normal trailer braking and parking brake operations. From the three reservoirs, air is also supplied to the left front (13), right front (14), and rear leveling valve (15), which pressurize the four air suspension bags (16). If air pressure drops below approximately 60 psi, the pressure protection valve (17) cuts off air to leveling valves (13, 14, and 15), leaving air pressure to operate the service brakes only. If there is a major component failure or line rupture in the system, or the trailer is disconnected from the tractor, the multifunction valve (18) disables both relay valves (11) and releases air from the rear spring brake chambers, applying the rear spring brakes (7). The rear spring brakes (7) can be released by pushing the knob inward on the brake control valve (19), or by connecting the trailer to the tractor and recharging the air system. If the system has no air pressure, rear spring brakes can be manually released by caging.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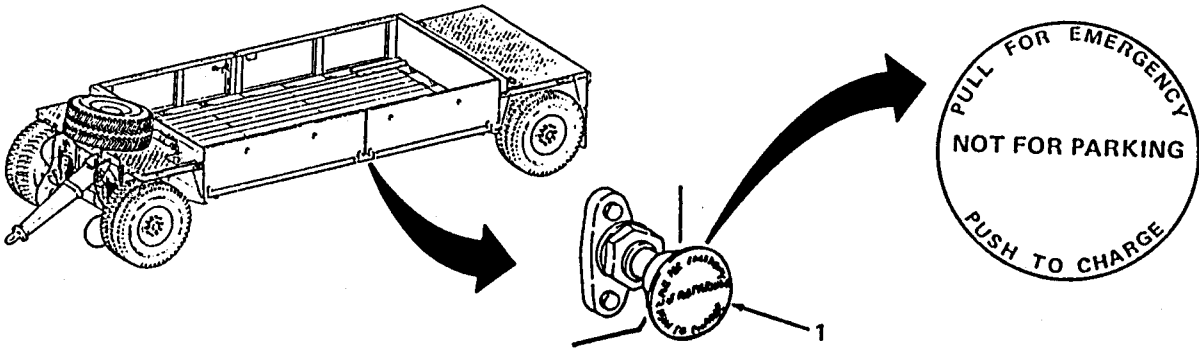
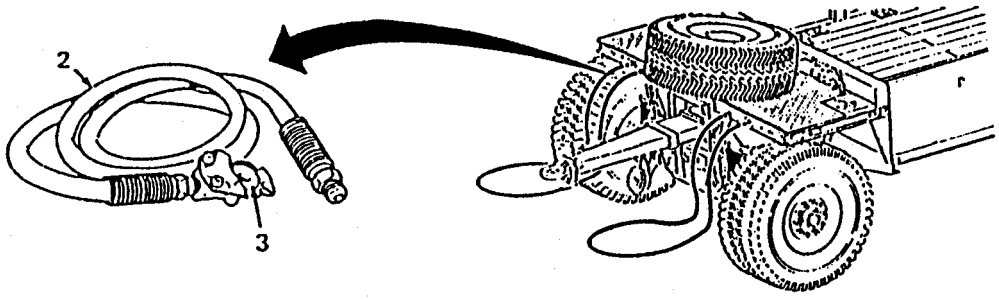
2-3. AIR BRAKE AND SUSPENSION SYSTEM

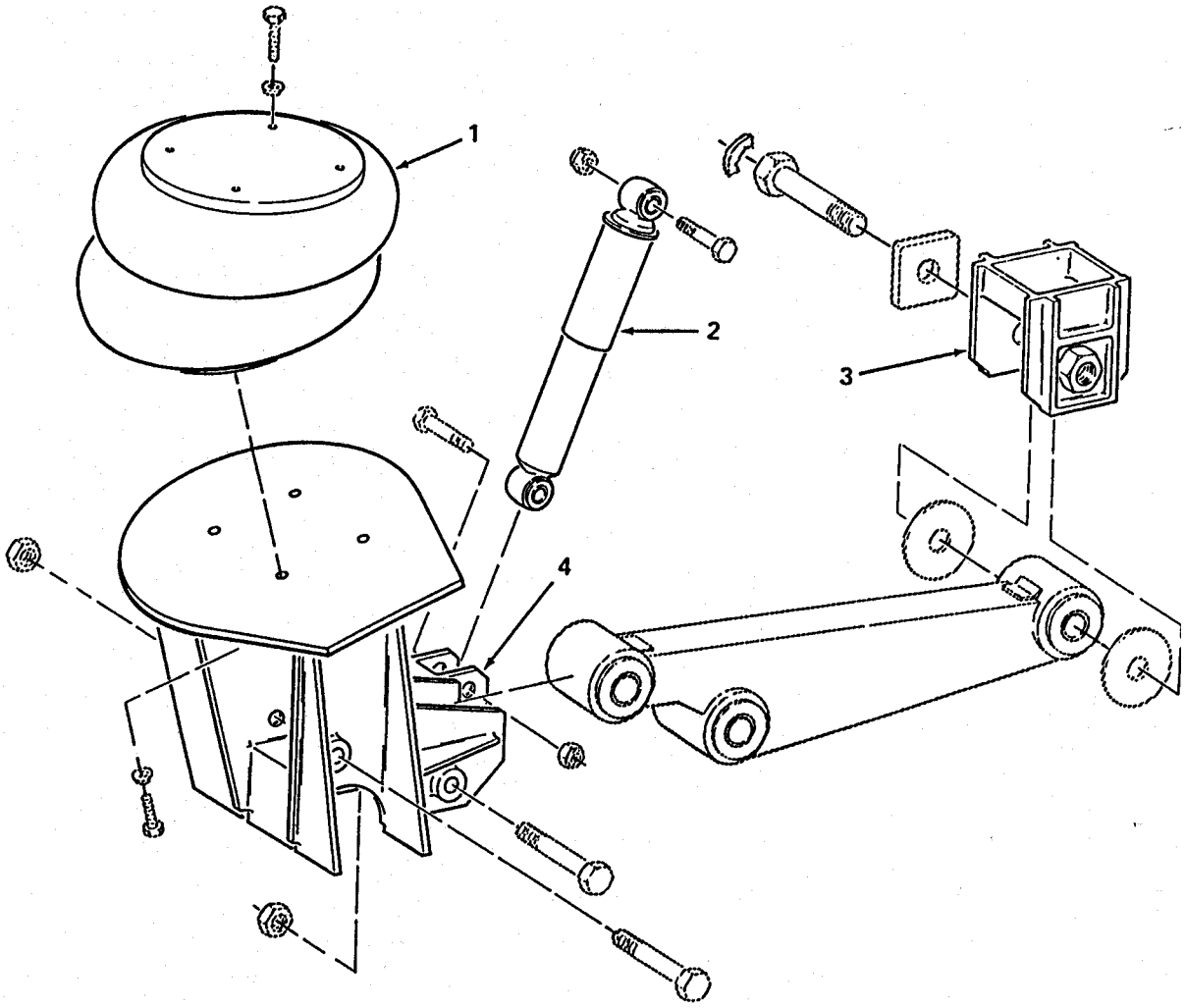
a. Service Brakes. The service brakes are expanding shoe-on-drum type brakes. The brake shoes are actuated by individual air chambers through camshafts. The air chambers are connected to the air system tanks and valves through air hoses. The rear brakes are normally automatically locked as parking brakes when the trailer is disconnected from the towing vehicle. To unlock the rear brakes, push in on the control valve knob (1). If there is not enough air in the air tank, the control valve knob will pop back out and the rear brakes will remain locked. If the brakes cannot be released with the control valve, refer to para. 3-6 and mechanically release the brakes by caging the spring brake chamber.



b. Intervehicular Air Hoses. Air for operation of the trailer brakes is provided from the towing vehicle through two intervehicular air hoses (2) attached to the front of the trailer. The hoses are for service brake operation and for the emergency system. Both hoses have gladhand couplings (3) for quick secure connection to the tow vehicle.

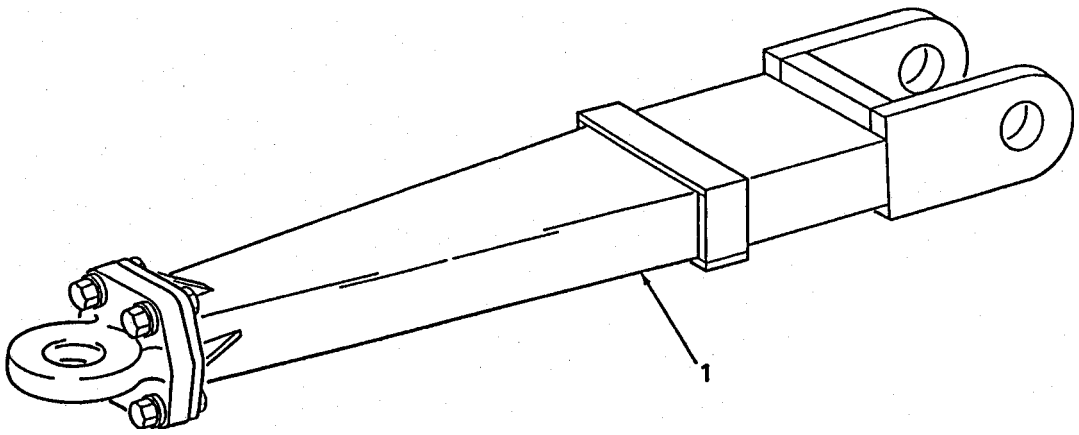


c. Suspension System. The trailer suspension system includes front and rear systems. The front suspension system has left and right side air-bag springs (1) and shocks (2) attached to hanger (3) and shock brackets (4). The illustration shown is for the left side. The rear suspension system consists of right and left air-bag springs (1) and shocks (2) attached to hanger (3) and shock brackets (4).



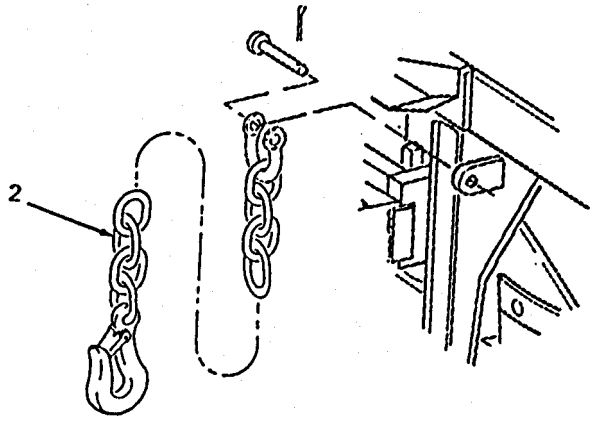
2-4. TOWBAR AND SAFETY CHAINS

a. Towbar. The towbar assembly (1) is used to connect the trailer to the tow vehicle for transporting. It is connected to the trailer tie rod for steering. The towbar can be held in place on the trailer by a lockpin when backing or parking the trailer.



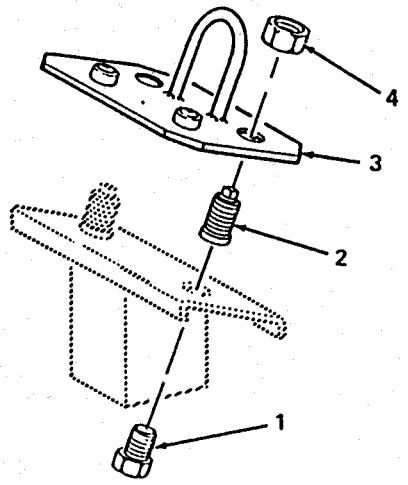
2-4. TOWBAR AND SAFETY CHAINS (CONT)

b. Safety Chains. The two safety chains (2) are attached just right and left of the towbar on the front end of the frame. Their purpose is to prevent breakaway in the event of towbar failure or pintle disconnect. The chains are hooked to the towing vehicle after the towbar has been connected.



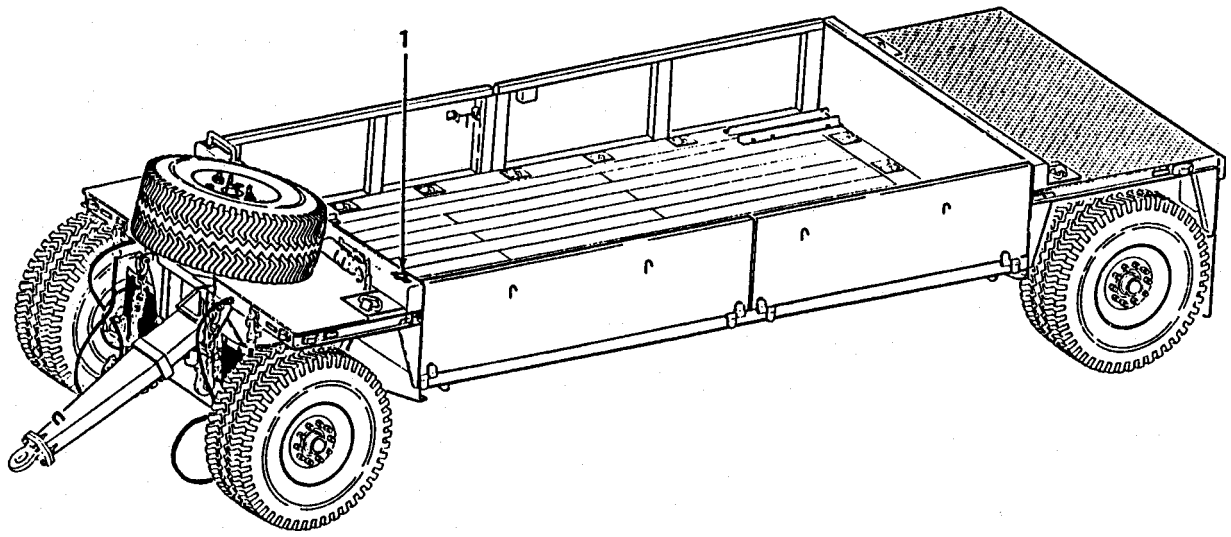
2-5. SPARE TIRE MOUNT

The trailer spare tire is located center on the forward deck and secured with two studs (1), cap nuts (2), lifting plate (3), and two lug nuts (4).



2-6. DAVIT CRANE MOUNT

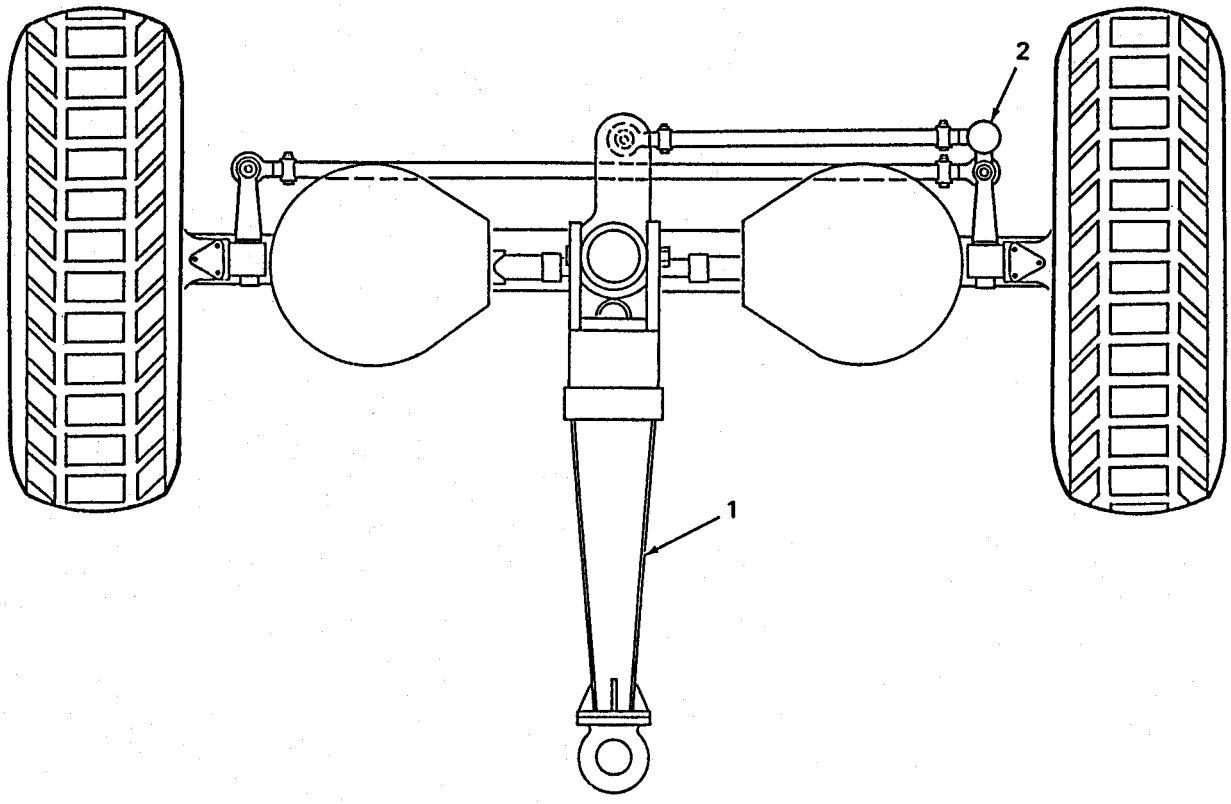
The davit crane mount (1) is located streetside on the forward bulkhead and is used to mount the davit hoist arm from the HEMTT. When the HEMTT davit is mounted in this location, it can be used to lift the spare tire and towbar.



2-7. STEERING

a. The trailer steering is controlled by the towbar assembly (1) which is connected to the trailer tie rod and steering assembly (2).

b. When the trailer is being backed up, the towbar assembly is normally pinned in place so that the front wheels are locked in a straight-ahead position.



2-8. STORAGE BOX

The trailer storage box is located at the rear of the trailer between the two dock bumpers. The storage box is used to stow intervehicular cable when it is not being used, as well as to stow the chocks, jack, lug wrench, and other tools as required.

2-9. FIRE EXTINGUISHER

The fire extinguisher is a standard 10BC type. It is mounted on the left side of the forward deck wall next to the spare tire. It is held in place with a quick-release bracket.

2-10. LIFTING EYES

The four lifting eyes are located left and right on the forward and rear decks. The lifting eyes are used to lift the trailer.

2-11. SIDE PANELS

There are two side panels 23 inches high on each side of the trailer, one 79-3/4 inches long and the other 95-3/4 inches long. When installed, they are the same height as the forward and rear deck supports. The two short panels are drilled to mount the foldable access steps.

Section II. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-12. MAINTENANCE FORMS AND RECORDS

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

2-13. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

a. Table 2-1 lists the necessary PMCS. Perform at the intervals shown below:

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

(2) Do your during (D) PREVENTIVE MAINTENANCE during operation. (During operation means to monitor the vehicles and their related components while they are actually being operated.)

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

(4) Do your weekly (W) PREVENTIVE MAINTENANCE weekly.

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

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

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

e. 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

Dry cleaning solvent (MIL-PRF-680, type I) is extremely flammable, toxic, and is an irritant to the eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Do not breathe the vapors. Use skin and eye protection and work in a well ventilated area. Flash point of solvent is 140°F.

(1) Cleaning. 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 (MIL-PRF-680, type I) (item 6, appendix E) 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, of course; but look for chipped paint, bare metal or rust around bolt heads. If you find one you think is loose, tighten it, or report it to unit maintenance 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 unit maintenance.

(4) Electrical 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) Air Hose Lines. Look for wear, damage and leaks, and make sure clamps and fittings are tight. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to unit maintenance.

2-13. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (CONT)

Table 2-1. Operator Preventive Maintenance Checks and Services (PMCS)

NOTE

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

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

Item No.	Interval B	Interval D	Interval A	Interval W	ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/Available If:
					NOTE Perform weekly (W) PMCS as well as before if: You are the assigned operator but have not operated vehicle since the last inspection or you are operating the vehicle for the first time. Perform the following inspection/ checks before connecting the trailer to the towing vehicle.	
1					INTERVEHICULAR CABLE	
	•				Check intervehicular cable (1) for cuts, breaks, and frayed wires or damaged cable plugs, and missing, broken, or bent pins.	
2					INTERVEHICULAR AIR HOSES	
	•				a. Check preformed packing (1). If defective, notify unit maintenance.	
	•				b. Check intervehicular air hoses (2) for cuts, breaks, and damaged gladhand (3). If damaged, notify unit maintenance.	Air hose is damaged or missing. Gladhand missing, damaged, or missing the packing.

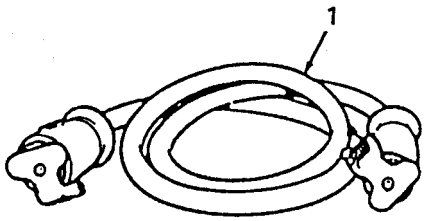
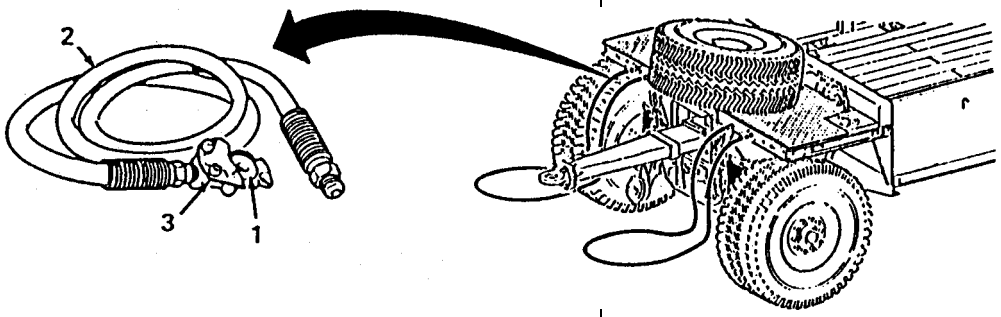


Table 2-1. Operator Preventive Maintenance Checks and Services (PMCS) - CONT

NOTE

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

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

Item No.	Interval B	D	A	W	ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/Available If:
						
3					AIR TANKS	
	•				a. Inspect all three air tanks for damage and leakage.	Damaged tanks or air leaks from tanks.
					WARNING Wear protective goggles when opening drain cock and avoid the air stream. Failure to do so could result in personal injury.	
			•		b. Open drain cocks on air tanks to drain condensation.	
					c. Close drain cock.	
4					AIR BRAKE SYSTEM	
	•				a. While a helper activates service brakes, listen for air leaks at gladhands, air valves, and tanks, and inspect lines for loose connections and damage. Report deficiencies to unit maintenance.	Air is leaking. Service brakes do not operate.

2-13. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (CONT)

Table 2-1. Operator Preventive Maintenance Checks and Services (PMCS) - CONT

NOTE

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

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

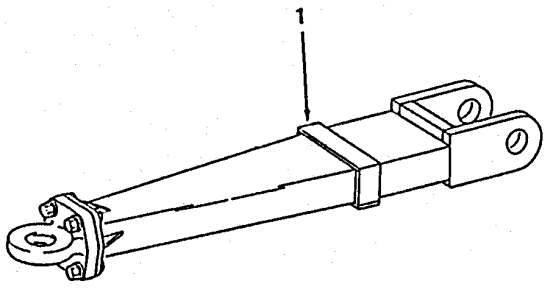
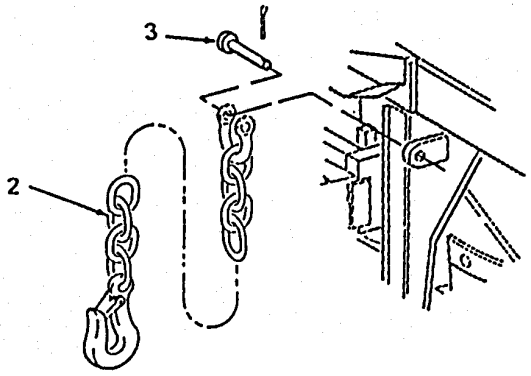
Item No.	Interval B	Interval D	Interval A	Interval W	ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/Available If:
4 - CONT					AIR BRAKE SYSTEM - CONT	
		•			b. Test air brake system.	
					(1) Connect trailer to towing vehicle (para. 2-14) and allow 1-2 minutes for air system to fully charge.	
					(2) Release towing vehicle parking brake and check to see if rear pushrods retract.	Rear pushrods do not retract.
					(3) Actuate service brakes. Observe air chamber pushrods to make sure brakes are evenly applied. Be alert for unusual difficulty in stopping that would indicate trailer service brakes are malfunctioning.	Uneven or no braking.
					WARNING A hot brake or drum can cause serious burns. Exercise extreme caution before attempting to touch brake drum after use. Slowly move hand toward drum. If drum is overheated, radiated heat will be felt before the hand actually touches the drum.	
					(4) Cautiously feel brake drum for abnormally hot or cold condition.	Brake drums abnormally hot or cold.

Table 2-1. Operator Preventive Maintenance Checks and Services (PMCS) - CONT

NOTE

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

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

Item No.	Interval B	D	A	W	ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/Available If:
5					TOWBAR AND SAFETY CHAINS	
	•				Check for loose or damaged towbar (1). Check towbar mounting pin. Check safety chain (2) and retainer pin (3). Notify unit maintenance of defects.  	Towbar is loose or damaged.

2-13. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (CONT)

Table 2-1. Operator Preventive Maintenance Checks and Services (PMCS) - CONT

NOTE

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

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

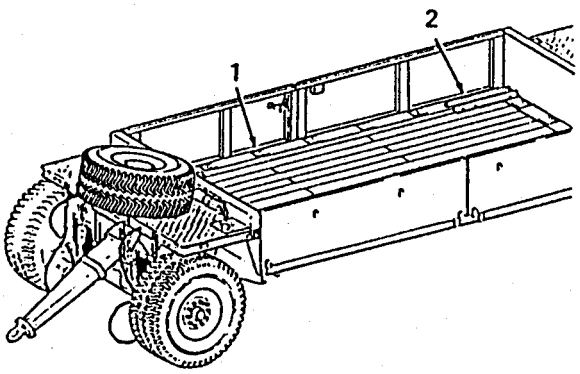
Item No.	Interval B	D	A	W	ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/Available If:
6					TIRES	
	•				a. Check tire pressure, including spare tire, as follows: Pressures: Bias ply: 100 psi (highway) Bias ply: 65 psi (off-road) Radial: 105 psi (highway/off-road - all conditions)	
	•				b. Check all tires for cuts, foreign objects or unusual tread wear. Remove any stones from between treads.	One or more tires are flat, missing, or unserviceable.
7					WHEELS	
					NOTE Report any loose wheel nuts to organizational maintenance for torquing (450-500 lb ft).	
	•				Check wheels for damage and wheel nuts for looseness and missing nuts. Check air valve for leaks.	One or more wheels are damaged. Two or more wheel nuts are missing on one wheel.
8					SIDE PANELS	
				•	Inspect side panels for damaged latches, panels or hinges. If damaged, notify unit maintenance.	Any side panel is missing or has broken welds. A latch or one hinge pin is broken.

Table 2-1. Operator Preventive Maintenance Checks and Services (PMCS) - CONT

NOTE

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

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

Item No.	Interval B	Interval D	Interval A	Interval W	ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/Available If:
9					CARGO TIEDOWN RINGS (QTY 22) AND POD STOPS (QTY 4)	
	•				a. Inspect for damaged or missing cargo tiedown rings (1).	Cargo tiedown ring is missing or damaged.
	•				b. Inspect for loose, missing, or damaged pod stops (2).	Pod stops are missing or loose when required for mission.
						
10					LIGHTS AND REFLECTORS	
					NOTE An assistant is required to check the brake lights with trailer connected to towing vehicle.	
	•	•			a. Check all lights for proper operation.	Both taillights are inoperative. Both stoplights are inoperative.
				•	b. Check for damaged or missing reflectors.	

2-13. OPERATOR PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (CONT)

Table 2-1. Operator Preventive Maintenance Checks and Services (PMCS) - CONT

NOTE

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

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

Item No.	Interval B	Interval D	Interval A	Interval W	ITEM TO BE INSPECTED Procedure: Check for and have repaired, filled, or adjusted as needed.	Equipment Is Not Ready/Available If:
11					AIR SUSPENSION	
	•				a. Check for ripped, cut, or torn air bags.	Air bag does not hold air.
	•				b. Check all shock absorbers for leakage and damage.	Any shock absorber is missing, damaged, or has class III leak evident.
	•				c. Check for proper inflation before moving trailer.	
12					FRAME	
	•				Inspect frame for obvious broken welds and distortion. Report damage to unit maintenance.	Welds are broken and/or frame is distorted.
13					BASIC ISSUE ITEMS	
	•				Ensure all basic issue items (appendix C) are present. Report damaged or missing items to unit maintenance.	
14					FIRE EXTINGUISHER	
	•				Inspect fire extinguisher to make sure pressure level is in the green area. If not in green area, notify unit maintenance.	Pressure is low or extinguisher is missing.

Section III. OPERATION UNDER USUAL CONDITIONS

2-14. CONNECTING HEMAT TO TOWING VEHICLE (USING DAVIT CRANE FROM HEMTT)

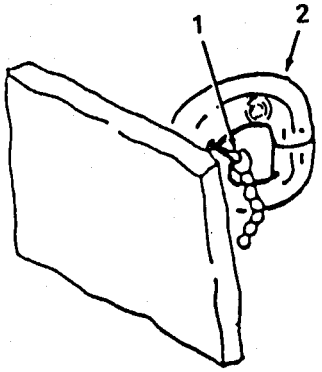
WARNING

Be alert for other moving vehicles in the area. Do not stand between towing vehicle and trailer when towing vehicle is backing up. Serious injury can result if personnel are caught between vehicles. Set chocks front and rear of rear tires on trailer.

To avoid injury to personnel and damage to equipment, connecting the trailer requires two persons.

Do not attempt to move the HEMAT vehicle by hand after it has been disconnected from the towing vehicle. The brake chambers are designed to apply automatically when the trailer is disconnected from the towing vehicle or if loss of air pressure occurs. The brakes are not to be hand activated to override the control valve under any circumstances. Attempting to move the trailer by hand could result in serious injury or death to personnel and damage to equipment.

a. On towing vehicle, pull cotter pin (1) and open pintle (2). Back towing vehicle up until towing vehicle pintle (2) is alined with and approximately 1 foot in front of trailer towbar lunette. Stop towing vehicle, set brakes and proceed as follows:



2-14. CONNECTING HEMAT TO TOWING VEHICLE (USING DAVIT CRANE FROM HEMTT) (CONT)

WARNING

Two persons are required to remove or install davit crane on HEMTT or trailer, one person on vehicle and one person on ground. Hoist arm weighs 46 pounds and extension weighs 22 pounds. Handle both carefully to avoid injury to personnel.

b. Remove davit crane from HEMTT.

(1) Remove hoist arm (3) from mounting bracket (4) and pass to person on ground, who relocates it on streetside, near davit crane mount.

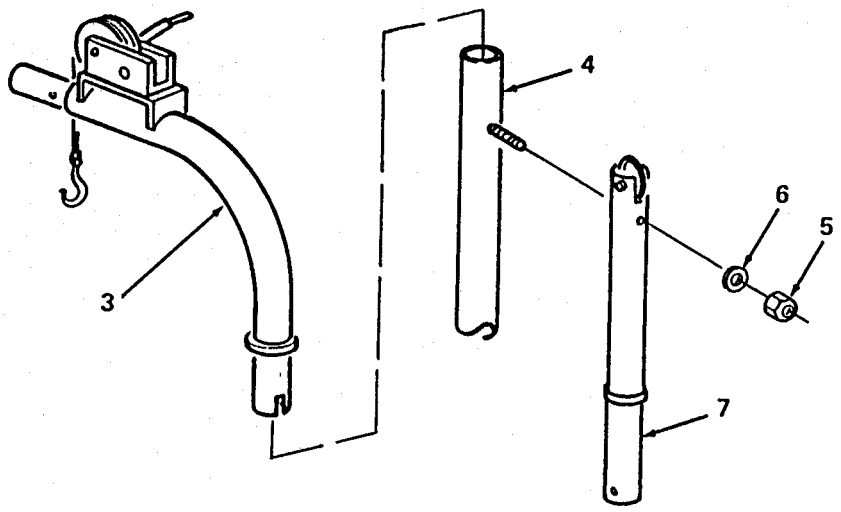
(2) Remove nut (5), washer (6), and extension arm (7) from mount (4) and pass extension arm to person on ground, who relocates it on streetside, near davit crane mount. Reinstall washer (6) and nut (5).

c. Install davit crane on trailer.

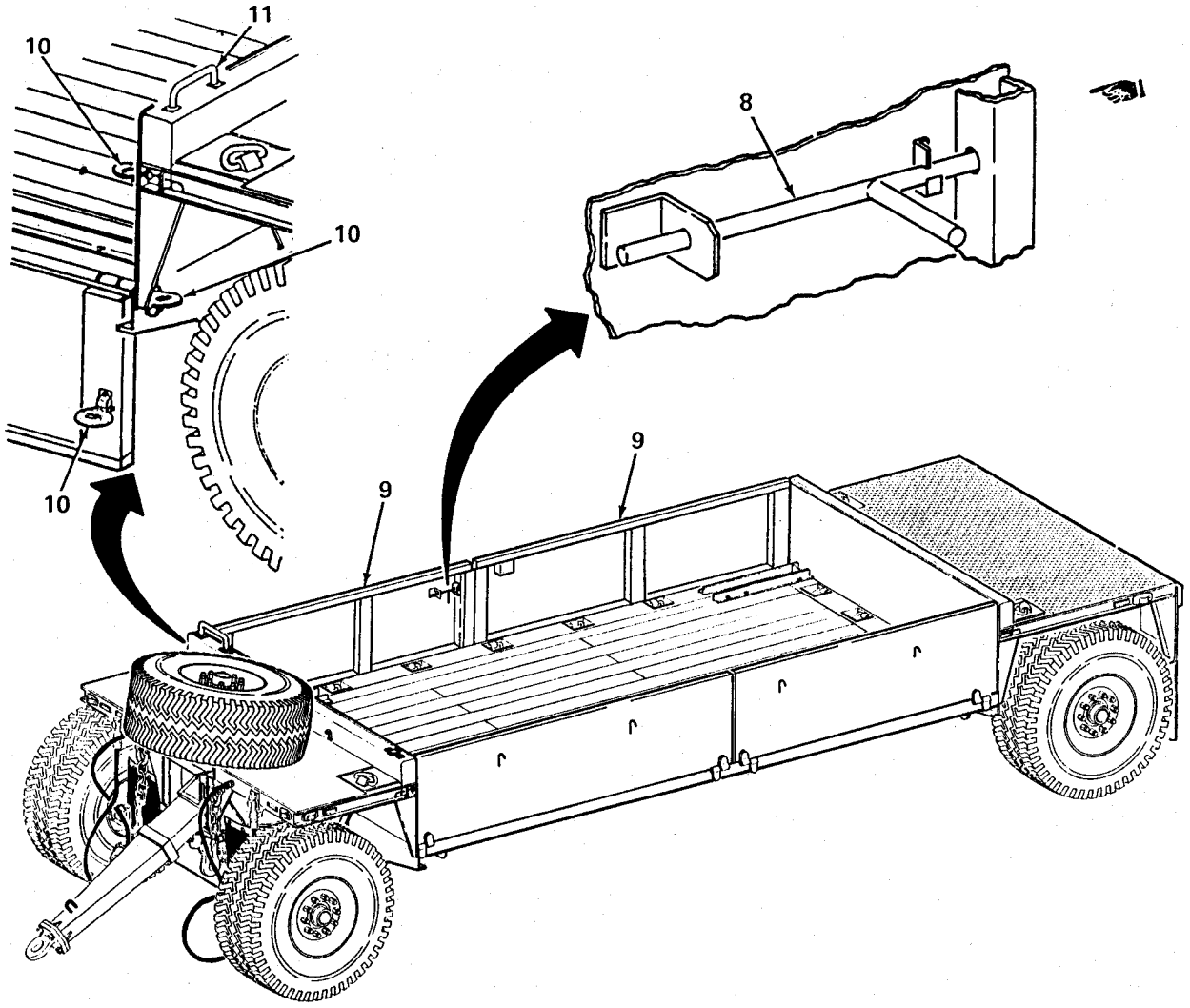
WARNING

When using foldable steps, take care to place foot on center of step. Otherwise foot may slip off side, resulting in serious injury.

Two persons are required to raise or lower side panels.



(1) Without unlocking hitch pin (8), lower both curbside panels (9) together; lower all three foldable steps (10); and use handrail (11) to gain access to front deck area.



2-14. CONNECTING HEMAT TO TOWING VEHICLE (USING DAVIT CRANE FROM HEMTT) (CONT)

WARNING

Personnel on front deck must use extreme care to avoid tripping over spare tire, fire extinguisher, and lifting eyes. Otherwise serious injuries may occur.

(2) Person on front deck is positioned on streetside, near davit crane mount.

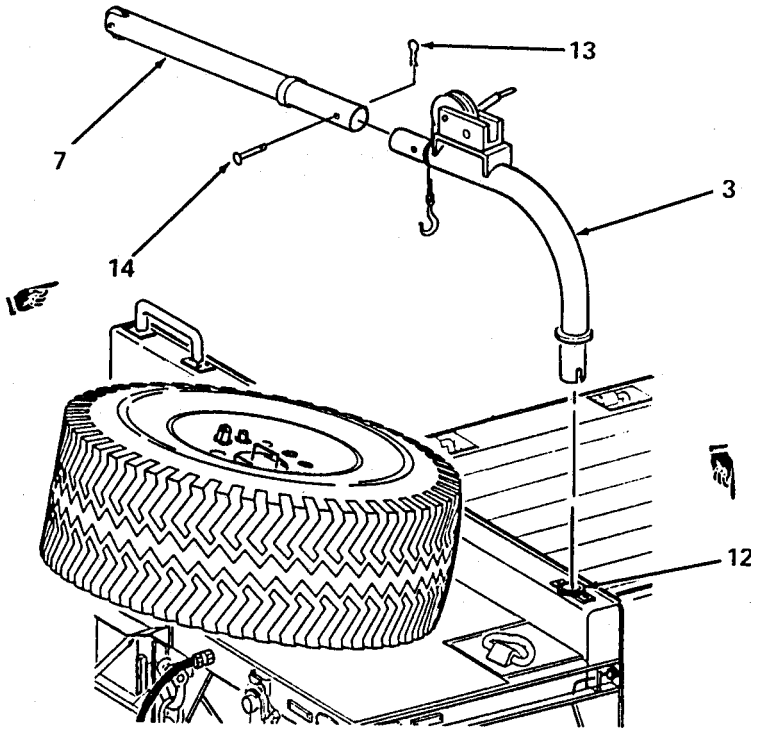
WARNING

Two persons are required to remove or install davit crane on HEMTT or trailer, one person on vehicle and one person on ground. Hoist arm weighs 46 pounds and extension weighs 22 pounds. Handle both carefully to avoid injury to personnel.

(3) Person on ground passes hoist arm (3) to person on front deck. Insert hoist arm (3) into davit crane mount (12) pointing forward. Remove and keep safety pin (13) and pin (14) from hoist arm.

(4) Person on ground passes extension (7) to person on front deck, who installs it onto hoist arm (3).

(5) Line up holes in extension (7) and hoist arm (3), install pin (14) and safety pin (13).



2-14. CONNECTING HEMAT TO TOWING VEHICLE (USING DAVIT CRANE FROM HEMTT) (CONT)

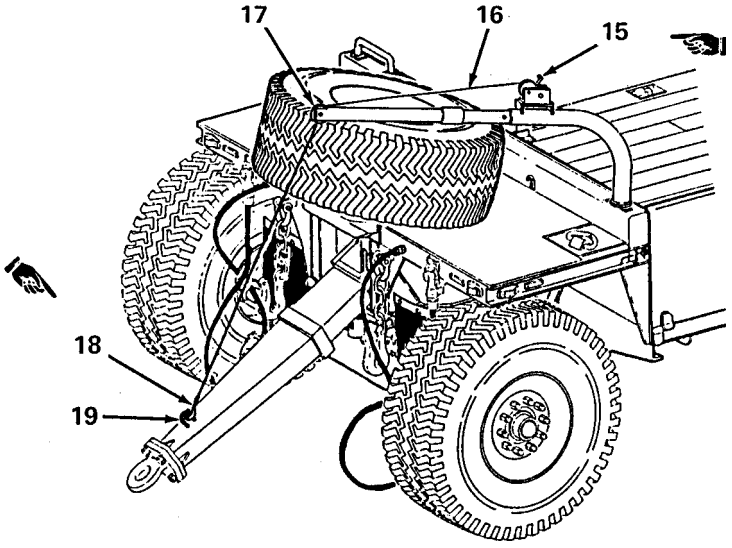
WARNING

Do not lean against davit crane while routing cable over end of pulley. Davit crane is designed to move in mount and could cause a fall resulting in serious injury.

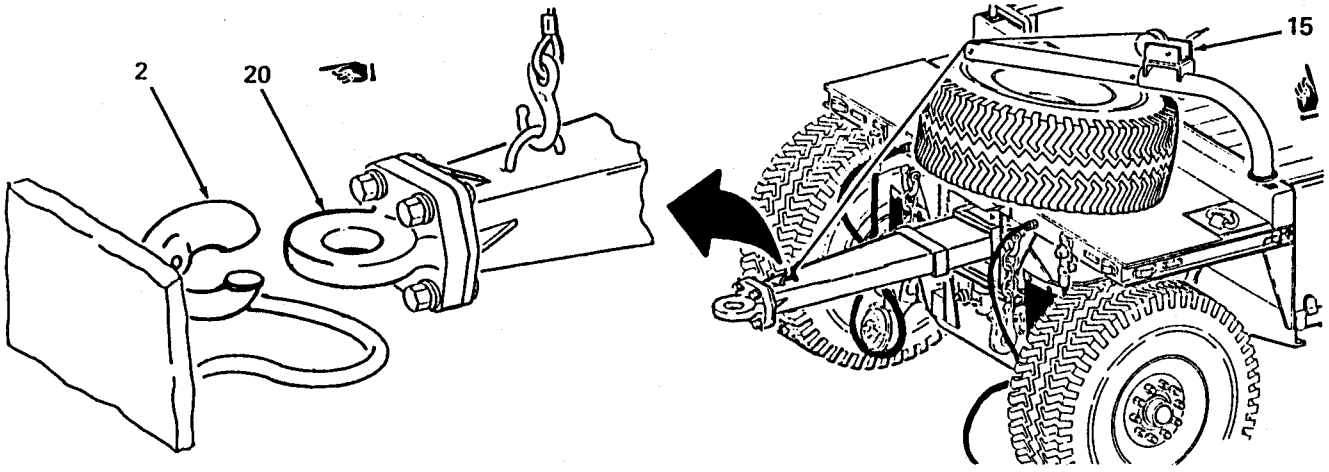
(6) Turn handcrank (15) counterclockwise and route cable (16) over end of pulley (17).

d. Lift towbar and connect to towing vehicle.

(1) Turn handcrank (15) counterclockwise until person on ground is able to connect cable hook (18) into towbar ring (19).



(2) Turn handcrank (15) clockwise until bottom of lunette (20) is level with lower hook portion of opened pintle (2) (approximately 39-1/2 inches).



WARNING

Do not stand between towing vehicle and trailer or on front deck area when vehicle is backing up. Serious injury can occur.

(3) Exit front deck area and move into clear view of vehicle operator. Direct vehicle operator to back towing vehicle until front of lunette (19) just touches inner portion of opened pintle (2). Ensure that operator stops vehicle and sets brakes.

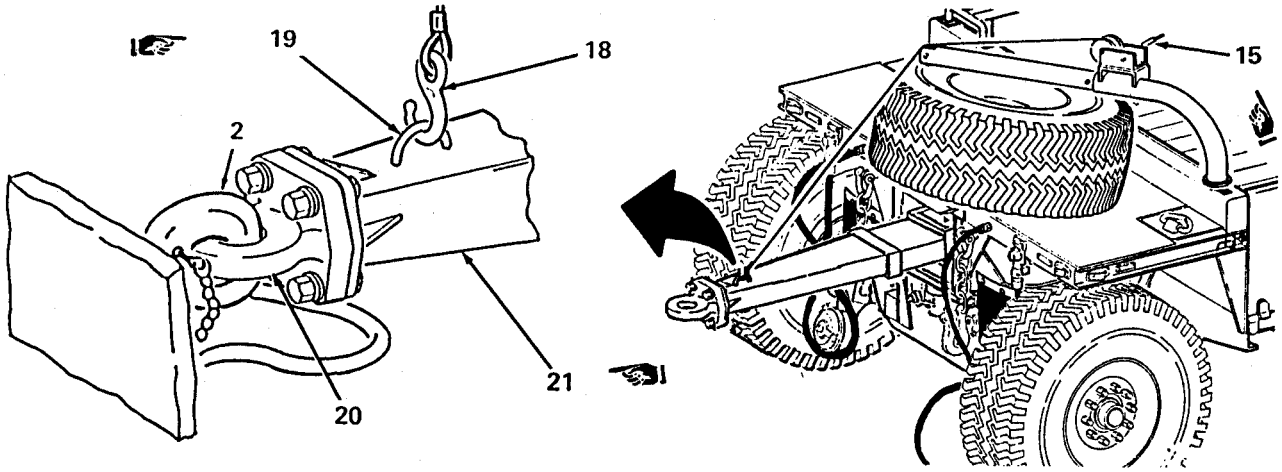
(4) Approach towbar (21) and ensure that lunette (20) is alined (side to side) with lower hook of opened pintle (2).

WARNING

Do not stand between towing vehicle and trailer or on front deck area when vehicle is backing up. Serious injury can occur.

(5) Gain access to front deck area and turn handcrank (15) counterclockwise until lunette (20) drops onto lower hook of pintle (2).

(6) Continue turning handcrank (15) until person on ground is able to disconnect cable hook (18) from towbar ring (19).



CAUTION

Davit crane must be removed and stowed prior to operation of trailer. Damage to equipment can occur.

e. Remove davit crane from trailer.

(1) Turn handcrank clockwise until cable hook is retracted to cable winch.

2-14. CONNECTING HEMAT TO TOWING VEHICLE (USING DAVIT CRANE FROM HEMTT) (CONT)

WARNING

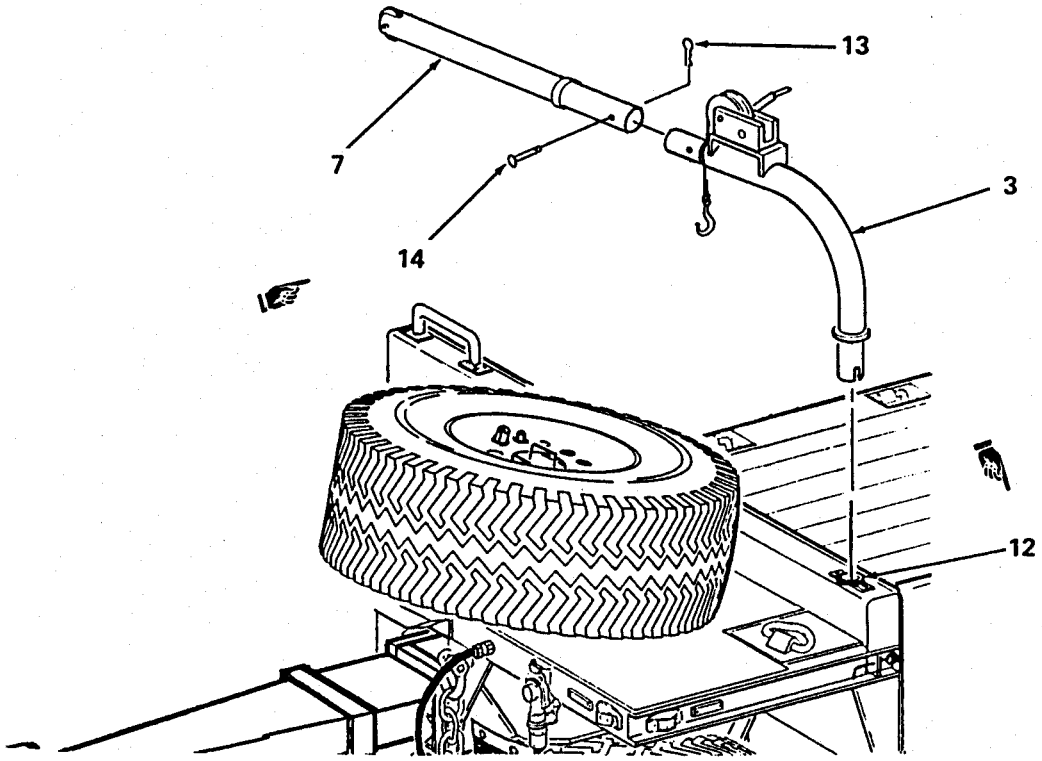
Two persons are required to remove or install davit crane on HEMTT or trailer, one person on vehicle and one person on ground. Hoist arm weights 46 pounds and extension arm weighs 22 pounds. Handle both carefully to avoid injury to personnel.

(2) Remove safety pin (13) and pin (14) from holes in extension arm (7) and hoist arm (3).

(3) Remove extension arm (7) from hoist arm (3) and pass to person on ground.

(4) Install pin (14) through hoist arm (3) and secure with safety pin (13).

(5) Remove hoist arm (3) from mount (12) and pass to person on ground.



WARNING

Two persons are required to raise or lower side panels.

(6) Exit front deck, fold steps, and raise side panels to vertical, ensuring that both front and rear bolt handles lock (see para. 2-16).

f. Stow davit crane on HEMTT.

WARNING

Two persons are required to remove or install davit crane on HEMTT or trailer, one person on vehicle and one person on ground. Hoist arm weighs 46 pounds and extension arm weighs 22 pounds. Handle both carefully to avoid injury to personnel.

(1) Person on ground passes extension arm (7) to person on truck.

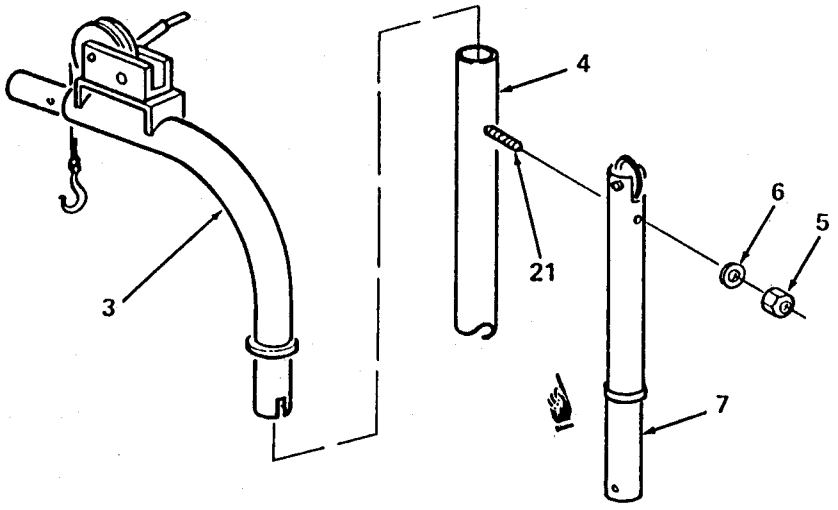
(2) Install extension arm (7) on mount (4).

(3) Slide top of extension arm (7) over stud (21).

(4) Secure extension arm (7) with washer (6) and nut (5).

(5) Person on ground passes hoist arm (3) to person on truck.

(6) Put hoist arm (3) into mounting bracket (4).



g. To close towing vehicle pintle, attach safety chain, connect intervehicular air hoses and electrical cable, perform para. 2-14, steps b and c.

Section III. OPERATION UNDER USUAL CONDITIONS

2-15. CONNECTING HEMAT TO TOWING VEHICLE (OPTIONAL METHOD)

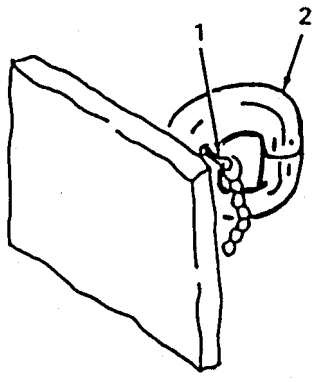
WARNING

Two persons are required to connect towing vehicle and trailer: one operates the towing vehicle, and one lifts the towbar with tiedown strap and acts as a spotter.

Be alert for other moving vehicles in the area. Do not stand between towing vehicle and trailer when towing vehicle is backing up. Serious injury can result if personnel are caught between vehicles. Set chocks front and rear of rear tires on trailer.

Do not attempt to move the HEMAT vehicle by hand after it has been disconnected from the towing vehicle. The brake chambers are designed to apply automatically when the trailer is disconnected from the towing vehicle or if loss of air pressure occurs. The brakes are not to be hand activated to override the control valve under any circumstances. Attempting to move the trailer by hand could result in serious injury or death to personnel and damage to equipment.

a. On towing vehicle, pull cotter pin (1) and open pintle (2). Back towing vehicle up until towing vehicle pintle (2) is alined with and approximately 1 foot in front of trailer towbar lunette. Stop towing vehicle, set brakes, and proceed as follows:

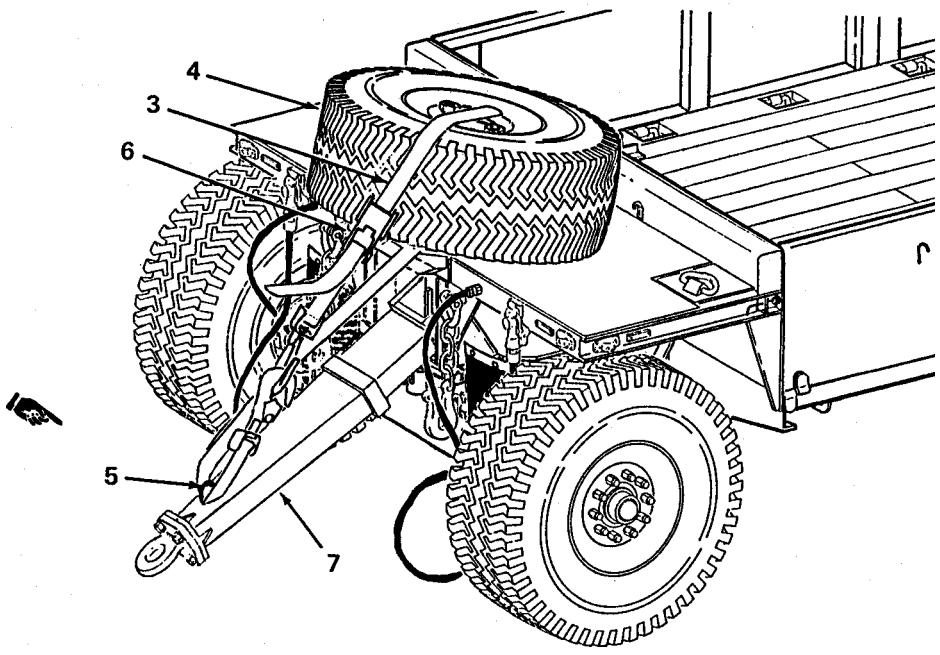


(1) Using tiedown strap (3) from storage box, place hook on small end of strap (away from tightening device) over top of spare tire (4), thread hook through opening between rim and back of spare tire pedestal, and out over front deck.

(2) Pull strap (3) along towbar to towbar ring (5) and pass hook on small end through ring. Hook on small end must be positioned approximately 2 inches above towbar ring.

(3) Take hook on larger end of strap (3) (next to tightening device (6)) and hook into hook on small end. This forms the strap into a loop around spare tire (4) and through towbar ring (5).

(4) Release tightening device (6) and pull free end of strap (3) (end with no hook) through until all slack is removed and strap is formed into a taut loop. Engage tightening device (6) to raise towbar (7).



2-15. CONNECTING HEMAT TO TOWING VEHICLE (OPTIONAL METHOD) (CONT)

NOTE

Raising towbar is a two-step operation. The tightening device will fill with strap and cease operating before the towbar reaches desired height.

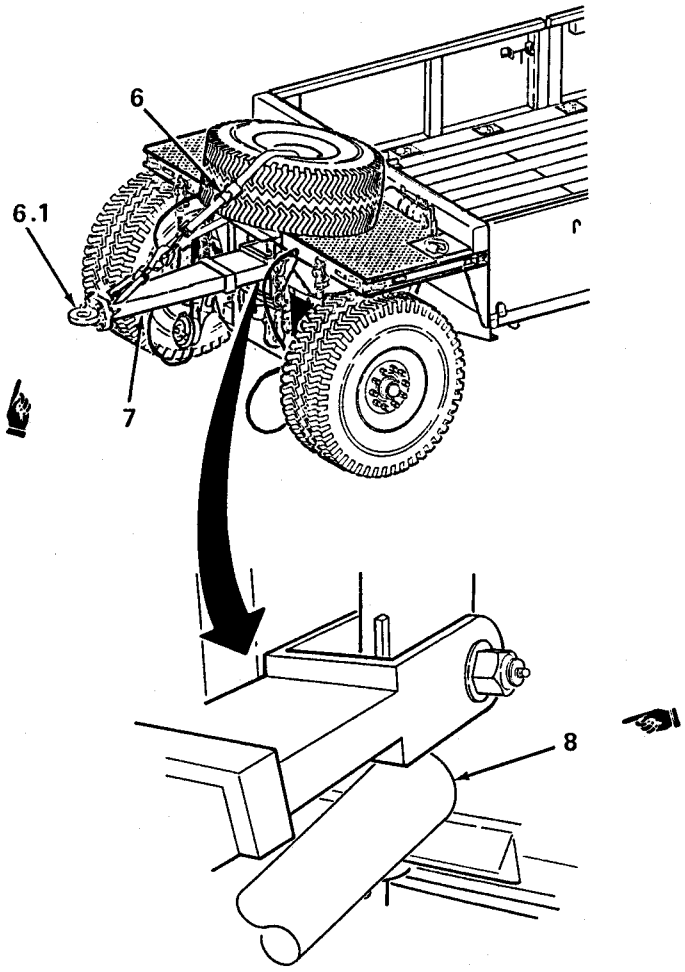
(5) Operate tightening device (6) and raise towbar (7) as far as possible. When device ceases operation, place lug wrench extension bar (8) (from Basic Issue Items (BII), appendix C) between towbar (7), and lower reinforcing bar. Again release tightening device (6) and pull free end through until all slack is removed.

(6) Re-engage tightening device (6) and continue raising towbar (7) until bottom of lunette (6.1) is level with lower hook portion of opened pintle (approximately 39-1/2 inches).

(7) Step away from towbar (7) and into clear view of vehicle operator. Direct vehicle operator to back towing vehicle until front of lunette (6.1) just touches inner portion of opened pintle. Ensure that operator stops vehicle and sets brakes.

(8) Approach towbar (7) and ensure that lunette (6.1) is alined (side to side) with lower hook of opened pintle. Release strap tightening device (6). Weight of towbar will cause lunette to drop onto lower hook of pintle. If towing vehicle needs to move slightly forward or aft for lunette alinement, step away from towbar into clear view of vehicle operator, and signal the appropriate vehicle movement until lunette drops into place.

(9) Unhook strap hooks from each other and remove small end of strap from towbar ring. Remove strap from spare tire and stow in storage box.

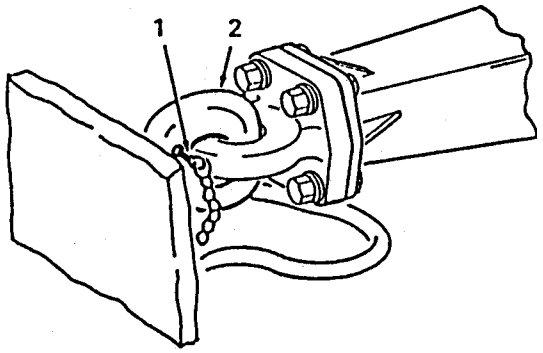

6
6.1
7
8

2-15. CONNECTING HEMAT TO TOWING VEHICLE (OPTIONAL METHOD) (CONT)

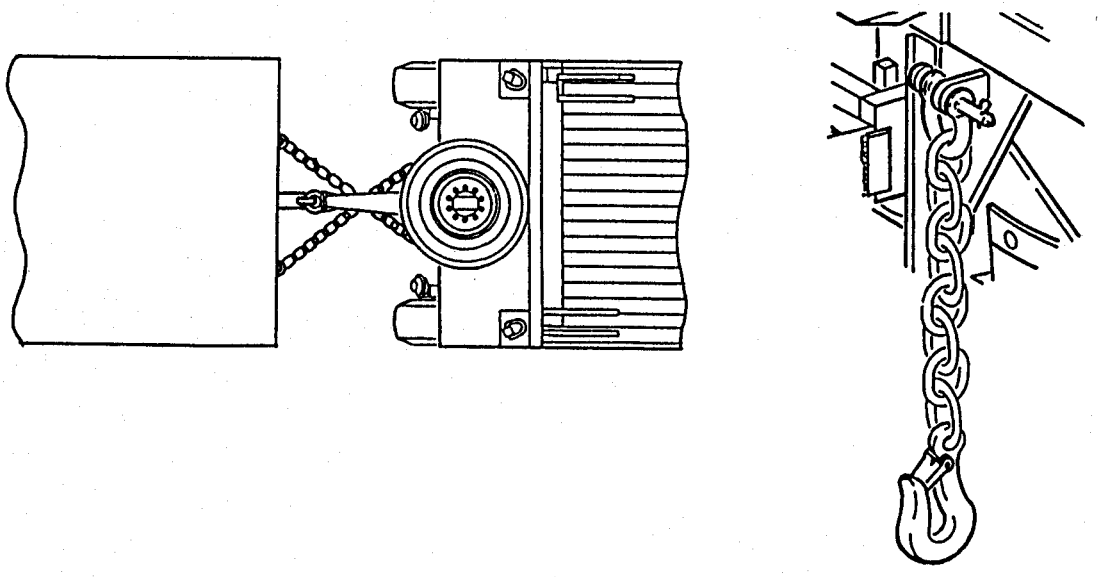
WARNING

Make sure cotter pin is properly installed in pintle so trailer does not break loose and cause injury to personnel.

b. Close towing vehicle pintle (2). Ensure lock is down and in place. Install cotter pin (1) to lock pintle.



c. Attach trailer safety chains to towing vehicle rear shackles. Attach chains crossed under towbar.

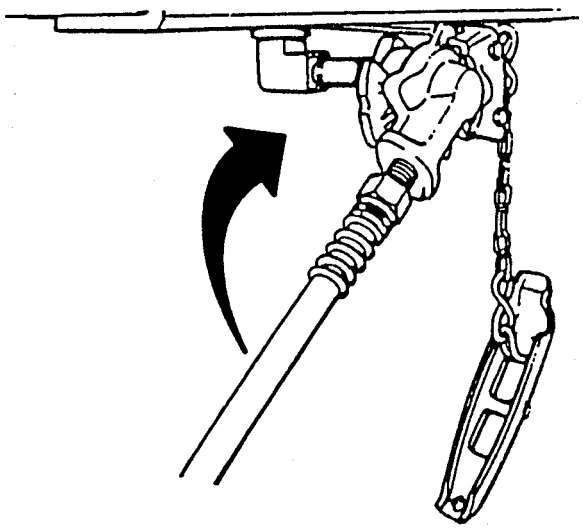


NOTE

Ensure the service and emergency intervehicular air hoses are connected service to service and emergency to emergency. Also ensure that hoses are above the chains.

Couplers are keyed for insertion.

d. Connect intervehicular air hoses from trailer to towing vehicle by holding hose gladhand coupling against the towing vehicle gladhand coupling at a 90-degree angle and rotate until locked in place.



2-15. CONNECTING HEMAT TO TOWING VEHICLE (OPTIONAL METHOD) (CONT)

e. Connect intervehicular electrical cable to trailer and towing vehicle as follows:

(1) Remove cable from storage box at rear of trailer.

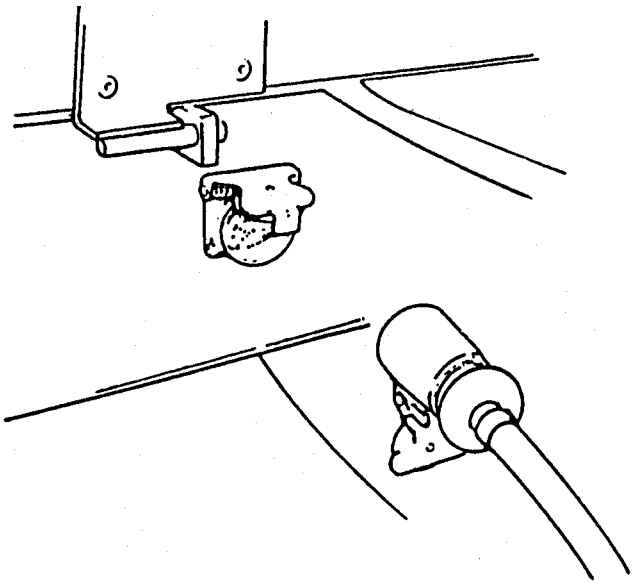
(2) Open intervehicular cable protective covers and lock open by sliding latch lock in place.

(3) Lift receptacle cover on trailer and front of cable and check for missing, bent, or broken pins.

(4) Plug intervehicular electrical cable into trailer receptacle. Cable plugs are keyed so connection can be made only one way.

(5) Connect opposite end of cable to towing vehicle receptacle.

(6) Ensure cable is above the safety chains.



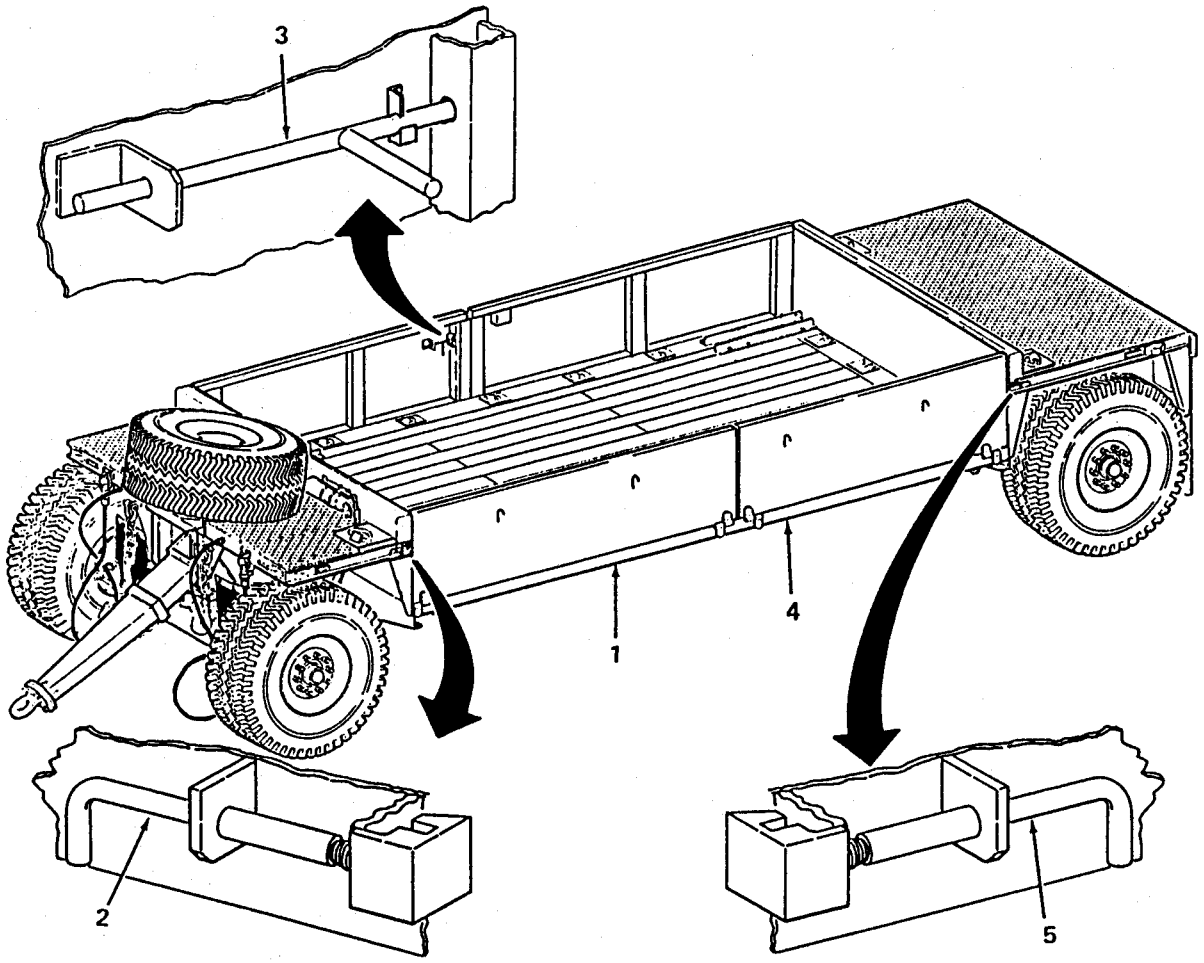
2-16. SIDE PANEL INSTALLATION AND REMOVAL

WARNING

The side panels are heavy and awkward to handle. Use caution and two persons when removing or replacing side panels to avoid injury to personnel.

a. Removal.

(1) To remove front panel (1), unlock bolt handle (2) by pulling forward and unlock hitch pin (3). Lower panel (1), slide to the rear and remove.



2-16. SIDE PANEL INSTALLATION AND REMOVAL (CONT)

(2) To remove rear panel (4), unlock bolt handle (5) by pulling rearward. Lower panel (4), slide forward, and remove.

(3) Repeat steps (1) and (2) for opposite side panels.

b. Installation.

(1) To install front panel (1), hold panel (1) horizontal and aline hinge pins in panel (1) to holes in hinges on frame. Slide panel (1) forward, raise to vertical and lock bolt handle (2).

(2) To install rear panel (4), hold panel (4) horizontal and aline hinge pins in panel (4) to holes in hinges on frame. Slide panel (4) rearward, raise to vertical, lock bolt handle (5) and hitch pin (3). Be sure tang on hitch pin (3) engages.

(3) Repeat steps (1) and (2) for opposite side panels.

2-17. OPERATION

a. Loading HEMAT.

(1) Open side panels and load cargo onto trailer, distributing load weight as evenly as possible both lengthwise and sidewise. Secure load with tiedown straps passed through corner protectors and connected to tiedown rings on cargo deck.

(2) Secure load with the straps from storage box and 22 tiedown rings (7 on each side and 4 at each end).

(3) When Multiple Launch Rocket System (MLRS) pods are to be loaded on trailer, have unit maintenance attach pod stops to anchor plates located in each corner of deck (para. 4-31).

WARNING

Drum and tank tiedown kit must be used to install fuel bladders or fuel drums onto trailer or injury to personnel and damage to equipment could occur.

(4) When fuel bladders or fuel drums are to be loaded on trailer, have unit maintenance provide tiedown kit (NSN 3990-01-394-5633) for trailer. Center load weight as evenly as possible both lengthwise and sidewise. Lengthwise, have drums together or nearly touching in center of platform same distance from fore and aft bulkheads. Secure load with tiedowns according to instructions supplied with tiedown kit.

(5) Close and secure side panel(s).

b. Towing HEMAT.

CAUTION

Allow 2 minutes for trailer air suspension to fully inflate before highway or cross-country driving or suspension system may be damaged.

The trailer obstacle clearance is 14.4 inches and "High Center" is 20.2 inches. These values differ from the towing vehicle and must be considered when operating off-road.

(1) Driving. When driving the towing vehicle with the trailer attached, the overall length of the combined unit must be kept in mind when passing other vehicles and when turning. Because the unit is hinged in the middle, turning and backing are also affected. The trailer payload will affect stopping and off-road maneuvering.

(2) Turning. When turning corners, allow for the fact that the trailer wheels turn inside the turning radius of the towing vehicle. To make a right turn at a road intersection, drive the towing vehicle about halfway into the intersection and then cut sharply to the right. This will allow for the shorter turning radius of the trailer and keep it off the curb.

(3) Stopping. In normal operation, the brakes of the towing vehicle and the trailer are applied at the same time the driver steps on the brake pedal. Brake pressure must be applied gradually and smoothly. The trailer brakes may be applied separately by using the brake control lever on the towing vehicle. On steep downgrades or slippery surfaces, the trailer brakes must be applied before the vehicle brakes. This will reduce the possibility of jackknifing. Refer to towing vehicle operator's manual for more detailed instructions about braking for your particular truck.

(4) Parking. When the towing vehicle and trailer are left parked and unattended, set the parking brake on the vehicle. When the towing vehicle parking brake is set, the trailer brake is automatically set.

WARNING

Do not allow any personnel to stand between the towing vehicle and trailer when backing. Make sure that you can see your ground guides at all times. Serious injury or death can occur if personnel are caught between moving vehicles.

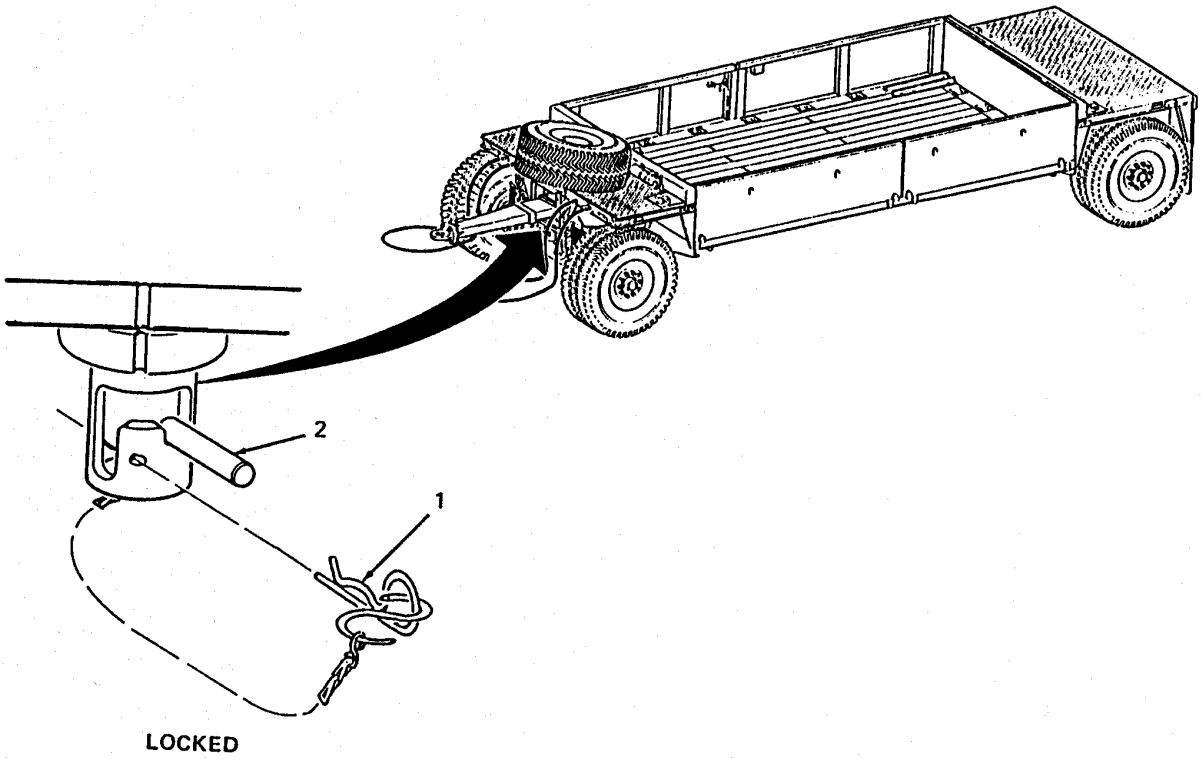
Backing the trailer without locking towbar may cause vehicle to jackknife, injuring personnel and damaging equipment. Perform this procedure only when absolutely necessary.

(5) Backing - Locked Towbar.

(a) When backing trailer, use two ground guides. Refer to FM 21-60 for instructions for use of arm and hand signals.

2-17. OPERATION (CONT)

(b) Aline towing vehicle and trailer. Adjust mirrors for a good view. Place transmission on towing vehicle in neutral and apply towing vehicle parking brakes. Make sure towbar is in centered position by lining up the alinement grooves. Remove hitch pin (1); raise lockpin handle (2), then rotate it counterclockwise to lock lockpin in place; replace hitch pin (1) through holes. Post ground guides to left front and rear where you can see them. Give instructions to ground guides. Pick a reference point. Place front wheels of towing vehicle in center position.



CAUTION

Make only small steering corrections to avoid equipment damage.

(c) Release all parking brakes, place transmission on towing vehicle in reverse and commence backing. Closely observe alinement of vehicles, the ground guides, and your reference point.

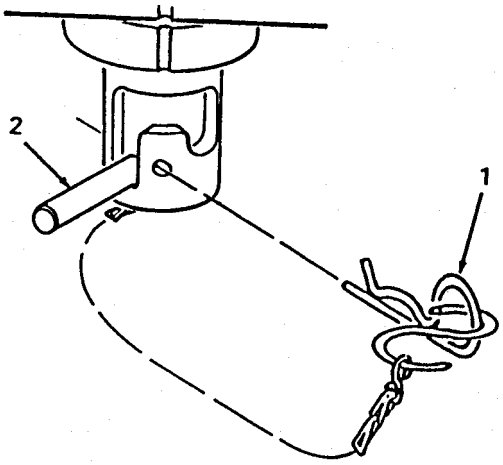
WARNING

When trailer has been backed with towbar locked, pull forward to relieve sideload pressure between pintle and towbar before attempting to unlock towbar lockpin or disconnect from pintle. Failure to relieve sideload may result in injury to personnel.

CAUTION

Be sure to unlock towbar lockpin before driving forward to avoid equipment damage.

(d) Unlock towbar lockpin by removing hitch pin (1), rotating lockpin handle (2) clockwise, then lowering it and replacing hitch pin (1) through holes.



UNLOCKED

WARNING

Backing the trailer without locking towbar may cause vehicle to jackknife, injuring personnel and damaging equipment. Perform this procedure only when absolutely necessary.

(6) Backing - Unlocked Towbar. When backing without towbar locked in place, pull forward and aline towing and trailer vehicles as straight as possible. Adjust mirrors for a good view. Post ground guides to left front and rear and instruct ground guides. Pick a reference point. Commence backing and closely observe alinement of vehicles, the ground guides, and your reference point. If the rear of your trailer drifts to the left, slightly steer toward the left. If it drifts to the right, slightly steer toward the right. Do not oversteer and avoid any attempts at angle backing. Prepare to stop any time either one of the front clearance lights of the trailer comes into view in either of your rear view mirrors. Stop immediately when either of the inner corners of the front tires comes into view.

c. Unloading HEMAT.

(1) Open one or both side panels.

2-17. OPERATION (CONT)

(2) Remove tiedown straps and corner protectors from the load. Secure straps and corner protectors in storage box.

(3) Unload cargo.

(4) Close and secure side panel(s).

2-18. DISCONNECTING HEMAT FROM TOWING VEHICLE

a. Disconnect intervehicular electrical cable from towing vehicle and trailer. Stow in storage box at rear of trailer.

b. Disconnect intervehicular air hoses from towing vehicle and stow them on trailer dummy couplers. Trailer parking brakes will automatically lock when air hoses are disconnected.

c. Disconnect safety chains from towing vehicle and hook onto trailer lift rings.

WARNING

When trailer has been backed with towbar locked, pull forward to relieve sideload pressure between pintle and towbar before attempting to unlock towbar lockpin or disconnect from pintle. Failure to relieve sideload may result in injury to personnel.

d. Remove cotter pin from towing vehicle pintle. Open pintle and raise trailer towbar free of pintle.

CAUTION

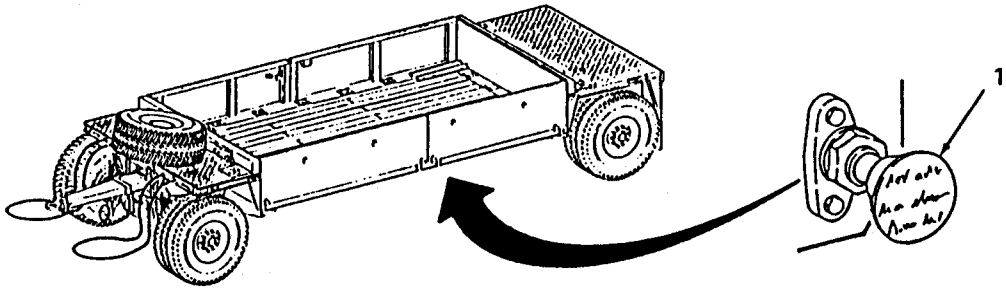
Lift towbar out of pintle with davit crane (see para. 2-14) or tiedown strap (see para. 2-15) before driving towing vehicle forward. Failure to restrain towbar could result in damage to equipment.

e. Drive towing vehicle forward to clear trailer.

WARNING

Do not attempt to move the HEMAT vehicle by hand after it has been disconnected from the towing vehicle. The brake chambers are designed to apply automatically when the trailer is disconnected from the towing vehicle or if loss of air pressure occurs. The brakes are not to be hand activated to override the control valve under any circumstances. Attempting to move the trailer by hand could result in serious injury or death to personnel and damage to equipment.

f. If it is necessary to move trailer by a tow vehicle without adequate air pressure or connectors, push in on brake control valve (1).



2-19. SPARE TIRE MOUNT

WARNING

Two people and the davit crane from HEMTT will be required to raise or lower the spare tire. Clear all personnel from the immediate area to prevent possible injury when the tire is lifted from the deck. Use all possible care when handling to prevent injury. The tire weighs approximately 300 pounds.

CAUTION

When removing or installing spare tire, be careful not to damage the fire extinguisher or its bracket.

Be sure HEMTT and HEMAT are alined before using davit crane to remove spare tire.

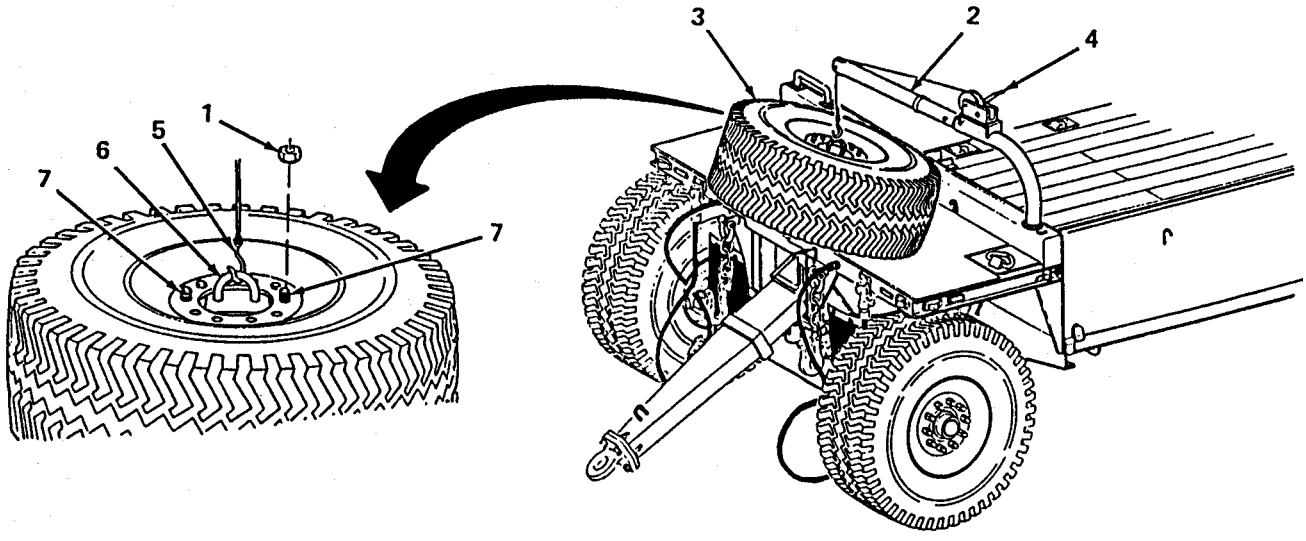
NOTE

A fully inflated tire will tend to jam against the front bulkhead when lug nuts are tightened. It may be necessary to pry the tire away from the bulkhead before it can be lifted. This can be done with the lug wrench cheater bar.

a. Removal of Spare Tire. The spare tire is mounted center on the front deck of the trailer, and is removed using the davit crane from HEMTT. To relocate davit crane from HEMTT to trailer, refer to para. 2-14, steps b and c.

(1) Remove two lug nuts (1) and ensure that tire is free. Position davit crane extension arm (2) directly over center of spare tire (3).

(2) Turn handcrank (4) counterclockwise until able to connect cable hook (5) into loop of spare tire lifting plate (6).



2-19. SPARE TIRE MOUNT (CONT)

WARNING

Do not stand on front deck when raising spare tire.

(3) Person on front deck steps into cargo area and, using person on ground to stabilize spare tire, turns handcrank (4) clockwise until spare tire is lifted well clear of mount studs (7).

WARNING

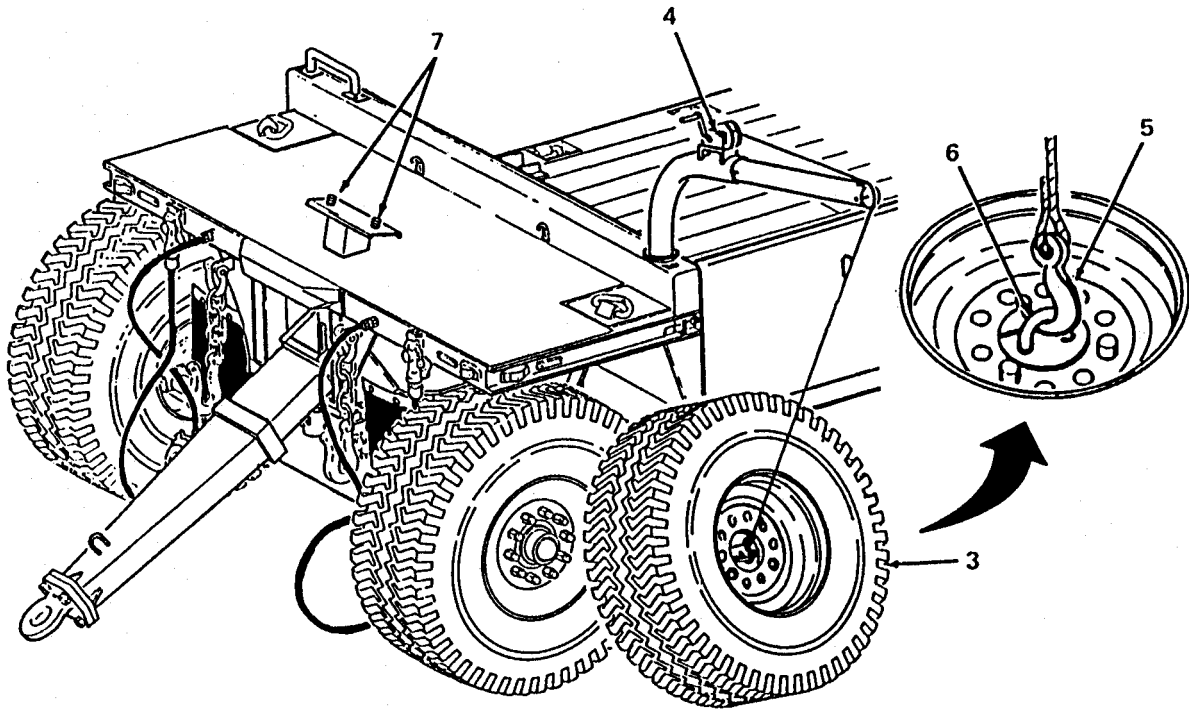
Two persons are required to reposition davit crane and tire. Use extreme care to avoid tripping over spare tire mount, fire extinguisher and lifting eyes. Otherwise serious injury could occur.

Do not stand beneath spare tire at any time. Use caution when repositioning and lowering spare tire.

(4) Reposition davit crane and tire until tire (3) will clear front deck on streetside of trailer.

(5) Turn handcrank (4) counterclockwise until able to stand tire (3) in upright position on streetside of trailer.

(6) With tire upright and steadied, continue turning handcrank counterclockwise until able to remove cable hook (5) from lifting plate (6). Remove lifting plate (6) from spare tire (3). Lean tire against side of trailer.



b. Installation of Spare Tire on Mount. The spare tire is installed using the davit crane from HEMTT.

WARNING

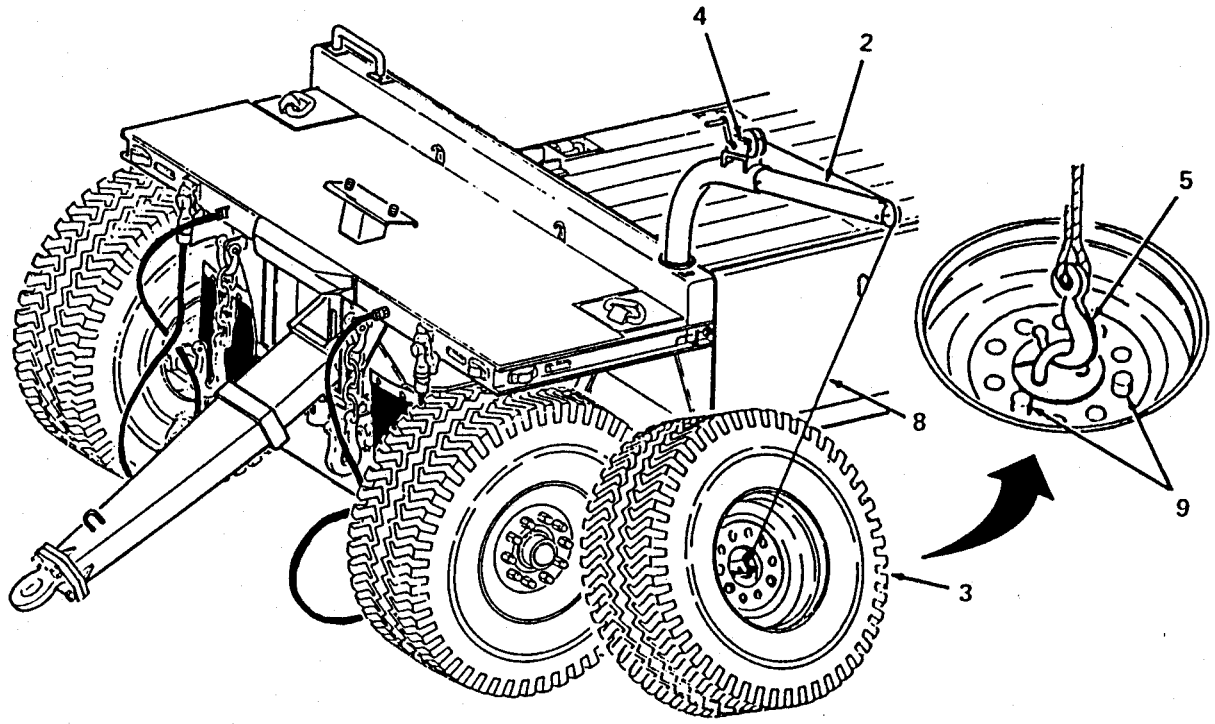
Two people and the davit crane from HEMTT will be required to raise or lower the spare tire. Clear all personnel from the immediate area to prevent possible injury when the tire is lifted from ground. Use all possible care when handling to prevent injury. The tire weighs approximately 300 pounds.

CAUTION

When removing or installing spare tire, be careful not to damage the fire extinguisher or its bracket.

(1) Position davit crane extension arm (2) so cable hook (5) can be lowered below front deck on streetside of trailer.

(2) Turn handcrank (4) counterclockwise until cable hook (5) is lowered to approximately 1 foot above ground.



2-19. SPARE TIRE MOUNT (CONT)

WARNING

To prevent tire from slipping and causing personal injury, lifting plate must be installed as shown, with lifting plate lugs in lower holes, and loop in center of tire.

(3) Position tire directly under davit crane extension arm. With tire upright and steadied, install lifting plate (6) on outside of tire (3) with loop pointed inward. Connect cable hook (5) into lifting plate (6).

(4) Turn handcrank clockwise until cable (8) is taut. Assure that two lifting plate pins (9) are securely seated in two lug bolt holes.

WARNING

When davit crane lifts tire clear of ground, weight will shift. Use all possible caution when guiding tire to avoid possible injury.

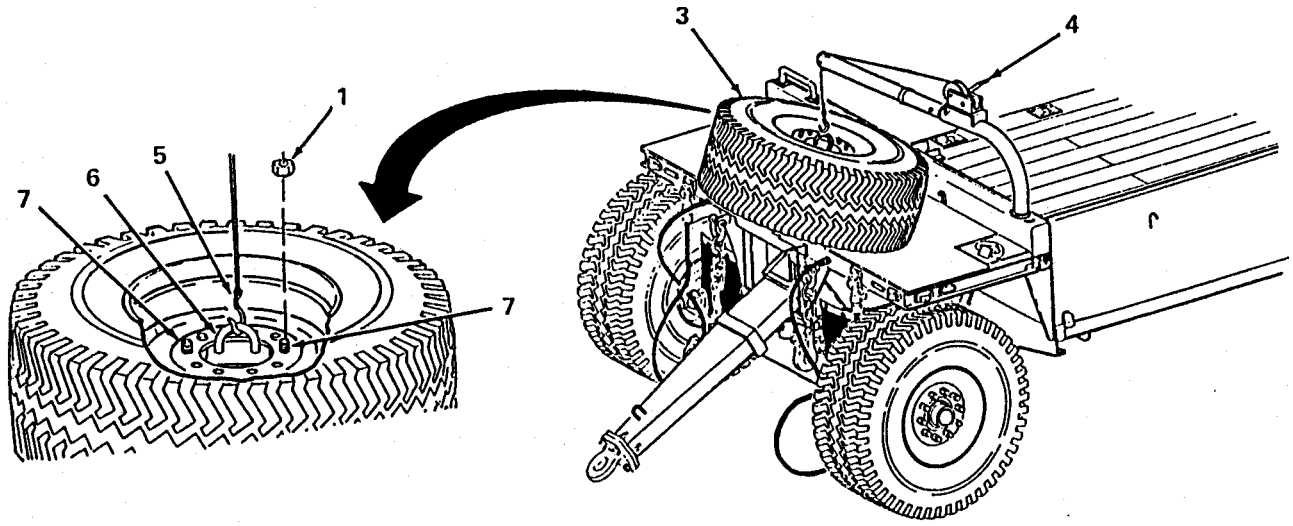
(5) With person on ground guiding tire, continue turning handcrank (4) clockwise until tire (3) is high enough to clear front deck.

WARNING

Two persons are required to reposition davit crane and tire. Use extreme care to avoid tripping over towbar, spare tire mount, fire extinguisher and lifting eyes. Otherwise serious injury could occur.

(6) Reposition davit crane extension arm (2) and tire (3) until tire is directly over spare tire mount.

(7) Turn handcrank (4) counterclockwise, lowering tire (3) onto spare tire mount, while alining mount studs (7) with two holes in lifting plate (6) and tire (3).



(8) Press down on tire as necessary to ensure that it is flat against mount. Secure with two lug nuts (1) installed flat side down.

(9) Turn handcrank counterclockwise to get slack in cable; disconnect cable hook (5) from lifting plate (6); and turn handcrank clockwise until cable hook is retracted to cable drum.

CAUTION

Davit crane must be removed and stowed prior to operation of trailer. Damage to equipment can occur.

(10) Relocate davit crane from trailer to HEMTT in accordance with para. 2-14, steps e and f.

2-20. LIFTING EYES

a. There are four lifting eyes located left and right on the front and rear decks of trailer.

b. The lifting eyes are used for lifting the entire trailer, loaded or unloaded.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-21. OPERATION IN EXTREME COLD

a. General.

(1) Be careful when placing trailer in operation after a shutdown. Congealed lubricants can cause part failure.

(2) Tires may be frozen to the ground or have a flat spot if they are underinflated.

(3) If brake shoes are frozen to brake drums, notify unit maintenance.

(4) Refer to FM 9-207 and FM 21-305 for special instructions on driving hazards in snow and ice that may be encountered during extremely cold weather conditions.

2-21. OPERATION IN EXTREME COLD (CONT)

b. At-Halt Parking.

(1) For short shutdown periods, park in a sheltered spot out of the wind.

(2) For long shutdown periods, if high, dry ground is not available, prepare a footing of planks or brush.

(3) Remove all built-up ice and snow as soon as possible after shutdown.

(4) Cover and shield trailer with canvas covers (if available) but keep the ends of the covers off the ground to prevent them from freezing to the ground.

2-22. OPERATION IN EXTREME HEAT

a. Do not park trailer in sunlight for long periods of time as heat and sunlight will shorten the life of tires.

b. Cover trailer with canvas (if available) to protect it from heat, sun, and dust.

2-23. OPERATION IN RAINY OR HUMID CONDITIONS

a. Frequently inspect, clean and lubricate inactive equipment to prevent rust and fungus accumulation.

b. Check canvas covers (if available) periodically for deterioration and damage.

2-24. OPERATION IN SALT WATER AREAS

a. Salt water will cause metal parts to rust and corrode. Clean, inspect and lubricate frequently.

b. Do not drive trailer through more than 48 inches of water. Clean, inspect and lubricate immediately after salt water fording or when the tactical situation permits.

2-25. OPERATION IN SNOW

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

2-26. OPERATION IN MUD

CAUTION

Do not push the trailer from the rear with another vehicle as damage to trailer may result.

a. If one or more wheels sink into mud, it may be necessary to jack up mired wheel and insert planking or matting.

b. Clean off mud as soon after operation as possible.

2-27. OPERATION IN DUSTY OR SANDY AREAS

CAUTION

Do not push the trailer from the rear with another vehicle as damage to trailer may result.

After extended use, the towbar pivot grease grooves may become clogged, indicated by the lubrication fittings not taking grease freely. Should this occur, schedule a maintenance action to remove and clean the towbar as soon as possible to prevent damage.

Clean, inspect, and lubricate trailer daily (para. 3-2). Clean grease fittings and grooves in towbar pivot as required.

2-28. FRESH WATER FORDING

Maximum fording depth of the trailer is 48 inches. Immediately after fording, exercise brakes while in motion at least three times to dry out brake shoes and drums.

2-29. EMERGENCY TOWING WITH M270 MULTIPLE LAUNCH ROCKET SYSTEM (MLRS) VEHICLE CONSTRAINTS

WARNING

Tow with the M270 during wartime usage, under emergency conditions only, as a last resort. Injury or death to personnel may result.

Use extreme caution when towing the trailer with the M270. Trailer will have no braking capability. Death or serious injury may result.

Highway	20 mph maximum
Secondary roads	15 mph maximum
Cross-country roads	10 mph maximum
Longitudinal slope (ascend/descend)	10% maximum
Side slope	10% maximum
Pot holes/bumps (6 inch maximum)	10 mph maximum

2-29. EMERGENCY TOWING WITH M270 MULTIPLE LAUNCH ROCKET SYSTEM (MLRS) VEHICLE CONSTRAINTS (CONT)

CAUTION

Do not use pivot/jackknife operations when towing the trailer with the M270. Damage to equipment may result.

Turning radius ..... 30° - 45° left/right of center

2-30. CONNECTING HEMAT TO M270 MLRS

WARNING

Tow with the M270 during wartime usage, under emergency conditions only, as a last resort. Injury or death to personnel may result.

Use extreme caution when towing the trailer with the M270. Trailer will have no braking capability. Death or serious injury may result.

To avoid injury to personnel and damage to equipment, set chocks front and rear of rear tires on trailer.

a. Set chocks front and rear of rear tires on trailer and pull out brake control valve to set brakes.

CAUTION

Towbar angle will be steep, as much as 30 degrees. Use caution to avoid trailer damage.

NOTE

If travel is expected to be over a short distance (100 yards or under) and over even terrain, perform steps b and c. If travel is expected to be over a long distance (over 100 yards) and/or over uneven terrain, also perform steps d through f.

In the following step, step d of para. 2-15 does not apply to connecting the trailer to the M270.

b. Using two spotters, one to watch towbar and pintle and one to relay hand signals to M270 operator, connect trailer to M270 (refer to para. 2-15).

c. If system is charged with air, push in on brake control valve to release brakes. If system is not charged, brakes must be caged (refer to para. 3-6). Remove chocks. Trailer is now ready to tow on even terrain. If towed on uneven terrain, continue with steps d through f.

NOTE

If travel is expected to be over a long distance (over 100 yards) and/or over uneven terrain, also perform steps d through f.

d. Cage brakes (refer to para. 3-6).

WARNING

Protect eyes when opening drain cocks and avoid air stream. Failure to do so could result in personal injury.

To avoid injury, personnel must stand clear of trailer suspension when opening drain cocks on air reservoirs. Trailer suspension may drop as air is released.

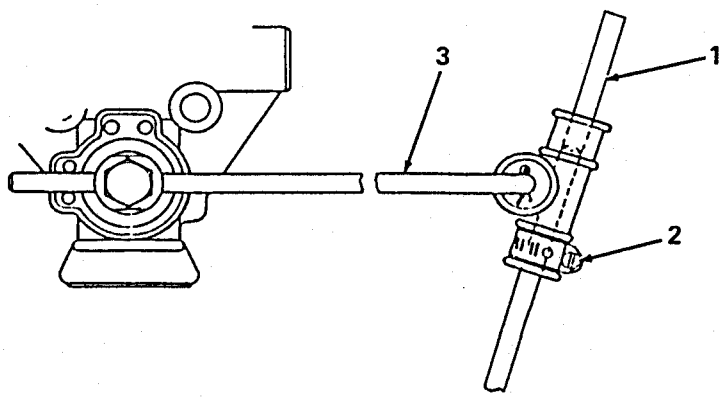
e. Open three drain cocks and release air from suspension system.

f. If suspension does not drop, adjust leveling valves as follows to release air from air bags:

(1) Scribe each of three vertical leveling control rods (1) with present position of rod to simplify later adjustment.

(2) Loosen screw (2) on each vertical leveling control rod (1).

(3) Push each horizontal leveling control rod (3) down so that air is released from air bags.



CHAPTER 3

OPERATOR MAINTENANCE INSTRUCTIONS

OVERVIEW

This chapter includes a lubrication chart and instructions as well as trouble-shooting procedures to be followed by the operator. Those maintenance tasks that can be performed by the operator are also included.

Section I. LUBRICATION INSTRUCTIONS

3-1. LUBRICATION INSTRUCTIONS

a. Lubrication instructions are mandatory. The unit maintenance officer can authorize the operator to assist in certain maintenance functions.

b. Service intervals are based on normal operation.

(1) Lube more often during constant use.

(2) Lube less often during inactive periods.

c. Lubricate after washing or fording.

d. Clean fittings before lubricating.

e. Lubricate both sides of the equipment.

f. DO NOT overlubricate.

g. Wipe off excess lubricant.

3-2. LUBRICATION CHART

HEAVY EXPANDED MOBILITY AMMUNITION TRAILER
M989A1

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

WARNING

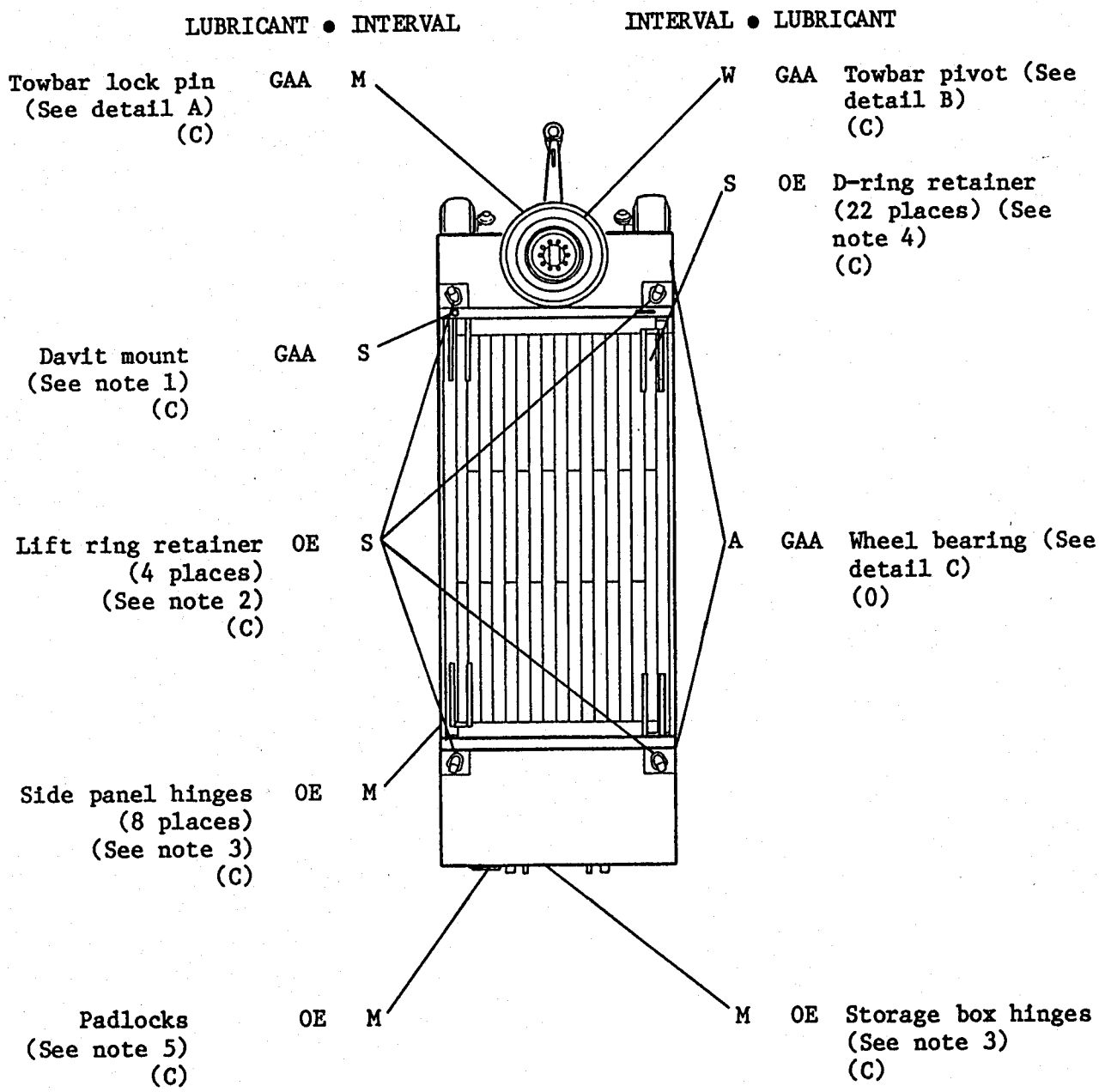
Dry cleaning solvent (MIL-PRF-680, type I) is extremely flammable, toxic, and is an irritant to the eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Do not breathe the vapors. Use skin and eye protection and work in a well ventilated area. Flash point of dry cleaning solvent is 140°F.

Clean fittings before lubricating. Clean parts with dry cleaning solvent MIL-PRF-680, type I. Dry before lubricating. Dotted arrows indicate lubrication points on both sides of the equipment.

Level of Maintenance. The lowest level of maintenance authorized to lubricate a point is indicated by one of the following symbols as appropriate: Operator (C); and Unit Maintenance (0).

NOTE

Where "Daily" services are specified, daily shall be interpreted to mean only on days when equipment is operated.


LUBRICANT • INTERVAL
INTERVAL • LUBRICANT
Towbar lock pin (See detail A) (C)
GAA M
Davit mount (See note 1) (C)
GAA S
Lift ring retainer (4 places) (See note 2) (C)
OE S
Side panel hinges (8 places) (See note 3) (C)
OE M
Padlocks (See note 5) (C)
OE M
W GAA Towbar pivot (See detail B) (C)
S OE D-ring retainer (22 places) (See note 4) (C)
A GAA Wheel bearing (See detail C) (O)
M OE Storage box hinges (See note 3) (C)

3-2. LUBRICATION CHART (CONT)

KEY

LUBRICANTS		EXPECTED TEMPERATURES		INTERVALS
		ABOVE +32°F	+40°F to -65°F	
OE (MIL-PRF-2104)	OIL, ENGINE Lift Ring Retainer Storage Box Hinges D-Ring Retainers Padlocks	OE30	OE10W	D - Daily W - Weekly M - Monthly
GAA (MIL-PRF-10924)	GREASE, AUTOMOTIVE AND ARTILLERY Towbar Lockpin Towbar Pivot Wheel Bearings	ALL TEMPERATURES		Q - Quarterly S - Semiannually A - Annually

NOTE 1

DAVIT MOUNT. Semiannually, clean inside of davit mount thoroughly with rag and apply grease (GAA) liberally to contact areas. Wipe off excess.

NOTE 2

LIFT RING RETAINER. Semiannually, wipe retainer with rag and apply oil (OE) in four places.

NOTE 3

STORAGE BOX AND SIDE PANEL HINGES. Monthly, wipe hinges with rag and apply oil (OE).

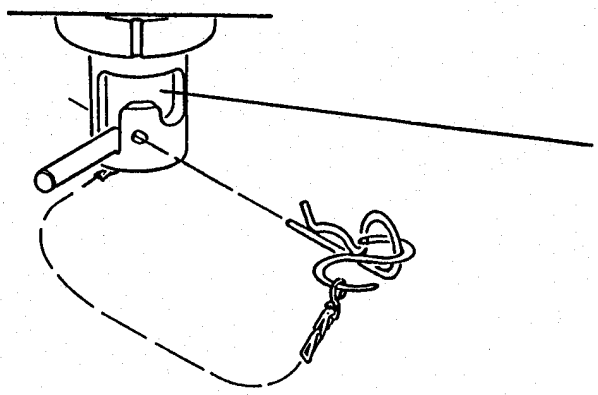
NOTE 4

D-RING RETAINER. Semiannually, wipe retainers (22 places) with rag and apply oil (OE).

NOTE 5

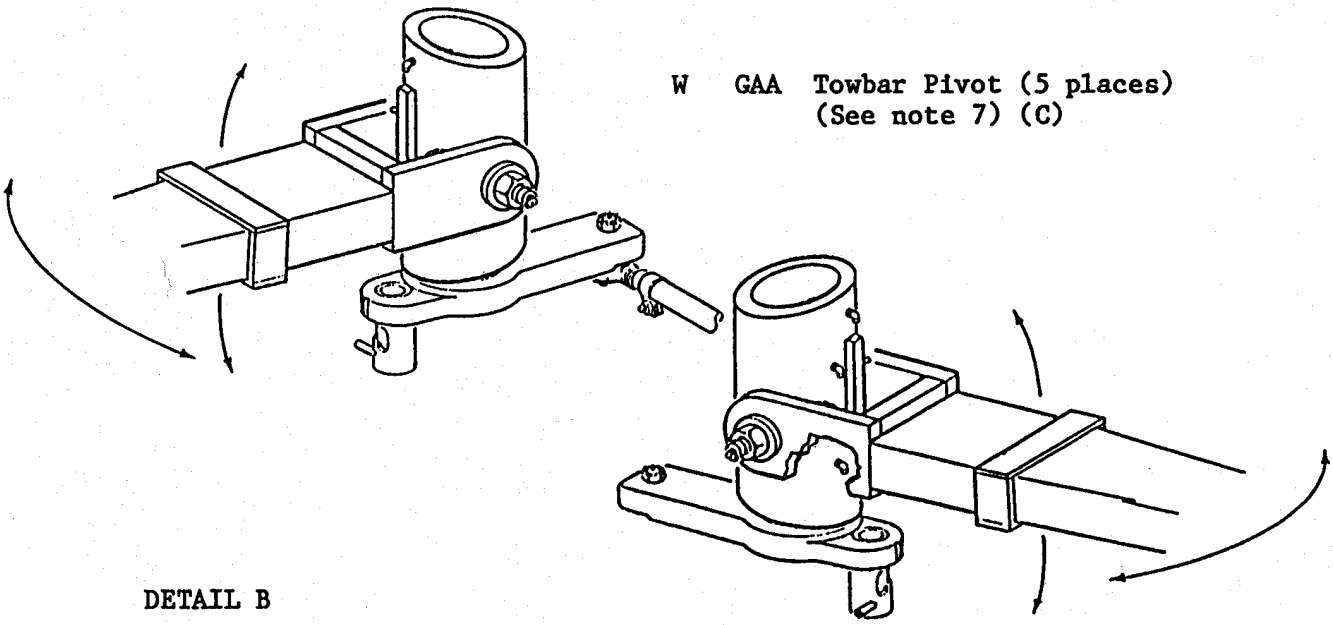
PADLOCKS. Monthly, wipe padlocks with rag and apply oil (OE) sparingly to lock mechanism.

INTERVAL ● LUBRICANT



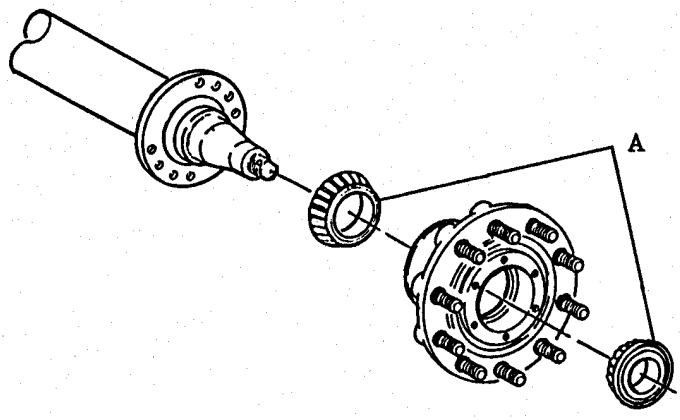
M GAA Towbar Lockpin
(See note 6) (C)

DETAIL A



W GAA Towbar Pivot (5 places)
(See note 7) (C)

DETAIL B



A GAA Wheel Bearings (4 places)
(See note 8) (O)

DETAIL C

3-2. LUBRICATION CHART (CONT)

KEY

LUBRICANTS		EXPECTED TEMPERATURES		INTERVALS
		ABOVE +32°F	+40°F to -65°F	
GAA (MIL-PRF-10924)	GREASE, AUTOMOTIVE AND ARTILLERY	ALL TEMPERATURES		D - Daily W - Weekly
	Towbar Lockpin Towbar Pivot Wheel Bearings			M - Monthly Q - Quarterly S - Semiannually A - Annually

NOTE 6

TOWBAR LOCKPIN. Monthly, apply grease (GAA) to towbar lockpin while moving pin fully left and right and up and down. Wipe off excess.

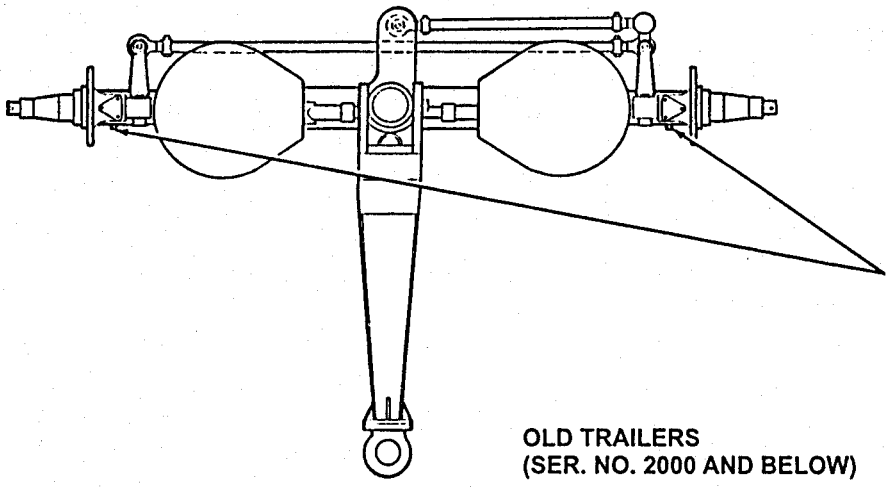
NOTE 7

TOWBAR PIVOT. Weekly (daily under dusty or sandy conditions), apply grease (GAA) to five grease fittings until clean grease seeps out of assembly. Wipe off excess. Annually (as required under dusty or sandy conditions), remove towbar pivot, clean grease grooves and reinstall. If pivot pin will not accept grease, notify unit maintenance. Towbar pivot requires disassembly and cleaning (para. 4-27).

NOTE 8

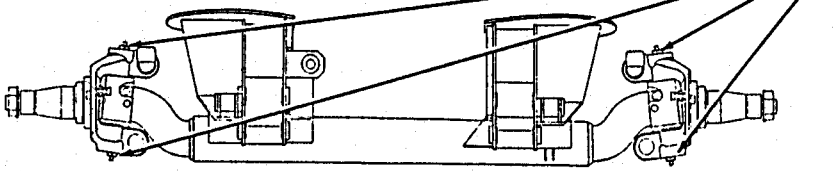
WHEEL BEARINGS. Annually, remove, clean, and hand or pressure pack inner and outer wheel bearings. Clean any existing grease from bearings and hub and drum assembly. Clean surfaces with rags. Pack bearings and hub with grease (GAA) and wipe off excess.

INTERVAL ● LUBRICANT



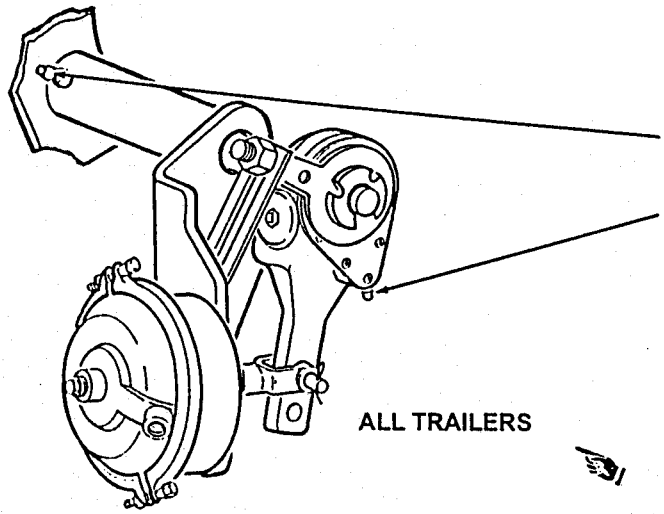
S GAA Steering Linkage
(See Note 9) (C)

OLD TRAILERS
(SER. NO. 2000 AND BELOW)



S GAA Steering Linkage
(See Note 9) (C)

NEW TRAILERS
(SER. NO. 2001 AND UP)



S GAA S-Cam Shaft
(See Note 10) (C)

S GAA Slack Adjuster
(See Note 9) (C)

ALL TRAILERS

3-2. LUBRICATION CHART (CONT)

KEY

LUBRICANTS		EXPECTED TEMPERATURES		INTERVALS
		ABOVE +32°F	+40°F to -65°F	
GAA (MIL-PRF-10924)	GREASE, AUTOMOTIVE AND ARTILLERY Steering Linkage S-Cam Shaft Slack Adjuster	ALL TEMPERATURES		D - Daily W - Weekly M - Monthly Q - Quarterly S - Semiannually A - Annually

NOTE 9

STEERING LINKAGE. Semiannually, wipe off old grease from 6 grease fittings on old trailers with serial numbers 2000 and below (8 grease fittings on new trailers with serial numbers 2001 and up) with rag and apply grease (GAA) until clean grease comes out of each location. Wipe off excess.

WARNING

Take care not to get grease on brake shoes or brake linings, as this will cause uneven or poor braking action, and may result in personal injury or equipment damage.

NOTE

Do not overlubricate s-cam shaft.

NOTE 10

S-CAM SHAFT AND SLACK ADJUSTER. Semiannually, wipe off old grease and apply grease (GAA) to 8 grease fittings (2 places each wheel), s-cam shaft (1 place each wheel), and slack adjuster (1 place each wheel). Wipe off excess with rag.

Section II. OPERATOR TROUBLESHOOTING PROCEDURES

3-3. SYMPTOM INDEX

3-4. OPERATOR TROUBLESHOOTING TABLE

a. Table 3-1 lists the common malfunctions which you may find during the operation of the Heavy Expanded Mobility Ammunition Trailer (HEMAT) or its components. You should perform the test/inspections and corrective maintenance in the order listed.

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

Table 3-1. Operator Troubleshooting Table

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
ELECTRICAL SYSTEM
1. ALL LAMPS DO NOT LIGHT.
Step 1. Check lights and fuses on towing vehicle including turn signals and stop lights.
a. If towing vehicle lights do not light, notify unit maintenance.
b. If towing vehicle lights come on, proceed to step 2.

3-4. OPERATOR TROUBLESHOOTING TABLE (CONT)

Table 3-1. Operator Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
ELECTRICAL SYSTEM - CONT
1. ALL LAMPS DO NOT LIGHT - CONT.
Step 2. Check intervehicular cable.
a. If cable is not properly connected, reconnect cable.
b. If cable is properly connected, proceed to step 3.
Step 3. Check connectors for dirty or corroded pins. Check for damaged pins.
a. If pins are dirty or corroded, clean the pins.
b. If cables are damaged, notify unit maintenance.
2. ONE OR MORE (BUT NOT ALL) LIGHTS WILL NOT LIGHT.
Step 1. Check for broken lead wires or loose connections.
a. If connections are loose, tighten connections.
b. If lead wires are broken, notify unit maintenance.
c. If connections are not loose or broken, proceed to step 2.
Step 2. Check light assembly for damage.
If light assembly is damaged, notify unit maintenance.
3. DIM OR FLICKERING LIGHTS.
Check electrical connections for loose, dirty, or corroded pins.
a. If connections are loose, tighten connections.
b. If connector pins are dirty or corroded, clean pins.
c. If connections are tight and clean, notify unit maintenance.

Table 3-1. Operator Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

BRAKES

1. SPRING BRAKES WILL NOT RELEASE.

NOTE

Check towing vehicle air pressure gage. Pressure should be 60 psi minimum. Allow 2 minutes for trailer air tanks to fill.

Step 1. Check that towing vehicle to trailer air supply is turned on.

a. If air is shut off, turn on air supply and charge trailer air tanks.

b. If air supply is on, proceed to step 2.

Step 2. Check connections of air hoses between towing vehicle and trailer.

a. If air hoses are not properly connected (Emergency to Emergency, Service to Service), reconnect air hoses.

b. If air lines are connected properly, notify unit maintenance.

2. GRABBING BRAKES.

WARNING

Wear protective goggles when opening drain cock, and avoid the air stream. Failure to do so could result in personal injury.

Check for moisture in air tanks by opening drain cocks.

a. If moisture is in tanks, allow to drain; close drain cocks.

b. If tanks are dry and malfunction is not corrected, notify unit maintenance.

3-4. OPERATOR TROUBLESHOOTING TABLE (CONT)

Table 3-1. Operator Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
BRAKES - CONT
3. HARD PULLING. Check for cross connected air hoses. a. If air hoses are cross connected, connect properly. b. If air hoses are connected properly, notify unit maintenance.
TIRES
EXCESSIVELY WORN OR SCUFFED TIRES OR FLAT SPOTS ON TIRES. Step 1. Check tire pressure. For bias ply tires, tire pressure should be 100 psi for highway and 65 psi for off-road. For radial tires, tire pressure should be 105 psi. a. If tire pressure is low, inflate tires to correct tire pressure. b. If tire pressure is correct, proceed to step 2. Step 2. Check for loose wheel nuts. If wheel nuts are loose, tighten nuts and have unit maintenance torque to 450-500 lb ft. Step 3. Check suspension system for damaged air bags and loose or missing bolts and nuts. a. If air suspension system is damaged or has loose or missing bolts and nuts, notify unit maintenance. b. If suspension system is not damaged and all hardware is complete and secure, and problem still exists, notify unit maintenance.

Section III. OPERATOR MAINTENANCE PROCEDURES

3-5. WHEELS AND TIRES

This task covers: a. Removal b. Repair. c. Installation

INITIAL SETUP

Tools

Chocks
Jack (item 2, appendix C)
Mud Plate (item 4, appendix C)
Jack Cap Assembly (item 5 or 15, appendix C)
Stand (item 3, appendix C)
Lug Wrench (item 6, appendix C)
Handle (item 7, appendix C)
Lug Wrench Extension Bar (item 13, appendix C)

Personnel Required: 2

Equipment Condition

Opposite wheel chocked front and rear

WARNING

Changing wheels and tires on the HEMAT requires two people and considerable caution to avoid possible injury. The wheel opposite from the one being changed must be chocked front and rear.

a. Removal. Chock opposite wheel front and rear.

NOTE

Loosen left side wheel nuts clockwise and right side wheel nuts counterclockwise.

(1) Loosen but do not remove lug nuts on defective wheel and tire.

NOTE

There are two cap assemblies; the small cap is used for the front axle, and the large cap is used for the rear axle.

(2) Position cap on jack. Place jack on mud plate under the axle near the damaged tire, leaving room for vehicle stand and raise trailer until damaged tire is off the ground.

3-5. WHEELS AND TIRES (CONT)

(3) Place vehicle stand under axle between jack and wheel being changed. DO NOT remove jack.

(4) Lower vehicle onto jack stand.

(5) Remove wheel nuts.

WARNING

Wheels and tires are heavy. To avoid personal injury, use two people when handling wheels and tires.

(6) Using two people, remove defective tire and wheel.

b. Repair. For repair of wheels and tires, refer to TM 9-2610-200-24.

c. Installation. For bias ply tires, check spare tire for 100 psi air pressure (highway) or 65 psi (off-road). For radial tires, check spare tire for 105 psi for all conditions.

WARNING

Wheels and tires are heavy. To avoid personal injury, use two people when handling wheels and tires.

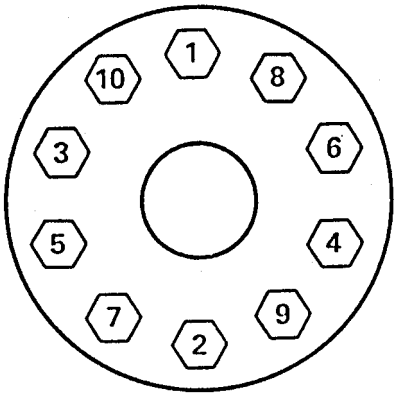
(1) Using two people, place a spare tire and wheel (para. 2-16) on the axle lugs by alining bolt holes with lugs and using the jack very carefully to raise or lower axle as needed to fit wheel onto lugs. Hand tighten lug nuts.

(2) Using the jack, raise trailer. Remove vehicle stand and lower trailer until tire touches the ground.

NOTE

Tighten left side wheel nuts counterclockwise and right side wheel nuts clockwise.

(3) Tighten lug nuts in the order shown.



TIGHTENING SEQUENCE FOR LUG NUTS

(4) Lower trailer and remove jack.

(5) Remove chocks from opposite wheels.

(6) Stow chocks and other tools in storage box.

(7) As soon as possible, have unit maintenance torque nuts to 450-500 lb ft.

END OF TASK

3-6. BRAKE AIR CHAMBER

This task covers: a. Caging b. Uncaging

INITIAL SETUP

Tools

Adjustable wrench

Personnel Required: 1

Equipment Condition

Front wheel chocked front and back

a. Caging.

WARNING

When caging brake air chamber, do not remove flange nuts (1) or bolts (2). High spring pressure inside air chamber can cause injury if released.

NOTE

Caging the brake air chamber (steps (1) thru (5)) applies only to rear brakes.

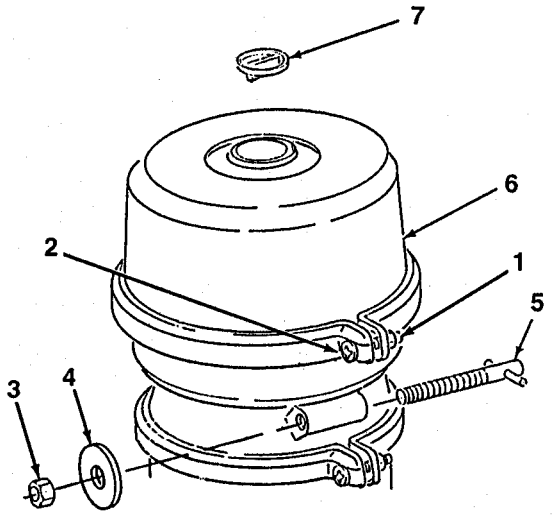
(1) Cage brake air chamber by removing nut (3) and washer (4) and release stud (5) from mounting bracket on brake air chamber (6).

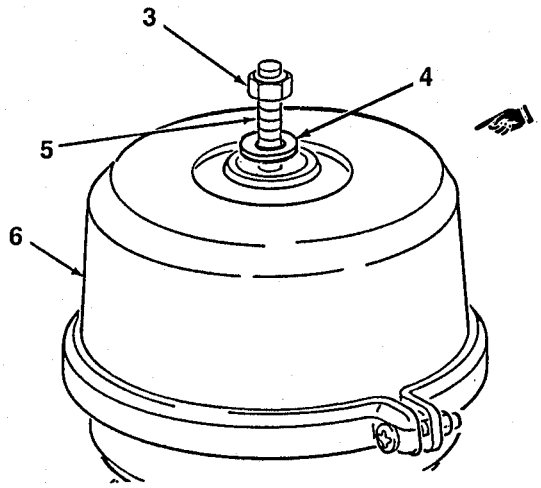
(2) Remove plug (7).

(3) Insert T-end of release stud (5) into chamber hole and turn one-quarter turn clockwise to engage stud in pressure plate.

(4) Install washer (4) and nut (3) on release stud (5) and tighten nut until wheel spins freely.

(5) Repeat steps (1) thru (4) to cage remaining brake air chamber, if necessary.





b. Uncaging.

NOTE

Uncaging the brake air chamber applies only to rear brakes.

(1) Loosen nut (3) on release stud (5) to uncage springs until wheel no longer spins.

(2) Turn release stud (5) one-quarter turn counterclockwise and remove release stud (5).

CAUTION

Caging nut must be next to the tire bolt head facing rear (curbside) to prevent rubbing air bag.

(3) Install stud (5) on bracket with washer (4) and nut (3).

(4) Install plug (7) on brake air chamber (6).

END OF TASK

CHAPTER 4

UNIT MAINTENANCE INSTRUCTIONS

OVERVIEW

Maintenance instructions to be performed at the unit level are provided in this chapter. Included are references for spare parts, special tools, TMDE and support equipment. Services to be performed on receipt of material are included as a Preventive Maintenance Checks and Service (PMCS) chart and a troubleshooting table. Maintenance of the Heavy Expanded Mobility Ammunition Trailer (HEMAT) electrical system, brakes, hubs, body and towing components is included.

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

4-1. COMMON TOOLS AND EQUIPMENT

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

4-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to section III, appendix F, for special tools to support the M989A1 trailer.

4-3. REPAIR PARTS

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

Section II. SERVICE UPON RECEIPT OF MATERIAL

4-4. UNPACKING AND CHECKING THE EQUIPMENT

a. Remove any metal strapping, plywood, tapes, seals, wrapping paper or any other shipping and protective items.

WARNING

Dry cleaning solvent (MIL-PRF-680, type I) is extremely flammable, toxic, and is an irritant to the eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Do not breathe the vapors. Use skin and eye protection and work in a well ventilated area. Flash point of dry cleaning solvent is 140°F.

b. If any exterior parts are coated with rust preventive compound, remove it with dry cleaning solvent (MIL-PRF-680, type I) (item 6, appendix E).

c. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6, Packaging Improvement Report.

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

4-5. SERVICING THE EQUIPMENT

a. Perform the PMCS contained in table 2-1.

b. Lubricate all points as shown in the Lubrication Instructions (chapter 3, section I), regardless of interval.

c. Schedule the next PMCS on DD Form 314, Preventive Maintenance Schedule and Record.

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

e. Perform a break-in road test of 25 miles at a maximum speed of 55 miles per hour.

Section III. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4-6. GENERAL

To ensure that the HEMAT is ready for operation at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. Table 4-1 contains a tabulated listing of PMCS to be performed by unit maintenance personnel. All deficiencies and shortcomings will be recorded as well as the corrective action taken on DA Form 2404 at the earliest possible opportunity.

4-7. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

a. The item numbers in table 4-1 indicate the sequence of the PMCS. Perform at the intervals shown below:

(1) Do your semiannual (S) PREVENTIVE MAINTENANCE once each 6 months.

(2) Do your annual (A) PREVENTIVE MAINTENANCE once each year.

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

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

d. If anything looks wrong and you can't fix it, write it on your DA Form 2404. If you find something seriously wrong, report it to support maintenance as soon as possible.

WARNING

Dry cleaning solvent (MIL-PRF-680, type I) is extremely flammable, toxic, and is an irritant to the eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Do not breathe the vapors. Use skin and eye protection and work in a well ventilated area. Flash point of dry cleaning solvent is 140°F.

(1) Cleaning. 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 (MIL-PRF-680, type I) (item 6, appendix E) to clean metal surfaces. Use soap when you clean rubber or plastic material.

(2) Bolts, Nuts, and Screws. Check them all for obvious looseness, missing, bent, or broken condition. You can't try them all with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads. Tighten any that you find loose.

(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 support maintenance.

(4) Electrical Wires and Connectors. Look for cracked or broken insulation, bare wires and loose or broken connectors. Tighten loose connectors and make sure the tires are in good condition.

4-7. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (CONT)

(5) Air Hoses. Look for wear, damage and leaks and make sure clamps and fittings are tight. 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 support maintenance. Refer to appendix B.

Table 4-1. Unit Preventive Maintenance Checks and Services (PMCS)

S - Semiannually A - Annually

Item No.	Interval S	Interval A	ITEM TO BE INSPECTED Procedure:
			NOTE Perform operator PMCS prior to or in conjunction with unit PMCS if: There is a delay between the daily operation of the equipment and the unit PMCS. Regular operator is not assisting/participating.
1			WHEELS AND TIRES
		•	a. Rotate and match tires according to design and degree of wear. See TM 9-2610-200-24 for acceptable limits in matching tires. Tighten wheel nuts to 450-500 lb ft. (See sequence in para. 3-5.)
	•		b. Check steering alinement in accordance with para. 4-29 of this manual.
2			SERVICE BRAKES
	•		a. Inspect hub and drum for visible wear and scoring (para. 4-26).
		•	b. Inspect wheel bearings for visible wear and seal for deterioration and damage (para. 4-26).
	•		c. Inspect brake shoes for wear (para. 4-16).
	•		d. Inspect camshafts for visible wear and damage (para. 4-17).
	•		e. Inspect camshaft bearings for visible wear (para. 4-17).

Table 4-1. Unit Preventive Maintenance Checks and Services (PMCS) - CONT

S - Semiannually A - Annually

Item No.	Interval S	Interval A	ITEM TO BE INSPECTED Procedure:
3			BRAKE AIR CHAMBER
			WARNING Do not attempt to disassemble brake air chambers. The springs inside the chambers are under heavy tension and may cause severe injury if released during disassembly.
	•		Inspect brake air chambers for visible damage
4			SLACK ADJUSTERS
	•		a. Inspect slack adjusters for damage (para. 4-18).
	•		b. Inspect slack adjusters (para. 4-18).
5			AIR SUSPENSION SYSTEM
	•		a. Inspect front and rear air bags for proper inflation, cuts or cracks. Report defective bags to support maintenance.
	•		b. Inspect connecting air hoses for cracks and proper connection. Report any defects to support maintenance.
6			AIR CLEANER
	•		Inspect air filter for dirt (para. 4-19). Replace as necessary.

4-7. UNIT PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) (CONT)

Table 4-1. Unit Preventive Maintenance Checks and Services (PMCS) - CONT

S - Semiannually A - Annually

Item No.	Interval S	Interval A	ITEM TO BE INSPECTED Procedure:
7			AXLES
	•		Inspect axles (1) for cracks, damaged brackets (2) and pads (3). Report deficiencies to support maintenance.
8			TOWBAR PIVOT
		•	Remove towbar pivot (4) (para. 4-27). Thoroughly clean grease grooves and reinstall.

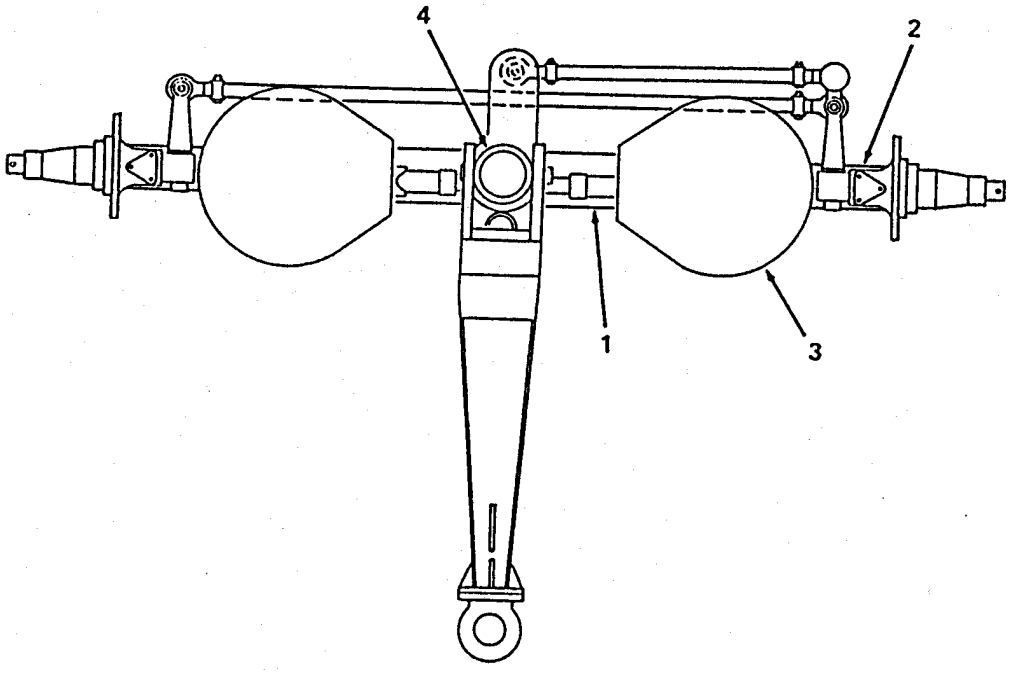
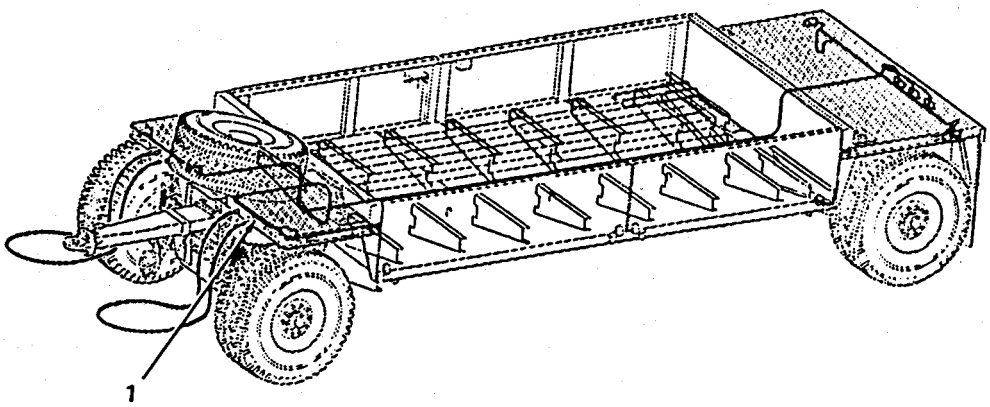


Table 4-1. Unit Preventive Maintenance Checks and Services (PMCS) - CONT

S - Semiannually A - Annually

Item No.	Interval S	Interval A	ITEM TO BE INSPECTED Procedure:
9			WIRING HARNESS
		•	Inspect wiring harness (1) for loose mounting, broken wires, damaged insulation and connections. Repair or replace defective wiring harness (para. 4-13).
			
10			FLOORBOARDS AND FRAME
	•		a. Inspect storage box cover for loose hinge or damaged cover. Replace defective parts (para. 4-35).
	•		b. Inspect bumpers and splash guards for deterioration and damage. Replace defective bumpers (para. 4-31) and splash guards (para. 4-33).
	•		c. Inspect frame for peeling paint, distortion and other damage. Report deficiencies to support maintenance.
	•		d. Inspect vehicle for cracked welds, excessive deformation, and loose fittings. Report deficiencies to support maintenance.

Section IV. UNIT TROUBLESHOOTING PROCEDURES

4-8. SYMPTOM INDEX

4-9. UNIT TROUBLESHOOTING TABLE

a. Table 4-1 lists the common malfunctions which you may find during the operation or maintenance of the HEMAT or its components. You should perform the test/inspections and corrective maintenance in the order listed.

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

Table 4-2. Unit Troubleshooting Table

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
ELECTRICAL SYSTEM (See schematic diagram, para. 4-10)
1. ALL LAMPS DO NOT LIGHT.
Step 1. Test intervehicular cable for shorts or open cable.
a. If cable is defective, replace cable.
b. If cable is not defective, proceed to step 2.

Table 4-2. Unit Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

Step 2. Check for short or open circuit in wiring (para. 4-10).

If wiring has a short or open circuit, repair or replace wiring (para. 4-13).

2. ONE OR MORE LAMPS (BUT NOT ALL) WILL NOT LIGHT.

Step 1. Replace inoperative lamps (para. 4-10). If still inoperative, check for defective light.

a. Replace or repair defective light assemblies (para. 4-11 and 4-12).

b. If light assembly is not damaged, proceed to step 2.

Step 2. Check for short or open circuit in wiring (para. 4-10).

If wiring has a short or open circuit, repair or replace wiring (para. 4-13).

3. DIM OR FLICKERING LIGHTS.

Step 1. Check for proper ground or defective light assemblies (para. 4-10).

a. Replace or repair defective light assemblies (para. 4-11 and 4-12).

b. If light assemblies are not damaged, proceed to step 2.

Step 2. Check for intermittent short or open circuit (para. 4-10).

If wiring is defective, repair or replace wiring (para. 4-13).

BRAKES

1. ALL BRAKES WILL NOT RELEASE (TRAILER CONNECTED TO TOWING VEHICLE).

Step 1. Check for leaks in service air lines or tanks (table 2-1).

a. If leaks are found, repair or replace as required (para. 4-21 or para. 4-22).

b. If no leaks are found, replace relay valve (para. 4-23) or multifunction valve (para. 4-25).

c. If no malfunctions are found, proceed to step 2.

4-9. UNIT TROUBLESHOOTING TABLE (CONT)

Table 4-2. Unit Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
BRAKES - CONT
Step 2. Check operation of brake control valve (table 2-1). a. If brake control valve does not operate properly, replace valve (para. 4-24). b. If brake control valve operates properly, proceed to step 3.
Step 3. Check operation of brake chambers (table 2-1). Replace any chamber not functioning properly (para. 4-20).
2. NO BRAKES OR WEAK BRAKES.
Step 1. Check for low air pressure (leakage at connection, air lines, or valves) (table 2-1). a. If air lines/connections are leaking, repair or replace as needed (para. 4-21). b. If brake control valve, relay valve, or multifunction valve is leaking, replace defective valve (para. 4-23, 4-24, or 4-25). c. If air lines/connections or valves are not leaking, proceed to step 2.
Step 2. Check for relay valve operation by observing action of brake air chambers. a. If brake air chambers do not operate, replace relay valve (para. 4-23). b. If action of brake air chambers is not positive, replace relay valve (para. 4-23). c. If a single brake air chamber does not operate properly, replace brake chamber (para. 4-20).
Step 3. Inspect for grease on brake lining. a. If grease is present on brake lining, replace defective seals and brake shoes (para. 4-16). b. If grease is not present on brake lining, proceed to step 4.

Table 4-2. Unit Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

Step 4. Check for proper brake adjustment by checking slack adjuster, and adjust as required (para. 4-18).

Step 5. Check for worn brake lining (table 4-1).

If brake lining is worn, replace brake shoe (para. 4-16).

3. SLOW BRAKE APPLICATION OR SLOW RELEASE.

Step 1. Disconnect air lines and hoses (para. 4-21) and check for restrictions.

a. If air lines or hoses are restricted, replace as required.

b. If air lines or hoses are not restricted, proceed to step 2.

Step 2. Check for damaged or broken brake shoe springs (para. 4-16).

a. If a spring is defective, replace spring.

b. If any spring is not defective, proceed to step 3.

Step 3. Check for brake air chamber operation (table 2-1).

a. If one brake air chamber operates slowly, replace defective brake chamber (para. 4-20).

b. If front pair or rear pair of brake air chambers operates slowly, replace front or rear relay valve (para. 4-23).

c. If all brake air chambers still operate slowly, replace multifunction valve (para. 4-25).

Step 4. Check for proper brake adjustment by checking slack adjuster, and adjust as required (para. 4-18).

Step 5. Check for leaking rear brake chamber.

If rear brake chamber leaks at center clamp, tighten bolts (para. 4-20).

4. GRABBING BRAKES.

Step 1. Check for grease on brake lining.

a. If grease is present, replace brake shoes and seals (para. 4-16).

b. If grease is not present on brake lining, proceed to step 2.

4-9. UNIT TROUBLESHOOTING TABLE (CONT)

Table 4-2. Unit Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
BRAKES - CONT
Step 2. Check for cracked, scored, or deformed brake drum (table 4-1). a. If brake drum is cracked, scored or deformed, replace brake drum (para. 4-26). b. If brake drum is not cracked, scored or deformed, proceed to step 3.
Step 3. Check for worn or loose brake linings (table 4-1). If linings are worn or damaged, replace brake shoes (para. 4-16).
Step 4. Check slack adjusters and adjust as required (para. 4-18).
5. HARD PULLING (ONE OR MORE BRAKE DRUMS RUNNING HOT).
Step 1. Check for cross connected air hoses. a. If hoses are cross connected, connect hoses properly (emergency to emergency, service to service). b. If hoses are not cross connected, proceed to step 2.
Step 2. Check for weak or broken brake shoe springs (para. 4-16). If a spring is defective, replace spring (para. 4-16).
Step 3. Check for proper brake adjustment by checking slack adjuster and adjust as required (para. 4-18).
AIR SUSPENSION SYSTEM
IMPROPER AIR BAG INFLATION.
Step 1. Check air bag for cuts or cracks. a. If air bag is damaged, notify support maintenance. b. If air bag is not damaged, proceed to step 2.
Step 2. Check air hoses for proper wrapping, cracks, cuts and proper connection. If hoses are loose or damaged, tighten or replace (para. 4-21).

Table 4-2. Unit Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION

Step 3. Check air tanks for leaks or damage.

If air tanks leak or are damaged, replace air tanks (para. 4-22).

Step 4. Check leveling valves for proper height setting (para. 4-40).

Adjust as required (para. 4-40).

TIRES

1. EXCESSIVELY WORN OR SCUFFED TIRES OR FLAT SPOTS ON TIRES.

Step 1. Check steering alinement (para. 4-29).

Step 2. Check for loose wheel bearings.

a. If wheel bearings are loose, adjust wheel bearings.

b. If wheel bearings are not loose, proceed to step 3.

Step 3. Check suspension system for damaged bushings, air bags and loose or missing bolts and nuts.

a. If air bags are damaged or have loose or missing bolts and nuts, notify support maintenance.

b. If suspension system is not damaged and all hardware is complete and secure, notify support maintenance.

2. TRAILER NOT TRACKING.

Step 1. Check for loose wheel bearings.

a. If wheel bearings are loose, adjust wheel bearings.

b. If wheel bearings are not loose, proceed to step 2.

Step 2. Check suspension system for damaged bushings, air bags and loose or missing hardware.

a. If suspension system is damaged or has missing hardware, repair or replace as required.

b. If suspension system is not defective, proceed to step 3.

4-9. UNIT TROUBLESHOOTING TABLE (CONT)

Table 4-2. Unit Troubleshooting Table - CONT

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
TIRES - CONT
Step 3. Check toe-in and steering adjustment and adjust as required (para. 4-29).
Step 4. Check for excessive tire wear.

Section V. MAINTENANCE OF ELECTRICAL SYSTEM

4-10. ELECTRICAL SYSTEM

This task covers inspection.

INITIAL SETUP

Tools

Multimeter

CHECK FOR SHORTS

Check for shorts between the prime source and the trailer, within the wiring harness, and between the wiring harness and the lights.

CHECK FOR GROUNDS

a. Disconnect all wiring connectors at the lights. Be sure identification markers are present on individual wires before disconnecting. If not, tag wires.

NOTE

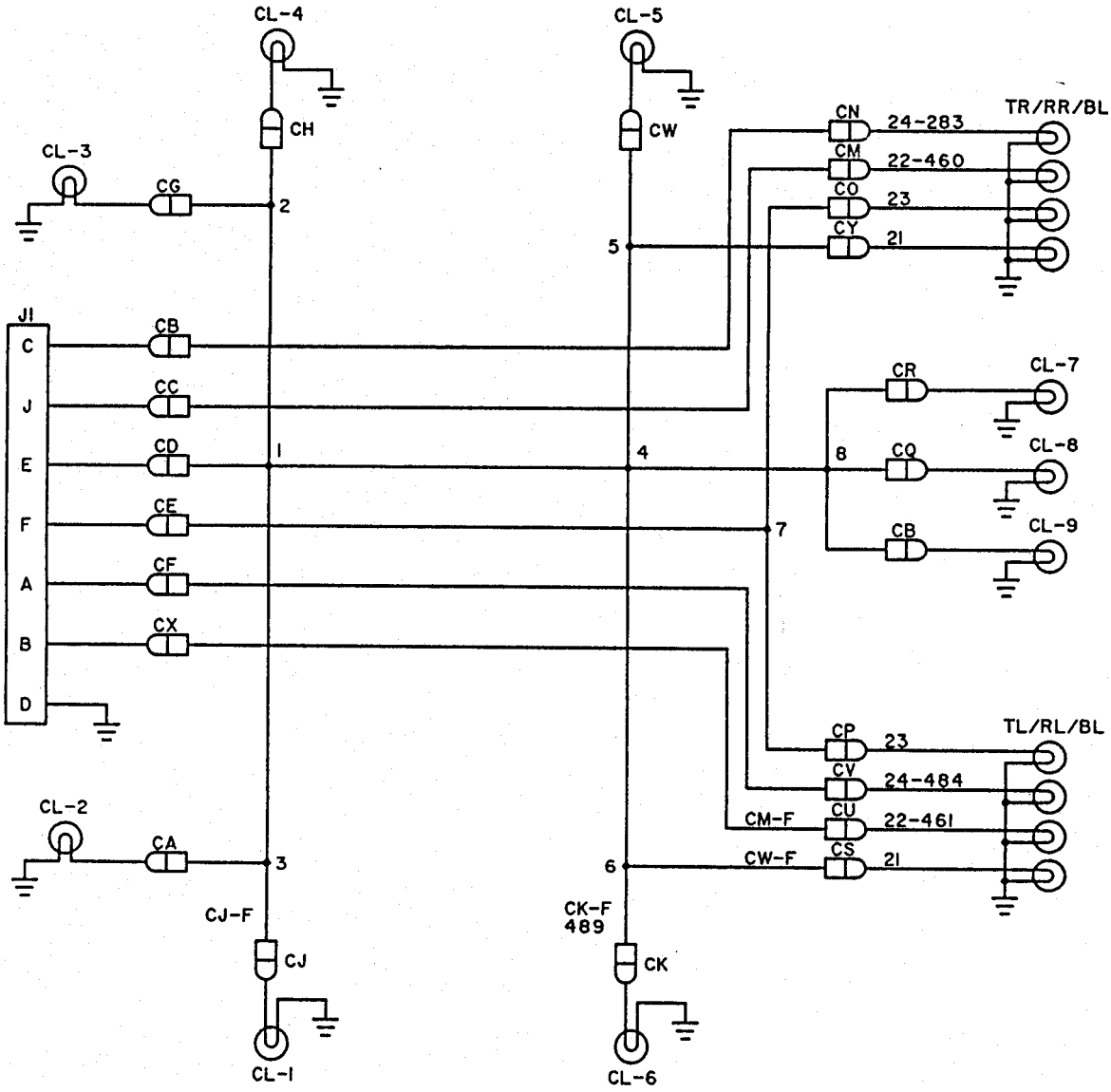
Check for continuity on grounds using the multimeter on a low ohms scale.

b. Check for continuity between wiring harness connector pin D and the chassis. If the circuit is open, repair ground lead on wiring harness.

c. Check for shorts to ground between wiring harness connector pins J1-C, J, E, F, A, B and pin D (ground). There should be an open circuit between the connector pins. If there is continuity between any connector pin as specified, that circuit is grounded and the wiring harness must be repaired or replaced.

d. Remove all lamps from lights (para. 4-11 and 4-12).

e. Check for grounds from each light lead wire and the chassis (ground). There should be an open circuit between each lead wire and the chassis. If there is continuity on any lead wire, the wire is grounded and must be repaired or the light replaced.



4-10. ELECTRICAL SYSTEM (CONT)

CHECK WIRING HARNESS CONTINUITY

a. Install all lamps in lights (para. 4-11 and 4-12).

b. Check for continuity between each light lead wire and the chassis. If there is an open circuit, first check lamp. If lamp is defective, replace it. If there is still an open circuit, repair lead wire or replace light.

c. Connect all wire connectors at lights.

d. Check for continuity between wiring harness connector pins J1-C, J, E, F, A, B and pin D (ground). Each circuit should indicate continuity. If not, there is a broken wire and wiring must be repaired or replaced.

CHECK INTERVEHICULAR CABLE CONTINUITY

Check for continuity between individual connector pins and socket on opposite ends of cable at terminals J1-C, J, E, F, A, and B. Each circuit should indicate continuity. If any circuit is open, replace cable. At each end of cable, check for open circuit between any two pins. If short circuit is found, replace cable.

END OF TASK

4-11. COMPOSITE LIGHTS

This task covers: a. Removal b. Repair c. Installation

INITIAL SETUP

Tools	Materials/Parts
General mechanics tool kit	Lockwasher (2) Packing Tiewrap (item 14, appendix E) Tag (item 15, appendix E)

REMOVAL

NOTE

Old and new composite lights are not interchangeable.

To remove composite light from old trailers with serial numbers 2000 and below, perform step a. To remove composite light from new trailers with serial numbers 2001 and up, perform step b.

a. To remove composite light from old trailers with serial numbers 2000 and below, proceed as follows:

(1) Tag and disconnect connectors (1) from wiring harness. Remove plastic tiewrap (2).

(2) Remove two machine screws (3), lockwashers (4) and wiring harness (5) to detach composite light (6). Remove light (6).

b. To remove composite light from new trailers with serial numbers 2001 and up, proceed as follows:

(1) Tag and disconnect connectors (7) from wiring harness.

(2) Remove six locknuts (8), washers (9), and screws (10) to detatch composite light (11). Remove light (11).

REPAIR

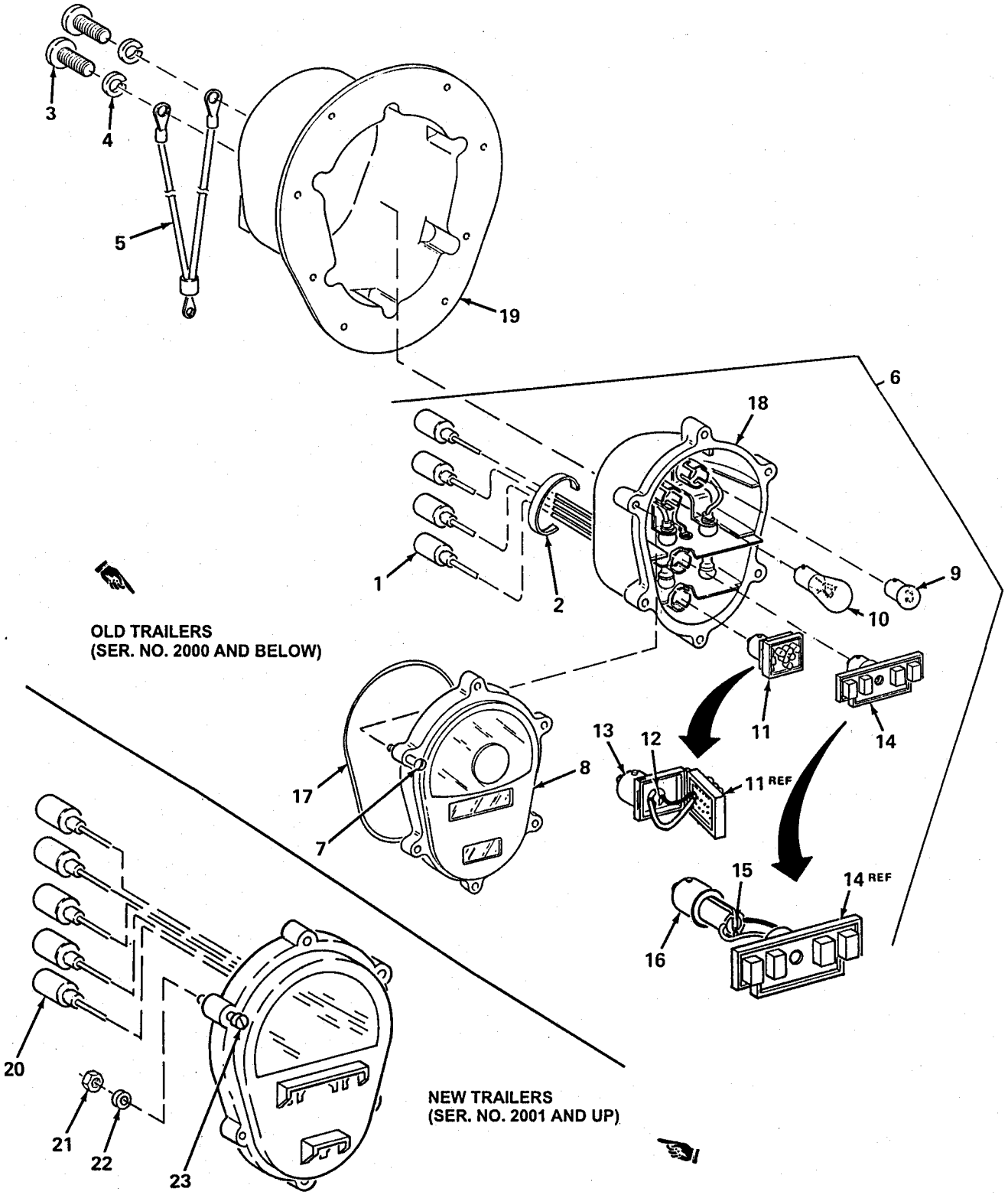
NOTE

No repair is authorized for composite lights on new trailers.

To repair composite light on old trailers with serial numbers 2000 and below, proceed as follows:

(1) Loosen six captive screws (12) and remove lens (13).

(2) If defective, replace lamp (14 or 15).


3
4
5
19
6
18
1
2
9
10
OLD TRAILERS
(SER. NO. 2000 AND BELOW)
11
14
13
12
11 REF
17
8
7
15
14 REF
16
20
21
22
23
NEW TRAILERS
(SER. NO. 2001 AND UP)

4-11. COMPOSITE LIGHTS (CONT)

(3) If defective, replace stop lamp assembly (16) by using a small screwdriver and inserting it on left side (facing taillight) between printed wiring board and printed wiring board housing. Pop open printed wiring board and insert screwdriver in screw (17) slot in the middle of printed wiring board housing. Press down and turn screw (17) counterclockwise to remove bayonet (18) and stop lamp assembly (16) from socket.

(4) Replace stop lamp assembly (16), with printed wiring board popped open, by positioning bayonet (18) in socket and using small screwdriver in screw (17) slot. Press down and turn screw (17) clockwise until bayonet (18) is seated in socket.

(5) Snap shut printed wiring board into printed wiring board housing.

(6) If defective, replace marker assembly (19) by using a small screwdriver and inserting it in screw (20) slot in center of assembly. Press down and turn screw (20) counterclockwise to remove bayonet (21) and assembly (19) from socket.

CAUTION

Ensure wires are cleared from center screw (20) slot.

(7) Replace marker assembly (19) by positioning bayonet (21) and assembly (19) into socket. Using small screwdriver in screw (20) center slot, press down and turn screw (20) clockwise until bayonet (21) is seated in socket.

NOTE

Do not remove packing (22) unless damaged.

(8) If necessary, replace packing (22). Install lens (13) into body (23) and tighten and fasten six captive screws (12).

(9) If necessary, replace housing (24) by drilling out eight rivets and removing housing from trailer frame. Install housing (24) and eight rivets.

INSTALLATION

NOTE

Old and new composite lights are not interchangeable.

To install composite light on new trailers with serial numbers 2001 and up, perform step a. To install composite light on old trailers with serial numbers 2000 and below, perform step b.

a. To install composite light on new trailers with serial numbers 2001 and up, proceed as follows:

   (1) Install composite light (11), six screws (10), washers (9), and locknuts (8)

   (2) Connect five connectors (7).

b. To install composite light on old trailers with serial numbers 2000 and below, proceed as follows:

   (1) Install composite light (6) and install wiring harness (5) with two machine screws (3) and lockwashers (4).

   (2) Connect connectors (1) to wiring harness. Make sure that tag or marker numbers on wires correspond. Install tiewrap (2).

END OF TASK

4-12. CLEARANCE MARKER LIGHTS

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit
For new trailers with serial numbers 2001 and up:
  Portable electric drill 1/32-inch drill bit
  Rivet gun kit

Materials/Parts

Lockwasher (4)

REMOVAL

NOTE

Old and new clearance marker lights are not interchangeable.

To remove clearance marker light from old trailers with serial numbers 2000 and below, perform step a. To remove clearance marker light from new trailers with serial numbers 2001 and up, perform step b.

a. To remove clearance marker light (1) from old trailers with serial numbers 2000 and below, proceed as follows:

(1) Remove two screws (2) and lens (3).

(2) Remove lamp (4).

(3) Remove grounding screw (5) and socket base (6) from mount plate (7) to gain access to wiring.

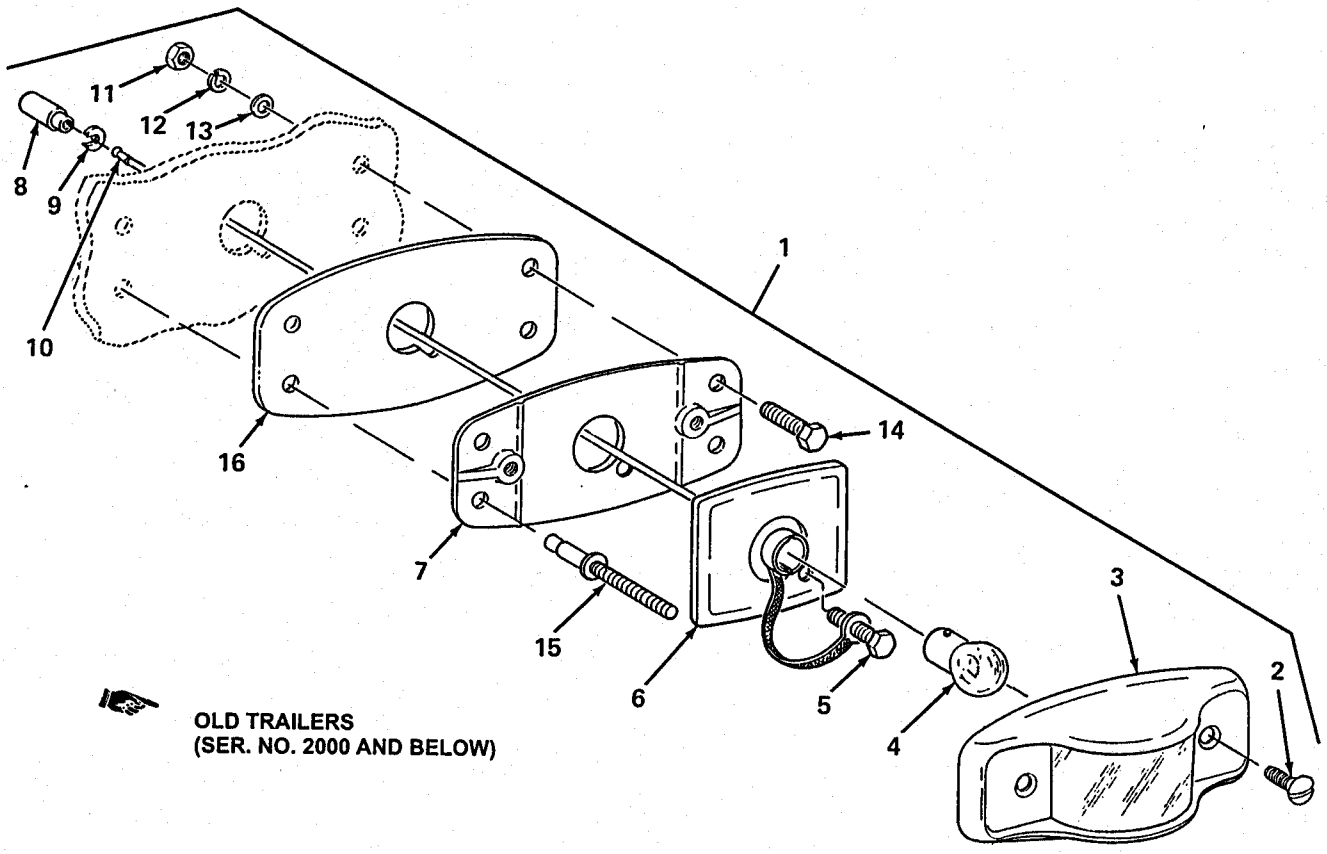
(4) Disconnect light connector from harness connector.

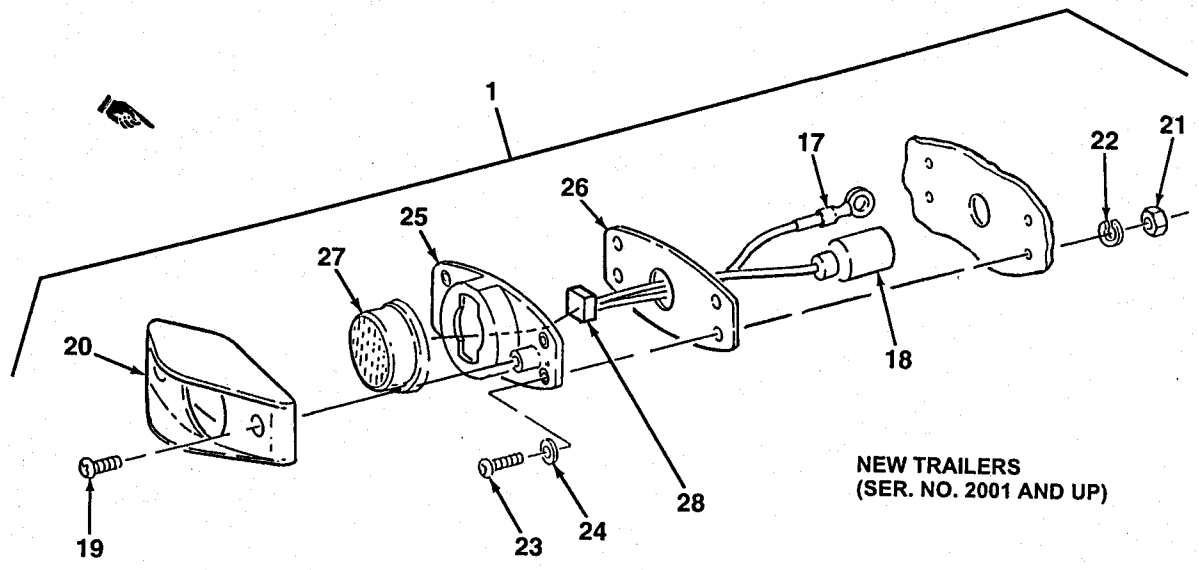
(5) Push shell (8) back on wire and remove C-washer (9) and shell (8). Remove terminal (10) if damaged.

NOTE

If removing center rear light, it will be necessary to drill or chisel the fasteners, whether screws or rivets.

(6) If necessary, remove existing fasteners, either four nuts (11), lockwashers (12), washers (13), and screws (14) or four rivets (15), mount plate (7), and gasket (16).


11
12
13
8
9
10
1
14
16
7
15
6
5
4
3
2
OLD TRAILERS
(SER. NO. 2000 AND BELOW)


1
17
22
21
26
25
27
20
18
19
23
24
28
NEW TRAILERS
(SER. NO. 2001 AND UP)

4-12. CLEARANCE MARKER LIGHTS (CONT)

b. To remove clearance marker light (1) from new trailers with serial numbers 2001 and up, proceed as follows:

(1) Disconnect electrical lead (17) and ground lead (18).

(2) Remove two screws (19) and cover (20).

(3) Remove four nuts (21), lockwashers (22), screws (23), washers (24), light assembly (25), and gasket (26).

NOTE

The three red clearance marker lights in the rear center of the trailer are mounted with rivets.

(4) If removing rear center clearance marker light, use portable drill with 7/32-inch drill bit and drill out four rivets.

(5) Turn light emitting diode (LED) (27) one quarter turn counter-clockwise (viewed from LED) and remove LED (27) from light assembly (25).

(6) If necessary, carefully lift connector (28) from LED (27).

INSTALLATION

NOTE

Old and new clearance marker lights are not interchangeable.

To install clearance marker light on new trailers with serial numbers 2001 and up, perform step a. To install clearance marker light on old trailers with serial numbers 2000 and below, perform step b.

a. To install clearance marker light (1) on new trailers with serial numbers 2001 and up, proceed as follows:

(1) Install connector (28) on LED (27).

(2) Install LED (27) on light assembly (25) and turn one quarter turn clockwise (viewed from LED).

(3) Install gasket (26), light assembly (25), four washers (24), screws (23), lockwashers (22), and nuts (21).

NOTE

The three red clearance marker lights in the rear center of the trailer are mounted with rivets.

(4) If installing rear center clearance marker light, install four rivets using a rivet gun kit.

(5) Install cover (20) and two screws (19).

(6) Connect ground lead (18) and electrical lead (17).

b. To install clearance marker light (1) on old trailers with serial numbers 2000 and below, proceed as follows:

(1) If removed, install gasket (16) and mount plate (7) using four 3/16-inch blind fasteners.

(2) Install terminal (10) if removed. Insert terminal (10) through shell (8). Install C-washer (9) on terminal (10) and pull shell (8) over terminal.

(3) Connect connector to wiring harness.

(4) Mount socket base (6) to mount plate (7) with grounding screw (5).

(5) Install lamp (4).

(6) Install lens (3) with two screws (2).

END OF TASK

4-13. WIRING HARNESS

This task covers: a. Removal
b. Cleaning and Inspection
c. Repair
d. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Electrical tool and connector repair kit
Soldering iron

Personnel Required: 2

Equipment Condition

Right rear wheel removed

Materials/Parts

Wiping rag (item 12, appendix E)
Lockwasher (12)
Tiewrap (as required) (item 14, appendix E)
Lock nut (4)

REMOVAL

CAUTION

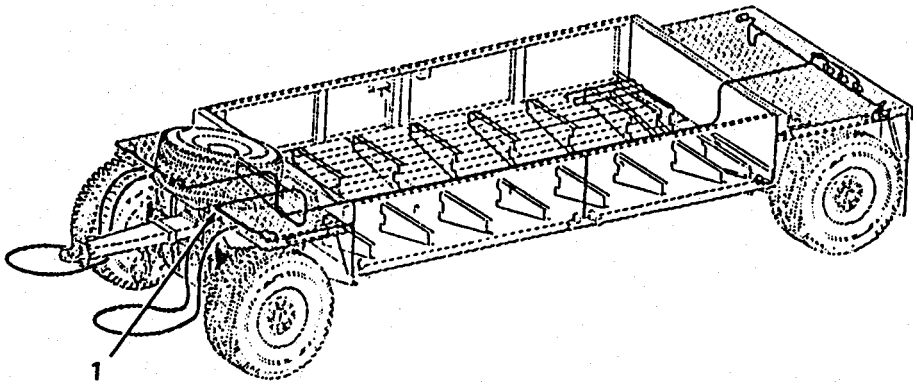
Be careful not to cut air hose when cutting tape from tiewraps.

NOTE

Remove complete harness only if required to effect repair or replacement.

a. Cut tape and remove tiewraps around harness at composite light mounting brackets.

b. Tag and disconnect harness connectors (1) at all lights by pulling connector halves apart.



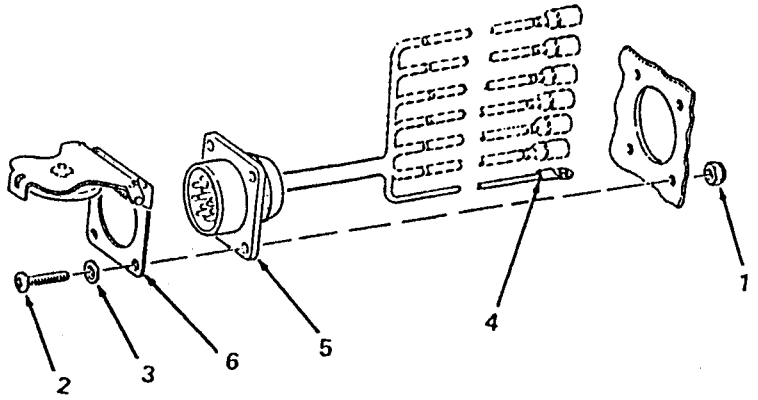
4-13. WIRING HARNESS (CONT)

c. Tag and disconnect harness connectors at front receptacle.

d. On old trailers with serial numbers 2000 and below, remove 12 nuts and lockwashers from 10 screws and 2 studs securing the harness clamps at positions along right side under frame. Remove clamps from wiring harness.

d.1. On new trailers with serial numbers 2001 and up, remove 26 nuts from 22 studs and 4 screws securing harness clamps at positions along right side under frame. Remove clamps from wiring harness.

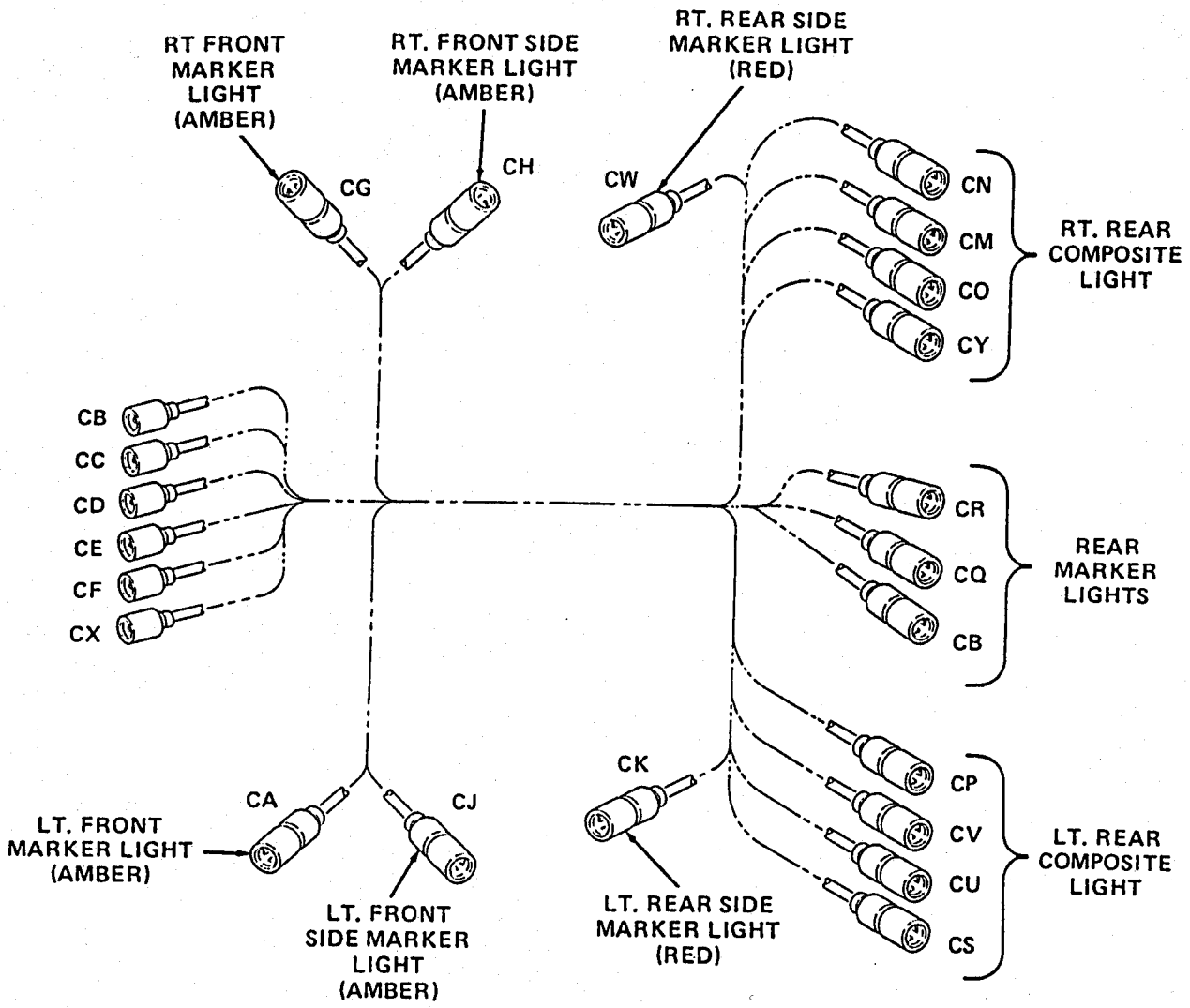
e. Remove four lock nuts (1), capscrews (2), and washers (3) to free ground lead (4), receptacle (5) and cover (6) from frame.



NOTE

To make installation easier, tape receptacle bundles to main harness if desired.

f. To remove, feed wire harness through grommets and along frame.



CLEANING AND INSPECTION

a. Clean wiring harness with a clean rag.

b. Inspect wiring for cuts, breaks and loose connections and connectors and cover (6) for damage.

REPAIR

a. If any connector assembly is damaged, replace it. Push back shell on wire to expose terminal, remove defective terminals and crimp a new terminal on end of wire. Pull shell over terminal.

b. If individual harness wires extending from the harness loom are broken, splice at break. Install new terminal and shell if required.

4-13. WIRING HARNESS (CONT)

c. If wire leads have damaged insulation, tape over damaged insulation where required. If wires within the harness loom are defective, replace wiring harness.

d. Replace deteriorated grommets in frame holes.

INSTALLATION

CAUTION

Do not damage wiring or insulation during installation of wiring harness.

a. Run wiring harness along frame and through grommets. Run harness over cross beams. Install clamps over harness and secure.

b. Install tiewraps around composite light wires and to air lines along frame.

c. Position receptacle and cover on frame. Receptacle must have A contact upward. Install capscrews and lock nuts. Be sure ground lead and lockwasher are under one of the lock nuts.

d. Connect connectors to all lights.

e. Connect trailer to towing vehicle and check operation of all lights.

END OF TASK

Section VI. MAINTENANCE OF FRONT AXLE

4-14. KNUCKLE ASSEMBLY

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

Welding machine
Welder tool kit
Bearing and bushing inserter tool

Materials/Parts

Cleaning compound (item 3, appendix E)
Grease (item 7, appendix E)
Wiping rag (item 12, appendix E)
Cotter pin
Cotter pin
Bushing (2)

Personnel Required: 2

Equipment Condition

Wheels removed (para. 3-5)
Brake assemblies removed (para. 4-15)
Hub and drum removed (para. 4-26)
Brake air chamber removed (para. 4-20)
Camshaft assembly removed (para. 4-17)

REMOVAL

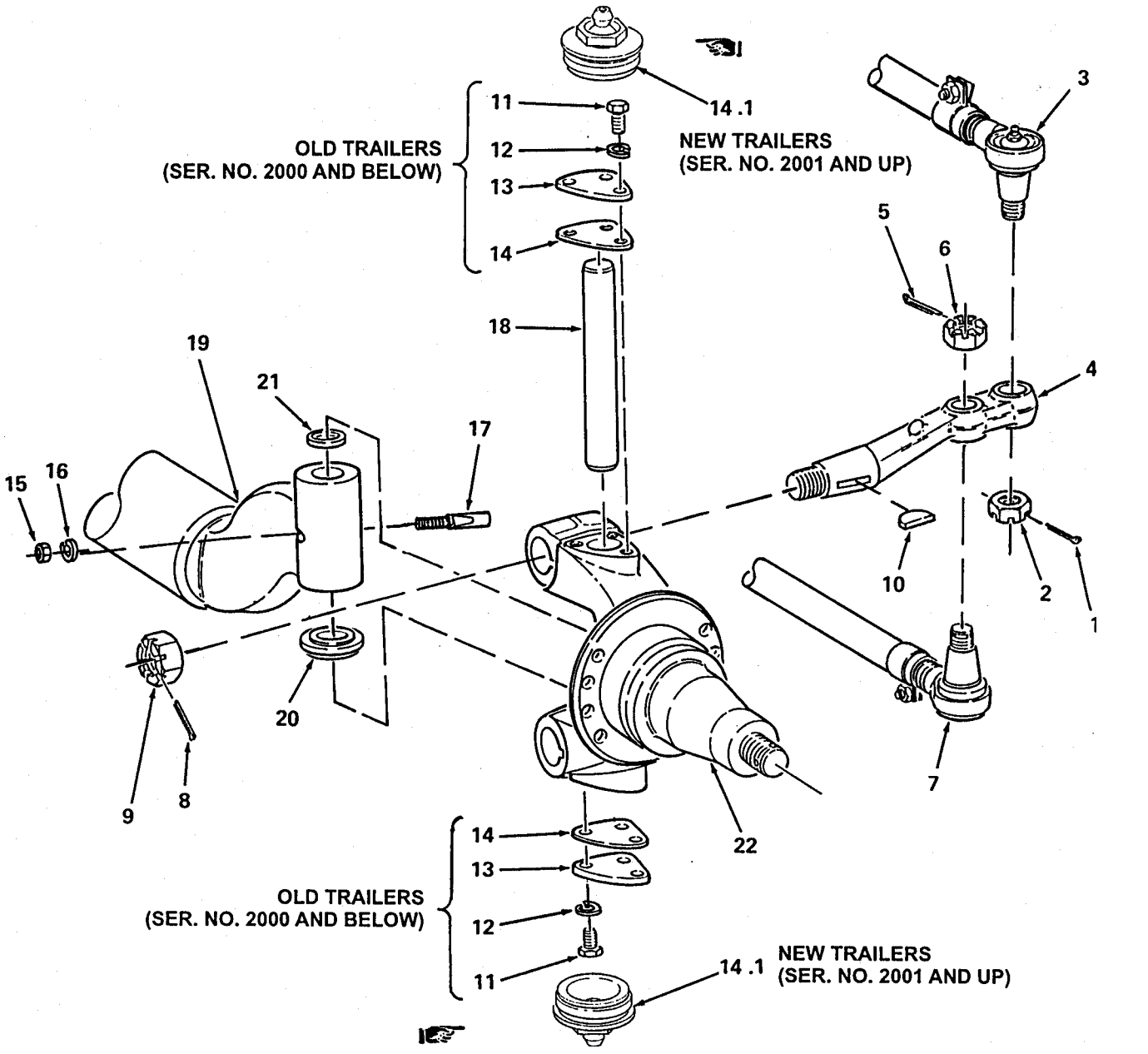
a. On streetside only, remove cotter pin (1), nut (2) and short tie rod (3) from assembly arm (4).

b. Remove cotter pin (5), nut (6), and long tie rod (7) from assembly arm (4).

c. Remove cotter pin (8), nut (9), assembly arm (4) and woodruff key (10).

d. On old trailers with serial numbers 2000 and below, remove six bolts (11), lockwashers (12), top and bottom plates (13) and two gaskets (14).

d.1. On new trailers with serial numbers 2001 and up, remove two caps (14.1).



4-14. KNUCKLE ASSEMBLY (CONT)

e. Remove nut (15), washer (16) and taper pin (17).

f. Drive king pin (18) out with bearing preload tool or other suitable object to avoid damage to king pin ends.

g. Remove axle (19), bearing (20) and shim (21) from knuckle assembly (22).

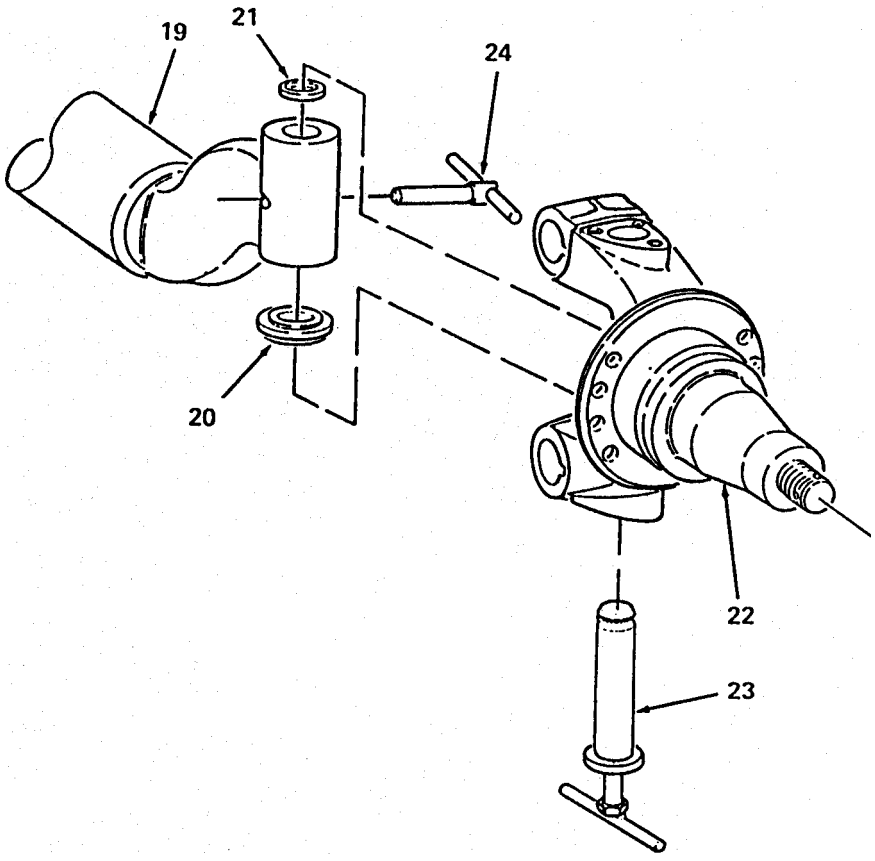
INSTALLATION

a. Apply grease to new bearing (20) and install bearing and knuckle assembly (22) onto axle (19).

b. Insert body of bearing inserter tool (23) through lower portion of knuckle assembly (22) and bearing (20) into axle; secure by inserting bearing inserter tool T-handle (24) through tapered pin hole.

c. Start threaded handle into body of bearing inserter tool (23) until stop on handle contacts lower surface of knuckle assembly (22).

d. Preload bearing by hand turning the threaded handle as much as possible.

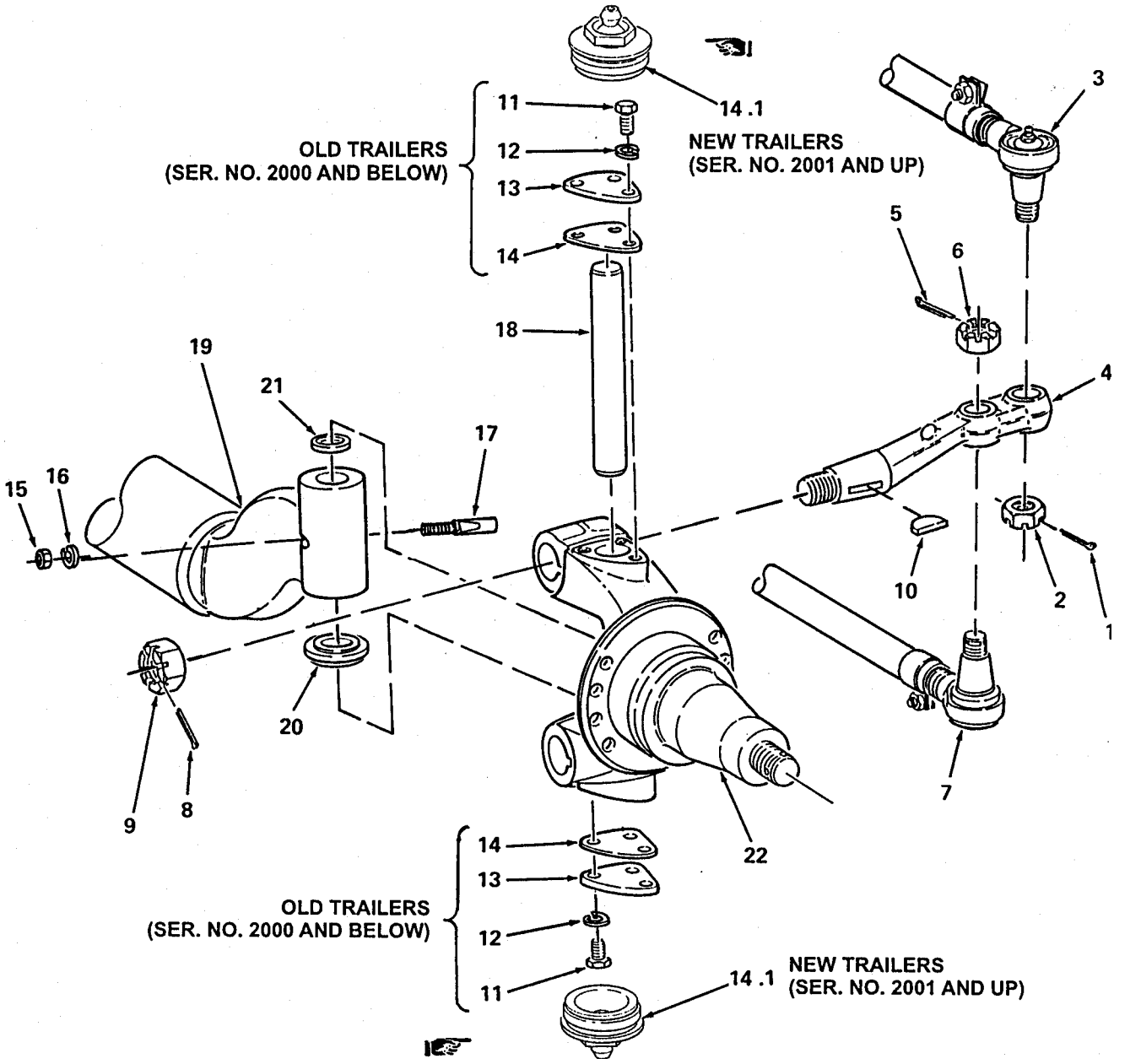


e. Insert shim (21) of appropriate thickness between top of axle (19) and knuckle assembly (22) to achieve 0.002-inch clearance between top of axle and knuckle. Release tension on bearing inserter tools (23).

CAUTION

Do not insert king pin upside down. The king pin measures 5-1/10 inches from the groove to the bottom, and 5-4/10 inches from the groove to the top. INSERT BOTTOM FIRST.

f. Apply grease to king pin (18); aline groove with tapered pin hole, insert into top of knuckle assembly (22) and drive downward until it reaches top of bearing preload tool. Remove tool T-handle (24) from tapered pin hole and continue driving king pin. This will drive out body of bearing preload tool.



4-14. KNUCKLE ASSEMBLY (CONT)

g. Insert tapered pin (17) and secure with washer (16) and nut (15). Torque to 55-60 lb ft.

h. On old trailers with serial numbers 2000 and below, replace top and bottom gaskets (14) and plates (13) and secure with six lockwashers (12) and bolts (11). Torque to 6-8 lb ft.

h.1. On new trailers with serial numbers 2001 and up, install two caps (14.1).

i. Replace key (10) and assembly arm (4). Secure with nut (9) and cotter pin (8).

j. Replace tie rod (7) and secure with nut (6). Torque to 125 lb ft and tighten to aline hole; then install cotter pin (5).

k. On streetside only, install short tie rod (3) on assembly arm (4) and secure with nut (2). Torque to 125 lb ft and tighten to aline hole; then install cotter pin (1).

l. Lube two fittings top and bottom on axle.

END OF TASK

Section VII. MAINTENANCE OF AIR BRAKE SYSTEM

4-15. SERVICE BRAKE ASSEMBLY

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Materials/Parts

Lockwasher (2)
Lockwasher (4)
Lockwasher (8)
Lockwasher

Equipment Condition

Hub and drum removed (para. 4-26)
Brake shoes removed (para. 4-16)
Slack adjuster removed (para. 4-18)
Camshaft removed (para. 4-17)
Brake air chamber removed (para. 4-20)

REMOVAL

a. On old trailers with serial numbers 2000 and below, at rear brake only, remove two nuts (1), clamp (2), U-bolt (3), nut (4), lockwasher (5), bolt (6), and bracket (7).

b. Remove four screws (8) and lockwashers (9); then remove cam bracket assembly (10).

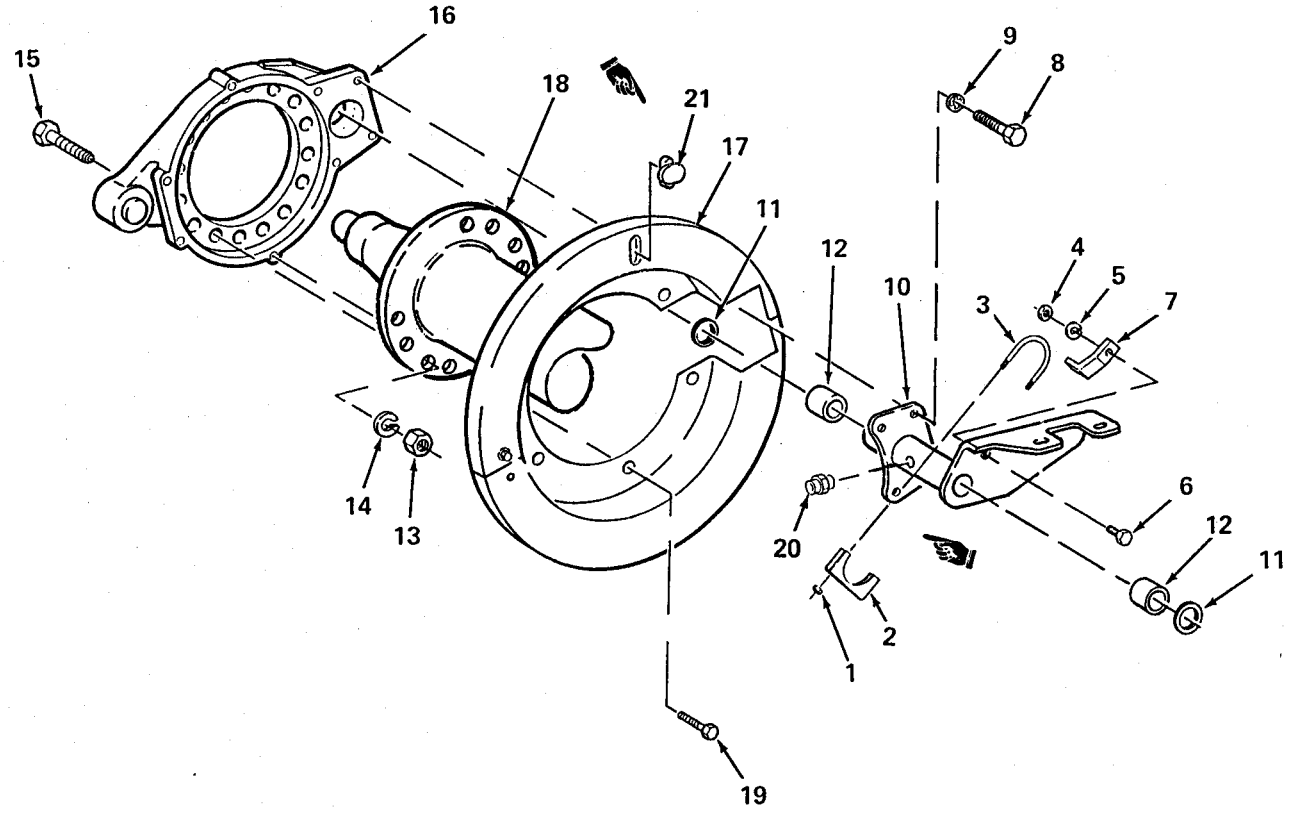
c. Remove two washers (11) and two bushings (12) from cam bracket assembly (10).

d. On old trailers with serial numbers 2000 and below, remove eight nuts (13), lockwashers (14), and screws (15) and remove spider (16) and deflector (17) from spindle (18).

d.1. On new trailers with serial numbers 2001 and up, remove seven (on front brakes, eight on rear brakes) nuts (13), lockwashers (14), and screws (15) and remove spider (16) and deflector (17) from spindle (18).

e. Remove five screws (19) and separate spider (16) and deflector (17).

f. On new trailers with serial numbers 2001 and up, remove grease fitting (20) and plug (21).



4-15. SERVICE BRAKE ASSEMBLY (CONT)

INSTALLATION

a. Aline spider (16) and deflector (17) and install five screws (19).

b. On new trailers with serial numbers 2001 and up, attach spider (16) and deflector (17) to spindle (18) with seven (on front brakes, eight on rear brakes) screws (15), lockwashers (14), and nuts (13). Torque nuts (13) to 150-170 lb ft.

b.1. On old trailers with serial numbers 2000 and below, attach spider (16) and deflector (17) to spindle (18) with eight screws (15), lockwashers (14), and nuts (13). Torque nuts (13) to 150-170 lb ft.

c. Install two bushings (12) and washers (11) into cam bracket assembly (10), and install with four screws (9) and lockwashers (8).

d. On old trailers with serial numbers 2000 and below, at rear brake only, install bracket (7), bolt (6), lockwasher (5), nut (4), U-bolt (3), clamp (2) and two nuts (1). Torque nut (4) to 45-55 lb ft. Torque two nuts (1) to 50-70 lb ft.

e. On new trailers with serial numbers 2001 and up, install plug (21) and grease fitting (20).

END OF TASK

4-16. BRAKE SHOES

This task covers: a. Removal c. Inspection
b. Cleaning d. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Lock ring pliers
Pry bar

Equipment Condition

Wheel and tire removed (para. 3-5)
Drum and hub removed (para. 4-26)

Materials/Parts

Grease (item 7, appendix E)
Abrasive cloth (item 4, appendix E)
Dry cleaning solvent (item 6, appendix E)
Wiping rag (item 12, appendix E)

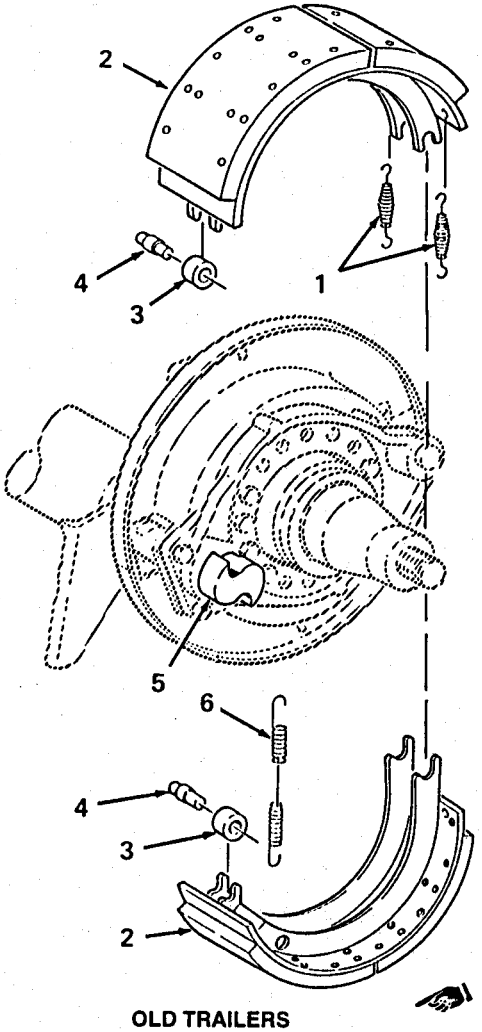
REMOVAL

a. Using a large screwdriver or lever, remove two springs (1) from brake shoes (2).

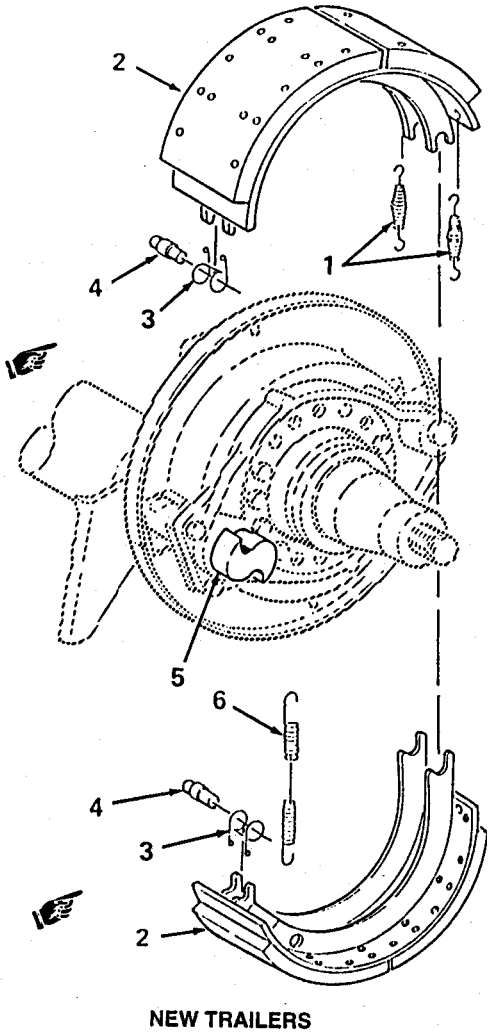
b. On old trailers with serial numbers 2000 and below, remove two cam rollers (3) and pins (4).

b.1. On new trailers with serial numbers 2001 and up, remove two retainers (3) and rollers (4).

c. Push cam end of both brake shoes (2) toward cam (5) and unhook return spring (6) and remove brake shoes (2).



OLD TRAILERS
(SER. NO. 2000 AND BELOW)



NEW TRAILERS
(SER. NO. 2001 AND UP)

4-16. BRAKE SHOES (CONT)

CLEANING

WARNING

Dry cleaning solvent (MIL-PRF-680, type I) is extremely flammable, toxic, and is an irritant to the eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Do not breathe the vapors. Use skin and eye protection and work in a well ventilated area. Flash point of dry cleaning solvent is 140°F.

CAUTION

Do not allow lubricants or solvents to get on brake shoes. These materials will do damage to brake linings and result in poor braking action.

a. Clean all parts except brake shoes with a brush and dry cleaning solvent. Air dry.

b. Clean brake shoes with soft bristle brush.

INSPECTION

a. Inspect brake shoes for wear and scoring. Replace brake shoes if linings are worn to less than 5/16-inch thick at any place on the linings.

b. Inspect springs for kinks, corrosion, and distortion.

c. Inspect rollers and pins for wear, corrosion and other damage.

INSTALLATION

a. On old trailers with serial numbers 2000 and below, install two rollers (3) and pins (4) on cam (5).

a.1. On new trailers with serial numbers 2001 and up, install two retainers (3) on rollers (4); then, squeeze loops and swing retainers to snap loops in shoe web holes.

b. Position two brake shoes (2) on rollers (3).

c. Install return spring (6).

d. Install two springs (1).

e. Back off slack adjuster (para. 4-18) to allow for drum installation.

END OF TASK

4-17. CAMSHAFT

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Snap ring pliers

Materials/Parts

Cotter pin

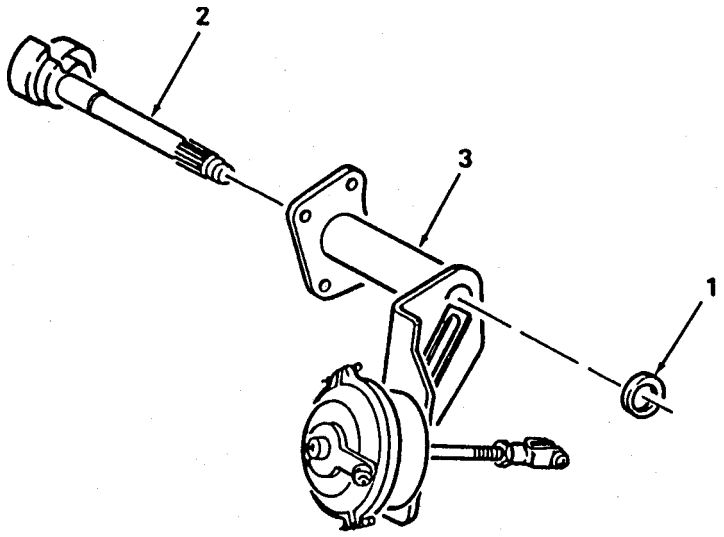
Equipment Condition

Brake shoes removed (para. 4-16)
Slack adjuster removed (para. 4-18)

REMOVAL

a. Remove inner camshaft (thin) washer (1) from camshaft (2).

b. Remove camshaft (2) from bracket (3).



4-17. CAMSHAFT (CONT)

INSTALLATION

NOTE

Two different thicknesses of washers are used on the camshaft, 0.30 inch and 0.60 inch thick. In addition, there is a thin washer that is used to seal dirt out of the slack adjuster.

a. Install camshaft (2) through bracket (3).

b. Install inner camshaft (thin) washer (1) onto camshaft (2).

c. Install slack adjuster (para. 4-18).

d. Check camshaft end play. Add or delete washers to obtain end play of 0.020 and 0.045 inch.

END OF TASK

4-18. SLACK ADJUSTER

This task covers: a. Removal b. Installation c. Brake Adjustment

---

INITIAL SETUP

Tools

General mechanics tool kit
Snap ring pliers

Equipment Condition

Brake shoes removed (para. 4-16)

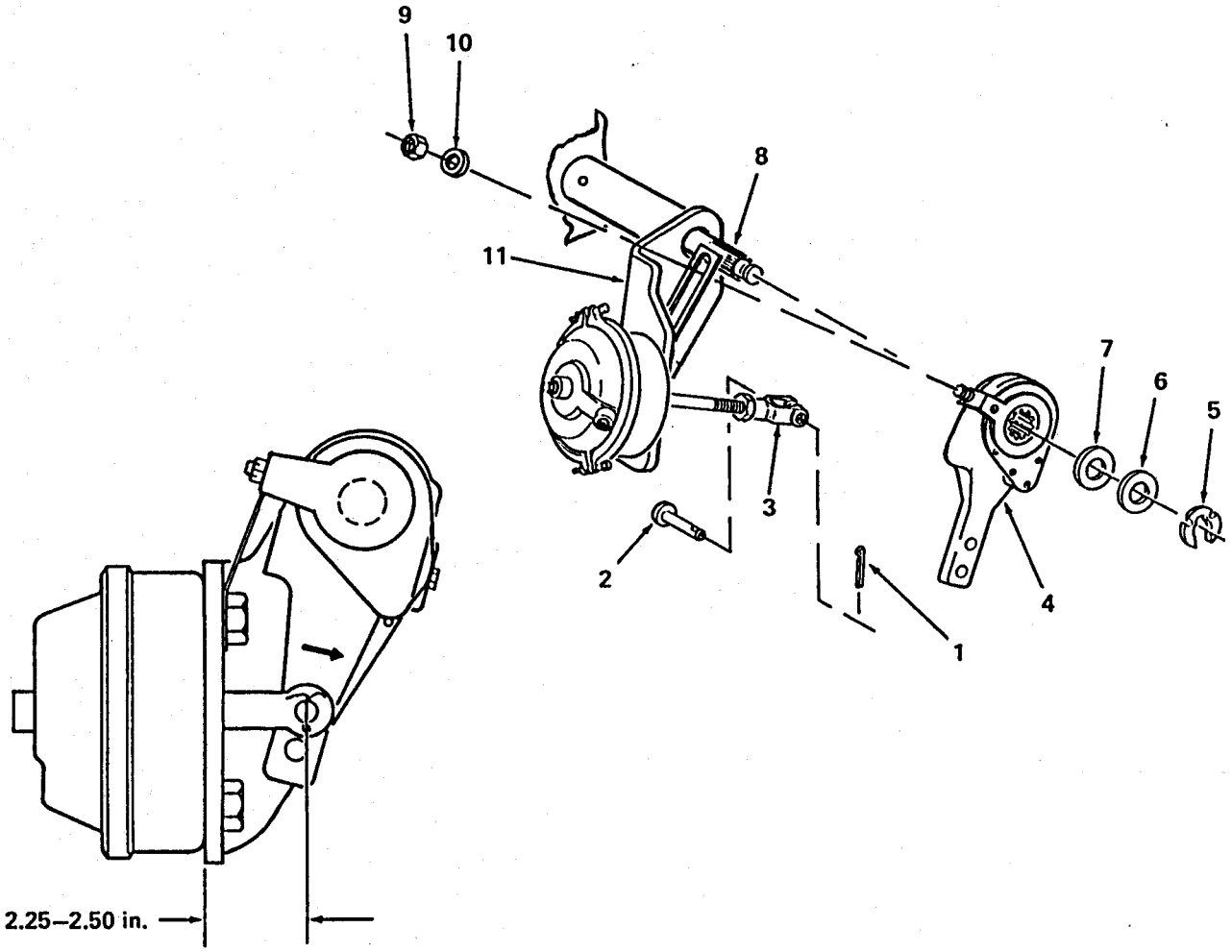
Materials/Parts

Cotter pin
Grease GAA (item 7, appendix E)

REMOVAL

a. Remove cotter pin (1) and clevis pin (2) from air chamber push rod clevis (3).

b. Using a 7/16-inch socket wrench, rotate slack adjuster hex (on underside of slack adjuster (4)) counterclockwise (a ratcheting sound will be heard) until slack adjuster arm is clear of push rod clevis (3).



c. Remove snap ring (5) and outer washers (6 and 7) from camshaft (8).

d. Remove nut (9) and washer (10).

CAUTION

Do not hammer on slack adjuster to remove. Damage to the slack adjuster may occur.

e. Using a suitable pulley, remove slack adjuster (4) from bracket (11).

4-18. SLACK ADJUSTER (CONT)

INSTALLATION

WARNING

The slack adjuster must be installed with the arrow stamped on the side pointing AWAY from the air chamber. If the slack adjuster is installed wrong, brake failure may occur, possibly causing serious injury to personnel.

The slack adjusters for the front and rear axles are not identical. When reinstalling or replacing, ensure that the correct slack adjuster is used. Installation of incorrect slack adjuster may cause brake failure and possible serious injury to personnel.

a. Lightly grease slack adjuster splines and slide slack adjuster (4) onto camshaft (8).

b. Visually check alinement of slack adjuster and brake chamber push rod. If required, install an additional washer between slack adjuster and drum to center the slack arm in the clevis.

c. Install two washers (7 and 6) and install snap ring (5).

d. Install washer (10) and nut (9).

e. Check camshaft end play. Add or delete washers to obtain end play of between 0.020 and 0.045 inch.

CAUTION

Ensure that the push rod is threaded as far as possible into the clevis. The face of the threaded push rod should be flush or protruding slightly from the inside of the clevis.

f. Verify that the dimension between the air chamber mounting face and the center of clevis pin is between 2.25 and 2.50 inches. If adjustment is necessary, loosen jam nut above clevis, adjust clevis to 2.50 inches, and tighten jam nut to 15-20 lb ft.

NOTE

Some slack adjusters are equipped with two clevis pin holes.

On the rear brakes, install the clevis in the slack adjuster hole furthest from the camshaft.

On the rear brakes, install the clevis in the slack adjuster hole closest to the camshaft.

g. Rotate adjustment hex on underside of slack adjuster (4) clockwise until holes in slack adjuster arm aline with push rod clevis (3).

h. Install clevis pin (2) and cotter pin (1).

i. Lubricate slack adjuster (4) with grease.

j. Uncage air chambers (para. 3-6).

k. Adjust brakes (see below).

BRAKE ADJUSTMENT

CAUTION

After any maintenance on hubs, slack adjusters, or drums, perform the brake adjustment procedure. Otherwise, brake rubbing or ineffective braking may occur.

NOTE

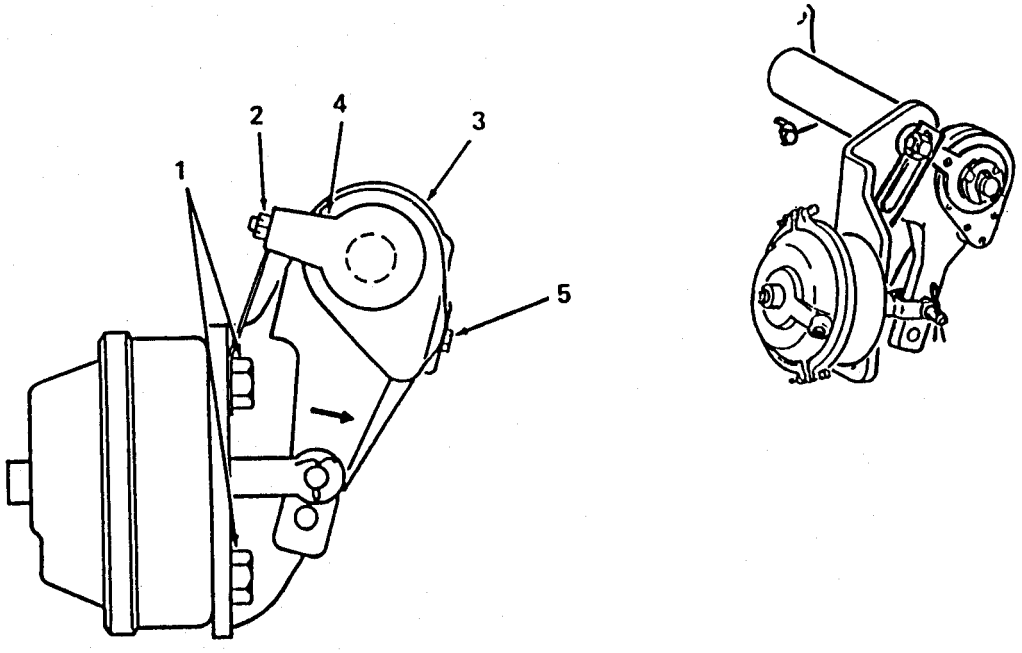
The HEMAT is equipped with automatic slack adjusters. They adjust constantly whenever braking is done, and compensate for lining and drum wear. The slack adjusters must be initially installed as above and adjusted as below in order for the automatic adjustment to function.

a. Cage the brake chambers (rear only) (para. 3-6).

NOTE

Brakes must be off (wheels rotate freely).

b. Ensure that brake chamber bolts (1) are tight. If not, torque to 90-110 lb ft.



4-18. SLACK ADJUSTER (CONT)

c. Loosen nut (2) on slack adjuster (3).

CAUTION

If the control arm is not rotated to the internal stop, tight brakes will occur.

d. Lightly tap control arm (4) to rotate it toward brake chamber (there is an arrow stamped on the control arm to show which direction to move it). The control arm should be rotated until stopped by the internal stop of slack adjuster.

e. Without moving control arm from stopped position, tighten nut (2) and torque to 15 lb ft.

f. Using a 7/16-inch ratchet wrench, rotate adjustment hex (5) on underside of slack adjuster clockwise until shoes are tight against drum and the hex will no longer turn.

g. Back off adjuster hex (5) one half of a turn by turning counterclockwise. The wrench will require approximately 15 lb ft to turn, and a ratcheting sound will occur.

h. Uncage brake chambers (rear only) (para. 3-6).

i. Apply brakes through at least 10 applications to complete self-adjustment.

END OF TASK

4-19. AIR CLEANER

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Equipment Condition

Air tanks drained

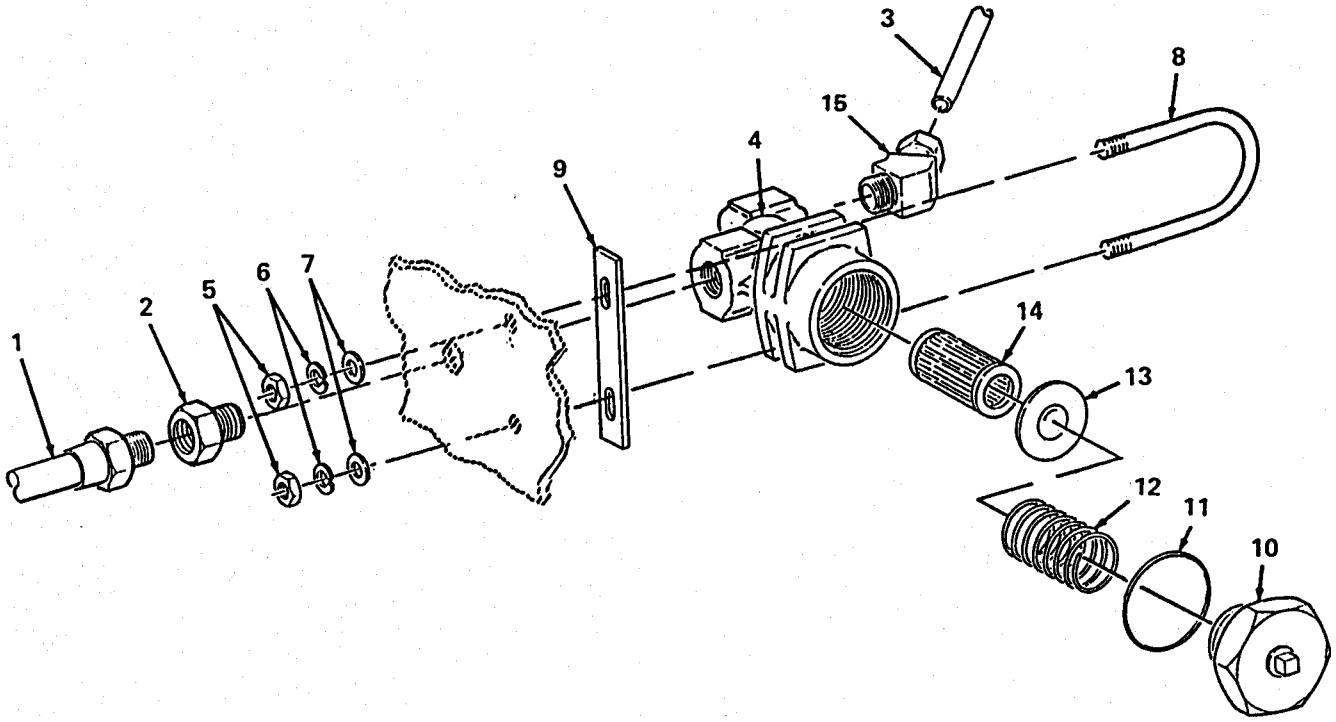
Materials/Parts

Anti-seize tape (item 16, appendix E)
Lockwasher

REMOVAL

NOTE

There are two air cleaners, the service air cleaner and the emergency air cleaner. They are installed facing in opposite directions. (See air system schematic, para. 2-2.)



a. Disconnect air hose (1) and adapter (2) from trailer.

b. Disconnect air hose (3) from air cleaner (4).

c. Remove two nuts (5), lockwashers (6) and washers (7) from U-bolt (8).

d. Remove U-bolt (8), spacer (9) and air cleaner (4).

WARNING

Be careful when removing air cleaner top nut because of high spring pressure behind nut.

e. Remove top nut (10), preformed packing (11), spring (12), filter holder (13) and filter (14).

f. Remove elbow (15).

INSTALLATION

NOTE

Apply anti-seize tape to male pipe threads before connecting.

a. Install elbow (15).

b. Install filter (14), filter holder (13), spring (12), preformed packing (11) and top nut (10) into air cleaner (4).

4-19. AIR CLEANER (CONT)

c. Position U-bolt (8), spacer (9) and air cleaner (4) onto frame and secure with two washers (7), lockwashers (6) and nuts (5).

d. Connect air hose (3).

e. Connect adapter (2) and air hose (1) to trailer.

END OF TASK

4-20. BRAKE AIR CHAMBER

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Materials/Parts

Anti-seize tape (item 16, appendix E)
Cotter pin
Lockwasher (2)

WARNING

Do not attempt to disassemble brake air chambers. The springs inside the chambers are under heavy tension and may cause severe injury if released during disassembly.

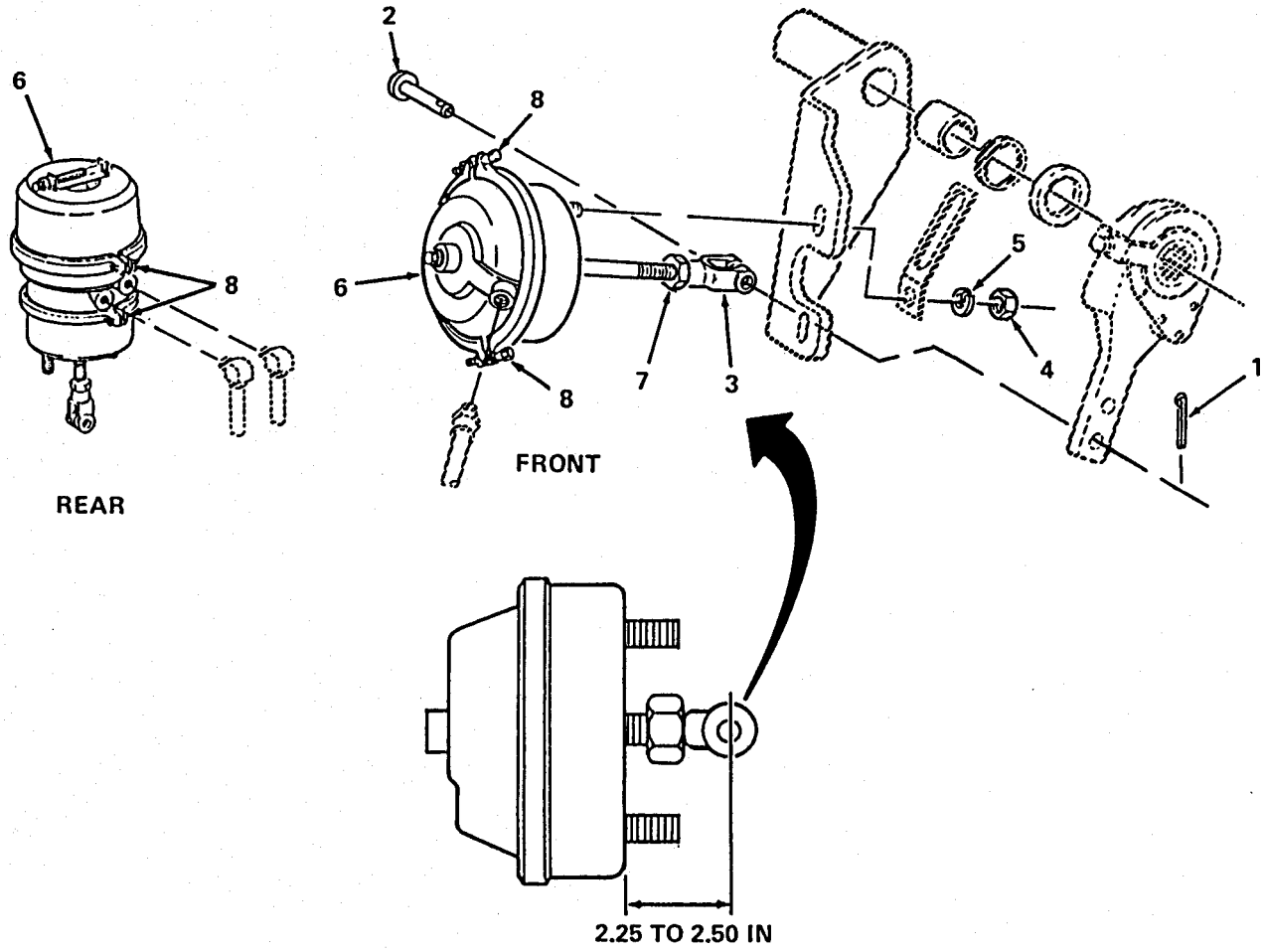
REMOVAL

a. Cage air chamber (rear brakes only) (para. 3-6).

b. Drain air tanks.

c. Tag and disconnect air hose from brake chamber (one hose on each front chamber, two on each back chamber).

d. Remove cotter pin (1) and clevis pin (2) from clevis (3).



e. Remove two hex nuts (4) and lockwashers (5). Remove brake air chamber (6).

f. Uncage air chamber (rear brakes only) (para. 3-6).

INSTALLATION

a. Cage new brake chamber (rear brakes only) (para. 3-6).

b. With brake air chamber spring caged, measure length of push rod from mounting surface of chamber. Length should be 2.25 to 2.50 inches.

c. If necessary, loosen jam nut (7) and turn clevis (3) on or off push rod to adjust length. Tighten jam nut (7) against push rod end to 15-25 lb ft.

d. Install air chamber (6) with two lockwashers (5) and hex nuts (4).

e. Aline clevis (3) with center hole in slack adjuster. Install clevis pin (2) and cotter pin (1).

4-20. BRAKE AIR CHAMBER (CONT)

f. Uncage brake air chamber spring (rear brakes only) (para. 3-6).

g. Apply anti-seize tape to male fittings and connect air hoses.

h. Adjust brakes (para. 4-18).

i. If brake air chamber leaks at clamp, disconnect air supply, torque bolts (8) to 40-50 lb ft and check for leaks.

END OF TASK

4-21. AIR LINES

This task covers: a. Removal b. Repair c. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Materials/Parts

Anti-seize tape (item 16, appendix E)
Lockwasher (2)
Loom, as required (appendix F)
Tiewrap, as required (item 14, appendix E)
Tag, as required (item 20, appendix E)

Equipment Condition

Hoses and tubes disconnected at air tanks (para. 4-22)
Hoses and tubes disconnected at air cleaners (para. 4-19)
Hoses and tubes disconnected at relay valves (para. 4-23)
Hoses and tubes disconnected at leveling valves (para. 4-40)
Hoses and tubes disconnected at brake control valve (para. 4-24)
Hoses and tubes disconnected at multifunction valve (para. 4-25)

REMOVAL

NOTE

To remove air lines from old trailers with serial numbers 2000 and below, perform step a. To remove air lines from new trailers with serial numbers 2001 and up, perform step b.

a. To remove air lines from old trailers with serial numbers 2000 and below, proceed as follows:

Tag all hoses and tubes before disconnecting.

(1) Disconnect trailer from towing vehicle.

(2) Disconnect remaining hoses and tubes.

(3) Remove five nuts (1) and clamps (2).

(4) Remove two nuts (3) and clamps (4).

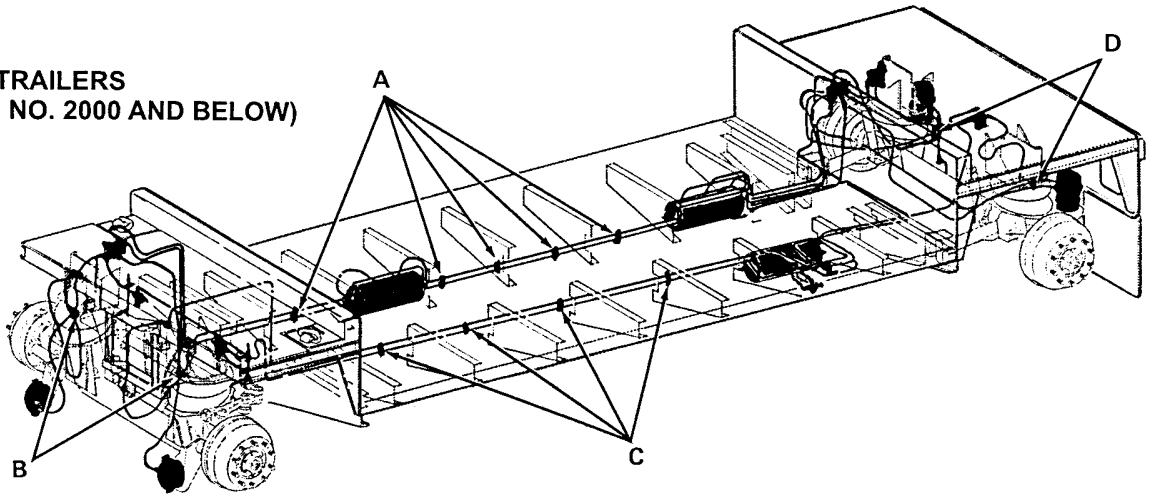
(5) Remove four nuts (5) and clamps (6).

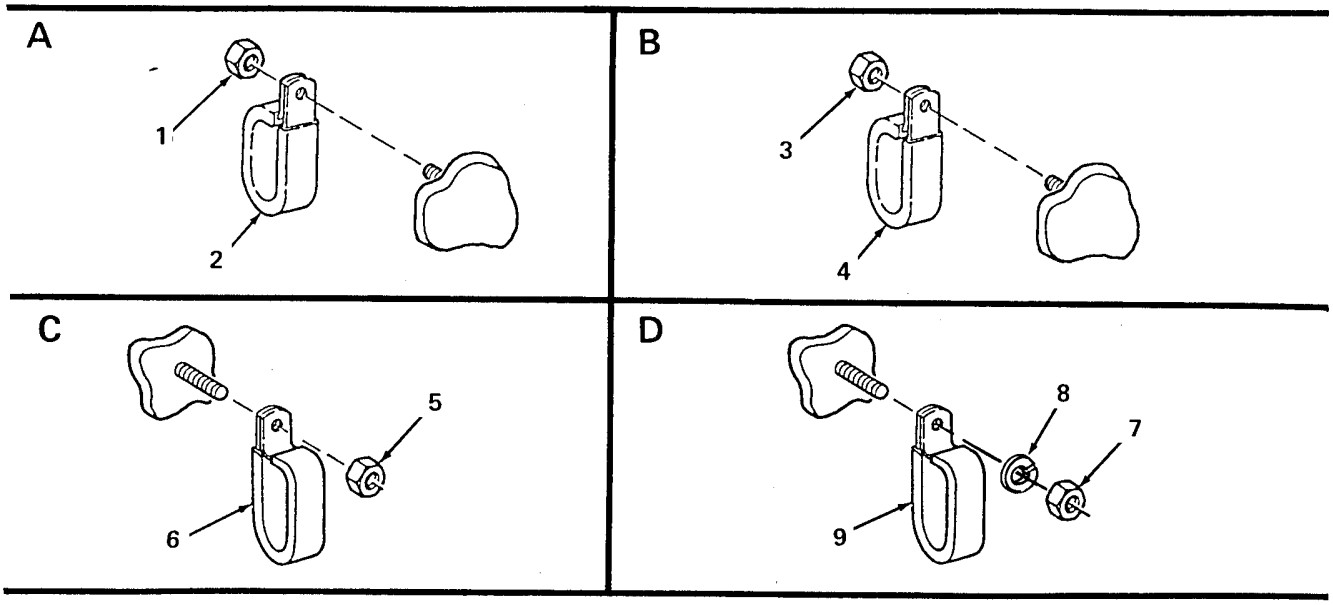
(6) Remove two nuts (7), lockwashers (8), and clamps (9).

(7) Remove tiewraps and looms.

(8) Remove hoses and tubes.

OLD TRAILERS
(SER. NO. 2000 AND BELOW)





4-21. AIR LINES (CONT)

b. To remove air lines from new trailers with serial numbers 2001 and up, proceed as follows:

NOTE

Tag all hoses and tubes before disconnecting.

(1) Disconnect trailer from towing vehicle.

(2) Disconnect remaining hoses and tubes.

(3) Remove five nuts (1) and clamps (2).

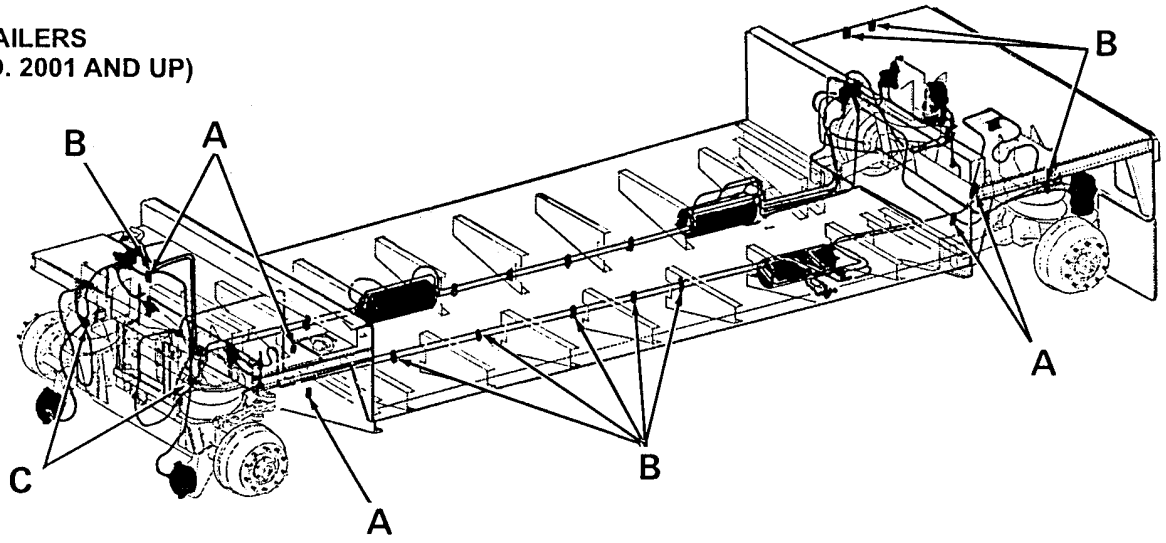
(4) Remove nine nuts (3) and clamps (4).

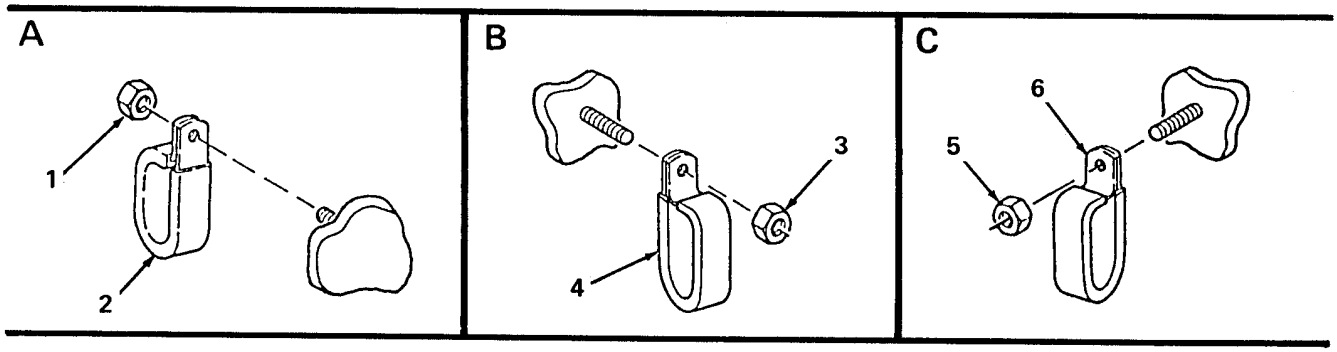
(5) Remove two nuts (5) and clamps (6).

(6) Remove tiewraps and looms.

(7) Remove hoses and tubes.

NEW TRAILERS
(SER. NO. 2001 AND UP)





REPAIR

a. If defective, replace preformed packing in gladhands.

b. Replace other defective parts as required.

c. Refer to appendix G (figure G-1) for nonmetallic tube sizes and materials.

d. Refer to TM 9-4940-468-14 (para. 2-10 and 2-11) for fabricating hoses and tubes.

INSTALLATION

NOTE

To install air lines on new trailers with serial numbers 2001 and up, perform step a. To install air lines on old trailers with serial numbers 2000 and below, perform step b.

a. To install air lines on new trailers with serial numbers 2001 and up, proceed as follows:

NOTE

Apply anti-seize tape to all pipe threads.

(1) Install hoses and tubes. Refer to appropriate installation procedures.

(2) Install looms and tiewraps, as required.

(3) Install two nuts (5) and clamps (6).

(4) Install nine nuts (3) and clamps (4).

(5) Install five nuts (1) and clamps (2).

(6) Connect hoses and tubes

(7) Connect trailer to towing vehicle, allow 2 minutes for air system to fully charge, and check for leaks.

b. To install air lines on old trailers with serial numbers 2000 and below, proceed as follows:

NOTE

Apply anti-seize tape to all pipe threads.

(1) Install hoses and tubes. Refer to appropriate installation procedures.

(2) Install looms and tiewraps, as required.

(3) Install two clamps (9), lockwashers (8), and nuts (7).

4-21. AIR LINES (CONT)

(4) Install four clamps (6) and nuts (5).

(5) Install two clamps (4) and nuts (3).

(6) Install five clamps (2) and nuts (1).

(7) Connect trailer to towing vehicle, allow 2 minutes for air system to fully charge, and check for leaks.

END OF TASK

4-22. AIR TANKS

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Materials/Parts

Anti-seize tape (item 16, appendix E)
Lockwasher (12)
Tags

REMOVAL

Front Tank.

NOTE

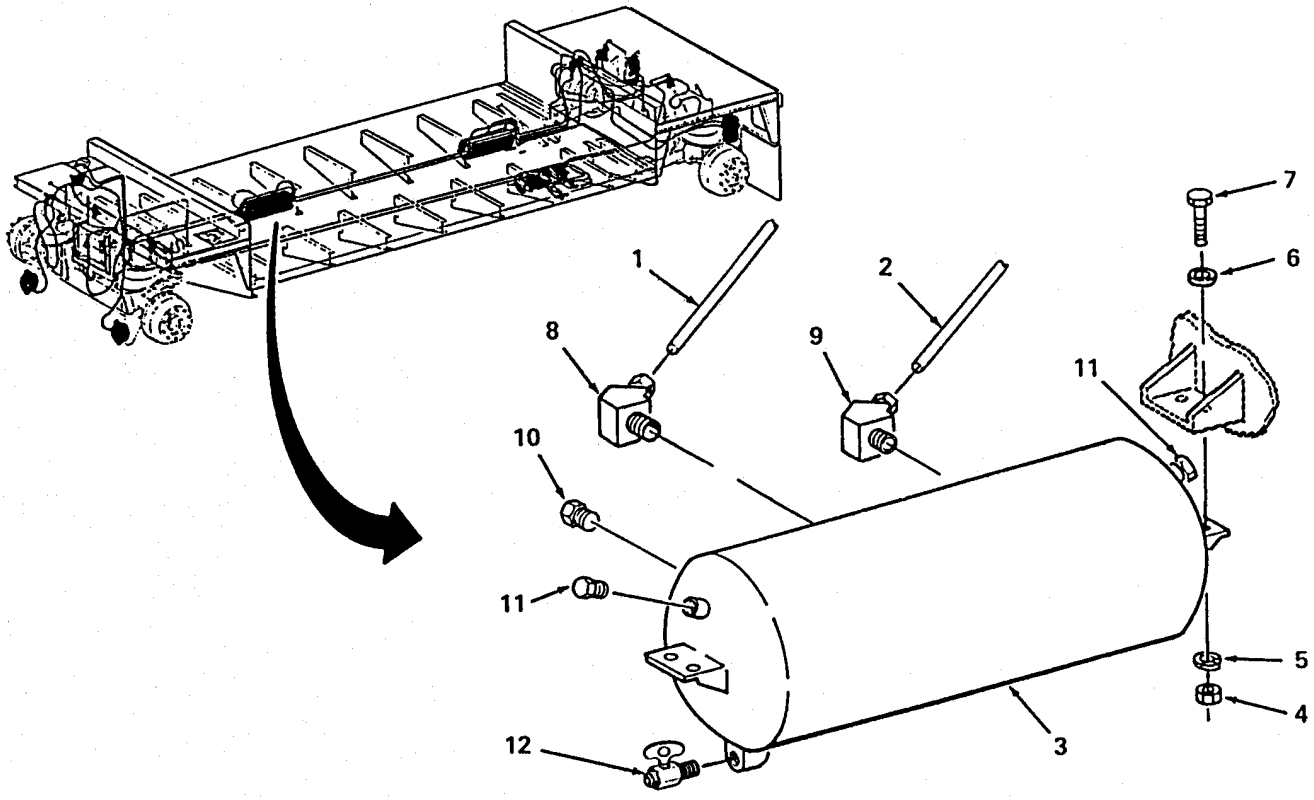
Tag all tubes for identification prior to disconnecting.

a. Disconnect tube (1) and tube (2).

b. Support air tank (3); remove four nuts (4), lockwashers (5), washers (6) and screws (7); remove air tank (3).

c. Remove elbow (8), elbow (9) and plug (10).

d. Remove two plugs (11) and petcock (12).



4-22. AIR TANKS (CONT)

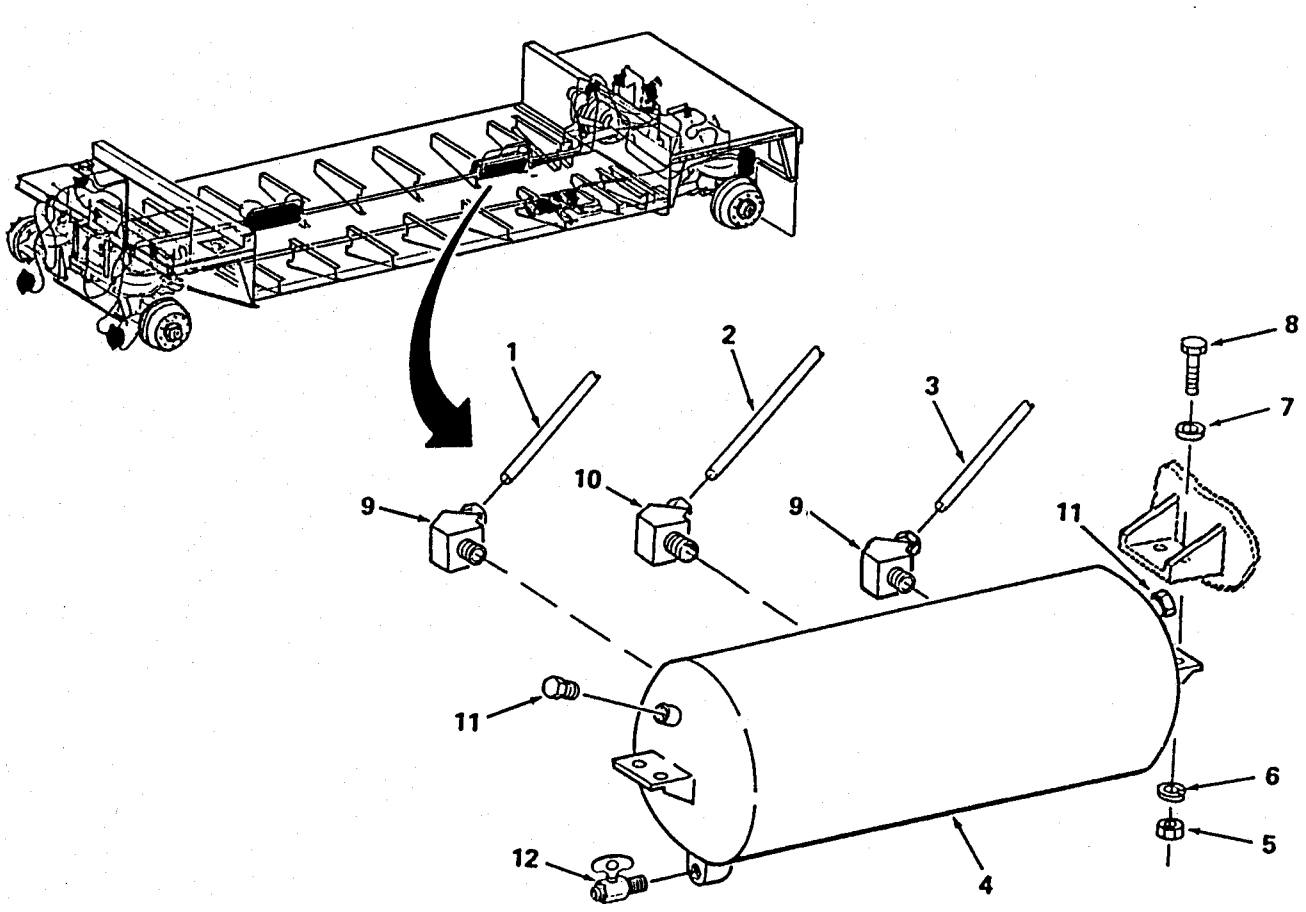
Right Rear Tank.

a. Disconnect three tubes (1), (2), and (3).

b. Support air tank (4); remove four nuts (5), lockwashers (6), washers (7) and screws (8); remove air tank (4).

c. Remove two elbows (9) and elbow (10).

d. Remove two plugs (11) and petcock (12).



Left Rear Tank.

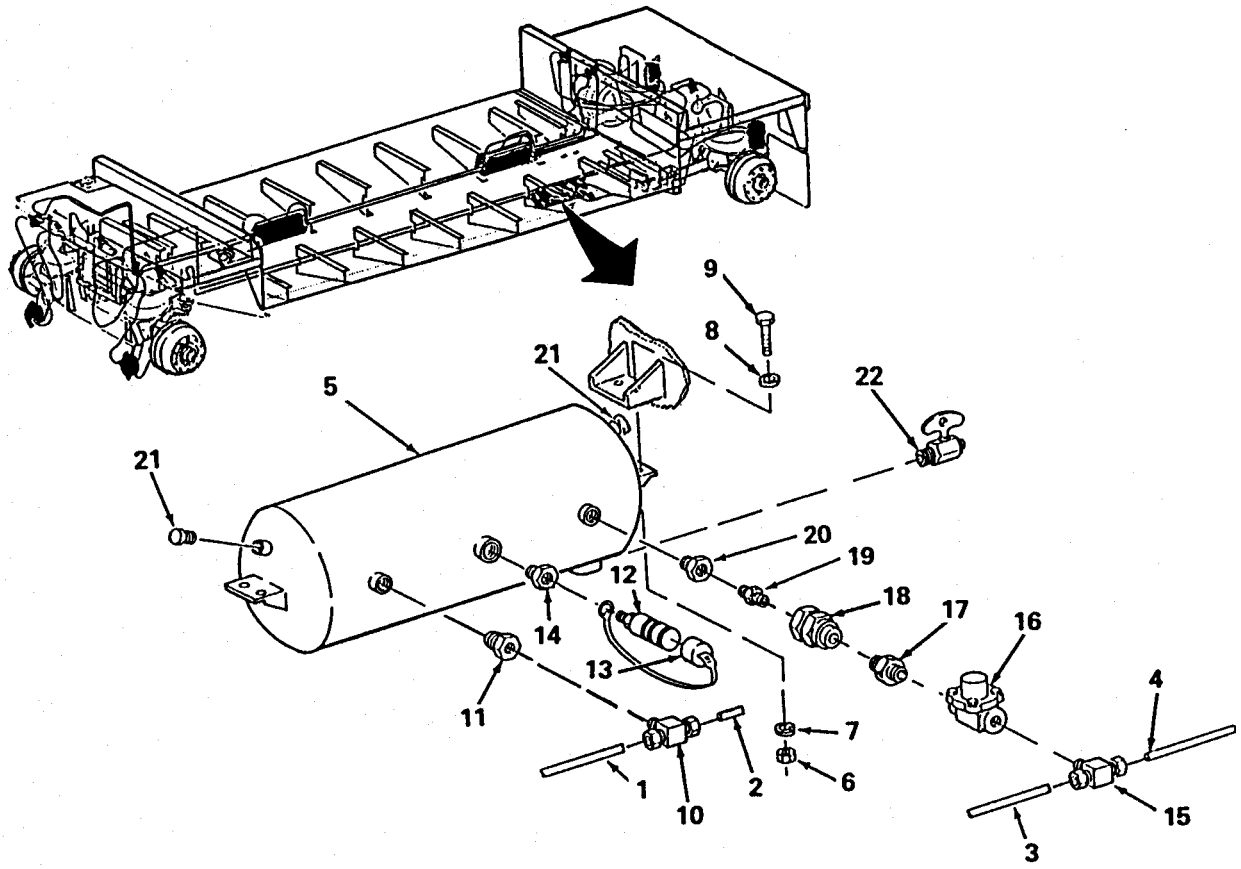
a. Disconnect four tubes (1, 2, 3, and 4).

b. Support air tank (5); remove four nuts (6), lockwashers (7), washers (8) and screws (9); remove air tank (5).

c. Remove tee (10) and reducer bushing (11).

d. Remove quick-disconnect fitting (12), dust cap (13) and reducer bushing (14).

e. Remove tee (15), pressure protection valve (16), nipple (17), check valve (18), nipple (19) and reducer bushing (20).



f. Remove two plugs (21) and petcock (22).

INSTALLATION

NOTE

Apply anti-seize tape to all male threads before connecting.

Left Rear Tank.

a. Install petcock (22) and two plugs (21) into air tank (5).

b. Install reducer bushing (20), nipple (19), check valve (18), nipple (17), pressure protection valve (16) and tee (15).

c. Install reducer bushing (14), dust cap (13) and quick-disconnect fitting (12).

d. Install reducer bushing (11) and tee (10).

e. Install air tank (5) and secure with four screws (9), washers (8), lockwashers (7) and nuts (6).

f. Connect four tubes (4, 3, 2 and 1).

4-22. AIR TANKS (CONT)

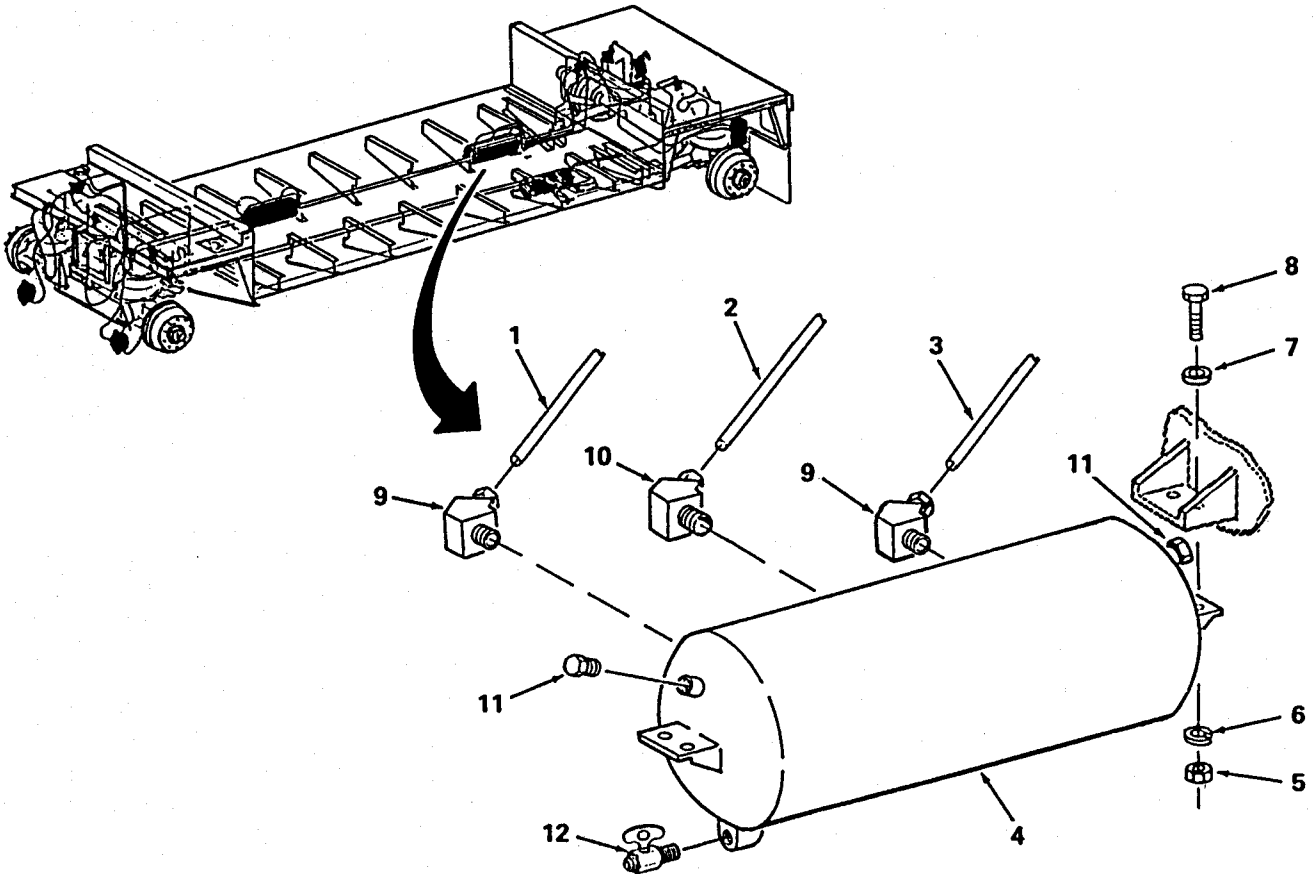
Right Rear Tank.

a. Install petcock (12) and two plugs (11).

b. Install elbow (10) and two elbows (9).

c. Install air tank (4) and secure with four screws (8), washers (7), lockwashers (6) and nuts (5).

d. Connect three tubes (3, 2 and 1).



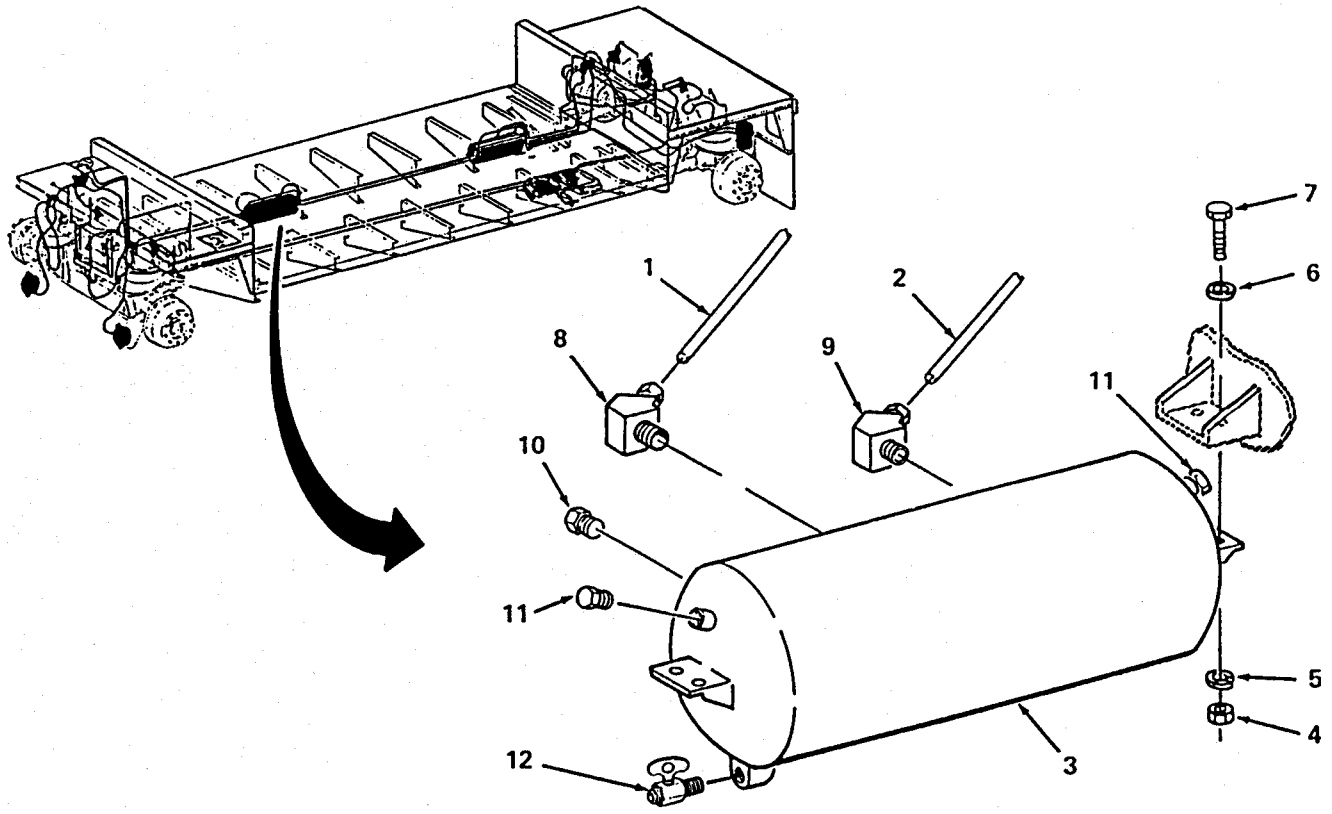
Front Tank.

a. Install petcock (12) and two plugs (11).

b. Install plug (10), elbow (9) and elbow (8).

c. Install air tank (3) and secure with four screws (7), washers (6), lockwashers (5) and nuts (4).

d. Connect tube (2) and tube (1).



END OF TASK

4-23. RELAY VALVES

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Equipment Condition

Air tanks drained

Materials/Parts

Anti-seize tape (item 16, appendix E)
Lockwasher (4)

REMOVAL

NOTE

There are two relay valves, one at the right front of the HEMAT, and one at the right rear.

Tag hoses and tubes for identification before disconnecting.

a. At right front relay valve (1), tag and disconnect three tubes (2, 3 and 4) and two hoses (5 and 6) from relay valve (1).

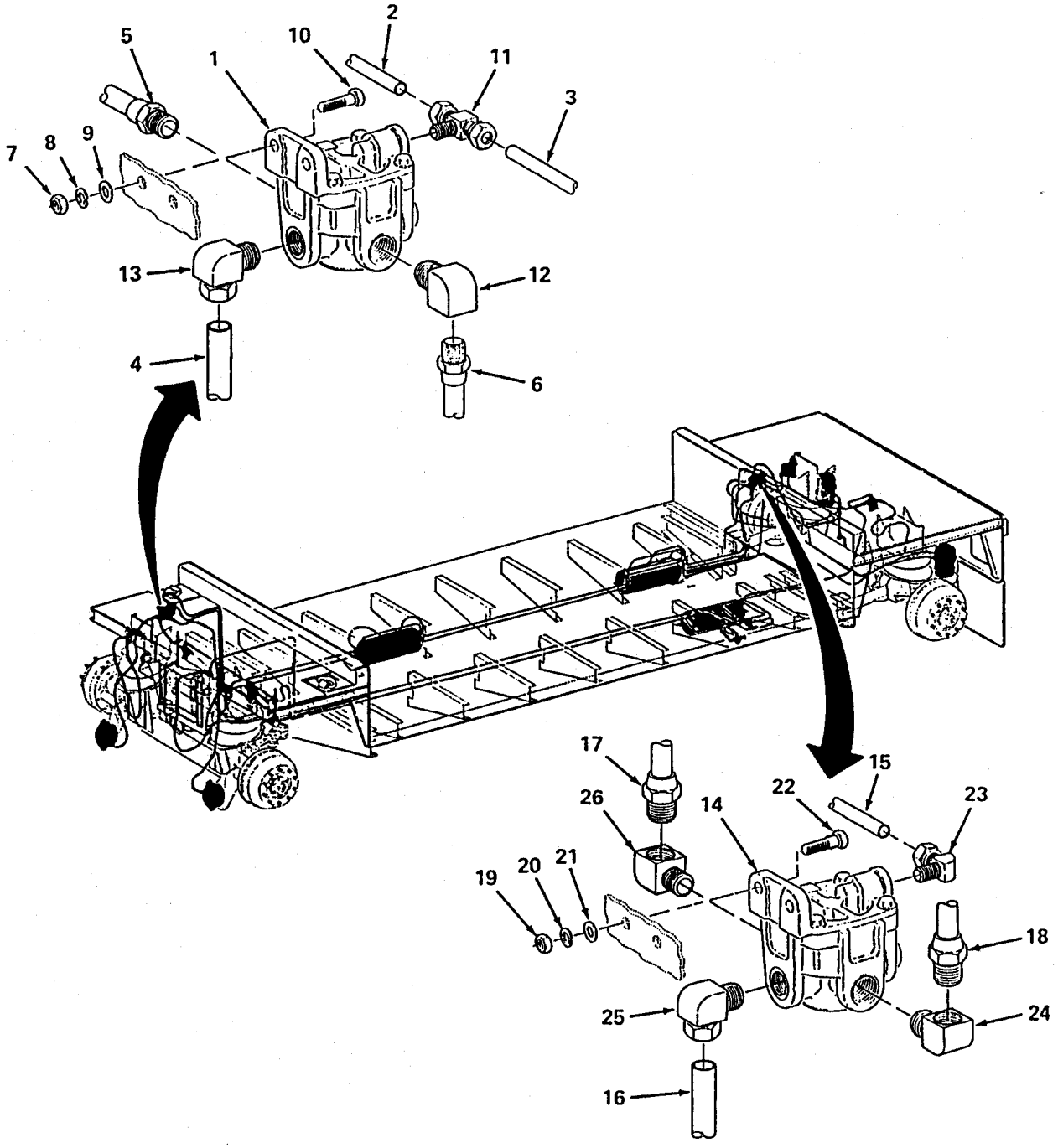
b. Remove two nuts (7), lockwashers (8), washers (9), screws (10) and relay valve (1).

c. Remove tee (11) and two elbows (12 and 13).

d. At right rear relay valve (14), tag and disconnect two tubes (15 and 16) and two hoses (17 and 18).

e. Remove two nuts (19), lockwashers (20), washers (21), screws (22) and relay valve (14).

f. Remove four elbows (23, 24, 25 and 26).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4-23. RELAY VALVES (CONT)

INSTALLATION

NOTE

Use anti-seize tape on all pipe fittings.

a. Install four elbows (26, 25, 24 and 23) on right rear relay valve (14).

b. Install relay valve (14) with two screws (22), washers (21), lockwashers (20) and nuts (19).

c. Connect two hoses (18 and 17) and two tubes (16 and 15).

d. Install two elbows (13 and 12) and tee (11) on right front relay valve (1).

e. Install relay valve (1) with two screws (10), washers (9), lockwashers (8) and nuts (7).

f. Connect two hoses (6 and 5) and three tubes (4, 3 and 2).

END OF TASK

4-24. BRAKE CONTROL VALVE

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools	Equipment Condition
General mechanics tool kit	Air tanks drained

Materials/Parts

Anti-seize tape (item 16, appendix E)

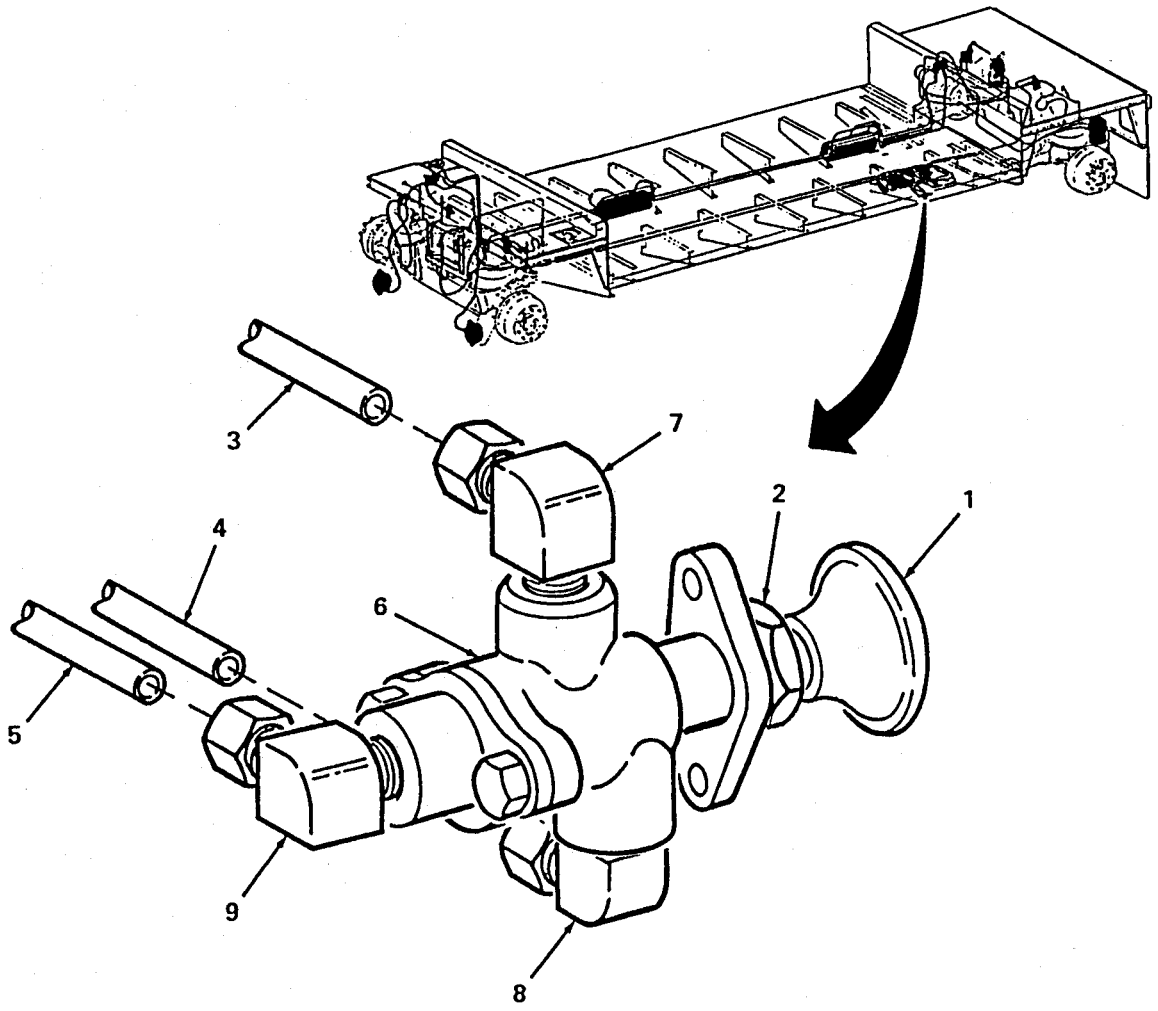
REMOVAL

a. Remove knob (1) and nut (2).

b. Tag and disconnect three tubes (3, 4 and 5).

c. Remove brake control valve (6).

d. Remove three elbows (7, 8 and 9).



INSTALLATION

NOTE

Apply anti-seize tape to all pipe threads before connecting.

a. Install three elbows (9, 8 and 7).

b. Place brake control valve (6) into hole in frame, and install nut (2) and knob (1).

c. Connect three tubes (5, 4 and 3).

END OF TASK

4-25. MULTIFUNCTION VALVE

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Equipment Condition

Air tanks drained

Materials/Parts

Anti-seize tape (item 16, appendix E)
Lockwasher (2)

REMOVAL

a. Tag and disconnect four tubes (1 thru 4) and three hoses (5, 6 and 7) from multifunction valve (8).

b. Remove two nuts (9), lockwashers (10), washers (11) and screws (12).

c. Remove multifunction valve (8).

d. Remove four elbows (13 thru 16), tee (17) and two bushings (18).

INSTALLATION

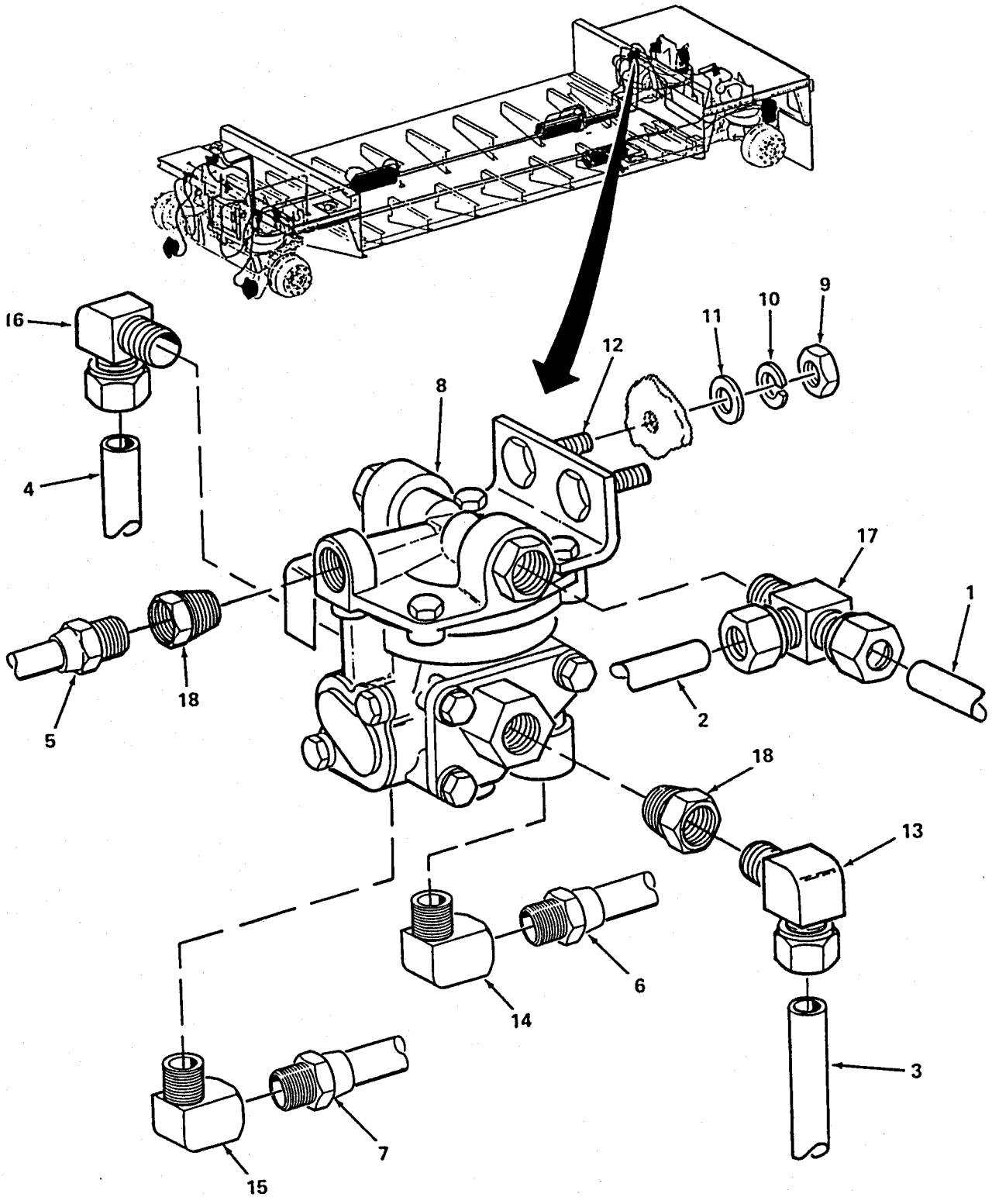
NOTE

Use anti-seize tape on all pipe fittings.

a. Install two bushings (18), tee (17) and four elbows (16 thru 13) on multifunction valve (8).

b. Install multifunction valve (8) and secure with two screws (12), washers (11), lockwashers (10) and nuts (9).

c. Connect three hoses (7, 6 and 5) and four tubes (4 thru 1).



END OF TASK

Section VIII. MAINTENANCE OF WHEELS AND TIRES

4-26. HUBS AND DRUMS

This task covers: a. Removal c. Inspection e. Installation
b. Cleaning d. Repair f. Wheel Bearing Adjustment

INITIAL SETUP

Tools

General mechanics tool kit
Jack (item C-2, appendix C)
Jack stand (item C-3, appendix C)
Socket set
Torque wrench, 3/4-inch drive, 0-600 lb ft
Wheel and hub puller
Socket wrench

Materials/Parts

Dry cleaning solvent (item 6, appendix E)
Wiping rag (item 12, appendix E)
Grease GAA (item 7, appendix E)
Hubcap gasket (appendix F)
Hub oil seal (appendix F)
Lubricating oil, 80/90W (item 8, appendix E)
Sealing compound (item 13, appendix E)

Personnel Required: 2

Equipment Condition

Trailer connected to towing vehicle and air system charged
Spring brake chamber caged (rear drum only)

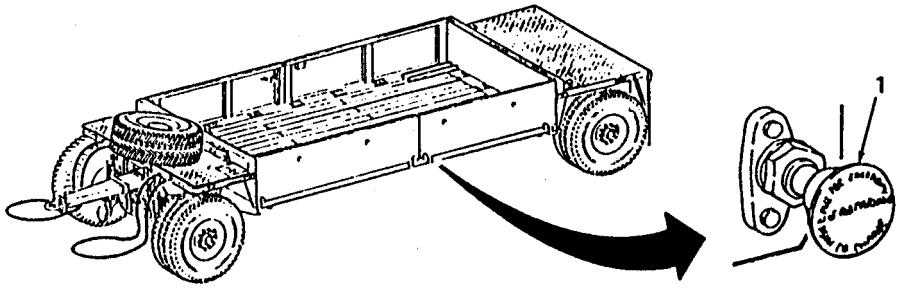
REMOVAL

a. Verify parking brakes are set on towing vehicle.

b. Chock opposite wheel front and rear of the wheel being removed.

c. Loosen but do not remove lug nuts.

d. Release brakes by pushing in on brake control valve (1).



WARNING

To avoid personal injury, never work under a vehicle supported only by a jack. Always use cap on jack when raising axles.

e. Raise axle and support on suitable stand.

f. Remove wheel and tire (para. 3-5).

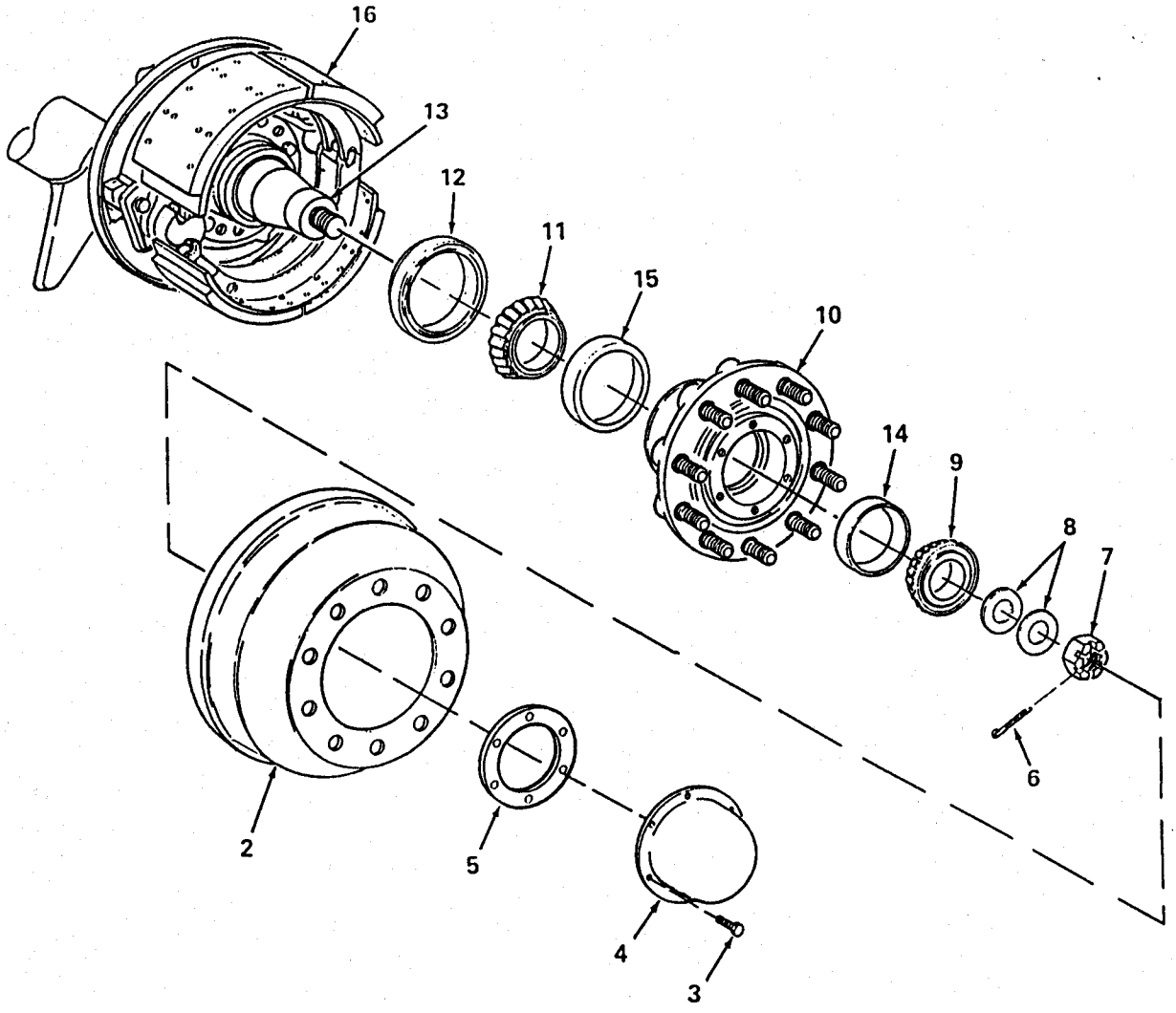
WARNING

Use two persons when removing brake drum to avoid injury.

g. Using a hammer, tap lightly around drum (2) until it loosens enough to be pulled by hand. While pulling outboard, rock drum (2) from side to side until free from brake shoes and can be lifted off hub.

h. Remove drum (2).

i. Remove six screws (3), hubcap (4) and hubcap gasket (5).



4-26. HUBS AND DRUMS (CONT)

j. Remove cotter pin (6), hex nut (7) and two washers (8).

k. Remove outer wheel bearing (9).

l. Remove hub (10), inner bearing (11) and seal (12) from spindle (13).

CAUTION

Do not remove bearing cups unless necessary for replacement.

m. Remove bearing cups (14 and 15) from hub (10).

CLEANING

WARNING

Dry cleaning solvent (MIL-PRF-680, type I) is extremely flammable, toxic, and is an irritant to the eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Do not breathe the vapors. Use skin and eye protection and work in a well ventilated area. Flash point of dry cleaning solvent is 140°F.

a. Clean all parts thoroughly using a brush and dry cleaning solvent. Allow to air dry.

b. Clean spindle (13) and brake shoes (16) on axle with wiping cloth.

c. Clean hub cavity.

INSPECTION

a. Inspect bearings (9 and 11) for wear, scoring, flat spots and overheating (discoloration).

b. Inspect brake drum (2) for deep scoring, excessive wear (ridge) and other irregularities. Report defects to support maintenance.

c. Inspect hubcap (4) and hub (10) for cracks and other damage.

d. Inspect spindle (13) for damaged threads, evidence of seizure rough surfaces. Report defects to support maintenance.

REPAIR

Replace gasket (5), seal (12), and all defective parts. Have support maintenance turn drum (2) if required.

INSTALLATION

a. Clean hub cavity, spindle (13) and brake shoes (16).

b. Hand pack inner and outer bearings (11 and 9) with grease.

c. Install inner and outer bearing cups (14 and 15) into hub (10), if removed.

d. Install inner bearing cone (11) and seal (12) into hub (10). Seal should have word "airside" facing out of hub (10).

e. Install hub (10) onto spindle (13).

f. Install outer bearing (9), two washers (8) and nut (7).

WHEEL BEARING ADJUSTMENT

a. Tighten nut (7) to 50 lb ft while turning hub (10) in both directions. Back off nut (7) 1/8 to 1/4 turn and check to see that there is no binding. Install cotter pin (6).

b. Apply sealing compound to both sides of gasket (5), and install gasket (5), hubcap (4) and six screws (3).

c. Install drum (2).

d. Install wheels and tires (para. 3-5).

e. Lower trailer and remove chocks.

END OF TASK

4-26.1. WHEELS AND TIRES

This task covers: a. Dismounting c. Inspection e. Mounting
b. Cleaning d. Repair

INITIAL SETUP

Tools

Tire iron (2 each)
(item 43, appendix B)
Tire iron T46B
(item 44, appendix B)
Locking jaw pliers
Bead breaking chisel
3 lb cross peen hammer
(item 45, appendix B)
Tire mounting pedestal
(figure G-4)

Materials/Parts

Tire and rim lubricant
(item 7.1, appendix E)
Wiping rag (item 12, appendix E)
Stiff bristle brush
(item 1.1, appendix E)

Personnel Required: 3

DISMOUNTING

WARNING

Do not attempt to dismount tire until tire has been completely deflated. When released suddenly, air under pressure can cause serious injury.

NOTE

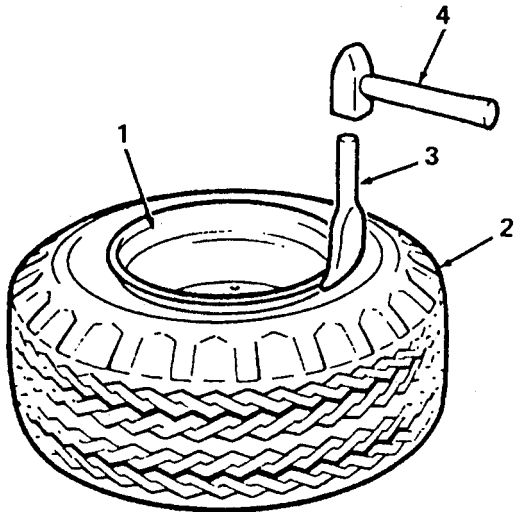
Tire dismounting is a three-person operation.

a. Deflate tire completely by removing valve core with core remover.

b. Place wheel (1) and tire (2) on flat surface. One person hold bead breaking chisel (3) on bead next to rim of wheel and another person hammer chisel until bead breaks away from rim.

c. Continue to move chisel (3) around circumference of rim until bead is completely free.

d. Turn wheel (1) and tire (2) over and repeat steps b and c to free second bead from wheel (1).



4-26.1. WHEELS AND TIRES (CONT)

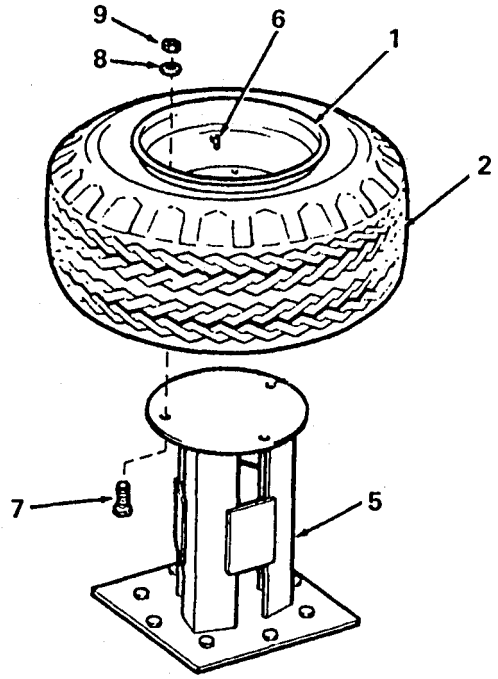
e. Place wheel (1) and tire (2) on pedestal (5) with valve stem (6) upward. Position wheel (1) and tire (2) so three holes in top of pedestal (5) are alined with wheel mounting holes.

NOTE

Mounting hardware is supplied with pedestal.

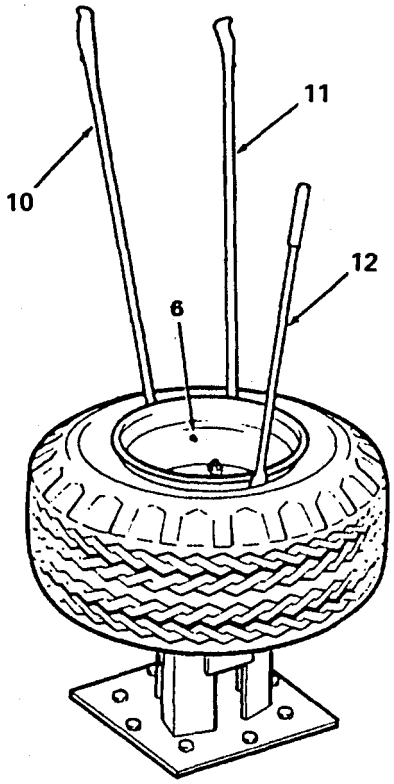
f. Install three hex bolts (7), flat washers (8), and hex nuts (9) to secure wheel (1) and tire (2) to pedestal (5).

g. Apply tire and rim lubricant to bead all around circumference.



h. Insert straight ends of long tire irons (10 and 11) between bead and rim approximately 6 inches on each side of valve stem (6).

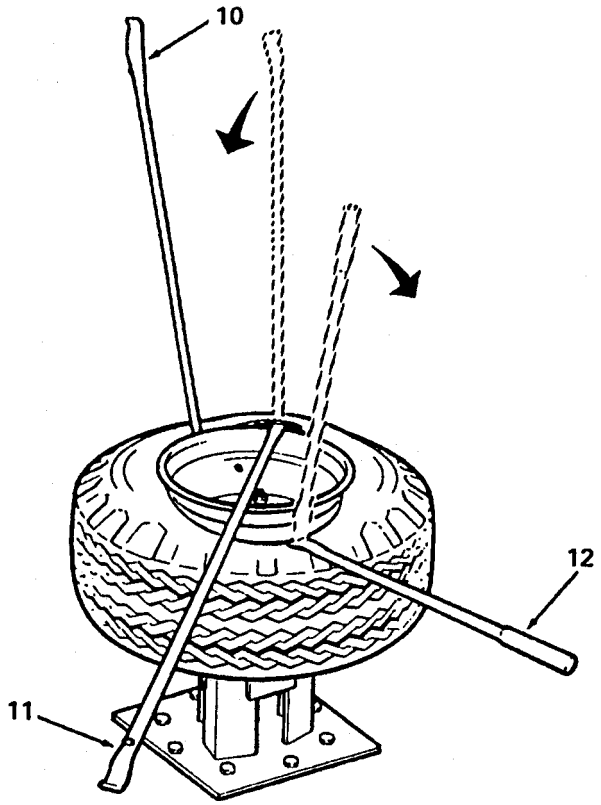
i. Hold long tire irons (10 and 11) in position and insert short tire iron (12) between bead and rim on side directly opposite valve stem (6).



4-26.1. WHEELS AND TIRES (CONT)

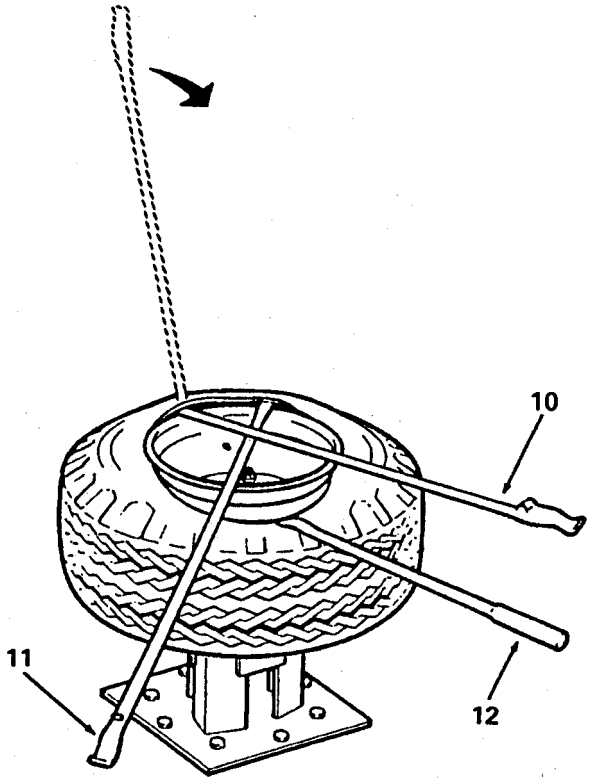
j. Lever short tire iron (12) down and hold in position to separate bead from rim and guide tire bead into groove in wheel during tire removal.

k. With one person holding short tire iron (12) down and another person holding long tire iron (10) up, lever other long tire iron (11) down across wheel and tire to raise bead over rim.



l. With one person holding tire irons (11 and 12) down, use two persons to lever long tire iron (10) down across wheel and tire to raise more of bead over rim and hold in place.

m. Remove short tire iron (12).

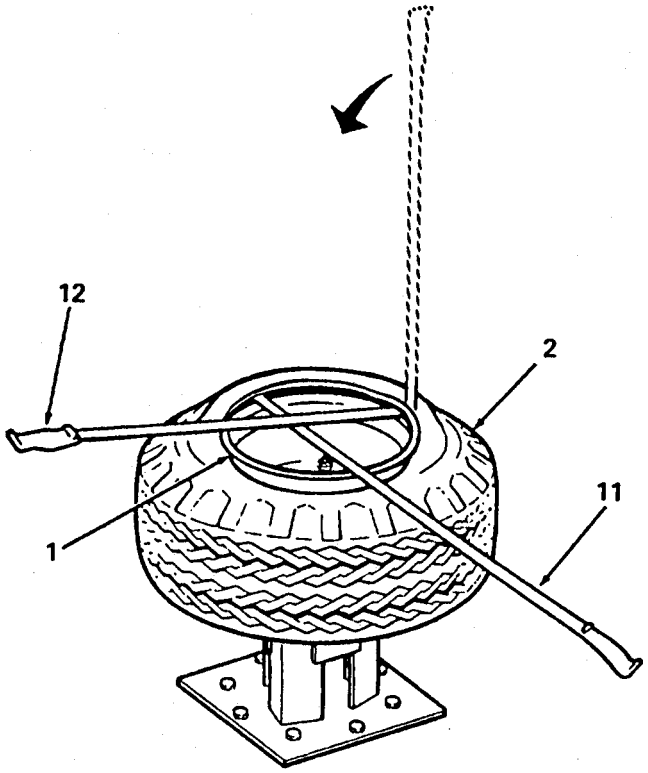


4-26.1. WHEELS AND TIRES (CONT)

n. Hold tire iron (10) down and remove tire iron (11).

o. Insert tire iron (11) between bead and rim at another position on rim to take another small bite of bead. Continue to hold tire iron (10) down and lever tire iron (11) down across wheel (1) and tire (2) to raise more of bead over rim.

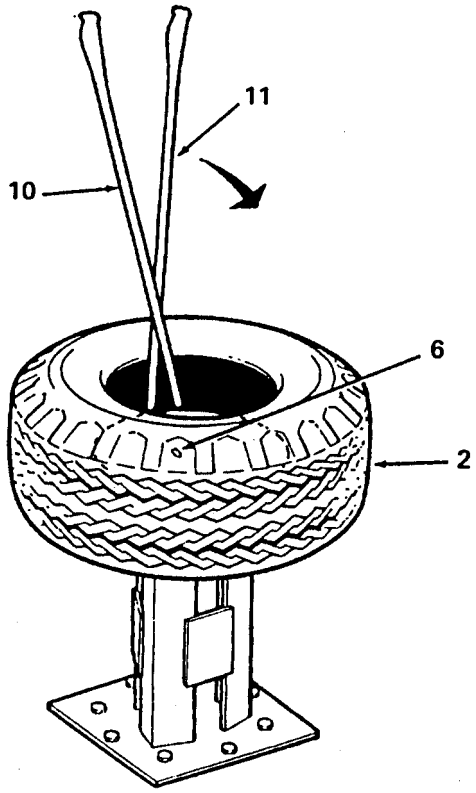
p. Remove either tire iron (10 or 11) and repeat steps n and o until bead is completely free of rim. Remove both tire irons.



q. Apply tire and rim lubricant to lower tire bead.

r. Insert straight end of long tire irons (10 and 11) between lower bead and rim approximately 1 inch on each side of stem (6).

s. Scissors cross tire irons (10 and 11) and lever down across tire (2).



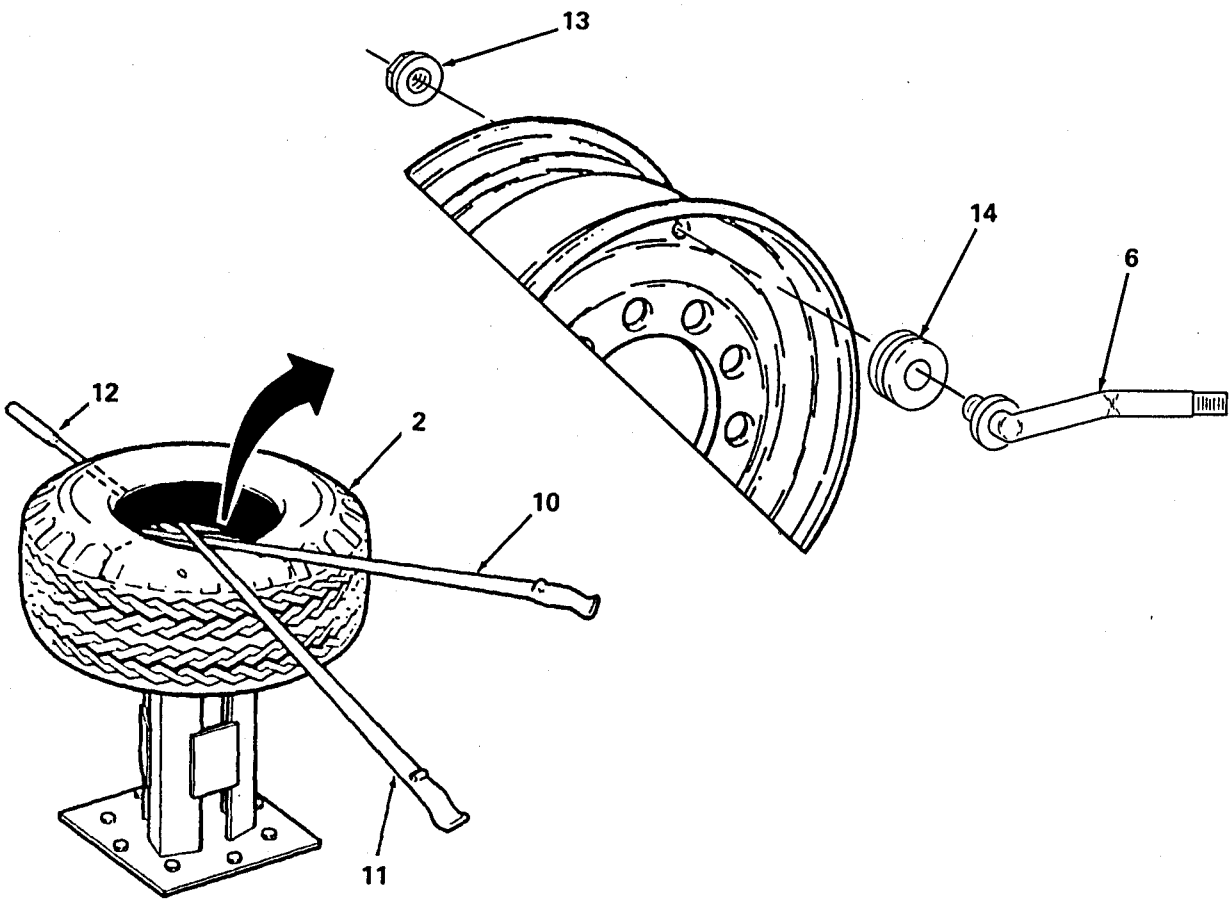
4-26.1. WHEELS AND TIRES (CONT)

t. Bear down on long tire irons (10 and 11) to raise lower bead above rim. Insert short tire iron (12) from underneath between long tire irons.

u. Lever short tire iron (12) up and bear down on long tire irons (10 and 11) to separate lower bead from rim.

v. Remove tire irons (10, 11, and 12) and tire (2).

w. Remove flange nut (13) and valve stem (6). If necessary, remove grommet (14).



CLEANING

a. Remove all buildup of dirt, grease, and foreign material from wheel using a stiff bristle brush.

b. Remove all foreign material from inside of tire. Clean bead area with a stiff bristle brush.

INSPECTION

a. Inspect wheels for cracks, dents, deformed lug bolt holes, rust, corrosion, marred paint, and distortion.

CAUTION

If mounting face of wheel is not flat or ball seats are damaged, do not put wheel in service.

b. Inspect tires in accordance with TM 9-2610-200-14.

REPAIR

a. Repair tires in accordance with TM 9-2610-200-14.

b. Replace defective rims.

4-26.1. WHEELS AND TIRES (CONT)

MOUNTING

CAUTION

If mounting face of wheel is not flat or ball seats are damaged, do not put wheel in service.

NOTE

Tire mounting is a three-person operation.

a. If removed, install grommet (14) on rim. Install valve stem (6) through valve hole, and seat valve stem base against rim. Install flange nut (13) on stem.

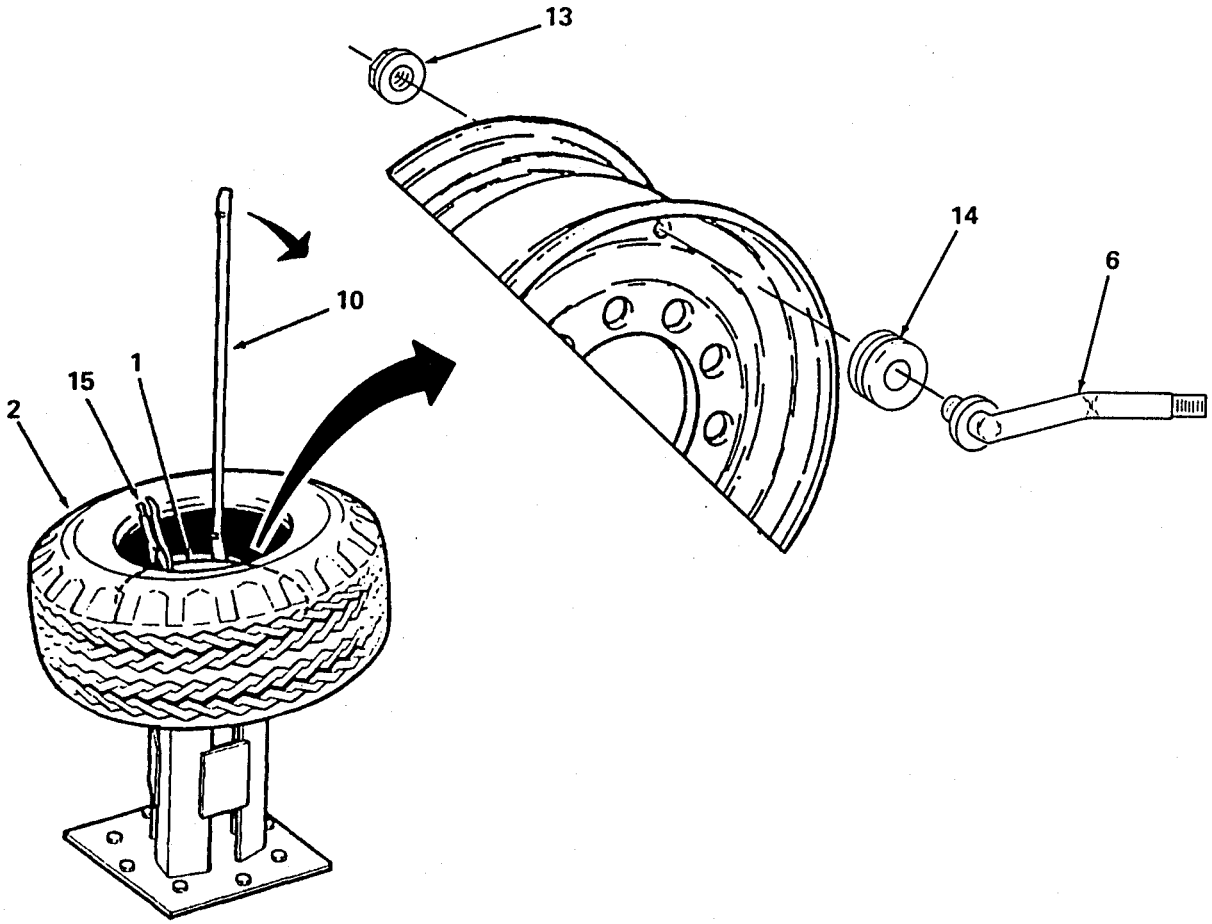
b. Lubricate tire bead liberally with tire and rim lubricant.

c. Position tire (2) on wheel (1) at an angle so part of lower bead is below wheel rim on side opposite valve stem.

d. Clamp locking jaw pliers (15) on rim directly opposite valve stem. Pliers (15) will keep lower bead from coming over rim when mounting.

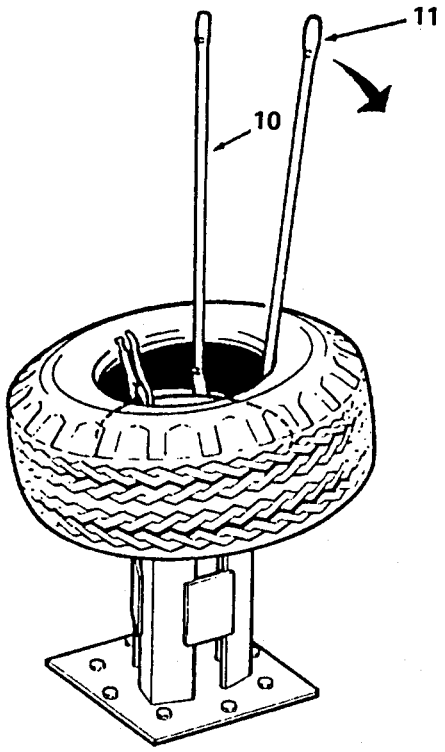
e. Insert curved end of long tire iron (10) between lower bead and rim approximately 8 to 10 inches from position of locking jaw pliers (15).

f. Push down on tire (2) where pliers (15) are located and lever tire iron (10) to force lower bead down over rim. Make sure that lower bead at location of pliers (15) goes into groove in wheel rim.


13
14
6
10
15
1
2

4-26.1. WHEELS AND TIRES (CONT)

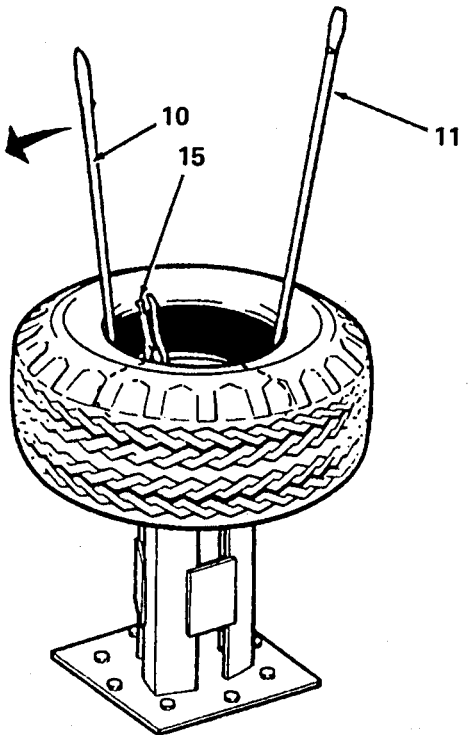
g. Hold long tire iron (10) down in first position. Insert curved end of second long tire iron (11) between bead and rim several inches from first tire iron (10) and lever another bite of bead over rim.



h. Hold tire iron (11) down. Remove tire iron (10) and insert between bead and rim on opposite side of locking jaw pliers (15). Lever tire iron (10) to force another bite of bead over rim.

i. Repeat step h using tire irons (10 and 11) alternately and working toward stem until entire bead is over rim. Remove locking jaw pliers (15) after more than half of bead is over rim.

j. Apply tire and rim lubricant liberally around circumference of upper bead.

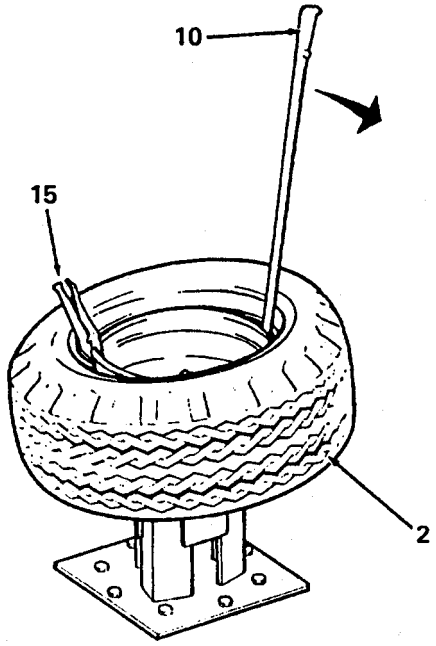


4-26.1. WHEELS AND TIRES (CONT)

k. Position tire (2) so part of upper bead is below rim on side opposite valve stem. Clamp locking jaw pliers (15) on rim on side opposite valve stem.

l. Insert curved end of long tire iron (10) between upper bead and rim approximately 10 to 12 inches from position of locking jaw pliers (15).

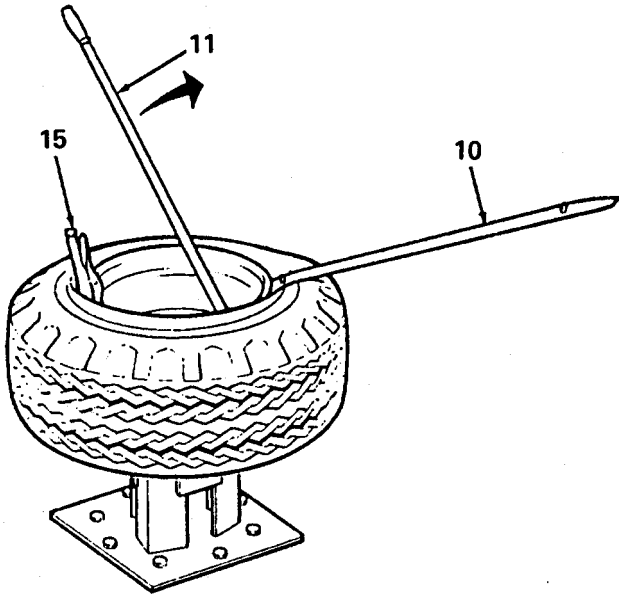
m. Push down on tire (2) where locking jaw pliers (15) are located and lever tire iron (10) to force upper bead down over rim.



n. Hold tire iron (10) down. Insert curved end of other tire iron (11) between bead and rim several inches from tire iron (10) and lever another bite of bead down over rim.

o. Repeat step n using tire irons (10 and 11) alternately and working around bead and rim until entire upper bead is down over rim.

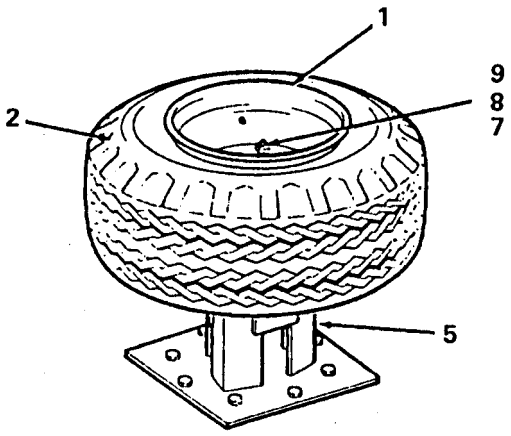
p. Remove tire irons (10 and 11) and locking jaw pliers (15).



4-26.1. WHEELS AND TIRES (CONT)

q. Remove hex nuts (9), flat washers (8), and hex bolts (7). Remove wheel (1) and tire (2) from pedestal (5).

r. Inflate tire as follows:



CAUTION

Excessive pressure will damage tire internal structure.

NOTE

If tire beads do not seat during inflation, put a bead expander around outside center of tire to compress tire and force beads to seat. If a bead expander is not available, use load binder and chain. Apply enough pressure on tire to lightly seal beads against rim.

(1) Stand tire upright and hold while applying air. Applying body weight on top of tire will usually seat tire beads and tire will inflate.

(2) Inflate tire as follows:

Bias ply (highway)	100 psi
Bias ply (off-road)	65 psi
Radial (highway and off-road)	105 psi

END OF TASK

Section IX. MAINTENANCE OF STEERING

4-27. TOWBAR PIVOT

This task covers: a. Removal b. Disassembly c. Cleaning d. Inspection e. Assembly f. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Hydraulic jack (dolly type)

Materials/Parts

Dry cleaning solvent (item 6, appendix E)
Wiping rag (item 12, appendix E)
Grease, GAA (item 7, appendix E)
MS15003 lubricating fitting (2)
Cotter pin

Personnel Required: 2

Equipment Condition

Towbar removed (para. 4-38)
Sway bars removed (para. 4-42)
Tie rod removed (para. 4-28)

4-27. TOWBAR PIVOT (CONT)

REMOVAL

a. Insert pin, without bushings, to support towbar pivot (1).

b. Remove four top nuts and disconnect air line from each front air bag (para. 4-39).

c. Disconnect leveling valve rods from both front leveling valves (remove bottom nut and lockwasher only) (para. 4-40).

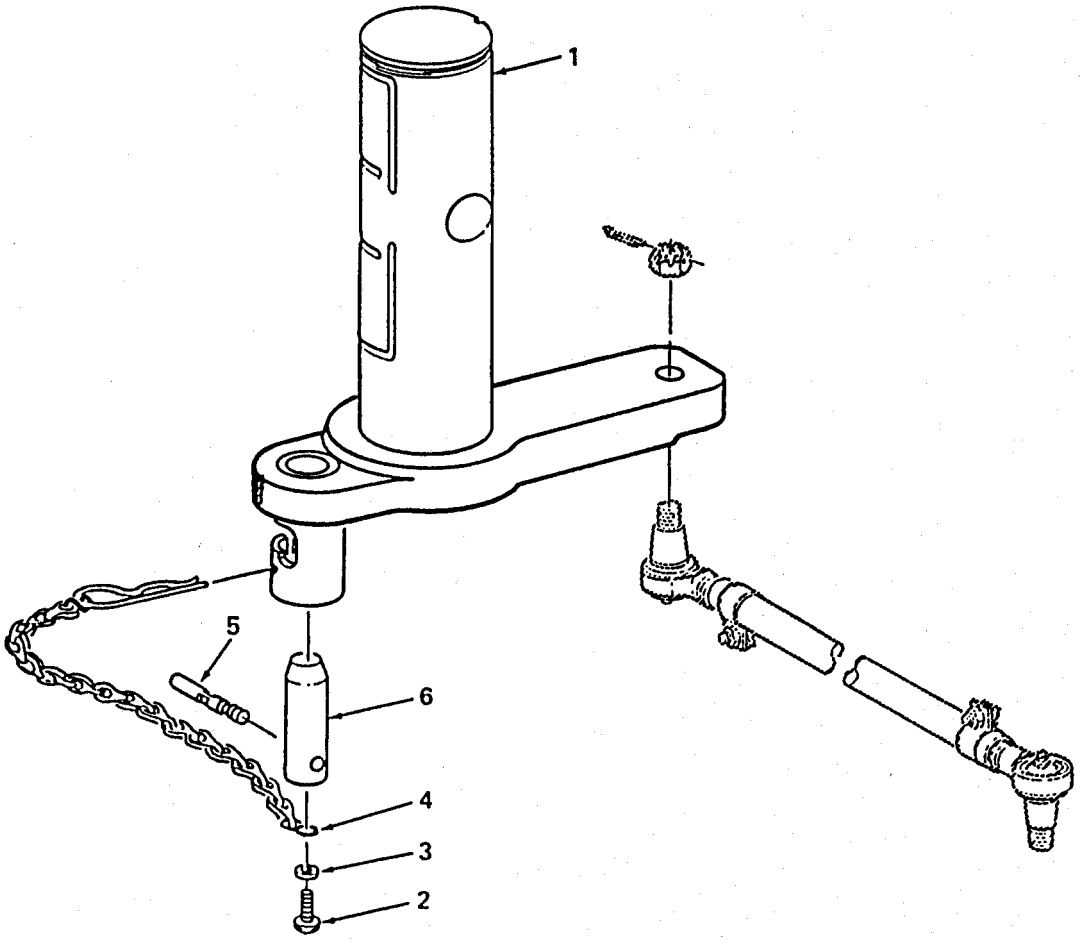
d. Disconnect lower ends of both front shock absorbers (para. 4-41).

e. Hoist up front of trailer deck to remove towbar pivot, but leave tires touching ground.

WARNING

Pivot assembly is heavy. Remove carefully to avoid personal injury.

f. Remove towbar pivot (1) and jack stands.



DISASSEMBLY

a. Remove pin from towbar pivot (1) and remove pivot from towbar housing.

b. Remove screw (2), washer (3) and chain assembly (4).

c. Remove lock pin handle (5) and lock pin (6).

CLEANING

WARNING

Dry cleaning solvent (MIL-PRF-680, type I) is extremely flammable, toxic, and is an irritant to the eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Do not breathe the vapors. Use skin and eye protection and work in a well ventilated area. Flash point of dry cleaning solvent is 140°F.

a. Remove all buildup of dirt, grease, and foreign matter from pivot bar surfaces and holes and lock pin using wiping rags and dry cleaning solvent (MIL-PRF-680, type I).

b. Apply light coat of grease to unpainted top part of pivot bar and lock pin.

INSPECTION

a. Visually inspect pivot bar holes and lock pin for cracks, corrosion, burrs and pitting.

b. Repair or replace any defective parts.

ASSEMBLY

a. Install lock pin (6) and lock pin handle (5).

b. Install chain assembly (4), washer (3) and screw (2).

INSTALLATION

WARNING

Pivot assembly is heavy. Install carefully to avoid personal injury.

a. Raise trailer and remove jack stands.

b. Lower trailer to aline holes for sway bar. Install sway bar (para. 4-42).

4-27. TOWBAR PIVOT (CONT)

c. Install towbar pivot (1) and insert pin without bushing through housing and towbar pivot.

CAUTION

Do not damage brass couplings.

d. Aline and install four bolts in air bags and reconnect air lines.

e. Lower trailer and reconnect lower ends of both front shock absorbers (para. 4-41).

f. Reconnect leveling valve rods at both front leveling valves (para. 4-40).

g. Install towbar (para. 4-38).

h. Install tie rods (para. 4-28).

i. Lubricate in accordance with paragraphs 3-1 and 3-2.

END OF TASK

4-28. TIE RODS

This task covers: a. Removal b. Installation

INITIAL SETUP

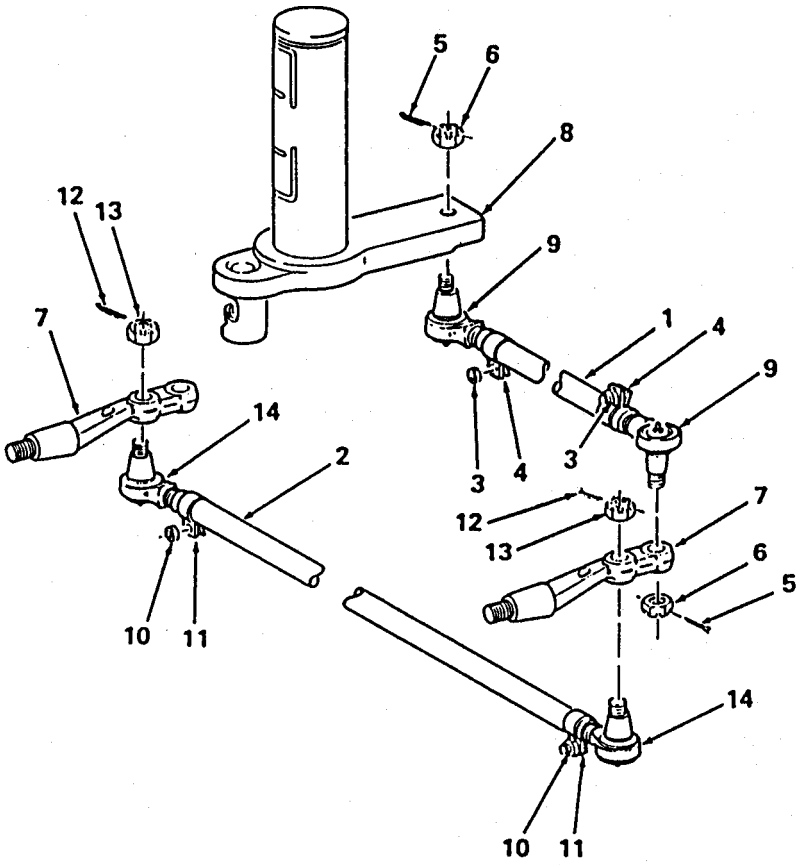
Tools	Materials/Parts
General mechanics tool kit	Clamp (4) Nut (4) Cotter pin (4) Nut (4)

NOTE

There are two tie rods, which will be referred to in this procedure as the short tie rod (1) and the long tie rod (2).

REMOVAL

a. Loosen, but do not remove, nuts (3) and holding clamps (4) on short tie rod (1).



b. Remove cotter pins (5), nuts (6) and short tie rod (1) from assembly arm (7) and towbar pivot (8).

c. Unscrew and remove short tie rod ends (9).

d. Remove clamps (4).

e. Loosen, but do not remove, nuts (10) holding clamps (11) on long tie rod (2).

f. Remove cotter pins (12), nuts (13) and long tie rod (2) from assembly arms (7).

g. Unscrew and remove long tie rod ends (14).

h. Remove clamps (11).

INSTALLATION

a. Install clamps (11) on each end of long tie rod (2) (do not tighten).

b. Install tie rod ends (14) onto long tie rod (2).

c. Position clamps (11) and tighten nuts (10).

4-28. TIE RODS (CONT)

d. Install long tie rod (2) into curbside and streetside assembly arms (7).

e. Secure ends with nuts (13). Torque to 125 lb ft, tighten as required to aline holes, and insert cotter pins (12).

f. Install clamps (4) on each end of short tie rod (1) (do not tighten).

g. Install tie rod ends (7) onto short tie rod (1).

h. Position clamps (4) and tighten nuts (3).

i. Install short tie rod (1) into streetside assembly arm (7) and towbar pivot (8).

j. Secure ends with nuts (6). Torque to 125 lb ft, tighten as required to aline holes, and insert cotter pins (5).

END OF TASK

4-29. STEERING ADJUSTMENT

This task covers: a. Long Tie Rod Adjustment
b. Short Tie Rod Adjustment
c. Four Wheel Alinement
d. Steering Stop Adjustment

INITIAL SETUP

Tools

General mechanics tool kit
Pipe wrench
Tape measure, 50-foot
Torque wrench

Personnel Required: 2

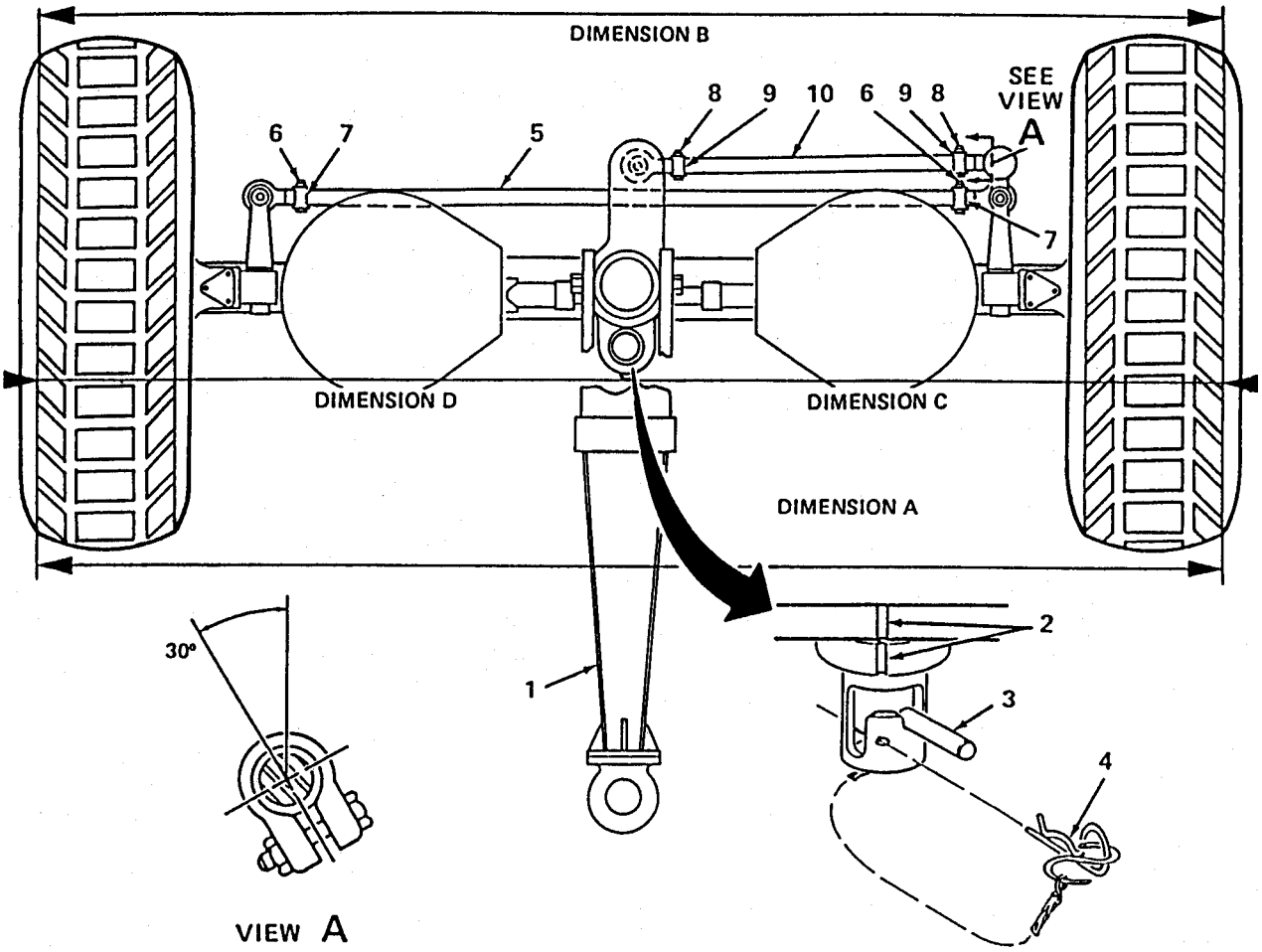
NOTE

Inflate air bags to normal suspension height to avoid tracking error.

After front end suspension or tie rod installation, aline front axle to ensure proper tracking of trailer and to avoid excessive tire wear.

LONG TIE ROD ADJUSTMENT

a. Center tow bar assembly (1) by alining the alinement grooves (2). Secure by rotating lock pin handle (3) counterclockwise and inserting hitch pin (4).



b. Using a tape measure, measure from the outside to the outside of each front tire-across front of trailer (Dimension A). Record distance.

c. Measure the back side of front tires from the outside to the outside (Dimension B). Record distance.

NOTE

Front measurement (Dimension A) should be 1/4 to 1/8 inch less than rear measurement (Dimension B).

d. Compare front and rear measurements.

e. If adjustment is necessary, at each end of long tie rod (5), loosen but do not remove nut (6) holding clamp (7).

f. Adjust tie rod as necessary using pipe wrench to arrive at correct measurement.

g. Tighten long tie rod clamp nuts (6).

4-29. STEERING ADJUSTMENT (CONT)

SHORT TIE ROD ADJUSTMENT

NOTE

The long tie rod adjustment must be performed before adjusting the short tie rod (10).

a. Using a tape measure, measure from the outside of left tire to the lower alinement groove (Dimension C). Record distance.

b. Measure from the outside of right tire to the same alinement groove (Dimension D). Record distance.

NOTE

Alinement tolerance center-to-center from each wheel is ±3/16 inch.

c. If measurements are not the same, loosen nut (8) on clamp (9) on each end of short tie rod (10). Do not remove nuts.

NOTE

To move left front tire toward center, lengthen short tie rod (10). To move left front tire away from center, shorten short tie rod (10).

d. Turn short tie rod (10) until equal distance from each tire is achieved.

CAUTION

Be sure streetside tie rod clamp (7) is rotated 30 degrees as shown, to allow clearance between the two tie rods (5 and 10).

e. Torque nuts (8) to 40-50 lb ft.

FOUR WHEEL ALINEMENT

a. Measure on streetside from rear bottom of outside torsion bar bracket to front rear of outside shock bracket. Record distance.

b. Measure on curbside from rear bottom of outside torsion bar bracket to front rear of outside shock bracket. Record distance.

c. The measurement of each side should be within 1/4 inch of each other. If not, loosen torsion bar streetside eccentric nut and adjust to 1/4-inch tolerance.

STEERING STOP ADJUSTMENT

NOTE

The steering stop adjustment must be performed after adjustment of short tie rod and long tie rod.

a. Turn towbar fully to streetside. If towbar contacts the frame or the tie rod contacts suspension torsion bar, adjust steering stop as follows:

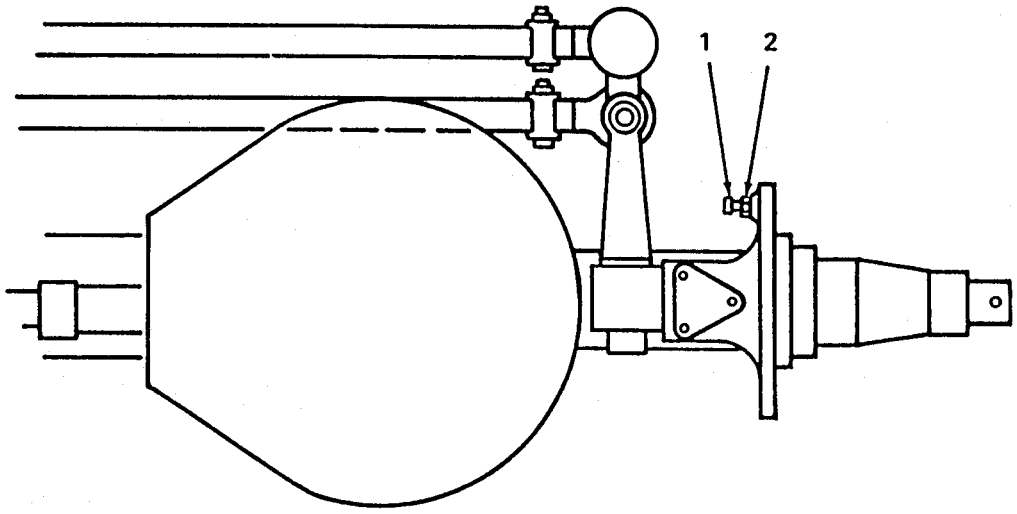
b. Measure gap between end of stop bolt (1) and contact point on axle.

c. With towbar centered, loosen hex jam nut (2) on steering stop bolt (1). Rotate steering stop bolt (1) counterclockwise one turn for every 1/16-inch gap, plus one turn.

d. Move towbar again to streetside. Verify a gap of 1/16 inch between tie rod and torsion bar and a gap of at least 1/4 inch between towbar and frame. Readjust as required.

e. Tighten jam nut (2), ensuring that stop bolt (1) does not rotate. Reverify gap measurements.

f. Repeat this procedure for the curbside.



END OF TASK

Section X. MAINTENANCE OF FRAME AND TOWING COMPONENTS

4-30. FRAME

This task covers: a. Cleaning b. Inspection c. Repair

INITIAL SETUP

Materials/Parts

Cleaning compound (item 3, appendix E)

CLEANING

Clean frame thoroughly using a stiff bristle brush and water to remove mud, and cleaning compound to remove grease and oil.

INSPECTION

Inspect frame for marred paint, corrosion, cracks, breaks, broken welds, and other damage.

REPAIR

a. If damage to frame is not too extensive, straighten member where possible. Notify support maintenance to weld up cracks or broken welds.

b. Clean frame.

END OF TASK

4-31. BUMPERS

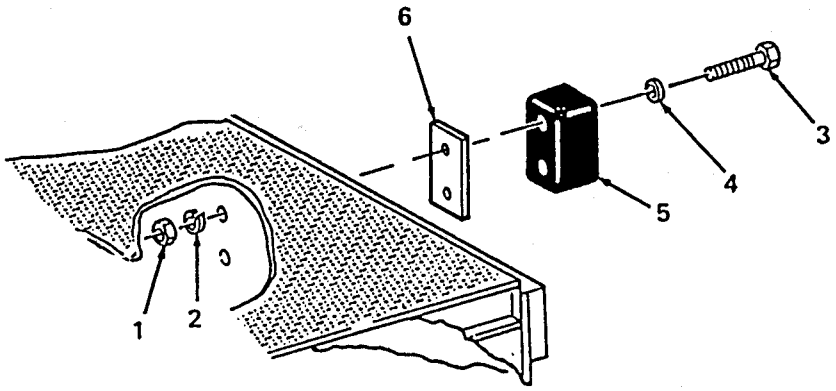
This task covers: a. Removal b. Installation

INITIAL SETUP

Tools	Materials/Parts
General mechanics tool kit Torque wrench, 3/8-inch drive, 0-150 lb ft	Lockwasher (4)

REMOVAL

Remove two hex nuts (1), lockwashers (2), capscrews (3) and flat washers (4) to remove each of two bumpers (5) and spacing pads (6).



INSTALLATION

Install each bumper (5) and spacing pad (6) with two capscrews (3), flat washers (4), lockwashers (2) and hex nut (1). Tighten hex nut to 72-78 lb ft.

END OF TASK

4-32. POD STOPS

This task covers: a. Removal b. Installation

INITIAL SETUP

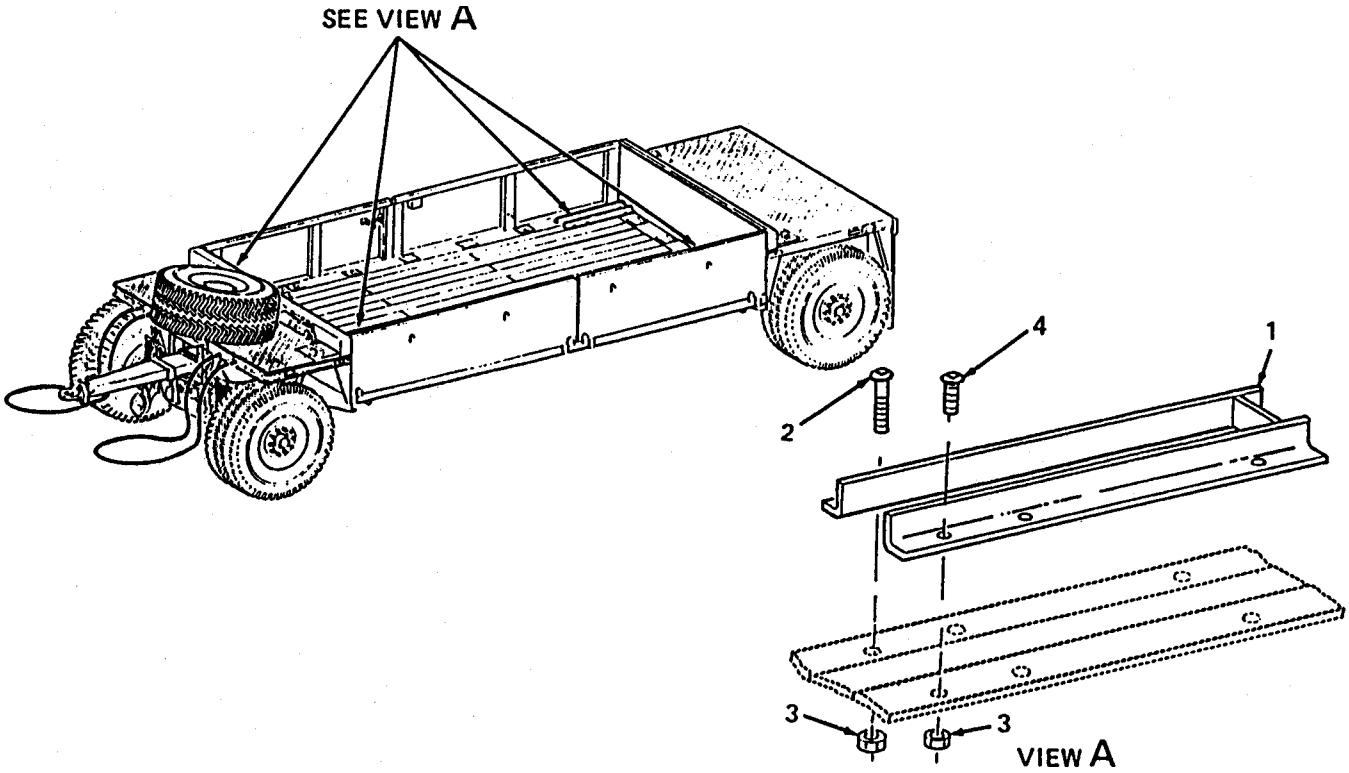
Tools

General mechanics tool kit

4-32. POD STOPS (CONT)

REMOVAL

For each of four pod stops (1), remove three screws (2), nuts (3), screws (4), nuts (3) and pod stop (1).



INSTALLATION

NOTE

Tiedown ring must be in the up position for pod stop installation.

Longer screws must be installed on the inboard side of pod stops.

Install each pod stop (1) and secure with three screws (2), nuts (3), screws (4) and nuts (3).

END OF TASK

4-33. SPLASH GUARDS

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

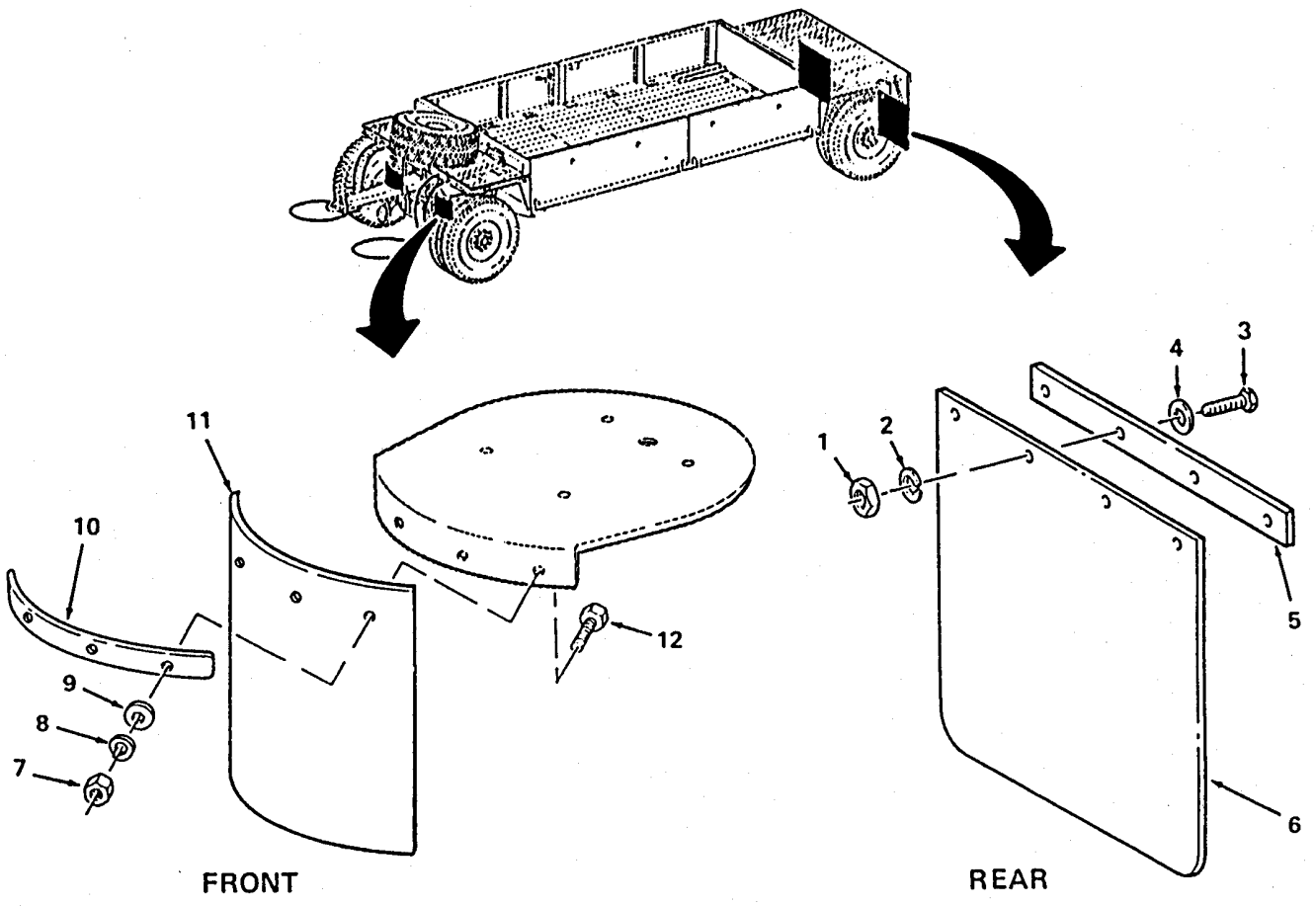
Materials/Parts

Lockwasher (4 per guard)

REMOVAL

a. For rear splash guard, remove four nuts (1), lockwashers (2), screws (3), washers (4), mounting bar (5) and splash guard (6).

b. For front splash guard, remove four nuts (7), lockwashers (8), washers (9), mounting bar (10), splash guard (11) and four screws (12).



4-33. SPLASH GUARDS (CONT)

INSTALLATION

a. For front splash guard, install splash guard (11), four screws (12), mounting bar (10), four washers (9), lockwashers (8) and nuts (7).

b. For rear splash guard, install splash guard (6), mounting bar (5), and four screws (3), lockwashers (2), washers (4) and nuts (1).

END OF TASK

4-34. SAFETY CHAINS

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

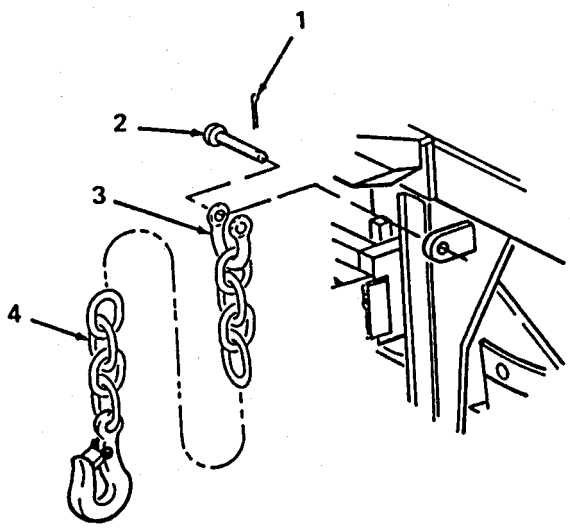
General mechanics tool kit
Socket, 1-5/16-inch, 3/4-inch drive

Materials/Parts

Cotter pin (2)

REMOVAL

For each chain, remove cotter pin (1), pin (2) and shackle (3) with safety chain (4). Slide shackle (3) from chain link.



INSTALLATION

Insert shackle (3) through end link on safety chain (4). Mount shackle (3) with chain (4) to frame with pin (2). Insert cotter pin (1).

END OF TASK

4-35. STORAGE BOX COVER

This task covers: a. Removal b. Repair c. Installation

INITIAL SETUP

Tools

General mechanics tool kit
For new trailers only with serial numbers 2001 and up:
  Portable electric drill 3/16-inch drill bit
  Rivet gun kit

Materials/Parts

Adhesive (item 1, appendix E)
Corrosion preventive compound (item 5.1, appendix E)
Lock nut
Lock nut
Lockwasher (6)
Gasket (figure G-2)

4-35. STORAGE BOX COVER (CONT)

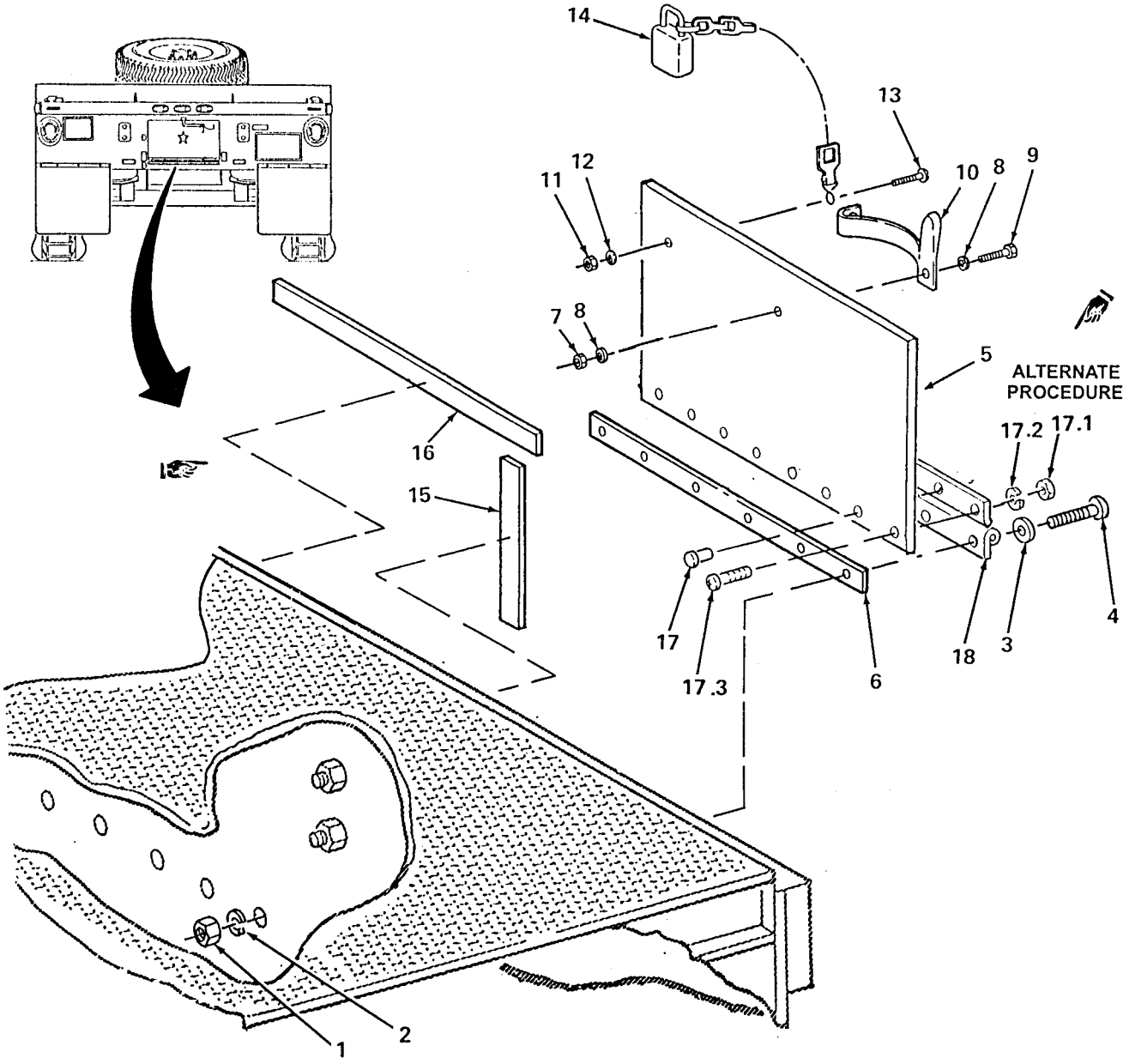
REMOVAL

a. Remove six nuts (1), lockwashers (2), washers (3), screws (4), door assembly (5), and mounting plate (6).

b. Remove lock nut (7), two washers (8), screw (9), and handle (10).

c. Remove lock nut (11), washer (12), screw (13), and padlock assembly (14).

d. If necessary, scrape two gaskets (15) and two gaskets (16) off rear of trailer.



NOTE

Step e applies only to new trailers with serial numbers 2001 and up.

e. To remove hinge from door assembly, perform either step (1) or alternate procedure step (2):

(1) Use portable drill to remove eight rivets (17); then, remove hinge (18) from door assembly (5).

(2) (Alternate Procedure) Remove eight nuts (17.1), lockwashers (17.2), and screws (17.3); then, remove hinge (18) from door assembly (5).

REPAIR

a. Replace defective parts as required.

b. Refer to appendix G for fabrication instructions for gaskets (15 and 16).

INSTALLATION

NOTE

Step a applies only to new trailers with serial numbers 2001 and up.

a. To install hinge to door assembly, perform either step (1) or alternate procedure step (2):

(1) Apply corrosion preventive compound to eight rivets (17) and to surfaces where hinge (18) and door assembly (5) mate. Then, use rivet gun to secure hinge (18) to door assembly (5) with eight rivets (17).

(2) (Alternate Procedure) Secure hinge (18) to door assembly (5) with eight screws (17.3), lockwashers (17.2), and nuts (17.1).

a.1. Apply adhesive to two gaskets (16) and two gaskets (15) and install on door assembly (5).

b. Install padlock assembly (14) and secure with screw (13), washer (12), and lock nut (11).

c. Install handle (10) and secure with screw (9), two washers (8), and lock nut (7).

d. Install mounting plate (6) and door assembly (5) and secure with six screws (4), washers (3), lockwashers (2), and nuts (1).

END OF TASK

4-36. FIRE EXTINGUISHER BRACKET

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

Portable electric drill
1/4-inch drill bit
Rivet gun kit

Materials/Parts

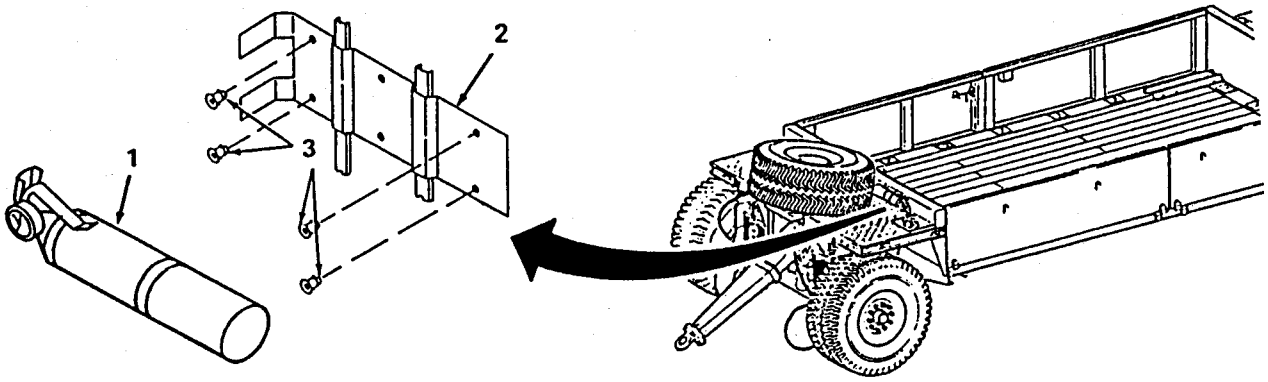
Blind rivet (4)

REMOVAL

a. Remove fire extinguisher (1) from bracket (2).

b. Using portable drill, remove four rivets (3).

c. Remove bracket (2) from trailer frame.



INSTALLATION

a. Aline bracket (2) with holes in trailer frame.

b. Using rivet gun, secure bracket (2) to frame with four rivets (3).

c. Attach fire extinguisher (1) to bracket (2).

END OF TASK

4-37. FOLDABLE STEPS

This task covers: a. Removal b. Installation

INITIAL SETUP

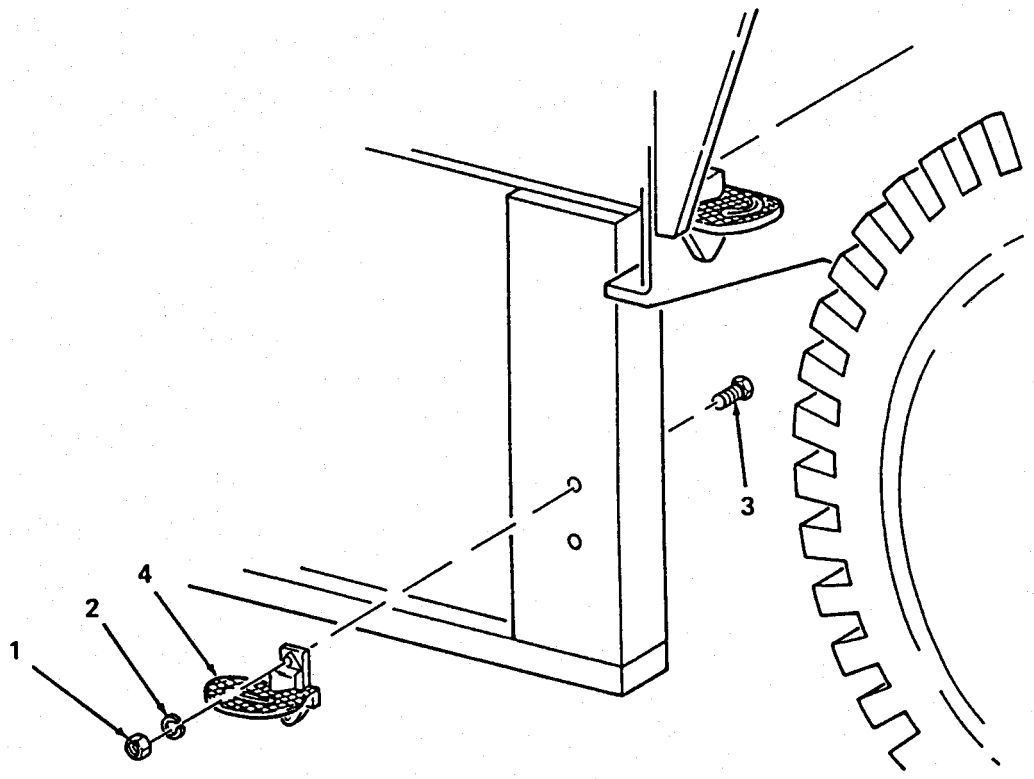
Tools	Materials/Parts
General mechanics tool kit	Lockwashers (2)

NOTE

The trailer has three foldable steps curbside front. One is mounted on the front side panel and two are mounted on the front bulkhead. Each is removed and installed in the same manner.

REMOVAL

Remove two nuts (1), lockwashers (2), bolts (3) and step (4).



INSTALLATION

Position step (4) and secure with two bolts (3), lockwashers (2) and nuts (1).

END OF TASK

4-38. TOWBAR

This task covers: a. Removal c. Assembly
b. Disassembly d. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Suitable lifting device
(8-ton minimum capacity)
2-3/16-inch open end wrench
1-1/4-inch open end wrench
Brass hammer

Materials/Parts

Grease, GAA (item 7, appendix E)

Personnel Required: 3

REMOVAL

a. Remove two grease fittings (1) and two lock nuts (2).

CAUTION

Use a soft brass hammer or wood block to avoid damaging threads.

b. Turn towbar (3) full right (curbside). Using a soft hammer or wood block, tap pin (4) until bushing (5) is driven out from opposite end of pin.

c. Turn towbar (3) fully in the opposite direction and repeat to remove other bushing (5).

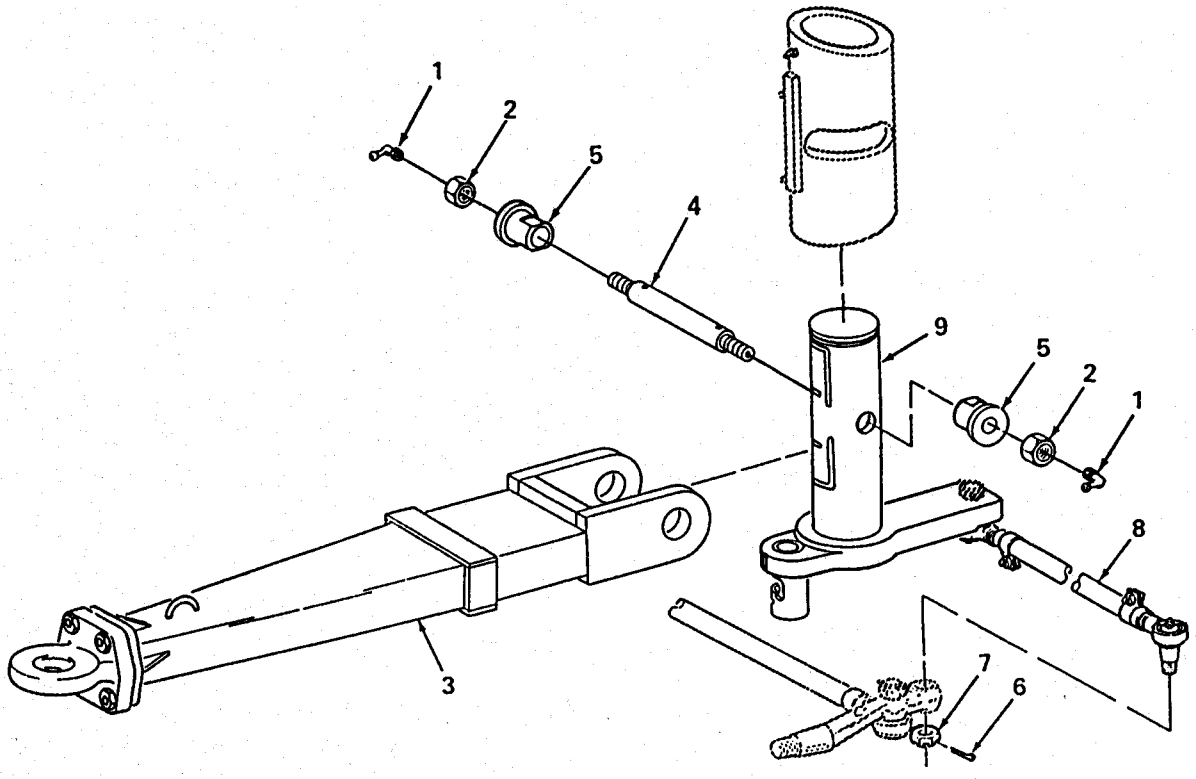
d. Remove cotter pin (6) and nut (7) from short tie rod (8) and disconnect end of tie rod by tapping with brass hammer to allow towbar (3) to be moved streetside to its fullest extent.

WARNING

Towbar (3) is heavy and requires three persons to safely remove it: two persons to support towbar while one person removes pin (4).

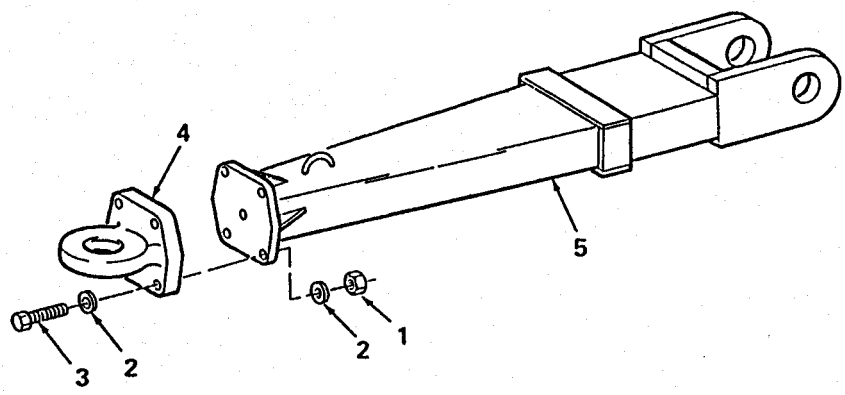
Towbar pivot (9) is heavy and will fall when pin (4) is removed. Support pivot before removing pin (4).

e. Remove pin (4) and towbar (3) from towbar pivot (8).



DISASSEMBLY

Remove four nuts (1), eight washers (2), four screws (3) and lunette (4) from towbar (5).



ASSEMBLY

Install lunette (4) and secure with four screws (3), eight washers (2) and four nuts (1).

4-38. TOWBAR (CONT)

INSTALLATION

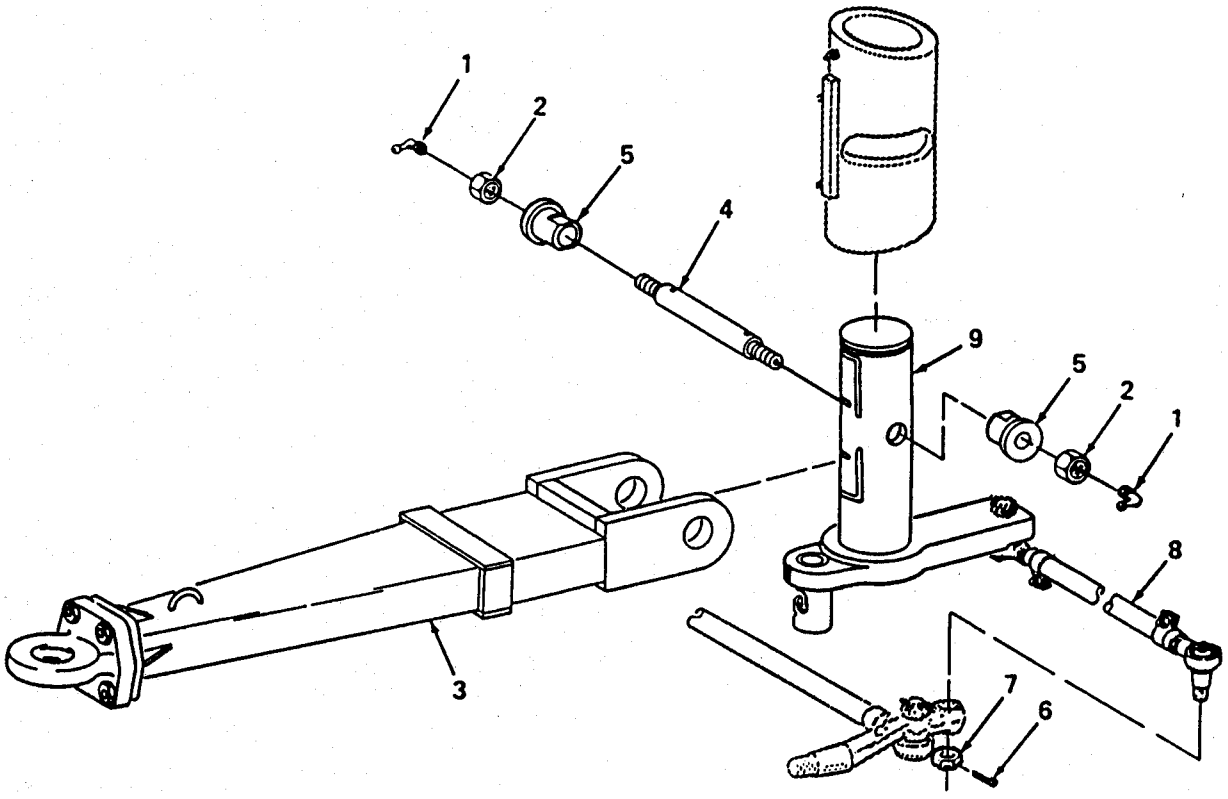
a. Install towbar (3) and insert pin (4) through towbar (3), slot in pivot housing and towbar pivot (9).

b. Install two bushings (5), making sure the flats aline with and go into slots in pivot housing.

c. Install two nuts (2), tightening nuts (2) until shoulders on bushings (5) seat firmly against towbar flange, then back off one-quarter turn.

d. Install two grease fittings (1). Grease until grease runs out of the fittings.

e. Reconnect short tie rod (8) and install nut (7) and cotter pin (6).



END OF TASK

Section XI. MAINTENANCE OF SPRINGS AND SHOCK ABSORBERS

4-39. AIR BAG SUSPENSION

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Suitable lifting device

Materials/Parts

Lockwasher (8)

Equipment Condition

Air tanks drained
Lower end of leveling valve vertical control rod disconnected (para. 4-40)
Wheels chocked

NOTE

All four air bags are removed in a similar manner.

For front air bags, remove front splash guard first (para. 4-33).

4-39. AIR BAG SUSPENSION (CONT)

REMOVAL

a. Lift upper trailer deck high enough to remove tension from air bag (1).

WARNING

To avoid slippage of lifting device and personal injury, block up upper trailer.

b. Block up upper trailer to prevent slippage of trailer lifting device.

c. Disconnect air hose (2) from suspension bracket (3).

d. Remove four bolts (4), lockwashers (5) and upper plate (6).

e. Remove four nuts (7) and lockwashers (8).

CAUTION

Remove air bag carefully to avoid tearing, ripping, or cutting of rubber material.

f. Carefully remove air bag (1) from lower plate (9).

INSTALLATION

a. Ensure trailer deck is raised and properly blocked to keep tension off suspension.

b. Install air bag (1), four lockwashers (8) and nuts (7) onto lower plate (9).

c. Install upper plate (6) onto air bag (1) and install four lockwashers (5) and bolts (4) through suspension bracket (3) into air bag (1).

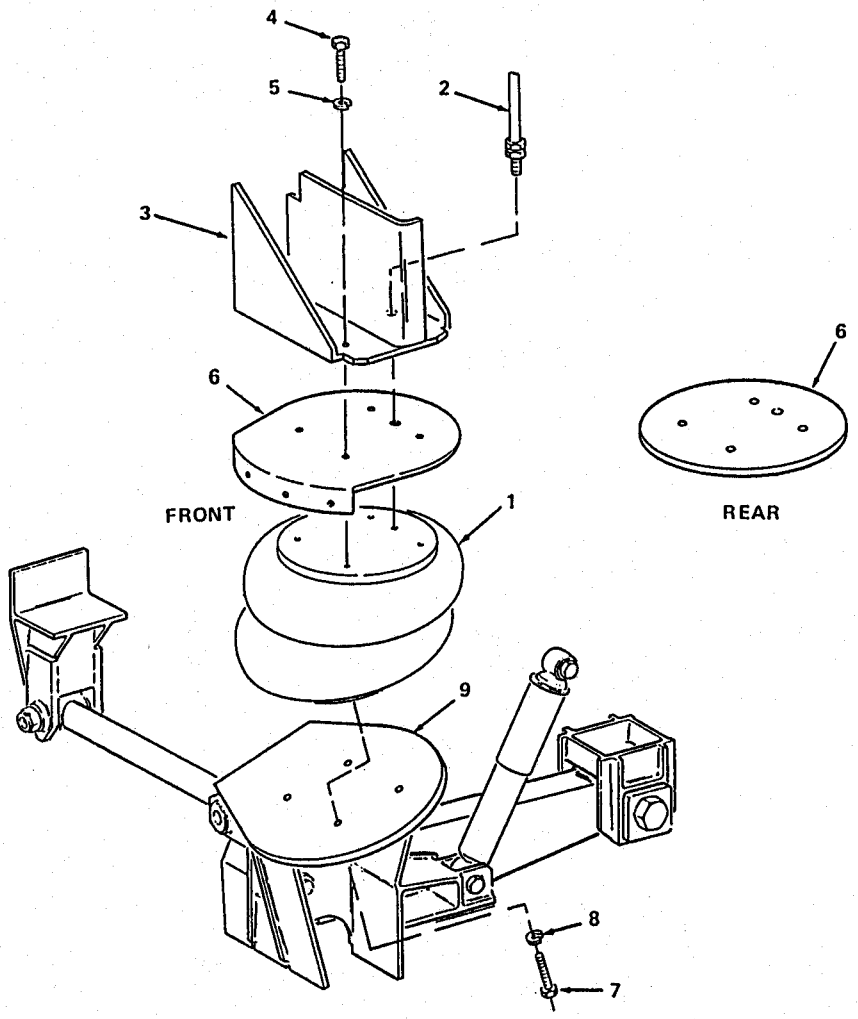
NOTE

For installation of front air bags, install front splash guards (para. 4-33).

d. Connect air hose (2).

e. Remove blocks and lower trailer deck.

f. Reconnect lower end of adjacent vertical leveling valve control rod (para. 4-40).



END OF TASK

4-40. LEVELING VALVES

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Equipment Condition

Air tanks drained

Materials/Parts

Lockwasher (6)
Lockwasher (6)

4-40. LEVELING VALVES (CONT)

NOTE

There are three leveling valves, two in front and one at the rear of the trailer. They are mounted in a similar manner.

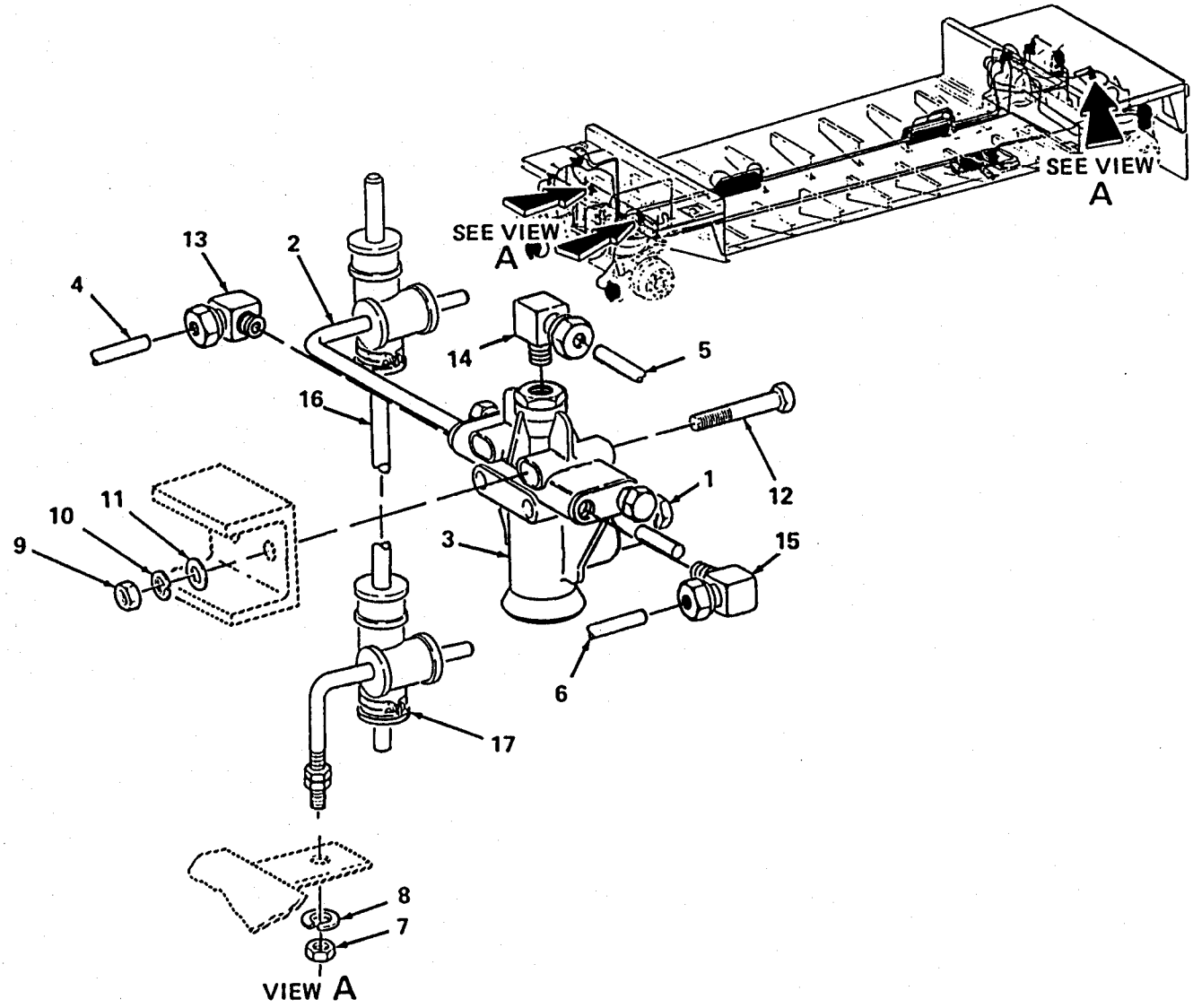
REMOVAL

a. Loosen screw (1) and remove leveling rod (2) from valve (3).

b. Tag and disconnect three tubes (4, 5 and 6) from leveling valve (3).

c. Remove nut (7) and lockwashers (8).

d. Remove two nuts (9), lockwashers (10), washers (11) and screws (12) from leveling valve (3).



e. Remove leveling valve (3).

f. Remove three elbows (13, 14 and 15).

INSTALLATION

NOTE

Apply anti-seize tape to all pipe threads before connecting.

a. Install three elbows (15, 14 and 13).

b. Position leveling valve (3) and secure with two screws (12), washers (11), lockwashers (10), and nuts (9).

c. Secure bottom connection with lockwashers (8) and nut (7).

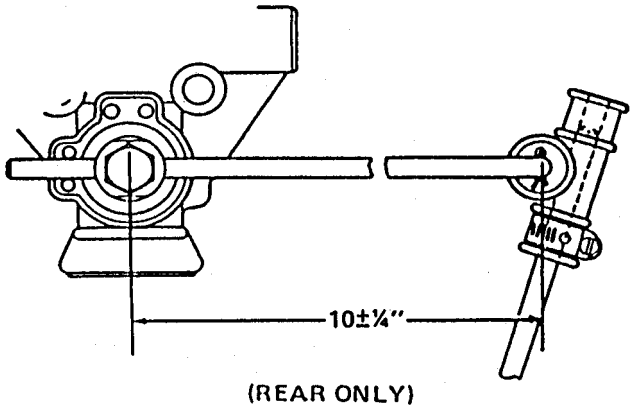
d. Connect three tubes (6, 5 and 4).

e. With towing vehicle air supply connected to trailer, wait 2 minutes for system to charge, and verify proper adjustment by measuring 57 inches from the ground to the top of the trailer bulkhead (front or back). If bulkhead is too high, proceed to step h. If bulkhead is too low, proceed to step i.

NOTE

When installing a new rear vertical control rod, cut it to the same length as the one being replaced.

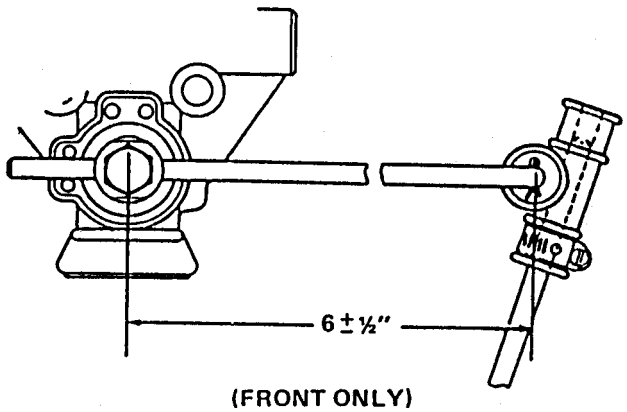
f. For the rear leveling valve only, slant the vertical control rod (16) forward so the distance between center of remaining bolt on valve and the cotter pin on upper clam is 10 +1/4 inches.



(REAR ONLY)

4-40. LEVELING VALVES (CONT)

g. For the two front leveling valves, install the "L"-shaped pivot on the air bag mount so it points toward rear of trailer. Adjust linkage with air bags inflated so the distance between retaining bolt on valve and the cotter pin on upper clamp is 6 +1/4 inches.

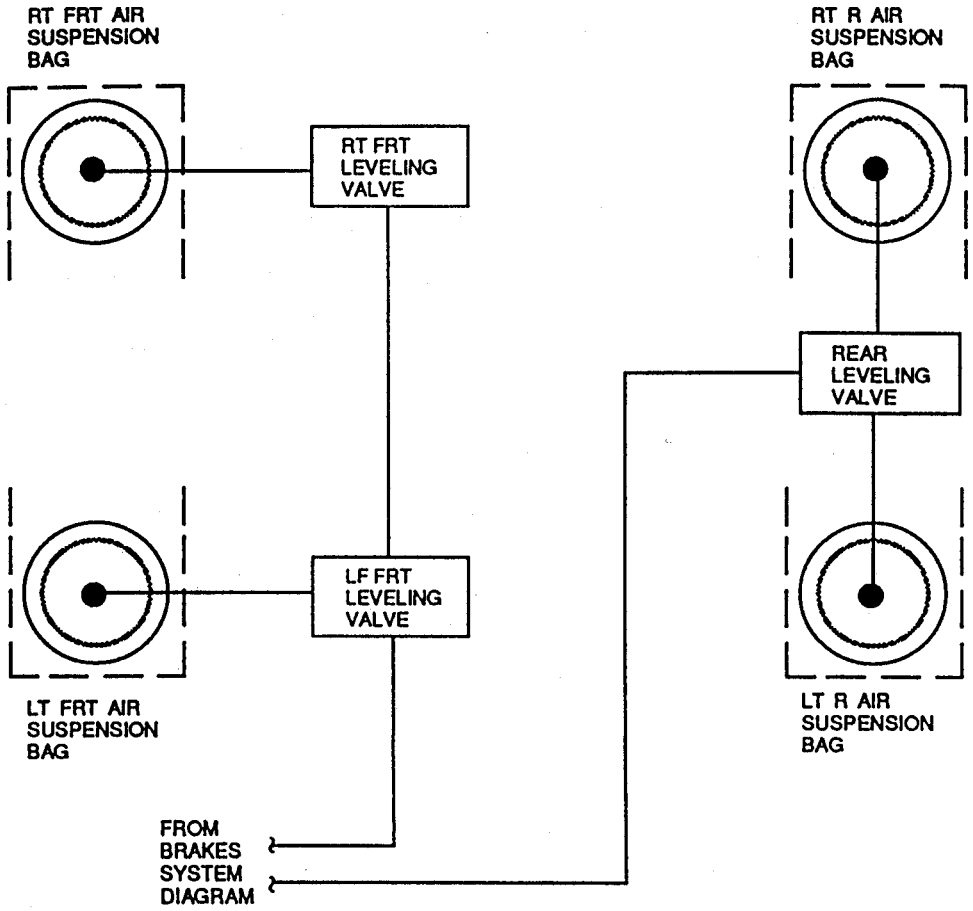


(FRONT ONLY)

h. Loosen lower clamp (17) and push leveling control rod (2) down until trailer lowers; release leveling control rod (2) and allow it to center, then tighten clamp (17).

i. Loosen lower clamp (17) and push leveling control rod (2) up until trailer raises; release leveling control rod (2) and allow it to center, then tighten clamp (17).

j. Repeat step h or i for all three leveling valves until proper height is achieved.


RT FRT AIR SUSPENSION BAG
RT R AIR SUSPENSION BAG
RT FRT LEVELING VALVE
REAR LEVELING VALVE
LF FRT LEVELING VALVE
LT FRT AIR SUSPENSION BAG
LT R AIR SUSPENSION BAG
FROM BRAKES SYSTEM DIAGRAM
AIR SUSPENSION SYSTEM

END OF TASK

4-41. SHOCK ABSORBERS

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Torque multiplier

Materials/Parts

Lock nut (8)
Bolt (8)
Brake chamber, air bag, and air hose caps

Equipment Condition

Wheels removed (para. 3-5)
Leveling valve linkage disconnected (para. 4-40)
Air drained
Sway bar removed (para. 4-42)

REMOVAL

a. Tag, disconnect, and remove air hoses from brake chambers and air bags. Cap hoses, air bags, and brake chambers.

b. Jack up and block frame. Chock wheels.

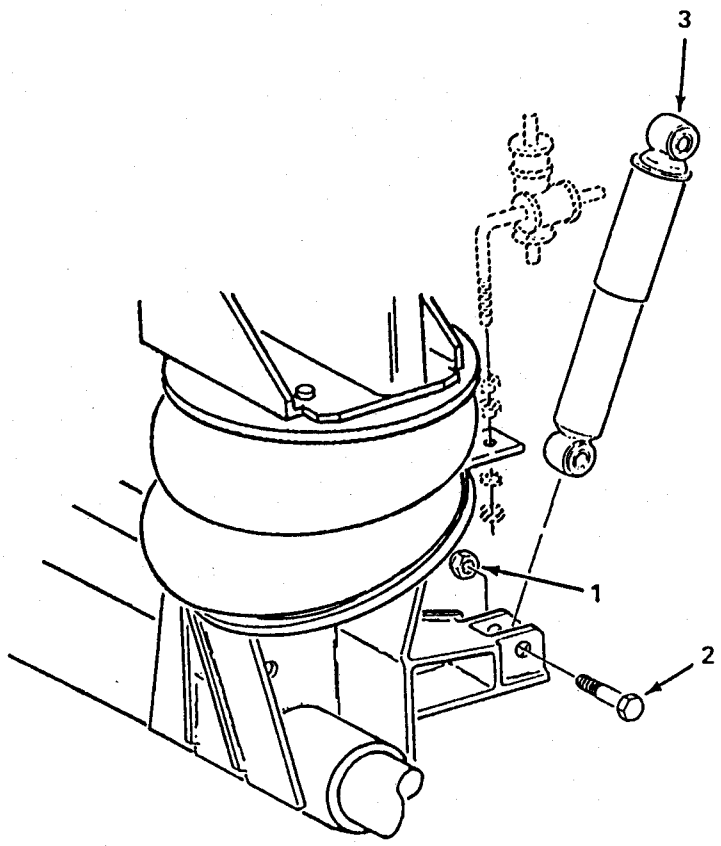
c. Remove two lock nuts (1), two bolts (2) and shock (3) from each side of vehicle.

d. Repeat for front or rear.

INSTALLATION

a. Aline shock (3).

b. Insert two bolts (2) and secure with two lock nuts (1). Torque to 140-150 lb ft.



END OF TASK

4-42. SWAY BARS

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Torque multiplier

Materials/Parts

Lock nut (4)
Bolt (4)
Brake chamber, air bag, and air hose caps

Equipment Condition

Leveling valve linkage disconnected (para. 4-40)
Air drained
Wheels chocked

NOTE

Front and rear sway bars are similar and are mounted in the same manner.

4-42. SWAY BARS (CONT)

REMOVAL

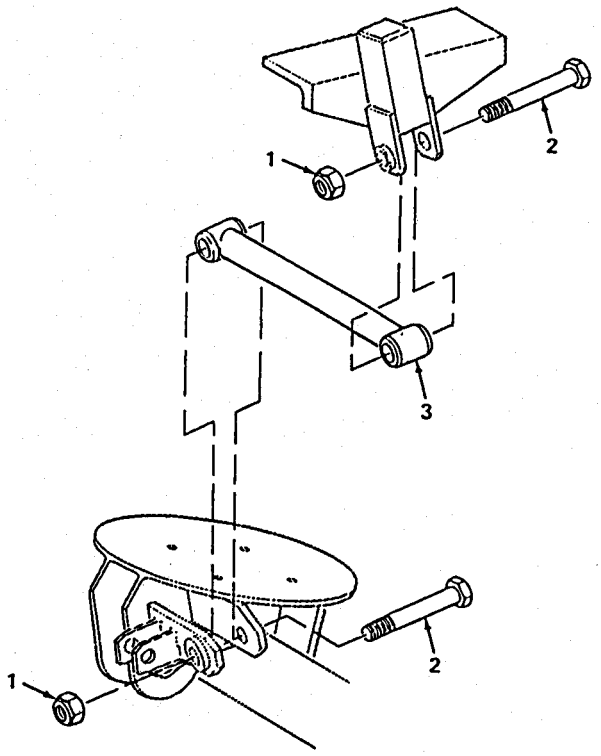
NOTE

Prior to removing sway bars, mark which is curbside and which is streetside of sway bar. This will expedite reinstallation.

a. Tag, disconnect, and remove air hoses from brake chambers and air bags. Cap hoses, air bags and brake chambers.

b. Jack up and block frame.

c. Remove two lock nuts (1) and bolts (2) from ends of sway bar (3). Remove sway bar (3).



INSTALLATION

a. Aline sway bar (3) so previously marked curbside and streetside are correct.

b. Insert two bolts (2) and secure with two lock nuts (1). Torque to 650-680 lb ft.

END OF TASK

Section XII. MAINTENANCE OF BODY, CAB, HOOD, AND HULL

4-43. SIDE PANELS

This task covers repair.

INITIAL SETUP

Materials/Parts

Cleaning compound (item 3, appendix E)
Wiping rag (item 12, appendix E)
Cotter pin (8)

REPAIR

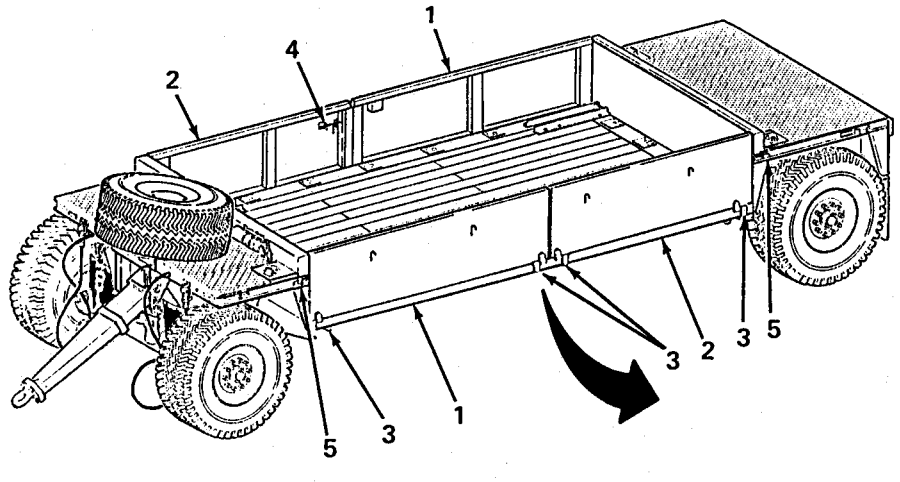
a. If damage to side panel (1 or 2) is not too extensive, straighten member where possible. Notify support maintenance to weld up cracks in broken welds.

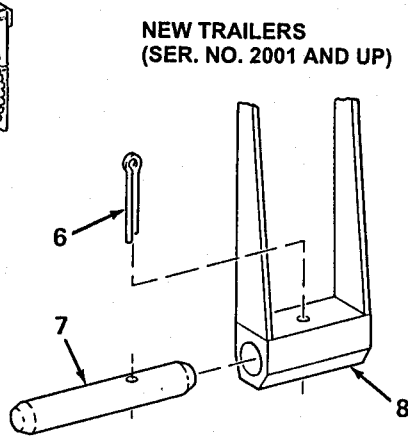
b. Straighten bent hinge pins (3).

c. Straighten bent hitch pins (4).

d. Straighten bent bolt handles (5).

e. On new trailers with serial numbers 2001 and up only, remove cotter pin (6) and pin (7) from side panel hinge (8). Install new pin (7) and cotter pin (6).





END OF TASK

4-44. FLOORBOARDS

This task covers: a. Inspection c. Repair
b. Removal d. Installation

INITIAL SETUP

Tools

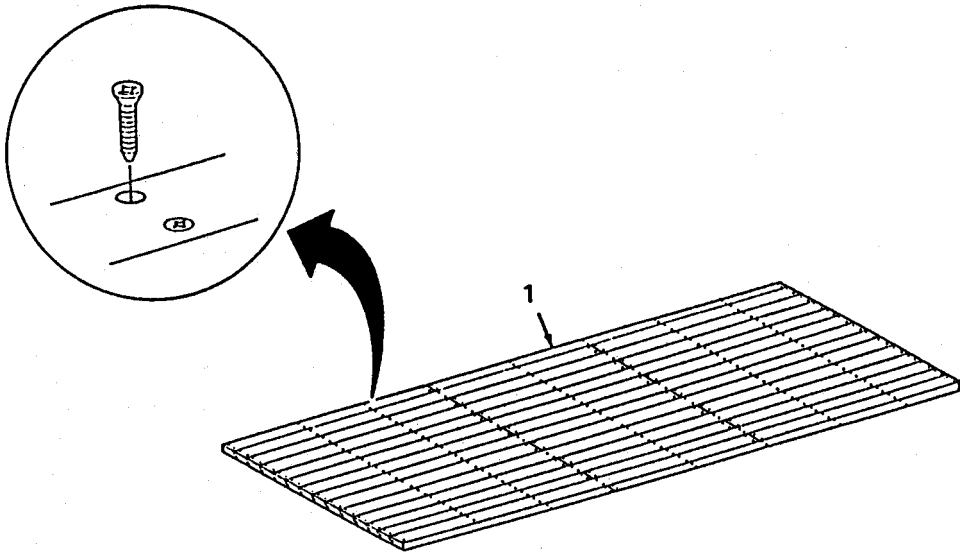
Portable electric drill
Twist drill, No. J
Countersink
Screwdriver bit (item 6, appendix B)
Floor kit

Materials/Parts

Caulking compound (item 2, appendix E)
Caulking tape (item 16.1, appendix E)

INSPECTION

Inspect all floorboards (1) for breakage and warpage. Replace defective floorboards.



REMOVAL

Remove torx screws as required to remove boards, starting with streetside or curbside boards and working toward the board to be replaced.

REPAIR

NOTE

Determine width of board available. It must be cut to match the length of the board which has been removed.

On new trailers with serial numbers 2001 and up, select the proper length replacement board. The only cutting necessary is for the streetside or curbside boards. These boards will have to be cut lengthwise to match the boards removed.

INSTALLATION

a. Place replacement floorboard in position on frame. Cut board to proper length.

b. Remove board. Then, using a No. J drill bit (0.277-inch) and drill, bore holes in floorboard to avoid previous mounting holes in frame. Countersink holes.

CAUTION

Torx screws have sharp points which must be cut off and filed down if they protrude, in order to avoid damage to air hoses or electrical wiring.

c. If board lies over lowboy area, verify caulking tape is under screw holes. Lay more tape if required.

d. Install torx screws as required to secure floorboard to frame. Heads of screws should be below surface of boards. If points protrude below under-surface of deck, cut off and file down points, so that they are flush with deck. Seal screws over lowboy with caulking compound prior to tightening.

e. Paint replacement floorboard.

f. Seal between floorboard and side rail, if necessary, with caulking compound.

END OF TASK

4-45. REFLECTORS

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit

Materials/Parts

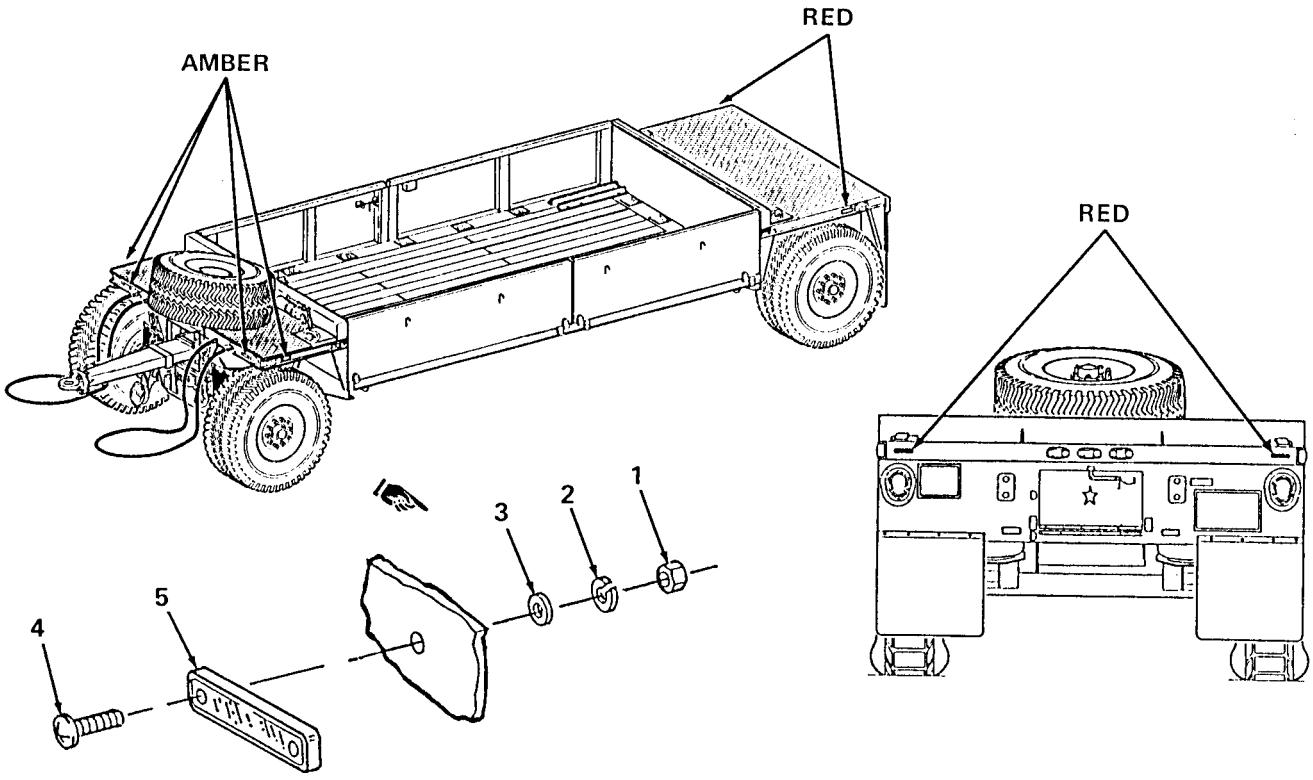
Lockwasher (2)

NOTE

The trailer has four amber reflectors at the front, and four red reflectors at the rear. Each is removed and installed in the same manner.

REMOVAL

Remove two nuts (1), lockwashers (2), washers (3) and screws (4). Remove reflector (5).



INSTALLATION

CAUTION

Do not over-tighten or reflector will crack.

Position reflector (5) and secure with two screws (4), washers (3), lockwashers (2) and nuts (1).

END OF TASK

4-46. DATA PLATES

This task covers: a. Removal b. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Blind head riveter

Materials/Parts

Rivets

REMOVAL

Remove pop rivets to detach any defective identification plate, service/emergency tag, instruction plate, lubrication plate, or certification plate.

INSTALLATION

Install identification plate, instruction plate, lubrication plate, service/ emergency tag, and certification plate with pop rivets.

END OF TASK

CHAPTER 5

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

OVERVIEW

This chapter provides those tasks to be performed by the direct and general support maintenance personnel. Included are references for repair parts, special tools, TMDE, and support equipment. Also included are maintenance of the HEMAT miscellaneous components and instructions for storage or shipment.

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

5-1. COMMON TOOLS AND EQUIPMENT

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

5-2. SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Refer to section III, appendix F, for special tools to support the M989A1 trailer.

5-3. REPAIR PARTS

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

Section II. MAINTENANCE OF MISCELLANEOUS COMPONENTS

5-4. FRONT AXLE

This task covers: a. Removal c. Cleaning e. Assembly
b. Disassembly d. Inspection f. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Cutting torch
Hydraulic jack (2)
1-7/8-inch socket wrench
Socket wrench set
Torque multiplier
Open end wrench
Open end wrench
Open end wrench
Arc welder
Pinch bar
Sledge hammer

Equipment Condition

Leveling valve linkage disconnected (para. 4-40)
Air drained
Front wheels removed (loosen nuts, raise trailer, remove nuts and wheels)
Frame jacked up to remove weight from axle, frame on blocks
Hydraulic jacks under axle, weight supported

Materials/Parts

Anti-seize tape (item 16, appendix E)
Cleaning compound (item 3, appendix E)
Grease GAA (item 7, appendix E)
Lock nut (2)
Lock nut (2)
Lockwasher (8)
Lock ring
Lock ring
Industrial goggles
Brake chamber, air bag, and air hose caps
Teflon tape

REMOVAL

WARNING

Chock rear wheels.

CAUTION

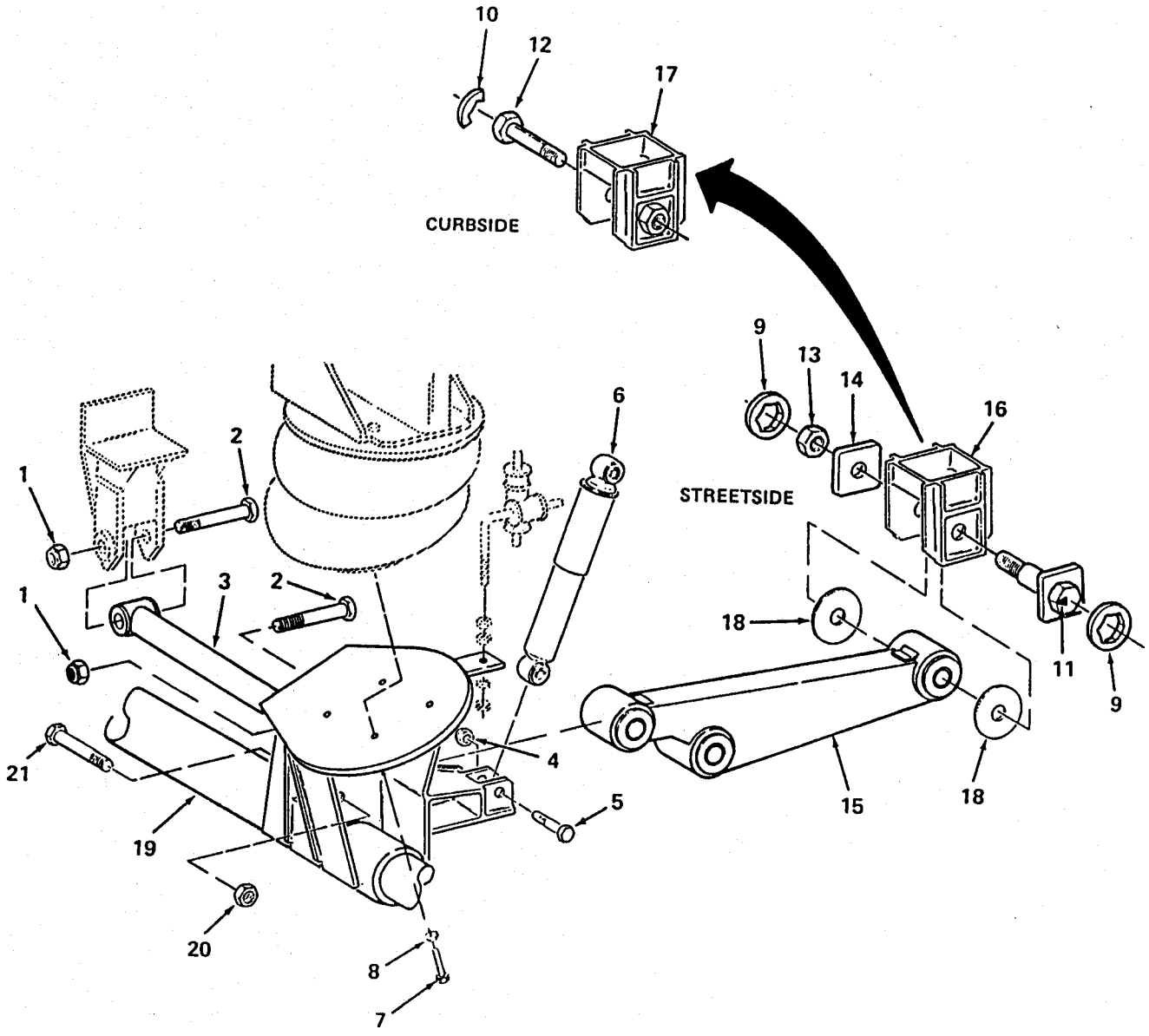
Ensure wheels are facing straight ahead when raising and securing towbar.

NOTE

If an axle is to be removed for replacement or repair, remove axle and suspension together and disassemble after removal.

a. Tag, disconnect, and remove hoses from brake chambers. Cap brake chamber, hoses and air bags.

b. Remove two lock nuts (1) and bolts (2) from sway bar (3). (Mark streetside and curbside for ease of replacement.) Remove sway bar (3).



5-4. FRONT AXLE (CONT)

c. Remove two lock nuts (4) and shock bolts (5) from each side of vehicle, and remove shock absorbers (6).

d. Remove four bolts (7) and lockwashers (8) from air bags on both sides of vehicle. Remove air bag plates.

e. Disconnect short tie rod (para. 4-28). Tie off leveling valve rods.

CAUTION

Be careful when cutting off lock rings to prevent damage to frame and/or air lines.

f. Using an Oxy-Acetylene cutting torch, remove welds on suspension hanger bolt lock rings (9 and 10).

g. Lower axle to the ground and remove jacks.

h. Mark location of arrow on head of bolt (11) on streetside of vehicle.

i. Remove curbside hanger bolt (12) using an impact wrench.

NOTE

Do not try to rotate the streetside hanger bolt with the impact wrench. The nut must be rotated.

j. Remove nut (13) and clamping plate (14) from streetside hanger bolt (11) using an impact wrench.

k. Rotate streetside hanger bolt (11) as required to bring arrow stamped on the head straight up. Drive out bolt (11) using a drift punch.

WARNING

Ensure all personnel are clear of torsion bars.

l. Drive both torsion bars (15) down, out of hangers (16 and 17) and remove two spacers (18).

m. Roll axle (19) out from under vehicle.

DISASSEMBLY

WARNING

Ensure all personnel are clear of torsion bars.

NOTE

It may be necessary to drive bolts out of axle assembly due to their tight fit. Use a drift pin and mallet or hydraulic jack blocked against brake drum flange.

a. Jack up axle and block up.

b. Remove nuts (20) and bolts (21) from axle assembly (19).

c. Remove torsion bars (15).

d. Remove hubs and drums (para. 4-26).

e. Remove tie rods (para. 4-28).

f. Remove brakes, camshafts and slack adjusters (para. 4-16, 4-17 and 4-18).

g. Remove brake air chambers (para. 4-20).

CLEANING

Clean axle thoroughly, using a brush and water to remove mud and cleaning compound to remove grease and oil. Wipe off.

INSPECTION

Inspect axle for cracks, broken or distorted brackets and pads, corrosion or other damage.

ASSEMBLY

a. Install brake air chambers (para. 4-20).

b. Remove slack adjusters, camshafts, and brakes (para. 4-18, 4-17 and 4-16).

c. Remove hubs and drums (para. 4-26).

5-4. FRONT AXLE (CONT)

d. Install tie rods (para. 4-28).

e. Install torsion bars (15) into axle (19) with two bolts (21) and nuts (20).

f. Apply a light coat of grease to bolts (21) and install into axle (19).

g. Install nuts (20) onto bolts (21). Torque bolts to 800-1000 lb ft.

INSTALLATION

a. Slide axle assembly (19) under frame of trailer.

b. Apply a coat of grease to hanger bolts (11 and 12) and spacer washers (18).

c. Install spacer washers (18) onto torsion bars (15).

d. Using three people and two hydraulic jacks, push both torsion bars into hangers (17 and 16) from the underside. Aline holes using a drift pin or alinement pin.

CAUTION

Stamped arrow bolt must be used on streetside.

e. Install eccentric bolt (11) into streetside hanger (16) with stamped arrow pointing straight up. Attach clamping plate (14) and nut (13) to streetside bolt, but do not torque at this time. Ensure clamping plate is clear of all debris.

f. Install curbside bolt (12) into hanger (17) by screwing bolt (12) in with an impact wrench.

g. Raise axle to frame.

h. Check curbside and streetside markings and install sway bar with two bolts (2) and nuts (1). Torque bolts to 650-680 lb ft.

i. On each side, install four lockwashers (8) and bolts (7) onto air bags and torque to 15-20 lb ft.

j. Install each shock with two bolts (5) and nuts (4) and torque to 140-150 lb ft.

k. Connect leveling valve linkage (para. 4-40).

l. Rotate streetside hanger bolt (11) to aline arrow with mark on frame.

NOTE

Do not allow streetside bolt to rotate while torquing.

m. Torque streetside hanger nut (13) to 740-750 lb ft.

n. Torque curbside hanger bolt (12) to 740-750 lb ft.

o. Install short tie rod (para. 4-28). Install leveling valve rod (para. 4-40).

p. Weld new lock rings (9 and 10) onto hanger bolts (11 and 12).

q. Install wheels (para. 3-5).

r. Apply anti-seize tape to threads and reconnect air hoses to brake chambers and air bags.

END OF TASK

5-5. TORSION BARS

This task covers: a. Removal c. Inspection
b. Cleaning d. Installation

INITIAL SETUP

Tools

General mechanics tool kit
Torque wrench
Cutting torch
Impact wrench
Hydraulic jack (2)
Drift punch
Assembly tool (figure G-3)
(for rear streetside)

Materials/Parts

Hanger bolt lock ring (4)

Equipment Condition

Sway bar removed (para. 4-42)
Shocks removed (para. 4-41)
Air bag removed (para. 4-39)
Tie rods removed (front only)
(para. 4-28)
Axle removed (front or rear)
(para. 5-4, 5-6)

NOTE

Front and rear torsion bars are identical. Front installation is shown.

5-5. TORSION BARS (CONT)

CAUTION

Use caution when cutting off lock ring (1 and 2) welds to prevent damage to frame and/or air lines.

a. Using an Oxy-Acetylene torch, remove welds on suspension hanger bolt lock rings (1 and 2).

b. Jack up frame to remove weight from axle (3) and block up frame.

c. Place jack stand under torsion bar (4) and lower axle (3) to the ground.

d. Mark location of arrow on head of bolt (5) on streetside of vehicle.

e. Remove curbside hanger bolt (6) using impact wrench.

CAUTION

Do not try to rotate the streetside hanger bolt (5) with the impact wrench. The nut (7) must be rotated.

f. Remove nut (7) and clamping plate (8) from streetside hanger bolt (5), using an impact wrench.

g. Rotate streetside hanger bolt (5), as required, to bring arrow stamped on the head straight up. Drive out bolt (5) using a drift punch.

WARNING

Ensure all personnel are clear of torsion bars.

h. Drive both torsion bars (4) down, out of hangers (9 and 10). Remove spacers (11).

i. Replace jack stand with wooden blocks to support frame.

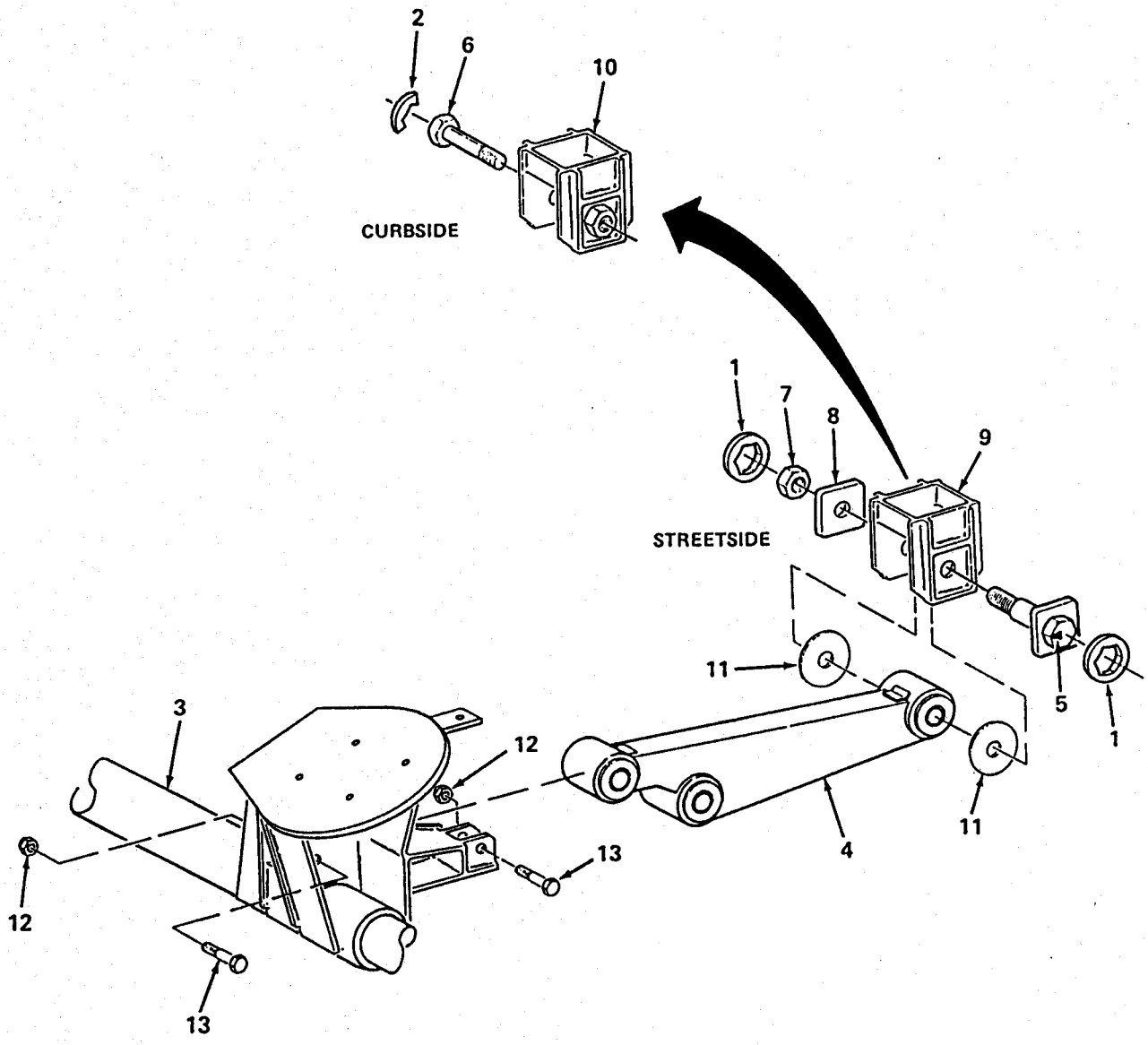
j. Roll axle (3) and torsion bars (4) out from under vehicle.

NOTE

It may be necessary to drive bolts (13) out of axle assembly (3) due to tight fit. Use a drift pin and mallet or hydraulic jack blocked against brake drum flange.

k Remove four nuts (12) and four bolts (13) from axle assembly (3).

l. Remove torsion bars (4).



CLEANING

Clean torsion bars using a brush and water to remove mud and cleaning compound to remove grease and oil. Wipe off.

INSPECTION

Inspect torsion bars for cracks, corrosion or other damage.

5-5. TORSION BARS (CONT)

INSTALLATION

a. Install torsion bars (4) into axle (3).

b. Apply a light coat of grease to two bolts (13) and install bolts (13) into axle (3).

c. Install two nuts (12) onto bolts (13). Using an impact wrench and torque wrench, torque bolts (13) to 800-1000 lb ft.

d. Roll axle assembly (3) under frame of trailer.

e. Apply a coat of grease to hanger bolts (6 and 5) and spacers (11).

f. Install spacers (11) onto torsion bars (4).

g. Using three people and a hydraulic jack, push both torsion bars (4) into hangers (10 and 9) from the underside. Aline holes using a drift pin or alinement pin.

CAUTION

Stamped arrow bolt (5) must be used on streetside hanger (9).

h. Install eccentric bolt (5) into streetside hanger (9) with stamped arrow pointing straight up. Attach clamping plate (8) and nut (7) to streetside bolt (5) but do not torque at this time.

i. Install curbside bolt (6) into hanger (10) by screwing in bolt (6) with an impact wrench.

j. Raise axle to frame.

k. Rotate streetside hanger bolt (5) to aline arrow with mark on frame.

NOTE

Do not allow streetside bolt (5) to rotate while torquing.

l. Torque streetside hanger nut (7) to 740-750 lb ft.

m. Torque curbside hanger bolt (6) to 740-750 lb ft.

n. Weld new lock rings (1 and 2) onto hanger bolts (5 and 6).

END OF TASK

5-6. REAR AXLE

This task covers: a. Removal b. Disassembly c. Cleaning d. Inspection e. Assembly f. Installation

---

INITIAL SETUP

Tools

General mechanics tool kit
Cutting torch
Hydraulic jack (2)
1-7/8-inch socket wrench
Socket wrench set
Torque multiplier
Open end wrench
Open end wrench
Open end wrench
Arc welder
Pinch bar
Sledge hammer
Assembly tool (figure G-3)
(rear streetside torsion bar)

Equipment Condition

Rear wheels removed (loosen nuts, raise trailer, remove nuts and wheels)
Leveling valve linkage disconnected (para. 4-40)
Air drained
Frame jacked up to remove weight from axle, frame on blocks
Hydraulic jacks under axle, weight supported

Materials/Parts

Anti-seize tape (item 16, appendix E)
Cleaning compound (item 3, appendix E)
Grease GAA (item 7, appendix E)
Lock nut (2)
Lock nut (2)
Lockwasher (8)
Lock ring
Lock ring
Industrial goggles
Brake chamber, air bag, and air hose caps
Teflon tape

REMOVAL

WARNING

Chock front wheels.

NOTE

If an axle is to be removed for replacement or repair, remove axle and suspension together and disassemble after removal.

a. Tag, disconnect, and remove hoses from brake chambers and air bags. Cap brake chamber, hoses and air bags.

5-6. REAR AXLE (CONT)

b. Remove lock nut (1) and bolt (2) from sway bar (3). (Mark streetside and curbside for ease of replacement.) Remove sway bar (3) from axle mount. On frame end, remove nut (1) and move bolt (2) back. Tie up axle end of sway bar (3).

c. Remove two lock nuts (4) and shock bolts (5) from each side of vehicle, and remove shock absorbers (6).

d. Remove four bolts (7) and lockwashers (8) from air bags on both sides of vehicle. Remove air bag plates.

CAUTION

Be careful when cutting off lock rings to prevent damage to frame and/or air lines.

e. Using an Oxy-Acetylene cutting torch, remove welds on suspension hanger bolt lock rings (9 and 10).

f. Lower axle to the ground and remove jacks.

g. Mark location of arrow on head of bolt (11) on streetside of vehicle.

h. Remove curbside hanger bolt (12) using an impact wrench.

NOTE

Do not try to rotate the streetside hanger bolt with the impact wrench. The nut must be rotated.

i. Remove nut (13) and clamping plate (14) from streetside hanger bolt (11) using an impact wrench.

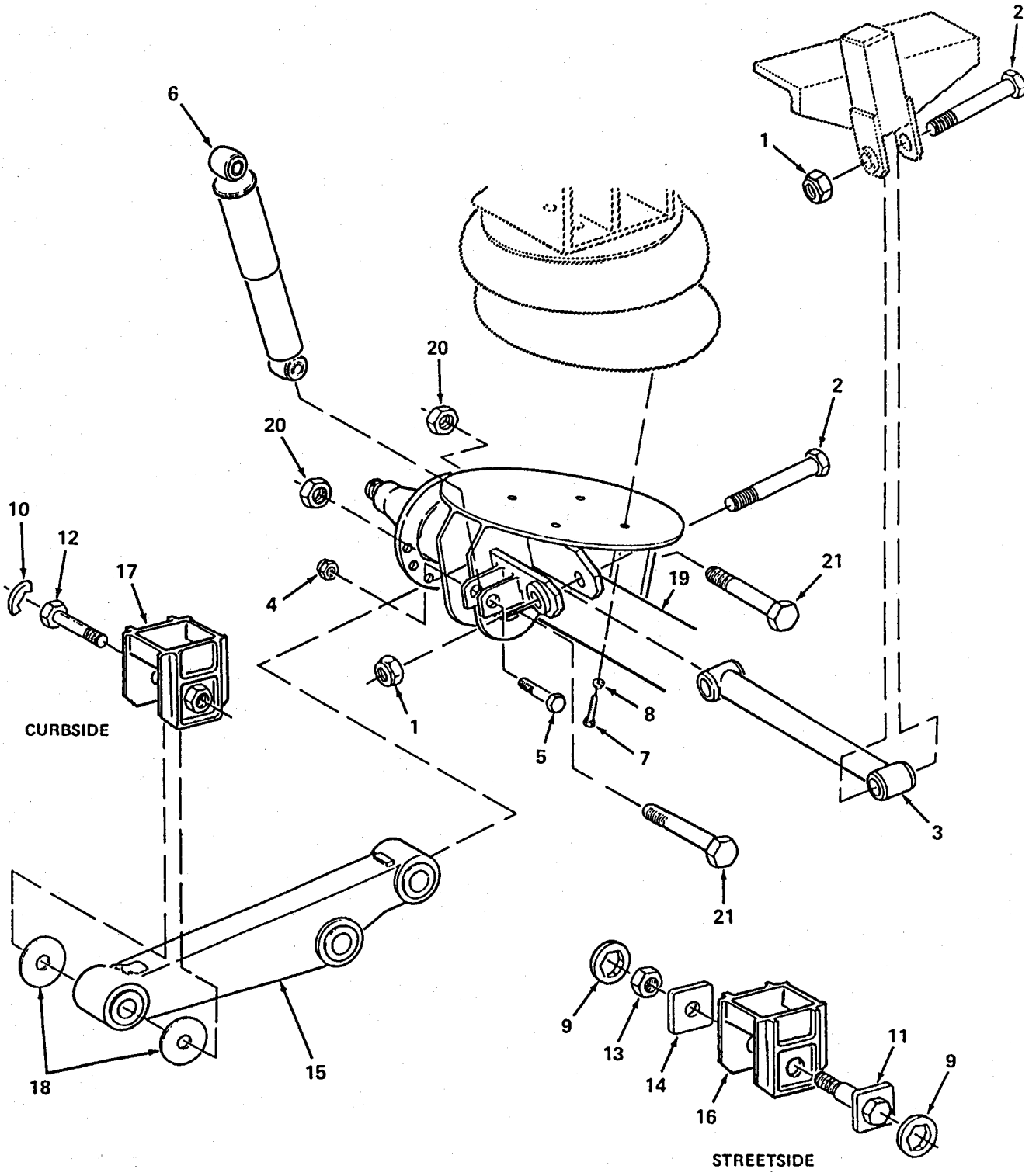
j. Rotate streetside hanger bolt (11) as required to bring arrow stamped on the head straight up. Drive out bolt (11) using a drift punch.

WARNING

Ensure all personnel are clear of torsion bars.

k. Drive both torsion bars (15) down, out of hangers (16 and 17), and remove two spacers (18).

l. Roll axle (19) out from under vehicle.


2
6
1
20
20
2
10
12
17
4
19
21
1
8
5
7
CURBSIDE
3
21
9
13
14
16
11
9
18
15
STREETSIDE

5-6. REAR AXLE (CONT)

DISASSEMBLY

WARNING

Ensure all personnel are clear of torsion bars.

NOTE

It may be necessary to drive bolts out of axle assembly due to their tight fit. Use a drift pin and mallet or hydraulic jack blocked against brake drum flange.

a. Jack up axle and block up.

b. Remove nuts (20) and bolts (21) from axle assembly (19).

c. Remove torsion bars (15).

d. Remove hubs and drums (para. 4-26).

e. Remove tie rods (para. 4-28).

f. Remove brakes, camshafts and slack adjusters (para. 4-16, 4-17 and 4-18).

g. Remove brake air chambers (para. 4-20).

CLEANING

Clean axle thoroughly, using a brush and water to remove mud and cleaning compound to remove grease and oil. Wipe off.

INSPECTION

Inspect axle for cracks, broken or distorted brackets and pads, corrosion or other damage.

ASSEMBLY

a. Install brake air chambers (para. 4-20).

b. Remove slack adjusters, camshafts, and brakes (para. 4-18, 4-17 and 4-16).

c. Remove hubs and drums (para. 4-26).

d. Install torsion bars (15) into axle (19) with two bolts (21) and nuts (20).

e. Apply a light coat of grease to bolts (21) and install into axle (19).

f. Install nuts (20) onto bolts (21). Torque bolts to 800-1000 lb ft.

INSTALLATION

a. Slide axle assembly (19) under frame of trailer.

b. Apply a coat of grease to hanger bolts (12 and 11) and spacer washers (18).

c. Install spacer washers (18) onto torsion bars (15).

d. Using three people and two hydraulic jacks, push both torsion bars into hangers (17 and 16) from the underside. Aline holes using a drift pin or alinement pin.

CAUTION

Stamped arrow bolt must be used on streetside.

e. Install eccentric bolt (11) into streetside hanger (16) with stamped arrow pointing straight up. Attach clamping plate (14) and nut (13) to streetside bolt, but do not torque at this time. Ensure clamping plate is clear of all debris.

f. Install curbside bolt (12) into hanger (17) by screwing bolt (12) in with an impact wrench.

g. Raise axle to frame.

h. Check curbside and streetside markings and install sway bar with two bolts (2) and nuts (1). Torque bolts to 650-680 lb ft using torque wrench and extender.

i. On each side, install four lockwashers (8) and bolts (7) onto air bags and torque to 15-20 lb ft.

j. Install each shock with two bolts (5) and nuts (4) and torque to 140-150 lb ft.

k. Connect rear center leveling valve linkage (para. 4-40).

l. Rotate streetside hanger bolt (11) to aline arrow with mark on frame.

NOTE

Do not allow streetside bolt to rotate while torquing.

m. Torque streetside hanger nut (13) to 740-750 lb ft.

n. Torque curbside hanger bolt (12) to 740-750 lb ft.

o. Weld new lock rings (9 and 10) onto hanger bolts (11 and 12).

p. Install wheels (para. 3-5).

END OF TASK

5-6. REAR AXLE (CONT)

q. Remove caps and reconnect air hoses to brake chambers.

r. Apply anti-seize tape to threads and reconnect air hoses to brake chambers and air bags.

END OF TASK

5-7. BRAKE DRUMS

This task covers: a. Inspection b. Repair

INITIAL SETUP

Tools

Brake drum lathe

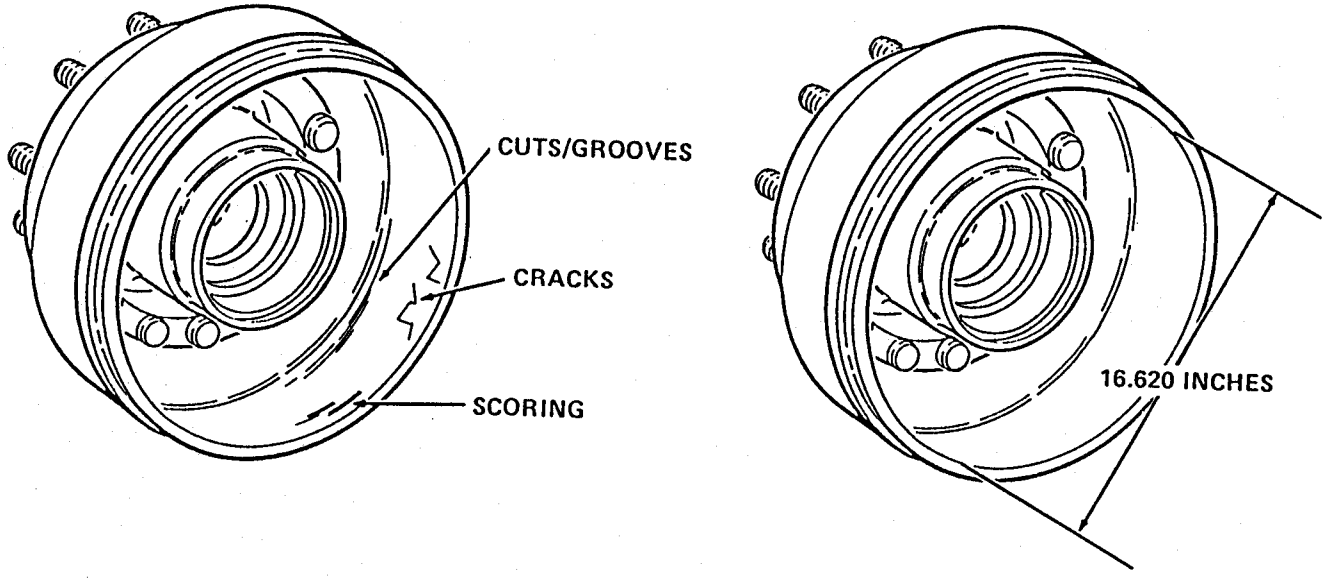
Materials/Parts

Cleaning compound (item 3, appendix E)
Wiping rag (item 12, appendix E)

INSPECTION

a. Inspect machined surface texture of drum for grooves, cuts, scoring, surface cracks and out-of-roundness.

b. Measure inner diameter of drum. If inside diameter of drum is greater than 16.620 inches, replace it. If inside diameter is less than 16.620 inches, and any defects are found, drum must be turned (machined).



REPAIR

a. Install drum on lathe and turn drum, as required, until a smooth finish can be obtained. If, after a series of attempts, a smooth finish cannot be obtained, discard drum.

b. If a smooth finish is obtained, remeasure inside diameter. If inside diameter exceeds 16.620 inches, discard drum and replace.

c. If a smooth finish is obtained and maximum inside diameter is less than 16.620 inches, drum is repaired.

END OF TASK

Section III. PREPARATION FOR STORAGE OR SHIPMENT

5-8. PREPARATION FOR STORAGE

a. Open drain cocks on all three air tanks on the trailer (para. 4-22).

b. Cage rear brake air chambers (para. 3-6).

c. Perform complete lubrication (para. 3-2).

d. Reduce tire pressure to 20 psi (cold).

END OF TASK

5-9. PREPARATION FOR SHIPMENT

a. Open drain cocks on all three air tanks on the trailer (para. 4-22).

b. Cage rear brake air chambers (para. 3-6).

c. Perform complete lubrication (para. 3-2).

d. Reduce tire pressure to 20 psi (cold).

END OF TASK

5-10. PREPARATION FOR USE AFTER STORAGE

a. On bias tires, inflate tires to 100 psi (cold) (65 psi for off-road use).

a.1. On radial tires, inflate tires to 105 psi.

b. Close all three air tank drain cocks.

c. Uncage brake air chambers (para. 3-6).

d. Perform operator/crew and unit preventive maintenance services.

END OF TASK

APPENDIX A

REFERENCES

A-1. PUBLICATION INDEXES AND GENERAL REFERENCES

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

a. Military Publication Indexes.

Consolidated Index of Army Publications and Forms..... DA PAM 25-30

b. General References.

How to Prepare and Conduct Military Training..... FM 21-6
Military Symbols..... FM 21-30

A-2. FORMS

Refer to DA PAM 738-750, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to the material.

A-3. OTHER PUBLICATIONS

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

a. Camouflage.

Camouflage..... FM 5-20

b. Decontamination.

Chemical, Biological, and Radiological (CBR) Decontamination..... TM 3-220
Nuclear, Biological, and Chemical Defense..... FM 21-40

c. General.

Basic Cold Weather Manual..... FM 31-70
Manual for Wheeled Vehicle Driver..... FM 21-305
Driver Selection and Training (Wheeled Vehicles)..... FM 21-300
Northern Operations..... FM 31-71
Operation and Maintenance of Ordnance Material in Cold Weather (0°F to -65°F)..... FM 9-207
Procedures for Destruction of Tank Automotive Equipment to Prevent Enemy Use..... TM 750-244-6
Visual Signals..... FM 21-60

A-3. OTHER PUBLICATIONS (CONT)

d. Maintenance and Repair.

Operator, Unit, Direct Support, and General Support Care, Maintenance, Repair, and Inspection of Pneumatic Tires and Inner Tubes ..... TM 9-2610-200-14
Description, Use, Bonding Techniques, and Properties of Adhesives ..... TB ORD 1032
Inspection, Care, and Maintenance of Antifriction Bearings ..... TM 9-214
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Material and Related Materials Including Chemicals ..... TM 9-247
Welding Theory and Application ..... TM 9-237
Tool Outfit, Hydraulic Systems Test and Repair (HSTRU) ..... TM 9-4940-468-14
Ammunition and Explosives Standards ..... TM 9-1300-206

APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL

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

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

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

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

B-2. MAINTENANCE FUNCTIONS

Maintenance functions will be limited to and defined as follows:

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

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

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

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

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

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

B-2. MAINTENANCE FUNCTIONS (CONT)

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

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

i. Repair. The application of maintenance services[1] or other maintenance actions[2] to restore serviceability to an item by correcting specific damage, fault, malfunction or failure in a part, subassembly, module (component or assembly), end item or system.

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

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of 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 equipments/components.

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

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

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

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on an 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.

---

1 Services--inspect, test, service, adjust, aline, calibrate or replace.

2 Actions--welding, grinding, riveting, straightening, facing, remachining or resurfacing.

The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

C..... Operator or crew
O..... Unit maintenance
F..... Direct support maintenance
H..... General support maintenance
D..... Depot maintenance

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

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

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

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

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

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

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

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

B-5. EXPLANATION OF COLUMNS IN REMARKS

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

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

Section II. MAINTENANCE ALLOCATION CHART

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment	(6) Remarks
			Unit						
			C	O	F	H	D		
06	ELECTRICAL SYSTEM								
0609	LIGHTS								
	LIGHTS	REPAIR		.2					
		INSPECT	.1	.1					
		REPLACE		.3				7	
0613	HULL OR CHASSIS WIRING HARNESS								
	HARNESS, WIRING	INSPECT	.2	.3					
		REPLACE		.3				7,26	
		REPAIR		.1				7,26	
10	FRONT AXLE								
1000	FRONT AXLE ASSEMBLY								
	AXLE ASSEMBLY	INSPECT		1.0				7,19	
		REPLACE			9.0			5,8,12,23	
		SERVICE	.2					1,3,7,8,11, 12,15,16,17, 18,20,23,27, 28,29,30,31, 32,33,34,35, 36,37,38,39	
1004	STEERING AND LEANING WHEEL MECHANISM								
	KING PIN	REPLACE		1.0				1,3,7,8,11, 12,15,16,17, 18,20,23,42	
11	REAR AXLE								
1100	REAR AXLE ASSEMBLY								
	AXLE ASSEMBLY	INSPECT		1.0					
		REPLACE			6.0			1,5,7,11,15, 17,18,20,27, 28,29,30,31, 32,33,34,35, 36,37,38,39	
12	BRAKES								
1202	SERVICE BRAKES								
	SERVICE BRAKE ASSY	INSPECT	.1						
		ADJUST		.5				3,7,25	
		REPLACE		2.2				3,7,11,15,17, 18,20	
		REPAIR		1.9				3,7,11,15,17, 18,20	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment	(6) Remarks
			Unit						
			C	O	F	H	D		
	BRAKE SHOE ASSEMBLY	INSPECT		.5				3,7	
		REPLACE		1.4				3,7,17,18,20	
	CAMSHAFT ASSEMBLY	REPLACE		1.0				3,7,17,18,20	
		SERVICE		.2					
1206	MECHANICAL BRAKE SYSTEM								
	SLACK ADJUSTER	ADJUST		.1					
		REPLACE		.5				7,11	
		SERVICE		.2					
1208	AIR BRAKE SYSTEM								
	AIR CLEANER	INSPECT		.1				7	
		REPLACE		.5				7,12	
		REPAIR		.5					
	BRAKE AIR CHAMBER	REPLACE		.5				7	
	AIR HOSE & FITTINGS	REPLACE		.5				7	
		REPAIR		1.0					
	AIR RESERVOIRS	SERVICE	.2					7	
		REPLACE		.9					
	VALVE, RELAY	REPLACE		.5				2,7	
	VALVE, BRAKE CNTRL	REPLACE		.7				7	
	MULTIFUNCTION VALVE	REPLACE		.8				7	
13	WHEEL AND TRACKS								
1311	WHEEL ASSEMBLY								
	WHEEL ASSEMBLY	REPLACE	.7					7	
	HUB AND DRUM	INSPECT		1.7				3,7,17,18,20	
		REPLACE		2.4				3,4,7,17,18, 20	
		REPAIR		1.0	1.6			3,4,7,17,18, 20	
	BEARINGS	ADJUST		.8				3,18	
		SERVICE		2.4				3,7,17,18,20	
		INSPECT		.3					
		REPLACE		1.4				3,4,7,11,17, 18,20	
1313	TIRES, TUBES, TIRE CHAINS								
	TIRES	SERVICE	.2					7	
		REPLACE		2.5				7	
		REPAIR		.8				7	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment	(6) Remarks
			Unit						
			C	O	F	H	D		
14	STEERING								
1401	MECHANICAL STEERING GEAR ASSEMBLY								
	PIVOT ASSEMBLY	SERVICE	.2	3.0					
		REPLACE		3.0				1,3,7,13,14	
		REPAIR		.6				3,7,39	
	TIE RODS	SERVICE		.2					
		ADJUST		1.5				7	
		REPLACE		1.5				1,3,7,13,18	
15	FRAME TOWING ATTACH-MENT AND DRAWBARS								
1501	FRAME ASSEMBLY								
	FRAME	INSPECT	.2	2.0				3,7,17,18,20	A
		REPAIR		.3				7,9,10,21,22	
	BUMPERS	REPLACE		.1				7,15	
	POD STOPS	REPLACE		.2				6,7	
	SPLASH GUARD	REPLACE		.1				7	
	SAFETY CHAIN	REPLACE		.2				18	
	STORAGE BOX COVER	REPAIR		.5				7	
	FIRE EXTINGUISHER BRACKET	REPLACE		.2				21,22	
	FOLDABLE STEPS	REPLACE		.1				7	
1503	PINTLES AND TOWING ATTACHMENTS								
	TOWBAR ASSEMBLY	INSPECT	.1						
		REPLACE		.4				7,13,14,40,41	
		SERVICE	.2						
16	SPRINGS AND SHOCK ABSORBERS								
1601	SPRINGS								
	AIR BAG SUSPENSION	INSPECT	.1	.2					
		REPLACE		1.3				3,7	
	LEVELING VALVES	REPLACE		.5				7	

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Category					(5) Tools and Equipment	(6) Remarks
			Unit						
			C	O	F	H	D		
1604	SHOCK ABSORBER EQUIPMENT								
	SHOCK ABSORBERS	INSPECT	.1						
		REPLACE		.3				7,23,32	
1605	TORQUE, RADIUS, AND STABILIZER RODS								
	SWAY BARS	REPLACE		.5				7,32	
	TORSION BARS	REPLACE			3.7			7,20,33	
18	BODY CAB HOOD AND HULL								
1801	BODY CAB HOOD AND HULL ASSEMBLIES								
	SIDE PANELS	SERVICE	.2						
		INSPECT	.1						
		REPLACE		.2					
		REPAIR		.2					A
1805	FLOORS SUBFLOORS AND RELATED COMPONENTS								
	FLOORBOARDS	INSPECT	.2						
		REPLACE		10.0				6,7,22	
2202	REFLECTORS	REPLACE		.1				7	
2210	DATA PLATES	REPLACE		.3				7,21	

Section III. TOOLS AND TEST EQUIPMENT REQUIREMENTS

(1) Reference Code	(2) Maintenance Category	(3) Nomenclature	(4) National Stock Number	(5) Tool
1	O,F	TIE ROD SEPARATOR		A203
2	O	WRENCH, STRAP		BT-BS-601
3	O,F	STANDS, JACK		SW25482
4	O,F	ARBOR PRESS TOOL		YA621
5	F	JACK, TRANSMISSION		YA876
6	O,F	TORX DRIVER SET		212FTXY
7	O,F	TOOL KIT MECH	4910-00-754-0650	-
8	F	KING PIN PRESS	4910-00-125-7906	-
9	O	DRIFT, PUNCH	5110-00-234-1949	-
10	O	SCRAPER	5110-01-017-9440	-
11	O,F	PULLER	5120-00-030-7942	-
12	O, F	RACHET	5120-00-221-7968	-
13	O	PLIER	5120-00-223-7396	-
14	O	WRENCH 2”	5120-00-224-3109	-
15	O,F	SOCKET 15/16	5120-00-243-7343	-
16	F	SOCKET 11/16	5120-00-243-7346	-
17	0,F	WRENCH 2-3/4	5120-00-293-0674	-
18	C,O,F	PLIERS, DIA CUT	5120-00-537-3375	-
19	O	MIRROR, INSPECTION	5120-00-618-6901	-
20	O,F	DRIFT, PUNCH	5120-01-007-8364	-
21	O	RIVET PNEUMATIC	5130-00-595-8339	-
22	O	DRILL, ELEC 3/8	5130-00-935-7354	-
23	F	SOCKET 2-1/16	5130-01-166-6465	-
24	O	TK-101/G TOOL KIT	5180-00-064-5178	-
25	O	GAGE, FEELER	5210-00-131-9005	-

(1) Reference Code	(2) Maintenance Category	(3) Nomenclature	(4) National Stock Number	(5) Tool
26	0	TOOL KIT, ELECTRICAL CONNECTOR REPAIR	5180-00-876-9336	-
27	F	WRENCH, OPEN END	5120-00-184-8739	-
28	F	WRENCH, OPEN END	5120-00-449-8171	-
29	F	WRENCH, OPEN END	5120-00-081-9100	-
30	F	WRENCH, SOCKET 1-7/8	5130-00-227-5053	-
31	F	WRENCH, SOCKET SET	5120-00-081-2309	-
32	O,F	MULTIPLIER, TORQUE	5120-01-122-9393	-
33	F	TORCH, CUTTING		-
34	F	WELDER, ARC		-
35	F	JACK STANDS (4 EA)	7910-00-251-8013	-
36	F	BAR, PINCH	5120-00-224-1384	-
37	F	HAMMER HAND, SLEDGE	5120-00-900-6097	-
38	F	GOGGLES, INDUSTRIAL	4240-00-269-7912	-
39	O,F	JACK, DOLLY TYPE	4910-00-289-7233	-
40	O	WRENCH, OPEN END 2-3/16	5120-00-293-1531	-
41	O	WRENCH, OPEN END 1-1/4	5120-00-277-2322	-
42	O	INSERTER, BEARING AND BUSHING	5120-01-296-3099	-
43	O	TIRE IRON, 52 INCH	5120-01-170-5008	34847
44	O	TIRE IRON, 36 INCH	5120-00-177-6793	T46B
45	O	HAMMER, CROSS PEEN, 3 LB	5120-00-900-6103	-

Section IV. REMARKS

(1) Reference Code	(2) Remarks
A	MAINTENANCE LEVEL DEPENDS ON EXTENT OF REPAIR

APPENDIX C

COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

Section I. INTRODUCTION

C-1. SCOPE

This appendix lists components of end item and basic issue items for the trailer to help you inventory items required for safe and efficient operation.

C-2. GENERAL

The Components of End Item and Basic Issue Items Lists are divided into the following sections:

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

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

C-3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

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

b. Column (2) - National Stock Number. This column indicates the national stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description. This column indicates the national item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the CAGEC (in parentheses) followed by the part number.

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

e. Column (5) - Quantity Required (Qty Rqr). This column indicates the quantity of the item authorized to be used with/on the equipment.

Section II. COMPONENTS OF END ITEM

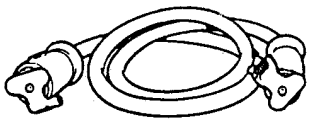
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
		NONE			

Section III. BASIC ISSUE ITEMS

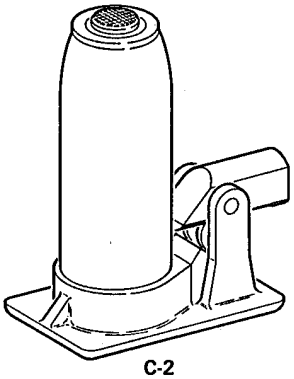
(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
C-1	5995-00-038-3914	Intervehicular Cable (96521) 490630		ea	1
C-2	5120-00-595-8396	8-Ton Hydraulic Jack and Handle (19207) 12300922		ea	1
C-3	4910-01-301-3051	5-Ton Vehicle Stand (36251) 93506		ea	1
C-4		Mud Plate (98255) SW25475		ea	1
C-5	5342-01-298-7815	Cap Assembly (98255) SW25471		ea	1
C-6	5120-00-203-6480	Lug Wrench (75204) TR98		ea	1
C-7	5120-01-134-9422	Wrench Handle (75204) 32318		ea	1
C-8	4210-01-133-9053	Fire Extinguisher (03670) 79734		ea	1
C-9	2540-00-678-3469	Trailer Wheel Chock (19207) 7979235		ea	2
C-10	5340-00-682-1508	Padlock (58536) A-A-59487-1BC		ea	1
C-11		Corner Protectors (31272) 41516-11M		ea	16
C-12	5340-01-204-3009	Tiedown Straps (19200) MIL-PRE-71244		ea	8

Section III. BASIC ISSUE ITEMS - CONT

(1) Illus Number	(2) National Stock Number	(3) Description CAGEC and Part Number	Usable On Code	(4) U/M	(5) Qty Rqr
C-13	4710-01-360-4273	Lug Wrench Extension Bar (98255) SW26621		ea	1
C-14	5342-01-342-0213	Cap Assembly (98255) SW29454		ea	1
C-15	4030-01-352-7553	Shackle, Towing (98255) SW31088		ea	2



C-1



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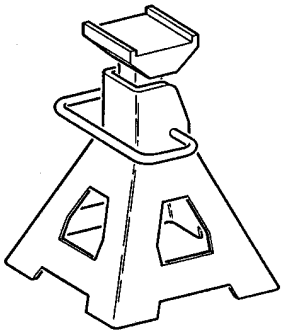

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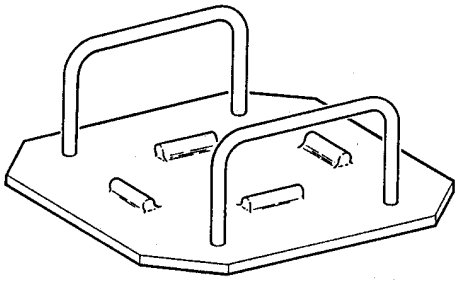
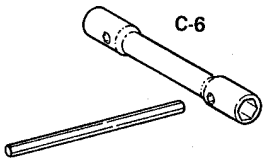


C-4

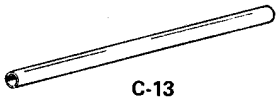
C-5

C-14



C-6

C-7



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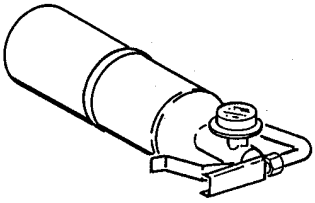

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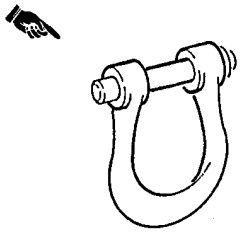

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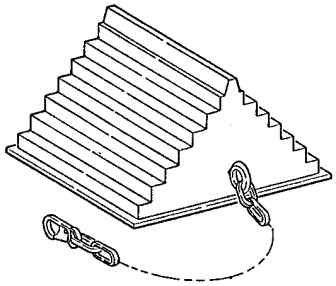

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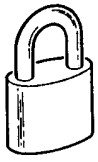

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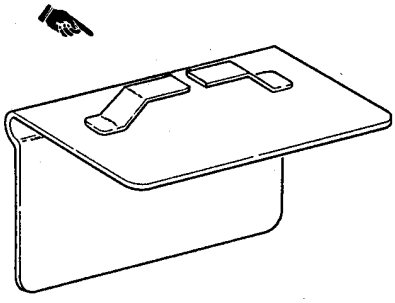

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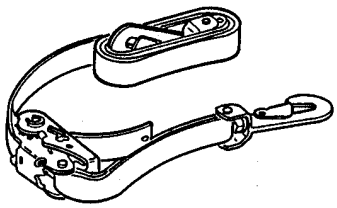


C-12

APPENDIX D

ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists additional items you are authorized for the support of the trailer.

D-2. GENERAL

This list identifies items that do not have to accompany the trailer and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

D-4. 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 items(s) to you.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) National Stock Number	(2) Description CAGEC and Part Number Usable on Code	(3) U/M	(4) Qty Auth
3990-01-394-5633	CARGO TIEDOWN, VEHICULAR (97403) 13230E4695	EA	1
2540-01-460-9082	EXTENSION KIT, TOWBAR (19207) 57K3474	EA	1
4930-01-028-1442	GUN, GREASE (10001) 3133414	EA	1

APPENDIX E

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the trailer. These items are authorized to you by CTA 50-950, Expendable Items (Except Medical, Class V, Repair Parts and Heraldic Items).

E-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number. The item number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Cleaning compound, item 3, appendix E")

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

C - operator/crew maintenance
O - unit maintenance
F - direct support maintenance
H - general support maintenance

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

d. Column (4) - Description. Column (4) 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). Column (5) indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	O	8040-00-221-3811	ADHESIVE, RUBBER BASE: (80244) MMM-A-1617 2 oz bottle	 oz
1.1	O	7920-00-061-0037	BRUSH, SCRUB: (58536) A-A-2074	 ea
2	F		CAULKING COMPOUND, BUTYL: (98255) TT-S-001657	 tu
3	C	6850-00-597-9765	CLEANING COMPOUND SOLVENT: (81349) MIL-C-18718 1 gal can	 gl
4	F	5350-00-221-0872	CLOTH, ABRASIVE (CROCUS): (81348) P-C-458 50-sheet package	 sh
5	F		COATING, ALIPHATIC POLYURETHANE, CHEMICAL AGENT RESISTANT: Forest green (81349) MIL-C-46268A(MR)	 gl
5.1	O	8030-01-361-1814	CORROSION PREVENTIVE COMPOUND: (81349) MIL-PRF-81733, type I 3.5 oz cartridge	 oz
6	O	6850-01-474-2302	DRY CLEANING SOLVENT: (81349) MIL-PRF-680, type I 1 gal can	 gl
7	C		GREASE, AUTOMOTIVE AND ARTILLERY: GAA (81349) MIL-PRF-10924	
		9150-01-197-7688	2-1/4 oz tube	oz
		9150-01-197-7693	14 oz cartridge	oz
		9150-01-197-7690	1.75 lb can	lb
		9150-01-197-7692	35 lb can	lb
7.1	O	2640-00-256-5527	LUBRICANT, TIRE AND RIM: (96980) 1 gal can	 gl
8	O	9150-01-035-5390	OIL, LUBRICATING (81349) MIL-L-2105	 qt
9	C	9150-00-186-6681	OIL, LUBRICATING, ENGINE: OE (81349) MIL-PRF-2104 30 grade, 1 qt can	 qt

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
10	O	9150-00-189-6727	OIL, LUBRICATING, ENGINE: OE (81349) MIL-PRF-2104 10W grade, 1 qt can	qt
11	F	8010-00-264-8866	PRIMER COATING, EPOXY: (81349) MIL-P-52192	kt
12	C	7920-00-205-1711	RAG, WIPING: Cotton, white, bleached, 50 lb bale (81349) DDD-R-30	be
13	O	8030-00-058-5398	SEALING, LOCKING, AND RETAINING COMPOUND, GRADE B: (05972) MIL-S-22473 2 cc tube	tu
14	O	5975-00-570-9598	STRAP, TIEDOWN, ELECTRICAL COMPONENTS: (96906) MS3367-7-9	hd
15	O	8135-00-292-2342	TAG: TYPE A, GRADE 3, 2-3/4 X 1-3/8 in. (81348) UU-T-81	bx
16	O	8030-00-889-3534	TAPE, ANTI-SEIZE: (81349) MIL-T-27730	ea
16.1	O		TAPE, CAULKING, BUTYL: (0MHJ9) Permatite No. DS5126	rl
17	F	8010-00-018-8079	THINNER, ALIPHATIC POLYURETHANE COATING: 5 gal can (81349) MIL-T-81772	cn

APPENDIX F

UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LISTS

Section I. INTRODUCTION

F-1. SCOPE

This repair parts and special tools list (RPSTL) lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of unit, direct support, and general support maintenance of the Heavy Expanded Mobility Ammunition Trailer (HEMAT). It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

F-2. GENERAL

In addition to Section I, Introduction, this RPSTL is divided into the following sections:

a. Section II - Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The lists 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 materiel are listed by item name in FIG BULK at the end of the section. Repair parts kits or sets are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in the section.

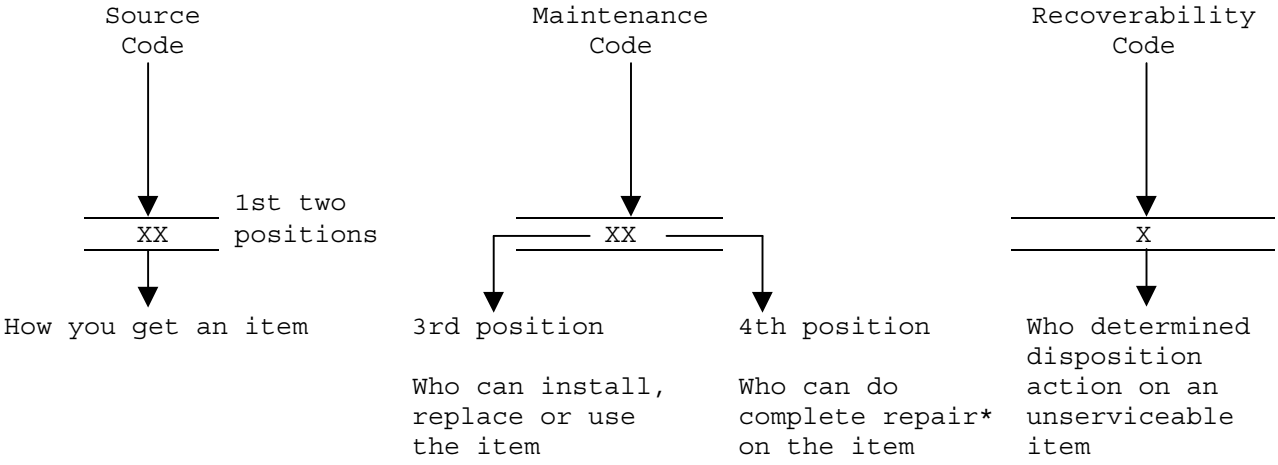
b. Section III - Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USABLE ON CODE (UOC) column) for the performance of maintenance.

c. Section IV - Cross-Reference Indexes. A list, in National Item Identification Number (NIIN) sequence, of all national stock numbered items appearing in the listings, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. The National Stock Number Index and Part Number Index are cross-referenced to each illustration/figure and item number appearance. The Figure and Item Number Index lists figures and item numbers in alphanumeric sequence and cross-references national stock number (NSN) Commercial and Government Entity Code (CAGEC).

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

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

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



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

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

Source Code	Explanation
PA PB PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3rd position of the SMR code. **NOTE: Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.

Source Code	Explanation
MO- (Made at unit/ AVUM Level) MF- (Made at DS/ AVUM Level) MH- (Made at GS Level) ML- (Made at Specialized Repair Act (SRA)) MD- (Made at Depot)	Items with these codes are not to be requested/ requisitioned individually. They must be made from bulk materiel which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the Bulk Materiel group of the Repair Parts List in this RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.
AO- (Assembled by unit/AVUM Level) AF- (Assembled by DS/AVIM Level) AH- (Assembled by GS Category) AL- (Assembled by SRA) AD (Assembled by Depot)	Items with these codes are not to be requested/ requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd position code of the SMR code authorizes you to replace the item, but the source code indicates the items are assembled at a higher level, order the item from the higher level of maintenance.

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 CAGEC and part number given.

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

XD - Item is not stocked. Order an "XD"-coded item through normal supply channels using the CAGEC and part number given, if no NSN is available.

NOTE

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

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

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

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

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

NOTE

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

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

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

Recoverability Codes	Application/Explanation
Z-	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in 3rd position of SMR code.
O-	Reparable item. When uneconomically reparable, condemn and dispose of the item at unit or aviation unit level.
F-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or aviation intermediate level.
H-	Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.
D-	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L-	Reparable item. Condemnation and disposal not authorized below specialized repair activity.
A-	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical materiel, or hazardous materiel). Refer to appropriate manuals/directives for specific instructions.

c. CAGEC (Column (3)). The CAGEC is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

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

NOTE

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

e. DESCRIPTION AND USABLE ON CODE (UOC) (Column (5)). This column includes the following information:

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) The physical security classification of the item is indicated by the parenthetical entry (insert applicable physical security classification abbreviation, e.g., Phy Sec C1 (C) -Confidential, Phy Sec C1 (S) -Secret, Phy Sec C1 (T) Top Secret).

(3) Items that are included in kits and sets are listed below the name of the kit or set.

(4) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry.

(5) Part numbers for bulk materiel are referenced in this column in the line item entry for the item to be manufactured/fabricated.

(6) When the item is not used with all serial numbers of the same model, the effective serial numbers are shown on the last lines) of the description (before UOC).

(7) The usable on code, when applicable (see paragraph F-5, Special Information).

(8) In the Special Tools List Section III, the basis of issue (BOI) appears as the last line(s) in the entry for each special tool, special TMDE, exceeds density spread indicated in the basis of issue, the total authorization is increased proportionately.

(9) The statement "END OF FIGURE" appears just below the last item description in column (5) for a given figure in both Section II and Section III.

f. QTY (Column (6)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

F-4. EXPLANATION OF INDEX FORMAT AND COLUMNS (SECTION IV)

a. NATIONAL STOCK NUMBER INDEX.

(1) STOCK NUMBER Column. This column lists the NSN by NIIN sequence. The NIIN consists of the last nine digits of the NSN (i.e., $\frac{\text{NSN}}{5305\text{-}01\text{-}674\text{-}1467}$). When using this column to locate an item, ignore the first four digits of the NSN. Use the complete NSN (13 digits) when requisitioning items by stock number.

(2) FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in Section II and Section III.

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

b. PART NUMBER INDEX. Part numbers in this index are listed by part number in ascending alphanumeric sequence (i.e., vertical arrangement of letter and number combination which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

(1) CAGEC Column. The CAGEC is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

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

(3) STOCK NUMBER Column. This column lists the NSN for the associated part number and manufacturer identified in the PART NUMBER and CAGEC columns to the left.

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

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

c. FIGURE AND ITEM NUMBER INDEX.

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

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

(3) STOCK NUMBER Column. This column lists the NSN for the item.

(4) CAGEC Column. The CAGEC is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

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

F-5. SPECIAL INFORMATION

a. Usable On Code. The usable on code appears in the lower left corner of the DESCRIPTION column heading. Usable on codes are shown as "UOC: . . . . . ." in the DESCRIPTION column (justified left) on the first line applicable item description/nomenclature. Uncoded items are applicable to all models. Identification of the usable on codes used in the RPSTL are:

Code	Used On
990	Model M989A1

b. Fabrication Instructions. Bulk materiel required to manufacture items are listed in the Bulk Materiel group in Section II. Part numbers for bulk materiel are also referenced in the DESCRIPTION column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source codes to be manufactured or fabricated are found in the maintenance portion of this manual.

c. Assembly Instructions. Detailed assembly instructions for items source coded to be assembled from component spare/repair parts are found in the maintenance portion of this manual. Items that make up the assembly are listed immediately following the assembly item entry or reference is made to an applicable figure.

d. Kits. Line item entries for repair parts kits are listed in the Kits group in Section II.

e. Index Numbers. Items which have the word BULK in the FIG. column will have an index number shown in the ITEM NO. column. This index number is a cross-reference between the National Stock Number Index/Part Number Index and Bulk Materiel group in Section II.

F-6. 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 assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) Second. Find the figure covering the assembly group or subassembly group to which the item belongs.

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

(4) Fourth. Refer to Section II for the figure to find the part number for the item number noted on the figure.

(5) Fifth. Refer to the Part Number Index to find the NSN, if assigned.

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

(1) First. Using the National Stock Number Index and Part Number Index, find the pertinent NSN or part number. The National Stock Number Index is in NIIN sequence (see F-4a(1)). The part numbers in the Part Number Index are listed in ascending alphanumeric sequence (see F-4b). Both indexes cross-reference you to the illustration/figure and item number of the item you are looking for.

(2) Second. After finding the figure and item number, verify that the item is the one you are looking for, then locate the item number in Section II for the figure.

F-7. ABBREVIATIONS

Abbreviation	Explanation
AVIM	Aviation Intermediate Maintenance
AVUM	Aviation Unit Maintenance
BOI	Basis of Issue
CAGEC	Commercial and Government Entity Code
DS	Direct Support
GS	General Support
HEMAT	Heavy Expanded Mobility Ammunition Trailer
MAC	Maintenance Allocation Chart
NIIN	National Item Identification Number (consists of last nine digits of NSN)
NSN	National Stock Number
RPSTL	Repair Parts and Special Tools List
SMR	Source, Maintenance, and Recoverability
TMDE	Test, Measurement, and Diagnostic Equipment
UOC	Usable on Code

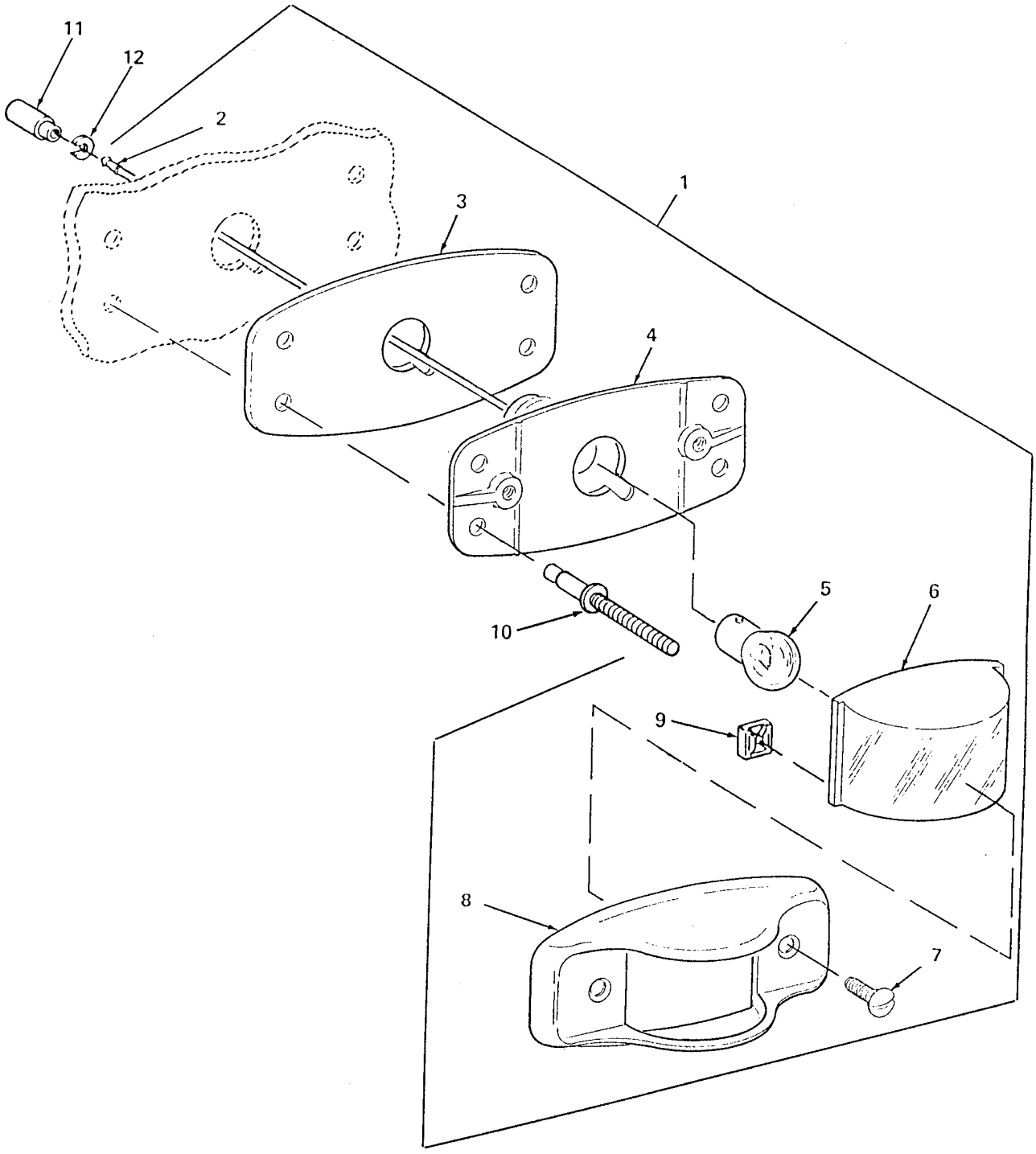


Figure 1. Clearance Lights Serial Numbers 2000 and Below

REPAIR PARTS LIST

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 0609 0001 LIGHTS	
				FIG. 1 CLEARANCE LIGHTS SERIAL NUMBERS 2000 AND BELOW	
1	**PAOOO**	**96906**	**MS35423-2**	**LIGHT, MARKER, CLEARANCE: RED**	**5**
	PAOOO	**96906**	**MS35423-1**	**LIGHT, MARKER, CLEARANCE: AMBER**	**4**
2	**PAOZZ**	**19204**	**572929**	**. CONTACT, ELECTRICAL**	**9**
3	**PAOZZ**	**73331**	**5939841**	**. FELT, MECHANICAL, PREFORMED**	**1**
4	**PAOZZ**	**73331**	**5939831**	**. PLATE, MOUNTING, LAMPHOLDER**	**1**
5	**PAOZZ**	**58536**	**A52463-1-08**	**. LAMP, INCANDESCENT**	**1**
6	**PAOZZ**	**96906**	**MS35421-2**	**. LENS, LIGHT: RED**	**1**
	PAOZZ	**96906**	**MS35421-1**	**. LENS, LIGHT: AMBER**	**1**
7	**PAOZZ**	**95105**	**343-0586-000**	**. SCREW, MACHINE**	**2**
8	**PAOZZ**	**73331**	**5939830**	**. RETAINER, LENS**	**1**
9	**PAOZZ**	**78553**	**C1059-014-1**	**. PUSH ON NUT**	**1**
10	**PAOZZ**	**98255**	**MGLP-RG-7**	**RIVET, BLIND**	**36**
11	**PAOZZ**	**19207**	**8338566**	**SHELL, ELECTRICAL CONNECTOR**	**9**
12	**PAOZZ**	**19207**	**8338567**	**WASHER, SLOTTED**	**9**
				END OF FIGURE	

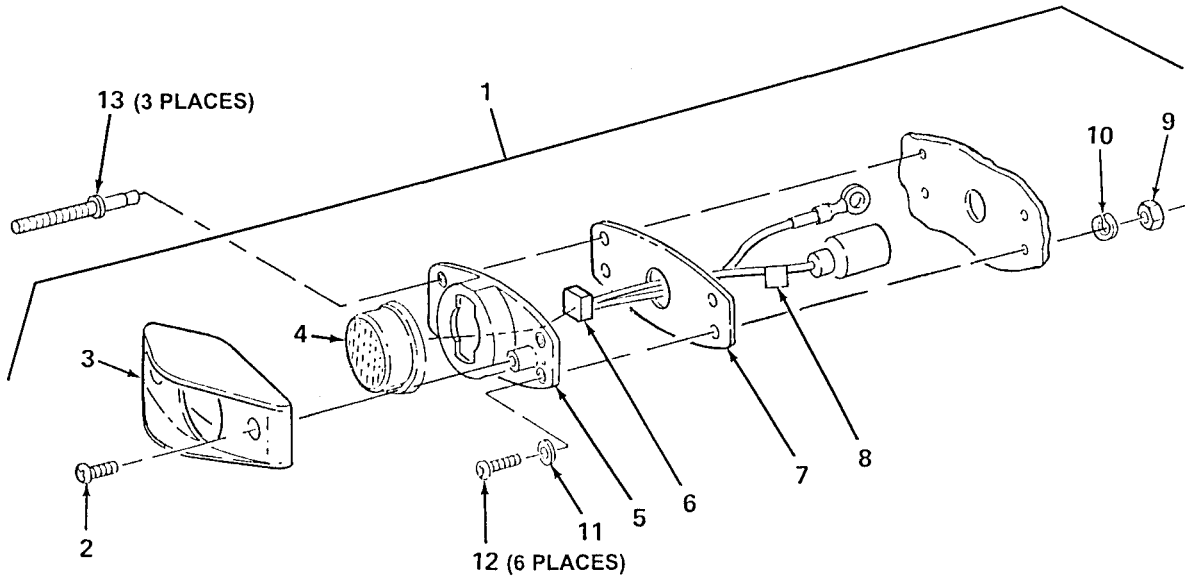


Figure 1A. Clearance Lights Serial Numbers 2001 and Up

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 0609 0001 LIGHTS	
				FIG. 1A CLEARANCE LIGHTS SERIAL NUMBERS 2001 AND UP	
1	**PAOZZ**	**13548**	**07407**	**LIGHT, CLEARANCE, AMBER**	**4**
	PAOOO	**13548**	**07406**	**LIGHT, CLEARANCE, RED**	**5**
2	**XAOZZ**	**13548**	**6625A**	**SCREW, PAN HEAD**	**2**
3	**XAOZZ**	**13548**	**07198**	**BRACKET, ARMORED**	**1**
4	**PAOZZ**	**13548**	**130255Y**	**LAMP, LED, YELLOW, 10-30V**	**1**
	PAOZZ	**13548**	**130255R**	**LAMP, LED, RED, 10-30V**	**1**
5	**XAOZZ**	**13548**	**07197**	**BASE, MOUNTING**	**1**
6	**PAOZZ**	**13548**	**94626**	**LEAD ASSEMBLY, ELECTRICAL**	**1**
7	**XAOZZ**	**13548**	**5370**	**GASKET, MOUNTING**	**1**
8	**XAOZZ**	**13548**	**3542**	**MARKER, IDENTIFICATION**	**1**
9	**PAOZZ**	**96906**	**MS35649-202**	**NUT, PLAIN, HEXAGON HEAD**	**24**
10	**PAOZZ**	**96906**	**MS27183-8**	**WASHER, FLAT**	**24**
11	**PAOZZ**	**96906**	**MS35338-43**	**WASHER, LOCK**	**24**
12	**PAOZZ**	**96906**	**MS35206-265**	**SCREW, MACHINE**	**24**
13	**PAOZZ**	**9K475**	**MGLP-R6-7**	**RIVET, BLIND, STEEL USE ONLY ON THREE RED CLEARANCE LIGHTS ON REAR OF TRAILER**	**12**
				END OF FIGURE	

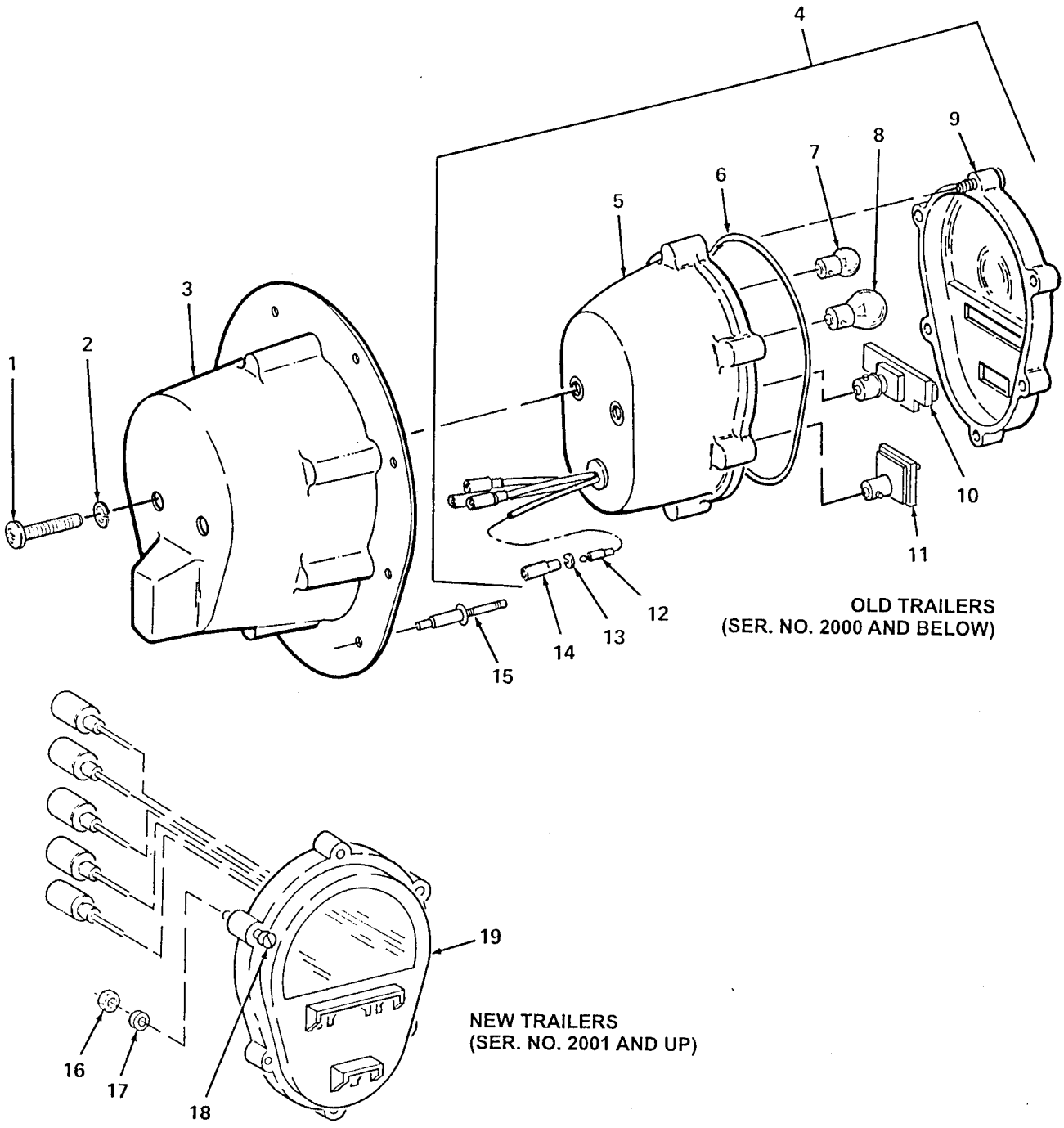
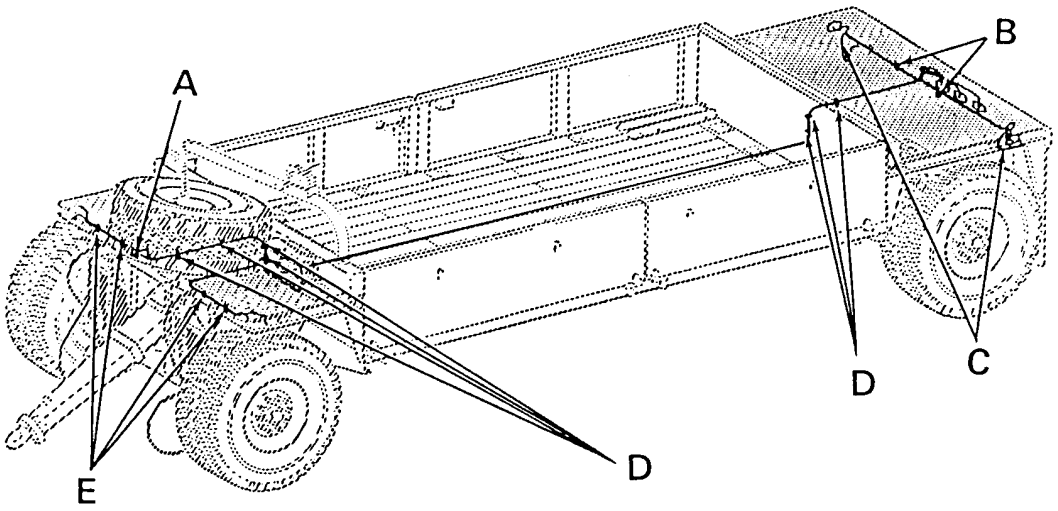


Figure 2. Composite Marker Lights

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 0609 0002 LIGHTS	
				FIG. 2 COMPOSITE MARKER LIGHTS	
1	**PAOZZ**	**96906**	**MS35206-308**	**SCREW, MACHINE**	**4**
2	**PAOZZ**	**96906**	**MS35338-46**	**WASHER, LOCK**	**4**
3	**PAOZZ**	**34623**	**5575569**	**BRACKET**	**2**
4	**PAOOO**	**96906**	**MS52125-2**	**STOP LIGHT-TAILLIGHT USE ON SERIAL NUMBERS 2000 AND BELOW**	**2**
5	**PAOZZ**	**19207**	**11639520**	**. HOUSING, LIGHT**	**1**
6	**XDOZZ**	**19207**	**11639519-2**	**. GASKET**	**1**
7	**PAOZZ**	**58536**	**A52463-1-09**	**. LAMP, INCANDESCENT**	**1**
8	**PAOZZ**	**81348**	**A-A-52463-B10**	**. LAMP INCANDESCENT**	**1**
9	**PAOZZ**	**19207**	**11639535**	**. LENS, LIGHT**	**1**
10	**PAOZZ**	**19207**	**12360850-1**	**. LIGHT, MARKER, CLEARANCE: RED**	**1**
11	**PAOZZ**	**19207**	**12360870-2**	**. STOP LIGHT, VEHICULAR**	**1**
12	**PAOZZ**	**19204**	**572929**	**. CONTACT, ELECTRICAL**	**4**
13	**PAOZZ**	**19207**	**8338566**	**. SHELL, ELECTRICAL CONNECTOR**	**4**
14	**PAOZZ**	**19207**	**8338567**	**. WASHER, SLOTTED**	**4**
15	**PAOZZ**	**11815**	**BAPKTR-66**	**RIVET, SOLID**	**16**
16	**PAOZZ**	**96906**	**MS21044C3**	**NUT, SELF-LOCKING, HEXAGON**	**12**
17	**PAOZZ**	**80205**	**NAS1149C0332R**	**WASHER, FLAT**	**12**
18	**PAOZZ**	**96906**	**MS51958-68**	**SCREW, MACHINE**	**12**
19	**PAOZZ**	**13548**	**07240**	**STOP LIGHT-TAILLIGHT USE ON SERIAL NUMBER 2001 AND UP**	**2**
				END OF FIGURE	



OLD TRAILERS (SER. NO. 2000 AND BELOW)

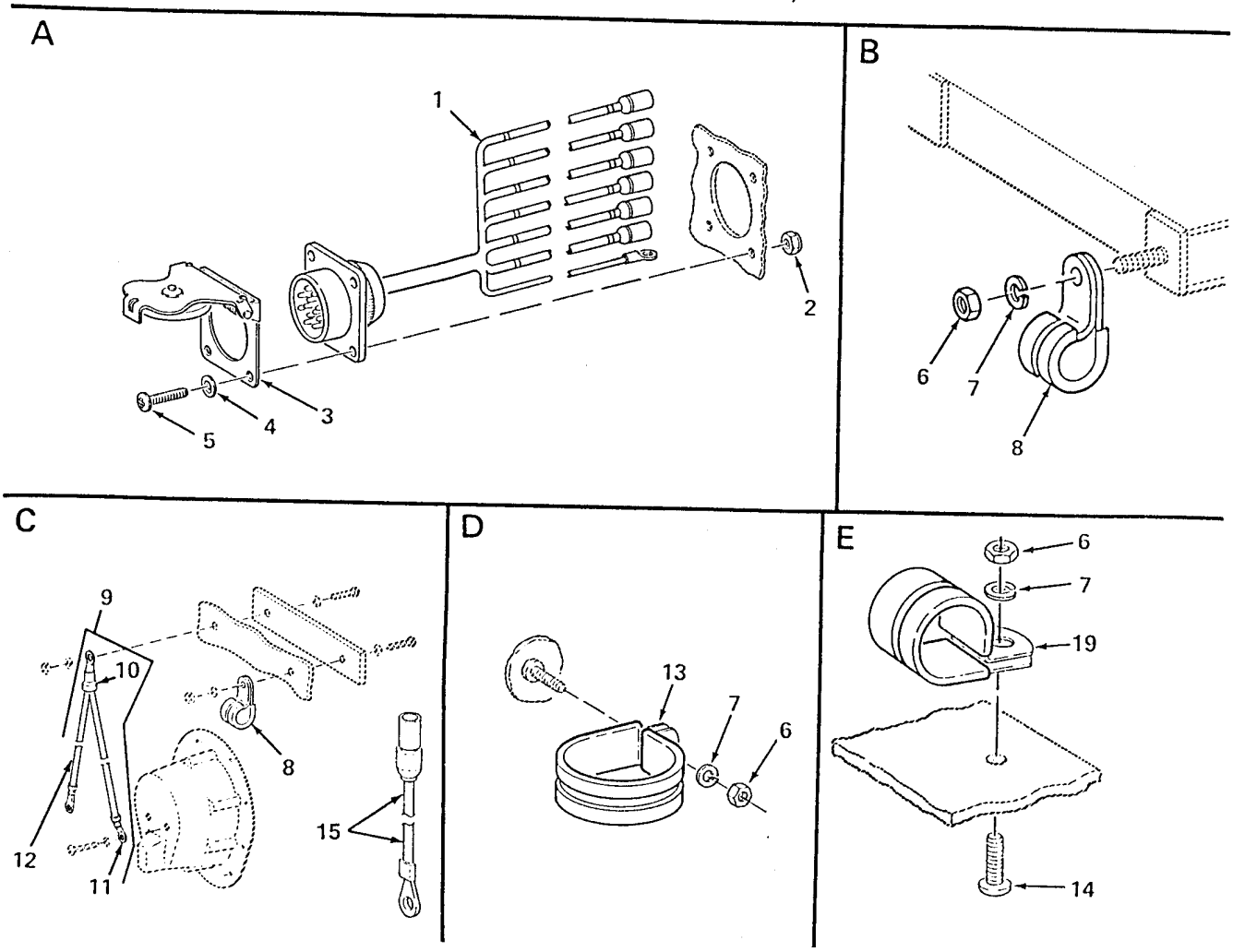
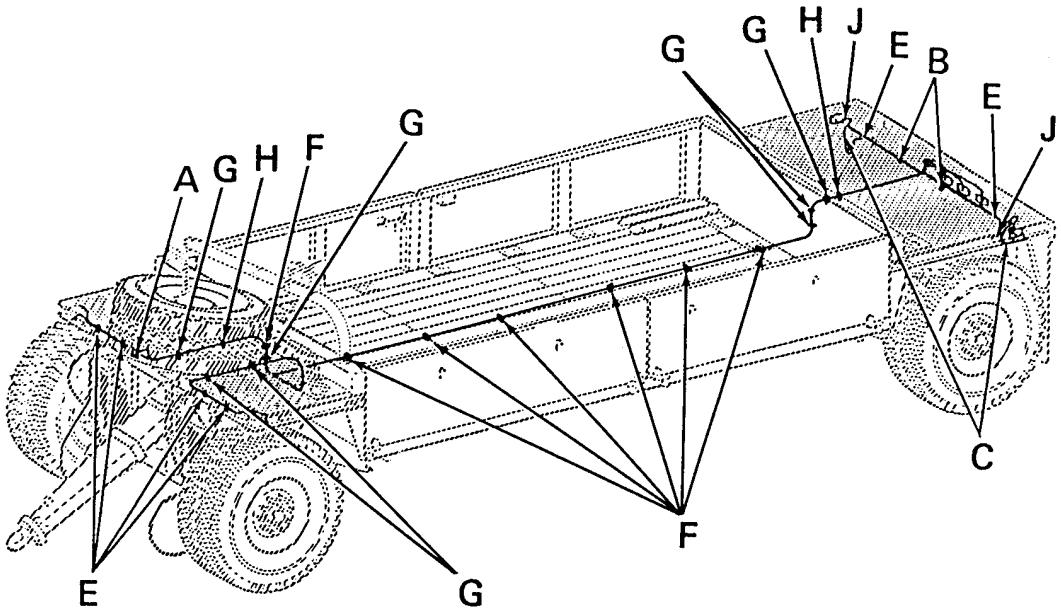


Figure 3. Electrical Installation (Sheet 1 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 0613 0003 HULL OR CHASSIS WIRING HARNESS **FIG. 3 ELECTRICAL INSTALLATION**	
1	PAOZZ	98255	SW25292	LEAD ASSEMBLY, ELECTRICAL	1
2	PAOZZ	81349	M45913/1-4-CG5C	NUT, SELF-LOCKING	4
3	PAOZZ	19207	7731428	COVER, ELECTRICAL CONNECTOR	1
4	PAOZZ	96906	MS27183-10	WASHER, FLAT	4
5	PAOZZ	96906	MS35206-282	SCREW, MACHINE	4
6	PAOZZ	96906	MS35649-202	NUT, PLAIN, HEXAGON HEAD	26
7	PAOZZ	96906	MS35338-43	WASHER, LOCK	26
8	PAOZZ	96906	MS21333-73	CLAMP, LOOP	4
9	PAOZZ	98255	SW31802	WIRE ASSEMBLY, GROUND USE ONLY WITH P/N MS52125-2	1
10	PAOZZ	96906	MS25036-112	. TERMINAL, LUG	1
11	PAOZZ	96906	MS25036-110	. TERMINAL, LUG	2
12	XAOZZ	98255	SW25138-1	. WIRE, ELECTRICAL: 12 INCHES	AR
13	PAOZZ	96906	MS21919WCG28	CLAMP, LOOP USED ON SERIAL NO. 2000 AND BELOW	8
14	PAOZZ	96906	MS35206-266	SCREW, MACHINE	6
15	PAOZZ	98255	SW31802-1	WIRE ASSEMBLY, GROUND USE ONLY WITH P/N 07240	2
16				DELETED PART NUMBER	
17				DELETED PART NUMBER	
18				DELETED PART NUMBER	
19	PAOZZ	96906	MS21333-71	CLAMP, LOOP	6



NEW TRAILERS
(SER. NO. 2001 AND UP)

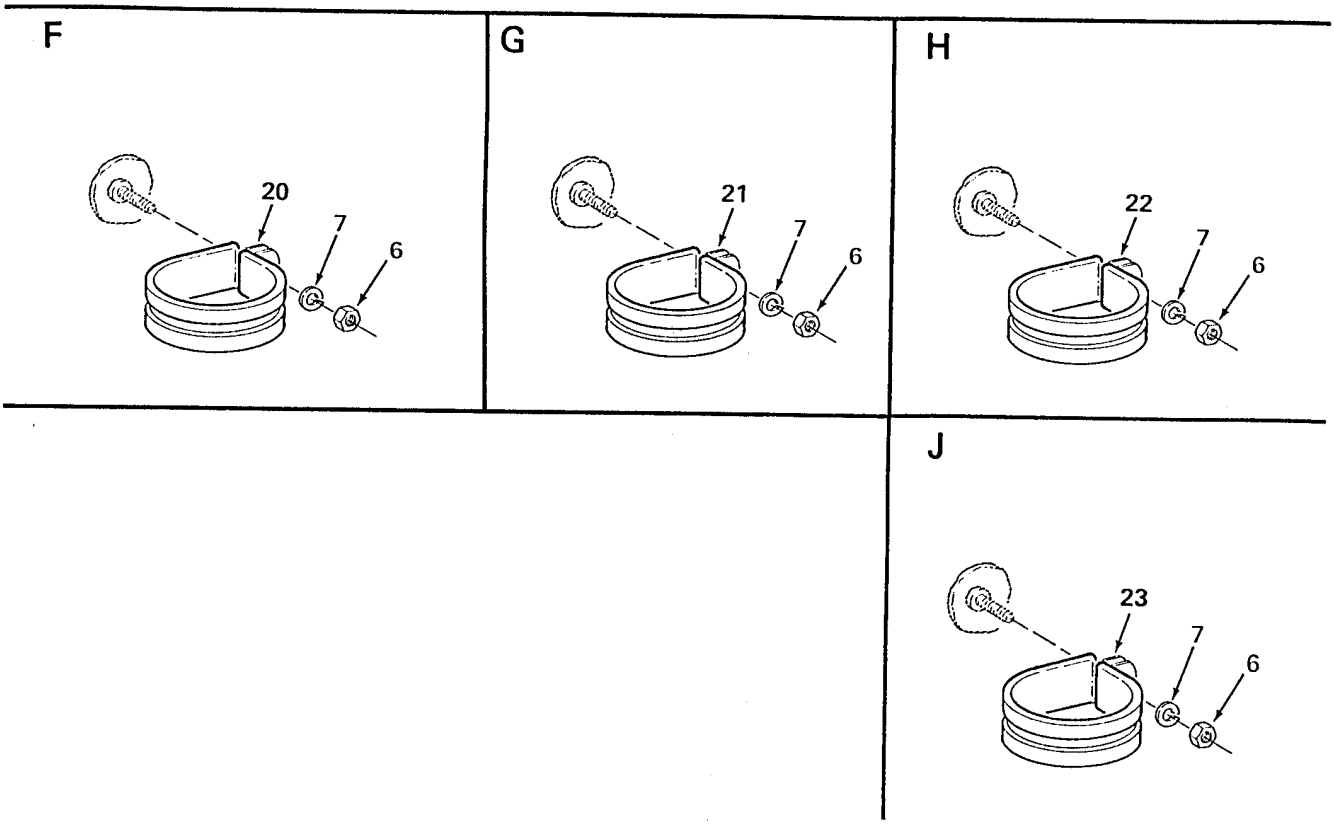


Figure 3. Electrical Installation (Sheet 2 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 0613 0003 HULL OR CHASSIS WIRING HARNESS	
				FIG. 3 ELECTRICAL INSTALLATION	
20	**PAOZZ**	**96906**	**MS21919WCG18**	**CLAMP, LOOP USED ON SER. NO. 2001 AND UP .....**	**7**
21	**PAOZZ**	**96906**	**MS21919WCG28**	**CLAMP, LOOP USED ON SER. NO. 2001 AND UP .....**	**7**
22	**PAOZZ**	**96906**	**MS21333-73**	**CLAMP, LOOP USED ON SER. NO. 2001 AND UP .....**	**4**
23	**PAOZZ**	**96906**	**MS21333-65**	**CLAMP, LOOP USED ON SER. NO. 2001 AND UP .....**	**2**
				END OF FIGURE	

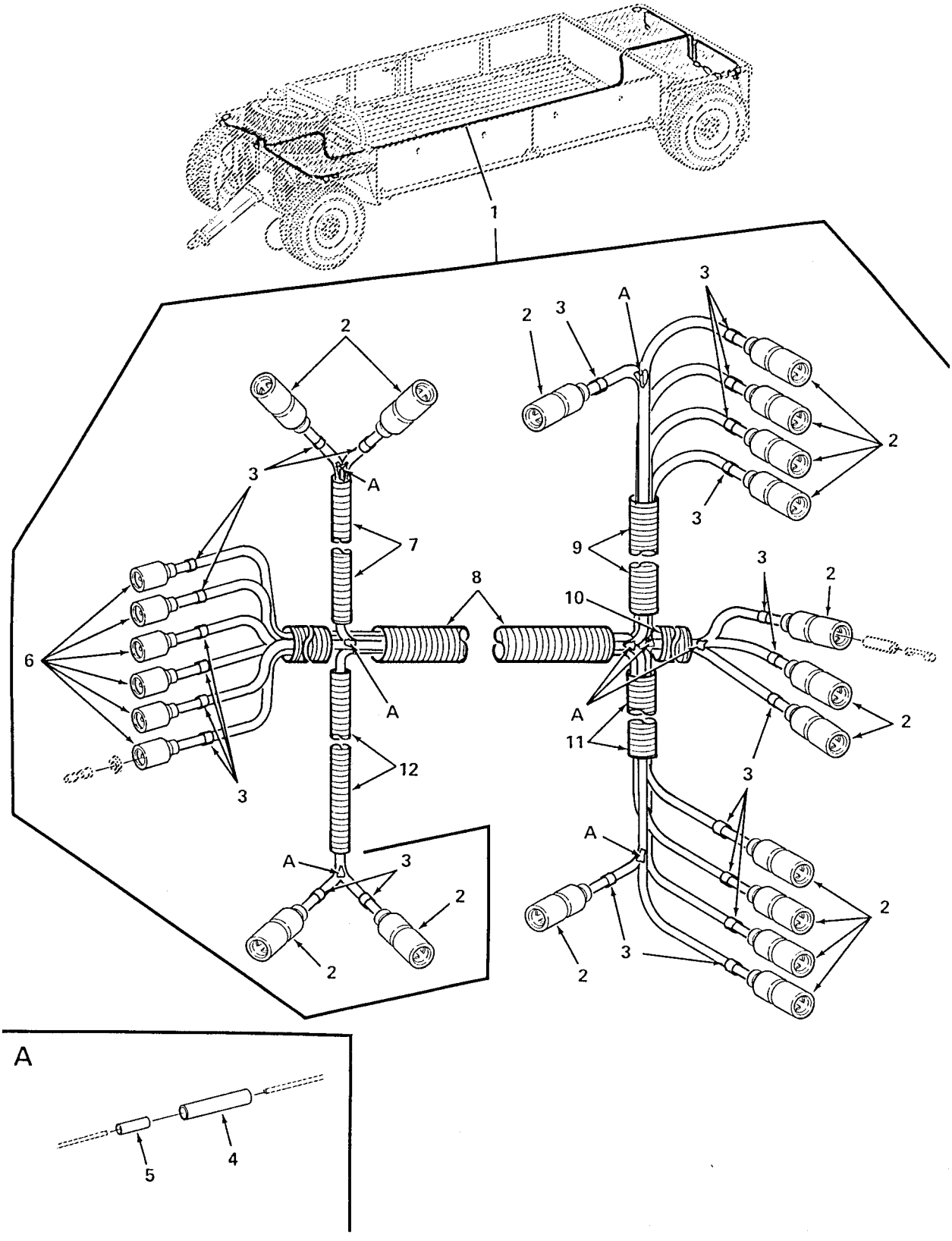


Figure 4. Special Purpose Electrical Cable Assembly

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 0613 0004 HULL OR CHASSIS WIRING HARNESS	
				FIG. 4 SPECIAL PURPOSE ELECTRICAL CABLE ASSEMBLY	
1	**PAOOO**	**98255**	**SW25142**	**CABLE ASSEMBLY, POWER, ELECTRICAL, BRANCHED**	**1**
2	**PAOZZ**	**96906**	**MS27144-1**	**. CONNECTOR, PLUG, ELECTRIC**	**17**
3	**PAOZZ**	**81349**	**M43436/3-1**	**. BAND, MARKER**	**23**
4	**PAOZZ**	**81349**	**M23053/4-303-0**	**. INSULATION SLEEVING, ELECTRICAL**	**8**
5	**PAOZZ**	**19328**	**214405**	**. SPLICE, CONDUCTOR**	**8**
6	**PAOZZ**	**96906**	**MS27142-2**	**. CONNECTOR, PLUG, ELECTRICAL**	**6**
7	**MOOZZ**	**98255**	**SW31258-2**	**. TUBE, NONMETALLIC: MAKE FROM PART NUMBER 8376127 (30 INCHES)**	**1**
8	**MOOZZ**	**98255**	**8376130-288**	**. TUBE, NONMETALLIC: MAKE FROM PART NUMBER 8376130 (288 INCHES)**	**1**
9	**MOOZZ**	**98255**	**SW31259-2**	**. TUBE, NONMETALLIC: MAKE FROM PART NUMBER 8376128 (30 INCHES)**	**1**
10	**MOOZZ**	**98255**	**SW31259-3**	**. TUBE, NONMETALLIC: MAKE FROM PART NUMBER 8376128 (22 INCHES)**	**1**
11	**MOOZZ**	**98255**	**SW31259-1**	**. TUBE, NONMETALLIC: MAKE FROM PART NUMBER 8376128 (55 INCHES)**	**1**
12	**MOOZZ**	**98255**	**SW31258-1**	**. TUBE, NONMETALLIC: MAKE FROM PART NUMBER 8376127 (82 INCHES)**	**1**
				END OF FIGURE	

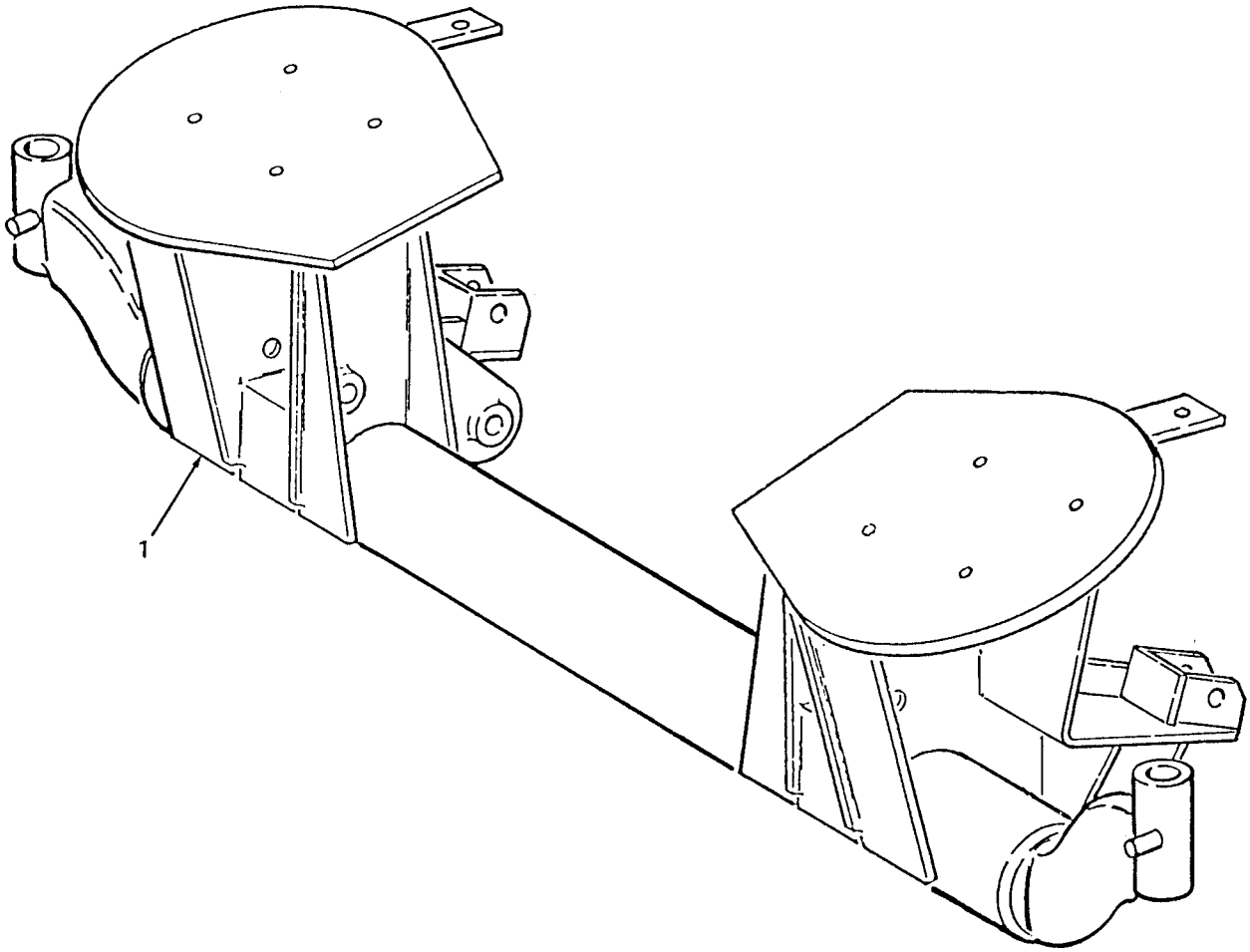


Figure 5. Front Axle

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1000 0005 FRONT AXLE ASSEMBLY **FIG. 5 FRONT AXLE**	
1	**PBFZZ**	**98255**	**SW25395**	**FRONT AXLE AND SUSPENSION .....**	**1**
				END OF FIGURE	

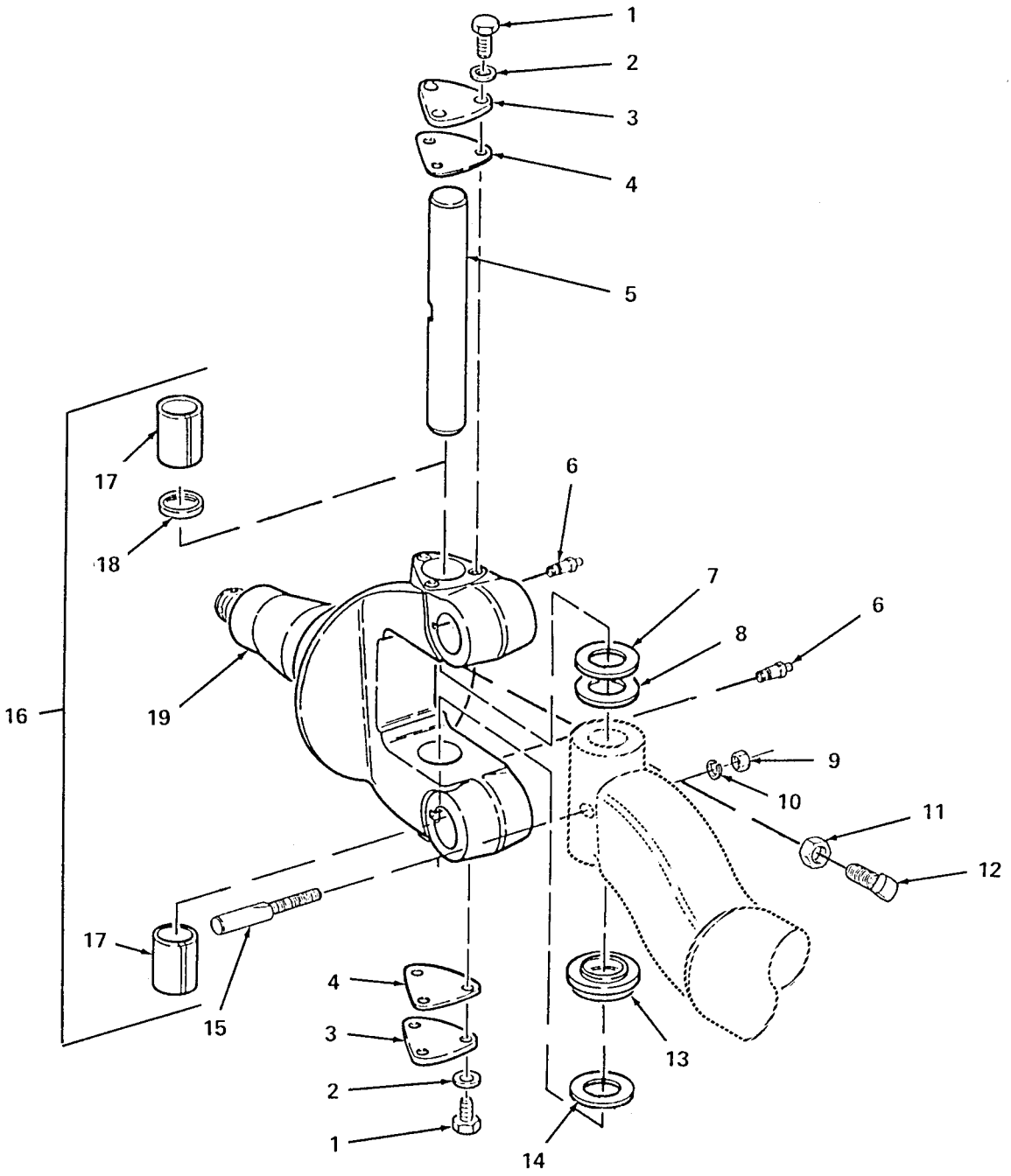


Figure 6. Knuckle and Spindle Assembly (Sheet 1 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1004 0006 STEERING AND LEANING WHEEL MECHANISM	
				FIG. 6 KNUCKLE AND SPINDLE ASSEMBLY	
1	**PAOZZ**	**96906**	**MS90725-3**	**SCREW, CAP, HEXAGON HEAD-NOT REQUIRED ON REPLACEMENT KNUCKLE ASSEMBLIES SW25216 AND SW25219**	**12**
2	**PAOZZ**	**96906**	**MS35338-63**	**WASHER, LOCK-NOT REQUIRED ON REPLACEMENT KNUCKLE ASSEMBLIES SW26216 AND SW25219**	**12**
3	**PAOZZ**	**98255**	**SW25207**	**COVER, ACCESS-NOT REQUIRED ON REPLACEMENT KNUCKLE ASSEMBLIES SW25216 AND SW25219**	**4**
4	**PAOZZ**	**98255**	**SW25206**	**GASKET-NOT REQUIRED ON REPLACEMENT KNUCKLE ASSEMBLIES SW25216 AND SW25219**	**4**
5	**PBOZZ**	**98255**	**SW25204**	**KINGPIN, STEERING KNUCKLE**	**2**
6	**PAOZZ**	**98255**	**SW25213**	**FITTING, LUBRICATION**	**4**
7	**PAOZZ**	**98255**	**SW25210**	**SHIM: THICKNESS .006**	**2**
8	**PAOZZ**	**98255**	**SW25211**	**SHIM: THICKNESS .011**	**2**
9	**PAOZZ**	**96906**	**MS51968-11**	**NUT, PLAIN, HEXAGON**	**2**
10	**PAOZZ**	**96906**	**MS35338-47**	**WASHER, LOCK**	**2**
11	**PAOZZ**	**96906**	**MS51968-20**	**NUT, PLAIN, HEXAGON**	**2**
12	**PAOZZ**	**98255**	**SW25202**	**SETSCREW**	**2**
13	**PAOZZ**	**0HJ37**	**143664-0007**	**BEARING, ROLLER, THRUST**	**2**
14	**PAOZZ**	**98255**	**SW25209**	**WASHER, FLAT**	**2**
15	**PAOZZ**	**98255**	**SW25203**	**PIN, SHOULDER, HEADLESS**	**2**
16	**XCOOO**	**0HJ37**	**163621-0005**	**KNUCKLE ASSEMBLY, RH-OBSOLETE REPLACED BY SW25219**	**1**
	XCOOO	**0HJ37**	**163621-0004**	**KNUCKLE ASSEMBLY, LH-OBSOLETE REPLACED BY SW25219**	**1**
17	**PAOZZ**	**0HJ37**	**143622-0001**	**. BUSHING**	**4**
18	**PAOZZ**	**0HJ37**	**143623-0001**	**. SEAL**	**2**
19	**XAOZZ**	**0HJ37**	**143621-0015**	**. KNUCKLE ASSEMBLY, RH-OBSOLETE REPLACED BY P/N SW25219**	**1**
	XAOZZ	**0HJ37**	**143621-0014**	**. KNUCKLE ASSEMBLY, LH-OBSOLETE PART REPLACED BY P/N SW25216**	**1**

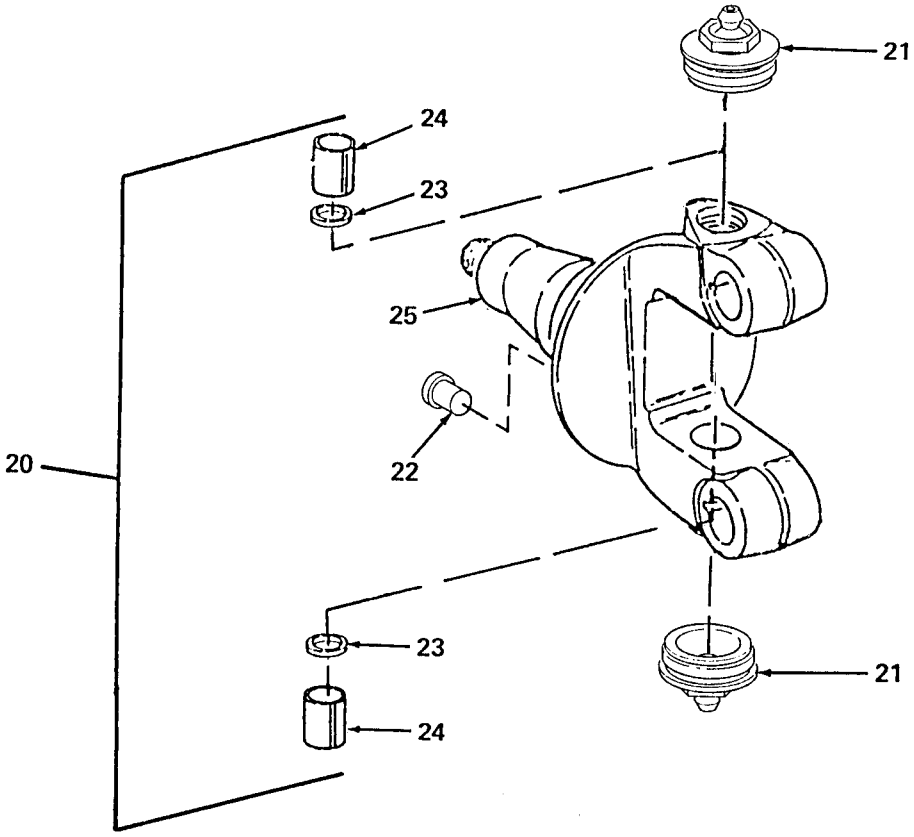


Figure 6. Knuckle and Spindle Assembly (Sheet 2 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1004 0006 STEERING AND LEANING WHEEL MECHANISM	
				FIG. 6 KNUCKLE AND SPINDLE ASSEMBLY	
20	**PBOOO**	**98255**	**SW25216**	**SPINDLE, WHEEL, DRIVING-NONDRIVING: LEFT HAND**	**1**
	PBOOO	**98255**	**SW25219**	**SPINDLE, WHEEL, DRIVING-NONDRIVING: RIGHT HAND**	**1**
21	**PAOZZ**	**0HJ37**	**143661-0008**	**CAP ASSEMBLY**	**2**
22	**PAOZZ**	**81349**	**M5501/7-F19**	**CAP-PLUG, PROTECTIVE, DUST AND MOISTURE SEAL**	**1**
23	**PAOZZ**	**0HJ37**	**143623-0001**	**SEAL**	**2**
24	**PAOZZ**	**0HJ37**	**143622-0001**	**BUSHING**	**2**
25	**XAOOO**	**98255**	**SW25197-1**	**KNUCKLE ASSEMBLY, RIGHT HAND**	**1**
	XAOOO	**98255**	**SW25197-2**	**KNUCKLE ASSEMBLY, LEFT HAND**	**1**
				END OF FIGURE	

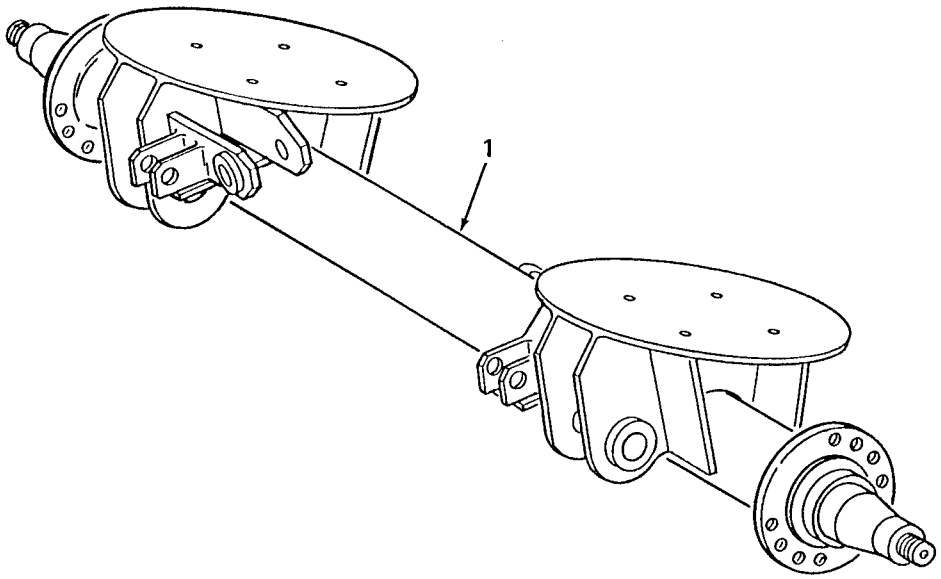


Figure 7. Rear Axle

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1100 0007 REAR AXLE ASSEMBLY **FIG. 7 REAR AXLE**	
1	**PBFZZ**	**98255**	**SW25182**	**AXLE, VEHICULAR, NONDRIVING .....**	**1**
				END OF FIGURE	

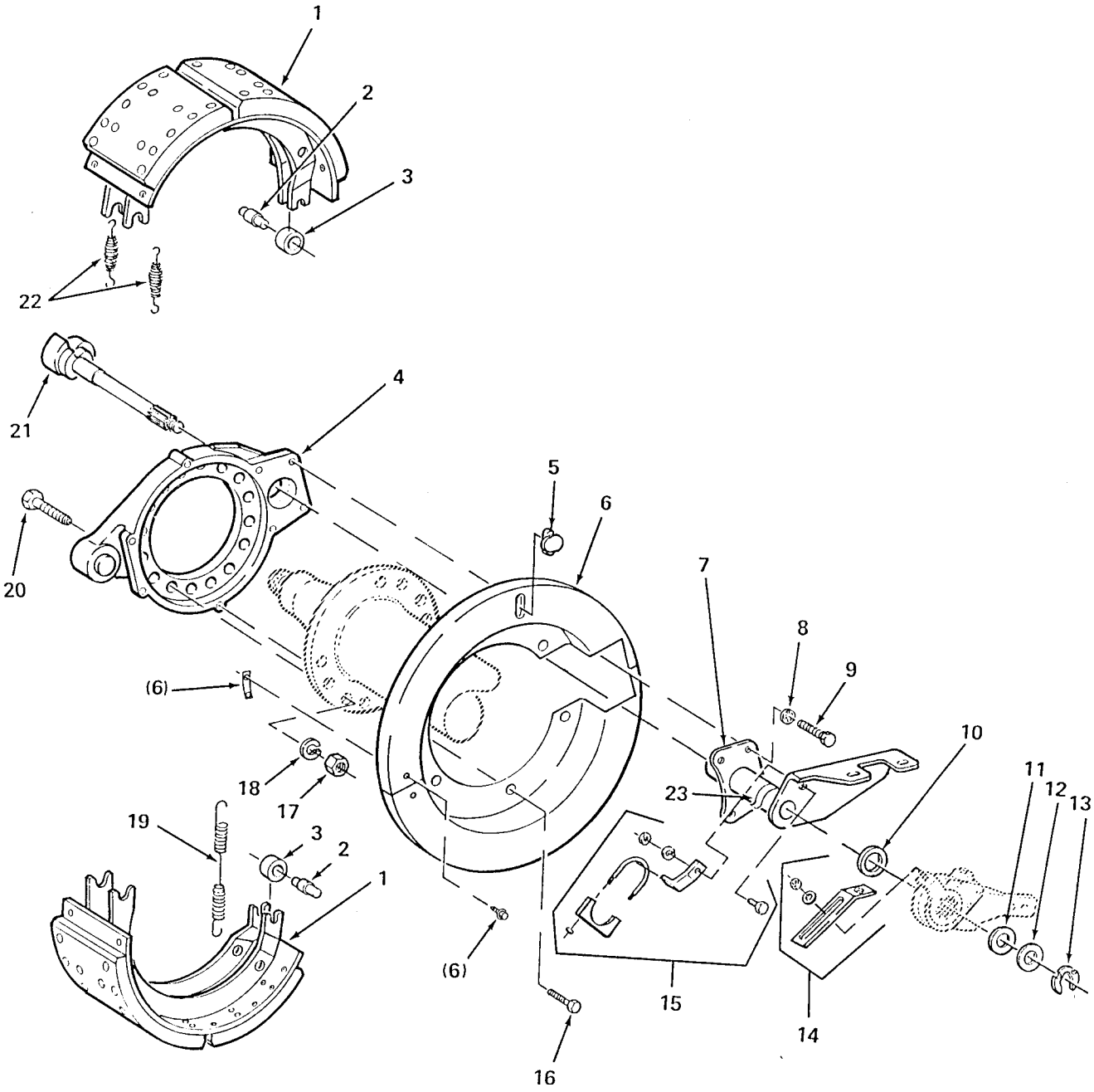


Figure 8. Front and Rear Brake Assembly Serial Numbers 2000 and Below

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1202 0008 SERVICE BRAKES **FIG. 8 FRONT AND REAR BRAKE ASSEMBLY SERIAL NUMBERS 2000 AND BELOW**	
1	PAOZZ	52304	805714	BRAKE SHOE	8
2	PAOZZ	52304	39075	PIN, SHOULDER, HEADLESS	8
3	PAOZZ	52304	39074	ROLLER, BRAKE SHOE	8
4	PFOZZ	9R200	807497	SPIDER, BRAKE: USED ON 808752 AND 808681 (LEFT REAR/RIGHT FRONT)	2
	PFOZZ	9R200	807496	SPIDER, BRAKE: USED ON 808753 AND 808680 (RIGHT REAR/LEFT FRONT)	2
5	PAOZZ	9R200	089899	BOOT, DUST AND MOISTURE SEAL: USED ON 808680 AND 808681	4
6	PAOZZ	52304	1000693	DEFLECTOR, DIRT AND LIQUID	4
7	PFOZZ	9R200	808751	BRACKET, BRAKE CAMSHAFT: LEFT REAR-USED ON 808752	1
	PFOZZ	9R200	808750	BEARING UNIT, PLAIN: RIGHT REAR-USED ON 808753	1
	PFOZZ	9R200	807488	BRACKET ASSEMBLY, CAM: LEFT FRONT-USED ON 808680	1
	PFOZZ	9R200	807489	BRACKET ASSEMBLY, CAM: RIGHT FRONT-USED ON 808681	1
8	PAOZZ	52304	90414	WASHER, LOCK	16
9	PAOZZ	96906	MS90725-302	SCREW, CAP, HEXAGON HEAD	16
10	PAOZZ	52304	43943	WASHER, FLAT: THICKNESS .0598	4
11	PAOZZ	76301	4M36-11008	WASHER, FLAT: THICKNESS .063	4
12	PAOZZ	52304	23570	WASHER, FLAT: THICKNESS .031	8
13	PAOZZ	79136	5304-125	RING, RETAINING	4
14	PAOZZ	78502	427-10401	BRACKET, VEHICULAR COMPONENTS	4
15	PAOZZ	7P109	1001353	PARTS KIT, BRAKE MOUNTING BRACKET: USED ON REAR BRAKES ONLY	2
16	PAOZZ	52304	804023	SCREW, MACHINE	20
17	PAOZZ	96906	MS51968-20	NUT, PLAIN, HEXAGON	32
18	PAOZZ	96906	MS35335-39	WASHER, LOCK	32
19	PAOZZ	81142	1000406	SPRING, HELICAL, EXTENSION	4
20	PAOZZ	80204	B1821BH063F175N	SCREW, CAP, HEXAGON HEAD	32
21	PFOZZ	9R200	807615	CAMSHAFT, ACTUATING, BRAKE SHOE: LEFT REAR-USED ON 808752	1
	PFOZZ	9R200	807614	CAMSHAFT, ACTUATING, BRAKE SHOE: RIGHT REAR-USED ON 808753	1
	PFOZZ	9R200	070308	CAMSHAFT, ACTUATING, BRAKE SHOE: LEFT FRONT-USED ON 808680	1
	PFOZZ	9R200	070309	CAMSHAFT, ACTUATING, BRAKE SHOE: RIGHT FRONT-USED ON 808681	1
22	PAOZZ	9R200	070326	SPRING, HELICAL, EXTENSION	8
23	PAOZZ	9R200	1001811	MARKER, IDENTIFICATION	4
				END OF FIGURE	

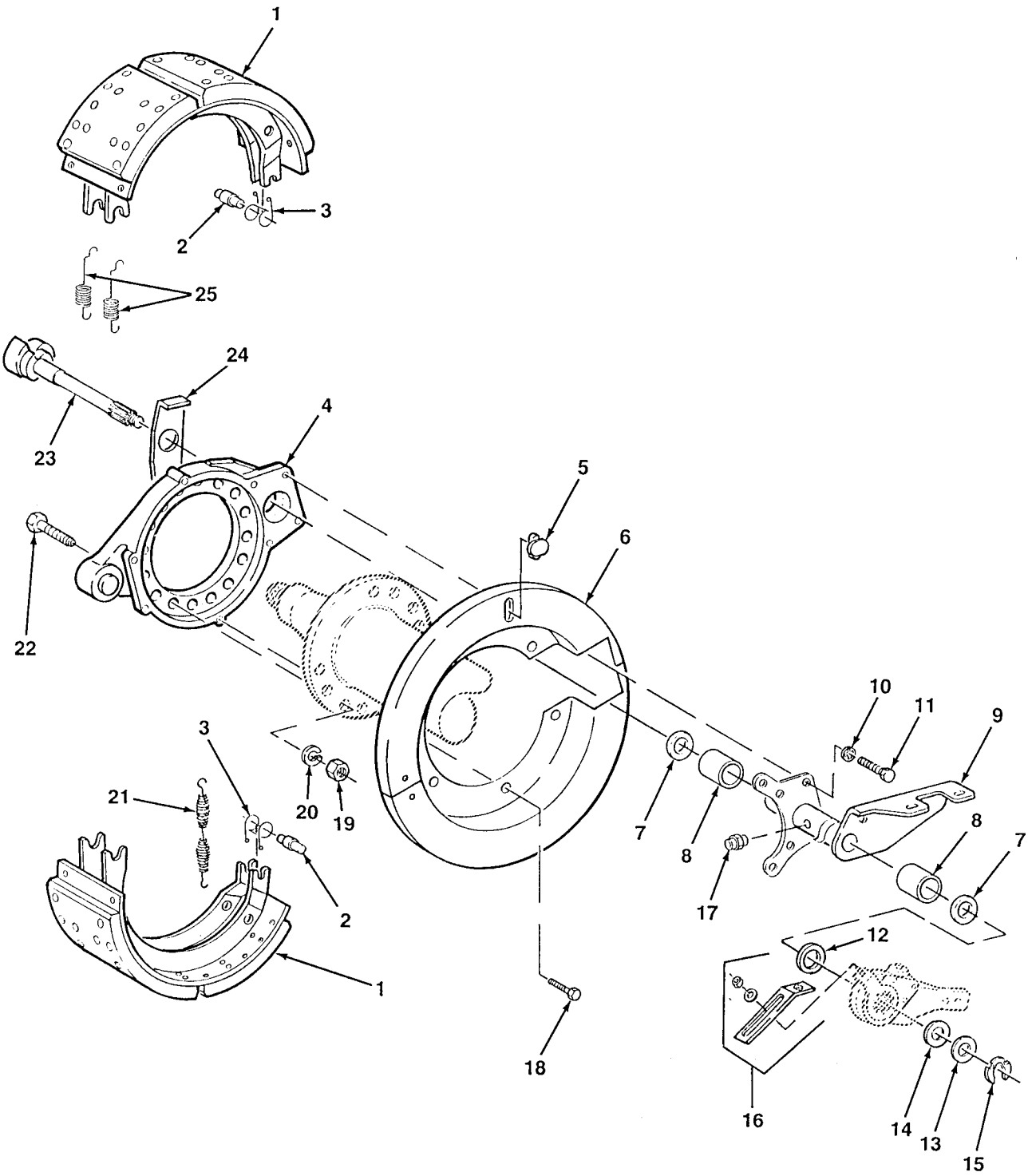


Figure 8A. Front and Rear Brake Assembly Serial Numbers 2001 and Up

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1202 0008 SERVICE BRAKES	
				FIG. 8A FRONT AND REAR BRAKE ASSEMBLY SERIAL NUMBERS 2001 AND UP	
1	KFFZZ	1MVZ1	819756	BRAKE SHOE AND LINING ASSEMBLY PART OF KIT P/N 314159.....	8
2	KFFZZ	1MVZ1	806234	ROLLER, BRAKE SHOE PART OF KITS P/N 808330 AND P/N 314159.....	8
3	KFFZZ	1MVZ1	808058	RETAINER, ROLLER PART OF KITS P/N 808330 AND P/N 314159	8
4	PFOZZ	1MVZ1	811104	SPIDER, BRAKE: RIGHT REAR/LEFT FRONT-USED ON 326961 AND 326962	2
	PAOZZ	1MVZ1	811105	SPIDER, BRAKE: LEFT REAR/RIGHT FRONT-USED ON 326960 AND 326963	2
5	PAOZZ	52304	89899	PLUG, PROTECTIVE, DUST AND MOISTURE SEAL	8
6	PAOZZ	1MVZ1	973955	DEFLECTOR, DUST AND LIQUID.....	4
7	KFFZZ	52304	79903	SEAL, PLAIN ENCASED PART OF KIT P/N 127808	8
8	KFFZZ	52304	1000035	BUSHING, SLEEVE PART OF KIT P/N 127808.....	8
9	PAOZZ	1MVZ1	975288	BRACKET ASSEMBLY, CAMSHAFT: REAR RIGHT-USED ON 326961.....	1
	PAOZZ	1MVZ1	975289	BRACKET ASSEMBLY, CAMSHAFT: LEFT REAR-USED ON 326960.....	1
	PAOZZ	1MVZ1	953800	BRACKET ASSEMBLY, CAMSHAFT: LEFT FRONT-USED ON 326962.....	1
	PAOZZ	1MVZ1	953801	BRACKET ASSEMBLY, CAMSHAFT: RIGHT FRONT-USED ON 326963.....	1
10	PAOZZ	52304	90414	WASHER, LOCK.....	16
11	PAOZZ	96906	MS90725-302	SCREW, CAP, HEXAGON HEAD	16
12	PAOZZ	52304	43943	WASHER, FLAT.....	4
13	PAOZZ	52304	35428	WASHER, FLAT, THICKNESS 0.060.....	12
14	PAOZZ	52304	23570	WASHER, FLAT.....	12
15	KFFZZ	52304	804017	RING, RETAINING PART OF KIT P/N 127808.....	4
16	PAOZZ	78502	427-10401	BRACKET, VEHICULAR COMPONENTS.....	4
17	PAOZZ	15434	S00226800	FITTING, LUBRICATION.....	4
18	PAOZZ	52304	804703	SCREW, MACHINE.....	16
19	PAOZZ	96906	MS51968-20	NUT, PLAIN, HEXAGON	30
20	PAOZZ	96906	MS35335-39	WASHER, LOCK.....	30
21	KFFZZ	1MVZ1	818278	SPRING, HELICAL, EXTENSION PART OF KITS P/N 808330 AND P/N314159	4
22	PAOZZ	80204	B1821BH063F175N	SCREW, CAP, HEXAGON HEAD	30
23	PFOZZ	1MVZ1	808076	CAMSHAFT, ACTUATING, BRAKE SHOE: RIGHT REAR-USED ON 326961	1
	PAOZZ	1MVZ1	808077	CAMSHAFT, ACTUATING, BRAKE SHOE: LEFT REAR-USED ON 326960	1
	PAOZZ	1MVZ1	807858	CAMSHAFT, ACTUATING, BRAKE SHOE: LEFT FRONT-USED ON 326962	1
	PAOZZ	1MVZ1	807859	CAMSHAFT, ACTUATING, BRAKE SHOE: RIGHT FRONT-USED ON 326963	1
24	PAOZZ	1MVZ1	806380	WASHER, CAM HEAD.....	4
25	KFFZZ	1MVZ1	819725	SPRING, HELICAL, EXTENSION PART OF KITS P/N 808330 AND P/N 314159	8
				END OF FIGURE	

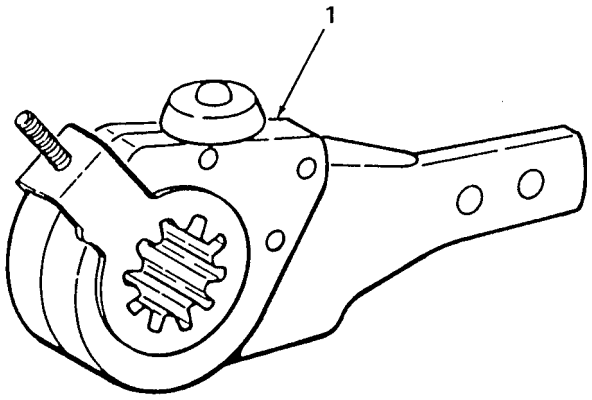


Figure 9. Slack Adjuster

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1206 0009 MECHANICAL BRAKE SYSTEM **FIG. 9 SLACK ADJUSTER**	
1	**PAOZZ**	**78502**	**409-10133**	**ADJUSTER, SLACK, BRAKE: REAR**	**2**
	PAOZZ	**78502**	**400-10005**	**ADJUSTER, SLACK, BRAKE: FRONT**	**2**
				END OF FIGURE	

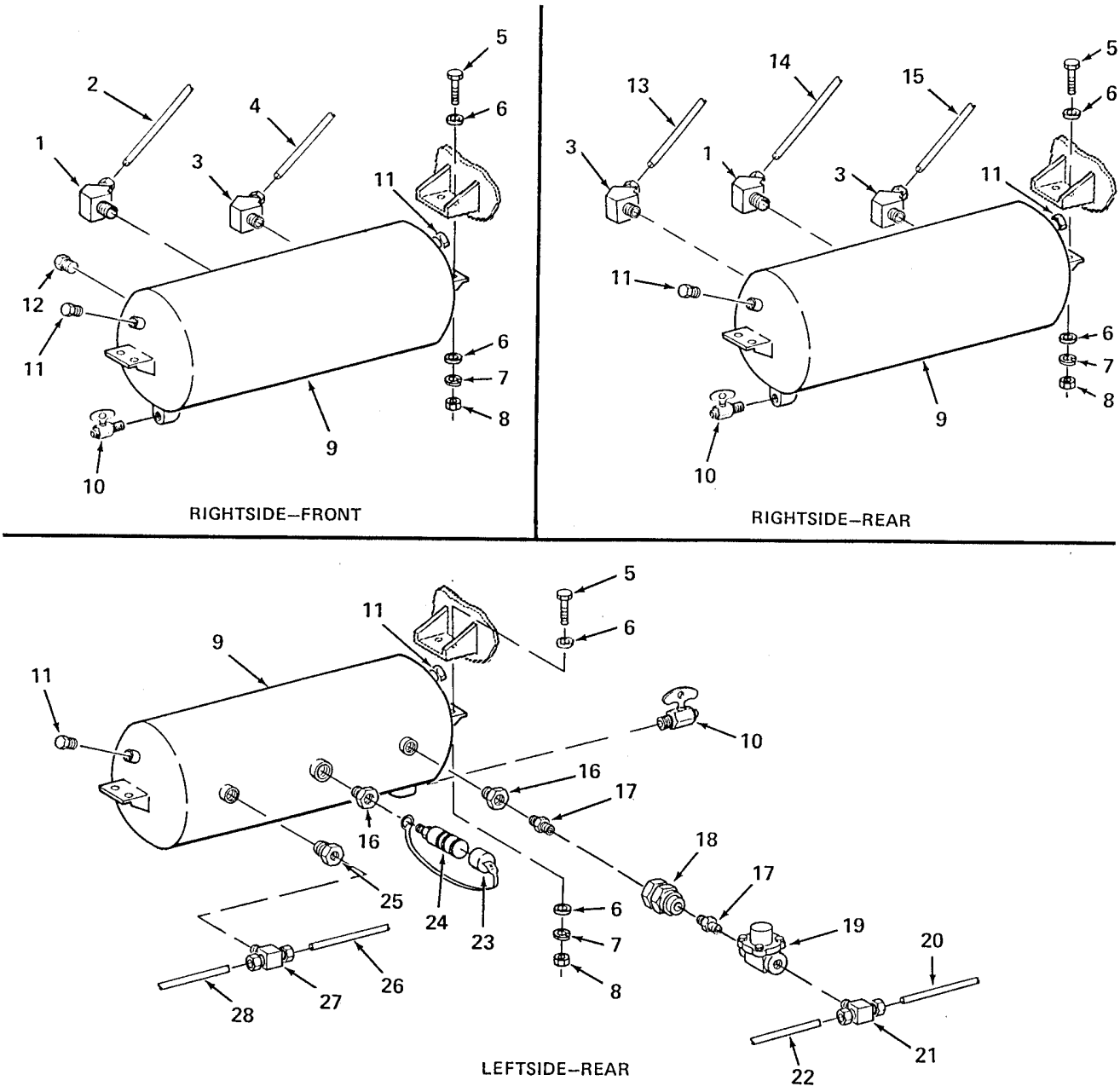


Figure 10. Air Tank Installation

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1208 0010 AIR BRAKE SYSTEM **FIG. 10 AIR TANK INSTALLATION**	
1	PAOZZ	79470	1480X10	ELBOW, PIPE TO TUBE	2
2	MOOZZ	98255	SW13321P-0960	HOSE, NONMETALLIC: MAKE FROM PART NUMBER 3250-10103	1
3	PAOZZ	93061	279NTA-6-8	ELBOW, PIPE TO TUBE	3
4	MOOZZ	98255	SW13319P-1900	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
5	PAOZZ	96906	MS90725-36	BOLT, MACHINE	12
6	PAOZZ	96906	MS27183-12	WASHER, FLAT	24
7	PAOZZ	96906	MS35338-45	WASHER, LOCK	12
8	PAOZZ	96906	MS35649-2314	NUT, PLAIN, HEXAGON	12
9	PAOZZ	98255	SW25355	TANK, PRESSURE	3
10	PAOZZ	06721	10719	COCK, DRAIN	3
11	PAOZZ	79470	3152X6	PLUG, PIPE	6
12	PAOZZ	79470	3152X8	PLUG, PIPE	1
13	MOOZZ	98255	SW13319P-0840	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
14	MOOZZ	98255	SW13321P-0800	TUBE, NONMETALLIC: MAKE FROM PART NUMBER 3250-10103	1
15	MOOZZ	98255	SW13319P-1400	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
16	PAOZZ	93061	209P-8-4	BUSHING, PIPE	2
17	PAOZZ	79470	3325X4	NIPPLE, PIPE	2
18	PAOZZ	30379	2148946	VALVE, CHECK	1
19	PAOZZ	06721	N15758DB	VALVE, BRAKE, PNEUMATIC	1
20	MOOZZ	98255	SW13319P-0440	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
21	PAOZZ	93061	272NTA-6-4	TEE, PIPE TO TUBE	1
22	MOOZZ	98255	SW13319P-2440	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
23	PAOZZ	01276	FD45-1040-06	CAP, PROTECTIVE, DUST AND MOISTURE SEAL	1
24	PAOZZ	97111	1100	COUPLING HALF, QUICK DISCONNECT	1
25	PAOZZ	79470	3220X8X6	BUSHING, PIPE	1
26	MOOZZ	98255	SW13319P-1200	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
27	PAOZZ	81343	6-6-6-120425BA	TEE, PIPE TO TUBE	1
28	MOOZZ	98255	SW13319P-2000	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
				END OF FIGURE	

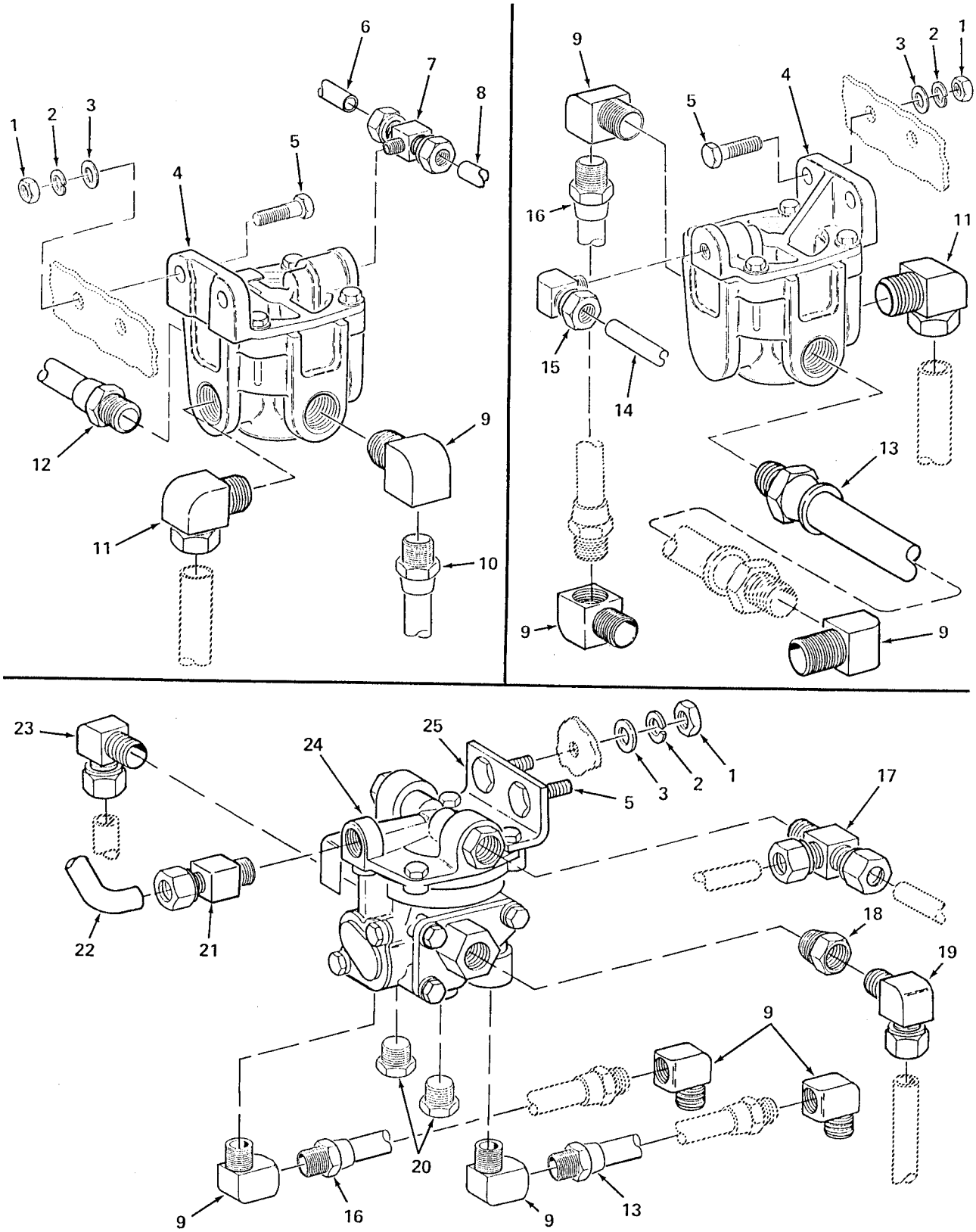


Figure 11. Air Valves

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1208 0011 AIR BRAKE SYSTEM **FIG. 11 AIR VALVES**	
1	PAOZZ	96906	MS35649-2312	NUT, PLAIN, HEXAGON HEAD	6
2	PAOZZ	96906	MS35338-45	WASHER, LOCK	6
3	PAOZZ	96906	MS27183-12	WASHER, FLAT	6
4	PAOZZ	06721	N30108BD	VALVE, RELAY, AIR PRESSURE	2
5	PAOZZ	80204	B1821BH031C150N	BOLT, MACHINE	6
6	MOOZZ	98255	SW13319P-0320	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
7	PAOZZ	93061	272NTA-6-4	TEE, PIPE TO TUBE	1
8	MOOZZ	98255	SW13319P-2660	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
9	PAOZZ	93061	2202P6-6	ELBOW, PIPE	8
10	PAOZZ	58429	62W3506B0	HOSE ASSEMBLY, NONMETALLIC	1
11	PAOZZ	93061	269NTA-10-8	ELBOW, PIPE TO TUBE	2
12	PAOZZ	58429	62W3572B0	HOSE ASSEMBLY, NONMETALLIC	1
13	PAOZZ	58429	62W3584B0	HOSE ASSEMBLY, NONMETALLIC	2
14	MOOZZ	98255	SW13319P-0080	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
15	PAOZZ	81343	6-4 100202BA	ELBOW, PIPE TO TUBE	1
16	PAOZZ	58429	62W3554B0	HOSE ASSEMBLY, NONMETALLIC	2
17	PAOZZ	93061	271NTA-6-6	TEE, PIPE TO TUBE	1
18	PAOZZ	93061	209P-8-4	BUSHING, PIPE	1
19	PAOZZ	30327	4-469-F-06X04	ELBOW, PIPE TO TUBE	1
20	PAOZZ	79470	3152X6	PLUG, PIPE	3
21	PAOZZ	93061	68NTA-6-6	ADAPTER, STRAIGHT, PIPE TO TUBE	1
22	MOOZZ	98255	SW13319P-0900	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
23	PAOZZ	81343	6-6 120202BA	ELBOW, PIPE TO TUBE	1
24	PAOZZ	06721	N4305A	VALVE, RELAY, AIR PRESSURE	1
25	PAOZZ	98255	SW26521	BRACKET, ANGLE	1
				END OF FIGURE	

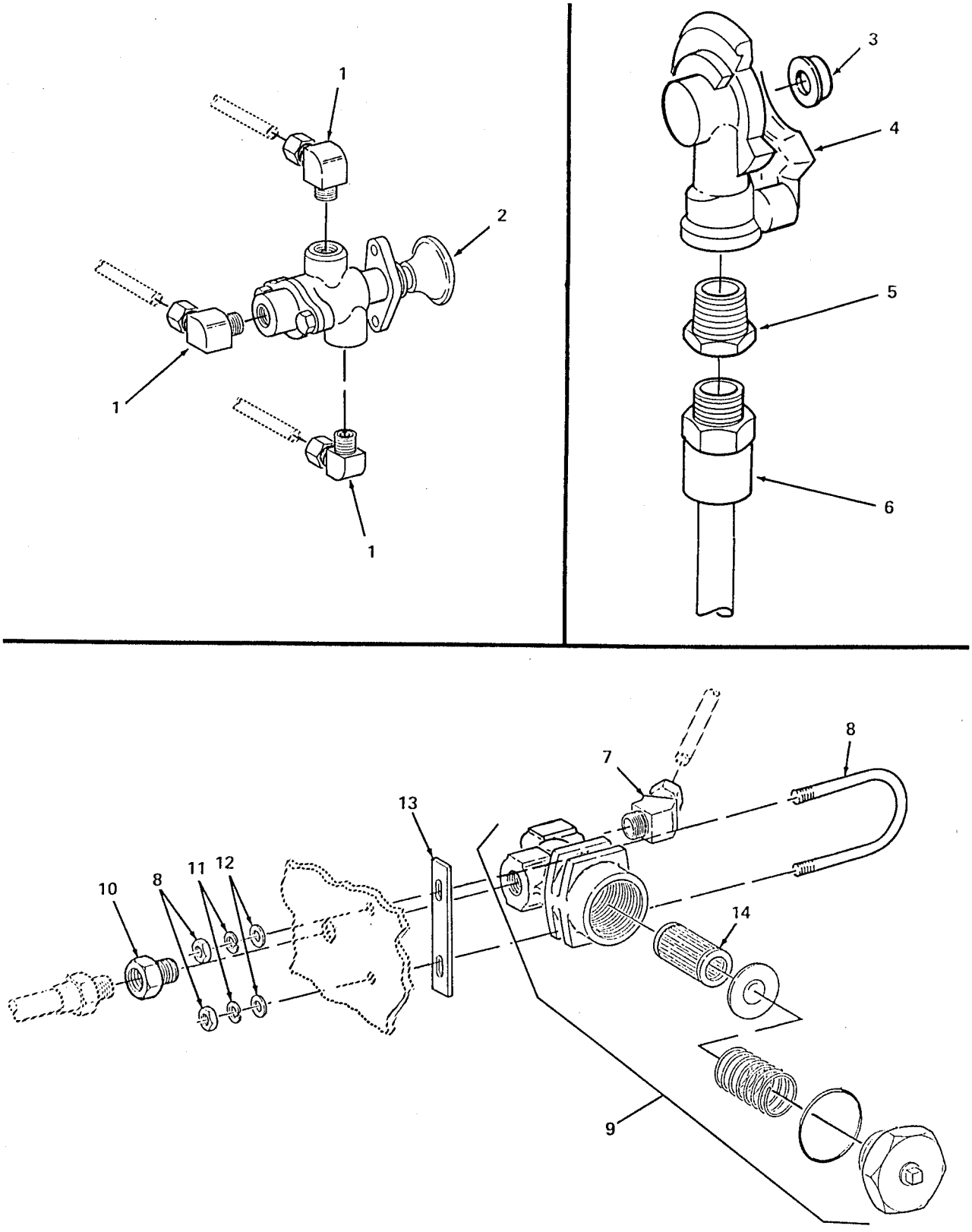
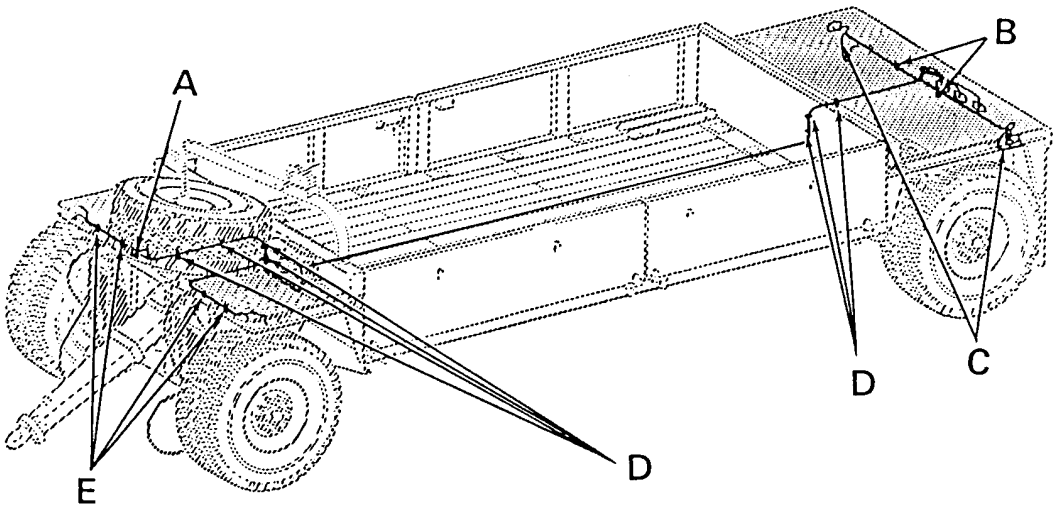


Figure 12. Brake Valve, Gladhand, and Air Cleaner Intake

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1208 0012 AIR BRAKE SYSTEM **FIG. 12 BRAKE VALVE, GLADHAND, AND AIR CLEANER INTAKE**	
1	PAOZZ	81343	6-4 100202BA	ELBOW, PIPE TO TUBE	3
2	PAOZZ	06721	N14488AC	VALVE, BRAKE, PNEUMATIC	1
3	PAOZZ	98343	1509	PACKING, PREFORMED	1
4	PAOOO	58536	A52484-1	COUPLING HALF, QUICK DISCONNECT: RIGHT SIDE (SERVICE)	1
	PAOOO	45152	18572FX	COUPLING HALF, QUICK DISCONNECT: LEFT SIDE (EMERGENCY)	1
5	PAOZZ	79470	3220X8X6	BUSHING, PIPE	2
6	PAOZZ	58429	62W3572B0	HOSE ASSEMBLY, NONMETALLIC	2
7	PAOZZ	79470	1480X6	ELBOW, PIPE TO TUBE	2
8	PAOZZ	39428	3043T19	BOLT, U	2
9	PAOZZ	23705	A298749	AIR FILTER, BRAKE LINE	2
10	PAOZZ	79470	3200X6X4	REDUCER, PIPE	2
11	PAOZZ	96906	MS35338-44	WASHER, LOCK	4
12	PAOZZ	96906	MS27183-10	WASHER, FLAT	4
13	PAOZZ	98255	SW25336	SPACER, PLATE	2
14	PAOZZ	06721	N-12971-B	FILTER ELEMENT, FLUID	1
				END OF FIGURE	



OLD TRAILERS (SER. NO. 2000 AND BELOW)

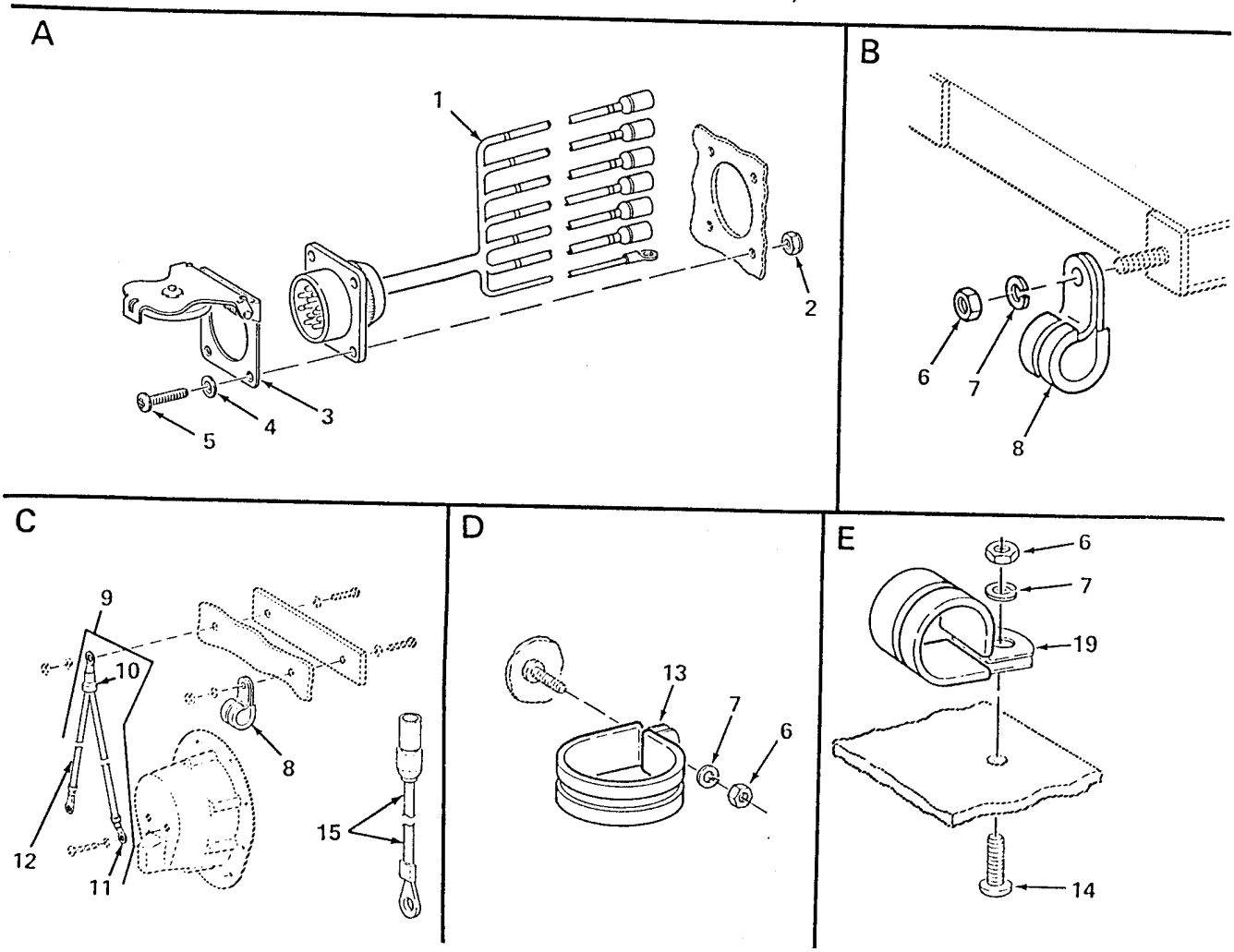


Figure 13. Air Chambers and Cable Clamps

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1208 0013 AIR BRAKE SYSTEM	
				FIG. 13 AIR CHAMBERS AND CABLE CLAMPS	
1	**PAOZZ**	**06721**	**19100**	**PIN, STRAIGHT, HEADLESS**	**4**
2	**PAOZZ**	**98255**	**SW25189**	**CHAMBER, AIR BRAKE**	**2**
3	**PAOZZ**	**06721**	**KN36450**	**CLEVIS, ROD END**	**4**
4	**PAOZZ**	**96906**	**MS35338-50**	**WASHER, LOCK**	**4**
5	**PAOZZ**	**98343**	**2-X-256**	**NUT, PLAIN, HEXAGON**	**4**
6	**PAOZZ**	**96906**	**MS24665-353**	**COTTER PIN**	**4**
7	**PAOZZ**	**98343**	**6178617**	**NUT, PLAIN, HEXAGON**	**4**
8	**PAOZZ**	**06721**	**193008**	**WASHER, LOCK**	**4**
9	**PAOZZ**	**06721**	**N50037A**	**CHAMBER, AIR BRAKE: RIGHT HAND**	**1**
10	**PAOZZ**	**06721**	**N50037**	**CHAMBER, AIR BRAKE: LEFT HAND**	**1**
11	**PAOZZ**	**96906**	**MS35649-202**	**NUT, PLAIN, HEXAGON HEAD**	**14**
12	**PAOZZ**	**96906**	**MS21919WCG18**	**CLAMP, LOOP**	**5**
13	**MOOZZ**	**98255**	**SW15460P-5**	**NONMETALLIC CHANNEL: MAKE FROM PART NUMBER X-982 (1.50 INCHES)**	**2**
14	**MOOZZ**	**98255**	**SW15460P-6**	**NONMETALLIC CHANNEL: MAKE FROM PART NUMBER X-982 (3 INCHES)**	**1**
15	**PAOZZ**	**96906**	**MS3367-7-9**	**STRAP, TIEDOWN, ELECTRICAL COMPONENTS**	**36**
16	**PAOZZ**	**96906**	**MS21333-73**	**CLAMP, LOOP**	**9**
				END OF FIGURE	

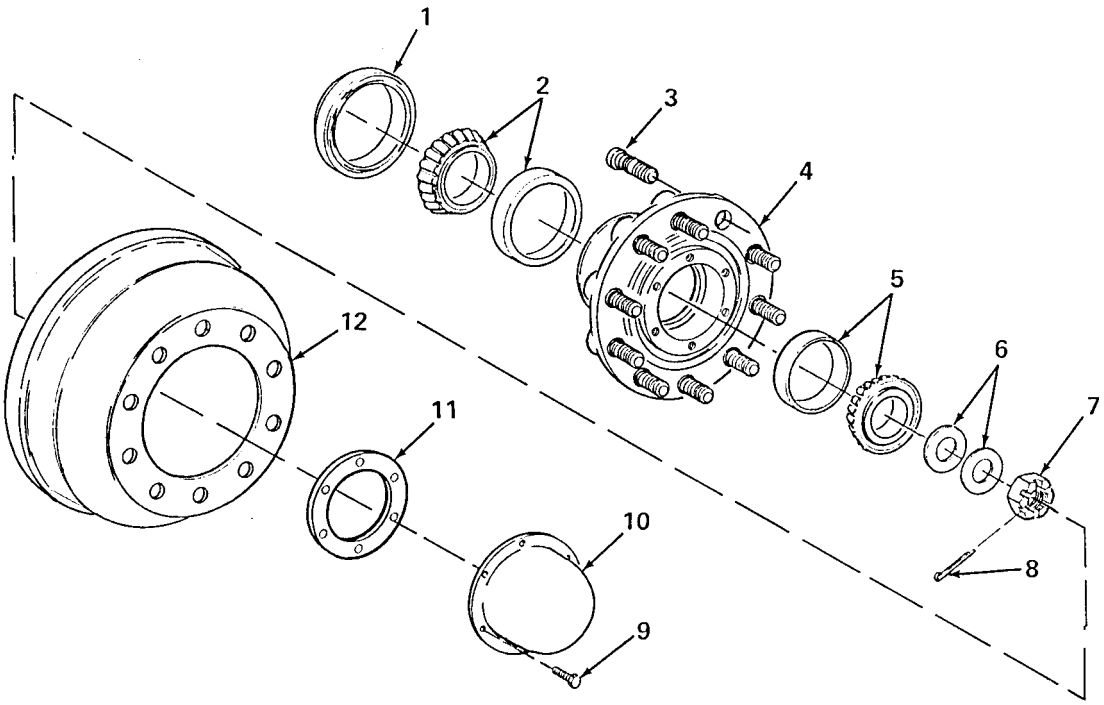


Figure 14. Front and Rear Wheel Assembly

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1311 0014 WHEEL ASSEMBLY **FIG. 14 FRONT AND REAR WHEEL ASSEMBLY**	
1	PAOZZ	80201	46304	SEAL, PLAIN, ENCASED	4
2	PAOZZ	81348	FFB187/01-652	BEARING, ROLLER, TAPERED	4
3	PAOZZ	18889	100170	BOLT, RIBBED SHOULDER: RIGHT HAND	10
	PAOZZ	18889	100181	BOLT, INTERNAL WRENCH: LEFT HAND	10
4	PBOZZ	18889	1540	HUB, WHEEL, VEHICULAR	4
5	PAOZZ	81348	FFB187/01-500	BEARING, ROLLER, TAPERED	4
6	PAOZZ	98255	143625-0002	WASHER, KEYWAY	2
7	PAOZZ	98255	143699-0019	NUT, PLAIN, SLOTTED, HEXAGON	2
8	PAOZZ	46717	L6451-101	PIN, COTTER	4
9	PAOZZ	80204	B1821BH031C075N	SCREW, CAP, HEXAGON HEAD	24
10	PAOZZ	78500	3262W1245	HUB CAP, WHEEL	4
11	PAOZZ	78500	2208N430 NON-ASBESTOS	GASKET	4
12	PBOFF	18889	65651B	BRAKE DRUM	4
				END OF FIGURE	

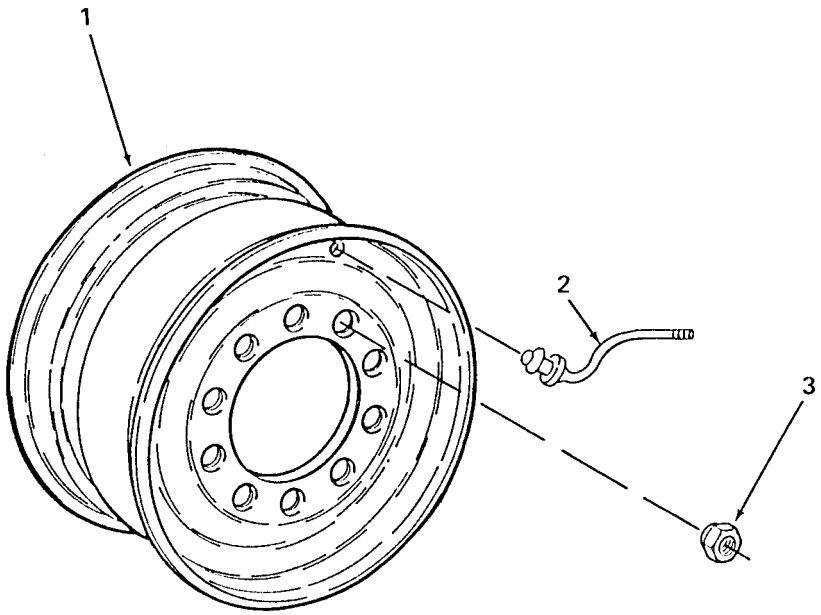


Figure 15. Wheel and Valve

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1311-0015 WHEEL ASSEMBLY **FIG. 15 WHEEL AND VALVE**	
1	**PAOZZ**	**20076**	**05-09648-95**	**WHEEL**	**1**
2	**PAOZZ**	**27783**	**TR515**	**VALVE, PNEUMATIC TIRE**	**1**
3	**PAOZZ**	**96906**	**MS51983-8**	**NUT, PLAIN, SINGLE BALL SEAT, HEXAGON: RIGHT HAND**	**10**
	PAOZZ	**96906**	**A52427-L-1.125**	**NUT, PLAIN, SINGLE BALL SEAT, HEXAGON: LEFT HAND**.....	**10**
				END OF FIGURE	

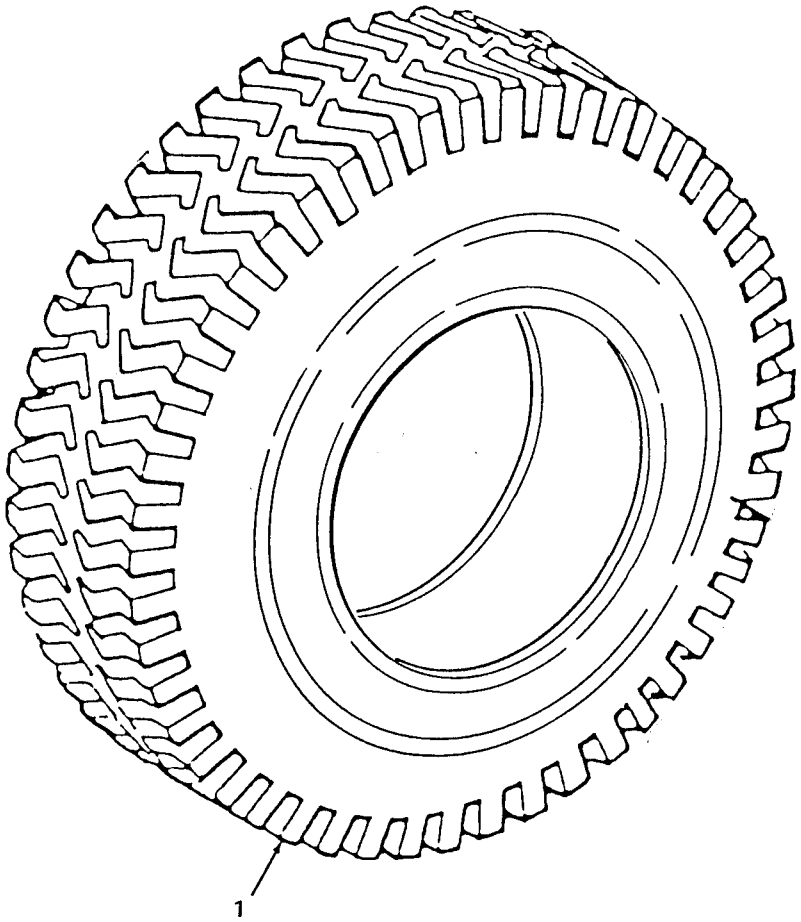


Figure 16. Tires

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1313 0016 TIRES, TUBES, AND TIRE CHAINS **FIG. 16 TIRES**	
1	**PAOFF**	**81348**	**GP3A/15.00-22.50/H/ TBTR**	**TIRE, BIAS, PNEUMATIC, VEHICULAR USE ONLY WITH COMPLETE SET OF BIAS TIRES .....**	**5**
	PAOZZ	**81348**	**X/GP3/TYRA/CLA/T/ 385/65R22.5/J**	**TIRE, RADIAL, PNEUMATIC, VEHICULAR USE ONLY WITH COMPLETE SET OF RADIAL TIRES.....**	**5**
				END OF FIGURE	

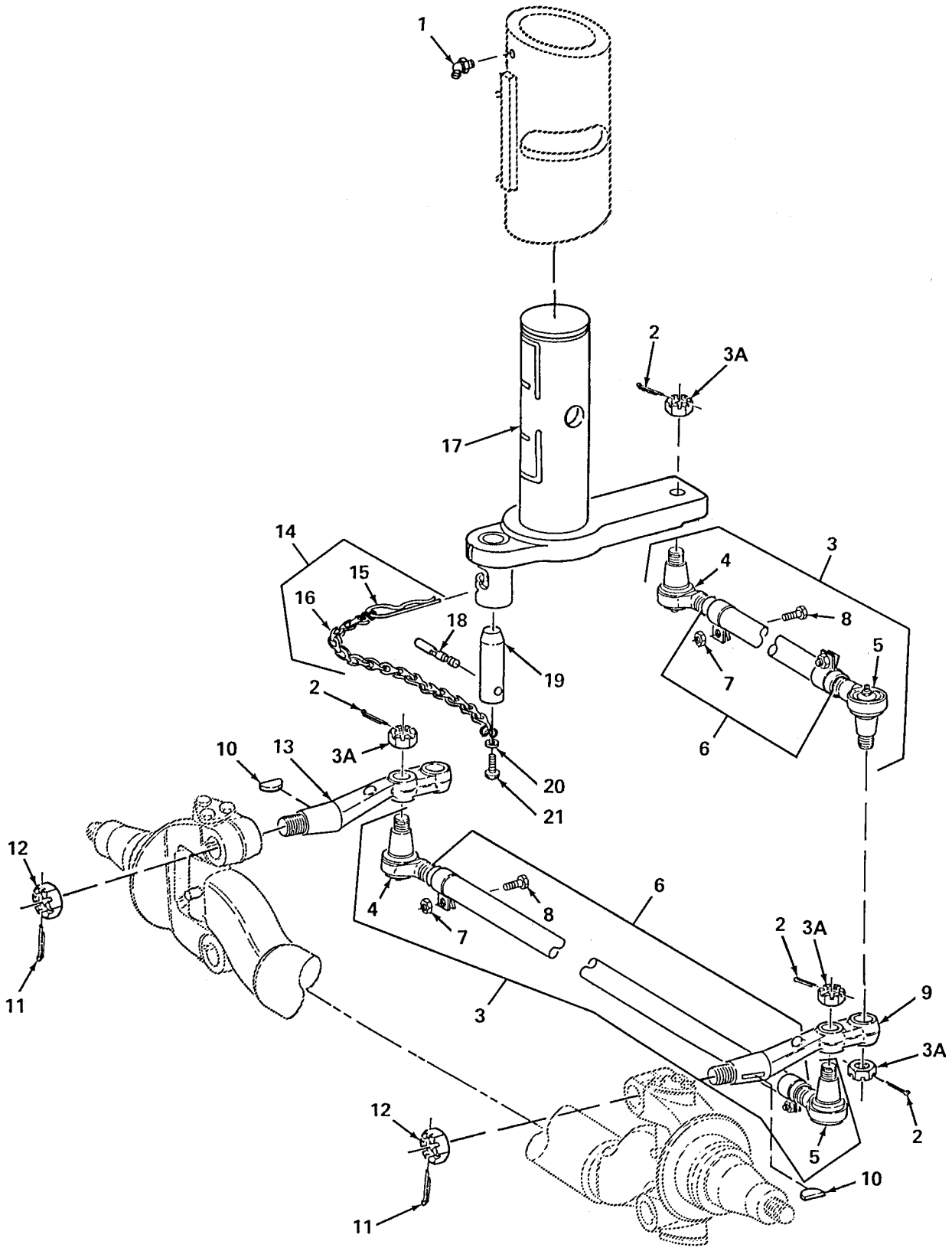


Figure 17. Tie Rod and Pivot Assembly

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1401 0017 MECHANICAL STEERING GEAR ASSEMBLY **FIG. 17 TIE ROD AND PIVOT ASSEMBLY**	
1	PAOZZ	96906	MS15003-4	FITTING, LUBRICATION	3
2	PAOZZ	80205	MS24665-357	PIN, COTTER	4
3	PAOOO	93019	12211X	TIE ROD, STEERING: LENGTH 29.81 INCHES	1
	PAOOO	93019	12210X	TIE ROD, STEERING: LENGTH 60.970 INCHES	1
3A	PAOZZ	93019	9189-96	NUT, PLAIN, CASTELLATED, HEXAGON	4
4	PAOZZ	93019	12003BN	. TIE ROD: RIGHT HAND	2
5	PAOZZ	93019	12004BN	. TIE ROD: LEFT HAND	2
6	PAOZZ	93019	12211-7	. BAR AND CLAMP ASSEMBLY: PART OF 12211X	1
	PAOZZ	93019	12210-7	. BAR AND CLAMP ASSEMBLY: PART OF 12210X	1
7	PAOZZ	81349	M45913/1-10FG5C	. . NUT, SELF-LOCKING, HEXAGON	2
8	PAOZZ	80204	B1821BH063F300N	. . SCREW, CAP, HEXAGON HEAD	2
9	PAOZZ	98255	SW25198-1	ARM, STEERING GEAR: LEFT HAND	1
10	PAFZZ	98255	SW25214	KEY, WOODRUFF	2
11	PAFZZ	80205	MS24665-499	COTTER PIN	2
12	PAFZZ	96906	MS35692-101	NUT, PLAIN, SLOTTED, HEXAGON	2
13	PAOZZ	98255	SW25198-2	ARM, STEERING GEAR: RIGHT HAND	1
14	PAOZZ	98255	SW26638	CHAIN ASSEMBLY	1
15	PAOZZ	88044	AN415-7	. LOCK PIN	1
16	PAOZZ	98255	SW10010-0101	. CHAIN	1
17	PAOZZ	98255	SW25078	BAR ASSEMBLY, PIVOT	1
18	PAOZZ	98255	SW26676	PIN, STRAIGHT, HEADED	1
19	PAOZZ	98255	SW25175	PIN ASSEMBLY	1
20	PAOZZ	96906	MS27183-4	WASHER, FLAT	1
21	PAOZZ	96906	MS35206-213	SCREW, MACHINE	1
				END OF FIGURE	

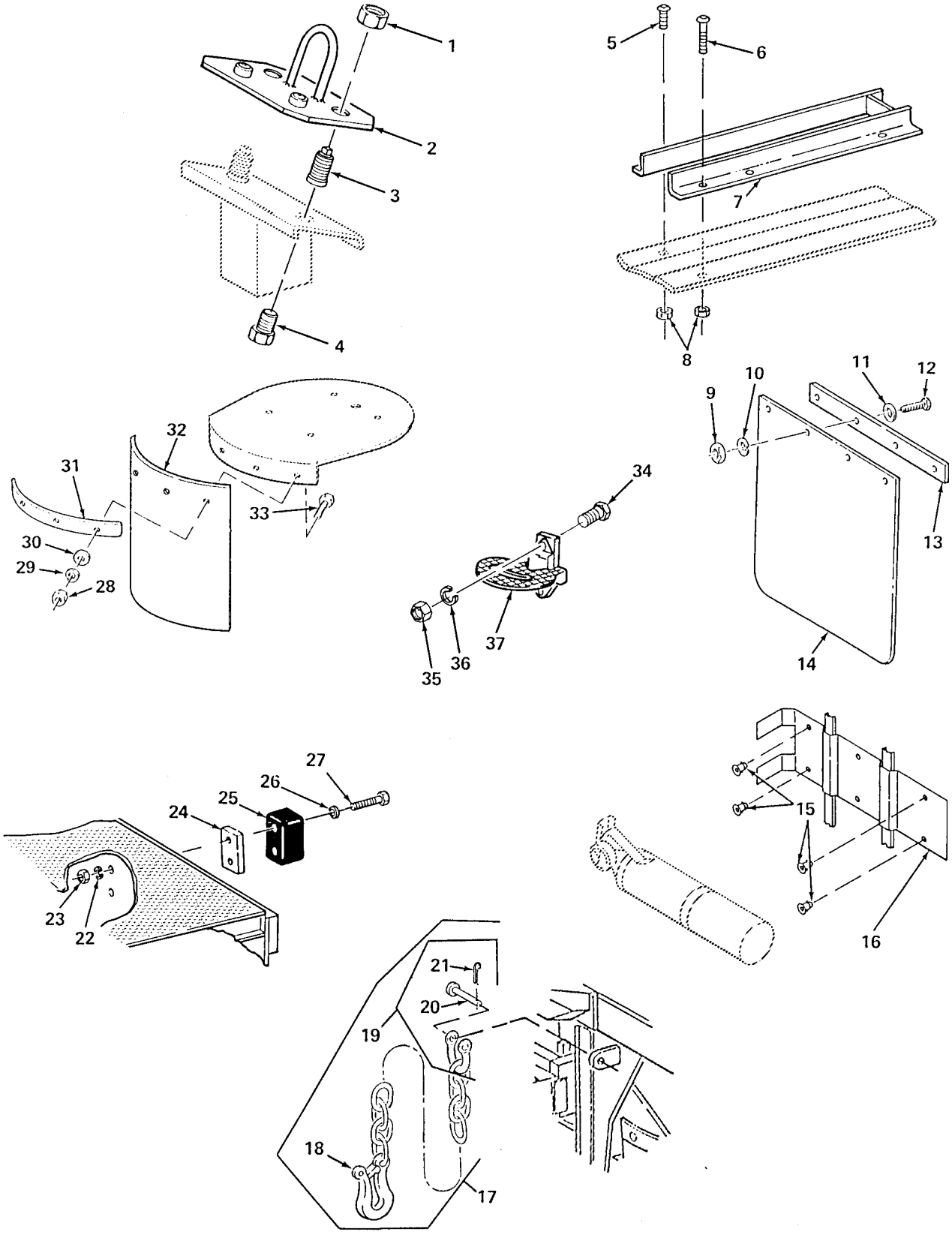


Figure 18. Trailer Assembly Components (Sheet 1 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1501 0018 FRAME ASSEMBLY **FIG. 18 TRAILER ASSEMBLY COMPONENTS**	
1	PAOZZ	78500	1199J114C	NUT, CAP, DUAL WHEEL	2
2	PAOZZ	98255	SW32969	LIFT ASSEMBLY, TIRE	1
3	PAOZZ	96906	MS51983-8	NUT, PLAIN, SINGLE BALL SEAT, HEXAGON	2
4	PAOZZ	80204	B1821BH075F150N	SCREW, CAP, HEXAGON HEAD	2
5	PAOZZ	39428	91255A120	SCREW, CAP, SOCKET HEAD	10
6	PAOZZ	39428	91255A999	SCREW, CAP, SOCKET HEAD	14
7	PAOZZ	98255	SW25081	SHOE, MILLERS	4
8	PAOZZ	9U920	SW26534	NUT, SELF-LOCKING, EXTENDED WASHER, HEXAGON	24
9	PAOZZ	96906	MS51967-8	NUT, PLAIN, HEXAGON HEAD	8
10	PAOZZ	96906	MS35338-46	WASHER, LOCK	8
11	PAOZZ	96906	MS27183-14	WASHER, FLAT	8
12	PAOZZ	80204	B1821BH038C150N	SCREW, CAP, HEXAGON HEAD	8
13	PAOZZ	98255	SW25087	PLATE, MENDING	2
14	PFOZZ	98255	SW21641	GUARD, SPLASH, VEHICULAR	2
15	PAOZZ	81349	M24243/6-A804H	RIVET, BLIND	4
16	PAOZZ	03670	79734	EXTINGUISHER, FIRE, DRY CHEMICAL: BRACKET	1
17	PAOZZ	98255	SW26535	SHACKLE AND CHAIN ASSEMBLY	2
18	XAOZZ	98255	SW25371	. CHAIN ASSEMBLY, SINGLE LEG	1
19	PAOZZ	75535	G-213-5/8 IN	. SHACKLE	1
20	PAOZZ	98255	SW25403	. . PIN, STRAIGHT, HEADED	1
21	PAOZZ	80205	MS24665-421	. . COTTER PIN	1
22	PAOZZ	96906	MS35338-48	WASHER, LOCK	4
23	PAOZZ	96906	MS51967-15	NUT, PLAIN, HEXAGON	4
24	PAOZZ	3Z276	SW29658	GASKET	2
25	PAOZZ	83473	TB-20	BUMPER, NONMETALLIC	2
26	PAOZZ	96906	MS27183-18	WASHER, FLAT	4
27	PAOZZ	80204	B1821BH050C350N	SCREW, CAP, HEXAGON HEAD	4
28	PAOZZ	96906	MS51967-2	NUT, PLAIN, HEXAGON	8
29	PAOZZ	96906	MS35338-44	WASHER, LOCK	8
30	PAOZZ	96906	MS27183-10	WASHER, FLAT	8
31	PAOZZ	98255	SW29638	BAR, MOUNTING	2
32	PAOZZ	98255	SW29637	GUARD, SPLASH, VEHICULAR	2
33	PAOZZ	80204	B1821BH025C088N	SCREW, CAP, HEXAGON HEAD	8
34	PAOZZ	96906	MS90725-36	BOLT, MACHINE	6
35	PAOZZ	96906	MS35649-2314	NUT, PLAIN, HEXAGON	6
36	PAOZZ	96906	MS35338-45	WASHER, LOCK	6
37	PAOZZ	98255	SW32973	STEP	3

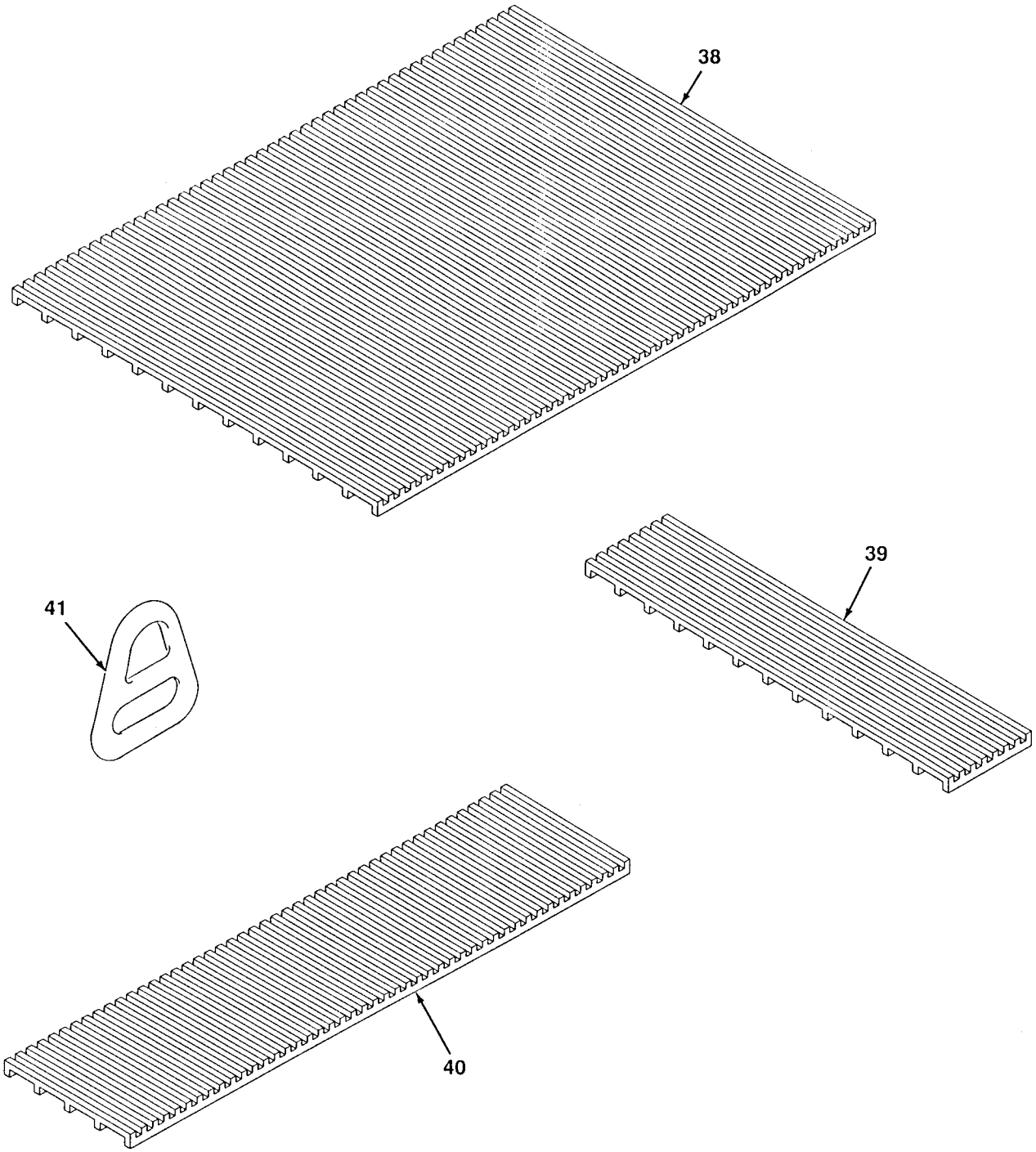


Figure 18. Trailer Assembly Components (Sheet 2 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1501 0018 FRAME ASSEMBLY **FIG. 18 TRAILER ASSEMBLY COMPONENTS**	
38	**PAOZZ**	**98255**	**SW34749-1**	**MAT, STORAGE BOX USED ON SERIAL NO. 2001 AND UP.....**	**1**
39	**MOOZZ**	**98255**	**SW34749-2**	**MAT, STORAGE BOX USED ON SERIAL NO. 2001 AND UP.....**	**1**
40	**MOOZZ**	**98255**	**SW34749-3**	**MAT, STORAGE BOX USED ON SERIAL NO. 2001 AND UP.....**	**1**
41	**PAOZZ**	**98255**	**SW25435**	**D-RING.....**	**22**
				END OF FIGURE	

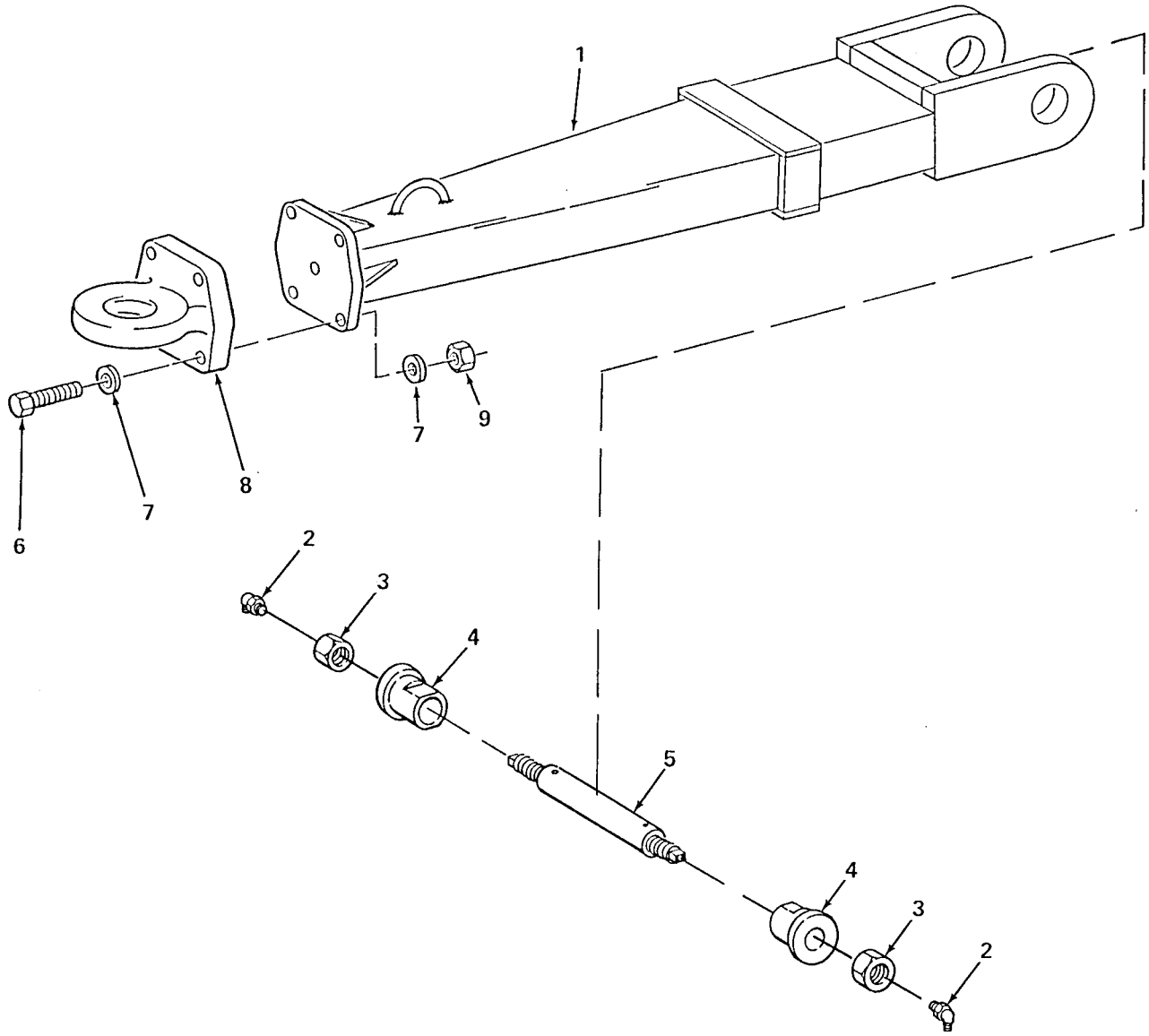


Figure 19. Tow Bar Assembly

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1503 0019 PINTLES AND TOWING ATTACHMENTS **FIG. 19 TOW BAR ASSEMBLY**	
1	**PAFZZ**	**98255**	**SW27025**	**TOW BAR, MOTOR VEHICLE**	**1**
2	**PAOZZ**	**96906**	**MS15003-6**	**FITTING, LUBRICATION**	**2**
3	**PAOZZ**	**0HUY6**	**115 7427B 102**	**NUT, SELF-LOCKING, HEXAGON**	**2**
4	**PAOZZ**	**98255**	**SW29648**	**BUSHING, FLANGED**	**2**
5	**PAOZZ**	**98255**	**SW26981**	**KNUCKLE, TOWBAR**	**1**
6	**PAFZZ**	**80204**	**B1821BH075C300N**	**SCREW, CAP, HEXAGON HEAD**	**4**
7	**PAFZZ**	**96906**	**MS27183-23**	**WASHER, FLAT**	**8**
8	**PAFZZ**	**74410**	**DB-1385**	**COUPLER, DRAWBAR, RING**	**1**
9	**PAFZZ**	**81349**	**M45913/2-12CG5C**	**NUT, SELF-LOCKING, HEXAGON**	**4**
				END OF FIGURE	

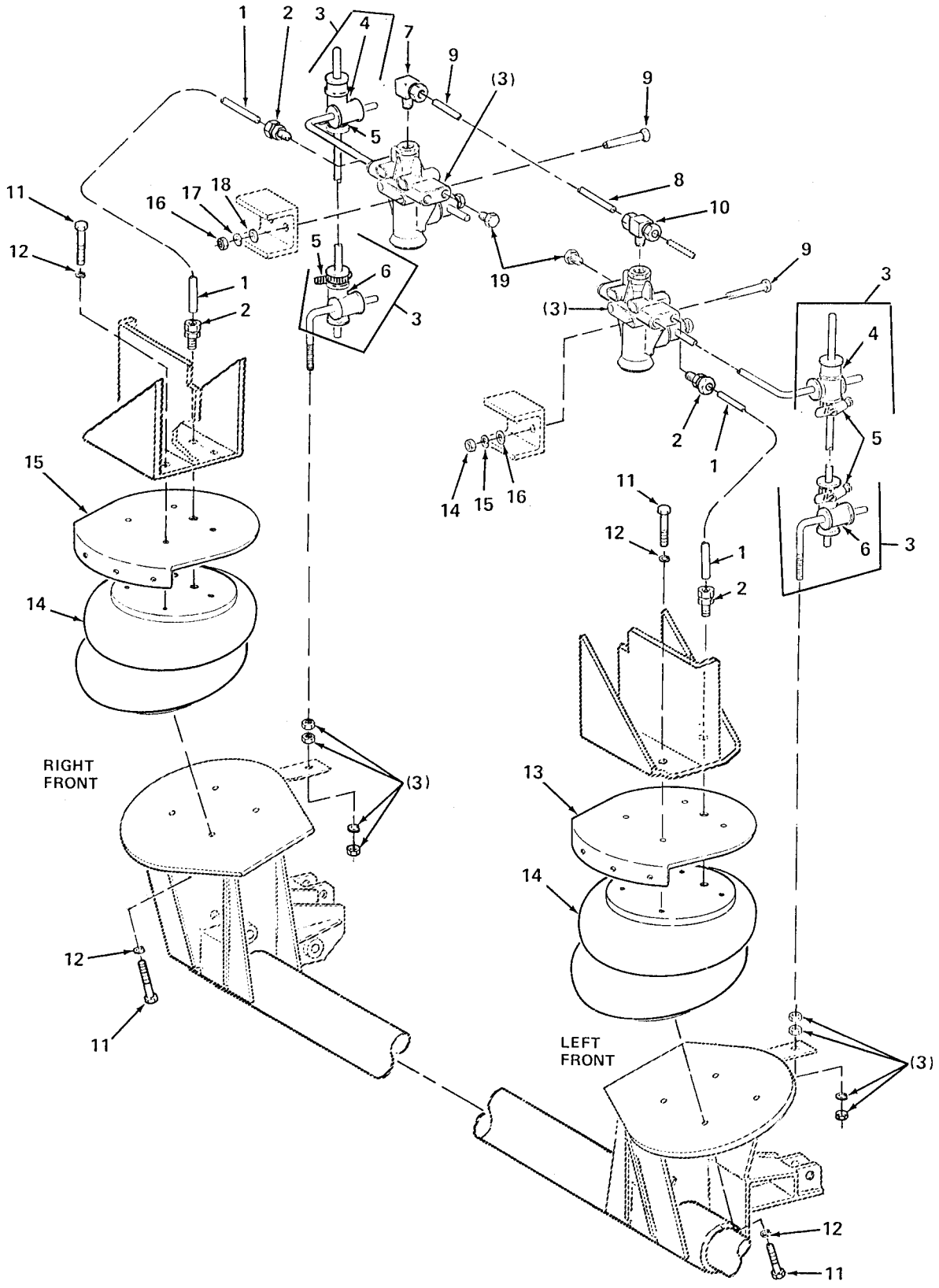


Figure 20. Front Leveling Valve and Air Bags

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1601 0020 SPRINGS **FIG. 20 FRONT LEVELING VALVE AND AIR BAGS**	
1	MOOZZ	98255	SW13319P-0240	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	2
2	PAOZZ	93061	68NTA-6-4	ADAPTER, STRAIGHT, PIPE TO TUBE	4
3	PAOOO	06721	N20404BE	VALVE, BRAKE, PNEUMATIC	2
4	KFFZZ	06721	100558	. LINKAGE ASSEMBLY, UPPER PART OF KIT P/N RN10JJ	1
5	KFFZZ	06721	22-X-183	. CLAMP PART OF KIT P/N RN10JJ	2
6	KFFZZ	06721	100558-A	. LINKAGE ASSEMBLY, LOWER PART OF KIT P/N RN10JJ	1
7	PAOZZ	81343	6-4 100202BA	ELBOW, PIPE TO TUBE	1
8	MOOZZ	98255	SW13319P-0840	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	1
9	PAOZZ	80204	B1821BH031C250N	BOLT, MACHINE	4
10	PAOZZ	93061	272NTA-6-4	TEE, PIPE TO TUBE	1
11	PAOZZ	96906	MS90725-60	SCREW, CAP, HEXAGON HEAD	16
12	PAOZZ	96906	MS35338-46	WASHER, LOCK	16
13	PAOZZ	98255	SW29636-1	AIR SPRING PLATE ASSEMBLY	1
14	PAOZZ	98255	SW25236	AIR SPRING, VEHICULAR	2
15	PAOZZ	98255	SW29636-2	AIR SPRING PLATE ASSEMBLY	1
16	PAOZZ	96906	MS35649-2312	NUT, PLAIN, HEXAGON HEAD	4
17	PAOZZ	96906	MS35338-45	WASHER, LOCK	4
18	PAOZZ	96906	MS27183-12	WASHER, FLAT	4
19	PAOZZ	79470	3152X4	PLUG, PIPE	2
				END OF FIGURE	

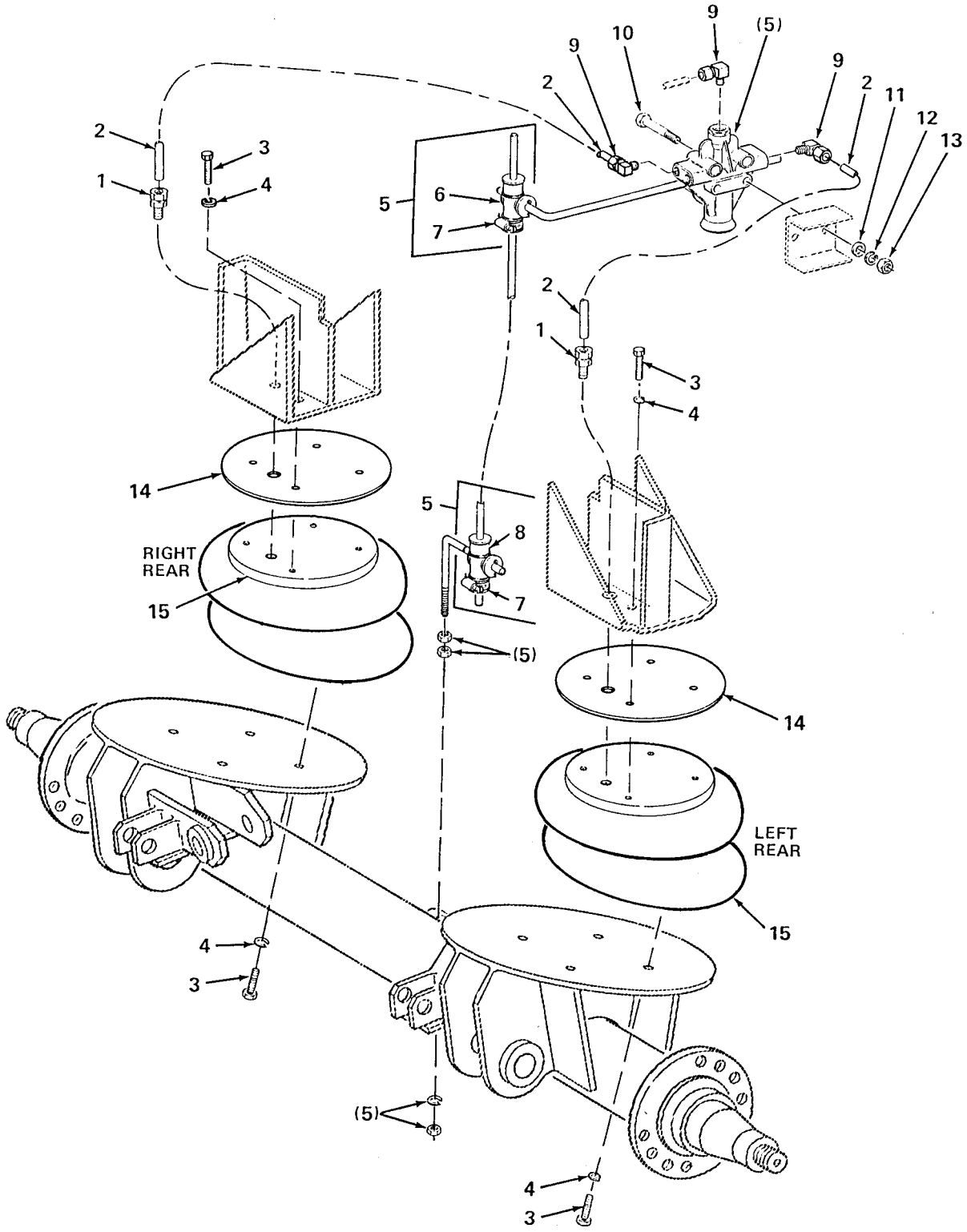


Figure 21. Rear Leveling Valve and Air Bags

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1601 0021 SPRINGS **FIG. 21 REAR LEVELING VALVE AND AIR BAGS**	
1	PAOZZ	93061	68NTA-6-4	ADAPTER, STRAIGHT, PIPE TO TUBE	2
2	MOOZZ	98255	SW13319P-0600	TUBE, NONMETALLIC: MAKE FROM PART NUMBER PFT-6B	2
3	PAOZZ	96906	MS90725-60	SCREW, CAP, HEXAGON HEAD	16
4	PAOZZ	96906	MS35338-46	WASHER, LOCK	16
5	PAOZZ	06721	N20404BE	VALVE, BRAKE, PNEUMATIC	1
6	KFFZZ	06721	100558	. LINKAGE ASSEMBLY, UPPER PART OF KIT P/N RN10JJ	1
7	KFFZZ	06721	22-X-183	. CLAMP PART OF KIT P/N RN10JJ	2
8	KFFZZ	06721	100558-A	. LINKAGE ASSEMBLY, LOWER PART OF KIT P/N RN10JJ	1
9	PAOZZ	81343	6-4 100202BA	ELBOW, PIPE TO TUBE	3
10	PAOZZ	80204	B1821BH031C250N	BOLT, MACHINE	2
11	PAOZZ	96906	MS27183-12	WASHER, FLAT	2
12	PAOZZ	96906	MS35338-45	WASHER, LOCK	2
13	PAOZZ	96906	MS35649-2312	NUT, PLAIN, HEXAGON HEAD	2
14	PBOZZ	98255	SW26639	SPACER, PLATE	2
15	PAOZZ	98255	SW25236	AIR SPRING, VEHICULAR	2
				END OF FIGURE	

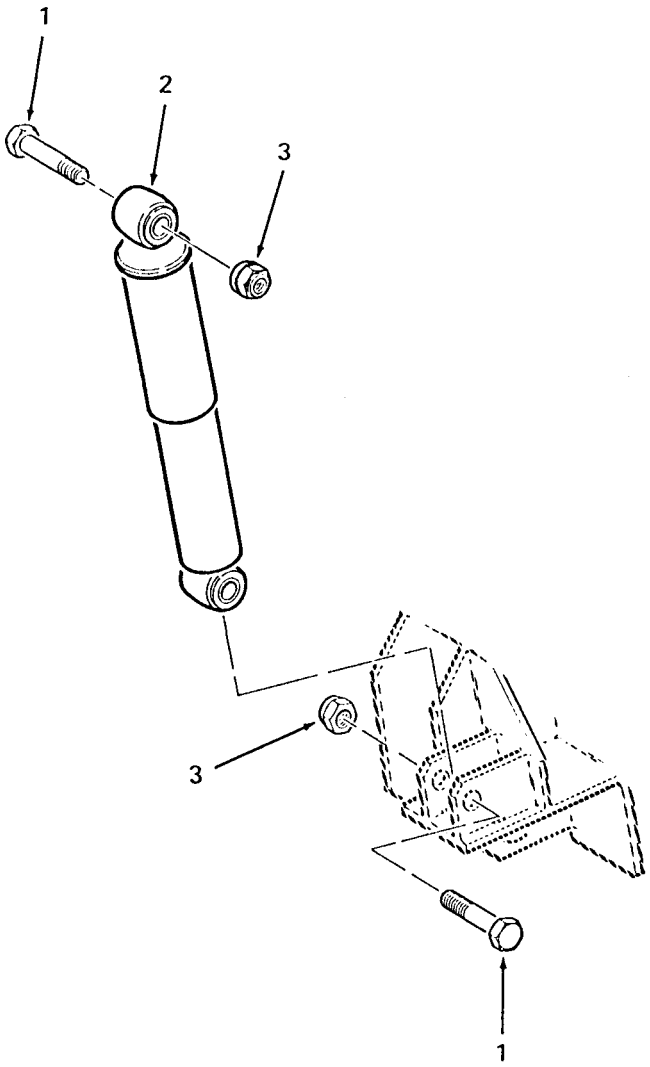


Figure 22. Shock Absorbers

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1604 0022 SHOCK ABSORBER EQUIPMENT **FIG. 22 SHOCK ABSORBERS**	
1	**PAOZZ**	**96906**	**MS90726-217**	**BOLT, MACHINE**	**8**
2	**PAOZZ**	**98255**	**SW30434**	**SHOCK ABSORBER, DIRECT ACTION**	**4**
3	**PAOZZ**	**80205**	**MS21044N14**	**NUT, SELF-LOCKING, HEXAGON**	**8**
				END OF FIGURE	

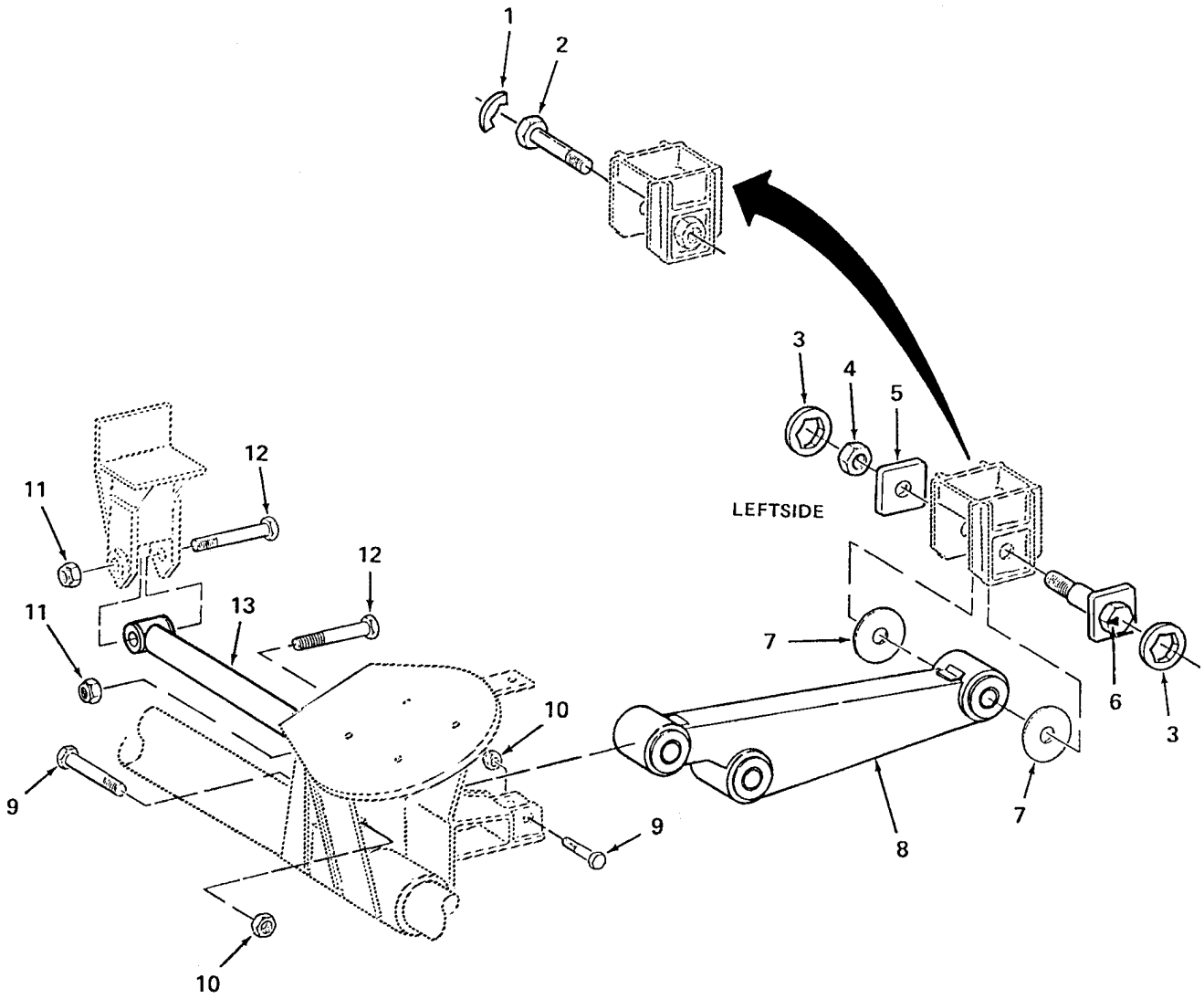


Figure 23. Front Suspension Assembly

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1605 0023 TORQUE, RADIUS, AND STABILIZER RODS **FIG. 23 FRONT SUSPENSION ASSEMBLY**	
1	PBFZZ	98255	SW25247	LOCKING PLATE, NUT AND BOLT	1
2	PAFZZ	98255	SW25238	SCREW, CAP, HEXAGON HEAD	1
3	PAFZZ	98255	SW25246	WASHER, FLAT	2
4	PAFZZ	98255	SW25239	NUT, PLAIN, HEXAGON	1
5	PAFZZ	98255	SW25245	SPACER, PLATE	1
6	PAFZZ	98255	SW25243	BOLT, ASSEMBLED WASHER	1
7	PAFZZ	0HUY6	1160519B301	WASHER, FLAT	4
8	PBFZZ	0HUY6	507 7427B 000	CONNECTING LINK, RIGID	2
9	PAFZZ	0HUY6	1135873B105	SCREW, CAP, HEXAGON HEAD	4
10	PAFZZ	0HUY6	115 7427B 102	NUT, SELF-LOCKING, HEXAGON	4
11	PAFZZ	81349	M45913/1-16CG5C	NUT, SELF-LOCKING, HEXAGON	2
12	PAFZZ	98255	SW25456	SCREW, CAP, HEXAGON HEAD	2
13	PBFZZ	98255	SW25252	BAR, STABILIZER	1
				END OF FIGURE	

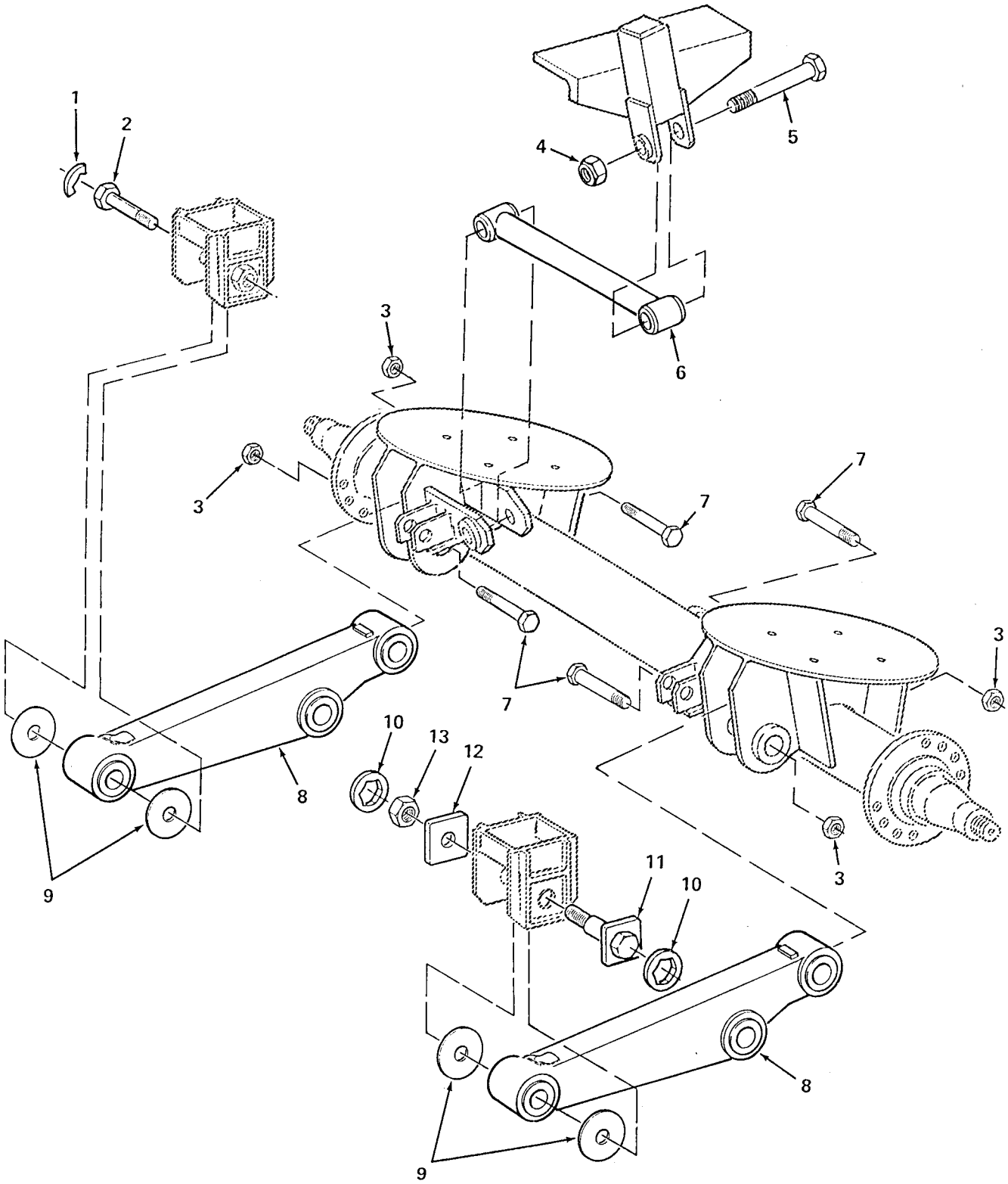


Figure 24. Rear Suspension Assembly

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1605 0024 TORQUE, RADIUS, AND STABILIZER RODS **FIG. 24 REAR SUSPENSION ASSEMBLY**	
1	**PAFZZ**	**98255**	**SW25247**	**LOCKING PLATE, NUT AND BOLT**	**1**
2	**PAFZZ**	**98255**	**SW25238**	**SCREW, CAP, HEXAGON HEAD**	**1**
3	**PAFZZ**	**0HUY6**	**115 7427B 102**	**NUT, SELF-LOCKING, HEXAGON**	**4**
4	**PAFZZ**	**81349**	**M45913/1-16CG5C**	**NUT, SELF-LOCKING, HEXAGON**	**2**
5	**PAFZZ**	**98255**	**SW25456**	**SCREW, CAP, HEXAGON HEAD**	**2**
6	**PAFZZ**	**98255**	**503 7264B 343**	**ANTI-SWAY BAR**	**1**
7	**PAFZZ**	**0HUY6**	**1135873B105**	**SCREW, CAP, HEXAGON HEAD**	**4**
8	**PBFZZ**	**0HUY6**	**507 7427B 000**	**CONNECTING LINK, RIGID**	**2**
9	**PAFZZ**	**0HUY6**	**1160519B301**	**WASHER, FLAT**	**4**
10	**PAFZZ**	**98255**	**SW25246**	**WASHER, FLAT**	**2**
11	**PAFZZ**	**98255**	**SW25243**	**BOLT, ASSEMBLED WASHER**	**1**
12	**PBFZZ**	**98255**	**SW25245**	**SPACER, PLATE**	**1**
13	**PAFZZ**	**98255**	**SW25239**	**NUT, PLAIN, HEXAGON**	**1**
				END OF FIGURE	

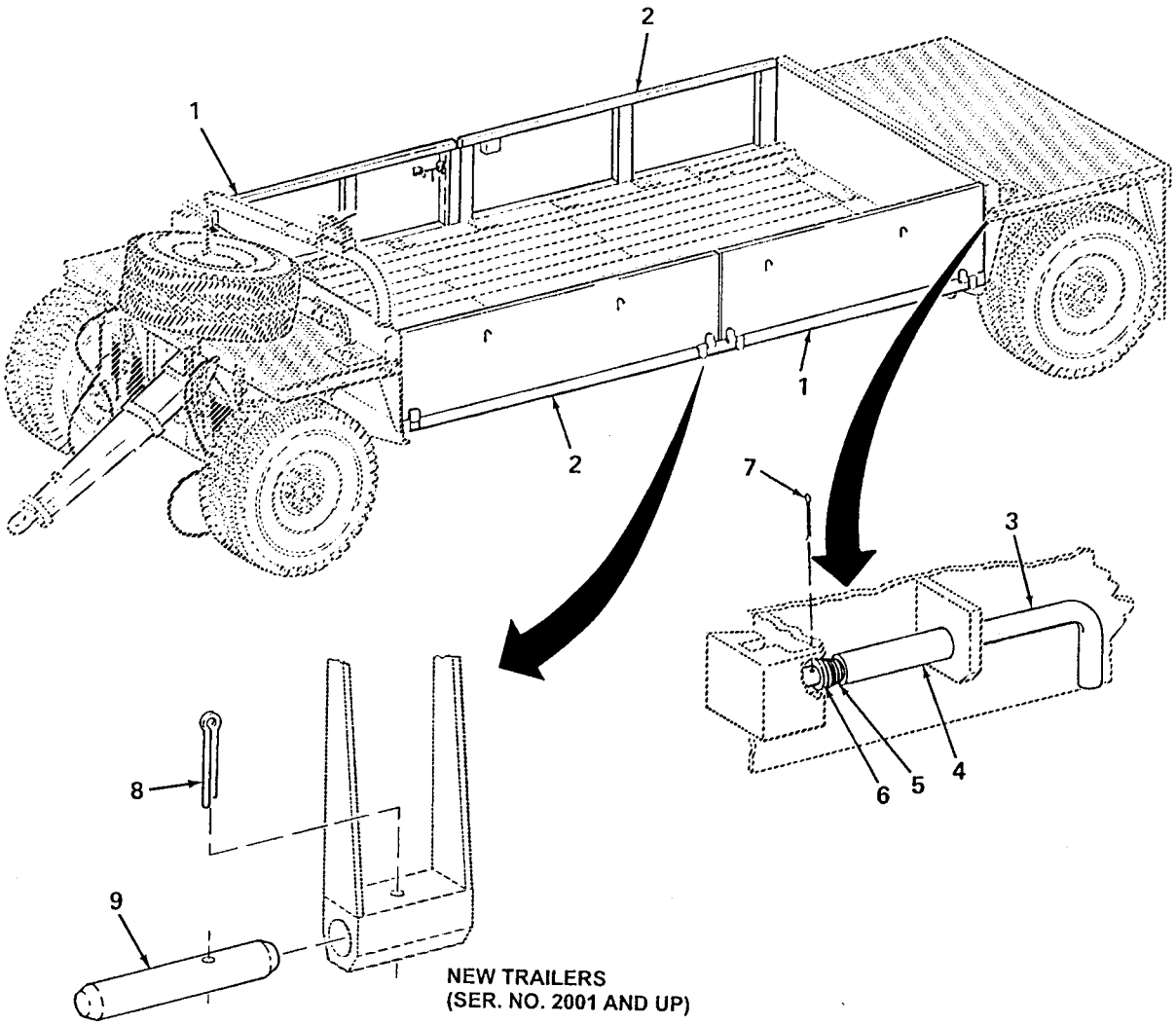


Figure 25. Side Panels

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1801 0025 BODY, CAB, HOOD, AND HULL ASSEMBLIES	
				FIG. 25 SIDE PANELS	
1	**PBOZZ**	**98255**	**SW26910**	**PANEL, BODY, VEHICULAR**	**2**
2	**PBOZZ**	**98255**	**SW26911**	**DOOR, ACCESS**	**2**
3	**PAOZZ**	**98255**	**SW27049**	**HANDLE, BOLT**	**4**
4	**PAOZZ**	**98255**	**SW29772**	**TUBE**	**4**
5	**PAOZZ**	**98255**	**SW29773**	**SPRING, HELICAL**	**4**
6	**PAOZZ**	**96906**	**MS27183-18**	**WASHER, FLAT**	**4**
7	**PAOZZ**	**80205**	**MS24665-302**	**PIN, COTTER**	**4**
8	**PAOZZ**	**80205**	**MS24665-357**	**PIN, COTTER**	**8**
9	**PAOZZ**	**98255**	**SW34748**	**PIN, HINGE**	**8**
				END OF FIGURE	

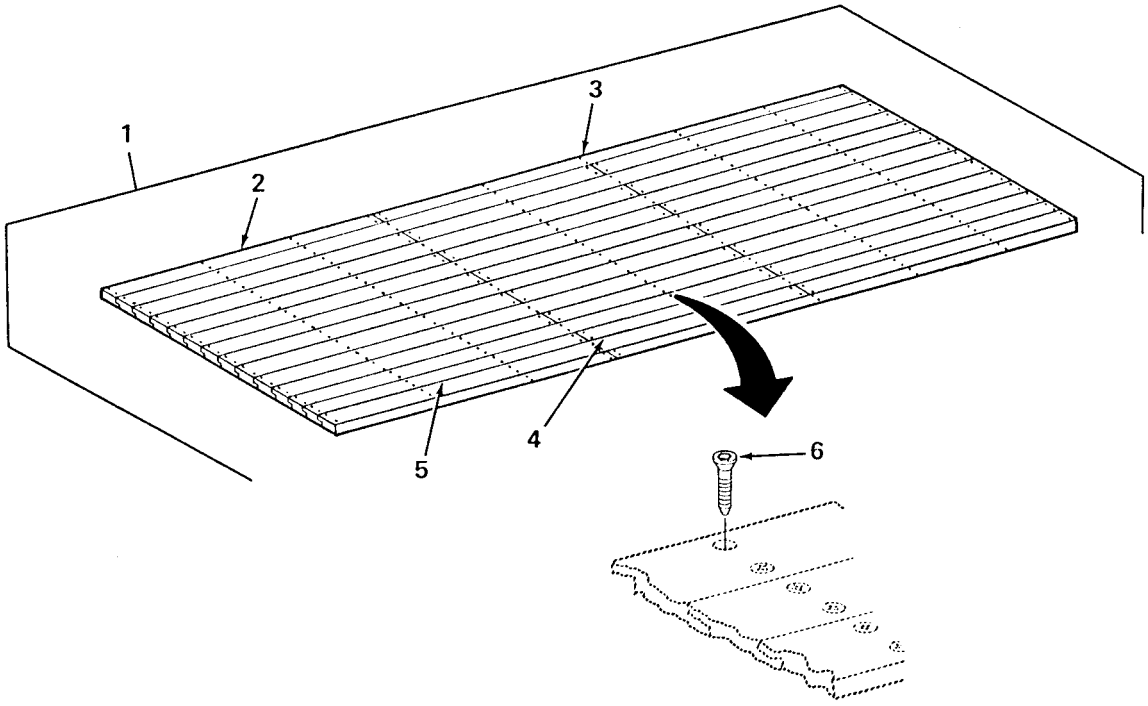


Figure 26. Floor

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1805 0026 SUBFLOORS AND RELATED COMPONENTS	
				FIG. 26 FLOOR	
1	**PFOOO**	**0YVA4**	**AWX31969**	**FLOOR KIT**	**1**
2	**MOOZZ**	**98255**	**SW31969-2**	**. BOARD, DECK: LENGTH 56.94 INCHES MAKE FROM SWX31969-4 AT ASSEMBLY**	**2**
3	**MOOZZ**	**98255**	**SW31969-1**	**. BOARD, DECK: LENGTH 104.81 INCHES MAKE FROM SWX31969-3 AT ASSEMBLY**	**2**
4	**PFOZZ**	**0YVA4**	**SWX31969-3**	**. BOARD, DECK: LENGTH 104.81 INCHES**	**14**
5	**PFOZZ**	**0YVA4**	**SWX31969-4**	**. BOARD, DECK: LENGTH 56.94 INCHES**	**14**
6	**PAOZZ**	**98255**	**SW25289**	**SCREW, TAPPING, THREAD FORMING**	**320**
				END OF FIGURE	

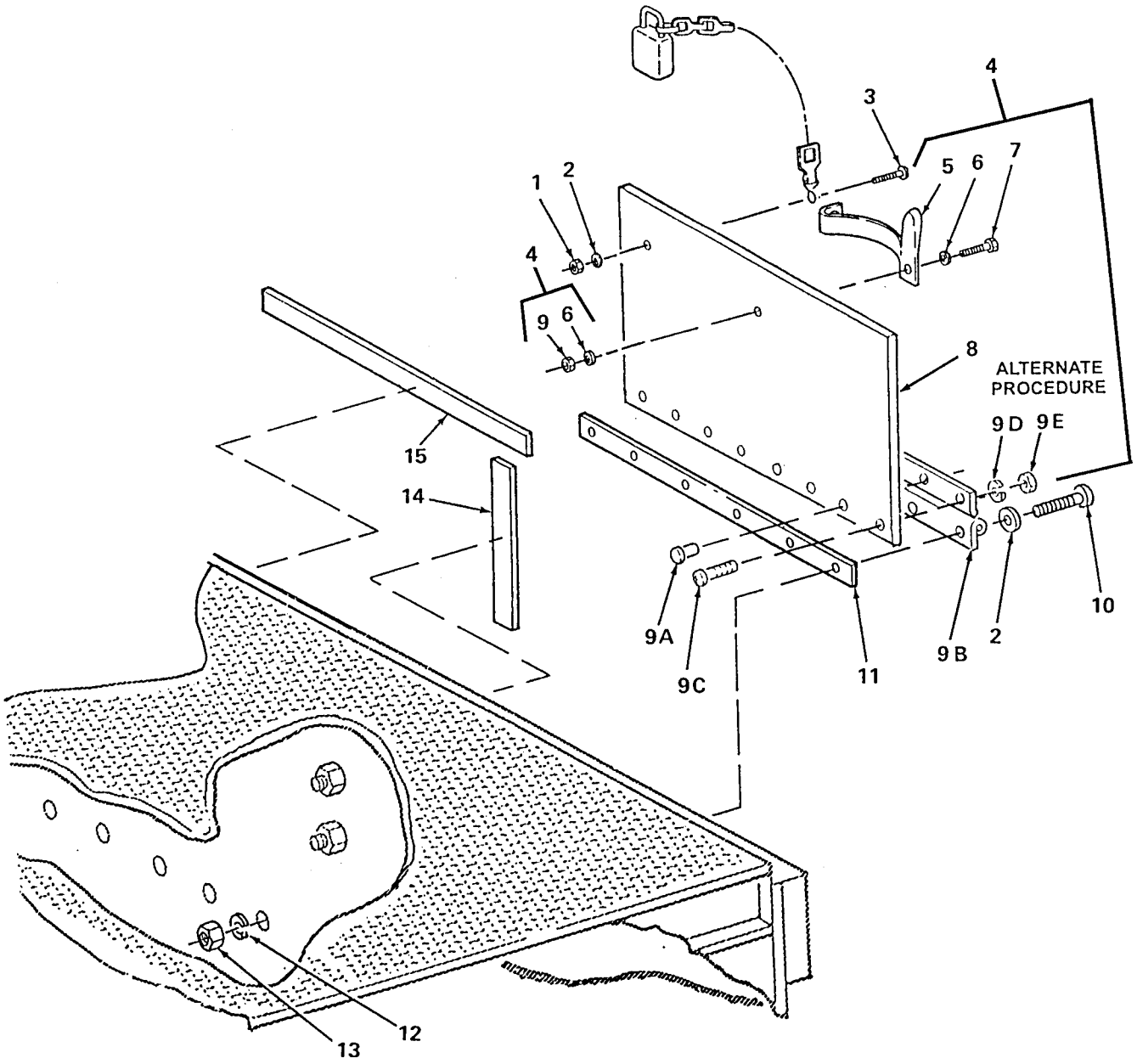


Figure 27. Stowage Door Assembly

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 1808 0027 STOWAGE RACKS, BOXES, STRAPS, CARRYING CASES, CABLE REELS, HOSE REELS, ETC. FIG. 27 STOWAGE DOOR ASSEMBLY	
1	PAOZZ	96906	MS17830-3C	NUT, SELF-LOCKING, HEXAGON	1
2	PAOZZ	96906	MS27183-42	WASHER, FLAT	7
3	PAOZZ	96906	MS35206-264	SCREW, MACHINE	1
4	PBOOO	98255	SW25157	DOOR, ACCESS	1
5	PAOZZ	98255	SW13217E1155-1	. HANDLE, DOOR	1
6	PAOZZ	96906	MS27183-10	. WASHER, FLAT	2
7	PAOZZ	96906	MS90725-6	. SCREW, CAP, HEXAGON HEAD	1
8	XAOZZ	98255	SW21653	. DOOR, STORAGE	1
9	PAOZZ	81349	M45913/1-4-CG5C	. NUT, SELF-LOCKING	1
9A	PAOZZ	96906	MS90353-0503	RIVET	8
9B	PAOZZ	98255	SW25156	HINGE, DOOR, REAR	1
9C	PAOZZ	96906	MS24693-S49	SCREW, MACHINE USED ON SERIAL NO. 2001 AND UP (ALTERNATE REPAIR)	8
9D	PAOZZ	96906	MS35338-42	WASHER, LOCK USED ON SERIAL NO. 2001 AND UP (ALTERNATE REPAIR)	8
9E	PAOZZ	96906	MS35649-282	NUT USED ON SERIAL NO. 2001 AND UP (ALTERNATE REPAIR)	8
10	PAOZZ	96906	MS35206-266	SCREW, MACHINE	6
11	PAOZZ	98255	SW25055	PLATE, MENDING	1
12	PAOZZ	96906	MS35338-43	WASHER, LOCK	6
13	PAOZZ	96906	MS35649-202	NUT, PLAIN, HEXAGON HEAD	6
14	MOOZZ	98255	SW26522-2	GASKET: MAKE FROM PART NUMBER ASTM-D-1056 (22.5 INCHES)	2
15	MOOZZ	98255	SW26522-1	GASKET: MAKE FROM PART NUMBER ASTM-D-1056 (10.3 INCHES)	2
				END OF FIGURE	

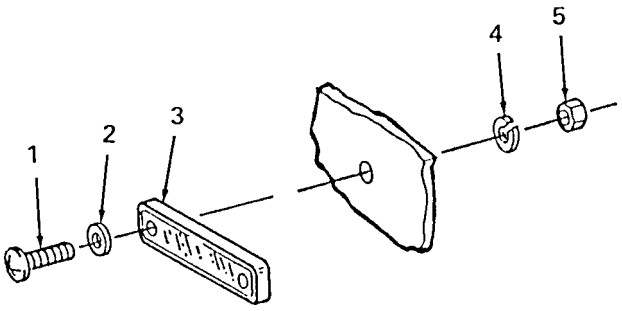


Figure 28. Reflectors

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 2202 0028 ACCESSORY ITEMS	
				FIG. 28 REFLECTORS	
1	**PAOZZ**	**96906**	**MS35206-265**	**SCREW, MACHINE**	**16**
2	**PAOZZ**	**96906**	**MS27183-42**	**WASHER, FLAT**	**16**
3	**PAOZZ**	**98255**	**SW25444-1**	**REFLECTOR, INDICATING, CLEARANCE: AMBER**	**4**
	PAOZZ	**98255**	**SW25444-2**	**REFLECTOR, INDICATING, CLEARANCE: RED**	**4**
4	**PAOZZ**	**96906**	**MS35338-43**	**WASHER, LOCK**	**16**
5	**PAOZZ**	**96906**	**MS35649-202**	**NUT, PLAIN, HEXAGON HEAD**	**16**
				END OF FIGURE	

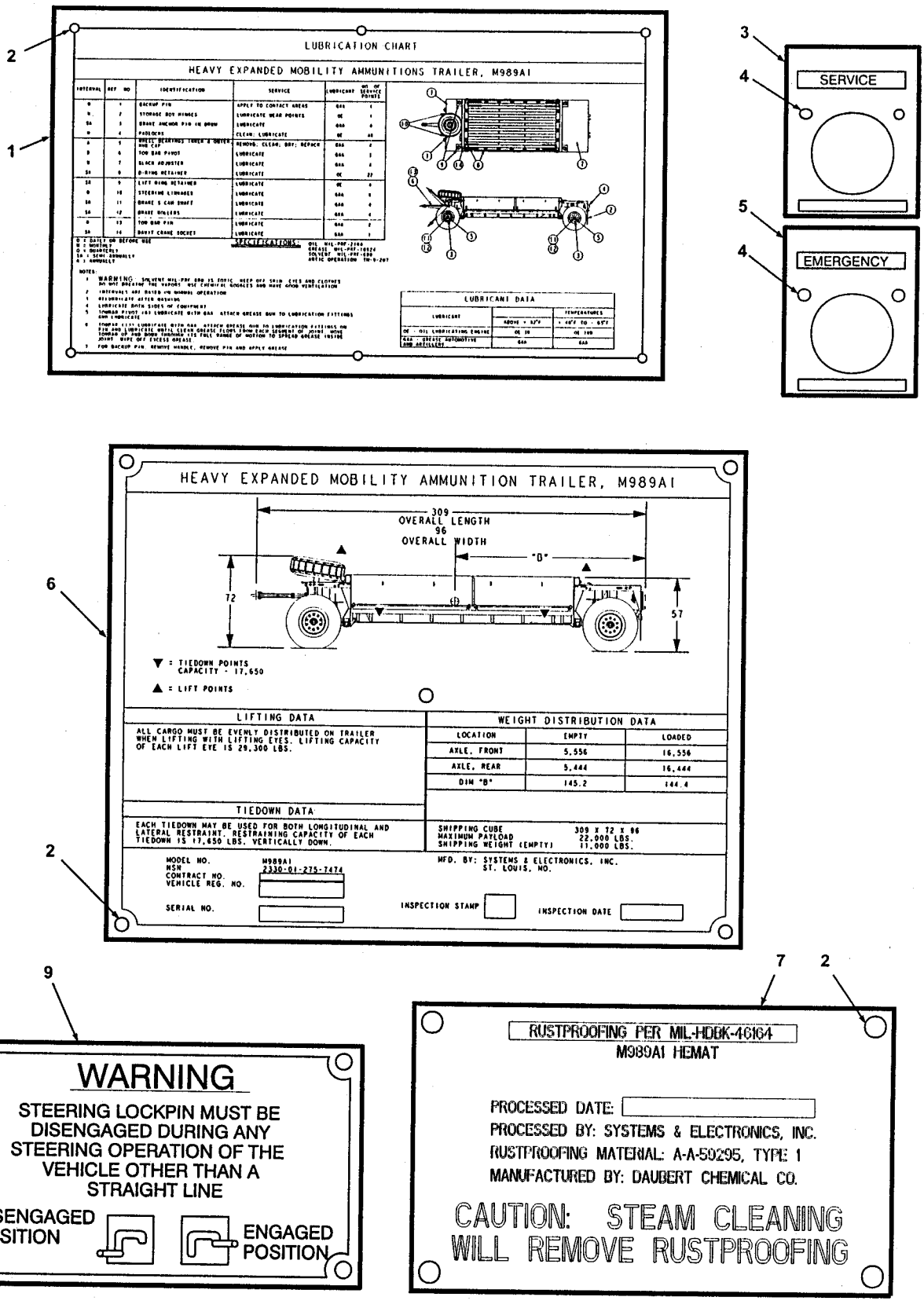
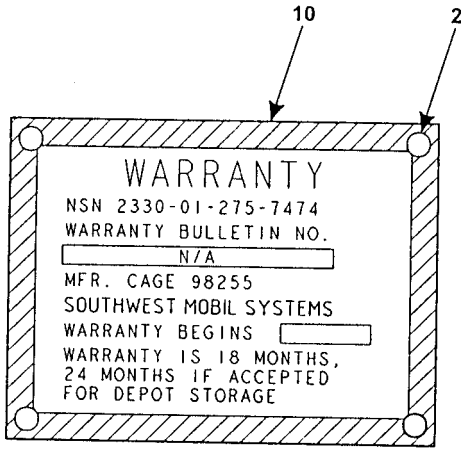


Figure 29. Identification Plates (Sheet 1 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 2210 0029 DATA PLATES AND INSTRUCTION HOLDERS	
				FIG. 29 IDENTIFICATION PLATES	
1	**PFOZZ**	**98255**	**SW25458**	**PLATE, INSTRUCTION USED ON SER. NO. 2000 AND BELOW**	**1**
2	**PAOZZ**	**07707**	**AD64H**	**RIVET, BLIND**	**19**
3	**PAOZZ**	**96906**	**MS53007-1**	**PLATE, IDENTIFICATION**	**1**
4	**PAOZZ**	**81349**	**M24243/6-A404H**	**RIVET, BLIND**	**4**
5	**PAOZZ**	**58536**	**A-A-52483**	**PLATE, IDENTIFICATION**	**1**
6	**PFOZZ**	**98255**	**SW25457**	**PLATE, IDENTIFICATION**	**1**
7	**PAOZZ**	**98255**	**SW32560**	**PLATE, IDENTIFICATION USED ON SER. NO. 2000 AND BELOW**	**1**
8	**PAOZZ**	**81349**	**M24243/6-A606H**	**RIVET, BLIND**	**4**
9	**PAOZZ**	**98255**	**SW31723**	**PLATE, INSTRUCTION**	**1**



OLD TRAILERS
(SER. NO. 2000 AND BELOW)

Figure 29. Identification Plates (Sheet 2 of 2)

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 2210 0029 DATA PLATES AND INSTRUCTION HOLDERS **FIG. 29 IDENTIFICATION PLATES**	
10	**PAOZZ**	**98255**	**SW32558**	**PLATE, IDENTIFICATION USED ON SER. NO. 2000 AND BELOW .....**	**1**
				END OF FIGURE	

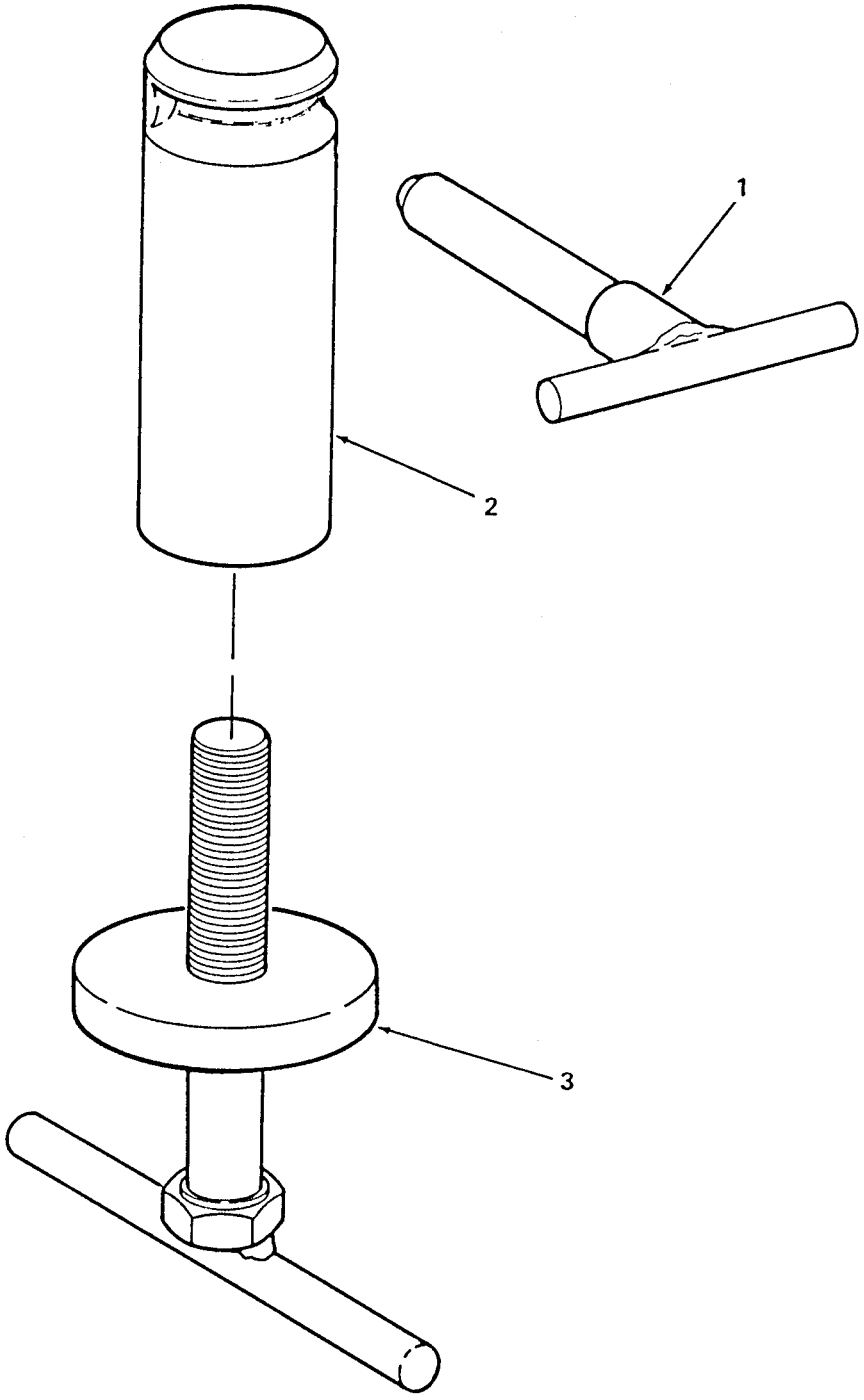


Figure 30. Inserter, Bearing, and Bushing

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 2604 0030 SPECIAL TOOLS (REPAIR PARTS)	
				FIG. 30 INSERTER, BEARING, AND BUSHING	
1	**XAOZZ**	**98255**	**SW26788**	**TOOL, BEARING-HANDLE**	**1**
2	**XAOZZ**	**98255**	**SW26790**	**TOOL, BEARING**	**1**
3	**XAOZZ**	**98255**	**SW26789**	**TOOL, BEARING-BASE**	**1**
				END OF FIGURE	

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 9401 M1000 KITS	
				FIG. KIT KITS	
1	**PAOZZ**	**52304**	**127808**	**KIT, CAMSHAFT BUSHING USED ON SERIAL NUMBERS 2001 AND UP**	**V**
		52304	**79903**	**. . SEAL, GREASE (2) 8A-7**	
		52304	**1000035**	**. . BUSHING, CAMSHAFT (2) 8A-8**	
		52304	**804017**	**. . RING, RETAINING (1) 8A-15**	
2	**PAOZZ**	**1MVZ1**	**808330**	**KIT, ROLLER MODULE USED ON SERIAL NUMBERS 2001 AND UP**	**V**
		1MVZ1	**819725**	**. . SPRING, HELICAL EXTENSION (2) 8A-25**	
		1MVZ1	**806234**	**. . ROLLER, BRAKE SHOE (2) 8A-2**	
		1MVZ1	**808058**	**. . RETAINER, ROLLER (2) 8A-3**	
		1MVZ1	**818278**	**. . SPRING, HELICAL EXTENSION (1) 8A-21**	
3	**PAOZZ**	**1MVZ1**	**314159**	**PARTS KIT, BRAKE, MAJOR OVERHAUL**	**V**
		1MVZ1	**819725**	**. . SPRING, HELICAL EXTENSION (2) 8A-25**	
		1MVZ1	**806234**	**. . ROLLER, BRAKE SHOE (2) 8A-2**	
		1MVZ1	**808058**	**. . RETAINER, ROLLER (2) 8A-3**	
		1MVZ1	**818278**	**. . SPRING, HELICAL EXTENSION (1) 8A-21**	
		1MVZ1	**314159**	**. . BRAKE SHOE/LINING ASSEMBLY (2) 8A-1**	
4	**PAOZZ**	**06721**	**RN10JJ**	**REPAIR KIT, VERTICAL LINKAGE**	**V**
		06721	**100558**	**. . LINKAGE ASSEMBLY, UPPER (1) 20-4/21-6**	
		06721	**100558-A**	**. . LINKAGE ASSEMBLY, LOWER (1) 20-6/21-8**	
		06721	**22-X-183**	**. . CLAMP (2) 20-5/21-7**	
				END OF FIGURE	

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 9501 BULK HARDWARE SUPPLIES AND BULK MATERIEL, COMMON	
				FIG. BULK BULK	
	PAOZZ	**61424**	**PFT-6B**	**HOSE, NONMETALLIC**	**V**
	PAOZZ	**52540**	**3250-10103**	**HOSE, NONMETALLIC**	**V**
	PAOZZ	**70485**	**X-982**	**NONMETALLIC CHANNEL**	**V**
	PAOZZ	**81346**	**ASTM-D-1056**	**RUBBER SHEET, CELLULAR**	**V**
	PAOZZ	**01276**	**FC425-12**	**TUBING, NONMETALLIC**	**V**
	PAOZZ	**01276**	**FC425-24**	**TUBING, NONMETALLIC**	**V**
	PAOZZ	**01276**	**FC425-32**	**TUBING, NONMETALLIC**	**V**
	PAOZZ	**19207**	**8376127**	**CONDUIT, NONMETALLIC**	**V**
	PAOZZ	**19207**	**8376128**	**TUBING, NONMETALLIC**	**V**
	PAOZZ	**19207**	**8376130**	**TUBING, NONMETALLIC**	**V**
				END OF FIGURE	

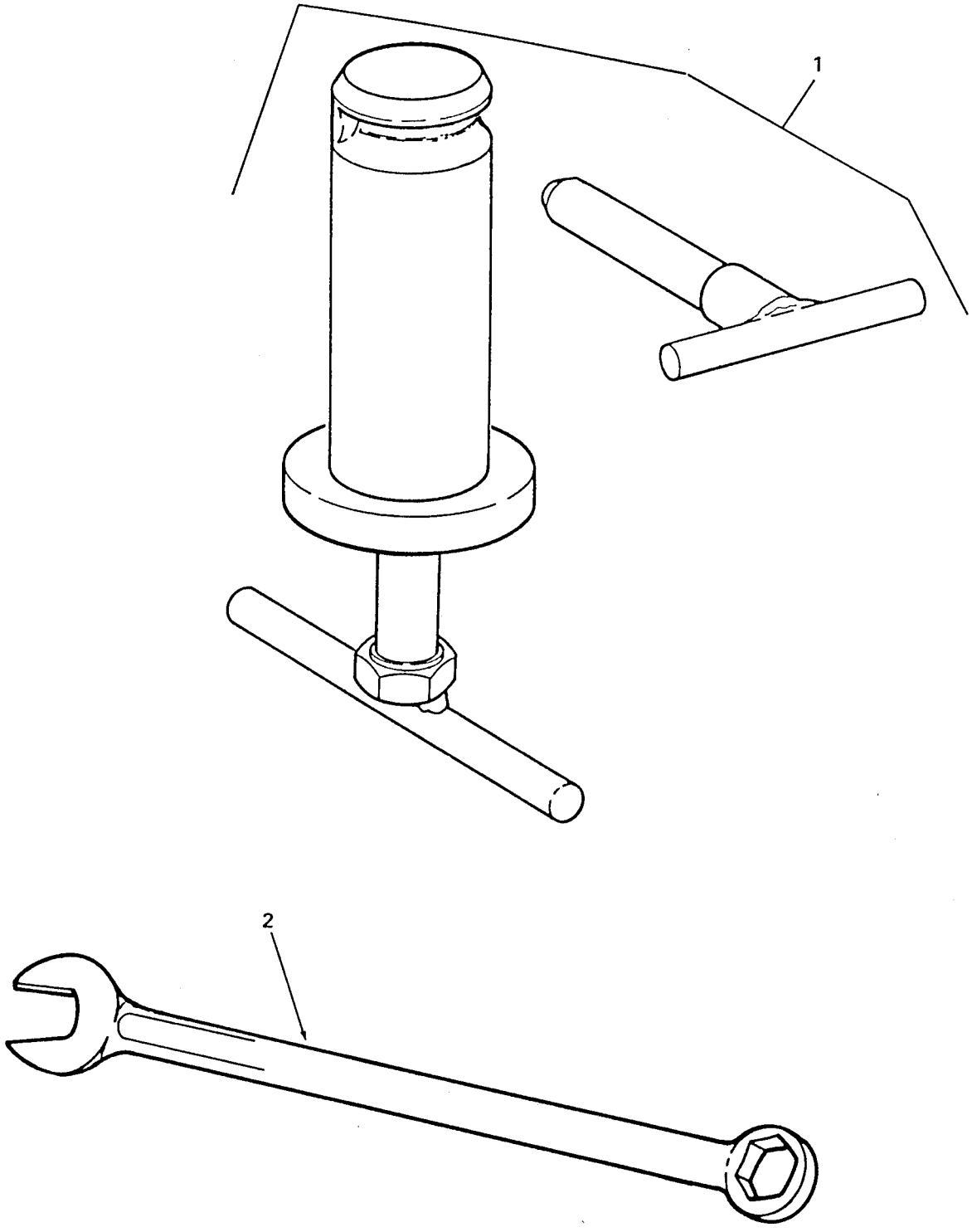


Figure 31. Special Tools

(1) ITEM NO.	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODE (UOC)	(6) QTY
				GROUP 2604 0031 SPECIAL TOOLS	
				FIG. 31 SPECIAL TOOLS	
1	**PEOZZ**	**98255**	**SW26878**	**INSERTER, BEARING AND BUSHING**	**1**
2	**PEOZZ**	**65814**	**47**	**WRENCH, OPEN END**	**1**
				END OF FIGURE	

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NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
4730-00-012-7951	20	19
4730-00-014-4027	10	12
5310-00-014-5850	27	2
	28	2
6240-00-019-0877	1	5
6240-00-019-3093	2	7
6240-00-044-6914	2	8
5310-00-045-3296	1A	11
	3	7
	27	12
	28	4
5310-00-045-3299	27	9D
5340-00-057-2904	3	19
5340-00-057-2906	3	8
	3	22
	13	16
5999-00-057-2929	1	2
	2	12
5305-00-059-3664	2	18
5310-00-067-6356	19	9
5305-00-068-0500	6	1
5305-00-068-0502	27	7
4730-00-069-1187	11	15
	11	19
	12	1
	20	7
	21	9
5305-00-071-2077	18	27
5305-00-071-2505	18	33
5310-00-080-6004	18	11
5310-00-081-4219	10	6
	11	3
	20	18
	21	11
5310-00-088-1251	3	2
	27	9
5310-00-122-7102	17	12
5940-00-143-4793	3	11
5940-00-143-4794	3	10
3110-00-163-7713	14	2
4730-00-164-1923	8A	17
5935-00-167-7775	4	2
4730-00-172-0028	17	1
4730-00-172-0034	19	2
5330-00-172-1919	12	3
6220-00-179-4324	2	9
5315-00-187-9591	14	8
4730-00-200-0257	12	10
5310-00-208-9255	2	16
5310-00-209-0965	6	10
5310-00-225-6408	17	7
5306-00-226-4825	14	9
5306-00-226-4831	11	5
5306-00-226-4835	20	9
	21	10
5315-00-234-1864	25	7
5310-00-245-3615	10	8
	18	35
5305-00-269-3211	20	11
	21	3
5310-00-274-8715	6	2
4730-00-277-8289	10	17
4730-00-278-4822	11	9
5975-00-284-7338	BULK	
5306-00-286-0481	12	8
4730-00-289-0155	11	23
5120-00-293-1531	31	2
5315-00-298-1481	17	2
	25	8
6220-00-299-7425	1	6
6220-00-299-7426	1	6
5330-00-353-0959	1	3
2530-00-359-1162	18	1
6250-00-371-4018	1	4
4820-00-377-8780	10	18
5310-00-407-9566	10	7
	11	2
	18	36
	20	17
	21	12
2530-00-426-8971	14	10
4730-00-427-5121	10	11
	11	20
5310-00-436-3290	27	1
9390-00-442-6321	BULK	
5331-00-462-0907	2	6
5935-00-462-6603	4	6
5310-00-497-3895	22	3
5975-00-570-9598	13	15
5935-00-572-9180	1	11
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6220-00-577-3434	1	1
5310-00-582-5965	12	11
	18	29
5310-00-584-5272	18	22
4730-00-595-0083	12	4
5310-00-596-8169	1	9
5310-00-637-9541	2	2
	18	10
	20	12
	21	4
5305-00-725-2317	18	12
6220-00-726-1916	1	1
5305-00-726-2550	8	20
	8A	22
5305-00-726-2555	17	8
2640-00-729-6081	15	2
5310-00-732-0558	18	9
2940-00-741-1081	12	14
6220-00-752-6516	1	8
5310-00-761-3706	18	23
5310-00-761-6882	18	28
5310-00-763-8905	6	11
	8	17
	8A	19
5935-00-773-1428	3	3
2530-00-797-9295	12	9
5310-00-800-0695	8	18
	8A	20
5310-00-809-4058	3	4

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NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5310-00-809-4058	12	12
	18	30
	27	6
5310-00-809-5998	18	26
	25	6
5310-00-809-8533	19	7
5310-00-809-8546	1A	10
5310-00-811-1377	23	11
	24	4
4730-00-817-6578	10	25
	12	5
5310-00-820-6653	13	4
3110-00-829-0575	14	5
5310-00-829-9981	11	1
	20	16
	21	13
5310-00-833-8567	1	12
	2	14
5315-00-839-5822	13	6
5315-00-842-3045	17	11
5315-00-849-9857	18	21
5305-00-857-6822	27	9C
5320-00-866-4982	27	9A
5310-00-880-7745	6	9
5320-00-882-8385	29	8
5320-00-882-8386	29	4
5305-00-889-3116	17	21
5340-00-905-0790	3	23
5305-00-914-7648	18	4
5310-00-934-9757	27	9E
5310-00-934-9758	1A	9
	3	6
	13	11
	27	13
	28	5
5305-00-947-4354	19	6
5310-00-950-1310	17	20
5320-00-956-7355	29	2
5305-00-958-8463	22	1
5305-00-984-5688	2	1
5305-00-984-6208	1	7
5305-00-984-6211	27	3
5305-00-984-6212	1A	12
	28	1
5305-00-984-6213	3	14
	27	10
5305-00-988-1726	3	5
9905-00-999-7369	29	5
9905-00-999-7370	29	3
5940-01-006-4487	4	5
4720-01-009-9058	BULK	
9905-01-013-8723	4	3
2530-01-023-7015	8	3
5315-01-025-2847	8	2
5305-01-033-2659	8	9
	8A	11
5340-01-043-7078	6	22
5310-01-058-4589	8	12
	8A	14
5360-01-058-8253	8	19
5365-01-059-0126	8A	13
4730-01-062-2570	20	2
4730-01-062-2570	21	1
6220-01-067-4717	2	5
5306-01-075-8519	10	5
	18	34
4730-01-086-4068	11	17
6220-01-093-4439	2	4
4730-01-095-5833	10	27
4730-01-096-0574	10	1
4730-01-096-3169	10	3
4730-01-096-3204	12	4
4730-01-096-9128	11	21
4730-01-097-0386	10	21
	11	7
	20	10
4730-01-098-4494	10	24
5315-01-098-6455	17	15
4730-01-102-4123	11	11
4030-01-110-1982	18	19
5310-01-110-7815	8	10
	8A	12
5310-01-110-7816	8	8
	8A	10
5340-01-112-6396	18	25
9320-01-127-7855	BULK	
4210-01-133-9053	18	16
5970-01-142-2282	4	4
5365-01-152-4536	8	13
2530-01-153-1464	8	6
5340-01-155-1840	8A	5
5305-01-156-5418	8	16
5305-01-156-5419	8A	18
5310-01-164-1136	13	7
2540-01-164-7252	19	8
5340-01-169-8331	3	20
	13	12
4720-01-169-9891	BULK	
5340-01-172-3737	10	23
4730-01-174-9405	12	7
5310-01-176-6495	13	8
5340-01-194-3128	2	3
5310-01-204-3342	8	11
5310-01-229-8029	15	3
	18	3
5340-01-231-5359	3	13
	3	21
2530-01-233-0113	KIT	1
4720-01-234-1733	BULK	
5315-01-239-0884	13	1
5310-01-257-7715	13	5
5310-01-270-5463	15	3
5340-01-280-5124	18	13
5340-01-281-8354	27	4
9905-01-282-7981	29	6
6220-01-284-2709	2	10
4720-01-285-4608	BULK	
2610-01-287-0731	16	1
2530-01-287-2167	8	1
5340-01-288-1311	23	1
	24	1
5305-01-288-1413	18	5

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STOCK NUMBER	FIG.	ITEM
5305-01-288-1414	18	6
5305-01-288-1416	23	2
	24	2
5365-01-288-1488	6	7
5365-01-288-1489	6	8
5365-01-288-1502	12	13
4720-01-288-1948	11	12
	12	6
4730-01-288-3583	6	6
2530-01-288-4049	8	21
2530-01-288-4050	8	21
2530-01-288-4051	9	1
2530-01-288-4052	13	10
5305-01-288-4516	6	12
5330-01-288-4539	6	4
5310-01-288-5098	6	14
5365-01-288-5119	23	5
	24	12
5340-01-288-5122	27	11
5340-01-288-5131	6	3
5342-01-288-5135	25	2
3110-01-288-5757	6	13
2530-01-288-5793	12	2
2530-01-288-5878	17	3
5306-01-288-9351	14	3
2530-01-288-9640	11	4
4720-01-288-9664	11	16
2510-01-288-9757	23	13
2510-01-288-9758	20	14
	21	15
2530-01-288-9797	10	9
3040-01-288-9840	23	8
	24	8
2530-01-288-9854	17	13
2530-01-289-1013	11	24
2530-01-289-1037	8	7
2540-01-289-1105	17	17
2530-01-289-1475	14	4
2530-01-289-3782	6	20
2530-01-289-3783	6	20
2540-01-289-3799	27	5
2530-01-289-3954	7	1
2530-01-289-3959	17	3
2530-01-289-3960	6	5
2530-01-289-3963	15	1
5315-01-289-5046	6	15
5342-01-289-7577	18	7
2530-01-289-8284	20	3
	21	5
2530-01-289-8285	10	19
2510-01-289-8286	22	2
4720-01-289-8291	11	13
5340-01-289-8326	8	7
2530-01-289-8389	8	21
2530-01-289-8390	9	1
2530-01-289-9731	17	9
2540-01-290-0757	18	14
9905-01-290-1980	28	3
9905-01-290-1981	28	3
5315-01-290-2742	17	10
9905-01-290-4751	29	1
5230-01-290-9288	14	12
5330-01-291-5071	14	1
5360-01-291-5628	8	22
2530-01-291-5798	8	5
2530-01-291-5872	8	4
5310-01-292-7088	23	4
5310-01-292-7088	24	13
5310-01-292-7255	23	7
	24	9
5310-01-292-7256	23	3
	24	10
5310-01-292-9430	14	7
5310-01-292-9481	14	6
5306-01-292-9484	23	6
	24	11
6150-01-293-5749	3	1
5315-01-293-9604	18	20
3130-01-294-3164	8	7
6150-01-296-3046	4	1
5120-01-296-3099	31	1
6220-01-297-3217	2	11
5305-01-299-6588	26	6
2510-01-299-9433	25	1
7690-01-300-0777	8	23
2530-01-301-3033	13	2
5310-01-309-7072	18	8
5305-01-309-7720	23	9
	24	7
5306-01-310-6729	14	3
4720-01-339-8531	11	10
2510-01-339-8590	24	6
2590-01-340-0270	8	14
	8A	16
5310-01-340-0349	17	18
2540-01-340-0460	19	1
2530-01-340-0466	5	1
5310-01-340-4628	19	3
	23	10
	24	3
5330-01-340-4660	18	24
4010-01-341-3308	18	17
2530-01-341-5031	19	5
5340-01-341-9521	11	25
5365-01-342-8607	21	14
4730-01-348-6542	10	16
	11	18
5360-01-351-9351	25	5
5310-01-352-2752	2	17
2510-01-352-3798	26	1
2510-01-352-3799	26	3
2510-01-352-3800	26	2
2590-01-352-6817	8	15
5315-01-352-7448	17	19
3120-01-352-7556	19	4
5305-01-353-1284	23	12
	24	5
5340-01-353-1361	18	31
5320-01-353-1418	2	15
5340-01-353-4525	20	13
2530-01-353-8524	8	4
5320-01-353-9351	1	10

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STOCK NUMBER	FIG.	ITEM
5320-01-353-9351	1A	13
4010-01-353-9368	17	16
4010-01-353-9428	17	14
2510-01-354-0471	26	4
2510-01-354-0472	26	5
2530-01-354-0585	17	4
2530-01-354-0586	17	5
2590-01-354-1130	18	2
2530-01-354-2886	13	9
2530-01-354-3045	8	7
4710-01-354-9272	17	6
4710-01-354-9273	17	6
5340-01-354-9683	20	15
4820-01-355-0383	10	10
4720-01-355-0491	BULK	
5320-01-355-1419	18	15
5340-01-355-8612	13	3
9905-01-355-9390	29	10
9905-01-358-2769	29	7
6150-01-358-9377	3	9
5310-01-361-1144	17	3A
5120-01-367-2461	25	3
5330-01-387-7303	14	11
2540-01-438-6034	18	32
2610-01-452-0605	16	1
6150-01-459-1811	1A	6
5310-01-478-7311	8A	24
6620-01-482-5320	1A	4
6220-01-482-5444	1A	4
6220-01-482-5574	1A	1
6220-01-482-6113	1A	1
2510-01-482-9638	27	9B
6220-01-482-9850	2	19
2530-01-482-9908	8A	23
2530-01-482-9924	8A	4
2530-01-482-9927	8A	6
2530-01-482-9929	8A	4
3040-01-482-9983	KIT	3
2530-01-483-0024	KIT	2
2530-01-483-0037	8A	23
2590-01-483-0045	8A	9
2530-01-483-0046	8A	23
2530-01-483-0049	8A	23
2590-01-483-0071	8A	9
2590-01-483-0074	8A	9
2590-01-483-0084	8A	9
5975-01-483-0287	BULK	
5975-01-483-0302	BULK	
5340-01-483-0332	6	21
2530-01-483-0343	8	21
2510-01-483-0468	18	37
5315-01-483-0771	25	9
3120-01-483-0780	25	4
2540-01-484-6928	18	38
2540-01-484-7214	18	39
2540-01-484-7219	18	40
6150-01-484-8825	3	15
5365-01-484-9017	18	41
5365-01-484-9121	6	17
	6	24
5330-01-484-9169	6	18
	6	23
4810-01-484-9690	KIT	4

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
81348	A-A-52463-B10	6240-00-044-6914	2	8
58536	A-A-52483	9905-00-999-7369	29	5
07707	AD64H	5320-00-956-7355	29	2
88044	AN415-7	5315-01-098-6455	17	15
81346	ASTM-D-1056	9320-01-127-7855	BULK	
0YVA4	AWX31969	2510-01-352-3798	26	1
23705	A298749	2530-00-797-9295	12	9
96906	A52427-L-1.125	5310-01-270-5463	15	3
58536	A52463-1-08	6240-00-019-0877	1	5
58536	A52463-1-09	6240-00-019-3093	2	7
58536	A52484-1	4730-00-595-0083	12	4
11815	BAPKTR-66	5320-01-353-1418	2	15
80204	B1821BH025C088N	5305-00-071-2505	18	33
80204	B1821BH031C075N	5306-00-226-4825	14	9
80204	B1821BH031C150N	5306-00-226-4831	11	5
80204	B1821BH031C250N	5306-00-226-4835	20	9
			21	10
80204	B1821BH038C150N	5305-00-725-2317	18	12
80204	B1821BH050C350N	5305-00-071-2077	18	27
80204	B1821BH063F175N	5305-00-726-2550	8	20
			8A	22
80204	B1821BH063F300N	5305-00-726-2555	17	8
80204	B1821BH075C300N	5305-00-947-4354	19	6
80204	B1821BH075F150N	5305-00-914-7648	18	4
78553	C1059-014-1	5310-00-596-8169	1	9
74410	DB-1385	2540-01-164-7252	19	8
01276	FC425-12	4720-01-355-0491	BULK	
01276	FC425-24	4720-01-285-4608	BULK	
01276	FC425-32	4720-01-234-1733	BULK	
01276	FD45-1040-06	5340-01-172-3737	10	23
81348	FFB187/01-500	3110-00-829-0575	14	5
81348	FFB187/01-652	3110-00-163-7713	14	2
75535	G-213-5/8 IN	4030-01-110-1982	18	19
81348	GP3A/15.00-22.50/H/TBTR	2610-01-287-0731	16	1
06721	KN36450	5340-01-355-8612	13	3
46717	L6451-101	5315-00-187-9591	14	8
98255	MGLP-RG-7	5320-01-353-9351	1	10
9K475	MGLP-R6-7	5320-01-353-9351	1A	13
96906	MS15003-4	4730-00-172-0028	17	1
96906	MS15003-6	4730-00-172-0034	19	2
96906	MS17830-3C	5310-00-436-3290	27	1
96906	MS21044C3	5310-00-208-9255	2	16
80205	MS21044N14	5310-00-497-3895	22	3
96906	MS21333-65	5340-00-905-0790	3	23
96906	MS21333-71	5340-00-057-2904	3	19
96906	MS21333-73	5340-00-057-2906	3	8
			3	22
			13	16
96906	MS21919WCG18	5340-01-169-8331	3	20
			13	12
96906	MS21919WCG28	5340-01-231-5359	3	13
			3	21
80205	MS24665-302	5315-00-234-1864	25	7
96906	MS24665-353	5315-00-839-5822	13	6
80205	MS24665-357	5315-00-298-1481	17	2
			25	8
80205	MS24665-421	5315-00-849-9857	18	21
80205	MS24665-499	5315-00-842-3045	17	11
96906	MS24693-S49	5305-00-857-6822	27	9C
96906	MS25036-110	5940-00-143-4793	3	11
96906	MS25036-112	5940-00-143-4794	3	10

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS27142-2	5935-00-462-6603	4	6
96906	MS27144-1		4	2
96906	MS27183-10	5310-00-809-4058	3	4
			12	12
			18	30
			27	6
96906	MS27183-12	5310-00-081-4219	10	6
			11	3
			20	18
			21	11
96906	MS27183-14	5310-00-080-6004	18	11
96906	MS27183-18	5310-00-809-5998	18	26
			25	6
96906	MS27183-23	5310-00-809-8533	19	7
96906	MS27183-4	5310-00-950-1310	17	20
96906	MS27183-42	5310-00-014-5850	27	2
			28	2
96906	MS27183-8	5310-00-809-8546	1A	10
96906	MS3367-7-9	5975-00-570-9598	13	15
96906	MS35206-213	5305-00-889-3116	17	21
96906	MS35206-264	5305-00-984-6211	27	3
96906	MS35206-265	5305-00-984-6212	1A	12
			28	1
96906	MS35206-266	5305-00-984-6213	3	14
			27	10
96906	MS35206-282	5305-00-988-1726	3	5
96906	MS35206-308	5305-00-984-5688	2	1
96906	MS35335-39	5310-00-800-0695	8	18
			8A	20
96906	MS35338-42	5310-00-045-3299	27	9D
96906	MS35338-43	5310-00-045-3296	1A	11
			3	7
			27	12
			28	4
96906	MS35338-44	5310-00-582-5965	12	11
			18	29
96906	MS35338-45	5310-00-407-9566	10	7
			11	2
			18	36
			20	17
			21	12
96906	MS35338-46	5310-00-637-9541	2	2
			18	10
			20	12
			21	4
96906	MS35338-47	5310-00-209-0965	6	10
96906	MS35338-48	5310-00-584-5272	18	22
96906	MS35338-50	5310-00-820-6653	13	4
96906	MS35338-63	5310-00-274-8715	6	2
96906	MS35421-1	6220-00-299-7425	1	6
96906	MS35421-2	6220-00-299-7426	1	6
96906	MS35423-1	6220-00-577-3434	1	1
96906	MS35423-2	6220-00-726-1916	1	1
96906	MS35649-202	5310-00-934-9758	1A	9
			3	6
			13	11
			27	13
			28	5
96906	MS35649-282	5310-00-934-9757	27	9E

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
96906	MS35649-2312	5310-00-829-9981	11	1
			20	16
			21	13
96906	MS35649-2314	5310-00-245-3615	10	8
			18	35
96906	MS35692-101	5310-00-122-7102	17	12
96906	MS51958-68	5305-00-059-3664	2	18
96906	MS51967-15	5310-00-761-3706	18	23
96906	MS51967-2	5310-00-761-6882	18	28
96906	MS51967-8	5310-00-732-0558	18	9
96906	MS51968-11	5310-00-880-7745	6	9
96906	MS51968-20	5310-00-763-8905	6	11
			8	17
			8A	19
96906	MS51983-8	5310-01-229-8029	15	3
			18	3
96906	MS52125-2	6220-01-093-4439	2	4
96906	MS53007-1	9905-00-999-7370	29	3
96906	MS90353-0503	5320-00-866-4982	27	9A
96906	MS90725-3	5305-00-068-0500	6	1
96906	MS90725-302	5305-01-033-2659	8	9
			8A	11
96906	MS90725-36	5306-01-075-8519	10	5
			18	34
96906	MS90725-6	5305-00-068-0502	27	7
96906	MS90725-60	5305-00-269-3211	20	11
			21	3
96906	MS90726-217	5305-00-958-8463	22	1
81349	M23053/4-303-0	5970-01-142-2282	4	4
81349	M24243/6-A404H	5320-00-882-8386	29	4
81349	M24243/6-A606H	5320-00-882-8385	29	8
81349	M24243/6-A804H	5320-01-355-1419	18	15
81349	M43436/3-1	9905-01-013-8723	4	3
81349	M45913/1-10FG5C	5310-00-225-6408	17	7
81349	M45913/1-16CG5C	5310-00-811-1377	23	11
			24	4
81349	M45913/1-4-CG5C	5310-00-088-1251	3	2
			27	9
81349	M45913/2-12CG5C	5310-00-067-6356	19	9
81349	M5501/7-F19	5340-01-043-7078	6	22
06721	N-12971-B	2940-00-741-1081	12	14
80205	NAS1149C0332R	5310-01-352-2752	2	17
06721	N14488AC	2530-01-288-5793	12	2
06721	N15758DB	2530-01-289-8285	10	19
06721	N20404BE	2530-01-289-8284	20	3
			21	5
06721	N30108BD	2530-01-288-9640	11	4
06721	N4305A	2530-01-289-1013	11	24
06721	N50037	2530-01-288-4052	13	10
06721	N50037A	2530-01-354-2886	13	9
61424	PFT-6B	4720-01-169-9891	BULK	
06721	RN10JJ	4810-01-484-9690	KIT	4
0YVA4	SWX31969-3	2510-01-354-0471	26	4
0YVA4	SWX31969-4	2510-01-354-0472	26	5
98255	SW10010-0101	4010-01-353-9368	17	16
98255	SW13217E1155-1	2540-01-289-3799	27	5
98255	SW13319P-0080		11	14
98255	SW13319P-0240	2540-01-289-3799	20	1
98255	SW13319P-0320		11	6
98255	SW13319P-0440		10	20
98255	SW13319P-0600		21	2

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
98255	SW13319P-0840		10	13
			20	8
98255	SW13319P-0900		11	22
98255	SW13319P-1200		10	26
98255	SW13319P-1400		10	15
98255	SW13319P-1900		10	4
98255	SW13319P-2000		10	28
98255	SW13319P-2440		10	22
98255	SW13319P-2660		11	8
98255	SW13321P-0800		10	14
98255	SW13321P-0960		10	2
98255	SW15460P-5		13	13
98255	SW15460P-6		13	14
98255	SW21641	2540-01-290-0757	18	14
98255	SW21653		27	8
98255	SW25055	5340-01-288-5122	27	11
98255	SW25078	2540-01-289-1105	17	17
98255	SW25081	5342-01-289-7577	18	7
98255	SW25087	5340-01-280-5124	18	13
98255	SW25138-1		3	12
98255	SW25142	6150-01-296-3046	4	1
98255	SW25156	2510-01-482-9638	27	9B
98255	SW25157	5340-01-281-8354	27	4
98255	SW25175	5315-01-352-7448	17	19
98255	SW25182	2530-01-289-3954	7	1
98255	SW25189	2530-01-301-3033	13	2
98255	SW25197-1		6	25
98255	SW25197-2		6	25
98255	SW25198-1	2530-01-289-9731	17	9
98255	SW25198-2	2530-01-288-9854	17	13
98255	SW25202	5305-01-288-4516	6	12
98255	SW25203	5315-01-289-5046	6	15
98255	SW25204	2530-01-289-3960	6	5
98255	SW25206	5330-01-288-4539	6	4
98255	SW25207	5340-01-288-5131	6	3
98255	SW25209	5310-01-288-5098	6	14
98255	SW25210	5365-01-288-1488	6	7
98255	SW25211	5365-01-288-1489	6	8
98255	SW25213	4730-01-288-3583	6	6
98255	SW25214	5315-01-290-2742	17	10
98255	SW25216	2530-01-289-3783	6	20
98255	SW25219	2530-01-289-3782	6	20
98255	SW25236	2510-01-288-9758	20	14
			21	15
98255	SW25238	5305-01-288-1416	23	2
			24	2
98255	SW25239	5310-01-292-7088	23	4
			24	13
98255	SW25243	5306-01-292-9484	23	6
			24	11
98255	SW25245	5365-01-288-5119	23	5
			24	12
98255	SW25246	5310-01-292-7256	23	3
			24	10
98255	SW25247	5340-01-288-1311	23	1
			24	1
98255	SW25252	2510-01-288-9757	23	13
98255	SW25289	5305-01-299-6588	26	6
98255	SW25292	6150-01-293-5749	3	1
98255	SW25336	5365-01-288-1502	12	13
98255	SW25355	2530-01-288-9797	10	9

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
98255	SW25371		18	18
98255	SW25395	2530-01-340-0466	5	1
98255	SW25403	5315-01-293-9604	18	20
98255	SW25435	5365-01-484-9017	18	41
98255	SW25444-1	9905-01-290-1980	28	3
98255	SW25444-2	9905-01-290-1981	28	3
98255	SW25456	5305-01-353-1284	23	12
			24	5
98255	SW25457	9905-01-282-7981	29	6
98255	SW25458	9905-01-290-4751	29	1
98255	SW26521	5340-01-341-9521	11	25
98255	SW26522-1		27	15
98255	SW26522-2		27	14
9U920	SW26534	5310-01-309-7072	18	8
98255	SW26535	4010-01-341-3308	18	17
98255	SW26638	4010-01-353-9428	17	14
98255	SW26639	5365-01-342-8607	21	14
98255	SW26676	5310-01-340-0349	17	18
98255	SW26788		30	1
98255	SW26789		30	3
98255	SW26790		30	2
98255	SW26878	5120-01-296-3099	31	1
98255	SW26910	2510-01-299-9433	25	1
98255	SW26911	5342-01-288-5135	25	2
98255	SW26981	2530-01-341-5031	19	5
98255	SW27025	2540-01-340-0460	19	1
98255	SW27049	5120-01-367-2461	25	3
98255	SW29636-1	5340-01-353-4525	20	13
98255	SW29636-2	5340-01-354-9683	20	15
98255	SW29637	2540-01-438-6034	18	32
98255	SW29638	5340-01-353-1361	18	31
98255	SW29648	3120-01-352-7556	19	4
3Z276	SW29658	5330-01-340-4660	18	24
98255	SW29772	3120-01-483-0780	25	4
98255	SW29773	5360-01-351-9351	25	5
98255	SW30434	2510-01-289-8286	22	2
98255	SW31258-1		4	12
98255	SW31258-2		4	7
98255	SW31259-1		4	11
98255	SW31259-2		4	9
98255	SW31259-3		4	10
98255	SW31723		29	9
98255	SW31802	6150-01-358-9377	3	9
98255	SW31802-1	6150-01-484-8825	3	15
98255	SW31969-1	2510-01-352-3799	26	3
98255	SW31969-2	2510-01-352-3800	26	2
98255	SW32558	9905-01-355-9390	29	10
98255	SW32560	9905-01-358-2769	29	7
98255	SW32969	2590-01-354-1130	18	2
98255	SW32973	2510-01-483-0468	18	37
98255	SW34748	5315-01-483-0771	25	9
98255	SW34749-1	2540-01-484-6928	18	38
98255	SW34749-2	2540-01-484-7214	18	39
98255	SW34749-3	2540-01-484-7219	18	40
15434	S00226800	4730-00-164-1923	8A	17
83473	TB-20	5340-01-112-6396	18	25
27783	TR515	2640-00-729-6081	15	2
70485	X-982	9390-00-442-6321	BULK	
81348	X/GP3/TYRA/CLA/T/385/65R22.5/J	2610-01-452-0605	16	1
20076	05-09648-95	2530-01-289-3963	15	1
9R200	070308	2530-01-288-4050	8	21

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
9R200	070309	2530-01-483-0343	8	21
9R200	070326	5360-01-291-5628	8	22
13548	07197		1A	5
13548	07198		1A	3
13548	07240	6220-01-482-9850	2	19
13548	07406	6220-01-482-6113	1A	1
13548	07407	6220-01-482-5574	1A	1
9R200	089899	2530-01-291-5798	8	5
52304	1000035		8A	8
			KIT	1
81142	1000406	5360-01-058-8253	8	19
52304	1000693	2530-01-153-1464	8	6
7P109	1001353	2590-01-352-6817	8	15
18889	100170	5306-01-288-9351	14	3
18889	100181	5306-01-310-6729	14	3
9R200	1001811	7690-01-300-0777	8	23
06721	100558		20	4
			21	6
			KIT	4
06721	100558-A		20	6
			21	8
			KIT	4
06721	10719	4820-01-355-0383	10	10
97111	1100	4730-01-098-4494	10	24
0HUY6	1135873B105	5305-01-309-7720	23	9
			24	7
0HUY6	115 7427B 102	5310-01-340-4628	19	3
			23	10
			24	3
0HUY6	1160519B301	5310-01-292-7255	23	7
			24	9
19207	11639519-2	5331-00-462-0907	2	6
19207	11639520	6220-01-067-4717	2	5
19207	11639535	6220-00-179-4324	2	9
78500	1199J114C	2530-00-359-1162	18	1
93019	12003BN	2530-01-354-0585	17	4
93019	12004BN	2530-01-354-0586	17	5
93019	12210-7	4710-01-354-9273	17	6
93019	12210X	2530-01-289-3959	17	3
93019	12211-7	4710-01-354-9272	17	6
93019	12211X	2530-01-288-5878	17	3
19207	12360850-1	6220-01-284-2709	2	10
19207	12360870-2	6220-01-297-3217	2	11
52304	127808	2530-01-233-0113	KIT	1
13548	130255R	6220-01-482-5444	1A	4
13548	130255Y	6620-01-482-5320	1A	4
0HJ37	143621-0014		6	19
0HJ37	143621-0015		6	19
0HJ37	143622-0001	5365-01-484-9121	6	17
			6	24
0HJ37	143623-0001	5330-01-484-9169	6	18
			6	23
98255	143625-0002	5310-01-292-9481	14	6
0HJ37	143661-0008	5340-01-483-0332	6	21
0HJ37	143664-0007	3110-01-288-5757	6	13
98255	143699-0019	5310-01-292-9430	14	7
79470	1480X10	4730-01-096-0574	10	1
79470	1480X6	4730-01-174-9405	12	7
98343	1509	5330-00-172-1919	12	3
18889	1540	2530-01-289-1475	14	4
0HJ37	163621-0004		6	16

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
0HJ37	163621-0005		6	16
45152	18572FX	4730-01-096-3204	12	4
06721	19100	5315-01-239-0884	13	1
06721	193008	5310-01-176-6495	13	8
98343	2-X-256	5310-01-257-7715	13	5
93061	209P-8-4	4730-01-348-6542	10	16
			11	18
19328	214405	5940-01-006-4487	4	5
30379	2148946	4820-00-377-8780	10	18
06721	22-X-183		20	5
			21	7
			KIT	4
93061	2202P6-6	4730-00-278-4822	11	9
78500	2208N430 NON-ASBESTOS	5330-01-387-7303	14	11
52304	23570	5310-01-058-4589	8	12
			8A	14
93061	269NTA-10-8	4730-01-102-4123	11	11
93061	271NTA-6-6	4730-01-086-4068	11	17
93061	272NTA-6-4	4730-01-097-0386	10	21
			11	7
			20	10
93061	279NTA-6-8	4730-01-096-3169	10	3
39428	3043T19	5306-00-286-0481	12	8
1MVZ1	314159		KIT	3
			KIT	3
79470	3152X4	4730-00-012-7951	20	19
79470	3152X6	4730-00-427-5121	10	11
			11	20
79470	3152X8	4730-00-014-4027	10	12
79470	3200X6X4	4730-00-200-0257	12	10
79470	3220X8X6	4730-00-817-6578	10	25
			12	5
52540	3250-10103	4720-01-009-9058	BULK	
78500	3262W1245	2530-00-426-8971	14	10
79470	3325X4	4730-00-277-8289	10	17
95105	343-0586-000	5305-00-984-6208	1	7
13548	3542		1A	8
52304	35428	5365-01-059-0126	8A	13
52304	39074	2530-01-023-7015	8	3
52304	39075	5315-01-025-2847	8	2
30327	4-469-F-06X04	4730-00-069-1187	11	19
76301	4M36-11008	5310-01-204-3342	8	11
78502	400-10005	2530-01-289-8390	9	1
78502	409-10133	2530-01-288-4051	9	1
78502	427-10401	2590-01-340-0270	8	14
			8A	16
52304	43943	5310-01-110-7815	8	10
			8A	12
80201	46304	5330-01-291-5071	14	1
65814	47	5120-00-293-1531	31	2
98255	503 7264B 343	2510-01-339-8590	24	6
0HUY6	507 7427B 000	3040-01-288-9840	23	8
			24	8
79136	5304-125	5365-01-152-4536	8	13
13548	5370		1A	7
34623	5575569	5340-01-194-3128	2	3
19204	572929	5999-00-057-2929	1	2
			2	12
73331	5939830	6220-00-752-6516	1	8
73331	5939831	6250-00-371-4018	1	4
73331	5939841	5330-00-353-0959	1	3

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
81343	6-4 100202BA	4730-00-069-1187	11	15
			12	1
			20	7
			21	9
81343	6-6 120202BA	4730-00-289-0155	11	23
81343	6-6-6-120425BA	4730-01-095-5833	10	27
98343	6178617	5310-01-164-1136	13	7
58429	62W3506B0	4720-01-339-8531	11	10
58429	62W3554B0	4720-01-288-9664	11	16
58429	62W3572B0	4720-01-288-1948	11	12
			12	6
58429	62W3584B0	4720-01-289-8291	11	13
18889	65651B	5230-01-290-9288	14	12
13548	6625A		1A	2
93061	68NTA-6-4	4730-01-062-2570	20	2
			21	1
93061	68NTA-6-6	4730-01-096-9128	11	21
19207	7731428	5935-00-773-1428	3	3
03670	79734	4210-01-133-9053	18	16
52304	79903		8A	7
			KIT	1
52304	804017		8A	15
			KIT	1
52304	804023	5305-01-156-5418	8	16
52304	804703	5305-01-156-5419	8A	18
52304	805714	2530-01-287-2167	8	1
1MVZ1	806234		8A	2
			KIT	2
			KIT	3
1MVZ1	806380	5310-01-478-7311	8A	24
9R200	807488	2530-01-289-1037	8	7
9R200	807489	2530-01-354-3045	8	7
9R200	807496	2530-01-291-5872	8	4
9R200	807497	2530-01-353-8524	8	4
9R200	807614	2530-01-289-8389	8	21
9R200	807615	2530-01-288-4049	8	21
1MVZ1	807858	2530-01-483-0046	8A	23
1MVZ1	807859	2530-01-483-0037	8A	23
1MVZ1	808058		8A	3
1MVZ1	808058		KIT	2
			KIT	3
1MVZ1	808076	2530-01-482-9908	8A	23
1MVZ1	808077	2530-01-483-0049	8A	23
1MVZ1	808330	2530-01-483-0024	KIT	2
9R200	808750	3130-01-294-3164	8	7
9R200	808751	5340-01-289-8326	8	7
1MVZ1	811104	2530-01-482-9924	8A	4
1MVZ1	811105	2530-01-482-9929	8A	4
1MVZ1	818278		8A	21
			KIT	2
			KIT	3
1MVZ1	819725		8A	25
			KIT	2
			KIT	3
1MVZ1	819756		8A	1
19207	8338566	5935-00-572-9180	1	11
			2	13
19207	8338567	5310-00-833-8567	1	12
			2	14
19207	8376127	5975-00-284-7338	BULK	
19207	8376128	5975-01-483-0287	BULK	

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
19207	8376130	5975-01-483-0302	BULK	
98255	8376130-288		4	8
52304	89899	5340-01-155-1840	8A	5
52304	90414	5310-01-110-7816	8	8
			8A	10
39428	91255A120	5305-01-288-1413	18	5
39428	91255A999	5305-01-288-1414	18	6
93019	9189-96	5310-01-361-1144	17	3A
13548	94626	6150-01-459-1811	1A	6
1MVZ1	953800	2590-01-483-0071	8A	9
1MVZ1	953801	2590-01-483-0084	8A	9
1MVZ1	973955	2530-01-482-9927	8A	6
1MVZ1	975288	2590-01-483-0045	8A	9
1MVZ1	975289	2590-01-483-0074	8A	9

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FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
BULK		4720-01-169-9891	61424	PFT-6B
BULK		4720-01-009-9058	52540	3250-10103
BULK		9390-00-442-6321	70485	X-982
BULK		9320-01-127-7855	81346	ASTM-D-1056
BULK		4720-01-355-0491	01276	FC425-12
BULK		4720-01-285-4608	01276	FC425-24
BULK		4720-01-234-1733	01276	FC425-32
BULK		5975-00-284-7338	19207	8376127
BULK		5975-01-483-0287	19207	8376128
BULK		5975-01-483-0302	19207	8376130
1	1	6220-00-577-3434	96906	MS35423-1
1	1	6220-00-726-1916	96906	MS35423-2
1	2	5999-00-057-2929	19204	572929
1	3	5330-00-353-0959	73331	5939841
1	4	6250-00-371-4018	73331	5939831
1	5	6240-00-019-0877	58536	A52463-1-08
1	6	6220-00-299-7425	96906	MS35421-1
1	6	6220-00-299-7426	96906	MS35421-2
1	7	5305-00-984-6208	95105	343-0586-000
1	8	6220-00-752-6516	73331	5939830
1	9	5310-00-596-8169	78553	C1059-014-1
1	10	5320-01-353-9351	98255	MGLP-RG-7
1	11	5935-00-572-9180	19207	8338566
1	12	5310-00-833-8567	19207	8338567
1A	1	6220-01-482-5574	13548	7407
1A	1	6220-01-482-6113	13548	7406
1A	2		13548	6625A
1A	3		13548	7198
1A	4	6220-01-482-5444	13548	130255R
1A	4	6620-01-482-5320	13548	130255Y
1A	5		13548	7197
1A	6	6150-01-459-1811	13548	94626
1A	7		13548	5370
1A	8		13548	3542
1A	9	5310-00-934-9758	96906	MS35649-202
1A	10	5310-00-809-8546	96906	MS27183-8
1A	11	5310-00-045-3296	96906	MS35338-43
1A	12	5305-00-984-6212	96906	MS35206-265
1A	13	5320-01-353-9351	9K475	MGLP-R6-7
2	1	5305-00-984-5688	96906	MS35206-308
2	2	5310-00-637-9541	96906	MS35338-46
2	3	5340-01-194-3128	34623	5575569
2	4	6220-01-093-4439	96906	MS52125-2
2	5	6220-01-067-4717	19207	11639520
2	6	5331-00-462-0907	19207	11639519-2
2	7	6240-00-019-3093	58536	A52463-1-09
2	8	6240-00-044-6914	81348	A-A-52463-B10
2	9	6220-00-179-4324	19207	11639535
2	10	6220-01-284-2709	19207	12360850-1
2	11	6220-01-297-3217	19207	12360870-2
2	12	5999-00-057-2929	19204	572929
2	13	5935-00-572-9180	19207	8338566
2	14	5310-00-833-8567	19207	8338567
2	15	5320-01-353-1418	11815	BAPKTR-66
2	16	5310-00-208-9255	96906	MS21044C3
2	17	5310-01-352-2752	80205	NAS1149C0332R
2	18	5305-00-059-3664	96906	MS51958-68
2	19	6220-01-482-9850	13548	7240
3	1	6150-01-293-5749	98255	SW25292
3	2	5310-00-088-1251	81349	M45913/1-4-CG5C
3	3	5935-00-773-1428	19207	7731428

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FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
3	4	5310-00-809-4058	96906	MS27183-10
3	5	5305-00-988-1726	96906	MS35206-282
3	6	5310-00-934-9758	96906	MS35649-202
3	7	5310-00-045-3296	96906	MS35338-43
3	8	5340-00-057-2906	96906	MS21333-73
3	9	6150-01-358-9377	98255	SW31802
3	10	5940-00-143-4794	96906	MS25036-112
3	11	5940-00-143-4793	96906	MS25036-110
3	12		98255	SW25138-1
3	13	5340-01-231-5359	96906	MS21919WCG28
3	14	5305-00-984-6213	96906	MS35206-266
3	15	6150-01-484-8825	98255	SW31802-1
3	16	DELETED		
3	17	DELETED		
3	18	DELETED		
3	19	5340-00-057-2904	96906	MS21333-71
3	20	5340-01-169-8331	96906	MS21919WCG18
3	21	5340-01-231-5359	96906	MS21919WCG28
3	22	5340-00-057-2906	96906	MS21333-73
3	23	5340-00-905-0790	96906	MS21333-65
4	1	6150-01-296-3046	98255	SW25142
4	2	5935-00-167-7775	96906	MS27144-1
4	3	9905-01-013-8723	81349	M43436/3-1
4	4	5970-01-142-2282	81349	M23053/4-303-0
4	5	5940-01-006-4487	19328	214405
4	6	5935-00-462-6603	96906	MS27142-2
4	7		98255	SW31258-2
4	8		98255	8376130-288
4	9		98255	SW31259-2
4	10		98255	SW31259-3
4	11		98255	SW31259-1
4	12		98255	SW31258-1
5	1	2530-01-340-0466	98255	SW25395
6	1	5305-00-068-0500	96906	MS90725-3
6	2	5310-00-274-8715	96906	MS35338-63
6	3	5340-01-288-5131	98255	SW25207
6	4	5330-01-288-4539	98255	SW25206
6	5	2530-01-289-3960	98255	SW25204
6	6	4730-01-288-3583	98255	SW25213
6	7	5365-01-288-1488	98255	SW25210
6	8	5365-01-288-1489	98255	SW25211
6	9	5310-00-880-7745	96906	MS51968-11
6	10	5310-00-209-0965	96906	MS35338-47
6	11	5310-00-763-8905	96906	MS51968-20
6	12	5305-01-288-4516	98255	SW25202
6	13	3110-01-288-5757	0HJ37	143664-0007
6	14	5310-01-288-5098	98255	SW25209
6	15	5315-01-289-5046	98255	SW25203
6	16		0HJ37	163621-0005
6	16		0HJ37	163621-0004
6	17	5365-01-484-9121	0HJ37	143622-0001
6	18	5330-01-484-9169	0HJ37	143623-0001
6	19		0HJ37	143621-0015
6	19		0HJ37	143621-0014
6	20	2530-01-289-3783	98255	SW25216
6	20	2530-01-289-3782	98255	SW25219
6	21	5340-01-483-0332	0HJ37	143661-0008
6	22	5340-01-043-7078	81349	M5501/7-F19
6	23	5330-01-484-9169	0HJ37	143623-0001
6	24	5365-01-484-9121	0HJ37	143622-0001
6	25		98255	SW25197-1

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FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
6	25		98255	SW25197-2
7	1	2530-01-289-3954	98255	SW25182
8	1	2530-01-287-2167	52304	805714
8	2	5315-01-025-2847	52304	39075
8	3	2530-01-023-7015	52304	39074
8	4	2530-01-291-5872	9R200	807496
8	4	2530-01-353-8524	9R200	807497
8	5	2530-01-291-5798	9R200	89899
8	6	2530-01-153-1464	52304	1000693
8	7	5340-01-289-8326	9R200	808751
8	7	3130-01-294-3164	9R200	808750
8	7	2530-01-289-1037	9R200	807488
8	7	2530-01-354-3045	9R200	807489
8	8	5310-01-110-7816	52304	90414
8	9	5305-01-033-2659	96906	MS90725-302
8	10	5310-01-110-7815	52304	43943
8	11	5310-01-204-3342	76301	4M36-11008
8	12	5310-01-058-4589	52304	23570
8	13	5365-01-152-4536	79136	5304-125
8	14	2590-01-340-0270	78502	427-10401
8	15	2590-01-352-6817	7P109	1001353
8	16	5305-01-156-5418	52304	804023
8	17	5310-00-763-8905	96906	MS51968-20
8	18	5310-00-800-0695	96906	MS35335-39
8	19	5360-01-058-8253	81142	1000406
8	20	5305-00-726-2550	80204	B1821BH063F175N
8	21	2530-01-288-4049	9R200	807615
8	21	2530-01-289-8389	9R200	807614
8	21	2530-01-288-4050	9R200	70308
8	21	2530-01-483-0343	9R200	70309
8	22	5360-01-291-5628	9R200	70326
8	23	7690-01-300-0777	9R200	1001811
8A	1		1MVZ1	819756
8A	2		1MVZ1	806234
8A	3		1MVZ1	808058
8A	4	2530-01-482-9924	1MVZ1	811104
8A	4	2530-01-482-9929	1MVZ1	811105
8A	5	5340-01-155-1840	52304	89899
8A	6	2530-01-482-9927	1MVZ1	973955
8A	7		52304	79903
8A	8		52304	1000035
8A	9	2590-01-483-0045	1MVZ1	975288
8A	9	2590-01-483-0071	1MVZ1	953800
8A	9	2590-01-483-0074	1MVZ1	975289
8A	9	2590-01-483-0084	1MVZ1	953801
8A	10	5310-01-110-7816	52304	90414
8A	11	5305-01-033-2659	96906	MS90725-302
8A	12	5310-01-110-7815	52304	43943
8A	13	5365-01-059-0126	52304	35428
8A	14	5310-01-058-4589	52304	23570
8A	15		52304	804017
8A	16	2590-01-340-0270	78502	427-10401
8A	17	4730-00-164-1923	15434	S00226800
8A	18	5305-01-156-5419	52304	804703
8A	19	5310-00-763-8905	96906	MS51968-20
8A	20	5310-00-800-0695	96906	MS35335-39
8A	21		1MVZ1	818278
8A	22	5305-00-726-2550	80204	B1821BH063F175N
8A	23	2530-01-482-9908	1MVZ1	808076
8A	23	2530-01-483-0037	1MVZ1	807859
8A	23	2530-01-483-0046	1MVZ1	807858

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FIGURE AND INDEX NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
8A	23	2530-01-483-0049	1MVZ1	808077
8A	24	5310-01-478-7311	1MVZ1	806380
8A	25		1MVZ1	819725
9	1	2530-01-288-4051	78502	409-10133
9	1	2530-01-289-8390	78502	400-10005
10	1	4730-01-096-0574	79470	1480X10
10	2		98255	SW13321P-0960
10	3	4730-01-096-3169	93061	279NTA-6-8
10	4		98255	SW13319P-1900
10	5	5306-01-075-8519	96906	MS90725-36
10	6	5310-00-081-4219	96906	MS27183-12
10	7	5310-00-407-9566	96906	MS35338-45
10	8	5310-00-245-3615	96906	MS35649-2314
10	9	2530-01-288-9797	98255	SW25355
10	10	4820-01-355-0383	06721	10719
10	11	4730-00-427-5121	79470	3152X6
10	12	4730-00-014-4027	79470	3152X8
10	13		98255	SW13319P-0840
10	14		98255	SW13321P-0800
10	15		98255	SW13319P-1400
10	16	4730-01-348-6542	93061	209P-8-4
10	17	4730-00-277-8289	79470	3325X4
10	18	4820-00-377-8780	30379	2148946
10	19	2530-01-289-8285	06721	N15758DB
10	20		98255	SW13319P-0440
10	21	4730-01-097-0386	93061	272NTA-6-4
10	22		98255	SW13319P-2440
10	23	5340-01-172-3737	01276	FD45-1040-06
10	24	4730-01-098-4494	97111	1100
10	25	4730-00-817-6578	79470	3220X8X6
10	26		98255	SW13319P-1200
10	27	4730-01-095-5833	81343	6-6-6-120425BA
10	28		98255	SW13319P-2000
11	1	5310-00-829-9981	96906	MS35649-2312
11	2	5310-00-407-9566	96906	MS35338-45
11	3	5310-00-081-4219	96906	MS27183-12
11	4	2530-01-288-9640	06721	N30108BD
11	5	5306-00-226-4831	80204	B1821BH031C150N
11	6		98255	SW13319P-0320
11	7	4730-01-097-0386	93061	272NTA-6-4
11	8		98255	SW13319P-2660
11	9	4730-00-278-4822	93061	2202P6-6
11	10	4720-01-339-8531	58429	62W3506B0
11	11	4730-01-102-4123	93061	269NTA-10-8
11	12	4720-01-288-1948	58429	62W3572B0
11	13	4720-01-289-8291	58429	62W3584B0
11	14		98255	SW13319P-0080
11	15	4730-00-069-1187	81343	6-4 100202BA
11	16	4720-01-288-9664	58429	62W3554B0
11	17	4730-01-086-4068	93061	271NTA-6-6
11	18	4730-01-348-6542	93061	209P-8-4
11	19	4730-00-069-1187	30327	4-469-F-06X04
11	20	4730-00-427-5121	79470	3152X6
11	21	4730-01-096-9128	93061	68NTA-6-6
11	22		98255	SW13319P-0900
11	23	4730-00-289-0155	81343	6-6 120202BA
11	24	2530-01-289-1013	06721	N4305A
11	25	5340-01-341-9521	98255	SW26521
12	1	4730-00-069-1187	81343	6-4 100202BA
12	2	2530-01-288-5793	06721	N14488AC
12	3	5330-00-172-1919	98343	1509

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FIGURE AND INDEX NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
12	4	4730-00-595-0083	58536	A52484-1
12	4	4730-01-096-3204	45152	18572FX
12	5	4730-00-817-6578	79470	3220X8X6
12	6	4720-01-288-1948	58429	62W3572B0
12	7	4730-01-174-9405	79470	1480X6
12	8	5306-00-286-0481	39428	3043T19
12	9	2530-00-797-9295	23705	A298749
12	10	4730-00-200-0257	79470	3200X6X4
12	11	5310-00-582-5965	96906	MS35338-44
12	12	5310-00-809-4058	96906	MS27183-10
12	13	5365-01-288-1502	98255	SW25336
12	14	2940-00-741-1081	06721	N-12971-B
13	1	5315-01-239-0884	06721	19100
13	2	2530-01-301-3033	98255	SW25189
13	3	5340-01-355-8612	06721	KN36450
13	4	5310-00-820-6653	96906	MS35338-50
13	5	5310-01-257-7715	98343	2-X-256
13	6	5315-00-839-5822	96906	MS24665-353
13	7	5310-01-164-1136	98343	6178617
13	8	5310-01-176-6495	06721	193008
13	9	2530-01-354-2886	06721	N50037A
13	10	2530-01-288-4052	06721	N50037
13	11	5310-00-934-9758	96906	MS35649-202
13	12	5340-01-169-8331	96906	MS21919WCG18
13	13		98255	SW15460P-5
13	14		98255	SW15460P-6
13	15	5975-00-570-9598	96906	MS3367-7-9
13	16	5340-00-057-2906	96906	MS21333-73
14	1	5330-01-291-5071	80201	46304
14	2	3110-00-163-7713	81348	FFB187/01-652
14	3	5306-01-288-9351	18889	100170
14	3	5306-01-310-6729	18889	100181
14	4	2530-01-289-1475	18889	1540
14	5	3110-00-829-0575	81348	FFB187/01-500
14	6	5310-01-292-9481	98255	143625-0002
14	7	5310-01-292-9430	98255	143699-0019
14	8	5315-00-187-9591	46717	L6451-101
14	9	5306-00-226-4825	80204	B1821BH031C075N
14	10	2530-00-426-8971	78500	3262W1245
14	11	5330-01-387-7303	78500	2208N430 NON-ASBESTOS
14	12	5230-01-290-9288	18889	65651B
15	1	2530-01-289-3963	20076	05-09648-95
15	2	2640-00-729-6081	27783	TR515
15	3	5310-01-229-8029	96906	MS51983-8
15	3	5310-01-270-5463	96906	A52427-L-1.125
16	1	2610-01-287-0731	81348	GP3A/15.00-22.50/H/TBTR
16	1	2610-01-452-0605	81348	X/GP3/TYRA/CLA/T/385/65R22.5/J
17	1	4730-00-172-0028	96906	MS15003-4
17	2	5315-00-298-1481	80205	MS24665-357
17	3	2530-01-288-5878	93019	12211X
17	3	2530-01-289-3959	93019	12210X
17	3A	5310-01-361-1144	93019	9189-96
17	4	2530-01-354-0585	93019	12003BN
17	5	2530-01-354-0586	93019	12004BN
17	6	4710-01-354-9272	93019	12211-7
17	6	4710-01-354-9273	93019	12210-7
17	7	5310-00-225-6408	81349	M45913/1-10FG5C
17	8	5305-00-726-2555	80204	B1821BH063F300N
17	9	2530-01-289-9731	98255	SW25198-1
17	10	5315-01-290-2742	98255	SW25214
17	11	5315-00-842-3045	80205	MS24665-499

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FIGURE AND INDEX NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
17	12	5310-00-122-7102	96906	MS35692-101
17	13	2530-01-288-9854	98255	SW25198-2
17	14	4010-01-353-9428	98255	SW26638
17	15	5315-01-098-6455	88044	AN415-7
17	16	4010-01-353-9368	98255	SW10010-0101
17	17	2540-01-289-1105	98255	SW25078
17	18	5310-01-340-0349	98255	SW26676
17	19	5315-01-352-7448	98255	SW25175
17	20	5310-00-950-1310	96906	MS27183-4
17	21	5305-00-889-3116	96906	MS35206-213
18	1	2530-00-359-1162	78500	1199J114C
18	2	2590-01-354-1130	98255	SW32969
18	3	5310-01-229-8029	96906	MS51983-8
18	4	5305-00-914-7648	80204	B1821BH075F150N
18	5	5305-01-288-1413	39428	91255A120
18	6	5305-01-288-1414	39428	91255A999
18	7	5342-01-289-7577	98255	SW25081
18	8	5310-01-309-7072	9U920	SW26534
18	9	5310-00-732-0558	96906	MS51967-8
18	10	5310-00-637-9541	96906	MS35338-46
18	11	5310-00-080-6004	96906	MS27183-14
18	12	5305-00-725-2317	80204	B1821BH038C150N
18	13	5340-01-280-5124	98255	SW25087
18	14	2540-01-290-0757	98255	SW21641
18	15	5320-01-355-1419	81349	M24243/6-A804H
18	16	4210-01-133-9053	03670	79734
18	17	4010-01-341-3308	98255	SW26535
18	18		98255	SW25371
18	19	4030-01-110-1982	75535	G-213-5/8 IN
18	20	5315-01-293-9604	98255	SW25403
18	21	5315-00-849-9857	80205	MS24665-421
18	22	5310-00-584-5272	96906	MS35338-48
18	23	5310-00-761-3706	96906	MS51967-15
18	24	5330-01-340-4660	3Z276	SW29658
18	25	5340-01-112-6396	83473	TB-20
18	26	5310-00-809-5998	96906	MS27183-18
18	27	5305-00-071-2077	80204	B1821BH050C350N
18	28	5310-00-761-6882	96906	MS51967-2
18	29	5310-00-582-5965	96906	MS35338-44
18	30	5310-00-809-4058	96906	MS27183-10
18	31	5340-01-353-1361	98255	SW29638
18	32	2540-01-438-6034	98255	SW29637
18	33	5305-00-071-2505	80204	B1821BH025C088N
18	34	5306-01-075-8519	96906	MS90725-36
18	35	5310-00-245-3615	96906	MS35649-2314
18	36	5310-00-407-9566	96906	MS35338-45
18	37	2510-01-483-0468	98255	SW32973
18	38	2540-01-434-6928	98255	SW34749-1
18	39	2540-01-434-7214	98255	SW34749-2
18	40	2540-01-434-7219	98255	SW34749-3
18	41	5365-01-484-9017	98255	SW25435
19	1	2540-01-340-0460	98255	SW27025
19	2	4730-00-172-0034	96906	MS15003-6
19	3	5310-01-340-4628	0HUY6	115 7427B 102
19	4	3120-01-352-7556	98255	SW29648
19	5	2530-01-341-5031	98255	SW26981
19	6	5305-00-947-4354	80204	B1821BH075C300N
19	7	5310-00-809-8533	96906	MS27183-23
19	8	2540-01-164-7252	74410	DB-1385
19	9	5310-00-067-6356	81349	M45913/2-12CG5C
20	1		98255	SW13319P-0240

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FIGURE AND INDEX NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
20	2	4730-01-062-2570	93061	68NTA-6-4
20	3	2530-01-289-8284	06721	N20404BE
20	4		06721	100558
20	5		06721	22-X-183
20	6		06721	100558-A
20	7	4730-00-069-1187	81343	6-4 100202BA
20	8		98255	SW13319P-0840
20	9	5306-00-226-4835	80204	B1821BH031C250N
20	10	4730-01-097-0386	93061	272NTA-6-4
20	11	5305-00-269-3211	96906	MS90725-60
20	12	5310-00-637-9541	96906	MS35338-46
20	13	5340-01-353-4525	98255	SW29636-1
20	14	2510-01-288-9758	98255	SW25236
20	15	5340-01-354-9683	98255	SW29636-2
20	16	5310-00-829-9981	96906	MS35649-2312
20	17	5310-00-407-9566	96906	MS35338-45
20	18	5310-00-081-4219	96906	MS27183-12
20	19	4730-00-012-7951	79470	3152X4
21	1	4730-01-062-2570	93061	68NTA-6-4
21	2		98255	SW13319P-0600
21	3	5305-00-269-3211	96906	MS90725-60
21	4	5310-00-637-9541	96906	MS35338-46
21	5	2530-01-289-8284	06721	N20404BE
21	6		06721	100558
21	7		06721	22-X-183
21	8		06721	100558-A
21	9	4730-00-069-1187	81343	6-4 100202BA
21	10	5306-00-226-4835	80204	B1821BH031C250N
21	11	5310-00-081-4219	96906	MS27183-12
21	12	5310-00-407-9566	96906	MS35338-45
21	13	5310-00-829-9981	96906	MS35649-2312
21	14	5365-01-342-8607	98255	SW26639
21	15	2510-01-288-9758	98255	SW25236
22	1	5305-00-958-8463	96906	MS90726-217
22	2	2510-01-289-8286	98255	SW30434
22	3	5310-00-497-3895	80205	MS21044N14
23	1	5340-01-288-1311	98255	SW25247
23	2	5305-01-288-1416	98255	SW25238
23	3	5310-01-292-7256	98255	SW25246
23	4	5310-01-292-7088	98255	SW25239
23	5	5365-01-288-5119	98255	SW25245
23	6	5306-01-292-9484	98255	SW25243
23	7	5310-01-292-7255	0HUY6	1160519B301
23	8	3040-01-288-9840	0HUY6	507 7427B 000
23	9	5305-01-309-7720	0HUY6	1135873B105
23	10	5310-01-340-4628	0HUY6	115 7427B 102
23	11	5310-00-811-1377	81349	M45913/1-16CG5C
23	12	5305-01-353-1284	98255	SW25456
23	13	2510-01-288-9757	98255	SW25252
24	1	5340-01-288-1311	98255	SW25247
24	2	5305-01-288-1416	98255	SW25238
24	3	5310-01-340-4628	0HUY6	115 7427B 102
24	4	5310-00-811-1377	81349	M45913/1-16CG5C
24	5	5305-01-353-1284	98255	SW25456
24	6	2510-01-339-8590	98255	503 7264B 343
24	7	5305-01-309-7720	0HUY6	1135873B105
24	8	3040-01-288-9840	0HUY6	507 7427B 000
24	9	5310-01-292-7255	0HUY6	1160519B301
24	10	5310-01-292-7256	98255	SW25246
24	11	5306-01-292-9484	98255	SW25243
24	12	5365-01-288-5119	98255	SW25245

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FIGURE AND INDEX NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
24	13	5310-01-292-7088	98255	SW25239
25	1	2510-01-299-9433	98255	SW26910
25	2	5342-01-288-5135	98255	SW26911
25	3	5120-01-367-2461	98255	SW27049
25	4	3120-01-483-0780	98255	SW29772
25	5	5360-01-351-9351	98255	SW29773
25	6	5310-00-809-5998	96906	MS27183-18
25	7	5315-00-234-1864	80205	MS24665-302
25	8	5315-00-298-1481	80205	MS24665-357
25	9	5315-01-483-0771	98255	SW34748
26	1	2510-01-352-3798	0YVA4	AWX31969
26	2	2510-01-352-3799	98255	SW31969-2
26	3	2510-01-352-3800	98255	SW31969-1
26	4	2510-01-354-0471	0YVA4	SWX31969-3
26	5	2510-01-354-0472	0YVA4	SWX31969-4
26	6	5305-01-299-6588	98255	SW25289
27	1	5310-00-436-3290	96906	MS17830-3C
27	2	5310-00-014-5850	96906	MS27183-42
27	3	5305-00-984-6211	96906	MS35206-264
27	4	5340-01-281-8354	98255	SW25157
27	5	2540-01-289-3799	98255	SW13217E1155-1
27	6	5310-00-809-4058	96906	MS27183-10
27	7	5305-00-068-0502	96906	MS90725-6
27	8		98255	SW21653
27	9	5310-00-088-1251	81349	M45913/1-4-CG5C
27	9A	5320-00-866-4982	96906	MS90353-0503
27	9B	2510-01-482-9638	98255	SW25156
27	9C	5305-00-857-6822	96906	MS24693-S49
27	9D	5310-00-045-3299	96906	MS35338-42
27	9E	5310-00-934-9757	96906	MS35649-282
27	10	5305-00-984-6213	96906	MS35206-266
27	11	5340-01-288-5122	98255	SW25055
27	12	5310-00-045-3296	96906	MS35338-43
27	13	5310-00-934-9758	96906	MS35649-202
27	14		98255	SW26522-2
27	15		98255	SW26522-1
28	1	5305-00-984-6212	96906	MS35206-265
28	2	5310-00-014-5850	96906	MS27183-42
28	3	9905-01-290-1980	98255	SW25444-1
28	3	9905-01-290-1981	98255	SW25444-2
28	4	5310-00-045-3296	96906	MS35338-43
28	5	5310-00-934-9758	96906	MS35649-202
29	1	9905-01-290-4751	98255	SW25458
29	2	5320-00-956-7355	07707	AD64H
29	3	9905-00-999-7370	96906	MS53007-1
29	4	5320-00-882-8386	81349	M24243/6-A404H
29	5	9905-00-999-7369	58536	A-A-52483
29	6	9905-01-282-7981	98255	SW25457
29	7	9905-01-358-2769	98255	SW32560
29	8	5320-00-882-8385	81349	M24243/6-A606H
29	9		98255	SW31723
29	10	9905-01-355-9390	98255	SW32558
30	1		98255	SW26788
30	2		98255	SW26790
30	3		98255	SW26789
31	1	5120-01-296-3099	98255	SW26878
31	2	5120-00-293-1531	65814	47
KIT	1	2530-01-233-0113	52304	127808
KIT	1		52304	79903
KIT	1		52304	1000035
KIT	1		52304	804017

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FIGURE AND INDEX NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
KIT	**2**	**2530-01-483-0024**	**1MVZ1**	**808330**
KIT	**2**		**1MVZ1**	**819725**
KIT	**2**		**1MVZ1**	**806234**
KIT	**2**		**1MVZ1**	**808058**
KIT	**2**		**1MVZ1**	**818278**
KIT	**3**	**3040-01-482-9983**	**1MVZ1**	**314159**
KIT	**3**		**1MVZ1**	**819725**
KIT	**3**		**1MVZ1**	**806234**
KIT	**3**		**1MVZ1**	**808058**
KIT	**3**		**1MVZ1**	**818278**
KIT	**3**		**1MVZ1**	**314159**
KIT	**4**	**4810-01-484-9690**	**06721**	**RN10JJ**
KIT	**4**		**06721**	**100558**
KIT	**4**		**06721**	**100558-A**
KIT	**4**		**06721**	**22-X-183**

APPENDIX G

ILLUSTRATED LIST OF MANUFACTURED ITEMS

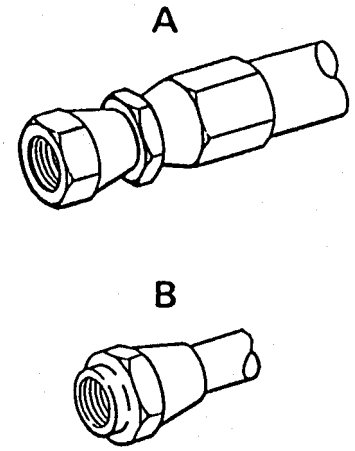
G-1. INTRODUCTION

This appendix includes complete instructions for making items authorized to be manufactured or fabricated. A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured to the figure which covers the fabrication criteria. All bulk materials needed for manufacture of an item are listed in a tabular list on the illustrations.

G-2. MANUFACTURED ITEMS PART NUMBER INDEX

Part Number	Figure Number
SW13319P-0080	G-1
SW13319P-0240	G-1
SW13319P-0320	G-1
SW13319P-0440	G-1
SW13319P-0560	G-1
SW13319P-0600	G-1
SW13319P-0840	G-1
SW13319P-0900	G-1
SW13319P-1200	G-1
SW13319P-1400	G-1
SW13319P-1900	G-1
SW13319P-2000	G-1
SW13319P-2440	G-1
SW13319P-2660	G-1
SW13321P-0800	G-1
SW13321P-0960	G-1
SW25338-3	G-1
SW25338-4	G-1
SW25338-6	G-1
SW25338-8	G-1
SW26522-1	G-2
SW26522-2	G-2
SW26666	G-3
EX-1002	G-4

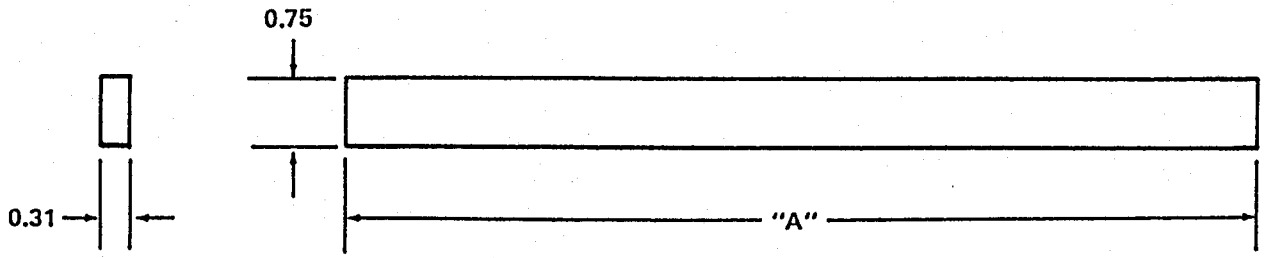
1. Nonmetallic Tube



PART NUMBER	LENGTH		CONNECTOR TYPE		NOMINAL INNER DIA	MATERIAL
	in.	(cm)				
SW13319P-0080	8	(20.3)	A	A	3/8	3250-06104
SW13319P-0240	24	(60.9)	A	A	3/8	3250-16104
SW13319P-0320	32	(81.3)	A	A	3/8	3250-16104
SW13319P-0440	44	(111.8)	A	A	3/8	3250-16104
SW13319P-0560	56	(142.2)	A	A	3/8	3250-16104
SW13319P-0600	60	(152.4)	A	A	3/8	3250-16104
SW13319P-0840	84	(213.4)	A	A	3/8	3250-16104
SW13319P-0900	90	(228.6)	A	A	3/8	3250-16104
SW13319P-1200	120	(304.8)	A	A	3/8	3250-16104
SW13319P-1400	140	(355.6)	A	A	3/8	3250-16104
SW13319P-1900	190	(482.6)	A	A	3/8	3250-16104
SW13319P-2000	200	(508.0)	A	A	3/8	3250-16104
SW13319P-2440	244	(619.8)	A	A	3/8	3250-16104
SW13319P-2660	266	(675.7)	A	A	3/8	3250-16104
SW13321P-0800	80	(203.2)	B	B	5/8	3250-10103
SW13321P-0960	96	(243.8)	B	B	5/8	3250-10103
SW25338-3	54	(137.2)	A	B	3/8	62W3554B0
SW25338-4	72	(182.9)	A	B	3/8	62W3572B0
SW25338-6	84	(213.4)	A	B	3/8	62W3584B0
SW25338-8	106	(269.3)	A	B	3/8	62W3606B0

Figure G-1

2. Gasket

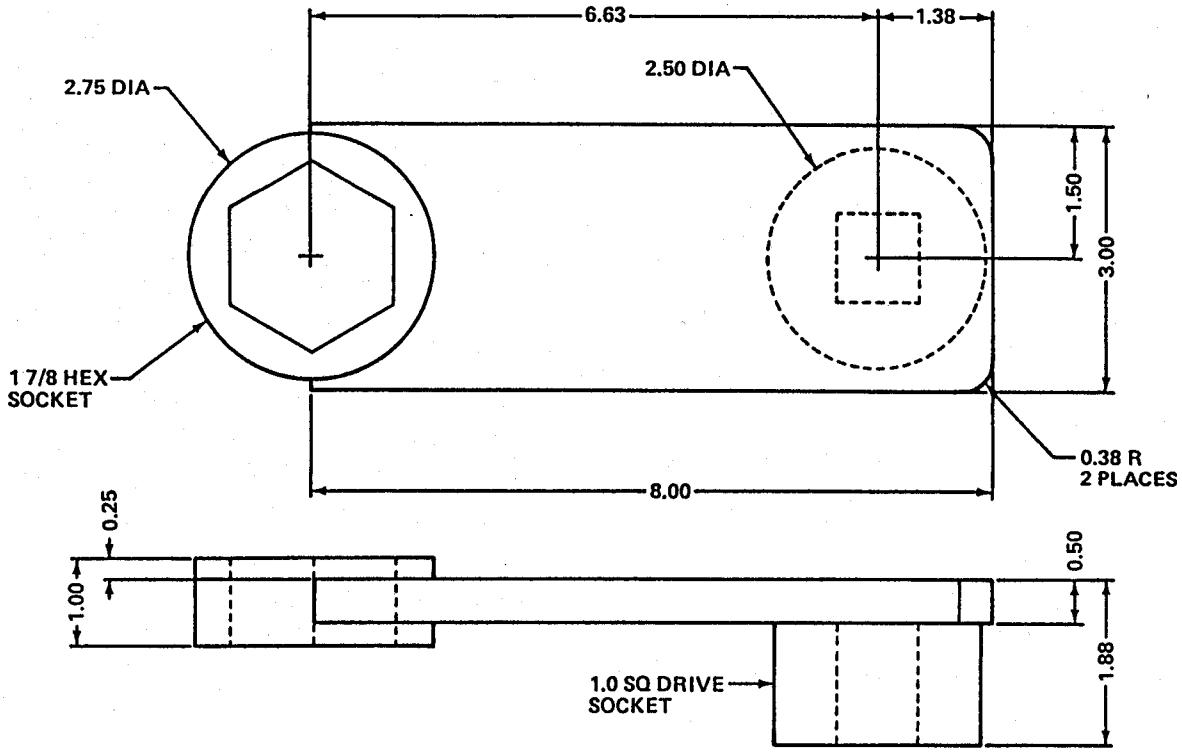


PART NO.	"A"
SW26522-1	22.5
SW26522-2	10.3

Fabricate from: Rubber Strip, MIL-C-3133SCE7K2.

Figure G-2

3. Assembly Tool (T1707 Offset Extension Socket)



Fabricate from:

a. HR/CR steel stock, 1/2 x 3.0 x 8.0 inches.

b. 1-7/8-inch 6-point impact socket.

c. 1-inch drive socket.

Notes:

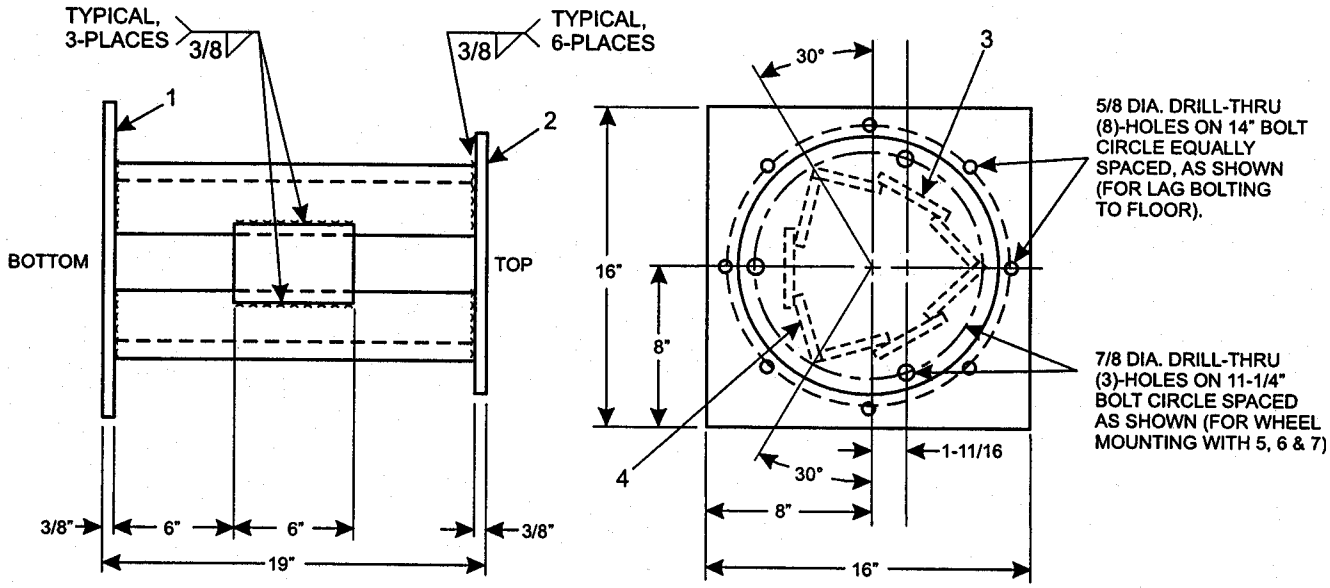
a. All work surfaces must be level to within +0.005 inch.

b. Break all sharp edges/corners to 0.03R.

c. Weld components in place.

Figure G-3

4. Tire Mounting Pedestal (EX-1002)



PEDESTAL INSTALLATION AND SET-UP

1. SECURELY LAG BOLT THE BOTTOM PLATE OF THE PEDESTAL TO CONCRETE FLOOR USING EIGHT 1/2 INCH DIA. GRADE 8 BOLTS.
2. USE ITEMS 5, 6 AND 7 TO FASTEN WHEEL AND TIRE TO THE TOP OF PEDESTAL.

ITEM	QTY.	DESCRIPTION
1	1	PLATE, 3/8 x 16 x 16, HR STEEL, ASTM A36
2	1	PLATE, 3/8 x 13 DIA, HR STEEL, ASTM A36
3	3	PLATE, 3/8 x 4 x 6, HR STEEL, ASTM A36
4	3	ANGLE, 3/8 x 3-1/2 x 3-1/2 x 18-1/4, STEEL, ASTM A36
5	3	BOLT, HEX HEAD, 3/4-16NF x 2, GRADE 8 STEEL
6	3	NUT, PLAIN, HEX, 3/4-16NF, GRADE 8 STEEL
7	3	WASHER, FLAT, HEAVY, 3/4, STEEL

NOTE: ALL DIMENSIONS ARE IN INCHES

Figure G-4

APPENDIX H

TORQUE LIMITS

H-1. GENERAL

Use a torque wrench to check torque or tighten nuts and capscrews to specified torque. Special torque values are indicated in the maintenance procedures. Standard torque values should be used for other threaded fasteners. Refer to tables H-1 and H-2.

Table H-1. Standard Torque Values

Suggested Torque Values +5 Percent to Produce Corresponding Bolt Loads						
	SAE Grade 5			SAE Grade 8		
	Clamp Load	Assembly Torque		Clamp Load	Assembly Torque	
Size	(lbs)	Dry (lb ft)	Lube (lb ft)	(lbs)	Dry (lb ft)	Lube (lb ft)
1/4-20	2020	8	75	2860	12	9
1/4-28	2320	10	86	3280	14	10
5/16-18	3340	17	13	4270	25	18
5/16-24	3700	19	14	5220	25	20
3/8-16	4940	30	23	7000	45	35
3/8-24	5600	35	25	7900	50	35
7/16-14	6800	50	35	9550	70	55
7/16-20	7550	55	40	10700	80	60
1/2-13	9050	75	55	12750	110	80
1/2-20	10700	90	65	14400	120	90
9/16-12	11600	110	80	16400	150	110
9/16-18	12950	120	90	18250	170	130
5/8-11	14400	150	110	20350	220	170
5/8-18	16950	180	130	23000	240	180
3/4-10	21300	260	200	30100	380	280
3/4-16	23800	300	220	33600	420	320
7/8-9	27000	400	300	41600	600	460
7/8-14	29800	440	320	45800	660	500
1-8	35500	580	440	54500	900	680
1-12	38800	640	480	59700	1000	740

H-1. GENERAL (CONT)

Table H-2. Self-Locking Nut Breakaway Torque Values

NOTE

To determine breakaway torque, thread nut onto screw or bolt until at least two threads stick out. Nut shall not make contact with a mating part. Stop the nut. Torque necessary to begin turning nut again is the breakaway torque. Do not reuse self-locking nuts that do not meet minimum breakaway torque.

Thread Size	Minimum Breakaway Torque (lb ft)	Thread Size	Minimum Breakaway Torque (lb ft)
10-32	2.0	5/8-18	32.0
1/4-28	3.5	3/4-16	50.0
5/16-24	6.5	7/8-14	70.0
3/8-24	9.5	1-12	90.0
7/16-20	14.0	1-1/8-12	117.0
1/2-20	18.0	1-1/4-12	143.0
9/16-18	24.0		

ALPHABETIC INDEX

ALPHABETIC INDEX (CONT)

ALPHABETIC INDEX (CONT)

ALPHABETIC INDEX (CONT)

ALPHABETIC INDEX (CONT)

ALPHABETIC INDEX (CONT)

ALPHABETIC INDEX (CONT)

ALPHABETIC INDEX (CONT)

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

MILTON H. HAMILTON
Administrative Assistant to the
Secretary of the Army
00630

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To be distributed in accordance with DA Form 12-39-E (Block 0923) Unit, Direct Support and General Support maintenance requirements for TM 9-2330-383-14&P.

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PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9-2330-383-14&P	13 DEC 1991	Operator's and Maintenance (including RPSTL) for Trailer, Ammunition, Heavy Expanded Mobility, 11 Ton, M989A1

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO.*	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON (Provide exact wording of recommended changes, if possible.)

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

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

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

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

SQUARE MEASURE

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

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

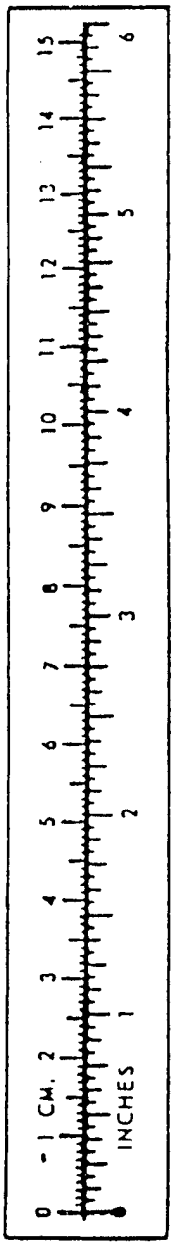
TEMPERATURE

5/9 (°F – 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 (°C + 32) = °F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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