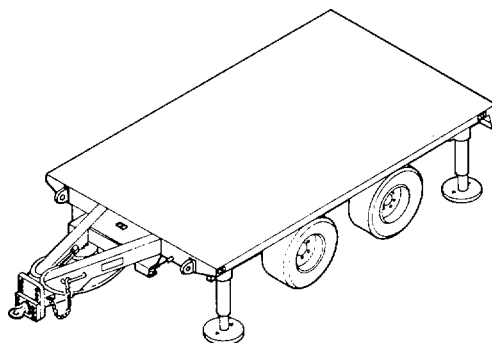
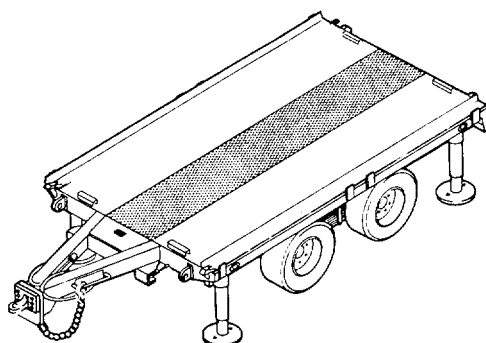


**TECHNICAL MANUAL**  
**OPERATOR'S, ORGANIZATIONAL,**  
**DIRECT SUPPORT AND GENERAL SUPPORT**  
**MAINTENANCE MANUAL**  
**(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS)**

**FOR**



**TRAILER: FLATBED 5-TON TANDEM AXLE XM1034**  
**NSN 2330-01- 173-9264**



**TRAILER: FLATBED 6-TON TANDEM AXLE XM1048**  
**NSN 2330-01-167-7258**

This copy is reprint which includes  
current pages from Change 1.

**WARNING**

Do not stand between towing vehicle and trailer when backing towing vehicle.

**WARNING**

Wheel and tire assembly weighs approximately 150 pounds. Two persons are required to lift and handle a wheel.

**WARNING**

Wear protective goggles when opening drain cock and avoid air blast, or eye injury may occur.

**WARNING**

Dry Cleaning Solvent PD-680 used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point is 138 degrees F (59 degrees C).

**WARNING**

Do NOT use a dry brush or compressed air to clean brake shoes. Brake shoe linings contain asbestos and shed dust particles, which can be dangerous to your health if breathed. Dampen surface of lining with water and use a soft bristle brush.

CHANGE

NO. 1

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington, D.C., 28 April 1988

**OPERATOR'S, ORGANIZATIONAL,  
DIRECT SUPPORT, AND GENERAL SUPPORT  
MAINTENANCE MANUAL  
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)  
FOR  
TRAILER: FLATBED 5-TON TANDEM AXLE XM1034  
NSN 2330-01-173-9264**

**AND**

**TRAILER: FLATBED 6-TON TANDEM AXLE XM1048  
NSN 2330-01-167-7258**

**Current as of 24 March 1988**

TM 9-2330-372-14&P, 10 July 1985, is changed as follows:

1. Remove old pages and insert new pages as indicated.

Remove Pages  
i and ii  
1-7 thru 2-2  
2-11 and 2-12  
3-11/(3-12 blank)  
4-23 thru 4-26  
5-5 and 5-6  
16-1 thru Fig.19  
Index 5 and Index 6

Insert Pages  
i and ii  
1-7 thru 2-2  
2-11 and 2-12  
3-11/(3-12 blank)  
4-23 thru 4-27/(4-28 blank)  
5-5 thru 5-8  
16-1 thru Fig.19  
Index 5 and Index 6

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

By Order of the Secretary of the Army:

Official:

CARL E. VUONO  
*General, United States Army*  
*Chief of Staff*

R.L. DILWORTH  
*Brigadier General, United States Army*  
*The Adjutant General*

Distribution:

To be distributed in accordance with DA Form 12-39, Operator, Unit, Direct and General Support maintenance requirements for Semi-Trailer, Flatbed, 5-ton, XM1034; Semi-Trailer, Flatbed, 6-ton, XM1048.

**OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL  
SUPPORT MAINTENANCE MANUAL  
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)  
FOR  
TRAILER: FLATBED 5-TON TANDEM AXLE XM1034  
NSN 2330-01-173-9264**

**AND**

**TRAILER: FLATBED 6-TON TANDEM AXLE XM1048  
NSN 2330-01-167-7258**

Current as of 9 April 1985.

**REPORTING OF ERRORS AND RECOMMENDING IMPROVEMENTS**

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter or DA Form 2028 (Recommended Changes to Equipment Publications and Blank Forms), or DA Form 2028-2 located in the back of this publication direct to: US Army Tank-Automotive Command, ATTN: AMSTA-MBP, Warren, MI 48397-5000. A reply will be furnished to you.

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## CHAPTER 1

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

---

## Section I. GENERAL INFORMATION

**1-1. SCOPE.**

a. This technical manual contains operating instructions and operator, organizational, direct and general support maintenance instructions, including repair parts and special tool lists.

b. This manual is for support of the:

- (1) Trailer, Flatbed, 5-Ton, 4-Wheel, Tandem Axle, XM1034
- (2) Trailer, Flatbed, 6-Ton, 4-Wheel, Tandem Axle, XM1048

c. The purpose of these trailers is to transport mounted items in support of various missions.

d. All differences between the XM1034 and XM1048 will be discussed throughout the entire manual. All items apply to both trailers unless so designated.

**1-2. MAINTENANCE FORMS AND RECORDS.** Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, The Army Maintenance Management System (TAMMS).

**1-3. DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.** Refer to TM750-244-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (US Army Tank-Automotive Command).

**1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR).** If your trailer needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at U.S. Army Tank-Automotive Command, AMSTA-MP, Warren, MI. 48090. We will send you a reply.

**1-5. ADMINISTRATIVE STORAGE.** For test procedures, forms and records, and inspections required during administrative storage of this equipment, refer to TM740-90-1, Administrative Storage of Equipment.

## Section II. EQUIPMENT DESCRIPTION AND DATA

### 1-6. EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES.

- Can be towed by a 5-ton truck. The XM1034 will be towed by the XM1015 tracked vehicle.
- Have leveling jacks.
- Have 24 volt electrical system.
- Have tandem axles.
- Can be towed over highways, improved roads and unimproved roads.

### 1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

a. The flatbed trailer includes the frame, lunette, suspension system, air brake system, leveling jacks, and lighting system. The flatbed trailer frame is a welded steel structure comprised of channel members welded to a 7-gage steel decking plate on the XM1034 and a 3/16 inch plate with a center strip of mesh expanded metal on the XM1048.

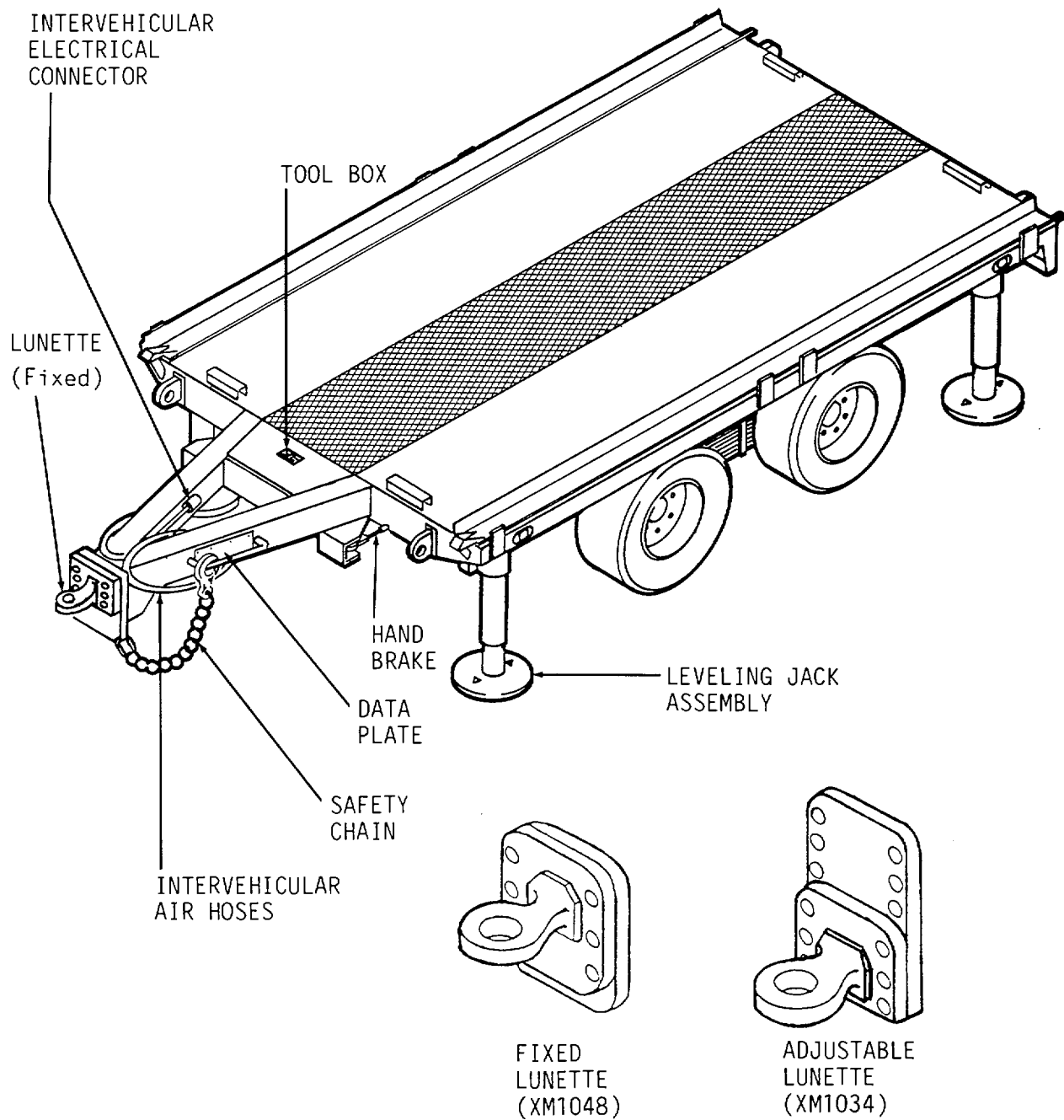
b. Intervehicular safety chains (fig. 1-1) are secured on the drawbar adjacent to the lunette.

c. The suspension system (fig. 1-2) is a tandem axle, leaf spring arrangement attached to a trunnion axle which is mounted to pedestals on the trailer frame. Each of the four wheels is equipped with mechanical shoe-type brakes actuated by the air brake system with air supplied and controlled by the towing vehicle.

d. The air brake system (fig. 1-3) consists of "Service" and "Emergency" Intervehicular hoses and couplings, air filters, air reservoir, emergency relay valve, four air chambers, and connecting tubing. The Service line provides control air and the Emergency line provides supply air. Metal tags on the anchor couplings identify the towing vehicle outlet to which each hose is to be connected. The service brakes are expanding shoe and drum type. Air pressure for brake operation is supplied and controlled from the towing vehicle.

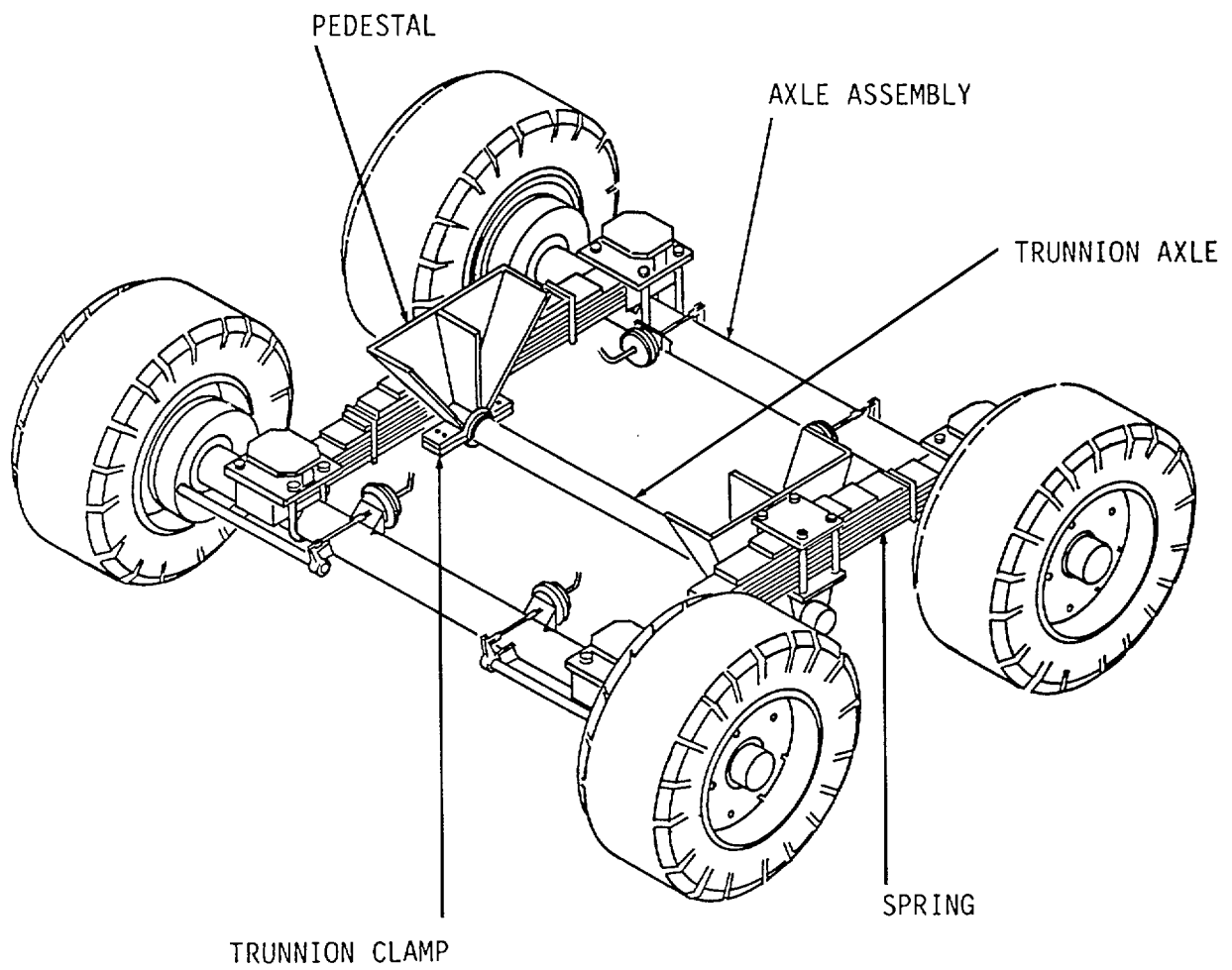
e. Hand brake levers, located on each side of the drawbar, (fig. 1-1) connect through cables to the slack adjusters on the front axle. The slack adjusters serve as a means for setting the clearance between the brake shoes and the brake drum. Adjusting knobs on the ends of the hand brake levers tighten the cables, which in turn tighten the slack adjusters.

f. Retractable leveling jacks (figs. 1-1 and 1-4) are located at each corner of the trailer deck. These jacks can be retracted for trailering or extended and individually raised or lowered to level the trailer bed in all directions. A removable hand crank is used to raise or lower the jacks.



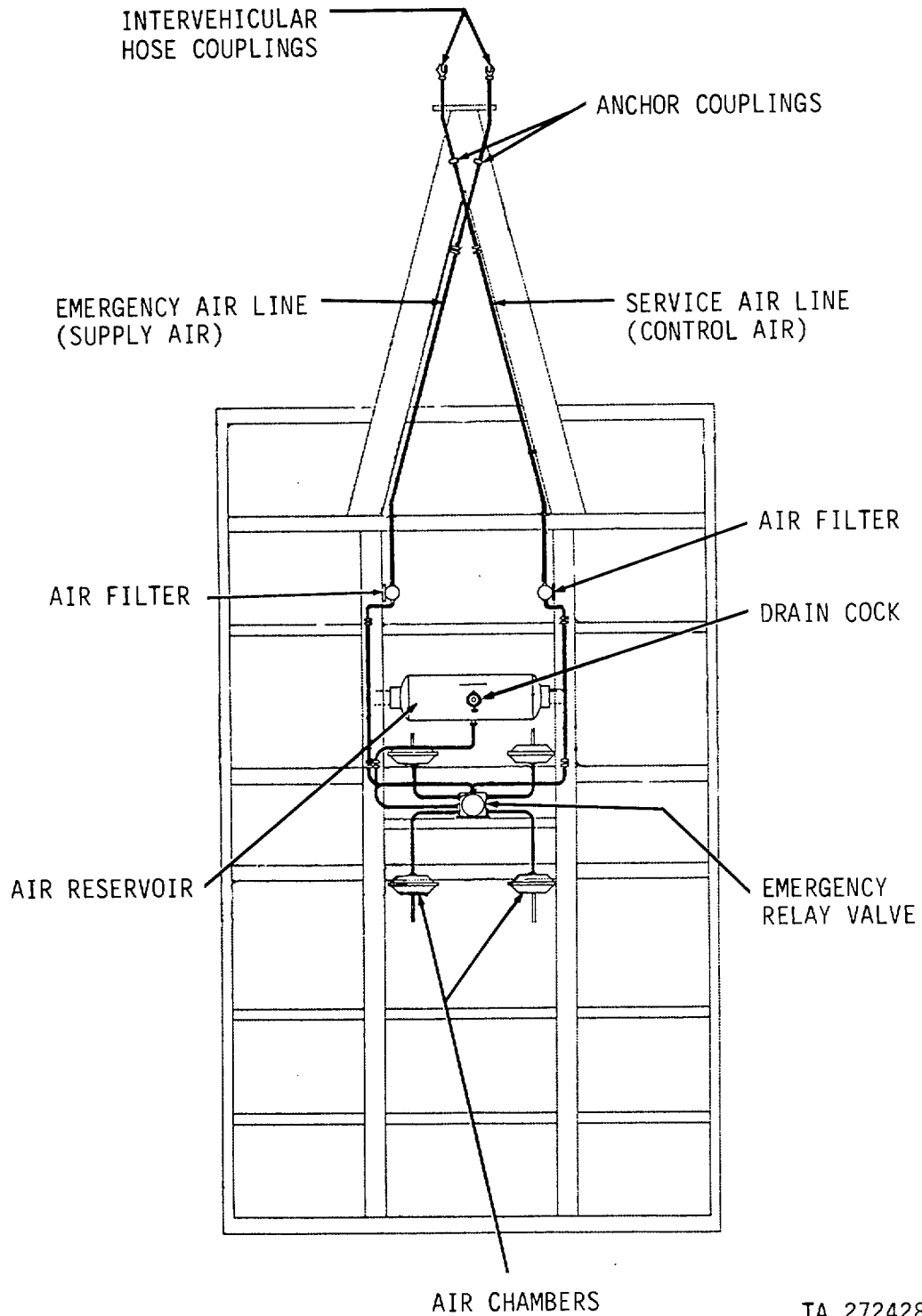
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Figure 1-1. Flatbed Trailer (XM1048 shown)



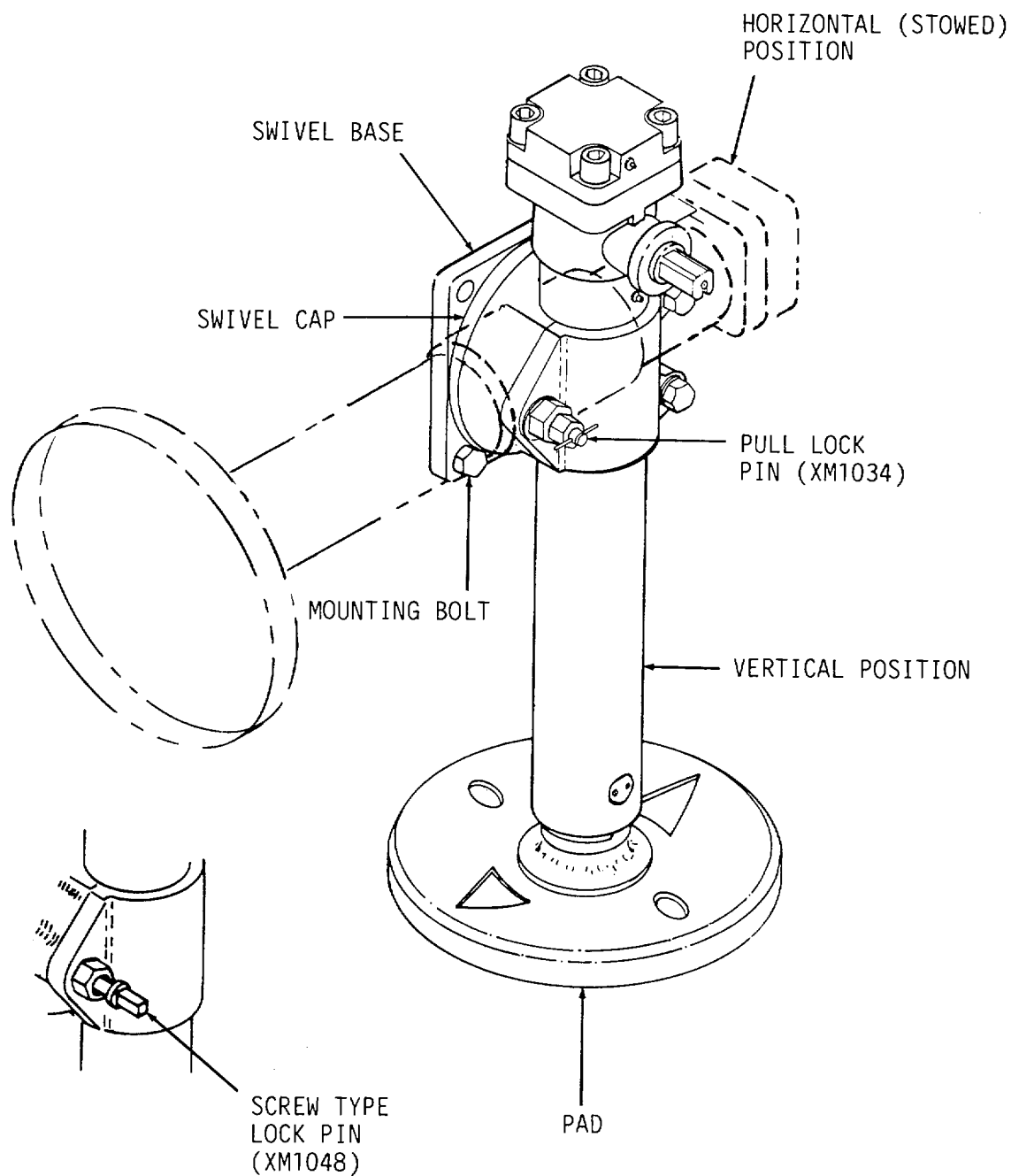
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Figure 1-2. Suspension System



TA 272428

Figure 1-3. Air System



TA 272429

Figure 1-4. Leveling Jack

g. A swivel joint (fig. 1-4) on the jack leg allows the leg to be stowed in the horizontal position for towing or in the vertical position for stabilizing and leveling the trailer when stationary. A lock pin holds the jack in the horizontal or vertical position. This pin is springloaded on the XM1034 and is a screw type on the XM1048.

h. The lighting system (fig. 1-5) is operated on 24 volts DC supplied by the towing vehicle. It consists of an Intervehicular cable, a wiring harness and two composite lights.

i. A winch-type spare wheel carrier (fig. 1-6) is located on the underside of the decking at the rear.

## 1-8. MODEL DIFFERENCES.

### a. XM1034 Trailer

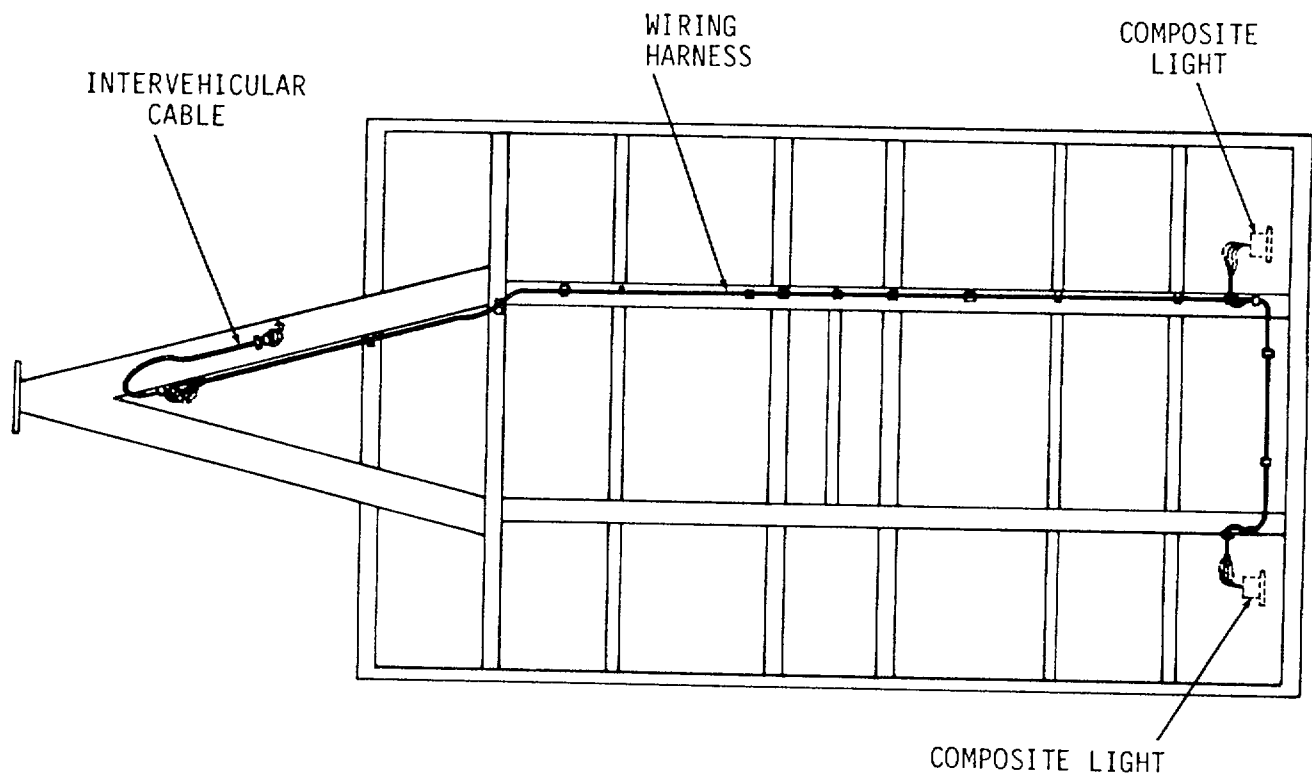
- (1) Adjustable Lunette
- (2) Hand Brakes (cable, brackets on axle and tension spring)
- (3) Leveling Jack Swivel (spring-loaded locking pin)

### b. XM1048 Trailer

- (1) Fixed Lunette
- (2) Hand Brake (cable, brackets on axle and loop clamp)
- (3) Leveling Jack Swivel (screw type locking pin)

## 1-9. EQUIPMENT DATA.

Model Designation:	XM1034	XM1048
Overall Trailer Length:	234.75 inches	234.75 inches
Drawbar Length:	66 inches	66 inches
Deck Height:	36 inches, loaded	36.5 inches, loaded
Deck Length:	160 inches	160 inches
Deck Width:	96 inches	96 inches
Weight, Empty, Flatbed:	5, 760 pounds	5, 880 pounds
Weight, Maximum		
Cross-Country		
Towed Load:	15, 760 pounds	18, 220 pounds



TA 272430

Figure 1-5. Lighting System



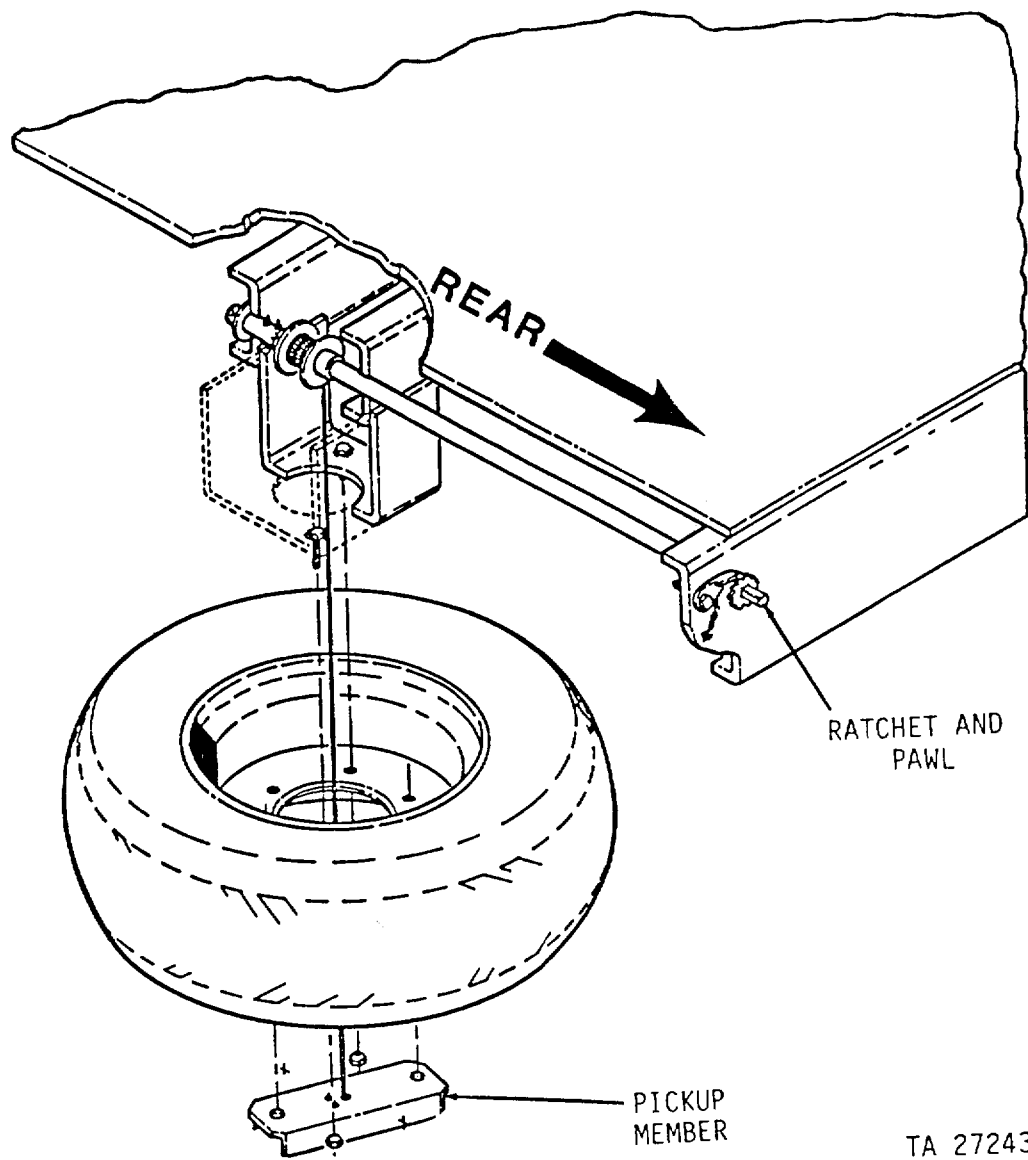


Figure 1-6. Spare Wheel Carrier,

Change 1 1-9

**1-9. EQUIPMENT DATA-continued.**

Maximum Towing Speed		
Highway:	50 mph	50 mph
Unimproved Road:	25 mph	25 mph
Suspension:	Eidal CD-10, fixed, multiple leaf flat springs, tandem axle	Eidal CD-10, fixed, multiple leaf flat springs, tandem axle
Tires:	12-16.5 Hi-Miler, 12 Ply Rating	12-16.5 All-Terrain      12      Ply Rating
Tire Pressure		
All Conditions:	45 PSI	75 PSI
Wheels:	Eidal disc. 16.5 x 9.75 6 hole	Eidal disc. 16.5 x 9.75 6 hole
Lunette:	Height adjustable for 26-, 30-, or 36-inch military pintle height	Height fixed
Electrical System:	24 Vdc	24 Vdc
Air Brakes:	85-105 PSI operating pressure	85-105 PSI operating pressure
Axles Manufacturer:	Standard Forge and Axle Co.	Standard Forge
Axle Capacity:	12, 700 pounds each	12, 700 pounds each
Brake Manufacturer:	Standard Forge and Axle Co.	Standard Forge and Axle Co.
Brake Type:	Air operated S-cam	Air operated S-cam

## CHAPTER 2

### OPERATING INSTRUCTIONS

---

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

**2-1. GENERAL.** This section describes those items that are used by the operator before, during and after operation of the flatbed trailers.

**2-2. LIGHTING SYSTEM.** Intervehicular cable. The Intervehicular cable (fig. 1-5) is used to connect the trailer lighting system to the towing vehicle electrical system during towing operation. The cable plug is keyed so it can be connected to the receptacle on the towing vehicle in only one way.

**2-3. BRAKE SYSTEM.**

a. Intervehicular Air Hoses. Two air hoses (fig. 1-3), tagged SERVICE and EMERGENCY, are mounted on the trailer drawbar. The service brakes are actuated through the service air hose. When the brake system air pressure falls below 100 psi, emergency brakes are actuated.

b. Handbrakes. There is a hand brake located on each side of the drawbar (fig. 1-1).

**2-4. TOWING ATTACHMENTS.**

a. Safety Chains. Two safety chains (fig. 1-1) are mounted to the drawbar to prevent complete trailer breakaway if the towing vehicle pintle comes open.

b. Lunette. The lunette on the XM1034 can be mounted in three different positions to adjust to towing vehicle pintle height in a 20-36 inch range. The lunette on the XM1048 cannot be adjusted (fig. 1-1).

**2-5. MISCELLANEOUS COMPONENTS.**

a. Leveling Jacks. Manually operated jacks are installed at each corner of the trailer frame. They can be raised or lowered individually to level the trailer in all directions. The XM1034 has a spring loaded locking pin and the XM1048 has a screw type locking pin to lock the swivel in either vertical or horizontal position.

b. Spare Wheel Carrier. The spare wheel carrier is under the rear of deck.

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

**2-6. MAINTENANCE FORMS AND RECORDS.** Every mission begins and ends with the paperwork. There is not 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 service, repairs, and modifications made on your vehicle. They are reports to organizational maintenance and to your Commander. And they are a check list for you when you want to know what is 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.

a. Do your Before (B) PREVENTIVE MAINTENANCE before operating the vehicle. Pay attention to the CAUTIONS and WARNINGS.

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

c. Do your After (A) PREVENTIVE MAINTENANCE right after operating the vehicle.

d. Do your (W) PREVENTIVE MAINTENANCE weekly.

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

f. 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.

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

h. 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 PD-680 (App. E, Item 2) used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 138 degrees F (59 degrees C).**

(1) Keep it clean: Dirt, grease, oil and debris get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (App. E, Item 2) 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 organizational 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 organizational maintenance.

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

(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 organizational maintenance.

TABLE 2-1. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES

B - BEFORE		D-DURING		A-AFTER		W-WEEKLY		M-MONTHLY								
ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED OR ADJUSTED AS NEEDED	EQUIPMENT IS NOT READY OR AVAILABLE IF:									
	B	D	A	W	M											
1.	•				•	<p><b>NOTE</b></p> <p><b>Perform weekly as well as before PMCS if:</b></p> <p>a. You are the assigned operator but have not used the trailer since the last weekly check.</p> <p>b. You are operating the trailer for the first time.</p> <p><u><b>TIRES</b></u></p> <p>a. Check tires for obviously low pressure, deep cuts, foreign objects or unusual tread wear.</p> <p>b. Check tires, including spare, for correct pressure.</p> <table><tr><td></td><td>XM1034</td><td>XM1048</td></tr><tr><td>Highway</td><td>45 psi</td><td>75 psi</td></tr><tr><td>Off Road</td><td>45 psi</td><td>75 psi</td></tr></table>		XM1034	XM1048	Highway	45 psi	75 psi	Off Road	45 psi	75 psi	One or more tires flat, missing or unserviceable
	XM1034	XM1048														
Highway	45 psi	75 psi														
Off Road	45 psi	75 psi														

TABLE 2-1. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES-continued

B - BEFORE

D-DURING

A-AFTER

W-WEEKLY

M-MONTHLY

ITEM NUMBER	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED OR ADJUSTED AS NEEDED	EQUIPMENT IS NOT READY OR AVAILABLE IF:
	B	D	A	W	M		
2.	•					<u>WHEELS</u>  Check wheels for damage, wheel nuts for looseness and presence.	Two or more lug nuts missing on one wheel.
3.	•					<u>BRAKES</u>  <u>a.</u> Inspect brake hose couplings (glad-hands) for security or damage.  <u>b.</u> Couple towing vehicle and air hose to trailer and check for leaks.  <u>c.</u> Check for proper operation of brakes by engaging trailer brakes and attempt to pull the vehicle forward.	Couplings missing, broken or damaged.  Air leaks are noted.  Brakes fail to operate.
4.	•					<u>LIGHTS</u>  <b>NOTE</b>  <b>An assistant is required when checking brake lights.</b>  <u>a.</u> Inspect for damaged or missing reflectors and light assemblies.  <u>b.</u> If tactical situation permits, connect towing vehicle electrical cable to trailer and check lights for proper operation.	

TABLE 2-1. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES-continued

B - BEFORE

D-DURING

A-AFTER

W-WEEKLY

M-MONTHLY

ITEM NUMBER	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED OR ADJUSTED AS NEEDED	EQUIPMENT IS NOT READY OR AVAILABLE IF:
	B	D	A	W	M		
5.	•					<u>ELECTRICAL CONNECTIONS</u>  <u>a.</u> Visually inspect connector body (fig. 1-5) for secure mounting or damage.  <u>b.</u> Inspect for corroded, bent, burnt or broken pins.  <u>c.</u> Inspect insulator for signs of deterioration or arcing.	
6.	•					<u>AIR RESERVOIR</u>  <u>a.</u> Close air reservoir drain cock (fig. 1-3).  <u>b.</u> Inspect air reservoir for damage and evidence of leakage.  <u>c.</u> Open drain cock.	Air leaks are noted.
7.	•					<u>SPRINGS AND SUSPENSION</u>  Inspect springs and suspension for looseness, damaged, broken or missing components.	Damaged, loose, broken or missing components are evident.
8.	•					<u>LEVELING JACKS</u> Check leveling jacks for proper operation or missing components.	Leveling jacks not operative or complete.

TABLE 2-1. OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES-continued

B - BEFORE		D-DURING		A-AFTER		W-WEEKLY		M-MONTHLY	
ITEM NUMBER	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED OR ADJUSTED AS NEEDED	EQUIPMENT IS NOT READY OR AVAILABLE IF:		
	B	D	A	W	M				
9.						<u>UNUSUAL NOISES</u>  Be alert for unusual or excessive noises that may indicate damaged or loose parts or insufficient lubrication.			

### Section III. OPERATION UNDER USUAL CONDITIONS

**2-7. COUPLING PROCEDURES.** The following procedures should be followed when preparing the trailer for movement.

#### NOTE

These instructions apply to both the XM1034 and XM1048.

#### WARNING

**Do not stand between towing vehicle and trailer when backing towing vehicle. Serious injury can result if personnel are caught between the vehicles.**

a. Set hand brakes (fig. 1-1) by pulling to the front and block wheels to prepare trailer for coupling to the towing vehicle.

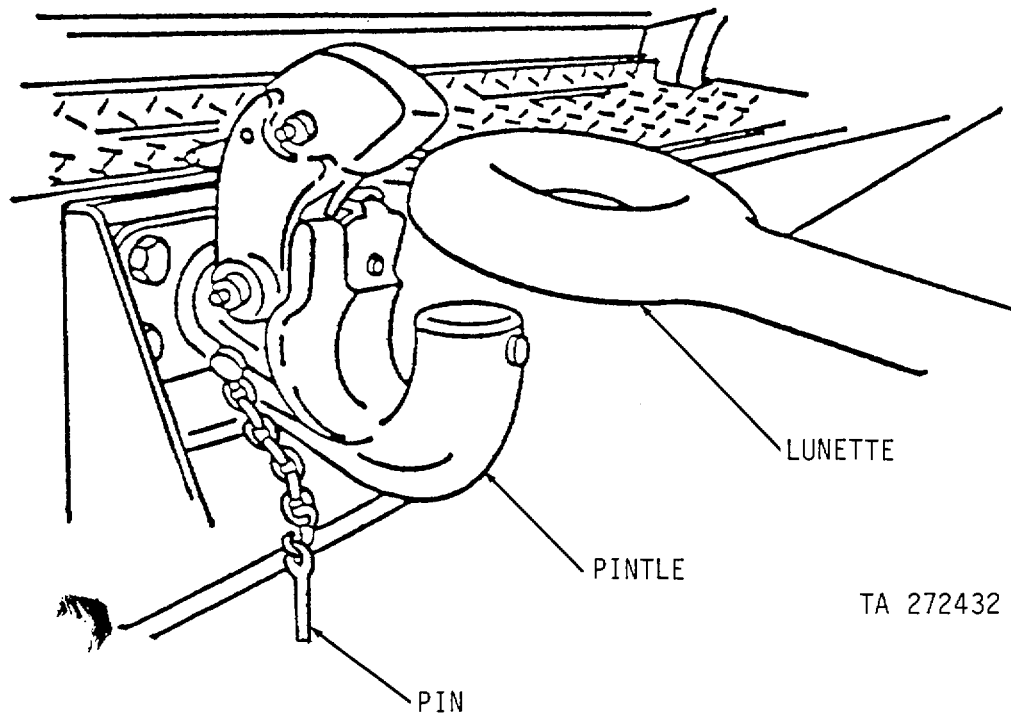
b. On towing vehicle, remove cotter pin from pintle and open pintle (fig. 2-1). Back towing vehicle until pintle is close to trailer lunette.

c. Adjust lunette height by raising or lowering (with use of hand cranks) front leveling jacks until lunette is centered in pintle opening (fig. 2-1). Back towing vehicle until lunette is in pintle. Lower front leveling jacks to lower lunette into pintle. Close pintle and lock it with cotter pin.

d. Cross safety chains (fig. 1-1) and attach to towing vehicle.

e. Connect Intervehicular air hoses (fig. 1-3) to towing vehicle as follows:





*Figure 2-1. Trailer Hookup to Towing Vehicle*

**NOTE**

**Ensure SERVICE and EMERGENCY air hoses are connected SERVICE to SERVICE and EMERGENCY to EMERGENCY on towing vehicle.**

- (1) Remove trailer hose couplings (glad hands) from dummy couplings.
- (2) Hold trailer hose couplings against towing vehicle hose couplings at a 90 degree angle and rotate until locked in place.
- f. Connect trailer lighting system to electrical system of towing vehicle as follows:
  - (1) Open protective cover of intervehicular cable (fig. 1-5). Lock cover of cable by sliding latch lock in place.
  - (2) Plug cable into towing vehicle receptacle. Cable plug is keyed so connection can be made only one way.
- g. Turn handcranks on all four leveling jacks (fig. 2-2) to fully retract legs.

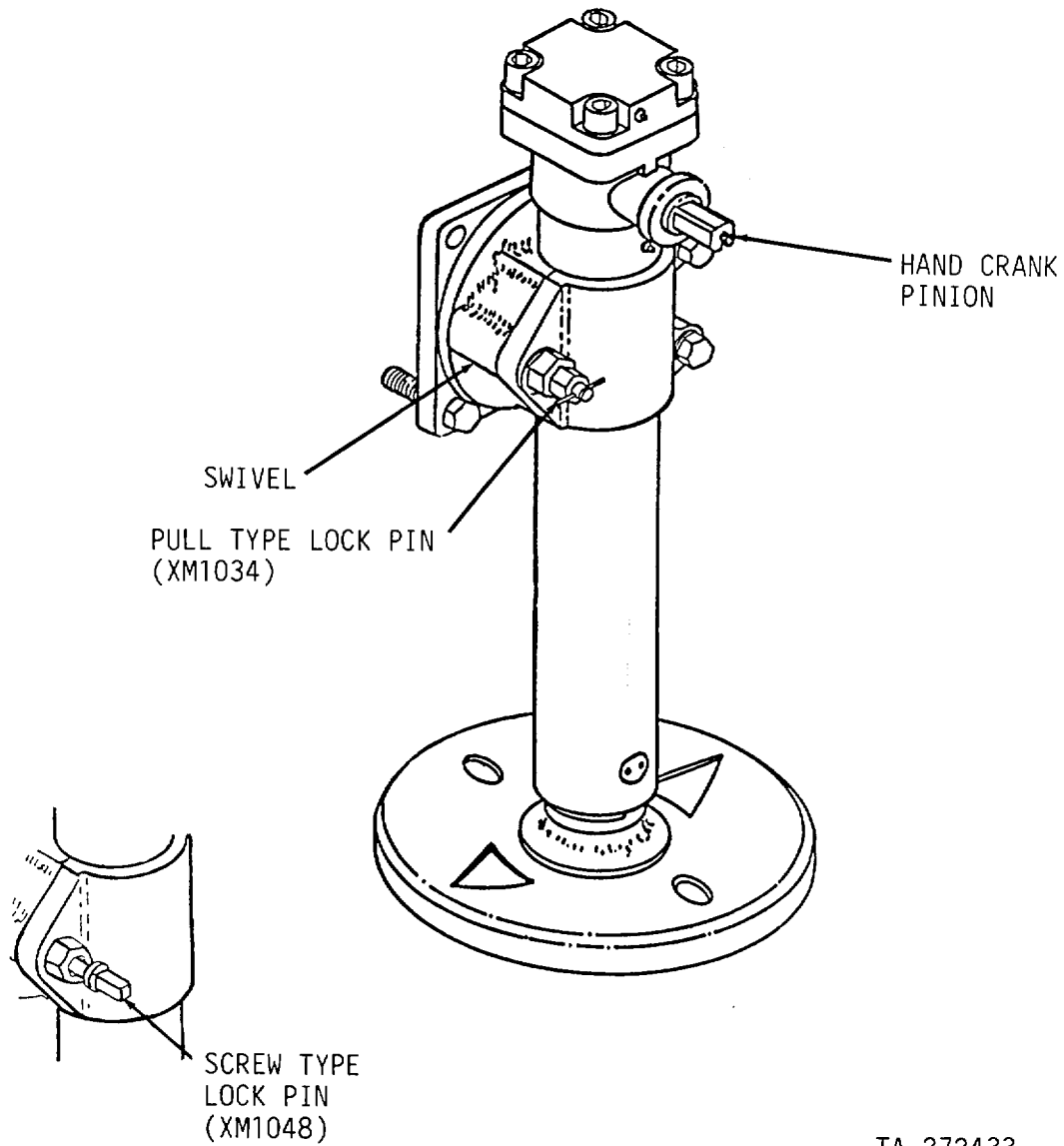
**NOTE**

**The locking pin on the swivel of the XM1034 is a spring loaded pull pin. The locking pin on the XM1048 is a screw type pin requiring the use of the hand crank (turn hand crank until it stops) to disengage and engage.**

- h. Disengage the lock pins (fig. 2-2) and manually raise each jack to the horizontal (stowed) position with pad facing trailer wheel. Reengage lock pin and ensure that jack is locked in horizontal position.
- i. Return each leveling jack hand crank to its stowed position.

**2-8. PRE-TOWING INSTRUCTIONS.**

- a. The Service Brakes are operated by the towing vehicle's service brakes. Apply towing vehicle brakes. Observe trailer brake chamber pistons for proper movement (piston pushes slack adjuster away from chamber).
- b. Electrical System.
  - (1) Operate the towing vehicle's service brakes. Check composite lights for brake lamp operation.
  - (2) Operate the towing vehicle's turn signal lever. Check that the left and right composite light turn signals work.
  - (3) Operate the towing vehicle's service lights. Check that the composite light service lamps work.



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Figure 2-2. Leveling Jack and Swivel

- c. Observe load for balance and secureness of mounting.
- d. Release both handbrakes (by moving to rear) and remove any wheel blocking.

**2-9. TOWING INSTRUCTIONS.** The driver of the towing vehicle must be experienced in towing 5 or 6 ton 4-wheeled trailers. Ordinary vehicle handling procedures and cautions govern movement of the unit.

- a. Maximum Safe Towing Speeds.
  - (1) Highway -- 50 mph.
  - (2) Unimproved road -- 25 mph.

**NOTE**

**Maximum speed limit must be lowered for wet, icy or snow covered roadways.**

b. Driving. When driving the towing vehicle with the trailer, the overall length of the unit must be kept in mind when passing other vehicles and when turning.

c. 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 will keep it off the curb.

d. Braking. In normal operations, the brakes of the towing vehicle and trailer are applied at the same time when you step on the brake pedal. Brake pressure must be applied gradually and smoothly. Trailer brakes may be applied separately by using the brake control lever on the towing vehicle if so equipped. On steep downgrades or slippery surfaces, the trailer brakes must be applied before the towing vehicle brakes. This will reduce the possibility of jackknifing.

e. Parking. Normally, the towing vehicle brakes will provide adequate control of the trailer when stopped temporarily. When the towing vehicle and trailer are to be parked and left unattended, set the towing vehicle and trailer hand brakes. If the vehicles are parked on a hill, the wheels of the trailer should be blocked to preclude movement.

f. Backing. When backing, the rear of the trailer will always move in the opposite direction of that in which the front wheels are turned. When the wheels of the towing vehicle are turned to the right, the rear of the trailer will go to the left. When the trailer has turned and backing in a straight line is required, turn the towing vehicle wheels in the direction that the trailer is moving. This will slowly bring the towing vehicle and trailer into a straight line.

**2-10. SITE REQUIREMENTS.** The trailer can be positioned as needed with practically no limitations. The selected site should be fairly level and make maximum use of natural protective barriers while allowing enough space on all sides for service and maintenance.

The soil of the site should be firm and well drained. In areas where the soil will not support the trailer, use planks or other suitable material as dunnage. The selected site must provide for access to the unit by towing.

**2-11. SHELTER REQUIREMENTS.** The trailer requires no sheltering during movement or operation. However, when parked for long periods of time, consideration should be given to sheltering the unit from extreme sunlight, humidity, blowing sand, etc., which can be detrimental to the tires, paint, and metal portions of the trailer. For operator/crew and organizational maintenance, no shelter provisions are required. For direct support maintenance, normal automotive repair facilities must be provided. Maintenance of the trailer will require a work space of approximately 24 feet by 30 feet.

**2-12. UNCOUPLING PROCEDURES.**

a. Set both hand brakes (fig. 1-1) by pulling them toward the front of the drawbar. (Parking brakes can be set more easily if the service brakes are applied). Block wheels, front and back.

b. Lower the four leveling jacks (fig. 2-2) by pulling out (XM1034) or turning (XM1048) the lock pins and manually lowering them to the vertical position. Reinsert the lock pins to lock the jacks in the vertical position.

c. Using the hand cranks, lower each of the two rear leveling jack pads. Stop the rear jack pads approximately two inches above the ground.

**WARNING**

**Wear protective goggles when opening drain cock and avoid air blast or eye injury may occur.**

d. Close air valve on towing vehicle and open drain cock on trailer air reservoir (fig. 1-3). Disconnect the Service and Emergency air hoses from the towing vehicle. Connect the hoses to the dummy couplings on the underside of the drawbar.

e. Disconnect the intervehicular power cable from the towing vehicle, close cover and stow plug in the clip on the drawbar.

f. Unhook safety chains from towing vehicle and hook to drawbar handles.

g. Lower each of the two front jack pads to the ground using the hand cranks. Open pintle.

h. Using the two front leveling jacks, raise the trailer sufficiently to release the lunette from the pintle on the towing vehicle. Move towing vehicle clear of the trailer.

i. Using all four leveling jacks, as required, level the trailer deck by raising or lowering jacks to bring the trailer deck to an approximately level, stable position. When trailer is level, return cranks to their stowage position.

## **2-13. SPARE TIRE CARRIER OPERATION.**

### **WARNING**

**Wheel and tire assembly weighs approximately 150 pounds. Two persons are required to lift and handle the wheel.**

- a. Remove two nuts holding the wheel to the carrier bracket. Use the socket wrench stored in trailer tool box.
- b. Attach hand crank (stowed in clips on leveling jack bracket) to shaft end and rotate clockwise to release pressure on pawl (fig. 1-6). Lift pawl clear of ratchet.
- c. Lower wheel to ground by rotating hand crank counterclockwise.
- d. Remove wheel support through hole in wheel.
- e. Replace wheel in reverse order of this procedure.
- f. Stow hand crank in clips on leveling jack bracket.

## **Section IV. OPERATION UNDER UNUSUAL CONDITIONS.**

### **2-14. SPECIAL OPERATING PROCEDURES.**

a. Extreme Cold Weather Conditions. Be careful when placing the trailer in motion after a shutdown. Congealed lubricants can cause part failure. Tires may be frozen to the ground. If tires were under-inflated, they may have flat spots. If brake shoes are frozen to the brake drums, use a torch to heat drums. Refer to FM 9-207 and FM 21-305 for special instructions on driving hazards that may be encountered during extreme cold weather conditions.

b. Extreme Hot Weather Conditions. Do not park the trailer in the sun for long periods of time as the heat and sunlight will shorten the life of the tires and lead to deterioration of painted surfaces. If possible, park the trailer under cover to protect it from sun, sand and dust. Cover inactive trailer with tarpaulins if no other suitable shelter is available. Metal parts of the trailer, inactive for long periods in hot, humid weather, are subject to rapid rusting and accumulation of fungi growth. Frequently inspect, clean, and lubricate to prevent excessive deterioration.

c. Operation on Unusual Terrain.

(1) Operation under extremely sandy conditions necessitates frequent inspection, cleaning and lubrication of the chassis working parts.

- (2) When moving the trailer over rough or rocky ground, care must be exercised by the towing vehicle driver to minimize the shock transmitted to the trailer. Correct tire pressure (45 psi XM1034, 75 psi XM1048) must be maintained to preclude damage to the trailer and tires.
- (3) After operation on unusual terrain, remove ice, snow, mud, etc., from underneath trailer structure and from hoses, tubes, and electrical connections.

**2-13/(2-14 blank)**

## CHAPTER 3

### OPERATOR MAINTENANCE

---

#### Section I. LUBRICATION INSTRUCTIONS

#### 3-1. LUBRICATION INSTRUCTIONS.

##### NOTE

**These instructions are mandatory.**

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

b. Cleaning. Keep all external parts not requiring lubrication, free of lubricants. Before lubricating the equipment, wipe all lubrication points free of dirt or grease. Clean all lubrication points after servicing to prevent accumulation of foreign material.

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

#### 3-2. LUBRICATION CHART.

a. For lubrication under normal conditions, refer to lubrication chart (fig. 3-1).

b. For lubrication below temperatures of 0 degrees F (-18 degrees C) refer to FM9-207.

c. For lubrication before and after fording, refer to TM 9-238.

d. After operation in dusty or sandy conditions, clean and inspect all lubrication points. Lubricate the trailer in accordance with the lubrication chart.



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**LUBRICATION CHART**


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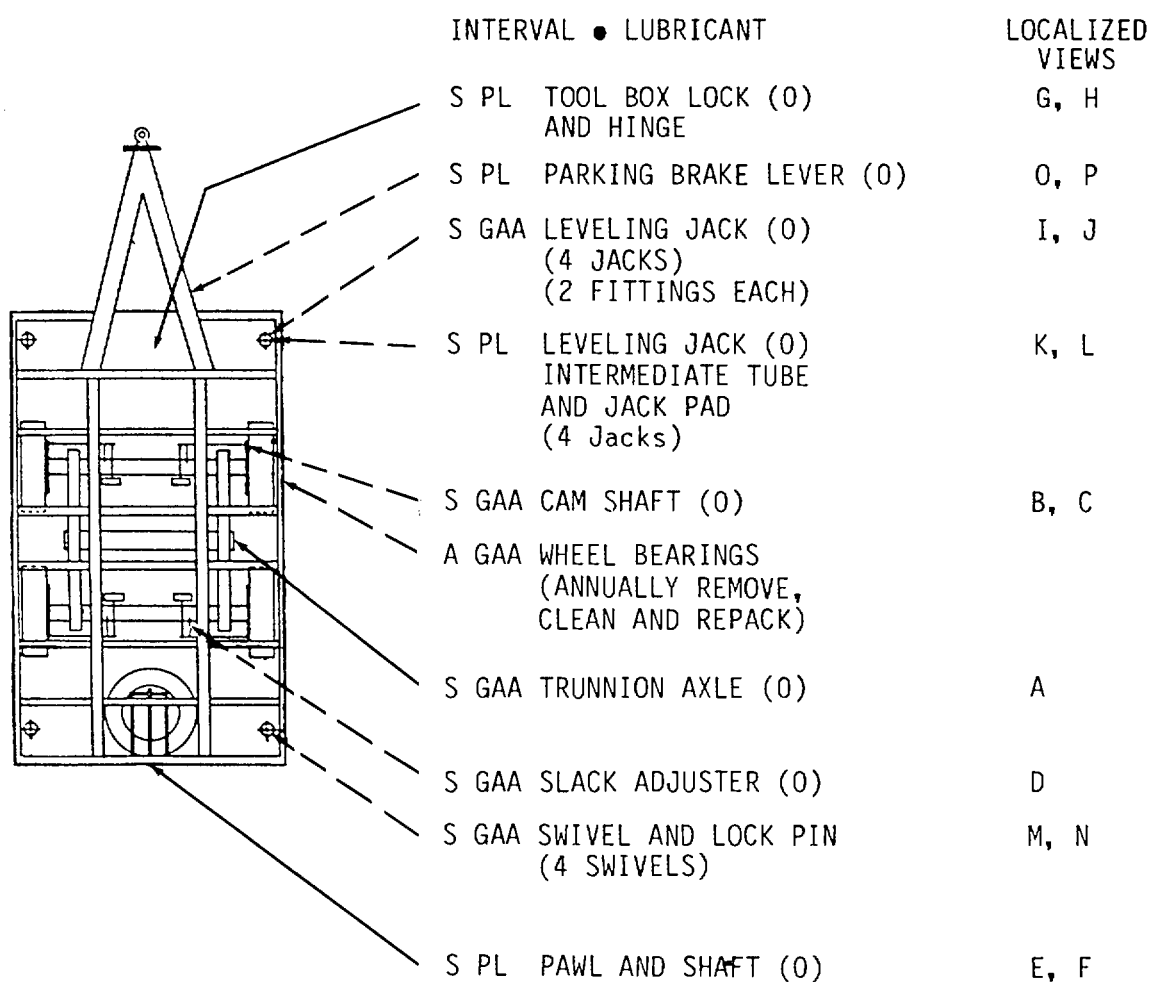
TRAILER, 5 TON, 4-WHEEL, XM1034  
 TRAILER, 6 TON, 4-WHEEL, XM1048

---

Intervals are based on normal operation. The time specified is the time required to perform all services for that particular interval. Reduce to compensate for abnormal operation, severe conditions or contaminated lubricants. During inactive periods intervals may be extended commensurate with adequate preservation.

Level of maintenance for lubrication requirements is indicated at note reference by (C) for Crew/Operator, and (O) for Organizational Maintenance. Lubricate after water operation. Clean fittings before lubricating. Clean parts with SOLVENT Dry Cleaning PD-680 (SD-II). Dry before lubricating. Lubricate dotted arrow points on both sides of equipment.

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Figure 3-1. Lubrication Chart (Sheet 1 of 3)

## KEY

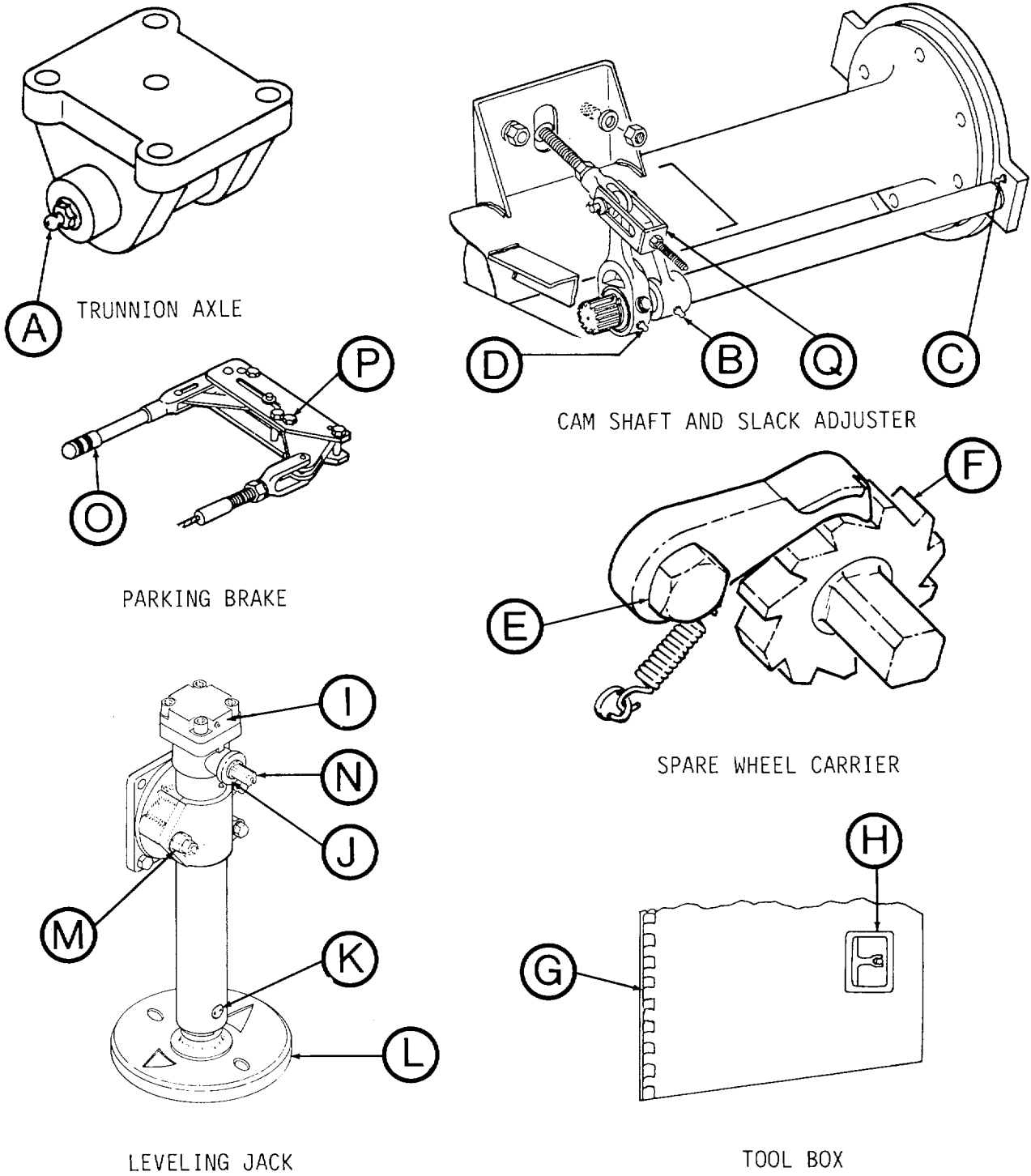
LUBRICANTS	EXPECTED TEMPERATURES			or arctic operation refer to FM9-207	INTERVALS
	above +32°F	+40°F	-10°F	0°F to -65°	
<b>PL - Lubricating oil, general purpose</b>	<b>PL (Medium)</b>	<b>PL (Special)</b>	<b>PL (Special)</b>		<b>S - Semi- annual)</b>
<b>GAA - Grease, automotive and artillery</b>	<b>GAA</b>	<b>GAA</b>	<b>GAA</b>		<b>A - Annual</b>

1. LUBRICATION OIL POINTS - Lubricate as required, handbrake lever and adjustment shaft (O, P), tool box hinge and latch (G, H), spare wheel carrier pawl and shaft (E, F), handbrake slotted clevis (Q).
2. DO NOT LUBRICATE - Springs.
3. Apply light coat of grease to leveling jack inner lower leg.

TOTAL MAN-HR	
INTERVAL	MAN-HR
S	0.7
A	2.0

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Figure 3-1. Lubrication Chart (Sheet 2 of 3)



LOCALIZED VIEWS

Figure 3-1. Lubrication Chart (Sheet 3 of 3)

## Section II. OPERATOR TROUBLESHOOTING INSTRUCTIONS

### 3-3. GENERAL.

a. Table 3-1 lists the common malfunctions which you may find during the operation or maintenance of the trailer or its components. You should perform the test or inspection and corrective action in the order listed.

b. This manual cannot list all the malfunctions that might 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.

### 3-4. SYMPTOM INDEX.

		Page Number
1.	Taillights will not light	3-5
2.	One or more lights will not work	3-6
3.	Dim or flickering lights	3-6
4.	Parking brakes will not hold	3-7
5.	Parking brakes will not fully release	3-7
6.	Brakes will not release	3-8
7.	No brakes or weak brakes	3-8
8.	Slow application or release of brakes	3-9
9.	Grabbing Brakes	3-9
10.	Brakes drag	3-9
11.	Abnormal tire wear	3-10

### 3-5. TROUBLESHOOTING TABLE.

TABLE 3-1. OPERATOR TROUBLESHOOTING TABLE

Malfunction
Test or Inspection
Corrective Action

#### ELECTRICAL SYSTEM

##### 1. TAILLIGHTS WILL NOT LIGHT.

Step 1. Check setting and operation of towing vehicle light switches.

a. If towing vehicle lights do not light, notify organizational maintenance.

b. If towing vehicle lights do light, proceed to Step 2.

Step 2. Check intervehicular cable.

a. If cable is not properly connected, pull plug out and reinsert fully into receptacle.

TABLE 3-1. OPERATOR TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
		<u>b.</u> If cable is connected properly, proceed to Step 3.
	Step 3.	Check intervehicular cable connectors for dirty, corroded, or damaged pins.
		<u>a.</u> If connector pins are dirty or corroded, clean the pins (para. 3-6).
		<u>b.</u> If connector pins are damaged, notify organizational maintenance.
		<u>c.</u> If the above steps do not correct the malfunction, notify organizational maintenance.

TABLE 3-1. OPERATOR TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
Step 3.	<u>a.</u> If composite light assembly terminal is loose, dirty, or corroded, clean and reconnect.	<u>b.</u> If composite light assembly terminal is clean and intact, proceed to Step 3.
	<u>a.</u> If composite light assembly is defective, or damaged, notify organizational maintenance.	<u>b.</u> If light assemblies are intact proceed to Step 4.
Step 4.	Check intervehicular cable connector for dirty or corroded pins.	<u>a.</u> If cable connector pins are dirty or corroded, clean connector pins (para. 3-6).
		<u>b.</u> If any of the above steps fail to correct the malfunction, notify organizational maintenance.

## HAND BRAKE SYSTEM

## 4. HAND BRAKES WILL NOT HOLD TRAILER.

Check hand brake cable for too much slack.

- a. Take up slack in cable by rotating knob on end of lever in clockwise direction.
- b. If hand brake still fails to hold trailer, notify organizational maintenance.

## 5. HAND BRAKES WILL NOT FULLY RELEASE.

Check brake lever or slack adjuster on axle for defects or damage.

If defects or damage is visible on lever or assembly on axle, notify organizational maintenance.

TABLE 3-1. OPERATOR TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
AIR BRAKE SYSTEM		
6. BRAKES WILL NOT RELEASE.		
Step 1.	Check connection of air hoses between towing vehicle and trailer.	
	<u>a.</u> If air hoses are not properly connected, (Emergency to Emergency, Service to Service), shut off towing vehicle air supply, disconnect air hoses, and reconnect.	
	<u>b.</u> If air hoses are connected properly, proceed to Step 2.	
Step 2.	Check for moisture in air system.	
<b><u>WARNING</u></b>		
<b>Wear protective goggles when operating drain cock and avoid air blast or eye injury may occur.</b>		
	<u>a.</u> Open drain cock on reservoir and bleed moisture from system.	
	<u>b.</u> If no moisture is present, and malfunction still exists, notify organizational maintenance.	
7. NO BRAKES OR WEAK BRAKES.		
Step 1.	Check shut-off valve on towing vehicle.	
	<u>a.</u> If shut-off valve on towing vehicle is off, open shut-off valve.	
	<u>b.</u> If shut-off valve on towing vehicle is open, then proceed to Step 2.	
Step 2.	Check air pressure gage on towing vehicle.	
	<u>a.</u> If air pressure gage indicates low air pressure, check that drain cock on air reservoir is closed.	
	<u>b.</u> If drain cock on reservoir is closed, and air pressure gage - indicates proper amount of pressure in air system, proceed to Step 3.	

TABLE 3-1. OPERATOR TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
Step 3.	Check connection of air hoses from trailer to towing vehicle.	<p>a. If air hoses are not properly connected (Emergency to Emergency, Service to Service) shut off towing vehicle air supply at towing vehicle shut-off valve, disconnect air hoses, and properly reconnect.</p> <p>b. If air hoses are properly connected and malfunction still exists, notify organizational maintenance as towing vehicle air filter may be clogged or brakes may be out of adjustment.</p>
8. SLOW APPLICATION OR SLOW RELEASE OF BRAKES.		
Check air pressure gage on towing vehicle.		
a. If pressure is low, check that drain cock on air reservoir is closed.		
b. If air reservoir drain cock is closed, and pressure is low, notify organizational maintenance of possible clogged air filter on towing vehicle.		
9. GRABBING BRAKES.		
<b><u>WARNING</u></b>		
<p><b>Wear protective goggles when operating drain cock and avoid air blast or eye injury may occur.</b></p> <p><b>Check for moisture in air tank by opening drain cock.</b></p>		
a. If moisture is in tank, allow to drain.		
b. If tank is dry and malfunction still exists, notify organizational maintenance as brakes may be out of adjustment.		
10. BRAKES DRAG.		
Check parking brake for proper release.		
a. If parking brake does not fully release, see Malfunction 5 above for corrective action.		
b. If the above procedure fails to correct malfunction, notify organizational maintenance as brakes may be out of adjustment.		



TABLE 3-1. OPERATOR TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
TIRES		
11. ABNORMAL TIRE WEAR.		
Step 1.	Check tire pressure.	<u>a.</u> If tire pressure is less than 45 psi XM1034 or 75 psi XM1048, inflate tires to correct pressure. <u>b.</u> If tire pressure is correct psi, proceed to Step 2.
Step 2.	Check for loose, cracked, bent or broken rim or wheel.	<u>a.</u> If wheel stud nuts are loose, tighten nuts. <u>b.</u> If wheel or rim is cracked or broken, notify organizational maintenance to replace wheel or rim. <u>c.</u> If wheel or rim is secure and not cracked or broken, proceed to Step 3.
Step 3.	Check suspension system for damaged rubber bumpers, springs, and loose or missing bolts and nuts.	<u>a.</u> If suspension system is damaged or has loose or missing bolts and nuts, notify organizational maintenance. <u>b.</u> If suspension system is not damaged and all hardware is complete and secure and malfunction still exists, notify organizational maintenance.

### Section III. OPERATOR/CREW MAINTENANCE

Operator/Crew maintenance of the trailer unit is restricted to performing cleaning of electrical connectors, changing a flat tire and operator crew PMCS (Table 2-1) and troubleshooting (Table 3-1).

#### 3-6. CLEANING ELECTRICAL CONNECTORS.

Remove any buildup of dirt or grease from the electrical connectors with a soft cloth (App. E, item 6).

**NOTE**

If this cleaning is inadequate, refer to organizational maintenance.

**3-7. WHEEL AND TIRE REPLACEMENT.****WARNING**

Wheel and tire assembly weighs approximately 150 pounds. Two persons are required to lift and handle wheel.

**NOTE**

Tools for wheel change are in tool box on draw bar.

- a. Apply hand brakes and block wheels on opposite side.
- b. Place towing vehicle jack under axle between "U" Bolts of the wheel to be removed.
- c. With the jack supporting the axle but before the tire is off the ground, loosen the cap nuts.
- d. Raise tire about two inches above ground and remove cap nuts and wheel.

**NOTE**

Cap nuts on drivers side turn clockwise to loosen. Curb side cap nuts turn counterclockwise to loosen. Studs are stamped "L" and "R".

- e. Reinstall wheel in reverse order. Have organizational maintenance torque cap nuts to 450-500 lb-ft at first opportunity.

**NOTE**

The spare wheel and tire is stowed in the spare tire carrier beneath the rear of the trailer frame. Refer to para. 2-13, Spare Tire Carrier Operation.

Change 1 3-11/(3-12 blank)

## CHAPTER 4

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

---

**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.** No special tools, TMDE, or support equipment are required to maintain these trailers.

**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.**

a. Banding and Tiedowns. Remove all banding and movement tiedown straps from the equipment.

b. Protective Coverings.

(1) Remove all tarpaulins, plastic sheeting, etc., used as protective covering for the equipment during shipping.

**WARNING**

**Dry cleaning solvent (App. E, Item 2) used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of dry cleaning solvent is 138 degrees F (59 degrees C).**

(2) If any exterior parts are coated with rust preventive compound, remove it with dry cleaning solvent (App. E, Item 2).

**4-5. CHECKING UNPACKED EQUIPMENT.**

a. Damage Inspection. Inspect the equipment for damage incurred during shipment. If the equipment has been damaged, report the damage on DD Form 6.

b. Discrepancies. Check the equipment against the component listing in Appendix C, and the packing slip to determine if the shipment is complete. Report all discrepancies in accordance with DA PAM 738-750(TAMMS). The equipment may be placed in service even though a minor assembly or part that does not affect proper functioning is missing.

#### **4-6. SERVICING THE EQUIPMENT.**

a. Perform the Preventive Maintenance Checks and Services (PMCS) contained in Table 4-1.

b. Lubricate all points as shown in the Lubrication Chart (fig. 3-1) regardless of interval.

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

d. Report all deficiencies on DA Form 2404. If the deficiencies appear to involve unsatisfactory design, submit an SF 368 (Quality Deficiency Report, see para. 1-4).

e. Perform a break-in road test of 25 miles at a maximum speed of 50 miles per hour.

### **SECTION III. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)**

**4-7. GENERAL.** To ensure that the trailer 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 preventive maintenance checks and services to be performed by organizational maintenance personnel. All deficiencies and shortcomings will be recorded as well as the corrective actions taken on DA Form 2404 at the earliest possible opportunity.

#### **4-8. ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES.**

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

(1) Do your quarterly (Q) PREVENTIVE MAINTENANCE once each 3 months.

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

(3) 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 down on your DA Form 2404. If you find something seriously wrong, report it to direct support as soon as possible.

Keep it clean: Dirt, grease, oil and debris only get in the way and may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (PD-680) (App. E, Item 2) to clean metal surfaces. Use soap when you clean rubber or plastic material.

TABLE 4-1 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES

ITEM NO.	INTERVAL			ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED, REPLACED, OR ADJUSTED AS NEEDED
	Q	S	A	
				<p style="text-align: center;"><b>NOTE</b></p> <p style="text-align: center;"><b>Perform operator/crew PMCS prior to or in conjunction with organizational PMCS if:</b></p> <p style="padding-left: 40px;"><u>a.</u> There is a delay between the daily operation of the equipment and the organizational PMCS.</p> <p style="padding-left: 40px;"><u>b.</u> Regular operator is not assisting/participating.</p>
1	•			<p><u>VEHICLE EQUIPMENT</u></p> <p>Inspect towing/air line couplings for damaged or loose connections. Repair or replace as required.</p>
2				<p><u>WHEEL BEARINGS</u></p> <p>• Clean wheel bearings and repack in accordance with lubrication chart (fig. 3-1).</p>
3	•			<p><u>BRAKES</u></p> <p style="padding-left: 40px;"><u>a.</u> Adjust brakes (para. 4-18).</p> <p style="padding-left: 40px;">• <u>b.</u> Inspect brake linings for wear and replace brake shoes (para. 4-19).</p> <p style="padding-left: 40px;">• <u>c.</u> Check all air lines for leaks, bends and cracks. Check mounting clamps for security. Replace defective components as required.</p> <p style="padding-left: 40px;">• <u>d.</u> Remove air filter element (para. 4-24).</p>

TABLE 4-1 ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES-continued

Q - QUARTERLY				S - SEMIANNUALLY	A - ANNUALLY
ITEM NO.	INTERVAL			ITEM TO BE INSPECTED PROCEDURE: CHECK FOR AND HAVE REPAIRED, FILLED, REPLACED, OR ADJUSTED AS NEEDED	
	Q	S	A		
4				<u>TIRES AND WHEELS</u>  <u>a.</u> Rotate and match tires to tread design and degree of wear to ensure safety and extended tire life.  <u>b.</u> Re-torque lug nuts to 450-500 lb-ft.	
5				<u>ROAD TEST</u> Perform road test and be alert for unusual noises that may indicate defects. Make several stops noting any side pull, noise or other unusual conditions. Disconnect air hoses from towing vehicle and note if trailer brakes apply.	

#### Section IV. ORGANIZATIONAL TROUBLESHOOTING PROCEDURES

**4-9. SCOPE.** This section contains troubleshooting information and tests for locating and correcting some of the troubles which may develop in the trailer. Each symptom of trouble or malfunction given for an individual unit or system is followed by a list of probable causes of trouble and corrective actions to remedy the situation.

a. Troubleshooting consists of isolating the system in which the trouble occurs and then locating the defective component. Use all senses to observe and to locate trouble. Make use of testing devices and tools identified in the Maintenance Allocation Chart, Appendix B, of this manual, to assist in the location of the faulty item. Standard automotive maintenance practices and principles of operation apply to troubleshooting the trailer.

b. The tests and corrective actions provided in Table 4-2 are governed by the scope of the organizational level of maintenance. Any repair which is beyond the authorized scope of organizational maintenance shall be referred to direct support maintenance for accomplishment.

**4-10. SYMPTOM INDEX.**

	Page Number
1. All lamps do not light	4-5
2. One or more lamps (but not all) will not light	4-6
3. Dim or flickering lights	4-6
4. Brakes will not release	4-6
5. No brakes or weak brakes	4-7
6. Slow brake application or slow release	4-8
7. Grabbing brakes	4-8
8. Hard pulling (one or more brake drums running hot)	4-9
9. Excessively worn, scuffed tires, or flat spots on tires	4-10
10. Improper spring action	4-10
11. Improper or stiff operation of swivels	4-10

**4-11. ORGANIZATIONAL TROUBLESHOOTING TABLE.**

a. Table 4-2 lists the common malfunctions which may be found during operation or maintenance of the trailer. You should perform the test, inspection and corrective action in the order listed.

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

TABLE 4-2 ORGANIZATIONAL TROUBLESHOOTING TABLE

**Malfunction****Test or Inspection****Corrective Action****1. ALL LAMPS DO NOT LIGHT**

Step 1. Check intervehicular cable

a. If cable is defective, replace cable (para. 4-14).

b. If cable is not defective, proceed to step 2.

Step 2. Check for ground or open circuit in wiring (para. 4-15).

TABLE 4-2 ORGANIZATIONAL TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
<hr/>		
2. ONE OR MORE LAMPS (BUT NOT ALL) WILL NOT LIGHT.		
Step 1.	Dirty or corroded light socket.	Remove light bulb and clean socket.
Step 2.	Check for defective light assemblies.	<p><u>a.</u> Replace defective light assemblies (para. 4-12).</p> <p><u>b.</u> If light is not damaged, proceed to step 3.</p>
Step 3.	Check for ground or open circuit in wiring (para. 4-15).	If wiring has a ground or open circuit, repair or replace wiring.
3. DIM OR FLICKERING LIGHTS.		
Step 1.	Check for defective light assemblies.	<p><u>a.</u> Replace or repair defective light assemblies (para. 4-12).</p> <p><u>b.</u> If light assemblies are not defective, proceed to step 2.</p>
Step 2.	Check for intermittent ground or open circuit (para. 4-15).	If wiring is defective, repair or replace wiring.
4. BRAKES WILL NOT RELEASE.		
Step 1.	Check operation of air brake chambers as well as proper lubrication.	<p><u>a.</u> If one air brake chamber does not release, repair or replace defective brake chamber (para.4-25).</p> <p><u>b.</u> If all air brake chambers do not release, proceed to step 2.</p>
Step 2.	Check operation of hand brake.	<p><u>a.</u> If hand brake does not operate, replace hand brake (para.4-17).</p> <p><u>b.</u> If replacing hand brake does not correct the defect, proceed to step 3.</p>



TABLE 4-2 ORGANIZATIONAL TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
	Step 3.	Check intervehicular hose coupling for wear or damage. Replace damaged hose coupling (para. 4-22).
5. NO BRAKES OR WEAK BRAKES.		
	Step 1.	Check for low air pressure (leakage at all air line connections, air lines or emergency relay valve).
		<u>a.</u> If air lines/connections are leaking, repair or replace as needed.
		<u>b.</u> If emergency relay valve is leaking, replace defective valve (para. 4-27).
		<u>c.</u> If air lines connections or valves are not leaking, proceed to step 2.
	Step 2.	Inspect for grease on brake linings.
		<u>a.</u> If grease is present on brake linings replace defective oil seals and brake shoes (para. 4-19).
		<u>b.</u> If grease is not present on brake lining, proceed to step 3.
	Step 3.	Check for worn brake lining.
		<u>a.</u> If brake lining is worn, replace brake shoe (para. 4-19).
		<u>b.</u> If brake lining is not worn, proceed to step 4.
	Step 4.	Check brake adjustment.
		<u>a.</u> Adjust brake shoes if out of adjustment (para. 4-18).
		<u>b.</u> If brakes are adjusted, proceed to step 5.
	Step 5.	Check for relay valve operation by observing action of air brake chambers.
		<u>a.</u> If air brake chambers do not operate, replace relay valve (para. 4-27).
		<u>b.</u> If a single air brake chamber does not operate properly, repair or replace brake chamber (para. 4-25).

TABLE 4-2 ORGANIZATIONAL TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
	Step 6.	Check for clogged filter. Service air filter (para. 4-24).
6. SLOW BRAKE APPLICATION OR SLOW RELEASE.		
	Step 1.	Check for low air pressure (leakage at connections, air lines or valves).
		<u>a.</u> If air lines/connections are leaking, repair or replace as needed (para. 4-22).
		<u>b.</u> If emergency relay valve is leaking, replace defective valve (para. 4-27).
		<u>c.</u> If air lines/connections and valves are not leaking, proceed to step 2.
	Step 2.	Check for restrictions in air lines and hoses.
		<u>a.</u> If air lines or hoses are restricted, replace as required.
		<u>b.</u> If air lines or hoses are not restricted, proceed to step 3.
	Step 3.	Check for damaged or broken brake shoe springs.
		<u>a.</u> If spring is defective, replace spring (para. 4-19).
		<u>b.</u> If any spring is not defective, proceed to step 4.
	Step 4.	Check for air brake chamber operation.
		<u>a.</u> If one air brake chamber operates slowly, repair or replace defective brake chamber (para. 4-25).
		<u>b.</u> If all air brake chambers operate slowly, replace emergency relay valve (para. 4-27).
7. GRABBING BRAKES.		
	Step 1.	Check brake adjustment
		<u>a.</u> If brakes are out of adjustment, adjust brakes (para. 4-18).
		<u>b.</u> If brakes are not out of adjustment, proceed to step 2.

TABLE 4-2 ORGANIZATIONAL TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
Step 2.	Check for grease on brake lining.	<u>a.</u> If grease is present, replace brake shoes and oil seals (para. 4-19). <u>b.</u> If grease is not present on brake lining, proceed to step 3.
Step 3.	Check for cracked, scored, or deformed brake drum.	<u>a.</u> If brake drum is cracked, scored, or deformed, replace brake drum (para. 4-19). <u>b.</u> If brake drum is not cracked, scored, or deformed, proceed to step 4.
Step 4.	Check for worn or loose brake linings.	If linings are worn or damaged, replace brake shoes (para. 4-19).
8. HARD PULLING, ONE OR MORE BRAKE DRUMS RUNNING HOT.		
Step 1.	Check for cross connected air hoses.	<u>a.</u> If hoses are cross connected, connect hoses properly. (See Air System diagram, fig. 1-3) <u>b.</u> If hoses are not cross connected, proceed to step 2.
Step 2.	Check brake adjustment.	<u>a.</u> If brakes are out of adjustment, adjust brakes (para. 4-18). <u>b.</u> If brakes are not out of adjustment, proceed to step 3.
Step 3.	Check for weak or broken brake shoe springs.	If a spring is defective, replace spring (para. 4-19).

TABLE 4-2 ORGANIZATIONAL TROUBLESHOOTING TABLE-continued

Malfunction	Test or Inspection	Corrective Action
9. EXCESSIVELY WORN OR SCUFFED TIRES OR FLAT SPOTS ON TIRES.		
Step 1.	Check for loose wheels.	<p><u>a.</u> If wheels are loose, tighten wheel nuts and torque to 450-500 lb-ft.</p> <p><u>b.</u> If wheels are not loose, proceed to step 2.</p>
Step 2.	Check for loose wheel bearings.	<p><u>a.</u> If wheel bearings are loose, adjust wheel bearings (para. 4-21).</p> <p><u>b.</u> If wheel bearings are not loose, proceed to step 3.</p>
Step 3.	Check suspension system for damaged rubber bumper assemblies, springs, and loose or missing bolts and nuts.	<p>If suspension system is damaged or has loose or missing bolts and nuts, notify direct support maintenance. Replace missing bumper assemblies.</p>
10. IMPROPER SPRING ACTION.		
Step 1.	Check for loose or damaged U-bolts.	<p><u>a.</u> If U-bolts are loose, tighten U-bolts (torque to 85-105 lb-ft).</p> <p><u>b.</u> If U-bolts are damaged, notify direct support maintenance.</p> <p><u>c.</u> If U-bolts are not damaged, proceed to step 2.</p>
Step 2.	Check for broken or weak spring leafs.	<p>If spring leafs are broken or weak, notify direct support maintenance.</p>
11. IMPROPER OR STIFF OPERATION OF SWIVELS.		
		Refer to swivel maintenance procedure (para. 4-31 <u>c</u> ).

Section V. ORGANIZATIONAL MAINTENANCE PROCEDURES

**NOTE**

**Figure numbers cited pertain to Appendix F unless otherwise indicated.**

**4-12. COMPOSITE LIGHTS (Fig. 1).**

**a. Removal.**

- (1) Remove plastic tiedown strap. Tag and disconnect connectors for wiring harness.
- (2) Remove two cap screws (12) and lock washers (11). Remove light (1).

**b. Repair.**

- (1) Loosen six captive screws and remove door (2).

**NOTE**

**Do not remove packing (3) unless damaged.**

- (2) Remove lamps from body.
- (3) Install new lamps in body as required by pressing into socket and turning clockwise.
- (4) Install new packing (3) if packing was removed and fasten door to body with captive screws.

**c. Installation.**

- (1) Install composite light (1) on trailer with two cap screws (12) and lock washers (11).
- (2) Connect connectors to wiring harness. Make sure that tag or marker numbers on wires correspond. Install plastic tiedown strap.

**4-13, WIRING HARNESS (Figs. 2 and 4)**

**NOTE**

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

**a. Removal.**

- (1) Remove plastic tiedown straps and remove connectors from strap assembly (10, fig. 2).
- (2) Disconnect intervehicular cable connectors from wiring harness connectors at junction.

(3) Remove nine clamps (1, fig. 4) securing harness to frame by removing nine nuts (4) at nine positions along frame.

(4) Remove harness.

**b. Repair.**

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

(2) If individual harness wires extending from the harness loom are broken, cut off defective piece of wire and splice on new length of wire. Install new terminal and shell to new wire.

(3) Replace deteriorated grommets on frame if harness has been removed.

**c. Installation.**

**NOTE**

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

(1) Feed wiring harness through grommets on frame, starting from rear of trailer.

(2) Run wiring harness along frame then through grommets. Install clamps over harness and attach to studs with nuts in nine places.

(3) Position connectors at both taillight assemblies and reconnect.

(4) Position connectors at intervehicular cable and reconnect.

(5) Install plastic tiedown strap.

(6) Connect trailer to towing vehicle and check operation of all lights.

**4-14. INTERVEHICULAR CABLE (Figs. 2, 3 and 4).**

**a. Removal.**

(1) Remove plastic tiedown strap and tag and disconnect cable connectors from wiring harness at junction.

(2) Remove two clamps (1 and 5, fig. 4) securing intervehicular cable to trailer frame by removing nut (4) and screw (6).

(3) Remove intervehicular cable.

**b. Cleaning and Inspection.**

(1) Clean intervehicular cable with clean rag.

(2) Inspect cable for cuts, breaks and loose connectors and cover for damage.

c. Installation. Replace in reverse order of procedure "a" above.

#### **4-15. TESTING ELECTRICAL SYSTEM (Fig. 4-1).**

##### **a. Check for Grounds**

(1) 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 or grounds using the multimeter on a low ohms scale.**

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

(3) Check for grounds between wiring harness connector pins, A, B, C, E, F, and J and pin D (ground). (Refer to fig. 4-1 wiring diagram). 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.

(4) Remove all lamps from lights.

(5) 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.

##### **b. Check Wiring Harness Continuity.**

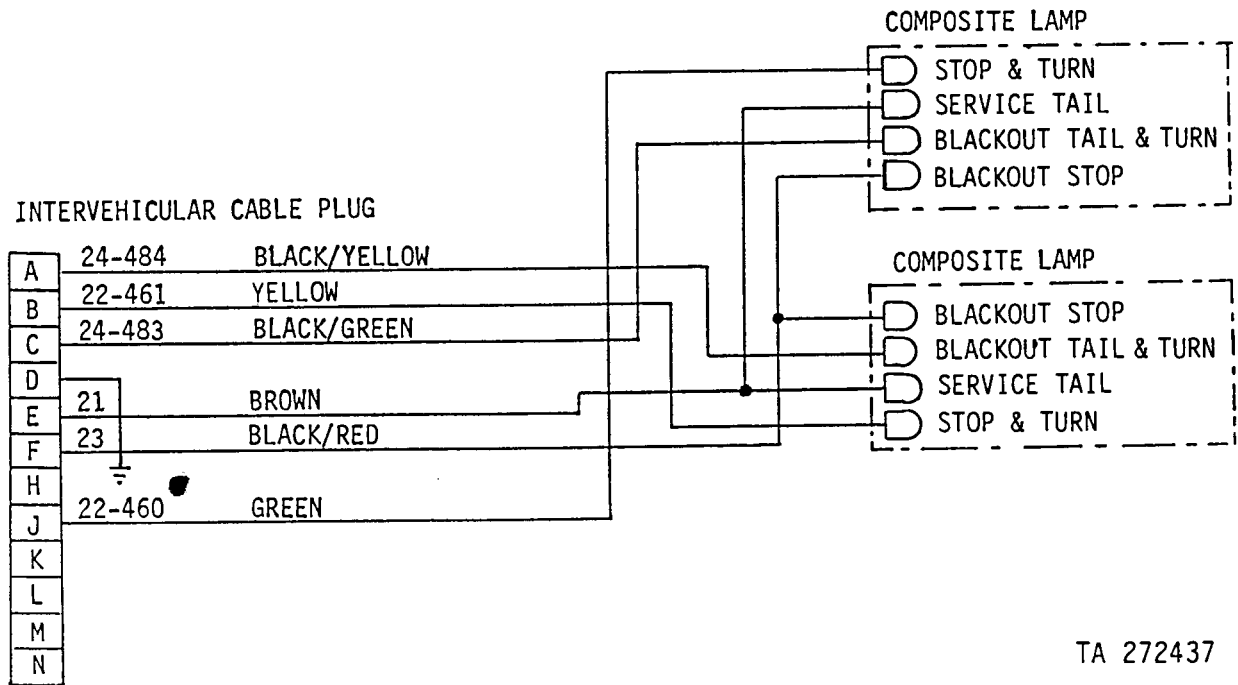
(1) Install all lamps in lights.

(2) Check for continuity between each light lead wire and 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.

(3) Connect all wire connectors at lights.

(4) Check for continuity between wiring harness connector pins (ground). Each circuit should indicate continuity. If not, there is a broken wire and wiring must be repaired or replaced.

**4-16. VOLTAGE AND RESISTANCE MEASUREMENTS.** Voltage measurements are made with the trailer connected to the towing vehicle. To prevent damage to the multimeter, resistance measurements are made with the trailer disconnected from the towing vehicle. Refer to fig. 4-1 for the trailer wiring diagram.



TA 272437

Figure 4-1. Wiring Diagram



a. At the Intervehicular Cable and Wiring Harness Junction:

(1) Measure 24 Vdc  $\pm$  1.5 Vdc on wire 24-484 when the towing vehicle's blackout taillights are actuated. The voltage reading should pulse from 1 to 24 Vdc when the towing vehicle's right turn signal is actuated. Resistance to trailer ground, with towing vehicle disconnected, should be 12.5 ohms  $\pm$  1.2 ohms.

(2) Measure 24 Vdc  $\pm$  1.5 Vdc on wire 24-461 when the towing vehicle's brakes are applied. The voltage reading should pulse from 0 to 24 Vdc when the towing vehicle's left turn signal is actuated. Resistance to trailer ground, with towing vehicle disconnected, should be 1.0 ohms  $\pm$  0.1 ohms.

(3) Measure 24 Vdc  $\pm$  1.5 Vdc on wire 21 when the towing vehicle's service taillights are actuated. Resistance to trailer ground should be 12.5 ohms  $\pm$  1.0 ohms.

(4) Measure 24 Vdc  $\pm$  1.4 Vdc on wire 23 when the towing vehicle's blackout stop lights are actuated. Resistance to trailer ground should measure 8.5 ohms  $\pm$  1.0 ohms.

(5) Measure 24 Vdc  $\pm$  1.5 Vdc on wire 22-460 with the towing vehicle's brakes applied. The reading should pulse from 0 to 24 Vdc when the towing vehicle's right turn signal is actuated. Resistance to trailer ground, with towing vehicle disconnected, should be 1.0 ohms  $\pm$  0.1 ohms.

b. At the wiring harness and taillight wiring harness junction, the voltage and resistance readings will be the same. With connections open at both taillight harness junctions, the following readings should be measured.

(1) At left taillight harness:

Wire 24-484 - 25.0 ohms  $\pm$  2.5 ohms.

Wire 22-461 - 2.0 ohms  $\pm$  0.2 ohms.

Wire 21-461 - 2.0 ohms  $\pm$  0.2 ohms.

Wire 23 - 17.0 ohms  $\pm$  1.7 ohms.

(2) At right taillight harness:

Wire 24-483 - 25.0 ohms  $\pm$  2.5 ohms.

Wire 22-460 - 2.0 ohms  $\pm$  2.5 ohms.

Wire 21 - 25.0 ohms  $\pm$  2.5 ohms.

Wire 23 - 17.0 ohms  $\pm$  1.7 ohms.

**4-17. REPLACE HAND BRAKE ASSEMBLY (Fig. 6).**

a. Remove the three hex head capscrews (14), hex nuts (16) and spacers (15) holding lever assembly (13) to drawbar.

b. Remove the snap ring (6) from cable (5) at front and rear mounting brackets.

c. Disconnect clevis (2) from slack adjuster. Unscrew cable assembly (5) from slotted clevis (2) and remove clevis (8) from hand brake assembly. Unscrew cable from clevis (8). Use small adjustable wrench if necessary to loosen cable.

d. Remove hex nuts (7) from both ends of cable.

e. Slide each end of cable from mounting brackets (12 and 27).

f. Release cable from extension spring (24), (XM1034 only).

g. Install replacement assembly in reverse order.

#### 4-18. ADJUST BRAKES (Fig. 4-2).

##### NOTE

**Brakes must be released prior to performing following steps.**

a. Using a 9/16-inch socket, push in locking device (fig. 4-2), and turn adjusting screw clockwise on the slack adjuster until brakes prevent the wheel from turning.

b. Back off adjusting screw until brakes allow the wheel to turn freely for a complete revolution in each direction.

#### 4-19. DISASSEMBLE/ASSEMBLE BRAKES (Figs. 7 and 13).

a. Remove wheel using procedure in para. 3-7.

b. Remove the six 1/2-inch hub cap retaining screws (10, fig. 13), lock washers (11), hub cap (9) and gasket (12).

c. Bend out tab on spindle nut washer (13).

##### NOTE

**Spindle nut socket wrench is stored in trailer tool box.**

d. Remove outer spindle nut (8), washer (13) and inner spindle nut (8) using spindle nut wrench in tool box.

##### CAUTION

**Two persons are required to lift and handle hub and drum assembly. Hub and drum assembly weighs in excess of 100 pounds.**

e. Remove thrust washer (14), outer cone bearing (7) and hub and drum assembly.

f. Remove brake drum (1) from hub (17) by removing the six stud nuts (3) and washers (2) Drive out studs (16) if damaged.

g. Remove grease seal (18) and bearing cups (5 and 6) from hub.

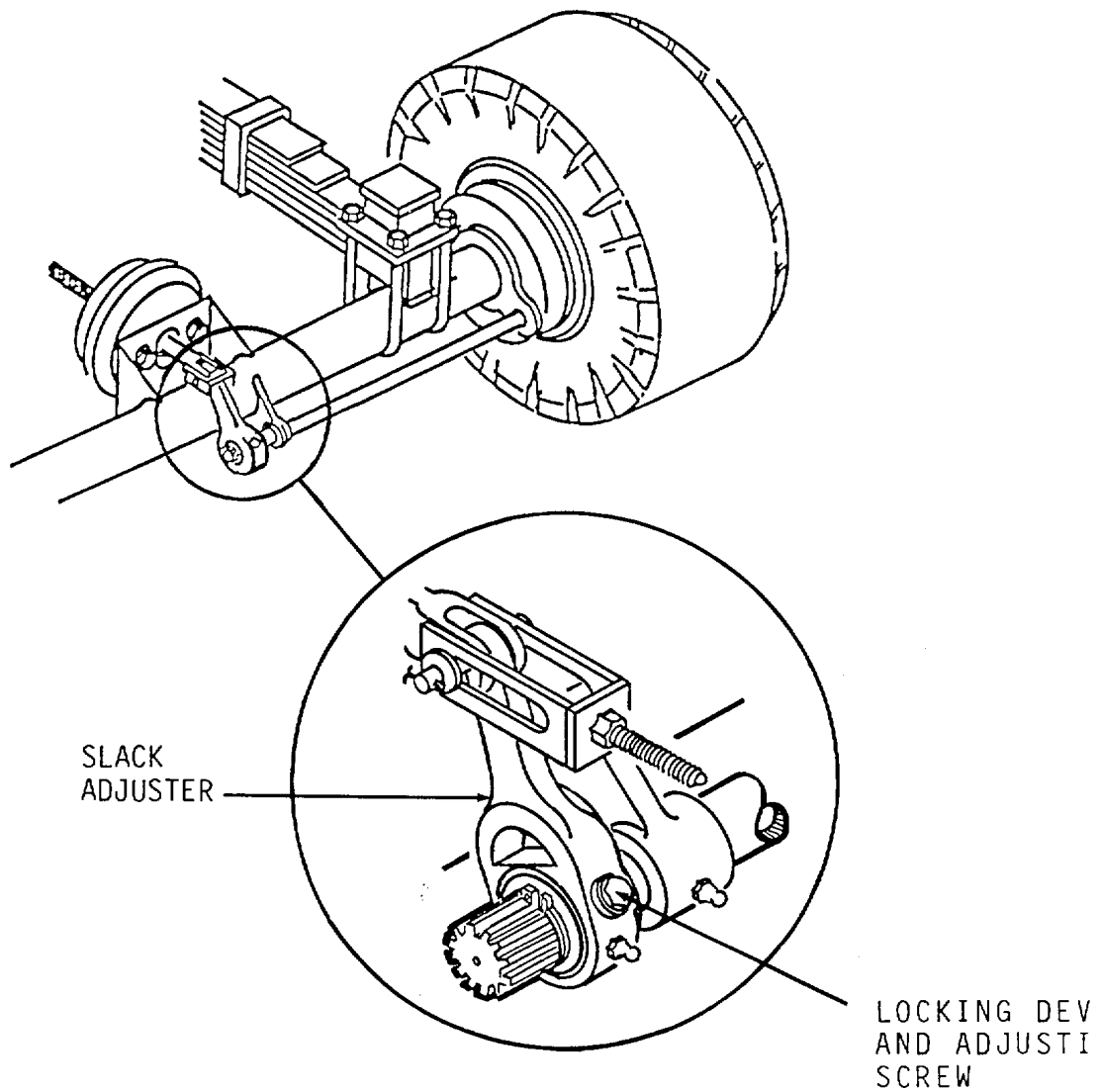


Figure 4-2. Brake Adjustment

h. Inspect brake assembly as follows:

(1) Check brake linings (2, fig. 7) for excessive wear (less than 1/16-inch above rivet heads), surface glaze, grease, oil or dirt.

(2) Check cam shaft (13) and rollers (6) for excessive wear or damage.

(3) Check anchor pins (11) for wear and security.

(4) Check brake drum for uneven wear or deformation.

i. Remove nuts (25, fig. 7), lock washers (24), anchor pin lock rings (12), anchor pin links (10) and anchor pins (11).

j. Remove brake shoe return spring (9) and brake shoes (1).

k. Remove lock ring (3), rollershaft (7) and roller (6) from brake shoe.

l. Remove slack adjuster (17) and cam shaft (13) as follows:

(1) Remove cotter pin (16, fig. 12), washer (15) and clevis pin (13) connecting air chamber piston rod clevis (14) to slack adjuster (17, fig. 7).

#### NOTE

**On front axle, also remove cotter pin, clevis pin and clevis attaching handbrake cable to slack adjuster.**

(2) Remove two lock rings (18, fig. 7) from cam shaft (13).

(3) Remove slack adjuster (17) from cam shaft (13).

(4) Remove cam shaft (13) along with seals (14), washer (23), bushing (22) and washer (20).

m. Remove eight nuts (21, fig. 7), washers (28) and bolts (26). Remove spider (27). Remove lube fittings (16) from spider.

n. Reassemble brake in reverse order of steps a through m.

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

**4-20. SERVICE WHEEL BEARINGS.** To service wheel bearings refer to para. 4-19, (steps a through e) and proceed as follows:

a. Thoroughly clean bearing cones and cups with dry cleaning solvent (App. E, item 2). Allow to dry. Do not spin with air pressure.

b. Inspect bearing rollers for indications of wear and overheating. Wear is indicated if roller surfaces appear frosted or if the surface is pitted. A blue color indicates that rollers have been overheated. Check roller cage for wear or damage. Replace the bearing cone if any of these conditions exist.

c. Inspect bearing cups for damage. Wear is indicated by dull, frosty appearance of surface, and/or pitting. Replace defective cups. Check that cups are not loose in the hub.

**NOTE**

**If either the cup or cone need replacing, both must be replaced.**

**NOTE**

**Bearings must be clean. Do not allow a bearing to contact dirty hands or surfaces.**

- d. Repack the bearings with grease (App. E, item 3).
- e. Apply a thick coat of grease in the hub between the cups.
- f. Reinstall bearings, hubs, drums and wheels, and adjust wheel bearings (para. 4-21).

**4-21. WHEEL BEARING ADJUSTMENT.** When installing inner spindle nut (8, fig. 13), set bearing pre-load by fully tightening the spindle nut while rotating the hub in both directions until hub will not move with hand pressure. Then back off spindle nut (one quarter turn) and install lock washer (13) and outer spindle nut (8). Bend down tab of lock washer over outer spindle nut.

**NOTE**

**Spindle nut socket wrench is stored in trailer tool box.**

**4-22. REPAIR INTERVEHICULAR AIR HOSE AND COUPLER (Fig. 9).**

**NOTE**

**Remove and replace any air lines having evidence of leakage by disconnecting connectors. Remove clamps as required and pull lines through grommets.**

**NOTE**

**Wrap all couplings with teflon tape during installation.**

- a. Pry packing ring (12, fig. 9) out of coupler (9) with a small screwdriver and discard the ring.
- b. Clean dust, dirt or corrosion from coupler recess.
- c. Install new packing ring.
- d. Charge air system and listen and feel for air leaks in hoses, fittings, filters, relay valve and air chambers. Soap and water solution can also be used to check for leaks.

**4-23. REPLACE INTERVEHICULAR HOSE (Fig. 9).**

- a. Remove the hex head cap screw (16) and clamp (17) securing hose assembly (7)-to front of drawbar.
- b. Using a 1-1/16-inch open-end wrench, loosen hose coupling at adapter (8). Unscrew anchor coupling (6) on hose bracket using 1-inch open-end wrench.
- c. Remove hose assembly (7).
- d. Install replacement hose in reverse order.
- e. Test air system (para. 4-22d).

**4-24. AIR FILTER REPLACEMENT AND SERVICING (Fig. 10).**

- a. Disconnect air hoses from towing vehicle and bleed air system on trailer by opening drain cock on air reservoir.
- b. Remove filter assembly (7) as follows:
  - (1) Remove two 7/16-inch self-locking hex nuts (6) holding "U" bolt (5) in place.
  - (2) Remove "U" bolt (5).
  - (3) Remove two hoses from filter assembly by unscrewing connector fittings with a 5/8-inch open-end wrench.
- c. Service air filter as follows:
  - (1) Using a 1-1/2-inch box wrench, unscrew nut (12) from bottom of filter body (14). Hold body with adjustable wrench.
  - (2) Remove gasket (11), spring (10), spring centering washer (9), and filter element (8) from filter body. Clean or replace filter element (8).
- d. Reinstall parts in reverse order.
- e. Replace filter assembly in reverse order.
- f. Test air system (para. 4-22d.).

**4-25. REPLACE AIR CHAMBER (Fig. 12).**

- a. Set parking brakes and block wheels.
- b. Disconnect air hoses from towing vehicle (if attached).

**WARNING**

**Wear protective goggles when opening drain cock and avoid air blast or eye injury may occur.**

c. Open drain cock on reservoir and bleed air system.

d. Disconnect hose from emergency relay valve to chamber by unscrewing hose fitting at relay valve with 7/8-inch open-end wrench. Then disconnect hose at rear of chamber with a 9/16-inch open-end wrench.

e. Release parking brake. For front air chambers only, remove cotter pin (16, fig. 12), washer (15) and clevis pin (13) attaching clevis (14) to slack adjuster.

f. Remove two 15/16-inch hex nuts (19) and lock washers (18) attaching air chamber to mounting bracket and remove air chamber (1).

g. Disassemble air chamber as follows:

- (1) Remove clevis (14) and jam nut (12) from push rod (9).
- (2) Set chamber in vise clamping the two housing halves together.
- (3) Remove clamp halves (8) by removing bolts (7) and self-locking nuts (6).

**WARNING**

**Housing halves are under spring tension. Injury could occur if assembly is not removed slowly from vise.**

- (4) Carefully remove housing assembly from vise and slowly separate halves.
- (5) Remove push rod (9), spring (10) and diaphragm (2).
- (6) Replace damaged components.
- (7) Re-assemble in reverse order.

h. Mount replacement air chamber and secure with two lock washers (18) and nuts (19).

i. Using a 7/8-inch open-end wrench, loosen jam nut (12) on push rod (9) and turn clevis (14) until holes align with holes in slack adjuster arm. Tighten jam nut.

j. Install clevis pin (13), washer (15) and cotter pin (16).

**NOTE**

**Attaching hardware is included with the replacement air chamber assembly.**

k. Screw hose into emergency relay valve and air chamber fitting.

l. air system (para. 4-22d).

**4-26. REPLACE AIR RESERVOIR (Fig. 9).**

- a. Set parking brakes and block trailer wheels.
- b. Disconnect air hoses from towing vehicle (if attached).

**WARNING**

**Wear protective goggles when opening drain cock and avoid air blast or eye injury may occur.**

- c. Open drain cock (2) on reservoir (1) and bleed air system.
- d. Using a 13/16-inch open-end wrench, disconnect hose from reservoir.
- e. Remove two 9/16-inch hex head cap screws (4) and self-locking nuts (3) attaching each end of reservoir to trailer frame and remove reservoir.
- f. Replace drain cock (2) with 5/8-inch open-end wrench if damaged.
- g. Mount replacement reservoir and secure with four screws (4) and selflocking nuts (3).
- h. Screw hose from emergency relay valve to reservoir fitting.
- i. Test air system (para. 4-22d).

**4-27. REPLACE EMERGENCY RELAY VALVE (Fig. 11).**

- a. Set parking brakes and block trailer wheels.
- b. Disconnect air hoses from towing vehicle.

**WARNING**

**Wear protective goggles when opening drain cock and avoid air blast or eye injury may occur.**

- c. Open drain cock on reservoir and bleed air system.
- d. Tag and disconnect service and emergency hoses at elbows (4), hose to reservoir at elbow (5) and four hoses (2 and 3) to air chambers by unscrewing hose fittings at valve.
- e. Remove three 9/16-inch hex head cap screws (10) and self-locking nuts (9) holding valve assembly (1) and adapter (6) to trailer frame and remove valve.
- f. Install valve (1) and adapter (6) on frame and secure with three cap screws (10) and nuts (9).
- g. Connect hoses disconnected in step c.



- h. Close drain cock on reservoir.
- i. Connect air hoses to towing vehicle.
- j. Test air system (para. 4-22d).

**4-28. REPLACEMENT OF LUNETTE (Fig. 15).** With socket wrench, remove the six 3/4inch hex nuts (1). Remove screws (2) and lunette (5). Adjust XM1034 lunette to pintle height of towing vehicle. Secure with six screws (2) and nuts (1).

**4-29. REPLACEMENT OF SAFETY CHAINS (Fig. 15).** With socket wrench, remove hex nut (1) and screw (2). Remove clevis (4) and chain (3). Install chain in reverse order.

**4-30. REPLACE SPARE TIRE CARRIER (Fig. 16).**

- a. Remove spare tire (para. 2-13).
- b. Remove shaft (7) as follows:

(1) Remove cotter pin (16), washer (17), two hex nuts (14), "U" bolt (10) and cotter pin (9). Remove cable (12) from shaft.

(2) Remove spool (18) and shaft (7) by sliding shaft out from rear of trailer.

- c. Disassemble support (11) and cable (12) by removing cable clamp (13).
- d. Remove pawl (6) by removing spring (3), hex nut (2), hex head screw (5) and washer (4).
- e. Replace all damaged parts and assemble in reverse order.

**4-31. Replace Leveling Jack Swivel (Figure 17 and 18).**

- a. Lower leveling jack to vertical position (Paragraph 2-12b).
- b. Using hand crank, lower jack pad to ground.
- c. Remove and disassemble jack and swivel assembly as follows:

(1) Remove four Screws (Item 31, Figure 18) and self-locking nuts (32) and remove jack and swivel assembly from trailer.

(2) Loosen the two bolts, (Item 11) until clamping force is gone. Remove item 15, swivel lock assembly, as a unit, using 1-1/2 inch wrench and discard old gasket (10).

- (3) Remove items (11 and 12), bolts and washer, and item (13) cap, and remove jack from swivel. \par
- (4) Remove four screws (30), washers (29), plate (8), shim set (3), base (2), and a-ring (14) from swivel base (9).
- (5) Replace all damaged parts.
- (6) Pack swivel base (9) with grease (GAA) prior to installing shims.

#### NOTE

**When installing plate (8) torque screws (30) to 50 lb-ft, using a feeler gage, determine the gap between base, (item 2, and base item 9). The gap should be .012 inch + .002 which provides an O-ring crush, item 14. If the measured gap does not meet the range specified, remove bolts and lock washes, items 29 and 30 and add or remove shims.**

d. Disassemble pin assembly (Item 15, Figure 18) (1034 only).

- (1) Remove pin assembly (15) by unscrewing housing (28), washer (27) will come off.
- (2) Remove pin (26) from sleeve (23).
- (3) Remove pin (22) from sleeve (23).
- (4) Remove pin (20) and spring (21) and "O" ring (19).
- (5) Replace damaged parts and assemble in reverse order.
- (6) Reverse order to assemble swivel and jack. Torque cap screws (31) to 120 lb-ft, and (11) to 120 lb-ft. Do not torque item 28.
- (7) Check for safe operation of jack assembly.

e. Disassemble swivel lock assembly (Item 15, Figure 18) (XM1048 only).

- (1) Remove pins (7), swivel pin (8), from housing (6). Apply GAA Grease to swivel pin threads and lock assembly housing per lub order.

- (2) Remove gasket (10) between cap (13) and base (9) and discard.

f. Install swivel lock assembly (15) as follows:

- (1) Replace gasket (10) between cap (13) and base (9), per figure 18.
- (2) Install cap (13).
- (3) Install lock washer (27) on housing (16).
- (4) Install items (11) and (12) bolts and lock washers, do not tighten.
- (5) Install housing (16) and rotate in direction required to provide a gap between cap (13) and base (9), that is 1/16 inch on housing side, crushing neoprene gasket (10).
- (6) If holes in housing (16) for roll pins (17) are not parallel with the axis of the jack, rotate housing (16) in a tightening or loosening direction, as required, until the holes are parallel. This will permit subsequent removal of item (18) swivel pin for cleaning and lubrication without removal of item (16) housing.
- (7) Torque bolts (11) to 120 lb-ft increments. Do not torque housing (16).
- (8) Install lock pin (18), hand tight in housing (16).
- (9) Install pins (17).
- (10) Install jack and swivel assembly on trailer and torque bolts (31) to 120 lb-ft.
- (11) Check for safe operation of jack assembly.

g. Disassemble jack as follows (fig. 17):

- (1) Remove four socket head cap screws (34) and cover assembly (29).
- (2) Remove bearing cone (33) from gear (27).
- (3) Drive out groove pin (26) and remove gear (27).

(4) Remove screws (15) and key cover (16) and remove key (17) and key seal (5) Remove outer housing (6) and collar (28) from inner tube (10) by pulling apart. Remove collar (28) from outer housing.

(6) Remove pin (4) and pinion assembly (19) from outer housing (6).

(7) Remove bushing (25) if necessary.

(8) Remove nut (14), inner cup (13) and ground pad (12).

### CAUTION

**Do not damage outer surface of inner tube (10).**

(9) Carefully drive in two groove pins (9) until wall of inner tube (10) is cleared. Separate jack screw (2) from inner tube (10).

(10) Drive out groove pin (3) from jack screw (2).

(11) Spin jack nut (8) off of jack screw (2).

(12) Drive pins (9) out of jack nut (8).

(13) Remove rectangular seal (7) from outer housing (6) only if obviously damaged.

(14) Replace lube fittings (5 and 31) if damaged.

h. jack as follows:

(1) Coat inside of jack nut (8) with grease (GAA) and install jack nut (8) onto jack screw (2) with large end first to about six inches from top of thread.

(2) Install pin (3) into jack screw (2).

(3) Install jack screw (2) into inner tube (10) and align holes in jack nut with holes in inner tube.

(4) Install two pins (9) into inner tube (10) until slightly below flush.

(5) Put grease on top side of cup (13) and both sides of ground pad (12) cup surface and install ground pad on inner tube (10) with cup (13) and nut (14).

(6) Coat bushing (25) with grease (GAA) and install pinion assembly (19) in outer housing (6). Install pin (4).

(7) Slip outer housing (6) over inner tube (10) and align keyway holes. Install key seal (18) in key (17) and install through hole in outer housing (6) into keyway. Install key cover (16) with two screws (15).

(8) Install thrust collar (28) on jack screw (2) and install gear (27). Align pin holes and install pin (26).

(9) Install bearing cone (33), narrow end up.

(10) Raise outer housing (6) slightly above end of jack screw (2) and install cover assembly (29) with lube fitting (31) toward pinion shaft. Secure with four socket head cap screws (34).

#### **4-32. REPLACING TOOL BOX LOCK (Fig. 21).**

- a. Remove retaining clip (12), nuts (9), washers (11), latch (10), washer (8) and washer (7).
- b. Pull out handle (2) and shaft (4) and remove spring (6) and washer (5).
- c. Remove pin (3).
- d. Replace damaged parts.
- e. Assemble in reverse order.

#### **4-33. REPLACEMENT OF REFLECTORS (Fig. 22).**

- a. Using flat tip screw driver remove two screws (3) and amber reflector (2) or red reflector (1) from trailer frame.
- b. Install new reflector (1 or 2) and two screws (3).

#### **NOTE**

**Red reflectors are at rear of trailer and amber reflectors are at the front of the trailer.**

#### **4-34. REPLACEMENT OF DATA PLATES (Fig. 23).**

- a. Remove drive screws (2) and plate (1), (3) or (4).
- b. Install new data plate and drive screws (2).

**4-35. PAINTING INSTRUCTIONS.** General instructions are contained in TM 43-0139, Painting Instructions for Field Use.

## CHAPTER 5

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

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**Section I. REPAIR PARTS, AND 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.** No special tools, TMDE, or support equipment is required to maintain these trailers.

**5-3. REPAIR PARTS.** Repair parts are listed and illustrated in Appendix F of this manual.

**Section II. MAINTENANCE OF COMPONENTS.****5-4. RELINING BRAKE SHOES (Fig. 7).**

- a. Remove rivets (8) from shoe assembly (1), and remove and discard old brake linings (2).

**WARNING**

**Do NOT use a dry brush or compressed air to clean brake shoes. Brake shoe linings contain asbestos and shed dust particles which can be dangerous to your health if breathed. Dampen surface of lining with water and use a soft bristle brush.**

- b. Clean brake shoe (4) thoroughly, using a brush and water to remove mud, and cleaning solvent to remove grease and oil.

- c. Position new brake lining (2) on the brake shoe (4).

**NOTE**

**Be sure cam end lining is installed on cam end of shoe. Cam end lining is tapered more toward the end of shoe than anchor end lining. Cam end of shoe has two holes in each shoe bracket. Anchor end of shoe has one hole in each bracket.**

**NOTE**

**If brake drums have been machined (para. 5-5), install shims between the brake shoe and brake lining, of the same thickness as the metal removed from the brake drums.**

d. Install rivets (8) in the two center holes of the brake shoe (4) and brake lining (2) to secure the brake lining, then install the remaining rivets.

e. Install the other lining (2).

f. Check the contact of the brake lining with the brake shoe. A 0.0005-inch feeler gage should not enter between the brake shoe and brake lining at any point.

g. Repeat steps c through f for remaining brake shoes.

h. Check shoes against drum for contact. Brake shoes must have 80 percent contact between lining and drum surface. It is necessary that the contact be in the middle of the lining surface and continuous. If lining to drum surface contact is not 80 percent, the shoes should be circle ground to comply.

**5-5. TURNING DRUMS.**

a. Clean brake drum with cleaning solvent to remove dirt and grease.

b. Inspect the brake drum for warpage, cracks, scored braking surface, and out-of-round condition. If inspection shows the brake drum to be in unsatisfactory condition, refinish the brake drum in the following manner:

(1) Measure the inside diameter of the brake drum. New brake drums measure 16.490 to 16.510 inches. Brake drums should be refinished if scoring or run-out exceeds 0.0006 inch.

**NOTE**

**Brake drums having an inside diameter larger than 16.650 inches must be replaced.**

(2) Install brake drum on lathe and refinish surface, taking off as little of the metal as possible to true the surface. If refinishing requires removal of more than 0.070 inches of metal (0.140 inch in diameter), replace the brake drum.

(3) Finish inside diameter to 200 microinches.

**5-6. BOGIE ASSEMBLY (Fig. 19).****a. Removal.**

(1) Position the trailer on a level surface with the rear end of the frame under an overhead hoist which has sufficient capacity to support the trailer after removal of the bogie assembly. Block up the draw bar. Front jacks must be in down position and back jacks swiveled up towards rear of trailer.

(2) Using a lifting sling to engage the two rear lifting lugs, attach the overhead hoist to the trailer. Remove the slack from the hoist cable, but do not raise the rear of the trailer with the hoist.

(3) Open drain cock on air reservoir.

(4) Tag and disconnect air lines from all four air brake chambers.

(5) Disconnect hand brake cables (5, fig. 6) from slack adjusters. Remove devices (2) and snap rings (6) from cable ends and pull cables through bracket (27).

(6) Remove eight nuts (2, fig. 19), lock washers (24), and screws (21) attaching clamps (20) to frame pedestal.

(7) Using the overhead hoist, raise the rear end of the trailer and roll the wheels and bogie assembly from under the rear of the trailer.

(8) Lower rear leveling jacks and lower rear of trailer.

**b. Disassembly.**

(1) Block or hoist end of springs of axle to be removed.

(2) Remove four lock-nuts (2), hex nuts (3), "U" bolts (16), two hex nuts (1), and washers (26) from shackle box studs at each end of axle assembly.

(3) Remove shackle box covers (25), spacers (18), trunnion bar (23) (see para. 5-9), spring assemblies (7) (See para. 5-8), spacers (17) and axle.

(4) Remove the wheels (para. 3-7).

(5) Remove the hubs and drums (para. 4-19).

(6) Remove brake assemblies (para. 4-19).

(7) Remove air chambers (para. 4-25).

**c. Cleaning, Inspection, and Repair.**

(1) Cleaning. Clean mud and dirt from all exposed parts with water and stiff brush. Remove grease from spindles of axle and wheel-retaining parts with dry cleaning solvent (App. E, Item 2).



(2) Inspection. Check threads of axle spindles for wear, crossed threads, or damage .

(3) Repair. Using fine file, remove burrs or hand chase threads if necessary. If axle spindles are damaged, replace axle. Check for damaged paint and repaint where necessary.

d. Bogie Assembly (fig. 19).

(1) Install brake assemblies (para. 4-19).

(2) Install hub and brake drum assemblies (para. 4-19).

(3) Install wheel and tire assemblies (para. 3-7).

(4) Install trunnion bar (23) by pressing trunnion bracket bushings (14) into trunnion brackets (13) and placing ring spacers (19) and trunnion bracket assemblies (12) onto trunnion axle bar (23). Attach ring collars (10) to trunnion bar (23) with cap screws (11).

(5) Install springs by placing bottom spacers (17), side spacers (8) and springs (7) into shackle boxes. Place top spacers (18) and shackle box covers (25) into place and attach with "U" bolts (16), hex nuts (2 and 3), and cover retaining nuts (1 and 26).

e. Bogie Installation

(1) Roll bogie assembly under trailer.

(2) Lower trailer frame and attach trunnion bar (23) to frame with clamps (20), screws (21), lockwashers (24) and nuts (2).

(3) Install flexible brake hoses on air chambers.

(4) Attach handbrake cables to front slack adjusters.

(5) Remove lifting sling.

(6) Close air reservoir drain cock.

**5-7. AXLE ASSEMBLY.**

a. Removal (para. 5-6).

b. Inspection.

(1) Clean mud and dirt from all exposed parts with water and stiff brush. Remove grease from spindles of axle.

(2) Inspect for damaged spindle, cracked or broken welds and bent axle.

c. Repair. Replace all damaged axles.

d. Installation. Install (para. 5-6d).

## 5-8. SPRINGS.

### 5-8.1. XM1034 only.

a. Removal (Fig. 19).

#### NOTE

**This procedure is for replacing one spring.**

(1) Remove bogie (para. 5-6)

(2) Block trunnion bar (23) and detach spring (7) from the trunnion bracket (13) by removing the eight nuts (4 and 5), four retaining bolts (15) and the top plate (6).

(3) Detach spring from the shackle boxes on each axle by removing hex nuts (2 and 3), "U" bolts (16), cover retaining nuts (1 and 26) shackle box covers (25), and top spacers (18).

#### WARNING

**Each spring weighs approximately 100 pounds. Two persons are required to lift.**

(4) Lift spring (7) from shackle boxes. Remove side spacers (8) and bottom spacers (17).

b. Installation.

#### NOTE

**If shackle box spacers are worn or damaged install new spacers.**

(1) Install spring in reverse of procedure a.

#### CAUTION

**Do not torque trunnion bracket bolts (15) more than 175 lb-ft as it may damage the top plate (6).**

(2) Torque trunnion bracket bolts to 150-175 lb-ft.

(3) Torque "U" bolt nuts (3) to 85-105 lb-ft.

(4) Install bogie assembly (para. 5-6e).

**5-8.2. XM1048 only.****a. Removal** (Fig. 19).**NOTE**

**This procedure is for replacing one spring.**

- (1) Remove bogie (para. 5-6). XM1048 only.
- (2) Block trunnion bar (23) and detach spring (7) from the trunnion bracket (13) by removing eight nut and washers (32 and 31), four retaining bolts (27), two clip springs (28) and the top plate (30).
- (3) Detach spring from the shackle boxes on each axle by removing hex nuts (2 and 3), "U" bolts (16), cover retaining nuts (1 and 26) shackle box covers (25), and top spacers (18).

**WARNING**

**Each spring weights approximately 100 pounds. Two persons are required to lift.**

- (4) Lift spring (7) from shackle boxes. Remove side spacers (8) and bottom spacers (17).

**b. Installation.****NOTE**

**If shackle box spacers are worn or damaged install new spacers.**

- (1) Install spring in reverse of procedure a. Do not torque trunnion bracket bolts (27) more than 200 + 10 lb-ft as it may damage the top plate (30).
- (2) Torque trunnion bracket bolts 200  $\pm$  10 lb-ft (27).
- (3) Torque "U" bolt nuts (3) to 85-105 lb-ft.
- (4) Install bogie assembly (para. 5-6e).

**5-9. TRUNNION TUBE (Fig. 19).****5-9.1. XM1034 only.****a. Removal.**

- (1) Remove bogie assembly (para. 5-6).
- (2) Block trunnion bar (23).
- (3) Remove eight nuts (4 and 5) bolts (15) and plate (6) from each spring assembly (7). Lower trunnion bar (23) and trunnion brackets (12).
- (4) Remove two socket head cap screws (11), lock ring collars (10), bushings (14), trunnion brackets (13) and ring spacers (19).
- (5) Replace all damaged parts.

**b. Installation.**

Reverse procedure and lubricate lube fittings (22) on ends of trunnion bar (23).

**5-9.2. XM1048 only.****a. Removal. XM1048 only.**

- (1) Remove bogie assembly (para. 5-6).
- (2) Block trunnion bar (23).
- (3) Remove eight nuts and washers (31 and 32), bolt (27), two clip springs (28) and plate (30) from each spring assembly (7). Lower trunnion bar (23) and trunnion brackets (12).
- (4) Remove two socket head cap screws (11), lock ring collars (10), bushings (14), trunnion brackets (13) and ring spacers (19).
- (5) Replace all damaged parts.

**b. Installation.**

Reverse procedure and lubricate lube fittings (22) on ends of trunnion bar (23).

### SECTION III. PREPARATION FOR STORAGE OR SHIPMENT.

#### 5-10. PREPARATION FOR STORAGE OR SHIPMENT.

- a. Air Brake System. Open drain cock on air reservoir.
- b. Tires.
  - (1) Reduce tire pressure to 20 psi (cold).
  - (2) Lower leveling jacks and extend to support trailer weight.

#### 5-11. PREPARATION FOR USE AFTER STORAGE.

- a. Tires. Inflate tires to correct pressure -(cold).
- b. Air System. Close air reservoir drain cock.
- c. Perform operator/crew and organizational preventive maintenance checks and services. (PMCS).

## APPENDIX A

### REFERENCES

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#### 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 Blank Forms..... DA PAM 310-1  
 US Army Equipment Index of Modification Work Orders ..... DA PAM 750-10

##### b. General References.

How to Prepare and Conduct Military Training . .... FM 21-6  
 Military Symbols . .... FM 21-30

#### A-2. FORMS.

Refer to DA PAM738-750. 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  
 Painting Instructions for Field Use. .... TM 43-0139  
 Color Marking, and Camouflage Painting of Military  
 Vehicles, Construction Equipment, and Materials Handling Equipment . .... TB 43-0209

##### b. Decontamination.

Chemical, Biological, and Radiological (CBR) Decontamination. .... TM 3-220  
 Nuclear, Biological, and Chemical (NBC) Defense. .... FM 21-40

c. General.

Basic Cold Weather Manual. ....	FM 31-70
Deep Water Fording of Ordnance Material. ....	TM 9-238
Manual for the Wheeled Vehicle Driver .....	FM 21-305
Northern Operations. ....	FM 31-71
Operation and Maintenance of Ordnance Material in Cold Weather (0 to -65 F) .....	FM 9-207
Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use .....	TM 750-244-6
Visual Signals .....	FM 21-60

d. Maintenance and Repair.

Organizational Care, Maintenance and Repair of Pneumatic Tires, Inner Tubes and Radial Tires .	TM 9-2610-200-20
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
Operators Manual for Welding Theory and Application .....	TM 9-237

e. Administrative Storage.

Administrative Storage of Equipment . ....	TM 740-90-1
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**APPENDIX B**  
**MAINTENANCE ALLOCATION CHART**

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**Section I. INTRODUCTION**

**B-1. GENERAL.**

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

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

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

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

**B-2, MAINTENANCE FUNCTIONS.**

Maintenance functions will be limited to and defined as follows:

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

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

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

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



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

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

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

i. Repair. The application of maintenance services or other maintenance actions 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 conditions.

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

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

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

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

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

d. Column (4) Maintenance Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity or the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category.

The work time figure represents the average time required to restore an item (assembly, subassembly, component, module end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, 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 ..... Organizational 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 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 equipment.

d. Column (4) - National Stock Number. The National stock number of the tool or test equipment.

e. Column (5) - Tool Number. The manufacturer's part number.

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

a. Column (1) - Reference Code. = The code recorded in column 6, section II.

b. Column (2) - Remarks. = This column lists information pertinent to the maintenance function being performed as indicated in the MAC, section II.

## Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
06	ELECTRICAL SYSTEM								
0609	Lights, Marker and Composite Tail Stop	Replace Repair		0.2 0.2				3 3	
0613	Chassis Wiring Harness	Replace Repair		1.5 1.0				3 3	
11	AXLE ASSEMBLY								
1100	Axle	Replace Repair			6.0 6.0			1, 3 1, 3	
12	BRAKES								
1201	Hand Brake	Adjust Replace Repair		0.5 1.8 3.2				6	
1202	Service Brakes	Adjust Replace Repair		1.0 4.0 8.0				3 2, 3, 5, 6 2, 3, 5, 6	
	Shoe Assembly Brake Lining	Replace Replace		0.5	0.5			2, 3, 5, 6	A
1208	Couplings, Air Lines and Fittings	Test Replace		0.6 0.5				3	
	Air Filter Service			0.2				3	
		Replace		1.0				3	
		Repair		1.5				3	
	Chamber, Air, Standard Valve, Relay Emergency	Replace Repair Replace		1.0 1.5 1.0				3 3 3	

## Section II. MAINTENANCE ALLOCATION CHART-continued

(1) GROUP NUMBER	(2) COMPONENT ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			C	O	F	H	D		
13	Reservoir, Air	Service Replace	0.1	1.0				3	A
	Draincock	Replace		0.1					
	WHEELS AND HUBS								
	1311 Wheel Assembly	Replace		0.5				2, 3, 5, 6	
	Hub and Drum	Replace		1.0				1, 2, 3, 5, 6	
1313	Drum	Repair			1.				
	Wheel Bearings	Adjust		1.0					
	Tires	Service Replace Repair	0.1						
				0.5				2, 3, 5, 6	
				1.0					
15	FRAME, TOWING ATTACHMENT								
1503	LUNETTE	Replace		0.2				3	
1504	Spare Tire Carrier	Replace		1.0				3	
		Repair		1.8				3	
1507	Leveling Jacks	Replace Repair		1.0 2.0				2, 3	
16	SPRINGS								
1601	Springs and Attaching Parts	Replace			6.0			2, 3	
22	BODY ACCESSORY ITEMS								
2202	Reflectors	Replace		0.5				3	
2210	Data Plates	Replace		0.1				3	

**SECTION III TOOL AND TEST EQUIPMENT REQUIREMENTS**

(1) TOOL AND EQUIPMENT	(2) MAINTENANCE CATEGORY	(3) NOMENCLATURE	(4) NATIONAL/NATO STOCK NUMBER	(5) TOOL NUMBER
1	F	WRENCH, SPINDLE NUT		EMD4114-21
2	F, O	WRENCH, TORQUE 0-600 ft/lb. 3/4" SQ DRIVE	5120-00-221-7983	GGG-W-686
3	O	TOOL KIT, GENERAL MECHANICS: AUTOMOTIVE	5180-00-177-7033	SC5180-90- CL-N-26
4	F	PLIERS, RETAINING		399
5	F, O	HANDLE, WRENCH		486-3-48
6	F, O	WRENCH, LUG NUT		1486-3-45

**Section IV. REMARKS**

Reference Code

Remarks

- A. Direct Support (F) maintenance includes replacement of repairable assemblies, repair of components or assemblies considered uneconomical to evacuate further, adjustments of systems for which organizational maintenance does not possess skills or test equipment.

## 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. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description. = Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

If item needed differs for different models, the model is shown under the "Usable On" heading in this column. These codes are identified as:

<u>Code</u>	<u>Used on</u>
R0N	XM1048
R02	XM1034

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

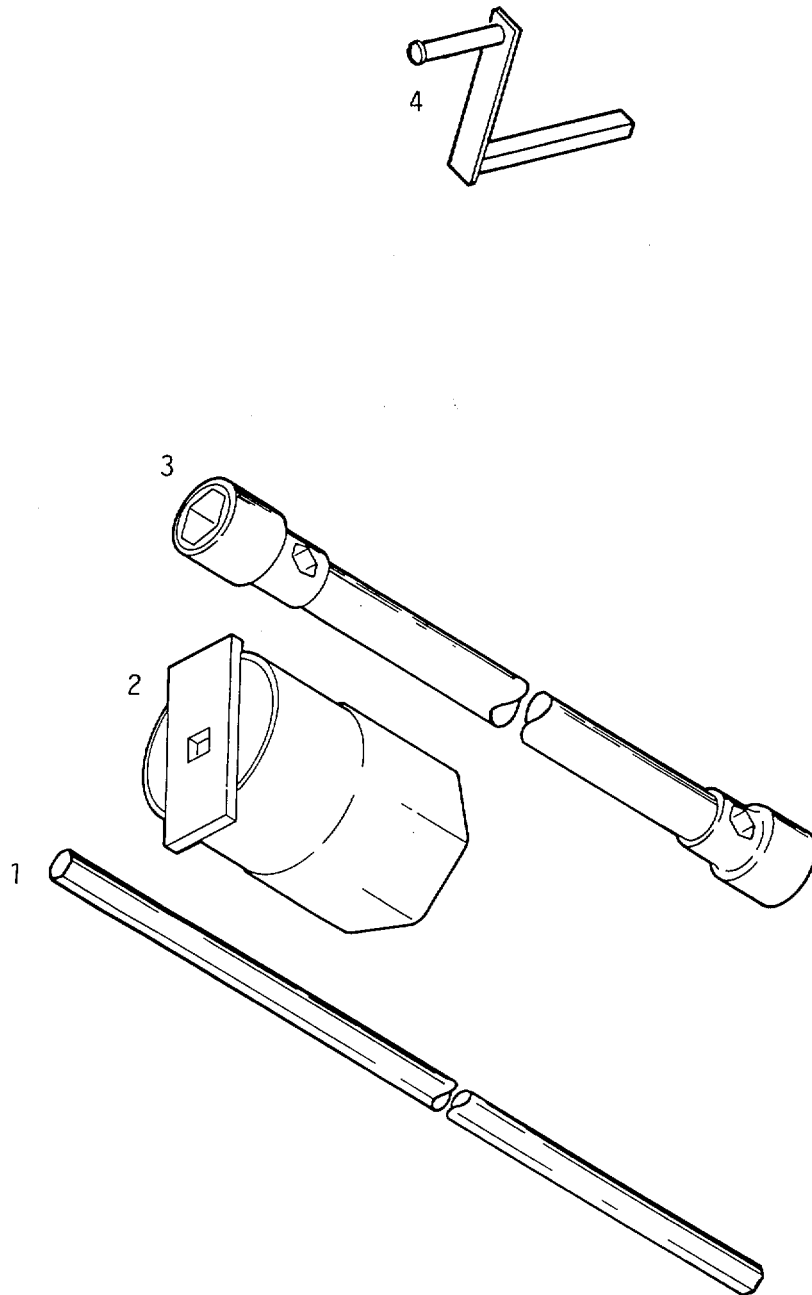
e. Column (5) - Quantity Required (Qty Rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

## Section II. COMPONENTS OF END ITEM

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

## Section III. BASIC ISSUE ITEMS

(1)	(2)	(3)		(4)	(5)
Illus. Number	National Stock Number	Description FSCM and Part Number	Usable On Code	U/M	Qty Rqr
1		Handle, Wrench (19207) 41-H-1511		EA	1
2		Wrench, Spindle Nut (79808)8182		EA	1
3		Wrench, Lug Nut (19207) 41-W-3838-30		EA	1
4		Crank Assy. RON (72869) EMD11983		EA	4
5		Crank Assy. R02 (72869) EMD70110		EA	4



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*Figure C-1. Basic Issue Items*

**C-3/(C-4 blank)**



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-3. EXPLANATION OF LISTING.

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) National Stock Number	(2) FSCM & Part Number	(3)  Description	(4)  Usable On Code	(5)  U/M	(6)  Qty Auth

MTOE AUTHORIZED ITEMS

NONE

CTA AUTHORIZED ITEMS

NONE

D-1/(D-2 blank)

## 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 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Supplies and Materials.

##### E-2. EXPLANATION OF COLUMNS.

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "use cleaning compound, item 5, app. E").

b. Column (2)- Level. This column identifies the lowest level of maintenance that required-the 7isted item.

C .....	Operator/Crew
O .....	Organizational Maintenance
F .....	Direct Support Maintenance
H .....	General Support Maintenance

c. Column (3) - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

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

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two character alphabetical abbreviation (e.g., ea, in., pr). 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 LISTS

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	F		Coating Aliphatic Polyurethane Chemical Agent Resistant: Forest Green MIL-C-46168B	GL
2	O	6850-00-664-5685 6850-00-281-1985	DRY CLEANING SOLVENT: (81348) PD-680 1-qt. can 1-gal. can	QT GL
3	C	9150-00-065-0029 9150-00-935-1017 9150-00-190-0904 9150-00-190-0907	GREASE, AUTOMOTIVE AND ARTILLERY; GAA (81349) MIL-G-10924 2-1/4 oz. tube 14 oz. cartridge 1-lb. can 35-lb. can	OZ OZ LB LB
4	C	9150-00-189-6727 9150-00-186-6681	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE, OE (81349) MIL-L-2104 HD010, 1-qt.can HD030, 1-qt.can	QT QT
5	O	9150-00-402-2372 9150-00-402-4478	LUBRICATING OIL, INTERNAL COMBUSTION ENGINE (subzero)(81349) MIL-L-46167 1 qt. can 5 gal. can	QT GL
6	C	7920-00-205-1711	RAG, WIPING: cotton, white bleached, 50-lb. bale	LB
7	O	3439-00-964-6426	SOLDER, TIN ALLOY (81349) QQ-S-571, SN60	LB
8	O	8030-00-889-3534	TAPE, ANTI-SEIZE (81349) MIL-T-27730	EA

## Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LISTS-continued

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
9	F		THINNER, ALIPHATIC POLY- URETHANE COATING (81349) MIL-T-81772	GL
10	O		PL-S, LUBRICATING OIL PRESERVATIVE, LOW TEM- PERATURE (VV-L-800)	
11	O		PL-M LUBRICATING OIL, PRESERVATIVE, MEDIUM (MIL-L-3150)	
12	O		PRIMER, (MIL-P-23377)	

E-3/(E-4 blank)

## APPENDIX F

**ORGANIZATIONAL, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE REPAIR PARTS AND SPECIAL TOOLS LIST**

---

**Section I. INTRODUCTION****F-1. SCOPE.**

This RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of Unit, Direct Support, and General Support Maintenance of the M544E Forklift Truck. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

**2. General.**

This Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed in item name sequence. Repair kits are listed separately in their own functional group within Section II. Repair parts for reparable special tools are also listed in the section. Items listed are shown on the associated illustration(s)/figure(s).

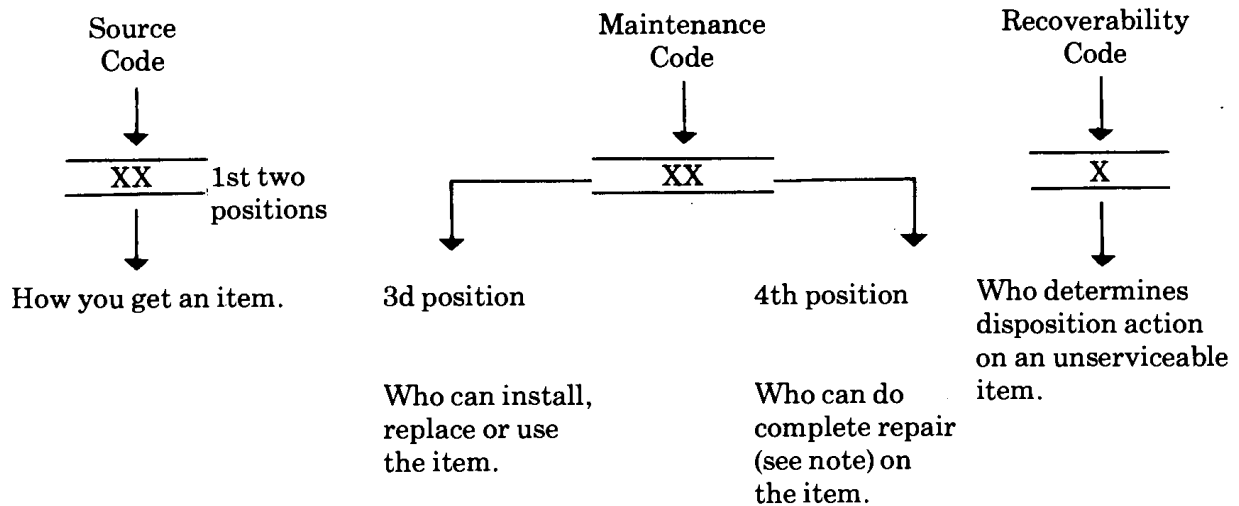
b. Section III. Special Tools List. A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in DESCRIPTION AND USABLE ON CODE column) for the performance of maintenance.

c. Section IV Cross-reference Indexes. A list, In National Item Identification Number (NIIN) sequence, of all National stock numbered items appearing in the listing, followed by a list in alphanumeric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration/figure and item number appearance. The figure and item number index lists figure and item numbers in alphanumeric sequence and cross-references NSN, CAGE, and part numbers.

### 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 Source, Maintenance, and Recoverability (SMR) code is a 5-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instructions, as shown in the following breakout:



*\*Complete Repair:* Maintenance capacity, capability, and authority to perform all 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:

Code	Application/Explanation
------	-------------------------

PA	<p>Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3d position of the SMR code.</p> <p>Items coded PC are subject to deterioration.</p>
PB	
PC	
PD	
PE	
PF	
PG	

KD	<p>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 3d position of the SMR code. The complete kit must be requisitioned and applied.</p>
KF	
KB	

MO—Made at org/  
AVUM category  
MF—Made at DS/  
AVUM category  
MH—Made at GS  
category  
ML—Made at  
Specialized  
Repair Activity  
(SRA)  
MD—Made at Depot

Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the Bulk Material group of the repair parts list in this RPSTL. If the item is authorized to you by the 3d 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  
org/AVUM  
category  
AF—Assembled by  
DS/AVUM  
category  
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 3d position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher 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 following.)
- XB - If an "XB" item is not available from salvage, order it using the CAGE and part number given.
- XC - Installation drawing, diagram, Instruction sheet, field service drawing, that is identified by the manufacturer's part number.
- XD - Item is not stocked. Order an "XD"-coded item through normal supply channels using the CAGE 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 700-42.

(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.

<u>Code</u>	<u>Application/Explanation</u>
C -	Crew or operator maintenance done within unit maintenance or aviation unit maintenance.
O -	Organizational or aviation unit category can remove, replace, and use the item.

<u>Code</u>	<u>Application/Explanation</u>
F -	Direct support or aviation intermediate level can remove, replace, and use the item.
H -	General support level can remove, replace, and use the item.
L -	Specialized repair activity can remove, replace, and use the item.
D -	Depot level 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 repair may be done on the item at a lower level of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.) This position will contain one of the following maintenance codes:

<u>Code</u>	<u>Application/Explanation</u>
O -	Unit maintenance 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 than 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:

<u>Code</u>	<u>Application/Explanation</u>
Z -	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the 3d position of the SMR code.
O -	Reparable Item. When uneconomically reparable, condemn and dispose of the item at unit maintenance 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 of item not authorized below specialized repair activity (SRA).
A -	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. CAGEC (Column (3)). The Commercial and Government Entity (CAGE) Code (C) is a 5-digit alphanumeric code which is used to identify the manufacturer, distributor, or Government agency, etc., 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 part ordered.**

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) Physical security classification of the item is indicated by the parenthetical entry (insert applicable physical 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 on Figure KIT.

(4) Spare/repair parts that make up an assembled item are listed immediately following the assembled item line entry.

(5) Part numbers for bulk materials 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 line(s) of the description (before UOC). Not Applicable.

(7) The usable on code, when applicable (see paragraph 5, Special Information).

(8) In the Special Tools List section, the basis of issue (BOI) appears as the last line(s) in the entry for each special tool, special TMDE, and other special support equipment. When density of equipments supported exceeds density spread indicated in the basis of issue, the total authorization is increased 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 in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

#### **F-4. Explanation of Columns (Section IV).**

##### **a. NATIONAL STOCK NUMBER (NSN) INDEX.**

(1) STOCK NUMBER column. This column lists the NSN by National Item Identification Number (NIIN) sequence. The NIIN consists of the last nine digits  
NSN

of the NSN (i.e., 5305-01-674-1467). When using  
NIIN

this column to locate an item, ignore the first 4 digits of the NSN. However, the complete NSN should be used when ordering 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 Commercial and Government Entity (CAGE) Code (C) is a 5-digit alphanumeric code used to identify the manufacturer, distributor, or Government agency, etc., 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 CAGE columns to the left.

(4) FIG. column. This column lists the number of the figure where the item is identified/located in Sections II and 111.

(5) ITEM column. The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

#### **F-5. Special Information.**

a. USABLE ON CODE. The usable on code appears in the lower left corner of the Description column heading. Not Applicable.

<u>Code</u>	<u>Used On</u>
R0N	XM1048
RO2	XM1034

b. FABRICATION INSTRUCTIONS. Bulk materials required to manufacture items are listed in the Bulk Material Functional Group of this RPSTL. Part numbers for bulk materials are also referenced in the Description column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in Appendix G.

c. KITS. Line item entries for repair parts kits appear in group 9401 in Section II.

d. INDEX NUMBERS. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the National Stock Number/Part Number Index and the bulk material list 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.

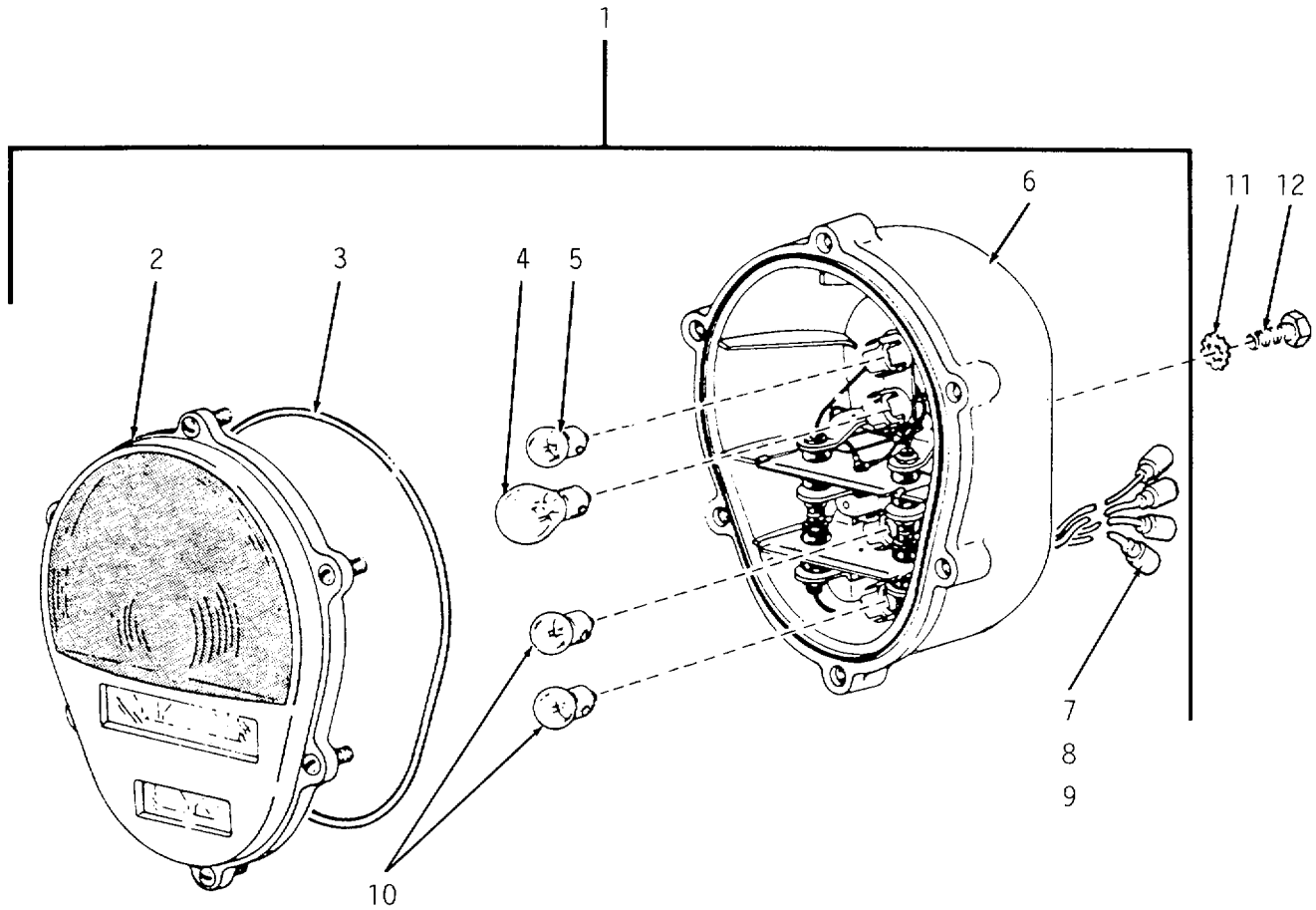
(3) Third. Identify the Item on the figure and use the Figure and Item Number Index to find the NSN.

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

(1) First. Using the National Stock Number or Part Number Index, find the pertinent National Stock Number or Part Number. The NSN index is in National Item Identification Number (NIIN) sequence (see paragraph 4.a.(1)). The part numbers in the Part Number index are listed in ascending alphanumeric sequence (see paragraph 4.b). Both indexes cross-reference you to the illustration/figure and item number of the item you are looking for.

(2) Second. Turn to the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

**F-8/(F-9 blank)**



TA 272440

Figure 1. Composite Light

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

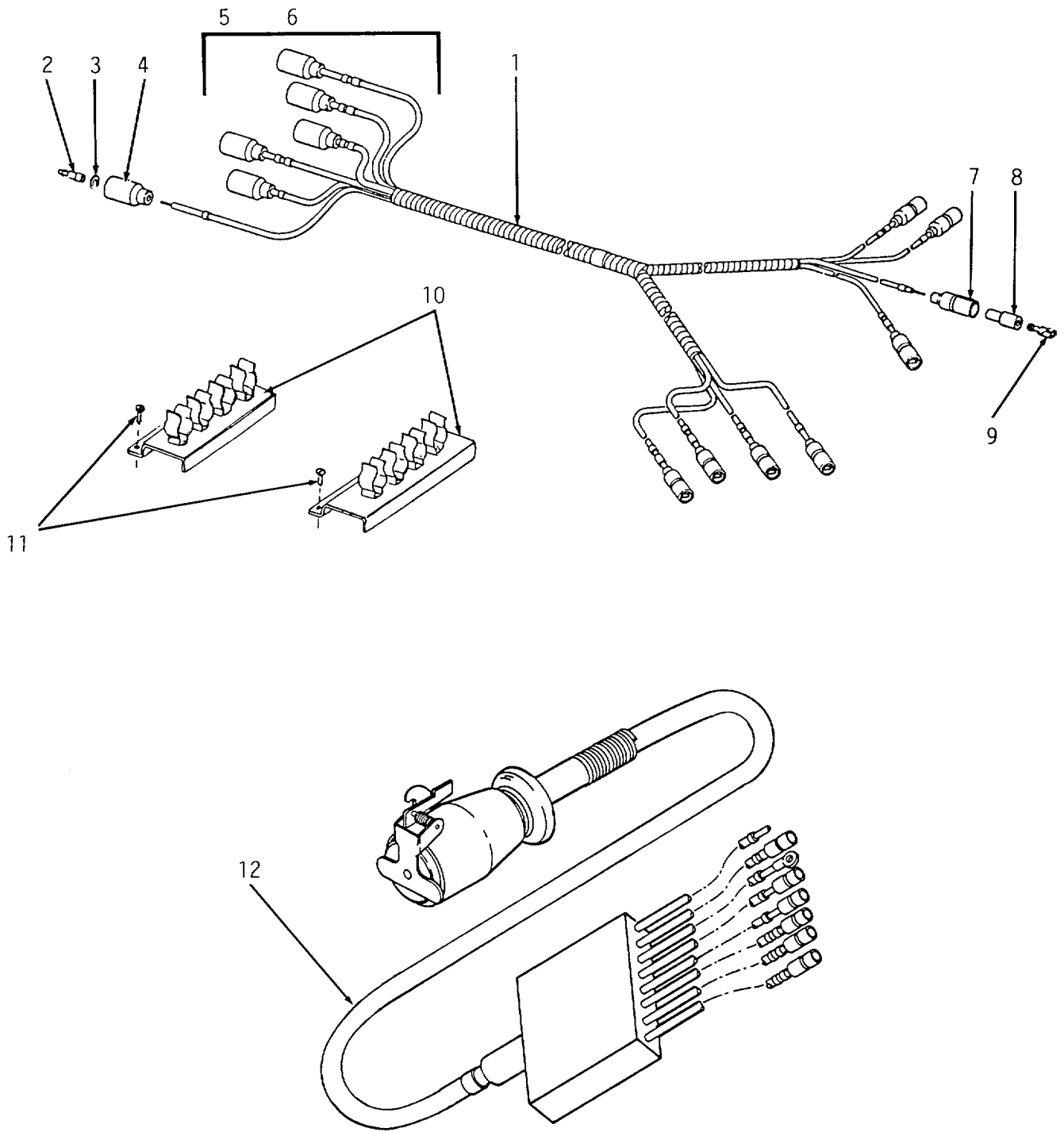
GROUP 06 ELECTRICAL SYSTEM

GROUP 0609 LIGHTS

FIG.1 COMPOSITE LIGHT

1	PAOOO	19207	11614157	STOP LIGHT-TAILLIGH.....	2
2	PAOZZ	19207	11639535	.LENS, LIGHT .....	1
3	PAOZZ	19207	11639519-2	.PACKING, PREFORMED.....	1
4	PAOZZ	96906	MS35478-1683	.LAMP, INCANDESCENT.....	1
5	PAOZZ	96906	MS15570-623	.LAMP, INCANDESCENT.....	1
6	XAOZZ	19207	11639520	.BODY ASSEMBLY .....	1
7	PAOZZ	19207	8338566	.SHELL, ELECTRICAL CO.....	4
8	PAOZZ	19207	8338567	.WASHER, SLOTTED .....	4
9	PAOZZ	96906	MS27148-2	.CONTACT, ELECTRICAL .....	4
10	PAOZZ	96906	MS15510-1251	.LAMP, INCANDESCENT.....	2
11	PAOLZ	96906	MS35338-46	WASHER , LOCK.....	4
12	PAOZZ	96906	MS90725-58	SCREW, CAP, HEXAGON H .....	4

END OF FIGURE



TA 272441

Figure 2. Wiring Harness

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

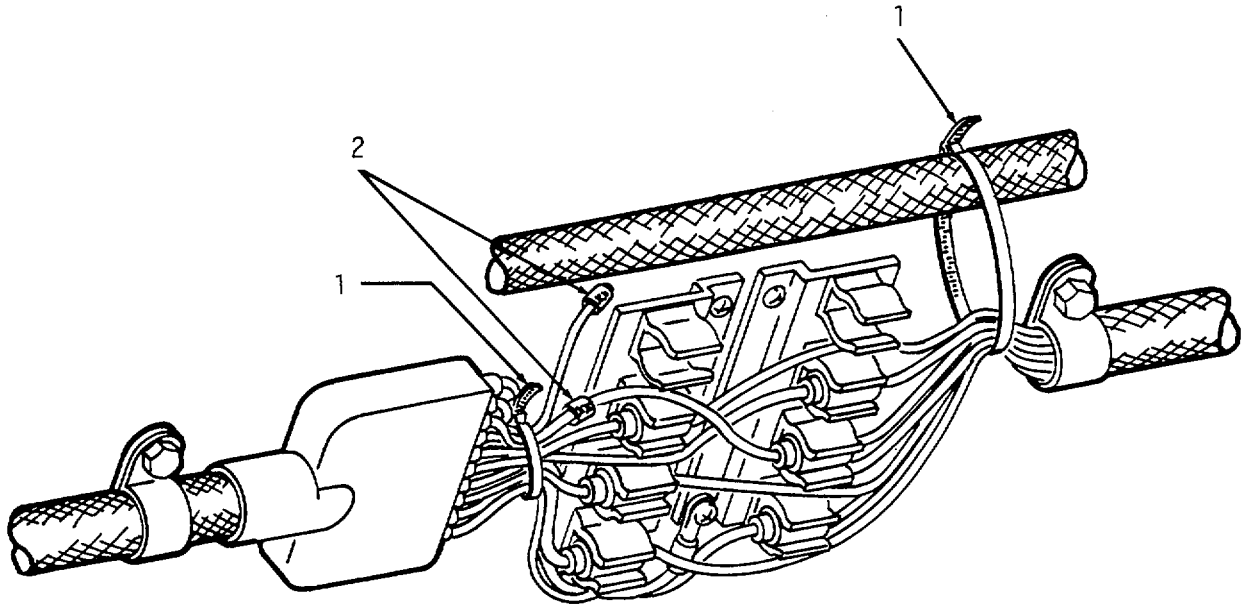
GROUP 0613 CHASSIS WIRING HARNESS

FIG.2 WIRING HARNESS

1	AOOOO	72869	EMD11907	WIRING HARNESS.....	1
2	PAOZZ	96906	MS27148-2	.CONTACT, ELECTRICAL .....	6
3	PAOZZ	19207	8338567	.WASHER, SLOTTED .....	6
4	PAOZZ	19207	8338566	.SHELL, ELECTRICAL CO.....	6
5	MOOOO	72869	EMD51431-5	WIRE MANUFACTURED FROM P/N 1720853 (FSCM	
				19207).....	2
6	MOOOO	72869	EMD51562-2	LOOM MANUFACTUREU FRCM P/N E31 FSCM 98343) ....	1
7	PAOZZ	19207	8338561	SHELL, ELECTRICAL .....	8
8	PAOLZ	19207	8338562	INSULATOR, BUSHING.....	8
9	PAOZZ	19201	8338564	TERMINAL ASSEMBLY .....	8
10	PAOZZ	19207	8747908-1	LIP ASSEMBLY.....	2
11	PAOZZ	96906	MS51851-85	SCREW, TAPPING, THREA .....	4
12	PFOZZ	19207	10891263	CABLE ASSEMBLY, POWE .....	1

END OF FIGURE

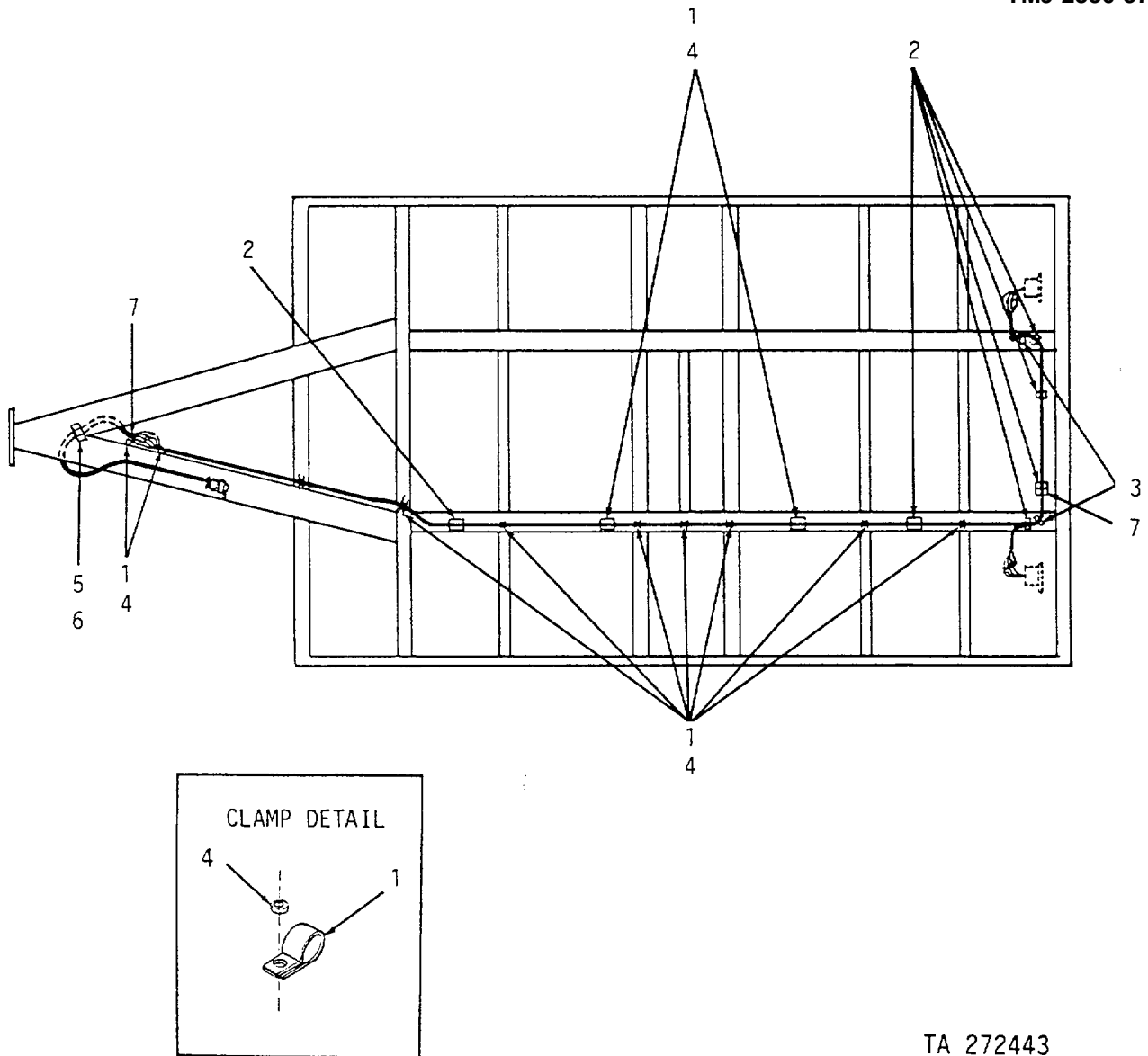




TA 272442

*Figure 3. Wiring Harness Junction*

SECTION II			TM9-2330-372-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 0613 CHASSIS WIRING HARNESS					
FIG.3 WIRING HARNESS JUNCTION					
1	PAOZZ	96906	MS3367-1-9	STRAP, TIEDDOWN, ELECT .....	2
2	PAOLZ	96906	MS39020-1	BAND, MARKER .....	20
END OF FIGURE					



TA 272443

Figure 4. Wiring Harness Attaching Hardware

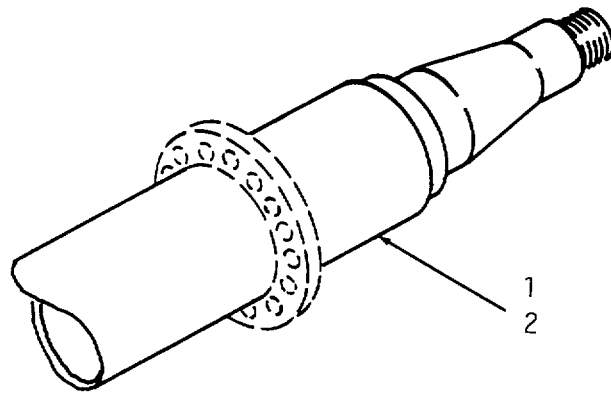
SECTION II			TM9-2330-372-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 0613 CHASSIS WIRING HARNESS

FIG.4. WIRING HARNESS, ATTACHING HARDWARE

1	PAOZZ	96906	MS21333-75	LAMP, LP.....	10
2	PAOZZ	96906	MS35489-78	GROMMET, NONMETALLIC .....	7
3	PAOZZ	96906	MS35489-107	GROMMET, NONMETALLIC .....	4
4	PAOZZ	96906	MS51922-1	NUT, SELF-LOCKING, HE .....	10
5	PAOZZ	96906	MS21333-77	LAMP, LP.....	1
6	PAOZZ	96906	MS51851-64	SCREW, TAPPING, THREA .....	1
7	PAOZZ	96906	MS90725-6	SCREW, CAP, HEXAGON H .....	2

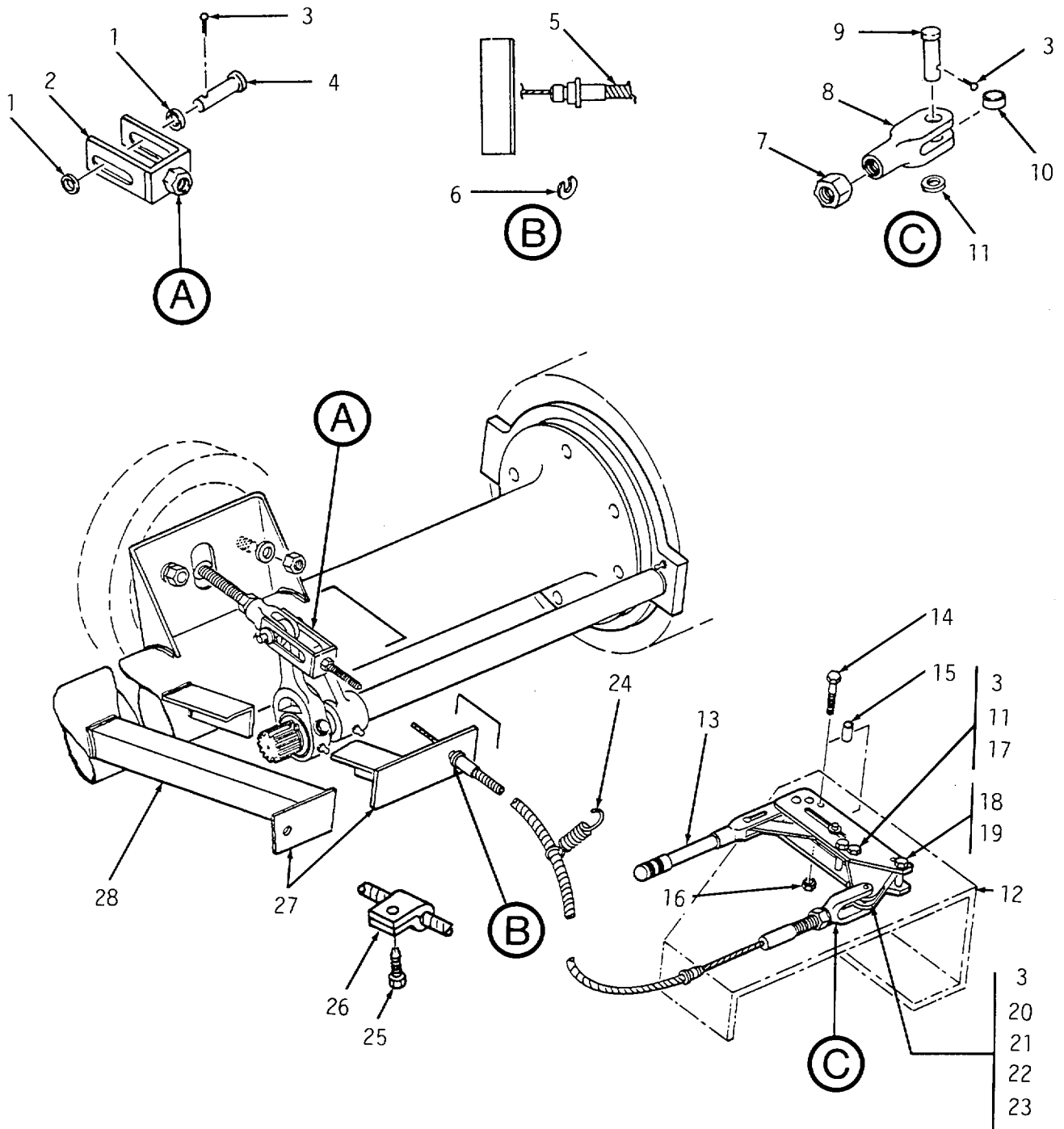
END OF FIGURE



TA 272444

*Figure 5. Axle*

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
NO	CODE	FSCM	NUMBER		
				GROUP 11 REAR AXLE	
				GROUP 1100 REAR AXLE ASSEMBLY	
				FIG.5 AXLE	
1	PFFFF	72869	EMD12006	AXLE ASSEMBLY, VEHIC .....	1
2	PFFFF	72869	EMD12005	AXLE TUBE ASSEPPLY .....	1
				END OF FIGURE	

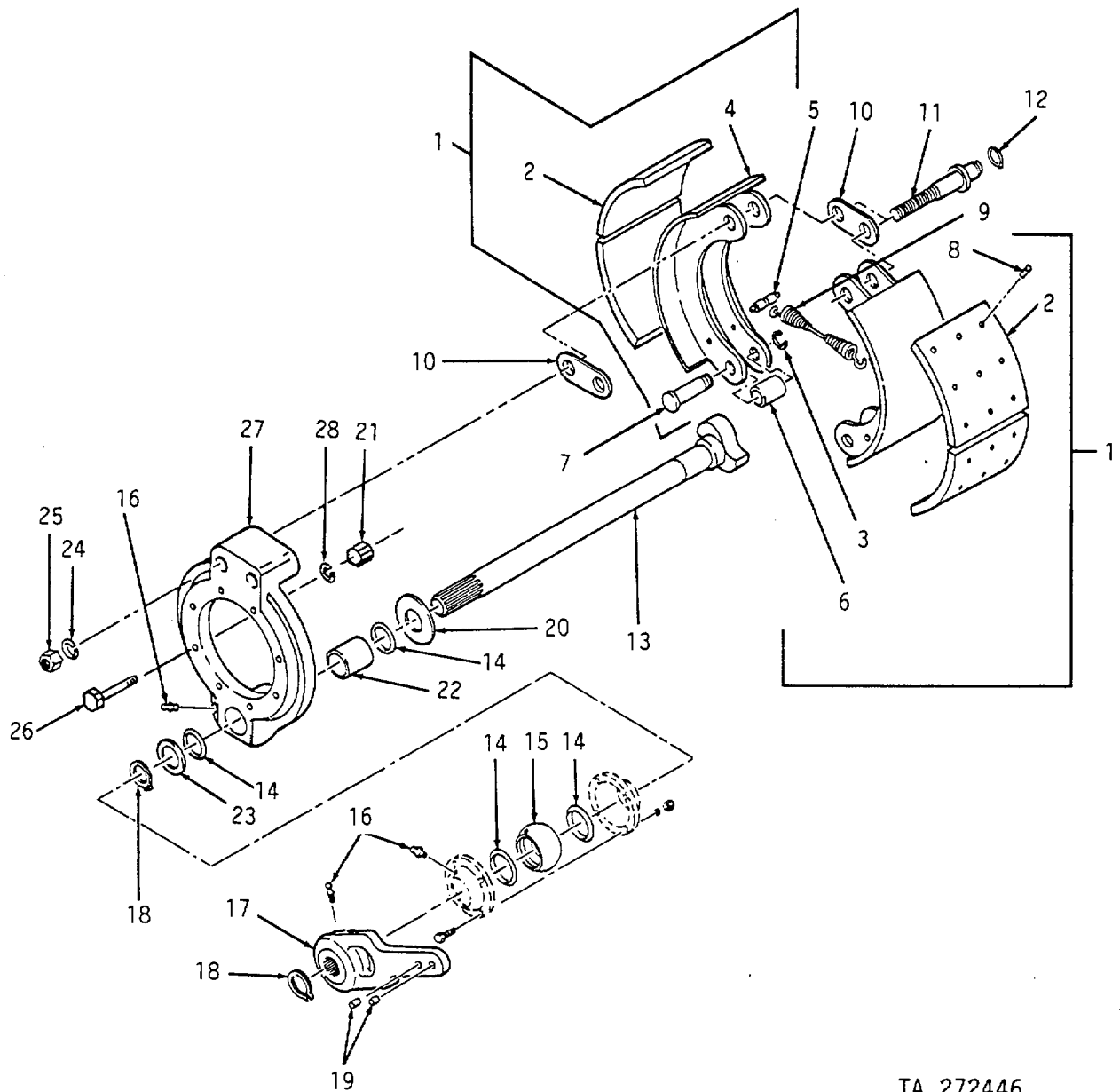


TA 272445

Figure 6. Hand Brake

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM NO	SMR CODE	FSCM	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 12. BRAKES					
GROUP 1201 HAND BRAKES					
FIG.6 HAND BRAKES					
1	PAOZZ	96906	MS27183-17	WASHER, FLAT.....	2
2	PAOZZ	72869	EMD111137	CLEVIS, ROD END .....	1
3	PAOZZ	96906	MS24665-283	PIN, COTTER .....	4
4	PAOZZ	96906	MS35810-6	PIN, STRAIGHT, HEADED.....	1
5	PAOZZ	72869	EMD58584	WIRE ROPE ASSEMBLY.....	2
				UOC: R0N	
5	PAOZZ	72869	EMD54204	WIRE ROPE ASSEMBLY, .....	1
				UOC: R02	
6	PAOZZ	96906	MS3215-4050	RING, RETAINING.....	2
7	PAOZZ	96906	MS51968-8	NUT, PLAIN, HEXAGON .....	2
8	PAOZZ	96906	MS35812-4	CLEVIS, ROD END .....	2
9	PAOZZ	96906	MS35810-4	PIN, STRAIGHT, HEADED.....	2
10	PAOZZ	19207	8699500	SPACER, SLEEVE.....	6
11	PAOZZ	96906	MS27183-11	WASHER, FLAT.....	1
12	PAOZZ	72869	EMD56443	BRACKET HANDBRAKE .....	1
12	PAOZZ	72869	EMD56442	BRACKET, HANDBRAKE .....	11
13	PAOZZ	19207	7392815	LEVER ASSY, PARKING .....	2
14	PAOZZ	96906	MS90725-67	SCREW, CAP.HEXAGON H .....	3
15	PAOZZ	19207	81000136	BUSHING, SLEEVE .....	2
16	PAOZZ	96906	MS51922-17	NUT, SELF-LKING, HE .....	6
17	PAOZZ	92867	81001550	LEVIS, ROD END.....	1
18	PAOZZ	92867	81000178	BOLT .....	1
19	PAOZZ	92867	84002443	NUT, SELF-LOCKING, HE .....	2
20	PAOZZ	92867	81000067	BELL CRANK .....	1
21	PAOZZ	92867	81000045	BUSHING, SLEEVE .....	1
22	PAOZZ	92867	81000177	PIN, SRAIGHT, HEADED.....	4
23	PAOZZ	92867	84000182	WASHER, FLAT.....	1
24	PAOZZ	56988	S-595	SPRING, HELICAL, EXTE.....	1
				UOC: R02	
25	PAOZZ	96906	MS51851-64	SCREW, TAPPING, THREA .....	1
				UOC : R0N	
26	PAOZZ	96906	MS21333-71	CLAMP, LOOP.....	REF
				UOC: RON	
27	PAOZZ	72869	EMD58585	SUPPORT BAR ASSY .....	1
28	PAOZZ	72869	EMD11706	BRACKET CABLE.....	1
28	PAOZZ	72869	EMD11705	BRACKET CABLE.....	1
END OF FIGURE					





TA 272446

Figure 7. Service Brake

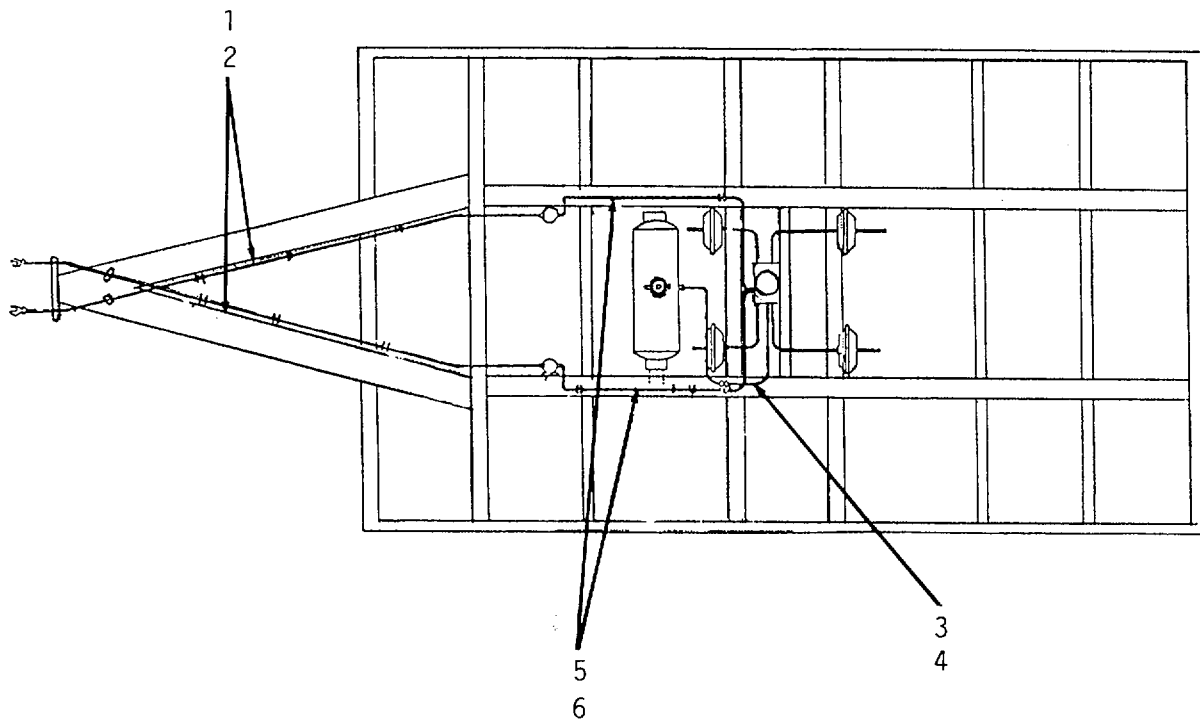
SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 1202 SERVICE BRAKES

FIG.7. SERVICE BRAKES

1	PAOZZ	56697	201999-029-1	BRAKE SHOE .....	4
2	PAOZZ	56697	4536B	.LINING, FRICTION .....	1
3	PAOZZ	96906	MS16624-1075	.RING, RETANING.....	1
4	PAOZZ	56697	201142	.SHOE BRAKE .....	1
5	PAOZZ	56697	207100	.PIN, BRAKE SPRING.....	1
6	PAOZZ	56697	204108-001	.ROLLER, LINEAR-ROTAR.....	1
7	PAOZZ	56697	205107-001	.PIN, ROLLER.....	1
8	PAOZZ	56697	404101-001	.RIVET .....	18
9	PAOZZ	56697	208106	SPRING .....	2
10	PAOZZ	56697	999197	LINK, ANCHOR, BRAKES.....	2
11	PAOZZ	56697	203110	PIN, ANCHOR.....	4
12	PAOZZ	96906	MS16624-1100	RING, RETAINING.....	4
13	PAOZZ	56697	2C2103-213R	AMSHAFT, ACTUATING, .....	1
13	PAOZZ	56697	2C2103-213L	AMSHAFT, ACTUATING, .....	1
14	PAOZZ	01212	443527SS1	SEAL, GREASE, CAM .....	4
15	PAOZZ	56697	405128	CAM BUSHING .....	2
16	PAOZZ	96906	MS15003-1	FITTING , LUBRICATION .....	2
17	PAOZZ	56697	212133	ADJUSTER, SLACK, BRAK. ....	2
18	PAOZZ	96906	MS16624-1150	RING, RETAINING .....	4
19	PAOZZ	56697	999242	BUSHING, SLEEVE .....	4
20	PAOZZ	56697	403112	WASHER, KEY .....	2
21	PAOZZ	96906	MS51968-14	NUT, PLAIL, HEXAGON.....	16
22	PAOZZ	56697	405129	BUSHING.SPIDER.....	2
23	PAOZZ	56697	403107	WASHER, FLAT.....	2
24	PAOZZ	56906	MS35338-51	WASHER, LOCK.....	4
25	PAOZZ	56697	402101	ANCHOR PIN NUT.....	1
26	PAOZZ	56697	401113	BOLT, MACHINE .....	16
27	PAOZZ	56697	200101-001	SPIDER, BRAKE.....	2
28	PAOZZ	96906	MS35338-48	WASHER, LOCK.....	16

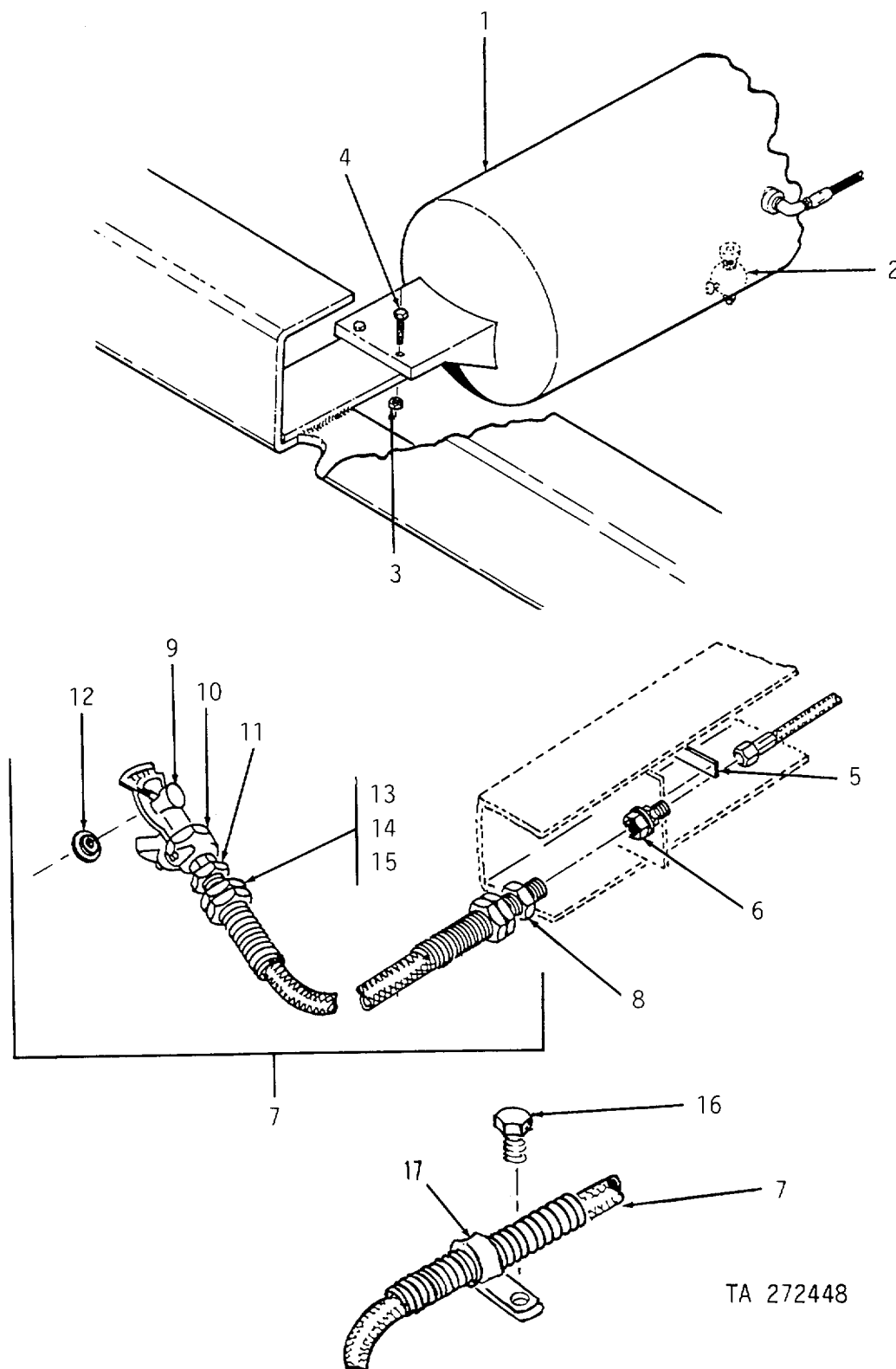
END OF FIGURE



TA 272447

Figure 8. Air System

SECTION II			TM9-2330-372-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 1208 AIR BRAKE SYSTEM					
FIG.8 AIR SYSTEM					
1	MOOZZ 72869		EMD58618	TUBING NYLCN MANUFACTURED FROM P/N ..... NT100068K (FSCM 794701).....	2
2	MOOZZ 72869		EMD58620	LOOP MANUFACTURED FROM P/N E29A (FSCM 98343) .	2
3	MOOZZ 72869		EMD51051	TUBING NYLCN MANUFACTURED FROM P/N ..... NT10008BK (FSCM 79470) .....	1
4	MOOZZ 72869		EMD51562-2	LOOM MANUFACTURED FROM P/N E31 (FSCM 98343) ...	1
5	MOOZZ 72869		EMD58619	TUBING NYLCN MANUFACTURED FROM ..... NT100068K (FSCM 79470) .....	2
6	MOOZZ 72869		EMD58621	LOOM .....	2
END OF FIGURE					



TA 272448

Figure 9. Air Line Couplings and Reservoir

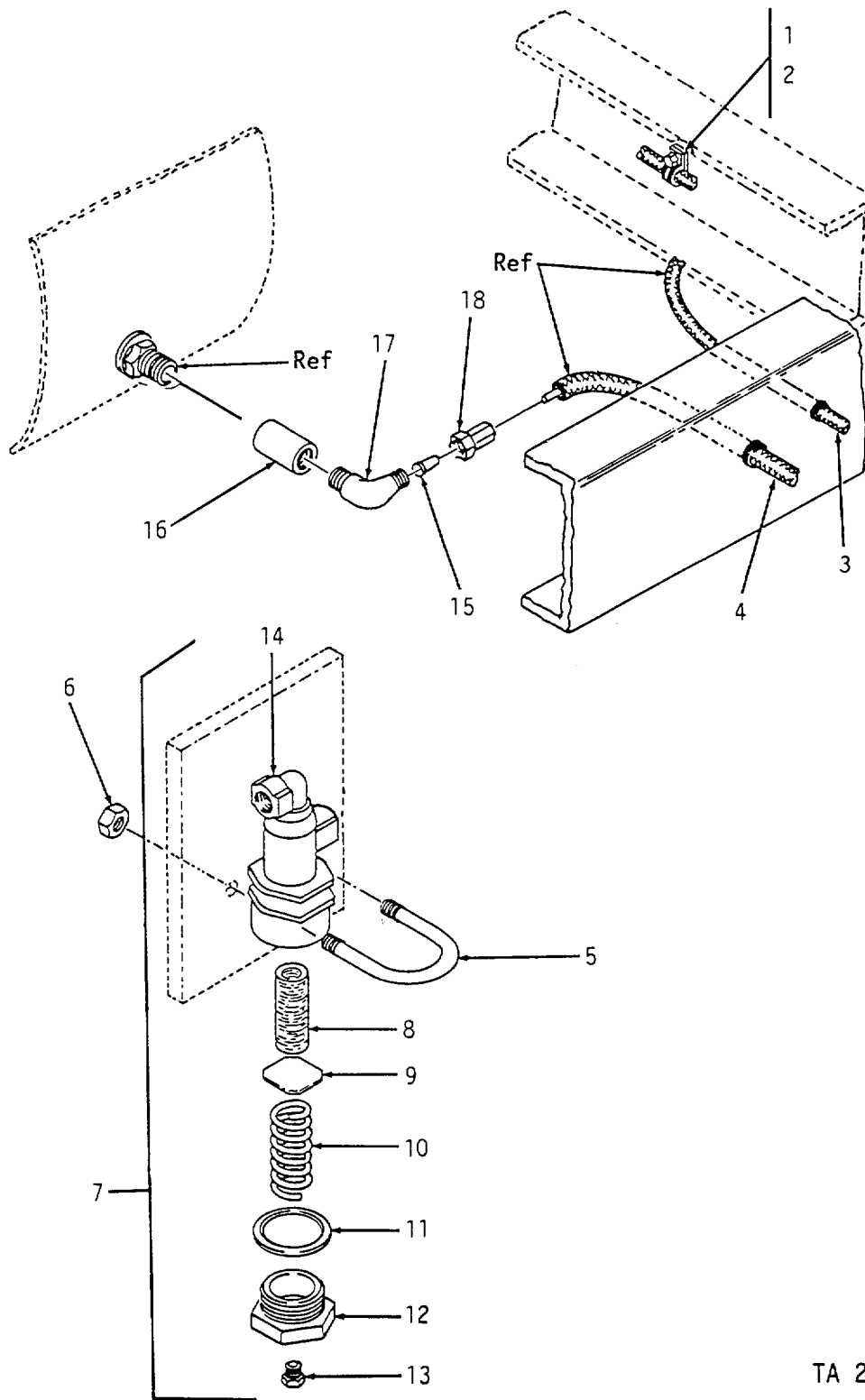
SECTION II					
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	FSCM	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 1208 AIR BRAKE SYSTEM

FIG.9 AIR SYSTEM

1	PFOZZ	06853	228746	TANK, PRESSURE .....	1
2	PAOZZ	19207	7759645	COCK, DRAIN.....	1
3	PAOZZ	96906	MS51922-17	NUT, SELF-LOCKING.....	7
4	PAOZZ	96906	MSS0725-64	SCREW, CAP, HEXAGON H .....	7
5	PFOZZ	96906	MS53007-1	PLATE, IDENTIFICATIC .....	1
5	PFOZZ	96906	MS53007-2	PLATE, IDENTIFICATIC .....	1
6	PAOZZ	19207	5232954	COUPLING, PIPE .....	2
7	PAOZZ	72869	EMD70088-2	HOSE ASSEMBLY, NOME .....	2
8	PAOZZ	96906	MS39137-2	.ADAPTERSTRAIGHT, PI.....	1
9	PAOZZ	96906	MS39134-1	.SPRING HOSE ADAPTER.....	2
10	PAOZZ	96906	MS35746-1	.COUPLING HALF1CUICK.....	1
11	PAOZZ	96906	MS3S133-2	.ADAPTER, STPAIGHT, PI .....	1
12	PAOZZ	06853	213630	.PACKING PREFORMED.....	2
13	PAOZZ	96906	MS39133-1	.ADAPTER, STRAIGHT, PI .....	1
14	PAOZZ	96906	MS39136-1B	.SLEEVE, COMPRESSION, .....	1
15	PAOZZ	96906	MS39135-1B	.NUT, HOSE COUPLING .....	1
16	PAOZZ	96906	MS51851-64	SCREW, TAPPING, THREA .....	2

END OF FIGURE



TA 272449

Figure 10. Air Lines and Filter

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

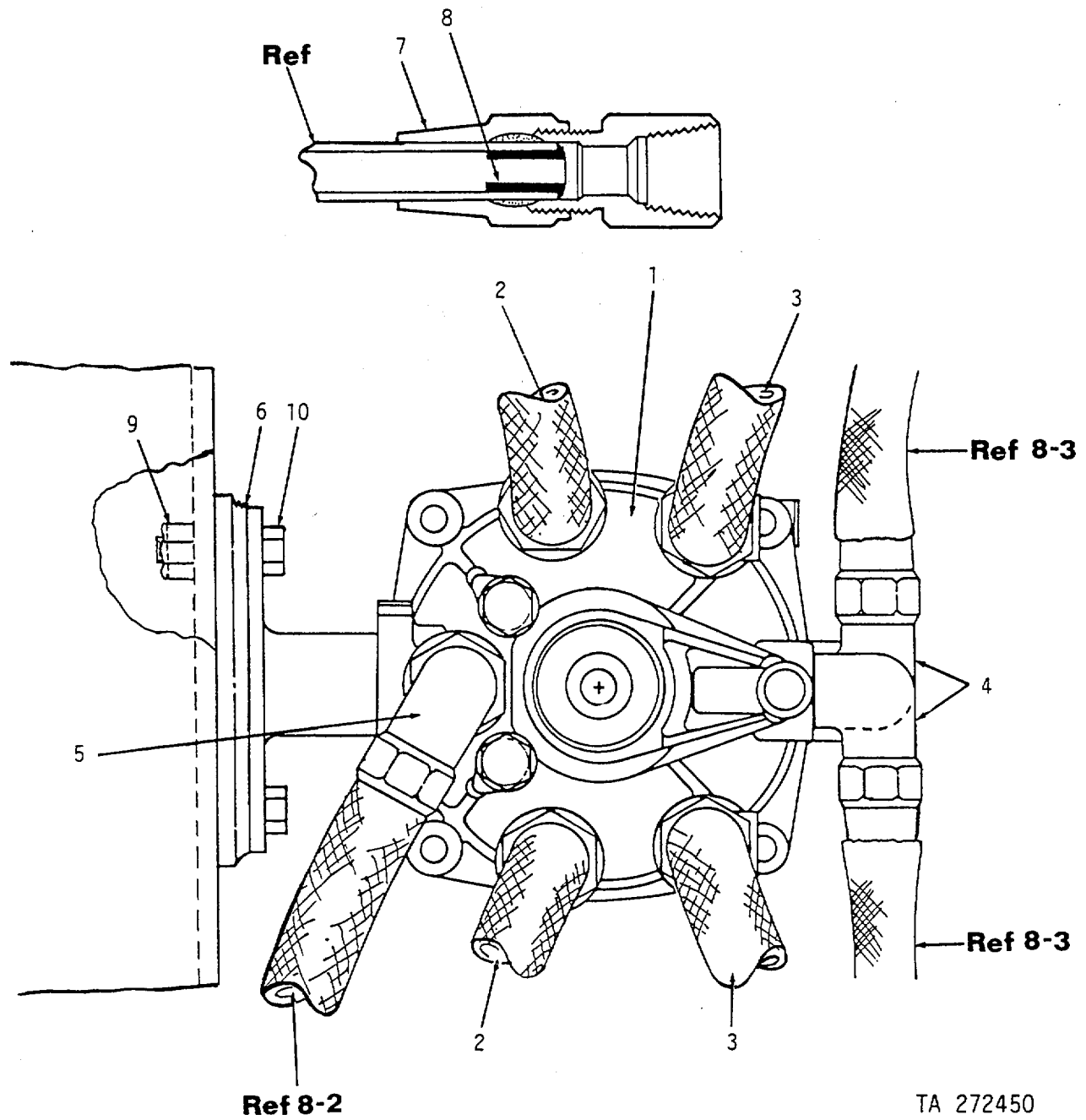
GROUP 1208 AIR BRAKE SYSTEM

FIG.10 AIR SYSTEM

1	PAOZZ	96906	MS51922-1	NUT, SELF-LCCKING HE .....	12
2	PAOZZ	96906	MS21333-71	CLAMP LOOP .....	8
3	PAOZZ	96906	MS35489-78	GROMMET METALLIC .....	7
4	PAOZZ	96906	M535489-107	GROMMET METALLIC .....	2
5	PAOZZ	19207	7579296	BOLT, U .....	2
6	PAOZZ	96906	MS51967-2	NUT, PLAIN, HEXAGON .....	4
7	PAOZZ	19207	7411022	AIR FILTER, BRAKE LI .....	2
8	PAOZZ	19207	7411081	.FILTER ELEMENT FLUI .....	1
9	PAOZZ	19207	7579614	.WASHER, SPRING TENSI .....	1
10	PAOZZ	19207	7579612	.SPRING HELICAL COMP .....	1
11	PAOZZ	19207	8329823	.GASKET .....	1
12	PAOZZ	96906	MS209L3-1S	.PLUG, PIPE .....	1
13	PAOZZ	19207	7579613	.ADAPTER BUSHING .....	1
14	XAOZZ	19207	1415748	.ELBOW BODYMAIR LINE .....	1
15	PAOZZ	79470	1484X8	INSERT, TUBE FITTING .....	2
16	PAOZZ	01989	C3309X12	COUPLING PIPE .....	1
17	PAOZZ	969C6	MS39182-4	ELBOW, PIPE TO TUBE .....	1
18	PAOZZ	96906	MS39179-5	ADAPTER STRAIGHT PI .....	1

END OF FIGURE





TA 272450

**NOTE: REFERENCES REFER TO FIGURE AND ITEM NUMBERS**

*Figure 11. Emergency Relay Valve*

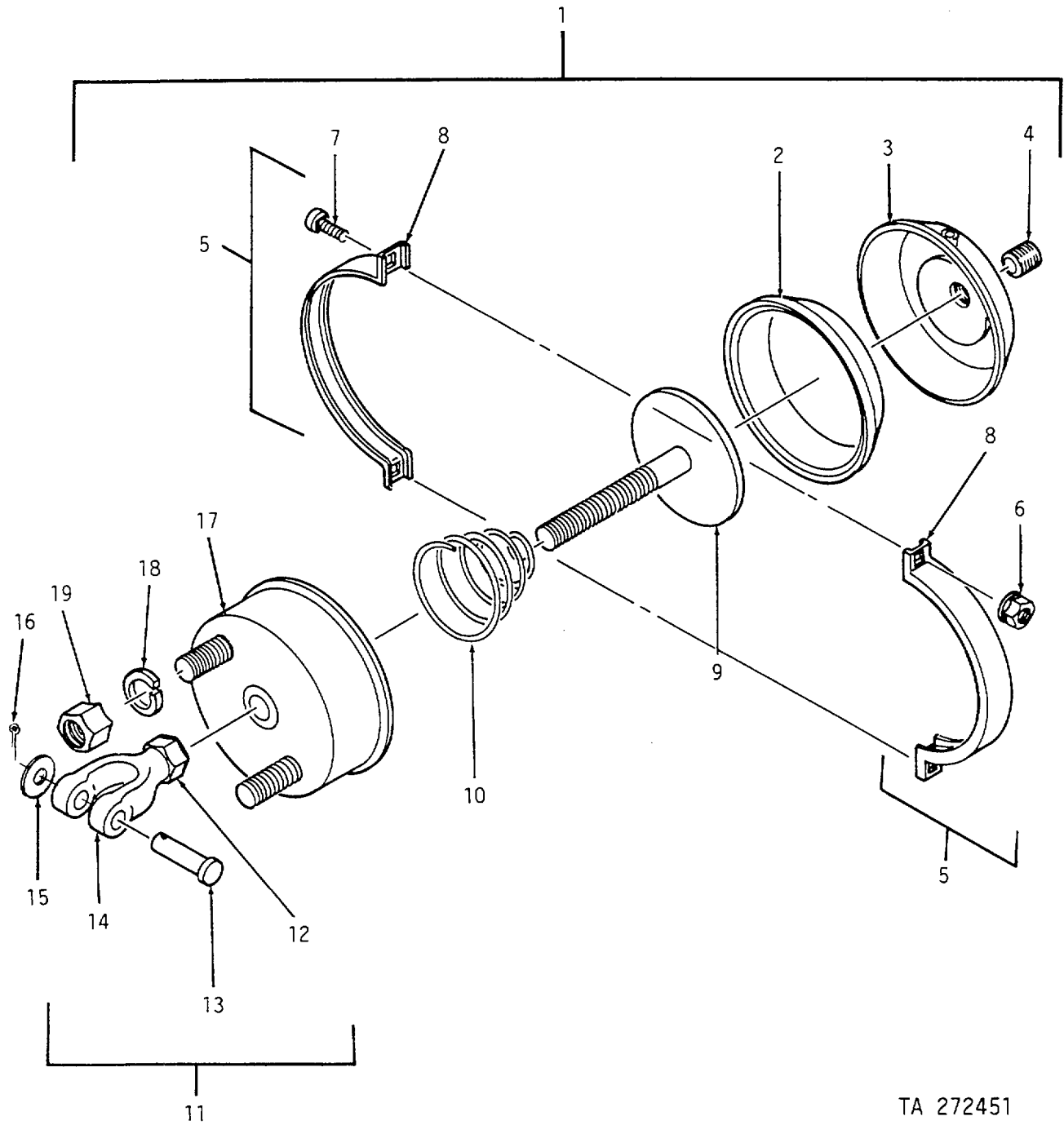
SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 1208 AIR BRAKE SYSTEM

FIG.11 AIR SYSTEM

1	PAOZZ	96906	MS53004-2	PARTS KIT, MECHANICA.....	1
2	PAOZZ	06853	228549	TUBING ASSEMBLY, NON .....	2
3	PAOZZ	06853	228554	TUBING ASSEMBLY NON.....	2
4	PAOZZ	96906	MS39182-3	ELBOW, PIPE TO TUBE.....	2
5	PAOZZ	96906	MS39182-6	ELBOC, PIPE TO TUBE .....	1
6	PAOZZ	06853	241871	ADAPTER BRAKE VALVE .....	1
7	PAOZZ	96906	MS39179-5	ADAPTER STRAIGHT PI .....	6
8	PAOZZ	79470	1484X6	INSERT TUBE FITTING .....	1
9	PAOZZ	96906	MS51922-17	NUT,SELF-LOCKING HE .....	3
10	PAOZZ	96906	MS90725-64	SCREW CAP HEXAGON H .....	3

END OF FIGURE



TA 272451

Figure 12. Brake Air Chamber

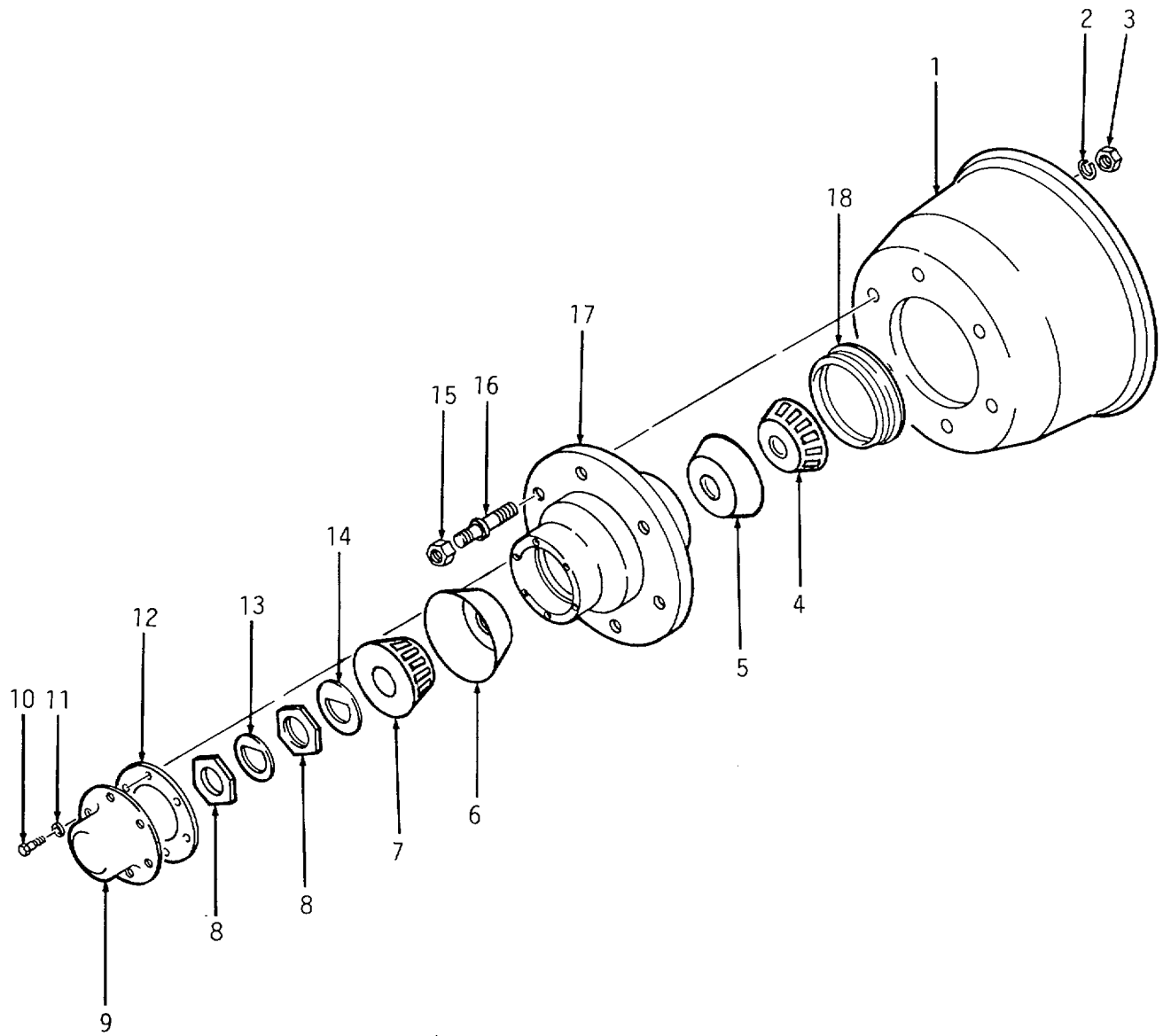
SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 1208 AIR BRAKE SYSTEM

FIG.12 AIR SYSTEM

1	PFOOO	56697	217030-054	CHAMBER, AIR BRAKE .....	2
2	PFOZZ	56697	217599-003	.DIAPHRAGM, CHAPTER, B .....	1
3	XAOZZ	56697	217999-904	.PRESSURE HOUSING .....	1
4	PAOZZ	06853	212862	.BUSHING, PIPE.....	4
5	PAOZZ	56697	217999-903	.CLAMP.RIP CLENCHING .....	1
6	PAOZZ	56697	402154	..NUT, PLAIN.EXTENDED .....	2
7	PAOZZ	56697	401169	..BOLT, KEY FEA .....	2
8	PAOZZ	56697	217999-007	..CLAMP, RIM CLENCHING.....	2
9	PFOZZ	56697	217999-906	.PUSH ROD , TANK, PRESS .....	1
10	PFOZZ	56697	21799-006	.SPRING, HELICAL, CCMP .....	1
11	PFOZZ	56697	21799-900	.CLEVIS ASSEMBLY .....	1
12	PFOZZ	96906	MS35691-53	..NUT, PLAIN, HEXAGON.....	1
13	PFOZZ	56697	411102	..PIN, STRAIGHT, HEADED . .....	1
14	PFOZZ	56697	217999-008	..CLEVIS, RCD END .....	1
15	PAOZZ	96906	MS27183-17	..WASHER, FLAT.....	1
16	PAOZZ	96906	MS24665-353	..PIN COTTER .....	1
17	XAOZZ	56697	217999-901	.HOUSING ASSEMBLY .....	1
18	PAOZZ	96906	MS35338-50	.WASHER LOCK.....	4
19	PAOZZ	96906	MS51968-20	NUT PLAIN, HEXAGON.....	4

END OF FIGURE



TA 272452

Figure 13. Hubs and Drums

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

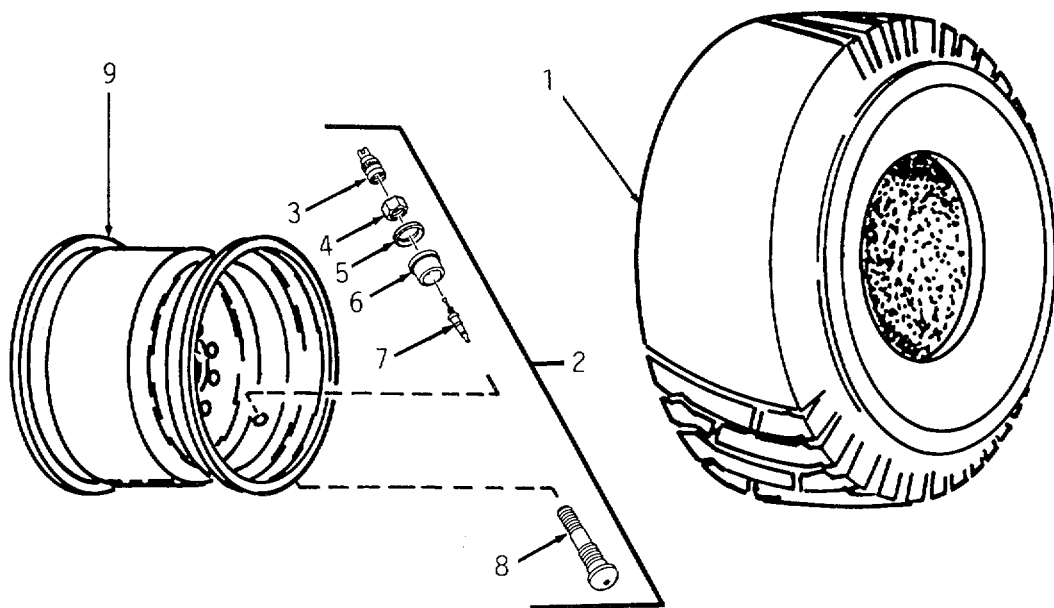
GROUP 13 WHEELS AND TRACKS

GROUP 1311 WHEEL ASSEMBLY

FIG.13 HUBS AND DRUMS

1	PFOFF	56697	3061400-003	BRAKE DRUM .....	2
2	PAOZZ	56697	403161	WASHER, LOCK.....	16
3	PAOZZ	96906	MS51968-23	NUT, PLAIN HEXAGON.....	16
4	PAOZZ	60038	567	CONE AND ROLLERS, TA .....	2
5	PAOZZ	60038	563	CUP, TAPERED ROLLER.....	2
6	PAOZZ	60038	522	CUP, TAPERED ROLLER.....	2
7	PAOZZ	60038	528	CONE AND ROLLERS, TA .....	2
8	PFOZZ	56697	1C3100-001	NUT, PLAIN HEXAGON.....	4
9	PAOZZ	56697	304108	HUB CAP, WHEEL.....	2
10	PAOZZ	96906	MS90728-29	BOLT, MACHINE .....	12
11	PAOZZ	96906	MS35338-45	WASHER, LOCK.....	12
12	PAOZZ	26151	330-3024	GASKET .....	2
13	PFOZZ	56697	105102	WASHER, KEYWAY .....	2
14	PFOZZ	56697	105103	WASHER, KEYWAY .....	2
15	PAOZZ	09386	37888	NUT, PLAIN, SINGLE BA.....	12
5	PAOZZ	09386	37889	NUT, PLAIN, SINGLE A .....	12
16	PAOZZ	09386	95694	STUD, SHOULDERED.....	6
16	PAOZZ	09386	95693	STUD, SHOULDERED.....	6
17	PFOZZ	56697	300113-001	HUB, WHEEL, AUTOMOTIV .....	2
18	PAOZZ	26151	370-7006	GASKET AND SEAL SET .....	1

END OF FIGURE



TA 272453

Figure 14. Wheels and Tires

SECTION II			TM9-2330-372-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

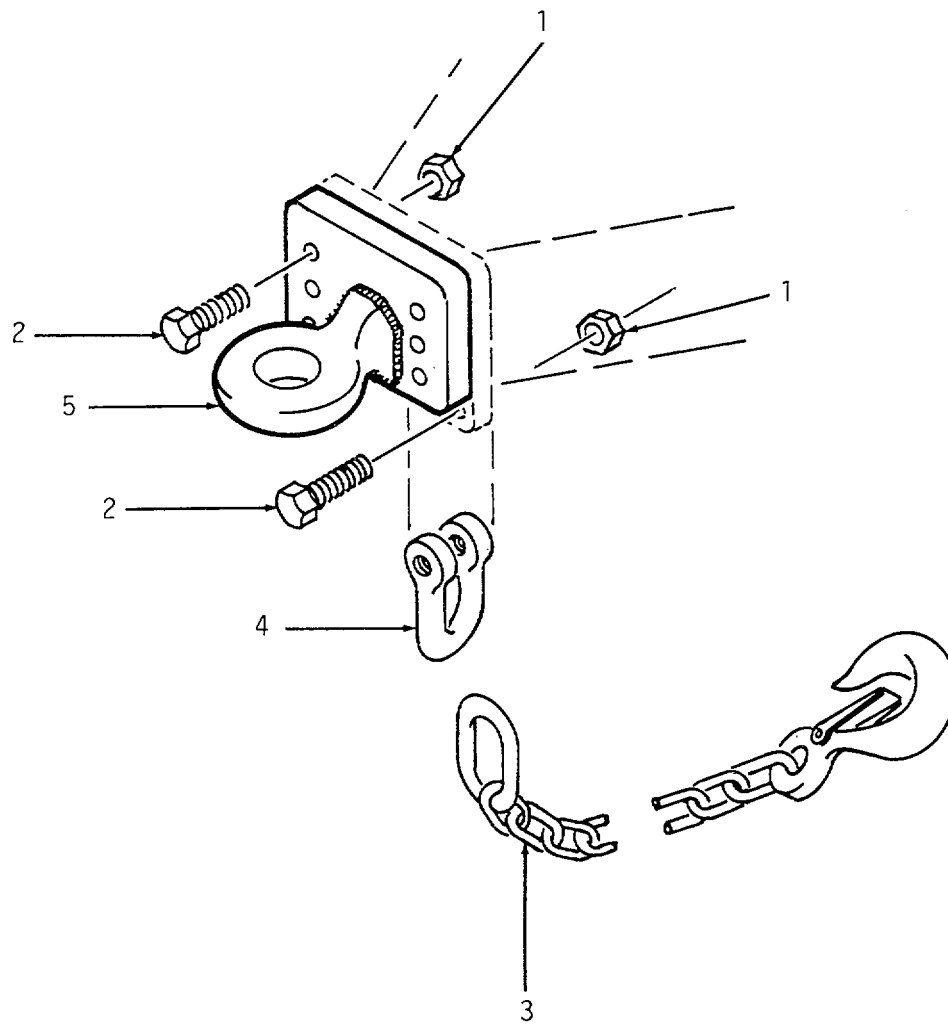
GROUP 1311 WEEEL ASSEMBLY

FIG.14 WHEELS AND TIRES

1	PAOZZ	73842	181-854-623	TIRE, PNEUMATIC .....	4
				UOC :R0N	
1	PAO7Z	81348	ZZ-I-381P/12-16.	TIRE, PNEUMATIC .....	4
			5/GP2A/E/LTHR	UOC:R02	
2	PAOZZ	96906	MS51368-2	VALVE, PNEUMATIC TIR .....	4
3	PAOZZ	81348	ZZ-V-25/TYPE IV/C	.CAP, PNEUMATIC VALVE.....	1
			LAS1/TR-VC-2		
4	XAOZZ	79934	595-4	.NUT .....	1
5	XAOZZ	79934	595-2	.WASHER .....	1
6	XAOZZ	79934	5S5-3	.GROMMET .....	2
7	PAOZZ	53477	5405	.VALVE CCRE.....	1
8	XAOZZ	79934	501-1	.STEM VALVE.....	1
9	PAOZZ	19207	11592642	WHEEL, PNEUMATIC TIR .....	4

END OF FIGURE





TA 272454

Figure 15. Lunette and Safety Chains

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

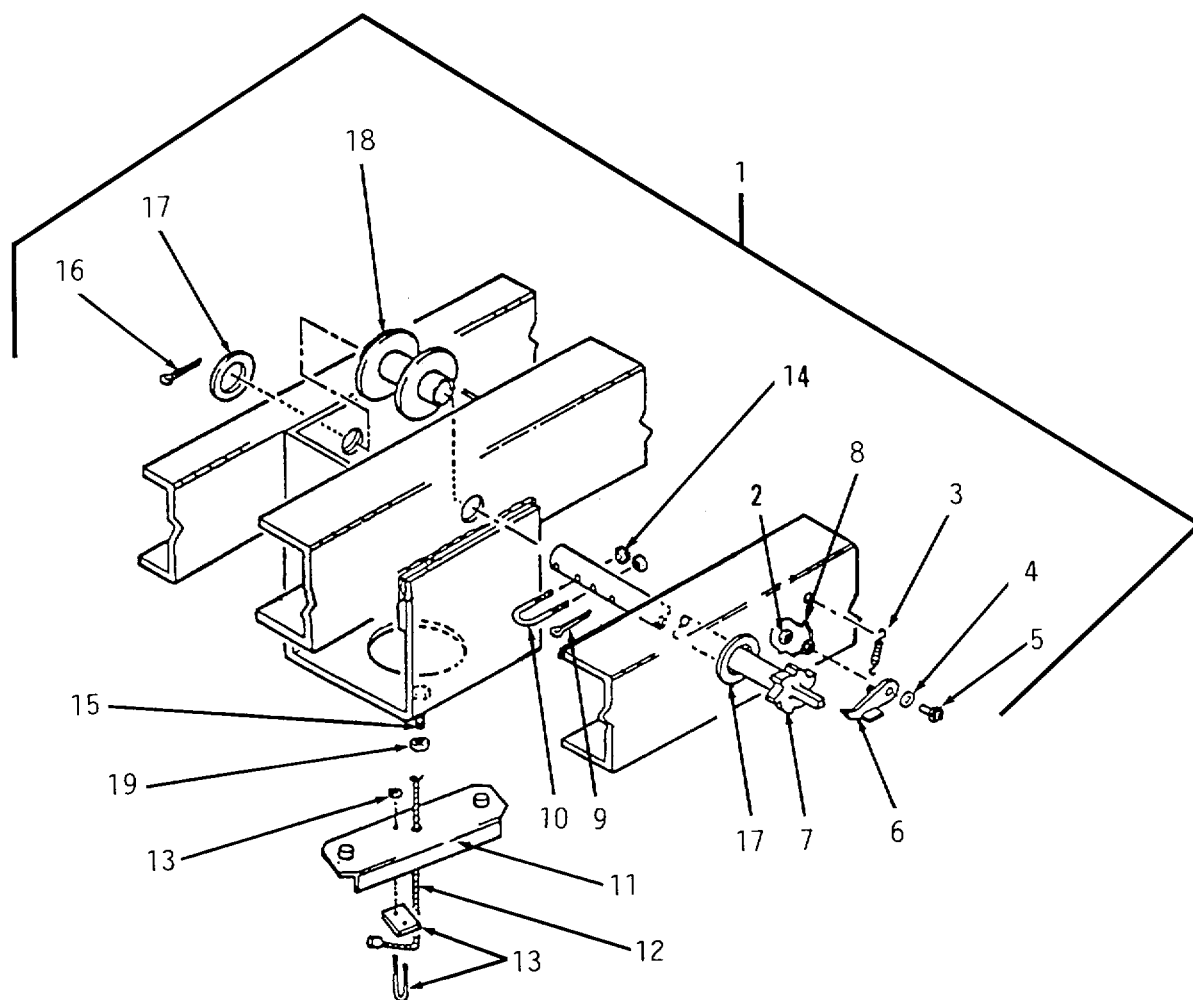
GROUP 15 FRAME, TOWING ATTACHMENTS

GROUP 1503 TOWING ATTACHMENTS

FIG.15 LUNETTE AND SAFETY CHAINS

1	PAOZZ	96906	MS51967-23	NUT, PLAIN HEXAGON .....	6
2	PAOZZ	96906	MS90728-192	SCREW, CAP, HEXAGON H .....	6
3	PAOZZ	72869	EMD58381	CHAIN ASSEMBLY, SING .....	2
4	PAOZZ	19207	10851283	SHACKLE. ....	2
5	PFOZZ	7286S	EMD11709	COUPLER, DRAW BAR RIN .....	1

END OF FIGURE



TA 272455

Figure 16. Spare Tire Carrier

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM NO	SMR CODE	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 1504 SPARE WHEEL CARRIER					
FIG.16 SPARE TIRE CARRIER					
1	PAOOO	72861	EMD70106	SPARE TIRE CARRIER .....	1
2	PAOZZ	96906	MS51967-14	.NUT, PLAIN, HEXAGON . .....	2
3	PAOZZ	56988	523	.SPRING, HELICAL COMP .....	1
4	PAOZZ	96906	MS27183-17	.WASHER, FLAT.....	2
5	PAOZZ	96906	MSS0725-113	.SCREW, CAP, HEXAGON H .....	1
6	PAOZZ	72869	EMD50175	.PAWL.....	1
7	PAOZZ	72869	EMD70107	SHAFT, RATCHET.....	1
8	PAOZZ	75535	S264	.PAD EYE .....	2
9	PAOZZ	96906	MS24665-534	.PIN, CCTTEP .....	1
10	PAOZZ	19207	11636665	.BOLT, U .....	1
11	PAOZZ	72869	EMD70041	.SUPPORT ASSY .....	1
12	PAOZZ	72869	EMD7570	.ROPE, WIRE .....	1
13	PAOZZ	96906	MS16842-4	.CLAMP, WIRE ROPE, SAD .....	1
14	PAOZZ	96906	MS51922-1	.NUT, SELF-LOCKING, HE .....	2
15	PAOZZ	96906	MS90727-188	.SCREW, CAP, HEXAGON.....	2
16	PAOZZ	96906	MS24665-655	.PIN, COTTER .....	1
17	PAOZZ	96906	MS527183-29	.WASHER, FLAT .....	2
18	PAOZZ	72869	EMD70037	.SPCOL WELDMENT.....	1
19	PAOZZ	09386	37888	.NUT, PLAIN SINGLE BA.....	2

END OF FIGURE

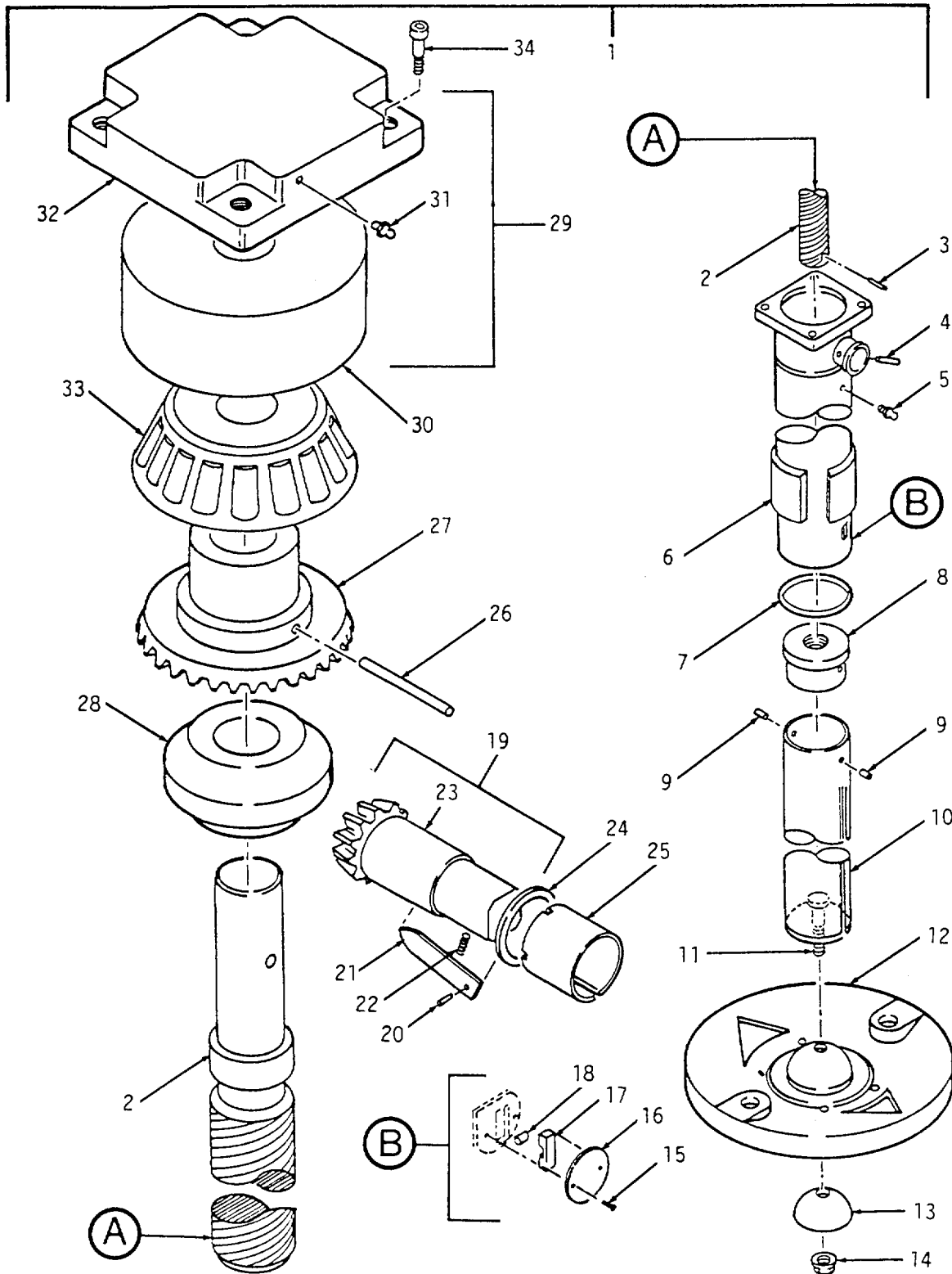


Figure 17. Leveling Jack TA 272456

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
NO	CODE	CAGEC	NUMBER		
GROUP 1507 LANDING GEAR					
FIG.17 LEVELING JACK					
1	PAOOF	72869	EMD11976	JACK, LEVELING-SUPPO ..... REF	
				UOC:R0N	
1	PFOOO	19207	10950503	JACK, LEVELING-SUPPO ..... 4	
				UGC:R02	
2	PFOZZ	19207	10950508	.SCREW, LEVELING JACK. .... 1	
3	PFOZZ	96906	MS35674-28	.PIN, GROOVED, HEADLES..... 1	
4	PFOZZ	96906	MS35671-56	.PIN, GROOVED HEADLES..... 1	
5	PAOZZ	96906	MS15001-1	.FITTING, LUBRICATION ..... 1	
6	XAOZZ	72869	EMD11956	.HOUSING ASSEMBLY ..... 1	
				UOC: R0N	
6	XAOZZ	19207	109550504	.HOUSING ASSY ..... 1	
				UOC:R02	
7	PFOZZ	19207	8683884	.SEAL, RUBBER STRIP..... 1	
8	PFOZZ	19207	108885450	.NUT, SCREW, LEVELING ..... 1	
9	PFOZZ	96906	MS35677-51	.PIN, GROOVED, HEADLES..... 2	
10	PFOZZ	19207	10950505	.TUBE JACK LEVELING ..... 1	
11	XAOZZ	96906	MS90726-163	.BOLT ..... 1	
12	PFOZZ	19207	8005089	.SHOE, VEHICLE SUPPOR ..... 1	
13	PFOZZ	18876	8020015	.RETAINER, BELL, JACK..... 1	
14	PAOZZ	96906	MS51922-53	.NUT SELF-LOCKIN HE..... 1	
15	PFOZZ	96906	MS35206-229	.SCREW, MACHINE ..... 2	
16	PFOZZ	19207	10885448	.COVER ACCESS..... 1	
17	PFOZZ	19207	10885443	.KEY, HOUSING LEVELING ..... 1	
18	PFOZZ	19207	10885446	.SEAL KEY, JACK HOUSI..... 1	
19	PBOOZ	19207	10885478	.GEARSHAFT ASSEMBLY, ..... 1	
20	PFOZZ	96906	MS39086-93	..PIN, SPRING ..... 1	
21	XDOZZ	19207	7520777	..LATCH ..... 1	
22	XDOZZ	19207	7696416	..SPRING, HELICAL, COMP ..... 1	
23	XAOZZ	19207	7520829	..GEARSHAFT, BEVEL..... 1	
24	PFOZZ	19207	7328402	.BEARING WASHER, THRU..... 1	
25	PFOZZ	19207	7520775	.BUSHING, SLEEVE ..... 1	
26	PFOZZ	73957	GP5-312X2000-18	.ROD, STRAIGHT HEADLE ..... 1	
27	PFOZZ	19207	7520774	.GEAR BEVEL . .... 1	
28	PFOZZ	19207	7328405	.COLLAR, THRLST ..... 1	
29	PFOZZ	19207	10891299	COVER , ACCESS..... 1	
30	XAOZZ	60038	53387	..CUP TAPERD ROLLER ..... 1	
31	PAOZZ	96906	MS15003-1	.FITTING, LUBRICATION ..... 1	
32	XAOZZ	19207	7328401	..COVER GEAR HOUSING ..... 1	
33	PFOZZ	60038	53176	.CONE AND ROLLERS,TA ..... 1	
34	PAOZZ	96906	MS16997-142	.SCREW, CAP SOCKET HE ..... 4	

END OF FIGURE

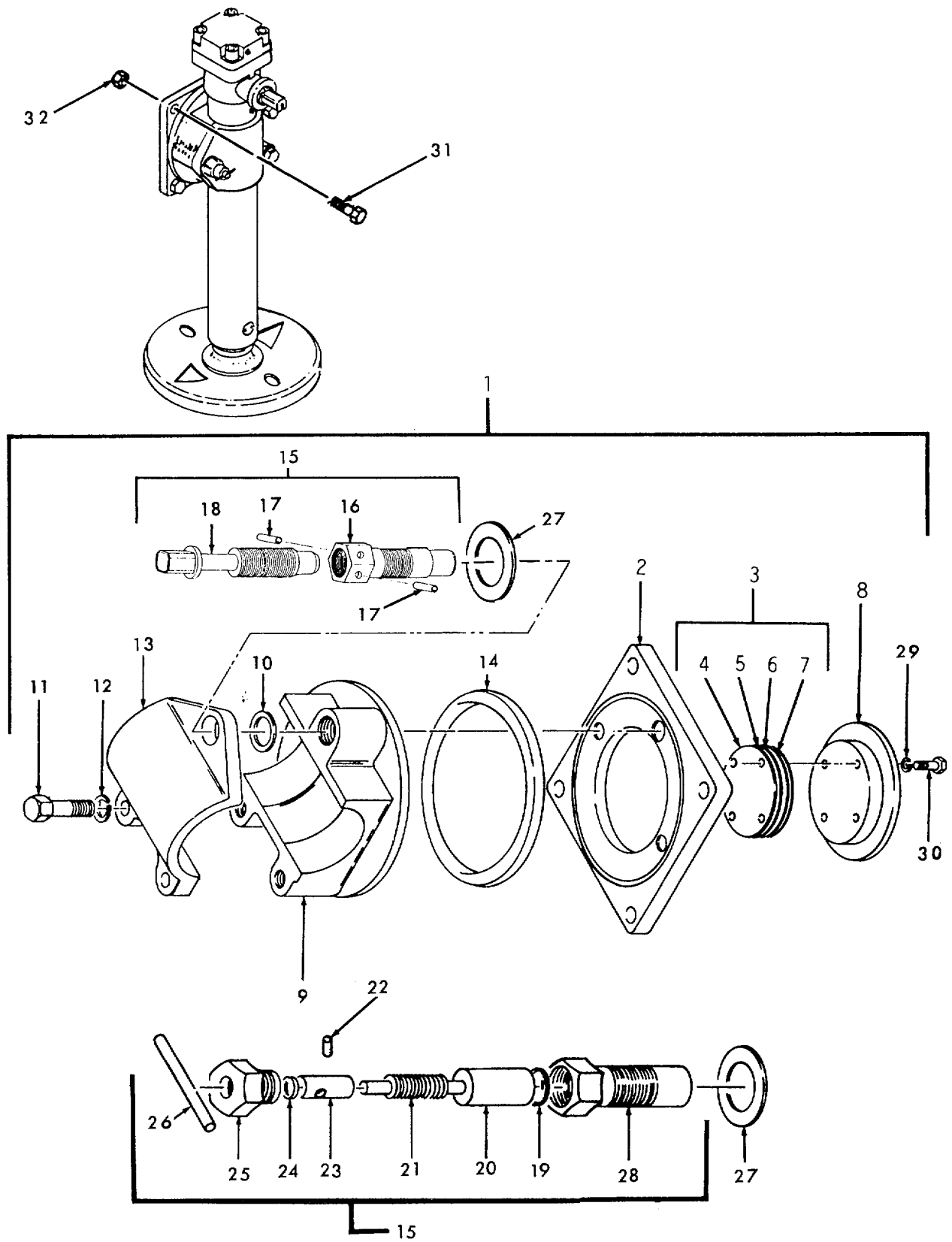


Figure 18. Swivel Assembly

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 1507 LANDING GEAR					
FIG.18 SWIVEL ASSEMBLY					
1	PFOOO	72869	EMD11977	SWIVEL ASSEM.....	REF
				UOC:R0N	
1	PFOOO	19207	10916520	SWIVEL ASSY.....	4
				UOC:R02	
2	PFOZZ	19207	10916523	..BASE, SWIVEL ASSEML.....	1
3	PFOZZ	19207	10916511	..SHIM SET .....	1
4	PFOZZ	19207	10916511-4	..SHIM.....	2
5	PFOZZ	19207	10916511-3	..SHIM.....	4
6	PFOZZ	19207	10916511-2	..SHIM.....	2
7	PFOZZ	19207	10916511-1	..SHIM.....	1
8	PFOZZ	19207	10916524	..PLATE.....	1
9	PFOZZ	19207	10916522	..BASE .....	1
10	PAOZZ	19207	10916533	..GASKET .....	1
11	PAOZZ	96906	MS90727-164	..SCREW, CAP, HEXAGON H .....	2
12	PAOZZ	96906	MS35338-50	..WASHER, LOCK.....	2
13	PFOZZ	19207	10916527	..CAP .....	1
14	PAOZZ	96906	MS29513-268	..PACKING PREFORMED.....	1
15	PFOZZ	72869	EMD58377	..SWIVEL LOCK ASSY .....	1
				UOC:R0N .....	1
15	PFOZZ	19207	10916521	..PIN, ASSEMBLY .....	1
				UOC:R02	
16	XAOZZ	72869	EMD58330	..HOUSING PIN LOCK.....	1
				UOC:R0N	
17	XAOZZ	96906	MS16562-252	..PIN, SPRING .....	2
				UOC:R0N	
18	PFOZZ	72869	EMD58328	..PIN, SHOULDER, HEADLE.....	1
19	PFOZZ	96906	MS29513-022	..PACKING PREFORMED .....	2
				UOC: R02	
20	PFOZZ	19207	10916516	..PIN, SHOULDER, HEADLE.....	1
				UOC :R02	
21	PFOZZ	19207	10916515	..SPRING, HELICAL, COMP .....	1
				UOC:R02	
22	PFOZZ	96906	MS171556	..PIN, SPRING .....	1
				UOC:R02	
23	PFOZZ	19207	10916531	..SLEEE .....	1
				UOC: R02	
24	PFOZZ	96906	MS28775-011	..PACKING, PREFORMED.....	1
				UOC: R02	
25	PFOZZ	19207	10916534	..REDUCER, TUBE .....	1
				UOC:R02	
26	PFOZZ	96906	MS171668	..PIN, SPRING .....	1
				UOC:R02	
27	PFOZZ	19207	8737726	..WASHER, LOCK .....	1



SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
28	PFOZZ	19207	10916514	.BOLT INTERNALLY REL .....	1
				UOC:R02	
29	PAOZZ	96906	MS35338-46	.WASHER LOCK.....	4
30	PAOZZ	96906	MS90727-60	.SCREW CAP, HEXAGON H .....	2
31	PAOZZ	96906	MS90728-188	SCREW.CAP HEXAGON H .....	15
32	PAOZZ	96906	MS51967-23	NUT PLAIN, HEXAGON.....	16

END OF FIGURE

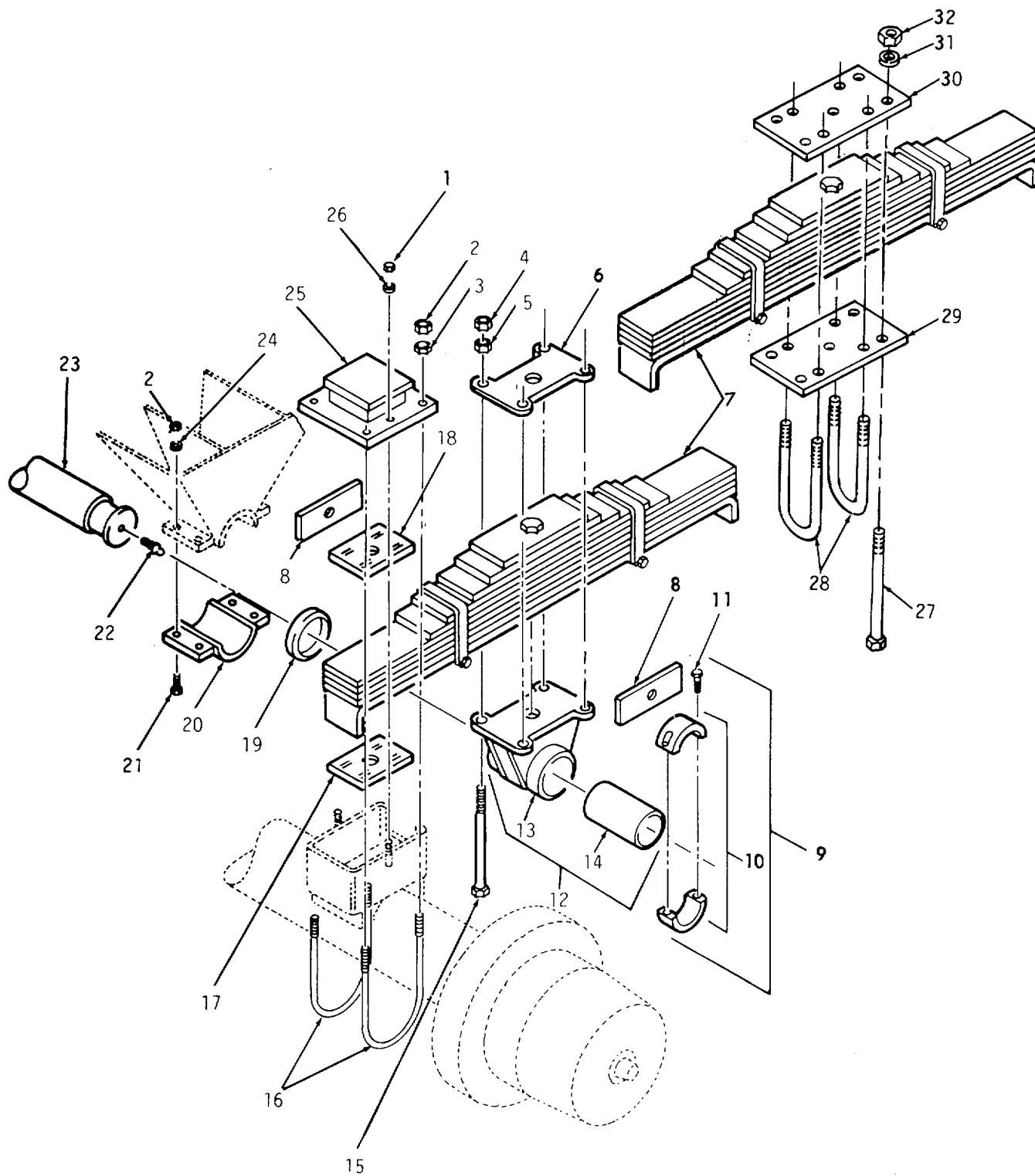
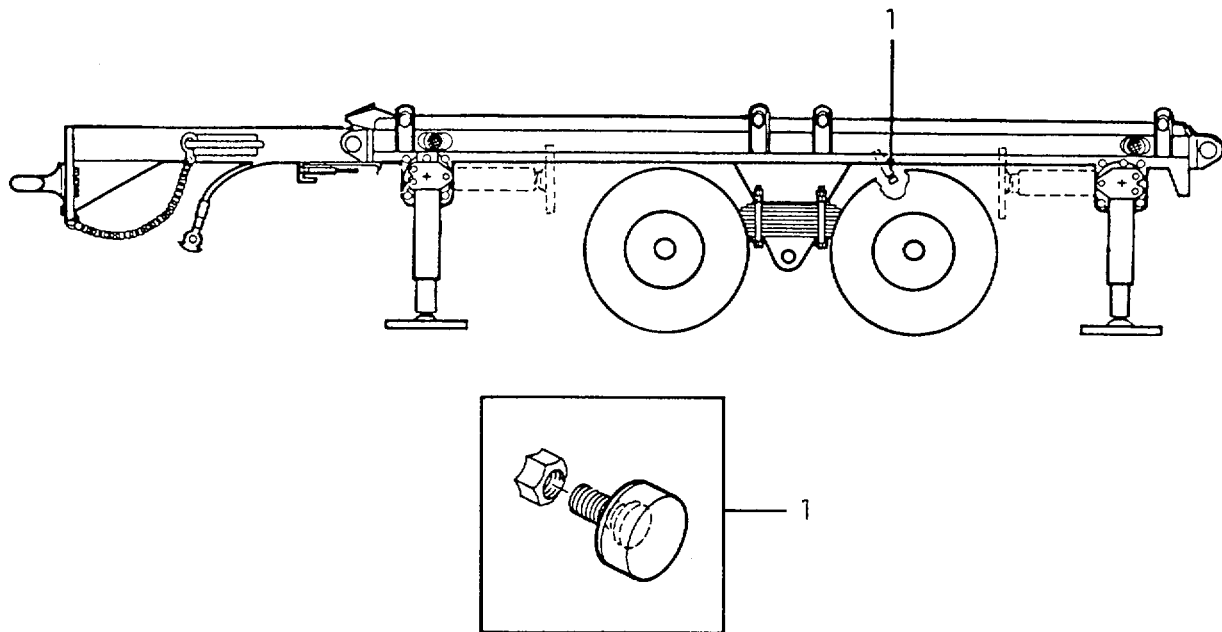


Figure 19. Spring Assembly

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM NO	SMR CODE	CAGEC	PART NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 16 SPRINGS					
GROUP 1601 SPRINGS					
FIG.19 SPRING ASSEMBLY					
1	PAFZZ	96906	MS51968-14	NUT, PLAIN, HEXAGON .....	8
2	PAFZZ	96906	MS51968-20	NUT, PLAIN, HEXAGON .....	16
3	PAFZZ	96906	MS35691-53	NUT, PLAIN, HEXAGON .....	16
4	PAFZZ	96906	MS51968-26	NUT, PLAIN, HEXAGON UOC:R02 .....	8
5	PAFZZ	96906	MS35691-69	NUT, PLAIN, HEXAGON, UOC:R02 .....	8
6	PFFZZ	72669	EMD56699	PLATE, WEAR, LEAF SPR UOC:R02 .....	2
7	PAFZZ	72869	EMD40972	SPRING, LEAF .....	2
8	PAFZZ	72869	EMD41143	RUBBER STRIP .....	8
9	PFFZZ	72869	EMD70109	.CLAMP, HUB .....	2
10	PFFZZ	72869	EMD70109-1	..CLAMP, HUB .....	1.
11	PFFZZ	96906	MS16998-76	SCREW, CAPSOCKET HE .....	2
12	PFFFF	72869	EMD11740	BRACKET, EYE, NONROTA .....	2
13	PFFZZ	72869	EMD11739	BRACKETEYE, NONROTA .....	1
14	PFFZZ	72869	EMD41149	BUSHING, SLEEVE .....	1
15	PAFZZ	72869	EMD53490	SCREW, CAP, HEXAGON H, UOC:R02 .....	8
16	PAFZZ	72869	EMD400976	BOLT, U .....	8
17	PAFZZ	72869	EMD40075	RUBBER STRIP .....	4
18	PAFZZ	72869	EMD40073	RUBBER STRIP .....	4
19	PAFZZ	72869	EMD40428	SPACEP, RING .....	2
20	PFFZZ	72869	EMD70080	CLAMP, HUB . .....	2
21	PAFZZ	96906	MS90727-164	SCREW, CAP HEXAGON H .....	8
22	PAOZZ	96906	MS15003-1	FITTING, LUBRICATION .....	2
23	PFFZZ	72869	EMD41108	AXLE, VEHICULAR, NOND .....	1
24	PAFZZ	96906	MS35338-50	WASHER, LOCK .....	8
25	PFFZZ	72869	EMD70084	COVER SHACKLE BOX .....	4
26	PAFZZ	96906	MS35338-48	WASHER, LOCK .....	8
27	PAFZZ	72869	EMD 58760	SCREW, CAP, HEX HD .....	8
				UOC:RON	
28	PAFZZ	72869	EMD 58762	CLIP, SPRING .....	4
				UOC:RON	
29	PAFZZ	72869	EMD 58759-2	TRUNNION PLATE .....	2
				UOC:RON	
30	PAFZZ	72869	EMD 58759-1	TRUNNION PLATE .....	2
				UOC: RON	
31	PAFZZ	96906	MS 27183-26	WASHER FLAT .....	16
				UOC: RON	
32	PAFZZ	96906	MS 51943-48	NUT, SELF-LOCK .....	16
				UOC:RON	

END OF FIGURE



TA 272459

Figure 20. Frame Components

SECTION II				TM9-2330-372-14&P
(1)	(2)	(3)	(4)	(5)
ITEM	SMR		PART	
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)
				QTY

GROUP 18 BODY

GROUP 1801 BODY

FIG.20 FRAME CCMPCNENTS

1	PAOZZ	19207	10914500	BUMPER RUBBER .....	4
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END OF FIGURE

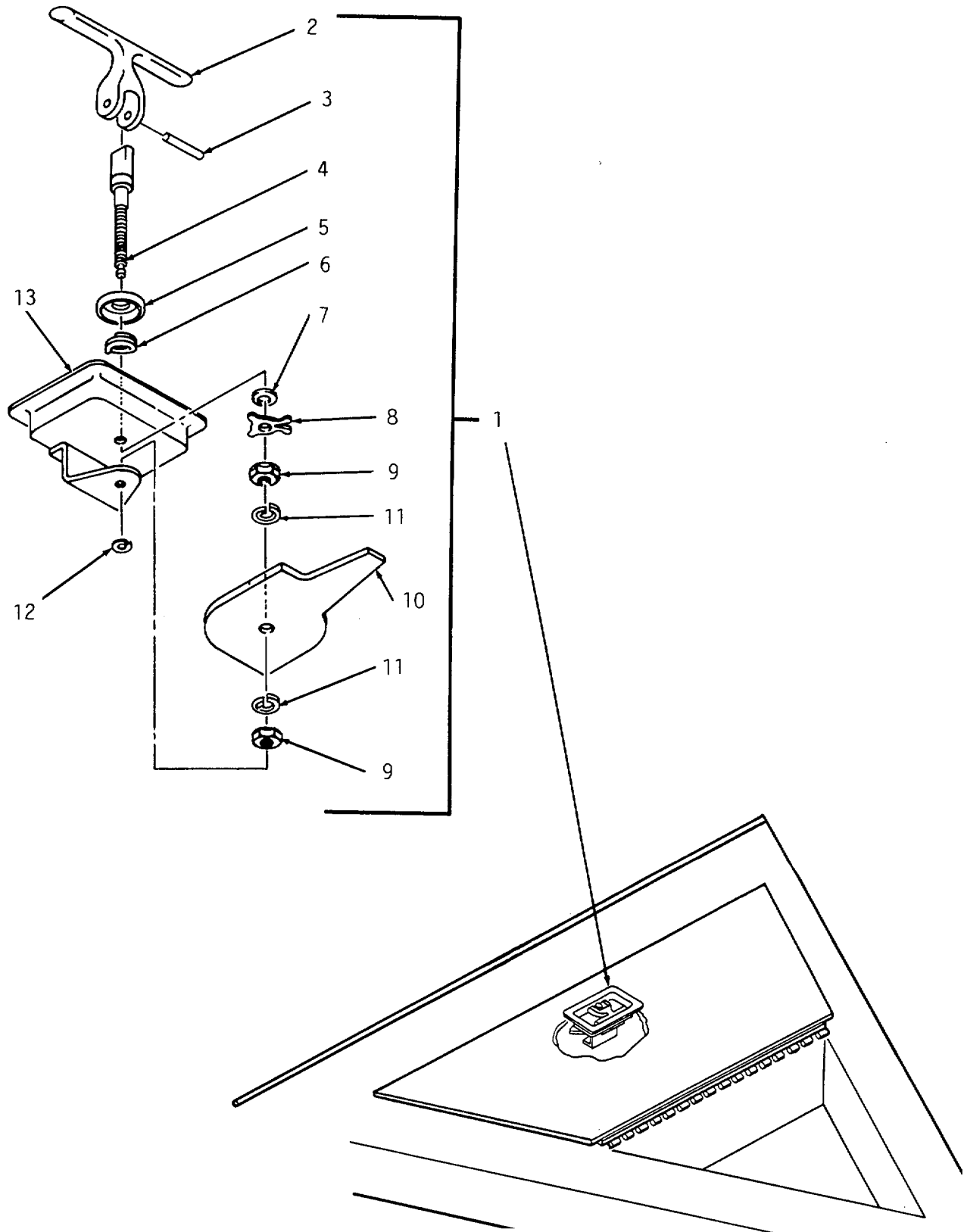
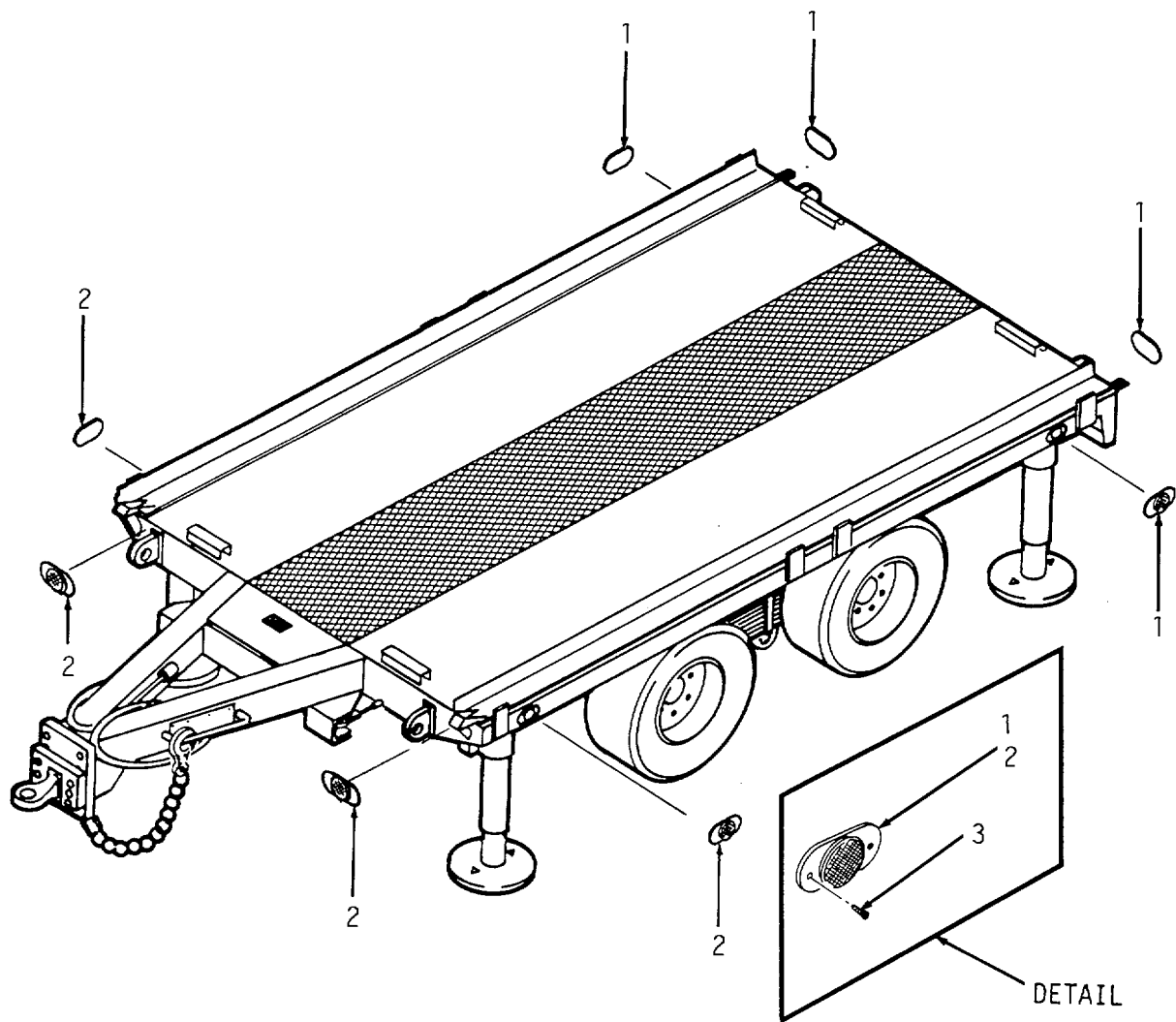


Figure 21. Tool Box

SECTION II					
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY
GROUP 1805 FLOORS ANC RELATED COMPO-					
NENTS					
FIG.21 TOOL BOX					
1	PFOOZ	19220	8000	FASTENER, PAL .....	1
2	PFOZZ	19220	5630-OAX	.HANDLE, DOOR .....	1
3	PFOZZ	19220	27X345E	.PIN, STRAIGHT HEADLE .....	1
4	PFOZZ	19220	8000-1	.STUD, THREADED .....	1
5	PFOZZ	19220	15592	SPACE RING . ....	1
6	PFOZZ	19220	15595	.SPRING HELICAL , COMP .....	1
7	PFOZZ	19220	11X-138	.WASHER FLAT.....	1
8	PFUZZ	19220	8000-5	WASHER .....	1
9	PFOZZ	19220	5X252	.NUT .....	2
10	PFOZZ	19220	8000-2	.LATCH .....	1
11	PFOZZ	19220	12X-199	.WASHER LOCK .....	2
12	PFOZZ	19220	11307-3	.CLIP RETAIER .....	1
13	XAOZZ	19920	8000-50	.HOUSING .....	1

END OF FIGURE



TA 272461

Figure 22. Reflectors



SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 22 BODY ACCESSORY ITEMS

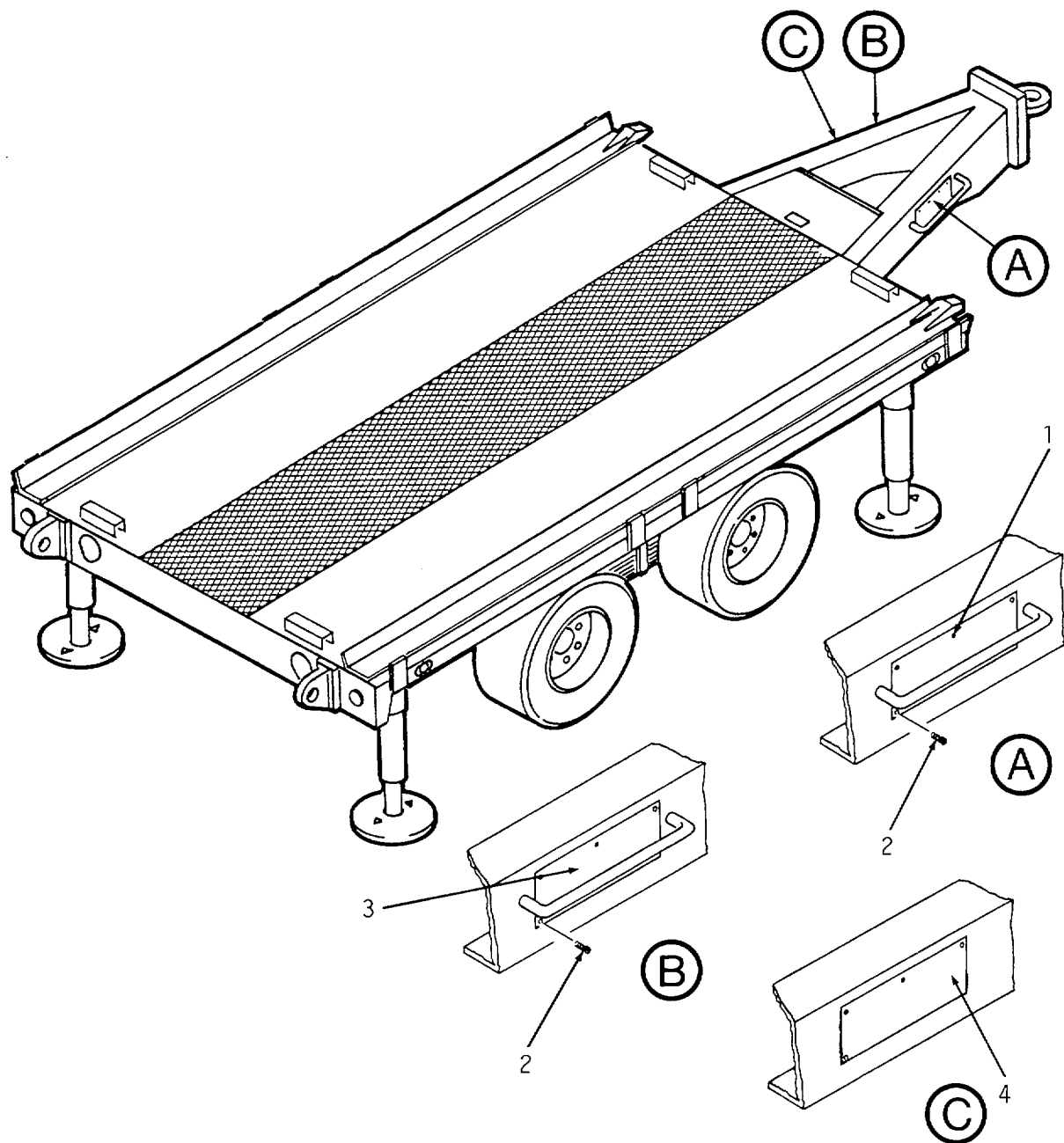
GROUP 2202 ACCESSORY ITEMS

FIG.22 REFLECTCRS

1	PAOZZ	56906	MS35387-1	REFLECTOR, INDICATIN .....	4
2	PAOZZ	96906	MS35387-2	REFLECTOR, INDICATIN .....	4
3	PAOZZ	96906	MS35266-63	SCREW, MACHINE .....	16

END OF FIGURE

22-1



TA 272462

Figure 23. Data Plates

SECTION II				TM9-2330-372-14&P	
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

GROUP 2210 DATA PLATES

FIG.23 DATA PLATES

1	PFOZZ	72865	EMD58389	PLATE INSTRUCTION ..... 1 UOC:R0N	
1	PFOZZ	72869	EMD40479	PLATE INSTRUCTION..... 1 UOC:R02	
2	PAOZZ	96906	MS21318-27	SCREW DRIVE.....15	
3	PFOZZ	72869	EMD58370	DATA PLATE ..... 1 UOC:R0N	
3	PFOZZ	72869	EMD56138	PLATE IDENTIFICATION..... 1 UOC:R02	
4	PFOZZ	72869	EMD58641	MARKER IDENTIFICATION..... 1 UOC:R0N	

END OF FIGURE

GROUP 95 - GENERAL USE STANDARDIZED PARTS

GROUP 9501 - BULK MATERIAL

1	PAOZZ	98343	E31	SLEEVING TEXTILE, EL.....	
2	PAOZZ	98343	E29A	SLEEVING TEXTILET, EL.....	
3	PAOZZ	79470	NT100068K	TUBING NON METALLIC.....	
4	PAOZZ	79470	NT100088K	TUBING NON METALLIC . ....	
5	PAOZZ	19201	7720853	WIRE ELECTRICAL.....	

END OF FIGURE

SECTION II			TM9-2330-372-14&P		
(1)	(2)	(3)	(4)	(5)	(6)
ITEM	SMR		PART		
NO	CODE	CAGEC	NUMBER	DESCRIPTION AND USABLE ON CODES (UOC)	QTY

(NOT APPLICABLE)

23-2

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

STOCK NUMBER		NATIONAL STOCK NUMBER INDEX		STOCK NUMBER	
	FIG.	ITEM		FIG.	ITEM
6240-00-019-0877	1	10	5310-00-209-0698	16	17
6240-00-019-3093	1	5	4730-00-221-2136	10	12
2530-00-021-2360	11	1	5310-00-225-6408	17	14
4730-00-034-3703	9	8	5306-00-226-4822	13	10
5305-00-042-6417	16	5	5315-00-234-1634	16	9
6240-00-044-6514	1	4	4030-00-243-4438	16	13
5340-00-050-2740	4	1	5330-00-250-0230	18	20
4730-00-050-4203	17	5	5305-00-253-5618	23	2
4730-00-050-4208	7	16	5330-00-263-8007	18	15
	17	31	5340-00-264-8839	16	8
	19	22	5305-00-269-3214	9	4
5340-00-057-2904	6	26		11	10
	10	2	5305-00-269-3217	6	14
5999-00-057-2929	1	9	5310-00-273-7771	13	15
	2	2	5325-00-276-6098	4	2
2640-00-060-3550	14	3		10	3
5315-00-067-5003	17	4	4730-00-278-6319	9	6
5315-00-068-2498	17	9	4730-00-278-8257	9	13
4730-00-069-1186	10	18	5330-00-285-5123	10	11
	11	7	4730-00-289-0051	11	5
4730-00-069-1187	11	4	2530-00-330-3262	6	13
4030-00-075-7212	15	4	1440-00-341-2387	17	13
5340-00-075-9147	20	1	2530-00-371-4105	13	9
2590-00-076-0050	17	29	2530-00-374-2118	13	17
5340-00-076-1943	17	16	5940-00-399-6676	2	9
5310-00-087-4652	6	16	5365-00-400-3403	6	6
	9	3	5310-00-407-9566	13	11
	11	9	4730-00-409-7854	10	17
5310-00-088-1251	4	4	5306-00-446-8737	18	29
	10	1	5310-00-455-0288	18	28
	16	14	5330-00-462-0907	1	3
5330-00-090-2128	9	12	5315-00-489-0281	17	3
3110-00-100-0269	13	7	2010-00-489-8065	14	1
3110-00-100-0286	13	4	2590-00-529-6199	2	10
3110-00-100-0323	13	6	5365-00-530-7968	7	12
3110-00-100-0328	13	5	2640-00-555-2829	14	2
5315-00-140-1938	6	4	3020-00-571-6104	17	27
4820-00-142-3036	9	2	5935-00-572-9180	1	7
3110-00-142-4351	17	33		2	4
5306-00-152-0562	16	10	4730-00-580-8457	10	13
5325-00-174-9325	4	3	5330-00-582-2133	18	25
	10	4	2590-00-582-5503	17	12
2530-00-178-0720	14	9	5310-00-584-7888	7	24
6220-00-179-4324	1	2	5310-00-594-8038	13	15
5315-00-187-9414	16	16		16	19
5305-00-187-9934	17	34	4730-00-595-0083	9	10
5305-00-191-3640	2	11	5305-00-614-0246	22	3
9905-00-202-3639	22	2	5310-00-679-3606	10	9
4730-00-202-6491	12	4	5315-00-690-0544	17	20
9905-00-205-2795	22	1	5360-00-706-9054	10	10

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

NATIONAL STOCK NUMBER INDEX					
STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5305-00-726-2551	18	12	5305-00-948-0749	16	15
	19	21	5310-00-971-7990	19	5
5310-00-732-0559	6	7	5305-00-983-7450	19	11
5310-00-732-0560	7	21	5305-00-984-4989	17	15
	19	1	5340-00-985-0823	6	8
2590-00-736-1377	17	1	4730-00-987-9073	9	11
2530-00-741-1081	10	8	9905-00-999-7369	9	5
3120-00-752-0775	17	25	9905-00-999-7370	9	5
9905-00-752-4649	3	2	5340-01-010-3842	21	1
5305-00-757-8122	4	6	2530-01-016-2029	7	5
	6	25	5360-01-019-3541	7	9
	9	16	5320-01-020-0703	7	8
5310-00-761-6882	10	6	3120-01-041-4671	7	6
5310-00-763-8901	13	3	5310-01-042-1006	7	25
5310-00-763-8912	19	4	3120-01-042-2579	7	22
5310-00-763-8921	15	1	5315-01-046-0176	7	11
	18	33	5315-01-047-6042	7	7
2530-00-797-9295	10	7	4730-01-048-5261	10	15
5306-00-797-9256	10	5	4730-01-056-4990	11	8
5365-00-803-7299	7	18	5360-01-061-3207	21	6
5365-00-803-7303	7	3	5310-01-063-9764	21	9
5310-00-809-3078	6	11	5310-01-070-2105	16	2
5310-00-809-5997	6	1	5365-01-078-5901	21	5
	12	15	3120-01-088-0337	6	15
	16	4	6220-01-093-4439	1	1
5315-00-815-8840	6	9	5307-01-115-1810	21	4
5935-00-833-8561	2	7	2530-01-129-7552	7	1
5970-00-833-8562	2	8	5310-01-129-9470	6	19
5310-00-833-8567	1	8	1095-01-141-4815	17	2
	2	3	1095-01-144-1478	17	10
5310-00-835-2037	12	12	5330-01-147-1628	18	11
	19	3	1095-01-162-0343	18	14
5315-00-83S-5822	12	16	3040-01-162-0355	17	28
5315-00-842-3044	6	3	1095-01-162-0357	18	2
5315-00-843-6971	18	27	1095-01-162-0358	18	8
2590-00-860-0529	17	8	5307-01-166-3690	13	16
2590-00-860-0532	17	17	5330-01-167-1900	13	12
2590-00-860-0535	17	18	5330-01-167-2049	13	18
2590-00-860-0536	17	19	5307-01-167-7777	13	16
2590-00-860-0538	2	12	2590-01-182-8758	18	9
3120-00-899-4072	17	24	9905-01-182-8859	23	3
5330-00-899-5217	17	7	9905-01-182-8860	23	1
5365-00-899-6723	6	10	5360-01-182-8904	6	24
5305-00-900-0576	18	32	2530-01-182-8983	9	1
4730-00-906-7921	9	15	5970-01-182-9007	BULK	1
4130-00-906-7922	9	14	5970-01-182-9008	BULK	2
5360-00-906-7923	9	9	4720-01-182-9067	BULK	3
5340-00-922-6300	4	5	4720-01-182-9068	BULK	4
5315-00-937-0154	18	16	2530-01-183-2629	12	9
5305-00-947-4355	15	2	5340-01-183-2630	12	11

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

		NATIONAL STOCK NUMBER INDEX			
STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
2530-01-183-2632	6	18	5365-01-195-3674	18	5
9905-01-183-2691	23	1	5365-01-195-3675	18	4
5300-01-183-2697	7	26	5365-01-195-3688	18	7
5315-01-183-2699	6	22	5360-01-196-0629	18	22
5340-01-183-2701	12	14	4730-01-196-5217	10	16
5340-01-183-2702	6	17	5360-01-196-7958	16	3
5360-01-183-2704	12	10	5315-01-197-1179	18	21
5310-01-183-2709	12	6	9905-01-198-4520	23	3
2530-01-183-2716	7	17	5365-01-201-9597	18	3
2530-01-183-2717	12	2	5315-01-202-7035	18	23
2530-01-183-2719	12	1	5355-01-204-6935	18	24
3120-01-183-2724	6	21			
5310-01-183-2727	6	23			
5306-01-183-2731	12	7			
5340-01-183-2760	17	26			
3040-01-183-2767	6	20			
5340-01-183-2787	12	5			
5340-0 - 183-2768	12	8			
2530-01-183-6813	7	27			
2530-01-183-6814	7	15			
2530-01-183-6815	7	14			
5310-01-183-6830	13	8			
5310-01-183-6831	7	20			
5310-01-183-6843	13	13			
5310-01-183-6844	13	14			
2530-01-183-6846	7	10			
2530-01-183-6847	7	13			
2530-01-183-6848	7	13			
2530-01-183-6849	13	1			
3120-01-163-6851	7	19			
5310-01-183-6852	7	23			
5310-01-183-6854	13	2			
3040-01-183-6872	19	12			
3040-01-183-6698	19	9			
5315-01-183-8386	12	13			
7690-01-186- 8008	23	4			
2540-01-188-7395	21	10			
2540-01-188-7398	21	8			
5340-01-188-7427	21	12			
5315-01-188-7430	21	3			
5310-01-188-7485	21	7			
5310-01-188-7495	21	11			
2610-01-189-0564	14	1			
2540-01-189-0598	21	2			
2530-01-191-6535	11	6			
2590-01-192-0632	18	1			
4730-01-192-8090	18	26			
4720-01-192-8153	11	2			
4720-01-192-8154	11	3			
5365-01-195-3673	18	6			

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
01989	C3309X12		4730-01-196-5217	10	16
72869	EMD11705			6	28
72869	EMD11706			6	28
72869	EMD11709			15	5
72869	EMD11737			6	2
72869	EMD11739			19	13
72869	EMD11740		3040-01-183-6872	19	12
72869	EMD19907			2	1
72869	EMD11956			17	6
72869	EMD11976			17	1
72869	EMD11977			18	1
72869	EMD12005			5	2
72869	EMD12006			5	1
72869	EMD40073			19	18
72869	EMD40075			19	17
72869	EMD40428			19	19
72869	EMD40479		9905-01-182-8860	23	1
72869	EMD40972			19	7
72869	EMD40976			19	16
72869	EMD41108			19	23
72869	EMD41143			19	8
72869	EMD41149			19	14
72869	EMD50175			16	6
72869	EMD51051			8	3
72869	EMD51431-5			2	5
72869	EMD51562-2			2	6
				8	4
72869	EMD53450			19	15
72869	EMD54204			6	5
72869	EMD56138		9905-01-182-8859	23	3
72869	EMD56442			6	12
72869	EMD56443			6	12
72869	EMD56699			19	6
72869	EMD58328			18	19
72869	EMD58330			18	17
72869	EMD56370		9905-01-198-4520	23	3
72869	EMD58377			18	16
72869	EMD58381			15	3
72869	EMD58389		9905-01-183-2691	23	1
72869	EMD58584			6	5
72869	EMD58585			6	27
72869	EMD58618			8	1
72869	EMD58619			8	5
72869	EMD58620			8	2
72869	EMD58621			8	6
72869	EMD58641		7690-01-186-8008	23	4
72869	EMD07037			16	18
72869	EMD70041			16	11
72869	EMD70080			19	20
72869	EMD70084			19	25
72869	EMD70088-2			9	7



## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
72869	EMD70106			16	1
72869	EMD70107			16	7
72869	EM070109	3040-01-183-6889		19	9
72869	EMD70109-1			19	10
72869	EMD7570			16	12
98343	E29A	5970-01-182-9008	BULK		2
98343	E31	5970-01-182-9007	BULK		1
73957	GP5-312X2000-18	5340-01-183-2760		17	26
96906	MS15001-1	4730-00-050-4203		17	5
96906	MS15003-1	4730-00-050-4208		7	16
				17	31
				19	22
96906	MS15570-1251	6240-00-019-0877		1	10
96906	MS15570-623	6240-00-019-3093		1	5
96906	MS16562-252			18	18
96906	MS16624-1075	5365-00-803-7303		7	3
96906	MS16624-1100	5365-00-530-7968		7	12
96906	MS16624-1150	5365-00-803-7299		7	18
96906	MS16842-4	4030-00-243-4438		16	13
96906	MS16917-142	5305-00-187-9934		17	34
96906	MS16998-76	5305-00-983-7450		19	11
96906	MS171556	5315-01-202-7035		18	23
96906	MS171668	5315-00-843-6S71		18	27
96906	MS20913-1S	4730-00-221-2136		10	12
96906	MS21318-27	5305-00-253-5618		23	2
96906	MS21333-71	5340-00-057-2904		6	26
				10	2
96906	MS21333-75	5340-00-050-2740		4	1
96906	MS21333-77	5340-00-922-6300		4	5
96906	MS24665-283	5315-00-842-3044		6	3
96906	MS24665-353	5315-00-839-5822		12	16
96906	MS24665-534	5315-00-234-1634		16	9
96906	MS24465-E55	5315-00-187-9414		16	16
96906	MS27148-2	5999-00-057-2929		1	9
				2	2
96906	MS27183-11	5310-00-809-3078		6	11
96906	MS27183-17	5310-00-809-5997		6	1
				12	15
				16	4
96906	MS27183-21			18	10
96906	MS27163-29	5310-00-209-0698		16	17
96906	MS28775-011	5330-00-582-2133		18	25
96906	MS29513-022	5330-00-250-0230		18	20
96906	MS29513-266	5330-00-263-8007		18	15
96906	MS3215-4050	5365-00-400-3403		6	6
96906	MS3367-1-9			3	1
96906	MS35206-229	5305-00-984-4989		17	15
96906	MS35266-63	5305-00-614-0246		22	3
96906	MS35338-45	5310-00-407-9566		13	11
96906	MS35338-46			1	11
				18	30

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
96906	MS35338-48			7	28
				19	26
96806	MS35338-50			12	18
				18	13
				19	24
96906	MS35338-51	5310-00-584-7888		7	24
96906	MS35387-1	9905-00-205-2795		22	1
96906	MS35367-2	9905-00-202-3639		22	2
96906	MS35478-1683	6240-00-044-6914		1	4
96906	MS35489-107	5325-00-174-9325		4	3
				10	4
96906	MS35489-18	5325-00-276-6098		4	2
				10	3
96906	MS35671-56	5315-00-067-5093		17	4
96906	MS35614-28	5315-00-489-0281		17	3
96906	MS35677-51	5315-00-068-2498		17	9
96906	MS35651-3	5310-00-835-2037		12	12
				19	3
96906	MS35651-69	5310-00-971-7990		19	5
96906	MS35146-1	4730-00-595-0083		9	10
96906	MS35810-4	5315-00-815-8840		6	9
96906	MS35810-6	5315-00-140-1938		6	4
96906	MS35812-4	5340-00-985-0823		6	8
96906	MS39020-1	9905-00-752-4649		3	2
96906	MS39086-93	5315-00-690-0544		17	20
96906	MS39133-1	4730-00-278-8257		9	13
96906	MS39133-2	4730-00-987-9073		9	11
96906	MS39134-1	5360-00-906-7923		9	9
96906	MS39135-1B	4730-00-906-7921		9	15
96906	MS39136-1B	4730-00-906-7922		9	14
96906	MS39137-2	4730-00-034-3703		9	8
96906	MS39179-5	4730-00-069-1186		10	18
				11	7
96906	MS39182-3	4730-00-069-1187		11	4
96906	MS39182-4	4730-00-409-7854		10	17
96906	MS39162-6	4730-00-289-0051		11	5
96906	MS51368-2	2640-00-555-2829		14	2
96906	MS51851-64	5305-00-757-8122		4	6
				6	25
				9	16
96906	MS51851-85	5305-00-191-3640		2	11
96906	MS51922-1	5310-00-088-1251		4	4
				10	1
				16	14
96906	MS51922-17	5310-00-087-4652		6	16
				9	3
				11	9
96906	MS51922-53	5310-00-225-6408		17	14
96906	MS51967-14	5310-01-070-2105		16	2
96906	MS51967-2	5310-00-761-6882		10	6
96906	MS51967-23	5310-00-763-8921		15	1

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
96906	MS51967-23		5310-00-763-8921	18	33
96906	MS51968-14		5310-00-732-0560	7	21
				19	1
96906	MS51961-20			12	19
				19	2
96906	MS51968-23		5310-00-763-8901	13	3
96906	MS51968-26		5310-00-763-8912	19	4
96906	MS51968-8		5310-00-732-0559	6	7
96906	MS53004-2		2530-00-021-2366	11	1
96906	MS53007-1		9905-00-999-7370	9	5
96906	MS53007-2		9905-00-999-7369	9	5
96906	MS90725-113		5305-00-042-6417	16	5
96906	MS90725-58			1	12
96906	MS90725-6			4	7
96906	MS90725-64		5305-00-269-3214	9	4
				11	10
96906	MS90725-67		5305-00-269-3217	6	14
96906	MS90726-163			17	11
96906	MS90726-59			18	31
96906	MS90727-164		5305-00-726-2551	18	12
				19	21
96906	MS90727-188		5305-00-948-0749	16	15
96906	M590728-188		5305-00-900-0576	18	32
96906	MS90728-192		5305-00-947-4355	15	2
96906	MS90726-29		5306-00-226-4822	13	10
79470	NT10006BK		4720-01-182-9067	BULK	3
79470	NT10008BK		4720-01-182-9068	BULK	4
56988	S-595		5360-01-182-8904	6	24
75535	5264		5340-00-264-8839	16	8
81348	ZZ-T-381P/12-16		2610-00-489-8065	14	1
	5/GP2A/8/LTHR				
81348	ZZ-V-25/TYP 1V/C		2640-00-060-3550	14	3
	LASS1/TR-VC-2				
56697	103100-001		5310-01-183-6830	13	8
56697	105102		5310-01-183-6843	13	13
56697	105103		5310-01-183-6844	13	14
19207	10885443		2590-00-860-0532	17	17
19207	10885446		2590-00-860-0535	17	18
19207	10885448		5340-00-076-1943	17	16
19207	10885450		2590-00-860-0529	17	8
19207	10885478		2590-00-860-0536	17	19
19207	10891263		2590-00-860-0538	2	12
19207	10891283		4030-00-075-7212	15	4
19207	10891299		2590-00-076-0050	17	29
19207	10914500		5340-00-075-9147	20	1
19207	10916511		5365-01-201-9597	18	3
19207	10916511-1		5365-01-195-3688	18	7
19207	10916511-2		5365-01-195-3673	18	6
19207	10916511-3		5365-01-195-3674	18	5
19207	10916511-4		5365-01-195-3675	18	4
19207	10916514		5306-00-446-8137	18	29

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
19207	10916515		5360-01-196-0629	18	22
19207	10916516		5315-01-197-1179	18	21
19207	10916520		2590-01-192-0632	18	1
19207	10916521		5315-00-937-0154	18	16
19207	10916522		2590-01-182-8758	18	9
19207	10916523		1095-01-162-0357	18	2
19207	10916524		1095-01-162-0358	18	8
19207	10916527		1095-01-162-0343	18	14
19207	10916531		5355-01-204-6935	18	24
19207	10916533		5330-01-147-1628	18	11
19207	10916534		4730-01-192-8090	18	26
19207	10950503		2590-00-736-1377	17	1
19207	10950504			17	6
19207	10950505		1095-01-144-1478	17	10
19207	10950508		1095-01-141-4815	17	2
19220	11X-138		5310-01-188-7485	21	7
19207	11592642		2530-00-178-0720	14	9
19207	11614157		6Z20-01-093-4439	1	1
19207	11636665		5306-00-152-0562	16	t0
19207	11639519-2		5330-00-462-0907	1	3
19207	11639520			1	6
19207	11639535		6220-00-179-4324	1	2
19220	12X-195		5310-01-188-7495	21	11
79470	1484X6		4730-01-056-4990	11	8
79470	1484X8		4730-01-04d-5261	10	15
19220	15592		5365-01-078-5901	21	5
19220	15595		5360-01-061-3207	21	6
19220	16307-3		5340-01-188-7427	21	12
73842	181-854-623		2610-01-189-0564	14	1
56697	200101-001		2530-01-183-6813	7	27
56697	201142			7	4
56697	209199-029-1		2530-01-129-7552	7	1
56697	202103-2131		2530-01-183-6848	7	13
56697	202103-213R		2530-01-183-6847	7	13
56697	203110		5315-01-046-0176	7	11
56697	204108-001		3120-01-041-4671	7	6
56697	205107-001		5315-01-047-6042	7	7
56697	207100		2530-01-016-2029	7	5
56697	208106		5360-01-019-3541	7	9
56697	212133		2530-01-183-2716	7	17
06853	212862		4730-00-202-6491	12	4
06853	213630		5330-00-090-2128	9	12
56697	217030-054		2530-01-183-2719	12	1
56697	217999-003		2530-01-183-2717	12	2
56697	217999-006		5360-01-183-2704	12	10
56697	217999-007		5340-01-183-2788	12	8
56697	217999-008		5340-01-183-2701	12	14
56697	217999-900		5340-01-183-2630	12	11
56697	217999-901			12	17
56697	217999-903		5340-01-183-2787	12	5
56697	217999-904			12	3

## NATIONAL STOCK NUMBER AND PART NUMBER INDEX

FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
56657	217999-906		2530-01-183-2629	12	9
06853	228545		4720-01-192-8153	11	2
06853	228554		4720-01-192-8154	11	3
06853	228746		2530-01-182-8983	9	1
06853	241871		2530-01-191-6535	11	6
19220	213458		5315-01-188-7430	21	3
56697	300113-001		2530-00-374-2118	13	17
56697	304108		2530-00-371-4105	13	9
56697	3061400-003		2530-01-183-6849	13	1
26151	330-3024		5330-01-167-1900	13	12
26151	3700-7006		5330-01-167-2049	13	18
09386	37888		5310-00-594-8038	13	15
				16	19
09386	37889		5310-00-273-7771	13	15
56697	401113		5306-01-183-2697	7	26
56697	401169		5306-01-183-2731	12	7
56697	402101		5310-01-042-1006	7	25
56697	402154		5310-01-183-2709	12	6
56697	403107		5310-01-183-6852	7	23
56697	403112		5310-01-183-6831	7	20
56697	403161		5310-01-183-6854	13	2
56697	404101-001		5320-01-020-0703	7	8
56697	405128		2530-01-183-6814	7	15
56697	405129		3120-01-042-2579	7	22
56697	411102		5315-01-183-8386	12	13
01212	443527591		2530-01-183-6815	7	14
56697	4536B			7	2
19220	5X252		5310-01-063-9764	21	9
79934	501-1			14	8
60038	522		3110-00-100-0323	13	6
56988	523		5360-01-196-7958	16	3
19201	5232954		4730-00-278-6319	9	6
00038	526		3110-00-100-0269	13	7
60038	53176		3110-00-142-4351	17	33
60038	53387			17	30
53477	5405			14	7
60038	563		3110-00-100-0328	13	5
19220	5630-OAX		2540-01-189-0598	21	2
60038	567		3110-00-100-0286	13	4
79934	595-2			14	5
79934	595-3			14	6
79934	595-4			14	4
19207	7328401			17	32
19207	7328402		3120-00-899-4072	17	24
19207	7328405		3040-01-162-0355	17	28
19207	7392815		2530-00-330-3262	6	13
19207	7411022		2530-00-797-9295	10	7
19207	7411081		2530-00-741-1081	10	8
19207	7415748			10	14
19207	7520774		3020-00-571-6104	17	27
19207	7520775		3120-00-752-0775	17	25

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FSCM	PART NUMBER	PART NUMBER INDEX		FIG.	ITEM
			STOCK NUMBER		
19207	7520777			17	21
18876	7520829			17	23
19201	7696416			17	22
19207	7720853			BULK	5
19207	7759645	4820-00-142-3036		9	2
19207	7979296	5306-00-197-9296		10	5
19207	7919612	5360-00-706-9054		10	10
19207	7979613	4730-00-580-8457		10	13
19207	7979614	5310-00-679-3606		10	9
19220	8000	5340-01-010-3842		21	1
19220	8000-1	5307-01-115-1810		21	4
19220	8000-2	2540-01-188-7395		21	10
19220	8000-5	2540-01-188-7398		21	8
19920	8000-50			21	13
19207	8005089	2590-00-582-5503		17	12
18876	8020015	1440-00-341-2387		17	13
92867	81000045	3120-01-183-2724		6	21
92867	81000007	3040-01-183-2767		6	20
92867	81000136	3120-01-088-0337		6	15
92867	81000177	5315-01-183-2699		6	22
92867	81000178	2530-01-183-2632		6	18
92867	81001550	5340-01-183-2702		6	17
19207	8329823	5330-00-285-5123		10	11
19207	8338561	5935-00-833-8561		2	7
19207	8338562	5970-00-833-8562		2	8
19207	8338564	5940-00-399-6676		2	9
19207	8338566	5935-00-572-9180		1	7
				2	4
19207	8338567	5310-00-833-8567		1	8
				2	3
92867	84000182	5310-01-183-2727		6	23
92867	84002443	5310-01-129-9470		6	19
19207	8683884	5330-00-899-5217		17	7
19207	8699500	5365-00-899-6723		6	10
19207	8737726	5310-00-455-0288		18	28
19207	8747908-1	2590-00-529-6199		2	10
05386	95693	5307-01-166-3690		13	16
09386	95694	5307-01-167-7777		13	16
56697	999197	2530-01-183-6846		7	10
56697	999242	3120-01-183-6851		7	19

## APPENDIX G

## ILLUSTRATED LIST OF MANUFACTURED ITEMS

## Section I. INTRODUCTION

This appendix includes complete instructions for making items authorized to be manufactured or fabricated at organizational maintenance.

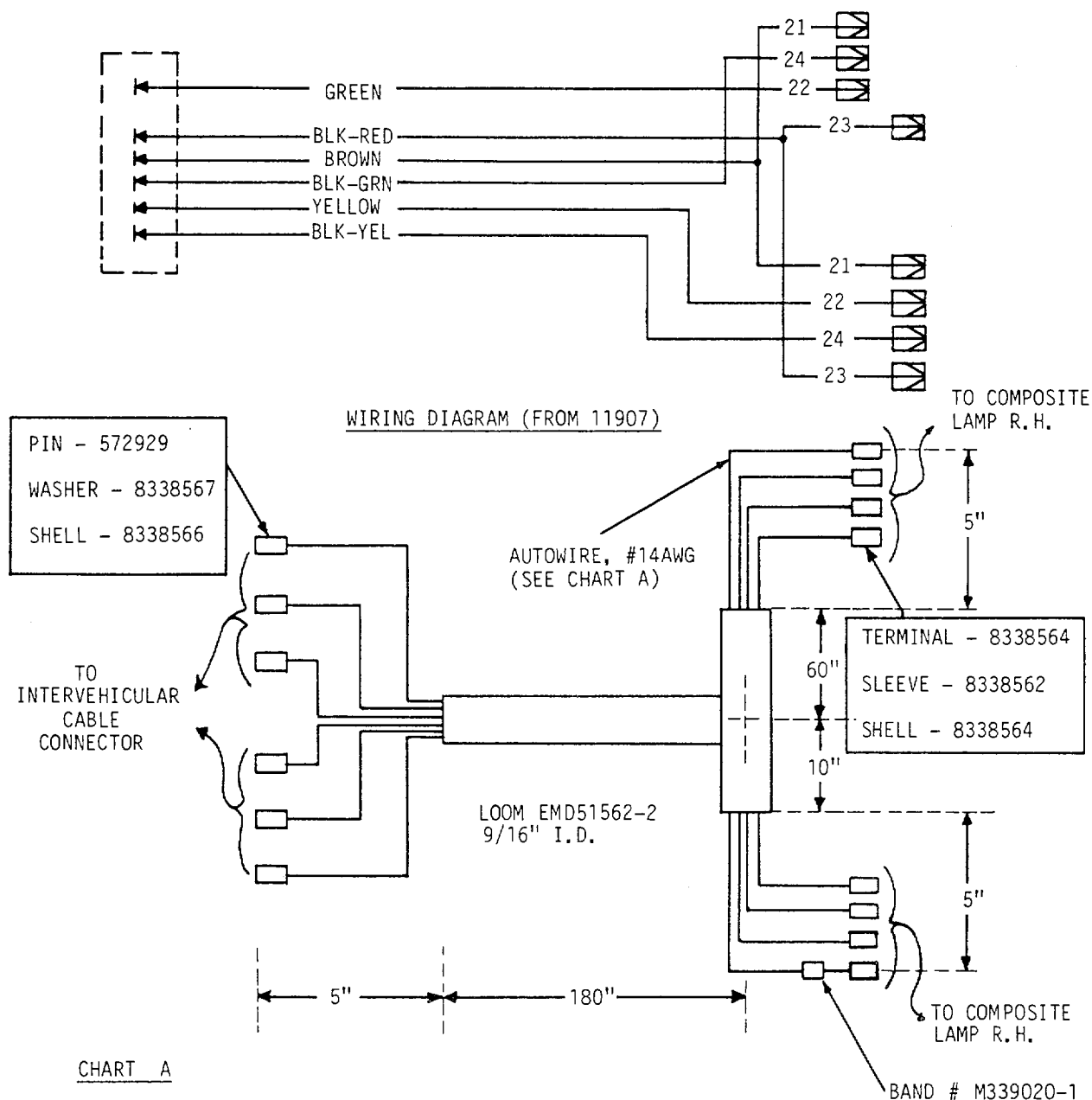
A part number index in alphanumeric order is provided for cross-referencing the part number of the item to be manufactured or fabricated to the figure which covers the fabrication criteria.

Bulk materials needed for manufacture or fabrication of an item are listed by part number and NSN in the following tabular listing:

## Section II. TABULAR LISTING OF MANUFACTURED ITEMS

Part Number of Item	Figure Number	Required Number of Feet of Wire	Required Number of Inches of Tubing		Required Number of Inches of Loom	
			NTI0006BK	NTI0008BK	E-31	E-29A
EMD11907	G-1	120	0	0	0	0
EMD11735	G-2	0	150	96	96	150
EMD58618	G-2		88			
EMD58619	G-2		62			
EMD51051	G-2			96		
EMD51562-2	G-2				96	
EMD58620	G-2					88
EMD58621	G-2					62

## WIRING DIAGRAM



## CHART A

## AUTO WIRE PART NUMBER

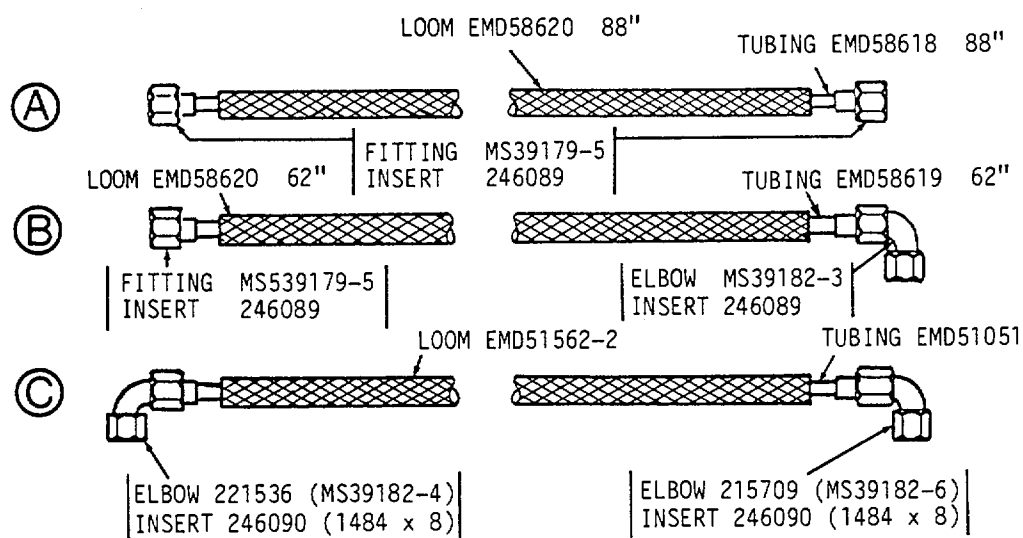
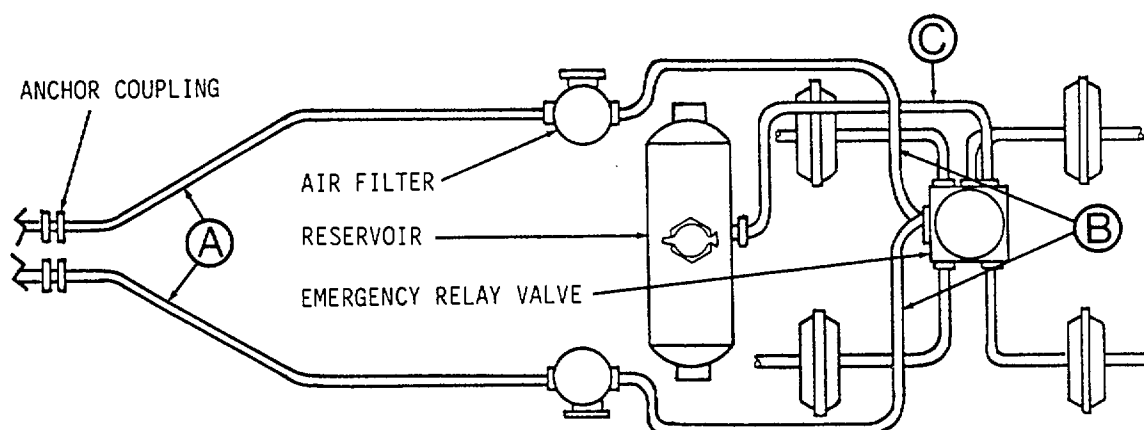
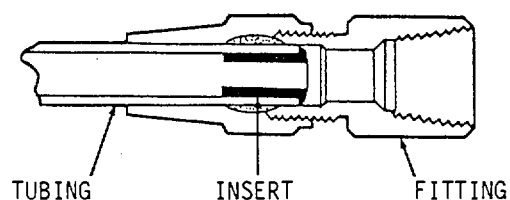
51431-1	BLACK	& -8 BLACK W/YELLOW STRIPE
51431-2	BROWN	& -9 BLACK W/GREEN STRIPE
51431-3	YELLOW	& -10 BLACK W/RED STRIPE
51431-4	RED	
51431-5	GREEN	
51431-6	WHITE	
51431-7	BLUE	

1. BINDING:
  - a. HARNESS IS TO BE COVERED WITH 9/16-INCH I.D. LOOM OR
  - b. WITH ONE-HALF OVERLAPPING TURNS OF ELECTRICAL TAPE.
2. CRIMP:
  - a. CRIMP PIN CONTACTS (FERRULES), AND TERMINALS TO WIRES TO MEET PERFORMANCE REQUIREMENTS OF SPEC. MIL-7-13513.
3. SPLICE:
  - a. SPLICE WIRES TO MEET REQUIREMENTS OF SPEC. MIL-T-13513, FOR PERFORMANCE.
  - b. COMPLETED SPLICES MUST MEET REQUIREMENTS OF SPEC. MIL-C-13486.

TA 272463

Figure G-1. Wiring Harness, EMD11907



SCHEMATIC DIAGRAM - TUBING LOCATIONSFITTING DETAILINSTRUCTIONS:

1. CUT TUBING AND LOOM TO REQUIRED LENGTH. ENDS MUST BE CUT SQUARE.
2. SLIDE TUBING INTO LOOM.
3. SLIDE FITTING ON TUBING.
4. SLIDE INSERT INTO TUBING UNTIL SEATED AGAINST END FLANGES.

TA 272464

Figure G-2. Tubing Assembly Instructions

## APPENDIX H

## TORQUE TABLE

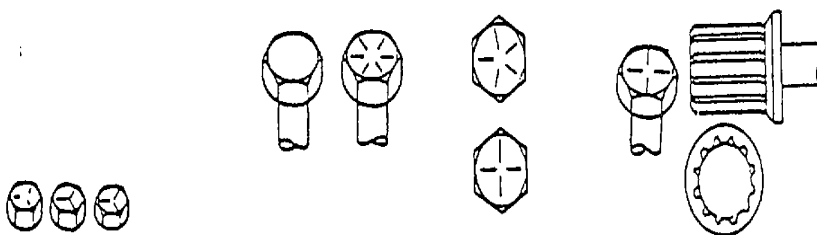
## STANDARD CAPSCREW MARKINGS AND TORQUE

Current Usage	Much Used	Much Used	Used at Times	Used at Times
Minimum Tensile Strength PSI MPa	To Vh-9, 000 (478) To-1Y4-4, 000 (421) To 155, 000 (379)	To 3V.120, 000 (827) To 1-115, 000 (793)	To 518-140, 000 (965) To -3/4 133, 000 (917)	150, 000 (1034)
Quality of Material	Indeterminate	Minimum Commercial	Medium Commercial	Best Commercial
SAE Grade Number	1 or 2	5	6 or 7	8

## Capscrew Head Markings

Manufacturer's marks  
may vary

These are all SAE G- 3)  
Grade 5 (3 line)



Capscrew Body Size (Inches)--(Thread)	Torque Ft-Lb (N-m)	Torque Ft-Lb (N-m)	Torque Ft-Lb (N-m)	Torque Ft-Lb (N-m)
1/4 --205(7)	8(11)	10(14)	12(16)	
-28	6(8)	10(14)		14(19)
5/16--1811(15)	17(23)	19(26)	24(33)	
-24	13(18)	19(26)		27(37)
3/8-16	18(24)	31(42)	34(48)	44(60)
-24	20(27)	35(47)		49(66)
7/17-14	28(38)	49(6S)	55(75)	70(95)
-20	30(41)	55(75)		78(106)
-13	39(53)	75(102)	85(115)	105(142)
-20	41(568)	85(115)		120(1631)
9/16-12	51(69)	110(149)	120(163)	155(210)
-18	55(75)	120(153)		170(231)
5/8-11	83(113)	150(203)	167(228)	210(285)
-18	95(129)	170(231)		240(3251)
3/4-10	105(142)	270(366)	280(380)	375(508)
-16	115(156)	295(400)		420(569)
7/8-9 1	60(217)	395(536)	440(597)	605(820)
-14	175(237)	435(590)		675(915)
1 - 8	235(319)	590(800)	680(895)	910(1234)
-14	250(339)	860(895)		990(1342)

1. Always use the torque values listed above when definite specifications are not available.

**Note:** Do not use standard values in place of those specified in other sections of this manual; special attention should be observed when using SAE Grade 6, 7 and 8 capscrews.

2. The above is based on use of clean and dry threads.

3. Reduce torque by 10Svwhen engine oil ls used as a lubricant.

4. Reduce torque by 20% If new plated capscrews are used.

**Caution:** Capscrews threaded into aluminum may require reductions in torque of 303% or more, unless inserts are used.

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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

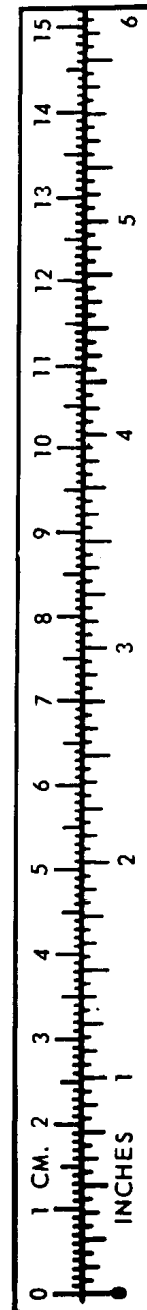
$5/9 (^{\circ}\text{F} - 32) = ^{\circ}\text{C}$   
 212° Fahrenheit is equivalent to 100° Celsius  
 90° Fahrenheit is equivalent to 32.2° Celsius  
 32° Fahrenheit is equivalent to 0° Celsius  
 $9/5 (^{\circ}\text{C} + 32) = ^{\circ}\text{F}$

### 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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TABLE  
NO.

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