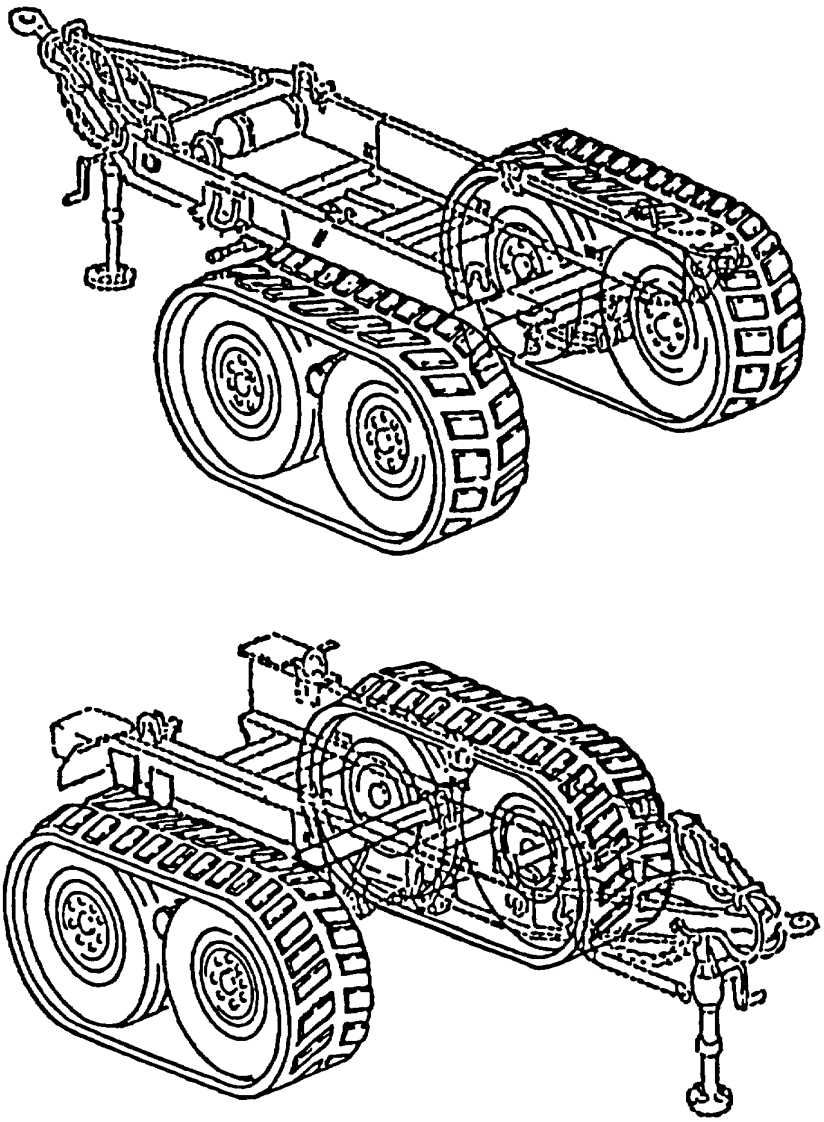
TECHNICAL MANUAL

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



TRACKED TRAILER, CARGO
(NSN 2330-01-360-3865)

HEADQUARTERS, DEPARTMENT OF THE ARMY

MARCH 1993

FOR INFORMATION ON FIRST AID, REFER TO FM 21-11.

WARNING

ASBESTOS HAZARD

DO NOT handle brakeshoes, brakedrums, or other brake components unless area has been properly cleaned. There may be asbestos dust on these components which can be dangerous If you touch it or breathe it. Wear an approved filter mask and gloves. Never use compressed air or a dry brush to clean brake components. Dust may be removed using an Industrial-type vacuum cleaner. Clean dust or mud away from brake components with water and a wet, soft cloth. Failure to follow this warning may result in serious illness or death to personnel.

WARNING

COMPRESSED AIR

Compressed air used for cleaning or drying purposes, or for cleaning restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (goggles/shield, gloves, etc.) and use caution to avoid injury to personnel.

WARNING

DRY CLEANING SOLVENT

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

WARNING

HANDLING HEAVY COMPONENTS

Use only approved lifting equipment. All personnel must stand clear of lifting device when raising or lowering heavy components. When working beneath equipment, it must be supported properly. Do not depend on hydraulic jacks or cylinders to support equipment. Use jack stands and/or blocking. Failure to follow this warning may result in injury or death to personnel.

WARNING

SECURING TRAILER

If trailer is not coupled to towing vehicle, ensure that tracks are securely chocked and parking brakes are set. Failure to follow this warning, may cause trailer to roll, resulting in serious injury or death to personnel and damage to equipment.

WARNING

USING UNAUTHORIZED CLEANING METHODS

Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. To prevent this, refer to TM 9-247 for further instructions.

WARNING

CHECKING TRACK BELT TENSION AND ALIGNMENT

Ensure that both towing vehicle and M200A1 trailer parking brakes are set and tires and track belt are cool before checking track belt tension and alignment. Tires may be hot after operation. Failure to follow this warning may result in serious injury or death to personnel.

TECHNICAL MANUAL

TM 9-2330-389-14&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., *30 March 1993*

OPERATOR'S, UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR TRACKED TRAILER, CARGO (NSN 2330-01-360-3865)

Current as of 4 August 92

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

TABLE OF CONTENTS

Approved for public release; distribution is unlimited.

CHAPTER 1
INTRODUCTION

Section I. GENERAL INFORMATION

1-1. SCOPE.

a. This manual describes the operation and organizational, direct support, and general support maintenance, including repair parts and special tools lists for the Tracked Suspension as installed on the M200A1 trailer.

b. Throughout this manual, the terms "right" and "left" are used to describe views of the Tracked Suspension and M200A1 trailer, as viewed from the rear.

1-2. MAINTENANCE FORMS, RECORDS, AND REPORTS.

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

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

For destruction of Army materiel to prevent enemy use, refer to TM 750-244-6.

1-4. PREPARATION FOR STORAGE OR SHIPMENT.

For information on preparing M200A1 trailers with the Tracked Suspension for storage or shipment, refer to Chapter 4, Section X.

1-5. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs).

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

Section II. EQUIPMENT DESCRIPTION AND DATA

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

a. The tracked suspension is designed to improve the trafficability and mobility of the standard M200A1 Chassis Trailer over soft soil, such as sand, mud, and snow-covered terrain.

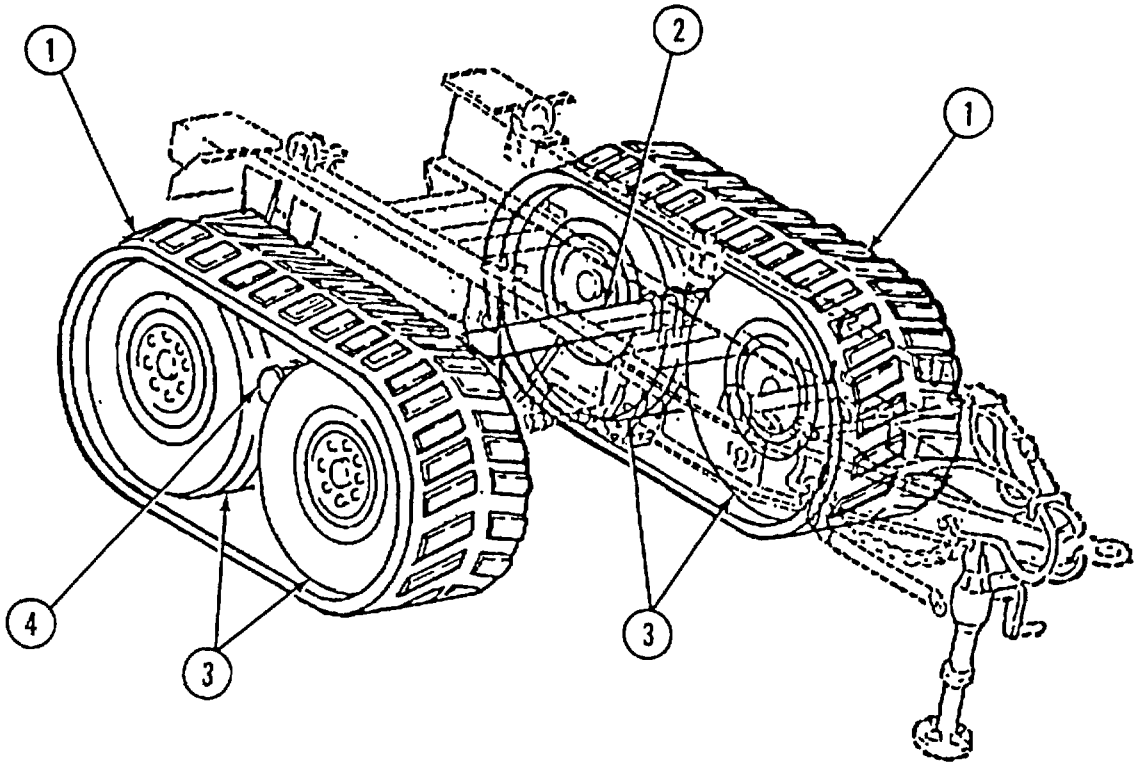
b. The M200A1 trailers with the tracked suspension are designed to be towed by an Ml 13 Armored Personnel Carrier or equivalent. Maximum allowable speed is 50 mph (80 kph) highway and 15 mph (24 kph) cross-country.

c. The Tracked Cargo Trailer is equipped with:

(1) Two steel-reinforced molded rubber track belts.

(2) Two adjustable frame groups to provide track-belt tension and alignment.

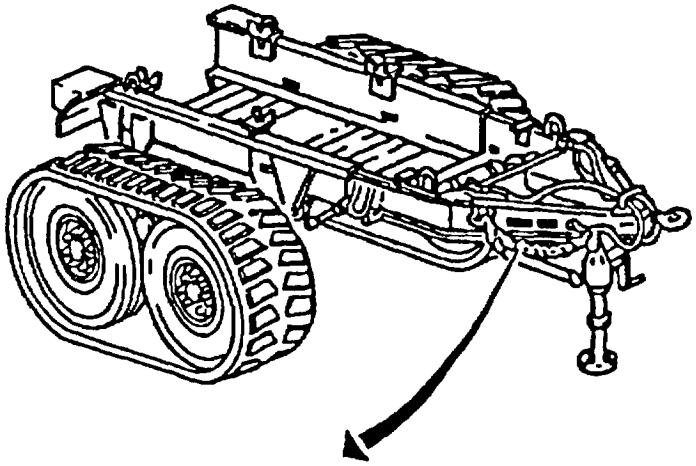
1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

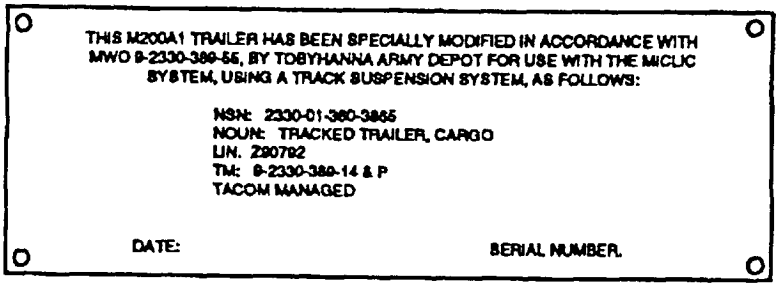


Key	Component	Description
1	Track Belt	One piece steel-reinforced molded rubber construction.
2	Cross Axle	Supports the trailer load and mounting for the left and right frame group.
3	Wheels	Provides support and motion for the trailer.
4	Frame Group	Consists of a front and rear frame assembly which provides mounting for wheel and tension to track belt.

1-8. DATA PLATES.

There are two data plates on the front right frame. They provide identification, registration, dimension, and weight information.





1-9. EQUIPMENT DATA.

Dimensions (Overall):	
Height	43.5 in. (1102 mm)
Length	165.5 in. (4193 mm)
Width	96 in. (2438 mm)
Ground Clearance	10 in. (253 mm)
Weights:	
Tracked Suspension Only	1900 lb. (963 kg)
M200A1 Trailer with Track	3450 lb. (1564 kg)
Maximum Weight (Trailer plus Payload)	8450 lb. (3833 kg)
Wheels and Tires:	
Wheels:	
Rim Size	6.5 x 16 in. (165 x 405 mm)
Type	Integral Rim
Tires:	
Inflation Pressure	40 psi (276 kPa)
Rating	8 Ply
Size	6.50 x 16 in. (165 x 405 mm)
Track Belt:	
Thickness	1.14 in. (29 mm)
Width	22 in. (558 mm)
Material	Steel Reinforced Rubber
Cross Axle Assembly:	
Capacity	8450 lb. (3833 kg)
Tube Diameter	4.5 in. (114 mm)
Length	83.375 in. (2112 mm)
Spindle:	
Brake Flanges	7.75 in. (196 mm)
Dimension at Bearing	2.624 in. (66.5 mm)
Frame Group:	
Type	Telescoping Mainframe
Tensioning Method	Threaded Rod
Spindle Diameters	1.75 in. (44 mm)
Service Brakes:	
Air Operating Pressure	90-100 psi (620.5-689.5 kPa)
Diameter	12 in. (304 mm)
Width	2 in. (51 mm)
Towing Vehicle	M113 or 5-Ton Truck or equivalent

WARNING

Do not use MI Abrams series tank as towing vehicle.

CHAPTER 2

OPERATING INSTRUCTIONS

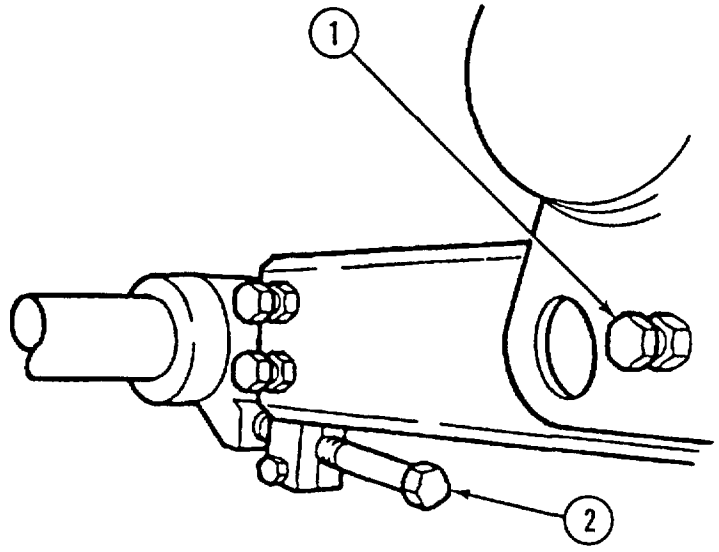
Section I. DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS

2-1. GENERAL

This section shows the location and function of all Tracked Cargo Trailer controls and indicators. Review this section thoroughly before operating the trailer.

2-2. CONTROLS AND INDICATORS.

There are no controls and indicators for the Tracked Cargo Trailer; however, critical adjustments are required for proper operation.



Key	Control or Indicator	Description
1	Pivot adjustment screws (each side of frame)	Used to adjust the frame for belt and tire alignment.
2	Adjustment bolts	Used to extend the frame group and provide belt tension.

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

2-3. GENERAL

a. To ensure that the M200A1 trailers with the Tracked Suspension are ready for operation at all times, they must be inspected on a regular basis so that defects may be found before they result in serious damage, equipment failure, or injury to personnel. This section contains systematic instructions on inspections, adjustments, and corrections to be performed by the operator/crew.

b. While performing PMCS, read and follow all safety instructions found in the Warning Summary at the front of this manual. Keep in mind all WARNINGs and CAUTIONs.

2-4. SERVICE INTERVALS.

Perform PMCS, found in Table 2-1, at the following intervals:

(1) Perform Before (B) PMCS just before operating the trailer.

(2) Perform During (D) PMCS while operating the trailer.

(3) Perform After(A) PMCS right after operating the trailer.

(4) Perform Weekly(Lo PMCS once each week

2-5. REPORTING REPAIRS.

All defects which the operator cannot fix must be reported on a DA Form 2404, *Equipment Inspection and Maintenance Worksheet*, immediately after completing PMCS. If a serious problem is found, IMMEDIATELY report it to your supervisor.

2-6. GENERAL PMCS PROCEDURES.

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

a. Keep equipment clean. Dirt, oil, and debris may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (Item 6, Appendix E) on all metal surfaces. Use soap (Item 2, Appendix E) and water on rubber, plastic, and painted surfaces.

b. While performing specific PMCS procedures, inspect the following components:

(1) **Bolts, Nuts, and Screws**. Ensure they are not loose, missing, bent, or broken. Report loose or missing bolts, nuts, and screws to organizational maintenance.

(2) **Welds**. Inspect for gaps where parts are welded together. Check for loose or chipped paint, rust, and cracks. Report bad welds to unit maintenance.

(3) **Hoses, Lines, and Fittings.** Inspect for wear, damage, and leaks. Ensure that clamps and fittings are tight. Report any damage, leaks, or loose fittings to unit maintenance.

c. Check that components are adequately lubricated in accordance with Chapter 3, Section I.

2-7. SPECIFIC PMCS PROCEDURES.

a. Operator/Crew PMCS is provided in Table 2-1. Always perform PMCS in the order listed. Once the PMCS becomes routine, spotting problems will become much easier.

b. Before performing PMCS, read all the checks required for the applicable interval and prepare all tools needed for the task. Have several clean rags (Item 5, Appendix E) ready for use. Perform ALL inspections at the applicable interval.

c. If any problems are discovered through PMCS, perform the appropriate troubleshooting task as described in Chapter 3, Section II. If any component or system is not serviceable, or if any service does not correct the problem, notify your supervisor.

d. The columns in Table 2-1 are defined as follows:

(1) **Item No**. Provides a logical sequence for PMCS to be performed and is used as a source of item numbers for the “TM ITEM NO." column when recording PMCS results on DA Form 2404.

(2) **Interval.** Specifies the interval at which the PMCS is to be performed.

(3) **Item To Be Inspected**. Lists the system and common name of items that are to be inspected. Included in this column are specific servicing, inspection, replacement, or adjustment procedures to be followed.

2-7. SPECIFIC PMCS PROCEDURES (Con't).

NOTE

The terms "ready/available" and "mission-capable" refer to the same status: Equipment is on hand and is able to perform its combat missions (AR 700-138).

(4) Equipment is Not Ready/Available If. Explains when and why tracked suspension cannot be used.

2-8. LEAKAGE DEFINITIONS.

a. It is important to know how fluid leakage affects the status of the trailer. The following are types/classes of leakage an operator must know to determine whether the trailer is mission-capable. Learn these leakage definitions. When in doubt notify your supervisor.

Leakage Definitions for Operator/Crew PMCS

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

CAUTION

When operating with Class I or II leaks, continue to check fluid levels in addition to that required in PMCS. Parts without fluid stop working or may be damaged.

b. Equipment operation is allowed with minor (Class I or II) leakage. Fluid levels in an item/system affected with such leakage must be checked more frequently than required in PMCS. When in doubt, notify your supervisor.

c. Report Class III leaks IMMEDIATELY to your supervisor.

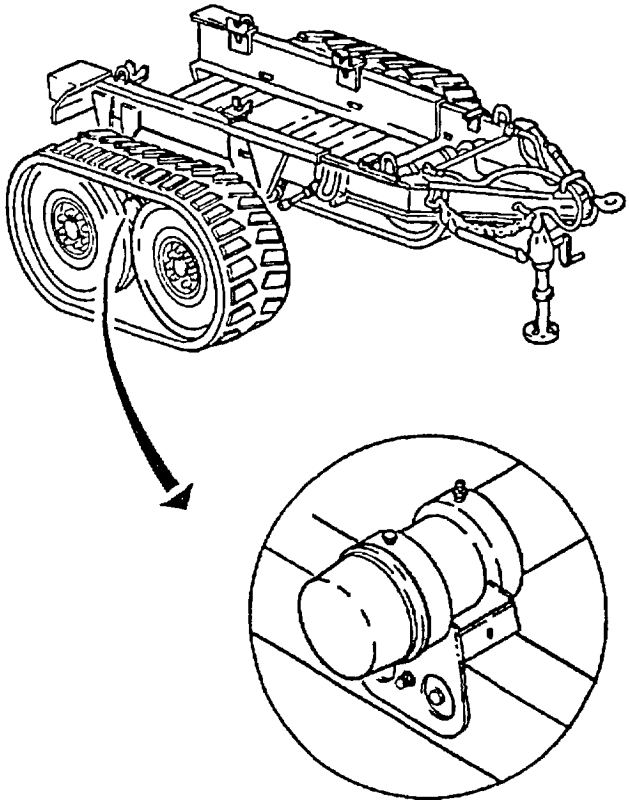
Table 2-1. Operator/Crew Preventive Maintenance Checks and Services (PMCS).

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

ITEM NO.	INTERVAL				ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed	Equipment Is Not Ready/Available If:
	B	D	A	W		
					NOTE **Perform Weekly as well as Before PMCS if:** **a. You are the assigned operator but have not operated the M200A1 trailer with Tracked Suspension since the last weekly.** **b. You are operating the M200A1 trailer with Tracked Suspension for the first time.** **c. Frame and suspension, service brake, handbrake, brakelines and lugnuts will be checked in conjunction with M200A1 PMCS.** **d. Deadline criteria for brakes do not apply if towing vehicle is not equipped with proper air brake system hook-up.**	
1	•				**TIRES.** **WARNING** **Ensure that both towing vehicle and M200A1 trailer parking brakes are set and tires and track belts are cool before checking track belt tension and alignment. Tires may be hot after operation. Failure to follow this warning may result in serious injury or death to personnel.** a. Visually check tires for cuts, cracks, cracking, or inner sidewall wear due to alignment and tension. b. Check by hand for 1/4" minimum clearance between the track blocks and the tire inner sidewall at the top and bottom of rear wheel assembly. Notify unit maintenance if deficiency is found. c. Check tire pressure. Pressure should be 40 psi (276 kPa) when tires are cool. Do not over inflate tires.	One or more tires flat, missing or cuts/abrasions, scoring and visible tread damage due to sidewall wear. Track blocks touching any inner sidewall.

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

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

ITEM NO.	INTERVAL				ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled or adjusted as needed	Equipment Is Not Ready/Available If:
	B	D	A	W		
2	•				**TRACK BELT.** Inspect track belt for rips, rears, chunking, or uneven wear.	Track has more than five center guideblocks in a row missing, five-inch lateral or vertical cut with steel belt visible, tread wear with steel belt visible.
3	•				**AXLE PIVOT SEAL.** Inspect area around axle pivot seal for heavy grease build-up. (Minimal grease seepage is considered normal.) 	Heavy grease build-up in of pivot seal.

Section III. OPERATION UNDER USUAL CONDITIONS

2-9. GENERAL

a. This section contains instructions for safely operating the M200A1 Trailers with the Tracked Suspension under usual conditions. Unusual conditions are defined and described in Section IV of this chapter.

b. Perform all *Before (B)* PMCS in Table 2-1 before operating the trailer.

c. Review all towing vehicle operating instructions to prepare for coupling and uncoupling operations (refer to -10 TM of towing vehicle).

2-10. TOWING INSTRUCTIONS.

WARNING

Do not use an MI Abrams series tank as towing vehicle.

a. Perform all *During (D)* PMCS in Table 2-1 while operating the trailer.

b. Lunette may be reversed to accommodate height requirement of towing vehicle (refer to TM 9-2330-205-14&P).

c. When towing the trailer, the overall length of the unit must be kept in mind when passing other vehicles and when turning.

d. Turning and backing operations will be affected because the towing vehicle and trailer act as a hinged unit.

e. Follow prescribed speeds at all times (para 1-6).

f. When parking for extended periods, set the handbrakes on both towing vehicle and trailer.

g. If trailer or trailer and towing vehicle are parked on a hill, chock the tracks and wheels.

h. Refer to FM 21-305 for further information on proper driving practices.

i. Tracked prime movers (M113 series, etc.) are not equipped with airline gladhands, so they will not connect with the M200A1 brake system.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-11. GENERAL

a. This section contains special instructions for operating and servicing the equipment under unusual conditions.

b. Special care must be taken in cleaning and lubrication when extremes in temperature, humidity, and terrain conditions are present or anticipated, in addition to performing all normal PMCS. Proper cleaning, lubrication, storage, and handling ensures proper operation and function, and also guards against excessive wear.

2-12. OPERATION IN EXTREME COLD.

a. Extensive preparation of material scheduled for operation in extreme cold is necessary. Refer to FM 21-305.

b. Refer to Chapter 3, Section I for proper lubrication during extreme cold weather conditions.

2-13. OPERATION IN EXTREME HEAT.

a. Refer to Chapter 3, Section I for proper lubrication during extreme heat conditions. Adequate lubrication is essential. Extreme heat will cause oil films to dissipate.

b. Keep tires covered from direct sunlight to prevent increased air pressure.

2-14. OPERATION IN HIGH HUMIDITY AND SALTWATER AREAS.

a. Moist and salty areas can destroy the rust preventative qualities of oils and greases. When equipment is active, exposed surfaces should be cleaned and lubricated daily. Refer to Chapter 3, Section I for proper lubrication in high humidity and saltwater areas.

b. When equipment is inactive, unpainted parts should be coated with lubricating oil (Item 4, Appendix E). All covers and caps should be in place.

2-15. OPERATION in MUD AND SNOW.

a. Immediately after operation in mud or snow, thoroughly clean, inspect, and lubricate if tactical situation permits. Refer to Chapter 3, Section I for proper lubrication instructions.

b. Pack wheel bearings as required (Chapter 3, Section I).

c. Refer to FM 21-305 for special instructions on driving hazards in snow.

2-16. OPERATION in DUSTY OR SANDY AREAS.

a. Inspect, clean, and lubricate frequently when operating in dusty or sandy areas. Refer to Chapter 3, Section I for proper lubrication instructions.

b. Ensure that no dust or sand enters exposed mechanisms or lubrication fittings during inspections and repair operations. Cover exposed parts with tarpaulins or other suitable cover during disassembly and assembly.

c. When beginning operations in dusty or sandy areas, remove lubricants from exposed components if tactical situation permits. Grease and oil will cause dust and sand to accumulate. This will cause grease and sand to act as an abrasive, which will cause rapid wear.

2-17. FORDING.

a. Refer to towing vehicle operating instructions for information on fording operations. Towing vehicle instructions are also applicable to the trailer.

b. Refer to TM 9-238 for instruction on deepwater fording and deepwater fording kits.

c. Fording depth of the M200A1 Trailer with Tracked Suspension is limited to the fording depth limit of the trailer's cargo or the towing vehicle, whichever is lower.

d. Immediately after trailer is towed from the water, if tactical situation permits, perform the following services:

Saltwater immersion greatly increases rusting and corrosion, especially on unpainted surfaces. Remove all traces of saltwater and salt deposits from all areas of the M200A1 Trailer and Tracked Suspension. Apply lubricating oil (item 4, Appendix E) Notify unit maintenance that complete disassembly and assembly may be needed.

CHAPTER 3

OPERATOR MAINTENANCE

Section I. LUBRICATION INSTRUCTIONS

3-1. GENERAL

NOTE

These instructions are MANDATORY.

a. The Tracked Cargo Trailer must receive lubrication with approved lubricants at recommended intervals in order to be mission-ready at all times.

b. The KEY lists lubricants to be used in all temperature ranges and shows the intervals.

c. The Lubrication Chart shows lubrication points, items to be lubricated, required lubricant, and recommended intervals for lubrication. Any special lubricating instructions required for specific components are contained in the NOTES section of the chart.

d. Recommended intervals are based on normal conditions of operation, temperature, and humidity. When operating under extreme conditions, lubricants should always be changed more frequently. When in doubt, notify your supervisor.

3-2. SPECIFIC LUBRICATION INSTRUCTIONS.

a. Keep all lubricants in a closed container and store in a clean, dry place away from extreme heat. Keep container covers clean and do not allow dust, dirt, or other foreign material to mix with lubricants. Keep all lubrication equipment clean and ready for use.

b. Maintain a record of lubrication performed and report any problems noted during lubrication. Refer to DA Pam 738-750 for maintenance forms and procedures to record and report any findings.

WARNING

Wipe excess lubricant from the area of brakeshoe linings to avoid grease soaking the linings. If brakeshoe linings become soaked, have unit maintenance replace them. Failure to follow this warning may cause brakes to malfunction, resulting in serious injury or death to personnel.

c. Keep all external parts not requiring lubrication free of lubricants. After lubrication, wipe off excess oil or grease to prevent accumulation of foreign matter.

3-2. SPECIFIC LUBRICATION INSTRUCTIONS (Con't).

d. Refer to FM 9-207 for lubrication instructions in cold weather.

e. Refer to TM 9-238 for lubrication instructions before and after fording operations.

f. After operation in mud, sandy, or dusty conditions, clean and inspect all points of lubrication for fouled lubricants. Change lubricants as required.

LUBRICATION CHART

TRACKED TRAILER, CARGO

Intervals (on-condition or hard time) and related man-hour times are based on normal operation. The man-hour time specified is the time you need to do all services prescribed for a particular interval. Decrease the intervals if your lubricants are contaminated, or if you are operating equipment under adverse conditions, including longer-than-usual operating hours. The intervals may be extended during periods of low activity. If extended, adequate preservation precautions must be taken.

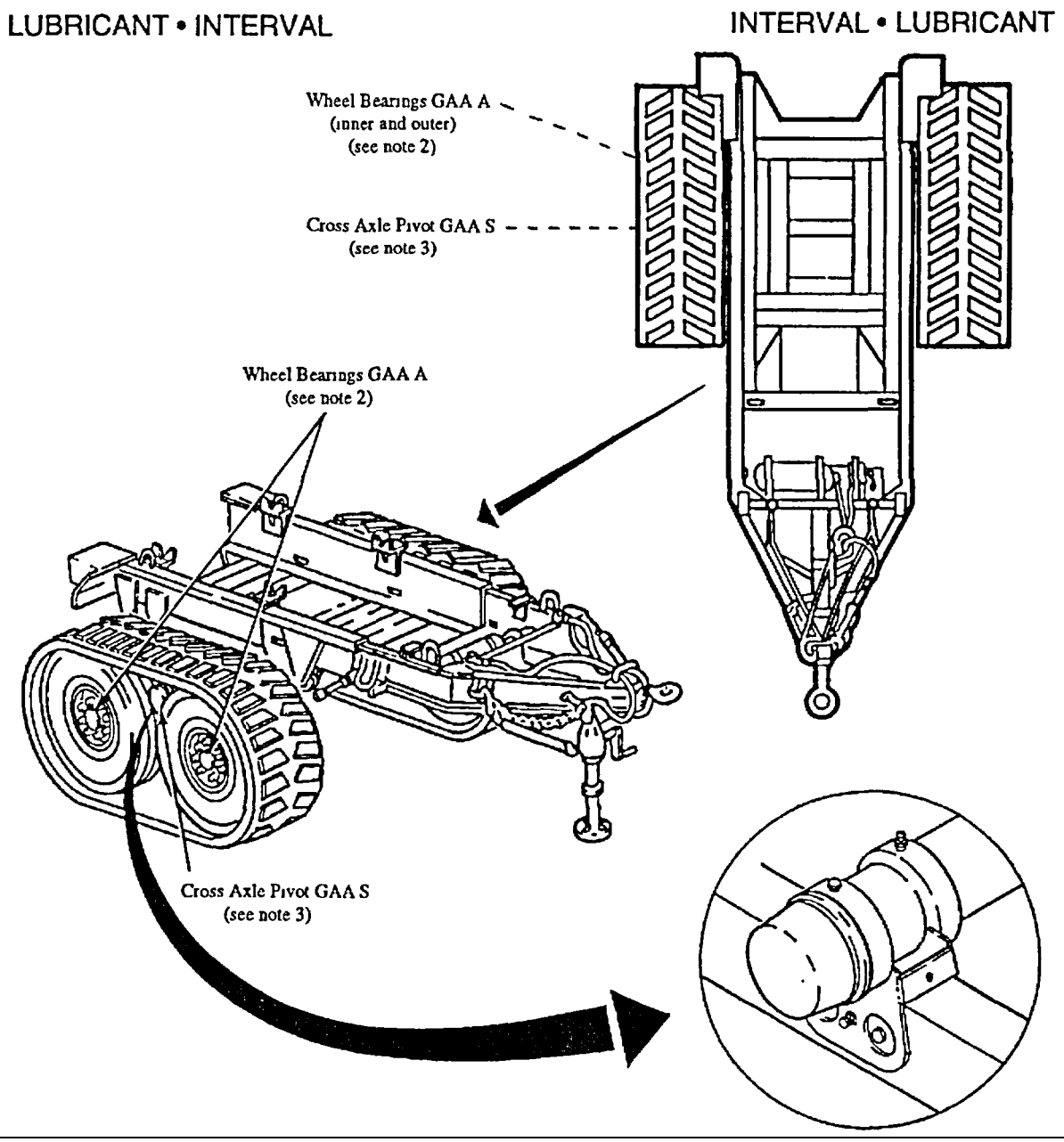
Dotted leader lines indicate lubrication is required on both sides of the equipment.

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

Clean all fittings and area around lubrication points with dry cleaning solvent (Item 6, Appendix E) or equivalent before lubricating equipment. After lubrication, wipe off excess oil or grease to prevent accumulation of foreign matter.

The lowest level of maintenance authorized to lubricate a point is indicated in parentheses by use of the following: (C) Operator/Crew; or (O) Unit Maintenance.



TOTAL MAN-HOURS*

INTERVAL	MAN-HOUR
S = SEMIANNUAL A = ANNUAL	0.5 1.5

* The man-hour time specified is the time you need to do all services prescribed for a particular interval.

- KEY -

LUBRICANTS	EXPECTED TEMPERATURES			For Arctic operation refer to FM 9-207	INTERVALS
	Above +15°F (Above -9°)	+ 40°F to -15° F (+ 4° to -26°)	+40°F to -65°F (+4° to -54°)		
OE/DHO (MIL-L-2104) Lubricating Oil, Internal Combustion Engine, Tactical Service	OE/HDO-30	OE/HDO-10			S - Semiannual
					A - Annual
			OEA		
			(See Note 1.)		
OEA (MIL-L-46167) Lubricating Oil, Internal Combustion, Arctic	All Temperatures				
GAA (MIL-G-2387) Grease, Aircraft and Artillery	All Temperatures				

NOTES:

1. **For operation of equipment in extended cold temperatures below -15°F (-26°C), remove lubricants prescribed in the key for temperatures above -15°F (-26°C). Relubricate with lubricants specified in the key for temperatures below-15°F (-26°C). If OEA lubricant is required to meet the temperature changes prescribed in the key, OEA lubricant is to be used in place of OE/HDO-10 lubricant for all temperature ranges where OE! HDO-10 lubricant is specified in the key.**

2. **Wheel Bearings: Every 12 months, remove, clean, and repack with GAA. Refer to TM 9-214, Inspection, Care, and Maintenance of Antifriction Bearings.**

3. **Grease cross axle pivot through zerk fitting until grease appears around pivot seal.**

Section II. OPERATOR/CREW TROUBLESHOOTING PROCEDURES

3-3. GENERAL.

a. This section provides information for identifying and correcting malfunctions which may develop while operating your trailer.

b. The Troubleshooting Symptom Index in para 3-5 lists common malfunctions which may occur, and refers you to Table 3-1 for a troubleshooting procedure.

c. If you are unsure of the location of an item mentioned in troubleshooting, refer to paragraph 1-7 or to the maintenance task where the item is replaced.

d. Before performing troubleshooting, read and follow all safety instructions found in the Warning Summary at the front of this manual.

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

f. When troubleshooting a malfunction:

(1) Locate the symptom or symptoms in the Troubleshooting Symptom Index in para 3-5 that best describe the malfunction.

(2) Turn to Table 3-1 where the troubleshooting procedures for the malfunction in question are described. Headings at the top of the page show how each troubleshooting procedure is organized: MALFUNCTION, TEST OR INSPECTION (in step number order), and CORRECTIVE ACTION.

(3) Perform each step in the order listed until the malfunction is corrected. DO NOT perform any maintenance task unless the troubleshooting procedure tells you to do so.

3-4. EXPLANATION OF COLUMNS.

The columns in Table 3-1 are defined as follows:

(1) MALFUNCTION. A visual or operational indication that something is wrong with the trailer.

(2) TEST OR INSPECTION. A procedure to isolate the problem in a component or system.

(3) CORRECTIVE ACTION. A procedure to correct the problem.

3-5. TROUBLESHOOTING SYMPTOM INDEX.

Table 3-1. Operator/Crew Troubleshooting

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION

BRAKES

NOTE

Track prime movers (M113 series, etc.) are not equipped with airline gladhands, therefore will not connect with the M200A1 brake system.

1. WEAK OR NO BRAKES.

Check for open draincock on air reservoir (refer to TM 9-2330-205-14&P).

Close draincock.

Check for closed air valves on towing vehicle (refer to -10 TM of towing vehicle).

Open air valves.

Check air line gladhands for proper connection (emergency-to-emergency and service-to-service) (refer to TM 9-2330-205-14&P).

Reconnect.

If you still have no brakes, notify unit maintenance.

Check for hydraulic fluid leaks (refer to TM 9-2330-205-14&P).

Notify unit maintenance.

2. EXCESSIVE HYDRAULIC FLUID LEAK.

Check for evidence of leaking brake fluid around brake drum and backing plate assembly which could indicate saturated brake shoes.

Notify unit maintenance.

CHAPTER 4
UNIT MAINTENANCE

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

4-1. COMMON TOOLS AND EQUIPMENT.

Refer to *Modified Table of Organization and Equipment (MTOE)* for authorized common tools and equipment applicable to your unit

4-2. SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT.

There are special tools or TMDE authorized for the Tracked Cargo Trailer. Support equipment needed to operate this equipment is limited to the towing vehicle.

4-3. REPAIR PARTS.

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

Section II. SERVICE UPON RECEIPT

4-4. GENERAL.

When a new, used, or reconditioned M200A1 Trailer with Tracked Suspension is received, determine whether it has been properly prepared for service and is capable of performing its mission. Follow the inspection instructions in para 4-5 and servicing instructions in para 4-6. For maintenance instructions on the MICLIC mounting brackets, notify Direct Support Maintenance.

4-5. INSPECTION INSTRUCTIONS.

a. Refer to DD Form 1397 for procedures on unpacking the M200A1 Trailer with Tracked Suspension.

b. Remove all straps, plywood, tape, seals, and wrappings.

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

c. Remove rust preventive compound from coated exterior parts of the M200A1 Trailer with Tracked Suspension using dry cleaning solvent (Item 6, Appendix E) and rags (Item 5, Appendix E).

d. Inspect trailer for damage incurred during shipment. Also check to see if the equipment has been modified.

e. Check the equipment against the packing list to ensure that the shipment is complete. Report any discrepancies in accordance with instructions in DA Pam 738-750.

4-6. SERVICING INSTRUCTIONS.

a. Perform all Operator/Crew and Unit PMCS. Schedule the next PMCS on DD Form 314.

b. Lubricate all lubrication points as described in Chapter 3, Section I, regardless of interval.

c. Report any problems on DA Form 2407.

d. Perform a break-in road test of 5 mi. (8 km) at a maximum speed not to exceed 40 mph (70 kph).

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

4-7. GENERAL.

To ensure that the Tracked Cargo Trailer is ready for operation at all times, it must be inspected systematically so that defects can be detected and corrected before they result in serious damage or failure. Table 4-1 contains a tabulated listing of Preventive Maintenance Checks and Services (PMCS) to be performed by unit maintenance personnel.

4-8. SERVICE INTERVALS.

Perform PMCS, found in Table 4-1, at the following intervals:

(1) Perform *Semiannual (S)* PMCS once every six months.

(2) Perform *Annual (A)* PMCS once each year.

4-9. REPORTING REPAIRS.

Report all defects and corrective actions on DA Form 2404. If a serious problem is found, report it to your supervisor immediately.

4-10. GENERAL PMCS PROCEDURES.

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

4-10. GENERAL PMCS PROCEDURES (Con't).

a. Keep equipment clean. Dirt, oil and debris may cover up a serious problem. Clean as you work and as needed. Use dry cleaning solvent (Item 6, Appendix E) on all metal surfaces. Use soap (Item 2, Appendix E) and water on rubber, plastic, and painted surfaces.

b. While performing PMCS, inspect the following components:

(1) **Bolts, Nuts, and Screws.** Ensure they are not loose, missing, bent, or broken. Tighten any that are loose.

(2) **Welds**. Inspect for gaps where parts are welded together. Report bad welds to your supervisor.

(3) **Electric Wires or Connectors**. Inspect for cracked or broken insulation, bare wires, and loose or broken connectors. Make repairs as required.

(4) **Hoses, Lines, and Fittings.** Inspect for wear, damage, and leaks. Ensure that clamps and fittings are tight. If a leak originates from a loose fitting or connector, tighten it. If a component is broken : r worn out, correct the problem if authorized by Maintenance Allocation Chart (MAC) (Appendix B). If not authorized, report it to your supervisor.

4-11. SPECIFIC PMCS PROCEDURES.

a. Unit PMCS are provided in Table 4-1. Always perform PMCS in the order listed. Once it becomes a habit, anything that is not right can be spotted in a minute. If anything wrong is discovered through PMCS, perform appropriate troubleshooting task in Section IV of this chapter. If any component or system is not serviceable or if given service does not correct the problem, notify your supervisor.

b. The PMCS procedures in Table 4-1 are performed at two intervals. Before performing preventive maintenance, read all checks required for applicable interval and prepare tools needed to make all checks. Have several clean rags (Item 5, Appendix E) handy. Perform ALL inspections at applicable intervals.

c. The columns in PMCS are defined as follows:

(1) **Item No.** Provides a logical sequence for PMCS to be performed and is used as a source number when recording PMCS results on DA Form 2404.

(2) **Interval**. Specifies interval at which PMCS is to be performed.

(3) **Item to be Inspected**. Lists system and common name of items that are to be inspected.

(4) **Procedures**. Included in this column are specific servicing, inspection, replacement, or adjustment procedures to be followed.

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

S-Semiannual **A-Annual**

ITEM NO.	INTERVAL		ITEMS TO BE INSPECTED	PROCEDURES
	S	A		
1		-	**WHEELS AND TIRES**	Torque wheel nuts to 90-100 lb.-ft. (122-136 N•m) (para 4-28).
2	-		**TRACK TENSION AND ALIGNMENT**	Check and reset as required (para 4-30).

Section IV. UNIT TROUBLESHOOTING PROCEDURES

4-12. GENERAL

a. This section provides information for identifying and correcting malfunctions which may develop when operating or maintaining your Tracked Cargo Trailer.

b. The Troubleshooting Symptom Index in paragraph 4-14 lists common malfunctions which may occur. The symptom index refers you to Table 4-2 for a troubleshooting procedure.

c. This section cannot list all malfunctions that may occur, nor all tests or inspection and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

d. When troubleshooting a malfunction:

(1) Question operator to obtain any information that might help determine cause of problem. Before continuing, ensure that all applicable operator troubleshooting was performed.

(2) Locate symptom(s) in paragraph 4-1 that best describes the malfunction. If the appropriate symptom is not listed, notify your supervisor.

(3) Go to Table 4-2 (page 4-7) where the troubleshooting procedures for the malfunction in question are described. Headings at the top of the page show how each troubleshooting procedure is organized: MALFUNCTION, TEST OR INSPECTION (in step number order), and CORRECTIVE ACTION.

(4) Perform each step in order listed until malfunction is corrected. DO NOT perform any maintenance task unless the troubleshooting procedure tells you to do so.

4-13. EXPLANATION OF COLUMNS.

The columns in Table 4-2 are defined as follows:

(1) MALFUNCTION. A visual or operational indication that something is wrong with the Tracked Cargo Trailer.

(2) TEST OR INSPECTION. A procedure to isolate a problem in a component or system.

(3) CORRECTIVE ACTION. A procedure to correct the problem.

4-14. TROUBLESHOOTING SYMPTOM INDEX.

Table 4-2. Unit Troubleshooting.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
FRAME GROUP
1. UNABLE TO ALIGN TRACK.
Check for excessive wear and damage on front or rear frame assemblies.
Replace as required (para 4-22).
BRAKES
2. WEAK OR NO BRAKES.
Step 1. Check for worn brake linings.
Replace as required (para 4-23).
Step 2. Inspect wheel cylinders for binding or leaking.
Replace as required (para 4-24).
3. BRAKES WILL NOT RELEASE.
Step 1. Check for binding handbrake cable.
Replace cable as required (para 4-26).
Step 2. Check for separation of brake lining.
Replace as required (para 4-23).

Section V. GENERAL MAINTENANCE INSTRUCTIONS

4-15. GENERAL.

a. These general maintenance instructions contain general shop practices and specific methods you must be familiar with to properly maintain your Tracked Cargo Trailer. You should read and understand these practices and methods before performing any unit maintenance tasks.

b. Before beginning a task, find out how much repair, modification, or replacement is needed to fix the equipment as described in this manual. Sometimes the reason for equipment failure can be seen right away, and complete teardown is not necessary. Disassemble equipment only as far as necessary to repair or replace damaged or broken parts.

c. The following "Initial Setup" information applies to all procedures:

(1) Resources are not listed unless they apply to the procedure.

(2) Personnel are listed only if more than one technician is required to complete the task. If "Personnel Required"' is not listed, one technician can complete the task.

d. All tags and forms attached to equipment must be checked to learn the reason for removal from service. Modification Work Orders (MWOs) and Technical Bulletins (TBs) must also be checked for equipment changes and updates.

e. In some cases, a part may be damaged by removal. If the part appears to be good, and other parts behind it are not defective, leave it on and continue with the procedure. Here are a few simple rules:

(1) Do not remove dowel pins or studs unless loose, bent, broken, or otherwise damaged.

(2) Do not remove bearings or bushings unless damaged. If you need to remove to access parts behind them, pull bearings and bushings out carefully.

(3) Replace all gaskets, seals, and preformed packings.

4-16. WORK SAFETY.

a. Observe all WARNINGs and CAUTIONs. Always use power tools carefully.

b. Protect yourself against injury. Wear protective gear such as safety goggles or lenses, safety shoes, rubber apron, or gloves.

4-16. WORK SAFETY (Con't).

c. When lifting heavy parts, have someone help you. Ensure that lifting/jacking equipment is working properly, is suitable for assigned task, and is secure against slipping.

d. All maintenance should be performed with:
- Trailer parking brake engaged.
- Tow vehicle in neutral with parking brake engaged, if attached.
- Tow vehicle engine stopped, if attached.

4-17. CLEANING INSTRUCTIONS.

WARNING

Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. To prevent this, refer to TM 9-247 for further instructions.

a. **General.** Cleaning instructions will be the same for a majority of parts and components which make up the Tracked Cargo Trailer. The following should apply to all cleaning, inspection, repair, and assembly operations:

(1) Clean all parts before inspection, after repair, and before assembly.

(2) Keep hands free of grease, which can collect dust, dirt, and grit.

(3) After cleaning, all parts should be covered or wrapped to protect them from dust and dirt. Parts that are subject to rust should be lightly oiled.

b. **Steam Cleaning.**

(1) Before steam cleaning exterior of Tracked Cargo Trailer, protect all electrical equipment which could be damaged by steam or moisture.

(2) Place disassembled parts in a suitable container to steam clean. Parts that are subject to rust should be dried and lightly oiled after cleaning.

c. **Castings, Forgings, and Machined Metal Parts.**

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

4-17. CLEANING INSTRUCTIONS (Con't).

(1) Clean inner and outer surfaces with dry cleaning solvent (Item 6, Appendix E).

(2) Remove grease and accumulated deposits with a stiff-bristled brush.

WARNING

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (goggles/shield, gloves, etc.) and use caution to avoid injury to personnel.

(3) Clear out all threaded holes with compressed air to remove dirt and cleaning fluids.

CAUTION

Do not wash oil seals, electrical cables, and flexible hoses with dry cleaning solvent or mineral spirits. Serious damage or destruction of material would result.

d. **Oil Seals, Electrical Cables, and Flexible Hoses.** Wash electrical cables and flexible hoses with solution of soap (Item 2, Appendix E) and water and wipe dry.

e. **Bearings.** Clean bearings in accordance with TM 9-214.

4-18. INSPECTION INSTRUCTIONS.

NOTE

All damaged areas should be marked for repair or replacement.

a. All components and parts must be carefully checked to determine if they are serviceable for reuse, can be repaired, or must be scrapped.

b. Inspect drilled and tapped (threaded) holes for the following:

(1) Wear, distortion, cracks, and any other damage in or around holes.

(2) Threaded areas for wear distortion (stretching) and evidence of cross-threading.

c. Inspect metal lines, flexible lines (hoses), and metal fittings for the following:

(1) Metal lines for sharp kinks, cracks, bad bends, and dents.

(2) Flexible lines for fraying, evidence of leakage, and loose metal fittings or connectors.

(3) Metal fittings and connectors for thread damage and worn or rounded hex heads.

4-18. INSPECTION INSTRUCTIONS (Con't).

d. Inspect castings, forgings, and machined metal parts for the following:

(1) Machined surfaces for nicks, burrs, raised metal, wear, and other damage.

(2) Inner and outer surfaces for breaks and cracks.

e. Inspect air lines, fittings, and connectors for leaks by coating fittings and connectors with solution of soap (Item 2, Appendix E) and water. No leakage is permissible.

f. Inspect bearings in accordance with TM 9-214.

4-19. REPAIR INSTRUCTIONS.

a. Any repair procedure peculiar to a specific part or component is covered in the section or paragraph relating to that item. After repair, clean all parts thoroughly to prevent dirt, metal chips, or other foreign material from entering any working parts.

b. Repair casting, forgings, and machined parts using the following instructions:

(1) Refer to TM 9-237 for instructions on repairing minor cracked castings or forgings.

(2) Repair minor damage to machined surfaces with a fine mill file or abrasive cloth dipped in dry cleaning solvent (Item 6, Appendix E)

(3) Replace any deeply nicked machined surface that could affect the assembled operation.

(4) Repair minor damage to threaded capscrew holes with thread tap of same size to prevent cutting oversize.

c. Refer to paragraph 4-25 for maintenance on metal lines, flexible lines (hoses), and metal fittings.

4-20. TAGGING HOSES AND TUBES.

a. As soon as first hose or tube is disconnected, write number 1 on two tags. Secure one tag to hose or tube and the other tag to nipple or fitting. After disconnecting second hose or tube, write number 2 on two tags. Secure one tag to hose or tube, and second tag to nipple or fitting. Do the same for all hoses and tubes.

b. Note which numbers you used, in pencil, on art in manual. This will help you retag properly when you remove tags from some parts to perform cleaning and maintenance work.

c. Remove all tags when finished.

Section VI. AXLE MAINTENANCE

4-21. CROSS AXLE GROUP REPLACEMENT.

This Task Covers:
a. Removal
b. Installation

Initial Setup:

Equipment Conditions:
- Left and right cross axle (brake) tube assemblies removed (para 4-25).
- Grease (Item 3, Appendix E)

Tools/Test Equipment:
- Common #1 tool set
- Crane, wheel mounted
- General mechanic's tool kit
- Jack, hydraulic
- Socket, socket wrench (2-1/4 inch socket, 3-1/2 inch drive) NSN 5120-00-199-7771

Personnel Required: Two

Materials/Parts:
- Lockwasher, MS35338-51 (eight required) (refer to TM 9-2330-205-14&P)
- Plain encased seal, 5P2671 (two required)
- Self-locking nut, 5M6667 (two required)
- Self-locking nut, 145036 (two required)

References: TM 9-2330-205-14&P

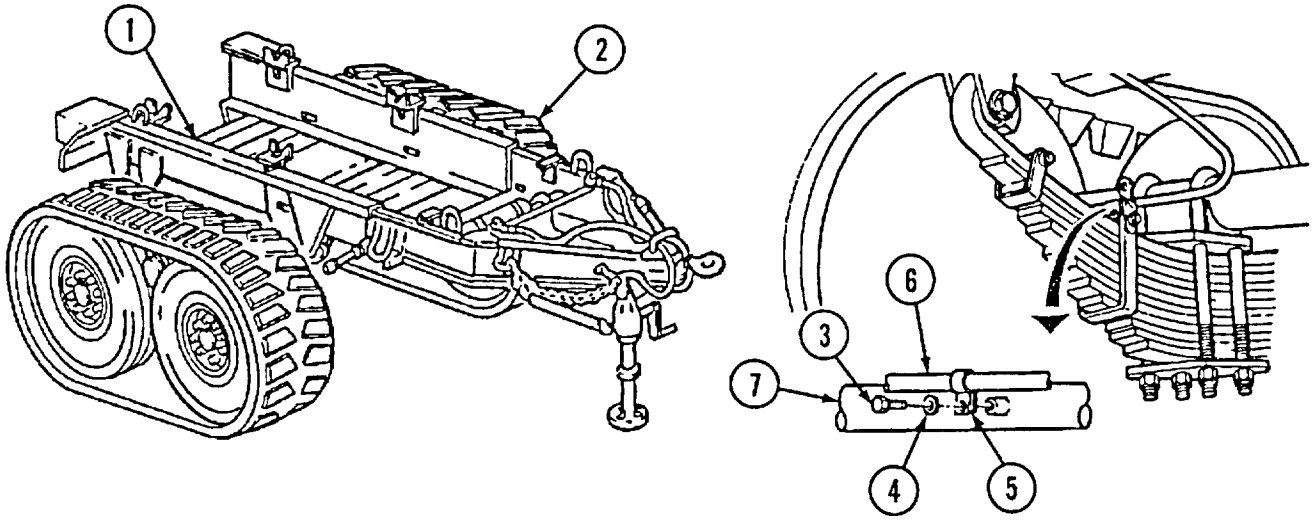
a. REMOVAL

WARNING

Cross axle is heavy and awkward to handle. Use caution, provide adequate support, and use assistance during removal. Failure to follow this warning may result in serious injury to personnel.

1. Raise trailer (1) with hydraulic jack until track (2) just clears ground and support trailer with four jack stands or blocking at corners of trailer. Lower and remove hydraulic jack.

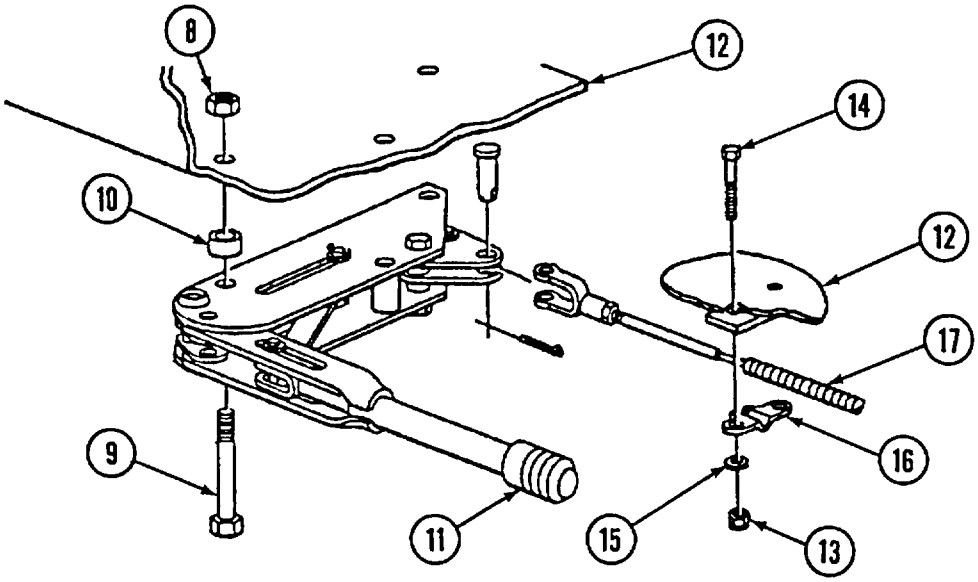
2. Remove capscrew (3), flat washer (4), and loop clamp (5) from parking brake cable (6) and cross axle (7).



4-21. CROSS AXLE GROUP REPLACEMENT (Con't).

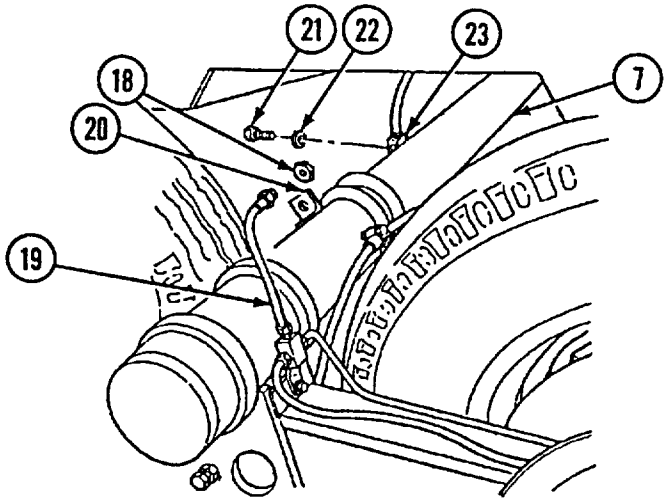
3. Remove three nuts (8), three bolts (9), three spacers (10), and handbrake assembly (11) from frame (12).

4. Remove two nuts (13), two bolts (14), two lockwashers (15), clamp (16), and handbrake cable (17) from frame (12). Discard lockwashers.



5. Remove self-locking nut (18) from hose assembly (19) and cross axle bracket (20). Remove hose assembly (19) from cross axle bracket (20). Discard self-locking nut.

6. Remove capscrew (21), flat washer (22), and multiple connector (23) from cross axle (7).



CAUTION

Avoid prolonged hammering on one side of the hub cap shoulder to prevent damage. Tapping around the circumference will prevent binding.

4-21. CROSS AXLE GROUP REPLACEMENT (Con't).

7. Remove hub cap (24) from frame group (25). Remove special self-locking nut (26) and retainer plate (27) from cross axle (7). Discard self-locking nut.

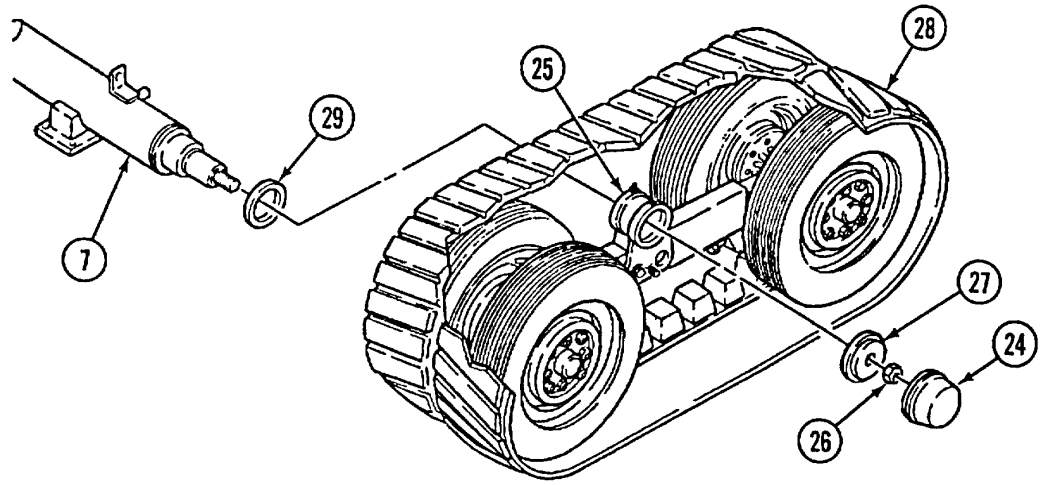
CAUTION

Exercise caution when removing undercarriage group to prevent damage to axle threads and brass bushing

8. Using slings and a wheel mounted crane, and the help of an assistant, slide undercarriage group (28) off cross axle (7) and set aside for later use.

9. Remove plain encased seal (29) from end of frame group (25) and discard.

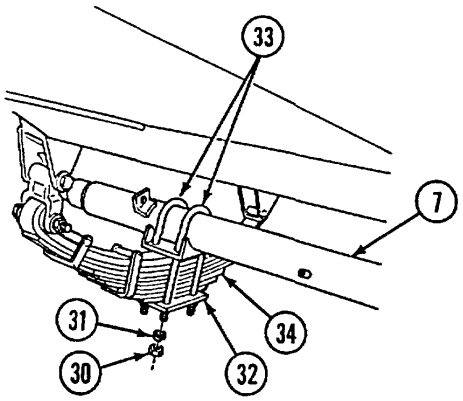
10. Repeat steps 2 through 9 for opposite side undercarriage group.



11. Remove four nuts (30), four lockwashers (31), and plate (32) from two U-bolts (33). Lower leaf spring (34) to ground. Remove U-bolts (33) from cross axle (7). Discard lockwashers.

12. Repeat step 11 for opposite side.

13. With the help of an assistant, remove cross axle (7).



4-21. CROSS AXLE GROUP REPLACEMENT (Con't).

b. INSTALLATION

WARNING

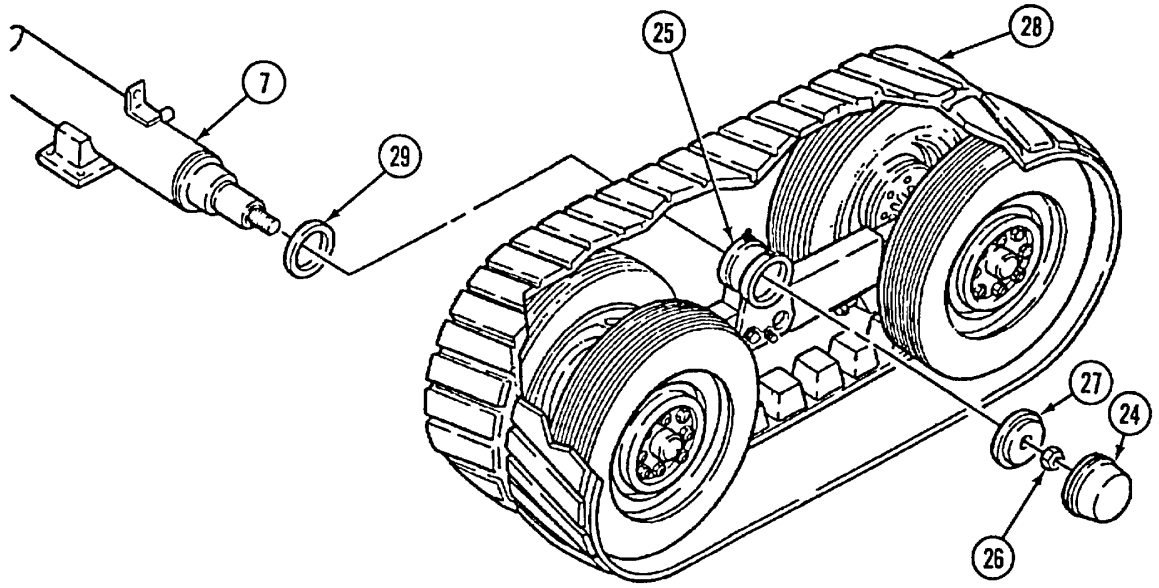
Cross axle is heavy and awkward to handle. Use caution, provide adequate support, and use assistance during removal. Failure to follow this warning may result in serious injury to personnel.

1. With the help of an assistant, position cross axle (7) on two leaf springs (34).
2. Install two U-bolts (33) in place on cross axle (7) and leaf spring (34). Position plate (32) on U-bolts (33) and install four new lockwashers (31), and nuts (30).
3. Repeat step 2 for opposite side.
4. Install new plain encased seal (29) on frame group (25). With the help of an assistant, using slings and a wheel mounted crane, slide undercarriage group (28) on cross axle (7) and pack with grease.
5. Repeat step 4 for opposite side.
6. Install retainer plate (27) and new self-locking nut (26) on end of cross axle (7). Torque nut (26) to 210 ± 20 lb. ft. (285 ± 27 N•m).

CAUTION

To prevent damage, avoid hammering in the center of hub cap. Tapping around the circumference will prevent binding.

7. Install hub cap (28) on frame group (25).

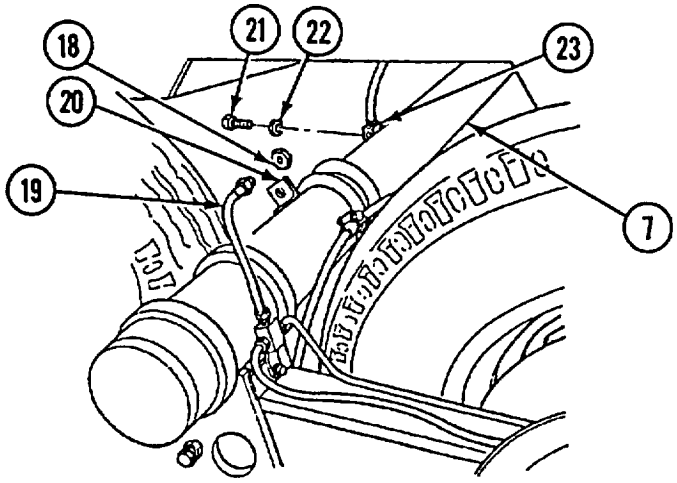


4-21. CROSS AXLE GROUP REPLACEMENT (Con't).

8. Repeat steps 6 through 9 for opposite undercarriage group.

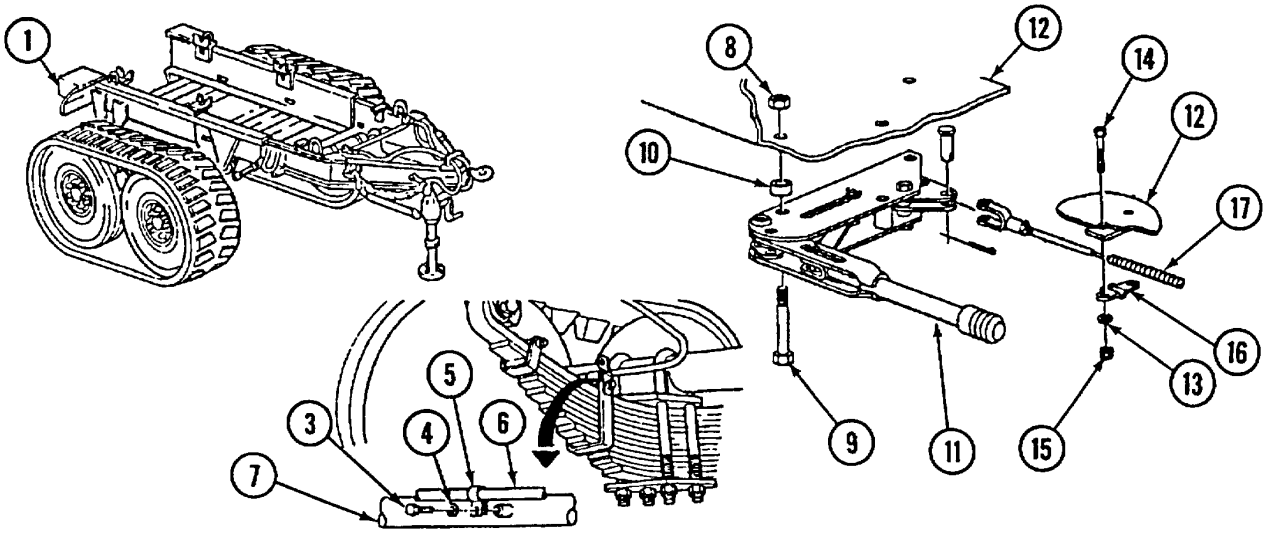
9. Position multiple connector (23) in place on cross axle (7) and install flat washer (22) and capscrew (21).

10. Position hose assembly (19) in cross axle bracket (20) and install new self-locking nut (18).



11. Install clamp (16) on handbrake cable (17) and position clamp (16) on frame (12). Secure using two bolts (14), two new lockwashers (15), and two nuts (13).

12 Position handbrake assembly (11) on frame (12) and secure with two bolts (9), two spacers (10), and two nuts (8).



13. Install loop clamp (5) on parking brake cable (6). Position loop clamp (5) on cross axle (7) and install flat washer (4) and capscrew (3).

14. Repeat steps 11 and 12 for opposite hose assembly.

15. Raise trailer (1) high enough to remove four jack stands using hydraulic jack. Remove jack stands and lower trailer (1). Remove hydraulic jack.

4-21. CROSS AXLE GROUP REPLACEMENT (Con't).

FOLLOW-ON TASKS:

- Replace left and right cross axle (brake) tube assemblies (para 4-25).
- Lubricate both axle pivots (Chapter 3, Section I).

Section VII. FRAME GROUP MAINTENANCE

4-22. FRAME GROUP MAINTENANCE.

This Task Covers:

a. Removal
b. Disassembly
c. Cleaning and Inspection
d. Assembly
e. Installation

Initial Setup:

Equipment Conditions:
- Inner and outer tire assemblies removed (para 4-28).
- Inner and outer brakedrums removed (para 4-32)
- Inner and outer service brakes disassembled (para 4-23)
- Inner and outer idler hubs removed (para 4-31).
- Left and right frame tube assemblies removed (para 4-25).

Tools/Test Equipment:
- General mechanic's tool kit

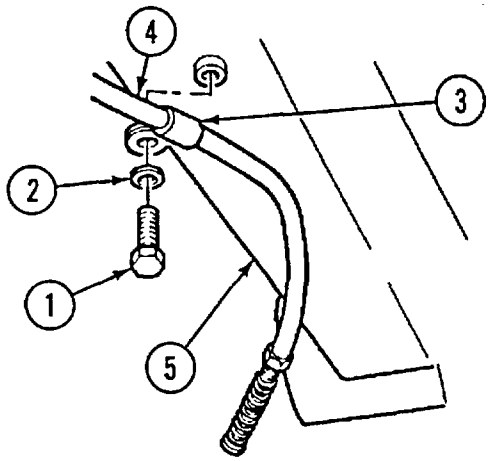
Materials/Parts:
- Dry cleaning solvent (Item 6, Appendix E)
- Grease (Item 3, Appendix E)
- Plain encased seal, 5P2671
- Self-locking nut, 145036 (four required)
- Self-locking nut, MS51922-49

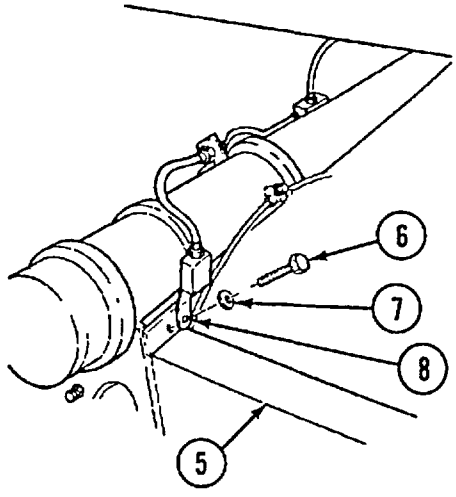
Personnel Required: Two

a. REMOVAL

1. Remove capscrew (1), flat washer (2), and loop clamp (3) from parking brake cable (4) and frame group (5).

2. Remove capscrew (6), flat washer (7), and multiple connector (8) from frame group (5).





4-22. FRAME GROUP MAINTENANCE (Con't).

3. Remove capscrew (9) and adjustment bolt (10) from frame group (5).

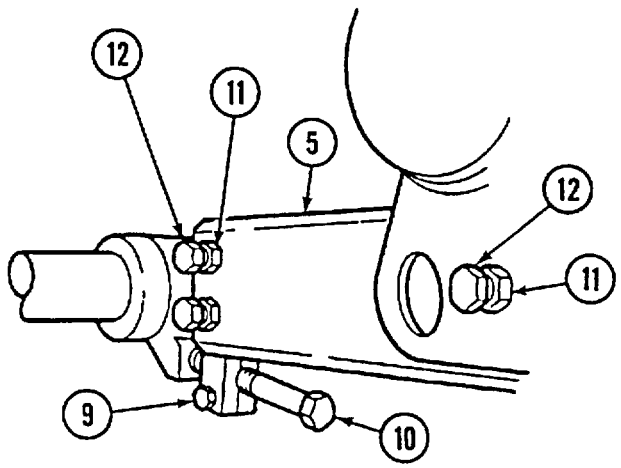
4. Loosen four self-locking nuts (11) on four capscrews (12). Remove four capscrews (12) and self-locking nuts (11) from frame group (5). Remove self-locking nuts (11) from capscrews (12). Discard self-locking nuts.

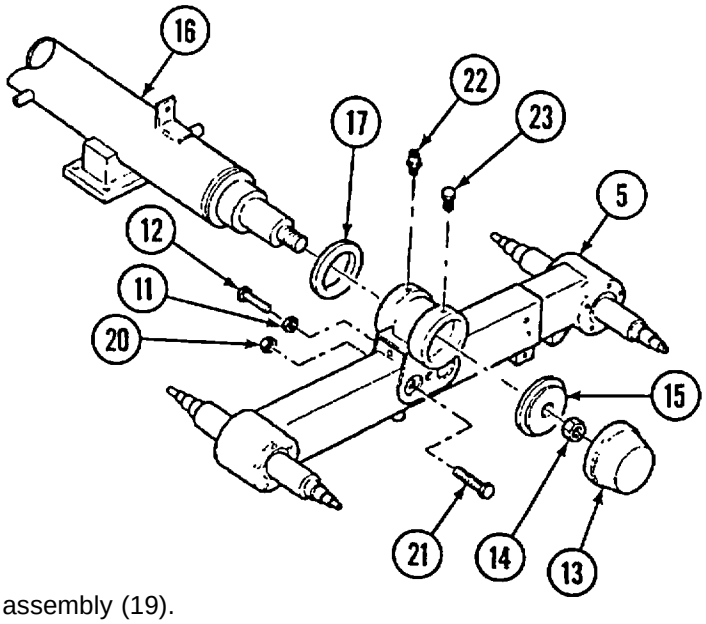
5. Remove hub cap (13) from frame group (5).

6. Remove nut (14) and retainer plate (15) from cross axle (16) and frame group (5).

7. With help of an assistant, slide frame group (5) off cross axle (16).

8. Remove plain encased seal (17) from frame group (5). Discard plain encased seal.





b. DISASSEMBLY

1. Slide rear frame assembly (18) out of front frame assembly (19).

2. Remove self-locking nut (20) from capscrew (21). Discard self-locking nut.

3. Remove lubrication fitting (22) and pipe plug (23) from frame group (5).

c. CLEANING AND INSPECTION

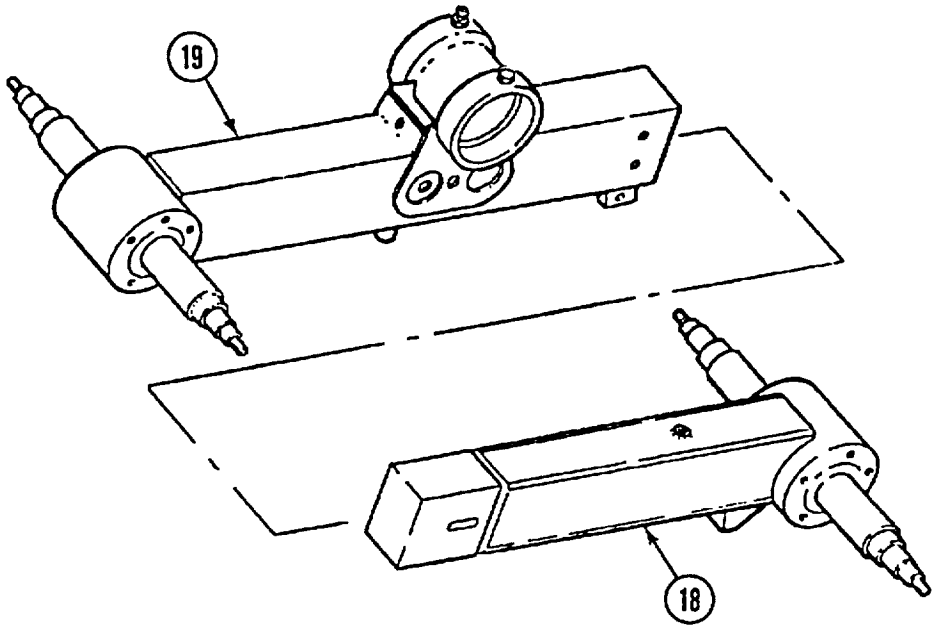
WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

4-22. FRAME GROUP MAINTENANCE (Con't).

1. Clean all parts with dry cleaning solvent.

2. Inspect front and rear frame assemblies for damage. Replace any damaged parts.



d. ASSEMBLY

1. Slide front frame assembly (19) into rear frame assembly (18).

2. Install lubrication fitting (22) in frame group (5).

e. INSTALLATION

1. Install new plain seal (17) on frame group (5). Coat cross axle with grease and slide frame group (5) on cross axle (16) and pack with grease.

2. Install retainer plate (15) and special self-locking nut (14) on end of cross axle (16). Torque special self-locking nut (14) to 2100 ± 20 lb.-ft. (285 ± 27 N•m).

CAUTION

To prevent damage, avoid hammering in the center of hub cap. Tapping around the circumference will prevent binding.

3. Install hub cap (13) on frame group (5).

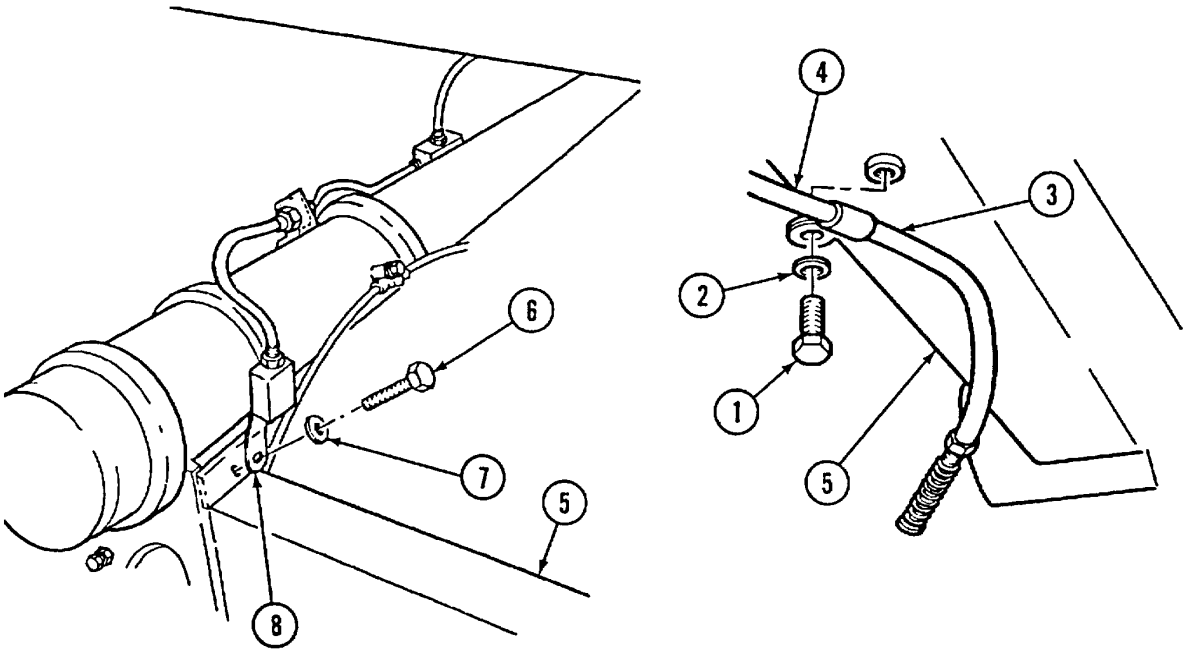
4 Install four new self-locking nuts (11) on four capscrews (12). Install four capscrews (12) and self-locking nuts (11) in frame group (5), until resistance is felt while sliding rear frame assembly (18) inside front frame assembly (19).

5. Install adjustment bolt (10) and locking capscrew (9) in frame group (5).

4-22. FRAME GROUP MAINTENANCE (Con't).

6. Position multiple connector (8) in place on frame group (5) and install flat washer (7) and capscrew (6).

7. Install loop clamp (3) on parking brake cable (4). Position loop clamp (3) on frame group (5) and install flat washer (2) and capscrew (1).



FOLLOW-ON TASKS:

- Install left and right frame tube assemblies (para 4-25).
- Install inner and outer idler hubs (para 4-31).
- Assemble inner and outer service brakes (para 4-23).
- Install inner and outer brakedrums (para 4-32).
- Install inner and outer tire assemblies (para 4-28).
- Lubricate cross axle pivot (para 3-2).

Section VIII. BRAKE SYSTEM MAINTENANCE

4-23. SERVICE BRAKE MAINTENANCE.

This Task Covers:

a. Disassembly
b. Cleaning and Inspection
c. Assembly
d. Minor Adjustment

Initial Setup:

Equipment Conditions:
- Brakedrum removed (para 4-32).
- Tire assembly removed (para 4-28)

Tools/Test Equipment:
- Common #1 tool set
- General mechanic's tool kit

Materials/Parts:
- Dry cleaning solvent (Item 6, Appendix E)
- Rags (Item 5, Appendix E)
- Brake lining clamp, 11686281
- Spring washer, 935-0004

a. DISASSEMBLY

WARNING

DO NOT handle brakeshoes, brakedrums, or other brake components unless area has been properly cleaned. There may be asbestos dust on these components, which can be dangerous if you touch it or breathe it. Wear an approved filter mask and gloves. Never use compressed air or a dry brush to clean brake components. Dust may be removed using an industrial-type vacuum cleaner. Clean dust or mud away from brake components with water and a wet, soft brush or cloth. Failure to follow this warning may result in serious illness or death to personnel.

NOTE

Use this procedure for both the left and the right inner and outer service brake. Right inner service brake is shown.

4-23. SERVICE BRAKE MAINTENANCE (Con't).

1. Unhook parking brake cable (1) from parking brake lever (2). Pull parking brake cable (1) out of backing plate (3).

2. Remove three helical springs (4 and 5) using brake repair tool.

3. Using brake adjusting tool, back off adjusting screw (6) a few turns to provide slack.

4. Spread apart lower ends of primary and secondary brakeshoes (7 and 8). Remove adjusting screw (6).

NOTE

Perform step 5 only if removing left or right inner service brake.

5. Spread apart upper ends of primary and secondary brake shoes (7 and 8). Remove parking brake strut (9) and helical spring (10).

6. While holding head of toggle pin (11), compress helical spring (12) and turn toggle pin (11) from outside to disengage from helical retainer (13).

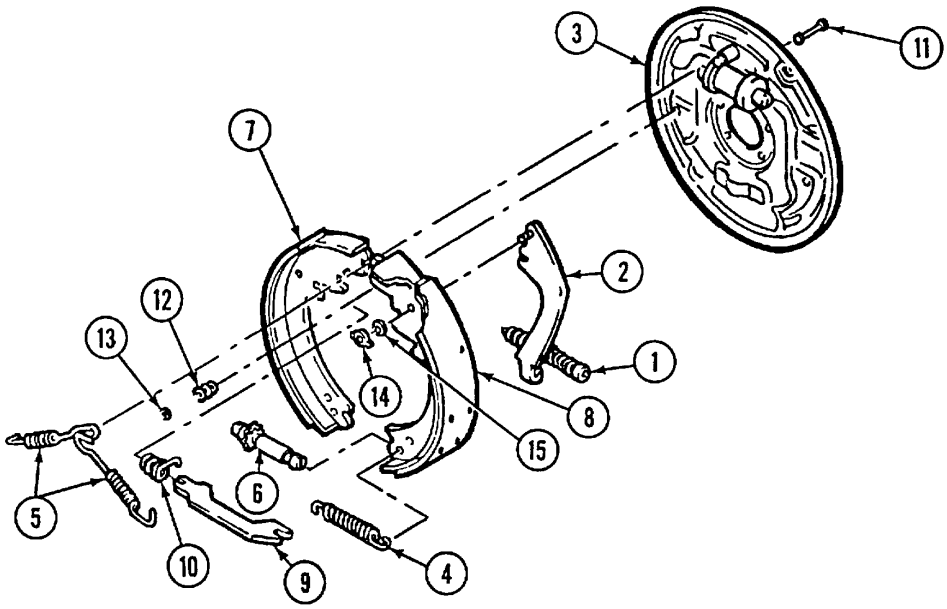
7. Remove toggle pin (11), helical spring (12), and helical retainer (13). Remove primary brakeshoe (7) from backing plate (3).

8. Repeat steps 6 and 7 to remove secondary brakeshoe (8) from backing plate (3).

NOTE

Perform step 9 only if removing left or right inner service brake.

9. Remove brake lining clamp (14), spring washer (15), and parking brake lever (2) from secondary brakeshoe (8). Discard brake lining clamp and spring washer.



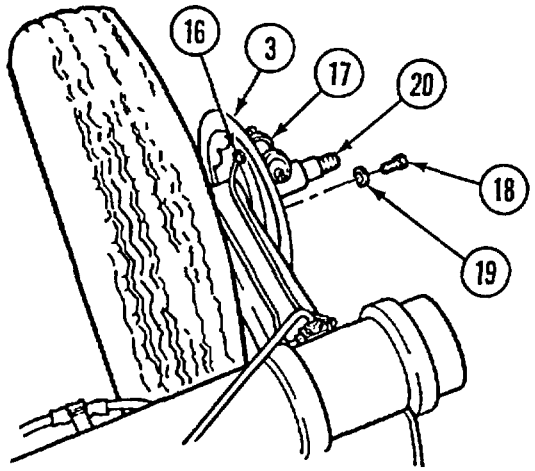
4-23. SERVICE BRAKE MAINTENANCE (Con't).

NOTE

Perform steps 10 and 11 only if backing plate needs to be removed.

10. Position drain pan to catch brake fluid. Disconnect tube assembly (16) from hydraulic wheel cylinder (17).

11. Remove five machine bolts (18),five flat washers (19), and backing plate (3) from front frame assembly spindle (20).



b. CLEANING AND INSPECTION

WARNING

- **Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.**

- **DO NOT handle brakeshoes, brakedrums, or other brake components unless area has been properly cleaned. There may be asbestos dust on these components, which can be dangerous if you touch it or breathe it. Wear an approved filter mask and gloves. Never use compressed air or a dry brush to clean brake components. Dust may be removed using an industrial-type vacuum cleaner. Clean dust or mud away from brake components with water and a wet, soft brush or cloth. Failure to follow this warning may result in serious illness or death to personnel.**

1. Clean all parts with dry cleaning solvent.

2. Inspect all parts for damage. Replace any damaged parts.

3. Inspect brakeshoe surfaces for cracks, distortion, and excessive wear. Brakeshoe linings should have a minimum thickness of 1/8 in. (3.2 mm). Replace brakeshoes if cracked or if lining thickness is less than 1/8 in. (3.2 mm).

4-23. SERVICE BRAKE MAINTENANCE (Con't).

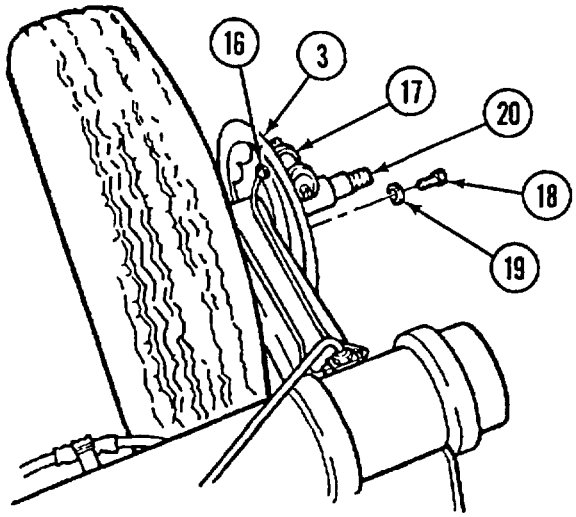
c. ASSEMBLY

NOTE

Perform steps 1 and 2 only if backing plate was removed.

1. Position new backing plate (3) on front frame assembly spindle (20) and install five machine bolts (18) and five flat washers (19).

2. Connect tube assembly (16) to hydraulic wheel cylinder (17).



NOTE

Perform step 3 only if left or right inner service brake was removed.

3. Position parking brake lever (2) on secondary brakeshoe (8). Install new spring washer (15) and brake lining clamp (14).

4. Position primary brakeshoe (7) on backing plate (3). Install toggle pin (11) in primary brakeshoe (7).

5. Install helical spring (12) and helical retainer (13) on toggle pin (11). While holding head of toggle pin (11), compress and turn helical retainer (13) until engaged.

6. Repeat steps 4 and 5 to install secondary brakeshoe (8) on backing plate (3).

NOTE

Perform step 7 only if installing left or right inner service brake.

7. Spread apart upper ends of primary and secondary brake shoes (7 and 8). Install parking brake strut (9) and helical spring (10).

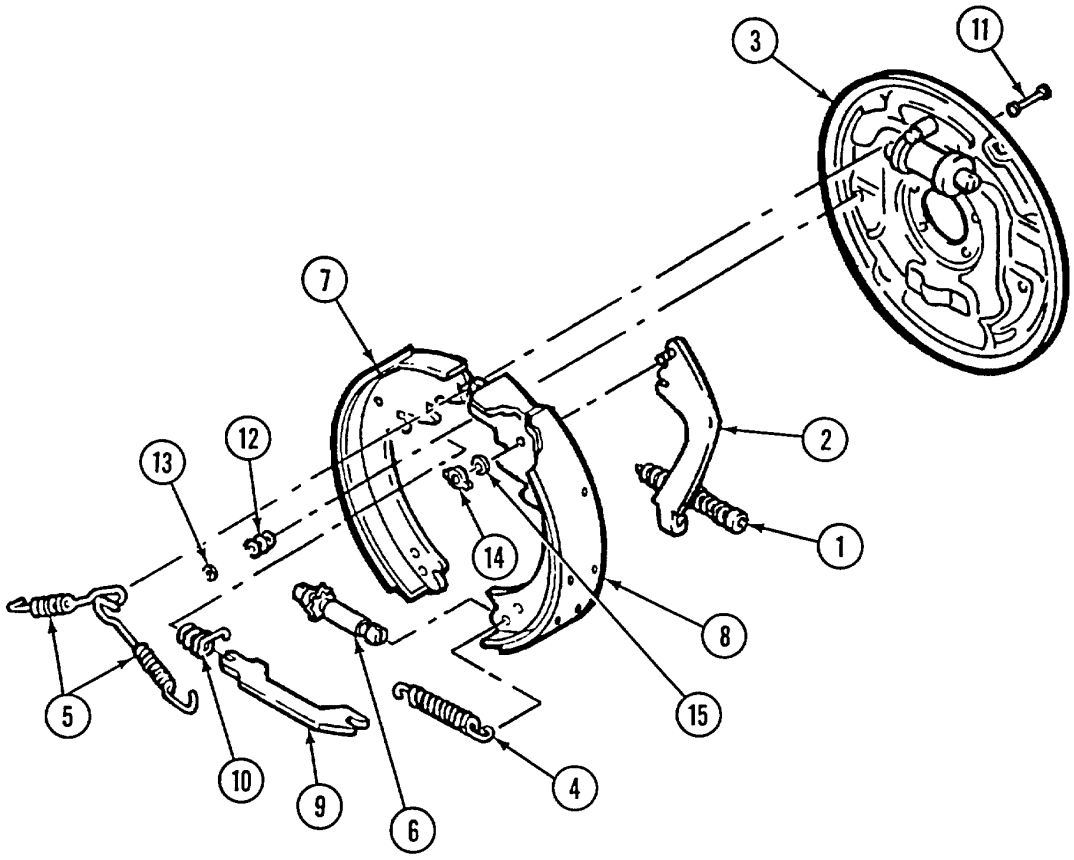
4-23. SERVICE BRAKE MAINTENANCE (Con't).

8. Spread apart lower ends of primary and secondary brakeshoes (7 and 8). Install adjusting screw (6).

9. Install three helical springs (4 and 5) using brake repair tool.

10. Push parking brake cable (1) through backing plate (3). Hook parking brake cable (1) to parking brake lever (2).

11. Install brakedrum (para 4-32).



d. MINOR ADJUSTMENT

CAUTION

To avoid damage to cross axle, ensure that hydraulic jack is placed as close as possible to suspension springs when lifting trailer.

NOTE

Perform this task on both left and right inner and outer wheels to compensate for normal brakeshoe lining wear.

1. Apply parking brake and block the opposite-side track which is not being adjusted.

4-23. SERVICE BRAKE MAINTENANCE (Con't).

2. Raise cross axle (21) with hydraulic jack until track (22) is clear of ground. Support cross axle (21) with jack stands or blocking.

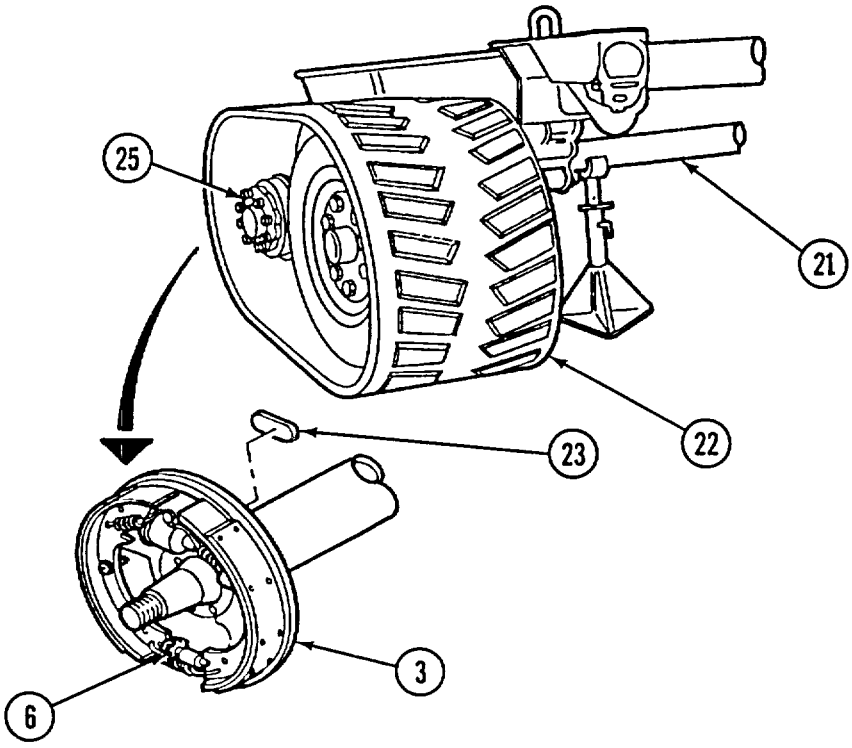
3. Remove access cover (23) from backing plate (3) and set aside for later use.

4. Using a brakeshoe adjusting tool, adjust service brakes by turning adjusting screw (6) until a slight drag is felt when brakedrum (25) is spun.

5. Back off adjusting screw (6) so brakedrum (25) spins freely.

6. Install access cover (23) in backing plate (3).

7. Remove jackstands or blocking and lower hydraulic jack.



FOLLOW-ON TASKS:

- Install tire assembly (para 4-28).
- Adjust parking brake lever (TM 9-2330-205-14&P).
- Bleed brakes, if backing plate was removed (para 4-27).

4-24. HYDRAULIC WHEEL CYLINDER REPLACEMENT.

This Task Covers:

a. Removal

b. Installation

Initial Setup:

Equipment Conditions:
- Brakedrum removed (para 4-32).
- Service brakes disassembled (para 4-23).
- Tire assembly removed (para 4-28).

Tools/Test Equipment:
- General mechanic's tool kit
- Drain pan

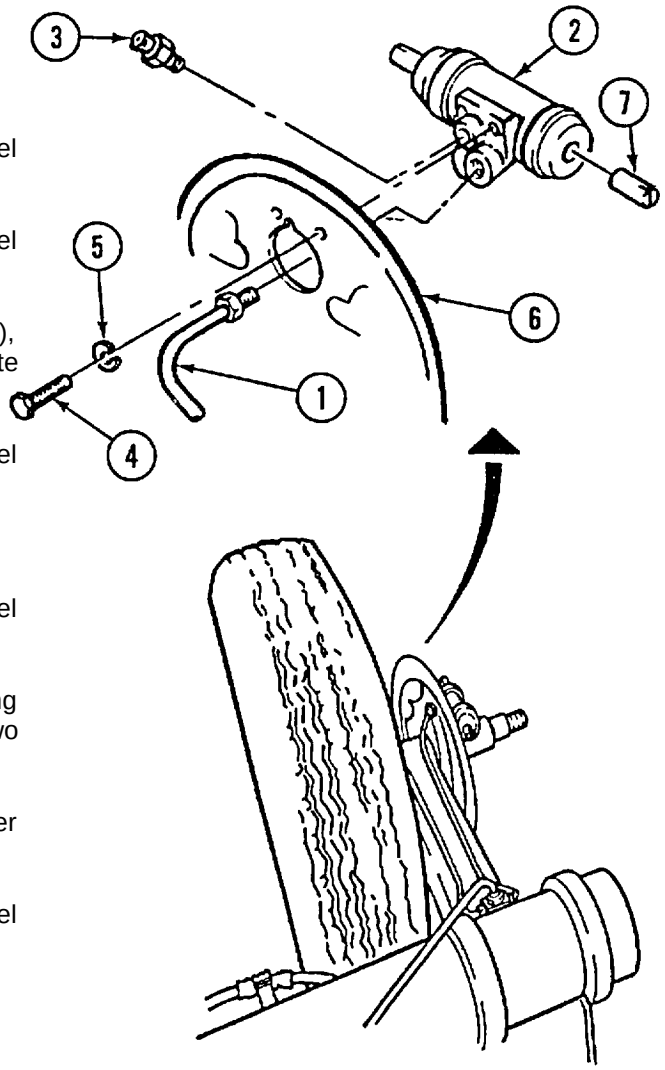
Materials/Parts:
- Plastic Tubing (Item 7, Appendix E)
- Rags (Item 5, Appendix E)
- Lockwasher, MS35335-34 (two required)

a. REMOVAL

1. Position drain pan to catch brake fluid.
2. Disconnect tube assembly (1) from hydraulic wheel cylinder (2).
3. Remove bleeder valve (3) from hydraulic wheel cylinder (2).
4. Remove two machine bolts (4), two lockwashers (5), and hydraulic wheel cylinder (2) from backing plate (6). Discard lockwashers.
5. Remove two cylinder links (7) from hydraulic wheel cylinder (2).

b. INSTALLATION

1. Position two cylinder links (7) on hydraulic wheel cylinder (2).
2. Position hydraulic wheel cylinder (2) on backing plate (6) and install two machine bolts (4) and two new lockwashers (5).
3. Install bleeder valve (3) in hydraulic wheel cylinder (2).
4. Connect tube assembly (1) to hydraulic wheel cylinder (2).



TRACK REMOVED FOR CLARITY

FOLLOW-ON TASKS:
- Assemble service brakes (para 4-23).
- Install brakedrum (para 4-32).
- Bleed brakes (para 4-27).
- Install tire assembly (para 4-28).

4-25. HYDRAULIC LINES, HOSES, AND FITTINGS MAINTENANCE.

This Task Covers:

a. Removal
b. Cleaning and Inspection
c. Fabrication of Brake Tube Assemblies
d. Installation

Initial Setup:

Tools/Test Equipment:
- Common #1 tool set
- Common #2 tool set
- General mechanic's tool kit
- Drain pan

Materials/Parts:
- Dry cleaning solvent (Item 6, Appendix E)
- Rags (Item 5, Appendix E)
- Self-locking nut. 145036

a. REMOVAL

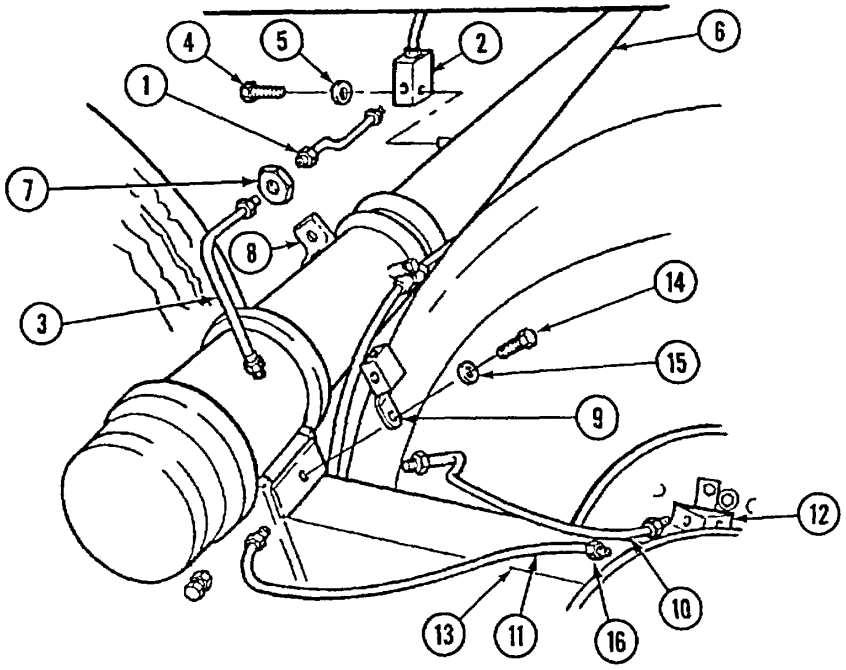
NOTE

Use this task to maintain left or right side hydraulic lines, hoses, and fittings. Right side is shown.

1. Position drain pan to catch brake fluid.

2. Disconnect cross axle tube assembly (1) from multiple connector (2) and hose assembly (3). Remove tube assembly (1).

3. Remove capscrew (4), flat washer (5), and multiple connector (2) from cross axle (6).



4-25. HYDRAULIC LINES, HOSES, AND FITTINGS MAINTENANCE (Con't).

4. Remove self-locking nut (7) and hose assembly (3) from cross axle bracket (8). Discard self-locking nut.

5. Remove other end of hose assembly (3) from frame tee assembly (9).

6. Position drain pan to catch brake fluid.

7. Disconnect ends of frame tube assemblies (10 and 11) from frame tee assembly (9) and hydraulic wheel cylinders (12). Remove tube assemblies (10 and 11) from frame group (13).

8. Remove capscrew (14), flat washer (15), and frame tee assembly (9) from frame group (13).

b. CLEANING AND INSPECTION

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

1. Clean all parts with dry cleaning solvent and rags.

2. Inspect hoses, frame tee assemblies, and multiple connector for damage and replace if necessary.

3 Inspect all tube assemblies for any cracks, breaks, bends, or damaged tube nuts. Repair any damaged tube assemblies.

c. FABRICATION OF BRAKE TUBE ASSEMBLIES

NOTE

There are four different tube assemblies. All four are assembled the same way. This procedure covers only one. No repairs of brake tube assemblies are authorized.

1. Using tube cutter, cut one flared end off tube assembly (11).

2. Remove two flared nuts (16) from tube assembly (11). If flared nuts (16) are OK, set aside for later use. If not, discard flared nuts.

3. Using tube cutter and Table 4-3, cut new tube assembly (11) to the required length.

Table 4-3.

Tube Assembly	Length
Left and Right Frame Tube Assemblies	(20 in.) 51 cm
Left Cross Axle Tube Assembly	(20.5 in.) 52 cm
Right Cross Axle Tube Assembly	(30 -11/32 in.) 77 cm

4-25. HYDRAULIC LINES, HOSES, AND FITTINGS MAINTENANCE (Con't).

4. Bend new tube (13) into shape using bending toot and old tube as a guide. Discard old tube.

5. Install two flared nuts (16) on tube assembly (11) so that flared ends face outward.

6. Double-flare both ends of tube assembly (11) using double-flaring tool.

d. INSTALLATION

1. Position frame tee assembly (9) in place on frame group (13) and install capscrew (14) and flat washer (15).

2. Position frame tube assemblies (10 and 11) in place on frame group (13). Connect ends of frame tube assemblies (10 and 11) to frame tee assembly (9) and hydraulic wheel cylinders (12).

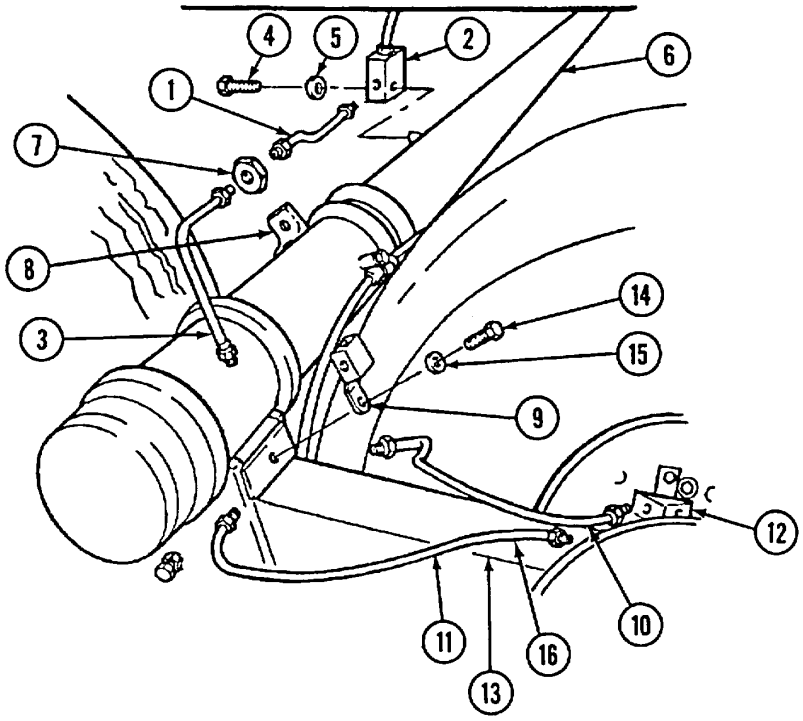
CAUTION

To prevent damage to brake hose assembly, position brake hose assembly so it clears track blocks.

3. Install hose assembly (3) in frame tee assembly (9) and axle bracket (8) so that hose assembly (3) clears track blocks. Install new self-locking nut (7).

4. Position multiple connector (2) on cross axle (6) and install capscrew (4) and flat washer (5).

5. Connect cross axle tube assembly (1) to multiple connector (2) and hose assembly (3).



FOLLOW-ON TASKS:
- Bleed brakes (para 4-27).

4-26. PARKING BRAKE CABLE REPLACEMENT.

This Task Covers:

a. Removal

b. Installation

Initial Setup:

Equipment Conditions:
- Tire assembly removed (para 4-28).
- Brakedrum removed (para 4-32).

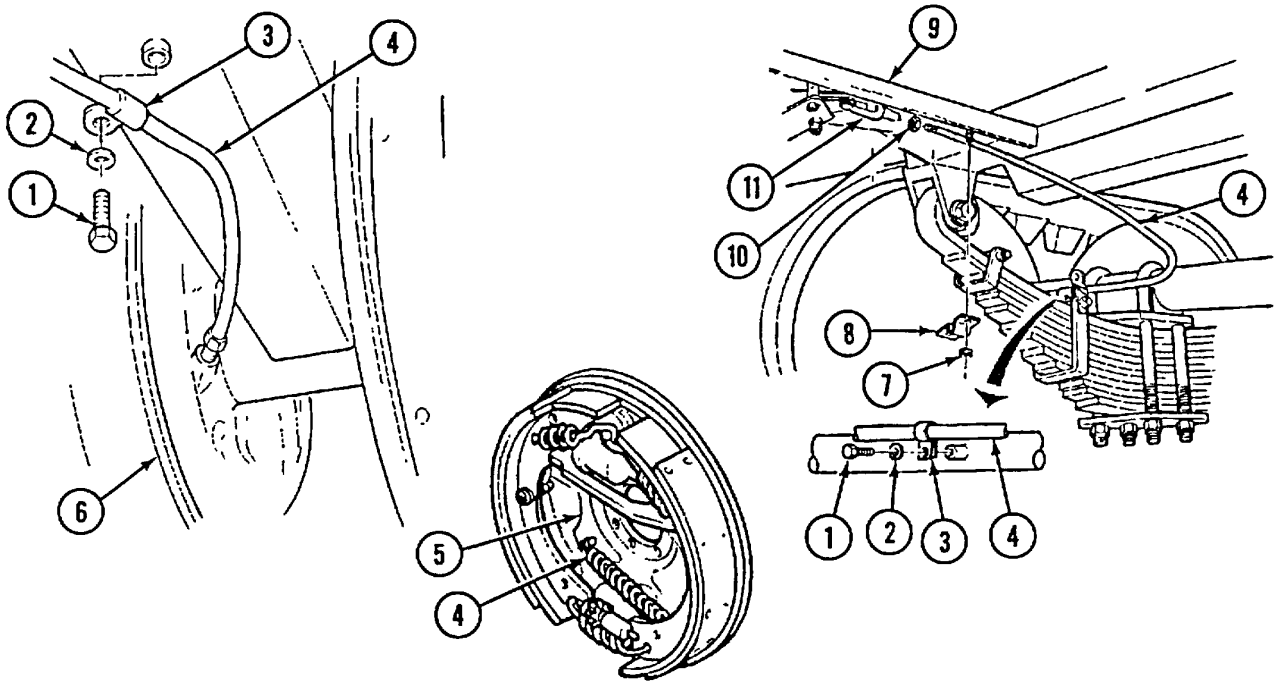
Tools/Test Equipment:
- General mechanic's tool kit

NOTE

The M200A1 Tracked Suspension has two parking brake cables. Use this task to replace either the left or right parking brake cable.

a. REMOVAL

1. Remove two capscrews (1), two flat washers (2), and loop clamps (3) from parking brake cable (4).
2. Unhook parking brake cable (4) from parking brake lever (5). Pull parking brake cable (4) out of backing plate (6).
3. Remove two plain nuts (7) and parking brake cable retainer strap (8) from trailer (9).
4. Loosen plain nut (10) on parking brake cable (4). Remove parking brake cable (4) from clevis (11). Remove plain nut (10) from parking brake cable (4).



4-26. PARKING BRAKE CABLE REPLACEMENT (Con't).

b. INSTALLATION

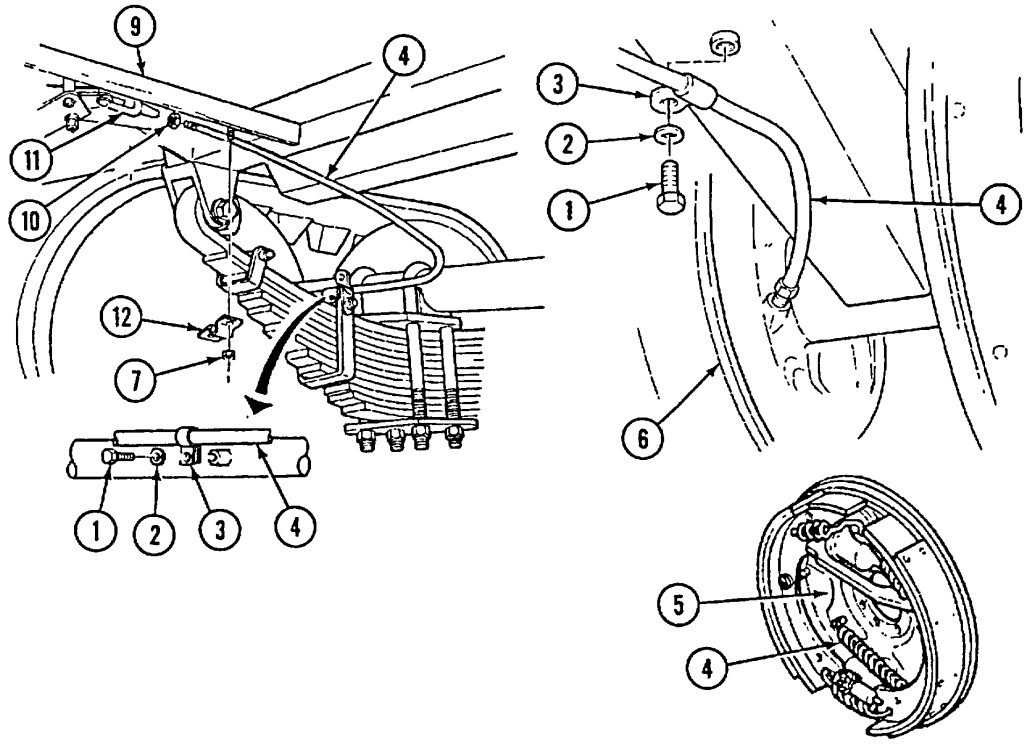
1. Install plain nut (10) about halfway on parking brake cable (4). Install parking brake cable (4) in clevis (11). Tighten nut (10).

2. Install parking brake cable (4) on parking brake cable retainer strap (12) and position in place under trailer (9).

3. Install two plain nuts (7).

4. Push parking brake cable (4) through backing plate (6). Hook parking brake cable (4) to parking brake lever (5).

5. Install two loop clamps (3) on parking brake cable (4). Position two loop clamps (3) and parking brake cable (4) in place and secure with two flat washers (2) and capscrews (1).



FOLLOW-ON TASKS:
- Install brakedrum (para 4-32).
- Install tire assembly (para 4-28).
- Adjust parking brake handle (refer to TM 9-2330-205-14&P).

4-27. BLEEDING HYDRAULIC BRAKE SYSTEM.

NOTE

If pressure bleeder is not available, connect to air brake system of prime mover having an air brake system.

Perform this task in accordance with TM 9-2330-205-14&P.

Section IX. WHEEL AND TRACK MAINTENANCE

4-28. TIRE ASSEMBLY REPLACEMENT.

This Task *Covers:*

a. Removal

b. Installation

Initial Setup:

Tools/Test Equipment:
- Blocking
- Common #1 tool set
- General mechanic's tool kit
- Master mechanic's tool kit

a REMOVAL

NOTE

Use this task to remove any one of the left or right, front or rear, inner or outer tire assemblies. Right front outer tire assembly is shown.

1. Apply parking brakes. Block opposite-side track (refer to TM 9-2330-205-14&P).

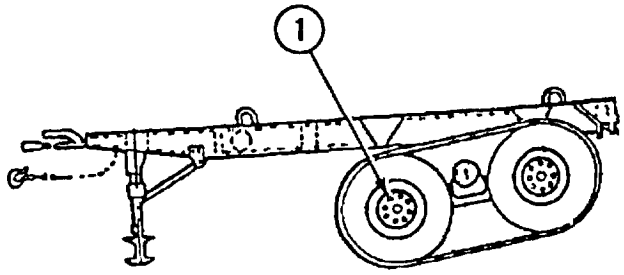
2. Loosen but do not remove eight lug nuts (1) on tire assembly to be removed.

CAUTION

Do not loosen the track alignment or adjustment screws, located on each side of the frame group. Failure to tighten the adjustment screw will allow the frame group to move freely and damage the track belt.

NOTE

If the inside tire assembly requires removal, the trailer must be raised high enough to pivot the frame group so the tire assembly clears the leaf spring shackle and axle hub.



4-28. TIRE ASSEMBLY REPLACEMENT (Con't)

WARNING

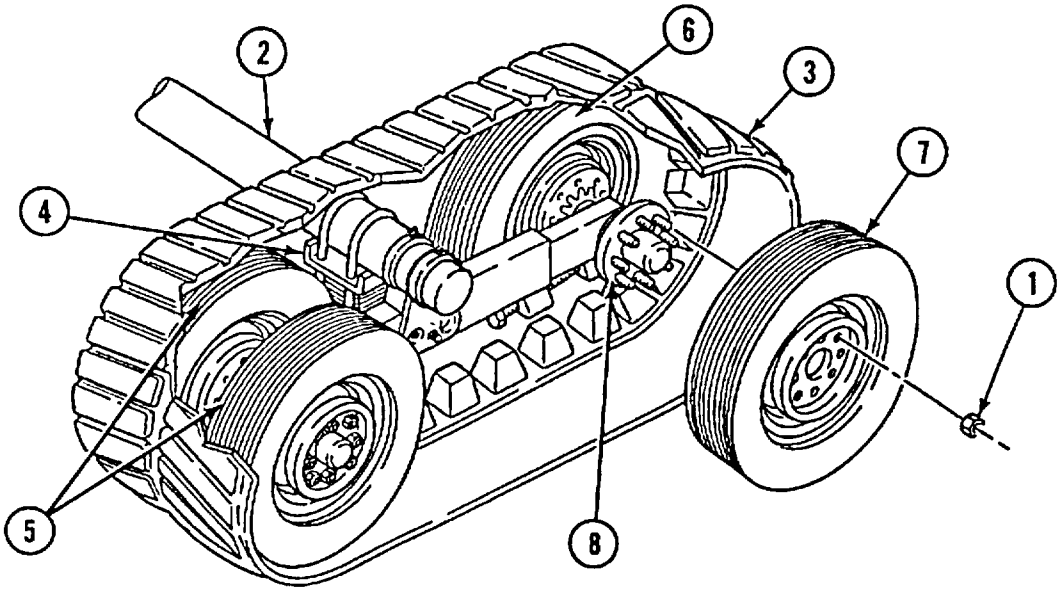
Failure to block undercarriage group may result in injury to personnel.

3. Raise axle assembly (2) until track (3) is clear of ground using a hydraulic jack positioned under spring U-bolt plate (4). Support axle assembly (2) with jack stands or blocking, to stabilize trailer. If removing inside tire, center of hub must be approximately 37 inches from ground. Block up opposite end of undercarriage group to keep tire assembly being removed at ground level.

4. Reduce track tension by releasing air out of two tire assemblies (5). Do not remove air from tire assembly (6).

CAUTION

Do not loosen the track alignment or adjustment screws, located on each side of the frame group. Failure to tighten the adjustment screw will allow the frame group to move freely and damage the track belt.



5. Remove eight lugnuts (1) and tire assembly (7) from axle hub (8).

b. INSTALLATION

NOTE

- **Use this task to install any one of the left or right, front or rear, inner or outer tire assemblies. Right front outer tire assembly is shown.**

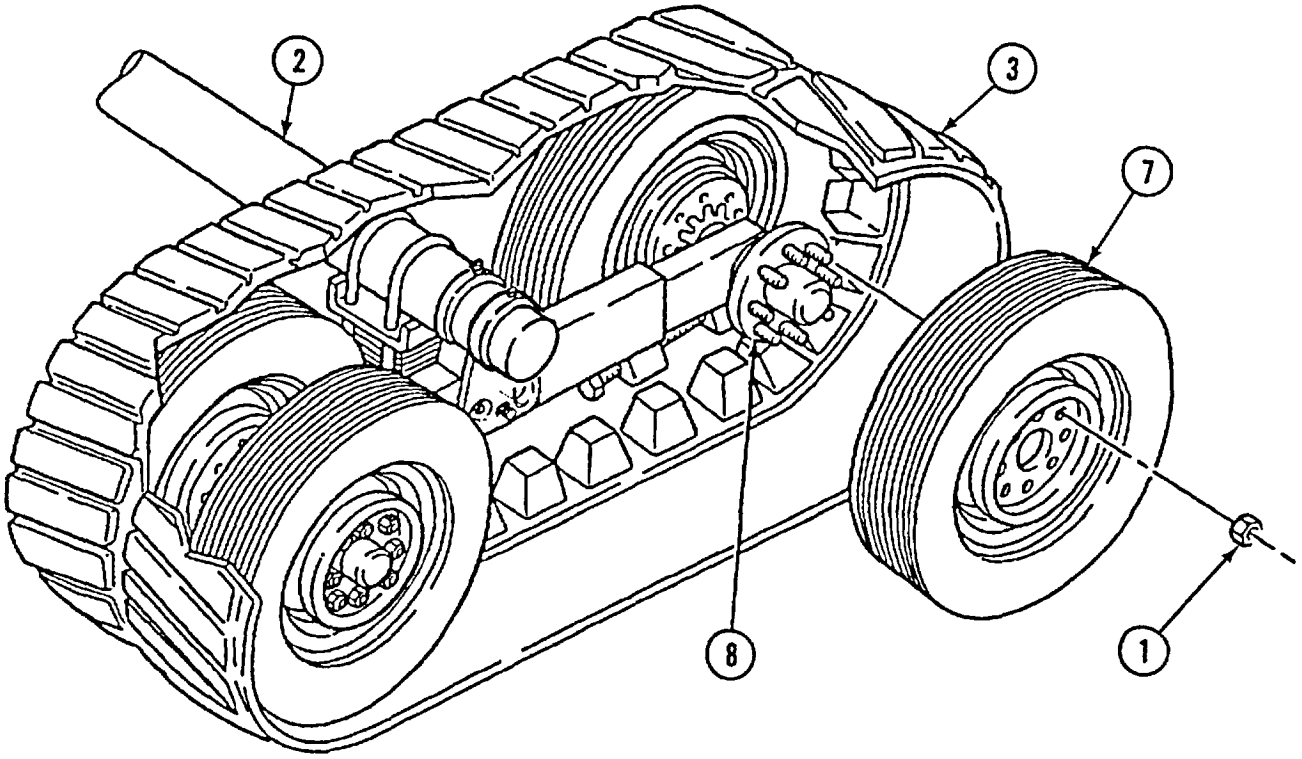
- **If difficulty is encountered during replacement, check belt sag between tire assembly on bottom. If track belt and tire assembly are too high off ground, track belt will sag too far and may have to be supported by blocks.**

4-28. TIRE ASSEMBLY REPLACEMENT (Con't)

1. Position tire assembly (7) over studs on axle hub (8). Install, but do not tighten, eight lugnuts (1).

2. Raise axle assembly (2) high enough to remove jack stands using a hydraulic jack. Remove jack stands and lower track (3) to ground. Remove hydraulic jack.

3 Torque lugnuts (1) evenly to 90-100 lb.-ft. (122-136 N•m). Remove blocking.



WARNING

Compressed air used for cleaning or drying purposes, or for cleaning restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (goggles/shield, gloves, etc.) and use caution to avoid Injury to personnel.

4. Inflate all tire assemblies to 40 psi (275 kPa) (cold).

4-29. TIRE MAINTENANCE.

Refer to TM 9-2610-200-24 for instructions on tire maintenance.

4-30. TRACK BELT MAINTENANCE.

This Task Covers:

a. Removal
b. Installation
c. Adjustment and Alignment

Initial Setup:

Tools/Test Equipment:
- Common #1 tool set
- General mechanic's tool kit
- Master mechanic's tool kit

Personnel Required: Two

a. REMOVAL

1. Apply parking brake and block the opposite-side track (refer to TM 9-2330-205-14&P).

2. Raise cross axle (1) until track belt (2) to be removed is clear of ground with hydraulic jack. Support cross axle (1) with jack stands or blocking.

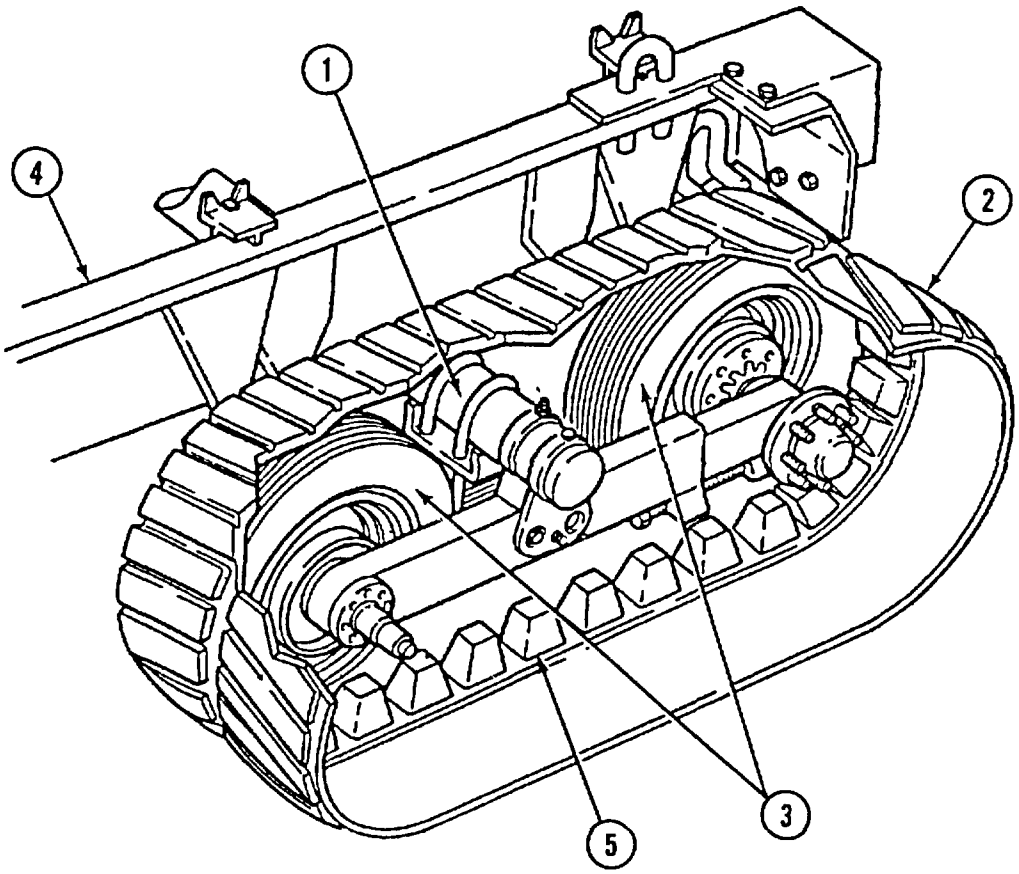
3. Deflate and remove outer front and rear tire assemblies (para 4-28). Deflate but do not remove inner front and rear tire assemblies (3).

CAUTION

Do not loosen the track alignment or adjustment screws, located on each side of the frame group. Failure to tighten the adjustment screw will allow the frame group to move freely and damage the track belt

4. With the aid of an assistant, lift track belt (2) off inner front and rear tire assemblies (3) and away from trailer (4).

4-30. TRACK BELT MAINTENANCE (Con't).



b. INSTALLATION

NOTE

- **If difficulty is encountered while Installing track belt, check to see if track belt sags between the front and rear tire assemblies on bottom. If track belt and tire assemblies are too high off the ground, track belt may sag too far and have to be supported with blocks.**
- **Track is installed with "V" of tread pointed to the rear of vehicle, when viewing from top.**

1. With the aid of an assistant, install track belt (2) on inner front and rear tire assemblies (3) until track bell guide blocks (5) contact tire assemblies (3). To aid installation of outer tires, inflate inner tire assemblies (3) to 40 psi (276 kPa).

2. Install outer front and rear tire assemblies (para 4-28) and inflate to 40 psi (276 kPa) (cold).

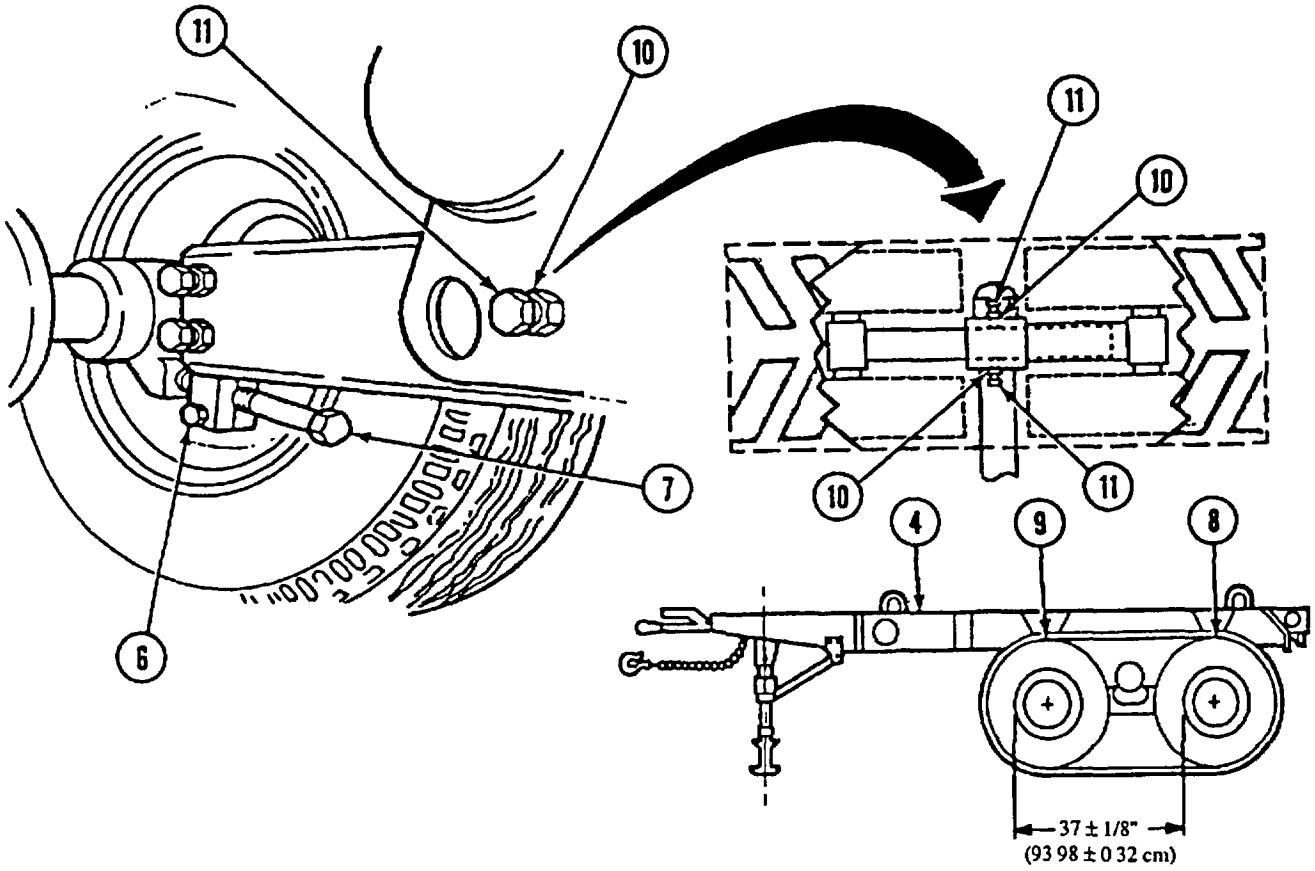
3. Raise cross axle (1) off jack stands or blocking with hydraulic jack. Remove jack stands or blocking and lower trailer (4) to ground. Remove hydraulic jack.

4. Remove blocking from opposite-side track belt.

4-30. TRACK BELT MAINTENANCE (Con't).

c. ADJUSTMENT AND ALIGNMENT

1. Loosen bolt (6). Tighten or loosen adjustment bolt (7) until distance of 37.00 ±1/8 inches (93.98 ±0.32 cm) can be obtained between front of rear outer wheel (8) and front of front outer wheel (9). Tighten bolt (6).



CAUTION

Ensure that track-belt alignment and adjustment screws, located on each side of the frame group, are tight prior to operation. Failure to tighten these screws will allow the front and rear frame assemblies to move freely and damage the track belt.

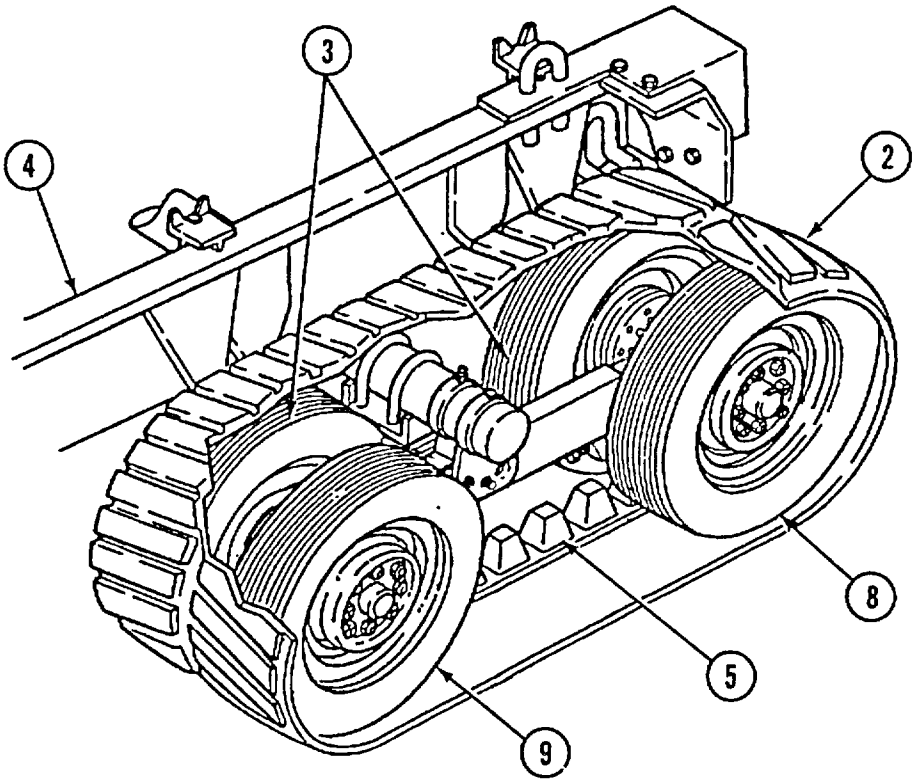
2. Connect towing vehicle to trailer (refer to TM 9-2330-205-14&P).

NOTE

Trailer must be stopped in a straight line without making any steering corrections or else belt alignment procedure will be affected.

3. Tow trailer (4) forward in a straight line on hard level surface for at least 100 feet (30.5 meters), then carefully stop in a straight line. While towing, observe position of track belt guide blocks (5) as track belt (2) revolves around the front and rear, inner and outer tire assemblies (3, 9, and 8).

4-30. TRACK BELT MAINTENANCE (Con't).



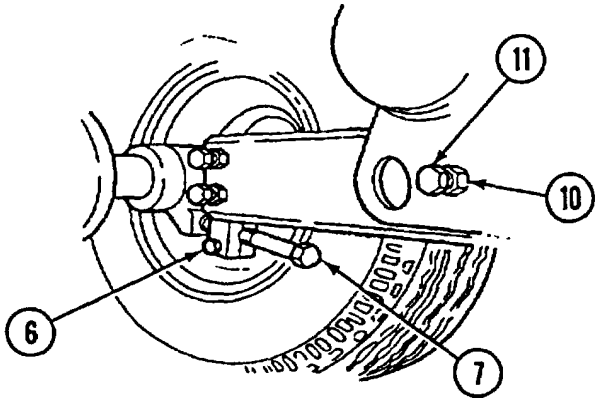
WARNING

Ensure that both towing vehicle and M200A1 trailer parking brakes are set and tires and track belt are cool before checking track belt tension and alignment. Tires may be hot. Failure to follow this warning may result in serious injury or death to personnel.

NOTE

- **If track belt guide blocks are between the inner and outer rear ire assemblies while revolving, track belt is properly aligned.**
- **If track belt guide blocks are touching or are too close to the outer rear tire assembly, do steps 4, 5, 7, and 8.**
- **If track belt guide blocks are touching or are too close to the rear inner tire assembly, do steps 4 and 6 through 8. Loosen both inner and outer self-locking nuts (10).**

4-30. TRACK BELT MAINTENANCE (Con't).



4. Loosen both inner and outer self-locking nuts (10).

5. Loosen outer capscrew (11) one turn and tighten inner capscrew (11) one turn. Ensure capscrew (6) is against inner block when tightening. Resistance must be felt to ensure capscrew (6) is bottomed.

6. Loosen inner capscrew (11) one turn and tighten outer capscrew (11) one turn. Ensure capscrew (6) is against inner block when tightening. Resistance must be felt to ensure capscrew (6) is bottomed.

7. Tighten all four self-locking nuts (10).

8. Repeat steps 3-7 until track belt alignment is correct.

4-31. IDLER HUB MAINTENANCE.

This Task Covers:

a. Removal
b. Disassembly
c. Repair
d. Assembly
e. Installation
f. Adjustment

Initial Setup:

Equipment Conditions:
- Rear tire assembly removed (para 4-28).

Tools/Test Equipment:
- Common #1 tool set
- General mechanic's tool kit

Materials/Parts:
- Dry cleaning solvent (Item 6, Appendix E)
- Grease (Item 3, Appendix E)
- Cotter pin, MS24665-423
- Lip type seal, 5M9740

References: TM Q-914

a. REMOVAL

CAUTION

To prevent damage, avoid prolonged hammering on one area of the grease cap shoulder. Tapping around the circumference will prevent binding.

4-31. IDLER HUB MAINTENANCE (Con't).

1. Remove grease cap (1) from idler hub (2).

2. Remove cotter pin (3) from nut retainer (4). Discard cotter pin.

3. Remove nut retainer (4), hex nut (5), and flat washer (6) from idler hub (2).

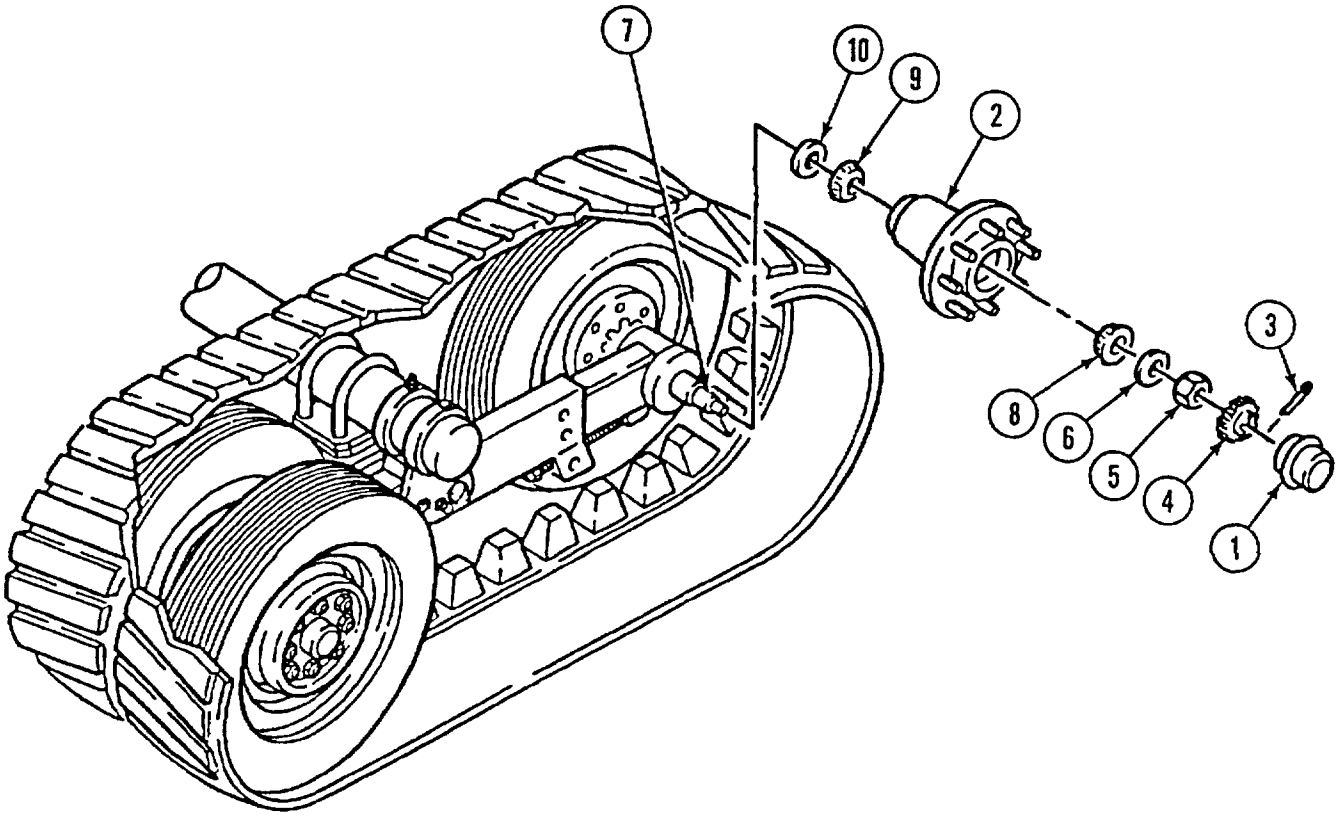
4. Pull idler hub (2) out slightly on rear frame assembly spindle (7) to loosen outer cone and rollers (8). Remove outer cone and rollers (8) from idler hub (2) and rear frame assembly spindle (7).

5. Remove idler hub (2) from rear frame assembly spindle (7).

CAUTION

Avoid prolonged hammering on one side of cone and rollers to prevent damage. Tapping around the circumference will prevent binding.

6. Remove inner cone and rollers (9) and lip seal (10) from idler hub (2) or rear frame assembly spindle (7). Discard lip seal.



4-31. IDLER HUB MAINTENANCE (Con't).

WARNING

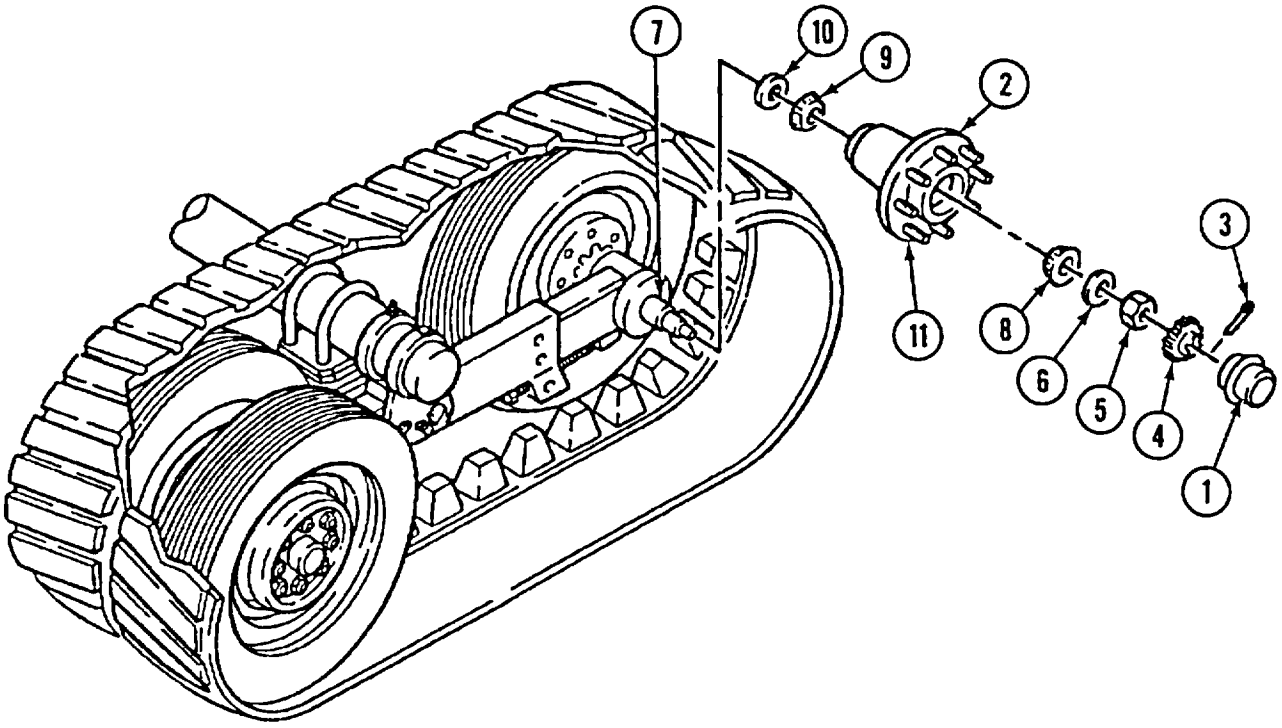
Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

NOTE

If inner or outer cone and rollers need to be replaced, cone and rollers and races are replaced as a set

7. Clean and inspect inner and outer cone and rollers (9 and 8) in accordance with TM 9-214. Discard if damaged.

8. Inspect idler hub (2) for broken, stripped, or missing studs (11). If stud (11) is broken, stripped or missing, repair idler hub (2).



b. DISASSEMBLY

NOTE

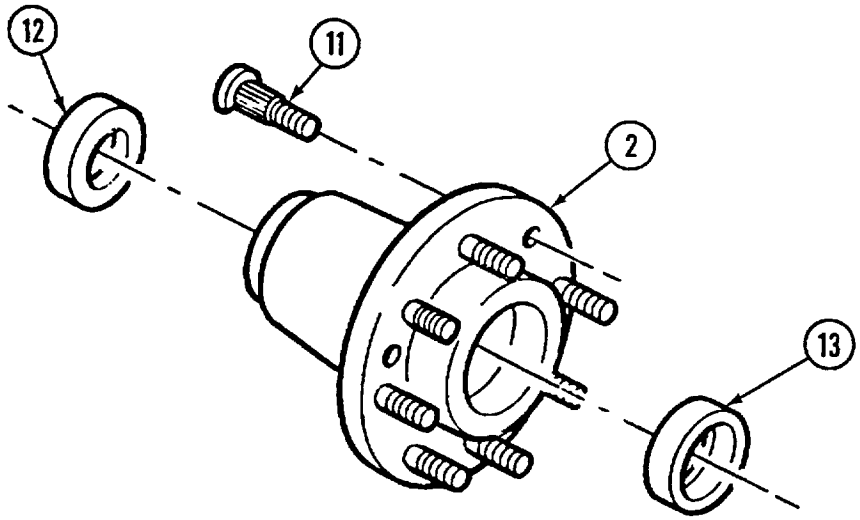
Idler hub may be removed as an assembly. Disassemble only if replacement of a part is required.

4-31. IDLER HUB MAINTENANCE (Con't).

Remove two tapered roller cups (12 and 13) from idler hub (2) in accordance with TM 9-214. Discard tapered roller cups.

c. REPAIR

1. Position idler hub (2) in vise.
2. Drive damaged stud (11) out of idler hub (2). Discard stud.



3. Aline flats on new stud (11) with flats in idler hub (2). Drive new stud (11) in idler hub (2).
4. Remove idler hub (2) from vise.

d. ASSEMBLY

Tap two new tapered roller cups (12 and 13) into position inside idler hub (2).

e. INSTALLATION

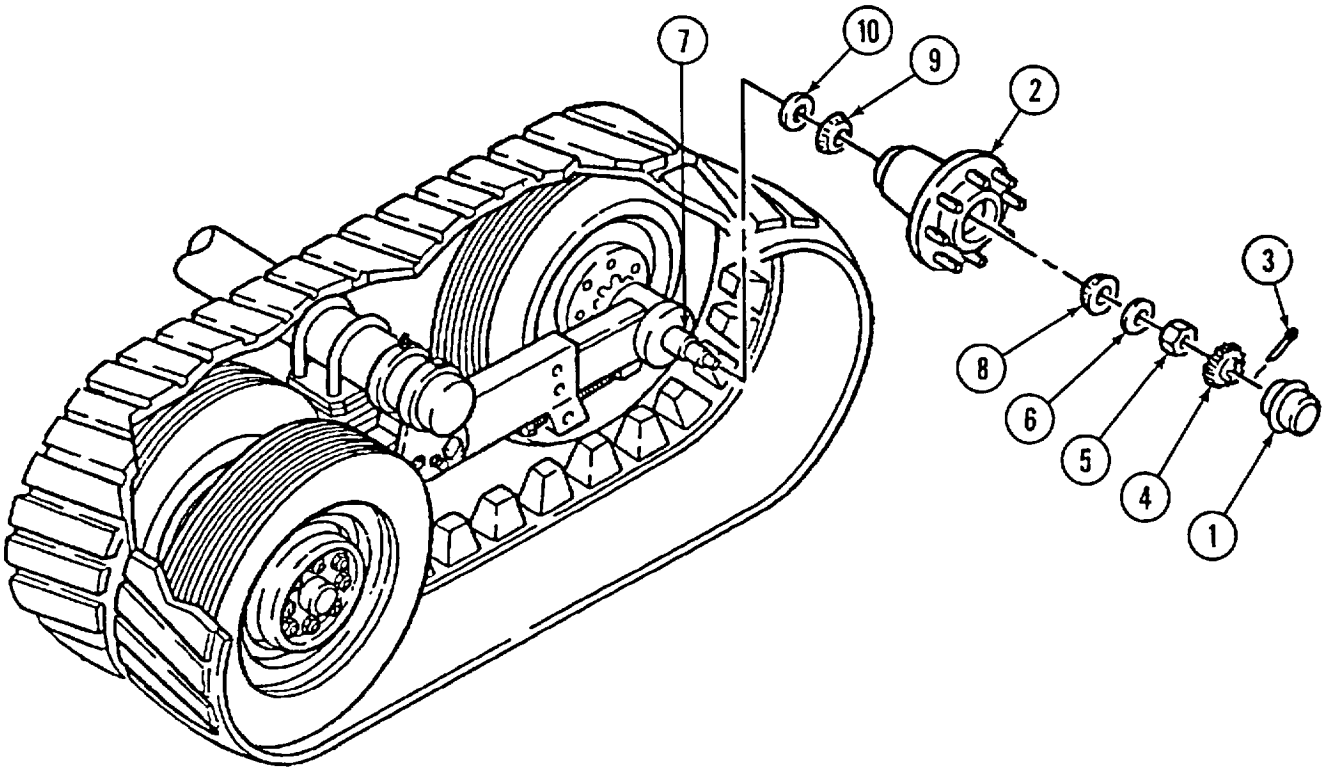
1. Position new lip seal (10) on idler hub (2) with lip facing outward.

NOTE

Instructions on packing cones and rollers can be found in TM 9-214.

4-31. IDLER HUB MAINTENANCE (Con't).

2. Pack inner and outer cone and rollers (9 and 8) with grease.



3. Position inner cone and roller (9) in idler hub (2) and install on rear frame assembly spindle (7).

4. Position outer cone and rollers (8) in idler hub (2).

5. Install flat washer (6) and nut (5) on rear frame assembly spindle (7). Tighten nut (5) until resistance is felt.

6. Install nut retainer (4) on rear frame assembly spindle (7). Install new cotter pin (3) and grease cap (1).

f. ADJUSTMENT

CAUTION

Avoid prolonged hammering on one side of the grease cap shoulder to prevent damage. Tapping around the circumference will prevent binding.

4-31. IDLER HUB MAINTENANCE (Con't).

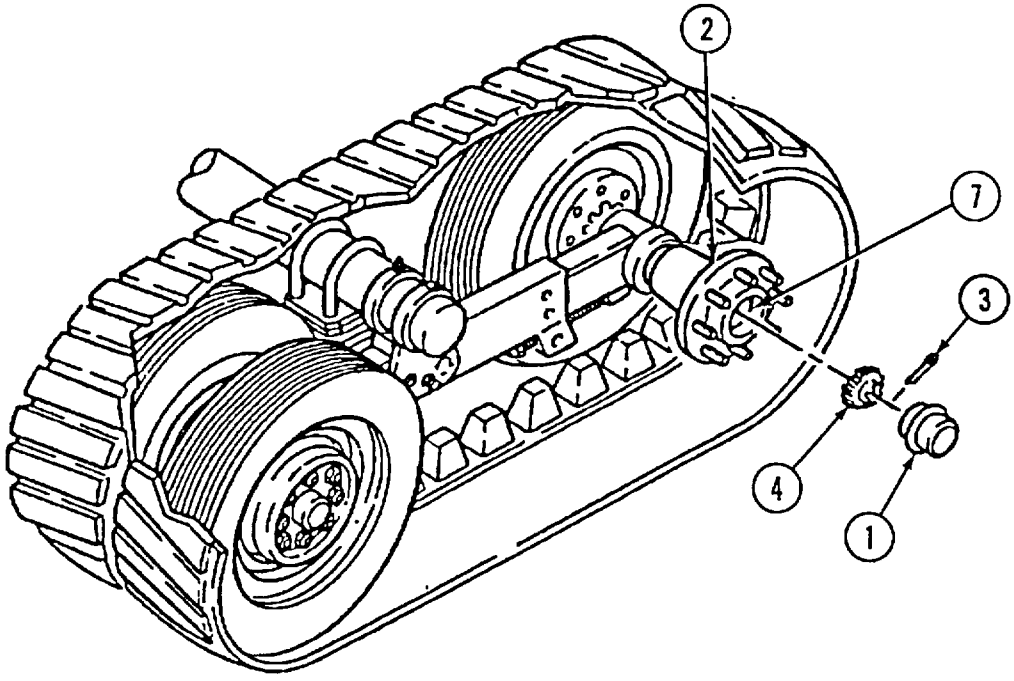
1. Remove grease cap (1) from idler hub (2).

2. Remove cotter pin (3) from nut retainer (4). Remove nut retainer (4) from rear frame assembly spindle (7). Discard cotter pin.

3. Loosen nut (5) and rotate idler hub (2) while tightening nut (5) until binding starts. Loosen nut (5) 1/16 turn or until idler hub (2) does not bind.

NOTE

Try to move Idler hub by rocking. If idler hub moves, tighten nut 1/16 turn and recheck.



4. Install nut retainer (4) and new cotter pin (3) on rear frame assembly spindle (7).

CAUTION

Avoid hammering in center of grease cap to prevent damage. Tapping around circumference near shoulder will prevent binding.

5. Install grease cap (1) on idler hub (2).

FOLLOW-ON MAINTENANCE:

* Install tire assembly (para 4-28).

4-32. BRAKEDRUM MAINTENANCE.

This Task Covers:

a. Removal
b. Disassembly
c. Repair
d. Assembly
e. Installation
f. Adjustment

Initial Setup:

Equipment Conditions:
- Tire assembly removed (para 4-28).

Tools/Test Equipment:
- Common #1 tool set
- General mechanic's tool kit

Materials/Parts:
- Dry cleaning solvent (Item 6, Appendix E)
- Grease (Item 3, Appendix E)
- Cotter pin, MS24665-423
- Lip type seal, 5M9740

References: TM 9-214

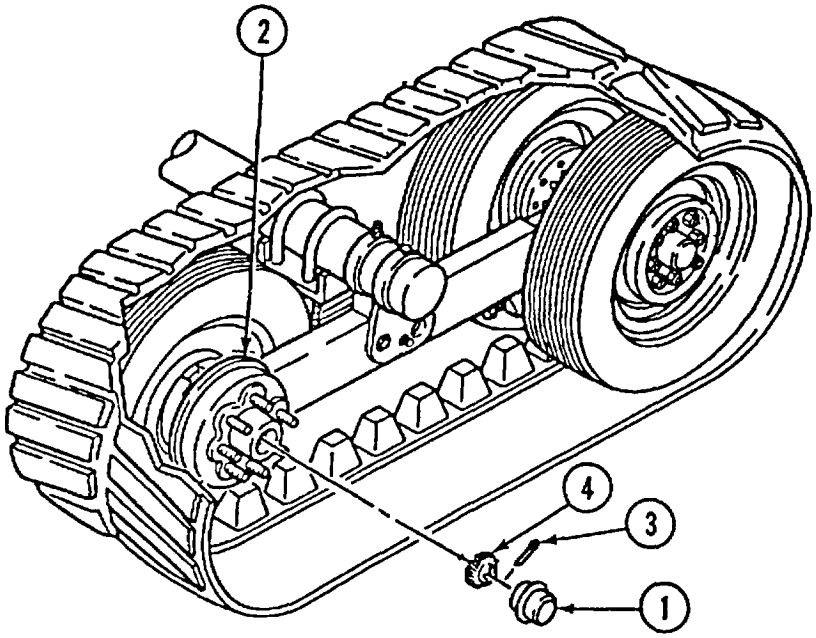
a. REMOVAL

CAUTION

Avoid prolonged hammering on one area of the grease cap shoulder to prevent damage. Tapping around the circumference will prevent binding.

1. Remove grease cap (1) from brakedrum (2).

2. Remove cotter pin (3) from nut retainer (4). Discard cotter pin.



4-32. BRAKEDRUM MAINTENANCE (Con't).

3. Remove nut retainer (4), hex nut (5), and flat washer (6) from brakedrum (2).

4. Pull brakedrum (2) out slightly on front frame assembly spindle (7) to loosen outer cone and rollers (8). Remove outer cone and rollers (8) from brakedrum (2) and front frame assembly spindle (7).

WARNING

DO NOT handle brake shoes, brake drums, or other brake components unless area has been properly cleaned. There may be asbestos dust on these components, which can be dangerous if you touch it or breathe it. Wear an approved filter mask and gloves. Never use compressed air or a dry brush to clean brake components. Dust may be removed using an Industrial-type vacuum cleaner. Clean dust or mud away from brake components with water and a wet, soft cloth. Failure to follow this warning may result in serious illness or death to personnel.

5. Remove brakedrum (2) from front frame assembly spindle (7) and backing plate (9).

CAUTION

To prevent damage, avoid prolonged hammering on one side of cone and rollers. Tapping around the circumference will prevent binding.

6. Remove inner cone and rollers (10) and lip seal (1) from brakedrum (2) or front frame assembly spindle (7). Discard lip seal.

WARNING

Dry cleaning solvent P-D-680 is toxic and flammable. Always wear protective goggles and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat The solvent's flash point is 100°F-138°F (38°C-59°C). If you become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts eyes, immediately wash your eyes and get medical aid.

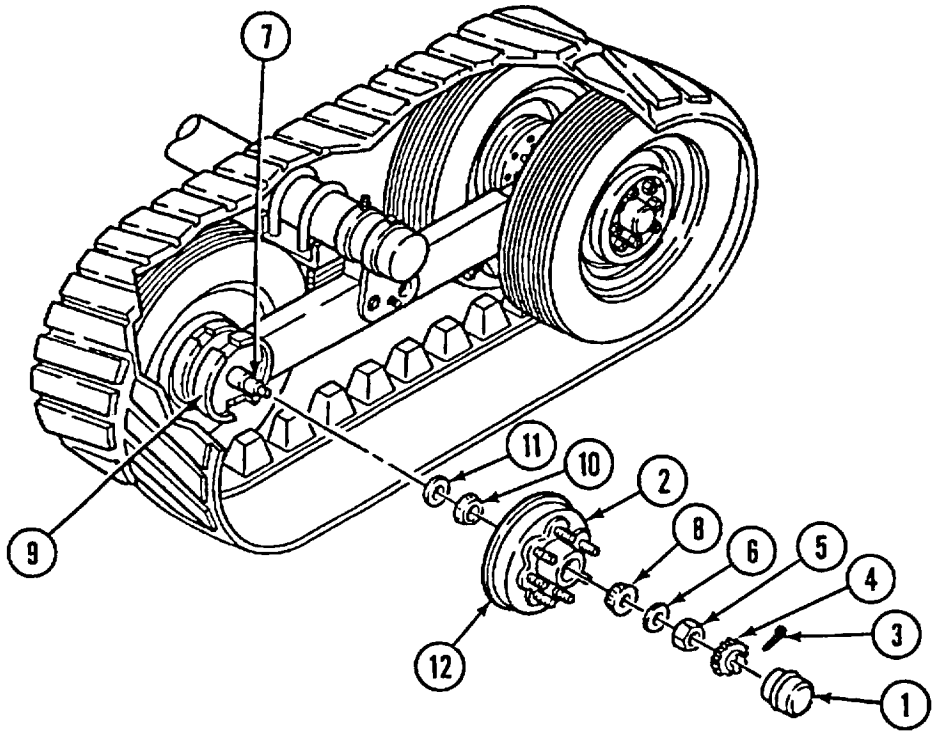
4-32. BRAKEDRUM MAINTENANCE (Con't).

NOTE

If inner or outer cone and rollers need to be replaced, cone and rollers and races are replaced as a set.

7. Clean and inspect inner and outer cone and rollers (10 and 8) in accordance with TM 9-214. Discard if damaged.

8. Inspect brakedrum (2) for broken, stripped, or missing studs (12). If stud is broken, stripped, or missing, repair brakedrum (2).



b. DISASSEMBLY

WARNING

DO NOT handle brake shoes, brake drums, or other brake components unless area has been properly cleaned. There may be asbestos dust on these components, which can be dangerous if you touch it or breathe it. Wear an approved filter mask and gloves. Never use compressed air or a dry brush to clean brake components. Dust may be removed using an industrial-type vacuum cleaner. Clean dust or mud away from brake components with water and a wet, soft cloth. Failure to follow this warning may result in serious illness or death to personnel.

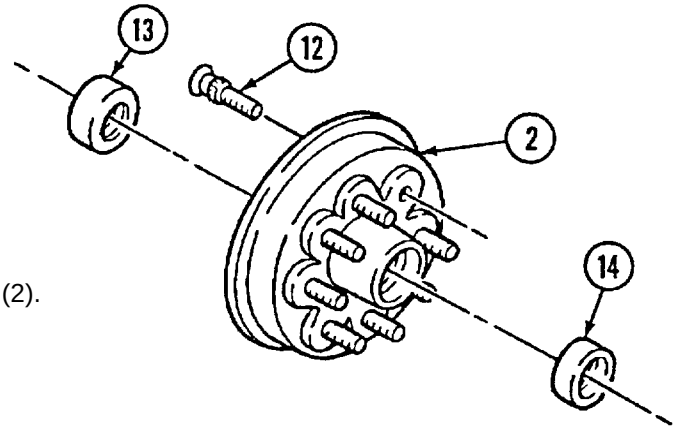
NOTE

Brakedrum may be removed as an assembly. Disassemble only if replacement of a part is required.

4-32. BRAKEDRUM MAINTENANCE (Con't).

Remove two tapered roller cups (13 and 14) from brakedrum (2). Discard tapered roller cups.

c. REPAIR



1. Place brakedrum (2) on a flat surface.
2. Drive damaged stud (12) out of brakedrum (2). Discard stud.
3. Position brakedrum (2) in vise.
4. Aline flats on new stud (12) with flats in brakedrum (2). Drive new stud (12) into brakedrum (2).

d. ASSEMBLY

Tap two new tapered roller cups (13 and 14) into position inside brakedrum (2).

e. INSTALLATION

NOTE

Instructions on packing cones and rollers can be found in TM 9-214.

1. Pack inner and outer cone and rollers (10 and 8) with grease.
2. Position inner cone and rollers (10) in brakedrum (2) and install new lip seal (11) with lip seal facing outward.
3. Install brakedrum (2) on front frame assembly spindle (7).
4. Position outer cone and rollers (8) in brakedrum (2).
5. Install fiat washer (6) and nut (5) on front frame assembly spindle (7). Tighten nut (5) until resistance is felt.
6. Install nut retainer (4) on front frame assembly spindle (7). Install new cotter pin (3) and grease cap (1).

f. ADJUSTMENT

CAUTION

To prevent damage, avoid prolonged hammering on one side of the grease cap shoulder. Tapping around the circumference will prevent binding.

1. Remove grease cap (1) from brakedrum (2).

4-32. BRAKEDRUM MAINTENANCE (Con't).

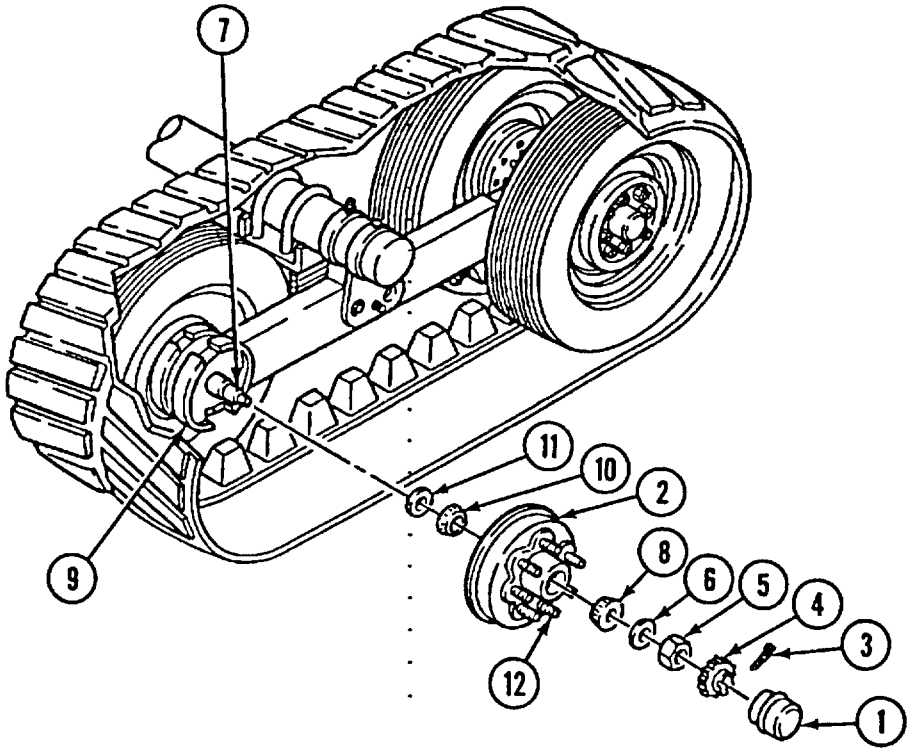
2. Remove cotter pin (3) from nut retainer (4). Remove nut retainer (4) from front frame assembly spindle (7). Discard cotter pin.

3. Loosen nut (5) and rotate brakedrum (2) while tightening nut (5) until binding starts. Loosen nut (5) 1/16 turn or until brakedrum (2) does not bind.

NOTE

Try to move brakedrum by rocking. If brakedrum moves, tighten nut 1/16 turn and recheck.

4. Install nut retainer (4) and new cotter pin (3) on front frame assembly spindle (7).



CAUTION

To prevent damage, avoid hammering in center of grease cap. Tapping around circumference near shoulder will prevent binding.

5. Install grease cap (1) on brakedrum (2).

FOLLOW-ON MAINTENANCE:

- Install tire assembly (para 4-28).

Section X. PREPARATION FOR STORAGE OR SHIPMENT

4-33. GENERAL

a. This section contains requirements and procedures for administrative storage of equipment that is issued to and in use by Army activities worldwide.

b. The requirements specified herein are necessary to maintain equipment in administrative storage in such a way as to achieve the maximum readiness condition.

c. Equipment that is placed in administrative storage should be capable of being readied to perform its mission within a 24-hour period, or as otherwise prescribed by the approving authority. Before equipment is placed in administrative storage, a current PMCS should be completed and deficiencies corrected.

d. Report equipment in administrative storage as prescribed for all reportable equipment.

e. Perform inspections, maintenance services, and lubrication as specified herein.

f. Records and reports to be maintained for equipment in administrative storage are those prescribed by DA PAM 738-750 for equipment in use.

g. A 10% variance is acceptable on time, running hours, or mileage used to determine maintenance actions.

h. Accomplishment of applicable PMCS, as mentioned throughout this section, will be on a quarterly basis.

4-34. DEFINITION OF ADMINISTRATIVE STORAGE.

The placement of equipment in administrative storage can be for short periods of time when a shortage of maintenance effort exists. Items should be ready for use within the time factors as determined by the directing authority. During the storage period, appropriate maintenance records will be kept.

4-35. PREPARATION OF EQUIPMENT FOR ADMINISTRATIVE STORAGE.

a. <u>Storage Site.</u>

(1) Select the best available site for administrative storage. Separate stored equipment from equipment in use. Conspicuously mark the area “Administrative Storage".

4-35. PREPARATION OF EQUIPMENT FOR ADMINISTRATIVE STORAGE (Con't).

(2) Covered space is preferred.

(3) Open site should be improved hard stand, if available. Unimproved sites should be firm, well drained, and free of excessive vegetation.

b. Storage Plan.

(1) Store equipment so as to provide maximum protection from the elements and to provide access for inspection, maintenance, and exercising. Anticipate removal or deployment problems and take suitable precautions.

(2) Take into consideration environmental conditions, such as extreme heat or cold; high humidity; blowing sand, dust, or loose debris; soft ground; mud; heavy snow; or any combination thereof, and take adequate precautions.

(3) Establish a fire plan and provide for adequate fire-fighting equipment and personnel.

c. Maintenance Service and Inspection.

(1) Maintenance Service. Prior to storage, perform the next scheduled organizational PMCS.

(2) Inspection. Inspect and approve the equipment prior to storage. Do not place equipment that is nonmission-capable in storage.

d. Auxiliary Equipment and Basic Issue Items.

(1) Process auxiliary equipment and Basic Issue Items simultaneously with the major item to which they are assigned.

(2) If possible, store auxiliary equipment and Basic Issue Items with the major item.

(3) If stored apart from the major item, mark auxiliary equipment and Basic Issue Items with tags indicating the major item, its registration or serial number and location, and store in protective-type closures. In addition, place a tag or list indicating the location of the removed items in a conspicuous place on the major item.

e. **Correction of Shortcomings and Deficiencies.** Correct all shortcomings and deficiencies prior to storage, or obtain a deferment from the approving authority.

f. **Lubrication**. Lubricate equipment in accordance with instructions in Chapter 3, Section I.

4-35. PREPARATION OF EQUIPMENT FOR ADMINISTRATIVE STORAGE (Con't).

g. **General Cleaning. Painting, and Preservation.**

CAUTION

Do not direct water or steam, under pressure, against unsealed electrical systems or any exterior opening. Failure to follow this caution may result in damage to equipment.

(1) **Cleaning.** Clean the equipment of dirt, grease, and other contaminants but do not use vapor degreasing.

(2) **Painting.** Remove rust and damaged paint by scraping, wire brushing, sanding, or buffing. Sand to a smooth finish and spot-paint as necessary (TB 43-0209).

(3) **Preservation**. After cleaning and drying, immediately coat unpainted metal surfaces with oil or grease, as appropriate (Chapter 3, Section I).

CAUTION

Place a piece of barrier material between desiccant bags and metal surfaces to prevent corrosion.

NOTE

Air circulation under draped covers reduces deterioration from moisture and heat

(4) **Weatherproofing.** Sunlight, heat, moisture (humidity), and dirt tend to accelerate deterioration. Install all covers (including vehicle protective closures) authorized for the equipment. Close and secure all openings except those required for venting and draining. Seal openings to prevent the entry of rain, snow, or dust. Insert desiccant when complete seal is required. Place equipment and provide blocking or framing to allow for ventilation and water drainage. Support cover away from item surfaces that may rust, rot, or mildew.

4-36. CARE OF EQUIPMENT IN ADMINISTRATIVE STORAGE.

a. **Maintenance Services**. After equipment has been placed in administrative storage, inspect, service, and exercise as specified herein.

b. **Inspection**. Inspection will usually be visual and must consist of at least a walk-around examination of all equipment to detect any deficiencies. Inspect equipment in open storage weekly and equipment in covered storage monthly. Inspect all equipment immediately after any severe storm or environmental change. The following are examples of things to look for during a visual inspection:

(1) Low or flat tires.

(2) Condition of preservatives, seals, and wraps.

(3) Tom, frayed, or split canvas covers and tops.

4-36. CARE OF EQUIPMENT IN ADMINISTRATIVE STORAGE (Con't).

(4) Corrosion or other deterioration.

(5) Missing or damaged parts.

(6) Water in compartments.

(7) Any other readily recognizable shortcomings or deficiencies.

c. **Repair During Administrative Storage.** Keep equipment in an optimum state of readiness. Accomplish the required services and repairs as expeditiously as possible. Whenever possible, perform all maintenance on-site.

d. **Exercising**. Exercise equipment in accordance with Table 4-4 and the following instructions:

(1) **Vehicle Major Exercise**. Depreserve equipment by removing only that material restricting exercise. Close all drains, remove blocks, and perform all before-operation checks. Couple trailer to towing vehicle and drive for at least 25 miles (40 kilometers). Make several right and left 90° turns. Make several hard braking stops without skidding. Perform the following during exercising when it is convenient; operate all other functional components and perform all during- and after-operation checks.

2) **Scheduled Service.** Scheduled services will include inspection per subparagraph b above and will be conducted in accordance with Table 4-4. Lubricate in accordance with instructions in Chapter 3, Section I.

3) **Corrective Action**. Immediately take action to correct shortcomings and deficiencies noted. Record inspection and exercise results on DA Form 2404. Record and report all maintenance actions on DA Form 2407. After exercising, restore the preservation to the original condition. Replenish lubricants used during exercising and note the amount on DA Form 2408.

Table 4-4. Exercise Schedule.

Weeks	2	4	6	8	10	12	14	16	18	20	22	24
PMCS						X						X
Scheduled Services		X		X		X		X		X		
Major Exercise												X

e. **Rotation**. Rotate items in accordance with any rotational plan that will keep equipment in an operational condition and reduce the maintenance effort.

4-37. PROCEDURES FOR COMMON COMPONENTS AND MISCELLANEOUS ITEMS.

a. **Tires**. Visually inspect tires during each walk-around inspection. This inspection includes checking with a tire gage. Inflate, repair, or replace as necessary those tires found to be low, damaged, or excessively worn. Mark inflated and repaired tires with chalk for checking at the next inspection.

b. **Air Lines and Air Reservoir**. Drain air lines and air reservoir of condensation and leave draincock open. Attach a caution tag, annotated to provide for closing of draincock when equipment is exercised. Place tag in a conspicuous location.

c. **Seals.** Seals may develop leaks during storage or shortly thereafter. If leaking persists, refer to the applicable maintenance section in this manual for corrective maintenance procedures.

4-38. REMOVAL OF EQUIPMENT FROM ADMINISTRATIVE STORAGE.

a. **Activation**. Restore the equipment to normal operating condition in accordance with the instructions contained in Chapter 4, Section II.

b. **Servicing**. Resume the maintenance service schedule in effect at the commencement of storage, or service the equipment before the scheduled dates in order to produce a staggered maintenance workload.

4-39. PREPARATION OF EQUIPMENT FOR SHIPMENT.

a. Refer to TM 55-200, TM 55-601, and TM 743-200-1 for additional instructions on processing, storage, and shipment of materiel.

b. Trailers that have been removed from storage for shipment do not have to be reprocessed if they will reach their destination within the administrative storage period. Reprocess only if inspection reveals any corrosion or if anticipated in-transit weather conditions make it necessary.

c. When a trailer is received and has already been processed for domestic shipment, as indicated on DD Form 1397, the trailer does not have to be reprocessed for storage unless corrosion and deterioration are found during the inspection upon receipt. List on SF 364 all discrepancies found because of poor preservation, packaging, packing, marking, handling, loading, storage, or excessive preservation. Repairs that cannot be handled by the receiving unit must have tags attached listing the needed repairs. A report of these conditions will be submitted by the unit commander for action by an ordnance maintenance unit.

CHAPTER 5
DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE

Section I. WHEEL MAINTENANCE

5-1. BRAKEDRUM REPAIR.

This Task Covers:

a. Inspection

b. Repair

Initial Setup:

Equipment Conditions:
- Remove tire assembly (para 4-28).
- Brakedrum removed (para 4-32).

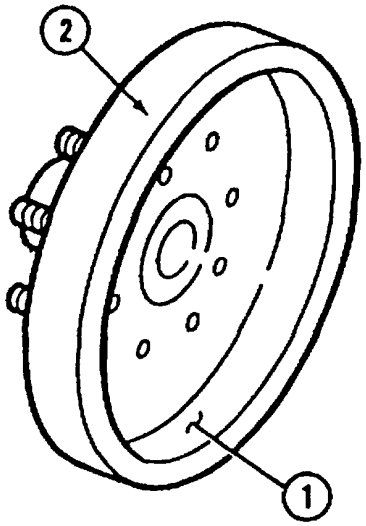
Tools/Test Equipment:
Field basic tool set

a. INSPECTION

WARNING

- **DO NOT handle brake shoes, brake drums, or other brake components unless area has been properly cleaned. There may be asbestos dust on these components, which can be dangerous if you touch it or breathe It. Wear an approved filter mask and gloves. Never use compressed air or a dry brush to clean brake components. Dust may be removed using an Industrial-type vacuum cleaner. Clean dust or mud away from brake components with water and a wet, soft cloth. Failure to follow this warning may result in serious illness or death to personnel.**

- **DO NOT reuse a brakedrum that exceeds maximum wear specifications. Maximum rebore diameter is 12.090 inches (30.71 cm). Failure to follow this warning may result in brake failure and serious injury or death to personnel.**



1. Inspect braking surface (1) of brakedrum (2) for war page, cracks, heat checking, or scoring. Discard brakedrum (2) if cracked or scoring is deeper than 0.090 inches (2.29 mm).

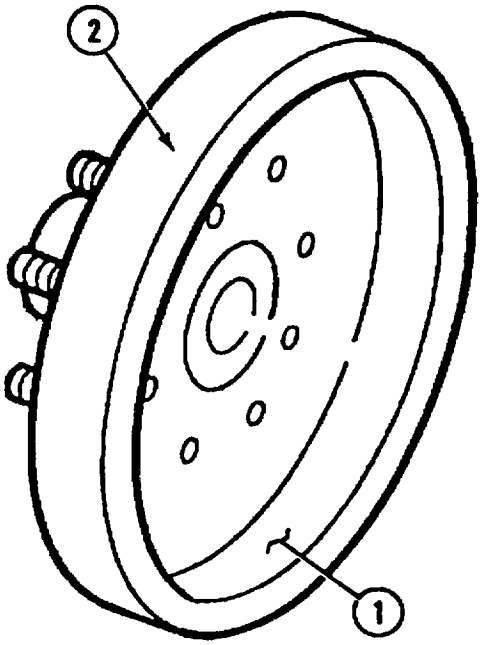
2. Check braking surface (1) of brakedrum (2) at four locations 45 degrees apart using inside micrometer. Discard brakedrum if out-of-round requires removal of more than 0.090 inches (2.29 mm) of metal.

5-1. BRAKEDRUM REPAIR (Con't).

b. REPAIR

WARNING

DO NOT reuse a brakedrum that exceeds maximum wear specifications. Maximum rebore diameter is 12.090 inches (30.71 cm). Failure to follow this warning may result in brake failure and serious Injury or death to personnel.



Reface braking surface (1) of brakedrum (2) using brakedrum lathe, removing a maximum of 0.01 inches (0.254 mm) per cut.

FOLLOW-ON TASKS:

- Install brakedrum assembly (para 4-32).
- Install tire assembly (para 4-28).

Section II. INSTALLATION INSTRUCTIONS

5-2. INSTALL TRACKED SUSPENSION.

This task covers:

a. M200A1 Trailer Axle/Tire Assembly Removal
b. M200A1 Trailer Modifications
c. Tracked Suspension Installation

Initial Setup:

Equipment Condition:
- Trailer parked on flat level surface.

Tools:
- Common No. 1 tool set
- General mechanic's tool set
- Crane, wheel mounted, NSN 3810-01-165-0647
- Master mechanic's tool kit

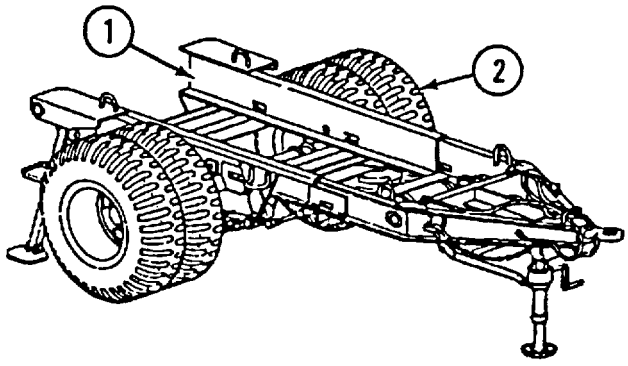
Materials/Parts:
- Center mounting bracket assembly (two required) (Item 3, Appendix G)
- Cotter pin (two required), MS24665-283 (refer to TM 9-2330-205-14&P)
- Fender template (Item 1, Appendix G)
- Forward mounting bracket assembly (two required) (Item 4, Appendix G)
- Left lower fender support (Item 8, Appendix G)
- Lockwasher (eight required), MS35338-44 (refer to TM 9-2330-205-14&P)
- Lockwasher (eight required), MS35338-51 (refer to TM 9-2330-205-14&P)
- Lubrication fitting (six required), MA125-21 025 (refer to SC 4910-95-CL-A74)
- MICLIC tiedown (two required) (Item 10, Appendix G)
- Rear fender (two required) (Item 5, Appendix G)
- Rear mounting bracket assembly (two required) (Item 2, Appendix G)
- Right lower fender support (two required) (Item 9, Appendix G)
- Self-locking nut (four required), 419908PC40 (refer to TM 9-2330-205-14&P)
- Self-locking nut (two required), MS21083N14 (refer to TM 9-2330-205-14&P)
- Tiedown (four required) (Item 7, Appendix G)
- Track suspension, NSN 2330-01-360-3865
- Upper fender support (two required) (Item 6, (Appendix G)

Personnel Required: Two

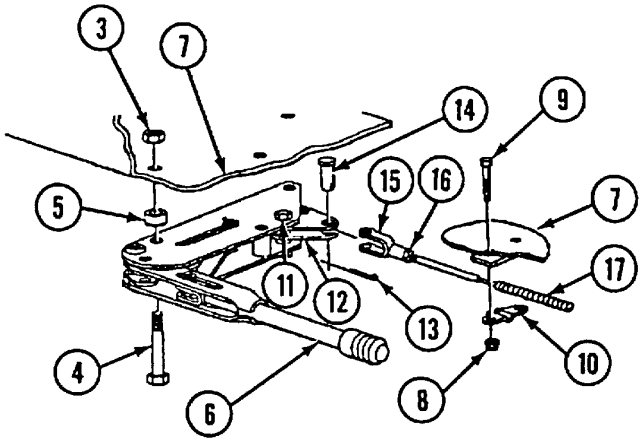
- Use only on MOD zero (MOD 0) on MICLICs.

a. M200A1 TRAILER AXLE/TIRE ASSEMBLY REMOVAL.

1. Raise trailer (1) with hydraulic jack until tires (2) just clear ground. Support trailer (1) using jack stand or blocking under rear comer. Remove hydraulic jacks.



5-2. INSTALL TRACKED SUSPENSION (Con't).



2. Remove three nuts (3), three bolts (4), three spacers (5), and handbrake assembly (6) from frame (7).

3. Remove two self-locking nuts (8), two bolts (9), and parking brake cable retaining strap (10) from frame (7). Set aside parking brake cable retaining strap (10) for later use. Discard self-locking nuts.

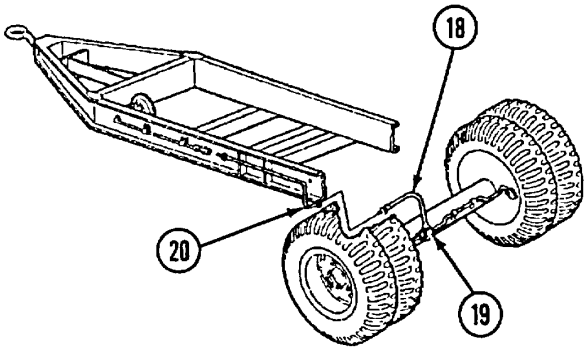
4 Loosen nut (11) on parking brake handle clevis (12).

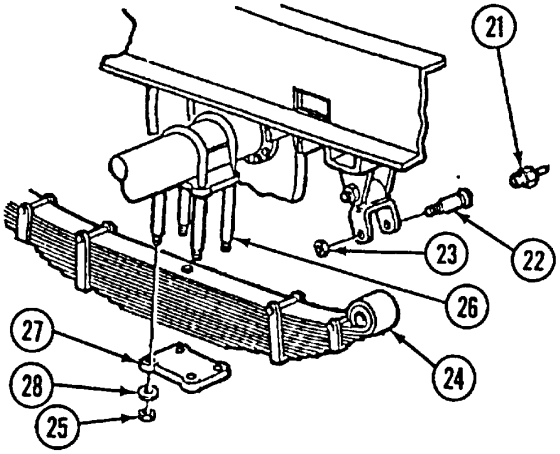
5. Remove cotterpin (13) from straight pin (14). Remove straight pin (14). Discard cotter pin.

6. Remove clevis (15) and nut (16) from parking brake cable (17) and set aside for later use.

7. Repeat steps 2 through 6 for opposite-side parking brake cable (7).

8. Position drain pan to catch hydraulic fluid. Remove hose assembly (18) from multiple connector(19) and tube assembly (20) by turning both ends at the same time. Set aside hose assembly (18) for later use.





9. Remove two lubrication fittings (21) from rear upper and lower leaf spring shackle bolts (22). Remove lubrication fitting (21) from forward leaf spring shackle bolt (22). Discard all three lubrication fittings.

10. Remove self-locking nut (23) from rear lower leaf spring shackle bolt (22). Discard self-locking nut.

11. Support spring (24) using a jack stand. Remove shackle bolt (22) and set aside for later use.

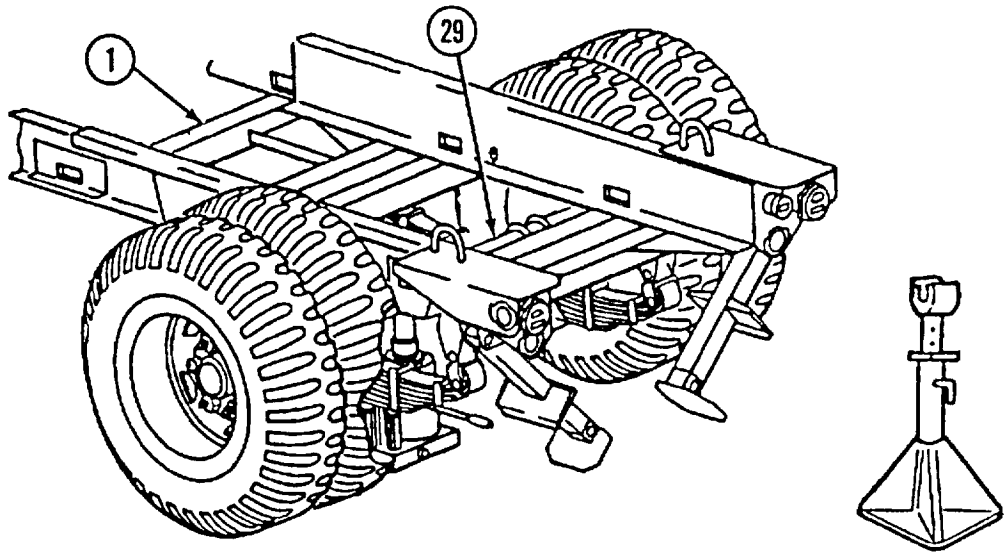
12. Remove four plain nuts (25) from two U-bolts (26). Remove U-bolts (26), plate (27), and four lockwashers (28). Remove jack stand and lower leaf spring (24) to ground. Discard lockwashers.

13. Repeat steps 8 through 12 for opposite side.

5-2. INSTALL TRACKED SUSPENSION (Con't).

14. Using slings and a wheel-mounted crane, raise bed of trailer (1) high enough to permit axle/tire assembly (29) to be removed from under trailer (1).

15. Remove the two rear jack stands and roll axle/tire assembly (29) out from under rear of trailer (1) and store for future use.



16. Position two jack stands under rear corners of trailer (1) and lower trailer (1). Remove lifting slings.

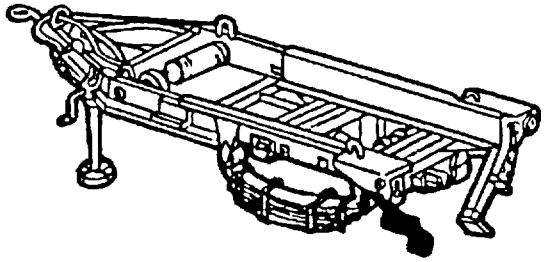
b. M200A1 TRAILER MODIFICATIONS:

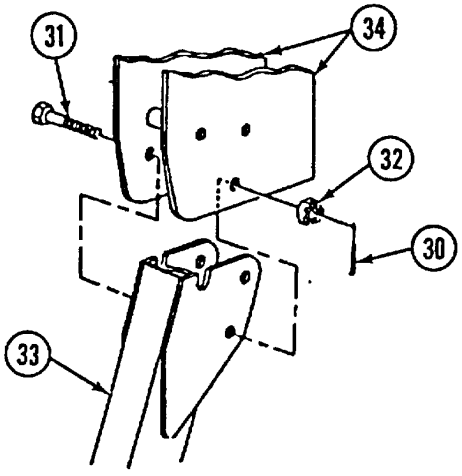
1. Remove cotter pin (30) from rear leveling jack mounting bolt (31). Discard cotter pin.

2. Remove mounting bolt (31) and castellated nut (32) from leveling jack (33) and mounting brackets (34).

3. Remove leveling jack (33) from mounting brackets (34) and reinstall mounting bolt (31) and castellated nut (32) in leveling jack (33) and return to supply system.

4. Repeat steps 1 through 3 for opposite-side leveling jack.





5-2. INSTALL TRACKED SUSPENSION (Con't).

WARNING

Use protective Clothing, an OSHA/MSA approved breathing apparatus, and work in a well-ventilated area when grinding and welding/cutting on chemical agent resistant coating (CARC) painted surfaces. CARC is a proven carcinogen and, under these conditions, is hazardous to human health.

CAUTION

To prevent damage to electrical wiring and brakelines when welding or cutting, protect with shielding.

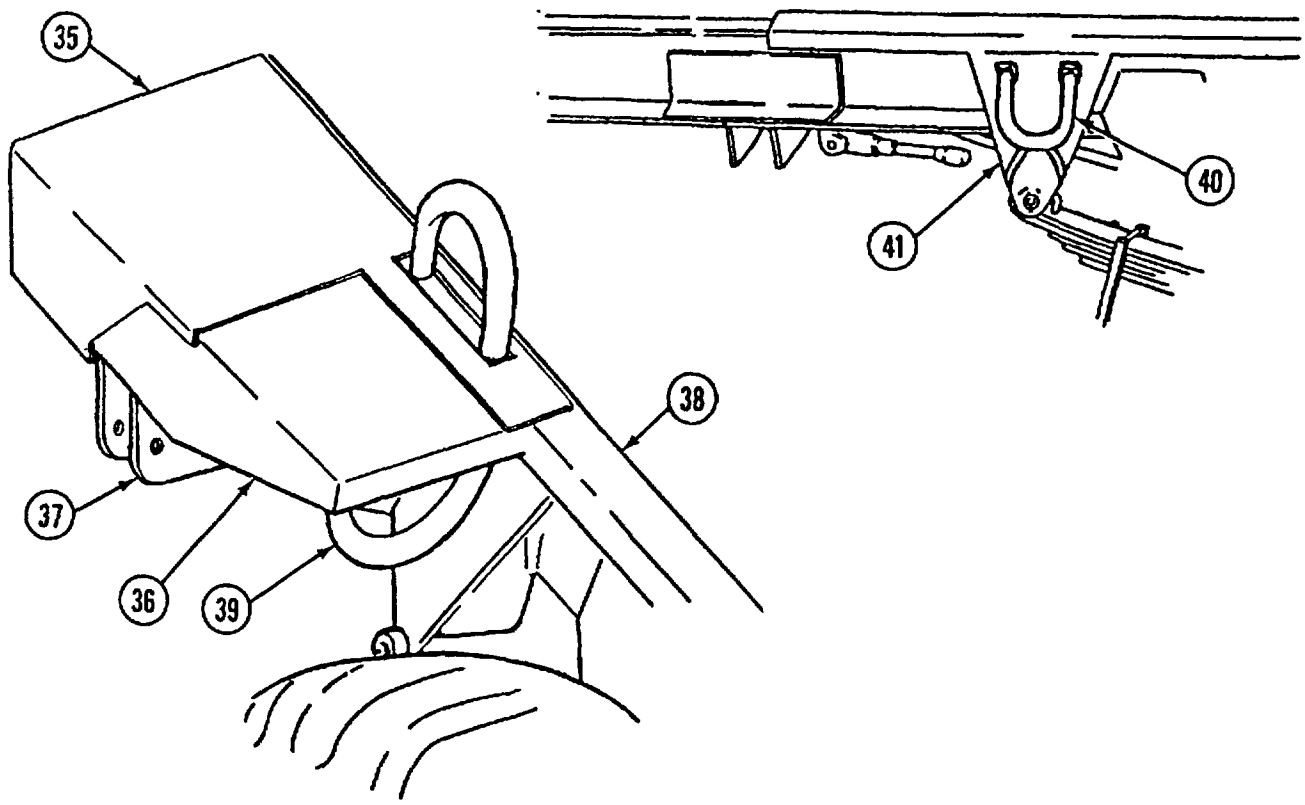
5. Fabricate fender template in accordance with Appendix G. Illustrated List of Manufactured Items.

6. Place template (35) on left rear fender (36) and mark area of fender to be removed. Cut area to be removed from fender (36) and discard.

7. Cut left front leveling jack mounting bracket (37) from trailer frame (38) and discard.

8. Cut left rear tiedown (39) from trailer frame (38) and discard. Cut left center lifting eye (40) from trailer frame (41) and discard.

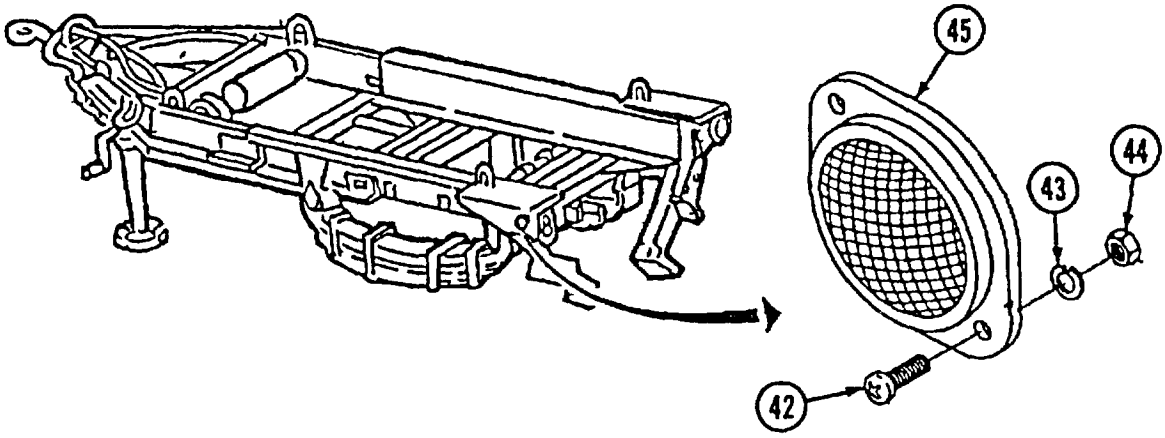
9. Grind smooth all rough surfaces of trailer frame (38 and 41) created by steps 6, 7, and 8.



5-2. INSTALL TRACKED SUSPENSION (Con't).

10. Repeat steps 5 through 9 for right side of trailer.

11. Remove four screws (42), four lockwashers (43), four nuts (44), and left and right rear and side reflectors (45). Discard lockwashers.

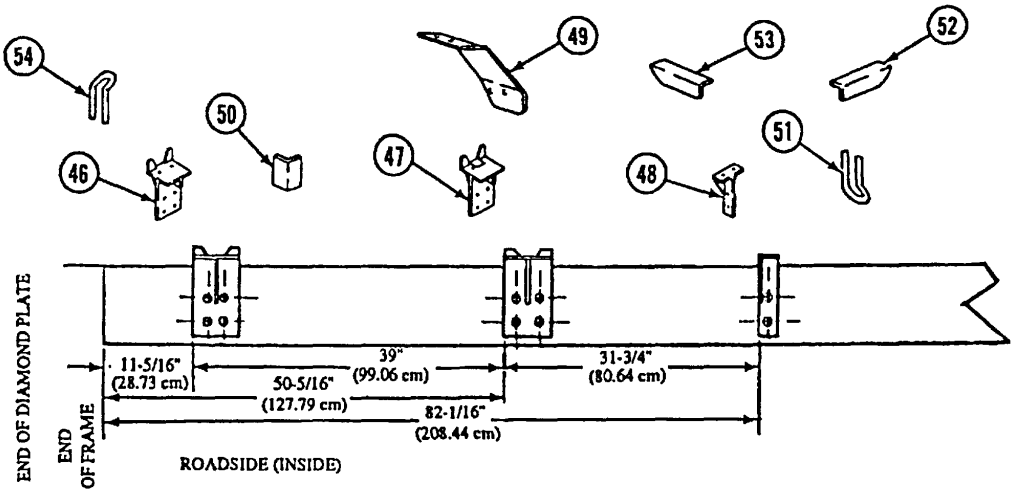


NOTE

- **The two rear, two center, and two forward mounting brackets are required only for the MOD zero (MOD 0) MICLICs, NSN 1055-01-203-5883. MOD one (MOD 1) MICLICs, NSN 1055-01-281-2770, do not require the above six brackets. For further information, see TM 9-1375-215-14&P.**

- **If trailer does not need rear, center, and forward mounting brackets, omit brackets 46, 47, and 48 in step 12, and omit steps 13, 14, and 15 entirely.**

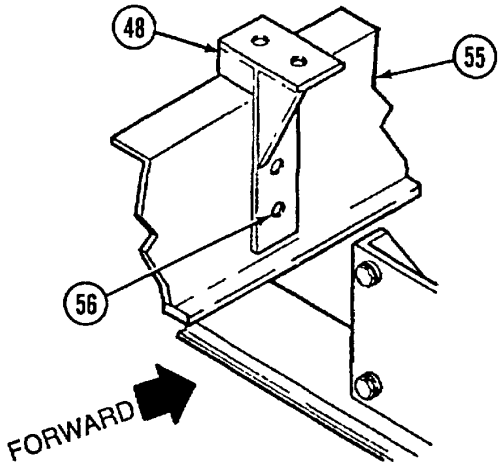
12. All fabricated parts are listed in Appendix G. Fabricate and paint two rear mounting brackets (46), two center mounting brackets (47), two forward mounting brackets (48), two rear fenders (49), two upper fender supports (50), four tiedowns (51), one left lower fender support (52), one right lower fender support (53), and two MICLIC tiedowns (54) in accordance with Appendix G, Illustrated List of Manufactured Items. Do not paint tiedowns and fender supports at this time.



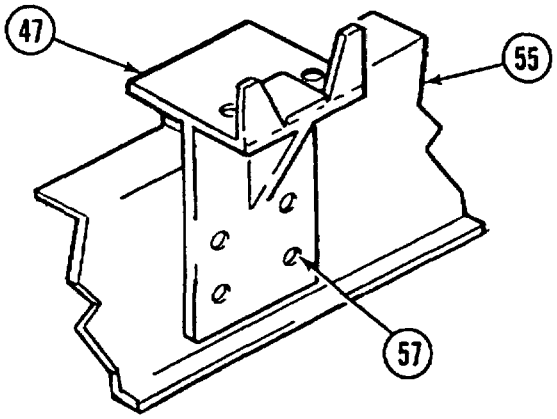
5-2. INSTALL TRACKED SUSPENSION (Con't).

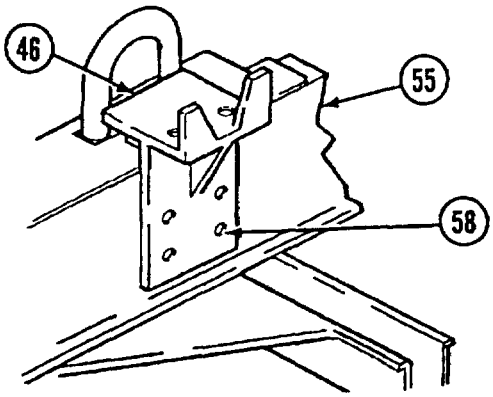
13. Position forward mounting bracket (48) on trailer rail (55) 82-1/16 inches (208.44 cm) from rear edge of forward mounting bracket (48) to end of rear frame. Mark bolt holes (56) using left forward mounting bracket (48) as a guide.

14. Position center mounting bracket (47) on left trailer rail (55) 50-5/16 inches (127.79 cm) from rear edge of mounting bracket to end of rear frame. Mark bolt holes (57) using center mounting bracket (47) as a guide.

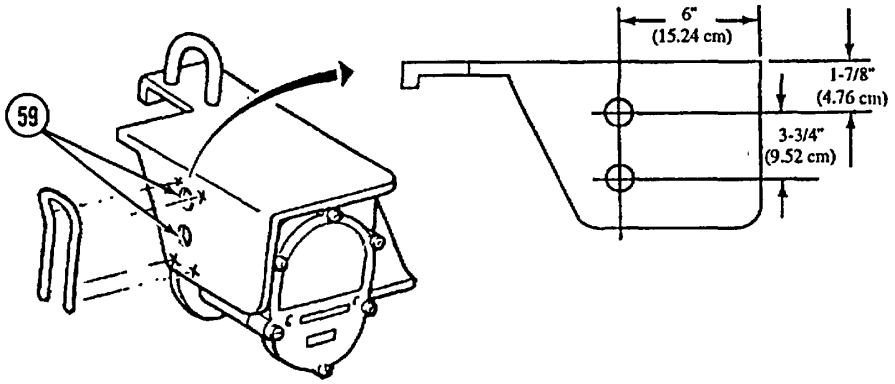


15. Position rear mounting bracket (46) on left trailer rail (55) 11-5/16 inches (28.73 cm) from rear eye of mounting bracket to end of rear frame. Mark bolt holes (58) using rear mounting bracket (46) as a guide.



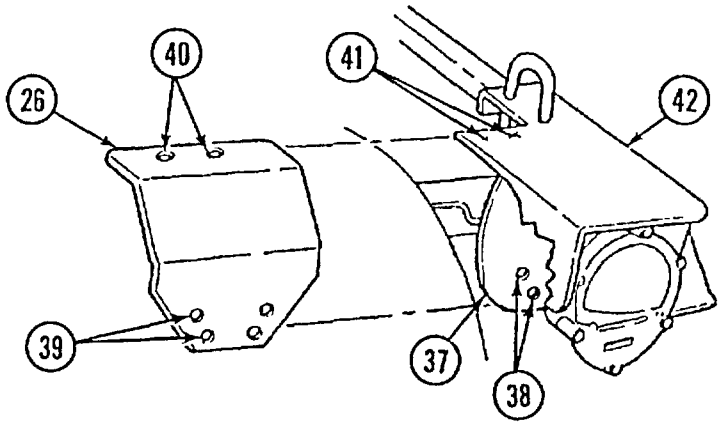


16. Mark the first of two welding holes (59) on the left rear trailer frame 1-7/8 inches (4.76 cm) down and 6 inches (15.24 cm) forward from the rear of the trailer. Mark the second welding hole 3-3/4 inches (9.52 cm) down and 6 inches (15.24 cm) across from the rear of the trailer.



5-2. INSTALL TRACKED SUSPENSION (Con't).

17. At rear of trailer, hold rear fender (49) in position over old leveling jack mounting bracket (60). Align holes (61) with holes (62) in rear fender (49). Using holes (63) in fender (49) as a guide, mark two holes (64) in trailer (65).



18. Repeat steps 13 through 17 for right side of trailer.

NOTE

If mounting brackets are not needed, omit step 19.

19. Drill holes marked in steps 13, 14, and 15 with 9/16-inch drill bit on left and right side of trailer.

20. Drill holes marked in step 17 with 7/16-inch drill bit on left and right side of trailer.

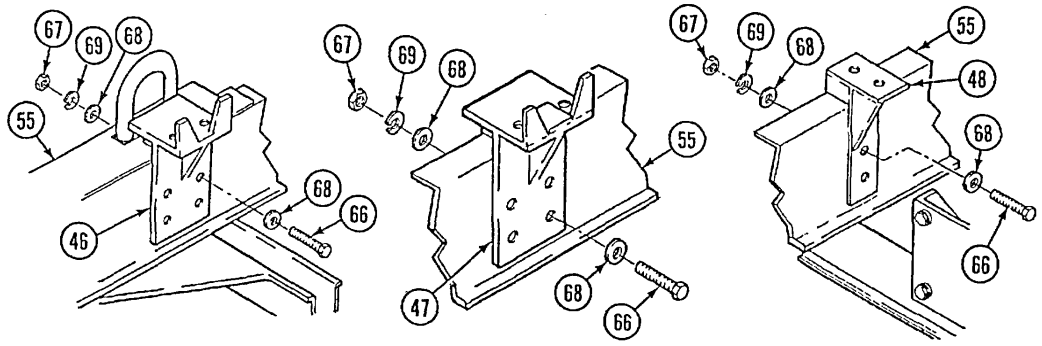
21. Drill holes marked in step 16 with 3/4-inch drill bit on left and right side of trailer.

22. Spot-paint exposed metal surfaces in accordance with TM 43-0139, Painting Instructions for Field Use. Do not paint holes drilled in step 16.

NOTE

If mounting brackets are not needed, omit steps 23 and 24.

23. Install rear (46), center (47), and forward mounting bracket (48) on left trailer rail (55) with new hex bolts (66), hex nuts (67), flat washers (68), and lockwashers (69).



24. Repeat step 23 for right side of trailer.

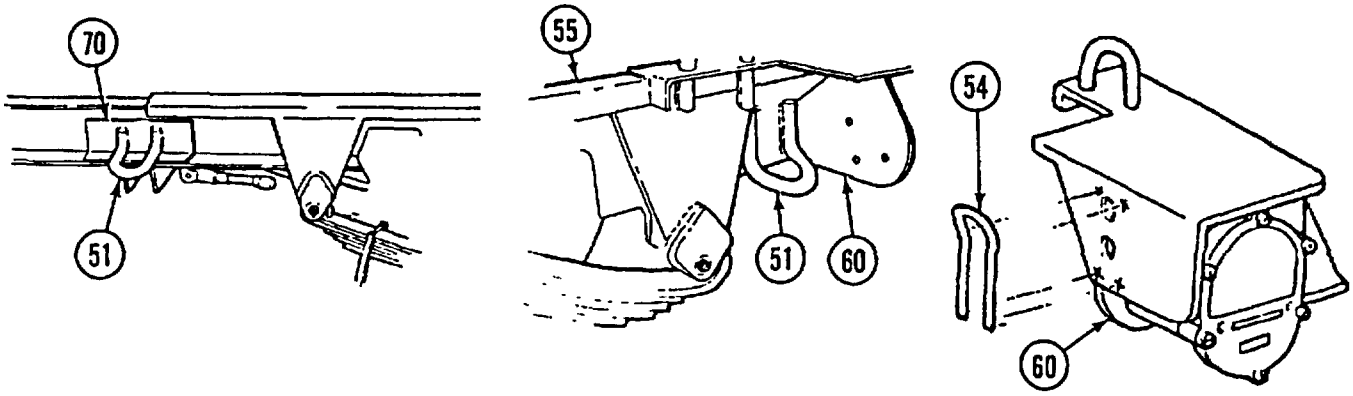
5-2. INSTALL TRACKED SUSPENSION (Con't).

25. Position one tiedown (51) on center of left forward reinforcement plate (70) and weld in place.

26. Position a second tiedown (51) on rear of left trailer rail (55) 1/2 inch away from old leveling jack mounting bracket (60) and weld into place.

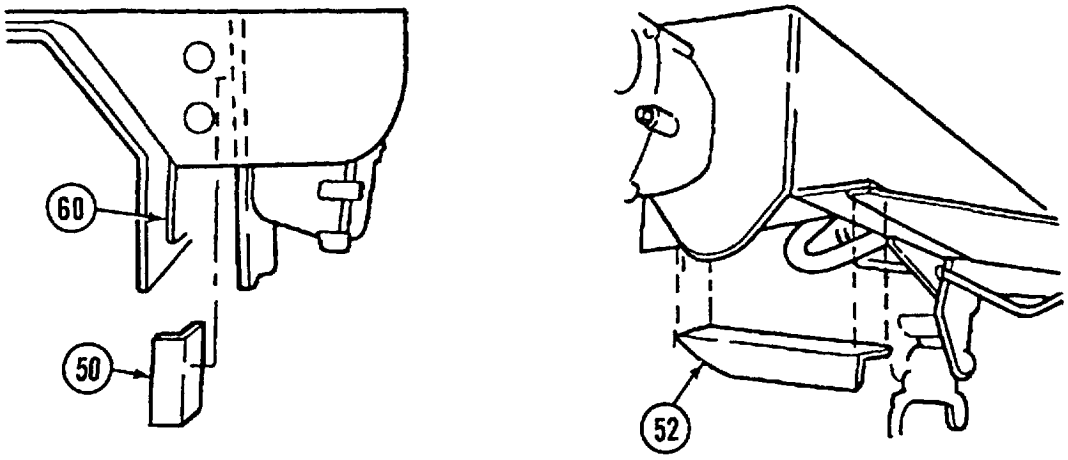
27. Position one MICLIC tiedown (54) even with left rear leveling jack bracket (60) and rear trailer support, then weld in place.

28. Repeat steps 25 through 27 for right side of trailer.



29. Position one upper fender support (50) between left rear leveling jack bracket (60) and rear frame support. Weld into place by filling holes drilled in step 16.

30. Position left lower fender support (52) on left rear trailer frame and weld into place.



31. Repeat steps 29 and 30 for right side of trailer.

32. Grind smooth weld-filled holes on rear of trailer frame created in step 29.

33. Install rear fender (49) in position at rear of trailer rail (55) and old leveling jack mounting bracket (60) with four hex head bolts (71), hex nuts (72), flat washers (73), and lockwashers (74).

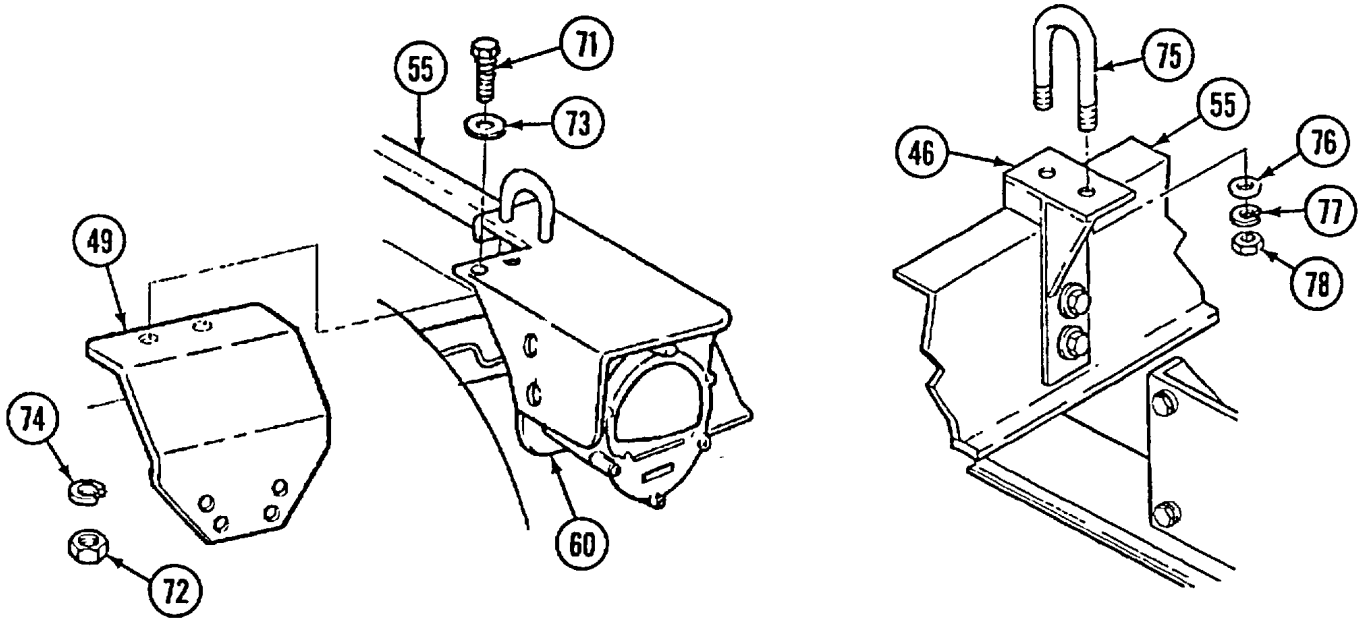
34. Repeat step 33 for right side of trailer.

5-2. INSTALL TRACKED SUSPENSION (Con't).

NOTE

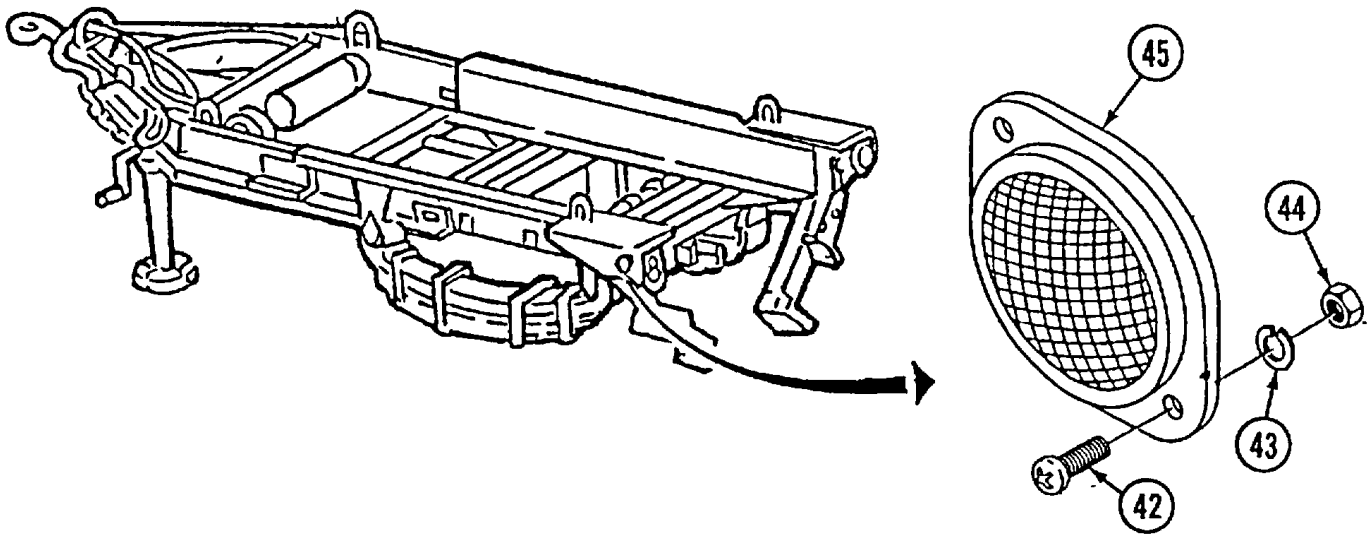
Step 35 applies only to MOD zero (MOD 0) MICLIC installation. U-bolts are provided with MOD one (MOD 1) MICLICs.

35. Install six U-bolts (75) in six mounting brackets (48, 47, 46) with 12 washers (76), lockwashers (77), and plain nuts (78).



36. Spot-paint exposed metal surfaces in accordance with TM 43-0139, Painting Instructions for Field Use.

37. Install left and right rear and side reflectors (45), four nuts (44), four new lockwashers (43), and four screws (42).



5-2. INSTALL TRACKED SUSPENSION (Con't).

c. TRACKED SUSPENSION INSTALLATION:

1. Raise trailer (1) using slings and a wheel-mounted crane. Remove two jack stands. Roll tracked suspension (79) under trailer (1) by hand.

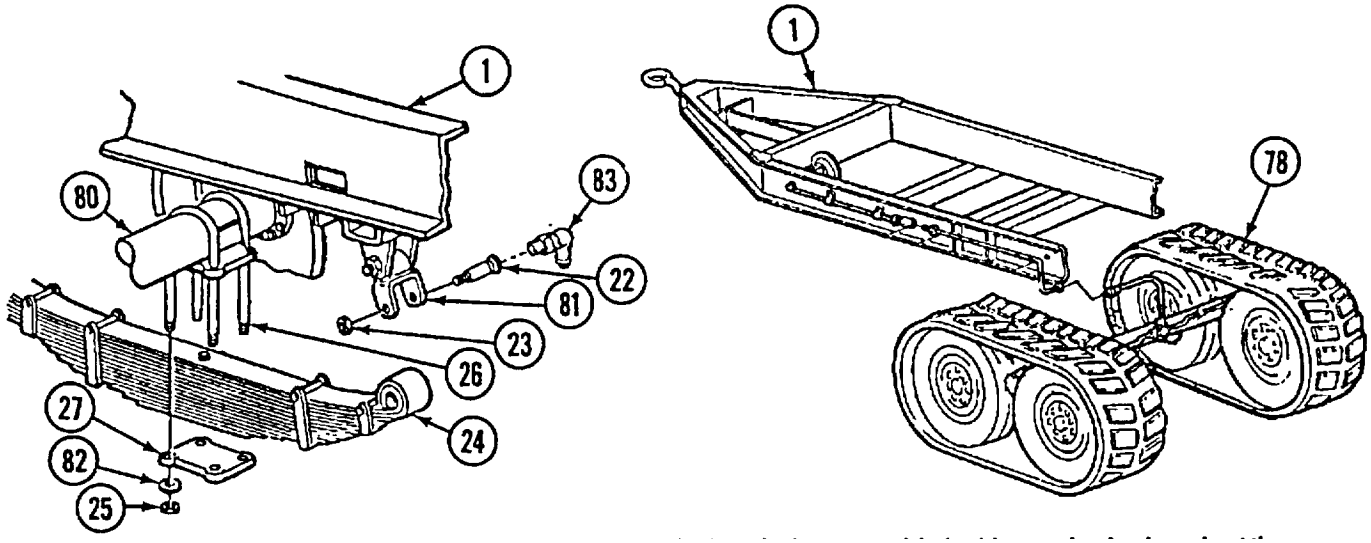
2. Position two jack stands under rear of trailer (1). Lower trailer (1) in position over tracked suspension (79), aligning trailer springs (24) with tracked suspension cross axle (80) using slings and a wheel-mounted crane.

3. Raise left leaf spring (24) into position in shackle (81) and support with a jack stand. Install rear lower leaf spring shackle bolt (22). Install new self-locking nut (23) on shackle bolt (22). Remove jack stand.

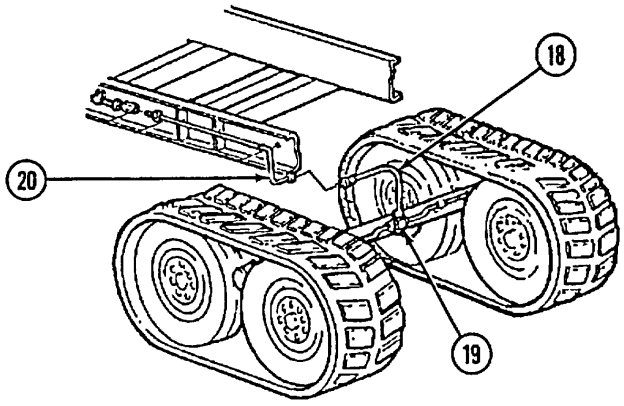
4. Install two U-bolts (26), plate (27), four new lockwashers (82), and nuts (25) on cross axle (80) and leaf spring (24).

5. Install two new 65-degree lubrication fittings (83) on left rear upper and lower leaf spring shackle bolts (22). Install one new 65-degree lubrication fitting (83) on forward leaf spring shackle bolt (22).

6. Repeat steps 3 through 5 for right side of trailer.



7. Install hose assembly (18) on multiple connector (19) and tube assembly (20) by turning both ends at the same time.



5-2. INSTALL TRACKED SUSPENSION (Con't).

8. Install nut (16) on left parking brake cable (17) about halfway. Install clevis (15) on parking brake cable (17) and tighten about five turns.

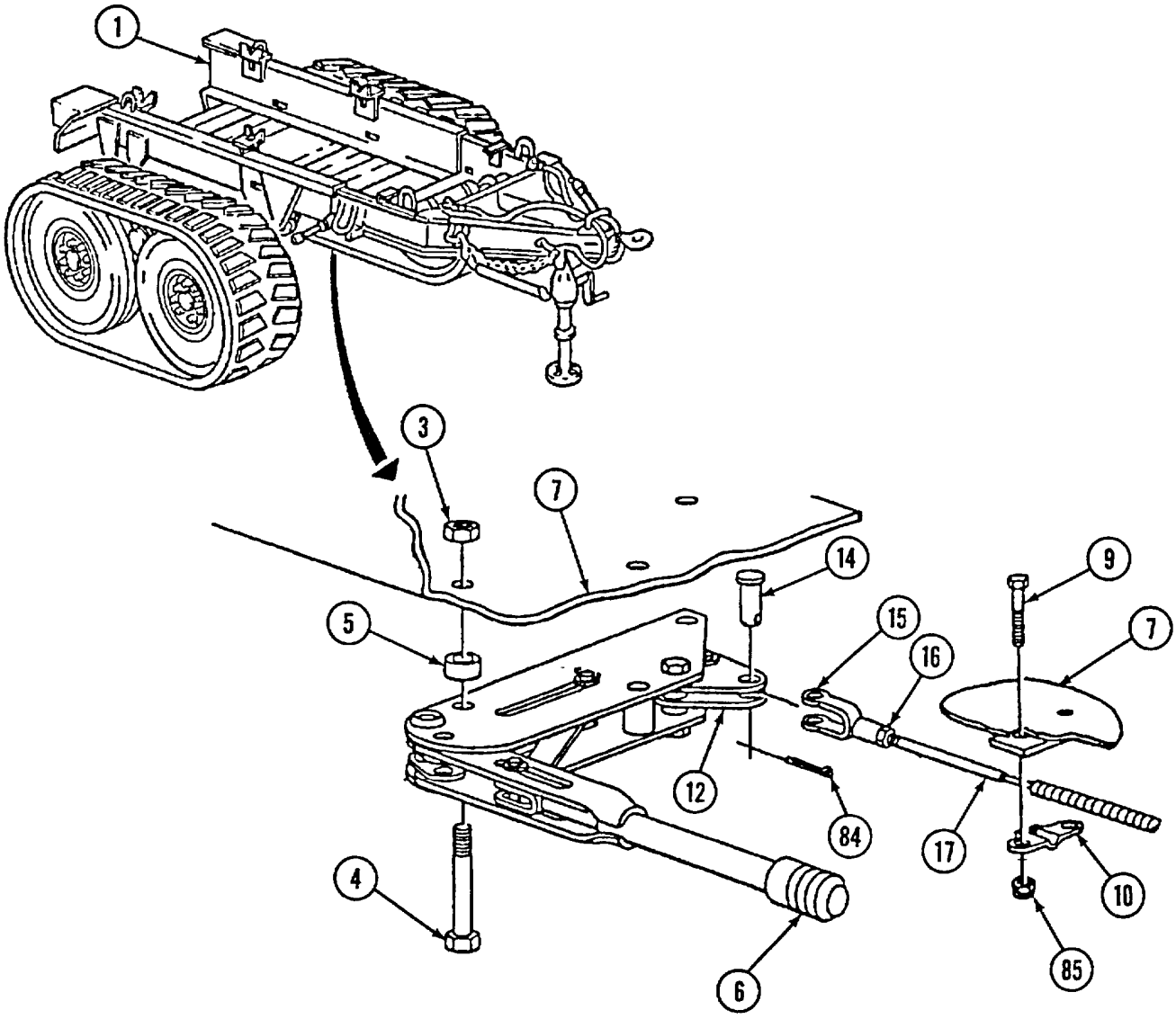
9. Position clevis (15) on parking brake handle clevis (12) and install straight pin (14). Install new cotter pin (84) in straight pin (14) and trim and bend as required.

10. Install left parking brake cable (17) on parking brake cable retaining strap (10) and position in place under trailer (1). Install two bolts (9) and two new self-locking nuts (85).

11. Position handbrake assembly (6) on frame (7) and secure with three bolts (4), three spacers (5), and three nuts (3).

12. Repeat steps 7 through 10 for right parking brake.

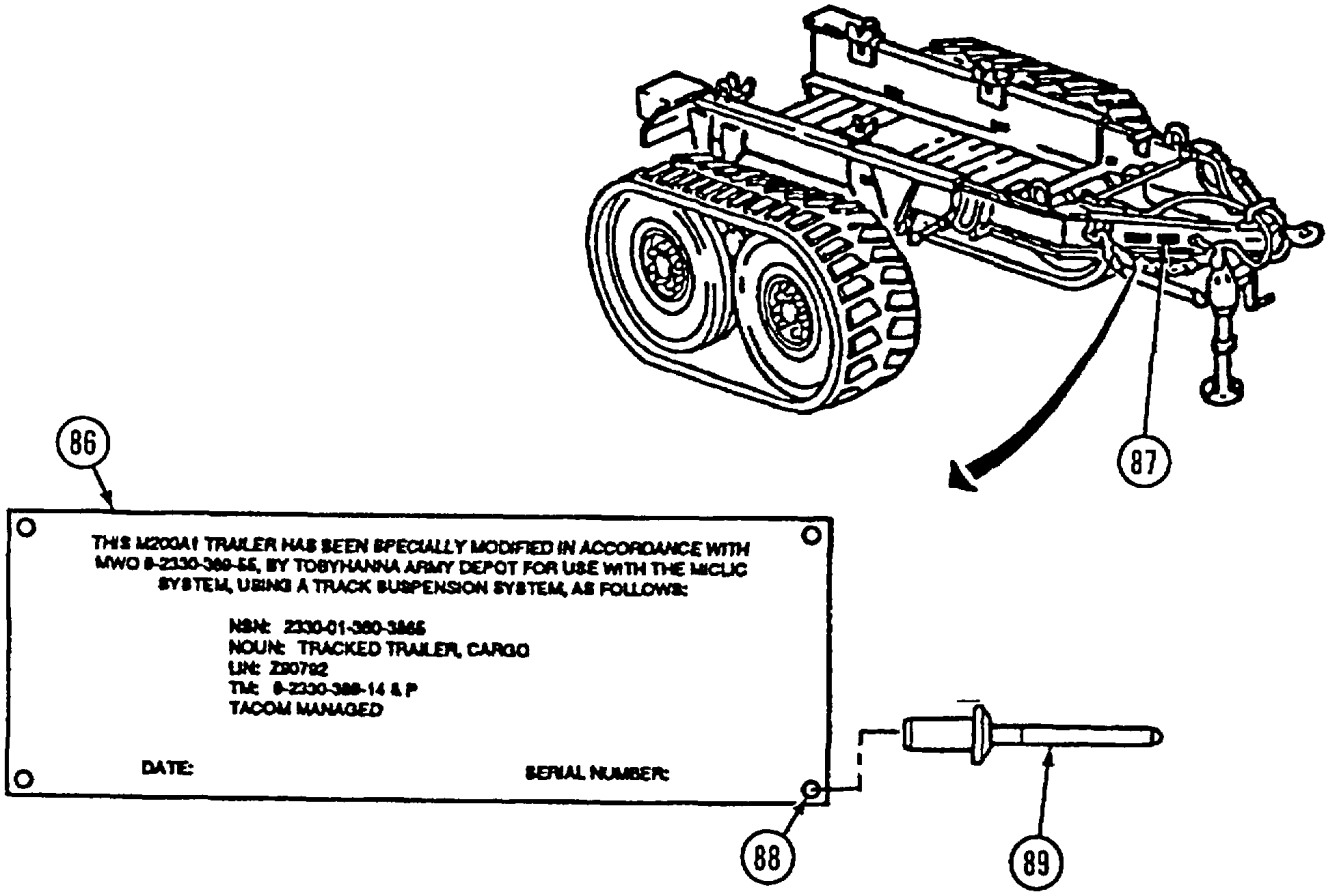
13. Raise trailer (1) high enough to remove two jack stands using two hydraulic jacks. Remove jack stands and lower trailer. Remove hydraulic jacks.



5-2. INSTALL TRACKED SUSPENSION (Con't).

14. Position new identification plate (86) on right trailer tongue just aft of existing identification plate (87). Mark four mounting holes (88) using new identification plate (86) as a guide.

15. Drill mounting holes (88) using a 1/8-inch drill bit. Position new identification plate on trailer tongue and secure with four new blind rivets (89).



Follow-on maintenance:

- Adjust both inner brake groups (refer to TM 9-2330-289-14&P).
- Adjust both outer brake groups (refer to TM 9-2330-289-14&P).
- Bleed brakes (refer to TM 9-2330-289-14&P).
- Adjust track tension and alignment (refer to TM 9-2330-289-14&P).

APPENDIX A
REFERENCES

A-1. SCOPE.

This appendix lists all forms, field manuals, technical manuals, and other publications that are referenced in this manual and apply to the operation of and the unit, direct support, and general support maintenance of the Tracked Cargo Trailer.

A-2. PUBLICATIONS INDEX.

DA Pam 25-30, *Consolidated Index of Army Publications and Blank Forms*, should be consulted frequently for the latest changes or revisions and for new publications relating to material covered in this technical manual.

A-3. FORMS.

Refer to DA Pam 738-750, *The Army Maintenance Management System (TAMMS),* for instructions on the use of maintenance forms.

Equipment Inspection and Maintenance Worksheet ..... DA Form 2404
Equipment Log Assembly (Records) ..... DA Form 2408
Maintenance Request ..... DA Form 2407
Preventive Maintenance Schedule and Record ..... DD Form 314
Processing and Deprocessing Record for Shipment, Storage,
and Issue of Vehicles and Spare Engines ..... DD Form 1397
Product Quality Deficiency Report ..... SF 368
Recommended Changes to Equipment Technical Publications ..... DA Form 2028-2
Recommended Changes to Publications and Blank Forms ..... DA Form 2028
Report of Discrepancy (ROD) ..... SF 364

A-4. FIELD MANUALS.

First Aid for Soldiers .....FM 21-11
Manual for the Wheeled Vehicle Driver .....FM 21-305
Operation and Maintenance of Ordnance Material in Cold Weather (0° to -65°F) .....FM 9-207

A-5. TECHNICAL BULLETINS.

Color, Marking, and Camouflage Painting of Military Vehicles,
Construction Equipment, and Materiel Handling Equipment ..... TB 43-0209

A-6. TECHNICAL MANUALS.

Deepwater Fording of Ordnance Material .....TM 9-238
Inspection, Care, and Maintenance of Antifriction Bearings .....TM 9-214
Materials Used for Cleaning, Preserving, Abrading, and Cementing
Ordnance Materiel and Related Items Including Chemicals .....TM 9-247
Operator's Manual for Welding Theory and Application.....TM 9-237
Operator's Organizational, Direct Support, and General Support Maintenance
M200A1, 2-Wheel, 2-1/2 Ton, Generator Chassis Trailer .....TM 9-2330-205-14&P
Organizational, Direct Support and General Support Care,
Maintenance, and Repair of Pneumatic Tires and Inner Tubes ..... TM 9-2610-200-24
Procedures for Destruction of Tank-Automotive Equipment to Prevent
Enemy Use .....TM 750-244-6
Railcar Loading Procedures .....TM 55-601
Railway Operating and Safety Rules .....TM 55-200
Storage and Materials Handling .....TM 743-200-1

A-7. OTHER PUBLICATIONS.

Army Logistics Readiness and Sustainability .....AR 700-138
Army Medical Department Expendable/Durable Items .....CTA 8-100
Expendable/Durable Items (Except Medical, Class V. Repair Parts,
and Heraldic Items) .....CTA 50-970

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. GENERAL

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

b. The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance levels.

c. Section III lists the tools (both special tools and common tool sets) and test equipment required for each maintenance function as referenced from Section II.

B-2. MAINTENANCE FUNCTIONS.

Maintenance functions will be limited to and defined as follows:

a. **Inspect.** To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

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

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

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

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

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

g. **Remove/Install.** To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of equipment or system.

B-2. MAINTENANCE FUNCTIONS (Con't).

h. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the third position of the SMR code.

i. **Repair.** The application of maintenance services, including fault location/troubleshooting, removal/ installation, and disassembly /assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

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

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

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

a. **Column 1. Group Number.** Column 1 lists functional group code numbers, the purpose of which is to identify maintenance-significant components, assemblies, subassemblies, and modules with the next higher assembly. End item group number shall be "00".

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

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

d. **Column 4. Maintenance Level.** Column 4 specifies, by the listing of a work-time figure in the appropriate subcolumn(s), the level 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 level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work-time figures will be shown for each level. 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 item (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance levels are as follows:

C .....Operator/Crew
O .....Unit Maintenance
F .....Direct Support Maintenance
H .....General Support Maintenance
D .....Depot Maintenance

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

B-3. EXPLANATION OF COLUMNS IN THE MAC, SECTION II (Con't).

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

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

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

b. **Column 2. Maintenance Level.** The lowest level of maintenance authorized to use the tool or test equipment.

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

d. **Column 4. National/NATO Stock Number.** The National or NATO 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 5, 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
			Unit		DS	GS	Depot		
			C	0	F	H	D		
11	AXLE								
1100	Axle, Cross	Inspect	0.1						
		Replace		3.4				2, 5	
		Repair		3.3				2	
1108	Walking Beam	Inspect		0.2					
		Replace		5.5				2	
12	BRAKES								
1202	Brakes, Service	Inspect	0.2	0.1					
		Adjust		0.6				2	
		Replace		5.2				4	
		Repair		2.6				2, 4	
1204	Lines, Fittings, Hoses	Inspect	0.1	0.1					
		Replace		9.0				4	
		Assemble		4.3				2	
13	WHEELS/TRACKS								
1305	Track Assembly	Inspect		0.2					
		Adjust		0.4				2, 6	
		Replace		1.0				2, 4, 6	
1311	Hub, Idler	Adjust		0.4					
		Replace		1.0				2, 4	
		Repair		1.4				2, 4	
1311	Drum, Brake	Inspect				0.3		2	
		Adjust		0.1					
		Replace		0.4				2	
		Repair		0.5		0.6		2, 3	
1313	Tires	Inspect	0.1						
		Service	0.1					2	
		Replace		0.3		0.6		2, 3, 6	
		Repair		0.1		1.7		3, 4	

Section III. TOOLS AND TEST EQUIPMENT REQUIREMENTS

(1) Reference Code	(2) Maintenance Level	(3) Nomenclature	(4) National Stock Number	(5) Tool Number
1	O	Crane, Wheel Mounted	3810-01-165-0647	R050010-0K00
2	O	Tool Set, Common #1	4910-00-754-0654	SC4910-95-CL-A74
3	F	Tool Set, Field Basic	4910-00-754-0705	SC4910-95-CLA31
4	O	Tool Set, General Mechanic's	5180-00-177-7033	SC5180-90-CL-N24
5	O	Socket, Socket Wrench	5120-00-199-7771	GLDH-722
6	O	Tool Set, Master Mechanic's	5210-01-028-5587	SC5180-90-CL-N05

APPENDIX C
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

There are currently no Components of End Item or Basic Issue Items assigned to the Tracked Cargo Trailer.

APPENDIX D
ADDITIONAL AUTHORIZATION LIST

There is currently no Additional Authorization List assigned to the Tracked Cargo Trailer.

APPENDIX E
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. SCOPE.

This appendix lists expendable/durable supplies and materials you will need to operate and maintain the Tracked Cargo Trailer. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

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 Initial Setup' of maintenance paragraphs or narrative instructions to identify the material needed (e.g, Dry cleaning solvent, Item 6, Appendix E).

b. **Column 2. Level.** This column identifies the lowest level of maintenance that requires the listed item.

C .....Operator/Crew
O .....Unit Maintenance
F .....Direct Support
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 indicates the Commercial and Government Entity (CAGE) Code in parentheses followed by the part number, if applicable.

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

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description (FSCM)	(5) U/M
1	O		Brake Fluid, Automotive	
			(81349) MIL-B-46176	
		9150-01-102-9455	1-Gallon Can	oz
		9150-01-072-8379	55-Gallon Drum	gl
2	O		Dishwashing Compound, Hand (Soap)	
			(81348) P-D-410	
		7930-00-899-9534	5-Gallon Can	gl
3	O		Grease, Aircraft and Artillery	
			(81349) MIL-G-23827	
		9150-00-071-4717	4-Ounce Tube	oz
4	O		Lubricating Oil, Engine, OE/HDO-10	
			(81349) MIL-L-2104	
		9150-00-189-6727	1-Quart Can	qt
		9150-00-186-6668	5-Gallon Can	gl
		9150-00-191-2772	55-Gallon Drum	gl
5	C		Rags, Wiping	
			(58536) A-A-531	
		7920-00-205-1711	50-Pound Bale	ea
6	C		Solvent, Dry Cleaning	
			(81349) P-D-680, Type II	
		6850-00-664-5685	1-Quart Can	oz
		6850-00-281-1985	1-Gallon Can	oz
		6850-00-285-8011	55-Gallon Drum	oz
7	O		Tubing, Plastic	ft

APPENDIX F
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 organizational, direct support, and general support maintenance of the Tracked Cargo Trailer. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

F-2. GENERAL.

in addition to Section I, Introduction, this 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 parts kits are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in this section. Items listed are shown on the associated illustration(s) /figure(s).

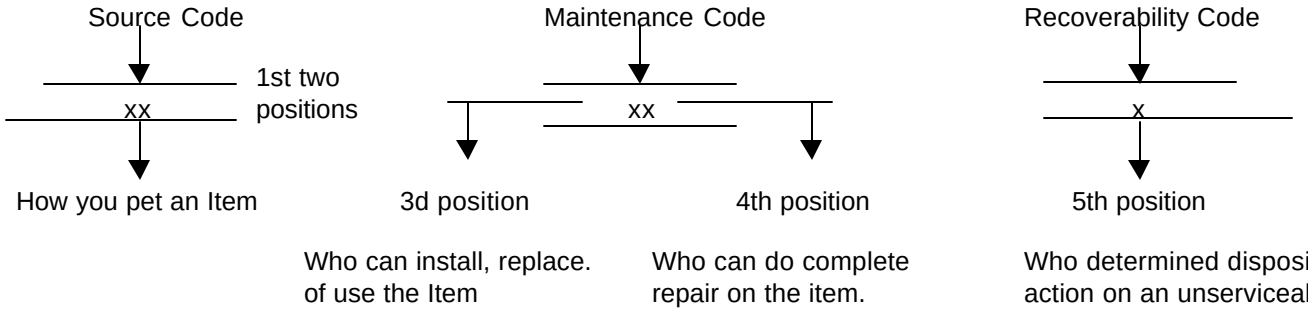
b. **Section III. Special Tools List.** A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE column) for the performance of maintenance.

c. **Section IV. National Stock Number and Part Number Index.** A list, in National Item Identification Number (NIIN) sequence, of all National stock 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 instruction, as shown in the following breakout:



**Complete Repair:* Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/ user environment in order to restore serviceability to a failed item.

F-3. EXPLANATION OF COLUMNS (SECTIONS II AND III) (Con't).

(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 follow:

Code	*Application/Explanation*
PA PB PC** PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the 3d position of the SMR code. **Items coded PC are subject to deterioration.*
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the SMR code. The complete kit must be requisitioned and applied.
MO - Made at ORGI AVUM Level MF - Made at DSAIVUM Level MH - Made at GS Level MD - Made at Depot	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk materiel which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk materiel group of the repair parts list in this RPSTL. If the item is authorized to you by the 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 ORGI AVUM Level AF - Assembled by DSI AVUM Level AH - Assembled by GS Level AD - Assembled at Depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled hem 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 that the item is assembled at a higher level, order the item from the higher level of maintenance.

F-3. EXPLANATION OF COLUMNS (SECTIONS II AND III) (Con't).

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."

XA - DO NOT requisition an “XA” -coded item. Order its next higher assembly.
XB - If an “XB” item is not available from salvage, order it using the CAGEC and part number given.
XC - Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.
XD - Item is not stocked. Order an 'XD' -coded item through normal supply channels using the CAGEC and part number given, if no NSN is available.

(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.

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

NOTE

If authorized by the Maintenance Allocation Chart (MAC) and SMR codes, some limited repair may be done on an item at a lower level of maintenance.

(b) The maintenance code entered in the fourth position tells whether 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). This position will contain one of the following maintenance codes

F-3. EXPLANATION OF COLUMNS (SECTIONS II AND III) (Con't).

Code	*Application/Explanation*
O	Organizational maintenance or aviation unit is the lowest level that can do complete repair of the item.
F	Direct support of 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	Nonrepairable. 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:

Code	*Application/Explanation*
Z	Nonrepairable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
O	Repairable item. When uneconomically repairable, condemn and dispose of the item at unit maintenance or aviation unit level.
F	Repairable item. When uneconomically repairable, condemn and dispose of the item at the direct support or aviation intermediate level.
H	Repairable item. When uneconomically repairable, condemn and dispose of the item at the general support level.
D	Repairable item. When beyond lower-level repair capability, return to depot. Condemnation and disposal of item not authorized below depot level.
L	Repairable item. Condemnation and disposal of item not authorized below specialized repair activity (SRA). A Item requires special handling or condemnation procedures for 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 Code (CAG EC) is a 5-digit alphanumeric code which is used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

F-3. EXPLANATION OF COLUMNS (SECTIONS II AND III) (Con't).

NOTE

When you use an NSN to requisition an item, the item you receive may have a different part number from the part ordered.

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.

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. Not applicable.

(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 hem 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).

(7) The usable on code, when applicable. (See paragraph F-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)

F-4. EXPLANATION OF COLUMNS (SECTION IV) (Con't).

sequence. The NIIN consists of the last nine digits of the NSN (i.e. NSN 5305-01-674-1467). When using this column to locate an item, ignore the first 4 digits NIIN 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 a5-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 CAGEC columns to the left.

(4) *FIG.* **Column.** This column lists the number of the figure where the item is identified/located in Section II and Section III.

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

c. **Figure and Item Number Index**

(1) *FIG***. Column.** This column lists the number of the figure where the item is identified/located in Sections II and III.

(2) *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.

(3) *STOCK NUMBER* **Column.** This column lists the NSN for the item.

(4) *CAGEC* **Column.** The Commercial and Government Entity Code (CAGEC) is a 5-digit alphanumeric code used to identify the manufacturer, distributor, or Government agency, etc., that supplies the item.

(5) *PART NUMBER* **Column.** Indicates the primary number used by the manufacturer (individual, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards and inspection requirements, to identify an item or range of items.

F-5. SPECIAL INFORMATION.

a. **Usable On Code.** Not applicable.

b. **Fabrication Instructions.** Bulk material required to manufacture items are listed in the Bulk Material Functional Group of this RPSTL. Part numbers for bulk material 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 of this manual.

c. **Assembly Instructions.** Detailed assembly instructions for items source coded to be assembled from component spare/repair parts are found in Chapters 4 and 5. Items that make up the assembly are listed immediately following the assembly item entry, or reference is made to an applicable figure.

d. **Kits.** Line item entries for repair parts kits appear in group 9401 in Section II.

e. **Index Numbers.** Items which have the work BULK in the FIG. column will have an index number shown in the item 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. **Associated Publications.** Not applicable.

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 F-4.a (1)]. The part numbers in the Part Number Index are listed in ascending alphanumeric sequence (see paragraph F-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-7. ABBREVIATIONS.

For standard abbreviations see MIL-STD-12D, Military Standard Abbreviations for Use on Drawings, Specifications, Standards, and in Technical Documents.

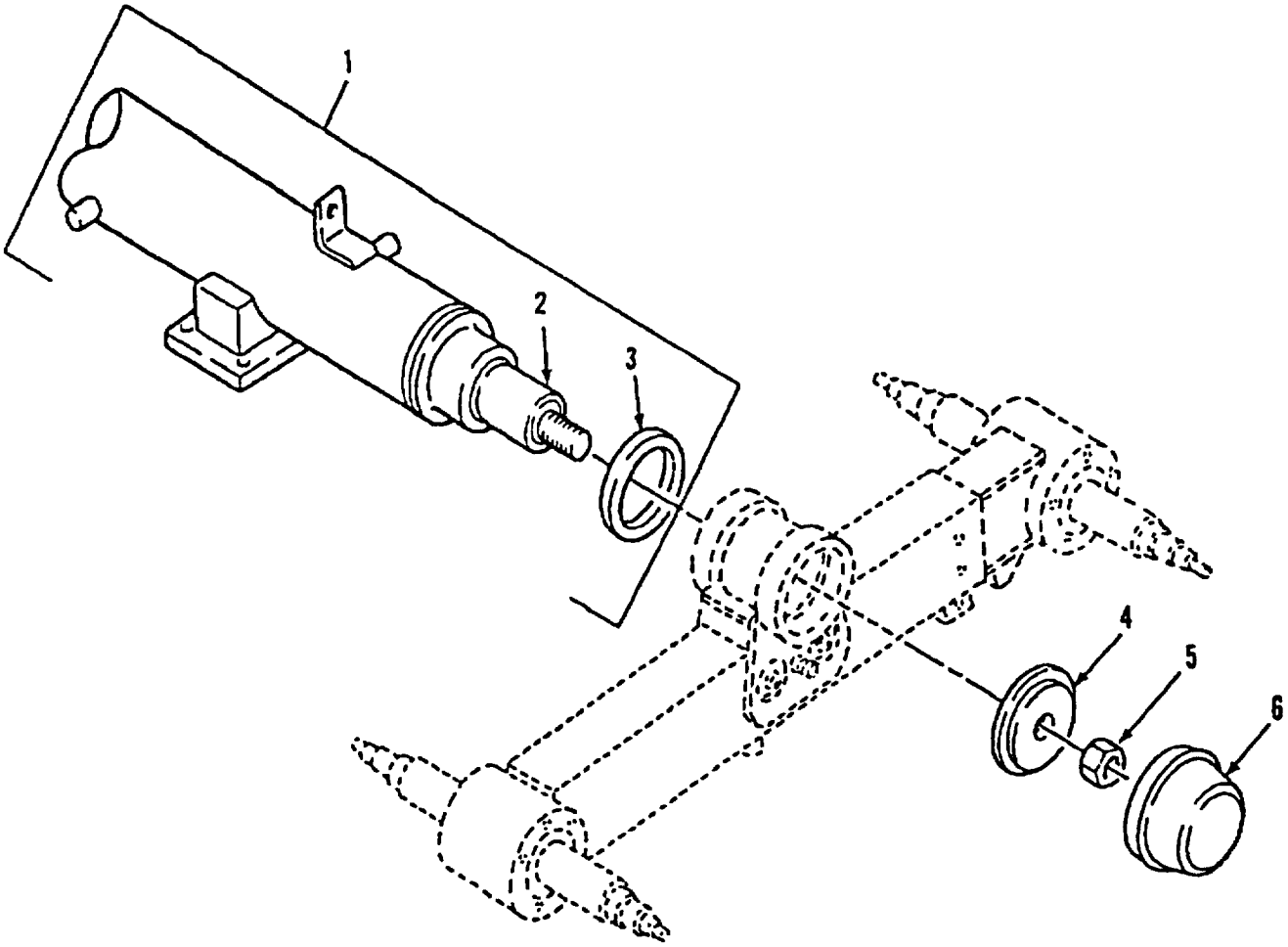


Figure 1. Cross Axle Group

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 11-REAR AXLE GROUP 1100-REAR AXLE ASSEMBLY FIGURE 1. CROSS AXLE GROUP	
1	AOOOO	11083	4R-9167	AXLE GROUP, CROSS	1
2	PAOZZ	11083	4R-9357	.AXLE ASSEMBLY, AUTO	1
3	PAOZZ	11083	5P2671	.SEAL, PLAIN ENCASED.....	2
4	PAOZZ	11083	9V7575	PLATE, RETAINING, S	2
5	PAOZZ	11083	5M6667	NUT 2 1/4 HEX, 1 1/2-12 THD	2
6	PAOZZ	11083	4R-9169	HUB CAP, WHEEL.....	2

END OF FIGURE

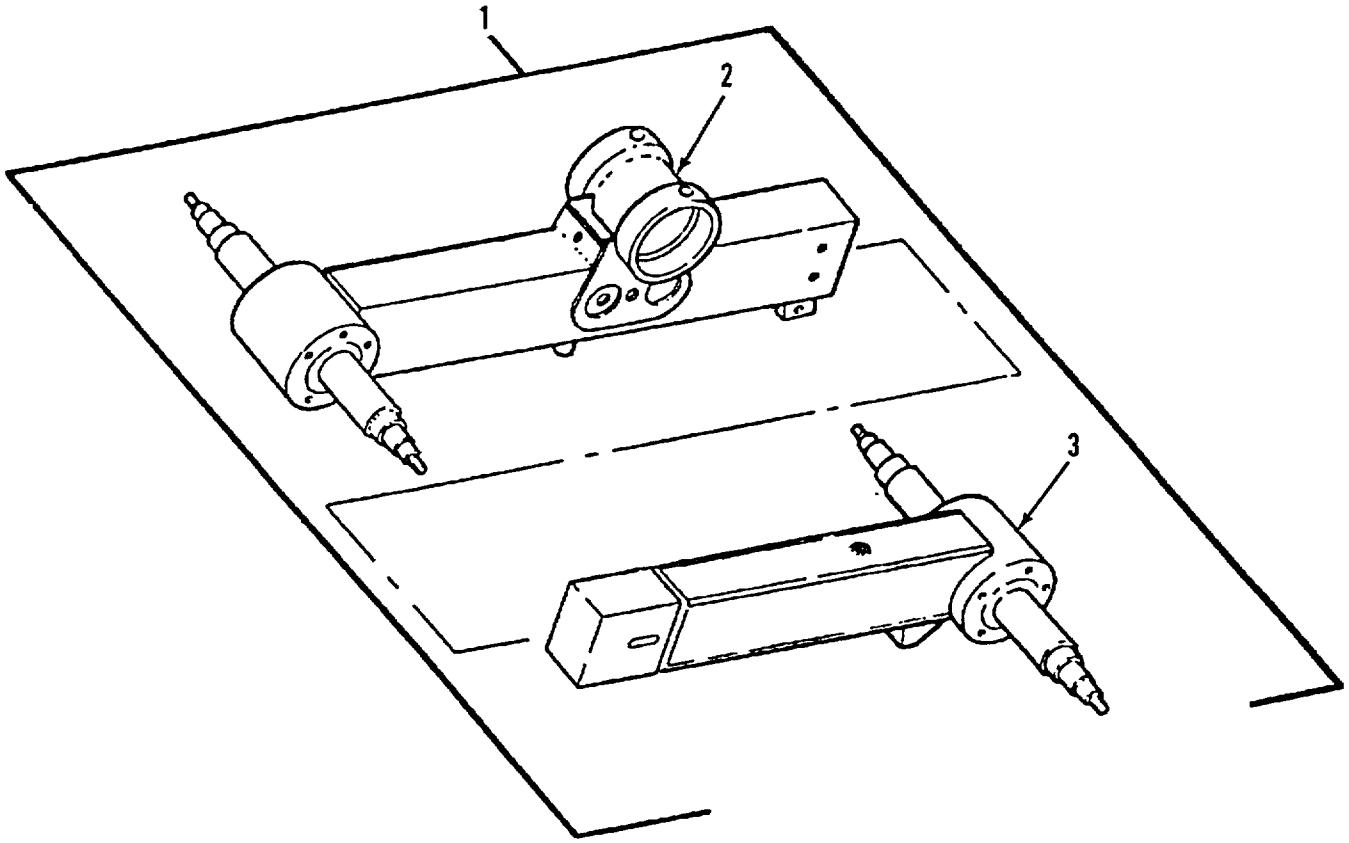


Figure 2. Frame Group

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 11-REAR AXLE GROUP 1108-WALKING BEAM, STUB AXLES AND PARTS FIGURE 2. FRAME GROUP	
1	AOOOO	11083	4R-9168	FRAME GROUP	1
2	PAOZZ	11083	4R-9366	.FRAME SECTION, STRU.....	1
3	PAOZZ	11083	4R-9365	.FRAME SECTION, STRU.....	1

END OF FIGURE

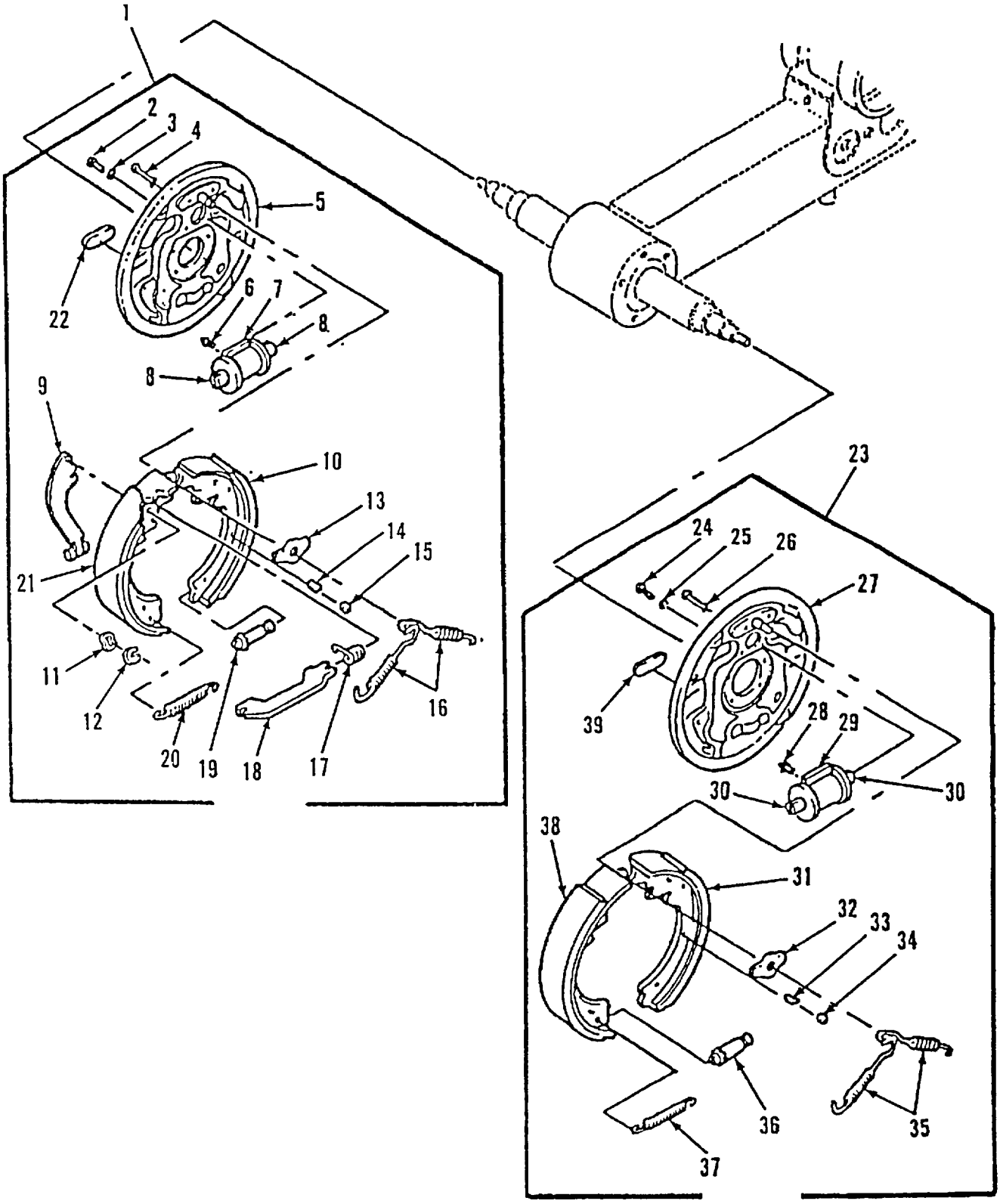


Figure 3. Inner and Outer Brake Groups

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 12-BRAKES GROUP 1202-SERVICE BRAKES FIGURE 3. INNER AND OUTER BRAKE GROUPS	
1	AOOOO	11083	4R-9315	BRAKE GROUP, INNER	1
2	PAOZZ	80204	B1821BH031C056N	.BOLT, MACHINE 1/2 HEX, 15/16-18 UNC-2A, 5 INCH LONG	2
3	PAOZZ	96906	MS35335-34	.WASHER, LOCK	2
4	PAOZZ	19207	11686273	.PIN, TOGGLE, HEADED	2
5	PAOZZ	14892	3202064	.PLATE, BACKING, BRAKE	1
6	PAOZZ	14892	049206	.BLEEDER VALVE, HYDRA PART OF NSN 2530-01-233-0136	1
7	PAOZZ	12204	4313333	.CYLINDER, HYDRAULIC	1
8	PAOZZ	14892	47865	.LINK, WHEEL CYLINDER	2
9	PAOZZ	19207	11686262-1	.LEVER, LOCK-RELEASE	1
10	KFOZZ	73370	3206492	.BRAKE SHOE, PRIMARY PART OF KIT P/N 11838714	1
11	PAOZZ	10695	935-0004	.WASHER, SPRING TENSI	1
12	PAOZZ	19207	11686281	.CLAMP, BRAKE LINING	1
13	PAOZZ	19207	11686271	.PLATE, SHOE GUIDE	1
14	PAOZZ	19207	11686274	.SPRING, HELICAL, COMP	2
15	PAOZZ	19207	11686275	.RETAINER, HELICAL CO	2
16	PAOZZ	14892	33786	.SPRING, HELICAL, EXTE	2
17	PAOZZ	14892	41199	.SPRING, HELICAL, COMP	1
18	PAOZZ	19207	11686278	.STRUT, PARKING BRAKE	1
19	PAOZZ	19207	11686257	.SCREW, ADJUSTING	1
20	PAOZZ	19207	11686270	.SPRING, HELICAL, EXTE	1
21	KFOZZ	19207	11686255	.BRAKE SHOE PART OF KIT P/N 11838714	1
22	PAOZZ	19207	11686276	.COVER, ACCESS	1
23	AOOOO	11083	4R-9373	.BRAKE GROUP, OUTER	1
24	PAOZZ	80204	B1821BH031C056N	.BOLT, MACHINE 1/2 HEX, 15/16-1B UNC-2A, 5 INCH LONG	2
25	PAOZZ	96906	MS35335-34	.WASHER, LOCK	2
26	PAOZZ	19207	11686273	.PIN, TOGGLE, HEADED	2
27	PAOZZ	14892	3202064	.PLATE, BACKING, BRAKE	1
28	PAOZZ	14892	049206	.BLEEDER VALVE, HYDRA PART OF NSN 2530-01-293-6792	1
29	PAOZZ	14894	33220	.CYLINDER, HYDRAULIC	1
30	PAOZZ	14892	47865	.LINK, WHEEL CYLINDER	2
31	KFOZZ	19207	11686255	.BRAKE SHOE PART OF KIT P/N 11838714	1
32	PAOZZ	19207	11686271	.PLATE, SHOE GUIDE	1
33	PAOZZ	19207	11686274	.SPRING, HELICAL, COMP	2
34	PAOZZ	19207	11686275	.RETAINER, HELICAL CO	2
35	PAOZZ	14892	33786	.SPRING, HELICAL, EXTE	2
36	PAOZZ	19207	11686257	.SCREW, ADJUSTING	1
37	PAOZZ	19207	11686270	.SPRING, HELICAL, EXTE	1
38	KFOZZ	73370	3206492	.BRAKE SHOE, PRIMARY PART OF KIT P/N 11838714	1
39	PAOZZ	19207	11686276	.COVER, ACCESS	1

END OF FIGURE

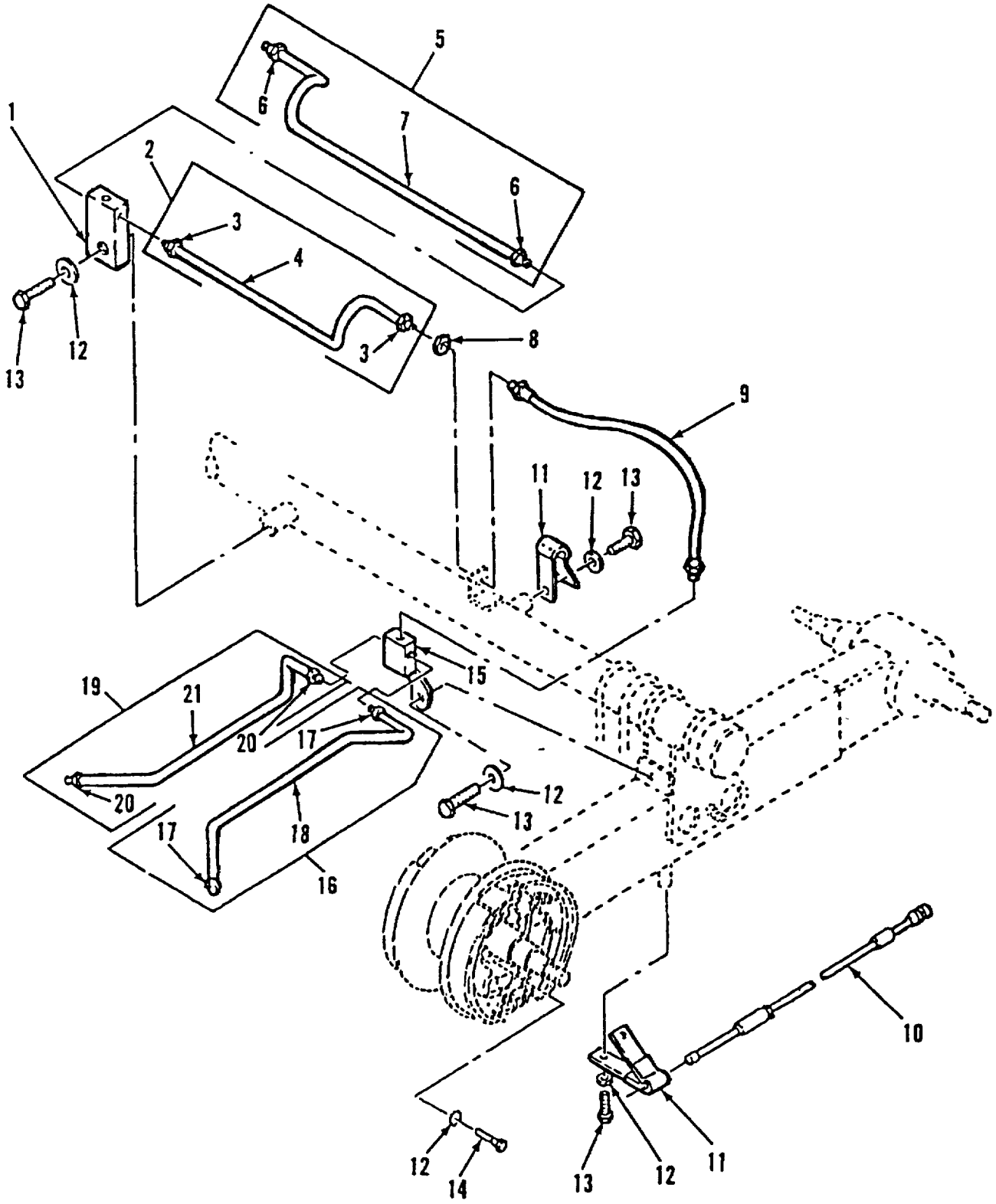


Figure 4. Brake Lines, Hoses, and Fittings

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 12-BRAKES GROUP 1204-HYDRAULIC BRAKE SYSTEM FIGURE 4. BRAKE LINES, HOSES AND FITTINGS	
1	PAOZZ	79470	5167679	CONNECTOR, MULTIPLE,	1
2	AOOZZ	11083	4R-9175	TUBE ASSEMBLY, RIGHT	1
3	PAOZZ	11083	4B8756	.INVERTED NUT, TUBE C	2
4	MOOZZ	11083	5P193	.COUPLING, TUBE MAKE FROM NSN 4710-00-541-6887, 77 LONG	1
5	AOOOO	11083	4R-9174	TUBE ASSEMBLY, LEFT	1
6	PAOZZ	11083	4B8756	.INVERTED NUT, TUBE C	2
7	MOOZZ	11083	5P193	.COUPLING, TUBE MAKE FROM NSN 4710-00-541-6887, 52 LONG	1
8	PAOZZ	24617	145036	NUT, SELF-LOCKING, HE 15/16 HEX, 5/8-18 UNF-2B THD	2
9	PAOZZ	19207	7409330	HOSE ASSEMBLY, NONME	2
10	PAOZZ	92867	73708100	CABLE AND CONDUIT	1
11	PAOZZ	11083	5P9297	CLAMP, LOOP	1
12	PAOZZ	11083	8T4896	WASHER, FLAT	12
13	PAOZZ	11083	0S0509	SCREW, CAP, HEXAGON H 9/16 HEX, 3/8-16 THD, 3/4 INCH LONG	2
14	PAOZZ	11083	0S1590	BOLT, MACHINE 9/16 HEX, 3/8-16 THD, 2 INCH LONG	10
15	PAOZZ	0GW75	112-10915	TEE ASSEMBLY, FRAME	1
16	AOOZZ	11083	4R-9367	TUBE ASSEMBLY, LEFT	1
17	PAOZZ	11083	3K7161	.NUT 15/16 HEX, 3/8-24 THD	2
18	MOOZZ	11083	5P3416	.TUBE, METALLIC MAKE FROM NSN 4710-00-350-9896, 51 LONG	1
19	AOOZZ	11083	4R-9368	TUBE ASSEMBLY, RIGHT	1
20	PAOZZ	11083	3K7161	.NUT 3/8 HEX, 3/8-24 THD	2
21	MOOZZ	11083	5P3416	.TUBE, METALLIC MAKE FROM NSN 4710-00-350-9896, 51 LONG	1
				END OF FIGURE	

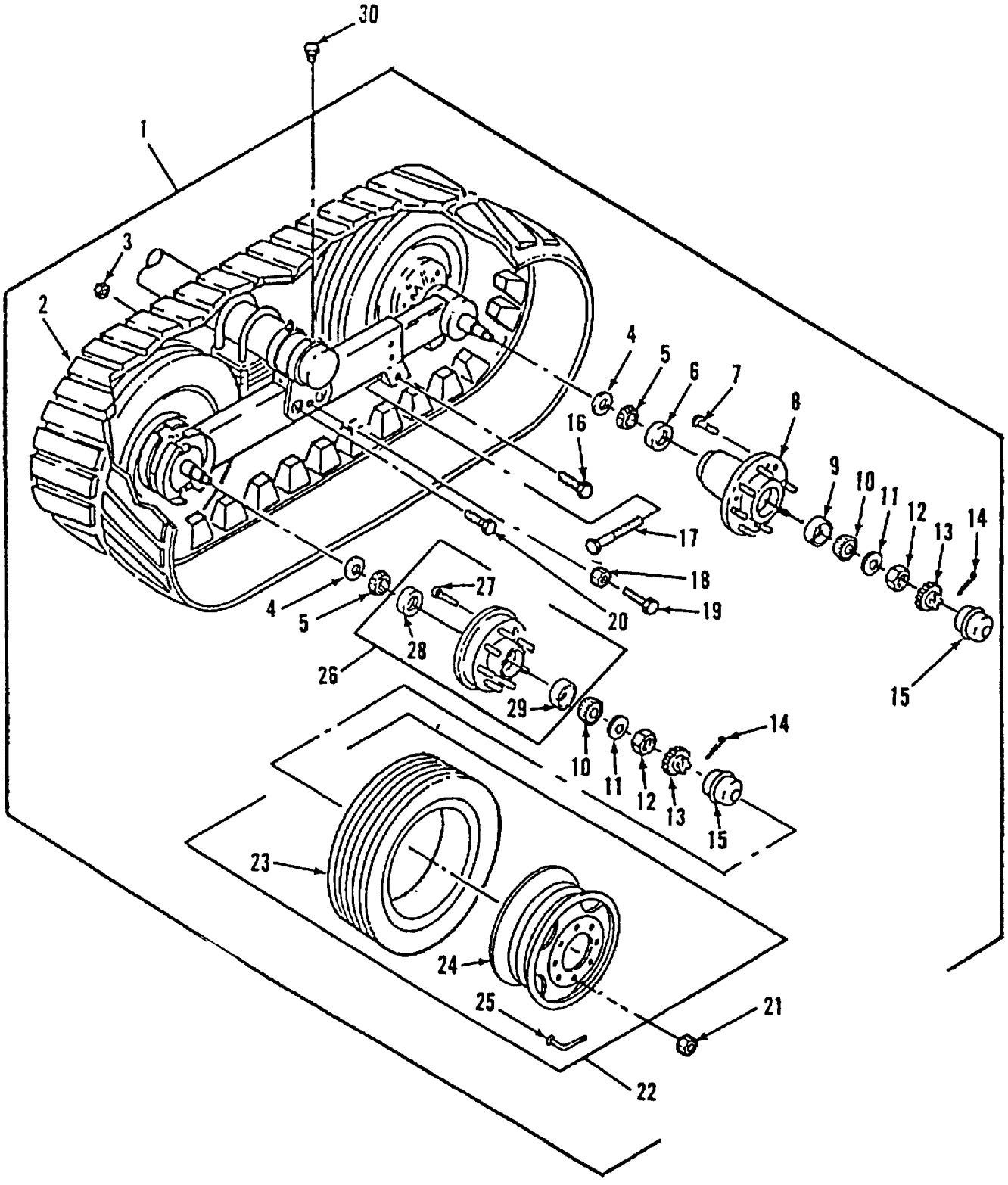


Figure 5. Undercarriage Group

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 13-WHEELS AND TRACKS GROUP 1313-TIRES, TUBES, TIRE CHAINS FIGURE 5. UNDERCARRIAGE GROUP	
1	AOOFF	11083	4R-9171	UNDERCARRIAGE GROUP	2
2	PAOZZ	11083	1R-0994	.TRACK SHOE ASSEMBLY	1
3	PAOZZ	96906	MS51922-49	.NUT, SELF-LOCKING, HE 15/16 HEX, 5/8-11 UNC-2B THD, NON-METALLIC INSERT	1
4	PAOZZ	11083	5M9740	.SEAL, PLAIN	4
5	PAOZZ	08162	BT25580	.CONE AND ROLLERS, TA	4
6	PAOZZ	11083	021212	.CUP PART OF 8-231	2
7	PAOZZ	19207	12313044	.STUD, STEPPED PART OF 8-231	16
8	PAOZZ	15460	8-231	.IDLER, SHAFT	2
9	PAOZZ	11083	8J0422	.CUP, TAPERED ROLLER PART OF 8-231	2
10	PAOZZ	43334	A143241	.CONE AND ROLLERS, TA	4
11	PAOZZ	19207	12313024	.WASHER, FLAT	4
12	PAOZZ	88044	AN316-16R	.NUT, PLAIN, HEXAGON 1 1/2 HEX, 1-14 UNS-2 THD	4
13	PAOZZ	19207	12313042	.RETAINER, NUT AND BO	4
14	PAOZZ	96906	MS24665-423	.PIN, COTTER	4
15	PAOZZ	90031	605-2476	.CAP, GREASE	4
16	PAOZZ	66195	22541R1	.SCREW, CAP, HEXAGON H 3/4 HEX, 1/2-13 UNC-2A THD, 1 1/2 LONG, GRADES	1
17	PAOZZ	11083	3E-8047	.BOLT, MACHINE 1 1/2 HEX, 1-8 THD, 6 INCH LONG	1
18	PAOZZ	24617	145036	.NUT, SELF-LOCKING, HE 15/16 HEX, 5/8-18 UNF-2B THD	4
19	PAOZZ	96906	MS90725-60	.SCREW, CAP, HEXAGON H 9/16 HEX, 3/8-16 UNC-2A THD, 1 INCH LONG	4
20	PAOZZ	80204	B1821BH063C 500N	.SCREW, CAP, HEXAGON H 15/16 HEX, 5/8-11 UNC-2A THD, 5 INCH LONG, GRADE 8.	1
21	PAOZZ	33116	15085	.NUT, PLAIN, CONE SEAT 3/4 HEX, 7/16-20 UNF-2B THD	32
22	AFOFF	11083	4R-9314	.TIRE GROUP	4
23	PAFFH	81348	GP2STYLXTYBA CLR/T/6.50-16/C/ LTHR	..TIRE, PNEUMATIC	1
24	PAFZZ	11862	14035374	..WHEEL, PNEUMATIC TIR	1
25	PAOZZ	96906	MS51368-2	..VALVE, PNEUMATIC TIR	1
26	PAOFF	15460	8-219	.HUB, AIR COMPRESSOR	2
27	PAOZZ	19207	12313044	..STUD, STEPPED	8
28	PAOZZ	11083	021212	..CUP	1
29	PAOZZ	11083	8J0422	..CUP, TAPERED ROLLER	1
30	PAOZZ	55883	IPD5M6214	PLUGS, PIPE 7/16 HEX, 1/2-27 NPTF THD.	2

END OF FIGURE

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 94-KITS GROUP 9401-KITS FIGURE KITS	
1	PAOZZ	19204	11838714	BRAKE SHOE SET.....	1
				BRAKE SHOE, PRIMARY (1) 3-10 BRAKE SHOE (1) 3-21 BRAKE SHOE, PRIMARY (1) 3-38 BRAKE SHOE (1) 3-31	

END OF FIGURE

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 95-GENERAL USE STANDARDIZED PARTS GROUP 9501-BULK MATERIAL FIGURE BULK	
1	PAOZZ	81349	M3520-B80B01G	TUBE, METALLIC.....	1
2	PAOZZ	81349	M3520-B70C02G	TUBE, METALLIC.....	1

END OF FIGURE

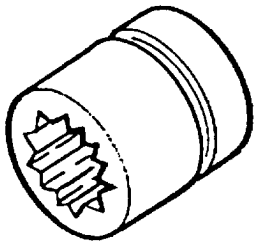


Figure 6. Special Tools

(1) ITEM NO	(2) SMR CODE	(3) CAGEC	(4) PART NUMBER	(5) DESCRIPTION AND USABLE ON CODES (UOC)	(6) QTY
				GROUP 26-TOOLS AND TEST EQUIPMENT GROUP 2604-SPECIAL TOOLS FIGURE 6. SPECIAL TOOLS	
1	PEOZZ	55719	GLDH-722	SOCKET, SOCKET WRENCH.....	1

END OF FIGURE

CROSS-REFERENCE INDEXES

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5315-00-013-7228	5	14
4730-00-013-7397	4	3
	4	6
5310-00-045-1079	4	8
	5	18
5305-00-071-2069	5	16
3110-00-100-3541	5	5
3110-00-142-4355	5	10
5310-00-167-1313	5	12
4720-00-203-9515	4	9
5306-00-226-4823	3	2
	3	24
5305-00-252-8919	4	13
5310-00-264-1930	5	21
5305-00-269-3211	5	19
5310-00-269-4040	5	3
2530-00-332-1314	3	5
	3	27
4710-00-350-9896	BULK	1
5360-00-384-0004	3	16
	3	35
5360-00-384-0025	3	20
	3	37
4730-00-463-1588	4	1
5310-00-514-6674	3	3
	3	25
4710-00-541-6887	BULK	2
2640-00-555-2829	5	25
2530-00-585-6079	3	8
	3	30
2610-00-720-2244	5	23
5305-00-724-7266	5	20
5310-00-874-2922	3	11
5360-00-877-2964	3	17
4730-00-924-7886	5	30
2590-01-064-7488	5	6
	5	28
5310-01-067-4673	4	17
	4	20
5340-01-068-6693	3	15
	3	34
5340-01-069-6705	3	9
5305-01-070-9494	3	19
	3	36
5340-01-071-2098	3	22
	3	39
2530-01-074-7001	3	18
5120-01-074-9323	3	12
5315-01-079-1494	3	4
	3	26
1005-01-083-9297	3	13
	3	32
5360-01-088-0552	3	14
	3	33
5306-01-094-9106	4	14
3110-01-103-7014	5	9
	5	29
5310-01-146-9635	5	11
3040-01-149-5061	5	15
5307-01-149-9692	5	7
	5	27
5340-01-151-4202	5	13
2530-01-154-6952	5	24
2530-01-160-0850	3	6
	3	28
5340-01-161-2682	4	11
2530-01-216-9259	KITS	1
2530-01-233-0136	3	7
5310-01-244-4393	1	5
4310-01-263-9507	5	26
5310-01-286-6079	4	12
2530-01-293-6792	3	29
2520-01-361-7881	1	2
2510-01-361-7904	2	3
2510-01-361-7905	2	2
2530-01-361-7908	5	2

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
88044	AN316-16R	5310-00-167-1313	5	12
43334	A143241	3110-00-142-4355	5	10
08162	BT25580	3110-00-100-3541	5	5
80204	B1821BH031C056N	5306-00-226-4823	3	2
			3	24
80204	B1821BH063C500N	5305-00-724-7266	5	20
81348	GP2STYLXTYBACLR/ T/6.50-16/C/LTHR	2610-00-720-2244	5	23
55883	IPD5M6214	4730-00-924-7886	5	30
96906	MS24665-423	5315-00-013-7228	5	14
96906	MS35335-34	5310-00-514-6674	3	3
			3	25
96906	MS51368-2	2640-00-555-2829	5	25
96906	MS51922-49	5310-00-269-4040	5	3
96906	MS90725-60	5305-00-269-3211	5	19
81349	M3520-B70C02G	4710-00-541-6887	BULK	2
81349	M3520-B80B01G	4710-00-350-9896	BULK	1
11083	0S0509	5305-00-252-8919	4	13
11083	0S1590	5306-01-094-9106	4	14
11083	021212	2590-01-064-7488	5	6
			5	28
14892	049206	2530-01-160-0850	3	6
			3	28
11083	1R-0994	2530-01-361-7908	5	2
0GW75	112-10915		4	15
19207	11686255		3	21
			3	31
19207	11686257	5305-01-070-9494	3	19
			3	36
19207	11686262-1	5340-01-069-6705	3	9
19207	11686270	5360-00-384-0025	3	20
			3	37
19207	11686271	1005-01-083-9297	3	13
			3	32
19207	11686273	5315-01-079-1494	3	4
			3	26
19207	11686274	5360-01-088-0552	3	14
			3	33
19207	11686275	5340-01-068-6693	3	15
			3	34
19207	11686276	5340-01-071-2098	3	22
			3	39
19207	11686278	2530-01-074-7001	3	18
19207	11686281	5120-01-074-9323	3	12
19204	11838714	2530-01-216-9259	KITS	1
19207	12313024	5310-01-146-9635	5	11
19207	12313042	5340-01-151-4202	5	13
19207	12313044	5307-01-149-9692	5	7
			5	27
11862	14035374	2530-01-154-6952	5	24
24617	145036	5310-00-045-1079	4	8

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
24617	145036	5310-00-045-1079	5	18
33116	15085	5310-00-264-1930	5	21
66195	22541R1	5305-00-071-2069	5	16
11083	3E-8047		5	17
11083	3K7161	5310-01-067-4673	4	17
			4	20
14892	3202064	2530-00-332-1314	3	5
			3	27
73370	3206492		3	10
			3	38
14894	33220	2530-01-293-6792	3	29
14892	33786	5360-00-384-0004	3	16
			3	35
11083	4B8756	4730-00-013-7397	4	3
			4	6
11083	4R-9167		1	1
11083	4R-9168		2	1
11083	4R-9169		1	6
11083	4R-9171		5	1
11083	4R-9174		4	5
11083	4R-9175		4	2
11083	4R-9314		5	22
11083	4R-9315		3	1
11083	4R-9357	2520-01-361-7881	1	2
11083	4R-9365	2510-01-361-7904	2	3
11083	4R-9366	2510-01-361-7905	2	2
11083	4R-9367		4	16
11083	4R-9368		4	19
11083	4R-9373		3	23
14892	41199	5360-00-877-2964	3	17
12204	4313333	2530-01-233-0136	3	7
14892	47865	2530-00-585-6079	3	8
			3	30
11083	5M6667	5310-01-244-4393	1	5
11083	5M9740		5	4
11083	5P193		4	4
			4	7
11083	5P2671		1	3
11083	5P3416		4	18
			4	21
11083	5P9297	5340-01-161-2682	4	11
79470	5167679	4730-00-463-1588	4	1
90031	605-2476	3040-01-149-5061	5	15
92867	73708100		4	10
19207	7409330	4720-00-203-9515	4	9
15460	8-219	4310-01-263-9507	5	26
15460	8-231		5	8
11083	8J0422	3110-01-103-7014	5	9
			5	29
11083	8T4896	5310-01-286-6079	4	12
11083	9V7575		1	4

CROSS-REFERENCE INDEXES

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
10695	935-0004	5310-00-874-2922	3	11

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
BULK	1	4710-00-350-9896	81349	M3520-B80B01G
BULK	2	4710-00-541-6887	81349	M3520-B70C02G
KITS	1	2530-01-216-9259	19204	11838714
1	1		11083	4R-9167
1	2	2520-01-361-7881	11083	4R-9357
1	3		11083	5P2671
1	4		11083	9V7575
1	5	5310-01-244-4393	11083	5M6667
1	6		11083	4R-9169
2	1		11083	4R-9168
2	2	2510-01-361-7905	11083	4R-9366
2	3	2510-01-361-7904	11083	4R-9365
3	1		11083	4R-9315
3	2	5306-00-226-4823	80204	B1821BH031C056N
3	3	5310-00-514-6674	96906	MS35335-34
3	4	5315-01-079-1494	19207	11686273
3	5	2530-00-332-1314	14892	3202064
3	6	2530-01-160-0850	14892	049206
3	7	2530-01-233-0136	12204	4313333
3	8	2530-00-585-6079	14892	47865
3	9	5340-01-069-6705	19207	11686262-1
3	10		73370	3206492
3	11	5310-00-874-2922	10695	935-0004
3	12	5120-01-074-9323	19207	11686281
3	13	1005-01-083-9297	19207	11686271
3	14	5360-01-088-0552	19207	11686274
3	15	5340-01-068-6693	19207	11686275
3	16	5360-00-384-0004	14892	33786
3	17	5360-00-877-2964	14892	41199
3	18	2530-01-074-7001	19207	11686278
3	19	5305-01-070-9494	19207	11686257
3	20	5360-00-384-0025	19207	11686270
3	21		19207	11686255
3	22	5340-01-071-2098	19207	11686276
3	23		11083	4R-9373
3	24	5306-00-226-4823	80204	B1821BH031C056N
3	25	5310-00-514-6674	96906	MS35335-34
3	26	5315-01-079-1494	19207	11686273
3	27	2530-00-332-1314	14892	3202064
3	28	2530-01-160-0850	14892	049206
3	29	2530-01-293-6792	14894	33220
3	30	2530-00-585-6079	14892	47865
3	31		19207	11686255
3	32	1005-01-083-9297	19207	11686271
3	33	5360-01-088-0552	19207	11686274
3	34	5340-01-068-6693	19207	11686275
3	35	5360-00-384-0004	14892	33786
3	36	5305-01-070-9494	19207	11686257
3	37	5360-00-384-0025	19207	11686270
3	38		73370	3206492
3	39	5340-01-071-2098	19207	11686276

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
4	1	4730-00-463-1588	79470	5167679
4	2		11083	4R-9175
4	3	4730-00-013-7397	11083	4B8756
4	4		11083	5P193
4	5		11083	4R-9174
4	6	4730-00-013-7397	11083	4B8756
4	7		11083	5P193
4	8	5310-00-045-1079	24617	145036
4	9	4720-00-203-9515	19207	7409330
4	10		92867	73708100
4	11	5340-01-161-2682	11083	5P9297
4	12	5310-01-286-6079	11083	8T4896
4	13	5305-00-252-8919	11083	0S0509
4	14	5306-01-094-9106	11083	0S1590
4	15		0GW75	112-10915
4	16		11083	4R-9367
4	17	5310-01-067-4673	11083	3K7161
4	18		11083	5P3416
4	19		11083	4R-9368
4	20	5310-01-067-4673	11083	3K7161
4	21		11083	5P3416
5	1		11083	4R-9171
5	2	2530-01-361-7908	11083	1R-0994
5	3	5310-00-269-4040	96906	MS51922-49
5	4		11083	5M9740
5	5	3110-00-100-3541	08162	BT25580
5	6	2590-01-064-7488	11083	021212
5	7	5307-01-149-9692	19207	12313044
5	8		15460	8-231
5	9	3110-01-103-7014	11083	8J0422
5	10	3110-00-142-4355	43334	A143241
5	11	5310-01-146-9635	19207	12313024
5	12	5310-00-167-1313	88044	AN316-16R
5	13	5340-01-151-4202	19207	12313042
5	14	5315-00-013-7228	96906	MS24665-423
5	15	3040-01-149-5061	90031	605-2476
5	16	5305-00-071-2069	66195	22541R1
5	17		11083	3E-8047
5	18	5310-00-045-1079	24617	145036
5	19	5305-00-269-3211	96906	MS90725-60
5	20	5305-00-724-7266	80204	B1821BH063C500N
5	21	5310-00-264-1930	33116	15085
5	22		11083	4R-9314
5	23	2610-00-720-2244	81348	GP2STYLXTYBACLR/ T/6.50-16/C/LTHR
5	24	2530-01-154-6952	11862	14035374
5	25	2640-00-555-2829	96906	MS51368-2
5	26	4310-01-263-9507	15460	8-219
5	27	5307-01-149-9692	19207	12313044
5	28	2590-01-064-7488	11083	021212
5	29	3110-01-103-7014	11083	8J0422

CROSS-REFERENCE INDEXES

FIGURE AND ITEM NUMBER INDEX

FIG.	ITEM	STOCK NUMBER	CAGEC	PART NUMBER
5	30	4730-00-924-7886	55883	IPD5M6214

APPENDIX G
ILLUSTRATED LIST OF MANUFACTURED ITEMS

Section I. INTRODUCTION

G-1. SCOPE.

a. This appendix includes complete instructions for the making of items authorized for fabrication.

b. A part number index in alphanumeric order is provided in Table G-1 for cross-referencing the part number of the item to be manufactured to the figure which covers the fabrication criteria.

c. All bulk materials needed for the manufacture of an item are listed by part number or specification number in the manufacturing instructions.

d. When manufacturing items, ensure that the appropriate tools are used to cut and shape materials. Bend tubes to configurations shown and be careful not to kink tubing. Reuse old connectors and fittings whenever possible. Ensure that tubing is clean before installing after fabrication.

e. All dimensions given in Section II. *Manufacturing Instructions*, are in standard units.

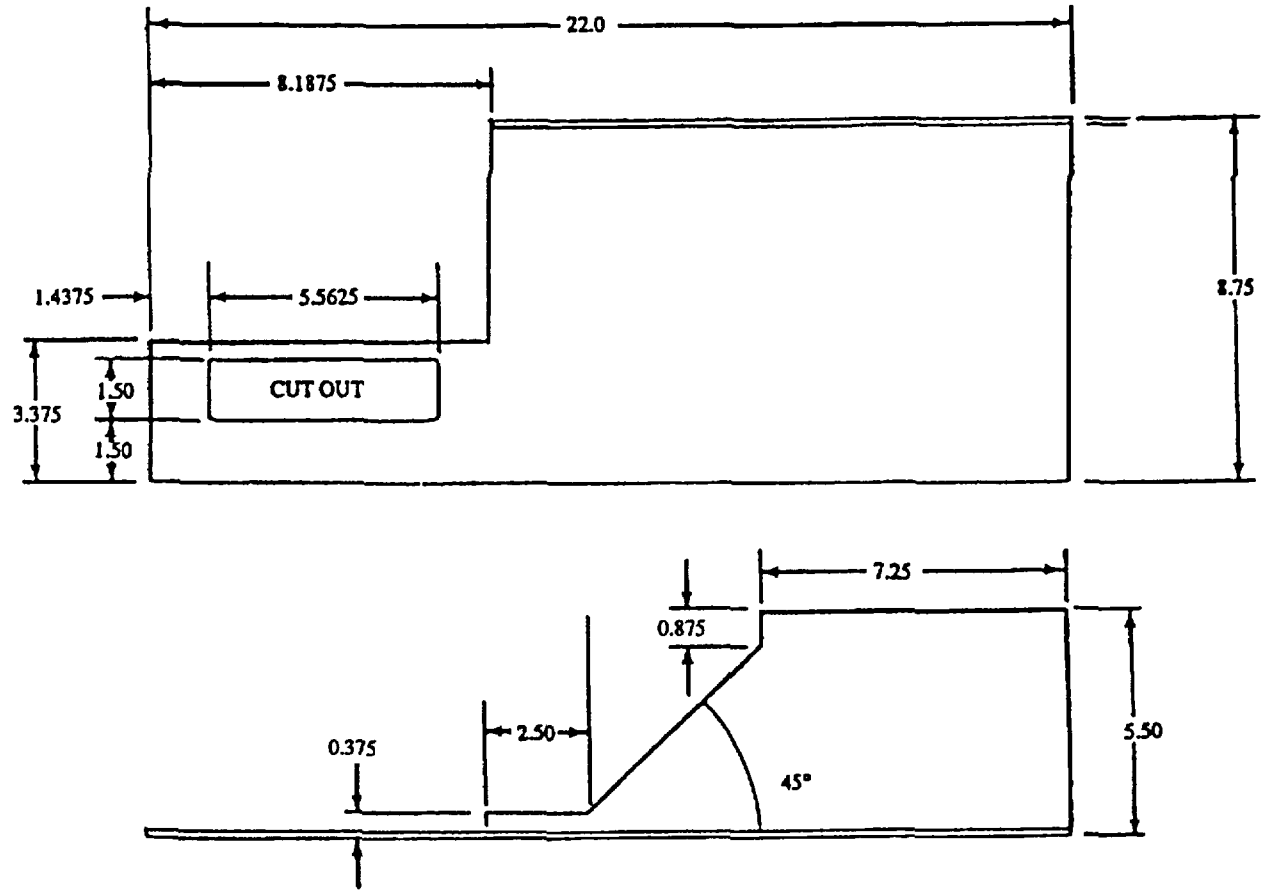
Table G-1. Manufactured Items Part Number Cross-Reference Index.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION	CAGEC
		MANUFACTURED ITEMS		
1	1	FENDER TEMPLATE*	0.125 INCH CARDBOARD, MILC43397	81349
2	2	REAR MOUNTING BRACKET ASSEMBLY*	0.375 INCH HOT ROLLED STEEL, 031.02	48379
3	2	CENTER MOUNTING BRACKET ASSEMBLY*	0.375 INCH HOT ROLLED STEEL, 031.02	48379
4	2	FORWARD MOUNTING BRACKET ASSEMBLY	0.375 INCH HOT ROLLED STEEL, 031.02	48379
5	2	REAR FENDER	0.1875 INCH HOT ROLLED STEEL, 031.02	48379
6	2	UPPER FENDER SUPPORT	2.25 X 2.25 X 0.25 INCH ANGLE IRON, 031.02	48379
7	4	TIEDOWN	0.875 DIAMETER STEEL ROD, 031.02	48379
8	1	LEFT LOWER FENDER SUPPORT	2.25 X 2.25 X 0.25 INCH ANGLE IRON, 031.02	48379

*Use only on MOD zero (MOD 0) MICLICs.

Table G-1. Manufactured Items Part Number Cross-Reference Index (Con't).

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION	CAGEC
		MANUFACTURED ITEMS		
9	1	RIGHT LOWER FENDER SUPPORT, 031.02	2.25 X 2.25 X 0.25 INCH ANGLE IRON	48379
10	2	MICLIC TIEDOWN, 031.02	0.875 DIAMETER STEEL ROD	48379
		PROCURED ITEMS		
11	11	U-BOLT	82A5052A0005	01365
12	8	CAPSCREW	MS90725-123	96906
13	8	CAPSCREW	MS90728-11	96906
14	4	CAPSCREW	MS90728-111	96906
15	8	CAPSCREW	MS90725-60	96906
16	20	LOCKWASHER	MS35338-48	96906
17	40	FLAT WASHER	MS15795-118	96906
18	20	PLAIN NUT	7337579	19207
19	8	PLAIN NUT	FFB571 TYPE A	81348
20	12	PLAIN NUT	MS51922-49	96906
21	12	FLAT WASHER	MS27183-22	96906

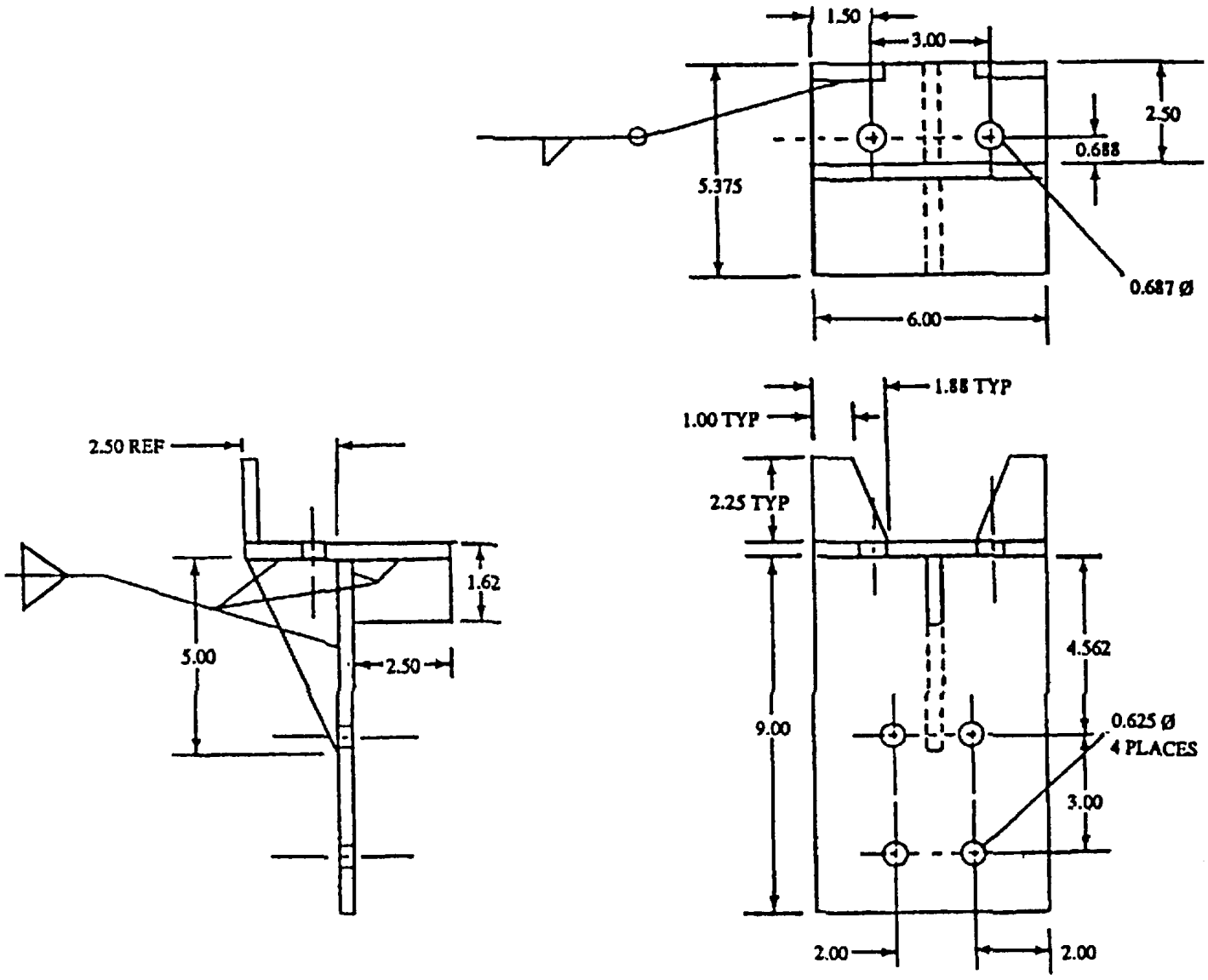


NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ±2°.

PROCEDURE:
1. Manufacture fender template from 0.125 inch cardboard according to specifications above.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
1	1	Fender Template	0.125 Inch Cardboard

Figure G-1. Fender Template



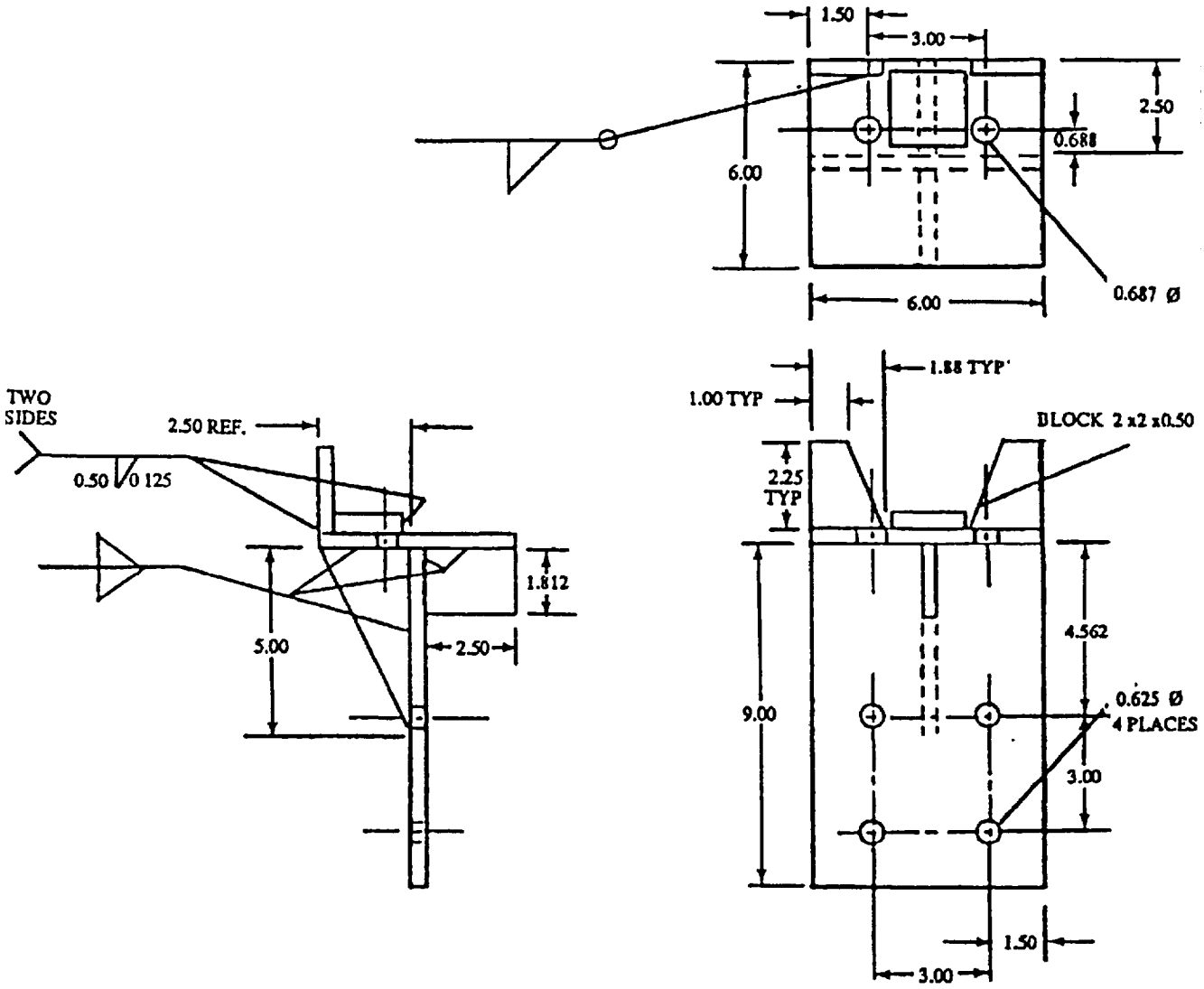
NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ±2°.

PROCEDURE:

1. Manufacture mounting bracket pieces from 0.375 inch hot rolled steel according to specifications above.
2. Remove all burrs and sharp edges.
3. Finish-phosphate paint, 383 carc green.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
2	2	Rear Mounting Bracket	0.375 inch Hot Rolled Steel
16	4	U-Bolt	82A5052A0005/5360-01-226-8720
17	8	Capscrew	MS90725-123/5305-00-071-1776
18	8	Capscrew	MS90728-1141/5305-00-071-2070
21	16	Lockwasher	MS35338-48/5310-00-003-4094
22		Flatwasher	MS15795-118/5310-00-011-8777
23	16	Plain Nut	7337579/5310-00-010-2637
25	8	Self-Locking	MS51922-49/5310-00-269-4040
26	8	Flat Washer	MS27183-22/5310-00-951-7209

Figure G-2. Rear Mounting Bracket Assembly

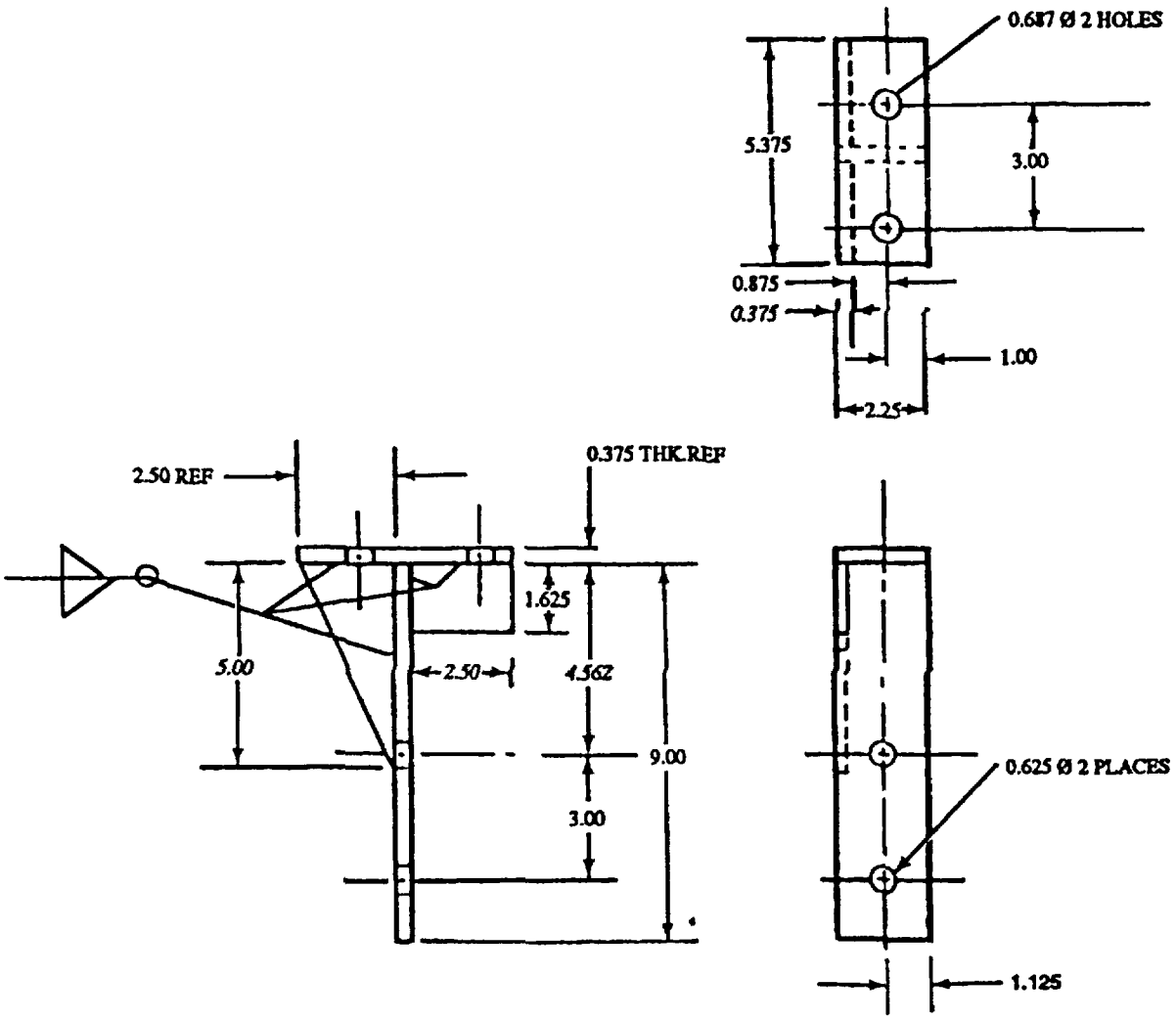


NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ±2°.

PROCEDURE:
1. Manufacture mounting bracket pieces from 0.375 inch hot rolled steel according to specifications above.
2. Remove all burrs and sharp edges.
3. Finish-phosphate paint, 383 carc green

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
3	2	Center Mounting Bracket	0.375 inch Hot Rolled Steel
16	4	U-Bolt	82A5052A0005/5360-01-226-8720
17	8	Capscrew	MS90725-123/5305-00-071-1776
18	8	Capscrew	MS90728-1141/5305-00-071-2070
21	16	Lockwasher	MS35338-48/5310-00-003-4094
22	32	Flatwasher	MS15795-118/5310-00-011-8777
23	8	Plain Nut	7337579/5310-00-010-2637
25	8	Self-Locking	MS51922-49/5310-00-269-4040
26	8	Flat Washer	MS27183-22/5310-00-951-7209

Figure G-3. Center Mounting Bracket Assembly

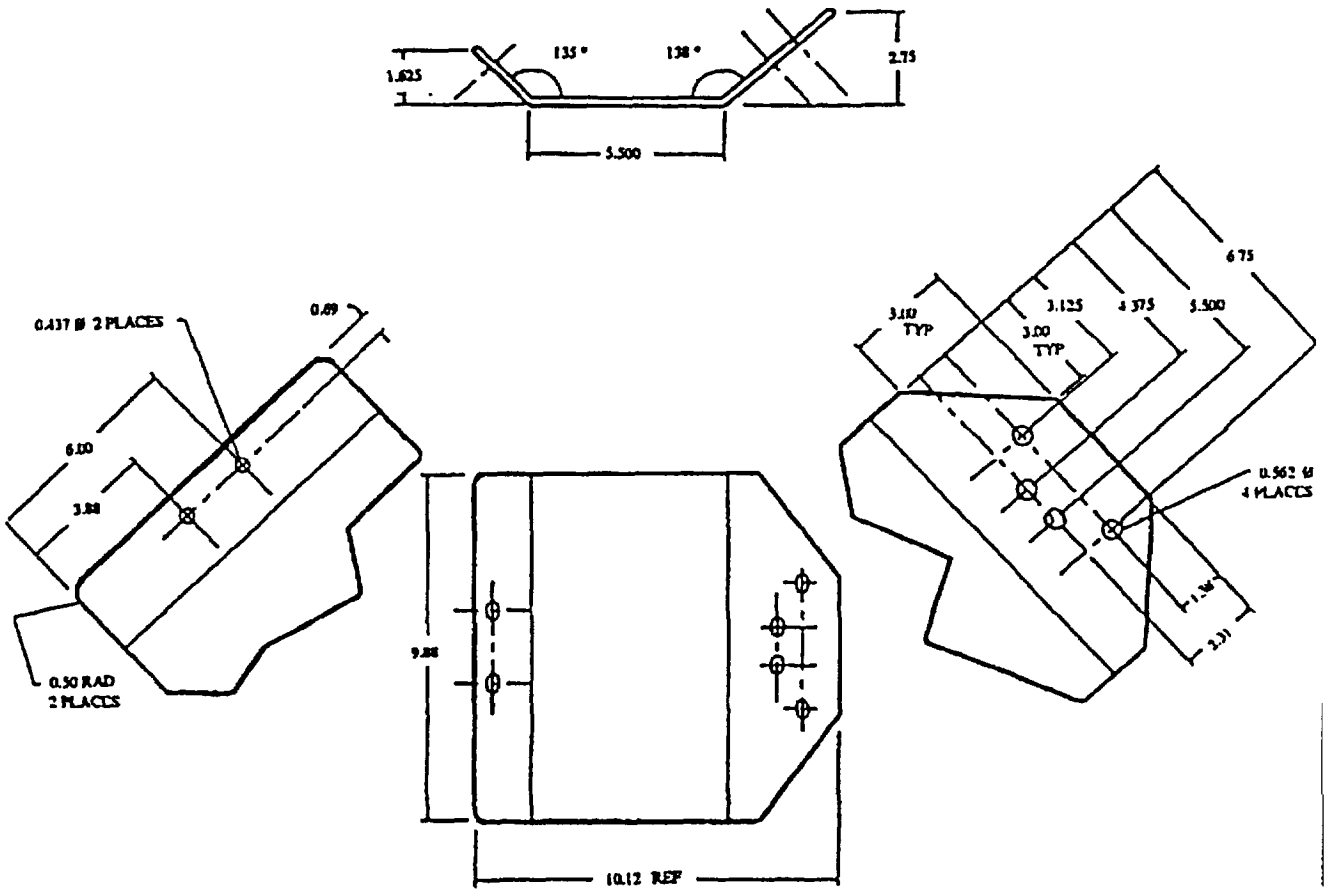


NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ±2°.

PROCEDURE:
1. Manufacture mounting bracket pieces from 0.375 inch hot rolled steel according to specifications above.
2. Remove all burrs and sharp edges.
3. Finish-phosphate paint, 383 carc green.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
4	2	Forward Mounting Bracket	0.375 inch Hot Rolled Steel
16	2	U-Bolt	82A5052A0005/5360-01-226-8720
19	4	Capscrew	MS90728-111/5305-00-071-2067
21	4	Lockwasher	MS35338-48/5310-00-003-4094
22	8	Flat Washer	MS15795-118/5310-00-011-777
23	4	Plain Nut	7337579/5310-00-010-2537
25	4	Self-Locking Nut	MS51922-49/5310-00-269-4040
26	4	Flat Washer	MS27183-22/5310-00-951-7209

Figure G-4. Forward Mounting Bracket Assembly



NOTES:

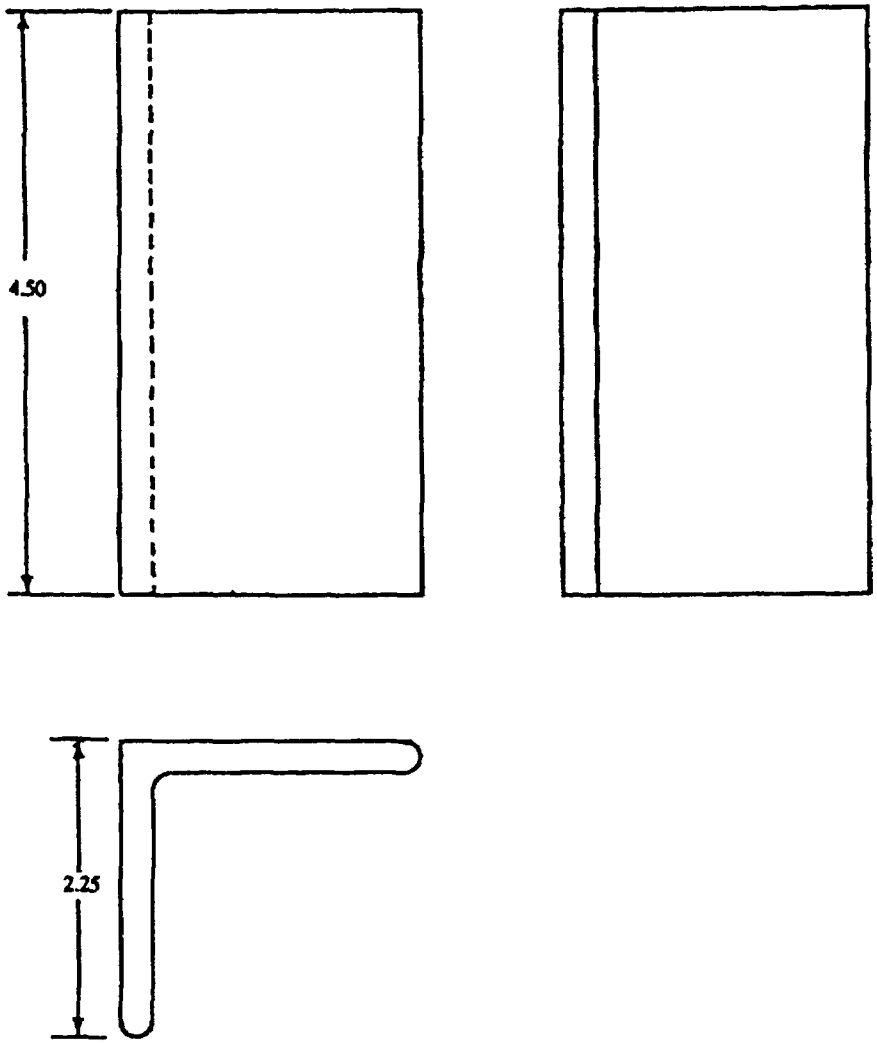
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ±2°.
4. Minimum bend radius.

PROCEDURE:

1. Manufacture rear fenders from 0.1875 inch hot rolled steel according to specifications above.
2. Remove all burrs and sharp edges.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
5	2	Rear Fenders	0.1875 Inch Hot Rolled Steel
20	8	Capscrew	MS90725-60/5305-01-210-4595
24	8	Plain Nut	FFB571 Type A/5310-00-010-2635

Figure G-5. Rear Fenders

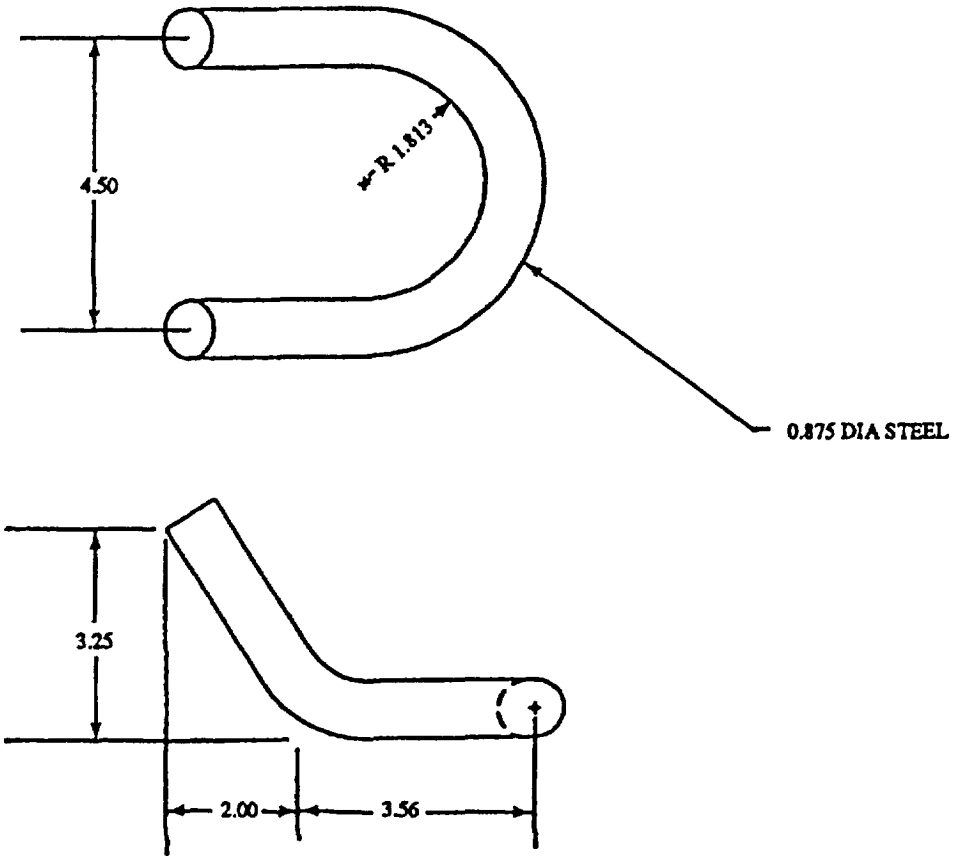


NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ±2°.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
6	2	Upper Fender	2.25 x 2.25 x 0.25 inch angle iron

PROCEDURE:
1. Manufacture upper fender supports from 2.25 x 2.25 x 0.25 inch angle iron according to specifications above.

Figure G-6. Upper Fender Supports

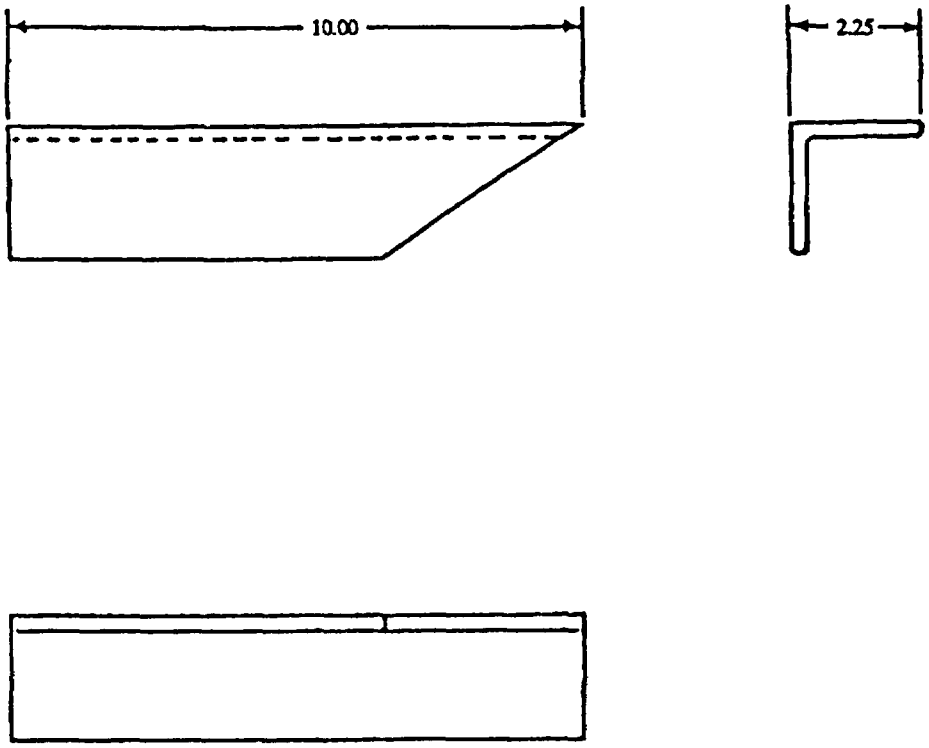


NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ± 2°.

PROCEDURE:
1. Manufacture tiedowns from 0.875 diameter steel rod according to specifications above.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
7	4	Tiedown	0.875 Diameter Steel Rod

Figure G-7. Tiedowns

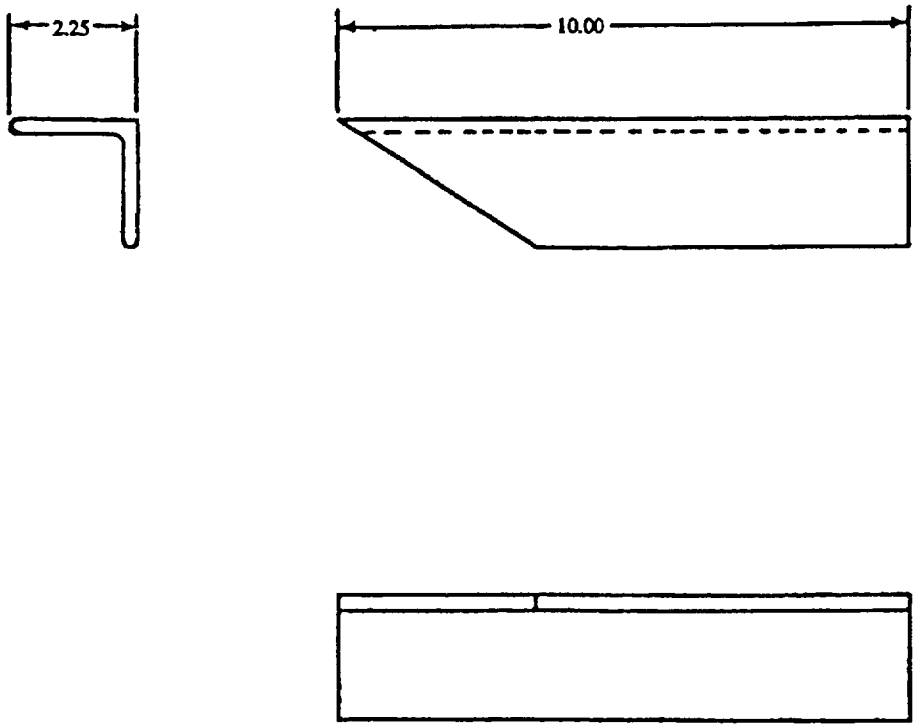


NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ± 2°.

PROCEDURE:
1. Manufacture left lower fender support from 2.25 x 2.25 x 0.25 inch angle iron according to specifications above.
2. Position support on trailer to determine angle.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
8	1	Left Lower Fender Support	2.25 x 2.25 x 0.25 inch Angle Iron

Figure G-8. Left Lower Fender Support

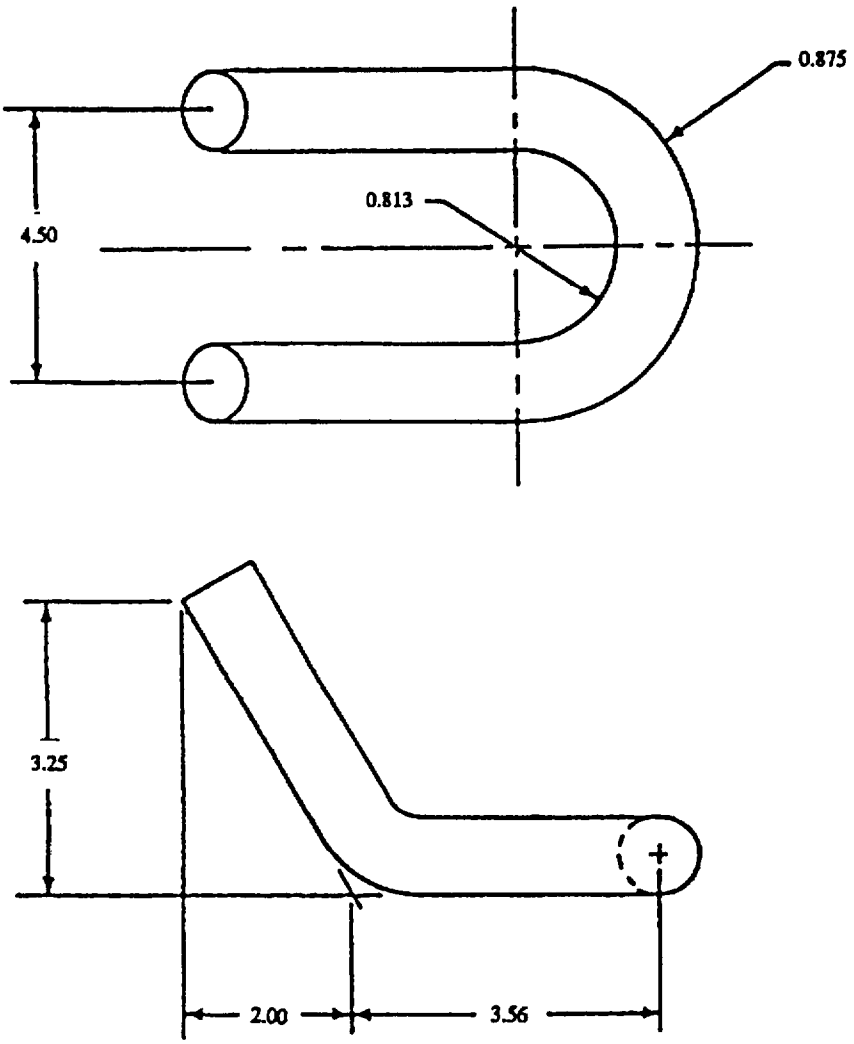


NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ± 2°.

PROCEDURE:
1. Manufacture left lower fender support from 2.25 x 2.25 x 0.25 inch angle iron according to specifications above.
2. Position support on trailer to determine angle.

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
9	1	Right Lower Fender Support	2.25 x 2.25 x 0.25 inch Angle Iron

Figure G-9. Right Lower Fender Support



NOTES:
1. Dimensions shown are in inches.
2. Tolerances are 0.03 inch unless otherwise stated.
3. Angular Tolerances are ± 2°.

PROCEDURE:
1. Manufacture MICLIC tiedowns from 0.875 diameter steel rod according to specifications above

ITEM NO.	QTY.	NAME	PART NO./SPECIFICATION
10	2	MICLIC Tiedown	0.875 Diameter Steel Rod

Figure G-10. MICLIC Tiedowns

APPENDIX H
TORQUE LIMITS

H-1. SCOPE.

This appendix lists standard torque values, as shown in Table H-1, and provides general information for applying torque. Special torque values and tightening sequences are indicated in the maintenance procedures for applicable components.

H-2. GENERAL

a. Always use the torque values listed in Table H-1 when the maintenance procedure does not give a specific torque value.

b. Unless otherwise indicated, standard torque tolerance shall be ±10%.

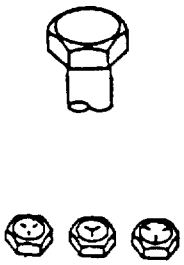
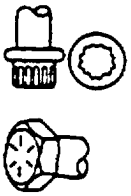
c. Torque values listed are based on clean, dry threads. Reduce torque by 10% when engine oil is used as a lubricant. Reduce torque by 20% if new plated capscrews are used.

d. Capscrews threaded into aluminum may require reductions in torque of 30% or more of Grade 5 capscrews torque and must attain two capscrew diameters of thread engagement.

CAUTION

If replacement capscrews are of higher grade than originally supplied, use torque specifications for the original. This will prevent equipment damage due to overtorquing.

Table H-1. Torque Limits.

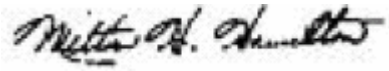
Current Usage		Much Used		Much Used		Used at Times		Used at Times	
Quality of Material		**Indeterminate**		**Minimum Commercial**		**Medium Commercial**		**Best Commercial**	
SAE Grade Number		1 or 2		5		6 or 7		8	
Capscrew Head Markings **Manufacturer's marks may vary** **These are all SAE Grade 5 (3 line)**									
Capscrew Body Size Inches - Thread		**Torque lb.-ft. (N•m)**		**Torque lb.-ft. (N•m)**		**Torque lb.-ft. (N•m)**		**Torque lb.-ft. (N•m)**	
1/4	20	5	(7)	8	(11)	10	(14)	12	(16)
	28	6	(8)	10	(14)			14	(19)
5/16	18	11	(15)	17	(23)	19	(26)	24	(33)
	24	13	(18)	19	(26)			27	(37)
3/8	116	18	(24)	31	(42)	34	(46)	44	(60)
	24	20	(27)	35	(47)			49	(66)
7/16	14	28	(38)	49	(66)	55	(75)	70	(95)
	20	30	(41)	55	(75)			78	(106)
1/2	13	39	(53)	75	(102)	85	(115)	105	(142)
	20	41	(56)	85	(115)			120	(163)
9/16	12	51	(69)	110	(149)	120	(163)	155	(210)
	18	55	(75)	120	(163)			170	(231)
5/8	11	83	(113)	150	(203)	167	(226)	210	(285)
	18	95	(129)	170	(231)			240	(325)
3/4	10	105	(142)	270	(366)	280	(380)	375	(508)
	16	115	(156)	295	(400)			420	(569)
7/8	9	160	(217)	395	(536)	440	(597)	605	(820)
	14	175	(237)	435	(590)			675	(915)
1	8	235	(319)	590	(800)	660	(895)	910	(1234)
	14	250	(339)	660	(895)			990	(1342)

INDEX

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:



MILTON H. HAMILTON
Administrative Assistant to the
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Date you fill out this form

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM X-XXXX-XXX-XX	Date of TM	Title of TM

BE EXACT PIN-POINT WHERE IT IS				IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:
PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO	
3		2		Item 10. Change illustration. Reason: Tube end shown assembled on wrong side of lever cam.
109		51		Item 3. The NSN and P/N are not listed on the AMDF nor the MCRL. Request correct NSN and P/N be furnished.
2-8			2-1	Preventive Maintenance Checks and Services. Item 7 under "Items to be inspected" should be changed to read as follows: Firing linkage and firing mechanism pawl.
12	1-6a			Since there are both 20- and 30- round magazines for this rifle, data on both should be listed.

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PAGE NO	PARAGRAPH	FIGURE NO	TABLE NO

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

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

SQUARE MEASURE

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

WEIGHTS

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

CUBIC MEASURE

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

LIQUID MEASURE

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

TEMPERATURE

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

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid	Ounces Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
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
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0 155
Square Meters	Square Feet .	10.764
Square Meters	Square Yards	1.195
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters Fluid	Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2 205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621