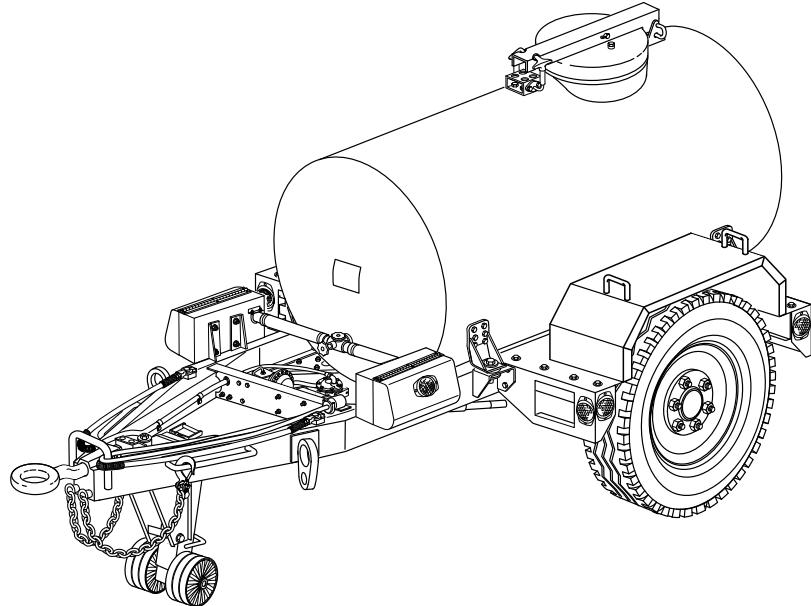


TM 9-2330-267-13&P

TECHNICAL MANUAL

**OPERATOR AND FIELD MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS (RPSTL)
FOR**

**TRAILER, TANK, WATER:
400 GALLON, 1-1/2 TON, 2 WHEEL
NSN 2330-01-108-7367 (EIC CEA)
M149A2**



SUPERSEDURE NOTICE: TM 9-2330-267-13&P supersedes TM 9-2330-267-14&P dated 30 July 1991, including all changes.

DISTRIBUTION STATEMENT A - Approved for public release; distribution is unlimited.

**HEADQUARTERS, DEPARTMENT OF THE ARMY, WASHINGTON D.C.
07 DECEMBER 2015**

WARNING SUMMARY

This warning summary contains general safety precautions and instructions that must be understood and applied during the operation and maintenance of the M149A2 400 Gallon Water Trailer to ensure personnel against injury, long-term health hazards, or death. Failure to observe these precautions could result in serious death or injury to personnel. Also included are explanations of safety and hazardous materials icons used within this technical manual.

FIRST AID

FOR FIRST AID INFORMATION, REFER TO FM 4-25.11.

EXPLANATION OF SAFETY WARNING ICONS



ELECTRICAL - electrical wire to hand with electricity symbol running through hand shows that shock hazard is present.



EQUIPMENT RUNAWAY - human figure being run over by equipment shows that the potential for injury is present if equipment moves or rolls back on its own.



FALLING PARTS - box with arrow pointing down shows that falling parts present a danger to life or limb.



FLYING PARTICLES - arrows bouncing off face with face shield show that particles flying through air may harm face.



HEAVY OBJECT - heavy object on hand shows that heavy parts present a danger to life or limb.



HEAVY OBJECT - human figure stooping over heavy object shows physical injury potential from improper lifting technique.

WARNING SUMMARY - Continued

EXPLANATION OF SAFETY WARNING ICONS - Continued



SAFETY ALERT SYMBOL - indicates a potential personal injury hazard.



SLICK FLOOR - wavy line on floor with legs prone shows that slick floor presents a danger from falling.

GENERAL SAFETY WARNINGS DESCRIPTION

WARNING



Make sure electrical power is disconnected before performing any maintenance on the electrical system. Do not use metal cleaning objects to clean cable plugs or receptacles on trailer. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION - Continued

WARNING



- All personnel must stand clear of Prime Mover and trailer during coupling and uncoupling operations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Landing leg swings free when released from stowed position, ensure all personnel are clear of swing path before pulling release handle. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Two people are needed during backing operations of Prime Mover. A ground guide is required to ensure proper connection. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use only fresh hydraulic brake fluid from a sealed container; do not reuse fluid. After filling and bleeding, be sure to refill master cylinder to 3/4 full. Failure to maintain an adequate fluid level may cause brake failure. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION - Continued

WARNING



- Tire may still be under pressure; wear eye protection when removing penetrating objects. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Compressed air used for drying or cleaning purposes should not exceed 30 psi (207 kPa). Use only with effective chip-guarding and personal protective equipment (e.g., eye protection, gloves). Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Hardware within the brake system is pressurized, ensure proper eye protection is worn before inspecting or performing maintenance procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Air reservoir is under pressure. Wear eye protection when draining air reservoir. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Do not disconnect air lines or fittings before draining air reservoir. Small parts under pressure may shoot out with high velocity. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Wear eye protection to prevent eye injury when working with components that could fly through the air. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING



Radius rod and bracket will swing freely. Radius rod and bracket must be tied to frame assembly to prevent injury to personnel and damage to equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION - Continued

WARNING



- Landing leg weighs 150 lbs (68 kg). Two people are required to lift landing leg. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Wheel weighs 185 lbs (84 kg). Two people are required to lift wheel. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Hub and brake drum assembly weighs 185 lbs (84 kg). Two people are required to lift wheel. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Spring weighs 100 lbs (45 kg). Two people are required to lift spring. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Axle weighs 150 lbs (68 kg). Two people are required to lift axle. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Fender weighs 85 lbs (39 kg). Two people are required to lift fender. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Drawbar ring is heavy, with up to 400 lbs (181 kg) loaded tongue weight. Do not attempt to lift drawbar ring. Use landing leg to raise and lower drawbar ring. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING



NEVER WORK ALONE INSIDE tank assembly. A safety rope must be secured around chest and under arms of person entering water tank. Opposite end of safety rope must be held by a person stationed at the manhole opening. This will allow for quick removal of a person from water tank in the event of accident or personal injury. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION - Continued

WARNING



- Weight of trailer must be supported on suitable support at all times. Do not attempt to support weight of trailer on suitable lifting device. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Before moving trailer, ensure that all loose equipment is properly stowed and that nothing will drag on ground. If trailer is loaded, ensure that load is properly secured. Ensure landing leg is rotated up and locked in transport position. Ensure parking brake is disengaged. Failure to comply may result in death or injury to personnel, or damage to equipment. Seek medical attention in the event of an injury.
- Lifting device must have a weight capacity greater than 5,800 lbs (2,630 kg), the weight of the trailer and cargo. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

EXPLANATION OF HAZARDOUS MATERIALS ICONS



BIOLOGICAL - abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.



CHEMICAL - drops of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.



EYE PROTECTION - person with eye protection shows that the material will injure the eyes.



FIRE - flame shows that a material may ignite and cause burns.

WARNING SUMMARY - Continued

EXPLANATION OF HAZARDOUS MATERIALS ICONS - Continued



POISON - skull and crossbones shows that a material is poisonous or is a danger to life.



VAPOR - human figure in a cloud shows that material vapors present a danger to life or health.

HAZARDOUS MATERIALS DESCRIPTION

WARNING



- Use extreme care to ensure that no foreign material enters the water tank. The highest sanitary standards must be followed when handling drinking water. Serious illness may result from impure, contaminated drinking water. When water tank is used for NONPOTABLE WATER, water tank must be so marked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- If water tank was filled with nonpotable water, water tank must be flushed out with clean potable water and drained. Do not allow water tank to sit for extended periods of time with any amount of liquid in it. Standing water will result in contamination and food poisoning. KEEP WATER TANK CLEAN AT ALL TIMES. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING



- When servicing this equipment, performing maintenance, or disposing of materials such as hydraulic brake fluid, consult unit/local hazardous waste disposal center or safety office for local regulatory guidance. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use a drain pan or appropriate containment equipment to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Immediately clean up spilled fluid before proceeding with any task. Comply with local regulations when disposing of clean up material and leaked and spilled fluids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

WARNING



- Tank interior is a confined space with potential oxygen deficiency and toxic fume hazards. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- An adequate air evacuation system must be used to quickly exhaust fumes from inside tank assembly. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING



- Do not handle brake shoes, brake drums, or other brake components unless area has been properly cleaned. There may be hazardous dust on these components which can be dangerous if you touch it or breathe it. Wear approved eye protection 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 comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Personnel must wear rubber gloves, canvas sleeves, safety shoes, rubberized apron/jacket, and protective mask while performing abrasive cleaning operation. A portable air filter must also be used. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Wear gloves and eye protection when handling hydraulic brake fluid. Work in a well-ventilated area. Exposure to hydraulic brake fluid may cause irritation to eyes, skin, and lungs. If ingested, it can irritate mouth, esophagus, and stomach. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Eye injury may result if hydraulic brake fluid comes in contact with eyes. Always wear eye protection when working with hydraulic brake fluid. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTION - Continued

WARNING



- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: TM 9-2330-267-13&P supersedes TM 9-2330-267-14&P dated 30 July 1991, including all changes. Zero in the "Change No." column indicates an original page or work package.

Date of issue for the revised manual is:

Original 07 DECEMBER 2015

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 42 AND TOTAL NUMBER OF WORK PACKAGES IS 119, CONSISTING OF THE FOLLOWING:

Page/WP No.	Change No.	Page/WP No.	Change No.
Front Cover/blank	0	WP 0034 (2 pages)	0
a-j	0	Chapter 4 title page	0
i-xv/blank	0	WP 0035 (6 pages)	0
Chapter 1 title page	0	WP 0036 (14 pages)	0
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HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 07 DECEMBER 2015

TECHNICAL MANUAL

OPERATOR AND FIELD MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LISTS (RPSTL)
FOR

TRAILER, TANK, WATER: 400 GALLON, 1-1/2 TON, 2 WHEEL
NSN 2330-01-108-7367 (EIC CEA)
M149A2

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any errors, or if you would like to recommend any improvements to the procedures in this publication, please let us know. The preferred method is to submit your DA Form 2028 (Recommended Changes to Publications and Blank Forms) through the Internet on the TACOM Unique Logistics Support Applications (TULSA) Web site. The Internet address is <https://tulsa.tacom.army.mil>. Access to all applications requires CAC authentication, and you must complete the Access Request form the first time you use it. The DA Form 2028 is located under the TULSA Applications on the left-hand navigation bar. Fill out the form and click on SUBMIT. Using this form on the TULSA Web site will enable us to respond more quickly to your comments and to better manage the DA Form 2028 program. You may also mail, e-mail, or fax your comments or DA Form 2028 directly to the U.S. Army TACOM Life Cycle Management Command. The postal mail address is U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LCL-IMP/TECH PUBS, MS 727, 6501 E. 11 Mile Road, Warren, MI 48397-5000. The e-mail address is usarmy.detroit.tacom.mbx.ilsc-tech-pubs@mail.mil. The fax number is DSN 786-1856 or Commercial (586) 282-1856. A reply will be furnished to you.

Current as of 29 December 2011

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Index

HOW TO USE THIS MANUAL

SCOPE

This technical manual contains operating instructions, component locations, and specifications for the safe and efficient operation of the M149A2 Water Trailer. It also contains operational and field level troubleshooting and maintenance procedures for this vehicle.

WARNINGS, CAUTIONS, AND NOTES

WARNINGS, CAUTIONS, and NOTES occur throughout this manual. An explanation for each follows:

A **WARNING** precedes the text of any procedure that poses a clear danger to the person performing it. Warnings contain critical data for ensuring personal safety.

A **CAUTION** precedes the text of any procedure involving a clear risk of damage to equipment.

A **NOTE** is used to highlight essential conditions or statements that clarify instructions and make procedures easier to accomplish.

CHAPTER 1: GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND THEORY OF OPERATION

This chapter describes the trailer and its major assemblies and components. It contains a specification table for the trailer equipment as well as information needed for maintaining records and making equipment recommendations.

CHAPTER 2: OPERATOR INSTRUCTIONS

This chapter describes, locates, and illustrates the controls and indicators used on the trailer. It contains detailed instructions for operation of the vehicle under usual and unusual conditions.

CHAPTER 3: TROUBLESHOOTING PROCEDURES

Use the troubleshooting index to find the common operator and field malfunctions and symptoms that may occur during use of the trailer. Perform the troubleshooting and corrective actions in the order listed within each individual Work Package (WP).

CHAPTER 4: PREVENTIVE MAINTENANCE CHECKS AND SERVICES

This chapter contains operator and field level Preventive Maintenance Checks and Services (PMCS). Water trailer components must be inspected periodically to find and correct defects, and regular services are needed to keep the trailer operational.

CHAPTER 5: OPERATOR MAINTENANCE INSTRUCTIONS

This chapter provides operator level maintenance procedures. Remove/disassemble only to the extent necessary to replace defective components/assemblies. Use standard maintenance practices/procedures.

HOW TO USE THIS MANUAL - Continued

CHAPTER 6: FIELD MAINTENANCE INSTRUCTIONS

This chapter provides field level maintenance and servicing instructions for the trailer. It includes instructions for the repair and/or replacement of many trailer components and assemblies. Use standard maintenance practices/procedures.

CHAPTER 7: REPAIR PARTS AND SPECIAL TOOLS LIST

This chapter includes the Repair Parts and Special Tools List (RPSTL) to assist in replacing any defective component or assembly.

CHAPTER 8: SUPPORTING INFORMATION

This chapter includes References, the Maintenance Allocation Chart (MAC), Additional Authorization List (AAL), Components of End Items (COEI) and Basic Issue Items (BII) Lists, the Expendable and Durable Items List (EDIL), and the Tool Identification List (TIL).

ALPHABETICAL INDEX

An alphabetical index of WPs is located after the last WP in this manual.

CHAPTER 1

GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND THEORY OF OPERATION

FIELD MAINTENANCE GENERAL INFORMATION

SCOPE

The purpose of this chapter is to acquaint you with the M149A2, 1-1/2 Ton, 2-Wheel, 400 Gallon Water Trailer.

TYPE OF MANUAL

TM 9-2330-267-13&P is an Operator and Field Maintenance Manual including Repair Parts and Special Tools List (RPSTL).

MODEL NUMBER AND EQUIPMENT NAME

This manual covers: Trailer, Tank, Water: 400 Gallon, 1-1/2 Ton, 2-Wheel, M149A2.

PURPOSE OF EQUIPMENT

Purpose of the M149A2 trailer is to carry 400 gal (1,514 L) of water for administrative and tactical operations.

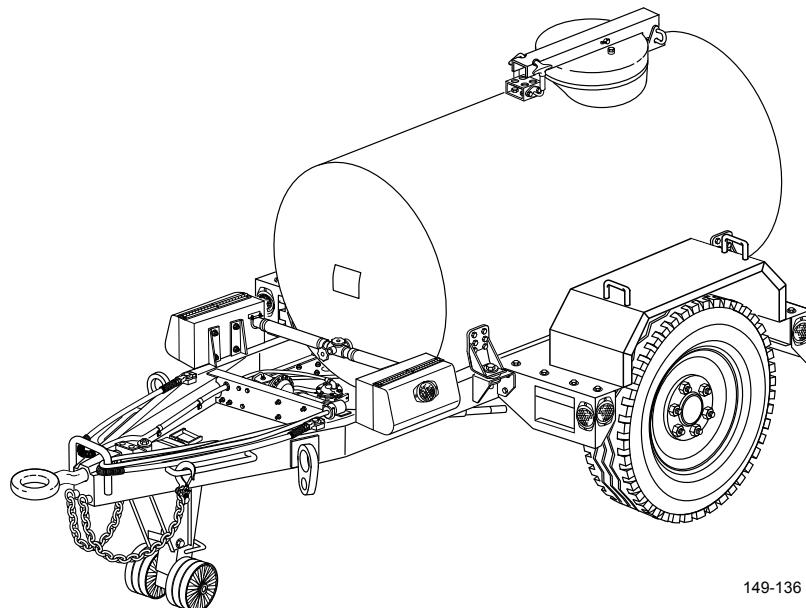


Figure 1. M149A2 400 Gallon Water Trailer.

MAINTENANCE FORMS AND RECORDS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 750-8, The Army Maintenance Management System (TAMMS).

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your M149A2 needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design or performance.

All non-Aviation/Missile EIRs and PQDRs must be submitted through the Product Data Reporting and Evaluation Program (PDREP) Web site. The PDREP site is: <https://www.pdrep.csd.disa.mil/>.

If you do not have Internet access, you may submit your information using an SF 368 (Product Quality Deficiency Report). You can send your SF 368 using email, regular mail, or fax using the addresses/fax numbers specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items. The term "corrosion" means the deterioration of a material or its properties due to a reaction of that material with its chemical environment. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking. Plastics, composites, and rubbers can also degrade (also considered to be corrosion based on the above definition of corrosion). Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light, typically ultraviolet) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking. The US Army has defined the following nine (9) forms of corrosion used to evaluate the deterioration of metals. These shall be used when evaluating and documenting corrosion.

UNIFORM (or general attack): Affects a large area of exposed metal surface, like rust on steel or tarnish on silver. It gradually reduces the thickness of the metal until it fails.

CREVICE: Occurs in crevices created by rubber seals, gaskets, bolt heads, lap joints, dirt or other surface deposits. It will develop anywhere moisture or other corrosive agents are trapped and unable to drain or evaporate.

SELECTIVE LEACHING: One element, usually the anodic element of an alloy, corrodes away, leaving the cathodic element. This can create holes in metal.

INTERGRANULAR: Metal deterioration caused by corrosion on the bonds between or across the grain boundaries of the metal. The metal will appear to be peeling off in sheets, flaking, or being pushed apart by layers. A particular type of intergranular corrosion is exfoliation.

PITTING: This can result from conditions similar to those for crevice corrosion. Pits can develop on various materials due to their composition. Rifle boxes are big victims of pitting.

EROSION: Results when a moving fluid (liquid or gas) flows across a metal surface, particularly when solid particles are present in the fluid. Corrosion actually occurs on the surface of the metal, but the moving fluid washes away the corrosion and exposes a new metal surface, which also corrodes.

FRETTING: Occurs as a result of small, repetitive movements (e.g., vibration) between two surfaces in contact with each other. It's usually identified by a black powder corrosion product or pits on the surface.

GALVANIC: Occurs when two different types of metal come in contact with each other, like steel bolts on aluminum, for example. This is a common problem on aircraft because of their mix of metals.

STRESS: Term used to describe corrosion cracking and corrosion fatigue.

Where an item is not ready/available due to one of these forms of corrosion, it shall be recorded as a corrosion failure in the inspection record and the appropriate code (170) for corrosion shall be used when requesting/performing maintenance.

SF Form 368, Product Quality Deficiency Report should be submitted to the address specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE

For procedures on Destruction of Tank-Automotive Equipment to Prevent Enemy Use, refer to TM 750-244-6.

LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviations and acronyms appearing in this manual are defined in the paragraph from where they first appear, after which only the abbreviation or acronym is used. The following is a quick-reference list of all abbreviations and acronyms and their corresponding word or compound term used in this manual.

Table 1. List of Abbreviations and Acronyms.

AAL	Additional Authorization List
BII	Basic Issue Items
cm	Centimeter
CAGEC	Commercial and Government Entity Code
COEI	Components of End Item
CPC	Corrosion Prevention and Control
DA	Department of the Army
EDIL	Expendable/Durable Items List
EIR	Equipment Improvement Recommendation
ft	Foot, Feet
FMTV	Family of Medium Tactical Vehicles
GAA	Grease, Automotive and Artillery
gal	Gallon
IAW	In Accordance With
in.	Inch
kg	Kilogram
km	Kilometers
km/h	Kilometers Per Hour
kPa	Kilopascal
LED	Light Emitting Diode
L	Liter
lb ft	Pounds Per Square Foot
m	Meter

LIST OF ABBREVIATIONS AND ACRONYMS - Continued***Table 1. List of Abbreviations and Acronyms - Continued.***

MAC	Maintenance Allocation Chart
mi.	Mile
mm	Millimeter
mph	Miles Per Hour
MTOE	Modified Tables of Organization and Equipment
MWO	Modification Work Order
N·m	Newton Meters
NIIN	National Item Identification Number
NSN	National Stock Number
PMCS	Preventive Maintenance Checks and Services
POL	Petroleum Oils and Lubricants
PQDR	Product Quality Deficiency Report
psi	Pounds Per Square Inch
RPSTL	Repair Parts and Special Tools List
SMR	Source, Maintenance, and Recoverability
SRA	Specialized Repair Activity
TAMMS	The Army Maintenance Management System
TB	Technical Bulletin
TIL	Tool Identification List
TMDE	Test, Measurement, and Diagnostic Equipment
TULSA	TACOM Unique Logistics Support Applications
V dc	Volts, Direct Current
UOC	Usable On Code
WCA	Warranty Claim Action
WP	Work Package

QUALITY OF MATERIAL

Material used for replacement, repair, or modification must meet the requirements of this manual. If quality of material requirements are not stated in this manual, the material must meet the requirements of the drawings, standards, specifications, or approved engineering change proposals applicable to the subject equipment.

END OF WORK PACKAGE

**FIELD MAINTENANCE
EQUIPMENT DESCRIPTION AND DATA**

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

The M149A2, 1-1/2-Ton, 2-Wheel, 400 Gallon Water Trailer carries a maximum payload of 3,335 lbs (1,513 kg) either highway or cross-country.

The M149A2 trailer is designed to be towed by the following vehicles:

1. M813, M814, M923, M927, and M939 Series Trucks.
2. M1078, M1079, M1081, M1083, M1084, M1085, and M1086 Family of Medium Tactical Vehicles (FMTV).

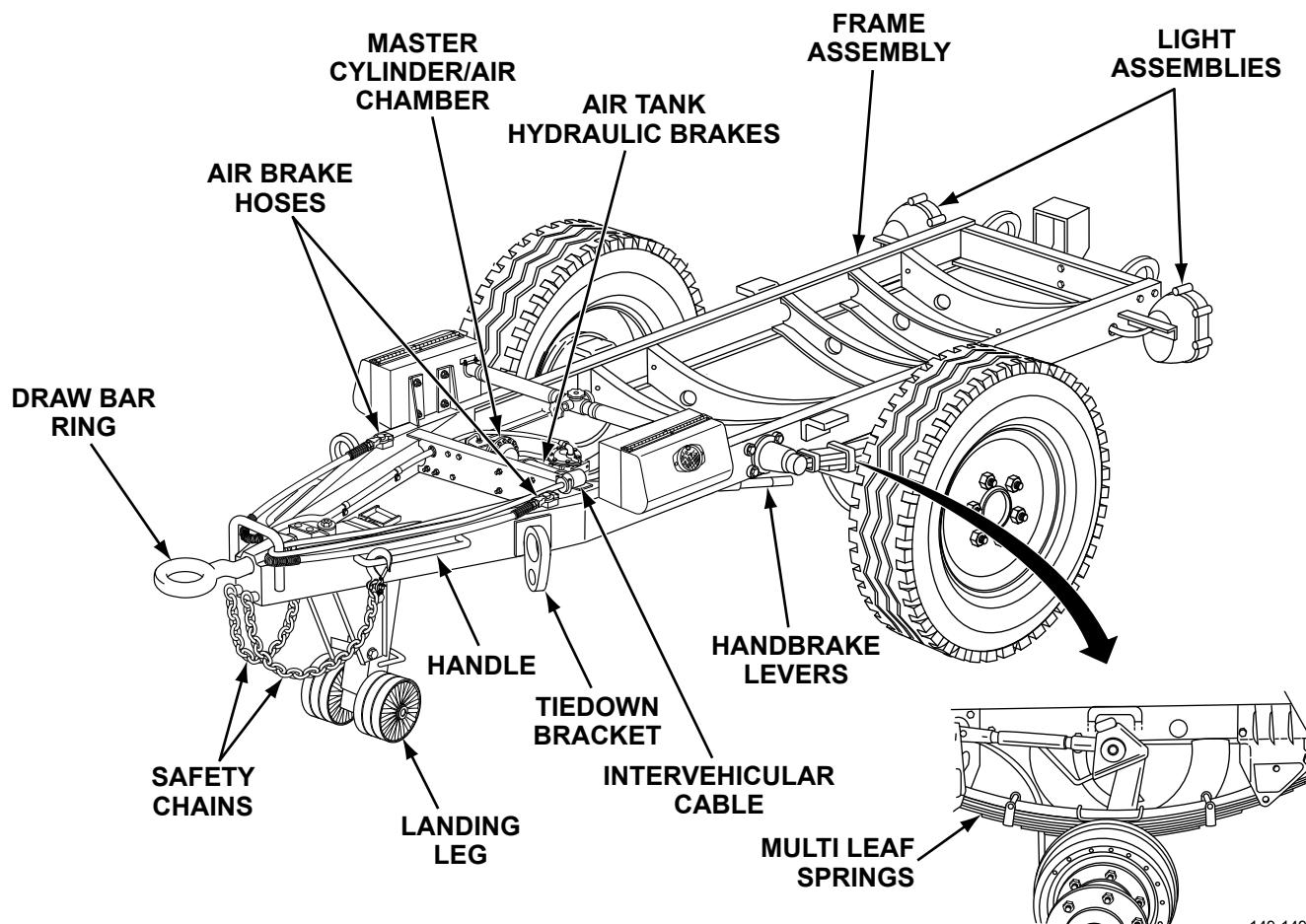
The maximum towing speeds are:

1. Highway - 50 mph (80 km/h).
2. Cross-Country - 30 mph (48 km/h).

The M149A2 trailer is equipped with:

1. A 24 V dc electrical system capable of operating under standard and blackout modes.
2. Two-wheel single axle with multi-leaf spring suspension and shock absorbers.
3. A dual-line air/hydraulic brake system which receives air pressure from Prime Mover.
4. A manually operated parking brake to secure the trailer when stopped or parked.
5. An adjustable landing leg with wheels and spindle to support the front of the trailer when uncoupled from the Prime Mover.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS



149-149

Figure 1. Frame Assembly.

The frame assembly is composed of two formed-steel main rails reinforced by six formed-steel crossmembers. The drawbar ring is used to couple the trailer to the Prime Mover pintle. There are two handles used to maneuver the trailer by hand. The two safety chains hook to eyebolts on the Prime Mover to prevent the trailer from fully breaking away. The landing leg supports the trailer tongue when not coupled to the Prime Mover; the landing leg is adjustable allowing it to rotate up for added clearance and has a swivel mount. The four tiedown brackets are used to secure the trailer onto a transport. The multi-leaf springs cushion road shock.

The two light assemblies are used as the taillights, stoplights, and turning signals to indicate the presence and movement of the trailer to other vehicles traveling behind; the light assemblies also have blackout capability. The two rear reflectors and two rear running lights indicate the trailer's presence to vehicles traveling behind the trailer. There are three reflectors on each side that indicate the trailer's presence to other vehicles traveling next to the trailer.

The brake system is air/hydraulic and is connected to the Prime Mover by two air brake hoses. The air/hydraulic brake system has an air tank and master cylinder. The master cylinder is fluid filled and applies the brakes. The handbrake levers are used to engage the parking brake when the trailer is stopped or parked.

The intervehicular cable assembly connects to the Prime Mover's receptacle.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

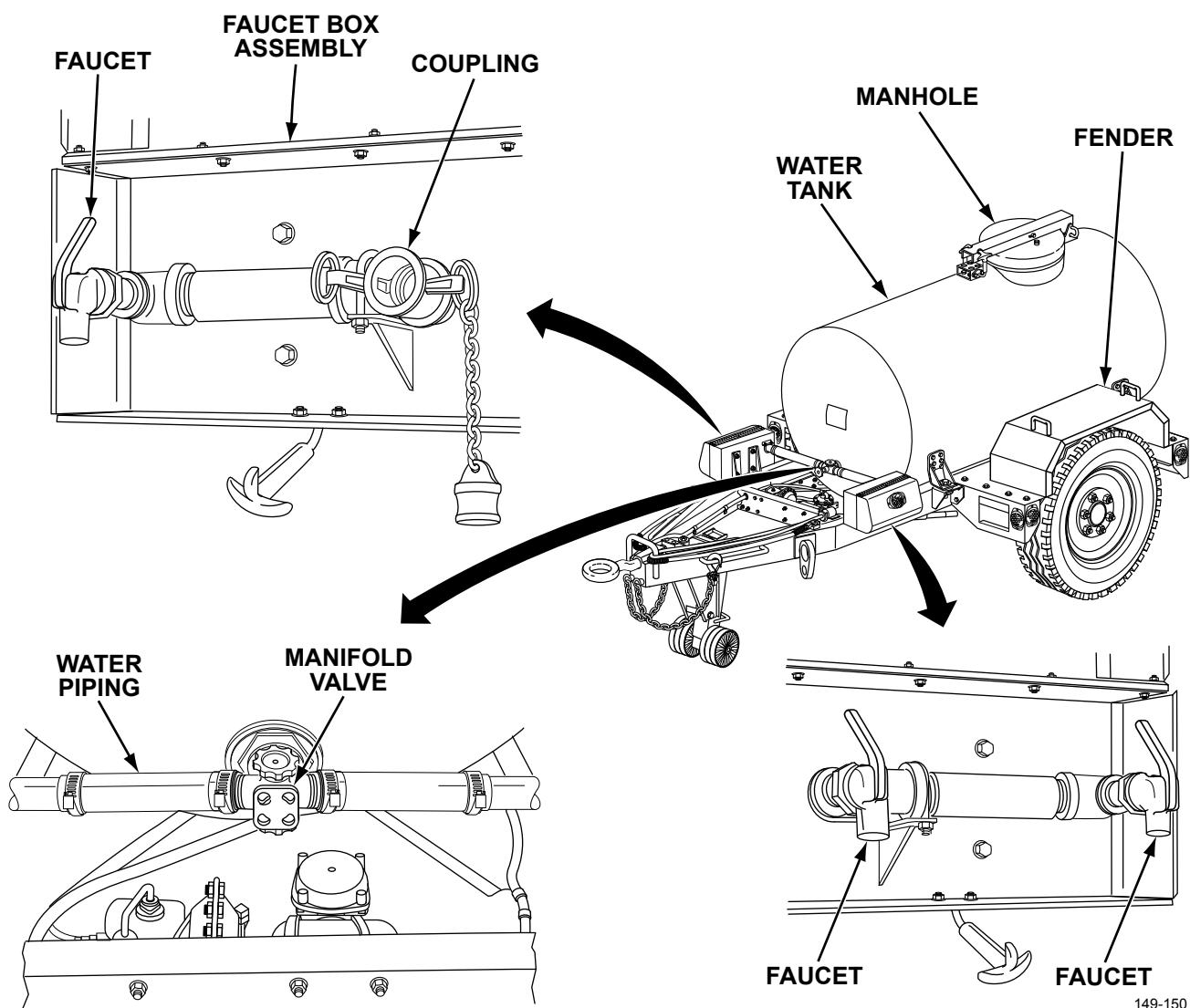


Figure 2. Trailer Body (New Configuration).

The trailer is equipped with a water tank that holds 400 gal (1,514 l) of potable water or non-potable water for transport. The water tank has a manhole cover for access to the water tank and filling. Faucet boxes are located on both sides of the trailer with two faucets in one box and a faucet and coupling in the other box. The water flows through the piping from the water tank to the faucets and is directed by the manifold valve. The rear of the water tank can have a faucet or a drain plug.

The trailer has two fenders that protect tires, water tank, and vehicles traveling behind from dirt and stones. Both fenders are replaceable.

Maintain the data plate so that all information remains legible. If a data plate is missing or no longer legible, notify Field Maintenance.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

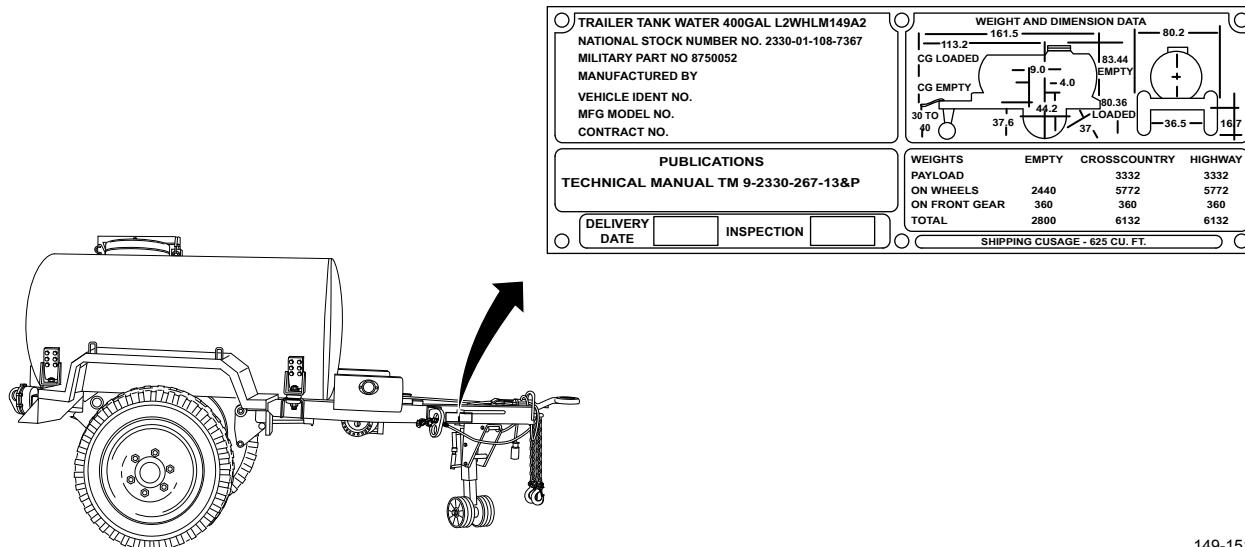


Figure 3. Trailer Data Plate.

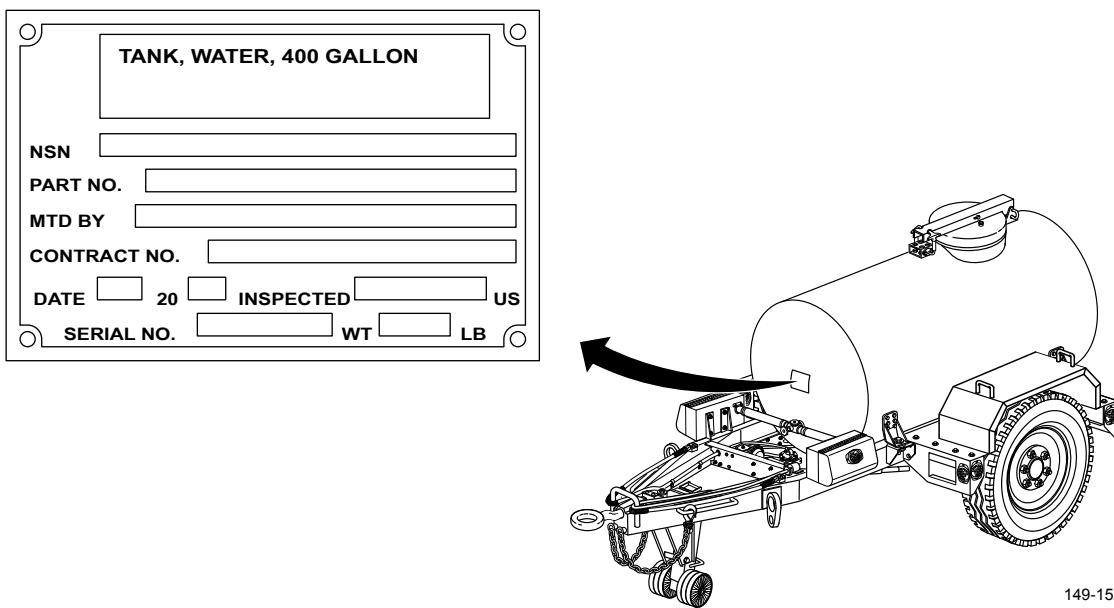


Figure 4. Stainless Steel Tank Data Plate.

Maintain the data plate so that all information remains legible. If a data plate is missing or no longer legible, notify Field Maintenance.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

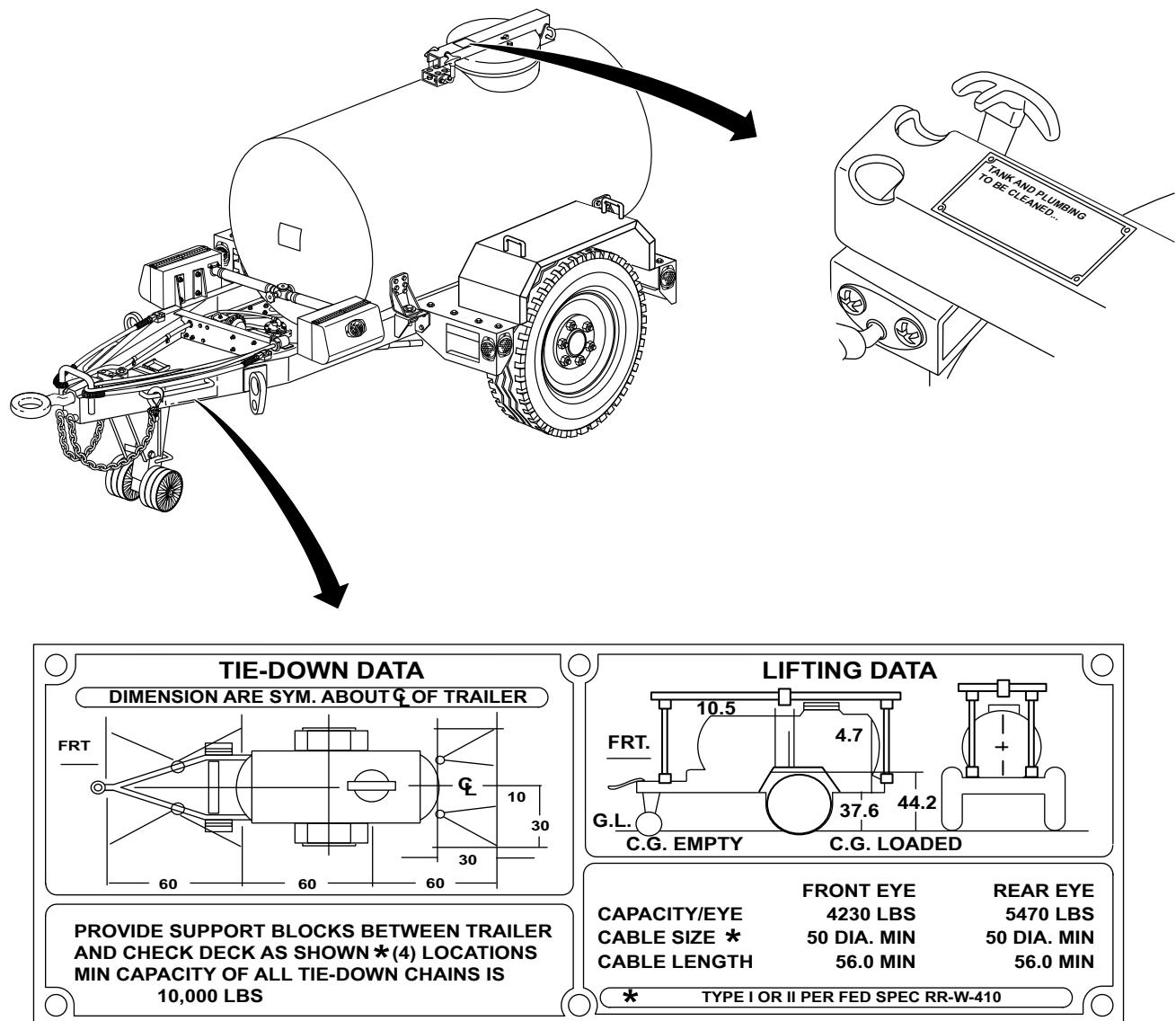


Figure 5. Trailer and Water Tank, Cleaning, Lifting, and Tiedown Data Plate.

EQUIPMENT DATA*Table 1. Equipment Data.*

Overall Dimensions:	
Height: To Top of Manhole Cover	
Water Tank Full	73 in. (185 cm)
Water Tank Empty	76 in. (193 cm)
Length:	
Body	161 in. (409 cm)
Width:	
Body (Between Fenders)	80 in. (203 cm)
Weights:	
Payload Maximum:	
Cross-Country	3,335 lbs (1,513 kg)
Highway	3,335 lbs (1,513 kg)
Vehicle (Net)	2,900 lbs (1,315 kg)
Wheels:	
Number	2
Rim Size	7 x 22 in. (18 cm x 56 cm)
Number of Studs	6
Tires:	
Number	2
Size	10R22.5
Inflation	70 psi (483 kPa)
Axle:	
Capacity	10,000 lbs (4,536 kg)
Tube Diameter	4 in. (10 cm)

EQUIPMENT DATA - Continued*Table 1. Equipment Data - Continued.*

Suspension:	
Spring Type	Multi-Leaf Springs
Service Brakes:	
Air Opening Pressure	100 psi (689 kPa)
Actuation	Air/Hydraulic
Handbrake:	
Control	Hand
Actuation	Mechanical
Landing Gear:	
Type	Adjustable Utility with Swivel Mount and Wheel
Lifting Capacity	6,000 lbs (2,721 kg)
Maximum Extension	10 in. (25 cm)
Electrical System:	
Voltage	24 V dc

END OF WORK PACKAGE

FIELD MAINTENANCE THEORY OF OPERATION

GENERAL

The M149A2 trailer is used to carry up to 400 gal (1,514 L) of potable or non-potable water either highway or cross-country.

Specific data for the M149A2 model trailer is located on the data plate mounted to the front crossmember of the chassis frame.

TRAILER ELECTRICAL SYSTEM

Trailer lights receive 24 V dc from the Prime Mover through a 12-pin waterproof intervehicular cable.

BRAKE SYSTEM

Gladhands. The gladhands are the coupling point from the trailer to Prime Mover. Gladhands are marked, emergency or service to ensure correct connections.

Air Filters. The air filters clean air from Prime Mover of moisture and foreign matter.

Air Lines. The air lines extend from the air filters supplying service and emergency air to the relay valve, air reservoir, and air brake chamber.

Relay Valve. The relay valve controls the braking system of the trailer. Based on the air pressure signals received from the Prime Mover, the relay valve will apply or release the service brakes, or will initiate an emergency brake application.

Air Reservoir. The air reservoir stores air pressure, 60 psi (414 kPa) minimum, that operates the brake system. Air pressure to the air reservoir is supplied and maintained through the Prime Mover's emergency supply line.

Air Brake Chamber. The air brake chamber converts air pressure to mechanical motion. This movement, through the hydraulic master cylinder applies the brakes. When air pressure in the air brake chamber is released, spring action releases the brakes.

Master Cylinder. The master cylinder converts the mechanical motion of the air brake chamber to hydraulic pressure.

Wheel Cylinders. The wheel cylinders convert hydraulic pressure to mechanical motion and force the brake shoes against the brake drum.

Brake Shoes. Two brake shoes on each wheel assembly are spread apart by the mechanical movement of the wheel cylinders. The brake shoes cause friction to slow or stop the trailer.

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

**OPERATOR MAINTENANCE
DESCRIPTION AND USE OF OPERATOR'S CONTROLS AND INDICATORS**

GENERAL

This chapter illustrates and describes the M149A2 400 Gallon Water Trailer controls and indicators. There are instructions for coupling, towing, stopping, and backing in both usual and unusual conditions, and other information to help you understand and better operate the trailer.

CONTROLS AND INDICATORS

Table 1. Landing Leg.

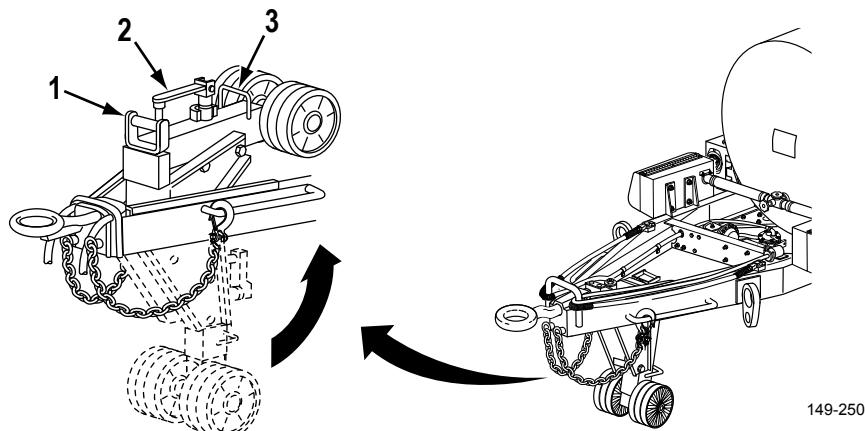
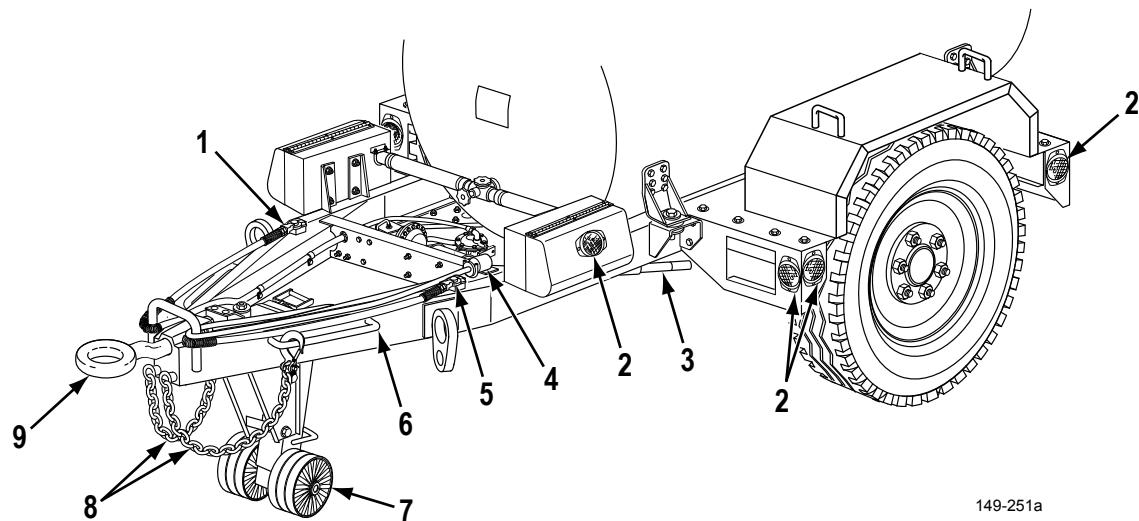


Figure 1. Landing Leg.

Key	Control/Indicator	Function
1	Release Handle	Secures the landing leg in up or down position.
2	Hand Crank	Operates the gearbox to raise or lower the landing leg assembly.
3	Landing Leg Handle	Raise or lower the landing leg assembly.

Table 2. Trailer Front.

149-251a

Figure 2. Trailer Front.

Key	Control/Indicator	Function
1	Emergency Air Hose	Supply emergency air pressure for brake system.
2	Reflectors	A visual aid to provide safety.
3	Handbrake Levers	Applies parking brakes. Move levers toward front of trailer to engage parking brakes.
4	Intervehicular Cable Assembly	Connects Prime Mover and trailer electrical systems.
5	Service Air Hose	Supply air pressure for brake system.
6	Handles	Maneuver trailer by hand.
7	Landing Leg Wheels	Helps to move trailer when not attached to Prime Mover.
8	Safety Chains	Hook to eyebolts on Prime Mover to prevent trailer from fully breaking away. Safety chains should be crossed under trailer tongue when hooked to Prime Mover.

Table 2. Trailer Front - Continued.

Key	Control/Indicator	Function
9	Drawbar Ring	Connects trailer to Prime Mover pintle.

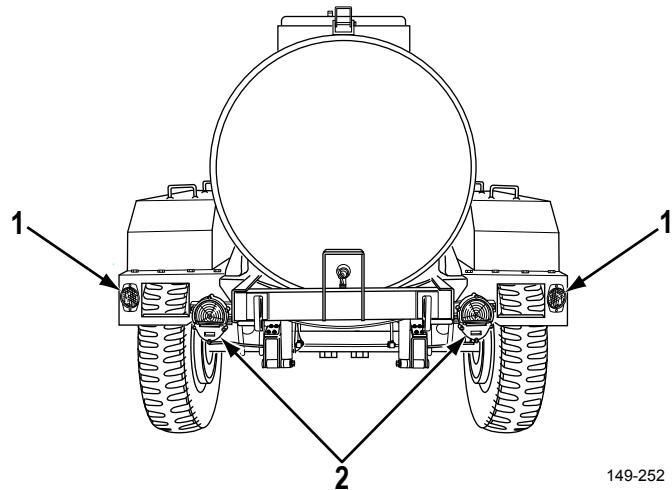
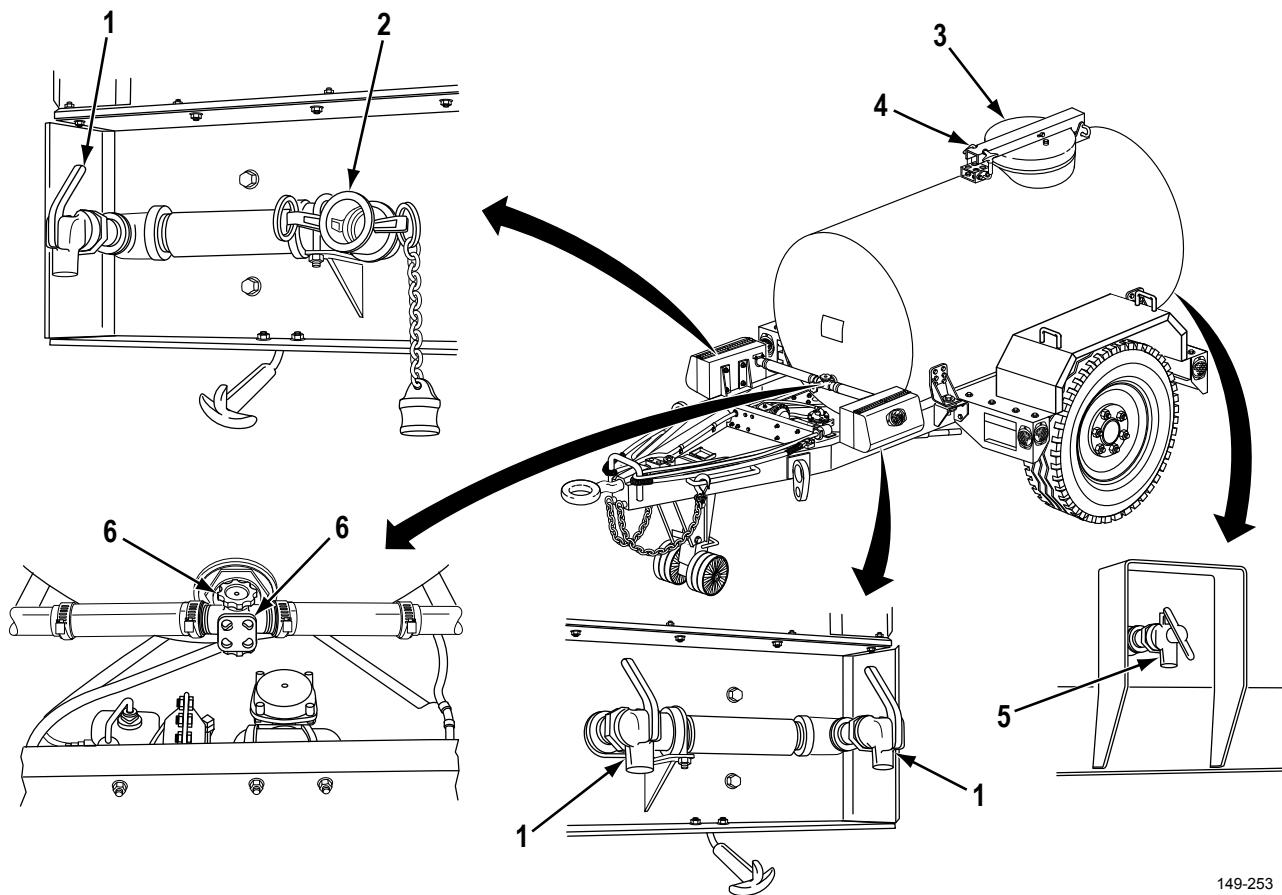
Table 3. Trailer Rear.

Figure 3. Trailer Rear.

Key	Control/Indicator	Function
1	Reflectors	A visual aid to provide safety.
2	Light Assemblies	Indicates driver's actions through illumination.

Table 4. Water Tank.

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Figure 4. Water Tank (New Configuration).

Key	Control/Indicator	Function
1	Faucet	Dispenses water from the tank.
2	Quick-Disconnect Coupling	Provides easy coupling for other types of dispensing.
3	Manhole Cover	Provides access to the tank for filling, cleaning, and inspection.
4	Latch	Secures the manhole cover closed.
5	Rear Faucet	Dispenses water from the tank.

Table 4. Water Tank - Continued.

Key	Control/Indicator	Function
6	Control Valve Handles	Controls water flow to faucets. (Some models have one handle, some models have two.)

END OF WORK PACKAGE

OPERATOR MAINTENANCE OPERATION UNDER USUAL CONDITIONS

INITIAL SETUP:**Personnel Required**

Two

References (cont.)WP 0006
WP 0036**References**

TC 21-305-20

WARNING



- All personnel must stand clear of Prime Mover and trailer during coupling and uncoupling operations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Drawbar ring is heavy, with up to 400 lbs (181 kg) loaded tongue weight. Do not attempt to lift drawbar ring. Use landing leg to raise and lower drawbar ring. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Landing leg swings free when released from stowed position, ensure all personnel are clear of swing path before pulling release handle. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Landing leg weighs 150 lbs (68 kg). Two people are required to lift landing leg. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

This Work Package (WP) contains instructions for safely operating the M149A2 trailer under usual conditions. Operating the trailer under unusual operating conditions is described in (WP 0006).

Perform all "Before" Operator Preventive Maintenance Checks and Services (PMCS) (WP 0036) before operating the M149A2 400 Gallon Water Trailer.

COUPLING TRAILER TO PRIME MOVER

1. Prepare Prime Mover for coupling and operation in accordance with Prime Mover operator manual.
2. Apply left and right handbrakes on trailer by pulling handbrake levers (Figure 1, Item 1) forward until they are at a 90 degree angle to the frame assembly (Figure 1, Item 2).

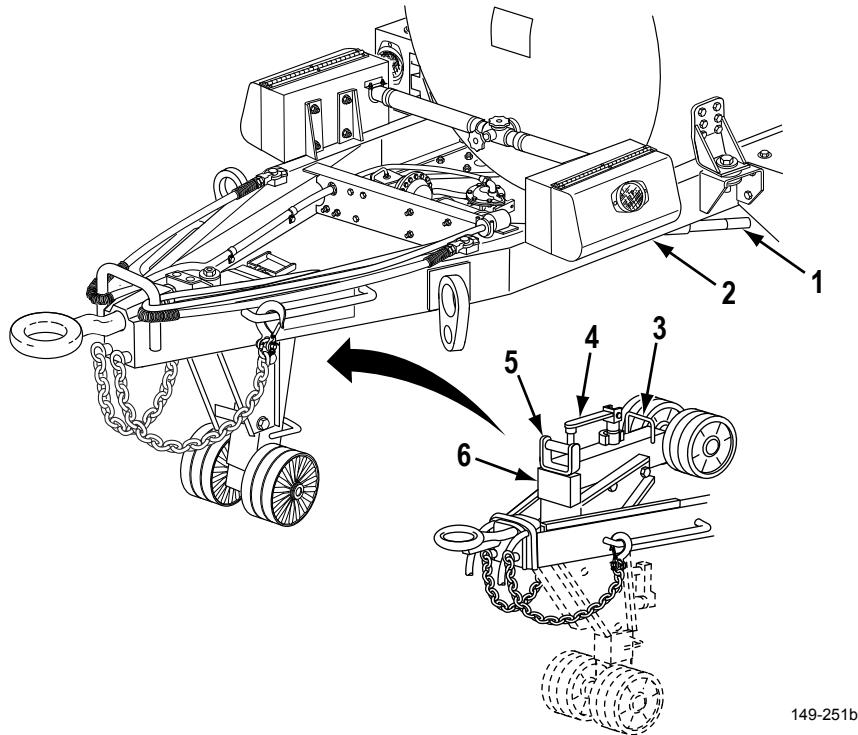


Figure 1. Trailer Parking Brakes.

WARNING



Two people are needed during backing operations of Prime Mover. A ground guide is required to ensure proper connection. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

3. Align Prime Mover with trailer and slowly back Prime Mover until Prime Mover pintle (Figure 2, Item 4) is in line with trailer drawbar ring (Figure 2, Item 7).
4. Remove pintle lockpin (Figure 2, Item 6) and open pintle (Figure 2, Item 4).
5. Slowly back Prime Mover until pintle (Figure 2, Item 4) engages drawbar ring (Figure 2, Item 7).

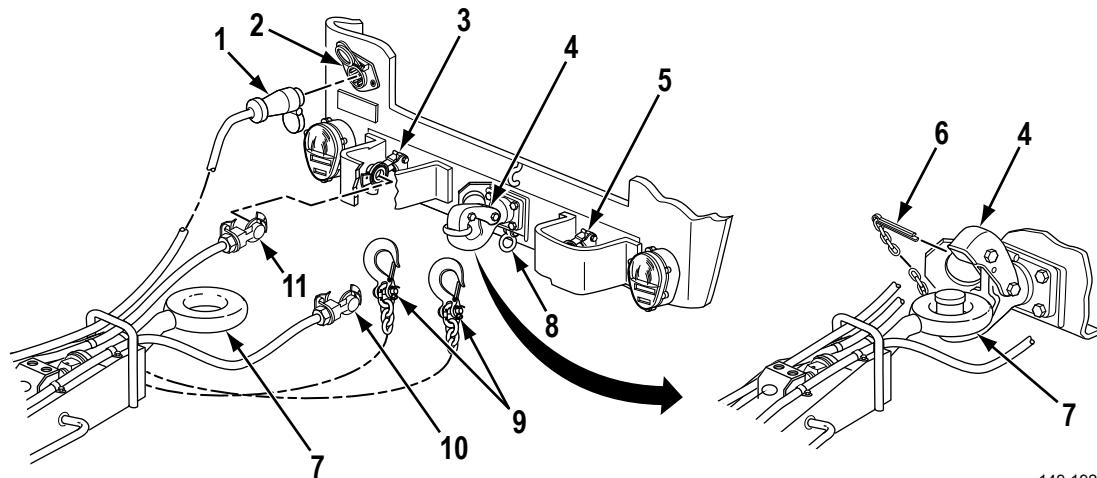
COUPLING TRAILER TO PRIME MOVER - Continued

6. Close pintle (Figure 2, Item 4) and install pintle lockpin (Figure 2, Item 6).

CAUTION

When towing with Family of Medium Tactical Vehicles (FMTV), do not cross the safety chains. Failure to comply may result in damage to, or destruction of, equipment or mission.

7. Cross two safety chains (Figure 2, Item 9) under drawbar ring (Figure 2, Item 7) and attach chains to two Prime Mover eyebolts or tow shackles (Figure 2, Item 8).
8. Connect intervehicular cable assembly (Figure 2, Item 1) to Prime Mover receptacle (Figure 2, Item 2).
9. Connect emergency air hose (Figure 2, Item 11) to Prime Mover emergency gladhands (Figure 2, Item 3).
10. Connect service air hose (Figure 2, Item 10) to Prime Mover service gladhands (Figure 2, Item 5).



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Figure 2. Couple Trailer.

11. Turn handcrank (Figure 1, Item 4) clockwise to retract landing leg (Figure 1, Item 3).
12. Pull outward on release handle (Figure 1, Item 5) and rotate landing leg (Figure 1, Item 3) upward. Let go of release handle (Figure 1, Item 5) making sure pins engage completely in swivel mount (Figure 1, Item 6).
13. Release trailer parking brakes.

END OF TASK

TOWING TRAILER**WARNING**

Before moving trailer, ensure that all loose equipment is properly stowed and that nothing will drag on ground. If trailer is loaded, ensure that load is properly secured. Ensure landing leg is rotated up and locked in transport position. Ensure parking brake is disengaged.

Failure to comply may result in death or injury to personnel, or damage to equipment. Seek medical attention in the event of an injury.

1. Perform all "During" Operator PMCS while operating the trailer (WP 0036).
2. When towing, overall length of trailer must be kept in mind when passing other vehicles and when turning.
3. Turning and backing operations will be affected because Prime Mover and trailer are a hinged unit.
4. Always tow trailer at safe speeds and note any driving irregularities.
5. When parking for extended periods, set parking brakes on both Prime Mover and trailer.
6. If Prime Mover and trailer are parked on a hill, chock wheels.
7. For further information on proper driving practices, refer to TC 21-305-20.

END OF TASK**UNCOUPLING TRAILER FROM PRIME MOVER**

1. Pull landing leg release handle (Figure 3, Item 6) and rotate landing leg (Figure 3, Item 4) downward.
2. Install landing leg release handle (Figure 3, Item 6) in wheel drive spindle (Figure 3, Item 8).
3. Turn handcrank (Figure 3, Item 5) counterclockwise until wheels (Figure 3, Item 3) make contact with ground. Turn handcrank (Figure 3, Item 5) as required to take trailer drawbar ring coupler weight off of Prime Mover pintle.
4. Shut-off Prime Mover air valve.
5. Apply left and right handbrakes on trailer by pulling handbrake levers (Figure 3, Item 1) forward until they are at a 90 degree angle to the frame assembly (Figure 3, Item 2).
6. Disconnect intervehicular cable assembly (Figure 4, Item 1) from Prime Mover receptacle (Figure 4, Item 2).
7. Disconnect two safety chains (Figure 4, Item 9) from two Prime Mover eyebolts or tow shackles (Figure 4, Item 8).
8. Remove pintle lockpin (Figure 4, Item 6) and open pintle (Figure 4, Item 4).
9. Turn the handcrank (Figure 3, Item 5) counterclockwise until drawbar ring (Figure 4, Item 7) clears Prime Mover pintle.

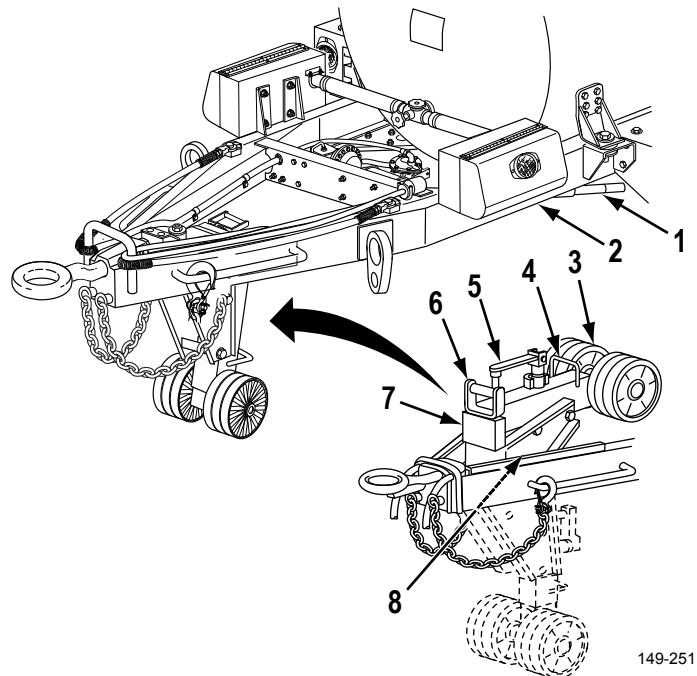
UNCOUPLING TRAILER FROM PRIME MOVER - Continued

Figure 3. Lower Landing Leg.

10. Disconnect emergency air hose (Figure 4, Item 11) from Prime Mover emergency gladhands (Figure 4, Item 3).
11. Disconnect service air hose (Figure 4, Item 10) from Prime Mover service gladhands (Figure 4, Item 5).

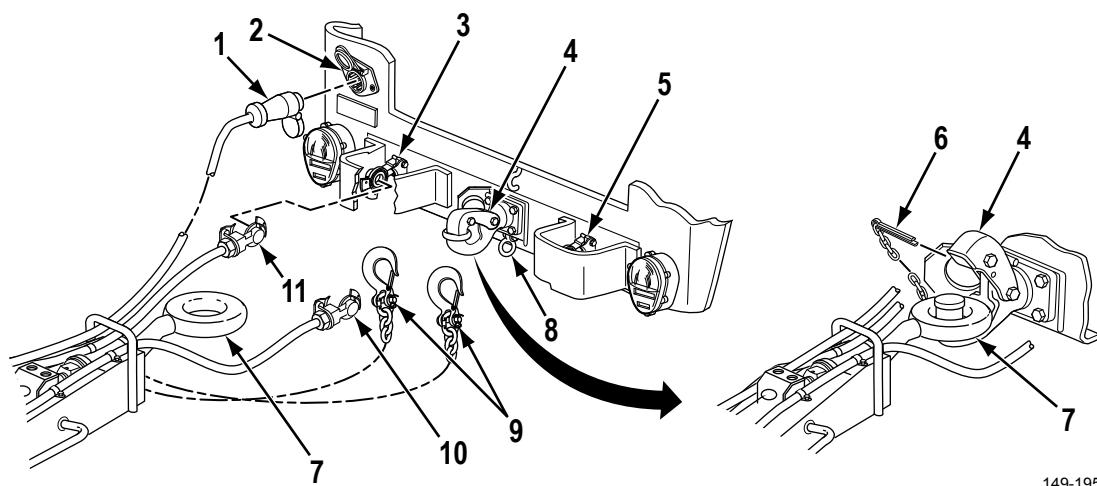


Figure 4. Uncouple Trailer.

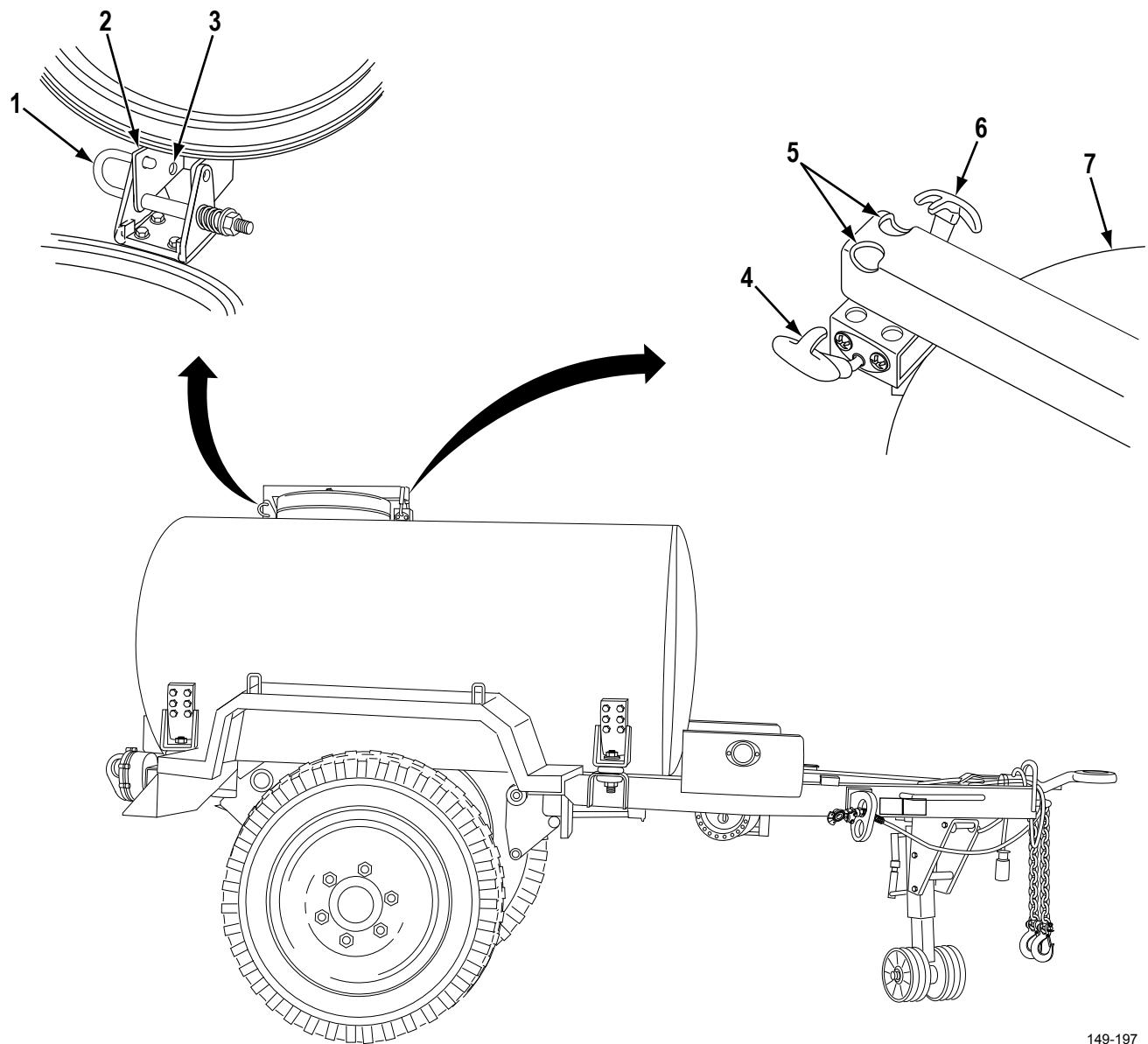
UNCOUPLING TRAILER FROM PRIME MOVER - Continued

12. Move Prime Mover a safe distance from trailer.
13. Perform all After Operator PMCS (WP 0036).

END OF TASK**FILLING STAINLESS STEEL WATER TANK****WARNING**

Use extreme care to ensure that no foreign material enters the water tank. The highest sanitary standards must be followed when handling drinking water. Serious illness may result from impure, contaminated drinking water. When water tank is used for NONPOTABLE WATER, water tank must be so marked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

1. Open manhole cover (Figure 5, Item 7) by pulling up and out on two fasteners (Figure 5, Items 4 and 6) and laying them on tank surface.
2. Pull looped end of J-bolt (Figure 5, Item 1) and lift manhole cover (Figure 5, Item 7) until holes (Figure 5, Item 3) on bracket (Figure 5, Item 2) and manhole cover (Figure 5, Item 7) align. Release J-bolt (Figure 5, Item 1).
3. Fill water tank through manhole opening.
4. Pull looped end of J-bolt (Figure 5, Item 1) and close manhole cover (Figure 5, Item 7) until holes (Figure 5, Item 3) on bracket (Figure 5, Item 2) and manhole cover (Figure 5, Item 7) align. Release J-bolt (Figure 5, Item 1) into holes (Figure 5, Item 3).
5. Pull out on two fasteners (Figure 5, Items 4 and 6) and release into holes (Figure 5, Item 5).

FILLING STAINLESS STEEL WATER TANK - Continued

149-197

Figure 5. Filling Tank.

END OF TASK

DRAINING WATER TANK**WARNING**

If water tank was filled with nonpotable water, water tank must be flushed out with clean potable water and drained. Do not allow water tank to sit for extended periods of time with any amount of liquid in it. Standing water will result in contamination and food poisoning. KEEP WATER TANK CLEAN AT ALL TIMES. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

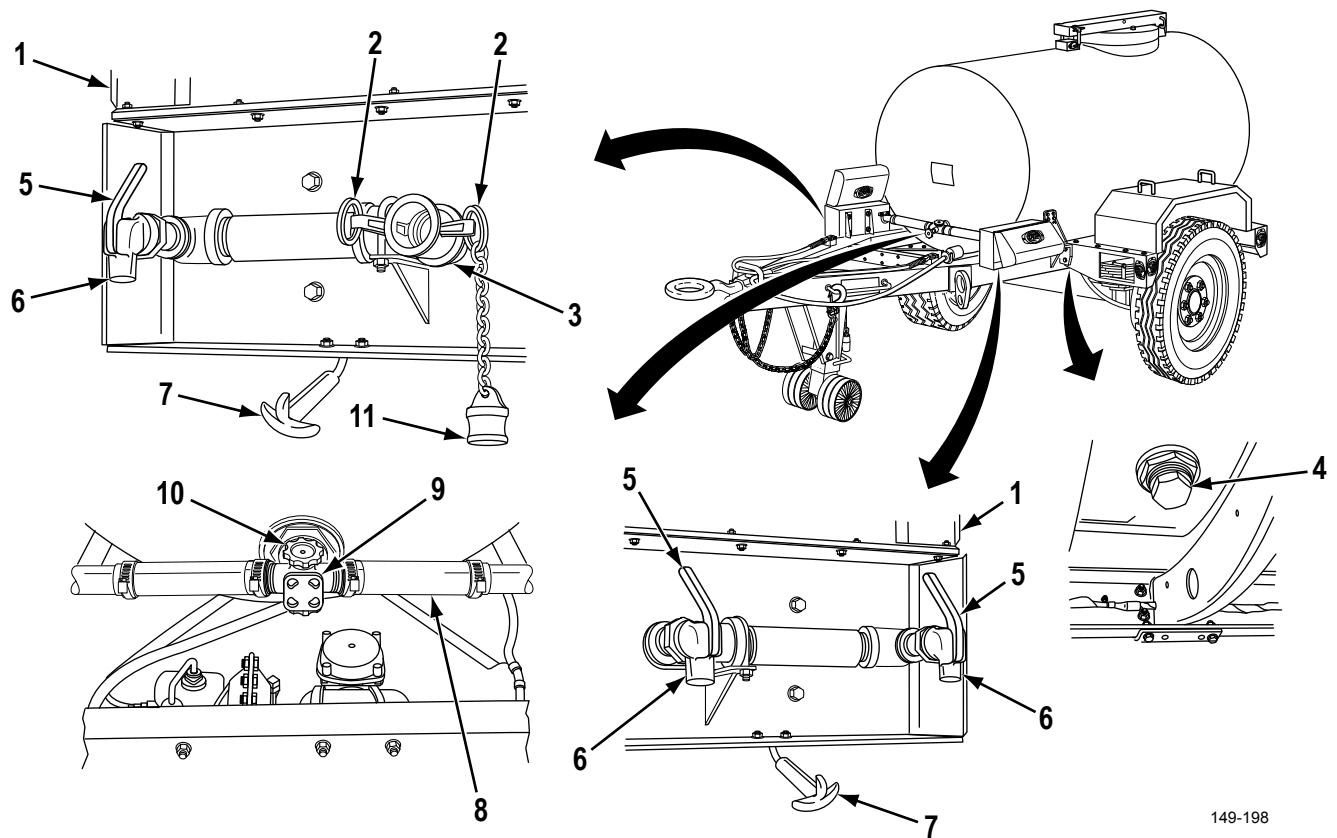
Configuration of the manifold valves may be different between trailers. Some may have two handles, some may only have one.

1. Close manifold valve (Figure 6, Items 9 and 10).
2. Press down on levers (Figure 6, Item 5) and drain remaining water from piping (Figure 6, Item 8).
3. Remove drain plug (Figure 6, Item 4) and drain liquid from water tank.
4. Install drain plug (Figure 6, Item 4).

END OF TASK**DISPENSING CONSUMABLE LIQUIDS FROM FORWARD FAUCETS**

1. Pull out and release fasteners (Figure 6, Item 7) and lift faucet box covers (Figure 6, Item 1) until open.
2. Open manifold valve (Figure 6, Items 9 and 10) to release liquid to faucets (Figure 6, Item 6).
3. Press down on levers (Figure 6, Item 5) to allow liquid to flow from faucets (Figure 6, Item 6). Release levers to stop liquid flow.
4. Water tanks are equipped with a quick-disconnect coupling (Figure 6, Item 3). To use, pull out coupling rings (Figure 6, Item 2) and remove dust plug (Figure 6, Item 11).

DISPENSING CONSUMABLE LIQUIDS FROM FORWARD FAUCETS - Continued



149-198

Figure 6. Draining Tank and Dispensing Water (New Configuration).

END OF TASK**END OF WORK PACKAGE**

OPERATOR MAINTENANCE OPERATION UNDER UNUSUAL CONDITIONS

INITIAL SETUP:

References

ATP 4-11
SF Form 368
TC 21-305-20
TM 4-33.31
TM 10-4130-237-14

References (cont.)

TM 10-4130-237-24P
TM 10-4130-239-14
TM 10-4130-239-24P
WP 0061
WP 0080

GENERAL

This Work Package (WP) contains instructions for safely operating the trailer under unusual conditions.

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

For instructions on driver selection, training, and supervision and special driving instructions for operation under unusual conditions, refer to ATP 4-11 and TC 21-305-20.

When chronic failure of the M149A2 trailer results from exposure to extreme conditions, report the condition on SF Form 368.

OPERATION IN EXTREME COLD

CAUTION

To ensure that water tank trailer is not damaged, approved practices and precautions must be followed. For general cold weather information applicable to water tank trailers, refer to TM 4-33.31 and TC 21-305-20. Failure to comply may result in damage to, or destruction of, equipment or mission.

1. Extensive preparation of materials scheduled for operation in cold is necessary, refer to TM 4-33.31 and TC 21-305-20.
2. For proper lubrication during extreme cold weather (WP 0080).

OPERATION IN EXTREME COLD - Continued**CAUTION**

Exercise care when removing accumulations of ice, mud, and snow from trailer and water tank. This is especially true in extreme cold. Failure to comply may result in damage to, or destruction of, equipment or mission.

3. To prevent damage to water tank trailer in extreme cold, use the following procedures:
 - a. In areas where temperatures fall below 32°F (0°C), the manhole cover should be kept tightly closed.
 - b. After each use, drain piping. Close manifold valve and then depress faucet lever to drain water from piping.
 - c. Use self-draining rear faucet to dispense water when the temperature is below freezing. Open by turning counterclockwise. Close by turning clockwise.
 - d. If the temperature is expected to fall below 0°F (-18°C), the trailer should be placed in a shelter if possible.

END OF TASK**OPERATION IN EXTREME HEAT**

1. The use of small mobile water chillers will help keep the water at a cooler temperature. The maintenance and parts manuals for the chillers are TM 10-4130-237-14, TM 10-4130-239-14, TM 10-4130-237-24P, and TM 10-4130-239-24P.
2. Adequate lubrication is essential. Extreme heat will cause oil films to dissipate. For proper lubrication during extreme heat conditions (WP 0080).
3. Keep tires covered from direct sunlight to prevent increased air pressure and deterioration of rubber.

END OF TASK**OPERATIONS IN HIGH HUMIDITY AND SALT WATER AREAS**

1. Moist and salty areas can destroy rust preventative qualities of oils and greases. When equipment is active, exposed surfaces should be cleaned and lubricated daily. For proper lubrication in high humidity and salt water areas (WP 0080).
2. When equipment is inactive, unpainted parts should be coated with lubrication oil. All covers and caps should be in place.

END OF TASK**OPERATION IN MUD AND SNOW**

1. Immediately after operation, in mud or snow, thoroughly clean, inspect, and lubricate if tactical situation permits. For proper lubrication instructions (WP 0080).
2. Pack wheel bearings as required (WP 0061).
3. For special instructions on driving hazards in snow, refer to TC 21-305-20.

END OF TASK

OPERATION IN DUSTY OR SANDY AREAS

1. Inspect, clean, and lubricate frequently when operating in dusty or sandy areas. For proper lubrication instructions (WP 0080).
2. 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.
3. When beginning operations in dusty or sandy areas, remove lubricants from exposed components such as landing leg, 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.

END OF TASK**FORDING**

1. Prime Mover instructions for fording operations also apply to trailer.
2. Fording depth of trailer is limited to depth of 33 in. (84 cm).
3. After fording operations, perform following services as soon as tactical situation permits:
 - a. Remove wheel and tire assemblies and clean them thoroughly.
 - b. Lubricate in accordance with (WP 0080).

END OF TASK**END OF WORK PACKAGE**

CHAPTER 3

TROUBLESHOOTING PROCEDURES

FIELD MAINTENANCE TROUBLESHOOTING INTRODUCTION

GENERAL

1. This chapter provides information for identifying and correcting malfunctions that you may find while operating the M149A2 trailer. Both operator and field troubleshooting are included in this chapter.
2. The Troubleshooting Index (WP 0008) lists common malfunctions that may occur and refers to the proper page in (WP 0009) through (WP 0034) for a troubleshooting procedure.
3. If unaware of the location of an item mentioned in troubleshooting, refer to (WP 0002) or (WP 0004).
4. Before performing troubleshooting, read and follow all safety instructions found in the Warning Summary at the front of this manual.
5. This chapter 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 Supervisor.
6. When troubleshooting a malfunction:
 - a. Locate the symptom or symptoms in (WP 0008) that best describes the malfunction. If the appropriate symptom is not listed, notify Supervisor.
 - b. Turn to the page where the troubleshooting procedures for the malfunction in question are described. Headings at the top of each page show how each troubleshooting procedure is organized: **Symptom**, **Malfunction**, and **Corrective Action**.
 - c. Perform each step in the order listed until the malfunction is corrected and the item being inspected is operational. DO NOT perform any maintenance task unless the troubleshooting procedure tells you to do so.

EXPLANATION OF COLUMNS

The columns in (WP 0009) through (WP 0034) are defined as follows:

1. **SYMPTOM.** A visual or operational indication that something is wrong with the equipment.
2. **MALFUNCTION.** Equipment defect that may cause the symptom.
3. **CORRECTIVE ACTION.** A procedure to correct the problem.

END OF WORK PACKAGE

TROUBLESHOOTING INDEX

<u>Malfunction/Symptom</u>	<u>Troubleshooting Procedure</u>
OPERATOR	
1. ALL LAMPS FAIL TO LIGHT	WP 0009
2. ONE STOPLIGHT LAMP OR TAILLIGHT LAMP DOES NOT LIGHT	WP 0010
3. BRAKES DRAG WHEN TRAILER IS TOWED	WP 0011
4. BRAKES ARE LOCKED; WHEELS WILL NOT TURN	WP 0012
5. BRAKES WILL NOT HOLD WHEN SERVICE BRAKES ARE APPLIED	WP 0013
6. AIR IS LEAKING WHEN INTERVEHICULAR AIR HOSES ARE CONNECTED	WP 0014
7. FLUID IS LEAKING AROUND MASTER CYLINDER OR WHEEL CYLINDER	WP 0015
8. JERKING ACTION IN TRAILER WHEN SERVICE BRAKES ARE APPLIED	WP 0016
9. TRAILER SERVICE BRAKES LOCK UP WHEN PRIME MOVER BRAKES ARE APPLIED	WP 0017
10. WHEELS WOBBLE DURING MOVEMENT	WP 0018
11. TIRES WEARING UNEVENLY	WP 0019
12. FRAME ASSEMBLY COMPONENTS BROKEN OR DAMAGED	WP 0020
13. LEAKS ARE FOUND AROUND WATER TANK FITTINGS OR WELD JOINTS	WP 0021
FIELD	
14. ALL LAMPS FAIL TO LIGHT	WP 0022
15. BLACKOUT STOPLIGHT WILL NOT LIGHT	WP 0023
16. LIGHT ASSEMBLY WILL NOT LIGHT	WP 0024
17. LIGHTS ARE DIM OR FLICKERING	WP 0025
18. ROADSIDE OR CURBSIDE BLACKOUT MARKER LIGHT WILL NOT LIGHT	WP 0026
19. ROADSIDE OR CURBSIDE LIGHT ASSEMBLY WILL NOT LIGHT	WP 0027
20. SERVICE BRAKES ARE WEAK	WP 0028
21. SERVICE BRAKES ARE LOCKED	WP 0029
22. HANDBRAKES DRAG WHEN TRAILER IS MOVED	WP 0030
23. HANDBRAKES WILL NOT HOLD WHEN APPLIED	WP 0031

- Continued

<u>Malfunction/Symptom</u>	<u>Troubleshooting Procedure</u>
24. SERVICE BRAKES ARE DRAGGING, UNEVEN, OR GRABBING (BRAKE DRUMS RUNNING HOT)	WP 0032
25. TIRES ARE CUPPED OR WEARING UNEVENLY	WP 0033
26. NO SPRING ACTION IN SUSPENSION	WP 0034

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ALL LAMPS/LEDS FAIL TO LIGHT**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

ALL LAMPS/LEDS FAIL TO LIGHT

MALFUNCTION

INTERVEHICULAR CABLE IS NOT PROPERLY CONNECTED OR SECURED

CORRECTIVE ACTION

Remove, then insert intervehicular cable plug to ensure a good connection.

- a. Verify problem is solved.
- b. If lamps/LEDs still fail to light, notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
ONE STOPLIGHT LAMP OR TAILLIGHT LAMP DOES NOT LIGHT**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

ONE STOPLIGHT LAMP OR TAILLIGHT LAMP DOES NOT LIGHT

MALFUNCTION

LOOSE PLUG CONNECTORS AT AFFECTED LIGHT

CORRECTIVE ACTION

Connect loose plug connectors.

- a. Verify problem is solved.
- b. If stoplight lamp or taillight lamp still do not light, notify Field Maintenance.

MALFUNCTION

BURNED OUT, DAMAGED, OR DEFECTIVE LAMPS/LEDS

CORRECTIVE ACTION

Notify Field Maintenance.

MALFUNCTION

BROKEN WIRES OR LOOSE CONNECTIONS

CORRECTIVE ACTION

Notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
BRAKES DRAG WHEN TRAILER IS TOWED**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

BRAKES DRAG WHEN TRAILER IS TOWED

MALFUNCTION

HANDBRAKE LEVERS ARE ENGAGED

CORRECTIVE ACTION

Disengage handbrake levers.

- a. Verify problem is solved.
- b. If brakes still drag, notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
BRAKES ARE LOCKED; WHEELS WILL NOT TURN**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

BRAKES ARE LOCKED; WHEELS WILL NOT TURN

MALFUNCTION

CLOSED AIR VALVE ON PRIME MOVER

CORRECTIVE ACTION

1. Open air valve. Refer to Prime Mover operator's instructions.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR AIR HOSES ARE NOT CONNECTED TO THE CORRECT AIR COUPLINGS

CORRECTIVE ACTION

1. Connect intervehicular air hoses to proper Prime Mover air couplings.
2. Verify problem is solved.

MALFUNCTION

NO AIR IN THE AIR RESERVOIR

CORRECTIVE ACTION

1. Close valve from air reservoir.
2. Verify problem is solved.
3. If brakes are still locked, notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
BRAKES WILL NOT HOLD WHEN SERVICE BRAKES ARE APPLIED**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

BRAKES WILL NOT HOLD WHEN SERVICE BRAKES ARE APPLIED

MALFUNCTION

HYDRAULIC BRAKE FLUID LOW

CORRECTIVE ACTION

Notify Field Maintenance.

MALFUNCTION

PRIME MOVER AIR VALVES ARE CLOSED

CORRECTIVE ACTION

1. Open Prime Mover air valves.
2. Verify problem is solved.
3. If brakes still will not hold, notify Field Maintenance.

MALFUNCTION

BRAKE SHOES ARE SATURATED WITH HYDRAULIC BRAKE FLUID

CORRECTIVE ACTION

Notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
AIR IS LEAKING WHEN INTERVEHICULAR AIR HOSES ARE CONNECTED**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

AIR IS LEAKING WHEN INTERVEHICULAR AIR HOSES ARE CONNECTED

MALFUNCTION

AIR HOSES OR SEALS ARE DAMAGED

CORRECTIVE ACTION

Notify Field Maintenance.

END OF WORK PACKAGE

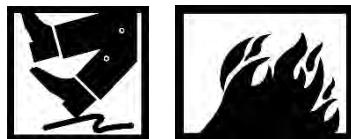
**OPERATOR MAINTENANCE
FLUID IS LEAKING AROUND MASTER CYLINDER OR WHEEL CYLINDER**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

WARNING



Use a drain pan or appropriate containment equipment to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Immediately clean up spilled fluid before proceeding with any task. Comply with local regulations when disposing of clean up material and leaked and spilled fluids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

TROUBLESHOOTING PROCEDURE

SYMPTOM

FLUID IS LEAKING AROUND MASTER CYLINDER OR WHEEL CYLINDER

MALFUNCTION

SEALS, LINES, OR EQUIPMENT ARE DAMAGED

CORRECTIVE ACTION

Notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
JERKING ACTION IN TRAILER WHEN SERVICE BRAKES ARE APPLIED**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

JERKING ACTION IN TRAILER WHEN SERVICE BRAKES ARE APPLIED

MALFUNCTION

BRAKE SHOES OR DRUMS ARE DAMAGED

CORRECTIVE ACTION

Notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
TRAILER SERVICE BRAKES LOCK UP WHEN PRIME MOVER BRAKES ARE APPLIED**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

TRAILER SERVICE BRAKES LOCK UP WHEN PRIME MOVER BRAKES ARE APPLIED

MALFUNCTION

SATURATED BRAKE SHOES OR DAMAGED MASTER CYLINDER

CORRECTIVE ACTION

Notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
WHEELS WOBBLE DURING MOVEMENT**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

WHEELS WOBBLE DURING MOVEMENT

MALFUNCTION

WHEEL LUG NUTS OR BEARINGS ARE LOOSE OR DAMAGED

CORRECTIVE ACTION

1. Tighten wheel lug nuts. Notify Field Maintenance to apply proper torque.
2. If wheels still wobble, notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
TIRES WEARING UNEVENLY**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

TIRES WEARING UNEVENLY

MALFUNCTION

TIRES NOT INFLATED PROPERLY

CORRECTIVE ACTION

1. Inflate tires to 70 psi (483 kPa).
2. Verify problem is solved.
3. If tires are still wearing unevenly, notify Field Maintenance.

MALFUNCTION

WHEEL NUTS ARE NOT TIGHT

CORRECTIVE ACTION

1. Tighten wheel nuts. Notify Field Maintenance to apply proper torque.
2. Verify problem is solved.
3. If tires are still wearing unevenly, notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
FRAME ASSEMBLY COMPONENTS BROKEN OR DAMAGED**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

FRAME ASSEMBLY COMPONENTS BROKEN OR DAMAGED

MALFUNCTION

BROKEN OR DAMAGED HARDWARE OR BRACKETS

CORRECTIVE ACTION

Notify Field Maintenance.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
LEAKS ARE FOUND AROUND WATER TANK FITTINGS OR WELD JOINTS**

INITIAL SETUP:

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

LEAKS ARE FOUND AROUND WATER TANK FITTINGS OR WELD JOINTS

MALFUNCTION

DAMAGED WATER TANK FITTINGS OR WELD JOINTS

CORRECTIVE ACTION

Notify Field Maintenance.

END OF WORK PACKAGE

**FIELD MAINTENANCE
ALL LAMPS FAIL TO LIGHT**

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition
Trailer coupled (WP 0005)

References

WP 0082

TROUBLESHOOTING PROCEDURE**NOTE**

For routing of electrical wires and location of electrical components, refer to wiring diagram (WP 0082).

SYMPTOM

ALL LAMPS FAIL TO LIGHT

MALFUNCTION

INTERVEHICULAR CABLE LOOSE

CORRECTIVE ACTION

1. If intervehicular cable is not connected or loose, plug intervehicular cable to Prime Mover.
2. If connections are dirty or corroded, clean connections.
3. Verify problem is solved.

MALFUNCTION

IMPROPER VOLTAGE FROM PRIME MOVER

CORRECTIVE ACTION

1. Using Prime Mover technical maintenance manual, troubleshoot Prime Mover electrical system to ensure that correct voltage is present in Prime Mover socket.
2. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
BLACKOUT STOPLIGHT WILL NOT LIGHT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References (cont.)

WP 0045
WP 0046
WP 0082

References

WP 0043
WP 0044

Equipment Condition

Intervehicular cable disconnected (WP 0005)

TROUBLESHOOTING PROCEDURE**NOTE**

For routing of electrical wires and location of electrical components, refer to wiring diagram (WP 0082).

SYMPTOM

BLACKOUT STOPLIGHT WILL NOT LIGHT

MALFUNCTION

IMPROPER VOLTAGE FROM PRIME MOVER

CORRECTIVE ACTION

1. Using Prime Mover technical maintenance manual, troubleshoot Prime Mover electrical system to ensure that correct voltage is present in Prime Mover socket.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR CABLE IS CORRODED, FRAYED, OR CUT

CORRECTIVE ACTION

1. Clean all intervehicular cable contact pins.
2. Verify problem is solved.

MALFUNCTION

BLACKOUT STOPLIGHT IS BROKEN, MISSING BULBS, DAMAGED WIRES OR TERMINALS, AND/OR CORRODED

CORRECTIVE ACTION

1. Replace broken or missing light bulbs (WP 0043).
2. Verify problem is solved.
3. Repair or replace damaged wires or terminals (WP 0046).
4. Clean corrosion as necessary.

MALFUNCTION

INCORRECT VOLTAGE IN LIGHT ASSEMBLY

CORRECTIVE ACTION

1. Using multimeter, check for 24 volts by placing red lead in light bulb socket and black lead to ground.
 - a. If 24 volts are not present, go to Step 2.
 - b. If 24 volts are present, install new light bulb.
 - c. Verify problem is solved.
2. Using multimeter, check for 24 volts by disconnecting wire 23 from blackout stoplight and placing red lead in wire 23 and black lead to ground (WP 0082).
 - a. If 24 volts are not present, go to MALFUNCTION: INCORRECT VOLTAGE AT INTERVEHICULAR CABLE.
 - b. If 24 volts are present, connect wire 23 and go to MALFUNCTION: IMPROPER GROUND AT MOUNTING SURFACE.

MALFUNCTION

INCORRECT VOLTAGE AT INTERVEHICULAR CABLE

CORRECTIVE ACTION

Disconnect wire 23 from intervehicular cable. Using multimeter, check for 24 volts by placing the red lead in intervehicular cable wire 23 and black lead to ground (WP 0082).

- a. If 24 volts are present, replace chassis wiring harness (WP 0045).
- b. If 24 volts are not present, replace intervehicular cable (WP 0044).

MALFUNCTION

IMPROPER GROUND AT MOUNTING SURFACE

CORRECTIVE ACTION

Remove light assembly (WP 0043) and check mounting surface for dirt, debris, and corrosion.

- a. Clean mounting surface as required and install light assembly.
- b. If blackout stoplight does not light, replace light assembly.
- c. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
LIGHT ASSEMBLY WILL NOT LIGHT**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References (cont.)

WP 0045
WP 0046
WP 0082

References

WP 0043
WP 0044

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

LIGHT ASSEMBLY WILL NOT LIGHT

MALFUNCTION

IMPROPER VOLTAGE FROM PRIME MOVER

CORRECTIVE ACTION

1. Using Prime Mover technical maintenance manual, troubleshoot Prime Mover electrical system to ensure that correct voltage is present in Prime Mover socket.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR CABLE CONNECTOR PINS CORRODED

CORRECTIVE ACTION

1. Clean all intervehicular cable connector pins.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR CABLE DAMAGED

CORRECTIVE ACTION

1. Replace intervehicular cable (WP 0044).
2. Verify problem is solved.

MALFUNCTION

LAMPS OR LEDS INOPERATIVE

CORRECTIVE ACTION

1. Replace lamps and LEDs that do not light (WP 0043).
2. Verify problem is solved.

MALFUNCTION

BROKEN OR DAMAGED WIRES

CORRECTIVE ACTION

1. Repair all broken or damaged wires (WP 0046).
2. Verify problem is solved.

MALFUNCTION

INCORRECT VOLTAGE IN LIGHT ASSEMBLY

CORRECTIVE ACTION

1. Using multimeter, check for 24 volts by placing red lead in light bulb socket and black lead to ground.
 - a. If 24 volts are not present, go to Step 2.
 - b. If 24 volts are present, install new light bulb.
 - c. Verify problem is solved.
2. Using multimeter, check for 24 volts by disconnecting wire 489 from blackout stoplight and placing red lead in wire 489 and black lead to ground (WP 0082).
 - a. If 24 volts are not present, go to MALFUNCTION: INCORRECT VOLTAGE AT INTERVEHICULAR CABLE.
 - b. If 24 volts are present, connect wire 23 and go to MALFUNCTION: IMPROPER GROUND AT MOUNTING SURFACE.

MALFUNCTION

INCORRECT VOLTAGE AT INTERVEHICULAR CABLE

CORRECTIVE ACTION

- Disconnect wire 489 from intervehicular cable. Using multimeter, check for 24 volts by placing the red lead in intervehicular cable wire 489 and black lead to ground (WP 0082).
- a. If 24 volts are present, replace chassis wiring harness (WP 0045).
 - b. If 24 volts are not present, replace intervehicular cable (WP 0044).

MALFUNCTION

IMPROPER GROUND AT MOUNTING SURFACE

CORRECTIVE ACTION

Remove light assembly (WP 0043) and check mounting surface for dirt, debris, and corrosion.

- a. Clean mounting surface as required and install light assembly.
- b. If blackout stoplight does not light, replace light assembly.
- c. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
LIGHTS ARE DIM OR FLICKERING**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition

Wheels chocked (WP 0005)

References

WP 0044
WP 0082

TROUBLESHOOTING PROCEDURE**NOTE**

For routing of electrical wires and location of electrical components, refer to wiring diagram (WP 0082).

SYMPTOM

LIGHTS ARE DIM OR FLICKERING

MALFUNCTION

INTERVEHICULAR CABLE LOOSE, DIRTY OR CORRODED CONTACT PINS

CORRECTIVE ACTION

1. Secure intervehicular cable plug on Prime Mover.
2. Verify problem is solved.
3. Clean connections.
4. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR CABLE HAS A POOR GROUND

CORRECTIVE ACTION

1. Remove intervehicular ground terminal and clean.
2. Check intervehicular cable ground wire terminal for damage.
3. Replace terminal if needed (WP 0044).
4. Verify problem is solved.
5. Ensure intervehicular cable is secured to Prime Mover socket.
6. Replace intervehicular cable if needed (WP 0044).
7. Verify problem is solved.

END OF WORK PACKAGE

FIELD MAINTENANCE
CURBSIDE OR ROADSIDE BLACKOUT MARKER LIGHT WILL NOT LIGHT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References (cont.)

WP 0046
WP 0082

References

WP 0043
WP 0044

Equipment Condition

Intervehicular cable disconnected (WP 0005)

TROUBLESHOOTING PROCEDURE**NOTE**

For routing of electrical wires and location of electrical components, refer to wiring diagram (WP 0082).

SYMPTOM

RIGHT OR LEFT BLACKOUT MARKER LIGHT WILL NOT LIGHT

MALFUNCTION

IMPROPER VOLTAGE FROM PRIME MOVER

CORRECTIVE ACTION

1. Using Prime Mover technical maintenance manual, troubleshoot Prime Mover electrical system to ensure that correct voltage is present in Prime Mover socket.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR CABLE CONNECTOR PINS CORRODED

CORRECTIVE ACTION

1. Clean all intervehicular cable connector pins.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR CABLE DAMAGED

CORRECTIVE ACTION

1. Replace intervehicular cable (WP 0044).
2. Verify problem is solved.

MALFUNCTION

LAMPS OR LEDS INOPERATIVE

CORRECTIVE ACTION

1. Replace lamps and LEDs that do not light (WP 0043).
2. Verify problem is solved.

MALFUNCTION

BROKEN OR DAMAGED WIRES

CORRECTIVE ACTION

1. Repair all broken or damaged wires (WP 0046).
2. Verify problem is solved.

MALFUNCTION

INOPERATIVE LIGHT ASSEMBLY

CORRECTIVE ACTION

1. Replace light assembly (WP 0043).
2. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
ROADSIDE OR CURBSIDE LIGHT ASSEMBLY WILL NOT LIGHT**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References (cont.)

WP 0046
WP 0082

References

WP 0043
WP 0044

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

NOTE

For routing of electrical wires and location of electrical components, refer to wiring diagram (WP 0082).

SYMPTOM

ROADSIDE OR CURBSIDE LIGHT ASSEMBLY WILL NOT LIGHT

MALFUNCTION

IMPROPER VOLTAGE FROM PRIME MOVER

CORRECTIVE ACTION

1. Using Prime Mover technical maintenance manual, troubleshoot Prime Mover electrical system to ensure that correct voltage is present in Prime Mover socket.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR CABLE CONNECTOR PINS CORRODED

CORRECTIVE ACTION

1. Clean all intervehicular cable connector pins.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR CABLE DAMAGED

CORRECTIVE ACTION

1. Replace intervehicular cable (WP 0044).
2. Verify problem is solved.

MALFUNCTION

LAMPS OR LEDS INOPERATIVE

CORRECTIVE ACTION

1. Replace lamps and LEDs that do not light (WP 0043).
2. Verify problem is solved.

MALFUNCTION

BROKEN OR DAMAGED WIRES

CORRECTIVE ACTION

1. Repair all broken or damaged wires (WP 0046).
2. Verify problem is solved.

MALFUNCTION

INOPERATIVE LIGHT ASSEMBLY

CORRECTIVE ACTION

1. Replace light assembly (WP 0043).
2. Verify problem is solved.

END OF WORK PACKAGE

FIELD MAINTENANCE BRAKES ARE WEAK

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References (cont.)

WP 0054
WP 0055
WP 0058

Materials/Parts

Brake Fluid (WP 0118, Table 1, Item 4)

Equipment Condition

Trailer coupled (WP 0005)

References

WP 0050

TROUBLESHOOTING PROCEDURE

WARNING



Hardware within the brake system is pressurized, ensure proper eye protection is worn before inspecting or performing maintenance procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.

SYMPTOM

BRAKES ARE WEAK

MALFUNCTION

INTERVEHICULAR AIR HOSES LEAK

CORRECTIVE ACTION

1. Replace intervehicular air hoses (WP 0055).
2. Verify problem is solved.

MALFUNCTION

LOW HYDRAULIC BRAKE FLUID LEVEL LOW

CORRECTIVE ACTION

1. Add hydraulic brake fluid and bleed brake system (WP 0054).
2. Verify problem is solved.

MALFUNCTION

WORN OR CONTAMINATED BRAKE SHOE LININGS

CORRECTIVE ACTION

1. Replace or adjust brake shoes (WP 0050).
2. Verify problem is solved.

MALFUNCTION

AIR BRAKE CHAMBER PUSHROD OUT OF ADJUSTMENT

CORRECTIVE ACTION

1. Perform pushrod travel test (WP 0058).
2. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
BRAKE SHOES ARE LOCKED**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition

Trailer coupled (WP 0005)

References

WP 0050
WP 0055

TROUBLESHOOTING PROCEDURE**WARNING**

- Hardware within the brake system is pressurized, ensure proper eye protection is worn before inspecting or performing maintenance procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Do not handle brake shoes, brake drums, or other brake components unless area has been properly cleaned. There may be hazardous dust on these components which can be dangerous if you touch it or breathe it. Wear approved eye protection 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 comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.

SYMPTOM

BRAKE SHOES ARE LOCKED

MALFUNCTION

PARKING BRAKES ARE APPLIED

CORRECTIVE ACTION**NOTE**

This trailer has two handbrake levers.

1. Disengage both handbrake levers (WP 0005).
2. Verify problem is solved.

MALFUNCTION

PRIME MOVER AIR VALVES ARE OFF

CORRECTIVE ACTION

1. Turn on Prime Mover air valves as directed in Prime Mover technical manual.
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR HOSES ARE IMPROPERLY CONNECTED

CORRECTIVE ACTION

1. Connect the correct intervehicular air hose to Prime Mover port (WP 0005).
2. Verify problem is solved.

MALFUNCTION

INTERVEHICULAR AIR HOSES LEAK

CORRECTIVE ACTION

1. Replace intervehicular air hoses or preformed packing (WP 0055).
2. Verify problem is solved.

MALFUNCTION

WEAK OR BROKEN BRAKE SHOE RETURN SPRINGS

CORRECTIVE ACTION

1. Replace weak or broken brake shoe return springs (WP 0050).
2. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
HANDBRAKES DRAG WHEN TRAILER IS MOVED**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References (cont.)

WP 0049
WP 0050

References

WP 0038

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE

SYMPTOM

HANDBRAKES DRAG WHEN TRAILER IS MOVED

MALFUNCTION

HANDBRAKE LEVER NOT ADJUSTED

CORRECTIVE ACTION

1. Adjust handbrake lever (WP 0038).
2. Verify problem is solved.

MALFUNCTION

BRAKE SHOE RETURN SPRINGS IMPROPERLY INSTALLED OR BROKEN

CORRECTIVE ACTION

1. Correctly install or replace brake shoe return springs (WP 0050).
2. Verify problem is solved.

MALFUNCTION

HANDBRAKE CABLE BINDING

CORRECTIVE ACTION

1. Replace handbrake cable (WP 0049).
2. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
HANDBRAKE WILL NOT HOLD WHEN APPLIED**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References (cont.)

WP 0049
WP 0050

References

WP 0038

Equipment Condition

Trailer coupled (WP 0005)

TROUBLESHOOTING PROCEDURE**SYMPTOM**

HANDBRAKE WILL NOT HOLD WHEN APPLIED

MALFUNCTION

HANDBRAKE LEVER NOT ADJUSTED

CORRECTIVE ACTION

1. Adjust handbrake lever (WP 0038).
2. Verify problem is solved.

MALFUNCTION

HANDBRAKE CABLE BINDING OR BROKEN

CORRECTIVE ACTION

1. Replace handbrake cable (WP 0049).
2. Verify problem is solved.

MALFUNCTION

BRAKE SHOE HARDWARE MISSING OR DAMAGED

CORRECTIVE ACTION

1. Replace missing or damaged brake shoe hardware (WP 0050).
2. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
SERVICE BRAKES ARE DRAGGING, UNEVEN, OR GRABBING
(ONE OR BOTH BRAKE DRUMS RUNNING HOT)**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition

Trailer coupled (WP 0005)

References

WP 0050
WP 0061

TROUBLESHOOTING PROCEDURE

SYMPTOM

SERVICE BRAKES ARE DRAGGING, UNEVEN, OR GRABBING (ONE OR BOTH BRAKE DRUMS RUNNING HOT)

MALFUNCTION

BRAKE SHOES ARE NOT ADJUSTED PROPERLY

CORRECTIVE ACTION

1. Adjust brake shoes (WP 0050).
2. Verify problem is solved.

MALFUNCTION

BRAKE DRUMS ARE CRACKED, SCORED, OR DEFORMED

CORRECTIVE ACTION

1. Replace brake drums (WP 0061).
2. Verify problem is solved.

MALFUNCTION

WHEEL BEARINGS ARE LOOSE

CORRECTIVE ACTION

1. Adjust wheel bearings (WP 0061).
2. Verify problem is solved.

MALFUNCTION

LOOSE OR WORN BRAKE SHOES

CORRECTIVE ACTION

1. Replace brake shoes (WP 0050).
2. Verify problem is solved.

END OF WORK PACKAGE

FIELD MAINTENANCE
TIRES ARE CUPPED OR WEARING UNEVENLY

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Wrench, Torque (WP 0119, Table 1, Item 9)

Equipment Condition

Trailer coupled (WP 0005)

References

WP 0039
WP 0061

TROUBLESHOOTING PROCEDURE**SYMPTOM**

TIRES ARE CUPPED OR WEARING UNEVENLY

MALFUNCTION

TIRES ARE NOT INFLATED PROPERLY

CORRECTIVE ACTION

1. Adjust tire pressure to 70 psi (483 kPa).
2. Verify problem is solved.

MALFUNCTION

WHEEL NUTS ARE LOOSE

CORRECTIVE ACTION

1. Torque wheel nuts to 340-370 lb ft (461-502 N·m).
2. Verify problem is solved.

MALFUNCTION

WHEEL BEARINGS ARE LOOSE

CORRECTIVE ACTION

1. Adjust wheel bearings (WP 0061).
2. Verify problem is solved.

MALFUNCTION

WHEEL BENT

CORRECTIVE ACTION

1. Replace wheel and tire assembly (WP 0039).
2. Verify problem is solved.

END OF WORK PACKAGE

**FIELD MAINTENANCE
NO SPRING ACTION IN SUSPENSION**

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition
Trailer coupled (WP 0005)

References

WP 0068

TROUBLESHOOTING PROCEDURE**SYMPTOM**

NO SPRING ACTION IN SUSPENSION

MALFUNCTION

SPRING BROKEN

CORRECTIVE ACTION

1. Replace spring (WP 0068).
2. Verify problem is solved.

MALFUNCTION

SPRING HARDWARE MISSING OR BROKEN

CORRECTIVE ACTION

1. Replace missing or broken spring hardware (WP 0068).
2. Verify problem is solved.

END OF WORK PACKAGE

CHAPTER 4

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

GENERAL

To ensure that the M149A2 400 Gallon Water Trailer is ready for operation at all times, it must be inspected on a regular basis so that defects may be found and corrected before they result in injury, damage, or equipment failure.

This section contains systematic instructions on inspections, adjustments, lubrications, services, tests, and corrections to be performed by the Operator and personnel to keep the equipment in good operating condition and ready for its primary mission.

EXPLANATION OF TABLE ENTRIES

Item No. Column. Numbers in this column are for reference. When completing DA Form 2404/5988-E (Equipment Inspection and Maintenance Worksheet), include the item number for the check/service indicating a fault. Item numbers also appear in the order that you must perform checks and services for the interval listed.

NOTE

Before, During, After, and Weekly procedures are done in Operator PMCS, (WP 0036).
Semiannual and Annual are done in Field PMCS, (WP 0037).

Interval Column. This column tells you when you must perform the procedure in the Procedure column:

- a. *Before* procedures must be done immediately before operating trailer.
- b. *During* procedures must be done while operating trailer.
- c. *After* procedures must be done immediately after operating trailer.
- d. *Weekly* procedures must be done once each week.
- e. *Monthly* procedures must be done once a month.
- f. *Quarterly* procedures must be done four times a year.
- g. *Semiannual* procedures must be done twice a year.
- h. *Annual* procedures must be done once a year.

Item to Check/Service Column. This column lists the item to be checked or serviced.

NOTE

The WARNING and CAUTION headings appearing in your PMCS table should always be observed. WARNING and CAUTION headings appear before applicable procedures. You must observe these WARNING headings to prevent injury or death to yourself and others, and CAUTION headings to prevent your equipment from being damaged.

Procedure Column. This column gives the procedure you must perform to check or service the item listed in the Item to Check/Service column, to know if the equipment is ready or available for its intended mission. You must perform the procedure at the times stated in the interval column.

EXPLANATION OF TABLE ENTRIES - Continued

Equipment Not Ready/Available Column. Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you perform check/service procedures that show faults listed in this column, the equipment is not ready/available. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

GENERAL LUBRICATION PROCEDURES**NOTE**

For lubrication key, localized views, and procedural notes (WP 0080).

1. 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 Supervisor.
2. Keep all lubricants in a closed container and store in a clean, dry place away from extreme heat or cold. 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.
3. Maintain a good record of all lubrication performed and report any problems noted during lubrication. For maintenance forms and procedures to record and report any findings, refer to DA PAM 750-8.
4. Keep all external parts of equipment not requiring lubrication free of lubricants. Before lubrication, wipe lubrication fittings with a dry clean rag. After lubrication, wipe off excess oil or grease to prevent accumulation of foreign matter.
5. For lubrication instructions in cold weather, refer to TM 4-33.31.
6. For use of standardized lubricants, refer to AR 70-12.

GENERAL PMCS PROCEDURES

1. Always perform PMCS in the same order so it gets to be a habit. Once you have had some practice, you will spot anything wrong in a hurry. If the equipment does not perform as required, refer to the appropriate troubleshooting procedure in Chapter 3.
2. If anything is seriously wrong and you cannot fix it, write it on your DA Form 2404/5988-E. If you find something seriously wrong, IMMEDIATELY report to Supervisor.
3. Before performing preventive maintenance, read all the checks required for the applicable interval and prepare all that is needed to make all the checks.

GENERAL PMCS PROCEDURES - Continued**WARNING**

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

GENERAL PMCS PROCEDURES - Continued**CAUTION**

Do not use high-pressure water or steam to clean trailer. Use only low-pressure water and bristled brushes. Be especially careful when cleaning electrical system components including lighting. Failure to comply may result in damage to, or destruction of, equipment or mission.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
-
- a. **Keep Equipment Clean.** Dirt, grease, oil, and debris get in the way and may cover up a serious problem. Clean as you work and as needed. Use solvent cleaning compound on all metal surfaces. Use detergent and water when you clean rubber, plastic, and painted surfaces. Spot paint as required to prevent corrosion.
 - b. **Bolts, Nuts, and Screws.** Ensure that they are not loose, missing, bent, or broken. Report loose, missing, or damaged bolts, nuts, and screws to Supervisor.
 - c. **Welds.** Look for loose or chipped paint, rust, or gaps where parts are welded together. Report bad welds to Supervisor.
 - d. **Electrical Wires and Connectors.** Look for cracked or broken insulation, bare wires, and loose or broken connectors. Report loose connectors and faulty wiring to Supervisor.
 - e. **Hoses, Lines, and Fittings.** Look for wear and damage. Check for loose clamps and fittings. Report any worn, damaged, or loose hoses, lines, and fittings to Supervisor.
 - f. **Fluid Leakage.** It is necessary for you to know how fluid leakage affects the status of your machine. The following definitions explain the types/classes of leakage you need to know to be able to determine the status of your machine. Learn and be familiar with them, and remember: when in doubt, notify Supervisor.

LEAKAGE DEFINITIONS**CAUTION**

Operation is allowed with Class I and Class II leakage. WHEN IN DOUBT, NOTIFY SUPERVISOR. When operating with Class I or Class II leaks, check fluid levels more frequently. Class III leaks must be reported immediately to Supervisor. Failure to comply may result in damage to, or destruction of, equipment or mission.

NOTE

Notify Supervisor of any leaks you cannot fix.

1. It is important to know how fluid leaks affect the status of the trailer. The following are definitions of the types/classes of leakage an operator must know to determine whether the trailer is mission capable. Learn these leakage definitions. When in doubt, notify Supervisor.
 - a. **Class I:** Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
 - b. **Class II:** Leakage of fluid great enough to form drops, but not enough to cause drops to drip from item being checked/serviced.
 - c. **Class III:** Leakage of fluid great enough to form drops that fall from the item being checked/serviced.
2. Equipment operation is allowed with minor (Class I or Class 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 Supervisor.
3. Report Class III leaks IMMEDIATELY to Supervisor.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) PROCEDURES**

INITIAL SETUP:**Tools and Special Tools**

Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

References

WP 0038
WP 0062

Materials/Parts

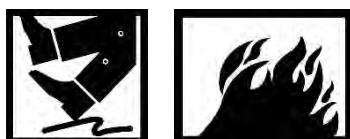
Brake Fluid (WP 0118, Table 1, Item 4)
Rag, Wiping (WP 0118, Table 1, Item 15)

Equipment Condition

Wheels chocked (WP 0005)
Trailer uncoupled (except during operator light checks) (WP 0005)

Personnel Required

Two

WARNING

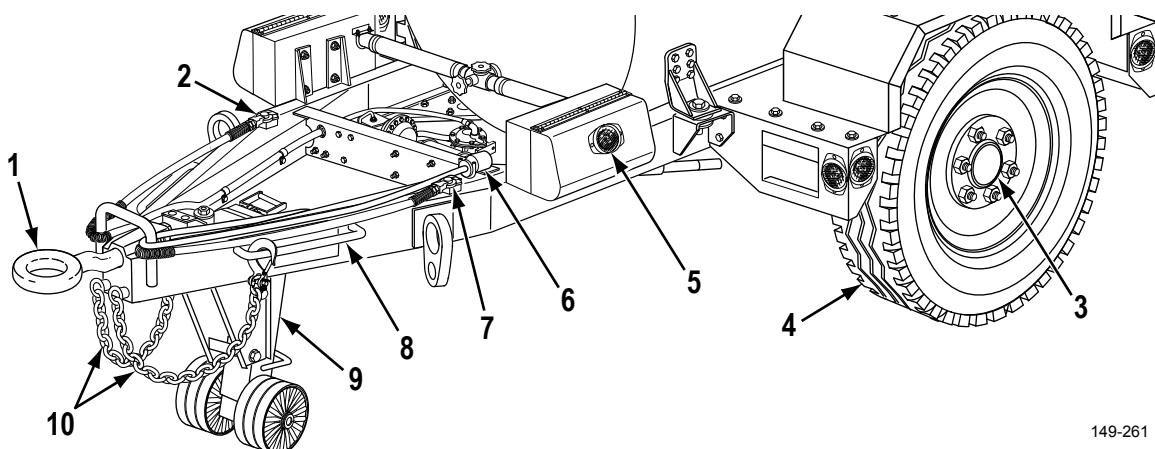
Use a drain pan or appropriate containment equipment to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Immediately clean up spilled fluid before proceeding with any task. Comply with local regulations when disposing of clean up material and leaked and spilled fluids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

Table 1. Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
			<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Review all WARNING, CAUTION, and NOTE headings before performing PMCS on the trailer assembly. • If you are operating the M149A2 trailer for the first time, perform your Weekly and Monthly PMCS the first time you do your Before PMCS. • Unless otherwise indicated, perform preventive maintenance and lubrication with the M149A2 trailer uncoupled from Prime Mover, parked on level ground, parking brakes applied, and wheels chocked. • Begin walk around inspection at the front roadside corner of the M149A2 trailer and work in a counterclockwise direction. 	

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
1	Before	Safety Chains	1. Verify safety chains (Figure 1, Item 10) are not damaged or missing.	Safety chains are missing or damaged.
2	Before	Intervehicular Cable	Verify intervehicular electrical cable (Figure 1, Item 6) is present and in good condition.	Intervehicular electrical cable is damaged or missing.
3	Before	Drawbar Ring	Check drawbar ring (Figure 1, Item 1) for cracks, breaks, or looseness.	Drawbar ring is loose, cracked, or broken. Mounting nut is missing or loose.
4	Before	Emergency Gladhands	Check for missing or damaged gladhands (Figure 1, Item 7).	Emergency gladhands is damaged or missing.
5	Before	Service Gladhands	Check for missing or damaged gladhands (Figure 1, Item 2).	Service gladhands is damaged or missing.
6	Before	Handles	Verify handles (Figure 1, Item 8) are not damaged, dirty, or missing.	



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Figure 1. Drawbar Ring Area.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
7	Before	Landing Leg Assembly	<p>1. Check landing leg assembly (Figure 1, Item 9) for proper mounting, alignment, damage, and missing parts.</p> <p style="text-align: center;">WARNING</p>  <p>Landing leg weighs 150 lbs (68 kg). Two people are required to lift landing leg. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.</p> <p>2. Verify landing leg assembly (Figure 1, Item 9) can be raised and lowered.</p>	Landing leg assembly does not function properly, damaged, not properly mounted, or missing parts.
8	Before	Reflectors	Check for damaged or missing reflectors (Figure 1, Item 5) and mounting hardware.	
9	Before	Wheel and Tire Assembly	<p>1. Verify wheel lug nuts (Figure 1, Item 3) are present, in good condition, and tight.</p> <p style="text-align: center;">WARNING</p>  <p>Tire may still be under pressure; wear eye protection when removing penetrating objects. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.</p> <p style="text-align: center;">NOTE</p> <p>Correct tire inflation is 70 psi (483 kPa).</p> <p>2. Inspect tire (Figure 1, Item 4) for cuts, gouges, cracks, bulges, and under inflation. Remove any penetrating objects from tire tread (WP 0062).</p>	Two or more lug nuts are missing. Tire is damaged, missing, or unserviceable.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
10	Before	Light Assemblies	<p style="text-align: center;">NOTE</p> <p>Water trailer must be coupled to Prime Mover before checking lights.</p> <p>Verify light assemblies (Figure 2, Item 1) illuminate properly, are securely mounted and in good condition.</p>	Damaged or not functioning properly.
11	Before	Brake System Air/Hydraulic	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Water trailer must be coupled to Prime Mover before checking brake system. • Chassis has a dual line air/hydraulic brake system. Both curbside and roadside must be inspected. <p>1. Check air lines (Figure 3, Item 1) and hydraulic lines and hoses (Figure 3, Item 5) for air leaks and hydraulic brake fluid leaks on or under trailer assembly (Figure 3, Item 6). If air is leaking or fluids are found, identify source of leak.</p> <p>2. Check master cylinder (Figure 3, Item 2), wheel cylinders (Figure 3, Item 4), air reservoir (Figure 3, Item 8), air filters (Figure 3, Item 9), emergency relay valve (Figure 3, Item 7), and air brake chamber (Figure 3, Item 3) for leaks, damage, or missing hardware and general condition.</p>	Air or hydraulic brake fluid leak. Air or hydraulic brake fluid leak. Damage that would impair operation.

Figure 2. Front Roadside and Rear View.

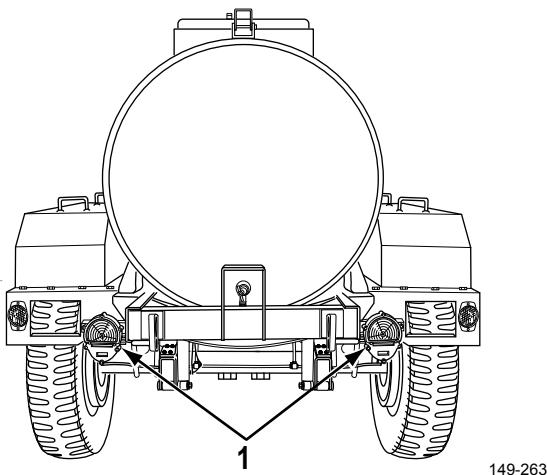
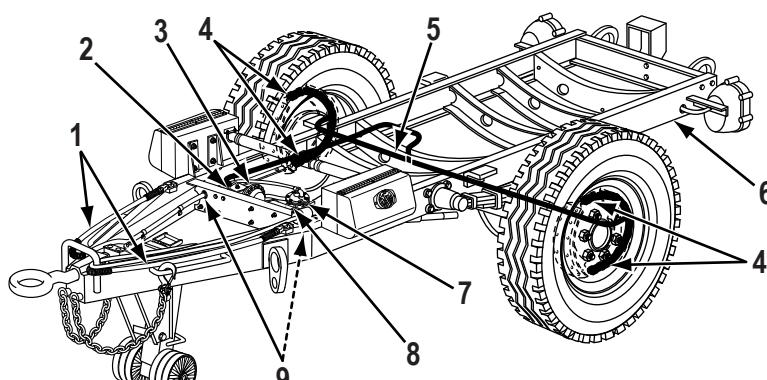


Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
12	Before	Air Reservoir	 <p>Figure 3. Brake System Air/Hydraulic.</p> <p>WARNING</p>  <p>Air reservoir is under pressure. Wear eye protection when draining air reservoir. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.</p> <p>Drain air reservoir (Figure 4, Item 1) of all moisture.</p>	Air reservoir will not drain.

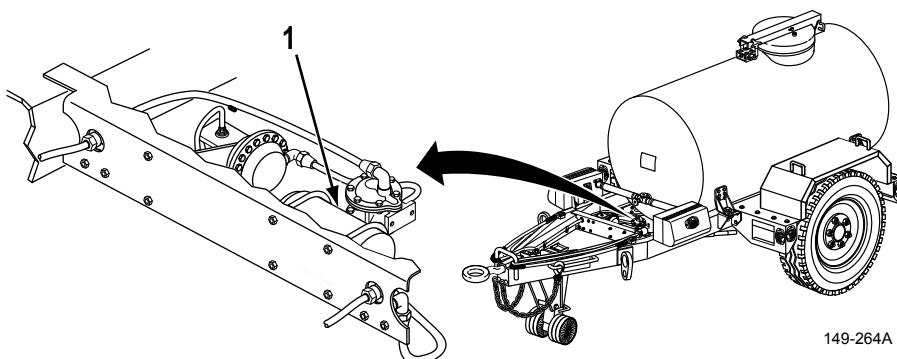
12	Before	Air Reservoir	 <p>Figure 4. Drain Air Reservoir.</p>	
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Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
13	Before	Water Tank	<ol style="list-style-type: none"> 1. Inspect water tank (Figure 5, Item 1) for cracks, damage, leaks, and broken welds. 2. Inspect manhole cover (Figure 5, Item 2) for cracks, bends, damage, and broken welds. 3. Verify manhole cover seal (Figure 5, Item 3) is present and in good condition. 4. Check for missing or leaking water tank drain plug (Figure 5, Item 5). 5. Check water tank interior (Figure 5, Item 1) for dirt, rust, and contamination. 	Water tank is cracked or leaking. Manhole cover is missing or damaged. Manhole cover seal is missing or damaged. Drain plug leaking or missing. Dirt, rust, or contamination present.
14	Before	Water Tank Hardware and Mounts	<ol style="list-style-type: none"> 1. Inspect water tank mounts and bushings (Figure 5, Item 4) for loose or missing hardware and for cracks, damage, or broken welds. 	Two or more loose or missing hardware. Cracked welds.

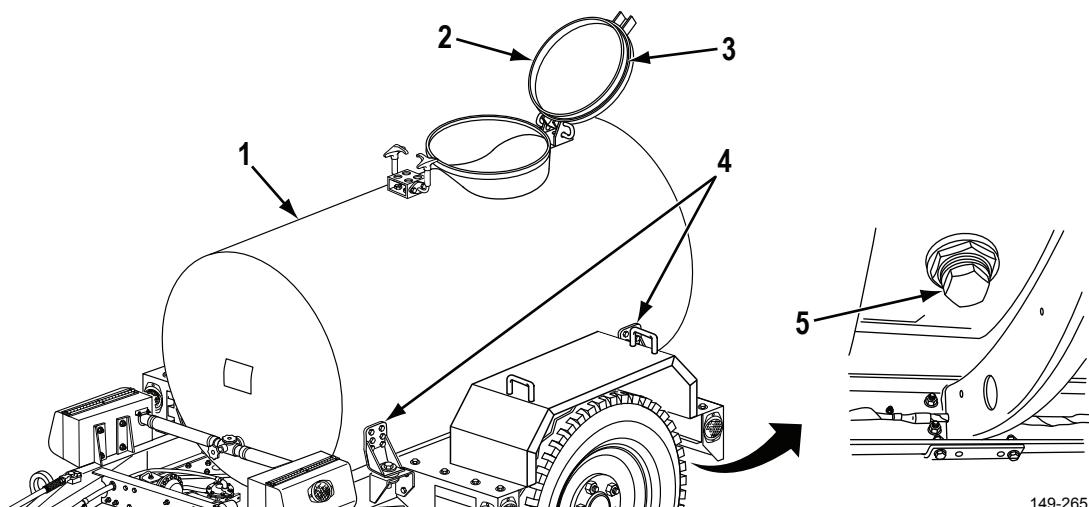


Figure 5. Water Tank, Hardware, and Mounts.

NOTE

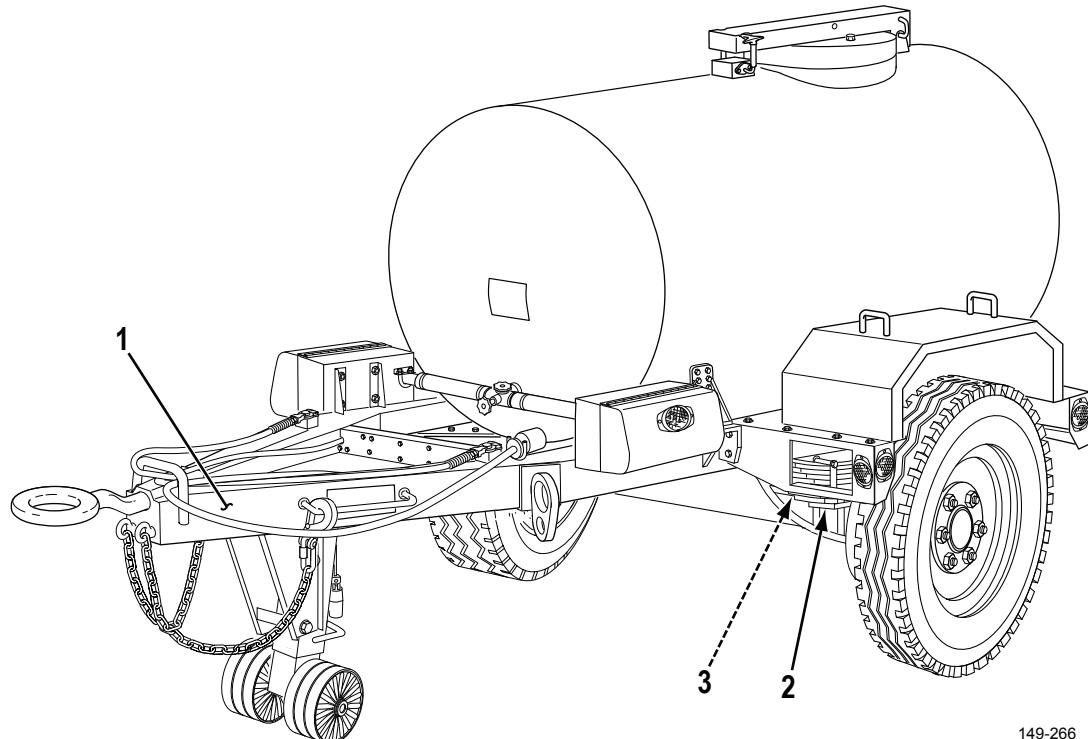
Not all newer M149A2 water trailers will have a rear faucet installed.

2. Inspect faucets for leaks and damage.

More than one damaged or leaking faucet.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
15	Before	Frame and Suspension	<p>1. Check frame (Figure 6, Item 1) for cracks and broken welds.</p> <p>2. Inspect springs (Figure 6, Item 2), shocks (Figure 6, Item 3), and suspension for loose, damaged, broken, or missing hardware.</p>	Welds cracked or broken. Hardware loose, damaged, broken, or missing.
16	During	Brake System	Be alert for unusual difficulty in stopping the trailer, indicating the trailer service brakes are not working properly.	
17	During	Trailer	<p>1. Be alert for any unusual noises when towing trailer. Stop and investigate any unusual noises.</p> <p>2. Ensure trailer is tracking/following correctly behind Prime Mover with no obvious damage, cracks, or broken welds.</p>	



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Figure 6. Frame, Springs, and Wheels.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
18	During	Water Tank	<p style="text-align: center;">NOTE</p> <p>Moderate amounts of rust on the interior surfaces of stainless steel water tanks used for potable field water storage and transportation generally will not adversely affect the water's potability. Preventive Medicine (PM) personnel who inspect the water tanks should not fail them based solely on the presence of rust unless approximately 25% or more of the interior surface area is rusted. Tanks must be well rinsed with potable water after disinfecting them, to reduce the chloride concentration in contact with the passive film. Prior to long term storage, any remaining rinse water should be completely removed and the tank interior dried, so the oxygen in the air can keep the passive film intact during storage. welds, imperfections in the alloy, and physical damage can penetrate the protective film and cause rust if for some reason the passive layer does not reform. High chlorine residuals, low pH, and high temperatures all enhance the rates of rusting in Buffalo and Hippo water tanks wherever the passive film has been compromised. The resulting rust may be localized, or it may be spread across the tank's inner surface. Stainless steel thrives on cleanliness. Any dirt, sediment, biological growth, or other conditions that may hinder natural pacification and trap corrosive agents next to the surface should be brought to the attention of the owner/operator, because they reduce the inherent corrosion protection of the stainless steel.</p> <ol style="list-style-type: none"> 1. When filling water tank, check manhole cover (Figure 7, Item 1), seal, and latch for damage. 2. Check rear faucet (Figure 7, Item 3) and forward faucets (Figure 7, Item 2) for leakage and proper operation. 	One or more faucets are damaged or missing.

Table 1. Preventive Maintenance Checks and Services - Continued.

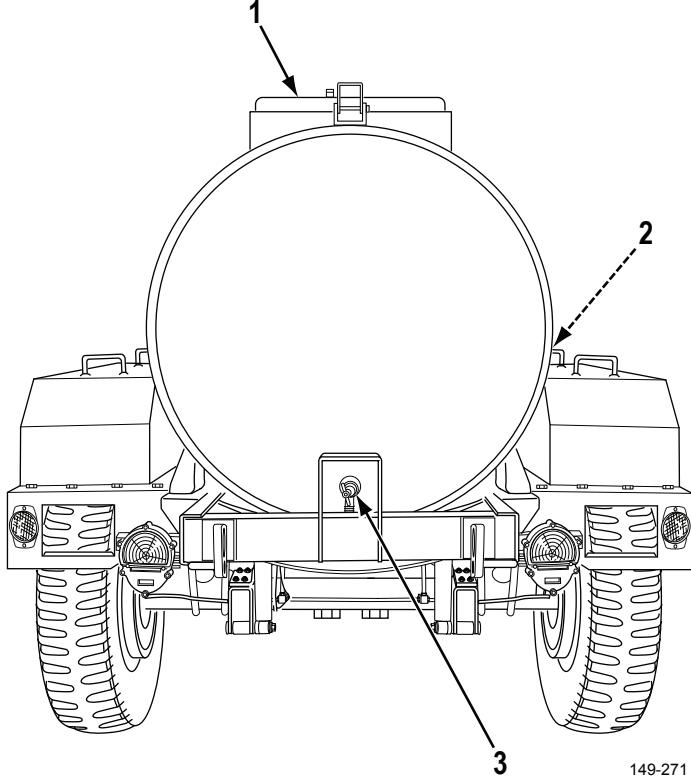
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
				

Figure 7. Manhole Cover and Faucet.

Table 1. Preventive Maintenance Checks and Services - Continued.

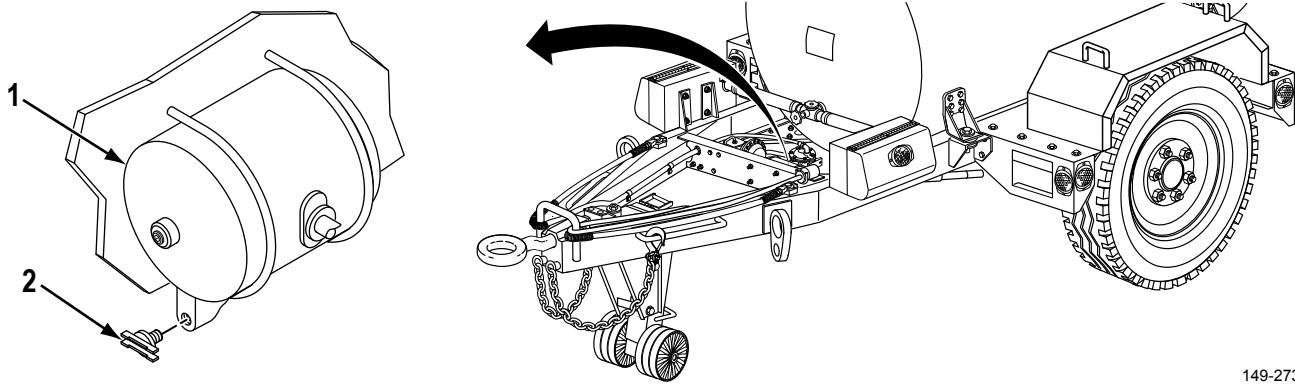
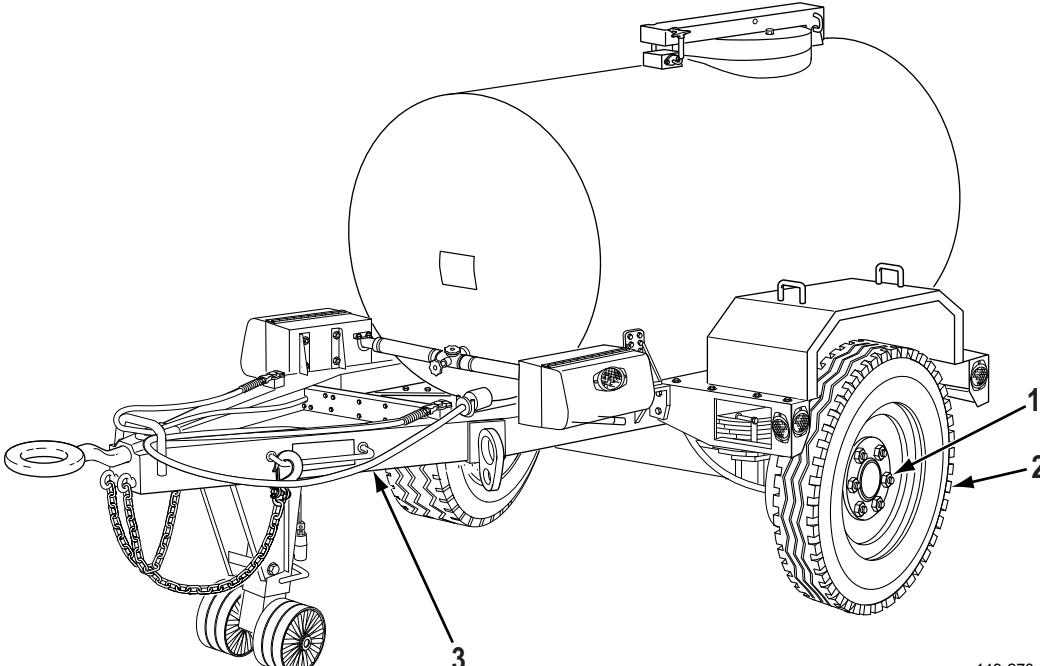
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
19	After	Wheels	Check wheels (Figure 9, Item 2) for damage and loose or missing wheel nuts (Figure 9, Item 1).	Two or more lug nuts on one wheel are missing or wheel damaged.
20	After	Brakes	Perform inspection of brake system.	Air leaking or hydraulic brake fluid leak or damage that would impair operation is evident.
21	After	Frame and Associated Parts	Inspect axle for cracks, breaks, bends, and loose, damaged, or missing mounting bolts.	Damage that would impair operation is evident.
22	After	Air Tank and Air Filter	Apply handbrakes and open drain valve (Figure 8, Item 2) on air reservoir (Figure 8, Item 1) to drain condensation. Close drain valve.	
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Figure 8. Air Tank and Air Filter.				
23	Weekly	Trailer Frame	Check frame (Figure 9, Item 3) for cracks, bends, and broken welds.	Welds cracked or broken.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
				
24	Weekly	Water Tank	<p>1. Check water tank interior for contamination, dirt, rust, and paint chips.</p> <p>2. Check water tank (Figure 10, Item 1) mounting screws and bushings for looseness.</p>	<p>Contamination is found in water tank interior.</p> <p>Water tank mounting screws and bushings are missing or loose.</p>

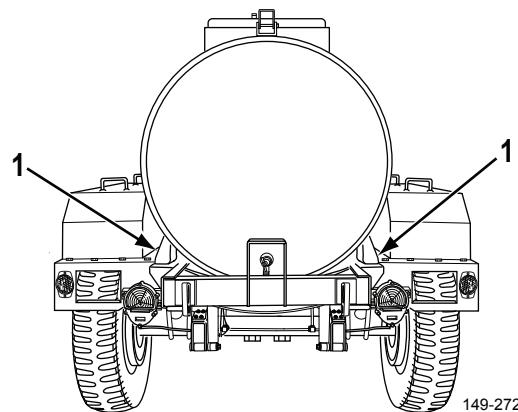


Figure 10. Water Tank.

Table 1. Preventive Maintenance Checks and Services - Continued.

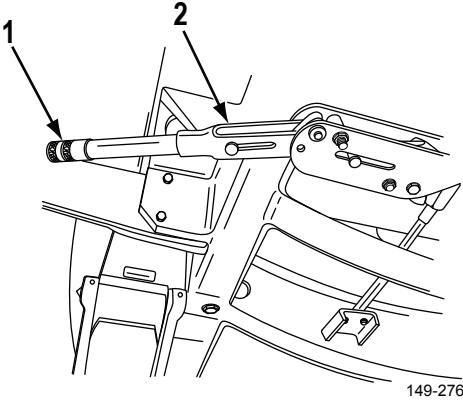
ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
25	Weekly	Taillights, Reflectors, and Wiring	<p>1. Inspect taillights and reflectors for missing or broken parts and loose or damaged wires or connectors. Tighten loose connections.</p> <p>2. Where accessible, inspect trailer wiring harness for exposed, frayed, or damaged wiring or missing mounting hardware.</p> <p>3. Inspect intervehicular electrical cable for exposed, frayed, or damaged wiring or damaged connector plugs.</p>	<p>Damage that would impair operation is evident.</p> <p>Damage that would impair operation is evident.</p>
26	Weekly	Tires	Check that tire pressure is 70 psi (483 kPa) when tires are cool.	
27	Weekly	Handbrakes	With the trailer coupled to Prime Mover, disconnect intervehicular air hoses from Prime Mover and set handbrakes (Figure 11, Item 2). Move trailer slightly to see if the handbrakes hold the wheels. Adjust the handbrakes by rotating spring-loaded adjusting knob (Figure 11, Item 1) clockwise to tighten and counterclockwise to loosen.	
 <p>Figure 11. Handbrakes.</p>				
28	Monthly	Handbrake Levers	Inspect handbrake levers and adjust parking brake as required (WP 0038).	

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
29	Monthly	Master Cylinder	<p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> • Wear gloves and eye protection when handling hydraulic brake fluid. Work in a well-ventilated area. Exposure to hydraulic brake fluid may cause irritation to eyes, skin, and lungs. If ingested, it can irritate mouth, esophagus, and stomach. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. • When servicing this equipment, performing maintenance, or disposing of materials such as hydraulic brake fluid, consult unit/local hazardous waste disposal center or safety office for local regulatory guidance. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. <p>1. Inspect master cylinder for damaged or missing cap and leaks.</p> <p style="text-align: center;">CAUTION</p> <p>Use caution to ensure dirt or debris does not enter master cylinder and contaminate hydraulic brake system. Failure to comply may result in damage to, or destruction of, equipment or mission.</p> <p>2. Using a dry clean rag, clean master cylinder cap.</p>	Cap is damaged or missing. Any hydraulic brake fluid leaks are evident.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
			<ol style="list-style-type: none">3. Remove master cylinder cap and check level of hydraulic brake fluid in reservoir. Level should be 1/8 in. (3 mm) below the bottom of filler spout.4. If level is low, add hydraulic brake fluid, automotive, silicone until level in reservoir is correct.5. Reinstall master cylinder cap and tighten.	

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) PROCEDURES**

INITIAL SETUP:**Tools and Special Tools**

Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

References (cont.)

WP 0051
WP 0055
WP 0056
WP 0059
WP 0061
WP 0067
WP 0068
WP 0078
WP 0080

Personnel Required

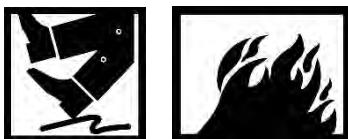
Two

References

TM 9-2610-200-24
WP 0039
WP 0043
WP 0044
WP 0049
WP 0050

Equipment Condition

Wheels chocked (WP 0005)
Trailer uncoupled (WP 0005)

WARNING

Use a drain pan or appropriate containment equipment to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Immediately clean up spilled fluid before proceeding with any task. Comply with local regulations when disposing of clean up material and leaked and spilled fluids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

Table 1. Preventive Maintenance Checks and Services.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
			<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Review all WARNING, CAUTION, and NOTE headings before performing PMCS on the trailer assembly. • If you are operating the M149A2 trailer for the first time, perform your Weekly and Monthly PMCS the first time you do your Before PMCS. • Unless otherwise indicated, perform preventive maintenance and lubrication with the M149A2 trailer uncoupled from Prime Mover, parked on level ground, parking brakes applied, and wheels chocked. • Begin walk around inspection at the front roadside corner of the M149A2 trailer and work in a counterclockwise direction. 	

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
1	Quarterly	Master Cylinder	Verify hydraulic brake fluid level. Fill to within 1/8 in. (3 mm) below the bottom of filler spout (WP 0080).	Any Class III hydraulic brake fluid leaks are evident.
2	Quarterly	Wheel and Tires	1. Inspect tires for wear and damage. Check tread depth, refer to TM 9-2610-200-24. 2. Check wheel nuts for tightness. Torque nuts to 340-370 lb ft (461-502 N·m) (WP 0039).	Any damage is noted that would impair operation.
3	Quarterly	Landing Leg	1. Inspect for bent or broken hardware (WP 0067). 2. Inspect release handle for proper operation (WP 0005).	Any damage is noted that would impair operation.
4	Quarterly	Water Tank	<p style="text-align: center;">WARNING</p>  <p>If water tank was filled with nonpotable water, water tank must be flushed out with clean potable water and drained. Do not allow water tank to sit for extended periods of time with any amount of liquid in it. Standing water will result in contamination and food poisoning. KEEP WATER TANK CLEAN AT ALL TIMES. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.</p> <p>Check for contamination. If tank is contaminated, flush with fresh water before use (WP 0005).</p>	Tank is contaminated or used to hold anything other than clean, potable water.
5	Semiannual	Lights	Inspect and replace any broken or cracked lenses or unserviceable lights (WP 0043).	Any damage is noted that would impair operation.
6	Semiannual	Intervehicular Cable	Check intervehicular cable for cuts, breaks, and frayed wires or damaged plug. Replace if defective (WP 0044).	Any damage is noted that would impair operation.
7	Semiannual	Intervehicular Air Hoses	Check intervehicular air hoses for cuts, breaks, and damaged air couplings. Replace if defective (WP 0055).	Any damage is noted that would impair operation.
8	Semiannual	Air Reservoir	Check air reservoir and lines for damage and ensure that fittings are tight. Replace air reservoir if it is damaged (WP 0059).	Any damage is noted that would impair operation.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
9	Semiannual	Suspension	1. Inspect springs for bent or cracked leaves, loose mounting, and worn components (WP 0068). 2. Inspect shock absorbers for damage or leaks (WP 0068).	Any damage is noted that would impair operation.
10	Semiannual	Reflectors	Replace any cracked or broken reflectors.	Any damage is noted that would impair operation.
11	Semiannual	Data Plates, Decals, and Stencil Markings	Ensure legibility and condition of data plates. Replace damaged and disfigured plates (WP 0078).	
12	Annual	Brakes	<p>1. Check brake adjustment for 1/2 in. (13 mm) minimum and 3/4 in. (19 mm) maximum pushrod travel in master cylinder and air brake chamber (WP 0051).</p> <p style="text-align: center;">WARNING</p>  <ul style="list-style-type: none"> Hardware within the brake system is pressurized, ensure proper eye protection is worn before inspecting or performing maintenance procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. Compressed air used for drying or cleaning purposes should not exceed 30 psi (207 kPa). Use only with effective chip-guarding and personal protective equipment (e.g., eye protection, gloves). Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. <p>2. Clean, inspect, and repair or replace internal brake parts as required (WP 0050).</p> <p>3. Adjust brakes (WP 0050).</p> <p>4. Check parking brake adjustment. Adjust as required (WP 0049).</p> <p>5. Remove and clean air filter element. Replace if unserviceable (WP 0056).</p>	Any incorrect adjustment or damage is noted that would impair operation.

Table 1. Preventive Maintenance Checks and Services - Continued.

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/AVAILABLE IF:
13	Annual	Wheel Bearings	1. Clean and inspect wheel bearings for damage and wear (WP 0061). 2. Replace or repack wheel bearings (WP 0061).	Any damage is noted that would impair operation.
14	Annual	Frame	Inspect for cracks, bent members, and broken welds.	Any damage is noted that would impair operation.

END OF TASK**END OF WORK PACKAGE**

CHAPTER 5

OPERATOR MAINTENANCE INSTRUCTIONS

OPERATOR MAINTENANCE HANDBRAKE LEVER ADJUSTMENT

INITIAL SETUP:

Not Applicable

WARNING

If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

CAUTION

If both brakes are not engaging, do not adjust handbrake lever. Failure to comply may result in damage to equipment, Notify Field Maintenance.

NOTE

- When handbrake lever is properly adjusted, handbrake lever should require only 1/3 of its full travel to apply handbrake lever.
- This trailer has two handbrake levers. This procedure adjusts one handbrake lever. The other handbrake lever is adjusted the same way.

ADJUSTMENT

1. Release handbrake lever (Figure 1, Item 2).
2. Turn adjustment knob (Figure 1, Item 1) clockwise to tighten or counterclockwise to loosen.
3. Apply handbrake lever (Figure 1, Item 2) and check adjustment. Repeat Steps 1 and 2 as required.

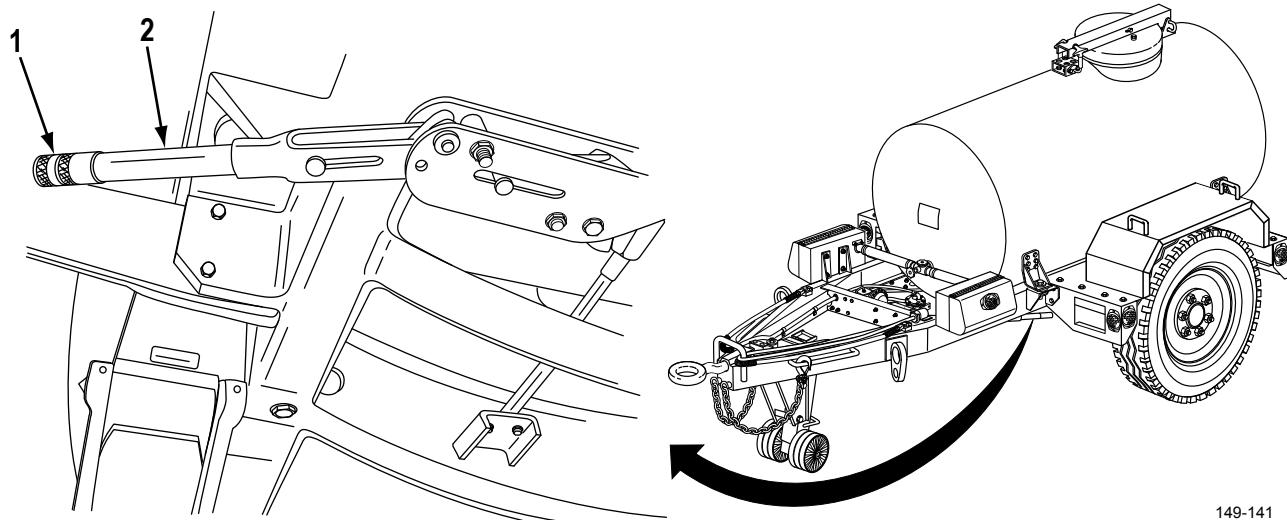


Figure 1. Handbrake Lever Adjustment.

END OF TASK

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
WHEEL ASSEMBLY REPLACEMENT**

INITIAL SETUP:

Personnel Required

Two

Equipment Condition

Trailer uncoupled (WP 0005)

WARNING



- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Wheel weighs 185 lbs (84 kg). Two people are required to lift wheel. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This trailer has two handbrakes. One handbrake is shown. The other handbrake is applied the same way.

REMOVAL

1. Apply handbrakes (Figure 1, Item 6) (WP 0005).

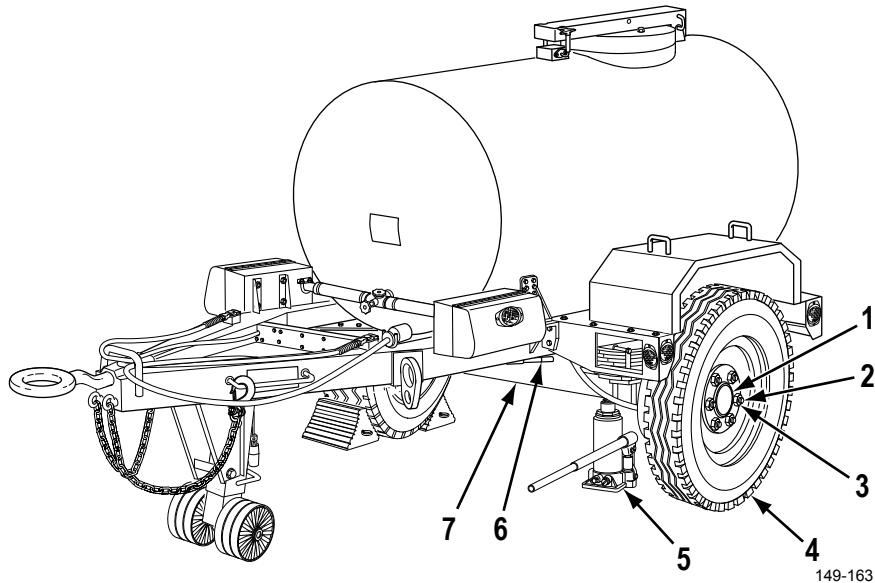


Figure 1. Wheel Assembly Replacement.

WARNING

Lifting device must have a weight capacity greater than 5,800 lbs (2,630 kg), the weight of the trailer and cargo. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

Place suitable lifting device under axle and close as possible to the wheel that is being removed.

2. Place suitable lifting device (Figure 1, Item 5) under axle (Figure 1, Item 7).
3. Loosen, but do not remove six nuts (Figure 1, Item 3) from wheel studs (Figure 1, Item 2).
4. Using suitable lifting device (Figure 1, Item 5), raise axle (Figure 1, Item 7) until wheel (Figure 1, Item 4) is completely off the ground.
5. Remove six nuts (Figure 1, Item 3) from wheel studs (Figure 1, Item 2).
6. With assistance remove wheel (Figure 1, Item 4) from hub (Figure 1, Item 1).

END OF TASK

INSTALLATION

1. With assistance install spare wheel (Figure 1, Item 4) on hub (Figure 1, Item 1).
2. Install six wheel nuts (Figure 1, Item 3) on studs (Figure 1, Item 2). Hand tighten all nuts (Figure 1, Item 3) at this time.
3. Using suitable lifting device (Figure 1, Item 5), lower axle (Figure 1, Item 7) until spare wheel (Figure 1, Item 4) makes contact with ground.

NOTE

Have Field Maintenance torque wheel nuts to 340-370 lb ft (461-502 N·m) as soon as possible.

4. Tighten six wheel nuts (Figure 2, Item 1) using tightening sequence shown in (Figure 2).

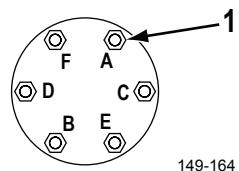


Figure 2. Wheel Nuts Tightening Sequence.

5. Using suitable lifting device (Figure 1, Item 5) lower axle (Figure 1, Item 7).
6. Remove suitable lifting device (Figure 1, Item 5).

END OF TASK**END OF WORK PACKAGE**

OPERATOR MAINTENANCE AIR LEAK CHECK

INITIAL SETUP:**Equipment Condition**

Trailer coupled (WP 0005)

AIR LEAK CHECK

1. Start Prime Mover and watch Prime Mover air pressure gage (Figure 1, Item 1) for normal reading. Refer to Prime Mover technical manual for instructions.
2. Push brake pedal down to applied position and hold.
3. Shut down Prime Mover engine.
4. Watch air pressure gage (Figure 1, Item 1) for two minutes. If pressure drops more than ten percent within two minutes, notify Field Maintenance.

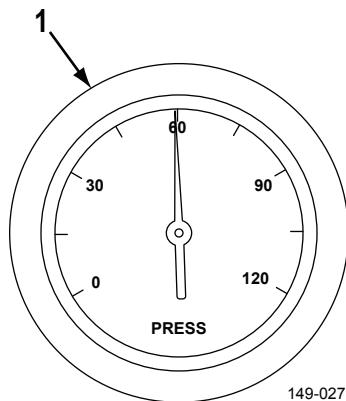


Figure 1. Prime Mover Air Pressure Gage.

END OF TASK**END OF WORK PACKAGE**

CHAPTER 6

FIELD MAINTENANCE INSTRUCTIONS

FIELD MAINTENANCE SERVICE UPON RECEIPT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

References (cont.)

DA PAM 750-8
DD Form 314
DD Form 1397
WP 0036
WP 0037
WP 0080

Materials/Parts

Brake Fluid (WP 0118, Table 1, Item 4)
Cleaning Compound, Solvent
(WP 0118, Table 1, Item 6)
Rag, Wiping (WP 0118, Table 1, Item 15)

References

DA Form 2407/5990-E

OVERVIEW

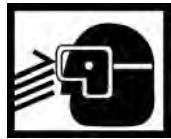
This chapter contains all of the maintenance authorized to be performed by Field Maintenance. Included are Service Upon Receipt of Material, Field Maintenance instructions, and detailed maintenance tasks that Field Maintenance personnel may perform to maintain the trailer.

These Field Maintenance instructions contain general shop practices and specific methods you must be familiar with to properly maintain the trailer. You should read and understand the procedures here before starting Field Maintenance tasks on the trailer.

GENERAL

Before you begin a task, you should 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 therefore complete teardown is not necessary for repair. Disassemble equipment only as far as necessary to repair or replace broken parts.

END OF TASK

INSPECTION**WARNING**

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

INSPECTION - Continued**NOTE**

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
 - When a new, used, or reconditioned trailer is first received, determine whether it has been properly prepared for service and is in condition to perform its mission. Follow the inspection instructions and servicing instructions specified below.
1. Read and follow all instructions on DD Form 1397 attached to conspicuous part of trailer.
 2. Remove all straps, plywood, tape, seals, and wrapping.
 3. Remove rust-preventive compound from coated exterior parts of trailer using cleaning compound solvent and dry clean rags.
 4. Inspect trailer for damage incurred during shipment.
 5. Inspect trailer equipment to see if it has been modified.
 6. Check equipment against packing list to ensure that shipment is complete. Report any discrepancies in accordance with instructions in DA PAM 750-8.

END OF TASK**SERVICING**

1. Perform all Operator and Field Preventive Maintenance Checks and Services (PMCS) (WP 0036) and (WP 0037). Schedule next PMCS on DD Form 314.
2. Lubricate all lubrication points as described in (WP 0080).
3. Report any problems on DA Form 2407/5990-E.
4. Perform a break-in road test of 25 mi. (40 km) at a maximum speed of 50 mph (80 km/h).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE GENERAL MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

Materials/Parts (cont.)

(WP 0118, Table 1, Item 6)
Cloth, Abrasive (WP 0118, Table 1, Item 7)
Dishwashing Compound
(WP 0118, Table 1, Item 8)
Tag, Marker (WP 0118, Table 1, Item 18)

Materials/Parts

Brush, Scrub (WP 0118, Table 1, Item 5)
Cleaning Compound, Solvent

References

TM 9-214

GENERAL

These general maintenance instructions contain general shop practices and specific methods you must be familiar with to properly maintain the M149A2 trailer. You should read and understand these practices and methods before performing any Field tasks. Before beginning a task, find out how much repair, modification, or replacement is needed to fix the equipment. 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.

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

- Resources are not listed unless they apply to the procedure.
- Personnel are listed only if more than one technician is required to complete the task. If "Personnel Required" is not listed, one mechanic can complete the task.

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

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:

- Do not remove dowel pins or studs unless loose, bent, broken, or otherwise damaged.
- Do not remove bearings or bushings unless damaged. If you need to remove them to access parts behind, pull bearings and bushings out carefully.
- Replace all gaskets, seals, lockwashers, cotter pins, preformed packings, and other locking hardware.

GENERAL - Continued**WORK SAFETY**

Observe all **WARNINGS** and **CAUTIONS**. Always use power tools carefully.

Protect yourself against injury. Wear protective gear such as eye protection, safety shoes, and gloves.

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

All maintenance should be performed with:

1. Water trailer parking brake engaged.
2. Prime Mover in Neutral with parking brake engaged, if coupled.
3. Prime Mover engine stopped, if coupled.

CLEANING INSTRUCTIONS**WARNING**

Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Cleaning instructions will be the same for a majority of parts and components that make up the trailer. The following should apply to all cleaning operations:

- a. Clean all parts before inspection, after repair, and before assembly.
- b. Keep hands free of grease which can collect dust, dirt, and grit.
- c. 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.

END OF TASK**STEAM CLEANING**

1. Before steam cleaning exterior of trailer, protect all electrical equipment that 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.

END OF TASK

WATER SANITATION**WARNING**

- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- If water tank was filled with nonpotable water, water tank must be flushed out with clean potable water and drained. Do not allow water tank to sit for extended periods of time with any amount of liquid in it. Standing water will result in contamination and food poisoning. **KEEP WATER TANK CLEAN AT ALL TIMES.** Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use extreme care to ensure that no foreign material enters the water tank. The highest sanitary standards must be followed when handling drinking water. Serious illness may result from impure, contaminated drinking water. When water tank is used for NONPOTABLE WATER, water tank must be so marked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

END OF TASK

CASTINGS, FORGINGS, AND MACHINED METAL PARTS**WARNING**

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

CASTINGS, FORGINGS, AND MACHINED METAL PARTS - Continued**NOTE**

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
1. Remove grease and accumulated deposits with a stiff bristle brush.
 2. Clean inner and outer surfaces with cleaning compound solvent.

WARNING

Compressed air used for drying or cleaning purposes should not exceed 30 psi (207 kPa). Use only with effective chip-guarding and personal protective equipment (e.g., eye protection, gloves). Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

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

END OF TASK**OIL SEALS, ELECTRICAL CABLES, AND FLEXIBLE HOSES****CAUTION**

Do not wash oil seals, electrical harnesses, and flexible hoses with cleaning compound solvent or mineral spirits. Failure to comply may result in damage to, or destruction of, equipment or mission.

Wash electrical cables and flexible hoses with a solution of soap and water and wipe dry.

END OF TASK

BEARINGS

Clean bearings in accordance with TM 9-214.

END OF TASK**INSPECTION INSTRUCTIONS****NOTE**

All damaged areas should be marked for repair or replacement.

1. All components and parts must be carefully checked to determine if they are serviceable for use, can be repaired, or must be scrapped.
2. Inspect drilled and tapped (threaded) holes for the following:
 - Wear, distortion, cracks, and any other damage in or around holes for wear, distortion, cracks, and any other damage.
 - Threaded areas for wear, distortion (stretching), and evidence of cross-threading.
3. Inspect metal lines, flexible lines (hoses), and metal fittings for the following:
 - Metal lines for sharp kinks, cracks, bad bends, and dents.
 - Flexible lines for fraying, evidence of leakage, and loose metal fittings or connectors.
 - Metal fittings and connectors for thread damage and worn or rounded hex heads.
4. Inspect castings, forgings, and machined metal parts for the following:
 - Machined surfaces for nicks, burrs, raised metal, wear, and other damage.
 - Inner and outer surfaces for breaks and cracks.
5. Inspect bearings in accordance with TM 9-214.

END OF TASK

REPAIR INSTRUCTIONS

1. Any repair procedure to a specific part or component is covered in the Work Package (WP) relating to that item. After repair, clean all parts thoroughly to prevent dirt, metal chips, or other foreign material from entering any working parts.
2. Repair casting, forgings, and machined metal parts using the following instructions:
 - a. Repair minor cracked casting or forgings.

WARNING

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

REPAIR INSTRUCTIONS - Continued**WARNING**

- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
-
- b. Repair minor damage to machined surfaces with a fine mill file or an abrasive cloth dipped in cleaning compound solvent.
 - c. Replace any deeply nicked machined surface that could affect the assembly operation.
 - d. Repair minor damage to threaded capscrew holes with thread tap of same size to prevent cutting oversize.
 - e. After repair, clean all parts thoroughly to prevent dirt, metal chips, or other foreign material from entering any working parts.

END OF TASK

TAGGING WIRES AND HOSES

1. As soon as the first wire, hose, or tube is disconnected, write number "1" on two tags. Secure one tag to the wire, hose, or tube and the other tag to the terminal, nipple, or fitting. After disconnecting the second wire, hose, or tube, write number "2" on two tags. Secure one tag to the wire, hose, or tube, and the second tag to the terminal, nipple, or fitting. Do the same for all wires, hoses, and tubes.
2. Note which numbers you used, in pencil, on art in this manual. This will help you to accurately re-tag, if tags are removed to perform cleaning and maintenance work.
3. Remove all tags when finished.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
LIGHT ASSEMBLY MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (2) (WP 0084, Figure 1, Item 9)

Materials/Parts

Grommet (WP 0086, Figure 3, Item 14)
O-Ring (WP 0084, Figure 1, Item 3)
Tag, Marker (WP 0118, Table 1, Item 18)
Washer, Lock

References

WP 0046

Equipment Condition

Intervehicular cable disconnected (WP 0005)

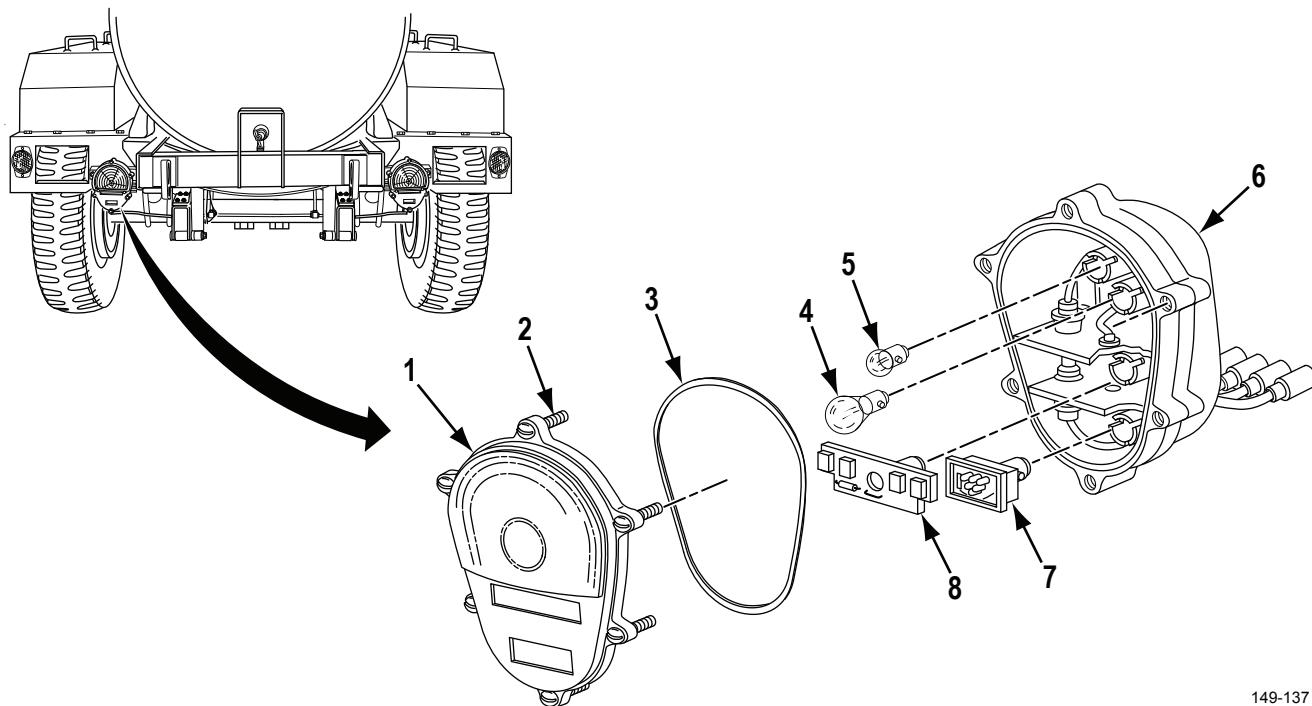
NOTE

- This trailer has two light assemblies. This procedure replaces one light assembly.
The other light assembly is replaced the same way.
- Tag all wires, hoses, tubing, and connections prior to removal for ease of installation.

REMOVAL**NOTE**

- To remove light bulbs or Light Emitting Diode (LEDs), push in on light bulb or LED and turn light bulb or LED counterclockwise.
- Perform Steps 1, 2, and 3 if only replacing light assembly lens, light bulbs, or LEDs.

1. Remove six screws (Figure 1, Item 2), lens (Figure 1, Item 1), and O-ring (Figure 1, Item 3) from light assembly (Figure 1, Item 6). Discard O-ring (Figure 1, Item 3).
2. Remove light bulb (Figure 1, Items 4 or 5) from light assembly (Figure 1, Item 6).
3. Remove LED (Figure 1, Items 7 or 8) from light assembly (Figure 1, Item 6).



149-137

Figure 1. Light Assembly Bulb and LED Removal.

4. Remove four electrical connectors (Figure 2, Items 5 and 6) from clip assemblies (Figure 2, Item 7).
5. Disconnect four electrical connectors (Figure 2, Item 5) from electrical connectors (Figure 2, Item 6).
6. Remove grommet (Figure 2, Item 9) from trailer frame (Figure 2, Item 10). Discard grommet (Figure 2, Item 9).
7. Remove light assembly electrical harness (Figure 2, Item 8) from trailer frame (Figure 2, Item 10).
8. Remove two bolts (Figure 2, Item 1) and lockwashers (Figure 2, Item 2) from light assembly bracket (Figure 2, Item 3). Discard lockwashers (Figure 2, Item 2).

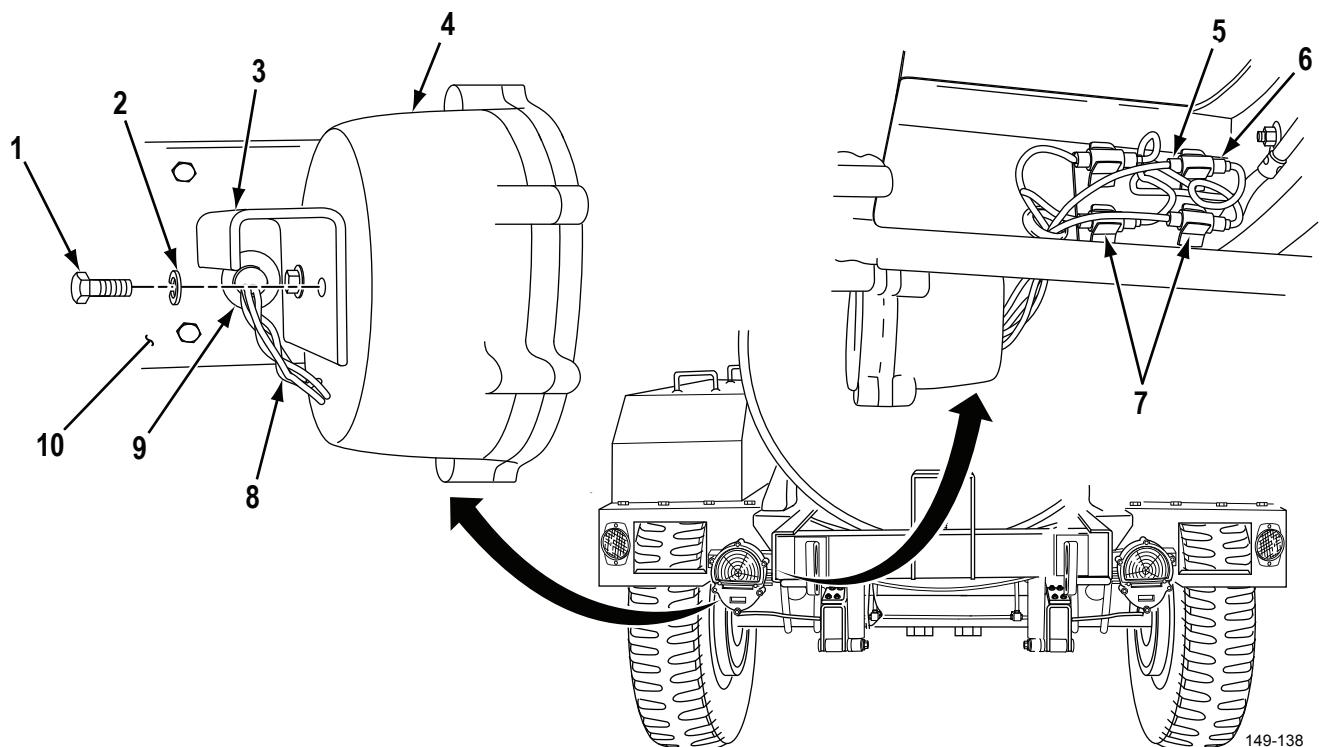
REMOVAL - Continued

Figure 2. Light Assembly Removal.

END OF TASK**INSPECTION**

1. Inspect wires (Figure 2, Items 5, 6, and 8) for breaks, missing tags, and damage. Replace tags, wiring harness (WP 0046), or light assembly if any of these conditions are found.
2. Inspect light assembly (Figure 2, Item 4) for cracks and damage. Replace light assembly (Figure 2, Item 4) if any of these conditions are found.

END OF TASK

INSTALLATION**NOTE**

Perform Steps 5 through 8 if only replacing light assembly lens, light bulbs, or LEDs.

1. Install light assembly (Figure 3, Item 4) on trailer bracket (Figure 3, Item 3) with two new lockwashers (Figure 3, Item 2) and bolts (Figure 3, Item 1).
2. Install light assembly electrical harness (Figure 3, Item 8) through trailer frame (Figure 3, Item 10).
3. Install new grommet (Figure 3, Item 9) on trailer frame (Figure 3, Item 10).
4. Connect four electrical connectors (Figure 3, Item 5) to electrical connectors (Figure 3, Item 6).
5. Install four electrical connectors (Figure 3, Items 5) to clip assemblies (Figure 3, Item 7).

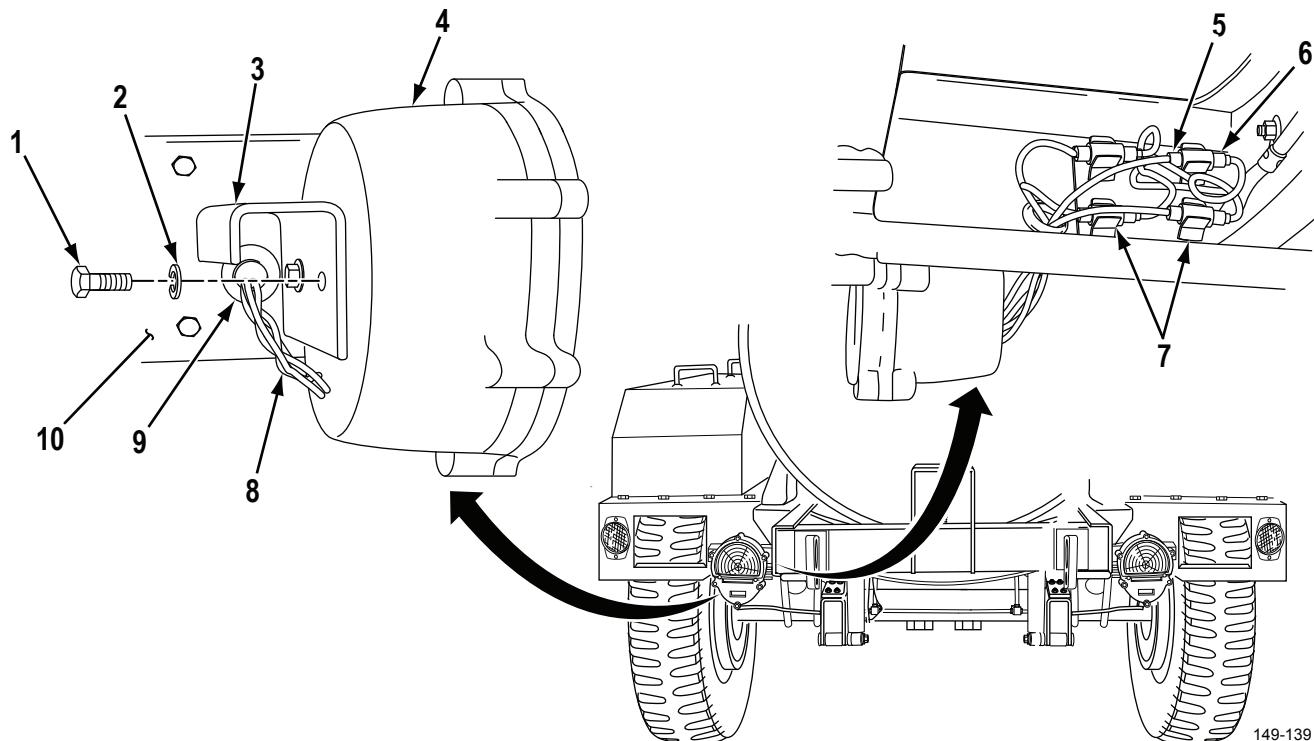


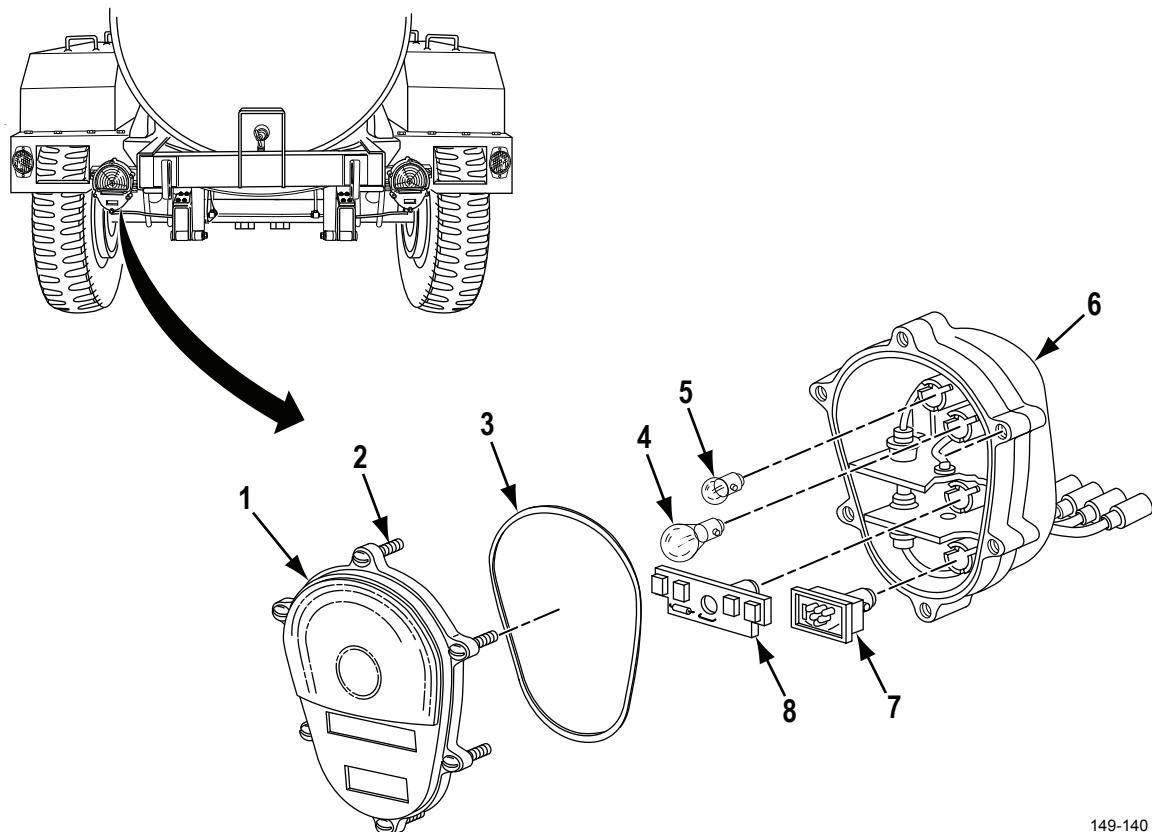
Figure 3. Light Assembly Installation.

6. Install light bulb (Figure 4, Items 4 or 5) in light assembly (Figure 4, Item 6).

NOTE

To install light bulbs or LEDs push in and rotate clockwise.

7. Install LEDs (Figure 4, Items 7 or 8) in light assembly (Figure 4, Item 6).
8. Install new O-ring (Figure 4, Item 3) on lens (Figure 4, Item 1).
9. Install lens (Figure 4, Item 1) on light assembly (Figure 4, Item 6) with six screws (Figure 4, Item 2).

INSTALLATION - Continued

149-140

Figure 4. Light Assembly Bulb and LED Installation.

END OF TASK**FOLLOW ON TASK**

Connect intervehicular connector and verify proper operation (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
INTERVEHICULAR CABLE MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition

Intervehicular cable disconnected (WP 0005)
Wheels chocked (WP 0005)

Materials/Parts

Tag, Marker (WP 0118, Table 1, Item 18)

References

WP 0046
WP 0082

WARNING



Make sure electrical power is disconnected before performing any maintenance on the electrical system. Do not use metal cleaning objects to clean cable plugs or receptacles on trailer. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Testing the intervehicular cable consists of a continuity check of the individual wires that make up the intervehicular cable. For wire function and identification, refer to wiring diagrams (WP 0082). Before disconnecting any wires, ensure that identification bands are present.
- Tag all wires, hoses, tubing, and connections prior to removal for ease of installation.

TEST

1. Disconnect six electrical connectors (Figure 1, Items 1 and 2) from clips (Figure 1, Item 6).
2. Disconnect six intervehicular plug connectors (Figure 1, Item 2) from chassis wiring harness (Figure 1, Item 3).
3. Place red lead from multimeter in one of six plug connectors (Figure 1, Item 2) and black on corresponding pin (Figure 1, Item 5). Check for continuity.
4. Repeat Step 2 for all plug connectors (Figure 1, Item 2) and pins (Figure 1, Item 5).
5. If no continuity is found in one or more wires, remove and replace intervehicular cable (Figure 1, Item 4).
6. If continuity is found, connect intervehicular plug connectors (Figure 1, Item 2) on chassis wiring harness (Figure 1, Item 3).

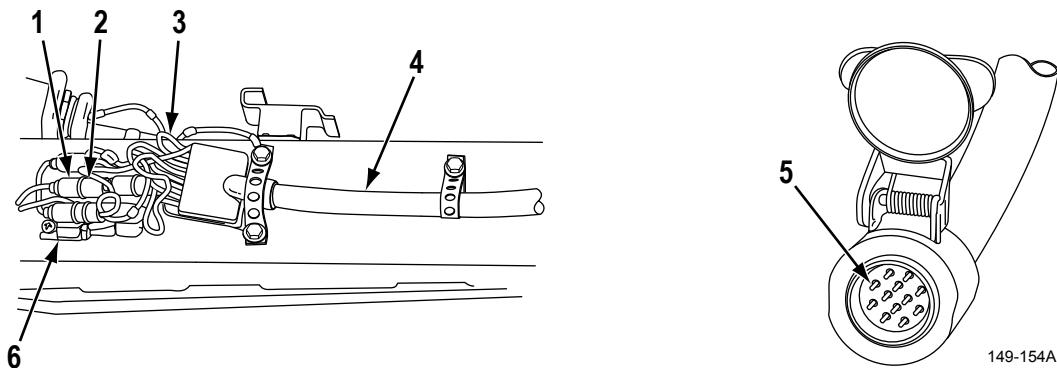


Figure 1. Intervehicular Cable Test.

END OF TASK**REMOVAL**

1. Remove six electrical connectors (Figure 2, Items 9 and 10) from clip assemblies (Figure 2, Item 11).
2. Disconnect six electrical connectors (Figure 2, Item 9) from electrical connectors (Figure 2, Item 10).
3. Remove two bolts (Figure 2, Item 2), washers (Figure 2, Item 3), ground strap (Figure 2, Item 1), and strap (Figure 2, Item 8) from trailer frame (Figure 2, Item 5).
4. Remove three bolts (Figure 2, Item 6), straps (Figure 2, Item 7), and intervehicular cable (Figure 2, Item 4) from trailer frame (Figure 2, Item 5).

END OF TASK**REPAIR****NOTE**

Repair of intervehicular cable consists of replacement of wire identification bands and repair of plug connectors.

For repair instructions, refer to wiring repair (WP 0046).

END OF TASK

INSTALLATION

1. Install intervehicular cable (Figure 2, Item 4) on trailer frame (Figure 2, Item 5) with three securing straps (Figure 2, Item 7) and bolts (Figure 2, Item 6).
2. Secure intervehicular cable (Figure 2, Item 4) to trailer frame (Figure 2, Item 5) with strap (Figure 2, Item 8), ground strap (Figure 2, Item 1), washers (Figure 2, Item 3), and two bolts (Figure 2, Item 2).

NOTE

Wiring diagram (WP 0082) may be used to assist with intervehicular cable installation.

3. Connect six electrical connectors (Figure 2, Item 9) to electrical connectors (Figure 2, Item 10).
4. Secure six electrical connectors (Figure 2, Items 9 and 10) to trailer frame (Figure 2, Item 5) with clip assemblies (Figure 2, Item 11).

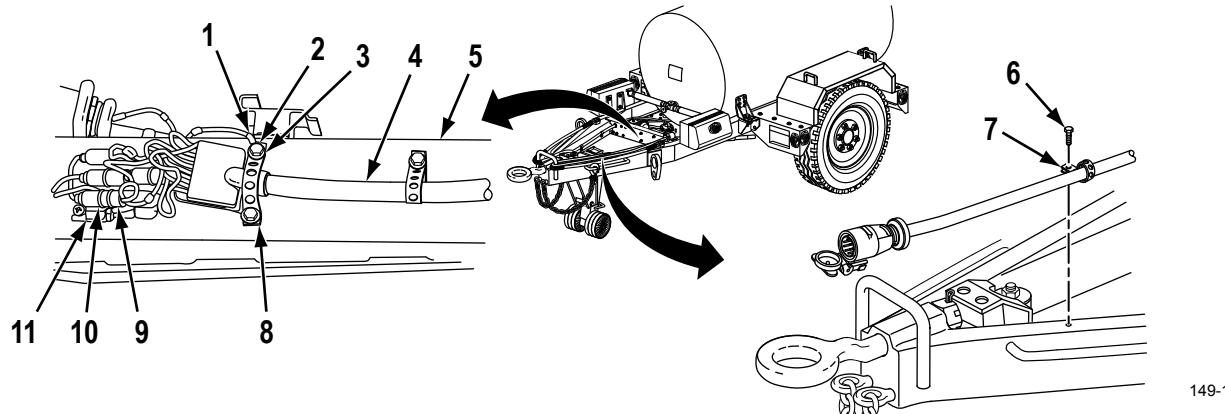


Figure 2. Intervehicular Cable Replacement.

END OF TASK**FOLLOW ON TASK**

Connect intervehicular connector and verify proper operation (WP 0005).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE CHASSIS WIRING HARNESS MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (8) WP 0086, Figure 3, Item 12

Materials/Parts

Grommet
WP 0086, Figure 3, Item 17
Tag, Marker (WP 0118, Table 1, Item 18)
Washer, Lock

References

WP 0082

Equipment Condition

Intervehicular cable disconnected (WP 0005)
Wheels chocked (WP 0005)

WARNING

Make sure electrical power is disconnected before performing any maintenance on the electrical system. Do not use metal cleaning objects to clean cable plugs or receptacles on trailer. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Testing the chassis wiring harness consists of a continuity check of the individual wires contained in the harness assembly. For wire function and identification, refer to wiring diagrams (WP 0082). Before disconnecting any wires, ensure that identification bands are present.
- This trailer has two lights assemblies. This procedure services one light assembly electrical connectors. The other light assembly electrical connectors are serviced the same way.
- This trailer has two rear mounting brackets. This procedure replaces one rear mounting bracket. The other rear mounting bracket is replaced the same way.
- Note chassis harness routing during removal to assist with installation.
- Tag all wires, hoses, tubing, and connections prior to removal for ease of installation.

TEST

1. Remove six electrical connectors (Figure 1, Items 16 and 17) from clips (Figure 1, Item 3) on trailer frame (Figure 1, Item 10).
2. Disconnect six electrical connectors (Figure 1, Item 17) from electrical connectors (Figure 1, Item 16).
3. Remove four electrical connectors (Figure 1, Items 6 and 7) from clips (Figure 1, Item 3) on trailer frame (Figure 1, Item 10).

NOTE

Repeat Steps 4 and 5 for all front plug connectors and rear plug connectors.

4. Disconnect four electrical connectors (Figure 1, Item 7) from electrical connectors (Figure 1, Item 6).
5. Place red lead from multimeter in one of the six front plug connectors (Figure 1, Item 17) and place the black lead in corresponding rear plug connector (Figure 1, Item 7).
6. If continuity is not present in one or more wires, remove and replace chassis wiring harness (Figure 1, Item 1). Refer to Removal in this work package.
7. Connect six electrical connectors (Figure 1, Item 17) on electrical connectors (Figure 1, Item 16) and secure in clip assemblies (Figure 1, Item 3).
8. Connect four electrical connectors (Figure 1, Item 7) on electrical connectors (Figure 1, Item 6) and secure in clip assemblies (Figure 1, Item 3).

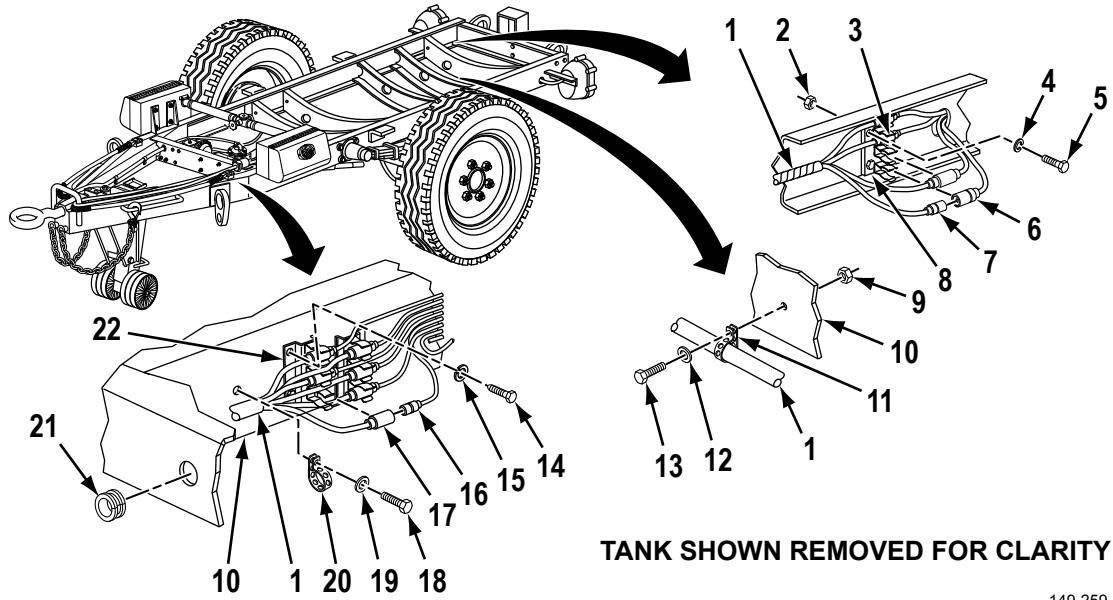


Figure 1. Chassis Wiring Harness Electrical Connectors Removal.

END OF TASK

REMOVAL

1. Remove six front chassis plug connectors (Figure 1, Item 17) and intervehicular cable connectors (Figure 1, Item 16) from clips (Figure 1, Item 3).
2. Disconnect six front chassis plug connectors (Figure 1, Item 17) from intervehicular cable connectors (Figure 1, Item 16).
3. Disconnect four rear chassis plug connectors (Figure 1, Item 7) and light assembly connectors (Figure 1, Item 6) from clips (Figure 1, Item 3).
4. Disconnect four rear chassis plug connectors (Figure 1, Item 7) from light assembly connectors (Figure 1, Item 6).
5. Remove three bolts (Figure 1, Item 18), washers (Figure 1, Item 19), and straps (Figure 1, Item 20) from chassis harness (Figure 1, Item 1).
6. Remove six nuts (Figure 1, Item 9), bolts (Figure 1, Item 13), washers (Figure 1, Item 12), and straps (Figure 1, Item 11) from chassis harness (Figure 1, Item 1).
7. Remove chassis harness (Figure 1, Item 1) and grommet (Figure 1, Item 21) from frame (Figure 1, Item 10). Discard grommet (Figure 1, Item 21).

NOTE

Steps 8 and 9 should only be performed if mounting clips are damaged.

8. Remove four screws (Figure 1, Item 14), four lockwashers (Figure 1, Item 15), and mounting bracket (Figure 1, Item 22) from frame assembly (Figure 1, Item 10). Discard lockwashers (Figure 1, Item 15).
9. Remove four screws (Figure 1, Item 5), lockwashers (Figure 1, Item 4), nuts (Figure 1, Item 2), and mounting bracket (Figure 1, Item 8) from frame assembly (Figure 1, Item 10). Discard lockwashers (Figure 1, Item 4).

END OF TASK**INSTALLATION****NOTE**

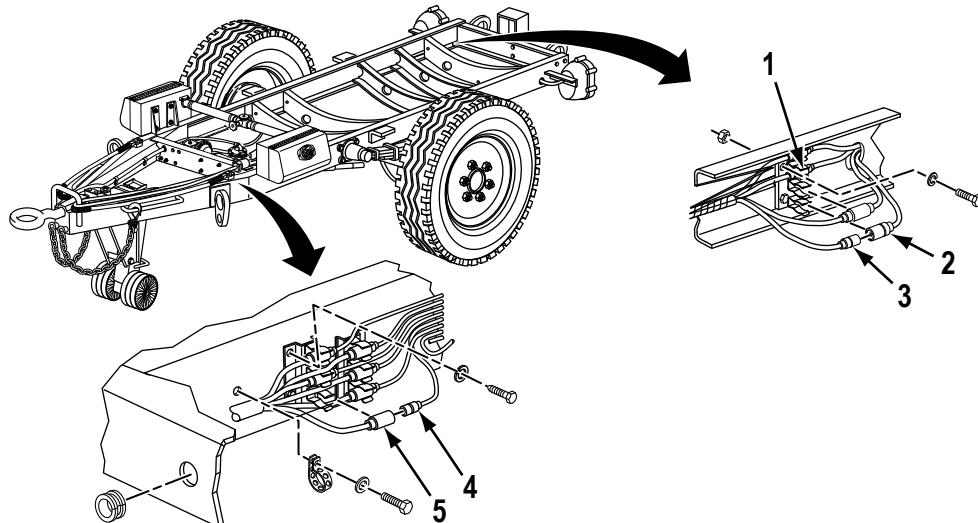
Steps 1 and 2 should only be performed if mounting clips were removed.

1. Install mounting bracket (Figure 1, Item 8) on frame assembly (Figure 1, Item 10) with four screws (Figure 1, Item 5), new lockwashers (Figure 1, Item 4) and nuts (Figure 1, Item 2).
2. Install mounting bracket (Figure 1, Item 22) on frame assembly (Figure 1, Item 10) with four screws (Figure 1, Item 14) and new lockwashers (Figure 1, Item 15).
3. Install chassis harness (Figure 1, Item 1) on trailer frame (Figure 1, Item 10) with new grommet (Figure 1, Item 21), three straps (Figure 1, Item 20), washers (Figure 1, Item 19), and bolts (Figure 1, Item 18).
4. Secure chassis harness (Figure 1, Item 1) on frame (Figure 1, Item 10) with six straps (Figure 1, Item 11), bolts (Figure 1, Item 13), washers (Figure 1, Item 12), and nuts (Figure 1, Item 9).

INSTALLATION - Continued**NOTE**

Wire harness schematic (WP 0082) may be used to assist with chassis harness connector installation.

5. Connect four rear chassis plug connectors (Figure 2, Item 3) on light assembly connectors (Figure 2, Item 2).
6. Install four rear chassis plug connectors (Figure 2, Item 3) and light assembly connectors (Figure 2, Item 2) on clip (Figure 2, Item 1).
7. Connect six front chassis plug connectors (Figure 2, Item 5) on intervehicular cable connectors (Figure 2, Item 4).
8. Install six chassis plug connectors (Figure 2, Items 5) and intervehicular cable connectors (Figure 2, Item 4) on clips (Figure 2, Item 1).



TANK SHOWN REMOVED FOR CLARITY

149-259a

Figure 2. Chassis Wiring Harness Electrical Connectors Installation.

END OF TASK**FOLLOW ON TASK**

Connect intervehicular cable and verify for proper operation (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
WIRING HARNESS AND CABLE REPAIR**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Crimping Tool, Pneumatic
(WP 0119, Table 1, Item 1)

Etcher, Electric (WP 0119, Table 1, Item 4)

Materials/Parts (cont.)

Tag, Marker (WP 0118, Table 1, Item 18)
Terminal Qty: (2) (WP 0086, Figure 3, Item 8)

Equipment Condition

Intervehicular cable disconnected (WP 0005)

Materials/Parts

Contact (WP 0086, Figure 3, Item 2)

WARNING



Make sure electrical power is disconnected before performing any maintenance on the electrical system. Do not use metal cleaning objects to clean cable plugs or receptacles on trailer. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

Tag all wires, hoses, tubing, and connections prior to removal for ease of installation.

IDENTIFICATION BAND REPLACEMENT

1. Remove identification band (Figure 1, Item 2) from wire lead (Figure 1, Item 1).
2. Etch new identification tag (Figure 1, Item 2) with same marking as original band. Discard old identification band (Figure 1, Item 2).

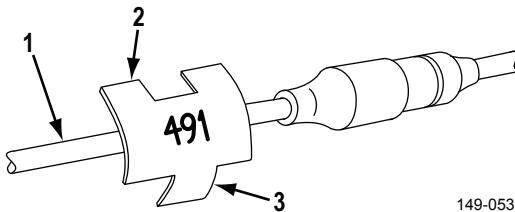


Figure 1. Identification Band Replacement.

3. Install new identification band (Figure 1, Item 2) to wire lead (Figure 1, Item 1) by bending tab (Figure 1, Item 3).

END OF TASK

TERMINAL REPLACEMENT

1. Remove terminal (Figure 2, Item 1) from wire lead (Figure 2, Item 2). Discard terminal (Figure 2, Item 1).

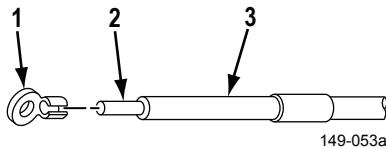


Figure 2. Terminal Replacement.

CAUTION

Remove only enough insulation to fill cavity on new terminal. Failure to comply may result in damage to, or destruction of, equipment or mission.

2. Remove insulation (Figure 2, Item 3) from wire lead (Figure 2, Item 2).
3. Install new terminal (Figure 2, Item 1) on wire lead (Figure 2, Item 2).

END OF TASK

MALE CONNECTOR REPAIR

1. Position shell (Figure 3, Item 5) from contact (Figure 3, Item 1) and remove washer (Figure 3, Item 4) from wire lead (Figure 3, Item 2).

CAUTION

Remove only enough insulation to fill cavity on new terminal. Failure to comply may result in damage to, or destruction of, equipment or mission.

2. Remove contact (Figure 3, Item 1) from wire lead (Figure 3, Item 2). Discard contact (Figure 3, Item 1).

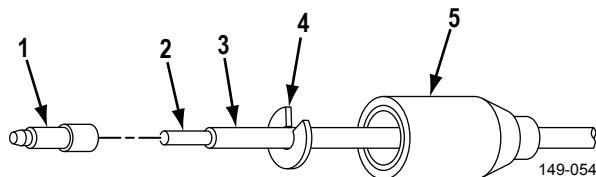
MALE CONNECTOR REPAIR - Continued

Figure 3. Male Connector Repair.

3. Remove insulation (Figure 3, Item 3) from wire lead (Figure 3, Item 2).
4. Install new contact (Figure 3, Item 1) on wire lead (Figure 3, Item 2).
5. Install washer (Figure 3, Item 4) on wire lead (Figure 3, Item 2) and position shell (Figure 3, Item 5) over contact (Figure 3, Item 1).

END OF TASK**FEMALE CONNECTOR REPAIR**

1. Position shell (Figure 4, Item 5) from insulator (Figure 4, Item 4) and terminal (Figure 4, Item 1) on wire lead (Figure 4, Item 2).

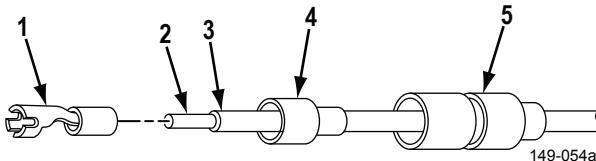


Figure 4. Female Connector Repair.

2. Remove terminal (Figure 4, Item 1) from wire lead (Figure 4, Item 2). Discard terminal (Figure 4, Item 1).

CAUTION

Remove only enough insulation to fill cavity on new terminal. Failure to comply may result in damage to, or destruction of, equipment or mission.

3. Remove insulation (Figure 4, Item 3) from wire lead (Figure 4, Item 2).
4. Install new terminal (Figure 4, Item 1) on wire lead (Figure 4, Item 2).
5. Position insulator (Figure 4, Item 4) and shell (Figure 4, Item 5) over terminal (Figure 4, Item 1) on wire lead (Figure 4, Item 2).

END OF TASK**FOLLOW ON TASK**

Connect intervehicular connector and verify proper operation (WP 0005).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE AXLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References

WP 0053

Materials/Parts

Washer, Lock
Qty: (4) WP 0100, Figure 17, Item 15

Equipment Condition

Shock absorbers removed (WP 0069)
Brake lines removed (WP 0054)
Handbrake cable disconnected (WP 0049)
Brake shoe assembly and backing plate removed
(WP 0050)
Water tank drained (WP 0005)

Personnel Required

Two

WARNING



- Axle weighs 150 lbs (68 kg). Two people are required to lift axle. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Lifting device must have a weight capacity greater than 5,800 lbs (2,630 kg), the weight of the trailer and cargo. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
- This trailer has four U-bolts. This procedure removes two U-bolts. The other U-bolts are removed the same way.

REMOVAL

1. Using a suitable lifting device (Figure 1, Item 3), raise axle (Figure 1, Item 2) and place suitable support (Figure 1, Item 4) under corners of rear crossmember (Figure 1, Item 1).

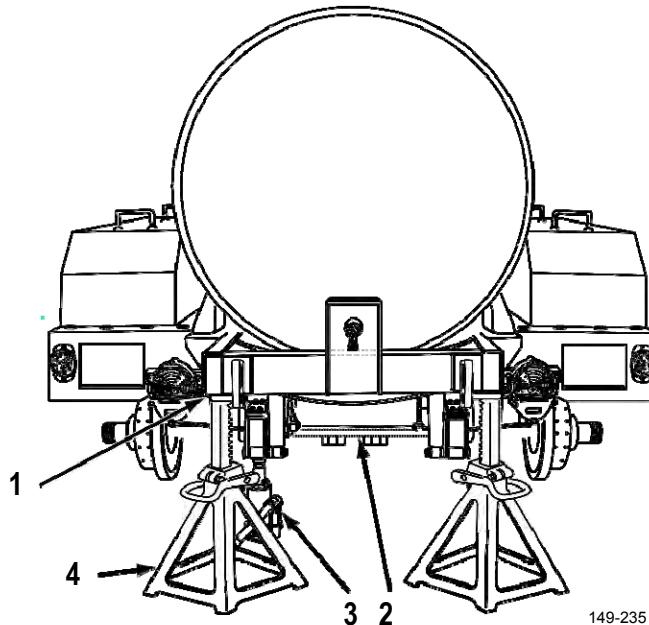
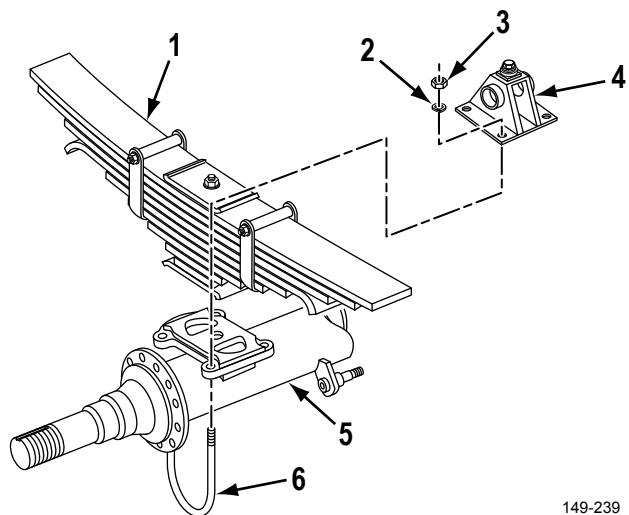


Figure 1. Suitable Lifting Device Placement.

2. Remove four nuts (Figure 2, Item 3), lockwashers (Figure 2, Item 2), and two U-bolts (Figure 2, Item 6) from bracket (Figure 2, Item 4) and axle (Figure 2, Item 5). Discard lockwashers (Figure 2, Item 2).
3. Carefully lower and remove axle (Figure 2, Item 5) from spring (Figure 2, Item 1).

END OF TASK**INSTALLATION**

1. Carefully raise and position axle (Figure 2, Item 5) on spring (Figure 2, Item 1). Support axle (Figure 2, Item 5) at both ends.
2. Install axle (Figure 2, Item 5) on spring (Figure 2, Item 1) and bracket (Figure 2, Item 4) with two U-bolts (Figure 2, Item 6), four new lockwashers (Figure 2, Item 2), and nuts (Figure 2, Item 3).

INSTALLATION - Continued

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Figure 2. Axle Replacement.

END OF TASK**FOLLOW ON TASK**

1. Connect handbrake cable (WP 0049).
2. Install brake lines (WP 0054).
3. Install brake shoe assembly and backing plate (WP 0050).
4. Install shock absorbers (WP 0069).
5. Bleed brakes (WP 0053).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE HANDBRAKE LEVER REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (3) WP 0088, Figure 5, Item 1
Pin, Cotter WP 0088, Figure 5, Item 12

Materials/Parts

Nut, Self-Locking

References

WP 0038

WARNING

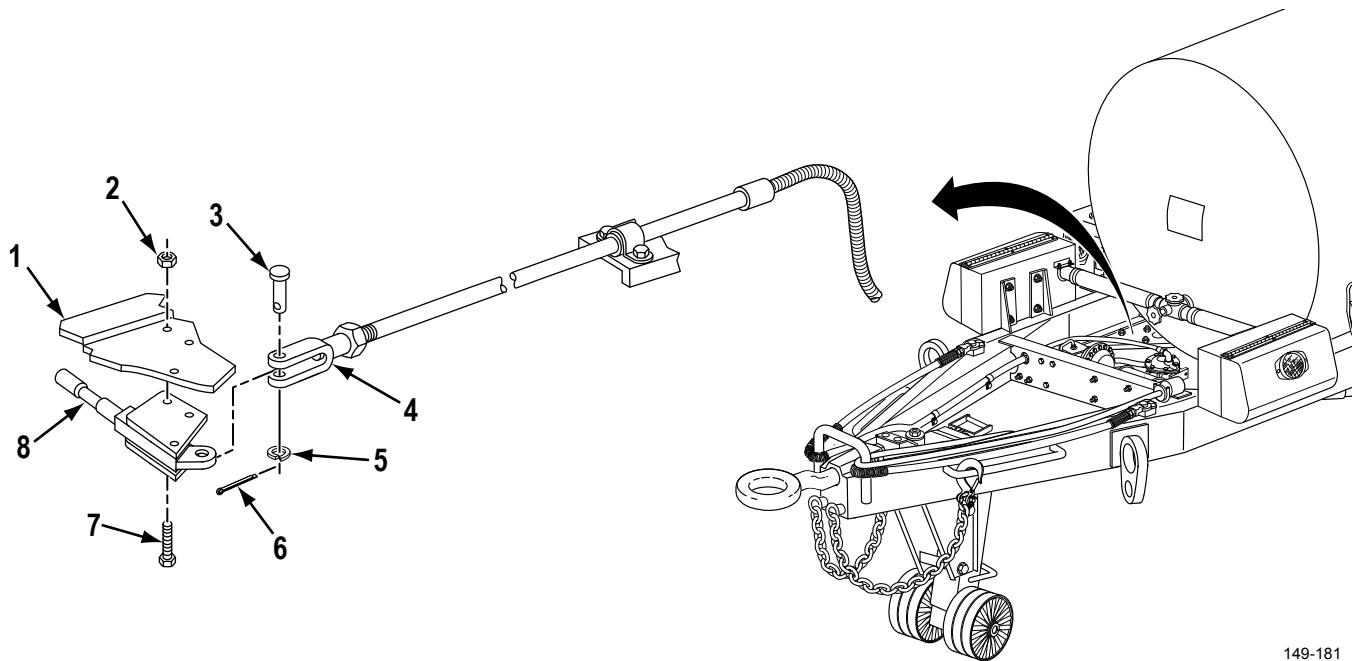
If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This trailer has two handbrake levers. This procedure replaces one hand brake lever. The other hand brake lever is replaced the same way.

REMOVAL

1. Remove cotter pin (Figure 1, Item 6), washer (Figure 1, Item 5), pin (Figure 1, Item 3), and clevis (Figure 1, Item 4) from handbrake lever (Figure 1, Item 8). Discard cotter pin (Figure 1, Item 6).
2. Remove three self-locking nuts (Figure 1, Item 2), bolts (Figure 1, Item 7), and handbrake lever (Figure 1, Item 8) from trailer (Figure 1, Item 1). Discard self-locking nuts (Figure 1, Item 2).



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Figure 1. Handbrake Lever Replacement.

END OF TASK**INSTALLATION**

1. Install handbrake lever (Figure 1, Item 8) on trailer (Figure 1, Item 1) with three bolts (Figure 1, Item 7) and new self-locking nuts (Figure 1, Item 2).
2. Install clevis (Figure 1, Item 4) on handbrake lever (Figure 1, Item 8) with pin (Figure 1, Item 3), washer (Figure 1, Item 5), and new cotter pin (Figure 1, Item 6).
3. Adjust handbrake lever (WP 0038).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE HANDBRAKE CABLE MAINTENANCE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References

WP 0050

Materials/Parts

Washer, Lock

Qty: (2) WP 0088, Figure 5, Item 8

Washer, Lock

Qty: (2) WP 0089, Figure 6, Item 29

Equipment Condition

Brake drum and wheel hub removed (WP 0061)

Handbrake cable disconnected from handbrake
lever (WP 0048)

WARNING



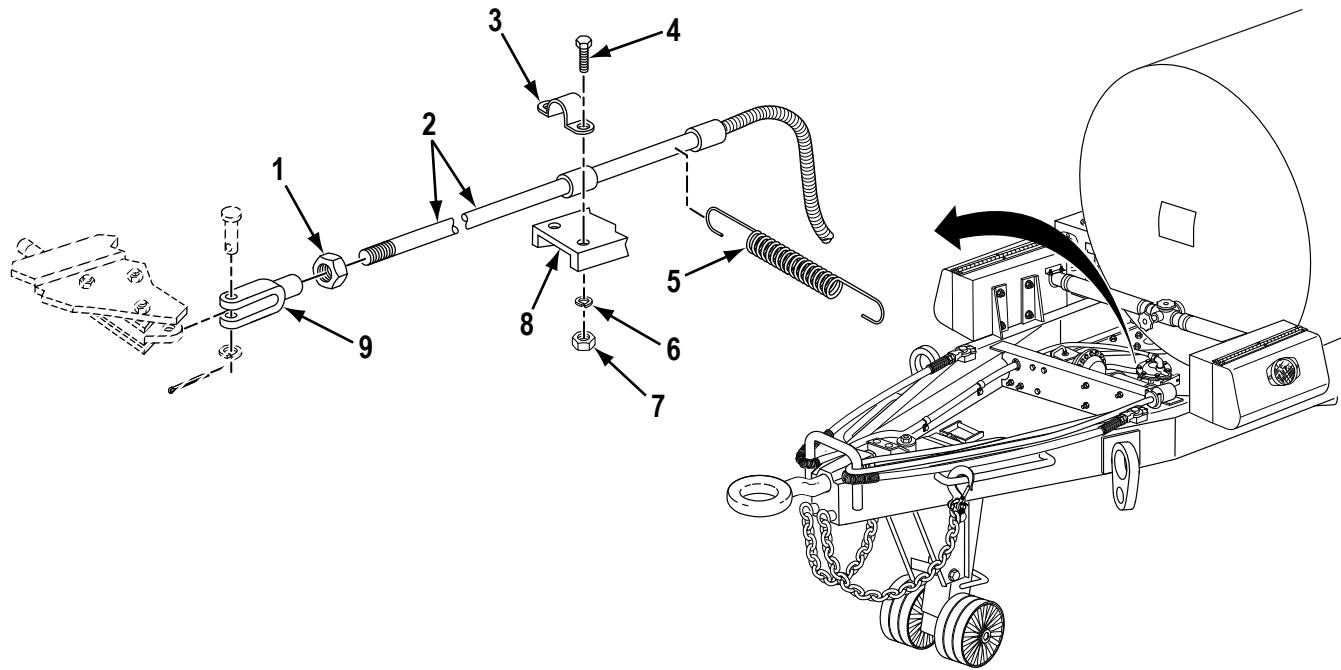
- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Wear eye protection to prevent eye injury when working with components that could fly through the air. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This trailer has two brake cables and parking brakes. This procedure one handbrake cable. The other handbrake cable is replaced the same way.

REMOVAL

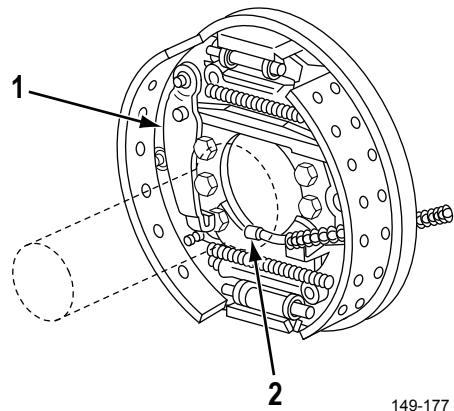
1. Remove spring (Figure 1, Item 5) from handbrake cable (Figure 1, Item 2).
2. Remove two nuts (Figure 1, Item 7), lockwashers (Figure 1, Item 6), bolts (Figure 1, Item 4), bracket (Figure 1, Item 3), and handbrake cable (Figure 1, Item 2) from trailer frame (Figure 1, Item 8). Discard lockwashers (Figure 1, Item 6).
3. Remove clevis (Figure 1, Item 9) and nut (Figure 1, Item 1) from handbrake cable (Figure 1, Item 2).



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Figure 1. Handbrake Cable Removal.

4. Remove handbrake cable (Figure 2, Item 2) from brake lever (Figure 2, Item 1).

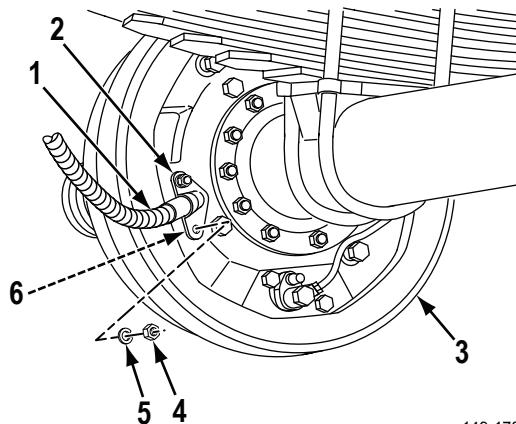


149-177

Figure 2. Handbrake Cable End Replacement.

REMOVAL - Continued

5. Remove two nuts (Figure 3, Item 4), lockwashers (Figure 3, Item 5), access cover (Figure 3, Item 6), and guide bracket (Figure 3, Item 2) from backing plate (Figure 3, Item 3). Discard lockwashers (Figure 3, Item 5).
6. Remove handbrake cable (Figure 3, Item 1) from backing plate (Figure 3, Item 3).



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Figure 3. Handbrake Cable Replacement.

END OF TASK**INSTALLATION**

1. Install guide bracket (Figure 3, Item 2) and handbrake cable (Figure 3, Item 1) on backing plate (Figure 3, Item 3) with access cover (Figure 3, Item 6), two new lockwashers (Figure 3, Item 5), and nuts (Figure 3, Item 4).
2. Install handbrake cable (Figure 2, Item 2) on brake lever (Figure 2, Item 1).
3. Install nut (Figure 1, Item 1) and clevis (Figure 1, Item 9) on handbrake cable (Figure 1, Item 2).
4. Install handbrake cable (Figure 1, Item 2) on trailer (Figure 1, Item 8) with bracket (Figure 1, Item 3), two bolts (Figure 1, Item 4), new lockwashers (Figure 1, Item 6), and nuts (Figure 1, Item 7).
5. Install spring (Figure 1, Item 5) on handbrake cable (Figure 1, Item 2).

END OF TASK

ADJUSTMENT**WARNING**

Lifting device must have a weight capacity greater than 5,800 lbs (2,630 kg), the weight of the trailer and cargo. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Ensure proper brake shoe clearance before adjusting linkage (WP 0050).
- When handbrake cable is properly adjusted, the handbrake lever should only require one third of its full travel to apply the parking brake.
- This trailer has two brake cables. This procedure adjusts one handbrake cable. The other handbrake cable is adjusted the same way.

Adjust handbrake cable (Figure 4, Item 1) by tightening or loosening nut (Figure 4, Item 2) while handbrake lever (Figure 4, Item 3) is in the released position.

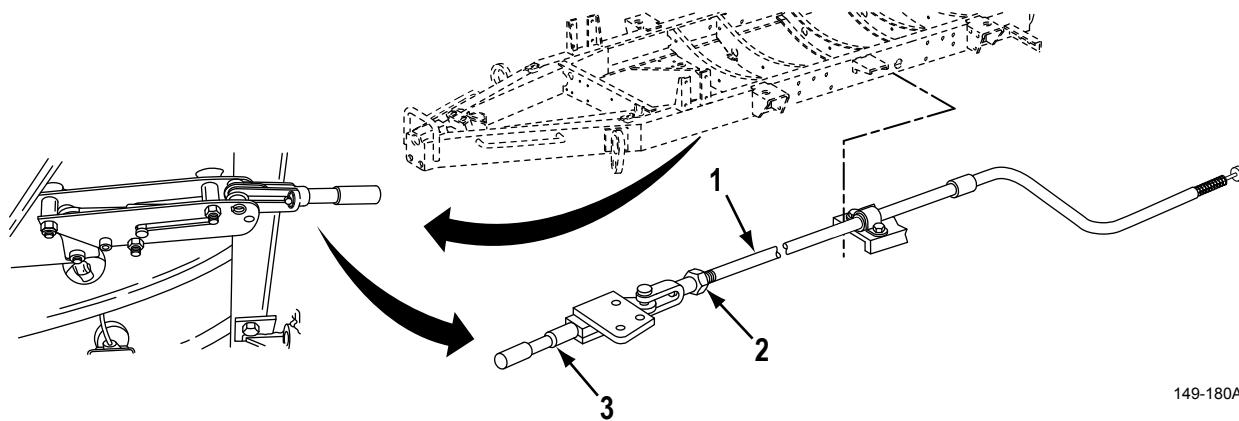


Figure 4. Handbrake Cable Adjustment.

END OF TASK**FOLLOW ON TASK**

1. Connect handbrake lever to handbrake cable (WP 0048).
2. Install brake drum, wheel hub, and bearing (WP 0061).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE BRAKE SHOE ASSEMBLY MAINTENANCE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

Materials/Parts (cont.)

Qty: (2) WP 0089, Figure 6, Item 29
Washer, Lock

Qty: (12) WP 0089, Figure 6, Item 48

Materials/Parts

Cleaning Compound, Solvent
(WP 0118, Table 1, Item 6)

Rag, Wiping (WP 0118, Table 1, Item 15)

Washer, Lock

Qty: (2) WP 0089, Figure 6, Item 9

Washer, Lock

References

WP 0049
WP 0053

Equipment Condition

Brake lines disconnected (WP 0054)
Brake drum, wheel hub, and wheel bearing
removed (WP 0061)

WARNING



- Do not handle brake shoes, brake drums, or other brake components unless area has been properly cleaned. There may be hazardous dust on these components which can be dangerous if you touch it or breathe it. Wear 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 comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Wear eye protection to prevent eye injury when working with components that could fly through the air. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This trailer has two brake shoe assemblies. This procedure replaces one brake shoe assembly. The other brake shoe assembly is replaced the same way.

DISASSEMBLY**NOTE**

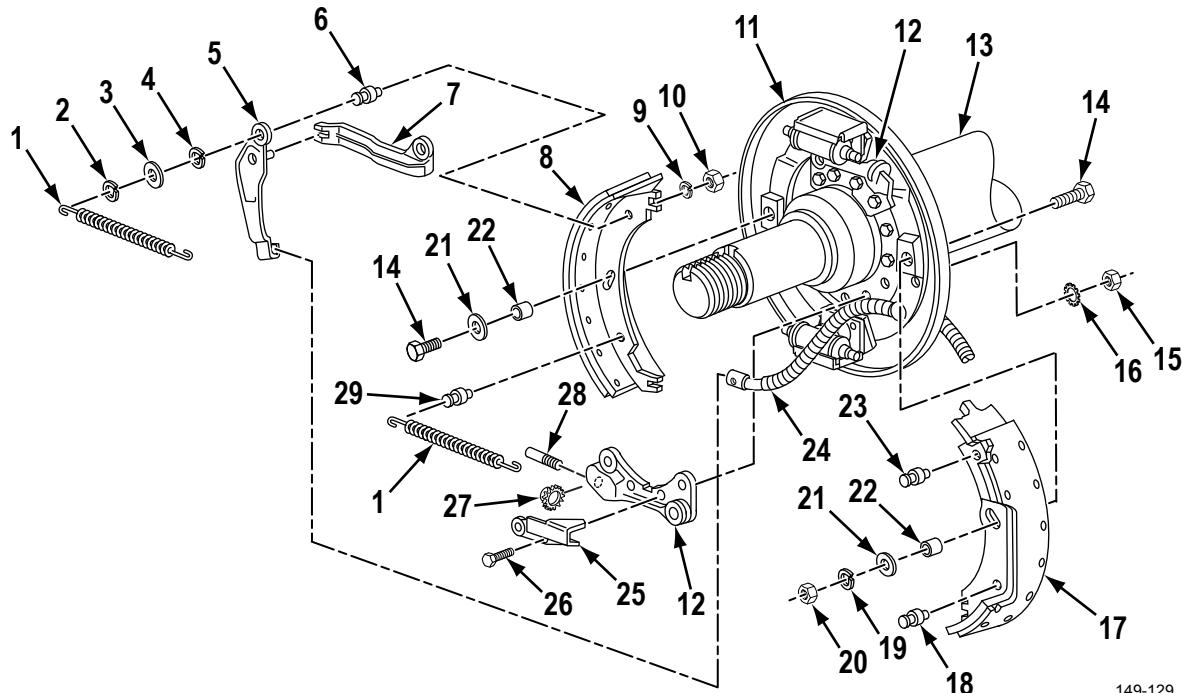
Perform Steps 1 through 5 only if replacing brake shoes.

1. Remove two springs (Figure 1, Item 1) from pins (Figure 1, Items 6, 18, 23, and 29).
2. Disconnect handbrake cable (Figure 1, Item 24) from brake lever (Figure 1, Item 5).
3. Remove two slotted washers (Figure 1, Item 2), washers (Figure 1, Item 3), spring washers (Figure 1, Item 4), brake lever (Figure 1, Item 5), and link (Figure 1, Item 7) from pins (Figure 1, Item 6).

NOTE

Step 4 removes one brake shoe. Repeat Step 4 for other brake shoe.

4. Remove nut (Figure 1, Item 20), lockwasher (Figure 1, Item 19), washer (Figure 1, Item 21), sleeve (Figure 1, Item 22), bolt (Figure 1, Item 14), and brake shoe (Figure 1, Item 17) from backing plate (Figure 1, Item 11). Discard lockwasher (Figure 1, Item 19).
5. Remove 12 nuts (Figure 1, Item 15), lockwashers (Figure 1, Item 16), bolts (Figure 1, Item 26), cable ramp (Figure 1, Item 25), two supports (Figure 1, Item 12), and backing plate (Figure 1, Item 11) from axle (Figure 1, Item 13). Discard lockwashers (Figure 1, Item 16).
6. Remove brake adjusting screw (Figure 1, Item 28) and slack adjusting wheel (Figure 1, Item 27) from each support (Figure 1, Item 12).
7. Remove four nuts (Figure 1, Item 10) and lockwashers (Figure 1, Item 9) from pins (Figure 1, Items 6, 18, 23, and 29). Remove pins from brake shoes (Figure 1, Items 8 and 17). Discard lockwashers (Figure 1, Item 9).



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Figure 1. Service Brakes Disassembly.

END OF TASK

CLEANING AND INSPECTION**WARNING**

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

CLEANING AND INSPECTION - Continued**NOTE**

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.

1. Clean all parts with cleaning compound solvent. Dry thoroughly.
2. Inspect all parts for damage. Replace any damaged parts.
3. Inspect brake shoe linings (Figure 2, Item 1) for cracks and wear. Replace brake shoe if:
 - a. Brake shoe is cracked or if grease is present.
 - b. Brake shoe lining is less than 0.125 in. (3 mm) in thickness.
 - c. Depth of rivet heads (Figure 2, Item 2) is not at least 0.063 in. (2 mm) below brake shoe lining.

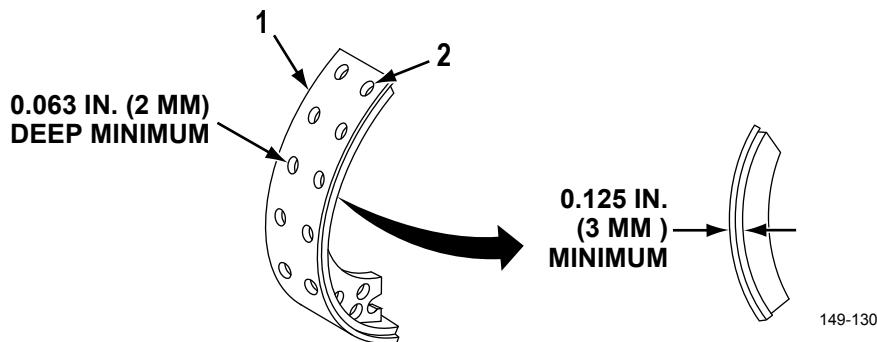


Figure 2. Brake Lining Inspection.

END OF TASK**ASSEMBLY****NOTE**

Perform Steps 4 through 9 only if replacing brake shoes.

1. Install pins (Figure 3, Items 6, 18, 23, and 29) on brake shoes (Figure 3, Items 8 and 17) with four new lockwashers (Figure 3, Item 9) and nuts (Figure 3, Item 10).
2. Install slack adjusting wheel (Figure 3, Item 27) and brake adjusting screw (Figure 3, Item 28) on each support (Figure 3, Item 12).
3. Position backing plate (Figure 3, Item 11), two supports (Figure 3, Item 12), and cable ramp (Figure 3, Item 25) on axle (Figure 3, Item 13) and install 12 bolts (Figure 3, Item 26), new lockwashers (Figure 3, Item 16), and nuts (Figure 3, Item 15).

ASSEMBLY - Continued**NOTE**

Step 4 installs one brake shoe. Repeat Step 4 to install other brake shoe.

4. Install brake shoe (Figure 3, Item 17) on backing plate (Figure 3, Item 11) with bolt (Figure 3, Item 14), sleeve (Figure 3, Item 22), washer (Figure 3, Item 21), new lockwasher (Figure 3, Item 19), and nut (Figure 3, Item 20).

CAUTION

Pin on brake lever must engage slot in link. Failure to comply may result in damage to, or destruction of, equipment or mission.

5. Install link (Figure 3, Item 7) on pin (Figure 3, Item 23) and brake lever (Figure 3, Item 5) on pin (Figure 3, Item 6).
6. Install two spring washers (Figure 3, Item 4), washers (Figure 3, Item 3), and slotted washers (Figure 3, Item 2) on pins (Figure 3, Items 6 and 23).
7. Install two springs (Figure 3, Item 1) on pins (Figure 3, Items 6, 18, 23, and 29).
8. Connect handbrake cable (Figure 3, Item 24) to brake lever (Figure 3, Item 5).

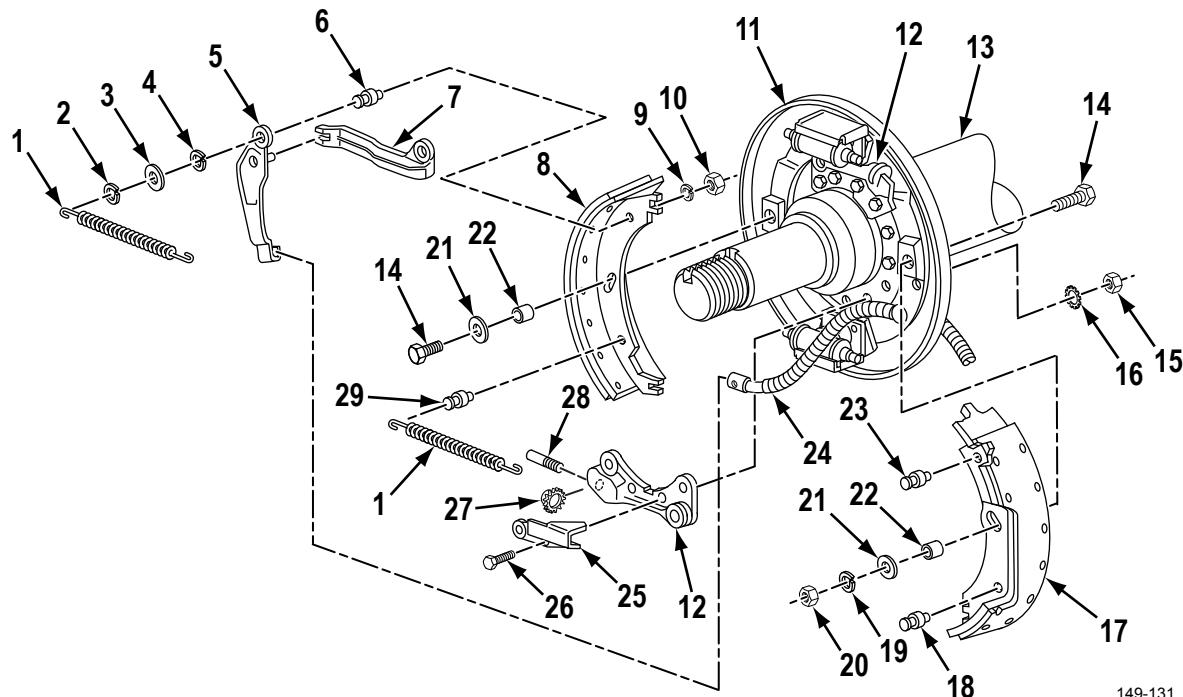


Figure 3. Service Brake Assembly.

END OF TASK

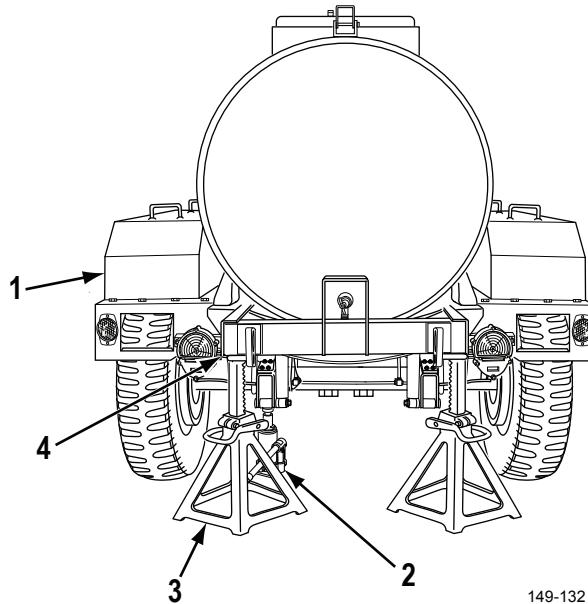
ADJUSTMENT**WARNING**

- Lifting device must have a weight capacity greater than 5,800 lbs (2,630 kg) the weight of the trailer and cargo. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Weight of trailer must be supported on suitable support at all times. Do not attempt to support weight of trailer on suitable lifting device. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- To ensure an accurate adjustment, this procedure must be performed when brake shoes are cool.
- Perform this adjustment at each wheel to adjust brakes.
- After an initial break-in period, brakes may need to be readjusted. If required, repeat Steps 1 through 4.

1. Using a suitable lifting device (Figure 4, Item 2), raise one side of trailer (Figure 4, Item 1) and place a suitable support (Figure 4, Item 3) on corner of rear crossmember (Figure 4, Item 4). Repeat for other side.



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Figure 4. Suitable Support Placement.

ADJUSTMENT - Continued

2. On curbside of trailer, turn upper brake shoe adjusting bolt (Figure 5, Item 1) and lower brake shoe adjusting bolt (Figure 5, Item 2) clockwise until brakes are completely released. Verify wheel turns freely.
3. On roadside of trailer, turn upper brake shoe adjusting bolt (Figure 5, Item 1) and lower brake shoe adjusting bolt (Figure 5, Item 2) counterclockwise until brakes are completely released. Verify wheel turns freely.

NOTE

Over-tightened bearing is evident if a drag occurs when brakes are completely backed off.

4. If a drag is present, check to see if drum (hub) has been over-tightened. Re-assemble bearings and drum so that wheel turns freely (WP 0061).
5. On curbside of trailer, turn upper brake shoe adjusting bolt (Figure 5, Item 1) counterclockwise until a slight drag is felt, then back off four full turns to allow wheel to turn freely with no drag. Wheel should make several rotations by itself before coming to a stop. Repeat for lower brake shoe adjusting bolt (Figure 5, Item 2).

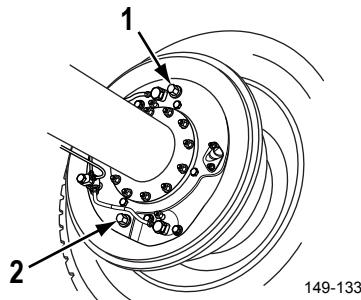


Figure 5. Brake Shoe Adjustment.

6. On roadside of trailer, turn upper brake shoe adjusting bolt (Figure 5, Item 1) clockwise until a slight drag is felt, then back off four full turns to allow wheel to turn freely with no drag. Wheel should make several rotations by itself before coming to a stop. Repeat for lower brake shoe adjusting bolt (Figure 5, Item 2).
7. Bleed brakes if axle hydraulic lines were disconnected from backing plate (WP 0053).
8. Adjust parking brake linkage and cables (WP 0049).

END OF TASK**FOLLOW ON TASK**

1. Connect brake lines (WP 0054).
2. Install brake drum, wheel hub, and bearing (WP 0061).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE MASTER CYLINDER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (3) WP 0094, Figure 11, Item 18

Materials/Parts

Brake Fluid (WP 0118, Table 1, Item 2)
Nut, Self-Locking
Qty: (3) WP 0090, Figure 7, Item 2
Washer, Lock

References

WP 0053

Equipment Condition

Wheels chocked (WP 0005)
Trailer uncoupled (WP 0005)

WARNING



- Eye injury may result if hydraulic brake fluid comes in contact with eyes. Always wear eye protection when working with hydraulic brake fluid. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use only fresh hydraulic brake fluid from a sealed container; do not reuse fluid. After filling and bleeding, be sure to refill master cylinder to 3/4 full. Failure to maintain an adequate fluid level may cause brake failure. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

CAUTION

Dirt, water, or grease will contaminate brake fluid. Clean exterior of master cylinder and filler cap before removing cap. Failure to comply may result in damage to, or destruction of, equipment or mission.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.

REMOVAL

1. Loosen clamp (Figure 1, Item 6) and remove hose (Figure 1, Item 9) from vent tube (Figure 1, Item 5).
2. Remove vent tube (Figure 1, Item 5), filler cap (Figure 1, Item 7), and spacer ring (Figure 1, Item 8) from master cylinder (Figure 1, Item 13).
3. Remove tube assembly (Figure 1, Item 10), adapter (Figure 1, Item 11), and washer (Figure 1, Item 12) from master cylinder (Figure 1, Item 13).
4. Remove three nuts (Figure 1, Item 14), lockwashers (Figure 1, Item 15), master cylinder (Figure 1, Item 13), and air brake chamber (Figure 1, Item 1) from bracket (Figure 1, Item 17). Discard lockwashers (Figure 1, Item 15).
5. Remove three self-locking nuts (Figure 1, Item 3), screws (Figure 1, Item 4), and bracket (Figure 1, Item 17) from trailer frame (Figure 1, Item 2). Discard self-locking nuts (Figure 1, Item 3).
6. Remove identification plate (Figure 1, Item 16) if damaged.

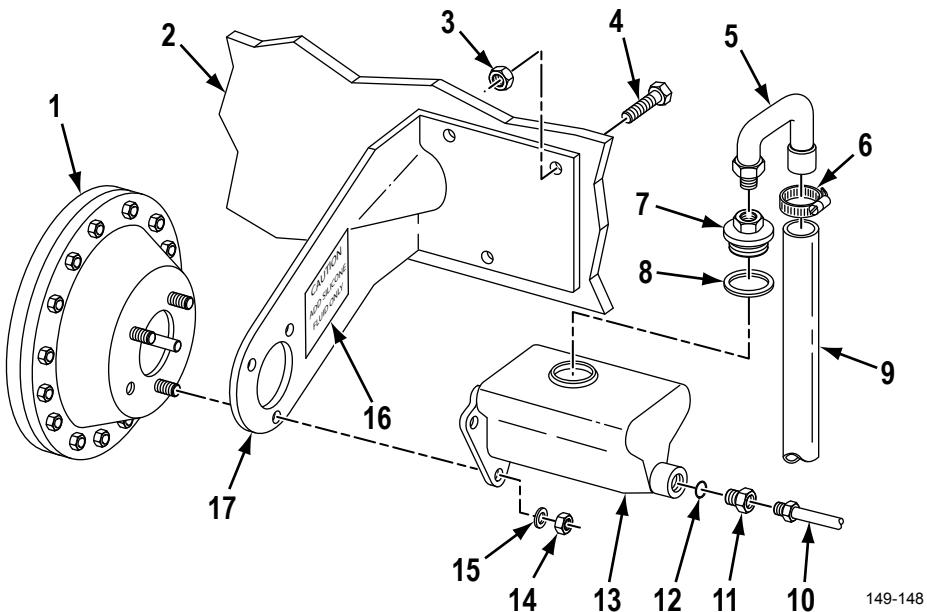


Figure 1. Master Cylinder Replacement.

END OF TASK

INSTALLATION

1. Install identification plate (Figure 1, Item 16) if damaged or missing.

NOTE

Perform Step 2 only if bracket was removed.

2. Install bracket (Figure 1, Item 17) on trailer frame (Figure 1, Item 2) with three screws (Figure 1, Item 4) and new self-locking nuts (Figure 1, Item 3).
3. Install air brake chamber (Figure 1, Item 1) and master cylinder (Figure 1, Item 13) on bracket (Figure 1, Item 17) with three new lockwashers (Figure 1, Item 15) and nuts (Figure 1, Item 14).
4. Install tube assembly (Figure 1, Item 10), adapter (Figure 1, Item 11), and washer (Figure 1, Item 12) on master cylinder (Figure 1, Item 13).
5. Install spacer ring (Figure 1, Item 8), filler cap (Figure 1, Item 7), and vent tube (Figure 1, Item 5) on master cylinder (Figure 1, Item 13).
6. Install vent hose (Figure 1, Item 9) on vent tube (Figure 1, Item 5) with clamp (Figure 1, Item 6).

END OF TASK**FOLLOW ON TASK**

Bleed brakes (WP 0053).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
WHEEL CYLINDER REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (2) (WP 0092, Figure 9, Item 2)

Materials/Parts

Spacer, Ring Qty: (2) (WP 0092, Figure 9, Item 8)
Washer, Lock
Qty: (4) (WP 0091, Figure 8, Item 4)
Washer, Shouldered

References

WP 0053

Equipment Condition

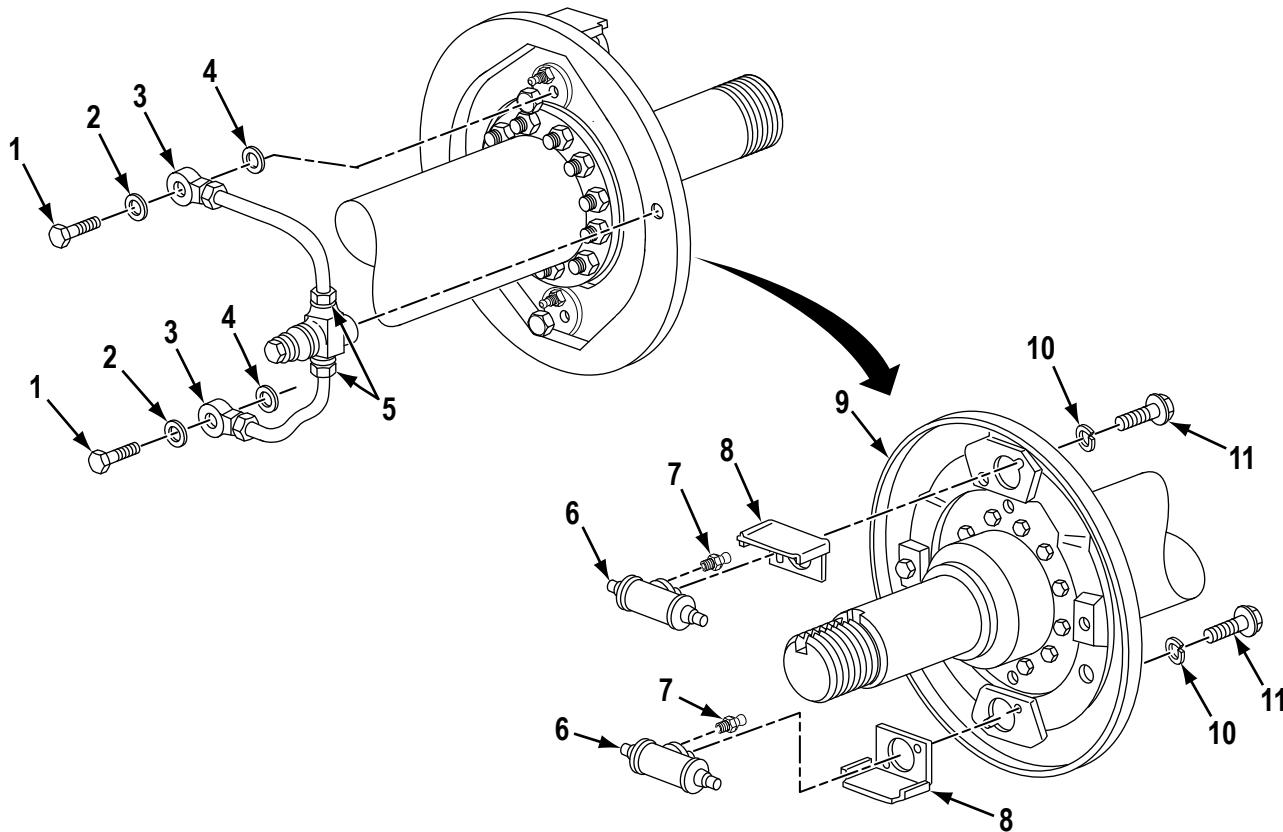
Brake shoes removed (WP 0050)

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
- This trailer has four wheel cylinders. This procedure replaces two wheel cylinders. The other two wheel cylinders are replaced the same way.

REMOVAL

1. Remove two nuts (Figure 1, Item 5), bolts (Figure 1, Item 1), shouldered washers (Figure 1, Item 2), spacer rings (Figure 1, Item 4), and connectors (Figure 1, Item 3) from wheel cylinder (Figure 1, Items 6). Discard shouldered washers (Figure 1, Item 2) and spacer rings (Figure 1, Item 4).
2. Remove four screws (Figure 1, Item 11), lockwashers (Figure 1, Item 10), two wheel cylinders (Figure 1, Item 6), and shields (Figure 1, Item 8) from backing plate (Figure 1, Item 9). Discard lockwashers (Figure 1, Item 10).
3. Remove two bleeder valves (Figure 1, Items 7) from wheel cylinders (Figure 1, Items 6).



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Figure 1. Wheel Cylinder Replacement.

END OF TASK**INSTALLATION**

1. Install two bleeder valves (Figure 1, Items 7) on wheel cylinders (Figure 1, Items 6).
2. Install two shields (Figure 1, Item 8) and wheel cylinders (Figure 1, Item 6) on backing plate (Figure 1, Item 9) with four new lockwashers (Figure 1, Item 10) and screws (Figure 2, Item 11).
3. Install two nuts (Figure 1, Item 5), connector (Figure 1, Item 3) on wheel cylinders (Figure 1, Items 6) with two new spacers (Figure 1, Item 4), new shouldered washers (Figure 1, Item 2), and bolts (Figure 1, Item 1).

END OF TASK

FOLLOW ON TASK

1. Install brake shoes (WP 0050).
2. Bleed brakes (WP 0053).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
BRAKE LINES, HOSES, AND FITTINGS REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

(WP 0092, Figure 9, Item 26)
Washer, Lock
Qty: (2) (WP 0092, Figure 9, Item 37)

Materials/Parts

Nut, Self-Locking
(WP 0092, Figure 9, Item 24)
Washer, Lock

References

WP 0054

WARNING**NOTE**

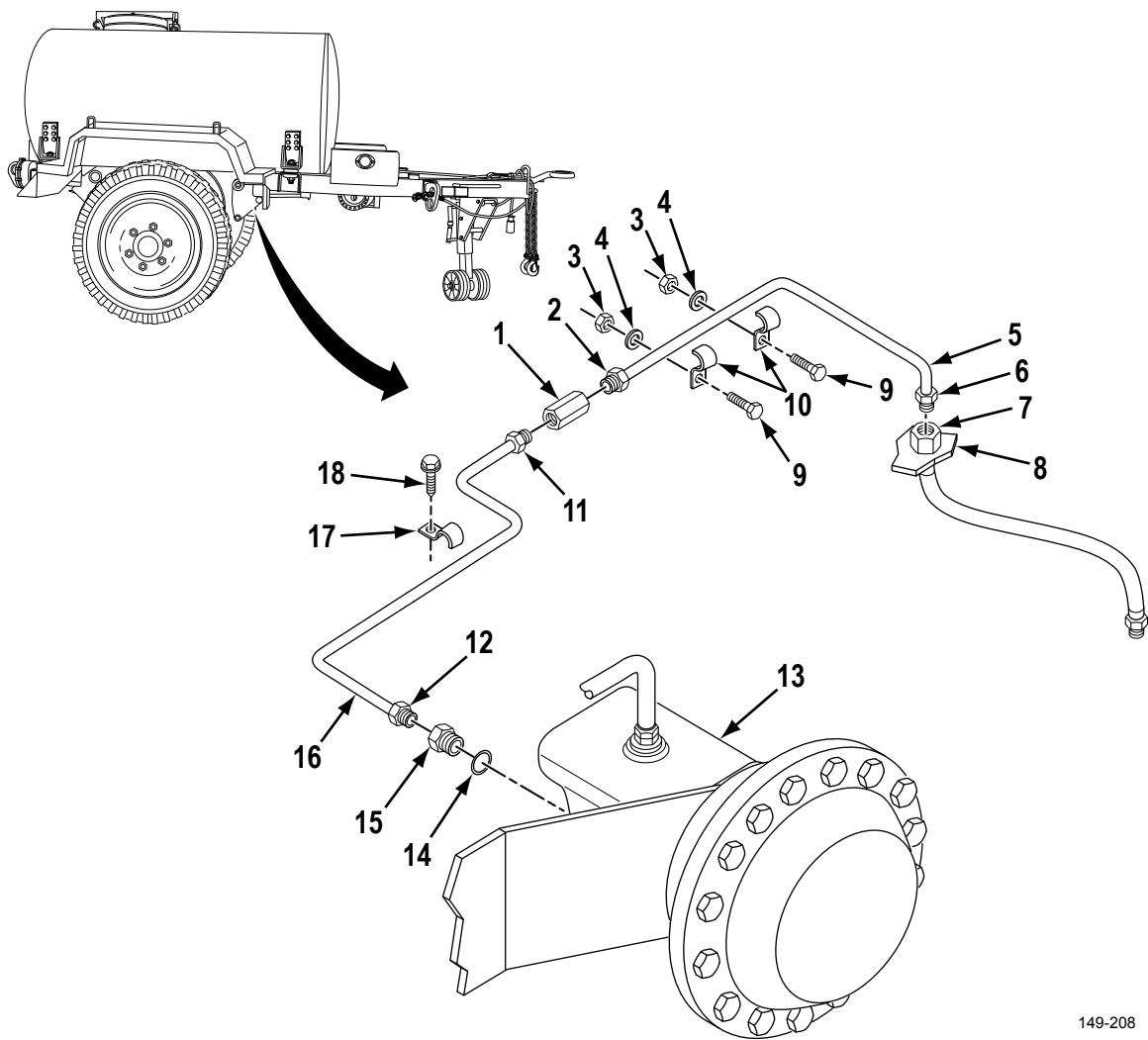
- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
- This trailer has two axle tubes. This procedure replaces one axle tube. The other axle tube is replaced the same way.
- This trailer has four backing plate tubes. This procedure replaces one backing plate tubes. The other backing plate tubes are replaced the same way.
- Front brake tubes, brake hose, axle tubes, and backing plate tubes replacement are listed in this Work Package (WP). Perform one or all that are needed to correct the problem.

FRONT BRAKE TUBES REMOVAL

1. Loosen nut (Figure 1, Item 12) and remove tube (Figure 1, Item 16) from adapter (Figure 1, Item 15).
2. Remove adapter (Figure 1, Item 15) and washer (Figure 1, Item 14) from master cylinder (Figure 1, Item 13).
3. Loosen nut (Figure 1, Item 11) and remove tube (Figure 1, Item 16) from coupling (Figure 1, Item 1).
4. Remove bolt (Figure 1, Item 18), clamp (Figure 1, Item 17), and tube (Figure 1, Item 16) from trailer (Figure 1, Item 8).
5. Loosen nut (Figure 1, Item 6) and remove tube (Figure 1, Item 5) from nut (Figure 1, Item 7).
6. Remove two nuts (Figure 1, Item 3), lockwashers (Figure 1, Item 4), bolts (Figure 1, Item 9), clamps (Figure 1, Item 10), and tube (Figure 1, Item 5) from trailer (Figure 1, Item 8). Discard lockwashers (Figure 1, Item 4).
7. Loosen nut (Figure 1, Item 2) and remove coupling (Figure 1, Item 1) from tube (Figure 1, Item 5).

END OF TASK**FRONT BRAKE TUBES INSTALLATION**

1. Install coupling (Figure 1, Item 1) on tube (Figure 1, Item 5) with nut (Figure 1, Item 2).
2. Install tube (Figure 1, Item 5) on nut (Figure 1, Item 7) with nut (Figure 1, Item 6).
3. Install tube (Figure 1, Item 5) on trailer (Figure 1, Item 8) with two bolts (Figure 1, Item 9), clamps (Figure 1, Item 10), new lockwashers (Figure 1, Item 4), and nuts (Figure 1, Item 3).
4. Install tube (Figure 1, Item 16) on coupling (Figure 1, Item 1) with nut (Figure 1, Item 11).
5. Install washer (Figure 1, Item 14) and adapter (Figure 1, Item 15) on master cylinder (Figure 1, Item 13).
6. Install tube (Figure 1, Item 16) on adapter (Figure 1, Item 15) with nut (Figure 1, Item 12).
7. Install tube (Figure 1, Item 16) on trailer (Figure 1, Item 8) with bolt (Figure 1, Item 18) and clamp (Figure 1, Item 17).
8. Bleed brakes (WP 0054).

FRONT BRAKE TUBES INSTALLATION - Continued

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Figure 1. Front Brake Tubes Replacement.

END OF TASK

BRAKE HOSE REMOVAL

1. Loosen nut (Figure 2, Item 2) and remove tube (Figure 2, Item 1) from nut (Figure 2, Item 3).
2. Remove hose (Figure 2, Item 6) from connector (Figure 2, Item 7).
3. Remove nut (Figure 2, Item 3), lockwasher (Figure 2, Item 4), and hose (Figure 2, Item 6) from trailer (Figure 2, Item 5). Discard lockwasher (Figure 2, Item 4).

END OF TASK**BRAKE HOSE INSTALLATION**

1. Install hose (Figure 2, Item 6) on connector (Figure 2, Item 7).
2. Install tube (Figure 2, Item 1) on nut (Figure 2, Item 3) with nut (Figure 2, Item 2).
3. Install hose (Figure 2, Item 6) on trailer (Figure 2, Item 5) with new lockwasher (Figure 2, Item 4) and nut (Figure 2, Item 3).
4. Bleed brakes (WP 0054).

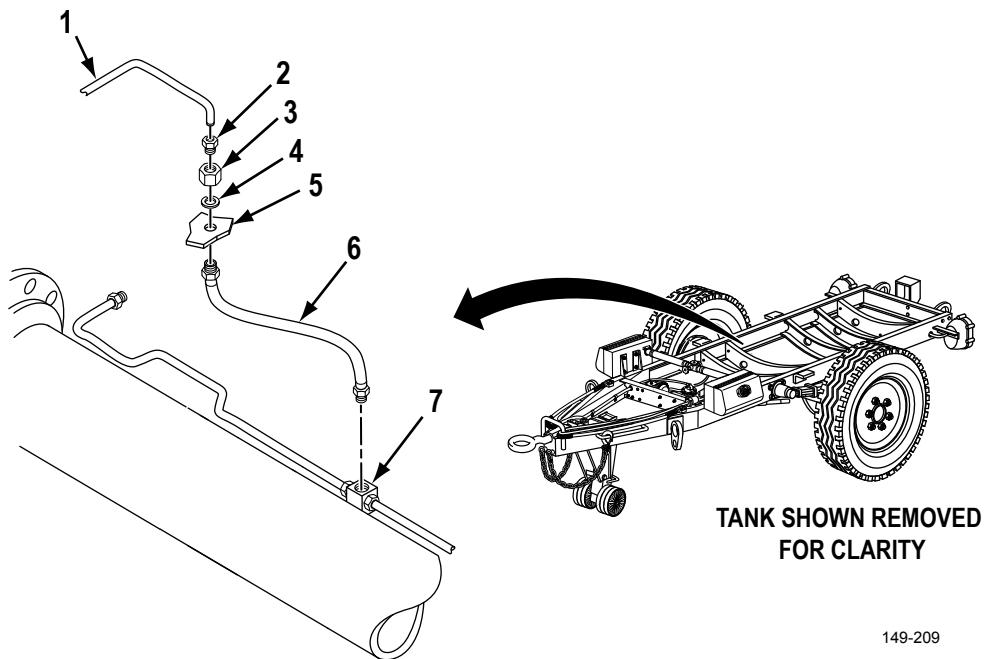


Figure 2. Brake Hose Replacement.

END OF TASK

AXLE TUBES REMOVAL

1. Loosen two nuts (Figure 3, Items 2 and 3) and remove axle tube (Figure 3, Item 4) from axle (Figure 3, Item 6).
2. Remove self-locking nut (Figure 3, Item 5) and connector (Figure 3, Item 1) from axle (Figure 3, Item 6). Discard self-locking nut (Figure 3, Item 5).

END OF TASK**AXLE TUBES INSTALLATION**

1. Install connector (Figure 3, Item 1) on axle (Figure 3, Item 6) with new self-locking nut (Figure 3, Item 5).
2. Install axle tube (Figure 3, Item 4) on axle (Figure 3, Item 6) with two nuts (Figure 3, Items 2 and 3).
3. Bleed brakes (WP 0054).

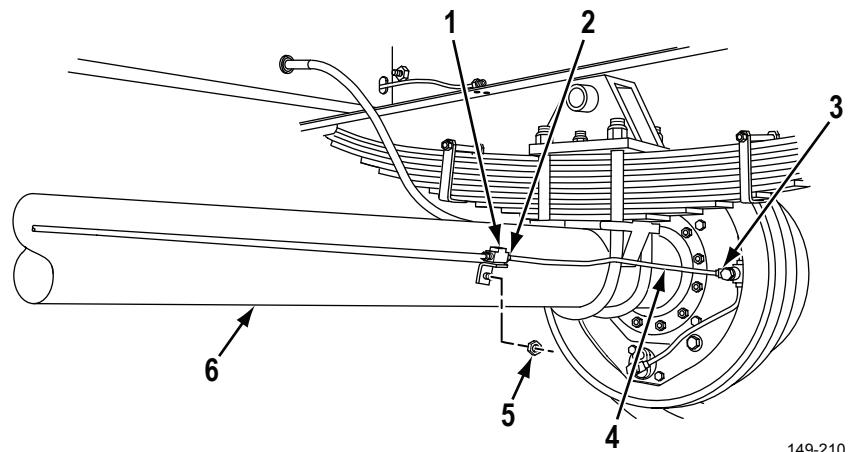


Figure 3. Axle Tubes and Connector Replacement.

END OF TASK

BACKING PLATE TUBES REMOVAL

1. Loosen two nuts (Figure 4, Items 5 and 7) on and remove tube (Figure 4, Item 6) from backing plate (Figure 4, Item 1).
2. Loosen two nuts (Figure 4, Items 2 and 4) and remove lower tube (Figure 4, Item 3) from backing plate (Figure 4, Item 1).

END OF TASK**BACKING PLATE TUBES INSTALLATION**

1. Install tube (Figure 4, Item 3) on backing plate (Figure 4, Item 1) with two nuts (Figure 4, Items 2 and 4).
2. Install tube (Figure 4, Item 6) on backing plate (Figure 4, Item 1) with two nuts (Figure 4, Items 5 and 7).
3. Bleed brakes (WP 0054).

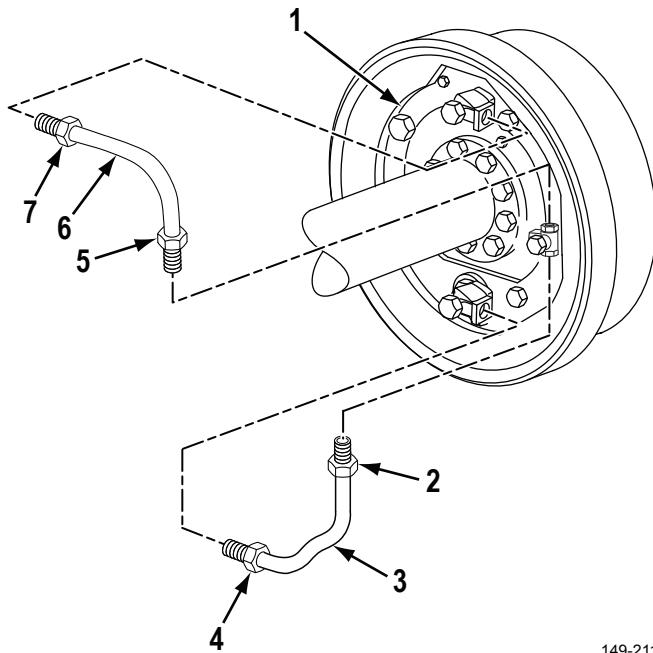


Figure 4. Backing Plate Tubes Replacement.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
HYDRAULIC BRAKE SYSTEM SERVICE**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

Materials/Parts (cont.)

(WP 0118, Table 1, Item 6)
Rag, Wiping (WP 0118, Table 1, Item 15)
Tubing, Plastic (WP 0118, Table 1, Item 19)

Materials/Parts

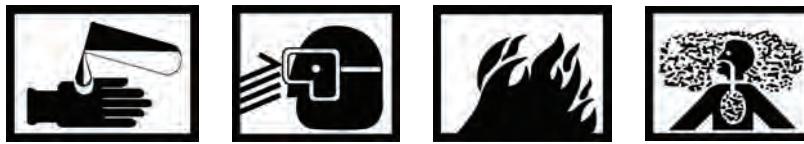
Brake Fluid (WP 0118, Table 1, Item 2)
Cleaning Compound, Solvent

Personnel Required

Two

Equipment Condition

Trailer coupled (WP 0005)

WARNING

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

CAUTION

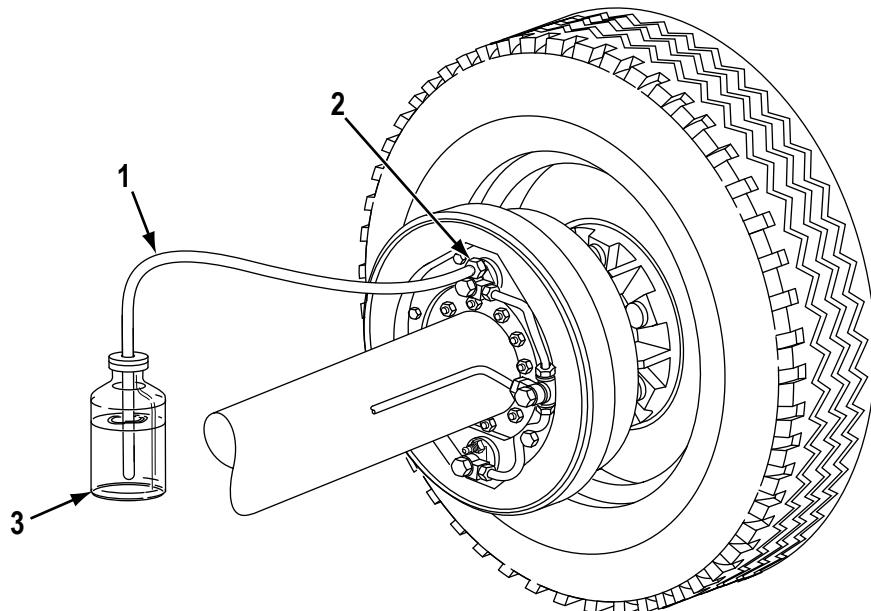
Clean exterior of master cylinder and filler cap before removing vent tube or cap. Failure to comply may result in damage to, or destruction of, equipment or mission.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
- This trailer has four wheel cylinders. This procedure bleeds one wheel cylinder set. The other wheel cylinder set is bled the same way.
- Ensure that fluid level in master cylinder is 1/8 in. (3 mm) below the bottom of filler spout at all times to prevent air from entering hydraulic system.
- Plastic tube should be approximately 18 in. (46 cm) long.

MANUAL BLEEDING

1. Clean bleeder valve (Figure 1, Item 2) using cleaning compound solvent and dry clean rag.
2. Attach plastic tube (Figure 1, Item 1) to bleeder valve (Figure 1, Item 2) and place other end of plastic tube in jar (Figure 1, Item 3).
3. Add 1 in. (25 mm) of hydraulic brake fluid to jar (Figure 1, Item 3).
4. Open bleeder valve (Figure 1, Item 2) by turning 3/4 turn counterclockwise. Have assistant depress brake pedal until air bubbles no longer appear in jar (Figure 1, Item 3).
5. Close bleeder valve (Figure 1, Item 2) and release brake pedal.



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Figure 1. Plastic Tubing Installation.

MANUAL BLEEDING - Continued

6. Remove filler plug (Figure 2, Item 3), seal (Figure 2, Item 4), and vent tube (Figure 2, Item 2) from master cylinder (Figure 2, Item 5).
7. Refill master cylinder (Figure 2, Item 5) and repeat Steps 4 and 5 until no air bubbles appear and fluid stream is clear.
8. Repeat Steps 1 through 7 on lower bleeder valve.
9. Repeat Steps 1 through 8 on roadside wheel.
10. Service master cylinder.

END OF TASK**PRESSURE FEED FILLER BLEEDING**

1. Remove filler plug (Figure 2, Item 3), seal (Figure 2, Item 4), and vent tube (Figure 2, Item 2) from master cylinder (Figure 2, Item 5). Install pressure feed adapter (Figure 2, Item 1).
2. Bleed system as in manual bleeding except for manual filling of master cylinder and manual operation of brake pedal are not required.
3. Remove pressure feed adapter (Figure 2, Item 1) from master cylinder (Figure 2, Item 5).
4. Install filler plug (Figure 2, Item 3), seal (Figure 2, Item 4), and vent tube (Figure 2, Item 2) in master cylinder (Figure 2, Item 5).
5. Service master cylinder.

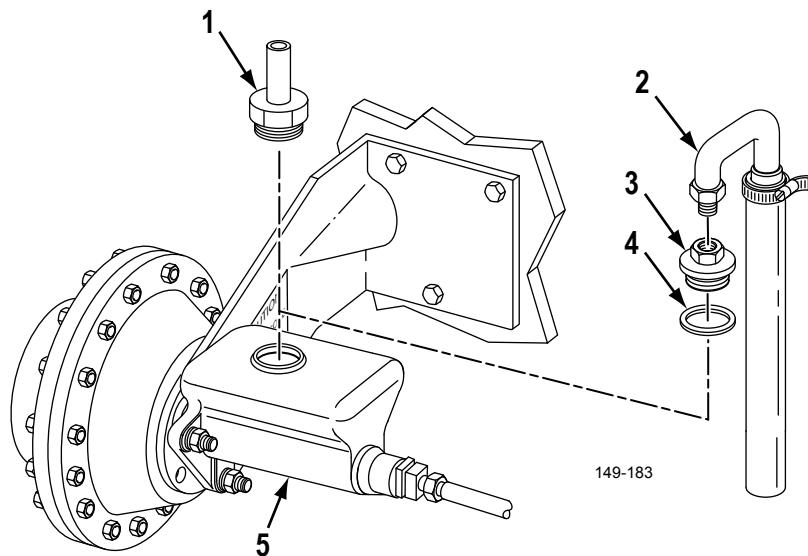


Figure 2. Brake Bleeder Interface Fitting Installation.

END OF TASK

SERVICE

1. Remove vent tube (Figure 2, Item 2), filler cap (Figure 2, Item 3), and spacer ring (Figure 2, Item 4) from master cylinder (Figure 2, Item 5).
2. Fill master cylinder (Figure 2, Item 5) with hydraulic brake fluid to within 1/8 in. (3 mm) below the bottom of filler spout.
3. Install spacer ring (Figure 2, Item 4), filler cap (Figure 2, Item 3), and vent tube (Figure 2, Item 2) on master cylinder (Figure 2, Item 5).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
GLADHANDS AND HOSE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Sealing Compound (WP 0118, Table 1, Item 16)

Materials/Parts

Packing, Preformed

Equipment Condition

Air reservoir drained (WP 0005)
Trailer uncoupled (WP 0005)

WARNING

Do not disconnect air lines or fittings before draining air reservoir. Small parts under pressure may shoot out with high velocity. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This trailer has two air couplings and hoses. This procedure replaces one air coupling and hose. The other coupling and hose is replaced the same way.

HOSE ASSEMBLY REMOVAL

1. Remove three bolts (Figure 1, Items 1 and 7) and straps (Figure 1, Items 2 and 6) from trailer (Figure 1, Item 5).
2. Remove air hose (Figure 1, Item 3) from elbow (Figure 1, Item 4) and trailer (Figure 1, Item 5).

END OF TASK**HOSE ASSEMBLY INSTALLATION****NOTE**

Apply a small amount of sealing compound on male threads of fitting prior to installation.

1. Install air hose (Figure 1, Item 3) on elbow (Figure 1, Item 4).
2. Install hose (Figure 1, Item 3) on trailer (Figure 1, Item 5) with three straps (Figure 1, Items 2 and 6) and bolts (Figure 1, Items 1 and 7).

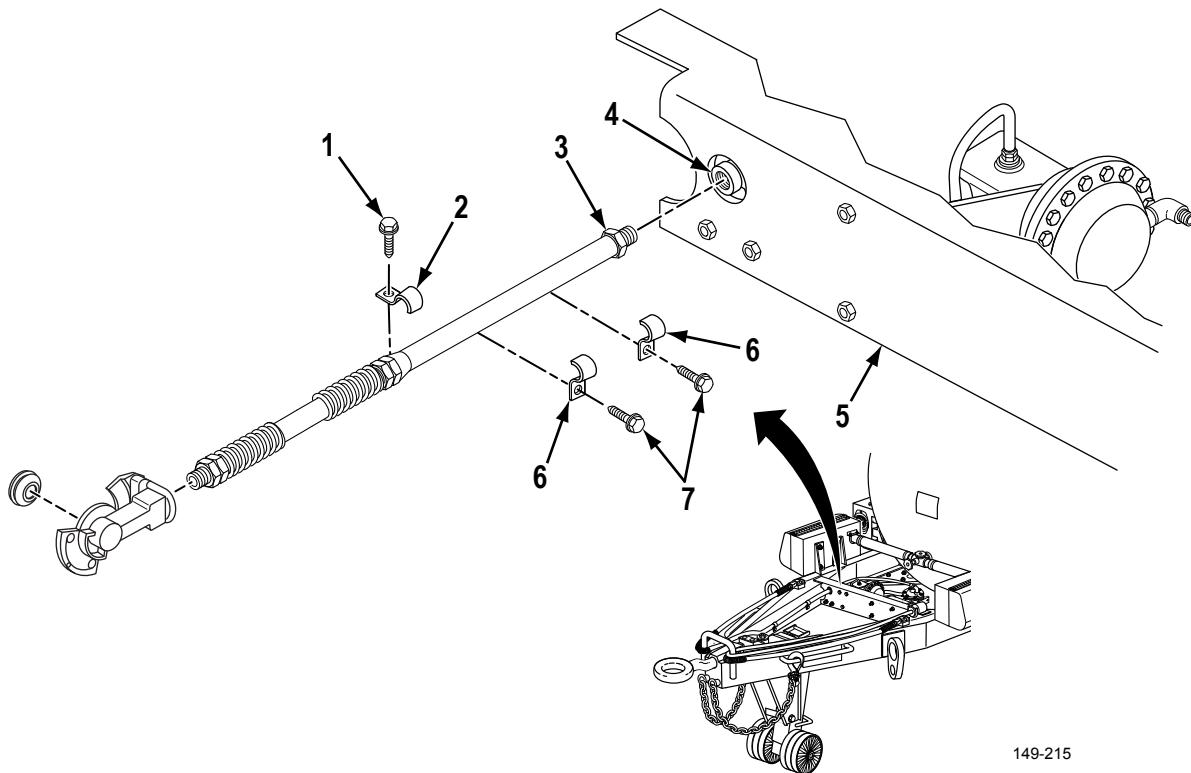


Figure 1. Air Hose Replacement.

END OF TASK**FOLLOW ON TASK**

Couple trailer to Prime Mover and verify proper operation (WP 0005).

END OF TASK

GLADHANDS REMOVAL**NOTE**

It is not necessary to remove gladhands to replace preformed packing.

1. Remove gladhands (Figure 2, Item 3) from adapter (Figure 2, Item 2) on hose assembly (Figure 2, Item 1).
2. Remove preformed packing (Figure 2, Item 4). Discard preformed packing (Figure 2, Item 4).

END OF TASK**GLADHANDS INSTALLATION**

1. Install new preformed packing (Figure 2, Item 4). Ensure that preformed packing (Figure 2, Item 4) is flat and properly seated in groove of gladhands (Figure 2, Item 3).
2. Apply sealing compound to male threads of adapter (Figure 2, Item 2). Install gladhands (Figure 2, Item 3) to adapter (Figure 2, Item 2) on hose assembly (Figure 2, Item 1).

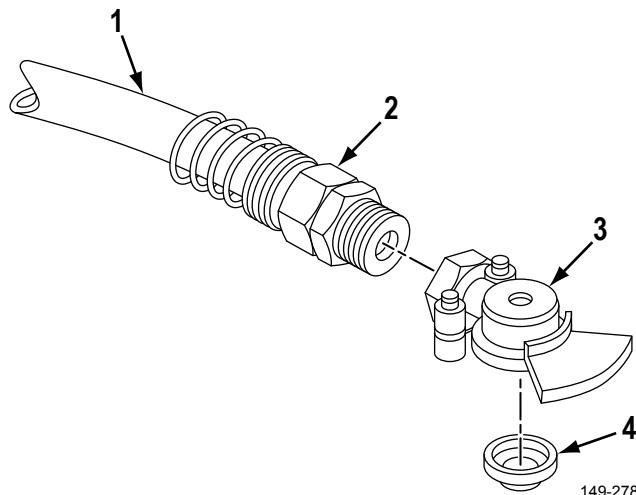


Figure 2. Gladhands Replacement.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE AIR FILTER MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

Materials/Parts

Cleaning Compound, Solvent
(WP 0118, Table 1, Item 6)
Filter Element

Materials/Parts (cont.)

(WP 0093, Figure 10, Item 6)
Gasket (WP 0093, Figure 10, Item 9)
Sealing Compound
(WP 0118, Table 1, Item 16)
Washer, Lock
Qty: (2) (WP 0093, Figure 10, Item 13)

Equipment Condition

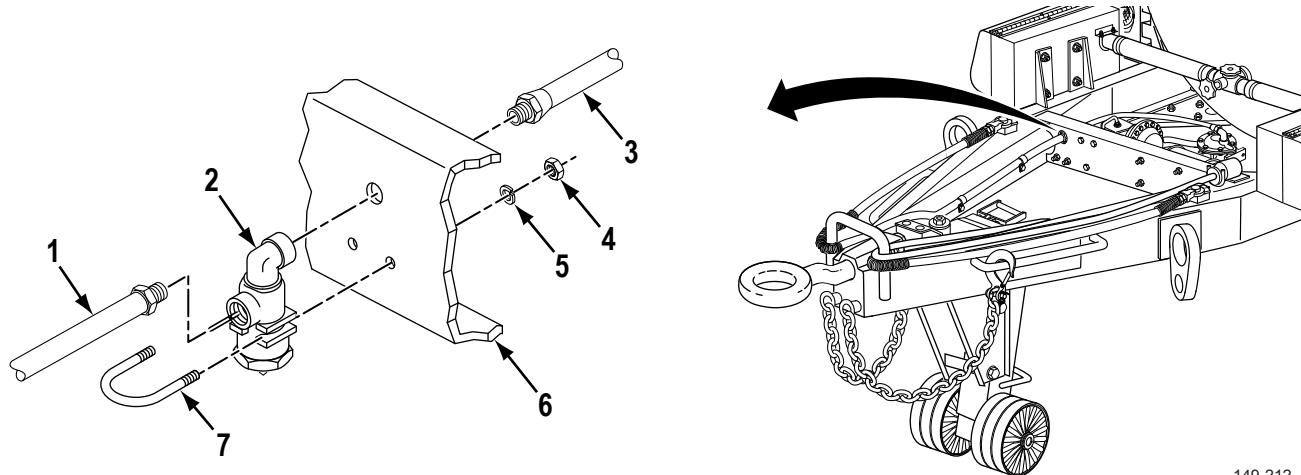
Air reservoir drained (WP 0005)
Trailer uncoupled (WP 0005)

WARNING

- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Hardware within the brake system is pressurized, ensure proper eye protection is worn before inspecting or performing maintenance procedures. Failure to comply may cause damage to environment and health of personnel. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

REMOVAL

1. Remove two tube fittings (Figure 1, Items 1 and 3) from air filter housing (Figure 1, Item 2).
2. Remove two nuts (Figure 1, Item 4), lockwashers (Figure 1, Item 5), U-bolt (Figure 1, Item 7), and air filter housing (Figure 1, Item 2) from crossmember (Figure 1, Item 6). Discard lockwashers (Figure 1, Item 5).

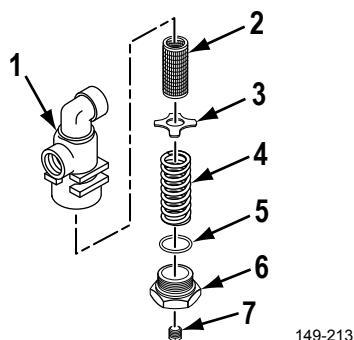


149-212

Figure 1. Air Filter Housing Removal.

END OF TASK**DISASSEMBLY**

Remove plug (Figure 2, Item 7), adapter (Figure 2, Item 6), gasket (Figure 2, Item 5), spring (Figure 2, Item 4), spring washer (Figure 2, Item 3), and filter element (Figure 2, Item 2) from filter housing (Figure 2, Item 1). Discard gasket (Figure 2, Item 5), filter element (Figure 2, Item 2), and spring (Figure 2, Item 4).



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Figure 2. Air Filter Housing Disassembly.

END OF TASK

CLEANING AND INSPECTION**WARNING**

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.

CLEANING AND INSPECTION - Continued

1. Using cleaning compound solvent, clean spring washer (Figure 3, Item 3), spring (Figure 3, Item 4), adapter (Figure 3, Item 6), and plug (Figure 3, Item 7). Dry thoroughly.
2. Inspect components and replace as needed.

END OF TASK**ASSEMBLY****NOTE**

Apply a small amount of sealing compound on male threads of plug prior to installation.

Install new filter element (Figure 3, Item 2), spring washer (Figure 3, Item 3), new spring (Figure 3, Item 4), and gasket (Figure 3, Item 5) in air filter housing assembly (Figure 3, Item 1) with adapter (Figure 3, Item 6) and plug (Figure 3, Item 7).

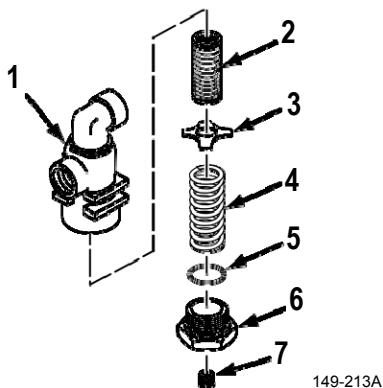


Figure 3. Air Filter Housing Assembly.

END OF TASK

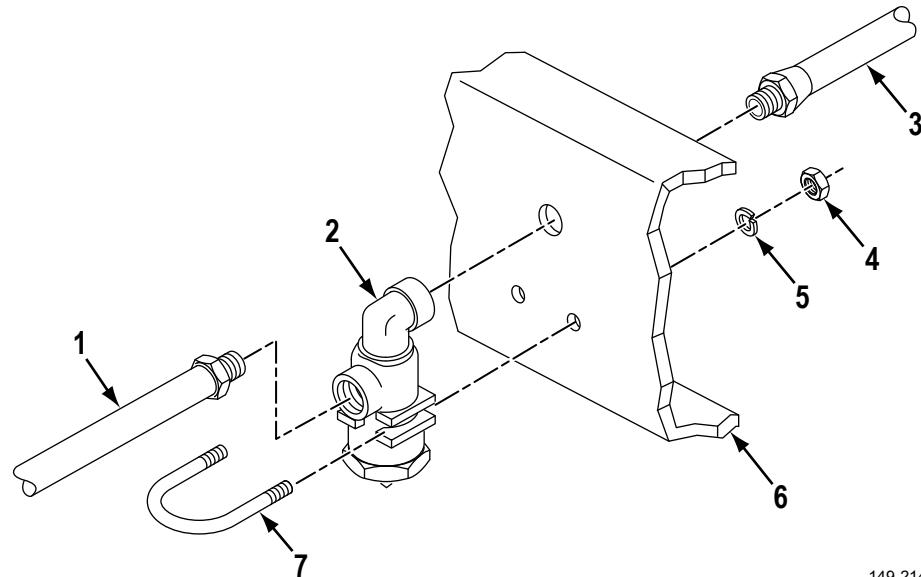
INSTALLATION

1. Install air filter housing (Figure 4, Item 2) on crossmember (Figure 4, Item 6) with U-bolt (Figure 4, Item 7), two new lockwashers (Figure 4, Item 5), and nuts (Figure 4, Item 4).

NOTE

Apply a small amount of sealing compound on male threads of fittings prior to installation.

2. Install two tube fittings (Figure 4, Items 1 and 3) on air filter housing (Figure 4, Item 2).



149-214

Figure 4. Air Filter Housing Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE AIR HOSES AND FITTINGS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition

Air reservoir drained (WP 0005)
Trailer uncoupled (WP 0005)

Materials/Parts

Sealing Compound (WP 0118, Table 1, Item 16)
Tag, Marker (WP 0118, Table 1, Item 18)

WARNING



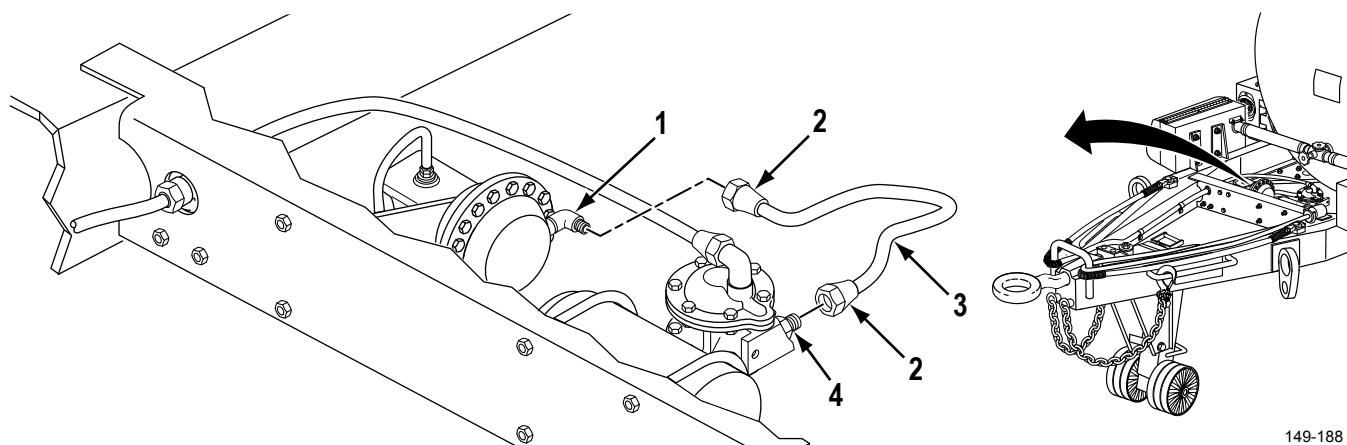
Do not disconnect air lines or fittings before draining air reservoir. Small parts under pressure may shoot out with high velocity. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

Tag all wires, hoses, tubing, and connections prior to removal for ease of installation.

AIR HOSE REMOVAL

1. Remove two nuts (Figure 1, Item 2) and hose (Figure 1, Item 3) from adapter (Figure 1, Item 4) and elbow (Figure 1, Item 1).



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Figure 1. Air Hose Removal.

AIR HOSE REMOVAL - Continued

2. Remove two inserts (Figure 2, Item 3), sleeves (Figure 2, Item 4), and nuts (Figure 2, Item 5) from hose (Figure 2, Item 6).
3. Remove adapter (Figure 2, Item 7) from emergency relay valve (Figure 2, Item 8).
4. Remove elbow (Figure 2, Item 2) from air brake chamber (Figure 2, Item 1).

END OF TASK**AIR HOSE INSTALLATION****NOTE**

Apply a small amount of sealing compound on male threads of fittings prior to installation.

1. Install elbow (Figure 2, Item 2) on air brake chamber (Figure 2, Item 1).
2. Install adapter (Figure 2, Item 7) on emergency relay valve (Figure 2, Item 8).

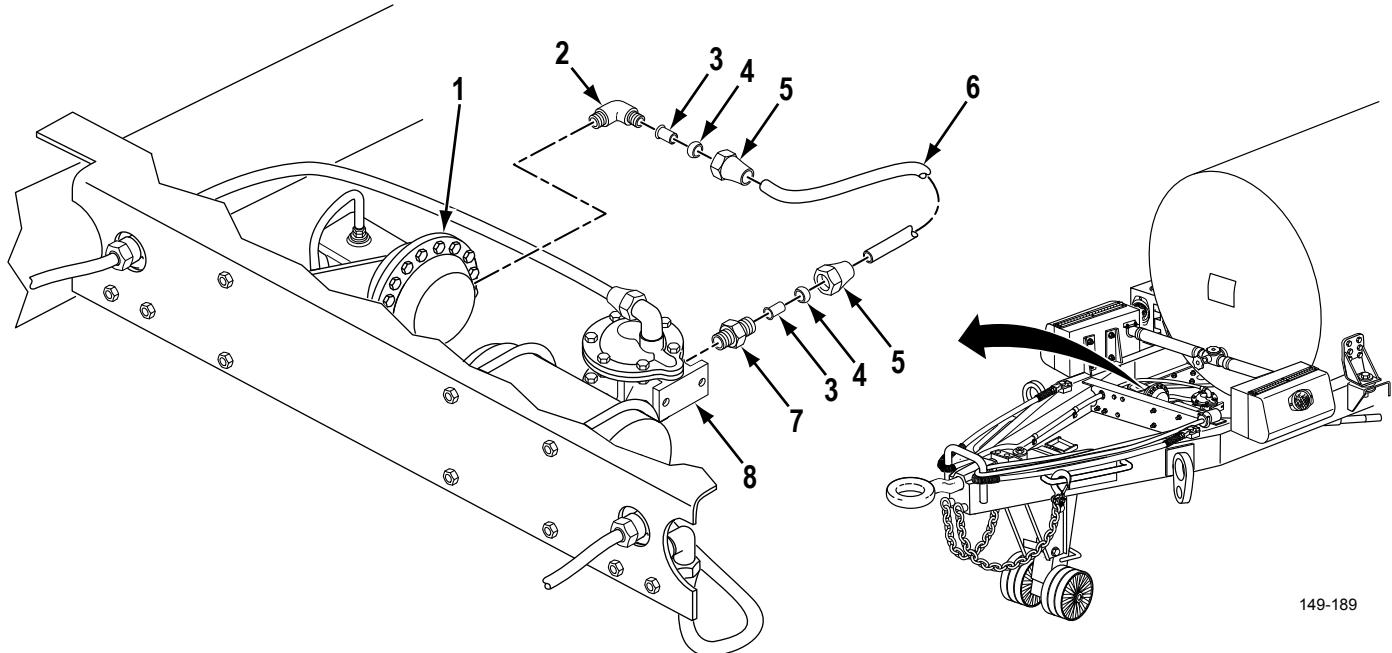


Figure 2. Air Hose Installation.

3. Install two nuts (Figure 2, Item 5), sleeves (Figure 2, Item 4), and inserts (Figure 2, Item 3) on hose (Figure 2, Item 6).
4. Install hose (Figure 2, Item 6) on adapter (Figure 2, Item 7) and elbow (Figure 2, Item 2) with two nuts (Figure 2, Item 5).

END OF TASK

INTERVEHICULAR AIR HOSE SUPPORT LINE REMOVAL**NOTE**

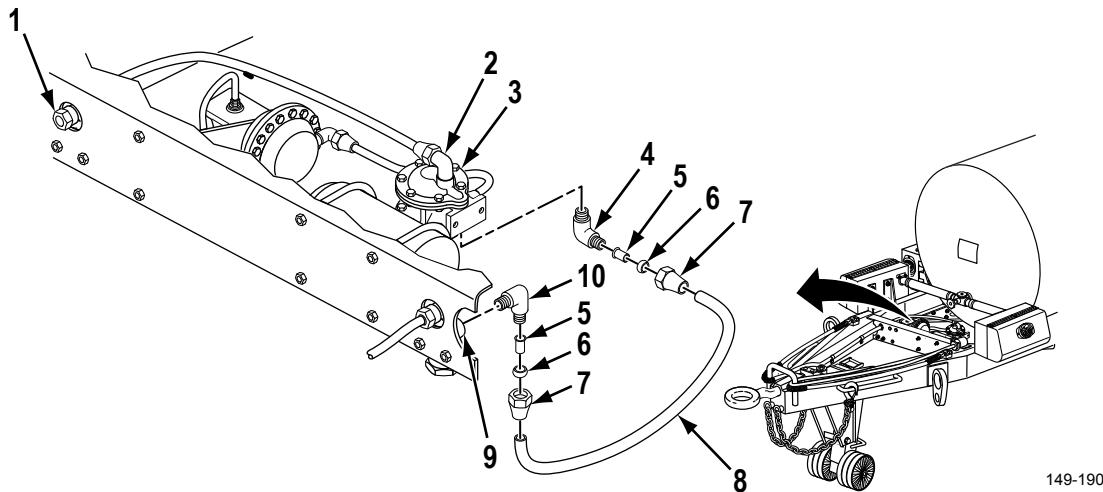
This trailer has two support lines. Steps 1 and 2 removes one support line. The other support line is removed the same way.

1. Remove two nuts (Figure 3, Item 7) and hose (Figure 3, Item 8) from elbows (Figure 3, Items 4 and 10).
2. Remove two inserts (Figure 3, Item 5), sleeves (Figure 3, Item 6), and nuts (Figure 3, Item 7) from hose (Figure 3, Item 8).

NOTE

Step 3 removes one fittings side and Step 4 removes other fittings side.

3. Remove two elbows (Figure 3, Items 4 and 10) from emergency relay valve (Figure 3, Item 3) and air filter (Figure 3, Item 9).
4. Remove elbow (Figure 3, Item 2) from emergency relay valve (Figure 3, Item 3) and adapter (Figure 3, Item 1) from air filter (Figure 3, Item 9).



149-190

Figure 3. Intervehicular Air Hose Removal.

END OF TASK

INTERVEHICULAR AIR HOSE SUPPORT LINE INSTALLATION

NOTE

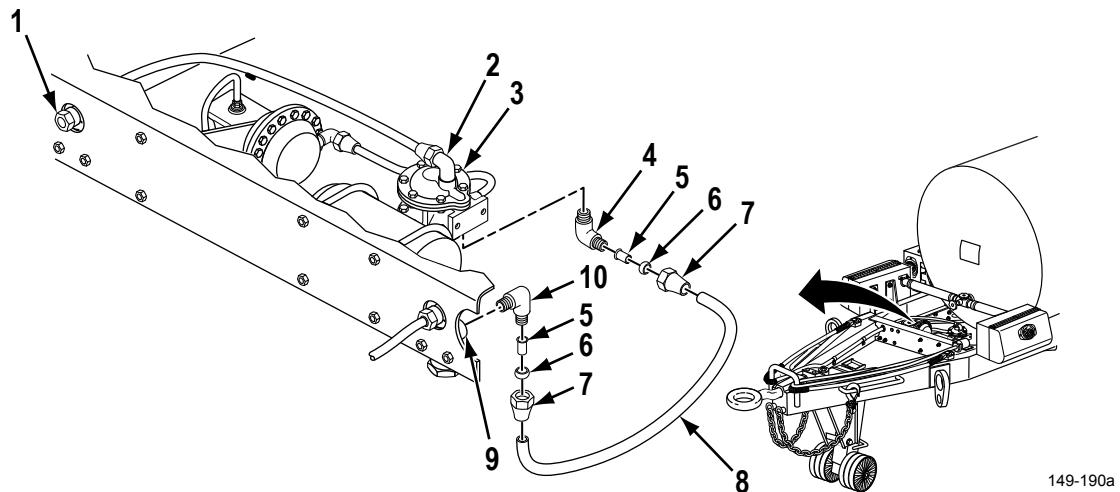
- Apply a small amount of sealing compound on male threads of fittings prior to installation.
- Step 2 installs one fittings side and Step 1 installs other fittings side.

1. Install elbow (Figure 4, Item 2) to emergency relay valve (Figure 4, Item 3) and adapter (Figure 4, Item 1) to air filter (Figure 4, Item 9).
2. Install two elbows (Figure 4, Items 4 and 10) in emergency relay valve (Figure 4, Item 3) and air filter (Figure 4, Item 9).

NOTE

The trailer has two support lines. Steps 3 and 4 install one support lines set. The other support line set is installed the same way.

3. Install two nuts (Figure 4, Item 7), sleeves (Figure 4, Item 6), and inserts (Figure 4, Item 5) on hose (Figure 4, Item 8).
4. Install hose (Figure 4, Item 8) on two elbows (Figure 4, Items 4 and 10) with nuts (Figure 4, Item 7).



149-190a

Figure 4. Intervehicular Air Hose Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE AIR BRAKE CHAMBER AND BRACKET MAINTENANCE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (3) (WP 0094, Figure 11, Item 18)

Materials/Parts

Nut, Self-Locking
Qty: (3) (WP 0090, Figure 7, Item 2)
Sealing Compound (WP 0118, Table 1, Item 16)
Tag, Marker (WP 0118, Table 1, Item 18)
Washer, Lock

Personnel Required

Two

Equipment Condition

Air reservoir drained (WP 0005)
Trailer coupled (WP 0005)

NOTE

Tag all wires, hoses, tubing, and connections prior to removal for ease of installation.

REMOVAL

1. Loosen nut (Figure 1, Item 3) and remove hose (Figure 1, Item 4) from elbow (Figure 1, Item 2).
2. Remove elbow (Figure 1, Item 2) from air brake chamber (Figure 1, Item 1).

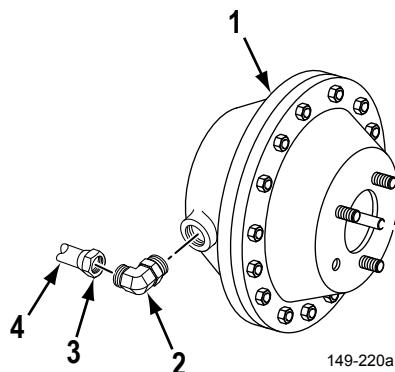


Figure 1. Air Brake Chamber Removal.

REMOVAL - Continued**CAUTION**

Master cylinder must be supported when air brake chamber is removed. Failure to comply may result in damage to, or destruction of equipment.

3. Remove three nuts (Figure 2, Item 6), lockwashers (Figure 2, Item 7), and air brake chamber (Figure 2, Item 10) from bracket (Figure 2, Item 3) and master cylinder (Figure 2, Item 5). Discard lockwashers (Figure 2, Item 7).
4. Remove collar (Figure 2, Item 9) from air brake chamber (Figure 2, Item 10).

NOTE

Perform Step 5 only if replacing air brake chamber bracket.

5. Remove three self-locking nuts (Figure 2, Item 2), bolts (Figure 2, Item 4), and bracket (Figure 2, Item 3) from trailer (Figure 2, Item 1). Discard self-locking nuts (Figure 2, Item 2).

END OF TASK**INSPECTION**

1. Inspect decal (Figure 2, Item 8) and collar (Figure 2, Item 9) for damage. Install new decal (Figure 2, Item 8) and/or collar (Figure 2, Item 9) if missing or damaged.
2. Measure pushrod of the chamber just removed from the base of the chamber to edge of pushrod.
3. Measure pushrod of the new chamber from the base of the chamber to edge of pushrod. Measurements should match or be within 0.5 in. (12.7 mm). If not within measurements, the brake chamber is the incorrect part.

END OF TASK**INSTALLATION****NOTE**

Perform Step 1 only if replacing air brake chamber bracket.

1. Install bracket (Figure 2, Item 3) on trailer (Figure 2, Item 1) with three bolts (Figure 2, Item 4) and new self-locking nuts (Figure 2, Item 2).
2. Install collar (Figure 2, Item 9) to air brake chamber (Figure 2, Item 10).
3. Install air brake chamber (Figure 2, Item 10) on bracket (Figure 2, Item 3) and master cylinder (Figure 2, Item 5) with three new lockwashers (Figure 2, Item 7) and nuts (Figure 2, Item 6).

NOTE

Apply a small amount of sealing compound on male threads of fittings prior to installation.

4. Install elbow (Figure 2, Item 11) in air brake chamber (Figure 2, Item 10).
5. Install hose (Figure 2, Item 13) on elbow (Figure 2, Item 11) with nut (Figure 2, Item 12).

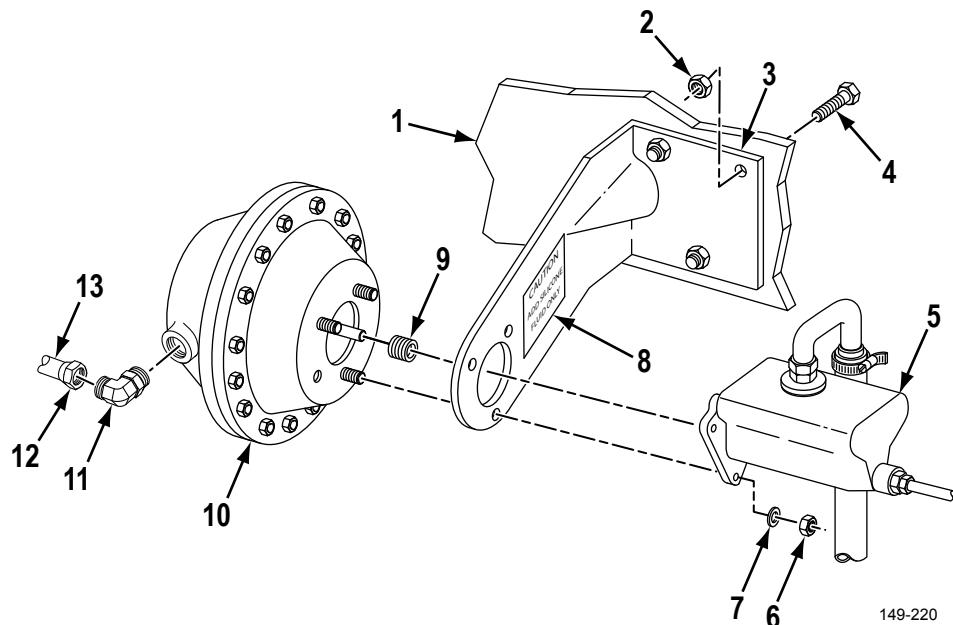
INSTALLATION - Continued

Figure 2. Air Brake Chamber Installation.

END OF TASK

FOLLOW ON TASK

Verify proper brake system operation (WP 0005).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
AIR RESERVOIR REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (4) (WP 0094, Figure 11, Item 15)

Materials/Parts

Sealing Compound (WP 0118, Table 1, Item 16)
Tag, Marker (WP 0118, Table 1, Item 18)
Washer, Lock

Equipment Condition

Air reservoir drained (WP 0005)

Trailer uncoupled (WP 0005)

Relay valve removed (WP 0060)

WARNING



Do not disconnect air lines or fittings before draining air reservoir. Small parts under pressure may shoot out with high velocity. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

Tag all wires, hoses, tubing, and connections prior to removal for ease of installation.

REMOVAL

1. Remove fitting (Figure 1, Item 6), plug (Figure 1, Item 7), and drain valve (Figure 1, Item 8) from air reservoir (Figure 1, Item 4).
2. Remove four nuts (Figure 1, Item 1), lockwashers (Figure 1, Item 2), two U-bolts (Figure 1, Item 5), and air reservoir (Figure 1, Item 4) from crossmember (Figure 1, Item 3). Discard lockwashers (Figure 1, Item 2).

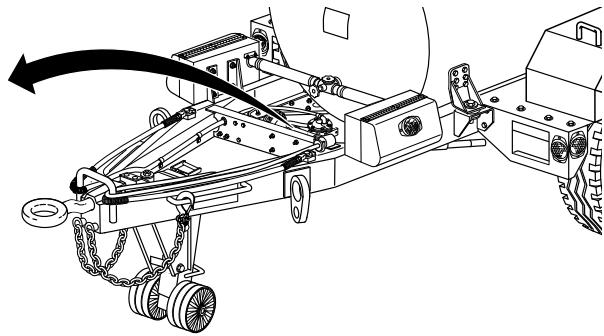
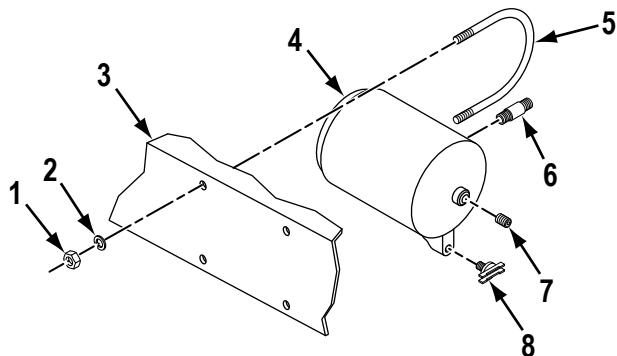
END OF TASK**INSTALLATION**

1. Install air reservoir (Figure 1, Item 4) on crossmember (Figure 1, Item 3) with two U-bolts (Figure 1, Item 5), four new lockwashers (Figure 1, Item 2), and nuts (Figure 1, Item 1).

NOTE

Apply a small amount of sealing compound on male threads of fittings prior to installation.

2. Install drain valve (Figure 1, Item 8), fitting (Figure 1, Item 6), and plug (Figure 1, Item 7) in air reservoir (Figure 1, Item 4).



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Figure 1. Air Reservoir Replacement.

END OF TASK**FOLLOW ON TASK**

Install relay valve (WP 0060).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE RELAY VALVE REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition

Air reservoir drained (WP 0005)
Trailer uncoupled (WP 0005)

Materials/Parts

Sealing Compound (WP 0118, Table 1, Item 16)
Tag, Marker (WP 0118, Table 1, Item 18)

WARNING

Do not disconnect air lines or fittings before draining air reservoir. Small parts under pressure may shoot out with high velocity. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

Tag all wires, hoses, tubing, and connections prior to removal for ease of installation.

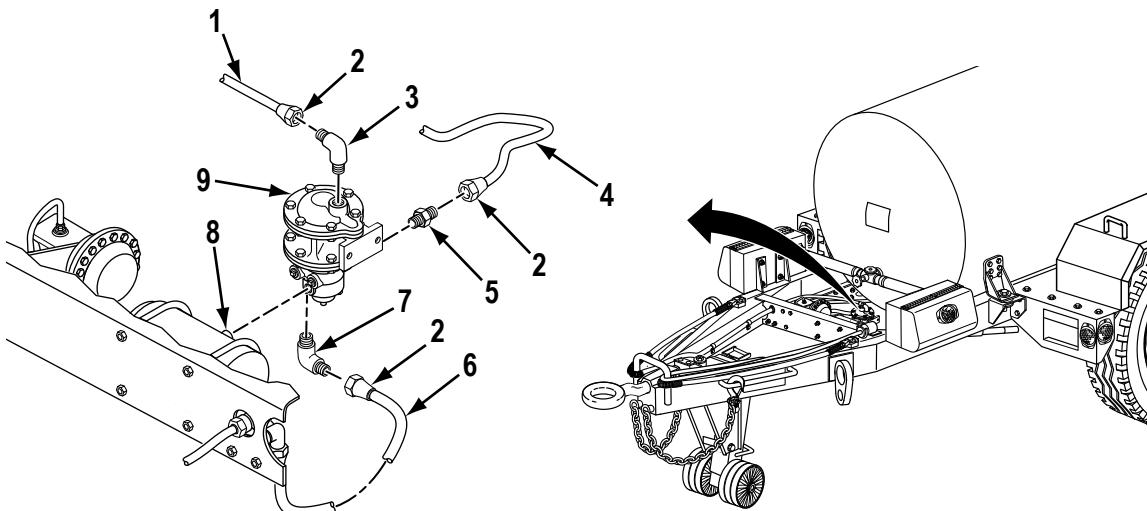
REMOVAL

1. Loosen three nuts (Figure 1, Item 2) and remove hoses (Figure 1, Items 1, 4, and 6) from adapter (Figure 1, Item 5) and elbows (Figure 3, Items 3 and 7).
2. Remove adapter (Figure 1, Item 5) and elbows (Figure 3, Items 3 and 7) from relay valve (Figure 1, Item 9).
3. Remove relay valve (Figure 1, Item 9) from fitting (Figure 1, Item 8).

END OF TASK**INSTALLATION****NOTE**

Apply a small amount of sealing compound on male threads of fittings prior to installation.

1. Install relay valve (Figure 1, Item 9) on fitting (Figure 1, Item 8).
2. Install adapter (Figure 1, Item 5) and elbows (Figure 3, Items 3 and 7) on relay valve (Figure 1, Item 9).
3. Install hoses (Figure 1, Items 1, 4, and 6) on adapter (Figure 1, Item 5) and elbows (Figure 3, Items 3 and 7) with three nuts (Figure 1, Item 2).



149-223

Figure 1. Relay Valve Replacement.

END OF TASK**FOLLOW ON TASK**

Couple trailer and verify operation (WP 0005).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
BRAKE DRUM, WHEEL HUB, AND WHEEL BEARING MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
 (WP 0119, Table 1, Item 7)
 Gloves, Chemical and Oil Protective
 (WP 0119, Table 1, Item 5)
 Socket, Socket Wrench
 (WP 0119, Table 1, Item 6)

Materials/Parts (cont.)

Qty: (18) (WP 0095, Figure 12, Item 6)
 Seal (WP 0095, Figure 12, Item 12)
 Washer, Lock
 Qty: (3) (WP 0095, Figure 12, Item 15)

Personnel Required

Two

Materials/Parts

Cleaning Compound, Solvent
 (WP 0118, Table 1, Item 6)
 Gasket (WP 0095, Figure 12, Item 17)
 Nut, Self-Locking
 Qty: (6) (WP 0095, Figure 12, Item 8)
 Nut, Self-Locking

References

TM 9-214
 WP 0050

Equipment Condition

Wheel removed (WP 0039)

WARNING

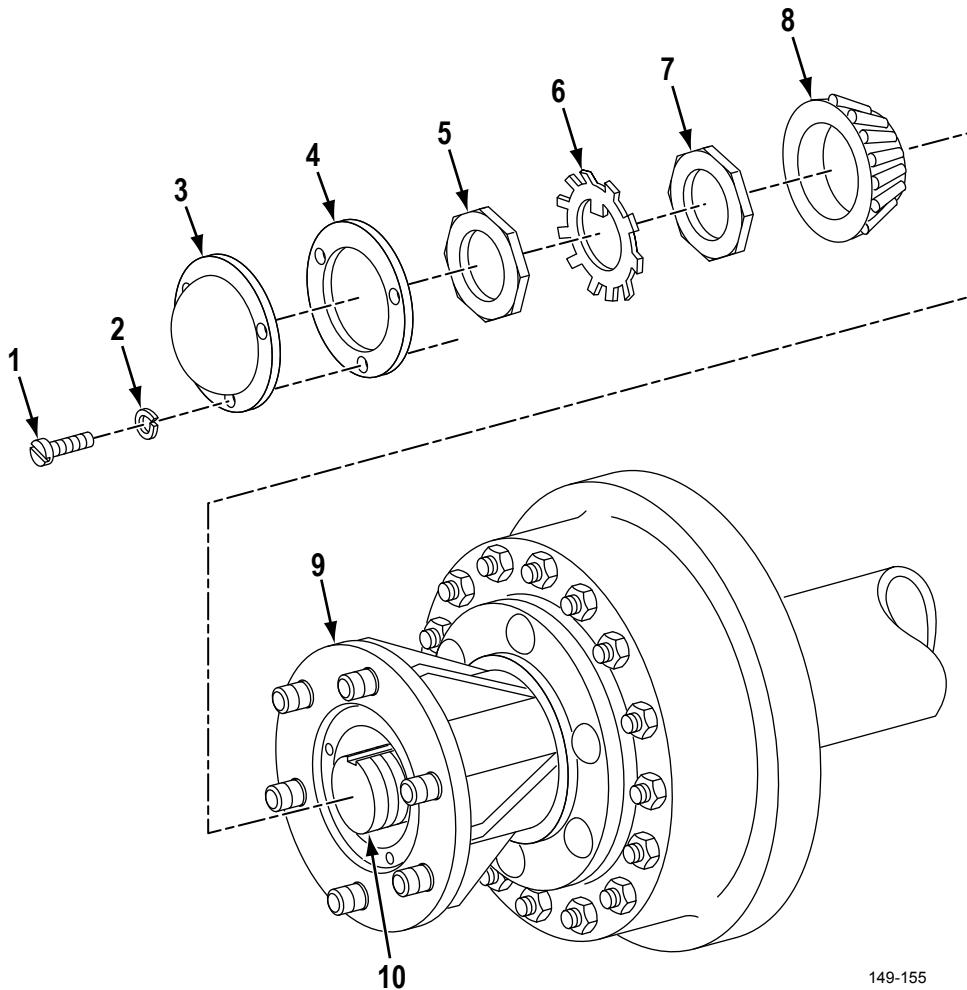
- Hub and brake drum assembly weighs 185 lbs (84 kg). Two people are required to lift wheel. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Do not handle brake shoes, brake drums, or other brake components unless area has been properly cleaned. There may be hazardous dust on these components which can be dangerous if you touch it or breathe it. Wear approved eye protection 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 comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This procedure replaces one wheel end component. The other wheel end components are replaced the same way.

REMOVAL

1. Remove three screws (Figure 1, Item 1), lockwashers (Figure 1, Item 2), hubcap (Figure 1, Item 3), and gasket (Figure 1, Item 4) from hub (Figure 1, Item 9). Discard lockwashers (Figure 1, Item 2) and gasket (Figure 1, Item 4).
2. Straighten locking key on keyed washer (Figure 1, Item 6).
3. Remove outer adjusting nut (Figure 1, Item 5), keyed washer (Figure 1, Item 6), and inner adjusting nut (Figure 1, Item 7) from hub (Figure 1, Item 9) and axle (Figure 1, Item 10).
4. Pull hub (Figure 1, Item 9) out slightly on axle (Figure 1, Item 10) and loosen outer wheel bearing (Figure 1, Item 8).
5. Remove outer wheel bearing (Figure 1, Item 8) and hub (Figure 1, Item 9) from axle (Figure 1, Item 10).



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Figure 1. Wheel Hub Bearing Removal.

END OF TASK

DISASSEMBLY

1. Remove 18 self-locking nuts (Figure 2, Item 14), washers (Figure 2, Item 13), and bolts (Figure 2, Item 12) from brake drum (Figure 2, Item 1) and adapter plate (Figure 2, Item 8). Discard self-locking nuts (Figure 2, Item 14).
2. Remove six self-locking nuts (Figure 2, Item 9) and bolts (Figure 2, Item 4) from adapter plate (Figure 2, Item 8) and hub (Figure 2, Item 3). Discard self-locking nuts (Figure 2, Item 9).
3. Remove oil seal (Figure 2, Item 5) from hub (Figure 2, Item 3). Discard oil seal (Figure 2, Item 5). If unserviceable, remove wear sleeve (Figure 2, Item 10) from axle (Figure 2, Item 11).
4. Remove bearing (Figure 2, Item 6) from hub (Figure 2, Item 3).
5. Remove two bearing cups (Figure 2, Item 2) from hub (Figure 2, Item 3).

NOTE

Only remove wheel studs if damaged.

6. Remove six wheel studs (Figure 2, Item 7) from hub (Figure 2, Item 3).

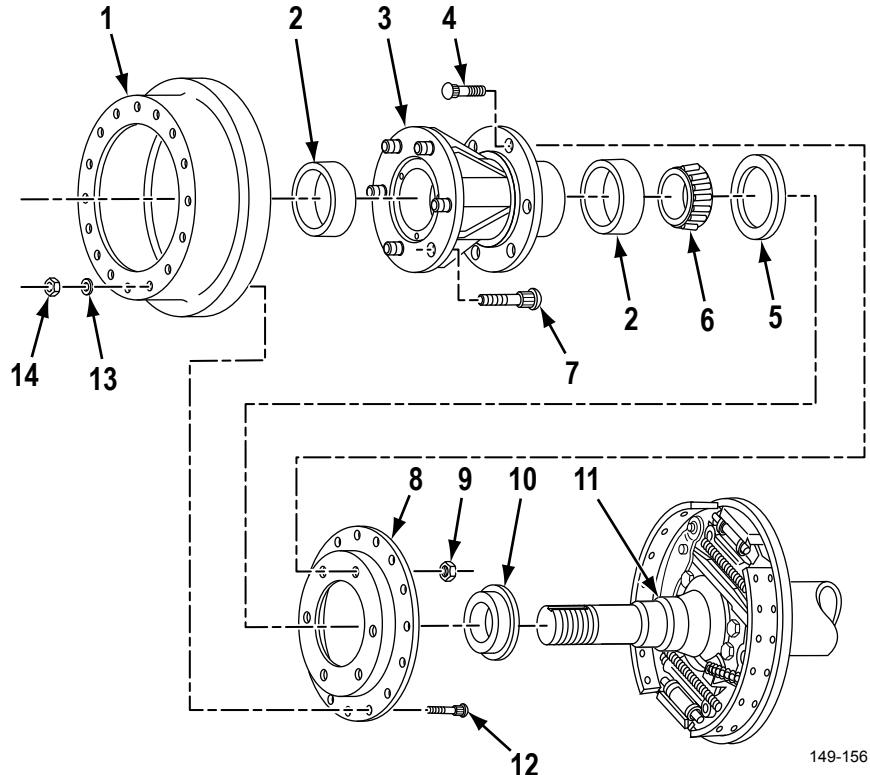


Figure 2. Wheel Hub and Drum Disassembly.

END OF TASK

CLEANING AND INSPECTION**WARNING**

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.

CLEANING AND INSPECTION - Continued

1. Using cleaning compound solvent, clean hub (Figure 3, Item 2) and brake drum (Figure 3, Item 3).
2. Inspect brake drum (Figure 3, Item 3) for cracks, hot spots, or warping. Replace brake drum (Figure 3, Item 3) if any of these conditions are found.
3. Inspect key washer (Figure 3, Item 1) for cracked or missing inner and outer tabs. Replace key washer (Figure 3, Item 1) if any of these conditions are found.

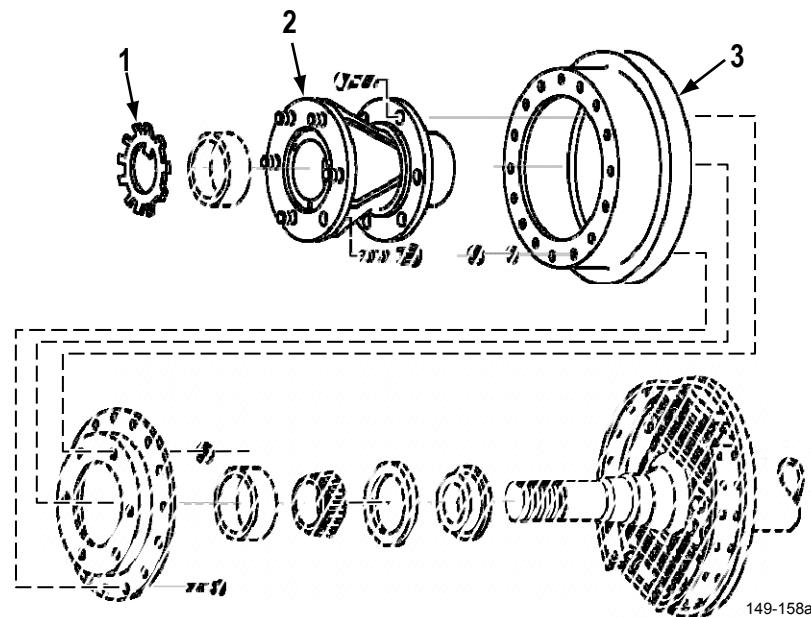


Figure 3. Hub and Drum Cleaning and Inspection.

END OF TASK

ASSEMBLY

1. If removed, install six wheel studs (Figure 4, Item 7) in hub (Figure 4, Item 2).
2. Install two bearing cups (Figure 4, Items 1 and 10) in hub (Figure 4, Item 2).
3. Install adapter plate (Figure 4, Item 8) on brake drum (Figure 4, Item 4) with 18 bolts (Figure 4, Item 15), washers (Figure 4, Item 5), and new self-locking nuts (Figure 4, Item 6).
4. Secure adapter plate (Figure 4, Item 8) to hub (Figure 4, Item 2) with six bolts (Figure 4, Item 3) and new self-locking nuts (Figure 4, Item 9).
5. For instructions for packing inner and outer wheel bearings and hub, refer to TM 9-214.
6. Install inner wheel bearing (Figure 4, Item 11) and new oil seal (Figure 4, Item 12) in hub (Figure 4, Item 2).

NOTE

When installing wear sleeve, ensure that flange faces inside of trailer.

7. If removed, install wear sleeve (Figure 4, Item 13) on axle (Figure 4, Item 14).

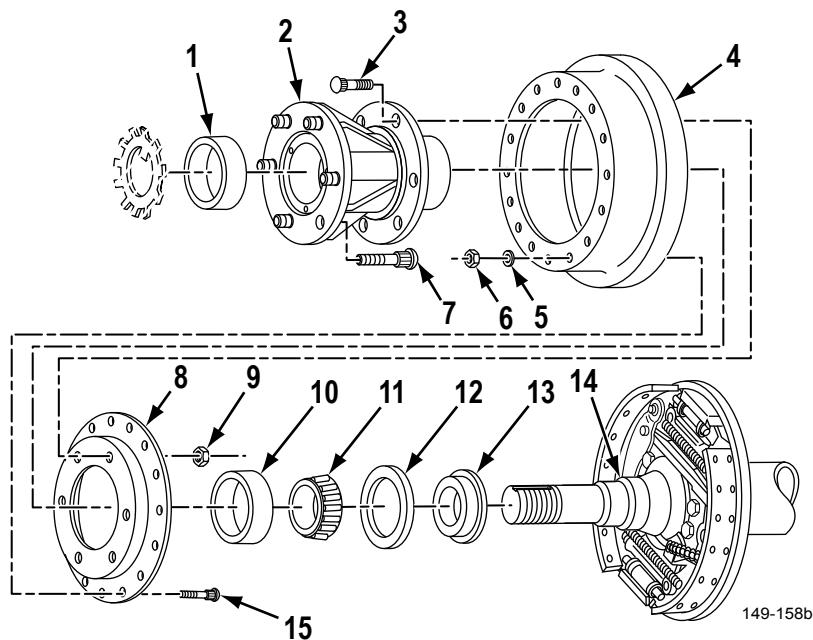


Figure 4. Hub and Drum Assembly.

END OF TASK

INSTALLATION

1. Install hub (Figure 5, Item 3) and brake drum (Figure 5, Item 4) on axle (Figure 5, Item 5).
2. For instructions for packing inner and outer wheel bearings and hub, refer to TM 9-214.
3. Install outer wheel bearing (Figure 5, Item 2) on hub (Figure 5, Item 3) and axle (Figure 5, Item 5) with inner adjusting nut (Figure 5, Item 1).

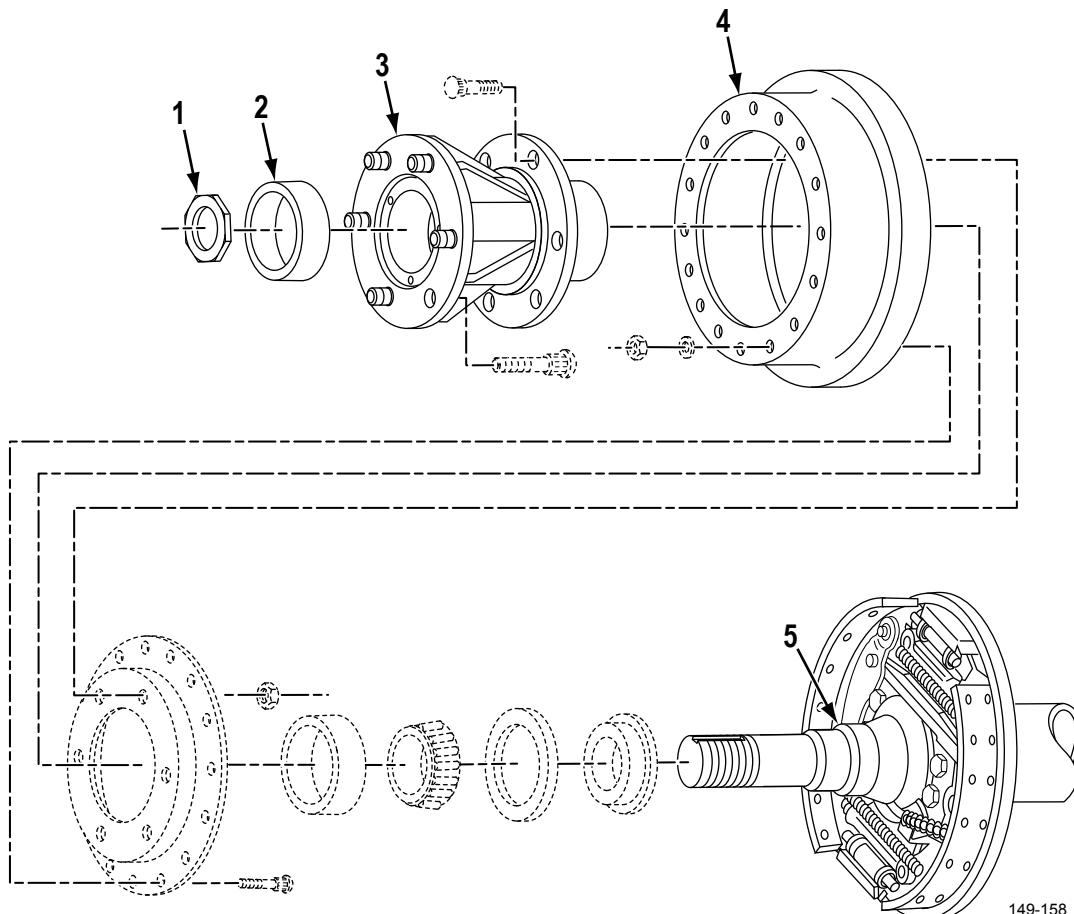


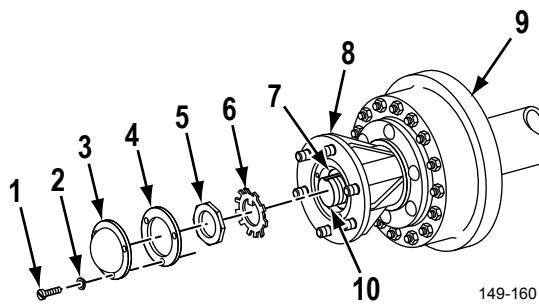
Figure 5. Hub and Drum Installation.

END OF TASK

WHEEL BEARING ADJUSTMENT**NOTE**

Acceptable wheel end-play is 0.001 in. (0.02 mm) to 0.0010 in. (0.025 mm).

1. Tighten inner adjusting nut (Figure 6, Item 7) while turning hub (Figure 6, Item 8) and brake drum (Figure 6, Item 9) until drag is felt.
2. Rotate hub (Figure 6, Item 8) and brake drum (Figure 6, Item 9) one full turn. Loosen inner adjusting nut (Figure 6, Item 7) 1/2 turn while rocking hub back and forth.
3. Tighten inner adjusting nut (Figure 6, Item 7) slowly while rocking hub (Figure 6, Item 8) until looseness is no longer felt.
4. Rotate hub (Figure 6, Item 8) and brake drum (Figure 6, Item 9) one full turn. Loosen inner adjusting nut (Figure 6, Item 7) 1/2 turn while rocking hub back and forth.
5. Tighten inner adjusting nut (Figure 6, Item 7) slowly while rocking hub (Figure 6, Item 8) until looseness is no longer felt.
6. Back off inner adjusting nut (Figure 6, Item 7) 1/4 turn.
7. Install keyed washer (Figure 6, Item 6) and outer adjusting nut (Figure 6, Item 5) on axle (Figure 6, Item 10). Bend tabs on keyed washer (Figure 6, Item 6) over flat of outer adjusting nut (Figure 6, Item 5).
8. Install new gasket (Figure 6, Item 4) and hubcap (Figure 6, Item 3) on hub (Figure 6, Item 8) with three new lockwashers (Figure 6, Item 2) and screws (Figure 6, Item 1).



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Figure 6. Wheel Bearing Adjustment.

END OF TASK**FOLLOW ON TASK**

1. Install wheel (WP 0039).
2. Adjust brakes (WP 0050).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
WHEEL AND TIRE ASSEMBLY REPAIR**

INITIAL SETUP:

References

TM 9-2610-200-14

For inspection, repair, or replacement, refer to TM 9-2610-200-14.

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
DRAWBAR RING REPLACEMENT**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Wrench, Torque (WP 0119, Table 1, Item 9)

Equipment Condition

Trailer uncoupled (WP 0005)

Materials/Parts

Pin, Cotter (WP 0097, Figure 14, Item 14)

WARNING



If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

REMOVAL

Remove cotter pin (Figure 1, Item 3), nut (Figure 1, Item 2), washer (Figure 1, Item 1), and drawbar ring (Figure 1, Item 5) from trailer tongue (Figure 1, Item 4). Discard cotter pin (Figure 1, Item 3).

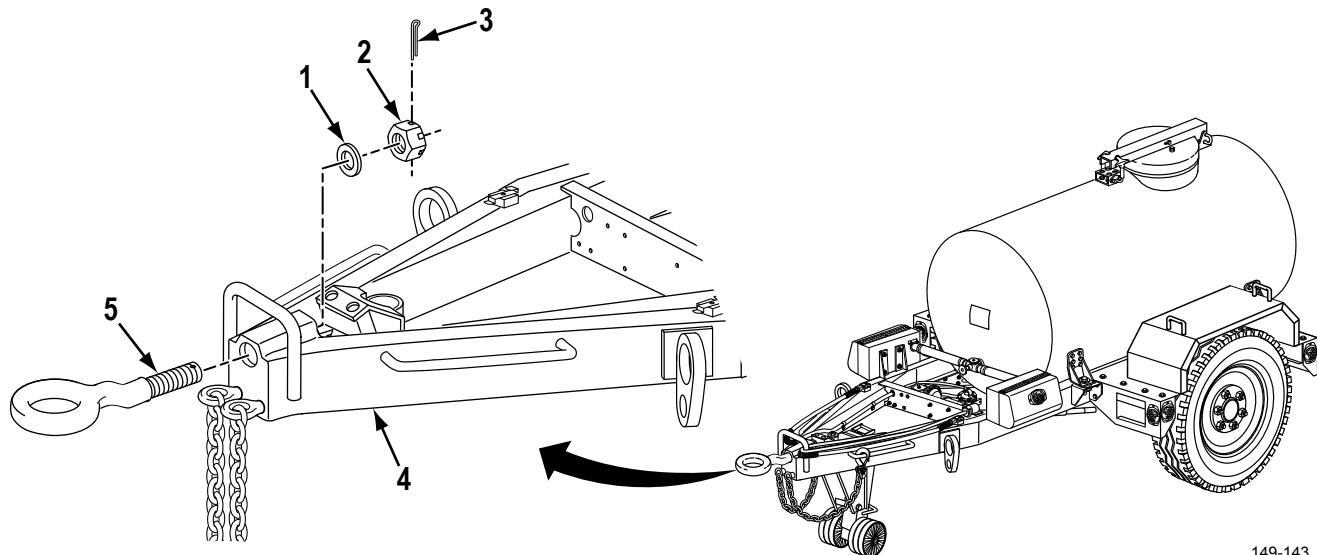


Figure 1. Drawbar Ring Replacement.

END OF TASK

INSTALLATION

1. Install drawbar ring (Figure 1, Item 5) on trailer tongue (Figure 1, Item 4) with washer (Figure 1, Item 1) and nut (Figure 1, Item 2). Torque nut (Figure 1, Item 2) to 450-500 lb ft (610-678 N·m).
2. Install new cotter pin (Figure 1, Item 3) through drawbar ring (Figure 1, Item 5) and nut (Figure 1, Item 2). Bend tabs on cotter pin (Figure 1, Item 3).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
SAFETY CHAIN AND HOOK MAINTENANCE**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

(WP 0097, Figure 14, Item 10)

Materials/Parts

Pin, Cotter (WP 0097, Figure 14, Item 14)
Washer, Lock

Equipment Condition

Wheels chocked (WP 0005)
Trailer coupled (only when measuring safety
chain length) (WP 0005)

NOTE

- This trailer has two safety chains. This procedure replaces one safety chain. The other safety chain is replaced the same way.
- If replacing an original configuration safety chain with a new configuration safety chain, you must also perform Disassembly and Assembly steps.

REMOVAL

Remove nut (Figure 1, Item 4), lockwasher (Figure 1, Item 5), and safety chain (Figure 1, Item 1) from trailer (Figure 1, Item 3). Discard lockwasher (Figure 1, Item 5).

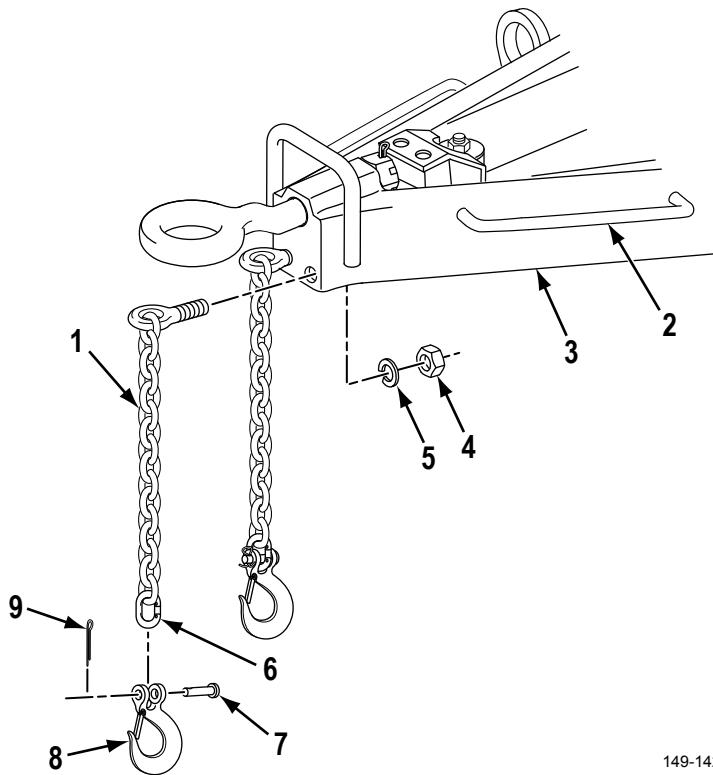


Figure 1. Safety Chain and Hook Maintenance.

END OF TASK**DISASSEMBLY**

1. Remove cotter pin (Figure 1, Item 9) and roll pin (Figure 1, Item 7) from hook (Figure 1, Item 8). Discard cotter pin (Figure 1, Item 9).

NOTE

Perform Steps 2 and 3 only if shortening safety chain.

2. With trailer attached to Prime Mover, measure distance between clevis of hook (Figure 1, Item 8) and end of safety chain (Figure 1, Item 1).
3. Remove connecting link (Figure 1, Item 6) joining extended chain and existing safety chain (Figure 1, Item 1).

END OF TASK

ASSEMBLY**NOTE**

Perform Step 1 only if lengthening safety chain.

1. Install extended chain to existing chain (Figure 1, Item 1) with connecting link (Figure 1, Item 6).
2. Install roll pin (Figure 1, Item 7) and new cotter pin (Figure 1, Item 9) on hook (Figure 1, Item 8).

END OF TASK**INSTALLATION**

1. Install safety chain (Figure 1, Item 1) on trailer frame (Figure 1, Item 3) with new lockwasher (Figure 1, Item 5) and nut (Figure 1, Item 4).
2. Hook safety chain (Figure 1, Item 1) on lifting handle (Figure 1, Item 2).

END OF TASK**FOLLOW ON TASK**

Remove wheel chocks (WP 0005).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE FAUCET BOX MAINTENANCE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (4) (WP 0098, Figure 15, Item 12)

Materials/Parts

Washer, Lock
Qty: (12) (WP 0098, Figure 15, Item 6)
Washer, Lock

Equipment Condition

Main water valve closed (WP 0005)
Wheels chocked (WP 0005)
Faucets and piping removed (WP 0075)
Reflector removed (WP 0077)

NOTE

This trailer has two faucet boxes. This procedure replaces one faucet box. The other faucet box is replaced the same way.

REMOVAL

1. Remove four nuts (Figure 1, Item 4), lockwashers (Figure 1, Item 3), and bolts (Figure 1, Item 2) from faucet box (Figure 1, Item 1). Discard lockwashers (Figure 1, Item 3).
2. Remove faucet box (Figure 1, Item 1) from frame brackets (Figure 1, Item 5).

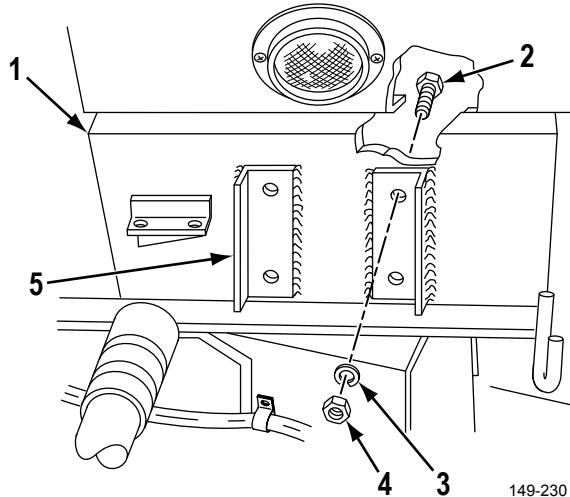


Figure 1. Faucet Box Removal.

END OF TASK

DISASSEMBLY

1. Release latch (Figure 2, Item 17) from latch bracket (Figure 2, Item 9).
2. Remove four nuts (Figure 2, Item 12), lockwashers (Figure 2, Item 11), bolts (Figure 2, Item 6), and access cover (Figure 2, Item 8) with hinge (Figure 2, Item 7) from box (Figure 2, Item 18). Discard lockwashers (Figure 2, Item 11).
3. Remove four nuts (Figure 2, Item 1), lockwashers (Figure 2, Item 2), bolts (Figure 2, Item 3), and hinge (Figure 2, Item 7) from access cover (Figure 2, Item 8). Discard lockwashers (Figure 2, Item 2).
4. Remove two nuts (Figure 2, Item 4), lockwashers (Figure 2, Item 5), bolts (Figure 2, Item 10), and latch bracket (Figure 2, Item 9) from access cover (Figure 2, Item 8). Discard lockwashers (Figure 2, Item 5).
5. Remove two nuts (Figure 2, Item 14), lockwashers (Figure 2, Item 15), bolts (Figure 2, Item 16), and latch (Figure 2, Item 17) from box (Figure 2, Item 18). Discard lockwashers (Figure 2, Item 15).

END OF TASK**ASSEMBLY**

1. Install latch (Figure 2, Item 17) on box (Figure 2, Item 18) with two bolts (Figure 2, Item 16), new lockwashers (Figure 2, Item 15), and nuts (Figure 2, Item 14).
2. Install latch bracket (Figure 2, Item 9) on access cover (Figure 2, Item 8) with two bolts (Figure 2, Item 10), new lockwashers (Figure 2, Item 5), and nuts (Figure 2, Item 4).
3. Install hinge (Figure 2, Item 7) on access cover (Figure 2, Item 8) with four bolts (Figure 2, Item 3), new lockwashers (Figure 2, Item 2), and nuts (Figure 2, Item 1).
4. Install access cover (Figure 2, Item 8) and hinge (Figure 2, Item 7) on box (Figure 2, Item 18) with four bolts (Figure 2, Item 6), new lockwashers (Figure 2, Item 11), and nuts (Figure 2, Item 12).
5. Secure latch (Figure 2, Item 17) to latch bracket (Figure 2, Item 9).

END OF TASK**INSTALLATION**

Install faucet box (Figure 2, Item 18) on frame brackets (Figure 2, Item 19) with four bolts (Figure 2, Item 13), new lockwashers (Figure 2, Item 20), and nuts (Figure 2, Item 21).

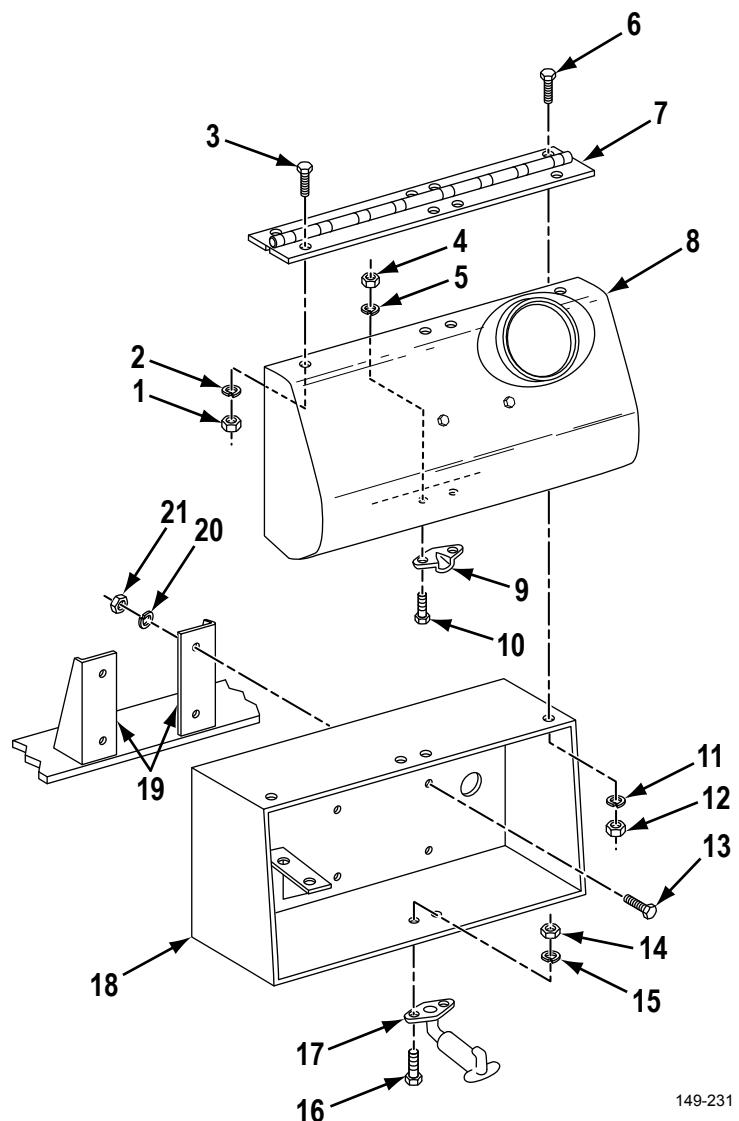
INSTALLATION - Continued

Figure 2. Faucet Box Maintenance.

END OF TASK

FOLLOW ON TASK

1. Install faucets and piping (WP 0075).
2. Install reflectors (WP 0077).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE SUSPENSION BRACKET REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (7) (WP 0097, Figure 14, Item 5)

Materials/Parts

Washer, Lock

Equipment Condition

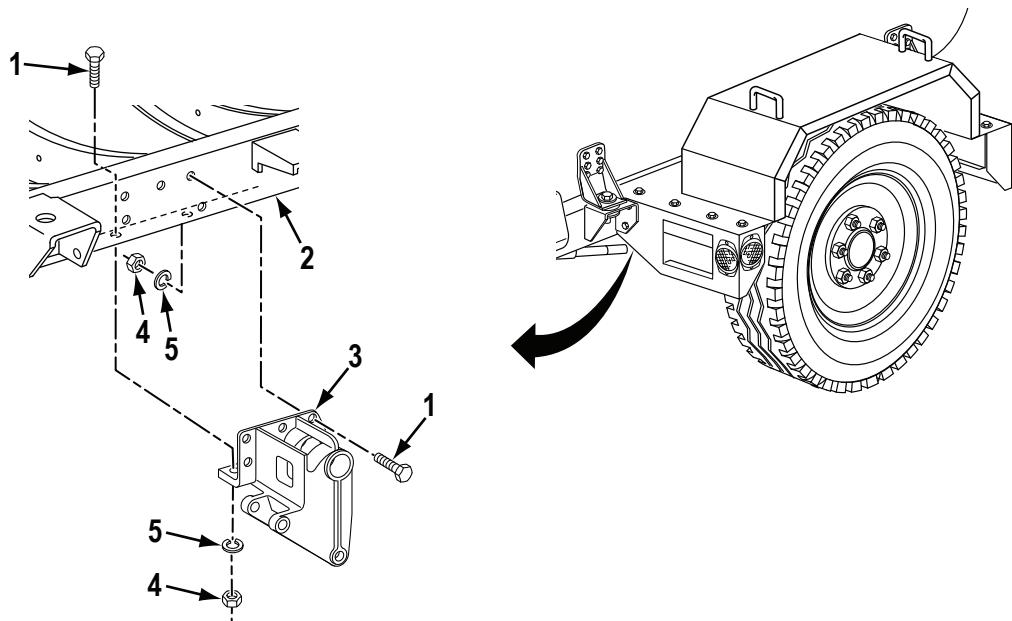
Spring removed (WP 0065)
Radius rod removed (WP 0069)

NOTE

This trailer has four suspension brackets. This procedure replaces one front suspension bracket. All other suspension brackets are replaced the same way.

REMOVAL

Remove seven nuts (Figure 1, Item 4), lockwashers (Figure 1, Item 5), bolts (Figure 1, Item 1), and bracket (Figure 1, Item 3) from trailer frame (Figure 1, Item 2). Discard lockwashers (Figure 1, Item 5).



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Figure 1. Suspension Bracket Removal.

END OF TASK

INSTALLATION

Install bracket (Figure 2, Item 3) on trailer frame (Figure 2, Item 2) with seven bolts (Figure 2, Item 1), new lockwashers (Figure 2, Item 5), and nuts (Figure 2, Item 4).

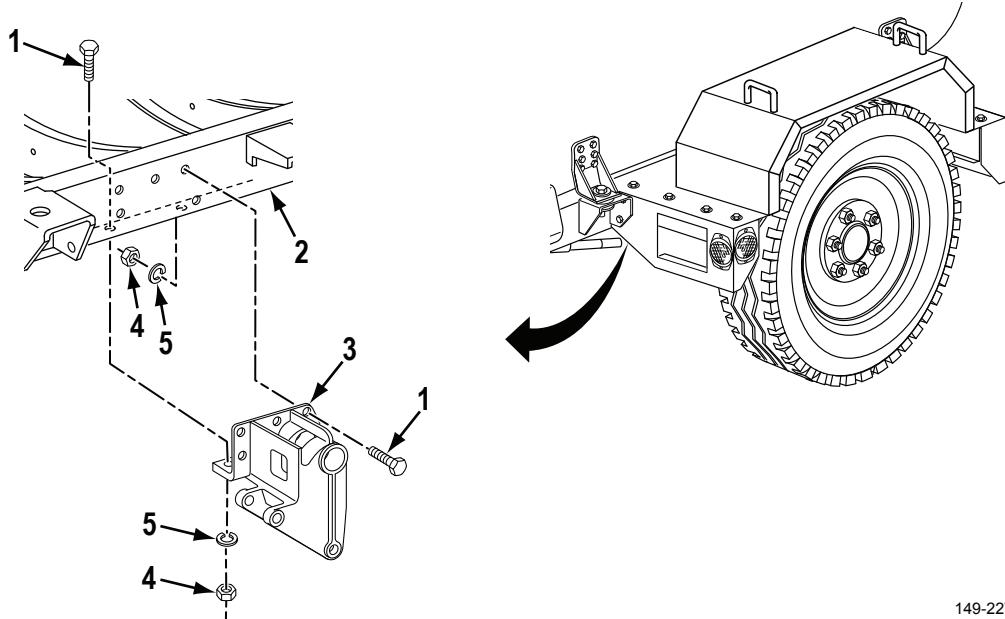


Figure 2. Suspension Bracket Installation.

END OF TASK**FOLLOW ON TASK**

1. Install spring (WP 0065).
2. Install radius rod (WP 0069).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE LANDING LEG MAINTENANCE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

Materials/Parts

Cleaning Compound, Solvent
(WP 0118, Table 1, Item 6)
Nut, Self-Locking
(WP 0099, Figure 16, Item 2)
Nut, Self-Locking
(WP 0099, Figure 16, Item 4)
Nut, Self-Locking
(WP 0099, Figure 16, Item 21)
Nut, Self-Locking
(WP 0099, Figure 16, Item 23)
Nut, Self-Locking

Materials/Parts (cont.)

(WP 0099, Figure 16, Item 28)
Pin, Spring
Qty: (2) (WP 0099, Figure 16, Item 17)
Pin, Spring
Qty: (2) (WP 0099, Figure 16, Item 31)
Washer, Lock
Qty: (2) (WP 0099, Figure 16, Item 11)
Washer, Lock
Qty: (4) (WP 0099, Figure 16, Item 32)

Personnel Required

Two

Equipment Condition

Trailer raised and supported (WP 0005)

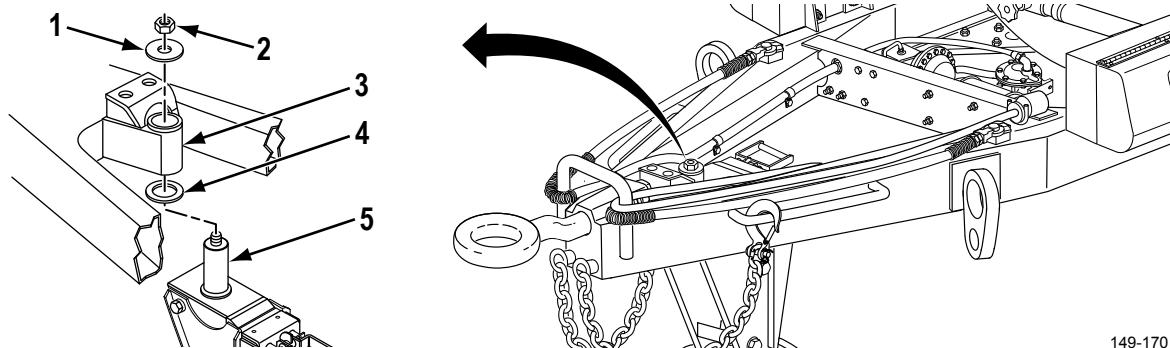
WARNING



- Weight of trailer must be supported on suitable support at all times. Do not attempt to support weight of trailer on suitable lifting device. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Landing leg weighs 150 lbs (68 kg). Two people are required to lift landing leg. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

REMOVAL

Remove self-locking nut (Figure 1, Item 2), washer (Figure 1, Item 1), landing leg (Figure 1, Item 5), and washer (Figure 1, Item 4) from frame (Figure 1, Item 3). Discard self-locking nuts (Figure 1, Item 2).

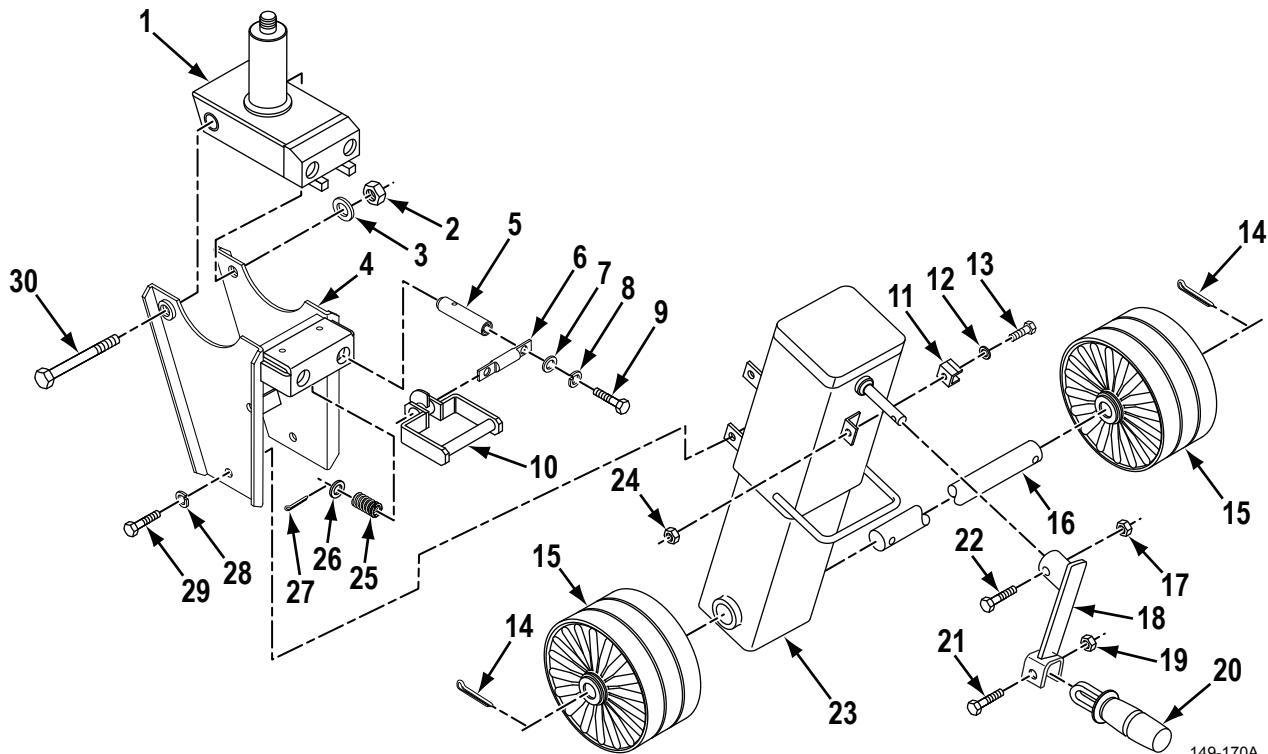


149-170

Figure 1. Landing Leg Removal.

END OF TASK**DISASSEMBLY**

1. Remove self-locking nut (Figure 2, Item 2), washer (Figure 2, Item 3), bolt (Figure 2, Item 30), and spindle (Figure 2, Item 1) from bracket (Figure 2, Item 4). Discard self-locking nut (Figure 2, Item 2).

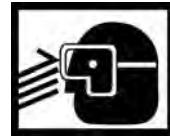


149-170A

Figure 2. Landing Leg Disassembly.

DISASSEMBLY - Continued

2. Remove two spring pins (Figure 2, Item 27), washers (Figure 2, Item 26), springs (Figure 2, Item 25), and handle (Figure 2, Item 10) from bracket (Figure 2, Item 4). Discard spring pins (Figure 2, Item 27).
3. Remove two pins (Figure 2, Item 5), bolts (Figure 2, Item 9), lockwashers (Figure 2, Item 8), and washers (Figure 2, Item 7) from shoulder pin (Figure 2, Item 6). Discard lockwashers (Figure 2, Item 8).
4. Remove four bolts (Figure 2, Item 29), lockwashers (Figure 2, Item 28), and bracket (Figure 2, Item 4) from leg (Figure 2, Item 23). Discard lockwashers (Figure 2, Item 28).
5. Remove self-locking nut (Figure 2, Item 19), bolt (Figure 2, Item 21), and handle (Figure 2, Item 20) from handcrank (Figure 2, Item 18). Discard self-locking nut (Figure 2, Item 19).
6. Remove self-locking nut (Figure 2, Item 17), bolt (Figure 2, Item 22), and handcrank (Figure 2, Item 18) from leg (Figure 2, Item 23). Discard self-locking nut (Figure 2, Item 17).
7. Remove two spring pins (Figure 2, Item 14), wheels (Figure 2, Item 15), and axle (Figure 2, Item 16) from leg (Figure 2, Item 23). Discard spring pins (Figure 2, Item 14).
8. Remove self-locking nut (Figure 2, Item 24), screw (Figure 2, Item 13), washer (Figure 2, Item 12), and clip (Figure 2, Item 11) from leg (Figure 2, Item 23). Discard self-locking nut (Figure 2, Item 24).

END OF TASK**CLEANING AND INSPECTION****WARNING**

- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

CLEANING AND INSPECTION – Continued**WARNING**

- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
 - Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
1. Clean all parts in cleaning compound solvent. Dry thoroughly.
 2. Inspect all parts for damage. Replace any damaged parts.

END OF TASK**ASSEMBLY**

1. Install clip (Figure 3, Item 11) on leg (Figure 3, Item 23) with screw (Figure 3, Item 13), washer (Figure 3, Item 12), and new self-locking nut (Figure 3, Item 24).
2. Install wheels (Figure 3, Item 15) on leg (Figure 3, Item 23) with axle (Figure 3, Item 16) and two new spring pins (Figure 3, Item 14).
3. Install handcrank (Figure 3, Item 18) on leg (Figure 3, Item 23) with bolt (Figure 3, Item 22) and new self-locking nut (Figure 3, Item 17).
4. Install handle (Figure 3, Item 20) on handcrank (Figure 3, Item 18) with bolt (Figure 3, Item 21) and new self-locking nut (Figure 3, Item 19).

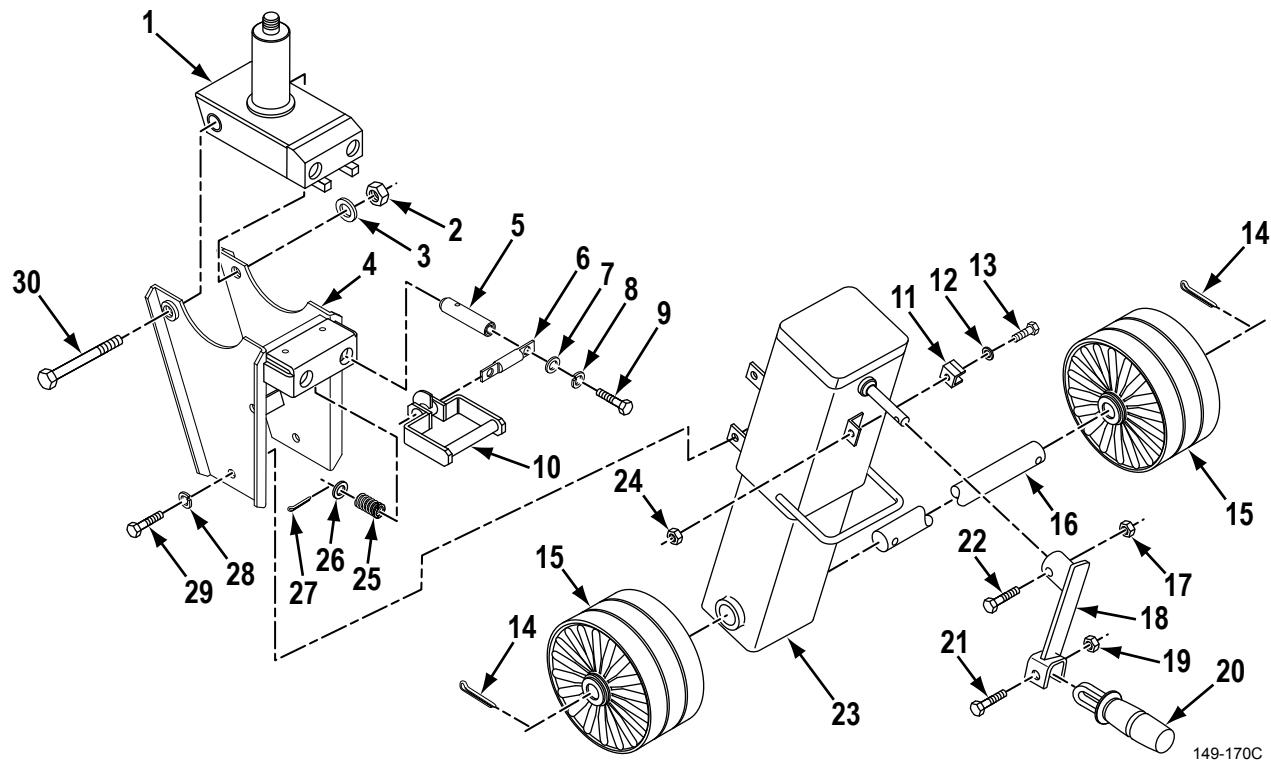
ASSEMBLY - Continued

Figure 3. Landing Leg Assembly.

5. Install bracket (Figure 3, Item 4) on leg (Figure 3, Item 23) with four bolts (Figure 3, Item 29) and new lockwashers (Figure 3, Item 28).
6. Install two pins (Figure 3, Item 5) on shoulder pin (Figure 3, Item 6) with bolts (Figure 3, Item 9), new lockwashers (Figure 3, Item 8), and washers (Figure 3, Item 7).
7. Install handle (Figure 3, Item 10) on bracket (Figure 3, Item 4) with springs (Figure 3, Item 25), washers (Figure 3, Item 26), and two new spring pins (Figure 3, Item 27).
8. Install spindle (Figure 3, Item 1) on bracket (Figure 3, Item 4) with bolt (Figure 3, Item 30), washer (Figure 3, Item 3), and new self-locking nut (Figure 3, Item 2).

END OF TASK

INSTALLATION

Install landing leg (Figure 4, Item 5) and washer (Figure 4, Item 4) on frame (Figure 4, Item 3) with washer (Figure 4, Item 2) and new self-locking nut (Figure 4, Item 1).

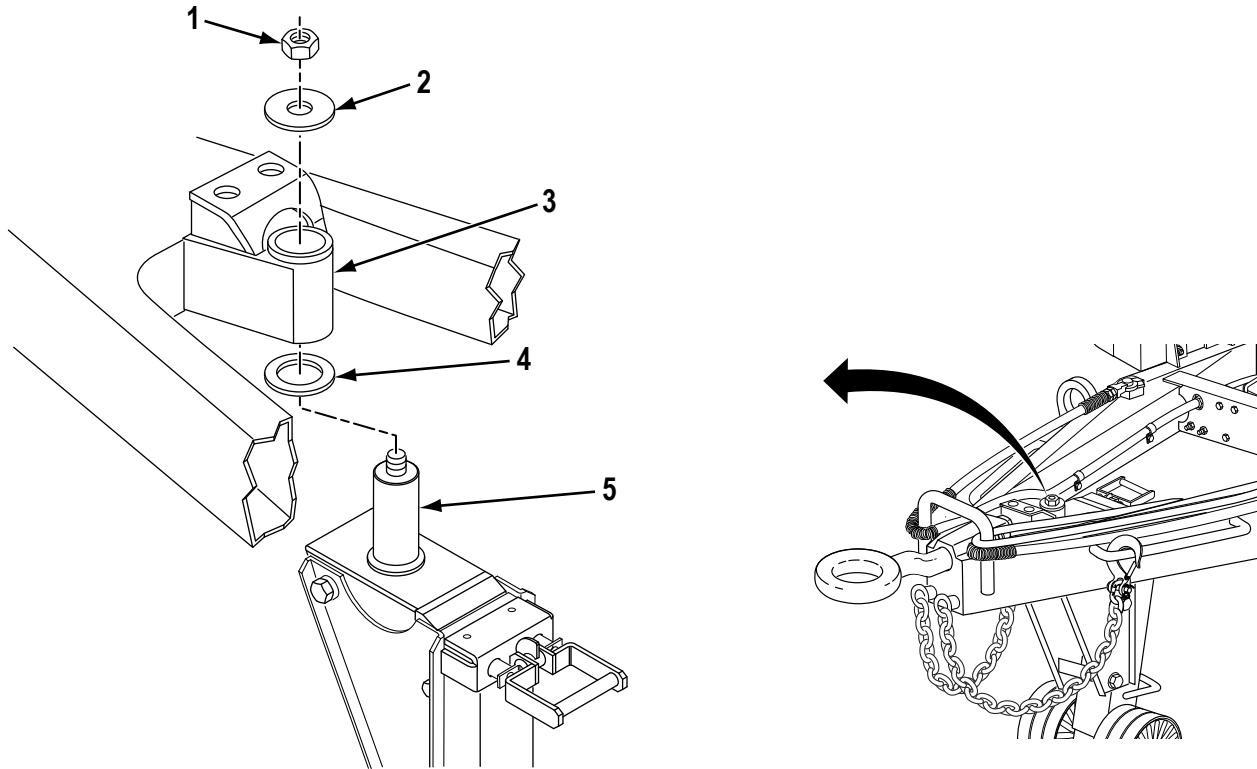


Figure 4. Landing Leg Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE LEAF SPRING REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Personnel Required

Two

Materials/Parts

Nut, Self-Locking
Qty: (2) (WP 0100, Figure 17, Item 11)

Equipment Condition

Axle removed (WP 0047)

WARNING



- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Radius rod and bracket will swing freely. Radius rod and bracket must be tied to frame assembly to prevent injury to personnel and damage to equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Spring weighs 100 lbs (45 kg). Two people are required to lift spring. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This trailer has two spring assemblies. This procedure replaces one spring assembly. The other spring assembly is replaced the same way.

REMOVAL

1. Position radius rod (Figure 1, Item 2) and bracket (Figure 1, Item 3) clear of spring assembly (Figure 1, Item 4) and tie to frame assembly (Figure 1, Item 1).

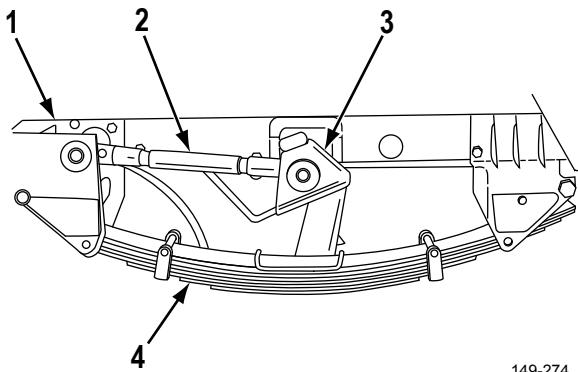


Figure 1. Radius Rod Placement.

NOTE

Two people are required with Step 2.

2. Remove two bolts (Figure 2, Item 10), self-locking nuts (Figure 2, Item 2), and spring assembly (Figure 2, Item 9) from brackets (Figure 2, Item 1). Discard self-locking nuts (Figure 2, Item 2).
3. Loosen two set screws (Figure 2, Items 3 and 7), pin (Figure 2, Item 4), and roller assembly (Figure 2, Item 6) from bracket (Figure 2, Item 1).
4. Remove grease fitting (Figure 2, Item 5) from pin (Figure 2, Item 4).

NOTE

Curbside and roadside spring assemblies have two bracket assemblies.

5. Repeat Steps 3 and 4 for remaining bracket (Figure 2, Item 1).

END OF TASK

INSTALLATION

1. Install grease fitting (Figure 2, Item 5) in pin (Figure 2, Item 4).
2. Install roller assembly (Figure 2, Item 6) and pin (Figure 2, Item 4) in bracket (Figure 2, Item 1).
3. Secure pin (Figure 2, Item 4) in bracket (Figure 2, Item 1) with two set screws (Figure 2, Items 3 and 7).

NOTE

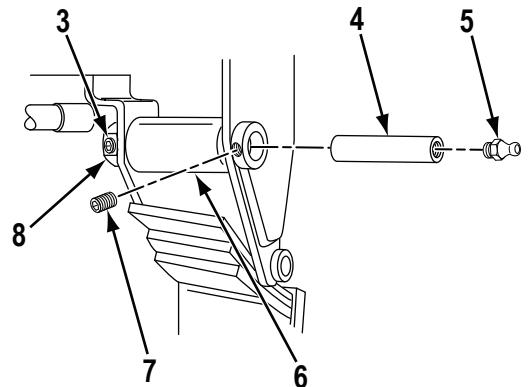
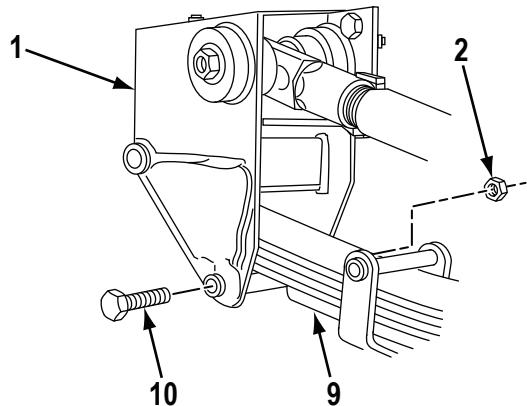
Curbside and roadside spring assemblies have a front and rear bracket assembly.

4. Repeat Steps 1 through 3 for remaining bracket (Figure 2, Item 1).

NOTE

Two people are required with Step 5.

5. Install spring assembly (Figure 2, Item 9) on brackets (Figure 2, Item 1) with two bolts (Figure 2, Item 10) and new self-locking nuts (Figure 2, Item 2).
6. Remove radius rod (Figure 1, Item 2) and bracket (Figure 1, Item 3) from frame assembly (Figure 1, Item 1).
7. Position bracket (Figure 1, Item 3) on top of spring assembly (Figure 1, Item 4).



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Figure 2. Spring Replacement.

END OF TASK

FOLLOW ON TASK

Install axle (WP 0047).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE SHOCK ABSORBER REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

Qty: (2) (WP 0101, Figure 18, Item 4)

Materials/Parts

Washer, Lock

Equipment Condition

Wheels chocked (WP 0005)

WARNING

If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This trailer has two shock absorbers. This procedure replaces one shock absorber. The other shock absorber is replaced the same way.

REMOVAL

Remove two nuts (Figure 1, Item 6), lockwashers (Figure 1, Item 5), washers (Figure 1, Item 4), shock absorber (Figure 1, Item 3), and four spacers (Figure 1, Item 2) from trailer mount (Figure 1, Item 1) and axle mount (Figure 1, Item 7). Discard lockwashers (Figure 1, Item 5).

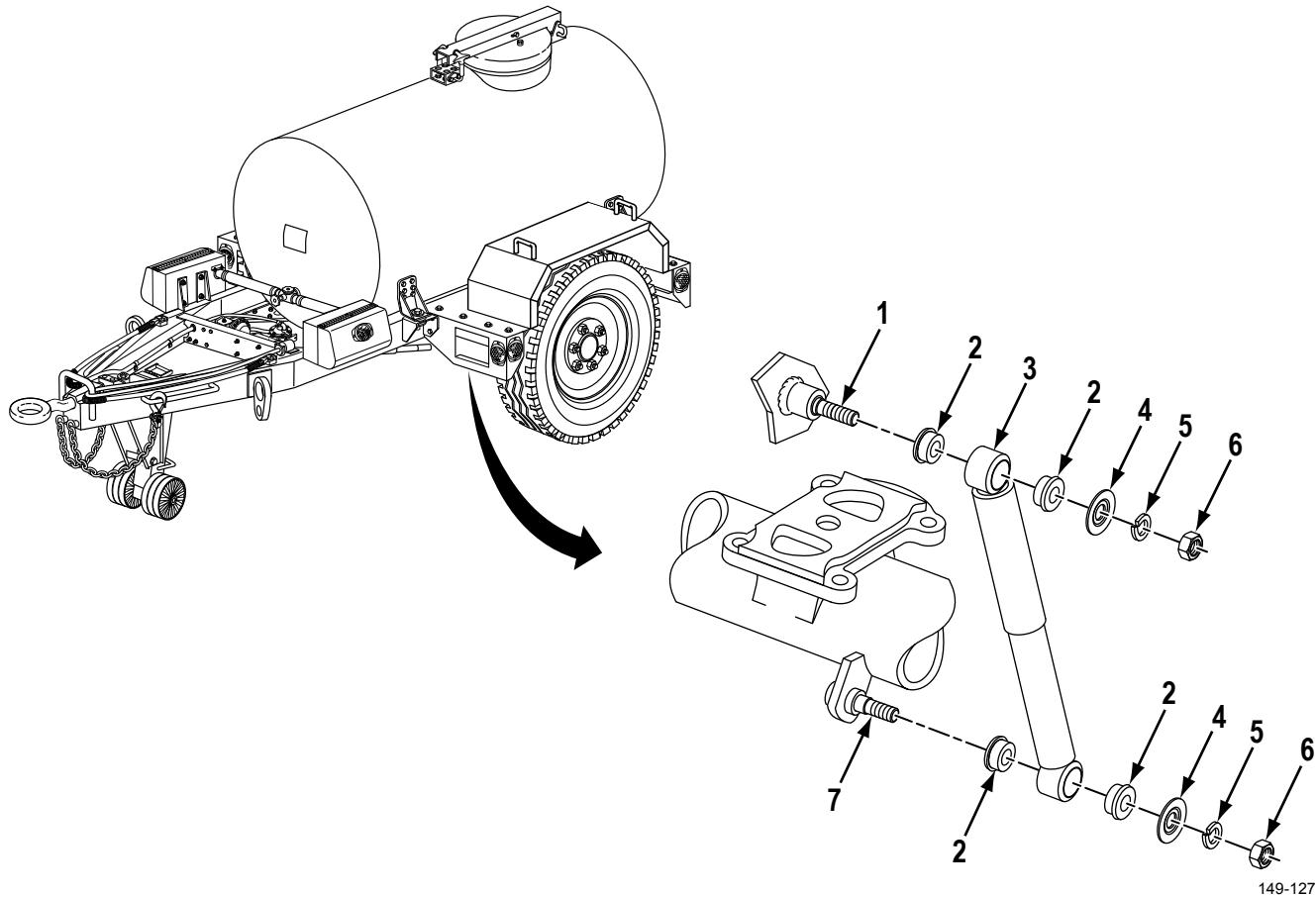


Figure 1. Shock Absorber Replacement.

END OF TASK**INSTALLATION**

1. Install four spacers (Figure 1, Item 2) on shock absorber (Figure 1, Item 3).
2. Install shock absorber (Figure 1, Item 3) on trailer mount (Figure 1, Item 1) and axle mount (Figure 1, Item 7) with two washers (Figure 2, Item 4), new lockwashers (Figure 2, Item 5), and nuts (Figure 1, Item 6).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE RADIUS ROD MAINTENANCE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts (cont.)

(WP 0100, Figure 17, Item 3)
Washer, Lock
Qty: (2) (WP 0102, Figure 19, Item 4)

Materials/Parts

Washer, Lock

Equipment Condition

Spring removed (WP 0065)

NOTE

This trailer has two radius rods. This procedure replaces one radius rod. The other radius rod is replaced the same way.

REMOVAL

1. Remove nut (Figure 1, Item 6), nut (Figure 1, Item 7), bolt (Figure 1, Item 1), and two shouldered washers (Figure 1, Item 2) from radius rod (Figure 1, Item 5) and bracket (Figure 1, Item 9).
2. Loosen setscrew (Figure 1, Item 10) and remove spacer (Figure 1, Item 8) from radius rod (Figure 1, Item 5) and bushings (Figure 1, Item 3).
3. Remove radius rod (Figure 1, Item 5), washers (Figure 1, Item 4), and bushings (Figure 1, Item 3) from bracket (Figure 1, Item 9).

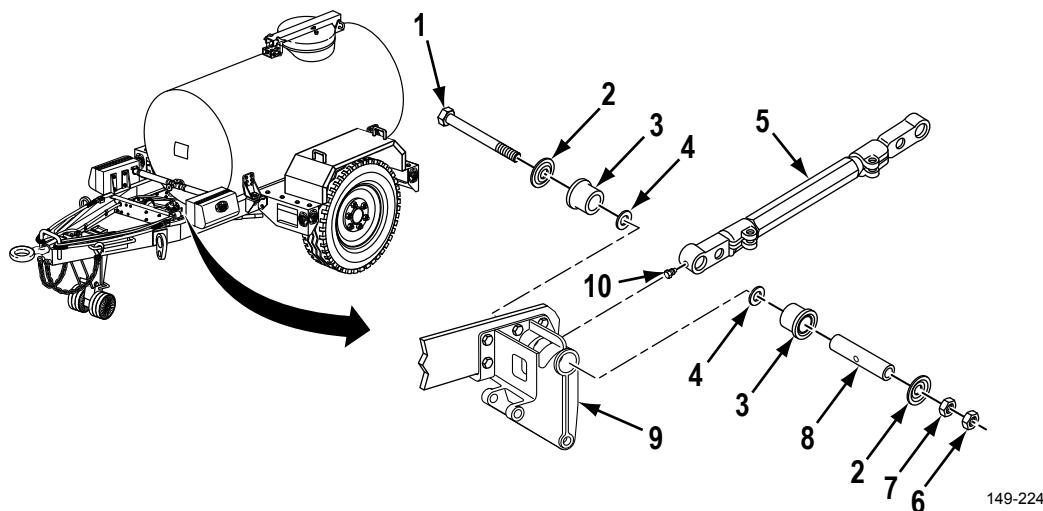


Figure 1. Radius Rod Removal.

REMOVAL - Continued

4. Remove nut (Figure 2, Item 11), nut (Figure 2, Item 12), bolt (Figure 2, Item 1), and two shouldered washers (Figure 2, Item 2), from radius rod connector (Figure 2, Item 16) and bracket (Figure 2, Item 9).
5. Loosen setscrew (Figure 2, Item 13) and remove spacer (Figure 2, Item 10) from radius rod connector (Figure 2, Item 16) and bushings (Figure 2, Item 3).
6. Remove radius rod (Figure 2, Item 18), connector (Figure 2, Item 16), washers (Figure 2, Item 4), and bushings (Figure 2, Item 3) from bracket (Figure 2, Item 9).

END OF TASK**DISASSEMBLY****NOTE**

- Measure and record distance between connectors before removing them from radius rod.
- Disassembly does not apply to curbside radius rod.

1. Remove two nuts (Figure 2, Item 15), lockwashers (Figure 2, Item 14), and bolts (Figure 2, Item 17) from connectors (Figure 2, Item 16). Discard lockwashers (Figure 2, Item 14).
2. Remove two connectors (Figure 2, Item 16) from radius rod (Figure 2, Item 18).
3. Remove bolt (Figure 2, Item 5), lockwasher (Figure 2, Item 6), washer (Figure 2, Item 7), and bumper (Figure 2, Item 8) from bracket (Figure 2, Item 9). Discard lockwasher (Figure 2, Item 6).

END OF TASK**ASSEMBLY****NOTE**

- Ensure that distance between connectors is the same as recorded before disassembly.
- Assembly does not apply to curbside radius rod.

1. Install bumper (Figure 2, Item 8) to bracket (Figure 2, Item 9) with washer (Figure 2, Item 7), new lockwasher (Figure 2, Item 6), and bolt (Figure 2, Item 5).
2. Install two connectors (Figure 2, Item 16) on radius rod (Figure 2, Item 18).
3. Install two bolts (Figure 2, Item 17), new lockwashers (Figure 2, Item 14), and nuts (Figure 2, Item 15) on connectors (Figure 2, Item 16).

END OF TASK**INSTALLATION**

1. Install radius rod (Figure 2, Item 18), connector (Figure 2, Item 16), and washers (Figure 2, Item 4) in bracket (Figure 2, Item 9) with spacer (Figure 2, Item 10).
2. Install bushings (Figure 2, Item 3) in bracket (Figure 2, Item 9) and secure connector (Figure 2, Item 16) to spacer (Figure 2, Item 10) with setscrew (Figure 2, Item 13).
3. Install radius rod connector (Figure 2, Item 16) on bracket (Figure 2, Item 9) with two shouldered washers (Figure 2, Item 2), bolt (Figure 2, Item 1), nut (Figure 2, Item 12), and nut (Figure 2, Item 11).

INSTALLATION - Continued

4. Install radius rod (Figure 3, Item 5) and washers (Figure 3, Item 4) in bracket (Figure 3, Item 9) with spacer (Figure 3, Item 8).
5. Install bushings (Figure 3, Item 3) in bracket (Figure 3, Item 9) and secure radius rod (Figure 3, Item 5) to spacer (Figure 3, Item 8) with setscrew (Figure 3, Item 10).

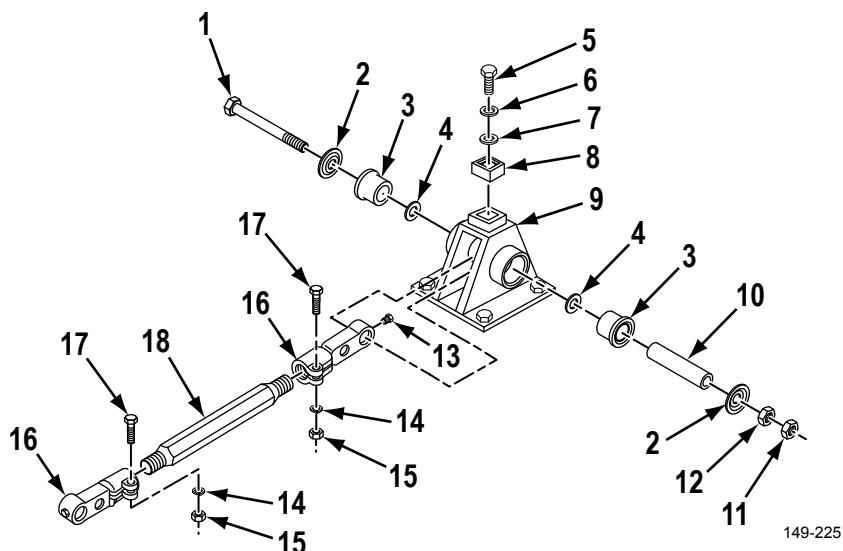


Figure 2. Radius Rod Replacement.

6. Install radius rod (Figure 3, Item 5) on bracket (Figure 3, Item 9) with two shouldered washers (Figure 3, Item 2), bolt (Figure 3, Item 1), nut (Figure 3, Item 7), and nut (Figure 3, Item 6).

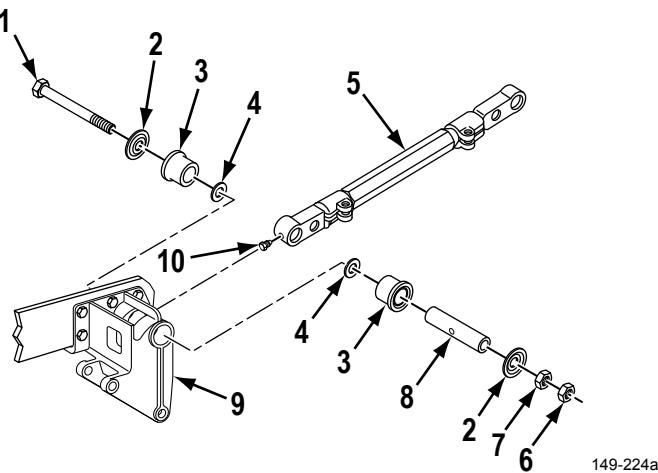
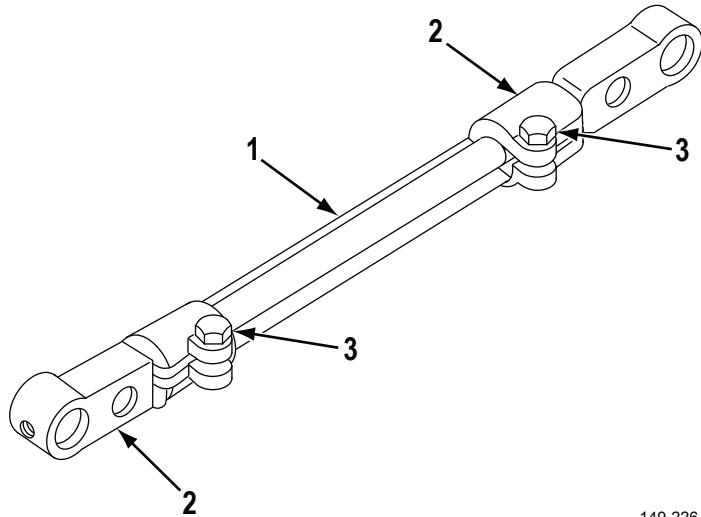


Figure 3. Radius Rod Installation.

END OF TASK

ADJUSTMENT

1. Measure distance between connectors (Figure 4, Item 2). If measurement is the same as measurement recorded during removal, adjustment is correct. If adjustment is not correct, go to Step 2.
2. Loosen bolts (Figure 4, Item 3) and turn radius rod (Figure 4, Item 1) clockwise to shorten and counterclockwise to lengthen distance between connectors (Figure 4, Item 2).
3. When measurement between connectors (Figure 4, Item 2) is same as recorded during removal, secure bolts (Figure 4, Item 3).



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Figure 4. Radius Rod Adjustment.

END OF TASK**FOLLOW ON TASK**

Install spring (WP 0065).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE FENDER REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Personnel Required

Two

Materials/Parts

Nut, Self-Locking
Qty: (14) (WP 0103, Figure 20, Item 6)

Equipment Condition

Wheels chocked (WP 0005)
Reflectors removed (WP 0077)

WARNING

Fender weighs 85 lbs (39 kg). Two people are required to lift fender. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

This trailer has two fenders. This procedure replaces one fender. The other fender is replaced the same way.

REMOVAL

1. Remove eight self-locking nuts (Figure 1, Item 5), bolts (Figure 1, Item 2), and washers (Figure 1, Item 3) from mounting brackets (Figure 1, Items 4 and 14) and fender (Figure 1, Item 1). Discard self-locking nuts (Figure 1, Item 5).
2. With assistance, remove fender (Figure 1, Item 1) from mounting brackets (Figure 1, Items 4 and 14).

NOTE

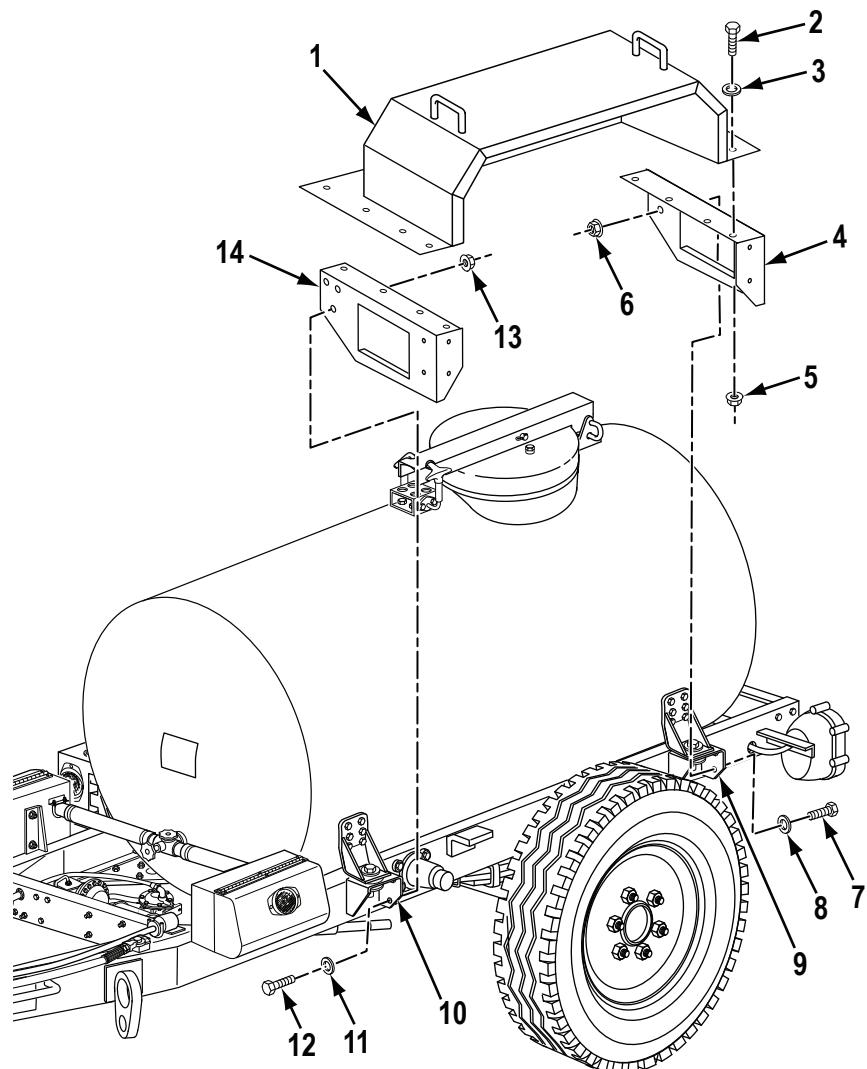
Perform Steps 3 and 4 only if replacing fender mounting brackets.

3. Remove three self-locking nuts (Figure 1, Item 13), bolts (Figure 1, Item 12), washers (Figure 1, Item 11), and front fender mounting bracket (Figure 1, Item 14) from frame mount (Figure 1, Item 10). Discard self-locking nuts (Figure 1, Item 13).
4. Remove three self-locking nuts (Figure 1, Item 6), bolts (Figure 1, Item 7), washers (Figure 1, Item 8), and rear fender mounting bracket (Figure 1, Item 4) from frame mount (Figure 1, Item 9). Discard self-locking nuts (Figure 1, Item 6).

END OF TASK**INSTALLATION****NOTE**

Perform Steps 1 and 2 only if fender mounting brackets were removed.

1. Install rear fender mounting bracket (Figure 1, Item 4) on frame mount (Figure 1, Item 9) with three washers (Figure 1, Item 8), bolts (Figure 1, Item 7), and new self-locking nuts (Figure 1, Item 6).
2. Install front fender mounting bracket (Figure 1, Item 14) on frame mount (Figure 1, Item 10) with three washers (Figure 1, Item 11), bolts (Figure 1, Item 12), and new self-locking nuts (Figure 1, Item 13).
3. With assistance, install fender (Figure 1, Item 1) on mounting brackets (Figure 1, Items 4 and 14) with eight washers (Figure 1, Item 3), bolts (Figure 1, Item 2), and new self-locking nuts (Figure 1, Item 5).

INSTALLATION - Continued

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Figure 1. Fender Replacement.

END OF TASK**FOLLOW ON TASK**

Install reflectors (WP 0077).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE WATER TANK MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

References

FM 21-10
TB MED 577

Materials/Parts

Brush, Scrub (WP 0118, Table 1, Item 5)
Dishwashing Compound
(WP 0118, Table 1, Item 8)

Equipment Condition

Wheels chocked (WP 0005)
Water tank drained (WP 0005)
Manhole cover removed (WP 0074)
Faucets, main valve, and pipes removed
(WP 0075)
Disconnect water tank body brackets from tank
(WP 0073)

Personnel Required

Two

WARNING

- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Lifting device must have a weight capacity greater than 5,800 lbs (2,630 kg), the weight of the trailer and cargo. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- All personnel must stand clear of Prime Mover and trailer during coupling and uncoupling operations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

REMOVAL

1. Using suitable lifting device (Figure 1, Item 3), support water tank (Figure 1, Item 1) from trailer frame (Figure 1, Item 5).
2. Remove water tank (Figure 1, Item 1) from trailer (Figure 1, Item 5).

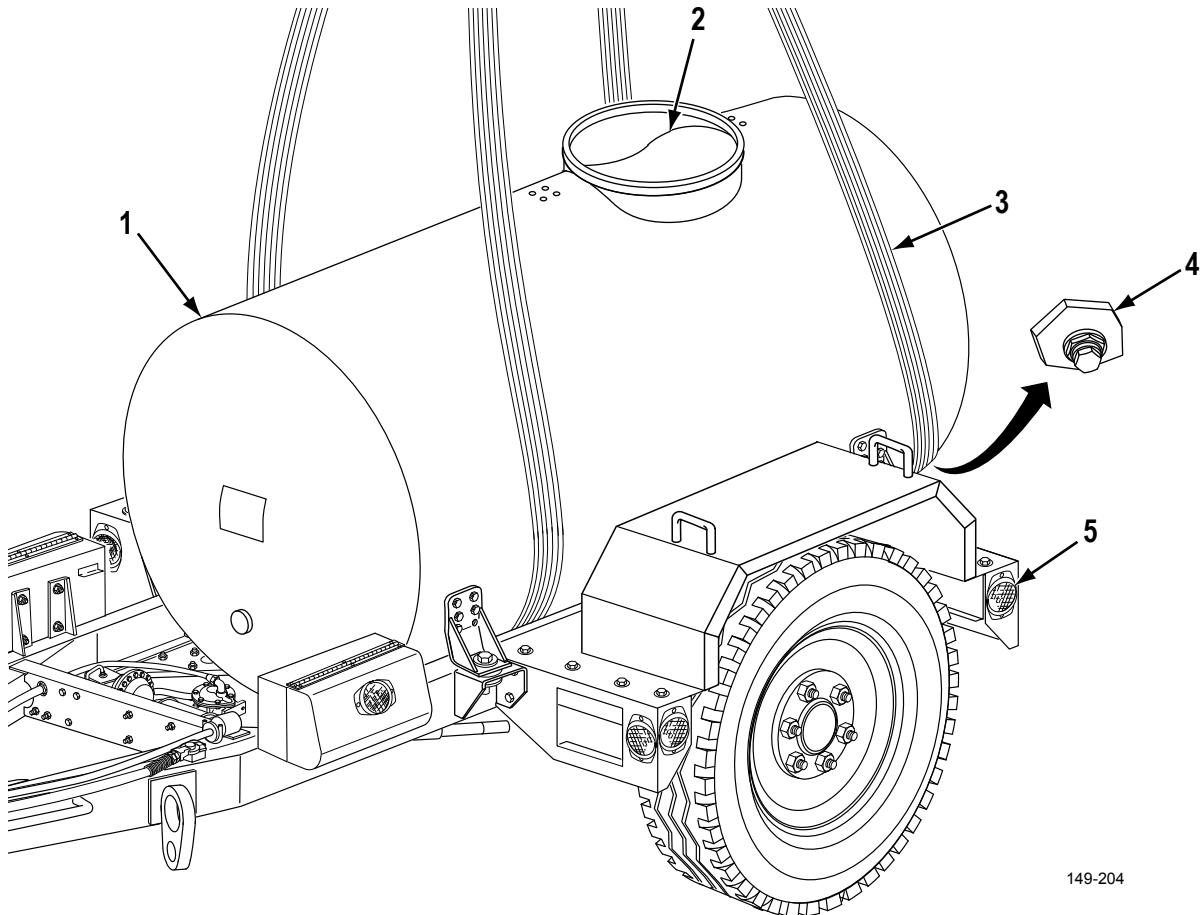


Figure 1. Water Tank Supported.

END OF TASK

CLEANING AND REPAIR**WARNING**

- Tank interior is a confined space with potential oxygen deficiency and toxic fume hazards. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- An adequate air evacuation system must be used to quickly exhaust fumes from inside tank assembly. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Personnel must wear rubber gloves, canvas sleeves, safety shoes, rubberized apron/jacket, and protective mask while performing abrasive cleaning operation. A portable air filter must also be used. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- NEVER WORK ALONE INSIDE tank assembly. A safety rope must be secured around chest and under arms of person entering water tank. Opposite end of safety rope must be held by a person stationed at the manhole opening. This will allow for quick removal of a person from water tank in the event of accident or personal injury. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

To clean interior of water tank body and for information on field hygiene and disinfecting procedures, refer to FM 21-10 and TB MED 577.

1. Remove drain plug (Figure 1, Item 4) from water tank (Figure 1, Item 1).
2. Using a brush and soap, scrub interior of water tank (Figure 1, Item 2).
3. Rinse interior of water tank (Figure 1, Item 2) repeatedly with warm water, 120°F (49°C) until soapy solution is removed.
4. Install drain plug (Figure 1, Item 4) in water tank body (Figure 1, Item 1).

END OF TASK**INSTALLATION**

Using suitable lifting device (Figure 1, Item 3), lower water tank (Figure 1, Item 1) on trailer frame (Figure 1, Item 5).

END OF TASK

FOLLOW ON TASK

1. Connect body brackets to tank (WP 0073).
2. Install water tank body brackets (WP 0073).
3. Install faucets, main valve, and pipes (WP 0075).
4. Install manhole cover (WP 0074).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
WATER TANK BODY BRACKET REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

References

WP 0072

Materials/Parts

Gasket (WP 0104, Figure 21, Item 23)
Nut, Self-Locking
(WP 0104, Figure 21, Item 34)
Wire, Nonelectrical (WP 0118, Table 1, Item 20)

Equipment Condition

Wheels chocked (WP 0005)
Water tank body supported (WP 0005)

WARNING



- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Lifting device must have a weight capacity greater than 5,800 lbs (2,630 kg), the weight of the trailer and cargo. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- This trailer has four water tank body brackets. This procedure replaces one water tank body bracket. All other water tank body brackets are replaced the same way.
- If replacing more than one water tank body bracket, remove the water tank from the trailer (WP 0072).

REMOVAL

1. Remove lock wire (Figure 1, Item 5) and six bolts (Figure 1, Item 4) from water tank (Figure 1, Item 1) and bracket (Figure 1, Item 3). Discard lock wire (Figure 1, Item 5).
2. Remove self-locking nut (Figure 1, Item 6), washer (Figure 1, Item 7), bolt (Figure 1, Item 13), washer (Figure 1, Item 12), spacer plate (Figure 1, Item 11), packing (Figure 1, Item 10), spacer ring (Figure 1, Item 9), mount (Figure 1, Item 8), bracket (Figure 1, Item 3), and gasket (Figure 1, Item 2) from trailer frame (Figure 1, Item 14) and water tank (Figure 1, Item 1). Discard gasket (Figure 1, Item 2) and self-locking nut (Figure 1, Item 6).

END OF TASK**INSTALLATION**

1. Install new gasket (Figure 1, Item 2) and bracket (Figure 1, Item 3) on water tank (Figure 1, Item 1) with six bolts (Figure 1, Item 4). Do not tighten bolts (Figure 1, Item 4) at this time.
2. Install mount (Figure 1, Item 8) on trailer frame (Figure 1, Item 14).
3. Secure water tank (Figure 1, Item 1) to trailer frame bracket (Figure 1, Item 14) with spacer ring (Figure 1, Item 9), packing (Figure 1, Item 10), spacer plate (Figure 1, Item 11), washer (Figure 1, Item 12), bolt (Figure 1, Item 13), washer (Figure 1, Item 7), and new self-locking nut (Figure 1, Item 6).
4. Tighten six bolts (Figure 1, Item 4) and secure to bracket (Figure 1, Item 3) with new lock wire (Figure 1, Item 5).

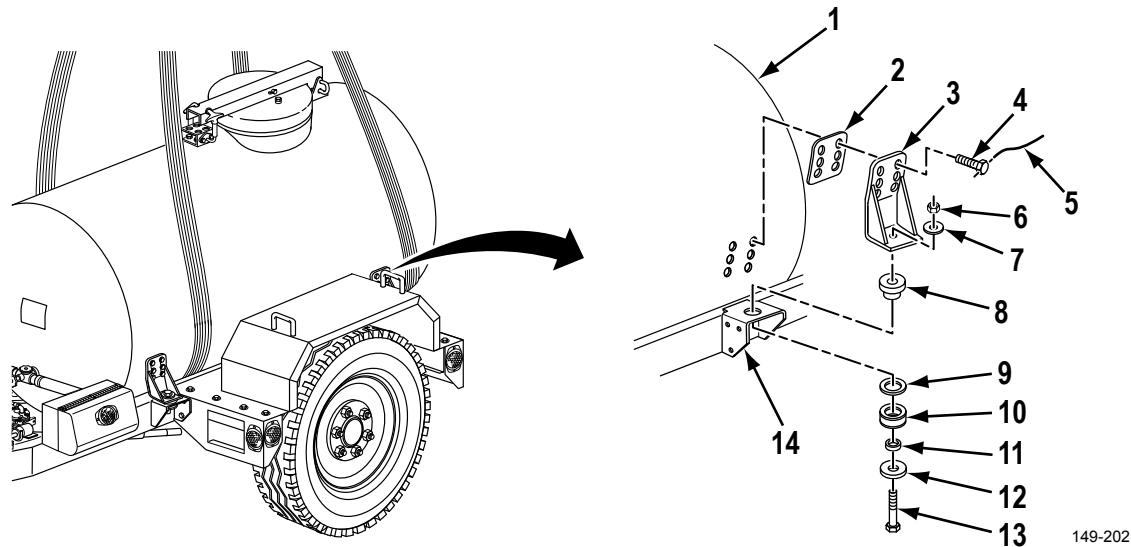


Figure 1. Water Tank Bracket Replacement.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE MANHOLE COVER MAINTENANCE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts

Adhesive (WP 0118, Table 1, Item 1)
Nut, Self-Locking
Qty: (4) (WP 0104, Figure 21, Item 2)
Nut, Self-Locking

Materials/Parts (cont.)

(WP 0104, Figure 21, Item 17)
Pin, Cotter (WP 0104, Figure 21, Item 15)
Seal (WP 0104, Figure 21, Item 10)
Washer, Lock
Qty: (8) (WP 0104, Figure 21, Item 5)

Equipment Condition

Wheels chocked (WP 0005)

WARNING



If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

REMOVAL

1. Lift and remove two latches (Figure 1, Item 23) from strike catch (Figure 1, Item 1).

NOTE

May be more than one spacer plate between hinge and tank.

2. Remove four bolts (Figure 1, Item 11), lockwashers (Figure 1, Item 12), hinge (Figure 1, Item 15), spacer plate (Figure 1, Item 17), and spacers (Figure 1, Item 18) from tank (Figure 1, Item 19). Discard lockwashers (Figure 1, Item 12).

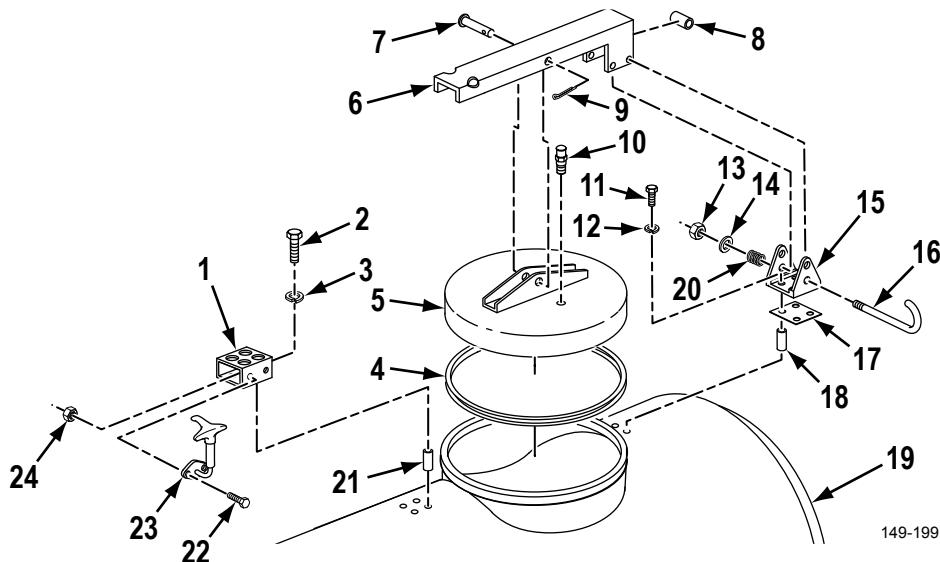


Figure 1. Manhole Cover Maintenance.

3. Remove four screws (Figure 1, Item 2), lockwashers (Figure 1, Item 3), strike catch (Figure 1, Item 1), and spacers (Figure 1, Item 21) from tank (Figure 1, Item 19). Discard lockwashers (Figure 1, Item 3).

END OF TASK**DISASSEMBLY**

1. Remove four screws (Figure 1, Item 22), self-locking nuts (Figure 1, Item 24), and two latches (Figure 1, Item 23) from strike catch (Figure 1, Item 1). Discard self-locking nuts (Figure 1, Item 24).
2. Remove cotter pin (Figure 1, Item 9), pin (Figure 1, Item 7), and bracket (Figure 1, Item 6) from manhole cover (Figure 1, Item 5). Discard cotter pin (Figure 1, Item 9).
3. Remove self-locking nut (Figure 1, Item 13), washer (Figure 1, Item 14), spring (Figure 1, Item 20), spacer (Figure 1, Item 8), hook bolt (Figure 1, Item 16), and hinge (Figure 1, Item 15) from bracket (Figure 1, Item 6). Discard self-locking nut (Figure 1, Item 13).

NOTE

Perform Steps 4 and 5 only if vacuum valve and/or seal is damaged.

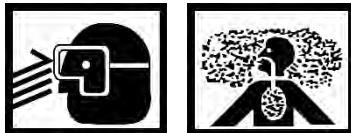
4. Remove vacuum valve (Figure 1, Item 10) from manhole cover (Figure 1, Item 5).

DISASSEMBLY - Continued

5. Scrape seal (Figure 1, Item 4) from manhole cover (Figure 1, Item 5). Discard seal (Figure 1, Item 4).

END OF TASK**INSPECTION**

Inspect condition and function of vacuum valve (Figure 1, Item 10), replace if plugged or damaged.

END OF TASK**ASSEMBLY****WARNING**

Adhesive causes immediate bonding on contact with eyes, skin, or clothing and also gives off harmful vapors. Wear *gloves*, eye protection and use *adhesive product* only in a well-ventilated areas. If adhesive *makes contact with eyes or skin*, flush *thoroughly* with water for 15 minutes. Try to keep eyes open. Get immediate medical attention. *If ingested, DO NOT induce vomiting. Keep individual calm and seek immediate medical attention.* Failure to comply may result in death or injury to personnel. Dispose of clean-up cloths or rags IAW local policy and ordinances. *Keep contaminated cloths and / or rags clear of open flame or ignition sources.*

NOTE

Perform Steps 1 and 2 only if seal was removed.

1. Apply adhesive to mating surfaces of new seal (Figure 1, Item 4) and manhole cover (Figure 1, Item 5), and install seal (Figure 1, Item 4) on manhole cover (Figure 1, Item 5).
2. Install vacuum valve (Figure 1, Item 10) on manhole cover (Figure 1, Item 5).
3. Install hinge (Figure 1, Item 15) on bracket (Figure 1, Item 6) with spacer (Figure 1, Item 8), hook bolt (Figure 1, Item 16), spring (Figure 1, Item 20), washer (Figure 1, Item 14), and new self-locking nut (Figure 1, Item 13).
4. Install bracket (Figure 1, Item 6) on manhole cover (Figure 1, Item 5) with pin (Figure 1, Item 7) and new cotter pin (Figure 1, Item 9).
5. Install two latches (Figure 1, Item 23) on strike catch (Figure 1, Item 1) with four bolts (Figure 1, Item 22) and new self-locking nuts (Figure 1, Item 24).

END OF TASK**INSTALLATION**

1. Install four spacers (Figure 1, Item 21) on tank (Figure 1, Item 19).
2. Install strike catch (Figure 1, Item 1) on tank (Figure 1, Item 19) with four new lockwashers (Figure 1, Item 3) and bolts (Figure 1, Item 2).
3. Install four spacers (Figure 1, Item 18) on tank (Figure 1, Item 19).

NOTE

If there was more than one spacer plate, ensure the same amount are placed between hinge and tank.

4. Install manhole cover (Figure 1, Item 5) with bracket (Figure 1, Item 6) and spacer plate (Figure 1, Item 17) on tank (Figure 1, Item 19) with four new lockwashers (Figure 1, Item 12) and bolts (Figure 1, Item 11).
5. Lift and extend two latches (Figure 1, Item 23) in holes on manhole cover (Figure 1, Item 5).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE FAUCETS, MAIN VALVE, AND PIPES MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Materials/Parts

Dishwashing Compound
(WP 0118, Table 1, Item 8)
O-Ring Qty: (2) (WP 0105, Figure 22, Item 3)
O-Ring (WP 0105, Figure 22, Item 7)
Pin, Spring

Materials/Parts (cont.)

Qty: (2) (WP 0105, Figure 22, Item 2)
Sealing Compound, Pipe

(WP 0118, Table 1, Item 17)

Washer, Lock

Qty: (12) (WP 0105, Figure 22, Item 12)

Equipment Condition

Wheels chocked (WP 0005)
Water tank drained (WP 0005)

WARNING



- If trailer is not coupled to Prime Mover, ensure that wheels are chocked. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Remove only the fittings or components that need to be replaced. This procedure covers all components and fittings.
- Note location and direction of fittings prior to removal to assist with installation.
- There are various versions of valve-faucet configurations. Latest version is shown.

REMOVAL

1. Remove eight nuts (Figure 1, Item 14), lockwashers (Figure 1, Item 15), washers (Figure 1, Item 16), and four U-bolts (Figure 1, Item 21) from faucet boxes (Figure 1, Items 1 and 3). Discard lockwashers (Figure 1, Item 15).
2. Remove four hose clamps (Figure 1, Item 12) and two hoses (Figure 1, Item 13) from pipe adapters (Figure 1, Item 11).
3. Remove plug (Figure 1, Item 26), gasket (Figure 1, Item 25), and coupling (Figure 1, Item 24) from pipe elbow (Figure 1, Item 23).
4. Remove three faucets (Figure 1, Item 18) from pipe tees (Figure 1, Item 17) and pipe elbow (Figure 1, Items 20).
5. Remove pipe elbows (Figure 1, Items 20 and 23) and pipe nipples (Figure 1, Items 19 and 22) from pipe tees (Figure 1, Item 17).
6. Remove four pipe adapters (Figure 1, Item 11) from pipe tees (Figure 1, Items 17) and main valve (Figure 1, Item 8).

NOTE

Perform Step 7 if removing the main valve.

7. Remove main valve (Figure 1, Item 8) from water tank (Figure 1, Item 2).

END OF TASK**DISASSEMBLY****NOTE**

Perform Disassembly and Assembly only if main valve was removed.

1. Remove spring pin (Figure 1, Item 5), handle (Figure 1, Item 6), and two O-rings (Figure 1, Item 7) from main valve (Figure 1, Item 8). Discard O-rings (Figure 1, Item 7) and spring pin (Figure 1, Item 5).
2. Remove spring pin (Figure 1, Item 9), handle (Figure 1, Item 4), and O-ring (Figure 1, Item 10) from main valve (Figure 1, Item 8). Discard O-ring (Figure 1, Item 10) and spring pin (Figure 1, Item 9).

DISASSEMBLY - Continued

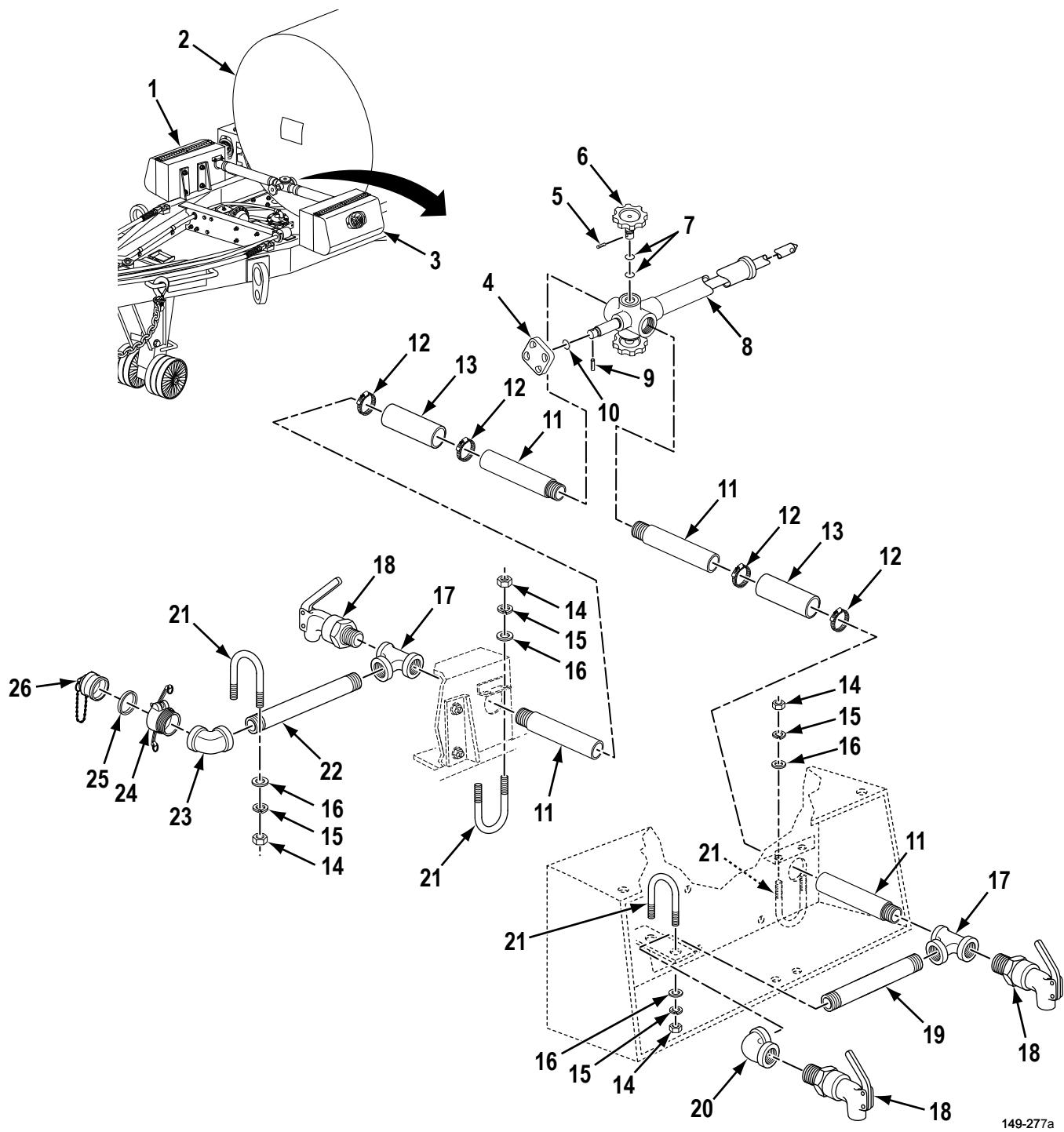


Figure 1. Faucets, Main Valve, and Pipes Maintenance (New Configuration).

END OF TASK

CLEANING AND INSPECTION**NOTE**

If any steel-iron fitting or component is found, discard and replace.

1. Using soap and water, clean all parts and inspect for cracks, damaged threads, and evidence of leakage.
2. Replace any damaged parts.

END OF TASK**ASSEMBLY**

1. Install two new O-rings (Figure 2, Item 7) on main valve (Figure 2, Item 8) with handle (Figure 2, Item 6) and new spring pin (Figure 2, Item 5).
2. Install new O-ring (Figure 2, Item 10) on main valve (Figure 2, Item 8) with handle (Figure 2, Item 4) and new spring pin (Figure 2, Item 9).

END OF TASK**INSTALLATION****NOTE**

- Apply a small amount of sealing compound on male threads of fittings prior to installation.
 - Perform Step 1 if main valve was removed.
1. Install main valve (Figure 2, Item 8) on water tank (Figure 2, Item 2).
 2. Install four pipe adapters (Figure 2, Item 11) on main valve (Figure 2, Item 8) and pipe tees (Figure 2, Item 17).
 3. Install pipe nipples (Figure 2, Items 19 and 22) on pipe tees (Figure 2, Item 17) and pipe elbows (Figure 2, Items 20 and 23).
 4. Install faucets (Figure 2, Item 18) on pipe tees (Figure 2, Item 17) and pipe elbow (Figure 2, Item 20).
 5. Install coupling (Figure 2, Item 24), gasket (Figure 2, Item 25), and plug (Figure 2, Item 26) on pipe elbow (Figure 2, Item 23).
 6. Install pipe nipple assemblies (Figure 2, Items 19 and 22) in faucet boxes (Figure 2, Items 1 and 3).
 7. Install two hoses (Figure 2, Item 13) on pipe adapters (Figure 2, Item 11) and pipe nipple assemblies (Figure 2, Items 19 and 22) with four clamps (Figure 2, Item 12).
 8. Secure pipe adapters (Figure 2, Item 11) to backside of faucet boxes (Figure 2, Items 1 and 3) with two U-bolts (Figure 2, Item 21), four washers (Figure 2, Item 16), new lockwashers (Figure 2, Item 15), and nuts (Figure 2, Item 14).
 9. Secure pipe nipple assemblies (Figure 2, Items 19 and 22) inside faucet boxes (Figure 2, Items 1 and 3) with two U-bolts (Figure 2, Item 21), four washers (Figure 2, Item 16), new lockwashers (Figure 2, Item 15), and nuts (Figure 2, Item 14).

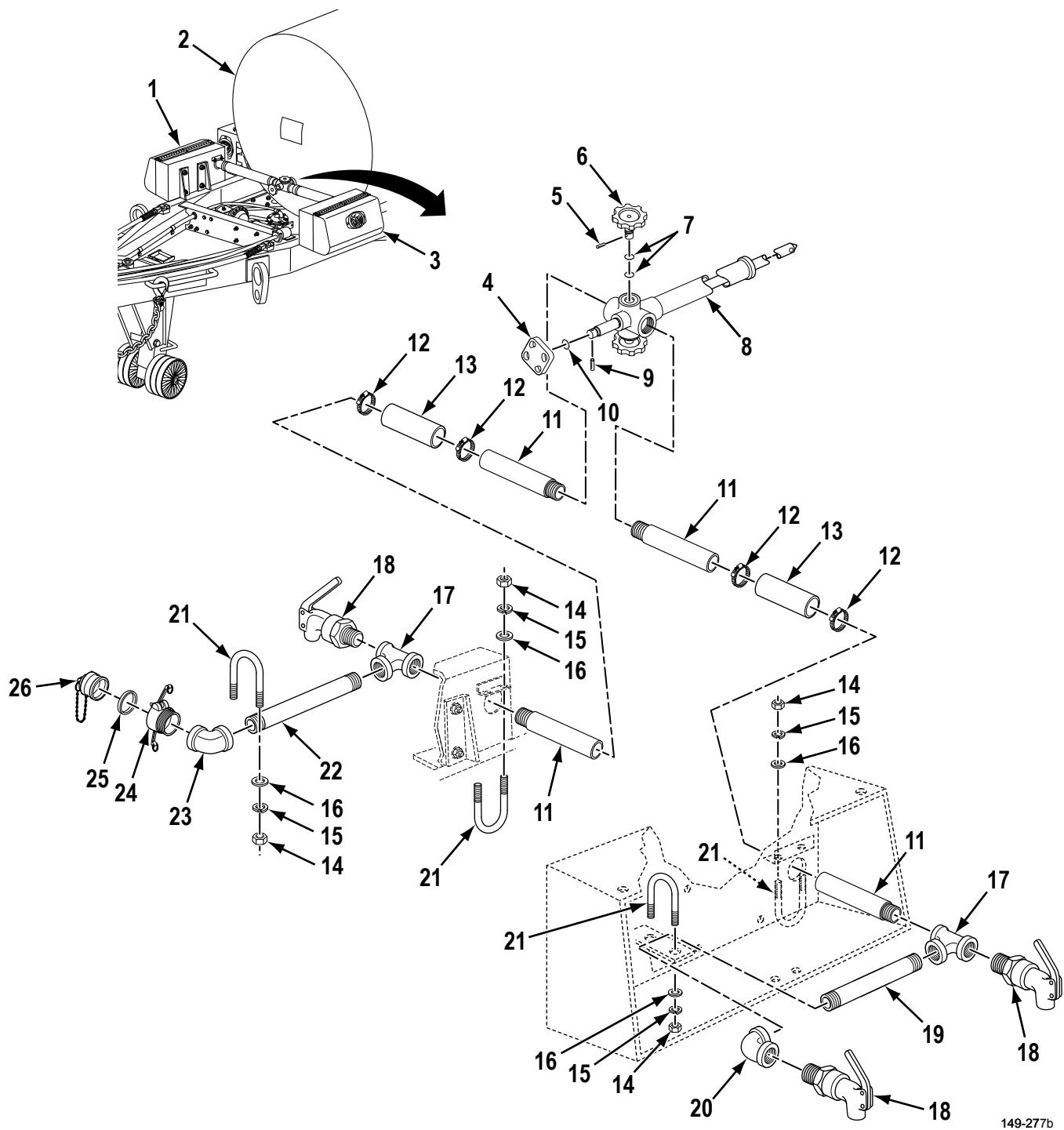
INSTALLATION - Continued

Figure 2. Main Valve, Faucets, and Pipes Installation (New Configuration).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE REAR FAUCET REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Equipment Condition

Wheels chocked (WP 0005)
Water tank drained (WP 0005)

Materials/Parts

O-Ring (WP 0106, Figure 23, Item 6)
O-Ring (WP 0106, Figure 23, Item 11)
Pin, Spring Qty: (2) (WP 0106, Figure 23, Item 4)

REMOVAL

NOTE

- Open faucet to ensure water tank is drained.
- Faucet is removed by rotating in a counterclockwise direction and pulling straight back.

Remove faucet (Figure 1, Item 1) by turning counterclockwise and pulling out straight from water tank (Figure 1, Item 2).

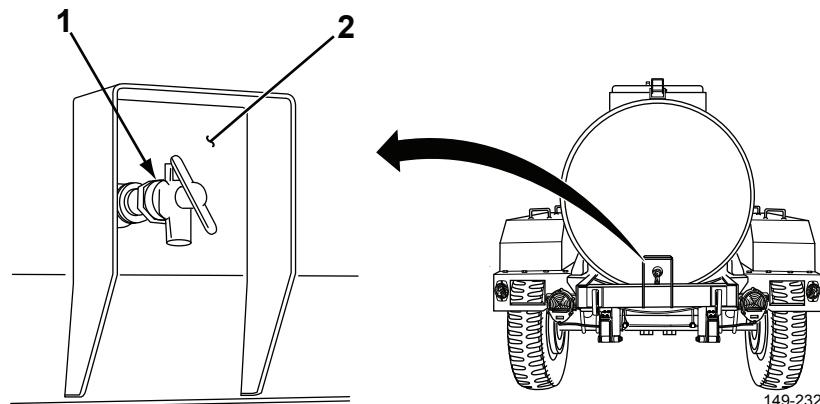
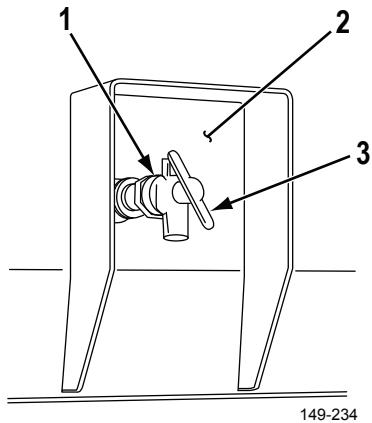


Figure 1. Faucet Removal.

END OF TASK

INSTALLATION

1. Install faucet (Figure 2, Item 1) in water tank (Figure 2, Item 2) by turning faucet (Figure 2, Item 1) clockwise.
2. Close faucet (Figure 2, Item 1) using handle (Figure 2, Item 3).



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Figure 2. Faucet Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE REFLECTOR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)
Drill, Electric, Portable
(WP 0119, Table 1, Item 3)
Drill Set (WP 0119, Table 1, Item 2)

Materials/Parts (cont.)

Qty: (8) (WP 0107, Figure 24, Item 2)
Washer, Lock
Qty: (2) (WP 0107, Figure 24, Item 5)

Equipment Condition

Wheels chocked (WP 0005)

Materials/Parts

Screw, Drive

NOTE

This trailer has ten reflectors. This procedure replaces five road reflectors. The other five reflectors are replaced the same way.

REMOVAL

1. Remove two nuts (Figure 1, Item 6), lockwashers (Figure 1, Item 5), screws (Figure 1, Item 3), and reflector (Figure 1, Item 4) from faucet box (Figure 1, Item 7). Discard lockwashers (Figure 1, Item 5).
2. Remove eight drive screws (Figure 1, Item 2) and four reflectors (Figure 1, Item 1) from trailer (Figure 1, Item 8). Discard drive screws (Figure 1, Item 2)

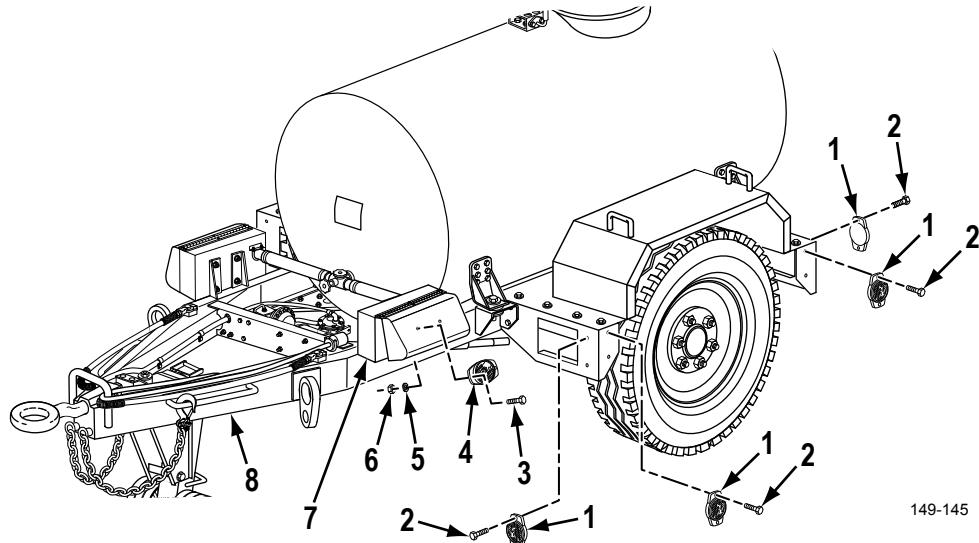
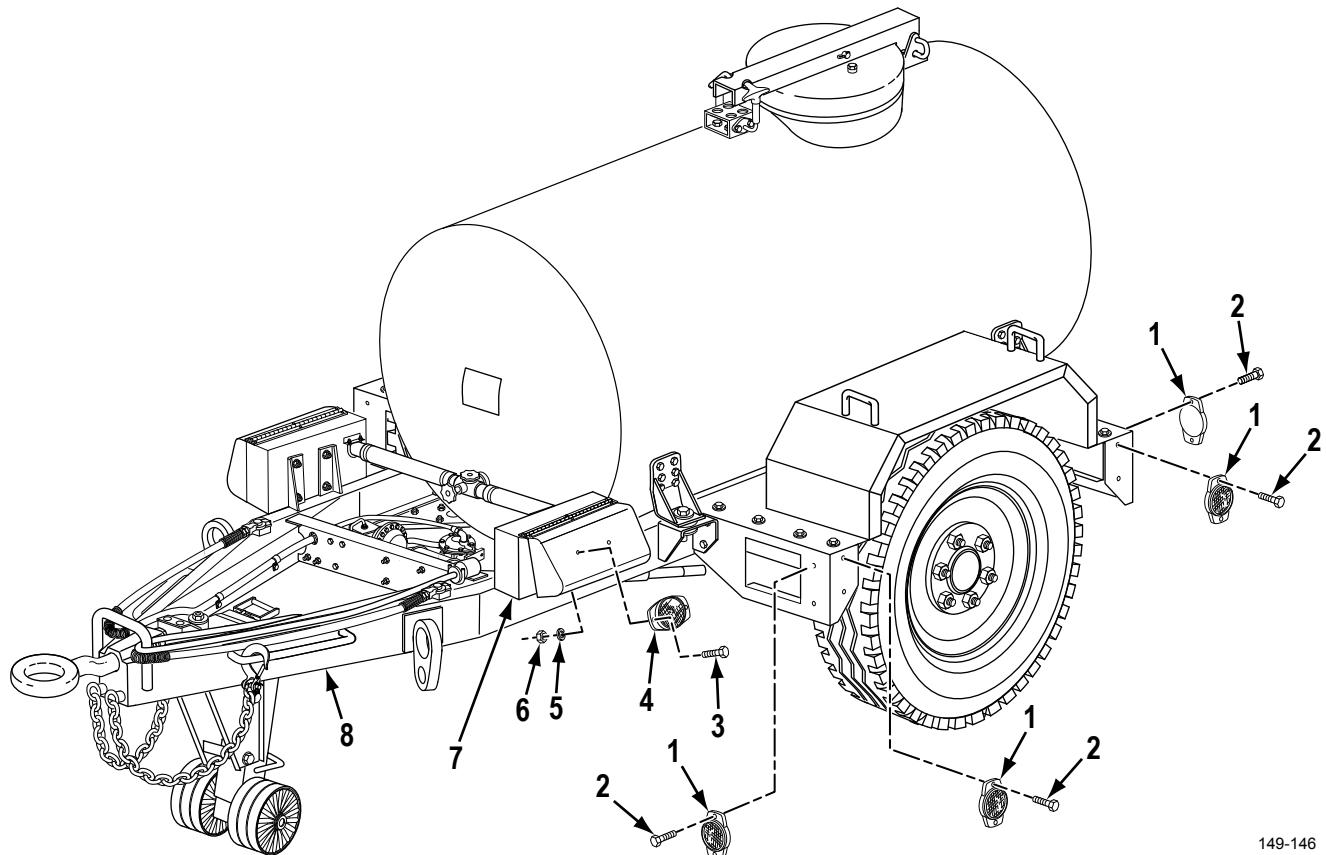


Figure 1. Reflector Removal.

END OF TASK

INSTALLATION

1. Install reflector (Figure 2, Item 4) on faucet box (Figure 1, Item 7) with two screws (Figure 2, Item 3), new lockwashers (Figure 2, Item 5), and nuts (Figure 2, Item 6).
2. Install four reflectors (Figure 2, Item 1) on trailer (Figure 2, Item 8) with eight new drive screws (Figure 2, Item 2).



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Figure 2. Reflector Installation.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
DATA PLATE AND DECAL REPLACEMENT**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's
(WP 0119, Table 1, Item 7)

Drill, Electric, Portable
(WP 0119, Table 1, Item 3)
Drill Set (WP 0119, Table 1, Item 2)

Equipment Condition

Trailer uncoupled (WP 0005)
Wheels chocked (WP 0005)

Materials/Parts

Screw, Drive
Qty: (6) (WP 0108, Figure 25, Item 8)

NOTE

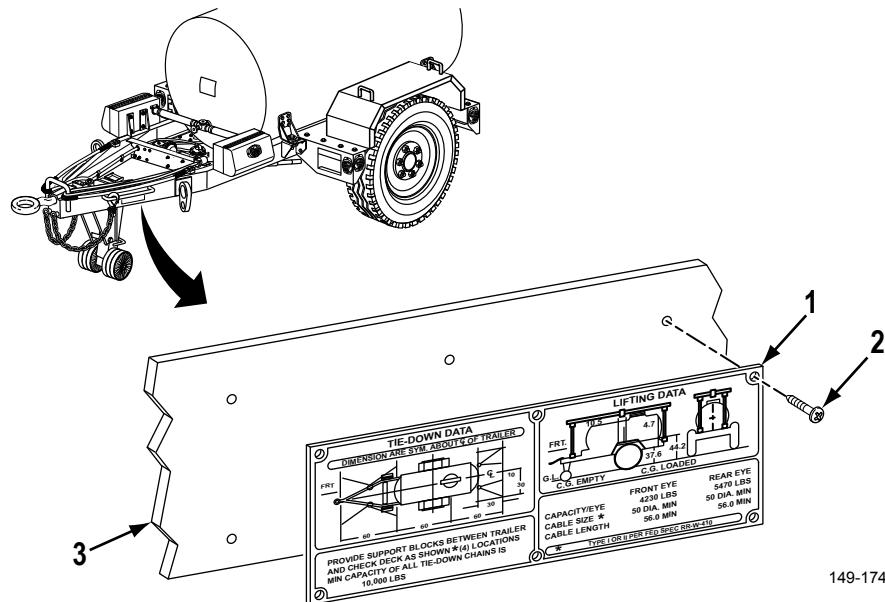
- This trailer has five data plates. This procedure replaces one data plate. The other data plates are replaced the same way.
- There are drive screws and self-tapping screws securing the data plates. Drive screws will need to be replaced when removed.

REMOVAL

Remove six drive screws (Figure 1, Item 2) and data plate (Figure 1, Item 1) from trailer (Figure 1, Item 3). Discard drive screws (Figure 1, Item 2)

END OF TASK**INSTALLATION**

Install data plate (Figure 1, Item 1) on trailer (Figure 1, Item 3) with six new drive screws (Figure 1, Item 2).



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Figure 1. Data Plate Replacement.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE PREPARATION FOR STORAGE AND SHIPMENT

INITIAL SETUP:

References

DA Form 2404/5988-E
DA Form 2407/5990-E
DA PAM 750-8
DD Form 1397
SB 740-98-1
SF Form 364

References (cont.)

TB 43-0209
TM 43-0139
TM 55-2200-001-12
WP 0042
WP 0080

GENERAL

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

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

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 may be prescribed by the approving authority. Before equipment is placed in administrative storage, a current Preventive Maintenance Checks and Services (PMCS) must be completed and deficiencies corrected.

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

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

Records and reports to be maintained for equipment in administrative storage are those prescribed by DA PAM 750-8 for equipment in use.

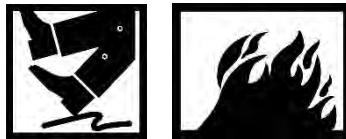
A ten percent variance is acceptable on time, running hours, or mileage used to determine the required maintenance actions.

Accomplishment of applicable PMCS, as mentioned throughout this Work Package (WP), will be on a quarterly basis.

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.

END OF TASK

PREPARATION OF EQUIPMENT FOR ADMINISTRATIVE STORAGE**WARNING**

Use a drain pan or appropriate containment equipment to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Immediately clean up spilled fluid before proceeding with any task. Comply with local regulations when disposing of clean up material and leaked and spilled fluids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

- 1. Storage Site.**
 - a. Select the best available site for administrative storage. Separate stored equipment from equipment in use. Conspicuously mark the area "ADMINISTRATIVE STORAGE."
 - b. Covered space is preferred. When sufficient covered space for all items to be stored is not available, priority should be given to items which are most susceptible to deterioration from the elements. SB 740-98-1 should be used as a guide for establishing which items are most susceptible to deterioration. Open sites should be improved hardstand, if possible. Unimproved sites should be firm, well drained, and kept free of excessive vegetation.
- 2. Storage Plan.**
 - a. 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.
 - b. Take into account environmental conditions such as extreme heat or cold, high humidity, blowing sand or loose debris, soft ground, mud, and/or heavy snow, and take adequate precautions.
 - c. Establish a fire plan and provide for adequate firefighting equipment and personnel.
- 3. Maintenance Services and Inspection.**
 - a. Prior to storage, perform the next scheduled organizational PMCS.
 - b. Inspect and approve the equipment prior to storage. Do not place equipment in storage in a non-mission capable condition.
 - c. Lubricate equipment in accordance with applicable lubrication instructions located in WP 0080.
- 4. Additional Authorization List (AAL) Items.**
 - a. Process AAL items simultaneously with the major item to which they are assigned.
 - b. If possible, store AAL items with the major item.
 - c. If stored apart from the major item, mark AAL 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.
- 5. Correction of Shortcomings and Deficiencies.** Correct all shortcomings and deficiencies prior to storage, or obtain a waiver from the approving authority.

6. General Cleaning, Painting, and Preservation.

CAUTION

Do not direct water or steam, under pressure, against electrical wires or any exterior opening. Failure to comply may result in damage to, or destruction of, equipment or mission.

- a. Clean all equipment of dirt, grease, and other contaminants in accordance with applicable provisions of this manual. Do not use vapor degreasing. Remove foreign objects that are wedged in tire treads.
- b. Remove rust and damaged paint by scraping, wire brushing, sanding, or buffing. Sand to a smooth finish and spot paint as necessary. Refer to TB 43-0209 and TM 43-0139.
- c. After cleaning and drying, immediately coat unpainted metal surfaces with oil or grease, as appropriate.

NOTE

Air circulation under draped covers reduces deterioration from moisture and heat.

- d. Place equipment and provide blocking or framing to allow ventilation and water drainage. Support cover away from item surfaces, which may rust, rot, or mildew.

END OF TASK

CARE OF EQUIPMENT IN ADMINISTRATIVE STORAGE

1. **Maintenance Services.** After equipment has been placed in administrative storage, inspect, service, and exercise as specified in this manual.
2. **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:
 - a. Low or flat tires.
 - b. Condition of preservatives, seals, and wraps.
 - c. Torn, frayed, or split canvas covers and tops.
 - d. Corrosion or other deterioration.
 - e. Missing or damaged parts.
 - f. Water in components.
 - g. Any other readily recognizable shortcomings or deficiencies.
3. **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.

CARE OF EQUIPMENT IN ADMINISTRATIVE STORAGE - Continued

4. **Exercising.** Exercise equipment in accordance with Table 1, Exercise Schedule, and the following instructions:
- Vehicle Major Exercise.** Depreserve equipment by removing only that material restricting exercise. Close all drains, remove blocks, latch tailgates, and perform all before-operation checks. Couple trailer to Prime Mover, and drive for at least 25 mi (40 km). Make several right and left 90 degree turns. Make several hard braking stops without skidding. Do the following during exercising when it is convenient and safe: operate all other functional components and perform all during- and after-operation checks.
 - Scheduled Services.** Scheduled services will include inspection per "Inspection" above, and will be conducted in accordance with Table 1, Exercise Schedule. Lubricate in accordance with instructions in (WP 0080).
 - Corrective Action.** Immediately take action to correct shortcomings and deficiencies noted. Record inspection and exercise results on DA Form 2404/5988-E. Record and report all maintenance actions on DA Form 2407/5990-E. After exercising, restore the preservation to the original condition.

Table 1. Exercise Schedule.

Week	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

5. **Rotation.** To ensure utilization of all assigned materiel, rotate items in accordance with rotational plan that will keep equipment in operational condition and reduce maintenance efforts.

END OF TASK**PROCEDURES FOR COMMON COMPONENTS AND MISCELLANEOUS ITEMS**

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

END OF TASK**REMOVAL OF EQUIPMENT FROM ADMINISTRATIVE STORAGE**

- Activation.** Restore the equipment to normal operating condition in accordance with the instructions contained in (WP 0042).
- 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.

END OF TASK

PREPARATION OF EQUIPMENT FOR SHIPMENT

1. For additional instructions on processing, storage, and shipment of materiel, refer to TM 55-2200-001-12.
2. Semitrailers 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.

PREPARATION OF EQUIPMENT FOR SHIPMENT - Continued

3. When a trailer is received that 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 Form 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 needed repairs. A report of these conditions will be submitted by the unit commander for action by an ordnance maintenance unit.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE LUBRICATION INSTRUCTIONS

INITIAL SETUP:

Tools and Special Tools

Gloves, Chemical and Oil Protective
(WP 0119, Table 1, Item 5)

Materials/Parts

Cleaning Compound, Solvent
(WP 0118, Table 1, Item 6)
Grease, Automotive and Artillery

Materials/Parts (cont.)

(WP 0118, Table 1, Item 9)
Lubricating Oil, Engine
(WP 0118, Table 1, Item 13)
Rag, Wiping (WP 0118, Table 1, Item 15)

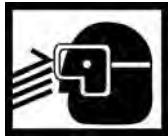
References

TM 4-33.31
TM 9-214

WARNING



- Solvent cleaning compound MIL-PRF-680 may be irritating to the eyes and skin. Wear protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use solvent cleaning compound MIL-PRF-680 in a well ventilated area. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract. May cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: DO NOT induce vomiting. Seek immediate medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING

- MIL-PRF-680 solvent is combustible; DO NOT use or store near heat, sparks, flame, or other ignition sources. Use mechanical ventilation whenever product is used in confined space, heated above ambient temperatures, or agitated. When not using MIL-PRF-680 solvents, ensure MIL-PRF-680 solvent container is closed. Store, transport, and dispose virgin/used solvents and solvent contaminated rags in compliance with local procedures and regulations. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cloths or rags saturated with solvent cleaning compound must be disposed of in accordance with authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Use a drain pan to capture any draining or leaking fluid. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Immediately clean up spilled fluid before proceeding with any task. Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.

GENERAL

This Work Package (WP) contains lubrication instructions, showing location, intervals, and proper materials for lubricating the M149A2 trailer. Refer to the NOTES section of the chart for specific components to be lubricated. These instructions are mandatory.

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

GENERAL - Continued

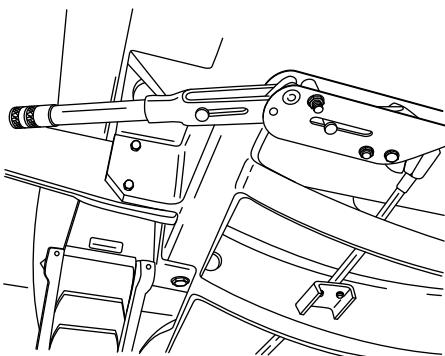
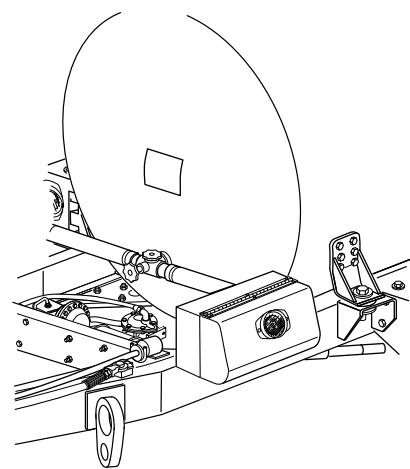
LUBRICANT • INTERVAL		INTERVAL • LUBRICANT	
Caster Mounting Brackets (View E) (C)	GAA S	S	GAA Adjustable Caster Mounting Bracket Assembly (View D) (C)
Faucet Box Covers (Note 4 and View B) (F)	OE/ HDO Q	S	GAA Leg Screw Shaft (View E) (C)
Handbrake Levers (Note 1 and View A) (F)	OE/ HDO Q	S	OE/ HDO Release Handle (View E) (F)
Handbrake Cable (View G) (C)	GAA S	Q	BFS Master Cylinder (Note 2) (C)
Spring Rollers (View F) (C)	GAA S	A	GAA Wheel Bearings (Note 3) (C)
		S	OE/ HDO Manhole Cover (Note 5 and View C) (F)
TOTAL MAN-HOURS*			
INTERVAL		MAN-HOUR	
Q		0.2	
S		0.5	
A		1.5	

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

Figure 1. Lubrication Intervals.

GENERAL - Continued

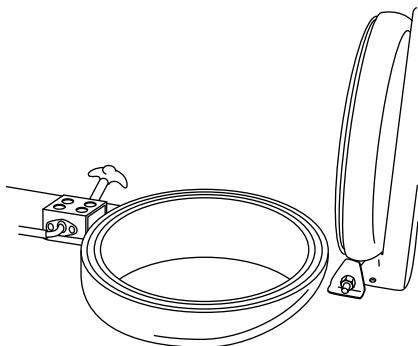
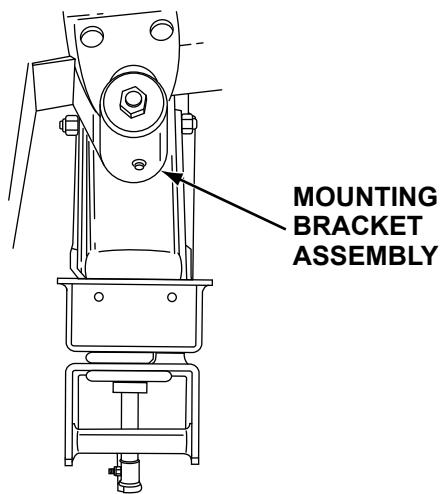
LUBRICANTS	EXPECTED TEMPERATURES			INTERVALS
	ABOVE +15°F (ABOVE -9°C)	+40°F to -15°F (+4°C to -26°C)	+40°F to -65°F (+4°C to -54°C)	
OE/HDO (MIL-PRF-2104) Lubricating Oil, Internal Combustion Engine, Tactical Service	OE/HDO-30	OE/HDO-30	—	Q - Quarterly S - Semiannual A - Annual
OEA (MIL-PRF-46167) Lubricating Oil, Internal Combustion Engine, Arctic	—	—	OEA	
BFS (MIL-PRF-46176) Brake Fluid, Silicone, Automotive	All Temperatures			
GAA (MIL-PRF-10924) Grease, Automotive and Artillery	All Temperatures			

FOR ARCTIC OPERATIONS REFER TO FM 9-207**A HANDBRAKE LEVER****B FAUCET BOX COVERS**

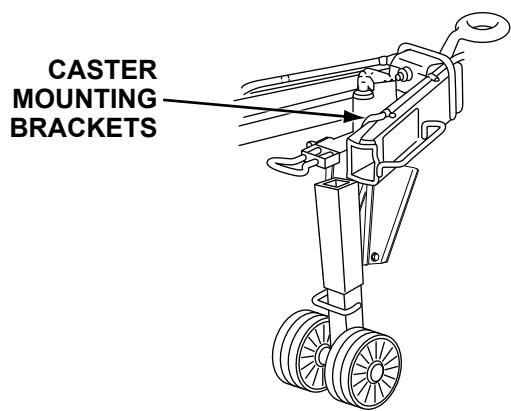
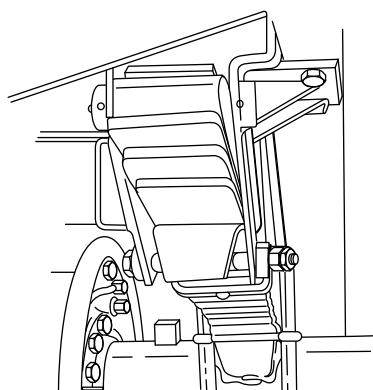
149-255

Figure 2. Lubrication Chart (1 of 3).

GENERAL - Continued

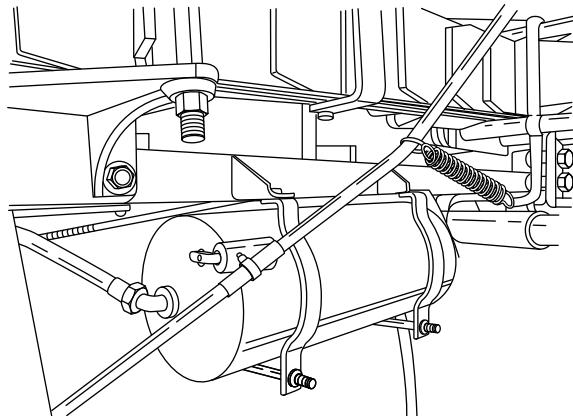
C MANHOLE COVER**D ADJUSTABLE CASTER ASSEMBLY MOUNTING BRACKET ASSEMBLY**

MOUNTING
BRACKET
ASSEMBLY

E CASTER MOUNTING BRACKETS, RELEASE HANDLE, AND LEG SCREW SHAFT**F SPRING ROLLERS**

149-256

Figure 3. Lubrication Chart (2 of 3).

GENERAL - Continued**G HANDBRAKE CABLE**

149-257

Figure 4. Lubrication Chart (3 of 3).

NOTE

- FOR OPERATION OF TRAILER IN EXPECTED COLD TEMPERATURES BELOW -10°F (-23°C). Remove lubricants prescribed in the key for temperatures above -10°F (-23°C). Clean parts with solvent. Lubricate with lubricants specified in the key for temperature 0°F to -65°F (-18°C to -54°C).
- Oil Can Points. Every 6 months and after washing or fording, lubricate handbrake, linkage, bushings, pins, clevises, moving parts, and all exposed adjusting threads with OE/HDO.

Note 1. (Handbrake Lever, Pivot Points, Linkage, and Moving Parts): Every six months lubricate wheel lug threads, landing leg, landing leg spindle, and landing leg handle springs with appropriate lubricating oil.

Note 2. (Master Cylinder): Every three months check fluid level. Add fluid to within 1/2 in. (13 mm) from top.

Note 3. (Wheel Bearings): Every twelve months remove, clean, and pack with Grease, Automotive and Artillery (GAA), refer to TM 9-214.

Note 4. (Faucet Box Covers): Lubricate hinges and swivel bases of faucet box cover latch sparingly with OE/HDO.

Note 5. (Manhole Cover): Lubricate hinges sparingly with OE/HDO.

DETAILED LUBRICATION INFORMATION

1. Clean lubrication points, grease fittings, and surrounding areas before applying lubricant.
2. Clean all lubrication points after lubricating to prevent accumulation of foreign matter.
3. Clean and lubricate bearings as specified in TM 9-214.

SPECIFIC LUBRICATION INSTRUCTIONS

1. Keep all lubricants in closed containers 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.

CAUTION

- Wipe excess lubricant from area of brake shoe linings to avoid grease soaking linings. If brake shoes linings become soaked, replace them. Failure to comply may result in damage to, or destruction of, equipment or mission.
- Do not lubricate springs. Failure to comply may result in damage to, or destruction of, equipment or mission.

2. Keep all external parts of equipment not requiring lubrication clean of lubricants.

NOTE

- **MASTER CYLINDER.** Every three months, check fluid level. Add fluid to master cylinder.
- **FORDING OPERATIONS.** Refer to lubrication instructions before and after fording operations.
- **LANDING LEG.** Semiannually, extend, clean, and coat with appropriate lubricating oil.
- In sandy areas, halve lubrication interval.

3. For lubrication instruction in cold weather, refer to TM 4-33.31.

CLEANING

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

LUBRICATION INTERVAL

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

END OF WORK PACKAGE

FIELD MAINTENANCE TORQUE LIMITS

SCOPE

This work package lists standard torque values and provides general information for applying torque. Special torque values and tightening sequences are indicated in the maintenance procedures for applicable components.

GENERAL

1. Always use torque values listed in Tables 2 and 3 when a maintenance procedure does not give a specific torque value.
 - a. Table 2 provides torque limits for SAE standard fasteners.
 - b. Table 3 provides torque limits for metric fasteners.
2. Unless otherwise indicated, standard torque tolerance shall be \pm ten percent.

CAUTION

If replacement screws are of higher grade than originally supplied, use torque specifications for the original. Failure to comply may result in damage to, or destruction of, equipment or mission.

3. Torque values listed are based on clean, dry threads. Reduce torque by ten percent when engine oil is used as a lubricant. Reduce torque by 20 percent if new plated screws are used.

TIGHTENING METAL FASTENERS

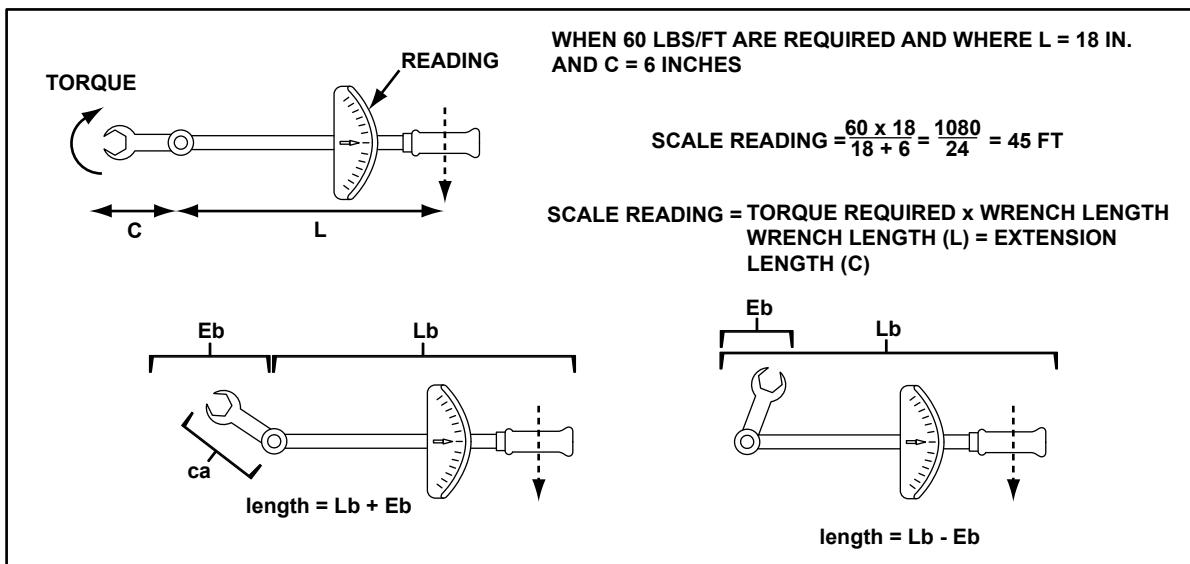
When torquing a fastener, select a torque wrench with a range fitting the required torque value. Torque wrenches are most accurate from 25 to 75 percent of its stated range. A torque wrench with a stated range of 0 to 100 lb ft (0 to 136 N·m) will be most accurate from 25 to 75 lb ft (34 to 102 N·m). The accuracy of readings will decrease as you approach 0 lb ft or 100 lb ft (136 N·m). Ranges in Table 1 are based on this principle.

Table 1. Metal Fasteners.

STATED RANGE		MOST EFFECTIVE RANGE	
0 to 200 lb in.	(0 to 23 N·m)	50 to 150 lb in.	(6 to 17 N·m)
0 to 600 lb ft	(0 to 813 N·m)	50 to 450 lb ft	(68 to 610 N·m)
0 to 170 lb ft	(0 to 230 N·m)	44 to 131 lb ft	(60 to 178 N·m)
15 to 75 lb ft	(20 to 102 N·m)	30 to 60 lb ft	(41 to 81 N·m)

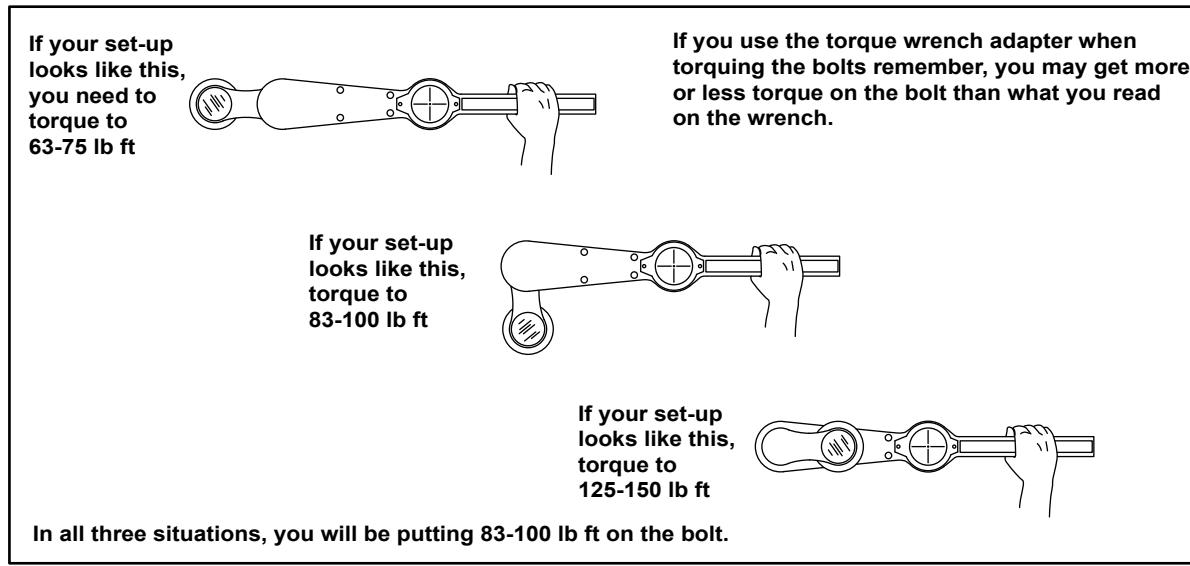
149-TL03

TIGHTENING METAL FASTENERS - Continued



149-TL01

Figure 1. Torque Wrench Formula.



149-TL02

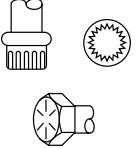
Figure 2. Torque Wrench Adapter Setups.

INSTALLATION AND TORQUING

1. **Matching Nuts.** Matching nuts require a minimum height equal to the basic diameter of the bolt. The same is true of tapped holes. In tapped softer materials, the depth of the tapped hole should be 1-1/2 times the basic diameter of the bolt.
2. **Threaded Protrusion.** In all installations, bolts, studs, and screws must extend through the nut at least a length equivalent to two complete threads. This applies to both self-locking and plain nuts.
3. **Torquing Self-Locking Nuts.** To obtain the correct recommended torque value on self-locking nuts, the nut must be tightened until it is one turn from the beginning of seating. At this point, if the torque is less than 1/3 of the recommended torque, it should be disregarded and the nut tightened to the recommended torque value. If the torque is 1/3 or more of the recommended torque, it should be added to the recommended torque. Example: The recommended torque is 50 to 70 lb in. (6 to 8 N·m). The torque at one turn from seating is 30 lb in. (3 N·m). The correct torque wrench reading would be 80 to 100 lb in. (9 to 11 N·m).
4. **Retorquing Fasteners.** Procedures intended for installing metal fasteners can cause incorrect readings when used to check or retorque already installed fasteners during maintenance. Before checking or retorquing an already installed threaded fastener, first mark the fastener and its companion components so the marks are in line. Second, back it off a 1/4 turn to loosen it. Torque it to the specification with an even steady pull on the torque wrench. The marks should be in line; if not, the marks will indicate the fastener was under- or over-torqued.
5. **Standard Torque Charts.** Standard torque charts have been established for dry and wet torque conditions. Surface variations such as thread roughness, scale paint, lubrication (oil, grease, etc.), hardening, and plating may alter these values considerably. Tables 2 and 3 are standard torque charts.
6. To find the grade of the screw that is to be installed, match the markings on the head to the correct picture of CAPSCREW HEAD MARKINGS in Tables 2 and 3. Manufacturer's marks may vary.

INSTALLATION AND TORQUING - Continued

Table 2. Torque Limits - SAE Fasteners.

QUALITY OF MATERIAL	INDETERMINATE	MINIMUM COMMERCIAL	MEDIUM COMMERCIAL	BEST COMMERCIAL
SAE Grade Number	1 or 2	5	6 or 7	8
Capscrew Head Markings				
CAPSCREW BODY SIZE IN. - 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 16	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 (1,234)
14	250 (339)	660 (895)		990 (1,342)

149-TL08

INSTALLATION AND TORQUING - Continued

Table 3. Torque Limits - Metric Fasteners.

Thread Diameter – Pitch				
	CLASS 8.8 BOLT	CLASS 8 NUT	CLASS 10.9 BOLT	CLASS 10 NUT
M6	5 (7)		7 (9)	
M8	12 (16)		17 (23)	
M8 x 1	13 (18)		18 (24)	
M10	24 (33)		34 (46)	
M10 x 1.25	27 (37)		38 (52)	
M12	42 (57)		60 (81)	
M12 x 1.5	43 (58)		62 (84)	
M14	66 (89)		95 (129)	
M14 x 1.5	72 (98)		103 (140)	
M16	103 (140)		148 (201)	
M16 x 1.5	110 (149)		157 (213)	
M18	147 (199)		203 (275)	
M18 x 1.5	165 (224)		229 (310)	
M20	208 (282)		288 (390)	
M20 x 1.5	213 (313)		320 (434)	
M22	283 (384)		392 (531)	
M22 x 1.5	315 (427)		431 (584)	
M24	360 (488)		498 (675)	
M24 x 2	392 (531)		542 (735)	
M27	527 (715)		729 (988)	
M27 x 2	569 (771)		788 (1,068)	
M30	715 (969)		990 (1,342)	
M30 x 2	792 (1,074)		1,096 (1,486)	

* All plated and unplated fasteners should be coated with oil before installation.

† Use these torque values if either the bolt or nut is lubricated or plated (zinc phosphate conversion-coated, cadmium-plated, or waxed).

FASTENER SIZE AND THREAD PATTERN**NOTE**

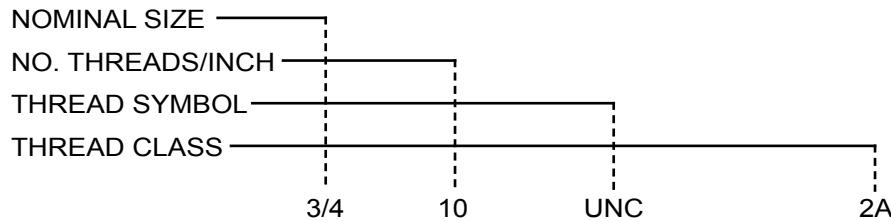
Unless followed with "LH" (e.g., 3/4-10 UNC-2A-LH), threads are right-hand.

Threaded fasteners are categorized according to diameter of the fastener shank. Thread styles are divided into broad groups, the two most common being coarse (Unified Coarse-UNC) and fine (Unified Fine-UNF). These groups are defined by the number of threads per in. in the bolt shanks. In addition, threads are categorized by thread class, which is a measure of the degree between threads of the bolt or screws (external threads) and threads of attaching nut or tapped hole (internal threads). The most common thread class for bolts and screws is Class 2.

Table 4. Thread Classes and Description.

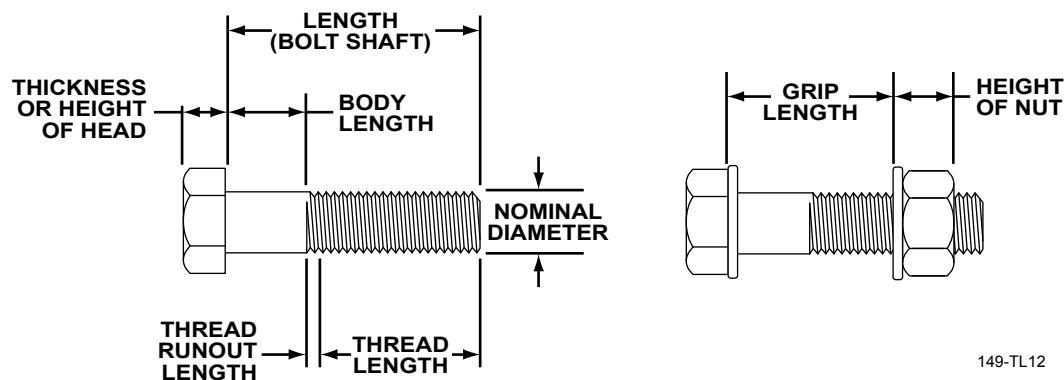
EXTERNAL	INTERNAL	INTERNAL
1A	1B	LOOSE FIT
2A	2B	MEDIUM FIT
3A	3B	CLOSE FIT

149-TL10



149-TL11

Figure 3. Fastener Size.

FASTENER SIZE AND THREAD PATTERN - Continued

149-TL12

Figure 4. Thread Pattern.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE WIRING DIAGRAM

INITIAL SETUP:

References

WP 0003
WP 0045

LIGHTING SYSTEM

NOTE

This Work Package (WP) contains the M149A2 400 Gallon Water Trailer's wiring diagram. Refer to this diagram when performing electrical troubleshooting or when performing electrical repair and maintenance. Refer to Theory of Operation (WP 0003) for the locator view of these cables, and to Chassis Wiring Harness Maintenance (WP 0045) for removal/installation views.

The intervehicular receptacle on the front of the trailer tongue receives lighting power from the Prime Mover. The power is sent through a wiring harness to the light assemblies.

TAIL LIGHT ASSEMBLY

The tail light assembly has two bulbs and two LEDs each. One bulb functions as a taillight when the service lights are turned on, and one bulb functions as both turn and stoplight. The third and fourth LEDs function as blackout light and blackout stoplight when the blackout light switch is turned to ON. The blackout lights automatically turn off the tail, stop, turn, and clearance lights if both switches are on at the same time.

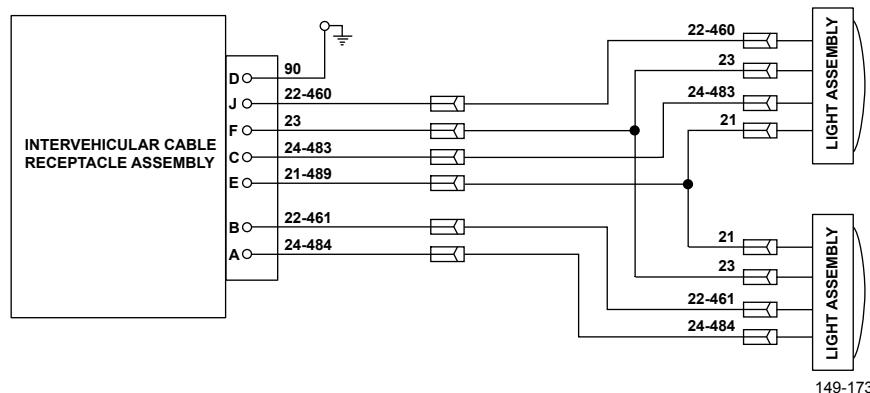


Figure 1. Wiring Diagram.

END OF WORK PACKAGE

CHAPTER 7

REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

**FIELD MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS (RPSTL) INTRODUCTION**

INTRODUCTION

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 Field Maintenance of M149A2 Water Tank 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.

GENERAL

In addition to the Introduction work package, this RPSTL is divided into the following work packages:

1. **Repair Parts List Work Packages.** Work packages containing lists of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. These work packages also include 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. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in FIG. BULK at the end of the work packages. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.
2. **Special Tools List Work Packages.** Work packages containing lists of special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.
3. **Cross-Reference Indexes Work Packages.** There are two cross-reference indexes work packages in this RPSTL: the National Stock Number (NSN) Index work package, and the Part Number (P/N) Index work package. The National Stock Number Index work package refers you to the figure and item number. The Part Number Index work package refers you to the figure and item number.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout. This entry may be subdivided into four subentries, one for each service.

Table 1. SMR Code Explanation.

<u>Source Code</u>	<u>Maintenance Code</u>	<u>Recoverability Code</u>	
<u>XX</u>	<u>XX</u>	<u>X</u>	
1st two positions: How to get an item.	3rd position: Who can install, replace, or use the item.	4th position: Who can do complete repair on the item.	5th position: Who determines disposition action on unserviceable items.

NOTE

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.

Source Code. The source code tells you how you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Source Code **Application/Explanation**

PA

NOTE

PB

Items coded PC are subject to deterioration.

PC Stock items; use the applicable NSN to requisition/request items with these source codes.

They are authorized to the level indicated by the code entered in the third position of the SMR code.

PD

PE

PF

PG

PH

PR

PZ

KD Items with these codes are not to be requested/requisitioned individually. They are part of a kit that is authorized to the maintenance level indicated in the third position of the SMR code.

KF The complete kit must be requisitioned and applied.

KB

MF-Made at field Items with these codes are not to be requisitioned/requested individually. They must be

made from bulk material which is identified by the P/N in the DESCRIPTION AND
USABLE ON CODE (UOC) column and listed in the bulk material group work package of
the RPSTL. If the item is authorized to you by the third position code of the SMR code, but
the source code indicates it is made at higher level, order the item from the higher level
of maintenance.

ML-Made at SRA

MD-Made at depot

MG-Navy only

AF-Assembled by field Items with these codes are not to be requested/requisitioned individually. The parts that
make up the assembled item must be requisitioned or fabricated and assembled at the
level of maintenance indicated by the source code. If the third position of the SMR code

AH-Assembled by below depot/ sustainment level	authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
AL-Assembled by SRA	
AD-Assembled by depot	
XA	Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to NOTE below.)
XB	If an item is not available from salvage, order it using the CAGEC and P/N.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's P/N.
XD	Item is not stocked. Order an XD-coded item through local purchase or normal supply channels using the CAGEC and P/N given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

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:

Third Position. 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 the following levels of maintenance:

<u>Maintenance Code</u>	<u>Application/Explanation</u>
F -	Field maintenance can remove, replace, and use the item.
H -	Below Depot Sustainment maintenance can remove, replace, and use the item.
L -	Specialized repair activity can remove, replace, and use the item.
K -	Contractor facility can remove, replace, and use the item.
Z -	Item is not authorized to be removed, replace, or used at any maintenance level.
D -	Depot can remove, replace, and use the item.

NOTE

Army will use C in the third position. However, for joint service publications, Army will use O.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

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

Maintenance Code	Application/Explanation
F -	Field is the lowest level that can do complete repair of the item.
H -	Below Depot Sustainment is the lowest level that can do complete repair of the item.
L -	Specialized repair activity (enter specialized repair activity or TASMG designator) 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.
K -	Complete repair is done at contractor facility.
Z -	Nonreparable. No repair is authorized.
B -	No repair is authorized. No parts or special tools are authorized for maintenance of "B" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

Recoverability Code	Application/Explanation
Z -	Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
F -	Reparable item. When uneconomically reparable, condemn and dispose of the item at the field level.
H -	Reparable item. When uneconomically reparable, condemn and dispose of the item at the below depot sustainment level.
D -	Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L -	Reparable item. Condemnation and disposal not authorized below Specialized Repair Activity (SRA).
A -	Item requires special handling or condemnation procedures because of specific reasons (such as precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.
K -	Reparable item. Condemnation and disposal to be performed at contractor facility.

NSN (Column (3)). The NSN(s) for the item is listed in this column.

CAGEC (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

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

NOTE

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

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following information:

1. The federal item name, and when required, a minimum description to identify the item.
2. Part numbers of bulk materials are referenced in this column in the line entry to be manufactured or fabricated.
3. Hardness Critical Item (HCI). A support item that provides the equipment with special protection from electromagnetic pulse (EMP) damage during a nuclear attack.
4. The statement END OF FIGURE appears just below the last item description in column (6) for a given figure in both the repair parts list and special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

1. **National Stock Number (NSN) Index Work Package.** NSN's in this index are listed in National Item Identification Number (NIIN) sequence.
STOCK NUMBER Column. This column lists the NSN in NIIN sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.
For example, if the NSN is 5385-01-574-1476, the NIIN is 01-574-1476.
FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.
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.
2. **Part Number (P/N) Index Work Package.** Part numbers in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations 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).
PART NUMBER Column. This column indicates the part number assigned to the item.
FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.
ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

SPECIAL INFORMATION

UOC. The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC:..." in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Examples of the UOCs used in the RPSTL are:

<u>Code</u>	<u>Used On</u>
STL	M149A2

Fabrication Instructions. Bulk materials 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 TM 9-2330-267-13&P.

Index Numbers. Items which have the word BULK in the figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN/Part Number (P/N) Index work packages and the bulk material list in the repair parts list work package.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or Part Numbers Are Not Known.

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN Is Known.

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one for which you are looking.

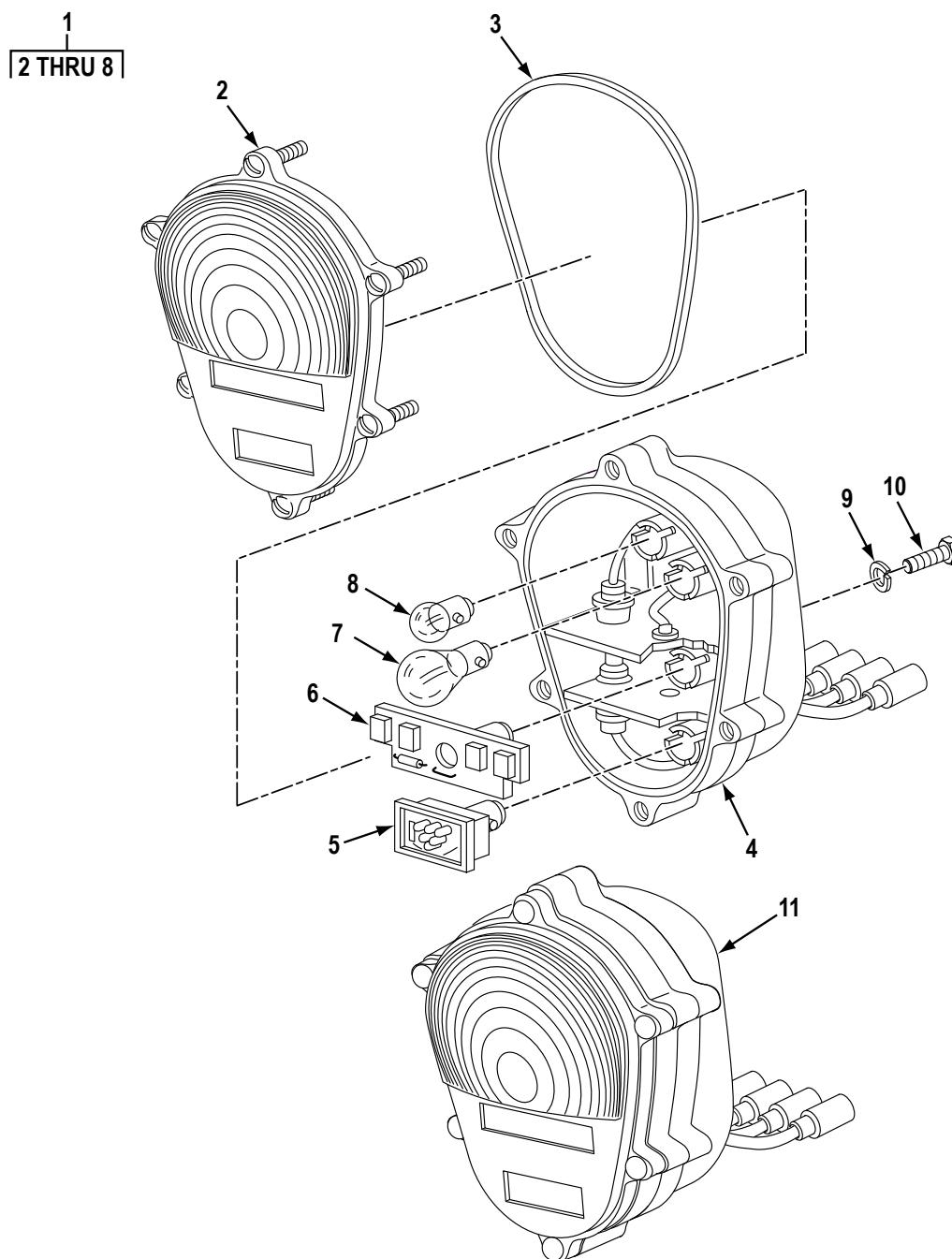
3. When Part Number Is Known.

First. If you have the part number and not the NSN, look in the PART NUMBER column of the part number index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

END OF WORK PACKAGE

**FIELD MAINTENANCE
LIGHT ASSEMBLY**



M149-R001

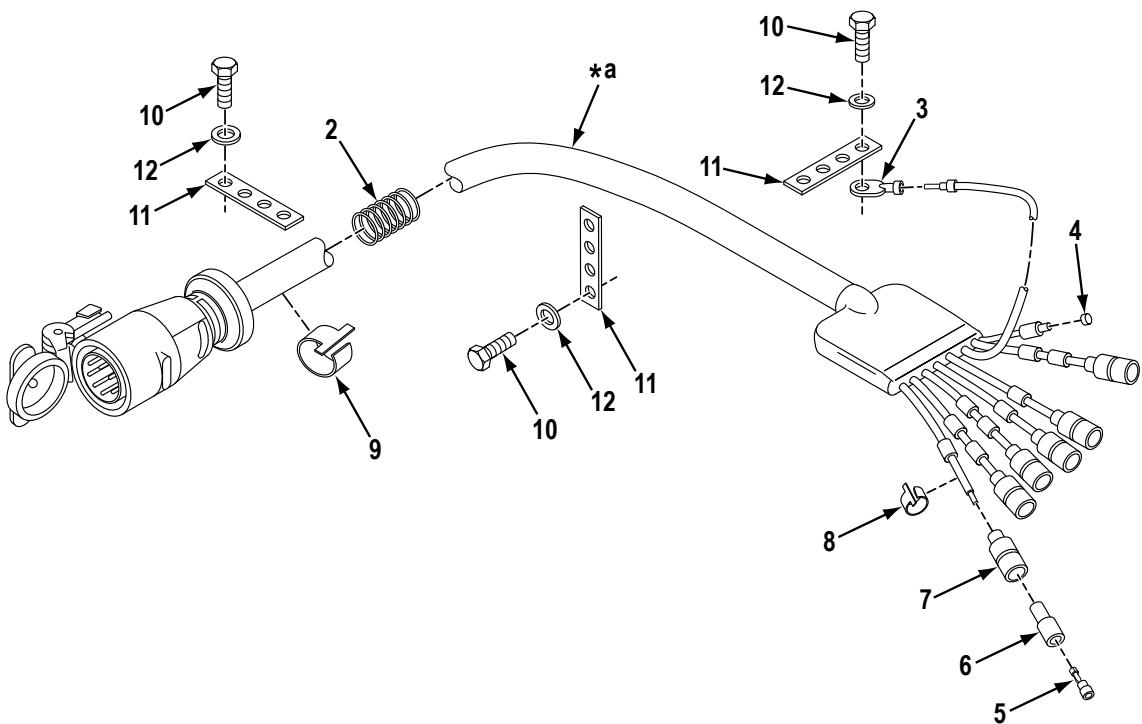
Figure 1. Light Assembly.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0609 LIGHTS						
FIG. 1. LIGHT ASSEMBLY.						
1	PAFFF	6220-01-093-4439	81349	MS52125-2	STOP LIGHT-TAILLIGHT OLD CONFIGURATION.....	2
2	PAFZZ	6220-00-179-4324	19207	11639535	. LENS,LIGHT.....	1
3	PCFZZ	5331-00-462-0907	19207	11639519-2	. O-RING.....	1
4	PAFZZ	6220-01-067-4717	19207	11639520	. HOUSING,LIGHT.....	1
5	PAFZZ	6220-01-297-3217	19207	12360870-2	. STOP LIGHT,VEHICULA.....	1
6	PAFZZ	6220-01-284-2709	19207	12360850-1	. LIGHT,MARKER,CLEARA.....	1
7	PAFZZ	6240-00-044-6914	71744	1683 (JAPAN)	. LAMP,INCANDESCENT.....	1
8	PAFZZ	6240-00-019-3093	58536	AA52463-A09	. LAMP,INCANDESCENT.....	1
9	PAFZZ	5310-00-637-9541	65035	P49866-11	WASHER,LOCK 3/8.....	4
10	PAFZZ	5305-00-115-9526	80204	B1821BH038C075D	SCREW,CAP,HEXAGON H 3/8 - 16 X 3/4.....	4
11	PAFZZ	6210-01-550-0490	13548	07426	LIGHT EMITTING DIOD NEW CONFIGURATION.....	2

END OF FIGURE

**FIELD MAINTENANCE
INTERVEHICULAR CABLE**

1
2 THRU 9



*a PART OF ITEM 1

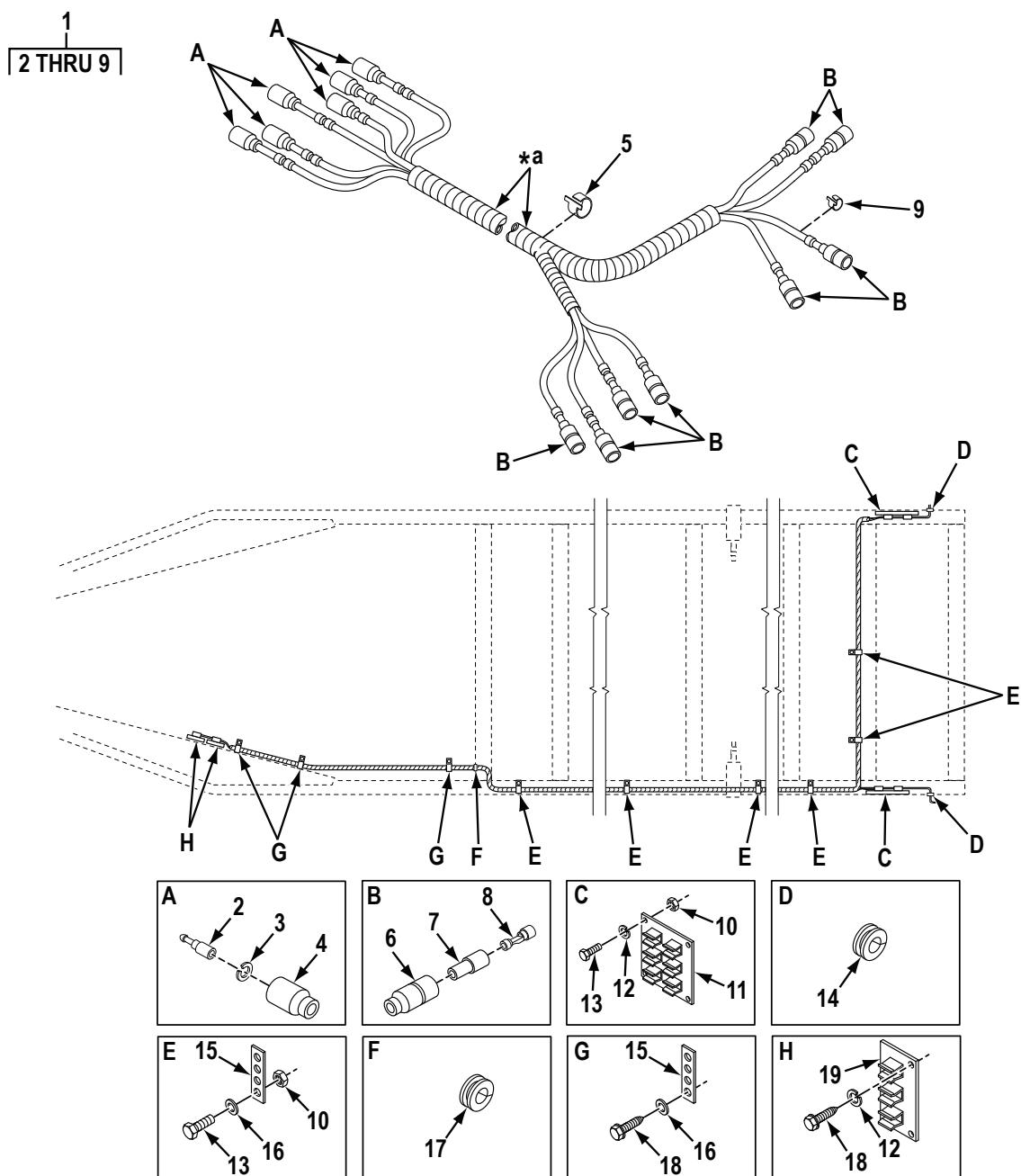
M149-R002

Figure 2. Intervehicular Cable.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0613 HULL OR CHASSIS WIRING HARNESS						
1	PAFFF	6150-00-777-3068	19207	7055100	WIRING HARNESS.....	1
2	XAFZZ	5360-00-906-7923	96906	MS39134-1	. SPRING,HELICAL,COMP.....	1
3	PAFZZ	5940-00-230-0515	81343	MS25035-154	. TERMINAL,LUG.....	1
4	PAFZZ	5340-01-041-5052	19207	8347216	. CAP,PROTECTIVE,DUST.....	1
5	PAFZZ	5940-00-399-6676	19207	8338564	. TERMINAL SET,QUICK.....	6
6	PAFZZ	5970-00-833-8562	19207	8338562	. INSULATOR,BUSHING.....	6
7	PCFZZ	5935-00-833-8561	19207	8338561	. SHELL,ELECTRICAL CO.....	6
8	PAFZZ	9905-00-752-4649	34623	99242R1	. BAND,MARKER.....	12
9	PAFZZ	9905-00-893-3570	81349	M43436/1-3	. BAND,MARKER.....	1
10	PAFZZ	5305-01-137-3938	96906	MS51871-3	SCREW,TAPPING 1/4 X 3/4 INCHES LONG.....	5
11	MFFZZ	0000-00-000-0000	19207	10905840-8	STRAP,TIEDOWN ELECT MAKE FROM P/N 10905840 (19207) 8 INCHES LONG.....	5
12	PAFZZ	5310-00-809-3078	96906	MS27183-11	WASHER,FLAT 5/16.....	5

END OF FIGURE

**FIELD MAINTENANCE
CHASSIS WIRING HARNESS**



*a PART OF ITEM 1

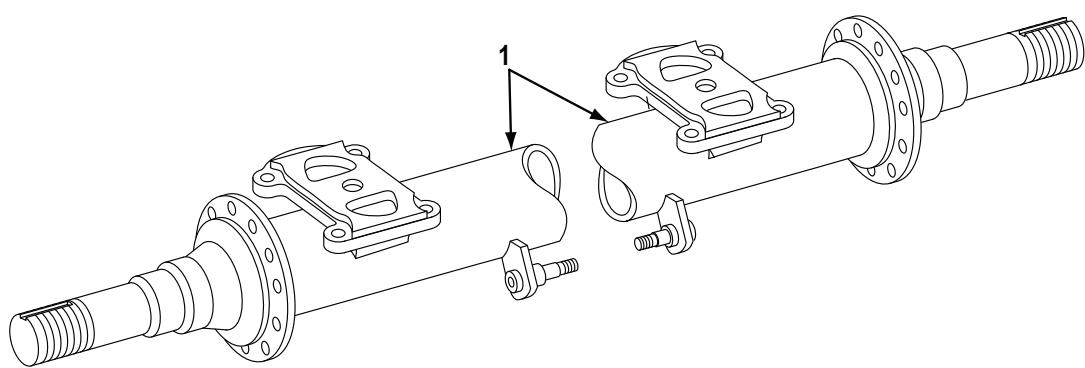
M149-R003

Figure 3. Chassis Wiring Harness.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 0613 HULL OR CHASSIS WIRING HARNESS						
1	PAFFF	2590-01-178-7374	19207	11597762	WIRING HARNESS,BRAN.....	1
2	PAFZZ	5999-00-057-2929	58536	AA52536-2	. CONTACT,ELECTRICAL.....	6
3	PAFZZ	5310-00-833-8567	19207	8338567	. WASHER,SLOTTED.....	6
4	PCFZZ	5935-00-572-9180	19207	8338566	. SHELL,ELECTRICAL CO.....	6
5	PAFZZ	9905-00-841-4445	81349	M43436/1-2	. BAND,MARKER.....	1
6	PCFZZ	5935-00-833-8561	19207	8338561	. SHELL,ELECTRICAL CO.....	8
7	PAFZZ	5970-00-833-8562	19207	8338562	. INSULATOR,BUSHING.....	8
8	PAFZZ	5940-00-399-6676	19207	8338564	. TERMINAL SET,QUICK.....	8
9	PAFZZ	9905-00-752-4649	34623	99242R1	. BAND,MARKER.....	22
10	PAFZZ	5310-00-768-0319	96906	MS51968-2	NUT,PLAIN,HEXAGON 1/4 - 28.....	14
11	PAFZZ	5340-01-048-2239	19207	10935126	BRACKET,MOUNTING.....	2
12	PAFZZ	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK.....	26
13	PAFZZ	5306-00-068-0513	60285	6893-2	BOLT,MACHINE 1/4 - 28 X 3/4.....	14
14	PCFZZ	5325-00-276-6098	96906	MS35489-78	GROMMET,NONMETALLIC.....	2
15	MFFZZ	0000-00-000-0000	19207	10905840-8	STRAP,TIEDOWN ELECT MAKE FROM P/N 10905840 (19207) 8 INCHES LONG.....	9
16	PAFZZ	5310-00-809-3078	96906	MS27183-11	WASHER,FLAT 5/16.....	9
17	PCFZZ	5325-00-290-3777	96906	MS35489-77	GROMMET,NONMETALLIC.....	1
18	PAFZZ	5305-01-137-3938	96906	MS51871-3	SCREW,TAPPING 1/4 X 3/4 INCHES.....	7
19	PAFZZ	5340-00-611-7883	19207	8747908	STRAP,RETAINING.....	2

END OF FIGURE

**FIELD MAINTENANCE
AXLE**



M149-R004

Figure 4. Axle.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
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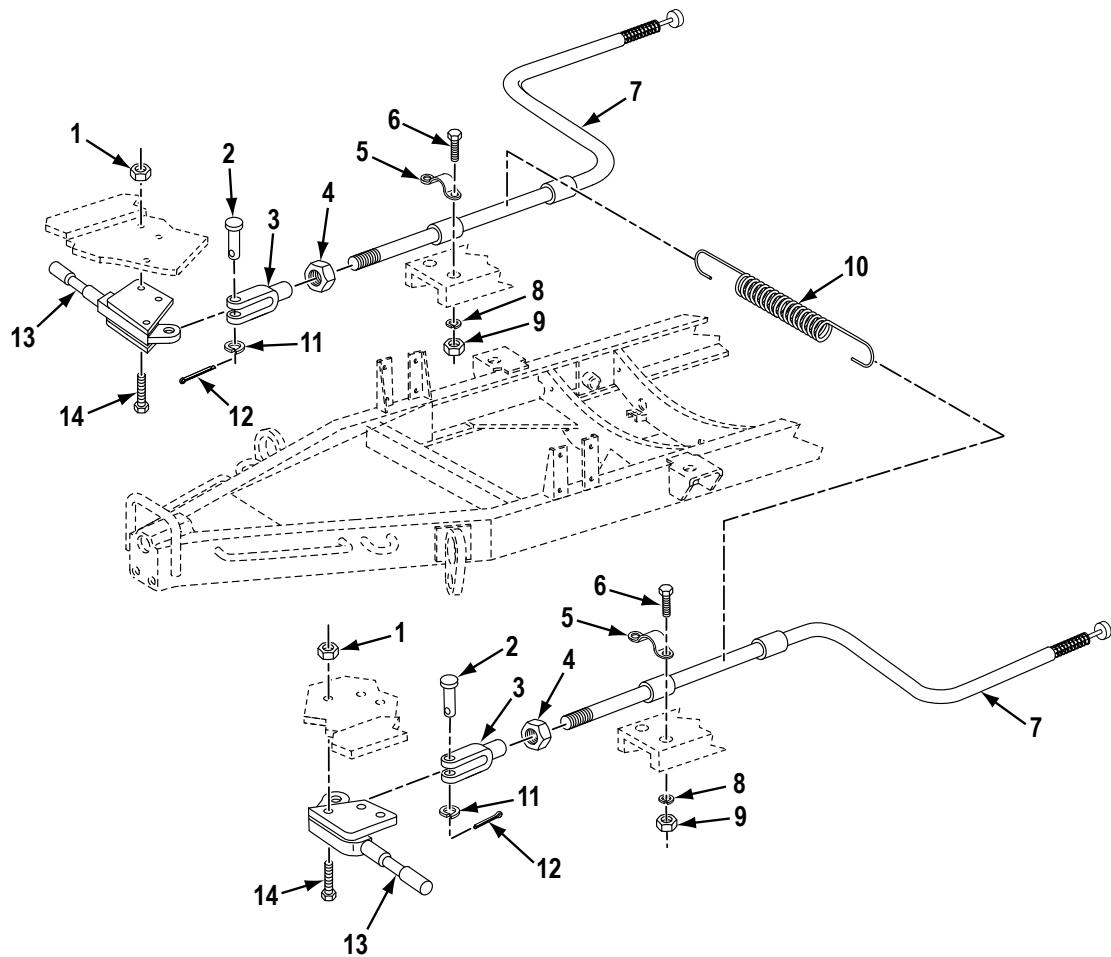
GROUP 1100 REAR AXLE ASSEMBLY

FIG. 4. AXLE.

1	PAFZZ	2530-01-038-2047	19207	7059176	AXLE,VEHICULAR,NOND.....	1
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END OF FIGURE

**FIELD MAINTENANCE
HANDBRAKE LEVER AND CABLE**



M149-R005

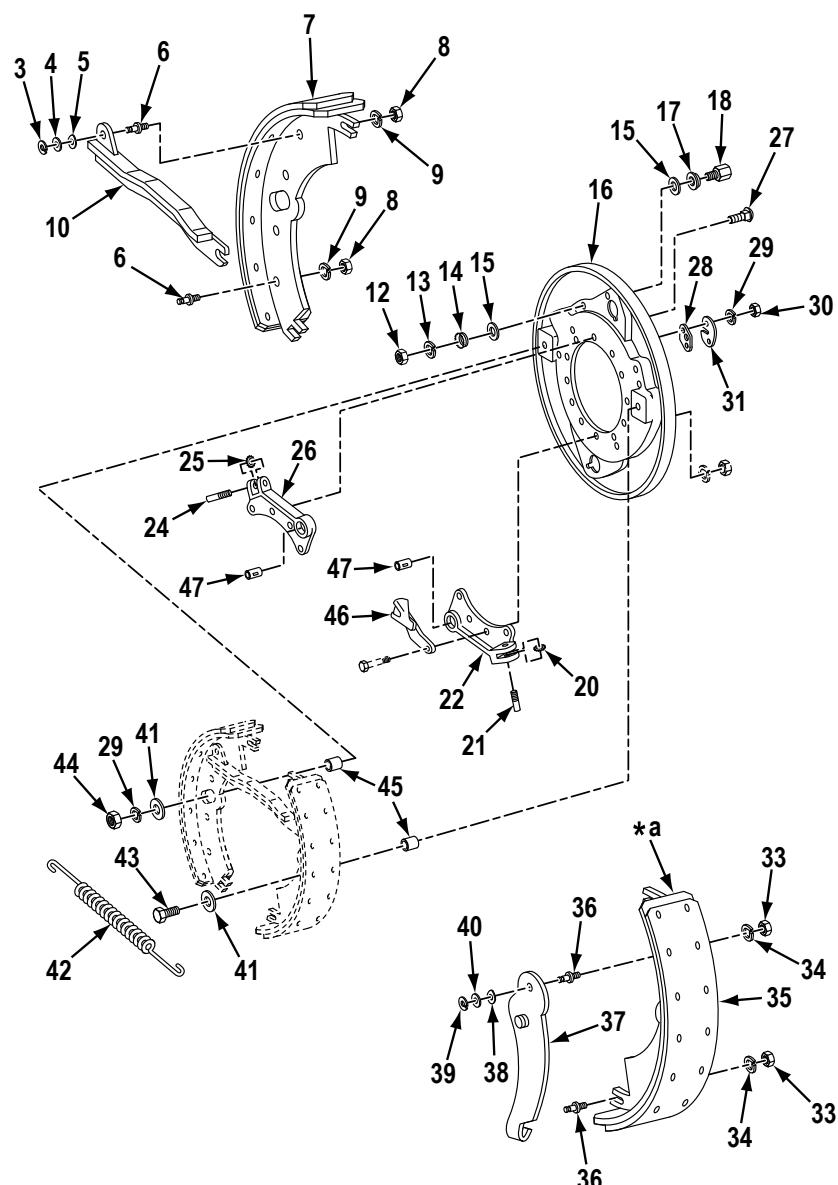
Figure 5. Handbrake Lever and Cable.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1201 HAND BRAKES						
FIG. 5. HANDBRAKE LEVER AND CABLE.						
1	PAFZZ	5310-00-087-4652	81349	M45913/1-6CG5C	NUT,SELF-LOCKING,HE 3/8 - 16.....	4
2	PAFZZ	5315-01-210-2034	96906	MS35810-14	PIN,STRAIGHT,HEADED.....	2
3	PAFZZ	5340-00-985-0823	71843	2708-4A	CLEVIS,ROD END.....	2
4	PAFZZ	5310-00-975-2075	96906	MS35691-21	NUT,PLAIN,HEXAGON 3/8 -24.....	2
5	PAFZZ	5342-00-408-9177	19207	5303461	BRACKET,BRAKE CABLE.....	2
6	PAFZZ	5306-00-226-4825	80204	B1821BH031C075N	BOLT,MACHINE 5/16 - 18 X 3/4.....	4
7	PAFZZ	2530-00-863-5596	96906	MS53060-6	CABLE AND CONDUIT A.....	2
8	PAFZZ	5310-00-407-9566	80205	MS35338-45	WASHER,LOCK.....	4
9	PAFZZ	5310-00-880-7746	96906	MS51968-5	NUT,PLAIN,HEXAGON 5/16 -24.....	4
10	PAFZZ	5360-01-085-5570	19207	11597761	SPRING,HELICAL,EXTE.....	1
11	PAFZZ	5310-00-637-9541	65035	P49866-11	WASHER,LOCK 3/8.....	2
12	PAFZZ	5315-00-842-3044	80205	MS24665-283	PIN,COTTER.....	2
13	PAFZZ	3040-00-330-3262	92867	01001307	LEVER,MANUAL CONTRO.....	2
14	PAFZZ	5305-00-638-8920	80204	B1821BH038C225N	SCREW,CAP,HEXAGON H 3/8 - 16 X 2 1/4.....	4

END OF FIGURE

FIELD MAINTENANCE BRAKE SHOES

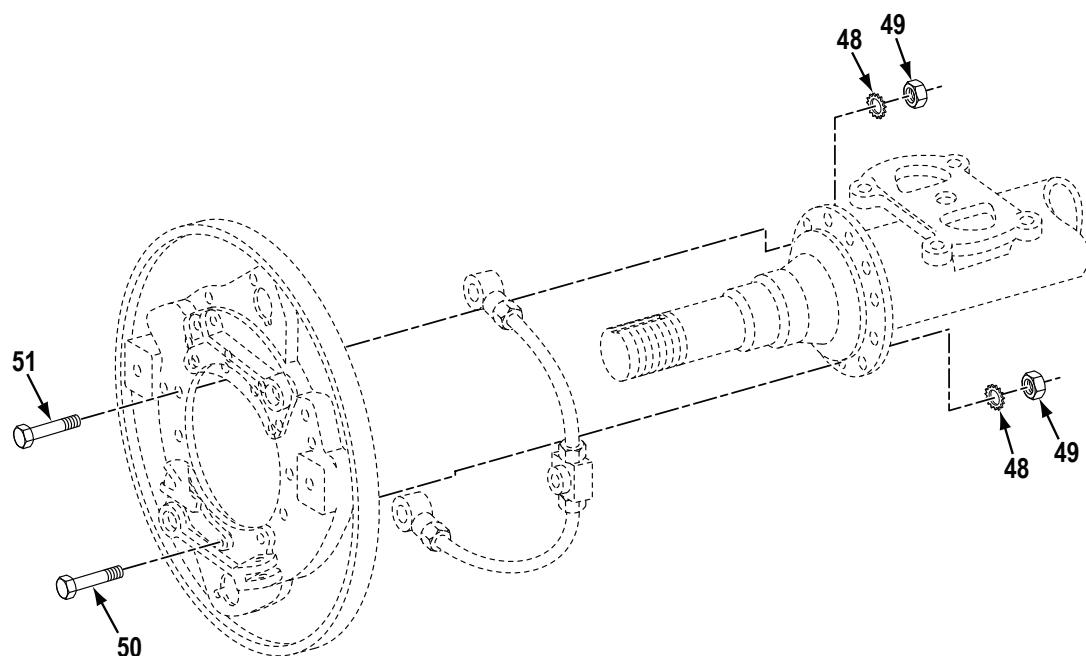
1	2	11	19	23	32
2 THRU 47	3 THRU 10	12 THRU 26	20 THRU 22	24 THRU 26	33 THRU 40



*a PART OF ITEM 7

M149-R006_1

Figure 6. Brake Shoes (Sheet 1 of 2).



M149-R006_2

Figure 6. Brake Shoes (Sheet 2 of 2).

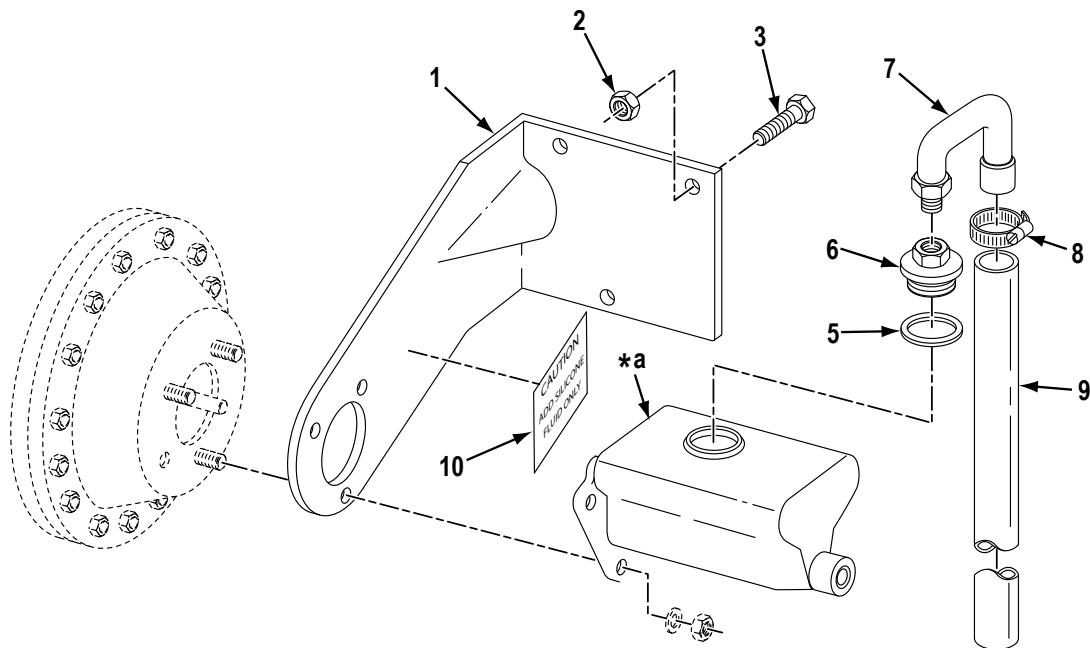
(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1202 SERVICE BRAKES						
FIG. 6. BRAKE SHOES.						
1	PAFFF	2530-00-730-7621	19207	8336702	BRAKE,SHOE TYPE R.H.....	1
1	PAFFF	2530-00-730-7620	19207	8336701	BRAKE,SHOE TYPE L.H.....	1
2	PAFFF	2530-00-774-9402	19207	8733895	. BRAKE SHOE R.H.....	1
2	PAFFF	2530-00-774-9401	19207	8733894	. BRAKE SHOE L.H.....	1
3	PAFZZ	5310-00-322-7260	19207	8733937	.. WASHER,SLOTTED 7/16.....	1
4	PAFZZ	5310-00-314-0765	19207	8733936	.. WASHER,FLAT 7/16.....	1
5	PAFZZ	5310-00-314-0764	19207	8733935	.. WASHER,SPRING TENS 7/16.....	1
6	PAFZZ	5315-00-322-7261	63477	FC-17758	.. PIN,SERVICE BRAKE 7/16-20.....	2
7	PAFZZ	2530-00-693-1007	19207	7064978	.. BRAKE SHOE.....	1
8	PAFZZ	5310-00-903-3993	96906	MS51970-4	.. NUT,PLAIN,HEXAGON 7/16 - 20.....	2
9	PAFZZ	5310-00-550-3503	96906	MS35335-36	.. WASHER,LOCK 7/16.....	2
10	PAFZZ	3040-00-150-7127	19207	8733926	.. CONNECTING LINK,RIG L.H.....	1
10	PAFZZ	3040-00-074-2357	19207	8733927	.. LEVER,MANUAL CONTRO R.H.....	1
11	PAFFF	2530-00-791-3259	63477	FE19579	. PLATE,BACKING,BRAKE L.H.....	1
11	PAFFF	2530-00-791-0110	63477	FE19580	. PLATE,BACKING,BRAKE R.H.....	1
12	PAFZZ	5310-00-853-9335	96906	MS35691-13	.. NUT,PLAIN,HEXAGON 5/16-24.....	1
13	PAFZZ	5310-00-167-0721	80205	MS35333-41	.. WASHER,LOCK 5/16.....	1
14	PAFZZ	3020-00-741-2104	23382	6CFC14257	.. PINION,BRAKE SHOE 5/16.....	1
15	PAFZZ	5310-00-741-2120	19207	7412120	.. WASHER,FLAT 5/16.....	2
16	PAFZZ	2530-01-083-5641	19207	8733933	.. PLATE,BACKING,BRAKE R.H.....	1
16	PAFZZ	2530-00-791-3259	19207	8733932	.. PLATE,BACKING,BRAKE L.H.....	1
17	PAFZZ	5310-00-475-1299	19207	8336703	.. WASHER,SPRING TENS 7/8.....	1
18	PAFZZ	5306-00-523-7535	19207	8328033	.. BOLT,SHOULDER 5/16 - 24 X 3/4.....	1
19	PAFFF	2530-00-798-4812	18876	8733897	.. ADJUSTER,SLACK,BRAK R.H.....	1
20	PAFZZ	2530-00-770-9149	63477	FC22219	.. WHEEL,SLACK ADJUSTE.....	1
21	PAFZZ	2530-00-770-9151	19207	8336789	.. SCREW,BRAKE SHOE AD R.H.....	1
22	PAFZZ	2530-00-159-8756	19207	8733909	.. SUPPORT ASSEMBLY R.H.....	1
23	PAFFF	2530-00-798-4824	18876	8733896	.. ADJUSTER,SLACK,BRAK L.H.....	1
24	PAFZZ	5305-00-770-9150	19207	8336705	.. SCREW,BRAKE SHOE AD L.H.....	1
25	PAFZZ	2530-00-770-9149	63477	FC22219	.. WHEEL,SLACK ADJUSTE.....	1
26	PAFZZ	2530-00-159-8755	19207	8733908	.. SUPPORT ASSY L.H.....	1
27	PAFZZ	5306-00-741-1760	19207	7411760	. BOLT,SQUARE NECK 1/4 - 28 X 7/8.....	1

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
28	PAFZZ	5340-00-776-3264	19207	8735729	. COVER,ACCESS.....	1
29	PAFZZ	5310-00-582-5965	80205	MS35338-44	. WASHER,LOCK 1/4.....	4
30	PAFZZ	5310-00-761-6882	96906	MS51967-2	. NUT,PLAIN,HEXAGON 1/4 - 20.....	1
31	PAFZZ	5342-00-991-4342	04627	339589	. BRACKET,LEFT HAND.....	1
31	PAFZZ	5342-00-987-2565	63477	F19636	. BRACKET,RIGHT HAND.....	1
32	PAFFF	2530-00-774-9403	63477	FE17748	. BRAKE SHOE L.H.....	1
32	PAFFF	2530-01-261-2547	19207	8733904	. BRAKE SHOE R.H.....	1
33	PAFZZ	5310-00-903-3993	96906	MS51970-4	. . NUT,PLAIN,HEXAGON 7/16 - 20.....	2
34	PAFZZ	5310-00-550-3503	96906	MS35335-36	. . WASHER,LOCK 7/16.....	2
35	PAFZZ	2530-00-693-1007	19207	7064978	. . BRAKE SHOE.....	1
36	PAFZZ	5315-00-322-7261	63477	FC-17758	. . PIN,SERVICE BRAKE 7/16-20.....	2
37	PAFZZ	2530-00-973-2355	02686	123917	. . LEVER,LEFT HAND BRAKE.....	1
37	PAFZZ	2530-00-973-2356	63477	FD17751	. . LEVER,BRAKE CLUTCH RIGHT HAND.....	1
38	PAFZZ	5310-00-314-0764	19207	8733935	. . WASHER,SPRING TENS 7/16.....	1
39	PAFZZ	5310-00-322-7260	19207	8733937	. . WASHER,SLOTTED 7/16.....	1
40	PAFZZ	5310-00-314-0765	19207	8733936	. . WASHER,FLAT 7/16.....	1
41	PAFZZ	5310-00-641-9939	19207	5323088	. . WASHER,FLAT 1/4.....	2
42	PAFZZ	5360-00-699-9018	19207	8720515	. SPRING,HELICAL,EXTE.....	2
43	PAFZZ	5305-00-068-0515	80204	B1821BH025F100N	. SCREW,CAP,HEXAGON H 1/4 - 28 X 1.....	1
44	PAFZZ	5310-00-924-4218	96906	MS51970-1	. NUT,PLAIN,HEXAGON 1/4 - 28.....	1
45	PAFZZ	5365-00-741-2103	19207	7412103	. SPACER,SLEEVE.....	2
46	PAFZZ	2530-00-522-1157	19207	8733892	. RAMP,CABLE L.H.....	1
46	PAFZZ	2530-00-794-9763	63477	F19582	. RAMP,BRAKE CABLE R.H.....	1
47	PAFZZ	5315-00-741-2106	19207	7412106	. PIN,STRAIGHT,HEADLE.....	2
48	PAFZZ	5310-00-627-6128	96906	MS35335-35	WASHER,LOCK 3/8.....	24
49	PAFZZ	5310-00-732-0559	96906	MS51968-8	NUT,PLAIN,HEXAGON 3/8 - 24.....	24
50	PAFZZ	5305-00-269-3241	80204	B1821BH038F175N	SCREW,CAP,HEXAGON H 3/8 - 24 X 1 3/4.....	16
51	PAFZZ	5305-00-269-2804	80205	MS90726-61	SCREW,CAP,HEXAGON H 3/8 - 24 X 1 1/8.....	8

END OF FIGURE

**FIELD MAINTENANCE
MASTER CYLINDER AND BRACKET**

4
[5 AND 6]



*a PART OF ITEM 4

M149-R007

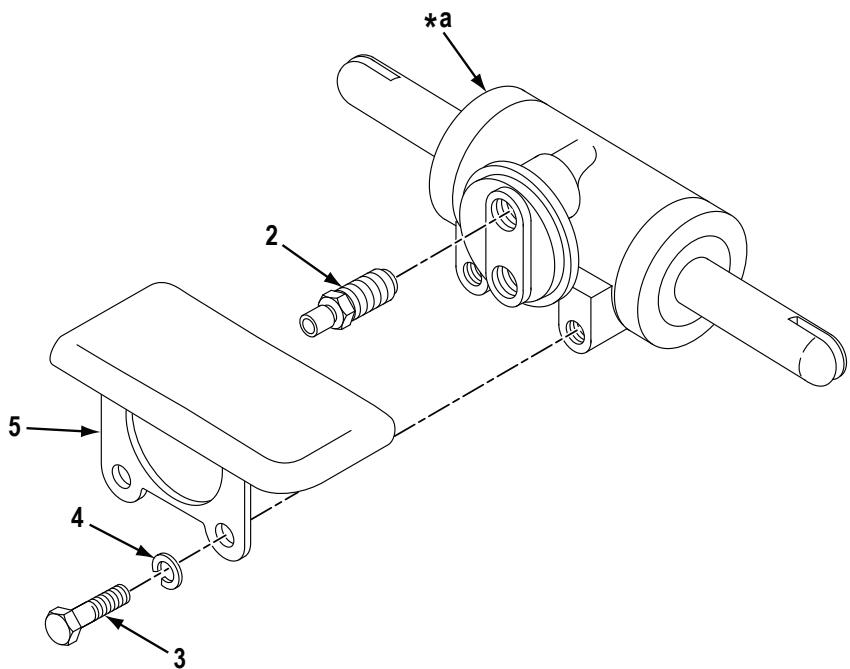
Figure 7. Master Cylinder and Bracket.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1204 HYDRAULIC BRAKE SYSTEM						
FIG. 7. MASTER CYLINDER AND BRACKET.						
1	PAFZZ	5340-00-574-8356	19207	8357982	BRACKET,ANGLE.....	1
2	PAFZZ	5310-00-087-4652	81349	M45913/1-6CG5C	NUT,SELF-LOCKING,HE 3/8 - 16.....	3
3	PAFZZ	5305-00-068-0511	80204	B1821BH038C125N	SCREW,CAP,HEXAGON H 3/8 - 16 X 1 1/4.....	3
4	PAFZZ	2530-00-204-4800	63477	FE14240	CYLINDER ASSEMBLY,H.....	1
5	PAFZZ	5330-00-737-3354	19207	7373354	. GASKET.....	1
6	PAFZZ	4730-00-773-2163	19207	7979691	. CAP,FILLER OPENING.....	1
7	PAFZZ	4710-00-511-1692	06721	N12988	TUBE ASSEMBLY,METAL.....	1
8	PAFZZ	4730-00-908-3194	58536	A-A-52506-F-12	CLAMP,HOSE.....	1
9	MFFZZ		81343	J20R1 CLASS C-12	HOSE,NONMETALLIC MAKE FROM P/N J20R1 CLASS C (81343) 12 INCHES LONG.....	1
10	PCFZZ	7690-01-111-2265	19207	12302516	DECAL.....	1

END OF FIGURE

**FIELD MAINTENANCE
WHEEL CYLINDER ASSEMBLY**

1
2



*a PART OF ITEM 1

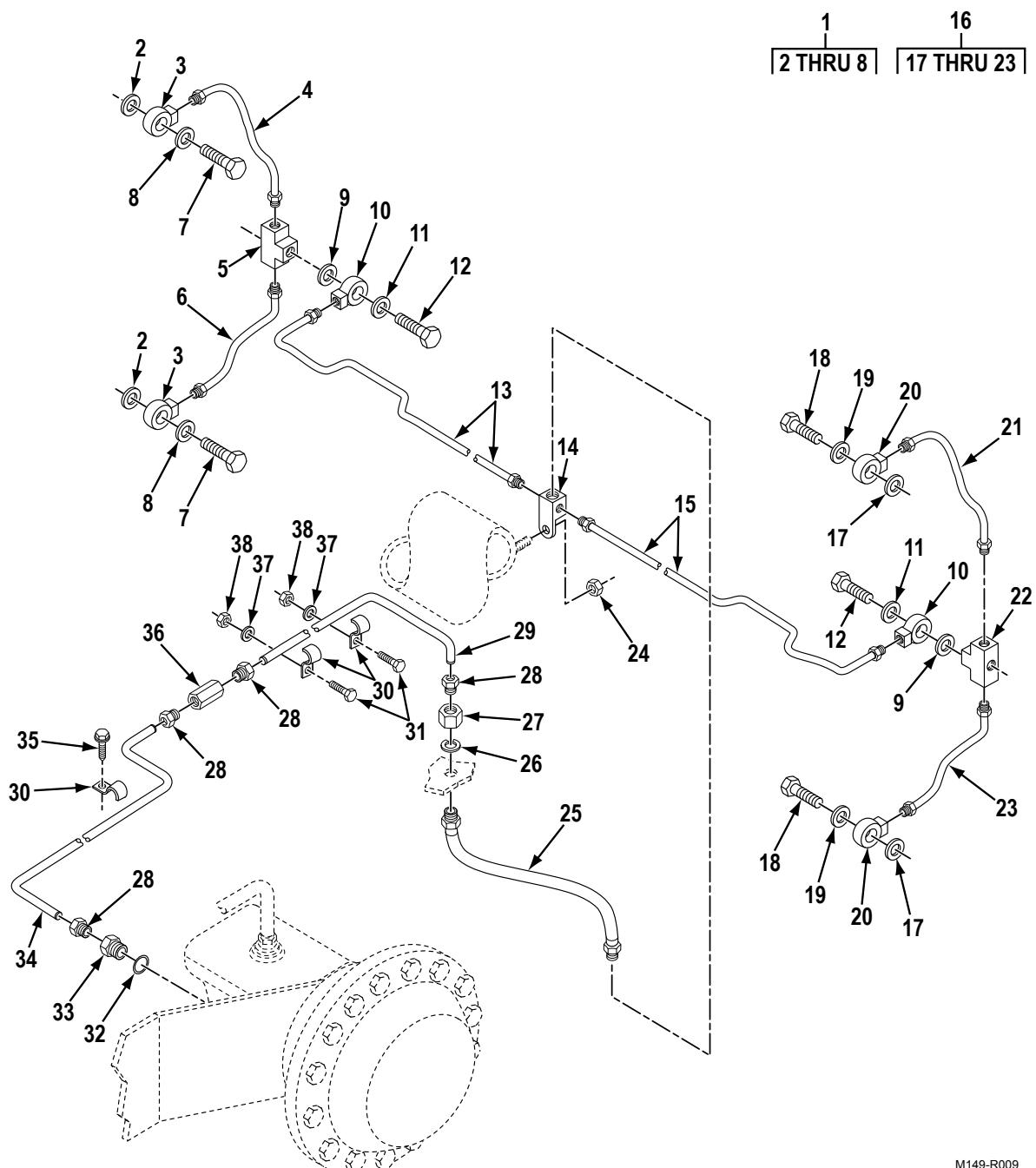
M149-R008

Figure 8. Wheel Cylinder Assembly.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1204 HYDRAULIC BRAKE SYSTEM						
FIG. 8. WHEEL CYLINDER ASSEMBLY.						
1	PAFZZ	2530-00-741-2065	63477	F14413	CYLINDER ASSEMBLY,H.....	4
2	PAFZZ	2530-00-737-3260	19207	7373260	. VALVE,BLEEDER,HYDRA.....	2
3	PAFZZ	5305-00-115-9526	80204	B1821BH038C075D	SCREW,CAP,HEXAGON H 3/8 - 16 X 3/4.....	8
4	PAFZZ	5310-00-261-7340	81996	A2303-12-51PC6	WASHER,LOCK 3/8.....	8
5	PAFZZ	2530-00-741-2068	19207	7412068	SHIELD,BRAKE DISK R.H.....	2
5	PAFZZ	2530-00-741-2050	63477	F9556	SHIELD,BRAKE DISK L.H.....	2

END OF FIGURE

**FIELD MAINTENANCE
BRAKE LINES, HOSES, AND FITTINGS**



M149-R009

Figure 9. Brake Lines, Hoses, and Fittings.

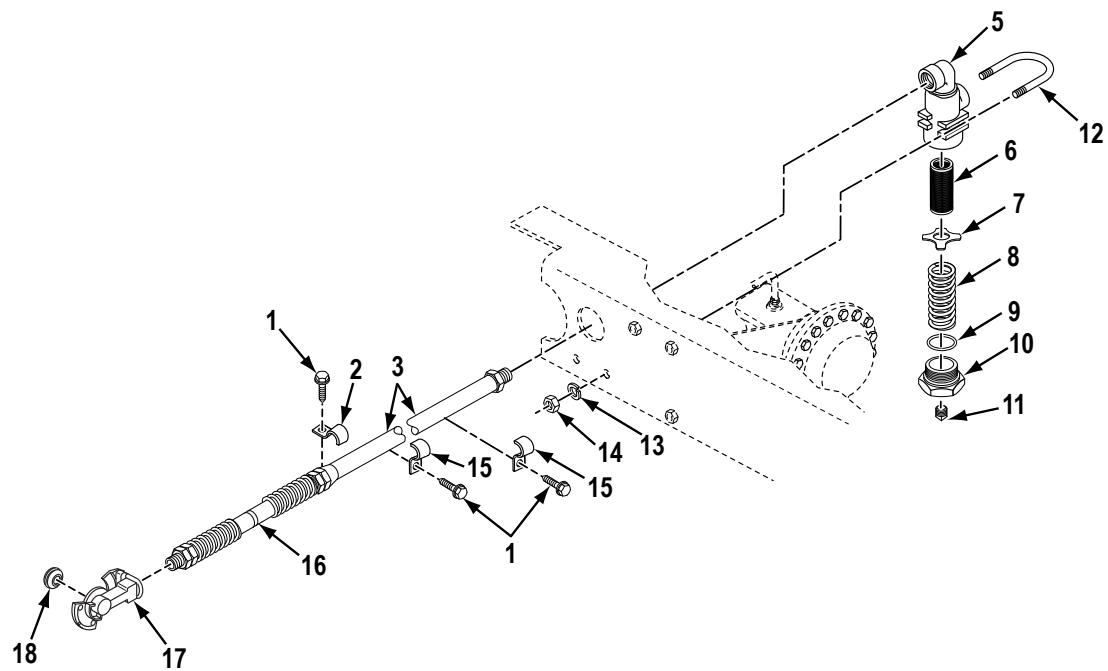
(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1204 HYDRAULIC BRAKE SYSTEM						
FIG. 9. BRAKE LINES, HOSES, AND FITTINGS.						
1	PAFFF	4710-00-791-8077	19207	8733899	TUBE ASSEMBLY,METAL R.H.....	1
2	PAFZZ	5310-00-741-2088	19207	7412088	. WASHER,SHOULDERED A 7/16.....	2
3	PAFZZ	4730-00-419-9425	19207	7745464	. TEE,TUBE.....	2
4	PAFZZ	4710-00-630-9928	19207	8733918	. TUBE ASSEMBLY,METAL R.H.....	1
5	PAFZZ	4730-00-741-1903	19207	7411903	. CONNECTOR,MULTIPLE,.....	1
6	PAFZZ	4710-00-741-1907	63477	FD13351	. TUBE ASSEMBLY,METAL R.H.....	1
7	PAFZZ	4730-00-729-6437	19207	7412079	. BOLT,FLUID PASSAGE.....	2
8	PAFZZ	5365-00-274-4544	19207	5298653	. SPACER,RING.....	2
9	PAFZZ	5310-00-741-2088	19207	7412088	WASHER,SHOULDERED A 7/16.....	2
10	PAFZZ	4730-00-419-9425	19207	7745464	TEE,TUBE.....	2
11	PAFZZ	5365-00-274-4544	19207	5298653	SPACER,RING.....	2
12	PAFZZ	4730-00-729-6437	19207	7412079	BOLT,FLUID PASSAGE.....	2
13	PAFZZ	4710-00-863-5594	19207	7058998	TUBE ASSEMBLY,METAL.....	1
14	PAFZZ	4730-00-463-1588	19207	5167679	CONNECTOR,MULTIPLE,.....	1
15	PAFZZ	4710-00-863-5595	19207	7058999	TUBE ASSEMBLY,METAL.....	1
16	PAFFF	4710-00-791-8078	19207	8733898	TUBE ASSEMBLY,METAL L.H.....	1
17	PAFZZ	5310-00-741-2088	19207	7412088	. WASHER,SHOULDERED A 7/16.....	2
18	PAFZZ	4730-00-729-6437	19207	7412079	. BOLT,FLUID PASSAGE.....	2
19	PAFZZ	5365-00-274-4544	19207	5298653	. SPACER,RING.....	2
20	PAFZZ	4730-00-419-9425	19207	7745464	. TEE,TUBE.....	2
21	PAFZZ	4710-00-566-7133	19207	8733920	. TUBE ASSEMBLY,METAL L.H.....	1
22	PAFZZ	4730-00-741-1903	19207	7411903	. CONNECTOR,MULTIPLE,.....	1
23	PAFZZ	4710-00-566-7134	19207	8733922	. TUBE ASSEMBLY,METAL L.H.....	1
24	PAFZZ	5310-00-959-1488	81349	M45913/2-6FG5C	NUT,SELF-LOCKING,HE 3/8 - 24.....	1
25	PCFZZ	4720-00-774-4040	23834	4440	HOSE ASSEMBLY,NONME.....	1
26	PAFZZ	5310-00-543-4385	96906	MS35333-46	WASHER,LOCK 5/8.....	1
27	PAFZZ	5310-00-835-2037	96906	MS35691-53	NUT,PLAIN,HEXAGON 5/8 - 18.....	1
28	PAFZZ	4730-00-014-2432	81343	SAE J512 4 040110B	INVERTED NUT,TUBE C.....	4
29	MFFZZ	0000-00-000-0000	19207	12296592-32.75	TUBE ASSEMBLY MAKE FROM P/N M3520-A40G02B (81349) 32.75 INCHESLONG.....	1

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
30	PAFZZ	5340-00-809-1490	80205	MS21333-98	CLAMP,LOOP.....	3
31	PAFZZ	5305-00-068-0506	80205	MS90726-6	SCREW,CAP,HEXAGON H 1/4 - 28 X 3/4.....	2
32	PAFZZ	5310-00-275-6635	94988	FC602	WASHER,FLAT.....	1
33	PAFZZ	4730-00-854-6931	19207	5156653	ADAPTER,STRAIGHT,TU.....	1
34	MFFZZ	0000-00-000-0000	19207	12296591-22.75	TUBE ASSEMBLY MAKE FROM P/N 1756543 (53711) 22.75 INCHES LONG.....	1
35	PAFZZ	5305-01-137-3938	96906	MS51871-3	SCREW,TAPPING 1/4 X 3/4 INCHES.....	1
36	PAFZZ	4730-00-278-8886	81343	SAEJ5124-4040101	COUPLING,TUBE.....	1
37	PAFZZ	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK.....	2
38	PAFZZ	5310-00-768-0319	96906	MS51968-2	NUT,PLAIN,HEXAGON.....	2

END OF FIGURE

**FIELD MAINTENANCE
AIR COUPLING AND HOSE**

4
[5 THRU 11]



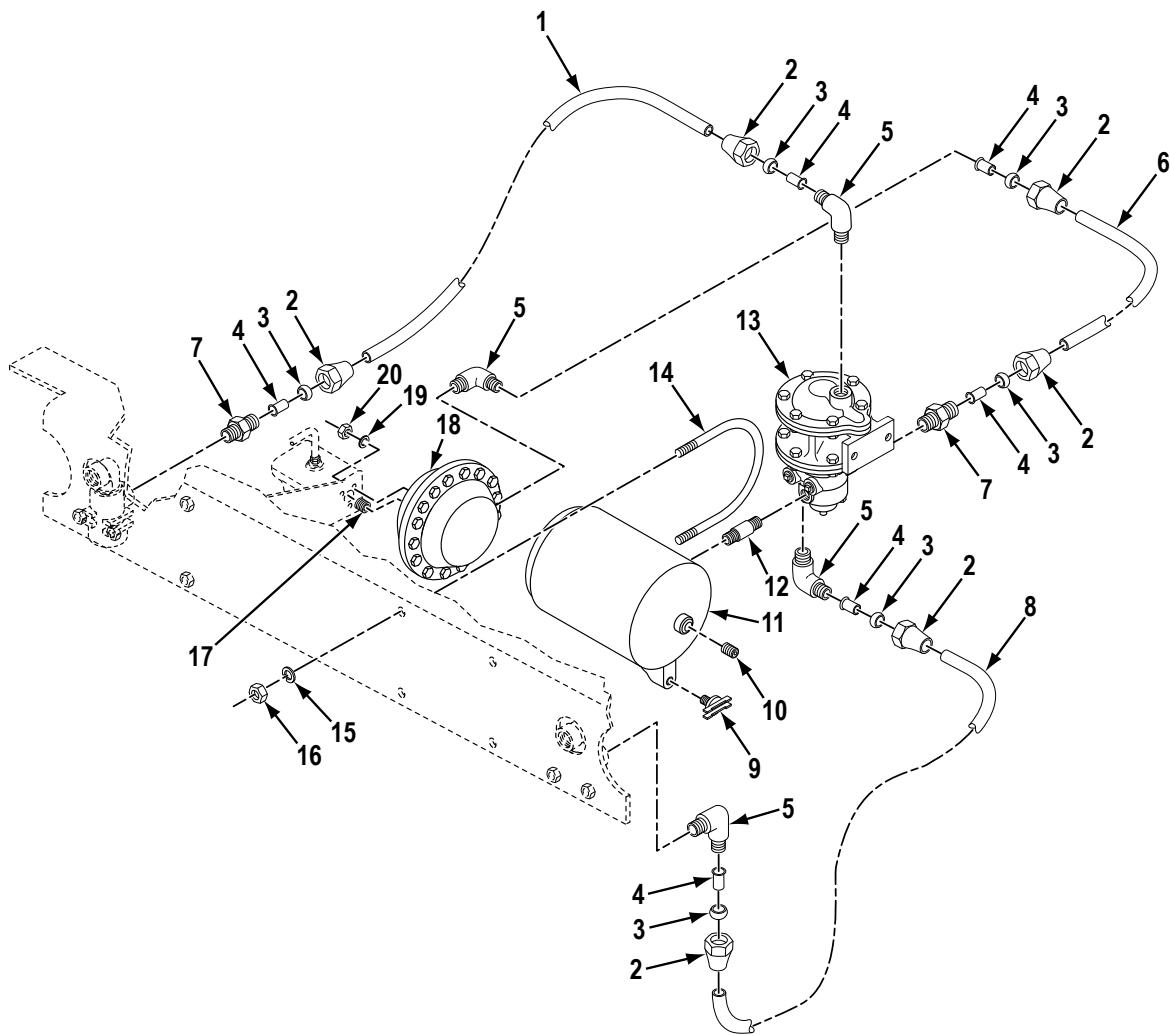
M149-R010

Figure 10. Air Coupling and Hose.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1208 AIR BRAKE SYSTEM						
FIG. 10. AIR COUPLING AND HOSE.						
1	PAFZZ	5305-01-137-3938	96906	MS51871-3	SCREW,TAPPING 1/4 X 3/4 INCHES.....	6
2	PAFZZ	5340-00-281-1444	19207	8331537	STRAP,RETAINING.....	2
3	PAFZZ	4720-00-018-2296	19207	8741770	HOSE ASSEMBLY,NONME.....	2
4	PAFFF	2530-00-797-9295	06721	N12969	AIR FILTER,BRAKE LI.....	2
5	XAFZZ	0000-00-000-0000	06721	N-12970-A	. ELBOW BODY,AIR LINE.....	1
6	KFFZZ	2940-00-741-1081	06721	N-12971-B	. FILTER ELEMENT,FLUI PART OF KIT P/N RN-13-A.....	1
7	XAFZZ	0000-00-000-0000	06721	N12972	. WASHER,SPRING TENSI.....	1
8	KFFZZ	5360-00-706-9054	19207	7979612	. SPRING,HELICAL,COMP PART OF KIT P/N RN-13-A.....	1
9	KFFZZ	5330-00-285-5123	19207	8329823	. GASKET PART OF KIT P/N RN-13-A.....	1
10	PAFZZ	4730-00-580-8457	19207	7979613	. ADAPTER BUSHING.....	1
11	XAFZZ	0000-00-000-0000	81343	AS4862SIZE01 MOD. PLUG,PIPE.....		1
12	PAFZZ	5306-00-797-9296	19207	7979296	BOLT,U 1/4 - 20.....	2
13	PAFZZ	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK.....	4
14	PAFZZ	5310-00-761-6882	96906	MS51967-2	NUT,PLAIN,HEXAGON 1/4 - 20.....	4
15	PAFZZ	5340-00-281-1446	19207	8331536	STRAP,RETAINING.....	4
16	PAFZZ	9905-01-441-1063	19207	12355943-2	BAND,MARKER EMERGENCY.....	1
17	PAFZZ	4730-00-595-0083	58536	A52484-1	COUPLING HALF,QUICK DISCONNECT....	1
18	PAFZZ	5330-01-504-8614	45152	4HA892	SEAL,PLAIN RED.....	1
18	PAFZZ	5330-01-504-8610	45152	4HA891	SEAL,PLAIN BLUE.....	1

END OF FIGURE

**FIELD MAINTENANCE
AIR HOSES, FITTINGS, RELAY VALVE, AIR CHAMBER, AND PRESSURE TANK**



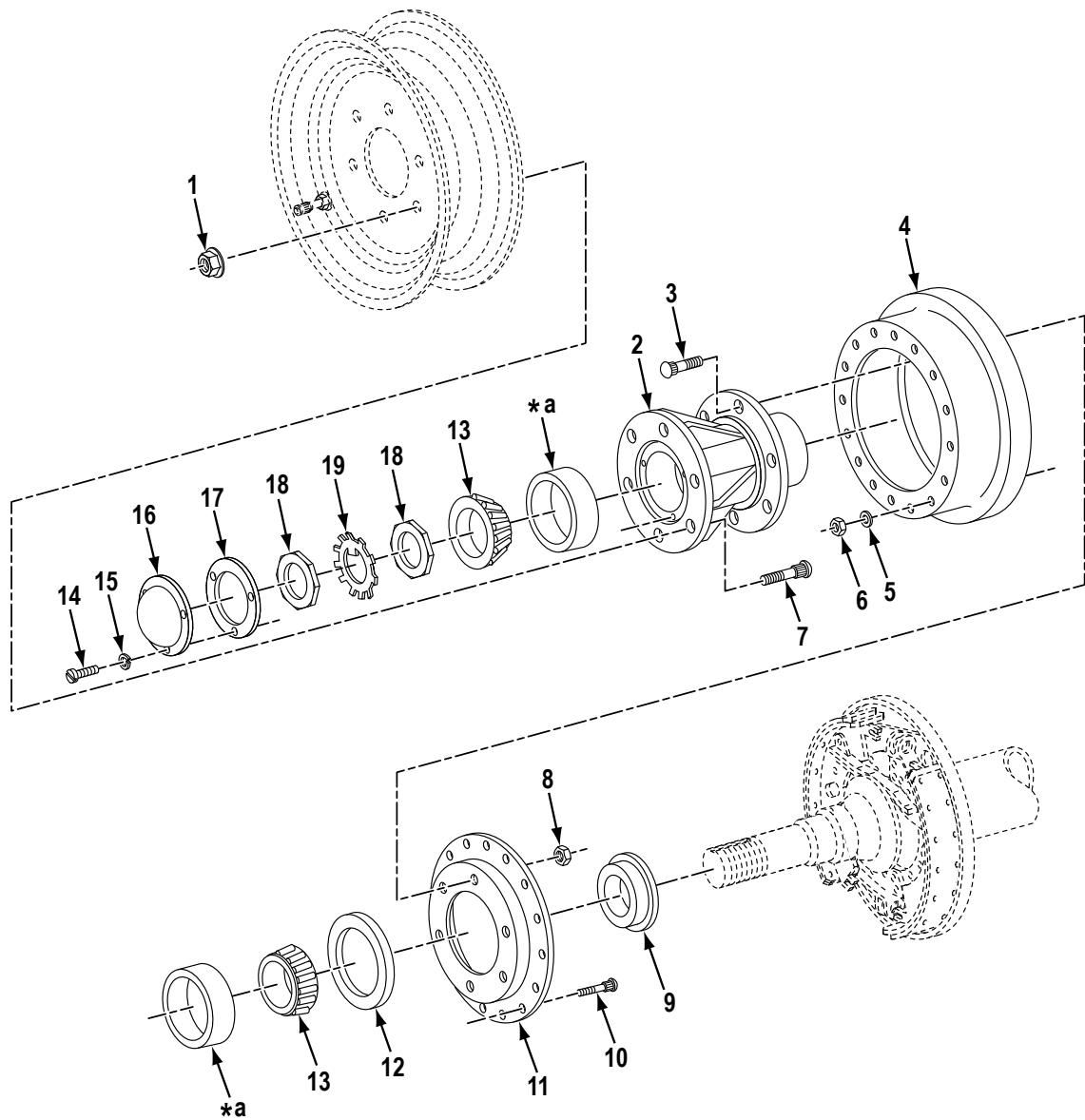
M149-R011

Figure 11. Air Hoses, Fittings, Relay Valve, Air Chamber, and Pressure Tank.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1208 AIR BRAKE SYSTEM						
FIG. 11. AIR HOSES, FITTINGS, RELAY VALVE, AIR CHAMBER, AND PRESSURE TANK.						
1	MFFZZ	0000-00-000-0000	81343	J844TYBSIZE 3/8 BLACK-29	HOSE,NONMETALLIC MAKE FROM P/N J844TYBSIZE 3/8 BLACK (81343) 29 IN.....	1
2	PAFZZ	4730-00-278-8825	81343	SAE J246 6 120111B	NUT,TUBE COUPLING.....	6
3	PAFZZ	4730-01-079-8821	19207	CPR102321-1	INSERT,TUBE FITTING.....	6
4	PAFZZ	4730-00-293-7108	81343	SAE J246 6 120115B	SLEEVE,COMPRESSION.....	6
5	PAFZZ	4730-01-420-8036	81343	SAE J246 6-4 120202BA	ELBOW,PIPE TO TUBE.....	4
6	MFFZZ	0000-00-000-0000	81343	J844TYBSIZE 3/8 BLACK-8	HOSE,NONMETALLIC MAKE FROM P/N J844TYBSIZE 3/8 BLACK (81343) 8 IN.....	1
7	PAFZZ	4730-00-069-1186	81343	SAE J246 6-4 120102BA	ADAPTER,STRAIGHT,PI.....	2
8	MFFZZ	4720-01-014-4915	81343	J844TYBSIZE 3/8 BLACK	TUBING,NONMETALLIC MAKE FROM P/N J844TYBSIZE 3/8 BLACK (81343) 16 IN.....	1
9	PAFZZ	4820-00-849-1220	58536	A-A-59440/1-005	COCK,DRAIN.....	1
10	PAFZZ	4730-00-057-5555	11083	7M7410	PLUG,PIPE.....	1
11	PAFZZ	2530-01-042-0683	19207	11625104	TANK,PRESSURE.....	1
12	PAFZZ	4730-00-196-1505	81346	A733S-101CFG	NIPPLE,PIPE.....	1
13	PAFZZ	2530-00-021-2366	58536	A52485-2	PARTS KIT,RELAY VAL.....	1
14	PAFZZ	5306-01-043-5702	19207	11625105	BOLT,U.....	2
15	PAFZZ	5310-00-407-9566	80204	MS35338-45	WASHER,LOCK 5/16.....	4
16	PAFZZ	5310-00-880-7746	96906	MS51968-5	NUT,PLAIN,HEXAGON 5/16 -24.....	4
17	PCFZZ	2530-00-026-0200	19207	8365427	COLLAR,AIR CHAMBER.....	1
18	PAFZZ	2530-00-106-4377	19207	N30171	CHAMBER,AIR BRAKE.....	1
19	PAFZZ	5310-00-637-9541	65035	P49866-11	WASHER,LOCK 3/8.....	3
20	PAFZZ	5310-00-732-0558	96906	MS51967-8	NUT,PLAIN,HEXAGON 3/8 - 16.....	3

END OF FIGURE

**FIELD MAINTENANCE
WHEEL HUB, BEARINGS, AND SEAL**



*a PART OF ITEM 13

M149-R012

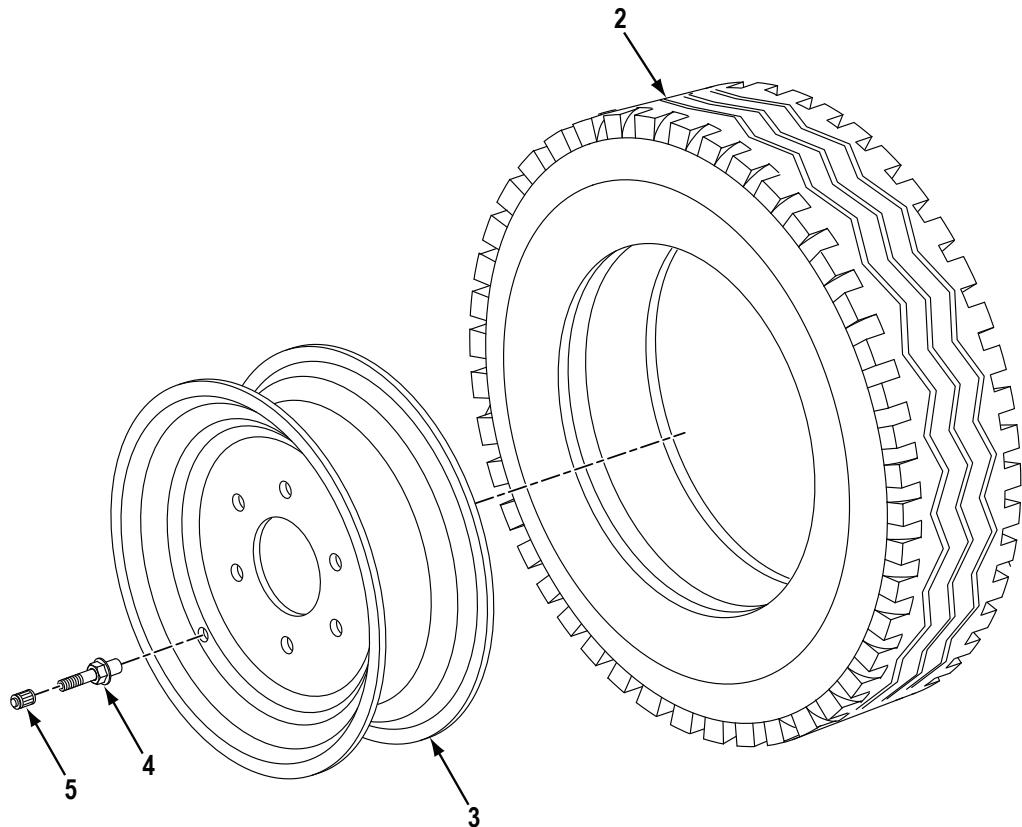
Figure 12. Wheel Hub, Bearings, and Seal.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1311 WHEEL ASSEMBLY						
FIG. 12. WHEEL HUB, BEARINGS, AND SEAL.						
1	PAFZZ	5310-01-518-7455	02686	129378	NUT,PLAIN,CONE SEAT 3/4-16.....	12
2	PAFZZ	2530-00-677-0202	19207	8719915	HUB,WHEEL,VEHICULAR.....	2
3	PAFZZ	5306-00-206-1560	96906	MS51946-11	BOLT,RIBBED SHOULDE.....	12
4	PAFZZ	2530-00-741-1425	19207	7411425	BRAKE DRUM.....	2
5	PAFZZ	5310-00-080-6004	96906	MS27183-14	WASHER,FLAT 3/8.....	36
6	PAFZZ	5310-00-655-9599	19207	8720024	NUT,SELF-LOCKING,HE 3/8-24.....	36
7	PAFZZ	5306-00-383-4957	96906	MS51946-2	BOLT,RIBBED SHOULDE RIGHT HAND.....	6
8	PAFZZ	5310-00-935-3569	81349	M45913/3-12FG8C	NUT,SELF-LOCKING,HE.....	12
9	PAFZZ	5365-00-741-1433	19207	7411433	SPACER,SLEEVE.....	2
10	PAFZZ	5306-00-335-4768	18876	8720025	BOLT,RIBBED NECK 3/8-24 x 1 9/32.....	36
11	PAFZZ	2530-00-741-3231	19207	7413231	PLATE,BACKING,BRAKE.....	2
12	PAFZZ	5330-00-741-1429	01212	6584SG	SEAL,PLAIN ENCASED.....	2
13	PAFZZ	3110-00-100-5951	60038	3984-3920	BEARING,ROLLER,TAPE.....	4
14	PAFZZ	5305-00-988-1723	80205	MS35206-279	SCREW,MACHINE 1/4-20 X 1 1/2.....	6
15	PAFZZ	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK 1/4.....	6
16	PAFZZ	2530-01-491-9908	19207	10910884	HUB CAP,WHEEL.....	2
17	PAFZZ	5330-00-246-8223	19207	10910885	GASKET.....	2
18	PAFZZ	5310-00-741-1379	19207	7411379	NUT,PLAIN,OCTAGON 2 5/8-16.....	4
19	PAFZZ	5310-00-741-1378	19207	7411378	WASHER,KEY.....	2

END OF FIGURE

**FIELD MAINTENANCE
WHEEL AND TIRE ASSEMBLY**

1
[2 THRU 5]



M149-R013

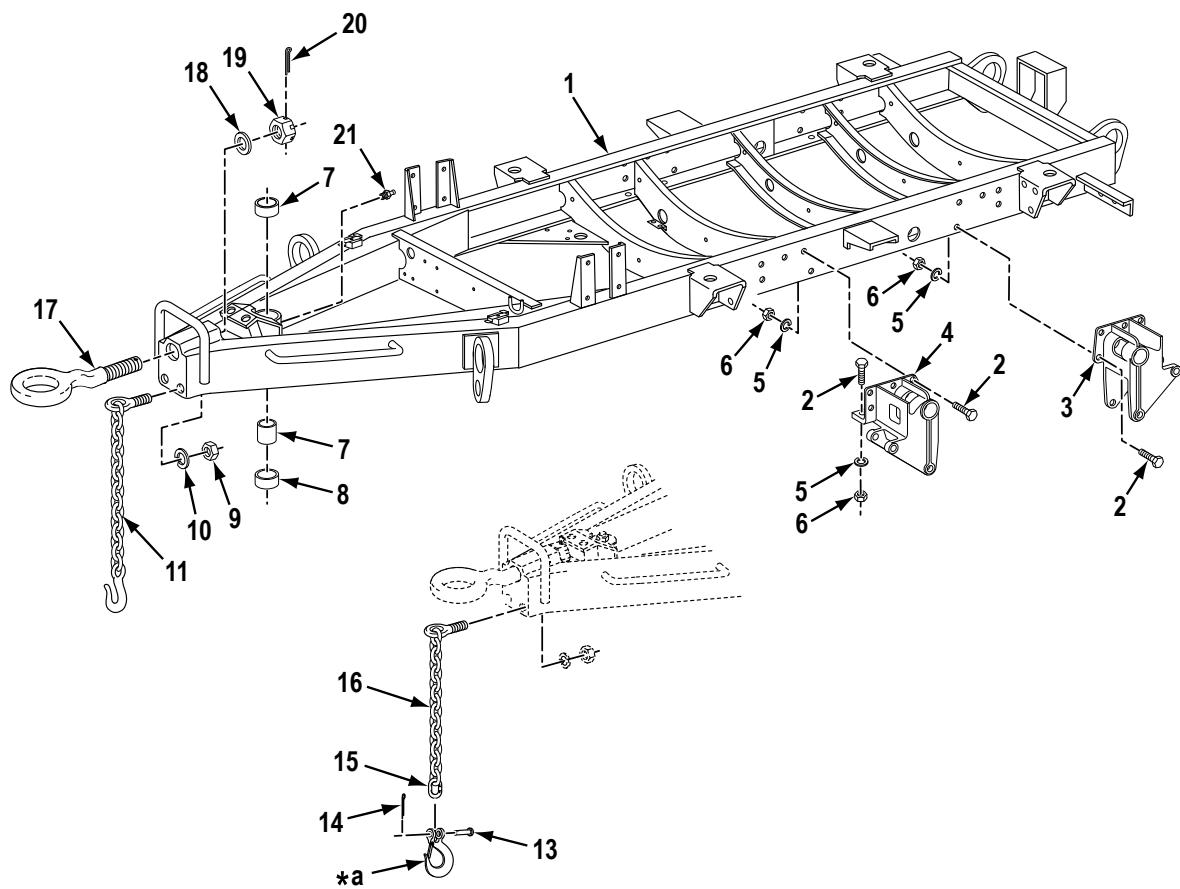
Figure 13. Wheel and Tire Assembly.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1311 WHEEL ASSEMBLY						
FIG. 13. WHEEL AND TIRE ASSEMBLY.						
1	PCCFF	2530-01-611-7619	19207	12558672	. WHEEL END ASSEMBLY.....	2
2	PCFZZ	2610-01-063-7947	19207	12504900	. TIRE,PNEUMATIC,VEHI 10R22.5.....	1
3	PAFZZ	2640-01-588-9171	02686	50434X	. RIM,WHEEL,PNEUMATIC.....	1
4	PAFZZ	2640-01-522-2413	73195	TV-572-E19	. VALVE,PNEUMATIC TIR.....	1
5	PAFZZ	2640-00-060-3550	63900	A-A-52611-4-1- TRVC2	. CAP,PNEUMATIC VALVE.....	1

END OF FIGURE

**FIELD MAINTENANCE
FRAME, TOWING ATTACHMENTS, DRAWBAR RING, AND SPRING BRACKETS CURRENT VERSION
TRAILER, TANK**

12
[13 THRU 14]



NEW CONFIGURATION

*a PART OF ITEM 12

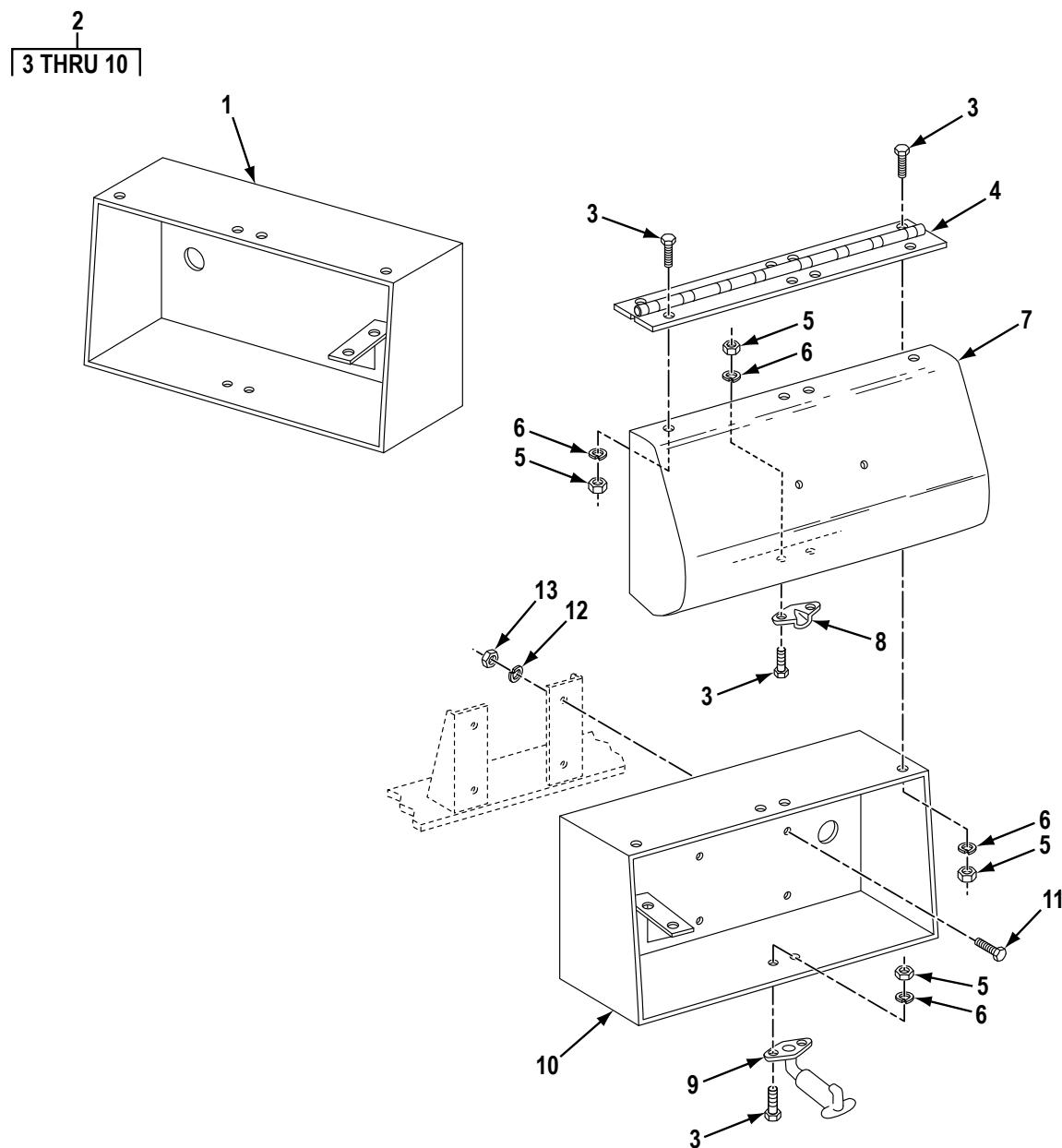
M149-R014

Figure 14. Frame, Towing Attachments, Drawbar Ring, and Spring Brackets Current Version Trailer, Tank.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1501 FRAME ASSEMBLY						
FIG. 14. FRAME, TOWING ATTACHMENTS, DRAWBAR RING, AND SPRING BRACKETS CURRENT VERSION TRAILER, TANK.						
1	PAFZZ	2330-01-196-9062	19207	11625110	TRAILER,TANK.....	1
2	PAFZZ	5305-00-719-5235	05047	AES01F500A75AW9	SCREW,CAP,HEXAGON H 1/2-20	
				A91	X 1 3/4.....	28
3	XBFZZ		19207	7059565	BRACKET,MOUNTING LEFT REAR AND RIGHT FRONT.....	2
4	XBFZZ		19207	7059533	BRACKET,MOUNTING LEFT FRONT AND RIGHT REAR.....	2
5	PAFZZ	5310-00-584-5272	80205	MS35338-48	WASHER,LOCK 1/2.....	28
6	PAFZZ	5310-00-732-0560	96906	MS51968-14	NUT,PLAIN,HEXAGON 1/2-20.....	28
7	PAFZZ	5365-01-432-8663	19207	11644768	SPACER,SLEEVE.....	1
8	PAFZZ	3120-00-347-5900	19207	8330811	BEARING,SLEEVE.....	2
9	PAFZZ	5310-00-763-8922	96906	MS51967-24	NUT,PLAIN,HEXAGON 3/4-10.....	2
10	PAFZZ	5310-01-533-3410	39428	91102A036	WASHER,LOCK 3/4.....	2
11	PAFZZ	4010-01-458-3852	19207	12461851-3	CHAIN ASSEMBLY,SING.....	2
12	PAFZZ	4030-01-501-6946	75535	1225091	HOOK, HOIST.....	2
13	PAFZZ	5315-00-957-0765	80205	MS20392-5C47	. PIN, STRAIGHT, HEADED.....	2
14	PAFZZ	5315-00-842-3044	80205	MS24665-283	. PIN, COTTER.....	2
15	PAFZZ	4010-01-379-0918	75535	1013156	LINK, CHAIN, CONNECTING 3/8 INCH....	1
16	PAFZZ	4010-00-286-5645	81348	RR-C-271 TY1 CL5	CHAIN, WELDED.....	1
				ST2		
17	PAFZZ	2540-00-999-5584	58536	A-A-52464B	COUPLER,DRAWBAR,RIN.....	1
18	PAFZZ	5310-00-044-6284	81348	FF-W-92 TY A GR 1	WASHER,FLAT 1 1/8.....	1
				CL A		
19	PAFZZ	5310-00-741-1028	19207	7411028	NUT,PLAIN,HEXAGON 1 1/8-16.....	1
20	PAFZZ	5315-00-234-1664	80205	MS24665-495	PIN,COTTER.....	1
21	PAFZZ	4730-00-050-4203	81343	AS15001-1	FITTING,LUBRICATION.....	1

END OF FIGURE

**FIELD MAINTENANCE
FAUCET BOX**



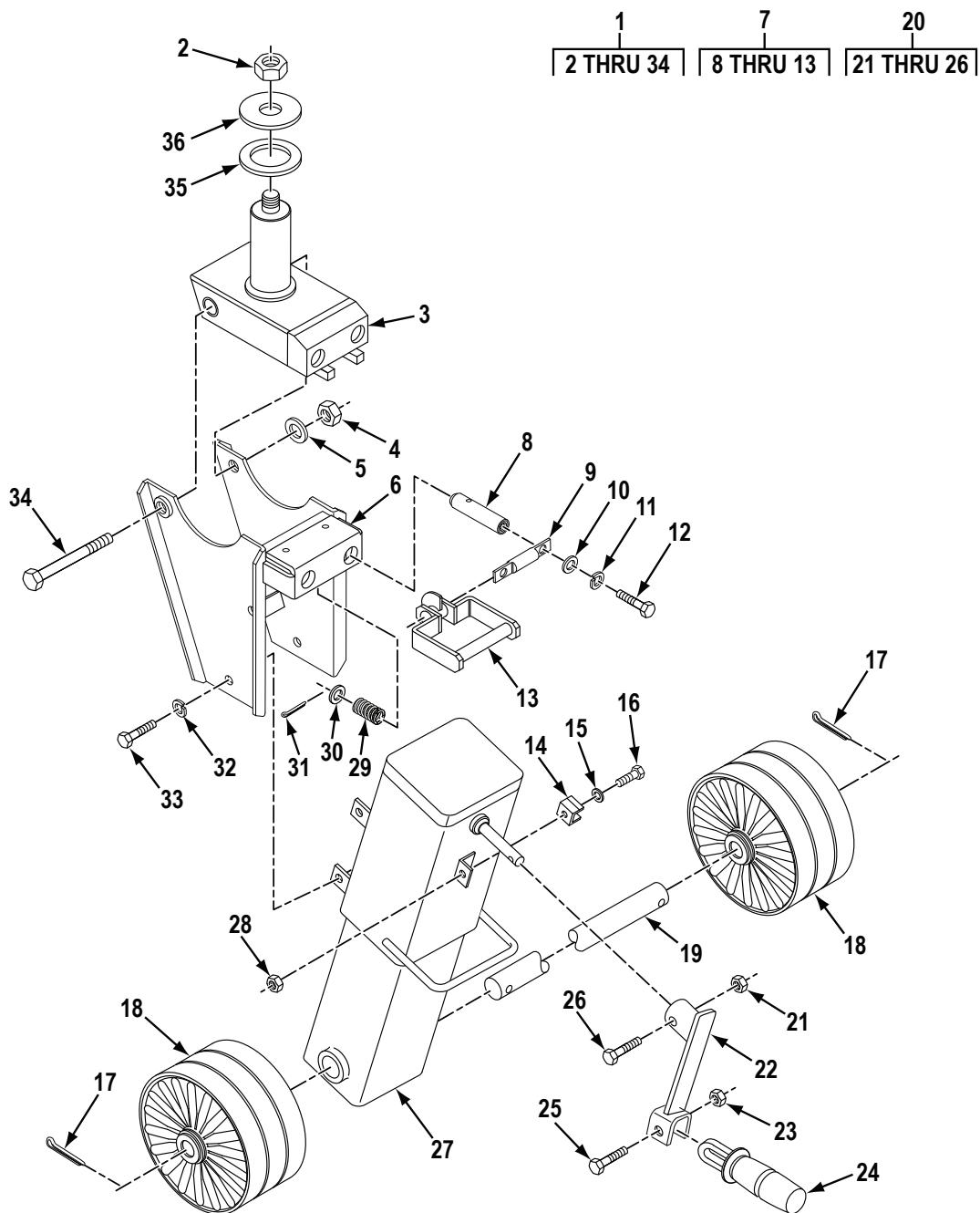
M149-R015

Figure 15. Faucet Box.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1501 FRAME ASSEMBLY						
1	PAFZZ	8115-01-086-1666	19207	7035452	FIG. 15. FAUCET BOX. BOX,SMALL PARTS R.H., NOT AVAILABLE AS ASSEMBLY..... 1	
2	PAFFF	2540-01-168-9876	19207	7035486	BOX,ACCESSORIES STO LEFT-HAND.... 1	
3	PAFZZ	5305-00-470-3321	96906	MS51849-74	. SCREW,MACHINE 3/16 - 24 X 1/2..... 12	
4	MFFZZ		19207	7037002-17	. HINGE,BUTT MAKE FROM P/N A- A-55590-16D (58536) 17 INCHES LONG.... 1	
5	PAFZZ	5310-00-934-9758	43551	06436	. NUT,PLAIN,HEXAGON 3/16 - 24..... 12	
6	PAFZZ	5310-00-045-3296	80205	MS35338-43	. WASHER,LOCK..... 12	
7	PAFZZ	5340-01-008-6088	19207	7034748	. COVER,ACCESS..... 1	
8	PAFZA	2510-00-769-7483	19207	7697483	. BRACKET HOOD CATCH..... 1	
9	PAFZZ	2590-00-040-2075	19207	10245310	. FASTENER,CYLINDER,S..... 1	
10	PAFZZ	2540-01-086-1667	19207	7035451	. BOX,ACCESSORIES STO LEFT..... 1	
11	PAFZZ	5305-00-267-8953	80204	B1821BH025F063N	SCREW,CAP,HEXAGON H 1/4 - 20 X 5/8..... 8	
12	PAFZZ	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK 1/4..... 8	
13	PAFZZ	5310-00-768-0319	96906	MS51968-2	NUT,PLAIN,HEXAGON 1/4 - 28..... 8	

END OF FIGURE

**FIELD MAINTENANCE
LANDING GEAR**



M149-R016

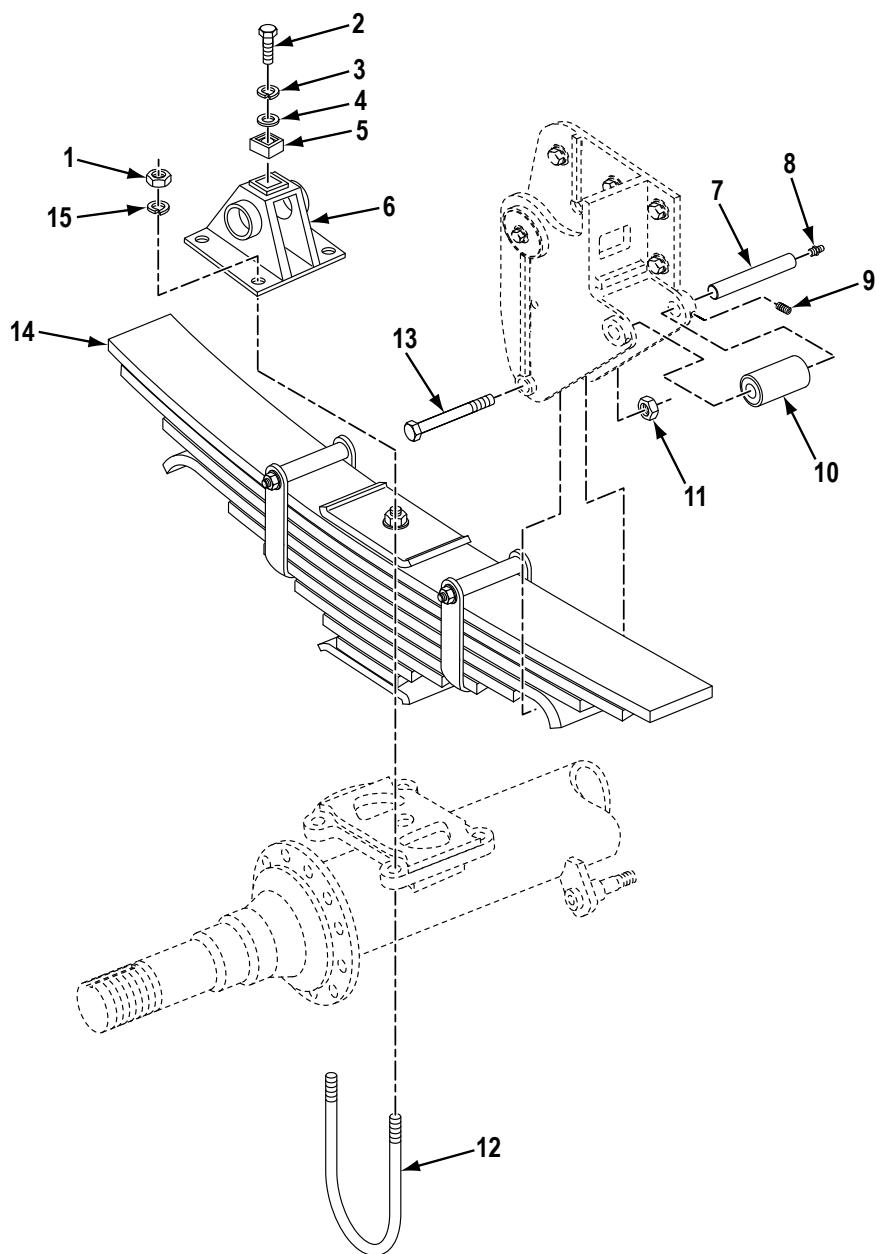
Figure 16. Landing Gear.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1507 LANDING GEAR, LEVELING JACKS						
FIG. 16. LANDING GEAR.						
1	PAFFF	2590-01-254-6554	19207	12259830-1	LEG,SEMITRAILER RET.....	1
2	PFFZZ	5310-00-982-6810	80205	MS21044N12	. NUT,SELF-LOCKING,HE 3/4 - 16.....	1
3	PFFZZ	2530-00-693-0736	19207	8331539	. SPINDLE,WHEEL,DRIVI.....	1
4	PFFZZ	5310-00-982-6808	80205	MS21044N9	. NUT,SELF-LOCKING,HE 9/16 - 18.....	1
5	PAFZZ	5310-00-823-8803	96906	MS27183-21	. WASHER,FLAT 5/8.....	1
6	PFFZZ	2590-01-210-8843	19207	12259839	. LEG,SEMITRAILER RET.....	1
7	PAFFF	5340-01-438-2335	19207	12461862	. HANDLE,MANUAL CONTR.....	1
8	PFFZZ	5315-01-439-7765	19207	12461861	.. PIN,STRAIGHT,HEADLE.....	2
9	XDFZZ		19207	12461860	.. PIN,SHOULDER,HEADLE.....	1
10	PFFZZ	5310-00-081-4219	96906	MS27183-12	.. WASHER,FLAT 5/16.....	2
11	PFFZZ	5310-00-407-9566	80205	MS35338-45	.. WASHER,LOCK 5/16.....	2
12	PFFZZ	5306-00-226-4826	80204	B1821BH031C088N	.. BOLT,MACHINE 5/16 - 18 X 7/8.....	2
13	PFFZZ	4730-01-440-5261	31902	12461859	.. HANDLE,WELDMENT,DOU.....	1
14	PFFZZ	5340-01-222-5247	19207	12312996	. CLIP,SPRING TENSION.....	1
15	PFFZZ	5310-00-014-5850	96906	MS27183-42	. WASHER,FLAT 3/16.....	1
16	PFFZZ	5305-00-989-7435	80205	MS35207-264	. SCREW,MACHINE 3/16 - 32 X 5/8.....	1
17	PFFZZ	5315-01-186-0829	80205	MS171656	. PIN,SPRING.....	2
18	PFFZZ	2530-01-215-3389	19207	12259845	. WHEEL,METAL TIRE.....	2
19	PFFZZ	3040-01-209-0497	19207	12259831	. SHAFT,STRAIGHT.....	1
20	PAFFF	5340-01-209-0475	19207	12259835	. CRANK,HAND.....	1
21	PFFZZ	5310-00-483-8792	80205	MS17829-4C	.. NUT,SELF-LOCKING,HE 1/4 - 20.....	1
22	PFFZZ	5340-01-209-0503	19207	12259840	.. ARM,HAND CRANK.....	1
23	PFFZZ	5310-00-660-3381	80205	MS21083N5	.. NUT,SELF-LOCKING,HE 5/16 - 24.....	1
24	PFFZZ	5340-01-209-0500	19207	12259837	.. HANDLE,MANUAL CONTR.....	1
25	PFFZZ	5305-00-225-9093	80205	MS90726-38	.. SCREW,CAP,HEXAGON H 5/16 - 24 X 1 1/2.....	1
26	PFFZZ	5305-00-068-0509	80204	B1821BH025C125N	.. SCREW,CAP,HEXAGON H 1/4 - 20 X 3/4.....	1
27	PFFZZ	2590-01-183-6816	19207	12259830	. SUPPORT,RETRACTABLE.....	1
28	PFFZZ	5310-00-877-5797	80205	MS21044N3	. NUT,SELF-LOCKING,HE 3/16 - 32.....	1
29	PFFZZ	5360-00-699-8489	19207	8331541	. SPRING,HELICAL,COMP.....	2
30	PFFZZ	5310-00-220-6848	0AHP5	27D252	. WASHER,FLAT 1 INCH.....	2

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
31	PFFZZ	5315-00-682-1777	80205	NAS561C8-24	. PIN,SPRING 1/4 DIA, 1 1/2 INCHES LONG.....	2
32	PFFZZ	5310-00-584-5272	80205	MS35338-48	. WASHER,LOCK 1/2.....	4
33	PFFZZ	5305-00-071-2066	80204	B1821BH050C100N	. SCREW,CAP,HEXAGON H 1/2 - 13 X 1.....	4
34	PFFZZ	5306-00-174-4246	19207	7979972	. BOLT,SHOULDER.....	1
35	PFFZZ	5310-00-270-8834	19207	8330813	WASHER,FLAT 2 INCH I.D.....	1
36	PAFZZ	5310-00-270-8832	19207	8330821	WASHER,FLAT 3/4.....	1

END OF FIGURE

**FIELD MAINTENANCE
LEAF SPRINGS**



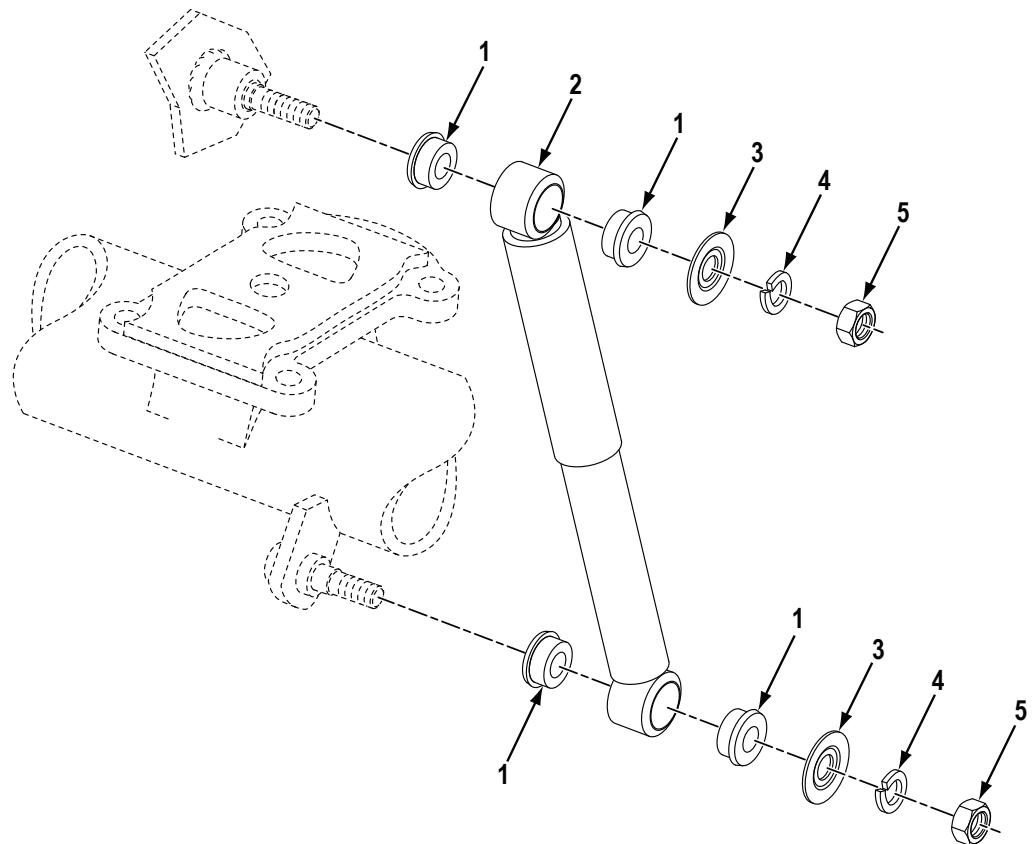
M149-R017

Figure 17. Leaf Springs.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1601 SPRINGS						
FIG. 17. LEAF SPRINGS.						
1	PAFZZ	5310-00-427-0043	19207	7411041	NUT,PLAIN,HEXAGON 3/4 - 16.....	8
2	PAFZZ	5305-00-068-0511	80204	B1821BH038C125N	SCREW,CAP,HEXAGON H 3/8 - 16 X 1 1/4.....	2
3	PAFZZ	5310-00-595-7237	80205	MS35333-42	WASHER,LOCK 3/8.....	2
4	PAFZZ	5310-00-809-4061	96906	MS27183-15	WASHER,FLAT 3/8.....	2
5	PCFZZ	5340-00-656-3638	19207	7522436	BUMPER.....	2
6	PAFZZ	3040-01-245-2522	19207	7350779	BRACKET,EYE,ROTATIN.....	2
7	PAFZZ	2510-00-056-4799	19207	8389735	PIN,VEHICULAR LEAF.....	4
8	PAFZZ	4730-00-050-4203	81343	AS15001-1	FITTING,LUBRICATION.....	8
9	PAFZZ	5305-00-728-6281	80205	MS51973-54	SETSCREW.....	4
10	PAFZZ	2510-00-017-9588	19207	10929946	ROLLER ASSEMBLY,HAN.....	4
11	PAFZZ	5310-00-225-6408	81349	M45913/1-10FG5C	NUT,SELF-LOCKING,HE 5/8 - 18.....	4
12	PAFZZ	5306-00-053-0512	19207	8389628	BOLT,U.....	4
13	PAFZZ	0000-00-000-0000	39428	91257A834	SCREW,CAP,HEX 5/8 - 18 X 6.....	4
14	PAFZZ	2510-00-056-2174	19207	8389626	SPRING ASSEMBLY,LEA.....	2
15	PAFZZ	5310-00-052-6454	96906	MS35340-51	WASHER,LOCK.....	8

END OF FIGURE

**FIELD MAINTENANCE
SHOCK ABSORBERS**



M149-R018

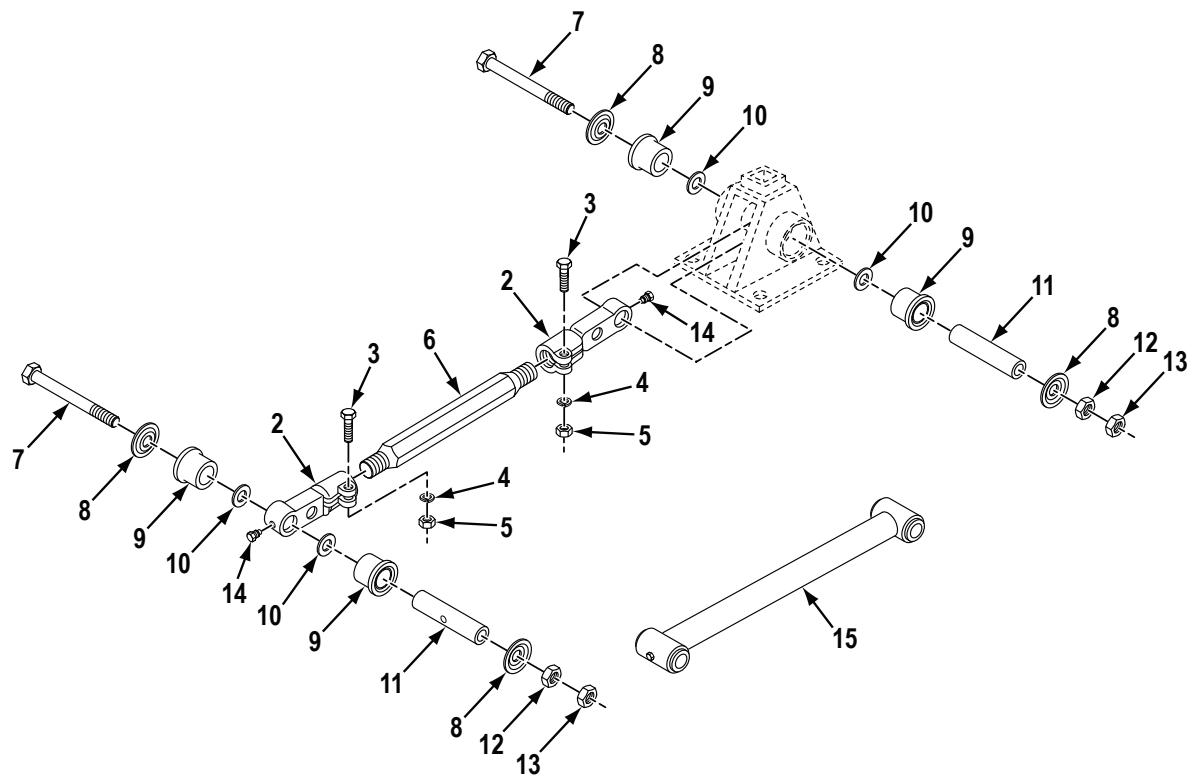
Figure 18. Shock Absorbers.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1604 SHOCK ABSORBER EQUIPMENT						
1	PCFZZ	5365-00-275-4519	19207	7339466	BUSHING,NONMETALLIC.....	8
2	PAFZZ	2510-00-886-8061	19207	8716992	SHOCK ABSORBER,DIRE.....	2
3	PAFZZ	5310-00-733-9465	19207	7339465	WASHER,RECESSED.....	4
4	PAFZZ	5310-00-004-5034	26916	004-003005-059	WASHER,LOCK 5/8.....	4
5	PAFZZ	5310-00-763-8905	96906	MS51968-20	NUT,PLAIN,HEXAGON 5/8-18.....	4

END OF FIGURE

**FIELD MAINTENANCE
RADIUS RODS**

1
[2 THRU 6]



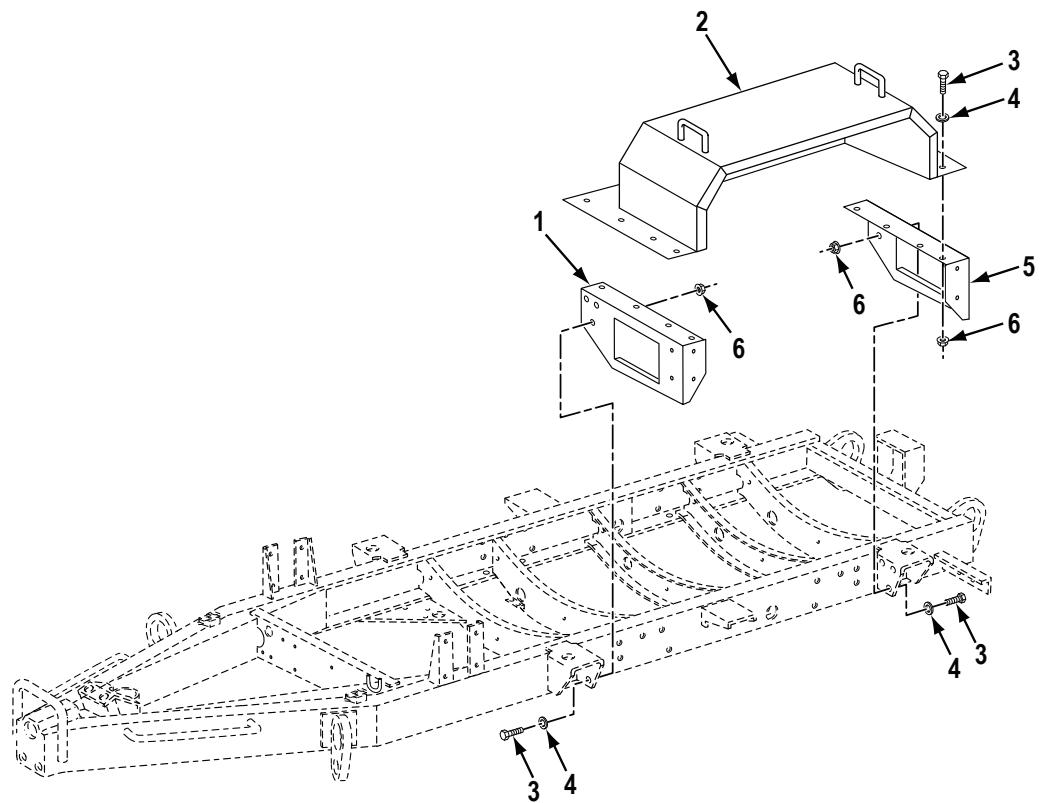
M149-R019

Figure 19. Radius Rods.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1605 TORQUE, RADIUS, AND STABILIZER RODS						
1	PAFFF	2530-01-093-8270	19207	7366478-1	FIG. 19. RADIUS RODS. ROD ASSEMBLY,RADIUS.....	1
2	PAFZZ	5340-00-427-0080	19207	7349016	. CONNECTOR,ROD END R.H.....	1
2	PAFZZ	5340-00-421-7242	19207	7349017	. CONNECTOR,ROD END L.H.....	1
3	PAFZZ	5305-00-719-5239	80204	B1821AH050F225N	. SCREW,CAP,HEXAGON H 1/2-20 X 2 1/4.....	2
4	PAFZZ	5310-00-584-5272	80205	MS35338-48	. WASHER,LOCK 1/2.....	2
5	PAFZZ	5310-00-732-0560	96906	MS51968-14	. NUT,PLAIN,HEXAGON 1/2 -20.....	2
6	PAFZZ	2530-01-093-8271	19207	7366480-1	. ROD,ALIGNING,VEHICU.....	1
7	PAFZZ	5305-00-726-2572	05047	AES01F625F00AW9	SCREW,CAP,HEXAGON H 5/8-18 X 6..... A91	4
8	PAFZZ	5310-00-424-1452	19207	7349028	WASHER,SHOULDERED 5/8.....	8
9	PCFZZ	5365-00-350-0155	19207	7974916	BUSHING,NONMETALLIC.....	8
10	PAFZZ	5310-00-424-1456	19207	7349029	WASHER,FLAT 1 1/4.....	8
11	PAFZZ	5365-00-624-0255	19207	7974917	SPACER,SLEEVE.....	4
12	PAFZZ	5310-00-835-2037	96906	MS35691-53	NUT,PLAIN,HEXAGON 5/8-18.....	4
13	PAFZZ	5310-00-763-8905	96906	MS51968-20	NUT,PLAIN,HEXAGON 5/8-18.....	4
14	PAFZZ	5305-00-679-3189	19207	8363970	SETSCREW 7/16-20 X 3/4.....	4
15	PAFZZ	2530-01-087-1003	19207	11625147	ROD ASSEMBLY,RADIUS R.H.....	1

END OF FIGURE

**FIELD MAINTENANCE
FENDERS**



M149-R020

Figure 20. Fenders.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1802 BODY, CAB, AND HULL						
FIG. 20. FENDERS.						
1	XDFZZ		19207	12447262-2	BRACE,FENDER LEFT FRONT AND RIGHT REAR.....	2
2	PAFZZ	2510-01-452-6480	19207	12447263	FENDER,VEHICULAR LEFT AND RIGHT SHORT CURRENT VERSION.....	2
2	PAFZZ	2510-01-452-6480	19207	7055109	FENDER,VEHICULAR LEFT AND RIGHT TALL EARLIER VERSIONS.....	2
3	PAFZZ	5305-00-068-0511	80204	B1821BH038C125N	SCREW,CAP,HEXAGON H 3/8-16 X 1 1/4.....	28
4	PAFZZ	5310-00-809-4061	96906	MS27183-15	WASHER,FLAT 3/8.....	28
5	PAFZZ	2510-01-452-6540	19207	12447262-1	BRACE,FENDER RIGHT FRONT AND LEFT REAR.....	2
6	PAFZZ	5310-00-087-4652	81349	M45913/1-6CG5C	NUT,SELF-LOCKING,HE 3/8-16.....	28

END OF FIGURE

**FIELD MAINTENANCE
WATER TANK, BODY BRACKETS, AND MANHOLE COVER**

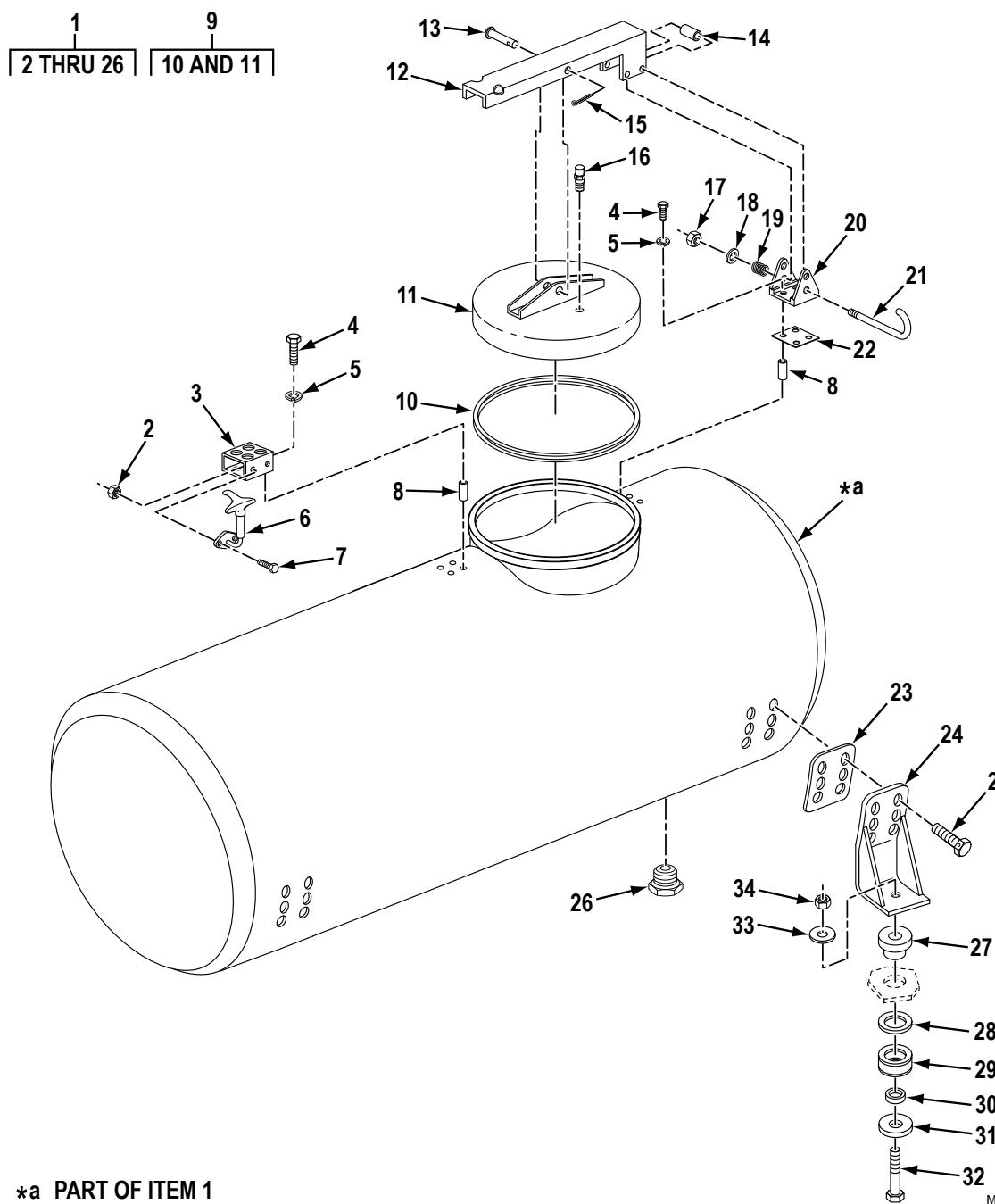


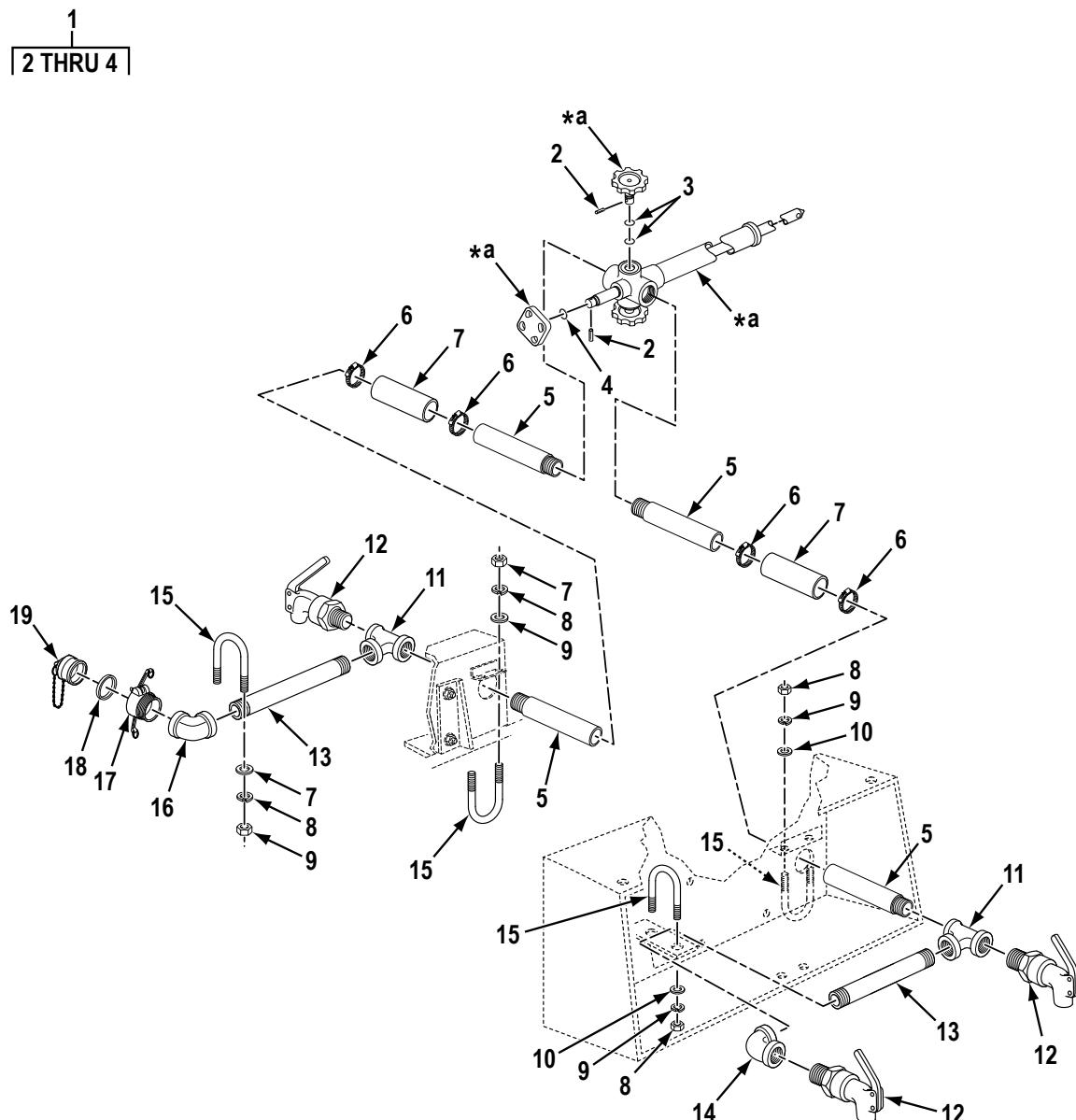
Figure 21. Water Tank, Body Brackets, and Manhole Cover.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1811 TANK BODIES						
FIG. 21. WATER TANK, BODY BRACKETS, AND MANHOLE COVER.						
1	PAFFF	2510-01-091-5167	19207	12269886	TANK,WATER,TRLR MTD.....	1
2	PAFZZ	5310-00-877-5796	80205	MS21044N4	. NUT,SELF-LOCKING,HE 1/4 - 28.....	4
3	PAFZZ	5340-01-096-5019	19207	12296217	. STRIKE,CATCH.....	1
4	PAFZZ	5305-00-207-2297	80205	MS35307-312	. SCREW,CAP,HEXAGON H 1/4 - 20 X 1 1/2.....	8
5	PAFZZ	5310-00-933-8121	80205	MS35338-139	. WASHER,LOCK 1/4.....	8
6	PAFZZ	2590-00-040-2075	19207	10245310	. FASTENER,CYLINDER,S.....	2
7	PAFZZ	5305-00-993-2738	80205	MS35207-280	. SCREW,MACHINE 1/4 - 28 X 5/8.....	4
8	PAFZZ	5365-01-380-5535	19207	12296261	. SPACER,SLEEVE.....	8
9	PAFFF	2510-01-095-2422	19207	12269951	. COVER,MANHOLE.....	1
10	PAFZZ	5330-01-317-9640	19207	12354242	.. SEAL,NONMETALLIC SP.....	1
11	XAFZZ		19207	12269958	.. COVER.....	1
12	PAFZZ	9520-01-087-3068	19207	12269960	. STRUCTURAL SECTION.....	1
13	PAFZZ	5315-00-904-1643	80205	MS20392-7C75	. PIN,STRAIGHT,HEADED.....	1
14	PFFZZ	5315-01-267-7578	19207	12269972	. PIN,HOLLOW.....	1
15	PAFZZ	5315-01-359-1451	80205	MS24665-285	. PIN,COTTER.....	1
16	PAFZZ	4820-00-856-1722	19207	7034882	. VALVE,VACUUM BREAKI.....	1
17	PAFZZ	5310-00-984-3807	81349	M45913/1-5FG5C	. NUT,SELF-LOCKING,HE 5/16 - 24.....	1
18	PAFZZ	5310-00-087-7493	96906	MS27183-13	. WASHER,FLAT 5/16.....	1
19	PAFZZ	5360-01-078-5574	81343	MS24585C507	. SPRING,HELICAL,COMP.....	1
20	PAFZZ	3040-01-254-5369	19207	12296219	. BRACKET,EYE,NONROTA.....	1
21	PAFZZ	5306-01-088-1962	19207	12269970	. BOLT,HOOK.....	1
22	PAFZZ	5365-01-380-2715	19207	12331705-1	. SPACER,PLATE SHIM HINGE.....	1
22	PAFZZ	5365-01-380-2806	19207	12331705-2	. SPACER,PLATE SHIM HINGE.....	1
22	PAFZZ	5365-01-380-2891	19207	12331705-3	. SHIM HINGE BRACKET.....	1
22	PAFZZ	5365-01-380-2796	19207	12331705-4	. SHIM HINGE BRACKET.....	1
23	PAFZZ	5330-01-084-5991	19207	12269895 REV C	. GASKET.....	4
24	PAFZZ	5340-01-343-1795	19207	12331710	. BRACKET,DOUBLE ANGL.....	4
25	PAFZZ	5305-00-269-3238	80204	B1821BH038F125N	. SCREW,CAP,HEXAGON H 3/8 - 24 X 1 1/4.....	24
26	PAFZZ	4730-01-086-1620	19207	8741782-1	. PLUG,PIPE.....	1
27	PCFZZ	5342-00-537-2212	19207	8331543	MOUNT,RESILIENT,WEA.....	4
28	PAFZZ	5310-01-130-1226	19207	11597768	WASHER,FLAT 1 7/16.....	4

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
29	PAFZZ	5330-00-575-9791	19207	8331544	PACKING WITH RETAIN.....	4
30	PAFZZ	5365-01-432-8664	19207	12355810	SPACER,PLATE.....	4
31	PAFZZ	5310-01-432-6741	19207	12355811	WASHER,FLAT 5/8.....	4
32	PAFZZ	5305-00-726-2558	80204	B1821BH063F375N	SCREW,CAP,HEXAGON H 5/8 - 18 X 3 3/4.....	4
33	PAFZZ	5310-01-372-9444	96906	MS27183-63	WASHER,FLAT 5/8.....	4
34	PAFZZ	5310-00-225-6408	81349	M45913/1-10FG5C	NUT,SELF-LOCKING,HE 5/8 - 18.....	4

END OF FIGURE

**FIELD MAINTENANCE
FAUCETS, MAIN VALVES, AND PIPES**

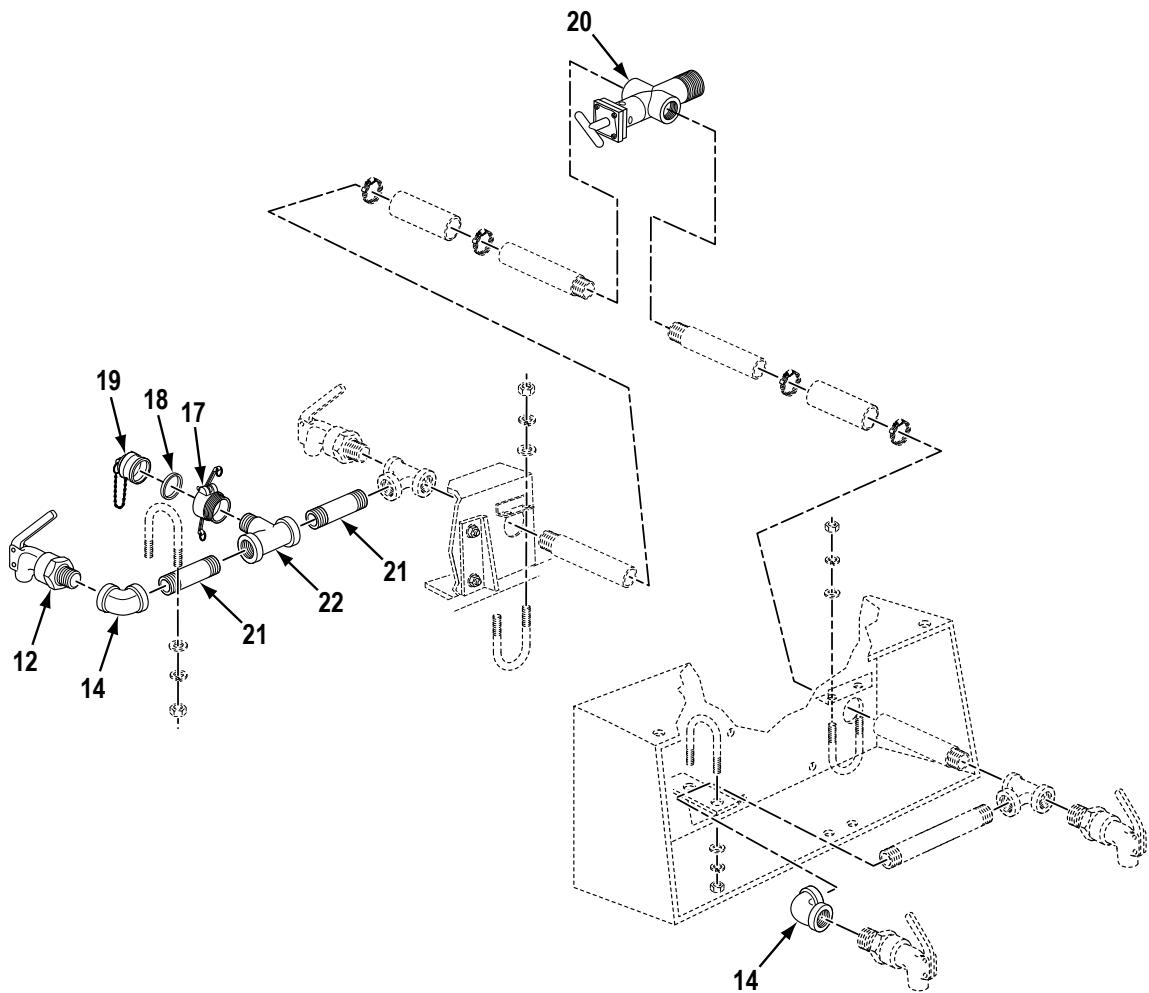


M149A2 CURRENT CONFIGURATION

*a PART OF ITEM 1

M149-R022_2

Figure 22. Faucets, Main Valves, and Pipes (Sheet 1 of 2).

**M149A2 EARLY CONFIGURATION*****a PART OF ITEM 1**

M149-R022_1

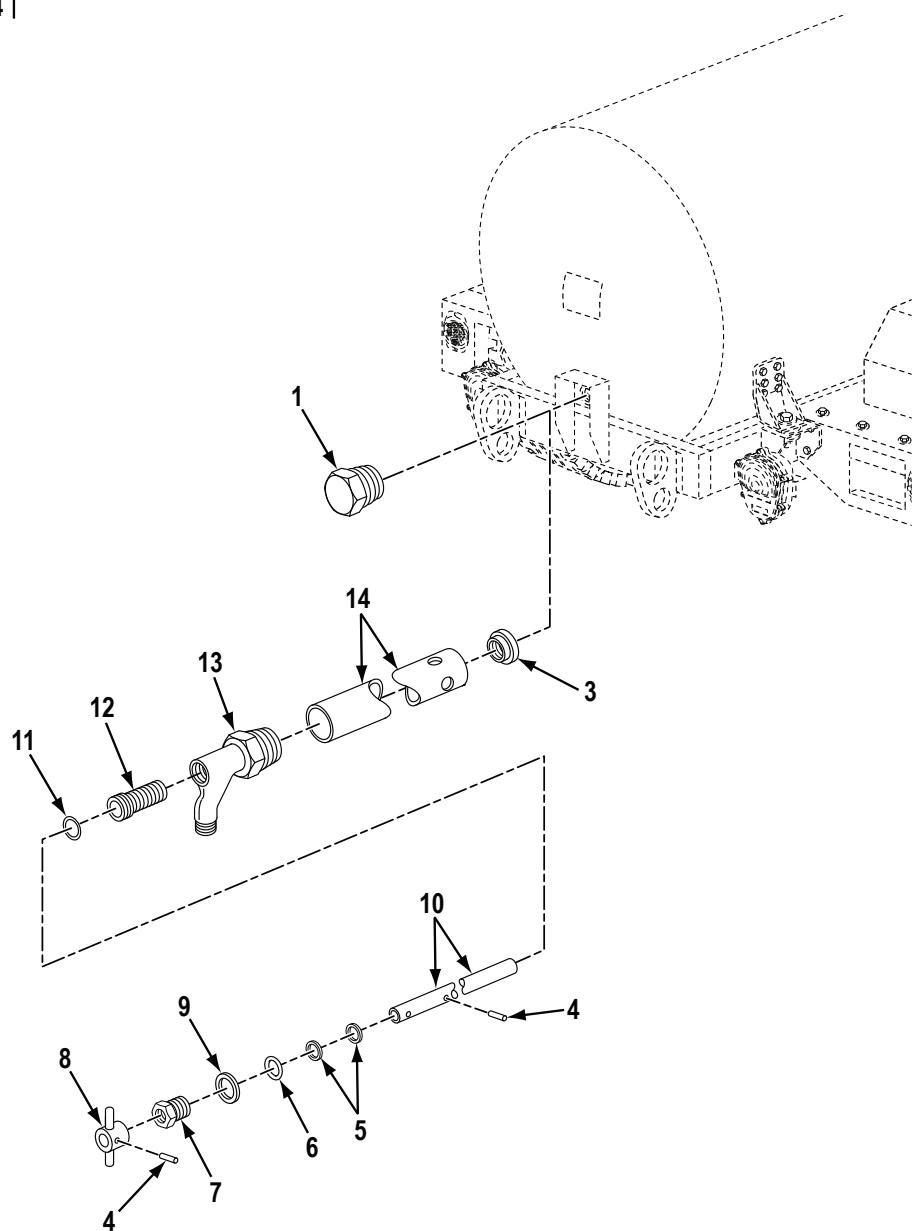
Figure 22. Faucets, Main Valves, and Pipes (Sheet 2 of 2).

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1811 TANK BODIES						
FIG. 22. FAUCETS, MAIN VALVES, AND PIPES.						
1	PAFFF	4820-01-384-7555	3W359	70-2351	VALVE ASSEMBLY,MANI.....	1
2	PAFZZ	5315-00-841-4442	80205	MS16562-224	. PIN,SPRING.....	2
3	PCFZZ	5331-01-183-0990	81343	M83461/1-224	. O-RING.....	2
4	PCFZZ	5331-01-182-7410	81343	M83461/1-210	. O-RING.....	1
5	PAFZZ	4730-00-168-2075	19207	7065947	ADAPTER,STRAIGHT,PI.....	4
6	PAFZZ	4730-00-909-8627	58536	AA52506-F-36	CLAMP,HOSE.....	4
7	PAFZZ	4720-01-440-9299	19207	8724753-1	HOSE ASSEMBLY,NONME.....	2
8	PAFZZ	5310-00-905-0762	96906	MS51967-3	NUT,PLAIN,HEXAGON 1/4 - 20.....	8
9	PAFZZ	5310-00-550-1130	80205	MS35333-40	WASHER,LOCK 1/4.....	8
10	PAFZZ	5310-00-809-4058	96906	MS27183-10	WASHER,FLAT 1/4.....	8
11	PAFZZ	4730-01-433-2618	96906	MS14309-30	TEE,PIPE M149A2 CURRENT CONFIGURATION.....	2
12	PAFZZ	4510-01-433-0396	1SF47	7034881	FAUCET,SINGLE M149A1 AND EARLY M149A2 CONFIGURATION.....	4
12	PAFZZ	4510-01-433-0396	1SF47	7034881	FAUCET,SINGLE M149A2 CURRENT CONFIGURATION.....	3
13	PAFZZ	4730-00-168-2074	19207	7035450	NIPPLE,PIPE.....	3
14	PAFZZ	4730-00-253-5765	96906	MS14308-8	ELBOW,PIPE.....	3
15	PAFZZ	5306-00-937-1312	19207	8724754	BOLT,U.....	4
16	PAFZZ	4730-01-433-2623	96906	MS14308-7	ELBOW,PIPE M149A2 CURRENT CONFIGURATION.....	1
17	PAFZZ	4730-00-084-7436	58536	AA59326/7-3-B-2	COUPLING HALF,QUICK M149A2 CURRENT CONFIGURATION.....	1
18	PCFZZ	5330-00-088-9167	96906	MS27030-3	GASKET M149A2 CURRENT CONFIGURATION.....	1
19	PAFZZ	4730-01-036-7498	58536	AA59326/11-3 CL B STL 2	PLUG,QUICK DISCONNE M149A2 CURRENT CONFIGURATION.....	1
20	PAFZZ	4820-00-863-5592	19207	7039673	VALVE,STOP-CHECK.....	1
21	PAFZZ	4730-00-196-2017	81346	B687R-122B	NIPPLE,PIPE M149A1 AND EARLY M149A2 CONFIGURATION.....	2
22	PAFZZ	4730-01-134-6995	96906	MS14309-24	TEE,PIPE M149A1 AND EARLY M149A2 CONFIGURATION.....	1

END OF FIGURE

**FIELD MAINTENANCE
REAR FAUCET**

2
3 THRU 14



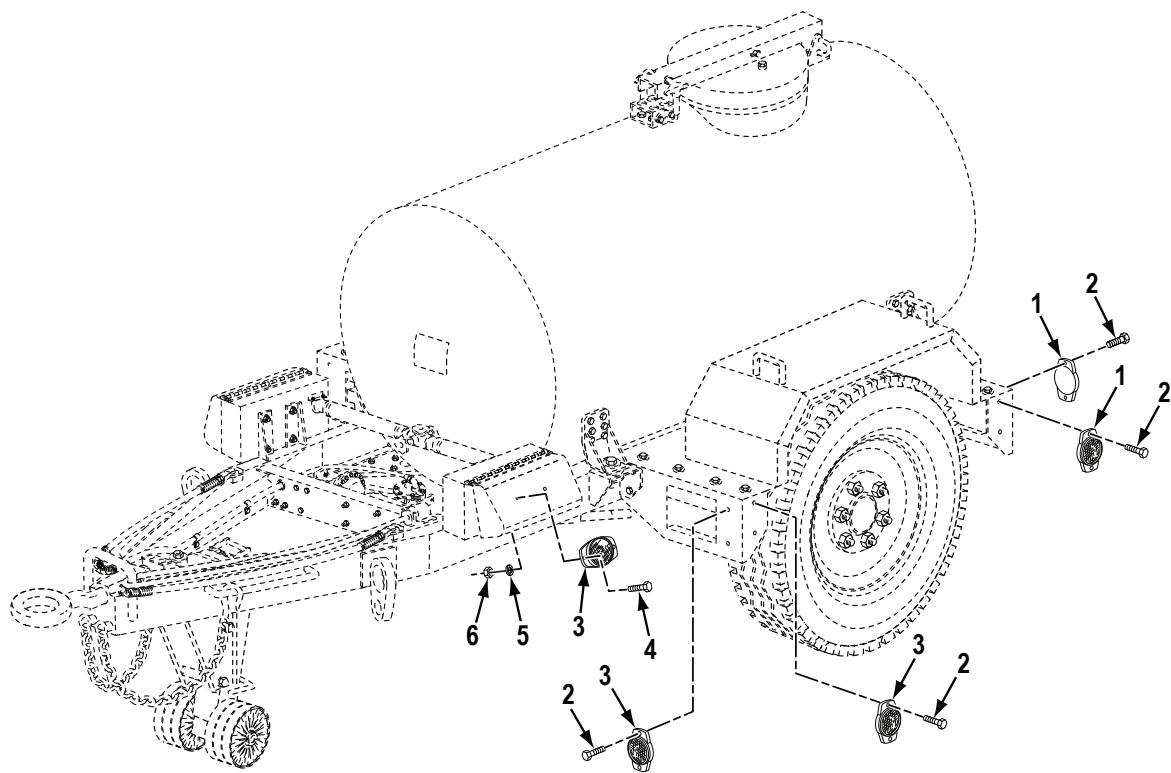
M149-R023

Figure 23. Rear Faucet.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 1811 TANK BODIES						
FIG. 23. REAR FAUCET.						
1	XDFZZ		39428	4464K336	PLUG,PIPE.....	1
2	PAFFF	4510-01-092-4045	19207	12296243	FAUCET,SINGLE.....	1
3	XAFZZ		86594	A19-17-13	. SEAT,NUT.....	1
4	PAFZZ	5315-00-841-4442	80205	MS16562-224	. PIN,SPRING.....	2
5	XAFZZ		86594	A19-17-11-6	. WASHER,FLAT.....	2
6	PCFZZ	5331-00-585-6663	96906	MS28775-110	. O-RING.....	1
7	XDFZZ		0BJH0	A19-17-11-5	. LOCKNUT,PIPE.....	1
8	PAFZZ	4510-01-100-9349	4J828	C-134KT-805	. HANDLE,FAUCET.....	1
9	XBFZZ		02697	6723	. RING,SPACER.....	1
10	XAFZZ		86594	A19-17-9	. VALVE,GATE.....	1
11	PCFZZ	5331-00-582-2855	81343	MS28775-113	. O-RING.....	1
12	XAFZZ		86594	A19-17-12	. SEAT,VALVE.....	1
13	XAFZZ		86594	A19-17-8	. BODY.....	1
14	XAFZZ		86594	A19-17-10	. TUBE.....	1

END OF FIGURE

**FIELD MAINTENANCE
REFLECTOR**



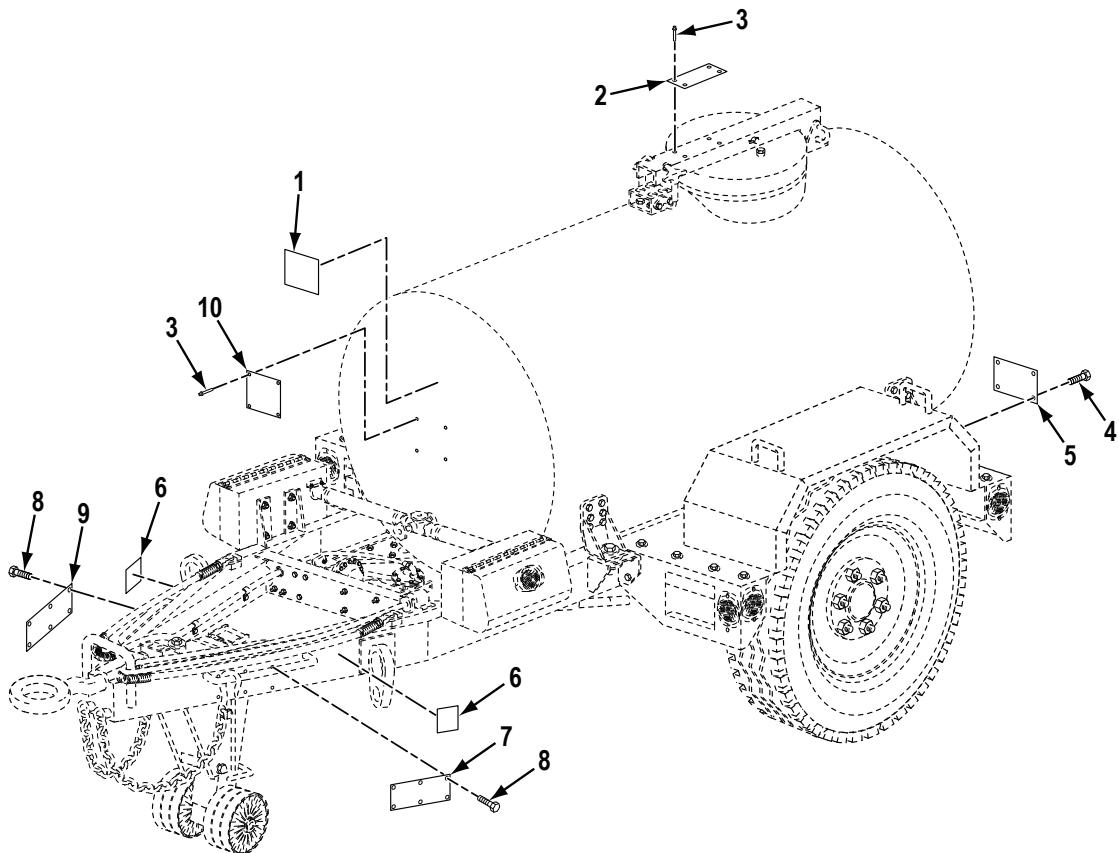
M149-R024

Figure 24. Reflector.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 2202 ACCESSORY ITEMS						
1	PAFZZ	9905-00-205-2795	19207	6161059A	FIG. 24. REFLECTOR. REFLECTOR,INDICATIN.....	4
2	PAFZZ	5305-00-253-5633	80205	MS21318-59	SCREW,DRIVE.....	16
3	PAFZZ	9905-00-202-3639	19207	7348221	REFLECTOR,INDICATIN.....	6
4	PAFZZ	5305-00-068-0500	89646	132848	SCREW,CAP,HEXAGON H 1/4 - 20 X 1/2.....	4
5	PAFZZ	5310-00-582-5965	80205	MS35338-44	WASHER,LOCK.....	4
6	PAFZZ	5310-00-761-6882	96906	MS51967-2	NUT,PLAIN,HEXAGON 1/4 - 20.....	4

END OF FIGURE

**FIELD MAINTENANCE
DATA PLATES AND DECALS**



M149-R025

Figure 25. Data Plates and Decals.

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
GROUP 2210 DATA PLATES						
FIG. 25. DATA PLATES AND DECALS.						
1	PAFZZ	7690-01-362-6547	19207	12362734	DECAL.....	1
2	PFFZZ	9905-01-435-3496	19207	12355946	PLATE,IDENTIFICATIO.....	1
3	PAFZZ	5305-00-850-5841	80205	MS21318-37	SCREW,DRIVE.....	4
4	PAFZZ	5305-00-052-6921	80205	MS24629-57	SCREW,TAPPING.....	4
5	XDFZZ		19207	12362732	PLATE,IDENTIFICATI.....	1
6	PCFZZ	7690-01-446-1396	19207	12441062	LABEL WARNING, LANDING LEG.....	2
7	PAFZZ	9905-01-333-0796	19207	12331771	PLATE,IDENTIFICATIO.....	1
8	PAFZZ	5305-00-253-5633	80205	MS21318-59	SCREW,DRIVE.....	12
9	PAFZZ	9905-01-086-1580	19207	12269949	PLATE,IDENTIFICATIO.....	1
10	PAFZZ	9905-01-097-7047	19207	10929816-1	PLATE,IDENTIFICATIO.....	1

END OF FIGURE

**FIELD MAINTENANCE
KITS**

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
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GROUP 9401 REPAIR KITS**FIG. KITS.**

1	PAFZZ	4330-00-696-0351	06721	RN-13-A	PARTS KIT,FLUID PRE.....	1
					FILTER,ELEMENT,FL (001) U	10-6
					GASKET (001)	10-9
					SPRING,HELICAL (001)	10-8

END OF FIGURE

**FIELD MAINTENANCE
BULK**

(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
--------------------	-----------------	------------	--------------	--------------------	--	------------

GROUP 9501 BULK MATERIALS**FIG. BULK.**

1	PAFZZ	5340-01-189-9985	58536	A-A-55590-16D	HINGE,BUTT.....	1
2	PAFZZ	4720-01-014-4915	81343	J844TYBSIZE 3/8 BLACK	TUBING,NONMETALLIC.....	1
3	PAFZZ	5975-00-345-8055	19207	10905840	STRAP,TIEDOWN,ELECT.....	1
4	PAFZZ	4710-00-541-6887	53711	1756543	TUBE,METALLIC.....	1
5	PAFZZ	4710-00-200-0277	81349	M3520-A40G02B	TUBE,METALLIC.....	1
6	PCFZZ	4720-00-489-5350	81343	J20R1 CLASS C	HOSE,NONMETALLIC.....	1

END OF FIGURE

**FIELD MAINTENANCE
NATIONAL STOCK NUMBER INDEX**

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
0000-00-000-0000	2	11		7	2
	3	15		20	6
	9	29	5310-00-087-7493	21	18
	9	34	5330-00-088-9167	22	18
	10	5	3110-00-100-5951	12	13
	10	7	2530-00-106-4377	11	18
	10	11	5305-00-115-9526	1	10
	11	1		8	3
	11	6	3040-00-150-7127	6	10
0000-00-000-0000	17	13	2530-00-159-8755	6	26
5310-00-004-5034	18	4	2530-00-159-8756	6	22
4730-00-014-2432	9	28	5310-00-167-0721	6	13
5310-00-014-5850	16	15	4730-00-168-2074	22	13
2510-00-017-9588	17	10	4730-00-168-2075	22	5
4720-00-018-2296	10	3	5306-00-174-4246	16	34
6240-00-019-3093	1	8	6220-00-179-4324	1	2
2530-00-021-2366	11	13	4730-00-196-1505	11	12
2530-00-026-0200	11	17	4730-00-196-2017	22	21
2590-00-040-2075	15	9	4710-00-200-0277	BULK	5
	21	6	9905-00-202-3639	24	3
5310-00-044-6284	14	18	2530-00-204-4800	7	4
6240-00-044-6914	1	7	9905-00-205-2795	24	1
5310-00-045-3296	15	6	5306-00-206-1560	12	3
4730-00-050-4203	14	21	5305-00-207-2297	21	4
	17	8	5310-00-220-6848	16	30
5310-00-052-6454	17	15	5310-00-225-6408	17	11
5305-00-052-6921	25	4		21	34
5306-00-053-0512	17	12	5305-00-225-9093	16	25
2510-00-056-2174	17	14	5306-00-226-4825	5	6
2510-00-056-4799	17	7	5306-00-226-4826	16	12
5999-00-057-2929	3	2	5940-00-230-0515	2	3
4730-00-057-5555	11	10	5315-00-234-1664	14	20
2640-00-060-3550	13	5	5330-00-246-8223	12	17
5305-00-068-0500	24	4	5305-00-253-5633	24	2
5305-00-068-0506	9	31		25	8
5305-00-068-0509	16	26	4730-00-253-5765	22	14
5305-00-068-0511	7	3	5310-00-261-7340	8	4
	17	2	5305-00-267-8953	15	11
	20	3	5305-00-269-2804	6	51
5306-00-068-0513	3	13	5305-00-269-3238	21	25
5305-00-068-0515	6	43	5305-00-269-3241	6	50
4730-00-069-1186	11	7	5310-00-270-8832	16	36
5305-00-071-2066	16	33	5310-00-270-8834	16	35
3040-00-074-2357	6	10	5365-00-274-4544	9	8
5310-00-080-6004	12	5		9	11
5310-00-081-4219	16	10		9	19
4730-00-084-7436	22	17	5365-00-275-4519	18	1
5310-00-087-4652	5	1	5310-00-275-6635	9	32

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5325-00-276-6098	3	14	4710-00-566-7134	9	23
4730-00-278-8825	11	2	5935-00-572-9180	3	4
4730-00-278-8886	9	36	5340-00-574-8356	7	1
5340-00-281-1444	10	2	5330-00-575-9791	21	29
5340-00-281-1446	10	15	4730-00-580-8457	10	10
5330-00-285-5123	10	9	5331-00-582-2855	23	11
4010-00-286-5645	14	16	5310-00-582-5965	3	12
5325-00-290-3777	3	17		6	29
4730-00-293-7108	11	4		9	37
5310-00-314-0764	6	5		10	13
	6	38		12	15
5310-00-314-0765	6	4		15	12
	6	40		24	5
5310-00-322-7260	6	3	5310-00-584-5272	14	5
	6	39		16	32
5315-00-322-7261	6	6		19	4
	6	36	5331-00-585-6663	23	6
3040-00-330-3262	5	13	4730-00-595-0083	10	17
5306-00-335-4768	12	10	5310-00-595-7237	17	3
5975-00-345-8055	BULK	3	5340-00-611-7883	3	19
3120-00-347-5900	14	8	5365-00-624-0255	19	11
5365-00-350-0155	19	9	5310-00-627-6128	6	48
5306-00-383-4957	12	7	4710-00-630-9928	9	4
5940-00-399-6676	2	5	5310-00-637-9541	1	9
	3	8		5	11
5310-00-407-9566	5	8		11	19
	11	15	5305-00-638-8920	5	14
	16	11	5310-00-641-9939	6	41
5342-00-408-9177	5	5	5310-00-655-9599	12	6
4730-00-419-9425	9	3	5340-00-656-3638	17	5
	9	10	5310-00-660-3381	16	23
	9	20	2530-00-677-0202	12	2
5340-00-421-7242	19	2	5305-00-679-3189	19	14
5310-00-424-1452	19	8	5315-00-682-1777	16	31
5310-00-424-1456	19	10	2530-00-693-0736	16	3
5310-00-427-0043	17	1	2530-00-693-1007	6	7
5340-00-427-0080	19	2		6	35
5331-00-462-0907	1	3	4330-00-696-0351	KITS	1
4730-00-463-1588	9	14	5360-00-699-8489	16	29
5305-00-470-3321	15	3	5360-00-699-9018	6	42
5310-00-475-1299	6	17	5360-00-706-9054	10	8
5310-00-483-8792	16	21	5305-00-719-5235	14	2
4720-00-489-5350	BULK	6	5305-00-719-5239	19	3
4710-00-511-1692	7	7	5305-00-726-2558	21	32
2530-00-522-1157	6	46	5305-00-726-2572	19	7
5306-00-523-7535	6	18	5305-00-728-6281	17	9
5342-00-537-2212	21	27	4730-00-729-6437	9	7
4710-00-541-6887	BULK	4		9	12
5310-00-543-4385	9	26		9	18
5310-00-550-1130	22	9	2530-00-730-7620	6	1
5310-00-550-3503	6	9	2530-00-730-7621	6	1
	6	34	5310-00-732-0558	11	20
4710-00-566-7133	9	21	5310-00-732-0559	6	49

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-00-732-0560	14	6	4710-00-791-8077	9	1
	19	5	4710-00-791-8078	9	16
5310-00-733-9465	18	3	2530-00-794-9763	6	46
2530-00-737-3260	8	2	2530-00-797-9295	10	4
5330-00-737-3354	7	5	5306-00-797-9296	10	12
5310-00-741-1028	14	19	2530-00-798-4812	6	19
2940-00-741-1081	10	6	2530-00-798-4824	6	23
5310-00-741-1378	12	19	5340-00-809-1490	9	30
5310-00-741-1379	12	18	5310-00-809-3078	2	12
2530-00-741-1425	12	4		3	16
5330-00-741-1429	12	12	5310-00-809-4058	22	10
5365-00-741-1433	12	9	5310-00-809-4061	17	4
5306-00-741-1760	6	27		20	4
4730-00-741-1903	9	5	5310-00-823-8803	16	5
	9	22	5935-00-833-8561	2	7
4710-00-741-1907	9	6		3	6
2530-00-741-2050	8	5	5970-00-833-8562	2	6
2530-00-741-2065	8	1		3	7
2530-00-741-2068	8	5	5310-00-833-8567	3	3
5310-00-741-2088	9	2	5310-00-835-2037	9	27
	9	9		19	12
	9	17	5315-00-841-4442	22	2
5365-00-741-2103	6	45		23	4
3020-00-741-2104	6	14	9905-00-841-4445	3	5
5315-00-741-2106	6	47	5315-00-842-3044	5	12
5310-00-741-2120	6	15		14	14
2530-00-741-3231	12	11	4820-00-849-1220	11	9
9905-00-752-4649	2	8	5305-00-850-5841	25	3
	3	9	5310-00-853-9335	6	12
5310-00-761-6882	6	30	4730-00-854-6931	9	33
	10	14	4820-00-856-1722	21	16
	24	6	4820-00-863-5592	22	20
5310-00-763-8905	18	5	4710-00-863-5594	9	13
	19	13	4710-00-863-5595	9	15
5310-00-763-8922	14	9	2530-00-863-5596	5	7
5310-00-768-0319	3	10	5310-00-877-5796	21	2
	9	38	5310-00-877-5797	16	28
	15	13	5310-00-880-7746	5	9
2510-00-769-7483	15	8		11	16
2530-00-770-9149	6	20	2510-00-886-8061	18	2
	6	25	9905-00-893-3570	2	9
5305-00-770-9150	6	24	5310-00-903-3993	6	8
2530-00-770-9151	6	21		6	33
4730-00-773-2163	7	6	5315-00-904-1643	21	13
4720-00-774-4040	9	25	5310-00-905-0762	22	8
2530-00-774-9401	6	2	5360-00-906-7923	2	2
2530-00-774-9402	6	2	4730-00-908-3194	7	8
2530-00-774-9403	6	32	4730-00-909-8627	22	6
5340-00-776-3264	6	28	5310-00-924-4218	6	44
6150-00-777-3068	2	1	5310-00-933-8121	21	5
2530-00-791-0110	6	11	5310-00-934-9758	15	5
2530-00-791-3259	6	11	5310-00-935-3569	12	8
	6	16	5306-00-937-1312	22	15

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5315-00-957-0765	14	13		10	1
5310-00-959-1488	9	24	2540-01-168-9876	15	2
2530-00-973-2355	6	37	2590-01-178-7374	3	1
2530-00-973-2356	6	37	5331-01-182-7410	22	4
5310-00-975-2075	5	4	5331-01-183-0990	22	3
5310-00-982-6808	16	4	2590-01-183-6816	16	27
5310-00-982-6810	16	2	5315-01-186-0829	16	17
5310-00-984-3807	21	17	5340-01-189-9985	BULK	1
5340-00-985-0823	5	3	2330-01-196-9062	14	1
5342-00-987-2565	6	31	5340-01-209-0475	16	20
5305-00-988-1723	12	14	3040-01-209-0497	16	19
5305-00-989-7435	16	16	5340-01-209-0500	16	24
5342-00-991-4342	6	31	5340-01-209-0503	16	22
5305-00-993-2738	21	7	5315-01-210-2034	5	2
2540-00-999-5584	14	17	2590-01-210-8843	16	6
5340-01-008-6088	15	7	2530-01-215-3389	16	18
4720-01-014-4915	11	8	5340-01-222-5247	16	14
	BULK	2	3040-01-245-2522	17	6
4730-01-036-7498	22	19	3040-01-254-5369	21	20
2530-01-038-2047	4	1	2590-01-254-6554	16	1
5340-01-041-5052	2	4	2530-01-261-2547	6	32
2530-01-042-0683	11	11	5315-01-267-7578	21	14
5306-01-043-5702	11	14	6220-01-284-2709	1	6
5340-01-048-2239	3	11	6220-01-297-3217	1	5
2610-01-063-7947	13	2	5330-01-317-9640	21	10
6220-01-067-4717	1	4	9905-01-333-0796	25	7
5360-01-078-5574	21	19	5340-01-343-1795	21	24
4730-01-079-8821	11	3	5315-01-359-1451	21	15
2530-01-083-5641	6	16	7690-01-362-6547	25	1
5330-01-084-5991	21	23	5310-01-372-9444	21	33
5360-01-085-5570	5	10	4010-01-379-0918	14	15
9905-01-086-1580	25	9	5365-01-380-2715	21	22
4730-01-086-1620	21	26	5365-01-380-2796	21	22
8115-01-086-1666	15	1	5365-01-380-2806	21	22
2540-01-086-1667	15	10	5365-01-380-2891	21	22
2530-01-087-1003	19	15	5365-01-380-5535	21	8
9520-01-087-3068	21	12	4820-01-384-7555	22	1
5306-01-088-1962	21	21	4730-01-420-8036	11	5
2510-01-091-5167	21	1	5310-01-432-6741	21	31
4510-01-092-4045	23	2	5365-01-432-8663	14	7
6220-01-093-4439	1	1	5365-01-432-8664	21	30
2530-01-093-8270	19	1	4510-01-433-0396	22	12
2530-01-093-8271	19	6	4730-01-433-2618	22	11
2510-01-095-2422	21	9	4730-01-433-2623	22	16
5340-01-096-5019	21	3	9905-01-435-3496	25	2
9905-01-097-7047	25	10	5340-01-438-2335	16	7
4510-01-100-9349	23	8	5315-01-439-7765	16	8
7690-01-111-2265	7	10	4730-01-440-5261	16	13
5310-01-130-1226	21	28	4720-01-440-9299	22	7
4730-01-134-6995	22	22	9905-01-441-1063	10	16
5305-01-137-3938	2	10	7690-01-446-1396	25	6
	3	18	2510-01-452-6480	20	2
	9	35	2510-01-452-6540	20	5

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
4010-01-458-3852	14	11	2640-01-522-2413	13	4
2530-01-491-9908	12	16	5310-01-533-3410	14	10
4030-01-501-6946	14	12	6210-01-550-0490	1	11
5330-01-504-8610	10	18	2640-01-588-9171	13	3
5330-01-504-8614	10	18	2530-01-611-7619	13	1
5310-01-518-7455	12	1			

END OF WORK PACKAGE

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PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
A-A-52464B	14	17	F9556	8	5
A-A-52506-F-12	7	8	FC-17758	6	6
A-A-52611-4-1-TRVC2	13	5		6	36
A-A-55590-16D	BULK	1	FC22219	6	20
A-A-59440/1-005	11	9		6	25
A19-17-10	23	14	FC602	9	32
A19-17-11-5	23	7	FD13351	9	6
A19-17-11-6	23	5	FD17751	6	37
A19-17-12	23	12	FE14240	7	4
A19-17-13	23	3	FE17748	6	32
A19-17-8	23	13	FE19579	6	11
A19-17-9	23	10	FE19580	6	11
A2303-12-51PC6	8	4	FF-W-92 TY A GR 1 CL A	14	18
A52484-1	10	17	J20R1 CLASS C	BULK	6
A52485-2	11	13	J20R1 CLASS C-12	7	9
A733S-101CFG	11	12	J844TYBSIZE 3/8 BLACK	11	8
AA52463-A09	1	8		BULK	2
AA52506-F-36	22	6	J844TYBSIZE 3/8 BLACK-29	11	1
AA52536-2	3	2	J844TYBSIZE 3/8 BLACK-8	11	6
AA59326/11-3 CL B STL 2	22	19	M3520-A40G02B	BULK	5
AA59326/7-3-B-2	22	17	M43436/1-2	3	5
AES01F500A75AW9A91	14	2	M43436/1-3	2	9
AES01F625F00AW9A91	19	7	M45913/1-10FG5C	17	11
AS15001-1	14	21		21	34
	17	8	M45913/1-5FG5C	21	17
AS4862SIZE01 MOD	10	11	M45913/1-6CG5C	5	1
B1821AH050F225N	19	3		7	2
B1821BH025C125N	16	26		20	6
B1821BH025F063N	15	11	M45913/2-6FG5C	9	24
B1821BH025F100N	6	43	M45913/3-12FG8C	12	8
B1821BH031C075N	5	6	M83461/1-210	22	4
B1821BH031C088N	16	12	M83461/1-224	22	3
B1821BH038C075D	1	10	MS14308-7	22	16
	8	3	MS14308-8	22	14
B1821BH038C125N	7	3	MS14309-24	22	22
	17	2	MS14309-30	22	11
	20	3	MS16562-224	22	2
B1821BH038C225N	5	14		23	4
B1821BH038F125N	21	25	MS171656	16	17
B1821BH038F175N	6	50	MS17829-4C	16	21
B1821BH050C100N	16	33	MS20392-5C47	14	13
B1821BH063F375N	21	32	MS20392-7C75	21	13
B687R-122B	22	21	MS21044N12	16	2
C-134KT-805	23	8	MS21044N3	16	28
CPR102321-1	11	3	MS21044N4	21	2
F14413	8	1	MS21044N9	16	4
F19582	6	46	MS21083N5	16	23
F19636	6	31	MS21318-37	25	3

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
MS21318-59	24	2	MS35691-13	6	12
	25	8	MS35691-21	5	4
MS21333-98	9	30	MS35691-53	9	27
MS24585C507	21	19		19	12
MS24629-57	25	4	MS35810-14	5	2
MS24665-283	5	12	MS39134-1	2	2
	14	14	MS51849-74	15	3
MS24665-285	21	15	MS51871-3	2	10
MS24665-495	14	20		3	18
MS25035-154	2	3		9	35
MS27030-3	22	18		10	1
MS27183-10	22	10	MS51946-11	12	3
MS27183-11	2	12	MS51946-2	12	7
	3	16	MS51967-2	6	30
MS27183-12	16	10		10	14
MS27183-13	21	18		24	6
MS27183-14	12	5	MS51967-24	14	9
MS27183-15	17	4	MS51967-3	22	8
	20	4	MS51967-8	11	20
MS27183-21	16	5	MS51968-14	14	6
MS27183-42	16	15		19	5
MS27183-63	21	33	MS51968-2	3	10
MS28775-110	23	6		9	38
MS28775-113	23	11		15	13
MS35206-279	12	14	MS51968-20	18	5
MS35207-264	16	16		19	13
MS35207-280	21	7	MS51968-5	5	9
MS35307-312	21	4		11	16
MS35333-40	22	9	MS51968-8	6	49
MS35333-41	6	13	MS51970-1	6	44
MS35333-42	17	3	MS51970-4	6	8
MS35333-46	9	26		6	33
MS35335-35	6	48	MS51973-54	17	9
MS35335-36	6	9	MS52125-2	1	1
	6	34	MS53060-6	5	7
MS35338-139	21	5	MS90726-38	16	25
MS35338-43	15	6	MS90726-6	9	31
MS35338-44	3	12	MS90726-61	6	51
	6	29	N-12970-A	10	5
	9	37	N-12971-B	10	6
	10	13	N12969	10	4
	12	15	N12972	10	7
	15	12	N12988	7	7
	24	5	N30171	11	18
MS35338-45	5	8	NAS561C8-24	16	31
	11	15	P49866-11	1	9
	16	11		5	11
MS35338-48	14	5		11	19
	16	32	RN-13-A	KITS	1
	19	4	RR-C-271 TY1 CL5 ST2	14	16
MS35340-51	17	15	SAE J246 6 120111B	11	2
MS35489-77	3	17	SAE J246 6 120115B	11	4
MS35489-78	3	14	SAE J246 6-4 120102BA	11	7

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
SAE J246 6-4 120202BA	11	5	12302516	7	10
SAE J512 4 040110B	9	28	12312996	16	14
SAEJ5124-4040101BA	9	36	12331705-1	21	22
TV-572-E19	13	4	12331705-2	21	22
004-003005-059	18	4	12331705-3	21	22
01001307	5	13	12331705-4	21	22
06436	15	5	12331710	21	24
07426	1	11	12331771	25	7
1013156	14	15	12354242	21	10
10245310	15	9	12355810	21	30
	21	6	12355811	21	31
10905840	BULK	3	12355943-2	10	16
10905840-8	2	11	12355946	25	2
	3	15	12360850-1	1	6
10910884	12	16	12360870-2	1	5
10910885	12	17	12362732	25	5
10929816-1	25	10	12362734	25	1
10929946	17	10	123917	6	37
10935126	3	11	12441062	25	6
11597761	5	10	12447262-1	20	5
11597762	3	1	12447262-2	20	1
11597768	21	28	12447263	20	2
11625104	11	11	12461851-3	14	11
11625105	11	14	12461859	16	13
11625110	14	1	12461860	16	9
11625147	19	15	12461861	16	8
11639519-2	1	3	12461862	16	7
11639520	1	4	12504900	13	2
11639535	1	2	12558672	13	1
11644768	14	7	129378	12	1
1225091	14	12	132848	24	4
12259830	16	27	1683 (JAPAN)	1	7
12259830-1	16	1	1756543	BULK	4
12259831	16	19	2708-4A	5	3
12259835	16	20	27D252	16	30
12259837	16	24	339589	6	31
12259839	16	6	3984-3920	12	13
12259840	16	22	4440	9	25
12259845	16	18	4464K336	23	1
12269886	21	1	4HA891	10	18
12269895 REV C	21	23	4HA892	10	18
12269949	25	9	50434X	13	3
12269951	21	9	5156653	9	33
12269958	21	11	5167679	9	14
12269960	21	12	5298653	9	8
12269970	21	21		9	11
12269972	21	14		9	19
12296217	21	3	5303461	5	5
12296219	21	20	5323088	6	41
12296243	23	2	6161059A	24	1
12296261	21	8	6584SG	12	12
12296591-22.75	9	34	6723	23	9
12296592-32.75	9	29	6893-2	3	13

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
6CFC14257	6	14	7522436	17	5
70-2351	22	1	7697483	15	8
7034748	15	7	7745464	9	3
7034881	22	12		9	10
7034882	21	16		9	20
7035450	22	13	7974916	19	9
7035451	15	10	7974917	19	11
7035452	15	1	7979296	10	12
7035486	15	2	7979612	10	8
7037002-17	15	4	7979613	10	10
7039673	22	20	7979691	7	6
7055100	2	1	7979972	16	34
7055109	20	2	7M7410	11	10
7058998	9	13	8328033	6	18
7058999	9	15	8329823	10	9
7059176	4	1	8330811	14	8
7059533	14	4	8330813	16	35
7059565	14	3	8330821	16	36
7064978	6	7	8331536	10	15
	6	35	8331537	10	2
7065947	22	5	8331539	16	3
7339465	18	3	8331541	16	29
7339466	18	1	8331543	21	27
7348221	24	3	8331544	21	29
7349016	19	2	8336701	6	1
7349017	19	2	8336702	6	1
7349028	19	8	8336703	6	17
7349029	19	10	8336705	6	24
7350779	17	6	8336789	6	21
7366478-1	19	1	8338561	2	7
7366480-1	19	6		3	6
7373260	8	2	8338562	2	6
7373354	7	5		3	7
7411028	14	19	8338564	2	5
7411041	17	1		3	8
7411378	12	19	8338566	3	4
7411379	12	18	8338567	3	3
7411425	12	4	8347216	2	4
7411433	12	9	8357982	7	1
7411760	6	27	8363970	19	14
7411903	9	5	8365427	11	17
	9	22	8389626	17	14
7412068	8	5	8389628	17	12
7412079	9	7	8389735	17	7
	9	12	8716992	18	2
	9	18	8719915	12	2
7412088	9	2	8720024	12	6
	9	9	8720025	12	10
	9	17	8720515	6	42
7412103	6	45	8724753-1	22	7
7412106	6	47	8724754	22	15
7412120	6	15	8733892	6	46
7413231	12	11	8733894	6	2

PART NUMBER	FIG.	ITEM	PART NUMBER	FIG.	ITEM
8733895	6	2	8733935	6	5
8733896	6	23		6	38
8733897	6	19	8733936	6	4
8733898	9	16		6	40
8733899	9	1	8733937	6	3
8733904	6	32		6	39
8733908	6	26	8735729	6	28
8733909	6	22	8741770	10	3
8733918	9	4	8741782-1	21	26
8733920	9	21	8747908	3	19
8733922	9	23	91102A036	14	10
8733926	6	10	91257A834	17	13
8733927	6	10	99242R1	2	8
8733932	6	16		3	9
8733933	6	16			

END OF WORK PACKAGE

CHAPTER 8

SUPPORTING INFORMATION

FIELD MAINTENANCE REFERENCES

SCOPE

This Work Package (WP) lists all field manuals, forms, technical manuals, and miscellaneous publications referenced in this manual.

PUBLICATION INDEXES AND GENERAL REFERENCES

DA PAM 25-33, Users Guide for Army Publications and Forms, should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this manual.

FORMS

Refer to DA PAM 750-8, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to this material.

OTHER PUBLICATIONS

The following publications contain information pertinent to the major item materiel and associated equipment.

Army Regulations

AR 70-12	Fuels and Lubricants Standardization Policy for Equipment Design, Operation, and Logistic Support
AR 750-1	Army Material Maintenance Policy

DA Pamphlets

DA PAM 25-33	Users Guide for Army Publications and Forms
DA PAM 738-751	Functional Users Manual for the Army Maintenance Management System
DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual

Field Manuals

FM 4-25.11	First Aid
FM 21-10	Field Hygiene and Sanitation

Forms

DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2404/5988-E	Equipment Inspection and Maintenance Worksheet

Forms - Continued

DA Form 2407/5990-E	Maintenance Request
DD Form 314	Preventive Maintenance Schedule and Record
DD Form 1397	Processing and Deprocessing Record for Shipment, Storage, and Issue of Vehicles and Spare Engines
SF Form 364	Report of Discrepancy (ROD)
SF Form 368	Product Quality Deficiency Report (PQDR)

Miscellaneous

ATP 4-11	Army Motor Transport Operations
CTA 8-100	Army Medical Department Expandable/Durable Items
CTA 50-909	Field and Garrison Furnishings and Equipment
CTA 50-970	Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items)
TC 9-237	Operator's Circular Welding Theory and Application
TC 21-305-20	Manual for the Wheeled Vehicle Operator

Supply and Technical Bulletins

SB 740-98-1	Storage Serviceability Standard: Tracked Vehicles, Wheeled Vehicles, and Component Parts
TB 9-2300-247-40	Tactical Wheeled Vehicles: Repair of Frame
TB 43-0147	Color, Marking, and Camouflage Patterns Used on Military Equipment
TB MED 577	Sanitary Control and Surveillance of Field Water Supplies

Technical Manuals

TM 4-33.31	Operations and Maintenance of Ordnance Materiel in Cold Weather
TM 9-214	Inspection, Care, and Maintenance of Antifriction Bearings
TM 9-2610-200-14	Operators, Unit, Direct Support and General Support Maintenance Manual for Care, Maintenance Repair and Inspection of Pneumatic Tires and Inner Tubes

Technical Manuals - Continued

- TM 10-4130-237-14 Operator's, Unit, Direct Support, and, General Support Maintenance Manual for Small Mobile Water Chiller Model LCW 2685; Model LCC 2685
- TM 10-4130-237-23P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Small Mobile Water Chiller
- TM 10-4130-239-14 Operator's, Unit, Direct Support and General Support Maintenance Manual for Small Mobile Water Chiller
- TM 10-4130-239-23P Unit, Direct Support and General Support Maintenance Repair Parts and Special Tools List for Small Mobile Water Chiller
- TM 43-0139 Painting Instructions for Army Materiel
- TM 55-2200-001-12 Transportability Guidance for Application of Blocking, Bracing, and Tiedown Materials for Rail Transport
- TM 750-244-6 Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use

END OF WORK PACKAGE

FIELD MAINTENANCE MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION

INTRODUCTION

This introduction provides a general explanation of all maintenance and repair functions authorized at the two maintenance levels under the Two-Level Maintenance System concept.

This MAC (immediately following the introduction) 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 shall be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Field – includes two subcolumns, Crew (C), Maintainer (F)

Sustainment – includes two subcolumns, Below Depot (H), Depot (D)

The maintenance to be performed at field and sustainment levels is described as follows:

1. **Crew Maintenance.** The responsibility of a using organization to perform maintenance on its assigned equipment. It normally consists of inspecting, servicing, lubricating, adjusting, and replacing parts, minor assemblies, and subassemblies. The replace function for this level of maintenance is indicated by the letter "C" in the third position of the SMR code. A "C" appearing in the fourth position of the SMR code indicates complete repair is possible at the crew maintenance level.
2. **Field Maintenance.** Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "F" appearing in the third position of the SMR code. An "F" appearing in the fourth position of the SMR code indicates complete repair is possible at the field maintenance level. Items are returned to the user after maintenance is performed at this level.
3. **Below Depot Sustainment.** Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "H" appearing in the third position of the SMR code. An "H" appearing in the fourth position of the SMR code indicates complete repair is possible at the below depot sustainment maintenance level. Items are returned to the supply system after maintenance is performed at this level.
4. **Depot Sustainment.** Maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The replace function for this level of maintenance is indicated by the letter "D" or "K" appearing in the third position of the SMR code. Depot sustainment maintenance can be performed by either depot personnel or contractor personnel. A "D" or "K" appearing in the fourth position of the SMR code indicates complete repair is possible at the depot sustainment maintenance level. Items are returned to the supply systems after maintenance is performed at this level.

The tools and test equipment requirements table (immediately following the MAC) lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from the MAC.

The remarks table (immediately following the tools and test equipment requirements) contains supplemental instructions and explanatory notes for a particular maintenance function.

MAINTENANCE FUNCTIONS

Maintenance functions are limited to and defined as follows:

INTRODUCTION - Continued

1. **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). This includes scheduled inspection and gaugings and evaluation of cannon tubes.
2. **Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards on a scheduled basis, i.e., load testing of lift devices and hydrostatic testing of pressure hoses.
3. **Service.** Operations required periodically to keep an item in proper operating condition; e.g., to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases. This includes scheduled exercising and purging of recoil mechanisms. The following are examples of service functions:
 - a. **Unpack.** To remove from packing box for service or when required for the performance of maintenance operations.
 - b. **Rewrap.** To return item to packing box after service and other maintenance operations.
 - c. **Clean.** To rid the item of contamination.
 - d. **Touch up.** To spot paint scratched or blistered surfaces.
 - e. **Mark.** To restore obliterated identification.
4. **Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
5. **Align.** To adjust specified variable elements of an item to bring about optimum or desired performance.
6. **Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment 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.
7. **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 an equipment or system.
8. **Paint (ammunition only).** To prepare and spray color coats of paint so that the ammunition can be identified and protected. The color indicating primary use is applied, preferably, to the entire exterior surface as the background color of the item. Other markings are to be repainted as original so as to retain proper ammunition identification.
9. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the third position code of the Source, Maintenance and Recoverability (SMR) code.
10. **Repair.** The application of maintenance services, including fault location/troubleshooting, removal/installation, 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.

INTRODUCTION - Continued**NOTE**

- The following definitions are applicable to the "repair" maintenance function:
 - Services. Inspect, test, service, adjust, align, calibrate, and/or replace.
 - Fault location/troubleshooting. The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).
 - Disassembly/assembly. The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).
 - Actions. Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.
11. **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. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.
12. **Rebuild.** Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

EXPLANATION OF COLUMNS IN THE MAC

Column (1). Group Number. Column (1) lists Functional Group Code (FGC) numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

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

Column (3). Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions refer to "Maintenance Functions" outlined above).

Column (4). Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as man hours in whole hours or decimals) in the appropriate sub column. This work time 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 are to 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 time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance 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:

INTRODUCTION - Continued**Field:**

C Crew Maintenance
F Maintainer Maintenance

Sustainment:

L Specialized Repair Activity (SRA)
H Below Depot Maintenance
D Depot Maintenance

NOTE

The "L" maintenance level is not included in column (4) of the MAC. Functions to this level of maintenance are identified by work time figure in the "H" column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5). Tools and Equipment Reference Code. Column (5) specifies, by code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE, and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6). Remarks Code. When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

EXPLANATION OF COLUMNS IN THE TOOLS AND TEST EQUIPMENT REQUIREMENTS

Column (1) - Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) - Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

Column (3) - Nomenclature. Name or identification of the tool or test equipment.

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

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

EXPLANATION OF COLUMNS IN THE REMARKS

Column (1) - Remarks Code. The code recorded in column (6) of the MAC.

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

END OF WORK PACKAGE

**FIELD MAINTENANCE
MAINTENANCE ALLOCATION CHART (MAC)**

Table 1. Maintenance Allocation Chart.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE		
			FIELD		SUSTAINMENT					
			CREW	MAINTAINER	BELOW DEPOT	DEPOT				
			C	F	H	D				
00	M149A2, WATER TANK TRAILER									
0000-01	PMCS (Before)	Inspect	0.4							
		Service	0.1							
0000-02	PMCS (During)	Inspect	0.1							
0000-03	PMCS (After)	Inspect	0.1							
0000-04	PMCS (Weekly)	Inspect	0.1							
0000-05	PMCS (Monthly)	Inspect	0.1							
0000-06	PMCS (Quarterly)	Inspect		0.2						
		Service		0.2						
0000-07	PMCS (Semiannual)	Inspect		0.4						
		Service		0.5						
0000-08	PMCS (Annual)	Inspect		0.4						
		Service		1.5						
06	ELECTRICAL SYSTEM									
0609	Light Assembly	Replace		0.3			1			
		Repair		0.2			1	B		
0613	Intervehicular Cable	Replace		1.0			1			
		Repair		0.2				C		

Table 1. Maintenance Allocation Chart - Continued.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE		
			FIELD		SUSTAINMENT					
			CREW	MAINTAINER	BELLOW DEPOT	DEPOT				
			C	F	H	D				
11	Chassis Wiring Harness	Replace		0.5			1			
		Repair		0.5			1	C		
1100	REAR AXLE				8.0		1			
12	Rear Axle Assembly	Replace								
1201	BRAKES									
	Handbrake Lever	Test	0.1							
		Adjust	0.1							
		Replace		0.5			1			
		Repair		2.0			1	A		
	Handbrake Cable	Test		0.1			1			
		Adjust		0.1			1			
		Replace		0.5			1			
		Repair		2.0			1	A		
1202	Service Brakes	Adjust		0.5			1			
		Replace		1.5			1			
		Repair		1.5			1			
	Brake Shoes	Replace		1.0			1			
1204	Master Cylinder	Replace		1.0			1			
	Wheel Cylinder Assembly	Replace		1.5			1			
	Brake Lines, Hoses, and Fittings	Replace		1.5			1			
1208	Air Coupling and Hose	Replace		0.2			1			

Table 1. Maintenance Allocation Chart - Continued.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE		
			FIELD		SUSTAINMENT					
			CREW	MAINTAINER	BELOW DEPOT	DEPOT				
			C	F	H	D				
13	Air Filter	Replace		0.5			1			
	Air Hoses and Fittings	Replace		0.5			1			
	Air Brake Chamber and Bracket	Test		0.2			1			
		Replace		1.0			1			
	Air Reservoir	Replace		1.5			1			
	Relay Valve	Replace		0.5			1			
1311	WHEELS, HUBS, AND DRUMS						1			
15	Brake Drum, Wheel Hub, and Bearing	Adjust		0.5			1			
		Replace		1.0			1, 2, 3			
	Wheel and Tire Assembly	Replace	1.0		TBD					
		Repair					D			
1501	FRAME, TOWING ATTACHMENTS, AND DRAWBAR RING									
	Drawbar Ring	Replace		0.5			1			
	Safety Chain	Replace		0.3			1			
	Faucet Box	Replace		2.5			1			
	Suspension Brackets	Replace		2.5			1			

Table 1. Maintenance Allocation Chart - Continued.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE		
			FIELD		SUSTAINMENT					
			CREW	MAINTAINER	BELOW DEPOT	DEPOT				
			C	F	H	D				
1507	Landing Leg	Replace Repair		1.0 1.0			1 1	A		
16	SPRINGS AND SHOCK ABSORBERS									
1601	Leaf Springs	Replace		2.5			1			
1604	Shock Absorbers	Replace		0.5			1			
1605	Radius Rods	Adjust Replace		2.0 2.5			1 1	A		
18	BODY, CAB, HOOD, AND HULL									
1802	Fenders	Replace		2.5			1	E		
1811	Water Tank	Replace Repair		2.5 4.0			1 1			
	Water Tank Body Brackets	Replace		1.8			1			
	Manhole Cover	Replace Repair		0.7 1.5			1 1			
	Faucets, Main Valve, and Pipes	Replace		1.0			1			
	Rear Faucet	Replace		1.0			1			
22	BODY, CHASSIS, AND HULL ACCESSORY ITEMS									

Table 1. Maintenance Allocation Chart - Continued.

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL				(5) TOOLS AND EQUIPMENT REFERENCE CODE	(6) REMARKS CODE		
			FIELD		SUSTAINMENT					
			CREW	MAINTAINER	BELOW DEPOT	DEPOT				
			C	F	H	D				
2202	Reflector	Replace		0.5			1			
2210	Data Plates	Replace		1.0			1			

Table 2. Tools and Test Equipment.

TOOLS OR TEST EQUIPMENT	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL STOCK NUMBER	TOOL NUMBER
1	F	Tool Kit, General Mechanic's	5180-01-548-7634	PD484
2	F	Wrench, Torque		KTC S0988
3	F	Tool Set, SATS, Base	4910-01-490-6453	KTC-S2000

Table 3. Remarks.

REMARK CODE	REMARKS
A	Time will be in accordance with extent of repair.
B	Light assembly repair is limited to lens, O-ring, and lamp/LED replacement.
C	Chassis wiring harness and intervehicular cable assembly repair is limited to terminal, lug, insulator, and hardware replacement.
D	Tire repair will be in accordance with TM 9-2610-200-14.
E	Fender and cargo body repair will be in accordance with TC 9-237 and TM 43-0139.

END OF WORK PACKAGE

**FIELD MAINTENANCE
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS**

The water tank trailers currently do not have any Components of End Item (COEI) or Basic Issue Items (BII) assigned.

END OF WORK PACKAGE

**FIELD MAINTENANCE
ADDITIONAL AUTHORIZATION LIST (AAL)**

SCOPE

This Work Package (WP) lists additional items you are authorized for the support of the M149A2, 1-1/2-Ton, 2-Wheel, 400 Gallon Water Trailer.

GENERAL

This list identifies items that do not have to accompany the M149A2 Trailer and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanation of Columns in the AAL

Column (1) National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (2) Description, Part Number/(CAGEC). Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (3) Usable On Code. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (4) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item as issued per the National Stock Number shown in column (1).

Column (5) Qty Recm. Indicates the quantity recommended.

Table 1. Additional Authorization List (AAL).

(1) NATIONAL STOCK NUMBER (NSN)	(2) DESCRIPTION, PART NUMBER/ (CAGEC)	(3) USABLE ON CODE	(4) U/I	(5) QTY RECM
2540-01-557-0056	COUPLER, DRAWBAR, RING 57K4551 (1QGK3)		EA	1
5340-01-557-0024	LEVER, MANUAL CONTROL 57K4552 (1QGK3)		EA	1
4130-01-131-2685	WATER CHILLER 13226E1800 (97403)		EA	1
4130-01-333-6086	WATER CHILLER A-W-40-G/E (67302)		EA	1

END OF WORK PACKAGE

**FIELD MAINTENANCE
EXPENDABLE AND DURABLE ITEMS LIST (EDIL)**

INTRODUCTION

Scope

This Work Package (WP) lists expendable and durable items that you will need to operate and maintain the M149A2 400 Gallon Water Tank Trailer. This list is for information 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), CTA 50-909, Field and Garrison Furnishings and Equipment or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanation of Columns

Column (1) - Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item (e.g., Use brake fluid (WP 0098, Item 5)).

Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item (includes as applicable: C = Crew; F = Maintainer or ASB; H = Below Depot or TASMG; D = Depot).

Column (3) - National Stock Number (NSN). This is the NSN assigned to the item which you can use to requisition it.

Column (4) - Item Name, Description, Part Number/(CAGEC). This column provides the other information you need to identify the item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).

Column (5) - U/I. Unit of Issue (U/I) code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List (EDIL).

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/ (CAGEC)	(5) U/I
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Table 1. Expendable and Durable Items List (EDIL) - Continued.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/ (CAGEC)	(5) U/I
1	F	8040-00-118-2695	ADHESIVE 3 Ounces 960120-1 (06481)	KT
2	F	9150-01-102-9455	BRAKE FLUID, AUTOMOTIVE 1 Gallon Can MIL-PRF-46176 (81349)	GL
3	F	9150-01-123-3152	BRAKE FLUID, AUTOMOTIVE 5 Gallon Can MIL-PRF-46176 (81349)	CN
4	F	9150-01-072-8379	BRAKE FLUID, AUTOMOTIVE 55 Gallon Drum MIL-PRF-46176 (81349)	DR
5	F	7920-00-061-0038	BRUSH, SCRUB 7920-00-061-0038 (83421)	EA
6	C	6850-01-474-2319	CLEANING COMPOUND, SOLVENT 1 Gallon Can MIL-PRF680 (81349)	GL
7	F	5350-00-221-0872	CLOTH, ABRASIVE ANSI B74.18 (80204)	PG
8	F	7930-00-899-9534	DISHWASHING COMPOUND, HAND 5 Gallon 1064012 (83421) P-D-410	CN
9	F	9150-01-197-7688	GREASE, AUTOMOTIVE AND ARTILLERY 2-1/4 Ounce Tube M-10924-A (81349) MIL-PRF-10924	TU
10	F	9150-01-197-7690	GREASE, AUTOMOTIVE AND ARTILLERY 1.75 Pound Can M-10924-C (81349) MIL-PRF-10924	CN
11	F	9150-01-197-7689	GREASE, AUTOMOTIVE AND ARTILLERY 6.5 Pound Can M-10924-D (81349) MIL-PRF-10924	CN
12	F	9150-01-197-7692	GREASE, AUTOMOTIVE AND ARTILLERY 35 Pound Can M-10924-E (81349) MIL-PRF-10924	CN
13	C	9150-00-188-9858	LUBRICATING OIL, ENGINE 5 Gallon Can M2104-3-30W (81349) MIL-PRF-10924	CN
14	C	9150-00-189-6729	LUBRICATING OIL, ENGINE 55 Gallon Can M2104-4-30W (81349) MIL-PRF-10924	DR
15	C	7920-00-205-1711	RAG, WIPING Cotton 50 Pound Bale 7920-00-205-1711 (64067)	BE
16	F	8030-01-054-0740	SEALING COMPOUND 50 Milliliter Tube 59231 (05972)	BX
17	F	8030-01-218-0321	SEALING COMPOUND, PIPE 50 Milliliter Tube MS-PTS-50 (3T9T9)	TU
18	F	9905-00-537-8954	TAG, MARKER 50 Each 9905-00-537-8954 (64067)	BD
19	C	9330-01-038-3486	TUBING, PLASTIC, SPIRAL WRAP 1/2 in. Diameter	RL

Table 1. Expendable and Durable Items List (EDIL) - Continued.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER/ (CAGEC)	(5) U/I
20	F	9505-00-555-8648	11644992 (19207) WIRE, NONELECTRICAL MS20995C47 (T0813)	SL

END OF WORK PACKAGE

**FIELD MAINTENANCE
TOOL IDENTIFICATION LIST (TIL)**

SCOPE

This Work Package (WP) lists all common tools and supplements and special tools/fixtures needed to maintain the M149A2 Trailer.

EXPLANATION OF COLUMNS IN THE TOOL IDENTIFICATION LIST

Column (1) Item No. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item (e.g., Extractor (WP 0090, Item 32)).

Column (2) Item Name. This column lists the item by noun nomenclature and other descriptive features (e.g., Gage, belt tension).

Column (3) National Stock Number (NSN). This is the National Stock Number (NSN) assigned to the item; use it to requisition the item.

Column (4) Part Number/(CAGEC). 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. The manufacturer's Commercial and Government Entity Code (CAGEC) is also included.

Column (5) Reference. This column identifies the authorizing supply catalog or RPSTL for items listed in this work package.

Table 1. Tool Identification List (TIL).

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER (NSN)	(4) PART NUMBER /(CAGEC)	(5) REFERENCE
1	CRIMPING TOOL, PNEUMATIC	5130-01-232-1219	414DA-6N (29268)	
2	DRILL SET, TWIST		KTC S0194 (00NS2)	
3	DRILL, ELECTRIC, PORTABLE		KTC S0189 (00NS2)	
4	ETCHER, ELECTRIC	5130-00-233-1840	SS-750K (16979)	
5	GLOVES, CHEMICAL AND OIL PROTECTIVE	8415-00-009-1900	N36 (86523)	
6	SOCKET, SOCKET WRENCH	5120-00-795-0946	7950946 (19207)	
7	TOOL KIT, GENERAL MECHANIC'S	5180-01-548-7634	PD484 (19200)	

Table 1. Tool Identification List (TIL) - Continued.

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER (NSN)	(4) PART NUMBER /(CAGEC)	(5) REFERENCE
8	TOOL SET, SATS, BASE	4910-01-490-6453	KTC-S2000 (00NS2)	
9	WRENCH, TORQUE: 3/4 IN. DRIVE, 0-600 LB FT CAPACITY		KTC S0988 (00NS2)	SATS CL 4910-95A81

END OF WORK PACKAGE

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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS						Use Part II (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE <i>Date you filled out this form.</i>
For use of this form, see AR 25-30; the proponent agency is OAASA.							
TO (<i>Forward to proponent of publication or form</i>) (<i>Include ZIP Code</i>) U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-IMP/TECH PUBS MS 727 6501 E. 11 Mile Road, Warren, MI 48397-5000						FROM (<i>Activity and location</i>) (<i>Include ZIP Code</i>) <i>Your mailing address</i>	
PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS							
PUBLICATION/FORM NUMBER <i>TM Number</i>						DATE <i>Date of the TM</i>	TITLE <i>Title of the TM</i>
ITEM	PAGE	PARA-GRAF	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON (Exact wording of recommended change must be given)	
	0007-3					<i>Figure 2, Item 9 should show a lockwasher. Currently shows a flat washer.</i>	
	0018-2					<i>Cleaning and inspection, Step 6, reference to governor support pin (14) is wrong reference. Reference should be change to (12).</i>	
SAMPLE							
TYPED NAME, GRADE OR TITLE <i>Your Name</i>						TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION <i>Your Phone Number</i>	SIGNATURE <i>Your Signature</i>

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS						Use Part II (<i>reverse</i>) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
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PUBLICATION/FORM NUMBER <i>TM 9-2330-267-13&P</i>			DATE <i>07 DECEMBER 2015</i>	TITLE <i>Trailer, Tank, Water: 400 Gallon, 1-1/2 Ton, 2 Wheel</i>			
ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON	
TYPED NAME, GRADE OR TITLE			TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION			SIGNATURE	

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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS								
PUBLICATION/FORM NUMBER TM 9-2330-267-13&P				DATE 07 DECEMBER 2015	TITLE Trailer, Tank, Water: 400 Gallon, 1-1/2 Ton, 2 Wheel			
PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
PART III – REMARKS (Any general remarks, or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)								
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PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER TM 9-2330-267-13&P	DATE 07 DECEMBER 2015	TITLE Trailer, Tank, Water: 400 Gallon, 1-1/2 Ton, 2 Wheel
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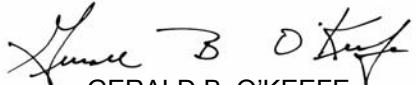
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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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By Order of the Secretary of the Army:

Official:



GERALD B. O'KEEFE
*Administrative Assistant to the
Secretary of the Army*

MARK A. MILLEY
*General, United States Army
Chief of Staff*

1531704

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THE METRIC SYSTEM AND EQUIVALENTS

<p>Linear Measure</p> <p>1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches 1 Meter = 100 Centimeters = 1,000 Millimeters = 39.37 Inches 1 Kilometer = 1,000 Meters = 0.621 Miles</p> <p>Weights</p> <p>1 Gram = 0.001 Kilograms = 1,000 Milligrams = 0.035 Ounces 1 Kilogram = 1,000 Grams = 2.2 Pounds 1 Metric Ton = 1,000 Kilograms = 1 Megagram = 1.1 Short Tons</p> <p>Liquid Measure</p> <p>1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces 1 Liter = 1,000 Milliliters = 33.82 Fluid Ounces</p>	<p>Square Measure</p> <p>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 = 0.0386 Sq Miles</p> <p>Cubic Measure</p> <p>1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches 1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet</p> <p>Temperature</p> <p>5/9 ($^{\circ}\text{F} - 32$) = $^{\circ}\text{C}$ 9/5 $^{\circ}\text{C} + 32$ = $^{\circ}\text{F}$ 32° Fahrenheit is equivalent to 0° Celsius 90° Fahrenheit is equivalent to 32.2° Celsius 212° Fahrenheit is equivalent to 100° Celsius</p>
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APPROXIMATE CONVERSION FACTORS

To Change	To	Multiply By
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Sq Inches	Sq Centimeters	6.451
Sq Feet	Sq Meters	0.093
Sq Yards	Sq Meters	0.836
Sq Miles	Sq Kilometers	2.590
Acres	Sq Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

To Change	To	Multiply By
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Sq Inches	0.155
Sq Meters	Sq Feet	10.764
Sq Meters	Sq Yards	1.196
Sq Kilometers	Sq Miles	0.386
Sq 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 Sq Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

PIN: 105787-000