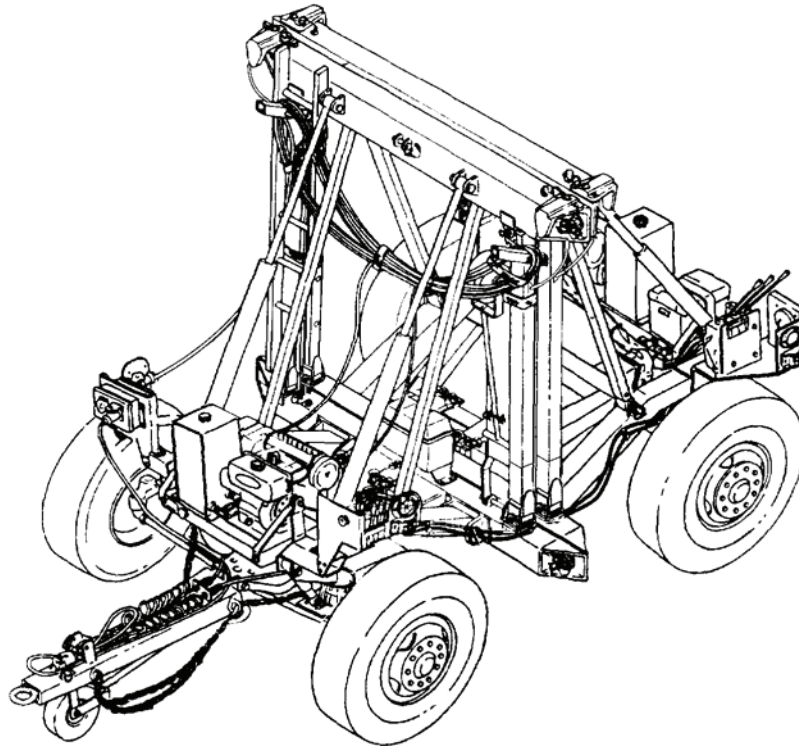


***TM 9-2330-390-13&P**

TECHNICAL MANUAL OPERATOR AND FIELD MAINTENANCE MANUAL (INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST) FOR

DOLLY SET LIFT, TRANSPORTABLE SHELTER, 7-1/2 TON M1022A1 NSN 2330-01-378-9997 (EIC: CML)



*TM 9-2330-390-13&P dated 18 June 2012 supersedes TM 9-2330-390-14&P dated 1 April 1996, including all changes.

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

**HEADQUARTERS, DEPARTMENT OF THE ARMY
18 JUNE 2012**

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death to personnel. Also included are explanations of safety and hazardous materials icons used within the technical manual.

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

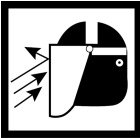
EXPLANATION OF SAFETY WARNING ICONS



Ear Protection - headphones over ears shows that noise level will harm ears.



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



Flying Particles - arrows bouncing off face with face shield shows that particles flying through the air will harm face.



Heavy Parts - hand with heavy object on top shows that heavy parts can crush and harm.



Heavy Parts - foot with heavy object on top shows that heavy parts can crush and harm.



Heavy Parts - heavy object on human figure shows that heavy parts present a danger to life or limb.



Heavy Parts - heavy object pinning human figure against wall shows that heavy, moving parts present a danger to life or limb.

WARNING SUMMARY - Continued

EXPLANATION OF SAFETY WARNING ICONS - Continued



Helmet Protection - arrow bouncing off head with helmet shows that falling parts present a danger.



Hot Area - hand over object radiating heat shows that part is hot and can burn.



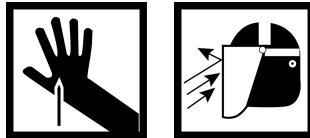
Sharp Object - pointed object in hand shows that a sharp object presents a danger to limb.



Slick Floor - wavy line on floor with legs prone shows that slick floor presents a danger for falling.

GENERAL SAFETY WARNING DESCRIPTIONS

WARNING



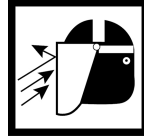
BRAKE SYSTEM

- DO NOT disconnect air lines and fittings while dolly set airbrake system is pressurized. Intervehicular air lines must be disconnected and air reservoirs drained before air lines and fittings are disconnected. A line or fitting disconnected under pressure may explode with great force. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Wear eye protection when working with compressed air to avoid serious eye injury. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNING DESCRIPTIONS - Continued

WARNING



COMPRESSED AIR

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING



ELECTRICAL SYSTEM

When troubleshooting an electrical malfunction or performing electrical maintenance on either engine or dolly set lighting system, ALWAYS disconnect either battery negative (-) ground cable or intervehicular cable from towing vehicle. Failure to follow this warning may create a spark and electrical shock. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING



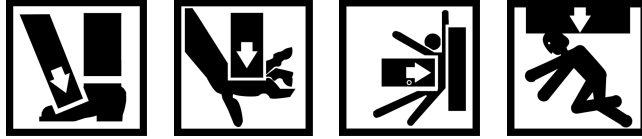
ENGINE

- Carbon monoxide can be deadly. DO NOT operate engine in enclosed areas. Good ventilation is essential. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Always wear ear plugs or other type of hearing protection while engine is running. Damage to hearing will occur without protection. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNING DESCRIPTIONS - Continued

WARNING



FALLING DANGER

- All personnel must use caution when standing near front and rear dollies and shelter during attaching operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front axle steering locking pin must ALWAYS be installed for side lift operation. Failure to follow this warning may cause front dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNING DESCRIPTIONS - Continued

WARNING



HEAVY COMPONENTS

- Spider and brake components weigh 70 lb (32 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Steering knuckle assembly weighs 150 lb (68 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Hub and brakedrum assembly weighs 350 lb (159 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Suspension link weighs 375 lb (170 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Rear dolly pivoting tray weighs 140 lb (63.5 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Top and bottom beams weigh 375 lb (170 kg). Use extreme caution when lowering top and bottom beams and placing on the ground. Ensure that lifting device is secure and all personnel stand clear. Failure to follow this warning may result in injury to personnel or damage to beams and positioning cylinders. Seek medical attention in the event of an injury.
- Positioning cylinder weighs 150 lb (68 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Engine weighs 200 lb (91 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Axle weighs 900 lb (408 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNING DESCRIPTIONS - Continued

- Rear drawbar weighs 80 lb (36 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front dolly pivoting tray weighs 170 lb (77 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Pivot axle bracket weighs 170 lb (77 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Top beam weighs 375 lb (170 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Steering link weighs 110 lb (50 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Wheel assembly weighs 200 lb (91 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front drawbar weighs 750 lb (340 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of injury.
- Lift cylinder weighs 250 lb (113 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of injury.
- Storage box weighs 60 lb (27 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNING DESCRIPTIONS - Continued

WARNING



REDUNDANT POWER OPERATION

Redundant power kit is NOT to be used for side lift operations. Failure to follow this warning may result in damage to equipment or injury to personnel. Seek medical attention in the event of an injury.

WARNING



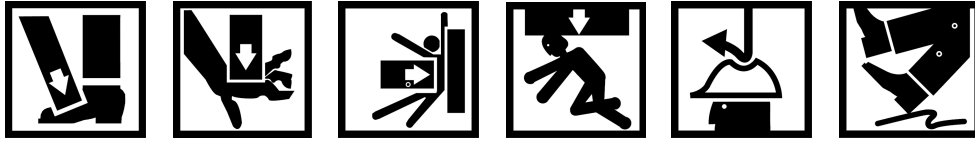
TOWING

- Steering locking pin **MUST** be removed from front axle and steering link before dolly set is towed in a four-wheel configuration. Failure to unlock steering will damage steering linkage and may result in an accident. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- **DO NOT** tandem tow dolly sets with shelters. To safely tow two dolly sets, they must be empty. Tandem tow on off-public roads **ONLY**. Observe a maximum towing speed of 25 mi/h (40 km/h). Failure to follow this warning may result in injury or death to personnel and damage to equipment. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNING DESCRIPTIONS - Continued

WARNING



VEHICLE OPERATION/MOVEMENT HAZARDS

- When dolly set is not coupled to towing vehicle, ensure that parking brakes are applied or wheels are securely chocked. Failure to do so may allow dolly set to roll. Failure to follow this warning may result in injury to personnel or damage to equipment. Seek medical attention in the event of an injury.
- All personnel standing on ground **MUST** stand clear when crossbrace assemblies are being stowed in top beams. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- **DO NOT** operate control valve levers to put front or rear dolly in maneuvering position unless telescopic brace and front axle steering locking pin are installed. Telescopic brace and front axle steering locking pin must **ALWAYS** be installed before lift cylinders reach their vertical position. Failure to follow this warning may cause front or rear dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front axle steering locking pin must **ALWAYS** be installed for side lift operation. Failure to follow this warning may cause front or rear dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- While in maneuvering position, **DO NOT** operate positioning cylinders lever. Failure to follow this warning may cause bottom beam to lower to the ground. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when climbing and working on top of shelter during side lift operations. Ensure that top of shelter is free of ice or debris which could cause slips and falls. When working with twist locks from on top of shelter, maintain a three-point contact with shelter as much as possible. When on top of shelter, always be aware of where other personnel and tools are located to prevent accidental bumps and trips. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when installing/removing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

EXPLANATION OF HAZARDOUS MATERIALS ICONS



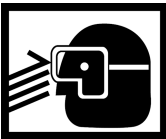
Biological - abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.



Chemical - Material will cause burns or irritation of human skin or tissue.



Explosion - material may explode if subjected to high temperatures, sources of ignition, or high pressure.



Eye Protection - material will cause injury to your eyes.



Fire - material can ignite and burn you.



Poison - material is poisonous or is a danger to your life.



Radioactive - material emits radioactive energy and can injure human tissue or organs.



Vapor - material emits vapors which present a danger to your life or health.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS

WARNING



BATTERY

- Remove all jewelry, such as rings, I.D. tags, bracelets, etc. If jewelry contacts a battery terminal, a direct short will result causing instant heating of jewelry. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Battery acid (electrolyte) is extremely dangerous. Always wear eye protection and rubber gloves when performing battery checks or inspections. Serious injury to personnel will result if battery acid contacts skin or eyes. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- DO NOT perform battery system checks or inspections while smoking or near fire, flames, or sparks. Battery gases may explode. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Sulfuric acid contained in batteries can cause serious burns. If battery corrosion or electrolyte makes contact with skin, eyes, or clothing, take immediate action to stop the corrosive burning effects. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
 - a. Eyes. Flush with cold water for no less than 15 minutes and immediately seek medical attention.
 - b. Skin. Flush with large amounts of cold water until all acid is removed. Seek medical attention as required.
 - c. Internal. If corrosion or electrolyte is ingested, drink large amounts of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Immediately seek medical attention.
 - d. Clothing/Equipment. Wash area with large amounts of cold water. Neutralize acid with baking soda or household ammonia.
- California Proposition 65 Warning. Battery posts, terminals, and related accessories contain lead and lead components. These chemicals are known to the State of California to cause cancer and reproductive harm. Wash hands after handling. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

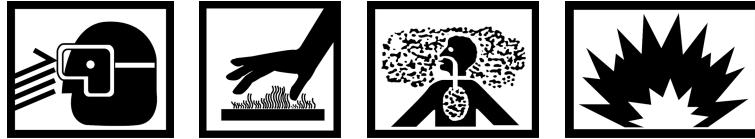
WARNING



BRAKE DUST

Avoid prolonged exposure or breathing of brake dust fumes. Work in a well-ventilated area. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING



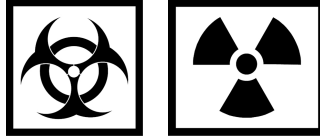
BURN DANGER

Wear eye and hand protection and work in a well-ventilated area when using torch to heat piston. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

WARNING



CBRN EXPOSURE

If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.



W_CBRN

To order this CBRN decal use:

National Stock Number (NSN) - 7690-01-474-3533

Part Number (PN) - 1709220

Commercial and Government Entity Code (CAGEC) - 11083

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

WARNING



CLEANING AGENTS

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. 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 DESCRIPTIONS - Continued

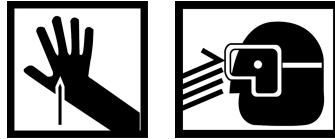
WARNING



DIESEL FUEL

Diesel fuel is combustible. DO NOT smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention immediately in the event of an injury.

WARNING



HYDRAULIC SYSTEM

- DO NOT disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Dolly set must be fully lowered to the ground and engine must be shut down before lines and fittings are disconnected. A line or fitting disconnected under pressure will explode with great force. Failure to follow this warning may result in serious injury or death to personnel. Seek medical attention in the event of an injury.
- Escaping hydraulic fluid under pressure can penetrate the skin, causing serious injury to personnel. Relieve pressure before disconnecting hydraulic lines and fittings. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject hydraulic fluid under high pressure. Use a piece of cardboard or paper to search for leaks. If any hydraulic fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

WARNING



LIQUID CONTAMINANTS

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: This manual supersedes TM 9-2330-390-14&P dated 1 April 1996, including all changes. Zero in the "Change No." column indicates an original page or work package.

Date of issue for the original manual is:

Original 18 June 2012

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 76 AND TOTAL NUMBER OF WORK PACKAGES IS 198, CONSISTING OF THE FOLLOWING:

| Page/WP No. | Change No. | Page/WP No. | Change No. |
|-------------------------------|------------|--------------------|------------|
| Front Cover (2 pages) | 0 | WP 0033 (8 pages) | 0 |
| Warning Summary (16 pages) | 0 | WP 0034 (4 pages) | 0 |
| TOC i through xlii (42 pages) | 0 | WP 0035 (8 pages) | 0 |
| Chapter 1 title page | 0 | WP 0036 (4 pages) | 0 |
| WP 0001 (10 pages) | 0 | WP 0037 (6 pages) | 0 |
| WP 0002 (12 pages) | 0 | WP 0038 (2 pages) | 0 |
| WP 0003 (14 pages) | 0 | WP 0039 (4 pages) | 0 |
| Chapter 2 title page | 0 | WP 0040 (4 pages) | 0 |
| WP 0004 (8 pages) | 0 | WP 0041 (2 pages) | 0 |
| WP 0005 (18 pages) | 0 | WP 0042 (6 pages) | 0 |
| WP 0006 (10 pages) | 0 | WP 0043 (10 pages) | 0 |
| WP 0007 (12 pages) | 0 | WP 0044 (2 pages) | 0 |
| WP 0008 (10 pages) | 0 | WP 0045 (8 pages) | 0 |
| WP 0009 (10 pages) | 0 | WP 0046 (10 pages) | 0 |
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| Chapter 5 title page | 0 | WP 0066 (2 pages) | 0 |
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| WP 0032 (4 pages) | 0 | WP 0072 (10 pages) | 0 |

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| WP 0074 (6 pages) | 0 | WP 0125 (4 pages) | 0 |
| WP 0075 (2 pages) | 0 | WP 0126 (12 pages) | 0 |
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| WP 0080 (2 pages) | 0 | Chapter 6 title page | 0 |
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| WP 0082 (2 pages) | 0 | WP 0132 (4 pages) | 0 |
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| WP 0092 (4 pages) | 0 | WP 0142 (4 pages) | 0 |
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| WP 0097 (6 pages) | 0 | WP 0147 (4 pages) | 0 |
| WP 0098 (4 pages) | 0 | WP 0148 (4 pages) | 0 |
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| WP 0100 (2 pages) | 0 | WP 0150 (4 pages) | 0 |
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| WP 0108 (4 pages) | 0 | WP 0158 (4 pages) | 0 |
| WP 0109 (18 pages) | 0 | WP 0159 (4 pages) | 0 |
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| WP 0112 (6 pages) | 0 | WP 0162 (4 pages) | 0 |
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HEADQUARTERS
DEPARTMENT OF THE ARMY
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TECHNICAL MANUAL
OPERATOR AND FIELD MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST)
FOR
DOLLY SET LIFT, TRANSPORTABLE SHELTER, 7-1/2 TON
M1022A1
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HOW TO USE THIS MANUAL

This manual is designed to help operate and maintain the M1022A1 Dolly Set.

FEATURES OF THIS MANUAL

- A table of contents is provided at the beginning of this manual.
- WARNINGS, CAUTIONS, and NOTES, subject headings, and other important information are highlighted in BOLD print as a visual aid.

WARNING

A WARNING indicates a hazard which can result in death or serious injury.

CAUTION

A CAUTION is a reminder of safety practices or directs attention to usage practices that will prevent damage to equipment.

NOTE

A NOTE is a statement containing information that will make the procedure easier to perform.

- Statements and words of particular importance are printed in capital letters to create emphasis.
- Instructions are located together with illustrations that show the specific task on which the technician is working.
- Equipment locator illustrations are provided as required throughout the operator and maintenance procedures. These illustrations are for use in locating components and assemblies of the dolly set. It should be noted that the locator illustrations do not always reflect the equipment conditions listed in the "Initial Setup" at the beginning of each task.
- Dashed leader lines used in illustrations indicate that called out items are not visible (i.e., they are located *within* the structure). Dashed leader lines in the lubrication Chart indicate that lubrication is required on BOTH sides of the equipment.
- This equipment contains metric components and requires metric tools; therefore, technical instructions include metric in addition to standard units. A metric conversion chart is provided on the inside back cover.
- A Repair Parts and Special Tools Lists (RPSTL) is provided at Repair Parts List (WP 0132) .
- A standard torque chart and an engine torque chart are provided at Torque Limits Work Package (WP 0129) .
- An alphabetical index is provided at the end of the manual to assist in locating information not readily found in the table of contents.

FOLLOW THESE GUIDELINES WHEN YOU USE THIS MANUAL

- Read through this manual and become familiar with its contents before attempting to operate or maintain the dolly set.
- Read the warning summary provided at the beginning of this manual before performing any operator or maintenance tasks.
- In the actual operation and maintenance tasks, follow all WARNINGS, CAUTIONS, and NOTES. These are given immediately preceding the procedural steps to which they apply. If these instructions are not followed or care is not taken, injury to personnel or equipment damage may result.

HOW TO USE THIS MANUAL - Continued

FEATURES OF THIS MANUAL - Continued

- Within a chapter, section, or paragraph, headings are used to help group the material and assist you in quickly finding tasks. Read all preliminary information found at the beginning of each task. After completing a task, ALWAYS perform the follow-on maintenance at the end of the task.

CHAPTER 1

**GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND
THEORY OF OPERATION**

OPERATOR MAINTENANCE GENERAL INFORMATION

SCOPE

1. **Type of Manual.** Operator's and Field Maintenance Manual (Including Repair Parts and Special Tools Lists).
2. **Equipment Name and Model Number.** Dolly Set: Lift, Transportable Shelter, 7½ Ton, M1022A1.
3. **Purpose of Equipment.**
 - a. The dolly set is designed to provide full ground mobility for International Standard Organization (ISO) containers and shelters up to 15,000 lb (6810 kg) gross maximum weight.
 - b. The M1022A1 Dolly Set is designed to lift at ends of containers. With the installation of a side lift kit, the M1022A1 provides both side lift and end lift capabilities.

MAINTENANCE FORMS, RECORDS, AND REPORTS

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) Users Manual.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs)

If your M1022A1 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 the equipment. Let us know why you do not like the design or performance. If you have Internet access, the easiest and fastest way to report problems or suggestions is to go to <http://www.nslcptsmh.csd.disa.mil/webpqdr/webpqdr.htm>. The Internet form lets you submit a Product Quality Deficiency Report (PQDR).

You may also submit your information using an SF Form 368, Product Quality Deficiency Report. You can send your SF 368 via e-mail, regular mail, or facsimile 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: AMSRD-TAR-E/PDQR, MS 268, 6501 E. 11 Mile Road, Warren, MI 48397-5000. The e-mail address is dami_tacomdrs@conus.army.mil. The fax number is DSN 786-5666 or Commercial 586-282-5666.

CORROSION PREVENTION AND CONTROL (CPC)

1. Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with the dolly set be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.
2. While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.
3. If a corrosion problem is identified, report it using SF Form 368 (Product Quality Deficiency Report). Use of key words such as "corrosion", "rust", "deterioration", or "cracking" will ensure that the information is identified as a CPC problem. Submit the form to the address specified in DA PAM 750-8.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

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

PREPARATION FOR STORAGE OR SHIPMENT

GENERAL

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

PREPARATION FOR STORAGE OR SHIPMENT - Continued

2. The requirements specified herein are necessary to maintain equipment in administrative storage in such a way as to achieve the maximum readiness condition.
3. 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) should be completed and deficiencies corrected.
4. Report equipment in administrative storage as prescribed for all reportable equipment.
5. Perform inspections, maintenance services, and lubrication as specified herein.
6. Records and reports to be maintained for equipment in administrative storage are those prescribed by DA PAM 750-8 for equipment in use.
7. A 10% variance is acceptable on time, running hours, or mileage used to determine the required maintenance actions.
8. Accomplishment of applicable PMCS, as mentioned throughout this chapter, will be on a semiannual 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.

PREPARATION OF EQUIPMENT FOR ADMINISTRATIVE STORAGE

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.
 - c. Open sites should be improved hardstand, if available. Unimproved sites should be firm, well-drained, and free of excess vegetation.
2. **Storage Plan**
 - a. Store dolly set with lift cylinders fully retracted and bottom beams resting on dunnage such as wood, rather than directly on the ground.
 - b. On dolly sets with standard lift cylinders, pack recess between lift cylinder head inside diameter (wiper lip clearance bore) and wiper lip with grease (WP 0197, Table 1, Item 26).
 - c. If dolly set is going to sit unused for more than a month, coat rods with GAA grease (WP 0197, Table 1, Item 30), then wrap rods with waterproof barrier material (WP 0197, Table 1, Item 2). Use moisture-resistant tape (WP 0197, Table 1, Item 54) to hold barrier material in place. Remove tape, barrier material, and grease from rods when returning dolly set to service.
 - d. 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.
 - e. Take into consideration environmental conditions, such as extreme heat or cold; high humidity; blowing sand, dust, or loose debris; soft ground; mud; heavy snows; or any combination thereof, and take adequate precautions.
 - f. Establish a fire plan and provide for adequate fire fighting equipment and personnel.
3. **Maintenance Service and Inspections**
 - a. **Maintenance Services.** Prior to storage, perform the next scheduled Field PMCS, disconnect battery cables (Battery Cables Replacement (WP 0042)), and drain fuel from fuel tank (Fuel Tank Maintenance (WP 0118)).
 - b. **Inspection.** Inspect and approve the equipment prior to storage. Do not place non mission-capable equipment in storage.
4. **Auxiliary Equipment and Basic Issue Items**
 - a. Process auxiliary and basic issue items simultaneously with the major item to which they are assigned.
 - b. If possible, store auxiliary and basic issue items with the major item.

PREPARATION FOR STORAGE OR SHIPMENT - Continued

- c. If stored apart from the major item, mark auxiliary and basic issue items with marker tags (WP 0197, Table 1, Item 49) 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 deferment from the approving authority.
6. **Lubrication.** Lubricate equipment in accordance with (IAW) instructions in Field PMCS (WP 0026).
7. **General Cleaning, Painting, and Preservation** Follow all warnings, cautions, and notes in the cleaning work packages to prevent injury or damage to equipment.
 - a. **Cleaning.** Clean the equipment of dirt, grease, and other contaminants, but do not use vapor degreasing.
 - b. **Painting.** Remove rust and damaged paint by scraping, wire brushing, sanding, or buffing. Sand to a smooth finish and spot paint as necessary IAW TB 430-0209.
 - c. **Preservation.** After cleaning and drying, immediately coat unpainted metal surfaces with oil or grease, as appropriate (Operator/Crew PMCS (WP 0024)).

NOTE

- Place a piece of barrier material (WP 0197, Table 1, Item 2) between desiccant bags and metal surfaces.
 - Air circulation under draped covers reduces deterioration from moisture or heat.
- d. **Weatherproofing.** Sunlight, heat, moisture (humidity), and dirt tend to accelerate deterioration. Install all covers (including vehicle protective closures) authorized for the equipment. Close and secure all openings except those required for venting and draining. Seal openings to prevent the entry of rain, snow, or dust. Insert desiccant when complete seal is required. Place equipment, and provide blocking or framing, to allow for ventilation and water drainage. Support cover away from item surfaces which may rust, rot or mildew.

CARE OF EQUIPMENT IN ADMINISTRATIVE STORAGE

1. **Maintenance Services.** After equipment has been placed in administrative storage, inspect, service, and exercise as specified herein.
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 visual inspection:
 - a. Low or flat tires.
 - b. Condition of preservatives, seals, and wraps.
 - c. Corrosion or other deterioration.
 - d. Missing or damaged parts.
 - e. Water in compartments.
 - f. 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 quickly as possible. Whenever possible, perform all maintenance on-site.
4. **Exercising.** Exercise equipment (IAW) Table 1, Exercise Schedule, and the following instructions.
 - a. **Vehicle Major Exercise.** Depreserve equipment by removing only that material restricting exercise. If dolly set was stored with lift cylinder extended, before operation extend cylinders an additional 2-3 in. (5-8 cm) (DO NOT retract), then wipe rods clean with a clean rag (WP 0197, Table 1, Item 42) soaked in lubricating oil (WP 0197, Table 1, Item 38). Close all drains, remove blocks, and perform all *Before* operational checks. Couple dolly set to towing vehicle and drive for at least 25 mi (40 km). Make several right and left 90 degree turns. Make several hard braking stops without

PREPARATION FOR STORAGE OR SHIPMENT - Continued

skidding. While exercising, and when it is safe and convenient, operate all other functional components and perform all *During and After* operational checks.

b. **Scheduled Services.** Scheduled services will include inspection per subparagraph b and will be conducted (IAW) Table 1. Lubricate (IAW) instructions in Lubrication Instructions (WP 0028).

c. **Corrective Action.** Immediately take action to correct shortcomings and deficiencies noted. Record inspection and exercise results on DA Form 2404 or DA Form 5988E. Record and report all maintenance actions on DA Form 2407 or DA Form 5990-E. After exercising, restore the preservation to the original condition. Replenish lubricants used during exercising and note the amount on DA Form 2408.

5. **Rotation.** Rotate items (IAW) any rotational plan that will keep the equipment in an operational condition and reduce the maintenance effort.

Table 1. Exercise Schedule

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

PROCEDURES FOR COMMON COMPONENTS AND MISCELLANEOUS ITEMS

1. **Tires.** Visually inspect tires during each walkaround 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.
2. **Airbrake System Valves.** Drain condensation from valves by opening draincocks or removing drain plugs. Place tags on valves as a reminder to replace drain plugs and close draincocks when equipment is put into service.
3. **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.

REMOVAL OF EQUIPMENT FROM ADMINISTRATIVE STORAGE

1. Activation.

- a. Restore the equipment to normal operating condition (IAW) the instructions contained in Service Upon Receipt (WP 0027).
- b. If dolly set was stored with lift cylinders extended, before operation extend cylinders an additional 2-3 in. (5-8 cm) (DO NOT retract), then wipe rods clean with a clean rag (WP 0197, Table 1, Item 42) soaked in lubricating oil (WP 0197, Table 1, Item 38).

2. Servicing.

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

PREPARATION OF EQUIPMENT FOR SHIPMENT

1. Dolly sets are shipped coupled in transport (raised) position; lift cylinder rods are extended. Apply a light coat of lubricating oil (WP 0197, Table 1, Item 38) to rods with a clean rag (WP 0197, Table 1, Item 42). On dolly sets with standard lift cylinders, pack recess between lift cylinder head inside diameter (wiper lip clearance bore) and wiper lip with grease (WP 0197, Table 1, Item 26). After shipment and before operation, remove oil coating and grease with a clean dry rag.

PREPARATION FOR STORAGE OR SHIPMENT - Continued

2. Refer to TM 55-2200-001-12 and TM 743-200-1 for additional instructions on processing, storage, and shipment of materiel.
3. Dolly sets 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.
4. When a dolly set is received and has already been processed for domestic shipment, as indicated on DD Form 1397, the dolly set 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.

AIRCRAFT LOADING

1. Dolly set, attached to a fully loaded 8' x 8' x 20' ISO container, can be loaded onto a C-130 or C-141 aircraft using only itself and aircraft winch.
2. Pull dolly set backward into aircraft using aircraft winch attached to rear dolly pintle assembly.
3. During loading, adjust lift cylinders as required to ensure that shelter does not exceed height requirements or contact aircraft's ramp crest.
4. Once inside aircraft, lower shelter to floor and secure in tie-down position per data plate instructions (Stowage and Decal/Data Plate Guide (WP 0018)).

WARRANTY INFORMATION

The M1022A1 Dolly Set is not under warranty by the Engineered Systems Company.

OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS

Official nomenclature is generally used throughout the manual; however, some nomenclature has been abbreviated or shortened to make the procedures easier to follow. Table 2 provides a cross-reference between the official nomenclature and the abbreviated nomenclature.

Table 2. Nomenclature Cross-Reference List.

| Official Nomenclature | Abbreviated Nomenclature |
|------------------------------|---------------------------------|
| Auxiliary Engine | Engine |
| Jack Stand | Trestle |
| Lockout Brace | Transportation Lockout |
| Oil Level Gage | Dipstick |
| O-ring | Preformed Packing |
| Preformed Packing | O-ring |
| Push-pull Valve | Airbrake Valve |
| Steering Arm Assembly | Steering Link |

OFFICIAL NOMENCLATURE, NAMES, AND DESIGNATIONS - Continued

Table 2. Nomenclature Cross-Reference List - Continued.

| Official Nomenclature | Abbreviated Nomenclature |
|-----------------------|--------------------------|
| Twist Lock Assembly | Twist Lock |

LIST OF ABBREVIATIONS/ACRONYMS

Refer to ASME Y14.38 for standard abbreviations.

Table 3. List of Abbreviations/Acronyms

| Abbreviation/ Acronym | Definition |
|--------------------------|--|
| 12V | Twelve Volt |
| 24V | Twenty-Four Volt |
| AAL | Additional Authorization List |
| A/C | Air Conditioning |
| BII | Basic Issue Items |
| BOI | Basis of Issue |
| C | Centigrade Degrees |
| CAGEC | Commercial and Government Entity Code |
| CBRN | Chemical-Biological-Radiological-Nuclear |
| cm | Centimeter |
| COEI | Components of End Item |
| CPC | Corrosion Protection and Control |
| CPR | Cardiovascular Pulmonary Resuscitation |
| DA | Department of the Army |
| DC | Direct Current |
| EIR | Equipment Improvement Recommendation |
| EMP | Electromagnetic Pulse |
| F | Fahrenheit Degrees |

LIST OF ABBREVIATIONS/ACRONYMS - Continued

Table 3. List of Abbreviations/Acronyms - Continued

| Abbreviation/ Acronym | Definition |
|----------------------------------|--|
| FM | Field Manual |
| ft | Foot or Feet |
| GAA | General Automotive and Artillery |
| GPM | Gallons Per Minute |
| GVW | Gross Vehicle Weight |
| HCI | Hardness Critical Item |
| IAW | In Accordance With |
| in. | Inch |
| ISO | International Standards Organization |
| kPa | Kilopascals |
| lb | Pound |
| lb-ft | Pounds Feet |
| lb-in | Pounds Inch |
| LPM | Liters Per Minute |
| m | Meters |
| MAC | Maintenance Allocation Chart |
| mm | Millimeters |
| MTOE | Modified Table of Organization and Equipment |
| NBC | Nuclear, Biological, Chemical |
| NIIN | National Item Identification Number |
| NSN | National Stock Number |
| PMCS | Preventive Maintenance Checks and Services |
| PN | Part Number |
| PQDR | Product Quality Deficiency Report |

LIST OF ABBREVIATIONS/ACRONYMS - Continued

Table 3. List of Abbreviations/Acronyms - Continued

| Abbreviation/ Acronym | Definition |
|----------------------------------|--|
| PSI | Pounds Per Square Inch |
| QTY | Quantity |
| ROD | Report of Discrepancy |
| RPM | Revolutions Per Minute |
| RPSTL | Repair Parts and Special Tools List |
| SAE | Society of Automotive Engineers |
| SC/SM | Supply Catalogues/Supply Manuals |
| SMR | Source, Maintenance and Recoverability (Codes) |
| SRA | Specialized Repair Activity |
| STD | Standard |
| TAMMS | The Army Maintenance Management System |
| TM | Technical Manual |
| TMDE | Test, Measurement and Diagnostic Equipment |
| UOC | Usable On Code |
| U/I | Unit of Issue |
| V | Volts |
| VDC | Volts Direct Current |
| WP | Work Package |

SAFETY, CARE, AND HANDLING

1. **First Aid.** Refer to FM 4-25.11, First Aid for Soldiers, for first aid treatments of injured personnel. IMMEDIATELY seek medical attention for any injury. The following first aid procedures should be used to prevent further injury until medical attention is available
 - a. **Exhaust Gases or Toxic Fumes.** Expose person to fresh air and keep warm. DO NOT permit person to move. If necessary, administer Cardiovascular Pulmonary Resuscitation (CPR) and immediately seek medical attention.
 - b. **Chemical Burns.**
 - **Eyes.** Flush eyes with cold water for no less than 15 minutes. Immediately seek medical attention.
 - **Skin.** Flush area with large amounts of cold water until all acid is removed. Seek medical attention as required.
 - **Internal.** Drink large amounts of water or milk followed by milk of magnesia, beaten egg, or vegetable oil. Immediately seek medical attention.
 - **Clothing or Equipment.** Immediately wash area with large amounts of cold water. Neutralize acid with baking soda or household ammonia.
 - c. **Foreign Object in Eye.** DO NOT attempt to remove foreign object from eye as object may cause cuts and abrasions. Close eye, cover with gauze and tape, and immediately seek medical attention.
2. **Personnel and Dolly Set Precautions.** The following are the Personnel and Dolly Set Precautions:
 - a. Read and become familiar with all WARNINGS in the warning summary at the front of this manual.
 - b. WARNING decals on the dolly set provide safety instructions and identify specific hazards which, if not followed, may result in serious injury or death to personnel.
 - c. Throughout this manual, WARNINGS and CAUTIONS are given immediately preceding the procedural steps to which they apply. Read these WARNINGS and CAUTIONS and follow them exactly.
 - d. When operating or maintaining the dolly set, keep hands, feet, and clothing clear of all moving parts. Remove watches, rings, and other jewelry which could catch on moving parts and cause injury.
 - e. When performing maintenance, protect yourself against injury. Wear protective gear such as safety goggles or lenses, safety shoes, rubber apron, gloves, etc.
 - f. Notify others in the area if you are handling flammable materials. Know location of fire extinguishers and emergency procedures in case of accident or fire.
 - g. Never operate the engine in a closed area unless there is good ventilation. Be alert for signs of carbon monoxide poisoning. If symptoms are noticed, immediately evacuate and ventilate the area.
 - h. Never leave dolly set unattended while engine is running.
 - i. Before performing maintenance, ensure that the dolly set is secured against movement. Park dolly set on level ground with rear dolly parking brakes applied. If parking brakes are not functioning, chock wheels.
 - j. When lifting heavy parts, have someone help you. Ensure that lifting or jacking equipment is working properly, is of sufficient capacity for the assigned task, and is secure against slipping.

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, Expendable and Durable Items List (WP 0197), Tool Identification List (WP 0198), and to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

SPECIAL TOOLS; TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE); AND SUPPORT EQUIPMENT

Refer to the Maintenance Allocation Chart (MAC) (WP 0194), and Repair Parts and Special Tools List Introduction (WP 0132), for information on special tools and support equipment for the M1022A1 Dolly Set.

REPAIR PARTS

Repair parts are listed and illustrated in Repair Parts and Special Tools List Introduction (WP 0132).

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
EQUIPMENT DESCRIPTION AND DATA**

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

1. The M1022A1 Dolly Set consists of two separate and independent halves: a front dolly and a rear dolly.
 - a. The dolly halves attach to an International Standard Organization (ISO) container or shelter to make up the dolly set trailer.
 - b. Using dolly set power, the shelter or container is raised to traveling height and leveled. The dolly set trailer can then be coupled to a towing vehicle and transported to a new location.
 - c. A 15,009 lb (6810 kg) maximum payload can be lifted and towed by the M1022A1 at 55 mi/h (89 km/h) highway speed.
 - d. Authorized towing vehicle is any military tactical wheeled vehicle of 5 ton rating or greater, equipped with a pintle assembly and standard electrical and airbrake connections.
 - e. Two dolly sets without shelters can be towed in tandem. Maximum towing speed when tandem towing is 25 mi/h (40 km/h) for off public road use only.
 - f. The dolly set, with or without shelter, can hardbottom ford up to a depth covering the wheel hubs.
 - g. The dolly set can be transported by highway, rail, marine, and air modes.
2. Features of the M1022A1 include:
 - a. A 12V electrical lighting system with 24V blackout lights.
 - b. Four-wheel full air wedge brakes, emergency breakaway braking, and rear dolly parking brakes.
 - c. Front and rear drawbars with caster wheels; front drawbar has a fixed lunette.
 - d. Hydraulic loading/lifting system, powered by a diesel engine, on each dolly half. In the event of system failure on one dolly, the hydraulic system is configured to accommodate an optional redundant power kit, used only for end lift operations.
 - e. Suspension air bag and standard automotive shock absorber.

NOTE

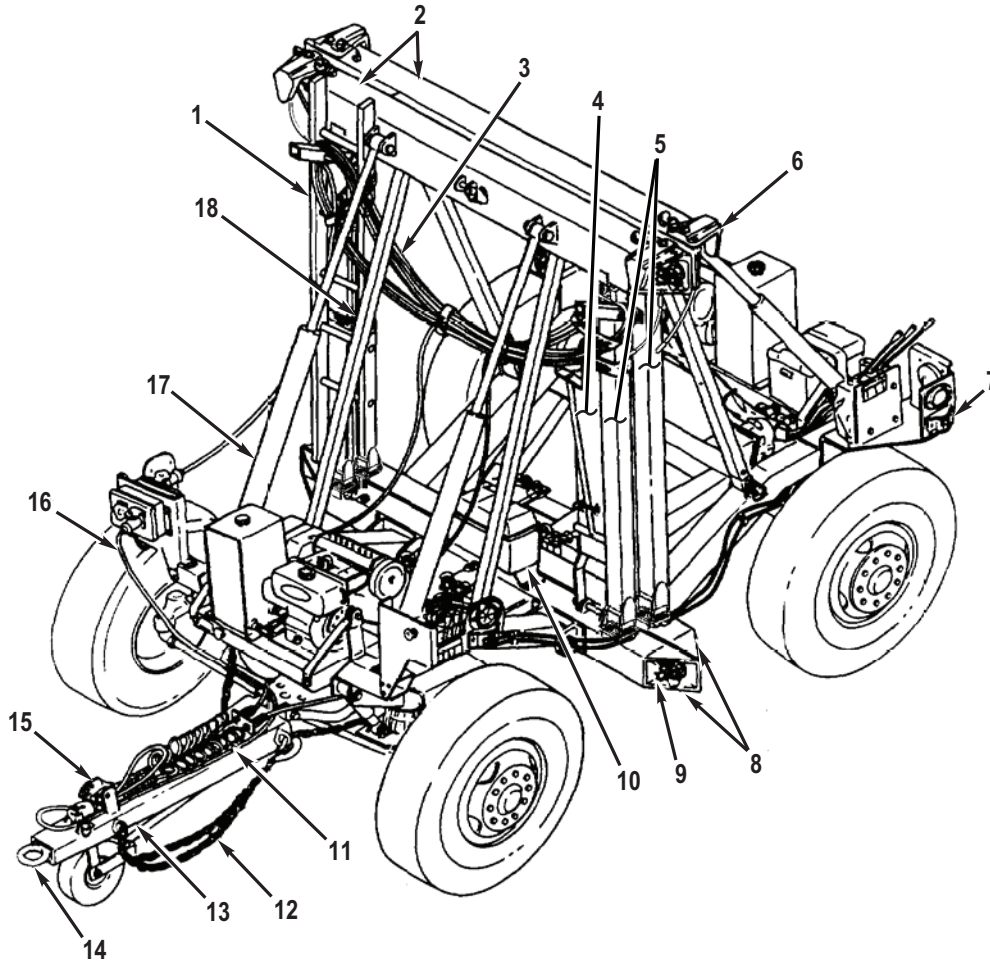
There is no spare tire mounted on the dolly set. A spare must be obtained from the towing vehicle or the motor pool.

- f. Tire changing flexibility using either towing vehicle jack or dolly set hydraulic system to raise wheel assemblies off the ground.
 - g. Towing, electrical, and airbrake connections on the rear dolly which allow for tandem towing of a second (empty) dolly set.
 - h. Standard lift and tie-down points (D-rings) on front and rear axles.
3. The M1022A1 can be equipped with a side lift kit, installed by Field Maintenance. With the side lift kit installed, the dolly set is used as a container-handling device as well as a transport device. Containers can be loaded and unloaded to or from flatbed trucks, trailers, and railcars. They can be cross-loaded between modes of transportation and transported over short distances. Features of the M1022A1 equipped with side lift kit are:
 - a. Capability to side lift a 20 ft (6.1 m) container with a maximum payload of 15,000 lb (6810 kg) on a smooth and level grade.
 - b. Maximum ground clearance at container of 58 in. (147.32 cm).
 - c. Maximum towing speed of 5 mi/h (8 km/h) over short transport distances [100 ft (30.5 m)].
 - d. Operational cycle performed by four trained personnel in 30 minutes or less.
4. The M1022A1 can be equipped with a cold start kit, installed by Field Maintenance. This allows engine to start in extreme temperatures of -26°F to -50°F (-32° to -46°C).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

NOTE

Unless otherwise indicated, components are located on both front and rear dollies.



G0001JMS

Figure 1. Major Components.

Table 1. Major Components.

| Key | Component | Description |
|-----|--|--|
| 1 | Ladder | Used to reach top beams to remove and install twist locks. |
| 2 | Top Beams | Provide adjustable attachment point for top of shelter. |
| 3 | Intradolly Airbrake Hoses and Electrical Cable (Stowed Position) | Provide intradolly airbrake and electrical connections. |

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

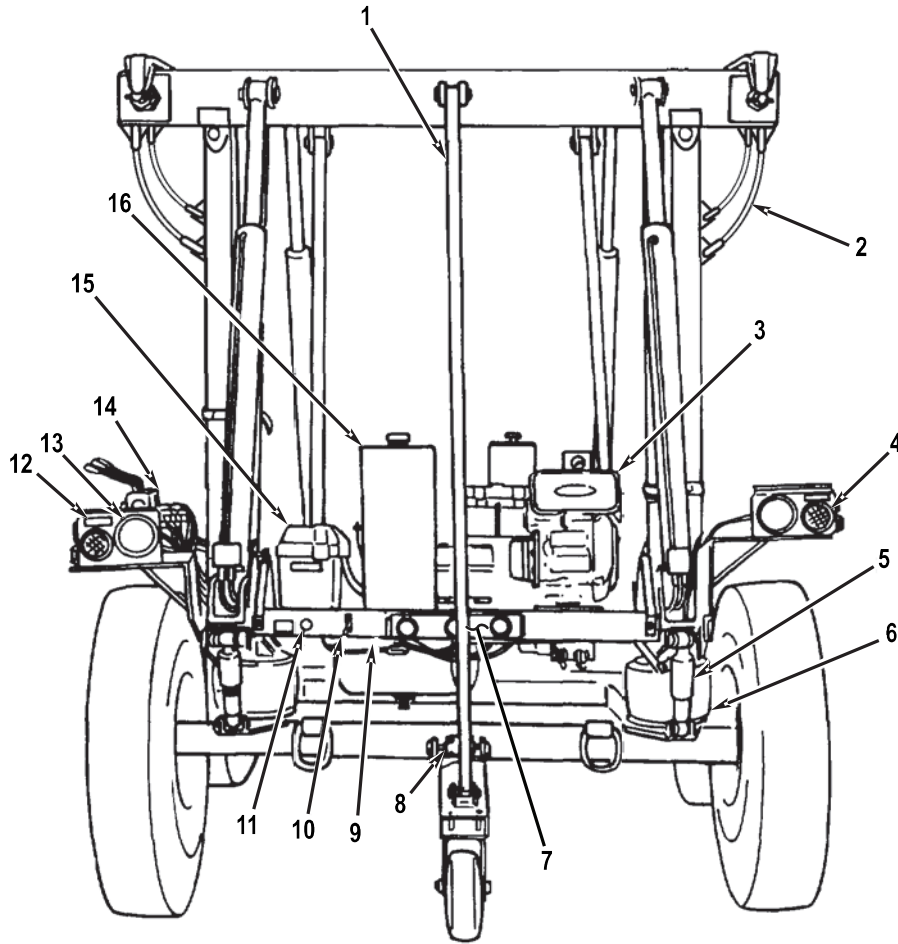
Table 1. Major Components - Continued.

| Key | Component | Description |
|-----|---|---|
| 4 | Rear Drawbar | Attaches to fixed rear axle. Used for manual positioning of rear dolly. |
| 5 | Positioning Cylinders | Position top and bottom beams at the shelter. Housed inside telescoping vertical tubes of top and bottom beams. |
| 6 | Top Hooks | Engage with top of shelter. |
| 7 | Marker Clearance Lights | Indicate presence of dolly set from the side. Front lights have amber lenses; rear lights have red lenses. |
| 8 | Bottom Beams | Provide adjustable attachment point for bottom of shelter. |
| 9 | Twist Locks | Secure top and bottom beams to each other or to shelter. |
| 10 | Toolbox (Front Dolly) | Provides covered storage for all dolly set Basic Issue Items (BI) and Components of End Item (COEI). |
| 11 | Intervehicular Airbrake Hoses (Front Dolly) | Provide service and emergency air connections to operate brakes. |
| 12 | Safety Chains (Front Dolly) | Prevent dolly set from fully breaking away from towing vehicle. |
| 13 | Front Drawbar (Front Dolly) | Attaches to steerable front axle to aid in steering of front dolly. Has a fixed towing lunette. |
| 14 | Lunette | Couples to towing vehicle pintle assembly. |
| 15 | Dummy Couplings (Front Dolly) | Provide storage for intervehicular gladhands when not in use. |
| 16 | Intervehicular Cable (Front Dolly) | Provides electrical connection to operate lights. Two are provided (12V and 24V). |
| 17 | Lift Cylinders | Raise and lower shelter. |
| 18 | Transportation Lockouts | In the event of hydraulic system failure, support dolly set and shelter during transport. |

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

NOTE

Unless otherwise indicated, components are located on both front and rear dollies.



G0002JMS

Figure 2. Major Components.

Table 2. Major Components.

| Key | Component | Description |
|-----|------------------|---|
| 1 | Telescopic Brace | Supports frame and prevents dolly half from overturning when in maneuvering position. |
| 2 | Stability Cable | Stabilizes top beam and vertical tube/positioning cylinder connection. |
| 3 | Engine | Powers dolly set hydraulic system. |
| 4 | Reflectors | Mark outline of dolly set. |

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

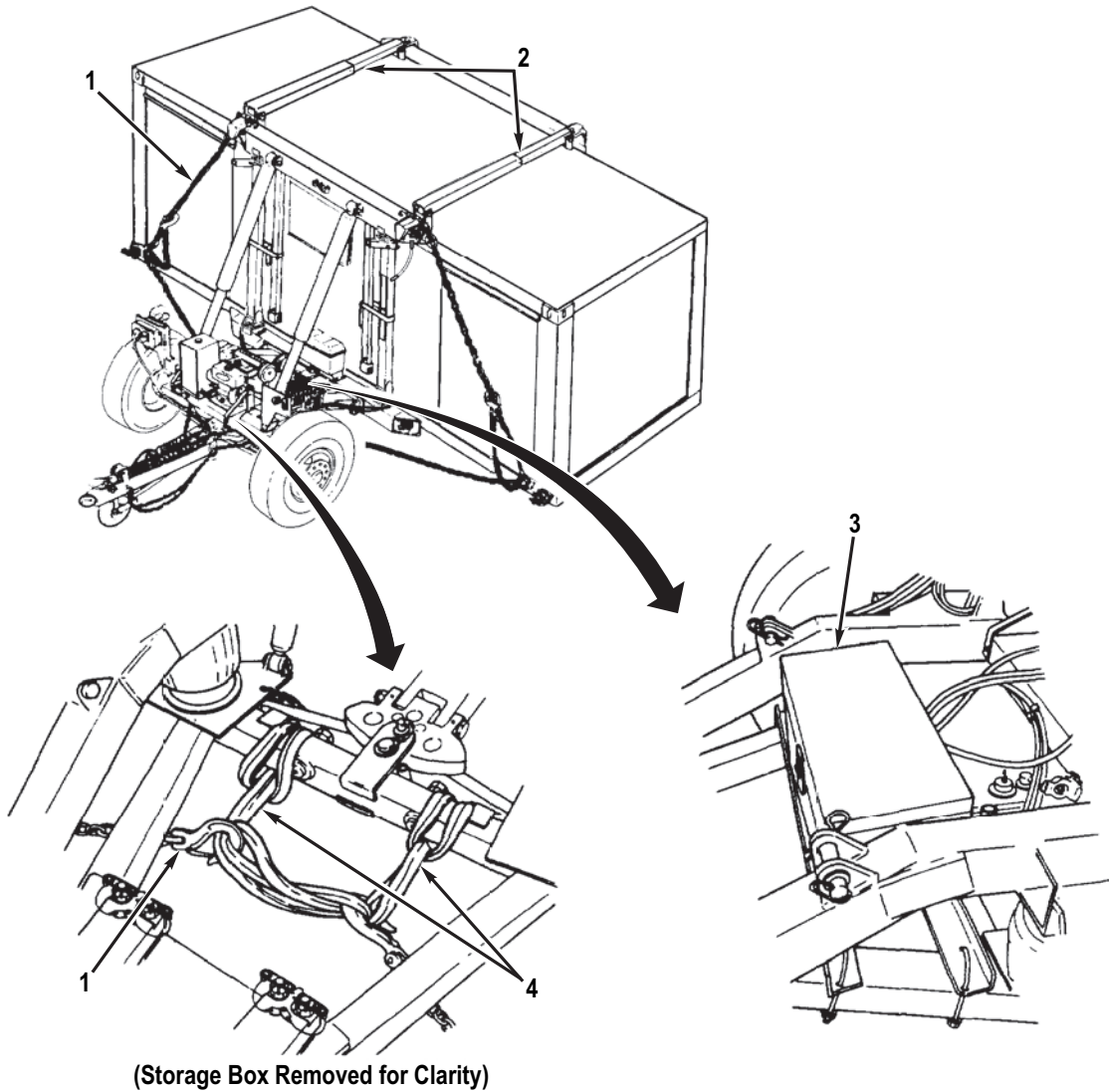
Table 2. Major Components - Continued.

| Key | Component | Description |
|------------|--|--|
| 5 | Shock Absorbers | Dampen road shock. |
| 6 | Air Bags | Inflate to provide cushioning and proper riding height for shelter. |
| 7 | Identification Light (Rear Dolly) | Provides running lights at midpoint of rear dolly. |
| 8 | Pintle Assembly (Rear Dolly) | Used for tandem towing. |
| 9 | Pivoting Tray | Provides mounting surface for engine and other components. |
| 10 | Parking Brake Lever (Rear Dolly) | Applies and releases parking brakes on rear dolly. |
| 11 | Airbrake Control Knob | Applies or releases front and rear dolly service brakes when dolly set is uncoupled from towing vehicle. |
| 12 | Blackout Stoplight-Taillights (Rear Dolly) | Provide blackout lights on rear dolly. |
| 13 | Taillights (Rear Dolly) | Provide tail, stop, and turn signal lights on rear dolly. |
| 14 | Hydraulic Control Valve | Has three levers which control the lift and positioning cylinders. |
| 15 | Battery Case | Houses 12V battery. |
| 16 | Hydraulic Reservoir | Contains hydraulic fluid. |

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

NOTE

Unless otherwise indicated, components are located on both front and rear dollies.



G0003JMS

Figure 3. Major Components (Side Lift Kit Configuration).

Table 3. Major Components.

| Key | Component | Description |
|-----|-----------------------|--|
| 1 | Chain Assemblies | Provide attachment link between shelter and dolly halves during side lift operation. |
| 2 | Crossbrace Assemblies | Link front and rear dolly top beams over shelter during side lift operation. |

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

Table 3. Major Components - Continued.

| Key | Component | Description |
|-----|---------------------------|---------------------------------------|
| 3 | Storage Box (Front Dolly) | Contains components of side lift kit. |
| 4 | Slings | Connect axle chains to axle. |

EQUIPMENT DATA

Table 4. General Characteristics and Specifications.

| | | |
|----------------------------------|--------------------------------------|------------------------|
| Weight | | |
| Dolly Set (Empty) | | 6,273 lb (2,845 kg) |
| Payload (Maximum) | | 15,000 lb (6,804 kg) |
| Gross Vehicle Weight (GVW) | | 21,273 lb (9,649 kg) |
| Dimensions Overall | | |
| Wheel Base | | |
| | Loaded, With 20 ft (6.1 m) Container | 338.50 in. (859.79 cm) |
| | Unloaded, Dolly Halves Attached | 98.50 in. (250.19 cm) |
| Length (Front Drawbar Extended) | | |
| | Loaded, With 20 ft (6.1 m) Container | 438 in. (1112.52 cm) |
| | Unloaded, Dolly Halves Attached | 198 in. (502.92 cm) |
| Height | | 115.50 in. (293.37 cm) |
| Ground Clearance | | |
| | End Lift Operation | 14 in. (35.56 cm) |
| | Side Lift Operation | 58 in. (147.32 cm) |
| Width (Loaded or Unloaded) | | 79.75 in. (202.57 cm) |
| Wheel Track (Loaded or Unloaded) | | 79.75 in. (202.57 cm) |

EQUIPMENT DATA - Continued

Table 4. General Characteristics and Specifications - Continued.

| | | |
|---------------------------------------|--|---|
| Towing Specifications | | |
| Towing Vehicle | | 5 Ton Capacity or Greater |
| Towing Connection | | Pintle Assembly/Lunette |
| Maximum Towing Speed | | |
| M1022A1 (End Lift Transport) | | |
| Highway | | 55 mi/h (89 km/h) |
| Cross-country | | 25 mi/h (40 km/h) |
| Tandem (For Off Public Road Use Only) | | 25 mi/h (40 km/h) |
| M1022A1 (Side Lift Transport) | | 5 mi/h (8 km/h) |
| Fording | | |
| Depth | | Covering Wheel Hubs |
| Fluid Capacities | | |
| Engine | | |
| Crankcase Oil | | 1.37 qt (1.30 l) |
| Fuel Tank | | Maximum Fuel Level Visible at Top of Fuel Indicator |
| Hydraulic Reservoir | | |
| Standard Operation | | 4.90 gl (18.55 l) |
| Side Lift Operation | | 8.90 gl (33.69 l) |
| Electrical System Specifications | | |
| Lights | | 12V dc; 24V dc Blackout |
| Axle Specifications | | |
| Front | | Tubular, Steerable |
| Rear | | Tubular, Trailer, Fixed |

EQUIPMENT DATA - Continued

Table 4. General Characteristics and Specifications - Continued.

| | | |
|-------------------------------|--|--|
| Brake System Specifications | | |
| Service Brakes | | |
| | Type | Full Air, Wedge |
| | Activation | Air Applied, Spring Retracted |
| | Location | Front and Rear Dolly Wheels |
| | Brakeshoes | Non-asbestos |
| Parking Brakes | | |
| | Type | Full Air |
| | Activation | Spring Applied, Air Retracted |
| | Location | Rear Dolly Wheels |
| Emergency (Spring) Brakes | | |
| | Type | Full Air |
| | Location | Rear Dolly Wheels |
| Wheel Assembly Specifications | | |
| | Wheel Size | 20 X 7.5 (With Tube), 22.5 X 8.25 (Tubeless), Military Standard, 10 Hole, 11.25 Diameter, Bolt Circle |
| Tires | | |
| | Size | 11:00 X R20 (With Tube), 12:00 X R22 (Tubeless) |
| | Quantity | Four |
| | Ply Rating | 16 |
| | Load Range | H |
| | Inflation (Highway, Cross-country, or Mud) | 110 psi (758 kPa) |

EQUIPMENT DATA - Continued

Table 4. General Characteristics and Specifications - Continued.

| | | |
|----------------------------------|-------------------------|---|
| Caster Wheel Assembly Tire | | |
| | Type | 3.40/3.00-5 |
| | Inflation | 95 psi (655 kPa) |
| Suspension System Specifications | | |
| | Air Bags | Four |
| | Shock Absorbers | Four |
| Hydraulic System Specifications | | |
| | Fluid Type | MIL-H-5606 |
| | Operating Pressure | 2000 psi, (13,790 kPa) |
| | Fluid Level Measurement | Dipstick |
| Hydraulic Pump | | |
| | Quantity | One Each Dolly Half |
| | Type | Gear |
| | Rated Capacity | 2 gpm @ 2000 psi, (7.57 lpm @ 13,790 kPa) |
| | Power Source | Engine |
| Relief Valve | | |
| System | | |
| | Quantity | One Each Dolly Half |
| | Relief Valve Setting | 2000 psi (13,790 kPa) |
| | Location | Hydraulic Control Valve Inlet |
| Hydraulic Pump | | |
| | Quantity | One Each Dolly Half |
| | Relief Valve Setting | 2000 psi (13,790 kPa) |
| | Location | Hydraulic Pump |

EQUIPMENT DATA - Continued

Table 4. General Characteristics and Specifications - Continued.

| | | |
|-------------------------------------|----------------------|--|
| Positioning Cylinders Extension | | |
| | Quantity | One Each Dolly Half |
| | Relief Valve Setting | 500 psi (3448 kPa) |
| | Location | Hydraulic Control Valve (Positioning Cylinders Work Section) |
| Hydraulic Cylinders | | |
| Positioning (Without Side Lift Kit) | | |
| | Quantity | Two Each Dolly Half |
| | Bore | 1.50 in. (3.81 cm) |
| | Stroke | 48.00 in. (121.92 cm) |
| | Rated Pressure | 3000 psi (20,685 kPa) |
| Positioning (With Side Lift Kit) | | |
| | Quantity | Two Each Dolly Half |
| | Bore | 2.00 in. (5.08 cm) |
| | Stroke | 68.00 in. (172.72 cm) |
| Lift (Without Side Lift Kit) | | |
| | Quantity | Two Each Dolly Half |
| | Bore | 3.50 in. (8.89 cm) |
| | Stroke | 51.75 in. (131.45 cm) |
| | Rated Pressure | 3000 psi (20,685 kPa) |
| Lift (With Side Lift Kit) | | |
| | Type | Dual Action, 2-Stage |
| | Quantity | Two Each Dolly Half |
| | Bore | 5.00 in. (12.70 cm) |
| | Stroke | 82.00 in. (208.28 cm) |
| | Rated Pressure | 3000 psi (20,685 kPa) |

EQUIPMENT DATA - Continued

Table 4. General Characteristics and Specifications - Continued.

| | | |
|--|------------------------------------|---|
| Hydraulic Control Valve | | |
| | Quantity | One Each Dolly Half |
| | Operation | Two Lift Cylinder Levers, One Positioning Cylinders Lever |
| Engine Specifications | | |
| | Model | OC60-D1-Q or OC60-E1 |
| | Quantity | One Each Dolly Half |
| | Dry Weight | 83.8 lb (38.1 kg) |
| | Type | Diesel |
| | Cycle | Four |
| | Number of Cylinders | One |
| | Displacement | 16.8 cu in. (275.4 cu cm) |
| | Horsepower | 6.2 @ 3600 rpm |
| Speed | | |
| | Maximum | 3800 rpm |
| | Minimum (Idle) | 1200 rpm |
| | Compression Ratio | 2019-2133 psi |
| | Injection Pressure (Nozzle Holder) | 2019-2133 psi (13,921-14,707 kPa) |
| Governor | | Centrifugal, Mechanical |
| Cooling System | | Oil and Air |
| Fuel | | Diesel DF-2 or Diesel DF-A (Arctic) |
| Cold Weather Starting Below 41°F (5°C) | | Glow Plug |

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
THEORY OF OPERATION**

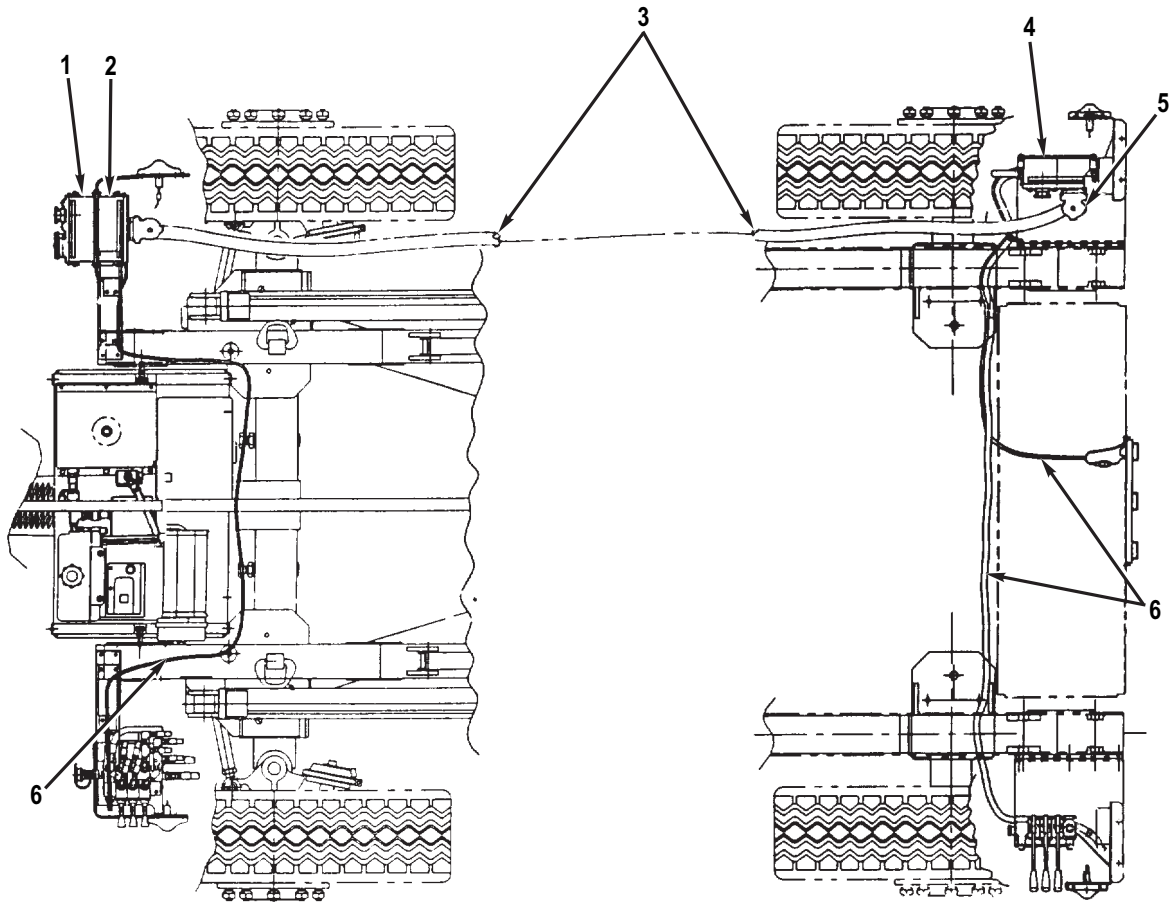
GENERAL

1. The following paragraphs describe principles of operation for the major systems of the M1022A1 Dolly Set. A thorough reading of these paragraphs will be helpful to both the operator and mechanic.
2. Equipment Description and Data (WP 0002) , for general characteristics and specifications as they apply to the operation and maintenance of the dolly set.

ELECTRICAL SYSTEM

1. The electrical lighting system is 12V with adaptations for 24V service. The dolly set is equipped with a 12V and a 24V intervehicular cable.
2. The front dolly is equipped with marker clearance lights only. The rear dolly has marker clearance lights, an identification light, taillights (tail, stop, and turn signal lights), and 24V blackout stoplight-taillights.
3. Major components of the electrical system include the following:

ELECTRICAL SYSTEM - Continued



G0010JMS

Figure 1. Theory of Operation (Electrical).

Table 1. Theory of Operation (Electrical).

| Key | Component | Description |
|-----|-------------------------|--|
| 1 | Signal Conditioning Box | Receives 12V or 24V from towing vehicle through intervehicular cable. Contains circuit breakers and voltage reduction circuitry to reduce 24V to 12V as required. Routes wiring to front dolly marker clearance lights and front distribution box. |
| 2 | Front Distribution Box | Receives wiring from signal conditioning box and routes wiring to 12-pin receptacle connector. |
| 3 | Intradolly Cable | Brings power from front dolly (12-pin receptacle connector in front distribution box) to rear dolly (12-pin receptacle connector in rear distribution box). Is long enough to be routed over roof of a shelter. |

ELECTRICAL SYSTEM - Continued

Table 1. Theory of Operation (Electrical) - Continued.

| Key | Component | Description |
|-----|--------------------------|---|
| 4 | Rear Distribution Box | Directs power to rear dolly lights and to 12V receptacle connector. |
| 5 | 12V Receptacle Connector | Provides a 12V connection at rear dolly. |
| 6 | Cable Assemblies | Transfer power from electrical boxes to lights. |

BRAKE SYSTEM

1. The brake system is a full air with wedge-type brake assemblies at each wheel. Brakeshoes are made of a non-asbestos organic compound.
2. Air to operate the brakes is supplied by the towing vehicle and is routed to the dolly set through the intervehicular and intradolly air hoses. Service supply lines are routed along the right side of the dolly set; emergency supply lines are routed along the left side.
3. The service brakes apply and release the brakes when the brake pedal in the towing vehicle is pressed during normal driving. Air to apply the brakes is directed from the air reservoirs through the relay emergency valve (front dolly) and full function valve (rear dolly) to the airbrake chambers mounted at each wheel of front and rear dollies.
4. The parking brake system operates on the rear dolly only. It applies and releases the parking brakes when the parking brake lever is operated. Spring fail-safe airbrake chambers, mounted piggyback to the service airbrake chambers on the rear dolly, allow functioning of the parking brake system.
 - a. Parking brakes are applied by a large spring in the spring fail-safe airbrake chambers. The spring is normally retracted by air pressure.
 - b. When the parking brake lever is raised, air pressure is removed from behind the spring and the parking brakes apply.
 - c. Parking brakes are released by restoring air pressure to the spring fail-safe airbrake chambers to retract the spring.
5. The emergency breakaway system stops the dolly set by applying the brakes in the event that the emergency supply line from the towing vehicle is severed during a breakaway.
6. With both the parking and emergency breakaway systems, loss of air pressure causes brakes to apply. Restoration of air pressure allows brakes to release. Brakes that have been applied due to air pressure loss can be manually released (caged) to allow movement of the dolly set.
7. Major components of the brake system include the following:

BRAKE SYSTEM - Continued

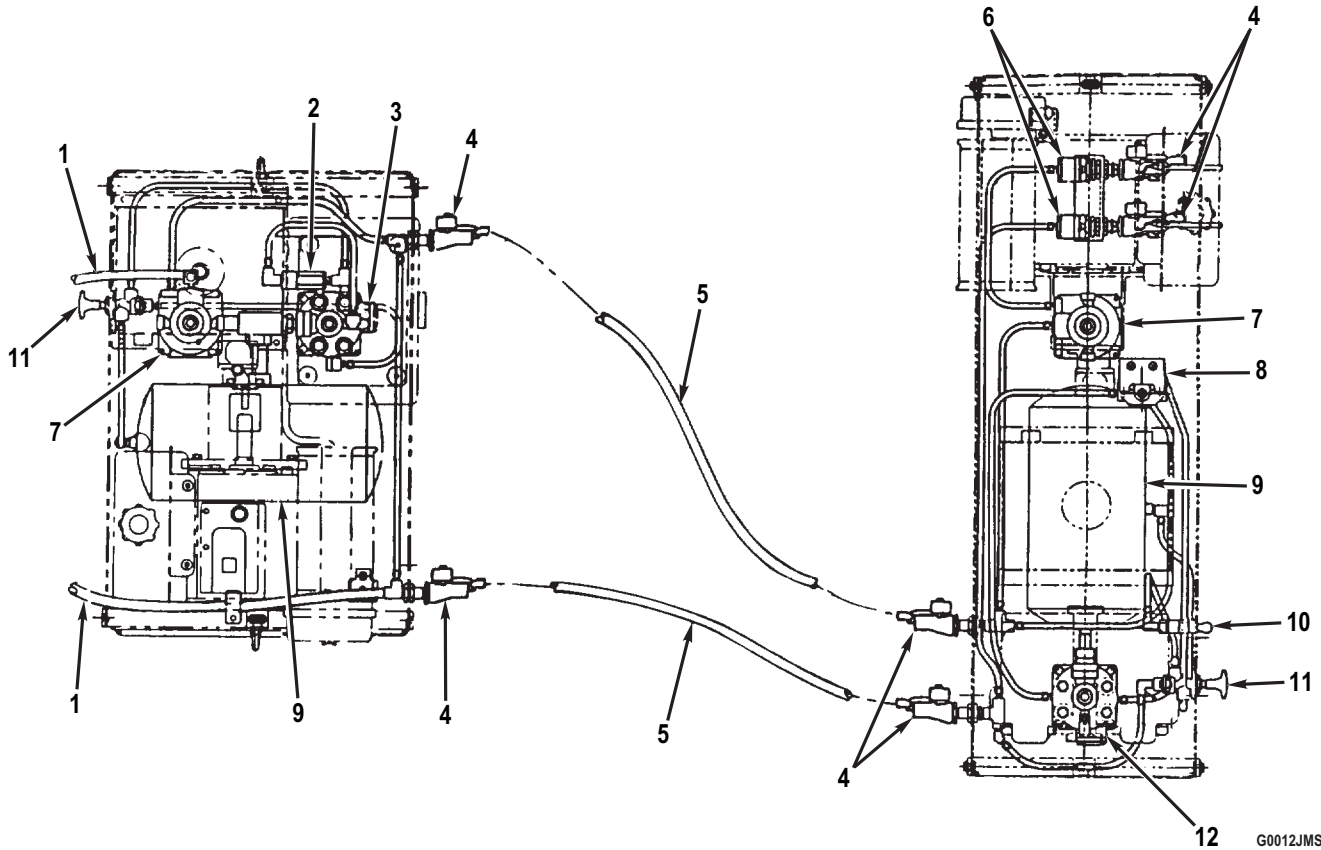


Figure 2. Theory of Operation (Brakes).

Table 2. Theory of Operation (Brakes).

| Key | Component | Description |
|-----|-------------------------------|---|
| 1 | Intervehicular Airbrake Hoses | Route service and emergency air from towing vehicle to front dolly. |
| 2 | Pressure Protection Valve | Acts as a check valve. Allows air to flow only one way—from emergency line to air reservoir. |
| 3 | Relay Emergency Valve | With emergency line and air reservoir pressurized, senses service brake pressure from towing vehicle and applies or releases air to service airbrake chambers to apply or release brakes. |
| 4 | Pivoting Tray Gladhands | Provide quick disconnect air connections between front and rear dollies and second dolly set when towed in tandem. |
| 5 | Intradolly Airbrake Hoses | Route service and emergency air from front dolly to rear dolly. |

BRAKE SYSTEM - Continued**Table 2. Theory of Operation (Brakes) - Continued.**

| Key | Component | Description |
|------------|------------------------------|--|
| 6 | Shutoff Valves (With Levers) | Open to supply air to second dolly set when tandem towing. Close when tandem towing is complete. |
| 7 | Booster Relay Valves | Provide service brake air pressure to allow proper brake operation. |
| 8 | Relay Valve | Closes service line from towing vehicle when parking brake lever on rear dolly has vented air from supply line to apply parking brakes. Prevents rear dolly service brakes from being applied at same time as parking brakes. Also prevents towing vehicle brakes from locking up. |
| 9 | Air Reservoirs | Store compressed air to operate brakes. Each reservoir has a manually operated draincock which allows release of compressed air and drainage of condensation and other contaminants from airbrake system. |
| 10 | Parking Brake Lever | Applies and releases parking brakes on rear dolly. |
| 11 | Airbrake Control Knob | Applies or releases front and rear dolly service brakes when dolly set is uncoupled from towing vehicle. |
| 12 | Full Function Valve | With emergency line and air reservoir pressurized, senses service brake pressure from towing vehicle and applies or releases air to service airbrake chambers to apply or release brakes. In addition, controls spring brakes. |

STEERING SYSTEM

1. The steering system provides ground mobility when positioning front and rear dollies for attachment to a shelter. Once attached, the steering system provides similar mobility while the dolly set trailer is towed.
2. Major components of the steering system include the following:

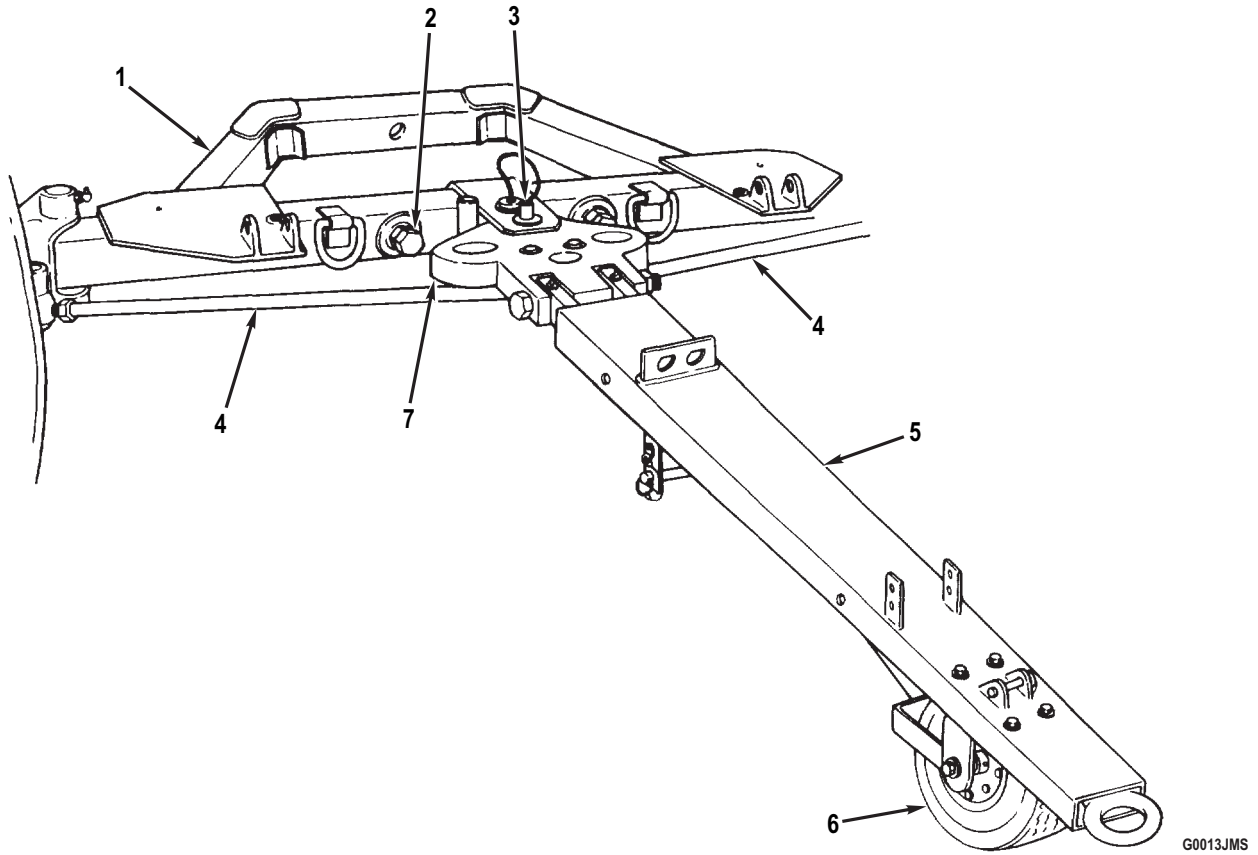


Figure 3. Theory of Operation (Steering).

Table 3. Theory of Operation (Steering).

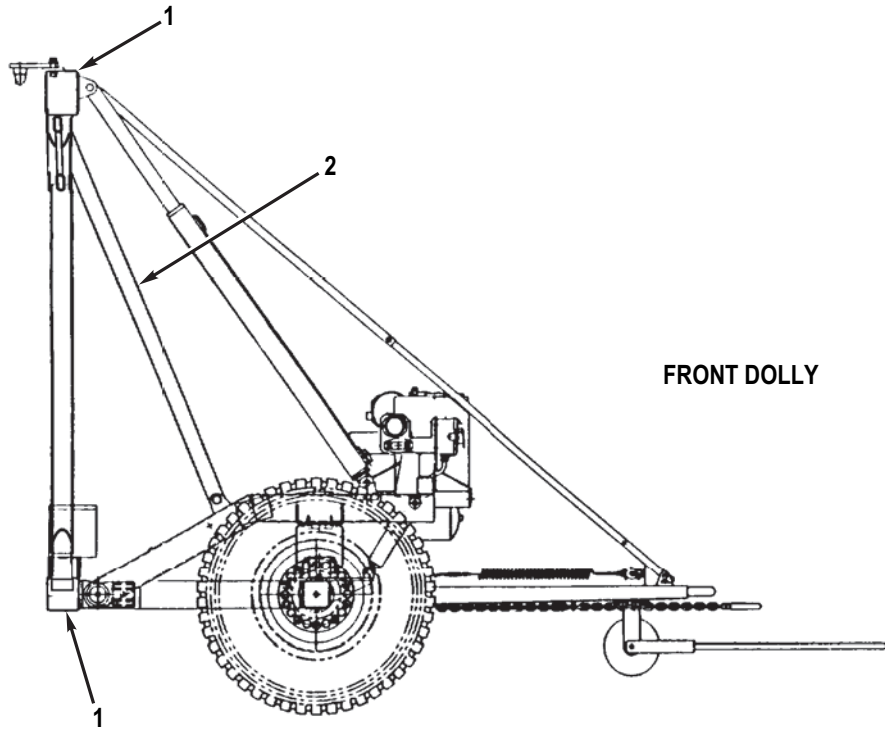
| Key | Component | Description |
|-----|----------------------|--|
| 1 | Front Axle | Has standard vehicular steering components to provide steering capability. |
| 2 | Steering Stops | Limits steering radius. |
| 3 | Steering Locking Pin | Locks front axle steering. Used during manual positioning of front dolly to shelter and when backing dolly set in a straight line. |
| 4 | Tie-rod Assemblies | Transmit steering movement from steering link to wheels. |

STEERING SYSTEM - Continued**Table 3. Theory of Operation (Steering) - Continued.**

| Key | Component | Description |
|------------|-----------------------|---|
| 5 | Drawbar | Used for towing, steering, and manual positioning. |
| 6 | Caster Wheel Assembly | Allows front or rear dolly to be manually moved when in a three-wheel configuration (maneuvering position). |
| 7 | Steering Link | Link at center of front axle to which tie-rod assemblies are attached. |

FRAME AND SUSPENSION ASSEMBLY

1. Frame and suspension assembly components function together to provide:
 - a. a means to raise, transport, and lower a shelter.
 - b. easy positioning of each dolly half.
 - c. cushioning and dampening effects for the dolly set and its payload.
2. Each dolly half has its own independent frame and suspension assembly.
3. In addition to the dolly set front and rear axles, major components of the frame and suspension assembly include the following:



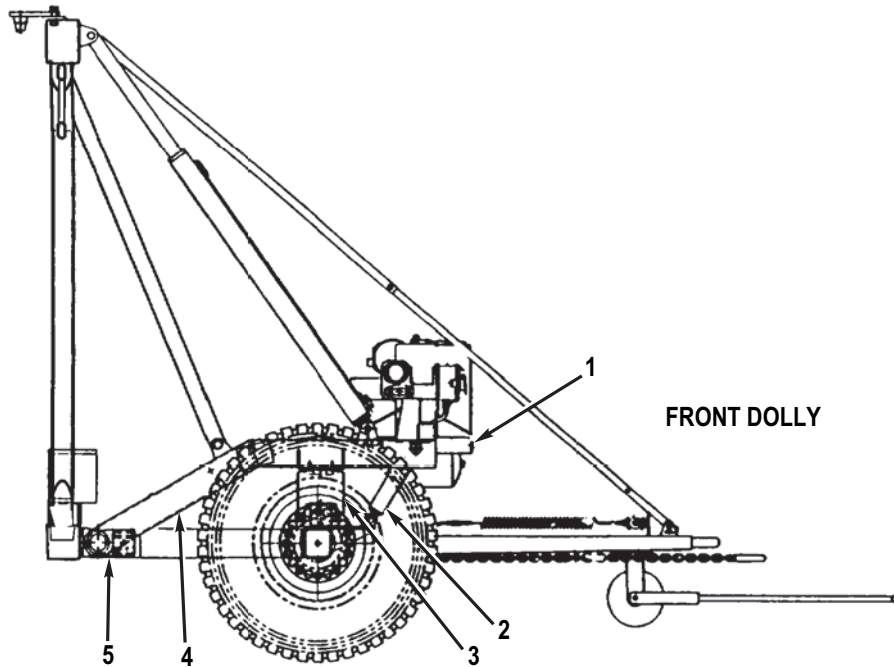
G0033JMS

Figure 4. Theory of Operation (Frame and Suspension).

Table 4. Theory of Operation (Frame and Suspension).

| Key | Component | Description |
|-----|-------------------------|--|
| 1 | Top and Bottom Beams | Provide attachment point for shelter. Connected by telescoping vertical tubes which house positioning cylinders. |
| 2 | Transportation Lockouts | In the event of hydraulic system failure, support dolly set and shelter during transport. |

FRAME AND SUSPENSION ASSEMBLY - Continued



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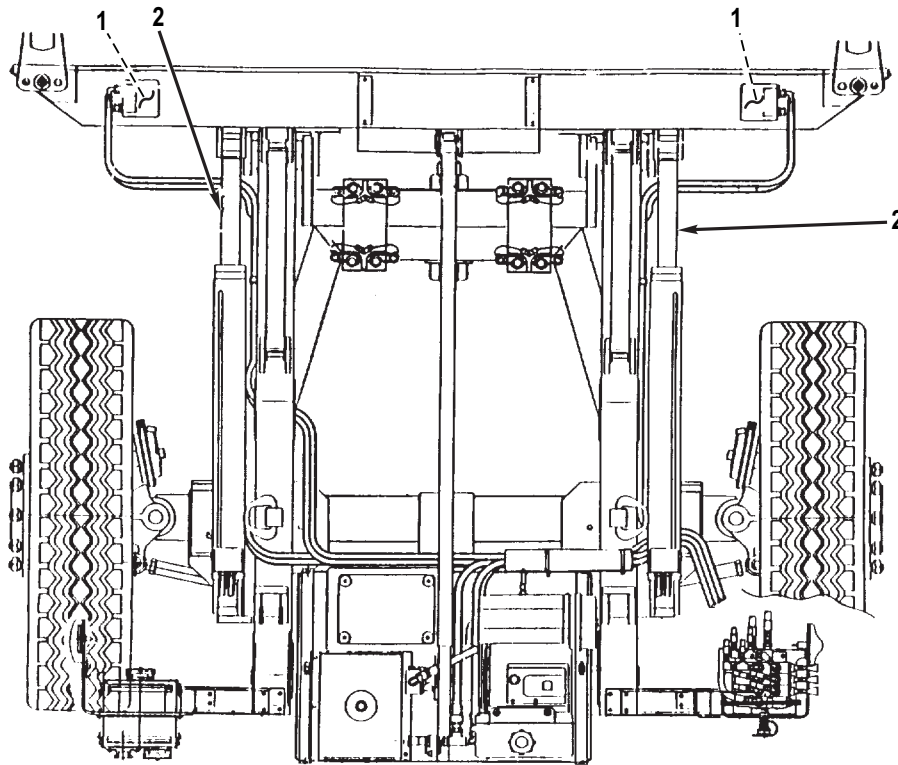
Figure 5. Theory of Operation (Frame and Suspension).

Table 5. Theory of Operation (Frame and Suspension).

| Key | Component | Description |
|-----|--------------------|---|
| 1 | Pivoting Tray | Provides mounting surface for engine and other components. Must be unlocked when operating on uneven terrain and during side lift operation. |
| 2 | Shock Absorbers | Dampen road shock and provide ride height indicator rings. |
| 3 | Air Bags | Inflate to provide cushioning and proper riding height for shelter. Air bag is inflated using dolly set charging assembly (Item 1, (WP 0195)). |
| 4 | Suspension Links | Act as part of suspension system as well as mounts for lift cylinders, transportation lockouts, control valve and distribution box brackets, and pivoting tray. |
| 5 | Pivot Axle Bracket | Locks to axle during normal operation; is unlocked when operating on uneven terrain. Allows pivoting and greater flexibility to attach to and level a shelter. |

HYDRAULIC SYSTEM

1. The hydraulic system maneuvers the front and rear dolly top and bottom beams into a series of positions so that a shelter can be attached and lifted to riding height. Once towed to its destination, the hydraulic system lowers the shelter to the ground.
2. Each dolly half has its own independent hydraulic system.
3. Power to operate the hydraulic system comes from the engine and hydraulic pump.
4. The hydraulic system is configured to accommodate a redundant power kit option. If either the front or rear dolly has engine or hydraulic pump failure, the other dolly half can operate both the front and rear hydraulic systems using the engine and hydraulic pump of the functioning dolly half and the redundant power kit (Operation Under Unusual Conditions (WP 0017)).
5. Major components of the hydraulic system include the following:



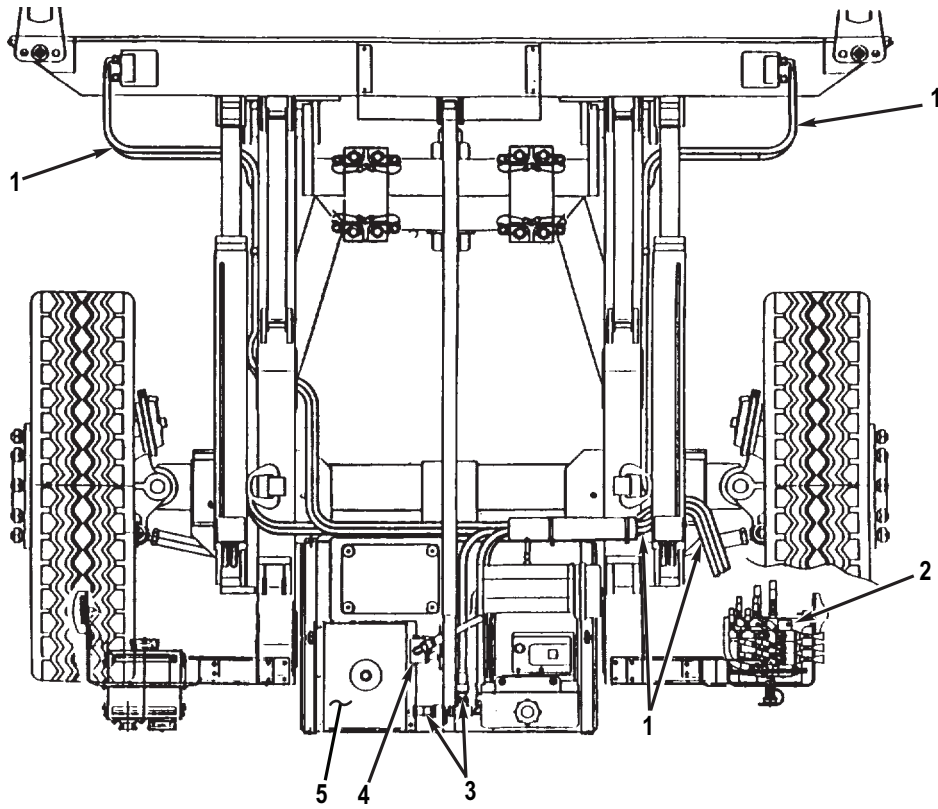
G0015JMS

Figure 6. Theory of Operation (Hydraulics).

Table 6. Theory of Operation (Hydraulics).

| Key | Component | Description |
|-----|-----------------------|---|
| 1 | Positioning Cylinders | Extend or retract to position top and bottom beams at shelters of varying dimensions. Housed inside top and bottom beam telescoping vertical tubes. |
| 2 | Lift Cylinders | Extend or retract to lift or lower shelter. |

HYDRAULIC SYSTEM - Continued



G0016JMS

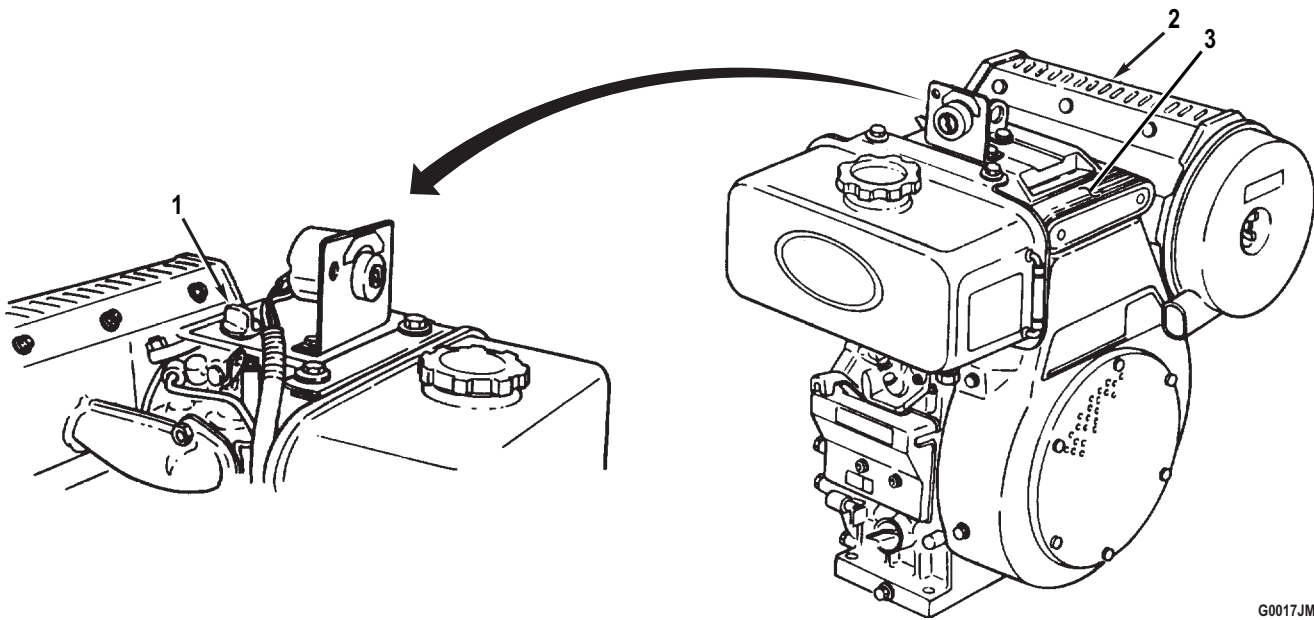
Figure 7. Theory of Operation (Hydraulics).

Table 7. Theory of Operation (Hydraulics).

| Key | Component | Description |
|-----|------------------------------|--|
| 1 | Hydraulic Lines and Fittings | Provide connections between hydraulic system components. |
| 2 | Hydraulic Control Valve | Has three levers which regulate hydraulic fluid flow for operation of lift and positioning cylinders. |
| 3 | Quick Disconnect Fittings | Connection points for redundant power kit hoses during redundant power operation. |
| 4 | Hydraulic Pump | Mounted to engine and directly connected to crankshaft through a coupling. Generates an operating hydraulic pressure of 2000 psi (13,790 kPa) at 2 gpm (7.57 lpm) minimum. |
| 5 | Hydraulic Reservoir | Contains hydraulic fluid. Vented cap, with a pressure rating of 5 psi (34 kPa), has a dipstick to indicate hydraulic fluid level. |

ENGINE

1. The engine is a one-cylinder, four-cycle diesel engine. It drives the dolly set hydraulic system; rotational force from the crankshaft drives the hydraulic pump.
2. The engine is both air cooled and oil cooled.
3. The fuel system has a low-pressure side which draws fuel from the fuel tank, through the filter, and to the injection pump. The high-pressure side (injection pump and nozzle holder) pressurizes the fuel and injects it into the combustion chamber.
4. The mechanical-type governor controls the fuel injection. It keeps engine speed and output power at a constant level with changes in engine load.
5. The electrical system consists of a starting system (starter, glow plug, etc.), a charging system (regulator, etc.), and a key switch. A 12V battery supplies the initial power to the starter.
6. Some of the major components of the engine include the following:



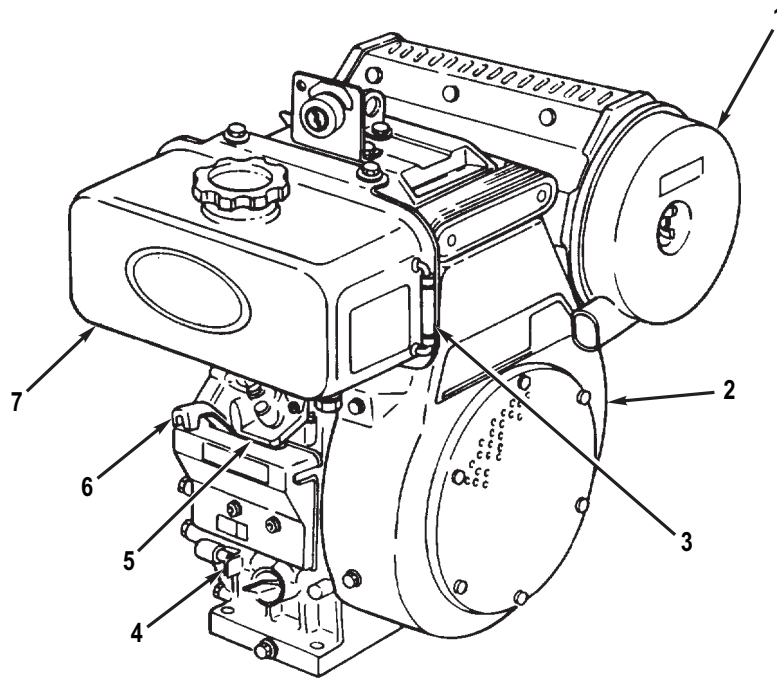
G0017JMS

Figure 8. Theory of Operation (Engine).

Table 8. Theory of Operation (Engine).

| Key | Component | Description |
|-----|-----------------|--|
| 1 | Oil Filler Plug | Opens to allow addition of oil to crankcase. |
| 2 | Muffler | Reduces engine noise. |
| 3 | Oil Cooler | Consists of oil-carrying tubes and fins which function as heat exchangers to remove heat from oil. |

ENGINE - Continued



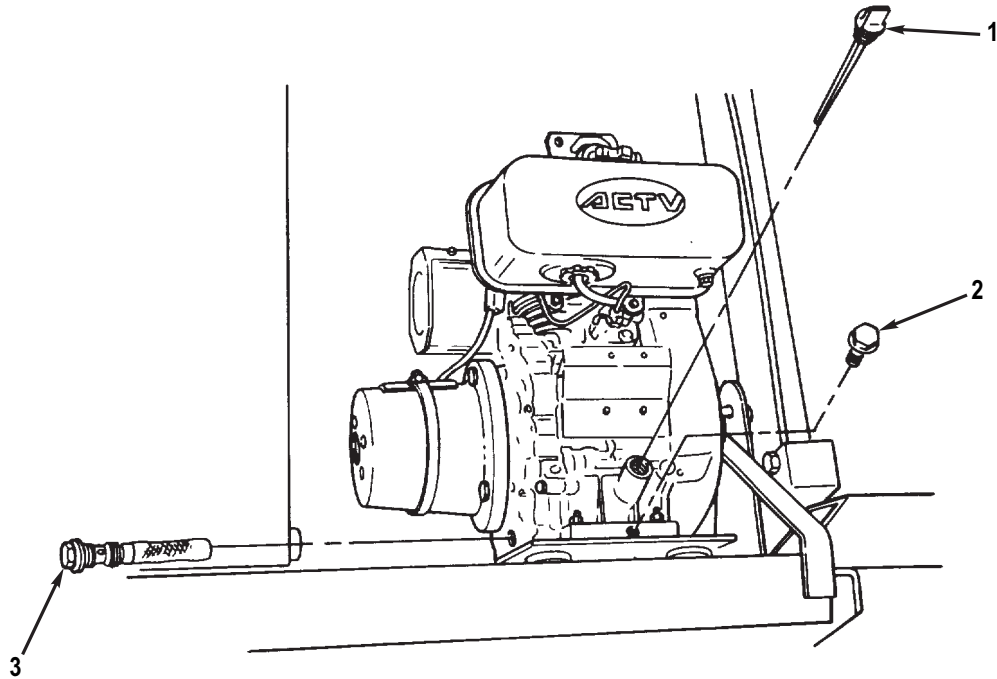
G0018JMS

Figure 9. Theory of Operation (Engine).

Table 9. Theory of Operation (Engine).

| Key | Component | Description |
|-----|--------------------------------|--|
| 1 | Air Cleaner | Filters air at intake of engine. |
| 2 | Spiral Case (Flywheel Cover) | Covers flywheel end of engine. Is easily removed to allow cleaning of cooling fan and cylinder fins. |
| 3 | Fuel Indicator | Indicates level of fuel in fuel tank. |
| 4 | Stop Lever | Shuts down engine. |
| 5 | Injection Pump | Pressurizes fuel and sends it to nozzle holder where it is injected into combustion chamber. |
| 6 | Speed Control Lever (Throttle) | Controls engine speed. |
| 7 | Fuel Tank | Contains fuel. Has a fuel strainer inside filler opening and a fuel filter at the bottom of fuel tank. |

ENGINE - Continued



G0019JMS

Figure 10. Theory of Operation (Engine).

Table 10. Theory of Operation (Engine).

| Key | Component | Description |
|-----|------------|--------------------------------------|
| 1 | Dipstick | Indicates level of oil in crankcase. |
| 2 | Drain Plug | Allows draining of crankcase oil. |
| 3 | Oil Filter | Removes contaminants from oil. |

END OF WORK PACKAGE

CHAPTER 2

OPERATOR INSTRUCTIONS

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

GENERAL

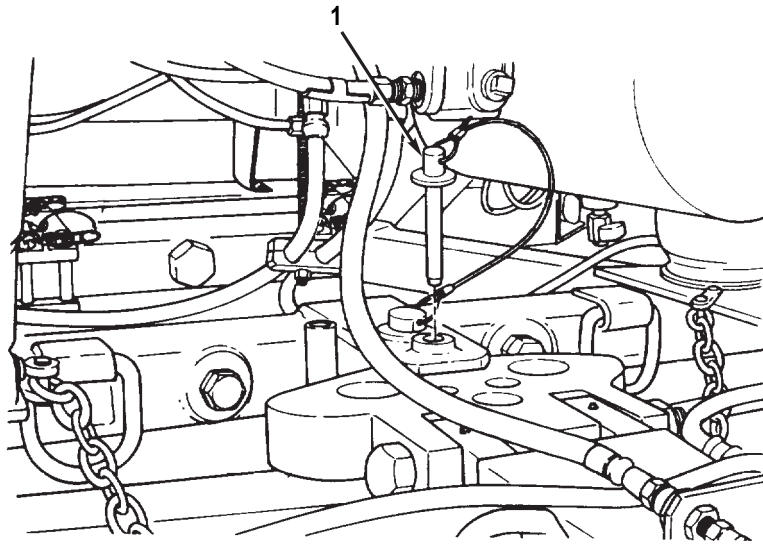
This section identifies the location and describes the function of all M1022A1 Dolly Set controls and indicators. Thoroughly review this section before operating the dolly set.

CONTROLS AND INDICATORS

NOTE

Unless otherwise indicated, components are located on both front and rear dollies.

Table 1. Steering System.

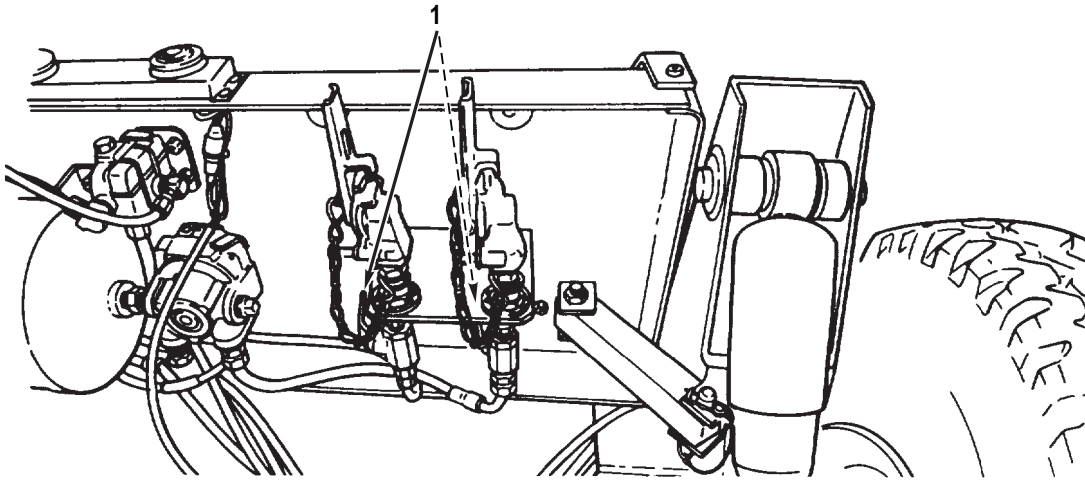


00001JMS

Figure 1. Controls and Indicators (Steering).

| Key | Control/Indicator | Function |
|-----|------------------------------------|--|
| 1 | Steering Locking Pin (Front Dolly) | Locks steering link to limit front drawbar side movement. Used when backing dolly set in a straight line and when operating front dolly in maneuvering position. |

Table 2. Brake System.

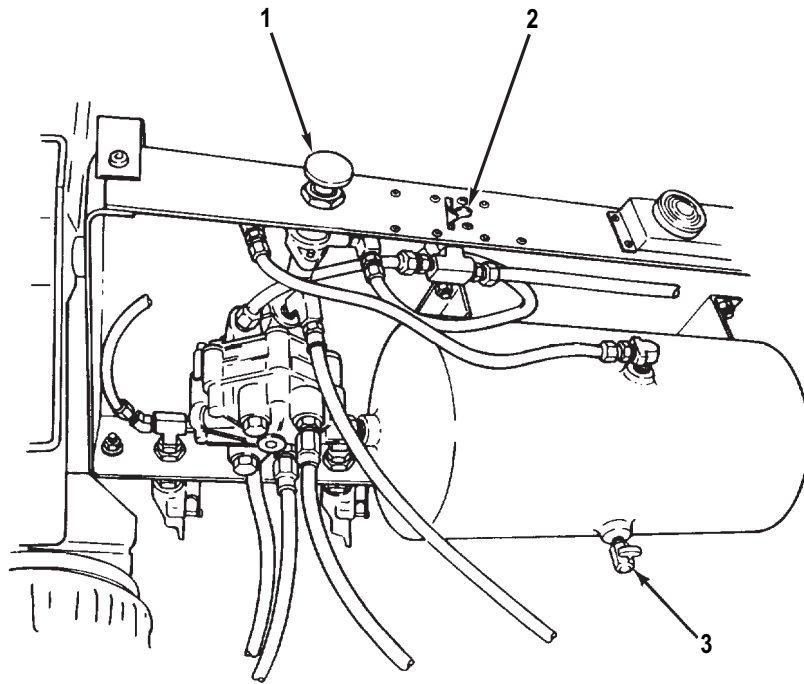


00002JMS

Figure 2. Controls and Indicators (Brakes).

| Key | Control/Indicator | Function |
|-----|-----------------------------------|---|
| 1 | Shutoff Valve Levers (Rear Dolly) | Opened to supply air to a second dolly set when tandem towing. Closed when tandem towing is finished. |

Table 3. Brake System.



00003JMS

Figure 3. Controls and Indicators (Brakes).

| Key | Control/Indicator | Function |
|-----|----------------------------------|--|
| 1 | Airbrake Control Knob | Applies or releases front and rear dolly service brakes when emergency air line is disconnected from towing vehicle. |
| 2 | Parking Brake Lever (Rear Dolly) | Applies and releases parking brakes on rear dolly. |
| 3 | Air Reservoir Draincock | Releases compressed air and drains condensation and contaminants from each air reservoir. |

Table 4. Frame and Suspension System.

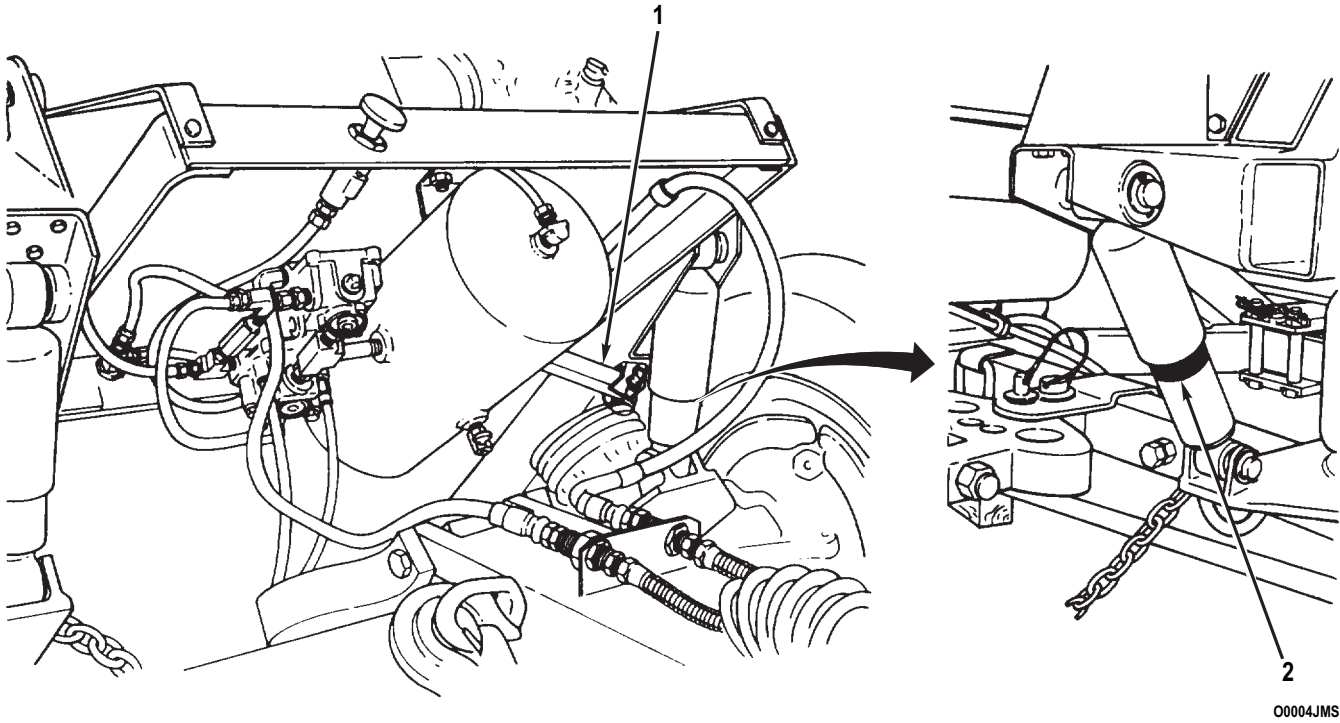
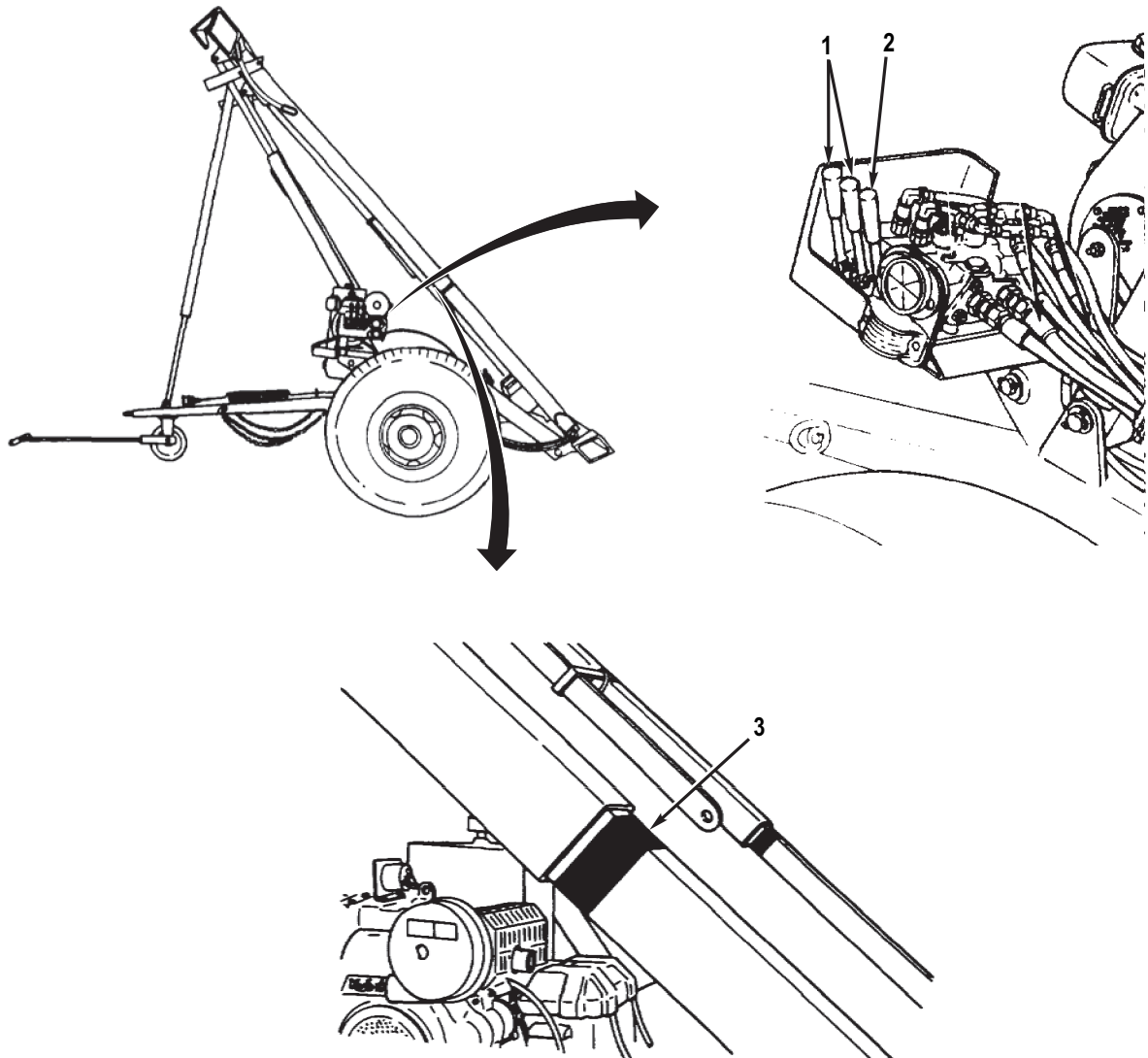


Figure 4. Controls and Indicators (Frame and Suspension).

| Key | Control/Indicator | Function |
|-----|-----------------------------|---|
| 1 | Pivoting Tray Lockout Brace | Prevents tray from pivoting during normal operation. Unlocks tray to allow pivoting when operating on uneven terrain or during side lift operation. |
| 2 | Ride Height Indicator Ring | Indicates correct dolly set riding height. Located on each shock absorber. |

Table 5. Hydraulic System.

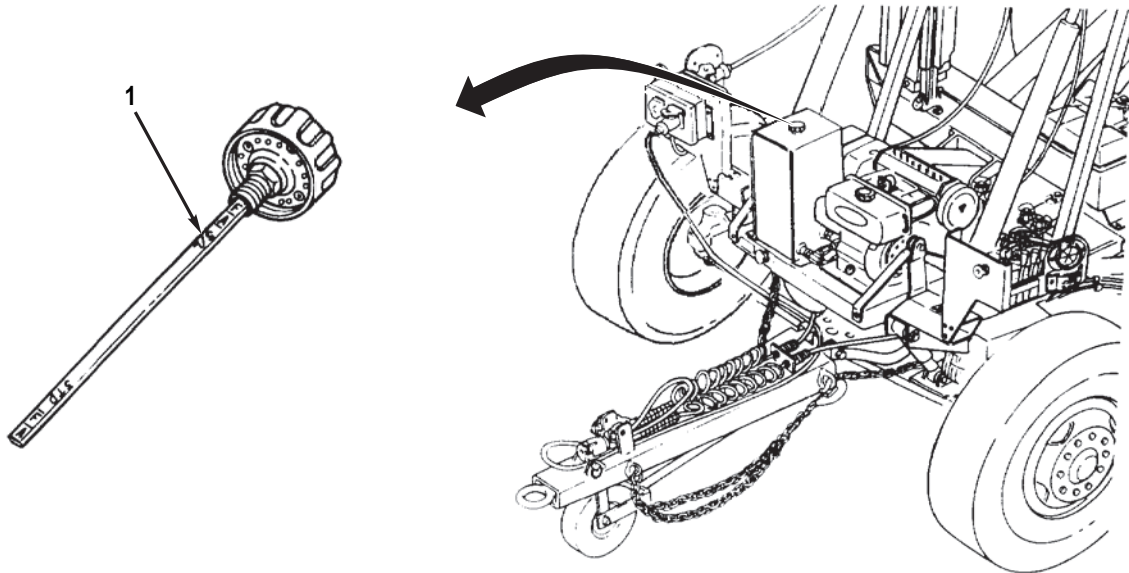


00005JMS

Figure 5. Controls and Indicators (Hydraulics).

| Key | Control/Indicator | Function |
|-----|-------------------------------------|--|
| 1 | Lift Cylinder Levels | Operate lift cylinders. |
| 2 | Positioning Cylinders Lever | Operates both positioning cylinders in unison. |
| 3 | Positioning Cylinders Limit Line | Indicates maximum extension of positioning cylinders when placing dolly half in maneuvering position (side lift configuration only). |

Table 6. Hydraulic System.

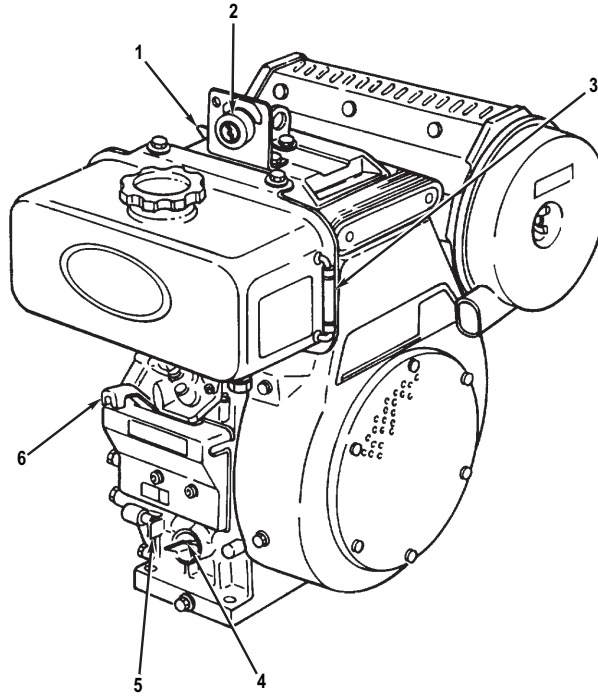


00006JMS

Figure 6. Controls and Indicators (Hydraulics).

| Key | Control/Indicator | Function |
|-----|-------------------|---|
| 1 | Dipstick | Indicates level of hydraulic fluid in hydraulic reservoir. Includes both standard (STD) and side lift add (A) and full (F) marks. |

Table 7. Engine.



0007JMS

Figure 7. Controls and Indicators (Engine).

| Key | Control/Indicator | Function |
|-----|--------------------------------|--|
| 1 | Decompression Lever | Assists in starting of engine. |
| 2 | Starter Switch | Assists engine starting. Is a four-position, key-operated switch with OFF, ON, GL (glow plug), and ST (start) positions. |
| 3 | Fuel Indicator | Indicates level of fuel in fuel tank. |
| 4 | Dipstick | Indicates level of oil in crankcase. |
| 5 | Stop Lever | Shuts down engine. |
| 6 | Speed Control Lever (Throttle) | Controls engine speed. Is a two-position lever with LOW and HIGH START positions. |

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - GENERAL OPERATING INSTRUCTIONS**

INITIAL SETUP:

Personnel Required
(Two)

References
WP 0008

References (cont.)

WP 0009
WP 0017
WP 0029
WP 0195

INTRODUCTION**General**

1. This section contains instructions for safely operating the M1022A1 Dolly Set under usual conditions. Unusual operating conditions are defined and described in Operation Under Unusual Conditions (WP 0017) of this chapter.
2. Ensure that all Operator/Crew PMCS have been performed before operating the dolly set.
3. Review towing vehicle operating instructions to prepare for coupling and uncoupling operations.

Standard Operating Cycles

1. The dolly set operating cycle consists of: uncoupling a dolly set without shelter from the towing vehicle; lowering the dolly set to the ground and detaching front and rear dollies from each other; attaching front and rear dollies to the shelter; and, raising the dolly set with shelter and coupling to the towing vehicle.
2. When the dolly set with shelter has been towed to its destination, the operating cycle is repeated with minor differences to: uncouple the dolly set with shelter from the towing vehicle; lower the dolly set with shelter to the ground; detach front and rear dollies from the shelter; attach front and rear dollies to each other; and, raise and couple the dolly set without shelter to the towing vehicle.

Side Lift Operating Cycles

1. With side lift kit installed, the dolly set can be attached using side lift mode to a shelter positioned either on the ground or on a trailer.
2. Once attached in side lift mode, the shelter can be either loaded onto or removed from a trailer.

OPERATING ENGINE**WARNING**

- Carbon monoxide can be deadly. DO NOT operate engine in enclosed areas. Good ventilation is essential. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Always wear ear plugs or other type of hearing protection while engine is running. Damage to hearing will occur without protection. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

For instructions on operating engine in extreme cold [below 0°F (-18°C)], Operation Under Unusual Conditions (WP 0017).

1. Starting Engine**CAUTION**

DO NOT crank engine longer than ten seconds without its starting. If engine does not start within ten seconds, wait 30 seconds and try again. Failure to follow this caution may damage starter.

- Set speed control lever (Figure 1, Item 5) to HIGH START position. Insert key (Figure 1, Item 3) in starter switch (Figure 1, Item 2).

NOTE

If ambient temperature is below 41°F (5°C), perform steps b and c.

- Turn starter switch (Figure 1, Item 2) to GL position and leave for approximately five seconds. Push decompression lever (Figure 1, Item 1).
- Turn starter switch (Figure 1, Item 2) to ST position for 1-2 seconds. Release decompression lever (Figure 1, Item 1).

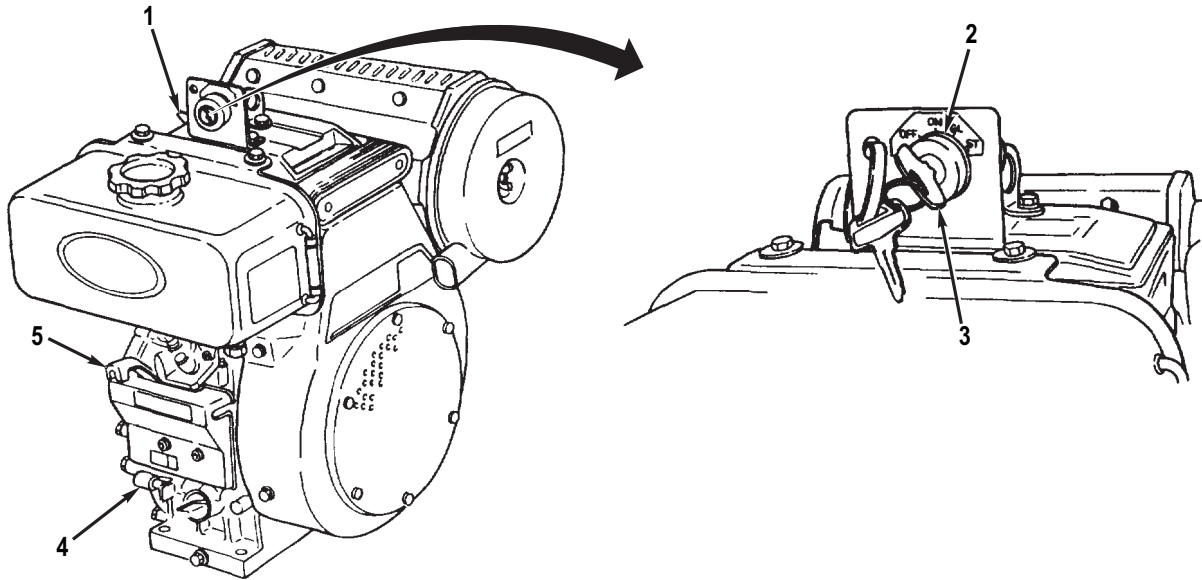
NOTE

If engine is being started for first time and is fully cooled, use of decompression lever may be required.

- Turn starter switch (Figure 1, Item 2) to ST position. When engine starts, release starter switch.
- Set speed control lever (Figure 1, Item 5) to LOW position. Idle engine for three minutes to warm engine.
- Set speed control lever (Figure 1, Item 5) to HIGH START position when operating hydraulic control valve.

OPERATING ENGINE - Continued**2. Shutting Down Engine**

- a. Before shutdown, set speed control lever (Figure 1, Item 5) to LOW position and idle engine for three minutes.
- b. Push stop lever (Figure 1, Item 4) to the right to STOP position.
- c. As soon as engine stops, turn starter switch (Figure 1, Item 2) to OFF position. Remove key (Figure 1, Item 3).



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*Figure 1. Engine Operation.***END OF TASK**

OPERATING HYDRAULIC CONTROL VALVE**NOTE**

This paragraph contains general instructions on operating the hydraulic control valve as well as specific instructions on operating the hydraulic control valve to place the dolly set in a variety of configurations.

1. General

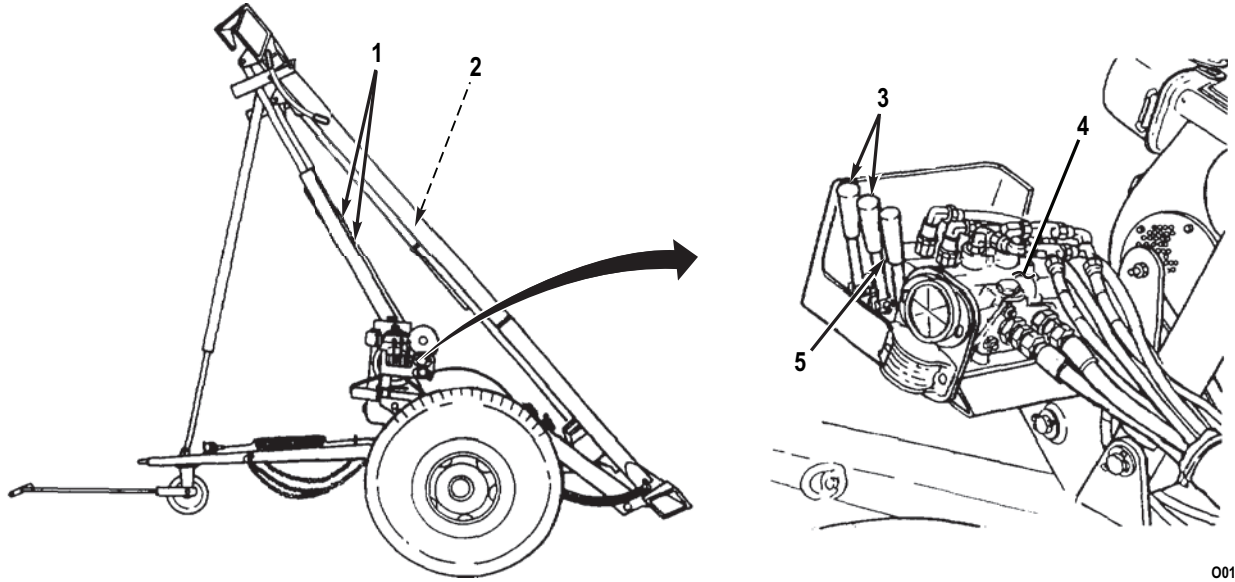
- a. The hydraulic control valve (Figure 2, Item 4) is located on the left side of each dolly half. It has three levers (Figure 2, Items 3 and 5) which regulate hydraulic fluid flow to operate the lift cylinders (Figure 2, Item 1) and positioning cylinders (Figure 2, Item 2).

CAUTION

DO NOT extend or retract a lift cylinder more than 12 in. (30 cm) more than other lift cylinder on dolly half or structural damage to dolly set will occur.

- b. Two three-position (RETRACT, NEUTRAL, EXTEND) lift cylinder levers (Figure 2, Item 3) operate the lift cylinders (Figure 2, Item 1). They may be operated separately or in unison as required. Unless operating on uneven terrain, it is best to operate levers in unison. If operated separately, DO NOT extend or retract a lift cylinder more than 12 in. (30 cm) more than other lift cylinder on dolly half.
- c. One four-position (FLOAT, RETRACT, NEUTRAL, EXTEND) positioning cylinders lever (Figure 2, Item 5) operates the positioning cylinders (Figure 2, Item 2) in unison.
- d. All levers (Figure 2, Items 3 and 5) are in NEUTRAL position when not being operated.
- e. When the levers (Figure 2, Items 3 and 5) are pushed up, the affected cylinders retract. When pulled down, the affected cylinders extend.
- f. The positioning cylinders lever (Figure 2, Item 5) has a fourth position-FLOAT. When in the FLOAT position, the positioning cylinders (Figure 2, Item 2) work in unison with the lift cylinders (Figure 2, Item 1) as the lift cylinder levers (Figure 2, Item 3) are operated. To engage this position, quickly push up on the positioning cylinders lever beyond the RETRACT position. Once in the FLOAT position, the lever will remain in FLOAT until pulled back down the NEUTRAL position.

OPERATING HYDRAULIC CONTROL VALVE - Continued



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Figure 2. Hydraulic Valve Operation.

OPERATING HYDRAULIC CONTROL VALVE - Continued**2. Placing Dolly Half in Maneuvering Position****WARNING**

DO NOT operate control valve levers to put front or rear dolly in maneuvering position unless telescopic brace and front axle steering locking pin are installed. Telescopic brace and front axle steering locking pin must ALWAYS be installed before lift cylinders reach their vertical position. Failure to follow this warning may cause front or rear dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

CAUTION

Use extreme caution to ensure that near (left side) top beam vertical tube does not contact control valve and fittings and cause damage when placing dolly half in maneuvering position. Carefully follow all steps and monitor position of lift cylinders and pivoting tray to guard against binding and interference.

NOTE

- The maneuvering position is a three-wheel configuration. The dolly half's center of gravity is shifted over the axle, the top beam is resting over the drawbar, and the axle.
- Before proceeding, ensure that all stowed items such as rear drawbar, ladder, and intradolly air hoses and cable have been removed; air bags must be deflated; transportation lockouts have been secured to top beam vertical tubes with stowage straps; and toolbox has been closed (Lowering Dolly Set with or without Shelter and Detaching Front and Rear Dollies (WP 0009)).
- The following steps are performed at the front and/or rear dolly as required. Procedure begins with bottom beam resting on ground with top and bottom beams vertical and engines running at high idle.
 - a. Ensure that front axle steering locking pin is installed to lock steering (Uncoupling Dolly Set with or without Shelter from Towing Vehicle (WP 0008)). Ensure that telescopic braces are installed (Lowering Dolly Set with or without Shelter and Detaching Front and Rear Dollies (WP 0009)).
 - b. Pull down on positioning cylinders lever (Figure 3, Item 4) to extend positioning cylinders (Figure 3, Item 2) until telescopic brace (Figure 3, Item 12) reaches rest pin (Figure 3, Item 11).
 - c. Quickly push up on positioning cylinders lever (Figure 3, Item 4) to FLOAT position.

CAUTION

Proceed slowly and with caution to prevent equipment damage.

NOTE

If operating a dolly half equipped with side lift kit, extension of lift and positioning cylinders should stop when top beam vertical tubes have extended approximately 49 in. (124 cm) and positioning cylinder limit lines are just visible.

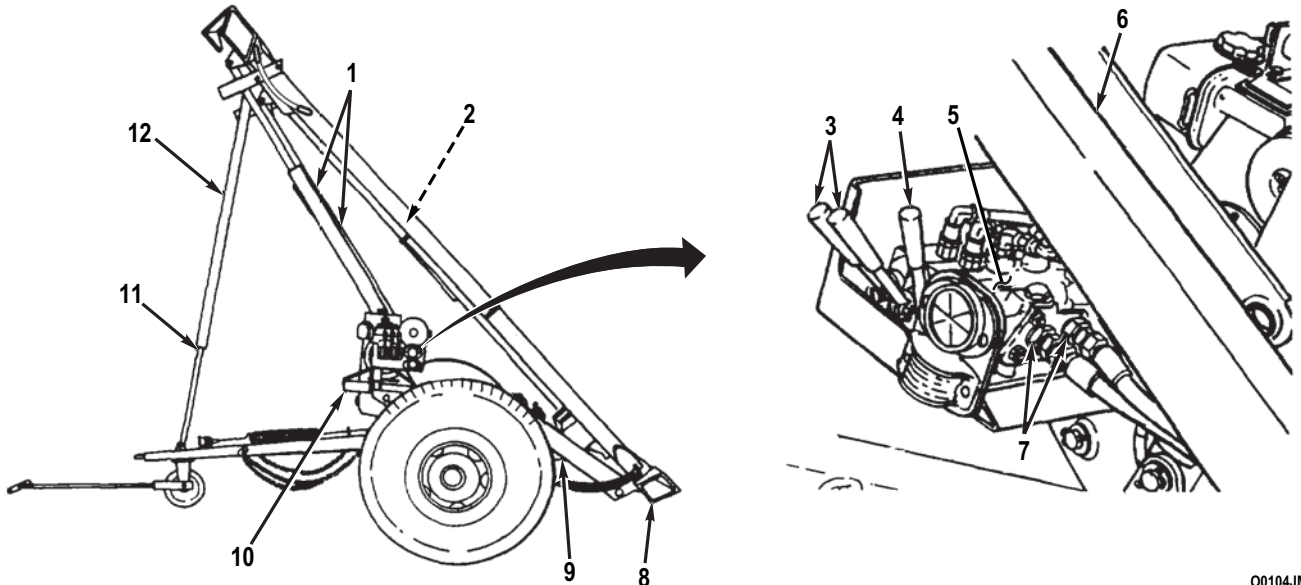
OPERATING HYDRAULIC CONTROL VALVE - Continued

- d. Pull down on two lift cylinder levers (Figure 3, Item 3) to extend lift cylinders (Figure 3, Item 1) and positioning cylinders (Figure 3, Item 2). Stop when near (left side) top beam vertical tube (Figure 3, Item 6) reaches within $\frac{1}{2}$ in. (13 mm) of hydraulic control valve (Figure 3, Item 5) and fittings (Figure 3, Item 7).
- e. Continue to pull down on two lift cylinder levers (Figure 3, Item 3), allowing near (left side) lift cylinder (Figure 3, Item 1) to lead far (right side) lift cylinder. Maintain clearance of $\frac{1}{2}$ in. (13 mm).
- f. If operating a dolly half equipped with side lift kit, return positioning cylinders lever (Figure 3, Item 4) to NEUTRAL position.
- g. Continue to pull down on two lift cylinder levers (Figure 3, Item 3) until bottom beam (Figure 3, Item 8) is raised off the ground and axle (Figure 3, Item 9) and pivoting tray (Figure 3, Item 10) are parallel to the ground. Dolly half is now in maneuvering position.

WARNING

While in maneuvering position, DO NOT operate positioning cylinders lever. Failure to follow this warning may cause bottom beam to lower to the ground. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

- h. Return positioning cylinders lever (Figure 3, Item 4) to NEUTRAL position, as required.



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Figure 3. Hydraulic Valve Operation.

OPERATING HYDRAULIC CONTROL VALVE - Continued

3. Removing Dolly Half From Maneuvering Position

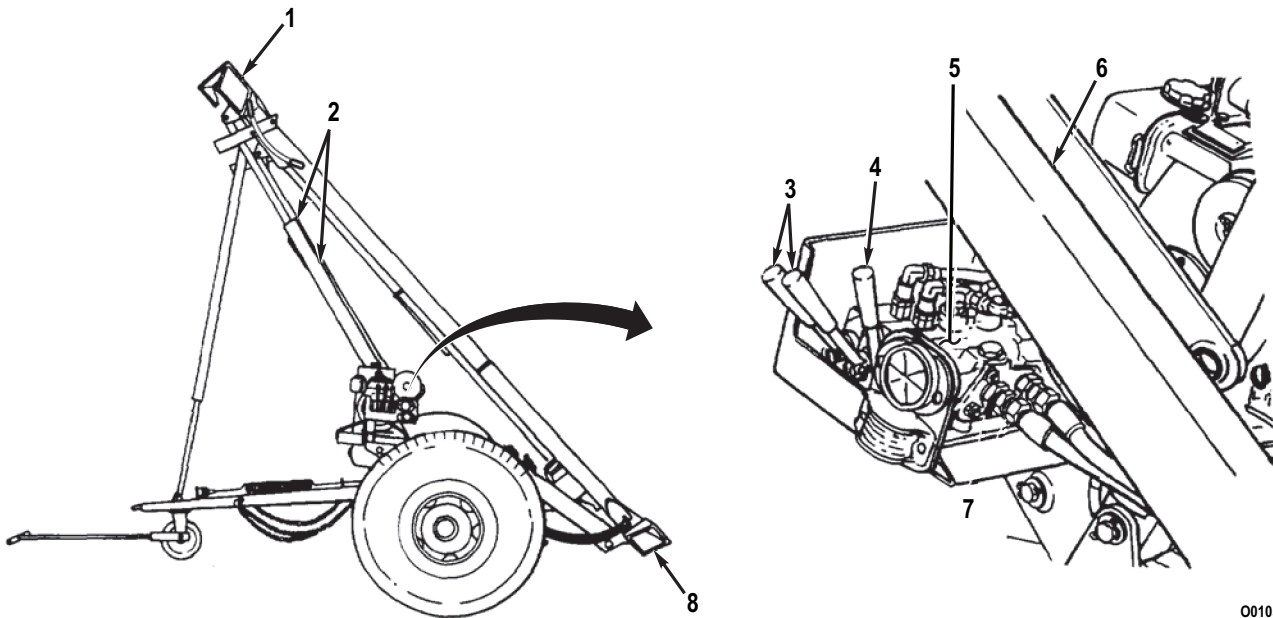
CAUTION

Use extreme caution to ensure that near (left side) top beam vertical tube does not contact control valve and fittings and cause damage when removing dolly half from maneuvering position. Carefully follow all steps and monitor position of lift cylinders and pivoting tray to guard against blinding and interference.

NOTE

The following steps are performed at the front and/or rear dolly as required. When procedure has been completed, bottom beam will be resting on ground with top and bottom beams vertical.

- a. Push up on two lift cylinder levers (Figure 4, Item 3) to retract lift cylinders (Figure 4, Item 2). Stop when near (left side) top beam vertical tube (Figure 4, Item 6) reaches within $\frac{1}{2}$ in. (13 mm) of hydraulic control valve (Figure 4, Item 5) and fittings (Figure 4, Item 7).
- b. Continue to push up on two lift cylinder levers (Figure 4, Item 3), allowing far (right side) lift cylinder (Figure 4, Item 2) to lead near (left side) lift cylinder. Maintain clearance of $\frac{1}{2}$ in. (13 mm).
- c. Continue to push up on two lift cylinder levers (Figure 4, Item 3) until bottom beam (Figure 4, Item 8) rests on ground.
- d. Quickly push up on positioning cylinders lever (Figure 4, Item 4) to FLOAT position.
- e. Push up on lift cylinder levers (Figure 4, Item 3) to retract lift cylinders (Figure 4, Item 2) until approximately 6 in. (15 cm) of stroke remain on lift cylinders.
- f. Return positioning cylinders lever (Figure 4, Item 4) to NEUTRAL position.
- g. Push up on positioning cylinders lever (Figure 4, Item 4) until top and bottom beams (Figure 4, Items 1 and 8) are vertical.



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Figure 4. Hydraulic Valve Operation.

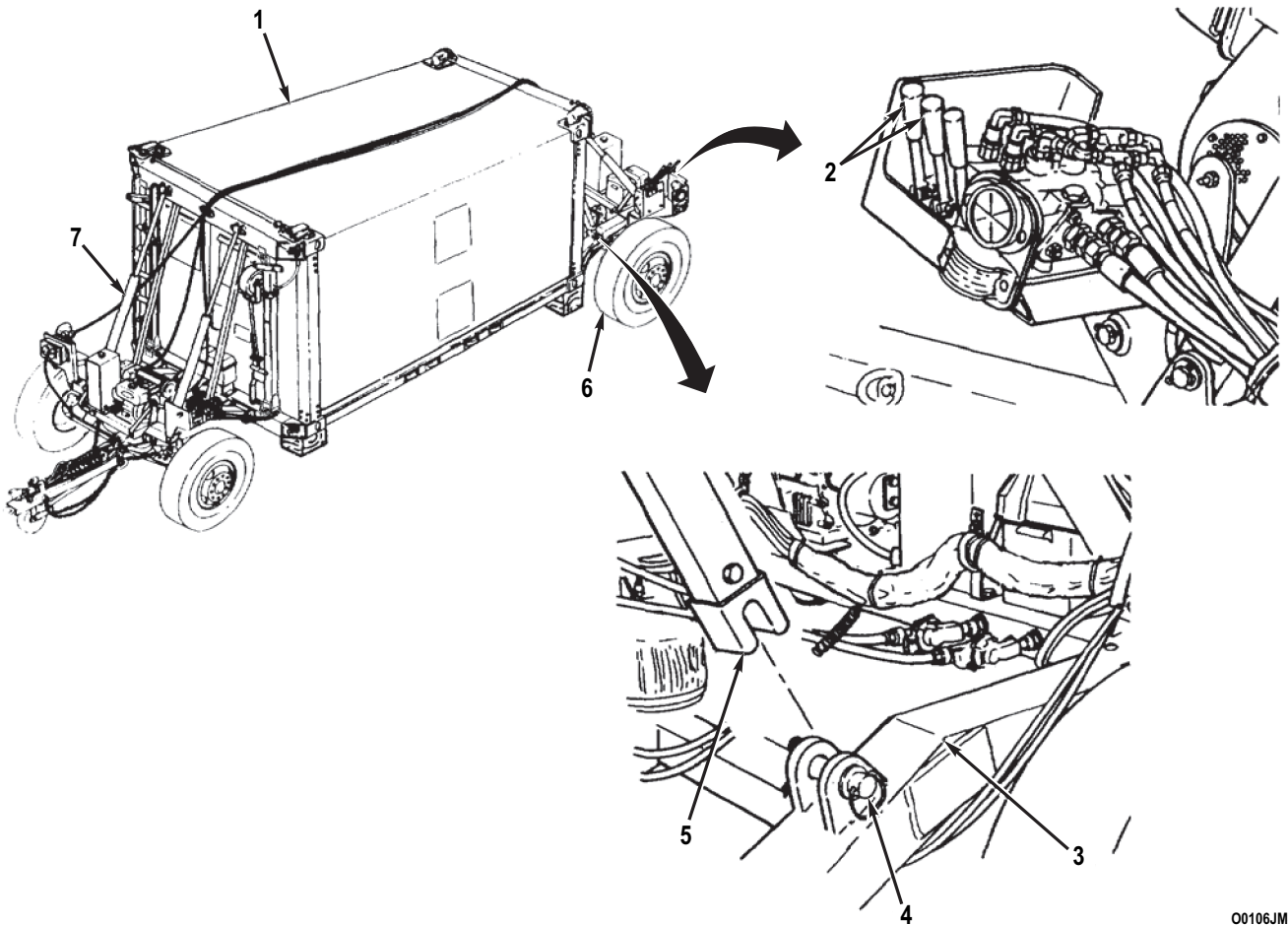
OPERATING HYDRAULIC CONTROL VALVE - Continued

NOTE

Perform steps 4 and 5 when changing a wheel assembly using dolly set hydraulic system instead of a floor jack or towing vehicle jack.

4. **Raising Wheel Assembly Off Ground**a. **Dolly Set With Shelter**

- (1) Place two 4 x 4s or similar support under each corner of shelter (Figure 5, Item 1).
- (2) At front and rear dollies, pull down on two lift cylinder levers (Figure 5, Item 2) to slightly extend lift cylinders (Figure 5, Item 7).
- (3) At affected end, push up on two lift cylinder levers (Figure 5, Item 2) to lower shelter (Figure 5, Item 1) onto supports.
- (4) Continue to push up on cylinder levers (Figure 5, Item 2) until wheel assembly (Figure 5, Item 6) comes off the ground.
- (5) Support axle during wheel assembly change (Operator/Crew Maintenance (WP 0029)).



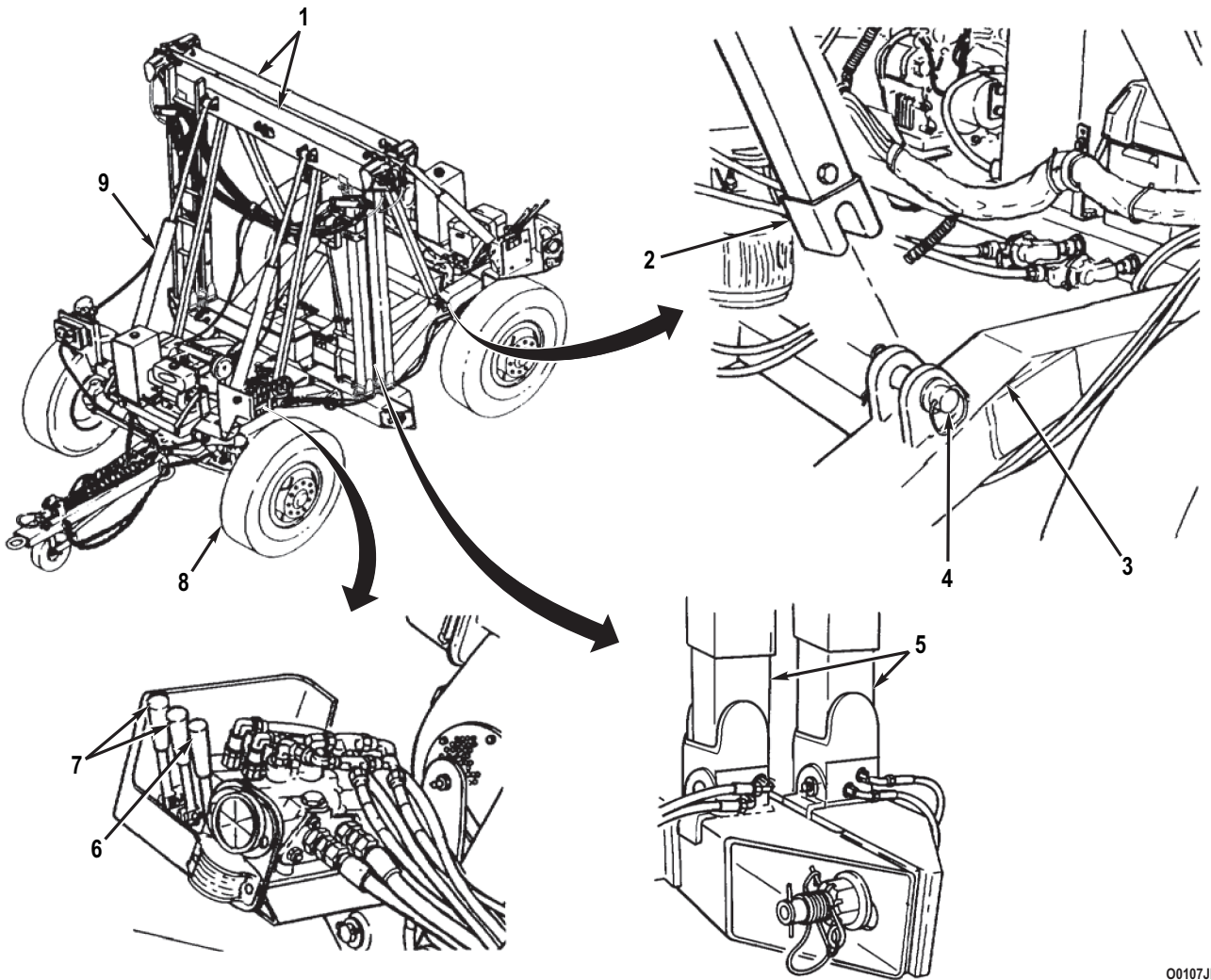
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Figure 5. Hydraulic Valve Operation.

OPERATING HYDRAULIC CONTROL VALVE - Continued**b. Dolly Set Without Shelter**

- (1) At front and rear dollies, pull down on two lift cylinder levers (Figure 6, Item 7) to slightly extend lift cylinders (Figure 6, Item 9). Disengage transportation lockouts (Figure 6, Item 2) from hitch pins (Figure 6, Item 4) at suspension links (Figure 6, Item 3).
- (2) At front and rear, push up on two lift cylinder levers (Figure 6, Item 7) to lower dolly set to the ground.
- (3) At front and rear, quickly push up on positioning cylinders lever (Figure 6, Item 6) to FLOAT position.
- (4) At front and rear, pull down on two lift cylinder levers (Figure 6, Item 7) to extend top beams (Figure 6, Item 1). Stop when 1.5-2.0 ft (0.5-0.6 m) of bottom beam vertical tube (Figure 6, Item 5) is exposed and lift cylinders (Figure 6, Item 9) at affected end are vertical.
- (5) At front and rear, return positioning cylinders lever (Figure 6, Item 6) to NEUTRAL position.
- (6) At affected end, push up on two lift cylinder levers (Figure 6, Item 7) until wheel assembly (Figure 6, Item 8) comes off ground.
- (7) Support axle during wheel assembly change (Operator/Crew Maintenance (WP 0029)).

OPERATING HYDRAULIC CONTROL VALVE - Continued



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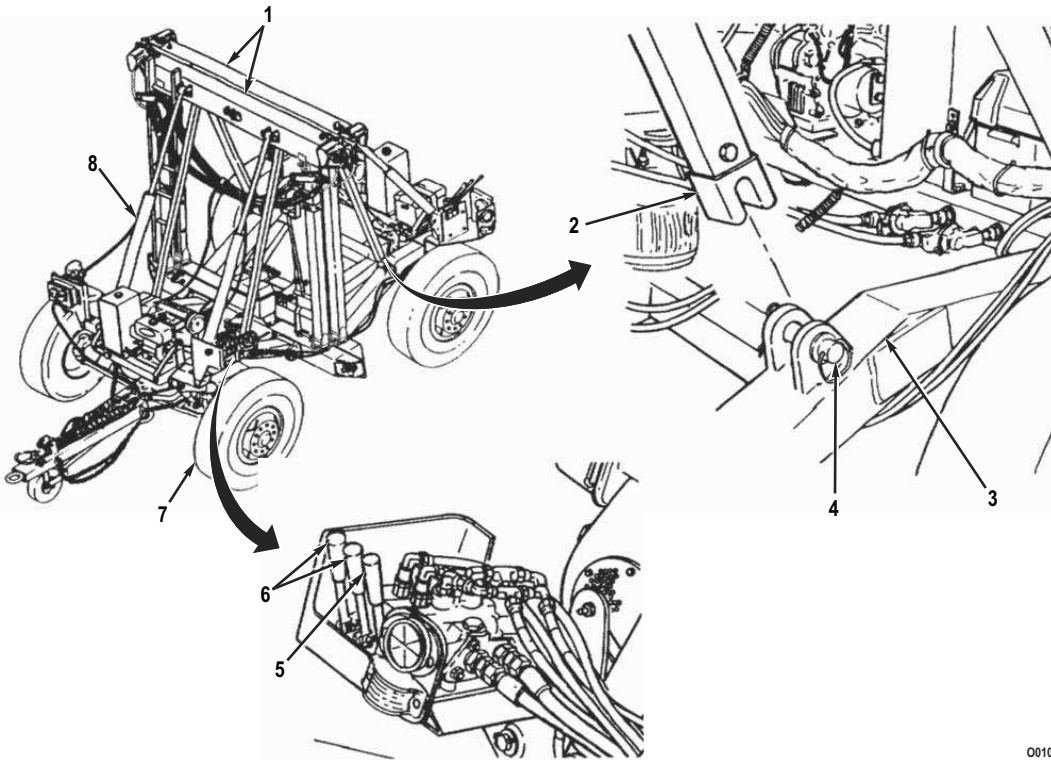
Figure 6. Hydraulic Valve Operation.

OPERATING HYDRAULIC CONTROL VALVE - Continued

5. Lowering Wheel Assembly to Ground

a. Dolly Set Without Shelter

- (1) Remove axle support.
- (2) At affected end, pull down on lift cylinder levers (Figure 7, Item 6) to extend lift cylinders (Figure 7, Item 8) until wheel assembly (Figure 7, Item 7) are lowered to the ground.
- (3) At front and rear, quickly push up on positioning cylinders lever (Figure 7, Item 5) to FLOAT position.
- (4) At front and rear, push up on two lift cylinder levers (Figure 7, Item 6) to fully retract lift cylinders (Figure 7, Item 8).
- (5) At front and rear, return positioning cylinders lever (Figure 7, Item 5) to NEUTRAL position.
- (6) At front and rear, pull down on two lift cylinder levers (Figure 7, Item 6) to raise dolly set to a sufficient height to allow engagement of two transportation lockouts (Figure 7, Item 2).
- (7) At front and rear, engage two transportation lockouts (Figure 7, Item 2) on hitch pins (Figure 7, Item 4) at suspension links (Figure 7, Item 3).

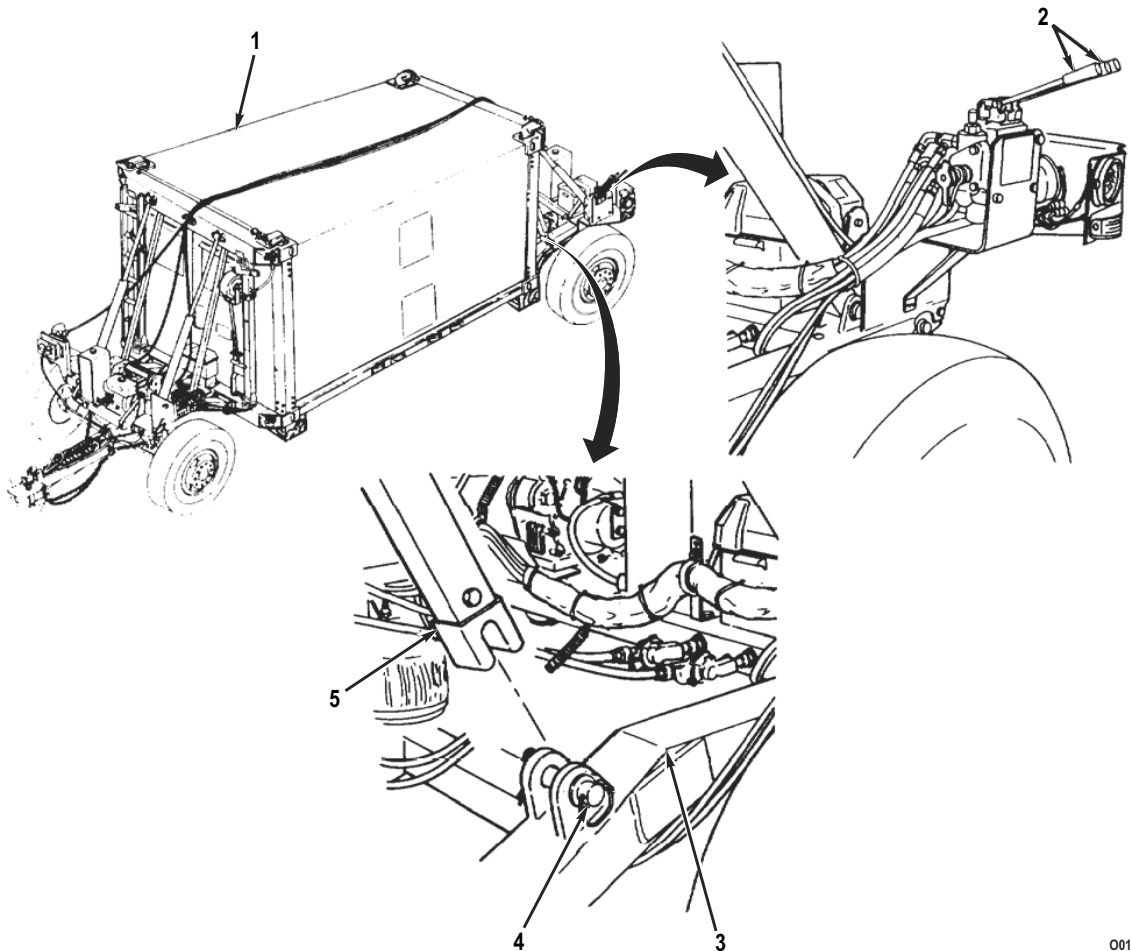


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Figure 7. Hydraulic Valve Operation.

OPERATING HYDRAULIC CONTROL VALVE - Continued**b. Dolly Set With Shelter**

- (1) Remove axle support.
- (2) At affected end, pull down on two lift cylinder levers (Figure 8, Item 2) to raise shelter (Figure 8, Item 1) off supports to a sufficient height to allow engagement of two transportation lockouts (Figure 8, Item 5).
- (3) At front and rear, engage two transportation lockouts (Figure 8, Item 5) on hitch pins (Figure 8, Item 4) at suspension links (Figure 8, Item 3).
- (4) Remove 4 x 4s or similar support from corners of shelter (Figure 8, Item 1).



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Figure 8. Hydraulic Valve Operation.

END OF TASK

INFLATING AIR BAGS

1. General

CAUTION

Ensure that air bag valve is capped when not in use. If cap is not installed, dirt can enter valve and cause air bag to lose air.

- a. The dolly set has four air bags (Figure 9, Item 5) which must be properly inflated before towing operations can begin. Whenever possible, air to inflate air bags is supplied by the towing vehicle.
- b. The charging assembly (Figure 9, Item 2) (Item 1, (WP 0195)) is used to inflate air bags (Figure 9, Item 5). It is stowed in toolbox (Figure 9, Item 1) when not in use.

CAUTION

If air is used from a source other than the towing vehicle, air bag pressure should not exceed 120 psi (827 kPa). Failure to follow this caution may damage air bags.

- c. Before the dolly is raised, air bags (Figure 9, Item 5) should be inflated.
 - (1) For a dolly set with shelter, inflate air bags (Figure 9, Item 5) until air stops flowing.
 - (2) For a dolly set without shelter, inflate air bags (Figure 9, Item 5) for ten seconds, then stop.
- d. Once raised, air bags (Figure 9, Item 5) are deflated until top portion of each shock absorber (Figure 9, Item 7) reaches level of ride height indicator ring (Figure 9, Item 6).
- e. Shelters with off center loads should be leveled by deflating air bags (Figure 9, Item 5) on the lighter side.

INFLATING AIR BAGS - Continued

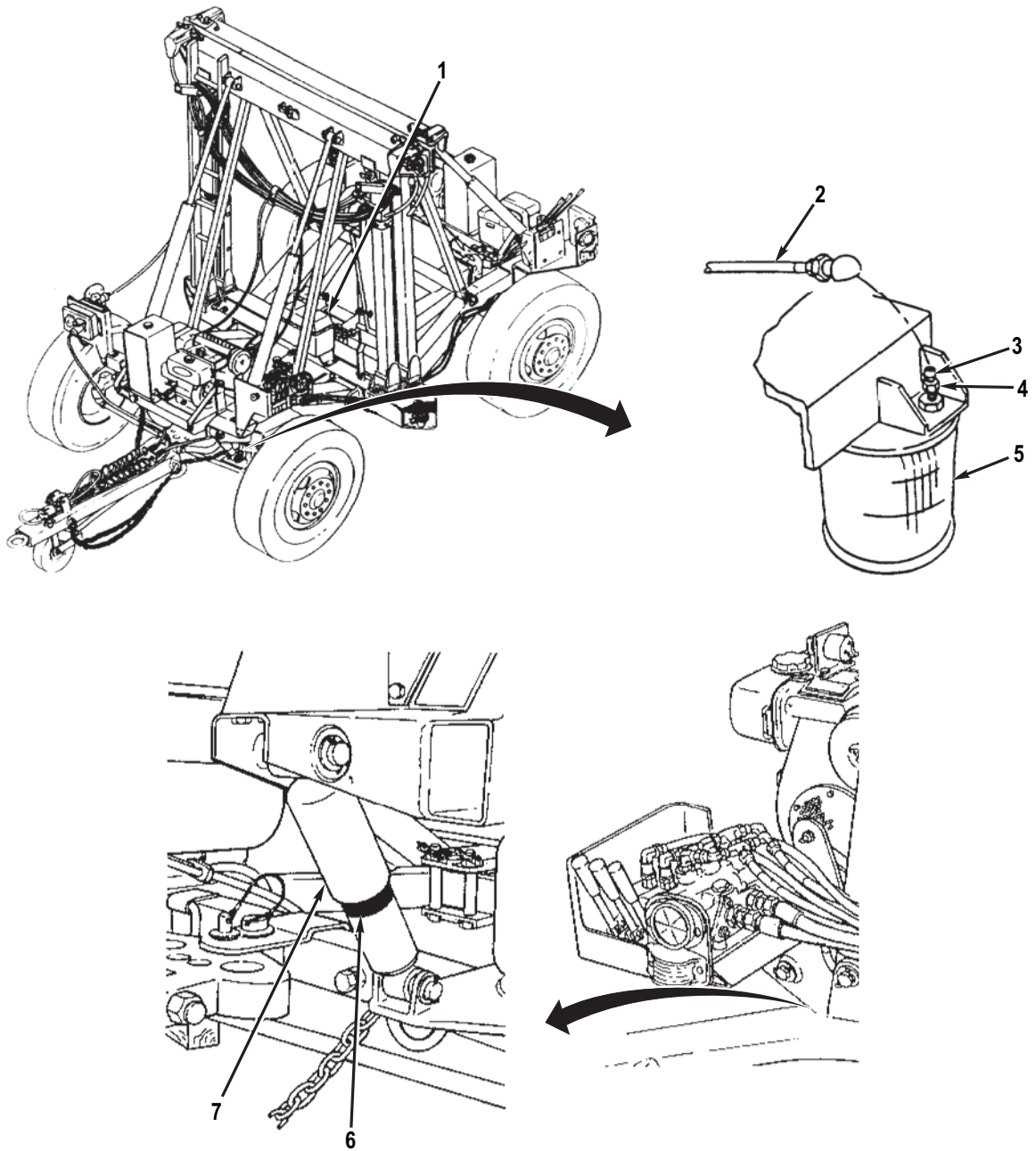


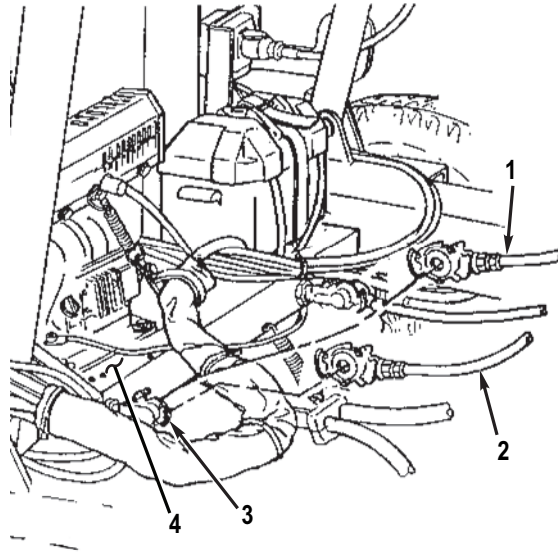
Figure 9. Inflating Air Bags.

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INFLATING AIR BAGS - Continued**2. Inflating Air Bags****NOTE**

Procedures to inflate air bags in preparation for towing either a single dolly set, with or without shelter, or dolly sets in tandem are similar. Differences will be identified as they occur.

- a. Ensure that emergency air valve at rear of towing vehicle is closed IAW towing vehicle Operator's Manual.
- b. At left rear of front dolly pivoting tray (Figure 10, Item 4), disconnect intradolly emergency air hose (Figure 10, Item 2) from emergency (red) gladhand (Figure 10, Item 3).
- c. Connect charging assembly (Figure 10, Item 1) (Item 1, (WP 0195)) to emergency (red) gladhand (Figure 10, Item 3).



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Figure 10. Inflating Air Bags.

NOTE

If inflating air bags on a rear dolly set when tandem towing, ensure that emergency shutoff valve at rear of front dolly set is open.

- d. Open emergency air valve at rear of towing vehicle IAW towing vehicle Operator's Manual.

CAUTION

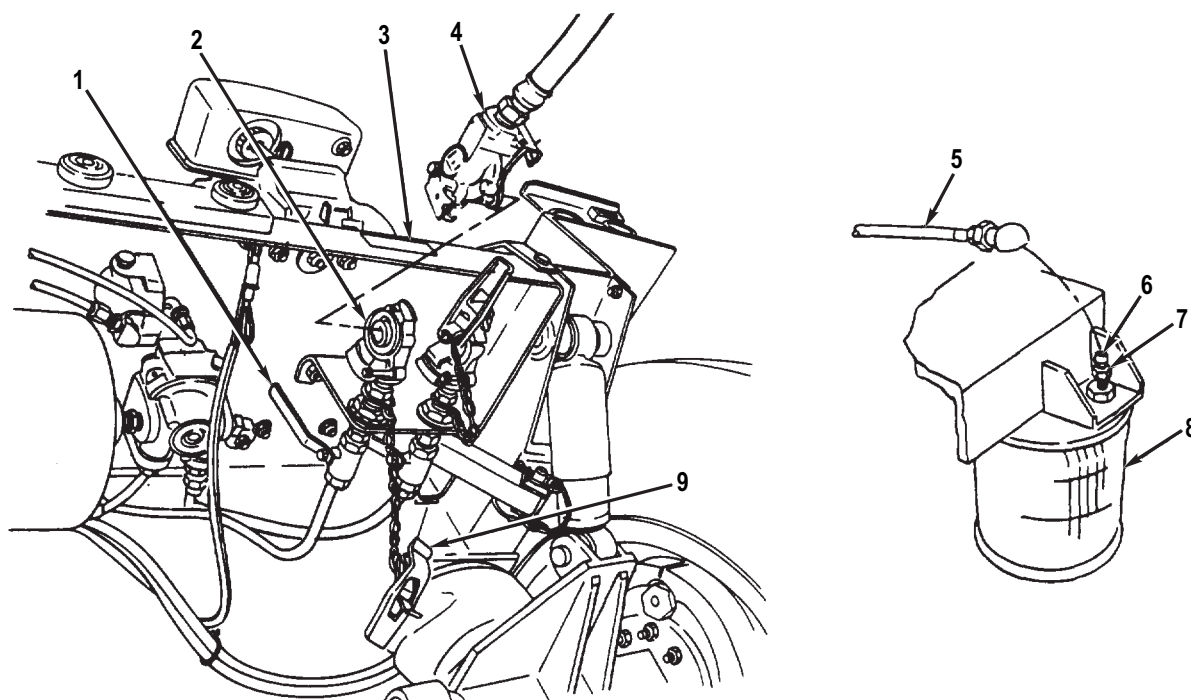
If air is used from a source other than the towing vehicle, air bag pressure should not exceed 120 psi (827 kPa). Failure to follow this caution may damage air bags.

- e. Remove two caps (Figure 11, Item 6) from air bag valves (Figure 11, Item 7). Using charging assembly (Figure 11, Item 5), inflate two air bags (Figure 11, Item 8) on front dolly either until air stops flowing (dolly set with shelter) or for a full ten seconds (dolly set without shelter). Install caps on air bag valves.

INFLATING AIR BAGS - Continued**NOTE**

If inflating air bags on a rear dolly set when tandem towing, ensure that emergency shutoff valve at rear of front dolly set is closed.

- f. Close emergency air valve at rear of towing vehicle IAW towing vehicle Operator's Manual.
- g. Disconnect charging assembly (Figure 11, Item 5) from emergency (red) gladhand (Figure 11, Item 2) and connect intradolly emergency air hose (Figure 11, Item 4).
- h. Remove dummy coupling (Figure 11, Item 9) and connect charging assembly (Figure 11, Item 5) to emergency (red) gladhand (Figure 11, Item 2) under rear dolly pivoting tray (Figure 11, Item 3).
- i. Open emergency shutoff valve (Figure 11, Item 1).
- j. Stow charging assembly (Figure 11, Item 5) in toolbox.
- k. Open both service and emergency air valves on towing vehicle. Fully pressurize dolly set air-brake system IAW towing vehicle Operator's Manual.



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Figure 11. Inflating Air Bags.

END OF TASK**END OF WORK PACKAGE**

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - GENERAL TOWING INSTRUCTIONS**

INITIAL SETUP:

Personnel Required
(Two)

References
TC 21-305-20

References (cont.)
WP 0002
WP 0007
WP 0008

GENERAL TOWING INSTRUCTIONS**NOTE**

- The dolly set may be towed in a four-wheel configuration, with or without shelter. Two dolly sets without shelters may be towed in tandem for off public road use ONLY (Tandem Towing). Although towing arrangements and length of the overall unit may differ, the same general principles of safe towing apply.
- M939 Series Cargo Trucks must be loaded with at least 3 tons of payload when towing a fully loaded dolly set.
- There is no spare tire mounted on the dolly set. A spare must be obtained from the towing vehicle or the motor pool.
- Refer to TC 21-305-20 for further information on safe towing practices.

1. **Driving.****WARNING**

Steering locking pin MUST be removed from front axle and steering link before dolly set is towed in a four-wheel configuration. Failure to unlock steering will damage steering linkage and may result in an accident. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

CAUTION

A ground guide should be used when towing vehicle driver is maneuvering in tight turns over 180 degrees. In turns over 180 degrees, towing vehicle may contact dolly set tires. Failure to follow this caution may cause damage to dolly set.

- a. Check to ensure steering locking pin has been placed in stowed position in front axle stowage tube (Raising Dolly Set With or Without Shelter and Coupling to Towing Vehicle (WP 0007)).
- b. Keep in mind the overall length of towing vehicle and dolly set (with or without shelter) when passing other vehicles, turning, stopping, and backing.
- c. Do not exceed maximum towing speed for towing configuration and road surface (Equipment Description and Data (WP 0002)).

GENERAL TOWING INSTRUCTIONS - Continued

2. **Turning.** When turning corners, remember that dolly set wheels turn inside the turning radius of towing vehicle. Make a right turn by driving towing vehicle approximately halfway into intersection, then cutting sharply to the right. This will keep dolly set wheels off curb.
3. **Stopping.** During normal operation, brakes of towing vehicle and dolly set are applied at the same time. Apply brakes gradually and smoothly.
4. **Parking.** When leaving towing vehicle and dolly set unattended, set parking brakes on towing vehicle and rear dolly, or rear dollies if tandem towing.
5. **Backing.**
 - a. When dolly set must be backed up in a straight line without turning, steering locking pin should be installed in front axle and steering link to lock steering. When dolly set must be turned while backing up, steering locking pin must be removed and stowed, to unlock steering.
 - b. Adjust rearview mirrors before backing. Have an assistant guide you while backing.
 - c. When towing vehicle and dolly set are in a straight line, rear of dolly set will move in opposite direction of which front towing vehicle wheels are turned (e.g., when towing vehicle wheels are turned to right, rear of dolly set will move to left; when towing vehicle wheels are turned to left, rear of dolly set will move to right).
 - d. To decrease angle of turn, gradually turn towing vehicle wheels in direction dolly set is moving. This will gradually decrease angle until towing vehicle and dolly set are in a straight line.
6. **Shelter Access.** To ensure access into shelter through its door, rear dolly must be attached to door end of shelter. Door to shelter may be opened by raising shelter 1-2 in. (3-5 cm) using lift cylinders.

END OF TASK**TANDEM TOWING****WARNING**

- DO NOT tandem tow dolly sets with shelters. To safely tow two dolly sets, they must be empty. Tandem tow on off-public roads ONLY. Observe a maximum towing speed of 25 mi/h (40 km/h). Failure to follow this warning may result in injury or death to personnel and damage to equipment. Seek medical attention in the event of an injury.
- All personnel must use caution when standing near dolly sets during raising and coupling operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

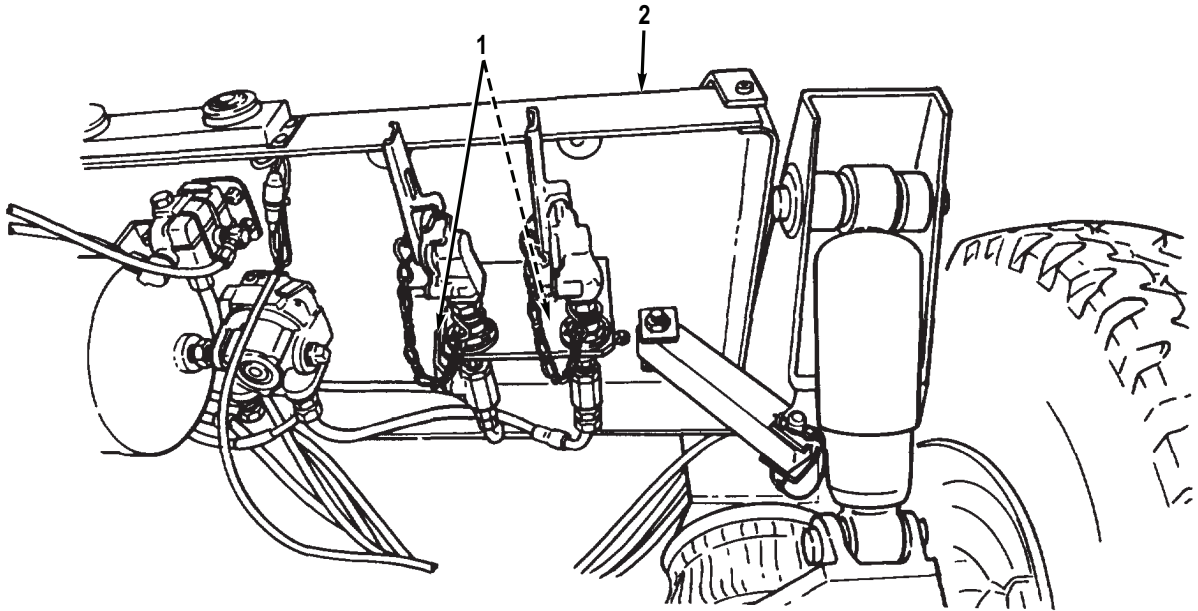
NOTE

When fully coupled, lights on rear dolly of front dolly set will NOT be functioning.

1. **Raising and Coupling Dolly Sets.**
 - a. Raise front dolly set and couple to towing vehicle (Raising Dolly Set With or Without Shelter and Coupling to Towing Vehicle (WP 0007)).

TANDEM TOWING - Continued

- b. Raise rear dolly set and couple to pintle assembly of front dolly set (Raising Dolly Set With or Without Shelter and Coupling to Towing Vehicle (WP 0007)).
- c. Open two shutoff valves (Figure 1, Item 1) under pivoting tray (Figure 1, Item 2) at rear of front dolly set.



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Figure 1. Open Shutoff Valves.

TANDEM TOWING - Continued

- d. Route and connect intradolly cable (Figure 2, Item 1) between front distribution box (Figure 2, Item 2) of front dolly set and 24V receptacle connector (Figure 2, Item 4) at rear distribution box (Figure 2, Item 3) of rear dolly set.

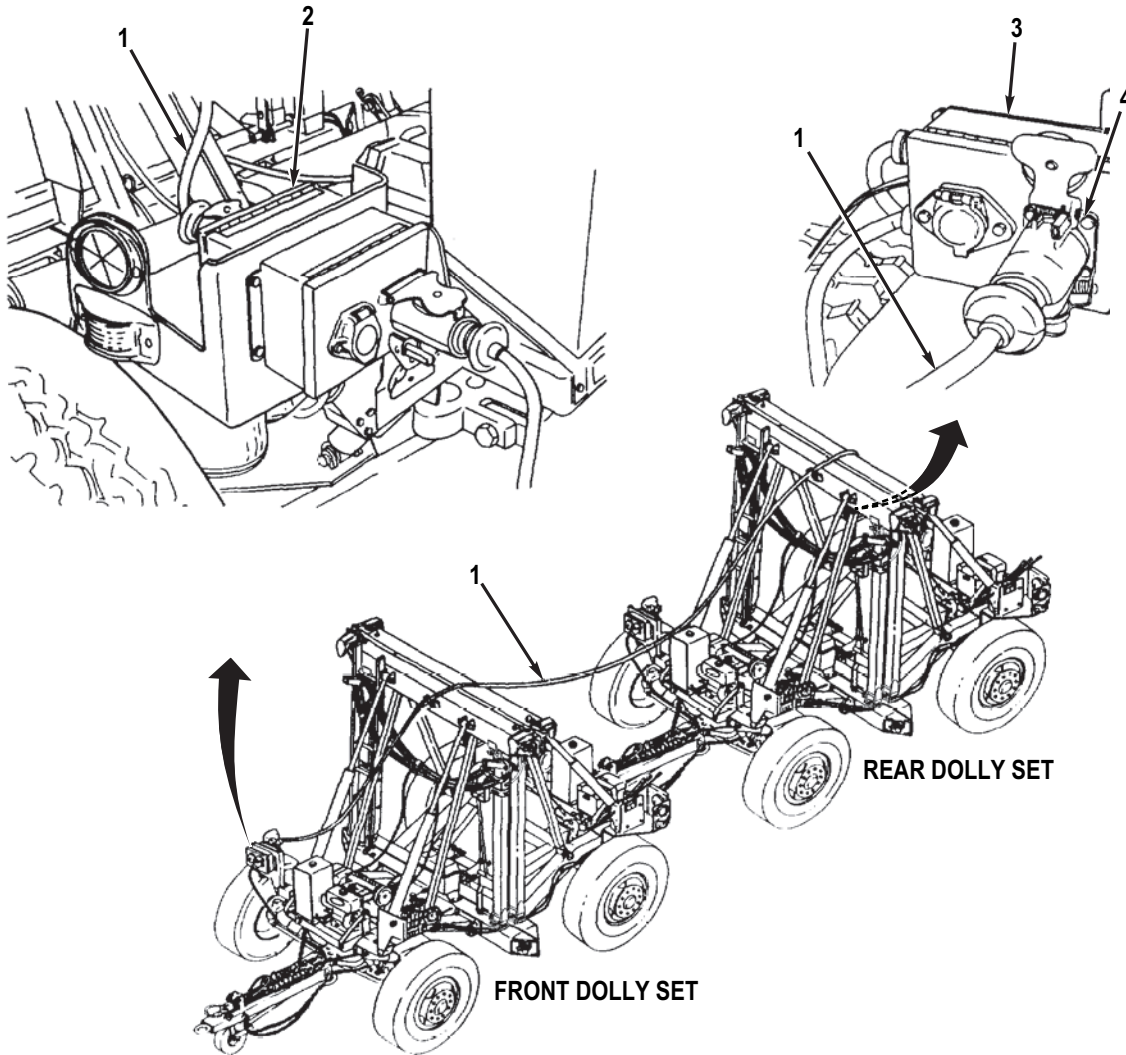
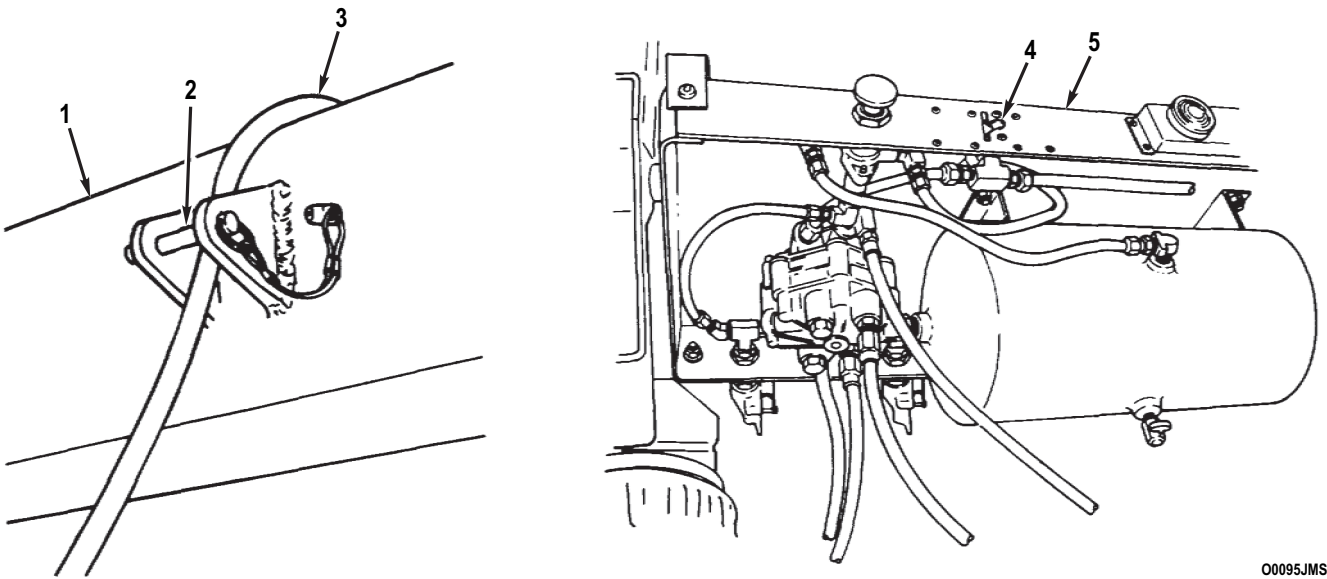


Figure 2. Intradolly Cable.

- e. Secure intradolly cable (Figure 3, Item 3) under four telescopic brace detent pins (Figure 3, Item 2) at midpoint of top beams (Figure 3, Item 1).
- f. Release parking brakes on rear dolly of rear dolly set by turning parking brake lever (Figure 3, Item 4) on pivoting tray (Figure 3, Item 5) to OFF position.
- g. Using towing vehicle, pull dolly sets slightly forward and check operation of service brakes in towing vehicle Operator's Manual.

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TANDEM TOWING - Continued



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Figure 3. Intradolly Cable and Parking Brakes.

NOTE

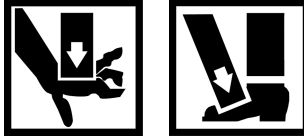
If towing vehicle has a 12V system, blackout stoplight-taillights will NOT be functioning.

- h. Check operation of lights in towing vehicle Operator's Manual. The only lights functioning will be marker clearance lights at front of front dolly set and rearmost lights of rear dolly set.

TANDEM TOWING - Continued

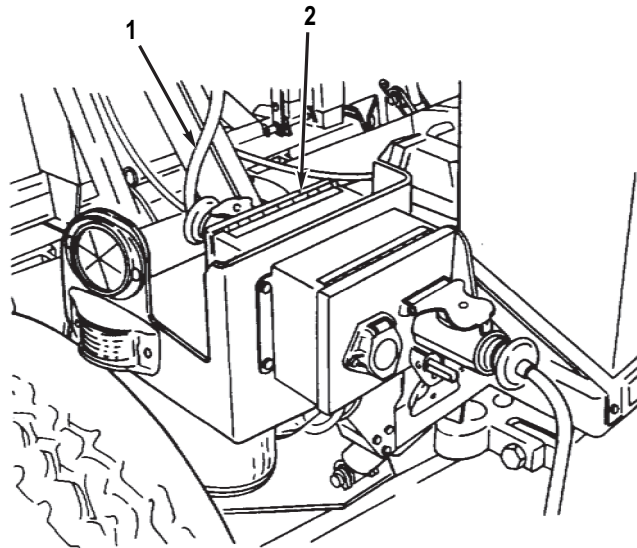
2. Uncoupling Dolly Sets

WARNING



All personnel must use caution when standing near dolly sets during uncoupling operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

- a. Uncouple front dolly set from towing vehicle (Uncoupling Dolly Set with or without Shelter from Towing Vehicle (WP 0008)).
- b. Disconnect intradolly cable (Figure 4, Item 1) from front distribution box (Figure 4, Item 2) of front dolly set.

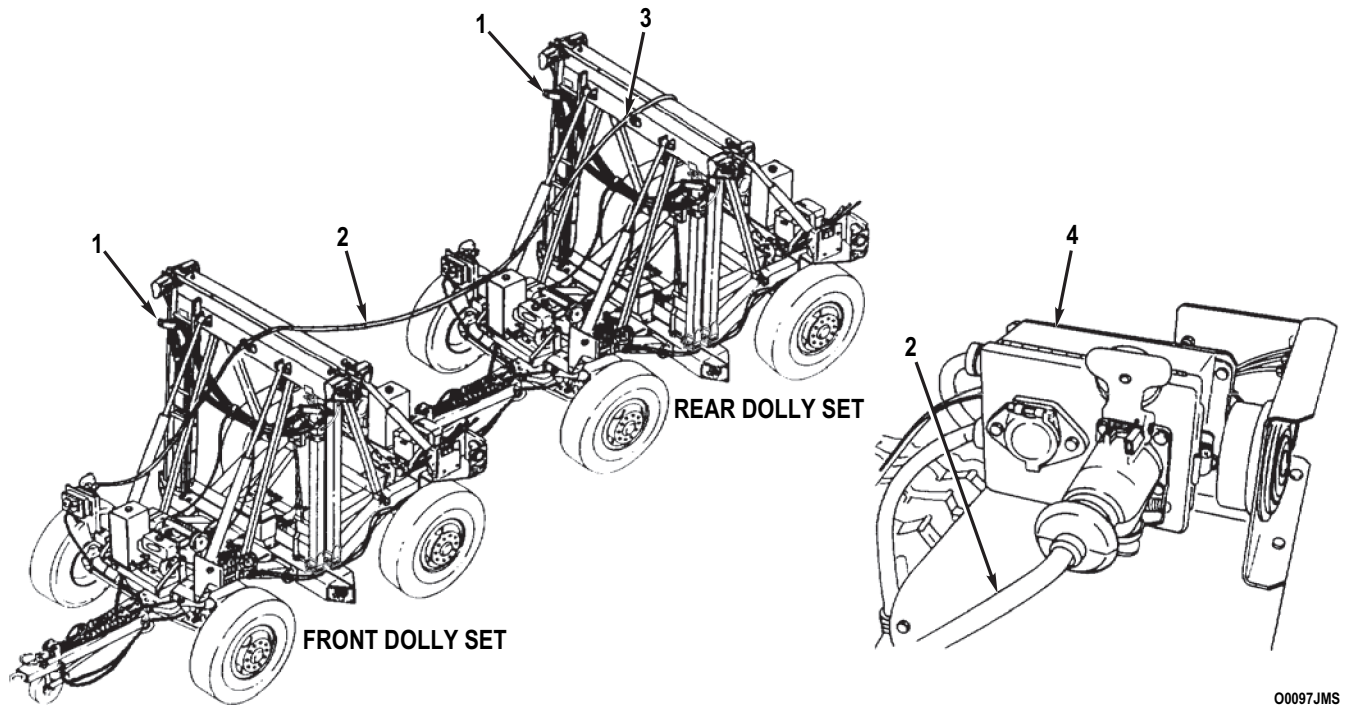


00096JMS

Figure 4. Intradolly Cable.

- c. Apply parking brakes on rear dolly of rear dolly set. Set parking brake lever (Figure 3, Item 4) on pivoting tray (Figure 3, Item 5) to ON position.
- d. Disconnect intradolly cable (Figure 5, Item 2) from rear distribution box (Figure 5, Item 4) of rear dolly set. Release intradolly cable from under four telescopic brace detent pins (Figure 5, Item 3). Stow intradolly cable on hanger brackets (Figure 5, Item 1).

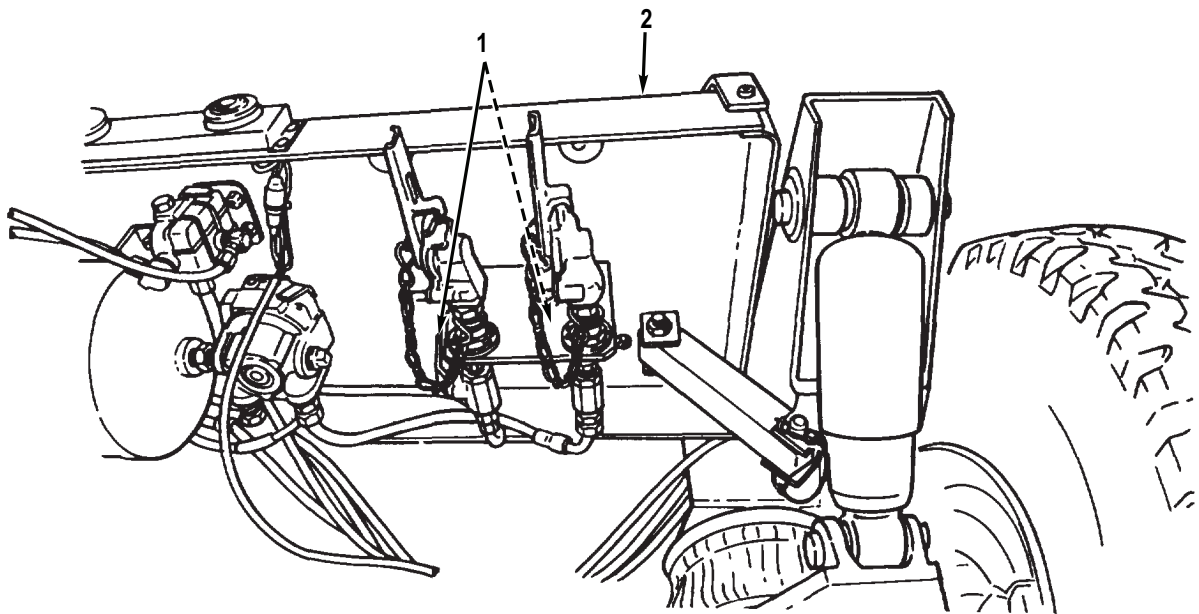
TANDEM TOWING - Continued



00097JMS

Figure 5. Parking Brakes and Intradolly Cable.

- e. Close two shutoff valves (Figure 6, Item 1) under pivoting tray (Figure 6, Item 2) at rear of front dolly set.



00098JMS

Figure 6. Shutoff Valves.

TANDEM TOWING - Continued

- f. Disconnect intervehicular gladhands (Figure 7, Item 1) of rear dolly set from gladhands (Figure 7, Item 2) under pivoting tray (Figure 7, Item 3) at rear of front dolly set. Stow intervehicular gladhands in dummy couplings (Figure 7, Item 4).

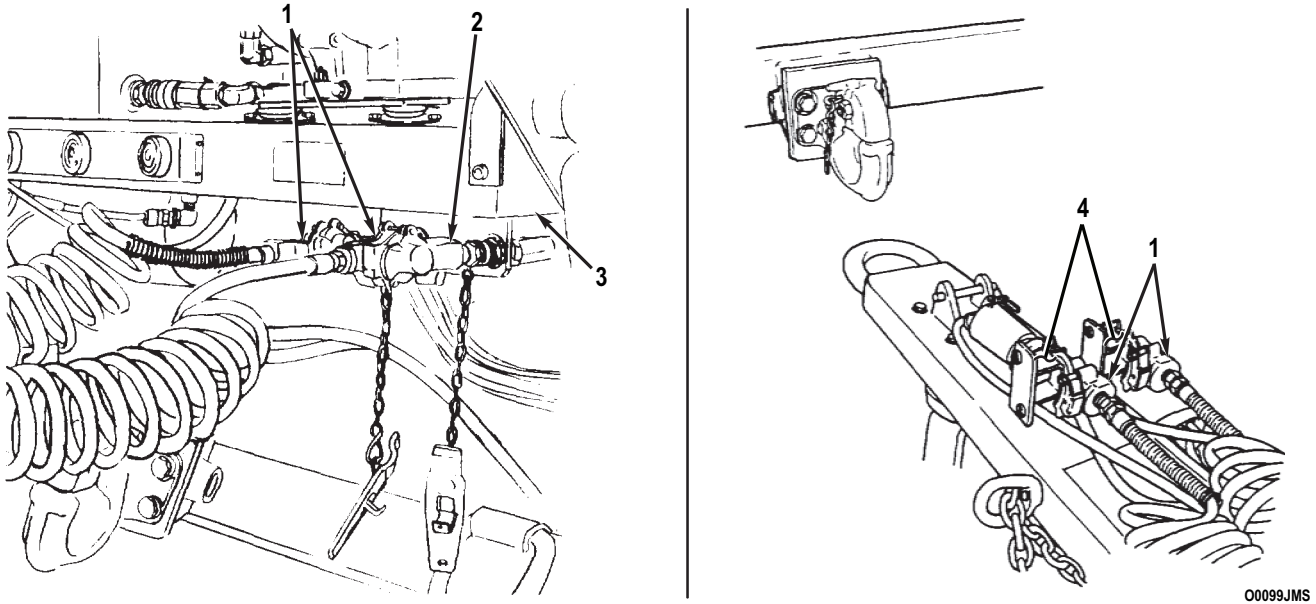
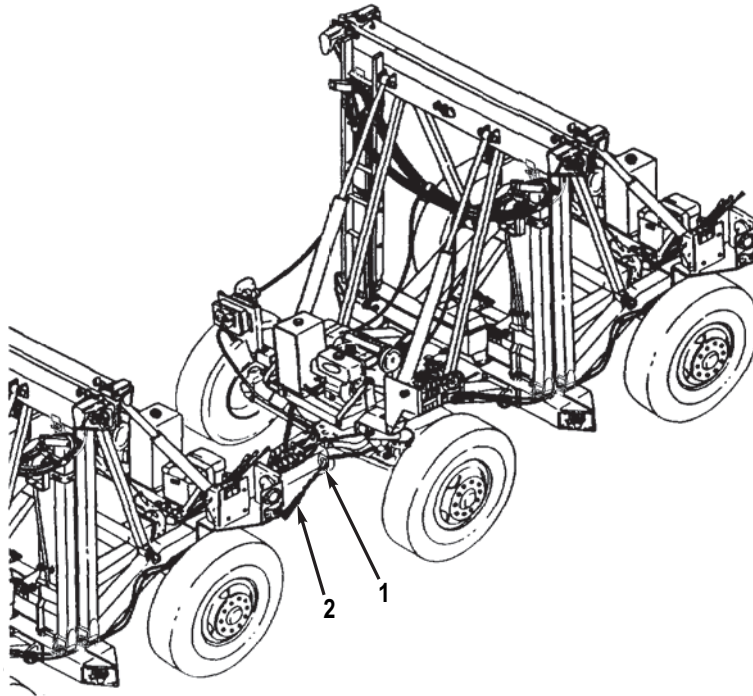


Figure 7. Intervehicular Gladhands.

- g. Remove safety chains (Figure 8, Item 2) from rear of front dolly set. Stow safety chains on rearmost eyebolts (Figure 8, Item 1) of rear dolly set.

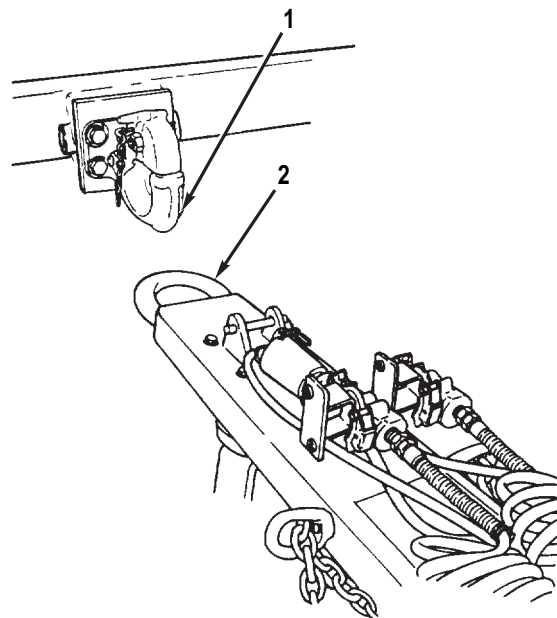
TANDEM TOWING - Continued



00100JMS

Figure 8. Safety Chains

- h. Remove safety pin and open pintle assembly (Figure 9, Item 1) at rear of front dolly set. Lift off lunette (Figure 9, Item 2) of rear dolly set. Close pintle assembly and install safety pin.

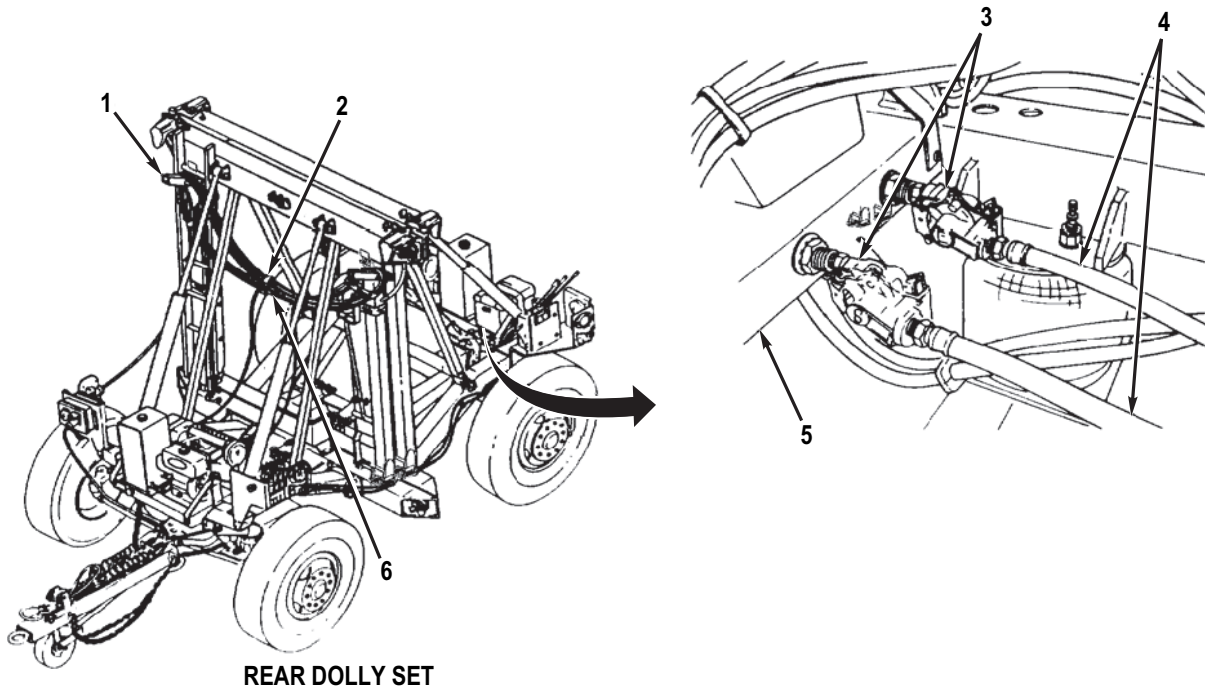


00101JMS

Figure 9. Pintle Assembly.

TANDEM TOWING - Continued

- i. Disconnect intradolly air hoses (Figure 10, Item 4) from gladhands (Figure 10, Item 3) at pivoting trays (Figure 10, Item 5) of rear dolly set. Stow intradolly air hoses on hanger brackets (Figure 10, Item 1). Secure intradolly air hoses and intradolly cable (Figure 10, Item 6) with two stowage straps (Figure 10, Item 2).



00102JMS

Figure 10. Intradolly Air Hoses.

END OF TASK

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - RAISING DOLLY SET WITH OR WITHOUT SHELTER AND
COUPLING TO TOWING VEHICLE**

INITIAL SETUP:

Personnel Required
(Two)

References
WP 0005
WP 0017

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE**WARNING**

- All personnel must use caution when standing near dolly set, shelter (if present), and towing vehicle during raising and coupling operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

CAUTION

Ensure that all electrical and air connections are secure, and lines are not kinked or dragging on the ground. Failure to follow this caution may result in damage to equipment.

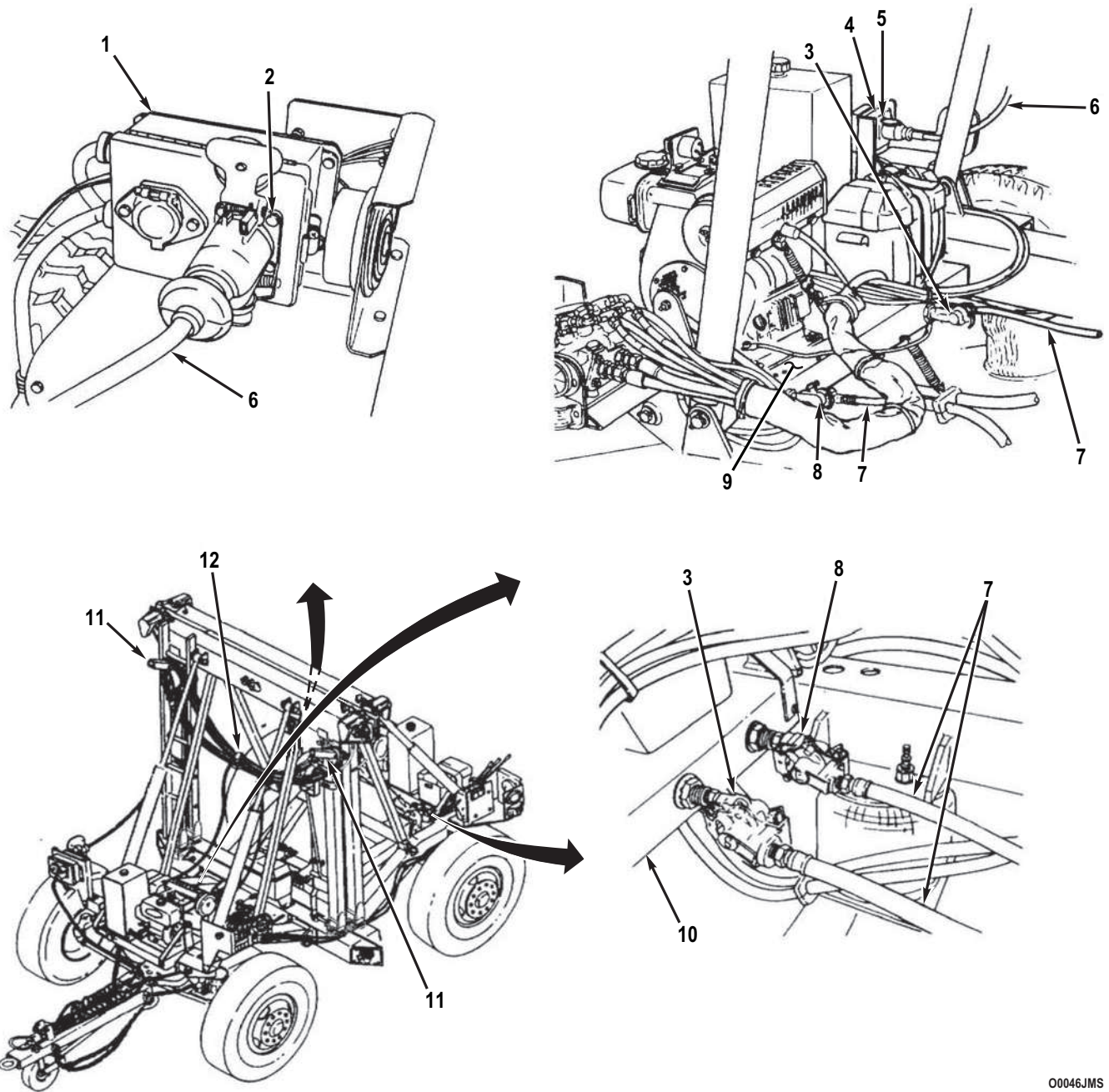
NOTE

- Procedures to raise dolly set, with or without shelter, and couple to towing vehicle are similar. Differences will be identified as they occur.
- If raising dolly set without shelter, perform steps 1 through 3.
- If raising a dolly set in preparation for tandem towing, skip step 2.

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued

1. Connect one end of each intradolly air hose (Figure 1, Item 7) to service (blue) and emergency (red) gladhands (Figure 1, Items 3 and 8) on front dolly pivoting tray (Figure 1, Item 9). Coil extra length of intradolly air hoses between two hanger brackets (Figure 1, Item 11). Connect other end of each intradolly air hose to service (blue) and emergency (red) gladhands on rear dolly pivoting tray (Figure 1, Item 10).
2. Connect intradolly cable (Figure 1, Item 6) between 24V receptacle connector (Figure 1, Item 5) at front distribution box (Figure 1, Item 4) and 24V receptacle connector (Figure 1, Item 2) at rear distribution box (Figure 1, Item 1). Coil extra length of intradolly cable between hanger brackets (Figure 1, Item 11).
3. Secure intradolly air hoses (Figure 1, Item 7) and intradolly cable (Figure 1, Item 6), if present, with two stowage straps (Figure 1, Item 12).

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued



00046JMS

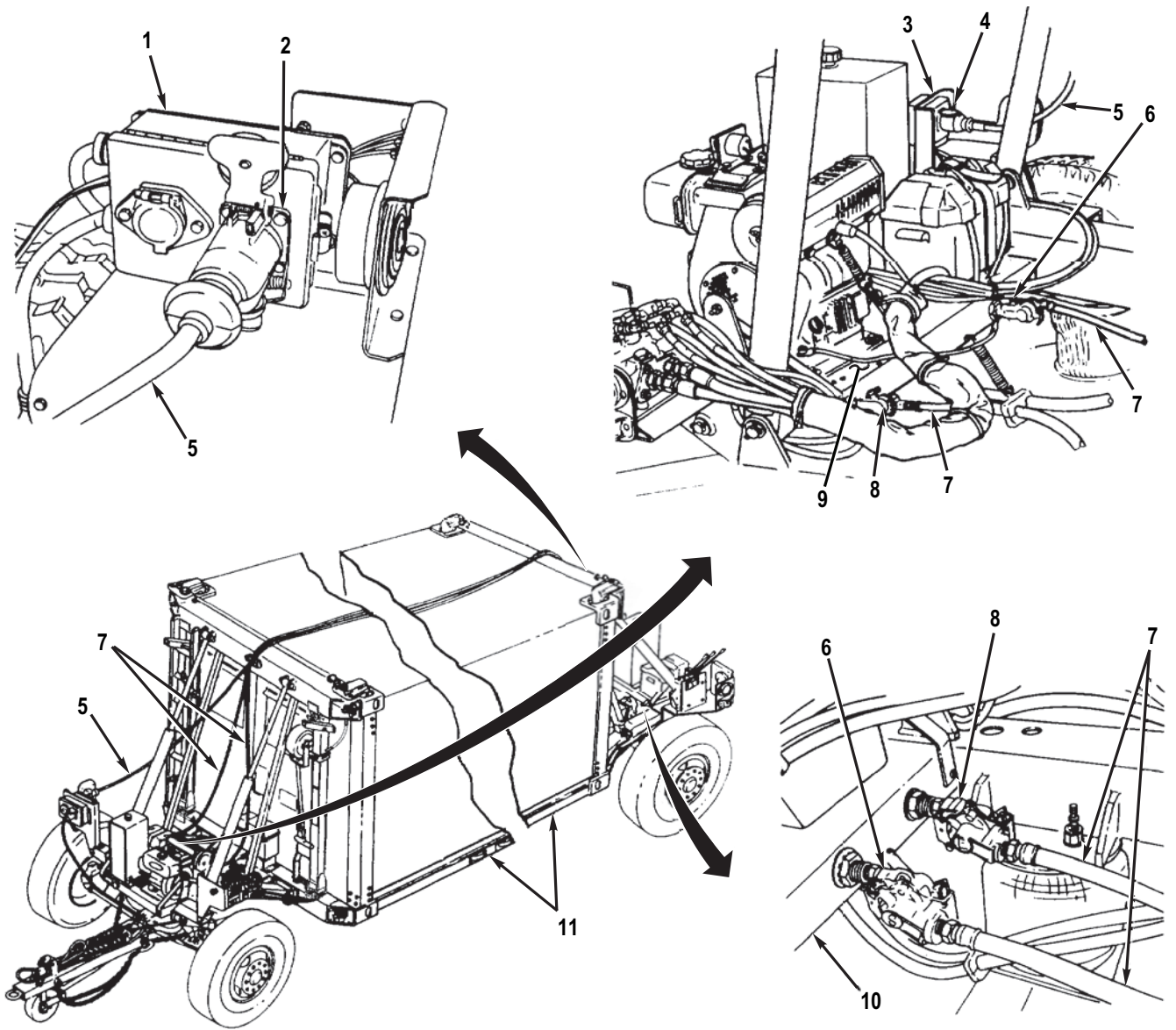
Figure 1. Raising Dolly Set.

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued**NOTE**

If raising dolly set with shelter, perform steps 4 through 6.

4. Route intradolly air hoses (Figure 2, Item 7) and intradolly cable (Figure 2, Item 5) over top of shelter (Figure 2, Item 11) on its centerline.
5. Connect one end of each intradolly air hose (Figure 2, Item 7) to service (blue) and emergency (red) gladhands (Figure 2, Items 6 and 8) on front dolly pivoting tray (Figure 2, Item 9). Connect other end of each intradolly air hose to service (blue) and emergency (red) gladhands on rear dolly pivoting tray (Figure 2, Item 10).
6. Connect intradolly cable (Figure 2, Item 5) between 24V receptacle connector (Figure 2, Item 4) at front distribution box (Figure 2, Item 3) and 24V receptacle connector (Figure 2, Item 2) at rear distribution box (Figure 2, Item 1).

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued

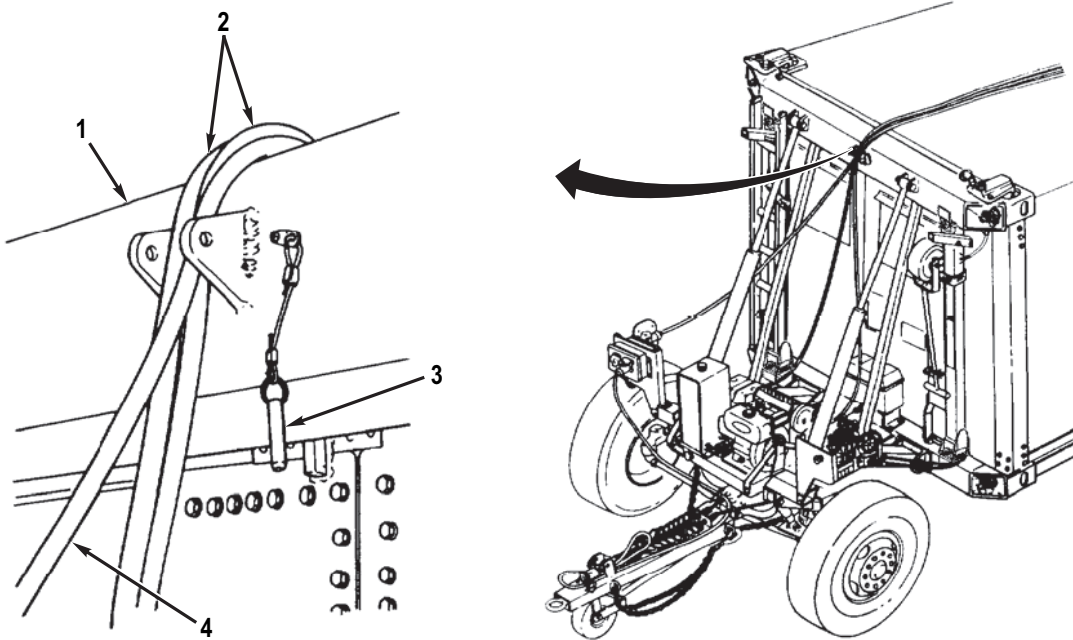


00047JMS

Figure 2. Raising Dolly Set.

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued

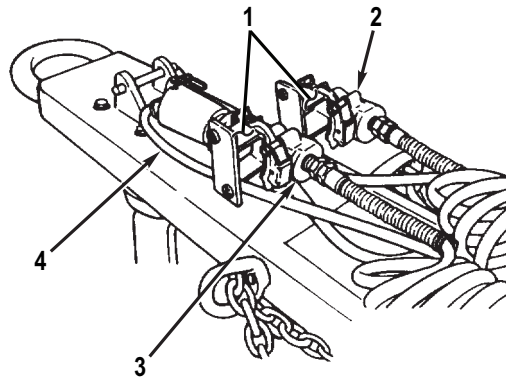
7. At front and rear, secure intradolly air hoses (Figure 3, Item 2) and intradolly cable (Figure 3, Item 4) under telescopic brace detent pin (Figure 3, Item 3) at midpoint of top beam (Figure 3, Item 1).



00048JMS

Figure 3. Attaching Dolly Set to Tow Vehicle.

8. Remove intervehicular gladhands (Figure 4, Items 2 and 3) from dummy couplings (Figure 4, Item 1). Connect intervehicular service (blue) gladhand (Figure 4, Item 2) to towing vehicle service gladhand. Connect intervehicular emergency (red) gladhand (Figure 4, Item 3) to towing vehicle emergency gladhand. Open towing vehicle air valves.

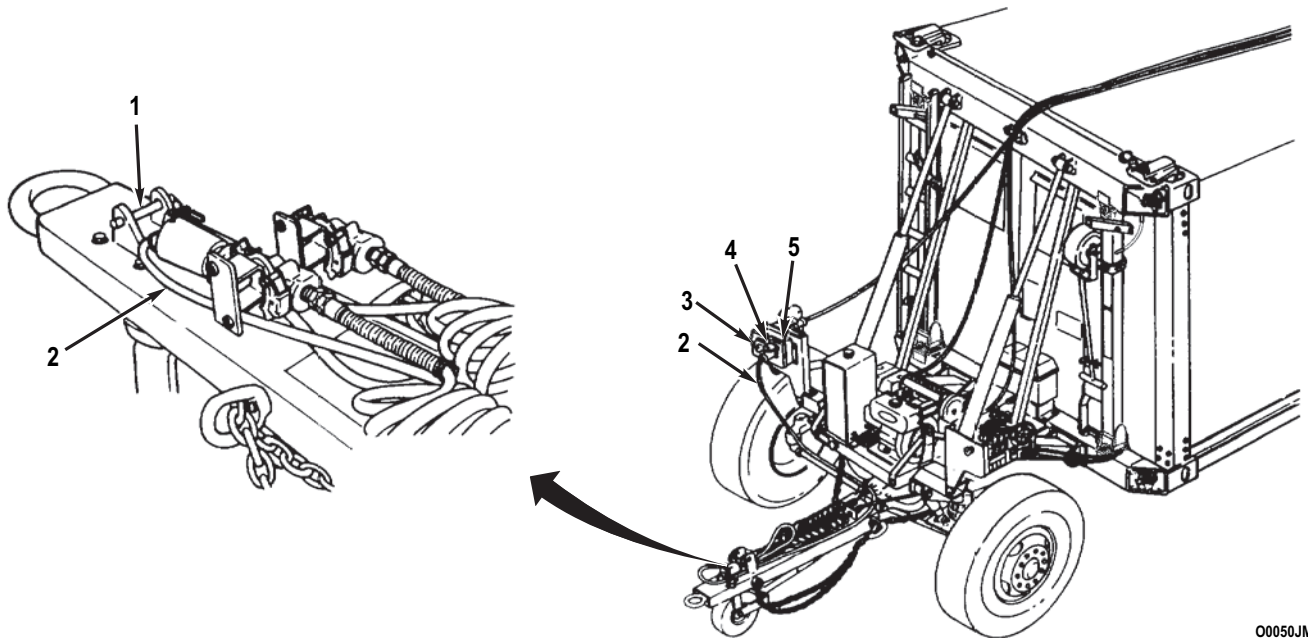


00049JMS

Figure 4. Attaching Dolly Set to Tow Vehicle.

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued**NOTE**

- A 12V or 24V intervehicular cable may be used depending on towing vehicle's electrical system. 12V intervehicular cable is connected to 12V receptacle connector (Figure 5, Item 3) of signal conditioning box (Figure 5, Item 5). 24V intervehicular cable is connected to 24V receptacle connector (Figure 5, Item 4). This task shows a 24V intervehicular cable in use.
 - If raising a rear dolly set in preparation for tandem towing, skip step 9.
9. Connect intervehicular cable (Figure 5, Item 2) to towing vehicle receptacle connector. Secure intervehicular cable under detent pin (Figure 5, Item 1).
 10. Inflate air bags (Operation Under Usual Conditions - General Operating Instructions (WP 0005)).



00050JMS

Figure 5. Attaching Dolly Set to Tow Vehicle.

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued**NOTE**

If operating on uneven terrain, refer to Operation Under Unusual Conditions (WP 0017) for instructions on locking the axle-to-pivot axle bracket coupling.

11. At front and rear, pull down on two lift cylinder levers (Figure 6, Item 1) to raise dolly set with or without shelter (Figure 6, Item 5) off the ground to a sufficient height to allow engagement of two transportation lockouts (Figure 6, Item 4) to suspension links (Figure 6, Item 3).
12. At front and rear, engage two transportation lockouts (Figure 6, Item 4) on hitch pins (Figure 6, Item 2) to suspension links (Figure 6, Item 3).
13. Shut down engine on front and rear dollies (Operation Under Usual Conditions - General Operating Instructions (WP 0005)).

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued

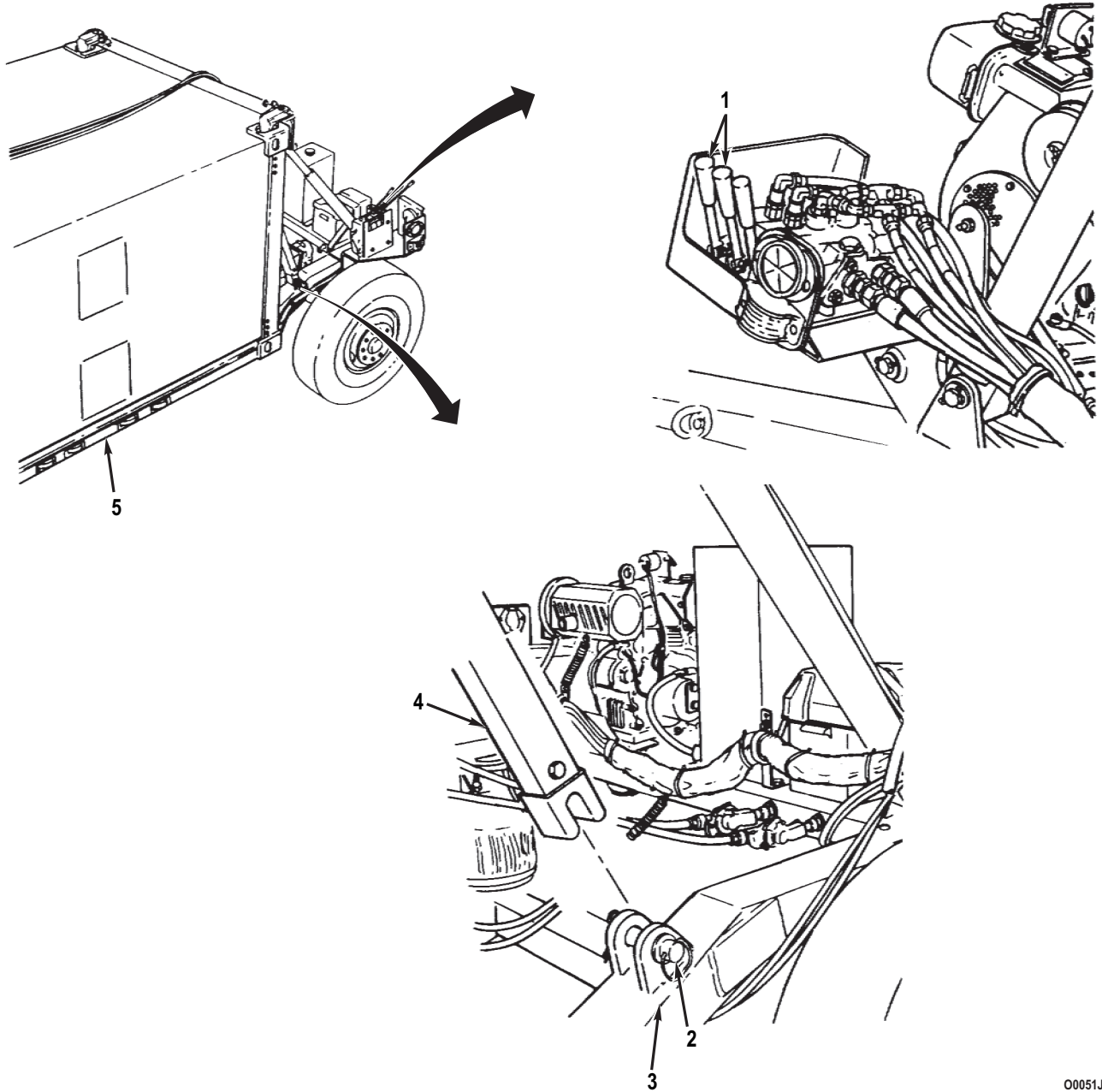


Figure 6. Attaching Dolly Set to Tow Vehicle.

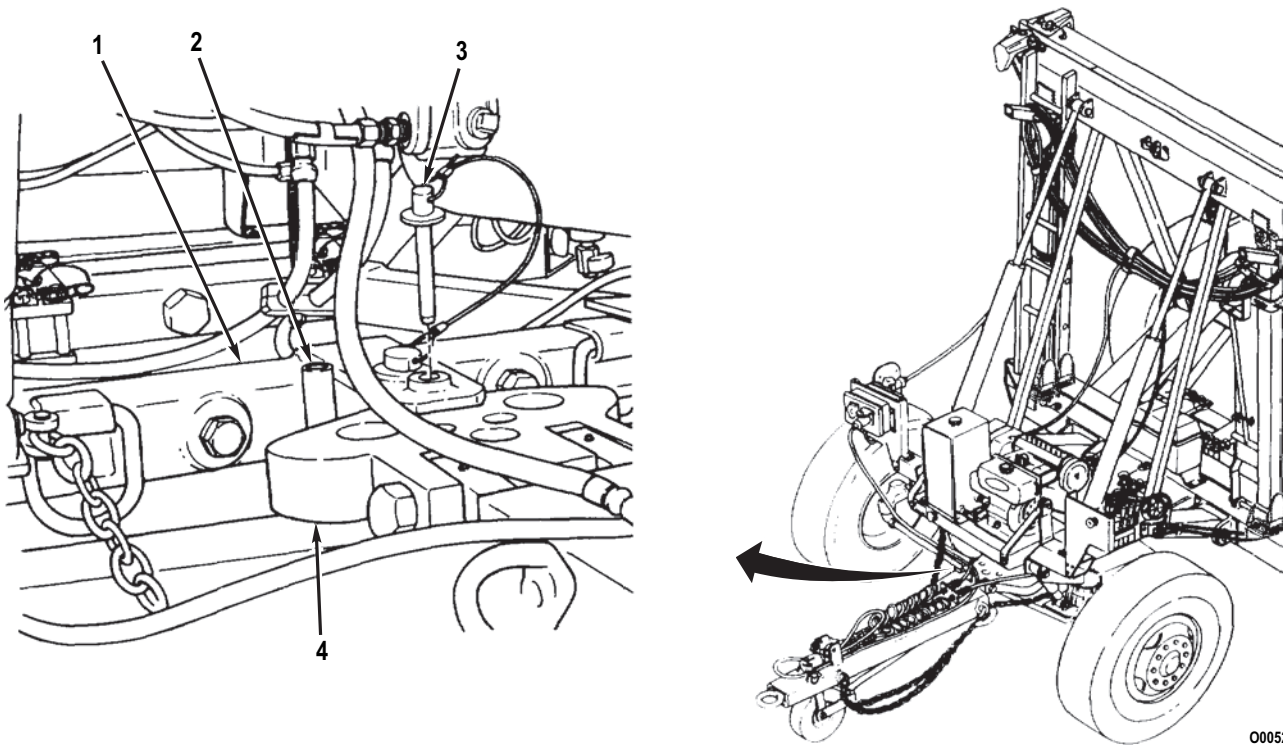
00051JMS

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued

WARNING

Steering locking pin **MUST** be removed from front axle and steering link before dolly set is towed in a four-wheel configuration. Failure to unlock steering will damage steering linkage and may result in an accident. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

14. Remove steering locking pin (Figure 7, Item 3) from front axle (Figure 7, Item 1) and steering link (Figure 7, Item 4). Stow steering locking pin in stowage tube (Figure 7, Item 2) on front axle.



00052JMS

Figure 7. Attaching Dolly Set to Tow Vehicle.

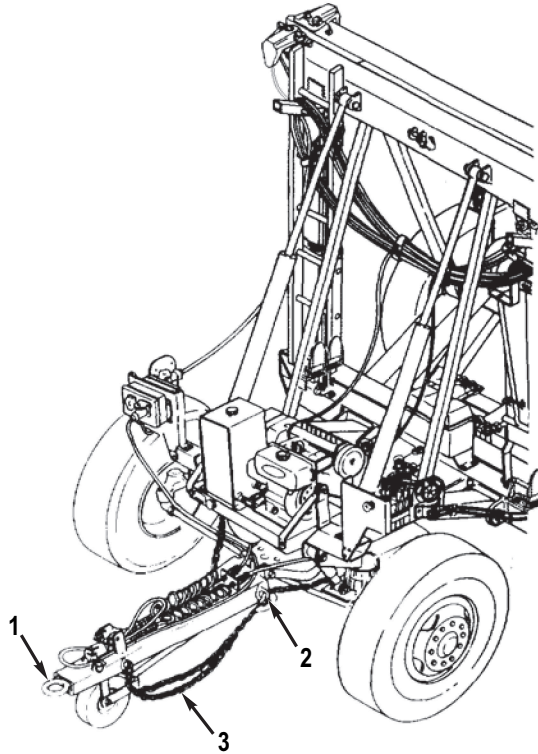
RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued

15. Remove towing vehicle safety pin and open pintle assembly. Install lunette (Figure 8, Item 1) in towing vehicle pintle assembly. Close pintle assembly and install safety pin.

NOTE

If raising a rear dolly set in preparation for tandem towing, safety chains should be installed on axle D-rings at rear of front dolly set.

16. Remove safety chains (Figure 8, Item 3) from stowage on rearmost eyebolts (Figure 8, Item 2). Install safety chains on rear of towing vehicle.



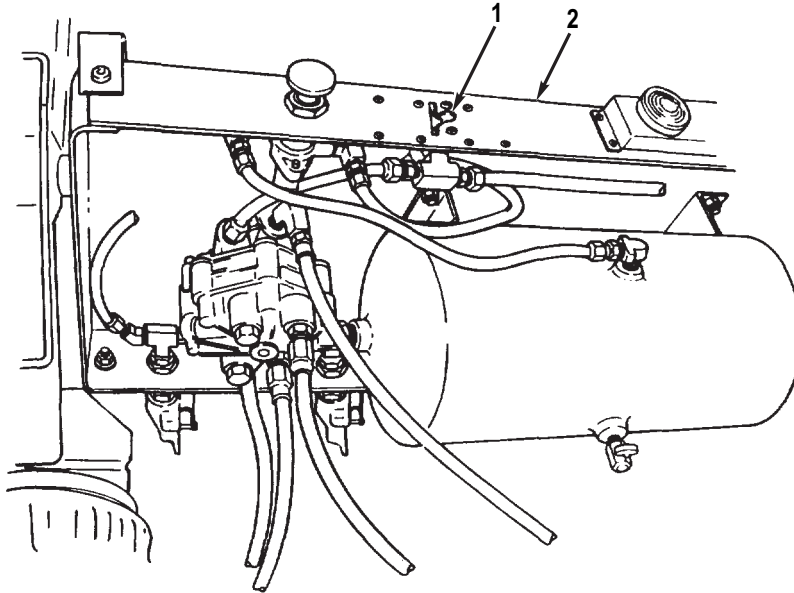
00053JMS

Figure 8. Attaching Dolly Set to Tow Vehicle.

RAISING DOLLY SET WITH OR WITHOUT SHELTER AND COUPLING TO TOWING VEHICLE - Continued**NOTE**

If raising a rear dolly set in preparation for tandem towing, skip step 17.

17. Release parking brakes on rear dolly by turning parking brake lever (Figure 9, Item 1) on pivoting tray (Figure 9, Item 2) to OFF position.



00054JMS

Figure 9. Releasing Parking Brake.

18. Deflate all air bags until top portion of each shock absorber reaches level of ride height indicator ring (General Operating Instructions (WP 0005)).

NOTE

If raising a rear dolly set in preparation for tandem towing, skip remaining steps in task.

19. Using towing vehicle, pull dolly set, with or without shelter, slightly forward and check operation of service brakes IAW towing vehicle Operator's Manual.

NOTE

- If towing vehicle has a 12V system, blackout stoplight-taillights on rear dolly will NOT be functioning.
- If raising a front dolly set in preparation for tandem towing, lights on rear dolly will NOT be functioning.

20. Check operation of lights IAW towing vehicle Operator's Manual.

END OF TASK

END OF WORK PACKAGE

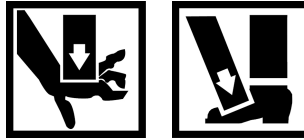
**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM
TOWING VEHICLE**

INITIAL SETUP:

Personnel Required
(Two)

UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM TOWING VEHICLE

WARNING



- All personnel must use caution when standing near dolly set, shelter (if present), and towing vehicle during uncoupling operation. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Two personnel are required for all dolly set operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

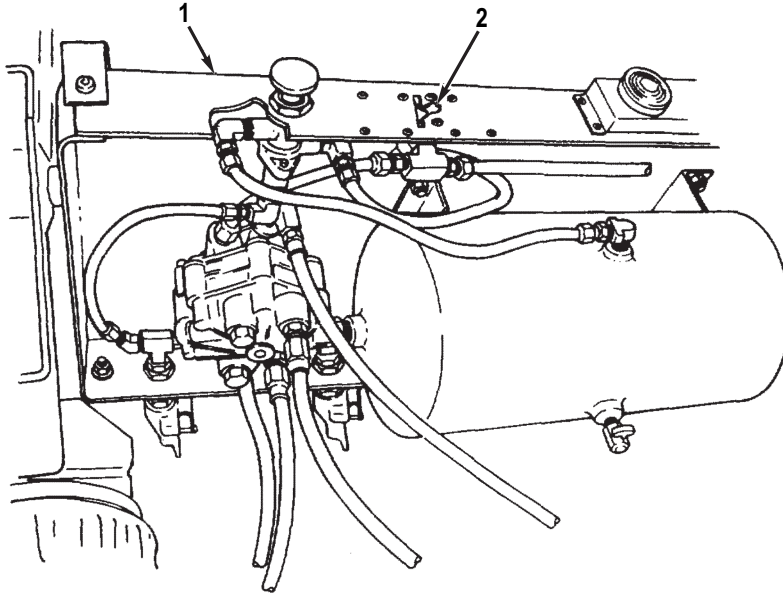
NOTE

Procedures to uncouple dolly set, with or without shelter, from towing vehicle are similar. Differences will be identified as they occur.

1. Stop towing vehicle close to where dolly set or shelter is needed.

UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM TOWING VEHICLE - Continued

2. At rear pivoting tray (Figure 1, Item 1), turn parking brake lever (Figure 1, Item 2) to ON position to apply rear dolly parking brakes.

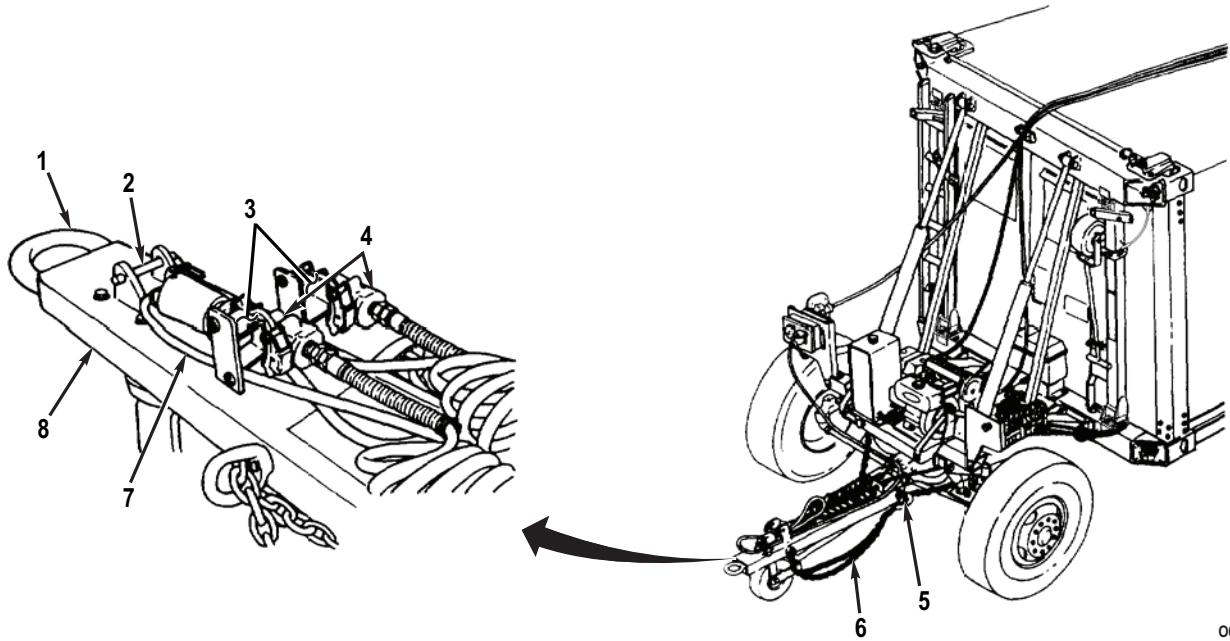


0008JMS

Figure 1. Parking Brake Lever.

3. Disconnect intervehicular cable (Figure 2, Item 7) from rear of towing vehicle. Release intervehicular cable from under detent pin (Figure 2, Item 2), gather up excess cable as required, and stow on top of front drawbar (Figure 2, Item 8).
4. Close air valves at rear of towing vehicle IAW towing vehicle Operator's Manual.
5. Disconnect two intervehicular air hose gladhands (Figure 2, Item 4) from towing vehicle gladhands. Stow on dummy couplings (Figure 2, Item 3).
6. Remove safety chains (Figure 2, Item 6) from towing vehicle. Stow safety chains on rear most eyebolts (Figure 2, Item 5).
7. Remove safety pin, open towing vehicle pintle assembly, and lift off lunette (Figure 2, Item 1). Pull towing vehicle forward. Close pintle assembly and install safety pin.

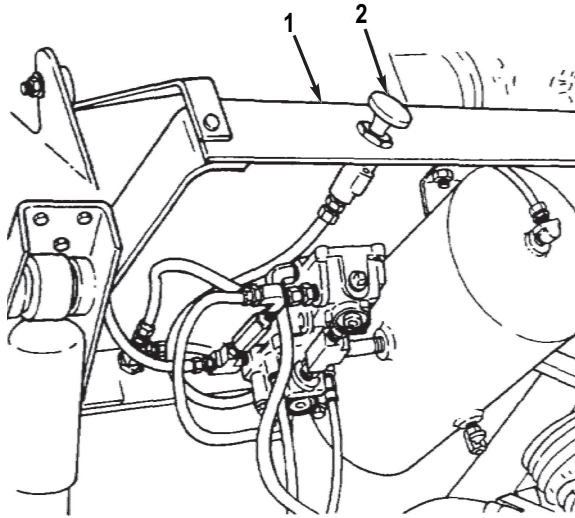
UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM TOWING VEHICLE - Continued



0009JMS

Figure 2. Intervehicular Connections.

8. Release brakes on front dolly by pushing in on airbrake control knob (Figure 3, Item 2) on pivoting tray (Figure 3, Item 1).



00010JMS

Figure 3. Airbrake Release.

UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM TOWING VEHICLE - Continued

9. Remove steering locking pin (Figure 4, Item 3) from stowage tube (Figure 4, Item 2). Install steering locking pin through front axle (Figure 4, Item 1) and steering link (Figure 4, Item 4) to lock steering.

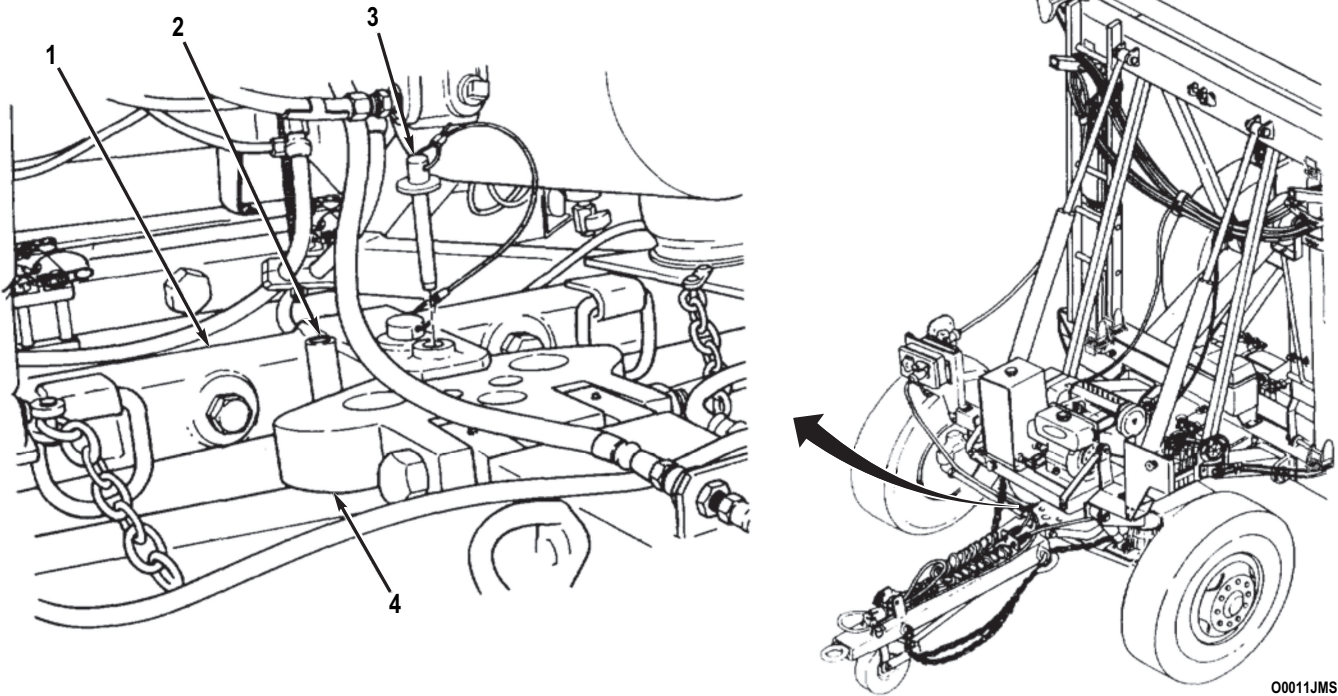


Figure 4. Steering Lock.

10. At front and rear, remove two caps (Figure 5, Item 3) of air bag valves (Figure 5, Item 4) and deflate air bags (Figure 5, Item 5). Install caps on air bag valves.

WARNING

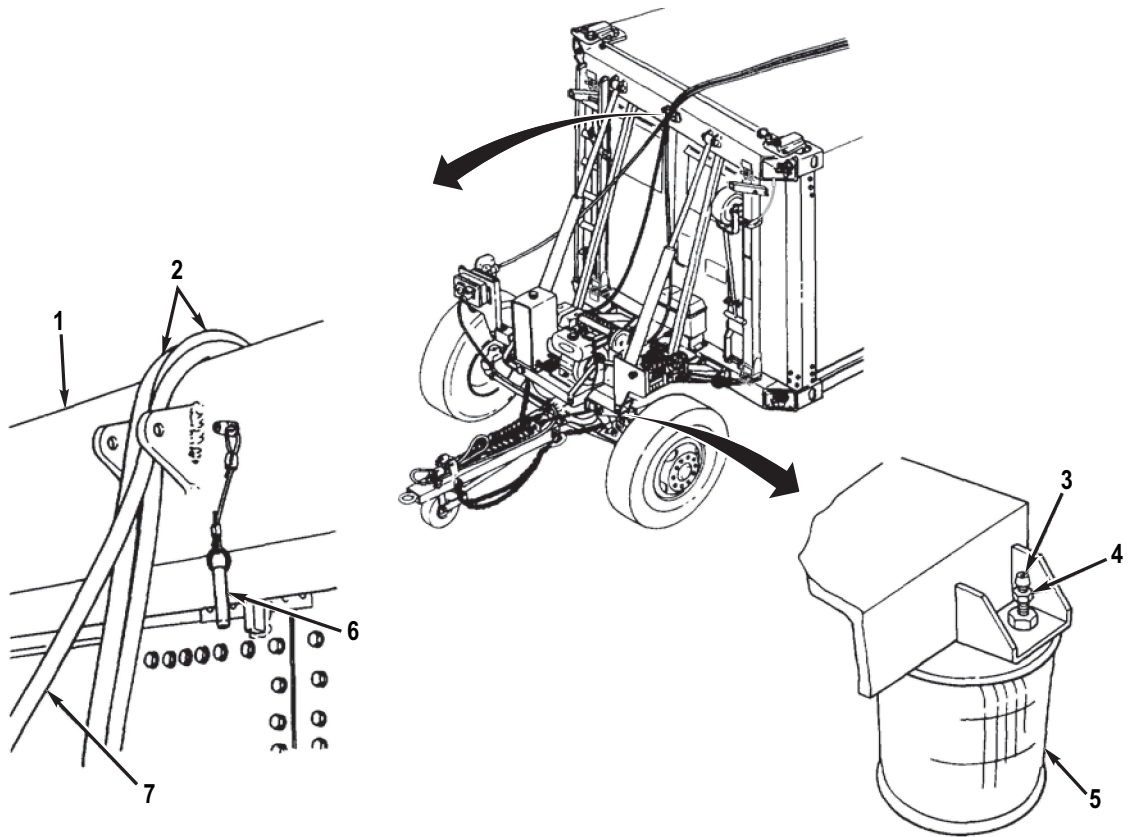
Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in serious injury to personnel. Seek medical attention in the event of an injury.

NOTE

If uncoupling dolly set with shelter, perform step 11.

11. Release two intradolly air hoses (Figure 5, Item 2) and intradolly cable (Figure 5, Item 7) from under telescopic brace detent pin (Figure 5, Item 6) at midpoint of front and rear dolly top beams (Figure 5, Item 1).

UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM TOWING VEHICLE - Continued



00012JMS

Figure 5. Intradolly Cables.

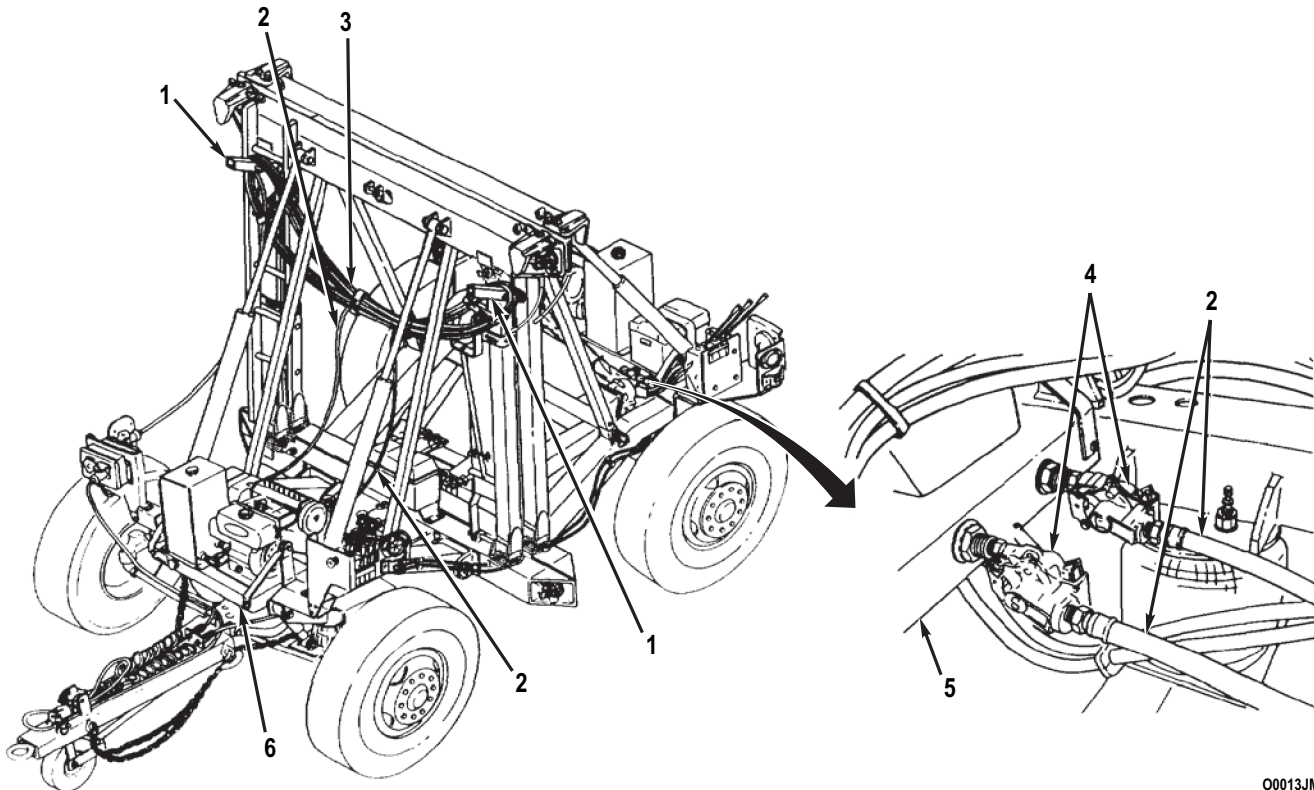
UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM TOWING VEHICLE - Continued

12. Disconnect intradolly air hoses (Figure 6, Item 2) from gladhands (Figure 6, Item 4) at pivoting trays (Figure 6, Items 5 and 6).

NOTE

If uncoupling dolly set without shelter, perform step 13.

13. Stow ends of intradolly air hoses (Figure 6, Item 2) by wrapping them around bundle (Figure 6, Item 3) hanging from two hanger brackets (Figure 6, Item 1).



00013JMS

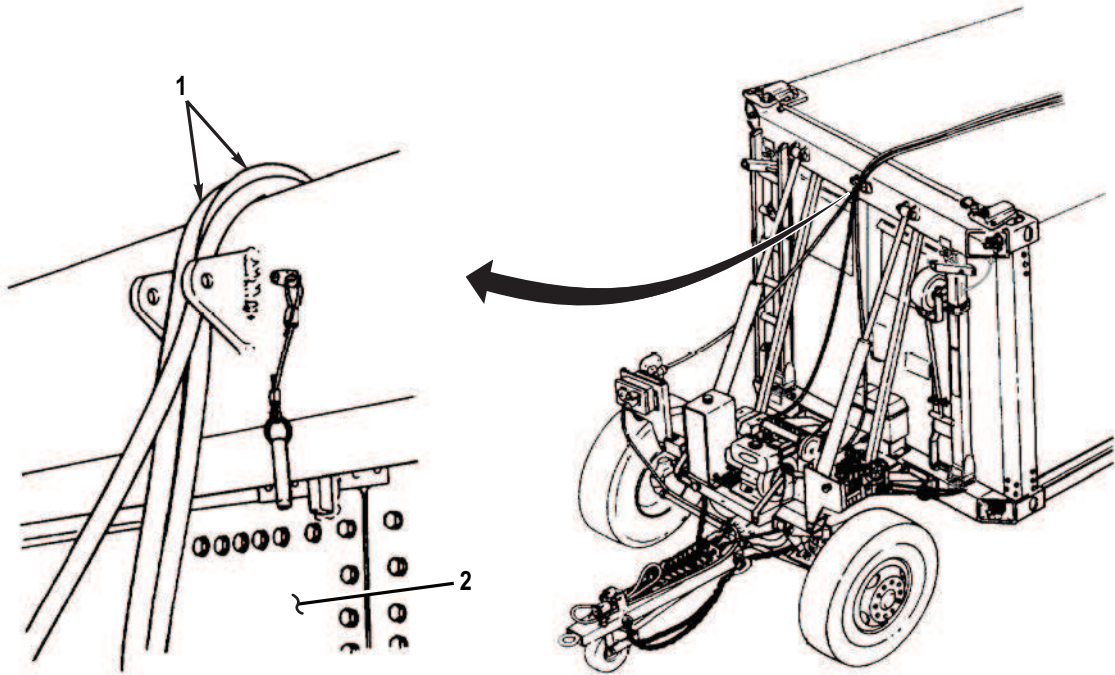
Figure 6. Air Hoses.

NOTE

If uncoupling dolly set with shelter, perform step 14.

14. Remove intradolly air hoses (Figure 7, Item 1) from roof of shelter (Figure 7, Item 2) and set aside.

UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM TOWING VEHICLE - Continued



00014JMS

Figure 7. Intradolly Air Hoses.

UNCOUPLING DOLLY SET WITH OR WITHOUT SHELTER FROM TOWING VEHICLE - Continued**NOTE**

If uncoupling a front dolly set after tandem towing, skip steps 15 through 17.

15. Disconnect intradolly cable (Figure 8, Item 5) from forward distribution box (Figure 8, Item 7) and rear distribution box (Figure 8, Item 4).

NOTE

If uncoupling dolly set without shelter, perform step 16.

16. Stow ends of intradolly cable (Figure 8, Item 5) by wrapping them around bundle (Figure 8, Item 2) hanging from two hanger brackets (Figure 8, Item 1).

NOTE

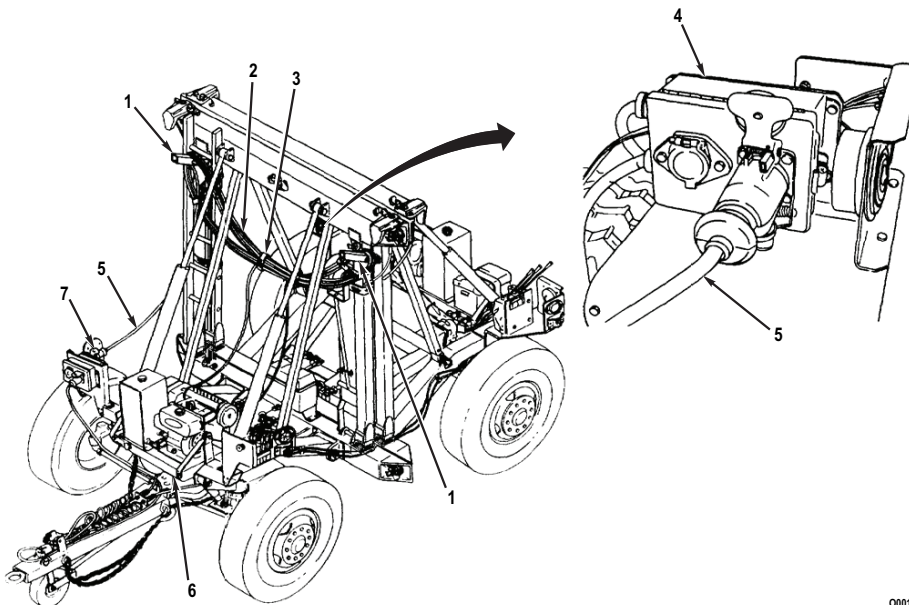
If uncoupling dolly set with shelter, perform step 17.

17. Remove intradolly cable (Figure 8, Item 5) from roof of shelter (Figure 7, Item 2) and set aside.

NOTE

If uncoupling dolly set without shelter, perform step 18.

18. Remove two stowage straps (Figure 8, Item 3) and bundle (Figure 8, Item 2) from two hanger brackets (Figure 8, Item 1) on front dolly. Set items aside.



00015JMS

Figure 8. Intradolly Cable Stowage.

END OF TASK

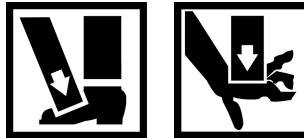
END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND
DETACHING FRONT AND REAR DOLLIES**

INITIAL SETUP:

Personnel Required
(Two)

References
WP 0005
WP 0195

LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES**WARNING**

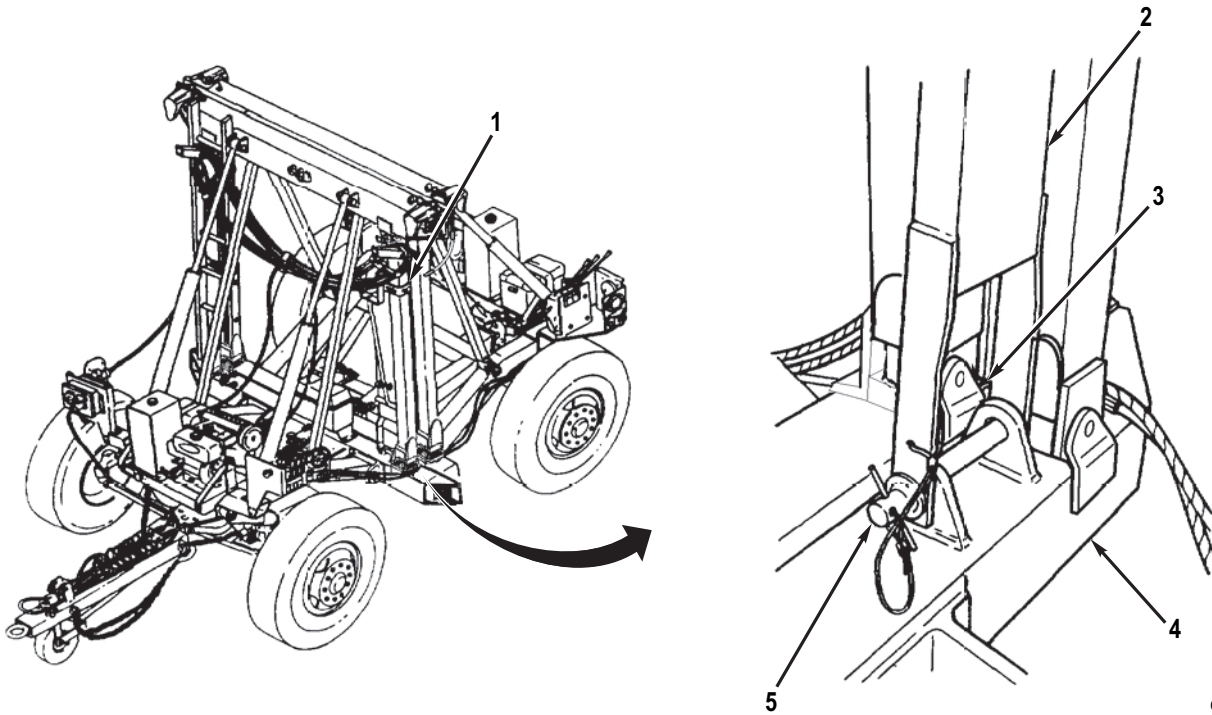
All personnel must use caution when standing near front and rear dollies during attaching operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

Procedures to lower dolly set, with or without shelter, and detach front and rear dollies are similar. Differences will be identified as they occur.

**LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES -
Continued**

1. Remove stowage strap (Figure 1, Item 1), lockpin (Figure 1, Item 3), and pin (Figure 1, Item 5), and remove rear drawbar (Figure 1, Item 2) from stowage on bottom beam (Figure 1, Item 4) of front dolly.

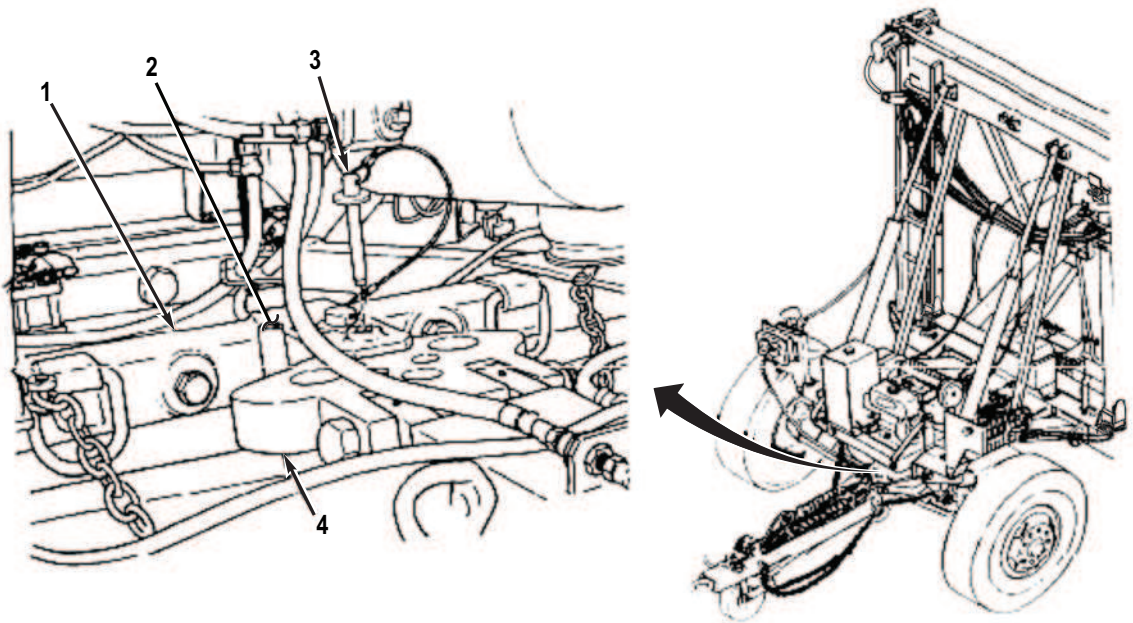


00135JMS

Figure 1. Rear Drawbar Stowage.

2. Remove steering locking pin (Figure 2, Item 3) from stowage tube (Figure 2, Item 2). Install steering locking pin through front axle (Figure 2, Item 1) and steering link (Figure 2, Item 4) to lock steering.

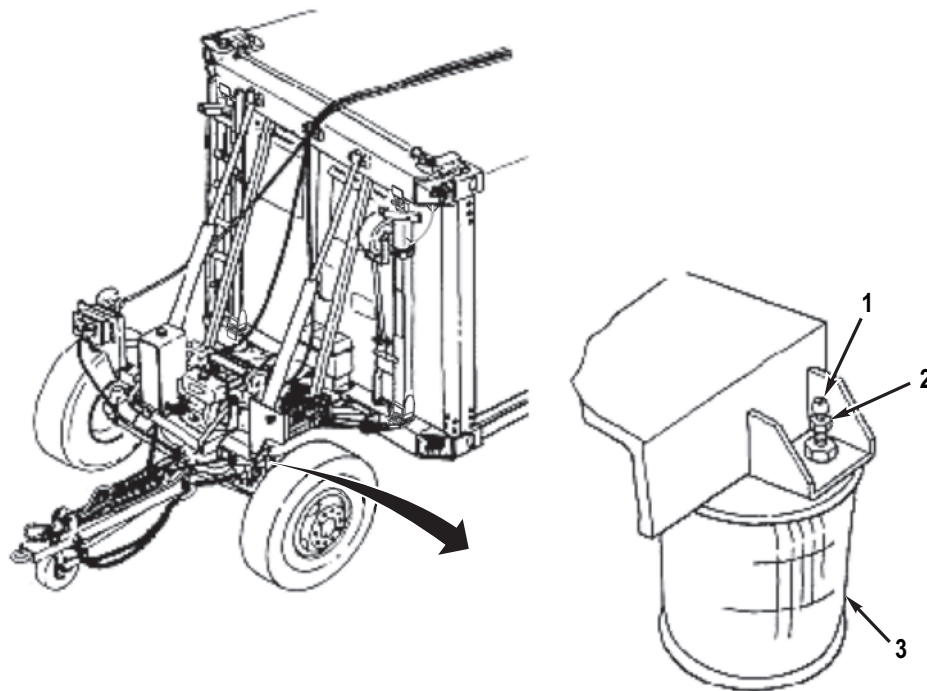
LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES - Continued



00016JMS

Figure 2. Steering Lockout Pin.

3. At front and rear, remove two caps (Figure 3, Item 1) of air bag valves (Figure 3, Item 2) and deflate air bags (Figure 3, Item 3). Install caps on air bag valves.

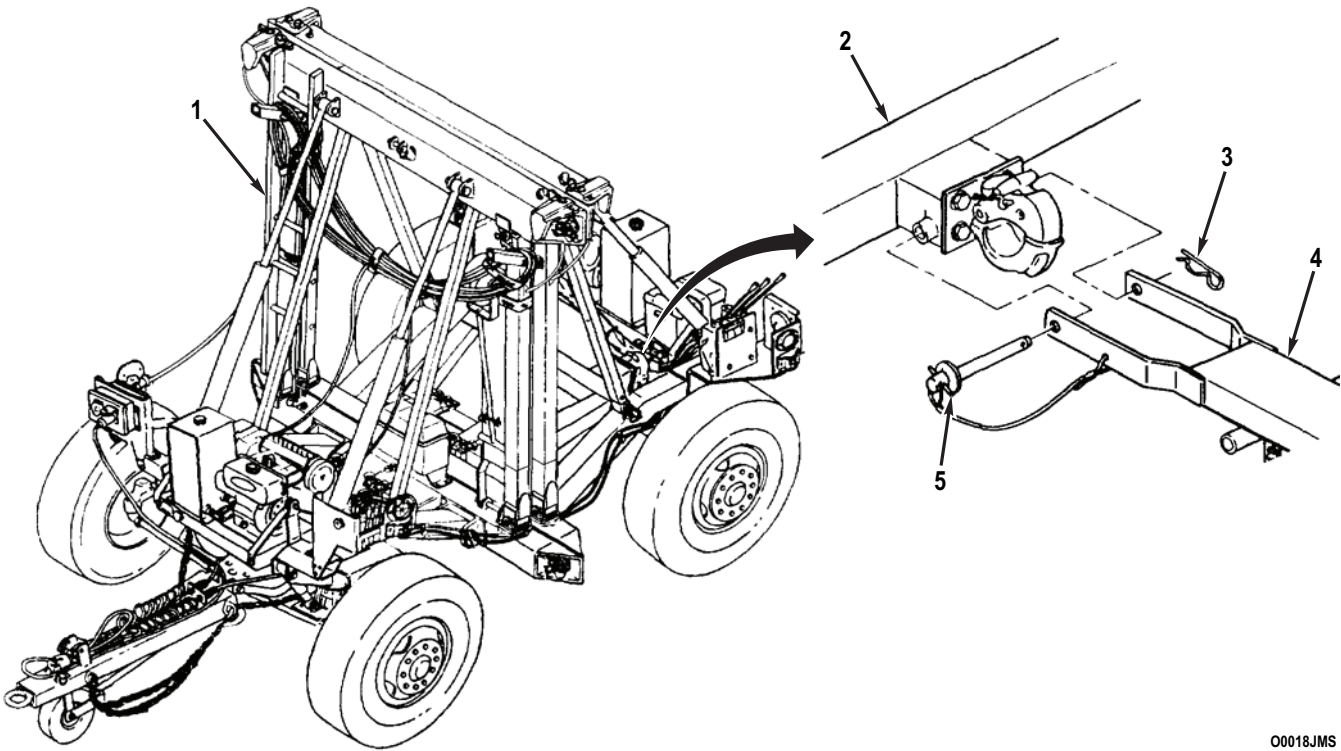


00017JMS

Figure 3. Deflating Air Bags.

LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES - Continued

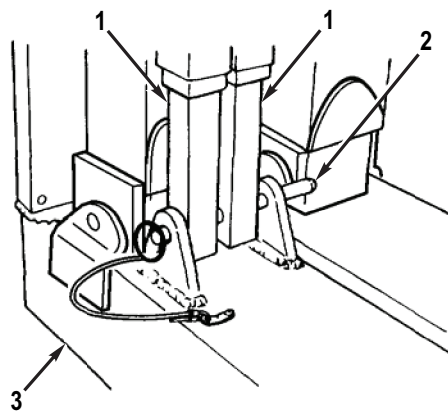
4. Install rear drawbar (Figure 4, Item 4) to rear axle (Figure 4, Item 2) with pin (Figure 4, Item 5) and lockpin (Figure 4, Item 3).
5. Remove two stowage straps and ladder (Figure 4, Item 1). Set ladder aside.



00018JMS

Figure 4. Rear Drawbar.

6. Remove stowage strap and detent pin (Figure 5, Item 2), and remove two telescopic braces (Figure 5, Item 1) from stowage on bottom beam (Figure 5, Item 3) of front dolly.

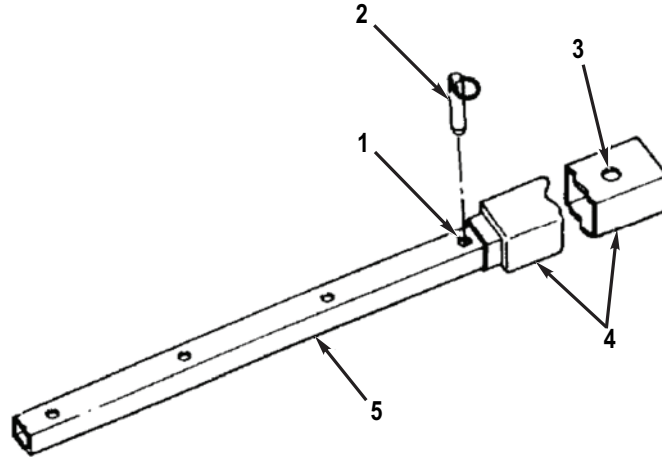


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Figure 5. Telescopic Braces.

LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES - Continued

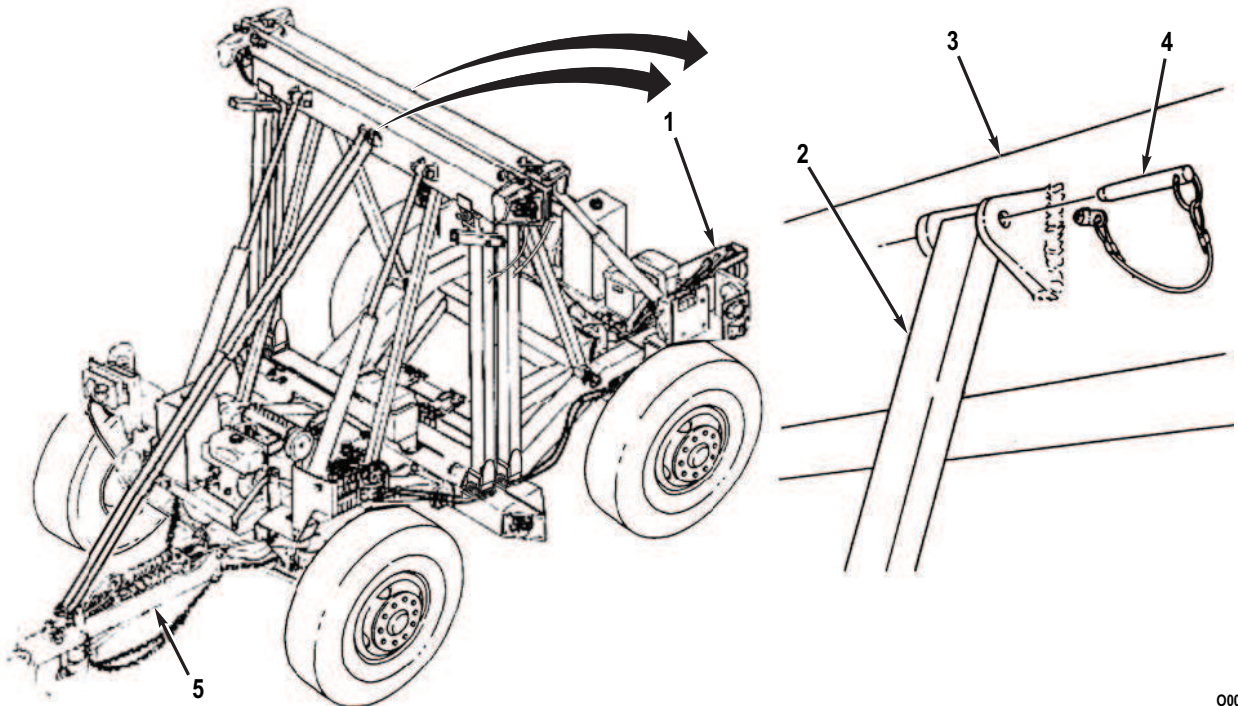
7. Remove rest pin (Figure 6, Item 2) from hole (Figure 6, Item 3) at end of each larger brace (Figure 6, Item 4). Install rest pin in fourth hole (Figure 6, Item 1) from end of each smaller brace (Figure 6, Item 5).



00020JMS

Figure 6. Telescopic Brace Adjustment.

8. Install two telescopic braces (Figure 7, Item 2) to front and rear drawbars (Figure 7, Items 1 and 5) and top beams (Figure 7, Item 3) with four detent pins (Figure 7, Item 4).



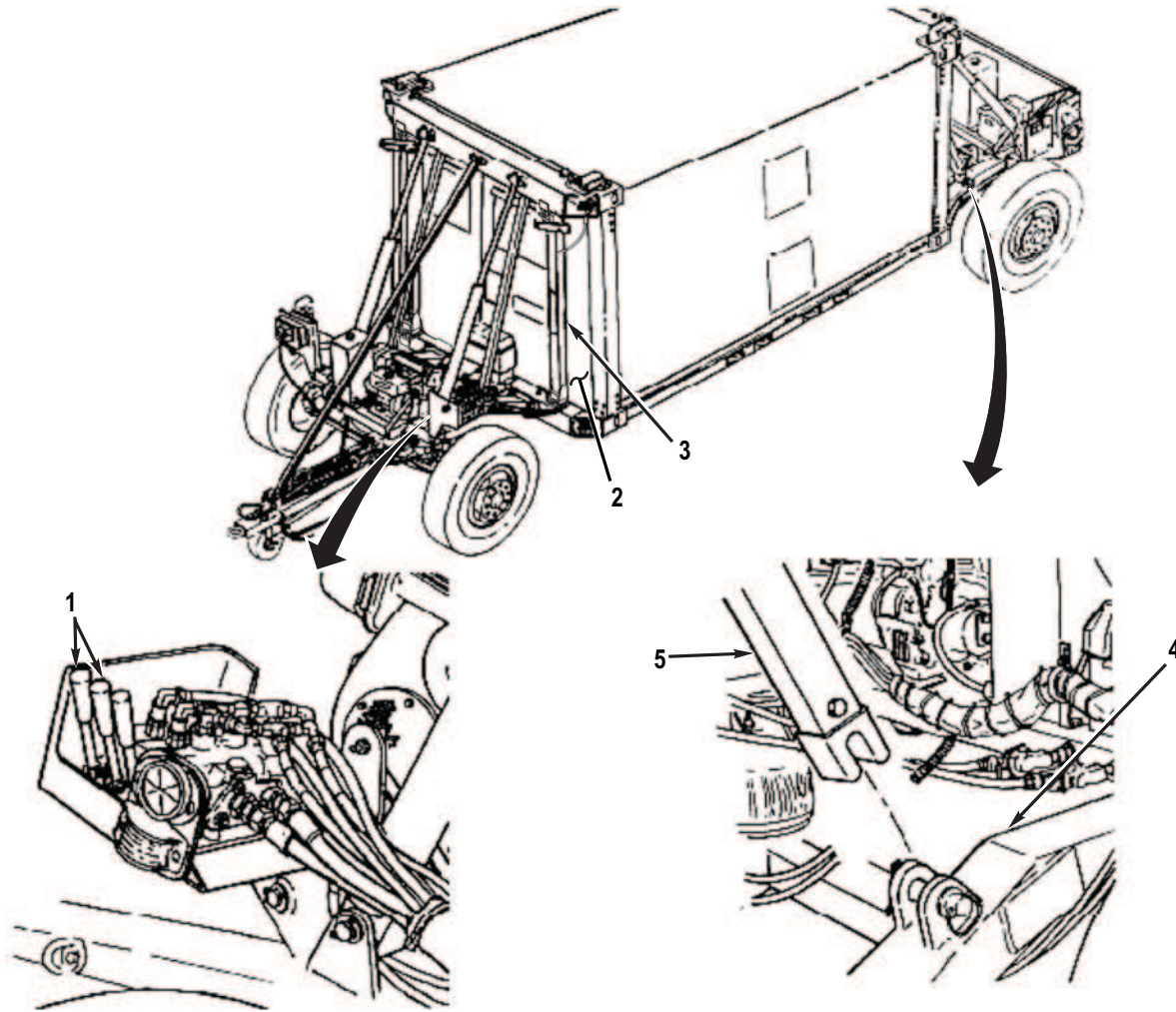
00021JMS

Figure 7. Telescopic Brace Adjustment.

9. Start engine at front and rear dollies (General Operating Instructions (WP 0005)).

LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES - Continued

10. At front and rear, pull down on two-lift cylinder levers (Figure 8, Item 1) to slightly extend lift cylinders. Disengage transportation lockouts (Figure 8, Item 5) from suspension links (Figure 8, Item 4). Secure each transportation lockout to top beam vertical tube (Figure 8, Item 3) with stowage strap.
11. At front and rear, push up on two lift cylinder levers (Figure 8, Item 1) and lower dolly set with or without shelter (Figure 8, Item 2) to the ground.

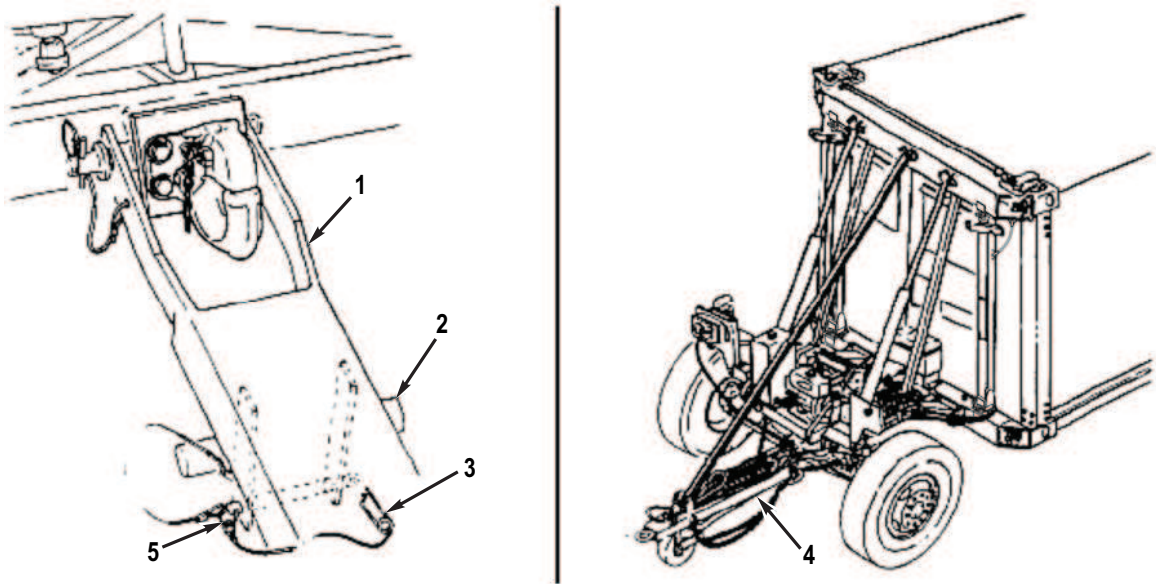


0002JMS

Figure 8. Lowering Dolly Set.

12. Remove safety pin (Figure 9, Item 3) and hitch pin (Figure 9, Item 5) and release handle (Figure 9, Item 2) from stowage under rear drawbar (Figure 9, Item 1). Repeat for handle at front drawbar (Figure 9, Item 4).

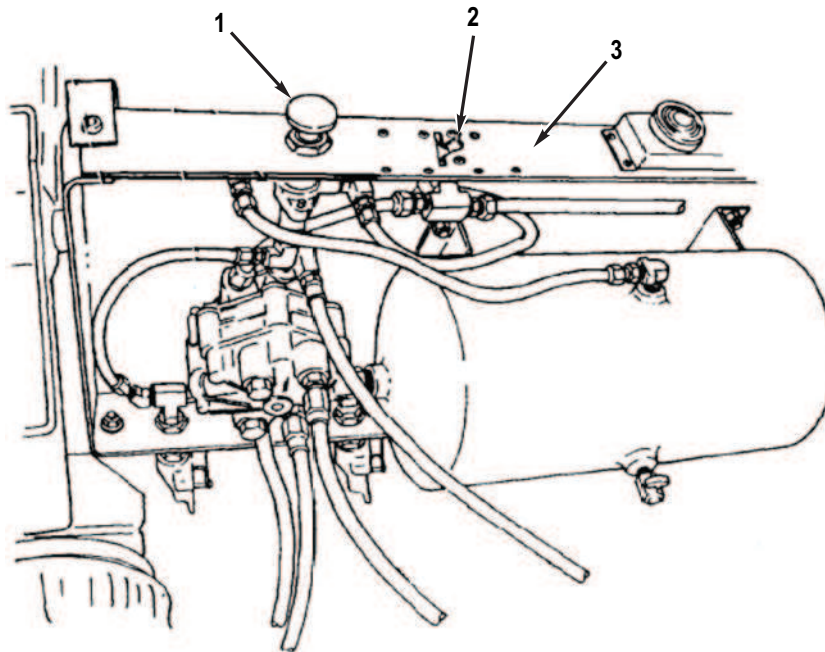
LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES - Continued



00023JMS

Figure 9. Releasing Drawbar.

13. Release brakes on rear dolly by pushing in on airbrake control knob (Figure 10, Item 1) and turning parking brake lever (Figure 10, Item 2) on pivoting tray (Figure 10, Item 3) to OFF position.



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Figure 10. Parking Brake Release.

LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES - Continued

WARNING

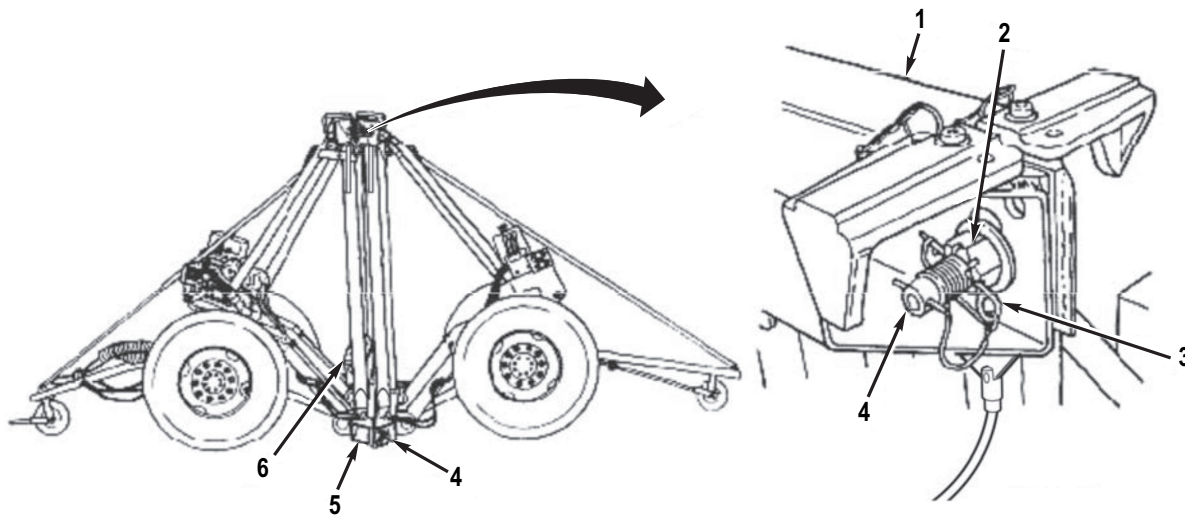


- Use extreme caution when removing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when loosening and removing twist locks. Loosened twist locks must be removed or they may fall. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

- If there is difficulty loosening twist lock nut or twist locks do not come out, it may be necessary to operate hydraulic control valve to slightly retract or extend each lift cylinder (Operating Hydraulic Control Valve (WP 0005)).
- If detaching dolly halves from each other, perform step 14. Skip remaining steps in task.
- If detaching dolly halves from shelter, skip step 14 and perform steps 15 through 18.

14. At front and rear, remove safety pins (Figure 11, Item 3). Use twist lock wrench (Item 3, (WP 0195)) to loosen nuts (Figure 11, Item 2) at top beams (Figure 11, Item 1). Rotate twist locks (Figure 11, Item 4) 90 degrees and remove from top beams. Repeat to remove from bottom beams (Figure 11, Item 5). Stow twist locks in toolbox (Figure 11, Item 6) on front dolly.

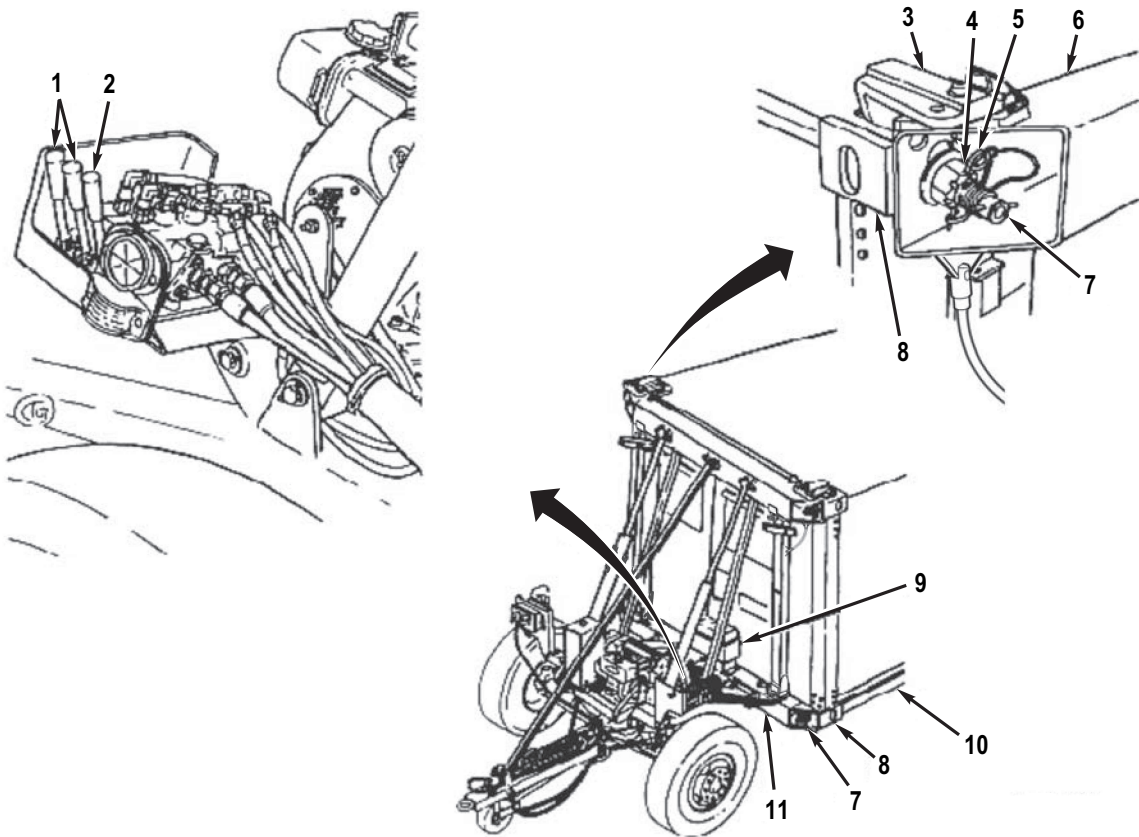


00025JMS

Figure 11. Separating Dolly Set.

LOWERING DOLLY SET WITH OR WITHOUT SHELTER AND DETACHING FRONT AND REAR DOLLIES - Continued

15. At bottom beams (Figure 12, Item 11) rotate twist locks (Figure 12, Item 7) 90 degrees. Pull out, but DO NOT remove twist locks. Ensure that heads of twist locks are aligned with holes in corner blocks (Figure 12, Item 8) of shelter (Figure 12, Item 10).
16. At front and rear, pull down on two lift cylinder levers (Figure 12, Item 1) to extend lift cylinders. Stop when bottom beam (Figure 12, Item 11) is approximately 6 in. (15 cm) from shelter (Figure 12, Item 10) and twist locks (Figure 12, Item 7) are free of corner blocks (Figure 12, Item 8).
17. At front and rear, pull down on positioning cylinders lever (Figure 12, Item 2) until bottom beam (Figure 12, Item 11) rests on the ground.
18. At front and rear, briefly pull down on two lift cylinder levers (Figure 12, Item 1) and then briefly pull down on positioning cylinders lever (Figure 12, Item 2). Repeat as required until top hooks (Figure 12, Item 3) are clear of corner blocks (Figure 12, Item 8) at top of shelter (Figure 12, Item 10).



00026JMS

Figure 12. Detaching Dolly Set from Shelter.

END OF TASK

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - ATTACHING FRONT AND REAR DOLLIES TO SHELTER**

INITIAL SETUP:

Personnel Required
(Two)

References (cont.)
WP 0017
WP 0195

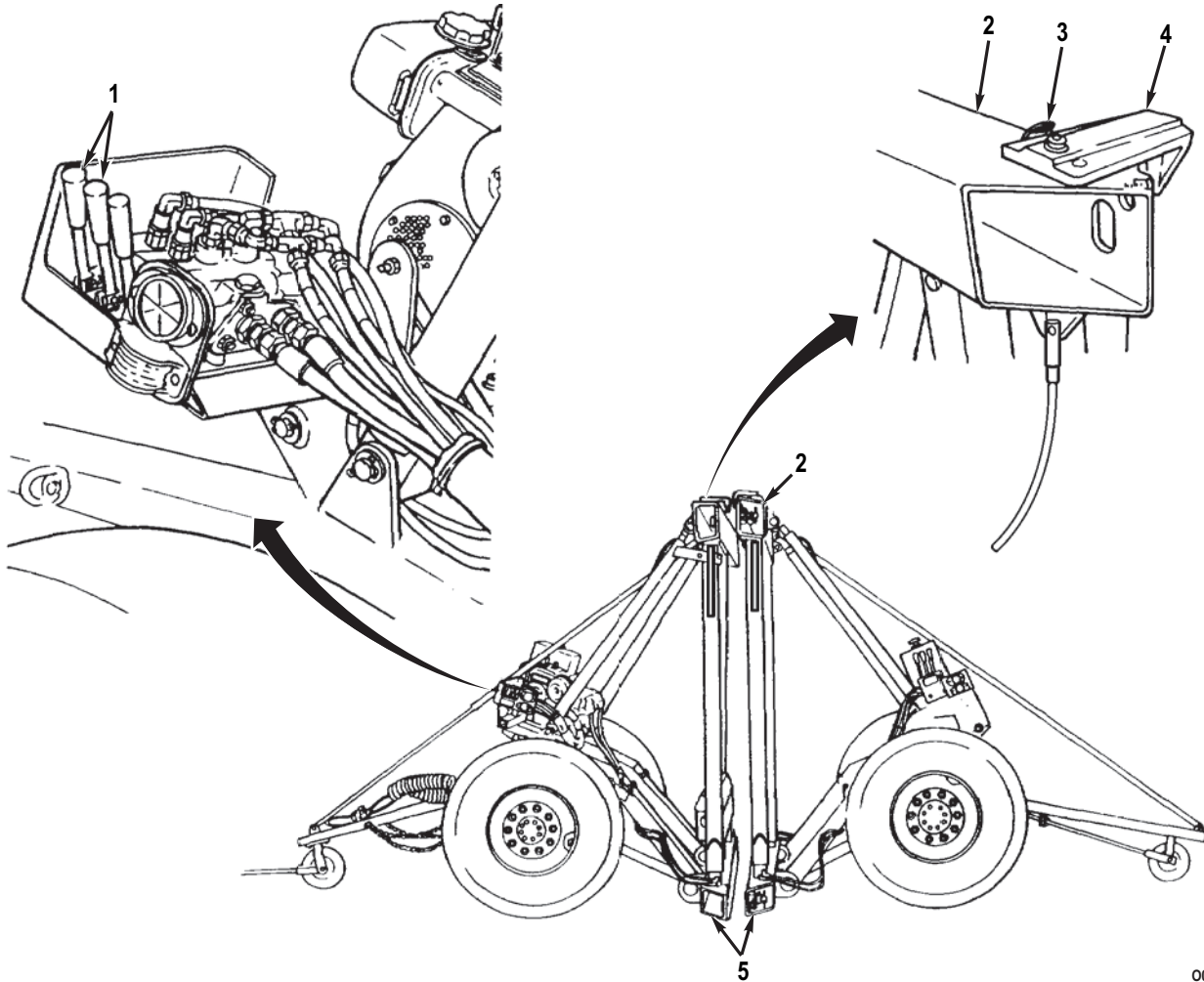
References
WP 0005

ATTACHING FRONT AND REAR DOLLIES TO SHELTER**WARNING**

- All personnel must use caution when standing near front and rear dollies and shelter during attaching operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued

1. At front and rear, pull down on two lift cylinder levers (Figure 1, Item 1) to separate front and rear dollies approximately 12 in. (30 cm). Push up on lift cylinder levers to bring top and bottom beams (Figure 1, Items 2 and 5) back to the vertical position.
2. At front and rear top beams (Figure 1, Item 2), remove two detent pins (Figure 1, Item 3) and rotate top hooks (Figure 1, Item 4) 180 degrees to shelter engagement position. Install detent pins.
3. Place each dolly half in maneuvering position (General Operating Instructions (WP 0005)).



00136JMS

Figure 1. Maneuvering Dolly Set.

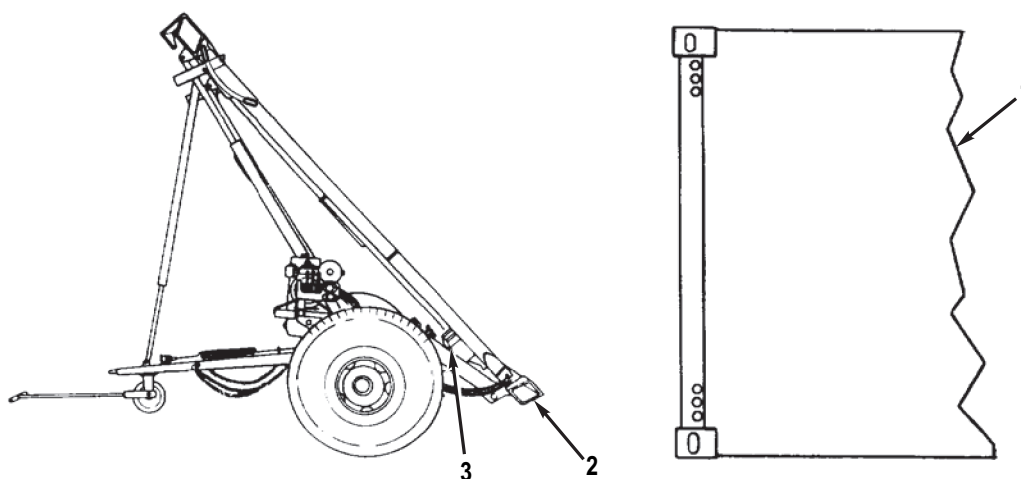
ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued**WARNING**

While in maneuvering position, **DO NOT** operate positioning cylinders lever. Failure to follow this warning may cause bottom beam to lower to the ground. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

To ensure access into shelter through its door, rear dolly must be attached to door end of shelter.

4. Move each dolly half into position at ends of shelter (Figure 2, Item 1). Bottom beam (Figure 2, Item 2) should be approximately 6 in. (15 cm) from shelter and aligned with sides of shelter.
5. Remove each dolly half from maneuvering position (General Operating Instructions (WP 0005)).



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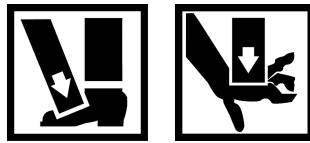
Figure 2. Maneuvering Dolly Set.

NOTE

If operating on uneven terrain, review Operating on Uneven Terrain (Operation Under Unusual Conditions (WP 0017)) for instructions on unlocking the axle-to-pivot axle bracket coupling.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued

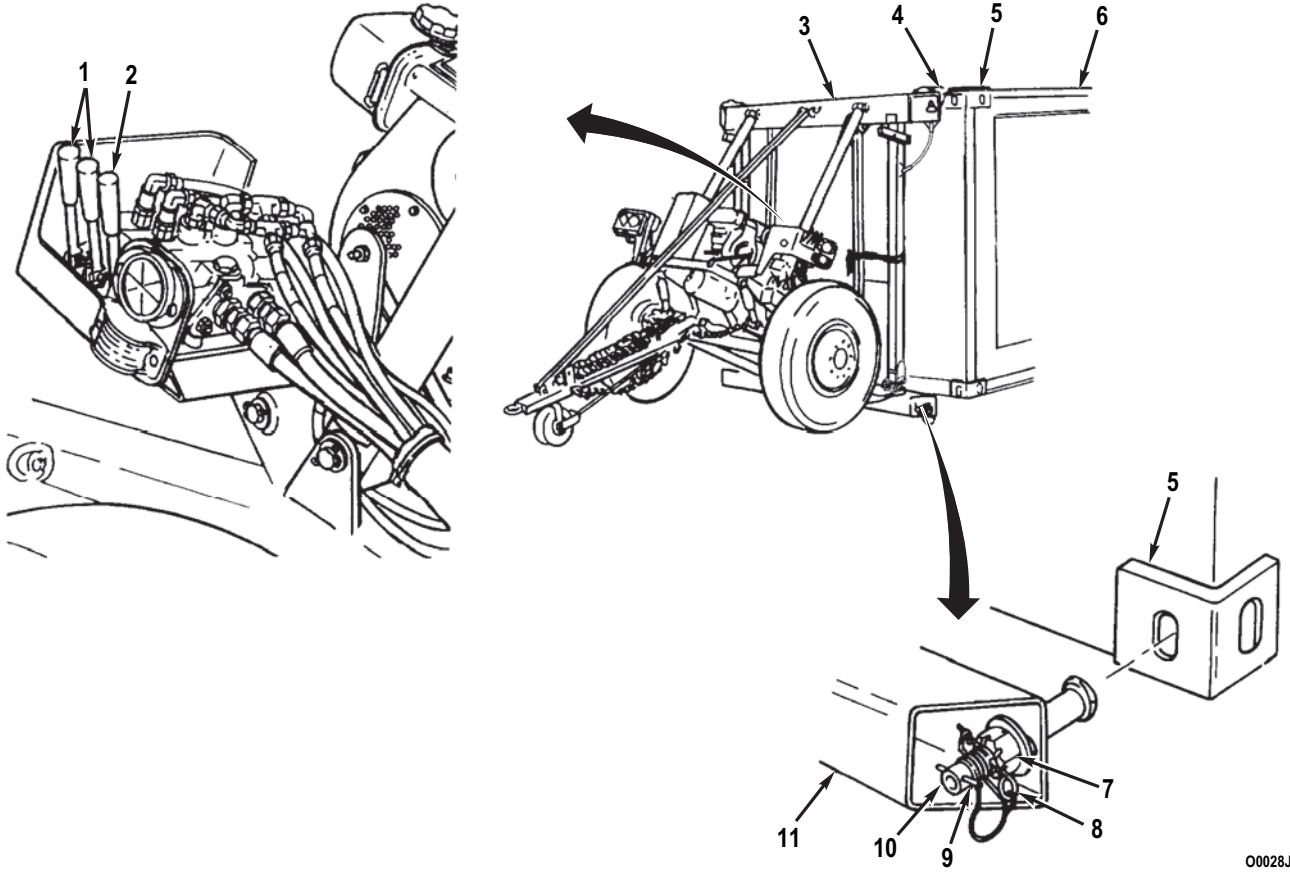
6. Remove eight twist locks (Figure 3, Item 10) from toolbox (Figure 2, Item 3). At front and rear, loosely install two twist locks to bottom beams (Figure 3, Item 11).
7. At front and rear, operate two lift cylinder levers (Figure 3, Item 1) and positioning cylinders lever (Figure 3, Item 2) to extend and/or retract lift and positioning cylinders as required to engage two top hooks (Figure 3, Item 4) into corner blocks (Figure 3, Item 5) at top of shelter (Figure 3, Item 6).
8. At front and rear, push up on positioning cylinders lever (Figure 3, Item 2) to raise bottom beam (Figure 3, Item 11) 1-2 in. (3-5 cm) off the ground.
9. At front and rear, push up on two lift cylinder levers (Figure 3, Item 1) to draw bottom beam (Figure 3, Item 11) to within approximately 2 in. (5 cm) of shelter (Figure 3, Item 6).
10. At front and rear, extend or retract positioning cylinders as required to align twist locks (Figure 3, Item 10) in bottom beam (Figure 3, Item 11) with holes in corner blocks (Figure 3, Item 5) of shelter (Figure 3, Item 6). When aligned, push twist locks into corner blocks.
11. At front and rear, push up on two lift cylinder levers (Figure 3, Item 1) to bring bottom beam (Figure 3, Item 11) flush against shelter (Figure 3, Item 6).

WARNING

Use extreme caution when installing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

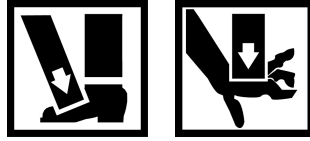
12. At front and rear, ensure that twist locks (Figure 3, Item 10) are fully pushed into corner blocks (Figure 3, Item 5) in bottom of shelter (Figure 3, Item 6). Rotate twist locks 90 degrees so that twist lock pins (Figure 3, Item 9) are horizontal. Tighten nuts (Figure 3, Item 7) finger-tight.
13. At front and rear, push up on positioning cylinders lever (Figure 3, Item 2) and raise bottom beam (Figure 3, Item 11) to force heads of twist locks (Figure 3, Item 10) up against top on inside of corner blocks (Figure 3, Item 5). Use twist lock wrench (Item 3, (WP 0195)) to tighten nuts (Figure 3, Item 7). Install safety pins (Figure 3, Item 8) through twist locks to secure nuts.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued



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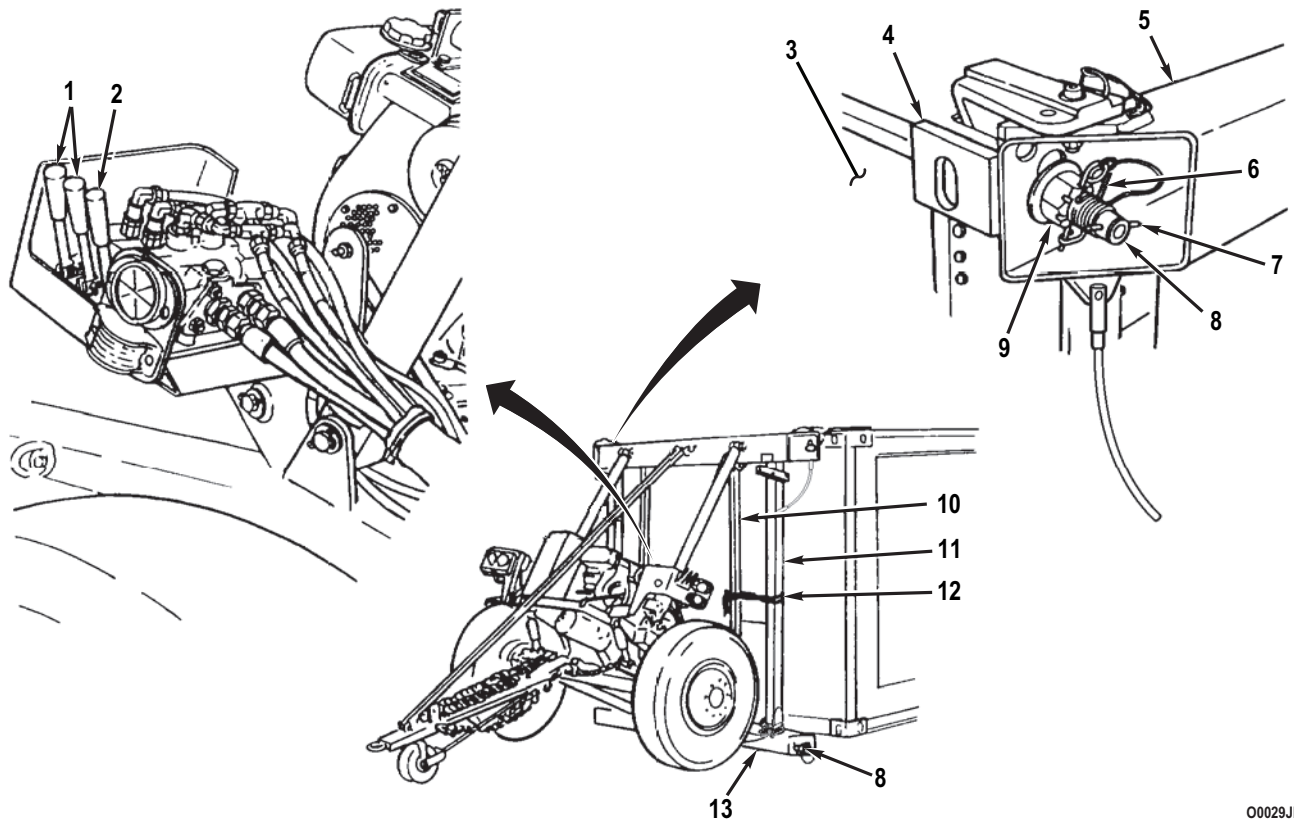
Figure 3. Attaching Dolly Set to Shelter.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued**WARNING**

Use extreme caution when installing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

14. At front and rear, install two twist locks (Figure 4, Item 8) to top beams (Figure 4, Item 5) and shelter (Figure 4, Item 3). Rotate twist locks 90 degrees so that twist lock pins (Figure 4, Item 7) are horizontal. Tighten nuts (Figure 4, Item 9) finger-tight.
15. At front and rear, pull down on two lift cylinder levers (Figure 4, Item 1) to ensure that top beam (Figure 4, Item 5) is flush against shelter (Figure 4, Item 3).
16. At front and rear, pull down on positioning cylinders lever (Figure 4, Item 2) to raise top beam (Figure 4, Item 5) to force heads of twist locks (Figure 4, Item 8) up against top on inside of corner blocks (Figure 4, Item 4). Use twist lock wrench (Item 3, (WP 0195)) to tighten nuts (Figure 4, Item 9).
17. Check all twist locks (Figure 4, Item 8) at top and bottom beams (Figure 4, Items 5 and 13). Twist lock pins (Figure 4, Item 7) must be horizontal. Tighten nuts (Figure 4, Item 9) as required. Install safety pins (Figure 4, Item 6) through twist locks to secure nuts.
18. Remove stowage strap (Figure 4, Item 12) from each transportation lockout (Figure 4, Item 10) and top beam vertical tube (Figure 4, Item 11).

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued

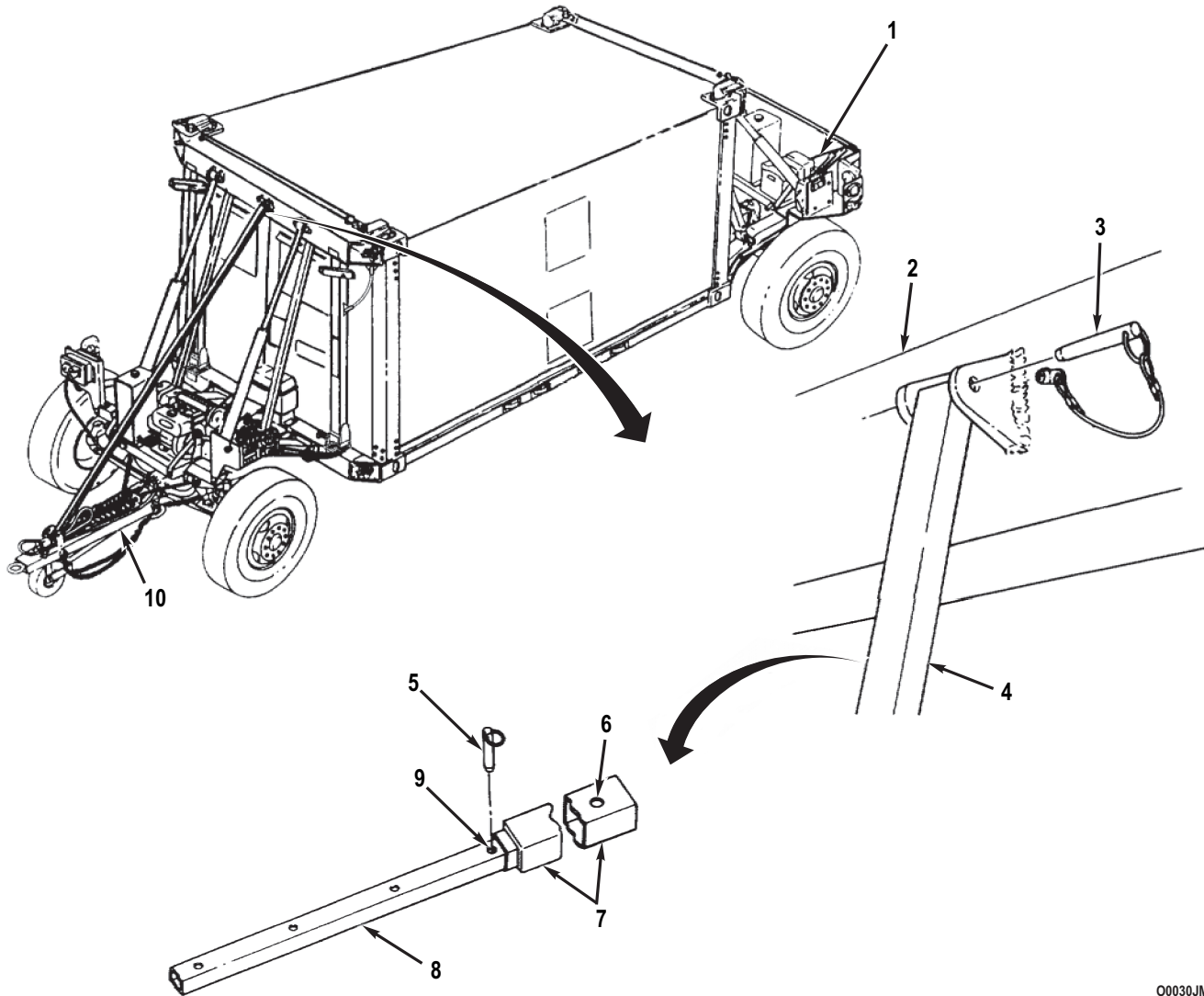


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Figure 4. Attaching Dolly Set to Shelter.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued

19. Remove four detent pins (Figure 5, Item 3) and two telescopic braces (Figure 5, Item 4) from front and rear drawbars (Figure 5, Items 10 and 1) and top beams (Figure 5, Item 2).
20. Remove rest pin (Figure 5, Item 5) from fourth hole (Figure 5, Item 9) from end of each smaller brace (Figure 5, Item 8). Install rest pin in hole (Figure 5, Item 6) at end of each larger brace (Figure 5, Item 7).

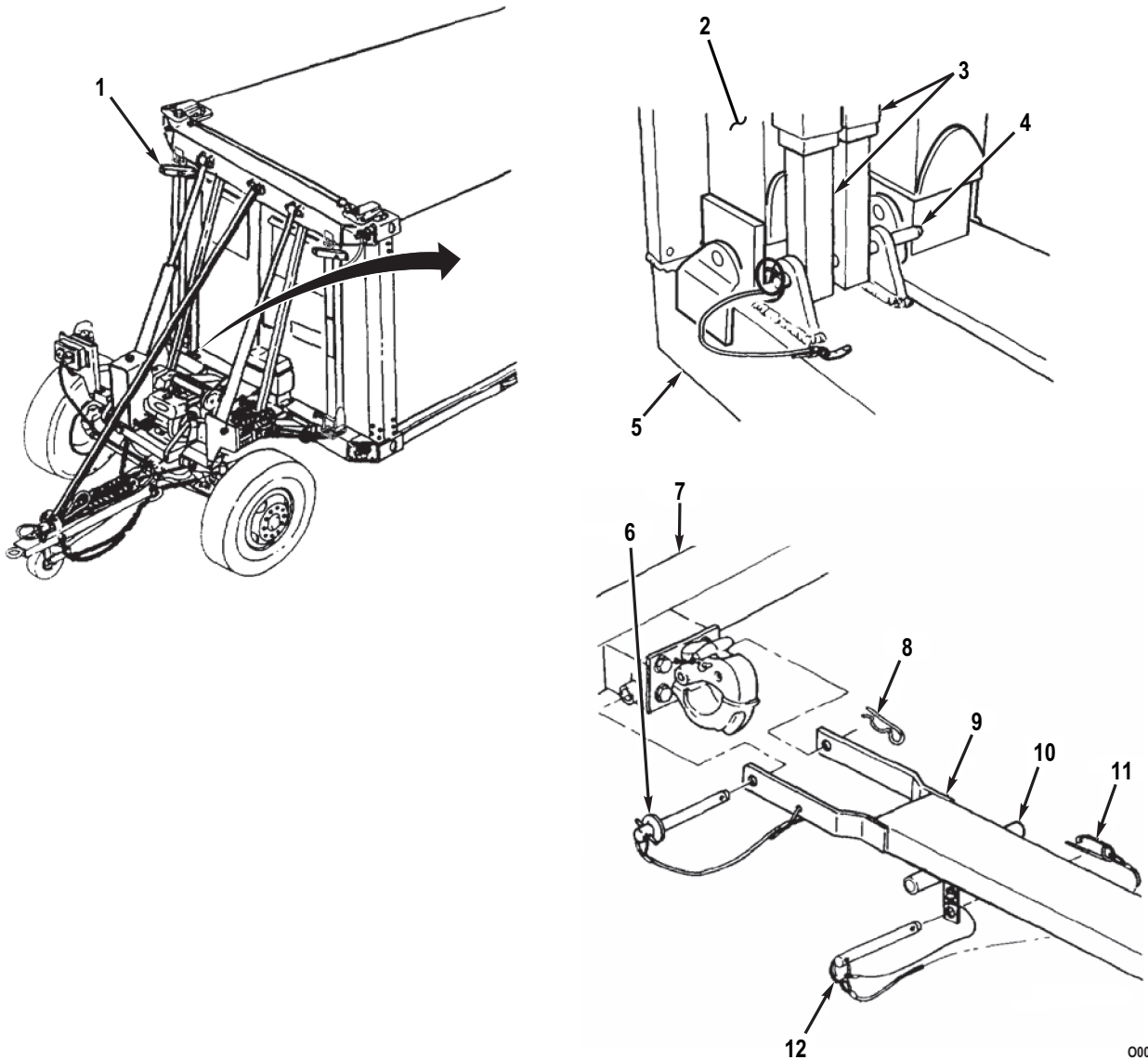


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Figure 5. Attaching Dolly Set to Shelter.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued

21. Stow two telescopic braces (Figure 6, Item 3) on bottom beam (Figure 6, Item 12) of front dolly with detent pin (Figure 6, Item 4). Heads of rest pins positioned in step 20 should be facing each other. Secure larger brace end of telescopic braces with stowage strap. Locate stowage strap around telescopic braces and top beam vertical tube (Figure 6, Item 2) approximately 1 foot (30 cm) BELOW hanger bracket (Figure 6, Item 1).
22. Stow handle (Figure 6, Item 8) under rear drawbar (Figure 6, Item 7) and secure with hitch pin (Figure 6, Item 10) and safety pin (Figure 6, Item 9).
23. Remove lockpin (Figure 6, Item 6), pin (Figure 6, Item 11), and rear drawbar (Figure 6, Item 7) from rear axle (Figure 6, Item 5).

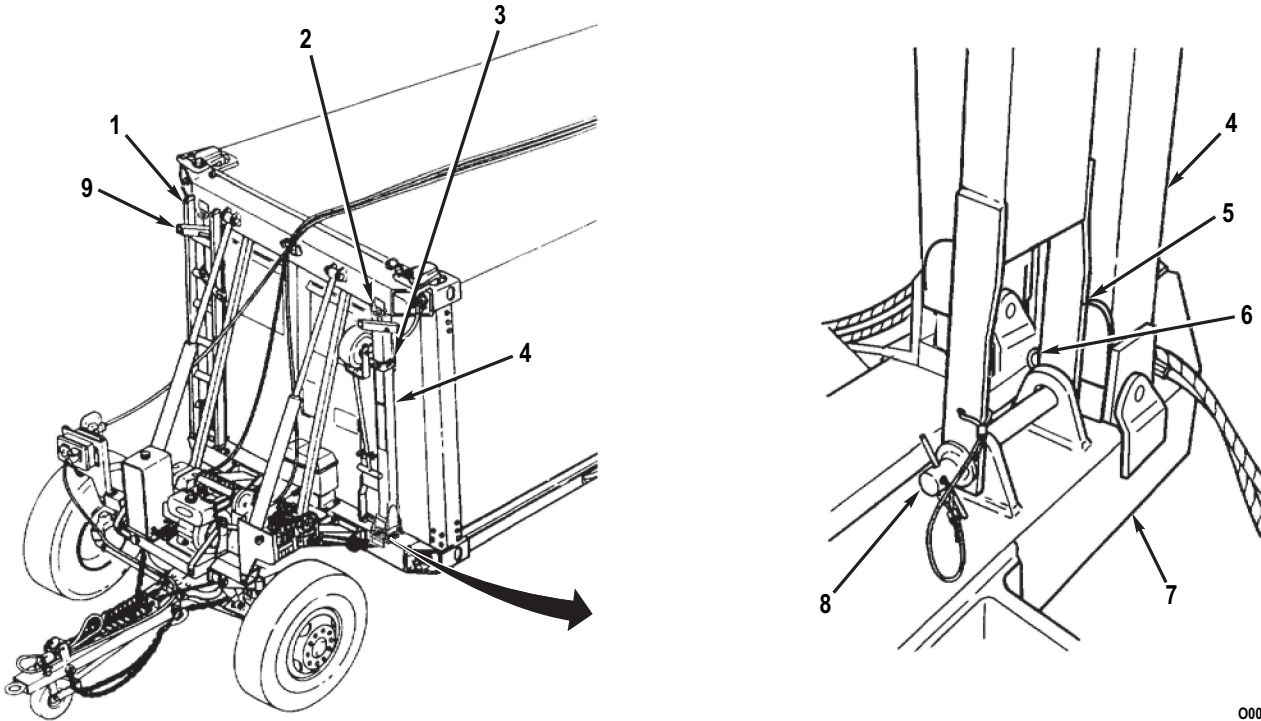


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Figure 6. Attaching Dolly Set to Shelter.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued

24. Stow rear drawbar (Figure 7, Item 5) on bottom beam (Figure 7, Item 7) of front dolly with pin (Figure 7, Item 8) and lockpin (Figure 7, Item 6). Secure rear drawbar with stowage strap (Figure 7, Item 3). Locate stowage strap around rear drawbar and top beam vertical tube (Figure 7, Item 4) approximately 1 foot (30 cm) BELOW hanger bracket (Figure 7, Item 2).
25. Hang ladder (Figure 7, Item 1) on hanger bracket (Figure 7, Item 9) and secure with two stowage straps. Locate one strap around bottom rung of ladder and top beam vertical tube (Figure 7, Item 4). Locate other strap around second rung from top of ladder and top beam vertical tube.

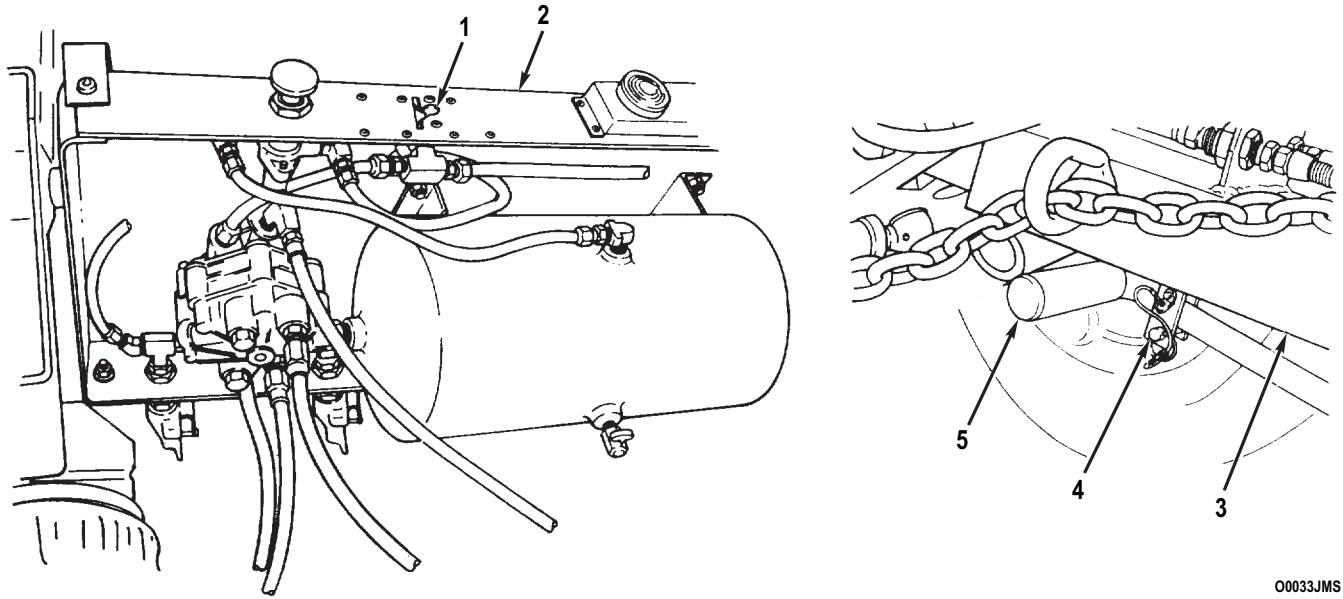


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Figure 7. Ladder Stowage.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER - Continued

26. Apply parking brakes on rear dolly by turning parking brake lever (Figure 8, Item 1) on pivoting tray (Figure 8, Item 2) to ON position.
27. Stow handle (Figure 8, Item 5) under front drawbar (Figure 8, Item 3) and secure with hitch pin (Figure 8, Item 4) and safety pin.



00033JMS

Figure 8. Parking Brake Apply.

END OF TASK

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - ATTACHING FRONT AND REAR DOLLIES TO SHELTER
(SHELTER ON GROUND) (SIDE LIFT OPERATION)**

INITIAL SETUP:

Personnel Required
(Two)

References (cont.)
WP 0017
WP 0195

References
WP 0005

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)

WARNING

- All personnel must use caution when standing near front and rear dollies and shelter during attaching operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front axle steering locking pin must ALWAYS be installed for side lift operation. Failure to follow this warning may cause front dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

CAUTION

This operation CANNOT be performed unless Field Maintenance has installed side lift kit on dolly set.

NOTE

Component parts of side lift kit are stowed in storage box of front dolly.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued

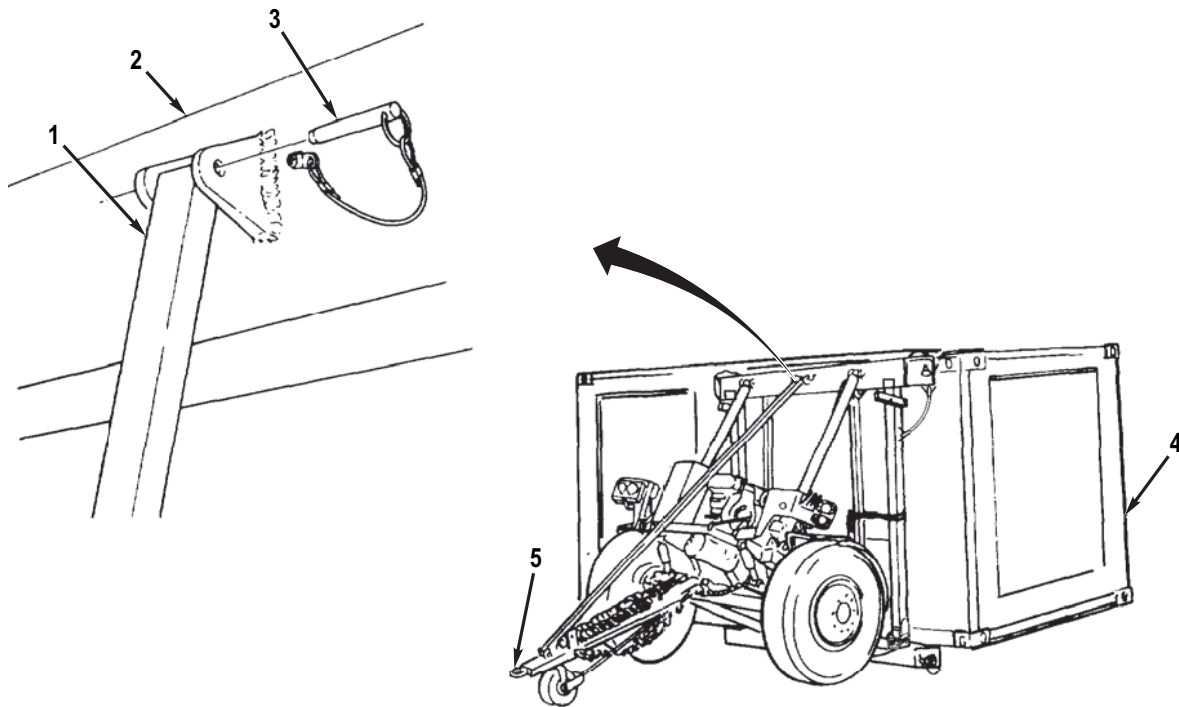
1. Place each dolly half in maneuvering position (General Operating Instructions (WP 0005)).

WARNING



While in maneuvering position, **DO NOT** operate positioning cylinders lever. Failure to follow this warning may cause bottom beam to lower to the ground. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

2. Move each dolly half into position at centerline of side of shelter (Figure 1, Item 4). Place within 6 in. (15 cm) of shelter.
3. Remove each dolly half from maneuvering position (General Operating Instructions (WP 0005)).
4. At front and rear, remove two detent pins (Figure 1, Item 3) and telescopic brace (Figure 1, Item 1) from top beam (Figure 1, Item 2) and drawbar (Figure 1, Item 5). Set telescopic braces aside.

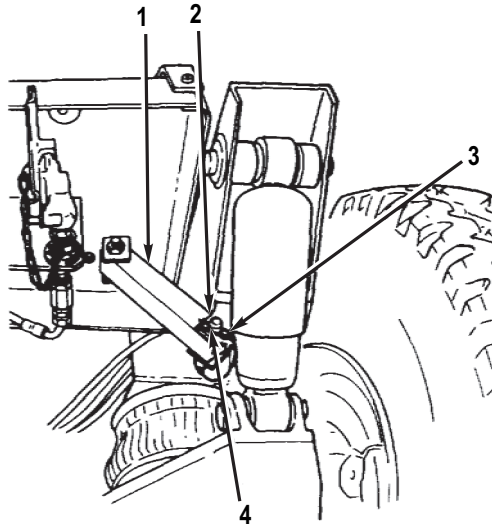


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Figure 1. Detent Pins and Brace.

5. At front and rear, remove safety pin (Figure 2, Item 3) and hitch pin (Figure 2, Item 4) and unlock pivoting tray lockout brace (Figure 2, Item 1) from lower bracket (Figure 2, Item 2).

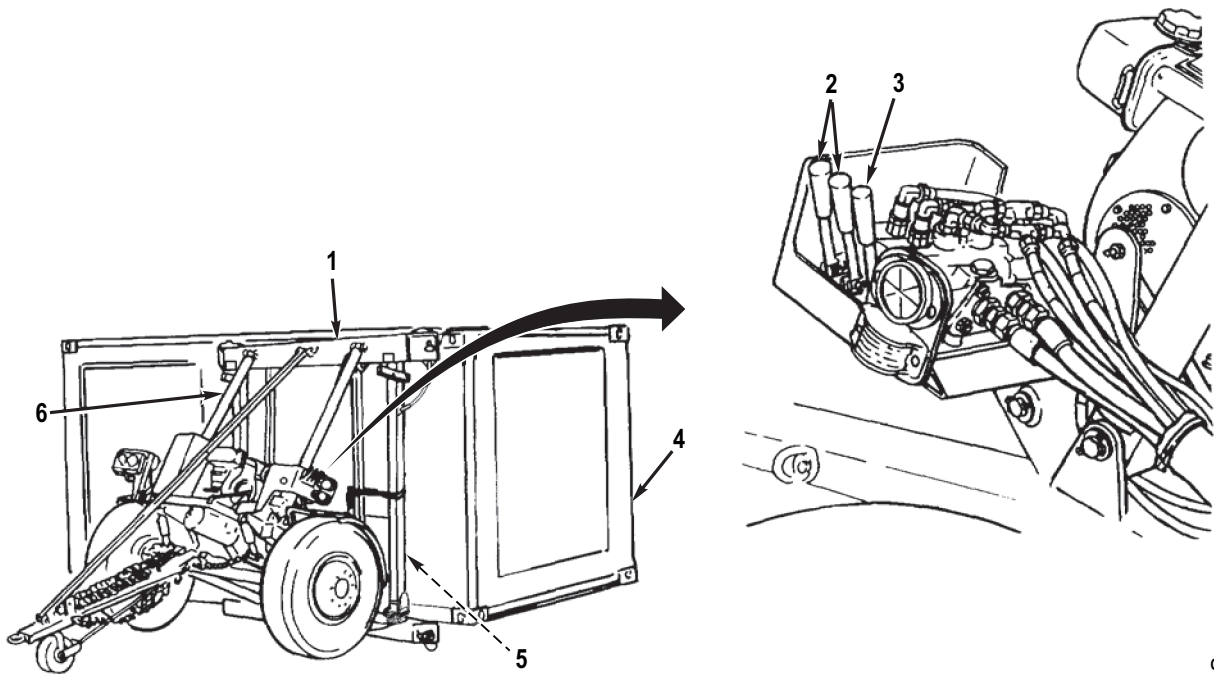
ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
 - Continued



00056JMS

Figure 2. Safety Pin.

6. At front and rear, pull down on two lift cylinder levers (Figure 3, Item 2) and positioning cylinders lever (Figure 3, Item 3) to extend lift and positioning cylinders (Figure 3, Items 6 and 5). Stop when top beam (Figure 3, Item 1) is positioned ABOVE shelter (Figure 3, Item 4) (General Operating Instructions (WP 0005)).



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Figure 3. Levers and Cylinders.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued

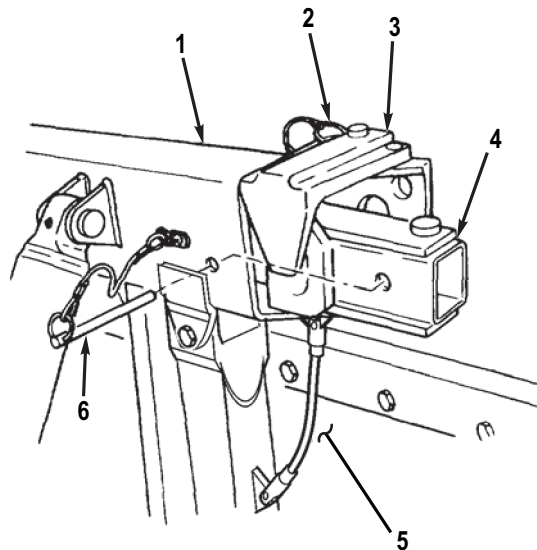
7. At front and rear top beams (Figure 4, Item 1), remove two detent pins (Figure 4, Item 2) and rotate top hooks (Figure 4, Item 3) 180 degrees away from shelter engagement position. Install detent pins.
8. Remove two detent pins for crossbrace assemblies (Figure 4, Item 4) from storage box on front dolly.

WARNING



- Use extreme caution when climbing and working on top of shelter during side lift operations. Ensure that top of shelter is free of ice or debris which could cause slips and falls. When working with twist locks from on top of shelter, maintain a three-point contact with shelter as much as possible. When on top of shelter, always be aware of where other personnel and tools are located to prevent accidental bumps and trips. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- All personnel standing on ground must stand clear when crossbrace assemblies are being removed from top beam. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

9. At front and rear, remove detent pin (Figure 4, Item 6) and crossbrace assembly (Figure 4, Item 4) from stowage in top beam (Figure 4, Item 1). Rest crossbrace assemblies on top of shelter (Figure 4, Item 5).



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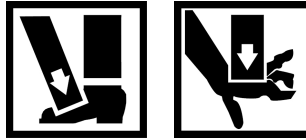
Figure 4. Detent Pins and Crossbraces.

10. Remove detent pin (Figure 5, Item 4) securing each crossbrace assembly (Figure 5, Item 3) in retracted position. Extend crossbrace assembly until two holes align. Install detent pin (Figure 5, Item 4) and detent pin (Figure 5, Item 5) that was removed from storage box.
11. Extend crossbrace assemblies (Figure 5, Item 3) over top of shelter (Figure 5, Item 6). Crossbrace bracket (Figure 5, Item 7) at each end of crossbrace assembly should be positioned flush against top beam

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued

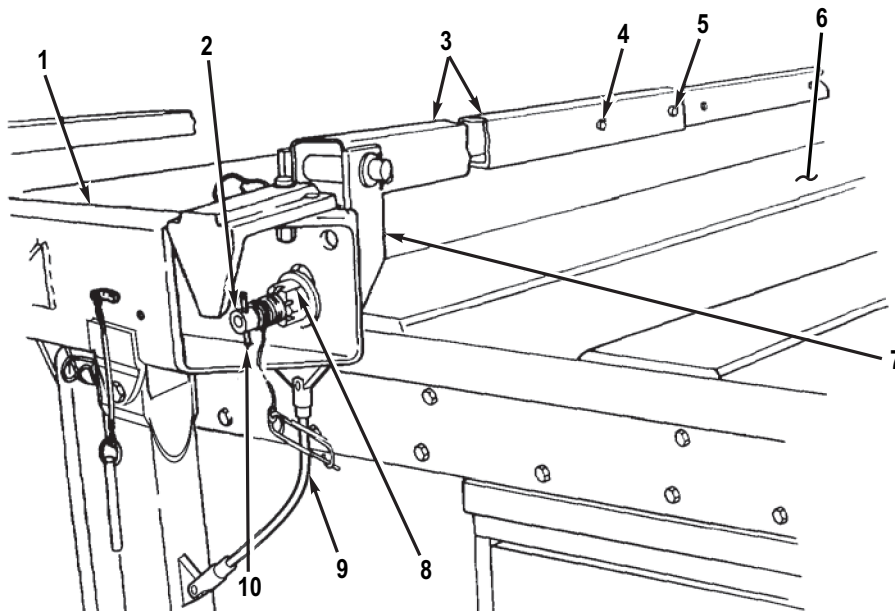
(Figure 5, Item 1). Operate hydraulic control valve as required to achieve proper alignment (General Operating Instructions (WP 0005)).

WARNING



Use extreme caution when installing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

12. At front and rear, install two twist locks (Figure 5, Item 2) through slots in top beam (Figure 5, Item 1). Rotate twist locks 90 degrees and insert through crossbrace brackets (Figure 5, Item 7). Rotate twist locks 90 degrees again. Locate twist locks so that they are against top of slots in top beam. Use twist lock wrench (Item 3, (WP 0195)) to fully tighten nuts (Figure 5, Item 8). Ensure that twist lock pins (Figure 5, Item 10) are vertical. Safety pins (Figure 5, Item 9) do NOT need to be installed through twist locks.



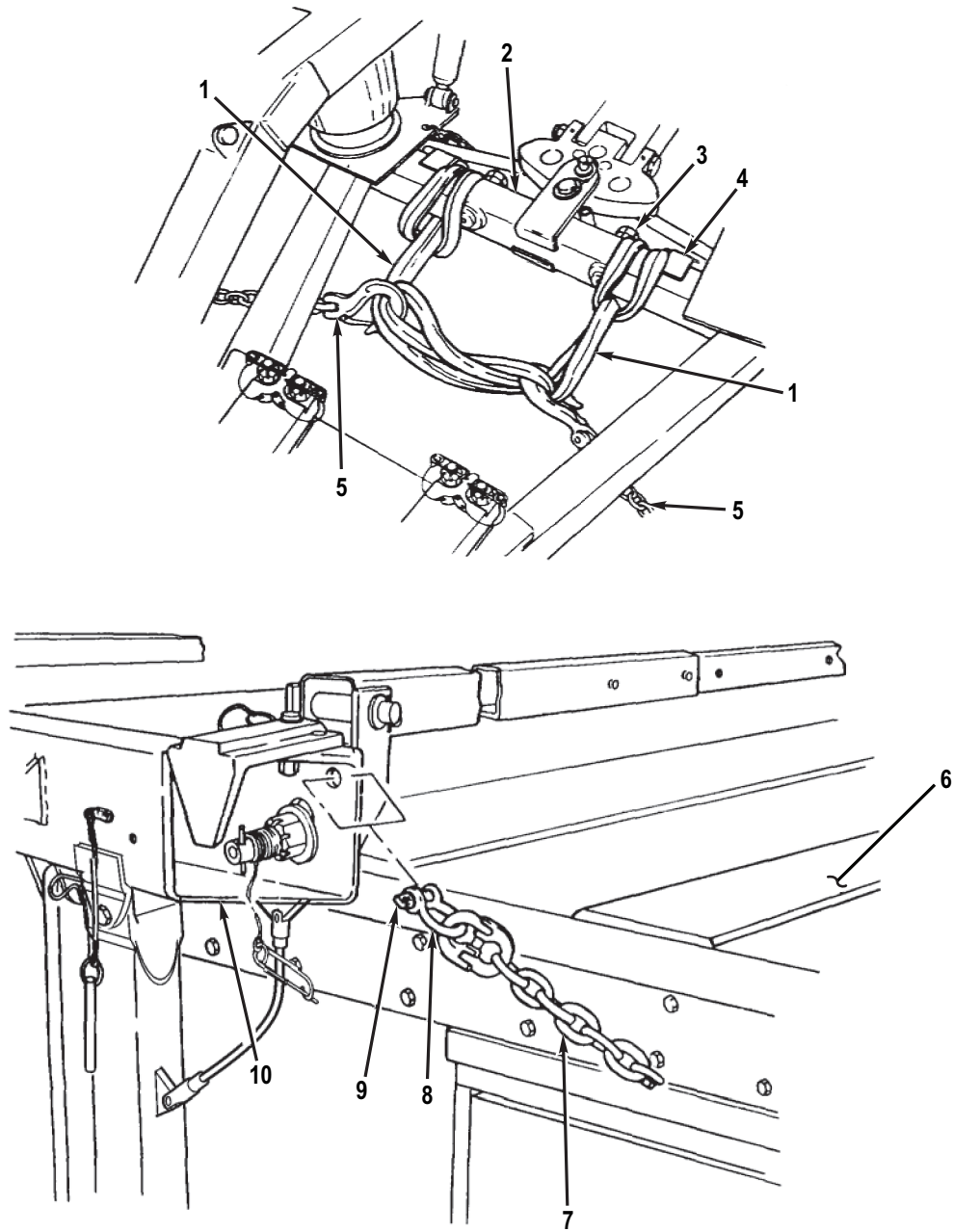
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Figure 5. Detent Pins, Crossbraces, and Twist Locks.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued

13. Loop and secure two slings (Figure 6, Item 1) to each axle (Figure 6, Item 2), as illustrated. On front dolly, position slings between tie-down D-rings (Figure 6, Item 4) and steering stops (Figure 6, Item 3). On rear dolly, position slings between tie-down D-rings and pintle assembly approximately 10 in. (25.4 cm) off centerline to each side.
14. Lay out chain assembly at each corner of shelter (Figure 6, Item 6).
15. Install lifting chain (Figure 6, Item 7) to each end of top beam (Figure 6, Item 10) with shackle (Figure 6, Item 8) and pin (Figure 6, Item 9) through hole.
16. Stretch out and cross slings (Figure 6, Item 1) in a U-shaped pattern as shown. Hook end of each axle chain (Figure 6, Item 5) through BOTH strands of same side sling and looped end of opposite side sling, as illustrated. Ensure that axle chains are routed UNDER axle (Figure 6, Item 2).

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
 - Continued

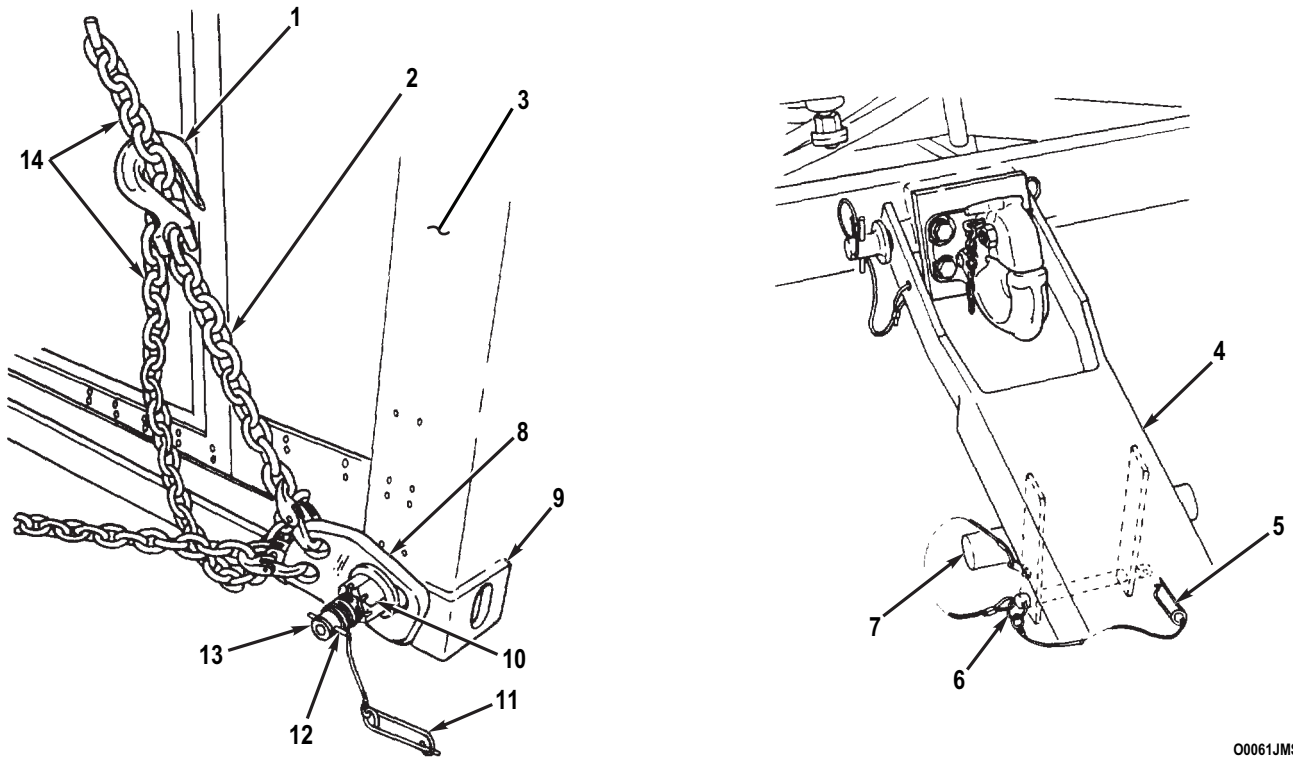


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Figure 6. Slings and Chain.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued

17. Install adapter (Figure 7, Item 8) to each bottom corner block (Figure 7, Item 9) of shelter (Figure 7, Item 3) with twist lock (Figure 7, Item 13). Adapter should be oriented at an approximate 45 degree angle, along axis of lifting chain (Figure 7, Item 14). Rotate twist lock 90 degrees and use twist lock wrench (Item 3, (WP 0195)) to fully tighten nut (Figure 7, Item 10). Twist lock pin (Figure 7, Item 12) must be horizontal. Safety pin (Figure 7, Item 11) does NOT need to be installed through twist lock.
18. At each corner of shelter (Figure 7, Item 3), take up slack in lifting chain (Figure 7, Item 14) with hook (Figure 7, Item 1) of take-up chain (Figure 7, Item 2).
19. Inflate all air bags (General Operating Instructions (WP 0005)).
20. At front and rear, operate hydraulic control valve to put slight tension on lifting chains (Figure 7, Item 14). DO NOT lift shelter (Figure 7, Item 3) off ground. Check tightness and orientation of all twist locks (Figure 7, Item 13).
21. At front and rear, stow handle (Figure 7, Item 7) under drawbar (Figure 7, Item 4) with hitch pin (Figure 7, Item 6) and safety pin (Figure 7, Item 5).

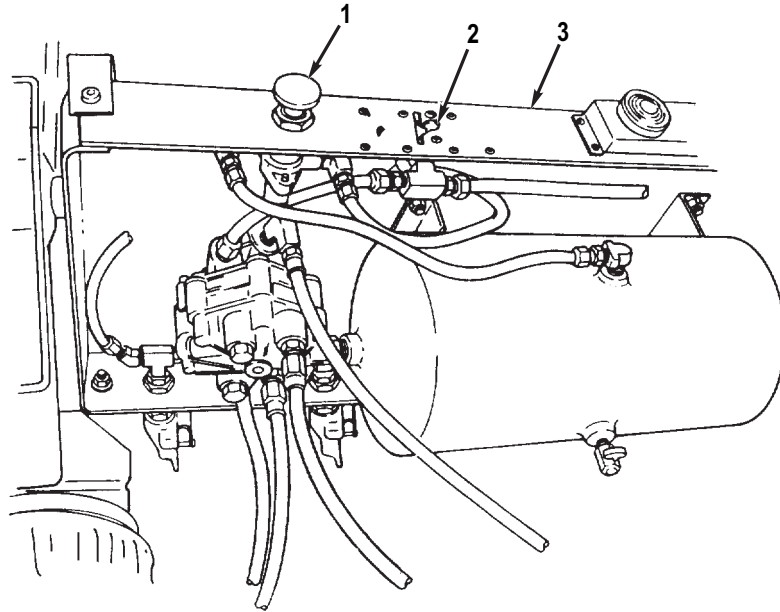


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Figure 7. Adapter, Chain, Twist Locks, and Handle.

22. Apply brakes on rear dolly by pulling airbrake control knob (Figure 8, Item 1). Parking brake lever (Figure 8, Item 2) on pivoting tray (Figure 8, Item 3) is in OFF position.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued



00062JMS

Figure 8. Parking Brake.

WARNING



- All personnel must use caution when standing near front and rear dollies and shelter during attaching operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front axle steering locking pin must ALWAYS be installed for side lift operation. Failure to follow this warning may cause front dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- While in maneuvering position, DO NOT operate positioning cylinders lever. Failure to follow this warning may cause bottom beam to lower to the ground. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

CAUTION

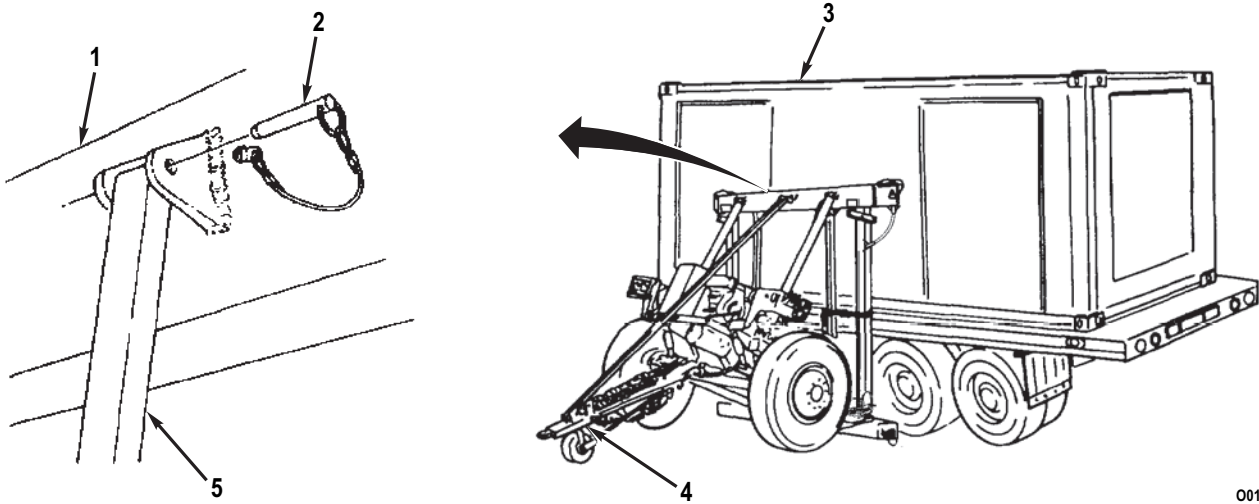
This operation CANNOT be performed unless Field Maintenance has installed side lift kit on dolly set.

NOTE

Component parts of side lift kit are stowed in storage box of front dolly.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued

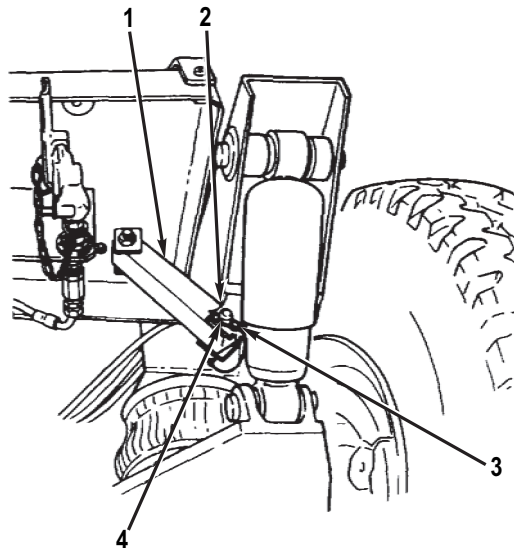
23. Place each dolly half in maneuvering position (General Operating Instructions (WP 0005)).
24. Move each dolly half into position at centerline of side of shelter (Figure 9, Item 3). Place within 6-in. (15 cm) of shelter.
25. Remove each dolly half from maneuvering position (General Operating Instructions (WP 0005)).
26. At front and rear, remove two detent pins (Figure 9, Item 2) and telescopic brace (Figure 9, Item 5) from top beam (Figure 9, Item 1) and drawbar (Figure 9, Item 4). Set telescopic braces aside.



00138JMS

Figure 9. Detent Pins and Brace.

27. At front and rear, remove safety pin (Figure 10, Item 3) and hitch pin (Figure 10, Item 4) and unlock pivoting tray lockout brace (Figure 10, Item 1) from lower bracket (Figure 10, Item 2).

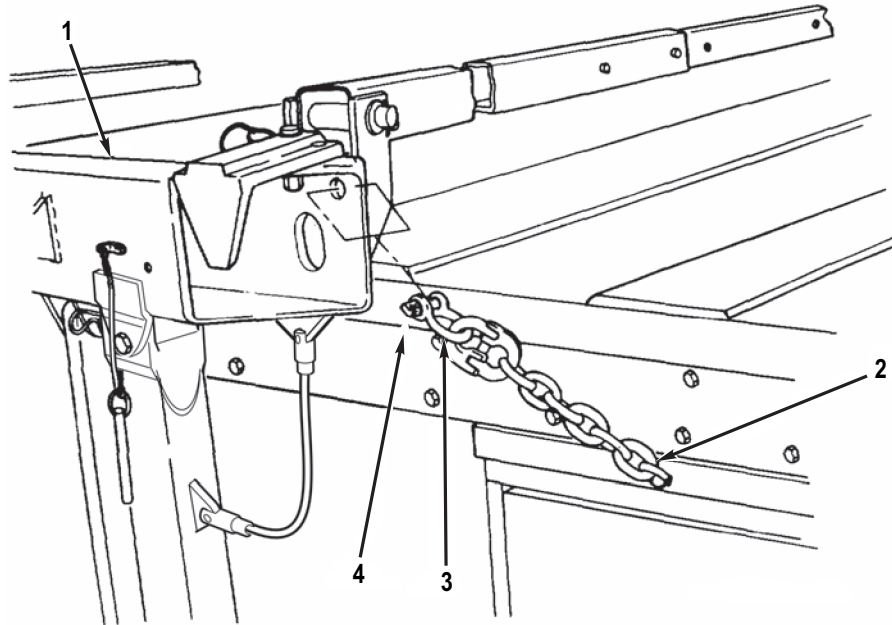


00063JMS

Figure 10. Safety Pin.

**ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued**

28. At front and rear, install lifting chain (Figure 11, Item 2) to each end of top beam (Figure 11, Item 1) with shackle (Figure 11, Item 3) and pin (Figure 11, Item 4) through hole.



00064JMS

Figure 11. Chain.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued

29. At front and rear, perform the following steps, maintaining top and bottom beam vertical tubes (Figure 12, Item 6) vertical.
 - a. Pull down on two lift cylinder levers (Figure 12, Item 3) to extend lift cylinders (Figure 12, Item 7).
 - b. Pull down on positioning cylinders lever (Figure 12, Item 4) to extend positioning cylinders (Figure 12, Item 5).
 - c. Repeat steps a and b as required until top beam (Figure 12, Item 1) is positioned ABOVE shelter (Figure 12, Item 2) and top and bottom beam vertical tubes rest against shelter.

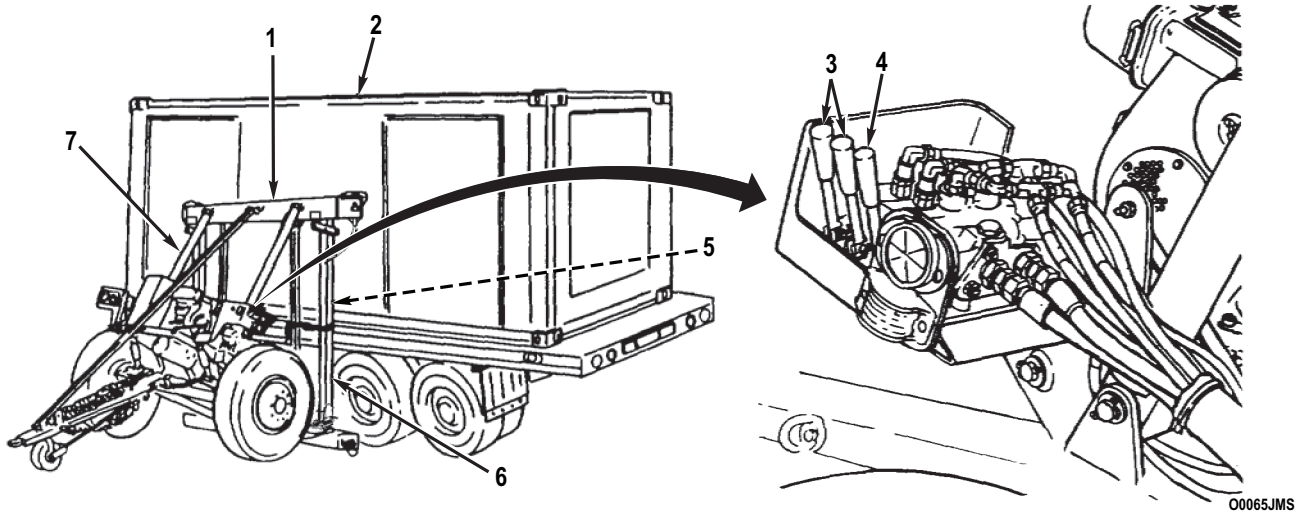


Figure 12. Levers and Cylinders.

30. At front and rear top beams (Figure 13, Item 1), remove two detent pins (Figure 13, Item 2) and rotate top hooks (Figure 13, Item 3) 180 degrees away from shelter engagement position. Install detent pins.
31. Remove two detent pins for crossbrace assemblies (Figure 13, Item 4) from storage box on front dolly.

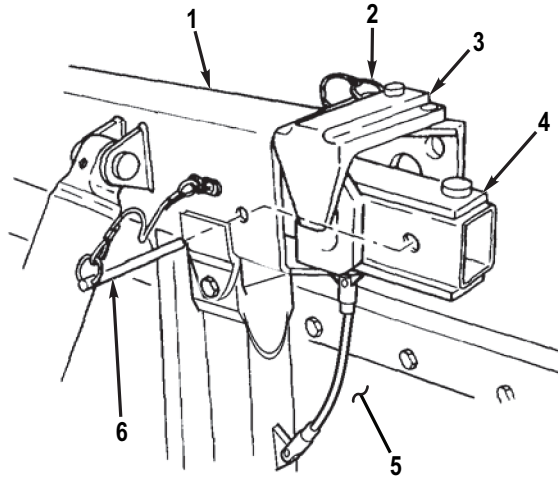
WARNING



- Use extreme caution when climbing and working on top of shelter during side lift operations. Ensure that top of shelter is free of ice or debris which could cause slips and falls. When working with twist locks from on top of shelter, maintain a three-point contact with shelter as much as possible. When on top of shelter, always be aware of where other personnel and tools are located to prevent accidental bumps and trips. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- All personnel standing on ground must stand clear when crossbrace assemblies are being removed from top beam. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

**ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued**

32. At front and rear, remove detent pin (Figure 13, Item 6) and crossbrace assembly (Figure 13, Item 4) from stowage in top beam (Figure 13, Item 1). Rest crossbrace assemblies on top of shelter (Figure 13, Item 5).

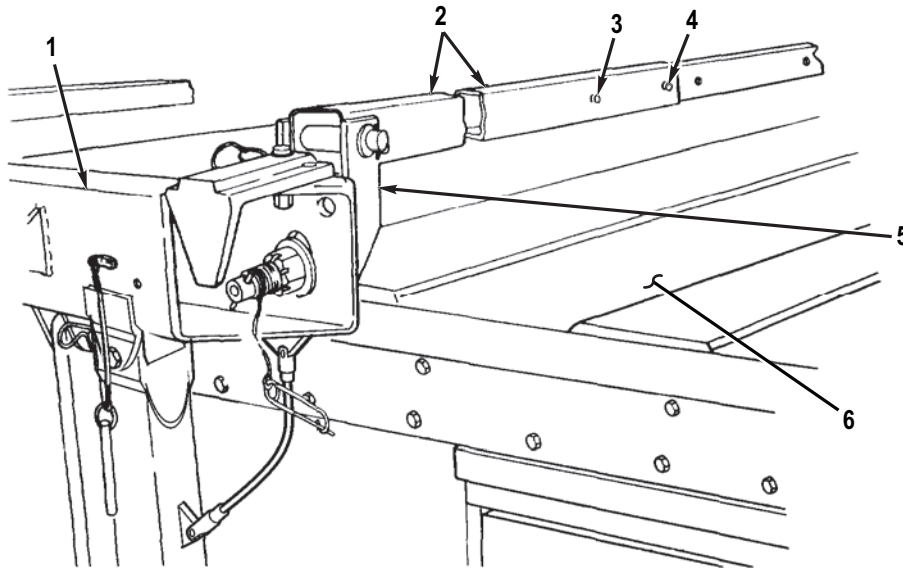


00066JMS

Figure 13. Detent Pins and Crossbraces.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued

33. Remove detent pin (Figure 14, Item 3) securing each crossbrace assembly (Figure 14, Item 2) in retracted position. Mend crossbrace assembly until two holes align. Install detent pin (Figure 14, Item 3) and detent pin (Figure 14, Item 4) that was removed from storage box.
34. Extend crossbrace assemblies (Figure 14, Item 2) over top of shelter (Figure 14, Item 6). Crossbrace bracket (Figure 14, Item 5) at each end of crossbrace assembly should be positioned flush against top beam (Figure 14, Item 1). Operate hydraulic control valve as required to achieve proper alignment (General Operating Instructions (WP 0005)).



00067JMS

Figure 14. Detent Pins and Crossbraces.

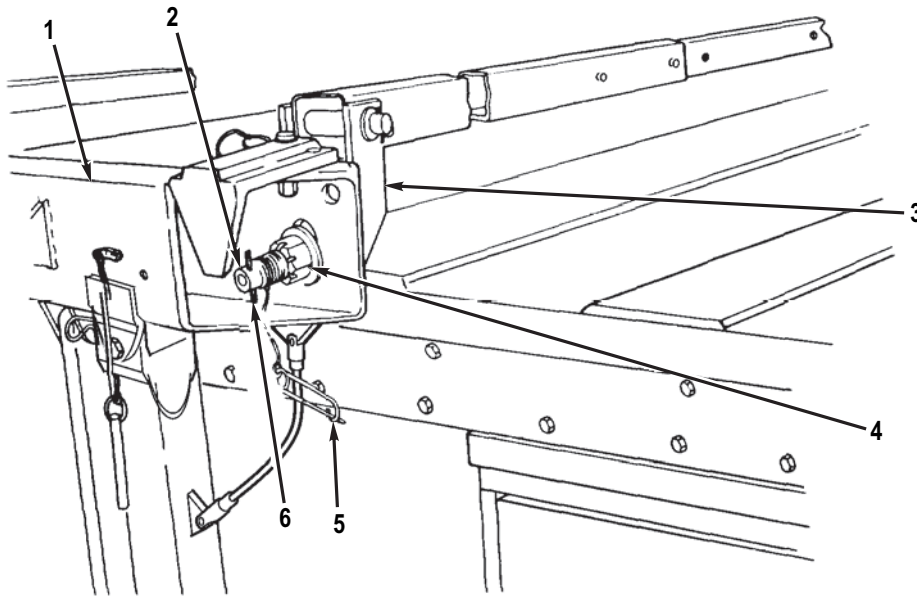
WARNING



Use extreme caution when installing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

**ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued**

35. At front and rear, install two twist locks (Figure 15, Item 2) through slots in top beam (Figure 15, Item 1). Rotate twist locks 90 degrees and insert through crossbrace brackets (Figure 15, Item 3). Rotate twist locks 90 degrees again. Locate twist locks so that they are against top of slots in top beam. Use twist lock wrench (Item 3, (WP 0195)) to fully tighten nuts (Figure 15, Item 4). Ensure that twist lock pins (Figure 15, Item 6) are vertical. Safety pins (Figure 15, Item 5) do NOT need to be installed through twist locks.

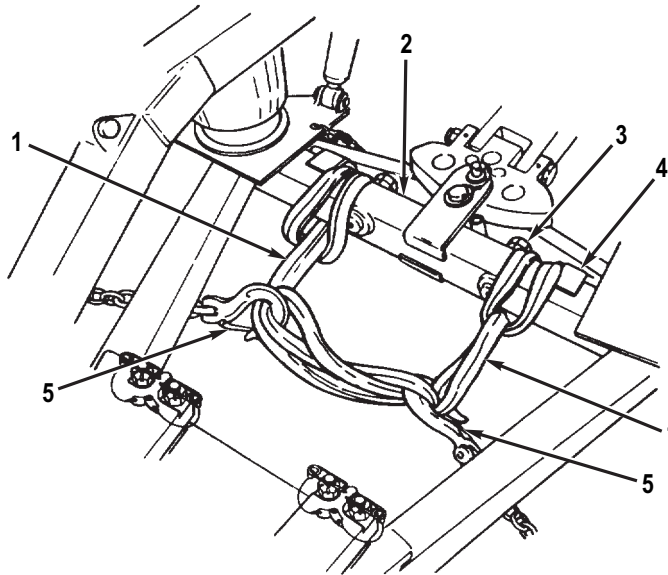


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Figure 15. Twist Locks and Nuts.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued

36. Loop and secure two slings (Figure 16, Item 1) to each axle (Figure 16, Item 2) as illustrated. On front dolly, position slings between tie-down D-rings (Figure 16, Item 4) and steering stops (Figure 16, Item 3). On rear dolly, position slings between tie-down D-rings and pintle assembly approximately 10 in. (25.4 cm) off centerline to each side.
37. Stretch out and cross slings (Figure 16, Item 1) in a U-shaped pattern as shown. Hook end of each axle chain (Figure 16, Item 5) through BOTH strands of same side sling and looped end of opposite side sling, as illustrated. Ensure that axle chains are routed UNDER axle (Figure 16, Item 2).
38. Inflate all air bags (General Operating Instructions (WP 0005)).



00069JMS

Figure 16. Slings.

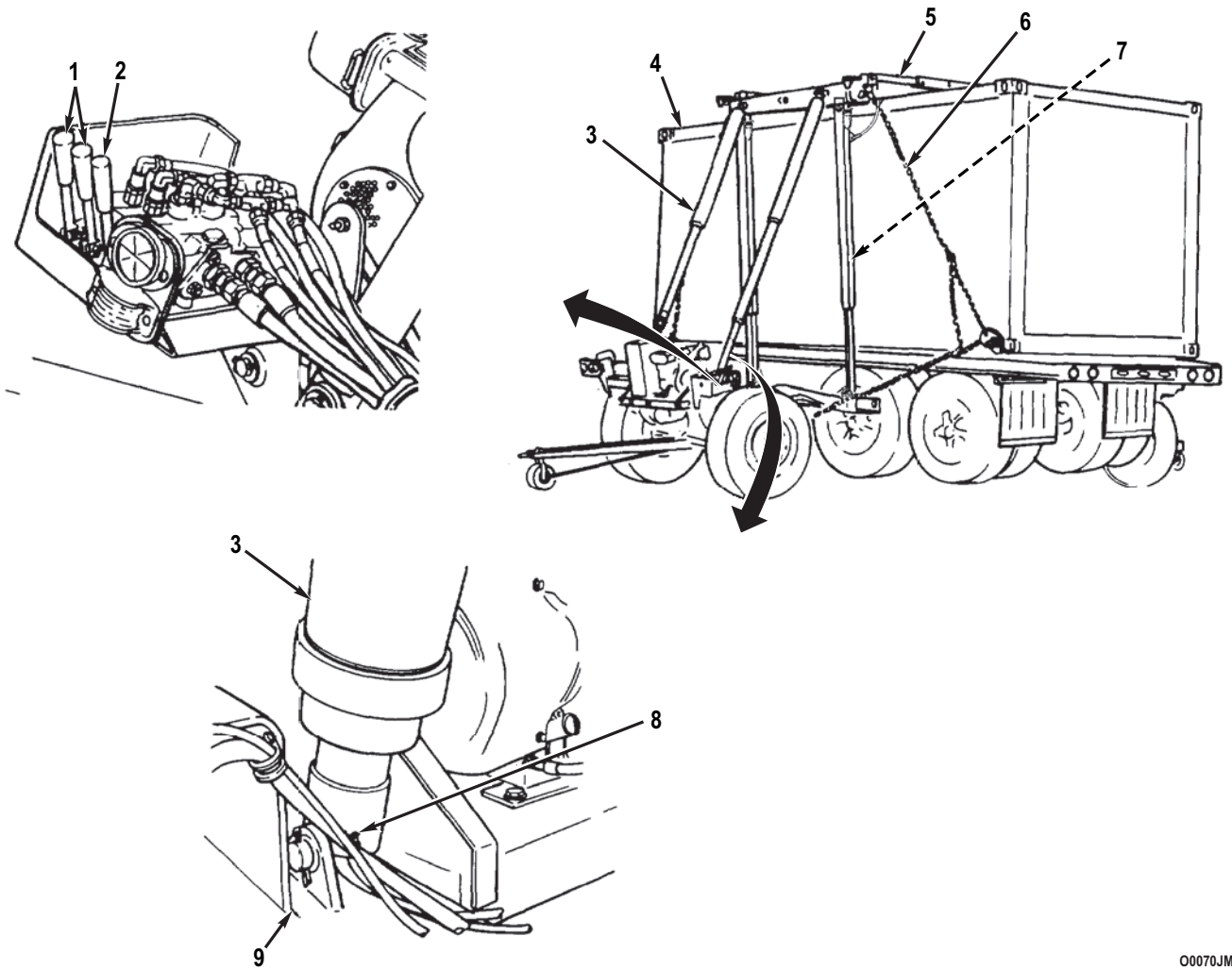
39. At front and rear, perform the following steps:
 - Push up on two lift cylinder levers (Figure 17, Item 1) to lower crossbrace assemblies (Figure 17, Item 5) onto top of shelter (Figure 17, Item 4). Dolly set is now suspended by crossbrace assemblies and lifting chain (Figure 17, Item 6).

CAUTION

Use caution to ensure that lift cylinder grease fittings DO NOT contact suspension links and become damaged.

40. Push up on positioning cylinders lever (Figure 17, Item 2) to retract positioning cylinders (Figure 17, Item 7). Stop when grease fitting (Figure 17, Item 8) at base of each lift cylinder (Figure 17, Item 3) is 1 in. (2.5 cm) above suspension link (Figure 17, Item 9). This corresponds to an angle of approximately 30 degrees between lift cylinder and suspension link.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued

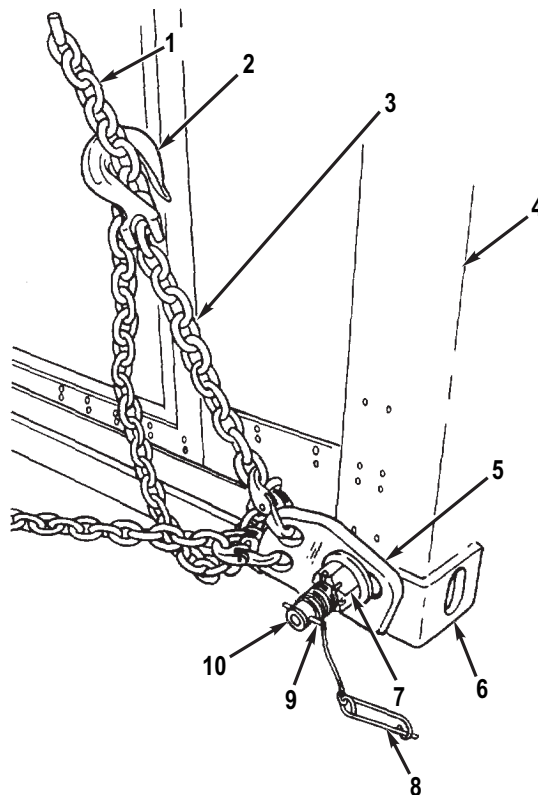


00070JMS

Figure 17. Levers.

ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued

41. Install adapter (Figure 18, Item 5) to each bottom corner block (Figure 18, Item 6) of shelter (Figure 18, Item 4) with twist lock (Figure 18, Item 10). Adapter should be oriented at an approximate 45 degree angle along axis of lifting chain (Figure 18, Item 1). Rotate twist lock 90 degrees and use twist lock wrench (Item 3, (WP 0195)) to fully tighten nut (Figure 18, Item 7). Twist lock pin (Figure 18, Item 9) must be horizontal. Safety pin (Figure 18, Item 8) does NOT need to be installed through twist lock.
42. At each corner of shelter (Figure 18, Item 4), take up slack in lifting chain (Figure 18, Item 1) with hook (Figure 18, Item 2) of take-up chain (Figure 18, Item 3).
43. At front and rear, operate hydraulic control valve to put slight tension on lifting chains (Figure 18, Item 1) (General Operating Instructions (WP 0005)). DO NOT lift shelter (Figure 18, Item 4) off trailer. Check tightness and orientation of all twist locks (Figure 18, Item 10).

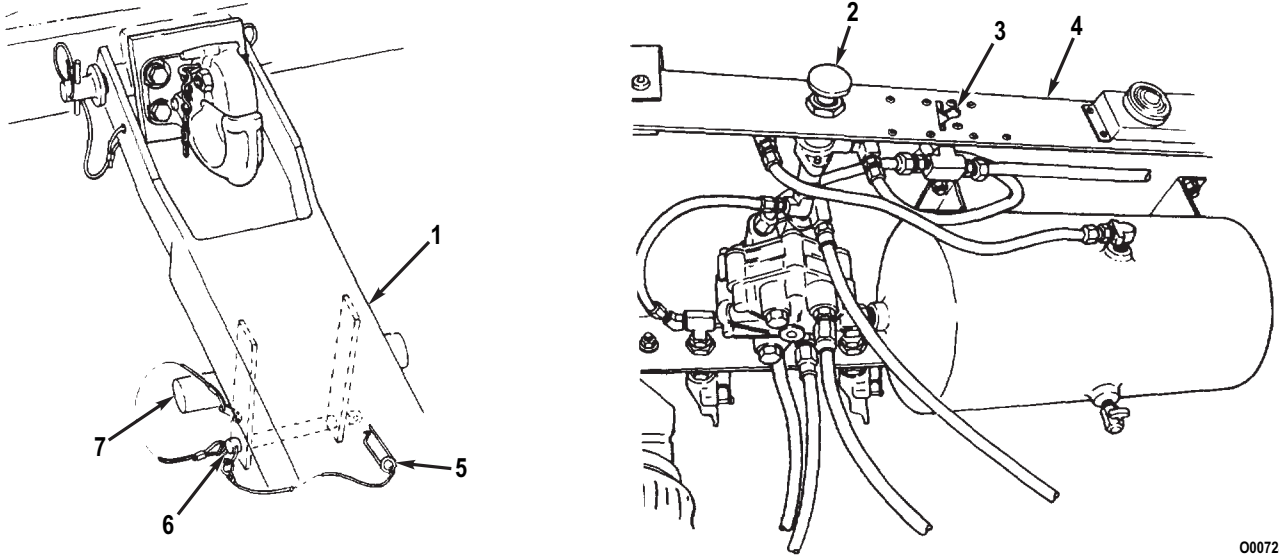


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Figure 18. Adapter, Chain, Twist Locks, and Handle.

**ATTACHING FRONT AND REAR DOLLIES TO SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION)
- Continued**

44. At front and rear, stow handle (Figure 19, Item 7) under drawbar (Figure 19, Item 1) with hitch pin (Figure 19, Item 6) and safety pin (Figure 19, Item 5).
45. Apply brakes on rear dolly by pulling airbrake control knob (Figure 19, Item 2). Parking brake lever (Figure 19, Item 3) on pivoting tray (Figure 19, Item 4) is in OFF position.



00072JMS

Figure 19. Handle, Hitch Pin, Safety Pin, and Parking Brake.

END OF TASK**END OF WORK PACKAGE**

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - DETACHING FRONT AND REAR DOLLIES FROM SHELTER
(SHELTER ON GROUND) (SIDE LIFT OPERATION)**

INITIAL SETUP:

Personnel Required
(Two)

References (cont.)

WP 0017

WP 0195

References

WP 0005

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION).

WARNING

- All personnel must use caution when standing near dolly set and shelter during detaching operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front axle steering locking pin must ALWAYS be installed for side lift operation. Failure to follow this warning may cause front dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued.

1. At front and rear, pull down on positioning cylinders lever (Figure 1, Item 2) to extend positioning cylinders (Figure 1, Item 4) and lower bottom beam (Figure 1, Item 6) and shelter (Figure 1, Item 1) to the ground. Ensure that there is slack in lifting chains (Figure 1, Item 3) and axle chains (Figure 1, Item 5).

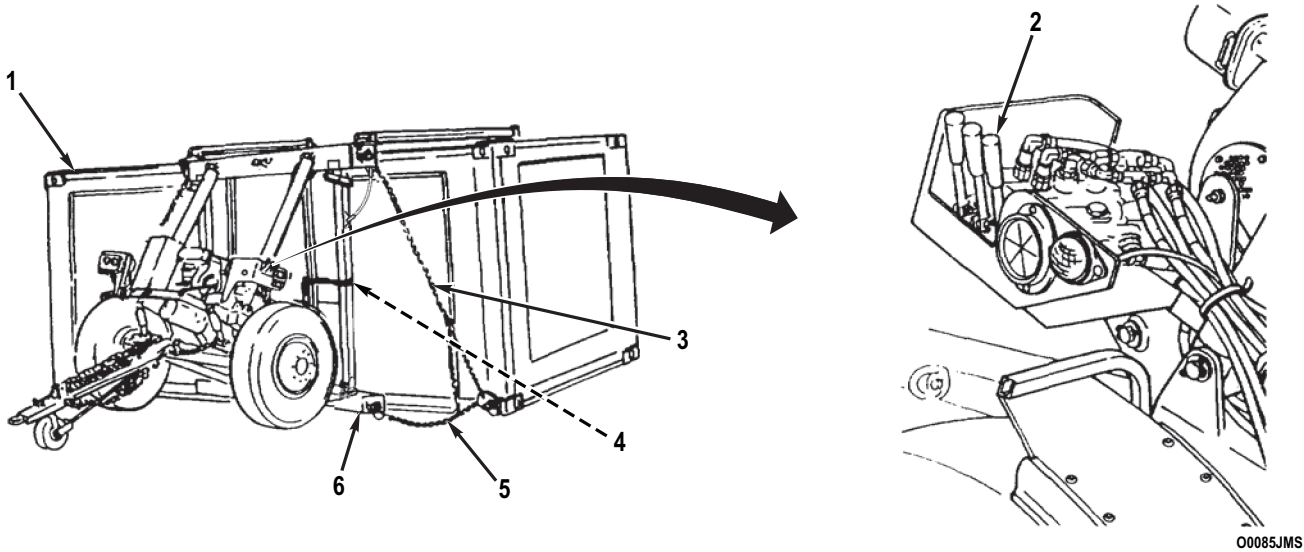
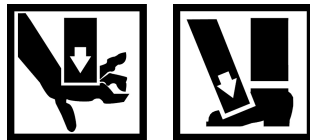


Figure 1. Lever.

2. At each bottom corner of shelter (Figure 2, Item 6), remove hook (Figure 2, Item 4) of take-up chain (Figure 2, Item 5) from lifting chain (Figure 2, Item 3).

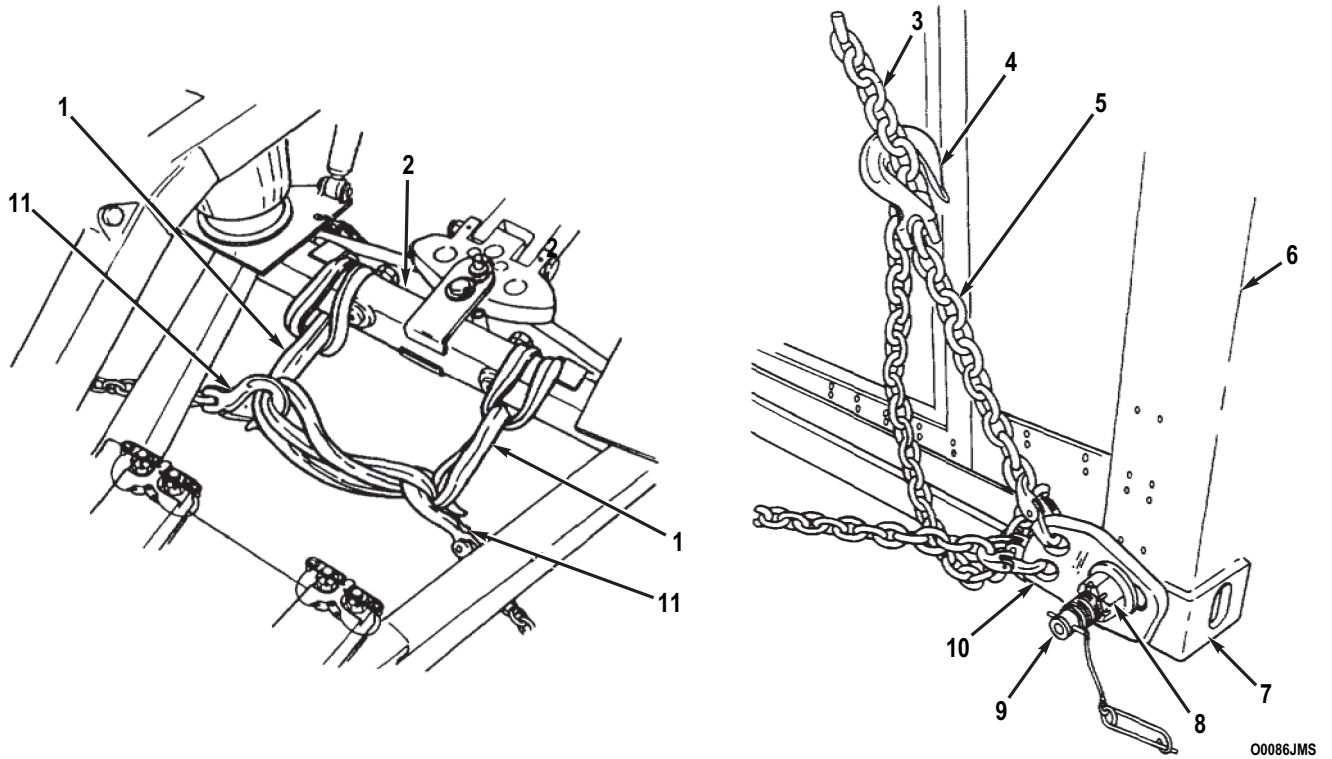
WARNING



Use extreme caution when removing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

3. Use twist lock wrench (Item 3, (WP 0195)) to loosen nut (Figure 2, Item 8). Rotate twist lock (Figure 2, Item 9) 90 degrees and remove twist lock and adapter (Figure 2, Item 10) from each corner block (Figure 2, Item 7).
4. At front and rear, remove two axle chains (Figure 2, Item 11) from slings (Figure 2, Item 1). Remove two slings from axle (Figure 2, Item 2).

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued.



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Figure 2. Nut, Twist Lock, Adapter, and Chain.

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued.

5. At front and rear, pull down on two lift cylinder levers (Figure 3, Item 4) to raise top beam (Figure 3, Item 2) until crossbrace assemblies (Figure 3, Item 3) are slightly above shelter (Figure 3, Item 1).
6. Deflate all air bags (Lowering Dolly Set with or without Shelter and Detaching Front and Rear Dollies (WP 0009)) or (Inflating Air Bags (WP 0005)).

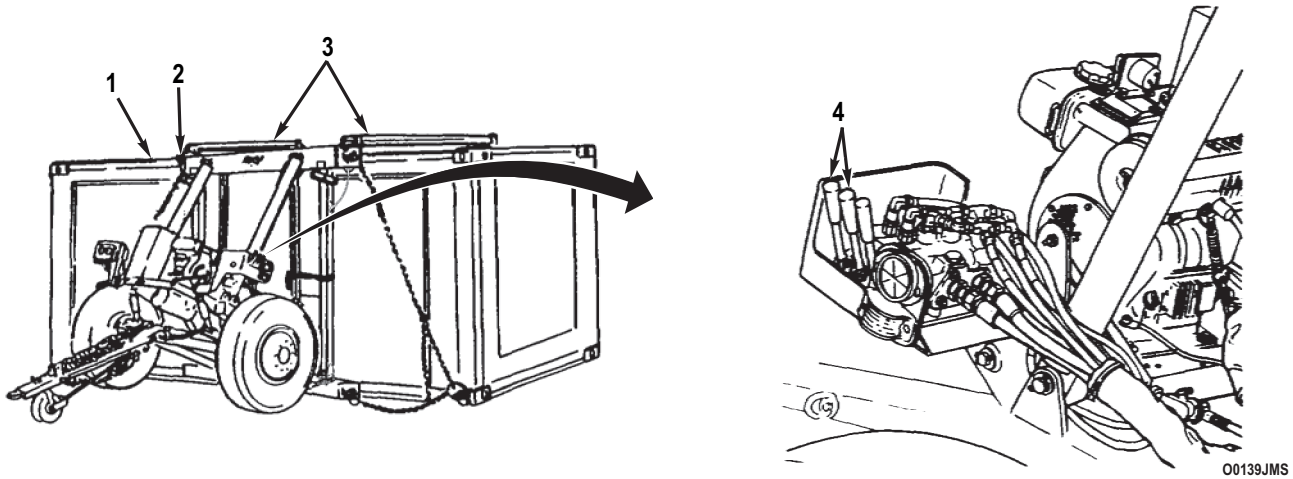
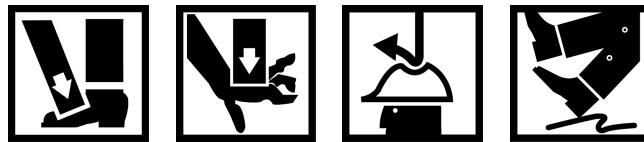


Figure 3. Levers.

WARNING



- Use extreme caution when climbing and working on top of shelter during side lift operations. Ensure that top of shelter is free of ice or debris which could cause slips and falls. When working with twist locks from on top of shelter, maintain a three-point contact with shelter as much as possible. When on top of shelter, always be aware of where other personnel and tools are located to prevent accidental bumps and trips. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when removing twist locks. Keep hands and/or feet clear of top hooks, top beams, and from between beams. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when loosening and removing twist locks. Loosened twist locks must be removed or they may fall. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

If there is difficulty loosening twist lock nut, or twist locks do not come out, it may be necessary to operate hydraulic control valve to slightly retract or extend each lift cylinder (Operating Hydraulic Control Valve (WP 0005)).

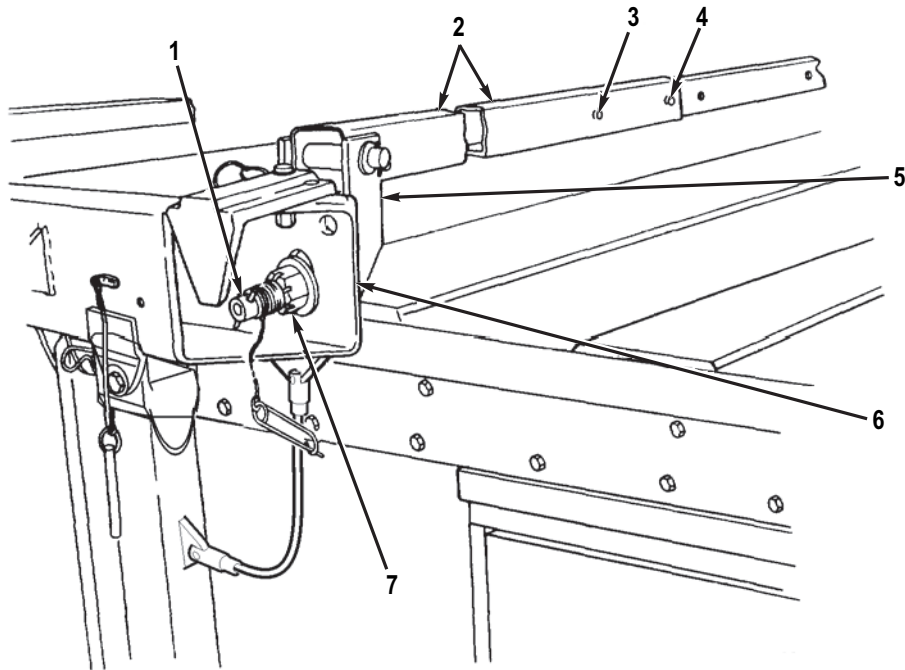
DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued.

7. At front and rear, use twist lock wrench (Item 3, (WP 0195)) to loosen nuts (Figure 4, Item 7). Rotate two twist locks (Figure 4, Item 1) 90 degrees and remove from crossbrace assemblies (Figure 4, Item 2). Rotate twist locks 90 degrees again and remove from top beams (Figure 4, Item 5). Remove crossbrace assemblies from between top beams.

NOTE

Two extra detent pins are stowed in storage box.

8. Remove two detent pins (Figure 4, Items 3 and 4) and collapse each crossbrace assembly (Figure 4, Item 2). Install detent pin (Figure 4, Item 3) to secure crossbrace assembly in collapsed position.
9. Fold two crossbrace brackets (Figure 4, Item 5) over each crossbrace assembly (Figure 4, Item 2).



00087JMS

Figure 4. Detent Pins, Crossbraces, and Brackets.

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued.**WARNING**

All personnel standing on ground **MUST** stand clear when crossbrace assemblies are being stowed in top beams. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

10. At front and rear, stow crossbrace assembly (Figure 5, Item 2) in top beam (Figure 5, Item 1) and retain with detent pin (Figure 5, Item 5).
11. At front and rear, push up on two lift cylinder levers (Figure 5, Item 3) and positioning cylinders lever (Figure 5, Item 4) to fully lower top beam (Figure 5, Item 1).

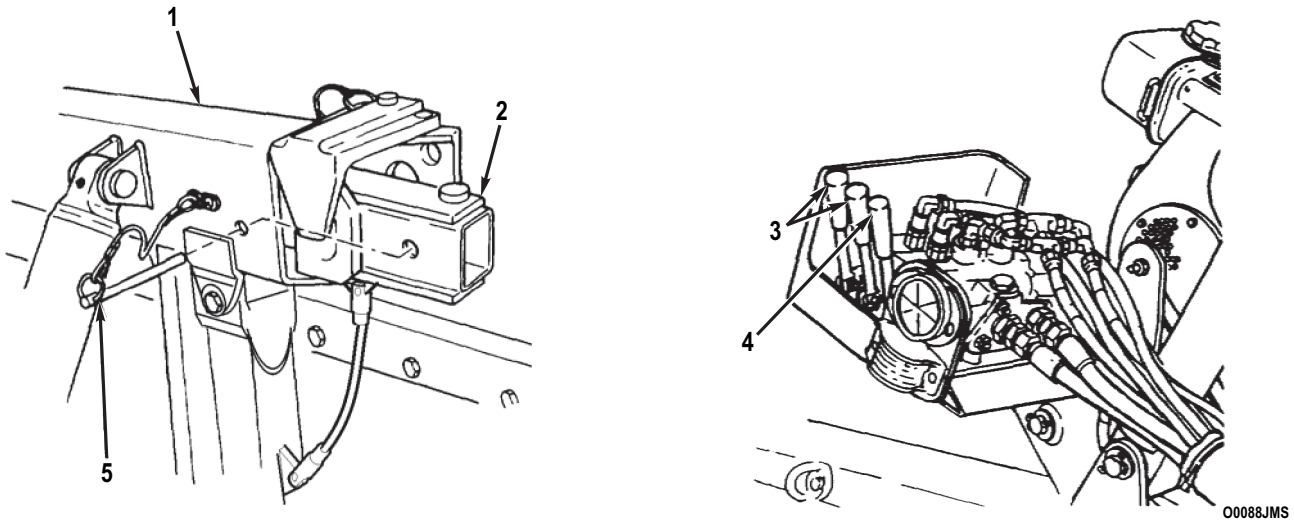
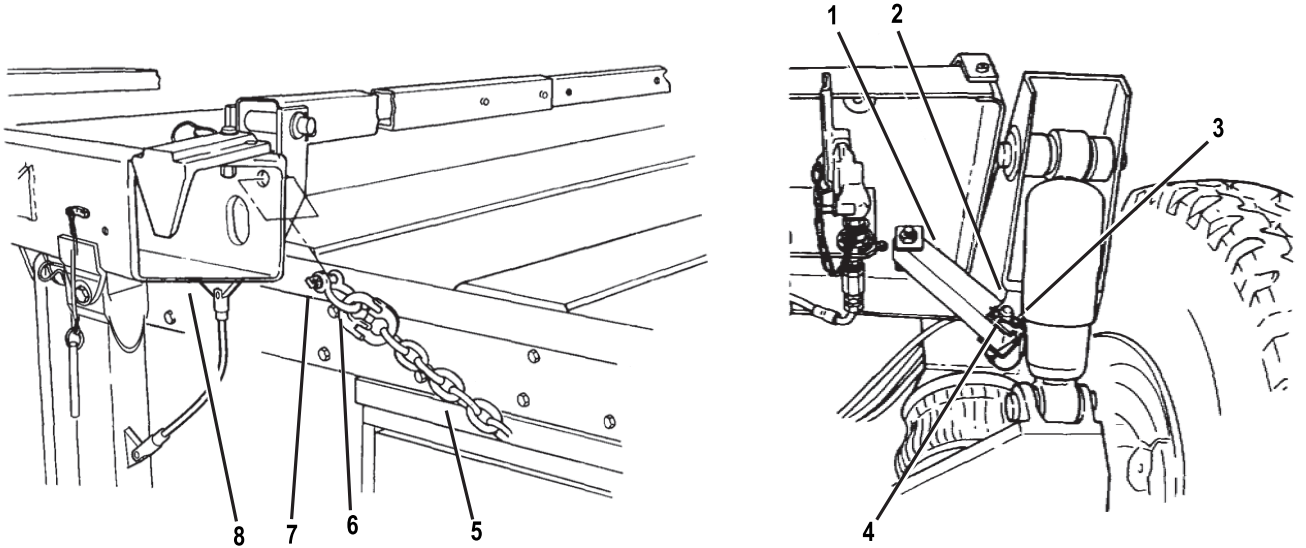


Figure 5. Crossbraces, Detent Pins, and Levers.

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued.

12. At front and rear, remove pin (Figure 6, Item 7) from shackle (Figure 6, Item 6) and remove lifting chain (Figure 6, Item 5) from hole at each end of top beam (Figure 6, Item 8).
13. Connect front and rear, secure pivoting tray lock-out brace (Figure 6, Item 1) to lower bracket (Figure 6, Item 2) with hitch pin (Figure 6, Item 4) and safety pin (Figure 6, Item 3).
14. Stow side lift kit components in storage box and basic issue items in toolbox on front dolly.

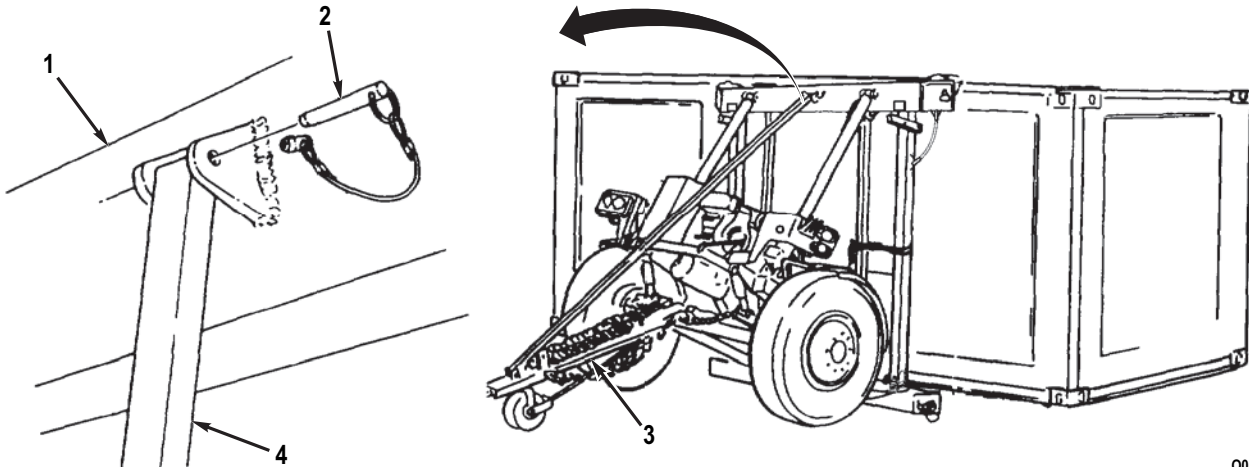


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Figure 6. Pins, Chain, Hitch Pins, and Safety Pins.

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON GROUND) (SIDE LIFT OPERATION) - Continued.

15. At front and rear, install telescopic brace (Figure 7, Item 4) to top beam (Figure 7, Item 1) and drawbar (Figure 7, Item 3) with two detent pins (Figure 7, Item 2).



00090JMS

Figure 7. Braces, Drawbar, and Detent Pins.

16. Place each dolly half in maneuvering position (Operating Hydraulic Control Valve (WP 0005)).

END OF TASK**END OF WORK PACKAGE**

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - RAISING DOLLY SET WITH SHELTER AND LOADING ONTO
TRAILER (SIDE LIFT OPERATION)**

INITIAL SETUP:

Personnel Required
(Two)

References
WP 0011

RAISING DOLLY SET WITH SHELTER AND LOADING ONTO TRAILER (SIDE LIFT OPERATION)**WARNING**

- All personnel must use caution when standing near dolly set, shelter, and trailer during raising operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
 - Front axle steering locking pin must ALWAYS be installed for side lift operation. Failure to follow this warning may cause front dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
1. Attach front and rear dollies to shelter (Attaching Front and Rear Dollies to Shelter (Side Lift Operation) (WP 0011)).
 2. Locate a third person within view of each control valve operator. To ensure that shelter is raised evenly, third person should use the following hand signals using the index finger of each hand:
 - a. Pointing UP - Extend lift cylinders.
 - b. Pointing DOWN - Retract lift cylinders.
 - c. Pointing horizontally OUTWARD - Extend positioning cylinders.
 - d. Pointing horizontally INWARD - Retract positioning cylinders.
 - e. Showing a FIST - Stop or hold.

RAISING DOLLY SET WITH SHELTER AND LOADING ONTO TRAILER (SIDE LIFT OPERATION) - Continued**CAUTION**

- During raising operations, use caution to ensure that lift cylinder grease fittings DO NOT contact suspension links and become damaged.
- During raising operations, use caution to ensure that shelter is kept level. Failure to follow this caution may result in damage to shelter or dolly set.

NOTE

As shelter is raised, dolly halves will move away from shelter and axle chains will come under full tension; this is normal.

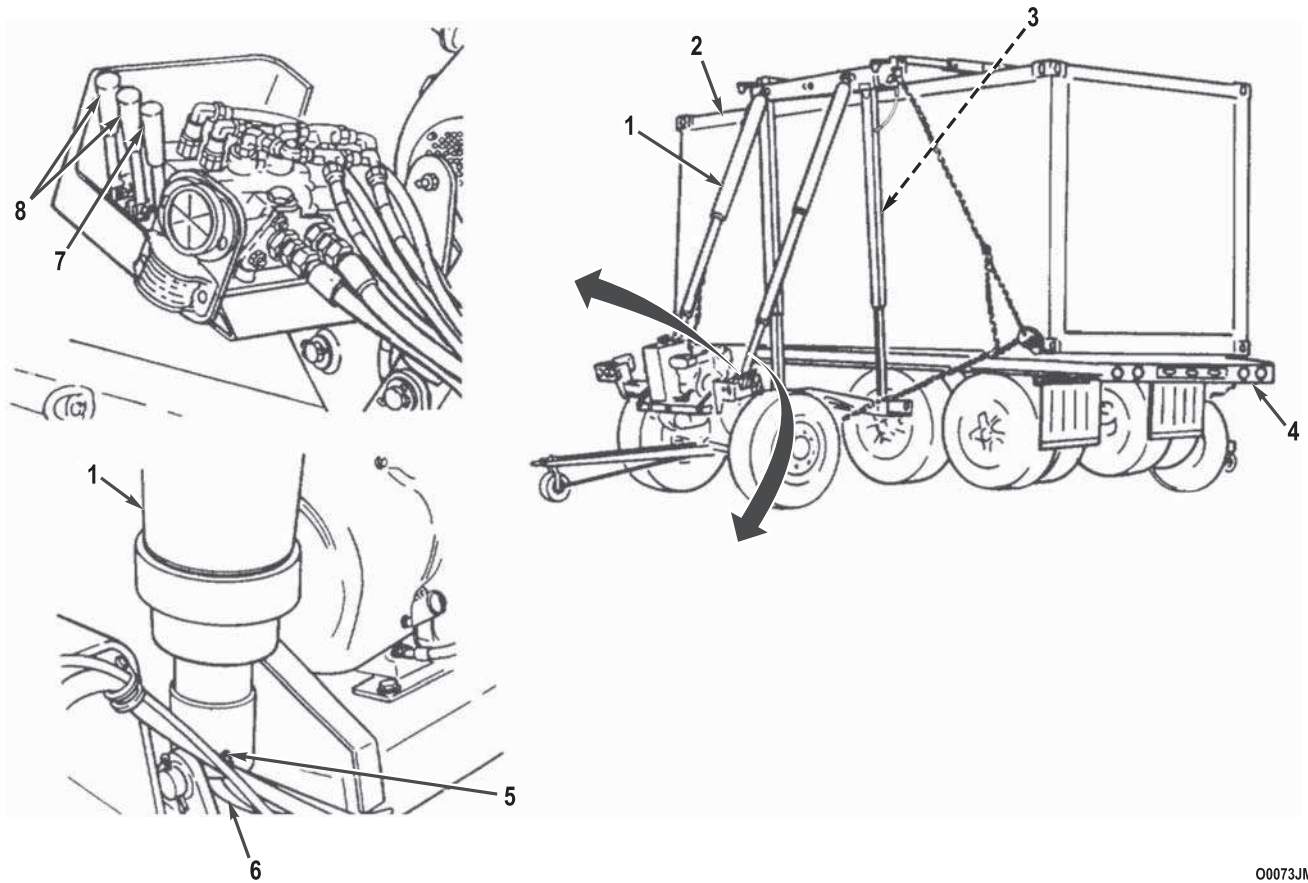
3. At front and rear, perform the following steps:
 - a. Pull down on two lift cylinder levers (Figure 1, Item 8) to raise shelter (Figure 1, Item 2). Stop when grease fitting (Figure 1, Item 5) at base of each lift cylinder (Figure 1, Item 1) is 1 in. (3 cm) above suspension link (Figure 1, Item 6).
 - b. Pull down on positioning cylinders lever (Figure 1, Item 7) to extend positioning cylinders (Figure 1, Item 3) approximately 2 ft (0.6 m).
 - c. Repeat steps a and b as required to lift shelter (Figure 1, Item 2) to a maximum of 60 in. (152 cm).

CAUTION

Use caution when backing trailer under shelter not to contact dolly halves.

4. Back trailer (Figure 1, Item 4) under shelter (Figure 1, Item 2).

RAISING DOLLY SET WITH SHELTER AND LOADING ONTO TRAILER (SIDE LIFT OPERATION) - Continued



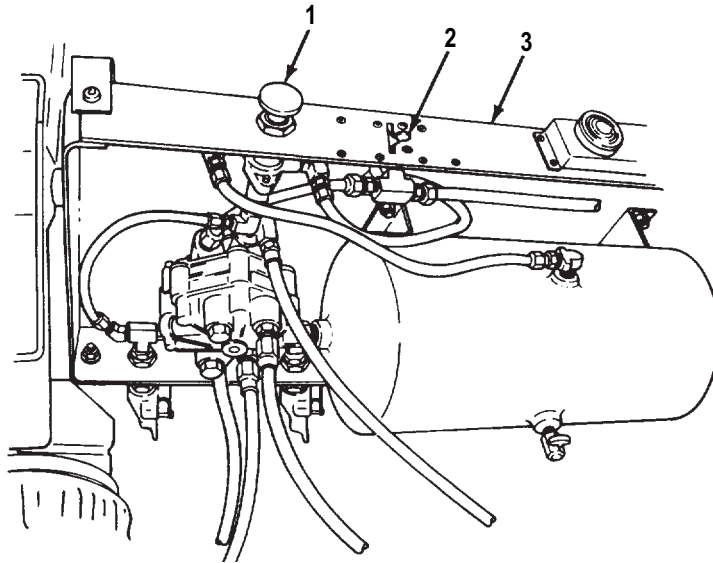
00073JMS

Figure 1. Side Lift Operation.

RAISING DOLLY SET WITH SHELTER AND LOADING ONTO TRAILER (SIDE LIFT OPERATION) - Continued**NOTE**

Perform step 5 as required to align shelter with bed of trailer.

5. Release brakes on rear dolly by airbrake control knob (Figure 2, Item 1). Parking brake lever (Figure 2, Item 2) on pivoting tray (Figure 2, Item 3) is in OFF position.



00074JMS

Figure 2. Release Parking Brake.

RAISING DOLLY SET WITH SHELTER AND LOADING ONTO TRAILER (SIDE LIFT OPERATION) - Continued

6. Pull or tow front dolly forward in a straight line using the front drawbar to aid in alignment of shelter (Figure 3, Item 1) to bed of trailer (Figure 3, Item 2). Once aligned, turn on brakes by pulling airbrake control knob.
7. At front and rear, push up on two lift cylinder levers (Figure 3, Item 3) to lower shelter (Figure 3, Item 1) onto trailer (Figure 3, Item 2).
8. Secure shelter (Figure 3, Item 1) to bed of trailer (Figure 3, Item 2) with tie-downs.

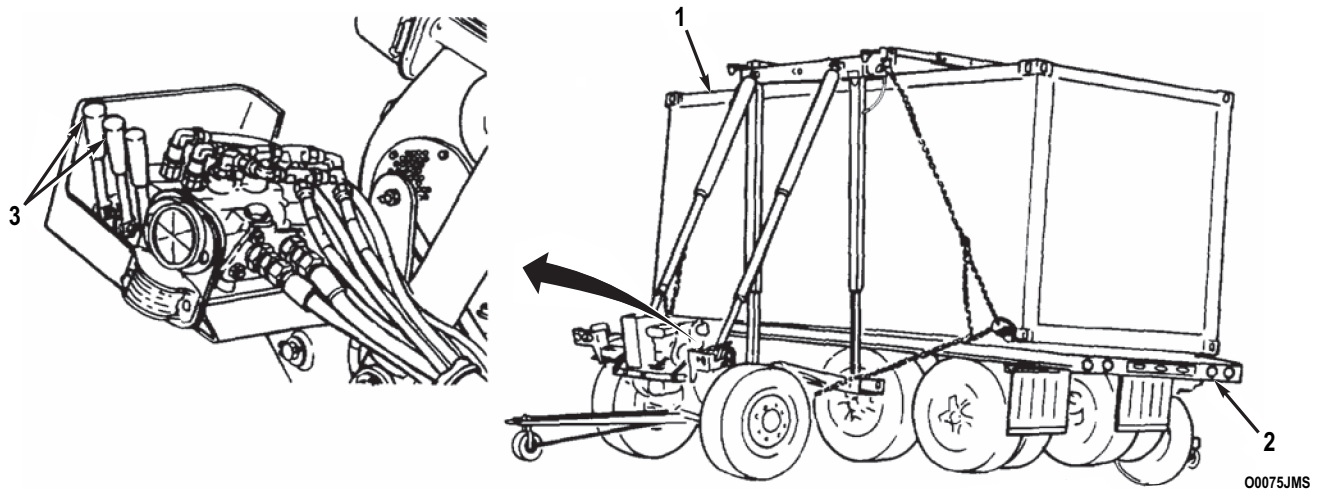


Figure 3. Side Lift Operation.

END OF TASK

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - DETACHING FRONT AND REAR DOLLIES FROM SHELTER
(SHELTER ON TRAILER) (SIDE LIFT OPERATION)**

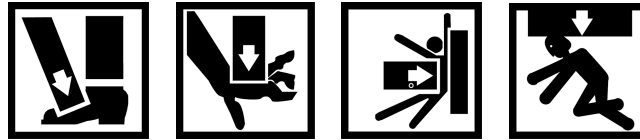
INITIAL SETUP:

Personnel Required
(Two)

References
WP 0005
WP 0195

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION)

WARNING



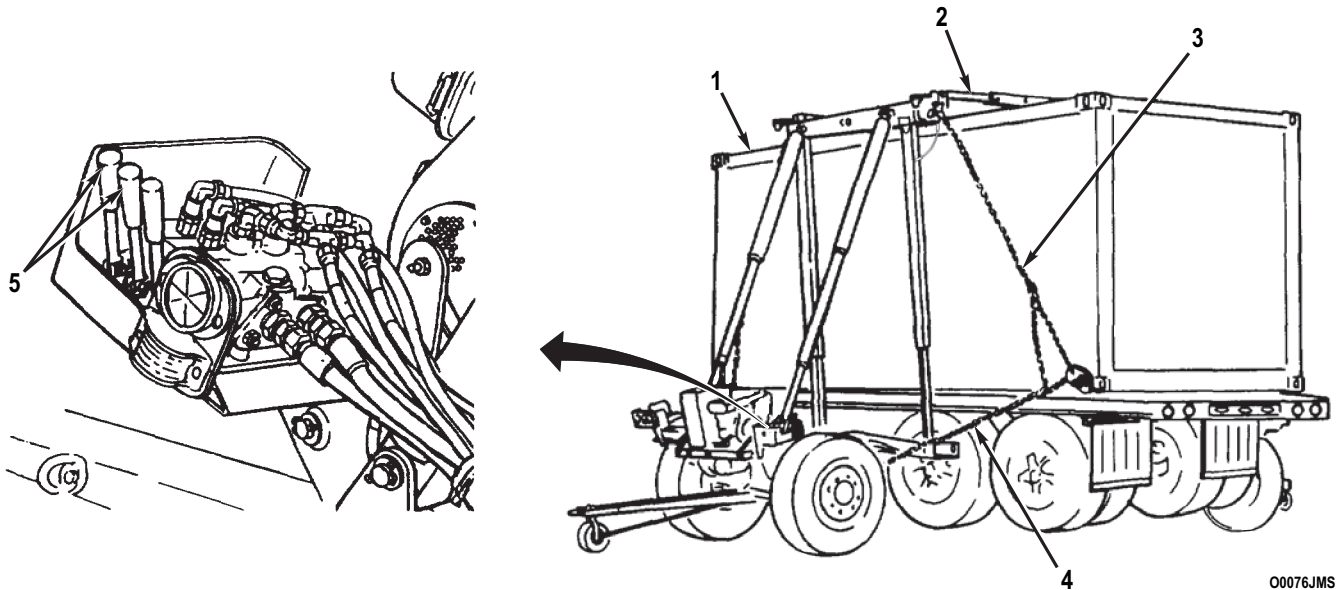
- All personnel must use caution when standing near dolly set, trailer, and shelter during detaching operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front axle steering locking pin must ALWAYS be installed for side lift operation. Failure to follow this warning may cause front dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION) - Continued

CAUTION

Use caution to ensure that lift cylinder grease fittings DO NOT contact suspension links and become damaged.

1. At front and rear, perform the following steps:
 - a. Push up on two lift cylinder levers (Figure 1, Item 5) to lower crossbrace assemblies (Figure 1, Item 2) onto top of shelter (Figure 1, Item 1). Dolly set is now suspended by crossbrace assemblies. Lifting chains (Figure 1, Item 3) and axle chains (Figure 1, Item 4) should be slack.



00076JMS

Figure 1. Levers.

- b. Push up on positioning cylinders lever (Figure 2, Item 9) to retract positioning cylinders (Figure 2, Item 4). Stop when grease fitting (Figure 2, Item 6) at base of each lift cylinder (Figure 2, Item 8) is 1 in. (2.5 cm) from suspension link (Figure 2, Item 7). This corresponds to an angle of approximately 30 degrees between lift cylinder and suspension link.
2. At front and rear, pull down on two lift cylinder levers (Figure 2, Item 10) to raise top beam (Figure 2, Item 2) until crossbrace assemblies (Figure 2, Item 3) are slightly above shelter (Figure 2, Item 1).
3. At front and rear, pull down on positioning cylinders lever (Figure 2, Item 9) to extend positioning levers (Figure 2, Item 4) and lower bottom beams (Figure 2, Item 5) to the ground.

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION) - Continued

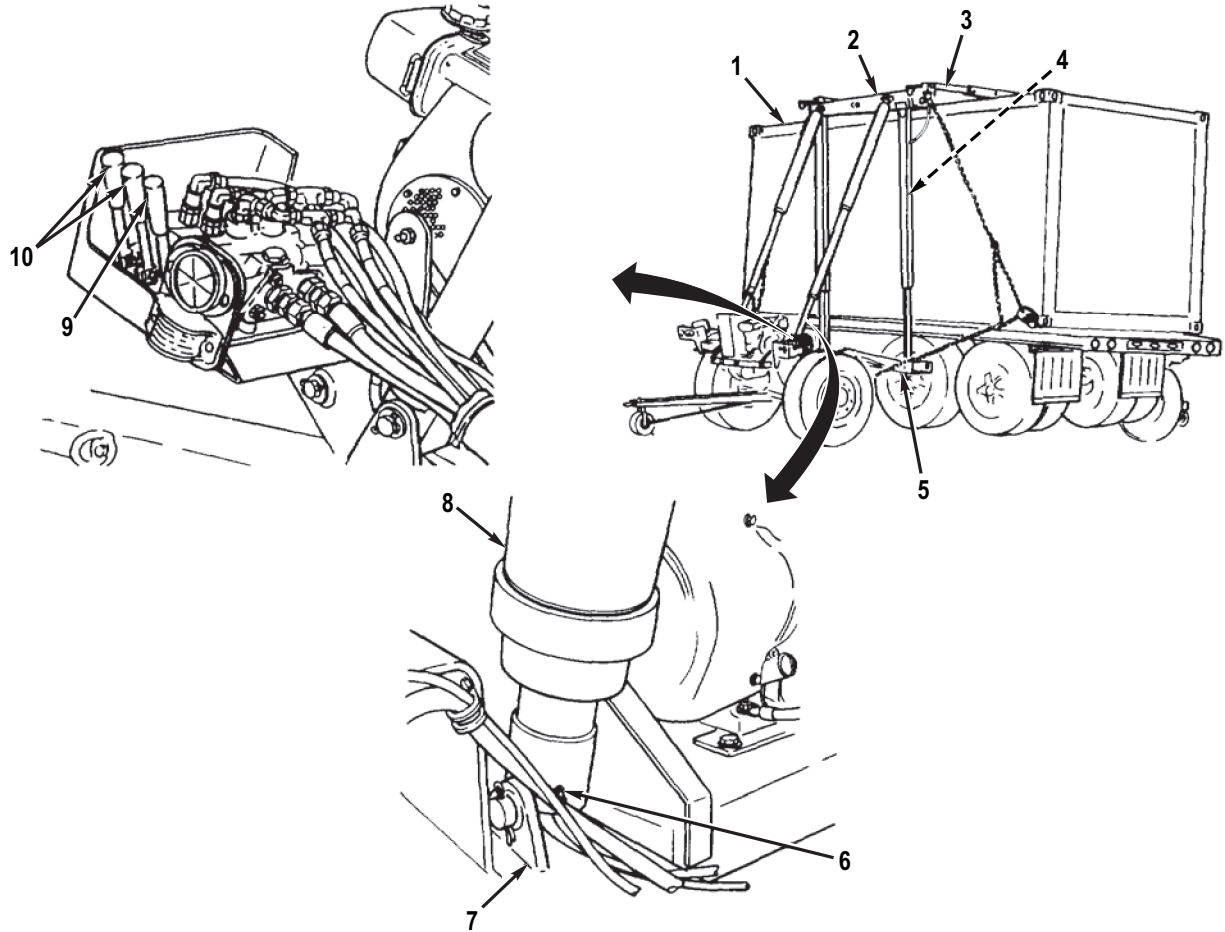


Figure 2. Levers.

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DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION) - Continued

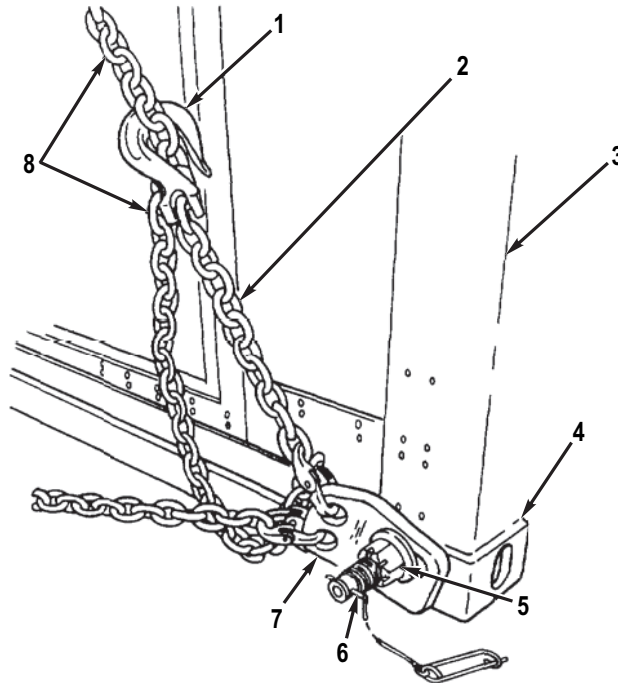
4. At each bottom corner of shelter (Figure 3, Item 3), remove hook (Figure 3, Item 1) of take-up chain (Figure 3, Item 2) from lifting chain (Figure 3, Item 8).

WARNING



- Use extreme caution when removing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when loosening and removing twist locks. Loosened twist locks must be removed or they may fall. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

5. Use twist lock wrench (Item 3, (WP 0195)) to loosen nut (Figure 3, Item 5). Rotate twist lock (Figure 3, Item 6) 90 degrees and remove twist lock and adapter (Figure 3, Item 7) from each corner block (Figure 3, Item 4).

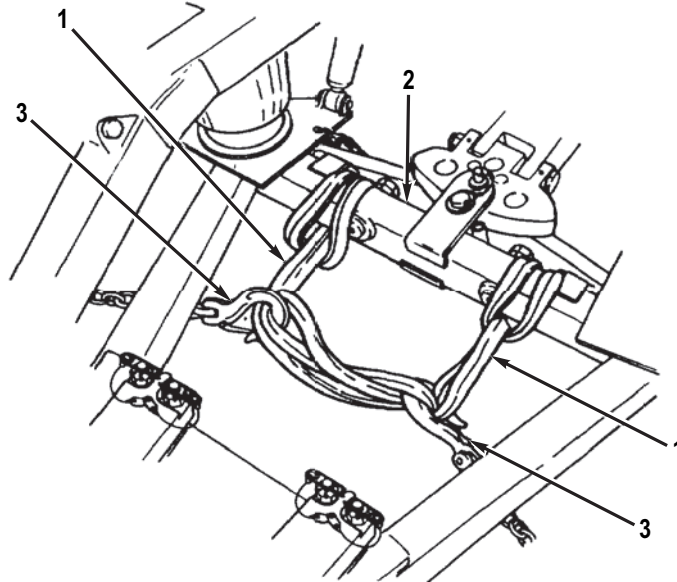


00078JMS

Figure 3. Chain and Nut.

6. At front and rear, remove two axle chains (Figure 4, Item 3) from slings (Figure 4, Item 1). Remove two slings from axle (Figure 4, Item 2).

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION) - Continued

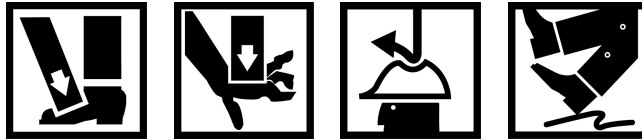


00079JMS

Figure 4. Slings.

7. Deflate all air bags (Operation Under Usual Conditions - With or Without Shelter and Detaching Front and Rear Dollies (WP 0009)).

WARNING



- Use extreme caution when climbing and working on top of shelter during side lift operations. Ensure that top of shelter is free of ice or debris which could cause slips and falls. When working with twist locks from on top of shelter, maintain a three-point contact with shelter as much as possible. When on top of shelter, always be aware of where other personnel and tools are located to prevent accidental bumps and trips. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when removing twist locks. Keep hands and /or feet clear of top hooks, top beams, and from between beams. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Use extreme caution when loosening and removing twist locks. Loosened twist locks must be removed or they may fall. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

If there is difficulty loosening twist lock nut, or twist locks do not come out, it may be necessary to operate hydraulic control valve to slightly retract or extend each lift cylinder (Operation Under Usual Conditions - General Operating Instructions (WP 0005)).

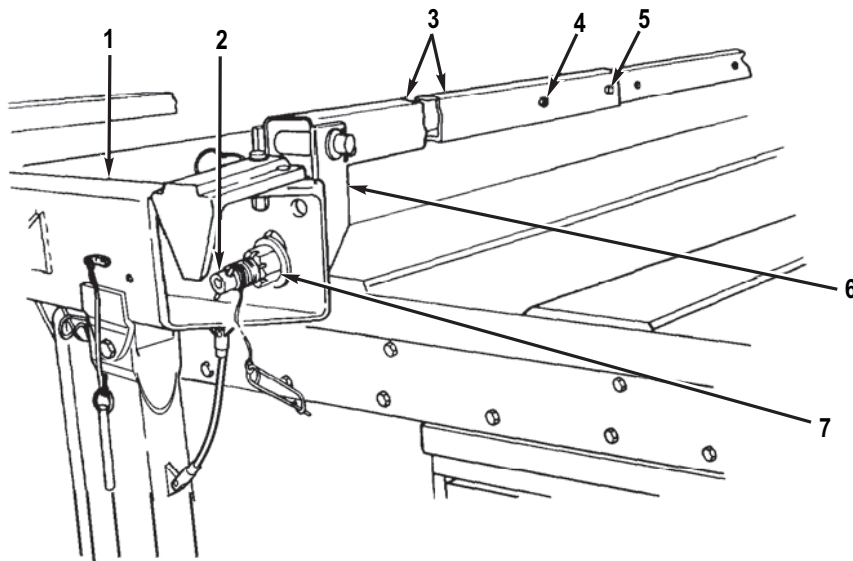
DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION) - Continued

8. Use twist lock wrench (Item 3, (WP 0195)) to loosen nuts (Figure 5, Item 7). Rotate two twist locks (Figure 5, Item 2) 90 degrees and remove from crossbrace assemblies (Figure 5, Item 3). Rotate twist locks 90 degrees again and remove from top beams (Figure 5, Item 1). Remove crossbrace assemblies from between top beams.

NOTE

Two extra detent pins are stowed in storage box.

9. Remove two detent pins (Figure 5, Items 4 and 5) and collapse each crossbrace assembly (Figure 5, Item 3). Install detent pin (Figure 5, Item 4) to secure crossbrace assembly in collapsed position.
10. Fold two crossbrace brackets (Figure 5, Item 6) over each crossbrace assembly (Figure 5, Item 3).



00080JMS

Figure 5. Twist Locks, Crossbraces, Detent Pins, and Brackets.

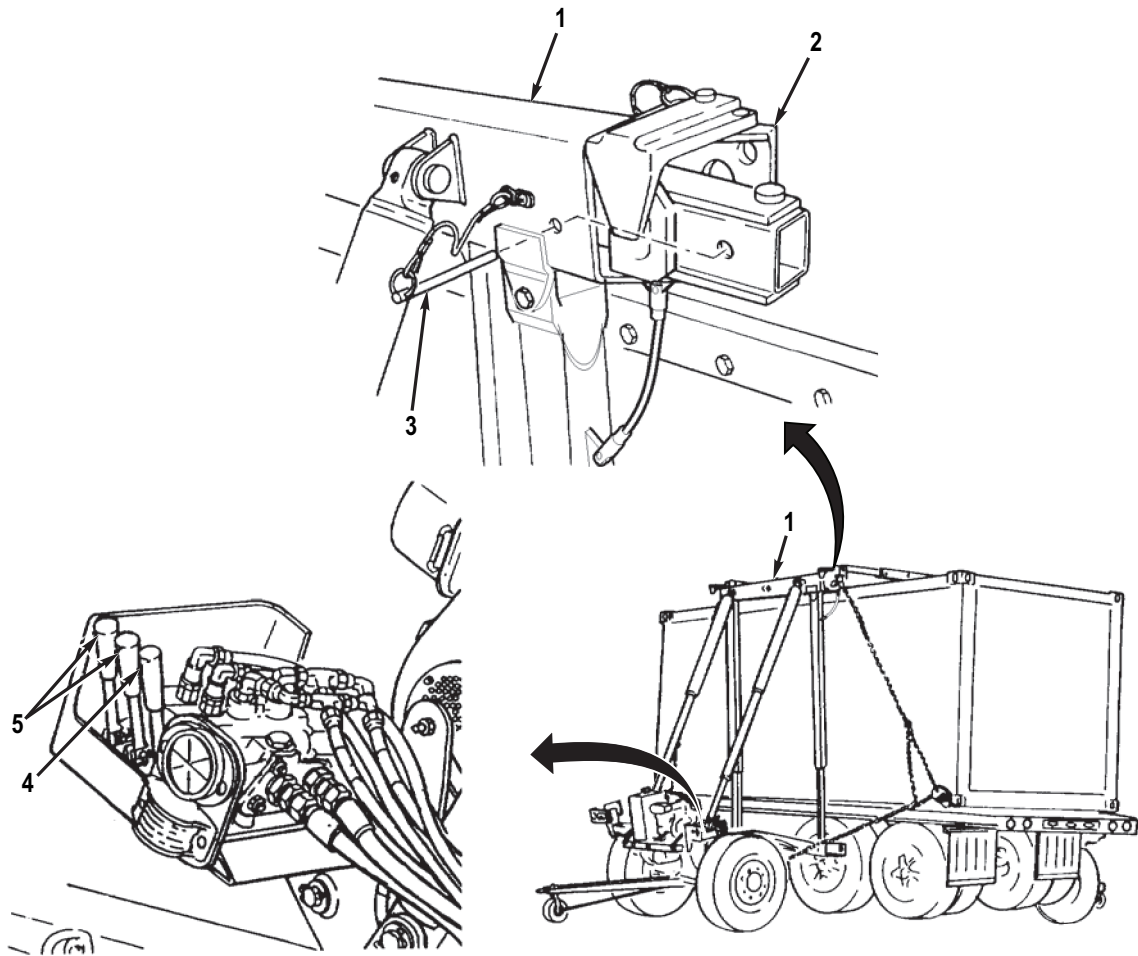
WARNING



All personnel standing on ground **MUST** stand clear when crossbrace assemblies are being stowed in top beams. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

11. At front and rear, stow crossbrace assembly (Figure 6, Item 2) in top beam (Figure 6, Item 1) and retain with detent pin (Figure 6, Item 3).
12. At front and rear, push up on two lift cylinder levers (Figure 6, Item 5) and positioning cylinders lever (Figure 6, Item 4) to fully lower top beam (Figure 6, Item 1).

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION) - Continued

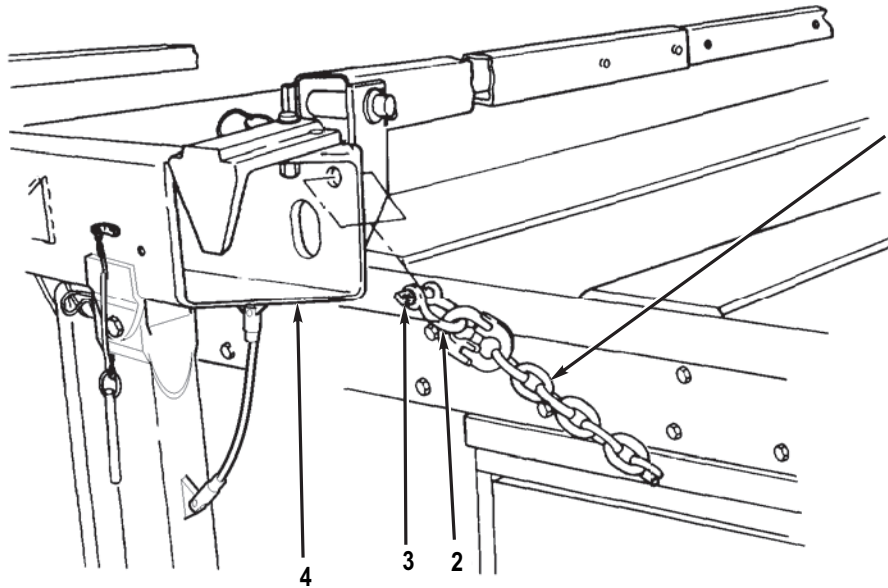


00081JMS

Figure 6. Crossbraces, Detent Pin, and Levers.

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION) - Continued

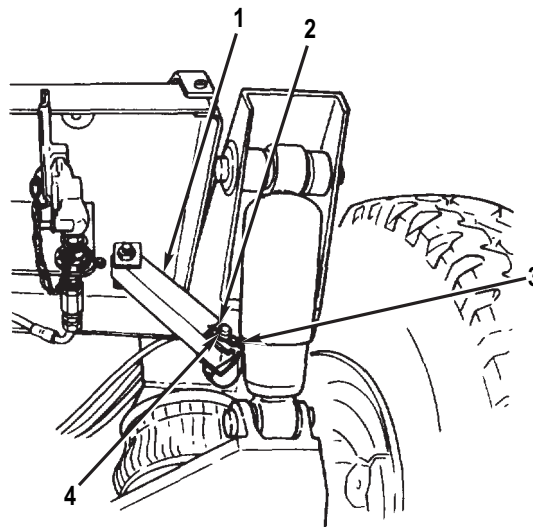
13. At front and rear, remove pin (Figure 7, Item 3) from shackle (Figure 7, Item 2) and remove lifting chain (Figure 7, Item 1) from hole at each end of top beam (Figure 7, Item 4).



00082JMS

Figure 7. Pins and Chain.

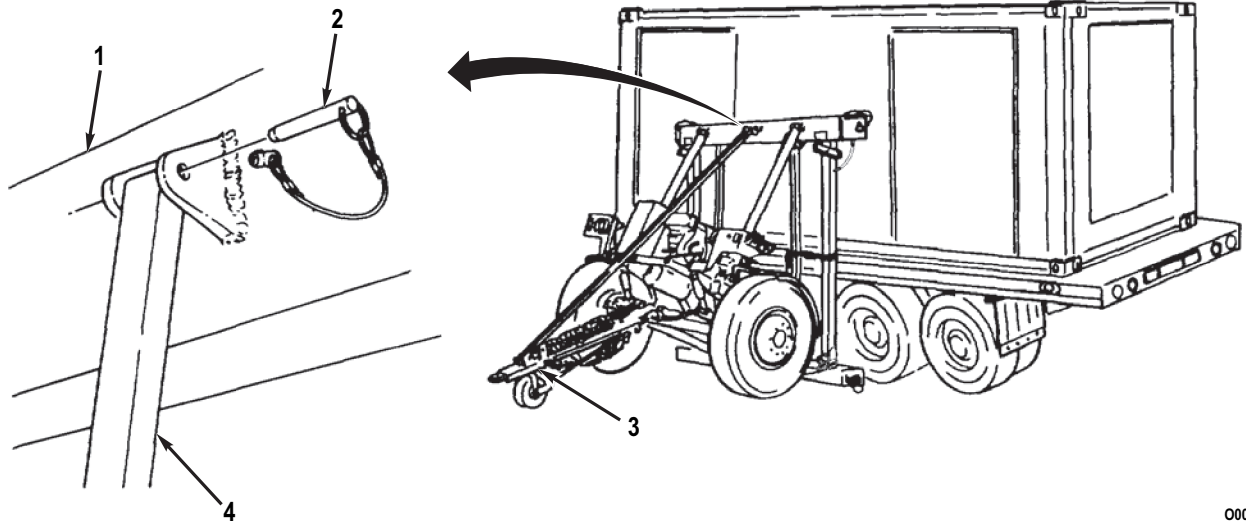
14. At front and rear, secure pivoting tray lockout brace (Figure 8, Item 1) to lower bracket (Figure 8, Item 2) with hitch pin (Figure 8, Item 4) and safety pin (Figure 8, Item 3).
15. Stow side lift kit components in storage box and basic issue items in toolbox on front dolly.



00083JMS

Figure 8. Braces, Hitch Pins, and Safety Pins.

16. At front and rear, install telescopic brace (Figure 9, Item 4) to top beam (Figure 9, Item 1) and drawbar (Figure 9, Item 3) with two detent pins (Figure 9, Item 2).

DETACHING FRONT AND REAR DOLLIES FROM SHELTER (SHELTER ON TRAILER) (SIDE LIFT OPERATION) - Continued

00084JMS

Figure 9. Braces and Detent Pins.

17. Place each dolly half in maneuvering position (Operation Under Usual Conditions - General Operating Instructions (WP 0005)).
18. Pull trailer away.

END OF TASK

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - LOWERING DOLLY SET WITH SHELTER FROM TRAILER (SIDE
LIFT OPERATION)**

INITIAL SETUP:

Personnel Required
(Three)

References
WP 0014

LOWERING DOLLY SET WITH SHELTER FROM TRAILER (SIDE LIFT OPERATION)

WARNING

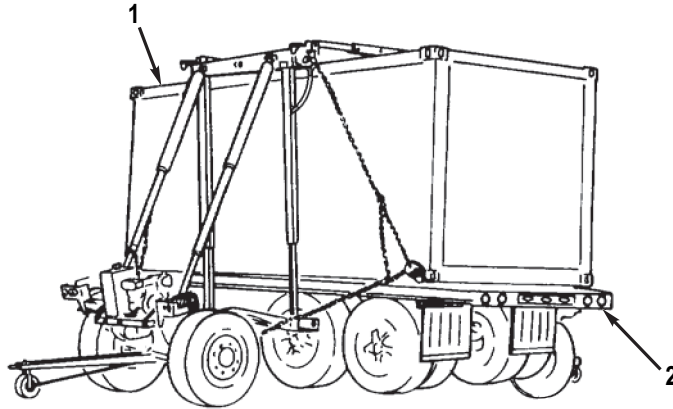


- All personnel must use caution when standing near dolly set, shelter, and trailer during lowering operations. Failure to follow this warning result in injury or death to personnel. Seek medical attention in the event of an injury.
- Front axle steering locking pin must ALWAYS be installed for ride lift operation. Failure to follow this warning may cause front dolly to overturn. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

1. Attach front and rear dollies to shelter loaded on trailer Engine (WP 0014).

LOWERING DOLLY SET WITH SHELTER FROM TRAILER (SIDE LIFT OPERATION) - Continued

2. Remove all tie-downs securing shelter (Figure 1, Item 1) to bed of trailer (Figure 1, Item 2).



00091JMS

Figure 1. Tie-Downs.

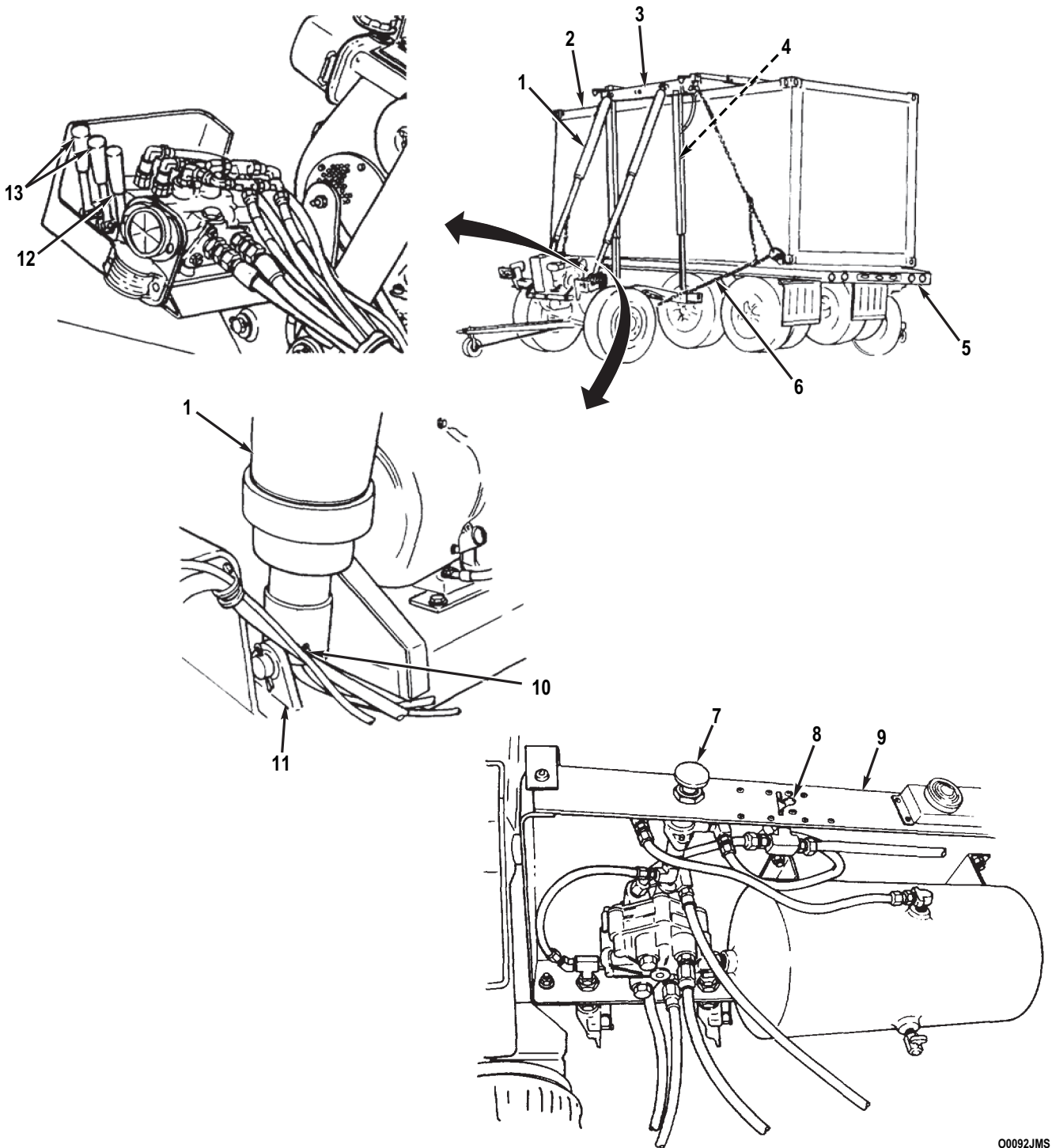
3. Locate a third person within view of each control valve operator. To ensure that shelter is lowered evenly, a third person should use the following hand signals using the index finger of each hand:
- Pointing UP - Extend lift cylinders.
 - Pointing DOWN - Retract lift cylinders.
 - Pointing horizontally OUTWARD - Extend positioning cylinders.
 - Pointing horizontally INWARD - Retract positioning cylinders.
 - Showing a FIST - Stop or hold.

NOTE

As top beams are raised, dolly halves will move away from shelter and axle chains will come under full tension; this is normal.

4. At front and rear, pull down on two lift cylinder levers (Figure 2, Item 13) to raise top beam (Figure 2, Item 3) until axle chains (Figure 2, Item 6) are under full tension. DO NOT lift shelter (Figure 2, Item 2) off bed of trailer (Figure 2, Item 5).
5. Apply brakes on rear dolly by pulling airbrake control knob (Figure 2, Item 7). Parking brake lever (Figure 2, Item 8) on pivoting tray (Figure 2, Item 9) is in OFF position.

LOWERING DOLLY SET WITH SHELTER FROM TRAILER (SIDE LIFT OPERATION) - Continued



00092JMS

Figure 2. Levers and Parking Brake.

LOWERING DOLLY SET WITH SHELTER FROM TRAILER (SIDE LIFT OPERATION) - Continued

6. At front and rear, pull down on two lift cylinder levers (Figure 3, Item 13) to raise shelter (Figure 3, Item 2) approximately 2 in. (5 cm) above bed of trailer (Figure 3, Item 5).

CAUTION

Use caution when removing trailer from under shelter not to contact dolly halves.

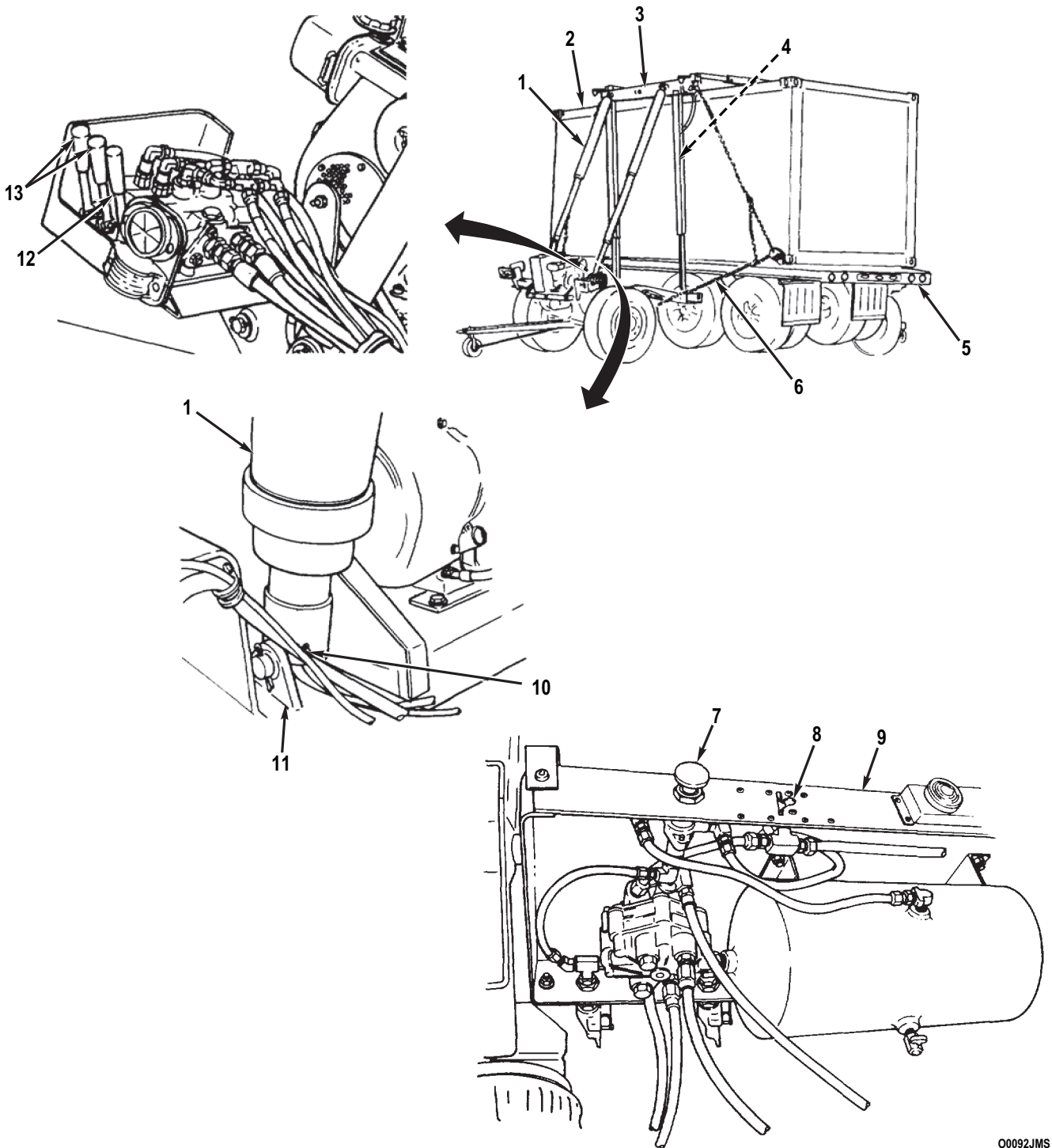
7. Pull trailer (Figure 3, Item 5) away.

CAUTION

- During lowering operations, use caution to ensure that shelter is kept level. Failure to follow this caution may cause damage to shelter or dolly set.
- During lowering operations, use caution to ensure that lift cylinder grease fittings DO NOT contact suspension links and become damaged.

8. At front and rear, perform the following steps to lower shelter (Figure 3, Item 2) to the ground.
 - a. Push up on two lift cylinder levers (Figure 3, Item 13) to retract lift cylinders (Figure 3, Item 1). Stop when grease fitting (Figure 3, Item 10) at base of each lift cylinder is 1 in. (2.5 cm) above suspension link (Figure 3, Item 11). This corresponds to an angle of approximately 30 degrees between lift cylinder and suspension link.
 - b. Push up on positioning cylinders lever (Figure 3, Item 12) to retract positioning cylinders (Figure 3, Item 4) approximately 2 ft (0.6 m).
 - c. Repeat steps a and b as required until shelter (Figure 3, Item 2) is on the ground.
9. Detach front and rear dollies from shelter Detaching Front and Rear Dollies from Shelter (Side Lift Operation) (WP 0014).

LOWERING DOLLY SET WITH SHELTER FROM TRAILER (SIDE LIFT OPERATION) - Continued



00092JMS

Figure 3. Levers and Cylinders.

END OF TASK

END OF WORK PACKAGE

OPERATOR MAINTENANCE
OPERATION UNDER USUAL CONDITIONS - ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER

INITIAL SETUP:

Personnel Required
(Two)

References
WP 0005
WP 0195

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER**WARNING**

All personnel must use caution when standing near front and rear dollies during attaching operations. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

1. Place each dolly half in maneuvering position (Operating Hydraulic Control Valve (WP 0005)).

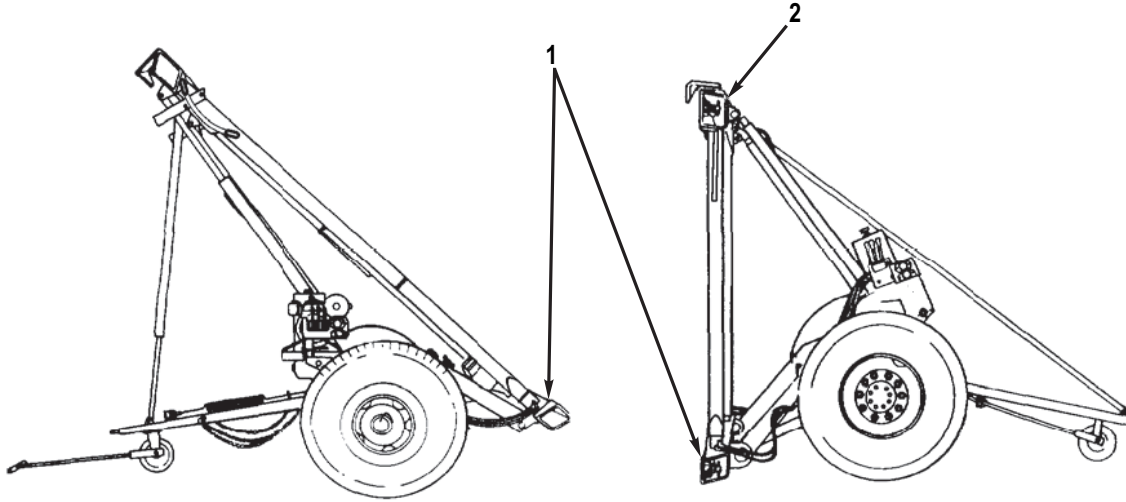
WARNING

While in maneuvering position, DO NOT operate positioning cylinders lever. Failure to follow this warning may cause bottom beam to lower to the ground. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

2. Move rear dolly to desired location as required.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

3. Remove rear dolly from maneuvering position and place with top and bottom beams (Figure 1, Items 2 and 1) in vertical position (Operating Hydraulic Control Valve (WP 0005)).
4. Position front dolly at rear dolly. Bottom beam (Figure 1, Item 1) of front dolly should be within 6 in. (15 cm) of vertical of top and bottom beams (Figure 1, Items 2 and 1) of rear dolly.



00137JMS

Figure 1. Top and Bottom Beams.

5. At front dolly, push up on two lift cylinder levers (Figure 2, Item 1) and lower bottom beam (Figure 2, Item 4) to within 6 in. (15 cm) of the ground.
6. Align bottom beam (Figure 2, Item 4) of front dolly with bottom beam of rear dolly.
7. Complete operation of removing front dolly from maneuvering position. Place top and bottom beams (Figure 2, Items 5 and 4) in vertical position (Operating Hydraulic Control Valve (WP 0005)).
8. At rear dolly, rotate two twist locks (Figure 2, Item 3) 90 degrees and remove from bottom beam (Figure 2, Item 4).

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

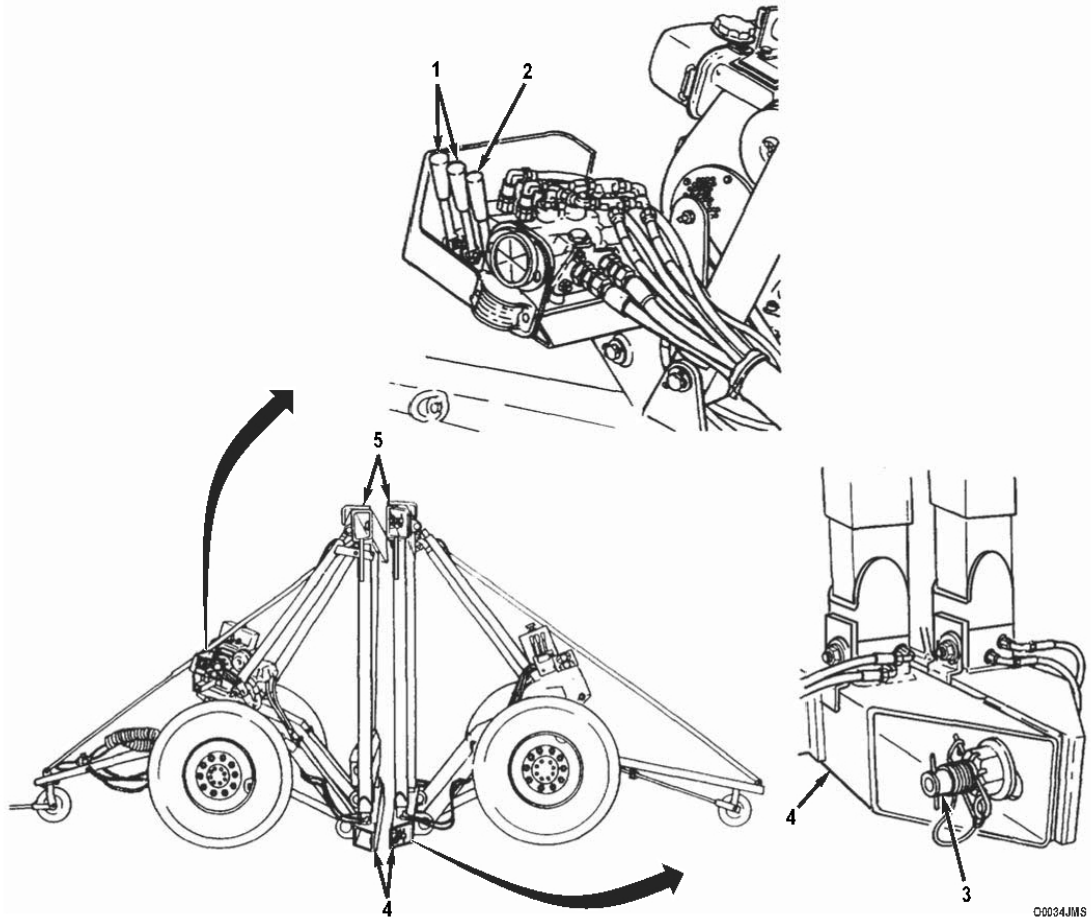


Figure 2. Levers, Top and Bottom Beams, and Twist Locks.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

WARNING



Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

9. At front and rear dolly top beams (Figure 4, Item 5) remove two detent pins (Figure 4, Item 3) and rotate top hooks (Figure 4, Item 1) 180 degrees away from shelter engagement position. Install detent pins.
10. At front dolly, pull down on two lift cylinder levers (Figure 3, Item 1) and then pull down on positioning cylinders lever (Figure 3, Item 2) until top beam (Figure 3, Item 5) contacts and aligns with top beam of rear dolly.

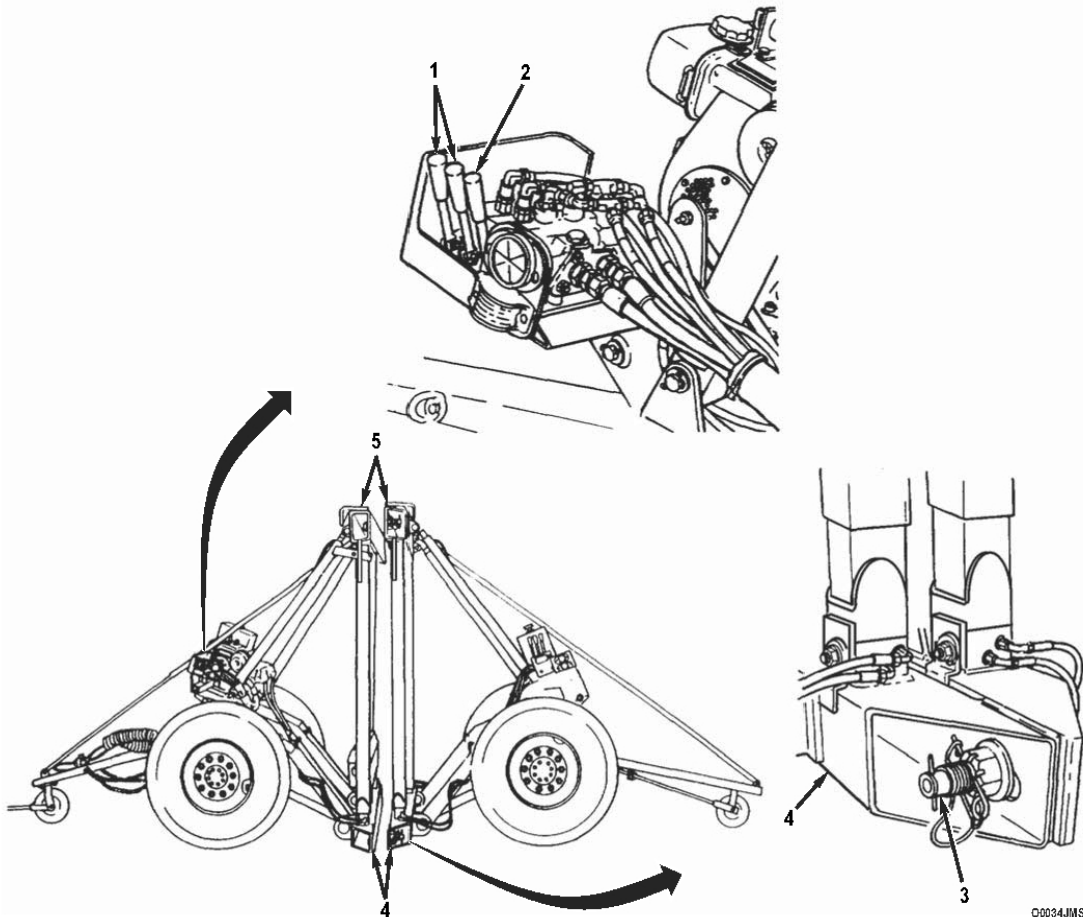
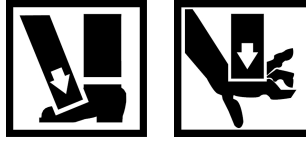


Figure 3. Detent Pins and Levers.

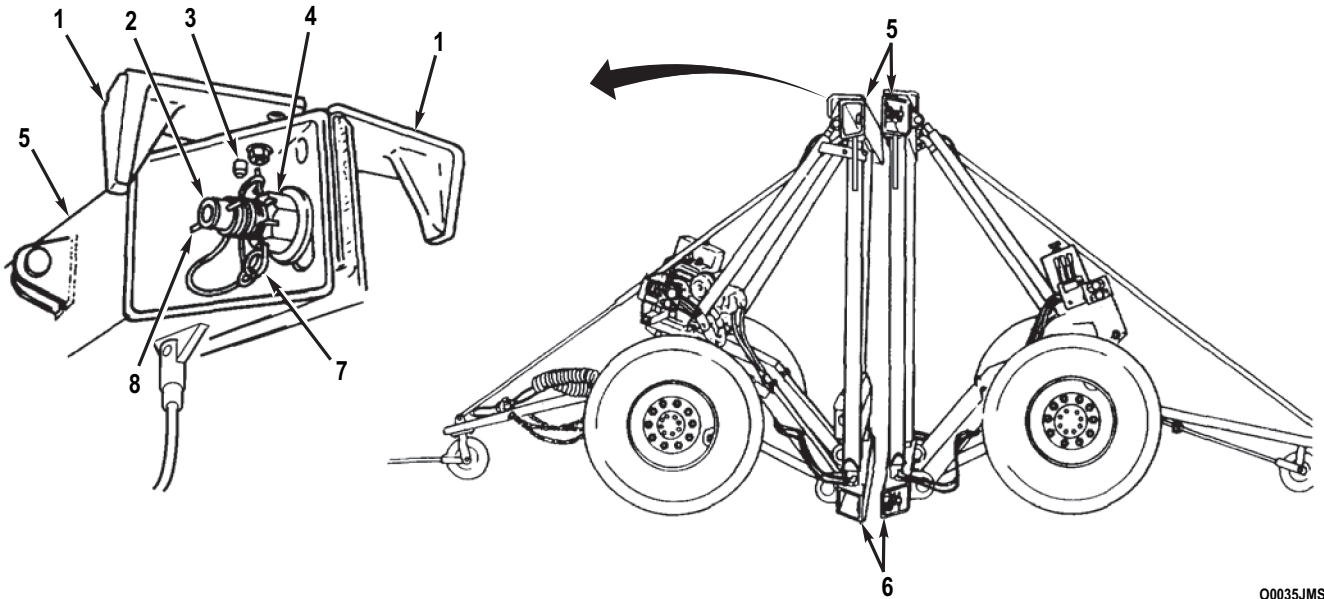
ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

WARNING



Use extreme caution when installing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

11. At front and rear dolly top beams (Figure 4, Item 1) install two twist locks (Figure 4, Item 2). Rotate twist locks 90 degrees so that twist lock pins (Figure 4, Item 8) are horizontal. Tighten nuts (Figure 4, Item 4) with twist lock wrench (Item 3, (WP 0195)). Install safety pins (Figure 4, Item 7) through twist locks to secure nuts.

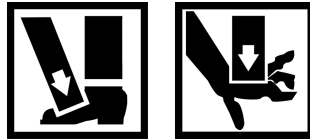


00035JMS

Figure 4. Twist Locks and Safety Pins.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

12. At front dolly, push up on positioning cylinders lever (Figure 5, Item 3) to raise bottom beam (Figure 5, Item 7) 1-2 in. (3-5 cm) off the ground.
13. At front dolly, push up on two lift cylinder levers (Figure 5, Item 2) to draw in bottom beam (Figure 5, Item 7) as close as possible to bottom beam of rear dolly.
14. At front dolly, pull down on positioning cylinders lever (Figure 5, Item 3) to align holes in bottom beam (Figure 5, Item 7) with holes in bottom beam of rear dolly.

WARNING

Use extreme caution when installing twist locks. Keep hands and/or feet clear of top hooks, top and bottom beams, and from between beams and shelter. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

15. At front and rear dolly bottom beams (Figure 5, Item 7), install two twist locks (Figure 5, Item 5). Rotate twist locks 90 degrees so that twist lock pins (Figure 5, Item 6) are vertical. Tighten nuts (Figure 5, Item 3) fingertight.
16. As required, push up on two rear dolly lift cylinder levers (Figure 5, Item 2) to bring top and bottom beams (Figure 5, Items 1 and 7) completely flush with each other and aligned.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

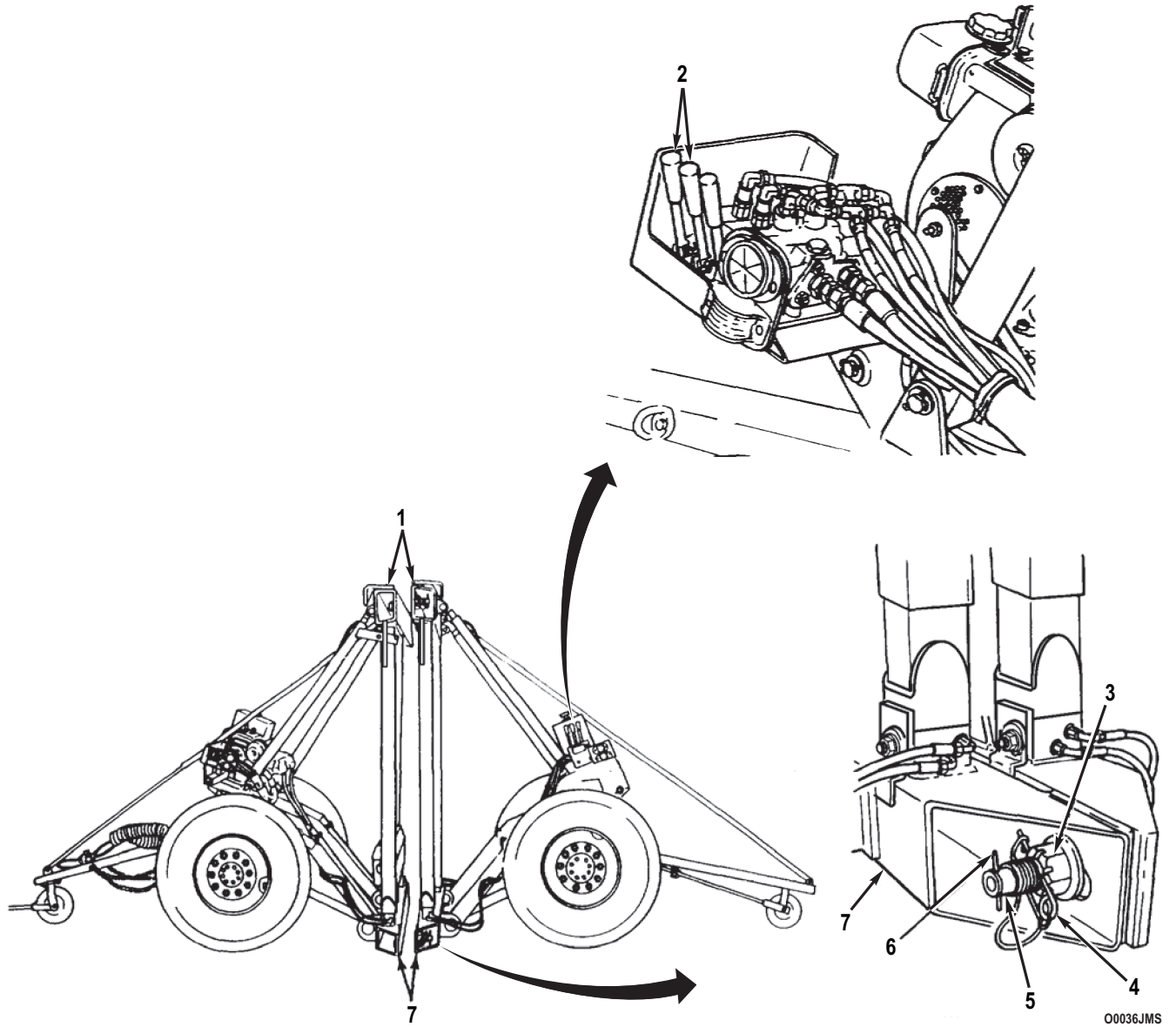
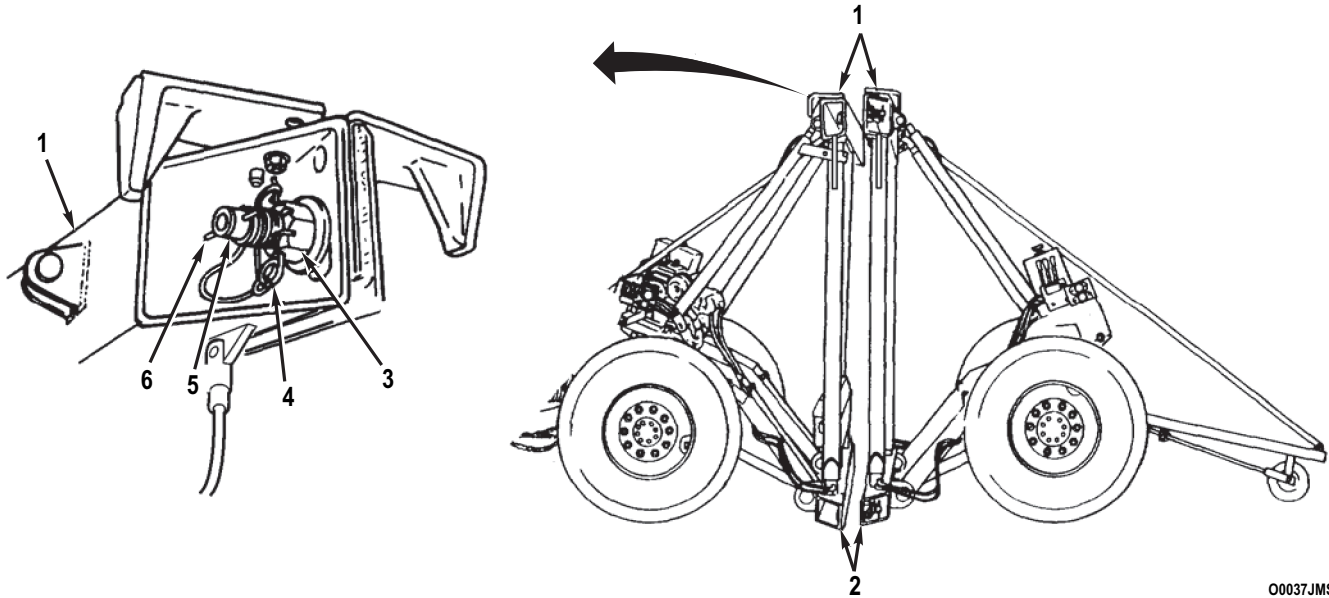


Figure 5. Levers and Twist Locks.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

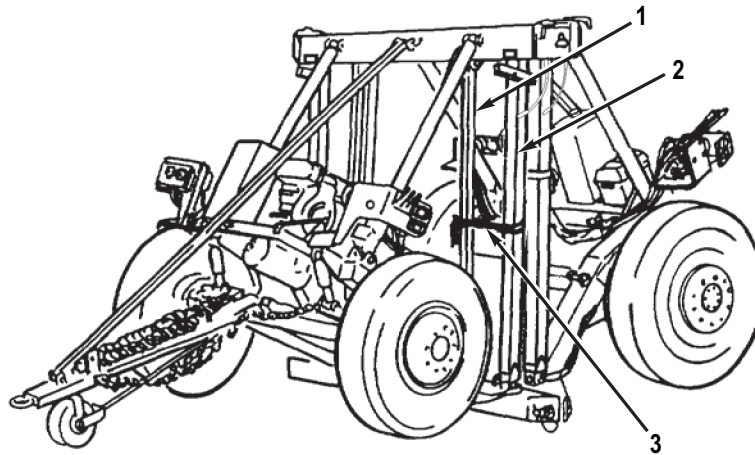
17. Check all twist locks (Figure 6, Item 5) at top and bottom beams (Figure 6, Items 1 and 2). Twist lock pins (Figure 6, Item 6) at top beam must be horizontal. Twist lock pins at bottom beam must be vertical. Use twist lock wrench (Item 3, (WP 0195)) to tighten nuts (Figure 6, Item 3). Install safety pins (Figure 6, Item 4) through twist locks to secure nuts.



00037JMS

Figure 6. Twist Locks and Nuts.

18. Remove stowage strap (Figure 7, Item 3) from each transportation lockout (Figure 7, Item 1) and top beam vertical tube (Figure 7, Item 2).



00038JMS

Figure 7. Stowage Straps.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

19. Remove four detent pins (Figure 8, Item 2) and two telescopic braces (Figure 8, Item 5) from front and rear drawbars (Figure 8, Items 4 and 3) and top beams (Figure 8, Item 1).

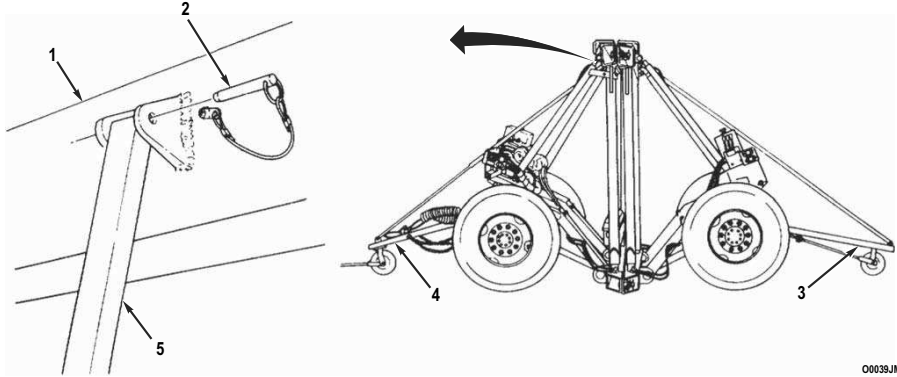


Figure 8. Detent Pins and Telescopic Braces.

20. Remove rest pin (Figure 9, Item 2) from fourth hole (Figure 9, Item 1) at end of each smaller brace (Figure 9, Item 5). Install rest pin in hole (Figure 9, Item 3) at end of each larger brace (Figure 9, Item 4).

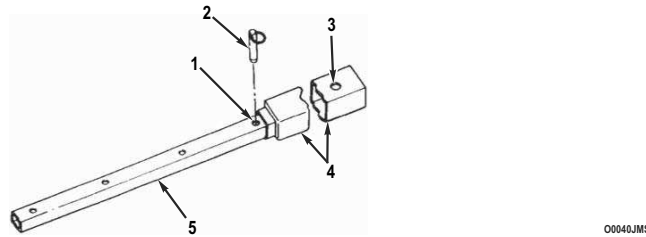


Figure 9. Rest Pins.

21. Stow two telescopic braces (Figure 10, Item 3) on bottom beam (Figure 10, Item 5) of front dolly with detent pin (Figure 10, Item 4). Heads of rest pins (Figure 10, Item 6) positioned in step 20 should be facing each other. Secure larger brace end of telescopic braces with stowage strap. Locate stowage strap around telescopic braces and top beam vertical tube (Figure 10, Item 2) approximately 1 foot (30 cm) BELOW hanger bracket (Figure 10, Item 1).

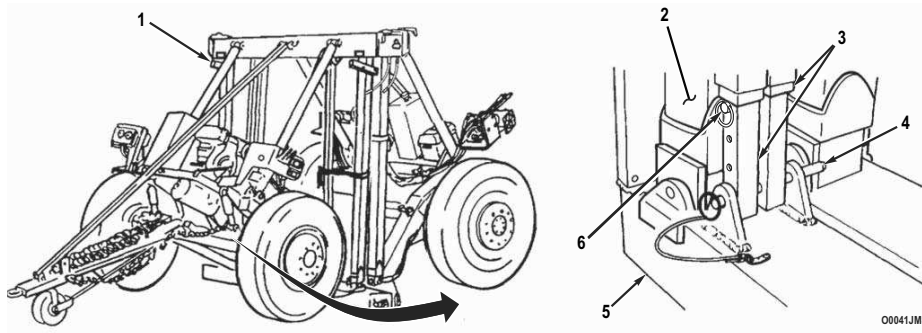
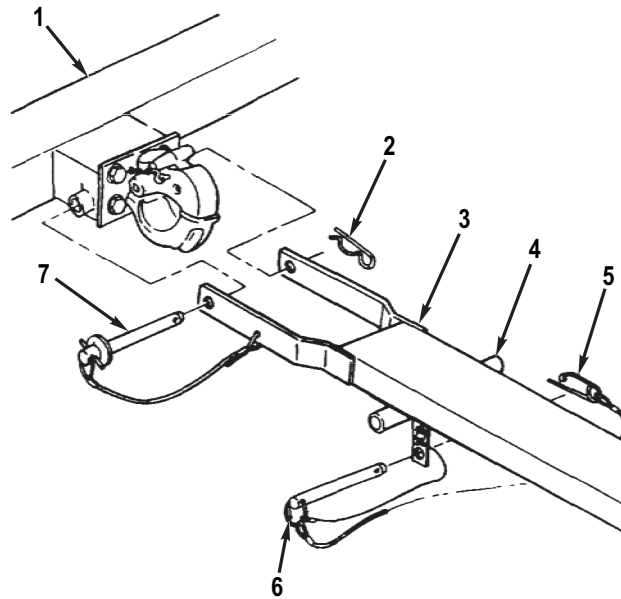


Figure 10. Stowing Telescopic Braces.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

22. Stow handle (Figure 11, Item 4) under rear drawbar (Figure 11, Item 3) and secure with hitch pin (Figure 11, Item 6) and safety pin (Figure 11, Item 5).
23. Remove lockpin (Figure 11, Item 2), pin (Figure 11, Item 7), and rear drawbar (Figure 11, Item 3) from rear axle (Figure 11, Item 1).

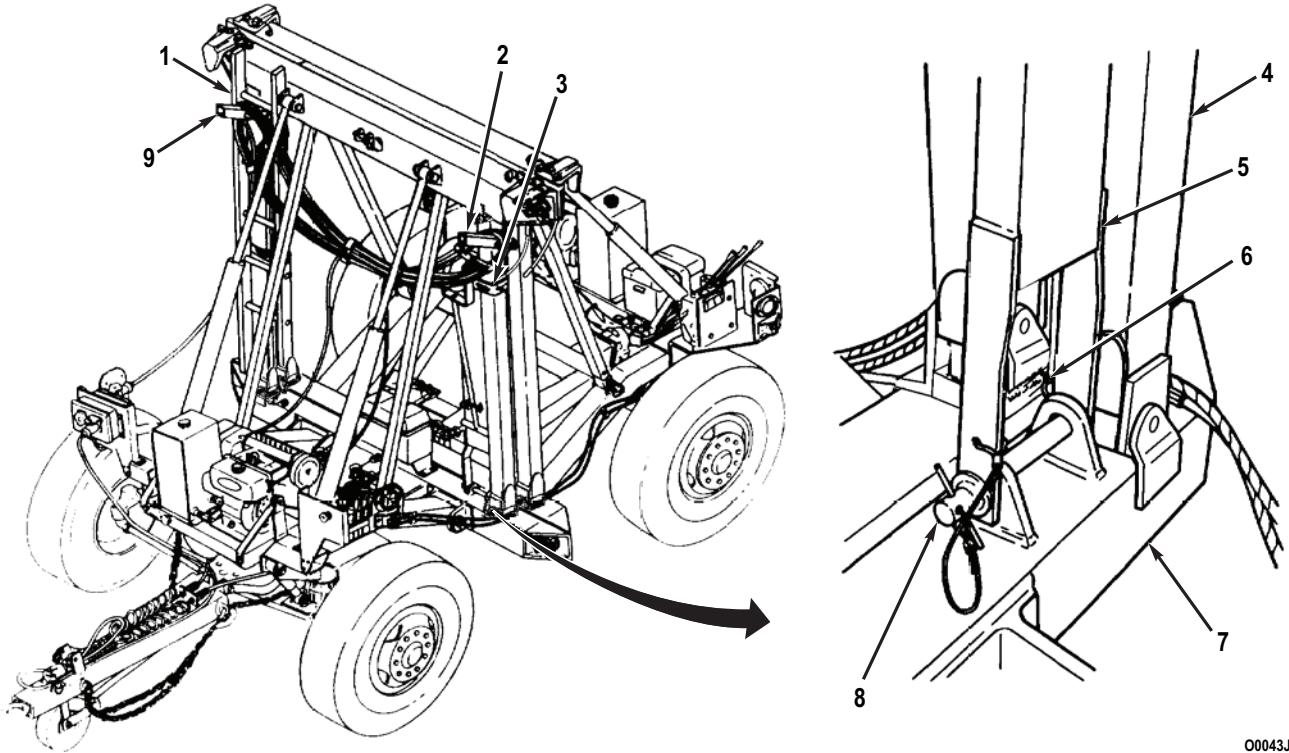


00042JMS

Figure 11. Stowing Drawbar Handle.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

24. Stow rear drawbar (Figure 12, Item 5) on bottom beam (Figure 12, Item 7) of front dolly with pin (Figure 12, Item 8) and lockpin (Figure 12, Item 6). Secure rear drawbar with stowage strap (Figure 12, Item 3). Locate stowage strap around rear drawbar and top beam vertical tube (Figure 12, Item 4) approximately 1 foot (30 cm) BELOW hanger bracket (Figure 12, Item 2).
25. Hang ladder (Figure 12, Item 1) on hanger bracket (Figure 12, Item 9) and secure with two stowage straps. Locate one strap around bottom rung of ladder and top beam vertical tube (Figure 12, Item 4). Locate other strap around second rung from top of ladder and top beam vertical tube.

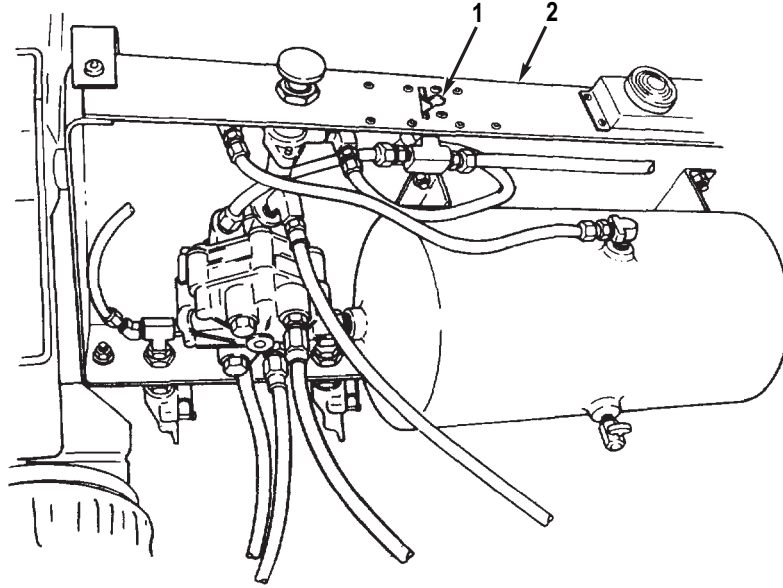


00043JMS

Figure 12. Stowing Drawbar.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

26. Apply parking brakes on rear dolly by turning parking brake lever (Figure 13, Item 1) on pivoting tray (Figure 13, Item 2) to ON position.

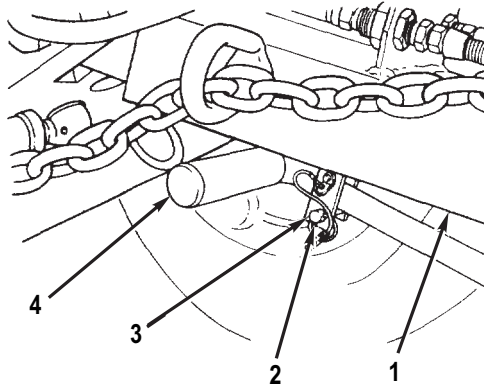


00044JMS

Figure 13. Apply Parking Brake.

ATTACHING FRONT AND REAR DOLLIES TO EACH OTHER - Continued

27. Stow handle (Figure 14, Item 4) under front drawbar (Figure 14, Item 1) and secure with hitch pin (Figure 14, Item 2) and safety pin (Figure 14, Item 3).



00045JMS

Figure 14. Stowing Handle.

END OF TASK

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATION UNDER UNUSUAL CONDITIONS**

INITIAL SETUP:**References**

FM 9-207
TC 21-305-20
FM 55-30
WP 0002

References (cont.)

WP 0005
WP 0028
WP 0029
WP 0072

GENERAL

1. This section contains instructions for safely operating the M1022A1 Dolly Set under unusual conditions. In addition to normal preventive maintenance, special care must be taken to keep the dolly set operational in extreme temperatures and other environmental conditions.
2. Refer to TC 21-305-20 and FM 55-30 for information on special driving instructions under unusual conditions.

OPERATION IN EXTREME COLD OR SNOW

1. Special care must be taken when operating the dolly set in cold weather. Refer to FM 9-207 for operation and maintenance of ordnance materiel in cold weather. Also refer to TC 21-305-20 for special instructions on operating in snow.
2. Care must be taken when placing the dolly set in motion after shutdown. Thickened lubricants may cause failure of components.
3. Refer to Lubrication Instructions (WP 0028) for proper lubrication during extreme cold weather.
4. Care must be taken when handling electrical cables. Extreme cold weather can cause insulation material on electrical wire to crack, causing short circuits. Components may become hard or brittle and easily damaged or broken.
5. When parking for any period of time in temperatures below 0°F (-18°C), park in a sheltered area out of the wind and clean off any buildup of ice or snow. Place footing of planks or brush under tires to prevent them from freezing to the ground. Ensure that tires are properly inflated (Equipment Description and Data (WP 0002)). Under-inflated tires will freeze, resulting in flat spots.

END OF TASK

OPERATING ENGINE IN EXTREME COLD (BELOW 0°F (-18°C))**WARNING**

- Carbon monoxide can be deadly. DO NOT operate engine in enclosed areas. Good ventilation is essential. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Always wear ear plugs or other types of hearing protection while engine is running. Damage to hearing will occur without protection. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

- Before operating engine in extreme cold (below 0°F (-18°C)), ensure that Field Maintenance has winterized engine and checked for a fully charged battery with securely connected battery cables.
- If temperature is -26°F to -50°F (-32°C to -46°C), cold start kit, installed by Field Maintenance (WP 0127), must be used to jump start the dolly set engines, review Jump Starting Using Cold Start Kit (-26°F to -50°F (-32°C to -46°C)) in this work package.

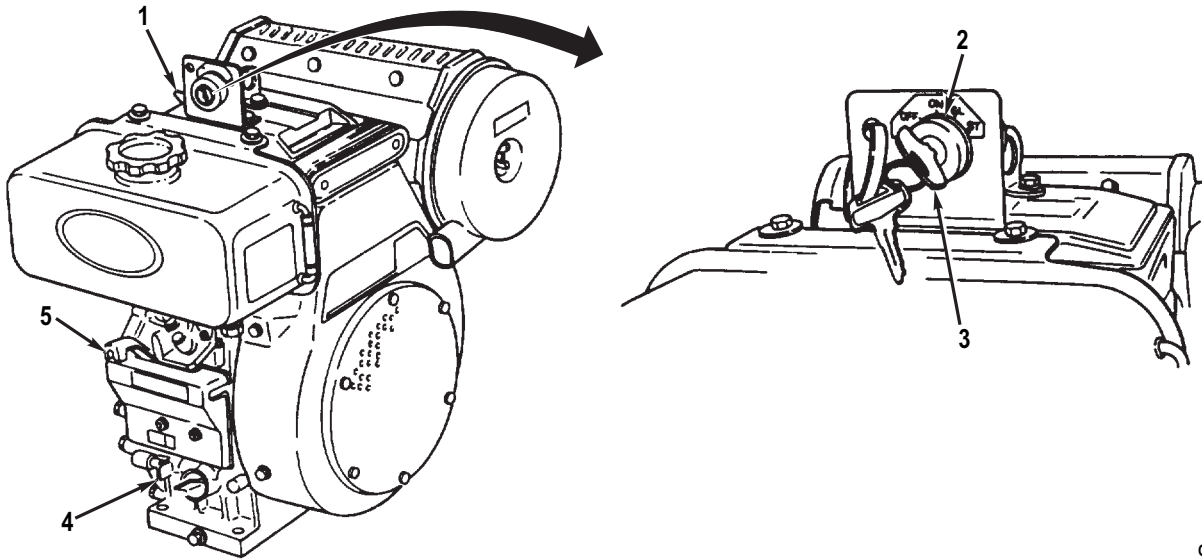
Starting Engine**NOTE**

To reduce engine load, ensure that all hydraulic control valve levers are In NEUTRAL position.

1. Set speed control lever (Figure 1, Item 5) to HIGH START position. Insert key (Figure 1, Item 3) in starter switch (Figure 1, Item 2).
2. Turn starter switch (Figure 1, Item 2) to GL position. Leave for three minutes if temperatures are 0°F to -25°F (-18°C to -32°C). Leave in GL position for four minutes if temperatures are below -25°F (-32°C).
3. Raise decompression lever (Figure 1, Item 1) and begin cranking by turning starter switch (Figure 1, Item 2) to ST position. After five seconds of cranking, lower decompression lever (Figure 1, Item 1).
4. Continue cranking until black smoke (indicating combustion) is seen in exhaust or until engine runs without aid of starter. If engine starts but white smoke (indicating fuel) is seen, continue to crank. Engine should start within 20 seconds.
5. After engine starts, turn starter switch (Figure 1, Item 2) to GL position and leave for 30 seconds.
6. Set speed control lever (Figure 1, Item 5) to HIGH START position when operating hydraulic control valve.

OPERATING ENGINE IN EXTREME COLD (BELOW 0°F (-18°C)) - Continued**Starting Engine - Continued****Shutting Down Engine**

1. Before shutdown, set speed control lever (Figure 1, Item 5) to LOW position and idle engine for three minutes.
2. Push stop lever (Figure 1, Item 4) to the right to STOP position.
3. As soon as engine stops, turn starter switch (Figure 1, Item 2) to OFF position. Remove key from starter switch (Figure 1, Item 3).

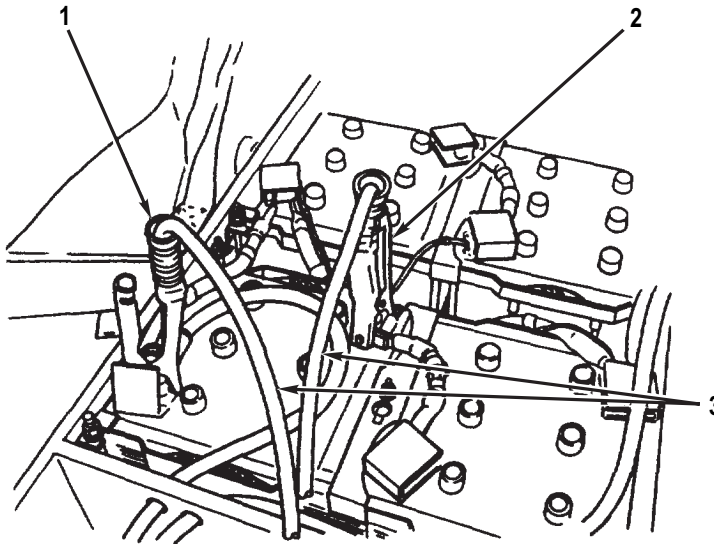


00113JMS

Figure 1. Engine Operation in Extreme Cold.

OPERATING ENGINE IN EXTREME COLD (BELOW 0°F (-18°C)) - Continued**Shutting Down Engine - Continued****Jump Starting Using Cold Start Kit (-26°F to -50°F (-32°C to -46°C)).**

1. Attach jumper cable (Figure 2, Item 3) to 12V battery in towing vehicle:
 - a. Attach positive (red) alligator clip (Figure 2, Item 2) to positive (+) battery terminal
 - b. Attach negative (black) alligator clip (Figure 2, Item 1) to negative (-) battery terminal.



00114JMS

Figure 2. Engine Operation in Extreme Cold.

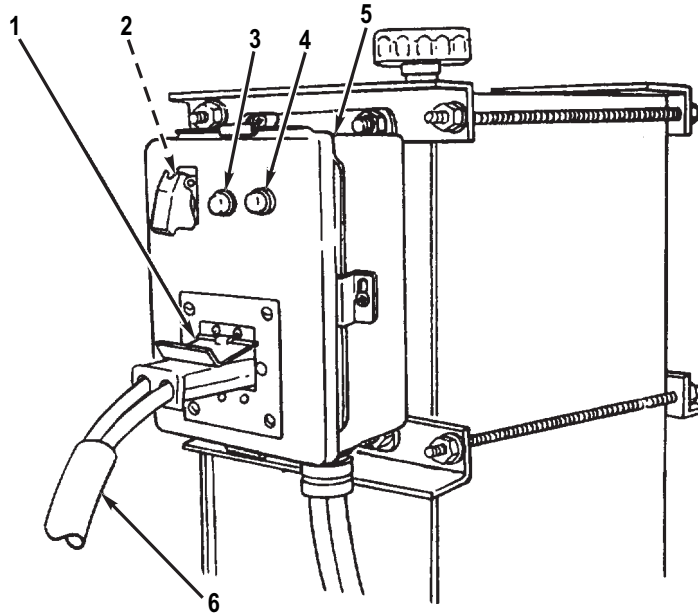
OPERATING ENGINE IN EXTREME COLD (BELOW 0°F (-18°C)) - Continued**Jump Starting Using Cold Start Kit (-26°F to -50°F (-32°C to -46°C)) - Continued.**

2. Connect jumper cable (Figure 3, Item 6) to socket (Figure 3, Item 1) on cold start kit enclosure assembly (Figure 3, Item 5).
3. If hookup is correct, green light (Figure 3, Item 4) will illuminate. If red light (Figure 3, Item 3) illuminates, connection to battery is incorrect. Repeat step 1.
4. Place switch (Figure 3, Item 2) up to ON position.
5. Start towing vehicle engine.

NOTE

With cold start kit installed and jumper cable connected to a running towing vehicle, multiple starting attempts can be accomplished.

6. Start dolly half engine IAW Starting Engine in this work package.



00115JMS

Figure 3. Engine Operations in Extreme Cold.

END OF TASK

OPERATION IN EXTREME HEAT

1. Refer to Lubrication Instructions (WP 0028) for proper lubrication during extreme heat conditions.
2. Avoid parking dolly set in sunlight for long periods of time. Heat and sunlight shorten tire life.
3. Shelter or cover dolly set with canvas, if available.
4. Ensure that tires are inflated to proper pressure (Equipment Description and Data (WP 0002)).

END OF TASK**OPERATION IN MUD**

1. If one or more wheels sink into mud, it may be necessary to raise sunken wheel(s) and place planking or matting under it.
2. If tactical situation permits, immediately after operation in mud, thoroughly clean, inspect, and lubricate (Lubrication Instructions (WP 0028)).
3. Have Field Maintenance pack wheel bearings as required.

END OF TASK**OPERATION IN SALTWATER AREAS**

Saltwater causes rapid rust and corrosion to develop. Clean, inspect, and lubricate as soon as possible after operation in saltwater areas (Lubrication Instructions (WP 0028)). Have Field Maintenance pack wheel bearings contaminated by saltwater as soon as possible.

OPERATION IN SALTWATER AREAS - Continued**END OF TASK****OPERATION IN AREAS OF HIGH HUMIDITY AND HEAVY RAIN**

1. Dolly sets, inactive for long periods of time in hot and humid weather, are subject to rapid rusting and accumulation of fungus. Inspect, clean, and lubricate to prevent deterioration of painted surfaces. Refer to Lubrication Instructions (Lubrication Instructions (WP 0028)).
2. Dampness increases chances of corrosion. Inspect all surfaces and electrical connections for signs of corrosion.

END OF TASK**OPERATION IN SANDY OR DUSTY AREAS**

1. Clean, inspect, and lubricate the dolly set more often when operating in sandy or dusty areas (Lubrication Instructions (WP 0028)).
2. Clean engine air cleaner element daily when operating in sandy or dusty areas (Operator/Crew Maintenance (WP 0029)).
3. Maintain proper tire pressure (Equipment Description and Data (WP 0002)).

END OF TASK**OPERATION ON ROUGH OR ROCKY TERRAIN**

1. Tires must be fully inflated to 110 psi (758 kPa). Underinflation will cause internal ruptures of tires and damage to tubes.
2. Before attempting to drive over stumps or rocks, ensure that the dolly set can clear them. Stumps and rocks can damage components on the underside of the dolly set.

END OF TASK

OPERATION ON UNEVEN TERRAIN

General

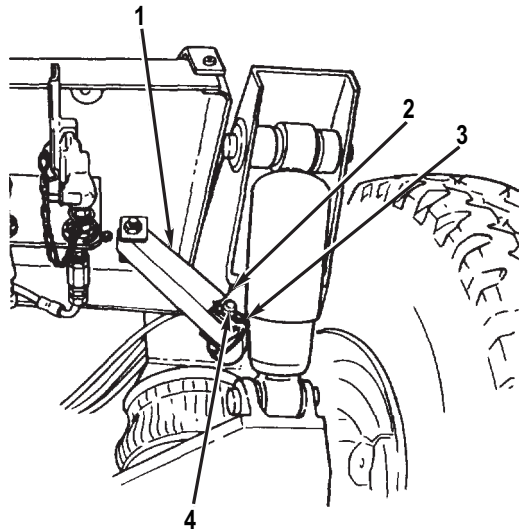
NOTE

Shelter and dolly set have up to a 12 in. (30 cm) difference in level or one wheel is 12 in. (30 cm) lower than the other wheel on the same axle.

1. The dolly set is designed to be able to attach to a shelter when on uneven terrain.
2. To compensate for the uneven condition, the axle-to-pivot axle bracket coupling is unlocked. This allows the coupling to pivot on the dolly half that has uneven terrain.
3. The pivoting tray lockout brace on the dolly half that is on uneven terrain must also be unlocked.

Operating on Uneven Terrain

1. Follow instructions in Operation Under Usual Conditions - General Operating Instructions (WP 0005) to position each dolly half where desired.
2. Remove safety pin (Figure 4, Item 3) and hitch pin (Figure 4, Item 4) and unlock pivoting tray lockout brace (Figure 4, Item 1) from lower bracket (Figure 4, Item 2).
3. Once in position, remove each dolly half from maneuvering position with bottom beam resting on the ground (Operation Under Usual Conditions - General Operating Instructions (WP 0005)).



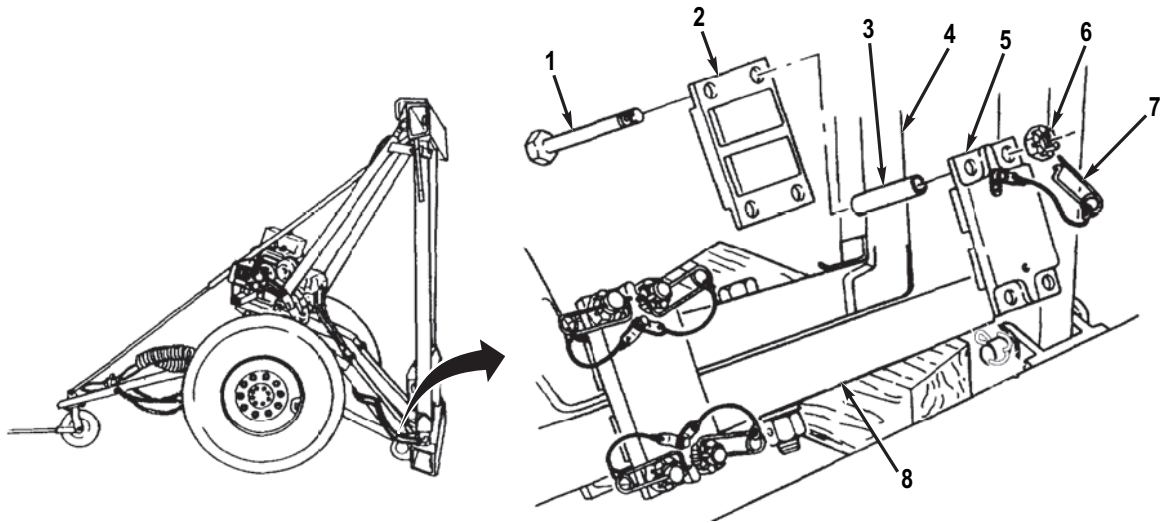
00116JMS

Figure 4. Dolly Set Operation on Uneven Terrain.

4. Remove eight safety pins (Figure 5, Item 7) from bolts (Figure 5, Item 1).
5. Remove four nuts (Figure 5, Item 6), bolts (Figure 5, Item 1) bottom lockout bracket (Figure 5, Item 2) four sleeves (Figure 5, Item 3), and top lockout bracket (Figure 5, Item 5) from each end of axle (Figure 5, Item 4) and pivot axle bracket (Figure 5, Item 8).

OPERATION ON UNEVEN TERRAIN - Continued

Operating on Uneven Terrain - Continued



00117JMS

Figure 5. Dolly Set Operation on Uneven Terrain.

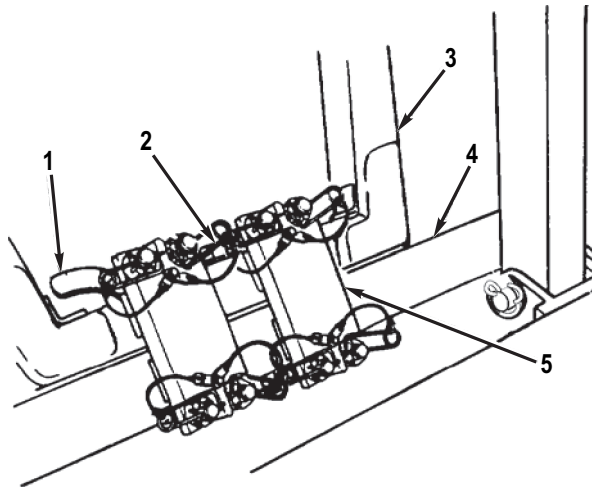
OPERATION ON UNEVEN TERRAIN - Continued**Operating on Uneven Terrain - Continued**

6. Reinstall each lockout bracket assembly (Figure 6, Item 5) to center on either side of pivot bolt (Figure 6, Item 2). Wrap stowage strap (Figure 6, Item 1) around lockout bracket assemblies to restrain.

CAUTION

DO NOT extend or retract a lift cylinder more than 12 in. (30 cm) more than other lift cylinder on dolly half or structural damage to dolly set will occur.

7. When positioning top and bottom beams for attachment to shelter, operate lift cylinder levers independently, as required, to compensate for the uneven terrain (Operation Under Usual Conditions - General Operating Instructions (WP 0005)).
8. Once attached to shelter, operate lift cylinder levers independently to raise shelter and level it (Operation Under Usual Conditions - General Operating Instructions (WP 0005)).
9. Operate lift cylinder levers to bring axle (Figure 6, Item 3) and pivot axle bracket (Figure 6, Item 4) level with each other (Operation Under Usual Conditions - General Operating Instructions (WP 0005)).



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Figure 6. Dolly Set Operation in Uneven Terrain.

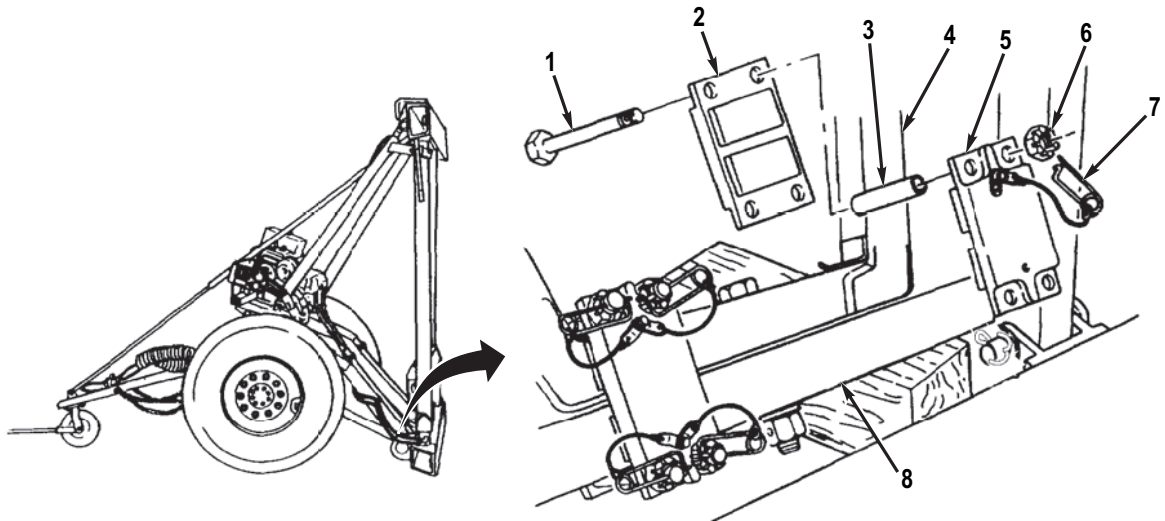
OPERATION ON UNEVEN TERRAIN - Continued**Operating on Uneven Terrain - Continued**

10. Remove stowage strap (Figure 6, Item 1). Repeat step 5 to remove lockout bracket assemblies (Figure 6, Item 5) from position at midpoint of axle (Figure 6, Item 3) and pivot axle bracket (Figure 6, Item 4).

NOTE

Welded pads on axle and pivot axle bracket identify correct installation location of lockout bracket assemblies.

11. Install top lockout bracket (Figure 7, Item 5), four sleeves (Figure 7, Item 3), bottom lockout bracket (Figure 7, Item 2) four bolts (Figure 7, Item 1), and nuts (Figure 7, Item 6) on each end of axle (Figure 7, Item 4) and pivot axle bracket (Figure 7, Item 8). Hand tighten nuts.
12. Wrench tighten nuts 1 ¼ to 2 flats.
13. Install safety pins (Figure 7, Item 7) through bolts (Figure 7, Item 1) to secure nuts (Figure 7, Item 6).

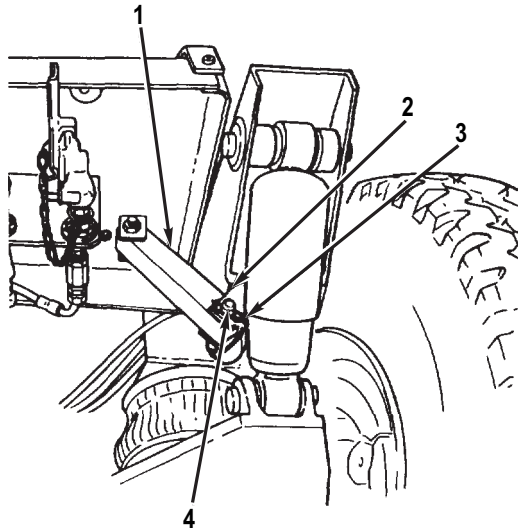


00117JMS

Figure 7. Dolly Set Operation on Uneven Terrain.

OPERATION ON UNEVEN TERRAIN - Continued**Operating on Uneven Terrain - Continued**

14. Lock pivoting tray lockout brace (Figure 8, Item 1) to lower bracket (Figure 8, Item 2) with hitch pin (Figure 8, Item 4) and safety pin (Figure 8, Item 3).



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Figure 8. Dolly Set Operation on Uneven Terrain.

END OF TASK**FORDING OPERATIONS****NOTE**

The dolly set, with or without shelter, can hardbottom ford either freshwater or saltwater up to a depth covering the wheel hubs.

1. After fording, apply the brakes a few times to help dry the brake linings. Ensure that the brakes are operating properly before driving at normal speeds.

NOTE

If dolly set was required to ford water that covered the wheel hubs, have Field Maintenance check, clean, and lubricate wheel bearings (Hub, Brakedrum, and Wheel Bearing Maintenance (WP 0072)).

2. Lubricate the dolly set IAW instructions in Service Upon Receipt (WP 0027).

END OF TASK

REDUNDANT POWER OPERATION

WARNING



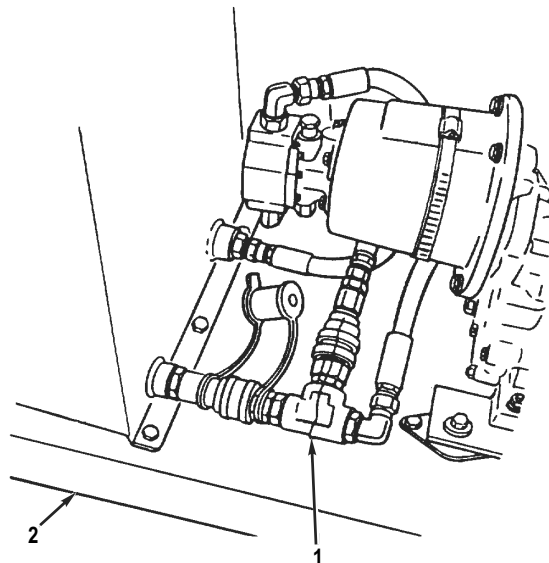
Redundant power kit is NOT to be used for side lift operations. Failure to follow this warning may result in damage to equipment or injury to personnel. Seek medical attention in the event of an injury.

CAUTION

Unless in redundant power configuration, engine and hydraulic pump must not be operated with any disconnected redundant power quick disconnects on pivoting tray. Failure to follow this caution will damage hydraulic pump. Seek medical attention in the event of an injury.

NOTE

- If either front or rear dolly has engine or hydraulic pump failure, the powered (functioning) dolly half can operate the nonpowered (nonfunctioning) dolly half.
 - To perform this procedure, redundant power kit must be used. Hoses of kit are connected between redundant power quick disconnects on pivoting trays and control valve of nonpowered (nonfunctioning) dolly half.
 - Disconnection or connection of redundant power quick disconnects must always be done with the engine and hydraulic pump shut down.
1. Remove two redundant power kit hoses from stowage. Remove protective covers from quick disconnects.
 2. At both dolly halves, remove lockwire (Figure 9, Item 1) from redundant power quick disconnects at pivoting tray (Figure 9, Item 2). Discard lockwires.



00119JMS

Figure 9. Redundant Power Operation.

REDUNDANT POWER OPERATION - Continued

3. On powered (functioning) dolly half, disconnect quick disconnect coupler (Figure 10, Item 1) from quick disconnect nipple (Figure 10, Item 9).

NOTE

If quick disconnects on redundant power kit hoses cannot be connected, notify Field Maintenance.

4. On powered dolly half, connect redundant power kit hose (Figure 10, Item 3) (both ends have quick disconnect couplers) to quick disconnect nipple (Figure 10, Item 9). Connect redundant power kit hose (Figure 10, Item 2) (both ends have quick disconnect nipples) to quick disconnect coupler (Figure 10, Item 1).
5. On nonpowered (nonfunctioning) dolly half, remove dust cap (Figure 10, Item 5) from dust plug (Figure 10, Item 6). Disconnect quick disconnect nipple (Figure 10, Item 7) from quick disconnect coupler (Figure 10, Item 8) at hydraulic reservoir (Figure 10, Item 4).
6. On nonpowered dolly half, install dust cap (Figure 10, Item 5) in quick disconnect coupler (Figure 10, Item 8). Connect redundant power kit hose (Figure 10, Item 3) (both ends have quick disconnect couplers) to quick disconnect nipple (Figure 10, Item 7).

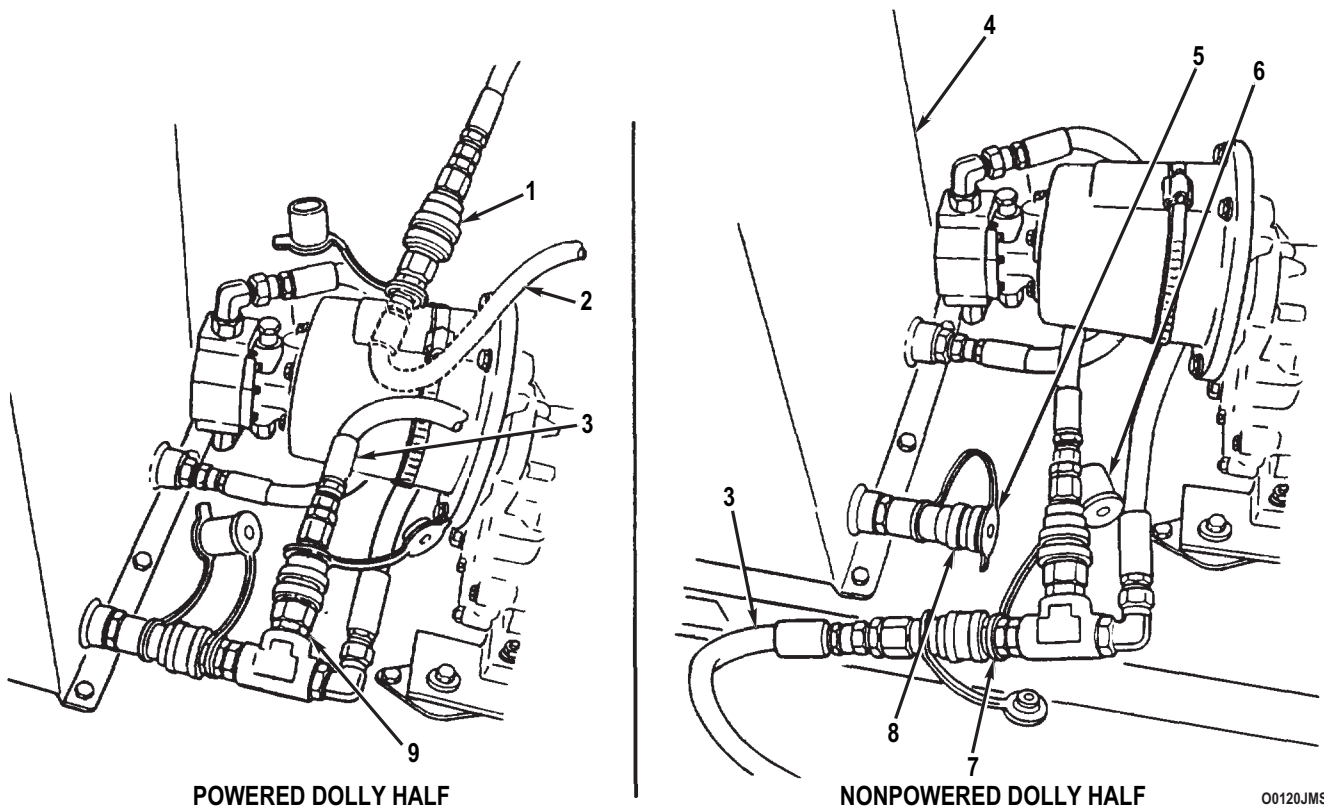


Figure 10. Redundant Power Operation.

REDUNDANT POWER OPERATION - Continued

7. On nonpowered dolly half, remove dust cap (Figure 11, Item 10) from redundant power quick disconnect coupler (Figure 11, Item 9) at control valve (Figure 11, Item 2). Connect redundant power operation hose (Figure 11, Item 1) (both ends have quick disconnect nipples) to redundant power quick disconnect coupler.

NOTE

With redundant power operation, dolly halves cannot be operated simultaneously as with normal operation.

8. Start engine on powered dolly half (Operation Under Usual Conditions - General Operating Instructions (WP 0005)). Perform required operations, one dolly half at a time.
9. Shut down engine on powered dolly half (Operation Under Usual Conditions (WP 0005)).
10. Disconnect two redundant power kit hoses (Figure 11, Items 1 and 8). Install protective covers on quick disconnects and stow hoses.
11. On nonpowered dolly half, install dust cap (Figure 11, Item 10) on redundant power quick disconnect coupler (Figure 11, Item 9) at control valve (Figure 11, Item 2).
12. On nonpowered dolly half, remove dust cap (Figure 11, Item 4) from quick disconnect coupler (Figure 11, Item 7) at hydraulic reservoir (Figure 11, Item 3). Connect quick disconnect nipple (Figure 11, Item 6) to quick disconnect coupler. Install dust cap in dust plug (Figure 11, Item 5).

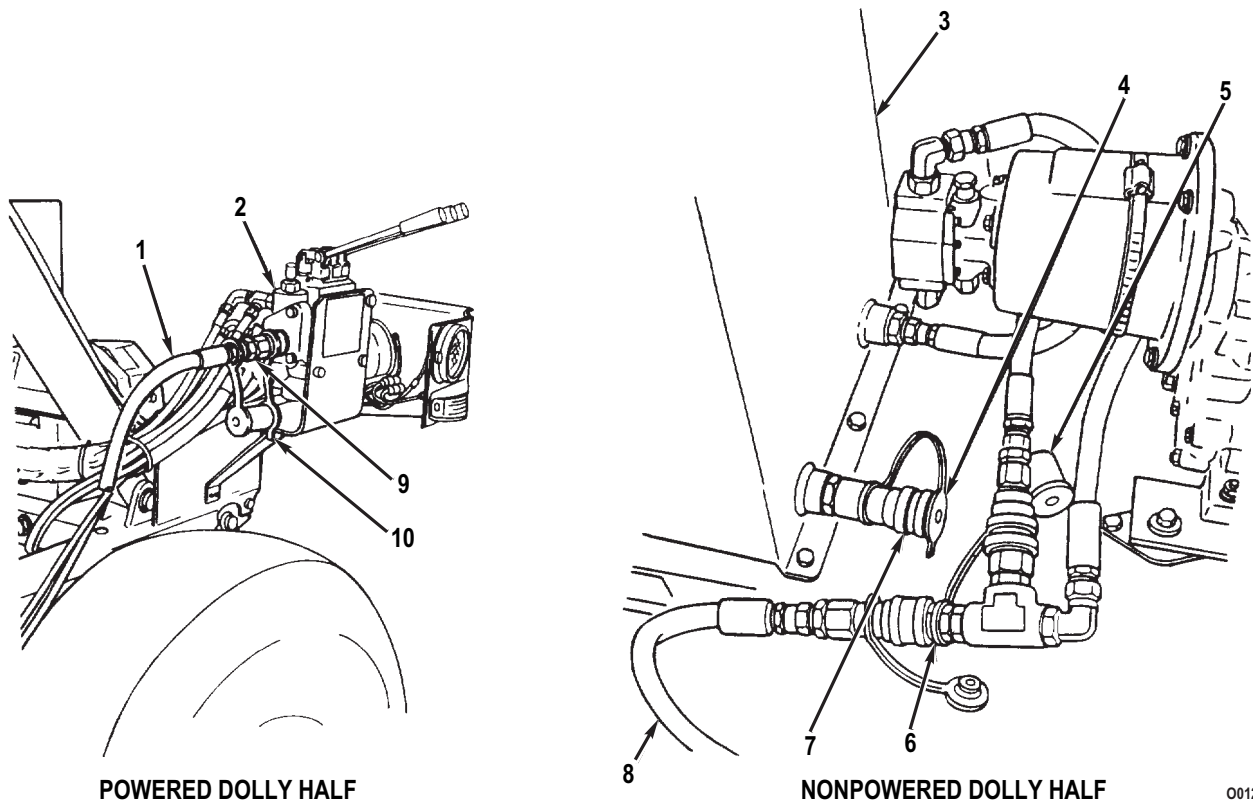


Figure 11. Redundant Power Operation.

REDUNDANT POWER OPERATION - Continued

13. On powered dolly half, connect quick disconnect coupler (Figure 12, Item 1) to quick disconnect nipple (Figure 12, Item 4).
14. On both dollies, notify Field Maintenance to install new lockwire (Figure 12, Item 2) to redundant power quick disconnects at pivoting tray (Figure 12, Item 3).

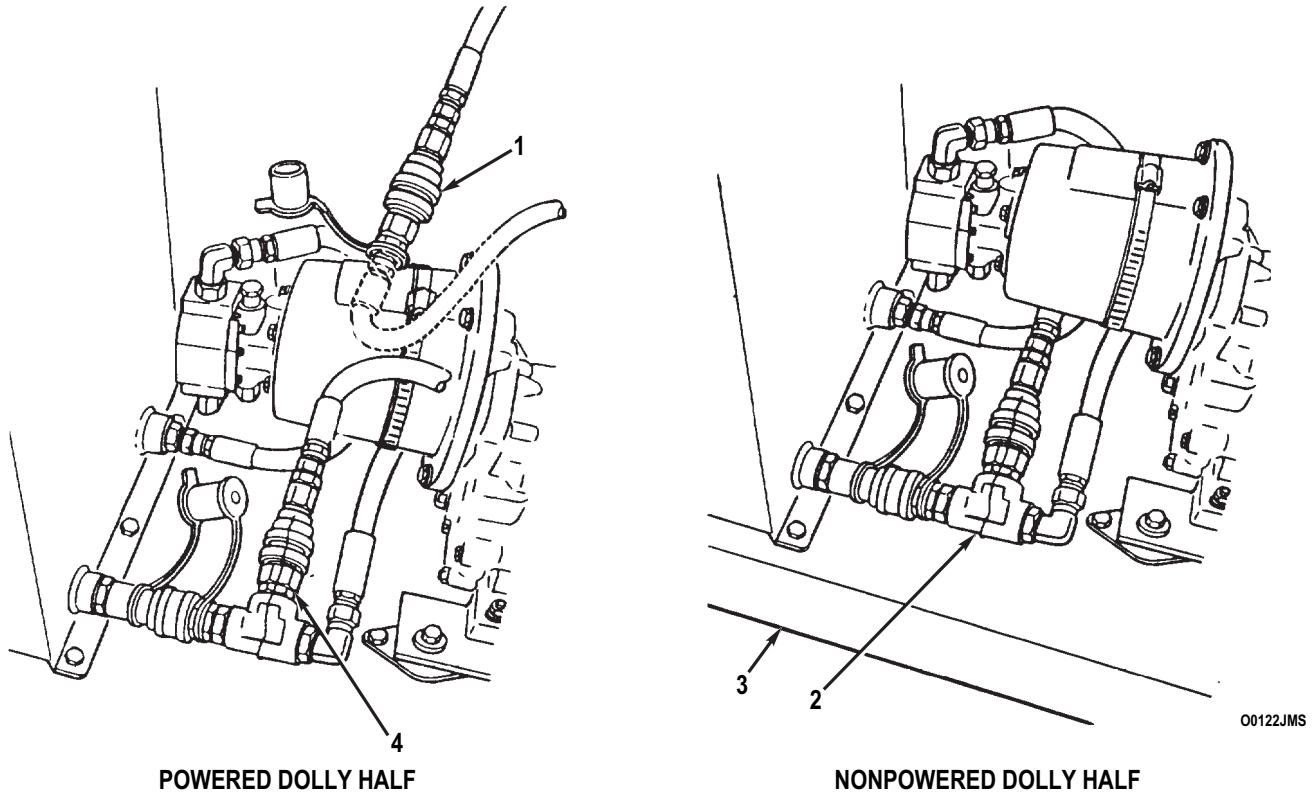


Figure 12. Redundant Power Operation.

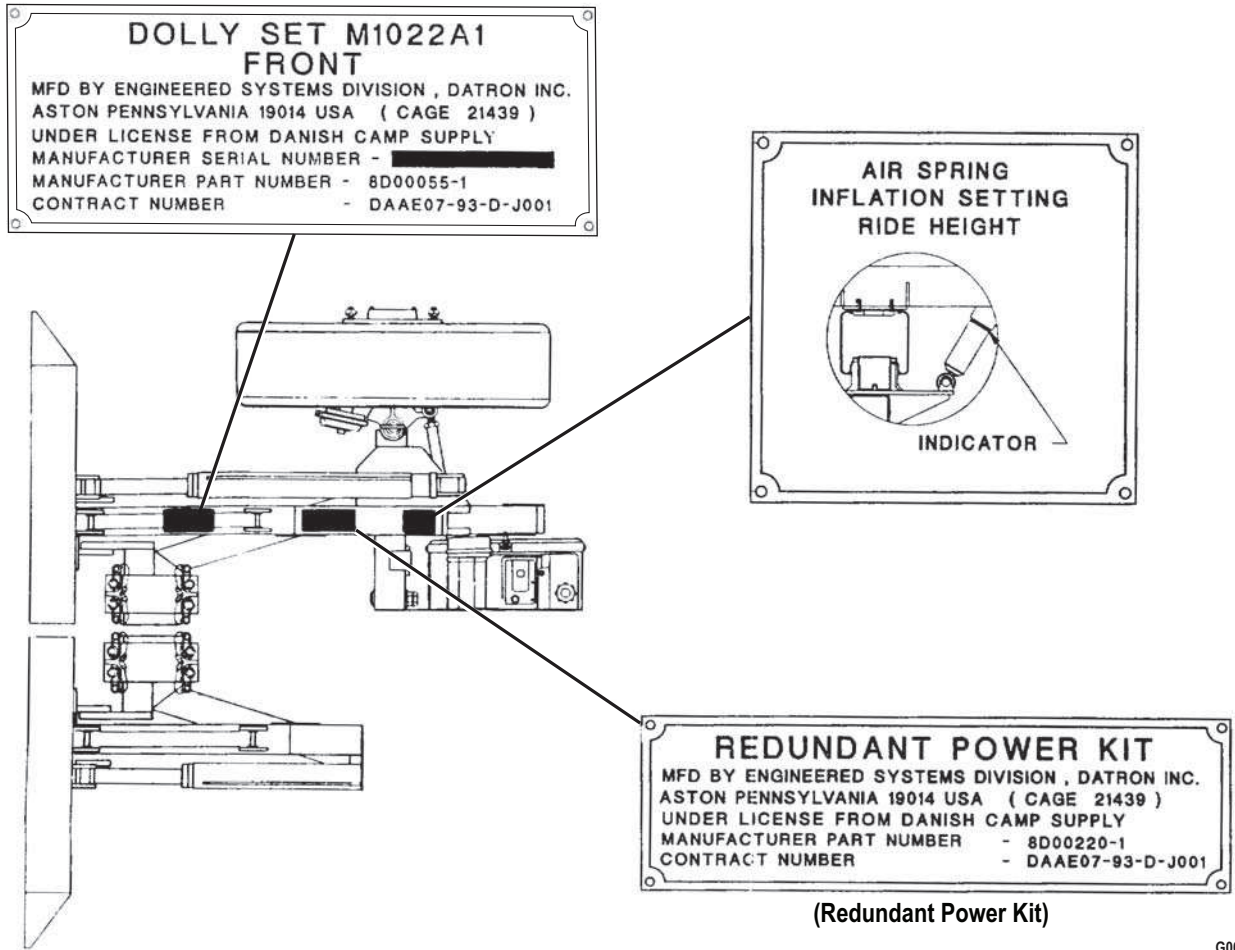
END OF TASK

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
STOWAGE AND DECAL/DATA PLATE GUIDE**

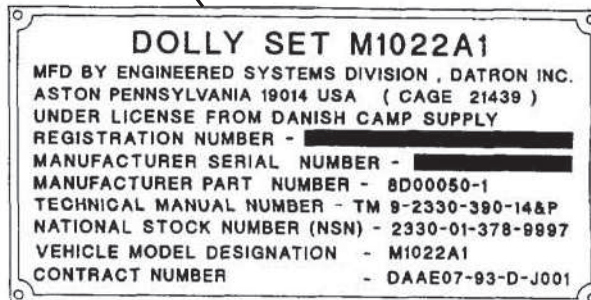
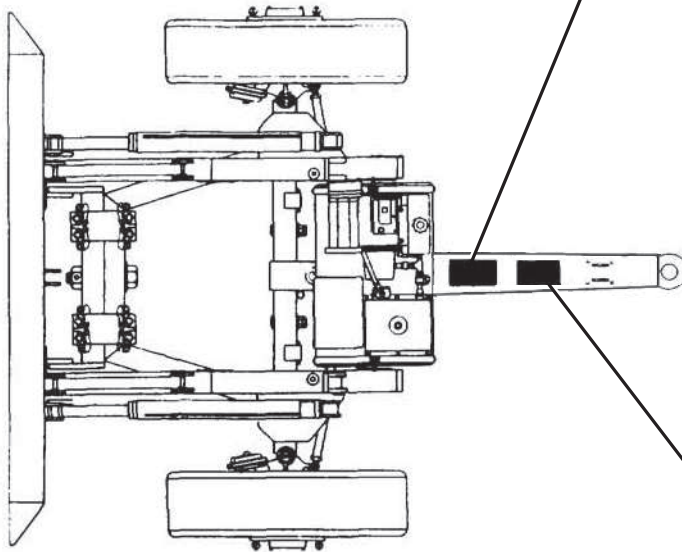
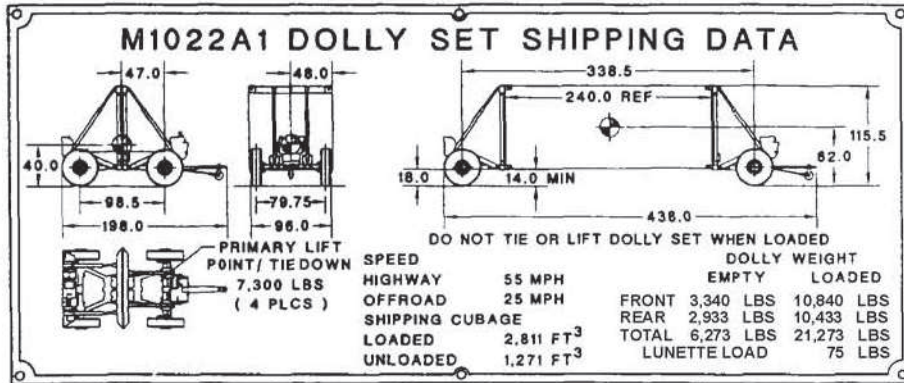
LOCATION AND CONTENTS OF DATA PLATES

The following illustrations identify the location and contents of all dolly set data plates, decals, and stencils.



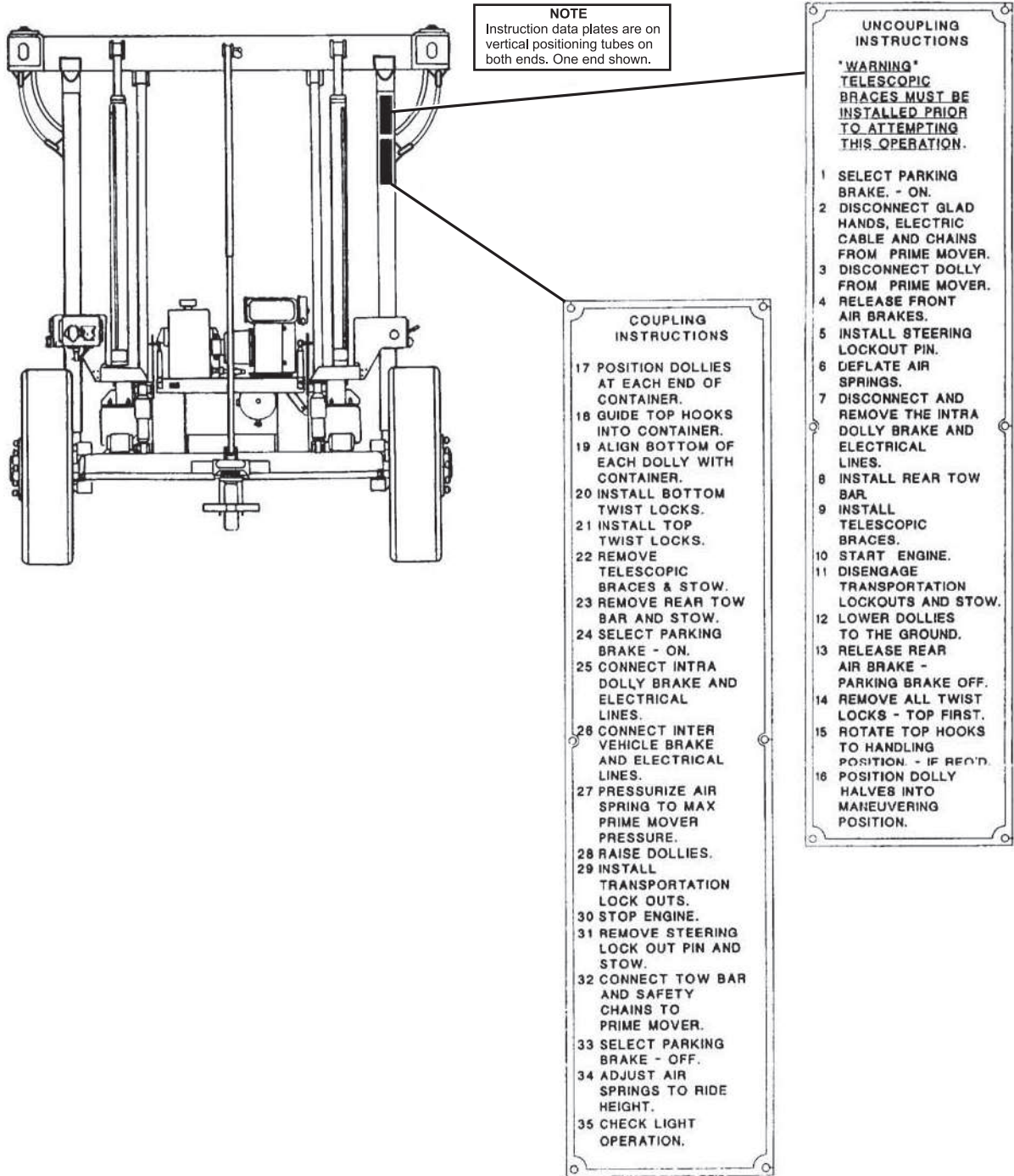
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Figure 1. Location and Contents of Data Plates (Front Dolly). (Sheet 1 of 6)



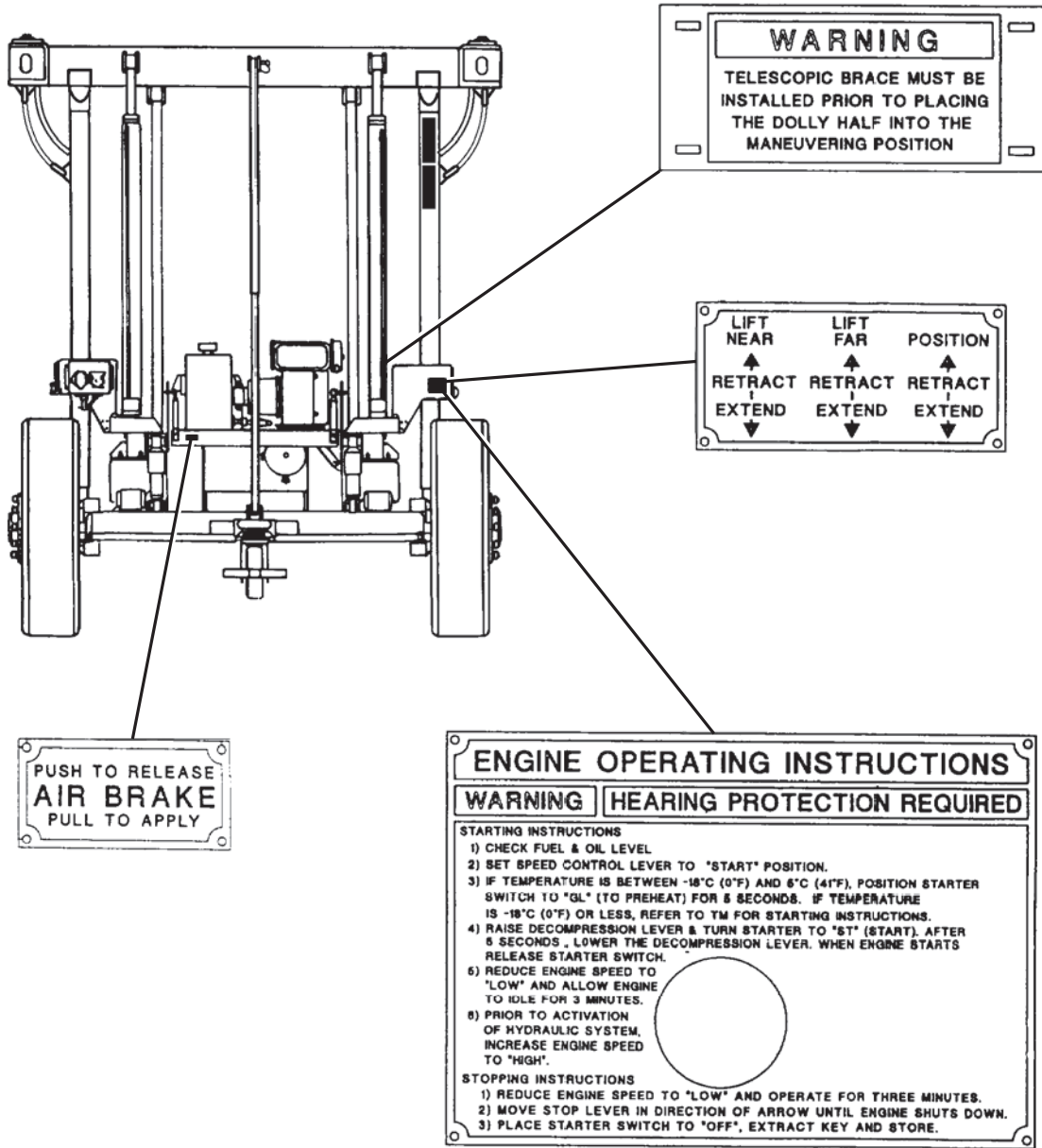
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Figure 1. Location and Contents of Data Plates (Front Dolly). (Sheet 2 of 6)



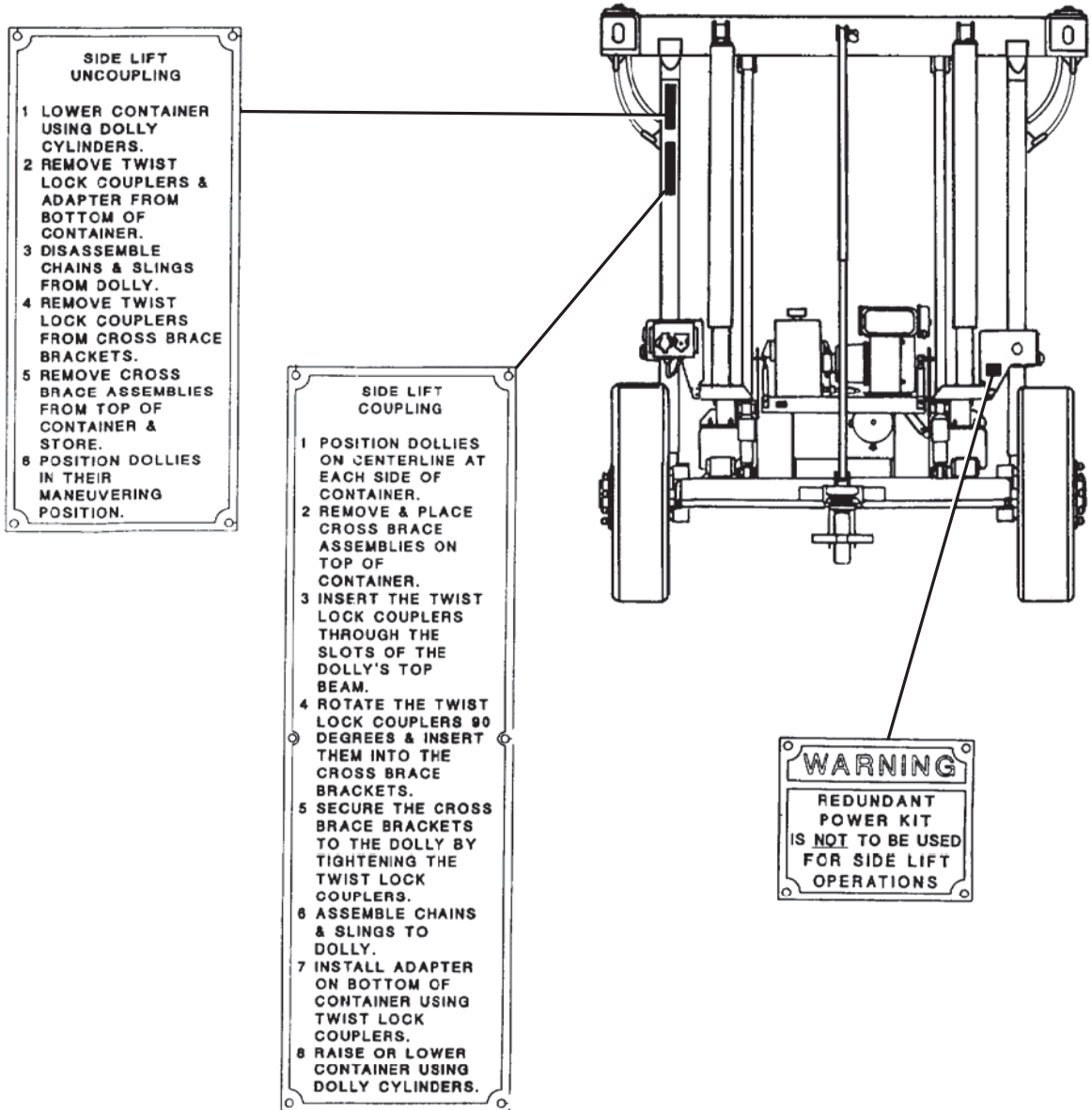
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Figure 1. Location and Contents of Data Plates (Front Dolly). (Sheet 3 of 6)



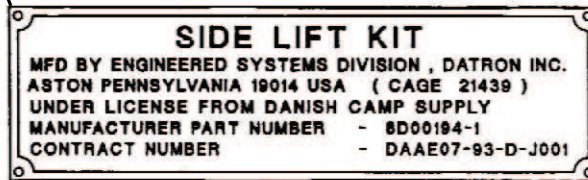
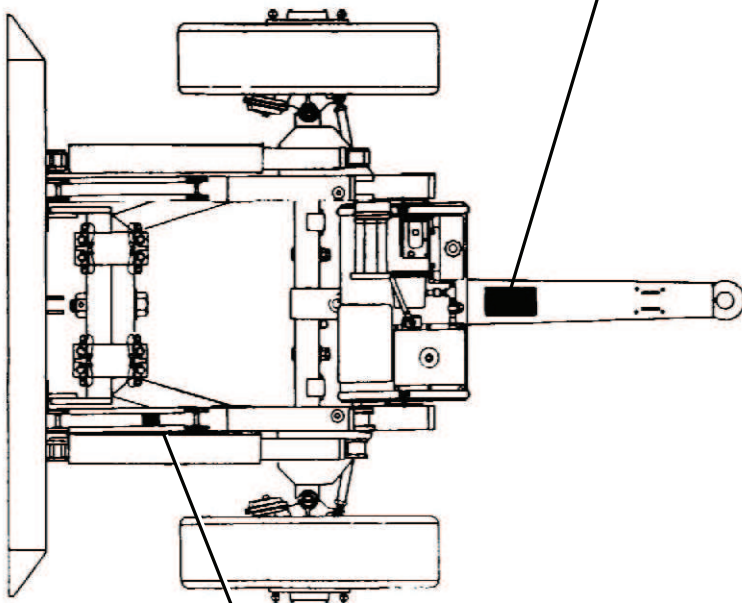
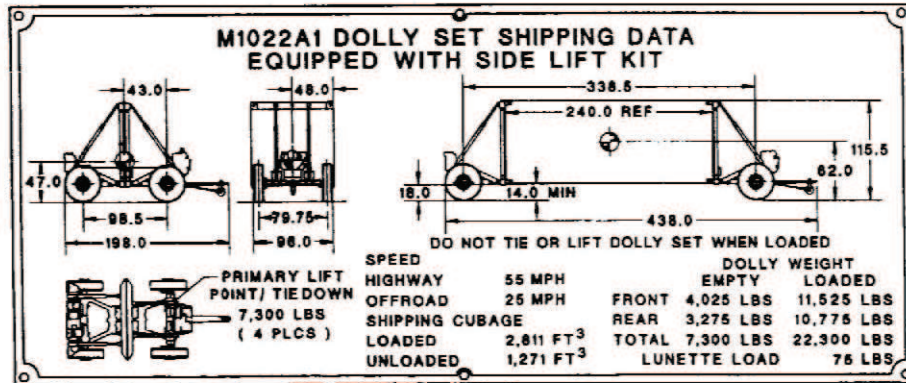
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Figure 1. Location and Contents of Data Plates (Front Dolly). (Sheet 4 of 6)



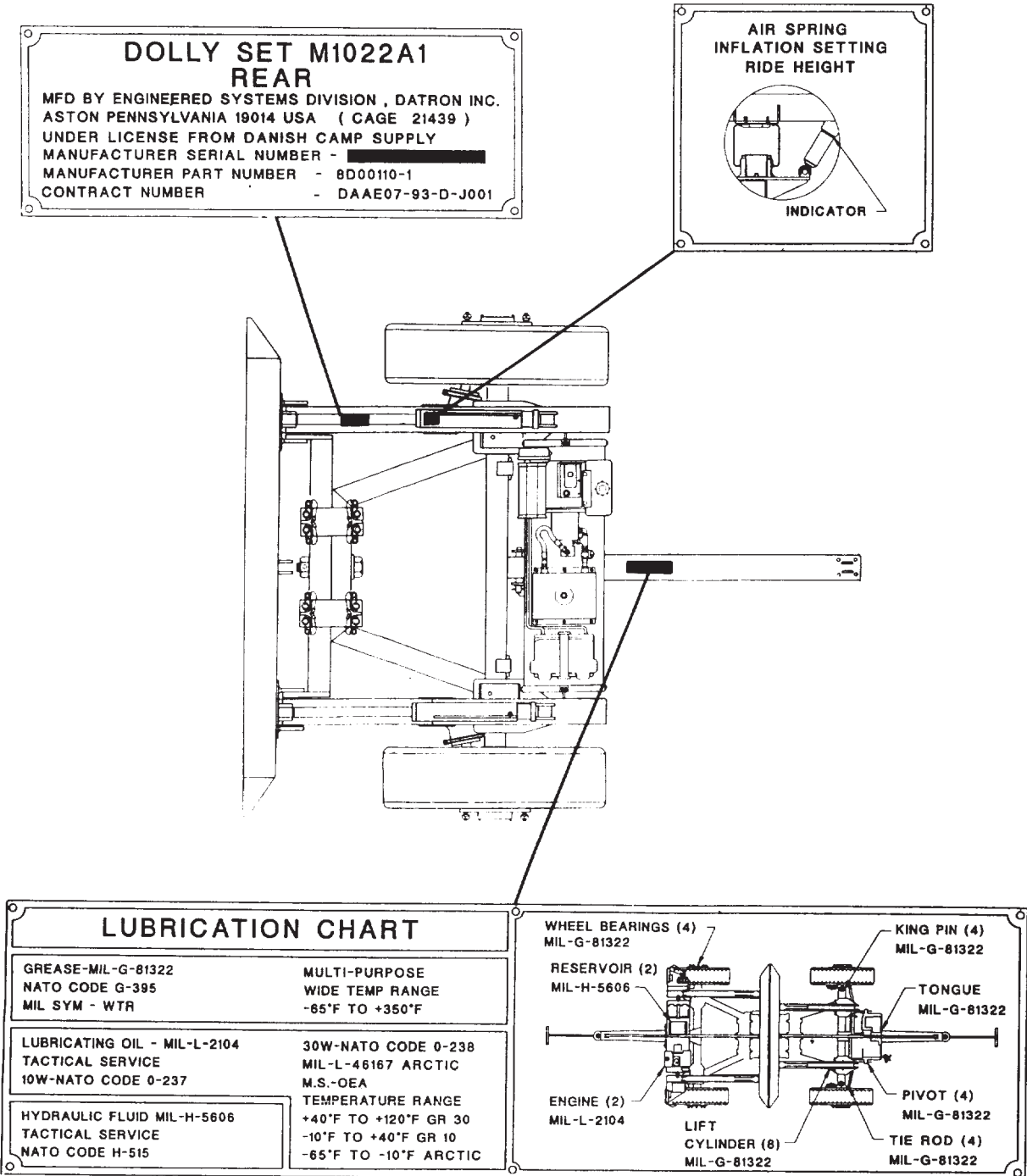
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Figure 1. Location and Contents of Data Plates (Front Dolly). (Sheet 5 of 6)



G0005JMS

Figure 1. Location and Contents of Data Plates (Front Dolly). (Sheet 6 of 6)



REAR DOLLY

G0006JMS

Figure 2. Location and Contents of Data Plates (Rear Dolly). (Sheet 1 of 4)

| | |
|--|------------------------------------|
| ENGINE OPERATING INSTRUCTIONS | |
| WARNING | HEARING PROTECTION REQUIRED |
| STARTING INSTRUCTIONS | |
| 1) CHECK FUEL & OIL LEVEL | |
| 2) SET SPEED CONTROL LEVER TO 'START' POSITION. | |
| 3) IF TEMPERATURE IS BETWEEN -18°C (0°F) AND 5°C (41°F), POSITION STARTER SWITCH TO 'GL' (TO PREHEAT) FOR 5 SECONDS. IF TEMPERATURE IS -18°C (0°F) OR LESS, REFER TO TM FOR STARTING INSTRUCTIONS. | |
| 4) RAISE DECOMPRESSION LEVER & TURN STARTER TO 'ST'. AFTER 5 SECONDS, LOWER THE DECOMPRESSION LEVER. WHEN ENGINE STARTS, RELEASE STARTER SWITCH. | |
| 5) REDUCE ENGINE SPEED TO 'LOW' AND ALLOW ENGINE TO IDLE FOR THREE MINUTES. | |
| 6) PRIOR TO ACTIVATION OF HYDRAULIC SYSTEM, INCREASE ENGINE SPEED TO 'HIGH'. | |
| STOPPING INSTRUCTIONS | |
| 1) REDUCE ENGINE SPEED TO 'LOW' AND OPERATE FOR THREE MINUTES. | |
| 2) MOVE STOP LEVER IN DIRECTION OF ARROW UNTIL ENGINE SHUTS DOWN. | |
| 3) PLACE STARTER SWITCH TO 'OFF', EXTRACT KEY AND STORE. | |

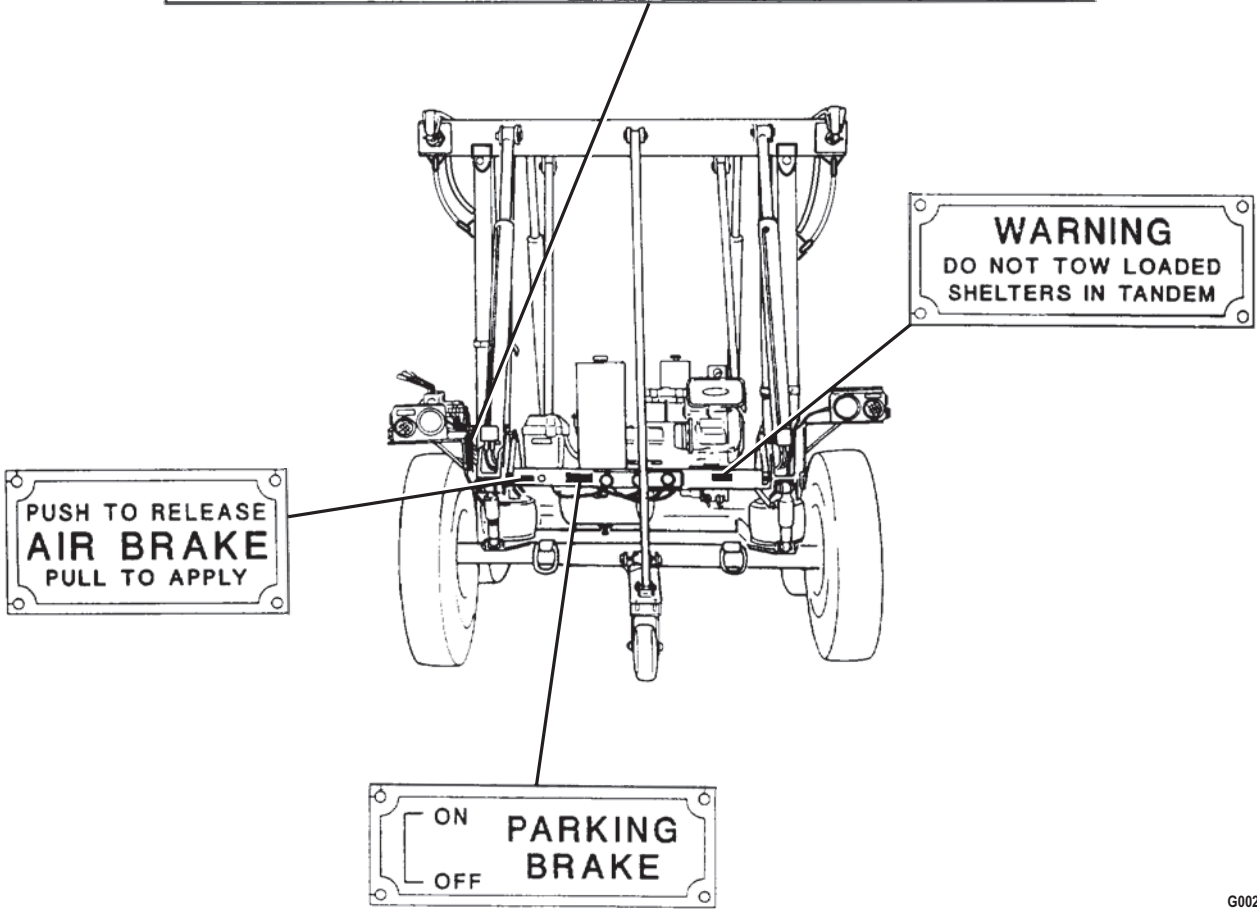


Figure 2. Location and Contents of Data Plates (Rear Dolly). (Sheet 2 of 4)

G0029JMS

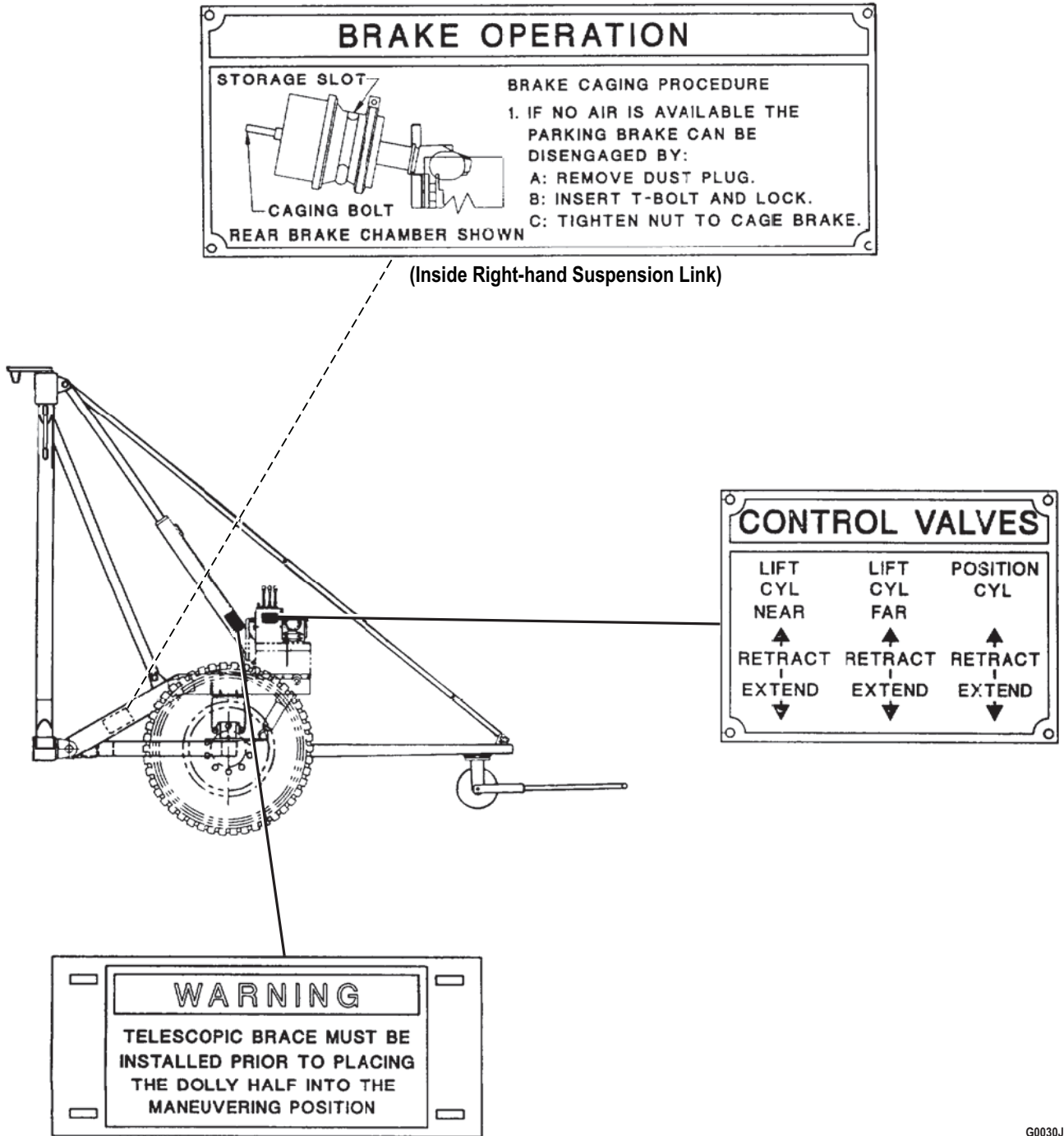
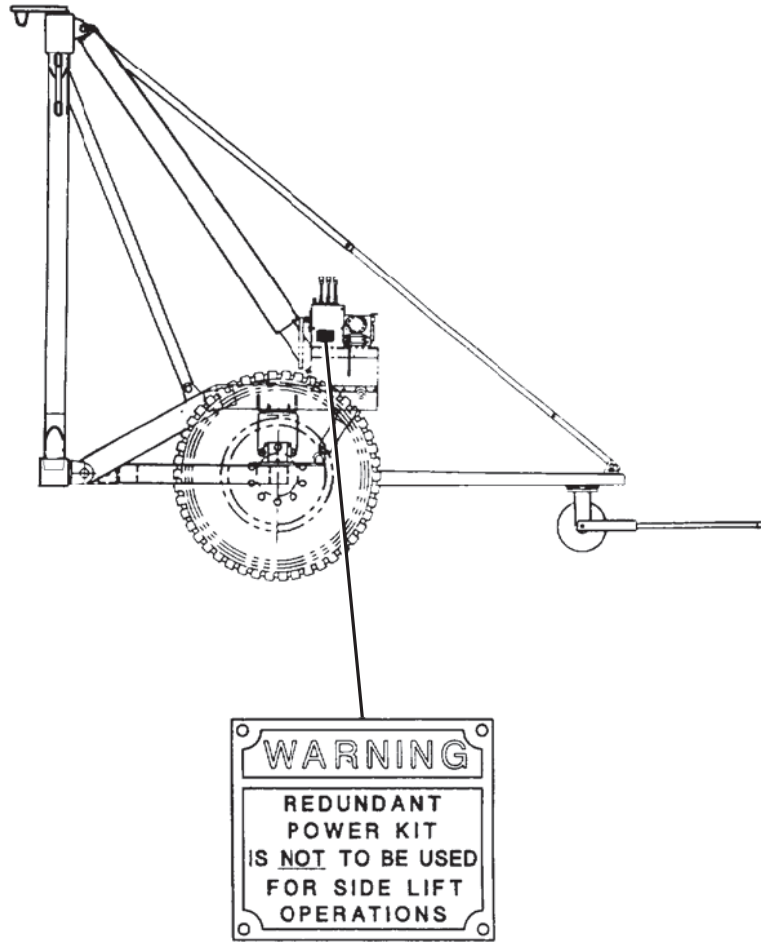


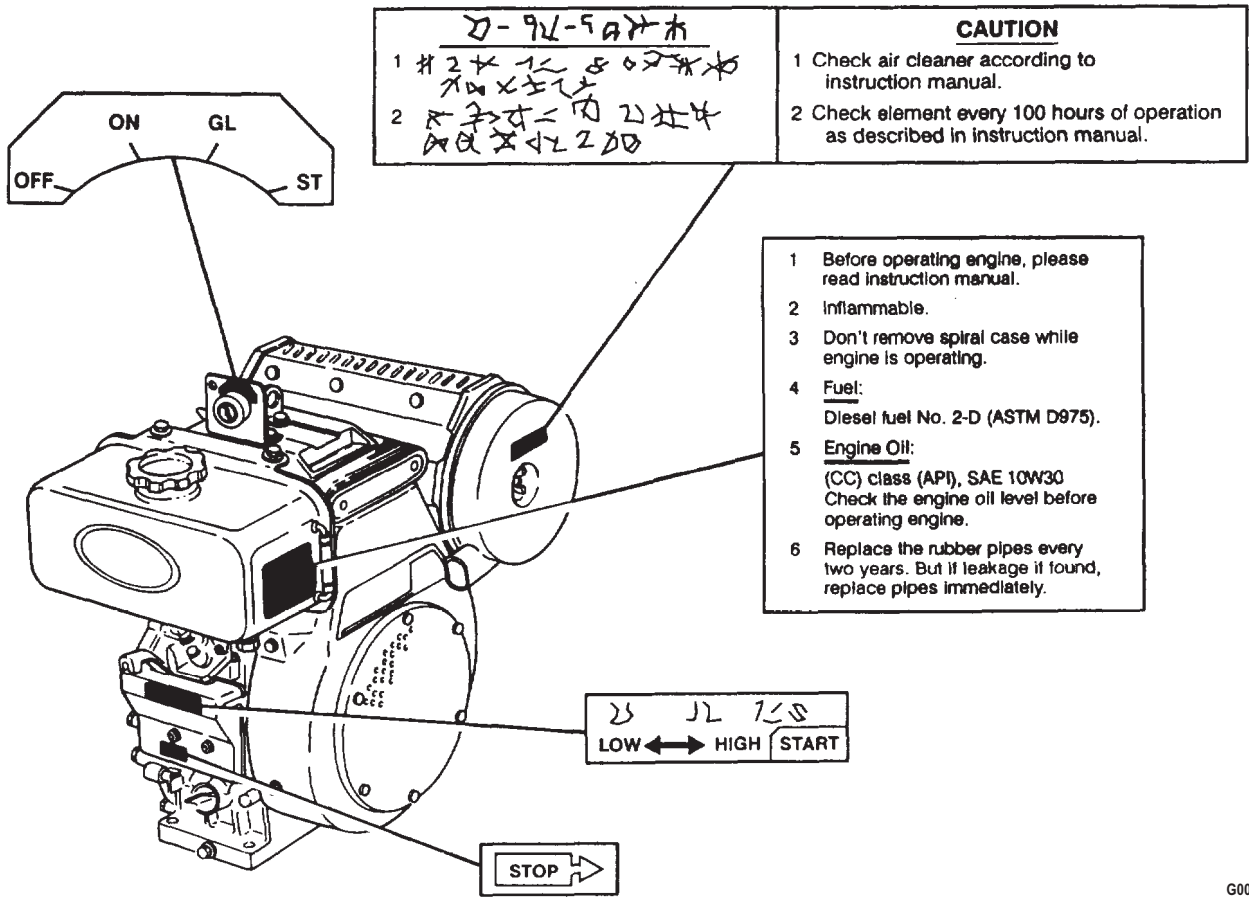
Figure 2. Location and Contents of Data Plates (Rear Dolly). (Sheet 3 of 4)

G0030JMS



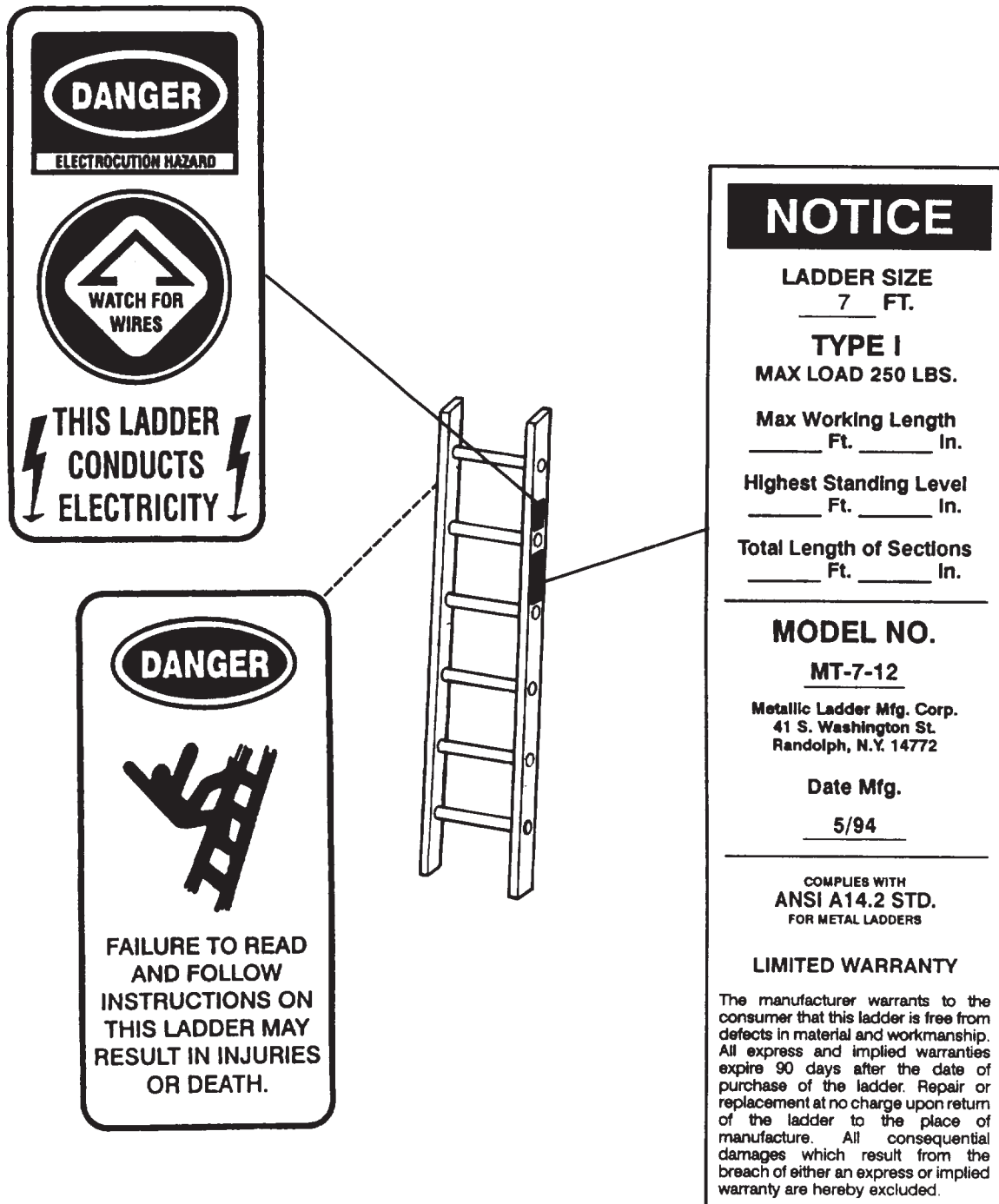
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Figure 2. Location and Contents of Data Plates (Rear Dolly). (Sheet 4 of 4)



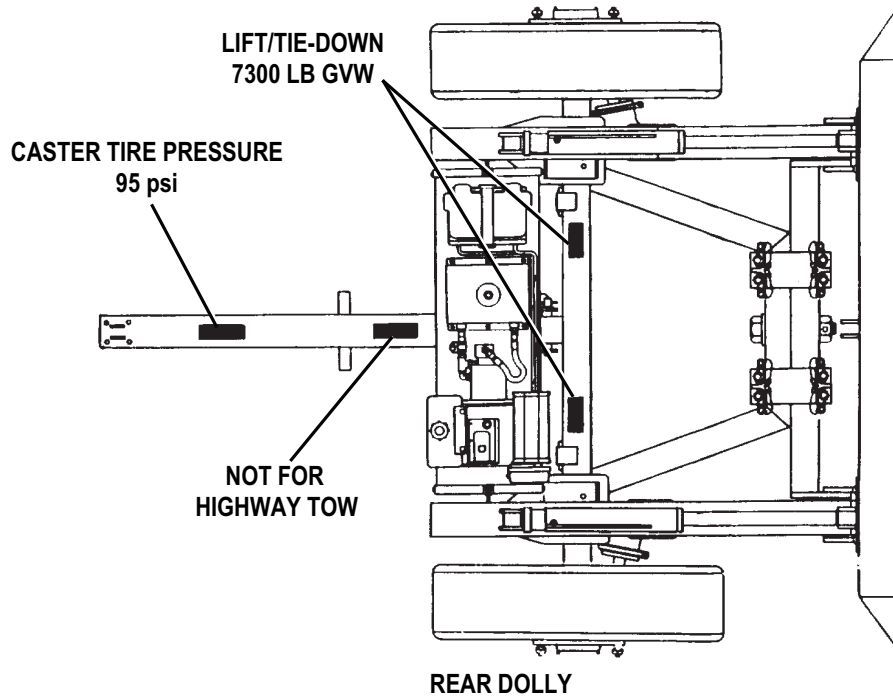
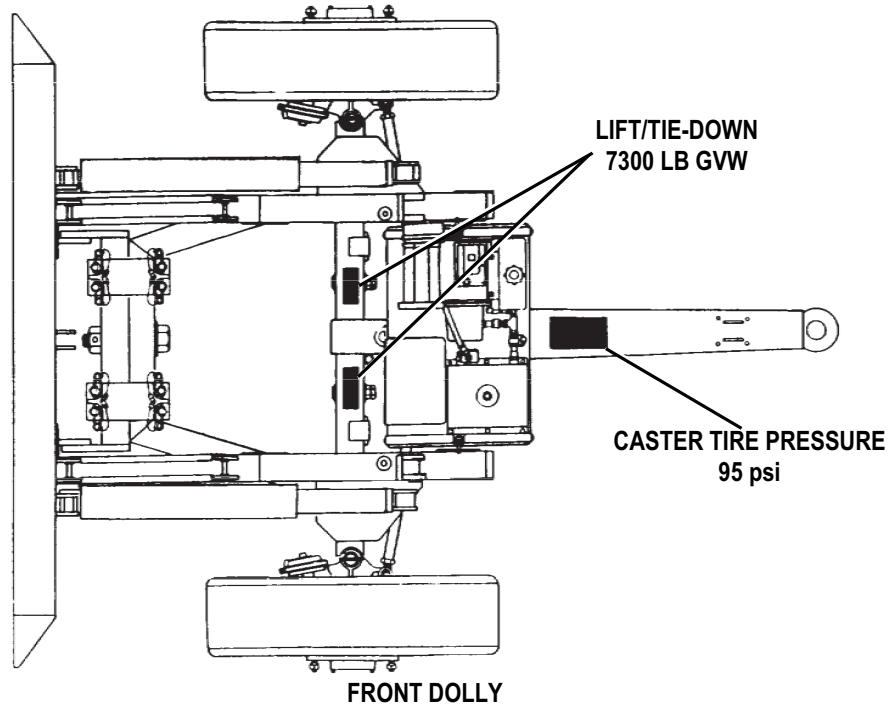
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Figure 3. Location and Contents of Data Plates (Engine).



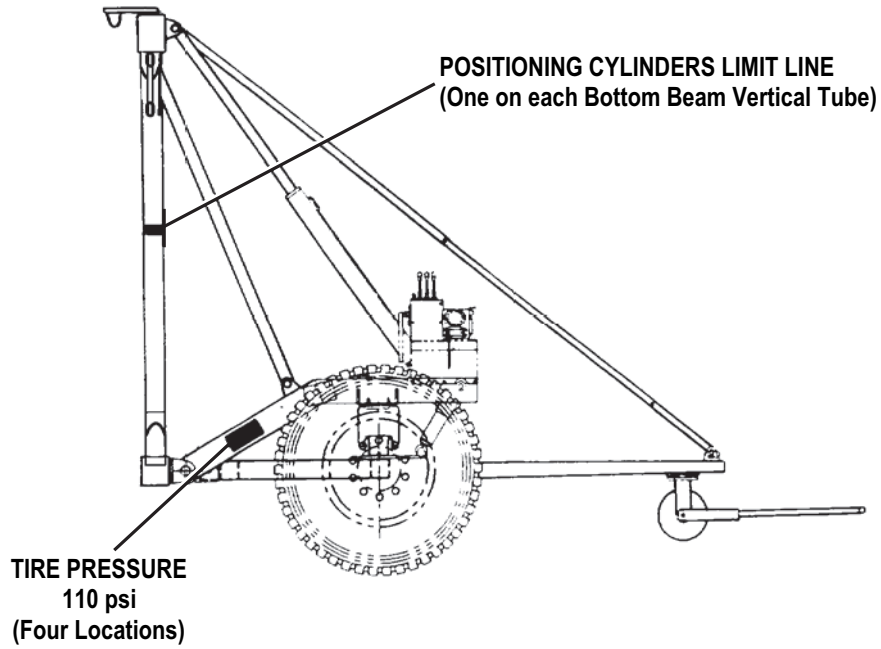
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Figure 4. Location and Contents of Data Plates (Ladder).



G0009JMS

Figure 5. Location and Contents of Stencils (Front and Rear Dolly).



G0032JMS

Figure 6. Location and Contents of Stencils (Front and Rear Dolly).

END OF WORK PACKAGE

CHAPTER 3
TROUBLESHOOTING PROCEDURES

**OPERATOR MAINTENANCE
OPERATOR/CREW TROUBLESHOOTING SYMPTOM INDEX**

GENERAL

This section provides information for identifying and correcting issues which may develop while operating the M1022A1 Dolly Set.

The index below lists common symptoms which may occur and refers you to the proper work package for a troubleshooting procedure.

If you are unsure of the location of an item mentioned in troubleshooting, review Equipment Description and Data (WP 0002).

Before performing troubleshooting, read and follow all safety instructions found in the warning summary at the front of this manual.

This section cannot list all symptoms that may occur, nor all tests or inspections and corrective actions. If a symptom is not listed, or is not corrected by the listed corrective actions, notify Field Maintenance.

When troubleshooting a symptom:

1. Locate the symptom or symptoms in the Troubleshooting Symptom Index that best describes the issue. If the appropriate symptom is not listed, notify your supervisor.
2. Turn to the work package where the troubleshooting procedures for the symptom in question are described. Headings at the top of each page show how each troubleshooting procedure is organized: Symptom, Malfunction, and Corrective Action.
3. 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 HEADINGS

The headings in the troubleshooting procedures are defined as follows:

1. **SYMPTOM.** A visual or operational indication that something is wrong with the dolly set.
2. **MALFUNCTION.** Observable fault in component or system.
3. **CORRECTIVE ACTION.** A procedure to correct the fault.

OPERATOR/CREW TROUBLESHOOTING SYMPTOM INDEX

Malfunction/Symptom

Troubleshooting Procedure

ELECTRICAL SYSTEM

- | | | |
|----|--|---------|
| 1. | All Lamps (Front And Rear Dollies) Fail To Light | WP 0021 |
| 2. | Rear Dolly Lamps Fail To Light | WP 0021 |
| 3. | One Or More Lamps (But Not All) Fail To Light | WP 0021 |
| 4. | Dim Or Flickering Lamps | WP 0021 |

OPERATOR/CREW TROUBLESHOOTING SYMPTOM INDEX - Continued

Malfunction/Symptom

Troubleshooting Procedure

BRAKE SYSTEM

- 1. No Brakes or Weak Brakes WP 0021
- 2. Parking Brakes (Rear Dolly) Do Not Hold WP 0021
- 3. Brakes Do Not Release WP 0021
- 4. Brakes Grab WP 0021

TIRES

- 1. Tires Scuffed or Uneven or Abnormal Wear WP 0021

TRACKING

- 1. Dolly Set Pulls to One Side WP 0021

HYDRAULIC SYSTEM

- 1. Hydraulic System Will Not Operate WP 0021

ENGINE

- 1. Engine Will Not Turn Over When Starter Switch Is Set To "ST" WP 0021
- 2. Engine Turns Over But Will Not Start WP 0021
- 3. Engine Will Not Start In Cold Weather (Below 41° F [5°C]) WP 0021
- 4. Engine Starts But Does Not Continue To Run WP 0021
- 5. Engine Runs Rough (Misfires) WP 0021
- 6. Engine Does Not Develop Full Power WP 0021
- 7. Excessive Black Or Dark Gray Exhaust Is Observed WP 0021
- 8. Excessive Blue Exhaust Is Observed WP 0021

END OF WORK PACKAGE

**FIELD MAINTENANCE
FIELD TROUBLESHOOTING SYMPTOM INDEX**

GENERAL

This section provides information for identifying and correcting issues which may develop when operating or maintaining the M10221A1 Dolly Set.

The index lists common symptoms which may occur and refers you to the proper work package for a troubleshooting procedure.

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

When troubleshooting a malfunction:

1. Question the operator to obtain any information that might help determine the cause of the problem. Before continuing, ensure that all applicable operator/crew troubleshooting was performed.
2. Locate the symptom or symptoms in the Troubleshooting Index that best describe the issue. If the appropriate symptom is not listed, notify your supervisor.
3. Go to the work package where the troubleshooting procedures for the symptom in question are described. Headings at the top of each page show how each troubleshooting procedure is organized: Symptom, Malfunction, and Corrective Action.
4. Perform each step in the order listed until the symptom 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 HEADINGS

The headings in the troubleshooting procedures are defined as follows:

1. **SYMPTOM.** A visual or operational indication that something is wrong with the dolly set.
2. **MALFUNCTION.** Observable fault in component or system.
3. **CORRECTIVE ACTION.** A procedure to correct the fault.

FIELD TROUBLESHOOTING SYMPTOM INDEX

Malfunction/Symptom

Troubleshooting Procedure

ELECTRICAL SYSTEM

- | | |
|---|---------|
| 1. All Lamps (Front and Rear Dollies) Fail to Light | WP 0022 |
| 2. Rear Dolly Lamps Fail to Light | WP 0022 |
| 3. One or More Lamps (But Not All) Fail to Light | WP 0022 |
| 4. Dim or Flickering Lamps | WP 0022 |
| 5. One or More Lamps Burn Out Frequently | WP 0022 |

BRAKE SYSTEM

- | | |
|---|---------|
| 1. No Brakes or Weak Brakes | WP 0022 |
| 2. Slow Application or Slow Release of Brakes | WP 0022 |
| 3. Brakes Drag | WP 0022 |
| 4. Brakes Grab | WP 0022 |

FIELD TROUBLESHOOTING SYMPTOM INDEX - Continued

Malfunction/Symptom

Troubleshooting Procedure

- 5. Parking Brakes (Rear Dolly) Do Not Hold WP 0022
- 6. Parking Brakes (Rear Dolly) Do Not Release WP 0022
- 7. Uneven Brakeshoe Lining Wear WP 0022

TIRES

- 1. Uneven or Abnormal Tire Wear WP 0022

HYDRAULIC SYSTEM

- 1. Hydraulic System Will Not Operate WP 0022
- 2. Lift Cylinder(s) Will Not Operate WP 0022
- 3. Positioning Cylinder(s) Will Not Operate WP 0022
- 4. Lift Cylinder Drifts WP 0022

ENGINE

- 1. Engine Will Not Turn Over When Starter Switch is Set to "ST") WP 0022
- 2. Battery Will Not Hold Charge WP 0022
- 3. Battery Overcharges WP 0022
- 4. Engine Turns Over But Will Not Start WP 0022
- 5. Engine Will Not Start In Cold Weather [Below 41° F (50° C)] WP 0022
- 6. Engine Runs Rough (Misfires) WP 0022
- 7. Engine Does Not Develop Full Power WP 0022
- 8. Excessive Black or Dark Gray Exhaust Observed WP 0022
- 9. Excessive White or Blue Exhaust Observed WP 0022

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATOR/CREW TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**Materials/Parts**

Rag: Wiping (WP 0197, Table 1, Item 42)

References

WP 0005

References (cont.)

WP 0017

WP 0029

WP 0197

TROUBLESHOOTING PROCEDURE**ELECTRICAL SYSTEM****SYMPTOM**

ALL LAMPS (FRONT AND REAR DOLLIES) FAIL TO LIGHT

MALFUNCTION

Intervehicular Cable Malfunction

CORRECTIVE ACTION

1. Check that towing vehicle lights are turned on.
Turn on towing vehicle lights IAW towing vehicle Operator's Manual.
2. Check intervehicular cable for proper connection.
Properly connect intervehicular cable (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).
3. Check intervehicular cable for damage.
 - a. Clean dirty connector with a clean rag (WP 0197, Table 1, Item 42).
 - b. If intervehicular cable is broken or connector plug pins are corroded or otherwise damaged, notify Field Maintenance.

ELECTRICAL SYSTEM - Continued**SYMPTOM**

REAR DOLLY LAMPS FAIL TO LIGHT

MALFUNCTION

Intradolly Cable Malfunction

CORRECTIVE ACTION

1. Check intradolly cable for proper connection.
Properly connect intradolly cable (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).
2. Check intradolly cable for damage.
 - a. Clean dirty connectors with a clean rag (WP 0197, Table 1, Item 42).
 - b. If intradolly cable is broken or connector plug pins are corroded or otherwise damaged, notify Field Maintenance.

SYMPTOM

ONE OR MORE LAMPS (BUT NOT ALL) FAIL TO LIGHT

MALFUNCTION

Loose, Corroded or Damaged Light Connectors

CORRECTIVE ACTION

1. Clean dirty connector plug(s) with a clean rag (WP 0197, Table 1, Item 42).
2. Securely connect connector plug(s) at affected light(s).

MALFUNCTION

Intervehicular and Intradolly Cable Malfunction

CORRECTIVE ACTION

1. Clean dirty connectors with a clean rag (WP 0197, Table 1, Item 42).
2. If cables are broken or connector plug pins are corroded or otherwise damaged, notify Field Maintenance.

SYMPTOM

DIM OR FLICKERING LAMPS

ELECTRICAL SYSTEM - Continued**MALFUNCTION**

Intervehicular and Intradolly Cable Malfunction

CORRECTIVE ACTION

1. Securely connect intervehicular and intradolly cables (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).
2. Clean dirty connectors with a clean rag (WP 0197, Table 1, Item 42).
3. If cables are broken or connector plug pins are corroded or otherwise damaged, notify Field Maintenance.

MALFUNCTION

Towing Vehicle Battery Malfunction

CORRECTIVE ACTION

1. Check towing vehicle battery for adequate charge IAW towing vehicle Operator's Manual.
2. If towing vehicle battery requires charging, notify Field Maintenance.

BRAKE SYSTEM**SYMPTOM**

NO BRAKES OR WEAK BRAKES

MALFUNCTION

Low Air Pressure

CORRECTIVE ACTION

1. Towing vehicle air gage should read at least 80 psi (552 kPa).
2. If air gage reading is low, notify Field Maintenance.

MALFUNCTION

Air Valves Incorrectly Positioned

CORRECTIVE ACTION

1. Check air valves at rear of towing vehicle to ensure that they are open.
Open air valves IAW towing vehicle Operator's Manual.
2. If tandem towing, check that shutoff valves at rear of towing dolly set are open.
Open shutoff valves (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).
3. If only one dolly set is being towed, check that shutoff valves at rear of dolly set are closed.

BRAKE SYSTEM - Continued**CORRECTIVE ACTION - Continued**

Close shutoff valves (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).

4. Check for open air reservoir draincocks.

Close air reservoir draincocks (Operator/Crew Maintenance (WP 0029)).

MALFUNCTION

Brake Air Hose Malfunction

CORRECTIVE ACTION

1. Check intervehicular and intradolly service and emergency air hoses for proper connection.

Properly connect intervehicular and intradolly service and emergency air hoses (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).

2. Check intervehicular, intradolly, and all other air hoses for kinks, cuts, breaks, or loose connections. Be alert for sound of leaking air.
 - a. Remove kinked intervehicular or intradolly air hoses, remove kinks, and connect.
 - b. If air hoses are damaged, notify Field Maintenance.

SYMPTOM

PARKING BRAKES (REAR DOLLY) DO NOT HOLD

MALFUNCTION

Parking Brake Lever Incorrect Position

CORRECTIVE ACTION

Set parking brake lever to ON position.

MALFUNCTION

Parking Brakes are Caged

CORRECTIVE ACTION

If brakes on rear dolly are caged, notify Field Maintenance.

SYMPTOM

BRAKES DO NOT RELEASE

BRAKE SYSTEM - Continued**MALFUNCTION**

Low Air Pressure

CORRECTIVE ACTION

1. Towing vehicle air gage should read at least 80 psi (552 kPa).
If air gage reading is low, notify Field Maintenance.
2. Check air valves at rear of towing vehicle to ensure that they are open.
Open air valves IAW towing vehicle Operator's Manual.
3. Check for open air reservoir draincocks.
Close air reservoir draincocks (Operator/Crew Maintenance (WP 0029)).
4. If tandem towing, check that shutoff valves at rear of towing dolly set are open.
Open shutoff valves (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).

MALFUNCTION

Parking Brake Lever Incorrect Position

CORRECTIVE ACTION

1. Check parking brake lever for correct position.
2. Set parking brake lever to OFF position.

MALFUNCTION

Brake Air Hose Malfunction

CORRECTIVE ACTION

1. Check intervehicular and intradolly service and emergency air hoses for proper connection.
Properly connect intervehicular and intradolly service and emergency air hoses (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).
2. Check inter-vehicular, intradolly, and all other air lines for kinks, cuts, breaks, or loose connections. Be alert for sound of leaking air.
 - a. Remove kinked intervehicular or intradolly air hoses, remove kinks, and connect.
 - b. If air hoses are damaged, notify Field Maintenance.

BRAKE SYSTEM - Continued**CORRECTIVE ACTION - Continued****SYMPTOM**

BRAKES GRAB

MALFUNCTION

Excess Moisture in Air Reservoirs

CORRECTIVE ACTION

Drain moisture from air reservoirs (Operator/Crew Maintenance (WP 0029)). Notify Field Maintenance.

TIRES**SYMPTOM**

TIRES SCUFFED OR UNEVEN OR ABNORMAL WEAR

MALFUNCTION

Incorrect Tire Pressure

CORRECTIVE ACTION

Inflate tires to 110 psi (758 kPa) for highway, cross-country, or mud.

MALFUNCTION

Dolly Set Not Level During Towing

CORRECTIVE ACTION

1. Ensure that shelter is towed at a level riding height. Air bags must be inflated so that upper portion of each shock absorber reaches level of ride height indicator ring (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).
2. Carefully follow operating instructions for releasing brakes. If not properly released, tires will become scuffed.

MALFUNCTION

Wheel Nuts Loose

CORRECTIVE ACTION

Tighten wheel nuts. Notify Field Maintenance to apply final torque.

TRACKING**SYMPTOM**

DOLLY SET PULLS TO ONE SIDE

MALFUNCTION

Incorrect Tire Pressure

CORRECTIVE ACTION

Inflate tires to 110 psi (758 kPa) for highway, cross-country, or mud.

MALFUNCTION

Incorrect Air Bag Inflation

CORRECTIVE ACTION

Air bags must be inflated so that upper portion of each shock absorber reaches level of ride height indicator ring (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).

HYDRAULIC SYSTEM**SYMPTOM**

HYDRAULIC SYSTEM WILL NOT OPERATE

MALFUNCTION

Low Hydraulic Fluid Level

CORRECTIVE ACTION

Add hydraulic fluid as required (Operator/Crew Maintenance (WP 0029)).

MALFUNCTION

Engine Speed Low

CORRECTIVE ACTION

Set speed control lever to HIGH START (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).

MALFUNCTION

Transportation Lockouts Engaged

CORRECTIVE ACTION

If malfunction occurs when attempting to lower dolly set, with or without shelter, ensure that transportation lockouts have been disengaged.

ENGINE**SYMPTOM**

ENGINE WILL NOT TURN OVER WHEN STARTER SWITCH IS SET TO "ST"

MALFUNCTION

Starter Switch Disconnected

CORRECTIVE ACTION

Connect starter switch connector to engine wiring harness connector.

MALFUNCTION

Battery Cables Loose or Corroded

CORRECTIVE ACTION

Check battery for disconnected cables or loose or corroded battery terminals. Notify Field Maintenance.

SYMPTOM

ENGINE TURNS OVER BUT WILL NOT START

MALFUNCTION

Incorrect Starting Procedures

CORRECTIVE ACTION

Check for and follow proper starting procedures (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).

MALFUNCTION

Low Fuel Level

CORRECTIVE ACTION

Add fuel as required (Operator/Crew Maintenance (WP 0029)).

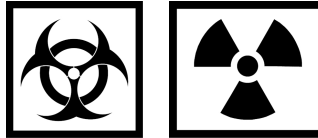
ENGINE - Continued

MALFUNCTION

Air Cleaner Restricted

CORRECTIVE ACTION

WARNING



CBRN EXPOSURE

If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.



W_CBRN

To order this CBRN decal use:

National Stock Number (NSN) - 7690-01-474-3533

Part Number (PN) - 1709220

Commercial and Government Entity Code (CAGEC) - 11083

Clean air cleaner element (Operator/Crew Maintenance (WP 0029)).

MALFUNCTION

Incorrect Type of Fuel for Operation

CORRECTIVE ACTION

Notify Field Maintenance.

ENGINE - Continued**SYMPTOM**

ENGINE WILL NOT START IN COLD WEATHER [BELOW 41° F (5° C)]

MALFUNCTION

Incorrect Starting Procedure

CORRECTIVE ACTION**NOTE**

If operating engine in temperatures below 0° F (-18° C), Operation Under Unusual Conditions (WP 0017) for proper starting procedures.

Check for and follow proper starting procedures (Operation Under Usual Conditions– General Operating Instructions (WP 0005)).

MALFUNCTION

Glow Plug Cord Disconnected

CORRECTIVE ACTION

Connect glow plug cord connector to engine wiring harness connector.

MALFUNCTION

Incorrect Type of Fuel for Operation

CORRECTIVE ACTION

Notify Field Maintenance.

SYMPTOM

ENGINE STARTS BUT DOES NOT CONTINUE TO RUN

MALFUNCTION

Low Fuel Level

CORRECTIVE ACTION

Add fuel as required (Operator/Crew Maintenance (WP 0029)).

SYMPTOM

ENGINE RUNS ROUGH (MISFIRES)

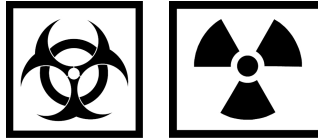
ENGINE - Continued

MALFUNCTION

Air Cleaner Restricted

CORRECTIVE ACTION

WARNING



CBRN EXPOSURE

If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.



W_CBRN

To order this CBRN decal use:

National Stock Number (NSN) - 7690-01-474-3533

Part Number (PN) - 1709220

Commercial and Government Entity Code (CAGEC) - 11083

Clean air cleaner element (Operator/Crew Maintenance (WP 0029)).

SYMPTOM

ENGINE DOES NOT DEVELOP FULL POWER

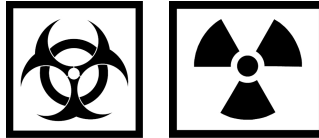
ENGINE - Continued

MALFUNCTION

Air Cleaner Restricted

CORRECTIVE ACTION

WARNING



CBRN EXPOSURE

If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.



W_CBRN

To order this CBRN decal use:

National Stock Number (NSN) - 7690-01-474-3533

Part Number (PN) - 1709220

Commercial and Government Entity Code (CAGEC) - 11083

Clean air cleaner element (Operator/Crew Maintenance (WP 0029)).

SYMPTOM

EXCESSIVE BLACK OR DARK GRAY EXHAUST IS OBSERVED

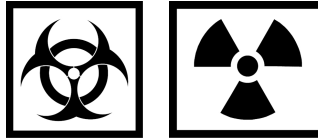
ENGINE - Continued

MALFUNCTION

Air Cleaner Restricted

CORRECTIVE ACTION

WARNING



CBRN EXPOSURE

If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.



W_CBRN

To order this CBRN decal use:

National Stock Number (NSN) - 7690-01-474-3533

Part Number (PN) - 1709220

Commercial and Government Entity Code (CAGEC) - 11083

Clean air cleaner element (Operator/Crew Maintenance (WP 0029))

MALFUNCTION

Incorrect Type of Fuel for Operation

CORRECTIVE ACTION

Notify Field Maintenance.

ENGINE - Continued**SYMPTOM**

EXCESSIVE BLUE EXHAUST IS OBSERVED

MALFUNCTION

High Crankcase Oil Level

CORRECTIVE ACTION

If crankcase oil level is too high, notify Field Maintenance.

END OF WORK PACKAGE

**FIELD MAINTENANCE
FIELD TROUBLESHOOTING PROCEDURES**

INITIAL SETUP:**References**

TM 9-6140-200-13
WP 0005
WP 0020
WP 0031
WP 0033
WP 0035
WP 0036
WP 0037
WP 0039
WP 0040
WP 0041
WP 0042
WP 0043
WP 0044
WP 0045
WP 0046
WP 0047
WP 0052
WP 0053
WP 0054
WP 0055
WP 0056
WP 0057
WP 0058
WP 0059
WP 0060

References (cont.)

WP 0063
WP 0064
WP 0066
WP 0069
WP 0070
WP 0071
WP 0072
WP 0073
WP 0074
WP 0102
WP 0103
WP 0105
WP 0106
WP 0112
WP 0115
WP 0116
WP 0117
WP 0118
WP 0120
WP 0121
WP 0122
WP 0123
WP 0124
WP 0128
WP 0130
WP 0197

TROUBLESHOOTING PROCEDURE**ELECTRICAL SYSTEM****CAUTION**

When performing a continuity test, always disconnect intervehicular cable from towing vehicle and circuit to be tested. Failure to follow this caution may damage multimeter.

NOTE

Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

SYMPTOM

ALL LAMPS (FRONT AND REAR DOLLIES) FAIL TO LIGHT

MALFUNCTION

No Power from Towing Vehicle

CORRECTIVE ACTION**CAUTION**

When performing a continuity test, always disconnect intervehicular cable from towing vehicle and circuit to be tested. Failure to follow this caution may damage multimeter.

1. Troubleshoot towing vehicle electrical system. Ensure that there is power (12V or 24V) at pins of trailer receptacle IAW towing vehicle Maintenance Manual.
Repair or replace damaged components IAW towing vehicle Maintenance Manual.
2. Disconnect intervehicular cable from towing vehicle and signal conditioning box (Operation Under Usual Conditions (WP 0005)).
3. Check for damage to receptacle connectors at signal conditioning box.
Replace damaged receptacle connectors (Signal Conditioning Box Repair (WP 0033)).

MALFUNCTION

Intervehicular Cable Malfunction

CORRECTIVE ACTION**CAUTION**

When performing a continuity test, always disconnect intervehicular cable from towing vehicle and circuit to be tested. Failure to follow this caution may damage multimeter.

1. Check for continuity in each wire of intervehicular cable. There should be continuity.
2. Check for continuity between pins/sockets at connector plug ends. There should be no continuity.
Replace damaged intervehicular cable (Intervehicular Cable Replacement (WP 0044)).

ELECTRICAL SYSTEM - Continued**MALFUNCTION**

Intradolly Cable Malfunction

CORRECTIVE ACTION**CAUTION**

When performing a continuity test, always disconnect intervehicular cable from towing vehicle and circuit to be tested. Failure to follow this caution may damage multimeter.

1. Disconnect intradolly cable from front distribution box and rear distribution box (Operation Under Usual Conditions (WP 0005)).
2. Check for damage to receptacle connectors at front distribution box and rear distribution box.
Replace damaged receptacle connectors (Front Distribution Box Assembly Repair (WP 0031) and Rear Distribution Box Assembly Repair (WP 0035)).
3. Check for continuity in each wire of intradolly cable. There should be continuity.
4. Check for continuity between pins/sockets at connector plug ends. There should be no continuity.
Replace damaged intradolly cable.

MALFUNCTION

Signal Conditioning Box, Front Distribution Box, and Rear Distribution Box Malfunction

CORRECTIVE ACTION**CAUTION**

When performing a continuity test, always disconnect intervehicular cable from towing vehicle and circuit to be tested. Failure to follow this caution may damage multimeter.

1. Check ground wires in signal conditioning box, front distribution box, and rear distribution box to ensure that they are secure.
2. Check for looseness and damage to terminal blocks and wires inside boxes.
Clean and tighten ground wires and other components as required (Signal Conditioning Box Repair (WP 0033), Front Distribution Box Assembly Repair (WP 0031), and Battery Cables Replacement (WP 0042)).

NOTE

Circuits containing voltage reducers will reflect high resistance in one direction. Reversing multimeter leads will result in low resistance.

3. Disconnect intervehicular cable from towing vehicle and signal conditioning box (Operation Under Usual Conditions (WP 0005)).
4. Check for continuity in wires between J1 receptacle connector in signal conditioning box and J3 receptacle connector in front distribution box.
5. Check also for continuity between J2 receptacle connector in signal conditioning box and J3 receptacle connector.

ELECTRICAL SYSTEM - Continued**CORRECTIVE ACTION - Continued****NOTE**

When continuity in a circuit between J1 or J2 receptacle connector and J3 receptacle connector is not present, check for continuity across terminals of circuit breaker inside signal conditioning box. If there is no continuity, replace circuit breaker (Signal Conditioning Box Repair (WP 0033)).

6. Check for continuity from circuit breaker inside signal conditioning box to TB1 terminal block inside front distribution box.
7. Check for continuity from TB1 terminal block to J3 receptacle connector.
 Replace damaged signal conditioning box-to-front distribution box cable assembly (Signal Conditioning Box-To-Front Distribution Box Cable Assembly Replacement (WP 0043)) or repair damaged front distribution box (Front Distribution Box Assembly Repair (WP 0031)).
8. If malfunction persists, perform voltage check across terminals of all circuit breakers.
 If voltage is not present, replace circuit breaker (Signal Conditioning Box Repair (WP 0033)).

SYMPTOM

REAR DOLLY LAMPS FAIL TO LIGHT

MALFUNCTION

Intradolly Cable Malfunction

CORRECTIVE ACTION**CAUTION**

When performing a continuity test, always disconnect intervehicular cable from towing vehicle and circuit to be tested. Failure to follow this caution may damage multimeter.

NOTE

Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

1. Disconnect intradolly cable from front distribution box and rear distribution box (Operation Under Usual Conditions (WP 0005)).
2. Check for damage to receptacle connectors at rear distribution box.
 Replace damaged receptacle connectors (Rear Distribution Box Assembly Repair (WP 0035)).
3. Check for continuity in each wire of intradolly cable. There should be continuity.
4. Check for continuity between pins/sockets at connector plug ends. There should be no continuity.
 Replace damaged intradolly cable.

ELECTRICAL SYSTEM - Continued**MALFUNCTION**

Rear Distribution Box Malfunction

CORRECTIVE ACTION**CAUTION**

When performing a continuity test, always disconnect intervehicular cable from towing vehicle and circuit to be tested. Failure to follow this caution may damage multimeter.

1. Check ground wires in rear distribution box to ensure that they are secure.
2. Check for looseness and damage to terminal block and wires inside box.
3. Clean and tighten ground wires and other components.
4. Replace or repair damaged rear distribution box as required (Rear Distribution Box Assembly Repair (WP 0035)).

SYMPTOM

ONE OR MORE LAMPS (BUT NOT ALL) FAIL TO LIGHT

MALFUNCTION

Lamp Socket Malfunction

CORRECTIVE ACTION**CAUTION**

When performing a continuity test, always disconnect intervehicular cable from towing vehicle and circuit to be tested. Failure to follow this caution may damage multimeter.

NOTE

Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

1. Remove lamp from socket (Marker Clearance Light Assembly Maintenance (WP 0036), Taillight and Rear Blackout Lights Maintenance (WP 0037), and Identification Lights Maintenance (WP 0039)).
2. Check lamp for damage, corrosion, and continuity.
Replace damaged lamp (Marker Clearance Light Assembly Maintenance (WP 0036), Taillight and Rear Blackout Lights Maintenance (WP 0037), and Identification Lights Maintenance (WP 0039)).
3. Check lamp socket for damage or corrosion.
4. Check light for loose or corroded mounting screws or loose or damaged ground wire, if present.
 - a. Tighten all loose components.
 - b. Replace damaged or corroded light (Marker Clearance Light Assembly Maintenance (WP 0036), Taillight and Rear Blackout Lights Maintenance (WP 0037), and Identification Lights Maintenance (WP 0039)).

ELECTRICAL SYSTEM - Continued**CORRECTIVE ACTION - Continued**

5. Check for damage to connector plug(s) of affected light.
Repair damaged connector plug(s) (General Maintenance Instructions (WP 0128)).

MALFUNCTION

Dolly Set Wiring Malfunction

CORRECTIVE ACTION

1. Trace circuit between connector plug(s) at affected light and TB2 terminal block inside rear distribution box (rear dolly light malfunction) or circuit breaker inside signal conditioning box (front dolly light malfunction).
2. Check for continuity and loose or damaged wires between affected light and rear distribution box or circuit breaker inside signal conditioning box.
 - a. Tighten any loose components, connections, and ground wire.
 - b. If there is no continuity, replace damaged cable assembly (Front Dolly Marker Clearance Light Cable Assembly Replacement (WP 0045), Rear Dolly Taillight Assembly Cable Assembly Replacement (WP 0046), and Identification Light Cable Assembly Replacement (WP 0047)).
3. If malfunction is on rear dolly, trace circuit between TB2 terminal block inside rear distribution box and corresponding pin of J4 receptacle connector.
4. Check for continuity and loose or damaged wires.
5. Check ground wire at pin D of J4 receptacle connector for looseness.
 - a. Tighten any loose components, connections, and ground wire.
 - b. If there is no continuity, replace damaged J4 receptacle connector and cable assembly (Battery Case Replacement (WP 0041)).
6. If malfunction is on rear dolly, check for continuity in wire of intradolly cable that corresponds to malfunctioning lamp. There should be continuity.
7. Check for continuity between pins/sockets at connector plug ends. There should be no continuity.
Replace damaged intradolly cable.
8. If malfunction is on rear dolly, trace circuit between pin at J3 receptacle connector and TB1 terminal block inside front distribution box.
9. Check for continuity and loose or damaged wires.
10. Check ground wire at pin D of J3 receptacle connector for looseness.
 - a. Tighten any loose components, connections, and ground wire.
 - b. If there is no continuity, replace damaged J3 receptacle connector and cable assembly (Front Distribution Box Assembly Repair (WP 0031)).
11. If malfunction is on rear dolly, trace circuit between TB1 terminal block in front distribution box and circuit breaker in signal conditioning box.
12. Check for continuity and loose or damaged wires.
 - a. Tighten any loose connections.

ELECTRICAL SYSTEM - Continued**CORRECTIVE ACTION - Continued**

- b. If there is no continuity, replace damaged signal conditioning box-to-front distribution box cable assembly (Signal Conditioning Box-To-Front Distribution Box Cable Assembly Replacement (WP 0043)).

MALFUNCTION

Intervehicular Cable Malfunction

CORRECTIVE ACTION

1. Check for continuity in wire of intervehicular cable that corresponds to malfunctioning lamp. There should be continuity.
2. Check for continuity between pins/sockets at connector plug ends. There should be no continuity.
Replace damaged intervehicular cable.

MALFUNCTION

Signal Conditioning Box Malfunction

CORRECTIVE ACTION

1. Check for continuity across terminals of circuit breaker on affected circuit.
If there is no continuity, replace damaged circuit breaker (Signal Conditioning Box Repair (WP 0033)).
2. Check for continuity in wires between J1 or J2 receptacle connector in signal conditioning box and circuit breakers.
If there is no continuity, replace damaged J1 or J2 receptacle connector or repair damaged wires (Signal Conditioning Box Repair (WP 0033)).
3. If malfunction persists, perform voltage check across terminals of all circuit breakers.
If there is no voltage, replace damaged circuit breaker (Signal Conditioning Box Repair (WP 0033)).

SYMPTOM

DIM OR FLICKERING LAMPS

MALFUNCTION

Lamp Socket Malfunction

CORRECTIVE ACTION**NOTE**

Dim or flickering lamps are most often caused by loose or corroded connections. Check for these conditions while performing troubleshooting test and inspections.

ELECTRICAL SYSTEM - Continued

CORRECTIVE ACTION - Continued

1. Check that affected lamp is not loose in light socket (Marker Clearance Light Assembly Maintenance (WP 0036), Taillight and Rear Blackout Lights Maintenance (WP 0037), and Identification Lights Maintenance (WP 0039)).
 Securely install lamp in light socket (Marker Clearance Light Assembly Maintenance (WP 0036), Taillight and Rear Blackout Lights Maintenance (WP 0037), and Identification Lights Maintenance (WP 0039)).
2. Check lamp for damage, corrosion, and continuity.
 Replace damaged lamp (Marker Clearance Light Assembly Maintenance (WP 0036), Taillight and Rear Blackout Lights Maintenance (WP 0037), and Identification Lights Maintenance (WP 0039)).
3. Check lamp socket for damage or corrosion.
4. Check light for loose or corroded mounting screws or loose or damaged ground wire, if present.
 - a. Tighten all loose components.
 - b. Replace damaged or corroded light (Marker Clearance Light Assembly Maintenance (WP 0036), Taillight and Rear Blackout Lights Maintenance (WP 0037), and Identification Lights Maintenance (WP 0039)).

SYMPTOM

ONE OR MORE LAMPS BURN OUT FREQUENTLY

MALFUNCTION

Voltage Reducer Malfunction

CORRECTIVE ACTION

NOTE

If one or more lamps burn out frequently or immediately after replacement, a probable cause is a failed voltage reducer inside signal conditioning box.

1. Inspect voltage reducer on affected circuit inside signal conditioning box for loose or disconnected wires.
 Connect and tighten wires.
2. With intervehicular cable connected and towing vehicle power on (Operation Under Usual Conditions (WP 0005)), check voltage at output of voltage reducer on affected circuit. Voltage should be 12V.
 Replace damaged voltage reducer (Signal Conditioning Box Repair (WP 0033)).

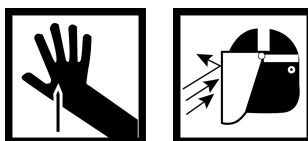
BRAKE SYSTEM

SYMPTOM

NO BRAKES OR WEAK BRAKES

BRAKE SYSTEM - Continued**MALFUNCTION**

Air Brakes Leaking

CORRECTIVE ACTION**WARNING**

- DO NOT disconnect air lines and fittings while dolly set airbrake system is pressurized. Intervehicular air lines must be disconnected and air reservoirs drained before air lines and fittings are disconnected. A line or fitting disconnected under pressure may explode with great force. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Wear eye protection when working with compressed air to avoid serious eye injury. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

Refer to airbrake system schematics for assistance (Schematics (WP 0130)).

1. Perform airbrake system leakage check (General Maintenance Instructions (WP 0128)).
2. Replace any leaking air line or damaged valve.

MALFUNCTION

Brakes Not Adjusted

CORRECTIVE ACTION

Perform minor brake adjustment (Minor Brake Adjustment (WP 0056)).

MALFUNCTION

Airbrake Chambers Malfunctioning

CORRECTIVE ACTION

1. Check for damage to airbrake chambers
Replace leaking or damaged airbrake chambers (Airbrake Chamber Replacement (WP 0058)).
2. Check for loose airbrake chambers in spider plunger housings (Airbrake Chamber Replacement (WP 0058)).
Properly install airbrake chambers (Airbrake Chamber Replacement (WP 0058)).

BRAKE SYSTEM - Continued**MALFUNCTION**

Brake Linings Contaminated or Worn

CORRECTIVE ACTION

1. Remove hub and brakedrum (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
2. Inspect brakedrum and brakeshoes for damage, wear, or grease-soaked linings.
 - a. Replace worn brakedrum (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
 - b. If grease is found on brakeshoe linings, inspect wheel seal.
 - c. Replace damaged wheel seal (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
 - d. Replace damaged, worn, or grease-soaked brakeshoes (Brakeshoe Replacement (WP 0054)).

MALFUNCTION

Spider Assembly Malfunctioning

CORRECTIVE ACTION

Replace spider assembly (Spider Assembly Replacement (WP 0057)).

MALFUNCTION

Booster Relay Valve Damaged

CORRECTIVE ACTION**NOTE**

If malfunction persists during tandem towing, problem may be with booster relay valve of front dolly set. A malfunctioning booster relay valve will not adequately amplify the service brake signal to rear dolly set.

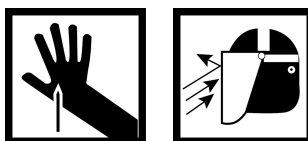
Replace damaged booster relay valve (Front Dolly Booster Relay Valve Replacement (WP 0060), Rear Dolly Booster Relay Valve Replacement (WP 0064)).

SYMPTOM

SLOW APPLICATION OR SLOW RELEASE OF BRAKES

BRAKE SYSTEM - Continued**MALFUNCTION**

Airbrakes Leaking

CORRECTIVE ACTION**WARNING**

- DO NOT disconnect air lines and fittings while dolly set airbrake system is pressurized. Intervehicular air lines must be disconnected and air reservoirs drained before air lines and fittings are disconnected. A line or fitting disconnected under pressure may explode with great force. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Wear eye protection when working with compressed air to avoid serious eye injury. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

Refer to airbrake system schematics for assistance (Schematics (WP 0130)).

1. Perform airbrake system leakage check (General Maintenance Instructions (WP 0128)).
2. Check all air hoses between intervehicular service air hose and airbrake chambers for leaks or other damage.
 Replace damaged air lines (Front Dolly Air Lines Replacement (WP 0069), Rear Dolly Air Lines Replacement (WP 0070)).
3. With dolly set airbrake system fully pressurized, check for defective relay emergency valve (front dolly) or full function valve (rear dolly).
4. Apply service brakes, then release.
5. Listen for sound of air releasing from exhaust port on underside of valve.
6. After an initial release of air, there should be no more leakage.
 Replace defective relay emergency valve (Front Dolly Relay Emergency Valve And Air Reservoir Replacement (WP 0059)) or full function valve (Rear Dolly Full Function Valve and Air Reservoir Replacement (WP 0063)).

MALFUNCTION

Brakes Out of Adjustment

CORRECTIVE ACTION

Perform minor brake adjustment (Minor Brake Adjustment (WP 0056)).

BRAKE SYSTEM - Continued**MALFUNCTION**

Brake Hardware Worn or Damaged

CORRECTIVE ACTION

1. If brakes do not adjust properly, remove hub and brakedrum (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
2. Check for weak or broken brakeshoe return springs. Replace damaged brakeshoe return springs and any other damaged components (Major Brake Adjustment (WP 0055)).

SYMPTOM

BRAKES DRAG

MALFUNCTION

Parking Brake Lever Malfunction

CORRECTIVE ACTION

1. If rear wheels are affected, check operation of parking brake lever.
2. Check that lever moves freely up and down.
Replace damaged parking brake lever (Rear Dolly Parking Brake Valve Replacement (WP 0066)).

MALFUNCTION

Brakes Out of Adjustment

CORRECTIVE ACTION

Perform minor brake adjustment (Minor Brake Adjustment (WP 0056)).

MALFUNCTION

Airbrake Chambers Leaking

CORRECTIVE ACTION

1. If rear wheels are affected, check operation of airbrake chambers.
2. Check for leaks in air lines to and from airbrake chambers.
3. Check for leaks or damage to airbrake chambers.
4. Check that spring in each airbrake chamber is fully released.
5. Cage brakes (Major Brake Adjustment (WP 0055)). If brakes cannot be caged, replace damaged airbrake chambers (Airbrake Chamber Replacement (WP 0058)).

BRAKE SYSTEM - Continued**MALFUNCTION**

Brakeshoe Return Springs Worn or Damaged

CORRECTIVE ACTION

1. Remove hub and brakedrum (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
2. Check for weak or broken brakeshoe return springs Brakeshoe Replacement (WP 0054).
 - a. Replace weak or broken brakeshoe return springs (Brakeshoe Replacement (WP 0054)).
 - b. Replace any other damaged components (Brakeshoe Replacement (WP 0054)).

MALFUNCTION

Wheel Bearings Loose

CORRECTIVE ACTION

Adjust wheel bearings (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).

MALFUNCTION

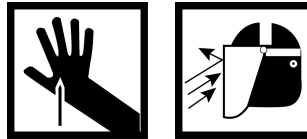
Wedge Assembly Damaged

CORRECTIVE ACTION

Replace damaged wedge assembly (Spider Assembly Replacement (WP 0057)).

BRAKE SYSTEM - Continued**SYMPTOM****BRAKES GRAB****MALFUNCTION**

Airbrakes Leaking

CORRECTIVE ACTION**WARNING**

- DO NOT disconnect air lines and fittings while dolly set airbrake system is pressurized. Intervehicular air lines must be disconnected and air reservoirs drained before air lines and fittings are disconnected. A line or fitting disconnected under pressure may explode with great force. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Wear eye protection when working with compressed air to avoid serious eye injury. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

NOTE

Refer to airbrake system schematics for assistance (Schematics (WP 0130)).

1. Perform airbrake system leakage check (Schematics (WP 0130)).
2. Replace damaged air lines (Front Dolly Air Lines Replacement (WP 0069)).

MALFUNCTION

Airbrake Chambers Leaking

CORRECTIVE ACTION

1. Check for damage to airbrake chambers.
2. Replace damaged airbrake chambers (Airbrake Chamber Replacement (WP 0058)).

MALFUNCTION

Brake Out of Adjustment

CORRECTIVE ACTION

Perform minor brake adjustment (Minor Brake Adjustment (WP 0056)).

BRAKE SYSTEM - Continued**MALFUNCTION**

Wheel Bearings Loose

CORRECTIVE ACTION

Adjust wheel bearings (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).

MALFUNCTION

Brake Lining Contaminated or Worn

CORRECTIVE ACTION

1. Remove hub and brakedrum (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
2. Inspect brakedrum for damage.
3. Inspect wheel bearings for wear.
4. Inspect brakeshoes for damage, wear, or grease-soaked linings (Major Brake Adjustment (WP 0055)).
 - a. Replace damaged brakedrum and worn wheel bearings (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
 - b. If grease is found on brakeshoe linings, inspect wheel seal. Replace damaged wheel seal (Major Brake Adjustment (WP 0055)).
 - c. Replace damaged, worn, or grease-soaked brakeshoes (Major Brake Adjustment (WP 0055)).

MALFUNCTION

Brake Drums Out of Round

CORRECTIVE ACTION

Replace brake drums (Hub, Brakedrum, and Wheel Bearings Maintenance) (WP 0072).

SYMPTOM

PARKING BRAKES (REAR DOLLY) DO NOT HOLD

MALFUNCTION

Parking Brake Lever Malfunction

CORRECTIVE ACTION

1. Check operation of parking brake lever.
2. Check that lever moves freely up and down.

Replace damaged parking brake lever (Rear Dolly Parking Brake Valve Replacement (WP 0066)).

BRAKE SYSTEM - Continued

MALFUNCTION

Full Function Valve Damaged

CORRECTIVE ACTION

1. Check for damage to full function valve.
2. Replace damaged full function valve (Rear Dolly Full Function Valve and Air Reservoir Replacement (WP 0063)).

MALFUNCTION

Airbrake Chamber Leaking or Damaged

CORRECTIVE ACTION

Replace damaged airbrake chamber (Airbrake Chamber Replacement (WP 0058)).

MALFUNCTION

Brakes Out of Adjustment

CORRECTIVE ACTION

Perform minor brake adjustment (Minor Brake Adjustment (WP 0056)).

SYMPTOM

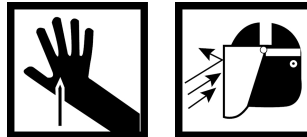
PARKING BRAKES (REAR DOLLY) DO NOT RELEASE

MALFUNCTION

Parking Brake Lever Malfunction

CORRECTIVE ACTION

WARNING



- DO NOT disconnect air lines and fittings while dolly set airbrake system is pressurized. Intervehicular air lines must be disconnected and air reservoirs drained before air lines and fittings are disconnected. A line or fitting disconnected under pressure may explode with great force. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
- Wear eye protection when working with compressed air to avoid serious eye injury. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

BRAKE SYSTEM - Continued**CORRECTIVE ACTION - Continued****NOTE**

Refer to airbrake system schematics for assistance (Schematics (WP 0130)).

1. Check operation of parking brake lever.
2. Check that lever moves freely up and down.

Replace damaged parking brake lever (Rear Dolly Parking Brake Valve Replacement (WP 0066)).

MALFUNCTION

Air Supply System Malfunction

CORRECTIVE ACTION

Replace leaking or damaged air lines (Rear Dolly Air Lines Replacement (WP 0070)).

MALFUNCTION

Airbrake Chamber Does Not Release

CORRECTIVE ACTION

1. Check that spring in each airbrake chamber is fully released.
2. Cage brakes (Caging and Uncaging Brakes (WP 0053)). If brakes cannot be caged, replace damaged airbrake chambers (Airbrake Chamber Replacement (WP 0058)).

SYMPTOM

UNEVEN BRAKESHOE LINING WEAR

MALFUNCTION

Brake Hardware Worn or Damaged

CORRECTIVE ACTION

1. Remove hub and brakedrum (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
2. Replace weak or damaged brakeshoe return springs (Major Brake Adjustment (WP 0055)).
3. Replace damaged wedge assembly (Spider Assembly Replacement (WP 0057)).

MALFUNCTION

Spider Assembly Malfunctioning

CORRECTIVE ACTION

If malfunction persists, replace spider assembly with wedge brake components (Spider Assembly Replacement (WP 0057)).

BRAKE SYSTEM - Continued**MALFUNCTION**

Brakedrums Out of Round

CORRECTIVE ACTION

Replace brake drums (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).

TIRES**SYMPTOM**

UNEVEN OR ABNORMAL TIRE WEAR

MALFUNCTION

Bent or Damaged Wheel

CORRECTIVE ACTION

Replace bent wheel assembly (Wheel Assembly Replacement (WP 0071)).

MALFUNCTION

Steering Components Worn

CORRECTIVE ACTION

1. Check for looseness and damage to tie-rod ends.
Tighten or replace damaged tie-rod ends (Tie-Rod Assembly Maintenance (WP 0073)).
2. Check wheel alignment (Tie-Rod Assembly Maintenance (WP 0073)).
Align wheels (Tie-Rod Assembly Maintenance (WP 0073)).
3. Check for loose kingpins and steering link (Steering Knuckle Assembly Replacement (WP 0052) and Steering Link Replacement (WP 0074)).
Tighten or replace damaged components (Steering Knuckle Assembly Replacement (WP 0052) and Steering Link Replacement (WP 0074)).

MALFUNCTION

Wheel Bearings Worn

CORRECTIVE ACTION

Check for loose or defective wheel bearings (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).

- a. Replace damaged wheel bearings (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
- b. Perform wheel bearing adjustment (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).

TIRES - Continued**MALFUNCTION**

Suspension Components Worn

CORRECTIVE ACTION

Check steering knuckle assembly for movement where roll pin joins steering knuckle to spindle (Steering Knuckle Assembly Replacement (WP 0052)).

Replace steering knuckle assembly if movement is present (Steering Knuckle Assembly Replacement (WP 0052)).

HYDRAULIC SYSTEM**SYMPTOM**

HYDRAULIC SYSTEM WILL NOT OPERATE

MALFUNCTION

Engine Has Low Power

CORRECTIVE ACTION

1. Inspect engine.
2. Troubleshoot engine (Field: Troubleshooting Index (WP 0020)).

MALFUNCTION

Hydraulic Pump Coupler Damaged

CORRECTIVE ACTION

1. Remove access cover from adapter and check hydraulic pump coupling for damage (Hydraulic Pump Maintenance (WP 0102)).
2. Replace damaged hydraulic pump coupling (Hydraulic Pump Maintenance (WP 0102)).

MALFUNCTION

Hydraulic Pump Leaking

CORRECTIVE ACTION

1. Check for leaking or damaged hydraulic pump.
2. Replace damaged hydraulic pump (Hydraulic Pump Maintenance (WP 0102)).

HYDRAULIC SYSTEM - Continued**SYMPTOM**

LIFT CYLINDER(S) WILL NOT OPERATE

MALFUNCTION

Hydraulic Control Valve Damaged

CORRECTIVE ACTION

1. Check hydraulic control valve for damage.
2. Check for proper operation of levers (Operation Under Usual Conditions (WP 0005)).Replace damaged hydraulic control valve (Hydraulic Control Valve Maintenance (WP 0103)).

MALFUNCTION

Lift Cylinder Leaking or Damaged

CORRECTIVE ACTION

1. Check for leaking or damaged lift cylinder.
2. Replace damaged lift cylinder (Hydraulic Lift Cylinders Maintenance (WP 0105)).

SYMPTOM

POSITIONING CYLINDER(S) WILL NOT OPERATE

MALFUNCTION

Hydraulic Control Valve Damaged

CORRECTIVE ACTION

1. Check hydraulic control valve for damage.
2. Check for proper operation of lever (Operation Under Usual Conditions (WP 0005)).
Replace damaged hydraulic control valve (Hydraulic Control Valve Maintenance (WP 0103)).

MALFUNCTION

Positioning Cylinder Leaking or Damaged

CORRECTIVE ACTION

1. Check for leaking or damaged positioning cylinder.
2. Replace damaged positioning cylinder (Hydraulic Positioning Cylinder Maintenance (WP 0106)).

HYDRAULIC SYSTEM - Continued**SYMPTOM**

LIFT CYLINDER DRIFTS

MALFUNCTION

Hydraulic Control Valve Damaged

CORRECTIVE ACTION

1. Check hydraulic control valve for proper operation of levers (Operation Under Usual Conditions (WP 0005)).
2. Replace damaged hydraulic control valve (Hydraulic Control Valve Maintenance (WP 0103)).
3. Replace damaged check valve (Hydraulic Lift Cylinders Maintenance (WP 0105)).

ENGINE**SYMPTOM**

ENGINE WILL NOT TURN OVER WHEN STARTER SWITCH IS SET TO "ST"

ENGINE - Continued**MALFUNCTION**

Loose or Corroded Connections

CORRECTIVE ACTION**WARNING**

- Remove all jewelry, such as rings, I.D. tags, bracelets, etc. If jewelry contacts a battery terminal, a direct short will result causing instant heating of jewelry. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Battery acid (electrolyte) is extremely dangerous. Always wear eye protection and rubber gloves when performing battery checks or inspections. Serious injury to personnel will result if battery acid contacts skin or eyes. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- DO NOT perform battery system checks or inspections while smoking or near fire, flames, or sparks. Battery gases may explode. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Sulfuric acid contained in batteries can cause serious burns. If battery corrosion or electrolyte makes contact with skin, eyes, or clothing, take immediate action to stop the corrosive burning effects. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
 1. Eyes. Flush with cold water for no less than 15 minutes and immediately seek medical attention.
 2. Skin. Flush with large amounts of cold water until all acid is removed. Seek medical attention as required.
 3. Internal. If corrosion or electrolyte is ingested, drink large amounts of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Immediately seek medical attention.
 4. Clothing/Equipment. Wash area with large amounts of cold water. Neutralize acid with baking soda or household ammonia.
- California Proposition 65 Warning. Battery posts, terminals, and related accessories contain lead and lead components. These chemicals are known to the State of California to cause cancer and reproductive harm. Wash hands after handling. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

Refer to engine wiring diagram for assistance (Schematics (WP 0130)).

1. Inspect for corroded or loose terminal connections at battery, starter, and starter switch, and ground connection at crankcase.

ENGINE - Continued**CORRECTIVE ACTION - Continued**

2. Remove, clean, and tighten all corroded or loose connections (Battery Cables Replacement (WP 0042) and Engine Starter and Switch Replacement (WP 0122)).

MALFUNCTION

Battery Damaged

CORRECTIVE ACTION

Replace damaged battery (Battery Maintenance (WP 0040)).

MALFUNCTION

Battery Discharged

CORRECTIVE ACTION

Charge discharged battery IAW TM 9-6140-200-13.

MALFUNCTION

Starter Switch Malfunction

CORRECTIVE ACTION**CAUTION**

Before performing a continuity test, always disconnect battery negative (-) ground cable and circuit to be tested. Failure to follow this caution may damage multimeter.

1. Test operation of starter switch by disconnecting starter switch connector from engine wiring harness connector (Engine Starter and Switch Replacement (WP 0122)).
2. Perform continuity test at each position of starter switch.

Replace damaged starter switch (Engine Starter and Switch Replacement (WP 0122)).

MALFUNCTION

Fusible Link Open

CORRECTIVE ACTION

Replace damaged engine wiring harness (Engine Wiring Harness Replacement (WP 0123)).

MALFUNCTION

Starter Motor Malfunction

CORRECTIVE ACTION

1. Inspect starter motor rotation with starter switch set to ST (Operation Under Usual Conditions (WP 0005)).

ENGINE - Continued**CORRECTIVE ACTION - Continued**

2. If starter motor is not turning, replace damaged starter (Engine Starter and Switch Replacement (WP 0122)).

SYMPTOM

BATTERY WILL NOT HOLD CHARGE

ENGINE - Continued**MALFUNCTION**

Battery Cracked or Damaged

CORRECTIVE ACTION**WARNING**

- Remove all jewelry, such as rings, I.D. tags, bracelets, etc. If jewelry contacts a battery terminal, a direct short will result causing instant heating of jewelry. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Battery acid (electrolyte) is extremely dangerous. Always wear eye protection and rubber gloves when performing battery checks or inspections. Serious injury to personnel will result if battery acid contacts skin or eyes. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- DO NOT perform battery system checks or inspections while smoking or near fire, flames, or sparks. Battery gases may explode. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Sulfuric acid contained in batteries can cause serious burns. If battery corrosion or electrolyte makes contact with skin, eyes, or clothing, take immediate action to stop the corrosive burning effects. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
 1. Eyes. Flush with cold water for no less than 15 minutes and immediately seek medical attention.
 2. Skin. Flush with large amounts of cold water until all acid is removed. Seek medical attention as required.
 3. Internal. If corrosion or electrolyte is ingested, drink large amounts of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Immediately seek medical attention.
 4. Clothing/Equipment. Wash area with large amounts of cold water. Neutralize acid with baking soda or household ammonia.
- California Proposition 65 Warning. Battery posts, terminals, and related accessories contain lead and lead components. These chemicals are known to the State of California to cause cancer and reproductive harm. Wash hands after handling. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

Refer to engine wiring diagram for assistance (Schematics (WP 0130)).

Replace damaged battery (Battery Maintenance (WP 0040)).

ENGINE - Continued**MALFUNCTION**

Battery Cables Loose or Corroded

CORRECTIVE ACTION

Remove, clean, and tighten all corroded or loose connections (Battery Cables Replacement (WP 0042) and Engine Starter and Switch Replacement (WP 0122)).

MALFUNCTION

Loose or Corroded Connections

CORRECTIVE ACTION

1. Remove, clean, and tighten all corroded or loose connections (Engine Wiring Harness Replacement (WP 0123)).
2. Replace damaged regulator (Regulator Replacement (WP 0121)).

MALFUNCTION

Voltage Regulator Malfunction

CORRECTIVE ACTION

1. With engine running, test stator assembly (alternator) output by disconnecting engine wiring harness connector from regulator (Regulator Replacement (WP 0121)).
2. Using a multimeter set to DC voltage, measure stator assembly output.
 - a. If stator assembly output is within 12V DC \pm 1V DC, replace damaged regulator (Regulator Replacement (WP 0121)).
 - b. If stator assembly output is not 12V DC \pm 1V DC, replace damaged stator assembly (Generator Stator Assembly Replacement).

SYMPTOM

BATTERY OVERCHARGES

ENGINE - Continued**MALFUNCTION**

Voltage Regulator Malfunction

CORRECTIVE ACTION**WARNING**

- Remove all jewelry, such as rings, I.D. tags, bracelets, etc. If jewelry contacts a battery terminal, a direct short will result causing instant heating of jewelry. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Battery acid (electrolyte) is extremely dangerous. Always wear eye protection and rubber gloves when performing battery checks or inspections. Serious injury to personnel will result if battery acid contacts skin or eyes. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- DO NOT perform battery system checks or inspections while smoking or near fire, flames, or sparks. Battery gases may explode. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Sulfuric acid contained in batteries can cause serious burns. If battery corrosion or electrolyte makes contact with skin, eyes, or clothing, take immediate action to stop the corrosive burning effects. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
 1. Eyes. Flush with cold water for no less than 15 minutes and immediately seek medical attention.
 2. Skin. Flush with large amounts of cold water until all acid is removed. Seek medical attention as required.
 3. Internal. If corrosion or electrolyte is ingested, drink large amounts of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Immediately seek medical attention.
 4. Clothing/Equipment. Wash area with large amounts of cold water. Neutralize acid with baking soda or household ammonia.
- California Proposition 65 Warning. Battery posts, terminals, and related accessories contain lead and lead components. These chemicals are known to the State of California to cause cancer and reproductive harm. Wash hands after handling. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

Refer to engine wiring diagram for assistance (Schematics (WP 0130)).

1. With engine running, test stator assembly (alternator) output by disconnecting engine wiring harness connector from regulator (Regulator Replacement (WP 0121)).
2. Using a multimeter set to DC voltage, measure stator assembly output.

ENGINE - Continued**CORRECTIVE ACTION - Continued**

- a. If stator assembly output is within 12V DC \pm 1V DC, replace damaged regulator (Regulator Replacement (WP 0121)).
- b. If stator assembly output is not 12V DC \pm 1V DC, replace damaged stator assembly (Generator Stator Assembly Replacement).

SYMPTOM

ENGINE TURNS OVER BUT WILL NOT START

MALFUNCTION

Fuel Tank Cap Vent Restricted

CORRECTIVE ACTION**WARNING**

Diesel fuel is combustible. DO NOT smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention immediately in the event of an injury.

1. Remove cap from fuel tank (Engine Fuel Tank Maintenance (WP 0118)).
2. Check for clogged vent in cap.

Clean or replace damaged cap (Engine Fuel Tank Maintenance (WP 0118)).

MALFUNCTION

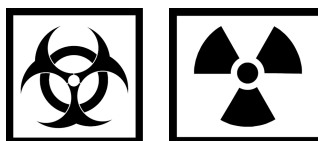
Fuel Lines Leaking, Kinked, or Restricted

CORRECTIVE ACTION

Tighten or replace damaged fuel lines (Engine Fuel Tank Maintenance (WP 0118)).

ENGINE - Continued**MALFUNCTION**

Air Cleaner Restricted

CORRECTIVE ACTION**WARNING****CBRN EXPOSURE**

If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.



W_CBRN

To order this CBRN decal use:

National Stock Number (NSN) - 7690-01-474-3533

Part Number (PN) - 1709220

Commercial and Government Entity Code (CAGEC) - 11083

Clean or replace damaged air cleaner element (Engine Air Cleaner Maintenance (WP 0117)).

MALFUNCTION

Speed Control Lever or Stop Lever Binding or Damaged

CORRECTIVE ACTION

1. Remove side cover (Side Cover, Cylinder Cowling, and Spiral Case Replacement (WP 0120)).
2. Inspect speed control lever and stop lever for free movement and signs of damage.

ENGINE - Continued**CORRECTIVE ACTION - Continued**

- a. Clean speed control lever and stop lever, and lubricate with lubricating oil (WP 0197, Table 1, Item 38) as required.
- b. If levers are frozen or damaged, replace levers (Injection Pump Maintenance (WP 0115)).

MALFUNCTION

Restricted Fuel Filter

CORRECTIVE ACTION**WARNING**

Diesel fuel is combustible. DO NOT smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention immediately in the event of an injury.

Clean or replace damaged fuel filter (Engine Fuel Tank Maintenance (WP 0118)).

MALFUNCTION

Injection Pump Incorrect Timing

CORRECTIVE ACTION

Adjust injection pump timing (Injection Pump Maintenance (WP 0115)).

MALFUNCTION

Restricted or Damaged Nozzle Holder

CORRECTIVE ACTION

1. Replace damaged nozzle holder (Nozzle Holder Maintenance (WP 0116)).
2. Replace damaged injection pump (Injection Pump Maintenance (WP 0115)).

ENGINE - Continued**SYMPTOM**

ENGINE WILL NOT START IN COLD WEATHER [BELOW 41° F (50° C)]

MALFUNCTION

Glow Plug Malfunction

CORRECTIVE ACTION**CAUTION**

Before performing a continuity test, always disconnect battery negative (-) ground cable and circuit to be tested. Failure to follow this caution may damage multimeter.

NOTE

Refer to engine wiring diagram for assistance (Schematics (WP 0130)).

1. Remove glow plug from cylinder head (Glow Plug Replacement (WP 0124)).
2. Use a multimeter to measure resistance between glow plug terminal and housing. Resistance should read 1.0-1.2 ohms.

Replace damaged glow plug (Glow Plug Replacement (WP 0124)).

MALFUNCTION

Glow Plug Cord Damaged

CORRECTIVE ACTION

1. Test glow plug circuit by disconnecting engine wiring harness from glow plug cord connector (Glow Plug Replacement (WP 0124)).
2. Using multimeter set to DC voltage, check for 12V dc.

If no voltage is present, replace damaged engine wiring harness (Engine Wiring Harness Replacement (WP 0123)).

SYMPTOM

ENGINE RUNS ROUGH (MISFIRES)

MALFUNCTION

Air In Fuel System or Fuel Leakage

CORRECTIVE ACTION

Check for fuel leakage or air in fuel system due to loose nuts (Engine Fuel Tank Maintenance (WP 0118)).

- a. Tighten nuts at both ends of injection pipe.
- b. Replace damaged injection pipe (Engine Fuel Tank Maintenance (WP 0118)).

ENGINE - Continued**MALFUNCTION**

Restricted Fuel Filter

CORRECTIVE ACTION

Clean or replace damaged fuel filter (Engine Fuel Tank Maintenance (WP 0118)).

MALFUNCTION

Overflow Hose Kinked or Restricted

CORRECTIVE ACTION

Clean or replace damaged overflow hose (Engine Fuel Tank Maintenance (WP 0118)).

MALFUNCTION

Restricted or Damaged Nozzle Holder

CORRECTIVE ACTION

1. Replace damaged nozzle holder (Nozzle Holder Maintenance (WP 0116)).
2. Replace damaged injection pump (Injection Pump Maintenance (WP 0115)).

SYMPTOM

ENGINE DOES NOT DEVELOP FULL POWER

MALFUNCTION

Oil Cooler Fins Restricted

CORRECTIVE ACTION**WARNING**

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

CAUTION

Oil cooler fins are fragile. DO NOT use a tool to remove dirt and obstructions or damage will result.

1. Remove oil cooler cover (Rocker Arm Cover Replacement (WP 0112)).

ENGINE - Continued**CORRECTIVE ACTION - Continued**

2. Check for clogged oil cooler fins.
3. Clear oil cooler fins of dirt or obstructions with compressed air.

MALFUNCTION

Cylinder Cowling Restricted

CORRECTIVE ACTION

1. Remove cylinder cowling and spiral case (Side Cover, Cylinder Cowling, and Spiral Case Replacement (WP 0120)).
2. Check for clogged cylinder cowling and dirt or debris around flywheel.
Clear cylinder cowling and area around flywheel of dirt or debris with compressed air.

MALFUNCTION

Injection Pump Incorrect Timing

CORRECTIVE ACTION

Adjust injection pump timing (Injection Pump Maintenance (WP 0115)).

MALFUNCTION

Restricted or Damaged Nozzle Holder

CORRECTIVE ACTION

1. Replace damaged nozzle holder (Nozzle Holder Maintenance (WP 0116)).
2. Replace damaged injection pump (Injection Pump Maintenance (WP 0115)).

ENGINE - Continued

SYMPTOM

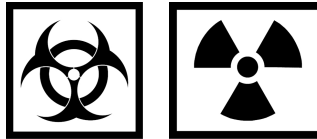
EXCESSIVE BLACK OR DARK GRAY EXHAUST IS OBSERVED

MALFUNCTION

Air Cleaner Restricted

CORRECTIVE ACTION

WARNING



CBRN EXPOSURE

If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.



W_CBRN

To order this CBRN decal use:

National Stock Number (NSN) - 7690-01-474-3533

Part Number (PN) - 1709220

Commercial and Government Entity Code (CAGEC) - 11083

Clean or replace damaged air cleaner element (Engine Air Cleaner Maintenance (WP 0117)).

ENGINE - Continued**MALFUNCTION**

Fuel Filter Restricted

CORRECTIVE ACTION

Clean or replace damaged fuel filter (Engine Fuel Tank Maintenance (WP 0118)).

SYMPTOM

EXCESSIVE WHITE OR BLUE EXHAUST IS OBSERVED

MALFUNCTION

Injection Pump Incorrect Timing

CORRECTIVE ACTION

Adjust injection pump timing (Injection Pump Maintenance (WP 0115)).

END OF WORK PACKAGE

CHAPTER 4

FIELD PREVENTIVE MAINTENANCE CHECKS AND SERVICES
(PMCS)

MAINTENANCE INSTRUCTIONS

OPERATOR MAINTENANCE

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

GENERAL

To ensure that the M1022A1 Dolly Set is ready for operation at all times, it must be inspected on a regular basis so that defects may be found before they result in serious damage, equipment failure, or injury to personnel. Table 1 contains systematic instructions on inspections, adjustments, and corrections to be performed by Operator/Crew Maintenance to keep your equipment in good operating condition and ready for its primary mission.

EXPLANATION OF TABLE ENTRIES

1. **Item Number (Item No.) Column.** Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet) or DA Form 5988E, 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.
2. **Interval Column.** This column tells you when you must perform the procedure in the procedure column.
 - a. Before procedures must be done before you operate or use the equipment for its intended mission.
 - b. During procedures must be done during the time you are operating or using the equipment for its intended mission.
 - c. After procedures must be done immediately after you have operated or used the equipment.
 - d. Weekly procedures must be done once each week.
3. **Item To Check/Service Column.** This column identifies the Item to be checked or serviced.

NOTE

The WARNINGS and CAUTIONS appearing in your PMCS table should always be observed. WARNINGS and CAUTIONS appear before applicable procedures. These WARNINGS and CAUTIONS must be observed to prevent serious injury to yourself and others or to prevent your equipment from being damaged.

4. **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 or for operation. You must perform the procedure at the time stated in the interval column.
5. **Equipment Not Ready/Available If: Column.** Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you make check and service procedures that show faults listed in this column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

GENERAL PMCS PROCEDURES

Always perform PMCS in the same order so it gets to be a habit. Once you've had some practice, you'll spot anything wrong in a hurry. If the dolly set does not perform as required, refer to the appropriate troubleshooting task in Operator/Crew Troubleshooting (WP 0021)

If anything looks wrong and you can't fix it, write it on your DA Form 2404 or DA Form 5988E. If you find something seriously wrong, IMMEDIATELY report it to Field maintenance.

Before performing preventive maintenance, read all the checks required for the applicable interval and prepare all tools needed to make all checks. Have several clean rags (WP 0197, Table 1, Item 42) handy. Perform ALL inspections at the applicable interval.

1. **Keep It Clean.** Dirt, grease, oil, and debris get in the way and may cover up a serious problem. Clean as you work and as needed. Use cleaning solvent on all metal surfaces. Use dishwashing compound and water when you clean rubber, plastic, and painted surfaces.
2. **Rust and Corrosion.** Check metal parts of dolly set and frame for rust and corrosion. If any bare metal or corrosion exists, clean and apply a light coat of lubricating oil . Report it to your supervisor.
3. **Bolts, Nuts, and Screws.** Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition. You can't try them all with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads. If you find one you think is loose, report it to your supervisor.
4. **Welds.** Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to your supervisor.
5. **Electric Wires and Connectors.** Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and ensure that the wires are in good condition.
6. **Air and Hydraulic Hoses and Lines.** Look for wear, damage, and signs of leaks. Ensure that clamps and fittings are tight. Wet spots indicate leaks, of course, but a stain around a fitting or connector can also mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, report it to your supervisor.
7. **Fluid Leakage.** It is necessary for you to know how fluid leakage affects the status of your dolly set. The following are definitions of the types/classes of leakage you need to know to be able to determine whether or not the dolly set is mission-capable. Learn and be familiar with them, and remember - when in doubt, notify your supervisor.

| Leakage Definitions for Operator/Crew PMCS | |
|--|---|
| <p>CAUTION</p> <p>Equipment operation is allowable with minor (Class I or II) leakage. Fluid levels in an item/system affected with such leakage must be checked more frequently than required in PMCS. Parts without fluid will stop working or may be damaged. When in doubt, notify your supervisor. IMMEDIATELY report Class III leaks to Field Maintenance.</p> <p>NOTE</p> <p>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.</p> | |
| Class I | Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops. |
| Class II | Leakage of fluid great enough to form drops, but not enough to cause drops to drip from the Item being inspected. |
| Class III | Leakage of fluid great enough to form drops that fall from the Item being inspected. |

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)**

INITIAL SETUP:

References

WP 0009
WP 0017
WP 0028

References (cont.)

WP 0029
WP 0195

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


| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|---|------------------------------------|
| | | | <p align="center">WARNING</p>  <p>Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.</p> | |

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

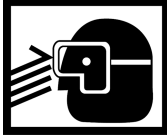





| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|---|------------------------------------|
| | | | <p style="text-align: center;">WARNING</p> <div style="display: flex; flex-wrap: wrap; justify-content: center; gap: 10px;">       </div> <ul style="list-style-type: none"> • Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. • Use cleaning solvent 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. | |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|--|--|
| | | | <ul style="list-style-type: none"> • 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. • Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. • Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • Review all WARNINGS, CAUTIONS, and NOTES before performing Operator/Crew PMCS and operating the dolly set. • Perform all Operator/Crew PMCS if: <ul style="list-style-type: none"> a. You are the assigned operator but have not operated the dolly set since the last Weekly Inspection. b. You are operating the dolly set for the first time. | |
| 1 | Before | Overall View | <ul style="list-style-type: none"> a. Check under front dolly for evidence of fluid leakage. b. Check for obvious damage to front dolly that would impair operation. | <p>Class III hydraulic fluid or oil leakage is evident. Class II fuel leakage is evident.</p> <p>Front dolly damage impairs operation.</p> |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---------------------------------|----------|--------------------------------|--|---|
| 2 | Before | Front Drawbar | <p>a. Check for damage to lunette (Figure 1, Item 9), front drawbar (Figure 1, Item 7), caster wheel assembly (Figure 1, Item 8), and safety chains (Figure 1, Item 6) that would impair operation.</p> <p>b. Check for damage to intervehicular air hoses (Figure 1, Item 4), gladhands (Figure 1, Item 2), and preformed packings (Figure 1, Item 3).</p> <p>c. Check for damage to intervehicular cable (Figure 1, Item 1). Ensure that intervehicular cable is securely connected to signal conditioning box (Figure 1, Item 5).</p> | <p>Parts are missing or damage to parts impairs operation.</p> <p>Breaks or cuts are found. Preformed packings are damaged or missing.</p> <p>Intervehicular cable is missing or damaged.</p> |
| | | | | |
| <p>Figure 1. Front Drawbar.</p> | | | | |
| 3 | Before | Front Engine | <p style="text-align: center;">CAUTION</p> <p>Use caution not to damage threads of dipstick.</p> <p style="text-align: center;">NOTE</p> <p>Operation is possible if equipped with redundant power kit.</p> <p>a. Check crankcase oil level (Operator/Crew Maintenance (WP 0029)). Oil level is FULL if oil coats</p> | <p>Dipstick is missing.</p> |

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

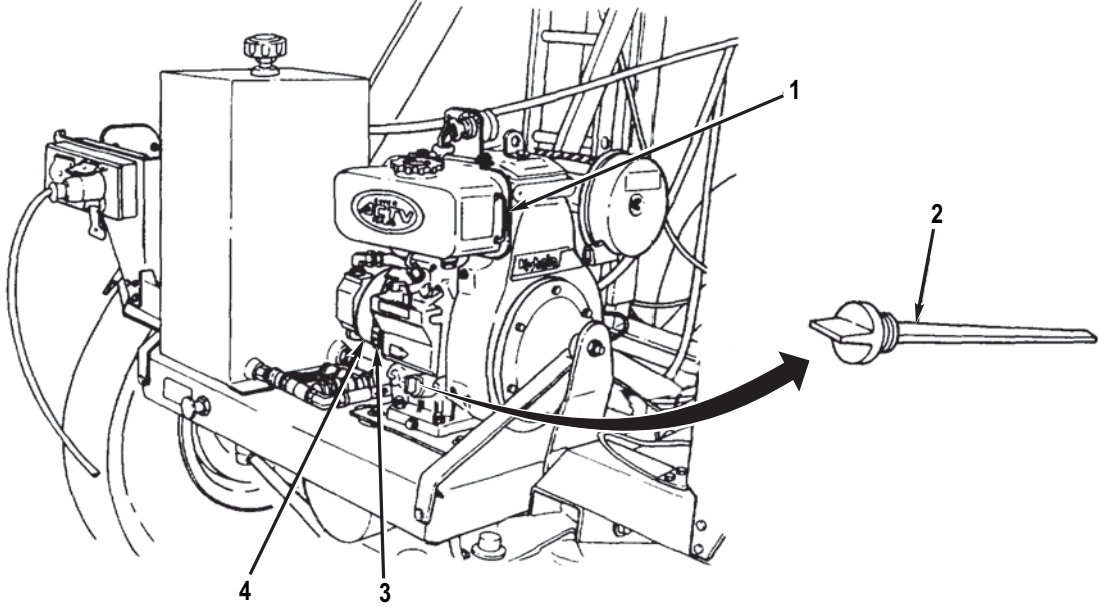
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|---|---|
| | | | threads of dipstick (Figure 2, Item 2). Add oil as required (Lubrication Instructions (WP 0028)). b. Visually check level of fuel through fuel indicator (Figure 2, Item 1). Maximum fuel level height should be just visible at top of fuel indicator. Add fuel as required (Operator/Crew Maintenance (WP 0029)). | |
| 4 | Before | Front Hydraulic Pump | Check that access cover is installed on hydraulic pump adapter (Figure 2, Item 4) and is secured with hose clamp (Figure 2, Item 3). | |
| <div style="text-align: center;">  <p>10001JMS</p> </div> <p style="text-align: center;"><i>Figure 2. Front Engine Oil.</i></p> | | | | |
| 5 | Before | Front Battery and Cables | <p style="text-align: center;">CAUTION</p> <p style="text-align: center;">Avoid overtightening strap, which may damage strap or buckle.</p> <p>Unfasten strap (Figure 3, Item 1) and remove cover (Figure 3, Item 2) from battery case (Figure 3, Item 8). Check for damage to battery (Figure 3, Item 3). Ensure that battery cables (Figure 3, Item 7) are securely connected. Install cover and fasten strap.</p> | Battery or cables are missing or damaged. |

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

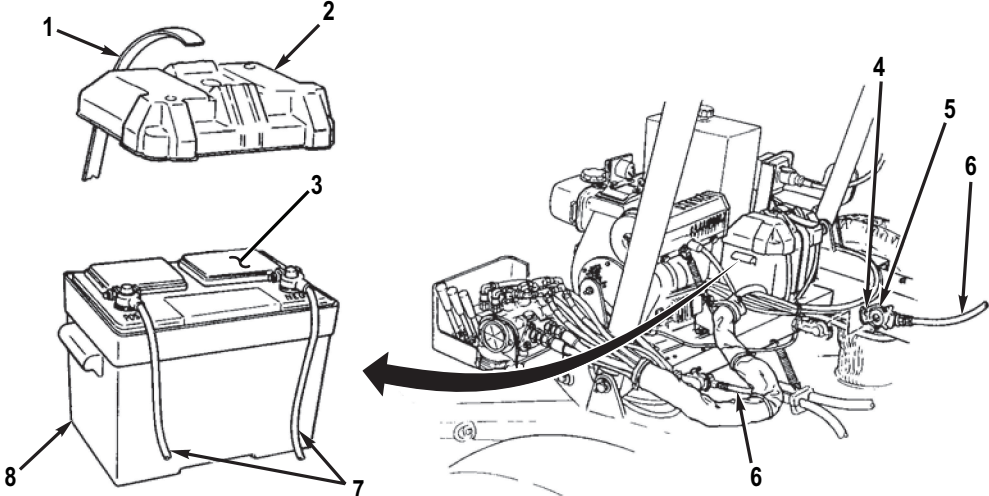
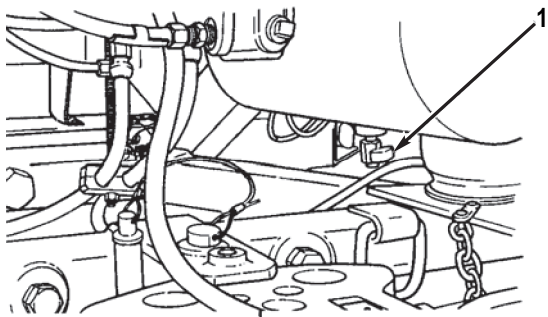
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--|---|--|
|  <p style="text-align: right;">10002JMS</p> <p style="text-align: center;"><i>Figure 3. Front Battery.</i></p> | | | | |
| 6 | Before | Front Pivoting Tray Airbrake Components and Intradolly Air Hoses | <p>a. Check for damage to intradolly air hoses (Figure 3, Item 6), gladhands (Figure 3, Item 4), and preformed packings (Figure 3, Item 5).</p> <p>b. Check that air reservoir drain cock (Figure 4, Item 1) is closed.</p> | Intradolly air hoses, gladhands, or preformed packings are damaged or missing. |
|  <p style="text-align: right;">10003JMS</p> <p style="text-align: center;"><i>Figure 4. Front Air Reservoir Tank Drain.</i></p> | | | | |
| 7 | Before | Front Hydraulic Control Valve | Check for damage to levers (Figure 5, Item 8) at front dolly. | Levers at front dolly are damaged or missing. |
| 8 | Before | Front Wheel Assemblies | a. Check tires for underinflation and condition. | Tire is missing, deflated, or unserviceable. |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|--|---|
| <p>NOTE</p> <p>After initial 50-100 hours of operation, notify Field Maintenance to check torque and re-tighten wheel nuts to proper torque.</p> <p>b. Check wheel nuts for looseness. If loose, tighten. Notify Field Maintenance to apply final torque.</p> | | | | |
| 9 | Before | Front Transportation Lockouts | Check condition of transportation lockouts (Figure 5, Item 5). | Transportation lockouts are missing or damaged. |
| 10 | Before | Front Twist Locks | Check that twist locks (Figure 5, Item 4) and stability cables (Figure 5, Item 6) at top beam (Figure 5, Item 2) and twist locks at bottom beam (Figure 5, Item 7) are present and secure. | Twist lock is missing. |
| 11 | Before | Front Lift Cylinders | If lift cylinder rods (Figure 5, Item 1) are dusty or dirty, wipe down with a rag lightly oiled with lubricating oil. | |

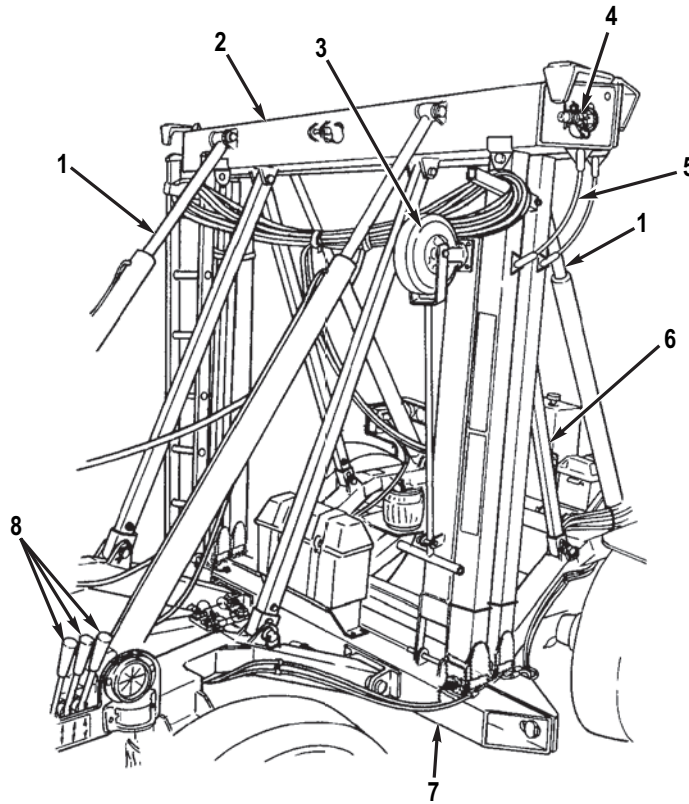
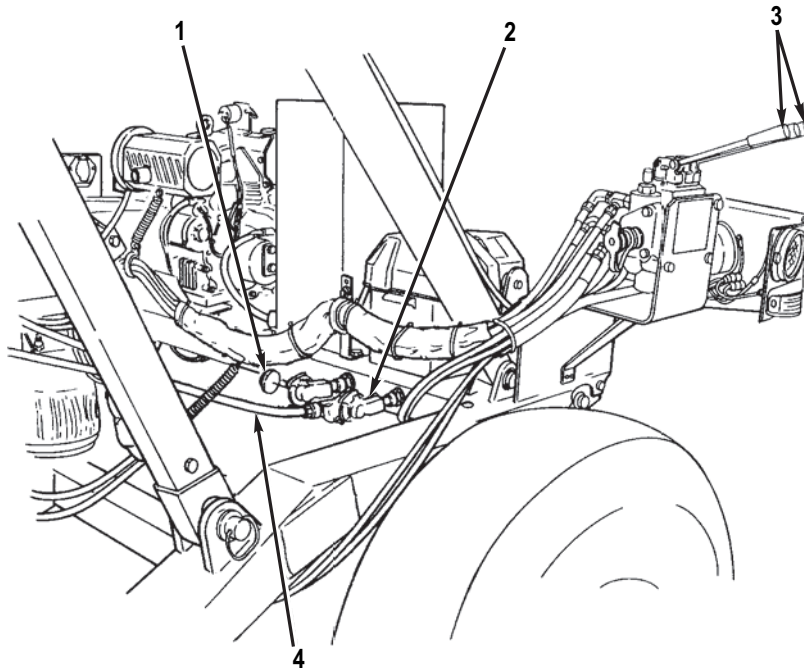


Figure 5. Front Hydraulics.

I0004JMS

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|---|---|---|
| 12 | Before | Rear Overall View | a. Check under rear dolly for evidence of fluid leakage. b. Check for obvious damage to front dolly that would impair operation. | Class III hydraulic fluid or oil leakage is evident. Class II fuel leakage is evident. Rear dolly damage impairs operation. |
| 13 | Before | Rear Hydraulic Control Valve | Check for damage to levers (Figure 6, Item 3) at rear dolly. | Levers at rear dolly are damaged or missing. |
| 14 | Before | Rear Pivoting Tray Gladhands and Intradolly Air Hoses | Check for damage to intradolly air hoses (Figure 6, Item 4), gladhands (Figure 6, Item 2), and preformed packings (Figure 6, Item 1). | Intradolly air hoses, gladhands, or preformed packings are damaged or missing. |

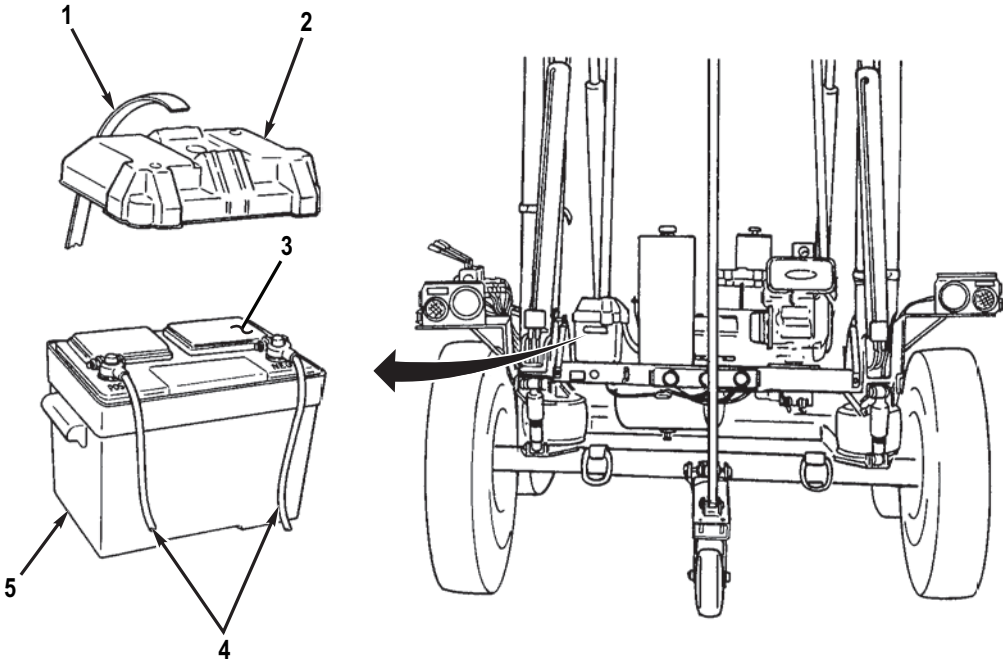


10005JMS

Figure 6. Rear Air Hoses and Gladhands.

| | | | | |
|----|--------|-------------------------|---|--|
| 15 | Before | Rear Battery and Cables | <p style="text-align: center;">CAUTION</p> <p style="text-align: center;">Avoid overtightening strap, which may damage strap or buckle.</p> <p>Unfasten strap (Figure 7, Item 1) and remove cover (Figure 7, Item 2) from battery case (Figure 7, Item 5). Check for damage to battery (Figure 7, Item 3). Ensure that battery cables (Figure 7, Item 4) are securely connected. Install cover and fasten strap.</p> | |
|----|--------|-------------------------|---|--|

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|--|------------------------------------|
|  | | | | |
| <p>Figure 7. Rear Battery.</p> | | | | |
| 16 | Before | Rear Engine | <p style="text-align: center;">CAUTION</p> <p>Use caution not to damage threads of dipstick.</p> <p style="text-align: center;">NOTE</p> <p>Operation is possible if equipped with redundant power kit.</p> <p>a. Check crankcase oil level (Operator/Crew Maintenance (WP 0029)). Oil level is FULL if oil coats threads of dipstick (Figure 8, Item 2). Add oil as required (Lubrication Instructions (WP 0028)).</p> <p>b. Visually check level of fuel through fuel indicator (Figure 8, Item 1). Maximum fuel level height should be just visible at top of fuel indicator. Add fuel as required (Operator/Crew Maintenance (WP 0029)).</p> | Dipstick is missing. |

10006JMS

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

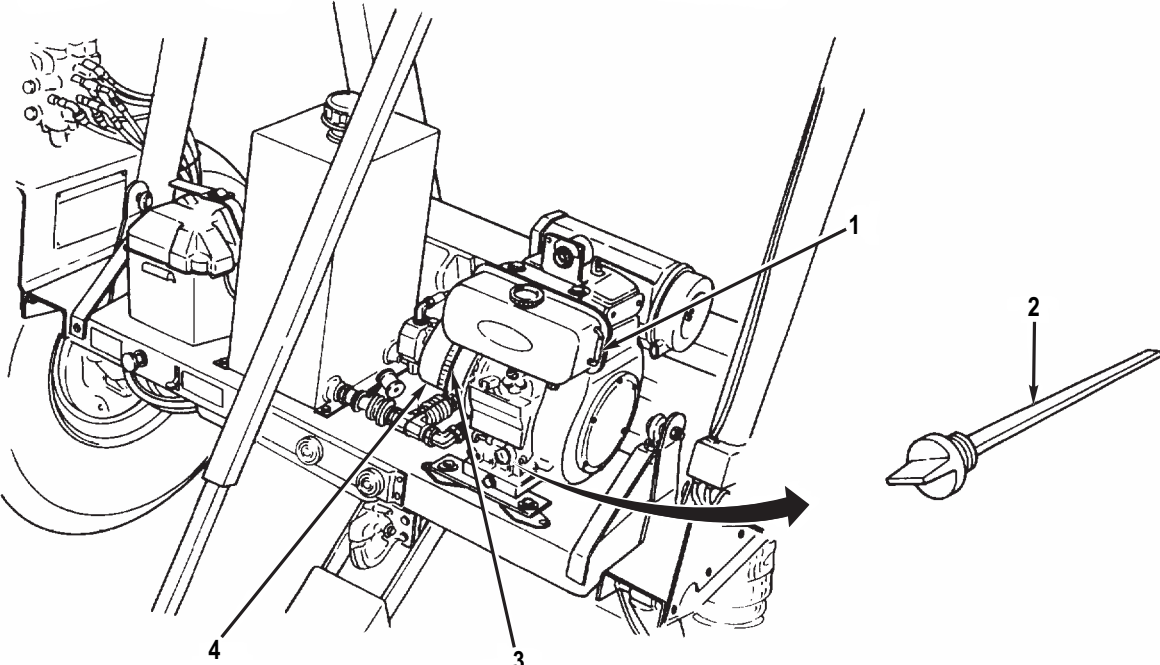
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|---|--|---|
|  <p style="text-align: right; margin-right: 50px;">10007JMS</p> | | | | |
| <p>Figure 8. Rear Engine Oil.</p> | | | | |
| 17 | Before | Rear Hydraulic Pump | Check that access cover is installed on hydraulic pump adapter (Figure 8, Item 4) and is secured with hose clamp (Figure 8, Item 3). | |
| 18 | Before | Rear Towing Airbrake Components and Gladhands | <p>a. Check for damage to intradolly air hoses (Figure 9, Item 3), gladhands (Figure 9, Item 2), and preformed packings (Figure 9, Item 1).</p> <p>b. Check that air reservoir draincock (Figure 9, Item 4) is closed.</p> | Gladhands or preformed packings are damaged or missing. |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|--|---|
| <p style="text-align: right; font-size: small;">10008JMS</p> | | | | |
| 19 | Before | Rear Electrical Installation | <p>a. Check for damage to rear distribution box (Figure 10, Item 2) receptacle connectors (Figure 10, Item 3), and cable assemblies (Figure 10, Item 1).</p> <p>b. Check intradolly cable (Figure 10, Item 5) for cuts, breaks, damaged connector plug (Figure 10, Item 4), or other damage.</p> | <p>Rear distribution box, receptacle connectors, or cable assemblies are damaged.</p> <p>Intradolly cable is damaged.</p> |

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

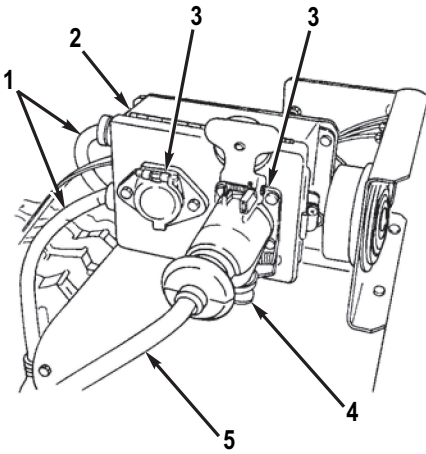
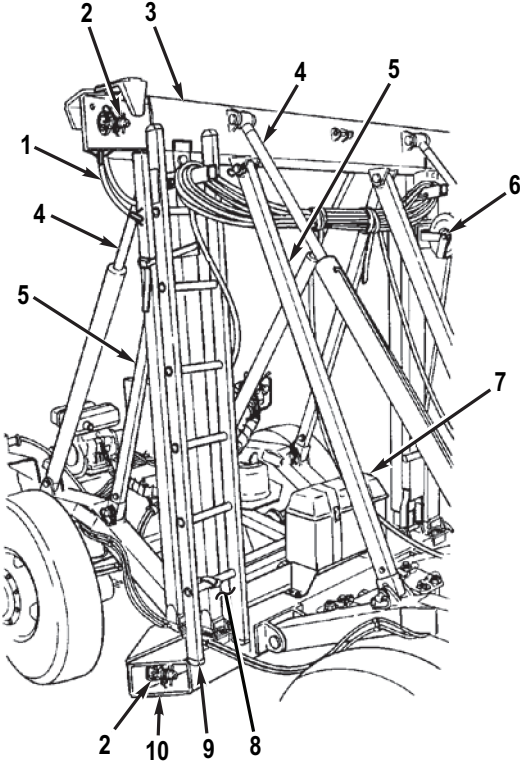
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|---|--|--|
|  <p style="text-align: right; margin-right: 50px;">10009JMS</p> <p style="text-align: center;">Figure 10. Rear Electrical Cables.</p> | | | | |
| 20 | Before | Rear Wheel Assemblies | <p>a. Check tires for underinflation and condition.</p> <p style="text-align: center;">NOTE</p> <p>After initial 50-100 hours of operation, notify Field Maintenance to check torque and re-tighten wheel nuts to proper torque.</p> <p>b. Check wheel nuts for looseness. If loose, tighten. Notify Field Maintenance to apply final torque.</p> | <p>a. Tire is missing, deflated, or unserviceable.</p> <p>b. Two or more wheel nuts are missing.</p> |
| 21 | Before | Rear Transportation Lockouts and Rear Drawbar | <p>a. Check condition of transportation lockouts (Figure 11, Item 5).</p> <p>b. Check for condition and secure stowage of rear drawbar (Figure 11, Item 6) on bottom beam (Figure 11, Item 10).</p> | <p>Transportation lockouts are missing or damaged.</p> <p>Rear drawbar is missing or damaged.</p> |
| 22 | Before | Rear Lift Cylinders | <p>If lift cylinder rods (Figure 11, Item 4) are dusty or dirty, wipe clean with a rag lightly oiled with lubricating oil.</p> | |
| 23 | Before | Rear Ladder and Telescope Braces | <p>Check for condition and secure stowage of ladder (Figure 11, Item 9) and telescopic brace (Figure 11, Item 8) on bottom beam (Figure 11, Item 10).</p> | <p>Telescopic brace is missing or damaged.</p> |
| 24 | Before | Rear Twist Locks and Stability Cables | <p>Check that twist locks (Figure 11, Item 2) and stability cables (Figure 11, Item 1) at top beam (Figure 11, Item 3) and twist locks (Figure 11, Item 2) at bottom beam (Figure 11, Item 10) are present and secure.</p> | <p>Twist lock and/or stability cable is missing, damaged, or not properly secured.</p> |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|--|---|
| 25 | Before | Rear Toolbox | Check contents of toolbox (Figure 11, Item 7) against Basic Issue Items (BII) and Components of End Item (COEI) Lists (WP 0195) . | Toolbox missing. BII or COEI items missing. |
|  <p>Figure 11. Rear Hydraulics.</p> | | | | |
| 26 | Before | Front Electrical Installation | <p>a. Check signal conditioning box (Figure 12, Item 6) and front distribution box (Figure 12, Item 7) for damage to box, receptacle connectors (Figure 12, Item 4), and cable assemblies (Figure 12, Item 5).</p> <p>b. Check intradolly cable (Figure 12, Item 1) for cuts, breaks, damaged connector plug (Figure 12, Item 2), pins (Figure 12, Item 3), or other damage.</p> | <p>Signal conditioning box, front distribution box, receptacle connectors, or cable assemblies are damaged.</p> <p>Intradolly cable is damaged.</p> |

I0010JMS

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

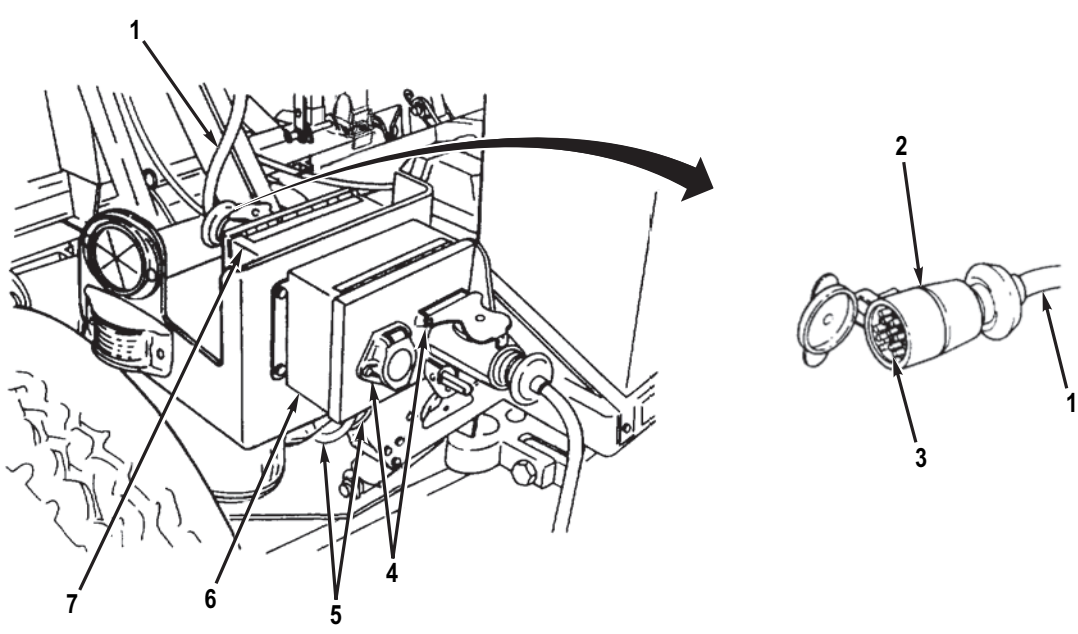
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|--|--|
|  <p style="text-align: right;">10011JMS</p> | | | | |
| <p><i>Figure 12. Front Electrical Boxes and Cables.</i></p> | | | | |
| 27 | Before | Suspension | <p style="text-align: center;">NOTE</p> <p>The following Before operation checks and services are performed with dolly set coupled to towing vehicle and airbrake system fully pressurized (WP 0006) .</p> <p>a. Check air bags (Figure 13, Item 4) for condition and inflation.</p> <p>b. Check shock absorbers (Figure 13, Item 5) for damage.</p> <p>c. Check air bags (Figure 13, Item 4) for even inflation by visually checking ride height indicator rings (Figure 13, Item 6) on shock absorbers (Figure 13, Item 5). As required, use charging assembly to add air (WP 0005) .</p> | <p>Air bag is damaged or deflated.</p> <p>Shock absorber is damaged.</p> |
| 28 | Before | Brakes | <p>a. Check to ensure that rear dolly parking brakes are released. Parking brake lever (Figure 13, Item 8) must be set to OFF position.</p> <p>b. Apply service brakes and listen for sounds of air leaks.</p> <p>c. Pull towing vehicle slightly forward and check operation of dolly set service brakes.</p> | <p>Parking brakes will not release.</p> <p>Air leaks are found.</p> <p>Service brakes do not operate properly.</p> |

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

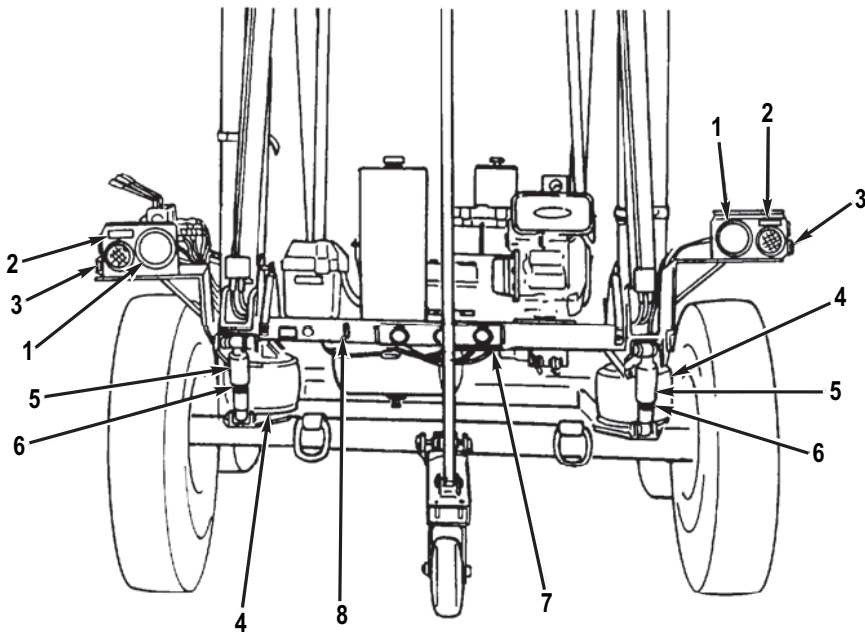
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|---|------------------------------------|
| 29 | Before | Lights | <p style="text-align: center;">NOTE</p> <p>Front dolly has only marker clearance lights.</p> <p>Check for proper operation of marker clearance lights (Figure 13, Item 3), blackout stoplight-taillights (Figure 13, Item 2) (if coupled to a 24V towing vehicle), taillights (Figure 13, Item 1) and identification light (Figure 13, Item 7). Ensure that lights turn on, and turn signals and brake lights operate.</p> | One or more lights do not operate. |
|  <p style="text-align: right; font-size: small;">I0012JMS</p> | | | | |
| 30 | Before | Steering | <p>If towing dolly set, ensure that steering has been unlocked. Check that steering locking pin (Figure 14, Item 1) has been removed from front axle and steering link and placed in stowed position in stowage tube (Figure 14, Item 2).</p> | |

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

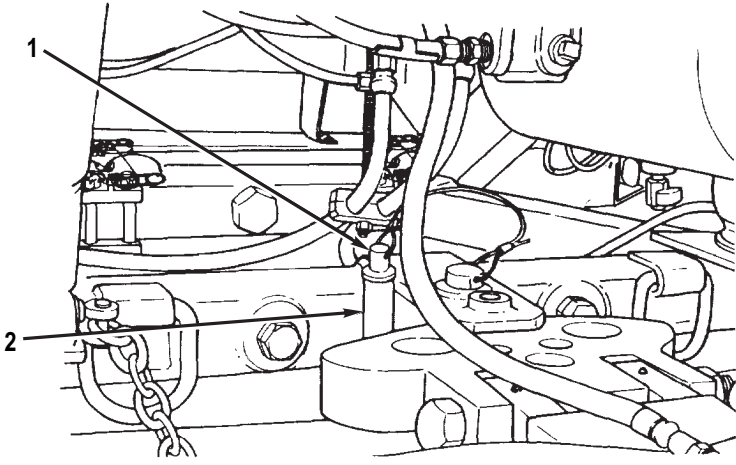
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|---|---|
|  <p>10013JMS</p> <p><i>Figure 14. Steering Lock Pin.</i></p> | | | | |
| 31 | During | Engine Hydraulic System | <p>a. Check engine for proper starting (WP 0005) .</p> <p>b. Check levers (Figure 15, Item 1) at hydraulic control valve (Figure 15, Item 2) for smooth operation of lift and positioning cylinders. Be alert for signs of leaks.</p> | <p>Engine does not start.</p> <p>Cylinders do not operate properly. Class III hydraulic leakage is evident.</p> |

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

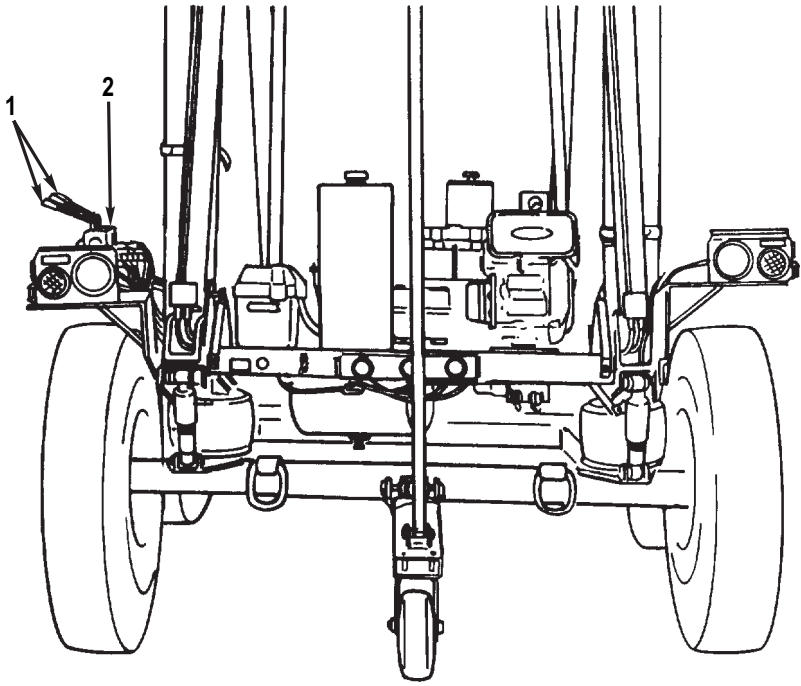
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|---|------------------------------------|
|  <p style="text-align: right; margin-right: 50px;">10014JMS</p> <p style="text-align: center;">Figure 15. Hydraulic Cylinder Operation.</p> | | | | |
| 32 | During | Shelter | <p>a. Check shelter (Figure 16, Item 2) for security. Check all twist locks (Figure 16, Item 1) for tightness.</p> <p>b. Check to ensure that shelter (Figure 16, Item 2) is riding level. Check air bags (Figure 16, Item 5) for even inflation by visually checking ride height indicator rings (Figure 16, Item 4) on shock absorbers (Figure 16, Item 3). As required, use charging assembly to add air (WP 0005) .</p> | |

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

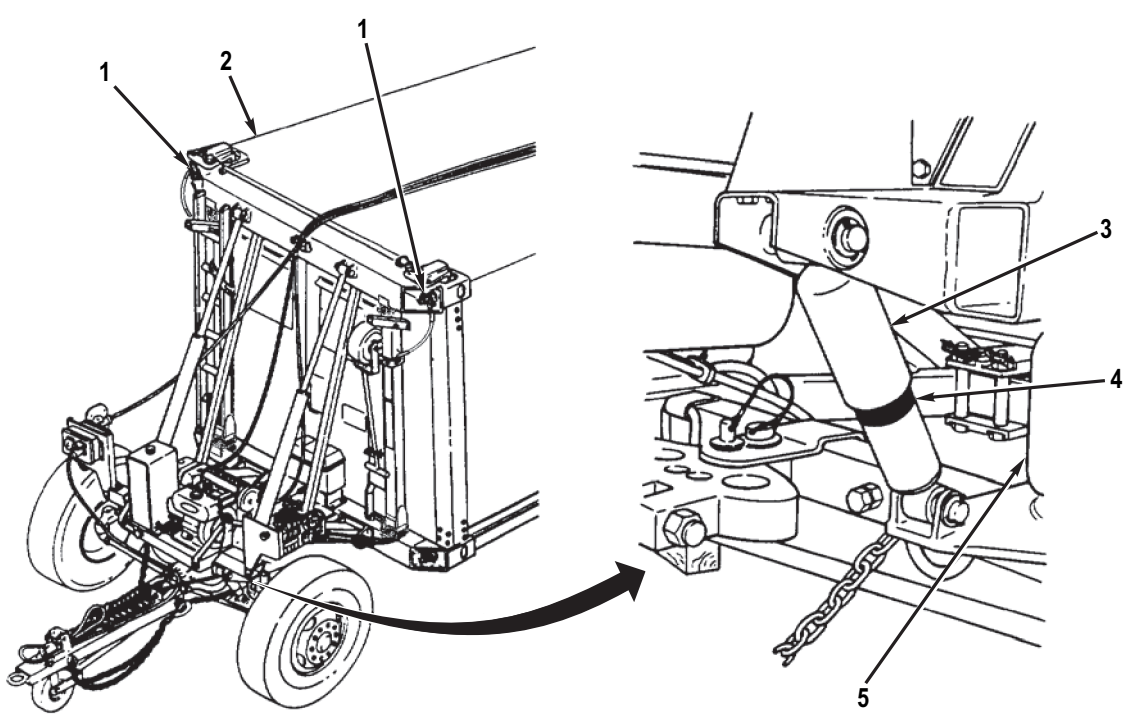

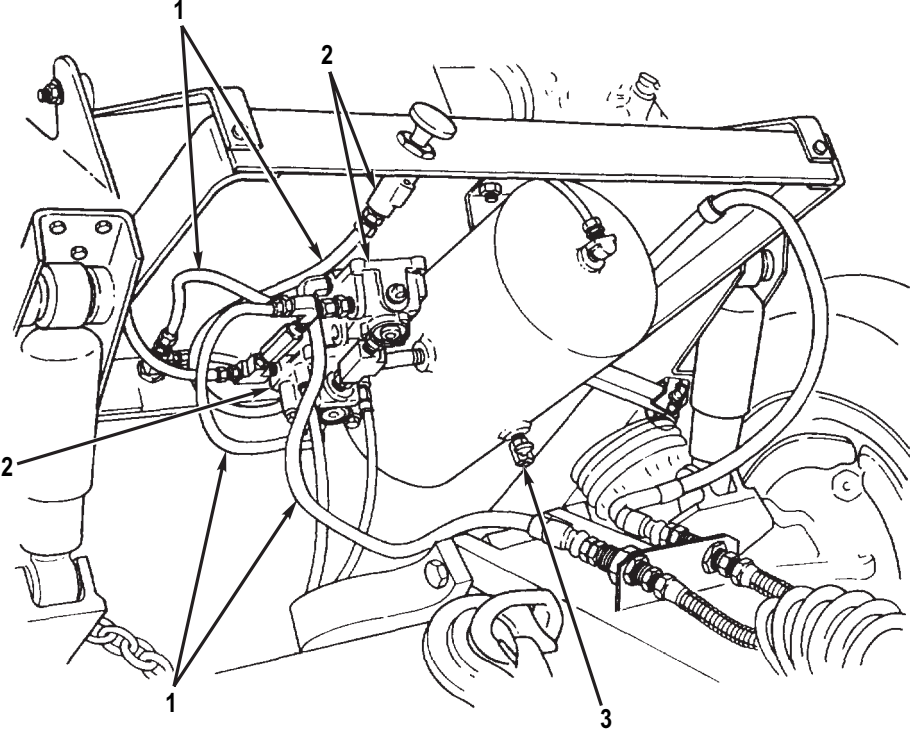
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|--|------------------------------------|
|  <p style="text-align: right;">10015JMS</p> <p style="text-align: center;">Figure 16. Shelter Ride Height.</p> | | | | |
| 33 | During | Brakes | <p>a. Check brakes for any unusual conditions (grabbing, pulling, or slow operation).</p> <p style="text-align: center;">WARNING</p>  <p>Cautiously feel each wheel hub and brake-drum. Wheel hubs and brakedrums may be hot. Failure to follow this warning may result in serious burns to personnel. Seek medical attention in the event of an injury.</p> <p>b. When stopped, cautiously feel each wheel hub and brakedrum. Check for a wheel hub and brakedrum that is hotter or cooler than the others. Overheating could indicate improperly adjusted or defective wheel bearings, or a locked-up brake. A cool wheel hub and brakedrum could indicate an inoperative brake.</p> | |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|---|---|---|
| 34 | During | Tracking | Check dolly set for wandering or pulling to one side, and for any unusual vibration or noises. | |
| 35 | During | Rear Service Light | <p style="text-align: center;">NOTE</p> <p>Rear dolly has intermittent illuminating service light.</p> <p>a. Check for loose bulb. If bulb is tight but lamp lights intermittently when bracket is moved back and forth, the problem is a possible loose pin in the MS connector.</p> <p>b. Continue mission and repair when mission is completed.</p> | |
| 36 | After | Front Overall View | <p>a. Check under front dolly for evidence of fluid leakage.</p> <p>b. Check for obvious damage to front dolly that would impair operation.</p> | <p>Class III hydraulic fluid or oil leakage is evident. Class III fuel leakage is evident.</p> <p>Front dolly damage impairs operation.</p> |
| 37 | After | Front Pivoting Tray Airbrake Components | <p>a. Open air reservoir draincock (Figure 17, Item 3), and allow air and moisture to drain. Close draincock.</p> <p>b. Check air lines (Figure 17, Item 1) for cracks, breaks, and kinks. Ensure that air lines are securely supported. Check valves (Figure 17, Item 2) and fittings for damage.</p> | Air lines, valves, or fittings are damaged. |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|---|--|--|
|  | | | | |
| <p><i>Figure 17. Front Air Reservoir and Line Drain and Check.</i></p> | | | | |
| 38 | After | Hydraulic Reservoir and Redundant Power Quick Disconnects | Check hydraulic reservoir (Figure 18, Item 1) and redundant power quick disconnects (Figure 18, Item 4) at pivoting tray for damage and leaks. Ensure that lockwire (Figure 18, Item 3) for redundant power quick disconnects is present and secure. | Damage is found. Class III hydraulic fluid leakage is evident. |

I0016JMS

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



| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|---|------------------------------------|
| 39 | After | Engine Air Cleaner | <p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div> <p>CBRN EXPOSURE</p> <p>If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.</p> <div style="border: 2px solid black; padding: 10px; margin: 20px auto; width: fit-content;"> <p style="text-align: center;">⚠ WARNING</p> <p style="text-align: center;">IF CBRN EXPOSURE IS SUSPECTED, ALL AIR FILTER MEDIA WILL BE HANDLED BY PERSONNEL WEARING FULL CBRN PROTECTIVE EQUIPMENT. SEE OPERATOR/MAINTENANCE MANUALS. FAILURE TO COMPLY COULD RESULT IN SERIOUS ILLNESS OR DEATH.</p> <p style="text-align: right; font-size: small;">170-922003</p> </div> <p style="text-align: right; margin-right: 50px;">W_CBRN</p> <p>To order this CBRN decal use: National Stock Number (NSN) - 7690-01-474-3533 Part Number (PN) - 1709220 Commercial and Government Entity Code (CAGEC) - 11083</p> <p>If operating in sandy or dusty areas, clean engine air cleaner element (Figure 18, Item 2) (Operator/Crew Maintenance (WP 0029)).</p> | |

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

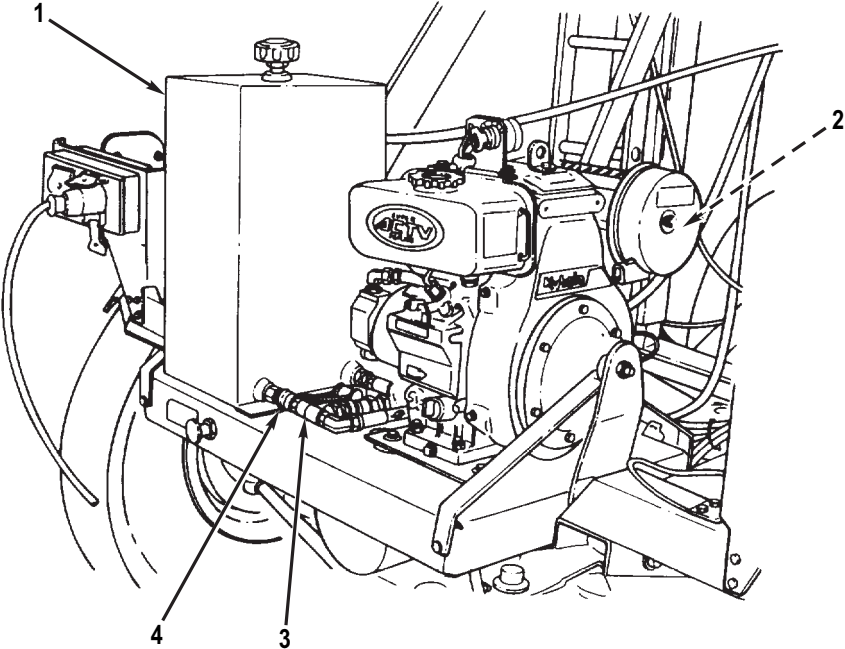
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|--|---|
|  <p>10017JMS</p> <p>Figure 18. Front Hydraulic Reservoir and Hoses Check.</p> | | | | |
| 40 | After | Front Suspension | <ul style="list-style-type: none"> a. Check air bags (Figure 19, Item 1) for cuts, cracks, and general condition. b. Check shock absorbers (Figure 19, Item 2) for damage. | <ul style="list-style-type: none"> Air bag is ruptured or damaged. Shock absorber is damaged. |

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

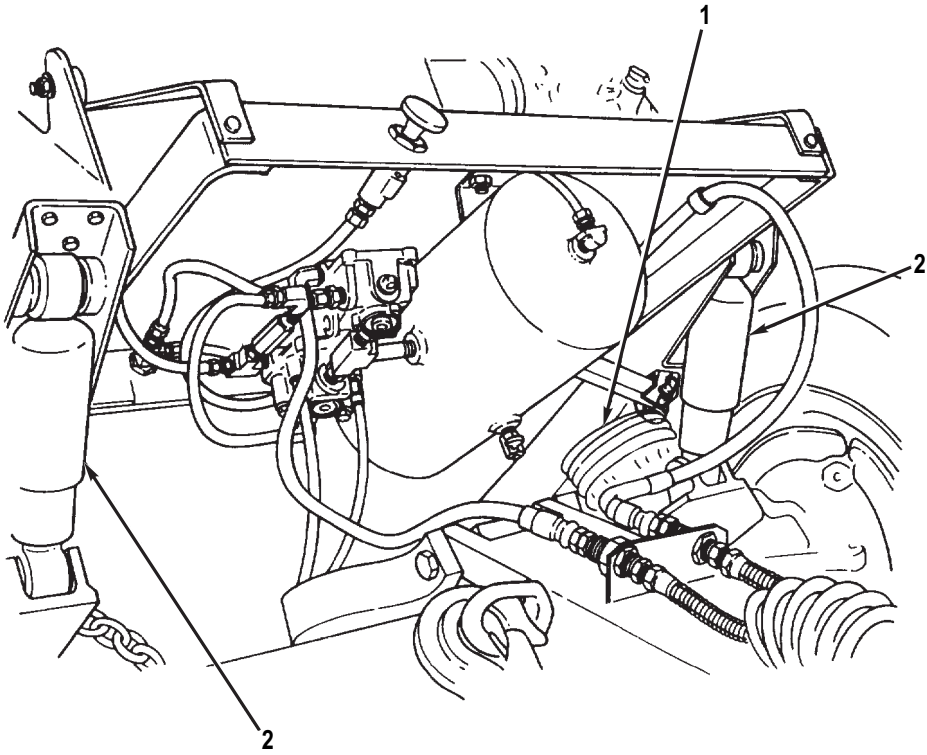
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|---|--|---|
|  | | | | |
| 10018JMS | | | | |
| <p><i>Figure 19. Front Suspension Check.</i></p> | | | | |
| 41 | After | Front Hydraulic Control Valve and Lines | <p>a. Check hydraulic control valve (Figure 20, Item 2) and levers (Figure 20, Item 1) at front dolly for damage and security of mounting.</p> <p>b. Check hydraulic lines (Figure 20, Item 3) and fitting at front dolly for cracks, breaks, kinks, and leaks. Ensure that hydraulic lines are securely mounted, protectively wrapped, and supported.</p> | <p>Hydraulic control valve or levers are damaged.</p> <p>Hydraulic lines or fittings are damaged. Class III hydraulic fluid leakage is evident.</p> |

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

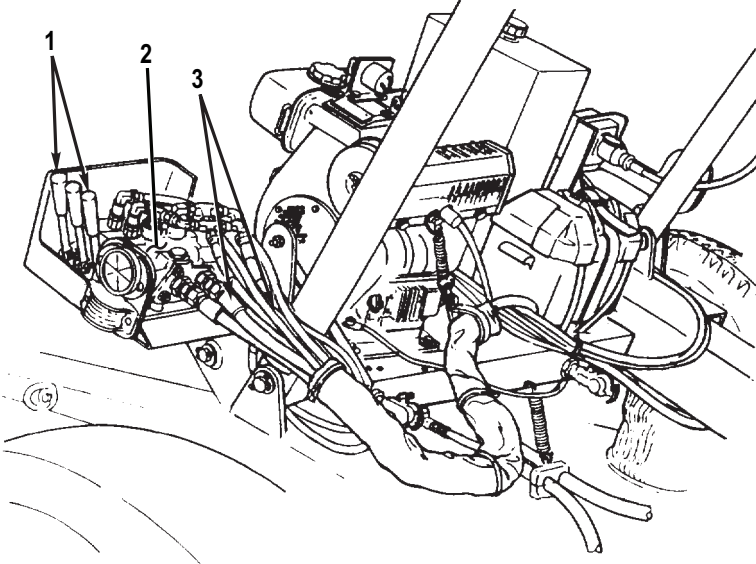
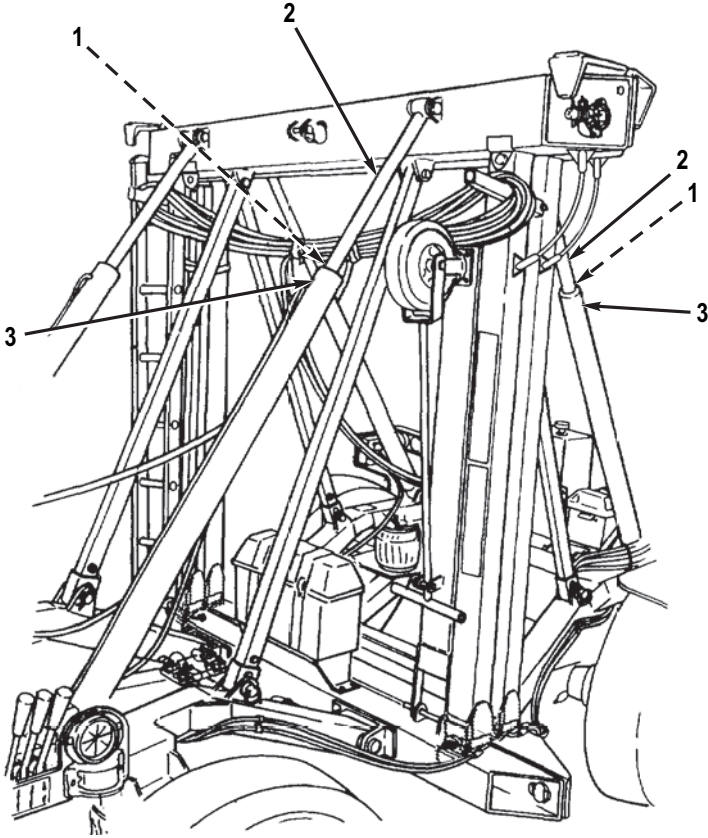
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|---|---|
|  <p>I0019JMS</p> <p>Figure 20. Front Hydraulic Valve and Hoses Check.</p> | | | | |
| 42 | After | Front Lift Cylinders | <p>a. Wipe clean machined surface of lift cylinder rods (Figure 21, Item 2) using a clean rag.</p> <p>b. Inspect rods (Figure 21, Item 2) for signs of pitting, corrosion or other damage. Pay particular attention to cylinder heads (Figure 21, Item 3). Ensure that rod wipers (Figure 21, Item 1) are not damaged or dislodged from cylinder heads.</p> | <p>Rod is damaged or rod wiper is damaged or dislodged.</p> |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|---|--|
|  | | | | |
| <p>Figure 21. Left Side Hydraulic Cylinder and Hoses Check.</p> | | | | |
| 43 | After | Front Airbrake Chamber | Check for damage to airbrake chamber (Figure 22, Item 2) and air line (Figure 22, Item 1) at wheel. | Airbrake chamber or air line is damaged. |

10020JMS

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

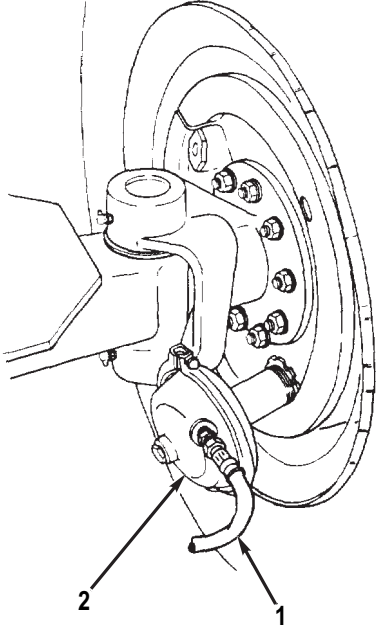
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--|---|---|
|  <p>10021JMS</p> <p>Figure 22. Front Airbrake Chamber.</p> | | | | |
| 44 | After | Rear Overall View | <p>a. Check under rear dolly for evidence of fluid leakage.</p> <p>b. Check for obvious damage to rear dolly that would impair operation.</p> | <p>Class III hydraulic fluid or oil leakage is evident. Class II fuel leakage is evident.</p> <p>Rear dolly damage impairs operation.</p> |
| 45 | After | Rear Hydraulic Control Valve and Lines | <p>a. Check hydraulic control valve (Figure 23, Item 2) and levers (Figure 23, Item 3) at rear dolly for damage and security of mounting.</p> <p>b. Check hydraulic lines (Figure 23, Item 1) and fittings at rear dolly for cracks, breaks, kinks, and leaks. Ensure that hydraulic lines are securely mounted, protectively wrapped, and supported.</p> | <p>Hydraulic control valve or levers are damaged.</p> <p>Hydraulic lines or fittings are damaged. Class III hydraulic fluid leakage is evident.</p> |

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

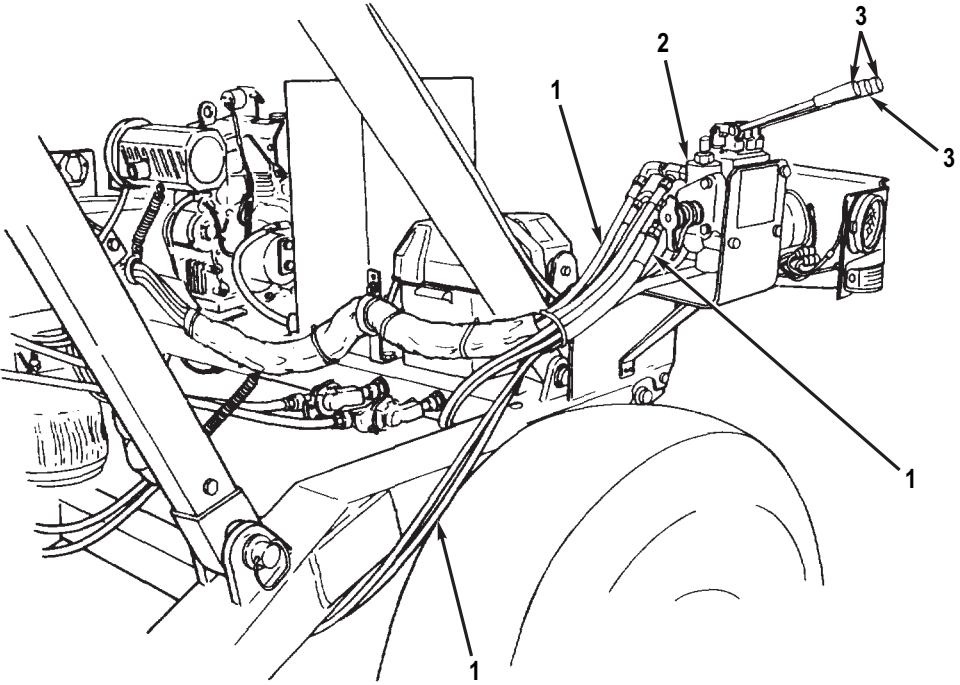
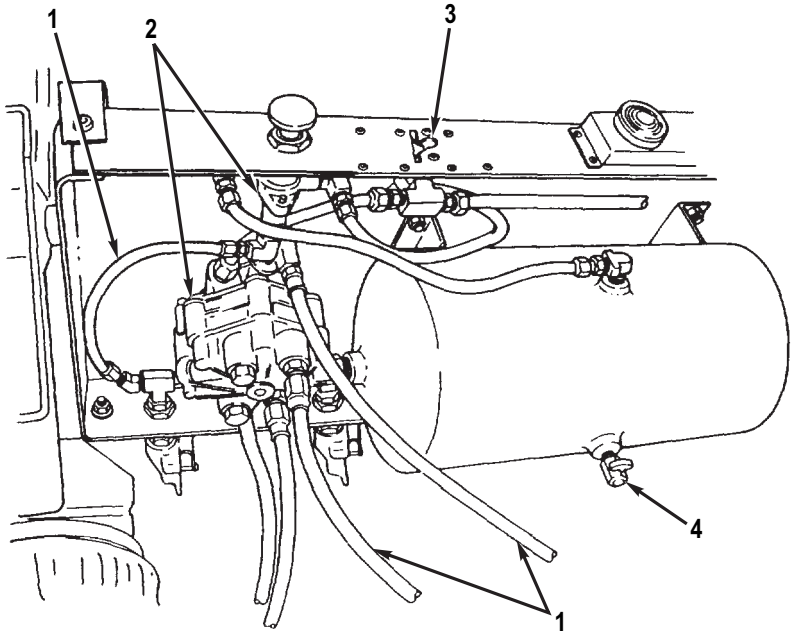
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--|---|---|
|  | | | | |
| 10023JMS | | | | |
| <p><i>Figure 23. Rear Hydraulic Valve and Hoses Check.</i></p> | | | | |
| 46 | After | Rear Pivoting Tray Airbrake Components | <ul style="list-style-type: none"> a. Open air reservoir draincock (Figure 24, Item 4), and allow air and moisture to drain. Close draincock. b. Check air lines (Figure 24, Item 1) for cracks, breaks, and kinks. Ensure that air lines are securely supported. Check valves (Figure 24, Item 2) and fittings for damage. c. Check to ensure that parking brake lever (Figure 24, Item 3) is set to ON position. | Air lines, valves, or fittings are damaged. |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--|---|--|
|  | | | | |
| <p><i>Figure 24. Rear Air Reservoir and Line Check and Drain.</i></p> | | | | |
| 47 | After | Rear Hydraulic Reservoir and Redundant Power Quick Disconnects | Check hydraulic reservoir (Figure 25, Item 1) and redundant power quick disconnects (Figure 25, Item 3) and pivoting tray for damage and leaks. Ensure that lockwire (Figure 25, Item 4) for redundant power quick disconnects is present and secure. | Damage is found. Class III hydraulic fluid leakage is evident. |

10024JMS

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



| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|--|------------------------------------|
| 48 | After | Rear Engine Air Cleaner | <p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div> <p style="text-align: center;">CBRN EXPOSURE</p> <p>If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.</p> <div style="text-align: center; border: 2px solid black; padding: 10px; margin: 20px 0;"> <p>⚠ WARNING</p> <p>IF CBRN EXPOSURE IS SUSPECTED, ALL AIR FILTER MEDIA WILL BE HANDLED BY PERSONNEL WEARING FULL CBRN PROTECTIVE EQUIPMENT. SEE OPERATOR/MAINTENANCE MANUALS. FAILURE TO COMPLY COULD RESULT IN SERIOUS ILLNESS OR DEATH.</p> <p style="text-align: right; font-size: small;">170-922003</p> </div> <p style="text-align: right; margin-right: 50px;">W_CBRN</p> <p>To order this CBRN decal use: National Stock Number (NSN) - 7690-01-474-3533 Part Number (PN) - 1709220 Commercial and Government Entity Code (CAGEC) - 11083</p> <p>If operating in sandy or dusty areas, clean air cleaner element (Figure 25, Item 2) (WP 0017) .</p> | |

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

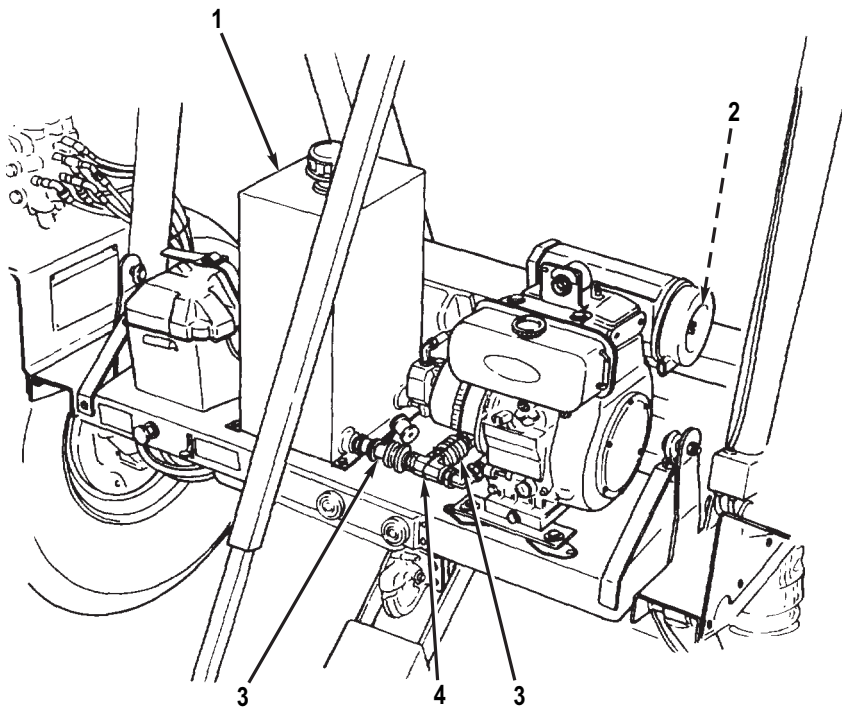
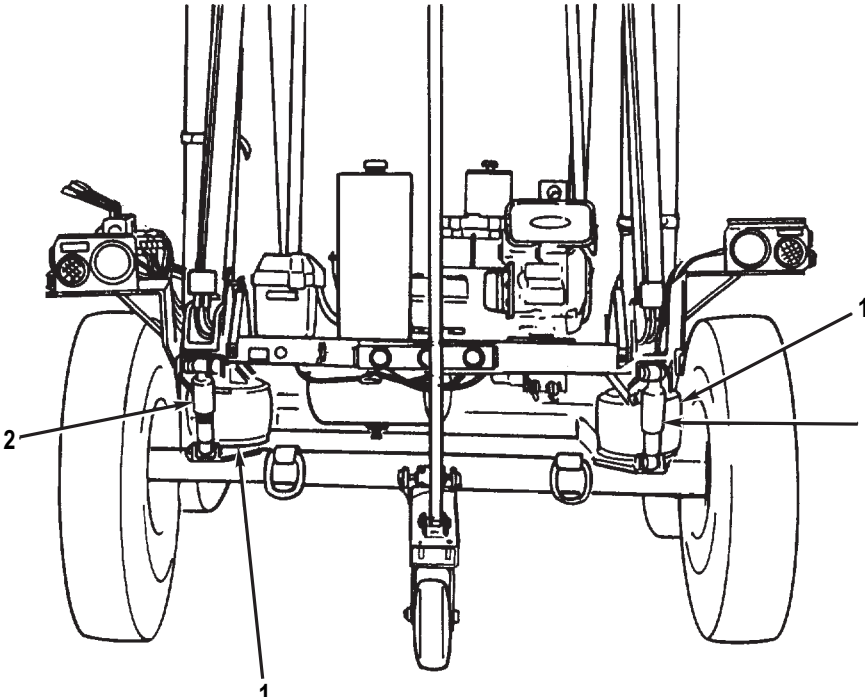
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|--|--|
|  <p style="text-align: right; margin-right: 50px;">10025JMS</p> | | | | |
| <p>Figure 25. Rear Hydraulic Reservoir and Hoses Check.</p> | | | | |
| 49 | After | Rear Suspension | <ul style="list-style-type: none"> a. Check air bags (Figure 26, Item 1) for cuts, cracks, and general condition. b. Check shock absorbers (Figure 26, Item 2) for damage. | <p>Air bag is ruptured or damaged.</p> <p>Shock absorber is damaged.</p> |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|--|------------------------------------|
|  | | | | |
| <small>10026JMS</small> | | | | |
| <p>Figure 26. Rear Suspension Check.</p> | | | | |
| 50 | After | Rear Pintle Assembly | Check for damage to pintle assembly (Figure 27, Item 1). | |

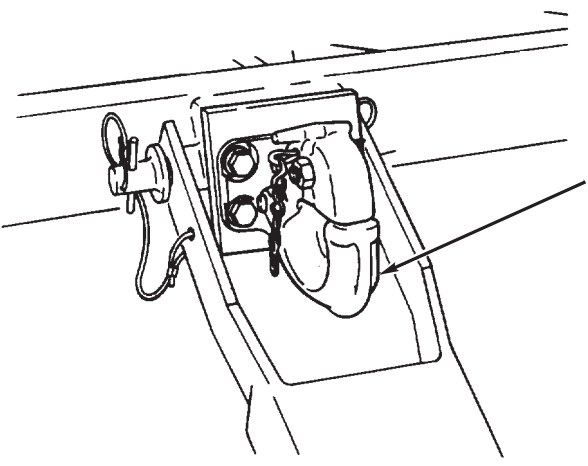
| | | | | |
|--|--|--|--|--|
|  | | | | |
| <small>10027JMS</small> | | | | |
| <p>Figure 27. Rear Pintle Hook.</p> | | | | |

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

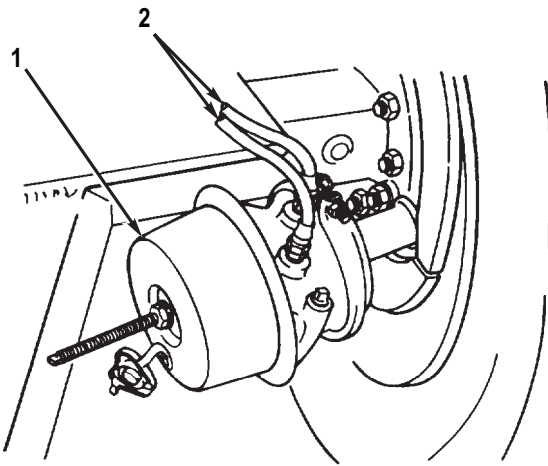
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|--|----------|--------------------------------|--|--|
| 51 | After | Rear Airbrake Chamber | Check for damage to airbrake chamber (Figure 28, Item 1) and air lines (Figure 28, Item 2) at wheel. | Airbrake chamber or air lines are damaged. |
|  <p>10028JMS</p> <p>Figure 28. Rear Airbrake Chamber.</p> | | | | |
| 52 | After | Rear Lift Cylinders | <p>a. Wipe clean machine surface of lift cylinder rods (Figure 29, Item 1) using a clean rag.</p> <p>b. Inspect rods (Figure 29, Item 1) for signs of pitting, corrosion or other damage. Pay particular attention to cylinder heads (Figure 29, Item 3). Ensure that rod wipers (Figure 29, Item 2) are not damaged or dislodged from cylinder heads.</p> | Rod is damaged or rod wiper is damaged or dislodged. |

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

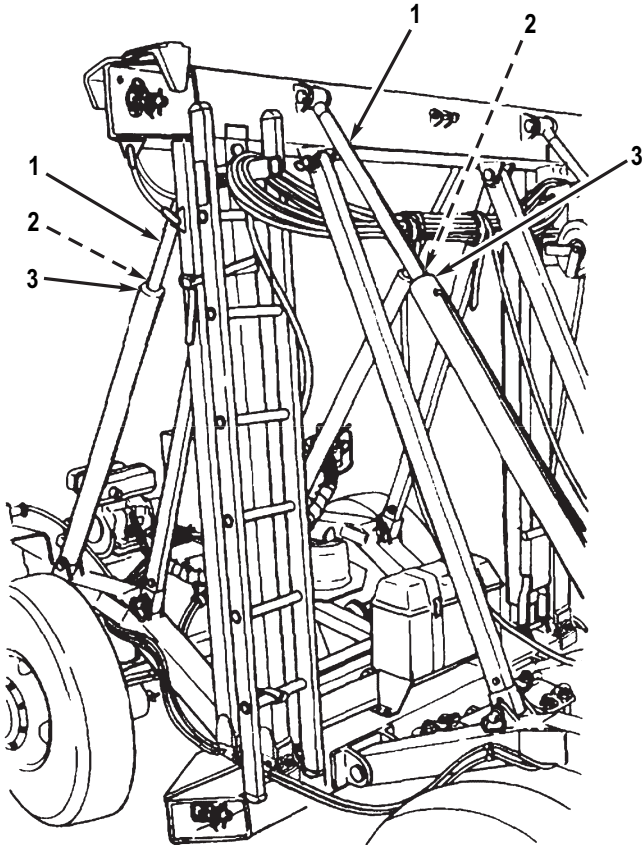
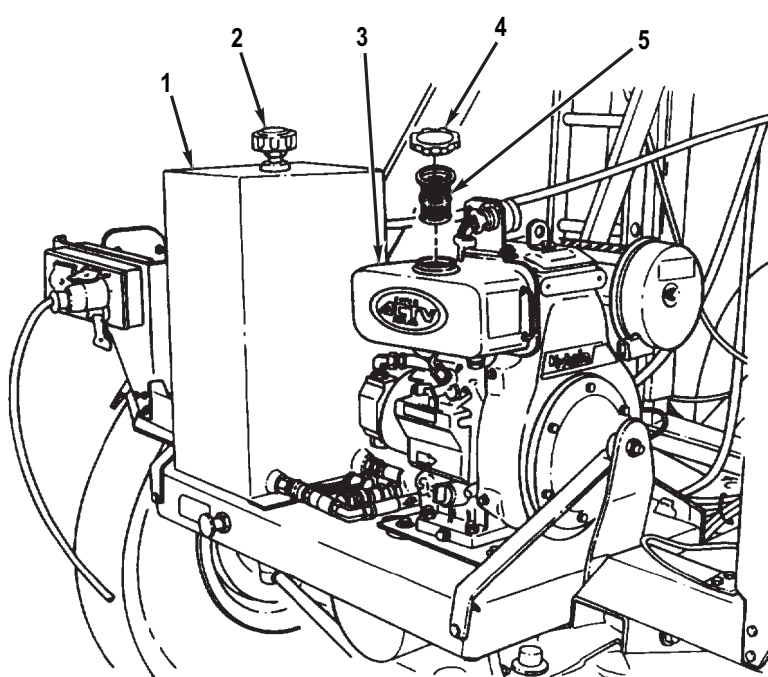


| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|--|------------------------------------|
|  | | | | |
| 10029JMS | | | | |
| <p><i>Figure 29. Right Side Hydraulic Cylinder and Hoses Check.</i></p> | | | | |
| 53 | Weekly | Hydraulic Reservoir | <p style="text-align: center;">NOTE</p> <p>Unless otherwise indicated, the following checks must be performed on BOTH front and rear dollies.</p> <p>Lower dolly set to ground (WP 0009) . Remove cap (Figure 30, Item 2) from hydraulic reservoir (Figure 30, Item 1). Check level of hydraulic fluid (Operator/Crew Maintenance) (WP 0029) . Add hydraulic fluid as required (Lubrication Instructions (WP 0028)).</p> | |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|--|------------------------------------|
|  | | | | |
| <p>Figure 30. Front Hydraulic Reservoir and Hoses Check.</p> | | | | |
| 54 | Weekly | Engine Fuel Tank Strainer | <p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Diesel fuel is combustible. DO NOT smoke or allow open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning will result in serious injury or death to personnel. Seek medical attention immediately in the event of an injury.</p> | |

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


| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|---|------------------------------------|
| | | | <p style="text-align: center;">WARNING</p>  <p>Avoid prolonged exposure or breathing of brake dust fumes. Work in a well-ventilated area. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.</p> <p>Remove cap (Figure 30, Item 4) from fuel tank (Figure 30, Item 3). Clean obstructions and remove contaminants from strainer (Figure 30, Item 5) as required (Operator/Crew Maintenance (WP 0029)).</p> | |
| 55 | Weekly | Crankcase Oil and Filter | <p>If engine is new, notify Field Maintenance after initial week of operation to drain crankcase oil and clean oil filter. Fill crankcase with proper grade of oil (Lubrication Instructions (WP 0028)).</p> | |

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



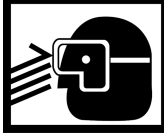
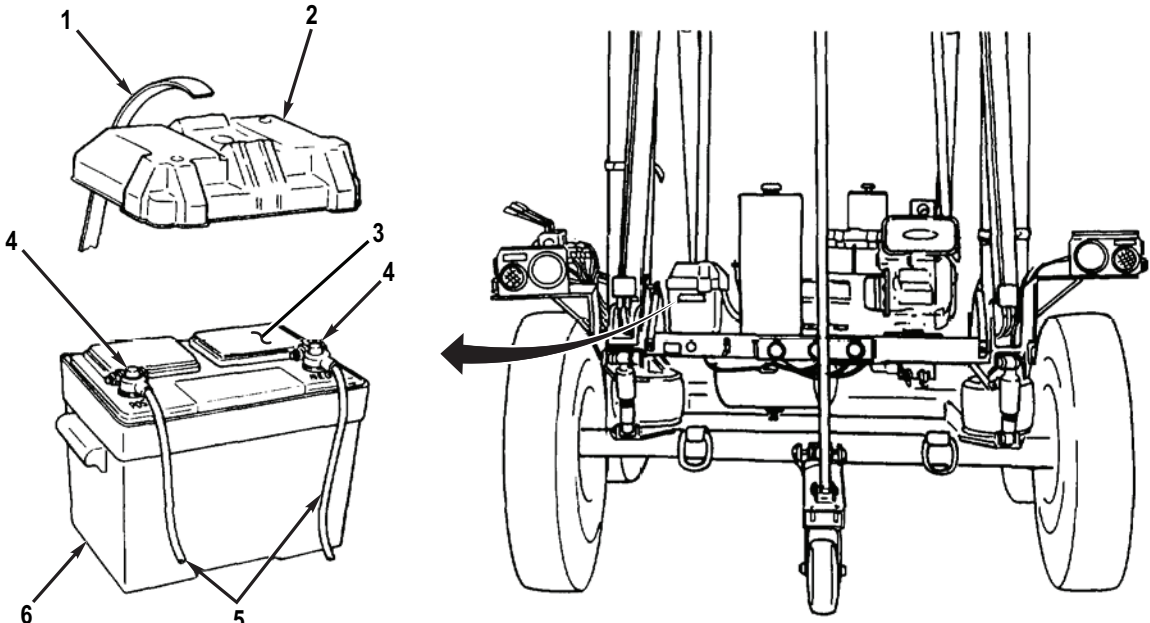
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|--|---|
| 56 | Weekly | Batteries | <p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div> <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> • Remove all jewelry, such as rings, I.D. tags, bracelets, etc. If jewelry contacts a battery terminal, a direct short will result causing instant heating of jewelry. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury. • Battery acid (electrolyte) is extremely dangerous. Always wear eye protection and rubber gloves when performing battery checks or inspections. Serious injury to personnel will result if battery acid contacts skin or eyes. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury. • DO NOT perform battery system checks or inspections while smoking or near fire, flames, or sparks. Battery gases may explode. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury. <p>a. Unfasten strap (Figure 31, Item 1) and remove cover (Figure 31, Item 2) from battery case (Figure 31, Item 6). Inspect battery (Figure 31, Item 3) for cracked or damaged case.</p> <p style="text-align: center;">CAUTION</p> <p>Avoid overtightening strap, which may damage strap or buckle.</p> <p>b. Inspect battery (Figure 31, Item 3) for burned, corroded, or dirty terminals (Figure 31, Item 4). Inspect battery cables (Figure 31, Item 5) for dirt, corrosion, or loose connections. Clean battery terminals and cable</p> | <p>Battery case is damaged or missing.</p> <p>Terminals or cables are damaged or missing.</p> |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|--|--|
| | | | <p>end connections as required IAW TM 9-6140-200-13. Install cover (Figure</p>  | |
| 57 | Weekly | Wheel Assemblies | <p>a. Check wheels for breaks or bends.</p> <p>b. Check dolly set tires for proper inflation of 110 psi (758 kPa) for use on highway, cross-country, mud, sand, or air transport.</p> <p>c. Check caster wheel assembly tires for inflation of 95 psi (655 kPa).</p> | Wheels assembly is damaged. |
| 58 | Weekly | Frame and Suspension Assembly | <p>a. Inspect top beams (Figure 32, Item 1), bottom beams (Figure 32, Item 5), suspension links (Figure 32, Item 4), pivot axle bracket (Figure 32, Item 2), and axle (Figure 32, Item 3) for cracks, breaks, or bends.</p> <p>b. Check security of mounting of pivoting tray (Figure 32, Item 6).</p> | <p>Frame, suspension, or axle is damaged.</p> <p>Pivoting tray mounting is not secure.</p> |

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Figure 31. Battery.

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

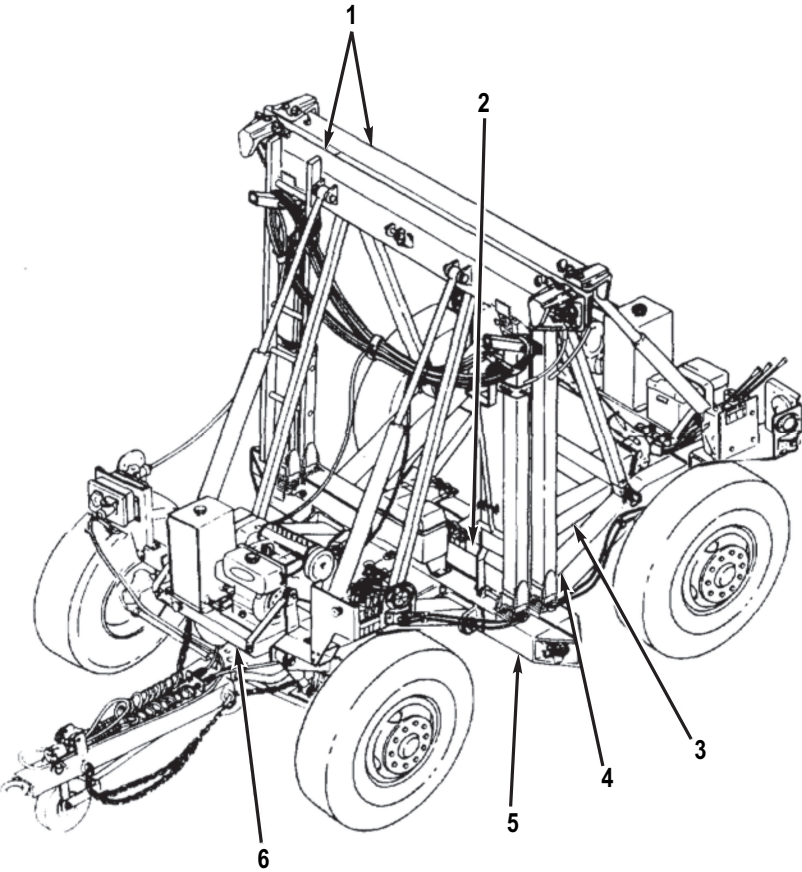
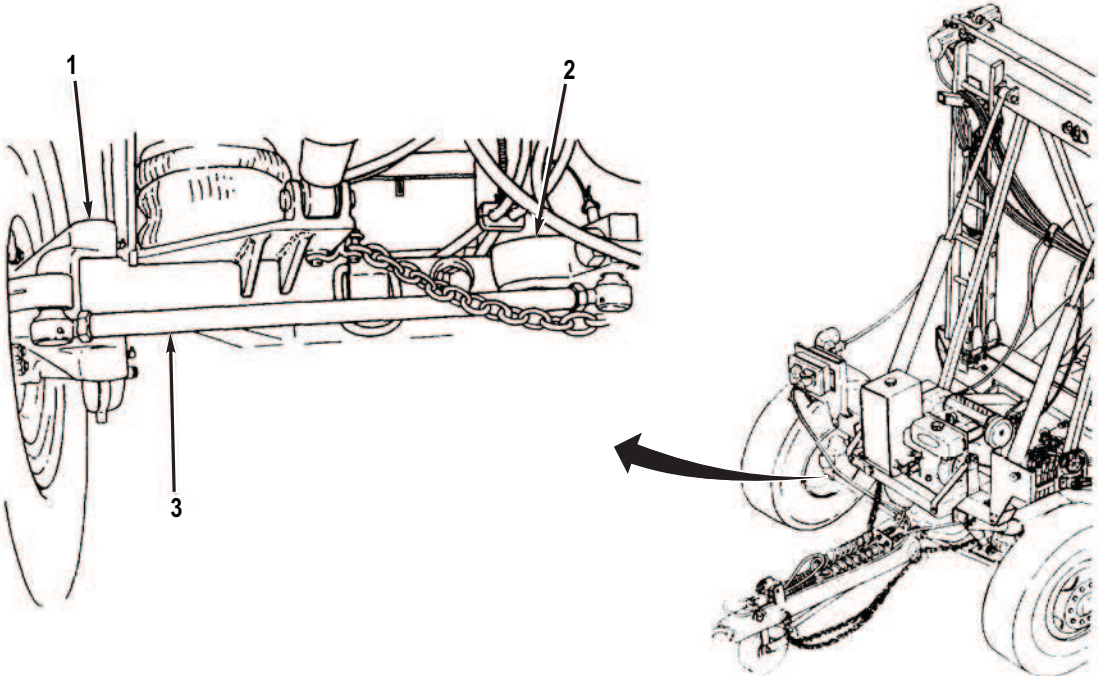
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|---|--|
|  <p style="text-align: right; margin-right: 50px;">10032JMS</p> <p style="text-align: center;">Figure 32. Frame.</p> | | | | |
| 59 | Weekly | Front Axle Steering Components | Inspect steering knuckle assemblies (Figure 33, Item 1), steering link (Figure 33, Item 2), and tie-rods (Figure 33, Item 3) for cracks, breaks, bends, and loose mounting. | Steering knuckle assembly, steering link, or tie-rod is damaged. |

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

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|---|----------|--------------------------------|-----------|------------------------------------|
|  | | | | |
| <p>Figure 33. Suspension.</p> | | | | |

10033JMS

END OF TASK

END OF WORK PACKAGE

CHAPTER 5

FIELD PREVENTIVE MAINTENANCE CHECKS AND SERVICES
(PMCS)
MAINTENANCE INSTRUCTIONS

FIELD MAINTENANCE FIELD PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

GENERAL

To ensure that the M1022A1 Dolly Set is ready for operation at all times, it must be inspected on a regular basis so that defects may be found before they result in serious damage, equipment failure, or injury to personnel. Table 4-1 contains systematic instructions on inspections, adjustments, and corrections to be performed by Field Maintenance to keep the dolly set in good operating condition and ready for its primary mission.

EXPLANATION OF TABLE ENTRIES

1. **Item Number (Item No.) Column.** Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet) or DA Form 5988E 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.
2. **Interval Column.** This column tells you when you must perform the procedure in the procedure column.
 - a. Before procedures must be done before you operate or use the equipment for its intended mission.
 - b. During procedures must be done during the time you are operating or using the equipment for its intended mission.
 - c. After procedures must be done immediately after you have operated or used the equipment.
 - d. Weekly procedures must be done once each week.
3. **Item To Check/Service Column.** This column identifies the Item to be checked or serviced.

NOTE

The WARNINGS and CAUTIONS appearing in your PMCS table should always be observed. WARNINGS and CAUTIONS appear before applicable procedures. These WARNINGS and CAUTIONS must be observed to prevent serious injury to yourself and others or to prevent your equipment from being damaged.

4. **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 or for operation. You must perform the procedure at the time stated in the interval column.
5. **Equipment Not Ready/Available If: Column.** Information in this column tells you what faults will keep your equipment from being capable of performing its primary mission. If you make check and service procedures that show faults listed in this column, do not operate the equipment. Follow standard operating procedures for maintaining the equipment or reporting equipment failure.

GENERAL PMCS PROCEDURES

Always perform PMCS in the same order so it gets to be a habit. Once you've had some practice, you'll spot anything wrong in a hurry. If any deficiency is discovered, perform the appropriate troubleshooting task in Field: Troubleshooting (WP 0022) . If any component or system is not serviceable, or if the given service does not correct the deficiency, notify your supervisor.

If anything looks wrong and you can't fix it, write it on your DA Form 2404 or DA Form 5988E. If you find something seriously wrong, IMMEDIATELY report it to your supervisor.

Before performing preventive maintenance, read all the checks required for the applicable interval and prepare all tools needed to make all checks. Have several clean rags (WP 0197, Table 1, Item 42) handy. Perform ALL inspections at the applicable interval.

1. **Keep It Clean.** Dirt, grease, oil, and debris get in the way and may cover up a serious problem. Clean as you work and as needed. Use cleaning solvent (WP 0197, Table 1, Item 45) on all metal surfaces. Use

dishwashing compound (WP 0197, Table 1, Item 45) and water when you clean rubber, plastic, and painted surfaces.

2. **Rust and Corrosion.** Check metal parts of the dolly set and frame for rust and corrosion. If any bare metal or corrosion exists, clean and apply a light coat of lubricating oil IAW General Maintenance Instructions (WP 0128) . Report it to your supervisor.
3. **Bolts, Nuts, and Screws.** Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition. You can't try them all with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads. if you find one you think is loose, tighten it.
4. **Welds.** Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to your supervisor.
5. **Electric Wires and Connectors.** Look for cracked or broken insulation, bare wires, and loose or broken connectors, Tighten loose connectors and ensure that the wires are in good condition.
6. **Hydraulic Hoses and Lines.** Look for wear, damage, and signs of leaks. Ensure that clamps and fittings are tight. Wet spots indicate leaks, of course, but a stain around a fitting or connector can also mean a leak. If a leak comes from a loose fitting or connector, tighten it. If something is broken or worn out, correct it if authorized by the Maintenance Allocation Chart Maintenance Allocation Chart (MAC) (WP 0194) . If not authorized, report it to your supervisor.
7. **Fluid Leakage.** It is necessary for you to know how fluid leakage affects the status of your dolly set. The following are definitions of the types/classes of leakage you need to know to be able to determine whether or not the dolly set is mission-capable. Learn and be familiar with them, and remember - when in doubt, notify your supervisor.

| Leakage Definitions for Operator/Crew PMCS | |
|--|---|
| <p>CAUTION</p> <p>Equipment operation is allowable with minor (Class I or II) leakage. Fluid levels in an item/system affected with such leakage must be checked more frequently than required in PMCS. Parts without fluid will stop working or may be damaged. When in doubt, notify your supervisor. IMMEDIATELY report Class III leaks to Field Maintenance.</p> <p>NOTE</p> <p>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.</p> | |
| Class I | Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops. |
| Class II | Leakage of fluid great enough to form drops, but not enough to cause drops to drip from the Item being inspected. |
| Class III | Leakage of fluid great enough to form drops that fall from the Item being inspected. |

END OF WORK PACKAGE

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

INITIAL SETUP:

References

TM 9-214
 TM 9-2610-200-14
 TM 9-6140-200-13
 WP 0002
 WP 0005
 WP 0028
 WP 0029
 WP 0052
 WP 0056
 WP 0071

References (cont.)

WP 0072
 WP 0073
 WP 0074
 WP 0076
 WP 0113
 WP 0117
 WP 0118
 WP 0120
 WP 0197

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS).


| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|---|---------------------------------------|
| | | | <p align="center">WARNING</p>  <p>Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.</p> | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.

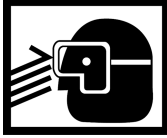





| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|---|------------------------------------|
| | | | <p style="text-align: center;">WARNING</p> <div style="display: flex; flex-wrap: wrap; justify-content: center; gap: 10px;">       </div> <ul style="list-style-type: none"> • Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. • Use cleaning solvent 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|--|------------------------------------|
| | | | <ul style="list-style-type: none"> • 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. • Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. • Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury. <p style="text-align: center;">NOTE</p> <ul style="list-style-type: none"> • 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. • Refer to local procedures and plans for storage and disposal of any drained fluids. • DO NOT overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir/ tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task. | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|---------------|--------------------------------|---|------------------------------------|
| | | | <p style="text-align: center;">NOTE</p> <p>The following checks, except where noted, must be performed on BOTH front and rear dollies.</p> | |
| 1 | Semi-annually | Engine Crankcase | Drain oil from crankcase and remove oil filter. Clean or replace oil filter as required. Fill crankcase with oil (Lubrication Instructions (WP 0028)). | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.



| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|---------------|--------------------------------|---|------------------------------------|
| 2 | Semi-annually | Engine Air Cleaner Element | <p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div> <p>CBRN EXPOSURE</p> <p>If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.</p> <div style="border: 2px solid black; padding: 10px; margin: 20px auto; width: fit-content;"> <p style="text-align: center;">⚠ WARNING</p> <p style="text-align: center;">IF CBRN EXPOSURE IS SUSPECTED, ALL AIR FILTER MEDIA WILL BE HANDLED BY PERSONNEL WEARING FULL CBRN PROTECTIVE EQUIPMENT. SEE OPERATOR/MAINTENANCE MANUALS. FAILURE TO COMPLY COULD RESULT IN SERIOUS ILLNESS OR DEATH.</p> <p style="text-align: right; font-size: small;">170-922003</p> </div> <p style="text-align: right; margin-right: 50px;">W_CBRN</p> <p>To order this CBRN decal use: National Stock Number (NSN) - 7690-01-474-3533 Part Number (PN) - 1709220 Commercial and Government Entity Code (CAGEC) - 11083</p> <p>Remove air cleaner element from air cleaner and clean (Operator/Crew Maintenance (WP 0029)).</p> | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.




| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|---------------|--------------------------------|---|------------------------------------|
| 3 | Semi-annually | Fuel Tank | <p style="text-align: center;">WARNING</p>  <p>Avoid prolonged exposure or breathing of diesel fuel. Work in a well-ventilated area. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.</p> <p style="text-align: center;">WARNING</p>   <p>Diesel fuel is combustible. DO NOT smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.</p> <p>Drain fuel tank and remove fuel filter and strainer. Clean or replace fuel filter and strainer as required. Fill fuel tank. (Fuel Tank Maintenance (WP 0118).)</p> | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.

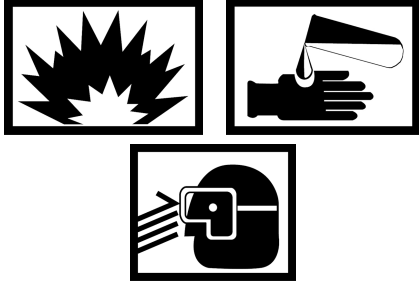
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|---------------|---|---|---|
| 4 | Semi-annually | Batteries | <p style="text-align: center;">WARNING</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Remove all jewelry, such as rings, I.D. tags, bracelets, etc. If jewelry contacts a battery terminal, a direct short will result causing instant heating of jewelry. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury. • Battery acid (electrolyte) is extremely dangerous. Always wear eye protection and rubber gloves when performing battery checks or inspections. Serious injury to personnel will result if battery acid contacts skin or eyes. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury. • DO NOT perform battery system checks or inspections while smoking or near fire, flames, or sparks. Battery gases may explode. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury. <p>Test and service batteries IAW TM 9-6140-200-13.</p> | |
| 5 | Semi-annually | Tie-rod Assemblies (Front Dolly) | <p>a. Check for cracks, breaks, or bends to tie-rod assemblies. Check for security of mounting. Replace if damaged (Tie-Rod Assembly Maintenance (WP 0073)).</p> <p>b. Lubricate tie-rod assemblies (Lubrication Instructions (WP 0028)).</p> | Tie-rod assembly is damaged or is not secure. |
| 6 | Semi-annually | Steering Knuckle Assembly (Front Dolly) | <p>a. Check for damage to steering knuckle assembly. Replace if damaged (Steering Knuckle Assembly Replacement (WP 0052)).</p> | Steering knuckle assembly is damaged. |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|---------------|-------------------------------------|--|--|
| | | | b. Lubricate steering knuckle assembly (Lubrication Instructions (WP 0028)). | |
| 7 | Semi-annually | Steering Link (Front Dolly) | a. Check for cracks, breaks, or bends in steering link. Check for security of mounting. Replace if damaged (Steering Link Replacement (WP 0074)). b. Lubricate steering link (Lubrication Instructions (WP 0028)). | Steering link is damaged or is not secure. |
| 8 | Semi-annually | Front Drawbar (Front Dolly) | a. Check for cracks, breaks, bad welds, or bends in front drawbar. Check all components installed on front drawbar for security of mounting. b. Lubricate front drawbar (Lubrication Instructions (WP 0028)). | Front drawbar is damaged or is not secure. |
| 9 | Semi-annually | Caster Wheel Assembly | a. Lubricate caster wheel assembly (Lubrication Instructions (WP 0028)). b. Check caster wheel assembly tire for inflation of 95 psi (655 kPa). | |
| 10 | Semi-annually | Wheel Assemblies | a. Check for abnormal, uneven, or other damage to tires IAW TM 9-2610-200-14. Check tires for proper inflation (Equipment Description and Data (WP 0002)). b. Check wheel nuts for looseness. Tighten to specified torque (Wheel Assembly Replacement (WP 0071)). | |
| 11 | Semi-annually | Pivoting Tray | Lubricate pivoting tray bearings (Lubrication Instructions (WP 0028)). | |
| 12 | Semi-annually | Lift Cylinders | Lubricate lift cylinders (Lubrication Instructions (WP 0028)). | |
| 13 | Semi-annually | Pivot Axle Bracket Lockout Brackets | Check that lockout bracket assemblies are properly and securely installed (Frame Assembly Maintenance (WP 0076)). | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.


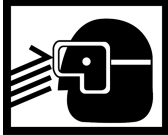

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|---------------|--------------------------------|---|---|
| 14 | Semi-annually | Hydraulic Lines and Fittings | <p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: center; gap: 10px;">    </div> <ul style="list-style-type: none"> • DO NOT disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Dolly set must be fully lowered to the ground and engine must be shut down before lines and fittings are disconnected. A line or fitting disconnected under pressure will explode with great force. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury. • Escaping hydraulic fluid under pressure can penetrate the skin, causing serious injury to personnel. Relieve pressure before disconnecting hydraulic lines and fittings. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject hydraulic fluid under high pressure. Use a piece of cardboard or paper to search for leaks. If any hydraulic fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury. <p>Start engine (Operation Under Usual Conditions - General Operating Instructions (WP 0005)). Operate hydraulic control valve (Operation Under Usual Conditions - General Operating Instructions (WP 0005)) and inspect all hydraulic lines and fittings for signs of leaks. Tighten any connections that are loose. Ensure that hydraulic lines are properly supported and protectively wrapped, as required. Replace any damaged component.</p> | Components are damaged. Class III leakage is evident. |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.

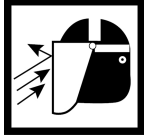
| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|----------------------------------|--|------------------------------------|
| 15 | Annually | Cylinder Cowling and Spiral Case | <p style="text-align: center;">WARNING</p>  <p>Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.</p> <p>Remove cylinder cowling and spiral case. Use compressed air to remove all sand, dirt, or other debris from cylinder fins and flywheel assembly. Install cylinder cowling and spiral case (Engine Cowling Deflectors, Air Ducts, and Shrouds Replacement (WP 0120)).</p> | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.



| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|----------|--------------------------------|--|------------------------------------|
| 16 | Annually | Engine Air Cleaner Element | <p style="text-align: center;">WARNING</p> <div style="display: flex; justify-content: center; gap: 20px;">   </div> <p>CBRN EXPOSURE</p> <p>If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.</p> <div style="border: 2px solid black; padding: 10px; margin: 20px auto; width: fit-content;"> <p style="text-align: center;">⚠ WARNING</p> <p style="text-align: center;">IF CBRN EXPOSURE IS SUSPECTED, ALL AIR FILTER MEDIA WILL BE HANDLED BY PERSONNEL WEARING FULL CBRN PROTECTIVE EQUIPMENT. SEE OPERATOR/MAINTENANCE MANUALS. FAILURE TO COMPLY COULD RESULT IN SERIOUS ILLNESS OR DEATH.</p> <p style="text-align: right; font-size: small;">170-922003</p> </div> <p style="text-align: right; margin-right: 50px;">W_CBRN</p> <p>To order this CBRN decal use: National Stock Number (NSN) - 7690-01-474-3533 Part Number (PN) - 1709220 Commercial and Government Entity Code (CAGEC) - 11083</p> <p>Replace air cleaner element (Engine Air Cleaner Maintenance (WP 0117)).</p> | |
| 17 | Annually | Service Brakes | Perform minor brake adjustment (Minor Brake Adjustment (WP 0056)). | |

Table 1. Field Maintenance Preventive Maintenance Checks and Services (PMCS) - Continued.

| ITEM NO. | INTERVAL | ITEM TO BE CHECKED OR SERVICED | PROCEDURE | EQUIPMENT NOT READY/ AVAILABLE IF: |
|----------|------------|--|--|------------------------------------|
| 18 | Annually | Hub, Brakedrum, and Wheel Bearings | Remove hub, brakedrum, and wheel bearings. Clean and inspect bearing cones and cups IAW TM 9-214. Inspect brakeshoe linings for damage and wear. Install hub, brakedrum, and wheel bearings. Perform wheel bearing adjustment (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)). | |
| 19 | Annually | Suspension Link-to-Bottom Beam Clevis Pins | <p style="text-align: center;">NOTE</p> <p style="text-align: center;">Perform procedure one clevis pin at a time. Two personnel are required.</p> <p>Support end of suspension link. Remove cotter pin, washer and clevis pin (Frame Assembly Maintenance (WP 0076)). Clean clevis pin and inspect for corrosion or roughness. If corroded or rough use lubricating oil (WP 0197, Table 1, Item 38) and abrasive cloth (WP 0197, Table 1, Item 6) to clean and remove roughness. Reinstall clevis pin, washer and cotter pin. Remove support from end of suspension link.</p> | |
| 22 | Annually | Pivot Axle Lockout Bracket Bolts | Remove lockout brackets and inspect bolts for corrosion. As required, clean bolts with abrasive cloth (WP 0197, Table 1, Item 6) and lubricating oil (WP 0197, Table 1, Item 38). Reinstall lockout brackets (Frame Assembly Maintenance (WP 0076)). | |
| 25 | Biennially | Fuel Lines | Replace flexible fuel lines (Engine Fuel Tank Maintenance (WP 0118)). | |
| 26 | Biennially | Oil Cooler Lines | Replace oil cooler lines (Oil Cooler Lines Replacement (WP 0113)). | |

END OF TASK

END OF WORK PACKAGE

CHAPTER 6
MAINTENANCE INSTRUCTIONS

**FIELD MAINTENANCE
SERVICE UPON RECEIPT**

INITIAL SETUP:**References**

DA Form 2404
DA Form 5988-E
DA PAM 750-8
DD Form 314

References (cont.)

DD Form 1397
TM 9-6140-200-13
WP 0028
WP 0197

GENERAL

When a new, used, or reconditioned M1022A1 Dolly Set 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.

INSPECTION INSTRUCTIONS

1. Read and follow all instructions on DD Form 1397.
2. Remove all straps, plywood, tape, seals, wrapping, or any other shipping material.

WARNING

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

INSPECTION INSTRUCTIONS - Continued**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
3. If any exterior parts are coated with rust preventive compound, remove with cleaning solvent (WP 0197, Table 1, Item 45) and rags (WP 0197, Table 1, Item 42).
 4. Inspect the equipment for any damage incurred during shipment. Also check to see if the equipment has been modified.
 5. Check the equipment against the packing slip to ensure that the shipment is complete. Report any discrepancies in accordance with instructions in DA PAM 750-8.

END OF TASK**SERVICING INSTRUCTIONS**

1. Perform all PMCS. Schedule the next PMCS on DD Form 314.

SERVICING INSTRUCTIONS - Continued

2. If dolly set is new, batteries will be without electrolyte. Add electrolyte (WP 0197, Table 1, Item 14) to batteries before dolly set is put into service IAW TM 9-6140-200-13.
3. Perform all lubrication, regardless of interval, as described in Lubrication Instructions (WP 0028).
4. Report any problems on DA Form 2404 or DA Form 5988-E.

END OF TASK**END OF WORK PACKAGE**

**OPERATOR MAINTENANCE
LUBRICATION INSTRUCTIONS**

INITIAL SETUP:**References**

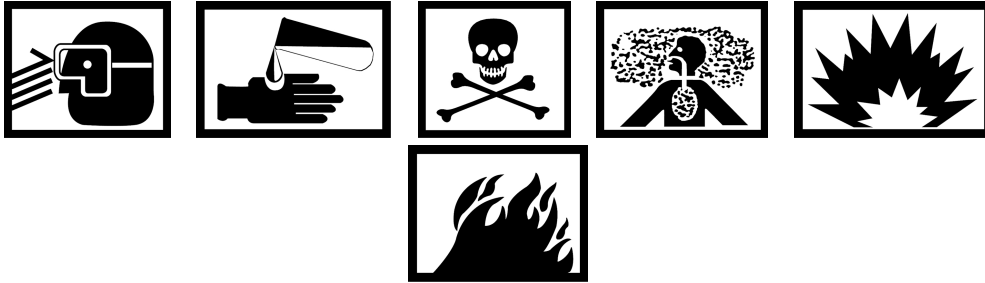
DA PAM 750-8
FM 9-207
FM 9-214
WP 0025

References (cont.)

WP 0072
WP 0114
WP 0133
WP 0197

WARNING

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

WARNING

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

NOTE

- 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.
- Refer to local procedures and plans for storage and disposal of any drained fluids.
- DO NOT overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir/tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task.

NOTE

These instructions are MANDATORY.

GENERAL

1. The M1022A1 Dolly Set must receive lubrication with approved lubricants at recommended intervals in order to be mission-ready at all times.
2. The Lubrication Chart shows lubrication points, items to be lubricated, the required lubricants, and recommended intervals for lubrication. Any special lubricating instructions required for specific components are contained in the NOTES section of the chart.
3. The KEY provides information needed to select the proper lubricant for various temperature ranges and uses, and identifies the intervals.
4. Recommended intervals are based on normal conditions of operation, temperature, and humidity. When operating under extreme conditions, lubricants should always be changed more frequently. When in doubt, notify your supervisor.

SPECIFIC LUBRICATION INSTRUCTIONS

1. Keep all lubricants in a closed container and store in a clean, dry place away from extreme heat. Keep container covers clean and do not allow dust, dirt, or other foreign material to mix with lubricants. Keep lubrication equipment clean and ready for use.
2. Maintain a record of lubrication performed and report any problems noted during lubrication. Refer to DA PAM 750-8 for maintenance forms and procedures to record and report any findings.
3. Keep all external parts of equipment not requiring lubrication free of lubricants. After lubrication, wipe off excess oil or grease to prevent accumulation of foreign matter.
4. Refer to FM 9-207 for lubrication instructions in cold weather.
5. After operation in mud, sandy, or dusty conditions, clean and inspect all points of lubrication for contaminated lubricants. Change lubricants as required.

LUBRICATION CHART

This Lubrication Chart is for Crew/Operator (C) or Field (F) Maintenance. Lubrication intervals are based on normal operation. Lubricate more during constant use and less during inactive periods. Use correct grade of lubricant for seasonal temperature expected. Intervals shall be shortened if lubricants are known to be contaminated or if operation is under adverse conditions (e.g., longer than usual operating hours, extended idling periods, extreme dust, etc.).

Oil filters shall be serviced/cleaned/changed, as applicable, when:

- a. They are known to be contaminated or clogged; or
- b. At prescribed hard time intervals.

On lubrication illustrations in this work package only, a dashed line (- - -) means lubrication points on both sides.

Clean all fittings and area around lubrication points with cleaning solvent (WP 0197, Table 1, Item 45) or equivalent before lubricating equipment. After lubrication, wipe off excess oil or grease to prevent accumulation of foreign matter.

Before you start your lubrication service:

ALWAYS

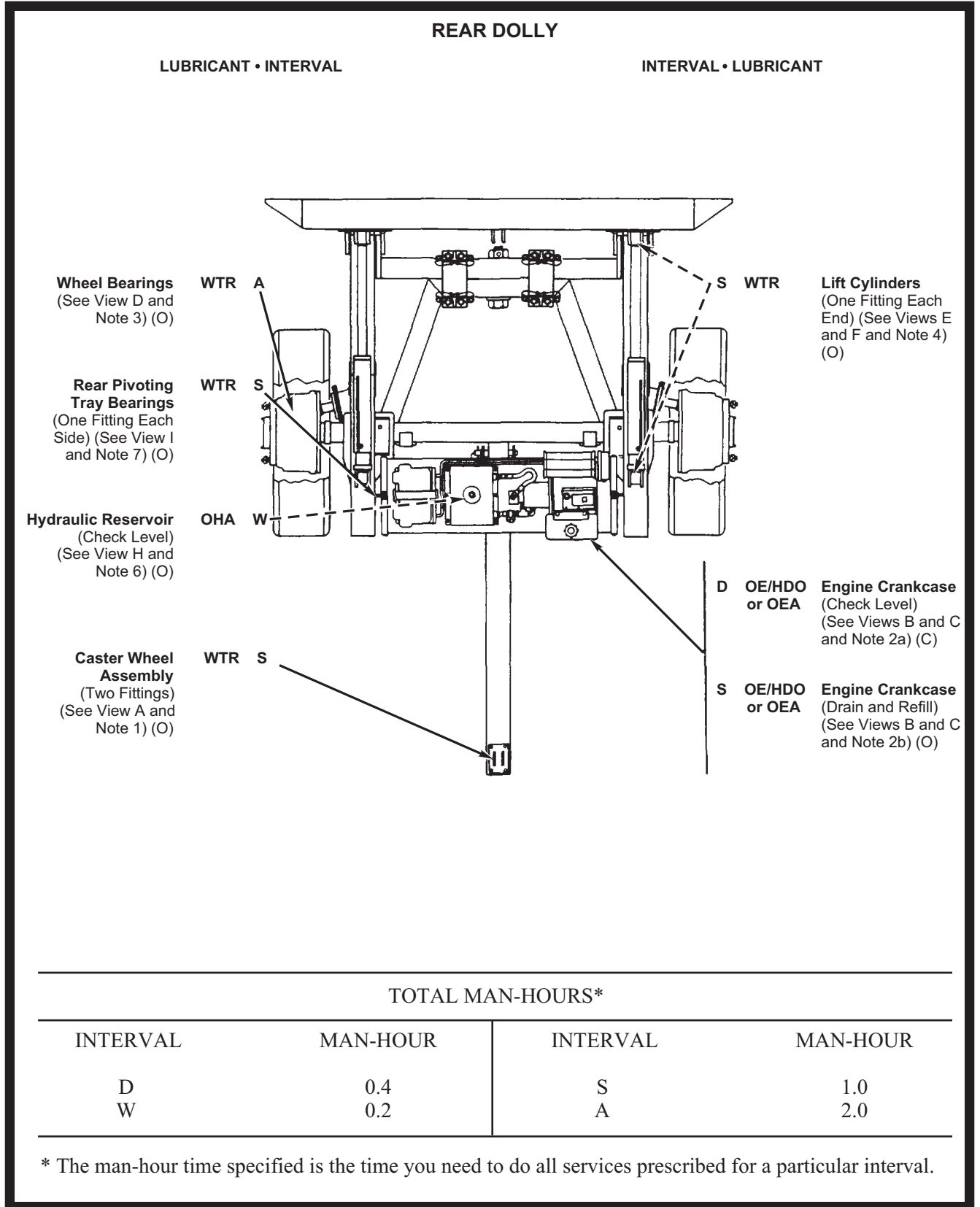
- a. Clean grease fittings before lubricating.
- b. Use the Lubrication Chart as your guide.

NEVER

- a. Use wrong type/grade grease.
- b. Use too much lubricant.

Table 1. Key

| Lubricant Component | | Refill Capacity | Expected Temperatures* | | | Intervals |
|--|---------------------------|------------------------|----------------------------|--------------------------------------|-------------------------------------|------------------|
| | | | Above +32°F (Above 0°C) | +40°F to -10°F (+4°C to -23°C) | 0°F to -65°F (-16°C to -54°C) | |
| OE/HDO (MIL-PRF-2104) | | 1.37 qt (1.30 L) | OE/HDO-30 | OE/HDO-10 | OEA | D - Daily |
| Lubricating Oil, ICE, Tactical | | | | | | W- Weekly |
| OEA (MIL-PRF-46167) | | | | | | S - Semiannually |
| Lubricating Oil, ICE, Arctic | | | | | | A - Annually |
| | • Engine Crankcase | | | | | |
| | • Oil Can Points | | | | | |
| OHA (MIL-PRF-5606) | | 4.90 gal. (18.60 L) | All Temperatures | | | |
| Hydraulic Fluid, Petroleum Base | | | | | | |
| • Hydraulic Reservoir: | | | | | | |
| | - Standard Lift Operation | | | | | |
| | - Side Lift Operation | 8.90 gal. (33.70 L) | | | | |
| WTR (MIL-PRF-81322) Grease, Aircraft | | | All Temperatures | | | |
| * For Arctic operation, refer to FM 9-207. | | | | | | |



00124JMS

Figure 1. Rear Dolly.

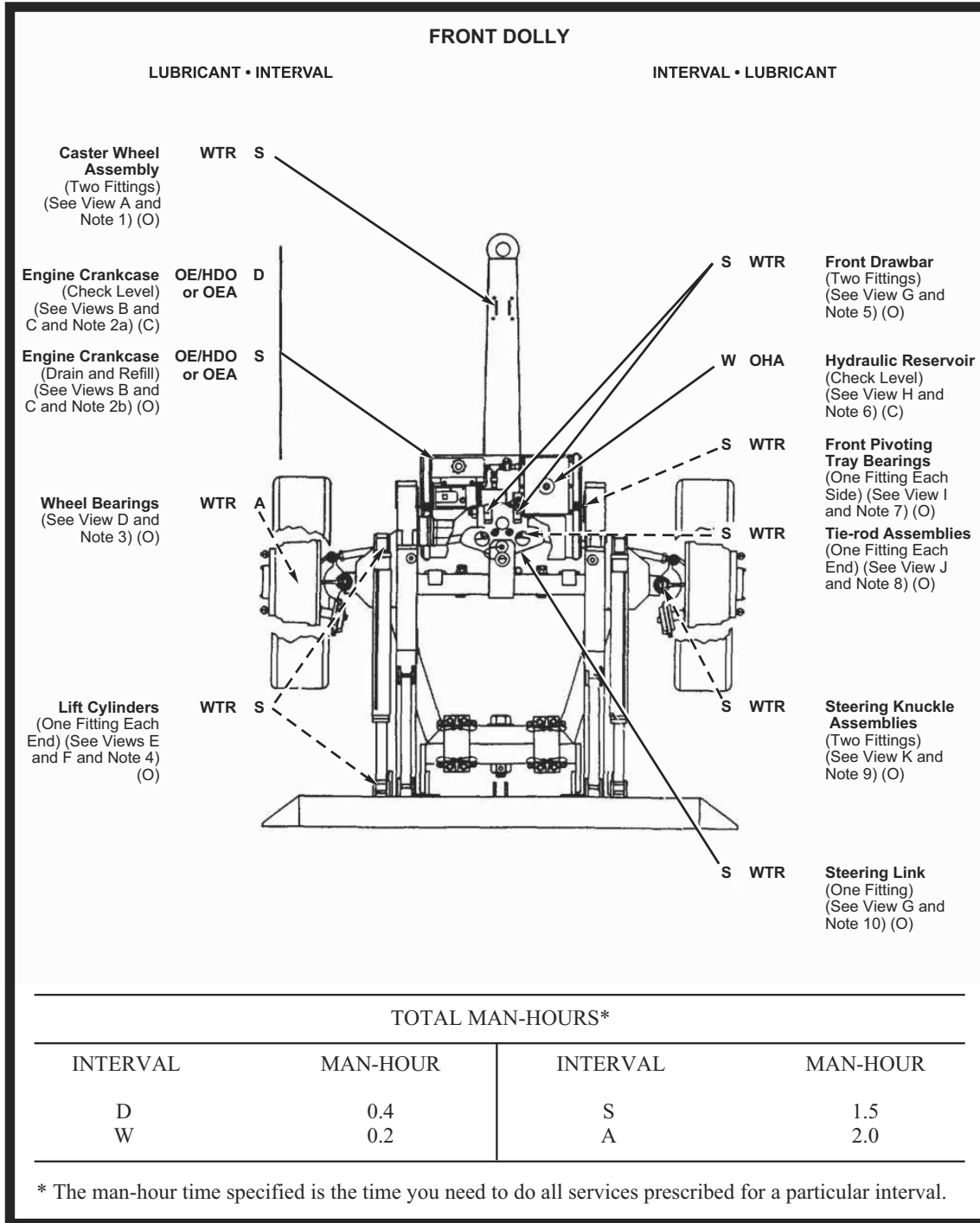
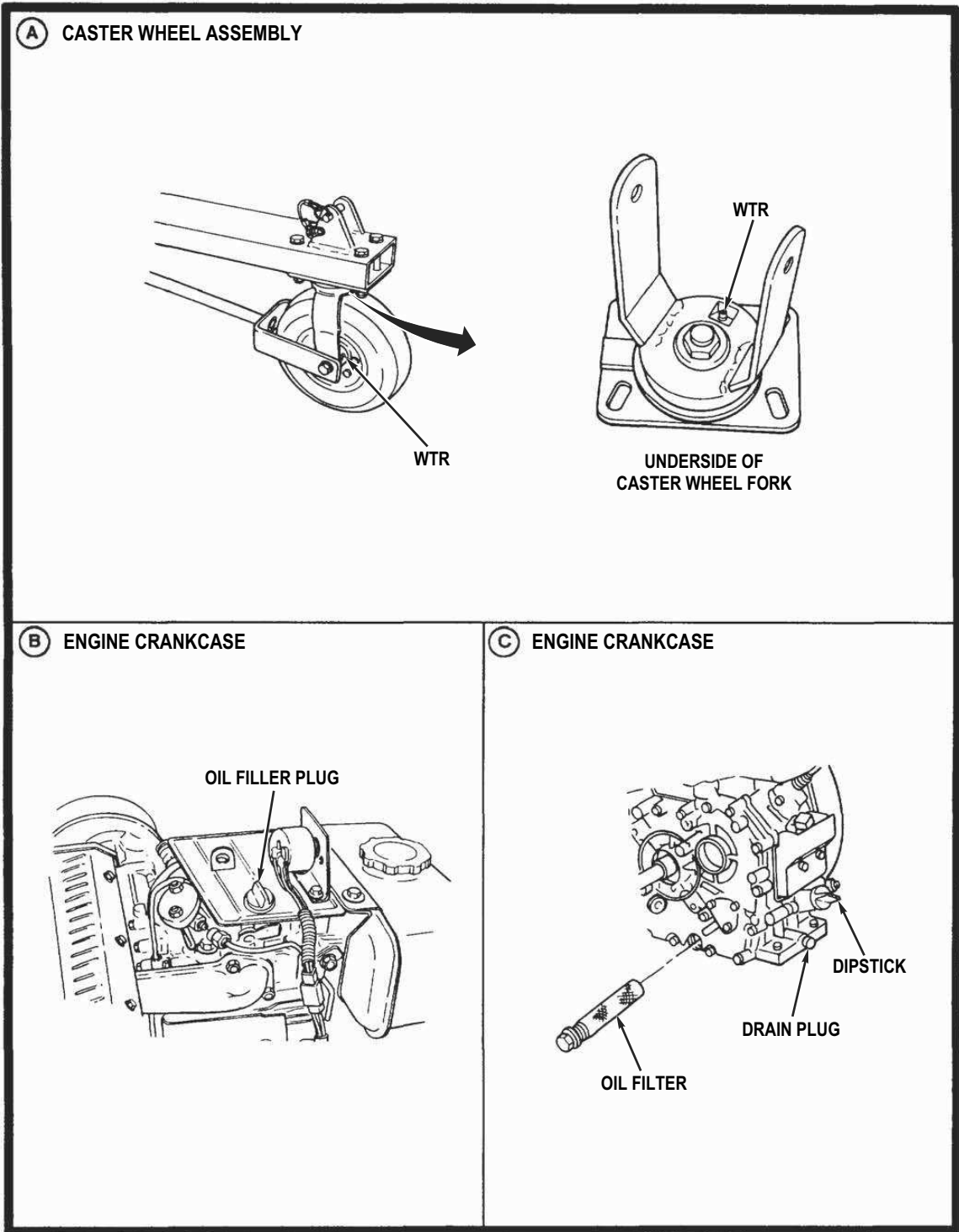
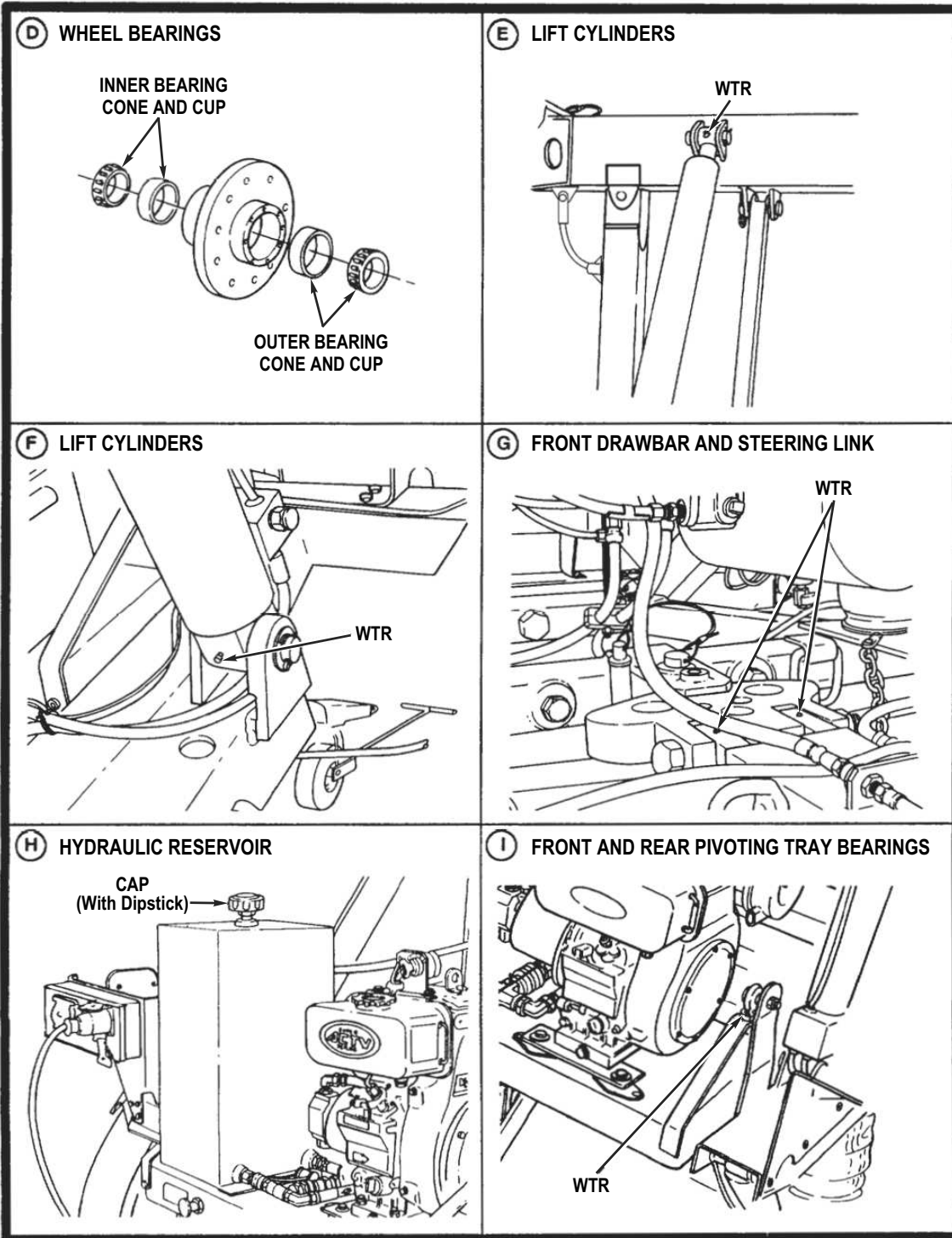


Figure 2. Front Dolly.



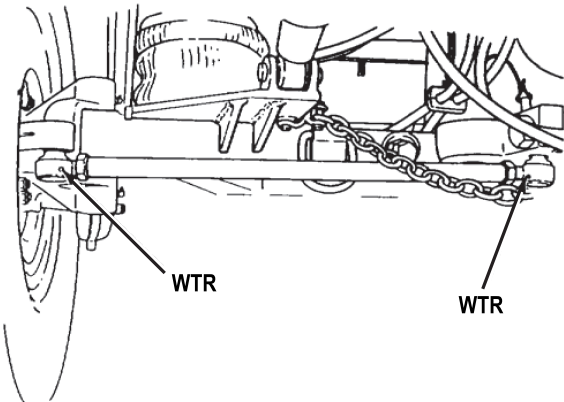
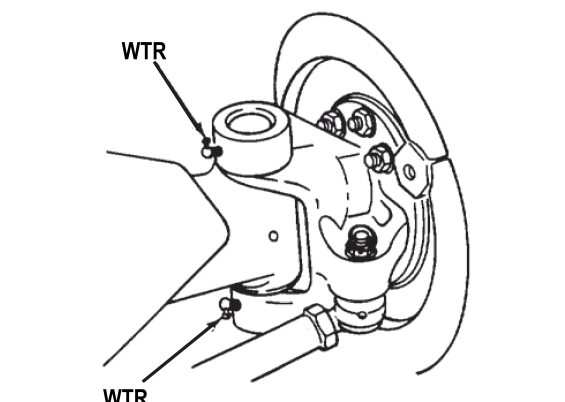
00125JMS

Figure 3. Lube Points.



00141JMS

Figure 4. Lube Points.

| | |
|--|--|
| <p>J TIE-ROD ASSEMBLIES</p>  | <p>K STEERING KNUCKLE ASSEMBLIES</p>  |
| <p>NOTES:</p> <ol style="list-style-type: none"> 1. CASTER WHEEL ASSEMBLY. Semiannually, lubricate fittings on wheel and on fork with WTR. To gain access, deflate tire or remove wheel. 2. ENGINE CRANKCASE. <ol style="list-style-type: none"> a. Daily, remove dipstick from crankcase and check level of oil. Level must show on dipstick. Oil level is FULL if oil coats threads of dipstick. Add oil as required. <p style="text-align: center;">NOTE</p> <p style="text-align: center;">If engine is new, the following service MUST be performed after initial week of operation.</p> <ol style="list-style-type: none"> b. Semiannually, remove drain plug and drain all oil from crankcase. Remove oil filter and clean. Install filter and drain plug, and fill crankcase through filler opening until oil level shows on dipstick (WP 0114). <p style="text-align: center;">NOTE</p> <p style="text-align: center;">If dolly set was required to ford water that covered the wheel hubs, have Field Maintenance check, clean, and lubricate wheel beatings.</p> 3. WHEEL BEARINGS. Annually, remove wheel bearings, clean, inspect, pack with WTR, install, and adjust (WP 0072 and TM 9-214). 4. LIFT CYLINDERS. Semiannually, lubricate fitting on each end of lift cylinders with WTR. 5. FRONT DRAWBAR. Semiannually, lubricate two fittings with WTR. 6. HYDRAULIC RESERVOIR. Weekly, before operation, lower dolly set to ground and retract all hydraulic cylinders. Remove cap and check level of hydraulic fluid on dipstick. Add hydraulic fluid (WP 0133, Item 15) as required (WP 0197). 7. FRONT AND REAR PIVOTING TRAY BEARINGS. Semiannually, lubricate fitting at each bearing with WTR. 8. TIE-ROD ASSEMBLIES. Semiannually, lubricate fitting on each end of tie-rod assemblies with WTR. 9. STEERING KNUCKLE ASSEMBLIES. Semiannually, lubricate two fittings with WTR. 10. STEERING LINK. Semiannually, lubricate fitting with WTR. 11. OIL CAN POINTS. Semiannually, lubricate stowage, top hook, pivoting tray lockout brace, and telescopic brace pins with PL-S (WP 0025). | |

00126JMS

Figure 5. Lube Points.

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
OPERATOR/CREW MAINTENANCE**

INITIAL SETUP:

References

WP 0005

References (cont.)

WP 0028

WP 0197

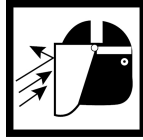
DRAINING AIR RESERVOIR

NOTE

Perform this task at both front and rear dolly air reservoirs.

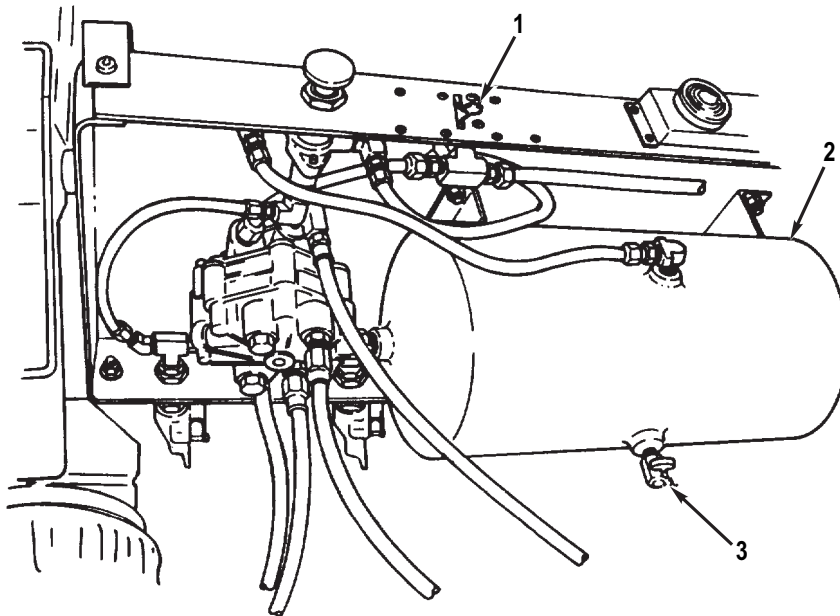
DRAINING AIR RESERVOIR - Continued

1. On rear dolly, turn parking brake lever (Figure 1, Item 1) to ON position to apply dolly set parking brakes.
2. Disconnect intervehicular and intradolly air lines (Operation Under Usual Conditions (WP 0005)).

WARNING

Wear eye protection when opening air reservoir draincock and avoid air stream. Failure to follow this warning may result in eye injury. Seek medical attention in the event of an injury.

3. Open draincock (Figure 1, Item 3) on air reservoir (Figure 1, Item 2). Allow all compressed air and condensation to drain. Leave draincock open.
4. Before operation, close draincock (Figure 1, Item 3) on air reservoir (Figure 1, Item 2).
5. Connect intervehicular and intradolly air lines (Operation Under Usual Conditions (WP 0005)).



00127JMS

Figure 1. Draining Air Reservoir.

END OF TASK

CHECKING AND FILLING HYDRAULIC FLUID

WARNING



Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

NOTE

- 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.
- Refer to local procedures and plans for storage and disposal of any drained fluids.
- DO NOT overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir/tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task.

NOTE

- Perform this task at both front and rear dolly hydraulic reservoirs.
 - Dolly set should be lowered to ground with lift and positioning cylinders fully retracted to ensure an accurate reading.
1. Park dolly set on level ground. If pivoting tray (Figure 2, Item 1) is not level, remove safety pin (Figure 2, Item 4) and hitch pin (Figure 2, Item 5) and unlock pivoting tray lockout brace (Figure 2, Item 2) from lower bracket (Figure 2, Item 3).

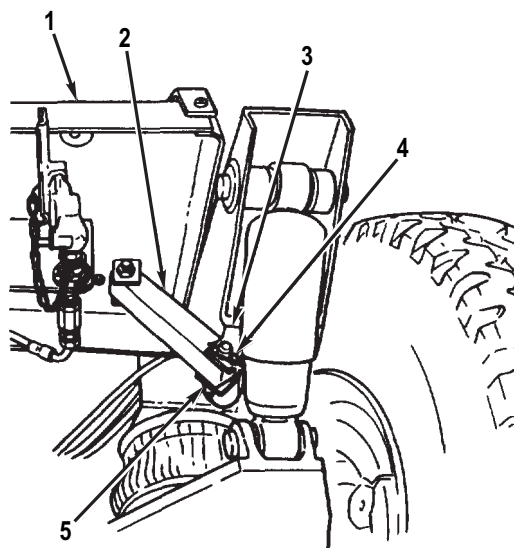


Figure 2. Pivoting Tray Lockout Brace Unlock.

00128JMS

CHECKING AND FILLING HYDRAULIC FLUID - Continued**CAUTION**

DO NOT allow dirt or dust to enter hydraulic reservoir. Damage to hydraulic system will result.

- Remove cap (Figure 3, Item 2) from hydraulic reservoir (Figure 3, Item 3). Wipe dipstick (Figure 3, Item 1) clean with a clean rag (WP 0197, Table 1, Item 42). Install cap in reservoir.

NOTE

Hydraulic fluid level differs for M1022A1 and M1022A1 with side lift kit installed. Proper level for M1022A1 (STD) is marked near tip of dipstick. Proper level for M1022A1 with side lift kit (S/L) is marked near cap end of dipstick.

- Remove cap (Figure 3, Item 2) from hydraulic reservoir (Figure 3, Item 3) and check level of hydraulic fluid on dipstick (Figure 3, Item 1). Level should be even with FULL (F) mark. If level is at or below ADD (A) mark, add hydraulic fluid (WP 0197, Table 1, Item 15). Install cap in reservoir.

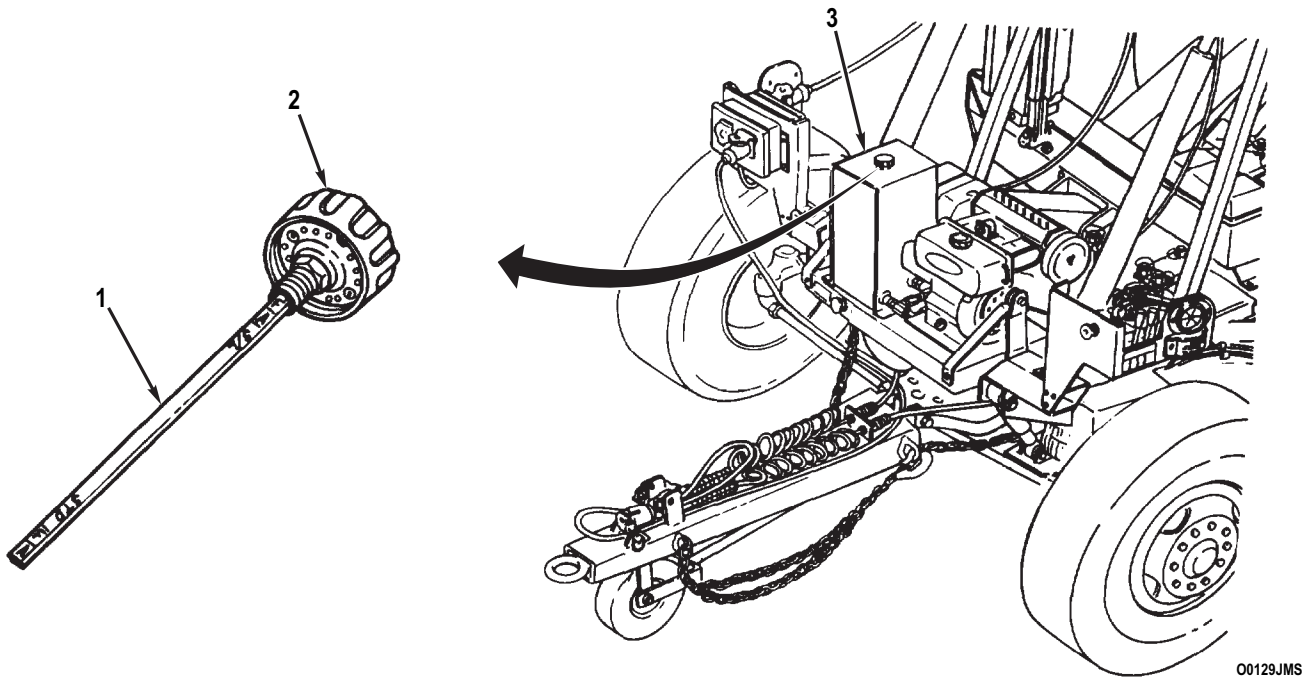
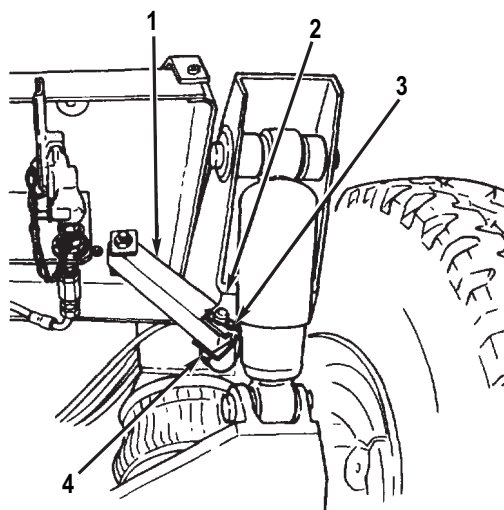


Figure 3. Hydraulic Fluid Level.

- If checking hydraulic fluid level after replacement of a hydraulic component (hydraulic cylinder, control valve, etc.), start engine (Operation Under Usual Conditions (WP 0005)) and operate hydraulic control valve to circulate hydraulic fluid throughout system (Operation Under Usual Conditions (WP 0005)). Check level of hydraulic fluid (see steps 2 and 3).
- Lock pivoting tray lockout brace (Figure 4, Item 1) to lower bracket (Figure 4, Item 2) with hitch pin (Figure 4, Item 4) and safety pin (Figure 4, Item 3).

CHECKING AND FILLING HYDRAULIC FLUID - Continued

00130JMS

Figure 4. Pivoting Tray Lockout Brace Lock.

END OF TASK**CHECKING AND FILLING CRANKCASE OIL****WARNING**

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

NOTE

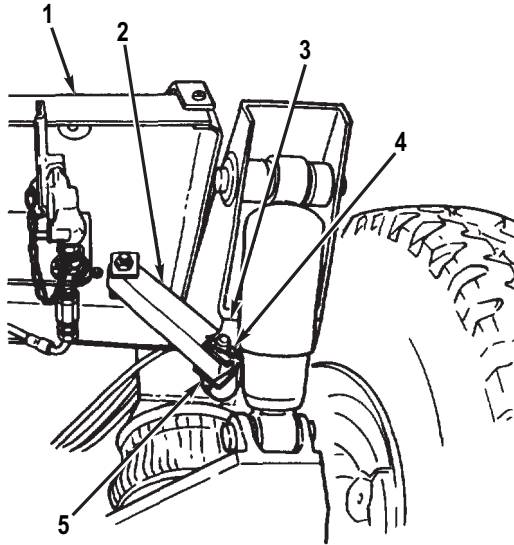
- Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
- Refer to local procedures and plans for storage and disposal of any drained fluids.
- **DO NOT** overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir/tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task.

NOTE

Perform this task at both front and rear dolly engines.

CHECKING AND FILLING CRANKCASE OIL - Continued

1. Park dolly set on level ground. If pivoting tray (Figure 5, Item 1) is not level, remove safety pin (Figure 5, Item 4) and hitch pin (Figure 5, Item 5) and unlock pivoting tray lockout brace (Figure 5, Item 2) from lower bracket (Figure 5, Item 3).



00128JMS

Figure 5. Pivoting Tray Lockout Brace Unlock.

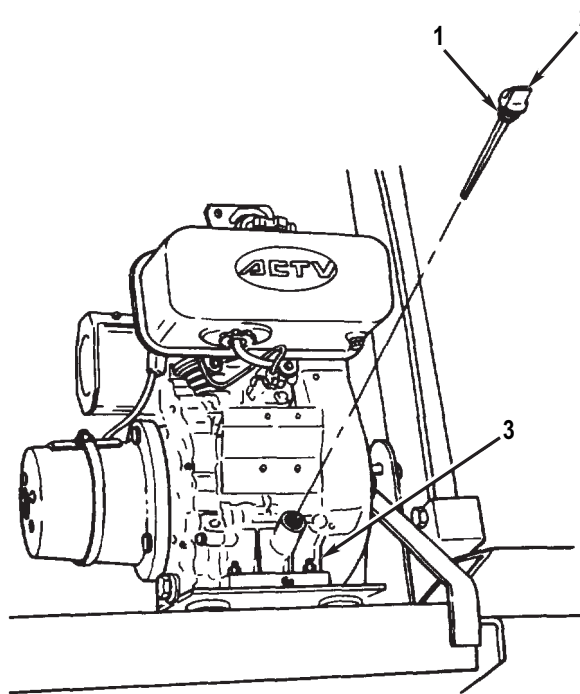
2. Shut down engine (Operation Under Usual Conditions (WP 0005)). Wait approximately two minutes for oil to drain back into crankcase (Figure 6, Item 3).

CAUTION

DO NOT allow dirt or dust to enter crankcase. Damage to engine will result.

3. Remove dipstick (Figure 6, Item 2) from crankcase (Figure 6, Item 3). Wipe clean with a clean rag (WP 0197, Table 1, Item 42). Fully install dipstick in crankcase.
4. Remove dipstick (Figure 6, Item 2) from crankcase (Figure 6, Item 3). Oil level must show on dipstick. Oil level is FULL if oil coats threads (Figure 6, Item 1) of dipstick.
5. Install dipstick (Figure 6, Item 2) in crankcase (Figure 6, Item 3).

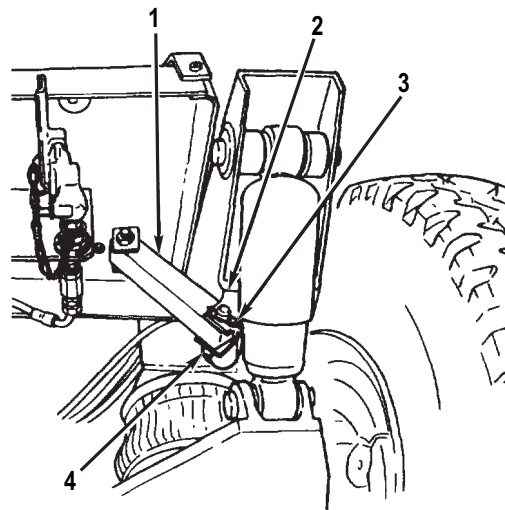
CHECKING AND FILLING CRANKCASE OIL - Continued



00131JMS

Figure 6. Engine Oil Level.

6. If oil level is okay, lock pivoting tray lockout brace (Figure 7, Item 1) to lower bracket (Figure 7, Item 2) with hitch pin (Figure 7, Item 4) and safety pin (Figure 7, Item 3).



00130JMS

Figure 7. Pivoting Tray Lockout Brace Lock.

CHECKING AND FILLING CRANKCASE OIL - Continued**CAUTION**

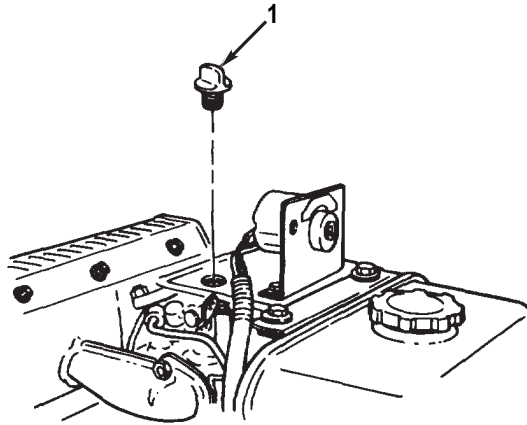
DO NOT allow dirt or dust to enter crankcase. Damage to engine will result.

7. Remove oil filler plug (Figure 8, Item 1).
8. Add oil (WP 0197, Table 1, Item 32; WP 0197, Table 1, Item 35; or WP 0197, Table 1, Item 38) as required (Lubrication Instructions (WP 0028)).

CAUTION

DO NOT overfill engine crankcase. Damage to engine will result.

9. Install oil filler plug (Figure 8, Item 1).
10. Check crankcase oil level.



00132JMS

Figure 8. Engine Oil Fill.

END OF TASK**CHECKING AND FILLING ENGINE FUEL****WARNING**

- Diesel fuel is combustible. DO NOT smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention immediately in the event of an injury.
- Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

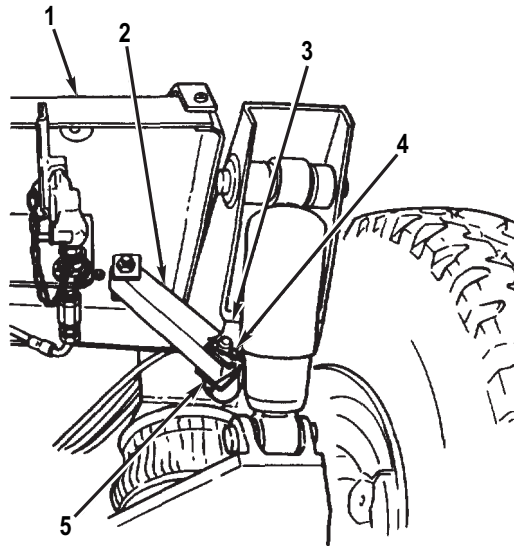
CHECKING AND FILLING ENGINE FUEL - Continued**NOTE**

- 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.
- Refer to local procedures and plans for storage and disposal of any drained fluids.
- **DO NOT** overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir/tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task.

NOTE

Perform this task at both front and rear dolly engines.

1. Park dolly set on level ground. If pivoting tray (Figure 9, Item 1) is not level, remove safety pin (Figure 9, Item 4) and hitch pin (Figure 9, Item 5) and unlock pivoting tray lockout brace (Figure 9, Item 2) from lower bracket (Figure 9, Item 3).



00128JMS

Figure 9. Pivoting Tray Lockout Brace Unlock.

CHECKING AND FILLING ENGINE FUEL - Continued

2. Check level of fuel in fuel tank (Figure 10, Item 1) using fuel indicator (Figure 10, Item 4). Maximum fuel level height should be just visible at top of fuel indicator.
3. If fuel level is okay, lock pivoting tray lockout brace (Figure 11, Item 1) to lower bracket (Figure 11, Item 2) with hitch pin (Figure 11, Item 4) and safety pin (Figure 11, Item 3).

CAUTION

DO NOT allow dirt or dust to enter fuel tank. Damage to engine fuel system will result.

4. Remove cap (Figure 10, Item 2) from fuel tank (Figure 10, Item 1).
5. Check strainer (Figure 10, Item 3) for dirt or dust. Remove contaminants as required. Reinstall strainer.

NOTE

If fuel tank is filled too full, fuel may seep from vented cap.

6. Add diesel fuel (WP 0197, Table 1, Item 20 or WP 0197, Table 1, Item 23) as required to fill fuel tank (Figure 10, Item 1). Maximum fuel level height should be just visible at top of fuel indicator (Figure 10, Item 4). DO NOT overfill.

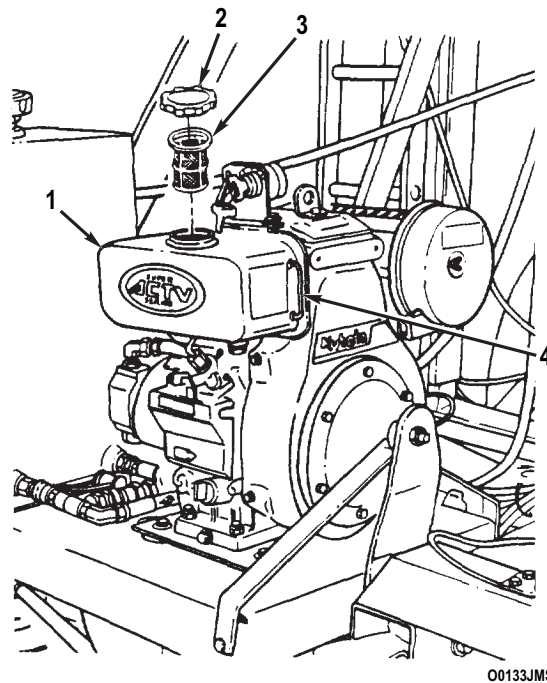
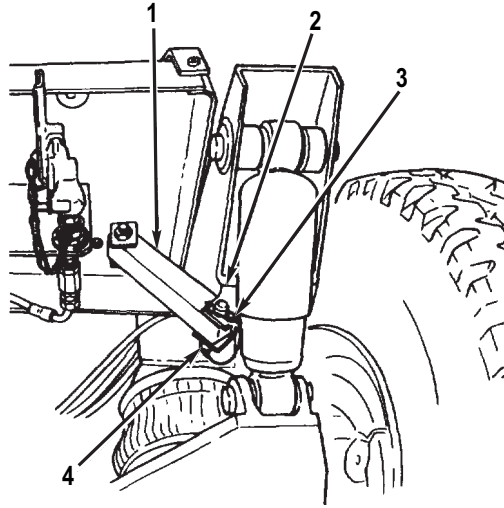


Figure 10. Fuel Level.

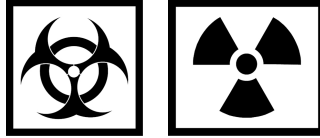
7. Install cap (Figure 10, Item 2) on fuel tank (Figure 10, Item 1).
8. Lock pivoting tray lockout brace (Figure 11, Item 1) to lower bracket (Figure 11, Item 2) with hitch pin (Figure 11, Item 4) and safety pin (Figure 11, Item 3).

CHECKING AND FILLING ENGINE FUEL - Continued

00130JMS

Figure 11. Pivoting Tray Lockout Brace Lock.

END OF TASK

CLEANING ENGINE AIR CLEANER ELEMENT**WARNING****CBRN EXPOSURE**

If CBRN exposure is suspected, personnel wearing protective equipment must handle all air cleaner media. Contaminated filters must be handled using adequate precautions and must be disposed of by trained personnel. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.



W_CBRN

To order this CBRN decal use:

National Stock Number (NSN) - 7690-01-474-3533

Part Number (PN) - 1709220

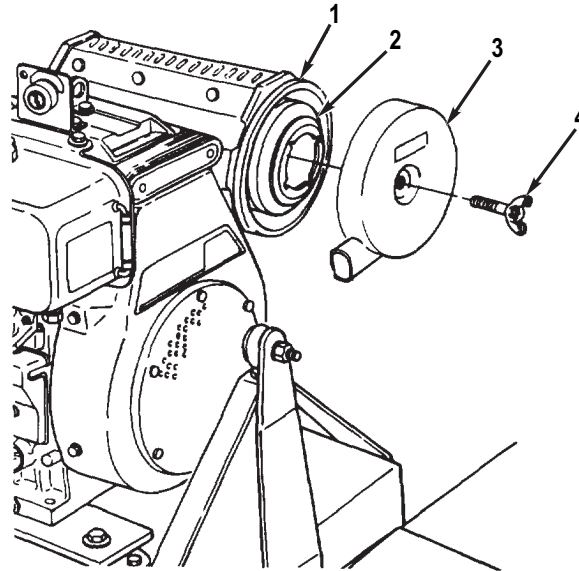
Commercial and Government Entity Code (CAGEC) - 11083

NOTE

- Perform this task at both front and rear dolly engines.
- If operating engine in sandy or dusty areas, air cleaner element should be cleaned daily.
- If damage to air cleaner element is noted at any time during cleaning, notify Field Maintenance for replacement.

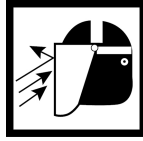
CLEANING ENGINE AIR CLEANER ELEMENT - Continued

1. Remove any accumulated sand or dust from exterior of air cleaner using a clean rag (WP 0197, Table 1, Item 42).
2. Remove wingbolt (Figure 12, Item 4) and cover (Figure 12, Item 3).
3. Remove air cleaner element (Figure 12, Item 2) from body (Figure 12, Item 1).



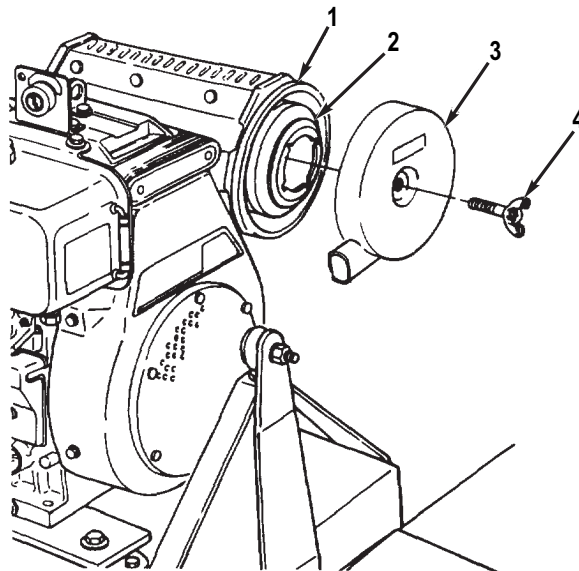
00134JMS

Figure 12. Air Cleaner Element Removal.

CLEANING ENGINE AIR CLEANER ELEMENT - Continued**WARNING**

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

4. Remove sand or dust from air cleaner element (Figure 13, Item 2) by gently tapping. While rotating air cleaner element, apply compressed air from the inside.
5. If air cleaner element (Figure 13, Item 2) is oily or coated with carbon dust, soak in a solution of water and dishwashing compound (WP 0197, Table 1, Item 7) for 15 minutes. Wash several times, rinse with fresh water, and allow to dry.
6. Clean interior of body (Figure 13, Item 1) as required.
7. Install air cleaner element (Figure 13, Item 2) in body (Figure 13, Item 1).
8. Install cover (Figure 13, Item 3) over air cleaner element (Figure 13, Item 2) with wingbolt (Figure 13, Item 4). Tighten wingbolt finger-tight.



00134JMS

Figure 13. Air Cleaner Element Installation.

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
FRONT DISTRIBUTION BOX REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts

Locknut (WP 0132, Item 21) Qty: 4

Personnel Required

(Two)

References

WP 0043

WP 0128

Equipment Condition

Intravheicular cable disconnected from signal conditioning box (WP 0007)

Equipment Condition (cont.)

Intradolly cable disconnected from front distribution box (WP 0007)

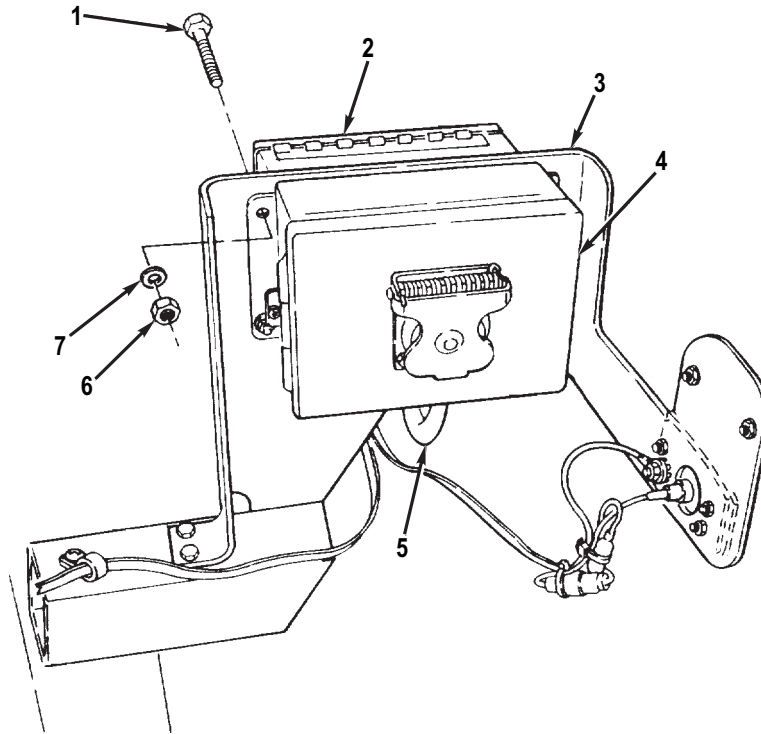
Front dolly marker clearance light cable assemblies removed from signal conditioning box (WP 0045)

NOTE

When removing and installing the front distribution box, assistance is required because the signal conditioning box comes off also.

REMOVAL

1. Remove four locknuts (Figure 1, Item 6), washers (Figure 1, Item 7), bolts (Figure 1, Item 1), signal conditioning box (Figure 1, Item 2), front distribution box (Figure 1, Item 4), and signal conditioning box-to-front distribution box cable assembly (Figure 1, Item 5) from bracket (Figure 1, Item 3). Discard locknuts.
2. Remove signal conditioning box-to-front distribution box cable assembly (Figure 1, Item 5) from front distribution box (Signal Conditioning Box-To-Front Distribution Box Cable Assembly Replacement (WP 0043)).



M0001JMS

Figure 1. Distribution Box.

END OF TASK**CLEANING AND INSPECTION**

Clean and inspect all components IAW General Maintenance Instructions (WP 0128).

END OF TASK

INSTALLATION

1. Install signal conditioning box-to-front distribution box cable assembly (Figure 1, Item 5) on front distribution box (Figure 1, Item 4) (Signal Conditioning Box-To-Front Distribution Box Cable Assembly Replacement (WP 0043)).
2. Install signal conditioning box (Figure 1, Item 2), front distribution box (Figure 1, Item 4), and signal conditioning box-to-front distribution box cable assembly (Figure 1, Item 5) on bracket (Figure 1, Item 3) with four machine bolts (Figure 1, Item 1), washers (Figure 1, Item 7), and new locknuts (Figure 1, Item 6).

END OF TASK**FOLLOW-ON TASKS**

1. Install front dolly marker clearance light cable on signal conditioning box (WP 0045).
2. Connect intradolly cable to front distribution box (WP 0007).
3. Connect intervehicular cable to signal conditioning box (WP 0007).
4. Check operation of lights (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FRONT DISTRIBUTION BOX ASSEMBLY REPAIR**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Locknut (WP 0132, Item 7) Qty: 4
Lockwasher (WP 0132, Item 12) Qty: 4

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
Tag: Marker (WP 0197, Table 1, Item 49)
External-tooth lockwasher (WP 00132, Item 16)
Qty: 2

References

WP 0005
WP 0128
WP 0130

Equipment Condition

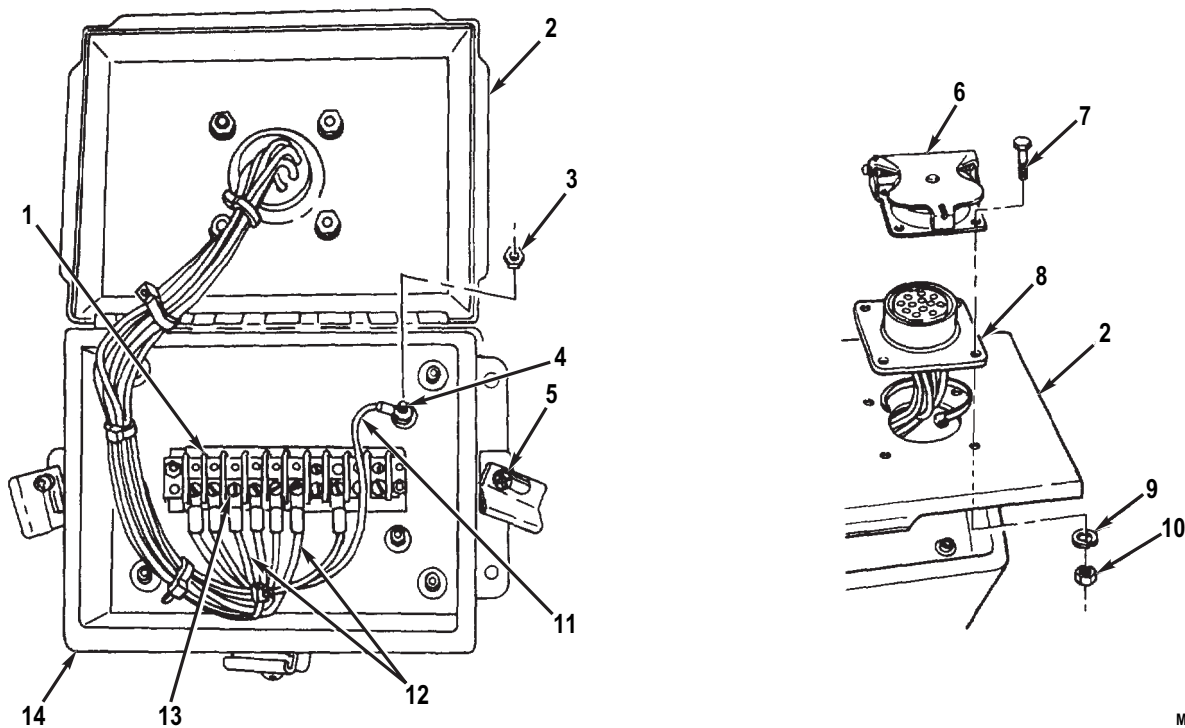
Front distribution box removed (WP 0030)

NOTE

- All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).
- Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

DISASSEMBLY

1. Loosen three screws (Figure 1, Item 5) and open cover (Figure 1, Item 2) of front distribution box (Figure 1, Item 14).
2. Remove seven screws (Figure 1, Item 13) and cable assembly wires (Figure 1, Item 12) from positions 1 through 6 and 8 of terminal block (Figure 1, Item 1).
3. Remove nut (Figure 1, Item 3) and green ground wire (Figure 1, Item 11) from top right screw (Figure 1, Item 4).
4. Remove four nuts (Figure 1, Item 10), lockwashers (Figure 1, Item 9), screws (Figure 1, Item 7), and receptacle cover (Figure 1, Item 6) from cover (Figure 1, Item 2). Discard lockwashers.
5. Remove receptacle connector (Figure 1, Item 8) and cable assembly from cover (Figure 1, Item 2).

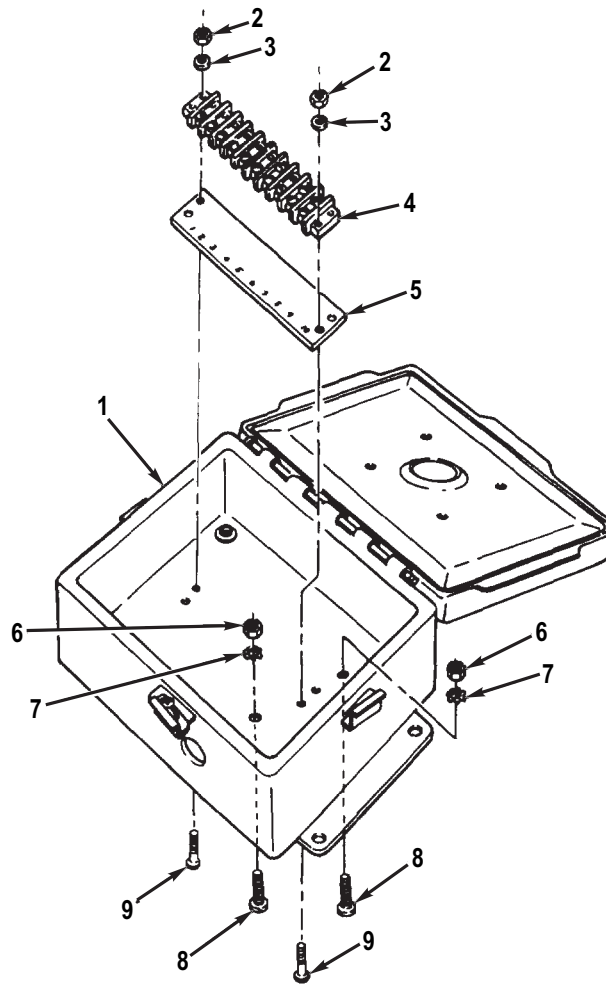


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Figure 1. Front Distribution Box External Parts Disassembly.

6. Remove two locknuts (Figure 2, Item 2), washers (Figure 2, Item 3), screws (Figure 2, Item 9), terminal block (Figure 2, Item 4), and marker strip (Figure 2, Item 5) from front distribution box (Figure 2, Item 1). Discard locknuts.
7. Remove two locknuts (Figure 2, Item 6), external-tooth lockwashers (Figure 2, Item 7), and screws (Figure 2, Item 8) from front distribution box (Figure 2, Item 1). Discard locknuts and external-tooth lockwashers.

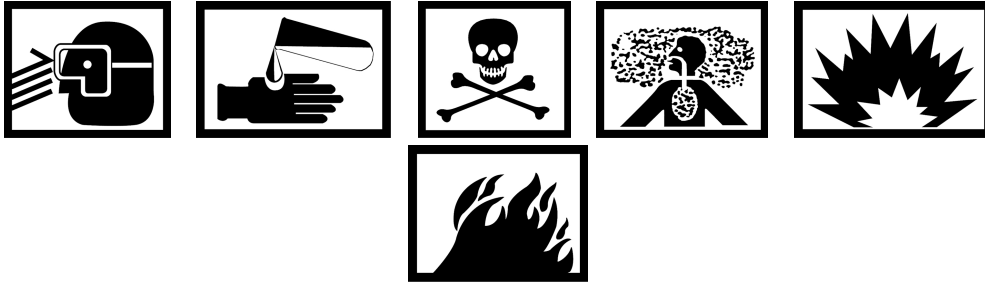
DISASSEMBLY - Continued



M0005JMS

Figure 2. Front Distribution Box Internal Parts Disassembly.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
1. Clean all metal parts with cleaning solvent and dry with a clean rag IAW General Maintenance Instructions (WP 0128).
 2. Clean all other components with a clean rag IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSPECTION**

1. Inspect front distribution box and receptacle cover for damage IAW General Maintenance Instructions (WP 0128). Replace damaged parts.

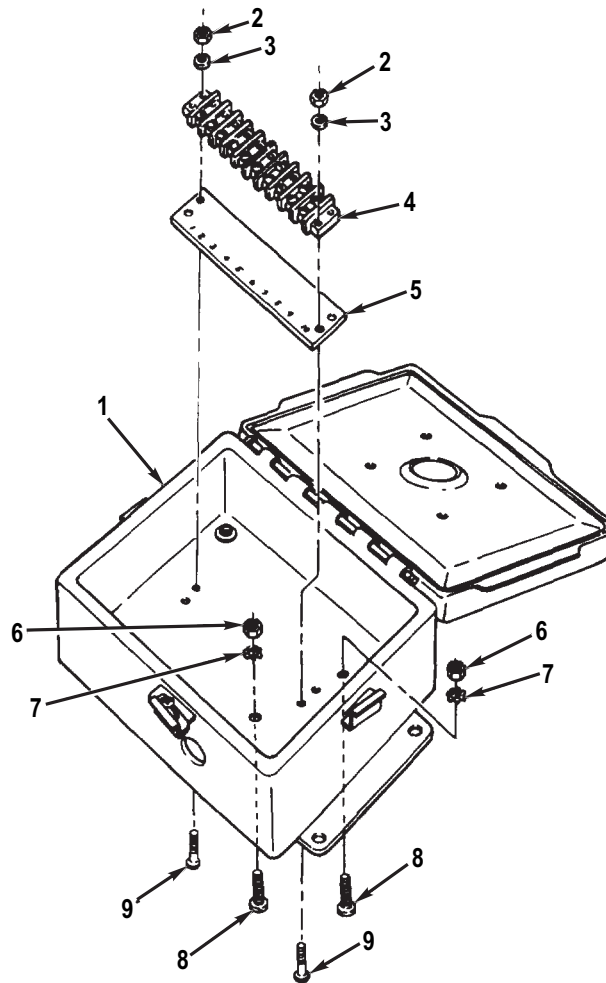
INSPECTION - Continued

2. Inspect receptacle connector and cable assembly for loose or broken wires and terminal lugs, and damaged connector inserts and pins IAW General Maintenance Instructions (WP 0128) . Replace damaged parts.

END OF TASK

ASSEMBLY

1. Install two screws (Figure 3, Item 8), new external-tooth lockwashers (Figure 3, Item 7), and new locknuts (Figure 3, Item 6) on front distribution box (Figure 3, Item 1).
2. Install marker strip (Figure 3, Item 5) and terminal block (Figure 3, Item 4) on front distribution box (Figure 3, Item 1) with two screws (Figure 3, Item 9), washers (Figure 3, Item 3), and new locknuts (Figure 3, Item 2).

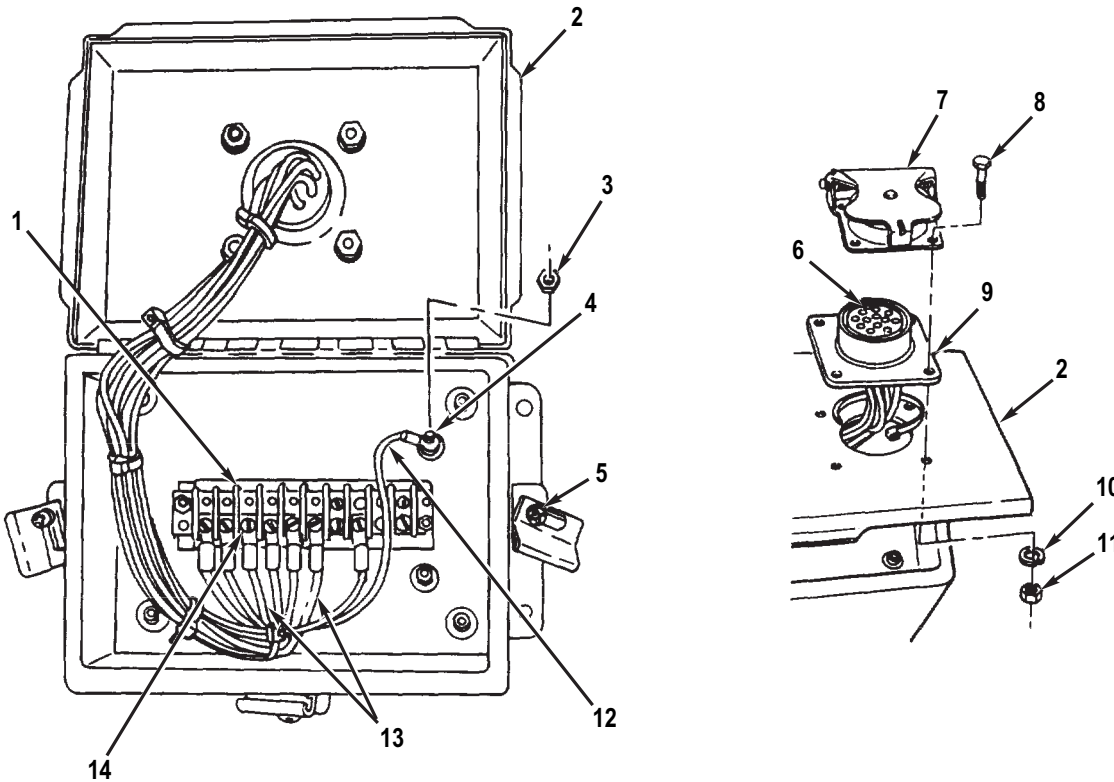


M0005JMS

Figure 3. Front Distribution Box Internal Parts Assembly.

ASSEMBLY - Continued

3. Position receptacle connector (Figure 4, Item 9) and cable assembly on cover (Figure 4, Item 2) with alignment key (Figure 4, Item 6) at 12 o'clock position. Position receptacle cover (Figure 4, Item 7) on cover with hinged side facing 12 o'clock position.
4. Install four screws (Figure 4, Item 8), new lockwashers (Figure 4, Item 10), and nuts (Figure 4, Item 11).
5. Install green ground wire (Figure 4, Item 12) on upper right screw (Figure 4, Item 4) with nut (Figure 4, Item 3).
6. Install cable assembly wires (Figure 4, Item 13) on positions 1 through 6 and 8 of terminal block (Figure 4, Item 1) with seven screws (Figure 4, Item 14).
7. Close cover (Figure 4, Item 2) and tighten three screws (Figure 4, Item 5).



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Figure 4. Front Distribution Box External Parts Assembly.

END OF TASK

FOLLOW-ON TASKS

1. Install front distribution box (WP 0030).
2. Check operation of lights (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
SIGNAL CONDITIONING BOX REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Materials/Parts

Locknut (WP 0133, Item 8) Qty: 4

Personnel Required

(Two)

References

WP 0043
WP 0128

Equipment Condition

Intravehicular cable disconnected from signal
conditioning box (WP 0007)

Equipment Condition (cont.)

Intradolly cable disconnected from front distribution
box (WP 0007)

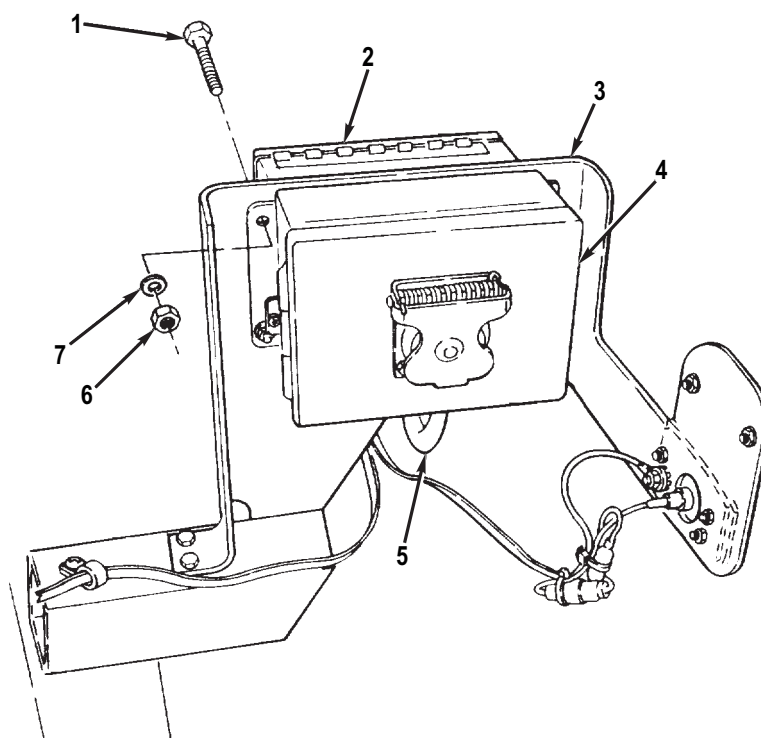
Front dolly marker clearance light cable assemblies
removed from signal conditioning box
(WP 0045)

NOTE

Assistance is required because when removing signal conditioning box the front distribution box comes off also.

REMOVAL

1. Remove four locknuts (Figure 1, Item 6), washers (Figure 1, Item 7), machine bolts (Figure 1, Item 1), signal conditioning box (Figure 1, Item 2), front distribution box (Figure 1, Item 4), and signal conditioning box-to-front distribution box cable assembly (Figure 1, Item 5) from bracket (Figure 1, Item 3). Discard locknuts.
2. Remove signal conditioning box-to-front distribution box cable assembly (Figure 1, Item 5) from signal conditioning box (Figure 1, Item 2) (Signal Conditioning Box-to-Front Distribution Box Cable Assembly Replacement (WP 0043)).



M0001JMS

Figure 1. Signal Conditioning Box Removal.

END OF TASK**CLEANING AND INSPECTION**

Clean and inspect all components IAW General Maintenance Instructions (WP 0128).

END OF TASK

INSTALLATION

1. Install signal conditioning box-to-front distribution box cable assembly (Figure 1, Item 5) on signal conditioning box (Figure 1, Item 2) (Signal Conditioning Box-To-Front Distribution Box Cable Assembly Replacement (WP 0043)).
2. Install signal conditioning box (Figure 1, Item 2), front distribution box (Figure 1, Item 4), and signal conditioning box-to-front distribution box cable assembly (Figure 1, Item 5) on bracket (Figure 1, Item 3) with four machine bolts (Figure 1, Item 1), washers (Figure 1, Item 7), and new locknuts (Figure 1, Item 6).

END OF TASK**FOLLOW-ON TASKS**

1. Install front dolly marker clearance light cable assemblies on signal conditioning box (WP 0045).
2. Connect intradolly cable to front distribution box (WP 0007).
3. Connect intervehicular cable to signal conditioning box (WP 0007).
4. Check operation of lights (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
SIGNAL CONDITIONING BOX REPAIR**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

References (cont.)

WP 0061
WP 0128
WP 0130

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Lockwasher (WP 0133, Item 17) Qty: 6

Equipment Condition

Signal conditioning box removed (WP 0032)

References

WP 0005

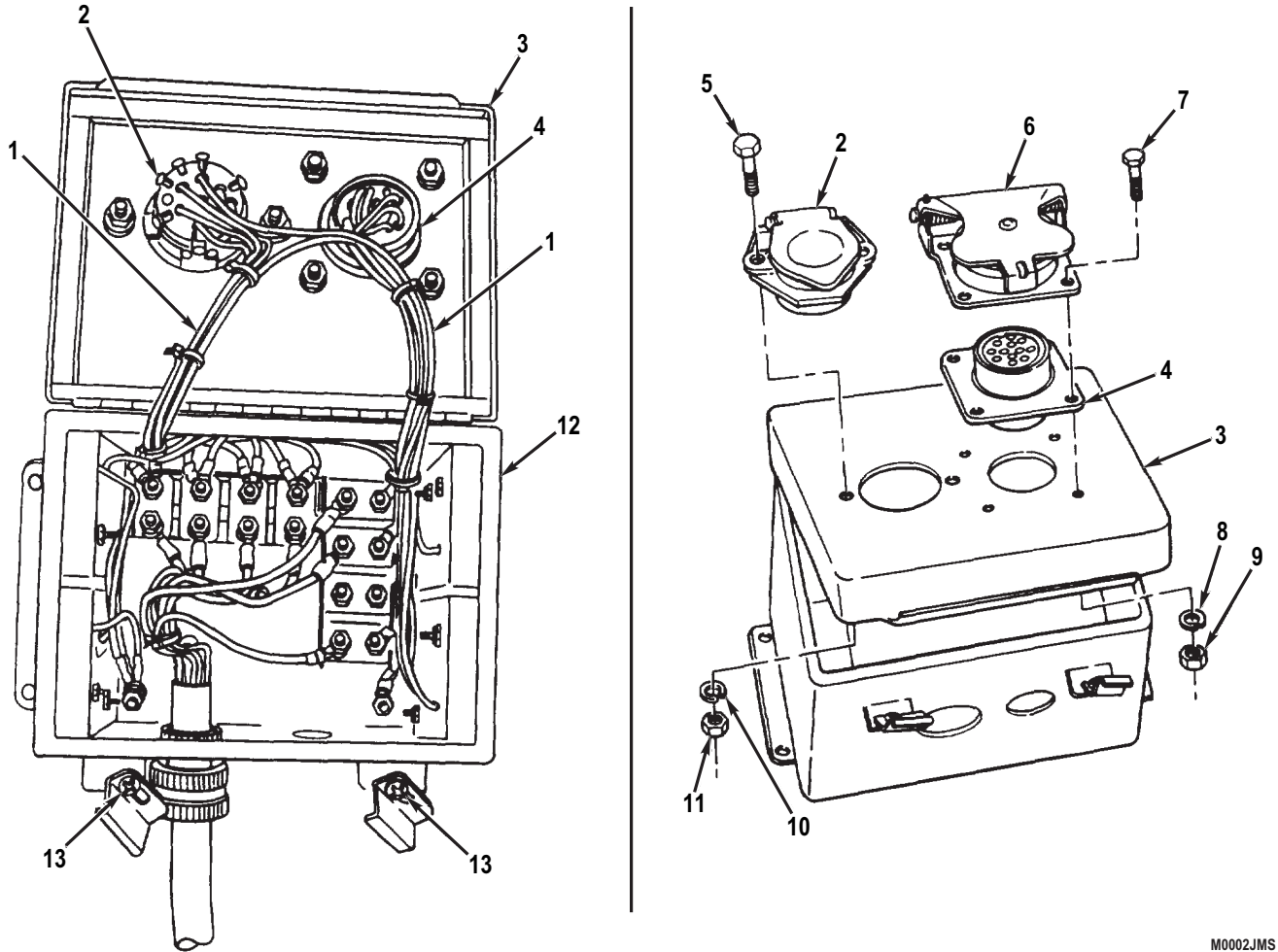
NOTE

- All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).
- Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

DISASSEMBLY**NOTE**

- Perform steps 1 through 3 to remove 24V receptacle connector.
 - Perform steps 1, 2, and 4 to remove 12V receptacle connector.
 - Perform steps 1 and 5 through 8, to remove circuit breakers and circuit breaker mounting bracket.
 - Perform steps 1, 9, and 10 to remove voltage reducer.
1. Loosen two screws (Figure 1, Item 13) and open cover (Figure 1, Item 3) of signal conditioning box (Figure 1, Item 12).
 2. Disconnect wires (Figure 1, Item 1) from 12V receptacle connector (Figure 1, Item 2) and wires (Figure 1, Item 1) from 24V receptacle connector (Figure 1, Item 4) (General Maintenance Instructions (WP 0128)).
 3. Remove four nuts (Figure 1, Item 9), lockwashers (Figure 1, Item 8), screws (Figure 1, Item 7), receptacle cover (Figure 1, Item 6), and 24V receptacle connector (Figure 1, Item 4) from cover (Figure 1, Item 3). Discard lockwashers.
 4. Remove two nuts (Figure 1, Item 11), lockwashers (Figure 1, Item 10), screws (Figure 1, Item 5), and 12V receptacle connector (Figure 1, Item 2) from cover (Figure 1, Item 3). Discard lockwashers.

DISASSEMBLY - Continued

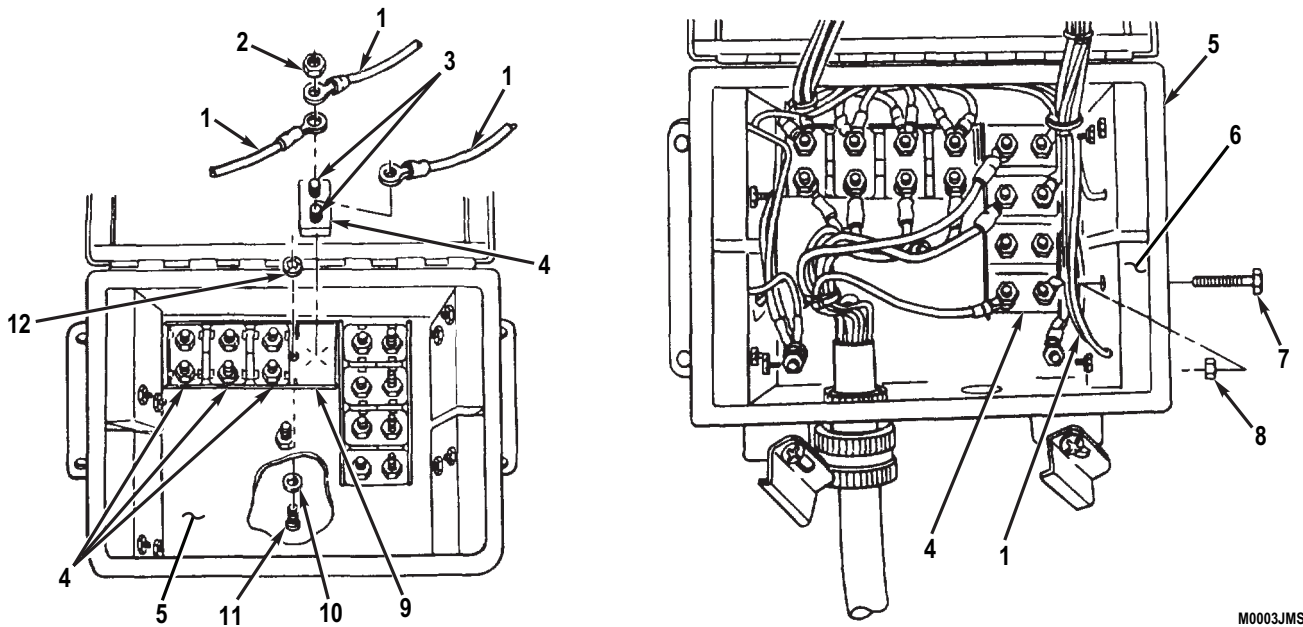


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Figure 1. Signal Conditioning Box External Parts Disassembly.

DISASSEMBLY - Continued

5. Remove two nuts (Figure 2, Item 2) and wires (Figure 2, Item 1) from terminals (Figure 2, Item 3) of circuit breaker (Figure 2, Item 4).
6. Remove circuit breaker (Figure 2, Item 4) from bracket (Figure 2, Item 9).
7. If replacing circuit breaker mounting bracket (Figure 2, Item 9), repeat steps 5 and 6 to remove three remaining circuit breakers (Figure 2, Item 4).
8. If circuit breaker mounting bracket (Figure 2, Item 9) is damaged, remove two screws (Figure 2, Item 11), washers (Figure 2, Item 10), nuts (Figure 2, Item 12), and bracket from signal conditioning box (Figure 2, Item 5).
9. Trace two wires (Figure 2, Item 1) of voltage reducer (Figure 2, Item 6) to their points of attachment at either circuit breaker (Figure 2, Item 4) or 12V or 24V receptacle connector (Figure 1, Item 2 or 4). Disconnect two wires (Figure 2, Item 1).
10. Remove three nuts (Figure 2, Item 8), screws (Figure 2, Item 7), and voltage reducer (Figure 2, Item 6) from signal conditioning box (Figure 2, Item 5).



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Figure 2. Signal Conditioning Box Disassembly.

END OF TASK

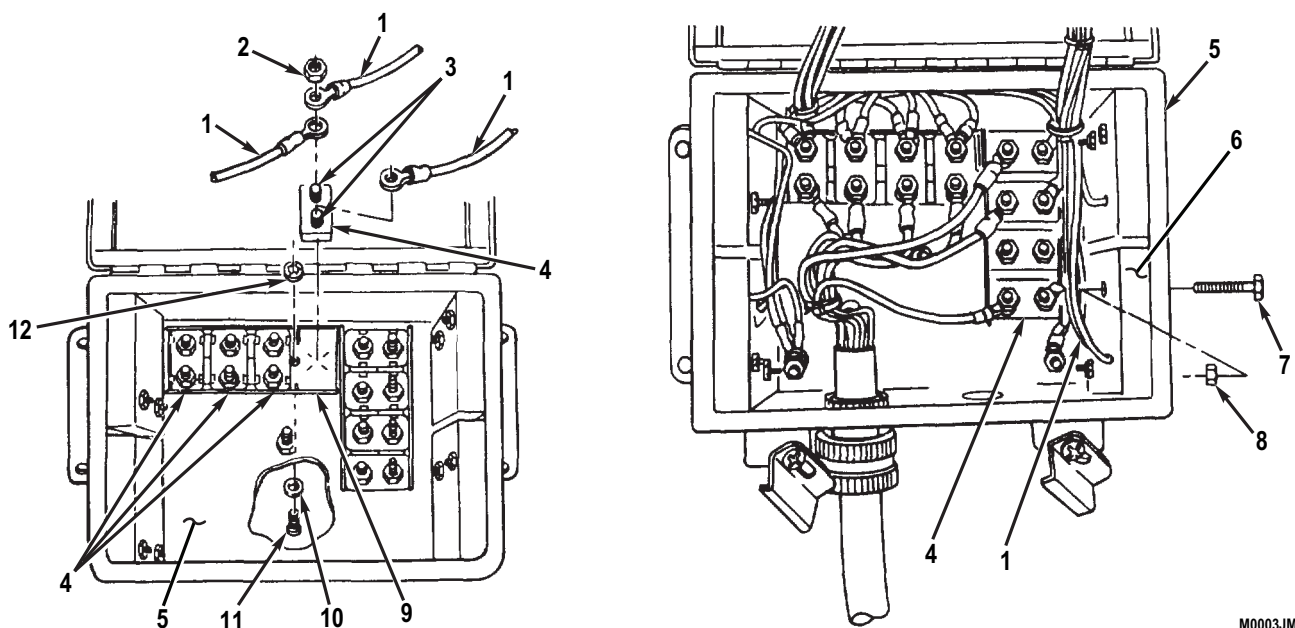
ASSEMBLY

NOTE

- Perform steps 1, 2, and 11 to install voltage reducer.
- Perform steps 3 through 6 and 11 to install circuit breakers and circuit breaker mounting bracket.
- Perform steps 7, 10, and 11 to install 12V receptacle connector.
- Perform steps 6 through 11 to install 24V receptacle connector.

ASSEMBLY - Continued

1. Install voltage reducer (Figure 3, Item 6) on signal conditioning box (Figure 3, Item 5) with three screws (Figure 3, Item 7) and nuts (Figure 3, Item 8).
2. Connect two wires (Figure 3, Item 1) of voltage reducer (Figure 3, Item 6) to their points of attachment at either circuit breaker (Figure 3, Item 4) or 12V or 24V receptacle connector (Figure 1, Item 2 or 4).
3. If circuit breaker mounting bracket (Figure 3, Item 9) was removed, install bracket on signal conditioning box (Figure 3, Item 5) with two nuts (Figure 3, Item 12), washers (Figure 3, Item 10), and screws (Figure 3, Item 11).
4. Install circuit breaker (Figure 3, Item 4) on bracket (Figure 3, Item 9).
5. Install wires (Figure 3, Item 1) on terminals (Figure 3, Item 3) of circuit breaker (Figure 3, Item 4) with two nuts (Figure 3, Item 2).
6. Repeat steps 4 and 5 as required to install three remaining circuit breakers (Figure 3, Item 4).

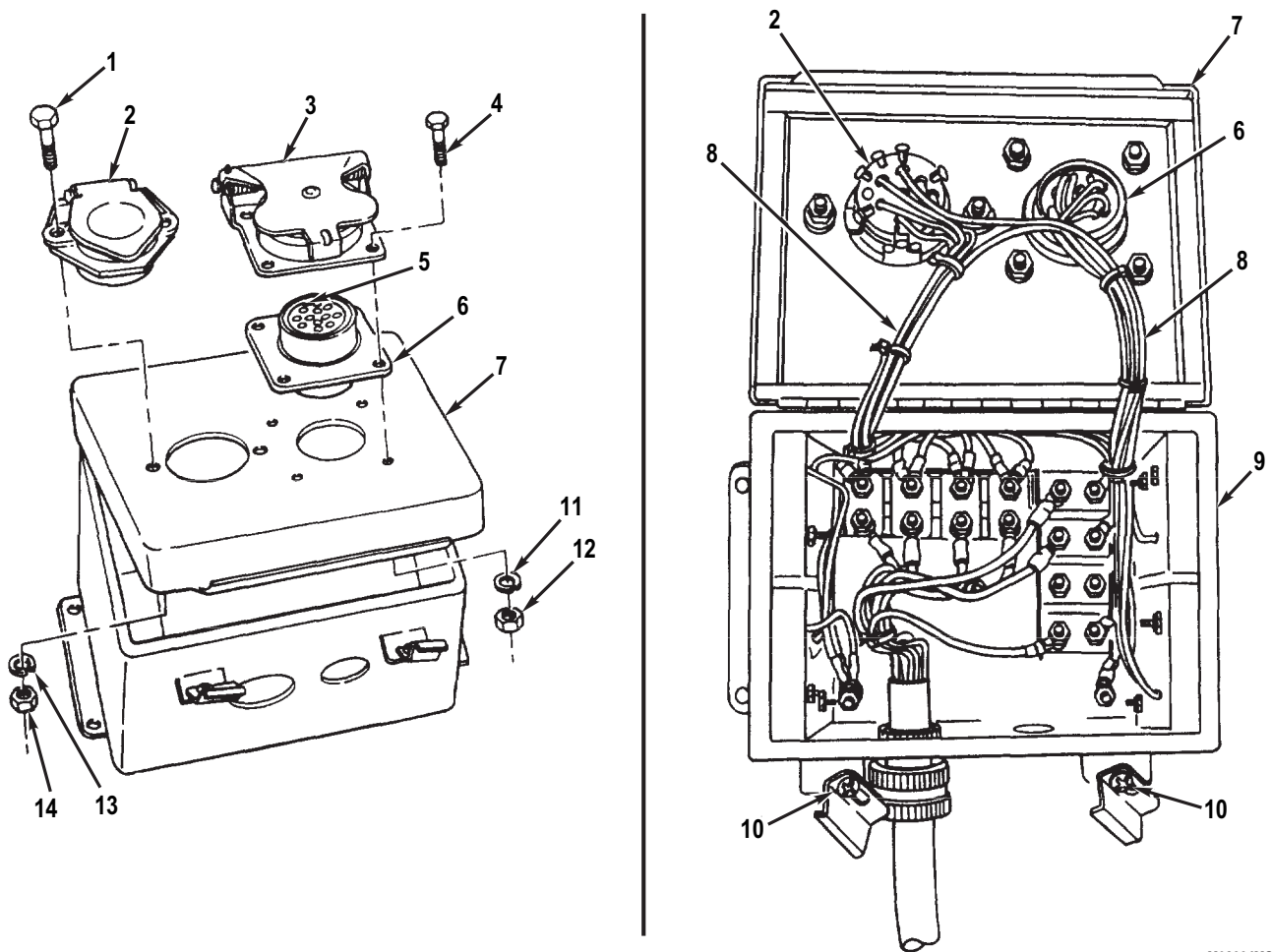


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Figure 3. Signal Conditioning Box Internal Parts Assembly.

ASSEMBLY - Continued

7. Install 12V receptacle connector (Figure 4, Item 2) on cover (Figure 4, Item 7) with two screws (Figure 4, Item 1), new lockwashers (Figure 4, Item 13), and nuts (Figure 4, Item 14).
8. Position 24V receptacle connector (Figure 4, Item 6) on cover (Figure 4, Item 7) with alignment key (Figure 4, Item 5) at 12 o'clock position. Position receptacle cover (Figure 4, Item 3) on cover with hinged side facing 12 o'clock position.
9. Install four screws (Figure 4, Item 4) new lockwashers (Figure 4, Item 11), and nuts (Figure 4, Item 12).
10. Connect wires (Figure 4, Item 8) to 12V receptacle connector (Figure 4, Item 2) and wires (Figure 4, Item 8) to 24V receptacle connector (Figure 4, Item 6) (General Maintenance Instructions (WP 0128)).
11. Close cover (Figure 4, Item 7) and tighten two screws (Figure 4, Item 10).



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Figure 4. Signal Conditioning Box External Parts Assembly.

END OF TASK

FOLLOW-ON TASKS

1. Install signal conditioning box (WP 0032).
2. Check operation of lights (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
REAR DISTRIBUTION BOX ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts

Locknut (WP 0134, Item 30) Qty: 4

Equipment Condition

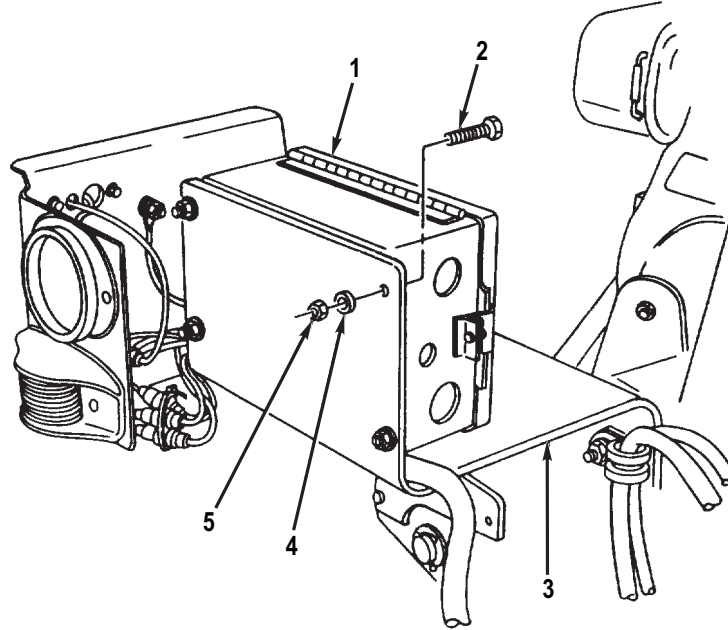
Intradolly cable disconnected from rear distribution box (WP 0008)

Equipment Condition (cont.)

Identification light cable assembly removed from rear distribution box (WP 0039)
Rear dolly taillight assembly cable assemblies removed from rear distribution box (WP 0037)

REMOVAL

Remove four locknuts (Figure 1, Item 5), washers (Figure 1, Item 4), bolts (Figure 1, Item 2), and rear distribution box (Figure 1, Item 1) from bracket (Figure 1, Item 3). Discard locknuts.



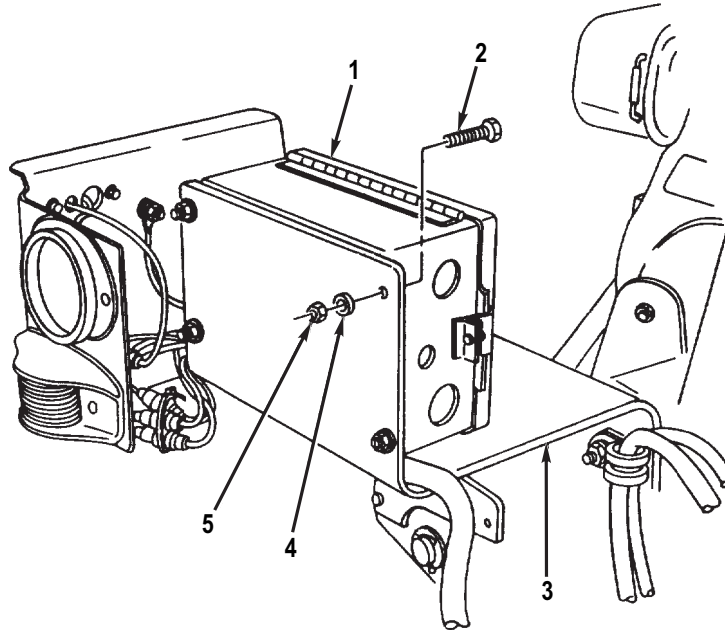
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Figure 1. Rear Distribution Box Removal.

END OF TASK

INSTALLATION

Install rear distribution box (Figure 2, Item 1) on bracket (Figure 2, Item 3) with four bolts (Figure 2, Item 2), washers (Figure 2, Item 4), and new locknuts (Figure 2, Item 5).



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Figure 2. Rear Distribution Box Installation.

END OF TASK

FOLLOW-ON TASKS

1. Install rear dolly taillight assembly cable assemblies on rear distribution (WP 0037).
2. Install identification light cable assembly on rear distribution box (WP 0039).
3. Connect intradolly cable to rear distribution box (WP 0007).
4. Check operation of lights (WP 0005).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
REAR DISTRIBUTION BOX ASSEMBLY REPAIR**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Locknut (WP 0134, Item 14) Qty: 4
Lockwasher (WP 0134, Item 23) Qty: 6

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
Tag: Marker (WP 0197, Table 1, Item 49)
External-tooth lockwasher (WP 0134, Item 26)
Qty: 2

References

WP 0005
WP 0128
WP 0130

Equipment Condition

Rear distribution box removed (WP 0034)

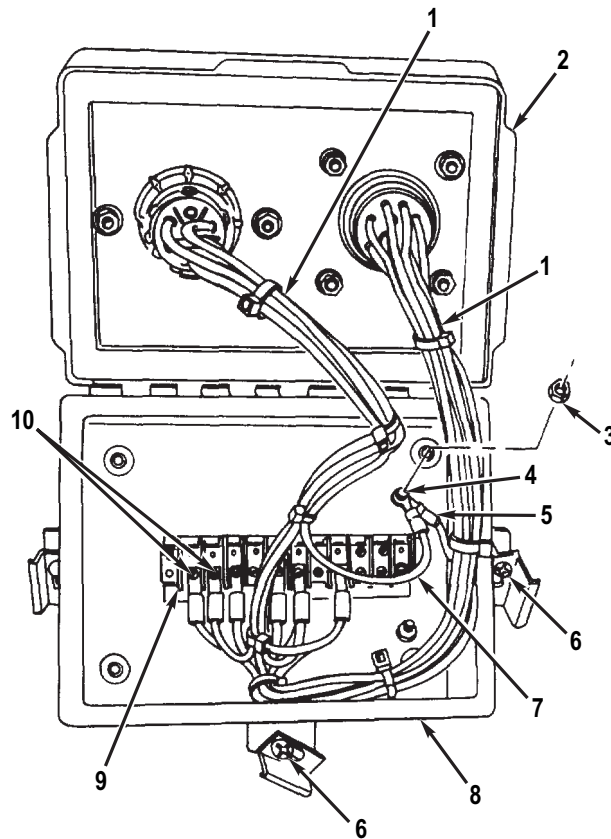
NOTE

- All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128) .
- Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

DISASSEMBLY**NOTE**

- Perform steps 1 through 5 to remove 24V receptacle connector and cable assembly.
- Perform steps 1 through 3 and 6 to remove 12V receptacle connector and cable assembly.

1. Loosen three screws (Figure 1, Item 6) and open cover (Figure 1, Item 2) of rear distribution box (Figure 1, Item 8).
2. Remove seven screws (Figure 1, Item 10) and cable assembly wires (Figure 1, Item 1) from positions 1 through 6 and 8 of terminal block (Figure 1, Item 9).
3. Remove nut (Figure 1, Item 3), white ground wire (Figure 1, Item 7), and green ground wire (Figure 1, Item 5) from upper right screw (Figure 1, Item 4).

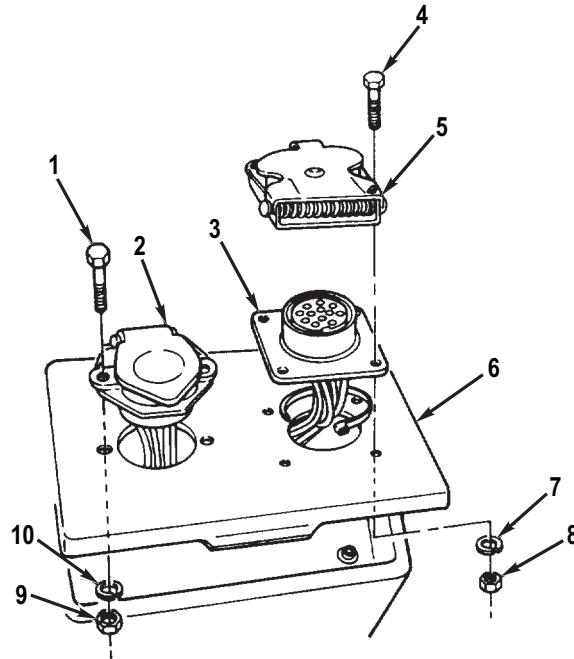


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Figure 1. Rear Distribution Box Wiring Disassembly.

DISASSEMBLY - Continued

4. Remove four nuts (Figure 2, Item 8), lockwashers (Figure 2, Item 7), screws (Figure 2, Item 4), and receptacle cover (Figure 2, Item 5) from cover (Figure 2, Item 6).
5. Remove 24V receptacle connector (Figure 2, Item 3) and cable assembly from cover (Figure 2, Item 6).
6. Remove two nuts (Figure 2, Item 9), lockwashers (Figure 2, Item 10), screws (Figure 2, Item 1), and 12V receptacle connector (Figure 2, Item 2) and cable assembly from cover (Figure 2, Item 6). Discard lockwashers.

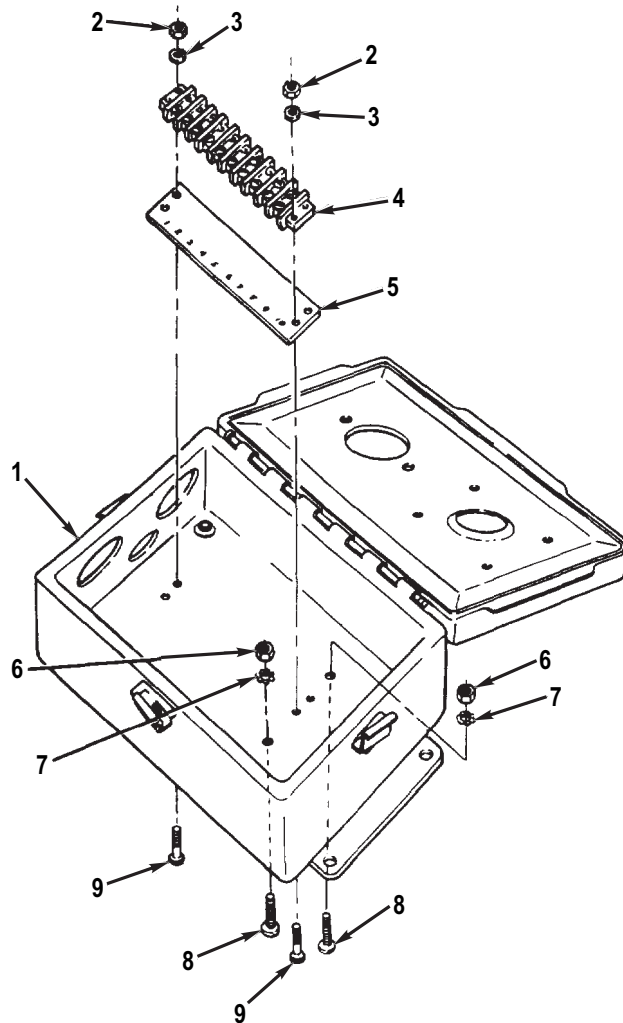


M0008JMS

Figure 2. Rear Distribution Box External Parts Disassembly.

DISASSEMBLY - Continued

7. Remove two locknuts (Figure 3, Item 2), washers (Figure 3, Item 3), screws (Figure 3, Item 9), terminal block (Figure 3, Item 4), and marker strip (Figure 3, Item 5) from rear distribution box (Figure 3, Item 1). Discard locknuts.
8. Remove two locknuts (Figure 3, Item 6), external-tooth lockwashers (Figure 3, Item 7), and screws (Figure 3, Item 8) from rear distribution box (Figure 3, Item 1). Discard locknuts and external-tooth lockwashers.



M0009JMS

Figure 3. Rear Distribution Box Internal Parts Disassembly.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

1. Clean all metal parts with cleaning solvent and dry with a clean rag.
2. Clean all other components with a clean rag IAW General Maintenance Instructions (WP 0128) .

END OF TASK**INSPECTION**

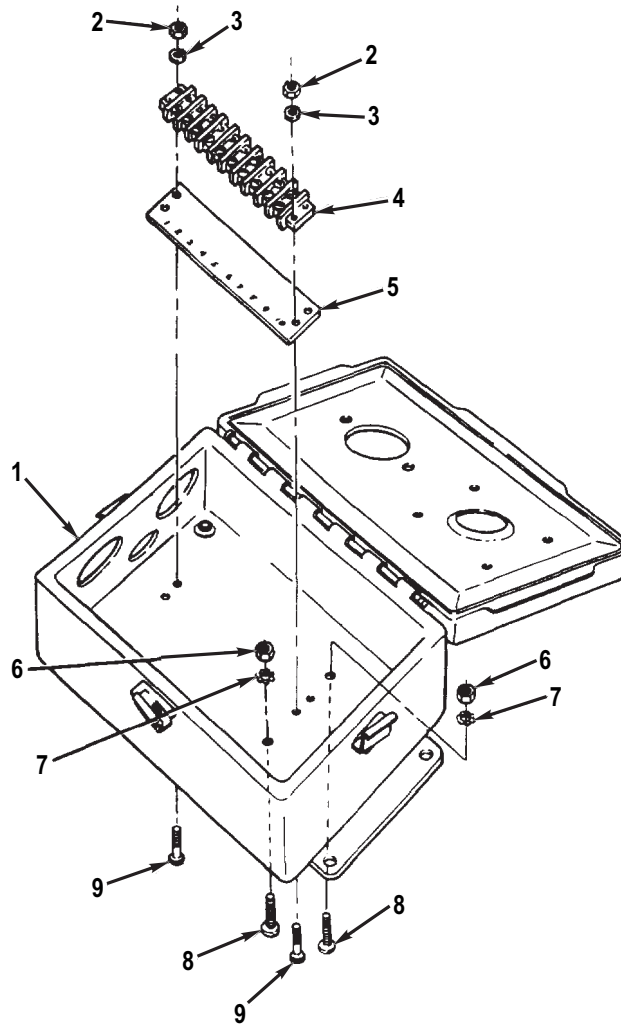
1. Inspect rear distribution box, receptacle cover, and cord connector components for damage IAW General Maintenance Instructions (WP 0128) . Replace damaged parts.
2. Inspect 12V and 24V receptacle connectors and cable assemblies for loose or broken wires, end connections, and damaged connector inserts and pins IAW General Maintenance Instructions (WP 0128) . Replace damaged parts.

END OF TASK

ASSEMBLY

NOTE

- Perform steps 4 through 8 to install 24V receptacle connector and cable assembly.
 - Perform steps 3 and 6 through 8 to install 12V receptacle connector and cable assembly.
1. Install two screws (Figure 4, Item 8) on rear distribution box (Figure 4, Item 1) with new external-tooth lockwashers (Figure 4, Item 7) and new locknuts (Figure 4, Item 6).
 2. Install marker strip (Figure 4, Item 5) and terminal block (Figure 4, Item 4) on rear distribution box (Figure 4, Item 1) with two screws (Figure 4, Item 9), washers (Figure 4, Item 3), and new locknuts (Figure 4, Item 2).

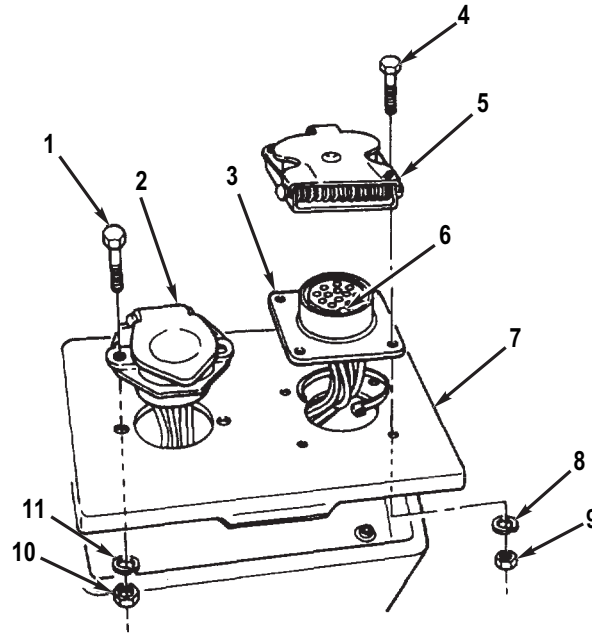


M0009JMS

Figure 4. Rear Distribution Box Internal Parts Assembly.

ASSEMBLY - Continued

3. Install 12V receptacle connector (Figure 5, Item 2) and cable assembly on cover (Figure 5, Item 7) with two screws (Figure 5, Item 1), new lockwashers (Figure 5, Item 11), and nuts (Figure 5, Item 10).
4. Position 24V receptacle connector (Figure 5, Item 3) and cable assembly on cover (Figure 5, Item 7) with alignment key (Figure 5, Item 6) facing 6 o'clock position. Position receptacle cover (Figure 5, Item 5) on cover with hinged side facing 6 o'clock position.
5. Install four screws (Figure 5, Item 4), new lockwashers (Figure 5, Item 8), and nuts (Figure 5, Item 9).

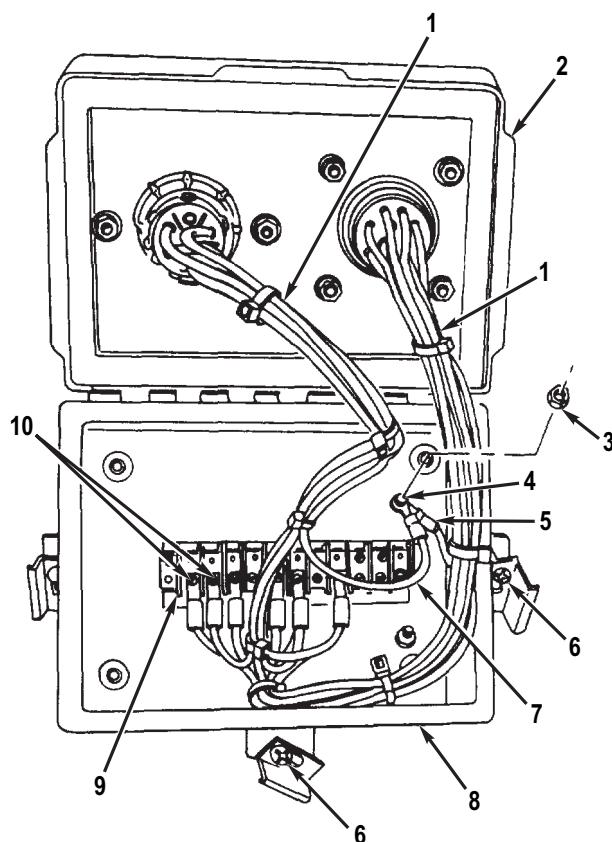


M0267JMS

Figure 5. Rear Distribution Box External Parts Assembly.

ASSEMBLY - Continued

6. Install white ground wire (Figure 6, Item 7) and green ground wire (Figure 6, Item 5) on upper right screw (Figure 6, Item 4) with nut (Figure 6, Item 3).
7. Install cable assembly wires (Figure 6, Item 1) on positions 1 through 6 and 8 of terminal block (Figure 6, Item 9) with seven screws (Figure 6, Item 10).
8. Close cover (Figure 6, Item 2) of rear distribution box (Figure 6, Item 8) and tighten three screws (Figure 6, Item 6).



M0007JMS

Figure 6. Rear Distribution Box Wiring Assembly.

END OF TASK**FOLLOW-ON TASKS**

1. Install rear distribution box (WP 0034).
2. Check operation of lights (WP 0005).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
MARKER CLEARANCE LIGHT ASSEMBLY MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Locknut (WP 0135, Item 11) Qty: 4
Lockwasher (WP 0135, Item 9) Qty: 4

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Strap: Tiedown electrical component (WP 0197, Table 1, Item 46)

References

WP 0128

Equipment Condition

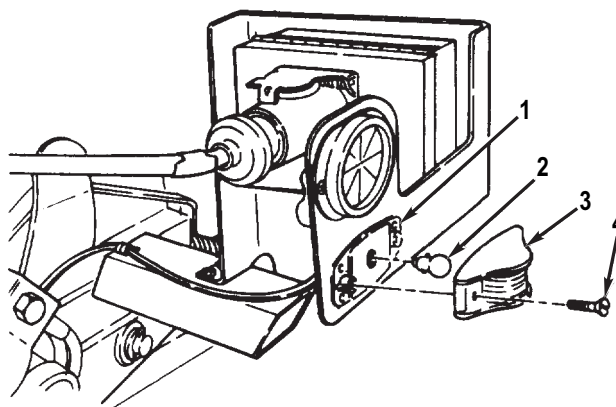
Intervehicular cable disconnected from towing vehicle (WP 0008)

NOTE

- Front and rear dolly marker clearance lamps and lights are replaced the same way. Front dolly marker clearance light is shown.
- Front marker clearance lights have amber lenses. Rear marker clearance lights have red lenses.

LAMP REPLACEMENT

1. Remove two screws (Figure 1, Item 4) and lens housing (Figure 1, Item 3) from body (Figure 1, Item 1).
2. Remove lamp (Figure 1, Item 2) from socket by pressing down on lamp and turning counterclockwise.



M0010JMS

Figure 1. Marker Clearance Light Lamp Replacement.

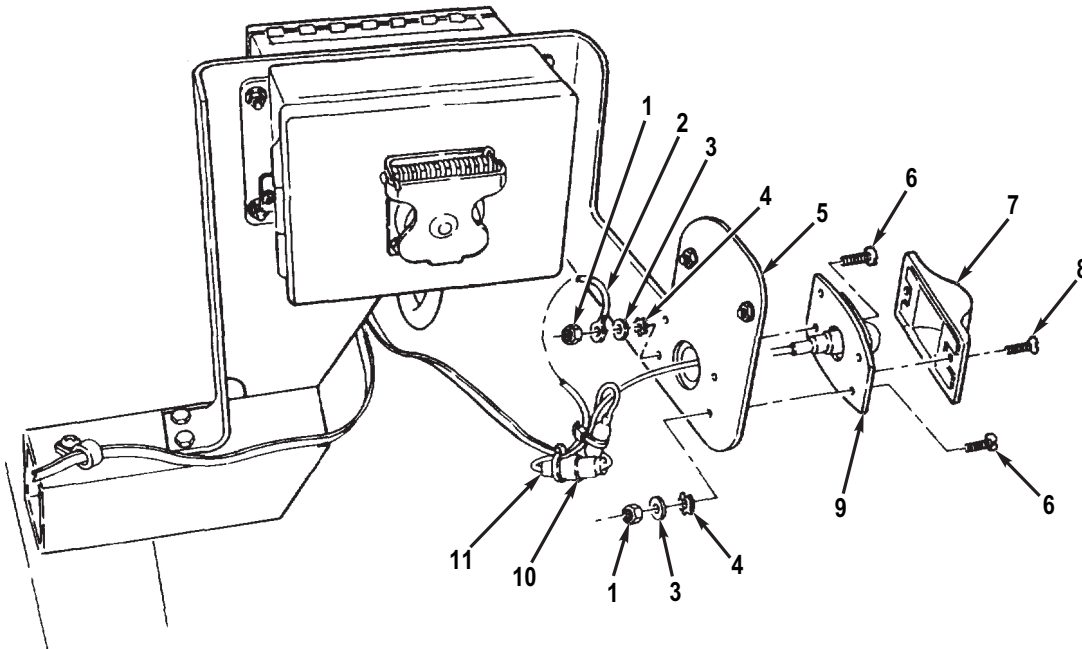
3. Install lamp (Figure 1, Item 2) in socket by pressing down on lamp and turning clockwise.
4. Install lens housing (Figure 1, Item 3) on body (Figure 1, Item 1) with two screws (Figure 1, Item 4).

END OF TASK

MARKER CLEARANCE LIGHT REMOVAL**NOTE**

All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Cut tie-down straps from connector plugs (Figure 2, Items 10 and 11). Disconnect marker clearance light connector plug (Figure 2, Item 10) from cable assembly connector plug (Figure 2, Item 11). Discard tie-down straps.
2. Remove two screws (Figure 2, Item 8) and lens housing (Figure 2, Item 7) from body (Figure 2, Item 9).
3. Remove four locknuts (Figure 2, Item 1), ground wire (Figure 2, Item 2) (front dolly only), four washers (Figure 2, Item 3), lockwashers (Figure 2, Item 4), screws (Figure 2, Item 6), and body (Figure 2, Item 9) from bracket (Figure 2, Item 5). Discard lockwashers and locknuts.
4. If damaged, replace marker clearance light connector plug (Figure 2, Item 10) (General Maintenance Instructions (WP 0128)).



M0011JMS

Figure 2. Marker Clearance Light Removal.

END OF TASK**MARKER CLEARANCE LIGHT INSTALLATION**

1. Install body (Figure 2, Item 9) on bracket (Figure 2, Item 5) with four screws (Figure 2, Item 6), new lockwashers (Figure 2, Item 4), washers (Figure 2, Item 3), ground wire (Figure 2, Item 2) (front dolly only), and four new locknuts (Figure 2, Item 1).
2. Install lens housing (Figure 2, Item 7) on body (Figure 2, Item 9) with two screws (Figure 2, Item 8).
3. Connect marker clearance light connector plug (Figure 2, Item 10) to cable assembly connector plug (Figure 2, Item 11). Wrap connector plugs with new tie-down straps.

END OF TASK

FOLLOW-ON TASKS

1. Connect intervehicular cable to towing vehicle (WP 0007).
2. Check operation of marker clearance light (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
TAILLIGHT AND REAR BLACKOUT LIGHTS MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Locknut (WP 0136, Item 16) Qty: 5
Lockwasher (WP 0136, Item 13) Qty: 8

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Strap: Tiedown electrical component (WP 0197, Table 1, Item 46)

References

WP 0128

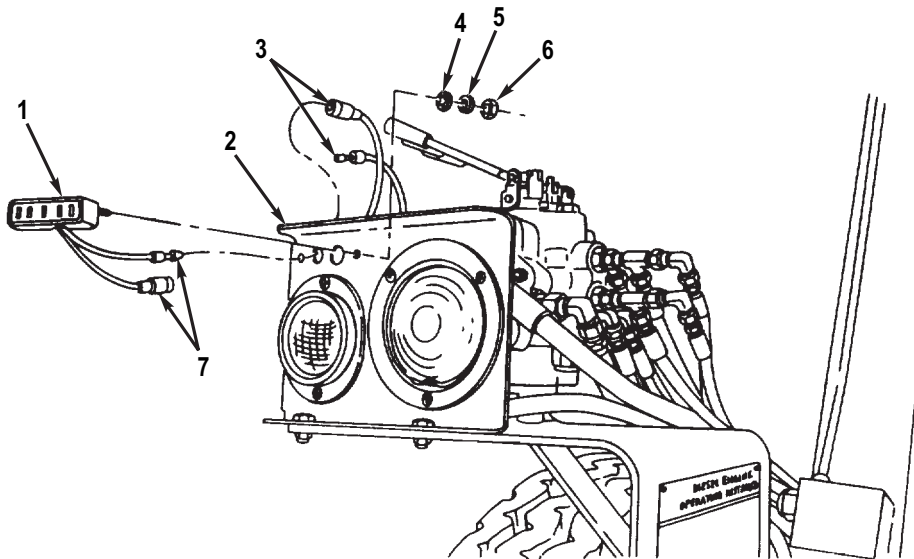
Equipment Condition

Intervehicular cable disconnected from towing vehicle (WP 0008)

BLACKOUT STOPLIGHT-TAILLIGHT REMOVAL**NOTE**

All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Cut tie-down strap from connector plugs (Figure 1, Items 3 and 7). Disconnect two cable assembly connector plugs (Figure 1, Item 3) from blackout stoplight-tailight connector plugs (Figure 1, Item 7). Discard tie-down strap.
2. Remove two locknuts (Figure 1, Item 6), washers (Figure 1, Item 5), lockwashers (Figure 1, Item 4) and blackout stoplight-tailight (Figure 1, Item 1) from taillight assembly housing (Figure 1, Item 2). Discard lockwashers and locknuts.

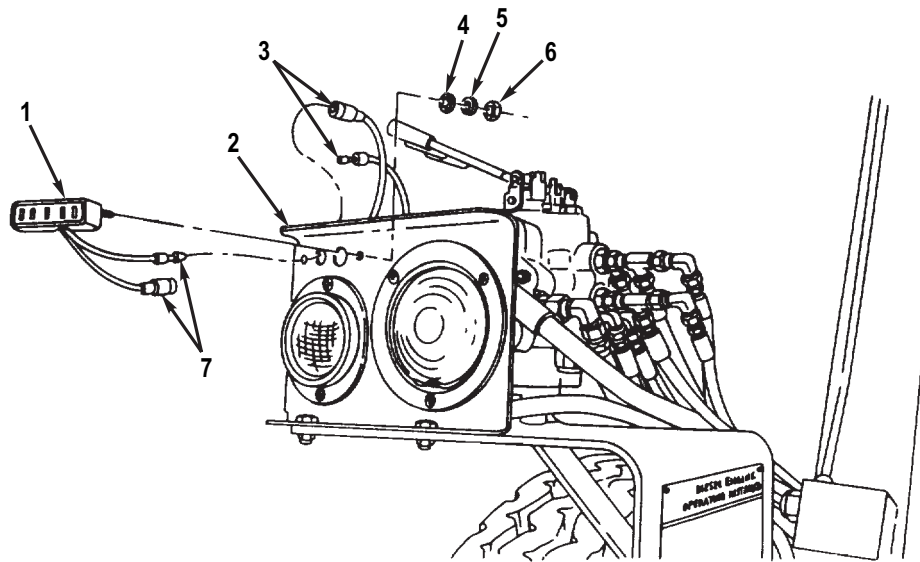


M0012JMS

Figure 1. Blackout Stoplight Removal.

END OF TASK**BLACKOUT STOPLIGHT-TAILLIGHT INSTALLATION**

1. Install blackout stoplight-tailight (Figure 2, Item 1) on taillight assembly housing (Figure 2, Item 2) with two new lockwashers (Figure 2, Item 4), washers (Figure 2, Item 5), and new locknuts (Figure 2, Item 6).
2. Connect two cable assembly connector plugs (Figure 2, Item 3) to blackout stoplight-tailight connector plugs (Figure 2, Item 7). Wrap connector plugs with new tie-down strap.

BLACKOUT STOPLIGHT-TAILLIGHT INSTALLATION - Continued

M0012JMS

Figure 2. Blackout Stoplight Installation.

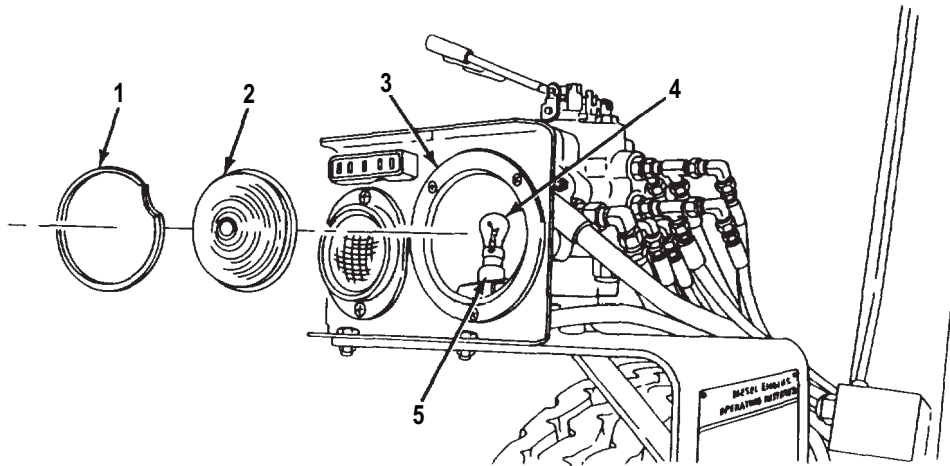
END OF TASK**FOLLOW-ON TASKS**

1. Connect intervehicular cable to towing vehicle (WP 0007).
2. Check operation of blackout stoplight-tailight (WP 0016) .

END OF TASK

TAILLIGHT LAMP REPLACEMENT

1. Remove snapping (Figure 3, Item 1) and lens (Figure 3, Item 2) from housing (Figure 3, Item 3).
2. Remove lamp (Figure 3, Item 4) from socket (Figure 3, Item 5) by pressing down on lamp and turning counterclockwise.



M0013JMS

Figure 3. Taillight Lamp Replacement.

3. Inspect lens gasket for damage. If damaged, replace lens (Figure 3, Item 2).
4. Install lamp (Figure 3, Item 4) in socket (Figure 3, Item 5) by pressing down on lamp and turning clockwise.
5. Install lens (Figure 3, Item 2) on housing (Figure 3, Item 3) with snapping (Figure 3, Item 1).

END OF TASK

TAILLIGHT REMOVAL**NOTE**

All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Cut tie-down strap from connector plugs (Figure 4, Items 9 and 10). Disconnect two taillight connector plugs (Figure 4, Item 10) from cable assembly connector plugs (Figure 4, Item 9). Discard tie-down strap.
2. Remove three locknuts (Figure 4, Item 7), cable assembly ground wire (Figure 4, Item 8), three washers (Figure 4, Item 6), lockwashers (Figure 4, Item 5), screws (Figure 4, Item 1), lockwashers (Figure 4, Item 2), and taillight (Figure 4, Item 3) from taillight assembly housing (Figure 4, Item 4). Discard locknuts and lockwashers.
3. If damaged, replace taillight connector plugs (Figure 4, Item 10) (General Maintenance Instructions (WP 0128)).

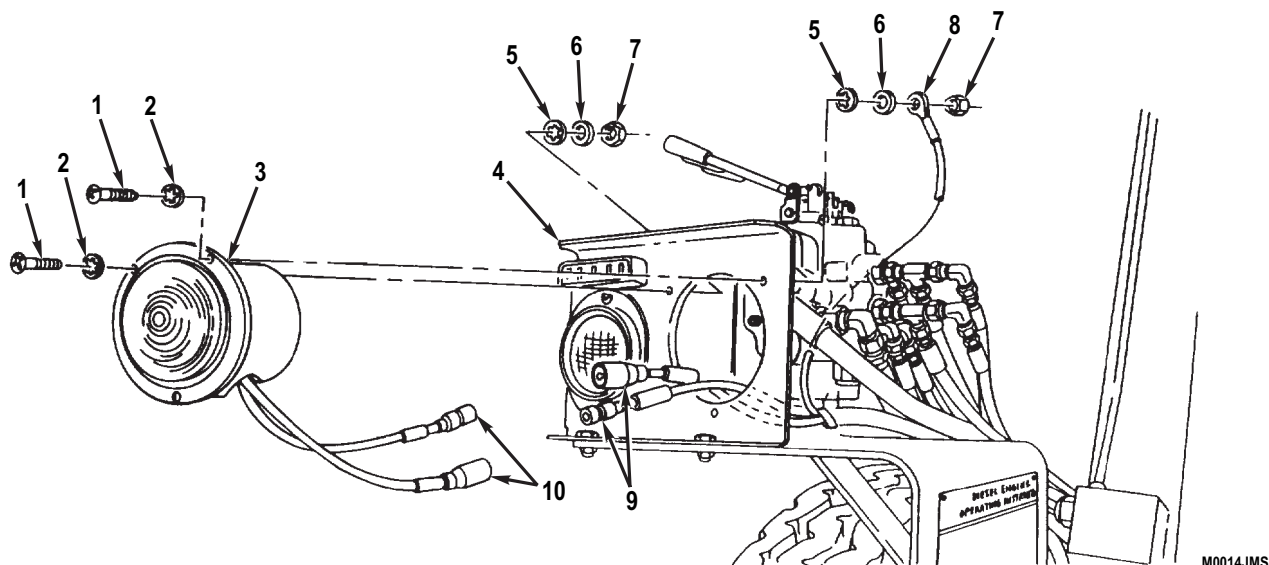


Figure 4. Taillight Removal.

END OF TASK**TAILLIGHT INSTALLATION**

1. Install taillight (Figure 4, Item 3) on taillight assembly housing (Figure 4, Item 4) with three new lockwashers (Figure 4, Item 2), screws (Figure 4, Item 1), new lockwashers (Figure 4, Item 5), washers (Figure 4, Item 6), cable assembly ground wire (Figure 4, Item 8), and three new locknuts (Figure 4, Item 7).
2. Connect two taillight connector plugs (Figure 4, Item 10) to cable assembly connector plugs (Figure 4, Item 9). Wrap connector plugs with new tie-down strap.

END OF TASK

FOLLOW-ON TASKS

1. Connect intervehicular cable to towing vehicle (WP 0007).
2. Check operation of taillight (WP 0005).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
TAILLIGHT ASSEMBLY HOUSING REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition (cont.)

Reflectors removed (WP 0099)
Blackout stoplight-taillight removed (WP 0037)
Taillight removed (WP 0037)

Materials/Parts

Locknut (WP 0136, Item 31) Qty: 2

Equipment Condition

Marker clearance light removed (WP 0036)

REMOVAL

Remove two locknuts (Figure 1, Item 5), washers (Figure 1, Item 4), machine bolts (Figure 1, Item 1), and housing (Figure 1, Item 2) from bracket (Figure 1, Item 3). Discard locknuts.

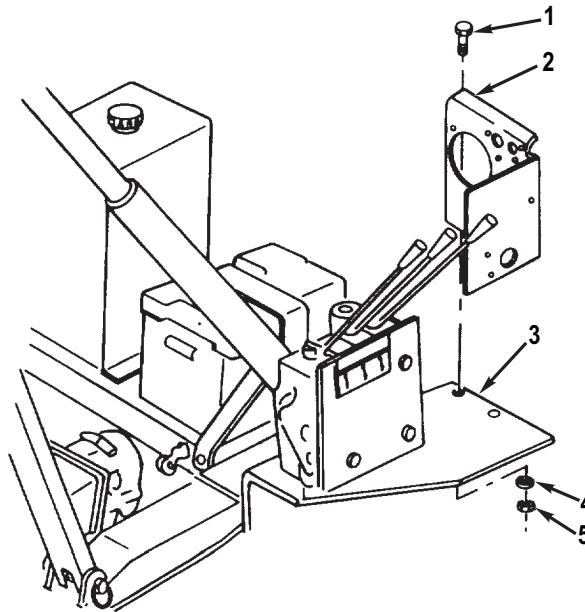


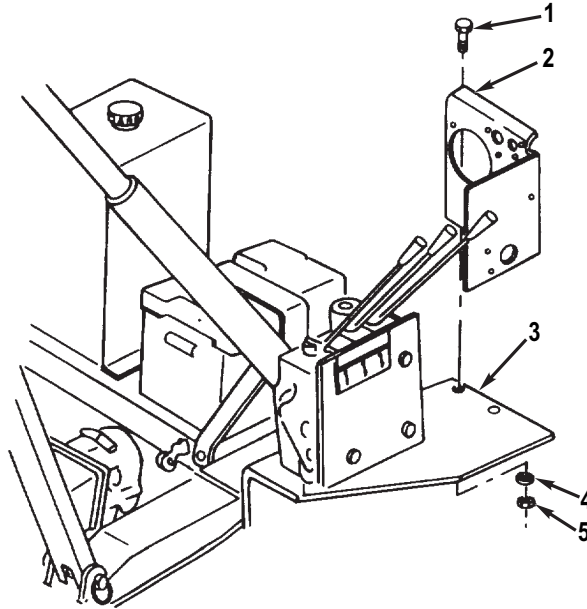
Figure 1. Taillight Assembly Housing Removal.

END OF TASK

M0015JMS

INSTALLATION

Install housing (Figure 2, Item 2) on bracket (Figure 2, Item 3) with two machine bolts (Figure 2, Item 1), washers (Figure 2, Item 4), and new locknuts (Figure 2, Item 5).



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Figure 2. Taillight Assembly Housing Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Install taillight (WP 0037).
2. Install blackout stoplight-taillight (WP 0037).
3. Install reflectors (WP 0099).
4. Install marker clearance light (WP 0036).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
IDENTIFICATION LIGHTS MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0128

Materials/Parts

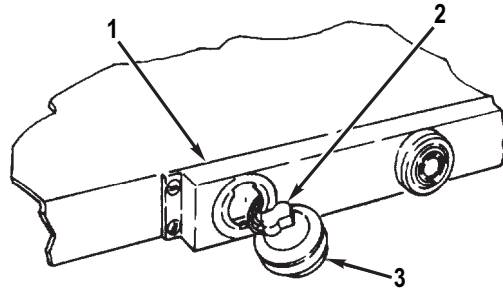
Tag: Marker (WP 0197, Table 1, Item 49)
Locknut (WP 0137, Item 11) Qty: 4
Lockwasher (WP 0137, Item 9) Qty: 4

Equipment Condition

Intervehicular cable disconnected from towing vehicle (WP 0008)

LAMP REPLACEMENT

1. Remove lamp unit (Figure 1, Item 3) from housing (Figure 1, Item 1) by turning lamp unit counterclockwise by hand.
2. Remove lamp unit (Figure 1, Item 3) from harness connector (Figure 1, Item 2).



M0016JMS

Figure 1. Identification Light Lamp Replacement.

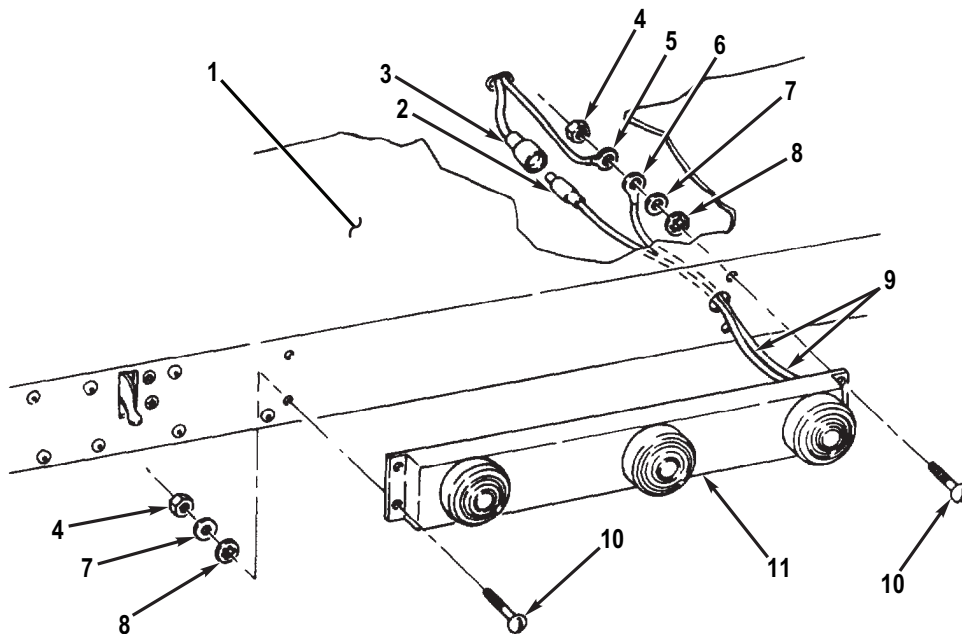
3. Snap lamp unit (Figure 1, Item 3) onto harness connector (Figure 1, Item 2).
4. Install lamp unit (Figure 1, Item 3) on housing (Figure 1, Item 1) by turning lamp unit clockwise by hand.

END OF TASK

REMOVAL**NOTE**

All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Disconnect identification light connector plug (Figure 2, Item 2) from cable assembly connector plug (Figure 2, Item 3).
2. Remove four locknuts (Figure 2, Item 4), two ground wires (Figure 2, Items 5 and 6), four washers (Figure 2, Item 7), lockwashers (Figure 2, Item 8), screws (Figure 2, Item 10), and identification light (Figure 2, Item 11) with two leads (Figure 2, Item 9) from pivoting tray (Figure 2, Item 1). Discard locknuts and lockwashers.
3. If damaged, replace identification light connector plug (Figure 2, Item 2) and ground wire (Figure 2, Item 6) (General Maintenance Instructions (WP 0128)).



M0017JMS

Figure 2. Identification Light Removal.

END OF TASK**INSTALLATION**

1. Position identification light (Figure 2, Item 11) at pivoting tray (Figure 2, Item 1) with two leads (Figure 2, Item 9) through hole in pivoting tray.
2. Install identification light (Figure 2, Item 11) on pivoting tray (Figure 2, Item 1) with four screws (Figure 2, Item 10), new lockwashers (Figure 2, Item 8), washers (Figure 2, Item 7), two ground wires (Figure 2, Items 5 and 6), and four new locknuts (Figure 2, Item 4).

INSTALLATION - Continued

3. Connect identification light connector plug (Figure 2, Item 2) to cable assembly connector plug (Figure 2, Item 3).

END OF TASK**FOLLOW-ON TASKS**

1. Connect intervehicular cable to towing vehicle (WP 0007).
2. Check operation of identification light (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
BATTERY MAINTENANCE**

INITIAL SETUP:**References**

TM 9-6140-200-13

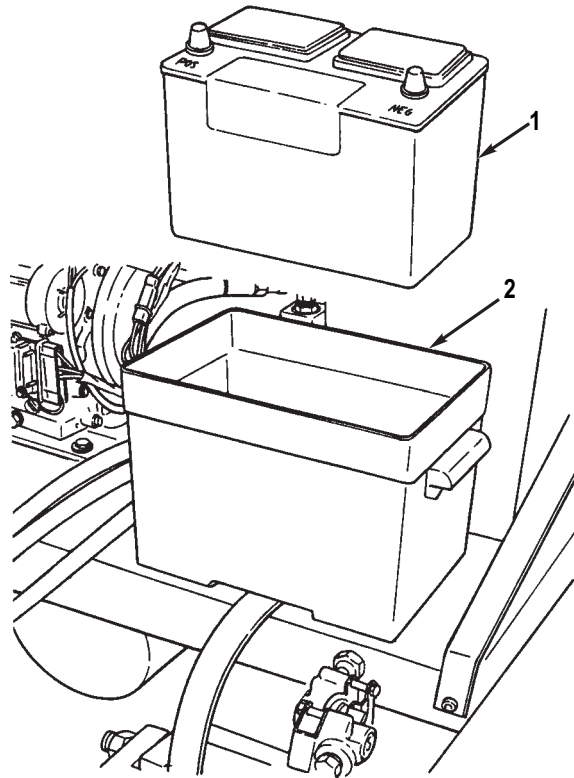
Equipment ConditionEngine starter switch set to OFF position
(WP 0005)Battery cables disconnected (WP 0042)

WARNING

- Remove all jewelry, such as rings, I.D. tags, bracelets, etc. If jewelry contacts a battery terminal, a direct short will result causing instant heating of jewelry. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Battery acid (electrolyte) is extremely dangerous. Always wear eye protection and rubber gloves when performing battery checks or inspections. Serious injury to personnel will result if battery acid contacts skin or eyes. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- DO NOT perform battery system checks or inspections while smoking or near fire, flames, or sparks. Battery gases may explode. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Sulfuric acid contained in batteries can cause serious burns. If battery corrosion or electrolyte makes contact with skin, eyes, or clothing, take immediate action to stop the corrosive burning effects. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
 1. Eyes. Flush with cold water for no less than 15 minutes and immediately seek medical attention.
 2. Skin. Flush with large amounts of cold water until all acid is removed. Seek medical attention as required.
 3. Internal. If corrosion or electrolyte is ingested, drink large amounts of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Immediately seek medical attention.
 4. Clothing/Equipment. Wash area with large amounts of cold water. Neutralize acid with baking soda or household ammonia.
- California Proposition 65 Warning. Battery posts, terminals, and related accessories contain lead and lead components. These chemicals are known to the State of California to cause cancer and reproductive harm. Wash hands after handling. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

REMOVAL

Remove battery (Figure 1, Item 1) from battery case (Figure 1, Item 2).



M0018JMS

Figure 1. Battery Removal.

END OF TASK**TEST**

Test battery (Figure 1, Item 1) IAW TM 9-6140-200-13.

END OF TASK**SERVICE**

Service battery (Figure 1, Item 1) IAW TM 9-6140-200-13.

END OF TASK**INSTALLATION**

Install battery (Figure 1, Item 1) inside battery case (Figure 1, Item 2).

END OF TASK

FOLLOW-ON TASKS

Connect battery cables (WP 0042).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
BATTERY CASE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Wrench, Torque: 3/8 in. drive, 0-300 lb-in capacity (WP 0198, Table 1, Item 43)

Equipment Condition

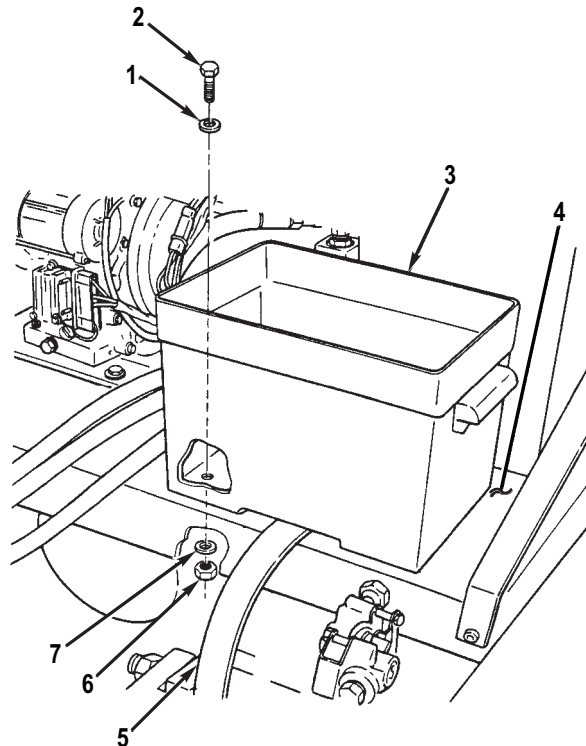
Battery removed (WP 0040)

Materials/Parts

Locknut (WP 0138, Item 5) Qty: 4

REMOVAL

1. Remove four locknuts (Figure 1, Item 6), washers (Figure 1, Item 7), screws (Figure 1, Item 2), and washers (Figure 1, Item 1) from battery case (Figure 1, Item 3) and pivoting tray (Figure 1, Item 4). Discard locknuts.
2. Remove battery case (Figure 1, Item 3) and strap (Figure 1, Item 5) from pivoting tray (Figure 1, Item 4).



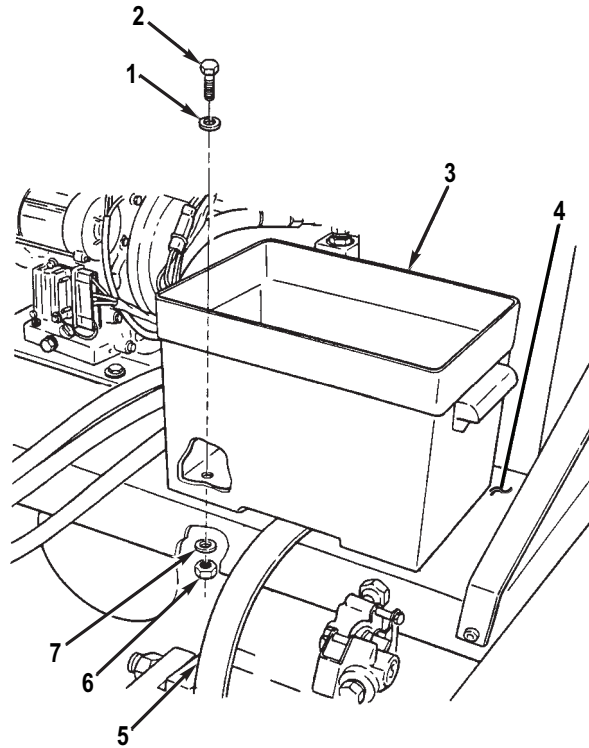
M0019JMS

Figure 1. Battery Case Removal.

END OF TASK

INSTALLATION

Install strap (Figure 2, Item 5) and battery case (Figure 2, Item 3) on pivoting tray (Figure 2, Item 4) with four washers (Figure 2, Item 1), screws (Figure 2, Item 2), washers (Figure 2, Item 7), and new locknuts (Figure 2, Item 6). Torque locknuts to 40 ± 4 lb-in (4.52 ± 0.45 N•m).



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Figure 2. Battery Case Installation.

END OF TASK**FOLLOW-ON TASK**

Install battery (WP 0040).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
BATTERY CABLES REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Locknut (WP 0166, Item 11) Qty: 1
Lockwasher (WP 0178, Item 8) Qty: 1

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Strap: Tiedown electrical component (WP 0197, Table 1, Item 46)

References

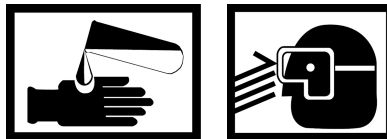
TM 9-6140-200-13
WP 0128

Equipment Condition

Engine starter switch set to OFF position
(WP 0005)

WARNING

- Remove all jewelry, such as rings, I.D. tags, bracelets, etc. If jewelry contacts a battery terminal, a direct short will result causing instant heating of jewelry. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Battery acid (electrolyte) is extremely dangerous. Always wear eye protection and rubber gloves when performing battery checks or inspections. Serious injury to personnel will result if battery acid contacts skin or eyes. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- DO NOT perform battery system checks or inspections while smoking or near fire, flames, or sparks. Battery gases may explode. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Sulfuric acid contained in batteries can cause serious burns. If battery corrosion or electrolyte makes contact with skin, eyes, or clothing, take immediate action to stop the corrosive burning effects. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
 1. Eyes. Flush with cold water for no less than 15 minutes and immediately seek medical attention.
 2. Skin. Flush with large amounts of cold water until all acid is removed. Seek medical attention as required.
 3. Internal. If corrosion or electrolyte is ingested, drink large amounts of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Immediately seek medical attention.
 4. Clothing/Equipment. Wash area with large amounts of cold water. Neutralize acid with baking soda or household ammonia.
- California Proposition 65 Warning. Battery posts, terminals, and related accessories contain lead and lead components. These chemicals are known to the State of California to cause cancer and reproductive harm. Wash hands after handling. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

REMOVAL**WARNING**

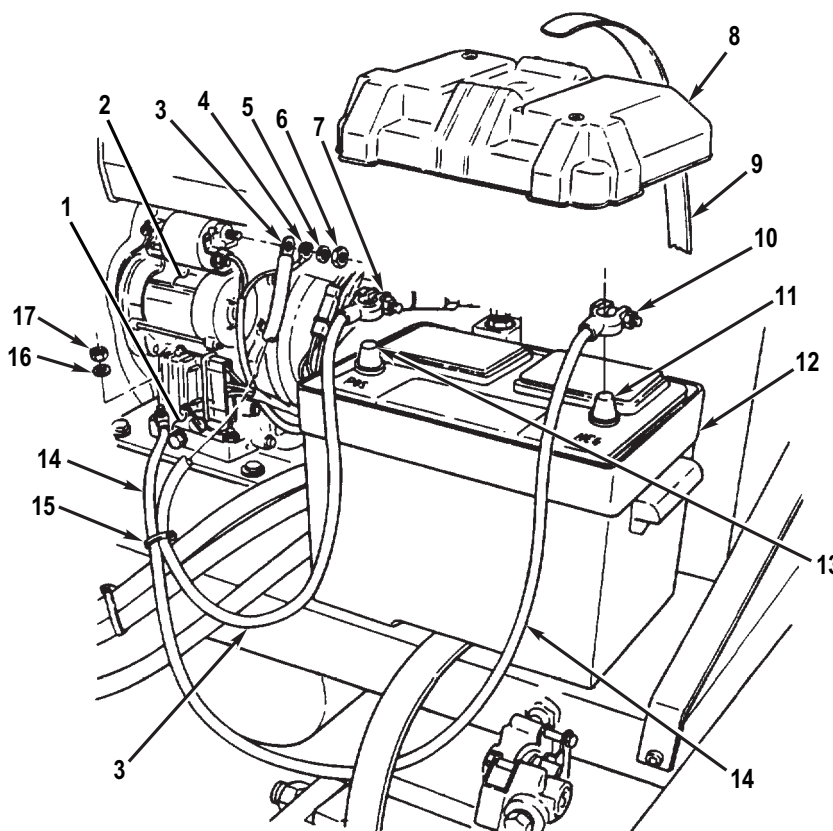
Always disconnect negative (-) battery cable FIRST to avoid a short should a tool contact cables. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

Battery cables should be tagged before removal IAW General Maintenance Instructions (WP 0128).

REMOVAL - Continued

1. Unbuckle strap (Figure 1, Item 9) and remove cover (Figure 1, Item 8) from battery case (Figure 1, Item 12).
2. Loosen nut (Figure 1, Item 10) and remove negative (-) ground cable (Figure 1, Item 14) from negative battery (-) terminal (Figure 1, Item 11).
3. Loosen nut (Figure 1, Item 7) and remove positive (+) cable (Figure 1, Item 3) from positive battery (+) terminal (Figure 1, Item 13).
4. Remove locknut (Figure 1, Item 17), washer (Figure 1, Item 16), and negative (-) ground cable (Figure 1, Item 14) from crankcase (1). Discard locknut.
5. Remove nut (Figure 1, Item 6), lockwasher (Figure 1, Item 5), engine wiring harness lead (Figure 1, Item 4), and positive (+) cable (Figure 1, Item 3) from starter (Figure 1, Item 2). Discard lockwasher.
6. Remove tie-down straps (Figure 1, Item 15) from positive (+) cable (Figure 1, Item 3) and negative (-) ground cable (Figure 1, Item 14). Discard tie-down straps.



M0020JMS

Figure 1. Battery Removal.

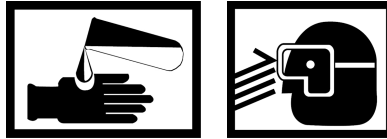
END OF TASK**CLEANING**

Clean IAW TM 9-6140-200-13.

END OF TASK

INSPECTION

Inspect battery terminals and cable end connections for dirt or corrosion IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSTALLATION****WARNING**

Always connect positive (+) battery cable to positive (+) terminal of battery FIRST to avoid a short, should a tool contact cables. Failure to follow this warning may result in serious injury or death to personnel. Seek medical attention in the event of an injury.

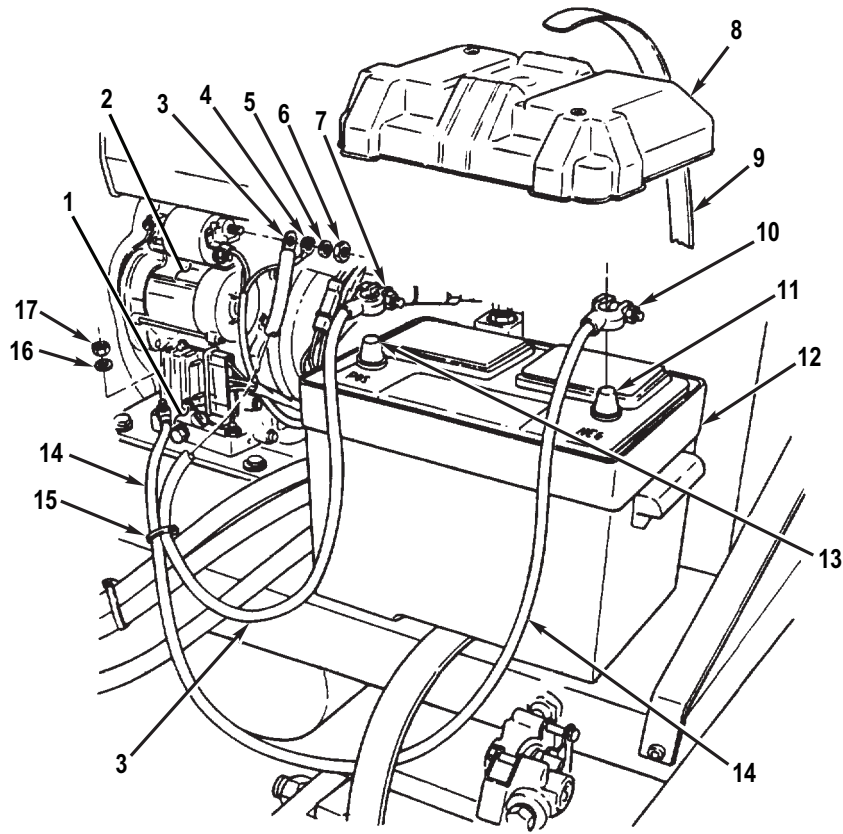
1. Install positive (+) cable (Figure 2, Item 3) and engine wiring harness lead (Figure 2, Item 4) on starter (Figure 2, Item 2) with new lockwasher (Figure 2, Item 5) and nut (Figure 2, Item 6).
2. Install negative (-) ground cable (Figure 2, Item 14) on crankcase (Figure 2, Item 1) with washer (Figure 2, Item 16) and new locknut (Figure 2, Item 17).
3. Install positive (+) cable (Figure 2, Item 3) on positive battery (+) terminal (Figure 2, Item 13). Tighten nut (Figure 2, Item 7).
4. Install negative (-) ground cable (Figure 2, Item 14) on negative battery (-) terminal (Figure 2, Item 11). Tighten nut (Figure 2, Item 10).
5. Wrap positive (+) cable (Figure 2, Item 3) and negative (-) ground cable (Figure 2, Item 14) with new tie-down straps (Figure 2, Item 15).

CAUTION

Avoid overtightening of strap, which may damage strap or buckle.

6. Install cover (Figure 2, Item 8) on battery case (Figure 2, Item 12). Fasten strap (Figure 2, Item 9).

INSTALLATION - Continued



M0020JMS

Figure 2. Battery Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
SIGNAL CONDITIONING BOX-TO-FRONT DISTRIBUTION BOX CABLE ASSEMBLY REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0128
WP 0130

Materials/Parts

Strap: Tiedown electrical component (WP 0197, Table 1, Item 46)
Tag: Marker (WP 0197, Table 1, Item 49)
Locknut (WP 0132, Item 2) Qty: 1
Locknut (WP 0133, Item 28) Qty: 1
Lockwasher (WP 0133, Item 9) Qty: 7

Equipment Condition

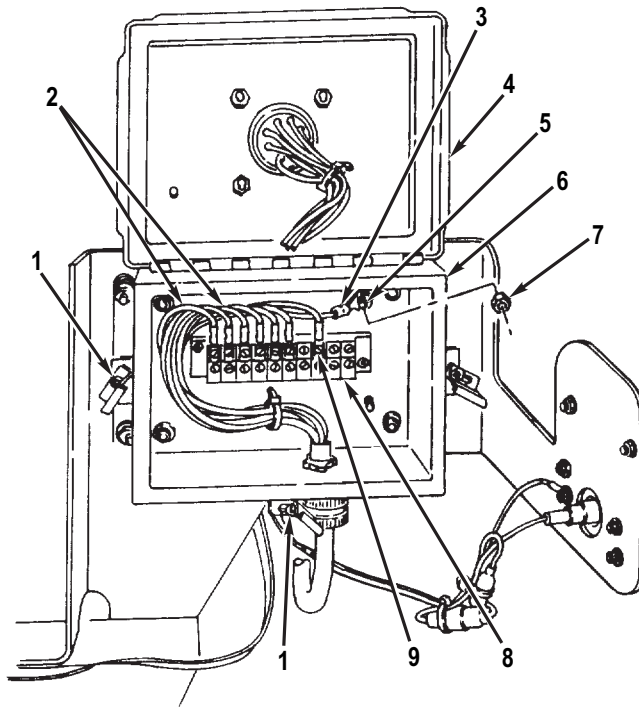
Intervehicular cable disconnected from signal conditioning box (WP 0007)
Intradolly cable disconnected from front distribution box (WP 0007)

NOTE

- All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).
- Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).
- Remove tie-down straps as required. Ensure that new tie-down straps are used during installation.

REMOVAL

1. Loosen three screws (Figure 1, Item 1) and open cover (Figure 1, Item 4) of front distribution box (Figure 1, Item 6).
2. Remove seven screws (Figure 1, Item 9) and cable assembly wires (Figure 1, Item 2) from positions 1 through 6 and 8 of terminal block (Figure 1, Item 8).
3. Remove nut (Figure 1, Item 7) and green ground wire (Figure 1, Item 3) from top right screw (Figure 1, Item 5).

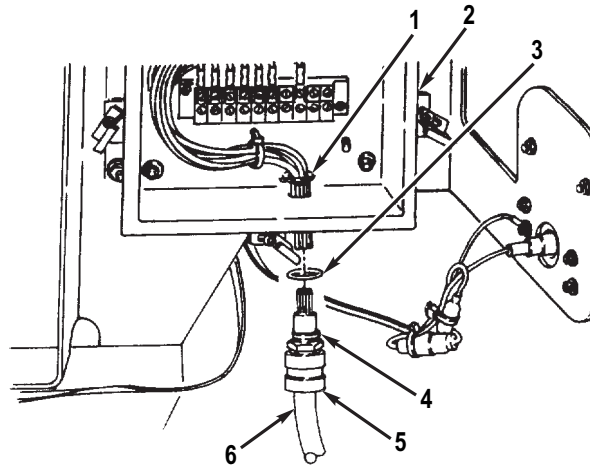


M0021JMS

Figure 1. Front Distribution Box Cable Assembly Wiring Harness Removal.

REMOVAL - Continued

4. Remove locknut (Figure 2, Item 1) from cord connector (Figure 2, Item 4). Discard locknut.
5. Remove cord connector (Figure 2, Item 4), sealing ring (Figure 2, Item 3), and cable assembly (Figure 2, Item 6) from forward distribution box (Figure 2, Item 2).
6. Loosen nut (Figure 2, Item 5) and remove cable assembly (Figure 2, Item 6) from cord connector (Figure 2, Item 4).

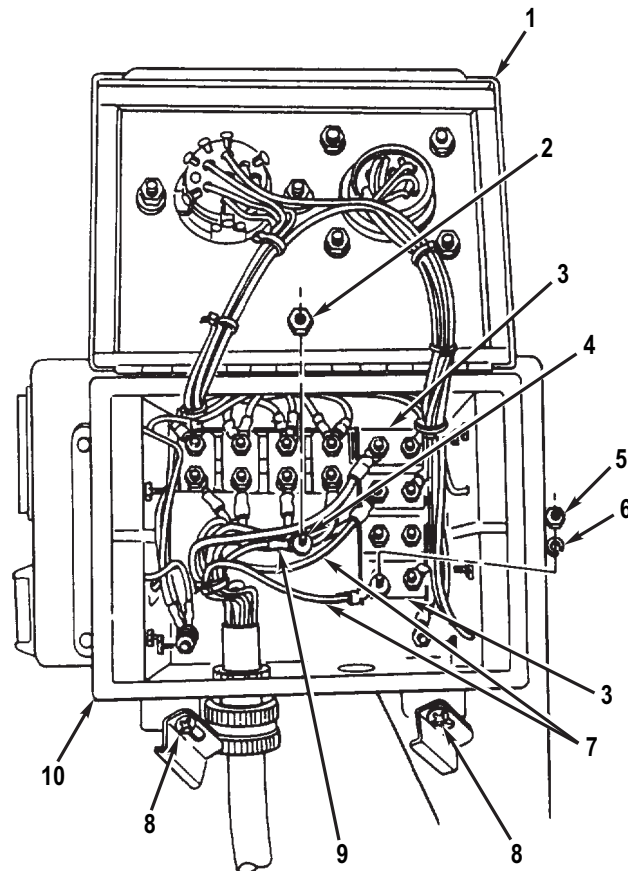


M0022JMS

Figure 2. Front Distribution Box Cable Assembly Removal.

REMOVAL - Continued

7. Loosen two screws (Figure 3, Item 8) and open cover (Figure 3, Item 1) of signal conditioning box (Figure 3, Item 10).
8. Remove seven nuts (Figure 3, Item 5), lockwashers (Figure 3, Item 6), and cable assembly wires (Figure 3, Item 7) from terminals of circuit breakers (Figure 3, Item 3). Discard lockwashers.
9. Remove nut (Figure 3, Item 2) and green ground wire (Figure 3, Item 9) from screw (Figure 3, Item 4).

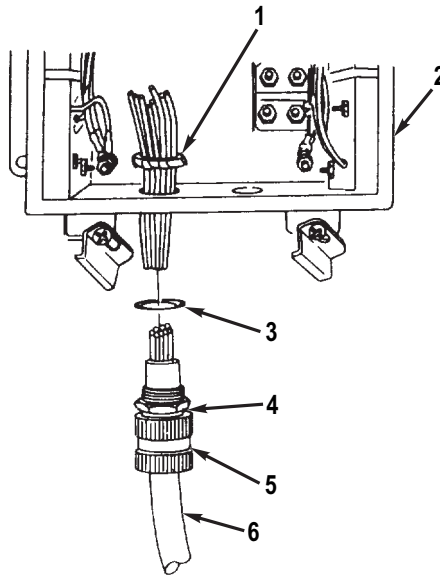


M0023JMS

Figure 3. Signal Conditioning Box Cable Assembly Wiring Harness Removal.

REMOVAL - Continued

10. Remove locknut (Figure 4, Item 1) from cord connector (Figure 4, Item 4). Discard locknut.
11. Remove cord connector (Figure 4, Item 4), sealing ring (Figure 4, Item 3), and cable assembly (Figure 4, Item 6) from signal conditioning box (Figure 4, Item 2).
12. Loosen nut (Figure 4, Item 5) and remove cable assembly (Figure 4, Item 6) from cord connector (Figure 4, Item 4).



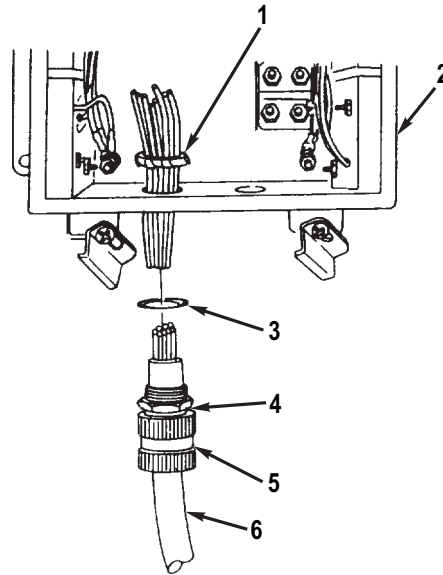
M0024JMS

Figure 4. Signal Conditioning Box Cable Assembly Removal.

END OF TASK

INSTALLATION

1. Install cable assembly (Figure 5, Item 6) through cord connector (Figure 5, Item 4) and tighten nut (Figure 5, Item 5).
2. Install cord connector (Figure 5, Item 4) and sealing ring (Figure 5, Item 3) on cable assembly (Figure 5, Item 6).
3. Route wires of cable assembly (Figure 5, Item 6) through hole in signal conditioning box (Figure 5, Item 2).
4. Position sealing ring (Figure 5, Item 3) and cord connector (Figure 5, Item 4) at signal conditioning box. Install new locknut (Figure 5, Item 1) on cable assembly (Figure 5, Item 6) and tighten locknut.

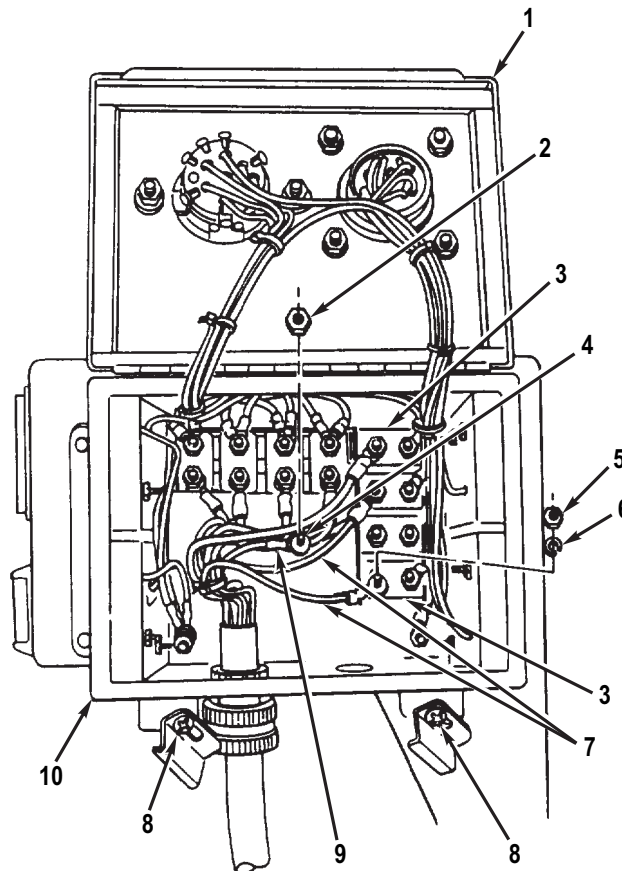


M0024JMS

Figure 5. Signal Conditioning Box Cable Assembly Installation.

INSTALLATION - Continued

5. Install green ground wire (Figure 6, Item 9) on screw (Figure 6, Item 4) with nut (Figure 6, Item 2).
6. Install seven cable assembly wires (Figure 6, Item 7) on terminals of circuit breakers (Figure 6, Item 3) with seven new lockwashers (Figure 6, Item 6) and seven nuts (Figure 6, Item 5).
7. Close cover (Figure 6, Item 1) of signal conditioning box (Figure 6, Item 10) and tighten two screws (Figure 6, Item 8).

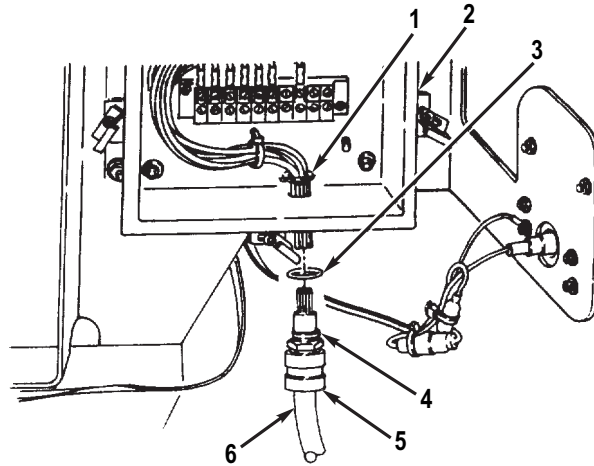


M0023JMS

Figure 6. Signal Conditioning Box Cable Assembly Wiring Harness Installation.

INSTALLATION - Continued

8. Install cable assembly (Figure 7, Item 6) through cord connector (Figure 7, Item 4) and tighten nut (Figure 7, Item 5).
9. Install cord connector (Figure 7, Item 4) and sealing ring (Figure 7, Item 3) on cable assembly (Figure 7, Item 6).
10. Route wires of cable assembly (Figure 7, Item 6) through hole in front distribution box (Figure 7, Item 2).
11. Position sealing ring (Figure 7, Item 3) and cord connector (Figure 7, Item 4) at front distribution box (Figure 7, Item 2). Install new locknut (Figure 7, Item 1) on cable assembly (Figure 7, Item 6) and tighten locknut.

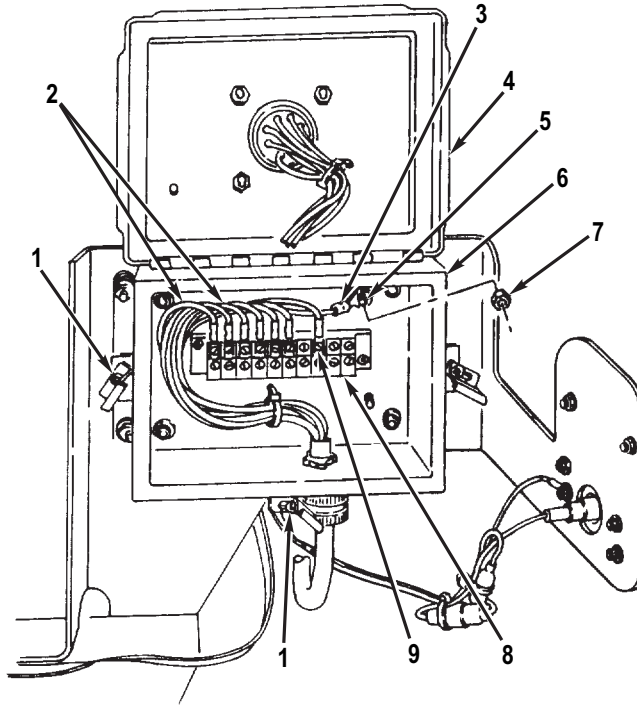


M0022JMS

Figure 7. Front Distribution Box Cable Assembly Installation.

INSTALLATION - Continued

12. Install green ground wire (Figure 8, Item 3) on top right screw (Figure 8, Item 5) with nut (Figure 8, Item 7).
13. Install seven cable assembly wires (Figure 8, Item 2) on positions 1 through 6 and 8 of terminal block (Figure 8, Item 8) with screws (Figure 8, Item 9).
14. Close cover (Figure 8, Item 4) of front distribution box (Figure 8, Item 6) and tighten three screws (Figure 8, Item 1).



M0021JMS

Figure 8. Front Distribution Box Cable Assembly Wiring Harness Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Connect intradolly cable to front distribution box and rear distribution box (WP 0007).
2. Connect intervehicular cable to signal conditioning box and towing vehicle (WP 0007).
3. Check operation of lights (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
INTERVEHICULAR CABLE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Equipment Condition

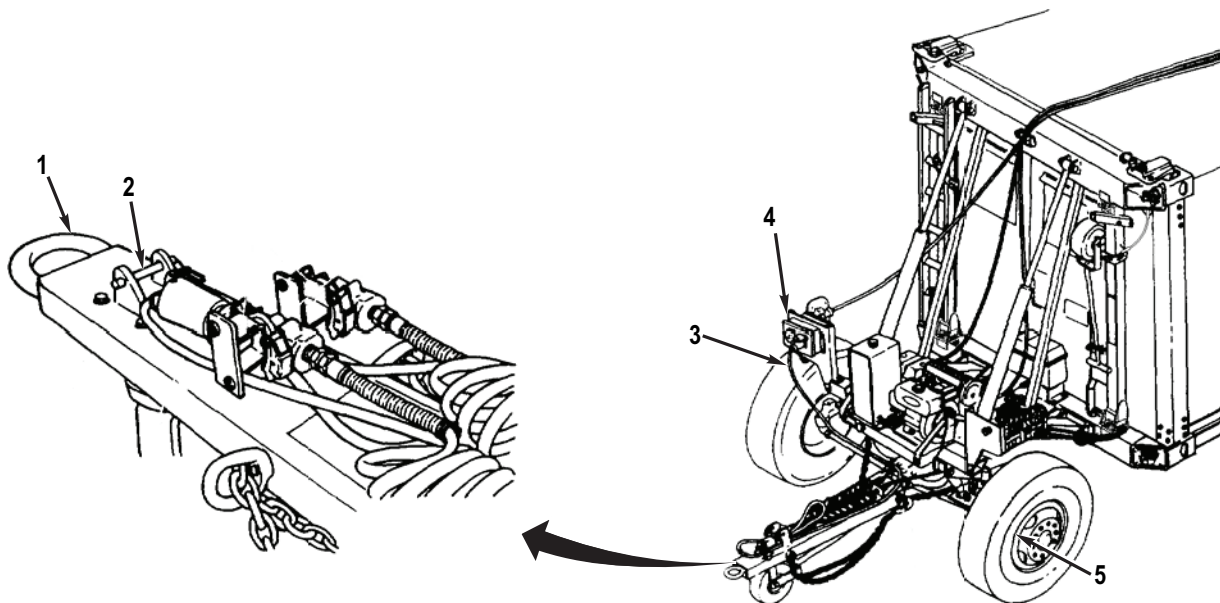
Dolly set parking brake applied (WP 0005)
Intervehicular cable disconnected from rear of towing vehicle (WP 0007)

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)

REMOVAL

1. Release intervehicular cable (Figure 1, Item 3) from detent pin (Figure 1, Item 2) on front drawbar (Figure 1, Item 1).
2. Disconnect intervehicular cable (Figure 1, Item 3) from signal conditioning box (Figure 1, Item 4) and remove intervehicular cable from front dolly (Figure 1, Item 5).



M0269JMS

Figure 1. Intervehicular Cable Replacement.

END OF TASK**INSTALLATION**

1. Install intervehicular cable (Figure 1, Item 3) on front dolly (Figure 1, Item 5) and connect intervehicular cable to signal conditioning box (Figure 1, Item 4).
2. Route intervehicular cable (Figure 1, Item 3) under detent pin (Figure 1, Item 2) on front drawbar (Figure 1, Item 1).

END OF TASK**FOLLOW-ON TASKS**

1. Connect intervehicular cable to rear of towing vehicle (WP 0007).
2. Check operation of dolly set (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FRONT DOLLY MARKER CLEARANCE LIGHT CABLE ASSEMBLIES REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Lockwasher (WP 0133, Item 9) Qty: 1
Lockwasher (WP 0135, Item 9) Qty: 1

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Strap: Tiedown electrical component (WP 0197, Table 1, Item 46)
Locknut (WP 0135, Item 11) Qty: 1
Locknut (WP 0133, Item 30) Qty: 1

References

WP 0005
WP 0128
WP 0130

Equipment Condition

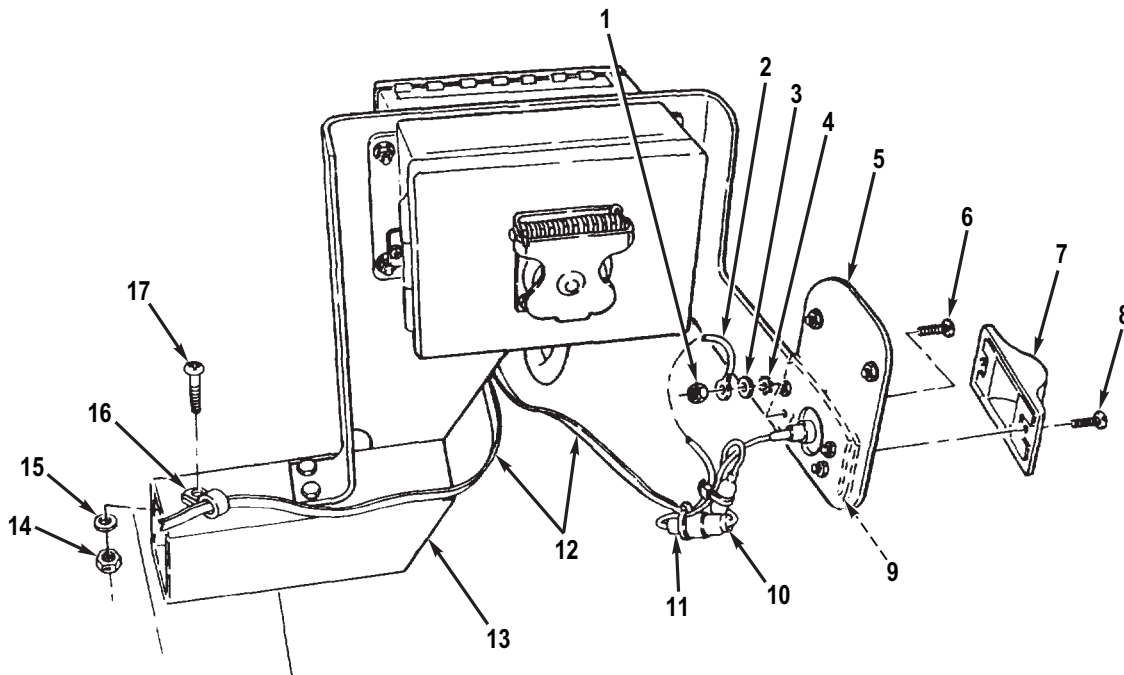
Intervehicular cable disconnected from towing vehicle (WP 0008)

NOTE

- All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128) .
- Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

REMOVAL

1. On right side, cut tie-down straps from connector plugs (Figure 1, Items 10 and 11). Disconnect cable assembly connector plug (Figure 1, Item 11) from marker clearance light connector plug (Figure 1, Item 10). Discard tie-down straps.
2. Remove two screws (Figure 1, Item 8) and lens housing (Figure 1, Item 7) from marker clearance light body (Figure 1, Item 9).
3. Remove locknut (Figure 1, Item 1) ground wire (Figure 1, Item 2), washer (Figure 1, Item 3), lockwasher (Figure 1, Item 4), and screw (Figure 1, Item 6) from marker clearance light body (Figure 1, Item 9) and bracket (Figure 1, Item 5). Discard locknut and lockwasher.
4. Repeat steps 1 through 3 for left side.
5. On right side, remove locknut (Figure 1, Item 14), washer (Figure 1, Item 15), screw (Figure 1, Item 17), clamp (Figure 1, Item 16), and left side cable assembly (Figure 1, Item 12) from brace (Figure 1, Item 13). Discard locknut.
6. Cut tie-down straps from left side cable assembly (Figure 1, Item 12) and hydraulic lines. Discard tie-down straps.

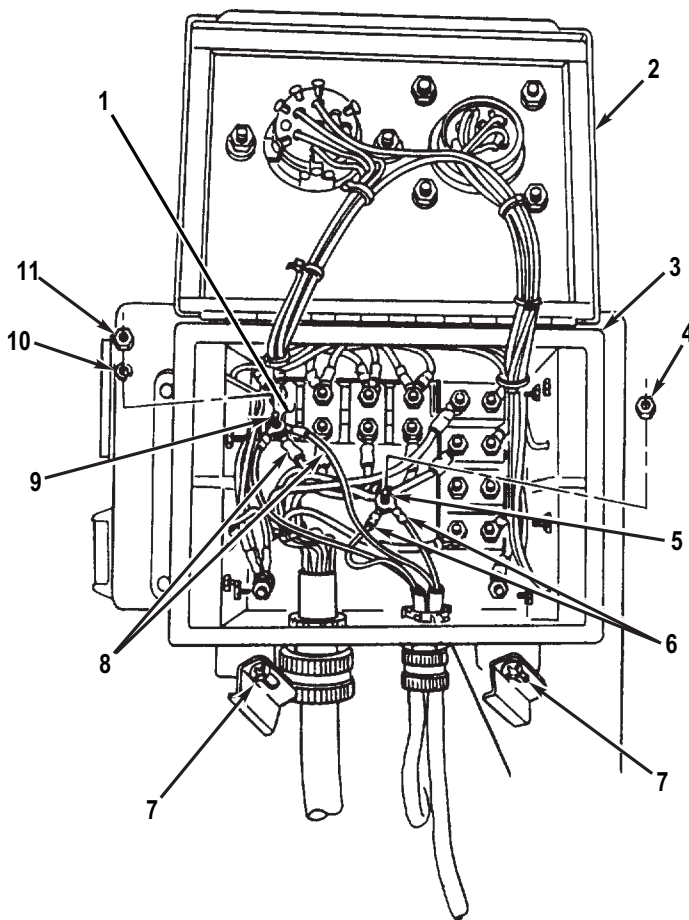


M0027JMS

Figure 1. Front Dolly External Marker Clearance Light Cable Assembly Disconnection.

REMOVAL - Continued

7. Loosen two screws (Figure 2, Item 7) and open cover (Figure 2, Item 2) of signal conditioning box (Figure 2, Item 3).
8. Remove nut (Figure 2, Item 11), lockwasher (Figure 2, Item 10), and two black wires (Figure 2, Item 8) from lower terminal (Figure 2, Item 9) of top left circuit breaker (Figure 2, Item 1).
9. Remove nut (Figure 2, Item 4) and two black ground wires (Figure 2, Item 6) from screw (Figure 2, Item 5).

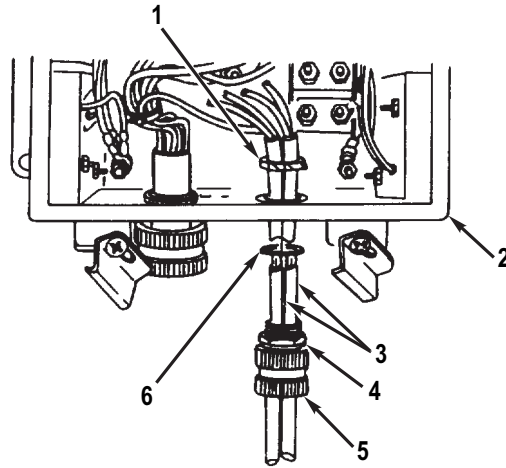


M0025JMS

Figure 2. Front Dolly Internal Marker Clearance Light Cable Assembly Disconnection.

REMOVAL - Continued

10. Remove lockring (Figure 3, Item 1) from cord connector (Figure 3, Item 4).
11. Remove cord connector (Figure 3, Item 4), sealing ring (Figure 3, Item 6), and cable assemblies (Figure 3, Item 3) from signal conditioning box (Figure 3, Item 2).
12. Loosen nut (Figure 3, Item 5) and remove cable assemblies (Figure 3, Item 3) from cord connector (Figure 3, Item 4).



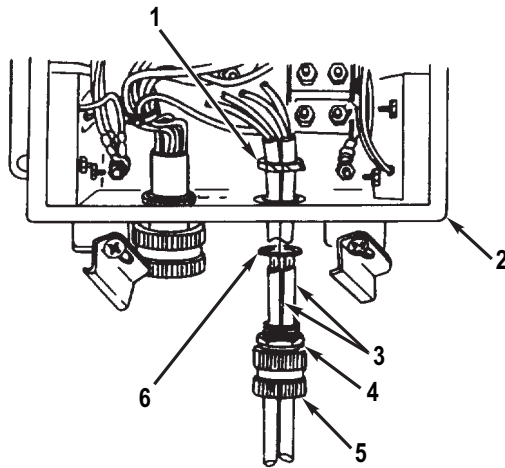
M0026JMS

Figure 3. Front Dolly Marker Clearance Light Cable Assembly Removal.

END OF TASK

INSTALLATION

1. Install cable assemblies (Figure 4, Item 3) through cord connector (Figure 4, Item 4) and tighten nut (Figure 4, Item 5).
2. Install sealing ring (Figure 4, Item 6) on cable assemblies (Figure 4, Item 3).
3. Route wires of cable assemblies (Figure 4, Item 3) through hole in signal conditioning box (Figure 4, Item 2).
4. Position sealing ring (Figure 4, Item 6) and cord connector (Figure 4, Item 4) at signal conditioning box (Figure 4, Item 2). Install lockring (Figure 4, Item 1) on cable assembly (Figure 4, Item 3) and tighten lockring.

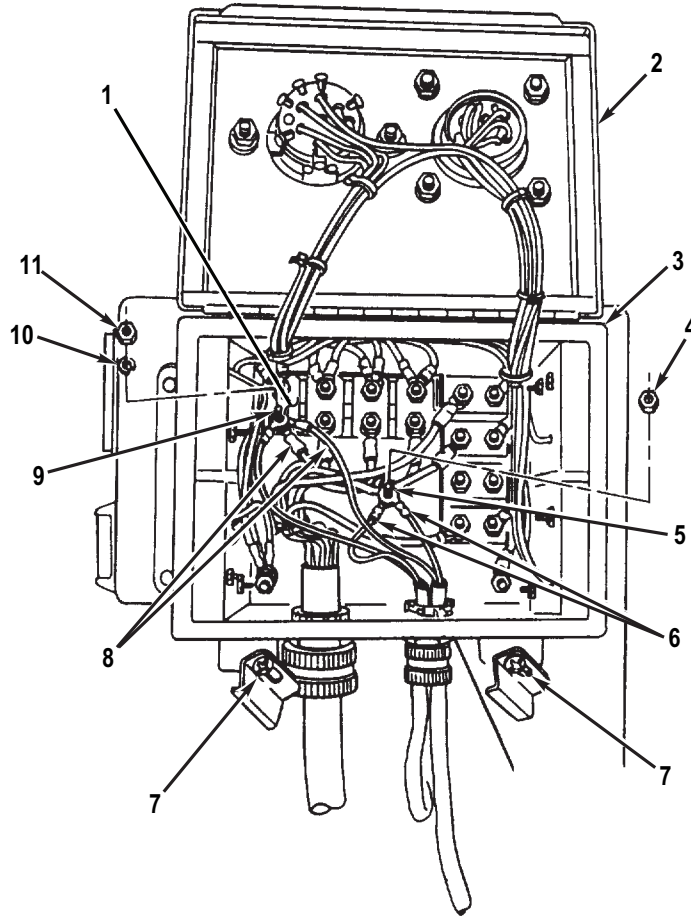


M0026JMS

Figure 4. Front Dolly Marker Clearance Light Cable Assembly Installation.

INSTALLATION - Continued

5. Install two black ground wires (Figure 5, Item 6) on screw (Figure 5, Item 5) with nut (Figure 5, Item 4).
6. Install two black wires (Figure 5, Item 8) on lower terminal (Figure 5, Item 9) of top left circuit breaker (Figure 5, Item 1) with new lockwasher (Figure 5, Item 10) and nut (Figure 5, Item 11).
7. Close cover (Figure 5, Item 2) on to signal conditioning box (Figure 5, Item 3) and tighten two screws (Figure 5, Item 7).

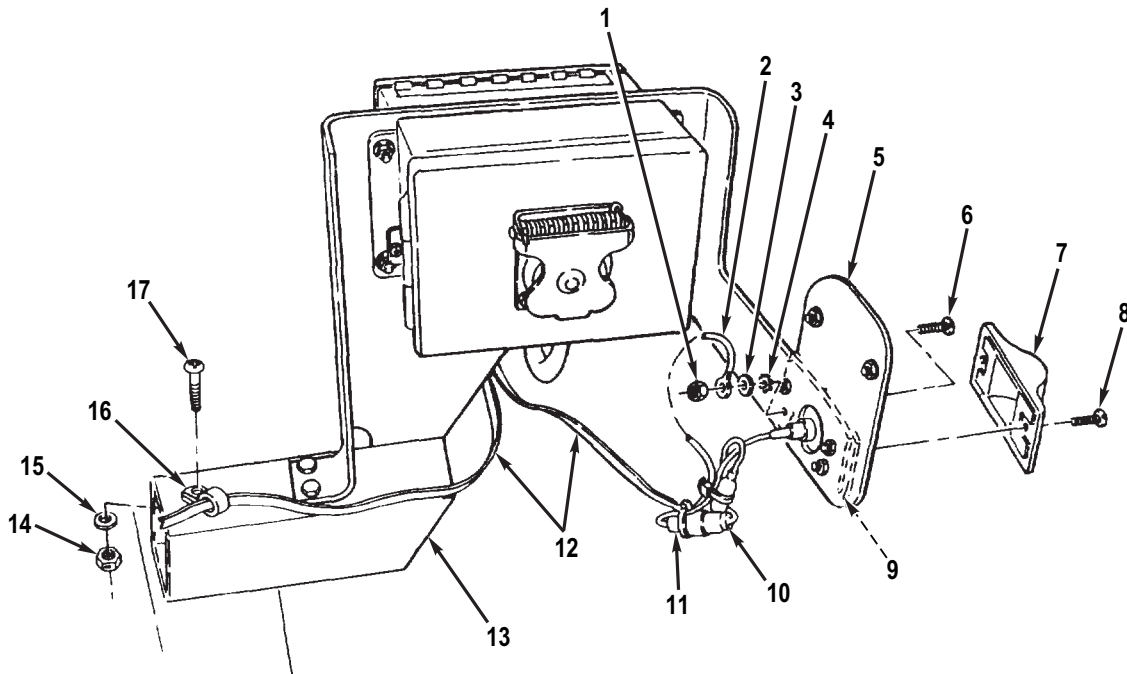


M0025JMS

Figure 5. Front Dolly Internal Marker Clearance Light Cable Assembly Connection.

INSTALLATION - Continued

8. On right side, install left side cable assembly (Figure 6, Item 12) on brace (Figure 6, Item 13) with clamp (Figure 6, Item 16), screw (Figure 6, Item 17), washer (Figure 6, Item 15), and new locknut (Figure 6, Item 14).
9. Install screw (Figure 6, Item 6), new lockwasher (Figure 6, Item 4), washer (Figure 6, Item 3), ground wire (Figure 6, Item 2), and new locknut (Figure 6, Item 1) on marker clearance light body (Figure 6, Item 9) and bracket (Figure 6, Item 5).
10. Install lens housing (Figure 6, Item 7) on marker clearance light body (Figure 6, Item 9) with two screws (Figure 6, Item 8).
11. Connect cable assembly connector plug (Figure 6, Item 11) to marker clearance light connector plug (Figure 6, Item 10). Wrap connector plugs with new tie-down straps.
12. Repeat steps 9 through 11 for left side.



M002JMS

Figure 6. Front Dolly External Marker Clearance Light Cable Assembly Connection.

END OF TASK

FOLLOW-ON TASKS

1. Connect intervehicular cable to towing vehicle (WP 0007).
2. Check operation of front dolly marker clearance lights (WP 0005).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
REAR DOLLY TAILLIGHT ASSEMBLY CABLE ASSEMBLY REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Locknut (WP 0136, Item 16) Qty: 1
Lockwasher (WP 0136, Item 13) Qty: 2

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Strap: Tiedown electrical component (WP 0197, Table 1, Item 46)
Locknut (WP 0134, Item 30) Qty: 1

References

WP 0005
WP 0128
WP 0130

Equipment Condition

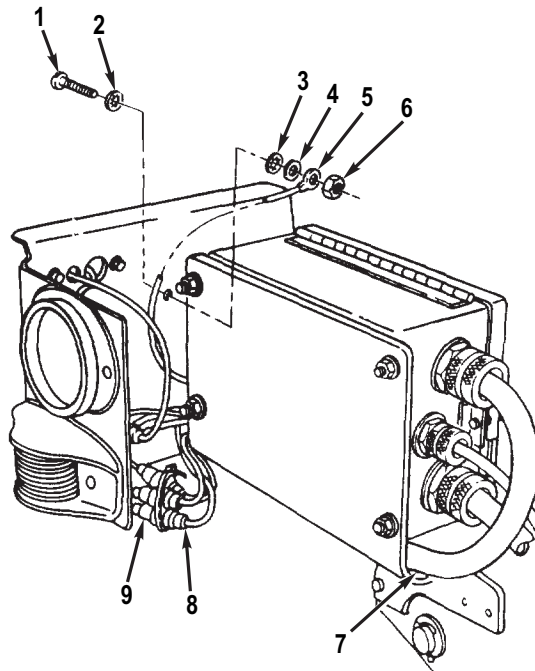
Intradolly cable disconnected from rear distribution box (WP 0008)

NOTE

- Left and right side taillight assembly cable assemblies are replaced the same way except as noted. Right side taillight assembly cable assembly is illustrated.
- All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128) .
- Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

REMOVAL

1. Cut tie-down strap from connector plugs (Figure 1, Items 8 and 9). Disconnect five connector plugs (Figure 1, Item 8) of taillight assembly cable assembly (Figure 1, Item 7) from five light connector plugs (Figure 1, Item 9). Discard tie-down strap.
2. Remove locknut (Figure 1, Item 6), cable assembly ground wire (Figure 1, Item 5) washer (Figure 1, Item 4) lockwasher (Figure 1, Item 3) screw (Figure 1, Item 1) and lockwasher (Figure 1, Item 2). Discard locknut and lockwashers.

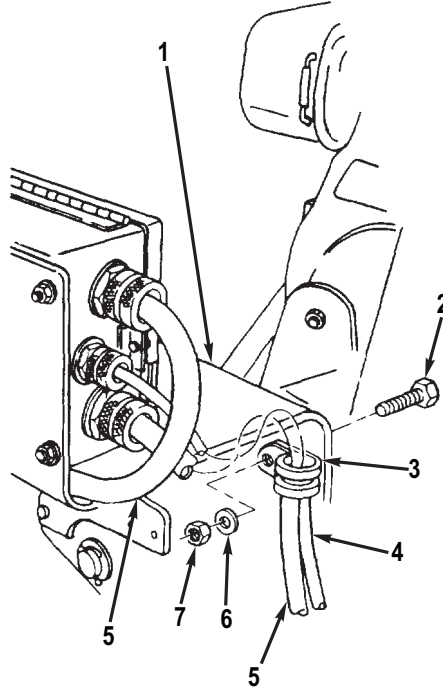


M0028JMS

Figure 1. Rear Dolly Taillight Assembly Cable Assembly Disconnection.

REMOVAL - Continued

3. If removing left side taillight assembly cable assembly (Figure 2, Item 5) remove locknut (Figure 2, Item 7) washer (Figure 2, Item 6) screw (Figure 2, Item 2) clamp (Figure 2, Item 3), taillight assembly cable assembly, and identification light cable assembly (Figure 2, Item 4) from bracket (Figure 2, Item 1). Discard locknut.
4. If removing left side taillight assembly cable assembly (Figure 2, Item 5), remove tie-down straps from taillight assembly cable assembly, identification light cable assembly (Figure 2, Item 4), and hydraulic lines. Discard tie-down straps.



M0029JMS

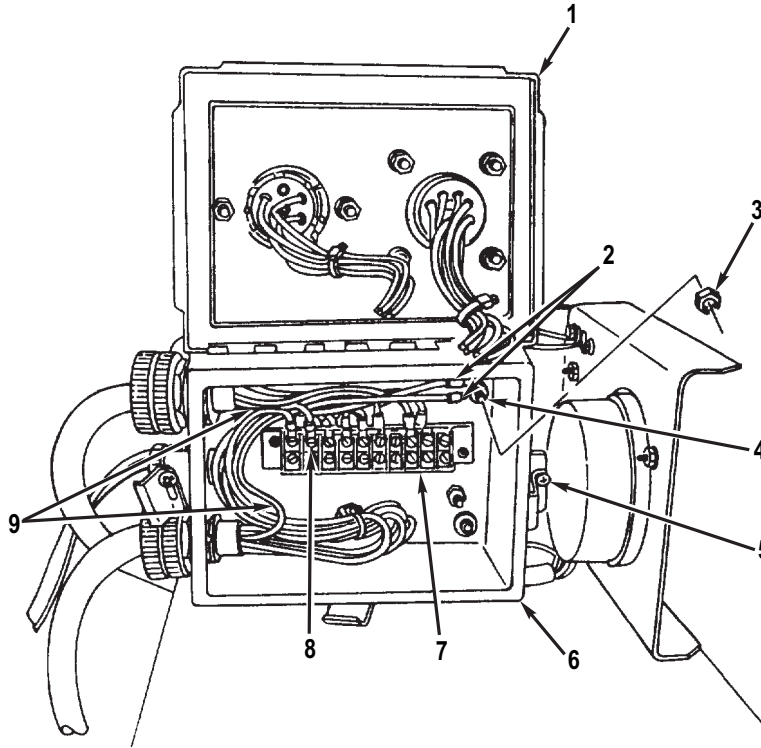
Figure 2. Rear Dolly Taillight Assembly Cable Assembly Retainers Removal.

REMOVAL - Continued

5. Loosen three screws (Figure 3, Item 5) and open cover (Figure 3, Item 1) of rear distribution box (Figure 3, Item 6).

NOTE

- Right side cable assembly wires are disconnected from terminal board positions 3, 4, 5, 6, and 8 of terminal block.
 - Left side cable assembly wires are disconnected from terminal board positions 1, 2, 4, 5, and 8 of terminal block.
6. Remove five screws (Figure 3, Item 8) and cable assembly wires (Figure 3, Item 9) from terminal block (Figure 3, Item 7).
 7. Remove nut (Figure 3, Item 3) and white and green ground wires (Figure 3, Item 2) from upper right screw (Figure 3, Item 4).

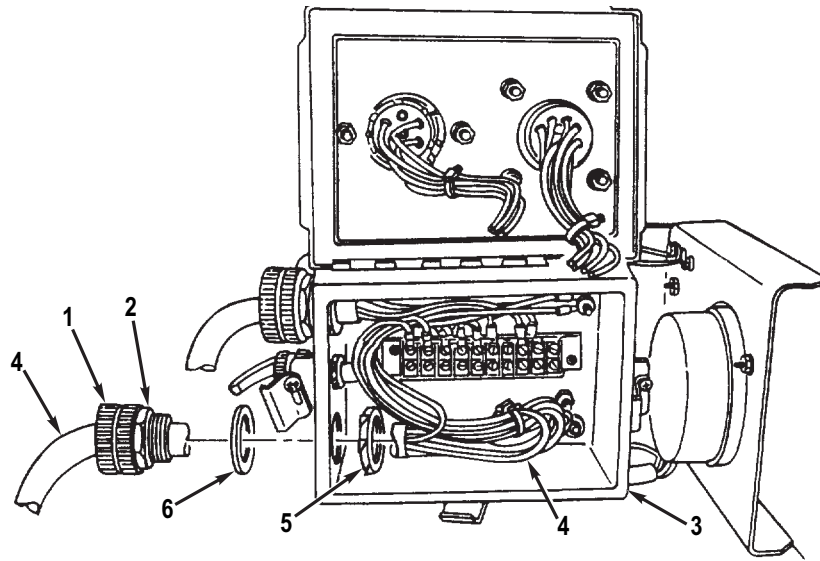


M0030JMS

Figure 3. Rear Dolly Taillight Assembly Cable Assembly Internal Disconnection.

REMOVAL - Continued

8. Remove lockring (Figure 4, Item 5) from cord connector (Figure 4, Item 2).
9. Remove cord connector (Figure 4, Item 2), sealing ring (Figure 4, Item 6), and taillight assembly cable assembly (Figure 4, Item 4) from rear distribution box (Figure 4, Item 3).
10. Loosen nut (Figure 4, Item 1) and remove taillight assembly cable assembly (Figure 4, Item 4) from cord connector (Figure 4, Item 2).



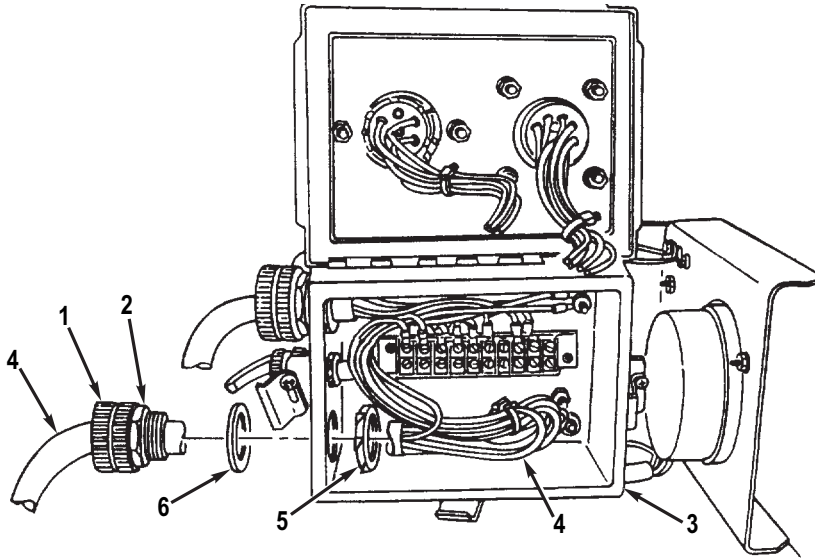
M0031JMS

Figure 4. Rear Dolly Taillight Assembly Cable Assembly Removal.

END OF TASK

INSTALLATION

1. Install taillight assembly cable assembly (Figure 5, Item 4) through cord connector (Figure 5, Item 2) and tighten nut (Figure 5, Item 1).
2. Install sealing ring (Figure 5, Item 6) on wires of taillight assembly cable assembly (Figure 5, Item 4).
3. Route wires of taillight assembly cable assembly (Figure 5, Item 4) through hole in rear distribution box (Figure 5, Item 3).
4. Position sealing ring (Figure 5, Item 6) and cord connector (Figure 5, Item 2) at rear distribution box (Figure 5, Item 3). Install lockring (Figure 5, Item 5) on taillight assembly cable assembly (Figure 5, Item 4) and tighten lockring.



M0031JMS

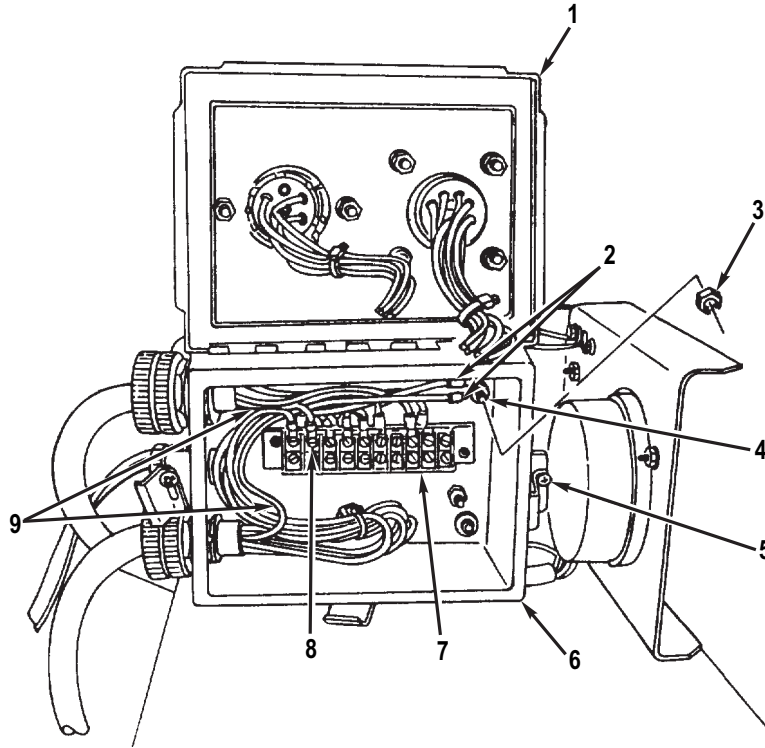
Figure 5. Rear Dolly Taillight Assembly Cable Assembly Installation.

INSTALLATION - Continued

5. Install white and green ground wires (Figure 6, Item 2) on upper right screw (Figure 6, Item 4) with nut (Figure 6, Item 3).

NOTE

- Right side cable assembly wires are connected to terminal board positions 3, 4, 5, 6, and 8 of terminal block.
 - Left side cable assembly wires are connected to terminal board positions 1, 2, 4, 5, and 8 of terminal block.
6. Install five cable assembly wires (Figure 6, Item 9) to terminal block (Figure 6, Item 7) with five screws (Figure 6, Item 8).
 7. Close cover (Figure 6, Item 1) of rear distribution box (Figure 6, Item 6) and tighten three screws (Figure 6, Item 5).

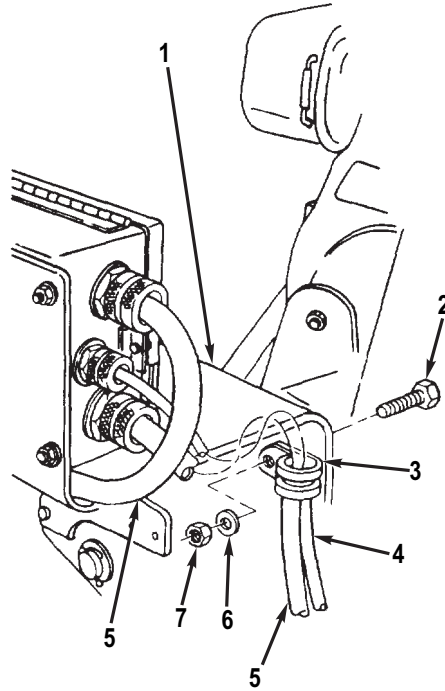


M0030JMS

Figure 6. Rear Dolly Taillight Assembly Cable Assembly Internal Connection.

INSTALLATION - Continued

8. If left side taillight assembly cable assembly (Figure 7, Item 5) was removed, install taillight assembly cable assembly and identification light cable assembly (Figure 7, Item 4) on bracket (Figure 7, Item 1) with clamp (Figure 7, Item 3), screw (Figure 7, Item 2), washer (Figure 7, Item 6), and new locknut (Figure 7, Item 7).

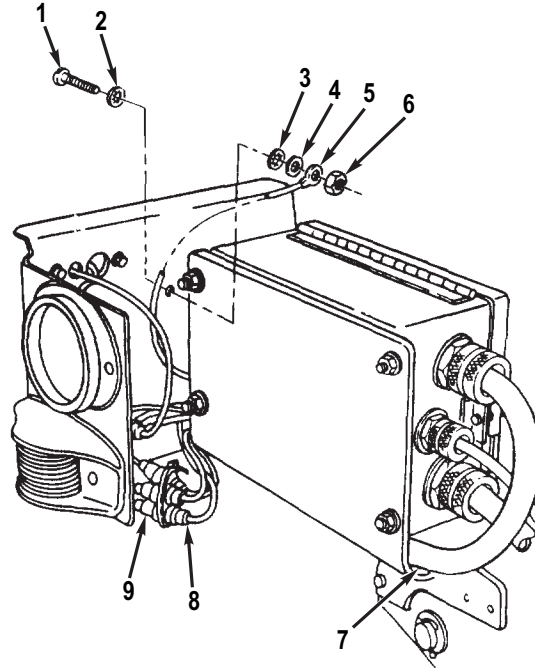


M0029JMS

Figure 7. Rear Dolly Taillight Assembly Cable Assembly Retainers Installation.

INSTALLATION - Continued

9. Connect five connector plugs (Figure 8, Item 8) of taillight assembly cable assembly (Figure 8, Item 7) to five light connector plugs (Figure 8, Item 9). Wrap connector plugs with new tie-down strap.
10. Install new lockwasher (Figure 8, Item 2), screw (Figure 8, Item 1), new lockwasher (Figure 8, Item 3), washer (Figure 8, Item 4), cable assembly ground wire (Figure 8, Item 5) and new locknut (Figure 8, Item 6).
11. If left side taillight assembly cable assembly (Figure 8, Item 7) was removed, wrap taillight assembly cable assembly, identification light cable assembly, and hydraulic lines with new tie-down straps.



M0028JMS

Figure 8. Rear Dolly Taillight Assembly Cable Assembly External Connections.

END OF TASK**FOLLOW-ON TASKS**

1. Connect intradolly cable to rear distribution box (WP 0007).
2. Check operation of rear dolly lights (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
IDENTIFICATION LIGHT CABLE ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Locknut (WP 0137, Item 11) Qty: 1
Lockwasher (WP0137, Item 9) Qty: 1

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Strap: Tiedown electrical component (WP 0197, Table 1, Item 46)
Locknut (WP 0134, Item 30) Qty: 1

References

WP 0005
WP 0128
WP 0130

Equipment Condition

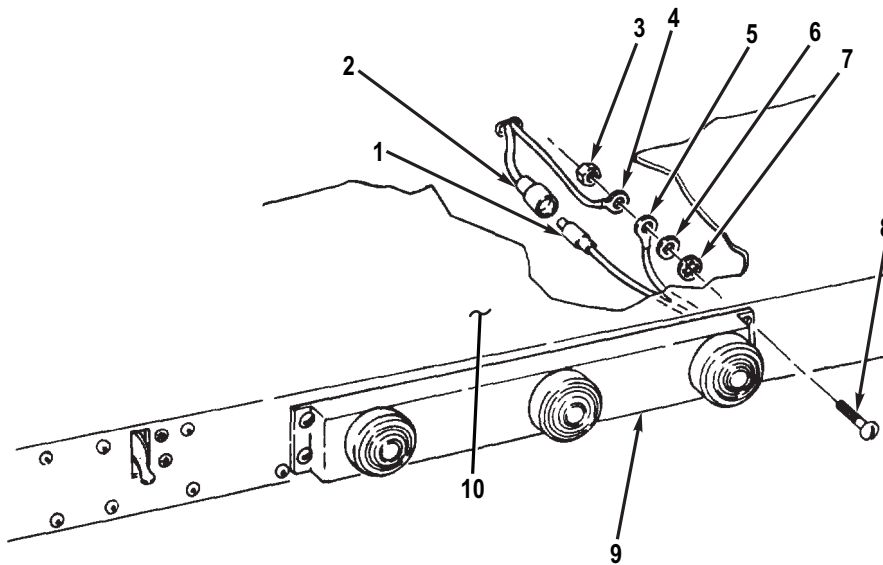
Intradolly cable disconnected from rear distribution box (WP 0008)

NOTE

- All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128) .
- Refer to electrical wiring diagrams for assistance (Schematics (WP 0130)).

REMOVAL

1. Disconnect cable assembly connector plug (Figure 1, Item 2) from identification light connector plug (Figure 1, Item 1).
2. Remove locknut (Figure 1, Item 3), two ground wires (Figure 1, Items 4 and 5), washer (Figure 1, Item 6), lockwasher (Figure 1, Item 7), and screw (Figure 1, Item 8) from identification light (Figure 1, Item 9) and pivoting tray (Figure 1, Item 10). Discard locknut and lockwasher.

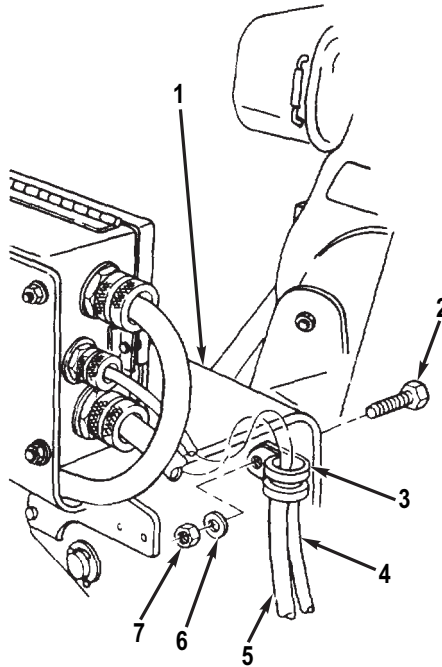


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Figure 1. Identification Light Cable Assembly Disconnection.

REMOVAL - Continued

3. Remove tie-down straps from identification light cable assembly (Figure 2, Item 4), taillight assembly cable assembly (Figure 2, Item 5) and hydraulic lines. Discard tiedown straps.
4. Remove locknut (Figure 2, Item 7) washer (Figure 2, Item 6) screw (Figure 2, Item 2), clamp (Figure 2, Item 3) identification light cable assembly (Figure 2, Item 4) and taillight assembly cable assembly (Figure 2, Item 5) from bracket (Figure 2, Item 1). Discard locknut.



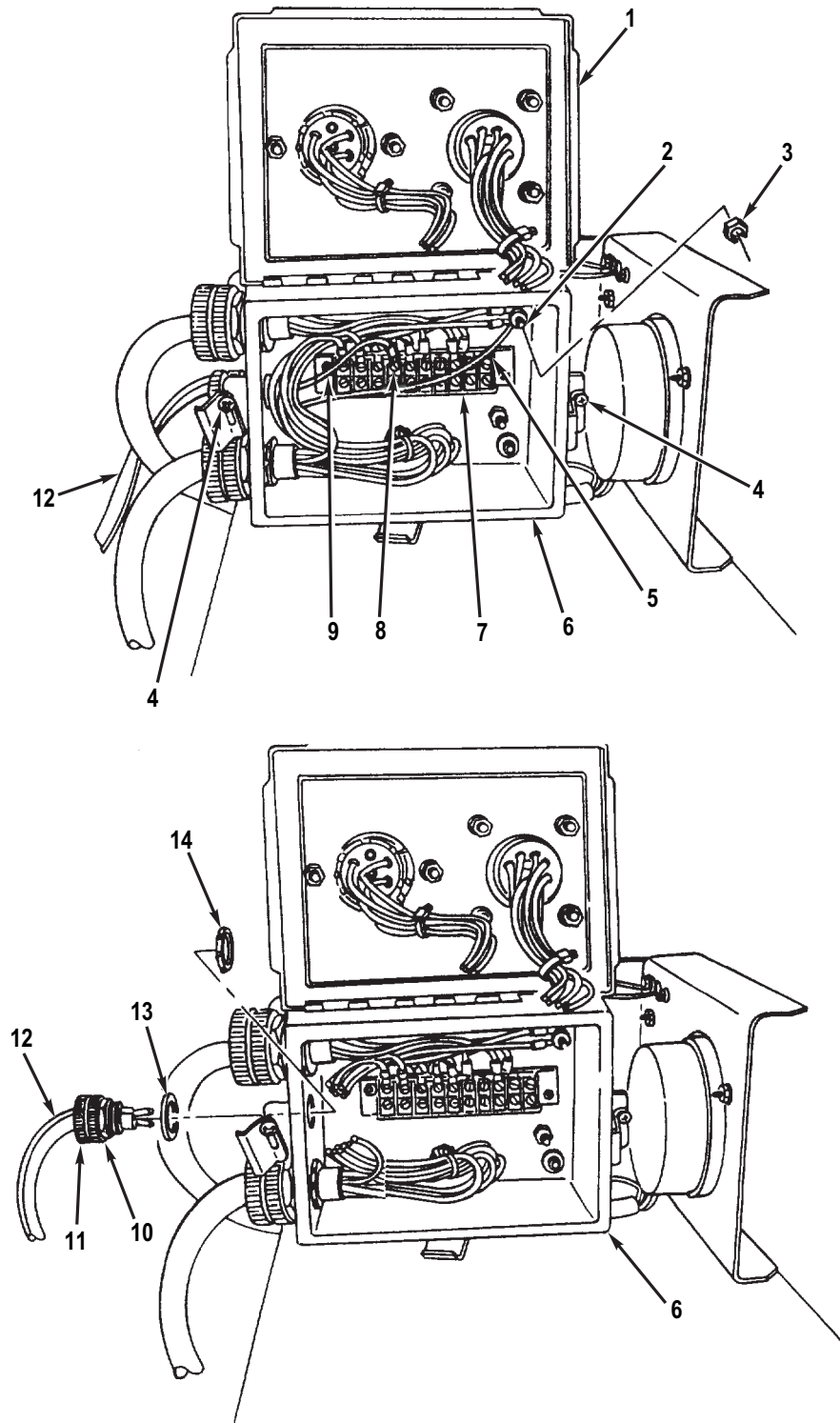
M0033JMS

Figure 2. Identification Light Cable Assembly Retainers Removal

REMOVAL - Continued

5. Loosen three screws (Figure 3, Item 4) and open cover (Figure 3, Item 1) of rear distribution box (Figure 3, Item 6).
6. Remove screw (Figure 3, Item 8) and black wire (Figure 3, Item 9) of identification light cable assembly (Figure 3, Item 12) from position 4 on terminal block (Figure 3, Item 7).
7. Remove nut (Figure 3, Item 3) and ground wire (Figure 3, Item 5) from upper right screw (Figure 3, Item 2).
8. Remove lockring (Figure 3, Item 14) from cord connector (Figure 3, Item 10).
9. Remove cord connector (Figure 3, Item 10) sealing ring (Figure 3, Item 13) and identification light cable assembly (Figure 3, Item 12) from rear distribution box (Figure 3, Item 6).
10. Loosen nut (Figure 3, Item 11) and remove identification light cable assembly (Figure 3, Item 12) from cord connector (Figure 3, Item 10).

REMOVAL - Continued



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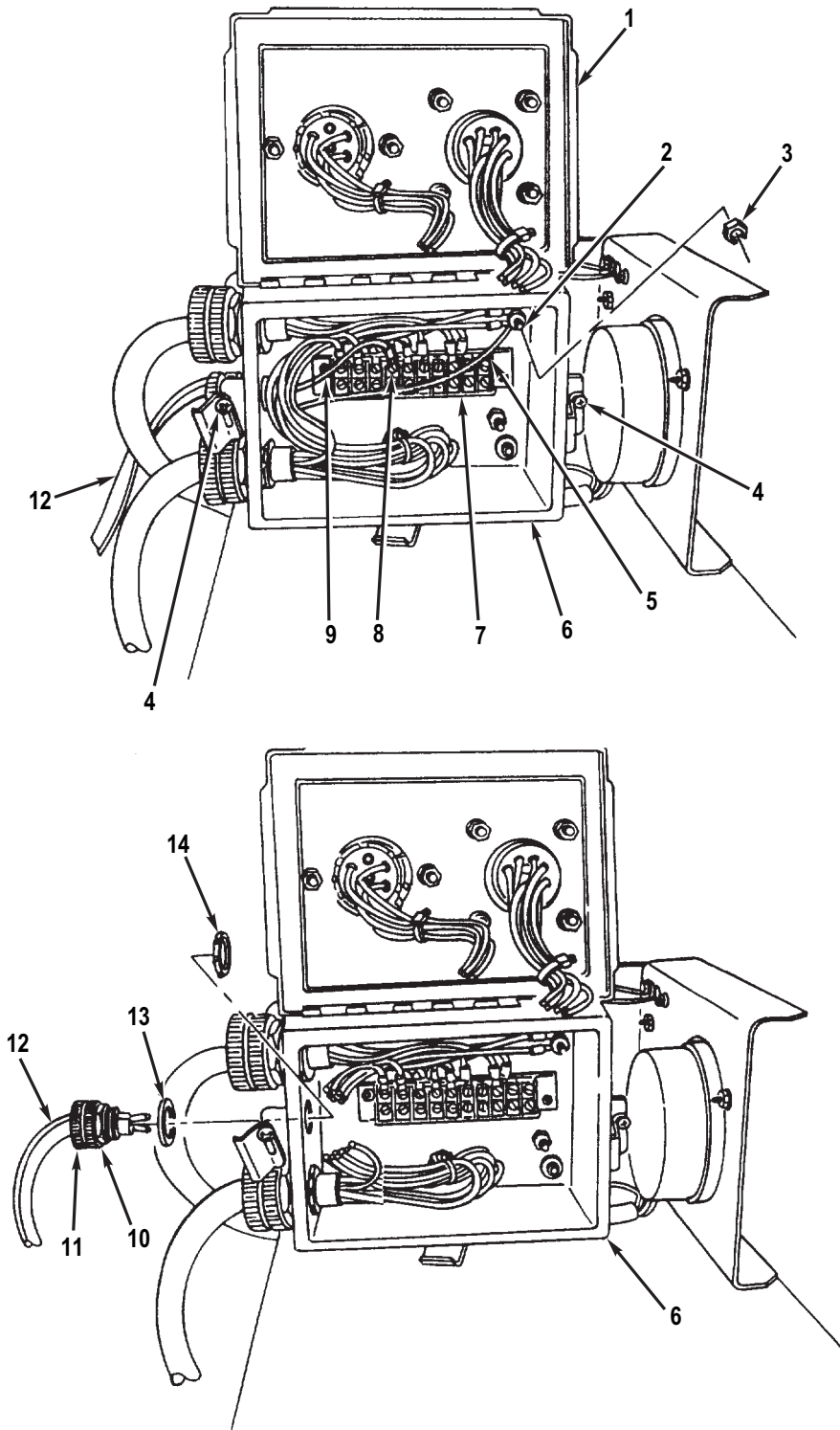
Figure 3. Identification Light Cable Assembly Removal.

END OF TASK

INSTALLATION

1. Install identification light cable assembly (Figure 4, Item 12) through cord connector (Figure 4, Item 10) and tighten nut (Figure 4, Item 13).
2. Install sealing ring (Figure 4, Item 3) on wires of identification light cable assembly (Figure 4, Item 12).
3. Route wires of identification light cable assembly (Figure 4, Item 12) through hole in rear distribution box (Figure 4, Item 6).
4. Position sealing ring (Figure 4, Item 13) and cord connector (Figure 4, Item 10) at rear distribution box (Figure 4, Item 6). Install lockring (Figure 4, Item 14) on identification light cable assembly (Figure 4, Item 12) and tighten lockring.
5. Install ground wire (Figure 4, Item 5) on upper right screw (Figure 4, Item 2) with nut (Figure 4, Item 3).
6. Install black wire (Figure 4, Item 9) of identification light cable assembly (Figure 4, Item 12) on position 4 on terminal block (Figure 4, Item 7) with screw (Figure 4, Item 8).
7. Close cover (Figure 4, Item 1) and tighten three screws (Figure 4, Item 4).

INSTALLATION - Continued

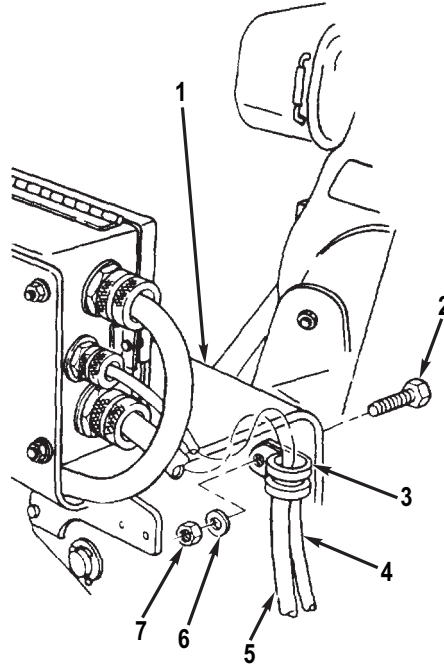


M0034JMS

Figure 4. Identification Light Cable Assembly Installation.

INSTALLATION - Continued

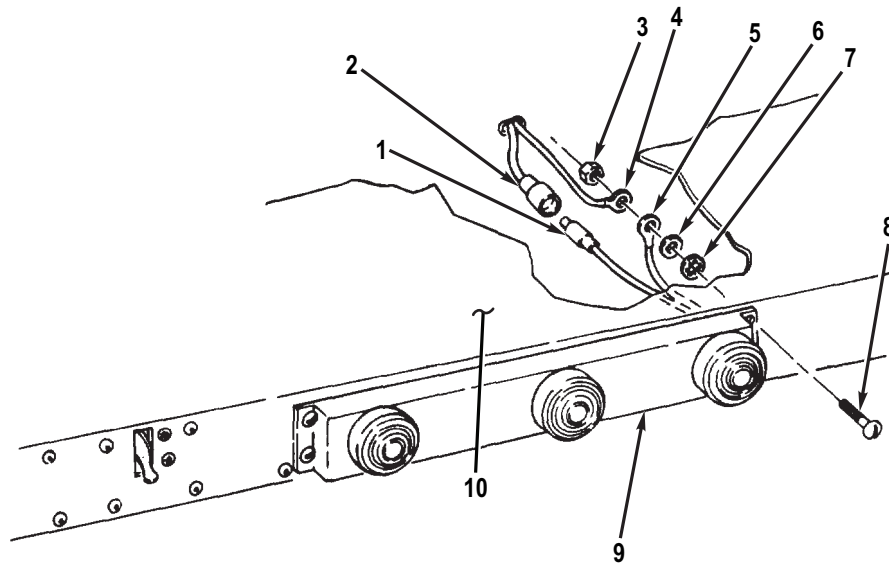
8. Install identification light cable assembly (Figure 5, Item 4) and taillight assembly cable assembly (Figure 5, Item 5) on bracket (Figure 5, Item 1) with clamp (Figure 5, Item 3), screw (Figure 5, Item 2), washer (Figure 5, Item 6), and new locknut (Figure 5, Item 7).
9. Wrap identification light cable assembly (Figure 5, Item 4), taillight assembly cable assembly (Figure 5, Item 5), and hydraulic lines with new tie-down straps.



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Figure 5. Identification Light Cable Assembly Retainers Installation.

10. Connect cable assembly connector plug (Figure 6, Item 2) to identification light connector plug (Figure 6, Item 1).
11. Install screw (Figure 6, Item 8), new lockwasher (Figure 6, Item 7), washer (Figure 6, Item 6), two ground wires (Figure 6, Items 4 and 5), and new locknut (Figure 6, Item 3) to identification light (Figure 6, Item 9) and pivoting tray (Figure 6, Item 10).

INSTALLATION - Continued

M0032JMS

Figure 6. Identification Light Cable Assembly Connections.

END OF TASK**FOLLOW-ON TASKS**

1. Connect intradolly cable to rear distribution box (WP 0007).
2. Check operation of identification light (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FRONT OR REAR AXLE ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Suitable lifting device

References (cont.)

WP 0051
WP 0092

Materials/Parts

Grease: Aircraft, WTR (WP 0197, Table 1, Item 26)

Equipment Condition

Dolly set lowered, front and rear dollies detached (WP 0009)
Front Air lines disconnected from airbrake chambers (WP 0069)
Rear Air lines disconnected from airbrake chambers (WP 0070)
Telescopic brace removed (WP 0091)
Air bags removed (WP 0097)

Personnel Required

(Three)

References

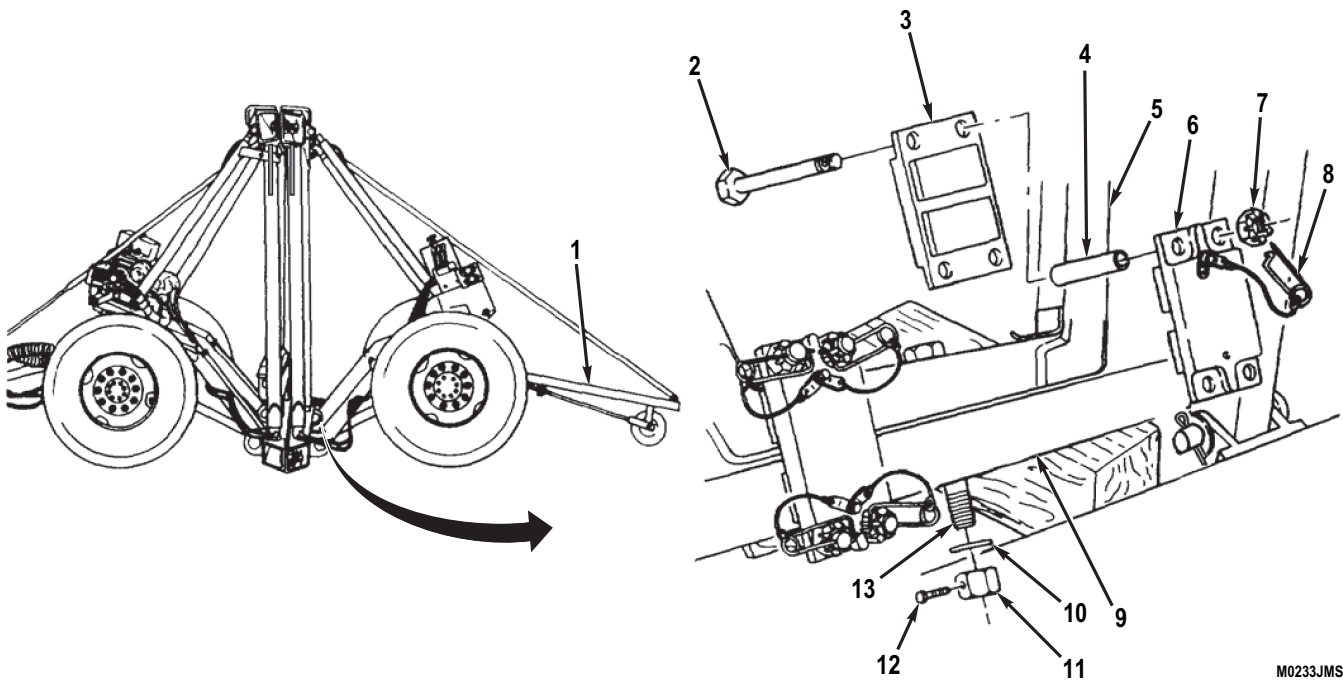
WP 0049

WARNING

Axle weighs 900 lb (408 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

REMOVAL

1. Place a wooden block under midpoint of axle assembly (Figure 1, Item 5) at attachment point to pivot axle bracket (Figure 1, Item 9).
2. Remove four safety pins (Figure 1, Item 8), nuts (Figure 1, Item 7), bolts (Figure 1, Item 2), bottom lockout bracket (Figure 1, Item 3), four sleeves (Figure 1, Item 4), and top lockout bracket (Figure 1, Item 6) from each end of axle assembly (Figure 1, Item 5) and pivot axle bracket (Figure 1, Item 9).
3. Remove screw (Figure 1, Item 12) nut (Figure 1, Item 11), washer (Figure 1, Item 10), and pivot bolt (Figure 1, Item 13) from axle assembly (Figure 1, Item 5) and pivot axle bracket (Figure 1, Item 9).
4. Pull on drawbar (Figure 1, Item 1) to separate axle assembly (Figure 1, Item 5) from pivot axle bracket (Figure 1, Item 9).
5. Continue to pull on drawbar (Figure 1, Item 1) to remove axle assembly (Figure 1, Item 5). Support axle assembly on wooden block.
6. Remove safety chains (Safety Chains Replacement (WP 0049)).
7. Remove drawbar (Figure 1, Item 1) (Front Drawbar Replacement (WP 0051)or Rear Drawbar Replacement (WP 0092)).



M0233JMS

Figure 1. Front or Rear Axle Assembly Removal.

END OF TASK**INSTALLATION**

1. Install drawbar (Figure 1, Item 1) (Front Drawbar Replacement (WP 0051)or Rear Drawbar Replacement (WP 0092)).
2. Install safety chains (Safety Chains Replacement (WP 0049)).

INSTALLATION - Continued

3. Use drawbar (Figure 1, Item 1) to guide axle assembly (Figure 1, Item 5), supported on a wooden block, into position on pivot axle bracket (Figure 1, Item 9).
4. Apply grease to mating surfaces of axle assembly (Figure 1, Item 5) and pivot axle bracket (Figure 1, Item 9).
5. Inspect pivot bolt (Figure 1, Item 13) for damaged threads. If damaged, dress threads.
6. Install pivot bolt (Figure 1, Item 13) through axle assembly (Figure 1, Item 5) and pivot axle bracket (Figure 1, Item 9). Provide support under midpoint of axle assembly at attachment point to pivot axle bracket with a wooden block.
7. Loosely install washer (Figure 1, Item 10) and nut (Figure 1, Item 11) on pivot bolt (Figure 1, Item 13).
8. Tighten nut (Figure 1, Item 11) with wrench to seat pivot bolt (Figure 1, Item 13). Loosen nut, then hand tighten. Wrench tighten nut 1 to 1-¼ flats. Install screw (Figure 1, Item 12) in nut.

NOTE

Welded pads on axle and pivot axle bracket identify correct installation location of lockout bracket assemblies.

9. Coat four bolts (Figure 1, Item 2) with grease. Install top lockout bracket (Figure 1, Item 6), four sleeves (Figure 1, Item 4), bottom lockout bracket (Figure 1, Item 3), four bolts, and nuts (Figure 1, Item 7) on each end of axle assembly (Figure 1, Item 5) and pivot axle bracket (Figure 1, Item 9). Hand tighten nuts, then tighten with wrench 1-¼ to 2 flats. Install safety pins (Figure 1, Item 8).

END OF TASK**FOLLOW-ON TASKS**

1. Connect air lines to airbrake chambers ((WP 0069) or (WP 0070)).
2. Install air bags (WP 0097).
3. Install telescopic brace (WP 0091).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
SAFETY CHAINS REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition

Parking brake lever set to ON position (WP 0004)

Materials/Parts

Cotter pin (WP 0140, Item 24) Qty: 1

Cotter pin (WP 0140, Item 26) Qty: 1

REMOVAL

1. Remove cotter pin (Figure 1, Item 8), pin (Figure 1, Item 2), and double link clevis (Figure 1, Item 1) from front axle mounting plate (Figure 1, Item 9). Discard cotter pin.
2. Remove cotter pin (Figure 1, Item 7), pin (Figure 1, Item 3), and double link clevis (Figure 1, Item 1) from safety chain (Figure 1, Item 4). Discard cotter pin.
3. Pull safety chain (Figure 1, Item 4) through two eyelets (Figure 1, Item 6) on front drawbar (Figure 1, Item 5) and remove safety chain.

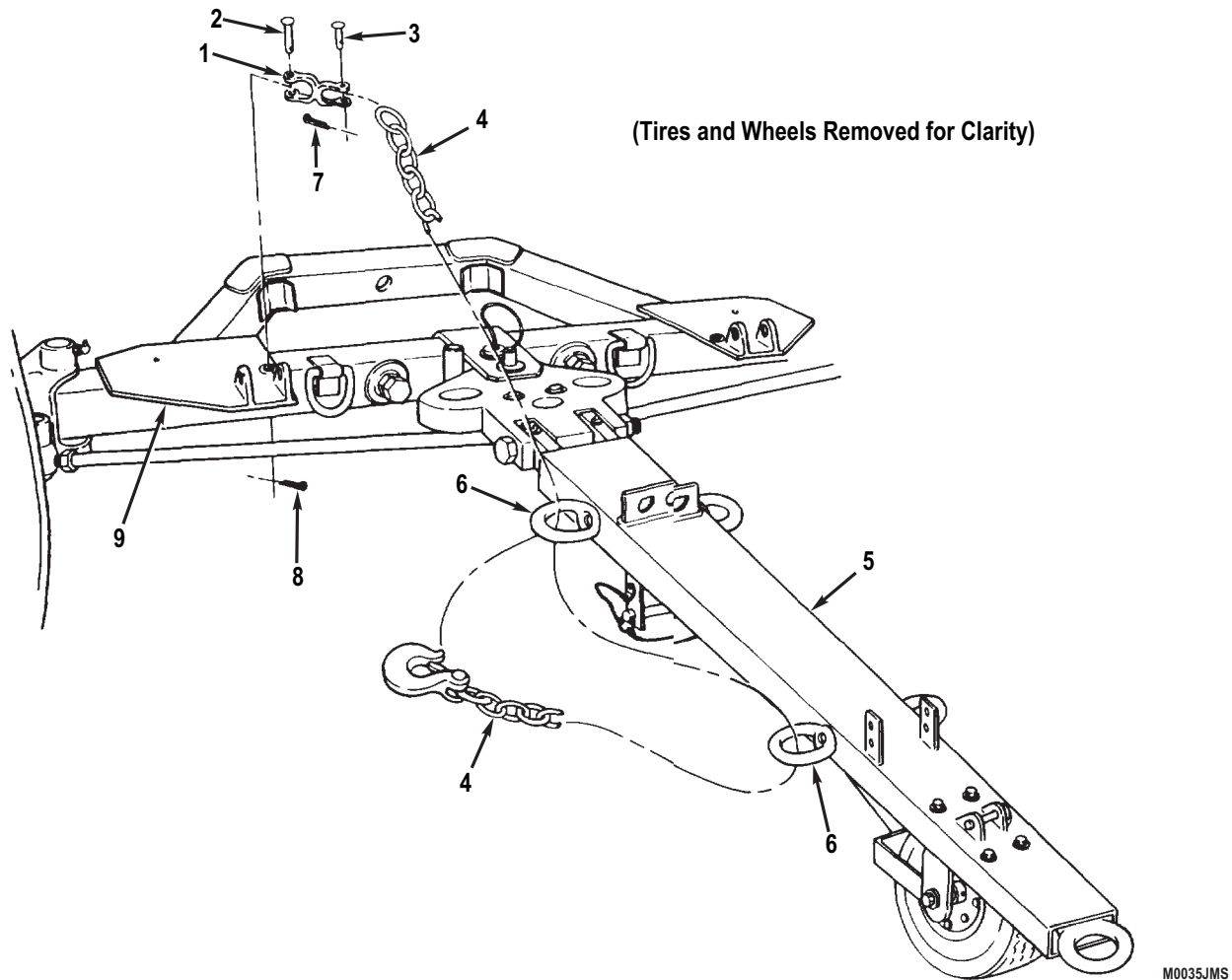


Figure 1. Safety Chains Replacement.

END OF TASK

INSTALLATION

1. Install safety chain (Figure 1, Item 4) through two eyelets (Figure 1, Item 6) on front drawbar (Figure 1, Item 5).
2. Install double link clevis (Figure 1, Item 1) on safety chain (Figure 1, Item 4) with pin (Figure 1, Item 3) and new cotter pin (Figure 1, Item 7).
3. Install double link clevis (Figure 1, Item 1) on front axle mounting plate (Figure 1, Item 9) with pin (Figure 1, Item 2) and new cotter pin (Figure 1, Item 8).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE SAFETY CHAINS MOUNTING

INITIAL SETUP:

Tools and Special Tools

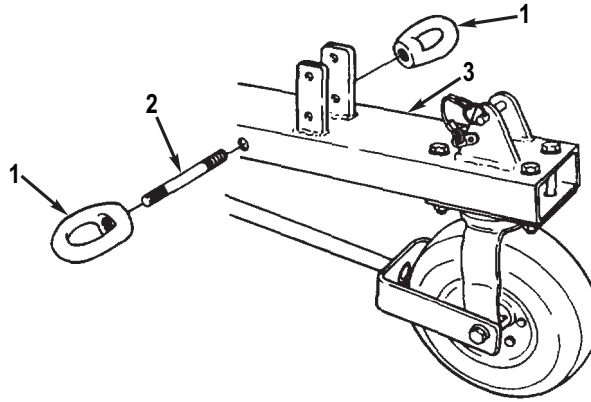
Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Equipment Condition

Safety chains removed (WP 0049)

REMOVAL

1. Remove two eyelets (Figure 1, Item 1) from rod (Figure 1, Item 2).
2. Remove rod (Figure 1, Item 2) from front drawbar (Figure 1, Item 3).



M0036JMS

Figure 1. Safety Chains Mounting Replacement.

END OF TASK

INSTALLATION

1. Install rod (Figure 1, Item 2) through holes in front drawbar (Figure 1, Item 3) so that the same number of threads show on each end.
2. Install two eyelets (Figure 1, Item 1) on rod (Figure 1, Item 2).

END OF TASK

FOLLOW-ON TASKS

Install safety chains (WP 0049).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
FRONT DRAWBAR REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Suitable lifting device
Press, Arbor (WP 0198, Table 1, Item 21)
Wrench Set, Socket: 3/4 in. drive (WP 0198, Table 1, Item 40)
Wrench, Torque: 3/4 in. drive, 0-600 lb-ft capacity (WP 0198, Table 1, Item 44)

References (cont.)

WP 0050
WP 0079
WP 0086
WP 0095
WP 0100

Equipment Condition

Safety chains removed (WP 0049)
Intervehicular air hoses removed (WP 0069)

Materials/Parts

Locknut (WP 0140, Item 14) Qty: 1

Personnel Required

(Three)

References

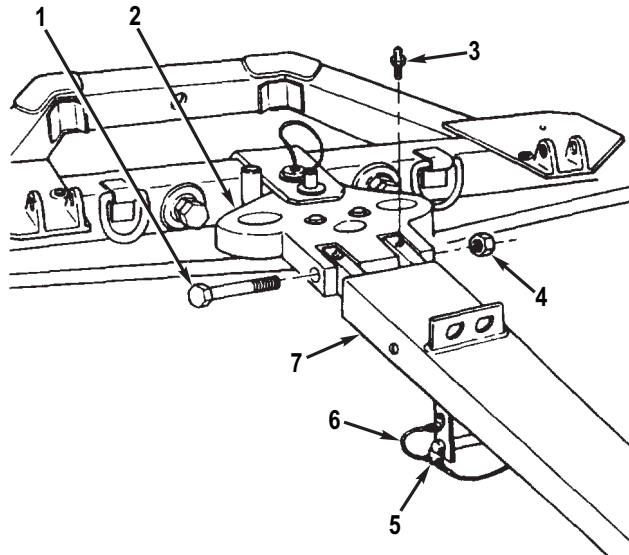
WP 0028

WARNING

Front drawbar weighs 750 lb (340 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

REMOVAL

1. Remove locknut (Figure 1, Item 4), bolt (Figure 1, Item 1), and front drawbar (Figure 1, Item 7) from steering link (Figure 1, Item 2). Discard locknut.
2. Remove two grease fittings (Figure 1, Item 3) from front drawbar (Figure 1, Item 7). Discard grease fittings.
3. If hitch pin and safety pin (Figure 1, Item 5) for handle stowage and detent pin for telescopic brace are damaged, remove with lanyard assemblies (Figure 1, Item 6) (Lanyard Assemblies Replacement (WP 0086)).



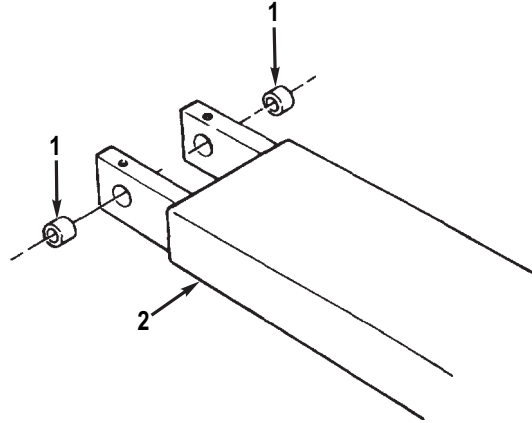
M0037JMS

Figure 1. Front Drawbar Replacement.

NOTE

Perform steps 4 through 7 if components are damaged or if replacing front drawbar.

4. Remove data plates (Data Plates Replacement (WP 0100)).
5. Remove safety chains mounting (Safety Chains Mounting Replacement (WP 0050)).
6. Remove dummy couplings (Front Drawbar Dummy Coupling Replacement (WP 0079)).
7. Remove caster wheel assembly (Caster Wheel Assembly Maintenance (WP 0095)).
8. If necessary, remove bushings (Figure 2, Item 1) from front drawbar (Figure 2, Item 2).

REMOVAL - Continued

M0038JMS

Figure 2. Front Drawbar Bushings Replacement.

END OF TASK**INSTALLATION**

1. If removed, install bushings (Figure 2, Item 1) in front drawbar (Figure 2, Item 2).
2. If removed, install caster wheel assembly (Caster Wheel Assembly Maintenance (WP 0095)).
3. If removed, install dummy couplings (Front Drawbar Dummy Coupling Replacement (WP 0079)).
4. If removed, install safety chains mounting (Safety Chains Mounting Replacement (WP 0050)).
5. If removed, install data plates (Data Plates Replacement (WP 0100)).
6. If removed, install hitch pin and safety pin (Figure 1, Item 5) for handle stowage and detent pin for telescopic brace with lanyard assemblies (Figure 1, Item 6) (Lanyard Assemblies Replacement (WP 0086)).
7. Install two new grease fittings (Figure 1, Item 3) on front drawbar (Figure 1, Item 7).
8. Install front drawbar (Figure 1, Item 7) on steering link (Figure 1, Item 2) with bolt (Figure 1, Item 1) and new locknut (Figure 1, Item 4). Torque locknut to 500-550 lb-ft (678-746 N•m).

END OF TASK**FOLLOW-ON TASKS**

1. Install intervehicular air hoses (WP 0069).
2. Install safety chains (WP 0049).
3. Lubricate front drawbar (WP 0028).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
STEERING KNUCKLE ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)
Suitable lifting device
Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)
Wrench, pneumatic impact, half inch sq. drive (WP 0198, Table 1, Item 38)

Materials/Parts

Grease: Aircraft, WTR (WP 0197, Table 1, Item 26)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
Lockwasher (WP 0143, Item 17) Qty: 8

Materials/Parts (cont.)

Roll pin (WP 0141, Item 4) Qty: 1
Thrustwasher (WP 0141, Item 3) Qty: 1
Welch plug (WP 0141, Item 2) Qty: 2

Personnel Required

(Two)

References

WP 0028
WP 0128

Equipment Condition

Hub and brakedrum removed (WP 0072)
Front dolly air line disconnected from airbrake chamber (WP 0069)

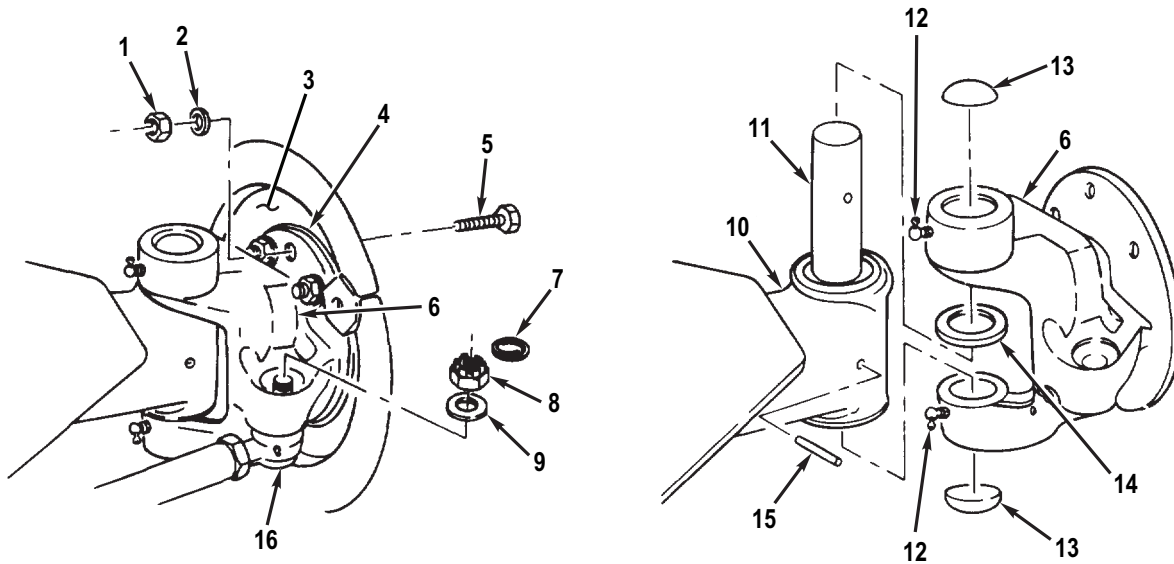
REMOVAL

WARNING



Spider and brake components weigh 70 lb (32 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

1. Remove eight nuts (Figure 1, Item 1), lockwashers (Figure 1, Item 2), screws (Figure 1, Item 5), and spider assembly (Figure 1, Item 3) with brakeshoes and wedge brake components from spindle (Figure 1, Item 4) of steering knuckle assembly (Figure 1, Item 6). Discard lockwashers.
2. Remove circle cotter (Figure 1, Item 7), nut (Figure 1, Item 8), and washer (Figure 1, Item 9) from tie-rod (Figure 1, Item 16) and steering knuckle assembly (Figure 1, Item 6).
3. Separate tie-rod (Figure 1, Item 9) from steering knuckle assembly (Figure 1, Item 6).



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Figure 1. Steering Knuckle Assembly Removal.

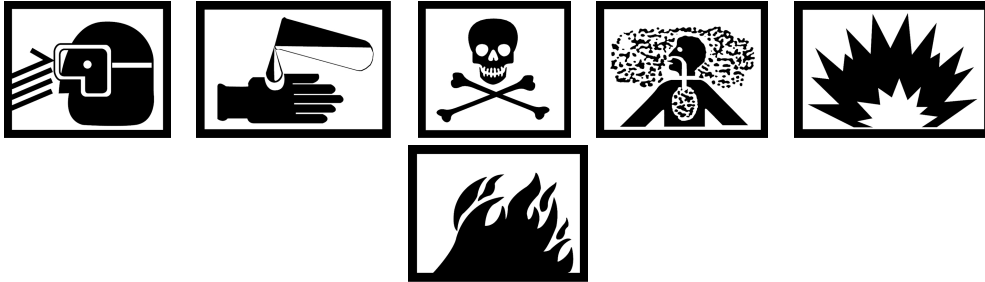
4. Remove roll pin (Figure 1, Item 15) from front axle assembly (Figure 1, Item 10) and kingpin (Figure 1, Item 11). Discard roll pin.
5. Remove stakes from two welch plugs (Figure 1, Item 13). Remove welch plugs from steering knuckle assembly (Figure 1, Item 6). Discard welch plugs.

REMOVAL - Continued**WARNING**

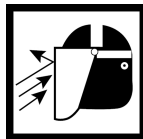
Steering knuckle assembly weighs 150 lb (68 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

6. Remove kingpin (Figure 1, Item 11) steering knuckle assembly (Figure 1, Item 6), and thrustwasher (Figure 1, Item 14) from front axle (Figure 1, Item 10). Discard thrustwasher.
7. Remove two grease fittings (Figure 1, Item 12) from steering knuckle assembly (Figure 1, Item 6).

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

CLEANING - Continued

Clean all components with cleaning solvent and dry with compressed air IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSPECTION**

1. Inspect components for cracks, breaks, burrs, damaged threads, damaged kingpin bushings, or other damage IAW General Maintenance Instructions (WP 0128). Replace damaged components.
2. Check for looseness where shear-proof pin joins steering knuckle and spindle. If looseness is found, replace steering knuckle assembly.

END OF TASK

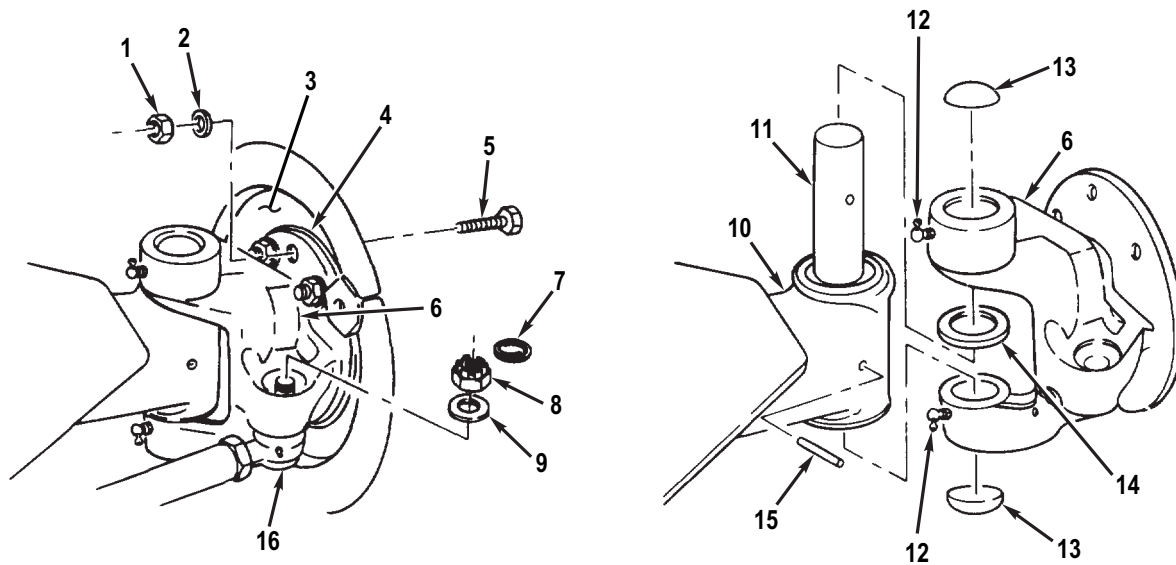
INSTALLATION

WARNING



Steering knuckle assembly weighs 150 lb (68 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

1. Install new thrustwasher (Figure 2, Item 14) and steering knuckle assembly (Figure 2, Item 6) on front axle (Figure 2, Item 10) with kingpin (Figure 2, Item 11).
2. Install new roll pin (Figure 2, Item 15) on front axle (Figure 2, Item 10) and kingpin (Figure 2, Item 11).
3. Install two new welch plugs (Figure 2, Item 13) on steering knuckle assembly (Figure 2, Item 6). Flatten each welch plug and stake four places evenly spaced.
4. Install two grease fittings (Figure 2, Item 12) on steering knuckle assembly (Figure 2, Item 6).
5. Install tie-rod (Figure 2, Item 16) on steering knuckle assembly (Figure 2, Item 6) with washer (Figure 2, Item 9) and nut (Figure 2, Item 8). Torque nut to 80-110 lb-ft (108-149 N•m). Install circle cotter (Figure 2, Item 7).



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Figure 2. Steering Knuckle Assembly Installation.

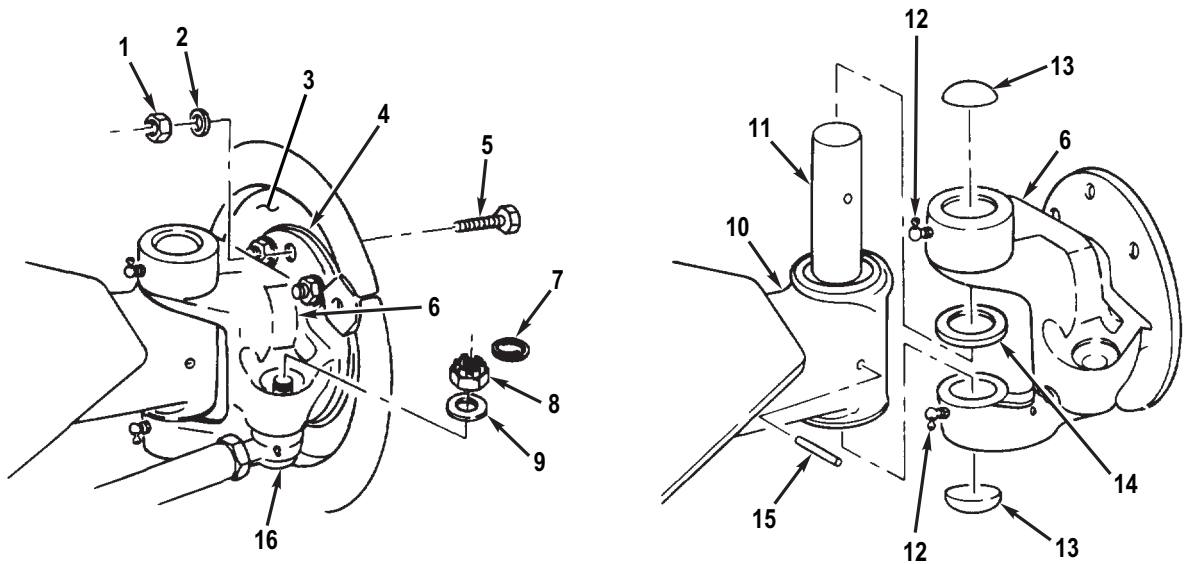
INSTALLATION - Continued

WARNING



Spider and brake components weigh 70 lb (32 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

6. Install spider assembly (Figure 3, Item 3) with brakeshoes and wedge brake components on spindle (Figure 3, Item 4) with eight screws (Figure 3, Item 5), new lockwashers (Figure 3, Item 2), and nuts (Figure 3, Item 1).



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Figure 3. Steering Knuckle Assembly Installation.

END OF TASK

FOLLOW-ON TASKS

1. Connect front dolly air line to airbrake chamber (WP 0069).
2. Install hub and brakedrum (WP 0072).
3. Lubricate steering knuckle assembly (WP 0028).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
CAGING AND UNCAGING BRAKES**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition (cont.)

Intervehicular air hoses disconnected (WP 0007)
Air reservoir drained (WP 0029)

Equipment Condition

Wheels chocked

WARNING

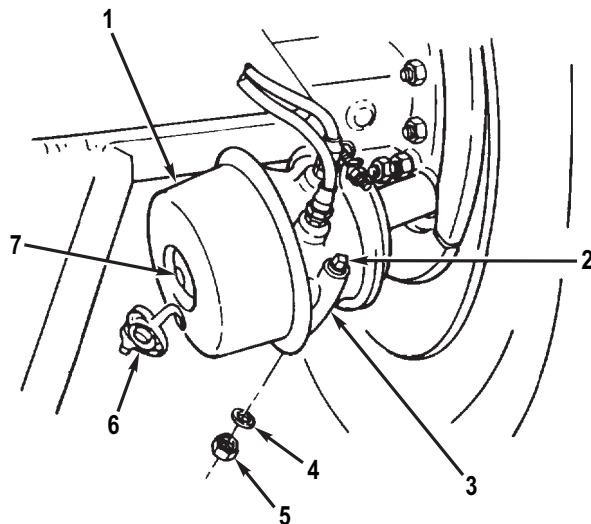
- DO NOT cage spring in "spring" rear dolly airbrake chamber until wheels have been securely chocked. Once rear dolly airbrake chamber spring is caged, dolly set is without emergency/parking brakes and can roll. Failure to chock wheels may result in injury or death to personnel. Seek medical attention in the event of an injury.
- DO NOT attempt to cage brakes if rear dolly airbrake chamber shows any signs of structural damage. Failure to follow this warning may cause forceful release of the spring chamber and its contents. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

With both the parking and emergency breakaway systems, loss of air pressure causes brakes to apply. Return of air pressure allows brakes to release. Brakes that have been applied due to air pressure loss can be manually released (caged) to allow movement of dolly set or in preparation for maintenance.

CAGING

1. Remove dust plug (Figure 1, Item 6) from key hole (Figure 1, Item 7) in rear of airbrake chamber (Figure 1, Item 1).
2. Remove nut (Figure 1, Item 5), washer (Figure 1, Item 4), and caging stud (Figure 1, Item 2) from storage slot (Figure 1, Item 3). Install caging stud in key hole (Figure 1, Item 7).
3. Turn caging stud (Figure 1, Item 2) clockwise one-quarter turn. Pull on stud to ensure that stud crosspin is properly seated in pressure plate inside airbrake chamber (Figure 1, Item 1).
4. Install washer (Figure 1, Item 4) and nut (Figure 1, Item 5) finger tight on caging stud (Figure 1, Item 2).



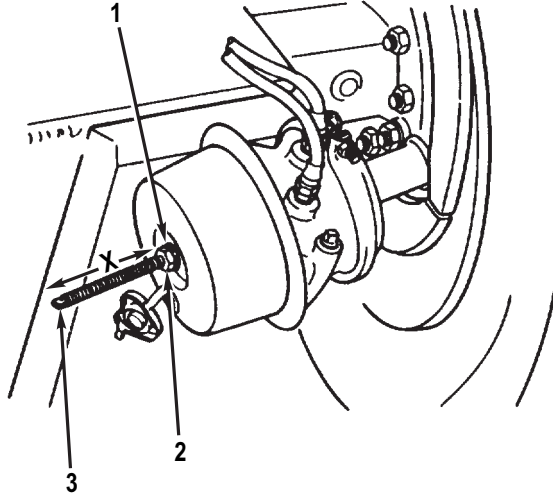
M0041JMS

Figure 1. Brake Caging.

CAGING - Continued**CAUTION**

DO NOT overtighten nut on caging stud or pressure plate inside airbrake chamber will be damaged.

5. Tighten nut (Figure 2, Item 2) and washer (Figure 2, Item 1) on caging stud (Figure 2, Item 3) until distance "X" is 3 in. (7.62 cm).



M0042JMS

Figure 2. Brake Caging.

END OF TASK**UNCAGING**

1. Remove nut (Figure 2, Item 2) and washer (Figure 2, Item 1) from caging stud (Figure 2, Item 3) to uncage (manually apply) brakes.
2. Remove caging stud (Figure 1, Item 2) from key hole (Figure 1, Item 7).
3. Install caging stud (Figure 1, Item 2) washer (Figure 1, Item 4) and nut (Figure 1, Item 5) in storage slot (Figure 1, Item 3).
4. Install dust plug (Figure 1, Item 6) in key hole (Figure 1, Item 7).

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
BRAKESHOE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)
Pliers, Brake Repair (WP 0198, Table 1, Item 20)

References

WP 0055
WP 0128

Materials/Parts

Brush: Scrub (WP 0197, Table 1, Item 3)
Rag: Wiping (WP 0197, Table 1, Item 42)

Equipment Condition

Hub and brakedrum removed (WP 0072)

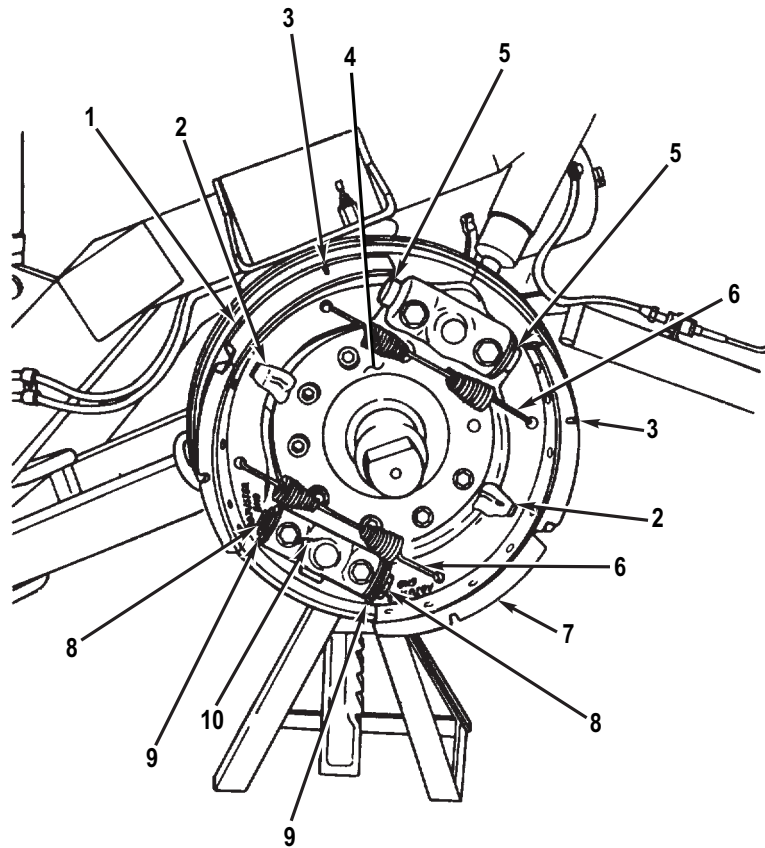
REMOVAL

1. Turn starwheel (Figure 1, Item 9) at each adjusting bolt (Figure 1, Item 8) clockwise until adjusting plungers are fully retracted in plunger housing (Figure 1, Item 10).
2. Remove two return springs (Figure 1, Item 6) from brakeshoes (Figure 1, Items 1 and 7).

CAUTION

Use caution not to damage wedge brake components when removing brakeshoes from spider assembly.

3. Remove brakeshoes (Figure 1, Items 1 and 7) from spider assembly (Figure 1, Item 4).



M0043JMS

Figure 1. Brakeshoe Replacement.

END OF TASK**CLEANING**

Clean all parts with rags and a brush IAW General Maintenance Instructions (WP 0128).

END OF TASK

INSPECTION

1. Inspect brakeshoes for cracks, looseness of linings or rivets, and wear. If linings are worn flat on wear notch (Figure 1, Item 3) in middle of lining, a thickness equal to or less than 5/16 in. (7.94 mm), replace brakeshoes.

NOTE

If brakeshoes are replaced, new return springs **MUST** be installed.

2. Inspect return springs for distortion or other damage.

END OF TASK**INSTALLATION****CAUTION**

Use caution not to damage wedge brake components when installing brakeshoes on spider assembly.

1. Install brakeshoes (Figure 1, Items 1 and 7) on spider assembly (Figure 1, Item 4) with ends stamped ADJUSTER END on adjusting bolt (Figure 1, Item 8) side of spider.
2. Secure brakeshoes (Figure 1, Items 1 and 7) under hold-down clips (Figure 1, Item 2).
3. Engage grooves in anchor buttons (Figure 1, Item 5) and adjusting bolts (Figure 1, Item 8) in brakeshoe webs.
4. Install two return springs (Figure 1, Item 6) on brakeshoes (Figure 1, Items 1 and 7).

END OF TASK**FOLLOW-ON TASKS**

1. Install hub and brakedrum (WP 0072).
2. Perform major brake adjustment (WP 0055).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
MAJOR BRAKE ADJUSTMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)
Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)

References

WP 0057

Equipment Condition

Wheels chocked
Hubs and brakedrums installed (WP 0072)
Brakes caged (WP 0053)

Materials/Parts

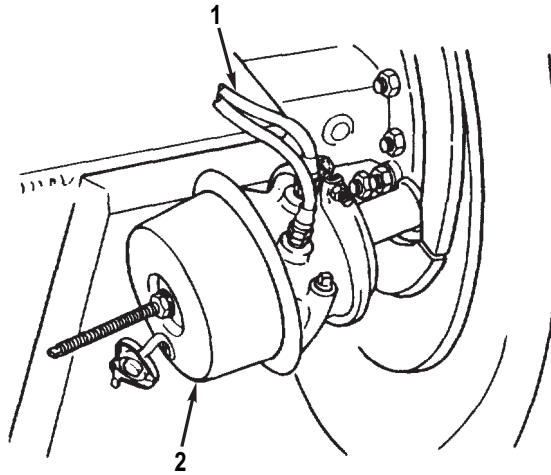
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

NOTE

- Perform this adjustment procedure after initial installation of brakeshoes to ensure that brakeshoes are centered in brakedrum and have correct brakeshoe lining-to-brakedrum clearance.
- Front and rear dolly brakes are adjusted the same way. Rear dolly brakes are illustrated.

ADJUSTMENT

1. Remove bottom rubber vent plug from nonpressure portion of each airbrake chamber (Figure 1, Item 2). Connect a temporary air hose (Figure 1, Item 1) to airbrake chamber.



M0044JMS

Figure 1. Major Brake Testing.

2. Remove plugs from access slots (Figure 2, Item 1). Check adjusting bolts to ensure they are completely bottomed. If not, manually back off starwheel (Figure 2, Item 4) by turning counterclockwise to bottomed position.
3. Using 15-20 psi (103-138 kPa) air, pulsate air pressure to actuate and release brakes five or six times and observe through access slots that starwheel and adjusting bolt for each brakeshoe are rotating.

ADJUSTMENT - Continued

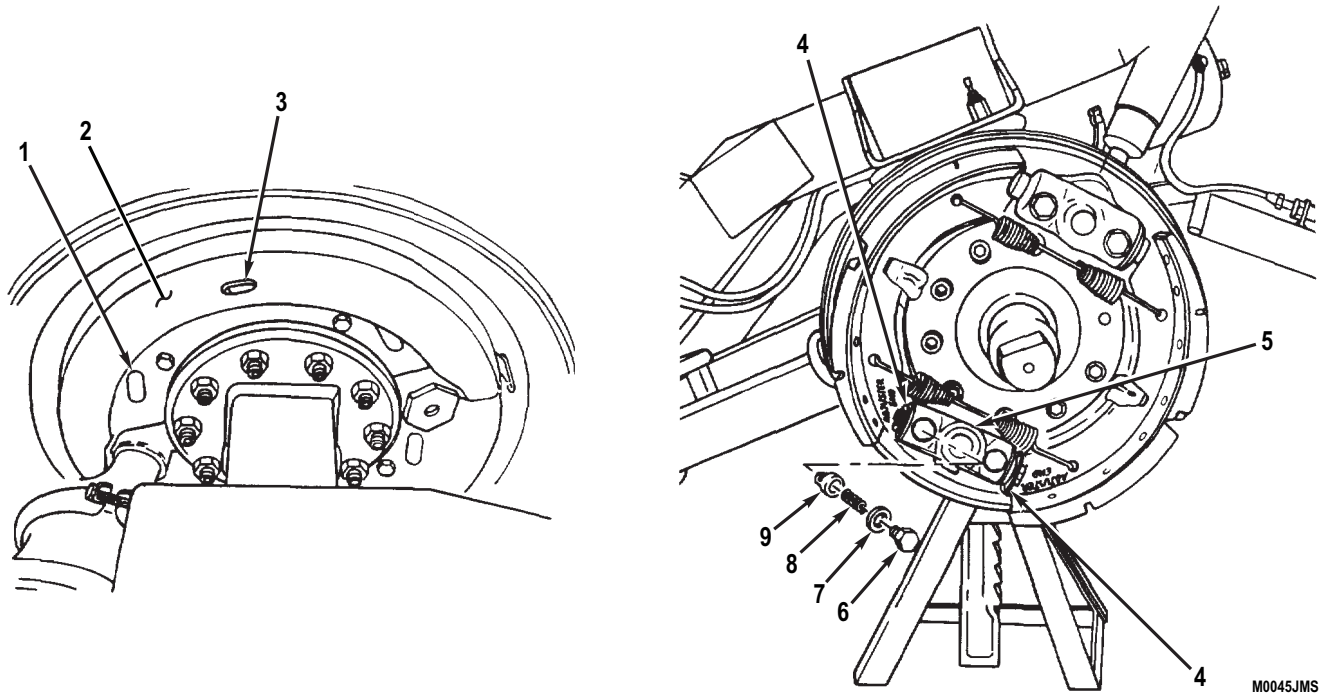


Figure 2. Major Brake Adjustment.

4. Insert feeler gage into access slot (Figure 2, Item 3) in top and bottom dust shields (Figure 2, Item 2). Check brakeshoe lining-to-brakedrum clearance at top of each brakeshoe. Total clearance for both brakeshoes should not exceed 0.090 in. (2.3 mm). Individual brakeshoe clearance should not exceed 0.050 in. (1.3 mm) across width of shoe.
 - a. If clearances are within specification, install plugs in access slots (Figure 2, Item 1). Remove temporary air hose (Figure 1, Item 1) from airbrake chamber (Figure 1, Item 2). Proceed to step 5.
 - b. If clearances are not within specification, proceed to step 5.
5. Rotate brakedrum by hand one full turn. There should be minimal drag. If drag is apparent, proceed to step 6.
6. If brakeshoes have not properly adjusted, remove hub and brakedrum (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
7. Remove two guide pawl hollow screws (Figure 2, Item 6), copper washers (Figure 2, Item 7), springs (Figure 2, Item 8), and adjusting pawls (Figure 2, Item 9) from plunger housing (Figure 2, Item 5).
8. Inspect teeth of adjusting pawls (Figure 2, Item 9) for rounded or flattened condition. If teeth are damaged, replace spider assembly (Spider Assembly Replacement (WP 0057)).

ADJUSTMENT - Continued

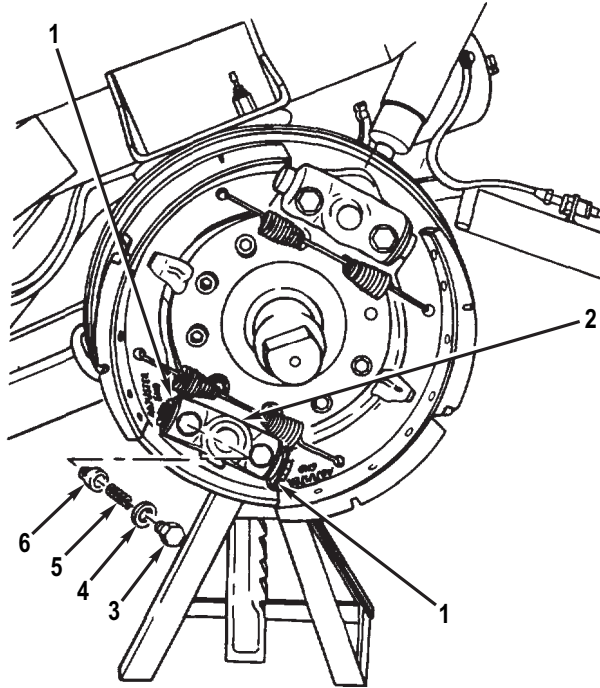
WARNING



- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

ADJUSTMENT - Continued

9. Inspect bores of adjusting pawls (Figure 3, Item 6) for contamination. If contaminated, clean with cleaning solvent and thoroughly air dry.
10. Install two adjusting pawls (Figure 3, Item 6), springs (Figure 3, Item 5), copper washers (Figure 3, Item 4), and guide pawl hollow screws (Figure 3, Item 3) in plunger housing (Figure 3, Item 2). Torque screws to 15-20 lb-ft (20-27 N•m).
11. Manually back off each starwheel (Figure 3, Item 1) to bottom position.
12. Install hub and brakedrum (Hub, Brakedrum, and Wheel Bearings Maintenance (WP 0072)).
13. Repeat steps 2 through 5.

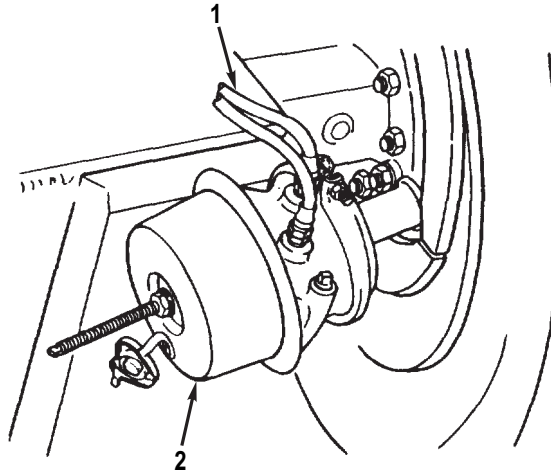


M0046JMS

Figure 3. Major Brake Adjustment.

ADJUSTMENT - Continued

14. Remove temporary air hose (Figure 4, Item 1) from airbrake chamber (Figure 4, Item 2).



M0044JMS

Figure 4. Air Hose Removal.

END OF TASK**FOLLOW-ON TASKS**

Uncage brakes (WP 0053).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
MINOR BRAKE ADJUSTMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Jack, Bottle, Hydraulic: 12 ton (WP 0198, Table 1, Item 16)

Tools and Special Tools (cont.)

Suitable lifting device
Trestle, Motor Vehicle Maintenance: 7-ton capacity
(WP 0198, Table 1, Item 31)

References

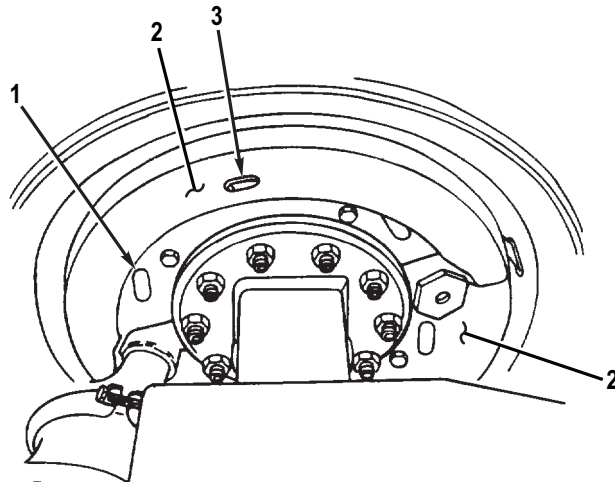
WP 0007

NOTE

Dolly set hydraulic lifting system may be used instead of a hydraulic jack to raise dolly set wheels off ground (Operation Under Usual Conditions (WP 0007)).

ADJUSTMENT

1. Chock wheel on side not being adjusted.
2. Raise dolly set on side to be adjusted until wheel is off ground. Support dolly set in raised position with trestle.
3. Insert feeler gage into access slots (Figure 1, Item 3) in top and bottom dust shields (Figure 1, Item 2). Check brakeshoe lining-to-brakedrum clearance at top of each brakeshoe. Total clearance for both brakeshoes should not exceed 0.090 in. (2.3 mm). Individual brakeshoe clearance should not exceed 0.050 in. (1.3 mm) across width of shoe.
4. If clearances measured in step 3 are as specified, brakes are properly adjusted. If clearances are not within specification, proceed to step 5.
5. Remove plug from access slot (Figure 1, Item 1). Insert long, thin screwdriver into access slot until it contacts starwheel on adjusting bolt. Turn starwheel counterclockwise to reduce clearance or clockwise to increase clearance.
6. Repeat step 3. If clearance is within specification, install plug in access slot (Figure 1, Item 1).



M0047JMS

Figure 1. Minor Brake Adjustments.

7. Repeat steps 5 and 6 to adjust for correct clearance on other brakeshoe on same wheel.
8. Rotate brakedrum one full turn by hand. If drag is apparent, repeat steps 5 through 7.
9. Repeat steps 1 through 7 for other wheels.
10. Remove trestle and lower dolly set wheel to ground.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
SPIDER ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)

Materials/Parts

Brush: Wire (WP 0197, Table 1, Item 4)
Compound: Silicone, RTV Rubber Sealant (WP 0197, Table 1, Item 12)
Detergent: General Purpose, Liquid (WP 0197, Table 1, Item 13)
Grease: Aircraft, WTR (WP 0197, Table 1, Item 26)
Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

Materials/Parts (cont.)

Lockwasher (WP 0143, Item 4) Qty: 2
Lockwasher (WP 0143, Item 13) Qty: 4
Lockwasher (WP 0143, Item 17) Qty: 8

References

WP 0055
WP 0128

Equipment Condition

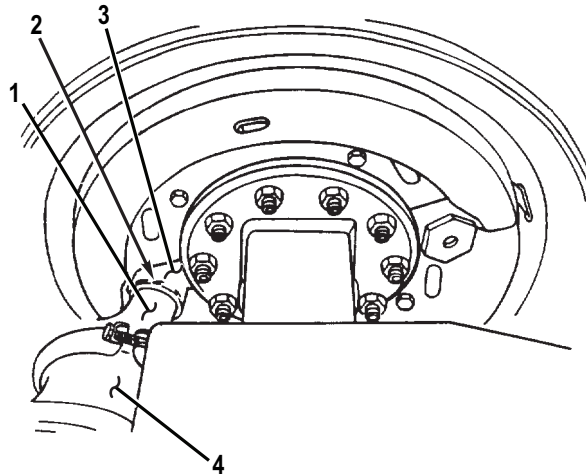
Air lines disconnected (front) (WP 0069)
Air lines disconnected (rear) (WP 0070)
Brakes caged (rear dolly) (WP 0053)
Hub and brakedrum removed (WP 0072)
Brakeshoes removed (WP 0054)

NOTE

Front and rear dolly spider assemblies are replaced the same way. Rear dolly spider assembly is illustrated.

REMOVAL

1. Loosen nut (Figure 1, Item 2) on housing assembly tube (Figure 1, Item 1) of airbrake chamber (Figure 1, Item 4).
2. Remove airbrake chamber (Figure 1, Item 4) from plunger housing (Figure 1, Item 3).



M0048JMS

Figure 1. Airbrake Chamber Removal.

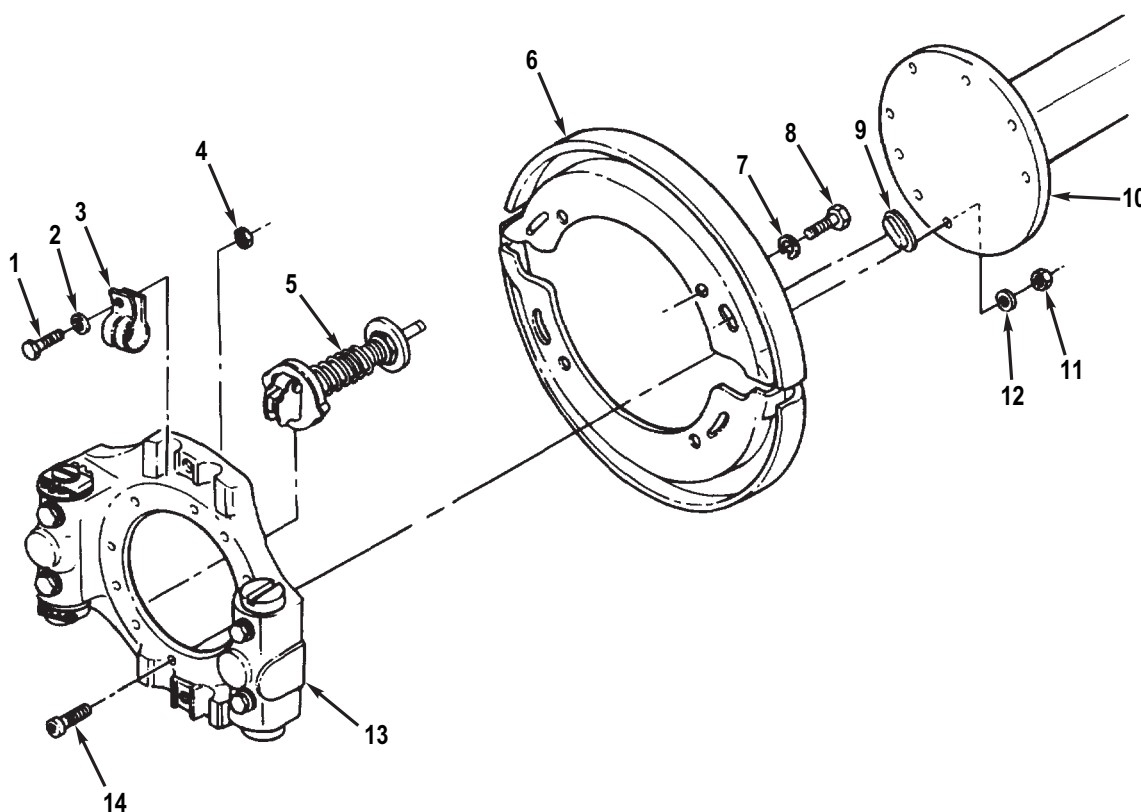
REMOVAL - Continued

3. Remove wedge assembly (Figure 2, Item 5) by pulling it straight out of plunger housing (Figure 1, Item 3).
4. Remove four screws (Figure 2, Item 8), lockwashers (Figure 2, Item 7), and two dustshields (Figure 2, Item 6) from spider (Figure 2, Item 13). Discard lockwashers.

NOTE

On front dolly, spider is mounted to steering knuckle spindle.

5. Remove eight nuts (Figure 2, Item 11), lockwashers (Figure 2, Item 12), sockethead screws (Figure 2, Item 14), and spider (Figure 2, Item 13) from axle spindle (Figure 2, Item 10). Discard lockwashers.
6. Remove four plugs (Figure 2, Item 9) from two dustshields (Figure 2, Item 6).
7. Remove two nuts (Figure 2, Item 4), bolts (Figure 2, Item 1), lockwashers (Figure 2, Item 2), and hold-down clips (Figure 2, Item 3) from spider (Figure 2, Item 13). Discard lockwashers.



M0049JMS

Figure 2. Spider Assembly Removal.

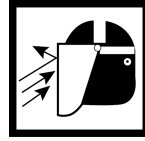
END OF TASK

CLEANING

WARNING



- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

CLEANING - Continued**WARNING**

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

1. Clean spider with cleaning solvent. Use a wire brush as required to remove dirt and corrosion IAW General Maintenance Instructions (WP 0128). Dry thoroughly with compressed air.
2. Clean silicone compound from housing assembly tube with a rag dipped in cleaning solvent IAW General Maintenance Instructions (WP 0128).
3. Clean wedge assembly with detergent and water, and dry with compressed air IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSPECTION**

1. Inspect spider for hairline cracks or other damage IAW General Maintenance Instructions (WP 0128). Replace damaged spider.
2. Inspect airbrake chamber and nut for damage IAW General Maintenance Instructions (WP 0128). Replace damaged nut and airbrake chamber.
3. Inspect wedge assembly for damaged rubber boot or broken spring IAW General Maintenance Instructions (WP 0128). Inspect stem ramp and rollers for flat spotting and pitting IAW General Maintenance Instructions (WP 0128). Replace damaged wedge assembly.
4. Inspect area of wedge assembly cage which retains rollers IAW General Maintenance Instructions (WP 0128). Rollers must be held in cage and allowed to turn freely. If rollers do not turn freely, replace wedge assembly.

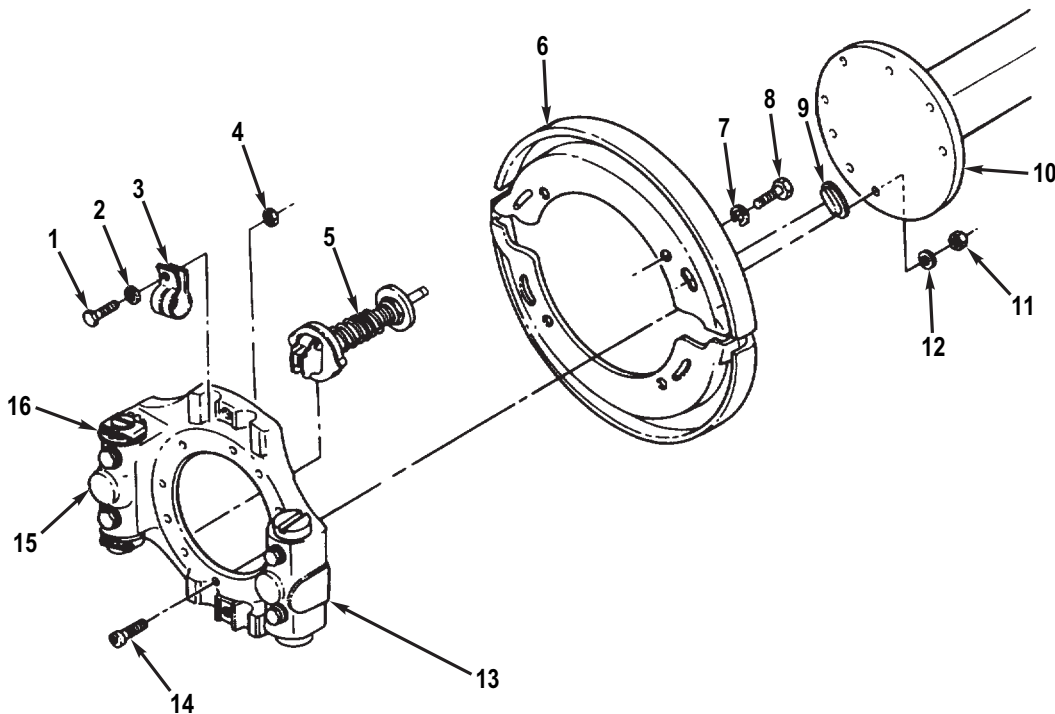
END OF TASK

INSTALLATION

NOTE

On front dolly, spider is mounted to steering knuckle spindle.

1. Install spider (Figure 3, Item 13) on axle spindle (Figure 3, Item 10) with eight sockethead screws (Figure 3, Item 14), new lockwashers (Figure 3, Item 12), and nuts (Figure 3, Item 11).
2. Install two hold-down clips (Figure 3, Item 3) on top and bottom of spider (Figure 3, Item 13) with two new lockwashers (Figure 3, Item 2), bolts (Figure 3, Item 1), and nuts (Figure 3, Item 4).
3. Install two dustshields (Figure 3, Item 6) on spider (Figure 3, Item 13) with four new lockwashers (Figure 3, Item 7) and screws (Figure 3, Item 8).



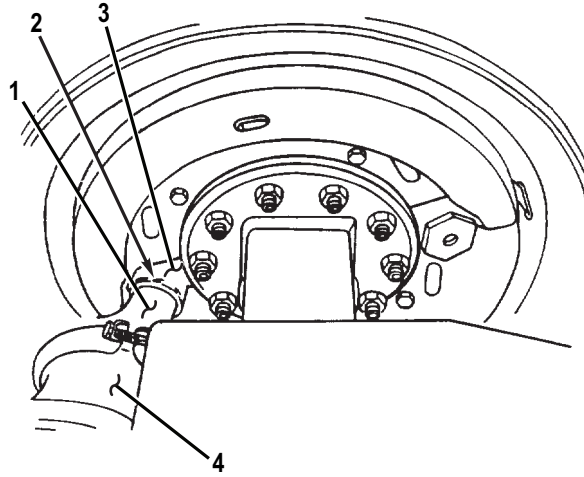
M0050JMS

Figure 3. Spider Assembly Installation.

4. Install four plugs (Figure 3, Item 9) on two dustshields (Figure 3, Item 6).
5. Fill cavity inside plunger housing (Figure 3, Item 15) with grease to a level just below the airbrake chamber seat.
6. Align tabs of wedge assembly (Figure 3, Item 5) with keyway slots in plunger housing (Figure 3, Item 15). Install wedge assembly and push in to seat. Ensure that wedge assembly moves starwheels (Figure 3, Item 16) when applied.

INSTALLATION - Continued

7. Thread nut (Figure 4, Item 2) onto housing assembly tube (Figure 4, Item 1). DO NOT tighten nut.
8. Apply silicone compound to first three threads of housing assembly tube (Figure 4, Item 1).
9. Install airbrake chamber (Figure 4, Item 4) on plunger housing (Figure 4, Item 3) until it bottoms.



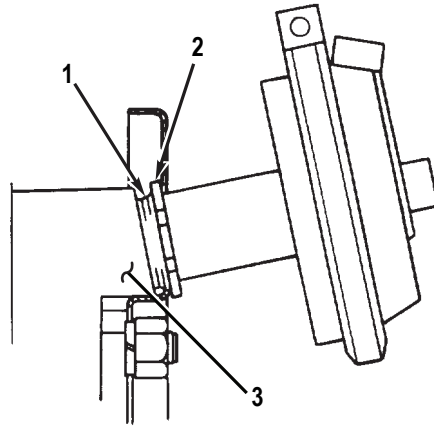
M0048JMS

Figure 4. Airbrake Chamber Installation.

INSTALLATION - Continued**NOTE**

If after seating nut, more than top two threads of nut are visible, spider must be replaced.

10. Tighten nut (Figure 5, Item 2). Ensure that threads (Figure 5, Item 1) on tapered side of nut seat in chamfered area of plunger housing (Figure 5, Item 3).



M0051JMS

Figure 5. Spider Assembly Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Install brakeshoes (WP 0054).
2. Install hub and brakedrum (WP 0072).
3. Connect air lines to airbrake chamber (front) (WP 0069) or (rear) (WP 0070).
4. Perform major brake adjustment (WP 0055).
5. Uncage brakes (rear dolly) (WP 0053).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
AIRBRAKE CHAMBER REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts

Compound: Silicone (WP 0197, Table 1, Item 12)
Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

Materials/Parts (cont.)

Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)

References

WP 0007
WP 0057
WP 0128

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)
Brakes caged (rear dolly) (WP 0053)

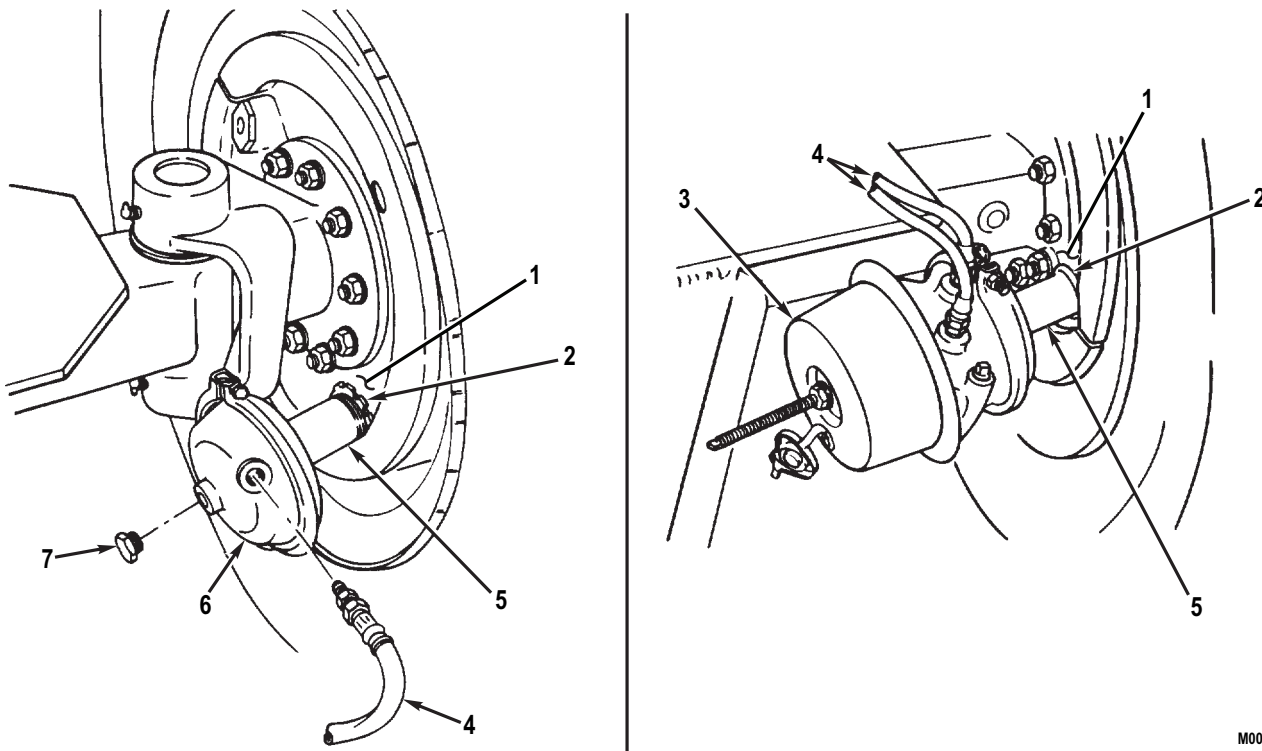
REMOVAL**WARNING**

DO NOT attempt to repair airbrake chambers. Rear dolly airbrake chamber is under spring tension. Serious injury or death to personnel may result if disassembly is attempted. Seek medical attention in the event of an injury.

NOTE

- Front dolly airbrake chamber and rear dolly airbrake chamber are replaced the same way except the front dolly airbrake chamber has one hose assembly and a plug; the rear dolly airbrake chamber has two hose assemblies.
- All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).

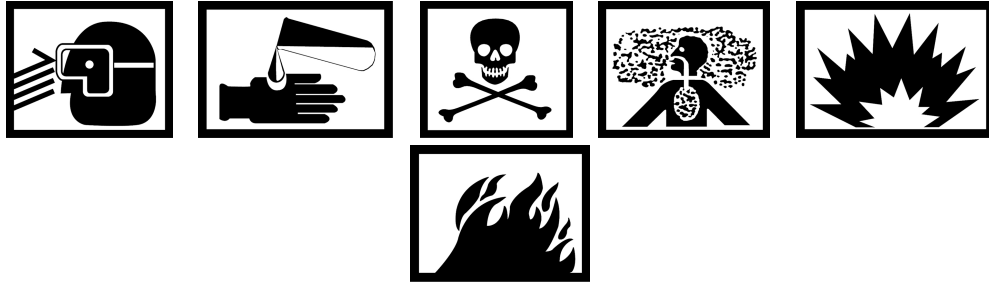
1. Disconnect one or two hose assemblies (Figure 1, Item 4) from airbrake chamber (Figure 1, Item 6 or 3).
2. Loosen nut (Figure 1, Item 2) on housing assembly tube (Figure 1, Item 5).
3. Remove airbrake chamber (Figure 1, Item 6 or 3) from plunger housing (Figure 1, Item 1).
4. If removing a front dolly airbrake chamber (Figure 1, Item 6), remove plug (Figure 1, Item 7).



M0052JMS

Figure 1. Airbrake Chamber Removal.

END OF TASK

CLEANING AND INSPECTION**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
1. Clean silicone compound from housing assembly tube with a rag dipped in cleaning solvent General Maintenance Instructions (WP 0128).
 2. Inspect airbrake chamber and nut for damage. Replace damaged nut and airbrake chamber IAW General Maintenance Instructions (WP 0128).
 3. Remove, clean, and inspect wedge assembly inside plunger housing as required (Spider Assembly Replacement (WP 0057)).

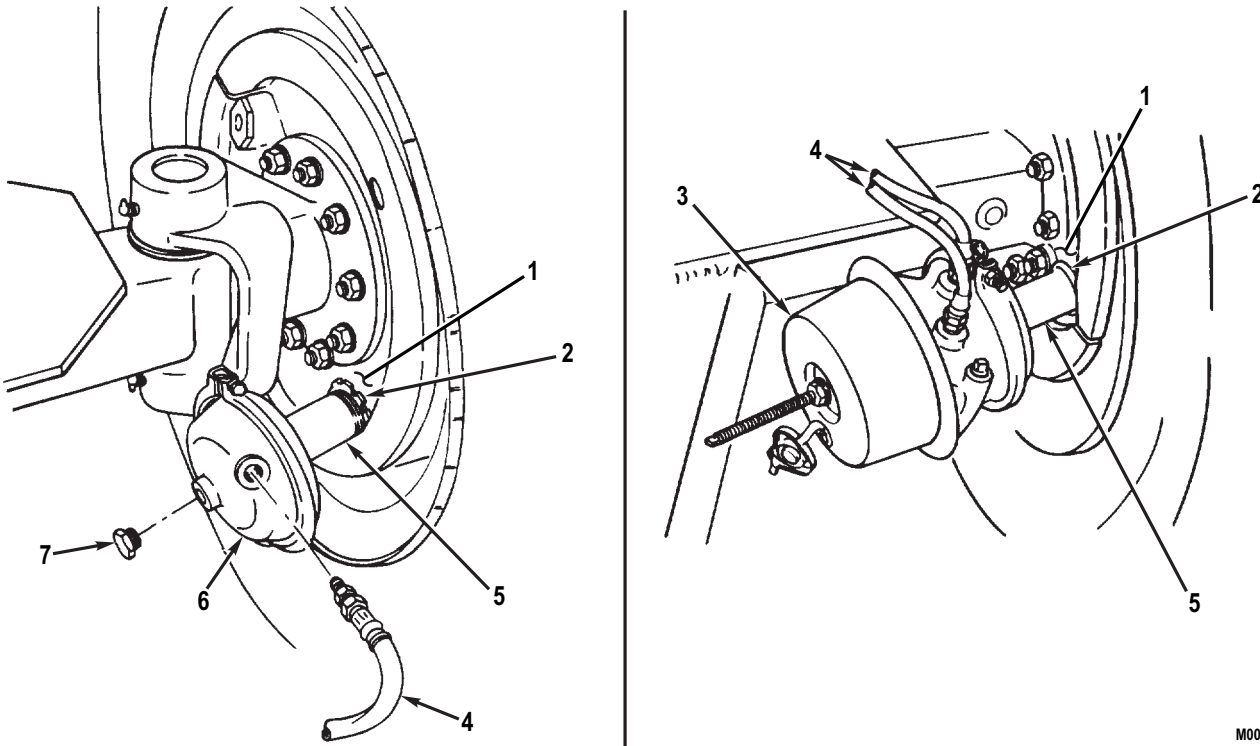
END OF TASK

INSTALLATION

NOTE

Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. If a front dolly airbrake chamber (Figure 2, Item 6) was removed, install plug (Figure 2, Item 7).
2. If removed, install wedge in plunger housing (Figure 2, Item 1). Ensure that wedge assembly is properly seated (Spider Assembly Replacement (WP 0057)).
3. Thread nut (Figure 2, Item 2) onto housing assembly tube (Figure 2, Item 5) of air-brake chamber (Figure 2, Item 6 or 3). DO NOT tighten nut.
4. Apply silicone compound to first three threads of housing assembly tube (Figure 2, Item 5).
5. Install airbrake chamber (Figure 2, Item 6 or 3) on plunger housing (Figure 2, Item 1) until it bottoms.



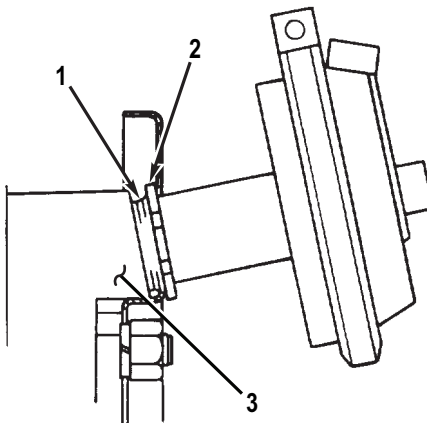
M0052JMS

Figure 2. Airbrake Chamber Installation.

NOTE

If after seating nut, more than top two threads of nut are visible, spider must be replaced (Spider Assembly Replacement (WP 0057)).

6. Tighten nut (Figure 3, Item 2). Ensure that threads (Figure 3, Item 1) on tapered side of nut seat in chamfered area of plunger housing (Figure 3, Item 3).

INSTALLATION - Continued

M0053JMS

Figure 3. Airbrake Chamber Installation.

7. Connect one or two hose assemblies (Figure 2, Item 4) to airbrake chamber (Figure 2, Item 6 or 3).

END OF TASK**FOLLOW-ON TASKS**

1. Uncage brakes (rear dolly) (WP 0053).
2. Close air reservoir draincock (WP 0029).
3. Connect intervehicular air hoses (WP 0007).
4. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
FRONT DOLLY RELAY EMERGENCY VALVE AND AIR RESERVOIR REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0007
WP 0128

Materials/Parts

Compound: Sealing, Pneumatic/Hydraulic Seal
(WP 0197, Table 1, Item 9)
Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)
Locknut (WP 0144, Item 24) Qty: 4

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)
Front dolly booster relay valve removed
(WP 0060)
Front dolly pressure protection valve removed
(WP 0061)

Personnel Required

(Two)

NOTE

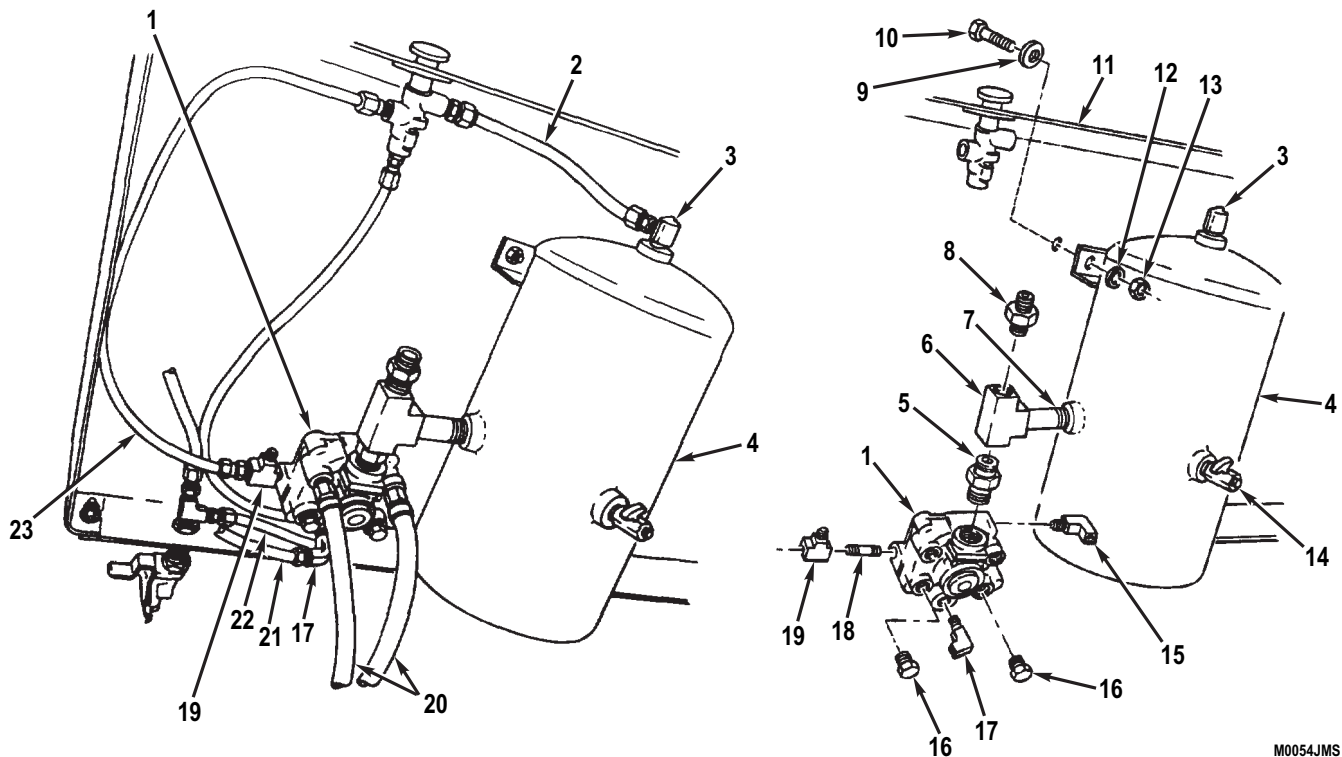
Two personnel are required because of the awkwardness of the air reservoir, not because of the weight.

REMOVAL

NOTE

All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Disconnect two hose assemblies (Figure 1, Item 20) from underside of relay emergency valve (Figure 1, Item 1).



M0054JMS

Figure 1. Front Dolly Relay Emergency Valve and Reservoir.

2. Disconnect tube assembly (Figure 1, Item 21) from elbow (Figure 1, Item 17).
3. Disconnect tube assembly (Figure 1, Item 22) from elbow (Figure 1, Item 15) at top of relay emergency valve (Figure 1, Item 1).
4. Disconnect tube assembly (Figure 1, Item 2) from elbow (Figure 1, Item 3).
5. Disconnect tube assembly (Figure 1, Item 23) from tee (Figure 1, Item 19).
6. Remove four locknuts (Figure 1, Item 13), washers (Figure 1, Item 12), three screws (Figure 1, Item 10), four washers (Figure 1, Item 9), and air reservoir (Figure 1, Item 4) with relay emergency valve (Figure 1, Item 1) from pivoting tray (Figure 1, Item 11). Discard locknuts.
7. Remove relay emergency valve (Figure 1, Item 1) with hex pipe nipple (Figure 1, Item 5) from tee (Figure 1, Item 6).

REMOVAL - Continued

8. Remove tee (Figure 1, Item 6) and nipple (Figure 1, Item 7) from air reservoir (Figure 1, Item 4). Remove reducer (Figure 1, Item 8) from tee.
9. Remove elbows (Figure 1, Items 17 and 15), tee (Figure 1, Item 19), nipple (Figure 1, Item 18), hex pipe nipple (Figure 1, Item 5), and two plugs (Figure 1, Item 16) from relay emergency valve (Figure 1, Item 1).
10. Remove elbow (Figure 1, Item 3) and draincock (Figure 1, Item 14) from air reservoir (Figure 1, Item 4).

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

Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. Install elbow (Figure 1, Item 3) and draincock (Figure 1, Item 14) on air reservoir (Figure 1, Item 4).
2. Install elbows (Figure 1, Items 17 and 15), nipple (Figure 1, Item 18), tee (Figure 1, Item 19), and two plugs (Figure 1, Item 16) on relay emergency valve (Figure 1, Item 1).
3. Apply sealing compound to threads of hex pipe nipple (Figure 1, Item 5). Install hex pipe nipple on relay emergency valve (Figure 1, Item 1).
4. Install reducer (Figure 1, Item 8) on tee (Figure 1, Item 6).
5. Install nipple (Figure 1, Item 7) and tee (Figure 1, Item 6) on air reservoir (Figure 1, Item 4).
6. Install hex pipe nipple (Figure 1, Item 5) and relay emergency valve (Figure 1, Item 1) on tee (Figure 1, Item 6).
7. Install air reservoir (Figure 1, Item 4) with relay emergency valve (Figure 1, Item 1) on pivoting tray (Figure 1, Item 11) with three screws (Figure 1, Item 10), eight washers (Figure 1, Items 12 and 9), and four new locknuts (Figure 1, Item 13).
8. Connect tube assembly (Figure 1, Item 23) to tee (Figure 1, Item 19).
9. Connect tube assembly (Figure 1, Item 2) to elbow (Figure 1, Item 3).
10. Connect tube assembly (Figure 1, Item 22) to elbow (Figure 1, Item 15) at top of relay emergency valve (Figure 1, Item 1).
11. Connect tube assembly (Figure 1, Item 21) to elbow (Figure 1, Item 17).
12. Connect two hose assemblies (Figure 1, Item 20) to relay emergency valve (Figure 1, Item 1).

END OF TASK

FOLLOW-ON TASKS

1. Install front dolly pressure protection valve (WP 0061).
2. Install front dolly booster relay valve (WP 0060).
3. Close air reservoir draincock (WP 0029).
4. Connect intervehicular air hoses (WP 0007).
5. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FRONT DOLLY BOOSTER RELAY VALVE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0007
WP 0128

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 Inch Width (WP 0197, Table 1, Item 50)

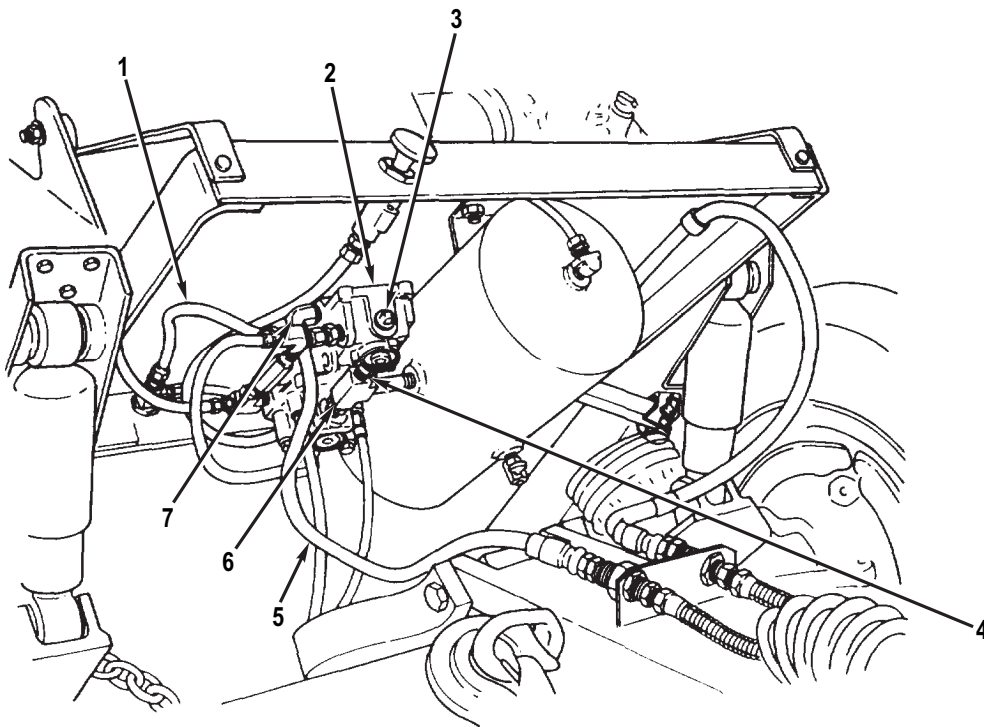
Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)

REMOVAL**NOTE**

All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Disconnect intervehicular air hose (Figure 1, Item 5) from elbow (Figure 1, Item 7).
2. Disconnect tube assembly (Figure 1, Item 1) from booster relay valve (Figure 1, Item 2).
3. Remove booster relay valve (Figure 1, Item 2) from reducer (Figure 1, Item 4).
4. If damaged, remove reducer (Figure 1, Item 4) from tee (Figure 1, Item 6).
5. Remove two plugs (Figure 1, Item 3) and elbow (Figure 1, Item 7) from booster relay valve (Figure 1, Item 2).



M0055JMS

Figure 1. Front Dolly Booster Relay Valve Removal.

END OF TASK

INSTALLATION**NOTE**

Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. Install elbow (Figure 1, Item 7) and two plugs (Figure 1, Item 3) on booster relay valve (Figure 1, Item 2).
2. If removed, install reducer (Figure 1, Item 4) on tee (Figure 1, Item 6).
3. Install booster relay valve (Figure 1, Item 2) on reducer (Figure 1, Item 4).
4. Connect tube assembly (Figure 1, Item 1) to booster relay valve (Figure 1, Item 2).
5. Connect intervehicular air hose (Figure 1, Item 5) to elbow (Figure 1, Item 7).

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
FRONT DOLLY PRESSURE PROTECTION VALVE REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0007
WP 0128

Materials/Parts

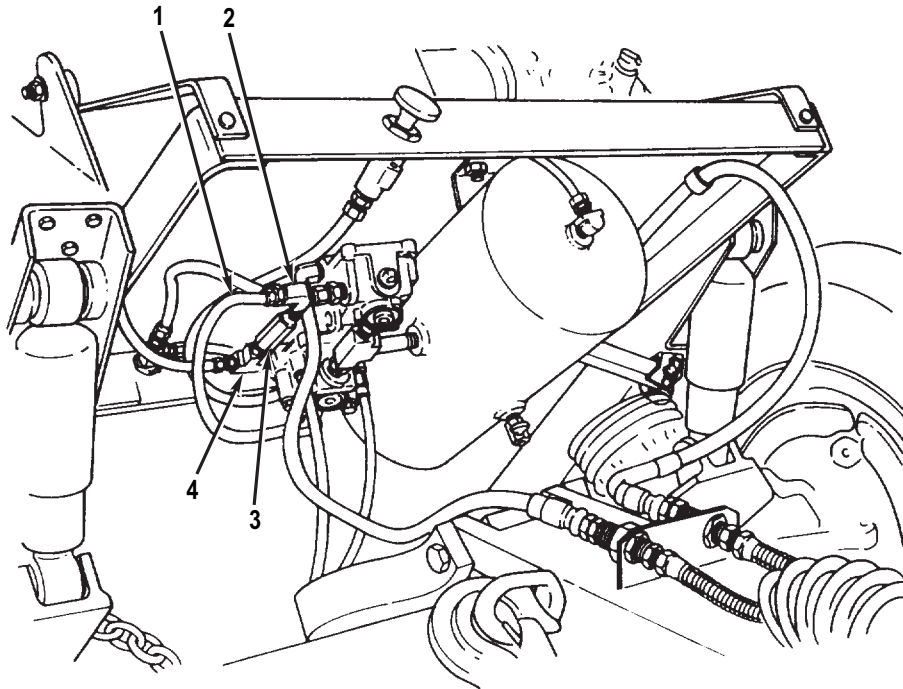
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)

REMOVAL

1. Disconnect tube assembly (Figure 1, Item 1) from elbow (Figure 1, Item 2).
2. Remove pressure protection valve (Figure 1, Item 3) with elbow (Figure 1, Item 2) from tee (Figure 1, Item 4).
3. Remove elbow (Figure 1, Item 2) from pressure protection valve (Figure 1, Item 3).



M0056JMS

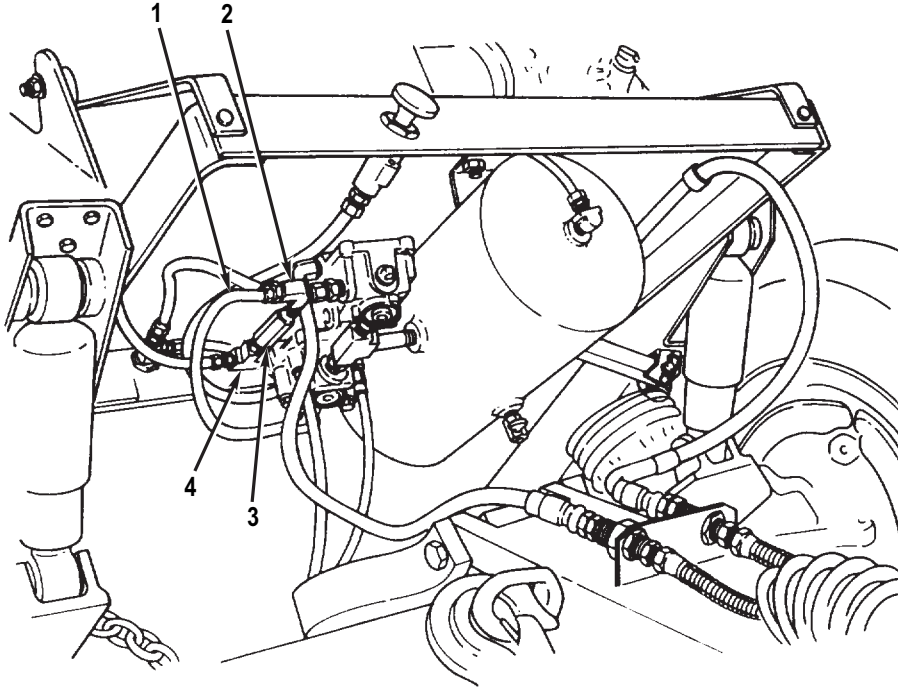
Figure 1. Front Dolly Pressure Protection Valve Removal.

END OF TASK

INSTALLATION**NOTE**

Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. Install elbow (Figure 2, Item 2) on pressure protection valve (Figure 2, Item 3).
2. Install pressure protection valve (Figure 2, Item 3) on tee (Figure 2, Item 4).
3. Connect tube assembly (Figure 2, Item 1) to elbow (Figure 2, Item 2).



M0056JMS

Figure 2. Front Dolly Pressure Protection Valve Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
AIRBRAKE VALVE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)

Materials/Parts

Compound: Sealing, Resin, Type II, Grade N
(WP 0197, Table 1, Item 10)
Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

References

WP 0016
WP 0128

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)

NOTE

- Front and rear dolly airbrake valves are replaced the same way except as noted.
- All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).

REMOVAL

1. If working on front dolly (Figure 1, Item 7), disconnect three tube assemblies (Figure 1, Item 1) from airbrake valve (Figure 1, Item 2).
2. If working on rear dolly (Figure 1, Item 9), disconnect three tube assemblies (Figure 1, Item 1) from elbows (Figure 1, Item 8) at airbrake valve (Figure 1, Item 2).
3. Hold stem (Figure 1, Item 5) and remove control knob (Figure 1, Item 3).
4. Remove nut (Figure 1, Item 4) and airbrake valve (Figure 1, Item 2) from pivoting tray (Figure 1, Item 6).
5. If working on rear dolly, remove three elbows (Figure 1, Item 8) from airbrake valve (Figure 1, Item 2).

REMOVAL - Continued

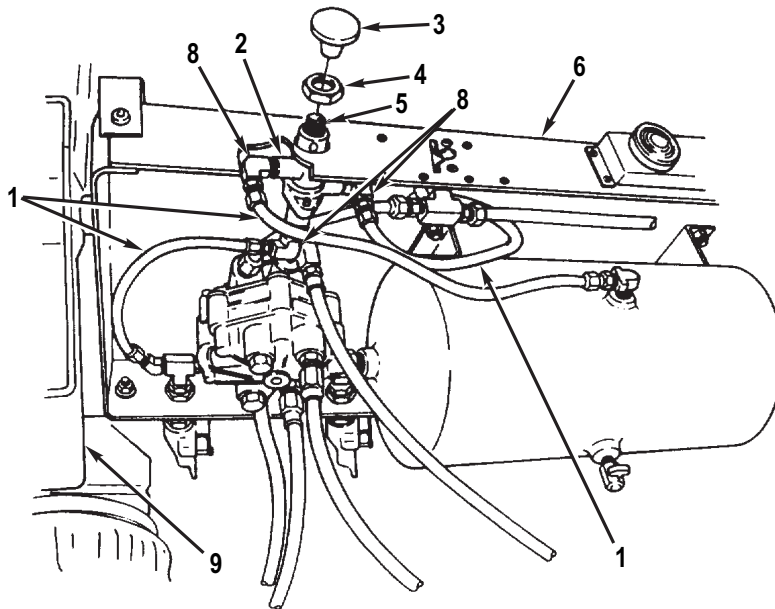
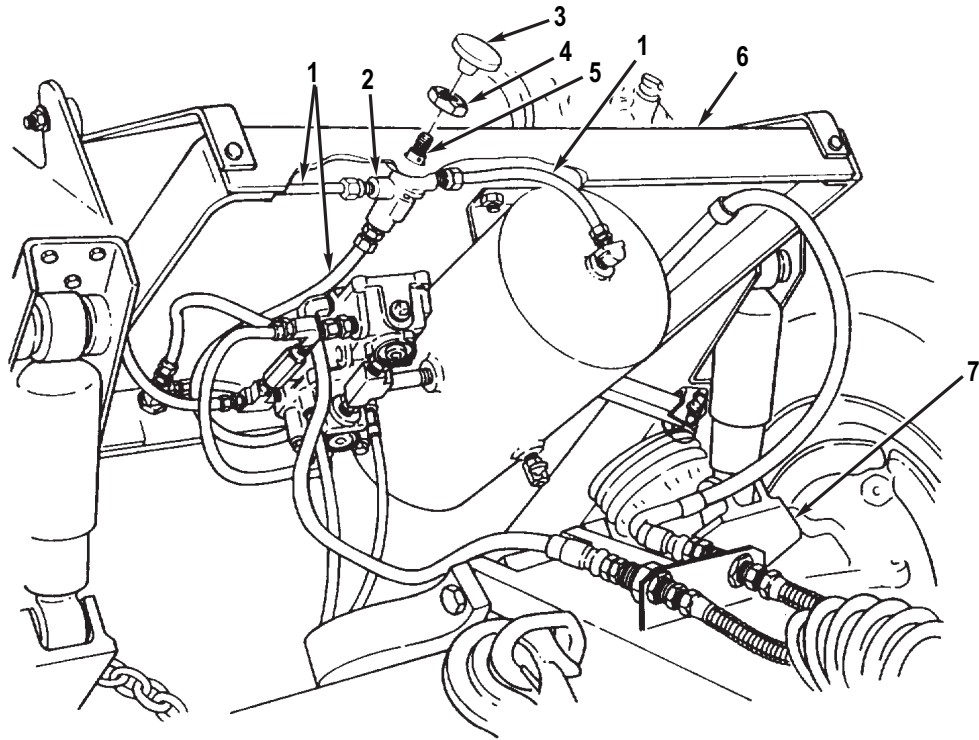
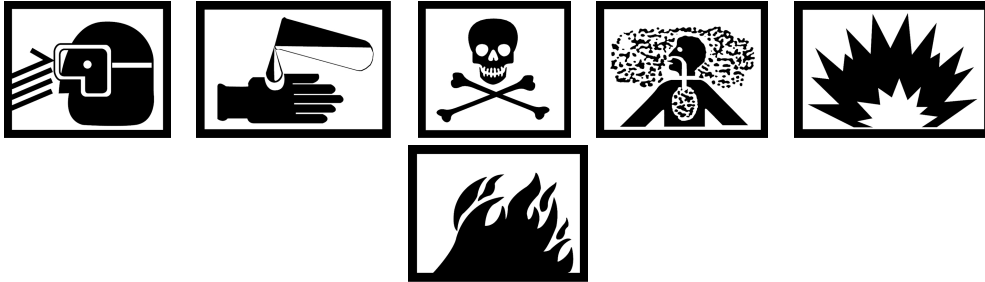


Figure 1. Airbrake Valve Removal.

M0057JMS

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Clean sealing compound from threads of control knob and stem with cleaning solvent and dry with a clean rag IAW General Maintenance Instructions (WP 0128).

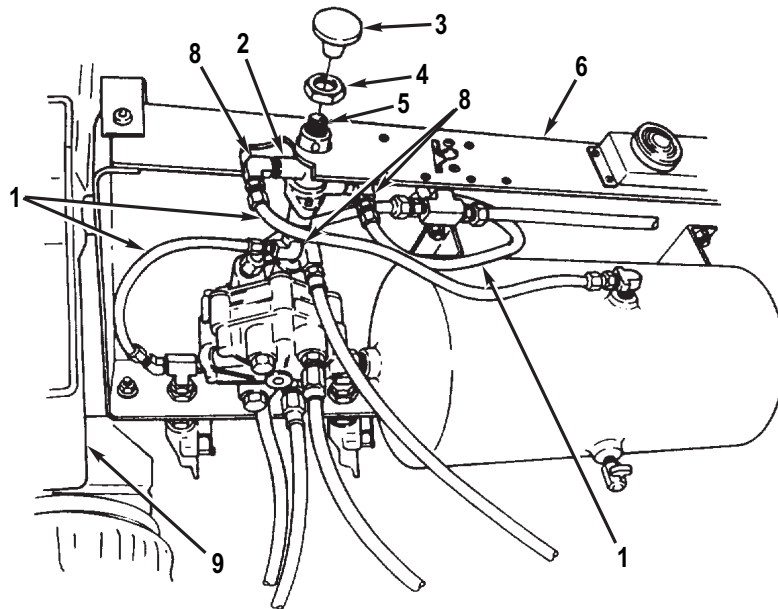
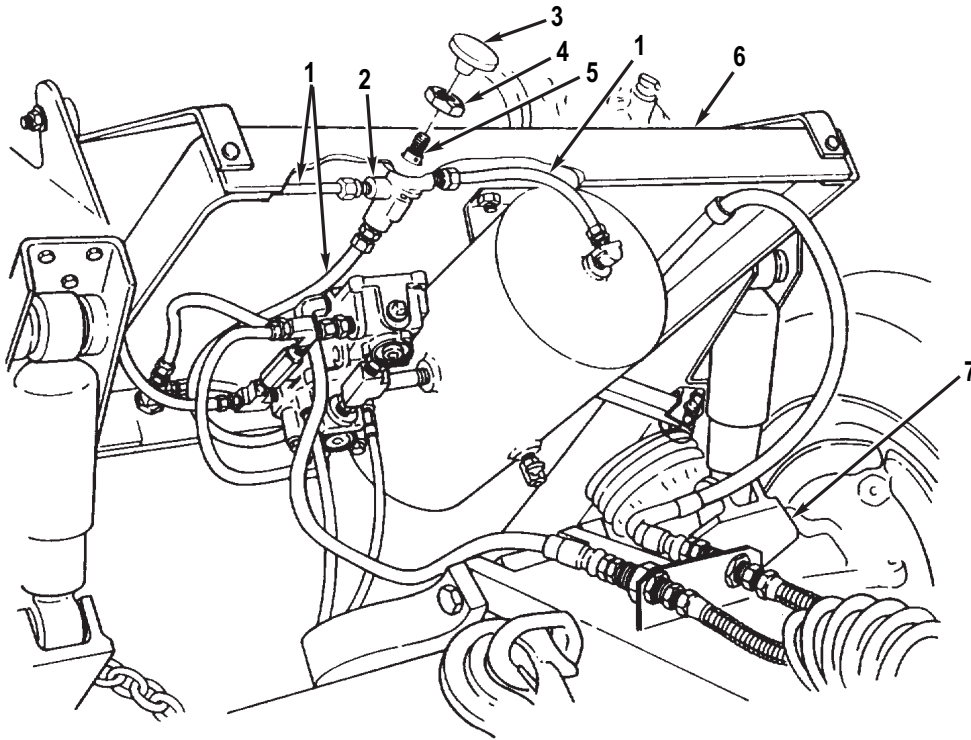
END OF TASK

INSTALLATION**NOTE**

Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. If working on rear dolly (Figure 2, Item 9), install three elbows (Figure 2, Item 8) on airbrake valve (Figure 2, Item 2).
2. Install airbrake valve (Figure 2, Item 2) on pivoting tray (Figure 2, Item 6) with nut (Figure 2, Item 4).
3. Apply sealing compound to control knob (Figure 2, Item 3). Hold stem (Figure 2, Item 5) and install control knob.
4. If working on rear dolly (Figure 2, Item 9), connect three tube assemblies (Figure 2, Item 1) to elbows (Figure 2, Item 8).
5. If working on front dolly (Figure 2, Item 7), connect three tube assemblies (Figure 2, Item 1) to airbrake valve (Figure 2, Item 2).

INSTALLATION - Continued



M0057JMS

Figure 2. Airbrake Valve Installation.

END OF TASK

FOLLOW-ON TASKS

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0016).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
REAR DOLLY FULL FUNCTION VALVE AND AIR RESERVOIR REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0128
WP 0007

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)
Locknut (WP 0146, Item 20) Qty: 4

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)
Rear dolly booster relay valve removed (WP 0064)

Personnel Required

(Two)

REMOVAL**NOTE**

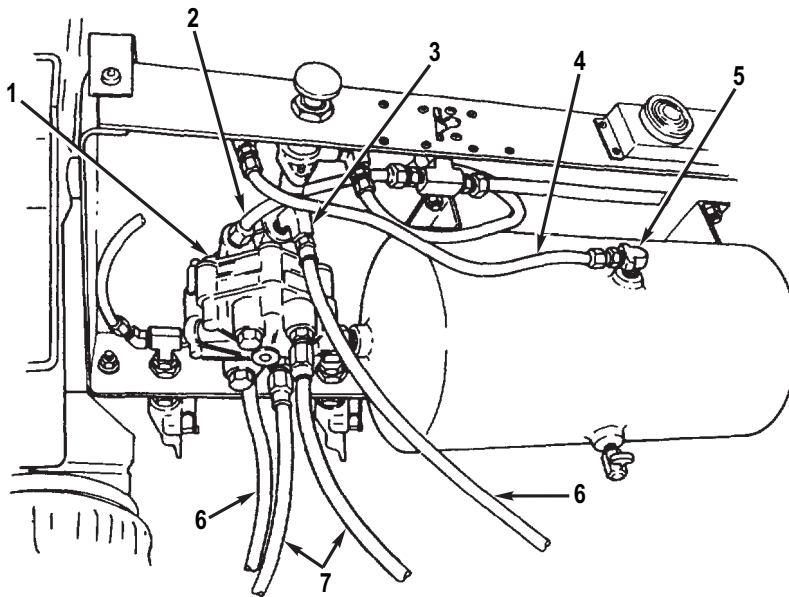
- Two personnel are required because of the awkwardness of the air reservoir, not because of the weight.
- All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Disconnect two hose assemblies (Figure 1, Item 7) from underside of full function valve (Figure 1, Item 1).

NOTE

Disconnection of tube assemblies (Figure 1, Items 2 and 6) is the same at front and rear of full function valve. Rear of full function valve is shown.

2. Disconnect two tube assemblies (Figure 1, Item 2) from top of full function valve (Figure 1, Item 1).
3. Disconnect two hose assemblies (Figure 1, Item 6) from elbows (Figure 1, Item 3).
4. Disconnect tube assembly (Figure 1, Item 4) from elbow (Figure 1, Item 5).

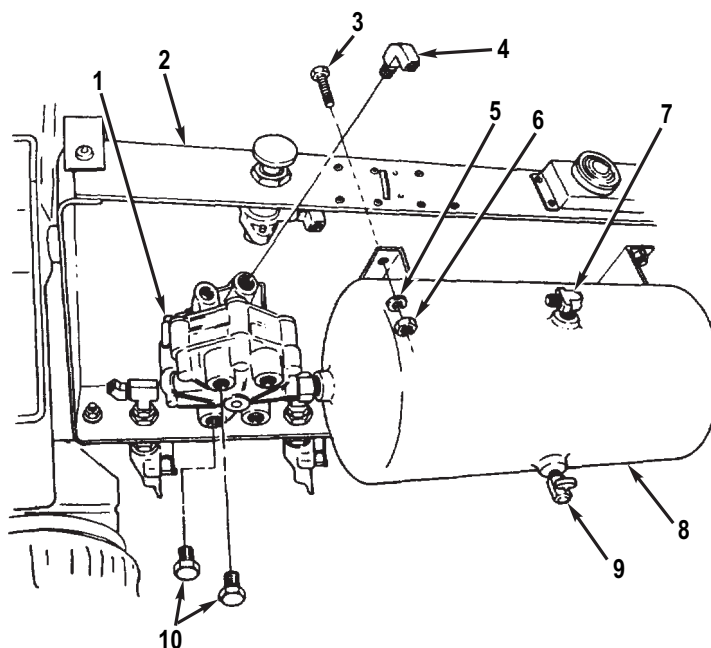


M005&JMS

Figure 1. Rear Dolly Full Function Valve and Air Reservoir Disconnection.

5. Remove four locknuts (Figure 2, Item 6), washers (Figure 2, Item 5), bolts (Figure 2, Item 3), and air reservoir (Figure 2, Item 8) with full function valve (Figure 2, Item 1) from pivoting tray (Figure 2, Item 2). Discard locknuts.
6. Remove full function valve (Figure 2, Item 1) from air reservoir (Figure 2, Item 8).
7. Remove elbow (Figure 2, Item 7) and draincock (Figure 2, Item 9) from air reservoir (Figure 2, Item 8).
8. Remove two plugs (Figure 2, Item 10) and elbows (Figure 2, Item 4) from full function valve (Figure 2, Item 1).

REMOVAL - Continued



M0059JMS

Figure 2. Rear Dolly Full Function Valve and Air Reservoir Removal.

END OF TASK

INSTALLATION

CAUTION

DO NOT overtighten fittings at full function valve or damage to full function valve will occur.

NOTE

Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. Install two plugs (Figure 2, Item 10) and elbows (Figure 2, Item 4) on full function valve (Figure 2, Item 1).
2. Install draincock (Figure 2, Item 9) and elbow (Figure 2, Item 7) on air reservoir (Figure 2, Item 8).
3. Install full function valve (Figure 2, Item 1) on air reservoir (Figure 2, Item 8).
4. Install air reservoir (Figure 2, Item 8) with full function valve (Figure 2, Item 1) on pivoting tray (Figure 2, Item 2) with four bolts (Figure 2, Item 3), washers (Figure 2, Item 5), and new locknuts (Figure 2, Item 6).

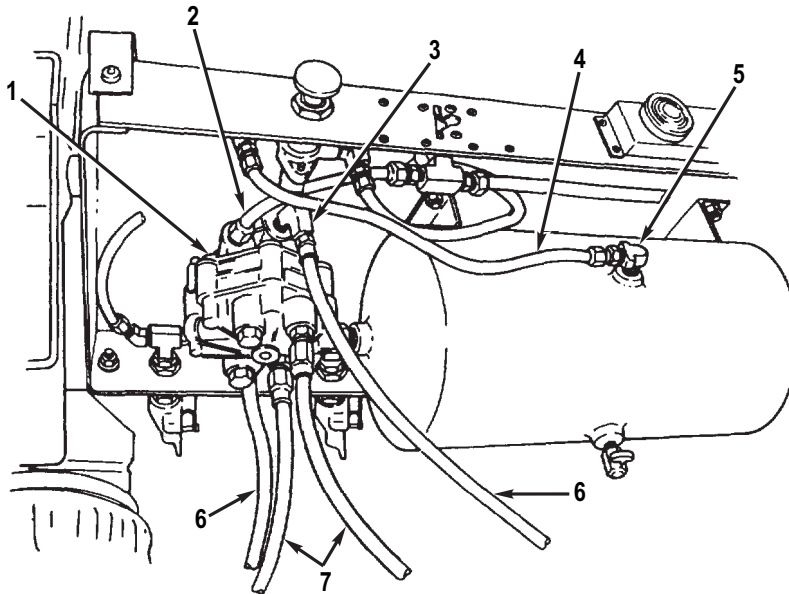
INSTALLATION - Continued

5. Connect tube assembly (Figure 3, Item 4) to elbow (Figure 3, Item 5).

NOTE

Connection of tube assemblies (Figure 3, Items 2 and 6) is the same at front and rear of full function valve. Rear of full function valve is shown.

6. Connect two hose assemblies (Figure 3, Item 6) to elbows (Figure 3, Item 3).
7. Connect two tube assemblies (Figure 3, Item 2) to top of full function valve (Figure 3, Item 1).
8. Connect two hose assemblies (Figure 3, Item 7) to underside of full function valve (Figure 3, Item 1).



M0058JMS

Figure 3. Rear Dolly Full Function Valve and Air Reservoir Connection.

END OF TASK

FOLLOW-ON TASKS

1. Install rear dolly booster relay valve (WP 0064).
2. Close air reservoir draincock (WP 0029).
3. Connect intervehicular air hoses (WP 0007).
4. Check for leaks (WP 0128).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR DOLLY BOOSTER RELAY VALVE REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0007
WP 0128

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)

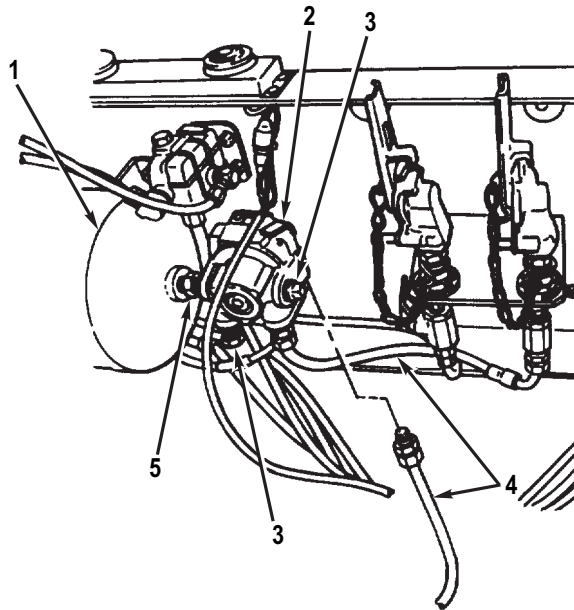
Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)

REMOVAL**NOTE**

All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Disconnect two tube assemblies (Figure 1, Item 4) from booster relay valve (Figure 1, Item 2).
2. Remove booster relay valve (Figure 1, Item 2) from nipple (Figure 1, Item 5).
3. Remove two plugs (Figure 1, Item 3) from booster relay valve (Figure 1, Item 2).
4. If damaged, remove nipple (Figure 1, Item 5) from air reservoir (Figure 1, Item 1).



M0060JMS

Figure 1. Rear Dolly Booster Relay Valve Removal.

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

Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. If removed, install nipple (Figure 1, Item 5) on air reservoir (Figure 1, Item 1).
2. Install two plugs (Figure 1, Item 3) on booster relay valve (Figure 1, Item 2).
3. Install booster relay valve (Figure 1, Item 2) on nipple (Figure 1, Item 5).
4. Connect two tube assemblies (Figure 1, Item 4) to booster relay valve (Figure 1, Item 2).

END OF TASK

FOLLOW-ON TASKS

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
REAR DOLLY SHUTOFF VALVE AND MOUNTING BRACKET REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Wrench, Adjustable: 0-3 5/8 in. jaw opening (WP 0198, Table 1, Item 37)

Materials/Parts

Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)
Locknut (WP 0147, Item 7) Qty: 2

References

WP 0007
WP 0128

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)

NOTE

- Both rear dolly shutoff valves are replaced the same way. Right side (service) shutoff valve is illustrated.
- When valve is in closed position, handle (Figure 1, Item 6) should be facing up.

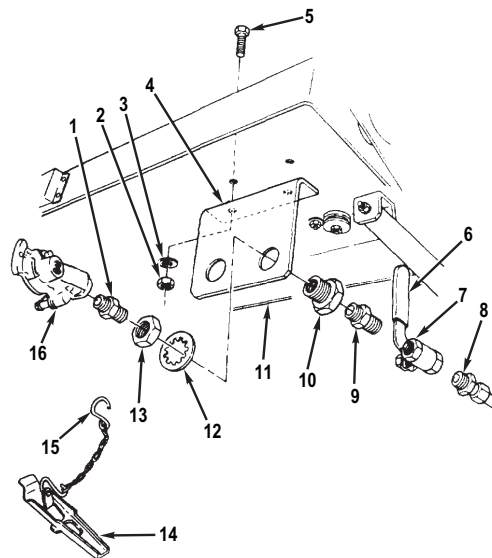
REMOVAL

1. Disconnect tube assembly (Figure 1, Item 8) from shutoff valve (Figure 1, Item 7).
2. Remove shutoff valve (Figure 1, Item 7) from reducer (Figure 1, Item 9).

NOTE

Perform steps 3 through 8 only if reducer, anchor coupling, or mounting bracket are damaged.

3. Remove reducer (Figure 1, Item 9) from anchor coupling (Figure 1, Item 10).
4. Remove dummy coupling (Figure 1, Item 14) from gladhand (Figure 1, Item 16).
5. Unbend S-hook (Figure 1, Item 15) and remove dummy coupling (Figure 1, Item 14) from nipple (Figure 1, Item 1).
6. Remove gladhand (Figure 1, Item 16) and nipple (Figure 1, Item 1) from anchor coupling (Figure 1, Item 10).
7. Remove nut (Figure 1, Item 13), washer (Figure 1, Item 12), and anchor coupling (Figure 1, Item 10) from mounting bracket (4).
8. Remove two locknuts (Figure 1, Item 2) washers (Figure 1, Item 3), bolts (Figure 1, Item 5), and mounting bracket (Figure 1, Item 4) from pivoting tray (Figure 1, Item 11). Discard locknuts.



M0061JMS

Figure 1. Rear Dolly Shutoff Valve and Mounting Bracket Removal.

END OF TASK

INSTALLATION**NOTE**

- Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.
 - Perform steps 1 through 5 only if reducer, anchor coupling, or mounting bracket were removed.
1. Install mounting bracket (Figure 1, Item 4) on pivoting tray (Figure 1, Item 11) with two bolts (Figure 1, Item 5) washers (Figure 1, Item 3), and new locknuts (Figure 1, Item 2).
 2. Install anchor coupling (Figure 1, Item 10) on mounting bracket (Figure 1, Item 4) with washer (Figure 1, Item 12) and nut (Figure 1, Item 13).
 3. Install nipple (Figure 1, Item 1) and gladhand (Figure 1, Item 16) on anchor coupling (Figure 1, Item 10). Ensure that gladhand is properly positioned when tight.
 4. Install dummy coupling (Figure 1, Item 14) by hooking S-hook (Figure 1, Item 15) around nipple (Figure 1, Item 1) and bending S-hook to tighten. Install dummy coupling on gladhand (Figure 1, Item 16).
 5. Install reducer (Figure 1, Item 9) on anchor coupling (Figure 1, Item 10).

NOTE

When valve is in closed position, handle (Figure 1, Item 6) should be facing up.

6. Install shutoff valve (Figure 1, Item 7) on reducer (Figure 1, Item 9).
7. Connect tube assembly (Figure 1, Item 8) to shutoff valve (Figure 1, Item 7).

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
REAR DOLLY PARKING BRAKE VALVE REPLACEMENT**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0007
WP 0128

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)
Lockwasher (WP 0146, Item 14) Qty: 2

Equipment Condition

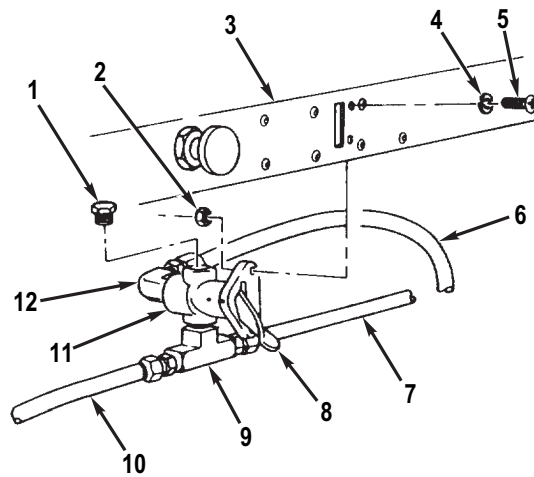
Wheels chocked
Air reservoir drained (WP 0029)

REMOVAL

NOTE

All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128) .

1. Place parking brake lever (Figure 1, Item 8) in OFF position.
2. Disconnect tube assemblies (Figure 1, Items 7 and 10) from tee (Figure 1, Item 9).
3. Disconnect tube assembly (Figure 1, Item 6) from elbow (Figure 1, Item 12).
4. Remove two nuts (Figure 1, Item 2), screws (Figure 1, Item 5), lockwashers (Figure 1, Item 4), and parking brake valve (Figure 1, Item 11) from pivoting tray (Figure 1, Item 3). Discard lockwashers.
5. Remove elbow (Figure 1, Item 12), tee (Figure 1, Item 9) and plug (Figure 1, Item 1) from parking brake valve (Figure 1, Item 11).



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Figure 1. Rear Dolly Parking Brake Valve Removal.

END OF TASK

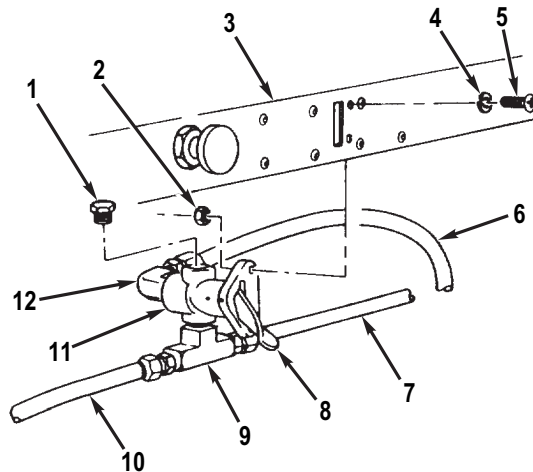
INSTALLATION**CAUTION**

DO NOT overtighten fittings at parking brake valve or damage to parking brake valve will occur.

NOTE

Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. Install plug (Figure 2, Item 1), tee (Figure 2, Item 9), and elbow (Figure 2, Item 12) on parking brake valve (Figure 2, Item 11).
2. Install parking brake valve (Figure 2, Item 11) on pivoting tray (Figure 2, Item 3) with two new lockwashers (Figure 2, Item 4), screws (Figure 2, Item 5), and nuts (Figure 2, Item 2).
3. Connect tube assembly (Figure 2, Item 6) to elbow (Figure 2, Item 12).
4. Connect tube assemblies (Figure 2, Items 7 and 10) to tee (Figure 2, Item 9).
5. Place parking brake lever (Figure 2, Item 8) in ON position.



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Figure 2. Rear Dolly Parking Brake Valve Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
REAR DOLLY RELAY VALVE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0007
WP 0128

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)
Locknut (WP 0147, Item 7) Qty: 2

Equipment Condition

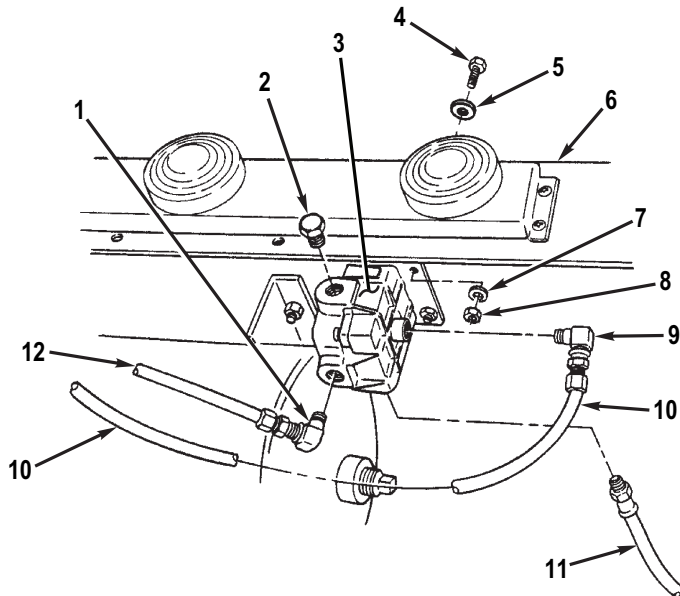
Wheels chocked
Air reservoir drained (WP 0029)

REMOVAL

NOTE

All air lines should be tagged before removal. IAW General Maintenance Instructions (WP 0128) .

1. Disconnect tube assembly (Figure 1, Item 11) from relay valve (Figure 1, Item 3).
2. Disconnect tube assembly (Figure 1, Item 10) from elbow (Figure 1, Item 9).
3. Disconnect tube assembly (Figure 1, Item 12) from elbow (Figure 1, Item 1).
4. Remove two locknuts (Figure 1, Item 8), washers (Figure 1, Item 7), bolts (Figure 1, Item 4), washers (Figure 1, Item 5), and relay valve (Figure 1, Item 3) from pivoting tray (Figure 1, Item 6). Discard locknuts.
5. Remove plug (Figure 1, Item 2) and two elbows (Figure 1, Items 1 and 9) from relay valve (Figure 1, Item 3).



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Figure 1. Rear Dolly Relay Valve Removal.

END OF TASK

INSTALLATION

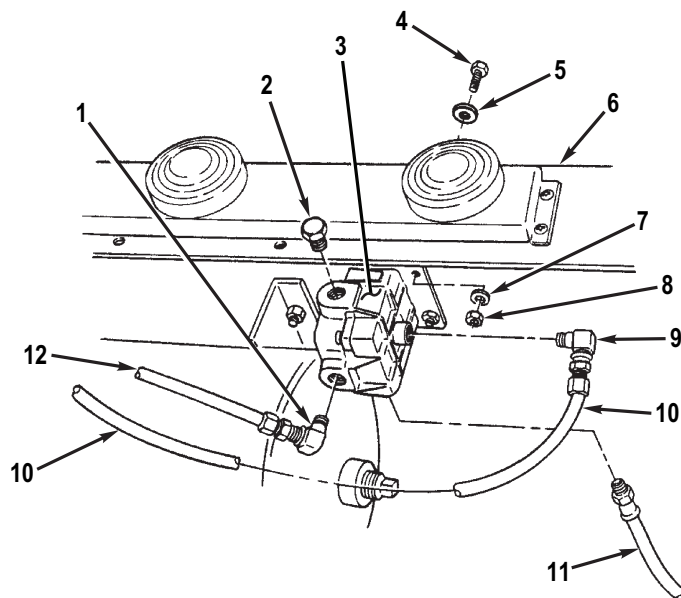
CAUTION

DO NOT overtighten fittings at relay valve or damage to relay valve will occur.

INSTALLATION - Continued**NOTE**

Male threads of fittings should be coated with antiseize tape if not already factory coated with an antiseize compound.

1. Install plug (Figure 2, Item 2) and two elbows (Figure 2, Items 1 and 9) on relay valve (Figure 2, Item 3).
2. Install relay valve (Figure 2, Item 3) on pivoting tray (Figure 2, Item 6) with two bolts (Figure 2, Item 4), washers (Figure 2, Items 5 and 7), and new locknuts (Figure 2, Item 8).
3. Connect tube assembly (Figure 2, Item 12) to elbow (Figure 2, Item 1).
4. Connect tube assembly (Figure 2, Item 10) to elbow (Figure 2, Item 9).
5. Connect tube assembly (Figure 2, Item 11) to relay valve (Figure 2, Item 3).



M0063JMS

Figure 2. Rear Dolly Relay Valve Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).

FOLLOW-ON TASKS - Continued

3. Check for leaks (WP 0128).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
PIVOTING TRAY GLADHAND REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Wrench, Adjustable: 0-3 5/8 in. jaw opening
(WP 0198, Table 1, Item 37)

References (cont.)

WP 0069
WP 0070
WP 0128

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)
Preformed Packing (WP 0145, Item 12) Qty: 1

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)

References

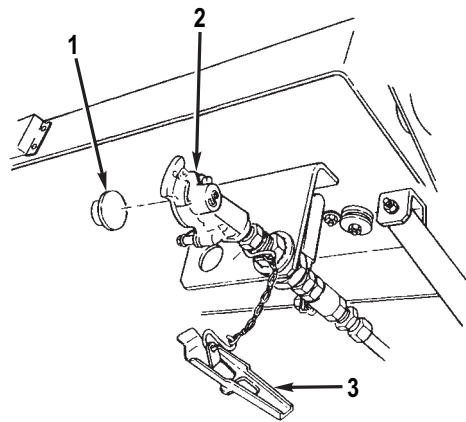
WP 0007

NOTE

- Front and rear dolly pivoting tray gladhands are maintained the same way except that rearmost gladhands on rear dolly pivoting tray have dummy couplings and are mounted to a mounting bracket instead of to the pivoting tray.
- Intervehicular air hose gladhands replacement is described in Front Dolly Air Lines Replacement (WP 0069) or Rear Dolly Air Lines Replacement. (WP 0070).

PERFORMED PACKING REPLACEMENT

1. Remove dummy coupling (Figure 1, Item 3) from gladhand (Figure 1, Item 2).
2. Remove preformed packing (Figure 1, Item 1) from groove in face of gladhand (Figure 1, Item 2). Discard preformed packing.



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Figure 1. Preformed Packing Replacement.

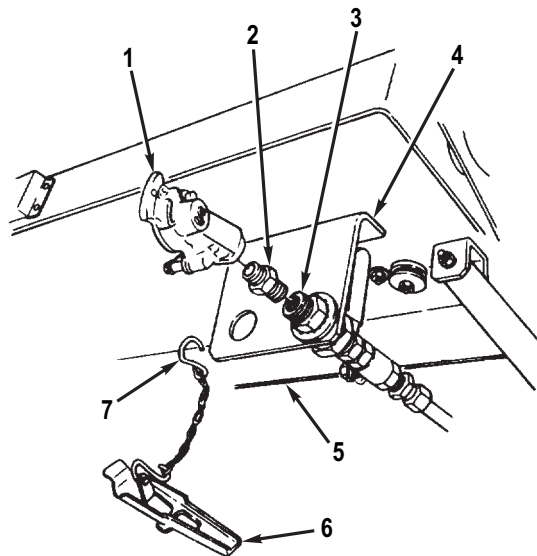
3. Clean groove in face of gladhand (Figure 1, Item 2) with a clean rag.
4. Install new preformed packing (Figure 1, Item 1) in groove on face of gladhand (Figure 1, Item 2). Push into place so that preformed packing lies flat.
5. Install dummy coupling (Figure 1, Item 3) on gladhand (Figure 1, Item 2).

END OF TASK

REMOVAL**NOTE**

Perform steps 1 and 2 only if removing rearmost gladhand on rear dolly pivoting tray.

1. Remove dummy coupling (Figure 2, Item 6) from gladhand (Figure 2, Item 1).
2. Unbend S-hook (Figure 2, Item 7) and remove dummy coupling (Figure 2, Item 6) from nipple (Figure 2, Item 2).
3. Remove gladhand (Figure 2, Item 1) from nipple (Figure 2, Item 2).
4. If nipple (Figure 2, Item 2) is damaged, remove nipple from anchor coupling (Figure 2, Item 3) at pivoting tray (Figure 2, Item 5) or mounting bracket (Figure 2, Item 4).



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Figure 2. Pivoting Tray Gladhand Removal.

END OF TASK

INSTALLATION**NOTE**

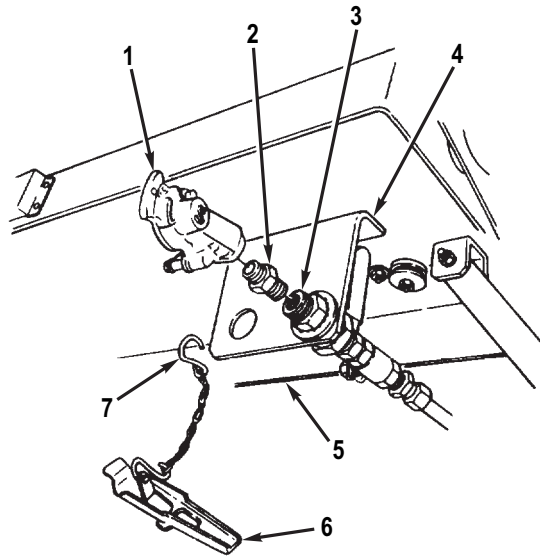
Male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

1. If removed, install nipple (Figure 3, Item 2) on anchor coupling (Figure 3, Item 3) at pivoting tray (Figure 3, Item 5) or mounting bracket (Figure 3, Item 4).
2. Install gladhand (Figure 3, Item 1) on nipple (Figure 3, Item 2). Ensure that gladhand is properly positioned when tight.

NOTE

Perform step 3 only if installing rearmost gladhand on rear dolly pivoting tray.

3. Install dummy coupling (Figure 3, Item 6) by hooking S-hook (Figure 3, Item 7) around nipple (Figure 3, Item 2) and bending S-hook to tighten. Install dummy coupling on gladhand (Figure 3, Item 1).



M0065JMS

Figure 3. Pivoting Tray Gladhand Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FRONT DOLLY AIR LINES REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Wrench, Adjustable: 0-3 5/8 in. jaw opening (WP 0198, Table 1, Item 37)

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)

Materials/Parts (cont.)

Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)
Locknut (WP 0145, Item 1) Qty: 1

References

WP 0007
WP 0128

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)

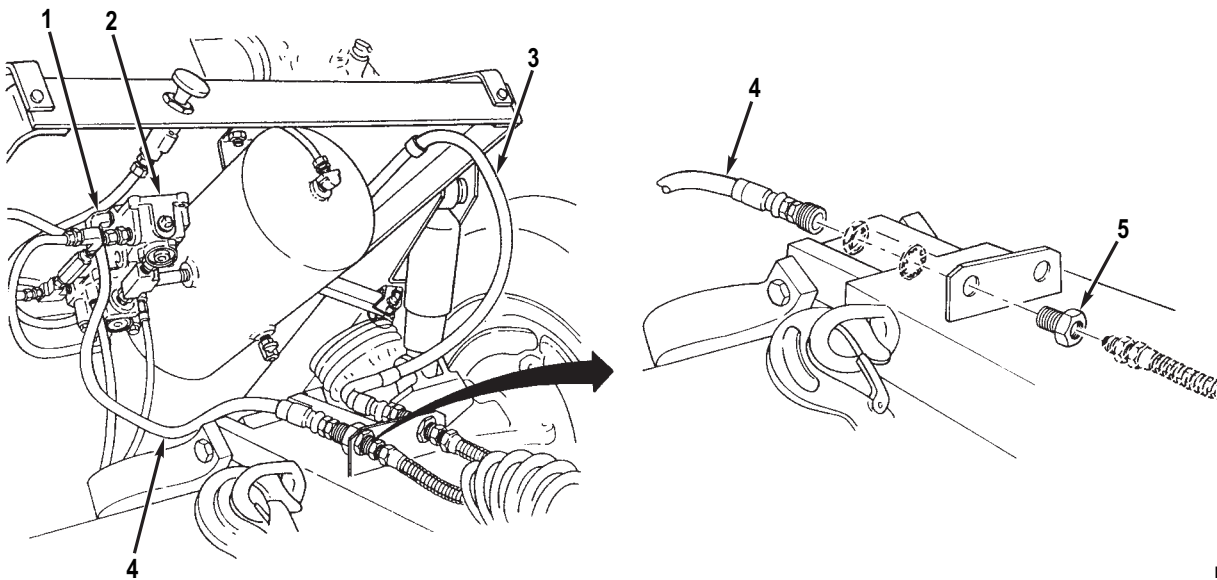
NOTE

- All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).
- Before connection, male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

INTERVEHICULAR AIR HOSE REPLACEMENT**NOTE**

Left side (emergency) and right side (service) intervehicular air hoses are replaced the same way except as noted.

1. Disconnect hose assembly (Figure 1, Item 3 or 4) from anchor coupling (Figure 1, Item 5).
2. Disconnect hose assembly (Figure 1, Item 4) from elbow (Figure 1, Item 1) at booster relay valve (Figure 1, Item 2). Remove hose assembly.



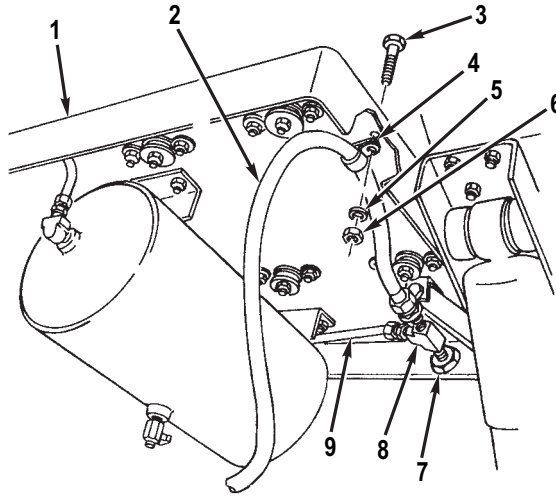
M0066JMS

Figure 1. Intervehicular Air Hose Disconnection.

3. Remove locknut (Figure 2, Item 6), washer (Figure 2, Item 5), screw (Figure 2, Item 3), and clamp (Figure 2, Item 4) from hose assembly (Figure 2, Item 2) and pivoting tray (Figure 2, Item 1). Discard locknut.

INTERVEHICULAR AIR HOSE REPLACEMENT - Continued

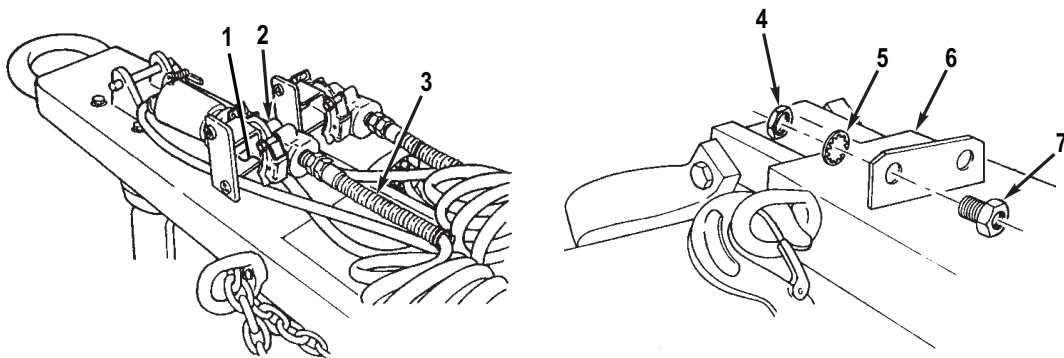
4. Disconnect hose assembly (Figure 2, Item 2) from tee (Figure 2, Item 8). Remove hose assembly.
5. If tee (Figure 2, Item 8) is damaged, disconnect tube assembly (Figure 2, Item 9) from tee and remove tee from anchor coupling (Figure 2, Item 7).



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Figure 2. Intervehicular Air Hose Removal.

6. Remove gladhand (Figure 3, Item 2) from dummy coupling (Figure 3, Item 1).
7. Disconnect coil tubing (Figure 3, Item 3) from anchor coupling (Figure 3, Item 7).
8. Separate gladhand (Figure 3, Item 2), identification plate, and coil tubing (Figure 3, Item 3).
9. If anchor coupling (Figure 3, Item 7) is damaged, remove nut (Figure 3, Item 4), washer (Figure 3, Item 5), and anchor coupling from front drawbar (Figure 3, Item 6).



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Figure 3. Intervehicular Air Hose Removal.

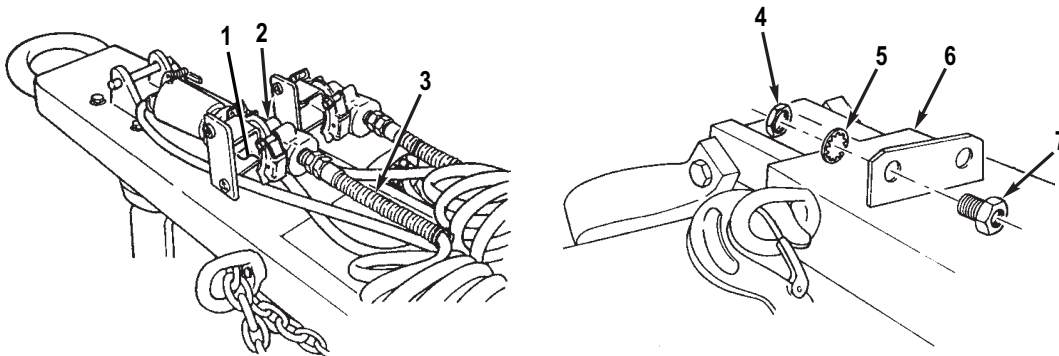
INTERVEHICULAR AIR HOSE REPLACEMENT - Continued

10. If removed, install anchor coupling (Figure 4, Item 7) on front drawbar (Figure 4, Item 6) with washer (Figure 4, Item 5) and nut (Figure 4, Item 4).

NOTE

Red coil tubing is installed on left side; blue coil tubing is installed on right side.

11. Assemble coil tubing (Figure 4, Item 3), identification plate, and gladhand (Figure 4, Item 2).
12. Connect coil tubing (Figure 4, Item 3) to anchor coupling (Figure 4, Item 7).
13. Install gladhand (Figure 4, Item 2) on dummy coupling (Figure 4, Item 1).

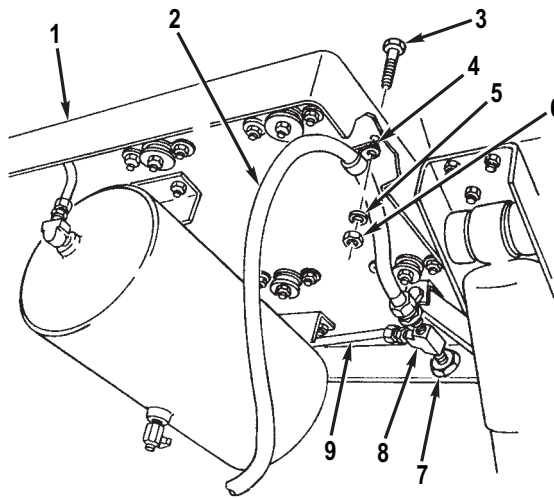


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Figure 4. Interverhicular Air Hose Installation.

INTERVEHICULAR AIR HOSE REPLACEMENT - Continued

14. If removed, install tee (Figure 5, Item 8) on anchor coupling (Figure 5, Item 7). Connect tube assembly (Figure 5, Item 9) to tee.
15. Connect hose assembly (Figure 5, Item 2) to tee (Figure 5, Item 8).
16. Install hose assembly (Figure 5, Item 2) on pivoting tray (Figure 5, Item 1) with clamp (Figure 5, Item 4), screw (Figure 5, Item 3), washer (Figure 5, Item 5), and new locknut (Figure 5, Item 6).

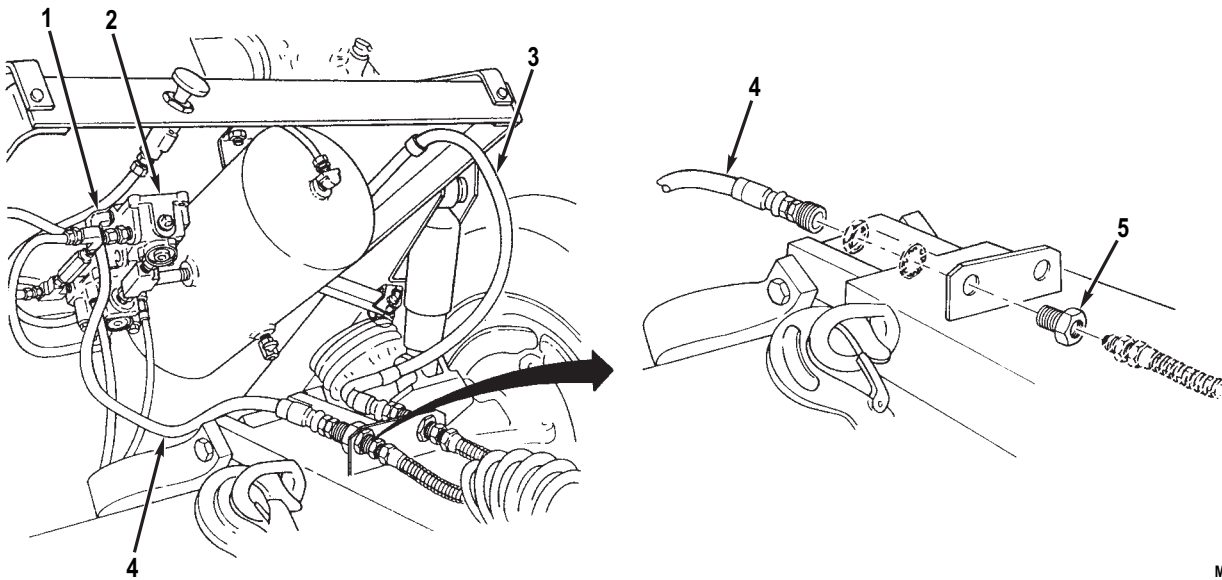


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Figure 5. *Intervehicular Air Hose Installation.*

INTERVEHICULAR AIR HOSE REPLACEMENT - Continued

17. Connect hose assembly (Figure 6, Item 4) to elbow (Figure 6, Item 1) at booster relay valve Figure 6, Item 2).
18. Connect hose assembly (Figure 6, Item 3 or 4) to anchor coupling (Figure 6, Item 5).



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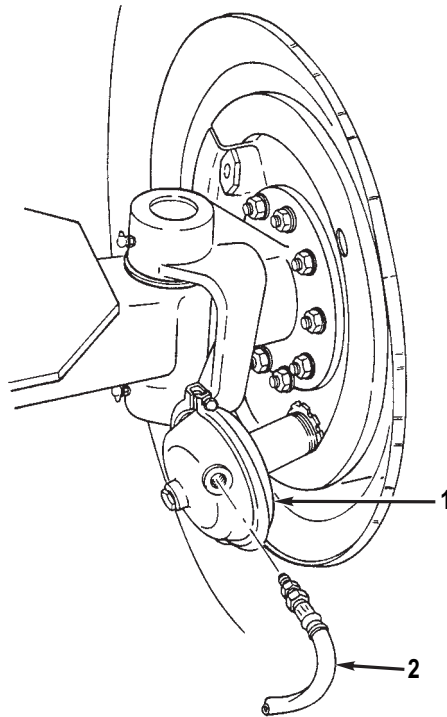
Figure 6. Intervehicular Air Hose Connection.

END OF TASK

RELAY EMERGENCY VALVE-TO-AIRBRAKE CHAMBER HOSE ASSEMBLY REPLACEMENT**NOTE**

Left side and right side hose assemblies are replaced the same way. Right side hose assembly is illustrated.

1. Disconnect hose assembly (Figure 7, Item 2) from airbrake chamber (Figure 7, Item 1).



M0070JMS

Figure 7. Relay Emergency Valve-to-Airbrake Chamber Hose Assembly Disconnection.

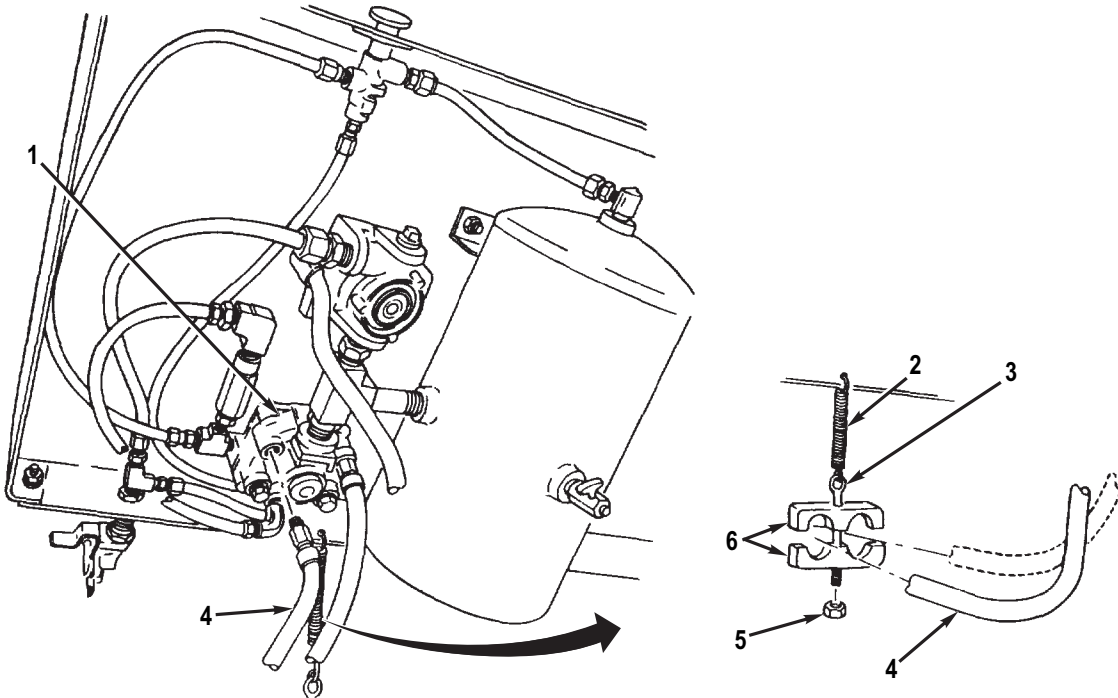
RELAY EMERGENCY VALVE-TO-AIRBRAKE CHAMBER HOSE ASSEMBLY REPLACEMENT - Continued

2. Remove spring (Figure 8, Item 2) from eyebolt (Figure 8, Item 3).

NOTE

Hose assembly to other airbrake chamber is removed at same time.

3. Remove nut (Figure 8, Item 5) from eyebolt (Figure 8, Item 3) and separate hose clamp (Figure 8, Item 6). Release hose assembly (Figure 8, Item 4).
4. Disconnect hose assembly (Figure 8, Item 4) from relay emergency valve (Figure 8, Item 1). Remove hose assembly.



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Figure 8. Relay Emergency Valve-to-Airbrake Chamber Hose Assembly Removal.

5. Connect hose assembly (Figure 8, Item 4) to relay emergency valve (Figure 8, Item 1).

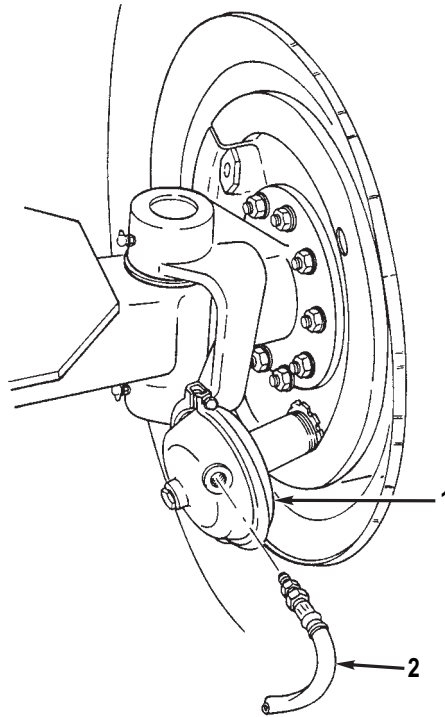
NOTE

Hose assembly to other airbrake chamber is installed at same time.

6. Install hose assembly (Figure 8, Item 4) in hose clamp (Figure 8, Item 6) and secure with eyebolt (Figure 8, Item 3) and nut (Figure 8, Item 5).
7. Install spring (Figure 8, Item 2) on eyebolt (Figure 8, Item 3).

RELAY EMERGENCY VALVE-TO-AIRBRAKE CHAMBER HOSE ASSEMBLY REPLACEMENT - Continued

8. Connect hose assembly (Figure 9, Item 2) to airbrake chamber (Figure 9, Item 1).



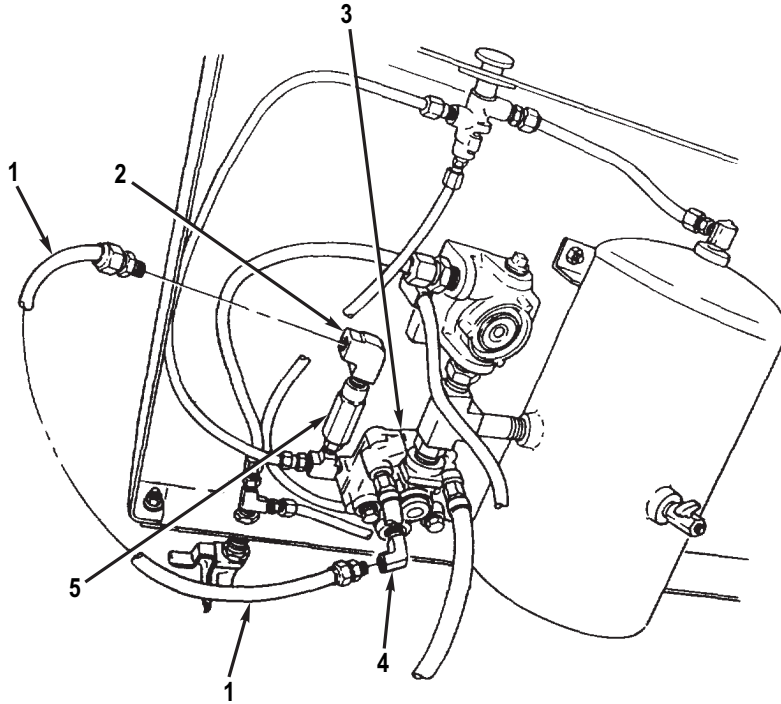
M0070JMS

Figure 9. Relay Emergency Valve-to-Airbrake Chamber Hose Assembly Installation.

END OF TASK

PRESSURE PROTECTION VALVE-TO-RELAY EMERGENCY VALVE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 10, Item 1) from elbow (Figure 10, Item 4) at relay emergency valve (Figure 10, Item 3).
2. Disconnect tube assembly (Figure 10, Item 1) from elbow (Figure 10, Item 2) at pressure protection valve (Figure 10, Item 5). Remove tube assembly.
3. Connect tube assembly (Figure 10, Item 1) to elbow (Figure 10, Item 2).
4. Connect tube assembly (Figure 10, Item 1) to elbow (Figure 10, Item 4).



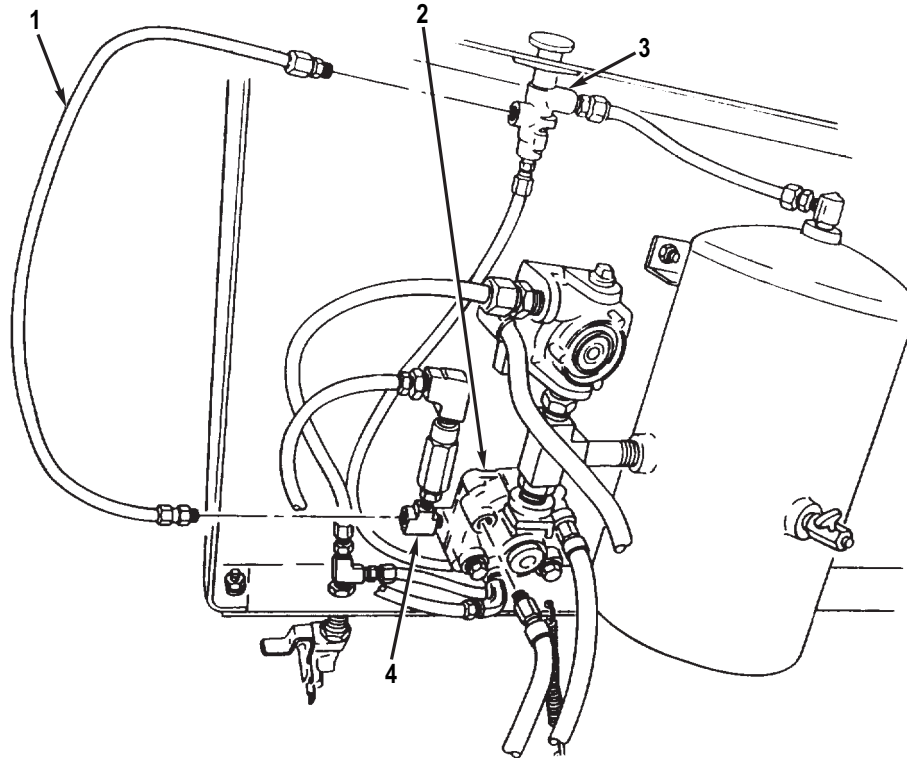
M0072JMS

Figure 10. Pressure Protection Valve-to-Relay Emergency Valve Tube Assembly Replacement.

END OF TASK

AIRBRAKE VALVE-TO-RELAY EMERGENCY VALVE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 11, Item 1) from airbrake valve (Figure 11, Item 3).
2. Disconnect tube assembly (Figure 11, Item 1) from tee (Figure 11, Item 4) at relay emergency valve (Figure 11, Item 2). Remove tube assembly.
3. Connect tube assembly (Figure 11, Item 1) to tee (Figure 11, Item 4).
4. Connect tube assembly (Figure 11, Item 1) to airbrake valve (Figure 11, Item 3).



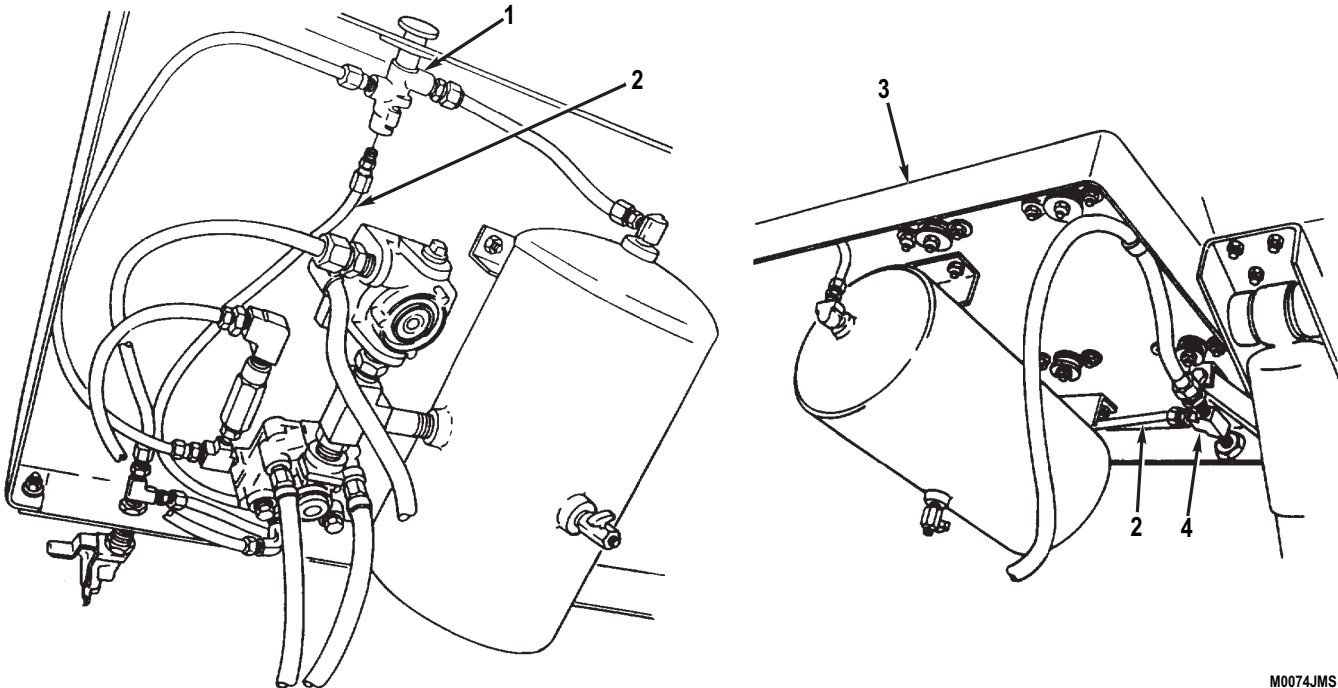
M0073JMS

Figure 11. Airbrake Valve-to-Relay Emergency Valve Tube Assembly Replacement.

END OF TASK

AIRBRAKE VALVE-TO-LEFT SIDE TEE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 12, Item 2) from airbrake valve (Figure 12, Item 1).
2. Disconnect tube assembly (Figure 12, Item 2) from tee (Figure 12, Item 4) on left side of pivoting tray (Figure 12, Item 3). Remove tube assembly.
3. Connect tube assembly (Figure 12, Item 2) to tee (Figure 12, Item 4).
4. Connect tube assembly (Figure 12, Item 2) to airbrake valve (Figure 12, Item 1).



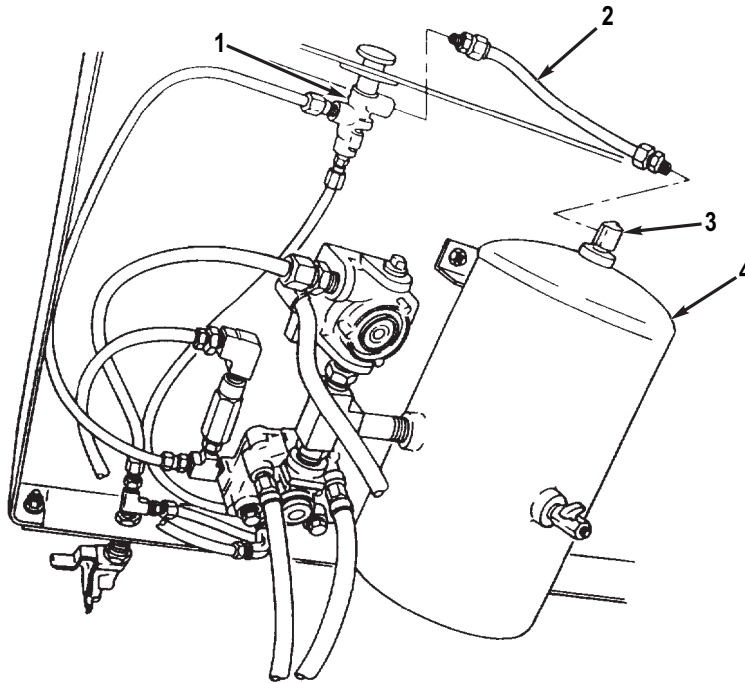
M0074JMS

Figure 12. Airbrake Valve-to-Left Side Tee Tube Assembly Replacement.

END OF TASK

AIRBRAKE VALVE-TO-AIR RESERVOIR TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 13, Item 2) from airbrake valve (Figure 13, Item 1).
2. Disconnect tube assembly (Figure 13, Item 2) from elbow (Figure 13, Item 3) at air reservoir (Figure 13, Item 4). Remove tube assembly.
3. If damaged, remove elbow (Figure 13, Item 3) from air reservoir (Figure 13, Item 4).
4. If removed, install elbow (Figure 13, Item 3) on air reservoir (Figure 13, Item 4).
5. Connect tube assembly (Figure 13, Item 2) to elbow (Figure 13, Item 3).
6. Connect tube assembly (Figure 13, Item 2) to airbrake valve (Figure 13, Item 1).



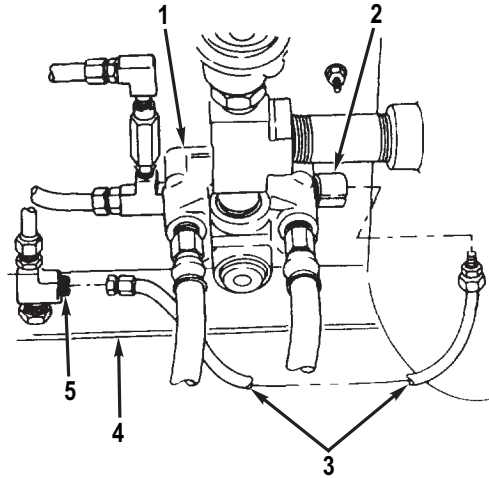
M0075JMS

Figure 13. Airbrake Valve-to-Air Reservoir Tube Assembly Replacement.

END OF TASK

RELAY EMERGENCY VALVE-TO-RIGHT SIDE TEE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 14, Item 3) from elbow (Figure 14, Item 2) at top rear of relay emergency valve (Figure 14, Item 1).
2. Disconnect tube assembly (Figure 14, Item 3) from tee (Figure 14, Item 5) on right side of pivoting tray (Figure 14, Item 4). Remove tube assembly.
3. Connect tube assembly (Figure 14, Item 3) to tee (Figure 14, Item 5).
4. Connect tube assembly (Figure 14, Item 3) to elbow (Figure 14, Item 2).



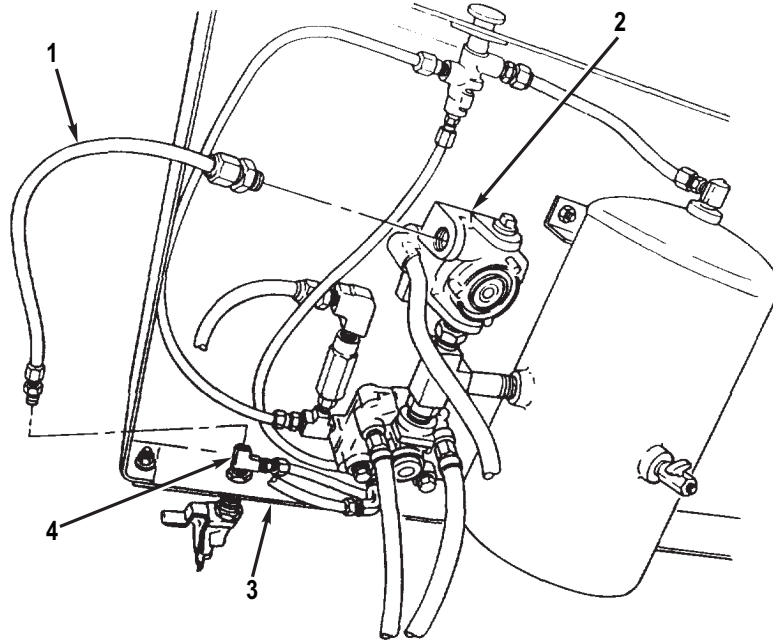
M0076JMS

Figure 14. Relay Emergency Valve-to-Right Side Tee Tube Assembly Replacement.

END OF TASK

BOOSTER RELAY VALVE-TO-RIGHT SIDE TEE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 15, Item 1) from booster relay valve (Figure 15, Item 2).
2. Disconnect tube assembly (Figure 15, Item 1) from tee (Figure 15, Item 4) on right side of pivoting tray (Figure 15, Item 3). Remove tube assembly.
3. Connect tube assembly (Figure 15, Item 1) to tee (Figure 15, Item 4).
4. Connect tube assembly (Figure 15, Item 1) to booster relay valve (Figure 15, Item 2).



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Figure 15. Booster Relay Valve-to-Right Side Tee Tube Assembly Replacement.

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE REAR DOLLY AIR LINES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0128

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Antiseize, 1/2 in. width (WP 0197, Table 1, Item 50)

Equipment Condition

Wheels chocked
Air reservoir drained (WP 0029)

NOTE

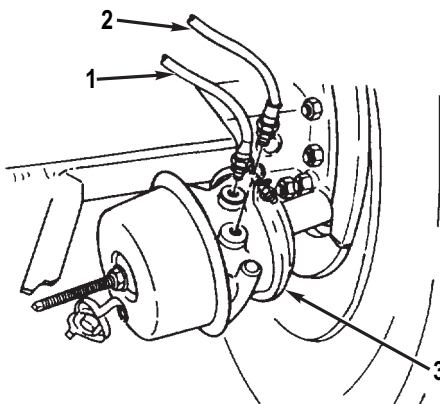
- All air lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).
- Before connection, male threads of fittings should be coated with antiseize tape if not already factory-coated with an antiseize compound.

FULL FUNCTION VALVE-TO-AIRBRAKE CHAMBER HOSE ASSEMBLIES REPLACEMENT

CAUTION

DO NOT overtighten fittings at full function valve or damage to full function valve will occur.

1. Disconnect hose assembly (Figure 1, Item 1) from airbrake chamber (Figure 1, Item 3).
2. Disconnect hose assembly (Figure 1, Item 2) from airbrake chamber (Figure 1, Item 3).



M0078JMS

Figure 1. Full Function Valve-to-Airbrake Chamber Hose Assemblies Removal.

FULL FUNCTION VALVE-TO-AIRBRAKE CHAMBER HOSE ASSEMBLIES REPLACEMENT - Continued

3. Remove spring (Figure 2, Item 4) from eyebolt (Figure 2, Item 5).
4. Remove nut (Figure 2, Item 7) from eyebolt (Figure 2, Item 5) and separate hose clamp (Figure 2, Item 8). Release hose assemblies (Figure 2, Items 6 and 3).
5. Disconnect hose assembly (Figure 2, Item 6) from full function valve (Figure 2, Item 1). Remove hose assembly.
6. Disconnect hose assembly (Figure 2, Item 3) from elbow (Figure 2, Item 2) at full function valve (Figure 2, Item 1). Remove hose assembly.

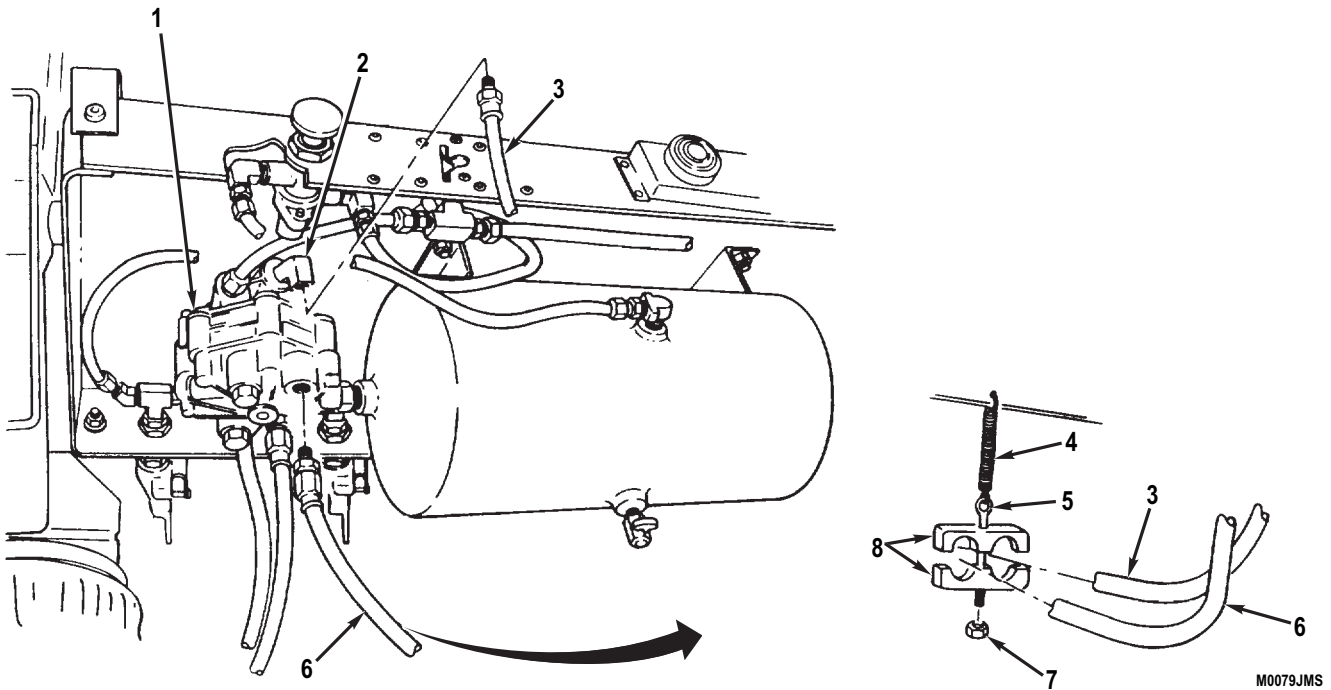
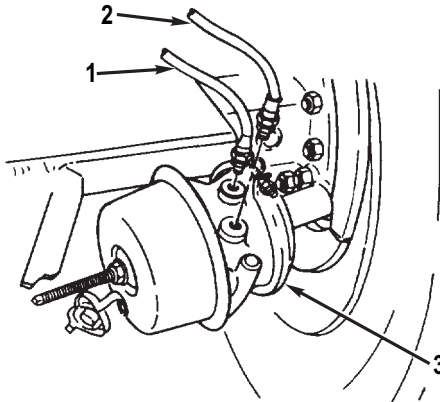


Figure 2. Full Function Valve-to-Airbrake Chamber Hose Assemblies Replacement.

7. Connect hose assembly (Figure 2, Item 3) to elbow (Figure 2, Item 2).
8. Connect hose assembly (Figure 2, Item 6) to full function valve (Figure 2, Item 1).
9. Install hose assemblies (Figure 2, Items 6 and 3) in hose clamp (Figure 2, Item 8) and secure with eyebolt (Figure 2, Item 5) and nut (Figure 2, Item 7).
10. Install spring (Figure 2, Item 4) on eyebolt (Figure 2, Item 5).

FULL FUNCTION VALVE-TO-AIRBRAKE CHAMBER HOSE ASSEMBLIES REPLACEMENT - Continued

11. Connect hose assembly (Figure 3, Item 2) to airbrake chamber (Figure 3, Item 3).
12. Connect hose assembly (Figure 3, Item 1) to airbrake chamber (Figure 3, Item 3).



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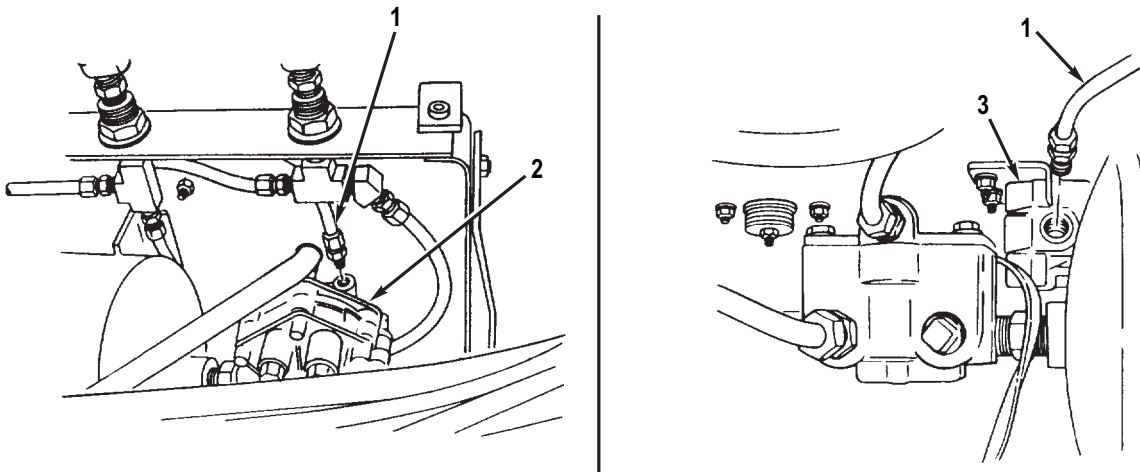
Figure 3. Full Function Valve-to-Airbrake Chamber Hose Assemblies Installation.

END OF TASK

FULL FUNCTION VALVE-TO-RELAY VALVE TUBE ASSEMBLY REPLACEMENT**CAUTION**

DO NOT overtighten fittings at full function valve and relay valve or damage to full function valve and relay valve will occur.

1. Disconnect tube assembly (Figure 4, Item 1) from full function valve (Figure 4, Item 2).
2. Disconnect tube assembly (Figure 4, Item 1) from relay valve (Figure 4, Item 3). Remove tube assembly.
3. Connect tube assembly (Figure 4, Item 1) to relay valve (Figure 4, Item 3).
4. Connect tube assembly (Figure 4, Item 1) to full function valve (Figure 4, Item 2).



M0080JMS

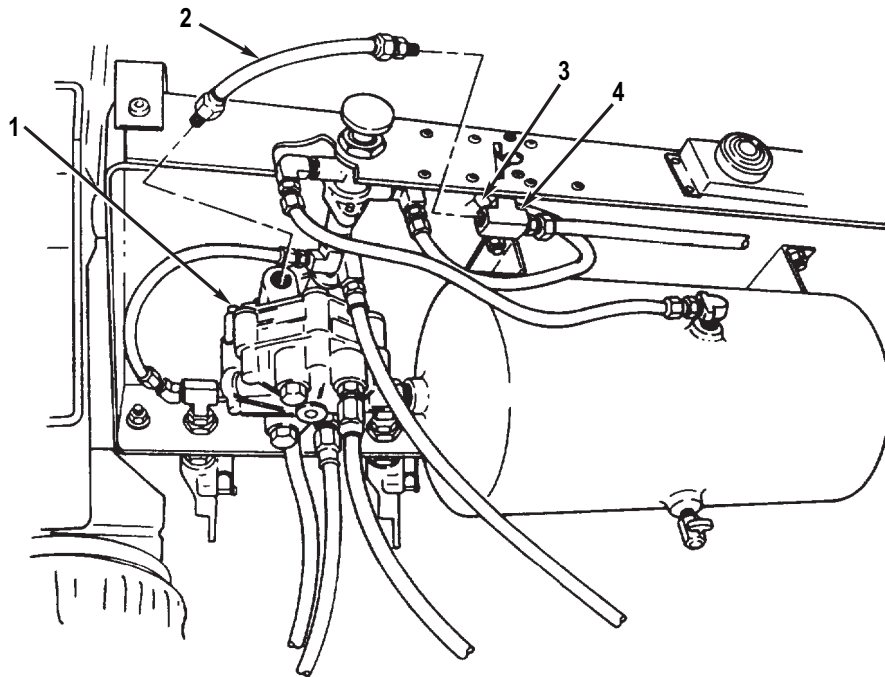
Figure 4. Full Function Valve-to-Relay Valve Tube Assembly Replacement.

END OF TASK

FULL FUNCTION VALVE-TO-PARKING BRAKE VALVE TUBE ASSEMBLY REPLACEMENT**CAUTION**

DO NOT overtighten fittings at full function valve and parking brake valve or damage to full function valve and parking brake valve will occur.

1. Disconnect tube assembly (Figure 5, Item 2) from tee (Figure 5, Item 4) at parking brake valve (Figure 5, Item 3).
2. Disconnect tube assembly (Figure 5, Item 2) from full function valve (Figure 5, Item 1). Remove tube assembly.
3. Connect tube assembly (Figure 5, Item 2) to full function valve (Figure 5, Item 1).
4. Connect tube assembly (Figure 5, Item 2) to tee (Figure 5, Item 4).



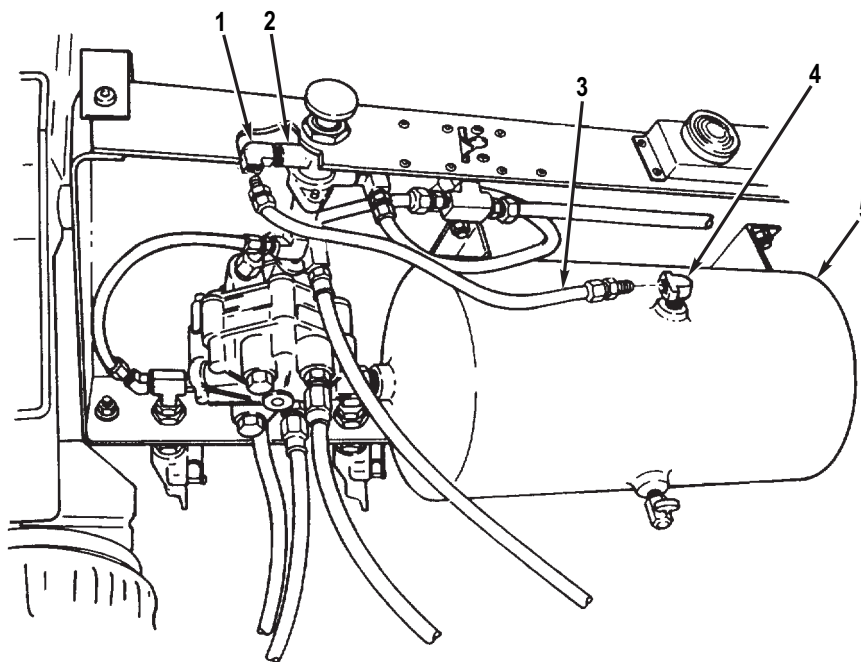
M0081JMS

Figure 5. Full Function Valve-to-Parking Brake Valve Tube Assembly Replacement.

END OF TASK

AIRBRAKE VALVE-TO-AIR RESERVOIR TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 6, Item 3) from elbow (Figure 6, Item 1) at airbrake valve (Figure 6, Item 2).
2. Disconnect tube assembly (Figure 6, Item 3) from elbow (Figure 6, Item 4) at air reservoir (Figure 6, Item 5). Remove tube assembly.
3. If damaged, remove elbow (Figure 6, Item 4) from air reservoir (Figure 6, Item 5).



M0082JMS

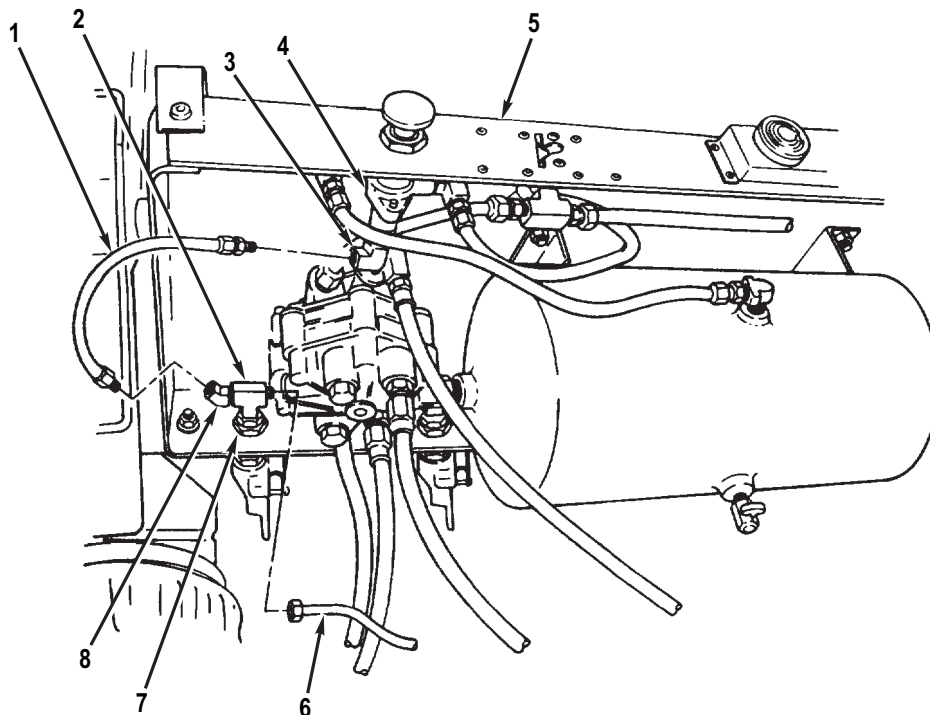
Figure 6. Airbrake Valve-to-Air Reservoir Tube Assembly Replacement.

4. If removed, install elbow (Figure 6, Item 4) on air reservoir (Figure 6, Item 5).
5. Connect tube assembly (Figure 6, Item 3) to elbow (Figure 6, Item 4).
6. Connect tube assembly (Figure 6, Item 3) to elbow (Figure 6, Item 1).

END OF TASK

AIRBRAKE VALVE-TO-TEE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 7, Item 1) from elbow (Figure 7, Item 8) on left side of pivoting tray (Figure 7, Item 5).
2. Disconnect tube assembly (Figure 7, Item 1) from elbow (Figure 7, Item 3) at airbrake valve (Figure 7, Item 4). Remove tube assembly.
3. If tee (Figure 7, Item 2) is damaged, disconnect tube assembly (Figure 7, Item 6) from tee. Remove elbow (Figure 7, Item 8) and tee from anchor coupling (Figure 7, Item 7).



M0083JMS

Figure 7. Airbrake Valve-to-Tee Tube Assembly Replacement.

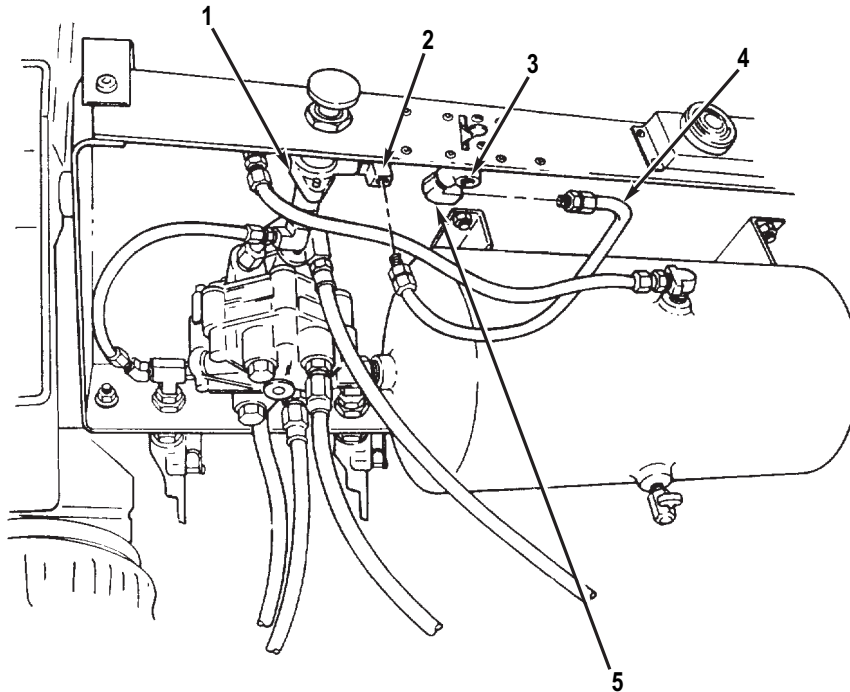
4. If removed, install tee (Figure 7, Item 2) and elbow (Figure 7, Item 8) to anchor coupling (Figure 7, Item 7). Connect tube assembly (Figure 7, Item 8) to tee.
5. Connect tube assembly (Figure 7, Item 1) to elbow (Figure 7, Item 3).
6. Connect tube assembly (Figure 7, Item 1) to elbow (Figure 7, Item 8).

END OF TASK

AIRBRAKE VALVE-TO-PARKING BRAKE VALVE TUBE ASSEMBLY REPLACEMENT**CAUTION**

DO NOT overtighten fittings at parking brake valve or damage to parking brake valve will occur.

1. Disconnect tube assembly (Figure 8, Item 4) from elbow (Figure 8, Item 2) at airbrake valve (Figure 8, Item 1).
2. Disconnect tube assembly (Figure 8, Item 4) from elbow (Figure 8, Item 5) at parking brake valve (Figure 8, Item 3). Remove tube assembly.



M0084JMS

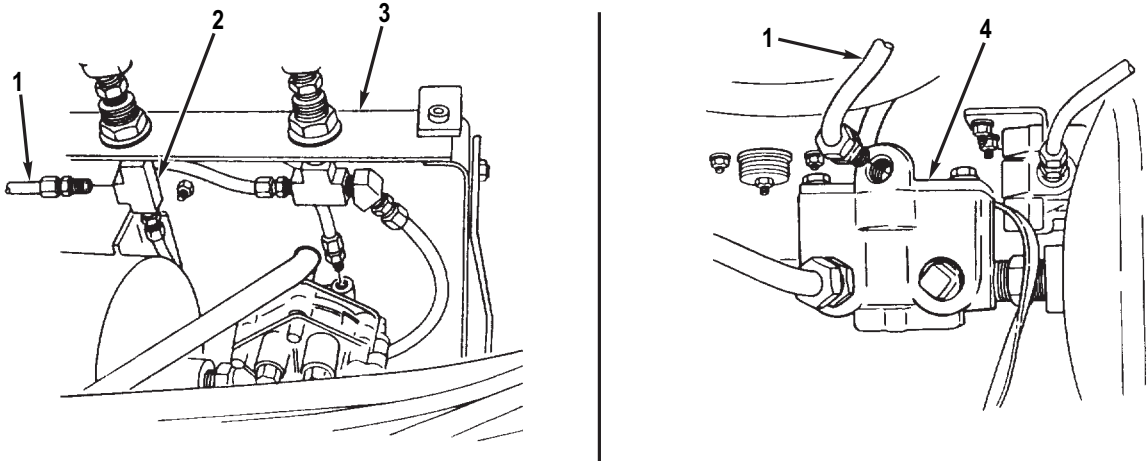
Figure 8. Airbrake Valve-to-Parking Brake Valve Tube Assembly Replacement.

3. Connect tube assembly (Figure 8, Item 4) to elbow (Figure 8, Item 5).
4. Connect tube assembly (Figure 8, Item 4) to elbow (Figure 8, Item 2).

END OF TASK

BOOSTER RELAY VALVE-TO-TEE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 9, Item 1) from tee (Figure 9, Item 2) at pivoting tray (Figure 9, Item 3).
2. Disconnect tube assembly (Figure 9, Item 1) from booster relay valve (Figure 9, Item 4). Remove tube assembly.



M0085JMS

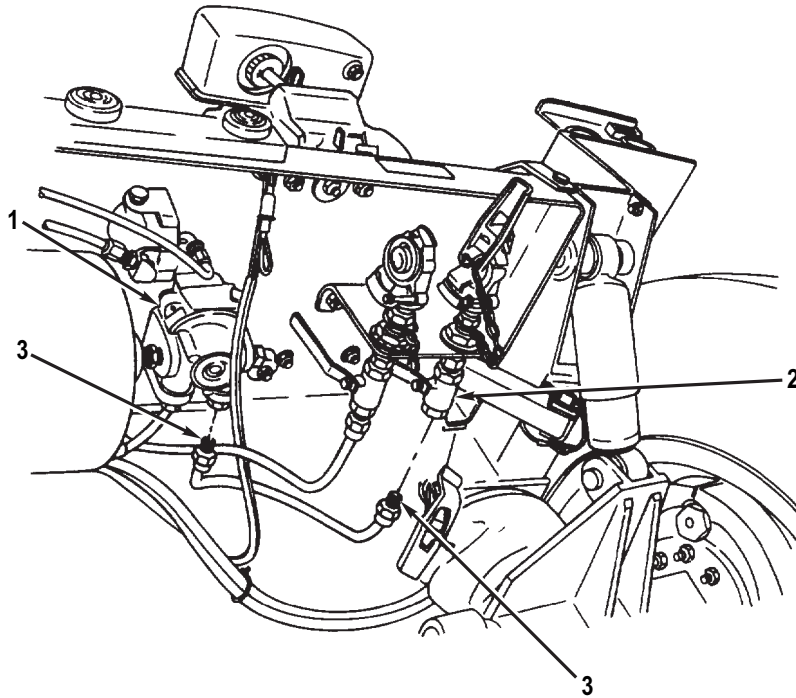
Figure 9. Booster Relay Valve-to-Tee Tube Assembly Replacement.

3. Connect tube assembly (Figure 9, Item 1) to booster relay valve (Figure 9, Item 4).
4. Connect tube assembly (Figure 9, Item 1) to tee (Figure 9, Item 2).

END OF TASK

BOOSTER RELAY VALVE-TO-RIGHT SIDE (SERVICE) SHUTOFF VALVE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 10, Item 3) from booster relay valve (Figure 10, Item 1).
2. Disconnect tube assembly (Figure 10, Item 3) from right side (service) shutoff valve (Figure 10, Item 2). Remove tube assembly.



M0086JMS

Figure 10. Booster Relay Valve-to-Service Shutoff Valve Tube Assembly Replacement.

3. Connect tube assembly (Figure 10, Item 3) to right side (service) shutoff valve (Figure 10, Item 2).
4. Connect tube assembly (Figure 10, Item 3) to booster relay valve (Figure 10, Item 1).

END OF TASK

LEFT SIDE (EMERGENCY) SHUTOFF VALVE-TO-TEE TUBE ASSEMBLY REPLACEMENT

1. Disconnect tube assembly (Figure 11, Item 3) from tee (Figure 11, Item 4) on left side of pivoting tray (Figure 11, Item 1).
2. Disconnect tube assembly (Figure 11, Item 3) from left side (emergency) shutoff valve (Figure 11, Item 2). Remove tube assembly.

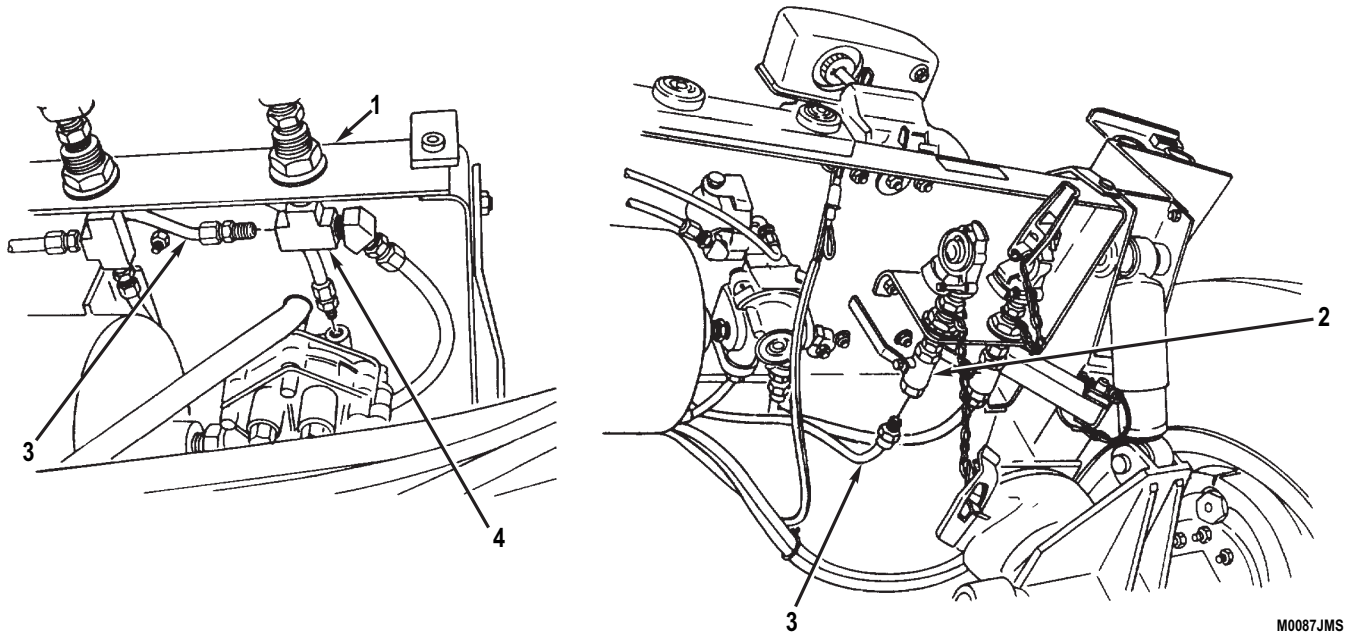


Figure 11. Emergency Shutoff Valve-to-Tee Tube Assembly Replacement.

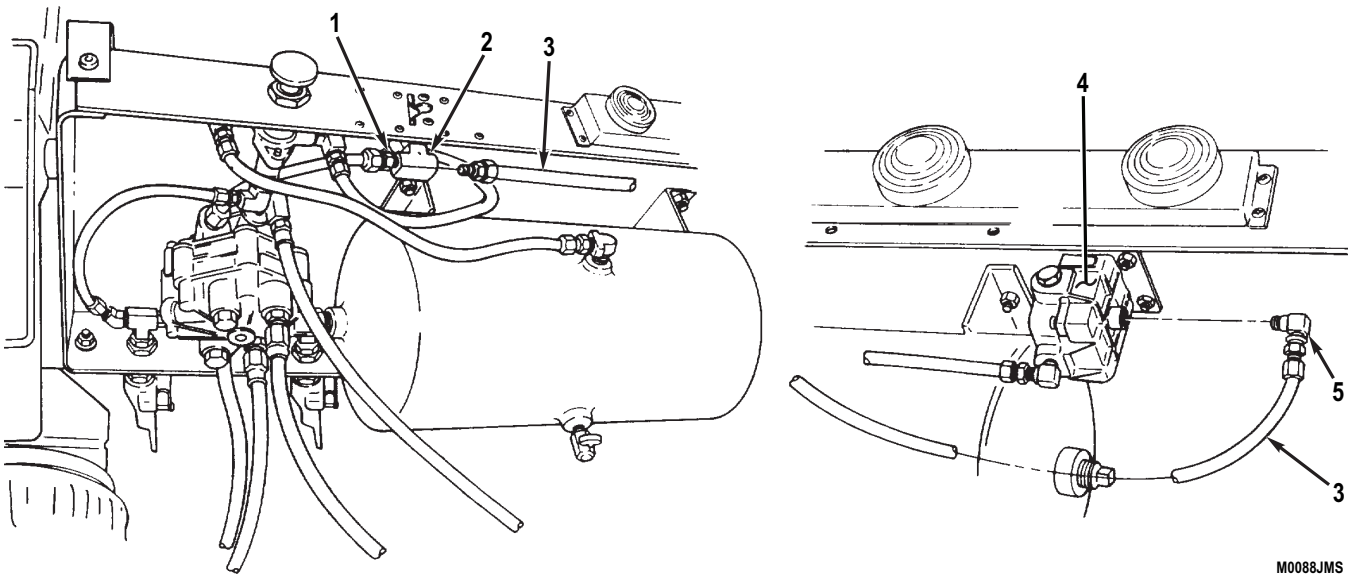
3. Connect tube assembly (Figure 11, Item 3) to left side (emergency) shutoff valve (Figure 11, Item 2).
4. Connect tube assembly (Figure 11, Item 3) to tee (Figure 11, Item 4).

END OF TASK

RELAY VALVE-TO-PARKING BRAKE VALVE TUBE ASSEMBLY REPLACEMENT**CAUTION**

DO NOT overtighten fittings at relay valve and parking brake valve or damage to relay valve and parking brake valve will occur.

1. Disconnect tube assembly (Figure 12, Item 3) from tee (Figure 12, Item 2) at parking brake valve (Figure 12, Item 1).
2. Disconnect tube assembly (Figure 12, Item 3) from elbow (Figure 12, Item 5) at relay valve (Figure 12, Item 4). Remove tube assembly.



M0088JMS

Figure 12. Relay Valve-to-Parking Brake Valve Tube Assembly Replacement.

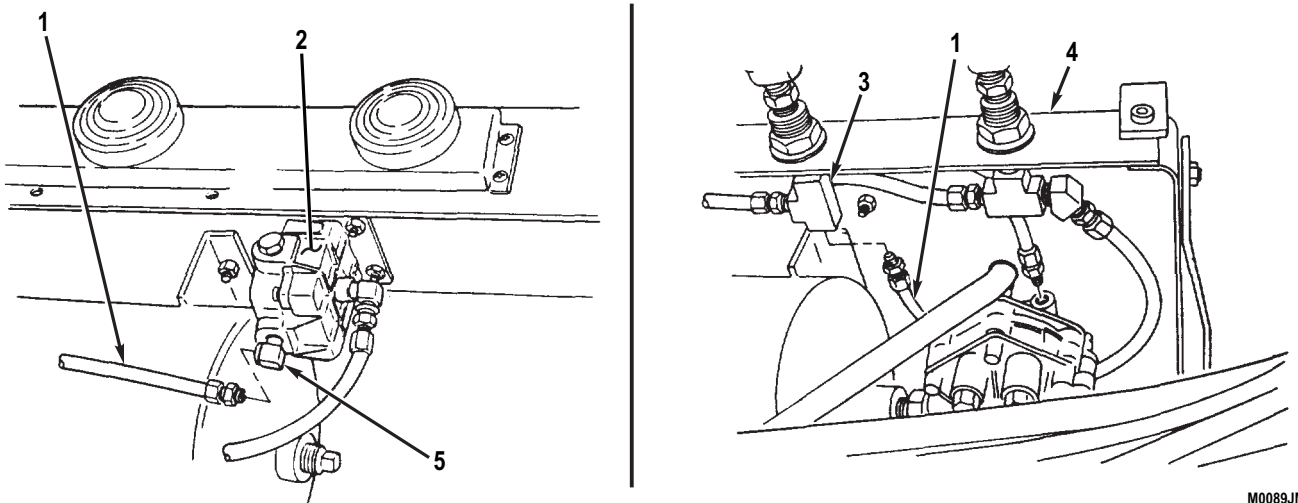
3. Connect tube assembly (Figure 12, Item 3) to elbow (Figure 12, Item 5).
4. Connect tube assembly (Figure 12, Item 3) to tee (Figure 12, Item 2).

END OF TASK

RELAY VALVE-TO-TEE TUBE ASSEMBLY REPLACEMENT**CAUTION**

DO NOT overtighten fittings at relay valve or damage to relay valve will occur.

1. Disconnect tube assembly (Figure 13, Item 1) from elbow (Figure 13, Item 5) at relay valve (Figure 13, Item 2).
2. Disconnect tube assembly (Figure 13, Item 1) from tee (Figure 13, Item 3) at front of pivoting tray (Figure 13, Item 4). Remove tube assembly.



M0089JMS

Figure 13. Relay Valve-to-Tee Tube Assembly Replacement.

3. Connect tube assembly (Figure 13, Item 1) to tee (Figure 13, Item 3).
4. Connect tube assembly (Figure 13, Item 1) to elbow (Figure 13, Item 5).

END OF TASK**FOLLOW-ON TASKS**

1. Close air reservoir draincock (WP 0029).
2. Connect intervehicular air hoses (WP 0007).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
WHEEL ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Jack, Bottle, Hydraulic: 12 ton (WP 0198, Table 1, Item 16)
Suitable lifting device
Trestle, Motor Vehicle Maintenance: 7 ton capacity (WP 0198, Table 1, Item 31)
Truck, Lift, Wheel (WP 0198, Table 1, Item 33)

Tools and Special Tools (cont.)

Wrench Set, Socket: 3/4 in. drive (WP 0198, Table 1, Item 40)
Wrench, Torque: 3/4 in. drive, 0-600 lb-ft. capacity (WP 0198, Table 1, Item 44)

Personnel Required

(Two)

References

WP 0005

Equipment Condition

Parking brake lever set to ON position (WP 0004)

WARNING

Wheel assembly weighs 200 lb (91 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

- Earlier model dolly set wheel assemblies have tubes. Later model dolly set wheel assemblies are tubeless. DO NOT mix tubed and tubeless tires on the same vehicle.
- Tires of the same manufacturer should be used on the same axle. If a replacement tire is of a different manufacturer than the other tire on the same axle, it is recommended that the other tire also be changed

REMOVAL**NOTE**

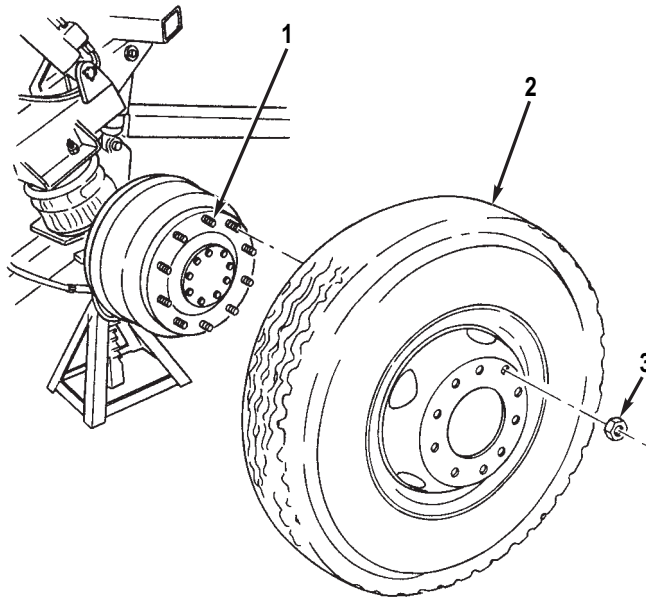
Towing vehicle tire changing tools may be used.

1. Chock wheel assembly on unaffected side.
2. Loosen ten wheel nuts (Figure 1, Item 3).

NOTE

Dolly set hydraulic control valve may be operated to raise wheel assembly off ground (Operation Under Usual Conditions (WP 0005)).

3. Raise dolly set until wheel assembly (Figure 1, Item 2) is off ground. Support with a trestle.
4. Remove ten wheel nuts (Figure 1, Item 3) and wheel assembly (Figure 1, Item 2) from studs (Figure 1, Item 1).



M0093JMS

Figure 1. Wheel Assembly Replacement.

END OF TASK

INSTALLATION

1. Install wheel assembly (Figure 1, Item 2) on studs (Figure 1, Item 1).

WARNING

Wheel nuts are left-hand and right-hand threaded. Left-hand wheel nuts must be installed on left-hand studs (left side of dolly). Right-hand wheel nuts must be installed on right-hand studs (right side of dolly). Failure to follow this warning may cause wheel nuts to loosen when dolly set is towed. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

2. Install ten wheel nuts (Figure 1, Item 3) on studs (Figure 1, Item 1) and tighten until snug.

NOTE

Dolly set hydraulic control valve may be operated to lower wheel assembly to ground (Operation Under Usual Conditions (WP 0005)).

3. Lower dolly set until wheel assembly (Figure 1, Item 2) is on ground.
4. Evenly tighten ten wheel nuts (Figure 1, Item 3) using a crisscross pattern. Tighten wheel nuts in same crisscross pattern to 450-500 lb-ft (610-678 N•m).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
HUB, BRAKEDRUM, AND WHEEL BEARINGS MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Caliper, Micrometer, Inside (WP 0198, Table 1, Item 3)
Wrench Set, Socket: 3/4 in. drive, wheel-bearing (WP 0198, Table 1, Item 39)
Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)
Suitable lifting device

Materials/Parts

Cloth: Abrasive, Crocus (WP 0197, Table 1, Item 6)
Grease: Aircraft, WTR (WP 0197, Table 1, Item 26)
Rag: Wiping, (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

Materials/Parts (cont.)

Lockwasher (WP 0148, Item 3) Qty: 8
O-ring (WP 0148, Item 5) Qty: 1
Seal (WP 0148, Item 13) Qty: 1

Personnel Required

(Two)

References

TM 9-214
WP 0054
WP 0056
WP 0128

Equipment Condition

Brakes caged (rear dolly) (WP 0053)
Wheel assembly removed (WP 0071)

REMOVAL

1. Remove eight screws (Figure 1, Item 1) lockwashers (Figure 1, Item 2), cover plate (Figure 1, Item 3), and O-ring (Figure 1, Item 4) from hub (Figure 1, Item 15). Discard lockwashers and O-ring.

NOTE

Lockwasher may be reused if not damaged.

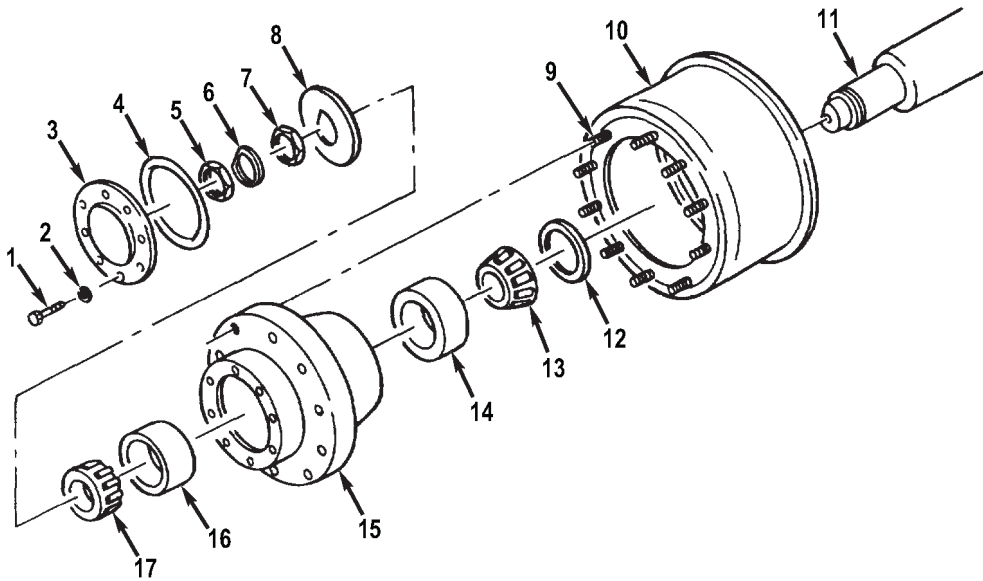
2. Remove outer nut (Figure 1, Item 5) lockwasher (Figure 1, Item 6), inner nut (Figure 1, Item 7) and washer (Figure 1, Item 8) from spindle (Figure 1, Item 11). Discard lockwasher if damaged.

WARNING

Hub and brakedrum assembly weighs 350 lb (159 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

3. Remove hub (Figure 1, Item 15) and brakedrum (Figure 1, Item 10), as an assembly, and remove outer bearing cone (Figure 1, Item 17) from spindle (Figure 1, Item 11).
4. Remove seal (Figure 1, Item 12) and inner bearing cone (Figure 1, Item 13) from hub (Figure 1, Item 15). Discard seal.
5. Remove inner and outer bearing cups (Figure 1, Items 14 and 16) from hub (Figure 1, Item 15).
6. Remove ten studs (Figure 1, Item 9) and separate hub (Figure 1, Item 15) and brakedrum (Figure 1, Item 10).

REMOVAL - Continued



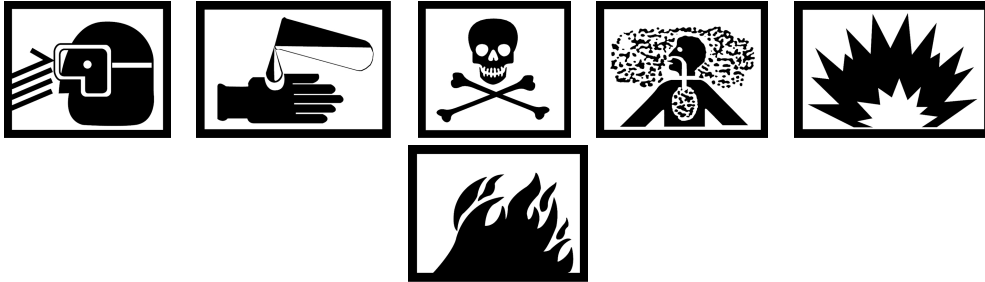
M0090JMS

Figure 1. Hub, Brakedrum, and Wheel Bearing Removal.

END OF TASK

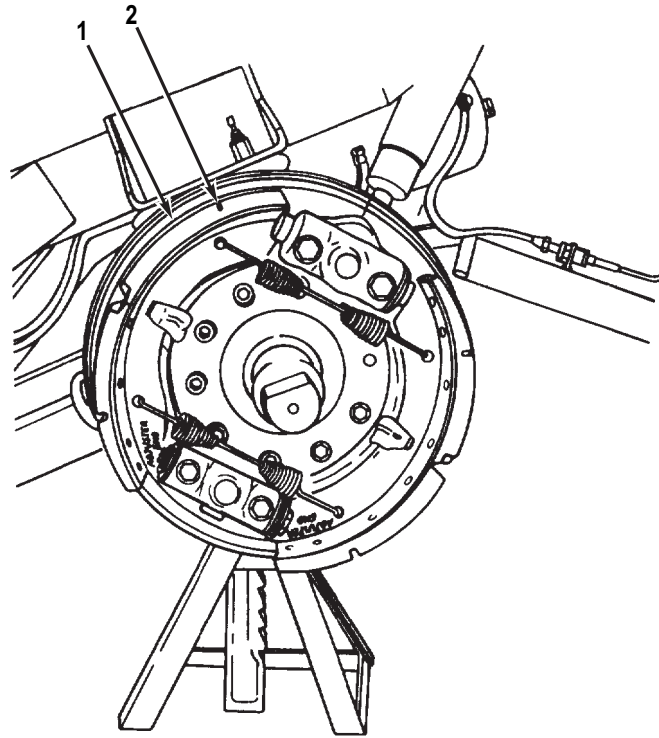
CLEANING AND INSPECTION

WARNING



- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
1. Clean and inspect bearing cones and bearing cups IAW TM 9-214. If any bearing cone or bearing cup is damaged, all bearing cones and bearing cups must be replaced.
 2. Clean all other components and spindle with cleaning solvent and dry with a clean rag IAW General Maintenance Instructions (WP 0128).
 3. Inspect brakeshoes (Figure 2, Item 1) for cracks, looseness of linings or rivets, and wear IAW General Maintenance Instructions (WP 0128). If linings are worn flat on wear notch (Figure 2, Item 2) in middle of lining, a thickness equal to or less than 5/8 in. (7.94 mm), replace brakeshoes (Brakeshoe Replacement (WP 0054)).
 4. Inspect hub for cracks, breaks, or damage. Replace damaged hub.
 5. Inspect spindle for burrs. Remove burrs with crocus cloth, clean with cleaning solvent, and dry with a clean rag.

CLEANING AND INSPECTION - Continued



M0091JMS

Figure 2. Hub, Brakedrum, and Wheel Bearing Inspection.

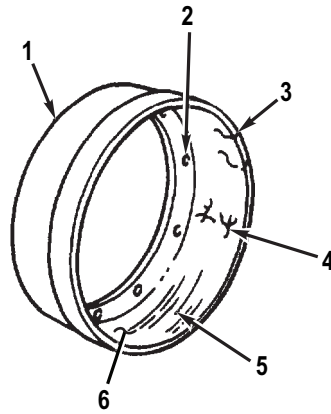
CLEANING AND INSPECTION - Continued

6. Measure inside diameter of brakedrum (Figure 3, Item 1). Replace brakedrum if inside diameter exceeds 15.12 in. (38.40 cm).
7. Inspect stud holes (Figure 3, Item 2) for cracks. Replace brakedrum (Figure 3, Item 1) if cracks are present.

WARNING

DO NOT use a brakedrum that exceeds maximum wear specifications. Failure to follow this warning may result in brake failure and serious injury or death to personnel. Seek medical attention in the event of an injury.

8. Inspect braking surface (Figure 3, Item 6) for cracks (Figure 3, Item 3), heat checking (Figure 3, Item 4), and scoring (Figure 3, Item 5). Replace brakedrum if damaged.

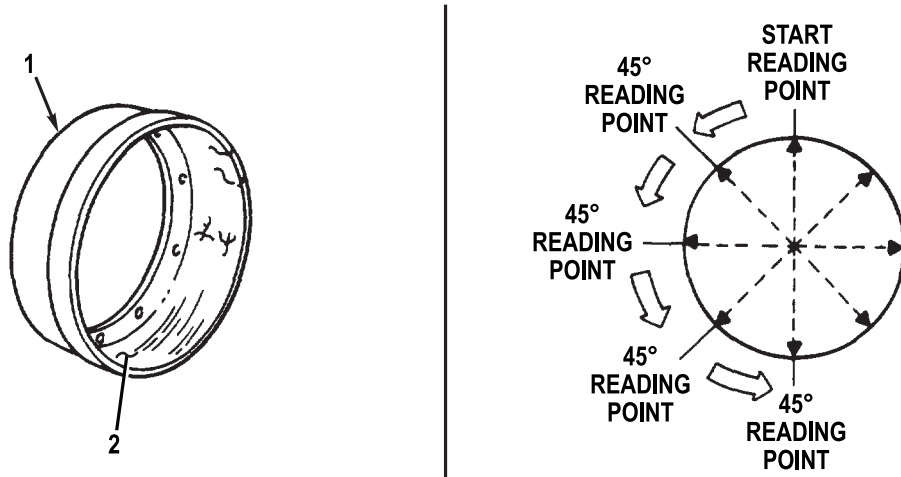


M0234JMS

Figure 3. Brakedrum Inspection for Damage.

CLEANING AND INSPECTION - Continued

9. Measure braking surface (Figure 4, Item 2) for out-of-round at 45 degree intervals. Out-of-round should not exceed 0.006 in. (0.152 mm). If runout exceeds specification, replace brakedrum (Figure 4, Item 1).



M0235JMS

Figure 4. Brakedrum Inspection for Out-of-Round.

END OF TASK

INSTALLATION

1. Install inner and outer bearing cups (Figure 5, Items 8 and 10) squarely onto hub (Figure 5, Item 9) until flush against shoulder.

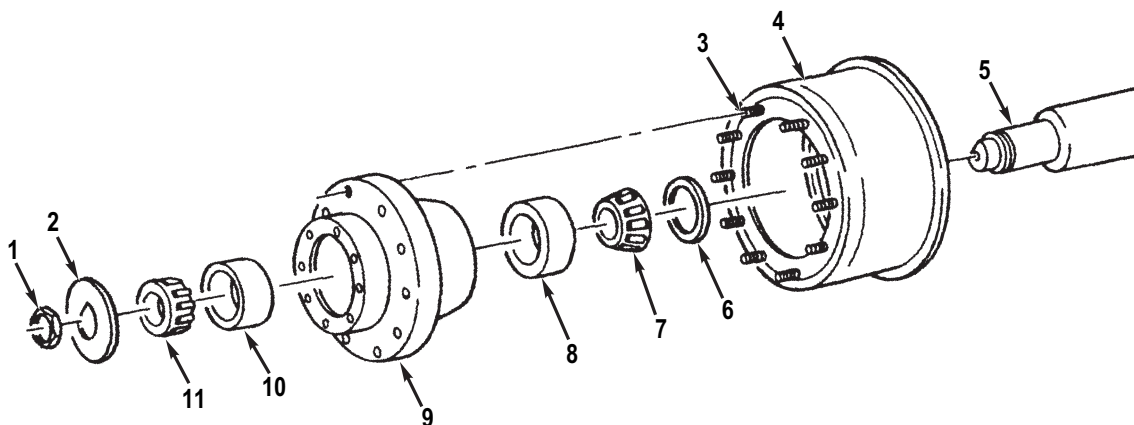
WARNING

- Hub and brakedrum assembly weighs 350 lb (159 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. If injury occurs, seek medical attention.
 - Studs are marked LEFT-HAND and RIGHT-HAND. Left-hand studs must be installed on brakedrums on left side of dolly. Right-hand studs must be installed on brakedrums on right side of dolly. Failure to follow this warning may cause lugnuts to loosen when dolly set is towed. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.
2. Assemble hub (Figure 5, Item 9) and brakedrum (Figure 5, Item 4) with ten studs (Figure 5, Item 3).
 3. Pack inner bearing cone (Figure 5, Item 7) with grease and install in hub (Figure 5, Item 9). Install new seal (Figure 5, Item 6).

CAUTION

Use caution not to damage seal.

4. Install hub (Figure 5, Item 9) and brakedrum (Figure 5, Item 4) on spindle (Figure 5, Item 5).
5. Pack outer bearing cone (Figure 5, Item 11) with grease and install on spindle (Figure 5, Item 5).
6. Install washer (Figure 5, Item 2) and inner nut (Figure 5, Item 1) on spindle (Figure 5, Item 5).



M0270JMS

Figure 5. Hub, Brakedrum, and Wheel Bearing Installation.

END OF TASK

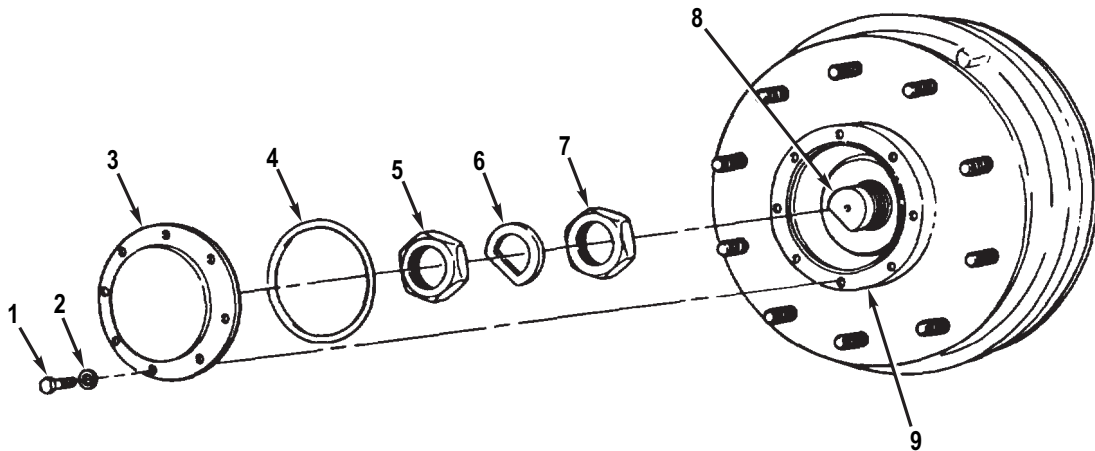
WHEEL BEARING ADJUSTMENT

1. Tighten inner nut (Figure 6, Item 7) while rotating wheel in both directions until wheel drags slightly. Back off inner nut until wheel spins freely and there is no looseness felt when wheel is rocked.

NOTE

If reusing lockwasher, ensure that it is flattened before installing.

2. Install lockwasher (Figure 6, Item 6) and outer nut (Figure 6, Item 5) on spindle (Figure 6, Item 8). Torque outer nut to 100 lb-ft (136 N•m).
3. Bend tab on lockwasher (Figure 6, Item 6) over inner nut (Figure 6, Item 7).
4. Install new O-ring (Figure 6, Item 4) in groove in hub (Figure 6, Item 9).
5. Install cover plate (Figure 6, Item 3), eight new lockwashers (Figure 6, Item 2), and screws (Figure 6, Item 1) on hub (Figure 6, Item 9).



M0092JMS

Figure 6. Wheel Bearing Adjustment.

END OF TASK**FOLLOW-ON TASKS**

1. Uncage brakes (rear dolly) (WP 0053).
2. Install wheel assembly (WP 0071).
3. Perform minor brake adjustment (WP 0056).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
TIE-ROD ASSEMBLY MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Tool Kit, SATS, Base (WP 0194, Table 2, Item 2)
Adapter, Socket Wrench: 3/8 in. to 1/2 in.
(WP 0198, Table 1, Item 1)
Crowfoot Attachment: 3/8 in. drive (WP 0198, Table 1, Item 5)
Tape, Measuring: 50 ft (WP 0198, Table 1, Item 28)
Vise, Machinist's (WP 0198, Table 1, Item 36)
Wrench, Adjustable: 0-3 5/8 in. jaw opening
(WP 0198, Table 1, Item 37)
Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity
(WP 0198, Table 1, Item 42)

Materials/Parts

Compound: Sealing, Thread-Locking (WP 0197, Table 1, Item 11)

Materials/Parts (cont.)

Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

References

WP 0028
WP 0128

Equipment Condition

Dolly set raised and parked on a level surface
(WP 0007)
Parking brake lever set to ON position (WP 0004)
Steering locking pin installed in steering link
(WP 0008)

REMOVAL

1. Remove circle cotter (Figure 1, Item 3), nut (Figure 1, Item 4), and washer (Figure 1, Item 5) from tie-rod end (Figure 1, Item 7) at steering knuckle assembly (Figure 1, Item 6).
2. Remove circle cotter (Figure 1, Item 2), nut (Figure 1, Item 1) and washer (Figure 1, Item 10) from tie-rod end (Figure 1, Item 8) at steering link (Figure 1, Item 9).
3. Remove tie-rod end (Figure 1, Item 7) from steering knuckle assembly (Figure 1, Item 6).
4. Remove tie-rod end (Figure 1, Item 8) from steering link (Figure 1, Item 9).

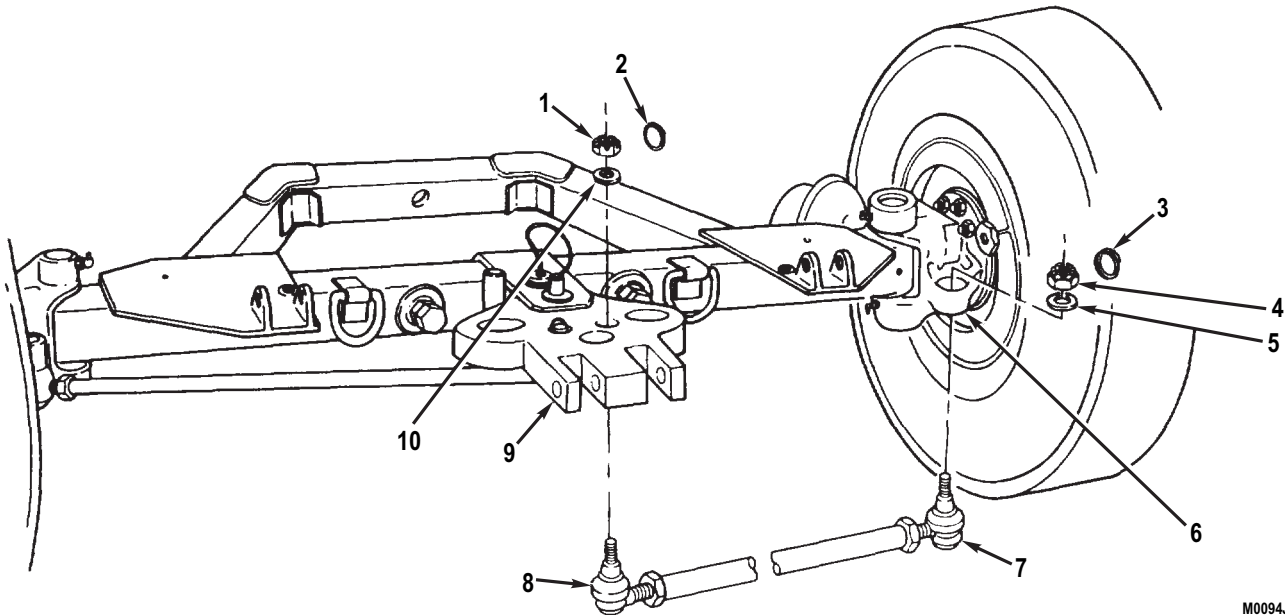


Figure 1. Tie-Rod Assembly Removal.

END OF TASK

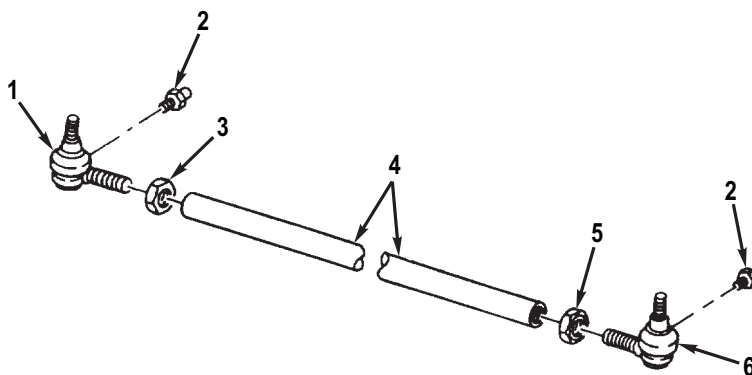
DISASSEMBLY

1. Secure tie-rod (Figure 2, Item 4) in a vise.
2. Remove two grease fittings (Figure 2, Item 2) from tie-rod ends (Figure 2, Items 1 and 6).

NOTE

Note number of threads showing on each tie-rod end to aid during assembly.

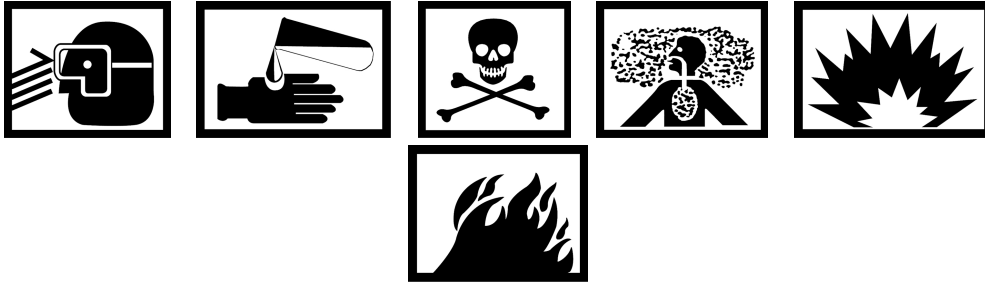
3. Remove tie-rod ends (Figure 2, Items 1 and 6) and jamnuts (Figure 2, Items 3 and 5) from tie-rod (Figure 2, Item 4).



M0095JMS

Figure 2. Tie-Rod Assembly Disassembly.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Clean all metal components with cleaning solvent and dry with a clean rag IAW General Maintenance Instructions (WP 0128).

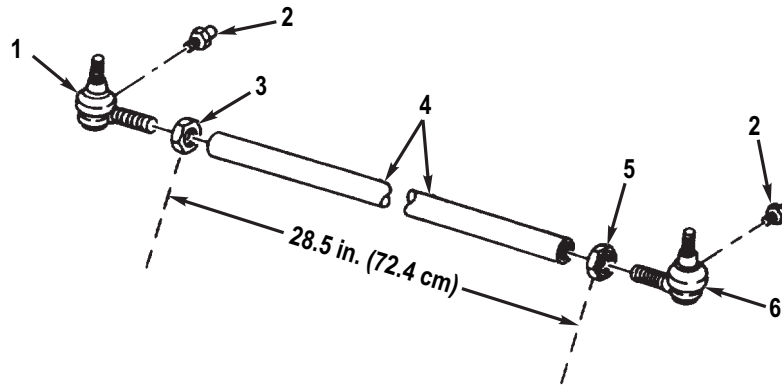
END OF TASK**INSPECTION**

1. Inspect tie-rod for bends, cracks, and damaged threads IAW General Maintenance Instructions (WP 0128). Replace damaged tie-rod.
2. Inspect tie-rod ends for cracks, excessive looseness or play, wear, and damaged threads IAW General Maintenance Instructions (WP 0128). Replace damaged tie-rod ends.

END OF TASK

ASSEMBLY

1. Secure tie-rod (Figure 3, Item 4) in a vise.
2. Install jamnuts (Figure 3, Items 3 and 5) and tie-rod ends (Figure 3, Items 1 and 6) on tie-rod (Figure 3, Item 4).
3. Adjust position of jamnuts (Figure 3, Items 3 and 5) on tie-rod ends (Figure 3, Items 1 and 6) as required to ensure that same number of threads are showing on tie-rod ends as noted during disassembly. When correctly assembled, tie-rod length from inner surface of jamnut (Figure 3, Item 3) to inner surface of jamnut (Figure 3, Item 5) should be 28.5 in. (72.4 cm).
4. Install two grease fittings (Figure 3, Item 2) on tie-rod ends (Figure 3, Items 1 and 6).



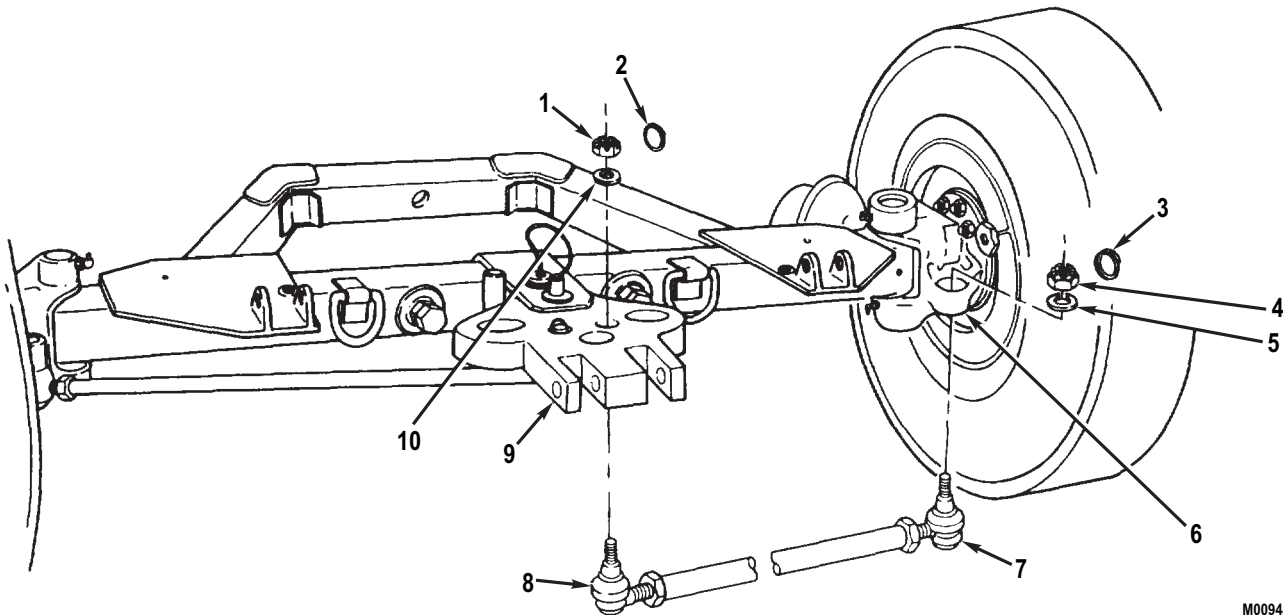
M0096JMS

Figure 3. Tie-Rod Assembly Assembly.

END OF TASK

INSTALLATION

1. Install tie-rod ends (Figure 4, Items 7 and 8) between steering knuckle assembly (Figure 4, Item 6) and steering link (Figure 4, Item 9) with grease fittings (Figure 3, Item 2) outboard from axle.
2. Install washer (Figure 4, Item 10) and nut (Figure 4, Item 1) on tie-rod end (Figure 4, Item 8). Torque nut to 80-110 lb-ft (108-149 N•m).
3. Install washer (Figure 4, Item 5) and nut (Figure 4, Item 4) on tie-rod end (Figure 4, Item 7). Torque nut to 80-110 lb-ft (108-149 N•m).
4. Install circle cotters (Figure 4, Items 2 and 3).



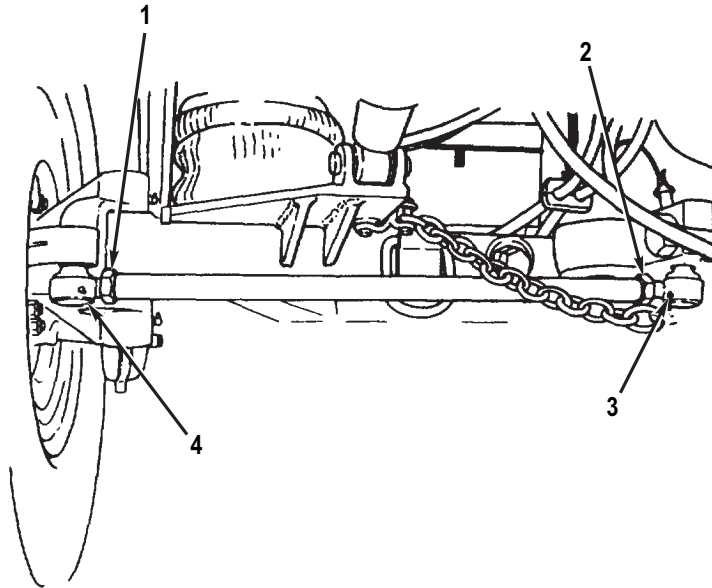
M0094JMS

Figure 4. Tie-Rod Assembly Installation.

END OF TASK

ALIGNMENT

1. Perform front axle alignment check (Field: Troubleshooting (WP 0022)).
2. If alignment is OK, loosen jamnuts (Figure 5, Items 1 and 2). Apply sealing compound to threads of jamnuts and tie-rod ends (Figure 5, Items 4 and 3). Tighten jamnuts and apply torque of 140 lb-ft (190 N•m).
3. If alignment is not OK, loosen jamnuts (Figure 5, Items 1 and 2). Adjust jamnut position on tie-rod ends (Figure 5, Items 3 and 4) as required. Repeat steps 1 and 2.

ALIGNMENT - Continued

M0097JMS

Figure 5. Tie-Rod Assembly Alignment.

END OF TASK**FOLLOW-ON TASKS**

1. Remove steering locking pin from steering link (WP 0008).
2. Lubricate tie-rod ends (WP 0028).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
STEERING LINK REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Suitable lifting device

Personnel Required

(Two)

References

WP 0028
WP 0128

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
Roll Pin (WP 0150, Item 4) Qty: 1
Sleeve (WP 0150, Item 7) Qty: 2

Equipment Condition

Front drawbar removed (WP 0051)
Tie-rod assemblies removed (WP 0073)

WARNING

Steering link weighs 110 lb (50 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

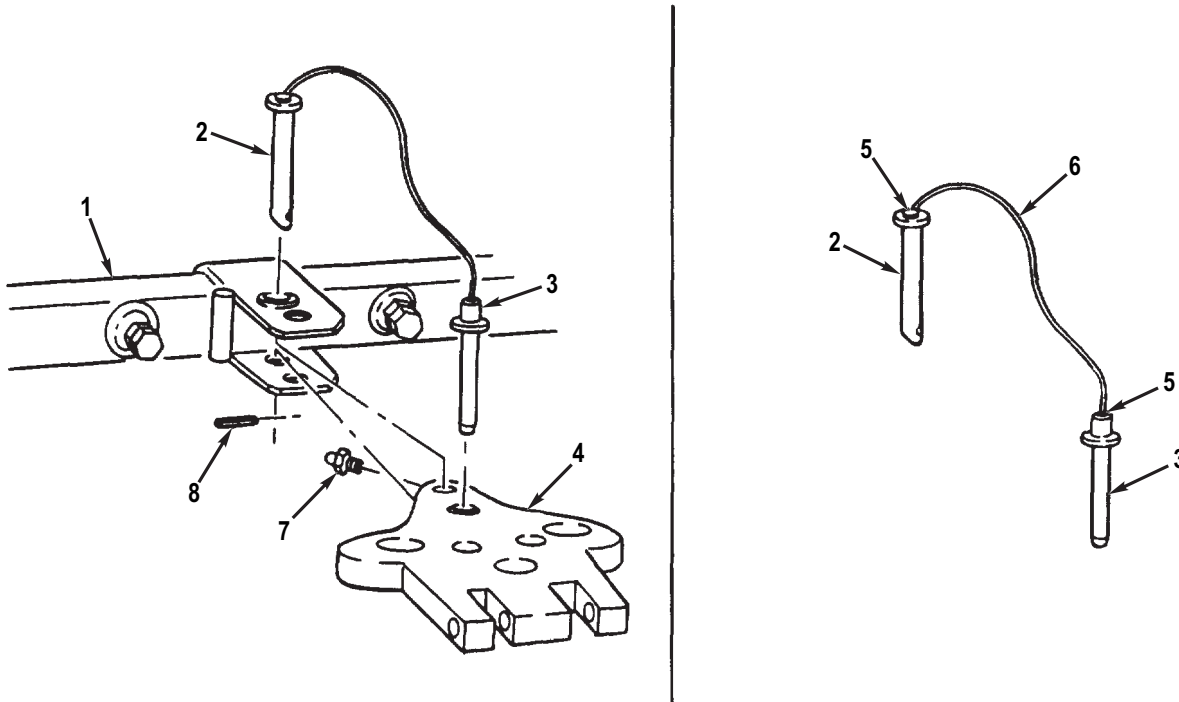
REMOVAL

1. Remove steering locking pin (Figure 1, Item 3) from front axle (Figure 1, Item 1) and steering link (Figure 1, Item 4).
2. Remove roll pin (Figure 1, Item 8), center pin (Figure 1, Item 2) and steering link (Figure 1, Item 4) from front axle (Figure 1, Item 1). Discard roll pin.
3. Remove grease fitting (Figure 1, Item 7) from steering link (Figure 1, Item 4).

NOTE

Perform step 4 to remove detent pin lanyard assembly from center pin and steering locking pin as required.

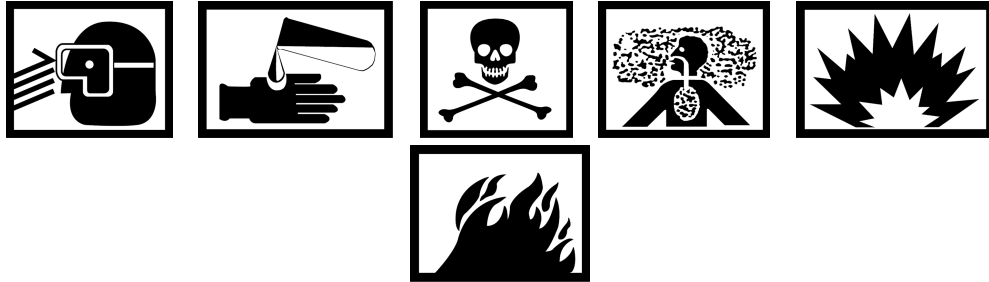
4. Cut lanyard cable (Figure 1, Item 6) from ends of center pin (Figure 1, Item 2) and steering locking pin (Figure 1, Item 3). Discard sleeves (Figure 1, Item 5).



M0098JMS

Figure 1. Steering Link Removal.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Clean steering link with cleaning solvent and dry with a clean rag IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSPECTION**

Inspect steering link for cracks, breaks, or damaged bushing surfaces IAW General Maintenance Instructions (WP 0128). Replace damaged steering link.

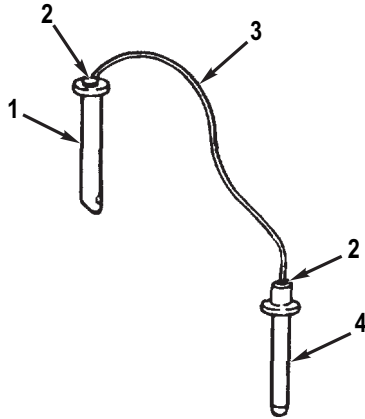
END OF TASK

INSTALLATION

NOTE

Perform step 1 to install detent pin lanyard assembly to center pin and steering locking pin.

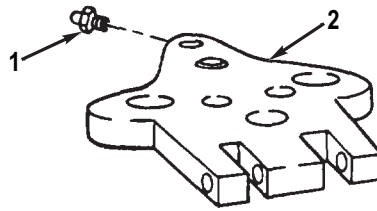
1. Thread lanyard cable (Figure 2, Item 3) through ends of center pin (Figure 2, Item 1) and steering locking pin (Figure 2, Item 4). Secure each end with new sleeve (Figure 2, Item 2). Crimp sleeves.



M0098_1JMS

Figure 2. Steering Link Lanyard Cable Installation.

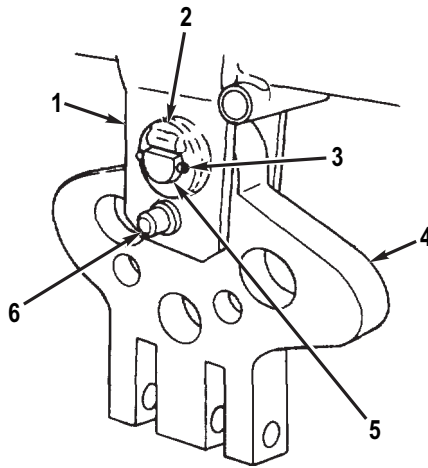
2. Install grease fitting (Figure 3, Item 1) on steering link (Figure 3, Item 2).



M0099JMS

Figure 3. Steering Link Grease Fitting Installation.

3. Install steering link (Figure 4, Item 4) on front axle (Figure 4, Item 1) with notch in end of center pin (Figure 4, Item 5) aligned with square portion of axle weldment (Figure 4, Item 2). Install new roll pin (Figure 4, Item 3) through center pin.
4. Secure steering link (Figure 4, Item 4) in locked position with steering locking pin (Figure 4, Item 6).

INSTALLATION - Continued

M0100JMS

Figure 4. Steering Link Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Lubricate steering link (WP 0028).
2. Install tie-rod assemblies (WP 0073).
3. Install front drawbar (WP 0051).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
STEERING STOP REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

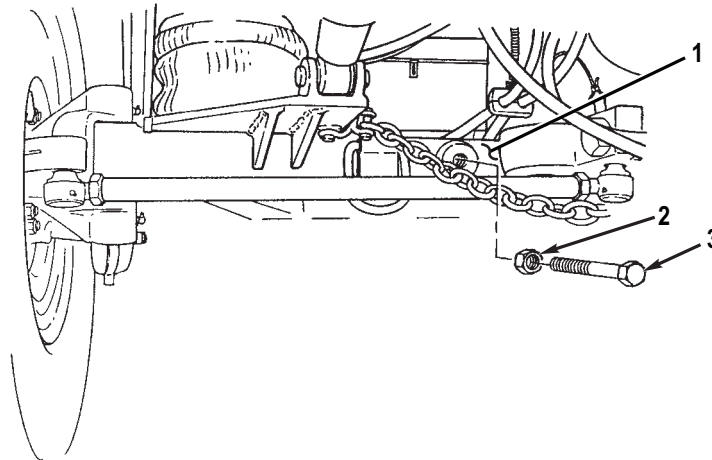
Tools and Special Tools (cont.)

Wrench, Adjustable: 0-3 5/8 in. jaw opening (WP 0198, Table 1, Item 37)

Wrench Set, Socket: 3/4 in. drive (WP 0198, Table 1, Item 40)

REMOVAL

1. Loosen nut (Figure 1, Item 2).
2. Remove bolt (Figure 1, Item 3) from front axle (Figure 1, Item 1).
3. Remove nut (Figure 1, Item 2) from stop bolt (Figure 1, Item 3).



M0101_1JMS

Figure 1. Steering Stop Removal.

END OF TASK

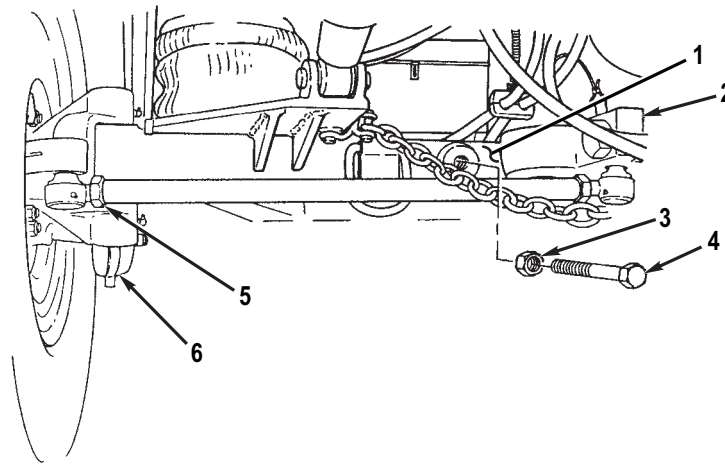
INSTALLATION

1. Install nut (Figure 2, Item 3) on stop bolt (Figure 2, Item 4).
2. Install stop bolt (Figure 2, Item 4) on front axle (Figure 2, Item 1) so that distance from front face of boss to top of stop bolt head is approximately 1.50 in. (3.81 cm).
3. Turn steering to position center steering link (Figure 2, Item 2) against stop bolt (Figure 2, Item 4) head. Adjust stop bolt to provide a 0.12 in. (0.3 cm) clearance between airbrake chamber (Figure 2, Item 6) and rear side of axle air bag mounting plate.

NOTE

Check that tie-rod end jamnut (Figure 2, Item 5) does not contact steering knuckle.

4. Tighten nut (Figure 2, Item 3).



M0101JMS

Figure 2. Steering Stop Installation.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
PIVOT AXLE BRACKET REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
 Sling, Nylon (WP 0194, Table 2, Item 5)
 Suitable lifting device
 Wrench, Adjustable: 0-3 5/8 in. jaw opening
 (WP 0198, Table 1, Item 37)

Materials/Parts (cont.)

Cotter pin (WP 0151, Item 36) Qty: 2
 Self-tapping screw (WP 0161, Item 26) Qty: 2

Personnel Required

(Three)

Materials/Parts

Grease: Aircraft, WTR (WP 0197, Table 1, Item 26)

Equipment Condition

Dolly set lowered, front and rear dollies detached
 (WP 0009)

WARNING

- Pivot axle bracket weighs 170 lb (77 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Top beam weighs 375 lb (170 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

REMOVAL**NOTE**

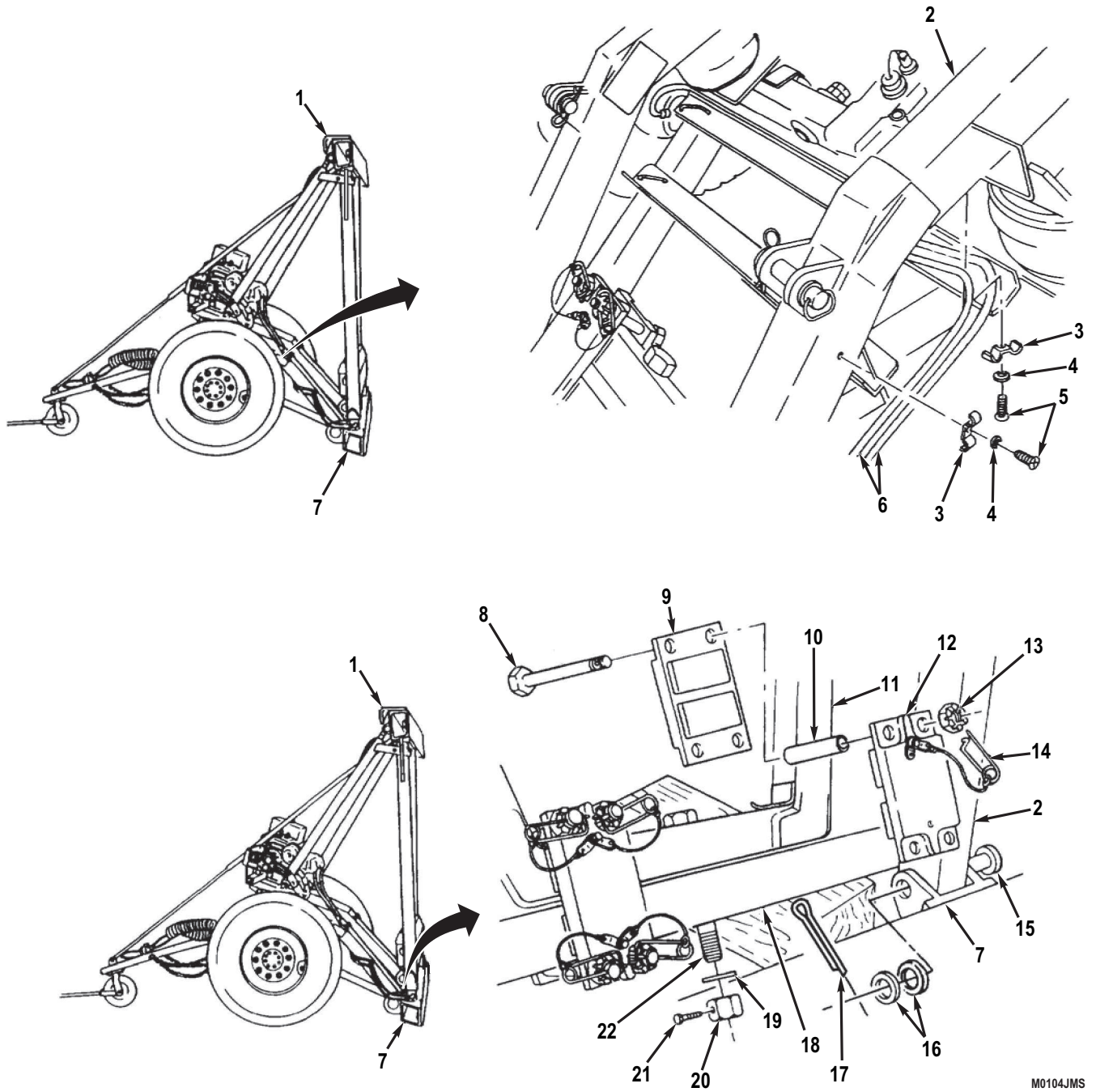
- Perform steps 4 and 5 only if removing pivot axle bracket lockout brackets.
 - On right side, hose assemblies are secured to both side and underside of suspension link.
1. Remove two self-tapping screws (Figure 1, Item 5), washers (Figure 1, Item 4), hose clamps (Figure 1, Item 3), and two hydraulic hose assemblies (Figure 1, Item 6) from each suspension link (Figure 1, Item 2). Discard self-tapping screws.
 2. Place a wooden block under midpoint of axle assembly (Figure 1, Item 11) at attachment point of pivot axle bracket (Figure 1, Item 18).

NOTE

Note quantity of washers removed to aid in installation.

3. Remove cotter pin (Figure 1, Item 17) and two washers (Figure 1, Item 16) from clevis pins (Figure 1, Item 15). Drive out - DO NOT remove - clevis pins approximately 3 in. (7.6 cm) only until clear of pivot axle bracket (Figure 1, Item 18). Discard cotter pins.
4. Remove eight safety pins (Figure 1, Item 14) from bolts (Figure 1, Item 8).
5. Remove four nuts (Figure 1, Item 13), bolts (Figure 1, Item 8), bottom lockout bracket (Figure 1, Item 9), four sleeves (Figure 1, Item 10), and top lockout bracket (Figure 1, Item 12) from each end of pivot axle bracket (Figure 1, Item 18) and axle assembly (Figure 1, Item 11).
6. Remove screw (Figure 1, Item 21), nut (Figure 1, Item 20), washer (Figure 1, Item 19), and pivot bolt (Figure 1, Item 22) from axle assembly (Figure 1, Item 11) and pivot axle bracket (Figure 1, Item 18).
7. Raise top beam (Figure 1, Item 1) 1-2 in. (2.5-5.0 cm) and remove pivot axle bracket (Figure 1, Item 18) from bottom beam (Figure 1, Item 7) and suspension links (Figure 1, Item 2).
8. Lower top beam (Figure 1, Item 1) and rest bottom beam (Figure 1, Item 7) on ground.

REMOVAL - Continued



M0104JMS

Figure 1. Pivot Axle Bracket Removal.

END OF TASK

INSTALLATION**NOTE**

Perform steps 9 and 10 if only installing pivot axle bracket lockout brackets.

1. Coat mating surface of pivot axle bracket (Figure 2, Item 18) and axle assembly (Figure 2, Item 11) with grease.
2. Inspect pivot bolt (Figure 2, Item 22) to ensure that threads are not damaged. If damaged, dress threads.
3. Install pivot axle bracket (Figure 2, Item 18) on axle assembly (Figure 2, Item 11) with washer (Figure 2, Item 19) and nut (Figure 2, Item 20) loosely installed on pivot bolt (Figure 2, Item 22).
4. Raise top beam (Figure 2, Item 1) as required to align holes in pivot axle bracket (Figure 2, Item 18), suspension links (Figure 2, Item 2), and bottom beam (Figure 2, Item 7).
5. Grease two clevis pins (Figure 2, Item 15) and drive into suspension links (Figure 2, Item 2).

NOTE

An equal quantity of washers must be installed on each side to reduce to a minimum the gap between suspension link and bottom beam pivot area.

6. Install washers (Figure 2, Item 16) and new cotter pins (Figure 2, Item 17) on clevis pins (Figure 2, Item 15).
7. Lower top beam (Figure 2, Item 1) and rest bottom beam (Figure 2, Item 7) on ground. Remove lifting device from top beam.
8. Tighten nut (Figure 2, Item 20) with wrench to seat pivot bolt (Figure 2, Item 22). Loosen nut, then hand-tighten. Wrench tighten nut (Figure 2, Item 13) to 1-1/4 flats. Install screw (Figure 2, Item 21) in nut.

NOTE

Welded pads on axle and pivot axle bracket identify correct installation location of lockout bracket assemblies.

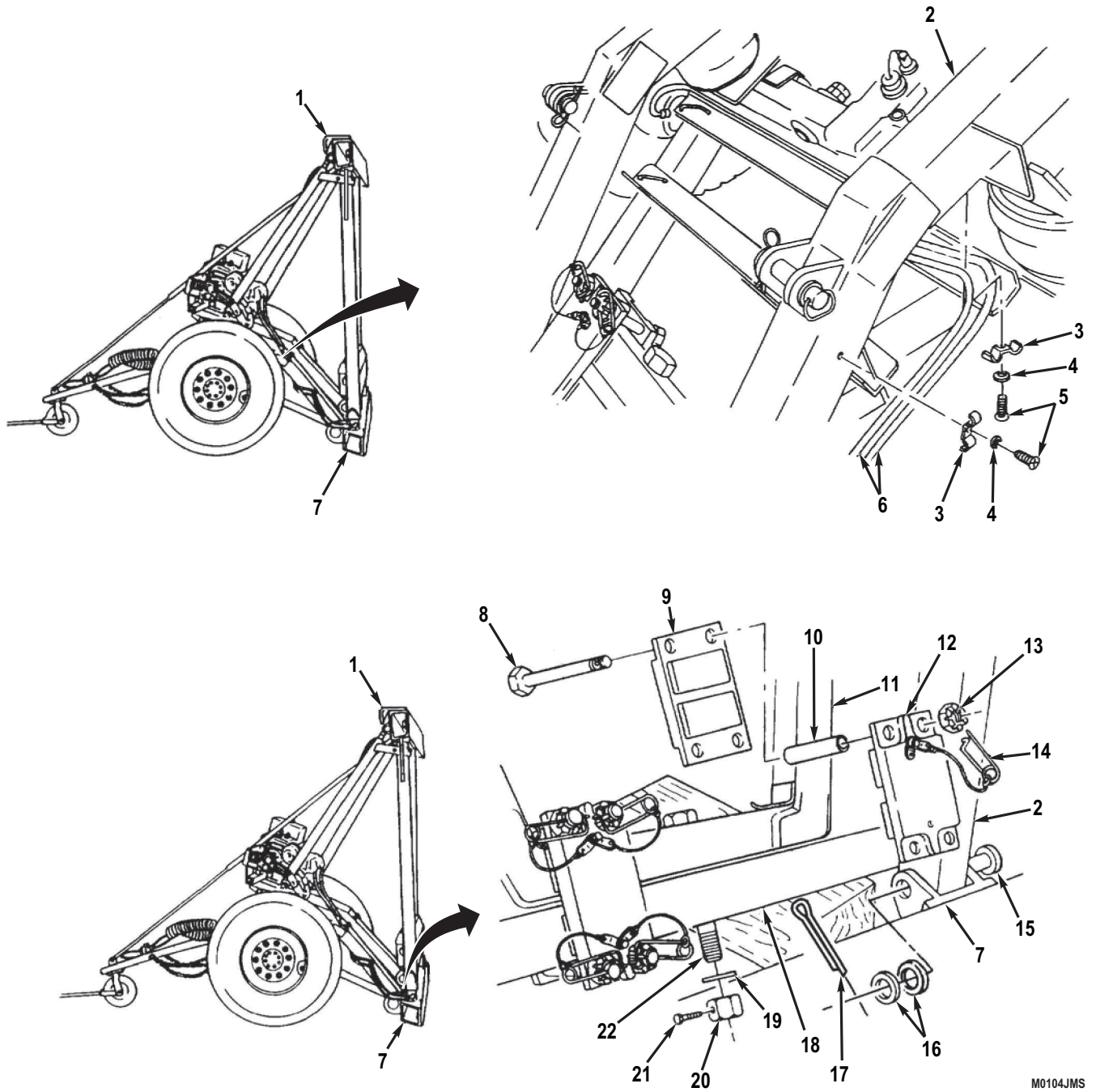
9. Coat four bolts (Figure 2, Item 8) with grease. Install top lockout bracket (Figure 2, Item 12), four sleeves (Figure 2, Item 10), bottom lockout bracket (Figure 2, Item 9), four bolts, and nuts (Figure 2, Item 13) on each end of pivot axle bracket (Figure 2, Item 18) and axle assembly (Figure 2, Item 11). Hand-tighten nuts, then tighten with wrench 1 1/4 to 2 flats.
10. Install eight safety pins (Figure 2, Item 14) on bolts (Figure 2, Item 8).

NOTE

On right side, hose assemblies are secured to both side and underside of suspension link.

11. Install two hydraulic hose assemblies (Figure 2, Item 6) on each suspension link (Figure 2, Item 2) with hose clamp (Figure 2, Item 3), washer (Figure 2, Item 4), and new self-tapping screw (Figure 2, Item 5).

INSTALLATION - Continued



M0104JMS

Figure 2. Pivot Axle Bracket Installation.

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
TOP HOOK REPLACEMENT**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

References

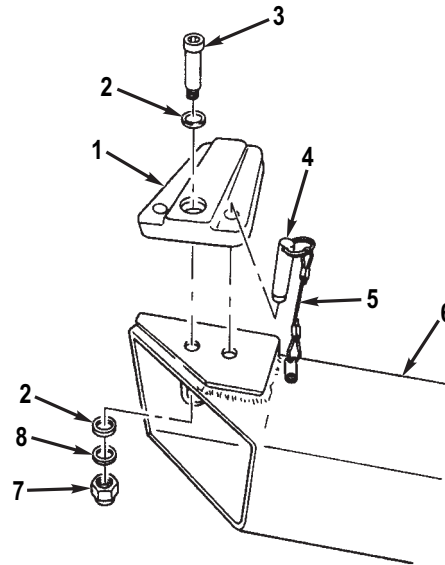
WP 0086

Materials/Parts

Locknut (WP 0151, Item 9) Qty: 1

REMOVAL

1. Remove detent pin (Figure 1, Item 4) from top hook (Figure 1, Item 1) and top beam (Figure 1, Item 6).
2. Remove locknut (Figure 1, Item 7), washer (Figure 1, Item 8), washer (Figure 1, Item 2), screw (Figure 1, Item 3), washer (Figure 1, Item 2), and top hook (Figure 1, Item 1) from top beam (Figure 1, Item 6). Discard locknut.
3. If detent pin (Figure 1, Item 4) is damaged, remove with lanyard assembly (Figure 1, Item 5) (Lanyard Assemblies Replacement (WP 0086)).



M0112JMS

Figure 1. Top Hook Replacement.

END OF TASK

INSTALLATION

1. If removed, install detent pin (Figure 1, Item 4) and lanyard assembly (Figure 1, Item 5) (Lanyard Assemblies Replacement (WP 0086)).
2. Install top hook (Figure 1, Item 1) on top beam (Figure 1, Item 6) with washer (Figure 1, Item 2), screw (Figure 1, Item 3), washer (Figure 1, Item 2), washer (Figure 1, Item 8), and new locknut (Figure 1, Item 7). Tighten locknut until snug, while still allowing manual rotation of top hook.
3. Install detent pin (Figure 1, Item 4) on top hook (Figure 1, Item 1) and top beam (Figure 1, Item 6).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
TRANSPORTATION LOCKOUT REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

References

WP 0005

Materials/Parts

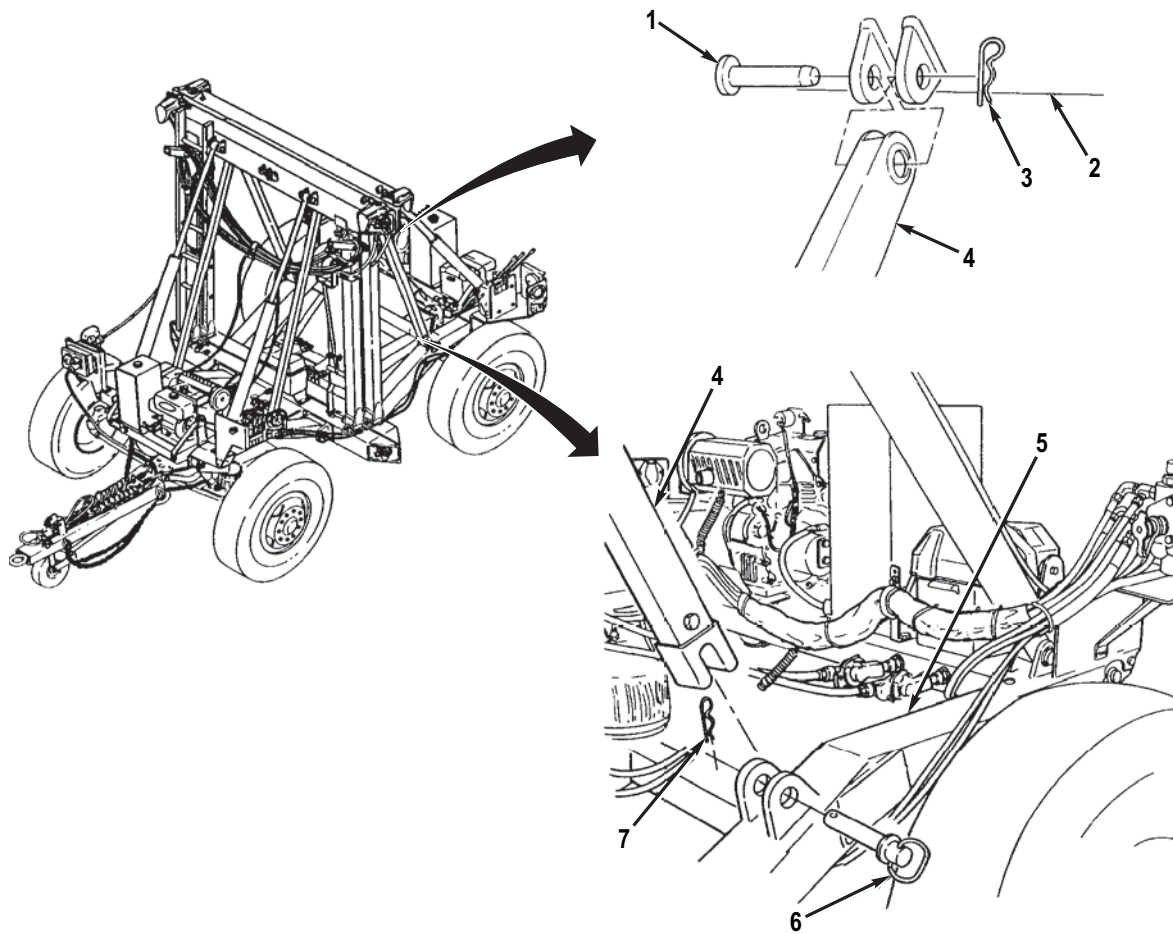
Locknut (WP 0151, Item 46) Qty: 1

Equipment Condition

Intervehicular gladhands removed from dummy
coupling (WP 0007)

REMOVAL

1. If engaged, operate hydraulic control valve to extend lift cylinder (General Operating Instructions (WP 0005)). Disengage transportation lockout (Figure 1, Item 4) from hitch pin (Figure 1, Item 6) at suspension link (Figure 1, Item 5).
2. Remove lockpin (Figure 1, Item 3), clevis pin (Figure 1, Item 1), and transportation lockout (Figure 1, Item 4) from top beam (Figure 1, Item 2).
3. If damaged, remove lockpin (Figure 1, Item 7) and hitch pin (Figure 1, Item 6) from suspension link (Figure 1, Item 5).

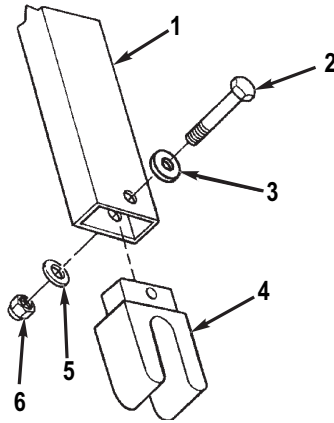


M0113JMS

Figure 1. Transportation Lockout Replacement.

REMOVAL - Continued

4. If damaged, remove locknut (Figure 2, Item 6), washer (Figure 2, Item 5), screw (Figure 2, Item 2), washer (Figure 2, Item 3), and end fitting (Figure 2, Item 4) from transportation lockout (Figure 2, Item 1). Discard locknut.



M0114JMS

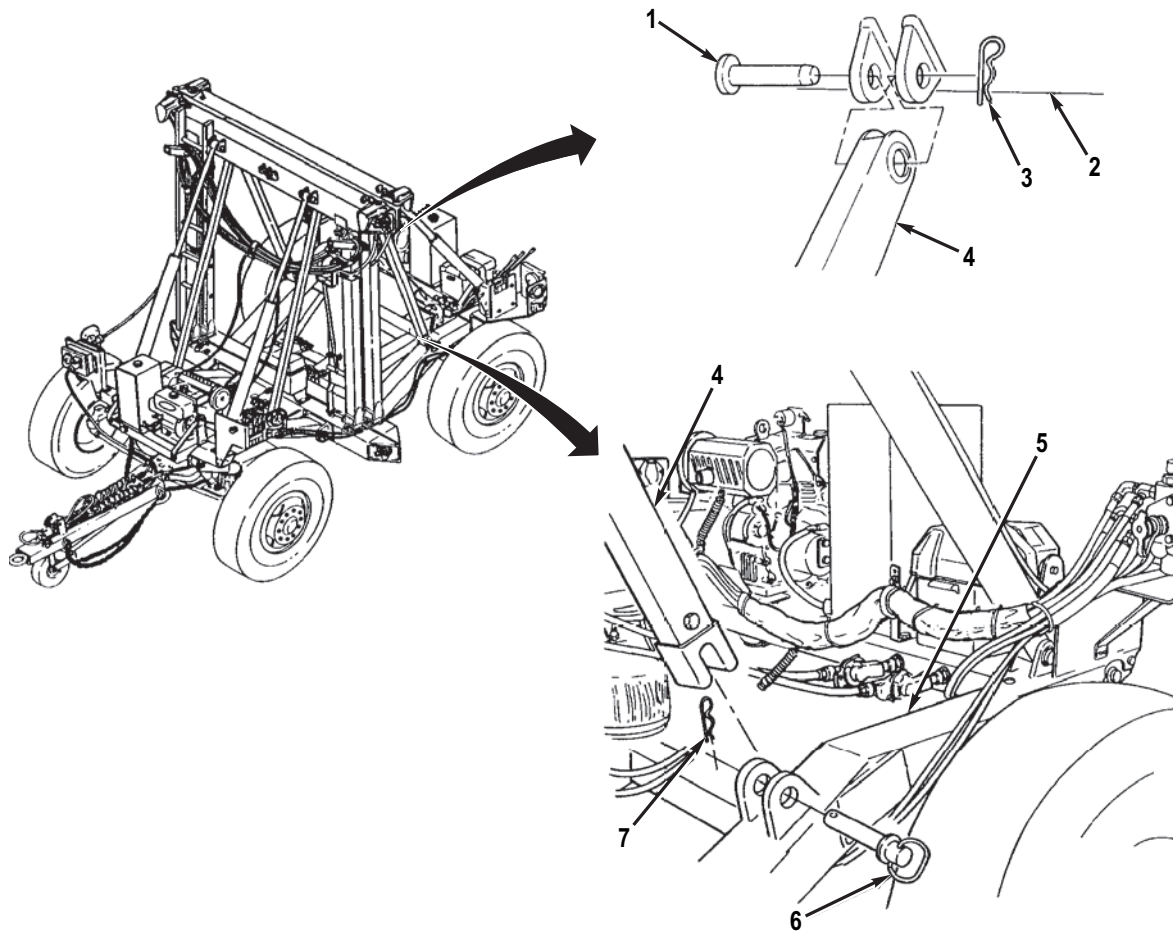
Figure 2. Transportation Lockout End Fitting Removal.

END OF TASK**INSTALLATION**

1. If removed, install end fitting (Figure 2, Item 4) to transportation lockout (Figure 2, Item 1) with washer (Figure 2, Item 3), screw (Figure 2, Item 2), washer (Figure 2, Item 5), and new locknut (Figure 2, Item 6).

INSTALLATION - Continued

2. If removed, install hitch pin (Figure 3, Item 6) and lockpin (Figure 3, Item 7) to suspension link (Figure 3, Item 5).
3. Install transportation lockout (Figure 3, Item 4) on top beam (Figure 3, Item 2) with clevis pin (Figure 3, Item 1) and lockpin (Figure 3, Item 3).
4. Operate hydraulic control valve as required to engage transportation lockout (Figure 3, Item 4) on hitch pin (Figure 3, Item 6) at suspension link (Figure 3, Item 5) (Operation Under Usual Conditions (WP 0005)).



M0113JMS

Figure 3. Transportation Lockout Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
FRONT DRAWBAR DUMMY COUPLING REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Equipment Condition

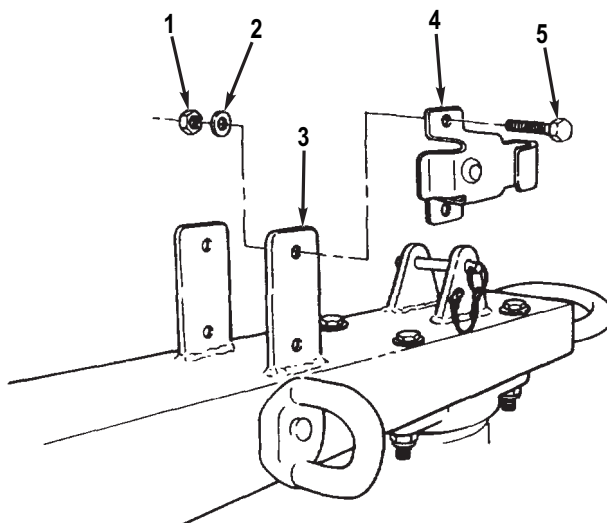
Intervehicular gladhands removed from dummy coupling (WP 0007)

Materials/Parts

Locknut (WP 0151, Item 56) Qty: 2

REMOVAL

Remove two locknuts (Figure 1, Item 1), washers (Figure 1, Item 2), bolts (Figure 1, Item 5), and dummy coupling (Figure 1, Item 4) from front drawbar (Figure 1, Item 3). Discard locknuts.



M0116JMS

Figure 1. Front Drawbar Dummy Coupling Replacement.

END OF TASK**INSTALLATION**

Install dummy coupling (Figure 1, Item 4) on front drawbar (Figure 1, Item 3) with two bolts (Figure 1, Item 5), washers (Figure 1, Item 2) and new locknuts (Figure 1, Item 1).

END OF TASK

FOLLOW-ON TASKS

Install intervehicular gladhand in dummy coupling (WP 0007).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FRONT DOLLY DISTRIBUTION BOX BRACKET REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition (cont.)

Front distribution box removed (WP 0030)
Marker clearance light removed (WP 0036)
Reflector removed (WP 0099)

Materials/Parts

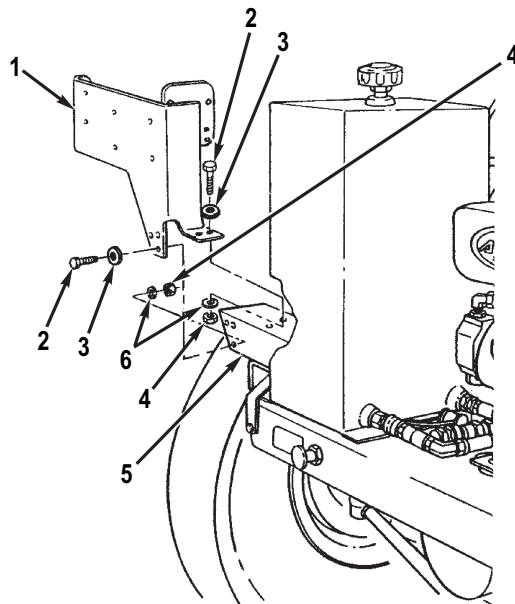
Locknut (WP 0152, Item 3) Qty: 5

Equipment Condition

Signal conditioning box removed (WP 0032)

REMOVAL

Remove five locknuts (Figure 1, Item 4), washers (Figure 1, Item 6), screws (Figure 1, Item 2), washers (Figure 1, Item 3), and bracket (Figure 1, Item 1) from brace (Figure 1, Item 5). Discard locknuts.



M0124JMS

Figure 1. Front Dolly Distribution Box Bracket Replacement.

END OF TASK**INSTALLATION**

Install bracket (Figure 1, Item 1) on brace (Figure 1, Item 5) with five washers (Figure 1, Item 3), screws (Figure 1, Item 2), washers (Figure 1, Item 6), and new locknuts (Figure 1, Item 4).

END OF TASK**FOLLOW-ON TASKS**

1. Install reflector (WP 0099).
2. Install marker clearance light (WP 0036).
3. Install signal conditioning box (WP 0030) and front distribution box (WP 0032).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
FRONT DOLLY HYDRAULIC CONTROL VALVE BRACKET REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition (cont.)

Marker clearance light removed (WP 0036)
Reflector removed (WP 0099)

Materials/Parts

Locknut (WP 0152, Item 3) Qty: 5

References

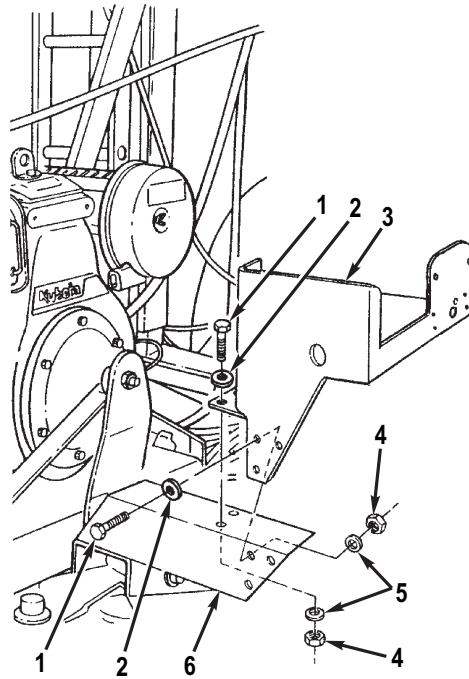
WP 0100

Equipment Condition

Hydraulic control valve removed (WP 0103)

REMOVAL

1. Remove five locknuts (Figure 1, Item 4), washers (Figure 1, Item 5), screws (Figure 1, Item 1), washers (Figure 1, Item 2), and bracket (Figure 1, Item 3) from brace (Figure 1, Item 6). Discard locknuts.
2. If damaged or if replacing bracket (Figure 1, Item 3), remove data plates (Data Plates Replacement (WP 0100)).



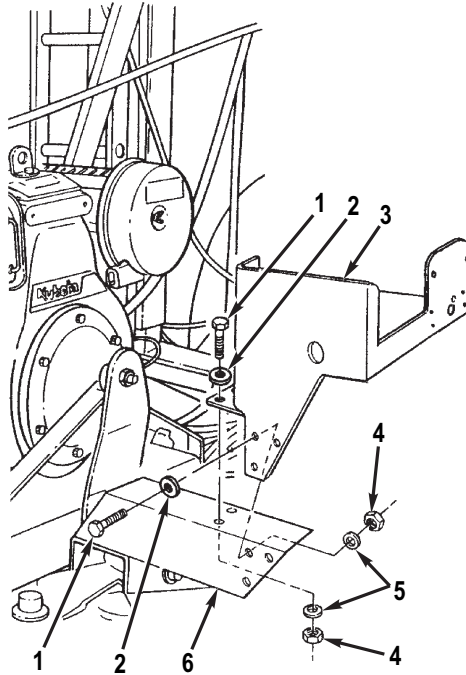
M0125JMS

Figure 1. Front Dolly Hydraulic Control Valve Bracket Removal.

END OF TASK

INSTALLATION

1. If removed, install data plates (Data Plates Replacement (WP 0100)).
2. Install bracket (Figure 2, Item 3) on brace (Figure 2, Item 6) with five washers (Figure 2, Item 2), screws (Figure 2, Item 1), washers (Figure 2, Item 5), and new locknuts (Figure 2, Item 4).



M0125JMS

Figure 2. Front Dolly Hydraulic Control Valve Bracket Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Install reflector (WP 0099).
2. Install marker clearance light (WP 0036).
3. Install hydraulic control valve (WP 0103).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FRONT DOLLY BRACE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Materials/Parts

Locknut (WP 0152, Item 3) Qty: 4

Equipment Condition

Front dolly distribution box bracket removed (right
side) (WP 0080)

Equipment Condition (cont.)

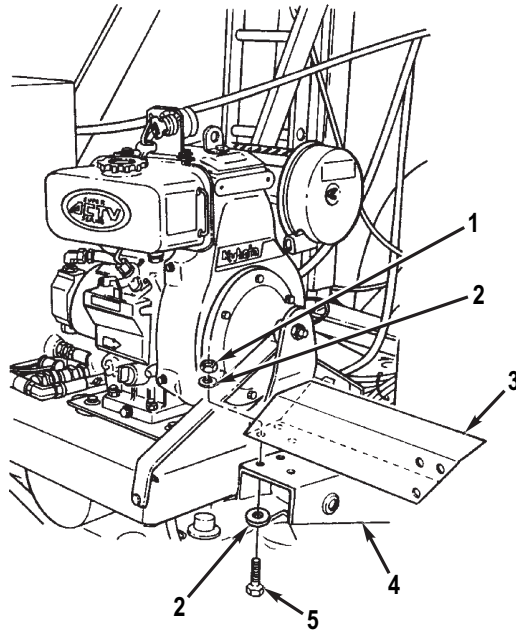
Front dolly hydraulic control valve bracket removed
(left side) (WP 0081)
Shock absorber removed from suspension link
(WP 0096)

NOTE

Left side and right side braces are replaced the same way. Right side brace is illustrated.

REMOVAL

Remove four locknuts (Figure 1, Item 1), eight washers (Figure 1, Item 2), four screws (Figure 1, Item 5), and brace (Figure 1, Item 3) from suspension link (Figure 1, Item 4). Discard locknuts.



M0126JMS

Figure 1. Front Dolly Brace Replacement.

END OF TASK**INSTALLATION**

Install brace (Figure 1, Item 3) on suspension link (Figure 1, Item 4) with four screws (Figure 1, Item 5), eight washers (Figure 1, Item 2), and four new locknuts (Figure 1, Item 1).

END OF TASK**FOLLOW-ON TASKS**

1. Install shock absorber on suspension link (WP 0096).
2. Install front dolly hydraulic control valve bracket (left side) (WP 0081).
3. Install front dolly distribution box bracket (right side) (WP 0080).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
REAR DOLLY DISTRIBUTION BOX BRACKET REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition (cont.)

Rear distribution box removed (WP 0034)
Shock absorber removed from suspension link
(WP 0096)

Materials/Parts

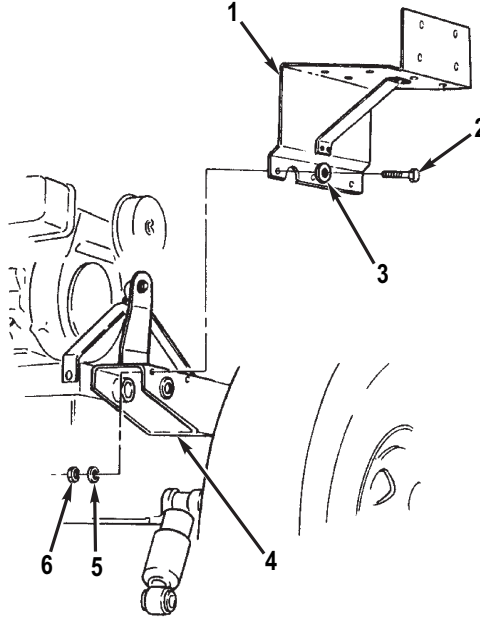
Locknut (WP 0152, Item 3) Qty: 5

Equipment Condition

Taillight assembly housing removed (WP 0038)

REMOVAL

Remove three locknuts (Figure 1, Item 6), washers (Figure 1, Item 5), screws (Figure 1, Item 2), washers (Figure 1, Item 3), and bracket (Figure 1, Item 1) from suspension link (Figure 1, Item 4). Discard locknuts.



M0127JMS

Figure 1. Rear Dolly Distribution Box Bracket Replacement.

END OF TASK**INSTALLATION**

Install bracket (Figure 1, Item 1) on suspension link (Figure 1, Item 4) with three washers (Figure 1, Item 3), screws (Figure 1, Item 2), washers (Figure 1, Item 5), and new locknuts (Figure 1, Item 6).

END OF TASK**FOLLOW-ON TASKS**

1. Install shock absorber on suspension link (WP 0096).
2. Install rear distribution box (WP 0034).
3. Install taillight assembly housing (WP 0038).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
REAR DOLLY HYDRAULIC CONTROL VALVE BRACKET REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition (cont.)

Hydraulic control valve removed (WP 0103)
Shock absorber removed from suspension link
(WP 0096)

Materials/Parts

Locknut (WP 0152, Item 3) Qty: 3

References

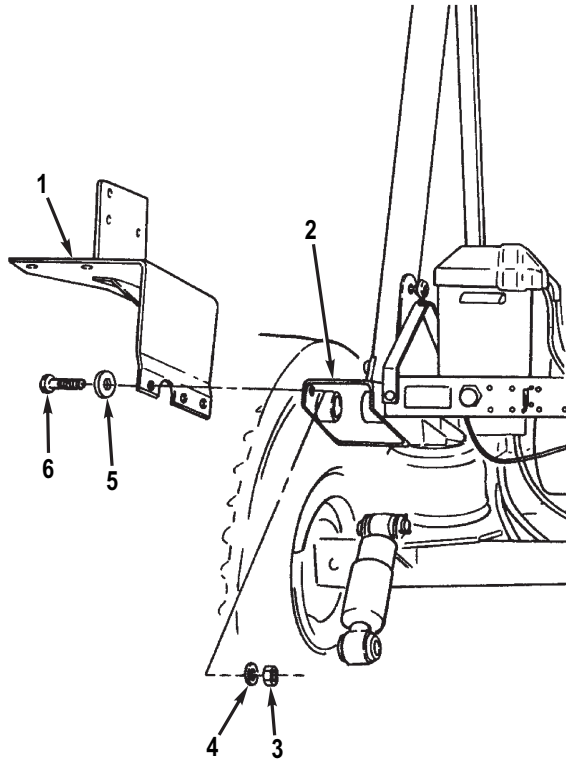
WP 0100

Equipment Condition

Taillight assembly housing removed (WP 0038)

REMOVAL

1. Remove three locknuts (Figure 1, Item 3), washers (Figure 1, Item 4), screws (Figure 1, Item 6), washers (Figure 1, Item 5), and bracket (Figure 1, Item 1) from suspension link (Figure 1, Item 2). Discard locknuts.
2. If damaged or if replacing bracket (Figure 1, Item 1), remove data plates (Data Plates Replacement (WP 0100)).



M0128JMS

Figure 1. Rear Dolly Hydraulic Control Valve Bracket Replacement.

END OF TASK**INSTALLATION**

1. If removed, install data plates (Data Plates Replacement (WP 0100)).
2. Install bracket (Figure 1, Item 1) on suspension link (Figure 1, Item 2) with three washers (Figure 1, Item 5), screws (Figure 1, Item 6), washers (Figure 1, Item 4), and new locknuts (Figure 1, Item 3).

END OF TASK

FOLLOW-ON TASKS

1. Install shock absorber on suspension link (WP 0096).
2. Install hydraulic control valve (WP 0103).
3. Install taillight assembly housing (WP 0038).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
PIVOTING TRAY LOCKOUT BRACE AND UPPER AND LOWER BRACKETS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

References

WP 0086

Materials/Parts

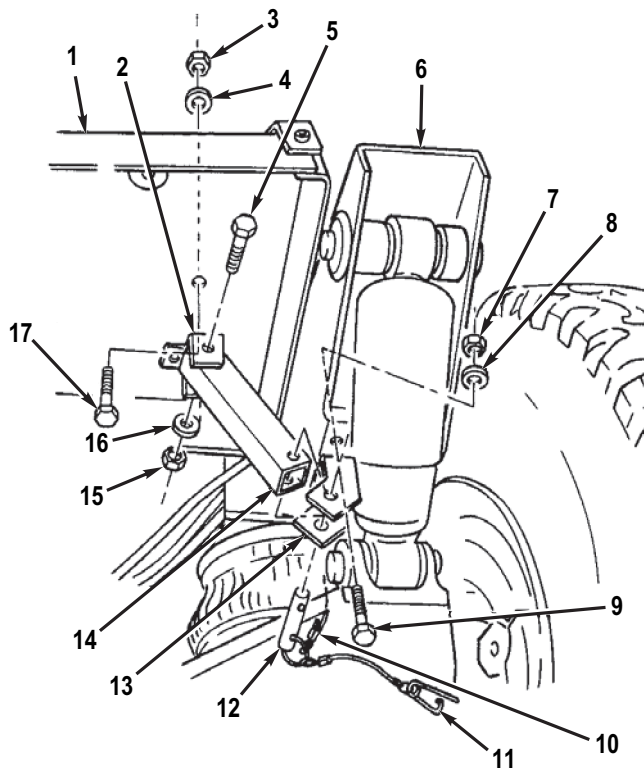
Locknut (WP 0151, Item 71) Qty: 5

NOTE

Front and rear pivoting tray lockout braces and upper and lower brackets are replaced the same way except location of lockout brace varies on front and rear pivoting trays. Rear pivoting tray lockout brace and rear upper and lower brackets are illustrated.

REMOVAL

1. Remove safety pin (Figure 1, Item 11) and hitch pin (Figure 1, Item 12) and unlock lockout brace (Figure 1, Item 14) from lower bracket (Figure 1, Item 13).
2. Remove locknut (Figure 1, Item 15), washer (Figure 1, Item 16), screw (Figure 1, Item 5), and lockout brace (Figure 1, Item 14) from upper bracket (Figure 1, Item 2). Discard locknut.
3. Remove two locknuts (Figure 1, Item 3), washers (Figure 1, Item 4), bolts (Figure 1, Item 17), and upper bracket (Figure 1, Item 2) from pivoting tray (Figure 1, Item 1). Discard locknuts.
4. Remove two locknuts (Figure 1, Item 7), washers (Figure 1, Item 8), screws (Figure 1, Item 9), and lower bracket (Figure 1, Item 13) from suspension link (Figure 1, Item 6). Discard locknuts.
5. If hitch pin (Figure 1, Item 12) and safety pin (Figure 1, Item 11) are damaged replace with lanyard assembly (Figure 1, Item 10) (Lanyard Assemblies Replacement (WP 0086)).



M0130JMS

Figure 1. Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement.

END OF TASK

INSTALLATION

1. If removed, install hitch pin (Figure 1, Item 12) and safety pin (Figure 1, Item 11) with lanyard assembly (Figure 1, Item 10) (Lanyard Assemblies Replacement (WP 0086)).
2. Install lower bracket (Figure 1, Item 13) on suspension link (Figure 1, Item 6) with two screws (Figure 1, Item 9), washers (Figure 1, Item 8), and new locknuts (Figure 1, Item 7).
3. Install upper bracket (Figure 1, Item 2) on pivoting tray (Figure 1, Item 1) with two bolts (Figure 1, Item 17), washers (Figure 1, Item 4), and new locknuts (Figure 1, Item 3).
4. Install lockout brace (Figure 1, Item 14) on upper bracket (Figure 1, Item 2) with screw (Figure 1, Item 5), washer (Figure 1, Item 16), and new locknut (Figure 1, Item 15).
5. Lock lockout brace (Figure 1, Item 14) to lower bracket (Figure 1, Item 13) with hitch pin (Figure 1, Item 12) and safety pin (Figure 1, Item 11).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
LANYARD ASSEMBLIES REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Materials/Parts (cont.)

Lockwasher (WP 0151, Item 17) Qty: 1
Self-tapping screw (WP 0151, Item 16) Qty: 1
Sleeve (WP 0153, Item 8) Qty: 1

Materials/Parts

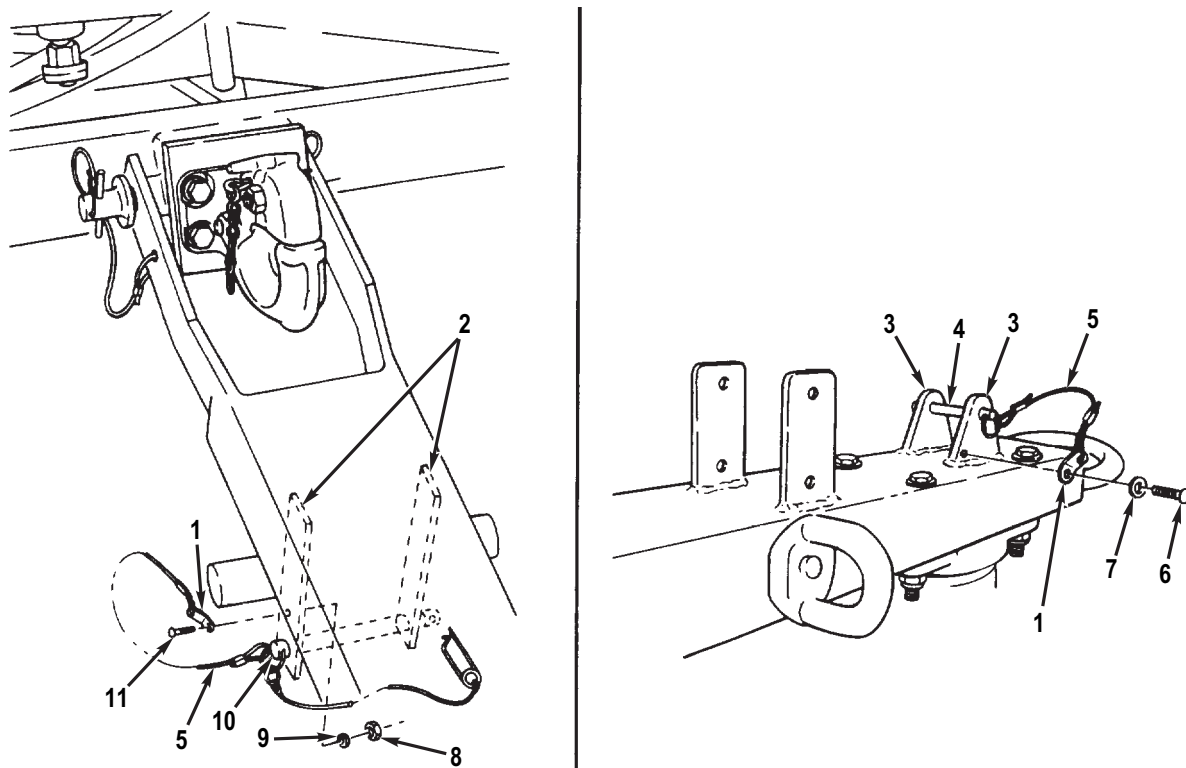
Locknut (WP 0153, Item 6) Qty: 2

NOTE

Lanyard assemblies that secure dolly set pins are replaced the same way except for lanyard assembly on rear drawbar which secures pin for caster wheel handle stowage. Mounting hardware for this lanyard assembly differs from the rest.

REMOVAL

1. Cut lanyard and sleeve assembly (Figure 1, Item 5) from detent pin (Figure 1, Item 4) or hitch pin (Figure 1, Item 10).
2. If removing lanyard and sleeve assembly (Figure 1, Item 5) from rear drawbar that secures hitch pin (Figure 1, Item 10), remove locknut (Figure 1, Item 8), washer (Figure 1, Item 9), screw (Figure 1, Item 11), and retainer (Figure 1, Item 1) with lanyard and sleeve assembly from bracket (Figure 1, Item 2). Discard locknut and lanyard and sleeve assembly.
3. If removing all other lanyard and sleeve assemblies (Figure 1, Item 5), remove self-tapping screw (Figure 1, Item 6) lockwasher (Figure 1, Item 7) and retainer (Figure 1, Item 1) with lanyard cable from mounting lug (Figure 1, Item 3). Discard self-tapping screw, lockwasher and lanyard and sleeve assemblies.
4. If damaged, replace detent pin (Figure 1, Item 4) or hitch pin (Figure 1, Item 10).



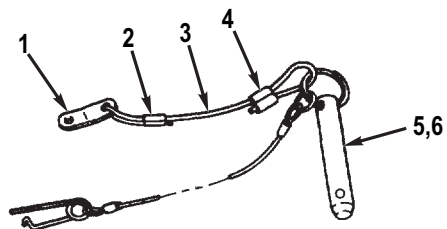
M0132JMS

Figure 1. Lanyard Assemblies Removal.

END OF TASK

INSTALLATION

1. Secure lanyard cable (Figure 2, Item 3) on detent pin (Figure 2, Item 5) or hitch pin (Figure 2, Item 6) with new sleeve (Figure 2, Item 4). Crimp sleeve.
2. Secure lanyard cable (Figure 2, Item 3) on retainer (Figure 2, Item 1) with new sleeve (Figure 2, Item 2). Crimp sleeve.

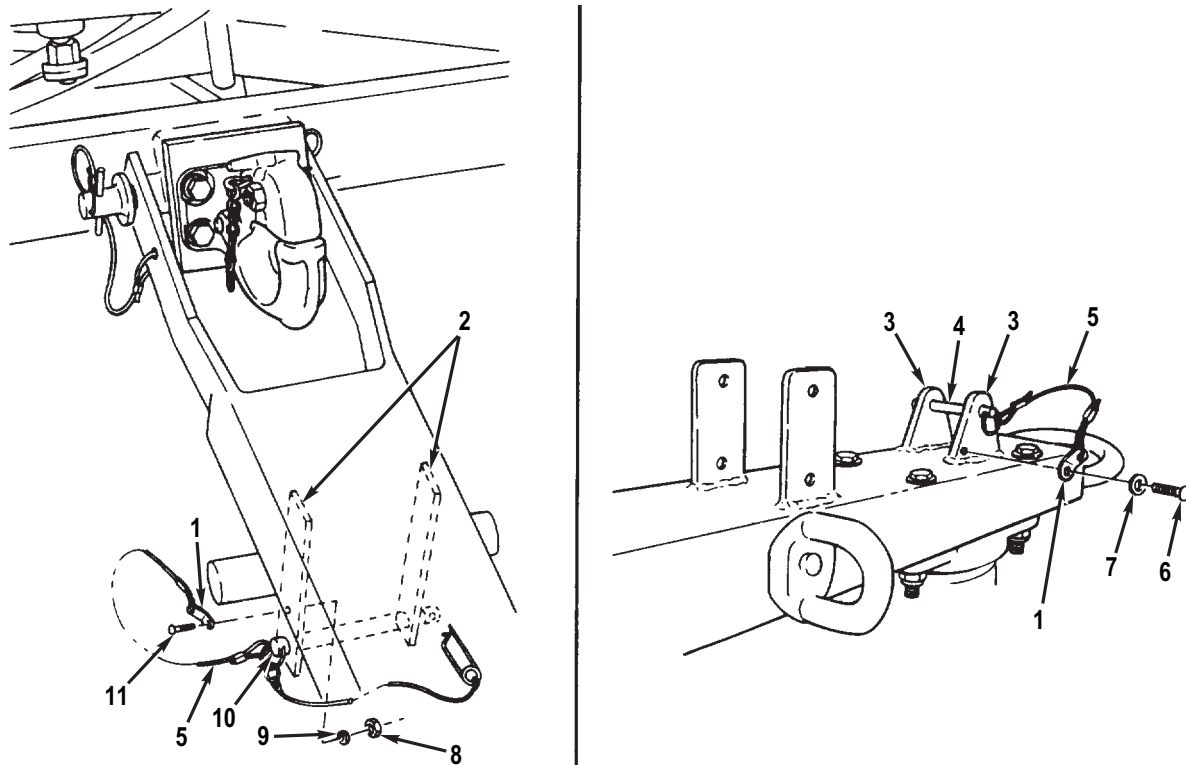


M0131JMS

Figure 2. Lanyard Cable Installation.

INSTALLATION - Continued

3. If installing lanyard and sleeve assembly (Figure 3, Item 5) on rear drawbar that secures hitch pin (Figure 3, Item 10), install retainer (Figure 3, Item 1) with new lanyard and sleeve assembly on bracket (Figure 3, Item 2) with screw (Figure 3, Item 11), washer (Figure 3, Item 9), and new locknut (Figure 3, Item 8).
4. If installing all other lanyard and sleeve assemblies (Figure 3, Item 3), install retainer (Figure 3, Item 1) with new lanyard and sleeve assembly on mounting lug (Figure 3, Item 3) with new lockwasher (Figure 3, Item 7) and new self-tapping screw (Figure 3, Item 6).
5. Install detent pin (Figure 3, Item 4) or hitch pin (Figure 3, Item 10) on mounting lugs (Figure 3, Item 3) or brackets (Figure 3, Item 2).



M0132JMS

Figure 3. Lanyard Assemblies Installation.

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
HANGER BRACKET REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

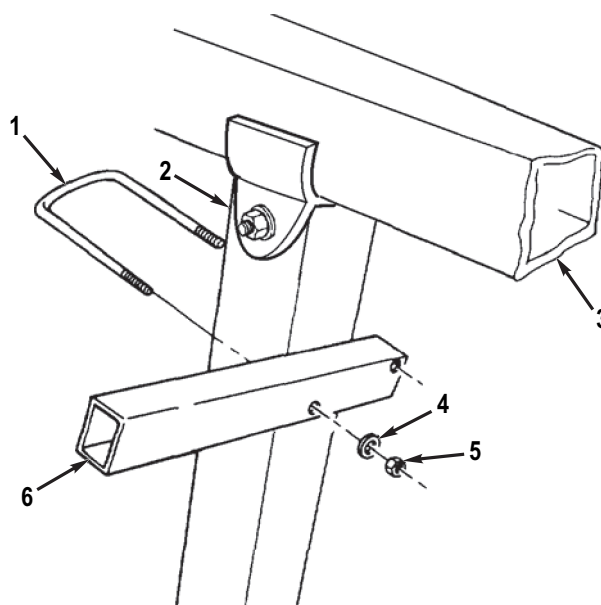
Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Materials/Parts

Locknut (WP 0151, Item 26) Qty: 2

REMOVAL

1. Remove stowed items from hanger bracket (Figure 1, Item 6) as required.
2. Remove two locknuts (Figure 1, Item 5), washers (Figure 1, Item 4), U-bolt (Figure 1, Item 1), and hanger bracket (Figure 1, Item 6) from top beam vertical tube (Figure 1, Item 2). Discard locknuts.



M0133JMS

Figure 1. Hanger Bracket Replacement.

END OF TASK**INSTALLATION**

1. Position hanger bracket (Figure 1, Item 6) on top beam vertical tube (Figure 1, Item 2) 6 in. (15.2 cm) below top beam (Figure 1, Item 3). Install U-bolt (Figure 1, Item 1), two washers (Figure 1, Item 4), and new locknuts (Figure 1, Item 5).
2. Stow items on hanger bracket (Figure 1, Item 6) as required.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
SUSPENSION LINK REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Caliper, Micrometer, Inside (WP 0198, Table 1, Item 3)
Sling, Nylon (WP 0194, Table 2, Item 5)
Suitable lifting device

References (cont.)

WP 0081
WP 0082
WP 0083
WP 0084
WP 0085
WP 0086
WP 0100
WP 0128

Materials/Parts

Compound: Sealing, Resin, Type II, Grade N (WP 0197, Table 1, Item 10)
Grease: Aircraft, WTR (WP 0197, Table 1, Item 26)
Cotter pin (WP 0155, Item 8) Qty: 1
Cotter pin (WP 0151, Item 36) Qty: 1
Locknut (WP 0155, Item 2) Qty: 1
Locknut (WP 0155, Item 5) Qty: 1

Equipment Condition

Dolly set lowered, front and rear dollies detached (WP 0009)
Hydraulic lift cylinder removed (WP 0105)
Front pivoting tray removed (WP 0089)
Rear pivoting tray removed (WP 0090)

Personnel Required

(Three)

References

WP 0080

REMOVAL

WARNING

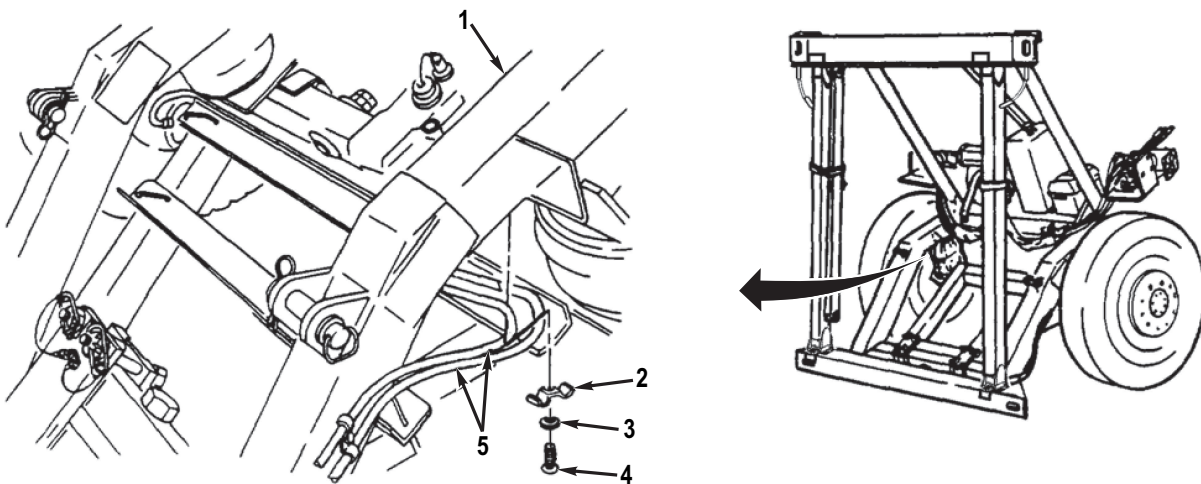


Suspension link weighs 375 lb (170 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

On right side, hose assemblies are secured to both side and underside of suspension link.

1. Remove self-tapping screw (Figure 1, Item 4), washer (Figure 1, Item 3), hose clamp (Figure 1, Item 2), and two hydraulic hose assemblies (Figure 1, Item 5) from side of suspension link (Figure 1, Item 1). Discard self-tapping screw.

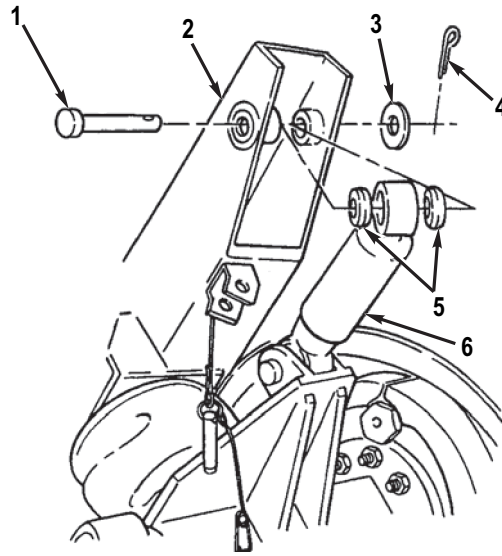


M0236JMS

Figure 1. Suspension Link Hydraulic Hose Removal.

2. Remove cotter pin (Figure 2, Item 4), washer (Figure 2, Item 3), clevis pin (Figure 2, Item 1), two bushings (Figure 2, Item 5), and shock absorber (Figure 2, Item 6) from suspension link (Figure 2, Item 2). Discard cotter pin.
3. If removing front or rear right side suspension link, remove distribution box bracket with associated components (Front Dolly Distribution Box Bracket Replacement (WP 0080) or Rear Dolly Distribution Box Bracket Replacement (WP 0083)).
4. If removing front or rear left side suspension link, remove hydraulic control valve bracket with associated components (Front Dolly Hydraulic Control Valve Bracket Replacement (WP 0081) or Rear Dolly Hydraulic Control Valve Bracket Replacement (WP 0084)).
5. If removing a front suspension link, remove brace (Front Dolly Brace Replacement (WP 0082)).

REMOVAL - Continued

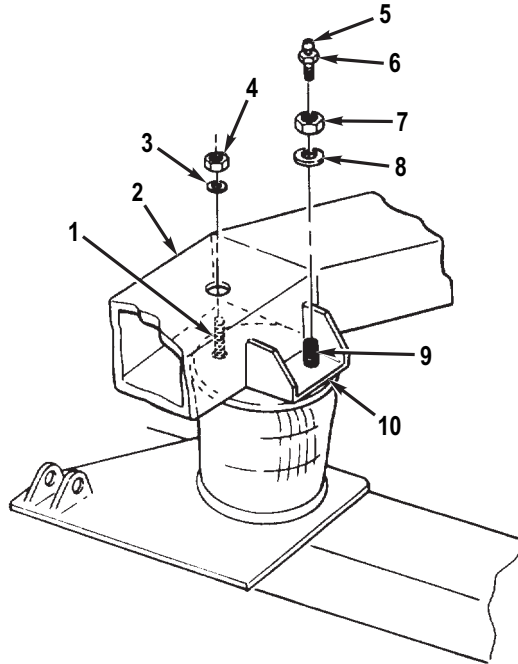


M0237JMS

Figure 2. Suspension Link Removal.

REMOVAL - Continued

6. Remove cap (Figure 3, Item 5) and valve (Figure 3, Item 6) from stud (Figure 3, Item 9).
7. Remove two locknuts (Figure 3, Items 4 and 7) and washers (Figure 3, Items 3 and 8) from studs (Figure 3, Items 1 and 9) at suspension link mounting plate (Figure 3, Item 10). Discard locknuts.
8. Support suspension link (Figure 3, Item 2) with a suitable lifting device.



M0238JMS

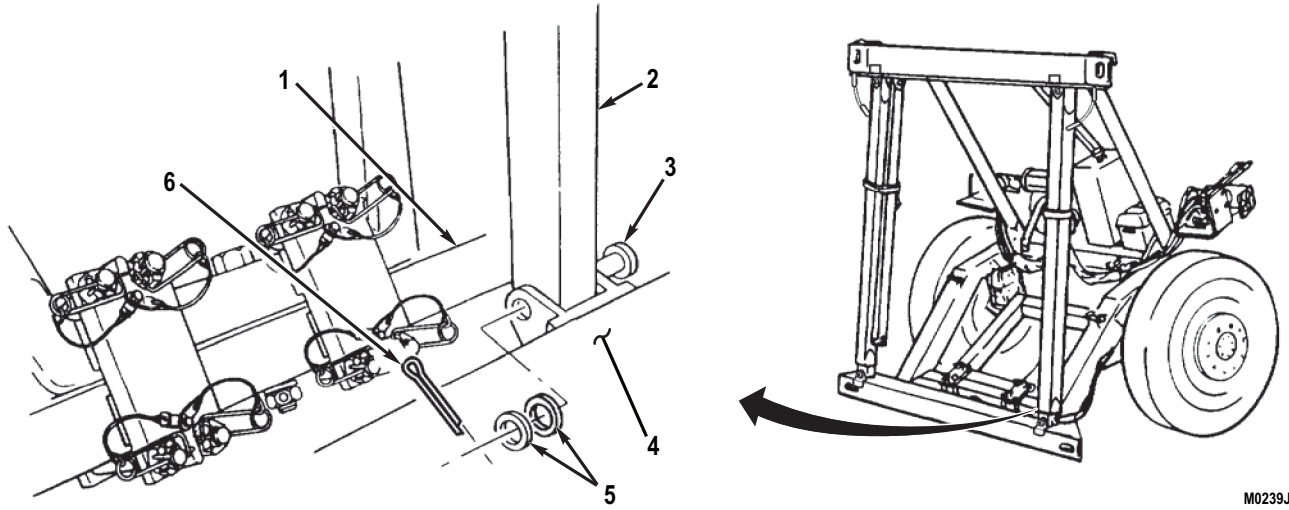
Figure 3. Suspension Link Disconnection.

NOTE

Note quantity of washers removed to aid in Installation.

9. Remove cotter pin (Figure 4, Item 6), washer (Figure 4, Item 5), clevis pin (Figure 4, Item 3), and suspension link (Figure 4, Item 2) from pivot axle bracket (Figure 4, Item 1) and bottom beam (Figure 4, Item 4). Discard cotter pin.
10. Remove data plate(s) from suspension link (Data Plates Replacement (WP 0100)).
11. Remove pivoting tray lower bracket (Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement (WP 0085)) and hitch pin lanyard assembly (Lanyard Assemblies Replacement (WP 0086)).

REMOVAL - Continued



M0239JMS

Figure 4. Suspension Link Removal.

END OF TASK

INSTALLATION**WARNING**

Suspension link weighs 375 lb (170 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

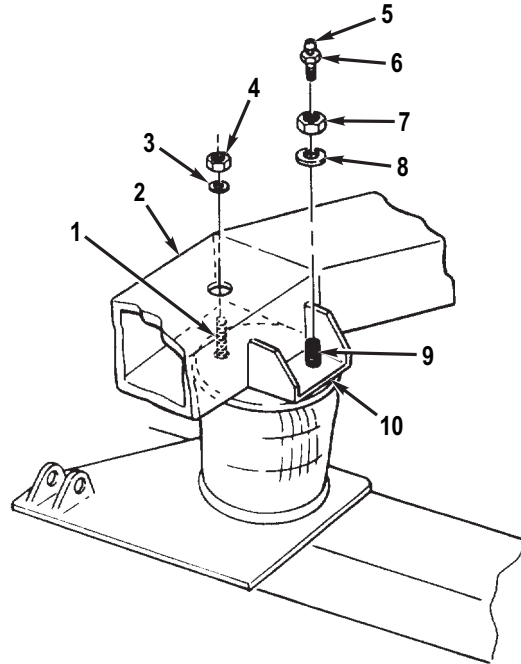
1. Install pivoting tray lower bracket (Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement (WP 0085)) and hitch pin lanyard assembly (Lanyard Assemblies Replacement (WP 0086)).
2. Install data plate(s) on suspension link (Data Plates Replacement (WP 0100)).
3. Support suspension link (Figure 5, Item 2) with a suitable lifting device.

NOTE

An equal quantity of washers must be installed on each side of reduce to a minimum the gap between suspension link and bottom beam pivot area.

4. Apply grease to clevis pin (Figure 5, Item 3). Install suspension link (Figure 5, Item 2) on pivot axle bracket (Figure 5, Item 1) and bottom beam (Figure 5, Item 4) with clevis pin, washer (Figure 5, Item 5), and new cotter pin (Figure 5, Item 6).
5. Lower suspension link (Figure 5, Item 2) until studs (Figure 5, Items 1 and 9) are positioned through holes in suspension link mounting plate (Figure 5, Item 10).
6. Install two washers (Figure 5, Items 3 and 8) and new locknuts (Figure 5, Items 4 and 7) on studs (Figure 5, Items 1 and 9). Torque locknuts to 25 lb-ft (34 N·m).
7. Install valve (Figure 5, Item 6) on stud (Figure 5, Item 9) with sealing compound (General Maintenance Instructions (WP 0128)). Install cap (Figure 5, Item 5) on valve.
8. If a front suspension link was removed, install brace (Front Dolly Brace Replacement (WP 0082)).
9. If front or rear left side suspension link was removed, install hydraulic control valve bracket with associated components (Front Dolly Hydraulic Control Valve Bracket Replacement (WP 0081) or Rear Dolly Hydraulic Control Valve Bracket Replacement (WP 0084)).
10. If front or rear right side suspension link was removed, install distribution box bracket with associated components (Front Dolly Distribution Box Bracket Replacement (WP 0080) or Rear Dolly Distribution Box Bracket Replacement (WP 0083)).

INSTALLATION - Continued

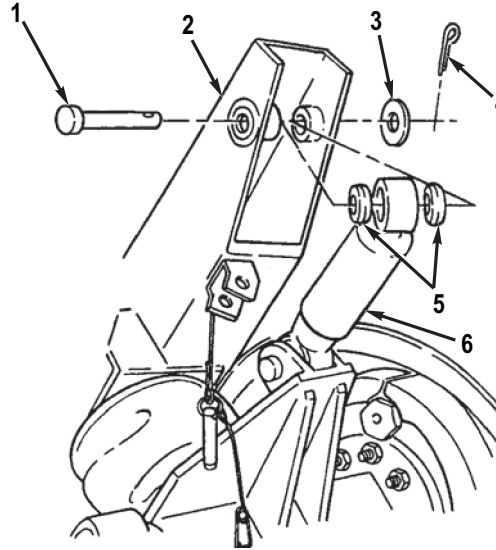


M0238JMS

Figure 5. Suspension Link Connection.

INSTALLATION - Continued

11. Install shock absorber (Figure 6, Item 6) and two bushings (Figure 6, Item 5) on suspension link (Figure 6, Item 2) with clevis pin (Figure 6, Item 1), washer (Figure 6, Item 3), and new cotter pin (Figure 6, Item 4).



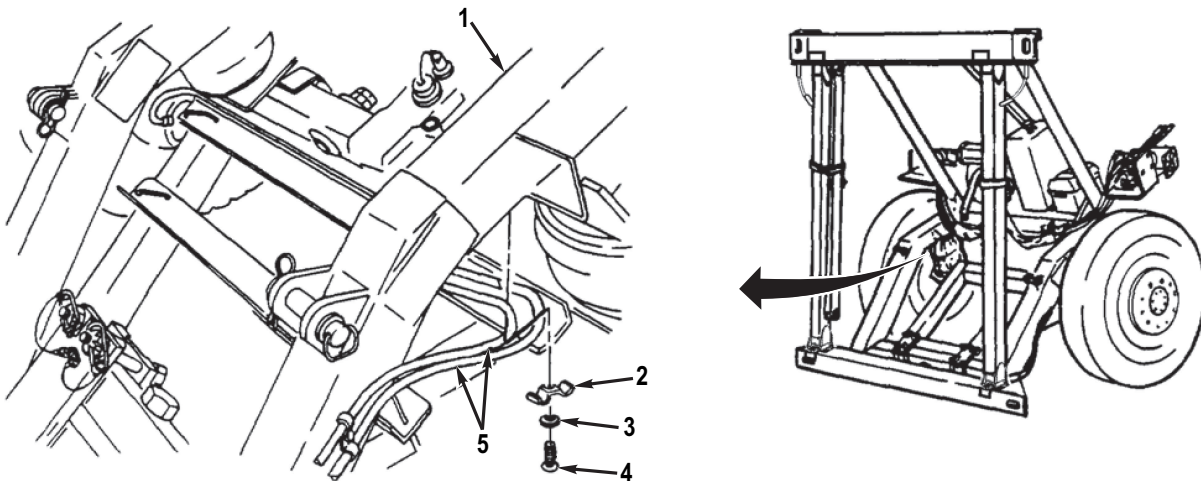
M0237JMS

Figure 6. Suspension Link Installation.

NOTE

On right side, hose assemblies are secured to both side and underside of suspension link.

12. Install two hydraulic hose assemblies (Figure 7, Item 5) on suspension link (Figure 7, Item 1) with hose clamp (Figure 7, Item 2), washer (Figure 7, Item 3), and new self-tapping screw (Figure 7, Item 4).



M0236JMS

Figure 7. Suspension Link Hydraulic Hose Installation.

END OF TASK

FOLLOW-ON TASKS

1. Install rear pivoting tray (WP 0090).
2. Install front pivoting tray (WP 0089).
3. Install hydraulic lift cylinder (WP 0105).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FRONT DOLLY PIVOTING TRAY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Suitable lifting device
Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)

Materials/Parts

Compound: Sealing, Thread-Locking (WP 0197, Table 1, Item 11)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
Locknut (WP 0151, Item 8) Qty: 2
Locknut (WP 0151, Item 56) Qty: 4
Locknut (WP 0151, Item 74) Qty: 2

Personnel Required

(Two)

References

WP 0028

References (cont.)

WP 0085
WP 0100
WP 0128

Equipment Condition

Front dolly air lines removed (WP 0069)
Pivoting tray gladhands removed (WP 0068)
Airbrake valve removed (WP 0062)
Front dolly booster relay valve removed (WP 0060)
Front dolly pressure protection valve removed (WP 0061)
Front dolly relay emergency valve and air reservoir removed (WP 0059)
Battery case removed (WP 0041)
Hydraulic lines removed (WP 0104)
Hydraulic reservoir and redundant power fittings removed (WP 0107)
Engine removed (WP 0110)

WARNING

Front dolly pivoting tray weighs 170 lb (77 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

REMOVAL

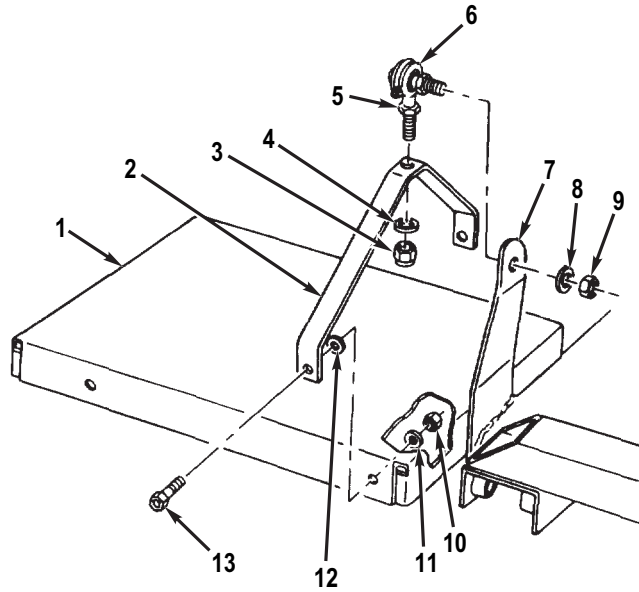
1. Remove two locknuts (Figure 1, Item 9) and washers (Figure 1, Item 8) from bearing rods (Figure 1, Item 6). Discard locknuts.
2. Remove pivoting tray (Figure 1, Item 1) from two suspension link mounting brackets (Figure 1, Item 7).
3. Remove two locknuts (Figure 1, Item 3), washers (Figure 1, Item 4), and bearing rods (Figure 1, Item 6) from brackets (Figure 1, Item 2). Discard locknuts.
4. Remove two jamnuts (Figure 1, Item 5) from bearing rods (Figure 1, Item 6).
5. Remove four locknuts (Figure 1, Item 10), washers (Figure 1, Item 11), screws (Figure 1, Item 13), washers (Figure 1, Item 12) and two brackets (Figure 1, Item 2) from pivoting tray (Figure 1, Item 1). Discard locknuts.

NOTE

Perform steps 6 and 7 if components are damaged or if replacing pivoting tray.

6. Remove data plate (Data Plates Replacement (WP 0100)).
7. Remove pivoting tray lockout brace and upper bracket (Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement (WP 0085)).

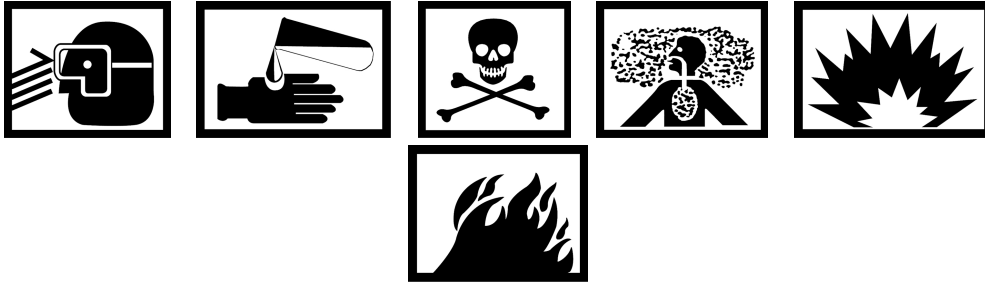
REMOVAL - Continued



M0102JMS

Figure 1. Front Dolly Pivoting Tray Removal.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Clean all components with cleaning solvent and allow to dry IAW General Maintenance Instructions (WP 0128).

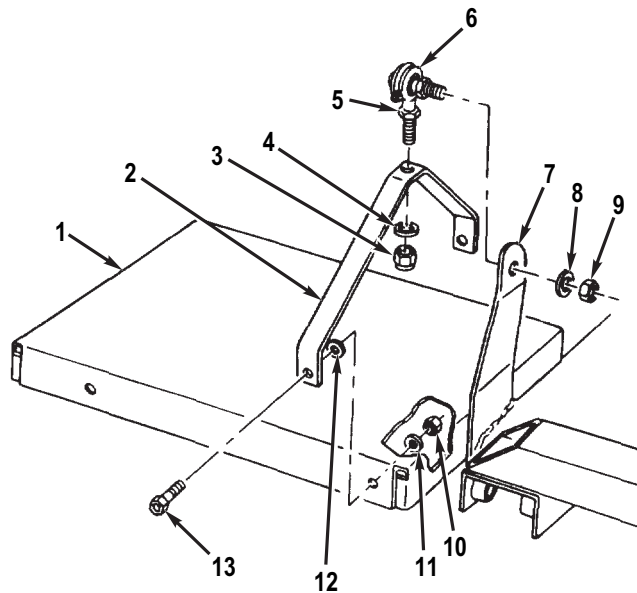
END OF TASK**INSPECTION**

Inspect all components for damage IAW General Maintenance Instructions (WP 0128). Replace damaged components.

END OF TASK

INSTALLATION

1. If removed, install pivoting tray upper bracket and lockout brace (Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement (WP 0085)).
2. If removed, install data plate (Data Plates Replacement (WP 0100)).
3. Install two brackets (Figure 2, Item 2) on pivoting tray (Figure 2, Item 1) with four washers (Figure 2, Item 12), screws (Figure 2, Item 13), washers (Figure 2, Item 11), and new locknuts (Figure 2, Item 10).
4. Apply sealing compound to jamnuts (Figure 2, Item 5). Fully install jamnuts on bearing rods (Figure 2, Item 6) until bottomed out. Install bearing rods on brackets (Figure 2, Item 2) with washers (Figure 2, Item 4) and new locknuts (Figure 2, Item 3). Torque locknuts to 85 lb-ft (115 N•m).
5. Install pivoting tray (Figure 2, Item 1) on two suspension link mounting brackets Figure 2, Item 7) with two bearing rods (Figure 2, Item 6), washers (Figure 2, Item 8), and new locknuts (Figure 2, Item 9). Torque locknuts to 25-30 lb-ft (34-41 N•m).



M0102JMS

Figure 2. Front Dolly Pivoting Tray Installation.

END OF TASK

FOLLOW-ON TASKS

1. Install engine (WP 0110).
2. Install hydraulic reservoir and redundant power fittings (WP 0107).
3. Install hydraulic lines (WP 0104).
4. Install battery case assembly (WP 0041).
5. Install front dolly relay emergency valve and air reservoir (WP 0059).
6. Install front dolly pressure protection valve (WP 0061).
7. Install front dolly booster relay valve (WP 0060).
8. Install airbrake valve (WP 0062).
9. Install pivoting tray gladhands (WP 0068).
10. Install front dolly air lines (WP 0069).
11. Lubricate pivoting tray bearings (WP 0028).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
REAR DOLLY PIVOTING TRAY REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Suitable lifting device
Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)

Materials/Parts

Compound: Sealing, Thread-Locking (WP 0197, Table 1, Item 11)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
Locknut (WP 0151, Item 8) Qty: 2
Locknut (WP 0151, Item 56) Qty: 4
Locknut (WP 0151, Item 74) Qty: 2

Personnel Required

(Two)

References

WP 0028
WP 0085

References (cont.)

WP 0100
WP 0128

Equipment Condition

Identification light removed (WP 0039)
Rear dolly air lines removed (WP 0070)
Pivoting tray gladhands removed (WP 0068)
Airbrake valve removed (WP 0062)
Rear dolly parking brake valve removed (WP 0066)
Rear dolly relay valve removed (WP 0067)
Rear dolly booster relay valve removed (WP 0064)
Rear dolly shutoff valves and mounting bracket removed (WP 0065)
Rear dolly full function valve and air reservoir removed (WP 0063)
Battery case removed (WP 0041)
Hydraulic lines removed (WP 0104)
Hydraulic reservoir and redundant power fittings removed (WP 0107)
Engine removed (WP 0110)

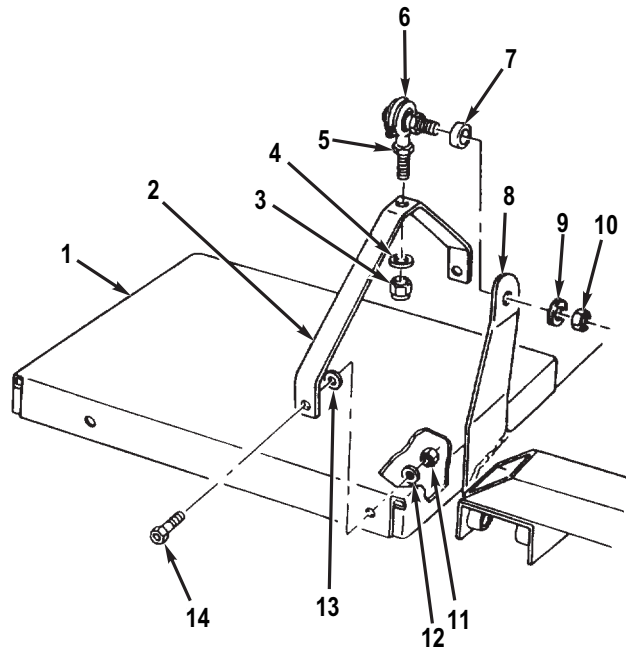
REMOVAL

WARNING



Rear dolly pivoting tray weighs 140 lb (63.5 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

1. Remove two locknuts (Figure 1, Item 10) and washers (Figure 1, Item 9) from bearing rods (Figure 1, Item 6). Discard locknuts.
2. Remove pivoting tray (Figure 1, Item 1) and two spacers (Figure 1, Item 7) from suspension link mounting brackets (Figure 1, Item 8).
3. Remove two locknuts (Figure 1, Item 3), washers (Figure 1, Item 4), and bearing rods (Figure 1, Item 6) from brackets (Figure 1, Item 2). Discard locknuts.
4. Remove two jamnuts (Figure 1, Item 5) from bearing rods (Figure 1, Item 6).
5. Remove four locknuts (Figure 1, Item 11), washers (Figure 1, Item 12), screws (Figure 1, Item 14), washers (Figure 1, Item 13), and two brackets (Figure 1, Item 2) from pivoting tray (Figure 1, Item 1). Discard locknuts.



M0103JMS

Figure 1. Rear Dolly Pivoting Tray Removal.

NOTE

Perform steps 6 and 7 if components are damaged or if replacing pivoting tray.

6. Remove data plates (Data Plates Replacement (WP 0100)).

REMOVAL - Continued

7. Remove pivoting tray lockout brace and upper bracket (Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement (WP 0085)).

END OF TASK**CLEANING****WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Clean all components with cleaning solvent and allow to dry IAW General Maintenance Instructions (WP 0128).

END OF TASK

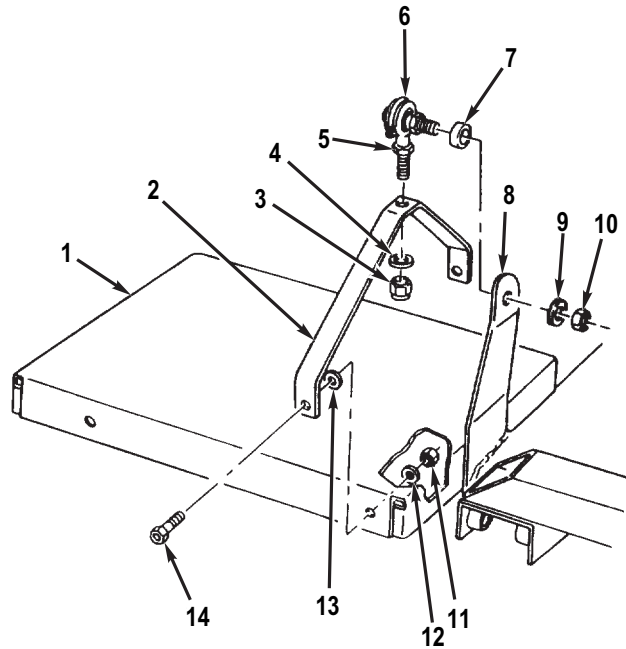
INSPECTION

Inspect all components for damage. Replace damaged components IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSTALLATION****WARNING**

Rear dolly pivoting tray weighs 140 lb (63.5 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

1. If removed, install pivoting tray upper bracket and lockout brace (Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement (WP 0085)).
2. If removed, install data plates (Data Plates Replacement (WP 0100)).
3. Install two brackets (Figure 2, Item 2) on pivoting tray (Figure 2, Item 1) with four washers (Figure 2, Item 13), screws (Figure 2, Item 14), washers (Figure 2, Item 12), and new locknuts (Figure 2, Item 11).
4. Apply sealing compound to jamnuts (Figure 2, Item 5). Fully install jamnuts on bearing rods (Figure 2, Item 6) until bottomed out. Install bearing rods on brackets (Figure 2, Item 2) with washers (Figure 2, Item 4) and new locknuts (Figure 2, Item 3). Torque locknuts to 85 lb-ft (115 N•m).
5. Install pivoting tray (Figure 2, Item 1) on two suspension link mounting brackets (Figure 2, Item 8) with two spacers (Figure 2, Item 7), bearing rods (Figure 2, Item 6), washers (Figure 2, Item 9), and new locknuts (Figure 2, Item 10). Torque locknuts to 25-30 lb-ft (34-41 N•m).

INSTALLATION - Continued

M0103JMS

Figure 2. Rear Dolly Pivoting Tray Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Install engine (WP 0110).
2. Install hydraulic reservoir and redundant power fittings (WP 0107).
3. Install hydraulic lines (WP 0104).
4. Install battery case assembly (WP 0041).
5. Install rear dolly full function valve and air reservoir (WP 0063).
6. Install rear dolly mounting bracket and shutoff valves (WP 0065).
7. Install rear dolly booster relay valve (WP 0064).
8. Install rear dolly relay valve (WP 0067).
9. Install rear dolly parking brake valve (WP 0066).
10. Install airbrake valve (WP 0062).
11. Install pivoting tray gladhands (WP 0068).
12. Install rear dolly air lines (WP 0039).
13. Install identification light (WP 0070).

FOLLOW-ON TASKS - Continued

14. Lubricate pivoting tray bearings (WP 0028).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
TELESCOPIC BRACE REPLACEMENT**

INITIAL SETUP:

Personnel Required
(Two)

References
WP 0086

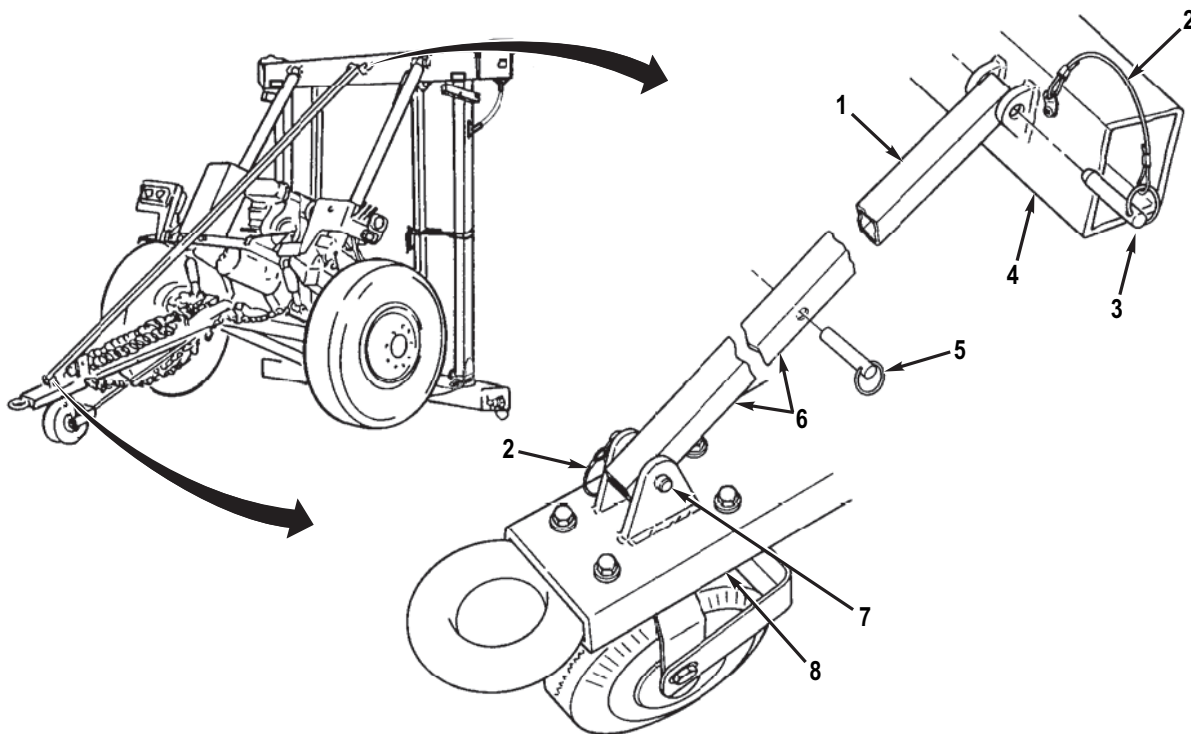
NOTE

Front and rear dolly telescopic braces are replaced the same way except as noted. Front dolly telescopic brace is illustrated.

REMOVAL**NOTE**

On rear dolly, telescopic brace is removed from telescopic brace bracket bolted to rear drawbar.

1. Remove detent pin (Figure 1, Item 7) and brace (Figure 1, Item 6) from front drawbar (Figure 1, Item 8).
2. Remove detent pin (Figure 1, Item 3) and brace (Figure 1, Item 1) from top beam (Figure 1, Item 4).
3. Remove detent pin (Figure 1, Item 5) from brace (Figure 1, Item 6).
4. Remove brace (Figure 1, Item 6) from brace (Figure 1, Item 1).
5. If detent pins (Figure 1, Items 3 and 7) are damaged, remove with lanyard assemblies (Figure 1, Item 2) (Lanyard Assemblies Replacement (WP 0086)).



M0115JMS

Figure 1. Telescopic Brace Removal.

END OF TASK

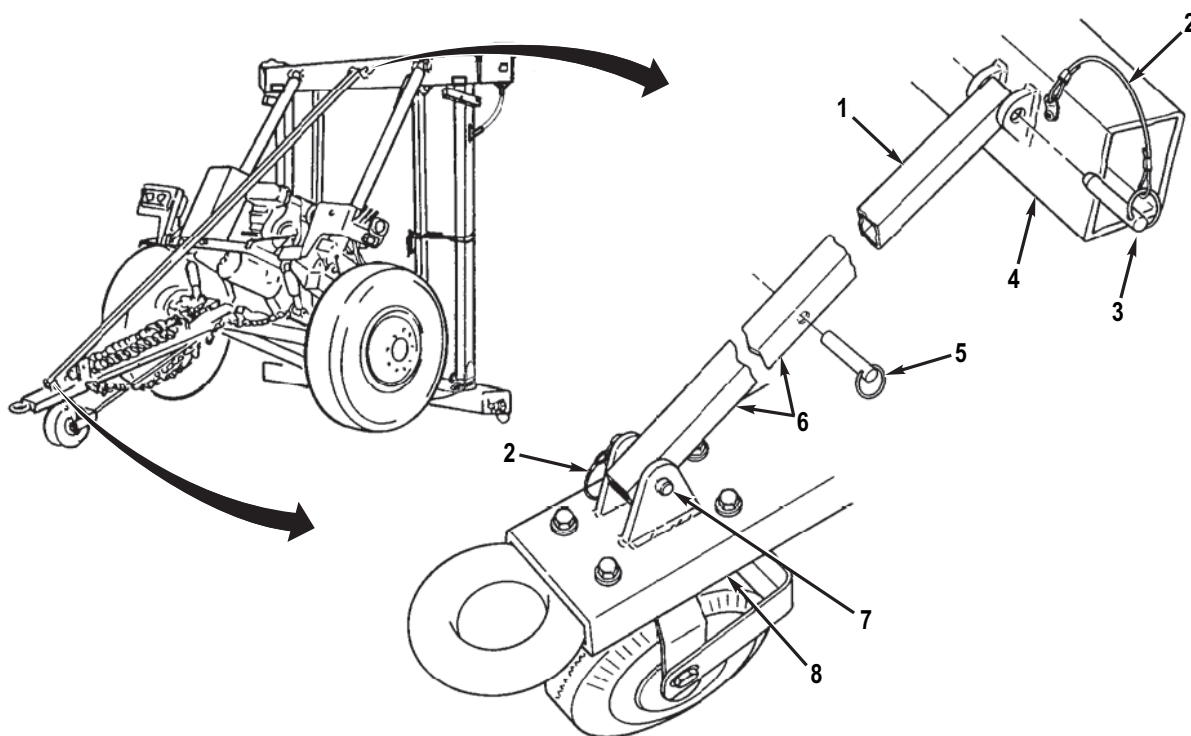
INSTALLATION

1. If removed, install detent pins (Figure 2, Items 3 and 7) and lanyard assemblies (Figure 2, Item 2) (Lanyard Assemblies Replacement (WP 0086)).
2. Install brace (Figure 2, Item 6) inside brace (Figure 2, Item 1).
3. Install detent pin (Figure 2, Item 5) in fourth hole from end of brace (Figure 2, Item 6).
4. Install brace (Figure 2, Item 1) on top beam (Figure 2, Item 4) with detent pin (Figure 2, Item 3).

NOTE

On rear dolly, telescopic brace is installed on telescopic brace bracket bolted to rear drawbar.

5. Install brace (Figure 2, Item 6) on front drawbar (Figure 2, Item 8) with detent pin (Figure 2, Item 7).



M0115JMS

Figure 2. Telescopic Brace Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
REAR DRAWBAR REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Suitable lifting device

References (cont.)

WP 0093

WP 0095

WP 0100

Personnel Required

(Two)

References

WP 0086

WARNING

Rear drawbar weighs 80 lb (36 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

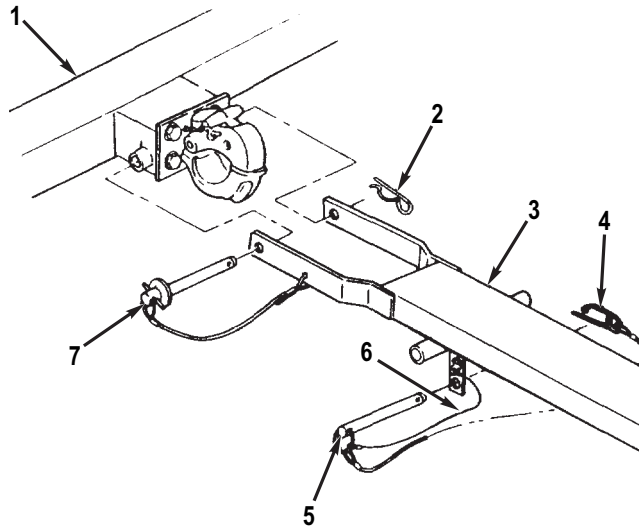
REMOVAL

1. Remove safety pin (Figure 1, Item 2), pin (Figure 1, Item 7) and rear drawbar (Figure 1, Item 3) from rear axle assembly (Figure 1, Item 1).
2. Install safety pin (Figure 1, Item 2) on pin (Figure 1, Item 7).
3. If safety pin (Figure 1, Item 4) and hitch pin (Figure 1, Item 5) for handle stowage are damaged, remove with lanyard assembly (Figure 1, Item 6) (Lanyard Assemblies Replacement (WP 0086)).

NOTE

Perform steps 4 through 6 if replacing rear drawbar.

4. Remove pin (Figure 1, Item 7) assembly (Rear Drawbar Pin Assembly Replacement (WP 0093)).
5. Remove data plate (Data Plates Replacement (WP 0100)).
6. Remove caster wheel assembly and telescopic brace bracket (Caster Wheel Assembly Maintenance (WP 0095)).



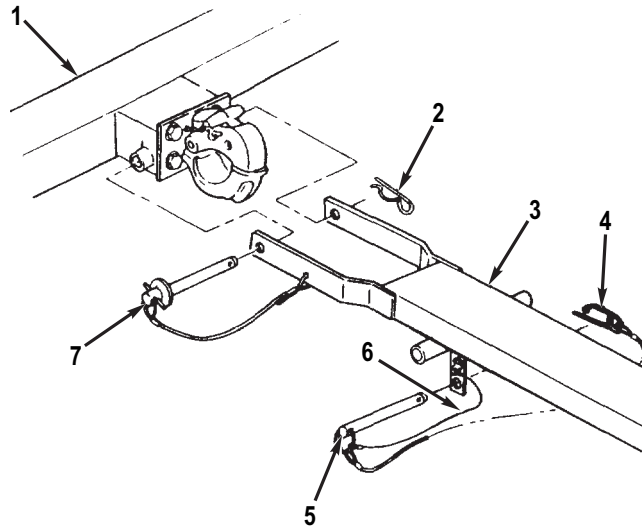
M0117JMS

Figure 1. Rear Drawbar Removal.

END OF TASK

INSTALLATION

1. If removed, install caster wheel assembly and telescopic brace bracket (Caster Wheel Assembly Maintenance (WP 0095)).
2. If removed, install data plate (Data Plates Replacement (WP 0100)).
3. If removed, install pin (Figure 2, Item 7) assembly on rear drawbar (Figure 2, Item 3) (Rear Drawbar Pin Assembly Replacement (WP 0093)).
4. If removed, install hitch pin (Figure 2, Item 5) and safety pin (Figure 2, Item 4) with lanyard assembly (Figure 2, Item 6) on rear drawbar (Figure 2, Item 3) (Lanyard Assemblies Replacement (WP 0086)).
5. Remove safety pin (Figure 2, Item 2) from pin (Figure 2, Item 7).
6. Install rear drawbar (Figure 2, Item 3) on rear axle assembly (Figure 2, Item 1) with pin (Figure 1, Item 7) and safety pin (Figure 2, Item 2).



M0117JMS

Figure 2. Rear Drawbar Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
REAR DRAWBAR PIN ASSEMBLY REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition

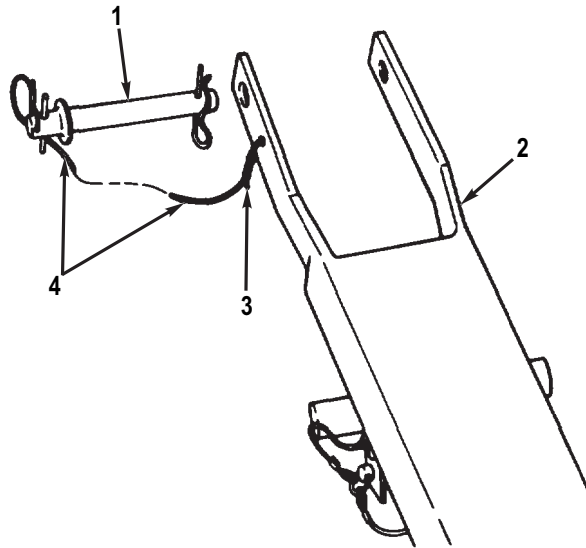
Rear drawbar removed (WP 0092)

Materials/Parts

Sleeve (WP 0153, Item 11) Qty: 2

REMOVAL

1. Cut lanyard cable (Figure 1, Item 4) and remove pin assembly (Figure 1, Item 1) from rear drawbar (Figure 1, Item 2).
2. Discard sleeve (Figure 1, Item 3).

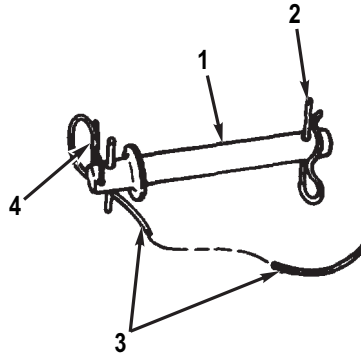


M0118JMS

Figure 1. Rear Drawbar Pin Assembly Removal.

REMOVAL - Continued

3. Remove safety pin (Figure 2, Item 2) from pin (Figure 2, Item 1).
4. Cut lanyard cable (Figure 2, Item 3) from pin (Figure 2, Item 1). Discard lanyard cable and sleeve (Figure 2, Item 4).



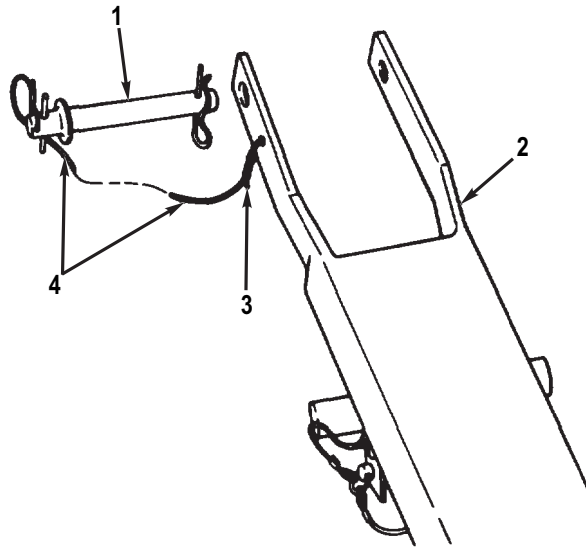
M0119JMS

Figure 2. Rear Drawbar Pin Lanyard Cable Removal.

END OF TASK

INSTALLATION

1. Install lanyard cable (Figure 2, Item 3) through hole in pin (Figure 2, Item 1). Pull loop snug and install new sleeve (Figure 2, Item 4). Crimp sleeve.
2. Install safety pin (Figure 2, Item 2) through pin (Figure 2, Item 1).



M0118JMS

Figure 3. Rear Drawbar Pin Assembly Installation.

3. Feed lanyard cable (Figure 3, Item 4) through hole in rear drawbar (Figure 3, Item 2). Pull loop snug and install new sleeve (Figure 3, Item 3). Crimp sleeve
4. Install pin assembly (Figure 3, Item 1) in rear drawbar (Figure 3, Item 2).

END OF TASK**FOLLOW-ON TASKS**

Install rear drawbar (WP 0092).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
PINTLE ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

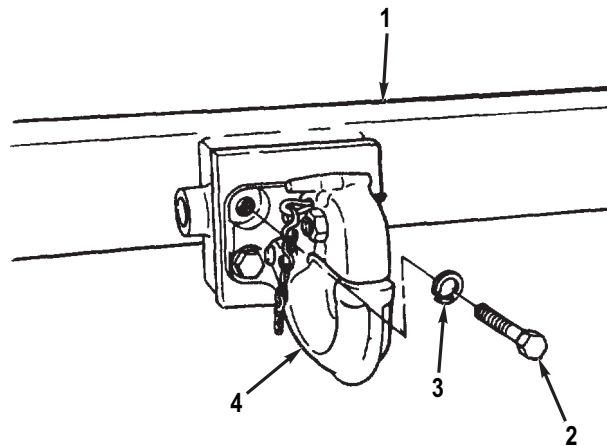
Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Materials/Parts

Lockwasher (WP 0153, Item 2) Qty: 4

REMOVAL

Remove four screws (Figure 1, Item 2), lockwashers (Figure 1, Item 3), and pintle assembly (Figure 1, Item 4) from rear axle assembly (Figure 1, Item 1). Discard lockwashers.



M0120JMS

Figure 1. Pintle Assembly Removal.

END OF TASK**INSTALLATION**

Install pintle assembly (Figure 1, Item 4) on rear axle assembly (Figure 1, Item 1) with four new lockwashers (Figure 1, Item 3) and screws (Figure 1, Item 2).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
CASTER WHEEL ASSEMBLY MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Wrench, Torque: 3/8 in. drive, 0-300 lb-in capacity (WP 0198, Table 1, Item 43)

References

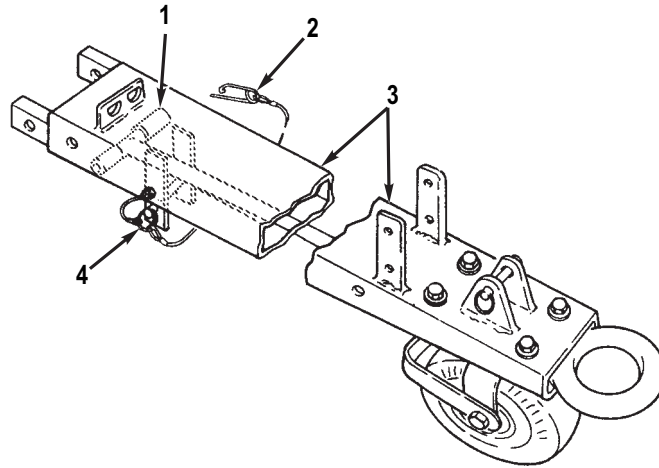
WP 0028

Materials/Parts

Locknut (WP 0154, Item 6) Qty: 4
Locknut (WP 0154, Item 3) Qty: 1

REMOVAL

1. Remove safety pin (Figure 1, Item 2), hitch pin (Figure 1, Item 4) and release handle (Figure 1, Item 1) from stowage under drawbar (Figure 1, Item 3).

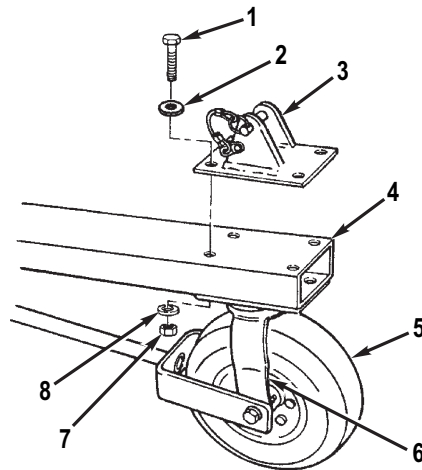


M0121JMS

Figure 1. Caster Wheel Assembly Release.

REMOVAL - Continued

2. Remove four locknuts (Figure 2, Item 7), washers (Figure 2, Item 8), screws (Figure 2, Item 1), washers (Figure 2, Item 2), telescopic brace bracket (Figure 2, Item 3) (rear drawbar), and caster wheel (Figure 2, Item 6) with tire (Figure 2, Item 5) from drawbar (Figure 2, Item 4). Discard locknuts.

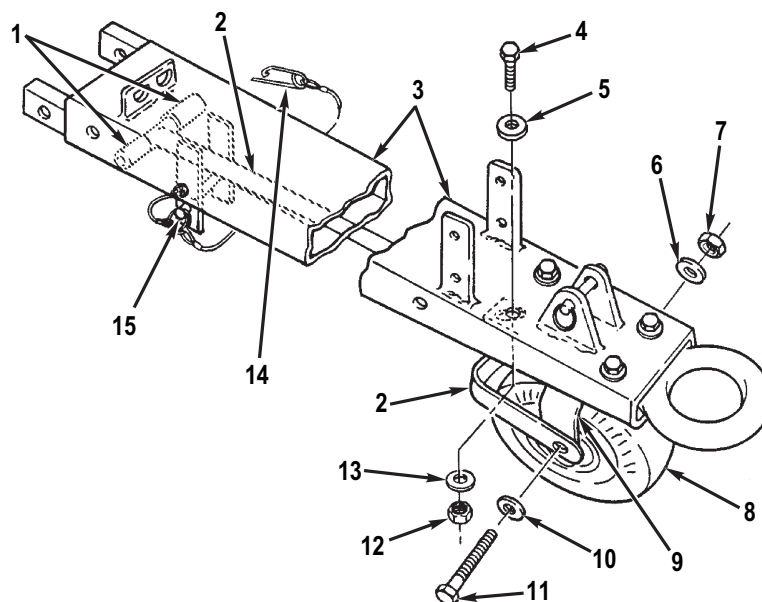


M0122JMS

Figure 2. Caster Wheel Assembly Removal.

END OF TASK**DISASSEMBLY**

1. Remove locknut (Figure 3, Item 7), washer (Figure 3, Item 6), bolt (Figure 3, Item 11), and washer (Figure 3, Item 10) from handle (Figure 3, Item 2). Discard locknut.
2. Separate handle (Figure 3, Item 2) from tire (Figure 3, Item 8) and caster wheel (Figure 3, Item 9).
3. Remove two vinyl grips (Figure 3, Item 1) from handle (Figure 3, Item 2).

DISASSEMBLY - Continued

M0123JMS

Figure 3. Caster Wheel Assembly Disassembly.

END OF TASK**ASSEMBLY**

1. Install two vinyl grips (Figure 3, Item 1) on handle (Figure 3, Item 2).
2. Install handle (Figure 3, Item 2) on tire (Figure 3, Item 8) and castor wheel (Figure 3, Item 9) with washer (Figure 3, Item 10), bolt (Figure 3, Item 11), washer (Figure 3, Item 6), and new locknut (Figure 3, Item 7).

END OF TASK**INSTALLATION****CAUTION**

Overtightening of castor wheel mounting hardware to rear drawbar will damage rear drawbar.

1. Install castor wheel (Figure 3, Item 6) with tire (Figure 3, Item 8) and telescopic brace bracket (Figure 3, Item 3) (rear drawbar) on drawbar (Figure 3, Item 3) with four washers (Figure 3, Item 5), screws (Figure 3, Item 4), washers (Figure 3, Item 11), and new locknuts (Figure 3, Item 12). Torque locknuts on rear drawbar to 108-120 lb-in (12-14 N•m).
2. Stow handle (Figure 3, Item 2) under drawbar (Figure 3, Item 3) and secure with hitch pin (Figure 3, Item 15) and safety pin (Figure 3, Item 14).

END OF TASK

FOLLOW-ON TASKS

Lubricate caster wheel assembly (WP 0028).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
SHOCK ABSORBER REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

References

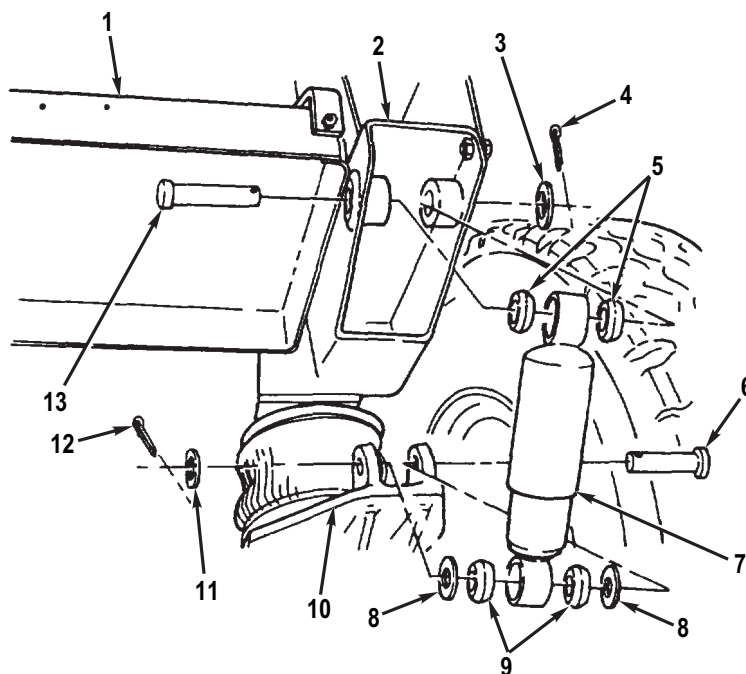
WP 0085

Materials/Parts

Cotter pin (WP 0155, Item 8) Qty: 2

REMOVAL

1. Remove cotter pin (Figure 1, Item 12), washer (Figure 1, Item 11), clevis pin (Figure 1, Item 6), shock absorber (Figure 1, Item 7), two washers (Figure 1, Item 8), and bushings (Figure 1, Item 9) from mounting lugs on axle assembly (Figure 1, Item 10). Discard cotter pin.
2. Remove cotter pin (Figure 1, Item 4) and washer (Figure 1, Item 3) from clevis pin (Figure 1, Item 13). Discard cotter pin.
3. Unlock pivoting tray lockout brace (Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement (WP 0085)) and tip pivoting tray (Figure 1, Item 1) to gain access to clevis pin (Figure 1, Item 13) as required.
4. Remove clevis pin (Figure 1, Item 13), shock absorber (Figure 1, Item 7), and two bushings (Figure 1, Item 5) from suspension link (Figure 1, Item 2).



M0137JMS

Figure 1. Shock Absorber Removal.

END OF TASK

INSTALLATION**NOTE**

It may be necessary to paint ride height indicator ring on shock absorber. Use old shock absorber as a guide.

1. Position shock absorber (Figure 1, Item 7) four bushings (Figure 1, Items 5 and 9), and two washers (Figure 1, Item 8) between mounting lugs on axle assembly (Figure 1, Item 10) and suspension link (Figure 1, Item 2).
2. Tip pivoting tray (Figure 1, Item 1) as required to gain access.
3. Install shock absorber (Figure 1, Item 7) on suspension link (Figure 1, Item 2) with clevis pin (Figure 1, Item 13) washer (Figure 1, Item 3) and new cotter pin (Figure 1, Item 4). Lock pivoting tray lockout brace (Pivoting Tray Lockout Brace and Upper and Lower Brackets Replacement (WP 0085)).
4. Install shock absorber (Figure 1, Item 7) on mounting lugs on axle assembly (Figure 1, Item 10) with clevis pin (Figure 1, Item 6) washer (Figure 1, Item 11), and new cotter pin (Figure 1, Item 12).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
AIR BAG REPLACEMENT**

INITIAL SETUP:

Tools and Special Tools

- Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
- Jack, Bottle, Hydraulic: 12 ton (WP 0198, Table 1, Item 16)
- Trestle, Motor Vehicle Maintenance: 7 ton capacity (WP 0198, Table 1, Item 31)
- Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)
- Suitable support

Materials/Parts (cont.)

- Locknut (WP 0155, Item 5) Qty: 1
- Self-tapping screw (WP 0161, Item 26) Qty: 1

Personnel Required

(Two)

References

- WP 0071
- WP 0128

Materials/Parts

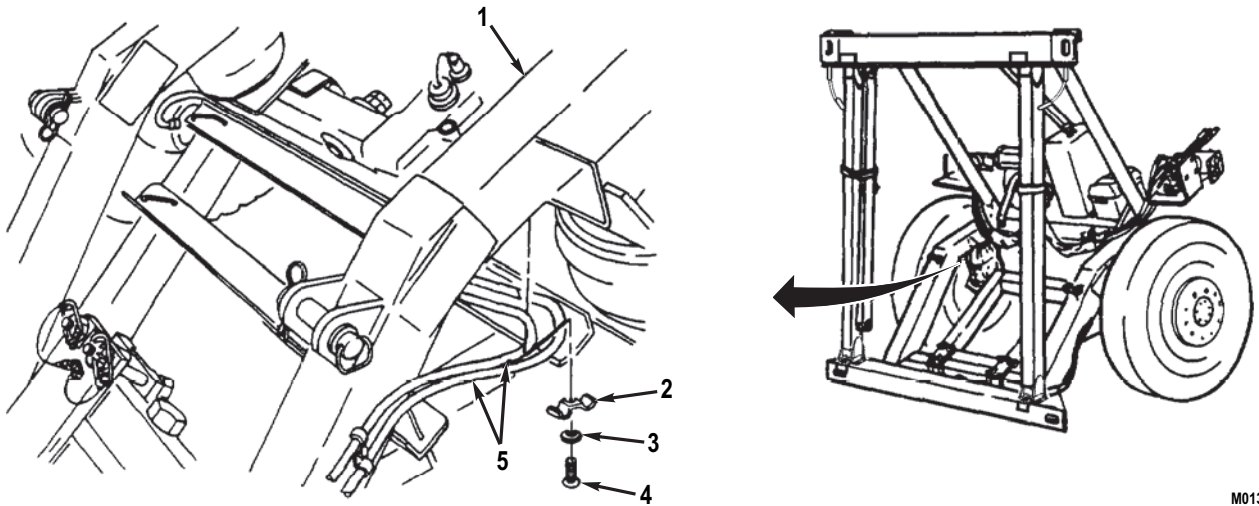
- Compound: Sealing, Resin, Type II, Grade N (WP 0197, Table 1, Item 10)
- Compound: Sealing, Thread-locking (WP 0197, Table 1, Item 11)
- Locknut (WP 0155, Item 2) Qty: 1

Equipment Condition

- Dolly set lowered, front and rear dollies detached (WP 0005)
- Steering locking pin installed in steering link (WP 0008)
- Shock absorbers removed from axle (WP 0096)

REMOVAL

1. Remove self-tapping screw (Figure 1, Item 4), washer (Figure 1, Item 3), hose clamp (Figure 1, Item 2), and two hose assemblies (Figure 1, Item 5) from underside of right side suspension link (Figure 1, Item 1). Discard self-tapping screw.

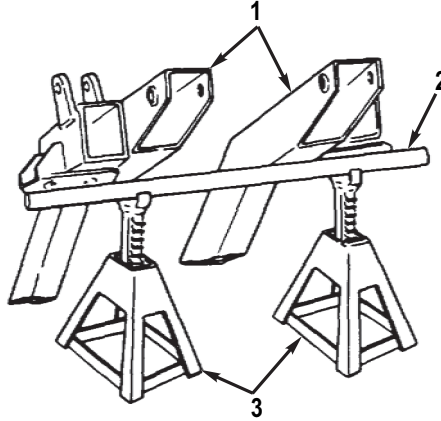


M0134JMS

Figure 1. Air Bag Removal.

REMOVAL - Continued

2. Place a support (Figure 2, Item 2) between two trestles (Figure 2, Item 3) under suspension links (Figure 2, Item 1) at point where suspension links bend. Discard self-tapping screw.

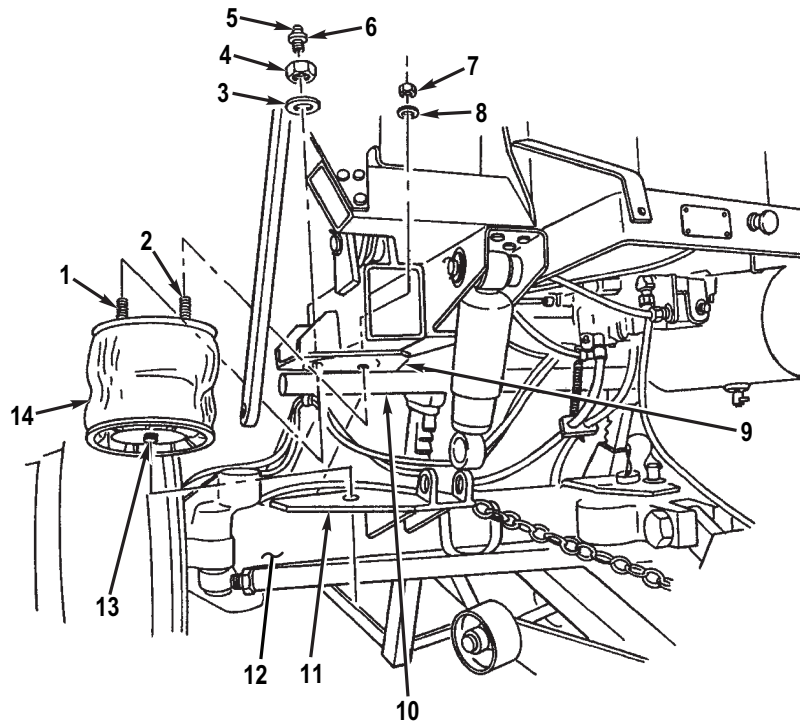


M0135JMS

Figure 2. Suspension Link Support.

3. Raise axle assembly (Figure 3, Item 12) and support with two trestles. Remove wheel assembly from each end of axle assembly (Wheel Assembly Replacement (WP 0071)).
4. Remove cap (Figure 3, Item 5) and air bag valve (Figure 3, Item 6) from stud (Figure 3, Item 1).
5. Remove two locknuts (Figure 3, Items 4 and 7) and washers (Figure 3, Items 3 and 8) from studs (Figure 3, Items 1 and 2) at suspension link mounting plate (Figure 3, Item 9). Discard locknuts.
6. Lower axle assembly (Figure 3, Item 12) until studs (Figure 3, Items 1 and 2) are clear of suspension link mounting plate (Figure 3, Item 9).
7. Remove air bag (Figure 3, Item 14) by turning air bag to remove stud (Figure 3, Item 13) from axle mounting plate (Figure 3, Item 11).

REMOVAL - Continued



M0136JMS

Figure 3. Air Bag Removal.

END OF TASK

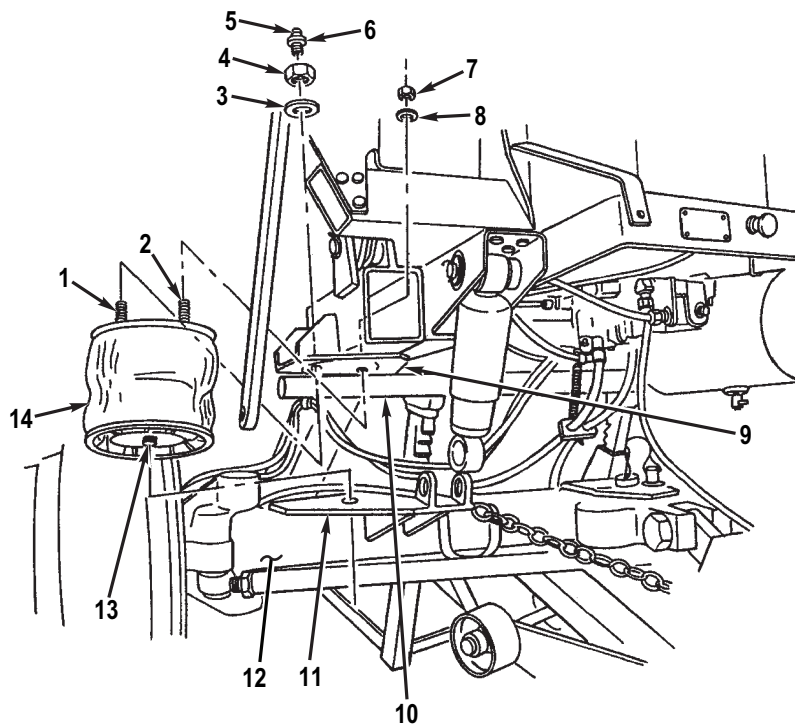
INSTALLATION

1. Install stud (Figure 4, Item 13) on axle mounting plate (Figure 4, Item 11) and turn air bag (Figure 4, Item 14).

CAUTION

Use assistance to raise axle evenly to avoid damage to studs.

2. Evenly raise axle assembly (Figure 4, Item 12) until studs (Figure 4, Items 1 and 2) are positioned through holes in suspension link mounting plate (Figure 4, Item 9). Support axle with two trestles.
3. Remove support (Figure 4, Item 6) from suspension links (Figure 4, Item 1).
4. Install two washers (Figure 4, Items 3 and 8) and new locknuts (Figure 4, Items 4 and 7) on studs (Figure 4, Items 1 and 2). Torque locknuts to 25 lb-ft (34 N•m).



M0136JMS

Figure 4. Air Bag Installation.

5. Install air bag valve (Figure 4, Item 6) on stud (Figure 4, Item 1) with sealing compound (General Maintenance Instructions (WP 0128)). Install cap (Figure 4, Item 5) on air bag valve.
6. Install wheel assemblies (Wheel Assembly Replacement (WP 0071)) on axle assembly (Figure 4, Item 12).
7. Remove trestles from under axle assembly (Figure 4, Item 12) and lower axle assembly.
8. Install two hose assemblies (Figure 5, Item 5) on underside of right side suspension link (Figure 5, Item 1) with hose clamp (Figure 5, Item 2), washer (Figure 5, Item 3), and new self-tapping screw (Figure 5, Item 4).

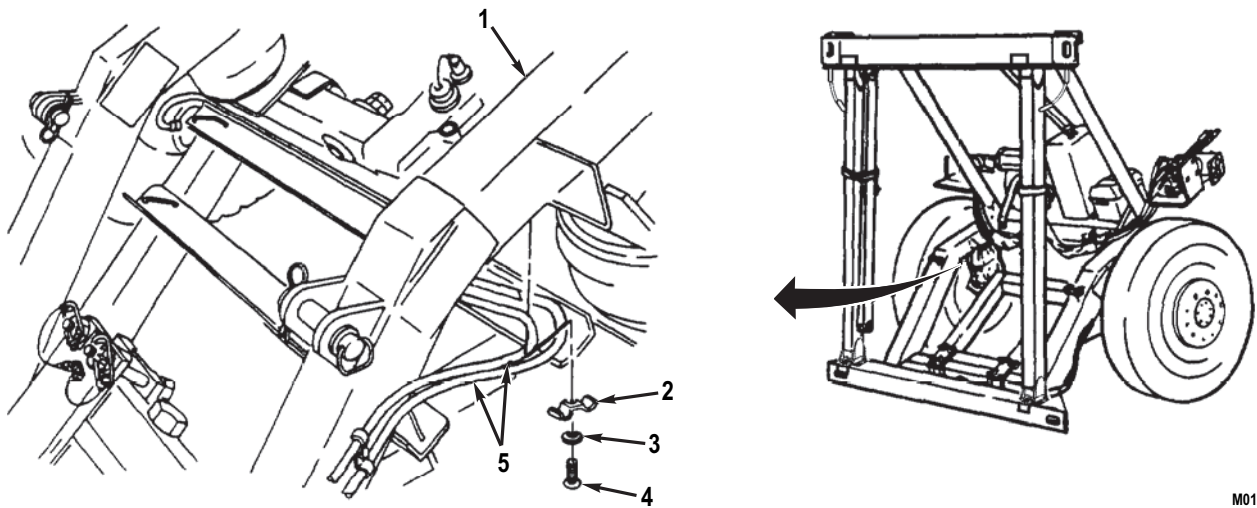
INSTALLATION - Continued

Figure 5. Air Bag Hoses Installation.

END OF TASK

FOLLOW-ON TASKS

1. Install shock absorbers on axle (WP 0096).
2. Stow steering locking pin (WP 0008) in stowed position.

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
TOOLBOX AND MOUNTING BRACKETS REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Drill, Electric, Portable (WP 0198, Table 1, Item 8)
Drill Set, Twist (WP 0198, Table 1, Item 9)

Tools and Special Tools (cont.)

Riveter, Blind Hand: 3/32 in., 1/8 in., 5/32 in., and 3/18 in. diameters (WP 0198, Table 1, Item 23)
Wrench, Torque: 3/8 in. drive, 0-300 lb-in. capacity (WP 0198, Table 1, Item 43)

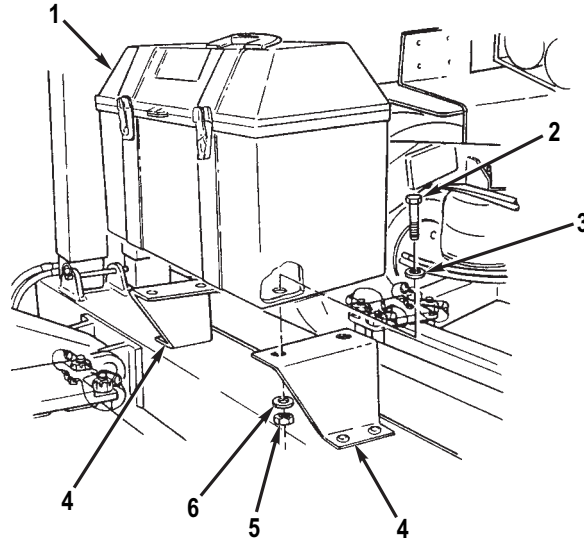
Materials/Parts

Locknut (WP 0156, Item 4) Qty: 4
Packing (WP 0156, Item 3) Qty: 4
Rivet (WP 0151, Item 34) Qty: 4

TOOLBOX REMOVAL**NOTE**

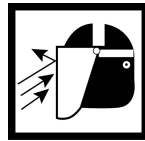
Note position of toolbox before removal. Toolbox **MUST** be installed in same position.

1. Open toolbox (Figure 1, Item 1) and remove contents.
2. Remove four locknuts (Figure 1, Item 5), washers (Figure 1, Item 6), screws (Figure 1, Item 2), packings with retainer (Figure 1, Item 3), and toolbox (Figure 1, Item 1) from mounting brackets (Figure 1, Item 4). Discard locknuts and packings.



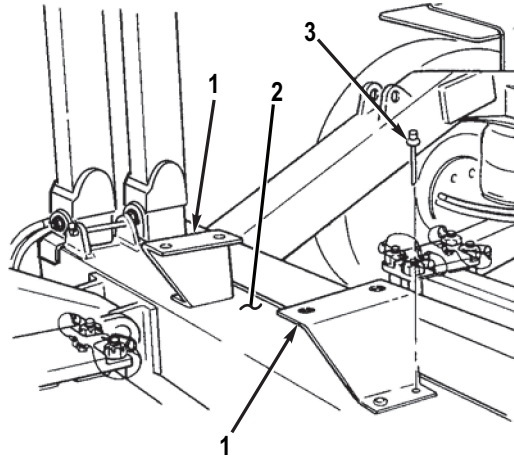
M0138JMS

Figure 1. Toolbox Removal.

END OF TASK**TOOLBOX MOUNTING BRACKET REMOVAL****WARNING**

Wear eye protection when using electric drill to drill out rivets. Failure to follow this warning may cause serious eye injury to personnel. Seek medical attention in the event of an injury.

1. Drill out four rivets (Figure 2, Item 3) from mounting brackets (Figure 2, Item 1). Discard rivets.
2. Remove two mounting brackets (Figure 2, Item 1) from bottom beam (Figure 2, Item 2).

TOOLBOX MOUNTING BRACKET REMOVAL - Continued

M0129JMS

Figure 2. Toolbox Mounting Brackets Removal.

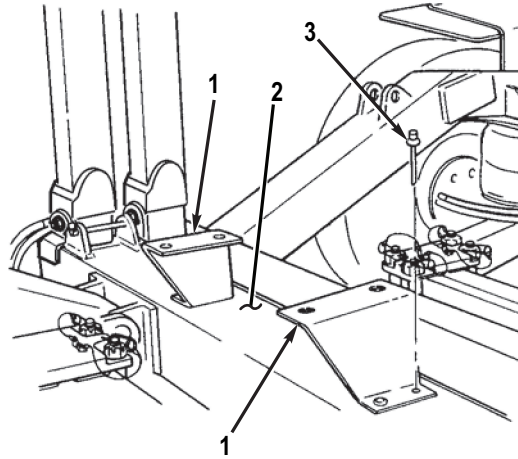
END OF TASK**TOOLBOX MOUNTING BRACKET INSTALLATION**

Install two mounting brackets (Figure 2, Item 1) on bottom beam (Figure 2, Item 2) with four new rivets (Figure 2, Item 3).

END OF TASK

TOOLBOX INSTALLATION

1. Install toolbox (Figure 3, Item 1) on mounting brackets (Figure 3, Item 4) with four new packings with retainer (Figure 3, Item 3), screws (Figure 3, Item 2), washers (Figure 3, Item 6), and new locknuts (Figure 3, Item 5). Torque locknuts to 40 ± 4 lb-in (4.52 ± 0.45 N•m).
2. Place removed contents in toolbox (Figure 3, Item 1) and close.



M0129JMS

Figure 3. Toolbox Mounting Brackets Installation.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
REFLECTORS REPLACEMENT**

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Materials/Parts

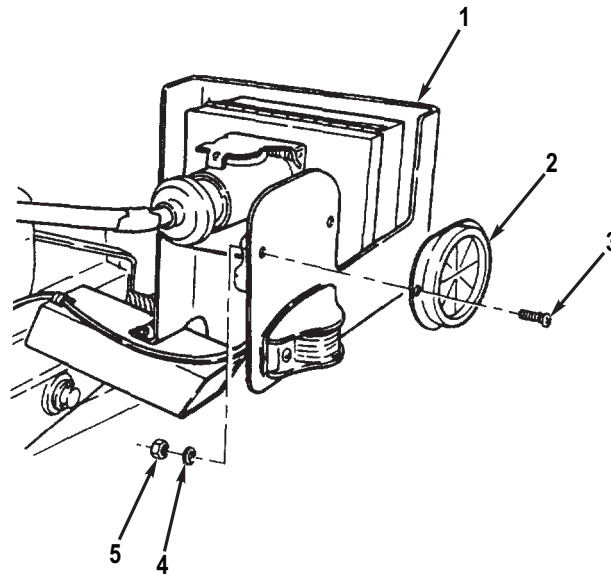
Locknut (WP 0157, Item 1 and 5) Qty: 2

NOTE

- All reflectors are replaced the same way. Front dolly right side reflector replacement is illustrated.
- Amber reflectors are located on front dolly; red reflectors are located on rear dolly.

REMOVAL

Remove two locknuts (Figure 1, Item 5), washers (Figure 1, Item 4), screws (Figure 1, Item 3), and reflector (Figure 1, Item 2) from bracket (Figure 1, Item 1). Discard locknuts.



M0139JMS

Figure 1. Reflector Removal.

END OF TASK**INSTALLATION**

Install reflector (Figure 1, Item 2) on bracket (Figure 1, Item 1) with two screws (Figure 1, Item 3), washers (Figure 1, Item 4), and new locknuts (Figure 1, Item 5).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
DATA PLATE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Materials/Parts

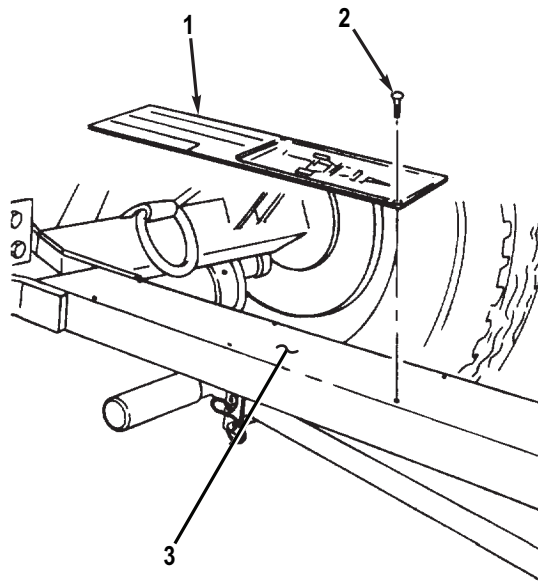
Self-tapping screw (WP 0158, Item 22 and 23)
Qty: As required

NOTE

All data plates are replaced the same way. Lubrication chart data plate is illustrated.

REMOVAL

Remove self-tapping screws (Figure 1, Item 2) from data plate (Figure 1, Item 1) and mounting surface (Figure 1, Item 3). Discard self-tapping screws.



M0140JMS

Figure 1. Data Plate Removal.

END OF TASK**INSTALLATION**

Install data plate (Figure 1, Item 1) on mounting surface (Figure 1, Item 3) with new self-tapping screws (Figure 1, Item 2).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
DECAL REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References

WP 0128

Materials/Parts

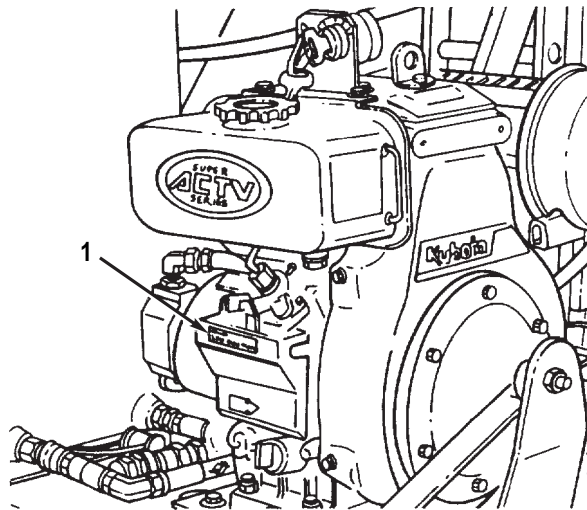
Rag, Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

NOTE

All decals are replaced the same way. Engine speed control lever decal is illustrated.

REMOVAL

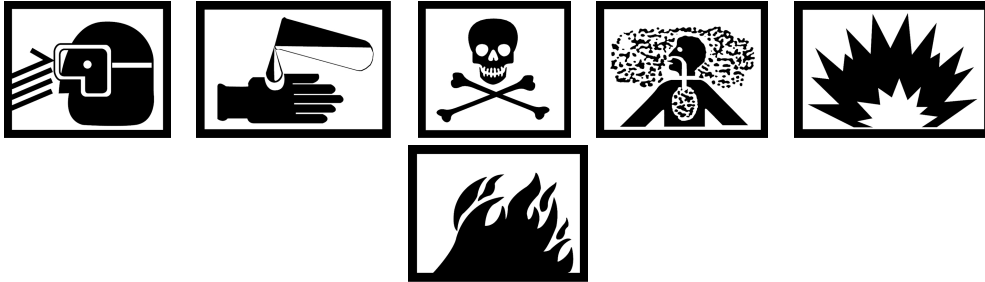
Scrape off decal (Figure 1, Item 1).



M0141JMS

Figure 1. Decal Removal.

END OF TASK

CLEANING**WARNING**

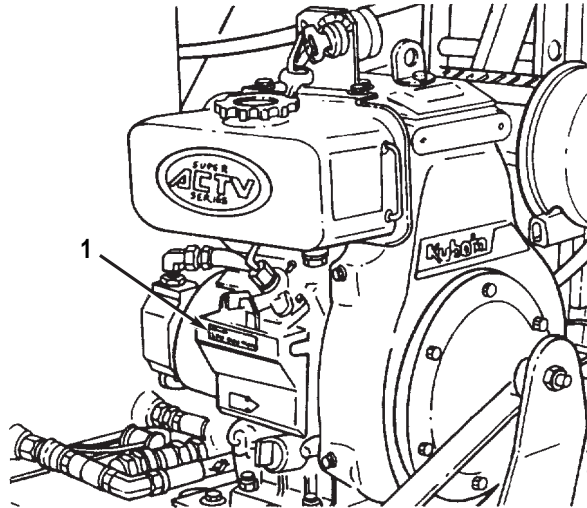
- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Clean adhesive and dirt from mounting surface with cleaning solvent and dry with a clean rag IAW General Maintenance Instructions (WP 0128).

END OF TASK

INSTALLATION

1. Remove backing from decal (Figure 2, Item 1).
2. Place decal (Figure 2, Item 1) on mounting surface. Press firmly to remove air bubbles and to secure.



M0141JMS

Figure 2. Decal Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE HYDRAULIC PUMP MAINTENANCE

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Wrench, Torque: 3/8 in. drive, 0-300 lb-in capacity (WP 0198, Table 1, Item 43)

Materials/Parts (cont.)

Lockwasher (WP 0159, Item 12) Qty: 4
Preformed packing (WP 0161, Item 3) Qty: 1
Preformed packing (WP 0161, Item 17) Qty: 1
Seal (WP 0159, Item 3) Qty: 1

Materials/Parts

Fluid: Hydraulic, Petroleum Base, OHA (WP 0197, Table 1, Item 15)
Grease: Aircraft, WTR (WP 0197, Table 1, Item 26)
Rag: Wiping (WP 0197, Table 1, Item 42)
Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Pressure Sensitive Adhesive, Masking, Flat, 2 Inch Width (WP 0197, Table 1, Item 53)
Lockwasher (WP 0159, Item 10) Qty: 4

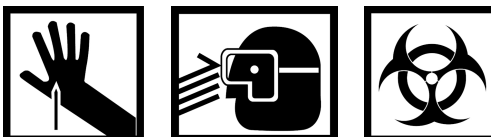
References

WP 0029
WP 0106
WP 0128

Equipment Condition

Dolly set lowered (WP 0005)
Engine starter switch set to OFF position (WP 0005)

WARNING



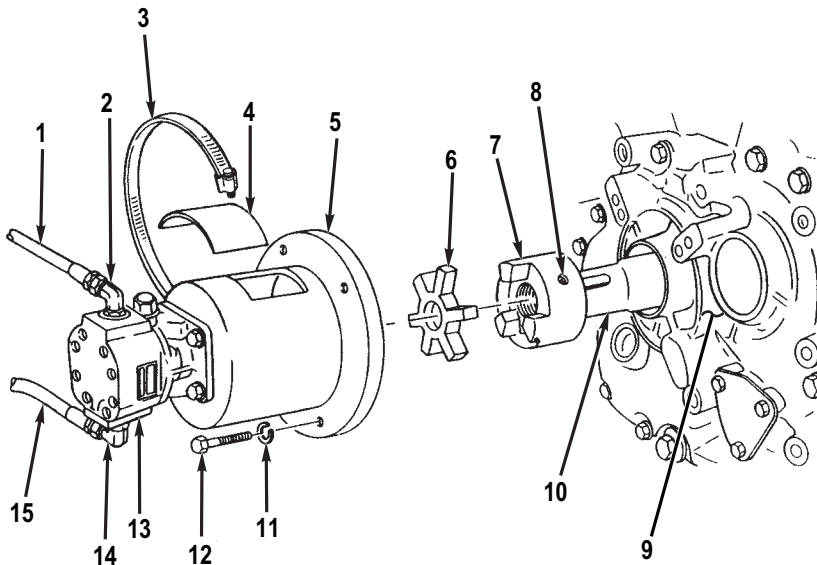
- DO NOT disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Dolly set must be fully lowered to the ground and engine must be shut down before lines and fittings are disconnected. A line or fitting disconnected under pressure will explode with great force. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Escaping hydraulic fluid under pressure can penetrate the skin, causing serious injury to personnel. Relieve pressure before disconnecting hydraulic lines and fittings. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject hydraulic fluid under high pressure. Use a piece of cardboard or paper to search for leaks. If any hydraulic fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may result in damage to environment and health of personnel. Seek medical attention in the event of an injury.

NOTE

- Hydraulic positioning cylinders are located inside top and bottom beam telescoping vertical tubes. See Hydraulic Positioning Cylinder Maintenance (WP 0106) for positioning cylinders replacement.
- A suitable container should be used to catch any draining hydraulic fluid. Ensure that all spills are properly cleaned.
- Hydraulic lines should be tagged before removal. General Maintenance Instructions (WP 0128) for tagging instructions.
- Hydraulic pump ports should be plugged with masking tape or other suitable means as lines are disconnected or fittings are removed. General Maintenance Instructions (WP 0128) for instructions.

REMOVAL

1. Disconnect hose assembly (Figure 1, Item 1) from elbow (Figure 1, Item 2) at inlet (top) of hydraulic pump (Figure 1, Item 13). Drain hydraulic fluid into a suitable container.
2. Disconnect hose assembly (Figure 1, Item 15) from elbow (Figure 1, Item 14) at outlet (bottom) of hydraulic pump (Figure 1, Item 13). Drain hydraulic fluid into a suitable container.
3. Remove clamp (Figure 1, Item 3) and access cover (Figure 1, Item 4) from adapter (Figure 1, Item 5).
4. Remove four screws (Figure 1, Item 12), lockwashers (Figure 1, Item 11), and adapter (Figure 1, Item 5) with hydraulic pump (Figure 1, Item 13) from engine (Figure 1, Item 9). Discard lockwashers.
5. Remove spider (Figure 1, Item 6) from engine coupling half (Figure 1, Item 7).
6. If engine coupling half (Figure 1, Item 7) is damaged, loosen screw (Figure 1, Item 8) and remove engine coupling from crankshaft (Figure 1, Item 10).



M0142JMS

Figure 1. Hydraulic Pump Removal.

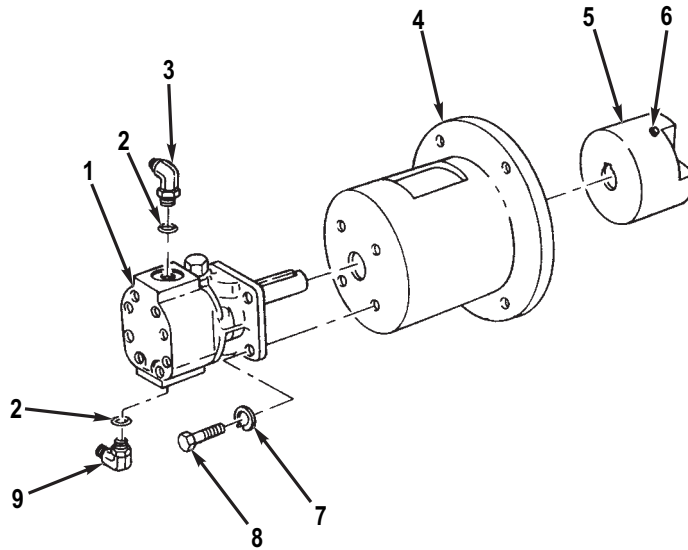
REMOVAL - Continued

7. Loosen screw (Figure 2, Item 6) from hydraulic pump coupling half (Figure 2, Item 5).

NOTE

Note and mark position of hydraulic pump on adapter to aid during installation.

8. Remove four bolts (Figure 2, Item 8), lockwashers (Figure 2, Item 7), hydraulic pump (Figure 2, Item 1), and hydraulic pump coupling half (Figure 2, Item 5) from adapter (Figure 2, Item 4). Discard lockwashers.
9. Remove two elbows (Figure 2, Items 3 and 9) and two preformed packings (Figure 2, Item 2) from hydraulic pump (Figure 2, Item 1). Discard preformed packings.



M0143JMS

Figure 2. Hydraulic Pump Removal.

END OF TASK

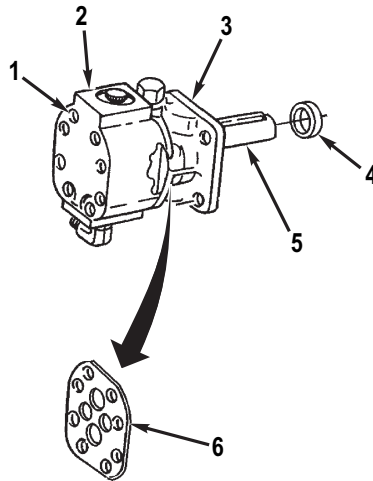
DISASSEMBLY

1. Remove eight screws (Figure 3, Item 1).
2. Separate pump halves (Figure 3, Items 2 and 3).
3. Inspect seal/shim (Figure 3, Item 6) for damage. Retain if not damaged.
4. Separate pump shaft (Figure 3, Item 5) from pump half (Figure 3, Item 3).

CAUTION

Use caution not to damage housing of pump half.

5. Remove seal (Figure 3, Item 4) from pump half (Figure 3, Item 3). Discard seal.



M0144JMS

Figure 3. Hydraulic Pump Disassembly.

END OF TASK**CLEANING**

Clean all removed components with a clean rag IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSPECTION**

Inspect all components for cracks, breaks, bends, corrosion, or damaged threads IAW General Maintenance Instructions (WP 0128). Replace damaged components.

END OF TASK**ASSEMBLY**

1. Lightly tap new seal (Figure 4, Item 4) into pump half (Figure 4, Item 3).

CAUTION

Use caution when inserting pump shaft into pump half. Damage to seal could result.

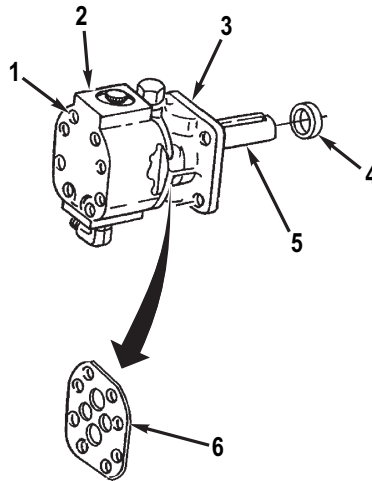
ASSEMBLY - Continued

2. Insert pump shaft (Figure 4, Item 5) into pump half (Figure 4, Item 3) and through seal (Figure 4, Item 4).

NOTE

If a replacement seal/shim is required, obtain from seal kit. Replace seal/shim color for color, to ensure pump gear internal clearances are maintained.

3. Assemble pump half (Figure 4, Item 2), seal/shim (Figure 4, Item 6), and pump half (Figure 4, Item 3). Secure with eight screws (Figure 4, Item 1).
4. Torque screws (Figure 4, Item 1) to 114-150 lb-in (13-17 N•m).



M0144JMS

Figure 4. Hydraulic Pump Assembly.

END OF TASK

INSTALLATION**NOTE**

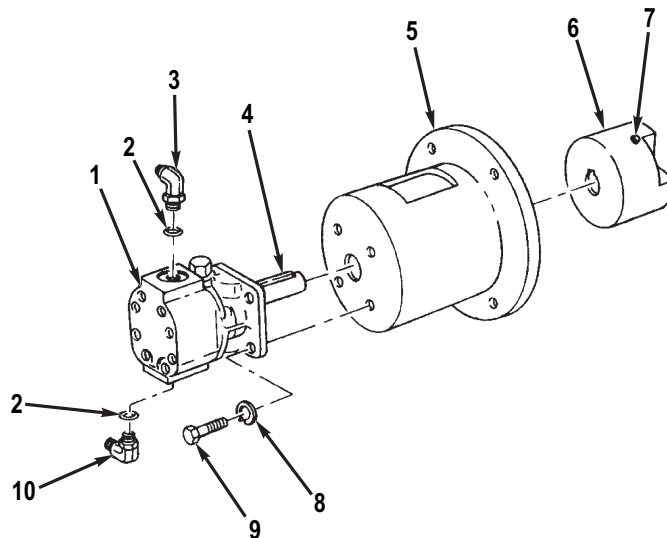
Preformed packings should be lightly coated with hydraulic fluid before installation.

1. Install two new preformed packings (Figure 5, Item 2) and elbows (Figure 5, Items 3 and 10) on hydraulic pump (Figure 5, Item 1).

NOTE

Hydraulic pump should be installed with inlet (suction) port at top and aligned with top of adapter. Access cover opening of adapter will also be facing up.

2. Install hydraulic pump (Figure 5, Item 1) on adapter (Figure 5, Item 5) with four new lockwashers (Figure 5, Item 8) and bolts (Figure 5, Item 9).
3. Coat pump shaft (Figure 5, Item 4) with grease. Install hydraulic pump coupling half (Figure 5, Item 6) on pump shaft with keyways engaged. Tighten screw (Figure 5, Item 7) on pump coupling half.



M0145JMS

Figure 5. Hydraulic Pump Installation.

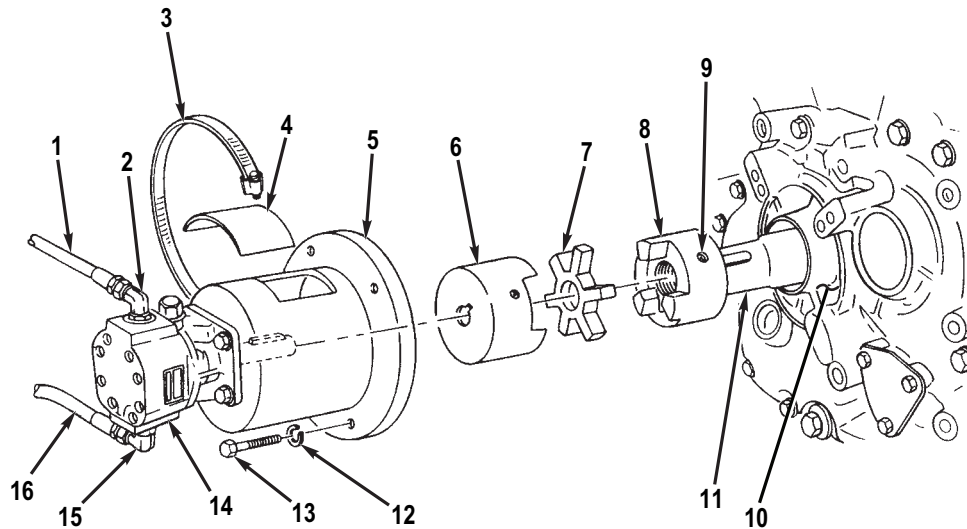
NOTE

Ensure keyways are engaged.

4. Coat crankshaft (Figure 6, Item 11) with grease. If removed, install engine coupling half (Figure 6, Item 8) until flush with end of crankshaft. Tighten screw (Figure 6, Item 9).
5. Install spider (Figure 6, Item 7) on engine coupling half (Figure 6, Item 8).
6. Position adapter (Figure 6, Item 5) with hydraulic pump (Figure 6, Item 14) at engine (Figure 6, Item 10) and engage hydraulic pump coupling half (Figure 6, Item 6) with spider (Figure 6, Item 7). Rotate adapter until hole for access cover (Figure 6, Item 4) is at top. Install four new lockwashers (Figure 6, Item 12) and screws (Figure 6, Item 13).
7. Install access cover (Figure 6, Item 4) on adapter (Figure 6, Item 5) and secure with clamp (Figure 6, Item 3).

INSTALLATION - Continued

8. Connect hose assembly (Figure 6, Item 16) to elbow (Figure 6, Item 15) at outlet (bottom) of hydraulic pump (Figure 6, Item 14).
9. Connect hose assembly (Figure 6, Item 1) to elbow (Figure 6, Item 2) at inlet (top) of hydraulic pump (Figure 6, Item 14).



M0146JMS

Figure 6. Hydraulic Pump and Adapter Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Fill hydraulic reservoir with hydraulic fluid (WP 0029).
2. Operate engine (WP 0005) and check operation of lift and positioning cylinders (WP 0005).
3. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
HYDRAULIC CONTROL VALVE MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Adapter, Straight, Pipe to Boss (WP 0194, Table 2, Item 3)
Cylinder, Compressed Gas: for Acetylene (WP 0198, Table 1, Item 6)
Vise, Machinist's (WP 0198, Table 1, Item 36)
Wrench, Torque: 3/8 in. Drive, 0-300 lb-in Capacity (WP 0198, Table 1, Item 43)

Materials/Parts

Fluid: Hydraulic, Petroleum Base, OHA (WP 0197, Table 1, Item 15)
Rag: Wiping (WP 0197, Table 1, Item 42)
Strap: Tiedown Electrical Component (WP 0197, Table 1, Item 46)
Tag: Marker (WP 0197, Table 1, Item 49)
Tape: Pressure Sensitive Adhesive (WP 0197, Table 1, Item 53)
Handle Kit (WP 0188, Item 4) Qty: as required

Materials/Parts (cont.)

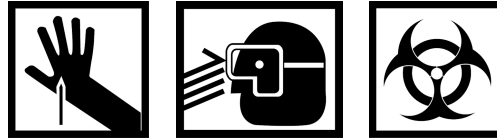
Lockwasher (WP 0160, Item 19) Qty: 6
Lockwasher (WP 0160, Item 2) Qty: 6
Preformed packing (WP 0161, Item 3) Qty: 11 (Front Dolly)
Preformed packing (WP 0161, Item 17) Qty: 2 (Front Dolly)
Preformed packing (WP 0161, Item 3) Qty: 8 (Rear Dolly)
Seal kit (WP 0188, Item 3) Qty: 1
Tie-rod set (WP 0160, Item 2) Qty: 3

References

WP 0029
WP 0128

Equipment Condition

Dolly set lowered (WP 0005)
Engine starter switch set to OFF position (WP 0005)

WARNING

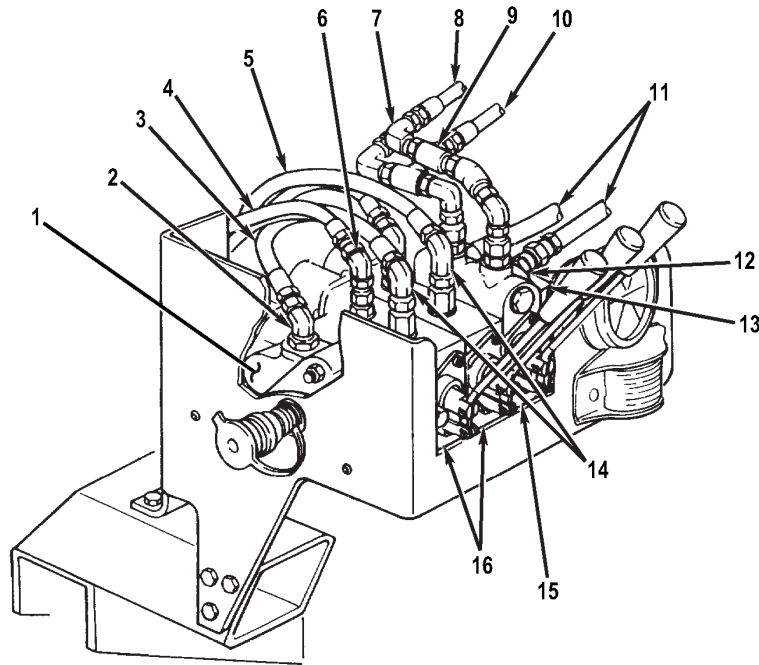
- DO NOT disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Dolly set must be fully lowered to the ground and engine must be shut down before lines and fittings are disconnected. A line or fitting disconnected under pressure will explode with great force. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Escaping hydraulic fluid under pressure can penetrate the skin, causing serious injury to personnel. Relieve pressure before disconnecting hydraulic lines and fittings. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject hydraulic fluid under high pressure. Use a piece of cardboard or paper to search for leaks. If any hydraulic fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

NOTE

- Hydraulic lines should be tagged before removal IAW General Maintenance Instructions (WP 0128) .
- Hydraulic control valve ports should be plugged with masking tape or other suitable means as lines are disconnected or fittings are removed IAW General Maintenance Instructions (WP 0128) .
- A suitable container should be used to catch any draining hydraulic fluid. Ensure that all spills are properly cleaned.
- Tie-down straps must be removed from hydraulic hose assemblies and electrical cable assembly during removal. Ensure that new tie-down straps are used during installation.

REMOVAL (FRONT DOLLY)

1. Disconnect hose assembly (Figure 1, Item 3) from elbow (Figure 1, Item 2) at inlet section (Figure 1, Item 1).
2. Disconnect two hose assemblies (Figure 1, Item 11) from unions (Figure 1, Item 12) at outlet section (Figure 1, Item 13).
3. Disconnect two hose assemblies (Figure 1, Item 5) from long elbows (Figure 1, Item 14) at two lift cylinder work sections (Figure 1, Item 16).
4. Disconnect two hose assemblies (Figure 1, Item 4) from elbows (Figure 1, Item 6) at two lift cylinder work sections (Figure 1, Item 16).
5. Disconnect two hose assemblies (Figure 1, Item 8) from elbows (Figure 1, Item 7) at positioning cylinders work section (Figure 1, Item 15).
6. Disconnect two hose assemblies (Figure 1, Item 10) from tees (Figure 1, Item 9) at positioning cylinders work section (Figure 1, Item 15).

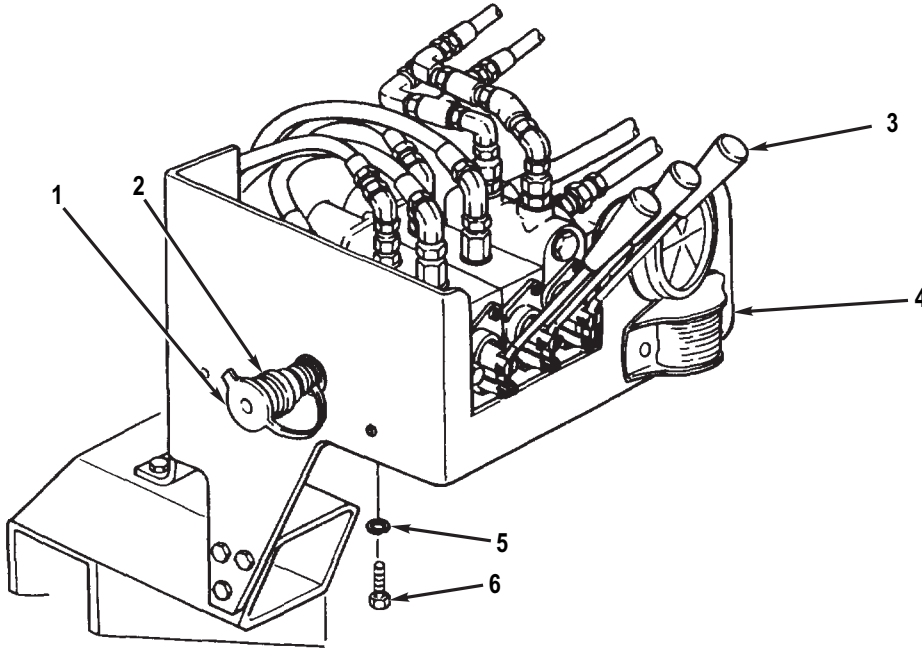


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Figure 1. Hydraulic Control Valve (Front Dolly) Disconnection.

REMOVAL (FRONT DOLLY) - Continued

7. Remove dust plug (Figure 2, Item 1) from redundant power quick disconnect coupler (Figure 2, Item 2).
8. Remove three screws (Figure 2, Item 6), lockwashers (Figure 2, Item 5), and hydraulic control valve (Figure 2, Item 3) with fittings from bracket (Figure 2, Item 4). Discard lockwashers.



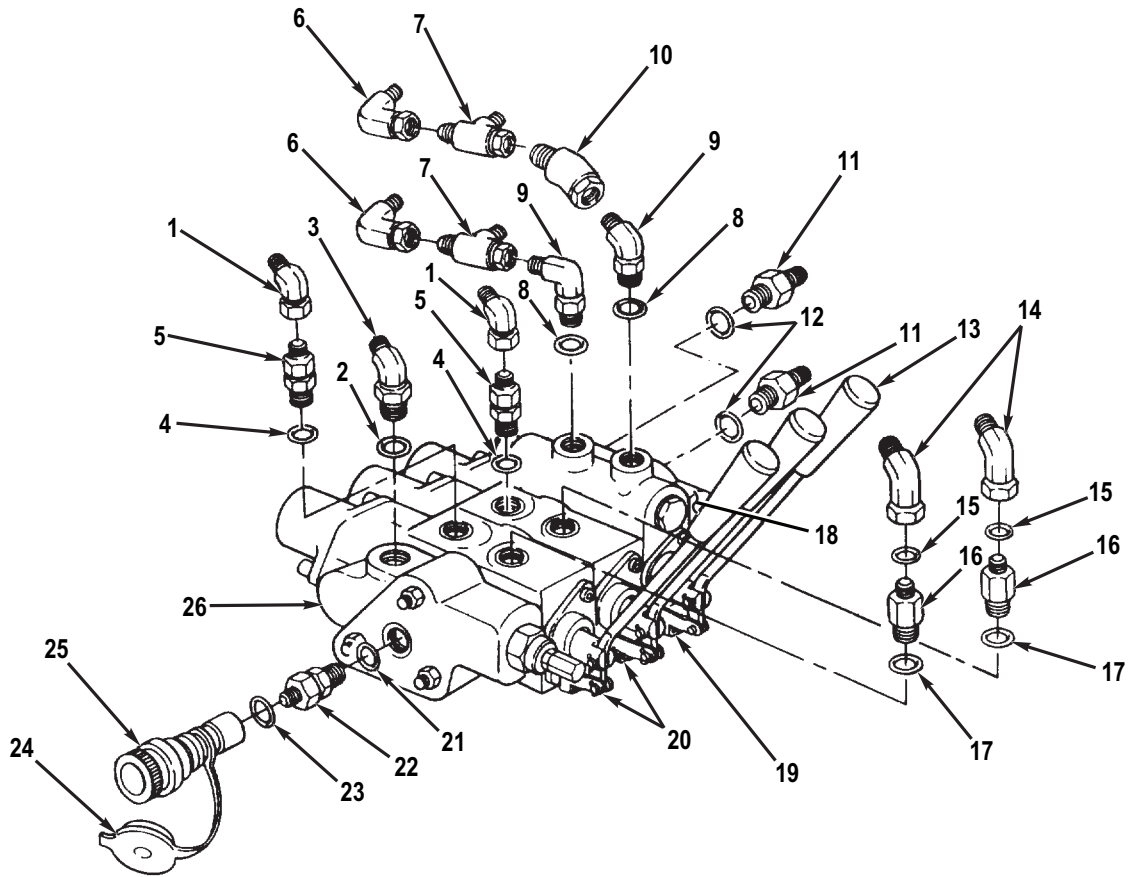
M0148JMS

Figure 2. Hydraulic Control Valve (Front Dolly) Removal.

9. Place hydraulic control valve (Figure 3, Item 13) in a vise.
10. Remove elbow (Figure 3, Item 3), preformed packing (Figure 3, Item 2), redundant power quick coupler (Figure 3, Item 25), dust plug (Figure 3, Item 24), preformed packing (Figure 3, Item 23), union (Figure 3, Item 22), and preformed packing (Figure 3, Item 21) from inlet section (Figure 3, Item 26). Discard preformed packings.
11. Remove two unions (Figure 3, Item 11) and preformed packings (Figure 3, Item 12) from outlet section (Figure 3, Item 18). Discard preformed packings.

REMOVAL (FRONT DOLLY) - Continued

12. Remove two long elbows (Figure 3, Item 14), preformed packings (Figure 3, Item 15), reducers (Figure 3, Item 16), and preformed packings (Figure 3, Item 17) from lift cylinder work sections (Figure 3, Item 20). Discard preformed packings.
13. Remove two elbows (Figure 3, Item 1), straight adapters (Figure 3, Item 5), and preformed packings (Figure 3, Item 4) from lift cylinder work sections (Figure 3, Item 20). Discard preformed packings.
14. Remove two elbows (Figure 3, Item 6), tee (Figure 3, Item 7), elbow (Figure 3, Item 10) (top port only), two elbows (Figure 3, Item 9), and preformed packings (Figure 3, Item 8) from positioning cylinders work section (Figure 3, Item 19). Discard preformed packings.
15. Remove hydraulic control valve (Figure 3, Item 13) from vise.



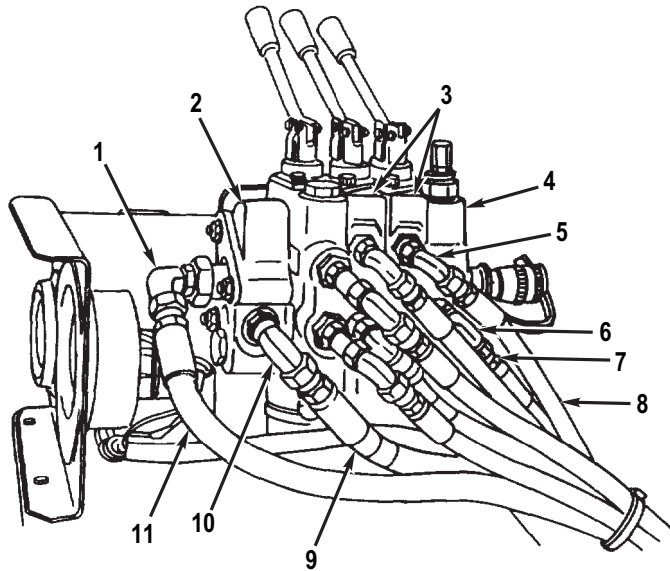
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Figure 3. Hydraulic Control Valve (Front Dolly) Fittings Removal.

END OF TASK

REMOVAL (REAR DOLLY)

1. Disconnect hose assembly (Figure 4, Item 7) from elbow (Figure 4, Item 6) at inlet section (Figure 4, Item 4).
2. Disconnect two hose assemblies (Figure 4, Items 9 and 11) from elbow (Figure 4, Item 10) and elbow (Figure 4, Item 1) at outlet section (Figure 4, Item 2).
3. Disconnect four hose assemblies (Figure 4, Item 8) from elbows (Figure 4, Item 5) at two lift cylinder work sections (Figure 4, Item 3).

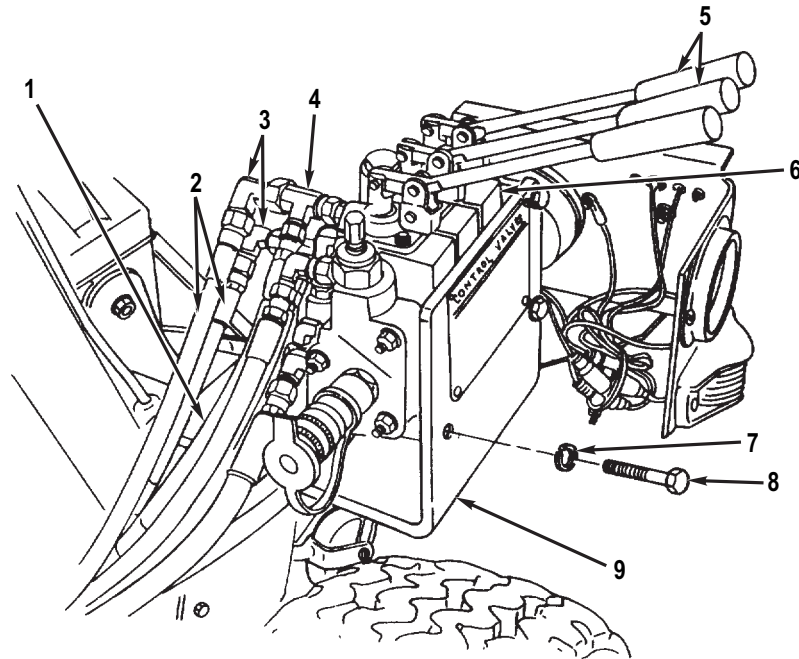


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Figure 4. Hydraulic Control Valve (Rear Dolly) Disconnection.

REMOVAL (REAR DOLLY) - Continued

4. Disconnect two hose assemblies (Figure 5, Item 2) from elbows (Figure 5, Item 3) at positioning cylinders work section (Figure 5, Item 6).
5. Disconnect two hose assemblies (Figure 5, Item 1) from tees (Figure 5, Item 4) at positioning cylinders work section (Figure 5, Item 6).
6. Remove three screws (Figure 5, Item 8), lockwashers (Figure 5, Item 7), and hydraulic control valve (Figure 5, Item 5) with fittings from bracket (Figure 5, Item 9). Discard lockwashers.
7. Place hydraulic control valve (Figure 5, Item 5) in a vise.

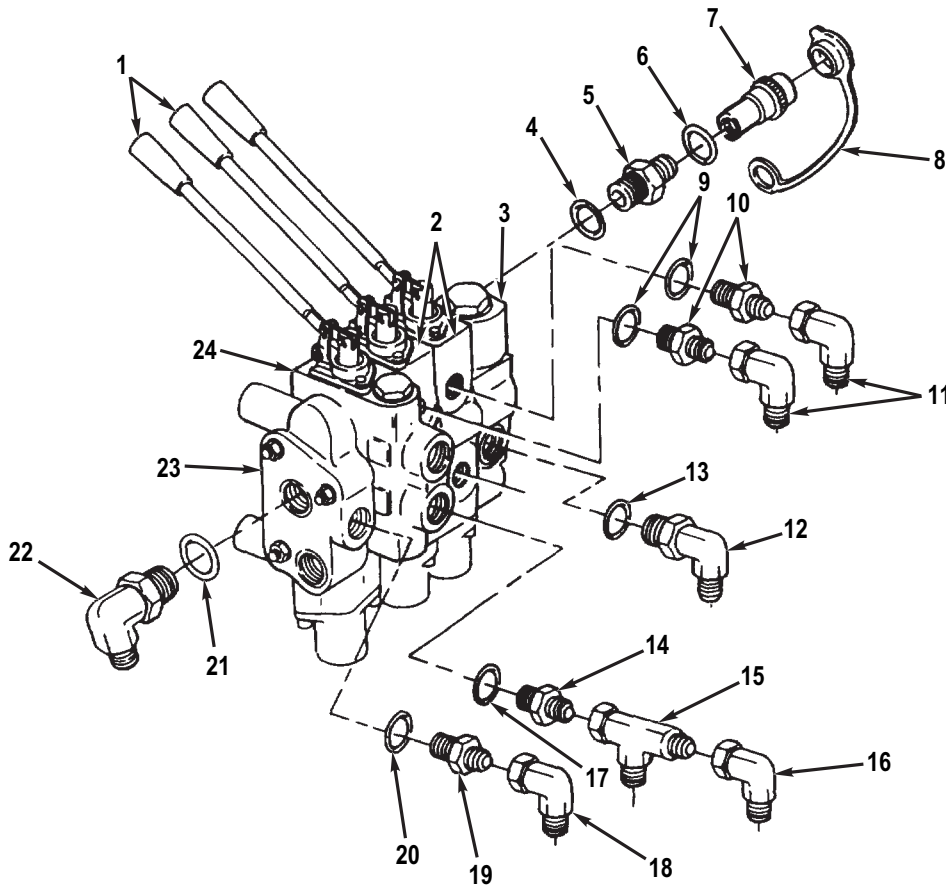


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Figure 5. Hydraulic Control Valve (Rear Dolly) Removal.

REMOVAL (REAR DOLLY) - Continued

8. Remove dust cap (Figure 6, Item 8), redundant power quick-disconnect coupler (Figure 6, Item 7), preformed packing (Figure 6, Item 6), straight adapter (Figure 6, Item 5), preformed packing (Figure 6, Item 4), elbow (Figure 6, Item 12), and preformed packing (Figure 6, Item 13) from inlet section (Figure 6, Item 3). Discard preformed packings.
9. Remove elbow (Figure 6, Item 18), straight adapter (Figure 6, Item 19), preformed packing (Figure 6, Item 20), elbow (Figure 6, Item 22), and preformed packing (Figure 6, Item 21) from outlet section (Figure 6, Item 23). Discard preformed packings.
10. Remove four elbows (Figure 6, Item 11), straight adapters (Figure 6, Item 10), and preformed packings (Figure 6, Item 9) from lift cylinder work sections (Figure 6, Item 2). Discard preformed packings.
11. Remove two elbows (Figure 6, Item 16), tees (Figure 6, Item 15), straight adapters (Figure 6, Item 14), and preformed packings (Figure 6, Item 17) from positioning cylinders work section (Figure 6, Item 24). Discard preformed packings.
12. Remove hydraulic control valve (Figure 6, Item 1) from vise.



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Figure 6. Hydraulic Control Valve (Rear Dolly) Fittings Removal.

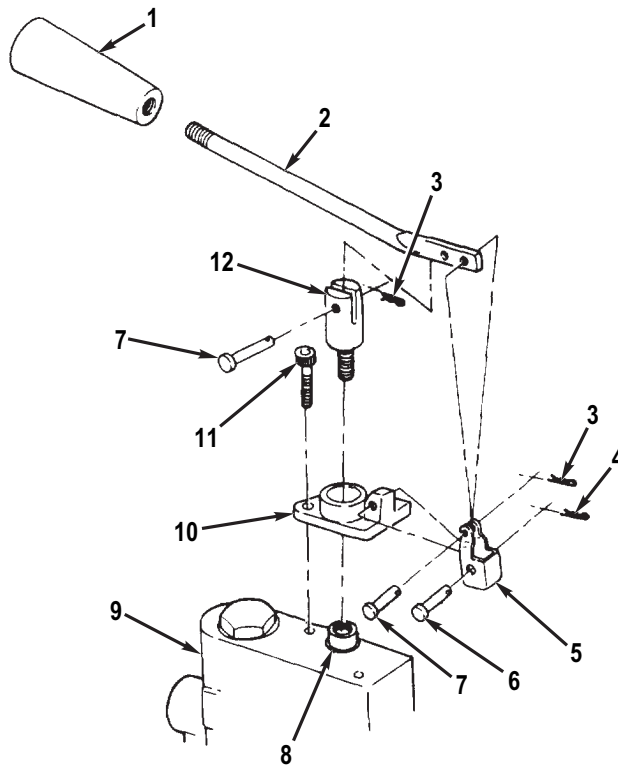
END OF TASK

DISASSEMBLY**CAUTION**

Maintain a clean work area when disassembling and assembling hydraulic control valve. Contamination from a dirty work area may cause damage to hydraulic components.

NOTE

- Steps 1 through 4 are performed the same way for the positioning cylinders work section and the lift cylinder work sections. Positioning cylinders work section is illustrated.
 - All kit items and tie-rod set items should be discarded.
1. Remove two cotter pins (Figure 7, Item 3), clevis pins (Figure 7, Item 7) and handle (Figure 7, Item 2) from link (Figure 7, Item 5) and spool end adapter (Figure 7, Item 12). Discard cotter pins.
 2. If damaged, remove knob (Figure 7, Item 1) from handle (Figure 7, Item 2).
 3. Remove cotter pin (Figure 7, Item 4), clevis pin (Figure 7, Item 6), and link (Figure 7, Item 5) from clevis (Figure 7, Item 10). Discard cotter pin.
 4. If clevis (Figure 7, Item 10) is damaged, remove two screws (Figure 7, Item 11) and clevis (Figure 7, Item 10) from positioning cylinders work section (Figure 7, Item 9). Remove spool end adapter (Figure 7, Item 12) from spool valve (Figure 7, Item 8).

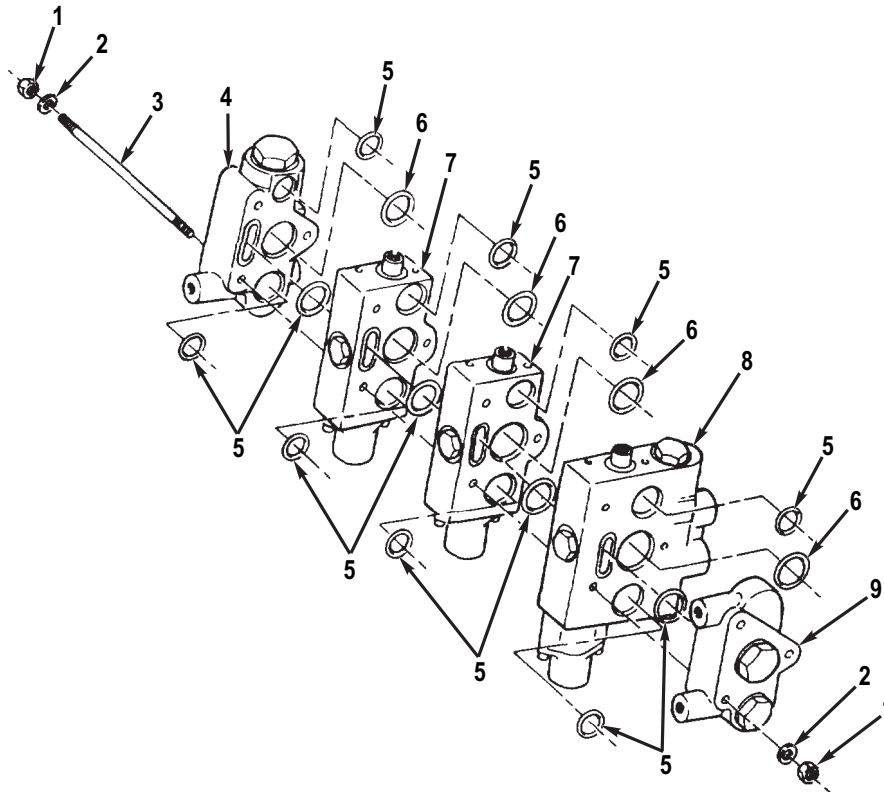


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Figure 7. Hydraulic Control Valve Levers Disassembly.

DISASSEMBLY - Continued

5. Remove six nuts (Figure 8, Item 1), lockwashers (Figure 8, Item 2), and three tie-rods (Figure 8, Item 3) from hydraulic control valve. Discard tie-rods and lockwashers.
6. Separate inlet section (Figure 8, Item 4) and remove four preformed packings (Figure 8, Items 5 and 6).
7. Separate two lift cylinder work sections (Figure 8, Item 7) and eight preformed packings (Figure 8, Items 5 and 6).
8. Separate positioning cylinders work section (Figure 8, Item 8) and outlet section (Figure 8, Item 9), and remove four preformed packings (Figure 8, Items 5 and 6).



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Figure 8. Hydraulic Control Valve Disassembly.

END OF TASK

CLEANING

Clean all removed components with a clean rag IAW General Maintenance Instructions (WP 0128) .

END OF TASK

INSPECTION

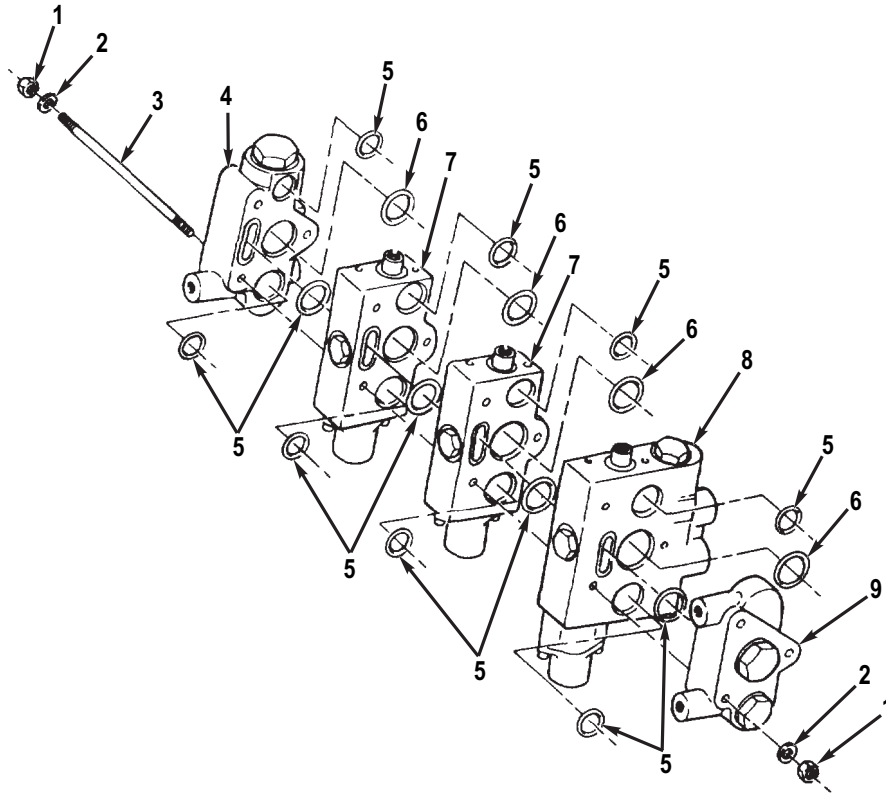
Inspect all components for cracks, breaks, bends, corrosion, of damaged threads. Replace damaged components IAW General Maintenance Instructions (WP 0128) .

END OF TASK

ASSEMBLY

NOTE

- Preformed packings should be lightly coated with hydraulic fluid before assembly.
 - All new kit items and new tie-rod set items would be used during assembly.
1. Assemble three new tie-rods (Figure 9, Item 3), inlet section (Figure 9, Item 4), four new preformed packings (Figure 9, Items 5 and 6) two lift cylinder work sections (Figure 9, Item 7), eight new preformed packings (Figure 9, Items 5 and 6) positioning cylinders work section (Figure 9, Item 8), four new preformed packings (Figure 9, Items 5 and 6), and outlet section (Figure 9, Item 9).
 2. Install six new lockwashers (Figure 9, Item 2) and new nuts (Figure 9, Item 1) on new tie-rods (Figure 9, Item 3). Torque nuts to 144-156 lb-in (16-18 N•m).



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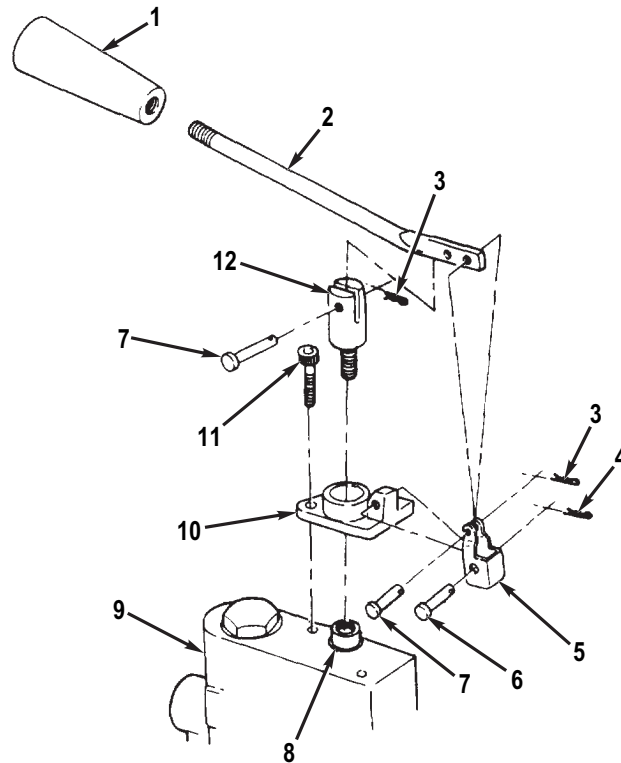
Figure 9. Hydraulic Control Valve Assembly.

ASSEMBLY - Continued

NOTE

Steps 3 through 6 are performed the same way for the positioning cylinders work section and the lift cylinder work sections. Positioning cylinders work section is illustrated.

3. If removed, install spool end adapter (Figure 10, Item 12) on spool valve (Figure 10, Item 8). Install clevis (Figure 10, Item 10) on positioning cylinders work section (Figure 10, Item 9) with two screws (Figure 10, Item 11). Torque screws to 110-130 lb-in (12-15 N•m).
4. Install link (Figure 10, Item 5) on clevis (Figure 10, Item 10) with clevis pin (Figure 10, Item 6) and new cotter pin (Figure 10, Item 4).
5. If removed, apply sealing compound on handle (Figure 10, Item 2) and install knob (Figure 10, Item 1).
6. Install handle (Figure 10, Item 2) on link (Figure 10, Item 5) and spool end adapter (Figure 10, Item 2) with two clevis pins (Figure 10, Item 7) and new cotter pins (Figure 10, Item 3).



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Figure 10. Hydraulic Control Valve Levers Assembly.

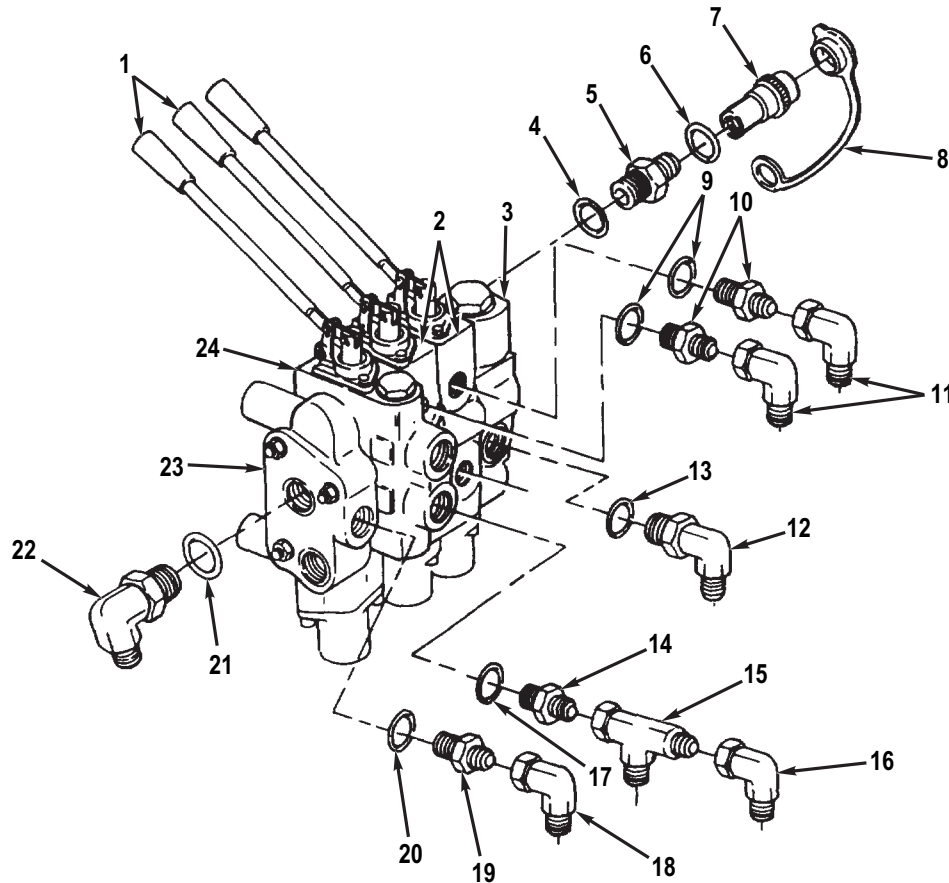
END OF TASK

INSTALLATION (REAR DOLLY)

NOTE

Preformed packings should be lightly coated with hydraulic fluid before installation.

1. Place hydraulic control valve (Figure 11, Item 1) in a vise.
2. Install two new preformed packings (Figure 11, Item 17) and straight adapters (Figure 11, Item 14) on positioning cylinders work section (Figure 11, Item 24). Loosely install two tees (Figure 11, Item 15) and elbows (Figure 11, Item 16).
3. Install four new preformed packings (Figure 11, Item 9) and straight adapters (Figure 11, Item 10) on lift cylinder work sections (Figure 11, Item 2). Loosely install four elbows (Figure 11, Item 11).
4. Install new preformed packing (Figure 11, Item 4), straight adapter (Figure 11, Item 5), new preformed packing (Figure 11, Item 6), redundant power quick-disconnect coupler (Figure 11, Item 7), and dust plug (Figure 11, Item 8) on inlet section (Figure 11, Item 3). Install new preformed packing (Figure 11, Item 13) and elbow (Figure 11, Item 12).
5. Install new preformed packing (Figure 11, Item 21), elbow (Figure 11, Item 22), new preformed packing (Figure 11, Item 20), straight adapter (Figure 11, Item 19), and elbow (Figure 11, Item 18) on outlet section (Figure 11, Item 23). DO NOT fully tighten elbow.
6. Remove hydraulic control valve (Figure 11, Item 1) with fittings from vise.

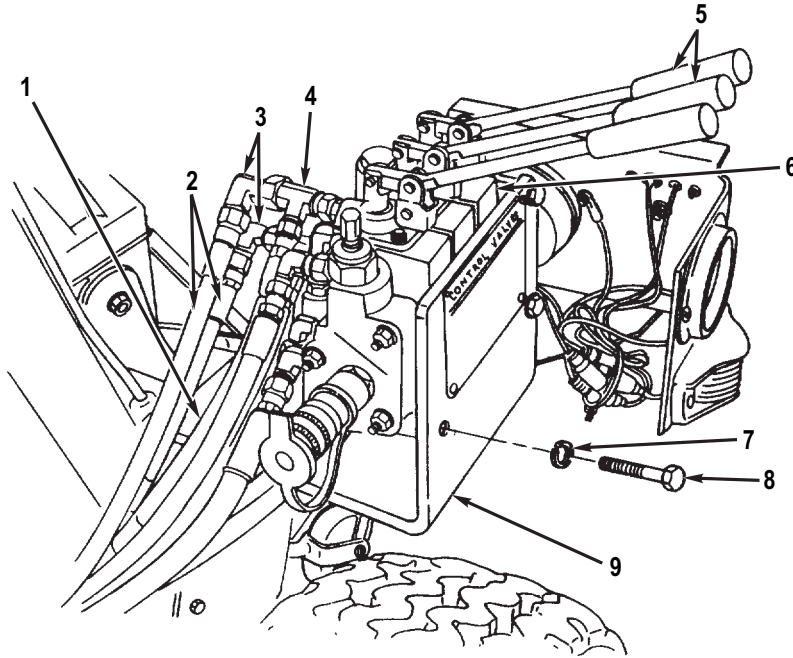


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Figure 11. Hydraulic Control Valve (Rear Dolly) Fittings Installation.

INSTALLATION (REAR DOLLY) - Continued

7. Install hydraulic control valve (Figure 12, Item 5) with fittings to bracket (Figure 12, Item 9) with three new lockwashers (Figure 12, Item 7) and screws (Figure 12, Item 8).
8. Connect two hose assemblies (Figure 12, Item 1) to tees (Figure 12, Item 4) at positioning cylinders work section (Figure 12, Item 6). Connect two hose assemblies (Figure 12, Item 2) to elbows (Figure 12, Item 3). Fully tighten tees and elbows.

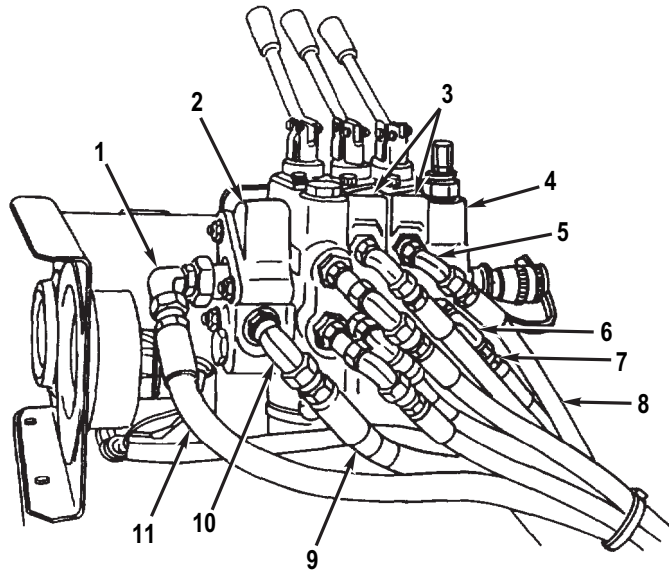


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Figure 12. Hydraulic Control Valve (Rear Dolly) Installation.

INSTALLATION (REAR DOLLY) - Continued

9. Connect four hose assemblies (Figure 13, Item 8) to elbows (Figure 13, Item 5) at lift cylinder work sections (Figure 13, Item 3). Fully tighten elbows.
10. Connect two hose assemblies (Figure 13, Items 9 and 1) to elbow (Figure 13, Item 10) and elbow (Figure 13, Item 1) at outlet section (Figure 13, Item 2). Fully tighten elbow.
11. Connect hose assembly (Figure 13, Item 7) to elbow (Figure 13, Item 6) at inlet section (Figure 13, Item 4).



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Figure 13. Hydraulic Control Valve (Rear Dolly) Connections.

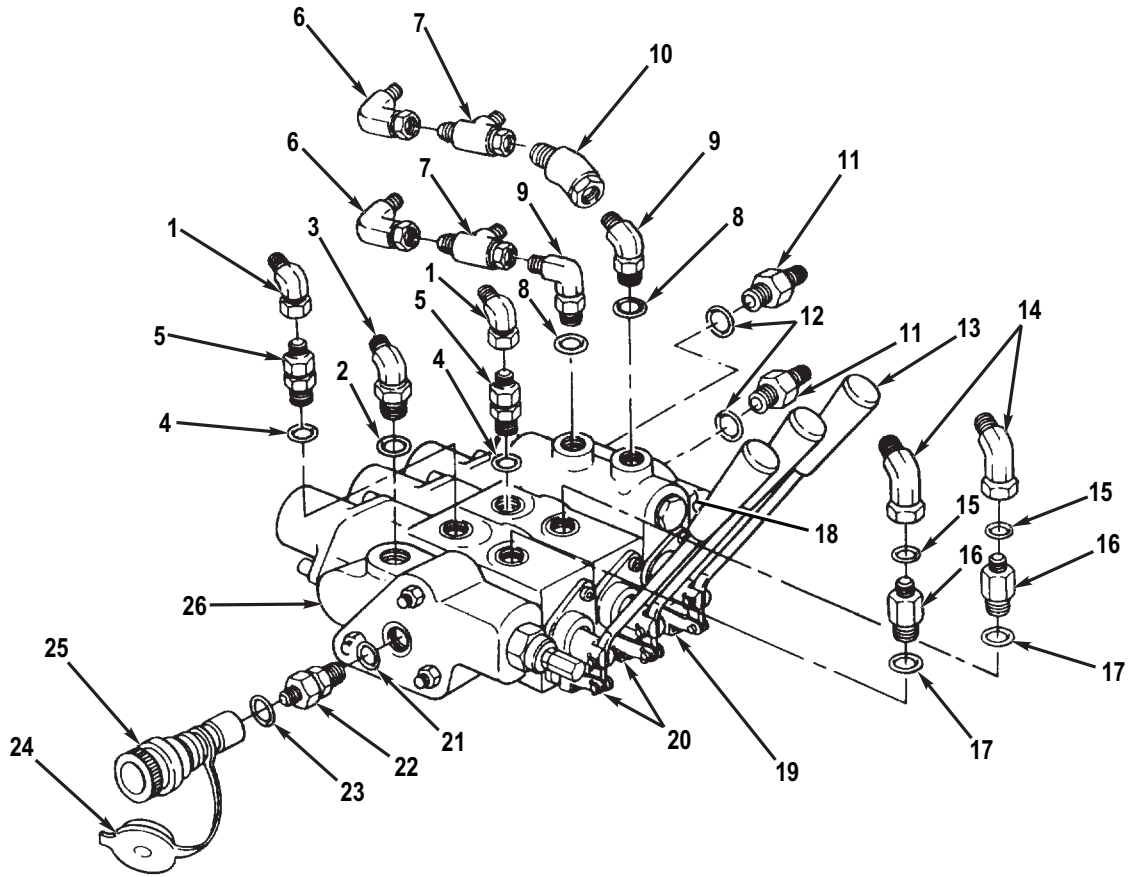
END OF TASK

INSTALLATION (FRONT DOLLY)**NOTE**

Coat preformed packings with hydraulic fluid before installation.

1. Place hydraulic control valve (Figure 14, Item 13) in a vise.
2. Install two new preformed packings (Figure 14, Item 8) and elbows (Figure 14, Item 9) on positioning cylinders work section (Figure 14, Item 19). Loosely install elbow (Figure 14, Item 10) (top port only), two tees (Figure 14, Item 7), and elbows (Figure 14, Item 6).
3. Install two new preformed packings (Figure 14, Item 4) and straight adapters (Figure 14, Item 5) on lift cylinder work sections (Figure 14, Item 20). Loosely install two elbows (Figure 14, Item 1).
4. Install two new preformed packings (Figure 14, Item 17), reducers (Figure 14, Item 16), new preformed packings (Figure 14, Item 15), and elbows (Figure 14, Item 14) on lift cylinder work sections (Figure 14, Item 20).
5. Install two new preformed packings (Figure 14, Item 12) and unions (Figure 14, Item 11) on outlet section (Figure 14, Item 18).
6. Install new preformed packing (Figure 14, Item 21), union (Figure 14, Item 22), dust cap (Figure 14, Item 24), new preformed packing (Figure 14, Item 23), and redundant power quick-disconnect coupler (Figure 14, Item 25) on inlet section (Figure 14, Item 26). Install new preformed packing (Figure 14, Item 2) and elbow (Figure 14, Item 3).

INSTALLATION (FRONT DOLLY) - Continued

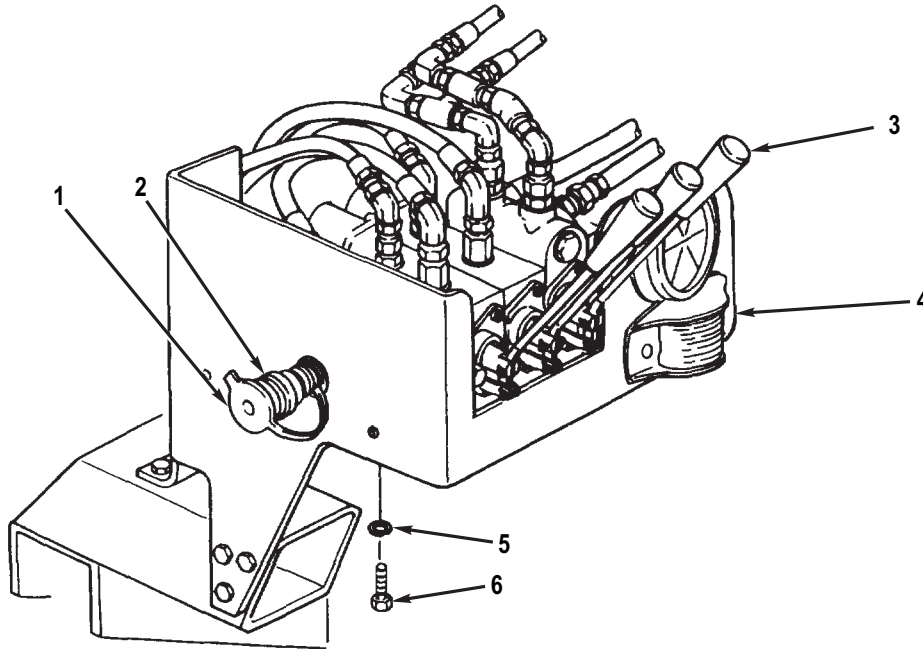


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Figure 14. Hydraulic Control Valve (Front Dolly) Fittings Installation.

INSTALLATION (FRONT DOLLY) - Continued

7. Remove hydraulic control valve (Figure 15, Item 3) with fittings from vise.
8. Install hydraulic control valve (Figure 15, Item 3) with fittings on bracket (Figure 15, Item 4) with three new lockwashers (Figure 15, Item 5) and screws (Figure 15, Item 6).
9. Install dust plug (Figure 15, Item 1) on redundant power quick-disconnect coupler (Figure 15, Item 2).

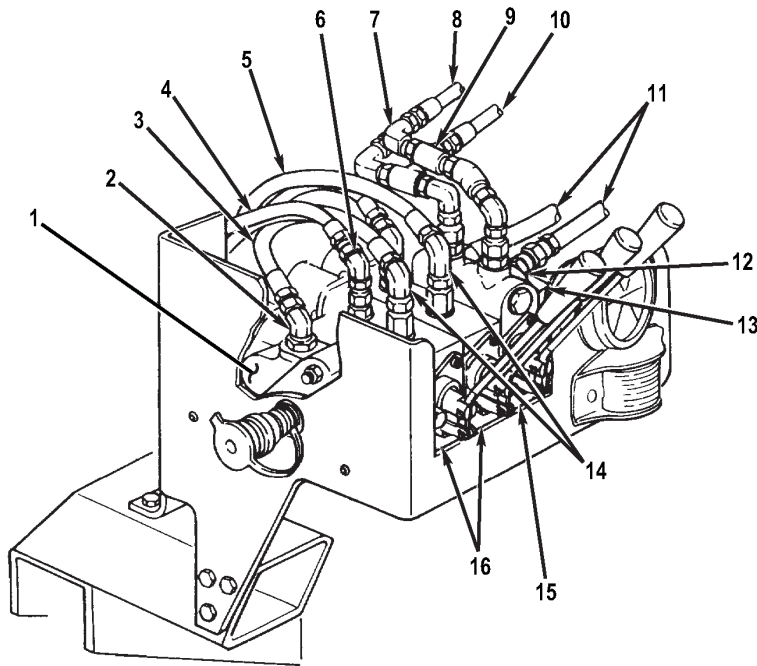


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Figure 15. Hydraulic Control Valve (Front Dolly) Installation.

INSTALLATION (FRONT DOLLY) - Continued

10. Connect two hose assemblies (Figure 16, Item 10) to tees (Figure 16, Item 9) at positioning cylinders work section (Figure 16, Item 15). Connect two hose assemblies (Figure 16, Item 8) to elbows (Figure 16, Item 7). Fully tighten tees and elbows.
11. Connect two hose assemblies (Figure 16, Item 4) to elbows (Figure 16, Item 6) at two lift cylinder work sections (Figure 16, Item 16).
12. Connect two hose assemblies (Figure 16, Item 5) to elbows (Figure 16, Item 14) at two lift cylinder work sections (Figure 16, Item 16).
13. Connect two hose assemblies (Figure 16, Item 11) to unions (Figure 16, Item 12) at outlet section (Figure 16, Item 13).
14. Connect hose assembly (Figure 16, Item 3) to elbow (Figure 16, Item 2) at inlet section (Figure 16, Item 1).



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Figure 16. Hydraulic Control Valve (Front Dolly) Connections.

END OF TASK

FOLLOW-ON TASKS

1. Fill hydraulic reservoir with hydraulic fluid (WP 0029).
2. Operate lift and positioning cylinders control levers, and check operation of lift and positioning cylinders (WP 0005).
3. Check for leaks (WP 0128).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE HYDRAULIC LINES AND FITTINGS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts

Fluid: Hydraulic, Petroleum Base, OHA (WP 0197, Table 1, Item 15)
Rag: Wiping (WP 0197, Table 1, Item 42)
Strap: Tiedown Electrical Component (WP 0197, Table 1, Item 46)
Tag: Marker (WP 0197, Table 1, Item 49)

Materials/Parts (cont.)

Tape: Pressure Sensitive Adhesive, Masking, Flat, 2 in. width (WP 0197, Table 1, Item 53)
Self-tapping screw (WP 0161, Item 26) Qty: 2

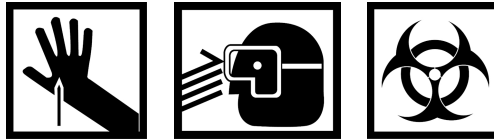
References

WP 0029
WP 0107
WP 0128

Equipment Condition

Dolly set lowered (WP 0005)
Engine starter switch set to OFF position (WP 0005)

WARNING



- DO NOT disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Dolly set must be fully lowered to the ground and engine must be shut down before lines and fittings are disconnected. A line or fitting disconnected under pressure will explode with great force. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Escaping hydraulic fluid under pressure can penetrate the skin, causing serious injury to personnel. Relieve pressure before disconnecting hydraulic lines and fittings. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject hydraulic fluid under high pressure. Use a piece of cardboard or paper to search for leaks. If any hydraulic fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

CAUTION

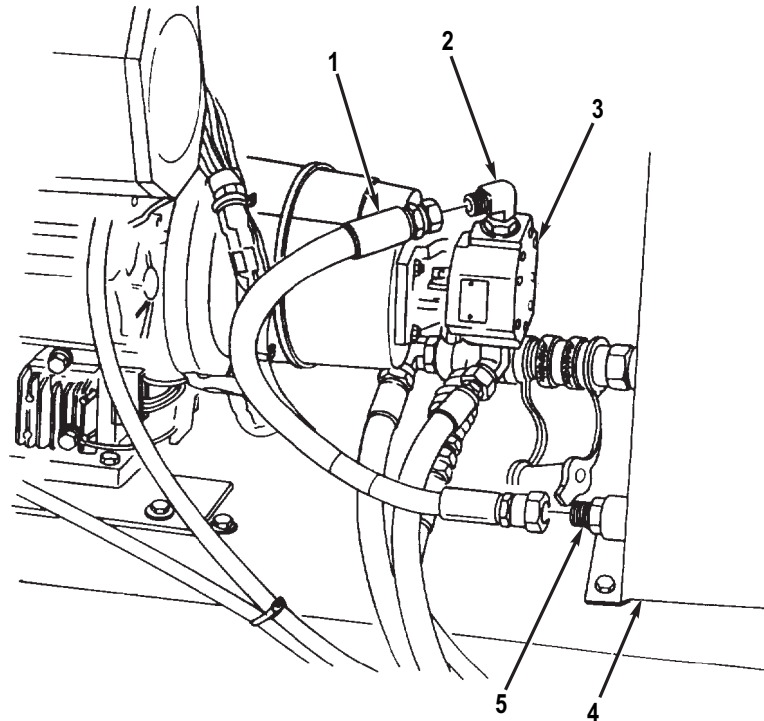
DO NOT allow dirt or dust to enter hydraulic reservoir. Damage to hydraulic system will result.

NOTE

- Hydraulic lines should be tagged before removal IAW General Maintenance Instructions (WP 0128) .
- Hydraulic reservoir, hydraulic pump, hydraulic control valve, and hydraulic cylinder ports should be plugged with masking tape or other suitable means as lines are disconnected or fittings are removed IAW General Maintenance Instructions (WP 0128) .
- A suitable container should be used to catch any draining hydraulic fluid. Ensure that all spills are properly cleaned.
- During removal, tie-down straps must be removed from hydraulic hose assemblies, electrical cable assemblies, and abrasion sleeve, as required. Hose assemblies inside abrasion sleeve (hose bundle) must also be removed from attachment to muffler cover and angle bracket at hydraulic reservoir (rear dolly only), as required. Ensure that new tie-down straps are used during installation. Also ensure that hose assemblies are properly supported, as noted during removal.

HYDRAULIC RESERVOIR OUTLET-TO-HYDRAULIC PUMP INLET HOSE ASSEMBLY REPLACEMENT

1. Drain hydraulic reservoir (Hydraulic Reservoir Replacement (WP 0107)).
2. Disconnect hose assembly (Figure 1, Item 1) from elbow (Figure 1, Item 2) at inlet (top) of hydraulic pump (Figure 1, Item 3).
3. Disconnect hose assembly (Figure 1, Item 1) from straight connector (Figure 1, Item 5) at reservoir (Figure 1, Item 4). Remove hose assembly.



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Figure 1. Hydraulic Reservoir Outlet-to-Hydraulic Pump Inlet Hose Disconnection.

**HYDRAULIC RESERVOIR OUTLET-TO-HYDRAULIC PUMP INLET HOSE ASSEMBLY REPLACEMENT -
Continued**

4. Connect hose assembly (Figure 1, Item 1) to straight connector (Figure 1, Item 5).
5. Connect hose assembly (Figure 1, Item 1) to elbow (Figure 1, Item 2).

END OF TASK

HYDRAULIC PUMP OUTLET-TO-HYDRAULIC CONTROL VALVE INLET HOSE ASSEMBLY REPLACEMENT

1. Drain hydraulic reservoir (Hydraulic Reservoir Replacement (WP 0107)).
2. Disconnect hose assembly (Figure 2, Item 1) from elbow (Figure 2, Item 4) at inlet section (Figure 2, Item 3) of hydraulic control valve (Figure 2, Item 2).

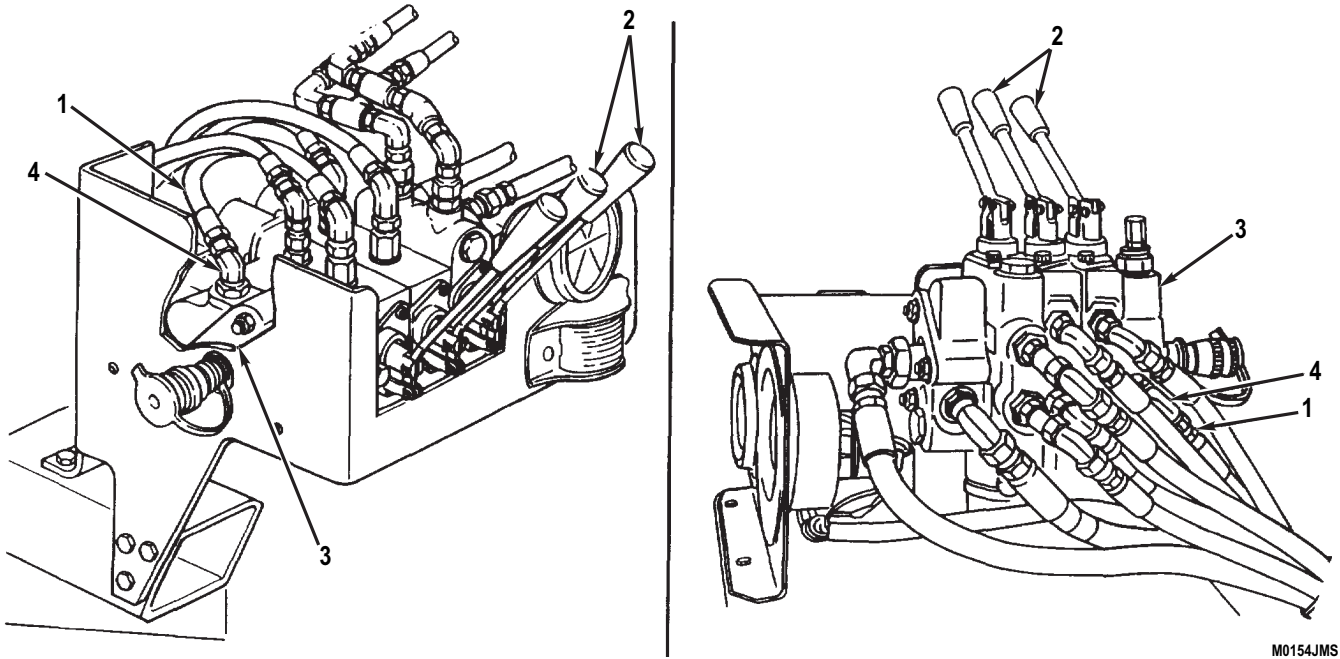


Figure 2. Hydraulic Pump Outlet-to-Hydraulic Control Valve Inlet Hose Disconnection.

**HYDRAULIC PUMP OUTLET-TO-HYDRAULIC CONTROL VALVE INLET HOSE ASSEMBLY REPLACEMENT
- Continued**

3. Release hose bundle from supported position. Remove tie-down straps from abrasion sleeve (Figure 3, Item 4). Discard tie-down straps.
4. Disconnect hose assembly (Figure 3, Item 3) from elbow (Figure 3, Item 2) at outlet (bottom) of hydraulic pump (Figure 3, Item 1).
5. Lace replacement hose assembly (Figure 3, Item 3) to hose assembly being removed. Remove hose assembly from inside abrasion sleeve (Figure 3, Item 4) while pulling through replacement hose assembly.
6. Connect hose assembly (Figure 3, Item 3) to elbow (Figure 3, Item 2).

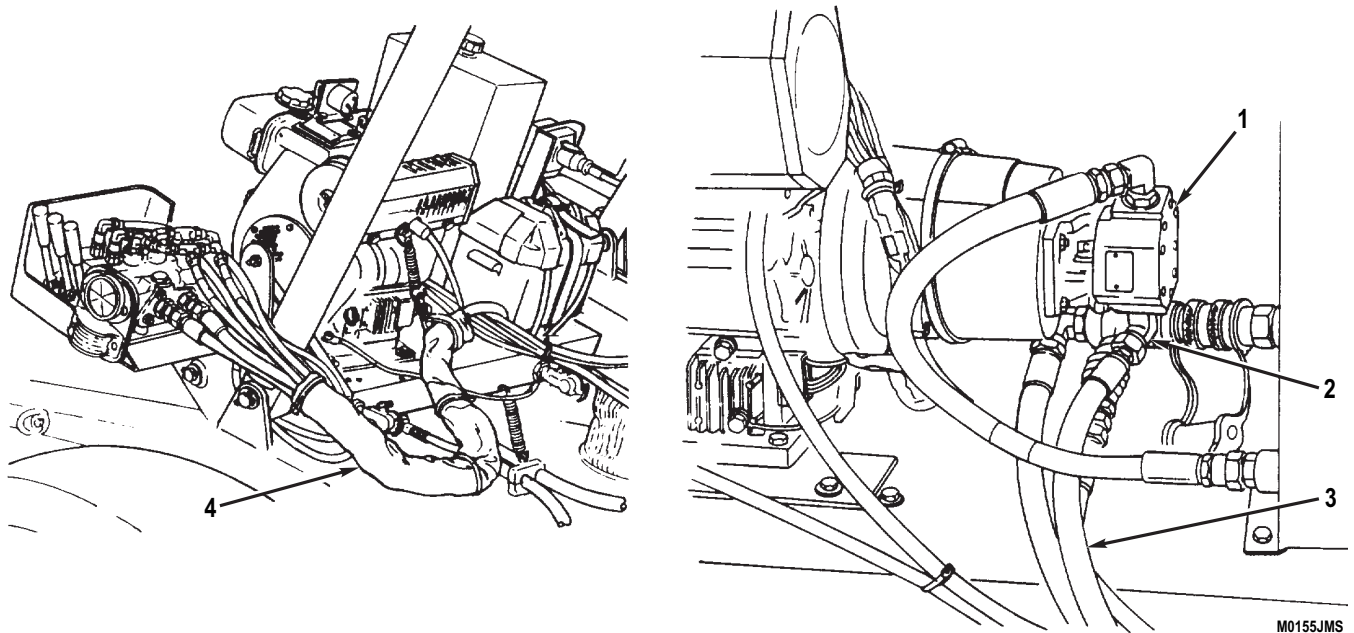
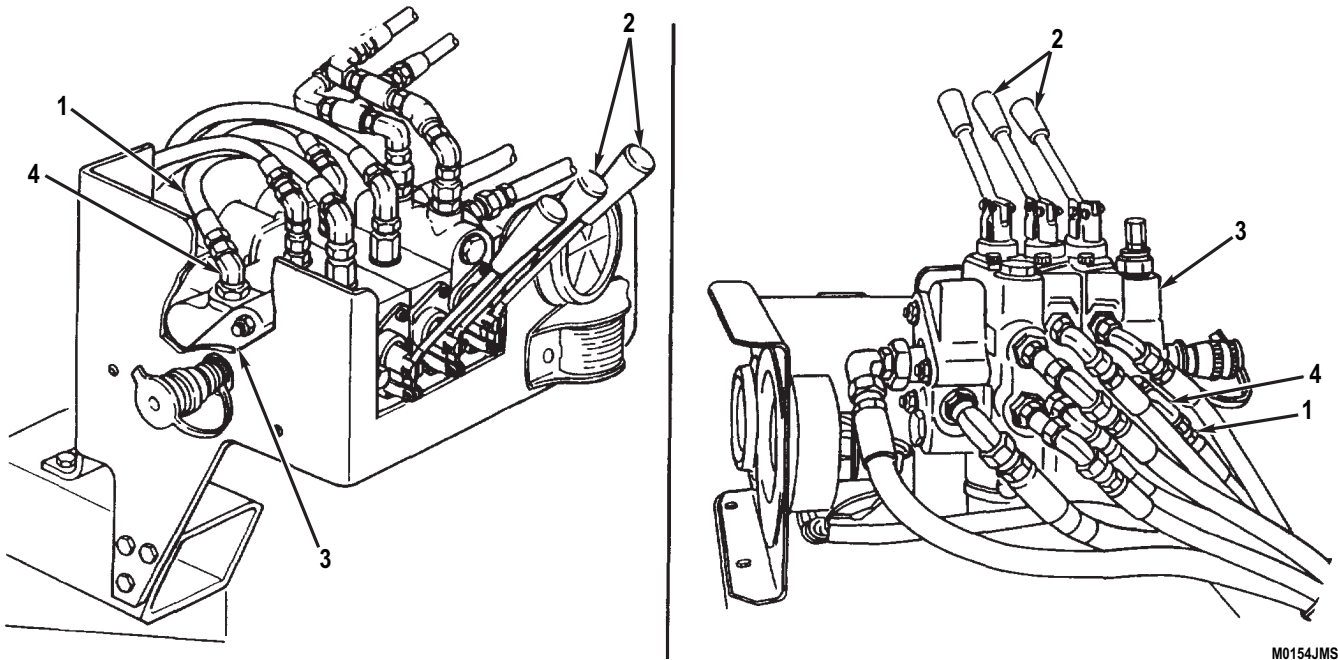


Figure 3. Hydraulic Pump Outlet-to-Hydraulic Control Valve Inlet Hose Removal.

HYDRAULIC PUMP OUTLET-TO-HYDRAULIC CONTROL VALVE INLET HOSE ASSEMBLY REPLACEMENT - Continued

7. Connect hose assembly (Figure 4, Item 1) to elbow (Figure 4, Item 4) at inlet section (Figure 4, Item 3) of hydraulic control valve (Figure 4, Item 2).



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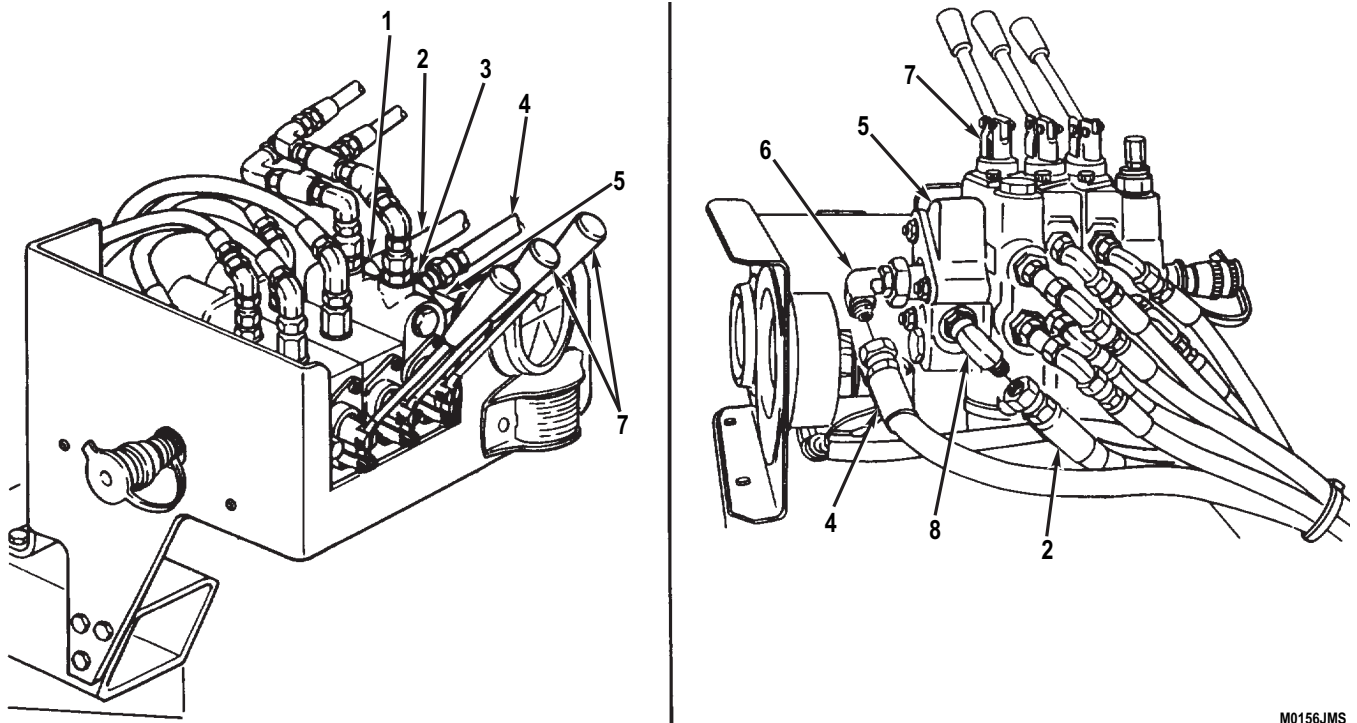
Figure 4. Hydraulic Pump Outlet-to-Hydraulic Control Valve Inlet Hose Connection.

8. Install new tie-down straps around abrasion sleeve. Raise hose bundle and secure in supported position, as noted during removal.

END OF TASK

HYDRAULIC CONTROL VALVE OUTLET-TO-HYDRAULIC RESERVOIR INLET HOSE ASSEMBLIES REPLACEMENT

1. Drain hydraulic reservoir (Hydraulic Reservoir Replacement (WP 0107)).
2. Disconnect hose assembly (Figure 5, Item 4) from union (Figure 5, Item 3) (front dolly) or elbow (Figure 5, Item 6) (rear dolly) at outlet section (Figure 5, Item 5) of hydraulic control valve (Figure 5, Item 7).
3. Disconnect hose assembly (Figure 5, Item 2) from union (Figure 5, Item 1) (front dolly) or elbow (Figure 5, Item 8) (rear dolly) at outlet section (Figure 5, Item 5) of hydraulic control valve (Figure 5, Item 7).



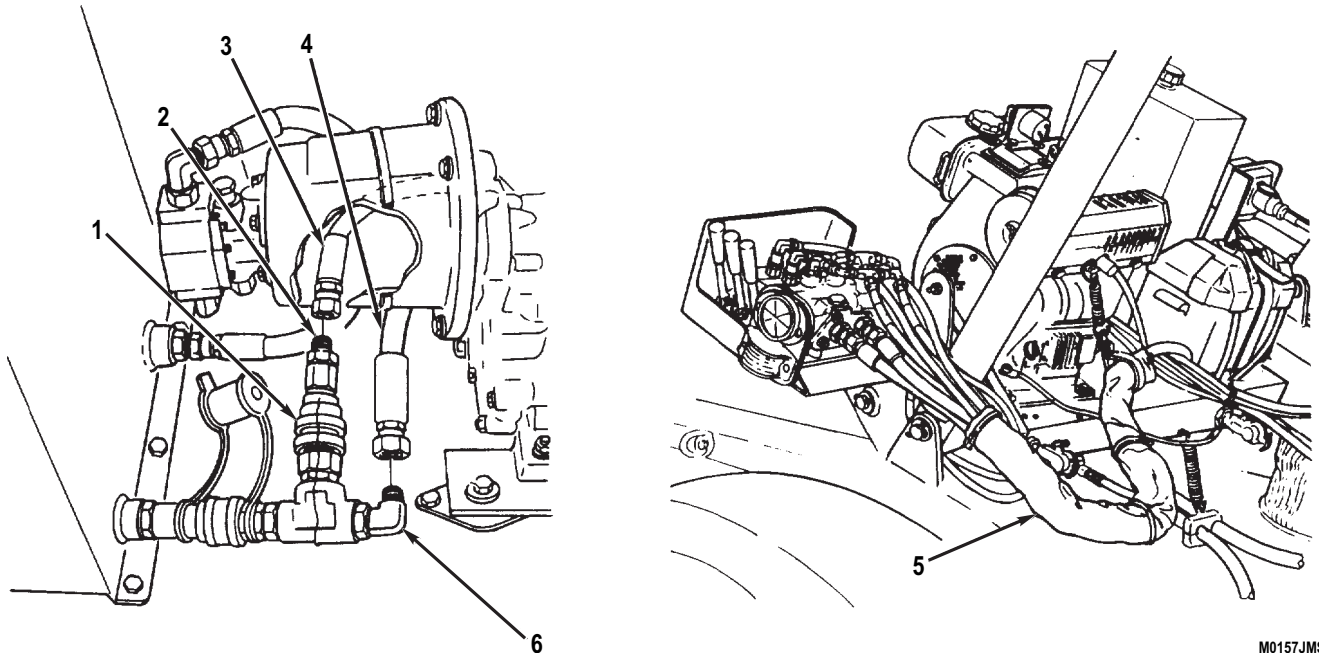
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Figure 5. Hydraulic Control Valve Outlet-to-Hydraulic Reservoir Inlet Hose Disconnection.

4. Connect hose assembly (Figure 5, Item 2) to union (Figure 5, Item 1) (front dolly) or elbow (Figure 5, Item 8) (rear dolly).
5. Connect hose assembly (Figure 5, Item 4) to union (Figure 5, Item 3) (front dolly) or elbow (Figure 5, Item 6) (rear dolly) at outlet section (Figure 5, Item 5) of hydraulic control valve (Figure 5, Item 7).

HYDRAULIC CONTROL VALVE OUTLET-TO-HYDRAULIC RESERVOIR INLET HOSE ASSEMBLIES REPLACEMENT - Continued

6. Release hose bundle from supported position. Remove tie-down straps from abrasion sleeve (Figure 6, Item 5). Discard tie-down straps.
7. Disconnect hose assembly (Figure 6, Item 3) from straight connector (Figure 6, Item 2) at quick disconnect fitting (Figure 6, Item 1).
8. Disconnect hose assembly (Figure 6, Item 4) from elbow (Figure 6, Item 6).



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Figure 6. Hydraulic Control Valve Outlet-to-Hydraulic Reservoir Inlet Hose Assemblies Removal.

9. Lace replacement hose assemblies (Figure 6, Items 4 and 3) to hose assemblies being removed. Remove hose assemblies from inside abrasion sleeve (Figure 6, Item 5) while pulling through replacement hose assemblies.
10. Connect hose assembly (Figure 6, Item 4) to elbow (Figure 6, Item 6).
11. Connect hose assembly (Figure 6, Item 3) to straight connector (Figure 6, Item 2).
12. Install new tie-down straps around abrasion sleeve (Figure 6, Item 5). Raise hose bundle and secure in supported position, as noted during removal.

END OF TASK

HYDRAULIC CONTROL VALVE-TO-HYDRAULIC LIFT CYLINDER HOSE ASSEMBLIES REPLACEMENT

NOTE

- Hose assemblies to extend or retract each hydraulic lift cylinder are replaced the same way except as noted. Note position of hose assemblies to aid in installation.
 - At control valve, hose assemblies to extend hydraulic lift cylinders are connected to bottom ports of lift cylinder work sections; hose assemblies to retract hydraulic lift cylinders are connected to top ports.
1. Disconnect hose assembly (Figure 7, Item 1) from elbow (Figure 7, Item 2) (front dolly, bottom port), or long elbow (Figure 7, Item 3) (front dolly, top port), or elbow (Figure 7, Item 6) (rear dolly) at lift cylinder work section (Figure 7, Item 5) of hydraulic control valve (Figure 7, Item 4).

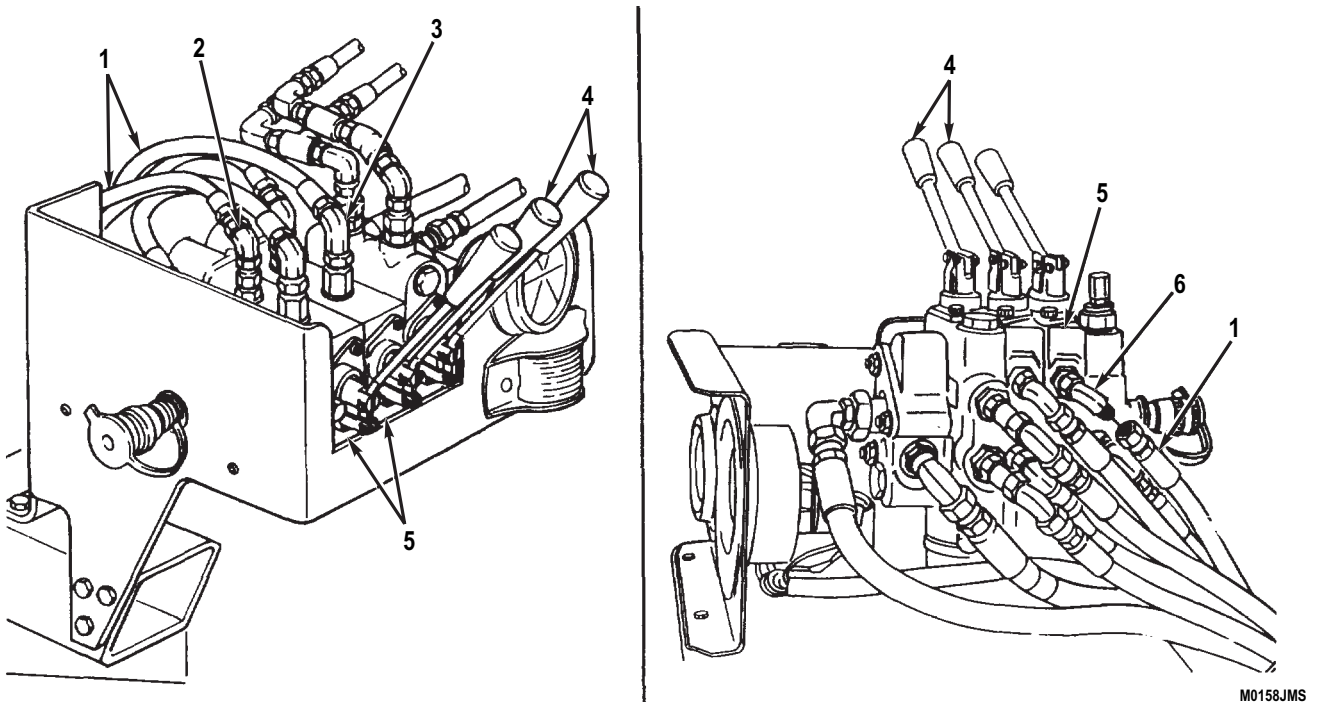


Figure 7. Hydraulic Control Valve-to-Hydraulic Lift Cylinder Hose Disconnection.

HYDRAULIC CONTROL VALVE-TO-HYDRAULIC LIFT CYLINDER HOSE ASSEMBLIES REPLACEMENT - Continued

2. If removing hose assembly (Figure 8, Item 1) to far (right side) hydraulic lift cylinder, release hose bundle from supported position. Remove tie-down straps from abrasion sleeve (Figure 8, Item 6). Discard tie-down straps.
3. Disconnect hose assembly (Figure 8, Item 1) from hydraulic lift cylinder (Figure 8, Item 2).
4. If removing hose assembly (Figure 8, Item 1) to far (right side) hydraulic lift cylinder (Figure 8, Item 2), lace replacement hose assembly to hose assembly being removed. Remove hose assembly from inside abrasion sleeve (Figure 8, Item 4) while pulling through replacement hose assembly.
5. Remove coil sleeve (Figure 8, Item 3) from hose assembly (Figure 8, Item 1).

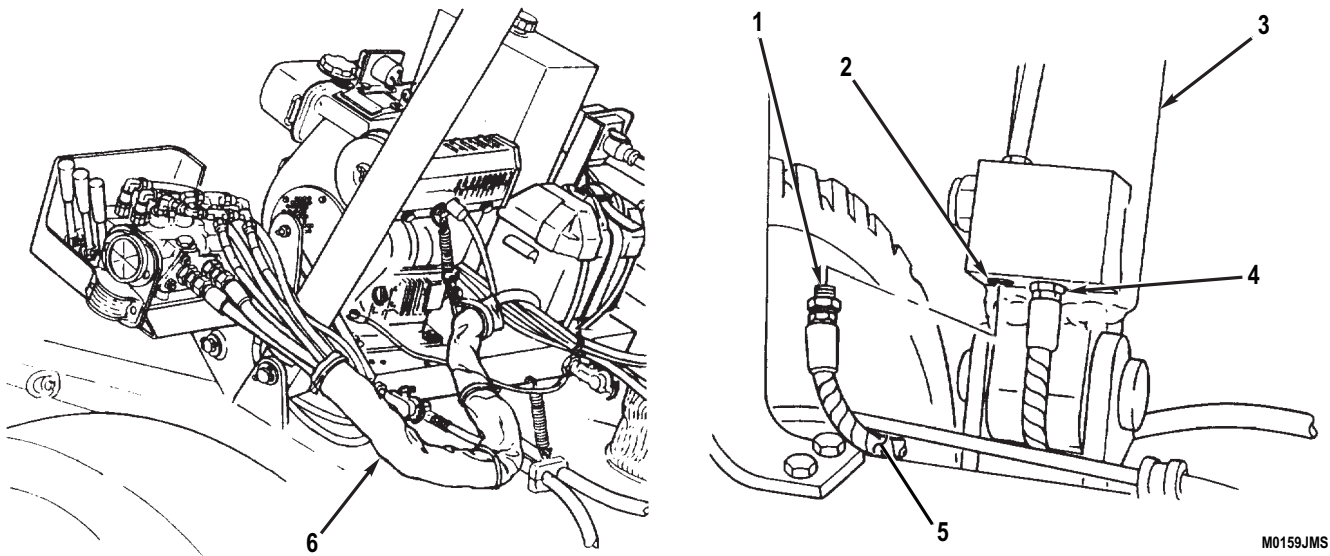


Figure 8. Hydraulic Control Valve-to-Hydraulic Lift Cylinder Hose Assemblies Removal.

NOTE

Extend port (Figure 8, Item 6) and retract port (Figure 8, Item 2) of hydraulic lift cylinder as shown to aid in installation.

6. Install coil sleeve (Figure 8, Item 5) to hose assembly (Figure 8, Item 1), starting 1 in. (2.5 cm) from hydraulic lift cylinder (Figure 8, Item 3) fitting.
7. Connect hose assembly (Figure 8, Item 1) to hydraulic lift cylinder (Figure 8, Item 3).

**HYDRAULIC CONTROL VALVE-TO-HYDRAULIC LIFT CYLINDER HOSE ASSEMBLIES REPLACEMENT -
Continued**

8. Connect hose assembly (Figure 9, Item 1) to elbow (Figure 9, Item 2) (front dolly, bottom port), elbow (Figure 9, Item 3) (front dolly, top port), or elbow (Figure 9, Item 6) (rear dolly) at lift cylinder work section (Figure 9, Item 5) of hydraulic control valve (Figure 9, Item 4).

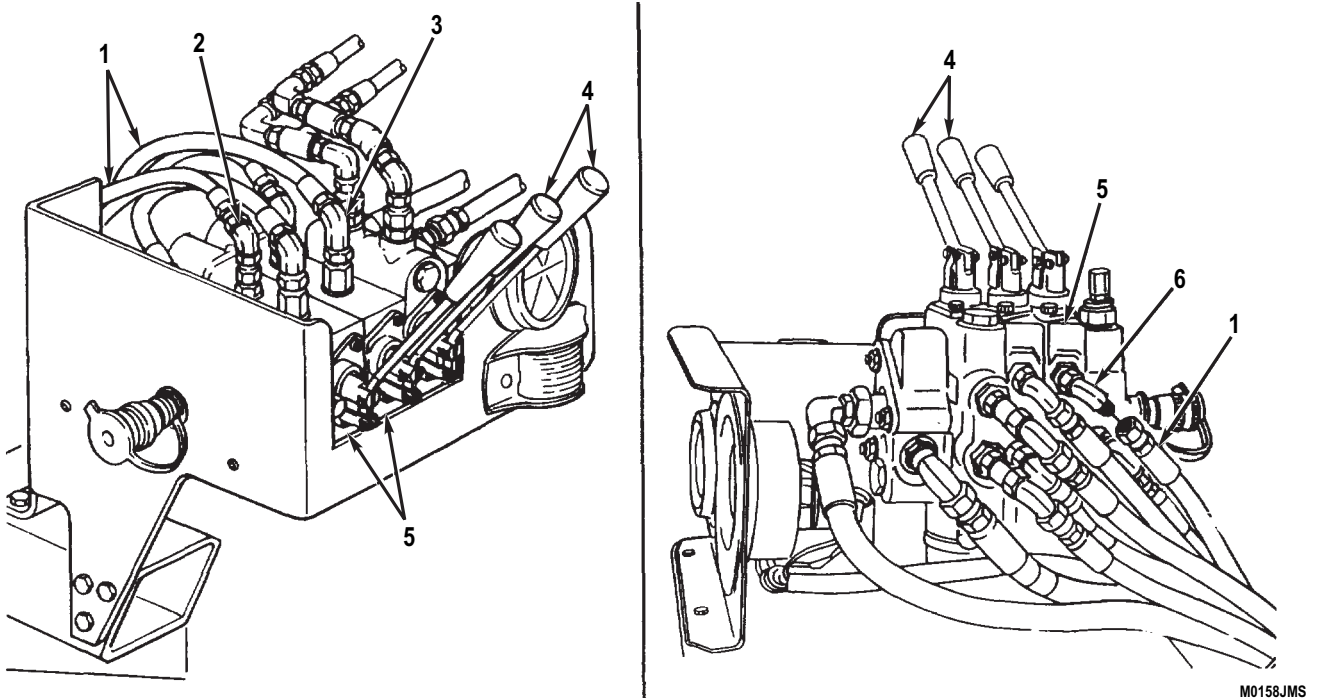
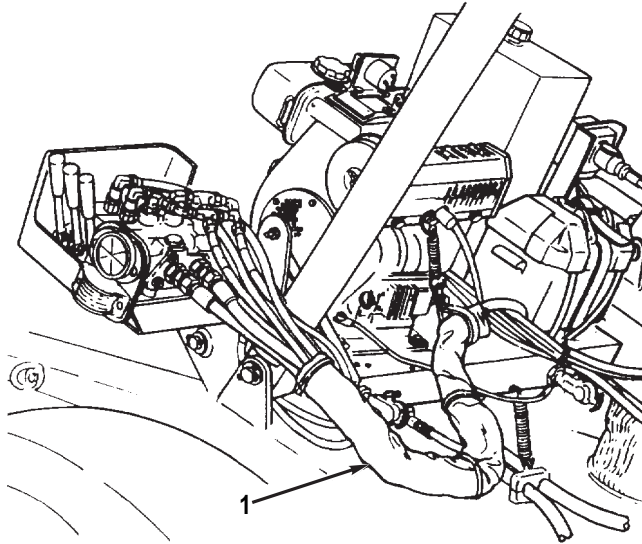


Figure 9. Hydraulic Control Valve-to-Hydraulic Lift Cylinder Hose Assemblies Connections.

**HYDRAULIC CONTROL VALVE-TO-HYDRAULIC LIFT CYLINDER HOSE ASSEMBLIES REPLACEMENT -
Continued**

9. If removed, install new tie-down straps around abrasion sleeve (Figure 10, Item 1). Raise hose bundle and secure in supported position, as noted during removal.



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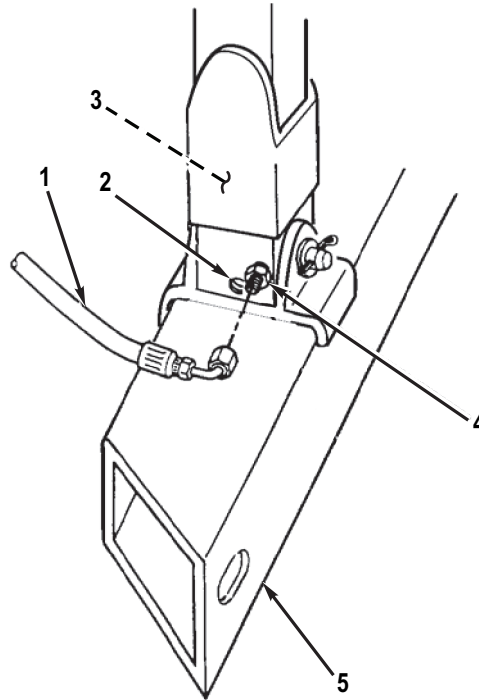
Figure 10. Secure Hydraulic Control Valve-to-Hydraulic Lift Cylinder Hose Assemblies.

END OF TASK

HYDRAULIC CONTROL VALVE-TO-HYDRAULIC POSITIONING CYLINDER HOSE ASSEMBLIES REPLACEMENT

NOTE

- Hose assemblies to extend or retract each hydraulic positioning cylinder are replaced the same way except as noted. Note position of hose assemblies to aid in installation.
 - At hydraulic control valve, hose assemblies to extend hydraulic positioning cylinders are connected to bottom port of positioning cylinders work section; hose assemblies to retract hydraulic positioning cylinders are connected to top port.
 - EXTEND (Figure 11, Item 2) and RETRACT (Figure 11, Item 2) ports at hydraulic positioning cylinders are illustrated.
 - Hose assemblies to near (left side) hydraulic positioning cylinder connect to tees at hydraulic control valve.
 - Hose assemblies to far (right side) hydraulic positioning cylinder connect to elbows at hydraulic control valve.
1. Disconnect hose assembly (Figure 11, Item 1) from straight connector (Figure 11, Item 4) at positioning cylinder (Figure 11, Item 3) inside bottom beam (Figure 11, Item 5).



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Figure 11. Hydraulic Control Valve-to-Hydraulic Positioning Cylinder Hose Assemblies Disconnection.

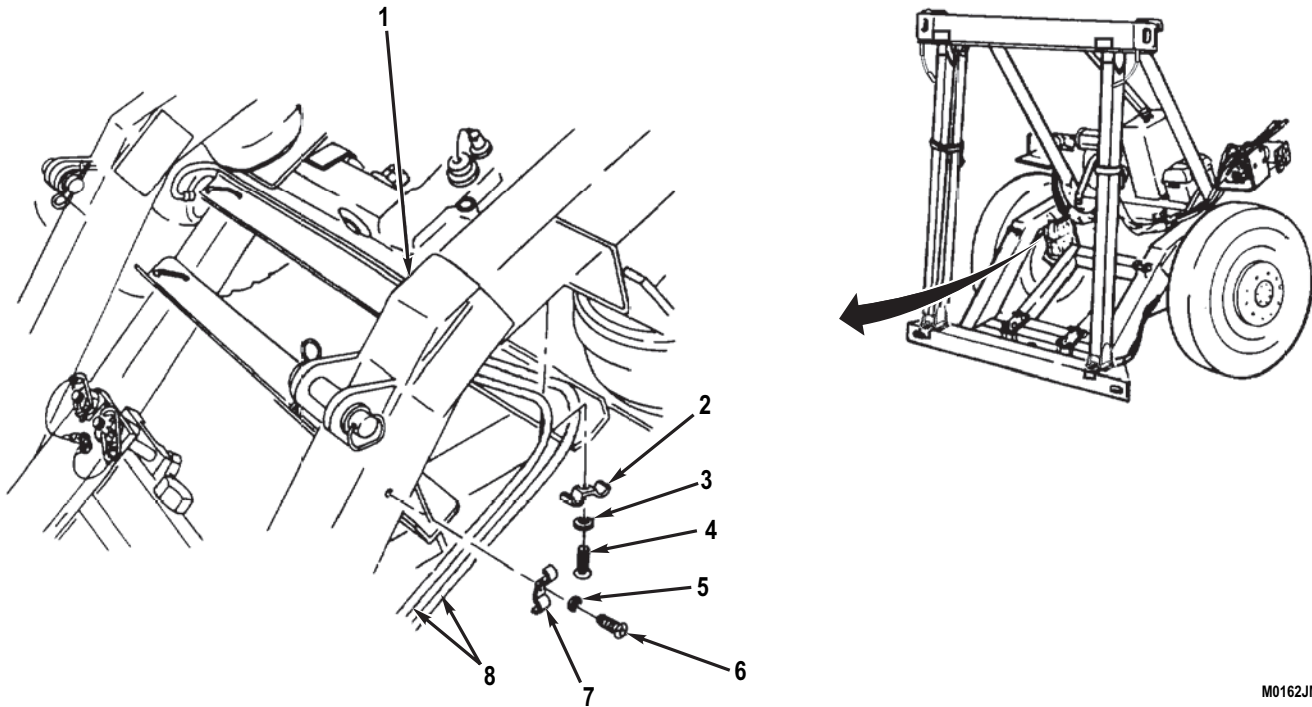
HYDRAULIC CONTROL VALVE-TO-HYDRAULIC POSITIONING CYLINDER HOSE ASSEMBLIES REPLACEMENT - Continued

2. Remove self-tapping screw (Figure 12, Item 6), washer (Figure 12, Item 5), and hose clamp (Figure 12, Item 7). Release two hose assemblies (Figure 12, Item 8) from side of suspension link (Figure 12, Item 1). Discard self-tapping screw.

NOTE

Perform steps 3 and 4 only if removing hose assembly to a far (right side) hydraulic positioning cylinder.

3. Remove self-tapping screw (Figure 12, Item 4), washer (Figure 12, Item 3), and hose clamp (Figure 12, Item 2). Release two hose assemblies (Figure 12, Item 8) from underside of suspension link (Figure 12, Item 1). Discard self-tapping screw.



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Figure 12. Hydraulic Control Valve-to-Hydraulic Positioning Cylinder Hose Assemblies Removal.

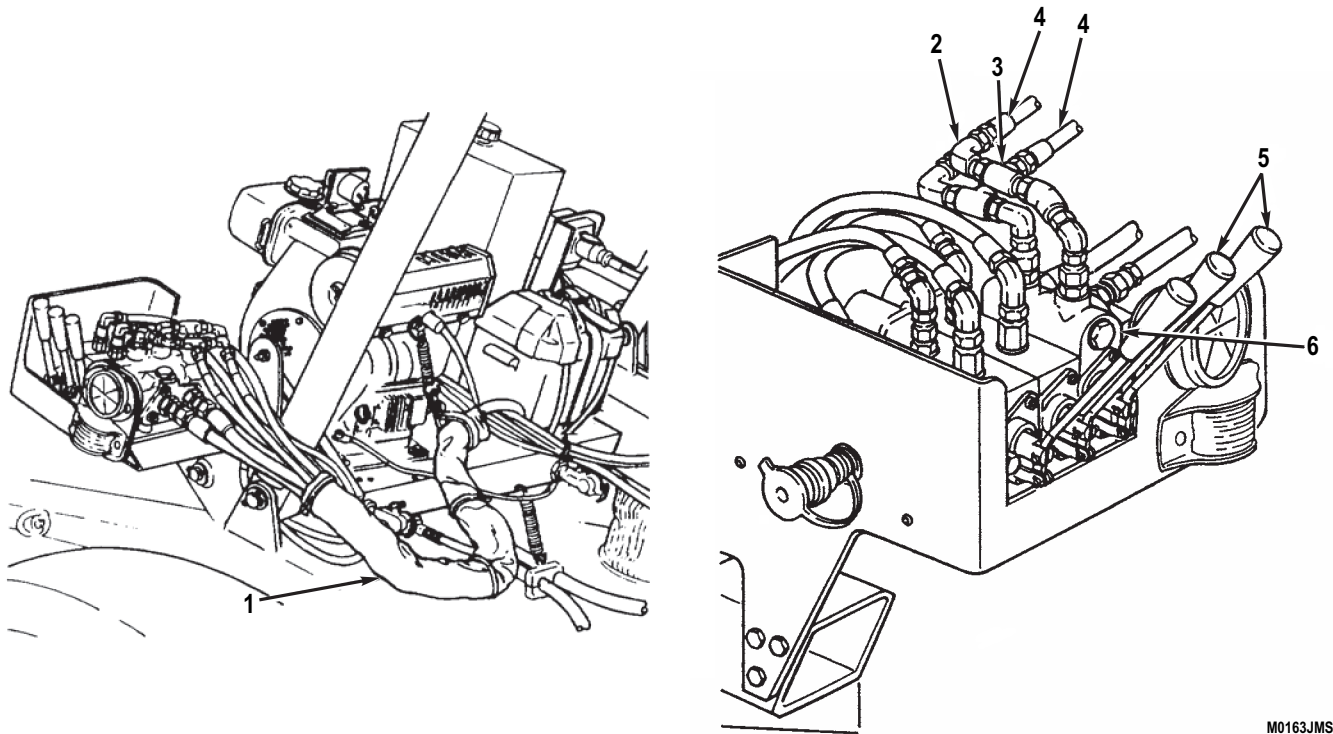
HYDRAULIC CONTROL VALVE-TO-HYDRAULIC POSITIONING CYLINDER HOSE ASSEMBLIES REPLACEMENT - Continued

4. Release hose bundle from supported position. Remove tie-down straps from abrasion sleeve (Figure 13, Item 1). Discard tie-down straps.

NOTE

Front and rear dolly hose assemblies are connected to hydraulic control valve the same way. Front dolly is illustrated.

5. Disconnect hose assembly (Figure 13, Item 4) from elbow (Figure 13, Item 2) or tee (Figure 13, Item 3) at positioning cylinders work section (Figure 13, Item 6) of hydraulic control valve (Figure 13, Item 5).
6. If removing hose assembly (Figure 13, Item 4) to far (right side) hydraulic positioning cylinder, lace replacement hose assembly to hose assembly being removed. Remove hose assembly from abrasion sleeve (Figure 13, Item 1) while pulling through replacement hose assembly.

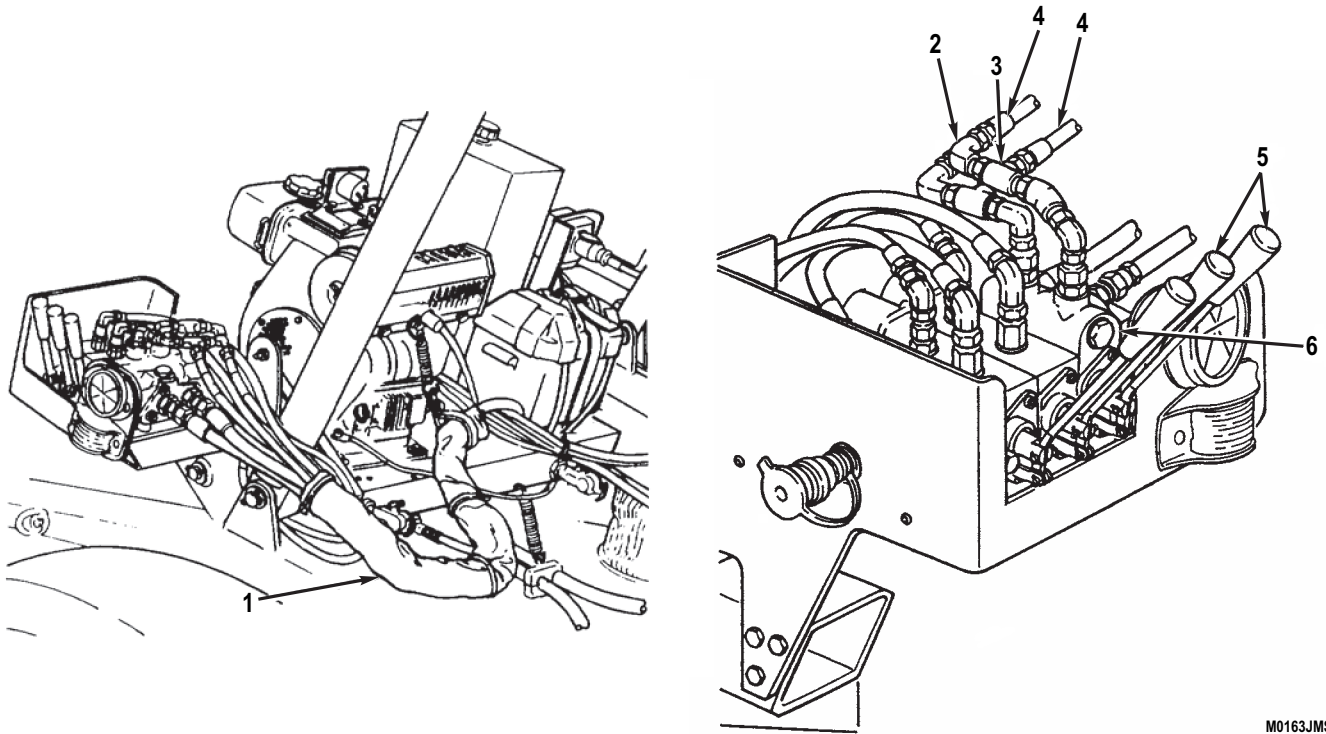


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Figure 13. Hydraulic Control Valve-to-Hydraulic Positioning Cylinder Hose Assemblies.

HYDRAULIC CONTROL VALVE-TO-HYDRAULIC POSITIONING CYLINDER HOSE ASSEMBLIES REPLACEMENT - Continued

7. Connect hose assembly (Figure 14, Item 4) to elbow (Figure 14, Item 2) or tee (Figure 14, Item 3) at positioning cylinder work section (Figure 14, Item 6) of hydraulic control valve (Figure 14, Item 5).



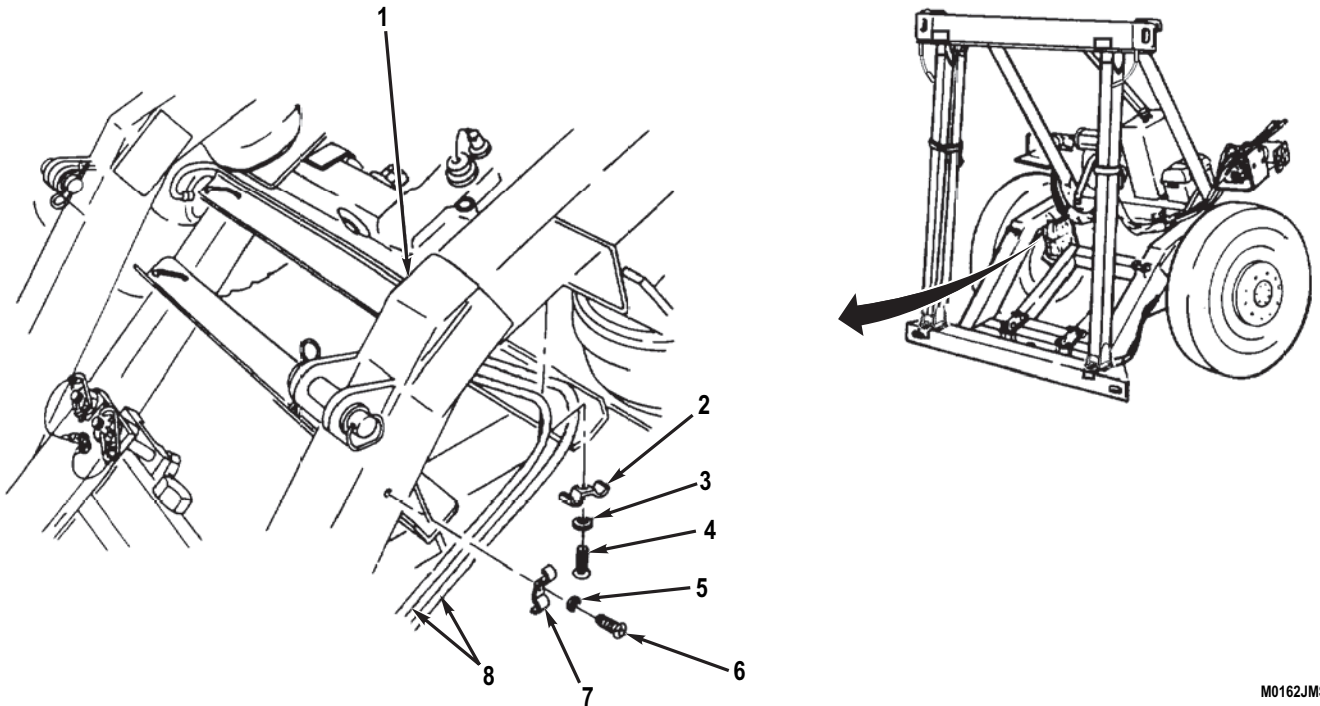
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Figure 14. Hydraulic Control Valve-to-Hydraulic Positioning Cylinder Hose Assemblies Connections.

8. If removed, install new tie-down straps around abrasion sleeve (Figure 14, Item 1). Raise hose bundle and secure in supported position, as noted during removal.

HYDRAULIC CONTROL VALVE-TO-HYDRAULIC POSITIONING CYLINDER HOSE ASSEMBLIES REPLACEMENT - Continued

9. If installing hose assembly (Figure 15, Item 8) to far (right side) hydraulic positioning cylinder, secure two hose assemblies to underside of suspension link (Figure 15, Item 1) with hose clamp (Figure 15, Item 2), washer (Figure 15, Item 3), and new self-tapping screw (Figure 15, Item 4).
10. Secure two hose assemblies (Figure 15, Item 8) to side of suspension link (Figure 15, Item 1) with hose clamp (Figure 15, Item 7), washer (Figure 15, Item 5), and new self-tapping screw (Figure 15, Item 6).



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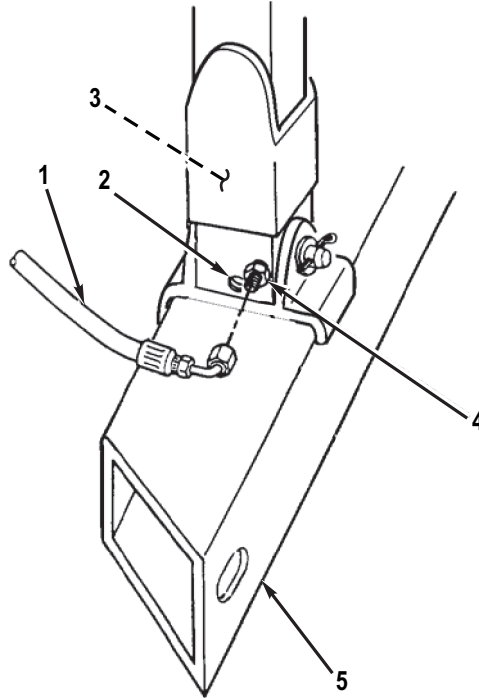
Figure 15. Secure Hydraulic Control Valve-to-Hydraulic Positioning Cylinder Hose Assemblies.

HYDRAULIC CONTROL VALVE-TO-HYDRAULIC POSITIONING CYLINDER HOSE ASSEMBLIES REPLACEMENT - Continued

NOTE

EXTEND (Figure 16, Item 2) and RETRACT (Figure 16, Item 2) ports at hydraulic positioning cylinders are illustrated.

11. Connect hose assembly (Figure 16, Item 1) to straight connector (Figure 16, Item 4) at positioning cylinder (Figure 16, Item 3) inside bottom beam (Figure 16, Item 5).



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Figure 16. Hydraulic Control Valve-to-Hydraulic Positioning Cylinder Hose Assemblies Connection.

END OF TASK

FOLLOW-ON TASKS

1. Check hydraulic fluid level and fill reservoir as required (WP 0029).
2. Operate lift and positioning cylinders control levers, and check operation of lift and positioning cylinders (WP 0005).
3. Check for leaks (WP 0128).

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
HYDRAULIC LIFT CYLINDERS MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
 Tool Kit, SATS, Base (WP 0194, Table 2, Item 2)
 Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)
 Cylinder, Compressed Gas: for acetylene (WP 0198, Table 1, Item 6)
 Cylinder, Compressed Gas: for oxygen (WP 0198, Table 1, Item 7)
 Duplex Hose, Rubber (WP 0198, Table 1, Item 10)
 Gloves, Welder's (WP 0198, Table 1, Item 12)
 Goggles, Industrial (WP 0198, Table 1, Item 13)
 Igniter, Friction (WP 0198, Table 1, Item 15)
 Torch Set, Cutting and Welding (WP 0198, Table 1, Item 30)
 Truck, Hand, Two-Wheeled: gas cylinder type (WP 0198, Table 1, Item 32)
 Valve, Regulating, Fluid Pressure: for acetylene (WP 0198, Table 1, Item 34)
 Valve, Regulating, Fluid Pressure: for oxygen (WP 0198, Table 1, Item 35)
 Vise, Machinist's (WP 0198, Table 1, Item 36)
 Wrench, Adjustable: 0-3 5/8 in jaw opening (WP 0198, Table 1, Item 37)
 Wrench, Strap, Pipe: 1-6 in. diameter (WP 0198, Table 1, Item 41)
 Wrench, Torque: 3/8 in. drive, 0-300 lb-in capacity (WP 0198, Table 1, Item 43)
 Suitable lifting device

Materials/Parts

Compound: Sealing, Thread-Locking (WP 0197, Table 1, Item 11)
 Fluid: Hydraulic, Petroleum Base, OHA (WP 0197, Table 1, Item 15)
 Rag: Wiping (WP 0197, Table 1, Item 42)
 Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
 Tape: Pressure Sensitive Adhesive, Masking, Flat, 1 Inch Width (WP 0197, Table 1, Item 52)
 Wire: Nonelectrical (WP 0197, Table 1, Item 56)
 Back Up Seal (w/out side lift) (WP 0162, Item 8) Qty: 1
 Back Up Washer (w/side lift) (WP 0185, Item 15) Qty: 2

Materials/Parts (cont.)

Back Up Washer (w/side lift) (WP 0185, Item 16) Qty: 4
 Back Up Washer (w/side lift) (WP 0185, Item 19) Qty: 1
 Bearing Ring (w/side lift) (WP 0185, Item 25) Qty: 2
 Bearing Ring (w/side lift) (WP 0185, Item 32) Qty: 2
 Cotter Pin (WP 0164, Item 3) Qty: 2
 Nylon Lock (w/side lift) (WP 0185, Item 5) Qty: 1
 O-ring (w/side lift) (WP 0185, Item 12) Qty: 2
 O-ring (w/side lift) (WP 0185, Item 14) Qty: 1
 O-ring (w/side lift) (WP 0185, Item 18) Qty: 1
 Packing (with side lift) (WP 0185, Item 7) Qty: 1
 Preformed Packing (w/out side lift) (WP 0162, Item 9) Qty: 1
 Preformed Packing (w/out side lift) (WP 0162, Item 13) Qty: 1
 Rod Seal (w/out side lift) (WP 0162, Item 5) Qty: 1
 Rod Wiper (w/out side lift) (WP 0162, Item 4) Qty: 1
 Seal (w/out side lift) (WP 0162, Item 12) Qty: 1
 Teflon Seal (w/side lift) (WP 0185, Item 33) Qty: 1
 T-seal (w/side lift) (WP 0185, Item 22) Qty: 1
 Wear Ring (w/out side lift) (WP 0162, Item 10) Qty: 2
 Wiper (w/side lift) (WP 0185, Item 3) Qty: 1
 Wiper (w/side lift) (WP 0185, Item 24) Qty: 1

Personnel Required
(Three)**References**

WP 0028
 WP 0107
 WP 0108
 WP 0109
 WP 0128

Equipment Condition

Hydraulic control valve-to-hydraulic lift cylinder hose assemblies removed (WP 0104)

WARNING

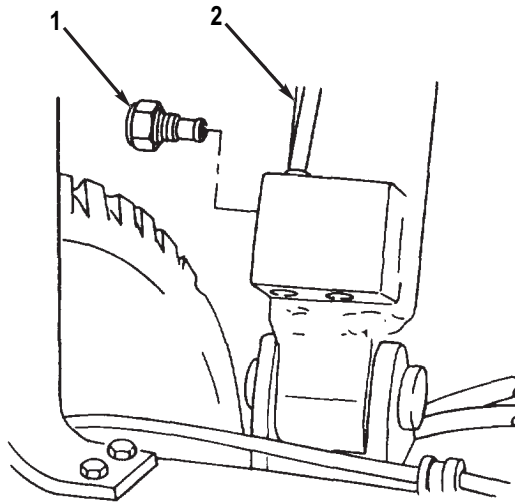
- Lift cylinder weighs 250 lb (113 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and at suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of injury.
- DO NOT attempt to replace both lift cylinders at the same time unless dolly halves are attached to each other or top beam is supported by a suitable lifting device. If top beam is not supported, it will fall to the ground. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

Standard and side lift cylinders are replaced the same way. Standard lift cylinder is shown.

REMOVAL

1. Remove check valve (Figure 1, Item 1) from hydraulic lift cylinder (Figure 1, Item 2), if damaged.
2. Support lift cylinder (Figure 1, Item 2) with a suitable lifting device.



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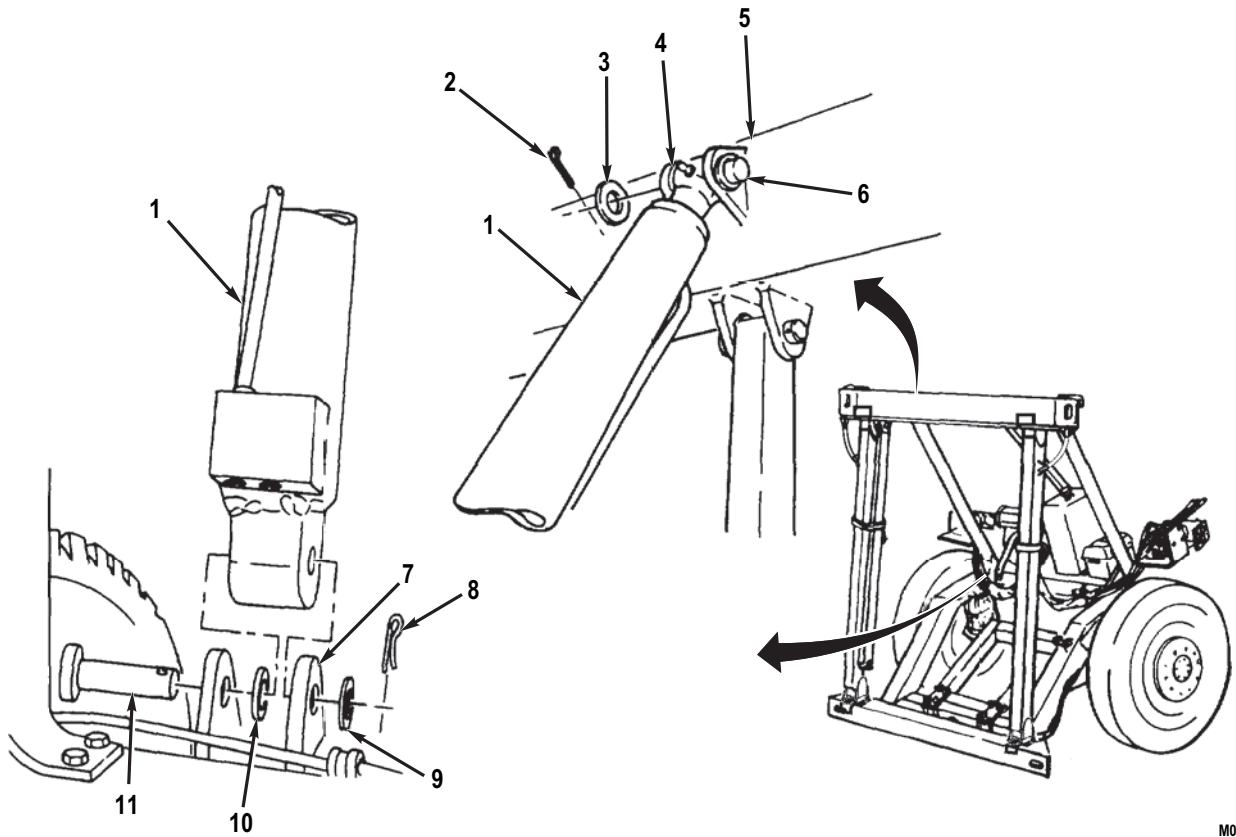
Figure 1. Hydraulic Lift Cylinder Check Valve Removal.

REMOVAL - Continued

3. Remove cotter pin (Figure 2, Item 2), washer (Figure 2, Item 3), and clevis pin (Figure 2, Item 6) from hydraulic lift cylinder (Figure 2, Item 1) and top beam (Figure 2, Item 5). Discard cotter pin.

NOTE

- Note position of spacer (Figure 2, Item 10) to aid during installation.
 - There is no spacer on right side of front dolly.
4. Remove cotter pin (Figure 2, Item 8) washer (Figure 2, Item 9), clevis pin (Figure 2, Item 11), spacer (Figure 2, Item 10), and hydraulic lift cylinder (Figure 2, Item 1) from suspension link (Figure 2, Item 7). Discard cotter pin.
 5. Remove hydraulic lift cylinder (Figure 2, Item 1) and place on a clean work surface.
 6. Remove lifting device from hydraulic lift cylinder (Figure 2, Item 1).
 7. Remove two lubrication fittings (Figure 2, Item 4) from hydraulic lift cylinder (Figure 2, Item 1).



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Figure 2. Hydraulic Lift Cylinder Removal.

END OF TASK

DISASSEMBLY WITHOUT SIDE LIFT**CAUTION**

Maintain a clean work area when disassembling and assembling hydraulic lift cylinder. Contamination from a dirty work area may cause damage to hydraulic components.

NOTE

- A suitable container should be used to catch any draining hydraulic fluid. Ensure that spills are properly cleaned.
- As components are removed, they should be set aside and arranged in disassembly order to aid during assembly.

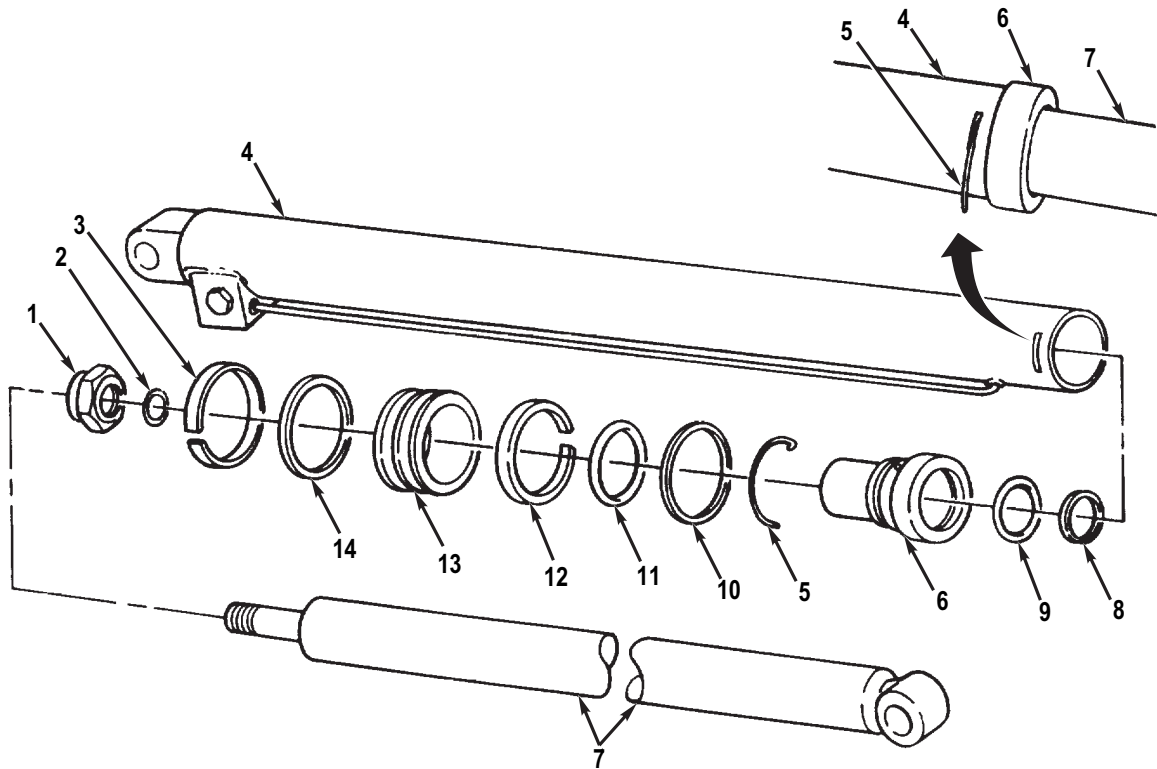
1. Drain all hydraulic fluid from lift cylinder.
2. Place barrel assembly (Figure 3, Item 4) in vise.
3. Rotate head (Figure 3, Item 6) counterclockwise. Remove lockwire (Figure 3, Item 5), preformed packing (Figure 3, Item 11), and head from barrel assembly (Figure 3, Item 4). Slide head back on rod assembly (Figure 3, Item 7). Discard preformed packing.
4. Remove rod assembly (Figure 3, Item 7) with assembled components from barrel assembly (Figure 3, Item 4).
5. Remove barrel assembly (Figure 3, Item 4) from vise.

CAUTION

DO NOT damage machined surface of rod assembly when placing rod assembly in vise.

6. Place rod end of rod assembly (Figure 3, Item 7) in vise.
7. Remove locknut (Figure 3, Item 1), piston (Figure 3, Item 13) with assembled components, and preformed packing (Figure 3, Item 2) from rod assembly (Figure 3, Item 7). Discard locknut and preformed packing.
8. Remove head (Figure 3, Item 6) with assembled components from rod assembly (Figure 3, Item 7).
9. Remove two wear rings (Figure 3, Items 3 and 12) and seal (Figure 3, Item 14) from piston (Figure 3, Item 13). Discard wear rings and seal.
10. Remove backup seal (Figure 3, Item 10), rod seal (Figure 3, Item 9), and rod wiper (Figure 3, Item 8) from head (Figure 3, Item 6). Discard backup seal, rod seal, and rod wiper.

DISASSEMBLY WITHOUT SIDE LIFT - Continued



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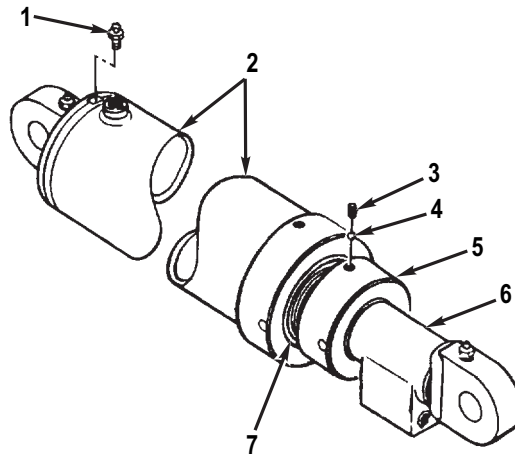
Figure 3. Hydraulic Lift Cylinder (without Side Lift Kit) Disassembly.

END OF TASK

DISASSEMBLY WITH SIDE LIFT**NOTE**

- A suitable container should be used to catch any draining hydraulic fluid. Ensure that spills are properly cleaned.
- As components are removed, they should be set aside and arranged in disassembly order to aid during assembly.

1. Remove air bleeder (Figure 4, Item 1) from butt and tube assembly (Figure 4, Item 2).
2. Drain all hydraulic fluid from lift cylinder.
3. Starting with smaller stage, remove set screw (Figure 4, Item 3) and nylon lock (Figure 4, Item 4) from gland cap (Figure 4, Item 5). Discard nylon lock.
4. Remove gland cap (Figure 4, Item 5) from piston tube (Figure 4, Item 7). Slide back gland cap on piston tube assembly (Figure 4, Item 6).



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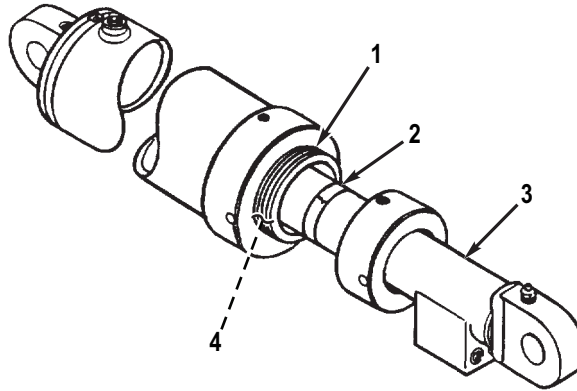
Figure 4. Hydraulic Lift Cylinder (with Side Lift Kit) Gland Cap Removal.

DISASSEMBLY WITH SIDE LIFT - Continued

NOTE

Layer of masking tape wrapped around piston tube assembly is used to pull out packing set from inside inner surface of piston tube.

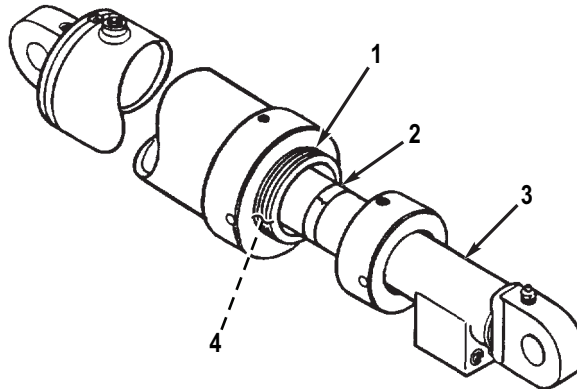
5. Pull out on piston tube assembly (Figure 5, Item 3) about 4 in. (10 cm). Wrap one layer of masking tape (Figure 5, Item 2) around piston tube assembly near end of piston tube (Figure 5, Item 1).
6. Push in on piston tube assembly (Figure 5, Item 3) so that masking tape (Figure 5, Item 2) moves beyond packing set (Figure 5, Item 4).



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Figure 5. Hydraulic Lift Cylinder (with Side Lift Kit) Disassembly.

7. Pull out on piston tube assembly (Figure 6, Item 3) until packing set (Figure 6, Item 4) is removed from piston tube (Figure 6, Item 1).
8. If packing set (Figure 6, Item 4) is not removed from piston tube (Figure 6, Item 1), add additional layer(s) of masking tape (Figure 6, Item 2) and repeat steps 6 and 7.



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Figure 6. Hydraulic Lift Cylinder (with Side Lift Kit) Packing Set Removal.

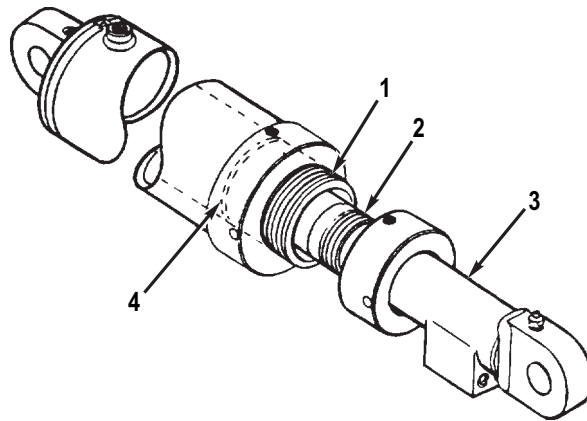
DISASSEMBLY WITH SIDE LIFT - Continued

9. Slide back packing set (Figure 7, Item 2) on piston tube assembly (Figure 7, Item 3).

NOTE

Round ring is seated in a groove on inner surface of piston tube.

10. Locate tip of round ring (Figure 7, Item 4).
11. Use rigid nonelectrical wire and form a loop end. Hook looped end to tip of round ring (Figure 7, Item 4). Pull out on nonelectrical wire and remove round ring from groove on inner surface of piston tube (Figure 7, Item 1).
12. Remove piston tube assembly (Figure 7, Item 3) with assembled components from piston tube (Figure 7, Item 1).



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Figure 7. Hydraulic Lift Cylinder (with Side Lift Kit) Piston Tube Removal.

13. Remove two bearing rings (Figure 8, Item 9) and three piston rings (Figure 8, Item 10) from piston (Figure 8, Item 8). Discard bearing rings and piston rings.

WARNING



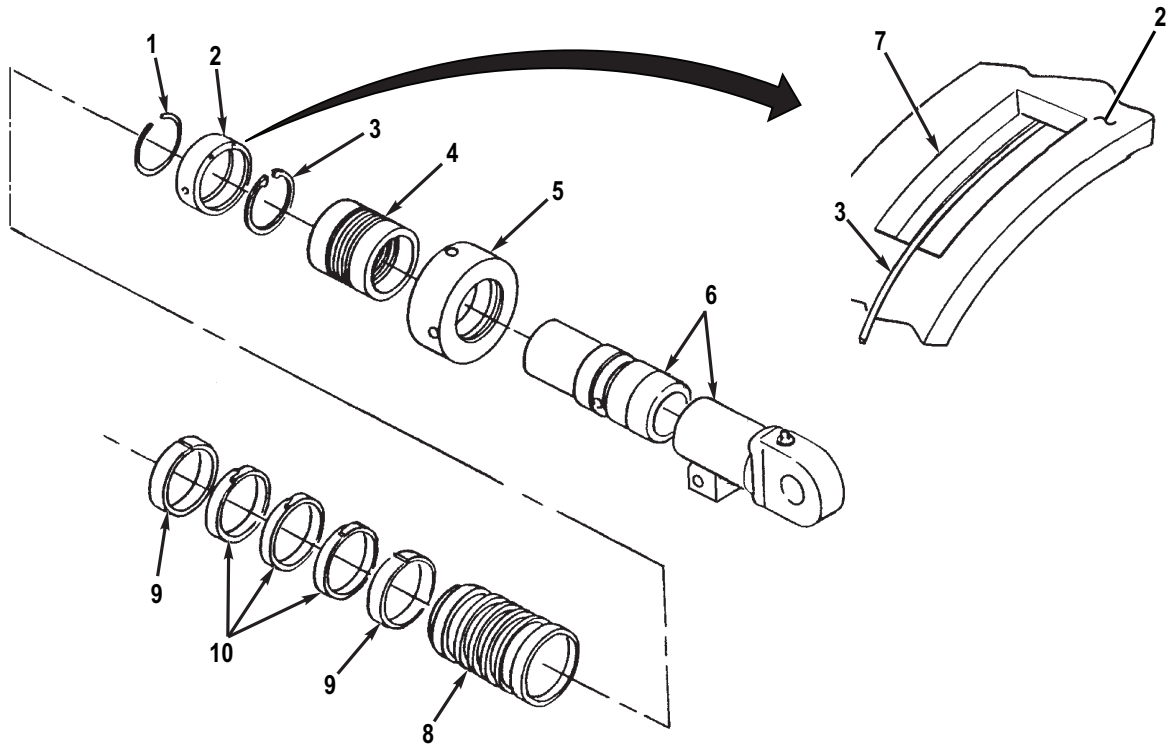
Wear eye and hand protection and work in a well-ventilated area when using torch to heat piston. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

14. Evenly apply heat to threaded area of piston (Figure 8, Item 8) to loosen sealing compound bond between piston and piston tube assembly (Figure 8, Item 6). Remove piston from piston tube assembly.
15. Rotate stop ring (Figure 8, Item 2) counterclockwise until end of square retaining ring (Figure 8, Item 3) can be seen in milled slot (Figure 8, Item 7). Reverse rotation of stop ring and back out square retaining ring through milled slot. If end of square retaining ring interferes with edge of milled slot, use a screwdriver to bend up square retaining ring to clear slot.
16. Rotate stop ring (Figure 8, Item 2) one full turn and remove square retaining ring (Figure 8, Item 3).

DISASSEMBLY WITH SIDE LIFT - Continued**CAUTION**

Use caution not to score piston tube assembly. Failure to follow this caution may result in damage to equipment.

17. Slide stop ring (Figure 8, Item 2) forward on piston tube assembly (Figure 8, Item 6) and remove round ring (Figure 8, Item 1).
18. Remove stop ring (Figure 8, Item 2), packing set (Figure 8, Item 4), and gland cap (Figure 8, Item 5) from piston tube assembly (Figure 8, Item 6). Discard packing.

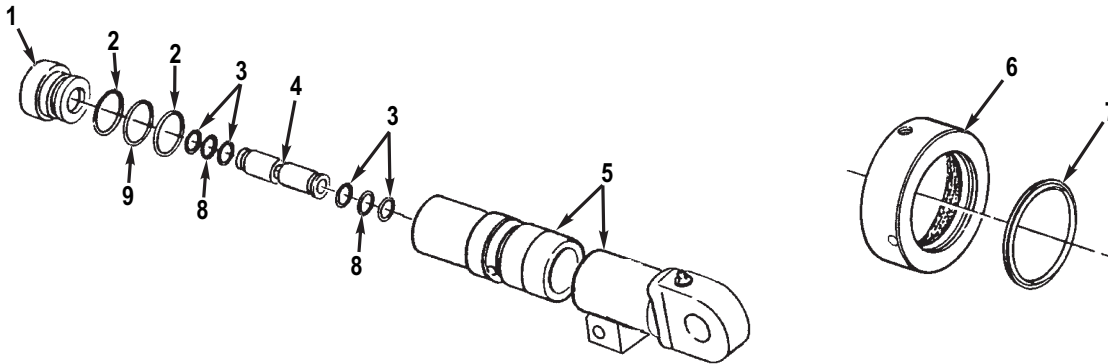


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Figure 8. Hydraulic Lift Cylinder (with Side Lift Kit) Piston Tube Disassembly.

DISASSEMBLY WITH SIDE LIFT - Continued

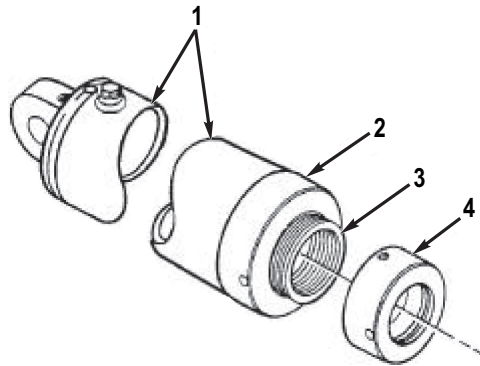
19. Remove seal plate (Figure 9, Item 1) and manifold tube (Figure 9, Item 4) from piston tube assembly (Figure 9, Item 5).
20. Remove wiper (Figure 9, Item 7) from gland cap (Figure 9, Item 6). Discard wiper.
21. Remove O-ring (Figure 9, Item 9) and two backup washers (Figure 9, Item 2) from seal plate (Figure 9, Item 1). Discard O-rings and backup washers.
22. Remove two O-rings (Figure 9, Item 8) and four backup washers (Figure 9, Item 3) from manifold tube (Figure 9, Item 4). Discard O-rings and backup washers.



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Figure 9. Hydraulic Lift Cylinder (with Side Lift Kit) Disassembly.

23. To aid in disassembly of larger stage, install gland cap (Figure 10, Item 4) from smaller stage on piston tube (Figure 10, Item 3).
24. Pull out on piston tube (Figure 10, Item 3) about 4 in. (10 cm).
25. Remove gland (Figure 10, Item 2) from butt and tube assembly (Figure 10, Item 1) and slide gland onto piston tube (Figure 10, Item 3).

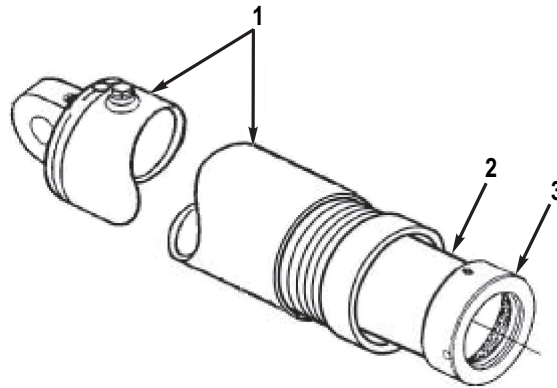


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Figure 10. Hydraulic Lift Cylinder (with Side Lift Kit) Gland Disassembly.

DISASSEMBLY WITH SIDE LIFT - Continued

26. Remove piston tube (Figure 11, Item 2) with assembled components from butt and tube assembly (Figure 11, Item 1).
27. Remove gland cap (Figure 11, Item 3) from piston tube (Figure 11, Item 2).

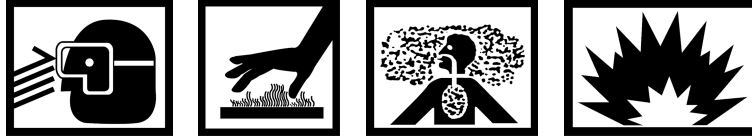


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Figure 11. Hydraulic Lift Cylinder (with Side Lift Kit) Gland Cap Removal.

DISASSEMBLY WITH SIDE LIFT - Continued

28. Remove teflon seal (Figure 12, Item 8) and two bearing rings (Figure 12, Item 7) from piston (Figure 12, Item 6). Discard teflon seal and bearing rings.

WARNING

Wear eye and hand protection and work in a well-ventilated area when using torch to heat piston. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

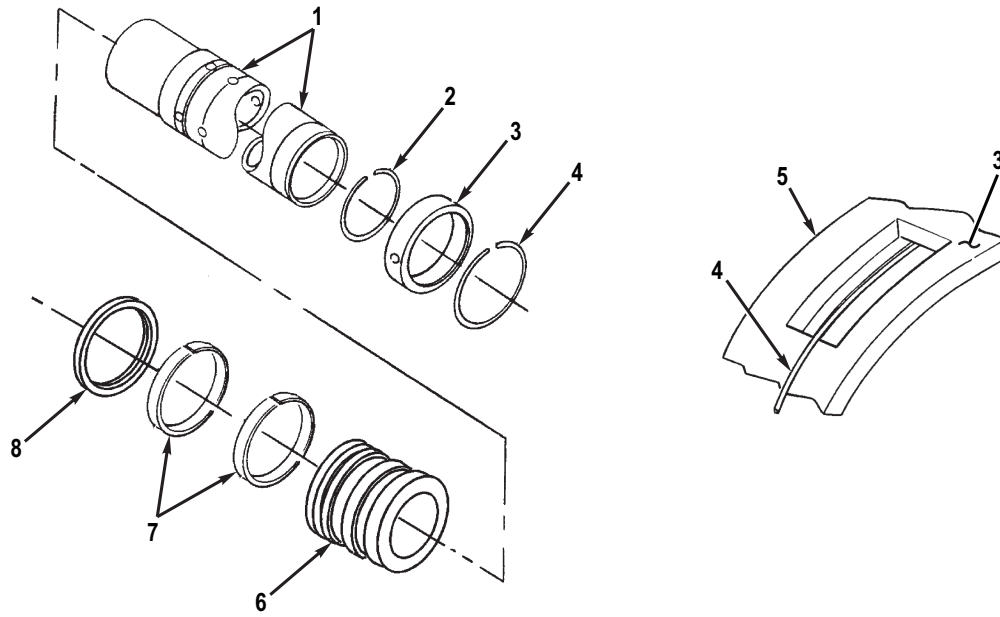
29. Evenly apply heat to threaded area of piston (Figure 12, Item 6) to loosen sealing compound bond between piston and piston tube (Figure 12, Item 1). Remove piston from piston tube.
30. Rotate stop ring (Figure 12, Item 3) counterclockwise until end of square retaining ring (Figure 12, Item 4) can be seen in milled slot (Figure 12, Item 5). Reverse rotation of stop ring and back out square retaining ring through milled slot. If end of square retaining ring interferes with edge of milled slot, use a screwdriver to bend up square retaining ring to clear slot.
31. Rotate stop ring (Figure 12, Item 3) one full turn and remove square retaining ring (Figure 12, Item 4).

CAUTION

Use caution not to score piston tube. Failure to follow this caution may result in damage to equipment.

32. Slide stop ring (Figure 12, Item 3) forward on piston tube (Figure 12, Item 1) and remove round ring (Figure 12, Item 2).
33. Remove stop ring (Figure 12, Item 3) from piston tube (Figure 12, Item 1).

DISASSEMBLY WITH SIDE LIFT - Continued

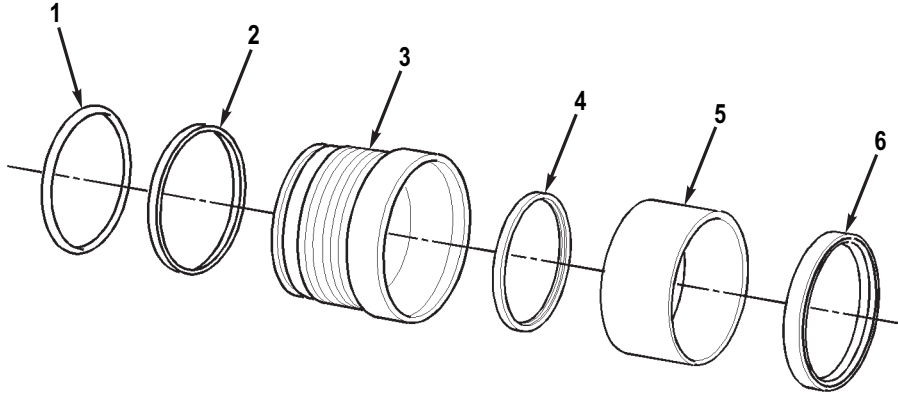


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Figure 12. Hydraulic Lift Cylinder (with Side Lift Kit) Disassembly.

DISASSEMBLY WITH SIDE LIFT - Continued

34. Remove O-ring (Figure 13, Item 1) and backup washer (Figure 13, Item 2) from gland (Figure 13, Item 3). Discard O-ring and backup washer.
35. Remove wiper (Figure 13, Item 6), DU bushing (Figure 13, Item 5), and T-seal (Figure 13, Item 4) from gland (Figure 13, Item 3). Discard wiper and T-seal.



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Figure 13. Hydraulic Lift Cylinder (with Side Lift Kit) Gland Disassembly.

END OF TASK**CLEANING**

Clean all removed components with a clean rag IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSPECTION**

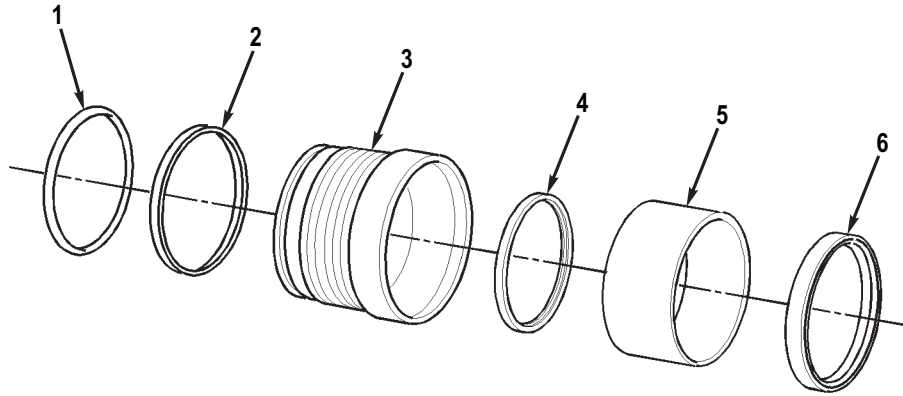
Inspect all components for cracks, breaks, bends, corrosion, or damaged threads. Replace damaged components IAW General Maintenance Instructions (WP 0128).

END OF TASK

ASSEMBLY WITH SIDE LIFT**NOTE**

All components should be lightly coated with hydraulic fluid before assembly.

1. Starting with larger stage, install new backup washer (Figure 14, Item 2) and new O-ring (Figure 14, Item 1) to gland (Figure 14, Item 3).
2. Install new T-seal (Figure 14, Item 4), DU bushing (Figure 14, Item 5), and new wiper (Figure 14, Item 6) in gland (Figure 14, Item 3).



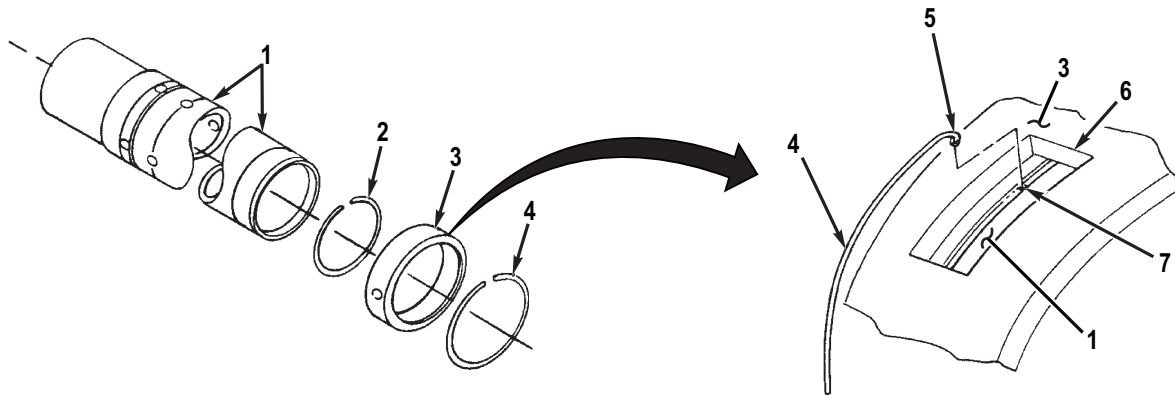
M0258JMS

Figure 14. Hydraulic Lift Cylinder (with Side Lift Kit) Gland Assembly.

ASSEMBLY WITH SIDE LIFT - Continued**CAUTION**

Use caution not to score piston tube. Failure to follow this caution may result in damage to equipment.

3. Slide stop ring (Figure 15, Item 3) onto piston tube (Figure 15, Item 1).
4. Install round ring (Figure 15, Item 2) in groove of piston tube (Figure 15, Item 1).
5. Slide stop ring (Figure 15, Item 3) toward piston end until it contacts round ring (Figure 15, Item 2). Rotate stop ring to ensure that milled slot (Figure 15, Item 6) is aligned over hole (Figure 15, Item 7) in piston tube (Figure 15, Item 1).
6. Insert hooked end (Figure 15, Item 5) of square retaining ring (Figure 15, Item 4) into hole (Figure 15, Item 7) of piston tube (Figure 15, Item 1). Rotate stop ring (Figure 15, Item 3) by hand as far as possible.
7. Rotate stop ring (Figure 15, Item 3) one full turn. DO NOT allow hooked end (Figure 15, Item 5) of square retaining ring (Figure 15, Item 4) to pass under milled slot (Figure 15, Item 6).
8. Hold down square retaining ring (Figure 15, Item 4) and reverse rotation of stop ring (Figure 15, Item 3). Rotate stop ring one half turn until milled slot (Figure 15, Item 6) is opposite hole (Figure 15, Item 7) of piston tube (Figure 15, Item 1).

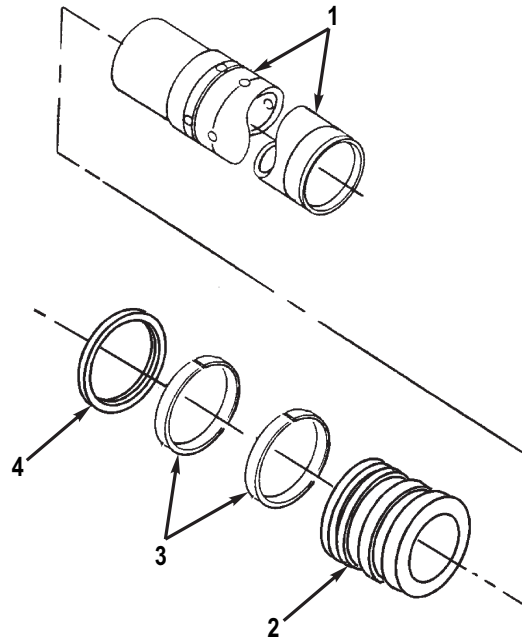


M0259JMS

Figure 15. Hydraulic Lift Cylinder (with Side Lift Kit) Assembly.

ASSEMBLY WITH SIDE LIFT - Continued

9. Apply sealing compound to threads of piston (Figure 16, Item 2). Install piston in piston tube (Figure 16, Item 1).
10. Install two new bearing rings (Figure 16, Item 3) and new teflon seal (Figure 16, Item 4) on piston (Figure 16, Item 2).

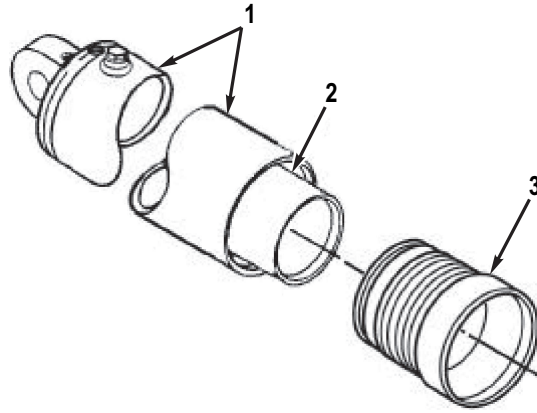


M0257_1JMS

Figure 16. Hydraulic Lift Cylinder (with Side Lift Kit) Piston Assembly.

ASSEMBLY WITH SIDE LIFT - Continued

11. Slide piston tube (Figure 17, Item 2) with assembled components into butt and tube assembly (Figure 17, Item 1).
12. Install gland (Figure 17, Item 3) on butt and tube assembly (Figure 17, Item 1) and tighten securely.

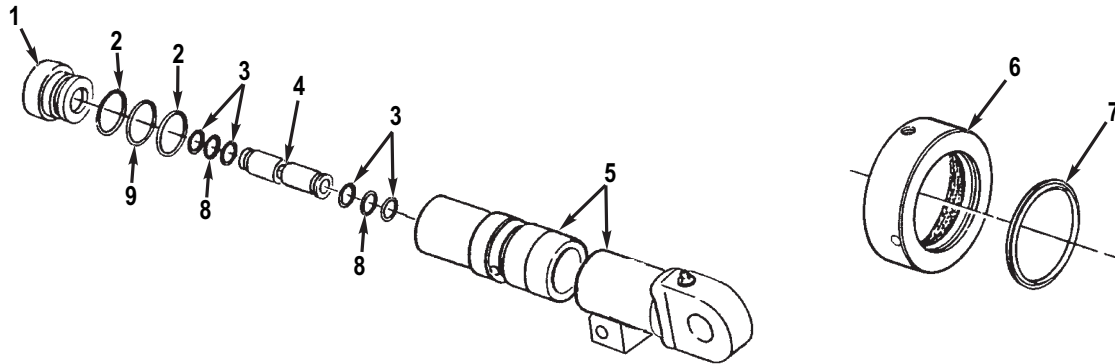


M0260JMS

Figure 17. Hydraulic Lift Cylinder (with Side Lift Kit) Gland Assembly.

ASSEMBLY WITH SIDE LIFT - Continued

13. Continuing with smaller stage, install four new backup washers (Figure 18, Item 3) and two new O-rings (Figure 18, Item 8) on manifold tube (Figure 18, Item 4).
14. Install two new backup washers (Figure 18, Item 2) and new O-ring (Figure 18, Item 9) to seal plate (Figure 18, Item 1).
15. Install new wiper (Figure 18, Item 7) to gland cap (Figure 18, Item 6).
16. Install manifold tube (Figure 18, Item 4) and seal plate (Figure 18, Item 1) on piston tube assembly (Figure 18, Item 5).



M0254JMS

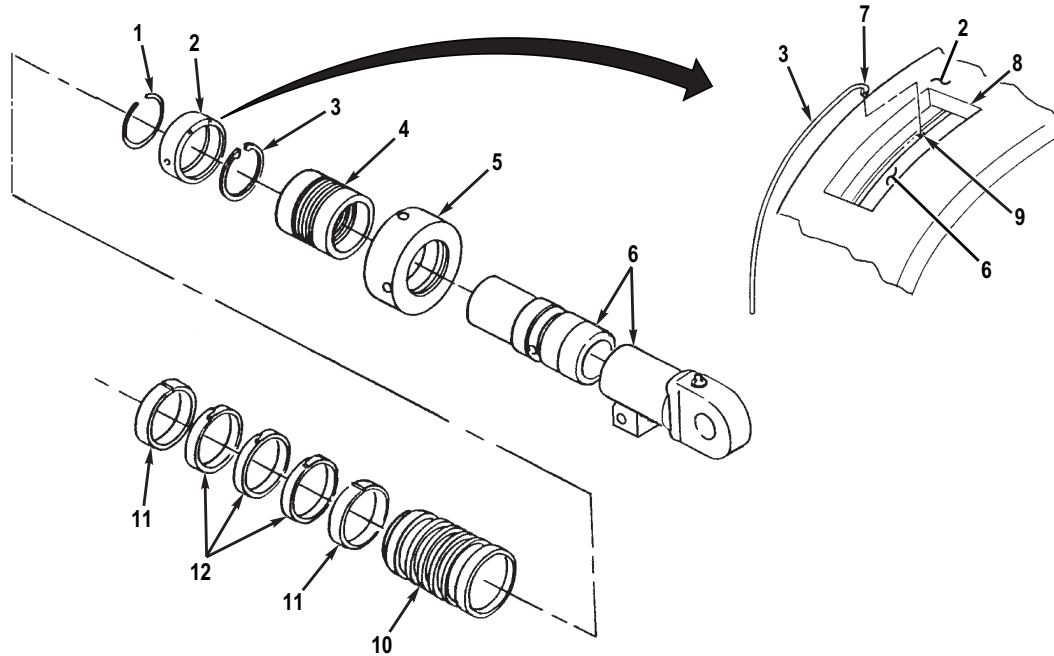
Figure 18. Hydraulic Lift Cylinder (with Side Lift Kit) Assembly.

ASSEMBLY WITH SIDE LIFT - Continued**CAUTION**

Use caution not to score piston tube assembly. Failure to follow this caution may result in damage to equipment.

17. Slide gland cap (Figure 19, Item 5), new packing set (Figure 19, Item 4), round ring (Figure 19, Item 1), and stop ring (Figure 19, Item 2) onto piston tube assembly (Figure 19, Item 6).
18. Install round ring (Figure 19, Item 1) into groove of piston tube assembly (Figure 19, Item 6).
19. Slide stop ring (Figure 19, Item 2) toward piston end until it contacts round ring (Figure 19, Item 1). Rotate stop ring to ensure that milled slot (Figure 19, Item 8) is aligned over the hole (Figure 19, Item 9) in piston tube assembly (Figure 19, Item 6).
20. Insert hooked end (Figure 19, Item 7) of square retaining ring (Figure 19, Item 3) into hole (Figure 19, Item 9) of piston tube assembly (Figure 19, Item 6). Rotate stop ring (Figure 19, Item 2) by hand as far as possible.
21. Rotate stop ring (Figure 19, Item 2) one full turn. DO NOT allow hooked end (Figure 19, Item 7) of square retaining ring (Figure 19, Item 3) to pass under milled slot (Figure 19, Item 8).
22. Hold down square retaining ring (Figure 19, Item 3) and reverse rotation of stop ring (Figure 19, Item 2). Rotate stop ring one half turn until milled slot (Figure 19, Item 8) is opposite hole (Figure 19, Item 9) of piston tube assembly (Figure 19, Item 6).
23. Apply sealing compound to threads of piston (Figure 19, Item 10). Install piston on piston tube assembly (Figure 19, Item 6).
24. Install three new piston rings (Figure 19, Item 12) and two new bearing rings (Figure 19, Item 11) on piston (Figure 19, Item 10).

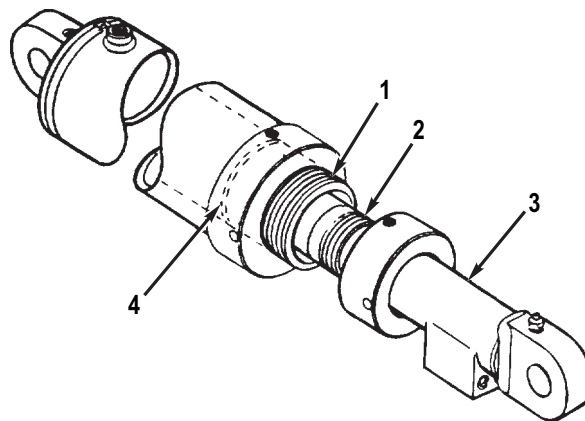
ASSEMBLY WITH SIDE LIFT - Continued



M0261JMS

Figure 19. Hydraulic Lift Cylinder (with Side Lift Kit) Assembly.

25. Slide piston tube assembly (Figure 20, Item 3) with assembled components into piston tube (Figure 20, Item 1).
26. Slide round ring (Figure 20, Item 4) down piston tube assembly (Figure 20, Item 3) and seat in groove on inner surface of piston tube (Figure 20, Item 1).
27. Slide packing set (Figure 20, Item 2) down piston tube assembly (Figure 20, Item 3) until it contacts round ring (Figure 20, Item 4).

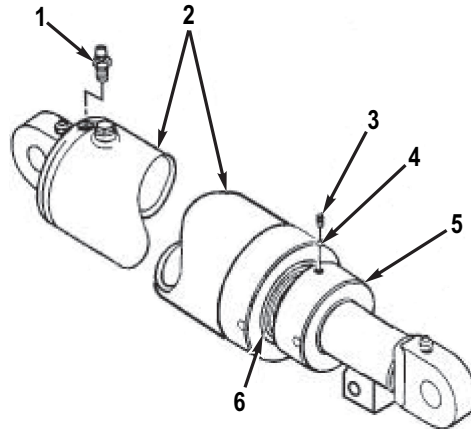


M0252JMS

Figure 20. Hydraulic Lift Cylinder (with Side Lift Kit) Packing Set Assembly.

ASSEMBLY WITH SIDE LIFT - Continued

28. Install gland cap (Figure 21, Item 5) on piston tube (Figure 21, Item 6). Install new nylon lock (Figure 21, Item 4) and screw (Figure 21, Item 3) on gland cap.
29. Install air bleeder (Figure 21, Item 1) on butt and tube assembly (Figure 21, Item 2). Torque air bleeder to 180 lb-in (20 N•m).



M0262JMS

Figure 21. Hydraulic Lift Cylinder (with Side Lift Kit) Gland Cap Assembly.

END OF TASK

ASSEMBLY WITHOUT SIDE LIFT**NOTE**

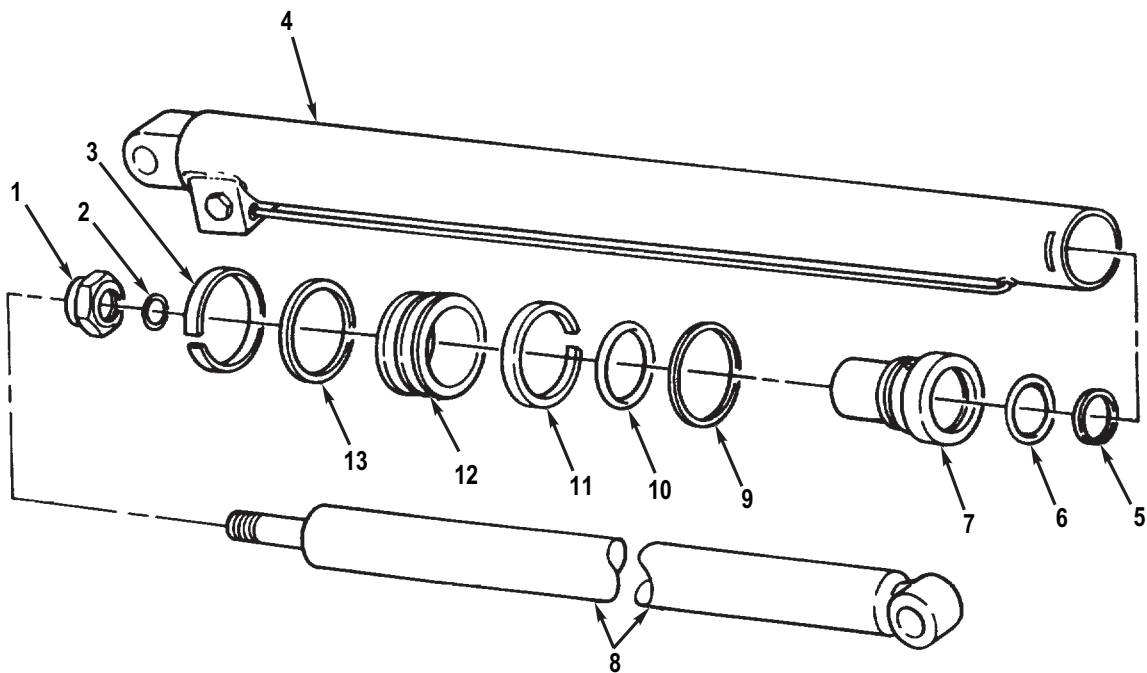
Preformed packings, seals, wear rings, rod wiper, seal, and lockwire should be lightly coated with hydraulic fluid before assembly.

1. Assemble new rod seal (Figure 22, Item 6) and new rod wiper (Figure 22, Item 5) on head (Figure 22, Item 7).

CAUTION

DO NOT damage machined surface of rod assembly when placing rod assembly in vise.

2. Place rod end of rod assembly (Figure 22, Item 8) in vise.
3. Cant head (Figure 22, Item 7) and position at rod assembly (Figure 22, Item 8) with lip of rod wiper (Figure 22, Item 5) started on shoulder of rod assembly, Twist head, maintaining canted position, and slide head onto rod assembly until lip of rod wiper is fully installed. Push head straight onto rod assembly.
4. Install new backup seal (Figure 22, Item 9) and new preformed packing (Figure 22, Item 10) in rear groove of head (Figure 22, Item 5).
5. Install new preformed packing (Figure 22, Item 2) on rod assembly (Figure 22, Item 8).
6. Assemble two new wear rings (Figure 22, Items 3 and 11) and new seal (Figure 22, Item 13) on piston (Figure 22, Item 12). Position gaps of wear rings approximately 180° opposite each other.
7. Install piston (Figure 22, Item 12) with assembled components on rod assembly (Figure 22, Item 8).
8. Install new locknut (Figure 22, Item 1) on rod assembly (Figure 22, Item 8) and tighten securely.
9. Remove rod assembly (Figure 22, Item 8) from vise. Install barrel assembly (Figure 22, Item 4) in vise.

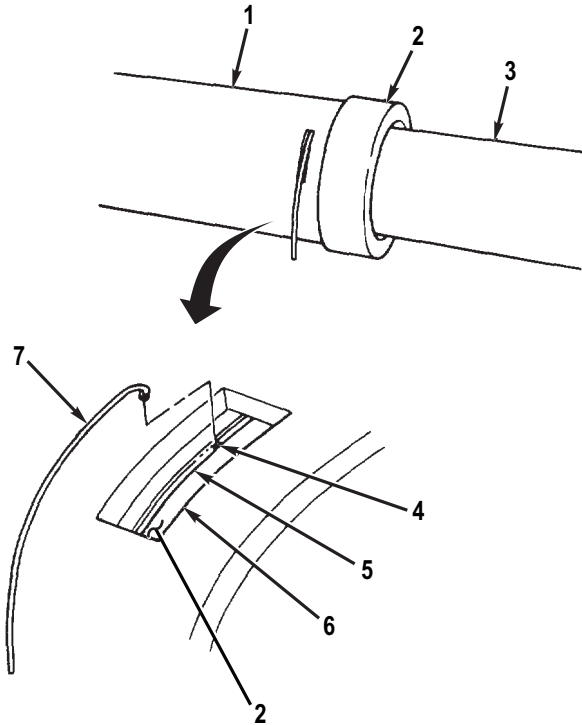


M0243JMS

Figure 22. Hydraulic Lift Cylinder (without Side Lift Kit) Assembly.

ASSEMBLY WITHOUT SIDE LIFT - Continued

10. Install rod assembly (Figure 23, Item 3) with assembled components in barrel assembly (Figure 23, Item 1) until head (Figure 23, Item 2) contacts barrel assembly. Rotate head until hole (Figure 23, Item 4) in lockwire groove (Figure 23, Item 5) is visible through slot (Figure 23, Item 6) at end of barrel assembly.
11. Insert hooked end of lockwire (Figure 23, Item 7) into hole (Figure 23, Item 4). Rotate head (Figure 23, Item 2) clockwise until lockwire fully seats in lockwire groove (Figure 23, Item 5).



M0244JMS

Figure 23. Hydraulic Lift Cylinder (without Side Lift Kit) Lockwire Assembly.

END OF TASK

INSTALLATION

1. Install two new lubrication fittings (Figure 24, Item 4) on hydraulic lift cylinder (Figure 24, Item 1).
2. Support hydraulic lift cylinder (Figure 24, Item 1) with a suitable lifting device.

NOTE

There is no spacer on right side of front dolly.

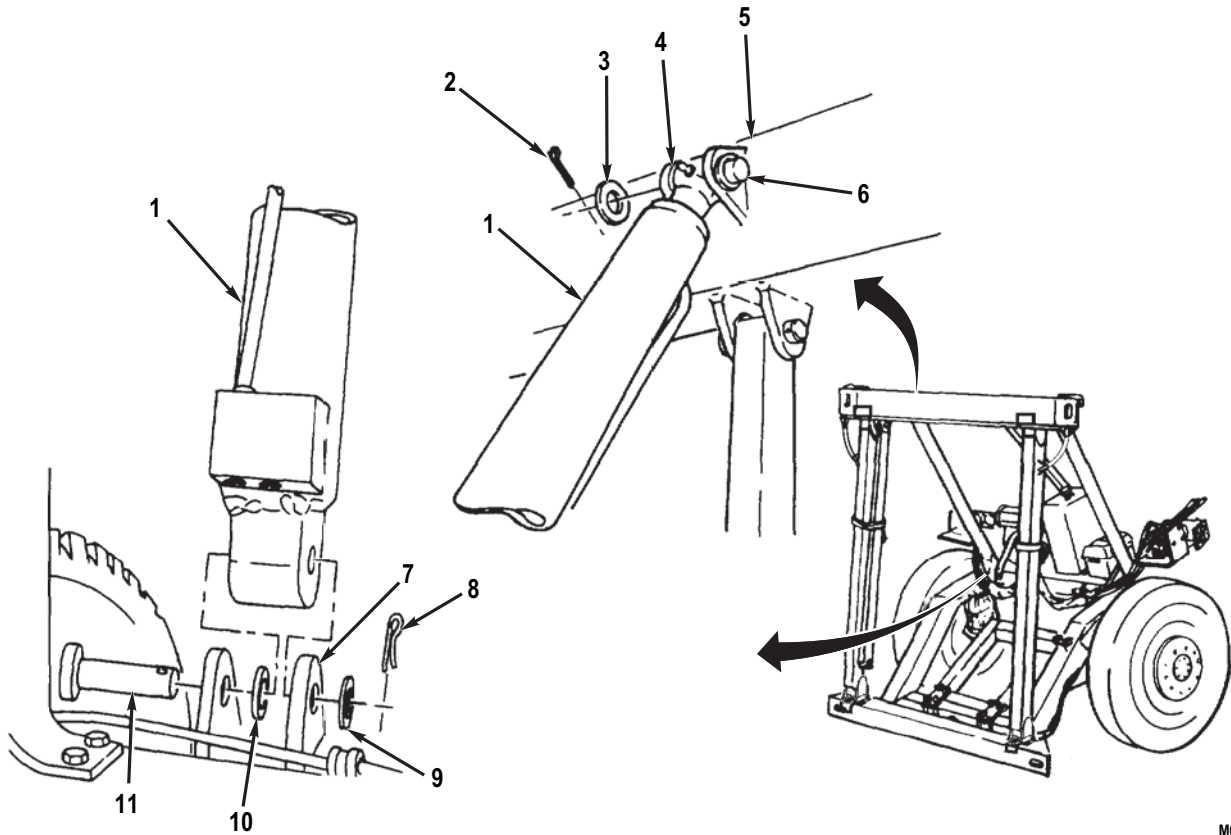
3. Install hydraulic lift cylinder (Figure 24, Item 1) on suspension link (Figure 24, Item 7) with spacer (Figure 24, Item 10), clevis pin (Figure 24, Item 11), washer (Figure 24, Item 9), and new cotter pin (Figure 24, Item 8).

NOTE

Ensure that grease fitting at rod end of hydraulic lift cylinder is facing up.

INSTALLATION - Continued

4. Install hydraulic lift cylinder (Figure 24, Item 1) on top beam (Figure 24, Item 5) with clevis pin (Figure 24, Item 6), washer (Figure 24, Item 3), and new cotter pin (Figure 24, Item 2).
5. Remove lifting device from hydraulic lift cylinder (Figure 24, Item 1).

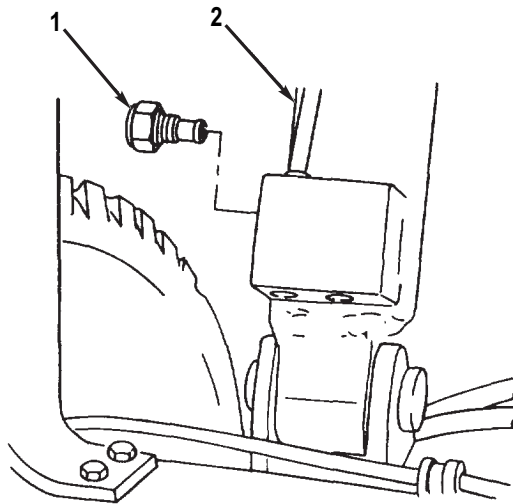


M0165JMS

Figure 24. Hydraulic Lift Cylinder Installation.

INSTALLATION - Continued

6. Install check valve (Figure 25, Item 1) on hydraulic lift cylinder (Figure 25, Item 2), if removed.



M0164JMS

Figure 25. Hydraulic Lift Cylinder Check Valve Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Install hydraulic control valve-to-hydraulic lift cylinder hose assemblies (Hydraulic Lines and Fittings Replacement (WP 0104)).
2. Lubricate lift cylinder (WP 0028).
3. Bleed hydraulic system (WP 0108) or (WP 0109).
4. Check for leaks (WP 0128).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
TOP AND BOTTOM BEAMS AND POSITIONING CYLINDERS MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
 Sling, Nylon (WP 0194, Table 2, Item 5)
 Suitable lifting device
 Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)

Materials/Parts

Fluid: Hydraulic, Petroleum Base, OHA (WP 0197, Table 1, Item 15)
 Grease: Aircraft, WTR (WP 0197, Table 1, Item 26)
 Rag: Wiping (WP 0197, Table 1, Item 42)
 Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
 Tag: Marker (WP 0197, Table 1, Item 49)
 Tape: Pressure Sensitive Adhesive, Masking, Flat, 2 in. width (WP 0197, Table 1, Item 53)
 Back Up Seal (with side lift) (WP 0163, Item 7) Qty: 1
 Back Up Seal (with side lift) (WP 0184, Item 4) Qty: 1
 Cotter Pin (WP 0151, Item 19) Qty: 1
 Cotter Pin (WP 0151, Item 36) Qty: 2
 Cotter Pin (WP 0151, Item 78) Qty: 2
 Expander (with side lift) (WP 0184, Item 13) Qty: 1
 Locknut (WP 0151, Item 43) Qty: 1
 Locknut (WP 0163, Item 15) Qty: 1
 Locknut (with side lift) (WP 0184, Item 14) Qty: 1
 Preformed Packing (WP 0161, Item 17) Qty: 2
 Preformed Packing (without side lift) (WP 0163, Item 8) Qty: 1
 Preformed Packing (without side lift) (WP 0163, Item 12) Qty: 1
 Preformed Packing (without side lift) (WP 0163, Item 14) Qty: 1

Materials/Parts (cont.)

O-ring (with side lift) (WP 0184, Item 5) Qty: 1
 O-ring (with side lift) (WP 0184, Item 8) Qty: 1
 O-ring (with side lift) (WP 0184, Item 9) Qty: 1
 Rod Seal (WP 0163, Item 4) Qty: 1
 Rod Wiper (WP 0163, Item 3) Qty: 1
 Rod Wiper (with side lift) (WP 0184, Item 3) Qty: 1
 Seal (WP 0163, Item 13) Qty: 1
 Seal (with side lift) (WP 0184, Item 12) Qty: 1
 Wear Ring (WP 0163, Item 10) Qty: 2
 Wear Ring (with side lift) (WP 0184, Item 10) Qty: 2

Personnel Required
(Three)**References**

WP 0077
 WP 0086
 WP 0087
 WP 0091
 WP 0100
 WP 0105
 WP 0108
 WP 0109
 WP 0128

Equipment Condition

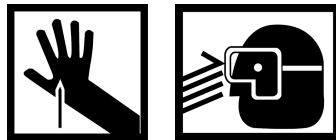
Dolly set lowered, front and rear dollies detached (WP 0005)
 Ends of bottom beam supported on wooden blocks
 Wheels chocked
 Engine starter switch set to OFF position (WP 0005)
 Toolbox removed (front dolly) (WP 0098)

WARNING

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

NOTE

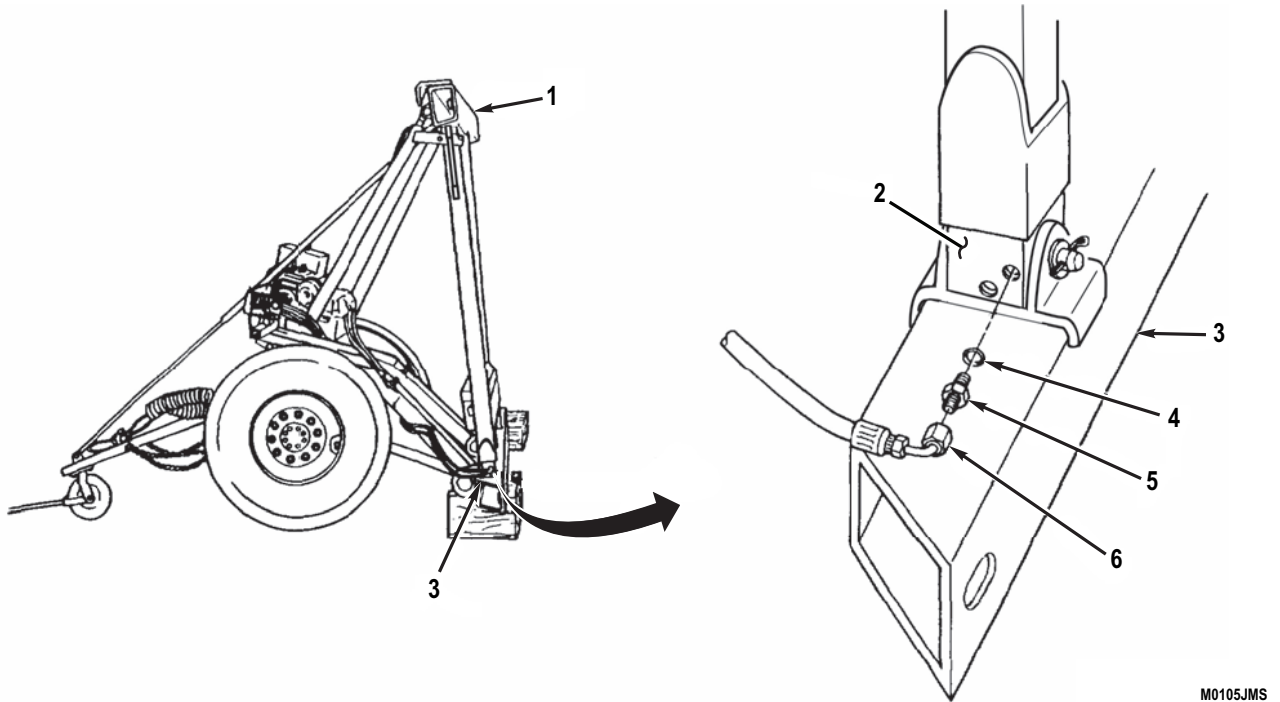
- Replacement procedures are the same for front and rear dollies. Rear dolly replacement is illustrated.
- Positioning cylinders for M1022A1 and M1022A1 with side lift kit are replaced the same way.
- Hydraulic lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).
- Positioning cylinder ports should be plugged with masking tape or other suitable means as lines are disconnected or fittings are removed IAW General Maintenance Instructions (WP 0128).
- A suitable container should be used to catch any draining hydraulic fluid. Ensure that all spills are properly cleaned.

REMOVAL**WARNING**

- DO NOT disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Dolly set must be fully lowered to the ground and engine must be shut down before lines and fittings are disconnected. A line or fitting disconnected under pressure will explode with great force. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Escaping hydraulic fluid under pressure can penetrate the skin, causing serious injury to personnel. Relieve pressure before disconnecting hydraulic lines and fittings. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject hydraulic fluid under high pressure. Use a piece of cardboard or paper to search for leaks. If any hydraulic fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

REMOVAL - Continued

1. Disconnect two hose assemblies (Figure 1, Item 6) from straight connectors (Figure 1, Item 5) at positioning cylinders (Figure 1, Item 2) on bottom beam (Figure 1, Item 3).
2. Remove two straight connectors (Figure 1, Item 5) and preformed packings (Figure 1, Item 4) from positioning cylinders (Figure 1, Item 2). Discard preformed packings.
3. Attach a suitable lifting device to top beam (Figure 1, Item 1) and adjust so that weight of top beam is on lifting device.
4. Remove telescopic brace (Telescopic Brace Replacement (WP 0091)).
5. Remove hydraulic lift cylinders from top beam (Figure 1, Item 1) (Hydraulic Lift Cylinders Maintenance (WP 0105)).



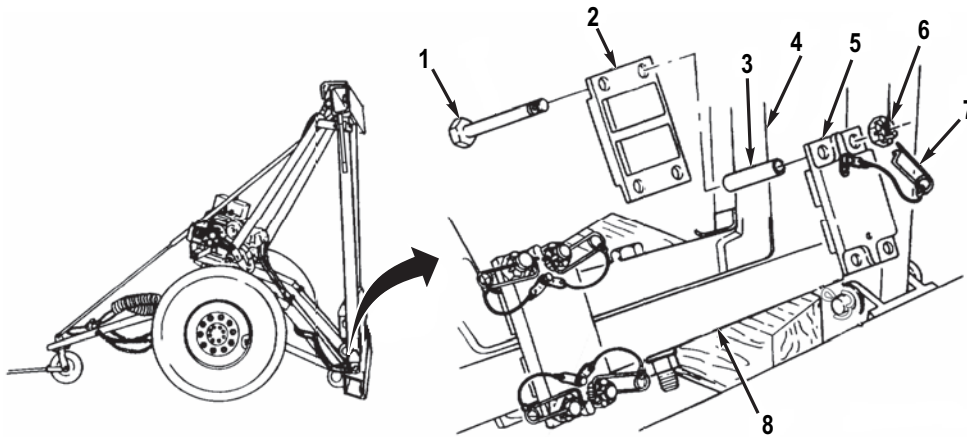
M0105JMS

Figure 1. Beams and Positioning Cylinders Hose Removal.

REMOVAL - Continued**NOTE**

Lockout brackets (Figure 2, Items 2 and 5) may interfere with bottom support beam when lowered. Step 6 is procedure to remove locknut brackets.

6. Remove eight safety pins (Figure 2, Item 7) from bolts (Figure 2, Item 1). Remove four nuts (Figure 2, Item 6), bolts (Figure 2, Item 1), bottom lockout bracket (Figure 2, Item 2), four sleeves (Figure 2, Item 3), and top lockout bracket (Figure 2, Item 5) from each end of pivot axle bracket (Figure 2, Item 8) and axle assembly (Figure 2, Item 4).



M0106JMS

Figure 2. Beams and Positioning Cylinders Lockout Bracket Removal.

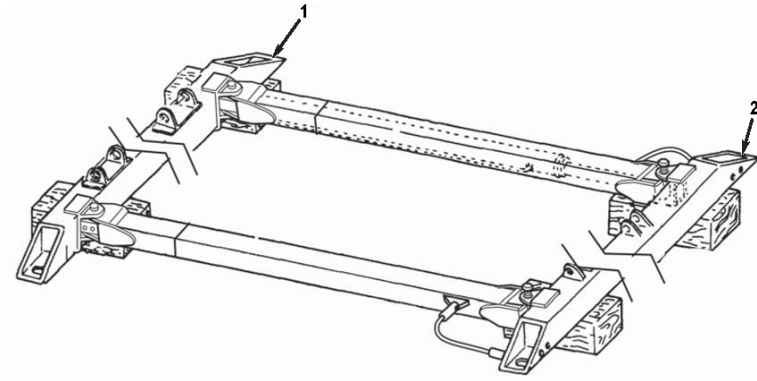
REMOVAL - Continued

WARNING



Top and bottom beams weigh 375 lbs (170 kg). Use extreme caution when lowering top and bottom beams and placing on the ground. Ensure that lifting device is secure and all personnel stand clear. Failure to follow this warning may result in injury to personnel or damage to beams and positioning cylinders. Seek medical attention in the event of an injury.

7. Lower top and bottom beams (Figure 3, Items 2 and 1) to the ground and support on wooden blocks or other cribbing.

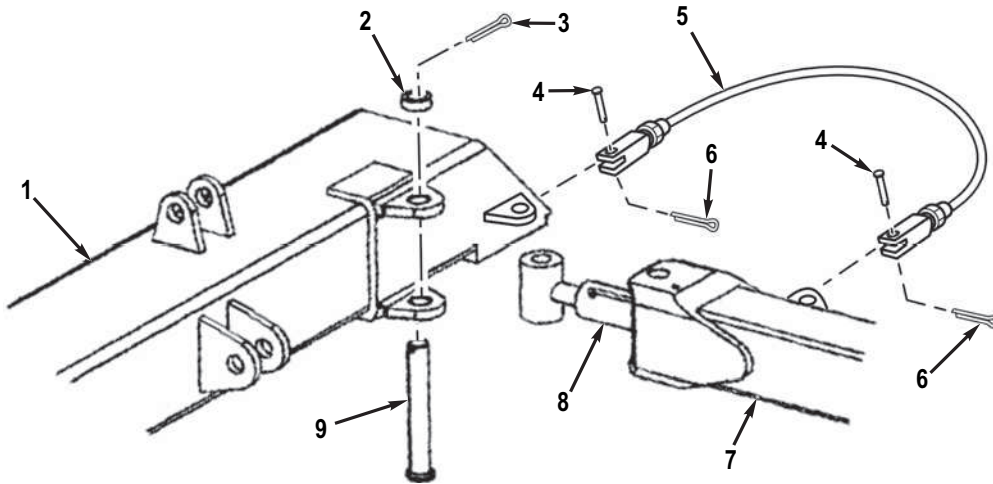


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Figure 3. Top and Bottom Beams Removal.

REMOVAL - Continued

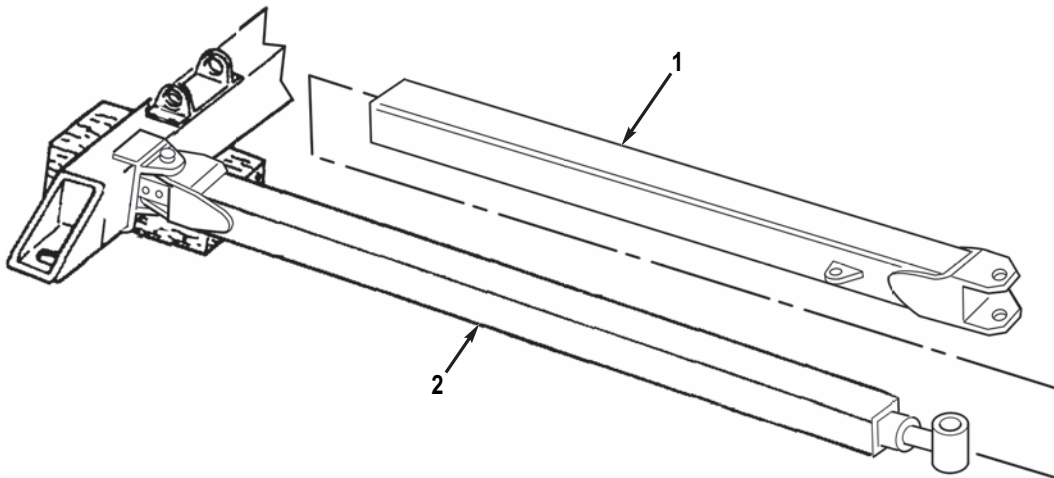
8. Remove two cotter pins (Figure 4, Item 6), clevis pins (Figure 4, Item 4), and stability cable (Figure 4, Item 5) from top beam (Figure 4, Item 1) and upper vertical tube (Figure 4, Item 7). Discard cotter pins.
9. Remove cotter pin (Figure 4, Item 3), spacer (Figure 4, Item 2), and clevis pin (Figure 4, Item 9) from top beam (Figure 4, Item 1), upper vertical tube (Figure 4, Item 7) and positioning cylinder (Figure 4, Item 8). Discard cotter pin.
10. Repeat steps 8 and 9 to complete second upper vertical tube removal.
11. With top beam (Figure 4, Item 1) and two upper vertical tubes (Figure 4, Item 7) suitably supported, remove top beam (Figure 4, Item 1) from two upper vertical tubes (Figure 4, Item 7) and positioning cylinders (Figure 4, Item 8).



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Figure 4. Top Beam Separation.

12. Remove two upper vertical tubes (Figure 5, Item 1) from lower vertical tubes (Figure 5, Item 2).

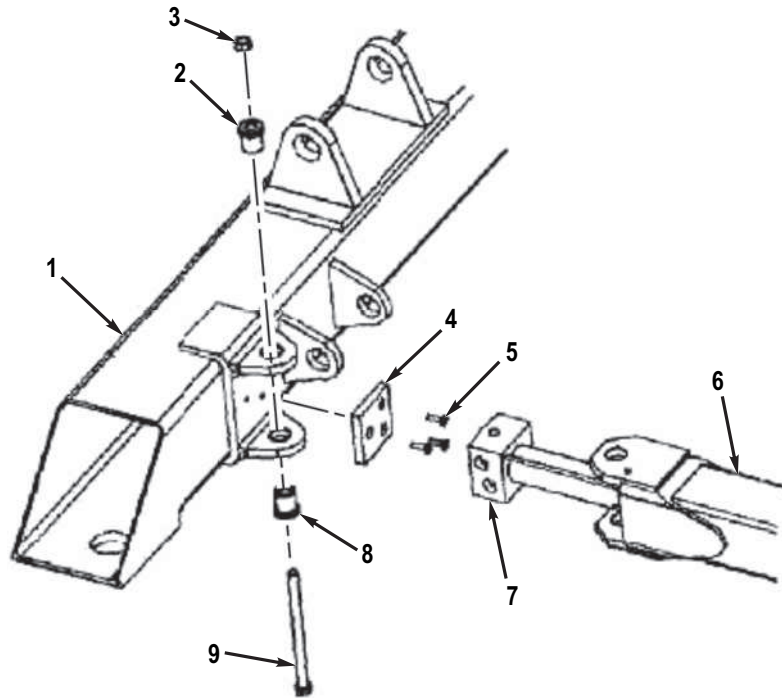


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Figure 5. Upper and Lower Vertical Tubes Separation.

REMOVAL - Continued

13. Remove locknut (Figure 6, Item 3), bolt (Figure 6, Item 9), lower vertical tube (Figure 6, Item 6) and positioning cylinder (Figure 6, Item 7) from bottom beam (Figure 6, Item 1). Discard locknut.
14. Remove lower vertical tube (Figure 6, Item 6) from positioning cylinder (Figure 6, Item 7).
15. Remove two bushings (Figure 6, Items 2 and 8) from bottom beam (Figure 6, Item 1).
16. Remove three flathead bolts (Figure 6, Item 5) and cylinder shim (Figure 6, Item 4) from bottom beam (Figure 6, Item 1).
17. Repeat steps 13 through 16 to complete second lower vertical tube removal.



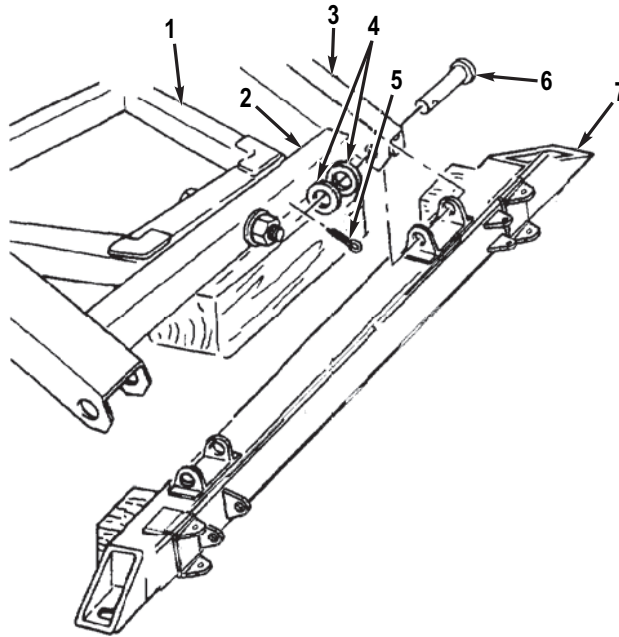
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Figure 6. Lower Vertical Tube Removal.

REMOVAL - Continued**NOTE**

Note quantity of washers removed to aid in installation.

18. Place a wooden block or other suitable support under axle assembly (Figure 7, Item 1) and pivot axle bracket (Figure 7, Item 2). Remove two cotter pins (Figure 7, Item 5), washers (Figure 7, Item 4), and clevis pins (Figure 7, Item 6) from suspension links (Figure 7, Item 3) pivot axle bracket (Figure 7, Item 2), and bottom beam (Figure 7, Item 7). Discard cotter pins.
19. Separate bottom beam (Figure 7, Item 7) from suspension links (Figure 7, Item 3) and pivot axle bracket (Figure 7, Item 2).



M0111JMS

Figure 7. Bottom Beam Removal.

REMOVAL - Continued**NOTE**

Perform steps 20 through 24 if replacing top or bottom beam or if components are damaged.

20. Remove top hooks (Top Hook Replacement (WP 0077)).
21. Remove hanger brackets (front dolly) (Hanger Bracket Replacement (WP 0087)).
22. Remove detent pin lanyard assemblies (Lanyard Assemblies Replacement (WP 0086)).
23. Remove data plates (front dolly) (Data Plates Replacement (WP 0100)).
24. Remove toolbox mounting brackets (front dolly) (Toolbox and Mounting Brackets Replacement (WP 0098)).

END OF TASK**DISASSEMBLY WITHOUT SIDE LIFT****WARNING**

Positioning cylinder weighs 150 lb (68 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

CAUTION

Maintain a clean work area when disassembling and assembling hydraulic positioning cylinder. Contamination from a dirty work area may cause damage to hydraulic components.

NOTE

- A suitable container should be used to catch any draining hydraulic fluid. Ensure that spills are properly cleaned.
- As components are removed, they should be set aside and arranged in disassembly order to aid during assembly.

DISASSEMBLY WITHOUT SIDE LIFT - Continued

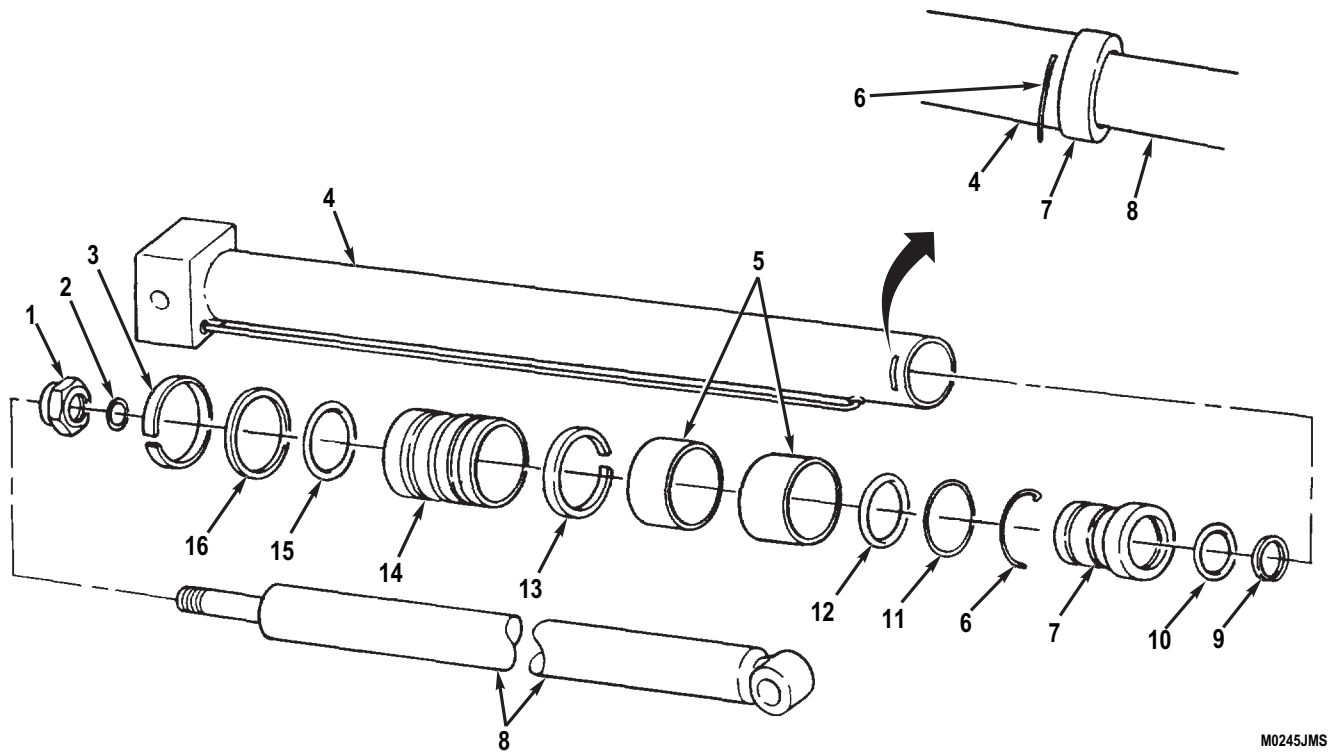
1. Drain all hydraulic fluid from positioning cylinder.
2. Place barrel assembly (Figure 8, Item 4) in vise.
3. Rotate head (Figure 8, Item 7) counterclockwise. Remove lockwire (Figure 8, Item 6), preformed packing (Figure 8, Item 12), and head from barrel assembly (Figure 8, Item 4). Slide head back on rod assembly (Figure 8, Item 8). Discard preformed packing.
4. Remove rod assembly (Figure 8, Item 8) with assembled components from barrel assembly (Figure 8, Item 4).
5. Remove barrel assembly (Figure 8, Item 4) from vise.

CAUTION

DO NOT damage machined surface of rod assembly when placing rod assembly in vise.

6. Place rod end of rod assembly (Figure 8, Item 8) in vise.
7. Remove locknut (Figure 8, Item 1) and piston (Figure 8, Item 14) with assembled components from rod assembly (Figure 8, Item 8). Discard locknut.
8. Remove preformed packing (Figure 8, Item 2) from rod assembly (Figure 8, Item 8). Discard preformed packing.
9. Remove two stop tubes (Figure 8, Item 5) and head (Figure 8, Item 7) with assembled components from rod assembly (Figure 8, Item 8).
10. Remove two wear rings (Figure 8, Items 3 and 13), seal (Figure 8, Item 16), and preformed packing (Figure 8, Item 15) from piston (Figure 8, Item 14). Discard wear rings, preformed packing, and seal.
11. Remove backup seal (Figure 8, Item 11), rod seal (Figure 8, Item 10), and rod wiper (Figure 8, Item 9) from head (Figure 8, Item 7). Discard backup seal, rod seal, and rod wiper.

DISASSEMBLY WITHOUT SIDE LIFT - Continued



M0245JMS

Figure 8. Hydraulic Positioning Cylinder (without Side Lift Kit) Disassembly.

END OF TASK

DISASSEMBLY WITH SIDE LIFT**WARNING**

Positioning cylinder weighs 150 lb (68 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

- A suitable container should be used to catch any draining hydraulic fluid. Ensure that spills are properly cleaned.
- As components are removed, they should be set aside and arranged in disassembly order to aid during assembly.

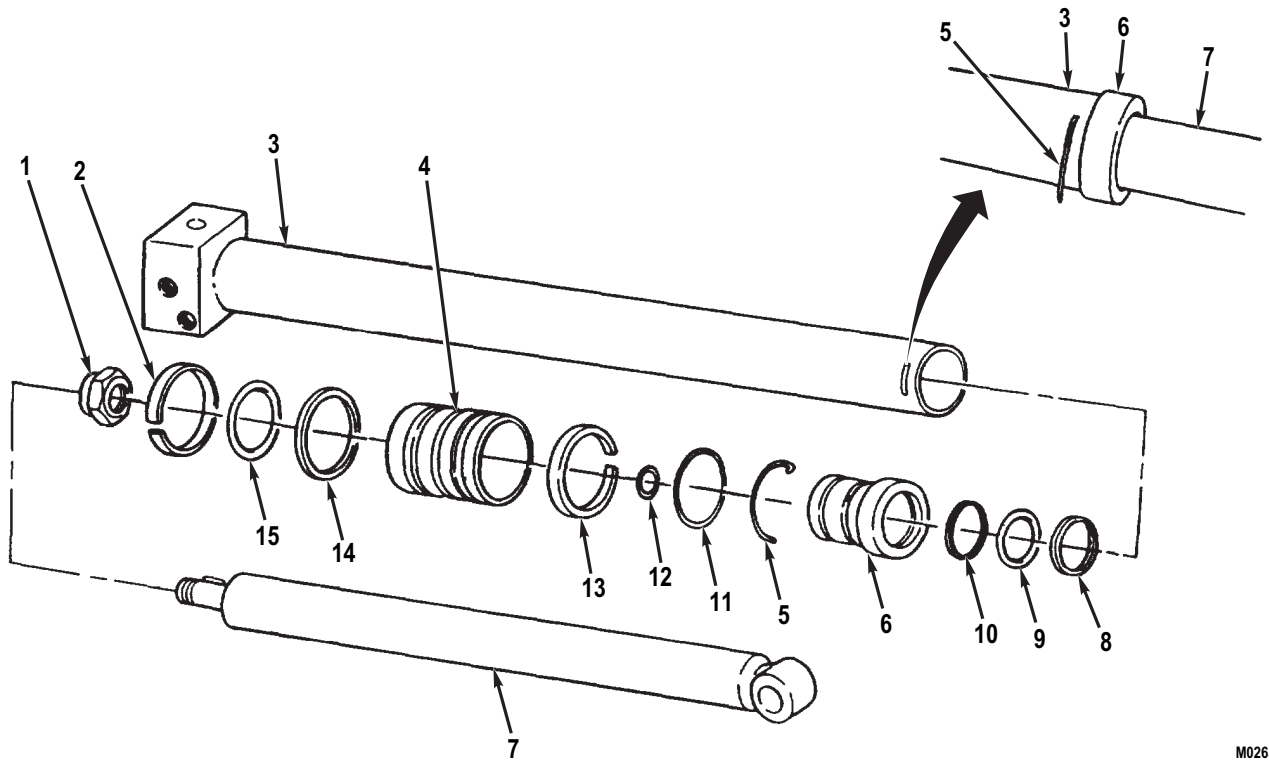
1. Drain all hydraulic fluid from positioning cylinder.
2. Place barrel assembly (Figure 9, Item 3) in vise.
3. Rotate head (Figure 9, Item 6) counterclockwise. Remove lockwire (Figure 9, Item 5), O-ring (Figure 9, Item 11), and head from barrel assembly (Figure 9, Item 3) side head back on rod assembly (Figure 9, Item 7). Discard O-ring.
4. Remove rod assembly (Figure 9, Item 7).
5. Remove barrel assembly (Figure 9, Item 3) from vise.

CAUTION

DO NOT damage machined surface of rod assembly when placing rod assembly in vise.

6. Place rod end of rod assembly (Figure 9, Item 7) in vise.
7. Remove locknut (Figure 9, Item 1) piston (Figure 9, Item 4) with assembled components, and O-ring (Figure 9, Item 12) from rod assembly (Figure 9, Item 7). Discard locknut and O-ring.
8. Remove head (Figure 9, Item 6) with assembled components from rod assembly (Figure 9, Item 7).
9. Remove two wear rings (Figure 9, Items 2 and 13) seal (Figure 9, Item 14) and expander (Figure 9, Item 15) from piston (Figure 9, Item 4). Discard wear rings, seal and expander.
10. Remove rod wiper (Figure 9, Item 8) backup seal (Figure 9, Item 9), and O-ring (Figure 9, Item 10) from head (Figure 9, Item 6). Discard rod wiper, backup seal, and O-ring.

DISASSEMBLY WITH SIDE LIFT - Continued



M0263JMS

Figure 9. Hydraulic Positioning Cylinder (with Side Lift Kit) Disassembly.

END OF TASK

ASSEMBLY WITH SIDE LIFT**WARNING**

Positioning cylinder weighs 150 lb (68 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

Wear rings, O-rings, seals, rod wiper, and lockwire should be lightly coated with hydraulic fluid before assembly.

1. Assemble new O-ring (Figure 10, Item 9), new backup seal (Figure 10, Item 8) and new rod wiper (Figure 10, Item 7) on head (Figure 10, Item 5).

CAUTION

DO NOT damage machined surface of rod assembly when placing rod assembly in vise.

2. Place rod end of rod assembly (Figure 10, Item 6) in vise.
3. Cant head (Figure 10, Item 5) and position at rod assembly (Figure 10, Item 6) with lip of rod wiper (Figure 10, Item 7) started on shoulder of rod assembly. Twist head, maintaining canted position, and slide head onto rod assembly until lip of rod wiper is fully installed. Push head straight onto rod assembly.
4. Install new O-ring (Figure 10, Item 10) in rear groove of head (Figure 10, Item 5).
5. Install new O-ring (Figure 10, Item 11) on rod assembly (Figure 10, Item 6).
6. Assemble new expander (Figure 10, Item 14) and new seal (Figure 10, Item 13), and two new wear rings (Figure 10, Items 2 and 12) on piston (Figure 10, Item 4). Position gaps of wear rings approximately 180 degrees opposite each other.
7. Install piston (Figure 10, Item 4) with assembled components on rod assembly (Figure 10, Item 6).
8. Install new locknut (Figure 10, Item 1) on rod assembly (Figure 10, Item 6) and tighten securely.
9. Remove rod assembly (Figure 10, Item 6) from vise. Install barrel assembly (Figure 10, Item 3) in vise.

ASSEMBLY WITH SIDE LIFT - Continued

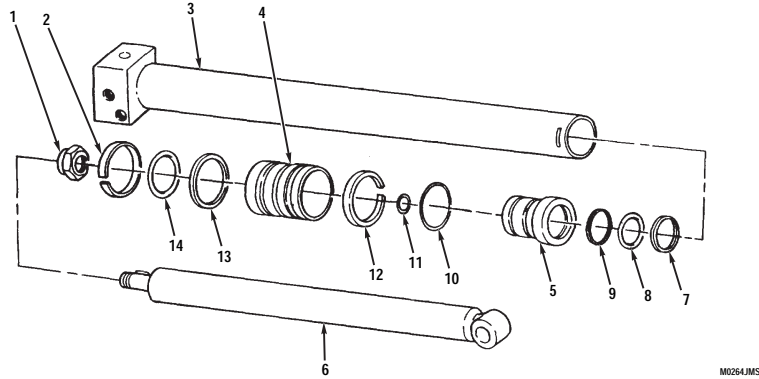


Figure 10. Hydraulic Positioning Cylinder (with Side Lift Kit) Assembly.

10. Install rod assembly (Figure 11, Item 3) with assembled components in barrel assembly (Figure 11, Item 1) until head (Figure 11, Item 2) contacts barrel assembly. Rotate head until hole (Figure 11, Item 5) in lockwire groove (Figure 11, Item 6) is visible through slot (Figure 11, Item 7) at end of barrel assembly.
11. Insert hooked end of lockwire (Figure 11, Item 8) into hole (Figure 11, Item 5). Rotate head (Figure 11, Item 4) clockwise until lockwire fully seats in lockwire groove (Figure 11, Item 6).

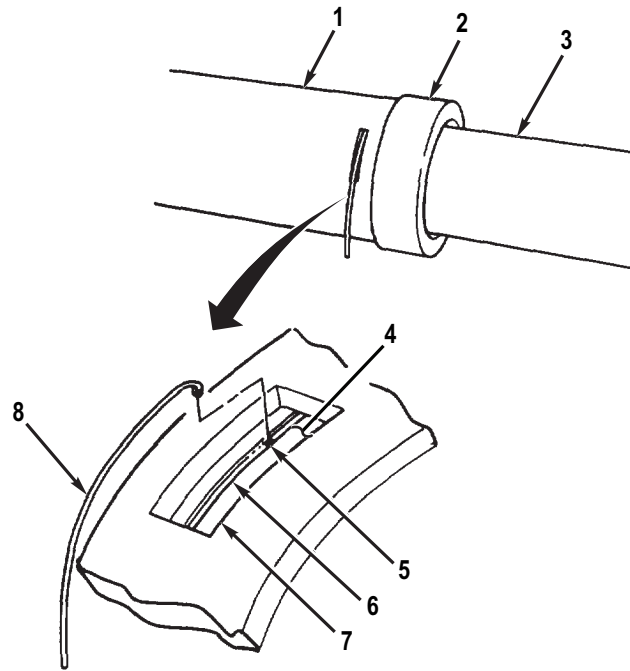


Figure 11. Hydraulic Positioning Cylinder (with Side Lift Kit) Lockwire Assembly.

END OF TASK

ASSEMBLY WITHOUT SIDE LIFT**WARNING**

Positioning cylinder weighs 150 lb (68 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

NOTE

Preformed packings, seals, rod wiper rod seal, and lockwire should be lightly coated with hydraulic fluid before assembly.

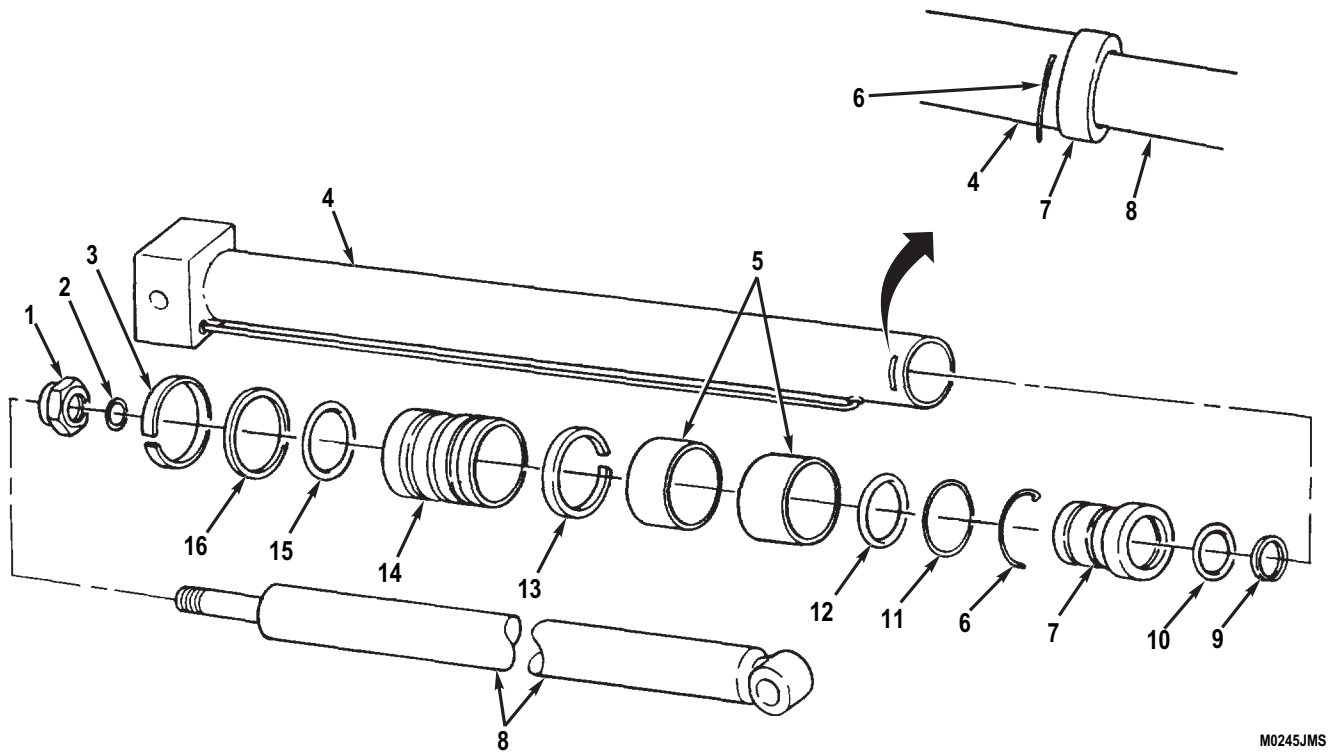
1. Assemble new rod seal (Figure 12, Item 10) and new rod wiper (Figure 12, Item 9) on head (Figure 12, Item 7).

CAUTION

DO NOT damage machined surface of rod assembly when placing rod assembly in vise.

2. Place rod end of rod assembly (Figure 12, Item 8) in vise.
3. Cant head (Figure 12, Item 7) and position at rod assembly (Figure 12, Item 8) with lip of rod wiper (Figure 12, Item 9) started on shoulder of rod assembly. Twist head, maintaining canted position, and slide head onto rod assembly until lip of rod wiper is fully installed. Push head straight onto rod assembly.
4. Install new backup seal (Figure 12, Item 11) and new preformed packing (Figure 12, Item 12) in rear groove of head (Figure 12, Item 7).
5. Install new preformed packing (Figure 12, Item 2) on rod assembly (Figure 12, Item 8).
6. Install two stop tubes (Figure 12, Item 5) on rod assembly (Figure 12, Item 8).
7. Assemble new preformed packing (Figure 12, Item 15) new seal (Figure 12, Item 16), and two new wear rings (Figure 12, Items 3 and 13) on piston (Figure 12, Item 14). Position gaps of wear rings approximately 180 degrees opposite each other.
8. Install piston (Figure 12, Item 14) with assembled components on rod assembly (Figure 12, Item 8). Slide stop tubes (Figure 12, Item 5) down on rod assembly until flush against piston.
9. Install new locknut (Figure 12, Item 1) on rod assembly (Figure 12, Item 8) and tighten securely.
10. Remove rod assembly (Figure 12, Item 8) from vise. Install barrel assembly (Figure 12, Item 4) in vise.

ASSEMBLY WITHOUT SIDE LIFT - Continued

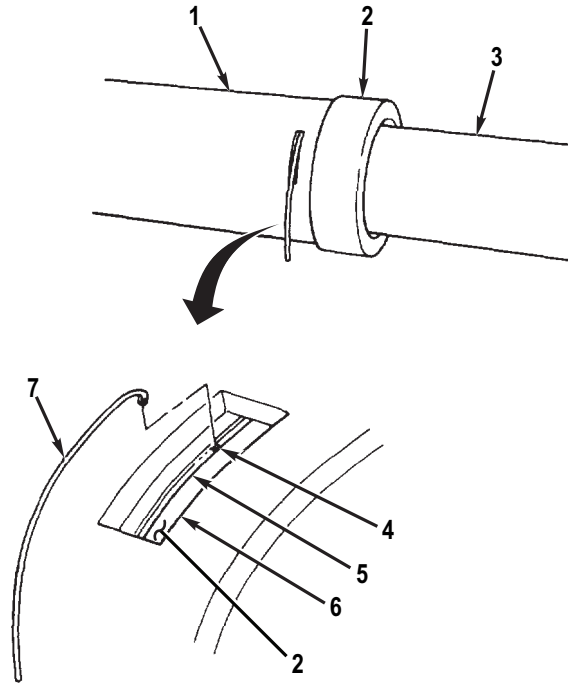


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Figure 12. Hydraulic Positioning Cylinder (without Side Lift Kit) Assembly.

ASSEMBLY WITHOUT SIDE LIFT - Continued

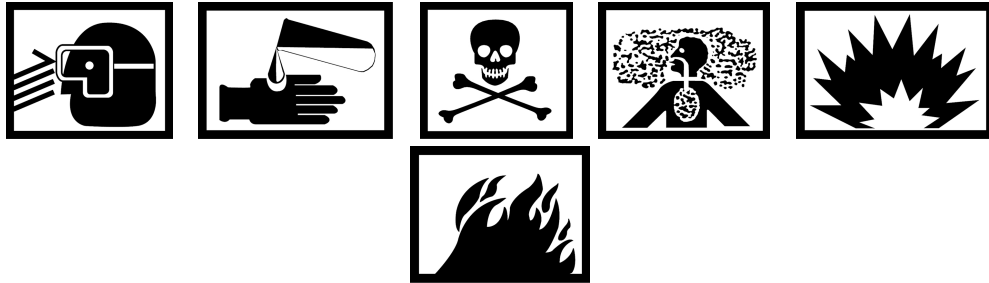
11. Install rod assembly (Figure 13, Item 3) with assembled components in barrel assembly (Figure 13, Item 1) until head (Figure 13, Item 2) contacts barrel assembly. Rotate head until hole (Figure 13, Item 4) in lockwire groove (Figure 13, Item 5) is visible through slot (Figure 13, Item 6) at end of barrel assembly.
12. Insert hooked end of lockwire (Figure 13, Item 7) into hole (Figure 13, Item 4). Rotate head (Figure 13, Item 2) clockwise until lockwire fully seats in lockwire groove (Figure 13, Item 5).



M0246JMS

Figure 13. Hydraulic Positioning Cylinder (without Side Lift Kit) Lockwire Assembly.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
1. Clean top and bottom beam mounting hardware and straight connectors with cleaning solvent and dry with clean rags.
 2. Clean top and bottom beams as required to remove any grease, dirt, or mud.

END OF TASK**INSPECTION**

1. Inspect all components for cracks, breaks, bends, corrosion or damaged threads. Replace damaged components.

INSPECTION - Continued

2. Ensure that positioning cylinders limit lines are stenciled on bottom beam vertical tubes, 49 in. (124 cm) from bottom beam (Stowage and Decal/Data Plate Guide (WP 0018)).

END OF TASK**INSTALLATION****WARNING**

Use caution when handling heavy parts. Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may cause injury or death to personnel. Seek medical attention in the event of an injury.

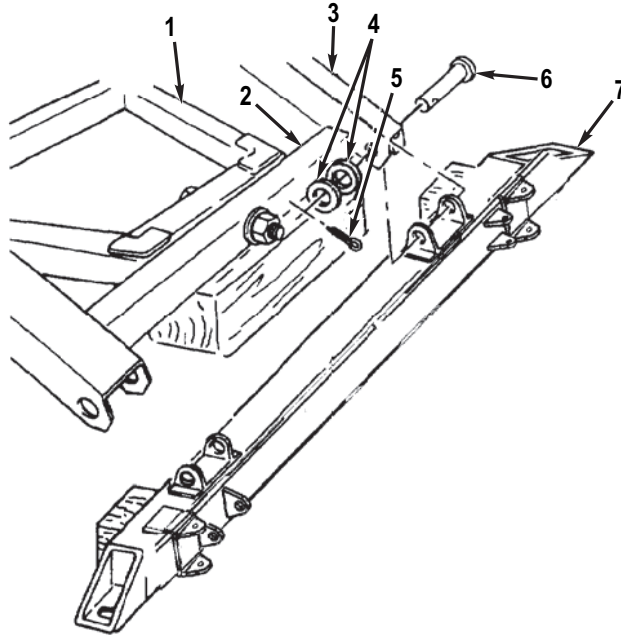
1. If removed, install toolbox mounting brackets (front dolly) (Toolbox and Mounting Brackets Replacement (WP 0098)).
2. If removed, install data plates (front dolly) (Data Plates Replacement (WP 0100)).
3. If removed, install detent pin lanyard assemblies (Lanyard Assemblies Replacement (WP 0086)).
4. If removed, install hanger brackets (front dolly) (Hanger Bracket Replacement (WP 0087)).
5. If removed, install top hooks (Top Hook Replacement (WP 0077)).
6. Position bottom beam (Figure 14, Item 7) at pivot axle bracket (Figure 14, Item 2) and two suspension links (Figure 14, Item 3).

NOTE

An equal quantity of washers must be installed on each side to reduce to a minimum the gap between suspension link and bottom beam pivot

7. Grease two clevis pins (Figure 14, Item 5). Install two clevis pins (Figure 14, Item 5), washers (Figure 14, Item 3), and new cotter pins (Figure 14, Item 4) on bottom beam (Figure 14, Item 6), pivot axle bracket (Figure 14, Item 1), and two suspension links (Figure 14, Item 2).

INSTALLATION - Continued



M0111JMS

Figure 14. Bottom Beam Installation.

INSTALLATION - Continued

8. Install cylinder shim (Figure 15, Item 4) on bottom beam (Figure 15, Item 1) with three flat head bolts (Figure 15, Item 5). Torque bolts to 10 lb-ft (14 N•m).
9. With bottom beam (Figure 15, Item 1) and lower vertical tube (Figure 15, Item 6) fully supported, position mounting tabs on lower vertical tube (Figure 15, Item 6) between tube mount tabs on bottom beam (Figure 15, Item 1).

NOTE

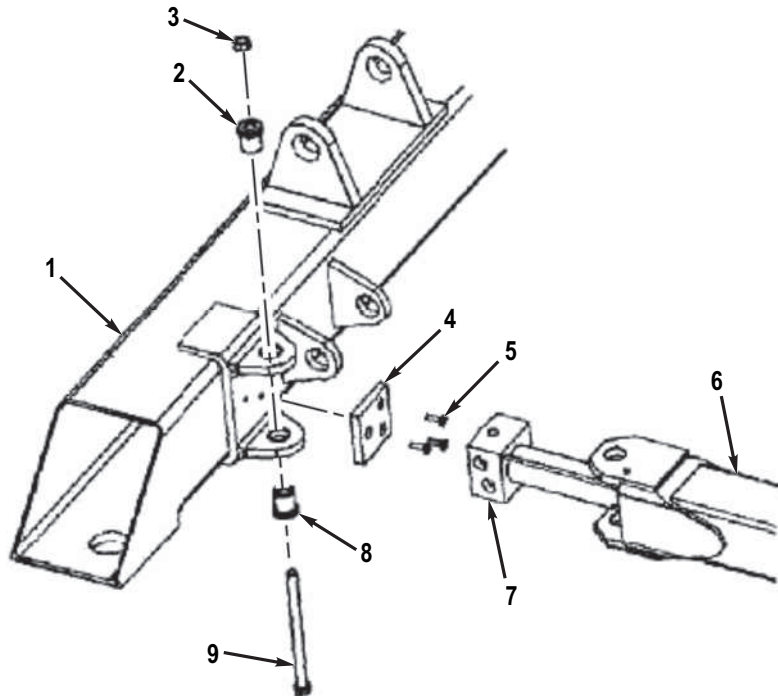
- Ensure that opening for hydraulic fittings in positioning cylinders are facing outboard.
- To ensure proper assembly, install bushings (Figure 15, Items 2 and 8), locknut (Figure 15, Item 3), and cylinder shim (Figure 15, Item 4) as illustrated.

10. Insert positioning cylinder (Figure 15, Item 7) into lower vertical tube (Figure 15, Item 6) with hydraulic connections facing outboard.

NOTE

Ensure that bushings are installed with shoulder on outside of tube mount tabs on bottom beam and are fully seated in tabs.

11. Install positioning cylinder (Figure 15, Item 7) and lower vertical tube (Figure 15, Item 6) on bottom beam (Figure 15, Item 1) with bolt (Figure 15, Item 9), two bushings (Figure 15, Items 2 and 8), and new locknut (Figure 15, Item 3). Torque locknut between 25-30 lb-ft (34-41 N•m).
12. Repeat steps 8 through 11 to complete second lower vertical tube installation.

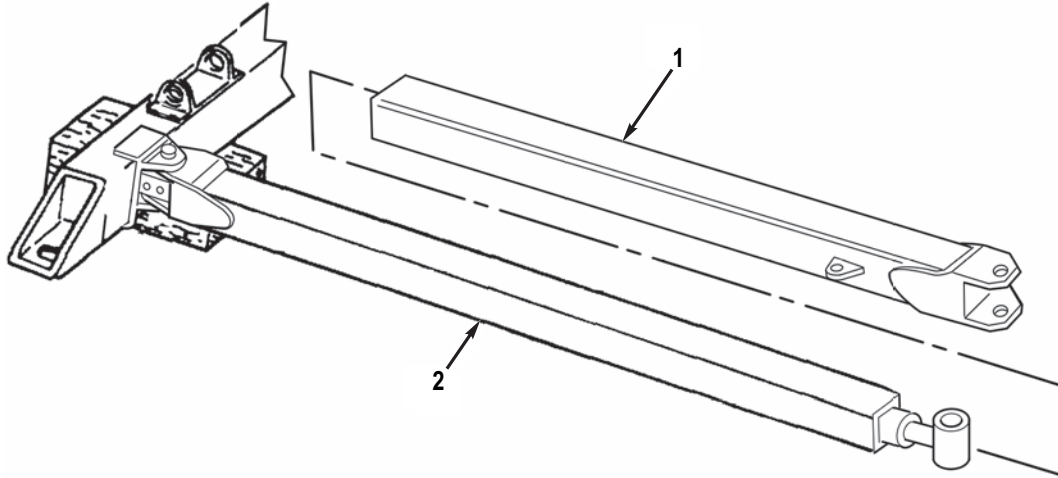


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Figure 15. Lower Vertical Tube Installation.

INSTALLATION - Continued

13. Install upper vertical tube (Figure 16, Item 1) over assembled lower vertical tube (Figure 16, Item 2) with stability cable mount positioned outboard.



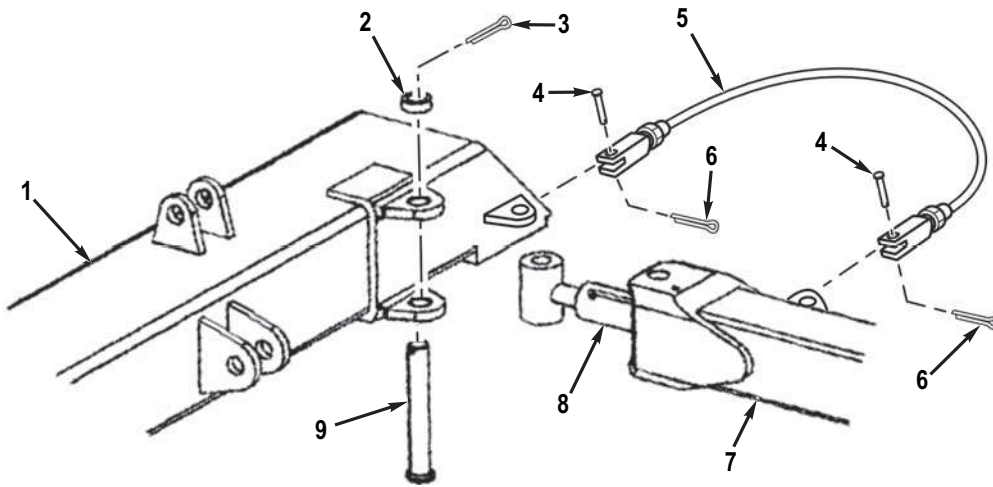
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Figure 16. Upper and Lower Vertical Tubes Installation.

INSTALLATION - Continued**NOTE**

- Ensure that hole at rod end of positioning cylinder is aligned with holes in mounting tabs on top beam.
- To ensure proper assembly install items (Figure 17, Item 2), (Figure 17, Item 3), and (Figure 17, Item 9), as illustrated.

14. With top beam (Figure 17, Item 1) and upper vertical tube (Figure 17, Item 7) fully supported, install positioning cylinder (Figure 17, Item 8) and upper vertical tube (Figure 17, Item 7) on top beam (Figure 17, Item 1) with clevis pin (Figure 17, Item 9), spacer (Figure 17, Item 2), and new cotter pin (Figure 17, Item 3).
15. Install stability cable (Figure 17, Item 5) on top beam (Figure 17, Item 1) and upper vertical tube (Figure 17, Item 7) with two clevis pins (Figure 17, Item 4) and new cotter pins (Figure 17, Item 6).
16. Repeat Steps 13 through 15 to complete second upper vertical tube installation.



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Figure 17. Top Beam Installation.

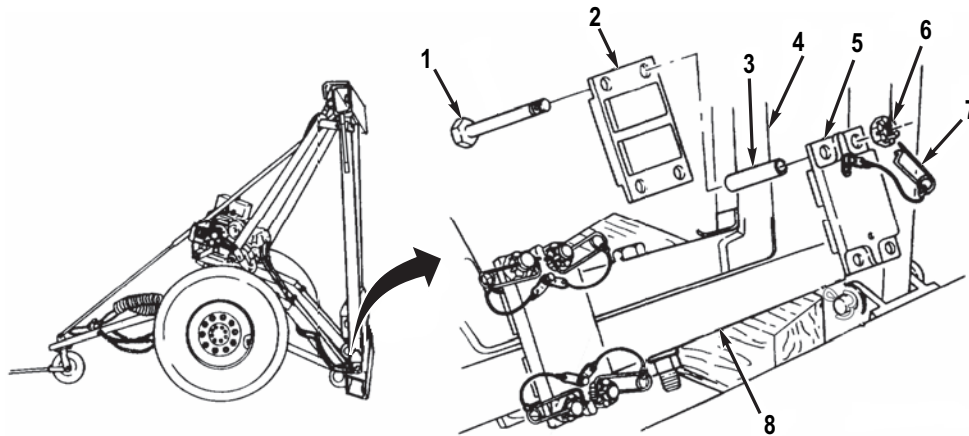
INSTALLATION - Continued

WARNING



Top and bottom beams weigh 375 lb (170 kg). Use extreme caution when raising top and bottom beams. Ensure that lifting device is secure and all personnel stand clear. Failure to follow warning may result in injury to personnel or damage to beams and positioning cylinders. Seek medical attention in the event of an injury.

17. Raise the assembled top and bottom beams with positioning cylinders (Figure 17, Item 8) installed to a vertical position.
18. If lockout brackets were removed, reinstall at this time. To do so, coat four bolts (Figure 18, Item 1) with grease. Install top lockout bracket (Figure 18, Item 5), four sleeves (Figure 18, Item 3), bottom lockout bracket (Figure 18, Item 2), four bolts (Figure 18, Item 1) and nuts (Figure 18, Item 6) on each end of pivot axle assembly (Figure 18, Item 8) and axle assembly (Figure 18, Item 4). Hand tighten nuts, then tighten with wrench 1-1/4 to 2 flats. Install eight safety pins (Figure 18, Item 7) on bolts (Figure 18, Item 1).



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Figure 18. Lockout Bracket Installation.

19. Install hydraulic lift cylinders (Hydraulic Lift Cylinders Maintenance (WP 0105)).

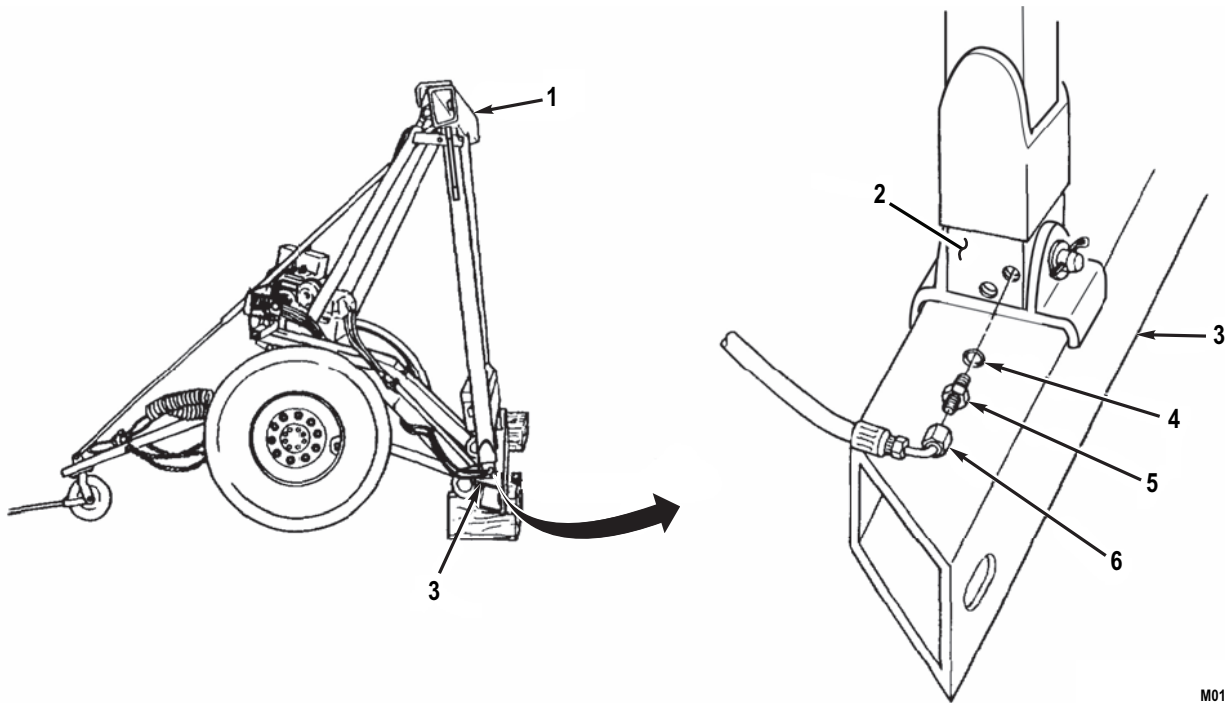
INSTALLATION - Continued

- 20. Remove lifting device from top beam (Figure 19, Item 1).
- 21. Install telescopic brace (Telescopic Brace Replacement (WP 0091)).

NOTE

Preformed packings should be lightly coated with hydraulic fluid before installation.

- 22. Install two new preformed packings (Figure 19, Item 4) and straight connectors (Figure 19, Item 5) on positioning cylinders (Figure 19, Item 2) on bottom beam (Figure 19, Item 3).
- 23. Connect two hose assemblies (Figure 19, Item 6) to straight connectors (Figure 19, Item 5) at positioning cylinders (Figure 19, Item 2).
- 24. Remove lifting equipment from top beam (Figure 19, Item 1).



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Figure 19. Beams and Positioning Cylinders Hose Installation.

END OF TASK

FOLLOW-ON TASKS

1. Install toolbox (front dolly) (WP 0098).
2. Bleed hydraulic system.
 - With side lift kit (WP 0109).
 - Without side lift kit (WP 0108).
3. Check for leaks (WP 0128).
4. Remove wooden blocks from ends of bottom beam.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
HYDRAULIC RESERVOIR AND REDUNDANT POWER FITTINGS REPLACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Materials/Parts (cont.)

Lockwire (WP 0161, Item 38) Qty: 1
 Preformed Packing (WP 0161, Item 3) Qty: 9

Materials/Parts

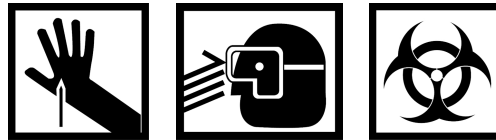
Fluid: Hydraulic, Petroleum Base, OHA
 (WP 0197, Table 1, Item 15)
 Rag: Wiping (WP 0197, Table 1, Item 42)
 Tag: Marker (WP 0197, Table 1, Item 49)
 Tape: Pressure Sensitive Adhesive, Masking, Flat,
 2 Inch Width (WP 0197, Table 1, Item 53)
 Locknut (WP 0161, Item 35) Qty: 1
 Locknut (WP 0165, Item 7) Qty: 6

References

WP 0029
 WP 0117
 WP 0128

Equipment Condition

Dolly set lowered (WP 0005)
 Engine starter switch set to OFF position
 (WP 0005)
 Cold start kit removed, if equipped (WP 0127)

WARNING

- DO NOT disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Dolly set must be fully lowered to the ground and engine must be shut down before lines and fittings are disconnected. A line or fitting disconnected under pressure will explode with great force. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Escaping hydraulic fluid under pressure can penetrate the skin, causing serious injury to personnel. Relieve pressure before disconnecting hydraulic lines and fittings. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject hydraulic fluid under high pressure. Use a piece of cardboard or paper to search for leaks. If any hydraulic fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

CAUTION

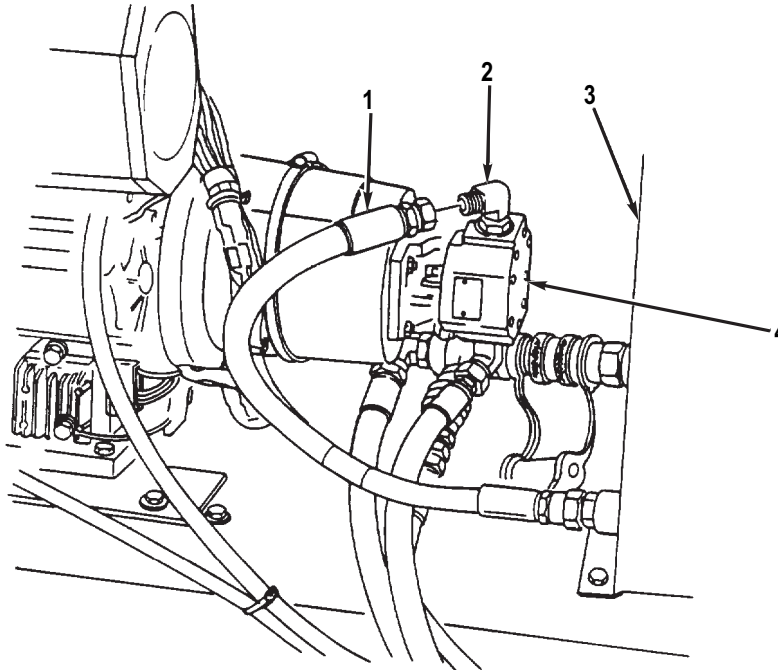
DO NOT allow dirt or dust to enter hydraulic reservoir. Damage to hydraulic system will result.

NOTE

- Hydraulic lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).
- Hydraulic reservoir, hydraulic pump, hydraulic control valve, and hydraulic cylinders ports should be plugged with masking tape or other suitable means as lines are disconnected or fittings are removed IAW General Maintenance Instructions (WP 0128).
- A suitable container should be used to catch any draining hydraulic fluid. Ensure that all spills are properly cleaned.
- 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.
- Refer to local procedures and plans for storage and disposal of any drained fluids.
- DO NOT overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir/tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task.

DRAINING

1. Disconnect hose assembly (Figure 1, Item 1) from elbow (Figure 1, Item 2) at inlet (top) of hydraulic pump (Figure 1, Item 4). Drain hydraulic fluid into a suitable container.
2. If filling hydraulic reservoir (Figure 1, Item 3), connect hose assembly (Figure 1, Item 1) to elbow (Figure 1, Item 2).



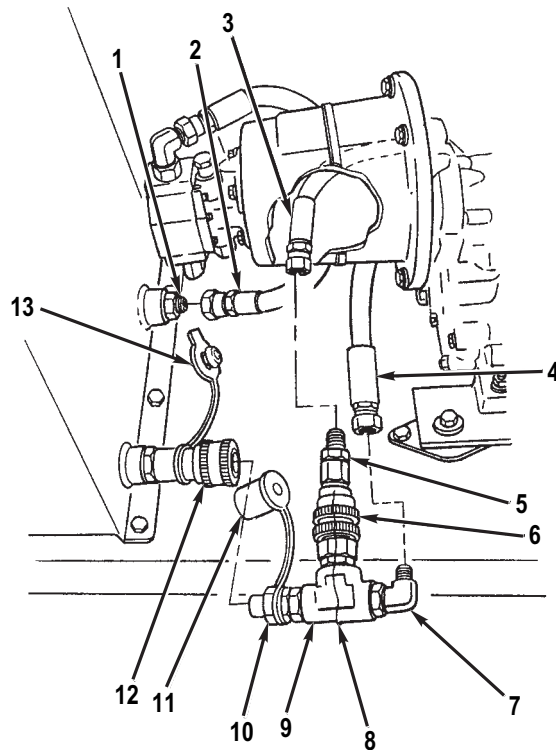
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Figure 1. Hydraulic Reservoir Draining.

END OF TASK

REMOVAL

1. Drain hydraulic reservoir.
2. Disconnect two hose assemblies (Figure 2, Items 3 and 4) from straight connector (Figure 2, Item 5) and elbow (Figure 2, Item 7).
3. Disconnect hose assembly (Figure 2, Item 2) from straight connector (Figure 2, Item 1).
4. Cut lockwire (Figure 2, Item 8) from quick disconnect coupler (Figure 2, Item 12), tee (Figure 2, Item 9), and quick disconnect coupler (Figure 2, Item 6). Discard lockwire.
5. Remove dustcap (Figure 2, Item 13) from dust plug (Figure 2, Item 11). Disconnect quick disconnect nipple (Figure 2, Item 10) with fittings from quick disconnect coupler (Figure 2, Item 12).



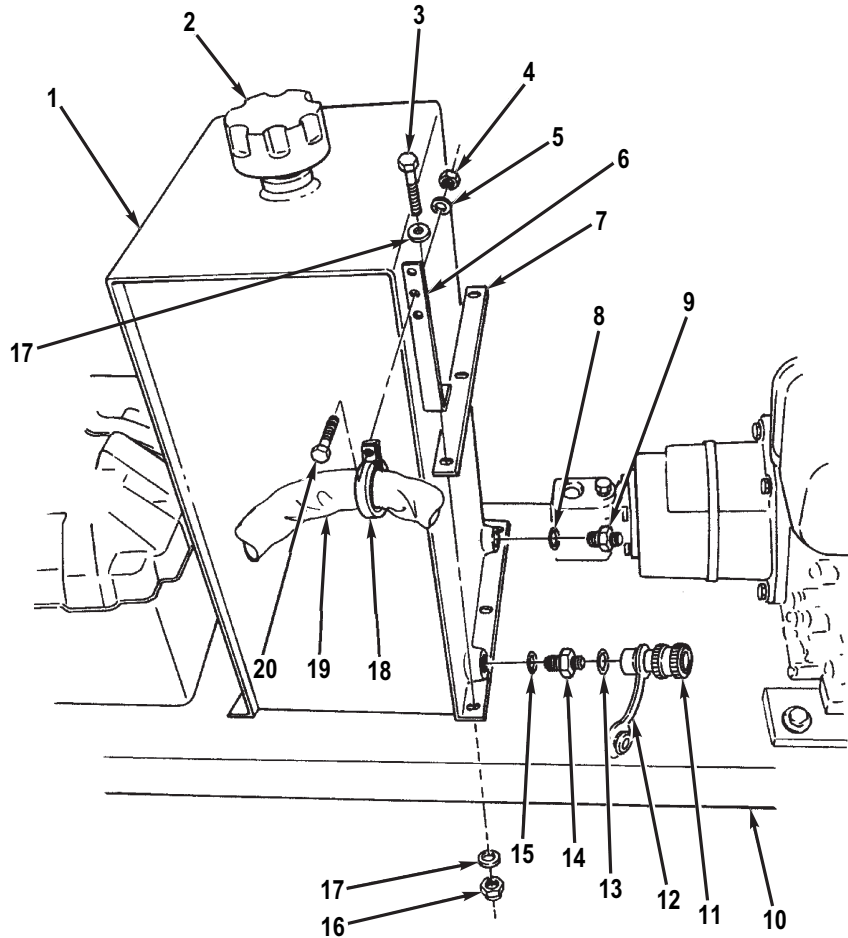
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Figure 2. Redundant Power Fittings Disconnection.

6. On rear dolly only, remove locknut (Figure 3, Item 4), washer (Figure 3, Item 5), screw (Figure 3, Item 20), and clamp (Figure 3, Item 18) with hose bundle (Figure 3, Item 19) from angle bracket (Figure 3, Item 6). Discard locknut.
7. Remove six locknuts (Figure 3, Item 16), 12 washers (Figure 3, Item 17), screws (Figure 3, Item 3), angle bracket (Figure 3, Item 6) (rear dolly only), two mounting plates (Figure 3, Item 7), and hydraulic reservoir (Figure 3, Item 1) with fittings from pivoting tray (Figure 3, Item 10). Discard locknuts.
8. Remove cap (Figure 3, Item 2) from hydraulic reservoir (Figure 3, Item 1).
9. Remove straight connector (Figure 3, Item 9) and preformed packing (Figure 3, Item 8) from hydraulic reservoir (Figure 3, Item 1). Discard preformed packing.

REMOVAL - Continued

10. Remove quick disconnect coupler (Figure 3, Item 11), preformed packing (Figure 3, Item 13), union (Figure 3, Item 14), and preformed packing (Figure 3, Item 15) from hydraulic reservoir (Figure 3, Item 1). Remove dust cap (Figure 3, Item 12) from quick disconnect coupler. Discard preformed packings.

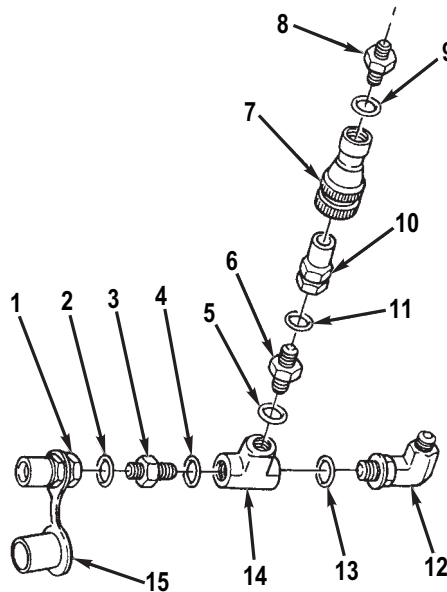


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Figure 3. Hydraulic Reservoir Removal.

REMOVAL - Continued

11. Remove elbow (Figure 4, Item 12) and preformed packing (Figure 4, Item 13) from tee (Figure 4, Item 14). Discard preformed packing.
12. Remove straight connector (Figure 4, Item 8), preformed packing (Figure 4, Item 9), quick disconnect coupler (Figure 4, Item 7), quick disconnect nipple (Figure 4, Item 10), preformed packing (Figure 4, Item 11), union (Figure 4, Item 6), and preformed packing (Figure 4, Item 5) from tee (Figure 4, Item 14). Discard preformed packings.
13. Remove quick disconnect nipple (Figure 4, Item 1), preformed packing (Figure 4, Item 2), union (Figure 4, Item 3), and preformed packing (Figure 4, Item 4) from tee (Figure 4, Item 14). Remove dust plug (Figure 4, Item 15) from quick disconnect nipple. Discard preformed packings.



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Figure 4. Redundant Power Fittings Removal.

END OF TASK

CLEANING

Clean all removed components with a clean rag IAW General Maintenance Instructions (WP 0128).

END OF TASK

INSPECTION

Inspect all components for cracks, breaks, bends, corrosion, or damaged threads IAW General Maintenance Instructions (WP 0128). Replace damaged components.

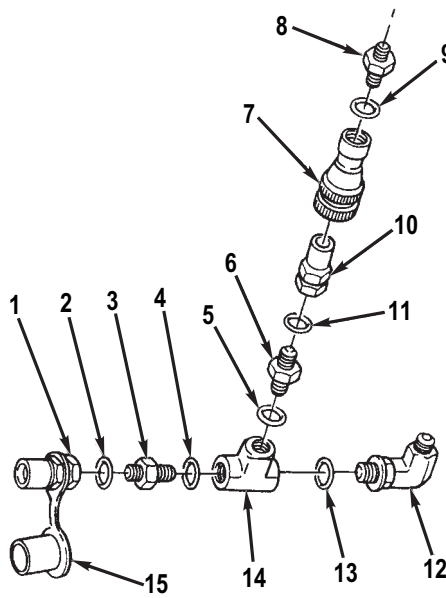
END OF TASK

INSTALLATION

NOTE

Preformed packings should be lightly coated with hydraulic fluid before installation.

1. Install dust plug (Figure 5, Item 15) on quick disconnect nipple (Figure 5, Item 1). Install new preformed packing (Figure 5, Item 4), union (Figure 5, Item 3), new preformed packing (Figure 5, Item 2), and quick disconnect nipple on tee (Figure 5, Item 14).
2. Install new preformed packing (Figure 5, Item 5), union (Figure 5, Item 6), new preformed packing (Figure 5, Item 11), quick disconnect nipple (Figure 5, Item 10), quick disconnect coupler (Figure 5, Item 7), new preformed packing (Figure 5, Item 9), and straight connector (Figure 5, Item 8) on tee (Figure 5, Item 14).
3. Install new preformed packing (Figure 5, Item 13) and elbow (Figure 5, Item 12) on tee (Figure 5, Item 14).



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Figure 5. Redundant Power Fittings Installation.

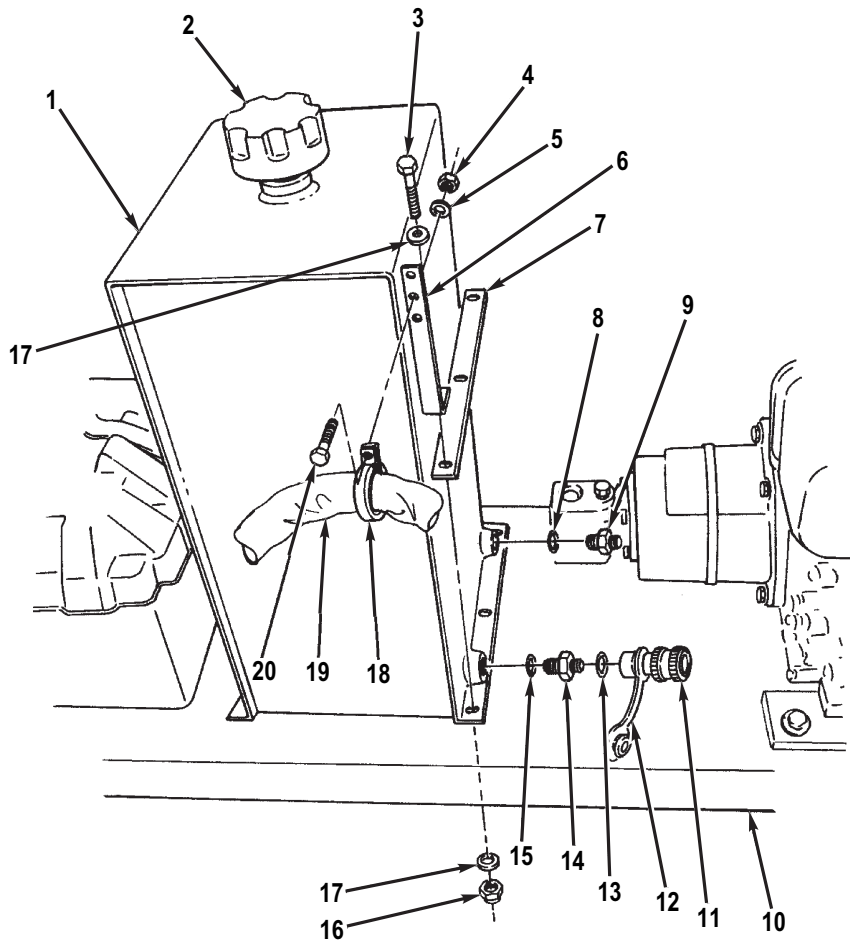
INSTALLATION - Continued

4. Install dust cap (Figure 6, Item 12) on quick disconnect coupler (Figure 6, Item 11). Install new preformed packing (Figure 6, Item 13), union (Figure 6, Item 14), new preformed packing (Figure 6, Item 15), and quick disconnect coupler to hydraulic reservoir (Figure 6, Item 1).
5. Install new preformed packing (Figure 6, Item 8) and straight connector (Figure 6, Item 9) on hydraulic reservoir (Figure 6, Item 1).
6. Install cap (Figure 6, Item 2) on hydraulic reservoir (Figure 6, Item 1).

NOTE

Largest screw is used to mount angle bracket (rear dolly only).

7. Install hydraulic reservoir (Figure 6, Item 1) with fittings, two mounting plates (Figure 6, Item 7), and angle bracket (Figure 6, Item 6) (rear dolly only) on pivoting tray (Figure 6, Item 10) with six screws (Figure 6, Item 3), 12 washers (Figure 6, Item 17), and new locknuts (Figure 6, Item 16).
8. On rear dolly only, secure clamp (Figure 6, Item 18) with hose bundle (Figure 6, Item 19) through middle hole of angle bracket (Figure 6, Item 6) with screw (Figure 6, Item 20), washer (Figure 6, Item 5), and new locknut (Figure 6, Item 4).

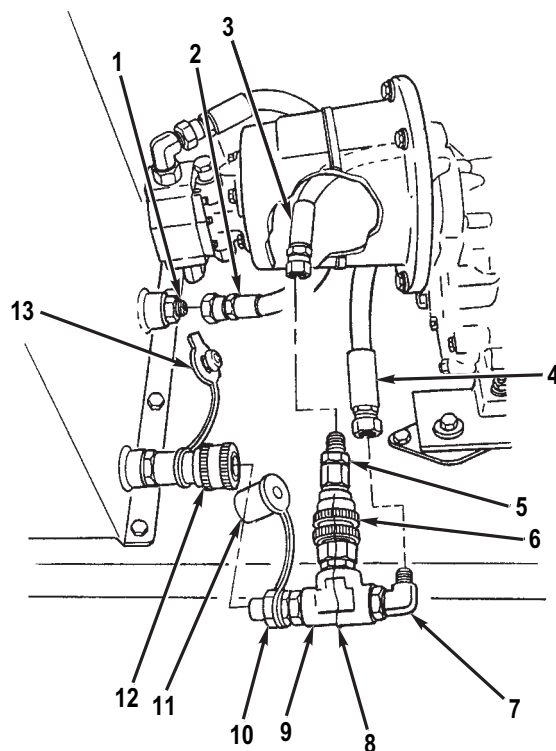


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Figure 6. Hydraulic Reservoir Installation.

INSTALLATION - Continued

9. Connect quick disconnect nipple (Figure 7, Item 10) with fittings to quick disconnect coupler (Figure 7, Item 12). Install dust cap (Figure 7, Item 13) on dust plug (Figure 7, Item 11).
10. Wrap new lockwire (Figure 7, Item 8) around quick disconnect coupler (Figure 7, Item 12), tee (Figure 7, Item 9), and quick disconnect coupler (Figure 7, Item 6).
11. Connect hose assembly (Figure 7, Item 2) to straight connector (Figure 7, Item 1).
12. Connect two hose assemblies (Figure 7, Items 3 and 4) to straight connector (Figure 7, Item 5) and elbow (Figure 7, Item 7).

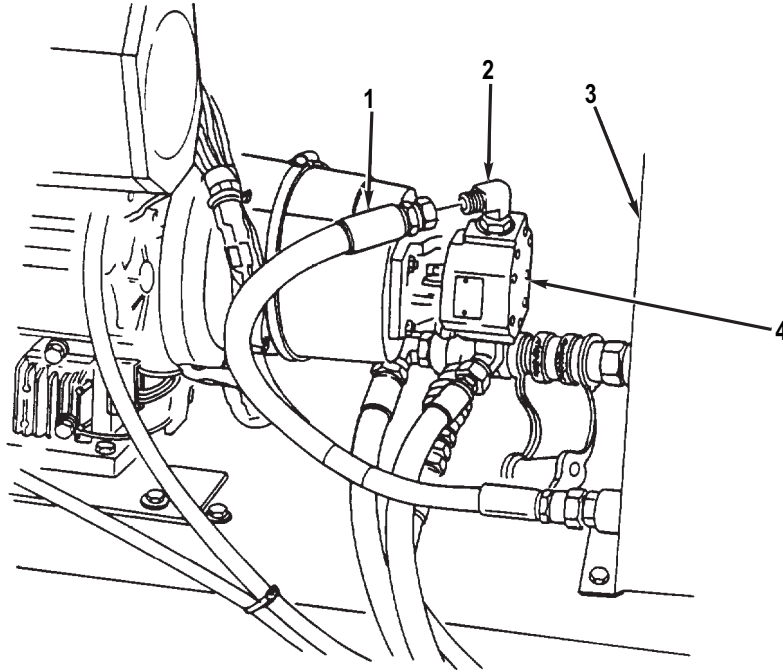


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Figure 7. Redundant Power Fittings Connection.

INSTALLATION - Continued

13. Connect hose assembly (Figure 8, Item 1) from reservoir (Figure 8, Item 3) to elbow (Figure 8, Item 2) at inlet (top) of hydraulic pump (Figure 8, Item 4).



M0166JMS

Figure 8. Hydraulic Reservoir Hydraulic Hose Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Fill hydraulic reservoir with hydraulic fluid (WP 0028).
2. Check for leaks (WP 0128)
3. If removed, install cold start kit (WP 0117).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
HYDRAULIC SYSTEM BLEEDING WITHOUT SIDE LIFT KIT (OR SIDE LIFT KIT POSITIONING CYLINDERS ONLY)

INITIAL SETUP:**Tools and Special Tools**

Sling, Nylon (WP 0194, Table 2, Item 5)
 Suitable lifting device (5,000-lb minimum capacity)

Equipment Condition

Front and rear dollies lowered and detached
 (M1022A1 without side lift kit) (WP 0009)
 Front and rear dollies lowered and attached
 (M1022A1 with side lift kit) (WP 0009)

Materials/Parts

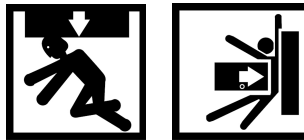
Fluid: Hydraulic, Petroleum Base, OHA
 (WP 0197, Table 1, Item 15)
 Rag: Wiping (WP 0197, Table 1, Item 42)

References

WP 0005
 WP 0029

WARNING

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

WARNING

Top beams of front and rear dollies must be secured with a suitable lifting device throughout entire bleeding procedure if bleeding hydraulic system of a dolly set with side lift kit when ONLY side lift positioning cylinders were replaced. Top and bottom beams must also be kept vertical. Until bleeding is complete, air in the hydraulic system may cause erratic movement when extending and retracting hydraulic cylinders. Failure to support top beams and to keep top and bottom beams vertical may cause an accident. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

CAUTION

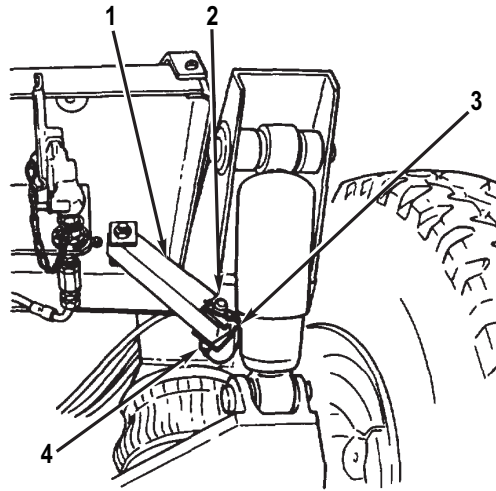
DO NOT allow dirt or dust to enter hydraulic reservoir. Damage to hydraulic system will result.

NOTE

This procedure is used to bleed the hydraulic system of a dolly half without side lift kit OR a dolly set with side lift kit when ONLY side lift positioning cylinders were replaced.

BLEEDING

1. Remove safety pin (Figure 1, Item 3) and hitch pin (Figure 1, Item 4) and unlock pivoting tray lockout brace (Figure 1, Item 1) from lower bracket (Figure 1, Item 2).



M0170JMS

Figure 1. Pivoting Tray Lockout Brace Removal.

NOTE

If bleeding hydraulic system of a dolly set with side lift kit, when ONLY side lift positioning cylinders were replaced, top beams must be supported by a suitable lifting device capable of raising 16 ft (4.9 m) above the floor. A sling with a minimum capacity of 5,000 lb (2,270 kg) must be used.

2. Support top beam (Figure 2, Item 2) with a lifting device as required.
3. Start engine (General Operating Instructions (WP 0005)).
4. Fill hydraulic reservoir (Operator/Crew Maintenance (WP 0029)).

NOTE

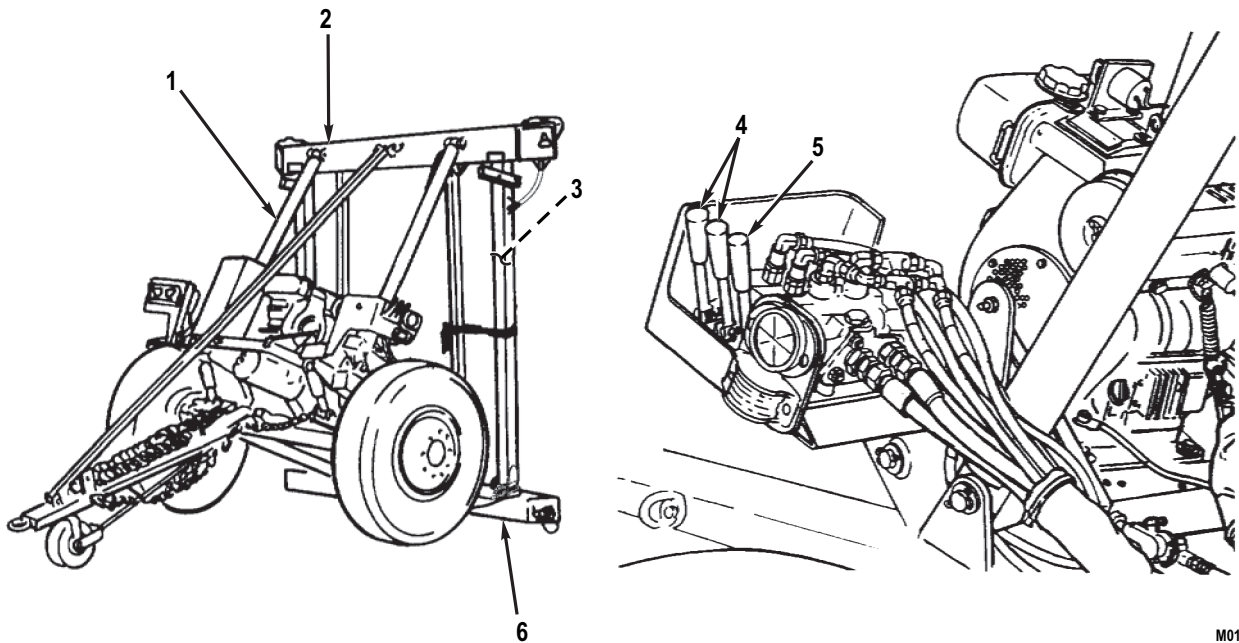
During extension, maintain slack in hoist sling as top beam is raised.

5. Operate hydraulic control valve to extend lift cylinders (Figure 2, Item 1) and positioning cylinders (Figure 2, Item 3) in turn (General Operating Instructions (WP 0005)). Keep top and bottom beams (Figure 2, Items 2 and 6) vertical as cylinders are extended.
6. When full extension is reached, hold lift cylinder levers (Figure 2, Item 4) and positioning cylinders lever (Figure 2, Item 5) in extend position for 30 seconds.

BLEEDING - Continued**NOTE**

During retraction, maintain slack in hoist sling as top beam is lowered.

7. Operate hydraulic control valve to retract lift cylinders (Figure 2, Item 1) and positioning cylinders (Figure 2, Item 3) in turn (General Operating Instructions (WP 0005)). Keep top and bottom beams (Figure 2, Items 2 and 6) vertical as cylinders are retracted.
8. When full retraction is reached, hold lift cylinder levers (Figure 2, Item 4) and positioning cylinders lever (Figure 2, Item 5) in retract position for 30 seconds.
9. Shut down engine (General Operating Instructions (WP 0005)).
10. Check hydraulic fluid level and fill as required (Operator/Crew Maintenance (WP 0029)).
11. Repeat steps 5 through 8 two more times or until operation of hydraulic system is smooth.
12. Remove support from top beam (Figure 2, Item 2) as required.

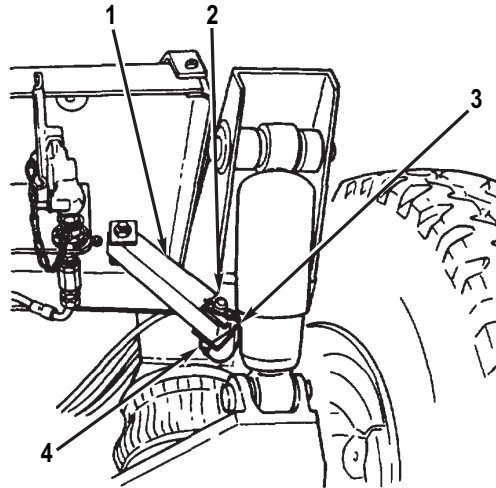


M0171JMS

Figure 2. Hydraulic System Bleeding.

BLEEDING - Continued

13. Install hitch pin (Figure 3, Item 4) and safety pin (Figure 3, Item 3) and lock pivoting tray lockout brace (Figure 3, Item 1) on lower bracket (Figure 3, Item 2).



M0170JMS

Figure 3. Pivoting Tray Lockout Brace Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE
HYDRAULIC SYSTEM BLEEDING WITH SIDE LIFT KIT (LIFT CYLINDERS ONLY)

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
 Adapter, Straight, Pipe-to-Boss (WP 0194, Table 2, Item 3)
 Gage, Pressure, Dial, Indicating 0-6000 psi (WP 0194, Table 2, Item 4)
 Sling, Nylon (WP 0194, Table 2, Item 5)
 Wrench, Torque: 3/8 in. drive, 0-300 lb-in. capacity (WP 0198, Table 1, Item 43)
 Stepladder: 8 ft, aluminum alloy (WP 0198, Table 1, Item 26)
 Suitable lifting device, 5,000-lb minimum capacity

Materials/Parts

Fluid: Hydraulic, Petroleum Base, OHA (WP 0197, Table 1, Item 15)
 Rag: Wiping (WP 0197, Table 1, Item 42)

Materials/Parts (cont.)

Tubing: Nonmetallic, 0.187 Inch Inside Diameter (WP 0197, Table 1, Item 55)
 Preformed Packing (WP 0161, Item 3) Qty: 4

Personnel Required

(Four)

References

WP 0005
 WP 0029
 WP 0108

Equipment Condition

Front and rear dollies lowered and attached (WP 0009)
 Steering locking pin installed in steering link (WP 0008)
 Air bags inflated to riding height (WP 0005)
 Parking brake lever set to OFF position (WP 0004)

WARNING

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

WARNING

Top and bottom beams weigh 375 lb (170 kg). Top beams of front and rear dollies must be secured with a suitable lifting device throughout entire bleeding procedure. Top and bottom beams must be kept vertical. Until bleeding is complete, air in the hydraulic system may cause erratic movement when extending and retracting hydraulic cylinders. Failure to support top beams and to keep top and bottom beams vertical may cause an accident. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

CAUTION

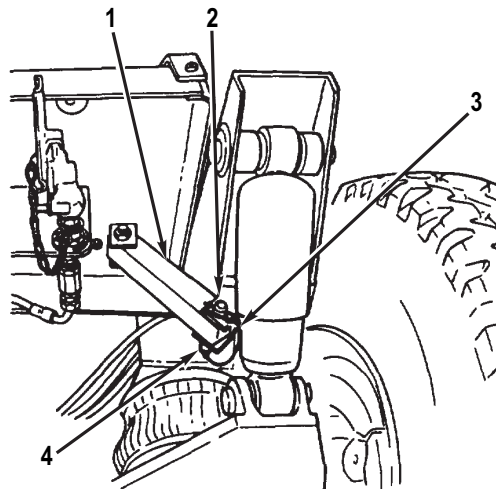
DO NOT allow dirt or dust to enter hydraulic system. Damage to hydraulic system will result.

NOTE

- This procedure is used to bleed a dolly set hydraulic system after initial installation of a side lift kit. This procedure is also used after replacement of a single (or both) side lift kit lift cylinder(s).
- After replacement of a single (or both) side lift kit positioning cylinder(s), follow the bleeding procedures in Hydraulic System Bleeding without Side Lift Kit (or Side Lift Kit Positioning Cylinders Only) (WP 0108).

BLEEDING

1. At front and rear, remove hitch pin (Figure 1, Item 4) and safety pin (Figure 1, Item 3) and unlock pivoting tray lockout brace (Figure 1, Item 1) from lower bracket (Figure 1, Item 2).

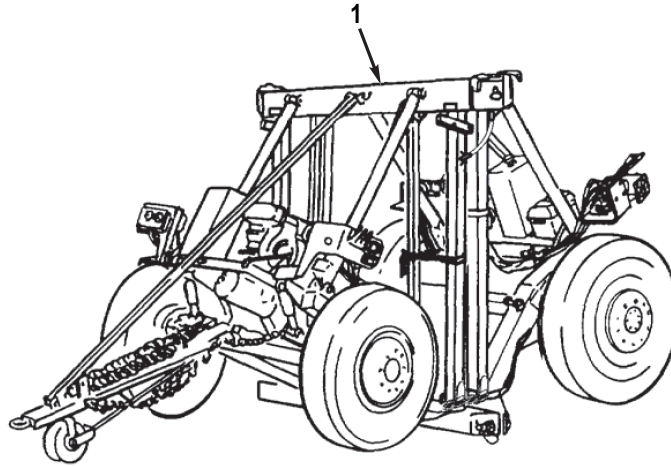


M0170JMS

Figure 1. Pivoting Tray Lockout Brace Removal.

2. Support top beams (Figure 2, Item 1) with a lifting device capable of raising 16 ft (4.9 m) above the floor. Use a sling with a minimum capacity of 5,000 lb (2,270 kg).

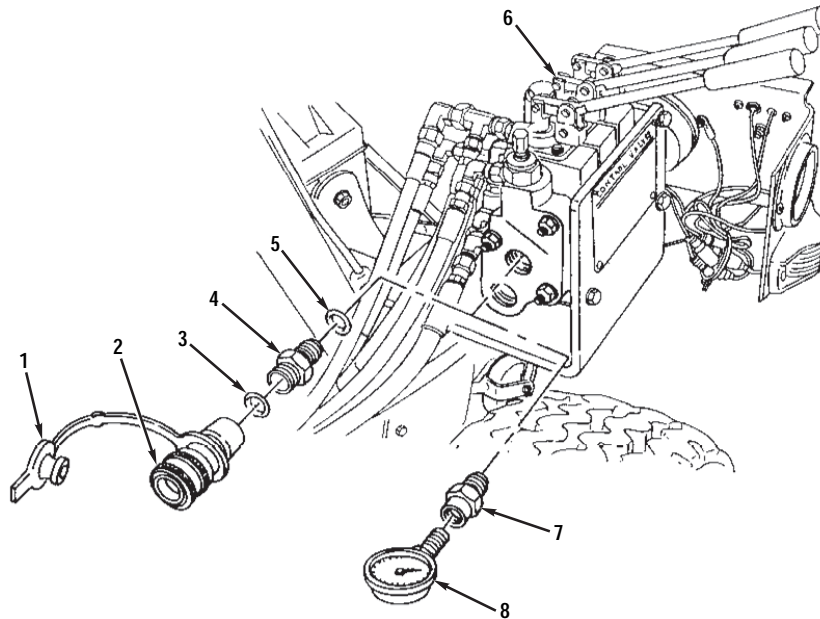
BLEEDING - Continued



M0172JMS

Figure 2. Top Beam Support Installation.

3. Remove dust cap (Figure 3, Item 1) from redundant power quick disconnect coupler (Figure 3, Item 2). Remove redundant power quick disconnect coupler, preformed packing (Figure 3, Item 3), dust cap, union (front dolly) or straight adapter (Figure 3, Item 4) (rear dolly), and preformed packing (Figure 3, Item 5) from inlet section of each hydraulic control valve (Figure 3, Item 6). Discard preformed packings.
4. Install pipe bushing (Figure 3, Item 7) and pressure gage (Figure 3, Item 8) to inlet section of each control valve (Figure 3, Item 6).
5. At front and rear, start engine (General Operating Instructions (WP 0005)).
6. Fill hydraulic reservoirs to top line on dipstick (Operator/Crew Maintenance (WP 0029)).



M0173JMS

Figure 3. Pressure Gage Installation.

BLEEDING - Continued**NOTE**

During extension, maintain slack in hoist sling as top beams are raised.

7. At front and rear, operate hydraulic control valve to extend hydraulic lift cylinders (Figure 4, Item 1) until axle assembly (Figure 4, Item 7) is approximately horizontal. Extend hydraulic positioning cylinders (Figure 4, Item 3) until bottom beams (Figure 4, Item 6) rest on the ground (General Operating Instructions (WP 0005)). Keep top beams (Figure 4, Item 2) and bottom beams vertical as hydraulic cylinders are extended.
8. Repeat alternating extension of hydraulic lift cylinders (Figure 4, Item 1) and hydraulic positioning cylinders (Figure 4, Item 3), maintaining top and bottom beams (Figure 4, Items 2 and 6) vertical. Stop when top beam vertical tubes (Figure 4, Item 4) have extended approximately 49 in. (124 cm) and hydraulic positioning cylinder limit lines (Figure 4, Item 5) are visible.

NOTE

During retraction, maintain slack in hoist sling as top beams are lowered.

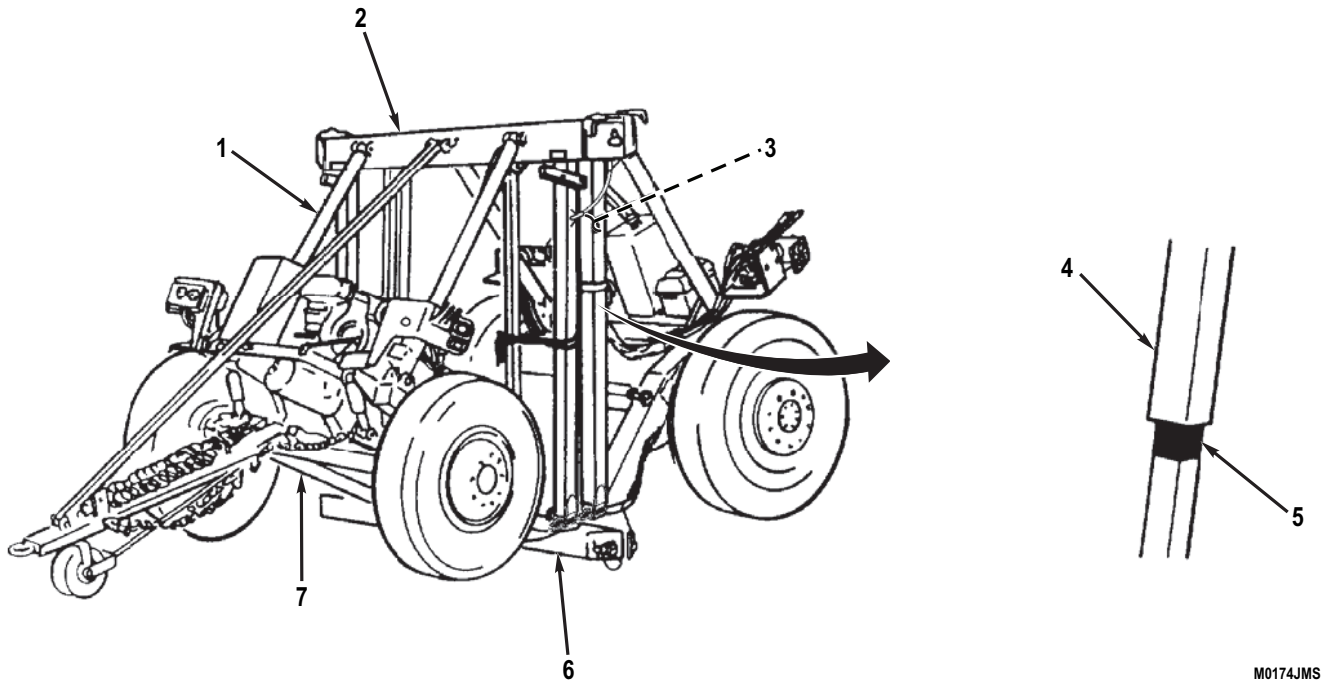
9. At front and rear, operate hydraulic control valves to retract hydraulic lift cylinders (Figure 4, Item 1) until bottom beams (Figure 4, Item 6) rest on the ground. Retract hydraulic positioning cylinders (Figure 4, Item 3) until axle assembly (Figure 4, Item 7) is approximately horizontal (General Operating Instructions (WP 0005)). Keep top beams (Figure 4, Item 2) and bottom beams vertical as cylinders are retracted.
10. Repeat alternating retraction of hydraulic lift cylinders (Figure 4, Item 1) and hydraulic positioning cylinders (Figure 4, Item 3) maintaining top and bottom beams (Figure 4, Items 2 and 6) vertical. Stop when hydraulic cylinders are fully retracted.
11. At front and rear, shut down engine (General Operating Instructions (WP 0005)).
12. Fill hydraulic reservoirs to top line on dipstick (Operator/Crew Maintenance (WP 0029)).
13. At front and rear, start engine (General Operating Instructions (WP 0005)).

NOTE

During extension, maintain slack in hoist sling as top beams are raised.

14. At front and rear, operate hydraulic control valve to SIMULTANEOUSLY extend hydraulic lift cylinders (Figure 4, Item 1) and hydraulic positioning cylinders (Figure 4, Item 3). Throughout extension, maintain top and bottom beams (Figure 4, Items 2 and 6) vertical.

BLEEDING - Continued



M0174JMS

Figure 4. Hydraulic Cylinder (Side Lift) Positioning.

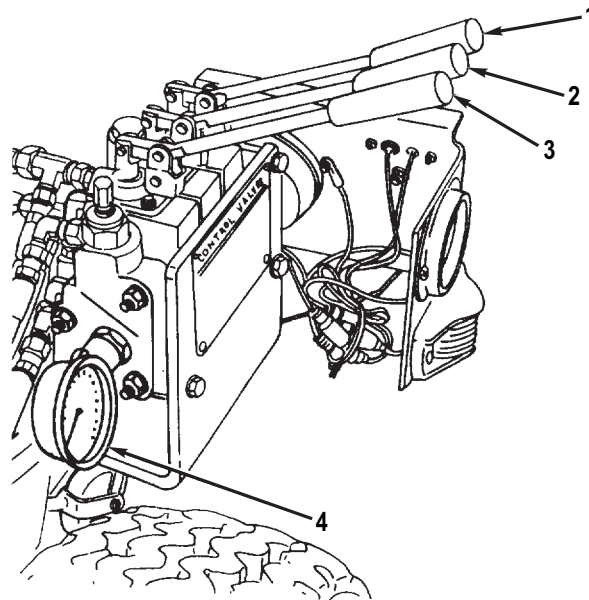
BLEEDING - Continued

15. When full extension is reached, hold each hydraulic control valve lever (Figure 5, Items 1, 2, and 3) in the extend position until pressure gage (Figure 5, Item 4) reads 2,000 psi (13,790 kPa).

NOTE

If fluid level in hydraulic reservoir is sufficient, a cylinder piston seal leak should be investigated.

16. If 2,000 psi (13,790 kPa) is not developed, check hydraulic fluid level in reservoirs (Operator/Crew Maintenance (WP 0029)).



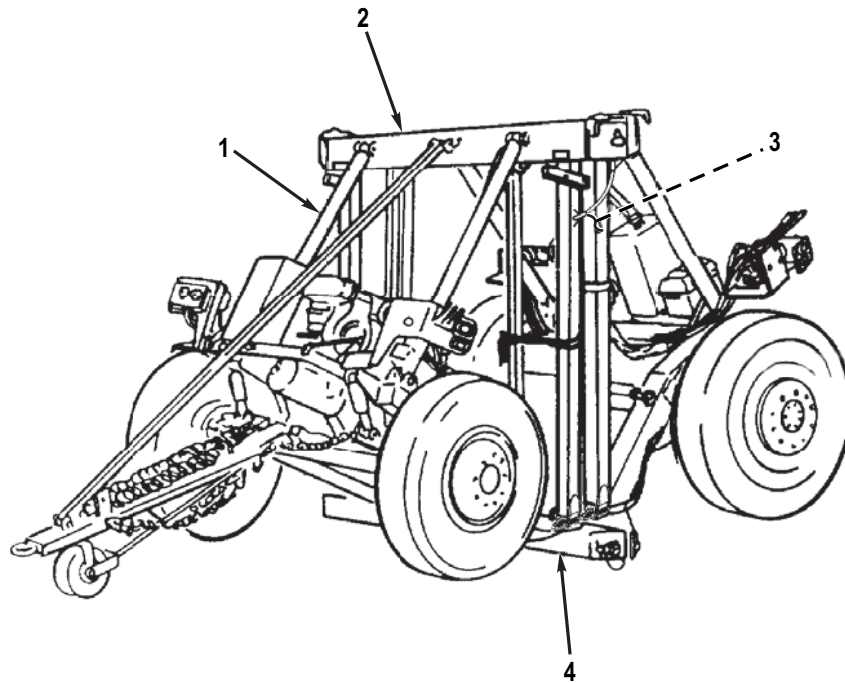
M0175JMS

Figure 5. Hydraulic System Bleeding (Side Lift) Extension Pressure Reading.

BLEEDING - Continued**NOTE**

During retraction, maintain slack in hoist sling as top beams are lowered.

17. At front and rear, operate hydraulic control valve to **SIMULTANEOUSLY** retract hydraulic lift cylinders (Figure 6, Item 1) and hydraulic positioning cylinders (Figure 6, Item 3). Throughout retraction, maintain top and bottom beams (Figure 6, Items 2 and 4) vertical.



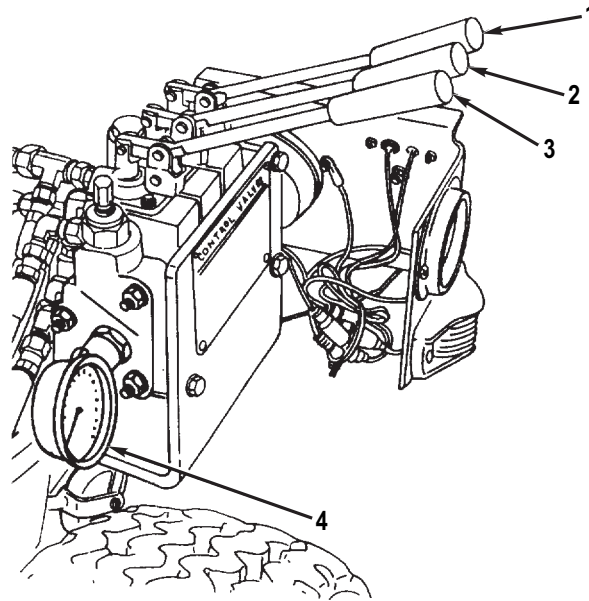
M0271JMS

Figure 6. Hydraulic Cylinder (Side Lift) Retraction.

BLEEDING - Continued**NOTE**

If 2,000 psi (13,790 kPa) is not developed, a cylinder piston seal leak should be investigated.

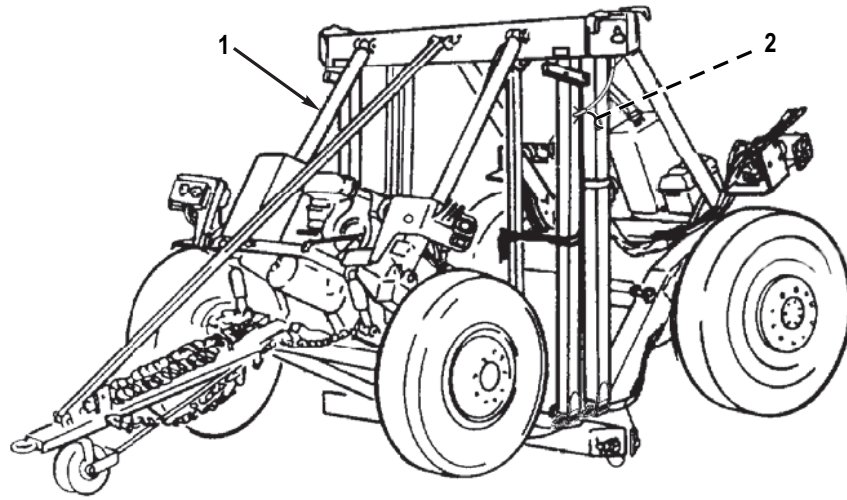
18. When full retraction is reached, hold each hydraulic control valve lever (Figure 7, Items 1, 2, and 3) in the retract position until pressure gage (Figure 7, Item 4) reads 2,000 psi (13,790 kPa).



M0175JMS

Figure 7. Hydraulic System Bleeding (Side Lift) Retraction Pressure Reading.

19. At front and rear, shut down engine (General Operating Instructions (WP 0005)).
20. Fill hydraulic reservoirs to top line on dipstick (Operator/Crew Maintenance (WP 0029)).
21. At front and rear, start engine (General Operating Instructions (WP 0005)).
22. Repeat steps 7 and 8 to alternately fully extend hydraulic lift cylinders (Figure 8, Item 1) and hydraulic positioning cylinders (Figure 8, Item 2).

BLEEDING - Continued

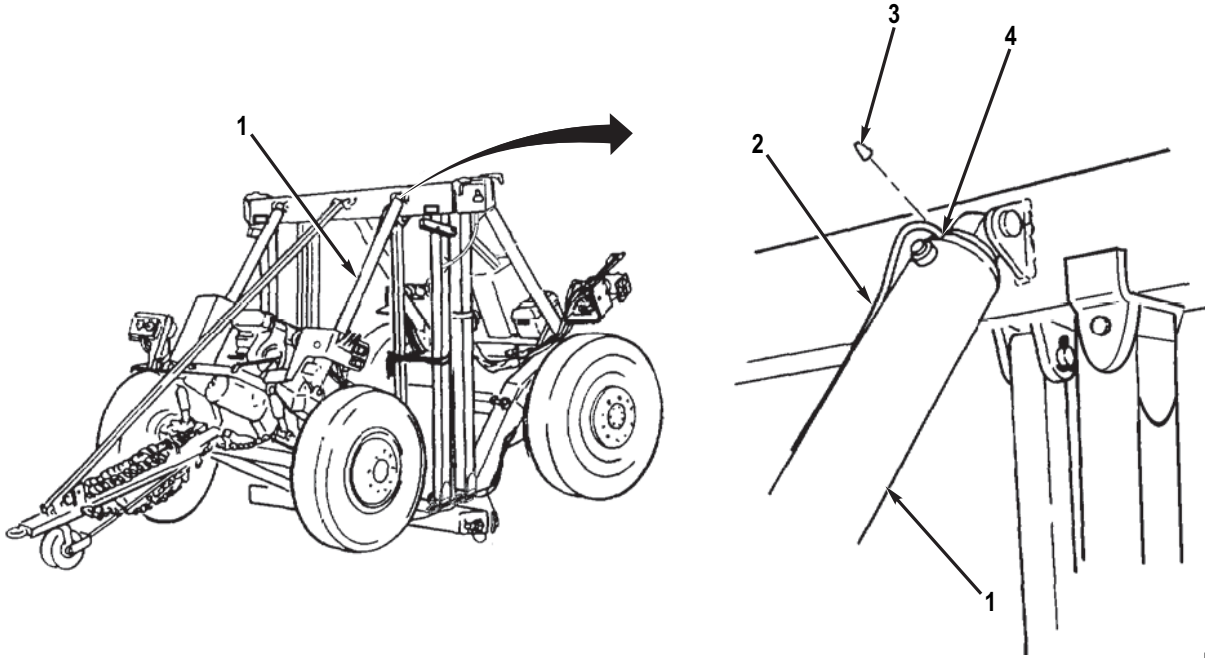
M0271_1JMS

Figure 8. Hydraulic Cylinder (Side Lift) Extension.

23. At front and rear, hold each near (left side) hydraulic lift cylinder lever (Figure 7, Item 3) in extend position for 30 seconds.
24. At front and rear, hold each far (right side) hydraulic lift cylinder lever (Figure 7, Item 2) in extend position for 30 seconds.
25. At front and rear, hold hydraulic positioning cylinders lever (Figure 7, Item 1) in extend position for 30 seconds.
26. Repeat steps 9 and 10 to alternately fully retract hydraulic lift cylinders (Figure 8, Item 1) and hydraulic positioning cylinders (Figure 8, Item 2).
27. At front and rear, hold each near (left side) hydraulic lift cylinder lever (Figure 7, Item 3) in retract position for 30 seconds.
28. At front and rear, hold each far (right side) hydraulic lift cylinder lever (Figure 7, Item 2) in retract position for 30 seconds.
29. At front and rear, hold hydraulic positioning cylinders lever (Figure 7, Item 1) in retract position for 30 seconds.
30. At front and rear, shut down engine (General Operating Instructions (WP 0005)).
31. Fill hydraulic reservoirs to top line on dipstick (Operator/Crew Maintenance (WP 0029)).
32. At front and rear, start engine (General Operating Instructions (WP 0005)).
33. Repeat steps 22 through 29 two more times.

BLEEDING - Continued

34. At front and rear, remove cap (Figure 9, Item 3) and connect a bleeder hose (Figure 9, Item 2) to air bleeder (Figure 9, Item 4) on hydraulic lift cylinder (Figure 9, Item 1). Route other end of bleeder hose back into hydraulic reservoir.

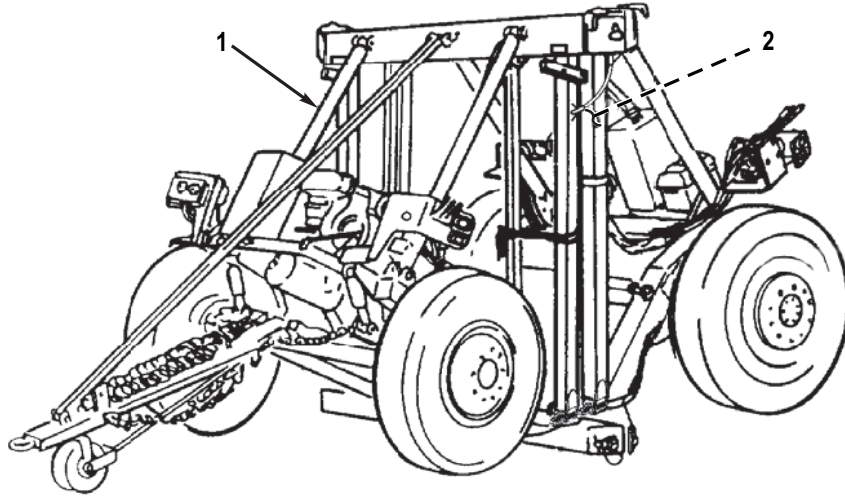


M0176JMS

Figure 9. Hydraulic System (Side Lift) Bleeder Hose Installation.

BLEEDING - Continued

35. Repeat steps 7 and 8 to alternately fully extend hydraulic lift cylinders (Figure 10, Item 1) and hydraulic positioning cylinders (Figure 10, Item 2).



M0271_1JMS

Figure 10. Hydraulic Cylinders (Side Lift) Extended.

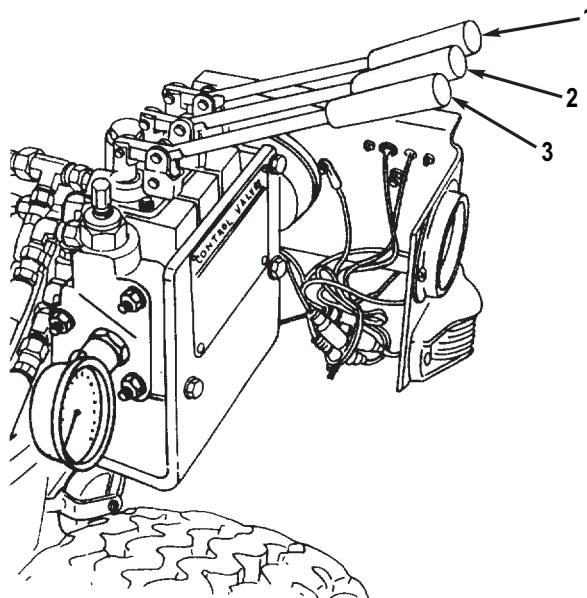
BLEEDING - Continued

WARNING



Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

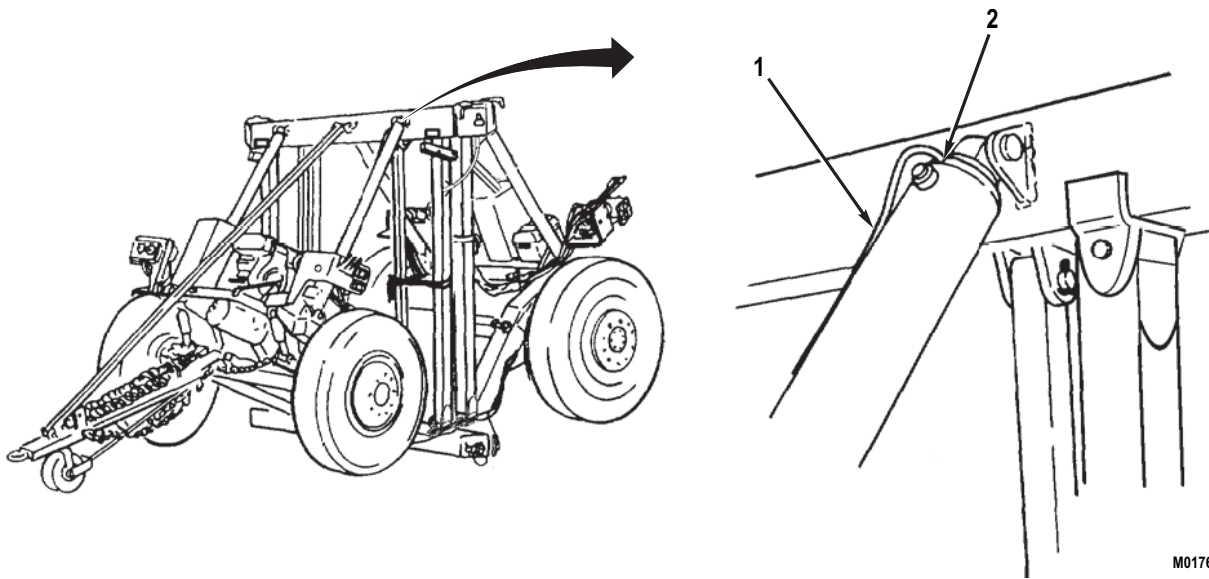
36. At front and rear, use flare nut wrench to open air bleeder (Figure 12, Item 2) while holding each hydraulic control valve lever (Figure 11, Items 1, 2, and 3) in the extend position. Continue to hold hydraulic control valve levers in the extend position until a steady flow of hydraulic fluid flows from bleeder hose (Figure 12, Item 1). Close air bleeder.



M0272JMS

Figure 11. Hydraulic System (Side Lift) Purge.

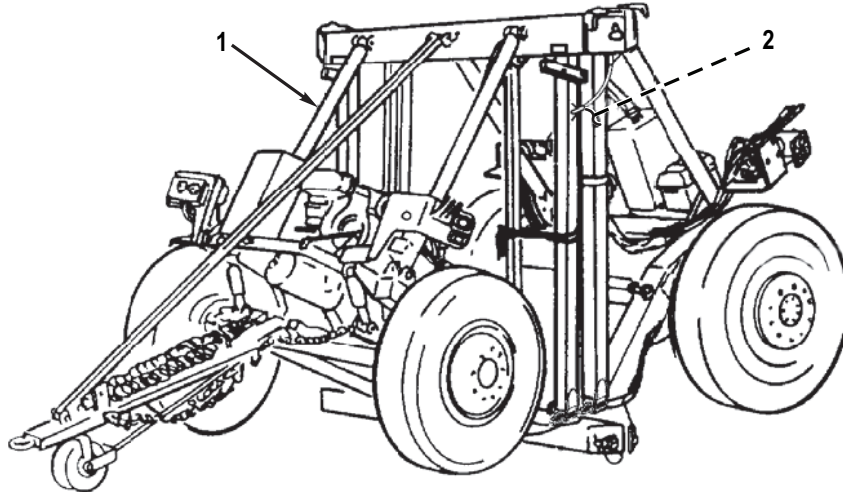
BLEEDING - Continued



M0176_1JMS

Figure 12. Hydraulic System Bleeding (Side Lift).

37. Repeat steps 9 and 10 to alternately fully retract hydraulic lift cylinders (Figure 13, Item 1) and hydraulic positioning cylinders (Figure 13, Item 2).



M0271_1JMS

Figure 13. Hydraulic Cylinder (Side Lift) Retracted.

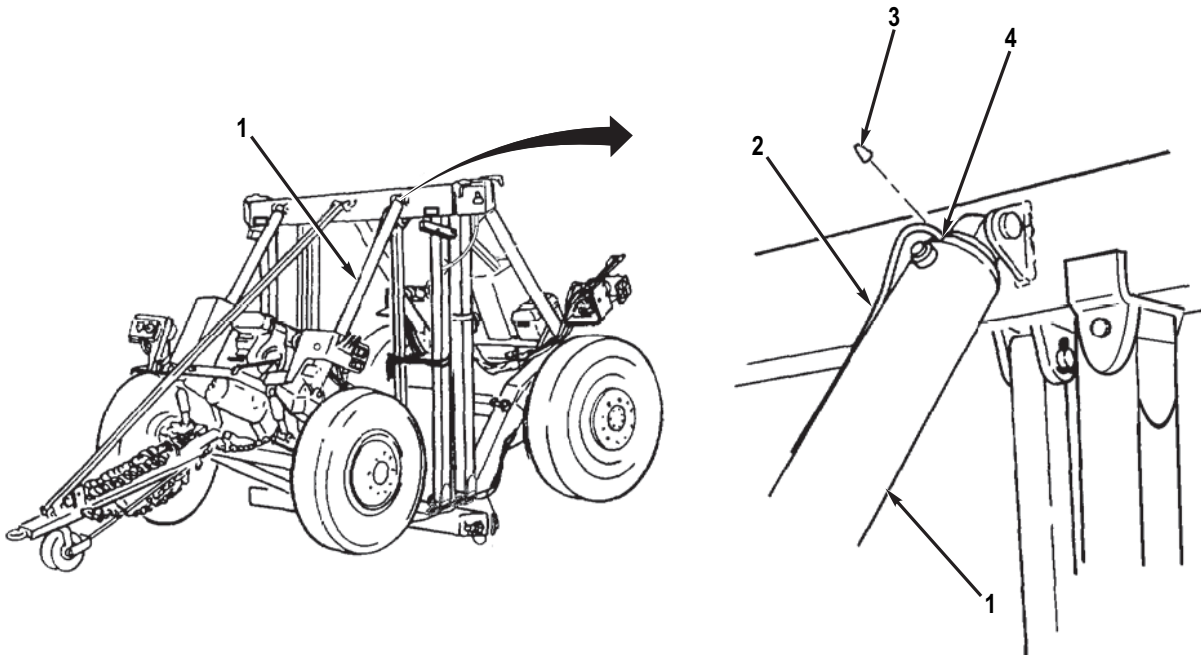
BLEEDING - Continued

WARNING



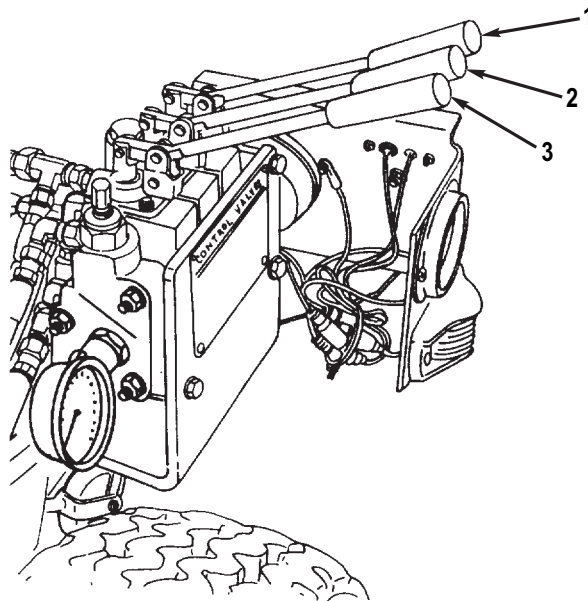
Use extreme caution when using ladder. Have an assistant hold ladder to ensure that it is stable. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

38. At front and rear, use flare nut wrench to open air bleeder (Figure 14, Item 4) while holding each hydraulic control valve lever (Figure 15, Item 1, 2, and 3) in the retract position. Continue to hold hydraulic control valve levers in the retract position until a steady flow of hydraulic fluid flows from bleeder hose (Figure 14, Item 2). Close air bleeder and torque to 180 lb-in. (20 N•m).



M0176JMS

Figure 14. Hydraulic System (Side Lift) Bleeder Hose Removal.

BLEEDING - Continued

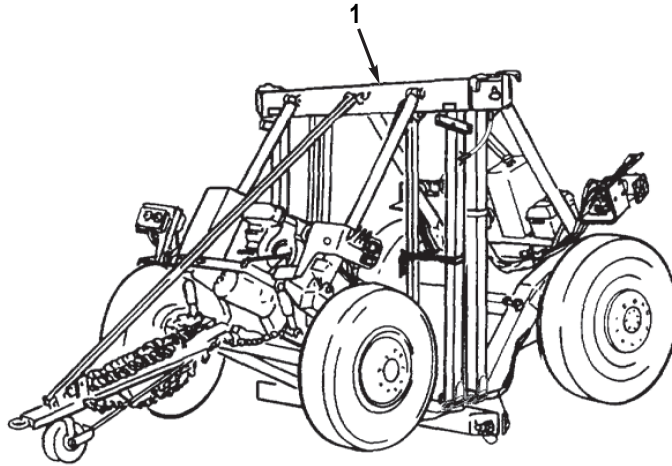
M0272JMS

Figure 15. Hydraulic Cylinder (Side Lift) Repositioning.

39. Install cap (Figure 14, Item 3) on air bleeder (Figure 14, Item 4).
40. At front and rear, shut down engine (General Operating Instructions (WP 0005)).
41. Fill hydraulic reservoirs to top line on dipstick (Operator/Crew Maintenance (WP 0029)).

BLEEDING - Continued

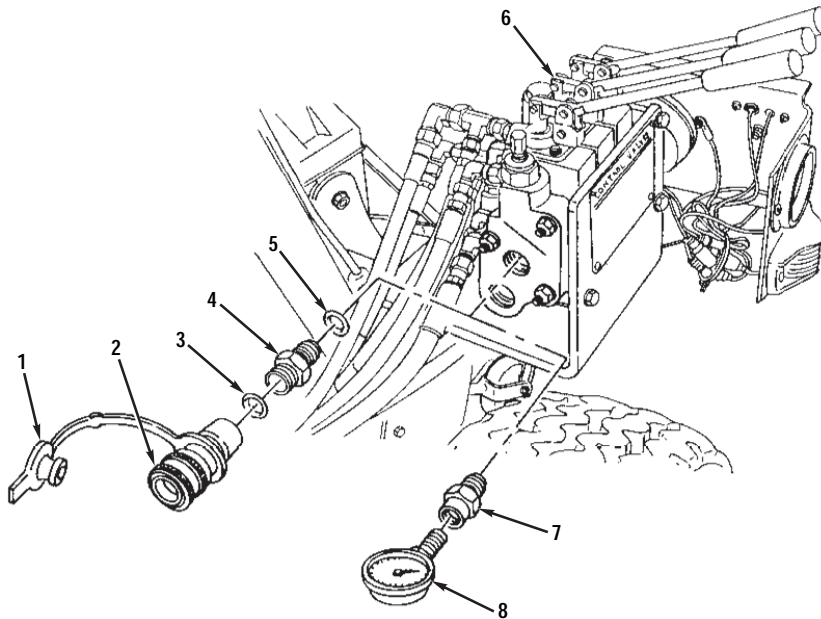
42. Remove support from top beams (Figure 16, Item 1).



M0172JMS

Figure 16. Top Beam Support Removal.

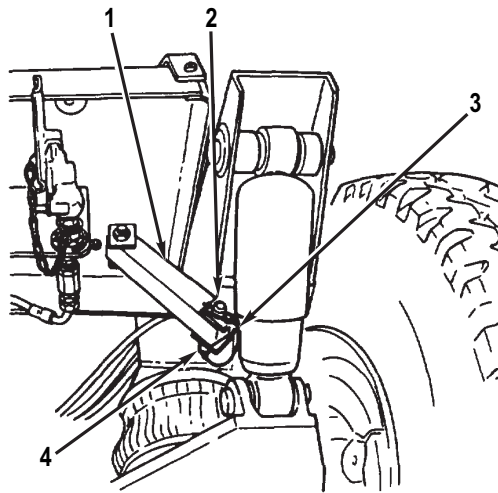
43. Remove pressure gage (Figure 17, Item 8) and pipe bushing (Figure 17, Item 7) from inlet section of each hydraulic control valve (Figure 17, Item 6).
44. Install new preformed packing (Figure 17, Item 5), union (front dolly) or straight adapter (Figure 17, Item 4) (rear dolly), dust cap (Figure 17, Item 1), new preformed packing (Figure 17, Item 3), and redundant power quick disconnect coupler (Figure 17, Item 2) on inlet section of each hydraulic control valve (Figure 17, Item 6). Install dust cap to redundant power quick disconnect coupler.



M0173JMS

Figure 17. Pressure Gage Removal.

45. At front and rear, install hitch pin (Figure 18, Item 4) and safety pin (Figure 18, Item 3) and lock pivoting tray lockout brace (Figure 18, Item 1) on lower bracket (Figure 18, Item 2).

BLEEDING - Continued

M0170JMS

Figure 18. Pivoting Tray Lockout Brace Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Deflate air bags (WP 0008).
2. Stow all removed items on bottom beams as required (WP 0016).
3. Remove steering locking pin from steering link (WP 0074).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
ENGINE REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)
Suitable lifting device
Wooden blocks

Materials/Parts

Fluid: Hydraulic, Petroleum Base, OHA
(WP 0197, Table 1, Item 15)
Rag: Wiping (WP 0197, Table 1, Item 42)
Tag: Marker (WP 0197, Table 1, Item 49)
Locknut (WP 0166, Item 6) Qty: 4
Locknut (WP 0166, Item 11) Qty: 4

Personnel Required

(Two)

References

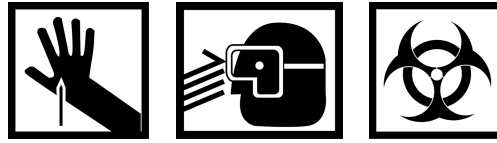
WP 0029

References (cont.)

WP 0102
WP 0128

Equipment Condition

Dolly set lowered (WP 0005)
Battery cables removed (WP 0042)
Fuel tank drained (WP 0118)
Hydraulic hose assemblies inside abrasion sleeve
(hose bundle) detached from muffler cover
(WP 0104)

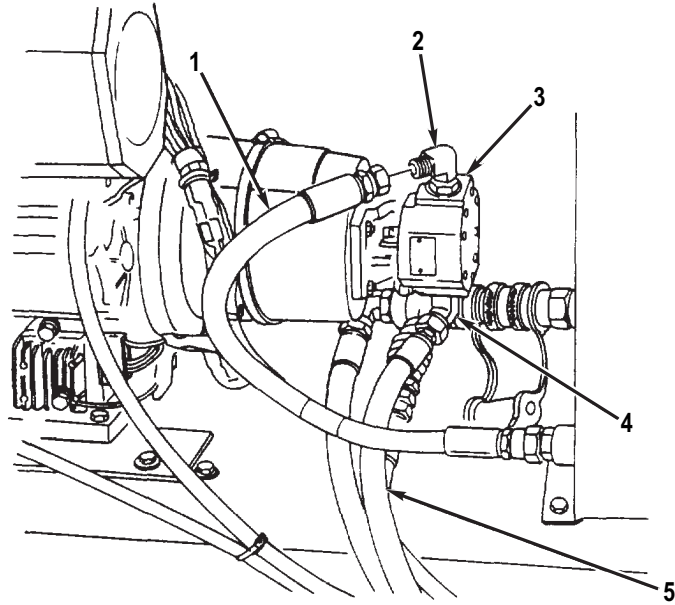
REMOVAL**WARNING**

- DO NOT disconnect hydraulic lines and fittings while engine is running or before hydraulic system pressure has been released. When engine is running, hydraulic system is under pressure. Dolly set must be fully lowered to the ground and engine must be shut down before lines and fittings are disconnected. A line or fitting disconnected under pressure will explode with a great force. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Escaping hydraulic fluid under pressure can penetrate the skin, causing serious injury to personnel. Relieve pressure before disconnecting hydraulic lines and fittings. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject hydraulic fluid high under pressure. Use a piece of cardboard or paper to search for leaks. If any hydraulic fluid is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury or gangrene may result. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.
- Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

NOTE

- Hydraulic lines should be tagged before removal IAW General Maintenance Instructions (WP 0128).
 - A suitable container should be used to catch any draining hydraulic fluid. Ensure that all spills are properly cleaned.
1. Disconnect hose assembly (Figure 1, Item 1) from elbow (Figure 1, Item 2) at inlet (top) of hydraulic pump (Figure 1, Item 3). Drain hydraulic fluid into a suitable container.
 2. Disconnect hose assembly (Figure 1, Item 5) from elbow (Figure 1, Item 4) at outlet (bottom) of hydraulic pump (Figure 1, Item 3). Drain hydraulic fluid into a suitable container.

REMOVAL - Continued



M0177JMS

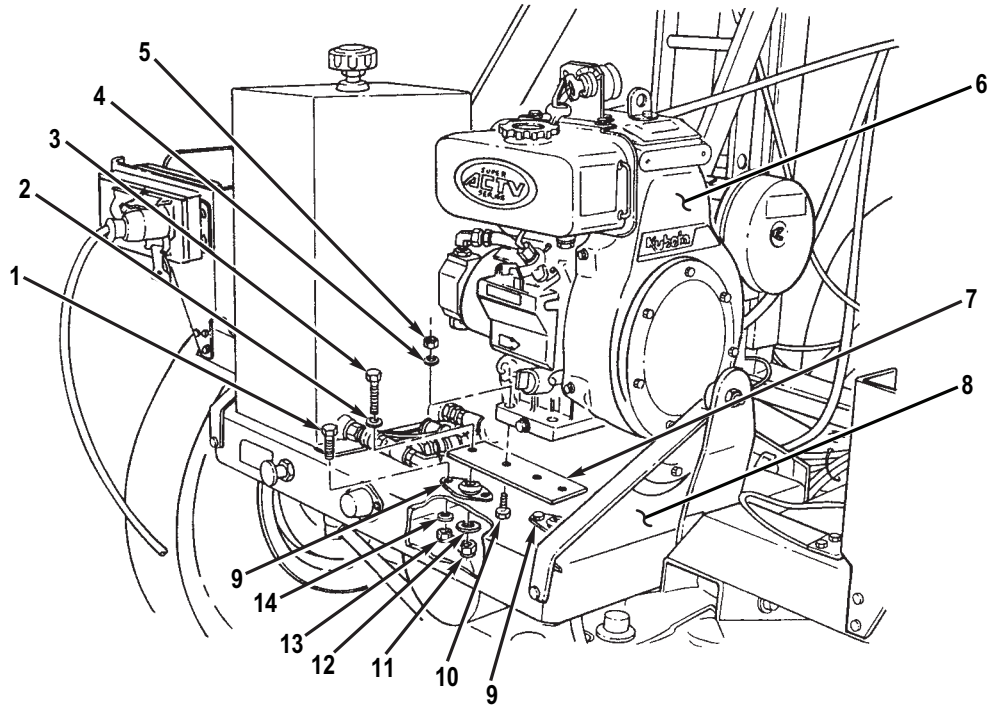
Figure 1. Hydraulic Hoses Removal.

REMOVAL - Continued**WARNING**

Engine weighs 200 lb (91 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

3. Remove four locknuts (Figure 2, Item 11), washers (Figure 2, Item 12), screws (Figure 2, Item 3), and washers (Figure 2, Item 2) from four isolator mounts (Figure 2, Item 9) and two mounting plates (Figure 2, Item 7). Discard locknuts.
4. Remove engine (Figure 2, Item 6) and two mounting plates (Figure 2, Item 7) as an assembly from pivoting tray (Figure 2, Item 8). Place on wooden blocks.
5. Remove four locknuts (Figure 2, Item 5), washers (Figure 2, Item 4), screws (Figure 2, Item 10), and engine (Figure 2, Item 6) from two mounting plates (Figure 2, Item 7). Discard locknuts.
6. If isolator mounts (Figure 2, Item 9) are damaged, remove eight locknuts (Figure 2, Item 13), washers (Figure 2, Item 14), screws (Figure 2, Item 1), and four isolator mounts from pivoting tray (Figure 2, Item 8). Discard locknuts.
7. Remove hydraulic pump from engine (Hydraulic Pump Maintenance (WP 0102)).

REMOVAL - Continued



M0178JMS

Figure 2. Engine Removal.

END OF TASK

INSTALLATION

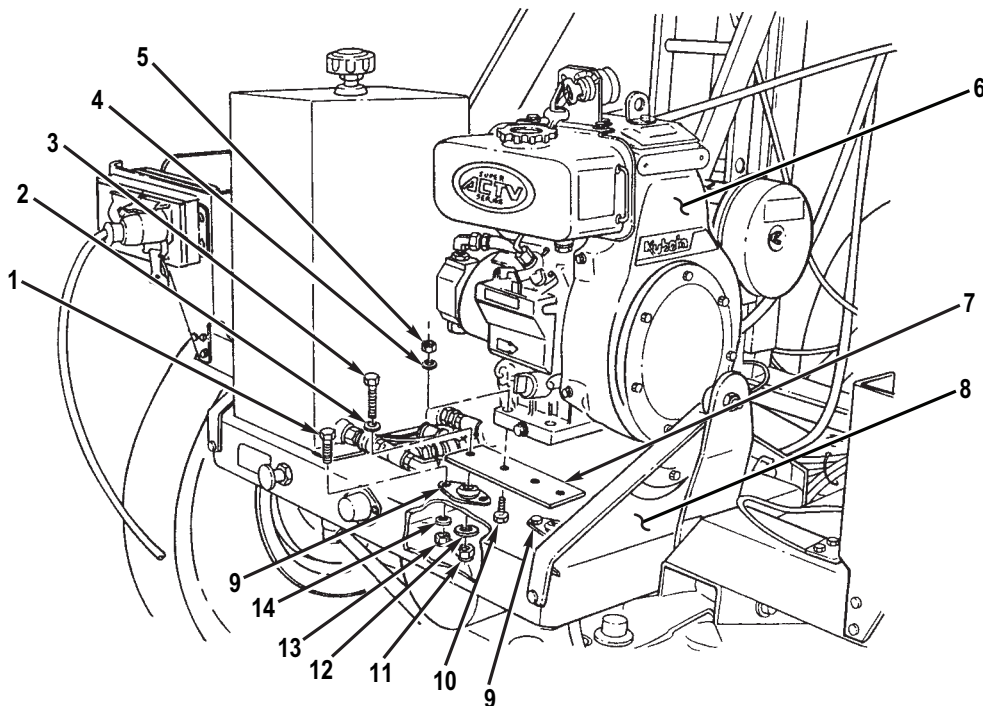
1. Install hydraulic pump on engine (Hydraulic Pump Maintenance (WP 0102)).
2. If removed, install four isolator mounts (Figure 3, Item 9) on pivoting tray (Figure 3, Item 8) with eight screws (Figure 3, Item 1), washers (Figure 3, Item 14), and new locknuts (Figure 3, Item 13).

WARNING



Engine weighs 200 lb (91 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

3. Install engine (Figure 3, Item 6) on two mounting plates (Figure 3, Item 7) with four screws (Figure 3, Item 10), washers (Figure 3, Item 4), and new locknuts (Figure 3, Item 5).
4. Position engine (Figure 3, Item 6) with two mounting plates (Figure 3, Item 7) at pivoting tray (Figure 3, Item 8) with holes in mounting plates aligned with holes in isolator mounts (Figure 3, Item 9).
5. Install four washers (Figure 3, Item 2), screws (Figure 3, Item 3), washers (Figure 3, Item 12), and new locknuts (Figure 3, Item 11) on four isolator mounts (Figure 3, Item 9) and two mounting plates (Figure 3, Item 7).

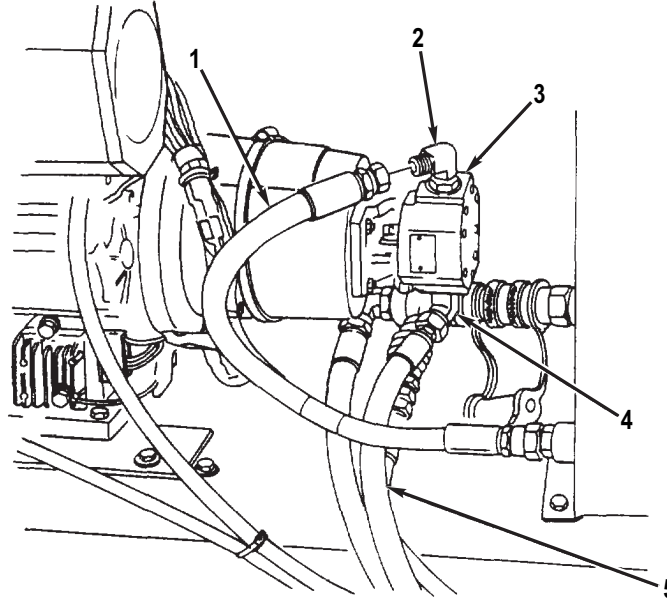


M0178JMS

Figure 3. Engine Installation.

INSTALLATION - Continued

6. Connect hose assembly (Figure 4, Item 5) to elbow (Figure 4, Item 4) at outlet (bottom) of hydraulic pump (Figure 4, Item 3).
7. Connect hose assembly (Figure 4, Item 1) to elbow (Figure 4, Item 2) at inlet (top) on hydraulic pump (Figure 4, Item 3).



M0177JMS

Figure 4. Hydraulic Hoses Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Attach hydraulic hose assemblies inside abrasion sleeve (hose bundle) to muffler cover (WP 0104).
2. Fill fuel (WP 0029).
3. Fill hydraulic reservoir with hydraulic fluid (WP 0029).
4. Install battery cables (WP 0042).
5. Start engine and check operation of engine (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FLYWHEEL AND STATOR ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)
Puller Kit, Mechanical: gear and bearing (WP 0198, Table 1, Item 22)
Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)
Screw, Cap Hexagon Head (WP 0197, Table 1, Item 43) Qty: 3

Materials/Parts (cont.)

Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)
Tag: Marker (WP 0197, Table 1, Item 49)

Personnel Required

(Two)

References

WP 0128

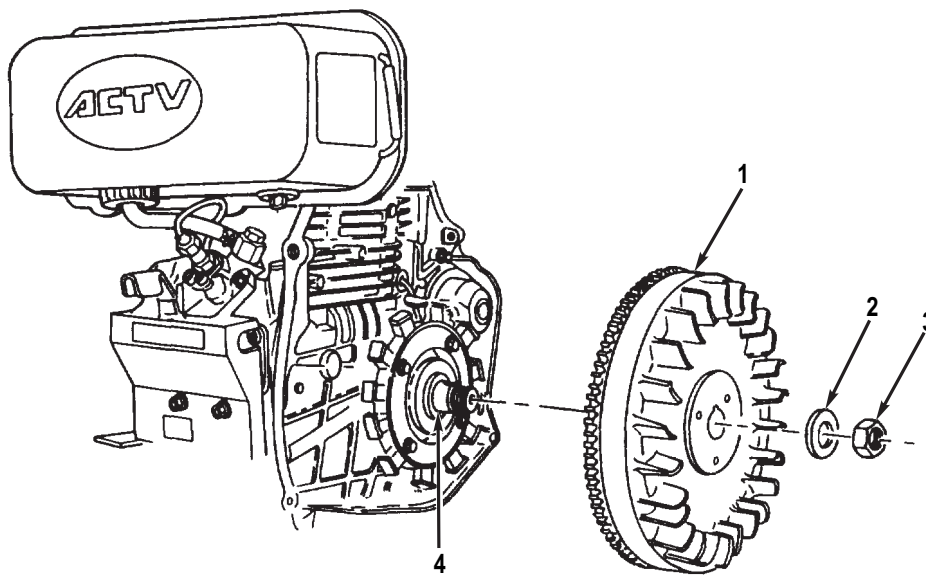
Equipment Condition

Engine removed (WP 0110)
Spiral case removed (WP 0120)

REMOVAL**NOTE**

All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).

1. Secure flywheel (Figure 1, Item 1) and remove nut (Figure 1, Item 3) and washer (Figure 1, Item 2) from crankshaft (Figure 1, Item 4).
2. Install mechanical puller on flywheel (Figure 1, Item 1) using three screws.
3. Using mechanical puller, remove flywheel (Figure 1, Item 1) from crankshaft (Figure 1, Item 4).
4. Remove three screws and mechanical puller from flywheel (Figure 1, Item 1).

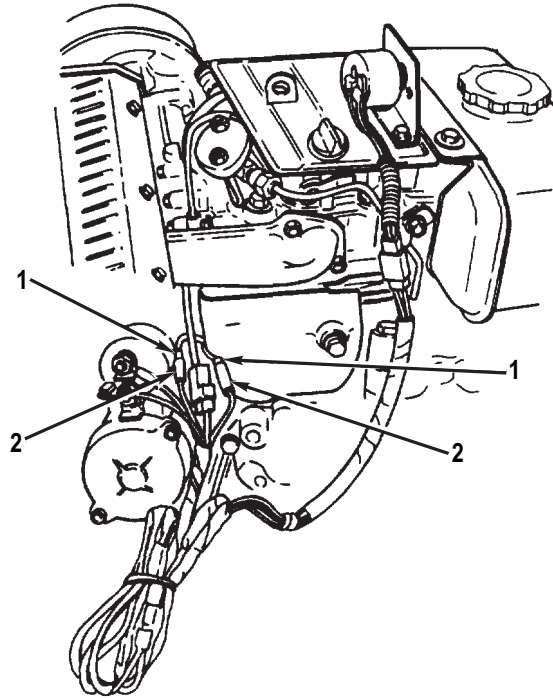


M0179JMS

Figure 1. Flywheel Removal.

REMOVAL - Continued

5. Disconnect two wiring harness connectors (Figure 2, Item 2) from stator assembly connectors (Figure 2, Item 1).



M0180JMS

Figure 2. Stator Assembly Wiring Disconnection.

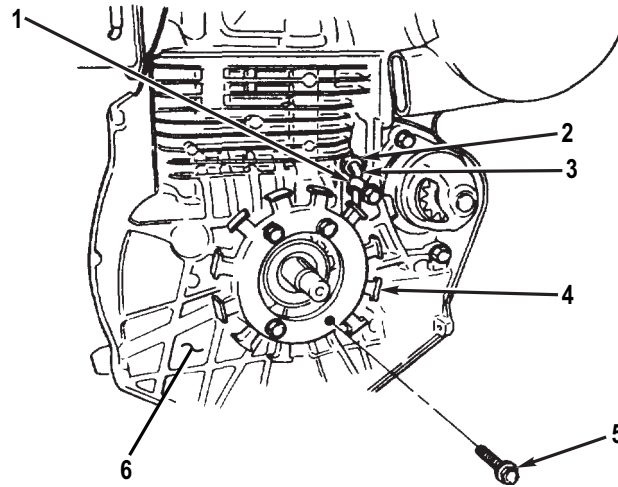
REMOVAL - Continued

6. Release clamp (Figure 3, Item 1) from stator assembly lead (Figure 3, Item 3).
7. Remove grommet (Figure 3, Item 2) from hole in crankcase (Figure 3, Item 6). Pull stator assembly lead (Figure 3, Item 3) through hole.

NOTE

Note location of stator assembly to aid during installation.

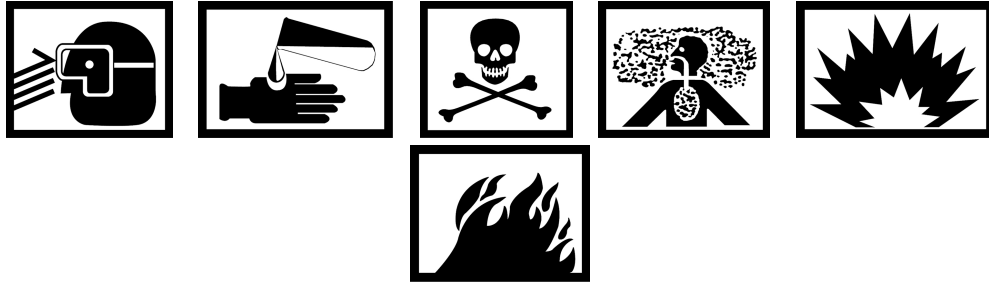
8. Remove four flange bolts (Figure 3, Item 5) and stator assembly (Figure 3, Item 4) from crankcase (Figure 3, Item 6).



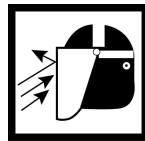
M0181JMS

Figure 3. Stator Assembly Removal.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psf (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

1. Clean all removed components, except grommet, with cleaning solvent and dry with compressed air IAW General Maintenance Instructions (WP 0128).

CLEANING - Continued

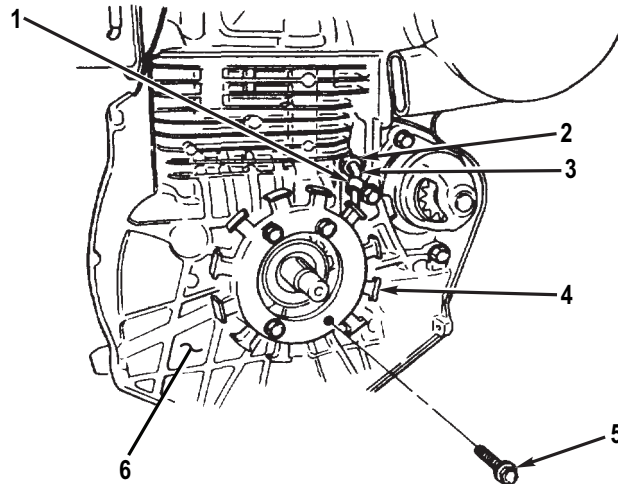
2. Ensure that end of crankshaft and tapered section of flywheel are free of grease. Clean all material from rotor magnet with a clean rag.

END OF TASK**INSPECTION**

1. Inspect flywheel and ring gear for cracks, breaks, and broken fins or teeth. If teeth are broken or missing, replace flywheel assembly (General Maintenance Instructions (WP 0128)).
2. Inspect stator assembly for broken windings, burned condition, or broken leads. Replace damaged stator (General Maintenance Instructions (WP 0128)).
3. Inspect grommet for damage. Replace damaged grommet (General Maintenance Instructions (WP 0128)).

END OF TASK**INSTALLATION**

1. Install stator assembly (Figure 4, Item 4) on crankcase (Figure 4, Item 6) with four flange bolts (Figure 4, Item 5).
2. Feed stator assembly lead (Figure 4, Item 3) through hole in crankcase (Figure 4, Item 6) and install grommet (Figure 4, Item 2).
3. Secure stator assembly lead (Figure 4, Item 3) to crankcase (Figure 4, Item 6) with clamp (Figure 4, Item 1).

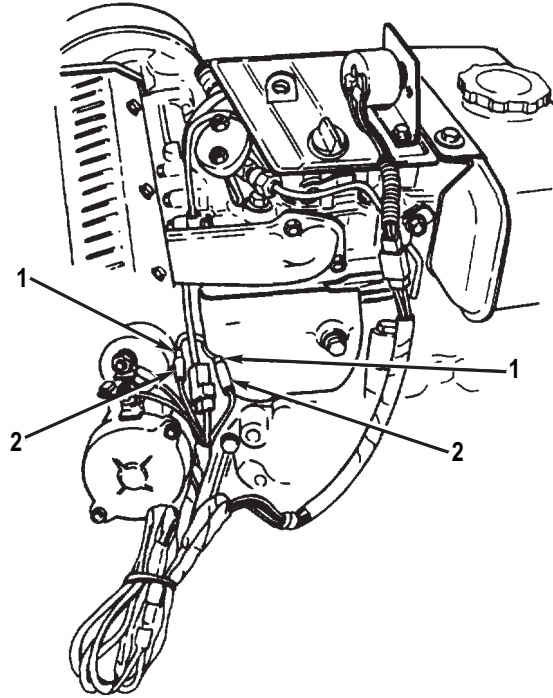


M0181JMS

Figure 4. Stator Assembly Installation.

INSTALLATION - Continued

4. Connect two stator assembly connectors (Figure 5, Item 1) to wiring harness connectors (Figure 5, Item 2).

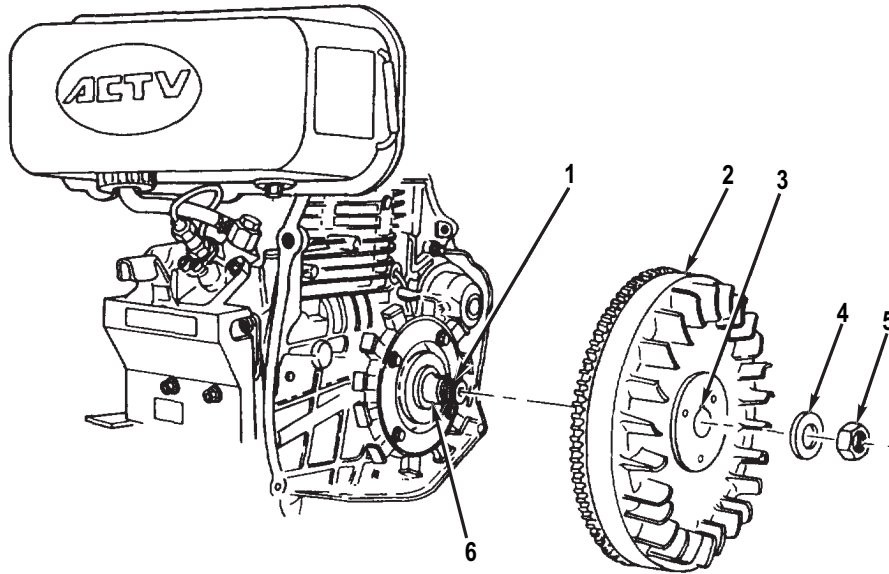


M0180JMS

Figure 5. Stator Assembly Wiring Connection.

INSTALLATION - Continued

5. Position flywheel (Figure 6, Item 2) at crankshaft (Figure 6, Item 6) with flywheel keyway (Figure 6, Item 3) aligned with crankshaft key (Figure 6, Item 1).
6. Install washer (Figure 6, Item 4) and nut (Figure 6, Item 5) on crankshaft (Figure 6, Item 6).
7. Secure flywheel (Figure 6, Item 2) and tighten nut (Figure 6, Item 5). Torque nut to 101-116 lb-ft (137-157 N•m).



M0182JMS

Figure 6. Flywheel Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Install spiral case (WP 0120).
2. Install engine (WP 0110).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE ROCKER ARM COVER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)

References

WP 0128

Equipment Condition

Starter switch assembly removed (WP 0122)

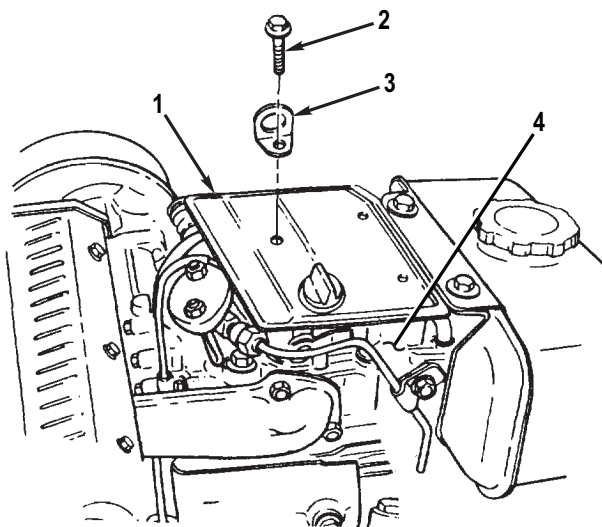
Materials/Parts

Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

Gasket (WP 0168, Item 7) Qty: 1

REMOVAL

1. Remove bolt (Figure 1, Item 2), lifting hook (Figure 1, Item 3), and oil cooler cover (Figure 1, Item 1) from rocker arm cover (Figure 1, Item 4).

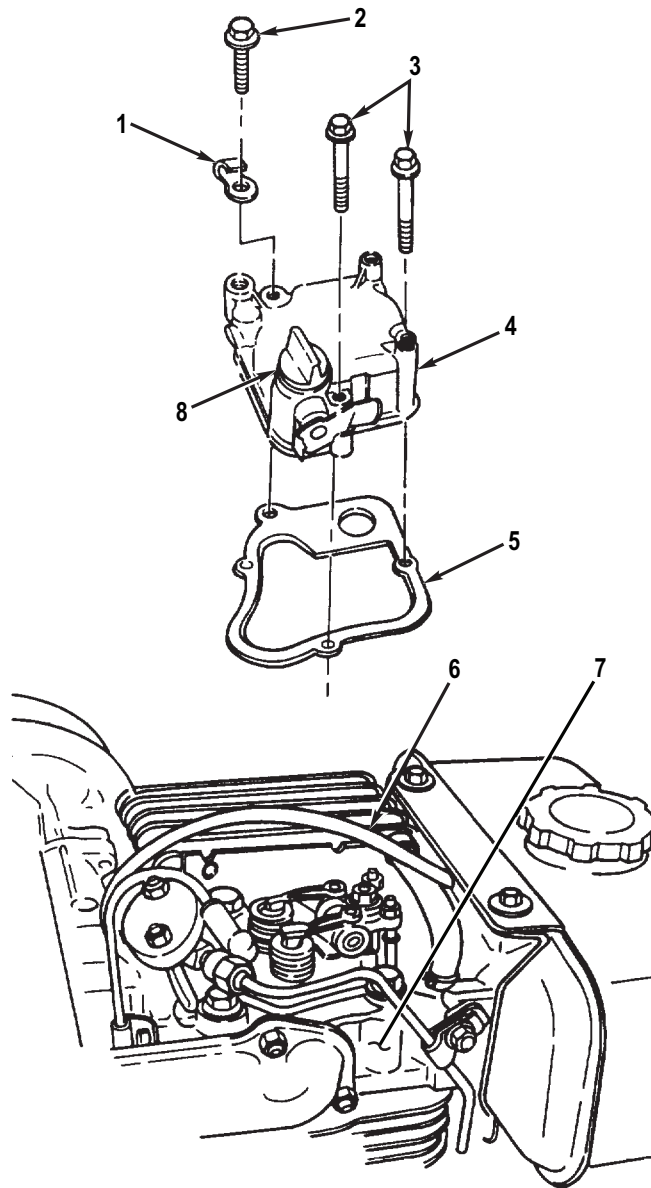


M0183JMS

Figure 1. Oil Cooler Cover Removal.

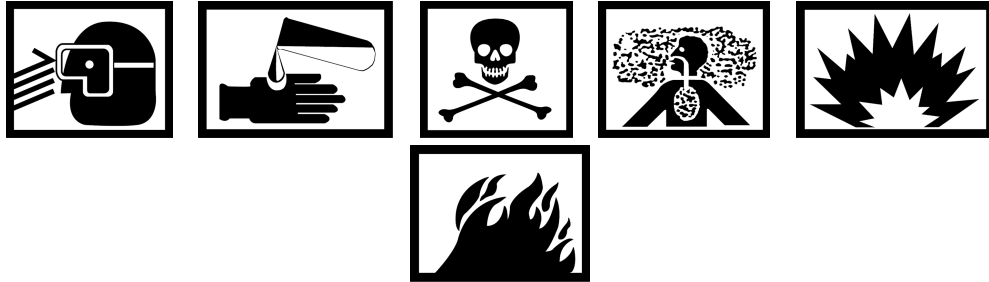
REMOVAL - Continued

2. Remove two bolts (Figure 2, Item 3), bolt (Figure 2, Item 2), clamp (Figure 2, Item 1) with fuel overflow hose (Figure 2, Item 6), rocker arm cover (Figure 2, Item 4), and gasket (Figure 2, Item 5) from cylinder head (Figure 2, Item 7). Discard gasket.
3. If replacing rocker arm cover (Figure 2, Item 4), remove oil filler plug (Figure 2, Item 8) and O-ring from rocker arm cover.

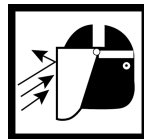


M0184JMS

*Figure 2. Rocker Arm Cover Removal.***END OF TASK**

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

CLEANING - Continued

Clean all removed components IAW General Maintenance Instructions (WP 0128) with cleaning solvent and dry with compressed air. Ensure that gasket mounting surface on rocker arm cover and cylinder head is clean and dry IAW General Maintenance Instructions (WP 0128).

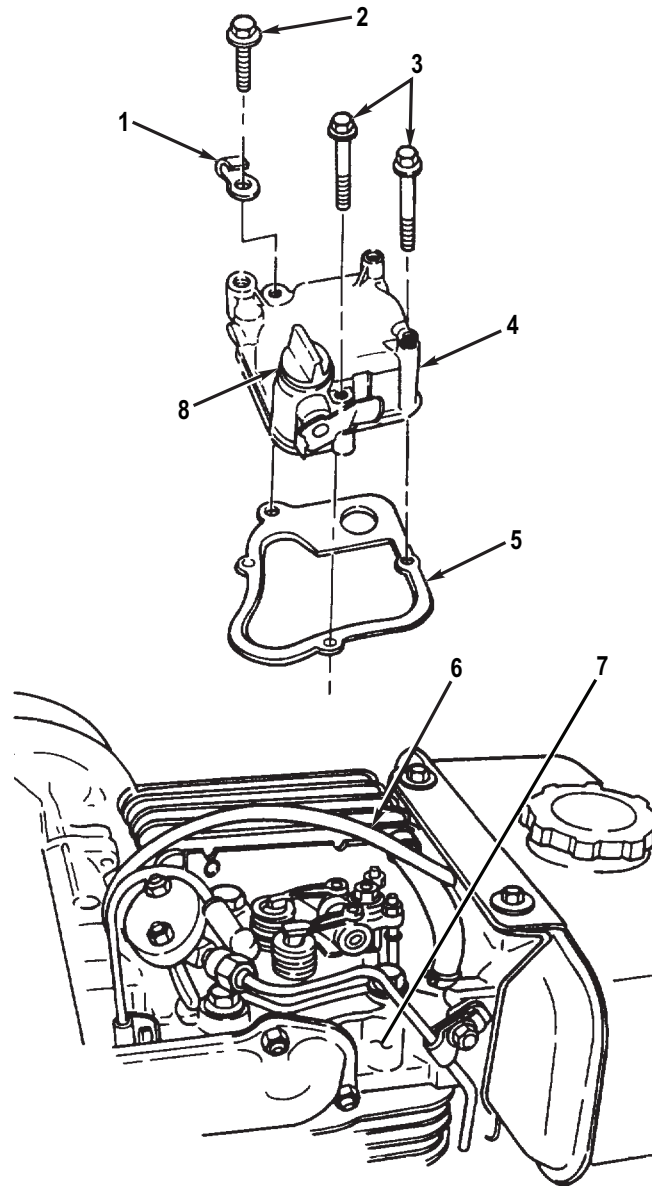
END OF TASK**INSPECTION**

Inspect all removed components for cracks, breaks, bends, corrosion, or other damage IAW General Maintenance Instructions (WP 0128). Replace damaged components.

END OF TASK

INSTALLATION

1. If removed, install oil filler plug (Figure 3, Item 8) and O-ring to rocker arm cover (Figure 3, Item 4).
2. Install new gasket (Figure 3, Item 5) and rocker arm cover (Figure 3, Item 4) on cylinder head (Figure 3, Item 7) with clamp (Figure 3, Item 1) with fuel overflow hose (Figure 3, Item 6), bolt (Figure 3, Item 2) and two bolts (Figure 3, Item 3).

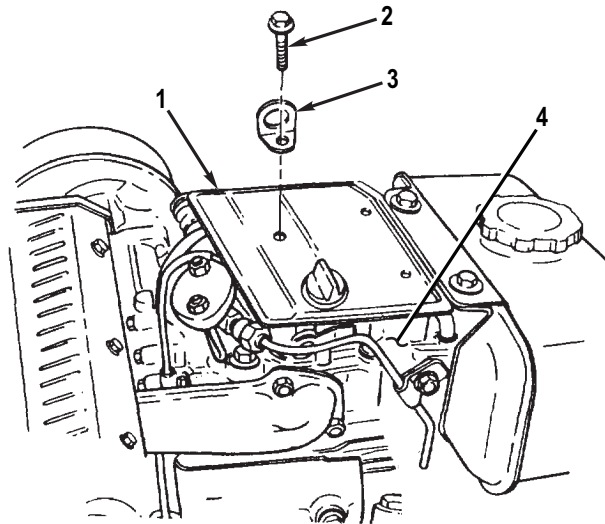


M0184JMS

Figure 3. Rocker Arm Cover Installation.

INSTALLATION - Continued

3. Install oil cooler cover (Figure 4, Item 1), lifting hook (Figure 4, Item 3), and bolt (Figure 4, Item 2) on rocker arm cover (Figure 4, Item 4).



M0183JMS

Figure 4. Oil Cooler Cover Installation.

END OF TASK**FOLLOW-ON TASKS**

Install starter switch assembly (WP 0122).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
OIL COOLER LINES REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Equipment Condition

Oil cooler and rocker arm covers removed (WP 0112)
Fuel tank and stay removed (WP 0118)

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)

References

WP 0005

REMOVAL**WARNING**

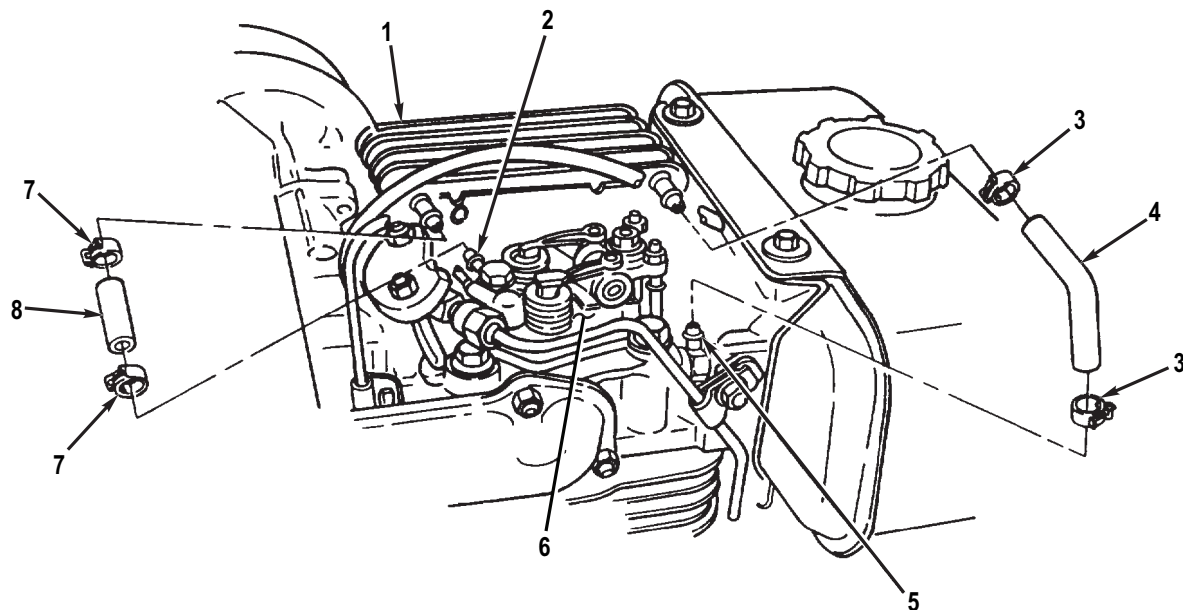
Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

NOTE

- Use rags as required to clean any oil spills.
- 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.
- Refer to local procedures and plans for storage and disposal of any drained fluids.

REMOVAL - Continued

1. Remove two clips (Figure 1, Item 3) and oil tube (Figure 1, Item 4) from oil cooler (Figure 1, Item 1) and joint (Figure 1, Item 5) at side of cylinder head (Figure 1, Item 6).
2. Remove two clips (Figure 1, Item 7) and oil tube (Figure 1, Item 8) from oil cooler (Figure 1, Item 1) and joint (Figure 1, Item 2) at top of cylinder head (Figure 1, Item 6).

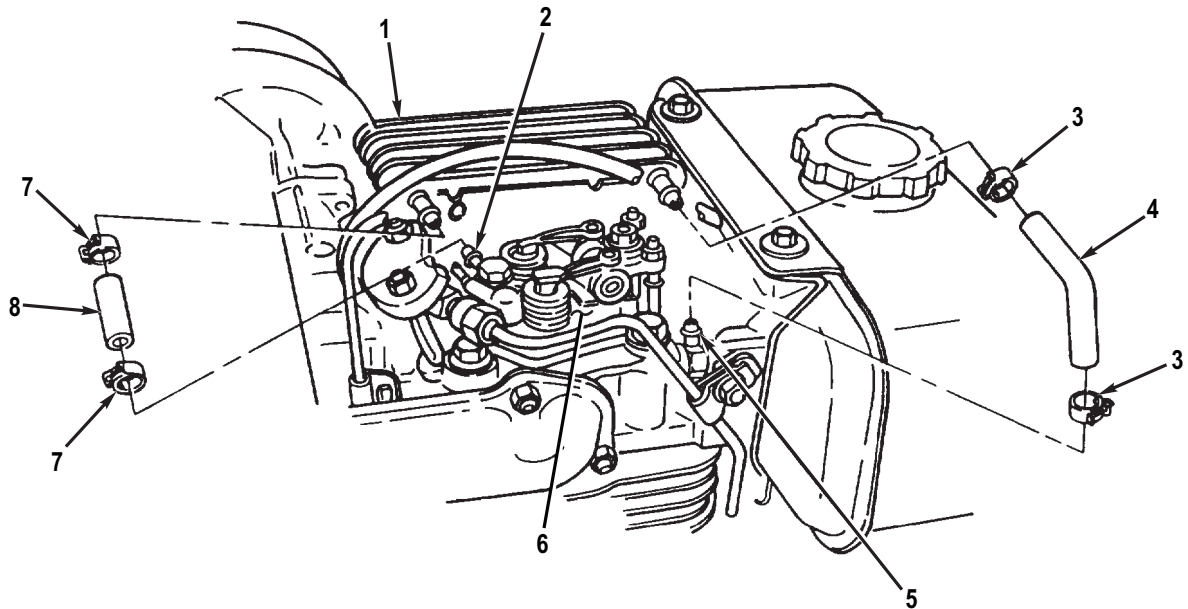


M0190JMS

Figure 1. Oil Cooler Lines Removal.

END OF TASK**INSTALLATION**

1. Install oil pipe (Figure 2, Item 8) and two clips (Figure 2, Item 7) on oil cooler (Figure 2, Item 1) and joint (Figure 2, Item 2).
2. Install oil pipe (Figure 2, Item 4) and two clips (Figure 2, Item 3) on oil cooler (Figure 2, Item 1) and joint (Figure 2, Item 5).

INSTALLATION - Continued

M0190JMS

Figure 2. Oil Cooler Lines Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Install stay and fuel tank (WP 0118).
2. Install oil cooler and rocker arm covers (WP 0112).
3. Start engine (WP 0005) and check for oil leaks.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE CRANKCASE OIL AND OIL FILTER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)

Materials/Parts

Oil: Lubricating, Engine, Arctic, OEA (WP 0197, Table 1, Item 32)
Oil: Lubricating, Engine, OE/HDO 10 (WP 0197, Table 1, Item 35)
Oil: Lubricating, Engine, OE/HDO 30 (WP 0197, Table 1, Item 38)

Materials/Parts (cont.)

Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

References

WP 0128

Equipment Condition

Engine warm
Engine starter switch set to OFF Position (WP 0005)

WARNING



Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

CAUTION

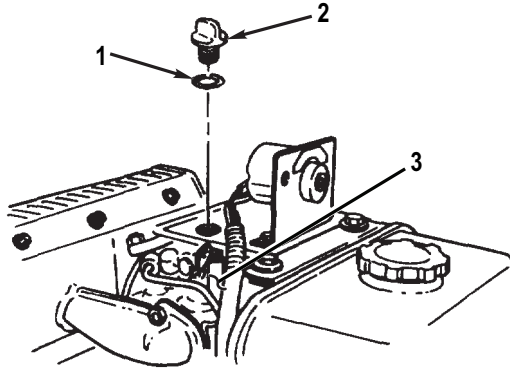
DO NOT allow dirt or dust to enter crankcase. Damage to engine will result.

NOTE

- Perform steps 1 through 5 to drain crankcase oil.
- A suitable container should be used to catch any draining lubricating oil. Ensure that all spills are properly cleaned.
- 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.
- Refer to local procedures and plans for storage and disposal of any drained fluids.
- DO NOT overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir/tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task.

REMOVAL

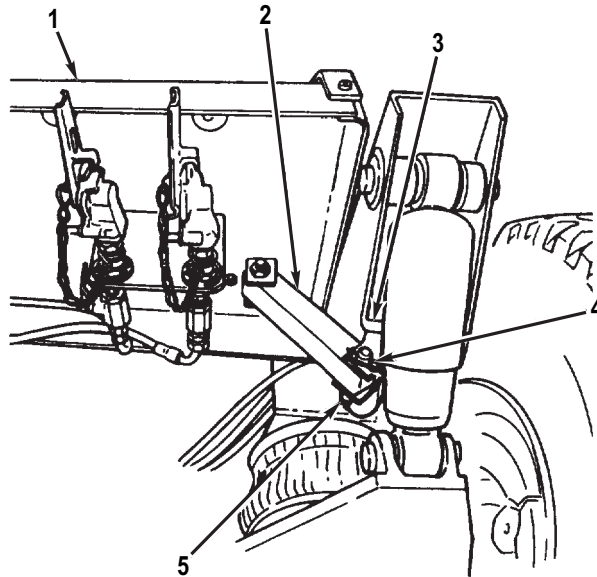
1. Remove oil filler plug (Figure 1, Item 2) and O-ring (Figure 1, Item 1) from rocker arm cover (Figure 1, Item 3).



M0185JMS

Figure 1. Oil Filler Plug Removal.

2. Remove safety pin (Figure 2, Item 4) and hitch pin (Figure 2, Item 5) and unlock pivoting tray lockout brace (Figure 2, Item 2) from lower bracket (Figure 2, Item 3). Tip pivoting tray (Figure 2, Item 1) so that front edge is facing downward.

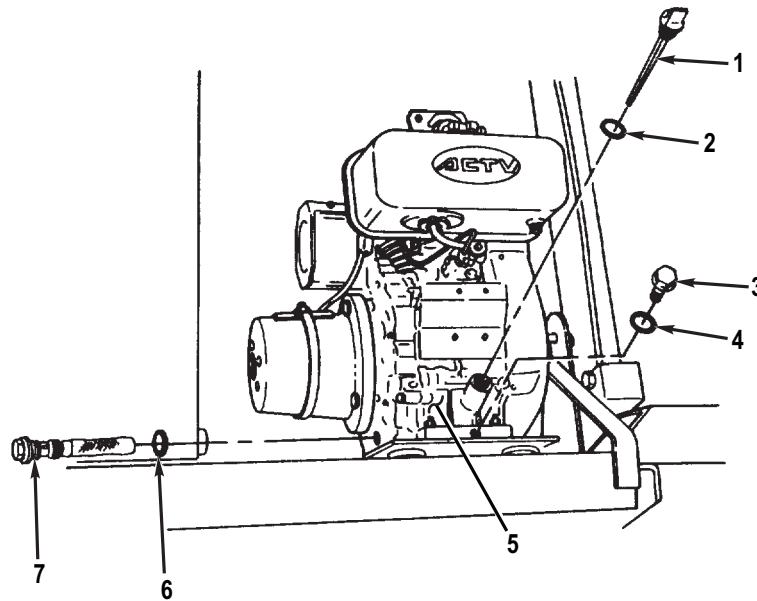


M0186JMS

Figure 2. Pivoting Tray Lockout Brace Removal.

REMOVAL - Continued

3. Loosen drain plug (Figure 3, Item 3).
4. Remove drain plug (Figure 3, Item 3) and gasket (Figure 3, Item 4) from crankcase (Figure 3, Item 5). Drain lubricating oil into a suitable container.
5. Inspect drain plug (Figure 3, Item 3) and gasket (Figure 3, Item 4) for damage. If okay, install on crankcase (Figure 3, Item 5). If damaged, install new gasket and new drain plug on crankcase.
6. Remove dipstick (Figure 3, Item 1) and O-ring (Figure 3, Item 2) from crankcase (Figure 3, Item 5).
7. Remove oil filter (Figure 3, Item 7) and preformed packing (Figure 3, Item 6) from crankcase (Figure 3, Item 5).



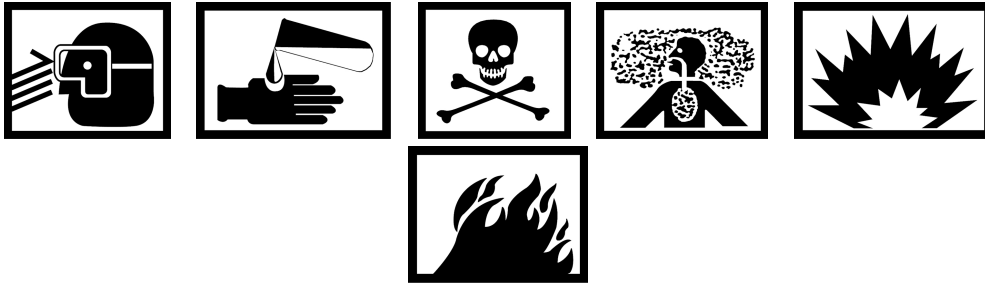
M0187JMS

Figure 3. Crankcase Oil and Filter Removal.

END OF TASK

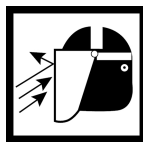
CLEANING

WARNING



- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING



Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

CLEANING - Continued

Clean oil filter, dipstick, oil filler plug, O-rings, and preformed packing with cleaning solvent and dry with compressed air IAW General Maintenance Instructions (WP 0128) .

END OF TASK**INSPECTION**

1. Inspect O-rings and preformed packings for damage. Replace damaged O-rings and preformed packings IAW General Maintenance Instructions (WP 0128) .
2. Inspect oil filter, dipstick, and oil filler plug for cracks, breaks, bends, or damaged threads IAW General Maintenance Instructions (WP 0128) . Replace damaged components.

END OF TASK

INSTALLATION**NOTE**

Preformed packing and O-rings should be lightly coated with lubricating oil before installation.

1. Install preformed packing (Figure 4, Item 7) and oil filter (Figure 4, Item 8) on crankcase (Figure 4, Item 6).
2. Install O-ring (Figure 4, Item 5) and dipstick (Figure 4, Item 4) in crankcase (Figure 4, Item 6).

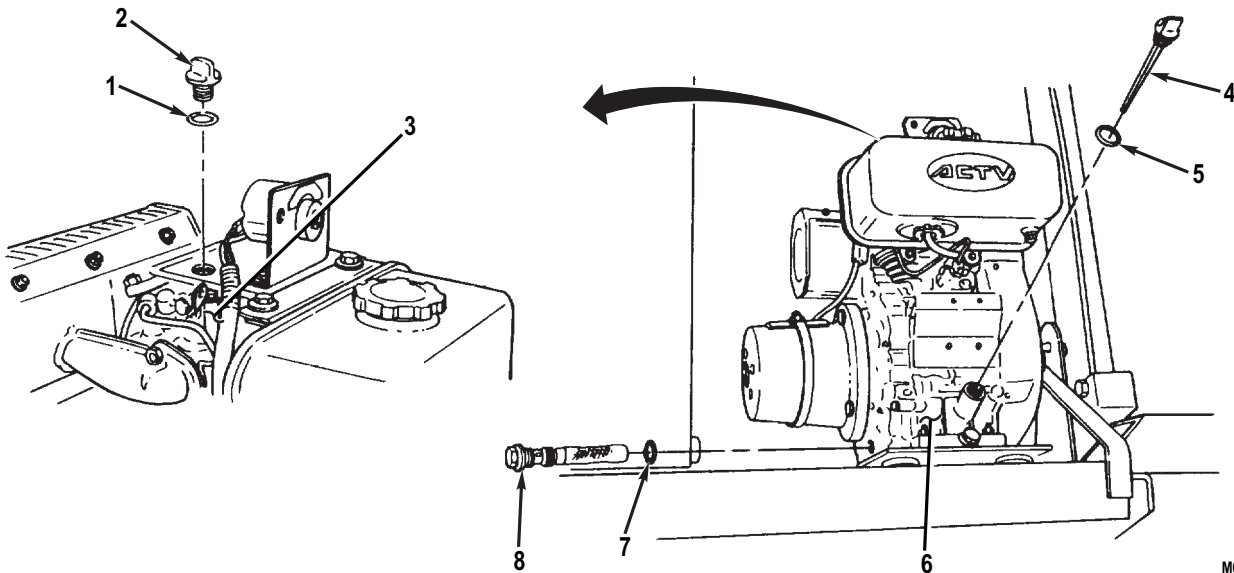
CAUTION

DO NOT overfill engine crankcase. Damage to engine will result.

NOTE

Capacity of crankcase is 1.37 qt (1.30 L).

3. Fill crankcase (Figure 4, Item 6) with lubricating oil through filler plug (Figure 4, Item 2) opening.
4. Remove dipstick (Figure 4, Item 4) from crankcase (Figure 4, Item 6) and clean with a clean rag.
5. Install dipstick (Figure 4, Item 4) in crankcase (Figure 4, Item 6). Remove dipstick and check level of lubricating oil on dipstick-oil level must show on dipstick. Oil level is FULL if oil coats threads of dipstick.
6. Add lubricating oil as required until reading on dipstick (Figure 4, Item 4) is as specified in step 5.
7. Install O-ring (Figure 4, Item 1) and filler plug (Figure 4, Item 2) on rocker arm cover (Figure 4, Item 3).

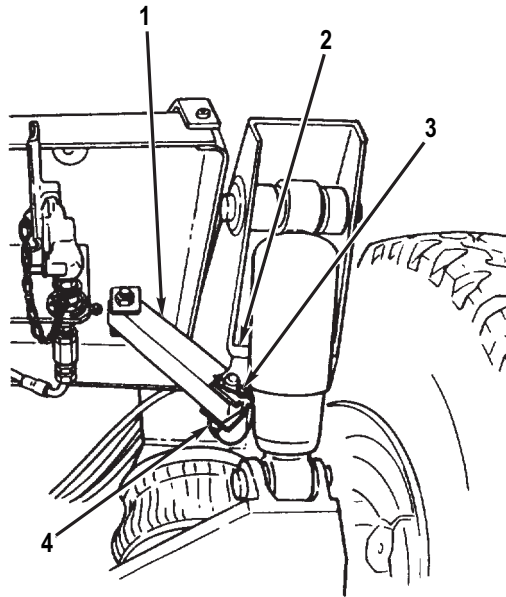


M0188JMS

Figure 4. Crankcase Oil and Filter Installation.

INSTALLATION - Continued

8. Lock pivoting tray lockout brace (Figure 5, Item 1) on lower bracket (Figure 5, Item 2) with hitch pin (Figure 5, Item 4) and safety pin (Figure 5, Item 3).



M0189JMS

Figure 5. Pivoting Tray Lockout Brace Installation.

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE INJECTION PUMP MAINTENANCE

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Wrench, Torque: 3/8 in. drive, 0-300 lb-in capacity (WP 0198, Table 1, Item 43)

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

References

WP 0005
WP 0120

Equipment Condition

Negative (-) ground cable disconnected from battery (rear dolly) (WP 0042)
Engine removed (front dolly) (WP 0110)
Fuel tank removed (WP 0118)
Injection pipe removed (WP 0118)

Personnel Required

(Two)

REMOVAL**WARNING**

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

WARNING

Diesel fuel is combustible. DO NOT smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention immediately in the event of an injury.

REMOVAL - Continued**NOTE**

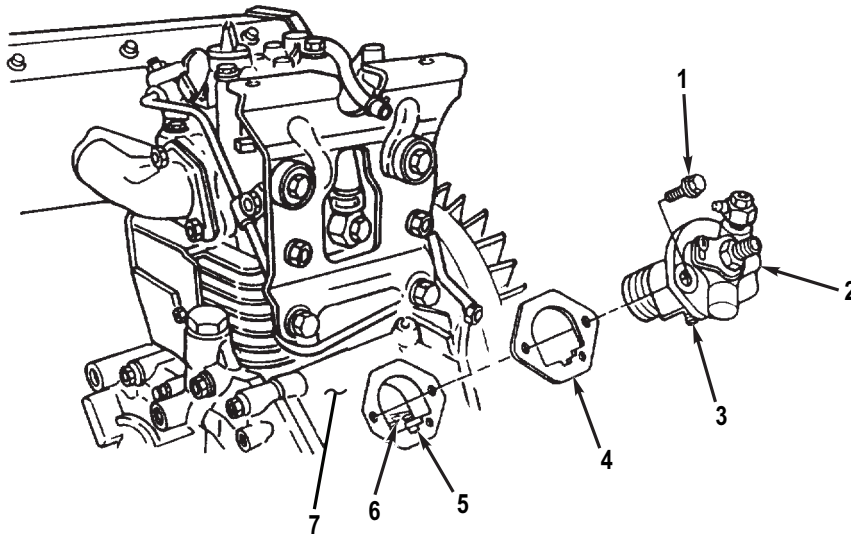
- Use rags as required to clean any fuel spills.
- Refer to local procedures and plans for responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and spilled fluids.
- Refer to local procedures and plans for storage and disposal of any drained fluids.
- DO NOT overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task.

1. Remove two flange bolts (Figure 1, Item 1) from injection pump (Figure 1, Item 2) and crankcase (Figure 1, Item 7).
2. Align control rack pin (Figure 1, Item 3) with notch (Figure 1, Item 5) in crankcase (Figure 1, Item 7) and remove injection pump (Figure 1, Item 2).

NOTE

Note quantity of shim(s) to aid during installation.

3. Remove shim(s) (Figure 1, Item 4) from crankcase (Figure 1, Item 7).



M0191JMS

Figure 1. Injection Pump Removal.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Clean injection pump mounting surface of crankcase with a rag dipped in cleaning solvent IAW General Maintenance Instructions (WP 0128). Ensure that mounting surface is clean and dry.

END OF TASK**INSTALLATION**

1. Install shim(s) (Figure 1, Item 4) on crankcase (Figure 1, Item 7).
2. Position injection pump (Figure 1, Item 2) at crankcase (Figure 1, Item 7) with control rack pin (Figure 1, Item 3) firmly inserted into groove of fork lever (Figure 1, Item 6).
3. Install two flange bolts (Figure 1, Item 1) to injection pump (Figure 1, Item 2) and crankcase (Figure 1, Item 7). Evenly torque flange bolts to 84-96 lb-in. (9-11 N•m).

INSTALLATION - Continued

4. Check timing adjustment (see Timing Adjustment in this work package).

END OF TASK**TIMING ADJUSTMENT****NOTE**

Assistance is required to check timing.

1. Install injection pipe (Figure 2, Item 5). Leave end at nozzle holder (Figure 2, Item 6) disconnected (Engine Fuel Tank Maintenance (WP 0118)).

NOTE

DO NOT overfill any fluid reservoir/tank. If a fluid starts to flow out of reservoir/tank, stop immediately to avoid spillage. Immediately clean up spilled fluid before proceeding with any task.

2. Install fuel tank and fill (Engine Fuel Tank Maintenance (WP 0118)).
3. Remove spiral case (Engine Cowling Deflectors, Air Ducts, and Shrouds Replacement (WP 0120)).
4. Set engine speed control lever to HIGH START (Operation Under Usual Conditions (WP 0005)).
5. Turn flywheel (Figure 2, Item 1) clockwise to check for fuel leaking from tip of injection pipe (Figure 2, Item 5).
6. Slowly turn flywheel (Figure 2, Item 1) clockwise. Immediately stop when fuel flow at tip of injection pipe (Figure 2, Item 5) increases.
7. Check timing marks on cylinder fins (Figure 2, Item 3) and flywheel (Figure 2, Item 1). Timing mark (Figure 2, Item 2) on cylinder fins must be aligned with timing mark F (Figure 2, Item 4) on flywheel.

NOTE

Adding one shim will advance timing mark F on flywheel by approximately 1.0-1.5 degrees.

8. If timing is not correct, adjust by adding or removing shims.
9. Connect injection pipe (Figure 2, Item 5) to nozzle holder (Figure 2, Item 6).
10. Install spiral case (Engine Cowling Deflectors, Air Ducts, and Shrouds Replacement (WP 0120)).
11. Set engine speed control lever to LOW (Operation Under Usual Conditions (WP 0005)).

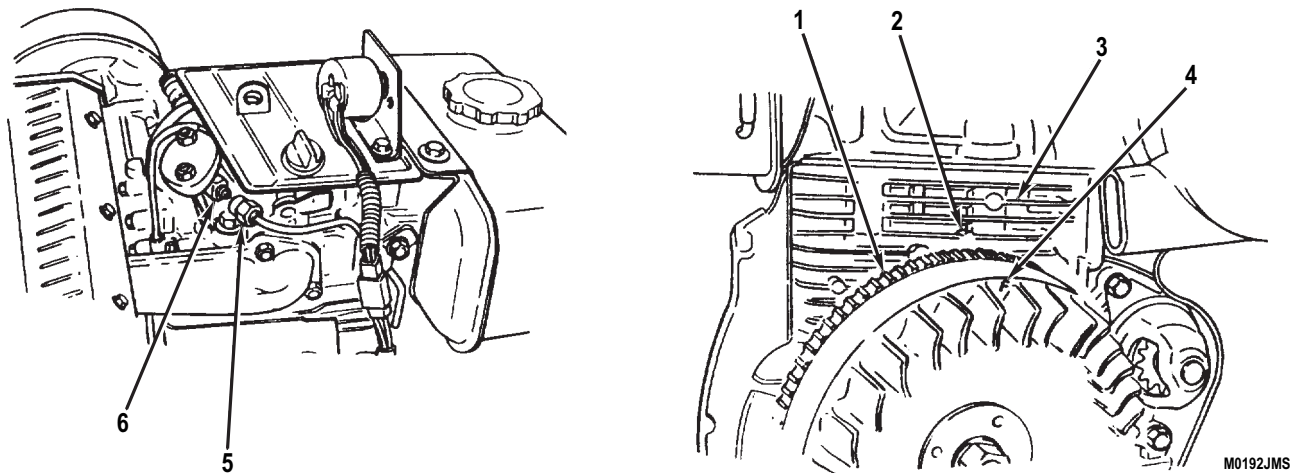
TIMING ADJUSTMENT - Continued

Figure 2. Injection Pump Timing.

END OF TASK**FOLLOW-ON TASKS**

1. Install engine (front dolly) (WP 0110).
2. Connect negative (-) ground cable to battery (rear dolly) (WP 0042).
3. Start engine and check for fuel leaks (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
NOZZLE HOLDER MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Stud Remover and Inserter: wedge type
(WP 0198, Table 1, Item 27)
Wrench, Torque: 3/8 in. drive, 0-300 lb-in. capacity
(WP 0198, Table 1, Item 43)

References

WP 0005

Equipment Condition

Negative (-) ground cable disconnected from battery (WP 0042)
Oil cooler cover removed (WP 0112)

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)

REMOVAL**WARNING**

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

WARNING

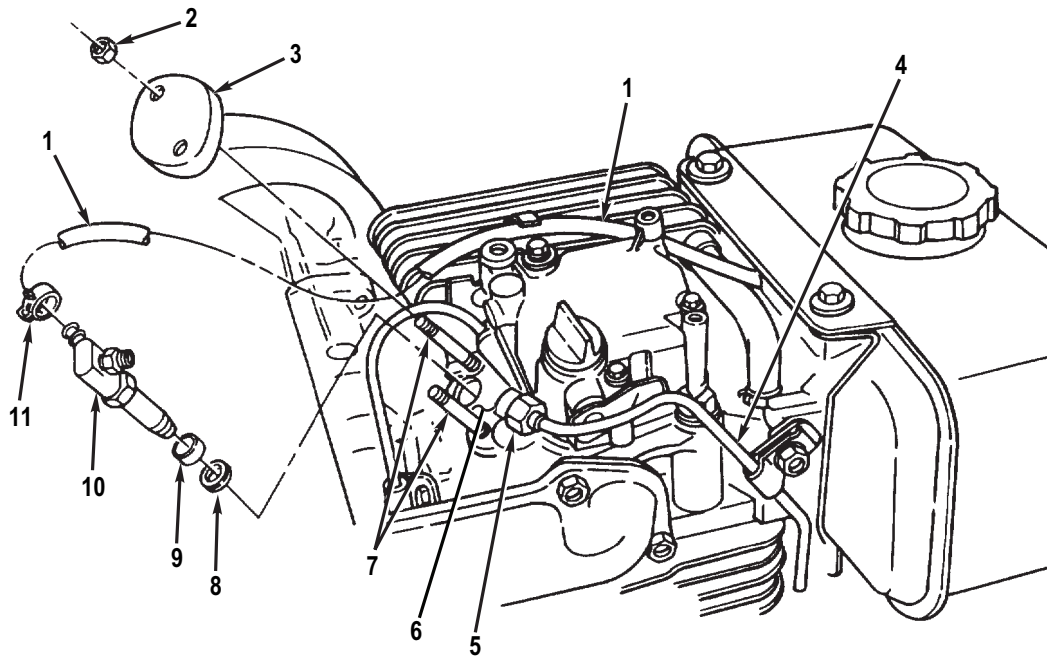
Diesel fuel is combustible. DO NOT smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention immediately in the event of an injury.

NOTE

- Use rags as required to clean any fuel spills.
- 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 - Continued

1. Loosen nut (Figure 1, Item 5) and disconnect injection pipe (Figure 1, Item 4) from nozzle holder (Figure 1, Item 10).
2. Slide back clip (Figure 1, Item 11) and disconnect overflow hose (Figure 1, Item 1) from nozzle holder (Figure 1, Item 10).
3. Remove two nuts (Figure 1, Item 2) and nozzle retainer (Figure 1, Item 3) from nozzle holder (Figure 1, Item 10).
4. Remove nozzle holder (Figure 1, Item 10), heat seal (Figure 1, Item 9) (if present), and copper gasket (Figure 1, Item 8) from cylinder head (Figure 1, Item 6). Inspect copper gasket for damage. Replace only if damaged.
5. If damaged, remove two studs (Figure 1, Item 7) from cylinder head (Figure 1, Item 6).



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*Figure 1. Nozzle Holder Removal.***END OF TASK**

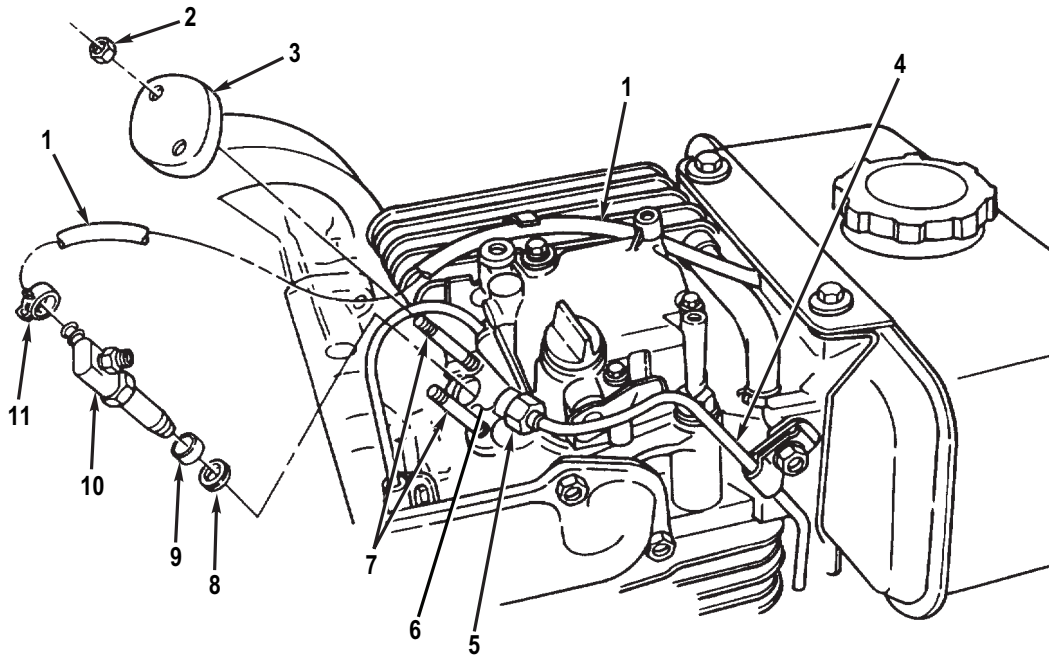
INSTALLATION

1. If removed, install two studs (Figure 2, Item 7) on cylinder head (Figure 2, Item 6).

NOTE

Heat seal is required if OC60D1 engine nozzle holder is being replaced with an OC60E1 engine nozzle holder.

2. Install copper gasket (Figure 2, Item 8), heat seal (Figure 2, Item 9) (if required), and nozzle holder (Figure 2, Item 10) on cylinder head (Figure 2, Item 6).
3. Install nozzle retainer (Figure 2, Item 3) over nozzle holder (Figure 2, Item 10) with two nuts (Figure 2, Item 2). Evenly torque nuts to 120-156 lb-in. (14-18 N•m).
4. Connect overflow hose (Figure 2, Item 1) to nozzle holder (Figure 2, Item 10) with clip (Figure 2, Item 11).
5. Connect injection pipe (Figure 2, Item 4) to nozzle holder (Figure 2, Item 10) and tighten nut (Figure 2, Item 5).



M0193JMS

Figure 2. Nozzle Holder Installation.

END OF TASK

FOLLOW-ON TASKS

1. Connect negative (-) ground cable to battery (WP 0042).
2. Start and engine and check for fuel leaks (WP 0005).
3. Install oil cooler cover (WP 0112).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
AIR CLEANER MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

Materials/Parts (cont.)

Element (WP 0171, Item 4) Qty: 1
Gasket (WP 0171, Item 10) Qty: 1

References

WP 0101
WP 0128

Equipment Condition

Engine starter switch set to OFF position
(WP 0005)

WARNING

If CBRN exposure is suspected, all engine air cleaner air filter media should be handled by personnel wearing protective equipment. Consult your CBRN Officer or CBRN NCO for appropriate handling or disposal procedures. Seek medical attention in the event of an injury.

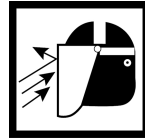
ELEMENT REPLACEMENT

1. Remove any accumulated sand or dust from exterior of cover (Figure 1, Item 3).
2. Remove wingbolt (Figure 1, Item 6) and cover (Figure, Item 3) from body (Figure, Item 1).
3. If damaged, remove washer (Figure 1, Item 5) and packing (Figure 1, Item 2) from cover (Figure 1, Item 3).
4. If damaged, remove label (Figure 1, Item 4) (Decal Replacement (WP 0101)).
5. Remove element (Figure 1, Item 7) from body (Figure 1, Item 1) and discard.

WARNING

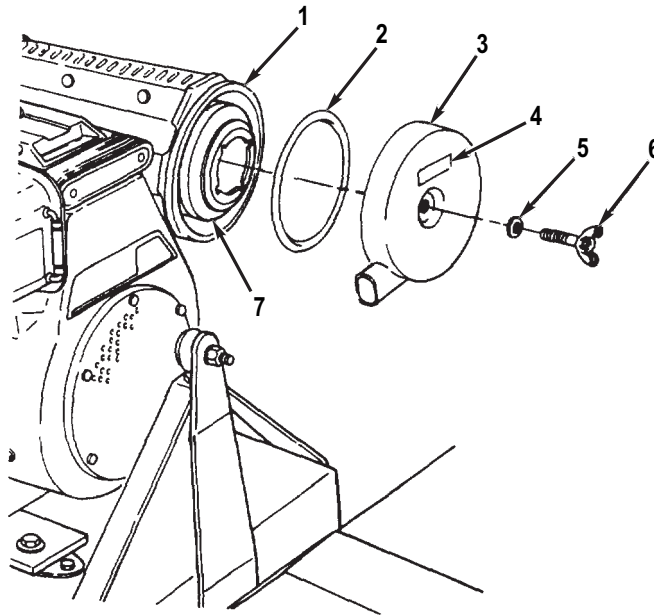


- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use protective gloves and eye protection. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

ELEMENT REPLACEMENT - Continued**WARNING**

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

6. Clean body (Figure 1, Item 1), cover (Figure 1, Item 3), and wingbolt (Figure 1, Item 6) with a clean rag. Use a rag dipped in cleaning solvent to remove stubborn dirt and grease. Dry thoroughly with compressed air.
7. Install new element (Figure 1, Item 7) in body (Figure 1, Item 1).
8. If removed, install washer (Figure 1, Item 5) and packing (Figure 1, Item 2) on cover (Figure 1, Item 3).
9. If removed, install label (Figure 1, Item 4) (Decal Replacement (WP 0101)).
10. Install cover (Figure 1, Item 3) over element (Figure 1, Item 7) with wingbolt (Figure 1, Item 6). Tighten wingbolt finger tight.



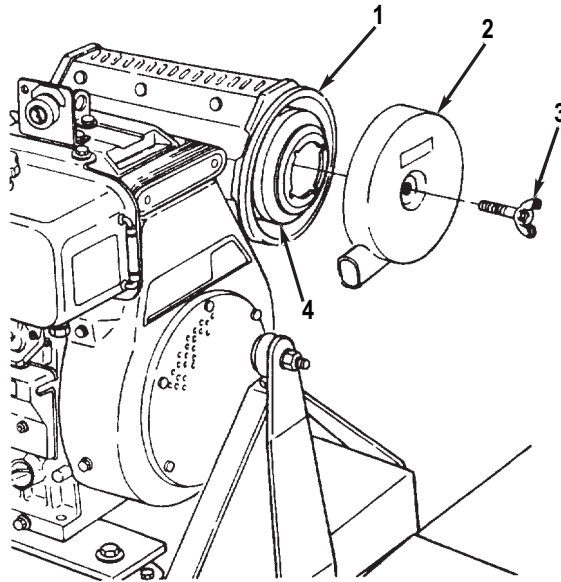
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Figure 1. Element Replacement.

END OF TASK

REMOVAL

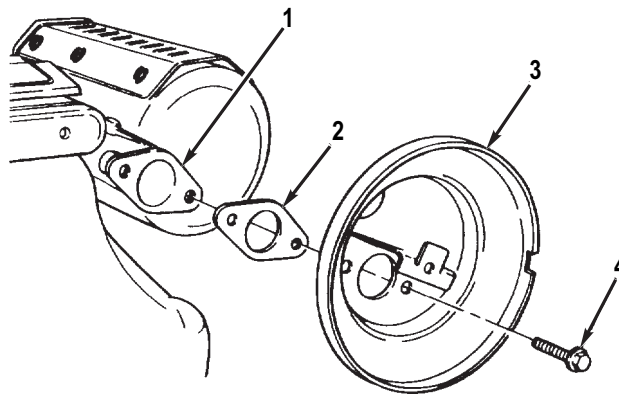
1. Remove wingbolt (Figure 2, Item 3), cover (Figure 2, Item 2), and element (Figure 2, Item 4) from body (Figure 2, Item 1).



M0198JMS

Figure 2. Air Cleaner Removal.

2. Remove two flange bolts (Figure 3, Item 4), body (Figure 3, Item 3), and gasket (Figure 3, Item 2) from air cleaner flange (Figure 3, Item 1). Discard gasket.



M0199JMS

Figure 3. Air Cleaner Flange Removal.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

Clean air cleaner flange with a rag dipped in cleaning solvent to remove all traces of gasket material. Dry mounting surface thoroughly with compressed air IAW General Maintenance Instructions (WP 0128).

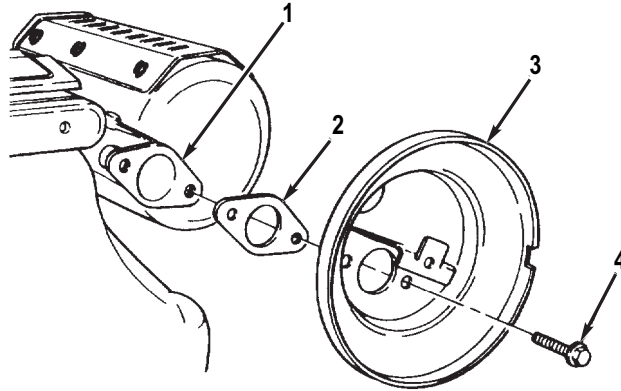
END OF TASK**INSPECTION**

Inspect all removed components for damage. Replace damaged components IAW General Maintenance Instructions (WP 0128).

END OF TASK

INSTALLATION

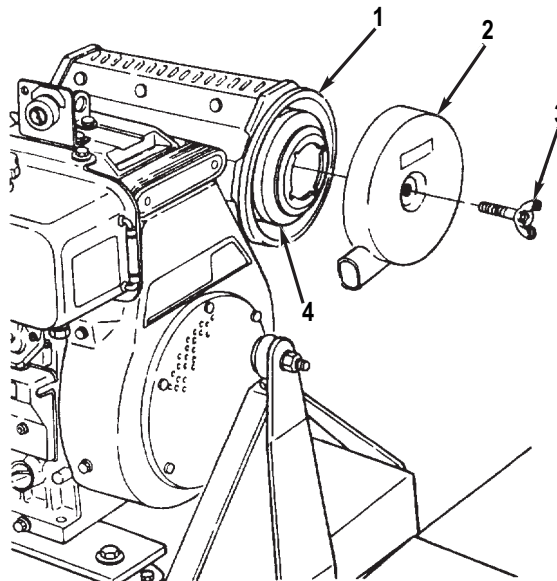
1. Install new gasket (Figure 4, Item 2) and body (Figure 4, Item 3) on air cleaner flange (Figure 4, Item 1) with two flange bolts (Figure 4, Item 4).



M0199JMS

Figure 4. Air Cleaner Flange Installation.

2. Install element (Figure 5, Item 4) in body (Figure 5, Item 1).
3. Install cover (Figure 5, Item 2) over element (Figure 5, Item 4) with wingbolt (Figure 5, Item 3). Tighten wingbolt finger tight.



M0198JMS

Figure 5. Air Cleaner Installation.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
FUEL TANK MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Compressor Unit, Reciprocating (WP 0198, Table 1, Item 4)

Materials/Parts

Fuel, Diesel: Df-2 Grade (WP 0197, Table 1, Item 20)
Fuel, Diesel: Df-A Grade (WP 0197, Table 1, Item 23)

Materials/Parts (cont.)

Rag: Wiping (WP 0197, Table 1, Item 42)
Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

References

WP 0101
WP 0112
WP 0128

Equipment Condition

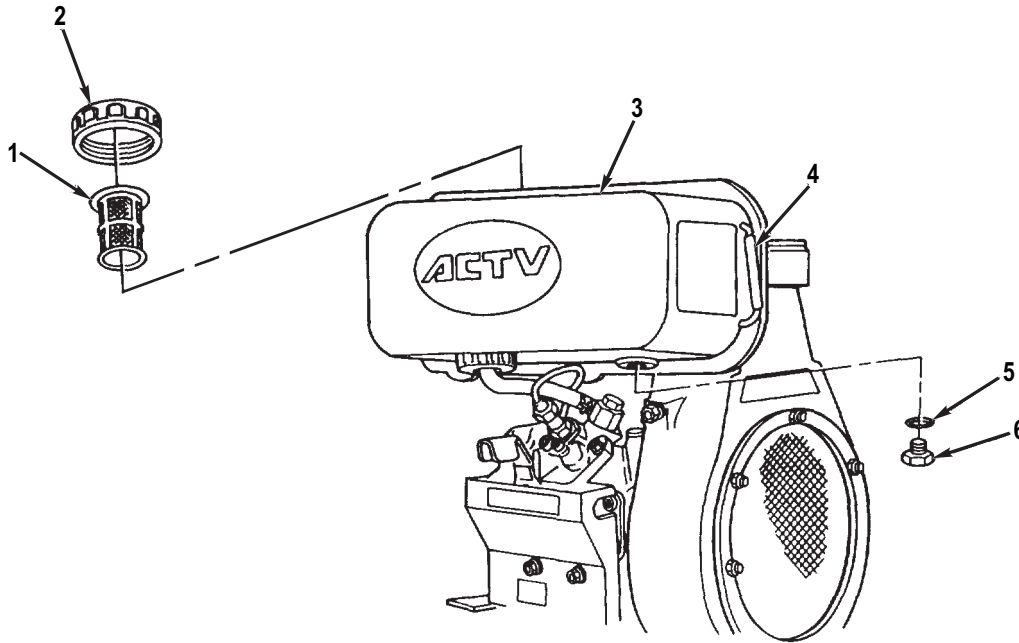
Negative (-) ground cable disconnected from battery (WP 0042)
Engine starter switch set to OFF position (WP 0005)

FUEL FILTER AND STRAINER REMOVAL**WARNING**

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

FUEL FILTER AND STRAINER REMOVAL - Continued

1. Remove cap (Figure 1, Item 2), drain plug (Figure 1, Item 6), and copper gasket (Figure 1, Item 5) from fuel tank (Figure 1, Item 3). Drain fuel into a suitable container.
2. Remove strainer (Figure 1, Item 1) from fuel tank (Figure 1, Item 3). Install cap (Figure 1, Item 2) on fuel tank.

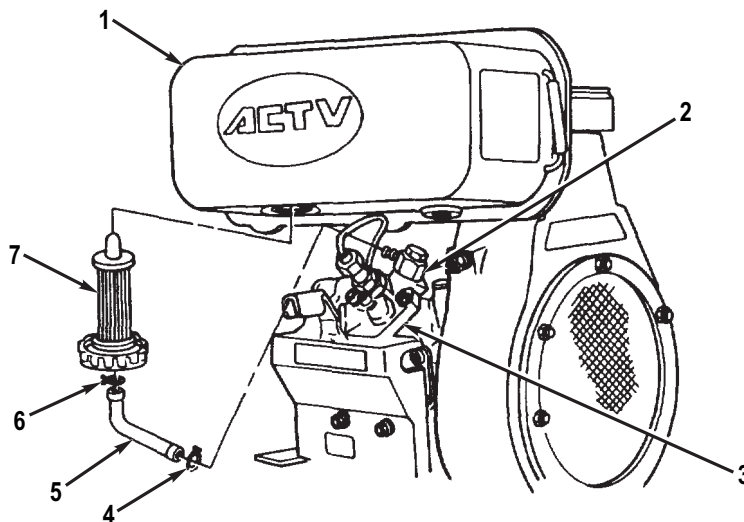


M0200JMS

Figure 1. Fuel Strainer Removal.

FUEL FILTER AND STRAINER REMOVAL - Continued

3. Slide back clip (Figure 2, Item 4) and disconnect fuel hose (Figure 2, Item 5) from joint (Figure 2, Item 2) at injection pump (Figure 2, Item 3).
4. Remove fuel filter (Figure 2, Item 7) with fuel hose (Figure 2, Item 5) from fuel tank (Figure 2, Item 1).
5. Slide back clip (Figure 2, Item 6) and remove fuel hose (Figure 2, Item 5) from fuel filter (Figure 2, Item 7).



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*Figure 2. Fuel Filter Removal.***END OF TASK**

FUEL TANK DRAINING**WARNING**

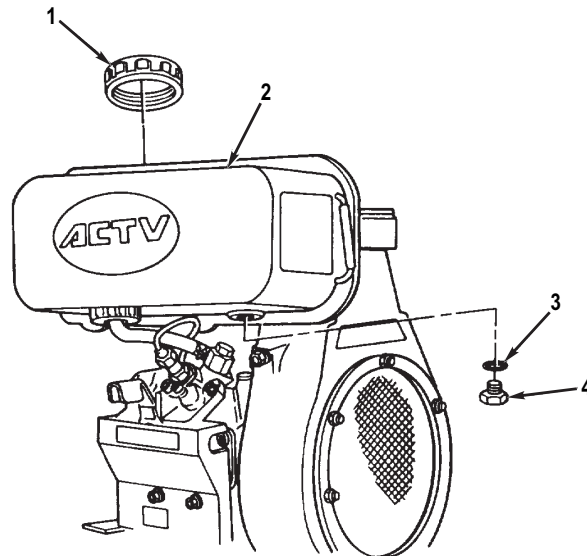
Diesel fuel is combustible. **DO NOT** smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention immediately in the event of an injury.

CAUTION

DO NOT allow dirt or dust to enter fuel tank. Damage to engine fuel system will result.

NOTE

- A suitable container should be used to catch any draining fuel. Ensure that all spills are properly cleaned.
 - Use rags as required to clean up any fuel spills.
 - A small amount of fuel may remain in fuel tank.
 - Refer to local procedures and plans for storage and disposal of any drained fluids.
1. Remove cap (Figure 3, Item 1) drain plug (Figure 3, Item 4), and copper gasket (Figure 3, Item 3) from fuel tank (Figure 3, Item 2). Drain fuel into a suitable container.
 2. Install cap (Figure 3, Item 1) on fuel tank (Figure 3, Item 2).



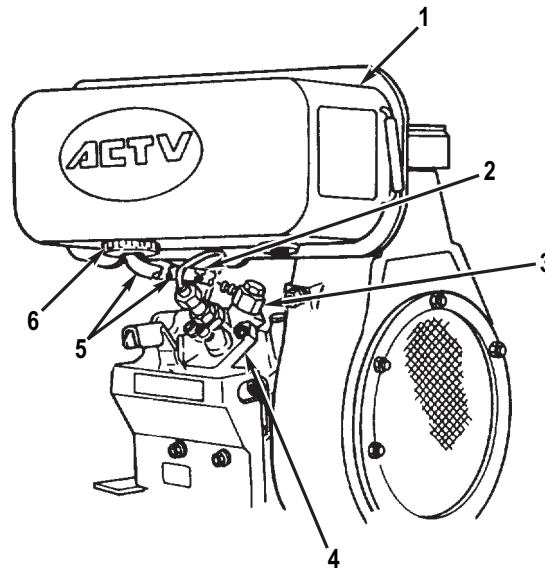
M0202JMS

Figure 3. Fuel Tank Draining.

END OF TASK

FUEL TANK REMOVAL

1. Remove oil cooler cover to gain better access to remove fuel tank (Figure 4, Item 1) (Rocker Arm Cover Replacement (WP 0112)).
2. Slide back clip (Figure 4, Item 2) and disconnect fuel hose (Figure 4, Item 5) from joint (Figure 4, Item 3) at injection pump (Figure 4, Item 4).
3. Remove fuel filter (Figure 4, Item 6) with fuel hose (Figure 4, Item 5) from fuel tank (Figure 4, Item 1).

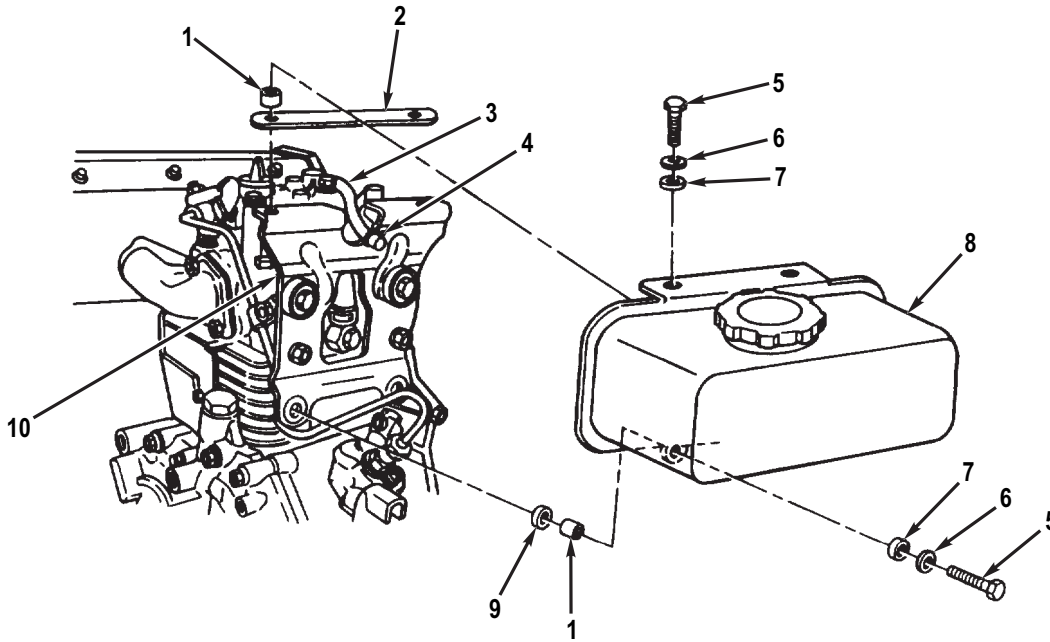


M0203JMS

Figure 4. Fuel Filter and Hose Removal.

FUEL TANK REMOVAL - Continued

4. Remove four bolts (Figure 5, Item 5), washers (Figure 5, Item 6), and cushions (Figure 5, Item 7) from fuel tank (Figure 5, Item 8).
5. Pull fuel tank (Figure 5, Item 8) away from stay (Figure 5, Item 10) to gain access to overflow hose (Figure 5, Item 3). Slide back clip (Figure 5, Item 4) and disconnect overflow hose from fuel tank.
6. Remove fuel tank (Figure 5, Item 8), four collars (Figure 5, Item 1), cushion (Figure 5, Item 2), and two cushions (Figure 5, Item 6) from stay (Figure 5, Item 10).

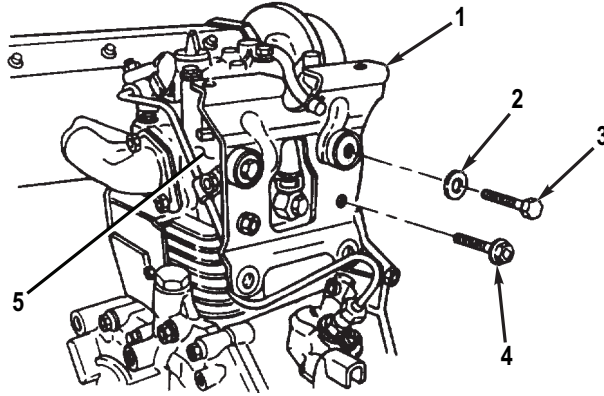


M0204JMS

Figure 5. Fuel Tank Removal.

FUEL TANK REMOVAL - Continued

7. If stay (Figure 6, Item 1) is damaged, remove two flange bolts (Figure 6, Item 4) from stay and cylinder head (Figure 6, Item 5). Remove two bolts (Figure 6, Item 3), washers (Figure 6, Item 2), and stay from cylinder head.



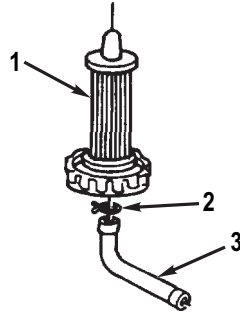
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Figure 6. Fuel Tank Stay Removal.

END OF TASK

FUEL TANK DISASSEMBLY

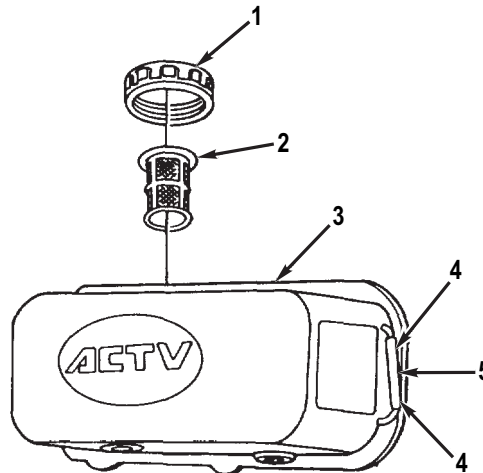
1. Slide back clip (Figure 7, Item 2) and remove fuel hose (Figure 7, Item 3) from fuel filter (Figure 7, Item 1).



M0206JMS

Figure 7. Fuel Hose and Filter Disassembly.

2. Remove cap (Figure 8, Item 1) and strainer (Figure 8, Item 2) from fuel tank (Figure 8, Item 3).
3. Slide back two clips (Figure 8, Item 4) and remove fuel indicator (Figure 8, Item 5) from fuel tank (Figure 8, Item 3).



M0207JMS

Figure 8. Fuel Strainer and Fuel Indicator Disassembly.

END OF TASK

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
1. Clean all removed metal components in cleaning solvent and dry with compressed air IAW General Maintenance Instructions (WP 0128).

CAUTION

Handle fuel filter with care. Rough handling will cause damage.

2. Clean fuel filter with compressed air IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSPECTION**

1. Inspect all removed components for cracks, breaks, holes, tears, or damaged threads. Replace damaged components IAW General Maintenance Instructions (WP 0128).

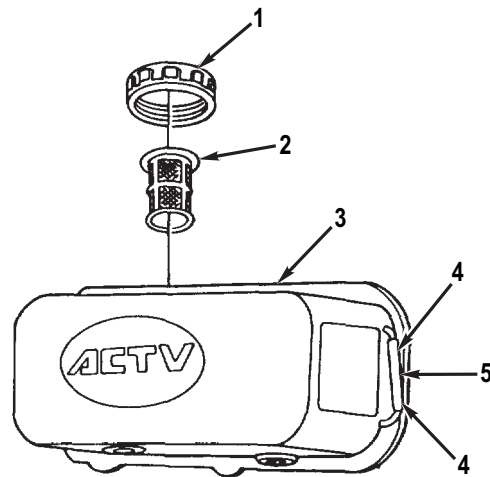
INSPECTION - Continued

2. Inspect fuel tank for missing or illegible labels. Replace damaged labels (Decal Replacement (WP 0101)).
3. Inspect copper gasket for damage. Replace damaged copper gasket.

END OF TASK

FUEL TANK ASSEMBLY

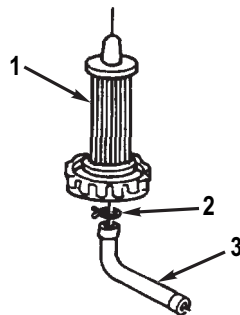
1. Install fuel indicator (Figure 9, Item 5) on fuel tank (Figure 9, Item 3) with two clips (Figure 9, Item 4).
2. Install strainer (Figure 9, Item 2) and cap (Figure 9, Item 1) on fuel tank (Figure 9, Item 3).



M0207JMS

Figure 9. Fuel Strainer and Fuel Indicator Assembly.

3. Install fuel hose (Figure 10, Item 3) on fuel filter (Figure 10, Item 1) with clip (Figure 10, Item 2).



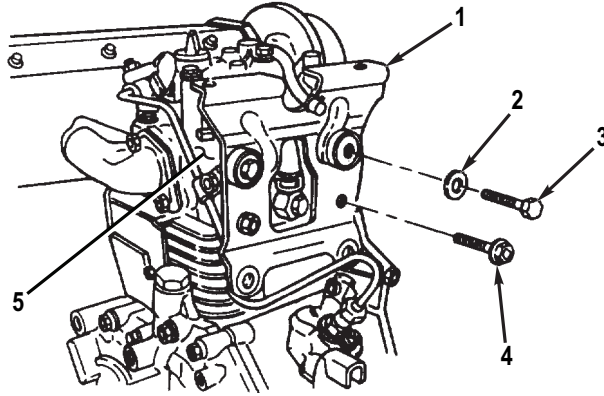
M0206JMS

Figure 10. Fuel Filter and Hose Assembly.

END OF TASK

FUEL TANK INSTALLATION

1. If removed, install stay (Figure 11, Item 1) on cylinder head (Figure 11, Item 5) with two washers (Figure 11, Item 2), bolts (Figure 11, Item 3), and flange bolts (Figure 11, Item 4).

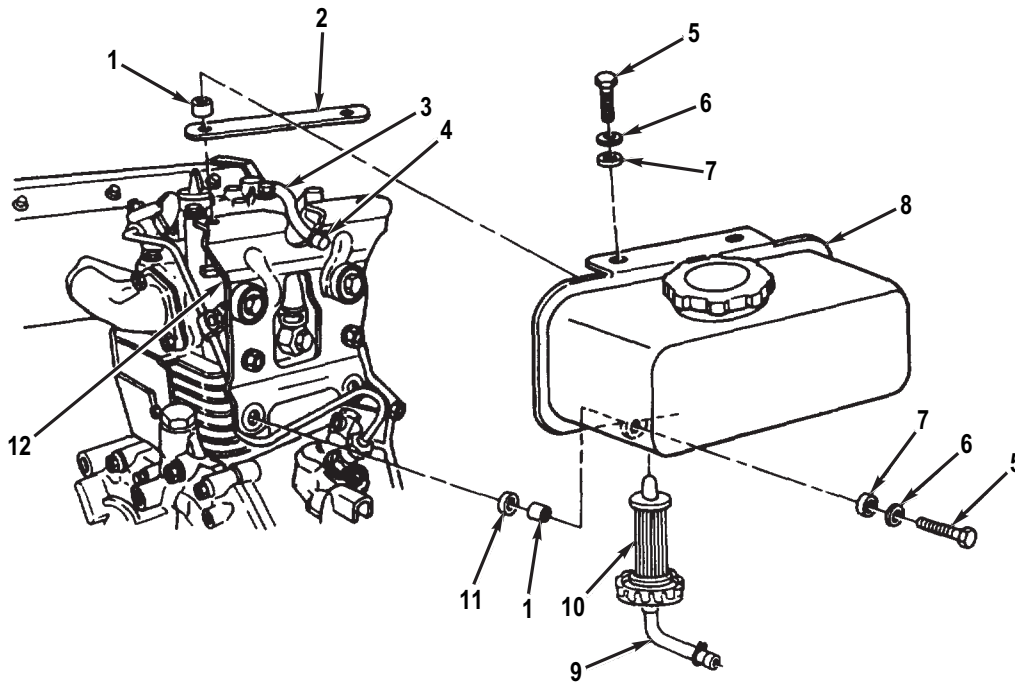


M0205JMS

Figure 11. Fuel Tank Stay Installation.

FUEL TANK INSTALLATION - Continued

2. Install fuel filter (Figure 12, Item 10) with fuel hose (Figure 12, Item 9) on fuel tank (Figure 12, Item 8).
3. Position fuel tank (Figure 12, Item 8) for installation and connect overflow hose (Figure 12, Item 3) to fuel tank with clip (Figure 12, Item 4).
4. Position cushion (Figure 12, Item 2), two cushions (Figure 12, Item 6), and four collars (Figure 12, Item 1) at stay (Figure 12, Item 12).
5. Install fuel tank (Figure 12, Item 8) on cushion (Figure 12, Item 2) and stay (Figure 12, Item 12) with four cushions (Figure 12, Item 7), washers (Figure 12, Item 6), and bolts (Figure 12, Item 5).

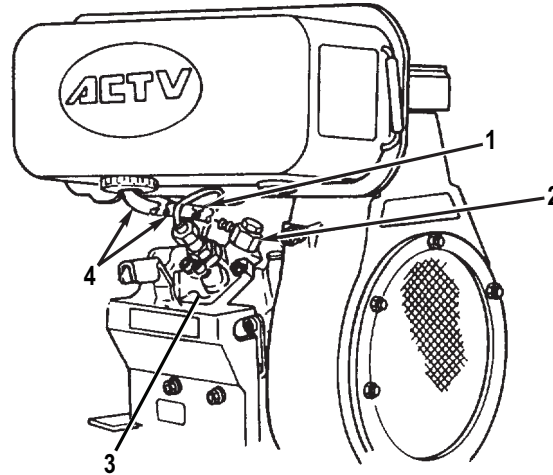


M0208JMS

Figure 12. Fuel Tank Installation.

FUEL TANK INSTALLATION - Continued

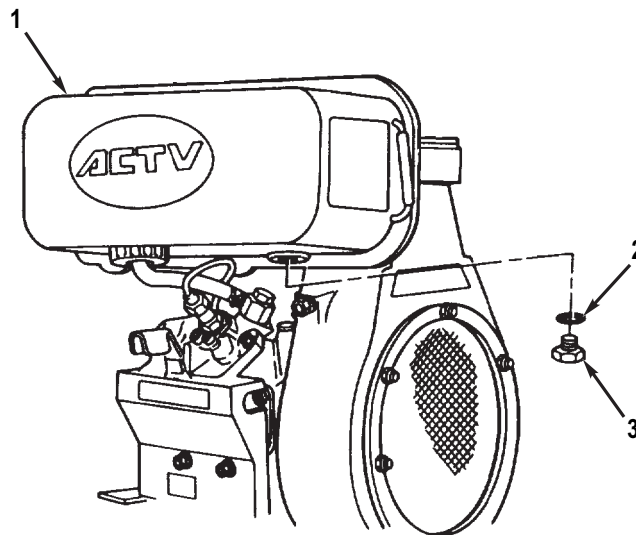
6. Connect fuel hose (Figure 13, Item 4) to joint (Figure 13, Item 2) at fuel injection pump (Figure 13, Item 3) with clip (Figure 13, Item 1).
7. Install oil cooler cover (Rocker Arm Cover Replacement (WP 0112)).



M0209JMS

Figure 13. Fuel Hose Installation.

8. Install copper gasket (Figure 14, Item 2) and drain plug (Figure 14, Item 3) on fuel tank (Figure 14, Item 1).



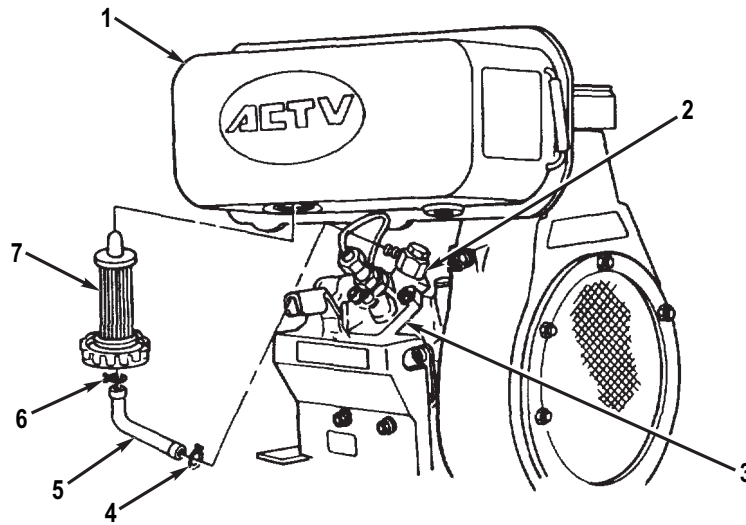
M0210_1JMS

Figure 14. Fuel Tank Drain Plug Installation.

END OF TASK

FUEL FILTER AND STRAINER INSTALLATION

1. Install fuel hose (Figure 15, Item 5) on fuel filter (Figure 15, Item 7) with clip (Figure 15, Item 6).
2. Install fuel filter (Figure 15, Item 7) with fuel hose (Figure 15, Item 5) on fuel tank (Figure 15, Item 1).
3. Connect fuel hose (Figure 15, Item 5) to joint (Figure 15, Item 2) at injection pump (Figure 15, Item 3) with clip (Figure 15, Item 4).

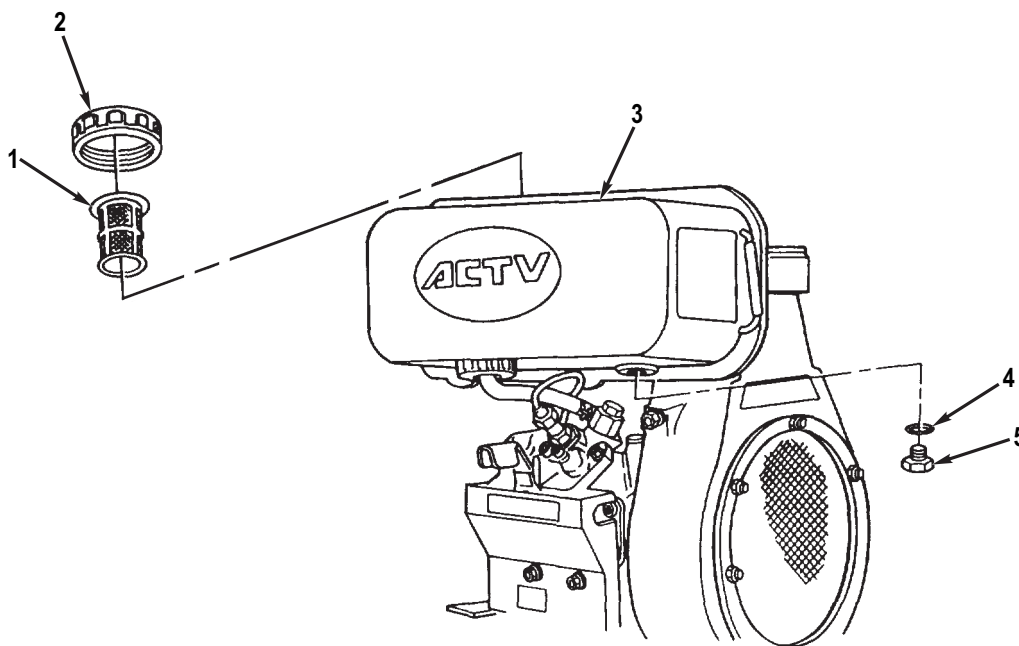


M0201JMS

Figure 15. Fuel Filter Installation.

FUEL FILTER AND STRAINER INSTALLATION - Continued

4. Install copper gasket (Figure 16, Item 4) and drain plug (Figure 16, Item 5) on fuel tank (Figure 16, Item 3).
5. Remove cap (Figure 16, Item 2) and install strainer (Figure 16, Item 1) inside fuel tank (Figure 16, Item 3).
6. Install cap (Figure 16, Item 2) on fuel tank (Figure 16, Item 3).



M0200_1JMS

Figure 16. Fuel Filter Installation.

END OF TASK**FUEL HOSE REPLACEMENT****WARNING**

Diesel fuel is combustible. DO NOT smoke or allow an open flame near fuel tank. Shut down engine when adding fuel. Failure to follow this warning may result in injury or death to personnel. Seek medical attention immediately in the event of an injury.

CAUTION

DO NOT allow dirt or dust to enter fuel tank. Damage to engine fuel system will result.

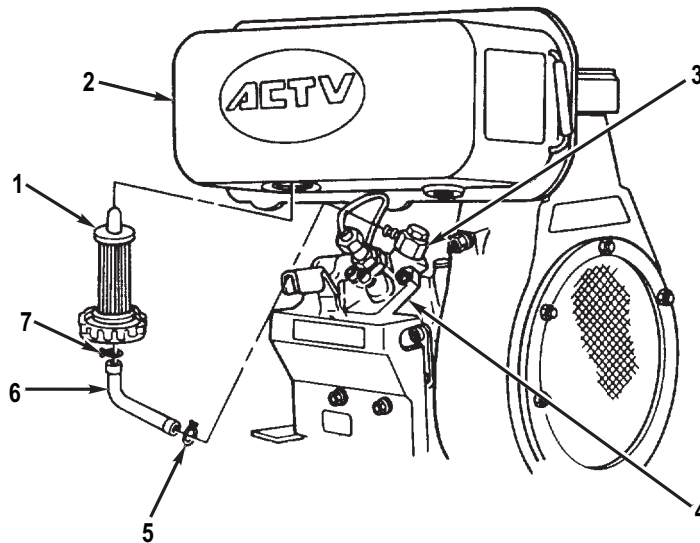
NOTE

Use rags as required to clean any fuel spills.

FUEL HOSE REPLACEMENT - Continued**NOTE**

- 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.
- Refer to local procedures and plans for storage and disposal of any drained fluids.

1. Drain fuel tank (Fuel Tank Draining (in this work package)).
2. Slide back clip (Figure 17, Item 5) and disconnect fuel hose (Figure 17, Item 6) from joint (Figure 17, Item 3) at injection pump (Figure 17, Item 4).
3. Remove fuel filter (Figure 17, Item 1) with fuel hose (Figure 17, Item 6) from fuel tank (Figure 17, Item 2).
4. Slide back clip (Figure 17, Item 7) and remove fuel hose (Figure 17, Item 6) from fuel filter (Figure 17, Item 1).
5. Install fuel hose (Figure 17, Item 6) on fuel filter (Figure 17, Item 1) with clip (Figure 17, Item 7).
6. Install fuel filter (Figure 17, Item 1) with fuel hose (Figure 17, Item 6) on fuel tank (Figure 17, Item 2).



M0194JMS

Figure 17. Fuel Filter and Hose Installation.

7. Connect fuel hose (Figure 17, Item 6) to joint (Figure 17, Item 3) at injection pump (Figure 17, Item 4) with clip (Figure 17, Item 5).

END OF TASK

INJECTION PIPE REPLACEMENT

1. Loosen two nuts (Figure 18, Item 5) and disconnect injection pipe (Figure 18, Item 3) from injection pump (Figure 18, Item 6) and nozzle holder (Figure 18, Item 7).
2. Remove flange bolt (Figure 18, Item 6), clamp assembly (Figure 18, Item 2) and injection pipe (Figure 18, Item 3) from cylinder head (Figure 18, Item 1).

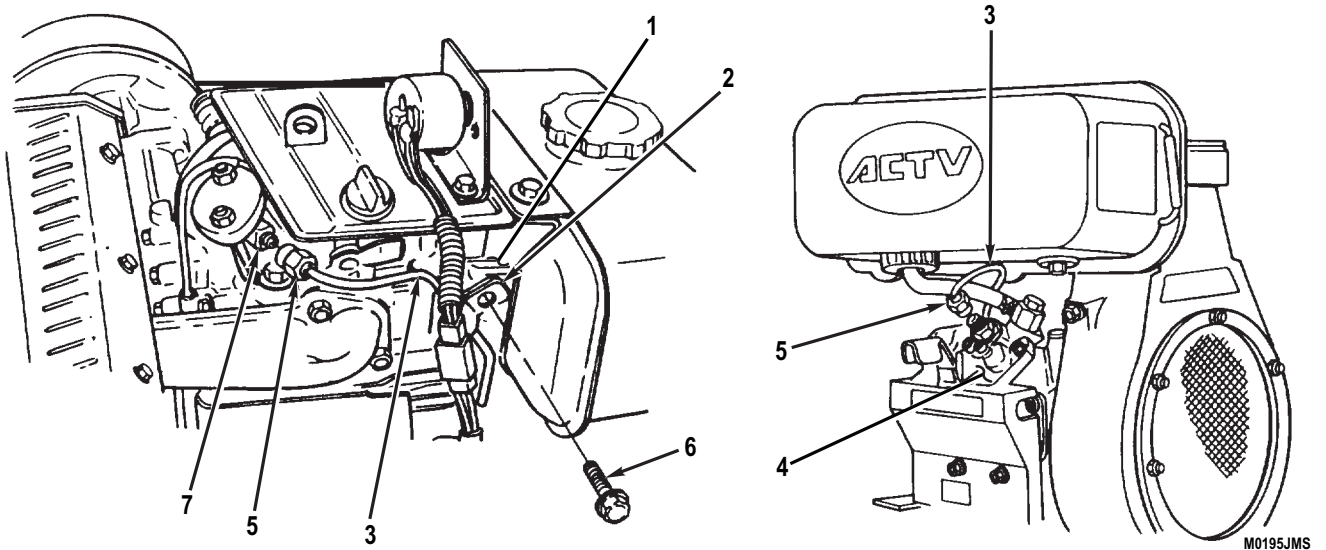


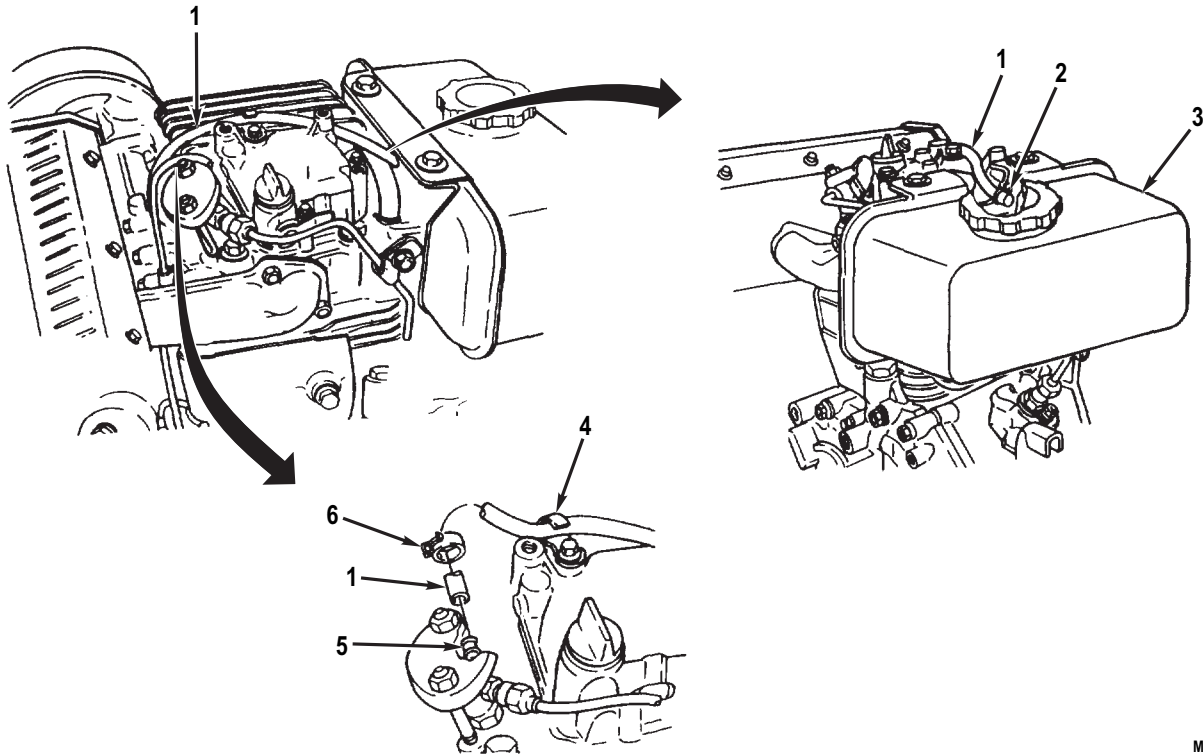
Figure 18. Injection Pipe Removal.

3. Install injection pipe (Figure 18, Item 3) on cylinder head (Figure 18, Item 1) with clamp assembly (Figure 18, Item 2) and flange bolt (Figure 18, Item 6).
4. Connect injection pipe (Figure 18, Item 3) to nozzle holder (Figure 18, Item 7) and injection pump (Figure 18, Item 4), and tighten two nuts (Figure 18, Item 5).

END OF TASK

OVERFLOW HOSE REPLACEMENT

1. Remove oil cooler cover (Rocker Arm Cover Replacement (WP 0112)).
2. Slide back clip (Figure 19, Item 2) and disconnect overflow hose (Figure 19, Item 1) from fuel tank (Figure 19, Item 3).
3. Slide back clip (Figure 19, Item 6) and disconnect overflow hose (Figure 19, Item 1) from nozzle holder (Figure 19, Item 5).
4. Unbend clamp (Figure 19, Item 4) and remove overflow hose (Figure 19, Item 1).

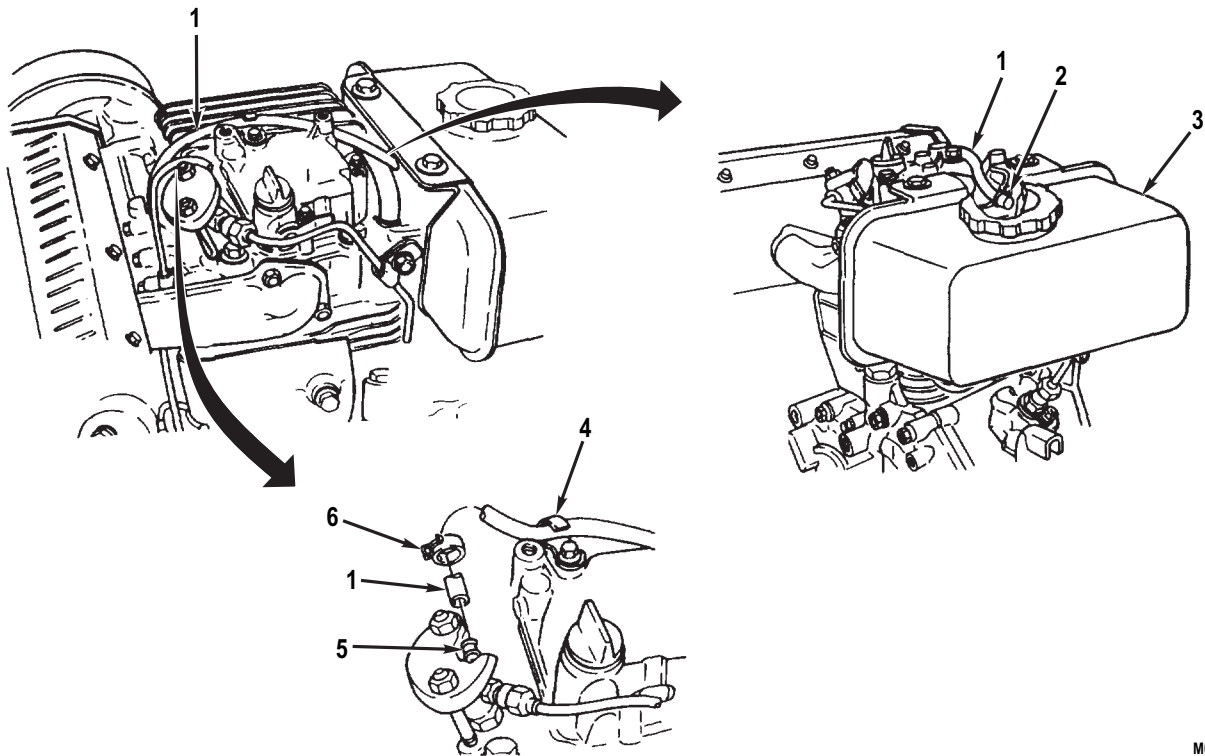


M0196JMS

Figure 19. Overflow Hose Removal.

OVERFLOW HOSE REPLACEMENT - Continued

5. Connect overflow hose (Figure 20, Item 1) to nozzle holder (Figure 20, Item 5) with clip (Figure 20, Item 6).
6. Connect overflow hose (Figure 20, Item 1) to fuel tank (Figure 20, Item 3) with clip (Figure 20, Item 2).
7. Secure overflow hose (Figure 20, Item 2) with clamp (Figure 20, Item 4).
8. Install oil cooler cover (Rocker Arm Cover Replacement (WP 0112)).



M0196JMS

Figure 20. Overflow Hose Installation.

END OF TASK**FOLLOW-ON TASKS**

1. Connect negative (-) ground cable to battery (WP 0042).
2. Fill fuel tank (WP 0029).
3. Start engine and check for fuel leaks (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
MUFFLER ASSEMBLY REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)

Materials/Parts

Rag: Wiping (WP 0197, Table 1, Item 42)

Solvent: Cleaning, Type II (WP 0197, Table 1, Item 45)

Gasket (WP 0174, Item 6) Qty: 1

References

WP 0128

Equipment Condition

Engine starter switch set to OFF position (WP 0005)

Spring supporting hydraulic hose assemblies inside abrasion sleeve (hose bundle) removed from lanyard tab at muffler cover (WP 0104)

WARNING

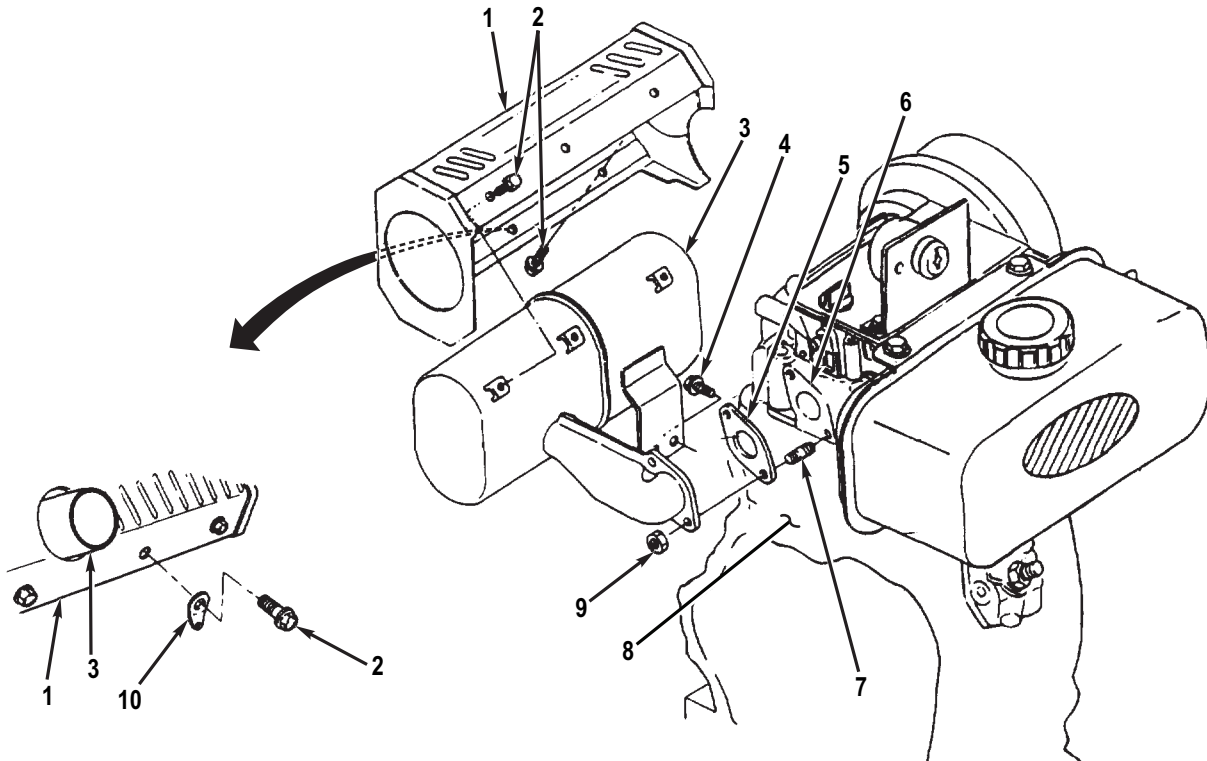
Before attempting to replace any part of exhaust system, allow exhaust system to cool. Failure to follow this warning may result in serious burns. Seek medical attention in the event of an injury.

REMOVAL**NOTE**

Bottom middle flange bolt also secures lanyard tab that is part of hydraulic hose bundle support at muffler cover.

REMOVAL - Continued

1. Remove six flange bolts (Figure 1, Item 2), lanyard tab (Figure 1, Item 10), and muffler cover (Figure 1, Item 1) from muffler (Figure 1, Item 3).
2. Remove two nuts (Figure 1, Item 9) from studs (Figure 1, Item 7).
3. Remove two flange bolts (Figure 1, Item 4) from muffler (Figure 1, Item 3) and crankcase (Figure 1, Item 8).
4. Remove muffler (Figure 1, Item 3) and gasket (Figure 1, Item 5) from cylinder head (Figure 1, Item 6). Discard gasket.
5. If damaged, remove two studs (Figure 1, Item 7) from cylinder head (Figure 1, Item 6).



M0212JMS

*Figure 1. Muffler Removal.***END OF TASK**

CLEANING**WARNING**

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

WARNING

DO NOT handle components in area of engine muffler gasket 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 a filter mask and gloves. Clean dust or mud away from components with water and a wet, soft brush or cloth. Failure to follow this warning may result in illness or death to personnel. Seek medical attention in the event of an injury.

CLEANING - Continued

Clean all removed components with cleaning solvent and dry with a clean rag IAW General Maintenance Instructions (WP 0128). Ensure that muffler gasket mounting surface on cylinder head is clean IAW General Maintenance Instructions (WP 0128).

END OF TASK**INSPECTION**

Inspect all removed components for cracks, breaks, holes, distortion, damaged threads, or other damage IAW General Maintenance Instructions (WP 0128). Replace damaged components.

END OF TASK**INSTALLATION**

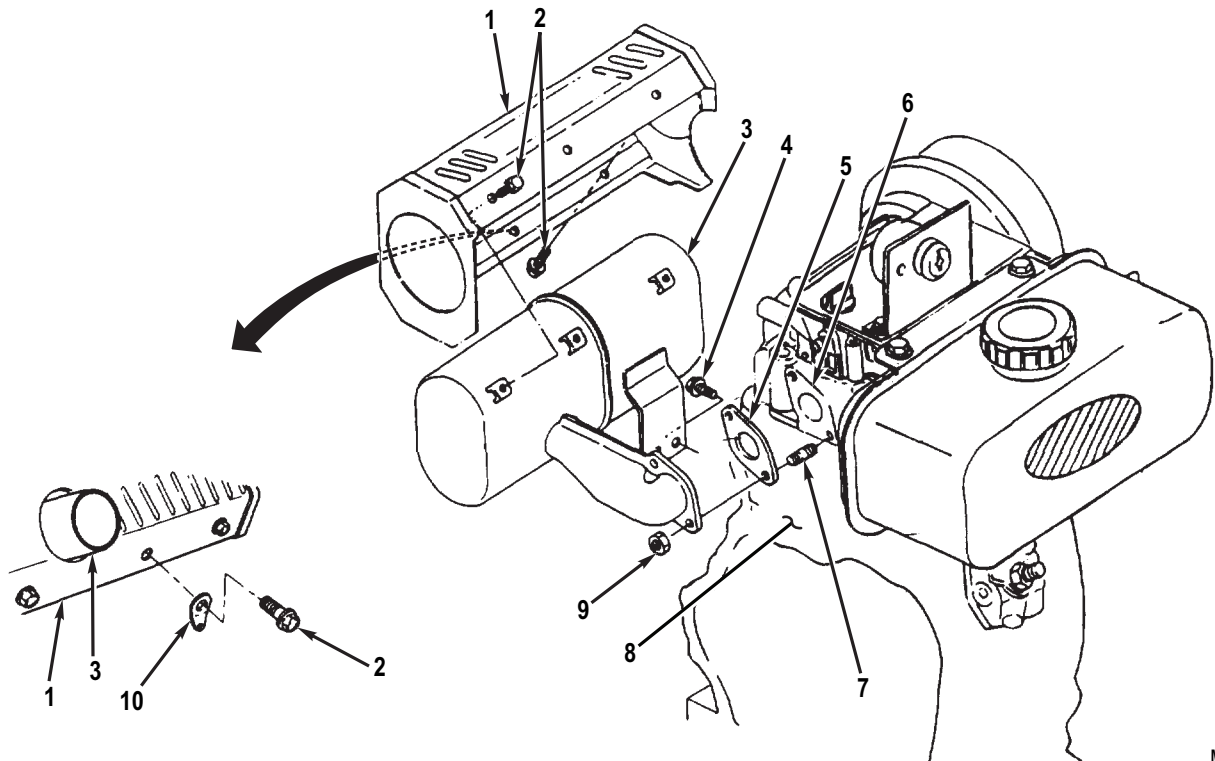
1. If removed, install two studs (Figure 2, Item 7) on cylinder head (Figure 2, Item 6).
2. Install new gasket (Figure 2, Item 5) and muffler (Figure 2, Item 3) on cylinder head (Figure 2, Item 6).
3. Install two flange bolts (Figure 2, Item 4) on muffler (Figure 2, Item 3) and crankcase (Figure 2, Item 8).
4. Install two nuts (Figure 2, Item 9) on studs (Figure 2, Item 7). Torque nuts to 17-20 lb-ft (23-27 N•m).

NOTE

Bottom middle flange bolt at muffler cover also secures lanyard tab that is part of hydraulic hose bundle support.

5. Install muffler cover (Figure 2, Item 1) and lanyard tab (Figure 2, Item 10) on muffler (Figure 2, Item 3) with six flange bolts (Figure 2, Item 2).

INSTALLATION - Continued



M0212JMS

Figure 2. Muffler Installation.

END OF TASK

FOLLOW-ON TASKS

Install spring supporting hydraulic hose assemblies inside abrasion sleeve (hose bundle) to lanyard tab at muffler cover (WP 0104).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COWLING DEFLECTORS, AIR DUCTS, AND SHROUDS RELPACEMENT

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)

Equipment Condition

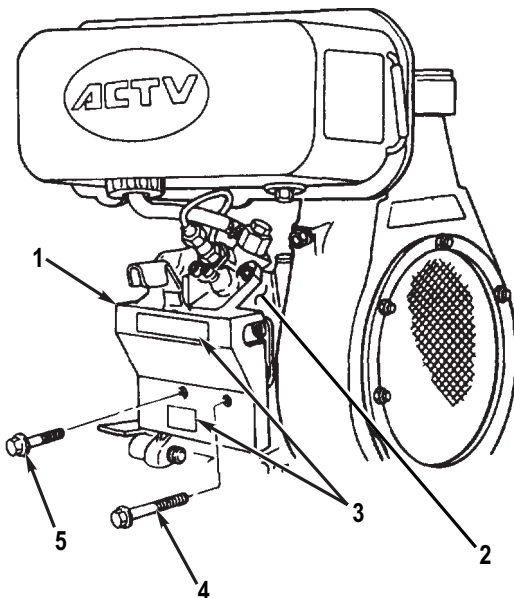
Engine starter switch set to OFF position, if removing cylinder cowling or spiral case on rear dolly engine (WP 0005)
Engine removed, if removing spiral case on front dolly (WP 0110)

References

WP 0101

SIDE COVER REMOVAL

Remove two flange bolts (Figure 1, Items 4 and 5) and side cover (Figure 1, Item 1) from crankcase (Figure 1, Item 2).



M0211JMS

Figure 1. Side Cover Removal.

END OF TASK

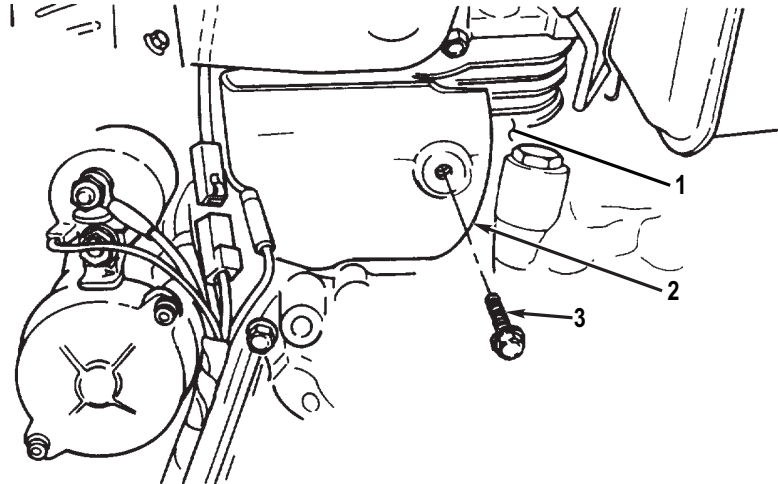
SIDE COVER INSTALLATION

1. If labels (Figure 1, Item 3) on side cover (Figure 1, Item 1) are missing or illegible, replace labels (Decal Replacement (WP 0101)).
2. Install side cover (Figure 1, Item 1) on crankcase (Figure 1, Item 2) with two flange bolts (Figure 1, Items 4 and 5). Torque flange bolts to 17-20 lb-ft (23-27 N•m).

END OF TASK

CYLINDER COWLING AND SPIRAL CASE REMOVAL**NOTE**

- Perform step 1 if only removing cylinder cowling.
 - Perform steps 2 and 3 if only removing spiral case.
1. Remove flange bolt (Figure 2, Item 3) and cylinder cowling (Figure 2, Item 2) from crankcase (Figure 2, Item 1).

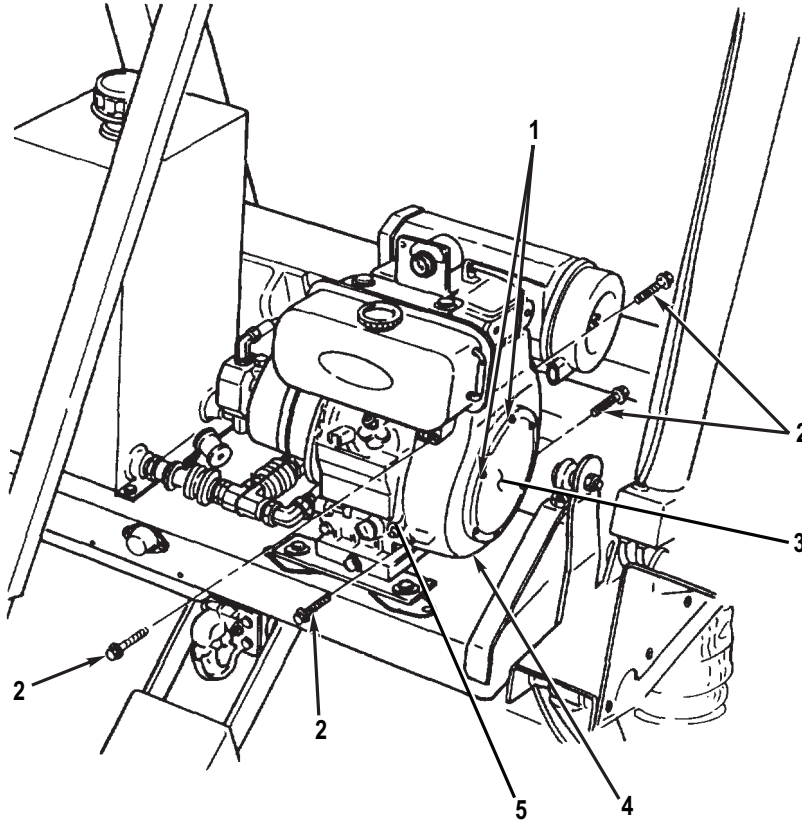


M0213JMS

Figure 2. Cylinder Cowling and Spiral Case Removal.

CYLINDER COWLING AND SPIRAL CASE REMOVAL - Continued

2. Remove four flange bolts (Figure 3, Item 2) and spiral case (Figure 3, Item 4) from crankcase (Figure 3, Item 5).
3. Remove six flange bolts (Figure 3, Item 1) and dust cover (Figure 3, Item 3) from spiral case (Figure 3, Item 4).



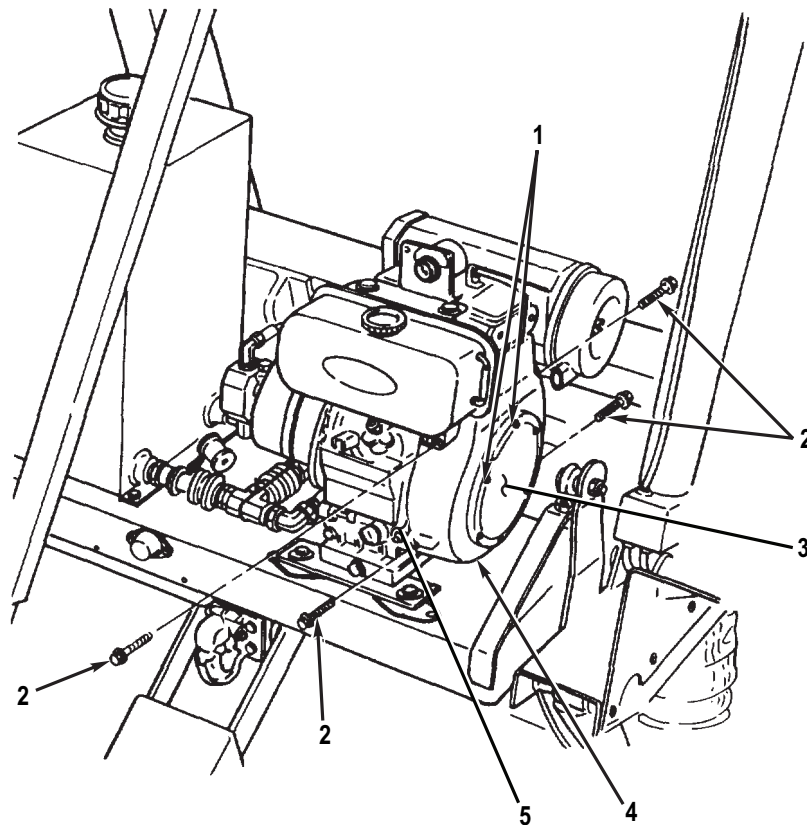
M0214JMS

Figure 3. Cylinder Cowling and Spiral Case Removal.

END OF TASK

CYLINDER COWLING AND SPIRAL CASE INSTALLATION**NOTE**

- Perform steps 1 and 2 if installing spiral case.
 - Perform step 3 if installing cylinder cowling.
1. Install dust cover (Figure 4, Item 3) on spiral case (Figure 4, Item 4) with six flange bolts (Figure 4, Item 1).
 2. Position spiral case (Figure 4, Item 4) at crankcase (Figure 4, Item 5) and install four flange bolts (Figure 4, Item 2).
 3. Install cylinder cowling (Figure 4, Item 2) on crankcase (Figure 4, Item 1) with flange bolt (Figure 4, Item 3).



M0214JMS

Figure 4. Cylinder Cowling and Spiral Case Installation.

END OF TASK**FOLLOW-ON TASKS**

Install engine (WP 0110).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
REGULATOR REPLACEMENT**

INITIAL SETUP:

Tools and Special Tools

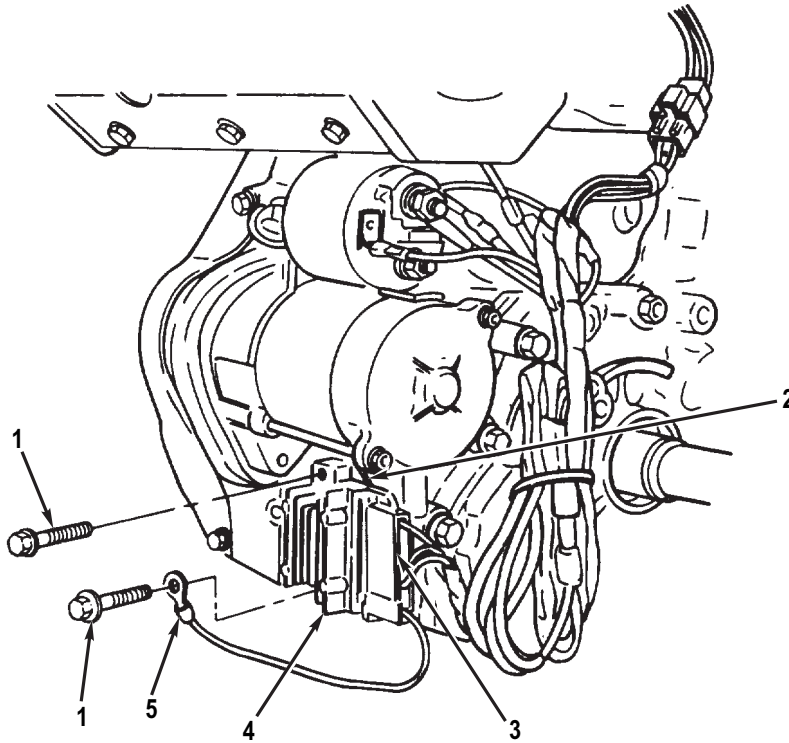
Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Equipment Condition

Negative (-) ground cable disconnected from
battery (WP 0042)

REMOVAL

1. Disconnect wiring harness connector (Figure 1, Item 3) from regulator (Figure 1, Item 4).
2. Remove two flange bolts (Figure 1, Item 1), wiring harness ground wire (Figure 1, Item 5), and regulator (Figure 1, Item 4) from stay (Figure 1, Item 2).

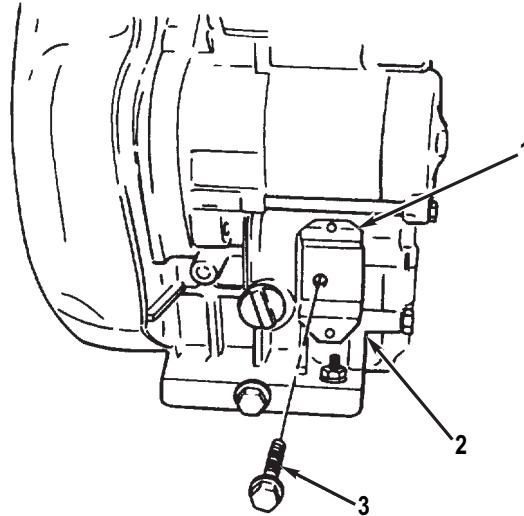


M0215JMS

Figure 1. Regulator Removal.

REMOVAL - Continued

3. If damaged, remove flange bolt (Figure 2, Item 3) and stay (Figure 2, Item 1) from crankcase (Figure 2, Item 2).



M0216JMS

Figure 2. Regulator Stay Removal.

END OF TASK**INSTALLATION**

1. If removed, install stay (Figure 2, Item 1) on crankcase (Figure 2, Item 2) with flange bolt (Figure 2, Item 3).
2. Install regulator (Figure 1, Item 4), wiring harness ground wire (Figure 1, Item 5), and two flange bolts (Figure 1, Item 1) on stay (Figure 1, Item 2).
3. Connect wiring harness connector (Figure 1, Item 3) to regulator (Figure 1, Item 4).

END OF TASK**FOLLOW-ON TASKS**

Connect negative (-) ground cable to battery (WP 0042).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
ENGINE STARTER AND SWITCH REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Equipment Condition (cont.)

Engine removed (front dolly) (WP 0110)
Spiral case removed (WP 0120)

Materials/Parts

Tag: Marker (WP 0197, Table 1, Item 49)
Lockwasher (WP 0178, Item 8) Qty: 1

References

WP 0005
WP 0128

Equipment Condition

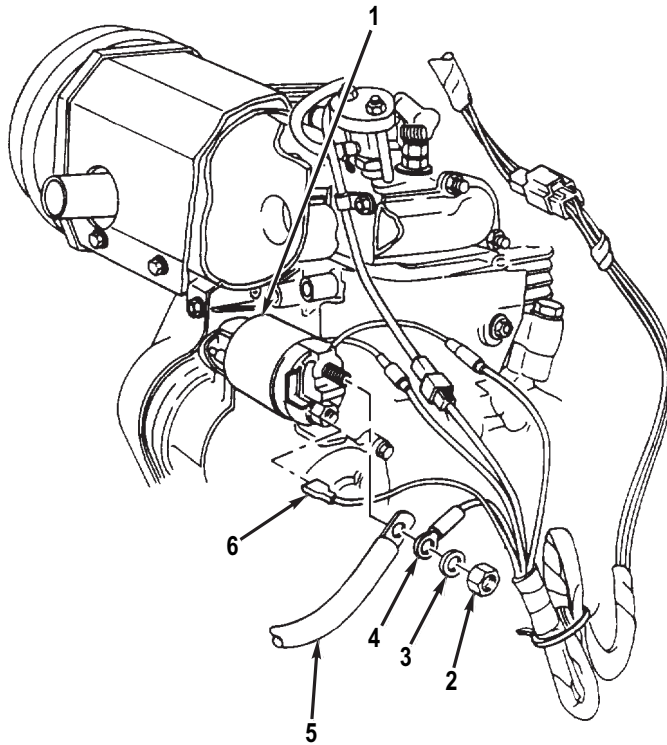
Negative (-) ground cable disconnected from battery (WP 0042)

NOTE

All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).

REMOVAL

1. Remove nut (Figure 1, Item 2), lockwasher (Figure 1, Item 3), wiring harness red wire (Figure 1, Item 4), and positive (+) battery cable (Figure 1, Item 5) from starter (Figure 1, Item 1). Discard lockwasher.
2. Disconnect wiring harness connector (Figure 1, Item 6) from starter (Figure 1, Item 1).

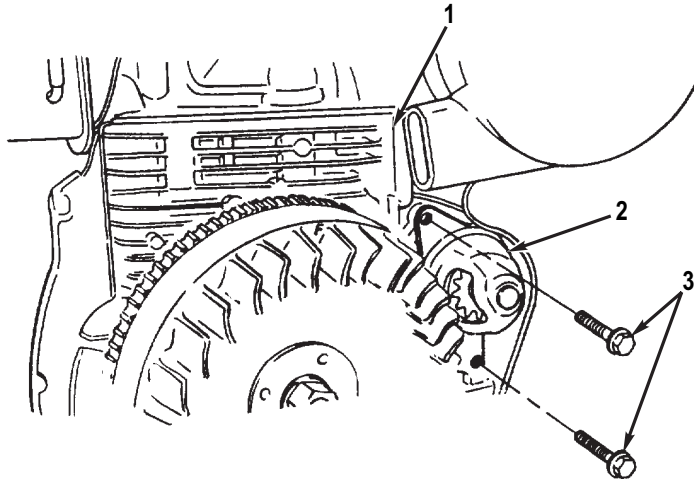


M0217JMS

Figure 1. Starter Disconnection.

REMOVAL - Continued

3. Remove two flange bolts (Figure 2, Item 3) and starter (Figure 2, Item 2) from crankcase (Figure 2, Item 1).



M0218JMS

Figure 2. Starter Removal.

END OF TASK**INSTALLATION**

1. Install starter (Figure 2, Item 2) on crankcase (Figure 2, Item 1) with two flange bolts (Figure 2, Item 3).
2. Connect wiring harness connector (Figure 1, Item 6) to starter (Figure 1, Item 1).
3. Install positive (+) battery cable (Figure 1, Item 5) and wiring harness red wire (Figure 1, Item 4) on starter (Figure 1, Item 1) with new lockwasher (Figure 1, Item 3) and nut (Figure 1, Item 2).

END OF TASK**FOLLOW-ON TASKS**

1. Install spiral case (WP 0120).
2. Install engine (front dolly) (WP 0110).
3. Connect negative (-) ground cable to battery (rear dolly) (WP 0042).
4. Start engine (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
ENGINE WIRING HARNESS REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

References (cont.)

WP 0128
WP 0130

Materials/Parts

Strap: Tiedown Electrical Component (WP 0197, Table 1, Item 46)
Tag: Marker (WP 0197, Table 1, Item 49)
Lockwasher (WP 0178, Item 8) Qty: 1

Equipment Condition

Negative (-) ground cable disconnected from battery (WP 0042)

References

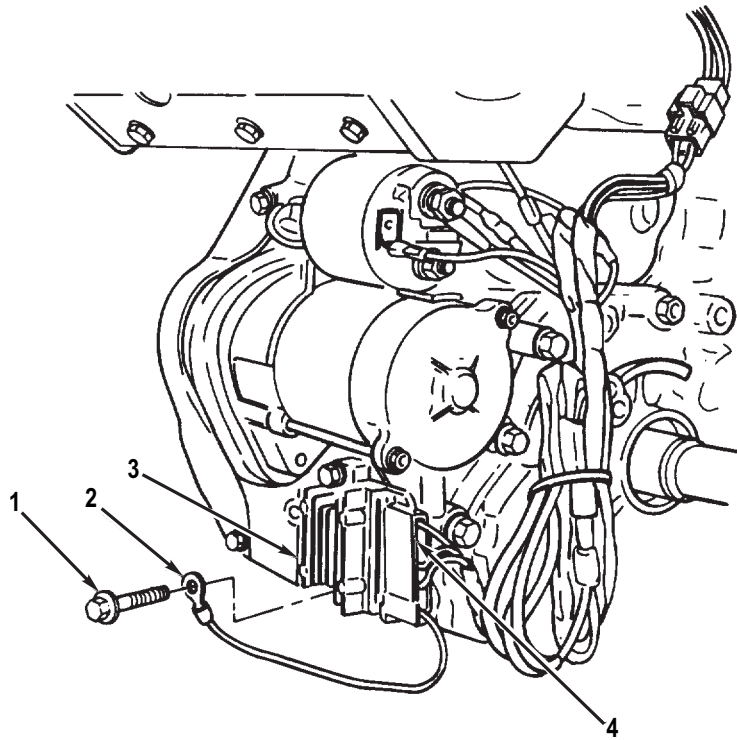
WP 0005

NOTE

- Refer to engine wiring diagram for assistance (Schematics (WP 0130)).
- All wires should be tagged before removal IAW General Maintenance Instructions (WP 0128).

REMOVAL

1. Disconnect wiring harness connector (Figure 1, Item 4) from regulator (Figure 1, Item 3).
2. Remove flange bolt (Figure 1, Item 1) and wiring harness ground wire (Figure 1, Item 2) from regulator (Figure 1, Item 3).

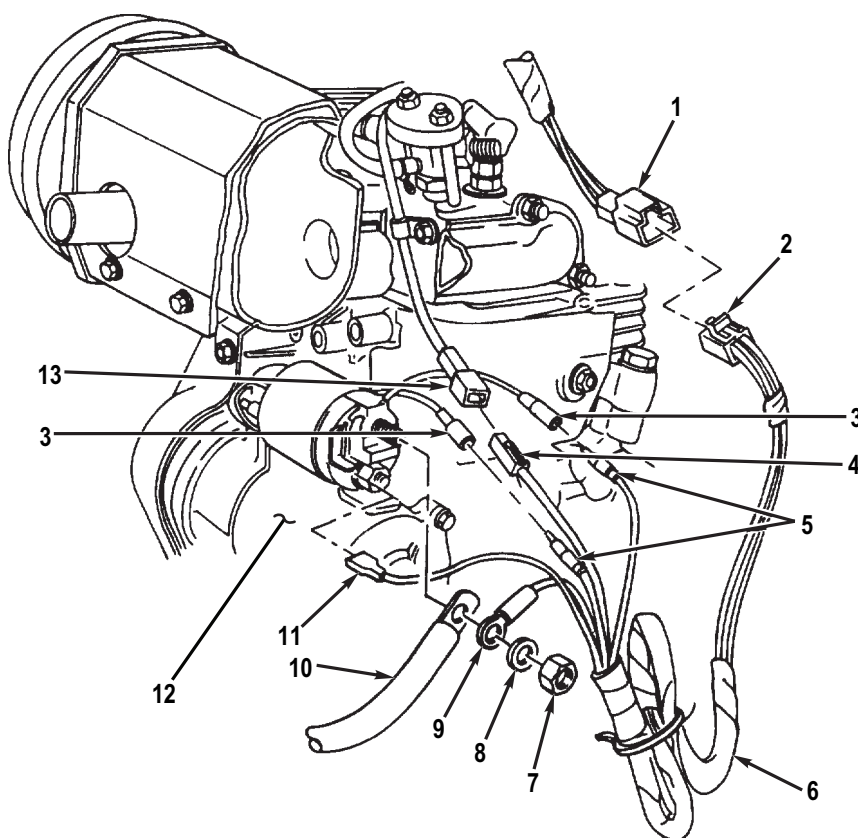


M0221JMS

Figure 1. Engine Wiring Harness Disconnection.

REMOVAL - Continued

3. Cut tie-down strap and disconnect wiring harness connector (Figure 2, Item 2) from starter switch connector (Figure 2, Item 1).
4. Disconnect wiring harness connector (Figure 2, Item 4) from glow plug cord connector (Figure 2, Item 13).
5. Remove nut (Figure 2, Item 7), lockwasher (Figure 2, Item 8) wiring harness red wire (Figure 2, Item 9) and positive (+) battery cable (Figure 2, Item 10) from starter (Figure 2, Item 12). Discard lockwasher.
6. Disconnect wiring harness connector (Figure 2, Item 11) from starter (Figure 2, Item 12).
7. Disconnect two wiring harness connectors (Figure 2, Item 5) from stator assembly connectors (Figure 2, Item 3).
8. Remove engine wiring harness (Figure 2, Item 6).



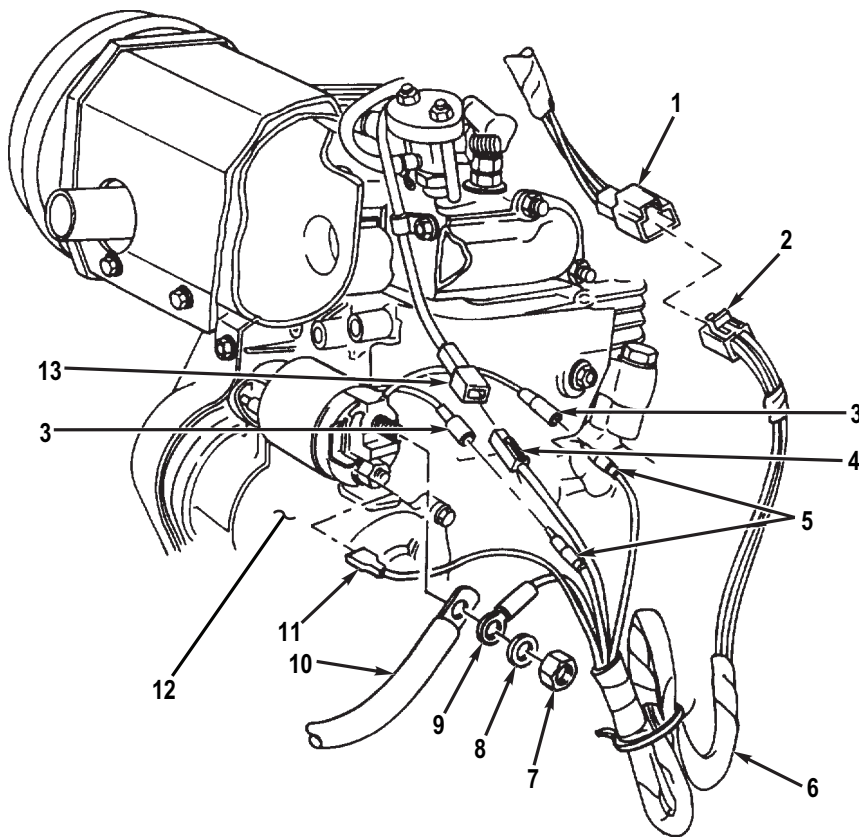
M0222JMS

Figure 2. Engine Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Position engine wiring harness (Figure 3, Item 6) for installation.
2. Connect two wiring harness connectors (Figure 3, Item 5) to stator assembly connectors (Figure 3, Item 3).
3. Connect wiring harness connector (Figure 3, Item 11) to starter (Figure 3, Item 12).
4. Install positive (+) battery cable (Figure 3, Item 10) and wiring harness red wire (Figure 3, Item 9) to starter (Figure 3, Item 12) with new lockwasher (Figure 3, Item 7) and nut (Figure 3, Item 8).
5. Connect wiring harness connector (Figure 3, Item 4) to glow plug cord connector (Figure 3, Item 13).
6. Connect wiring harness connector (Figure 3, Item 1) to starter switch connector (Figure 3, Item 2). Install new tie-down strap.

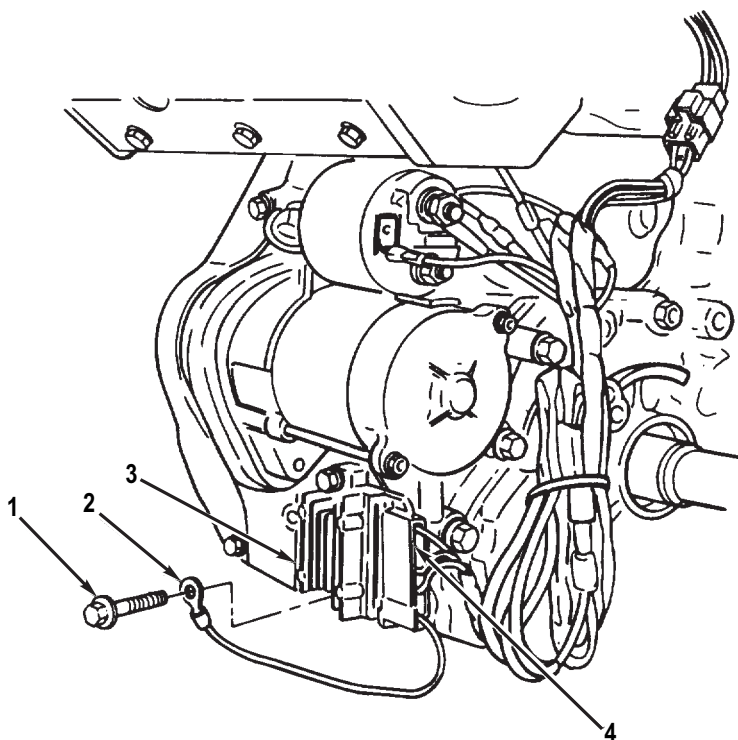


M0222JMS

Figure 3. Engine Wiring Harness Installation.

INSTALLATION - Continued

7. Install wiring harness ground wire (Figure 4, Item 2) to regulator (Figure 4, Item 3) with flange bolt (Figure 4, Item 1).
8. Connect wiring harness connector (Figure 4, Item 4) to regulator (Figure 4, Item 3).



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Figure 4. Engine Wiring Harness Connection.

END OF TASK**FOLLOW-ON TASKS**

1. Connect negative (-) ground cable to battery (WP 0042).
2. Start engine (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
GLOW PLUG REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)

Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity (WP 0198, Table 1, Item 42)

Equipment Condition

Negative (-) ground cable disconnected from battery (WP 0042)

Oil cooler cover removed (WP 0112)

References

WP 0005

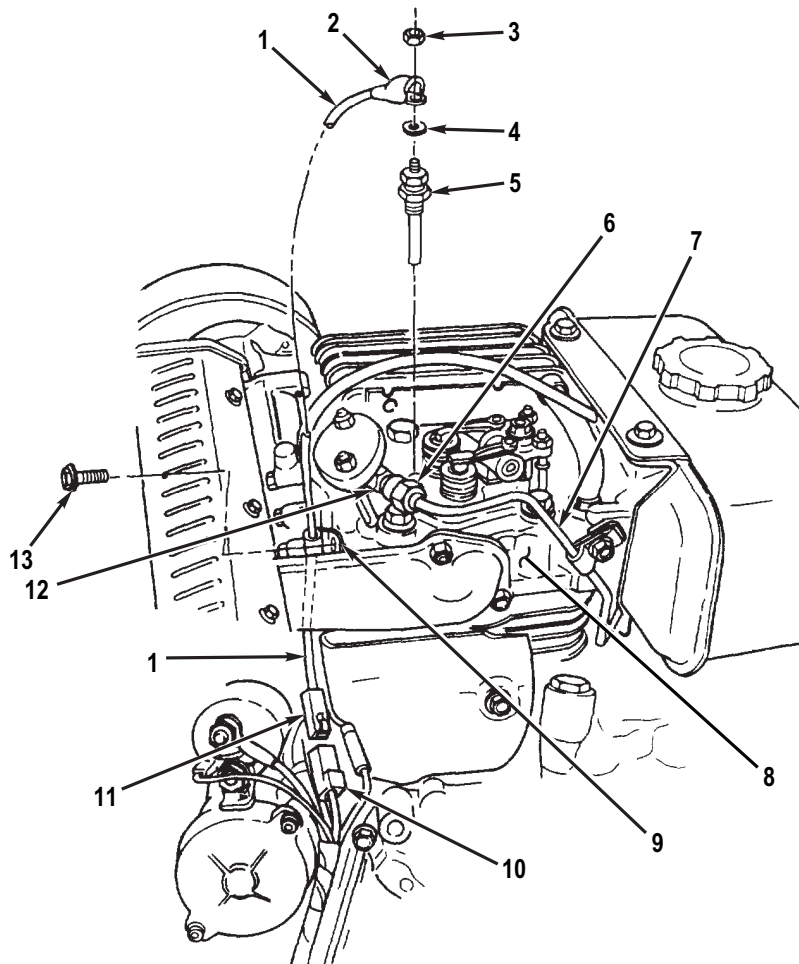
REMOVAL

1. Lift off boot (Figure 1, Item 2).
2. Remove nut (Figure 1, Item 3), cord (Figure 1, Item 1), and washer (Figure 1, Item 4) from glow plug (Figure 1, Item 5).
3. Remove nut (Figure 1, Item 6) from nozzle holder (Figure 1, Item 12). Slide back nut on injection pipe (Figure 1, Item 7).
4. Remove glow plug (Figure 1, Item 5) from cylinder head (Figure 1, Item 8).

NOTE

Perform steps 5 and 6 only if cord is damaged.

5. Disconnect cord connector (Figure 1, Item 11) from engine wiring harness connector (Figure 1, Item 10).
6. Remove flange bolt (Figure 1, Item 13), clamp (Figure 1, Item 9), and cord (Figure 1, Item 1) from cylinder head (Figure 1, Item 8).



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Figure 1. Glow Plug.

END OF TASK

INSTALLATION**NOTE**

Perform steps 1 and 2 only if cord was removed.

1. Install cord (Figure 1, Item 1) on cylinder head (Figure 1, Item 8) with clamp (Figure 1, Item 9) and flange bolt (Figure 1, Item 13).
2. Connect cord connector (Figure 1, Item 11) to engine wiring harness connector (Figure 1, Item 10).
3. Install glow plug (Figure 1, Item 5) on cylinder head (Figure 1, Item 8). Torque glow plug to 15-18 lb-ft (20-24 N•m).
4. Install nut (Figure 1, Item 6) on nozzle holder (Figure 1, Item 12).
5. Install washer (Figure 1, Item 4) and cord (Figure 1, Item 1) on glow plug (Figure 1, Item 5) with nut (Figure 1, Item 3).
6. Position boot (Figure 1, Item 2) over nut (Figure 1, Item 3).

END OF TASK**FOLLOW-ON TASKS**

1. Install oil cooler cover (WP 0112).
2. Connect negative (-) ground cable to battery (WP 0042).
3. Start engine (WP 0005).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
REDUNDANT POWER KIT HOSE ASSEMBLIES MAINTENANCE**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2, Item 1)
Vise, Machinist's (WP 0198, Table 1, Item 36)

Materials/Parts (cont.)

Preformed Packing (WP 0180, Item 4) Qty: 2
Preformed Packing (WP 0180, Item 14) Qty: 2

Materials/Parts

Rag: Wiping, (WP 0197, Table 1, Item 42)

WARNING

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

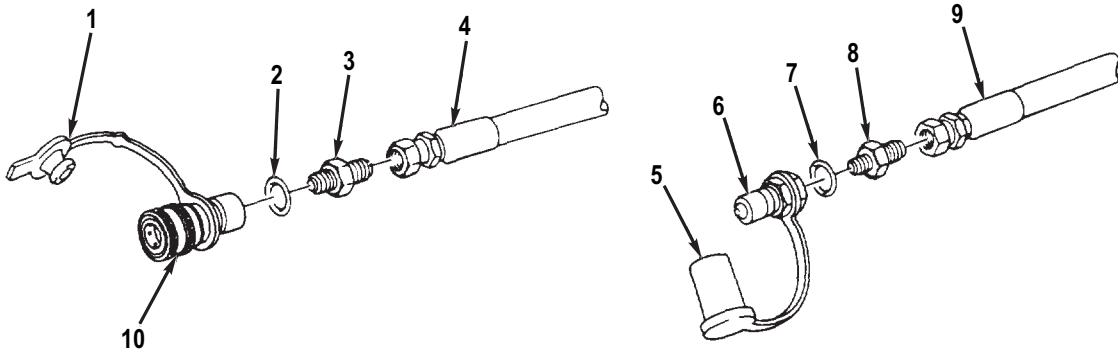
NOTE

A suitable container should be used to catch any draining hydraulic fluid. Ensure that spills are properly cleaned.

DISASSEMBLY**NOTE**

- Perform steps 1 through 5 to disassemble hose assembly with quick disconnect couplers on both ends.
- Perform steps 1 and 6 through 9 to disassemble hose assembly with quick disconnect nipples on both ends.

1. Secure hose assembly in a vise.
2. Remove quick disconnect coupler (Figure 1, Item 10) and preformed packing (Figure 1, Item 2) from straight connector (Figure 1, Item 3). Discard preformed packing.
3. Remove dust cap (Figure 1, Item 1) from quick disconnect coupler (Figure 1, Item 10).
4. Remove straight connector (Figure 1, Item 3) from hose (Figure 1, Item 4).
5. Repeat steps 1 through 4 for other end of hose (Figure 1, Item 4).
6. Remove quick disconnect nipple (Figure 1, Item 6) and preformed packing (Figure 1, Item 7) from straight connector (Figure 1, Item 8). Discard preformed packing.
7. Remove dust plug (Figure 1, Item 5) from quick disconnect nipple (Figure 1, Item 6).
8. Remove straight connector (Figure 1, Item 8) from hose (Figure 1, Item 9).
9. Repeat steps 1 and 6 through 8 for other end of hose (Figure 1, Item 9).



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Figure 1. Redundant Power Kit Hose Assemblies.

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

- Perform steps 1 through 5 to assemble hose assembly with quick disconnect nipples on both ends.
- Perform steps 1 and 6 through 9 to assemble hose assembly with quick disconnect couplers on both ends.

ASSEMBLY - Continued

1. Secure hose (Figure 1, Item 4 or 9) in a vise.
2. Install straight connector (Figure 1, Item 8) on hose (Figure 1, Item 9).
3. Install dust plug (Figure 1, Item 5) on quick disconnect nipple (Figure 1, Item 6).
4. Install new preformed packing (Figure 1, Item 7) and quick disconnect nipple (Figure 1, Item 6) on straight connector (Figure 1, Item 8).
5. Repeat steps 1 through 4 for other end of hose (Figure 1, Item 9).
6. Install straight connector (Figure 1, Item 3) on hose (Figure 1, Item 4).
7. Install dust cap (Figure 1, Item 1) on quick disconnect coupler (Figure 1, Item 10).
8. Install new preformed packing (Figure 1, Item 2) and quick disconnect coupler (Figure 1, Item 10) on straight connector (Figure 1, Item 3).
9. Repeat steps 1 and 6 through 8 for other end of hose (Figure 1, Item 4).

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
SIDE LIFT KIT REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)
Suitable lifting device

References (cont.)

WP 0086
WP 0100
WP 0105
WP 0106
WP 0109
WP 0132

Materials/Parts

Adhesive (WP 0197, Table 1, Item 1)
Locknut (WP 0182, Item 8) Qty: 4
Locknut (WP 0182, Item 9) Qty: 8

Personnel Required

(Three)

References

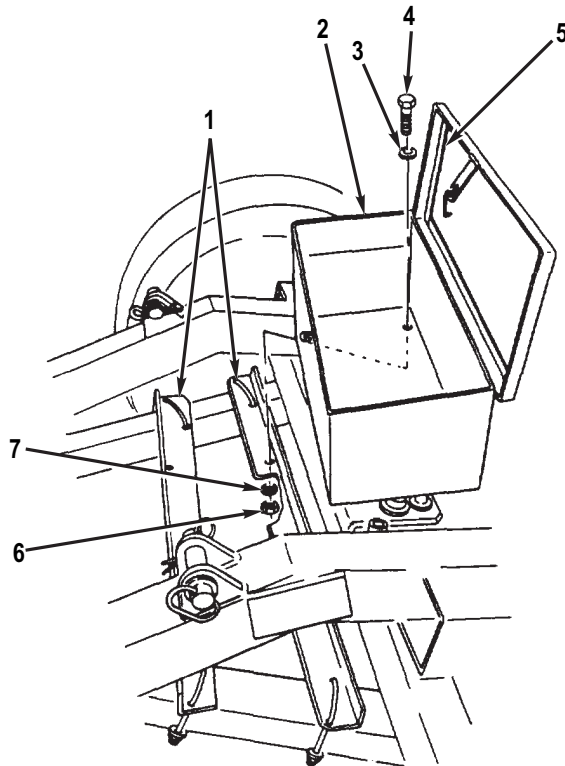
WP 0018

WARNING

Storage box weighs 60 lb (27 kg). Provide adequate support and use assistance during procedure. Ensure that any lifting device used is in good condition and of suitable load capacity. Failure to follow this warning may result in injury or death to personnel. Seek medical attention in the event of an injury.

STORAGE BOX (SIDE LIFT KIT) REMOVAL

1. Open storage box (Figure 1, Item 2) and remove contents.
2. Remove four locknuts (Figure 1, Item 6), washers (Figure 1, Item 7), screws (Figure 1, Item 4), washers (Figure 1, Item 3) and storage box (Figure 1, Item 2) from two mounting brackets (Figure 1, Item 1). Discard locknuts.
3. If seal (Figure 1, Item 5) is damaged, remove seal and discard.



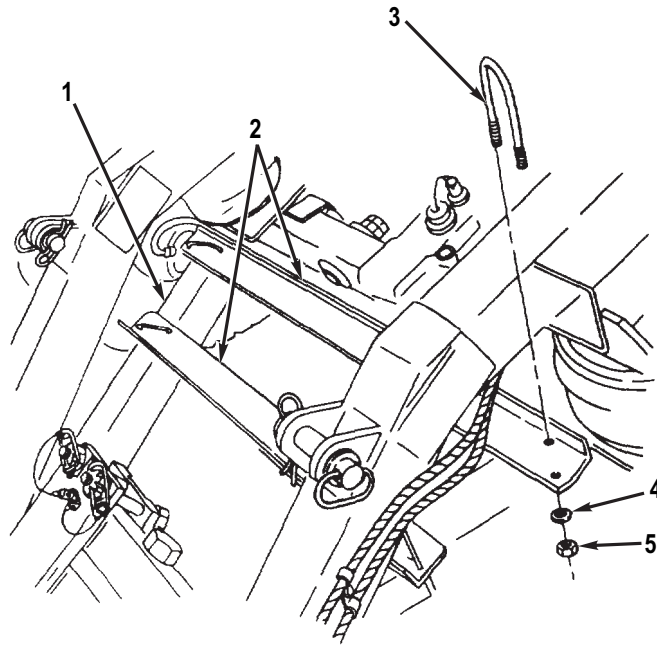
M0226JMS

Figure 1. Storage Box (Side Lift Kit) Removal.

END OF TASK

STORAGE MOUNTING BRACKETS (SIDE LIFT KIT) REMOVAL

Remove eight locknuts (Figure 2, Item 5), washers (Figure 2, Item 4), four U-bolts (Figure 2, Item 3) and two mounting brackets (Figure 2, Item 2) from axle assembly (Figure 2, Item 1) on front dolly. Discard locknuts.



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Figure 2. Storage Box Mounting Brackets (Side Lift Kit) Removal.

END OF TASK

SIDE LIFT KIT REMOVAL

1. Remove detent pin (Figure 3, Item 7) and remove crossbrace assembly (Figure 3, Item 6) from inside each top beam (Figure 3, Item 4).

NOTE

Perform step 2 for each of two crossbrace assemblies.

2. Disassemble crossbrace assemblies (Figure 3, Item 6):
 - a. At each end, unfold crossbrace brackets (Figure 3, Item 11) from crossbrace assemblies (Figure 3, Item 6).
 - b. At each end, remove cotter pin (Figure 3, Item 9), washer (Figure 3, Item 10), clevis pin (Figure 3, Item 1), and crossbrace brackets (Figure 3, Item 11).
 - c. Remove detent pin (Figure 3, Item 8) from internal crossbrace (Figure 3, Item 3) and external crossbrace (Figure 3, Item 2) and separate internal and external crossbraces.

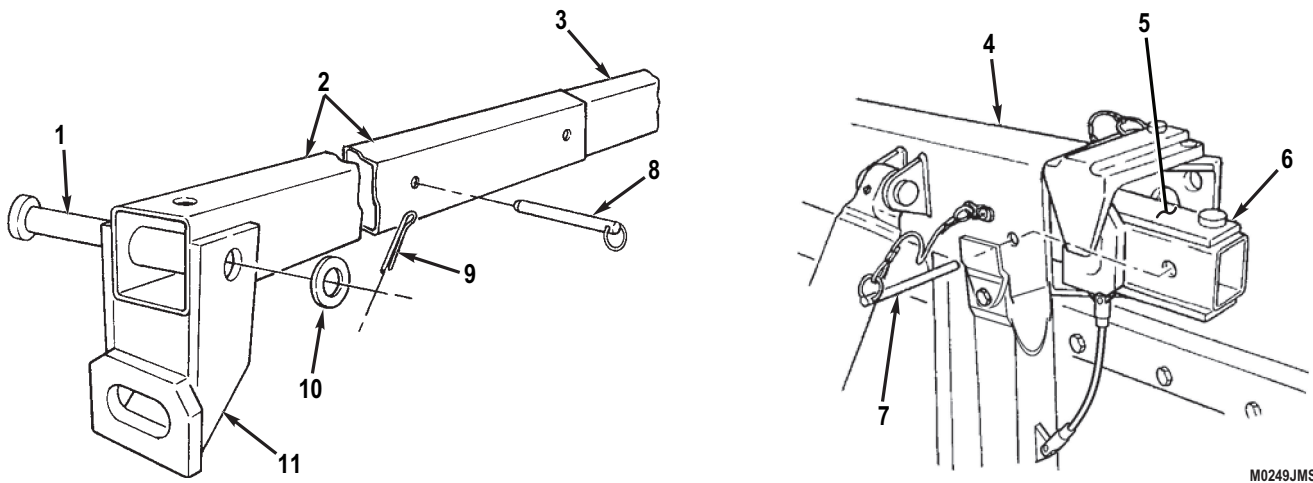
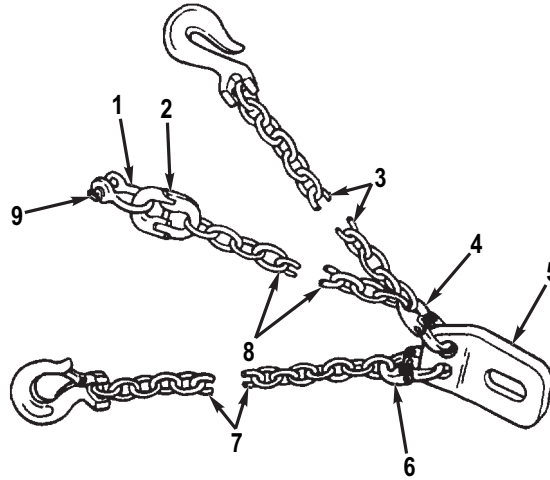


Figure 3. Side Lift Kit Removal.

NOTE

Perform step 3 for each of four chain assemblies.

3. Disassemble chain assemblies:
 - a. Remove lifting chain (Figure 4, Item 8) and take-up chain (Figure 4, Item 3) from detachable chain link (Figure 4, Item 4).
 - b. Remove axle chain (Figure 4, Item 7) from detachable chain link (Figure 4, Item 6).
 - c. Remove detachable chain links (Figure 4, Items 4 and 6) from adapter (Figure 4, Item 5).
 - d. Remove pin (Figure 4, Item 9) and shackle (Figure 4, Item 1) from detachable chain link (Figure 4, Item 2) at end of lifting chain (Figure 4, Item 8).

SIDE LIFT KIT REMOVAL - Continued

M0248JMS

Figure 4. Side Lift Kit Lifting Chains Removal.

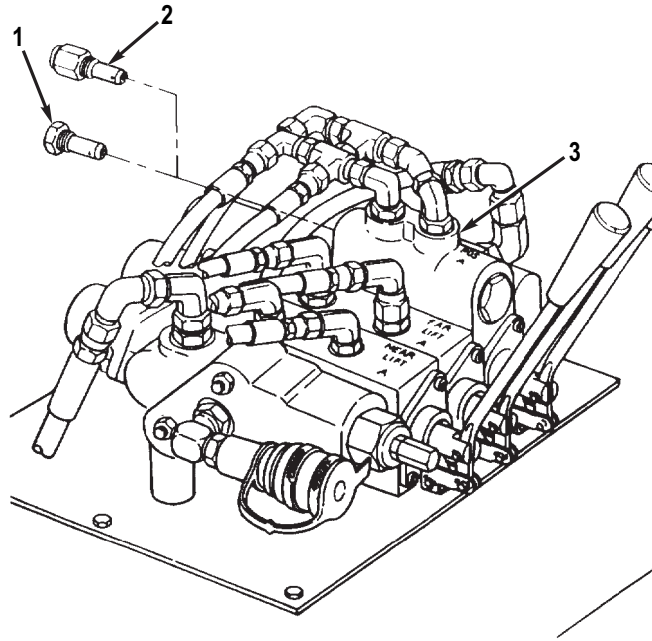
NOTE

Perform steps 4 through 10 for front and rear dollies.

4. Remove side lift kit data plates (Stowage and Decal/Data Plate Guide (WP 0018) and Data Plates Replacement (WP 0100)).
5. Remove lanyard assembly with detent pin from existing hole in top beam (Lanyard Assemblies Replacement Maintenance (WP 0086)).
6. Remove side lift kit positioning and lift cylinders (Hydraulic Lift Cylinders Maintenance (WP 0105) and Hydraulic Positioning Cylinder Maintenance (WP 0106)).
7. Install positioning and lift cylinders (Hydraulic Lift Cylinders Maintenance (WP 0105) and Hydraulic Positioning Cylinder Maintenance (WP 0106)).
8. Bleed hydraulic system (Hydraulic System Bleeding with Side Lift Kit (WP 0109)).

SIDE LIFT KIT REMOVAL - Continued

9. Remove side lift kit relief plug (Figure 5, Item 1) from bottom of positioning cylinders work section (Figure 5, Item 3).
10. Install relief valve cartridge (Figure 5, Item 2) in bottom of positioning cylinders work section (Figure 5, Item 3).



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Figure 5. Side Lift Kit Relief Plug and Valve Removal.

11. Check side lift kit items against packing slip to ensure that all components are present.
12. Install all side lift kit components in packing containers.

END OF TASK

SIDE LIFT KIT INSTALLATION**NOTE**

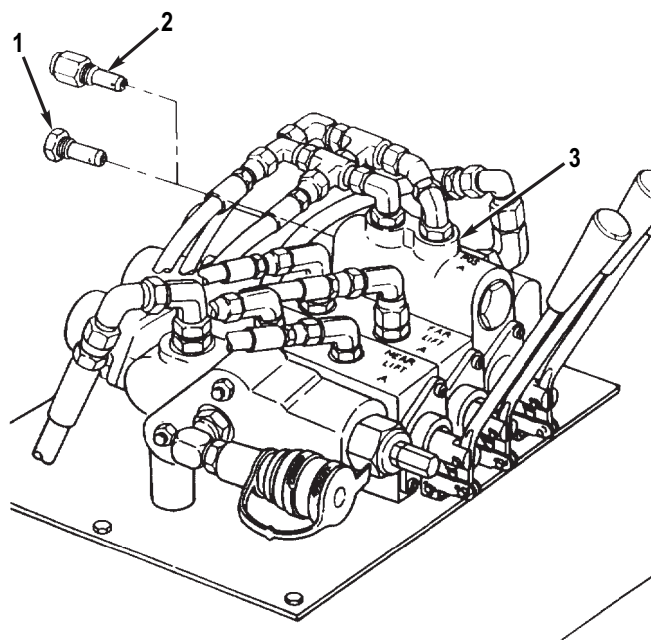
All components of side lift kit are listed under Functional Group Code 33, Special Purpose Kits in the RPSTL section of this manual.

1. Remove all side lift kit components from packing containers. Inspect for damage.
2. Check side lift kit items against packing slip to ensure that all components are present.

NOTE

Perform steps 3 through 8 on front and rear dollies.

3. Remove relief valve cartridge (Figure 6, Item 2) from bottom of positioning cylinders work section (Figure 6, Item 3) at hydraulic control valve. Install side lift kit relief plug (Figure 6, Item 1).



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Figure 6. Side Lift Relief Plug and Valve Installation.

4. Remove positioning cylinders and lift cylinders (Hydraulic Lift Cylinders Maintenance (WP 0105) and Hydraulic Positioning Cylinder Maintenance (WP 0106)).
5. Install side lift kit positioning cylinders and lift cylinders (Hydraulic Lift Cylinders Maintenance (WP 0105) and Hydraulic Positioning Cylinder Maintenance (WP 0106)).
6. Bleed hydraulic system (Hydraulic System Bleeding (M1022A1 with Side Lift Kit) (WP 0109)).
7. Install lanyard assembly with detent pin in existing hole in top beam (Lanyard Assemblies Replacement (WP 0086)).

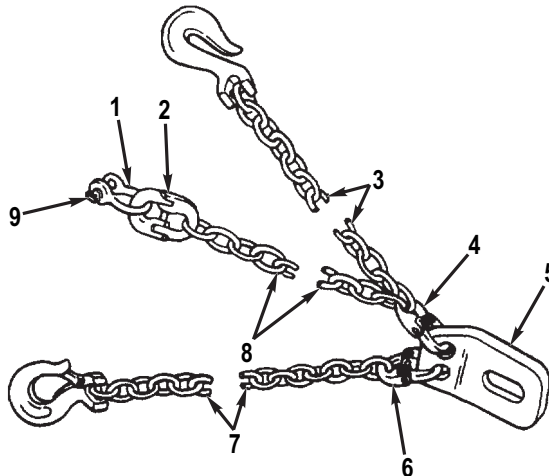
SIDE LIFT KIT INSTALLATION - Continued

8. Install side lift kit data plates according to locations shown in Stowage and Decal/Data Plate Guide (WP 0018) and instructions in Data Plates Replacement (WP 0100).

NOTE

Perform step 9 for each of four chain assemblies. Note that two chain assemblies will be used on left-hand side of shelter; two chain assemblies will be used on right-hand side of shelter.

9. Assemble chain assemblies:
- Install shackle (Figure 7, Item 1) with pin (Figure 7, Item 9) on detachable chain link (Figure 7, Item 2) at one end of lifting chain (Figure 7, Item 8).
 - Install detachable chain links (Figure 7, Items 4 and 6) on smaller holes of adapter (Figure 7, Item 5).
 - Install axle chain (Figure 7, Item 7) on detachable chain link (Figure 7, Item 6).
 - Install lifting chain (Figure 7, Item 8) and take-up chain (Figure 7, Item 3) on detachable chain link (Figure 7, Item 4).



M0248JMS

Figure 7. Side Lift Lifting Chains Installation.

NOTE

Perform step 10 for each of two crossbrace assemblies.

10. Assemble crossbrace assemblies:
- Slide internal crossbrace (Figure 8, Item 3) fully inside external crossbrace (Figure 8, Item 2). Install detent pin (Figure 8, Item 8) through internal and external crossbraces to secure.
 - At each end, install crossbrace bracket (Figure 8, Item 11) with clevis pin (Figure 8, Item 1), washer (Figure 8, Item 10), and cotter pin (Figure 8, Item 9). Fold crossbrace brackets over crossbrace assembly (Figure 8, Item 6).
11. Stow crossbrace assembly (Figure 8, Item 6) inside each top beam (Figure 8, Item 4) and secure with detent pin (Figure 8, Item 7).
12. Stow all side lift kit items in storage box.

SIDE LIFT KIT INSTALLATION - Continued

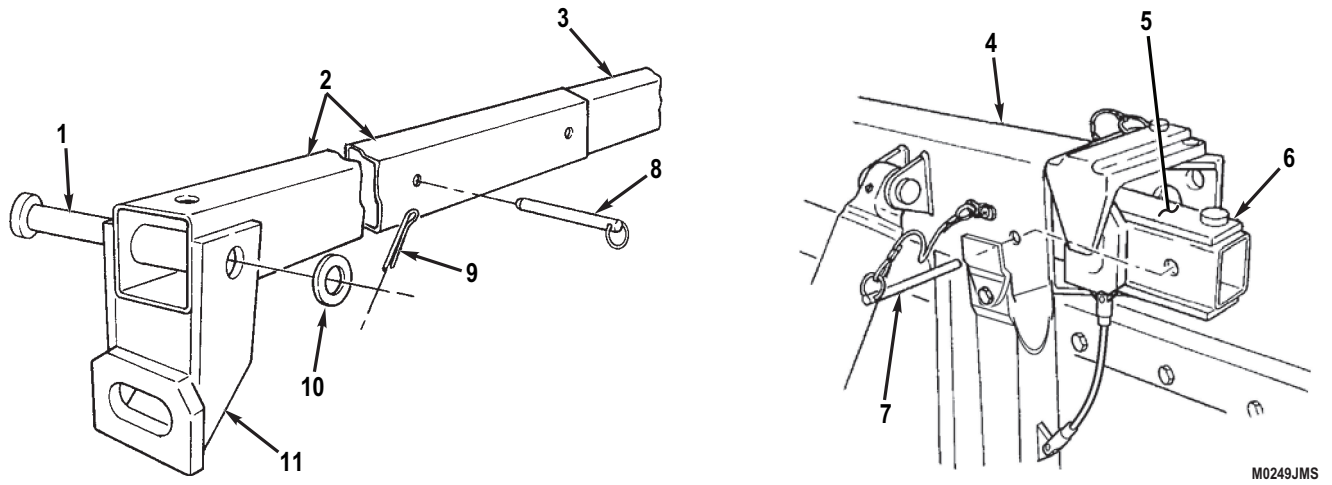
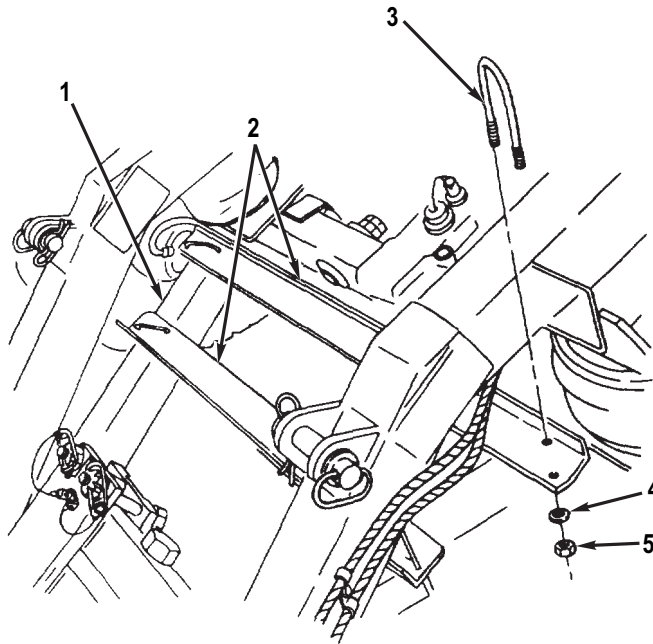


Figure 8. Side Lift Kit Installation.

END OF TASK

STORAGE BOX MOUNTING BRACKETS (SIDE LIFT KIT) INSTALLATION

1. Position two mounting brackets (Figure 9, Item 2) on axle assembly (Figure 9, Item 1) of front dolly. To ensure correct positioning of mounting brackets, place storage box on mounting brackets with hinged side of storage box facing pivoting tray. Adjust positioning as required. Remove storage box.
2. Install four U-bolts (Figure 9, Item 3), eight washers (Figure 9, Item 4), and new locknuts (Figure 9, Item 5) on axle assembly (Figure 9, Item 1).



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Figure 9. Storage Box Mounting Brackets (Side Lift) Installation.

END OF TASK**STORAGE BOX (SIDE LIFT KIT) INSTALLATION****NOTE**

Ensure that seal mounting surface on cover is clean and dry.

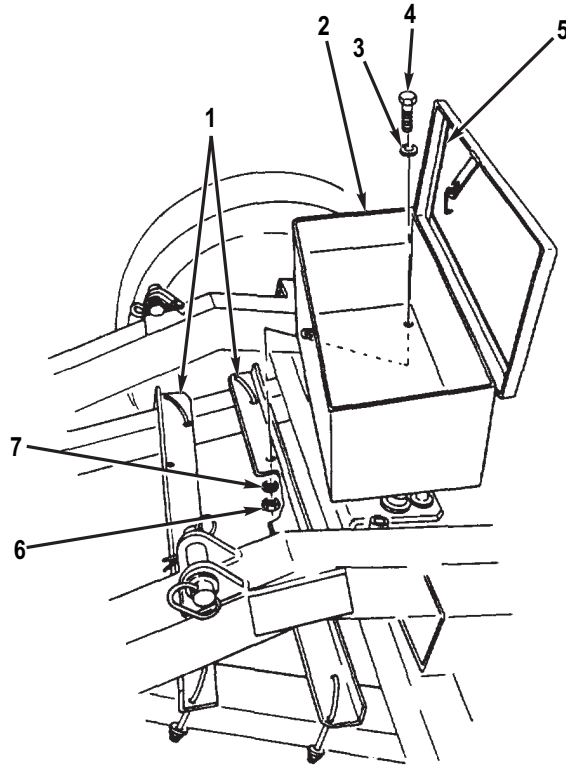
1. If removed, install seal (Figure 10, Item 5) with adhesive.

NOTE

Hinged side of storage box should be installed facing pivoting tray.

2. Install storage box (Figure 10, Item 2) on two mounting brackets (Figure 10, Item 1) with four washers (Figure 10, Item 3), screws (Figure 10, Item 4), washers (Figure 10, Item 7), and new locknuts (Figure 10, Item 6).
3. Place contents in storage box (Figure 10, Item 2) and close.

STORAGE BOX (SIDE LIFT KIT) INSTALLATION - Continued



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Figure 10. Storage Box Installation.

END OF TASK

END OF WORK PACKAGE

**FIELD MAINTENANCE
COLD START KIT REPLACEMENT**

INITIAL SETUP:**Tools and Special Tools**

Tool Kit, General Mechanic's (WP 0194, Table 2,
Item 1)

Personnel Required

(Two)

Materials/Parts

Locknut (WP 0166, Item 11) Qty: 2
Locknut (WP 0186, Item 8) Qty: 4
Lockwasher (WP 0178, Item 8) Qty: 2

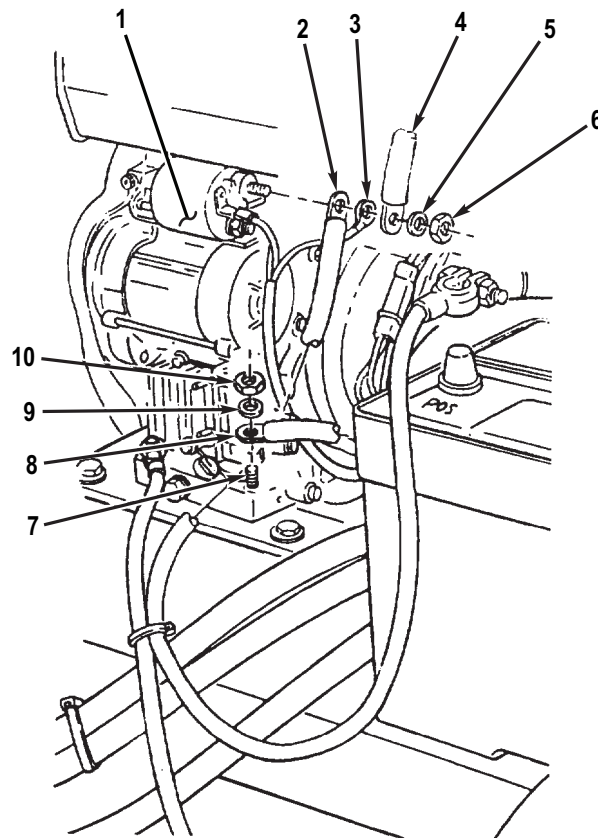
Equipment Condition

Engine starter switch set to OFF position
(WP 0005)
Negative (-) ground cable disconnected from
battery (WP 0042)

REMOVAL**NOTE**

Removal of cold start kit from front and rear dollies is similar. Differences will be pointed out as they occur. Front dolly removal is shown.

1. Remove locknut (Figure 1, Item 10) washer (Figure 1, Item 9) and negative (-) black cable (Figure 1, Item 8) from engine mounting screw (Figure 1, Item 7). Discard locknut.
2. Remove locknut (Figure 1, Item 10) and washer (Figure 1, Item 9) from engine mounting screw (Figure 1, Item 7) that is NOT used to secure negative (-) battery cable. Discard locknut.
3. Remove nut (Figure 1, Item 6) and lockwasher (Figure 1, Item 5) from starter terminal (Figure 1, Item 1). Remove positive (+) red cable (Figure 1, Item 4) from starter (Figure 1, Item 1) without removing positive (+) battery cable (Figure 1, Item 2) and wiring harness red wire (Figure 1, Item 3).
4. If cold start kit is to be reinstalled, temporarily reinstall lockwasher (Figure 1, Item 5) and nut (Figure 1, Item 6) to starter (Figure 1, Item 1) to keep battery cable and wiring harness red wire in place.

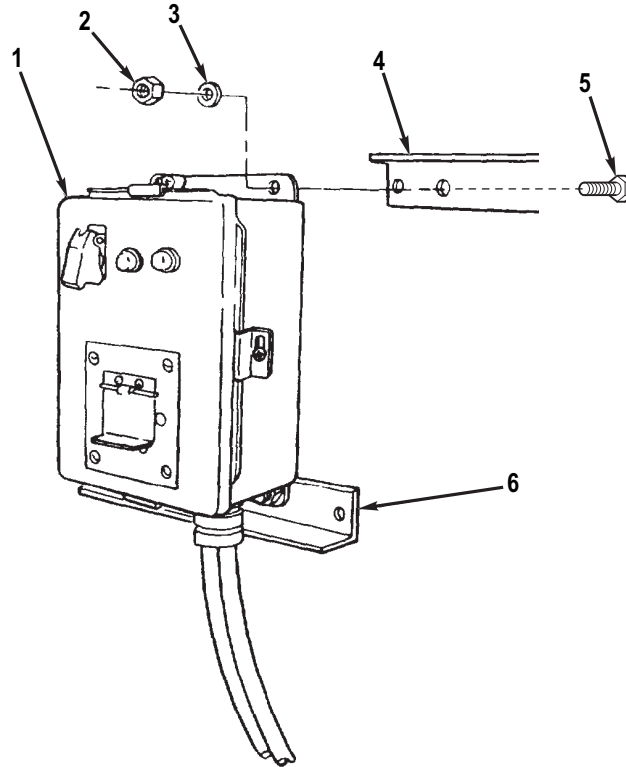


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Figure 1. Cold Start Kit Disconnection.

REMOVAL - Continued

5. Remove four locknuts (Figure 2, Item 2), washers (Figure 2, Item 3), bolts (Figure 2, Item 5), and cold start kit enclosure (Figure 2, Item 1) from two mounting angles (Figure 2, Items 4 and 6).



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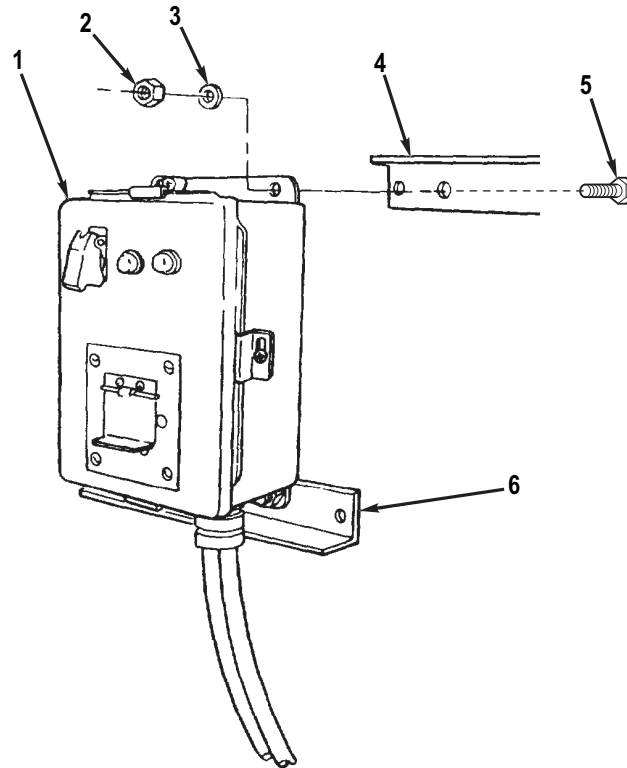
Figure 2. Cold Start Kit Mounting Angles Removal.

END OF TASK

INSTALLATION**NOTE**

Installation of cold start kit to front and rear dollies is similar. Differences will be pointed out as they occur. Front dolly installation is shown.

1. Install enclosure assembly (Figure 3, Item 1) to two mounting angles (Figure 3, Items 4 and 6) with four screws (Figure 3, Item 5), washers (Figure 3, Item 3), and new locknuts (Figure 3, Item 2).



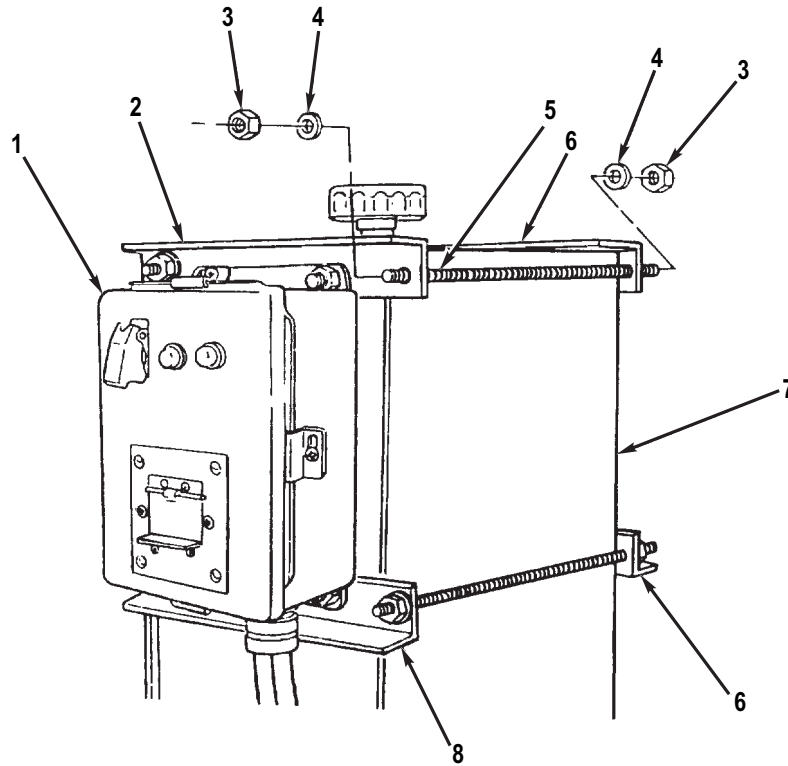
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Figure 3. Cold Start Kit Mounting Angles Installation.

INSTALLATION - Continued**CAUTION**

If enclosure assembly is not installed in proper location at hydraulic reservoir, interference with telescopic brace will occur during operation, causing damage to enclosure assembly.

2. Position enclosure assembly (Figure 4, Item 1) with mounting angles (Figure 4, Items 2 and 8) against hydraulic reservoir (Figure 4, Item 7). On front dolly, top mounting angle (Figure 4, Item 2) should be at top of reservoir. On rear dolly, top mounting angle should be 6 in. (15 cm) down from top of reservoir.
3. Secure enclosure assembly (Figure 4, Item 1) to hydraulic reservoir (Figure 4, Item 7) with four mounting angles (Figure 4, Items 2, 8, and 6), four threaded rods (Figure 4, Item 5), eight washers (Figure 4, Item 4), and new locknuts (Figure 4, Item 3).

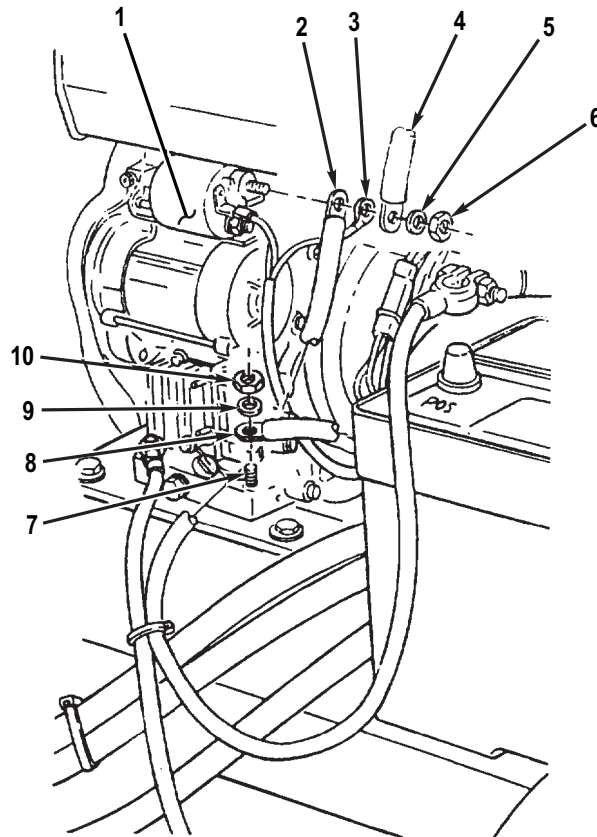


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Figure 4. Cold Start Kit Installation.

INSTALLATION - Continued

4. Remove nut (Figure 5, Item 6) and lockwasher (Figure 5, Item 5) from starter (Figure 5, Item 1). Discard lockwasher.
5. Connect positive (+) red cable (Figure 5, Item 4) to starter (Figure 5, Item 1) without disconnecting positive (+) battery cable (Figure 5, Item 2) and wiring harness red wire (Figure 5, Item 3). Install new lockwasher (Figure 5, Item 5) and nut (Figure 5, Item 6).
6. Remove locknut (Figure 5, Item 10) and washer (Figure 5, Item 9) from engine mounting screw (Figure 5, Item 7) that is NOT used to secure negative (-) battery cable. Discard locknut.
7. Connect negative (-) black cable (Figure 5, Item 8) to engine mounting screw (Figure 5, Item 7) with washer (Figure 5, Item 9) and new locknut (Figure 5, Item 10).



M0229JMS

Figure 5. Cold Start Kit Connections.

END OF TASK**FOLLOW-ON TASKS**

Connect negative (-) ground battery cable to battery (WP 0042).

END OF TASK**END OF WORK PACKAGE**

FIELD MAINTENANCE GENERAL MAINTENANCE INSTRUCTIONS

INITIAL SETUP:**Tools and Special Tools**

Gun, Air Blow (WP 0198, Table 1, Item 14)
Suitable lifting device

References (cont.)

TM 9-214
WP 0005
WP 0028
WP 0029
WP 0042
WP 0128

References

ATTP 3-34.39
TB 43-0209
TM 43-0139

GENERAL

1. These general maintenance instructions contain general shop practices and specific methods you must be familiar with to properly maintain the M1022A1 Dolly Set. You should read and understand these practices and methods before performing any maintenance procedures.
2. 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 parts.
3. In some cases, a part may be damaged during removal. If the part appears to be good, and other parts behind it are not defective, leave it in place and continue with the procedure. Here are a few simple rules:
 - a. Do not remove studs unless loose, bent, broken, or otherwise damaged.
 - b. Do not remove bearings or bushings unless damaged. If you need to remove them to access parts behind, carefully pull out bearings and bushings.
 - c. Replace all gaskets, lockwashers, locknuts, seals, cotter pins, and preformed packings.
4. The following "Initial Setup" information applies to all maintenance procedures:
 - a. Resources are not listed unless they apply to the procedure.
 - b. "Personnel Required" is listed only if more than one mechanic is required to complete the procedure.
5. All tags and forms attached to the equipment must be checked to learn the reason for removal of equipment from service. Modification Work Orders (MWOs) and Technical Bulletins (TBs) must also be checked for equipment changes and updates.

WORK SAFETY

1. Before beginning a procedure, think about the safety risks and hazards to yourself and to others. Wear protective gear such as safety goggles or lenses, safety shoes, rubber apron, or gloves.
2. Observe all WARNINGS and CAUTIONS.
3. When lifting heavy parts, have someone help you. Ensure that lifting equipment or jack is working properly, that it meets weight requirement of part being lifted, and that it is securely fastened to part.
4. Immediately clean up spilled fluids to avoid slipping.
5. Always use power tools carefully.
6. Before beginning a procedure, ensure that the following conditions have been observed, unless otherwise specified:
 - a. Dolly set must be parked on level ground with parking brakes applied. If parking brakes are not available, chock wheels.
 - b. When troubleshooting an electrical malfunction or performing electrical maintenance on either dolly set lighting system or engine, disconnect either intervehicular cable or battery negative (-) ground cable (General Operating Instructions (WP 0005) or Battery Cables Replacement (WP 0042)).

GENERAL - Continued

- c. Before disconnecting any air line:
 - (1) Apply parking brakes and chock wheels.
 - (2) Disconnect intervehicular gladhands from towing vehicle (General Operating Instructions (WP 0005)).
 - (3) Drain air reservoir (Operator/Crew Maintenance (WP 0029)).
 - (4) Crack line before disconnection to release any trapped air.
- d. Before disconnecting any hydraulic line:
 - (1) Lower dolly set to the ground, and detach front and rear dollies (General Operating Instructions (WP 0005)).
 - (2) Fully retract lift and positioning cylinders (General Operating Instructions (WP 0005)).
 - (3) Shut down engine (General Operating Instructions (WP 0005)).
 - (4) Crack line to control hydraulic fluid spills.
- e. Before performing maintenance on engine:
 - (1) Shut down engine and set starter switch to OFF position (General Operating Instructions (WP 0005)).
 - (2) If working on fuel or electrical components, disconnect battery negative (-) ground cable (Battery Cables Replacement (WP 0042)).
 - (3) DO NOT smoke when working with fuel system.
 - (4) Allow engine to cool, unless otherwise specified.

CLEANING INSTRUCTIONS**WARNING**

Accidental or intentional introduction of liquid contaminants into the environment is a violation of state, federal, and military regulations. Refer to Army Petroleum, Oils, and Lubricants (POL) for information concerning storage, use, and disposal of these liquids. Failure to comply may cause damage to environment and health of personnel. Seek medical attention in the event of an injury.

WARNING

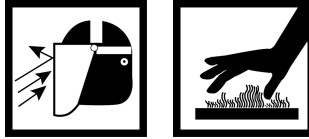
Improper cleaning methods and use of unauthorized cleaning liquids or solvents can injure personnel and damage equipment. Seek medical attention in the event of an injury.

1. **General.** Cleaning instructions will be the same for the majority of parts and components which make up the dolly set. The following applies 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 after cleaning (Preservation of Parts in this work package).

CLEANING INSTRUCTIONS - Continued**2. Steam Cleaning.****CAUTION**

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

- a. Before steam cleaning the dolly set, protect all electrical equipment which could be damaged by steam or moisture.

WARNING

Avoid contact with live steam. Live steam can burn skin, cause blindness, and cause other serious injuries. Wear eye protection, gloves, and apron when using live steam. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

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

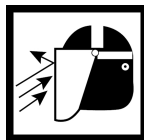
CLEANING INSTRUCTIONS - Continued

3. Castings, Forgings, and Machined Metal Parts

WARNING



- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
 - Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- a. Clean inner and outer surfaces with cleaning solvent (WP 0197, Table 1, Item 45) and dry with clean rags (WP 0197, Table 1, Item 42).
 - b. Remove grease and accumulated deposits with a scrub brush (WP 0197, Table 1, Item 3).

CLEANING INSTRUCTIONS - Continued**WARNING**

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should never exceed 30 psi (207 kPa). Wear protective clothing (eye protection, gloves, etc.) and use caution. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

- c. Clean all threaded holes with compressed air to remove dirt and cleaning fluids.

CAUTION

DO NOT wash oil seals, electrical cables, and flexible hoses with cleaning solvent or mineral spirits. Serious damage or destruction of material will result.

4. **Oil Seals, Electrical Cables, and Flexible Hoses.** Wash oil seals, electrical cables, and flexible hoses with a solution of detergent (WP 0197, Table 1, Item 13) and water, and wipe dry with a clean rag (WP 0197, Table 1, Item 42).
5. **Bearings.** Clean bearings IAW TM 9-214.

END OF TASK**PRESERVATION OF PARTS**

Unpainted metal parts that will not be installed immediately after cleaning may be covered with a thin coat of lubricating oil (WP 0197, Table 1, Item 38).

END OF TASK**PAINTING**

1. On painted areas where paint has been removed, paint IAW procedures outlined in TM 43-0139 and TB 43-0209.
2. For camouflage painting instructions, paint IAW ATTP 3-34.39 (Camouflage, Concealment, and Decoys).

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:
 - a. Wear, distortion, cracks, and any other damage in or around holes.
 - b. Threaded areas for wear distortion (stretching) and evidence of cross-threading.
3. Inspect metal lines, flexible lines or hoses, and metal fittings and connectors for the following:

INSPECTION INSTRUCTIONS - Continued

- a. Metal lines for sharp kinks, cracks, bad bends, and dents.
 - b. Flexible lines or hoses for fraying, evidence of leakage, and loose metal fittings or connectors.
 - c. Metal fittings and connectors for thread damage and worn or rounded hex heads.
4. Inspect castings, forgings, and machined metal parts for the following:
 - a. Machined surfaces for nicks, burrs, raised metal wear, and corrosion.
 - b. Inner and outer surfaces for breaks and cracks.
 5. Inspect bearings IAW TM 9-214.

END OF TASK**DISASSEMBLY AND ASSEMBLY INSTRUCTIONS**

Follow these general practices when performing disassembly and assembly procedures:

1. Keep major components together whenever possible and practical.
2. Tag hoses, electrical wires, cables, and harnesses to identify them and aid during installation.
3. Keep related parts together for identification purposes.
4. Temporarily install attaching hardware such as screws, bolts, washers, and nuts to prevent loss.
5. Only disassemble to the point of the problem.
6. Ensure that parts are clean and lubricated before assembly.

END OF TASK**REPAIR INSTRUCTIONS**

1. Repair castings, forgings, and machined parts using the following instructions:
 - a. Repair minor cracked castings or forgings IAW TC 9-237.
 - b. Repair minor damage to machined surfaces with an abrasive cloth (WP 0197, Table 1, Item 5).
 - c. Replace any deeply nicked machined surface that could affect the assembly operation.
 - d. Repair minor damage to threaded screw holes with thread tap of same size to prevent cutting oversize.
2. After repair, thoroughly clean all parts to prevent dirt, metal chips, or other foreign material from entering any working parts.

END OF TASK**LUBRICATION INSTRUCTIONS**

Refer to Lubrication Instructions (WP 0028) for detailed, illustrated instructions on proper lubrication. Some general practices to remember:

1. Use the correct lubricant.
2. Keep lubricants clean.
3. Clean all fittings prior to lubrication.
4. Clean and lubricate disassembled and new parts to prevent rust.

END OF TASK

APPLICATION OF ADHESIVES

1. **General.** Adhesives are recommended in some tasks to ensure and strengthen seals. The following information describes their correct use and application.
2. **Silicone Compound.** Silicone compound (WP 0197, Table 1, Item 12) is used to seal parts against moisture. Use the following instructions when applying:
 - a. Any time a seal is broken, the part must be thoroughly cleaned to remove any remaining sealing compound and dirt.
 - b. Thoroughly clean surface before applying silicone compound.
 - c. When applying silicone compound, ensure that the area is completely covered. Press silicone compound into and around parts as necessary.
 - d. Silicone compound will set in 15-30 minutes depending on temperature and humidity.
3. **Sealing Compound.** Sealing compound (WP 0197, Table 1, Item 10 and WP 0197, Table 1, Item 11) provides a seal against leakage and a resistance to loosening when used in the assembly of threaded, slip-fitted, or press-fitted parts. Always use grade of sealing compound specified and never use when other retaining means are provided, such as lockwires, lockwashers, lockplates, and fasteners. **DO NOT** use sealing compound on brass fittings, plugs, or items that need frequent servicing, or when operating temperatures exceed 300°F (149°C). Apply sealing compound as follows:
 - a. Before application, clean threads to remove oil, grease, and metal chips.
 - b. Apply sealing compound to second and third threads. **DO NOT** apply to first thread to ensure system cleanliness.
 - c. Sealing compound will dry in 6-24 hours at room temperature.
 - d. Adjustments for elbows, gages, and valves can be made up to 24 hours after application without affecting the seal.

END OF TASK

TOOL REQUIREMENTS

1. The following are general practices regarding the use of tools:
 - a. Always use the proper tool kit and tools for the procedure being performed.
 - b. Ensure that tools are clean and serviceable.
 - c. Return tools to toolbox when finished with repair or maintenance.
 - d. Inventory tools before and after each use.
 - e. Return toolboxes and tools to tool storage when not in use.
2. Some maintenance tasks may require special or fabricated tools. The "Initial Setup" of the procedure will specify any special or fabricated tools needed to perform that procedure. Use these special tools only for the maintenance procedures for which they are designed or called out. If you are unfamiliar with a required tool, see your supervisor.

END OF TASK

TAGGING WIRES AND HOSES

1. Use marker tags (WP 0197, Table 1, Item 49) to identify all electrical wires and all air, hydraulic, fuel, and oil hoses and lines, and any other parts which may be hard to identify or replace later. Fasten tags to parts during

TAGGING WIRES AND HOSES - Continued

removal by wrapping wire fasteners around or through parts and twisting ends together. Position tags to be out of the way during cleaning, inspection, and repair. Mark tags with a pencil, pen, or marker.

2. Whenever possible, identify electrical wires with the number of the terminal or wire to which it connects. If no markings can be found, tag both wires or wire and terminal, and use the same identifying mark for both. If you cannot tag a wire because it must fit through a small hole or you cannot reach it, write down the description of the wire and the point to which it connects or draw a simple diagram on paper. Be sure to write down enough information so you will be able to properly connect the wires during assembly. If you need to identify a loose wire, look for identifying numbers near the end of the wire, stamped on a permanent metal tag. Compare this number to wire numbers on the appropriate electrical schematic.
3. Identify air, hydraulic, fuel, and oil hoses and lines when you are taking off more than one line at the same time. Mark tags with points to which lines and hoses must be connected. If it is not obvious which end of a line goes where, tag each end of the line.
4. Identify and tag other parts as required by name and installed location.

END OF TASK**SOLDERING****WARNING**

DO NOT touch solder for at least 30 seconds after heating. Solder is hot and will burn you. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

1. Solder connection must be bright and clean before soldering. Remove dirt and grease with a wire brush (WP 0197, Table 1, Item 4) or a pocket knife (WP 0198, Table 1, Item 30). Solder used must be of lead alloy (WP 0197, Table 1, Item 44) with soldering flux (WP 0197, Table 1, Item 19). All wires, parts, and soldering gun (WP 0198, Table 1, Item 25) must be tinned for good connection and maximum transfer of heat.
2. To prevent overheating damage to electrical parts when soldering and unsoldering connections, hold bare wire, lead, or terminal lug close to soldering point with long roundnose pliers (WP 0198, Table 1, Item 30). Pliers act as heat sink and absorb excess heat.

END OF TASK

HEAT SHRINKABLE TUBING

Use heat shrinkable tubing (WP 0197, Table 1, Item 31) to insulate soldered and crimped electrical connections as follows:

- a. Cut length of new heat shrinkable tubing twice the length of the connection to be covered.
- b. Slide the heat shrinkable tubing onto the wire and out of the way before making electrical connection.
- c. After making electrical connection, slide heat shrinkable tubing into place over electrical connection.

WARNING

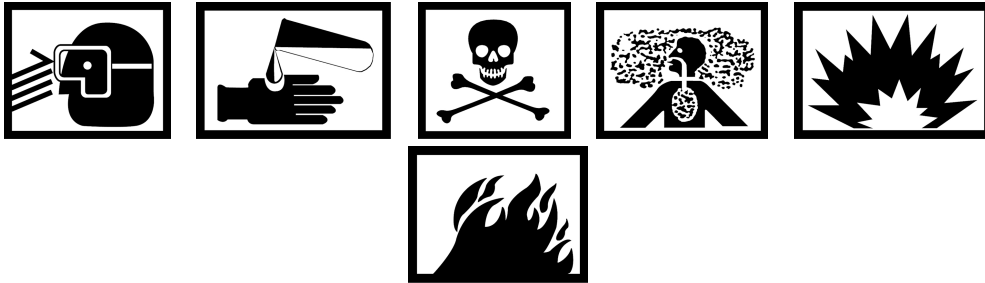
DO NOT touch heat shrinkable tubing for at least 30 seconds after heating. Heat shrinkable tubing is hot and will burn you. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

- d. Hold air blow gun (WP 0198, Table 1, Item 14) 4-5 in. (10.2-12.7 cm) away from heat shrinkable tubing and apply heat for approximately 30 seconds. Stop applying heat as soon as heat shrinkable tubing forms to the shape of the electrical connection.

END OF TASK

ELECTRICAL GROUND POINTS**WARNING**

When troubleshooting an electrical malfunction or performing electrical maintenance on either engine or dolly set lighting system, ALWAYS disconnect either battery negative (-) ground cable or intervehicular cable from towing vehicle. Failure to follow this warning may create a spark and electrical shock. Failure to follow this warning may result in injury to personnel. Seek medical attention in the event of an injury.

WARNING

- Cleaning solvent MIL-PRF-680 may be irritating to the eyes and skin. Use 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. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Use cleaning solvent 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. 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 a confined space, heated above ambient temperatures, or agitated. Keep container sealed when not in use. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Rags saturated with cleaning solvent must be disposed of IAW authorized facility procedures. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.
- Cleaning solvent MIL-PRF-680 is toxic and flammable. Always wear eye protection and gloves, and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and DO NOT breathe vapors. DO NOT use near open flame or excessive heat. Failure to comply may result in death or injury to personnel. Seek medical attention in the event of an injury.

ELECTRICAL GROUND POINTS - Continued

Many electrical problems are the result of poor ground connections. You can ensure that ground connections are good by performing the following steps:

- a. Remove hardware connecting ground cable terminal lug to ground point.
- b. Clean mounting hardware, ground cable terminal lugs, and ground point with cleaning solvent (WP 0197, Table 1, Item 45) and scrub brush (WP 0197, Table 1, Item 3).
- c. Remove any rust with wire brush (WP 0197, Table 1, Item 4) and crocus cloth (WP 0197, Table 1, Item 6).
- d. Look for cracks, loose terminal lugs, and stripped threads. Replace any defective parts.
- e. Install hardware connecting ground cable terminal lug to ground point. Ensure that all hardware is tight.

END OF TASK

LINES AND PORTS

To keep dirt from contaminating systems when removing and installing air, hydraulic, fuel, and oil hoses and lines, perform the following steps:

- a. Clean fittings and surrounding area before disconnecting lines.
- b. Cover, cap, plug, or tape lines and ports after disconnecting lines. When these are not available, use hand-carved wooden plugs, clean rags (WP 0197, Table 1, Item 42), duct tape (WP 0197, Table 1, Item 51), or other similar materials to prevent dirt from entering system.
- c. Ensure that new and used parts are clean before installing.
- d. Wait to remove cover, cap, plug, or tape from lines and ports until just before installing lines.
- e.
 1. Connect intervehicular and intradolly gladhands (General Operating Instructions (WP 0005)).
 2. Fully pressurize dolly set airbrake system IAW towing vehicle Operator's Manual.
 3. Apply a solution of detergent (WP 0197, Table 1, Item 13) and water to front and rear dolly gladhands, air hoses, fittings, air reservoirs, brake chambers, and valves.
 4. Make note of any leaks, damage, or loose connections found. Tighten loose connections and replace damaged components.

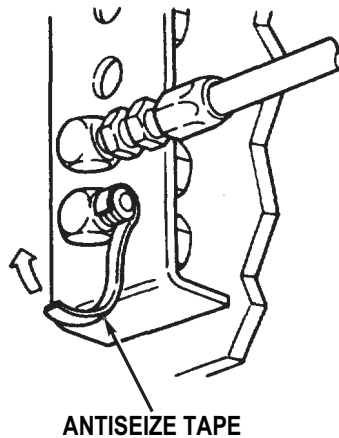
END OF TASK

ANTISEIZE TAPE**CAUTION**

- If threads are not clean and dry and antiseize tape is not clean, leaks can occur.
- **DO NOT** exceed specified torque or use power tools to tighten fittings taped with antiseize tape. Overtightening could damage fitting threads and cause connection to leak.

When connecting air hoses and fittings without compression sleeves or packings, antiseize tape (WP 0197, Table 1, Item 50) may be used to keep connections from leaking. Use as follows:

- a. Ensure that threads are clean and dry and antiseize tape is clean
- b. Start antiseize tape one or two threads from small or leading edge of fitting, joining tape together with an overlap of about 1/8 in. (3.18 mm) for fittings with fine threads. For fittings with coarse threads, tape should be wrapped around threads two or three times.
- c. Tightly wrap antiseize tape in same direction as you would tighten a nut. Tape must be pressed into threads without cutting or ripping.
- d. Using hand tools, tighten fittings to specified torque.



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Figure 1. Antiseize Tape.

END OF TASK**FLUID DISPOSAL**

Dispose of contaminated drained fluids IAW the Standard Operating Procedures (SOP) of your unit.

END OF TASK

ELECTRICAL REPAIR

1. **General.** Specific electrical system maintenance tasks are covered in Chapter 5. The following are general electrical practices and procedures.
2. **Identification Band Replacement.**
 - a. Remove identification band (Figure 2, Item 2) from wire lead (Figure 2, Item 1) and discard.
 - b. Mark new identification band (Figure 2, Item 2) with proper identification number.
 - c. Position new identification band (Figure 2, Item 2) on wire lead (Figure 2, Item 1) and bend tabs over wire lead.
3. **Terminal Lead Replacement.**
 - a. Cut terminal lead (Figure 2, Item 3) off wire lead (Figure 2, Item 4) and discard.
 - b. Remove insulation from wire lead (Figure 2, Item 4) equal to depth of new terminal lead (Figure 2, Item 3).
 - c. Position new terminal lead and crimp.
4. **Male Connector Repair.**
 - a. Slide back shell (Figure 2, Item 6) and remove washer (Figure 2, Item 7) from wire lead (Figure 2, Item 5). Cut ferrule (Figure 2, Item 8) from wire lead and discard. Remove shell.
 - b. Remove insulation from wire lead (Figure 2, Item 5) equal to depth of new ferrule (Figure 2, Item 8).
 - c. Position new ferrule (Figure 2, Item 8) on wire lead (Figure 2, Item 5) and crimp.
 - d. Slide shell (Figure 2, Item 6) on wire lead (Figure 2, Item 5). Position washer (Figure 2, Item 7) on wire lead (Figure 2, Item 5) near crimping. Slide shell (Figure 2, Item 6) over washer and ferrule (Figure 2, Item 8).
 - e. Position washer (Figure 2, Item 7) on wire lead (Figure 2, Item 5) near crimping. Slide shell (Figure 2, Item 6) over washer and ferrule (Figure 2, Item 8).

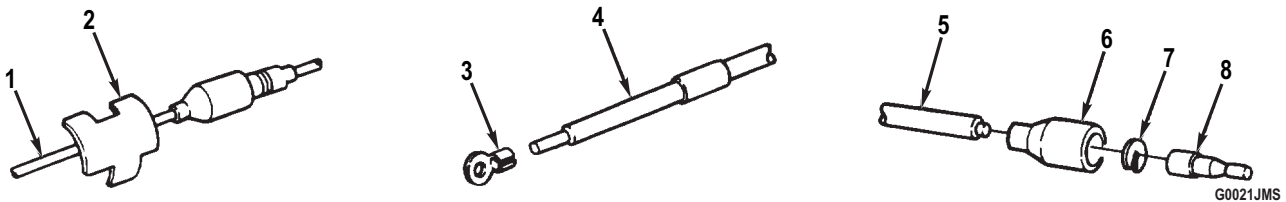


Figure 2. Male Connector Repair.

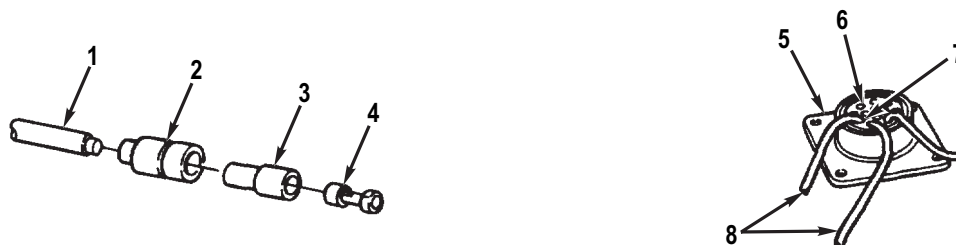
ELECTRICAL REPAIR - Continued**5. Female Connector Repair.**

- a. Slide back shell (Figure 3, Item 2) and sleeve (Figure 3, Item 3) and cut terminal (Figure 3, Item 4) from wire lead (Figure 3, Item 1). Discard terminal.
- b. Remove sleeve (Figure 3, Item 3) and shell (Figure 3, Item 2) from wire lead (Figure 3, Item 1).
- c. Remove insulation from wire lead (Figure 3, Item 1) equal to depth of new terminal (Figure 3, Item 4).
- d. Slide shell (Figure 3, Item 2) and sleeve (Figure 3, Item 3) on wire lead (Figure 3, Item 1).
- e. Position new terminal (Figure 3, Item 4) on wire lead (Figure 3, Item 1) and crimp.
- f. Slide sleeve (Figure 3, Item 3) and shell (Figure 3, Item 2) over terminal (Figure 3, Item 4).

6. Receptacle Connector Repair.**NOTE**

Male and female receptacle connectors are repaired the same way. Male connector is illustrated.

1. Use soldering gun to heat soldered connections (Figure 3, Item 7). Disconnect wires (Figure 3, Item 8) from pin locations (Figure 3, Item 6) of receptacle connector (Figure 3, Item 5).
2. Position new wires (Figure 3, Item 8) at appropriate pin locations (Figure 3, Item 6). Solder connections using solder (WP 0197, Table 1, Item 44) and soldering gun.



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Figure 3. Receptacle Connector Repair.

END OF TASK**END OF WORK PACKAGE**

**FIELD MAINTENANCE
TORQUE LIMITS**

INITIAL SETUP:

Not Applicable

SCOPE

This work package lists standard torque value (Table 1) and engine torque values (Table 2), and provides general information for applying torque. Special torque values and tightening sequences are indicated in the maintenance procedures for applicable components.

GENERAL**CAUTION**

If replacement screws are of higher grade than originally supplied, use torque specifications for the original. This will prevent equipment damage due to overtorquing.




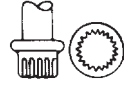
NOTE

Engine screw and bolt material grades are indicated by numbers punched on screw and bolt heads. Prior to tightening, check material grade number.

1. Always use the torque values listed in Table 1 or Table 2 when the maintenance procedure does not give a specific torque value.
2. Unless otherwise indicated, standard torque tolerance shall be $\pm 10\%$.
3. Torque values listed are based on clean, dry threads. Reduce torque by 10% when engine oil is used as a lubricant. Reduce torque by 20% if new plated screws are used.
4. Screws threaded into aluminum may require reductions in torque of 30% or more of Grade 5 screws torque. Screws threaded into aluminum must also attain two screw diameters of thread engagement.




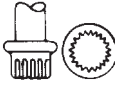
GENERAL - Continued

Table 1. Torque Limits.

| Current Usage | | Much Used | | Much Used | | Used at Times | | Used at Times | |
|------------------------------------|--------|---|-----|---|-----|--|-----|---|-----|
| Quality of Material | | Indeterminate | | Minimum Commercial | | Medium Commercial | | Best Commercial | |
| SAE Grade Number | | 1 or 2 | | 5 | | 6 or 7 | | 8 | |
| Screw Head Markings | |  | |  | |  | |  | |
| Manufacturer's marks may vary | | | | | | | | | |
| These are all SAE Grade 5 (3 line) | | | | | | | | | |
| screw Body Size | | Torque | | Torque | | Torque | | Torque | |
| Inches | Thread | lb-ft | N•m | lb-ft | N•m | lb-ft | N•m | lb-ft | N•m |
| 1/4 | 20 | 5 | 7 | 8 | 11 | 10 | 14 | 12 | 19 |
| | 28 | 6 | 8 | 10 | 14 | | | 14 | 16 |
| 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 |
| 7/18 | 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 |



GENERAL - Continued

Table 1. Torque Limits - Continued.

| | | | | | | | | | |
|------------------------------------|--------|---|-----|---|-----|---|-----|---|------|
| Current Usage | | Much Used | | Much Used | | Used at Times | | Used at Times | |
| Quality of Material | | Indeterminate | | Minimum Commercial | | Medium Commercial | | Best Commercial | |
| SAE Grade Number | | 1 or 2 | | 5 | | 6 or 7 | | 8 | |
| Screw Head Markings | |  | |  | |  | |  | |
| Manufacturer's marks may vary | | | | | | | | | |
| These are all SAE Grade 5 (3 line) | | | | | | | | | |
| screw Body Size | | Torque | | Torque | | Torque | | Torque | |
| Inches | Thread | lb-ft | N•m | lb-ft | N•m | lb-ft | N•m | lb-ft | N•m |
| 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 | 217 | 435 | 590 | | | 675 | 915 |
| 1 | 8 | 235 | 319 | 590 | 800 | 660 | 895 | 910 | 1234 |
| | 14 | 250 | 339 | 660 | 895 | | | 990 | 1342 |

GENERAL - Continued

Table 2. Engine Torque Limits.

| Grade | Standard Screw and Bolt | | Special Screw and Bolt | |
|---------------------------------|---|----------------|---|----------------|
| |  | |  | |
| Nominal Diameter in Millimeters | Torque | | Torque | |
| | lb-ft | N•m | lb-ft | N•m |
| 6 | 5.83 to 6.86 | 7.90 to 9.30 | 7.23 to 8.33 | 9.80 to 11.30 |
| 8 | 13.05 to 15.19 | 17.70 to 20.60 | 17.33 to 20.28 | 23.50 to 27.50 |
| 10 | 28.91 to 33.26 | 39.20 to 45.10 | 35.47 to 41.22 | 48.10 to 55.90 |
| 12 | 46.31 to 53.54 | 62.80 to 72.60 | 57.15 to 66.52 | 77.50 to 90.20 |

END OF TASK

END OF WORK PACKAGE

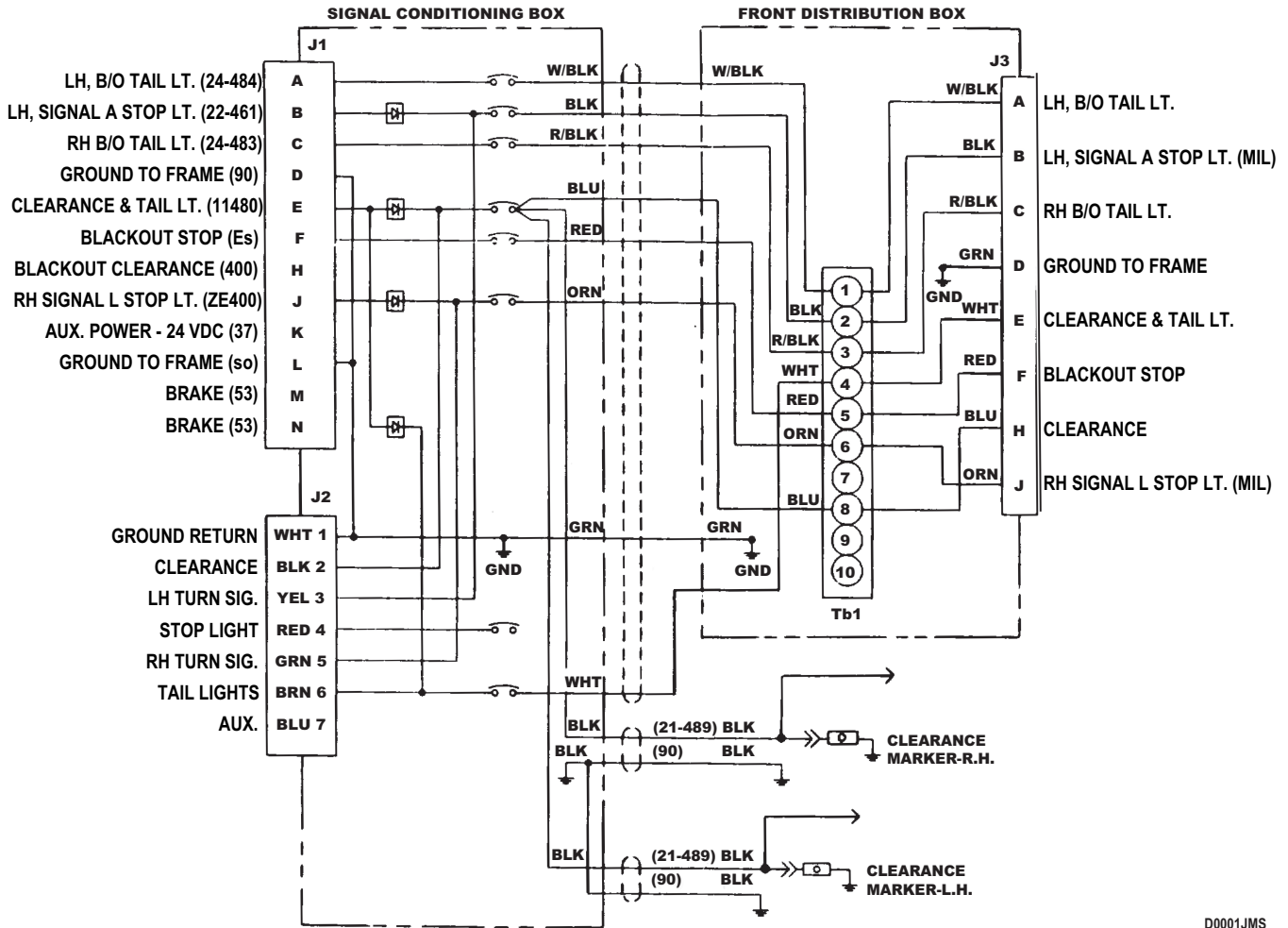
**FIELD MAINTENANCE
SCHEMATICS**

INITIAL SETUP:

Not Applicable

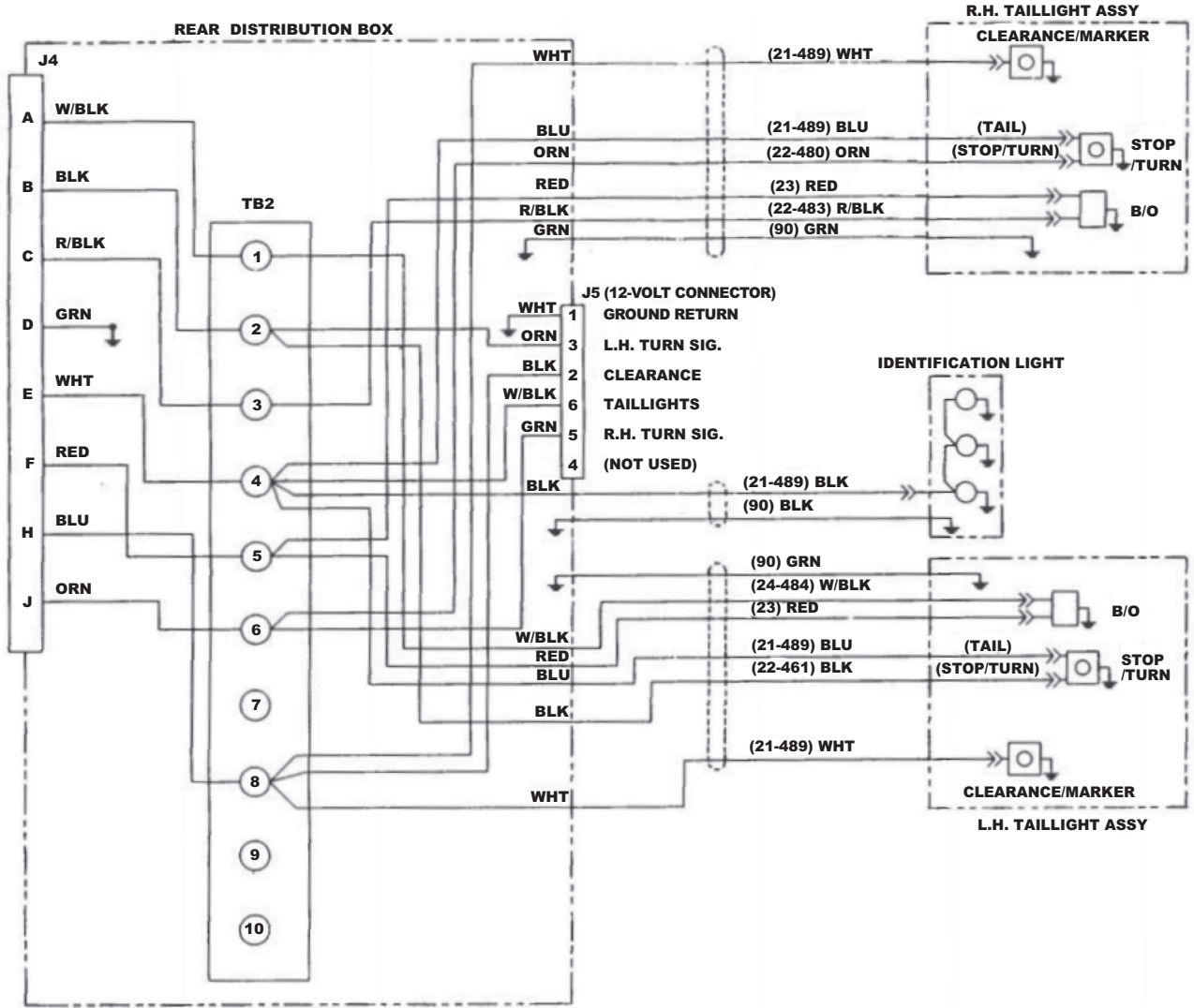
NOTE

- Figures 1 and 2 contain wiring diagrams for the front and rear dolly lights. Refer to these diagrams when performing electrical troubleshooting or maintenance.
- Figures 3 and 4 contain schematics that show the front and rear dolly airbrake system components and their interrelationship.
- Figures 5 and 6 contain schematics that identify the hydraulic system components and their interrelationships during normal or redundant power operations.



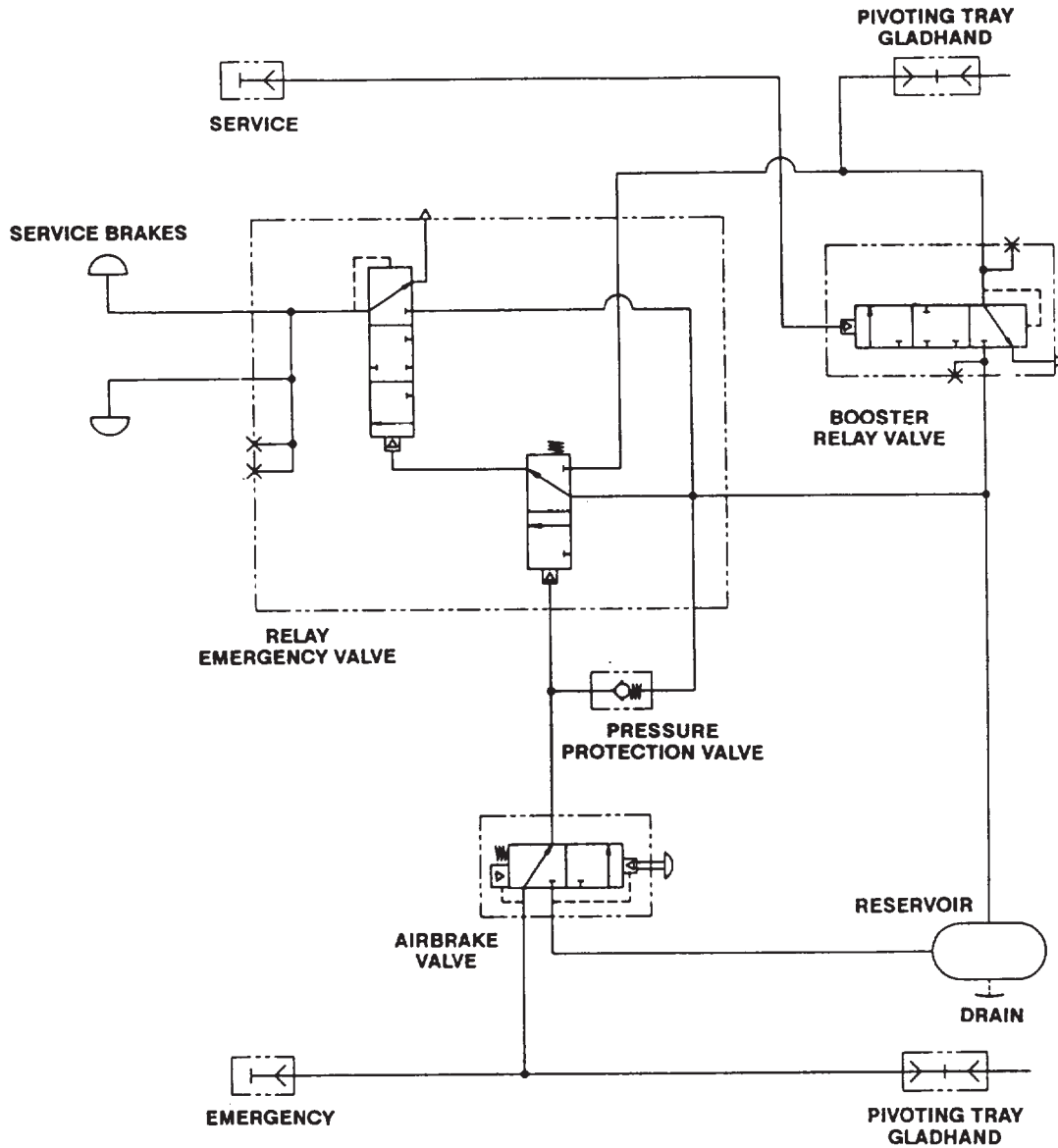
D0001JMS

Figure 1. Front Dolly Wiring Diagram.



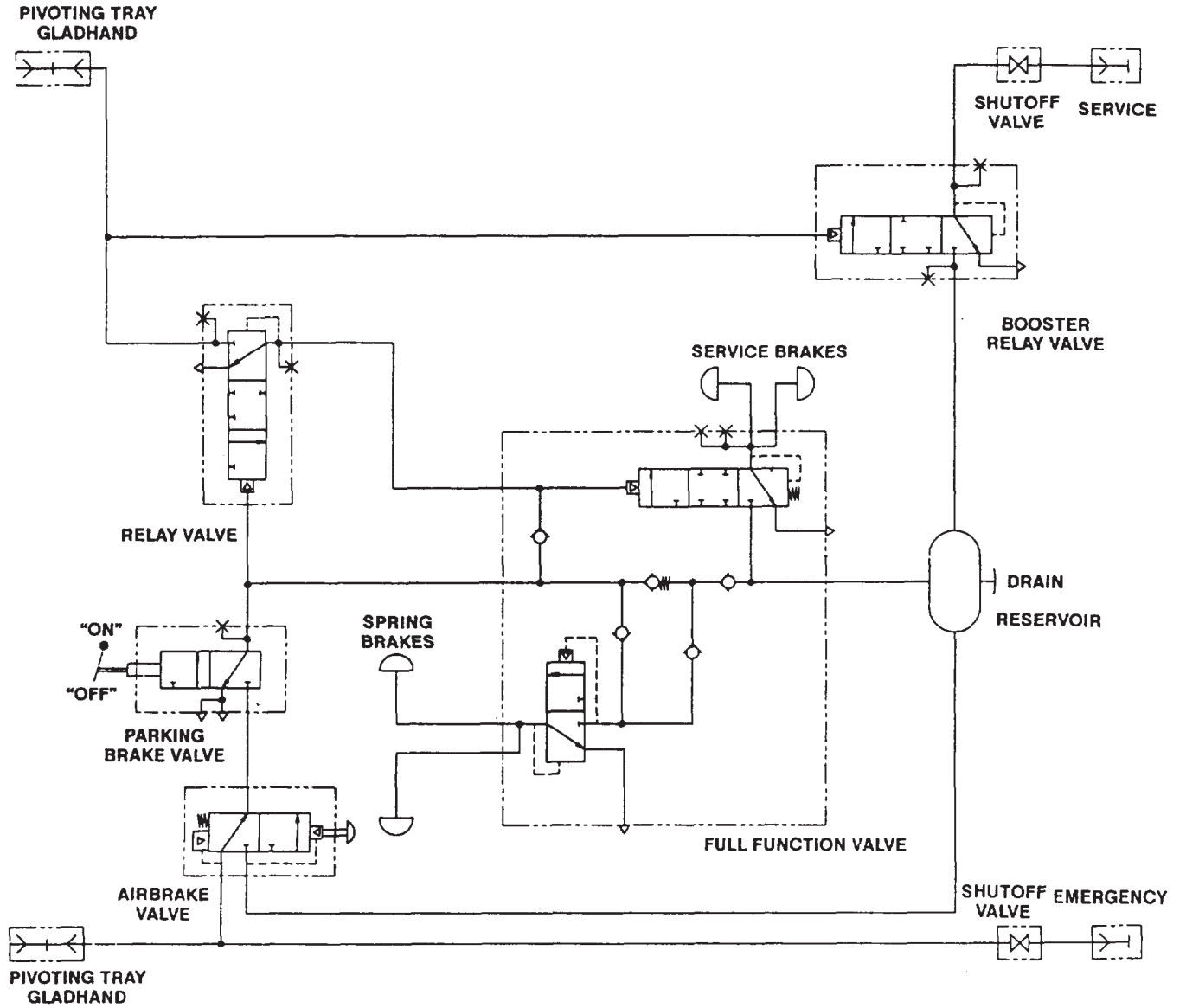
D0002JMS

Figure 2. Rear Dolly Wiring Diagram.



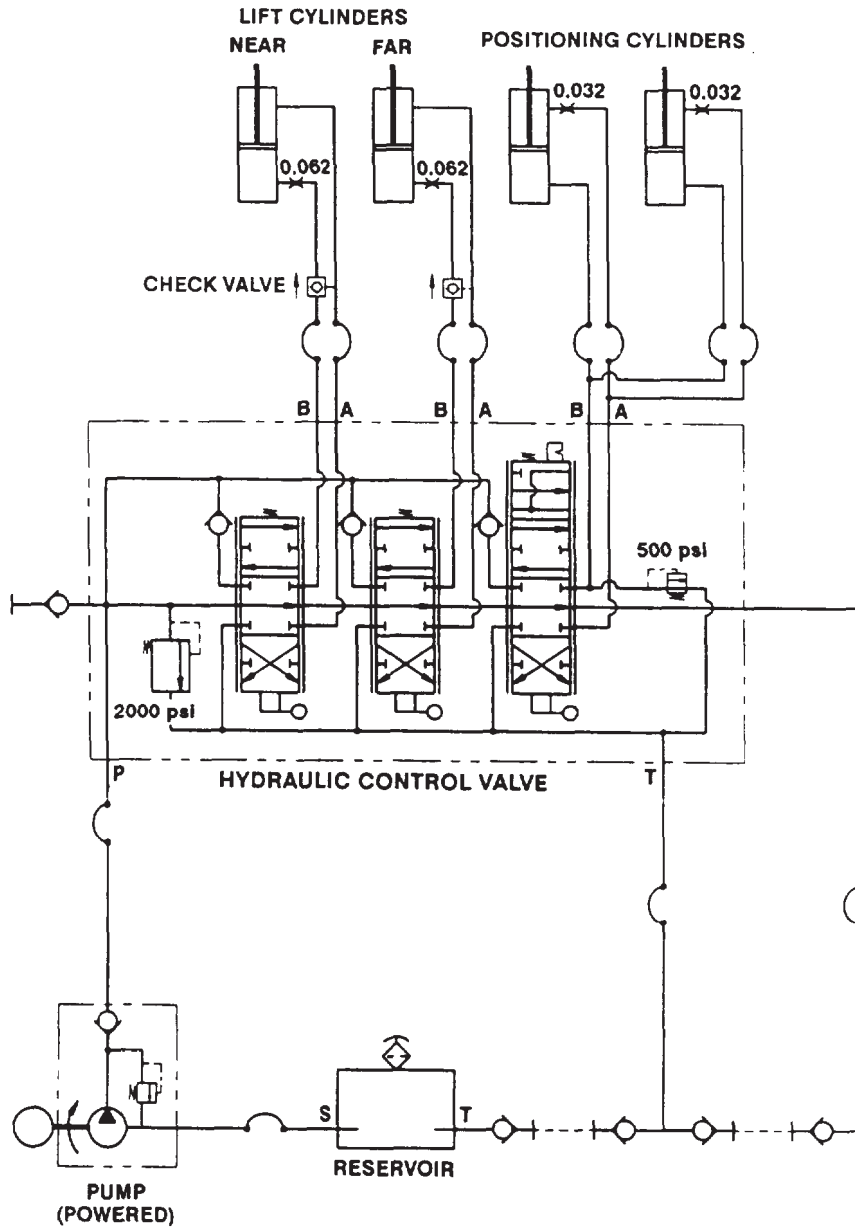
D0003JMS

Figure 3. Front Dolly Airbrake System Schematic.



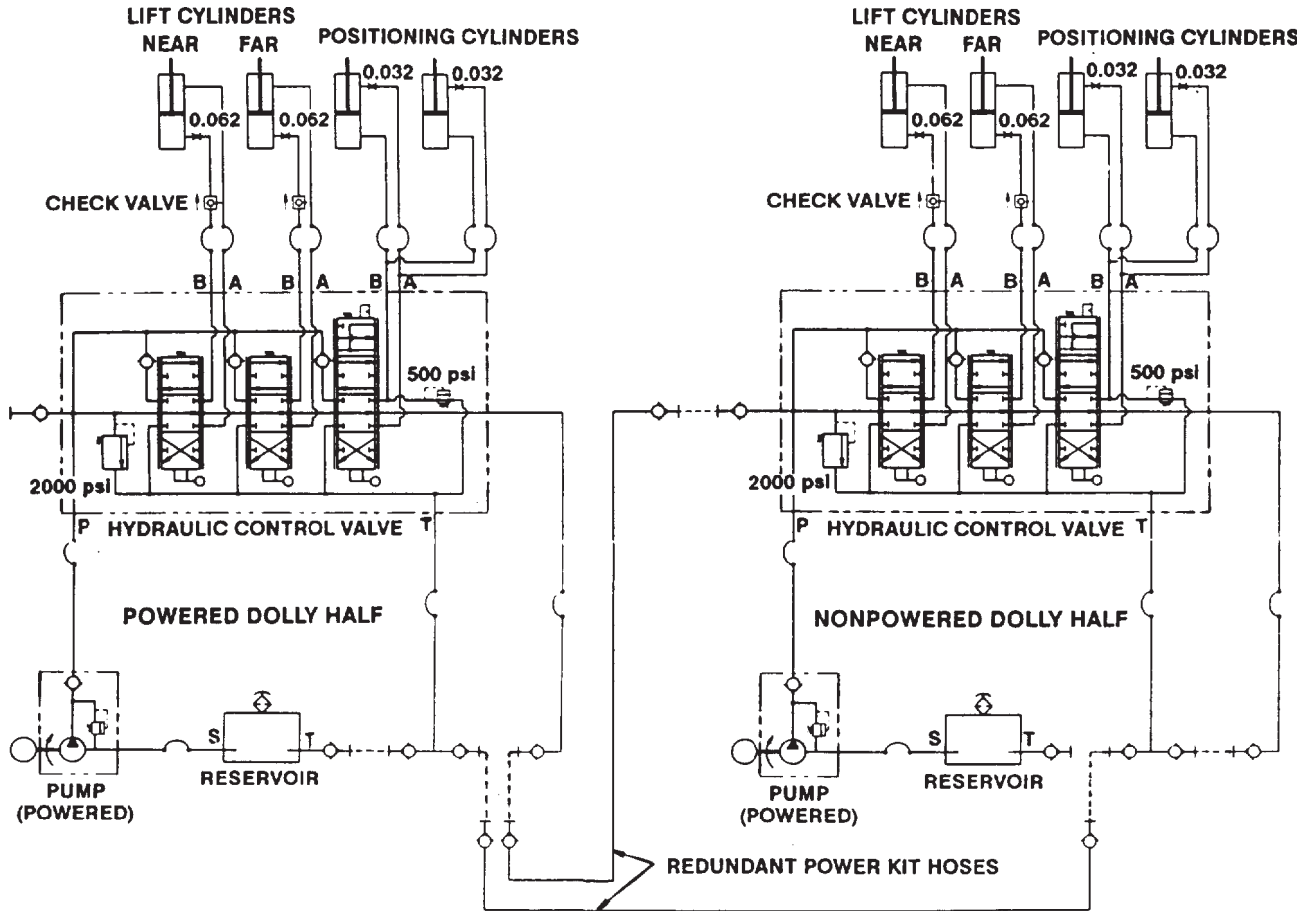
D0004JMS

Figure 4. Rear Dolly Airbrake System Schematic.



D0005JMS

Figure 5. Front or Rear Dolly – Normal Operation Schematic.



D0006JMS

Figure 6. Front and Rear Dollies – Redundant Power Operation Schematic.

END OF WORK PACKAGE

CHAPTER 7
PARTS INFORMATION

**FIELD MAINTENANCE
REPAIR PARTS AND SPECIAL TOOLS LIST INTRODUCTION**

SCOPE

The Repair Parts and Special Tools List (RPSTL) lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of operator and field maintenance of the M1022A1 Dolly Set. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

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 contains 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> XX | <u>Maintenance Code</u> XX | <u>Recoverability Code</u> X |
|--|--|---|
| 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. |

* *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 to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Source Code

Application/Explanation

| | |
|---|---|
| PA | <p>NOTE</p> <p>Items coded PC are subject to deterioration.</p> <p>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.</p> |
| PB | |
| PC | |
| PD | |
| PE | |
| PF | |
| PG | |
| PH | |
| PR | |
| PZ | |
| KD | <p>Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the third position of the SMR code. The complete kit must be requisitioned and applied.</p> |
| KF | |
| KB | |
| MF-Made at Field | <p>Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the part number in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group 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 a higher level, order the item from the higher level of maintenance.</p> |
| MH-Made at Below Depot Sustainment Level | |
| ML-Made at SRA | |
| MD-Made at Depot | |
| MG-Navy Only | |
| AF-Assembled by Field | <p>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 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.</p> |
| AH-Assembled by Below Depot Sustainment Level | |
| AL-Assembled by SRA | |
| AD-Assembled by Depot | |
| AG-Navy Only | |
| XA | <p>Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to NOTE below)</p> |
| XB | <p>If an item is not available from salvage, order it using the CAGEC and part number.</p> |
| XC | <p>Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's part number.</p> |
| XD | <p>Item is not stocked. Order an XD-coded item through local purchase or normal supply channels using the CAGEC and part number given, if no NSN is available.</p> |

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:

1. **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 (SRA) can remove, replace, and use the item. |
| G- | Afloat and Ashore Intermediate Maintenance can remove, replace, and use the item (Navy Only). |
| K- | Contractor facility can remove, replace, and use the item. |
| Z- | Item is not authorized to be removed, replaced, or used at any maintenance level. |
| D- | Depot can remove, replace, and use the item. |

*NOTE - Army may use C in the third position. However, for joint service publications, Army will use O.

2. **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.

| <u>Maintenance Code</u> | <u>Application/Explanation</u> |
|-------------------------|--|
| 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. |

| Maintenance Code | Application/Explanation |
|-------------------------|--|
| L- | Specialized Repair Activity (SRA) (<i>enter specialized repair activity or TASMG designator</i>) 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. |
| G- | Both Afloat and Ashore Intermediate levels are capable of complete repair of the item (Navy Only). |
| K- | Complete repair is done at contractor facility. |
| Z- | Nonreparable. No repair is authorized. |
| B- | No repair is authorized. No parts of special tools are authorized for maintenance of a "B-" coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level. |

3. **Recoverability Code.** Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is 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 repairable, condemn and dispose of the item at the field level. |
| H- | Reparable item. When uneconomically repairable, condemn and dispose of the item at the below depot sustainment level. |
| D- | Reparable item. When beyond lower level repair capability, return the item to depot. Condemnation and disposal of the item are not authorized below depot level. |
| L- | Reparable item. Condemnation and disposal are 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. |
| G- | Field level repairable item. Condemnation and disposal to be performed at either Afloat or Ashore Intermediate levels (Navy Only). |

| Recoverability Code | Application/Explanation |
|---------------------|---|
| K- | Reparable item. Condemnation and disposal to be performed at contractor facility. |

NSN (Column (3)). The NSN 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.** NSNs in this index are listed in National Item Identification Number (NIIN) sequence.
 - a. **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.
 - b. **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.
 - c. **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 list.
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 of 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).
 - a. **PART NUMBER Column.** Indicates the part number assigned to the item.
 - b. **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.
 - c. **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

1. **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 (*enter applicable TM number*).

2. **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.

3. **Illustrations List.** The illustrations in this RPSTL contain field authorized items. Illustrations published in (*enter applicable TM number for the higher maintenance level RPSTL, e.g., for field, below depot sustainment, etc.*) that contain field authorized items also appear in this RPSTL. The tabular list in the repair parts list work package contains only those parts coded "F" in the third position of the SMR code; therefore, there may be a break in the item number sequence.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or Part Numbers Are Not Known.

a. **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.

b. **Second.** Find the figure covering the functional group or the subfunctional group to which the item belongs.

c. **Third.** Identify the item on the figure and note the number(s).

d. **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.

a. **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.

b. **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.

a. **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.

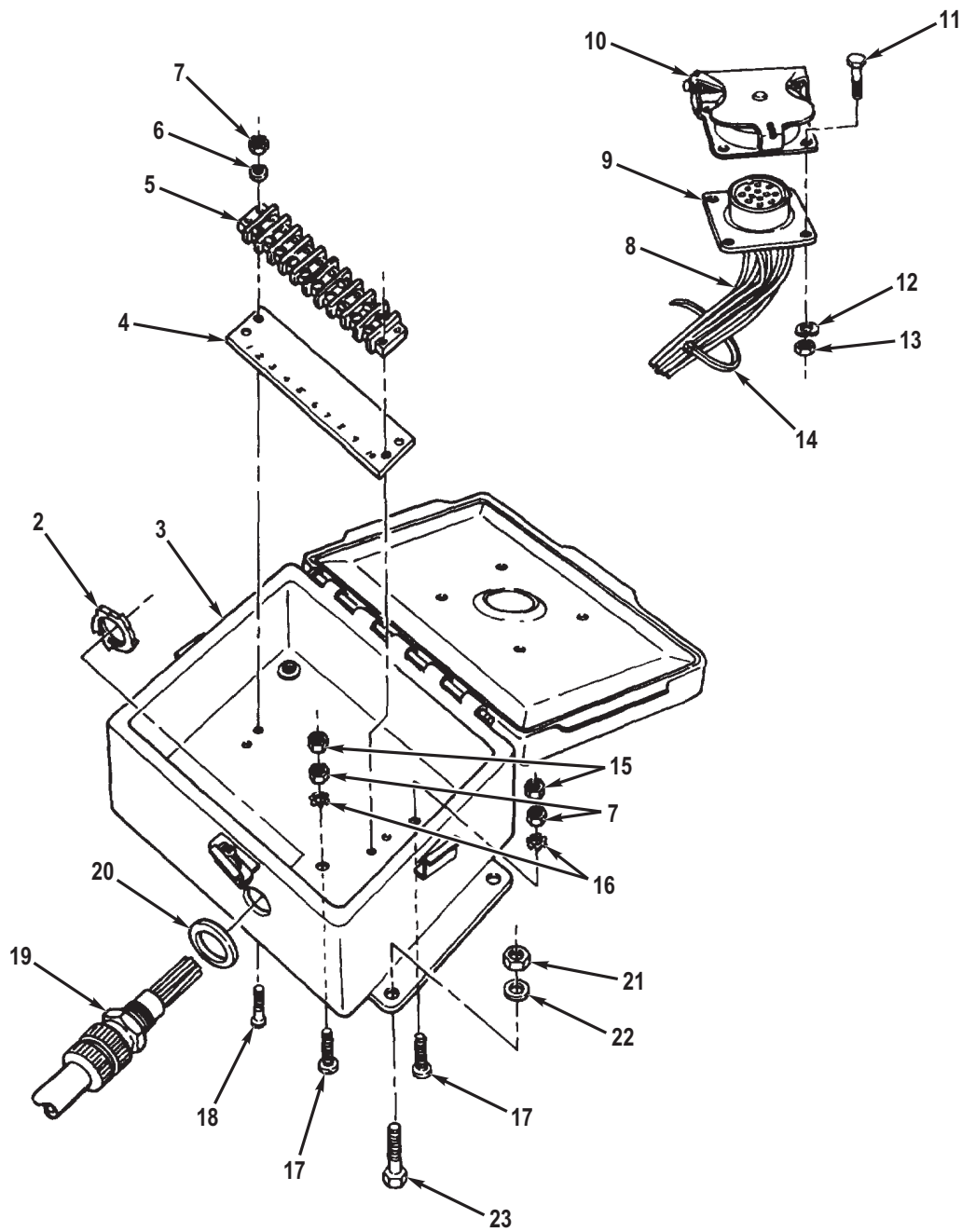
b. **Second.** Look up the item on the figure in the applicable repair parts list work package.

END OF WORK PACKAGE

**FIELD MAINTENANCE
FRONT DISTRIBUTION BOX**

1
2 THRU 20

8
9



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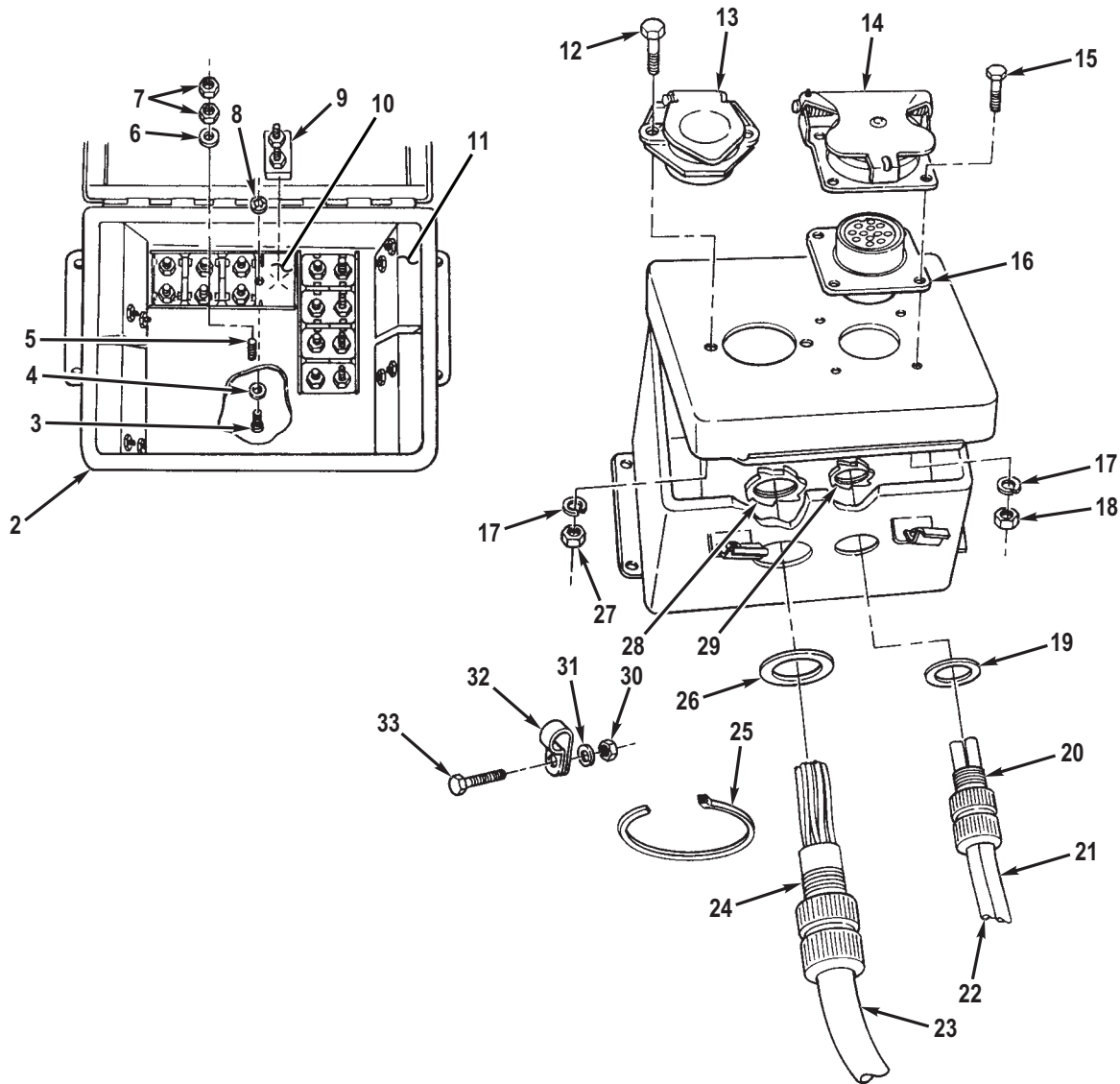
Figure 1. Front Distribution Box.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 0608 MISCELLANEOUS ITEMS | | | | | | |
| FIG. 1. FRONT DISTRIBUTION BOX. | | | | | | |
| 1 | PFFFF | 6110-01-393-8898 | 1NHH8 | 8D00101-1 | DISTRIBUTION BOX | 1 |
| 2 | PFFZZ | 5310-01-418-6243 | 21439 | 9C00015-16 | . NUT,SELF-LOCKING,RO 3/4 | 1 |
| 3 | PFFZZ | 5975-01-418-6041 | 1NHH8 | 8D00186-1 | . JUNCTION BOX | 1 |
| 4 | PFFZZ | 5940-01-346-1336 | 73030 | 805869-3 | . MARKER STRIP,TERMIN | 1 |
| 5 | XDFZZ | | 13556 | 004-00293-1 | . TERMINAL BLOCK | 1 |
| 6 | PAFZZ | 5310-00-722-5998 | 80205 | MS15795-805 | . WASHER,FLAT #6 | 2 |
| 7 | PAFZZ | 5310-00-982-6813 | 80205 | MS21044C06 | . NUT,SELF-LOCKING,HE #6-32 | 4 |
| 8 | PAFZZ | 6150-01-393-6171 | 1NHH8 | 8D00066-10 | . CABLE ASSEMBLY,POWE | 1 |
| 9 | PAFZA | 5935-00-846-3884 | 96906 | MS75021-2 | . . CONNECTOR,RECEPTACL | 1 |
| 10 | PAFZZ | 5975-01-321-7295 | 16528 | 7731428 | . COVER,JUNCTION BOX | 1 |
| 11 | PAFZZ | 5305-00-068-0501 | 80205 | MS90725-5 | . SCREW,CAP,HEXAGON H 1/4-20 X 5/8 | 4 |
| 12 | PAFZZ | 5310-00-582-5965 | 80205 | MS35338-44 | . WASHER,LOCK 1/4 | 4 |
| 13 | PAFZZ | 5310-00-997-1888 | 80205 | MS35649-2252 | . NUT,PLAIN,HEXAGON 1/4-20 | 4 |
| 14 | PAFZZ | 5975-00-074-2072 | 81343 | MS3367-1-9 | . STRAP,TIEDOWN,ELECT | 15 |
| 15 | PAFZZ | 5310-00-934-9761 | 80205 | MS35649-264 | . NUT,PLAIN,HEXAGON #6-32 | 2 |
| 16 | PAFZZ | 5310-00-209-0788 | 96906 | MS35335-30 | . WASHER,LOCK #6 | 2 |
| 17 | PAFZZ | 5305-00-054-6659 | 96906 | MS51957-35 | . SCREW,MACHINE #6-32 X 1 1/4 | 2 |
| 18 | PAFZZ | 5305-00-054-6656 | 96906 | MS51957-32 | . SCREW,MACHINE #6-32 X 3/4 | 2 |
| 19 | PAFZZ | 5975-01-207-0229 | 04664 | 64-0183 | . BOX CONNECTOR,ELECT | 1 |
| 20 | PFFZZ | 5330-01-393-4855 | 21439 | 9C00015-18 | . SEAL RING,METAL | 1 |
| 21 | PAFZZ | 5310-00-889-2589 | 80205 | MS21044C4 | NUT,SELF-LOCKING,HE 1/4-28 | 4 |
| 22 | PAFZZ | 5310-01-304-8733 | 80205 | MS15795-852 | WASHER,FLAT 1/4 | 4 |
| 23 | PAFZZ | 5306-00-156-2339 | 88044 | AN4C7A | BOLT,MACHINE 1/4-28 X 7/16 | 4 |

END OF FIGURE

**FIELD MAINTENANCE
SIGNAL CONDITIONING BOX**

1
2 THRU 29



R0002JMS

Figure 2. Signal Conditioning Box.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 0608 MISCELLANEOUS ITEMS | | | | | | |
| FIG. 2. SIGNAL CONDITIONING BOX. | | | | | | |
| 1 | XDFFF | | 21439 | 8D00112-1 | SIGNAL CONDITIONING | 1 |
| 2 | PFZZ | 5340-01-393-2867 | 1NHH8 | 8D00112-3B | . COVER,ACCESS | 1 |
| 3 | PAFZZ | 5305-00-889-3002 | 96906 | MS35206-242 | . SCREW,MACHINE | 4 |
| 4 | PAFZZ | 5310-00-765-3197 | 96906 | MS27183-41 | . WASHER,FLAT | 4 |
| 5 | PAFZZ | 5305-00-984-6214 | 96906 | MS35206-267 | . SCREW,MACHINE | 3 |
| 6 | PAFZZ | 5310-00-809-8546 | 96906 | MS27183-8 | . WASHER,FLAT | 3 |
| 7 | PAFZZ | 5310-00-934-9764 | 80205 | MS35649-205B | . NUT,PLAIN,HEXAGON | 6 |
| 8 | PAFZZ | 5310-00-144-8453 | 96906 | MS90724-7 | . NUT,SHEET SPRING | 4 |
| 9 | PAFZZ | 5925-00-900-1903 | 13445 | 30056-15 | . CIRCUIT BREAKER | 8 |
| 10 | PAFZZ | 5925-01-214-3228 | 19207 | 12368919 | . BASE,CIRCUIT BREAKER | 2 |
| 11 | PAFZZ | 6110-01-465-7511 | 4J564 | DT318 | . REGULATOR,VOLTAGE | 4 |
| 12 | PAFZZ | 5305-00-068-0502 | 80205 | MS90725-6 | . SCREW,CAP,HEXAGON H | 2 |
| 13 | PAFZZ | 5935-01-211-4434 | 26697 | JP0-0031 | . CONNECTOR,RECEPTACL | 1 |
| 14 | PAFZZ | 5975-01-321-7295 | 16528 | 7731428 | . COVER,JUNCTION BOX | 1 |
| 15 | PAFZZ | 5305-00-068-0500 | 59556 | 015587T | . SCREW,CAP,HEXAGON H | 4 |
| 16 | PAFZA | 5935-00-846-3883 | 96906 | MS75021-1 | . CONNECTOR,RECEPTACL | 1 |
| 17 | PAFZZ | 5310-00-582-5965 | 80205 | MS35338-44 | . WASHER,LOCK | 6 |
| 18 | PAFZZ | 5310-00-997-1888 | 80205 | MS35649-2252 | . NUT,PLAIN,HEXAGON | 4 |
| 19 | PFZZ | 5330-01-393-5637 | 21439 | 9C00015-17 | . SEAL RING,METAL | 1 |
| 20 | PFZZ | 5975-01-131-9487 | 74545 | SHC-1018 | . BOX CONNECTOR,ELECT | 1 |
| 21 | PFZZ | 6150-01-567-4392 | 21439 | 8D00066-5 | . WIRING HARNESS | 1 |
| 22 | PFZZ | 6150-01-393-5107 | 1NHH8 | 8D00066-6 | . WIRING HARNESS | 1 |
| 23 | PFZZ | 6150-01-393-5114 | 1NHH8 | 8D00066-4 | . CABLE ASSEMBLY,POWE | 1 |
| 24 | PAFZZ | 5975-01-207-0229 | 04664 | 64-0183 | . BOX CONNECTOR,ELECT | 1 |
| 25 | PAFZZ | 5975-00-074-2072 | 81343 | MS3367-1-9 | . STRAP,TIEDOWN,ELECT | 10 |
| 26 | PFZZ | 5330-01-393-4855 | 21439 | 9C00015-18 | . SEAL RING,METAL | 1 |
| 27 | PAFZZ | 5310-00-732-0558 | 96906 | MS51967-8 | . NUT,PLAIN,HEXAGON | 2 |
| 28 | PFZZ | 5310-01-418-6243 | 21439 | 9C00015-16 | . NUT,SELF-LOCKING,RO 3/4 | 1 |
| 29 | PFZZ | 5975-00-152-1075 | 58536 | AA50553-31PX01S | . LOCKNUT,ELECTRICAL 1/2 | 1 |
| 30 | PAFZZ | 5310-00-208-9255 | 80205 | MS21044C3 | NUT,SELF-LOCKING,HE #10-32 | 1 |
| 31 | PAFZZ | 5310-00-615-1556 | 80205 | MS15795-846 | WASHER,FLAT #10 | 1 |
| 32 | PAFZZ | 5340-00-200-8559 | 81343 | AS21919WDG7 | CLAMP,LOOP | 1 |

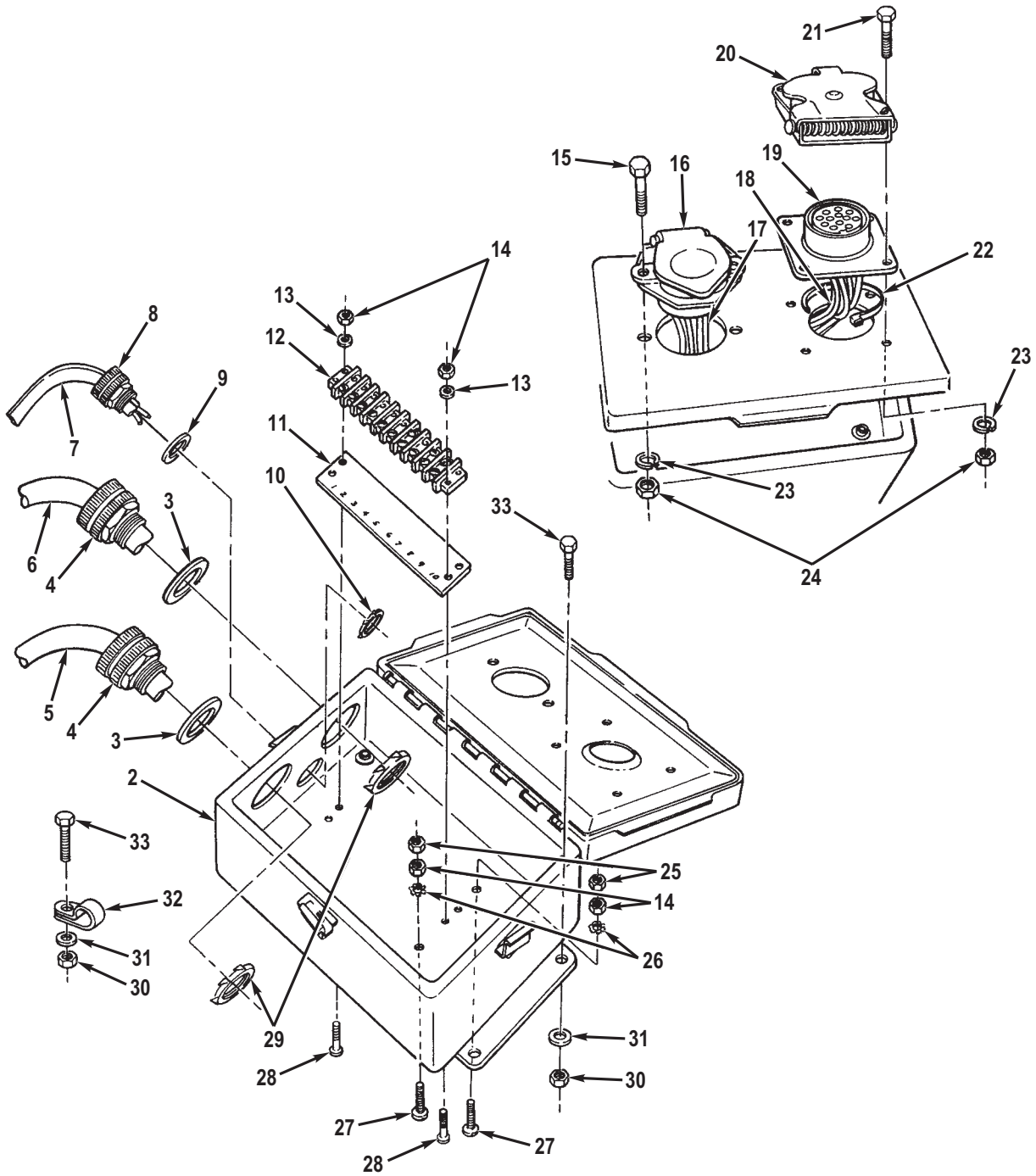
| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| 33 | PAFZZ | 5305-00-059-3661 | 80205 | MS51958-65 | SCREW,MACHINE #10-32 X 3/4 | 1 |

END OF FIGURE

**FIELD MAINTENANCE
REAR DISTRIBUTION BOX**

1
2 THRU 29

18
19



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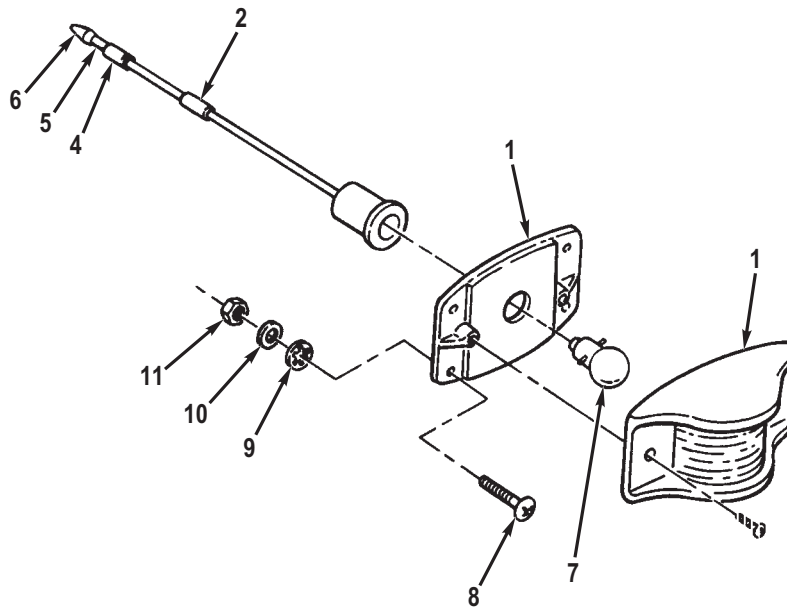
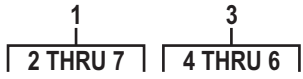
Figure 3. Rear Distribution Box.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---------------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 0608 MISCELLANEOUS ITEMS | | | | | | |
| FIG. 3. REAR DISTRIBUTION BOX. | | | | | | |
| 1 | PFFFF | 6110-01-393-8897 | 1NHH8 | 8D00129-1 | DISTRIBUTION BOX | 1 |
| 2 | PFFZZ | 4940-01-393-5874 | 1NHH8 | 8D00135-1 | . ENCLOSURE,ELECTROMA | 1 |
| 3 | PFFZZ | 5330-01-393-4855 | 21439 | 9C00015-18 | . SEAL RING,METAL | 2 |
| 4 | PAFZZ | 5975-01-131-9487 | 74545 | SHC-1018 | . BOX CONNECTOR,ELECT | 2 |
| 5 | PAFZZ | 6150-01-393-5110 | 1NHH8 | 8D00066-8 | . CABLE ASSEMBLY,POWE | 1 |
| 6 | PAFZZ | 6150-01-393-5109 | 1NHH8 | 8D00066-7 | . CABLE ASSEMBLY,POWE | 1 |
| 7 | PAFZZ | 6150-01-393-6173 | 1NHH8 | 8D00066-9 | . WIRING HARNESS | 1 |
| 8 | PAFZZ | 5975-01-166-1786 | 74545 | SCH-1014 | . BOX CONNECTOR,ELECT | 1 |
| 9 | PFFZZ | 5330-01-393-5637 | 21439 | 9C00015-17 | . SEAL RING,METAL | 1 |
| 10 | PFFZZ | 5975-01-418-5108 | 21439 | 9C00015-15 | . LOCKNUT,ELECTRICAL 1/2 | 1 |
| 11 | PFFZZ | 5940-01-346-1336 | 73030 | 805869-3 | . MARKER STRIP,TERMIN | 1 |
| 12 | XDFZZ | | 13556 | 004-00293-1 | . TERMINAL BLOCK | 1 |
| 13 | PAFZZ | 5310-00-722-5998 | 80205 | MS15795-805 | . WASHER,FLAT #6 | 2 |
| 14 | PAFZZ | 5310-00-982-6813 | 80205 | MS21044C06 | . NUT,SELF-LOCKING,HE #6-32 | 4 |
| 15 | PAFZZ | 5305-00-068-0502 | 80205 | MS90725-6 | . SCREW,CAP,HEXAGON H 1/4-20 X 3/4 | 2 |
| 16 | PAFZZ | 5935-01-394-2106 | 1NHH8 | 8D00129-6 | . CONNECTOR,RECEPTACL | 1 |
| 17 | PAFZZ | 6150-01-393-6208 | 1NHH8 | 8D00066-12 | . CABLE ASSEMBLY,POWE | 1 |
| 18 | PAFZZ | 6150-01-393-6172 | 1NHH8 | 8D00066-11 | . CABLE ASSEMBLY,POWE | 1 |
| 19 | PAFZZ | 5935-00-846-3883 | 96906 | MS75021-1 | . . CONNECTOR,RECEPTACL | 1 |
| 20 | PAFZZ | 5975-01-321-7295 | 16528 | 7731428 | . COVER,JUNCTION BOX | 1 |
| 21 | PAFZZ | 5305-00-068-0501 | 80205 | MS90725-5 | . SCREW,CAP,HEXAGON H 1/4-20 X 5/8 | 4 |
| 22 | PAFZZ | 5975-00-074-2072 | 81343 | MS3367-1-9 | . STRAP,TIEDOWN,ELECT | 15 |
| 23 | PAFZZ | 5310-00-582-5965 | 80205 | MS35338-44 | . WASHER,LOCK 1/4 | 6 |
| 24 | PAFZZ | 5310-00-997-1888 | 80205 | MS35649-2252 | . NUT,PLAIN,HEXAGON 1/4-20 | 6 |
| 25 | PAFZZ | 5310-00-934-9761 | 80205 | MS35649-264 | . NUT,PLAIN,HEXAGON #6-32 | 2 |
| 26 | PAFZZ | 5310-00-209-0788 | 96906 | MS35335-30 | . WASHER,LOCK #6 | 2 |
| 27 | PAFZZ | 5305-00-411-0682 | 96906 | MS51957-124 | . SCREW,MACHINE #6-32 X 1 1/8 | 2 |
| 28 | PAFZZ | 5305-00-054-6656 | 96906 | MS51957-32 | . SCREW,MACHINE #6-32 X 3/4 | 2 |
| 29 | PFFZZ | 5975-00-642-7261 | 58536 | AA50553-3-1-P-02-5 | . LOCKNUT,ELECTRICAL 3/4 | 2 |
| 30 | PAFZZ | 5310-00-889-2589 | 80205 | MS21044C4 | NUT,SELF-LOCKING,HE 1/4-28 | 5 |
| 31 | PAFZZ | 5310-01-304-8733 | 80205 | MS15795-852 | WASHER,FLAT 1/4 | 5 |

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| 32 | PAFZZ | 5340-01-466-6315 | 80205 | NAS1715D15NH | CLAMP,LOOP | 1 |
| 33 | PAFZZ | 5306-00-156-2338 | 88044 | AN4C6A | BOLT,MACHINE 1/4-28 X 1/2 | 5 |

END OF FIGURE

**FIELD MAINTENANCE
MARKER CLEARANCE LIGHT ASSEMBLY**



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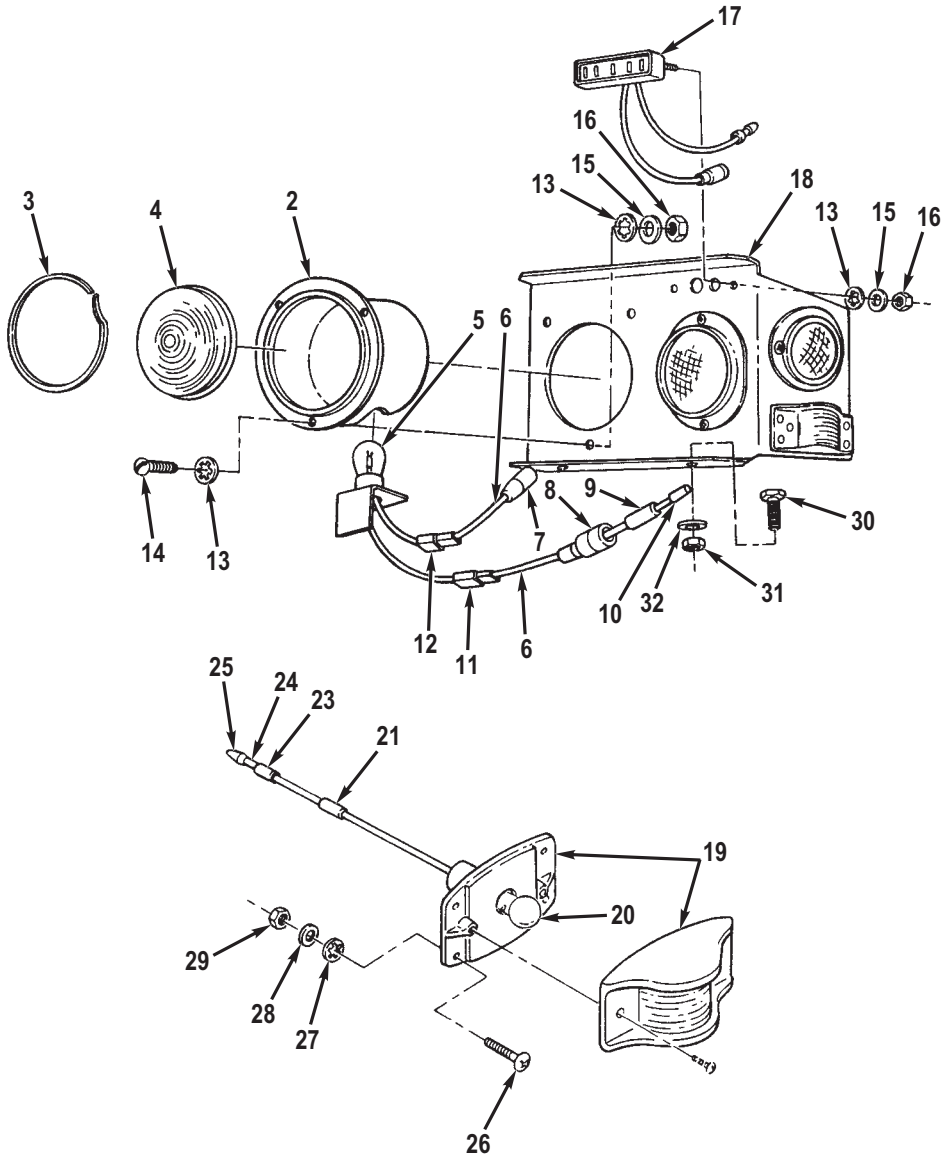
Figure 4. Marker Clearance Light Assembly.

| (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. 4. MARKER CLEARANCE LIGHT ASSEMBLY. | | | | | | |
| 1 | PAFFF | 6220-01-393-4024 | 1NHH8 | 8D00105-3 | LIGHT ASSEMBLY,CLEA | 1 |
| 2 | PFFZZ | 7690-01-418-0407 | 21439 | 8D00105-13 | . MARKER,IDENTIFICATI | 1 |
| 3 | PAFZZ | 5935-00-167-7775 | 96906 | MS27144-1 | . CONNECTOR,PLUG,ELEC | 1 |
| 4 | PAFZZ | 5935-00-833-8561 | 19207 | 8338561 | . . SHELL,ELECTRICAL CO | 1 |
| 5 | PAFZZ | 5970-00-833-8562 | 19207 | 8338562 | . . INSULATOR,BUSHING | 1 |
| 6 | PAFZZ | 5940-00-399-6676 | 19207 | 8338564 | . . TERMINAL SET,QUICK | 1 |
| 7 | PAFZZ | 6240-00-155-8717 | 58536 | AA52463-A04 | . LAMP,INCANDESCENT | 1 |
| 8 | PAFZZ | 5305-00-059-3661 | 80205 | MS51958-65 | SCREW,MACHINE #10-32 X 3/4 | 4 |
| 9 | PAFZZ | 5310-00-543-5933 | 80205 | MS35333-73 | WASHER,LOCK #10 | 4 |
| 10 | PAFZZ | 5310-00-615-1556 | 80205 | MS15795-846 | WASHER,FLAT #10 | 4 |
| 11 | PAFZZ | 5310-00-208-9255 | 80205 | MS21044C3 | NUT,SELF-LOCKING,HE #10-32 | 4 |

END OF FIGURE

**FIELD MAINTENANCE
TAILLIGHT ASSEMBLY**

| | | |
|------------|------------|-----------|
| 1 | 2 | 7 |
| 2 THRU 29 | 3 THRU 12 | 8 THRU 10 |
| 19 | 22 | |
| 20 THRU 25 | 23 THRU 25 | |



R0005JMS

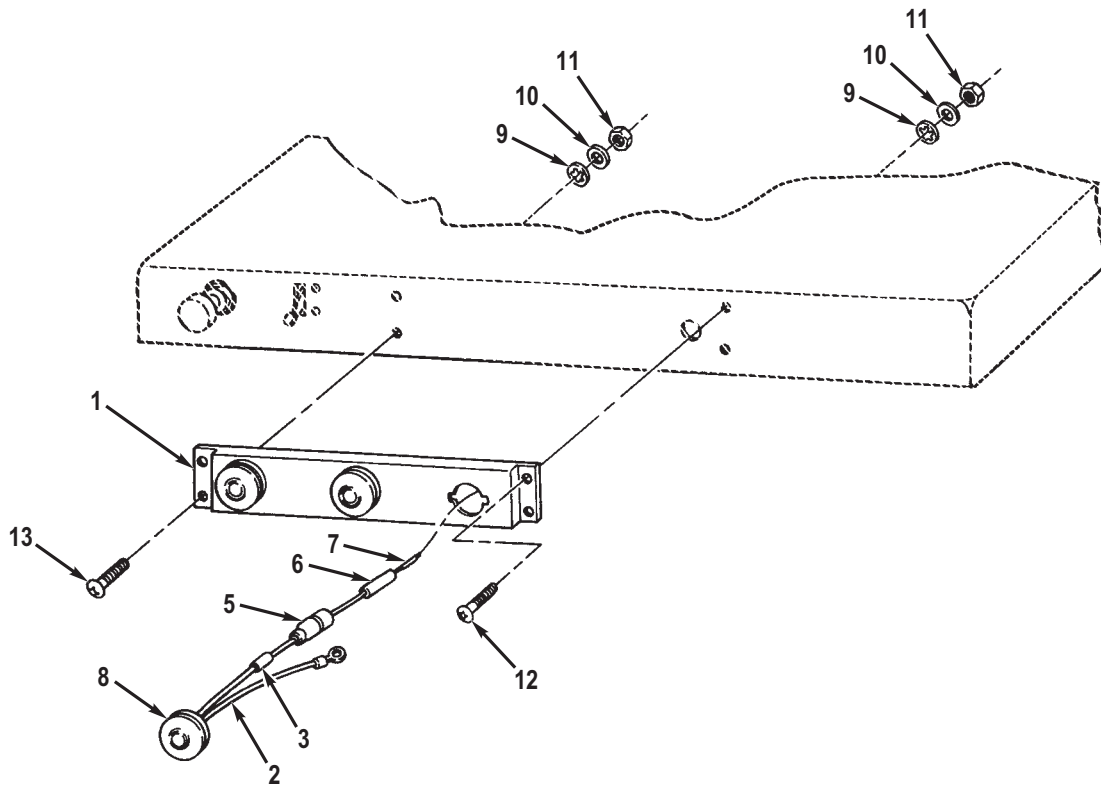
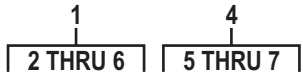
Figure 5. Taillight Assembly.

| (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. 5. TAILLIGHT ASSEMBLY. | | | | | | |
| 1 | AFFFF | | 21439 | 8D00138-1 | TAILLIGHT ASSY,RH | 1 |
| 1 | AFFFF | | 21439 | 8D00138-2 | TAILLIGHT ASSY,LH | 1 |
| 2 | PAFFF | 6220-01-393-2332 | 1NHH8 | 8D00105-1 | . TAILLIGHT,VEHICULAR | 1 |
| 2 | PAFFF | 6220-01-393-2335 | 21439 | 8D00105-5 | . STOP LIGHT-TAILLIGH | 1 |
| 3 | XDFZZ | | OKZG3 | 99595-3 | . . RING,SNAP | 1 |
| 4 | PAFZZ | 6210-01-417-7034 | 81834 | 90012 | . . LENS,LIGHT | 1 |
| 5 | PAFZZ | 6240-00-889-1799 | 08108 | 1157 | . . LAMP,INCANDESCENT | 1 |
| 6 | XDFZZ | | OKZG3 | 68150 | . . WIRE ASSEMBLY | 1 |
| 7 | PAFZZ | 5935-00-115-2307 | 96906 | MS27144-2 | . . CONNECTOR,PLUG,ELEC | 2 |
| 8 | PAFZZ | 5975-00-660-5962 | 19207 | 8724494 | . . . CABLE NIPPLE,ELECTR | 1 |
| 9 | PAFZZ | 5970-00-833-8562 | 19207 | 8338562 | . . . INSULATOR,BUSHING | 1 |
| 10 | PAFZZ | 5940-00-399-6676 | 19207 | 8338564 | . . . TERMINAL SET,QUICK | 1 |
| 11 | PFFZZ | 7690-01-418-0407 | 21439 | 8D00105-13 | . . MARKER,IDENTIFICATI | 1 |
| 12 | XDFZZ | | 21439 | 8D00105-14 | . . BAND,MARKER R.H. | 1 |
| 12 | XDFZZ | | 21439 | 8D00105-15 | . . BAND,MARKER L.H. | 1 |
| 13 | PAFZZ | 5310-00-543-2739 | 80205 | MS35333-72 | . WASHER,LOCK #8 | 8 |
| 14 | PAFZZ | 5305-00-054-6671 | 96906 | MS51957-46 | . SCREW,MACHINE #8-32 X 5/16 | 3 |
| 15 | PAFZZ | 5310-00-880-5978 | 80205 | MS15795-807 | . WASHER,FLAT 3/16 | 5 |
| 16 | PAFZZ | 5310-00-982-6814 | 80205 | MS21044C08 | . NUT,SELF-LOCKING,HE #8-32 | 5 |
| 17 | PAFZZ | 6220-01-088-5915 | 5A910 | 12258212 | . LIGHT,BLACKOUT | 1 |
| 18 | PFFZZ | 6220-01-393-2333 | 1NHH8 | 8D00139-2 | . HOUSING,LIGHT L.H. | 1 |
| 18 | PFFZZ | 6220-01-393-4019 | 1NHH8 | 8D00139-1 | . HOUSING,LIGHT R.H. | 1 |
| 19 | PAFFF | 6220-01-393-2331 | 1NHH8 | 8D00105-2 | . LIGHT ASSEMBLY,CLEA | 1 |
| 20 | PAFZZ | 6240-00-155-8717 | 58536 | AA52463-A04 | . . LAMP,INCANDESCENT | 1 |
| 21 | PFFZZ | 7690-01-418-0407 | 21439 | 8D00105-13 | . . MARKER,IDENTIFICATI | 1 |
| 22 | PAFZZ | 5935-00-167-7775 | 96906 | MS27144-1 | . . CONNECTOR,PLUG,ELEC | 1 |
| 23 | PAFZZ | 5935-00-833-8561 | 19207 | 8338561 | . . . SHELL,ELECTRICAL CO | 1 |
| 24 | PAFZZ | 5970-00-833-8562 | 19207 | 8338562 | . . . INSULATOR,BUSHING | 1 |
| 25 | PAFZZ | 5940-00-399-6676 | 19207 | 8338564 | . . . TERMINAL SET,QUICK | 1 |
| 26 | PAFZZ | 5305-00-059-3660 | 80205 | MS51958-64 | . SCREW,MACHINE #10-32 X 5/8 | 4 |
| 27 | PAFZZ | 5310-00-543-5933 | 80205 | MS35333-73 | . WASHER,LOCK #10 | 4 |
| 28 | PAFZZ | 5310-00-615-1556 | 80205 | MS15795-846 | . WASHER,FLAT #10 | 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 | 5310-00-208-9255 | 80205 | MS21044C3 | . NUT,SELF-LOCKING,HE #10-32 | 4 |
| 30 | PAFZZ | 5306-00-156-2338 | 88044 | AN4C6A | BOLT,MACHINE 1/4-28 X 1/2 | 2 |
| 31 | PAFZZ | 5310-00-889-2589 | 80205 | MS21044C4 | NUT,SELF-LOCKING,HE 1/4-28 | 2 |
| 32 | PAFZZ | 5310-01-304-8733 | 80205 | MS15795-852 | WASHER,FLAT 1/4 | 2 |

END OF FIGURE

**FIELD MAINTENANCE
IDENTIFICATION LIGHT ASSEMBLY**



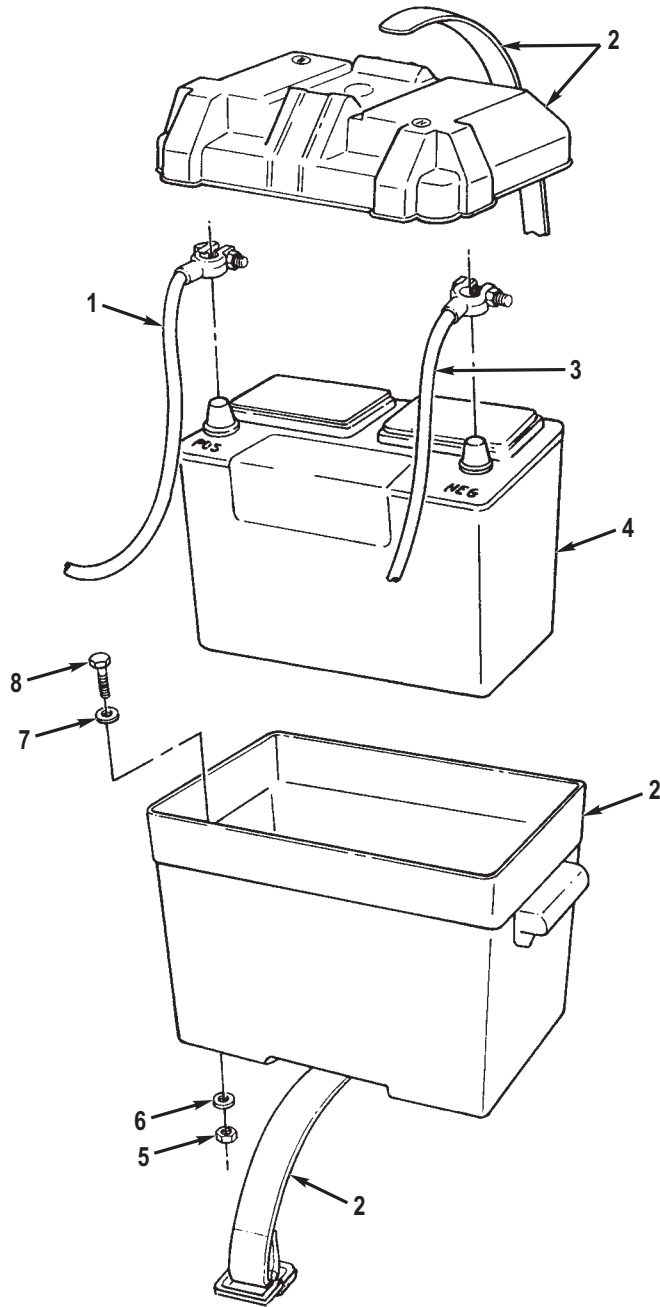
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Figure 6. Identification Light Assembly.

| (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. 6. IDENTIFICATION LIGHT ASSEMBLY. | | | | | | |
| 1 | PAFFF | 6220-01-417-7414 | 21439 | 8D00105-4 | LIGHT ASSEMBLY,INDI | 1 |
| 2 | PAFZZ | 5995-01-096-0733 | 13548 | 93906 | . LEAD ASSEMBLY,ELECT | 1 |
| 3 | PFFZZ | 7690-01-418-0407 | 21439 | 8D00105-13 | . MARKER,IDENTIFICATI | 1 |
| 4 | PAFZZ | 5935-00-115-2307 | 96906 | MS27144-2 | . CONNECTOR,PLUG,ELEC | 1 |
| 5 | PAFZZ | 5975-00-660-5962 | 19207 | 8724494 | . . CABLE NIPPLE,ELECTR | 1 |
| 6 | PAFZZ | 5970-00-833-8562 | 19207 | 8338562 | . . INSULATOR,BUSHING | 1 |
| 7 | PAFZZ | 5940-00-399-6676 | 19207 | 8338564 | . . TERMINAL SET,QUICK | 1 |
| 8 | PAFZZ | 6220-01-085-3391 | 13548 | 30200R | . LAMP UNIT,VEHICULAR | 3 |
| 9 | PAFZZ | 5310-00-616-3555 | 80205 | MS35333-71 | WASHER,LOCK #6 | 4 |
| 10 | PAFZZ | 5310-00-722-5998 | 80205 | MS15795-805 | WASHER,FLAT #6 | 4 |
| 11 | PAFZZ | 5310-00-982-6813 | 80205 | MS21044C06 | NUT,SELF-LOCKING,HE #6-32 | 4 |
| 12 | PAFZZ | 5305-00-054-6655 | 96906 | MS51957-31 | SCREW,MACHINE #6-32 X 3/16 | 1 |
| 13 | PAFZZ | 5305-00-054-6654 | 96906 | MS51957-30 | SCREW,MACHINE #6-32 X 7/16 | 3 |

END OF FIGURE

**FIELD MAINTENANCE
BATTERY AND CASE**



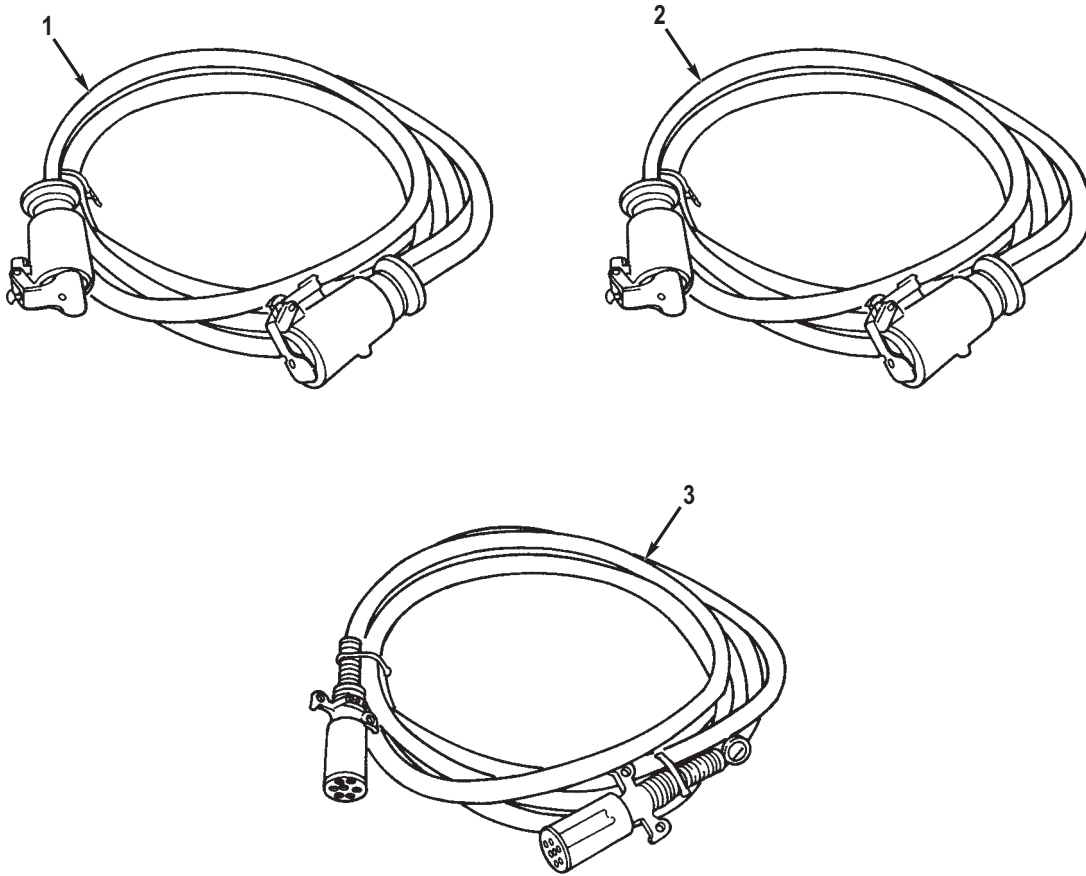
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Figure 7. Battery And Case.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 0612 BATTERIES, STORAGE | | | | | | |
| FIG. 7. BATTERY AND CASE. | | | | | | |
| 1 | PAFZZ | 6150-01-406-8993 | 1NHH8 | 8D00123-48R | LEAD,STORAGE BATTER REAR TRAY | 1 |
| 1 | PFFZZ | 6150-01-417-8062 | 21439 | 8D00123-31R | LEAD,STORAGE BATTER FRONT TRAY | 1 |
| 2 | PAFZZ | 5120-01-393-2582 | 21439 | 8D00044-1 | CARRIER,STORAGE BAT | 1 |
| 3 | PAFZZ | 6150-01-466-5416 | 1NHH8 | 8D00123-42B | LEAD STORAGE,BATTER REAR TRAY | 1 |
| 3 | PAFZZ | 6150-01-406-2906 | 1NHH8 | 8D00123-38B | CABLE ASSEMBLY,SPEC FRONT TRAY ... | 1 |
| 4 | PCFFA | 6140-01-337-0210 | 21439 | 624MF | BATTERY,STORAGE | 1 |
| 5 | PAFZZ | 5310-00-088-1251 | 81349 | M45913/1-4CG5C | NUT,SELF-LOCKING,HE 1/4-20 | 4 |
| 6 | PAFZZ | 5310-00-141-1795 | 80205 | NAS1149F0463P | WASHER,FLAT 1/4 | 4 |
| 7 | PAFZZ | 5310-00-285-8124 | 96906 | MS27183-50 | WASHER,FLAT 1/4 | 4 |
| 8 | PAFZZ | 5305-00-225-3843 | 80204 | B1821BH025C100N | SCREW,CAP,HEXAGON H 1/4-20 X 1 | 4 |

END OF FIGURE

**FIELD MAINTENANCE
INTERCONNECTING CABLES**



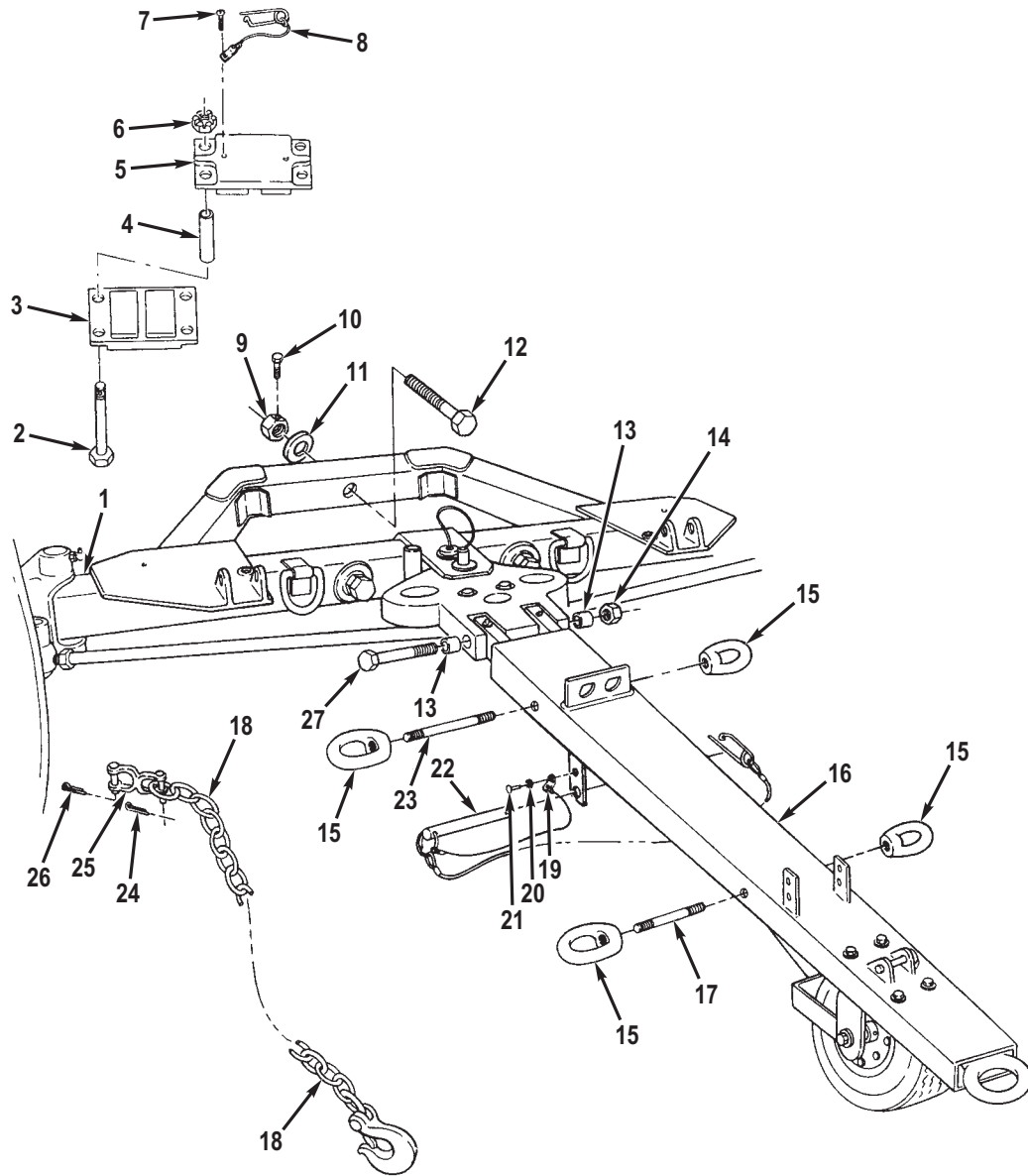
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Figure 8. Interconnecting Cables.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|--|------------|
| <p>GROUP 0613 HULL OR CHASSIS WIRING HARNESS</p> <p>FIG. 8. INTERCONNECTING CABLES.</p> | | | | | | |
| 1 | PAFZZ | 6150-01-393-5112 | 1NHH8 | 8D00066-1 | CABLE ASSEMBLY,POWE (13 FT, 6 IN.) | 1 |
| 2 | PAFZZ | 6150-01-393-5118 | 1NHH8 | 8D00066-3 | CABLE ASSEMBLY,POWE (40 FT) | 1 |
| 3 | PAFZZ | 6150-01-393-5113 | 1NHH8 | 8D00066-2 | CABLE ASSEMBLY,POWE (13 FT, 6 IN.) | 1 |

END OF FIGURE

**FIELD MAINTENANCE
FRONT AXLE**



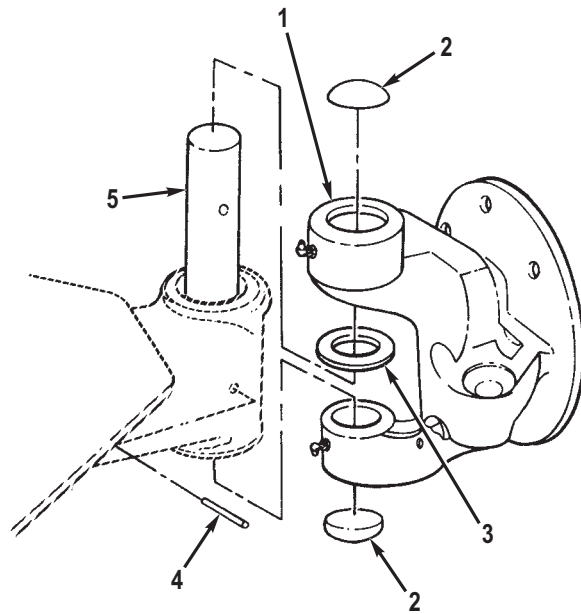
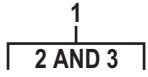
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Figure 9. Front Axle.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---------------------------------------|-----------------|------------------|--------------|--------------------|---|------------|
| GROUP 1000 FRONT AXLE ASSEMBLY | | | | | | |
| FIG. 9. FRONT AXLE. | | | | | | |
| 1 | PPFZZ | 2530-01-393-5169 | 1NHH8 | 8D00093-1 | AXLE,VEHICULAR,NOND | 1 |
| 2 | PAFZZ | 5306-01-422-5966 | 21439 | 8D00236-1 | BOLT,SHOULDER | 8 |
| 3 | PPFZZ | 5340-01-431-4073 | 21439 | 8D00232-2 | BRACKET,ANGLE | 2 |
| 4 | PCFZZ | 4730-01-406-1923 | 1NHH8 | 8D00237-1 | SLEEVE,COMPRESSION, | 8 |
| 5 | PPFZZ | 5340-01-419-3838 | 1NHH8 | 8D00232-1 | BRACKET,ANGLE | 2 |
| 6 | PAFZZ | 5310-00-850-6881 | 96906 | MS35692-57 | NUT,PLAIN,SLOTTED,H | 8 |
| 7 | PAFZZ | 5305-00-855-0960 | 80205 | MS24629-36 | SCREW,TAPPING | 4 |
| 8 | PAFZZ | 4010-01-431-3239 | 1NHH8 | 8D00316-1 | WIRE ROPE ASSEMBLY, | 8 |
| 9 | PPFZZ | 5310-01-393-7081 | 1NHH8 | 8D00151-2 | NUT,PLAIN,HEXAGON 2-4.5 | 1 |
| 10 | PAFZZ | 5305-00-068-0508 | 80204 | B1821BH025C075N | SCREW,CAP,HEXAGON H 1/4-20 X 3/4 | 1 |
| 11 | PPFZZ | 5310-01-429-8520 | 21439 | 8D00298-1 | WASHER,FLAT | 1 |
| 12 | PPFZZ | 5306-01-393-3741 | 1NHH8 | 8D00151-1 | BOLT,MACHINE 2-4.5 X 10 7/8 | 1 |
| 13 | PPFZZ | 4730-01-429-1321 | 52793 | 48139 | BUSHING,BOSS | 2 |
| 14 | PAFZZ | 5310-01-429-5029 | 52793 | DD34050-29 | NUT,SELF-LOCKING,HE 1 3/8-12 | 1 |
| 15 | PAFZZ | 5310-01-393-6777 | 80535 | 710-0107 | NUT,EYE | 4 |
| 16 | PPFZZ | 2540-01-393-7544 | 21439 | 8D00091-1 | TOWBAR,MOTOR VEHICL | 1 |
| 17 | PPFZZ | 5307-01-393-3742 | 1NHH8 | 8D00082-19 | STUD,PLAIN | 1 |
| 18 | PAFZZ | 4010-01-406-0511 | 1NHH8 | 8D00070-1 | CHAIN,WELDED | 2 |
| 19 | PPFZZ | 3990-01-418-8755 | 96652 | 79-07 | WIRE,PIN RETAINER | 1 |
| 20 | PAFZZ | 5310-00-045-3299 | 80205 | MS35338-42 | WASHER,LOCK #8 | 1 |
| 21 | PAFZZ | 5305-00-058-1082 | 08645 | 92760 | SCREW,TAPPING #8 X 1/4 | 1 |
| 22 | PPFZZ | 5315-01-429-7277 | 1NHH8 | 8D00341-1 | PIN,QUICK RELEASE | 1 |
| 23 | PPFZZ | 5307-01-393-5642 | 1NHH8 | 8D00082-18 | STUD,PLAIN | 1 |
| 24 | PAFZZ | 5315-00-842-3044 | 80205 | MS24665-283 | PIN,COTTER | 2 |
| 25 | PPFZZ | 3040-01-393-5275 | 1NHH8 | 8D00082-20 | CONNECTING LINK,RIG | 2 |
| 26 | PAFZZ | 5315-01-359-1451 | 80205 | MS24665-285 | PIN,COTTER | 2 |
| 27 | PAFZZ | 5305-01-395-0884 | 52793 | 47573 | SCREW,ASSEMBLED WAS 1 3/8-12 X 12 1/2" | 1 |

END OF FIGURE

**FIELD MAINTENANCE
STEERING KNUCKLE ASSEMBLY**



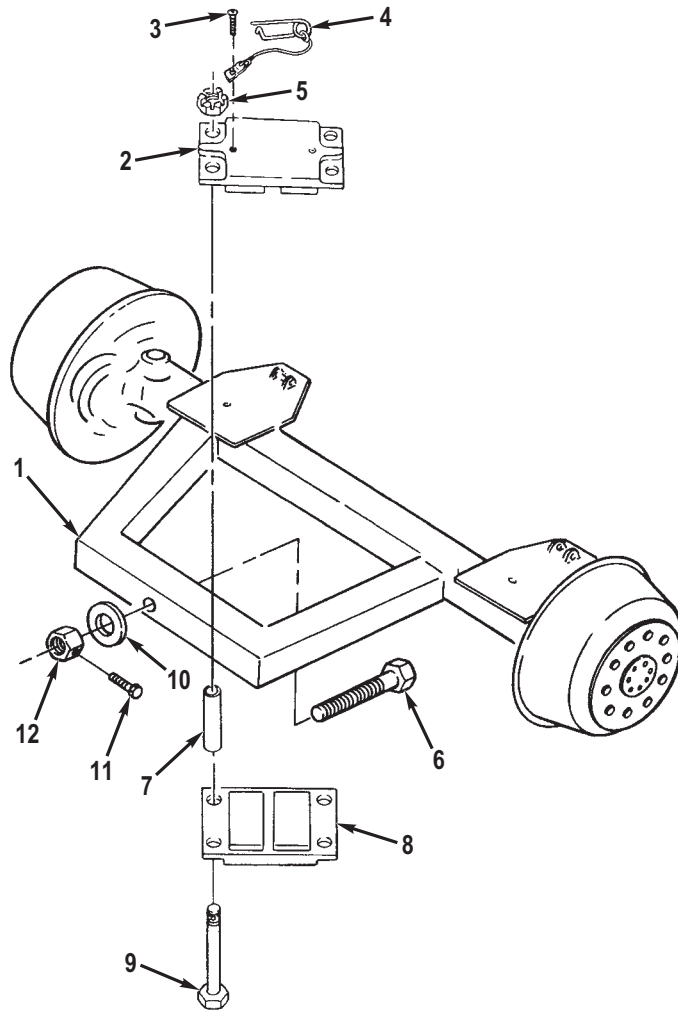
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Figure 10. Steering Knuckle Assembly.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 1004 STEERING AND LEANING WHEEL MECHANISM | | | | | | |
| FIG. 10. STEERING KNUCKLE ASSEMBLY. | | | | | | |
| 1 | PBFZZ | 2530-01-393-2675 | 21439 | 8D00195-10 | SPINDLE,WHEEL,DRIVI LH FRONT | 1 |
| 1 | PBFZZ | 2530-01-393-2672 | 21439 | 8D00195-12 | SPINDLE,WHEEL,DRIVI RH FRONT | 1 |
| 2 | PFFZZ | 5340-01-393-2878 | 21439 | 8D00195-16 | . PLUG,PROTECTIVE,DUS | 2 |
| 3 | PFFZZ | 5365-01-393-0840 | 52793 | 05-047522-1 | . SPACER,PLATE | 1 |
| 4 | PFFZZ | 5315-01-393-0837 | 21439 | 8D00195-26 | PIN,SPRING | 1 |
| 5 | PFFZZ | 2530-01-393-5270 | 21439 | 8D00195-25 | KINGPIN,WHEEL SPIND | 1 |

END OF FIGURE

**FIELD MAINTENANCE
REAR AXLE**



R0011JMS

Figure 11. Rear Axle.

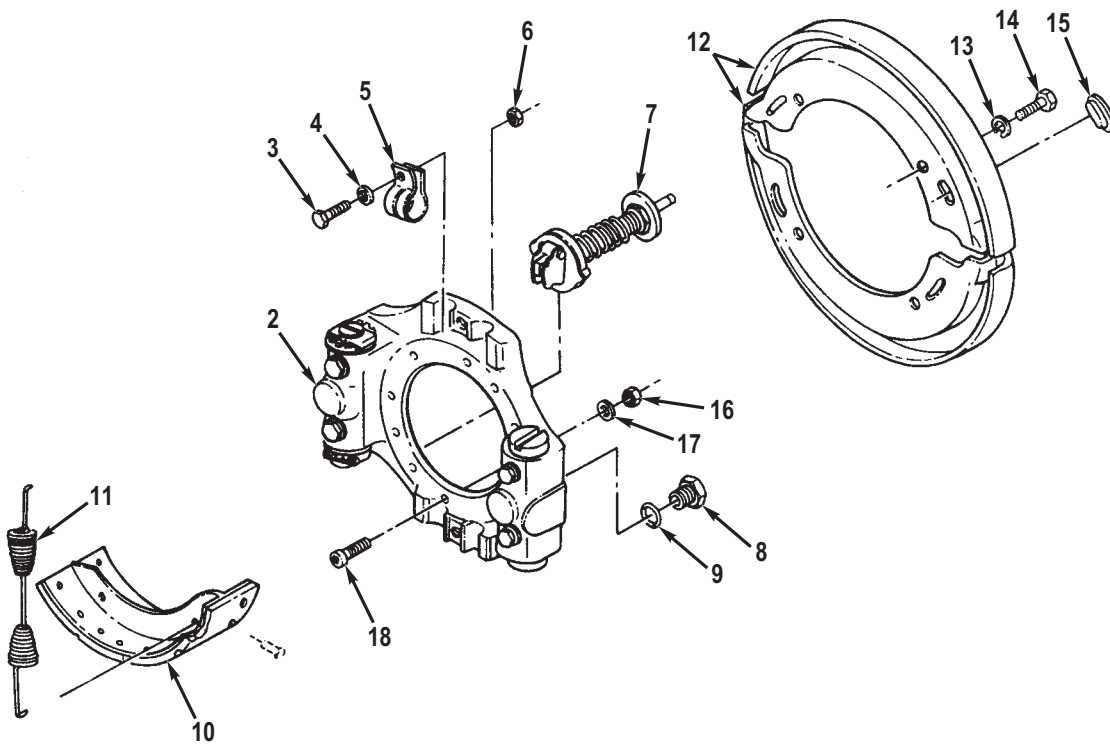
| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 1100 REAR AXLE ASSEMBLY | | | | | | |
| FIG. 11. REAR AXLE. | | | | | | |
| 1 | PFFZZ | 2530-01-393-5875 | 1NHH8 | 8D00130-1 | AXLE ASSEMBLY,VEHIC | 1 |
| 2 | PFFZZ | 5340-01-419-3838 | 1NHH8 | 8D00232-1 | BRACKET,ANGLE | 2 |
| 3 | PAFZZ | 5305-00-855-0960 | 80205 | MS24629-36 | SCREW,TAPPING | 4 |
| 4 | PAFZZ | 4010-01-431-3239 | 1NHH8 | 8D00316-1 | WIRE ROPE ASSEMBLY, | 8 |
| 5 | PAFZZ | 5310-00-850-6881 | 96906 | MS35692-57 | NUT,PLAIN,SLOTTED,H | 8 |
| 6 | PFFZZ | 5306-01-393-3741 | 1NHH8 | 8D00151-1 | BOLT,MACHINE 2-4.5 X 10 7/8 | 1 |
| 7 | PCFZZ | 4730-01-406-1923 | 1NHH8 | 8D00237-1 | SLEEVE,COMPRESSION, | 8 |
| 8 | PFFZZ | 5340-01-431-4073 | 21439 | 8D00232-2 | BRACKET,ANGLE | 2 |
| 9 | PAFZZ | 5306-01-422-5966 | 21439 | 8D00236-1 | BOLT,SHOULDER | 8 |
| 10 | PFFZZ | 5310-01-429-8520 | 21439 | 8D00298-1 | WASHER,FLAT | 1 |
| 11 | PAFZZ | 5305-00-068-0508 | 80204 | B1821BH025C075N | SCREW,CAP,HEXAGON H 1/4-20 X 3/4 | 1 |
| 12 | PFFZZ | 5310-01-393-7081 | 1NHH8 | 8D00151-2 | NUT,PLAIN,HEXAGON 2-4.5 | 1 |

END OF FIGURE

**FIELD MAINTENANCE
SERVICE BRAKES**

1
2 THRU 15

2
3 THRU 9



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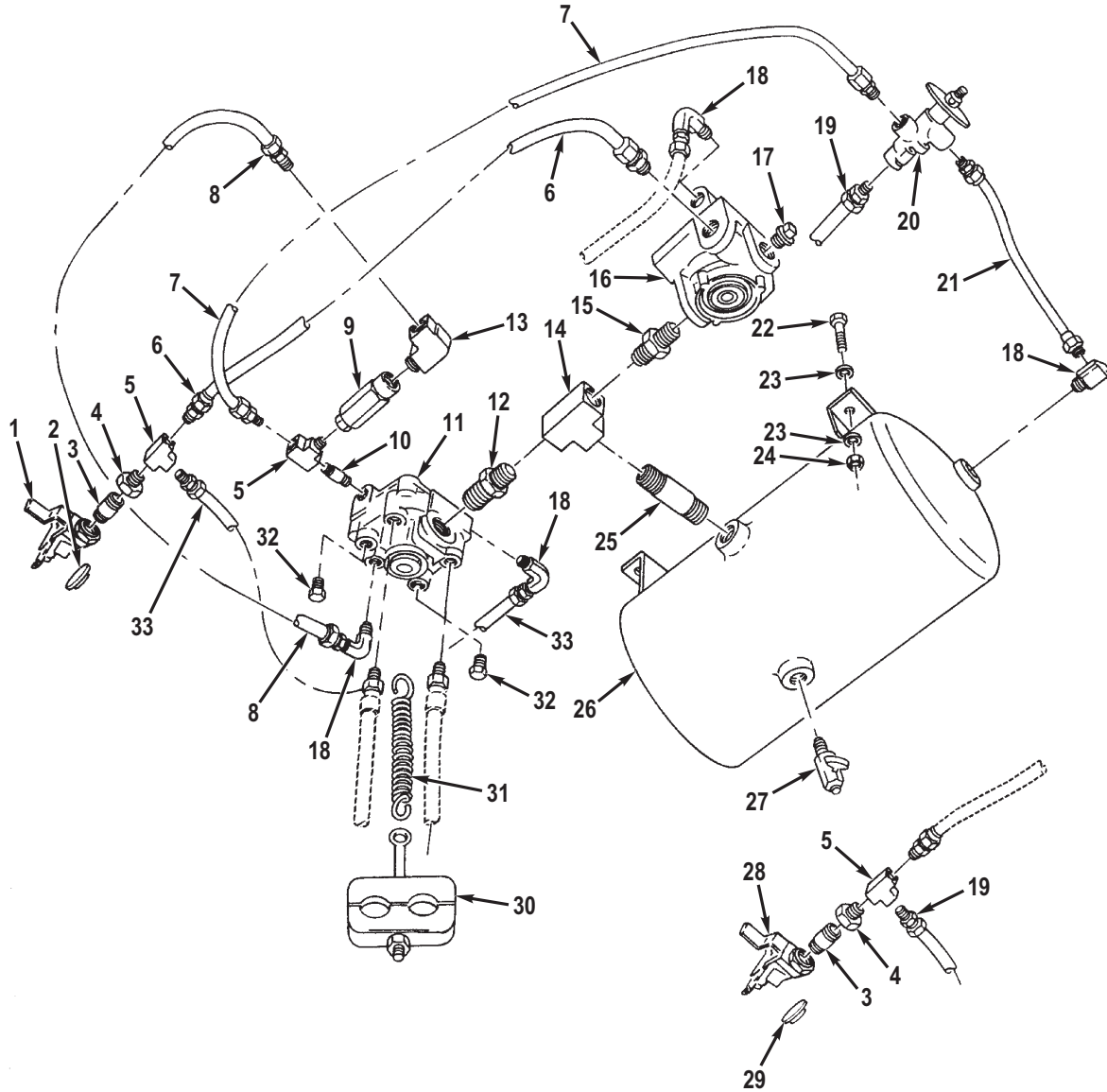
Figure 12. Service Brakes.

| (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. 12. SERVICE BRAKES. | | | | | | |
| 1 | AF FFF | | 21439 | 8D00197-38 | BRAKE ASSY,LEFT REAR | 1 |
| 1 | AF FFF | | 21439 | 8D00197-35 | BRAKE ASSY,RIGHT REAR | 1 |
| 1 | AF FFF | | 21439 | 8D00197-10 | BRAKE ASSEMBLY,LEFT FRONT | 1 |
| 1 | AF FFF | | 21439 | 8D00197-34 | BRAKE ASSY,RIGHT FRONT | 1 |
| 2 | PA FZZ | 2530-01-393-5879 | 21439 | 8D00197-15 | . SPIDER,BRAKE | 1 |
| 3 | PF FZZ | 5306-01-393-5641 | 21439 | 8D00197-21 | . . BOLT,MACHINE | 2 |
| 4 | PF FZZ | 5310-01-393-6316 | 21439 | 8D00197-20 | . . WASHER,LOCK | 2 |
| 5 | PF FZZ | 5340-01-393-6315 | 21439 | 8D00197-19 | . . CLIP,SPRING TENSION | 2 |
| 6 | PF FZZ | 5340-01-393-6784 | 21439 | 8D00197-16 | . . CLIP,RETAINING | 2 |
| 7 | PF FZZ | 4030-01-393-0836 | 1NHH8 | 8D00197-37 | . . WEDGE,DRUM CLAMP,WI | 1 |
| 8 | PA FZZ | 5310-01-393-5643 | 21439 | 8D00197-39 | . . NUT,SLEEVE | 1 |
| 9 | PA FZZ | 5331-01-393-4866 | 21439 | 8D00197-40 | . . O-RING | 1 |
| 10 | PA FZZ | 2530-01-393-5881 | 1NHH8 | 8D00197-30 | . BRAKE SHOE SET | 2 |
| 11 | PA FZZ | 5360-01-393-0839 | 21439 | 8D00197-33 | . SPRING,HELICAL,EXTE | 2 |
| 12 | PF FZZ | 2530-01-393-5876 | 1NHH8 | 8D00197-13 | . PLATE,BACKING,BRAKE | 2 |
| 13 | PF FZZ | 5310-01-393-6312 | 21439 | 8D00197-31 | . WASHER,LOCK | 4 |
| 14 | PF FZZ | 5305-01-393-5645 | 21439 | 8D00197-32 | . SCREW,CAP,HEXAGON H | 4 |
| 15 | PF FZZ | 5340-01-393-6309 | 21439 | 8D00197-14 | . PLUG,PROTECTIVE,DUS | 2 |
| 16 | PF FZZ | 5310-01-393-5646 | 1NHH8 | 8D00195-29 | NUT,PLAIN,HEXAGON 5/8-18 | 8 |
| 17 | PA FZZ | 5310-00-820-6653 | 80205 | MS35338-50 | WASHER,LOCK 5/8 | 8 |
| 18 | PA FZZ | 5305-00-726-2551 | 80205 | B1821BH063F200N | SCREW,CAP,HEXAGON H 5/8-18 X 2" | 8 |

END OF FIGURE

**FIELD MAINTENANCE
AIR BRAKE VALVES, LINES, AND FITTINGS, FRONT**

| | |
|---|----|
| 1 | 28 |
| 2 | 29 |



R0013JMS

Figure 13. Air Brake Valves, Lines, and Fittings, Front.

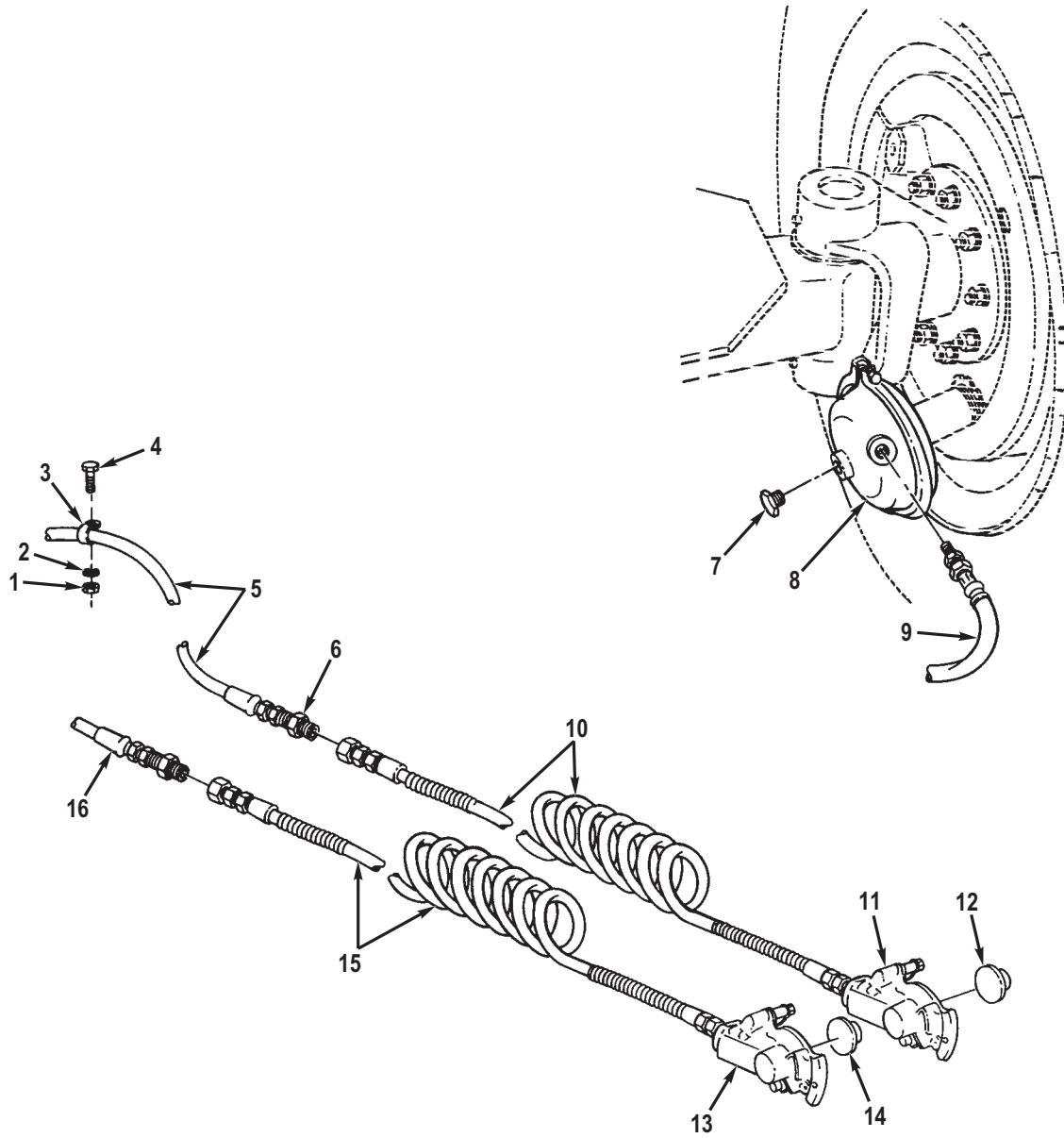
| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|-------------------------|--|------------|
| GROUP 1208 AIR BRAKE SYSTEM | | | | | | |
| FIG. 13. AIR BRAKE VALVES, LINES, AND FITTINGS, FRONT. | | | | | | |
| 1 | PAFZZ | 4730-00-595-0083 | 58536 | A52484-1 | COUPLING HALF,QUICK | 1 |
| 2 | PCFZZ | 5330-00-172-1919 | 06721 | 1509 | . PACKING,PREFORMED | 1 |
| 3 | PAFZZ | 4730-00-287-4852 | 81343 | SAE J530 8-6 130137B | REDUCER,PIPE | 2 |
| 4 | PAFZZ | 4730-00-511-1677 | 93061 | 207ACBH-6 | COUPLING,PIPE | 2 |
| 5 | PAFZZ | 4730-00-469-7797 | 81343 | 6-6-6 130424B | TEE,PIPE | 3 |
| 6 | PFFZZ | 4720-01-422-7846 | 1NHH8 | 8D00064-22 | HOSE ASSEMBLY,NONME | 1 |
| 7 | PAFZZ | 4710-01-501-2910 | 1NHH8 | 8D00064-21 | TUBE ASSEMBLY,METAL | 1 |
| 8 | PFFZZ | 4720-01-466-2736 | 1NHH8 | 8D00064-23 | HOSE ASSEMBLY,NONME | 1 |
| 9 | PAFZZ | 4820-01-393-4549 | 1NHH8 | 8D00121-11 | VALVE,PNEUMATIC TAN | 1 |
| 10 | PAFZZ | 4730-00-249-9714 | 81343 | 6-6 130137B | NIPPLE,PIPE | 1 |
| 11 | PAFZZ | 2530-01-393-4548 | 1NHH8 | 8D00121-10 | VALVE,BRAKE PNEUMAT | 1 |
| 12 | PAFZZ | 4730-00-068-8656 | 81343 | 12-12 140137B | NIPPLE,PIPE | 1 |
| 13 | PAFZZ | 4730-01-289-9536 | 93061 | 2200P8-8 | ELBOW,PIPE | 1 |
| 14 | PFFZZ | 4730-01-422-4160 | 88763 | 101A-E | TEE,PIPE | 1 |
| 15 | PFFZZ | 4730-01-422-5721 | 88763 | 123A-ED | REDUCER,PIPE | 1 |
| 16 | PFFZZ | 2530-01-393-7535 | 1NHH8 | 8D00121-5 | VALVE,RELAY,AIR PRE | 1 |
| 17 | PFFZZ | 4730-00-011-3176 | 30780 | 1-2SHPB | PLUG,PIPE | 2 |
| 18 | PAFZZ | 4730-00-278-4822 | 93061 | 2202P-6-6 | ELBOW,PIPE | 4 |
| 19 | PAFZZ | 4710-01-501-2886 | 1NHH8 | 8D00064-4 | TUBE ASSEMBLY,METAL | 1 |
| 20 | PAFZZ | 4820-01-393-4553 | 1NHH8 | 8D00121-1 | VALVE,PNEUMATIC TAN | 1 |
| 21 | PFFZZ | 4710-01-393-7540 | 1NHH8 | 8D00064-3 | TUBING ASSEMBLY,NON | 1 |
| 22 | PAFZZ | 5305-00-269-3211 | 80205 | MS90725-60 | SCREW,CAP,HEXAGON H 3/8-16 X 1 | 4 |
| 23 | PAFZZ | 5310-00-167-0821 | 80205 | NAS1149F0663P | WASHER,FLAT 3/8 | 8 |
| 24 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | NUT,SELF-LOCKING,HE 3/8-16 | 4 |
| 25 | PFFZZ | 4730-01-422-4155 | 88763 | 113RB-E3.0 | NIPPLE,PIPE | 1 |
| 26 | PAFZZ | 2530-01-393-5877 | 1NHH8 | 8D00097-1 | TANK,PRESSURE | 1 |
| 27 | PFFZZ | 4820-01-393-4555 | 1NHH8 | 8D00121-6 | COCK,DRAIN | 1 |
| 28 | PAFZZ | 4730-00-595-0083 | 58536 | A52484-1 | COUPLING HALF,QUICK | 1 |
| 29 | PCFZZ | 5330-00-172-1919 | 06721 | 1509 | . PACKING,PREFORMED | 1 |
| 30 | PAFZZ | 4730-01-385-6972 | 06721 | 1507A | CLAMP,HOSE | 1 |
| 31 | PAFZZ | 5360-01-388-5783 | 56988 | C243 | SPRING,HELICAL,EXTE | 1 |

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| 32 | PAFZZ | 4730-00-427-5121 | 01276 | 3152X6 | PLUG,PIPE | 4 |
| 33 | PAFZZ | 4710-01-501-3199 | 1NHH8 | 8D00064-24 | TUBE ASSEMBLY,METAL | 1 |

END OF FIGURE

**FIELD MAINTENANCE
AIR BRAKE CHAMBER AND LINES, FRONT**

| | |
|----|----|
| 11 | 13 |
| 12 | 14 |



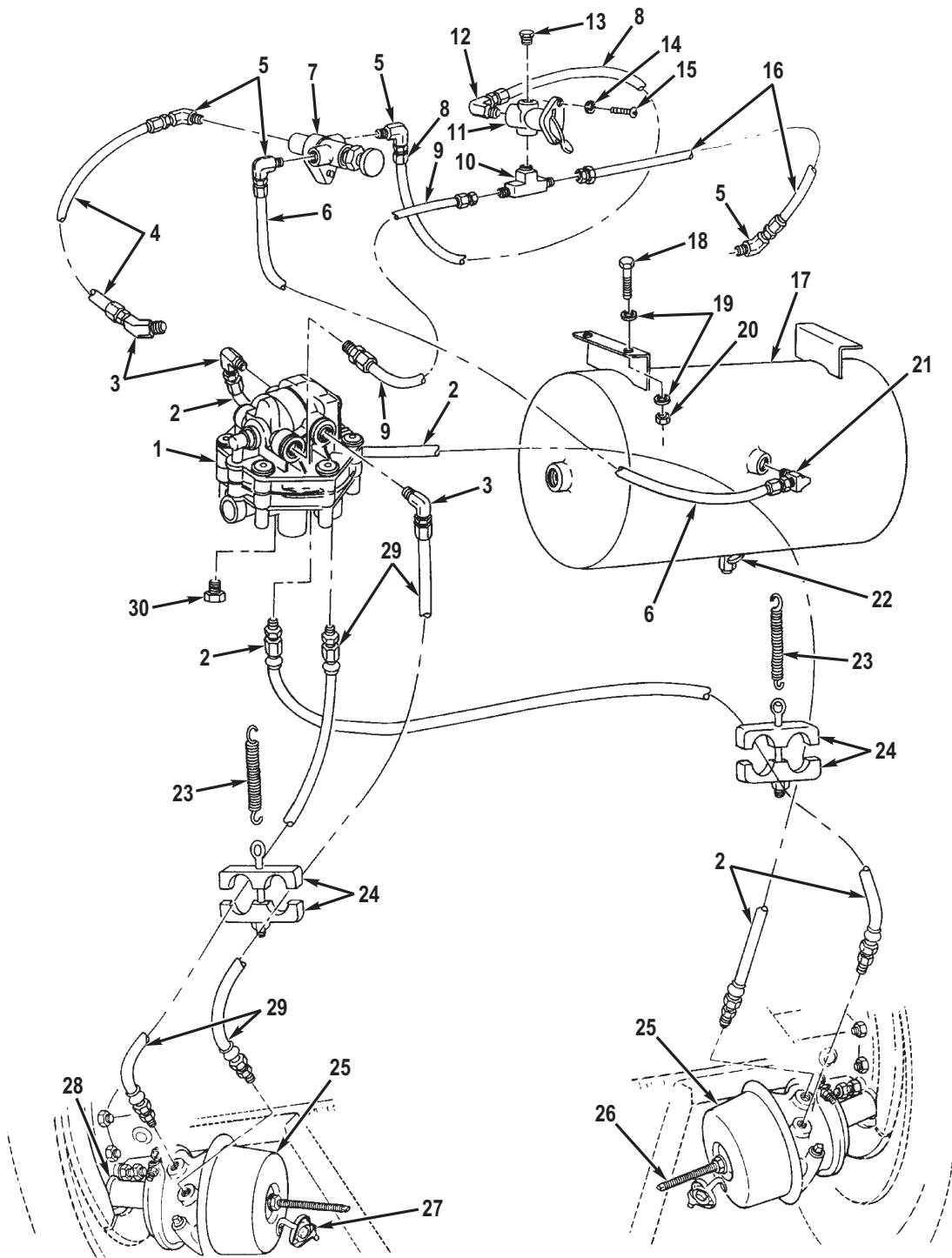
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Figure 14. Air Brake Chamber and Lines, Front.

| (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. 14. AIR BRAKE CHAMBER AND LINES, FRONT. | | | | | | |
| 1 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | NUT,SELF-LOCKING,HE 3/8-16 | 1 |
| 2 | PAFZZ | 5310-00-167-0821 | 80205 | NAS1149F0663P | WASHER,FLAT 3/8 | 1 |
| 3 | PPFZZ | 5340-01-395-2166 | 30780 | CL-13 | CLAMP,LOOP | 1 |
| 4 | PAFZZ | 5305-00-115-9526 | 80204 | B1821BH038C075D | SCREW,CAP,HEXAGON H 3/8-16 X 3/4 | 1 |
| 5 | PCFZZ | 4720-01-393-2161 | 1NHH8 | 8D00063-2 | HOSE ASSEMBLY,NONME | 1 |
| 6 | PPFZZ | 4730-00-407-0571 | 30327 | 129-B-08X24 | COUPLING,PIPE | 2 |
| 7 | PAFZZ | 4730-00-427-5121 | 01276 | 3152X6 | PLUG,PIPE | 1 |
| 8 | PAFZZ | 2530-01-393-7163 | 21439 | 8D00197-11 | CHAMBER,AIR BRAKE | 2 |
| 9 | PAFZZ | 4720-01-428-9692 | 1NHH8 | 8D00063-3 | HOSE ASSEMBLY,NONME RIGHT | 1 |
| 9 | PAFZZ | 4720-01-393-5257 | 98441 | 2730101-6-8-6B-64 | HOSE ASSEMBLY,NONME LEFT | 1 |
| 10 | PAFZZ | 4720-01-393-5252 | 61424 | 741590-RED | TUBING ASSEMBLY,NON | 1 |
| 11 | PAFZZ | 4730-00-595-0083 | 58536 | A52484-1 | COUPLING HALF,QUICK | 1 |
| 12 | PCFZZ | 5330-00-172-1919 | 06721 | 1509 | . PACKING,PREFORMED | 1 |
| 13 | PAFZZ | 4730-00-595-0083 | 58536 | A52484-1 | COUPLING HALF,QUICK | 1 |
| 14 | PCFZZ | 5330-00-172-1919 | 06721 | 1509 | . PACKING,PREFORMED | 1 |
| 15 | PAFZZ | 4720-01-393-5250 | 61424 | 741590-BLUE | TUBING ASSEMBLY,NON | 1 |
| 16 | PCFZZ | 4720-01-406-1924 | 1NHH8 | 8D00063-7 | HOSE ASSEMBLY,NONME | 1 |

END OF FIGURE

**FIELD MAINTENANCE
AIR BRAKE CHAMBERS, LINES, AND FITTINGS, REAR**



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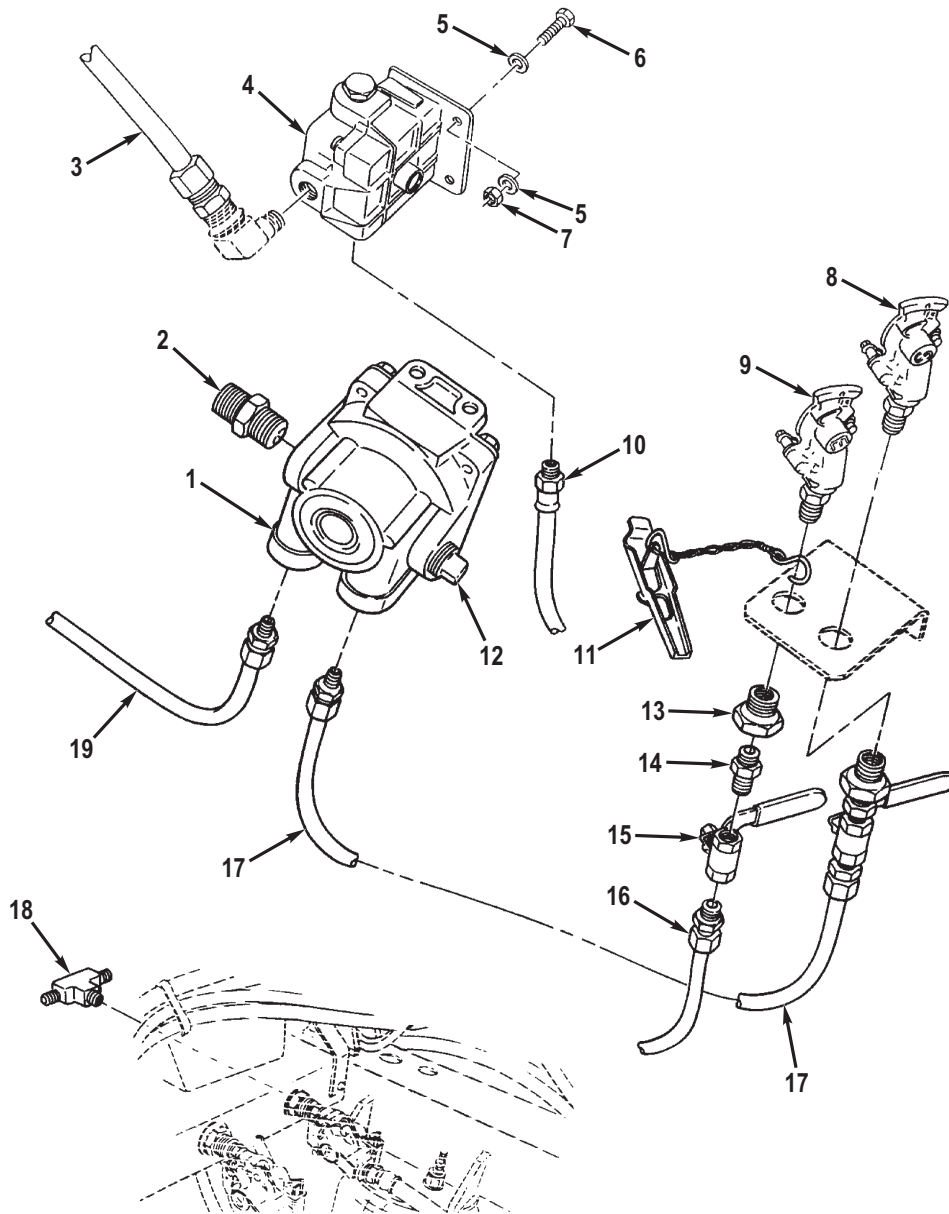
Figure 15. Air Brake Chambers, Lines, and Fittings, Rear.

| (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. 15. AIR BRAKE CHAMBERS, LINES, AND FITTINGS, REAR. | | | | | | |
| 1 | PAFZZ | 4820-01-393-5255 | 1NHH8 | 8D00121-12 | VALVE,PNEUMATIC TAN | 1 |
| 2 | PCFZZ | 4720-01-428-9691 | 1NHH8 | 8D00063-1 | HOSE ASSEMBLY,NONME | 2 |
| 3 | PAFZZ | 4730-00-277-8257 | 81343 | SAE J530 6-6 130339B | ELBOW,PIPE | 3 |
| 4 | PCFZZ | 4720-01-393-4578 | 1NHH8 | 8D00064-14 | HOSE ASSEMBLY,NONME | 1 |
| 5 | PFFZZ | 4730-01-515-4774 | 93061 | 1202P-4-4 | ELBOW,PIPE | 4 |
| 6 | PAFZZ | 4710-01-501-3204 | 1NHH8 | 8D00064-8 | TUBE ASSEMBLY,METAL | 1 |
| 7 | PAFZZ | 4820-01-393-4553 | 1NHH8 | 8D00121-1 | VALVE,PNEUMATIC TAN | 1 |
| 8 | PCFZZ | 4720-01-393-4579 | 1NHH8 | 8D00064-15 | HOSE ASSEMBLY,NONME | 1 |
| 9 | PFFZZ | 4710-01-406-1922 | 1NHH8 | 8D00064-20 | TUBE ASSEMBLY,METAL | 1 |
| 10 | PAFZZ | 4730-00-595-0251 | 93061 | 2224P-2 | TEE,PIPE | 1 |
| 11 | PAFZZ | 4820-01-393-4551 | 1NHH8 | 8D00121-9 | VALVE,PNEUMATIC TAN | 1 |
| 12 | PAFZZ | 4730-00-810-0059 | 89346 | 120401 | ELBOW,PIPE | 1 |
| 13 | PAFZZ | 4730-00-287-3281 | 81343 | 2-130109E | PLUG,PIPE | 1 |
| 14 | PAFZZ | 5310-00-045-3296 | 80205 | MS35338-43 | WASHER,LOCK #10 | 2 |
| 15 | PAFZZ | 5305-00-050-9231 | 96906 | MS51957-65 | SCREW,MACHINE #10-24 X 3/4 | 2 |
| 16 | PFFZZ | 4710-01-406-1925 | 1NHH8 | 8D00064-19 | TUBE ASSEMBLY,METAL | 1 |
| 17 | PAFZZ | 2530-01-393-5256 | 1NHH8 | 8D00097-2 | TANK,PRESSURE | 1 |
| 18 | PAFZZ | 5305-00-269-3211 | 80205 | MS90725-60 | SCREW,CAP,HEXAGON H 3/8-16 X 1 | 4 |
| 19 | PAFZZ | 5310-00-167-0821 | 80205 | NAS1149F0663P | WASHER,FLAT 3/8 | 8 |
| 20 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | NUT,SELF-LOCKING,HE 3/8 X 16 | 4 |
| 21 | PAFZZ | 4730-00-278-4822 | 93061 | 2202P-6-6 | ELBOW,PIPE | 2 |
| 22 | PFFZZ | 4820-01-393-4555 | 1NHH8 | 8D00121-6 | COCK,DRAIN | 1 |
| 23 | PAFZZ | 5360-01-388-5783 | 56988 | C243 | SPRING,HELICAL,EXTE | 2 |
| 24 | PAFZZ | 4730-01-385-6972 | 06721 | 1507A | CLAMP,HOSE | 2 |
| 25 | PAFZZ | 2530-01-393-5279 | 21439 | 8D00197-36 | CHAMBER,AIR BRAKE | 2 |
| 26 | PAFZZ | 2530-01-095-3561 | 45152 | 1AL60 | STUD ASSEMBLY,RELEA | 2 |
| 27 | XDFZZ | | 50153 | T-211M11 | COVER,DUST | 2 |
| 28 | PAFZZ | 5310-01-431-4074 | 21439 | 8D00197-12 | NUT,PLAIN,HEXAGON | 2 |
| 29 | PCFZZ | 4720-01-428-9692 | 1NHH8 | 8D00063-3 | HOSE ASSEMBLY,NONME | 2 |

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| 30 | PAFZZ | 4730-00-427-5121 | 01276 | 3152X6 | PLUG,PIPE | 3 |

END OF FIGURE

**FIELD MAINTENANCE
AIR BRAKE RELAY VALVES, LINES, AND FITTINGS, REAR**



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Figure 16. Air Brake Relay Valves, Lines, and Fittings, Rear.

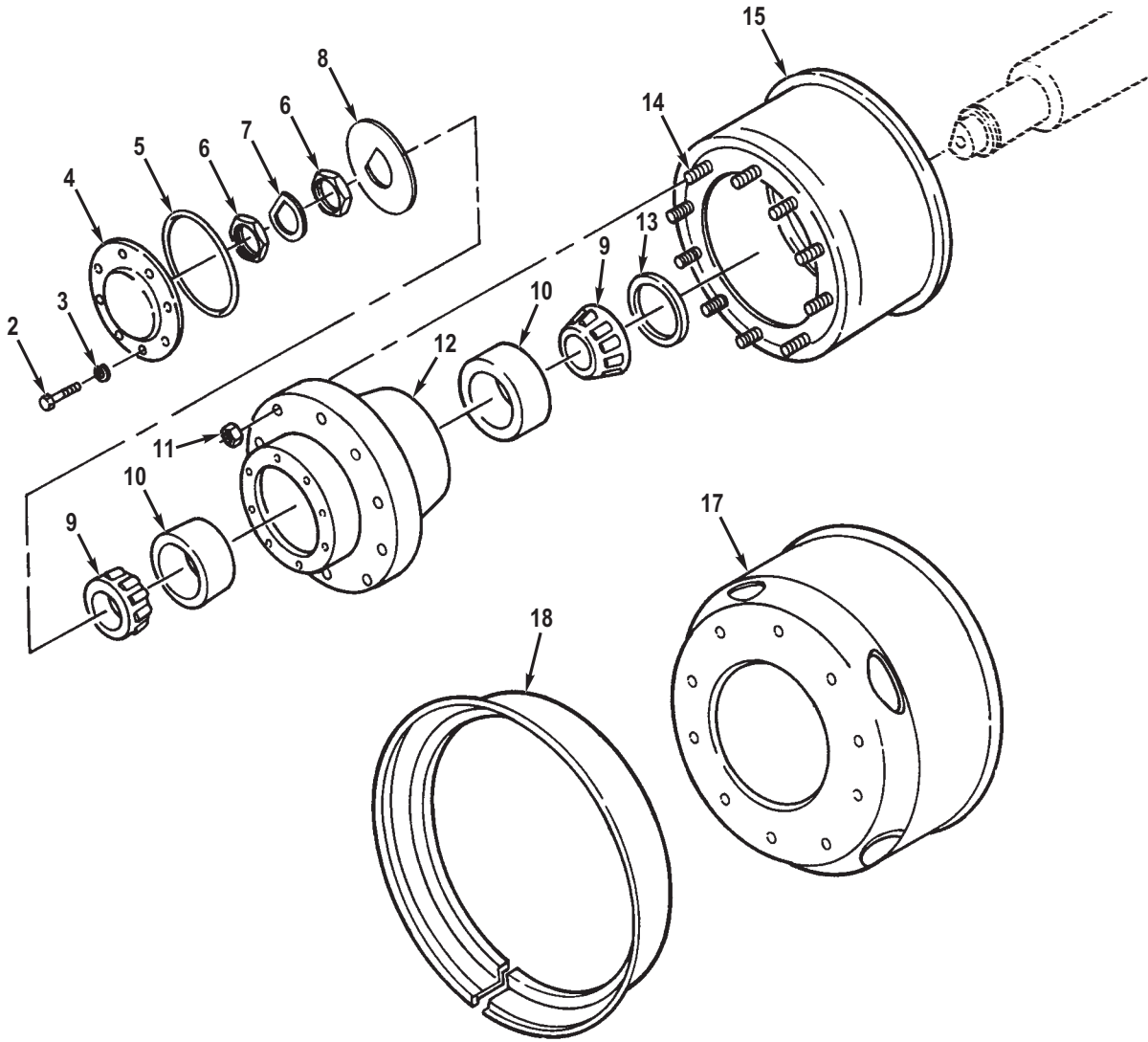
| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|---------------------------|--|------------|
| GROUP 1208 AIR BRAKE SYSTEM | | | | | | |
| FIG. 16. AIR BRAKE RELAY VALVES, LINES, AND FITTINGS, REAR. | | | | | | |
| 1 | PAFZZ | 2530-01-393-7535 | 1NHH8 | 8D00121-5 | VALVE,RELAY,AIR PRE | 1 |
| 2 | PAFZZ | 4730-00-595-3108 | 72983 | 23325X8 | NIPPLE,PIPE | 7 |
| 3 | PFFZZ | 4710-01-406-1928 | 1NHH8 | 8D00064-18 | TUBE ASSEMBLY,METAL | 1 |
| 4 | PFFZZ | 2530-01-422-7473 | 1NHH8 | 8D00121-8 | VALVE,RELAY,AIR PRE | 1 |
| 5 | PAFZZ | 5310-00-167-0820 | 62983 | 48488 | WASHER,FLAT 5/16 | 4 |
| 6 | PAFZZ | 5306-00-225-8499 | 80205 | MS90725-34 | BOLT,MACHINE 5/16-18 X 1 | 2 |
| 7 | PAFZZ | 5310-00-984-3806 | 81349 | M45913/1-5CG5C | NUT,SELF-LOCKING,HE 5/16-18 | 2 |
| 8 | PAFZZ | 4730-00-595-0083 | 58536 | A52484-1 | COUPLING HALF,QUICK | 2 |
| 9 | PAFZZ | 4730-00-595-0083 | 58536 | A52484-1 | COUPLING HALF,QUICK | 2 |
| 10 | PFFZZ | 4710-01-406-1927 | 1NHH8 | 8D00064-17 | TUBE ASSEMBLY,METAL | 1 |
| 11 | PFFZZ | 4820-01-423-4847 | 1NHH8 | 8D00121-25 | COUPLER,DUMMY | 2 |
| 12 | PAFZZ | 4730-00-011-3176 | 30780 | 1-2SHPB | PLUG,PIPE | 2 |
| 13 | PAFZZ | 4730-00-407-0571 | 93061 | 207ACBH-8 | COUPLING,PIPE | 4 |
| 14 | PAFZZ | 4730-00-287-4852 | 81343 | SAE J530 8-6 130137B | REDUCER,PIPE | 2 |
| 15 | PAFZZ | 4820-01-393-4552 | 1NHH8 | 8D00121-2 | COCK,DRAIN | 2 |
| 16 | PCFZZ | 4720-01-393-4580 | 1NHH8 | 8D00064-10 | HOSE ASSEMBLY,NONME | 1 |
| 17 | PFFZZ | 4710-01-406-1921 | 1NHH8 | 8D00064-12 | TUBE ASSEMBLY,METAL | 1 |
| 18 | PFFZZ | 4730-00-277-7331 | 81343 | SAE J530 6-6-6 130438B | TEE,PIPE | 2 |
| 19 | PAFZZ | 4710-01-501-3203 | 1NHH8 | 8D00064-13 | TUBE ASSEMBLY,METAL | 1 |

END OF FIGURE

**FIELD MAINTENANCE
HUB, DRUM, AND WHEEL**

1
2 THRU 15

16
17 THRU 18



R0017JMS

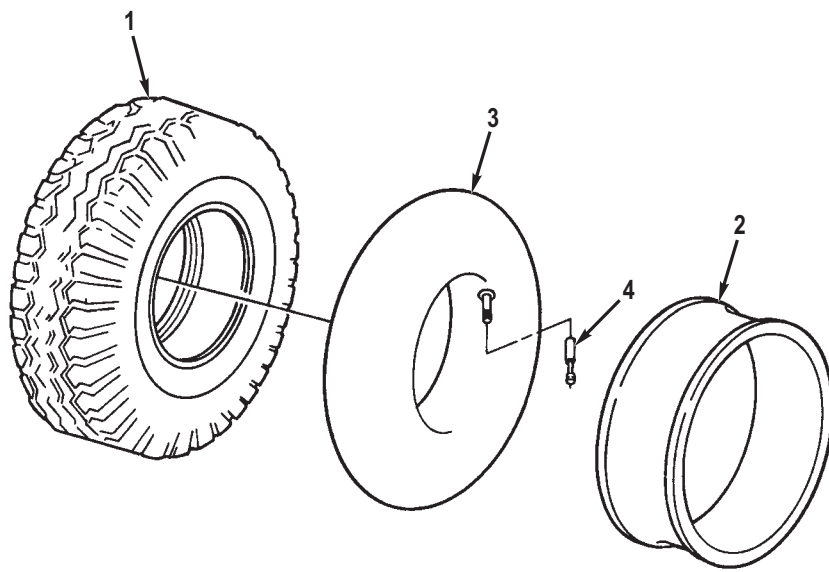
Figure 17. Hub, Drum, and Wheel.

| (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. 17. HUB, DRUM, AND WHEEL. | | | | | | |
| 1 | AF FFF | | 21439 | 8D00195-41 | HUB AND DRUM ASSY L.H. | 1 |
| 1 | AF FFF | | 21439 | 8D00195-31 | HUB AND DRUM ASSY R.H. | 1 |
| 2 | PA FZZ | 5306-00-068-0513 | 80204 | B1821BH025F075N | . BOLT,MACHINE 1/4-28 X 3/4 | 8 |
| 3 | PA FZZ | 5310-00-274-8715 | 80205 | MS35338-63 | . WASHER,LOCK 1/4 | 8 |
| 4 | PF FZZ | 5340-01-393-2609 | 21439 | 8D00195-36 | . COVER,ACCESS | 1 |
| 5 | PA FZZ | 5331-01-418-0621 | 21439 | 8D00195-35 | . O-RING | 1 |
| 6 | PF FZZ | 5310-01-421-9481 | 1NHH8 | 8D00195-40 | . NUT,PLAIN,HEXAGON | 2 |
| 7 | PF FZZ | 5310-01-393-5648 | 21439 | 8D00195-39 | . WASHER,LOCK | 1 |
| 8 | PF FZZ | 5310-01-393-5647 | 1NHH8 | 8D00195-38 | . WASHER,LOCK | 1 |
| 9 | PF FZZ | 3110-00-293-8998 | 60038 | HM212049 | . CONE AND ROLLERS,TA | 2 |
| 10 | PF FZZ | 3110-01-394-7718 | 1NHH8 | 8D00195-55 | . CUP,TAPERED ROLLER | 2 |
| 11 | PA FZZ | 5310-01-394-2370 | 1NHH8 | 8D00195-37 | . NUT,PLAIN,HEXAGON R.H. | 10 |
| 11 | PA FZZ | 5310-01-393-5653 | 21439 | 8D00195-43 | . NUT,PLAIN,HEXAGON L.H. | 10 |
| 12 | PF FZZ | 2530-01-393-5271 | 1NHH8 | 8D00195-53 | . HUB,WHEEL,VEHICULAR | 1 |
| 13 | PA FZA | 5330-01-464-9956 | 80201 | 35086 | . SEAL,PLAIN | 1 |
| 14 | PF FZZ | 5307-01-393-5652 | 1NHH8 | 8D00195-56 | . STUD,PLAIN R.H. | 10 |
| 14 | PF FZZ | 5307-01-393-6314 | 1NHH8 | 8D00195-57 | . STUD,PLAIN L.H. | 10 |
| 15 | PF FZZ | 2530-01-393-7543 | 21439 | 8D00195-54 | . BRAKE DRUM | 1 |
| 16 | PA FZZ | 2530-01-329-7523 | 73195 | 27404PG | WHEEL DISC TUBELESS | 1 |
| 16 | PA FZZ | 2530-00-603-5768 | 19207 | 7388820 | WHEEL,PNEUMATIC TIR | 1 |
| 17 | XA FZZ | | 19207 | 7389493 | . RIM,WHEEL,PNEUMATIC | 1 |
| 18 | PA FZZ | 2530-00-738-9061 | 06YZ5 | 6035768.2 | . RING,SIDE,AUTOMOTIV | 1 |

END OF FIGURE

**FIELD MAINTENANCE
TIRE AND TUBE**

1
2



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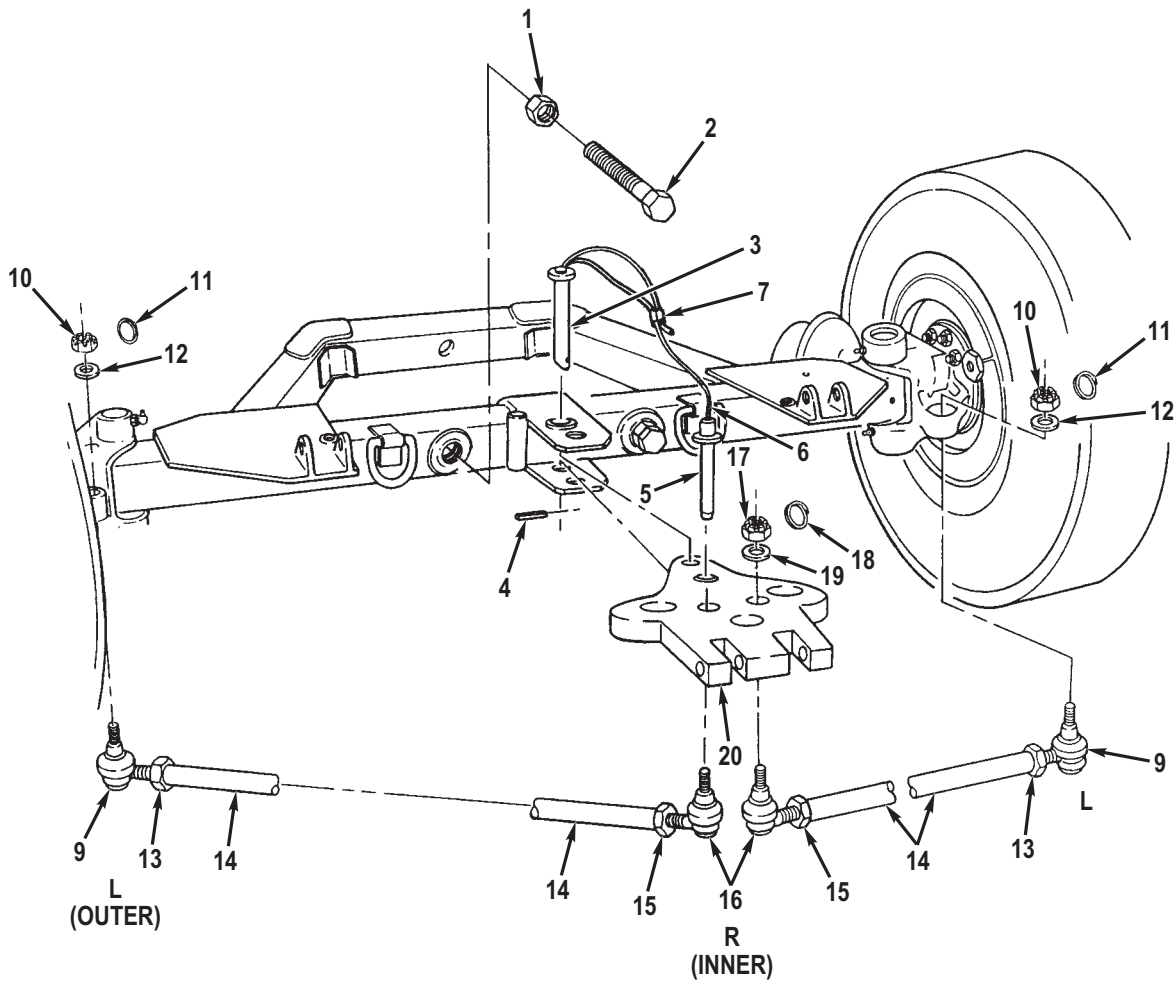
Figure 18. Tire and Tube.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|----------------------------------|--|------------|
| GROUP 1313 TIRES, TUBES, TIRE CHAINS | | | | | | |
| FIG. 18. TIRE AND TUBE. | | | | | | |
| 1 | PCFZZ | 2610-01-281-0675 | 04NP3 | 138-382-667 | TIRE,PNEUMATIC,VEHI | 1 |
| 1 | PCFZZ | 2610-01-473-3997 | 04NP3 | 138-382-231 | TIRE,PNEUMATIC,VEHI | 1 |
| 1 | PCFZZ | 2610-01-465-5823 | 12195 | 85335 | TIRE,PNEUMATIC,VEHI 12R22.5, G286 LRH | 1 |
| 2 | XAFZZ | | 9Y199 | 620800.2 | . FLAP,INNER TUBE,PNE | 1 |
| 3 | PCFZZ | 2610-00-029-0563 | 81348 | GP2/11.00R20/ TR444/ON CENTER | INNER TUBE,PNEUMATI | 1 |
| 4 | PAFZZ | 2640-01-093-2842 | 97789 | 33-306 | VALVE,PNEUMATIC TIR | 1 |
| 4 | PAFZZ | 2640-00-555-2824 | 27783 | TR573 | VALVE,PNEUMATIC TIR TUBELESS | 1 |

END OF FIGURE

**FIELD MAINTENANCE
STEERING ARM AND TIE-RODS**

- 8
9 THRU 19
- 9
10 THRU 12
- 16
17 THRU 19



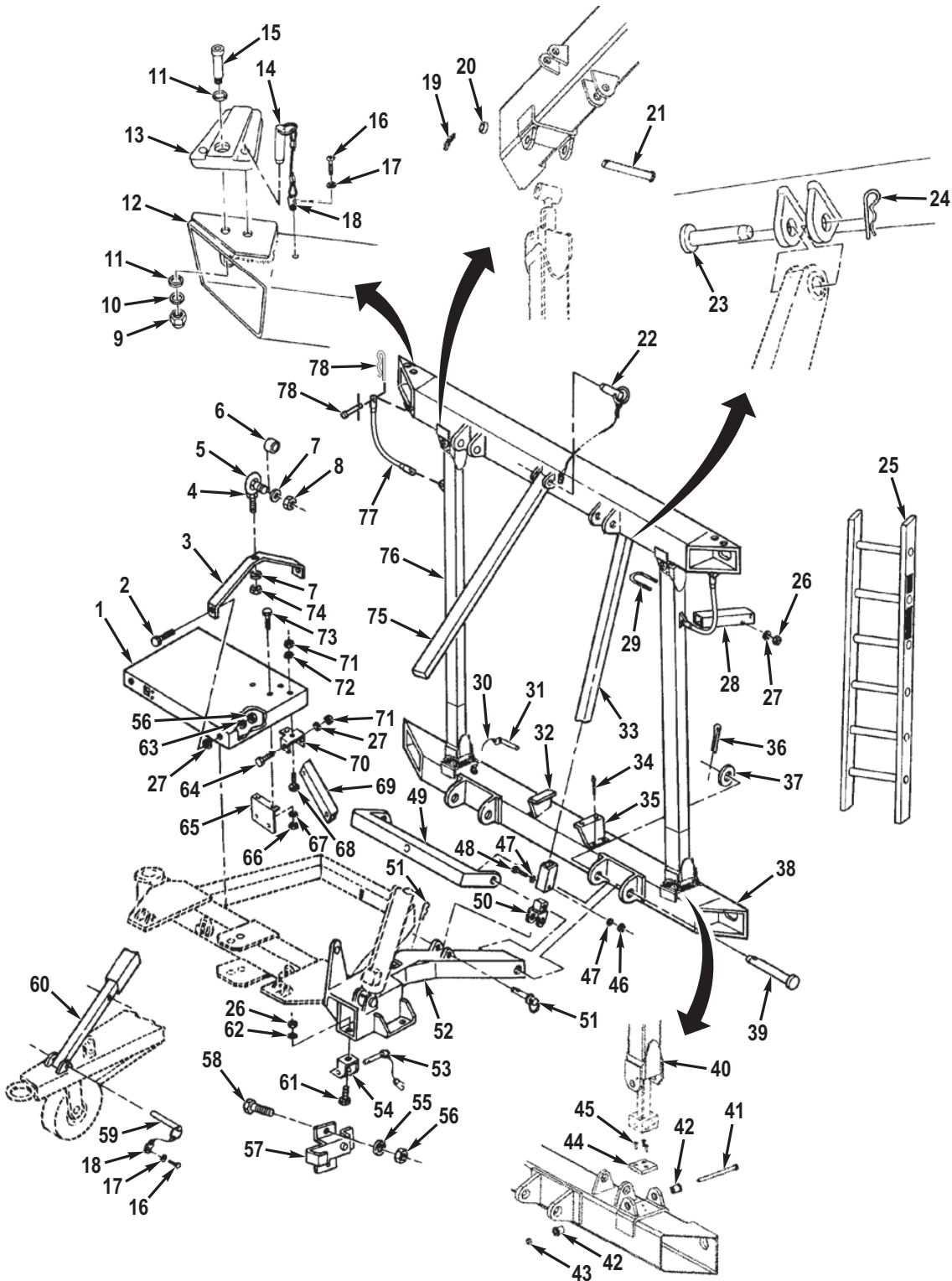
R0019JMS

Figure 19. Steering Arm and Tie-Rods.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 1401 MECHANICAL STEERING GEAR ASSEMBLY | | | | | | |
| FIG. 19. STEERING ARM AND TIE- RODS. | | | | | | |
| 1 | PPFZZ | 5310-01-393-6313 | 21439 | 8D00195-45 | NUT,PLAIN,HEXAGON 1-8 | 2 |
| 2 | PAFZZ | 5306-01-430-3411 | 21439 | 8D00195-46 | BOLT,MACHINE 1-8 X 2 1/2 | 2 |
| 3 | PPFZZ | 5315-01-393-1318 | 21439 | 8D00195-58 | PIN,STRAIGHT,HEADLE | 1 |
| 4 | PPFZZ | 5315-01-393-0838 | 1NHH8 | 8D00195-59 | PIN,SPRING | 1 |
| 5 | PAFZZ | 5315-01-473-2046 | 1NHH8 | 8D00195-44 | PIN,STRAIGHT,HEADED | 1 |
| 6 | PPFZZ | 2590-01-428-1697 | 1NHH8 | 8D00195-70 | CABLE ASSEMBLY,CONT | 1 |
| 7 | PAFZZ | 4730-01-421-6441 | 1NHH8 | 8D00195-66 | SLEEVE,CLINCH,TUBE | 2 |
| 8 | PAFZZ | 2530-01-393-7545 | 21439 | 8D00195-20 | TIE ROD END,STEERIN | 2 |
| 9 | PAFZZ | 2530-01-393-7545 | 21439 | 8D00195-20 | . TIE ROD END,STEERIN | 1 |
| 10 | PAFZZ | 5310-01-419-5660 | 1NHH8 | 8D00195-72 | . . NUT,PLAIN,HEXAGON | 1 |
| 11 | PAFZZ | 5315-01-501-0030 | 1NHH8 | 8D00195-73 | . . PIN,COTTER | 1 |
| 12 | PAFZZ | 5310-01-501-0296 | 1NHH8 | 8D00195-74 | . . WASHER,FLAT | 1 |
| 13 | PPFZZ | 5310-01-393-5644 | 52793 | 05-047525 | . WASHER,LOCK 1-16 | 1 |
| 14 | XAFZZ | | 21439 | 8D00195-22 | . TIE-ROD | 1 |
| 15 | PPFZZ | 5310-01-393-5649 | 21439 | 8D00195-23 | . NUT,PLAIN,HEXAGON 1-16 | 1 |
| 16 | PAFZZ | 2530-00-359-1518 | 05419 | ES176R | . TIE ROD END,STEERIN | 1 |
| 17 | PAFZZ | 5310-01-419-5660 | 1NHH8 | 8D00195-72 | . . NUT,PLAIN,HEXAGON | 1 |
| 18 | PAFZZ | 5315-01-501-0030 | 1NHH8 | 8D00195-73 | . . PIN,COTTER | 1 |
| 19 | PAFZZ | 5310-01-501-0296 | 1NHH8 | 8D00195-74 | . . WASHER,FLAT | 1 |
| 20 | PPFZZ | 2530-01-393-5173 | 21439 | 8D00195-7 | ARM,STEERING GEAR | 1 |

END OF FIGURE

**FIELD MAINTENANCE
FRAME COMPONENTS**



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Figure 20. Frame Components.

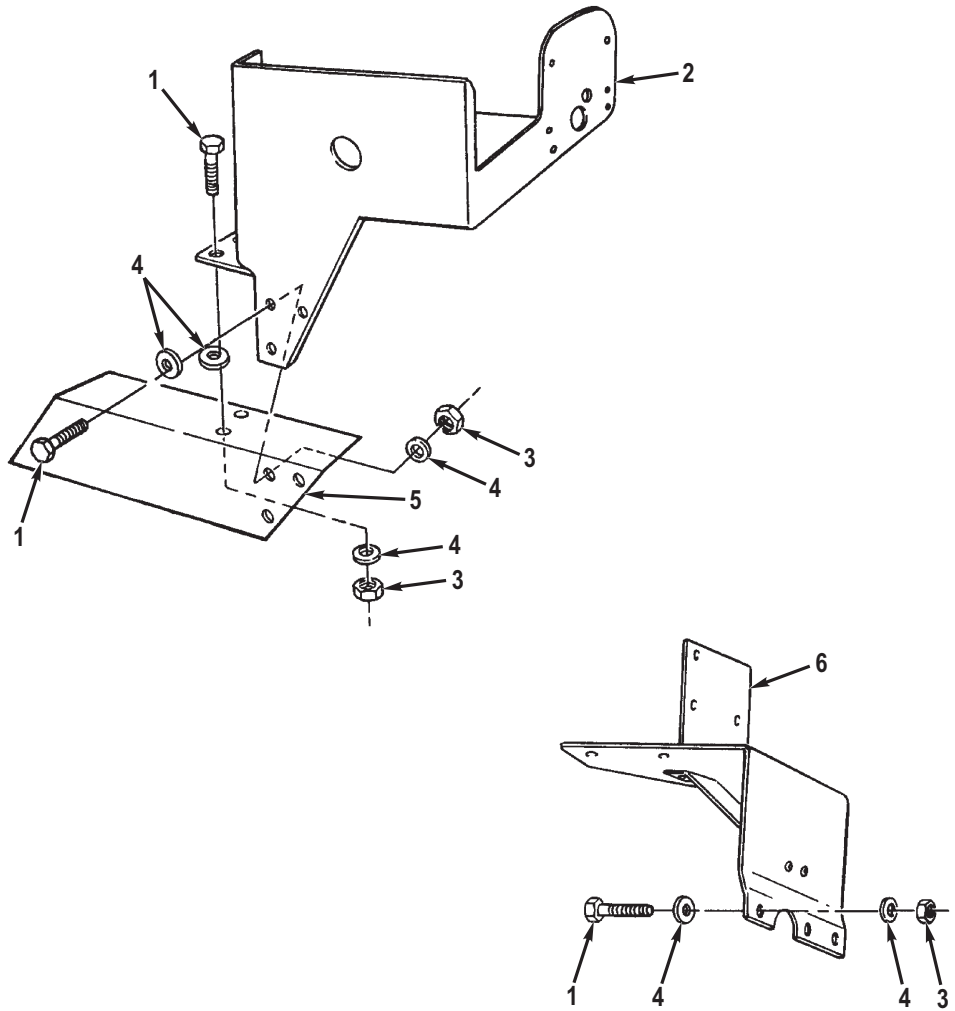
| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-----------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 1501 FRAME ASSEMBLY | | | | | | |
| FIG. 20. FRAME COMPONENTS. | | | | | | |
| 1 | PFZZ | 2510-01-393-2666 | 1NHH8 | 8D00073-1 | FRAME SECTION,STRUC FRONT | 1 |
| 1 | PFZZ | 2510-01-393-5870 | 1NHH8 | 8D00125-1 | FRAME SECTION,STRUC REAR | 1 |
| 2 | PAFZZ | 5305-00-881-0705 | 80205 | MS51975-17 | SCREW,SHOULDER 3/8 X 5/8 | 4 |
| 3 | PFZZ | 2590-01-393-5873 | 1NHH8 | 8D00073-2 | BRACKET,VEHICULAR C FRONT | 2 |
| 3 | PFZZ | 2590-01-393-7531 | 1NHH8 | 8D00125-2 | BRACKET,VEHICULAR C REAR | 2 |
| 4 | PAFZZ | 5310-00-167-1304 | 80205 | AN316-8R | NUT,PLAIN,HEXAGON 1/2-20 | 2 |
| 5 | PFZZ | 3120-01-394-7284 | 56644 | CM8SZ | BEARING,PLAIN,ROD E | 2 |
| 6 | PFZZ | 5365-01-393-0841 | 1NHH8 | 8D00110-33 | SPACER,SLEEVE USE WITH REAR TRAY ONLY | 2 |
| 7 | PAFZZ | 5310-00-167-0823 | 88044 | AN960-816 | WASHER,FLAT 1/2 | 4 |
| 8 | PAFZZ | 5310-00-877-5795 | 80205 | MS21044-N8 | NUT,SELF-LOCKING,HE 1/2-20 | 2 |
| 9 | PAFZZ | 5310-00-269-4040 | 81349 | M45913/1-10CG5C | NUT,SELF-LOCKING,HE 5/8-11 | 2 |
| 10 | PAFZZ | 5310-00-167-0825 | 88044 | AN960-1016 | WASHER,FLAT 5/8 | 2 |
| 11 | PAFZZ | 5310-01-397-1776 | 80205 | NAS1149F1290P | WASHER,FLAT 3/4 | 4 |
| 12 | PBFZZ | 2510-01-426-2443 | 21439 | 8D00107-1 | FRAME SECTION,STRUC FRONT | 1 |
| 12 | PBFZZ | 2510-01-393-5087 | 1NHH8 | 8D00141-1 | FRAME SECTION,STRUC REAR | 1 |
| 12 | PBFZZ | 3940-01-542-4246 | 19207 | 12501508 | BEAM,HOISTING REAR BOTTOM | 1 |
| 12 | PBFZZ | 3940-01-536-2137 | 19207 | 12501505 | BEAM,HOISTING FRONT | 1 |
| 13 | PBFZZ | 2590-01-393-5871 | 1NHH8 | 8D00081-1 | HOOK,HOLD-DOWN,TRAI | 2 |
| 14 | PAFZZ | 5315-01-419-2308 | 1NHH8 | 8D00202-1 | PIN,QUICK RELEASE | 2 |
| 15 | PAFZZ | 5305-00-858-5558 | 80205 | MS51975-55 | SCREW,SHOULDER 3/4 X 2 | 2 |
| 16 | PAFZZ | 5305-00-058-1082 | 08645 | 92760 | SCREW,TAPPING #8 X 1/4 | 6 |
| 17 | PAFZZ | 5310-00-045-3299 | 80205 | MS35338-42 | WASHER,LOCK #8 | 6 |
| 18 | PFZZ | 3990-01-418-8755 | 96652 | 79-07 | WIRE,PIN RETAINER | 5 |
| 19 | PAFZZ | 5315-01-054-8531 | 53711 | 2491848 | PIN,LOCK | 4 |
| 20 | PAFZZ | 5365-01-505-4642 | 19207 | 12501539 | SPACER,SLEEVE | 4 |
| 21 | PAFZZ | 5315-01-542-3873 | 19207 | 12501531 | PIN,STRAIGHT,HEADED | 4 |
| 22 | PFZZ | 5315-01-394-7523 | 1NHH8 | 8D00202-3 | PIN,QUICK RELEASE | 1 |
| 23 | PAFZZ | 5315-01-392-9397 | 1NHH8 | 8D00060-1 | PIN,STRAIGHT,HEADED | 2 |
| 24 | PAFZZ | 5315-01-171-0750 | 1YHH8 | 8310025 | PIN,LOCK | 2 |
| 25 | PFZZ | 2540-01-418-5567 | 1NHH8 | 8D00231-1 | LADDER,VEHICLE BOAR | 1 |
| 26 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | NUT,SELF-LOCKING,HE 3/8-16 | 6 |
| 27 | PAFZZ | 5310-00-167-0821 | 80205 | NAS1149F0663P | WASHER,FLAT 3/8 | 9 |

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| 28 | PFFZZ | 2590-01-422-7462 | 1NHH8 | 8D00217-1 | BRACKET,VEHICULAR C | 2 |
| 29 | PFFZZ | 5306-01-417-5740 | 1NHH8 | 8D00227-1 | BOLT,U | 2 |
| 30 | XDFZZ | | 96652 | 79-08 | LANYARD ASSY | 1 |
| 31 | PFFZZ | 5315-01-394-7522 | 1NHH8 | 8D00202-4 | PIN,QUICK RELEASE | 1 |
| 32 | PFFZZ | 5340-01-393-7083 | 1NHH8 | 8D00207-1 | BRACKET,MOUNTING | 1 |
| 33 | PBFZZ | 4710-01-394-4780 | 1NHH8 | 8D00061-1 | TUBE,BRACE,CHASSIC | 2 |
| 34 | PFFZZ | 5320-01-393-0842 | 80205 | NAS9301BNS-8-08 | RIVET,BLIND | 4 |
| 35 | PFFZZ | 5340-01-393-9366 | 1NHH8 | 8D00207-2 | BRACKET,DOUBLE ANGL | 1 |
| 36 | PAFZZ | 5315-00-234-1673 | 80205 | MS24665-688 | PIN,COTTER | 2 |
| 37 | PFFZZ | 5310-00-902-0423 | 80205 | MS15795-835 | WASHER,FLAT | 6 |
| 38 | PBFZZ | 3940-01-542-4245 | 19207 | 12501507 | BEAM,HOISTING | 1 |
| 38 | PBFZZ | 3940-01-542-4243 | 19207 | 12501504 | BEAM,HOISTING | 1 |
| 38 | PBFZZ | 2510-01-393-5868 | 21439 | 8D00106-1 | FRAME,STRUCTURAL,VE FRONT | 1 |
| 38 | PBFZZ | 2510-01-393-5744 | 1NHH8 | 8D00140-1 | FRAME SECTION,STRUC REAR | 1 |
| 39 | PAFZZ | 5315-01-392-9395 | 1NHH8 | 8D00060-7 | PIN,STRAIGHT,HEADED | 2 |
| 40 | PBFZZ | 3040-01-542-4036 | 19207 | 12501509 | TUBE,LOWER VERTICAL | 4 |
| 41 | PAFZZ | 5305-01-505-4928 | 07BY4 | 91257A738 | SCREW,CAP,HEXAGON H | 4 |
| 42 | PAFZZ | 3120-01-505-4227 | 19207 | 12501523 | BUSHING,SLEEVE | 8 |
| 43 | PAFZZ | 5310-01-505-0271 | 19207 | 12501532 | NUT,PLAIN,EXTENDED | 4 |
| 44 | PAFZZ | 5365-01-542-4047 | 19207 | 12501516 | SPACER,PLATE | 4 |
| 45 | PAFZZ | 5305-01-505-5084 | 19207 | 12501538 | SCREW,CAP,SOCKET HE | 12 |
| 46 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | NUT,SELF-LOCKING,HE | 1 |
| 47 | PAFZZ | 5310-00-167-0821 | 80205 | NAS1149F0663P | WASHER,FLAT | 1 |
| 48 | PAFZZ | 5305-00-269-3217 | 80205 | MS90725-67 | SCREW,CAP,HEXAGON H | 1 |
| 49 | PBFZZ | 4710-01-394-4779 | 1NHH8 | 8D00079-1 | TUBE,METALLIC FRONT | 1 |
| 49 | PBFZZ | 5340-01-393-6786 | 21439 | 8D00079-2 | BRACKET,DOUBLE ANGL REAR | 1 |
| 50 | PFFZZ | 5340-01-432-4862 | 1NHH8 | 8D00061-6 | . CONNECTOR,ROD END | 1 |
| 51 | PAFZZ | 5315-01-424-7838 | 1NHH8 | 8D00077-41 | PIN,STRAIGHT,HEADLE | 2 |
| 52 | PBFZZ | 3040-01-393-5258 | 1NHH8 | 8D00119-2 | CONNECTING LINK,RID L.H. REAR | 1 |
| 52 | PBFZZ | 3040-01-393-5243 | 1NHH8 | 8D00080-2 | CONNECTING LINK,RID L.H. FRONT | 1 |
| 52 | PBFZZ | 3040-01-393-5240 | 1NHH8 | 8D00080-1 | CONNECTING LINK,RID R.H. FRONT | 1 |
| 52 | PBFZZ | 3040-01-393-5251 | 1NHH8 | 8D00119-1 | CONNECTING LINK,RID R.H. REAR | 1 |
| 53 | PAFZZ | 5315-01-429-7277 | 1NHH8 | 8D00341-1 | PIN,QUICK RELEASE | 1 |
| 54 | PFFZZ | 2590-01-393-5273 | 1NHH8 | 8D00204-1 | BRACKET,VEHICULAR C | 1 |

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| 55 | PAFZZ | 5310-00-167-0820 | 62983 | 48488 | WASHER,FLAT 5/16 | 4 |
| 56 | PAFZZ | 5310-00-984-3806 | 81349 | M45913/1-5CG5C | NUT,SELF-LOCKING,HE 5/16-18 | 8 |
| 57 | PFFZZ | 5340-01-393-7079 | 1NHH8 | 8D00121-7 | CLIP,SPRING TENSION | 2 |
| 58 | PAFZZ | 5306-00-225-8498 | 80205 | MS90725-33 | BOLT,MACHINE 5/16-18 X 7/8 | 4 |
| 59 | PFFZZ | 5315-01-394-7521 | 1NHH8 | 8D00202-2 | PIN,QUICK RELEASE | 2 |
| 60 | PFFZZ | 2510-01-393-5168 | 1NHH8 | 8D00102-1 | FRAME SECTION,STRUC | 1 |
| 61 | PAFZZ | 5305-00-269-3211 | 80205 | MS90725-60 | SCREW,CAP,HEXAGON H 3/8-16 X 1 | 2 |
| 62 | PAFZZ | 5310-00-773-7618 | 80205 | MS15795-814 | WASHER,FLAT 3/8 | 2 |
| 63 | PAFZZ | 5310-00-044-6477 | 96906 | MS51412-25 | WASHER,FLAT 7/16 | 4 |
| 64 | PAFZZ | 5305-00-269-3219 | 80205 | MS90725-69 | SCREW,CAP,HEXAGON H 3/8-16 X 2 3/4 | 1 |
| 65 | PFFZZ | 5340-01-393-5650 | 21439 | 8D00125-3 | BRACKET,ANGLE REAR ONLY | 1 |
| 66 | PAFZZ | 5310-00-088-1251 | 81349 | M45913/1-4CG5C | NUT,SELF-LOCKING,HE 1/4-20 | 2 |
| 67 | PAFZZ | 5310-00-141-1795 | 80205 | NAS1149F0463P | WASHER,FLAT 1/4 | 2 |
| 68 | PAFZZ | 5305-00-269-3211 | 80205 | MS90725-60 | SCREW,CAP,HEXAGON H 3/8-16 X 1 | 2 |
| 69 | PFFZZ | 5340-01-393-4865 | 1NHH8 | 8D00205-1 | BRACKET,MOUNTING | 1 |
| 70 | PFFZZ | 5340-01-393-1862 | 21439 | 8D00203-1 | BRACKET,DOUBLE ANGL | 1 |
| 71 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | NUT,SELF-LOCKING,HE 3/8-16 | 3 |
| 72 | PAFZZ | 5310-00-080-6004 | 96906 | MS27183-14 | WASHER,FLAT 13/32 | 2 |
| 73 | PAFZZ | 5305-00-071-2505 | 80204 | B1821BH025C088N | SCREW,CAP,HEXAGON H 1/4-20 X 7/8 | 2 |
| 74 | PAFZZ | 5310-00-449-2376 | 80205 | MS21245-8 | NUT,SELF-LOCKING,HE 1/2-20 | 2 |
| 75 | PBFZZ | 2510-01-393-5091 | 1NHH8 | 8D00102-2 | FRAME SECTION,STRUC | 1 |
| 76 | PBFZZ | 3040-01-542-4039 | 19207 | 12501510 | CONNECTING LINK,RIG | 2 |
| 76 | PBFZZ | 3040-01-542-4043 | 19207 | 12501511 | CONNECTING LINK,RIG | 2 |
| 77 | PAFZZ | 4010-01-542-9978 | 19207 | 12501535 | WIRE ROPE ASSEMBLY, | 4 |
| 78 | PAFZZ | 5315-01-542-9980 | 39428 | 97245A709 | PIN,STRAIGHT HEADED WITH COTTER PIN | 2 |

END OF FIGURE

**FIELD MAINTENANCE
MISCELLANEOUS BRACKETS**



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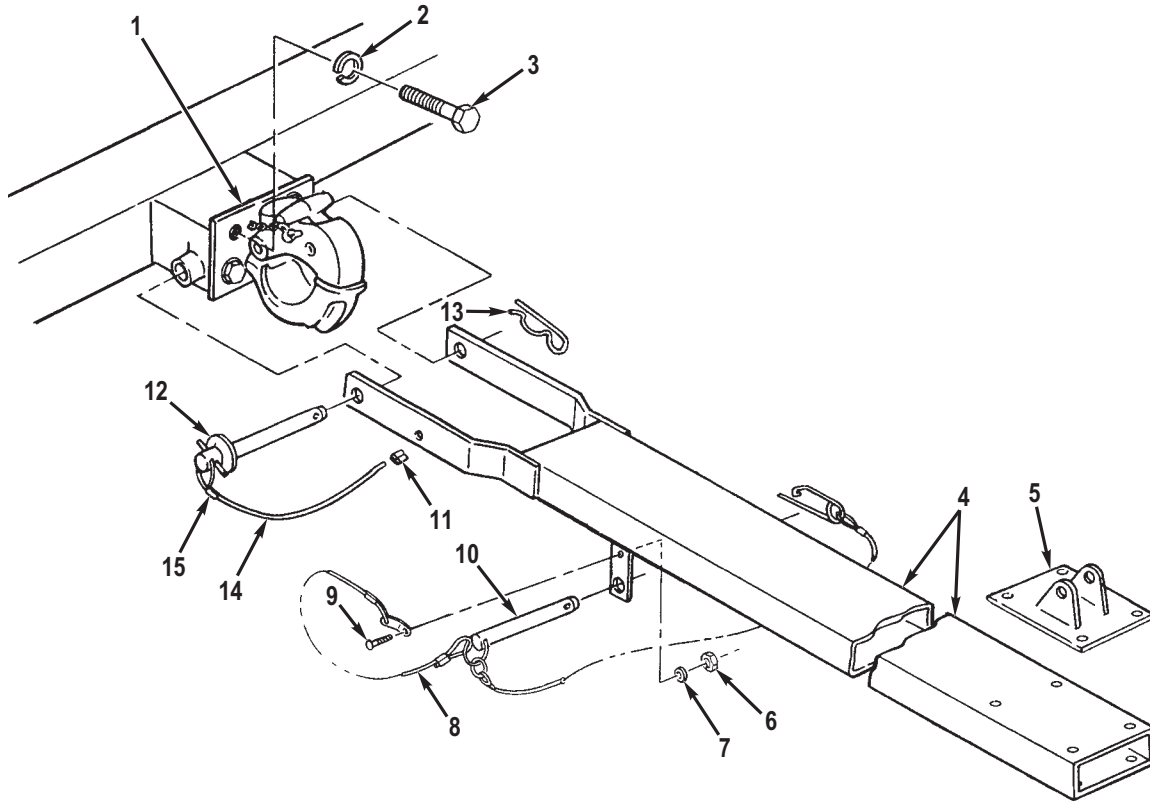
Figure 21. Miscellaneous Brackets.

| (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. 21. MISCELLANEOUS BRACKETS. | | | | | | |
| 1 | PAFZZ | 5305-00-269-3211 | 80205 | MS90725-60 | SCREW,CAP,HEXAGON H 3/8-16 X 1 | 12 |
| 2 | PFFZZ | 6220-01-393-5111 | 1NHH8 | 8D00067-1 | BRACKET,LIGHT RETEN R.H. | 1 |
| 2 | PFFZZ | 5340-01-417-7276 | 1NHH8 | 8D00212-1 | BRACKET,MOUNTING L.H. | 1 |
| 3 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | NUT,SELF-LOCKING,HE 3/8-16 | 12 |
| 4 | PAFZZ | 5310-00-773-7618 | 80205 | MS15795-814 | WASHER,FLAT 3/8 | 24 |
| 5 | PFFZZ | 5340-01-393-7082 | 1NHH8 | 8D00068-2 | BRACKET,MOUNTING L.H. | 1 |
| 5 | PFFZZ | 5340-01-417-7277 | 1NHH8 | 8D00068-1 | BRACKET,MOUNTING R.H. | 1 |
| 6 | PFFZZ | 5340-01-393-6788 | 21439 | 8D00215-1 | BRACKET,MOUNTING L.H. | 1 |
| 6 | PFFZZ | 2590-01-406-3526 | 1NHH8 | 8D00214-1 | BRACKET,VEHICULAR C R.H. | 1 |

END OF FIGURE

**FIELD MAINTENANCE
PINTLE ASSEMBLY AND REAR DRAWBAR**

12
13 THRU 15



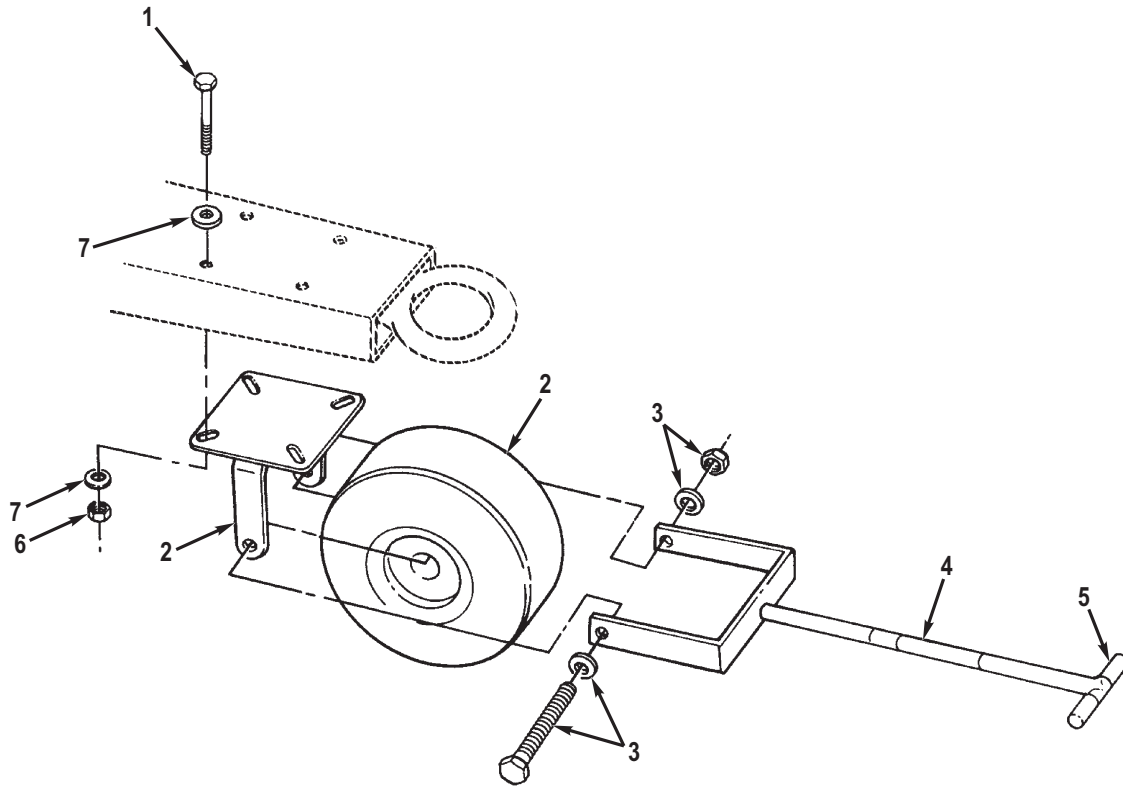
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Figure 22. Pintle Assembly And Rear Drawbar.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 1503 PINTLES AND TOWING ATTACHMENTS | | | | | | |
| FIG. 22. PINTLE ASSEMBLY AND REAR DRAWBAR. | | | | | | |
| 1 | PAFZZ | 2540-00-835-9039 | 58536 | AA52550-4 | PINTLE ASSEMBLY,TOW | 1 |
| 2 | PAFZZ | 5310-00-584-5272 | 80205 | MS35338-48 | WASHER,LOCK 1/2 | 4 |
| 3 | PAFZZ | 5305-00-044-4153 | 80205 | MS90725-109 | SCREW,CAP,HEXAGON H 1/2-13 X 1 | 4 |
| 4 | PFFZZ | 2540-01-393-7534 | 1NHH8 | 8D00131-1 | DRAWBAR,POLE TRAIL E | 1 |
| 5 | PFFZZ | 2590-01-418-5571 | 1NHH8 | 8D00222-1 | BRACKET,VEHICULAR C | 1 |
| 6 | PAFZZ | 5310-00-811-3494 | 80205 | MS21044N08 | NUT,SELF-LOCKING,HE #8-32 | 1 |
| 7 | PAFZZ | 5310-00-515-8058 | 88044 | AN960-8 | WASHER,FLAT 5/32 | 1 |
| 8 | PAFZZ | 3990-01-418-8755 | 96652 | 79-07 | WIRE,PIN RETAINER | 1 |
| 9 | PAFZZ | 5305-00-984-6195 | 80205 | MS35206-247 | SCREW,MACHINE #8-32 X 3/4 | 1 |
| 10 | PAFZZ | 5315-01-429-7277 | 1NHH8 | 8D00341-1 | PIN,QUICK RELEASE | 1 |
| 11 | PFFZZ | 4730-01-421-6441 | 1NHH8 | 8D00195-66 | SLEEVE,CLINCH,TUBE | 1 |
| 12 | PFFZZ | 5315-01-393-1319 | 21439 | 8D00131-4 | PIN,STRAIGHT,HEADLE | 1 |
| 13 | PFFZZ | 5325-01-317-4273 | 1NHH8 | 8D00195-71 | . RING,RETAINING | 1 |
| 14 | PFFZZ | 2590-01-428-1697 | 1NHH8 | 8D00195-70 | . CABLE ASSEMBLY,CONT | 1 |
| 15 | PFFZZ | 4730-01-421-6441 | 1NHH8 | 8D00195-66 | . SLEEVE,CLINCH,TUBE | 1 |

END OF FIGURE

**FIELD MAINTENANCE
CASTER WHEEL ASSEMBLY**



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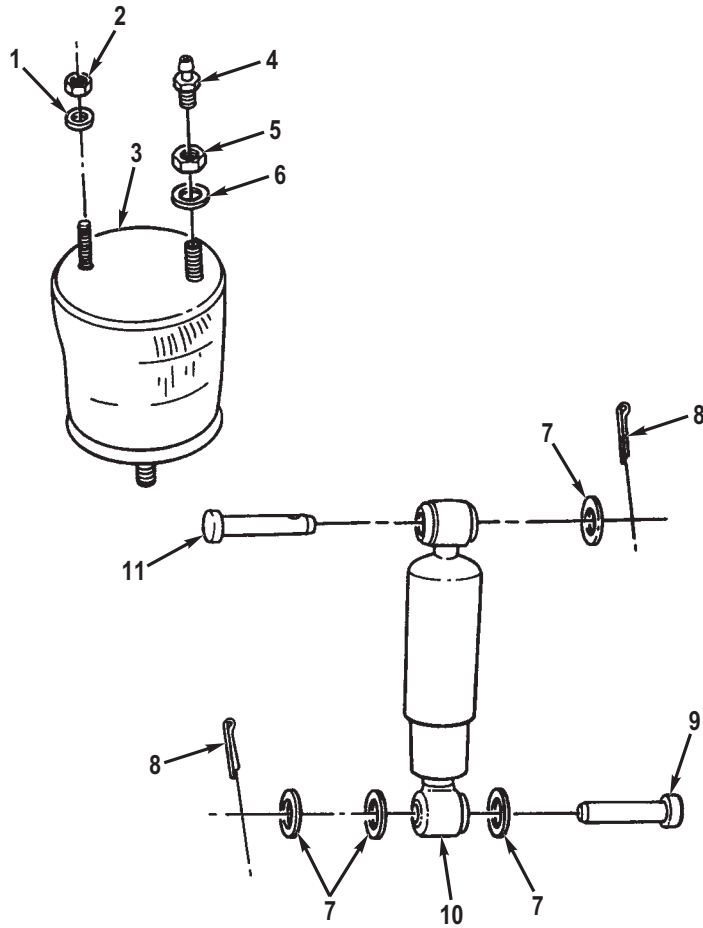
Figure 23. Caster Wheel Assembly.

| (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 (MECHANICAL OR HYDRAULIC) | | | | | | |
| FIG. 23. CASTER WHEEL ASSEMBLY. | | | | | | |
| 1 | PAFZZ | 5305-00-071-2078 | 80204 | B1821BH050C375N | SCREW,CAP,HEXAGON H 1/2-13 X 3-3/4 | 4 |
| 2 | PFFZZ | 5340-01-393-1315 | 1NHH8 | 8D00088-1 | CASTER,SWIVEL | 1 |
| 3 | XDFZZ | | 26935 | 506.5G2 | MOUNTING KIT CASTER WHEEL | 1 |
| 4 | PFFZZ | 2540-01-393-7972 | 1NHH8 | 8D00087-1 | HANDLE,TOWBAR,MOTOR | 1 |
| 5 | PFFZZ | 5340-01-394-0005 | 15819 | LC1.37X5.00 | GRIP,HANDLE | 2 |
| 6 | PAFZZ | 5310-00-225-6993 | 81349 | M45913/1-8CG5C | NUT,SELF-LOCKING,HE 1/2-13 | 4 |
| 7 | PAFZZ | 5310-00-767-9425 | 80205 | MS15795-818 | WASHER,FLAT 1/2 | 8 |

END OF FIGURE

**FIELD MAINTENANCE
SHOCK ABSORBER, AIR BAG, AND MOUNTING HARDWARE**

3
4



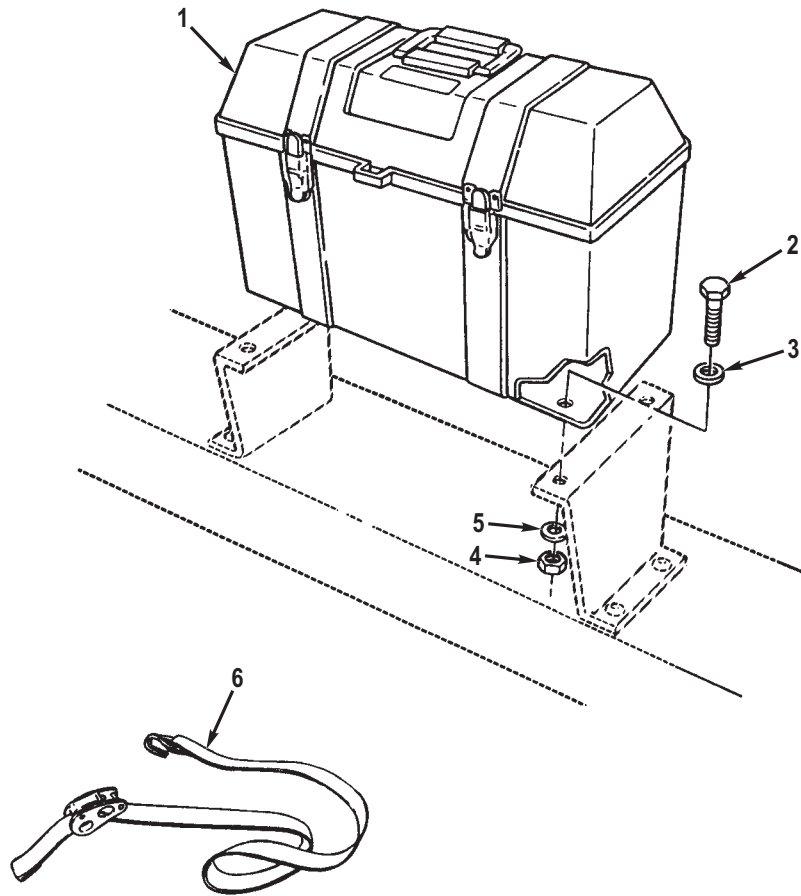
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Figure 24. Shock Absorber, Air Bag, and Mounting Hardware.

| (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 | | | | | | |
| FIG. 24. SHOCK ABSORBER, AIR BAG, AND MOUNTING HARDWARE. | | | | | | |
| 1 | PAFZZ | 5310-01-267-1685 | 96906 | MS51412-8 | WASHER,FLAT 1/2 | 1 |
| 2 | PAFZZ | 5310-00-225-6993 | 81349 | M45913/1-8CG5C | NUT,SELF-LOCKING,HE 1/2-13 | 1 |
| 3 | PBFZZ | 2510-01-393-6526 | 0NTD7 | 1R11-094 | AIR BAG,VEHICULAR | 1 |
| 4 | PAFZZ | 4820-01-421-8062 | 04NP0 | 578-92-9-122 | . VALVE,PNEUMATIC TAN | 1 |
| 5 | PAFZZ | 5310-00-832-9719 | 81349 | M45913/2-12FG5C | NUT,SELF-LOCKING,HE 3/4-16 | 2 |
| 6 | PAFZZ | 5310-01-397-1776 | 80205 | NAS1149F1290P | WASHER,FLAT 3/4 | 1 |
| 7 | PAFZZ | 5310-00-167-0828 | 88044 | AN960-1616 | WASHER,FLAT 1 IN. | 4 |
| 8 | PAFZZ | 5315-00-234-1664 | 80205 | MS24665-495 | PIN,COTTER | 2 |
| 9 | PAFZZ | 5315-01-392-8539 | 1NHH8 | 8D00060-4 | PIN,STRAIGHT,HEADED | 1 |
| 10 | PAFZZ | 2510-01-393-5259 | 1NHH8 | 8D00059-1 | SHOCK ABSORBER,DIRE | 1 |
| 11 | PAFZZ | 5315-01-392-9393 | 1NHH8 | 8D00060-5 | PIN,STRAIGHT,HEADED FRONT | 1 |
| 11 | PAFZZ | 5315-01-392-8542 | 1NHH8 | 8D00060-6 | PIN,STRAIGHT,HEADED REAR | 1 |

END OF FIGURE

**FIELD MAINTENANCE
TOOLBOX**



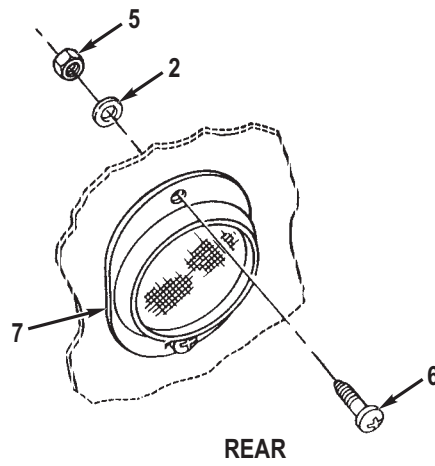
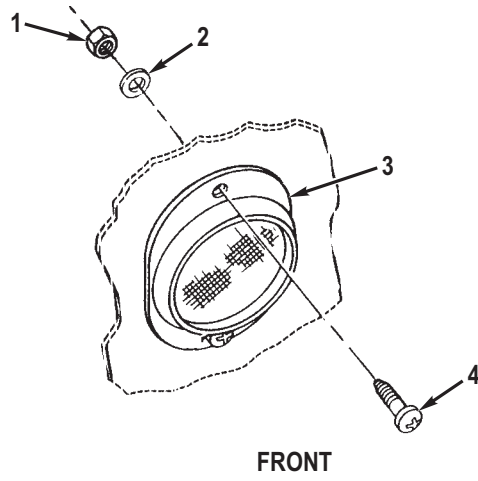
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Figure 25. Toolbox.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|---|------------|
| | | | | | GROUP 1808 STOWAGE RACKS, BOXES, STRAPS, CARRYING CASES, CABLE REELS, HOSE REELS, ETC. | |
| | | | | | FIG. 25. TOOLBOX. | |
| 1 | PPFZZ | 5140-01-394-2021 | 21439 | 8D00114-1 | TOOL BOX,PORTABLE | 1 |
| 2 | PAFZZ | 5305-00-225-3843 | 80204 | B1821BH025C100N | SCREW,CAP,HEXAGON H 1/4-20 X 1 | 4 |
| 3 | PAFZZ | 5330-00-171-8363 | 80205 | NAS 1523AA4F | PACKING WITH RETAIN | 4 |
| 4 | PAFZZ | 5310-00-088-1251 | 81349 | M45913/1-4CG5C | NUT,SELF-LOCKING,HE 1/4-20 | 4 |
| 5 | PAFZZ | 5310-00-582-5677 | 80205 | MS15795-810 | WASHER,FLAT 1/4 | 4 |
| 6 | PAFZZ | 3990-01-421-4290 | 1NHH8 | 8D00223-1 | TIE DOWN,CARGO,VEHI | 6 |

END OF FIGURE

**FIELD MAINTENANCE
REFLECTORS**



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Figure 26. Reflectors.

| (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 | | | | | | |
| FIG. 26. REFLECTORS. | | | | | | |
| 1 | PAFZZ | 5310-00-897-6145 | 80205 | MS21083C4 | NUT,SELF-LOCKING,HE 1/4-28 L.H. | 2 |
| 2 | PAFZZ | 5310-01-304-8733 | 80205 | MS15795-852 | WASHER,FLAT 1/4 | 4 |
| 3 | PAFZZ | 9905-00-202-3639 | 09136 | T11A | REFLECTOR,INDICATIN AMBER | 1 |
| 4 | PAFZZ | 5305-00-059-5432 | 80205 | MS51958-82 | SCREW,MACHINE 1/4-28 X 7/8 R.H. | 2 |
| 4 | PAFZZ | 5305-00-059-3676 | 80205 | MS51958-80 | SCREW,MACHINE 1/4-28 X 5/8 L.H. | 2 |
| 5 | PAFZZ | 5310-00-889-2589 | 80205 | MS21044C4 | NUT,SELF-LOCKING,HE 1/4-28 R.H. AND REAR | 2 |
| 6 | PAFZZ | 5305-00-059-3677 | 80205 | MS51958-81 | SCREW,MACHINE 1/4-28 X 3/4 | 2 |
| 7 | PAFZZ | 9905-00-205-2795 | 09136 | T10A | REFLECTOR,INDICATIN RED | 1 |

END OF FIGURE

**FIELD MAINTENANCE
DATA PLATES**

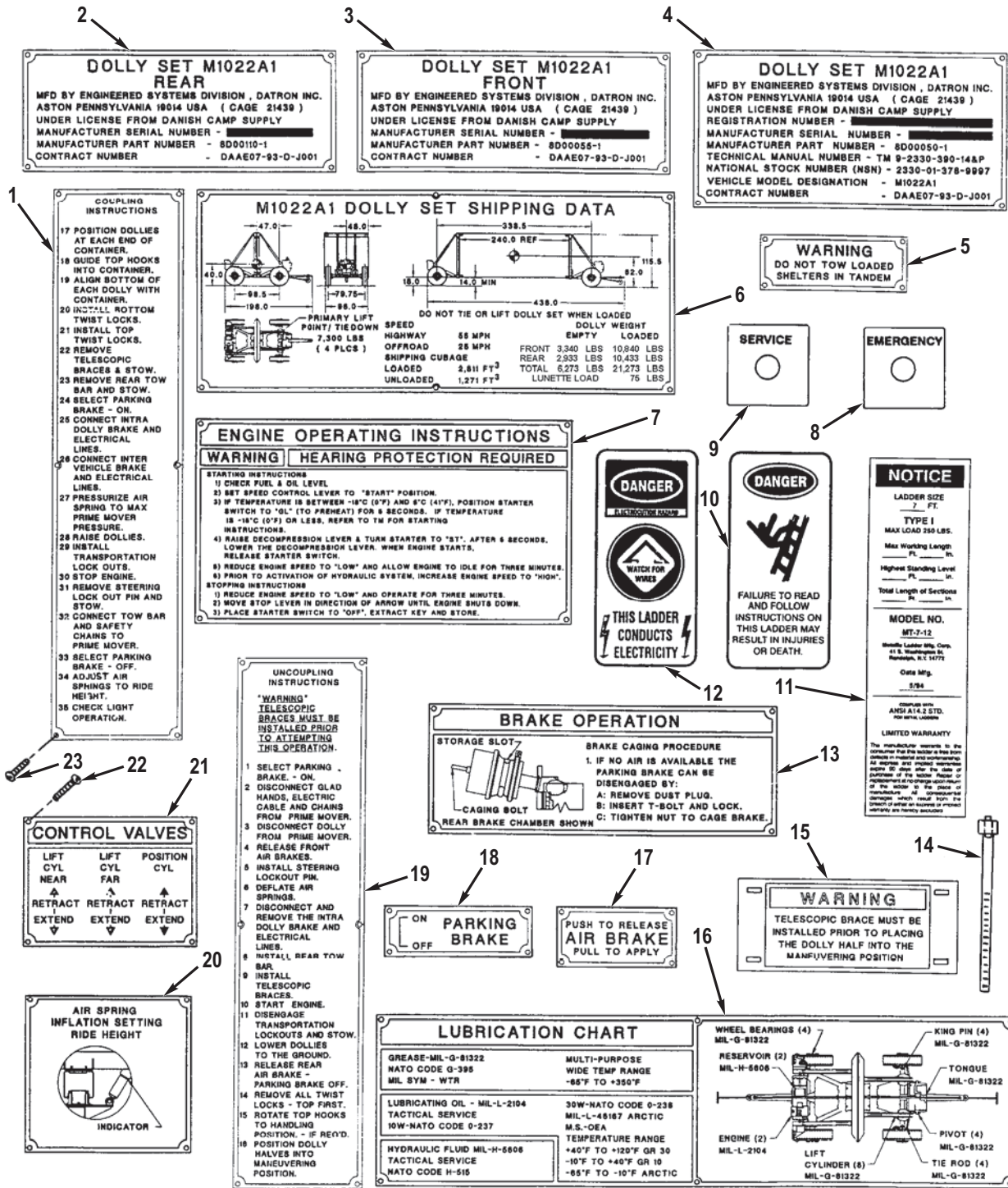
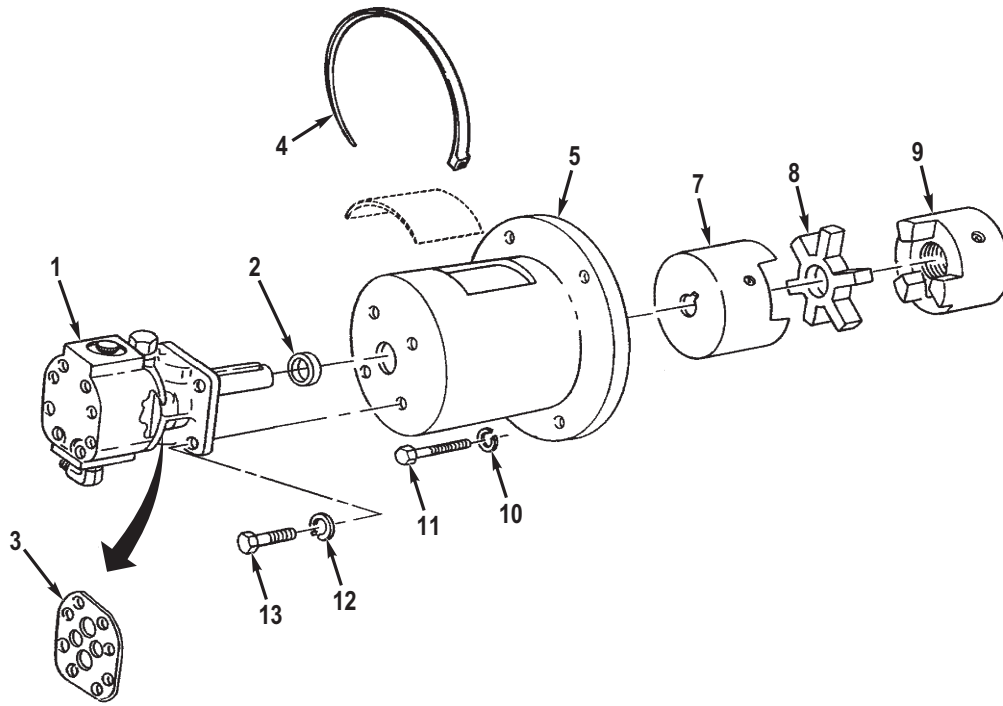
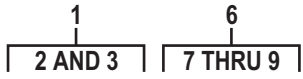


Figure 27. Data Plates.

| (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 AND INSTRUCTION HOLDERS | | | | | | |
| FIG. 27. DATA PLATES. | | | | | | |
| 1 | PFFZZ | 9905-01-395-2089 | 21439 | 8D00062-20 | PLATE,INSTRUCTION | 1 |
| 2 | PFFZZ | 9905-01-394-9845 | 21439 | 8D00062-8 | PLATE,INSTRUCTION | 1 |
| 3 | PFFZZ | 9905-01-394-9843 | 21439 | 8D00062-7 | PLATE,INSTRUCTION | 1 |
| 4 | PFFZZ | 9905-01-394-9841 | 21439 | 8D00062-6 | PLATE,INSTRUCTION | 1 |
| 5 | PFFZZ | 9905-01-394-9853 | 21439 | 8D00062-16 | PLATE,INSTRUCTION | 1 |
| 6 | PAFZZ | 9905-01-395-2088 | 21439 | 8D00062-15 | PLATE,INSTRUCTION | 1 |
| 6 | PAFZZ | 9905-01-542-9894 | 19207 | 12501541 | PLATE,INSTRUCTION | 1 |
| 7 | PFFZZ | 9905-01-421-1714 | 21439 | 8D00062-21 | PLATE,IDENTIFICATIO REAR | 1 |
| 7 | PCFZZ | 7690-01-431-8645 | 1NHH8 | 8D00062-28 | LABEL FRONT | 1 |
| 8 | PFFZZ | 9905-00-999-7369 | 58536 | A-A-52483-2 | PLATE,IDENTIFICATIO | 1 |
| 9 | PFFZZ | 9905-00-999-7370 | 58536 | A52483-1 | PLATE,IDENTIFICATIO | 1 |
| 10 | XDFZZ | | 93957 | ALI-00-C | LABEL | 1 |
| 11 | XDFZZ | | 93957 | ALI-23 | LABEL | 1 |
| 12 | XDFZZ | | 93957 | ALI-6 | LABEL | 1 |
| 13 | PFFZZ | 9905-01-395-2713 | 21439 | 8D00062-19 | PLATE,INSTRUCTION | 1 |
| 14 | PFFZZ | 5340-01-288-3093 | 06383 | MLT6H-LP | STRAP,LINE SUPPORTI FOR USE WITH SIDE LIFT CYLINDER | 4 |
| 14 | PFFZZ | 5975-01-356-6962 | 06383 | MLT4H-LP | STRAP,TIEDOWN,ELECT FOR USE WITH STANDARD LIFT CYLINDER | 4 |
| 15 | PCFZZ | 7690-01-431-8642 | 1NHH8 | 8D00062-26 | LABEL | 1 |
| 16 | XDFZZ | | 1NHH8 | 8D00062-13 | PLATE,INSTRUCTION | 1 |
| 17 | PFFZZ | 9905-01-394-9849 | 21439 | 8D00062-10 | PLATE,INSTRUCTION | 1 |
| 18 | PAFZZ | 9905-01-394-9856 | 21439 | 8D00062-9 | PLATE,INSTRUCTION | 1 |
| 19 | PFFZZ | 9905-01-395-4077 | 21439 | 8D00062-17 | PLATE,INSTRUCTION | 1 |
| 20 | PFFZZ | 9905-01-394-9851 | 21439 | 8D00062-14 | PLATE,INSTRUCTION | 1 |
| 21 | XDFZZ | | 21439 | 8D00062-18 | PLATE,INSTRUCTION REAR | 1 |
| 21 | PCFZZ | 7690-01-431-8641 | 1NHH8 | 8D00062-25 | LABEL FRONT | 1 |
| 22 | XDFZZ | | 45722 | NO. 4-5/16 | SCREW,MACHINE #4 X 5/16 | 68 |
| 23 | XDFZZ | | 45722 | NO. 4-3/16 | SCREW,MACHINE #4 X 3/16 USE WITH PLATES 1 AND 16 | 12 |

END OF FIGURE

**FIELD MAINTENANCE
HYDRAULIC PUMP AND ADAPTER**



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Figure 28. Hydraulic Pump and Adapter.

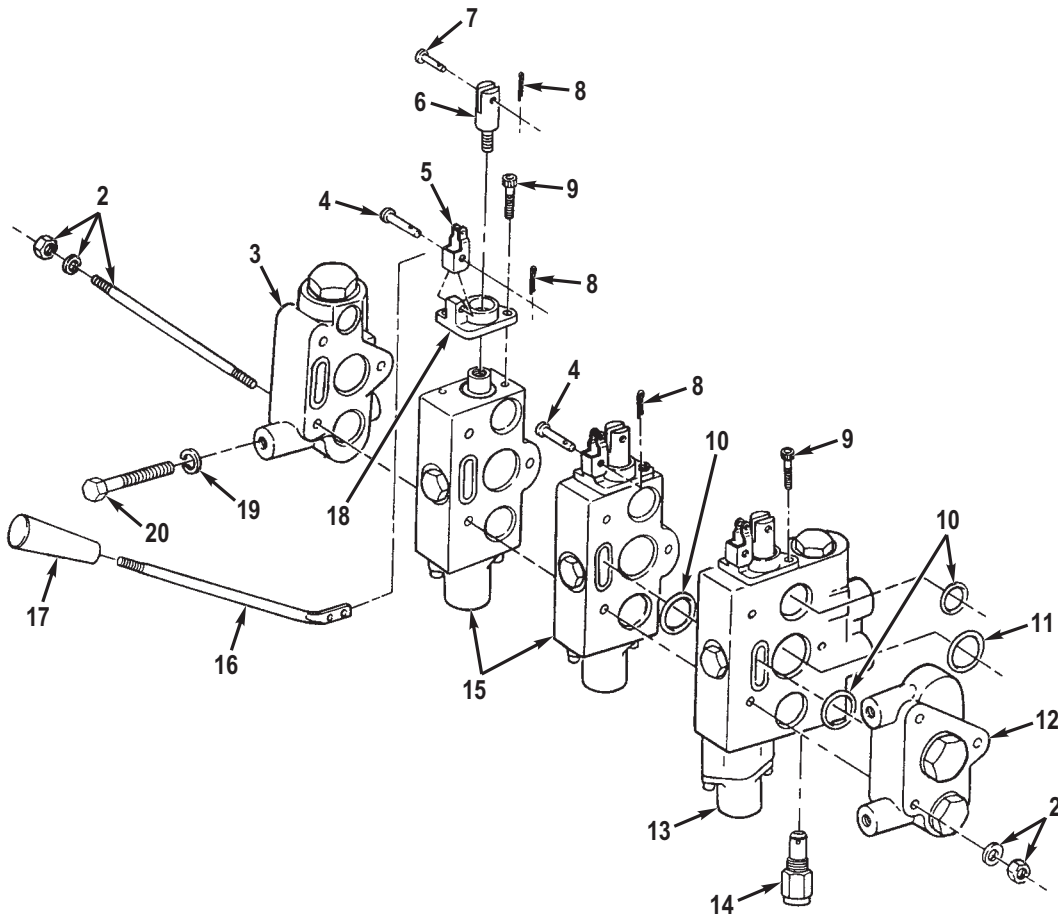
| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|-----------------------------------|--|------------|
| GROUP 2401 HYDRAULIC PUMP | | | | | | |
| FIG. 28. HYDRAULIC PUMP AND ADAPTER. | | | | | | |
| 1 | PAFZZ | 4320-01-393-9843 | 1NHH8 | 8D00095-1 | PUMP,ROTARY | 1 |
| 2 | PAFZZ | 5330-00-526-5783 | 80201 | 5062 | . SEAL,PLAIN ENCASED | 1 |
| 3 | XDFZZ | | 70763 | 2300622 | . SEAL KIT | 1 |
| 4 | PAFZZ | 5975-00-985-6630 | 81343 | AS3367-3-0 | STRAP,TIEDOWN,ELECT | 1 |
| 5 | PAFZZ | 3040-01-393-7533 | 1NHH8 | 8D00096-1 | ADAPTER,HOUSING | 1 |
| 6 | PAFZZ | 3010-01-393-2160 | 1NHH8 | 8D00143-1 | COUPLING,SHAFT,FLEX | 1 |
| 7 | PFFZZ | 3010-00-585-4215 | 75665 | L095 3/4X3/4 BORE 3/16X3/32KWY | . COUPLING,SHAFT,FLEX | 1 |
| 8 | PFFZZ | 2530-01-422-0248 | 75665 | L-090/095 | . SPIDER,BRAKE | 1 |
| 9 | XDFZZ | | 75665 | L-095-1/2 | . COUPLING, HALF | 1 |
| 10 | PAFZZ | 5310-00-637-9541 | 81718 | H2525M | WASHER,LOCK 3/8 | 4 |
| 11 | PAFZZ | 5305-00-068-0511 | 80204 | B1821BH038C125N | SCREW,CAP,HEXAGON H 3/8-16 X 1 1/4 | 4 |
| 12 | PAFZZ | 5310-00-407-9566 | 80205 | MS35338-45 | WASHER,LOCK 5/16 | 4 |
| 13 | PAFZZ | 5306-00-226-4825 | 80204 | B1821BH031C075N | BOLT,MACHINE 5/16-18 X 3/4 | 4 |

END OF FIGURE

**FIELD MAINTENANCE
CONTROL VALVE**

1
2 THRU 18

13
14



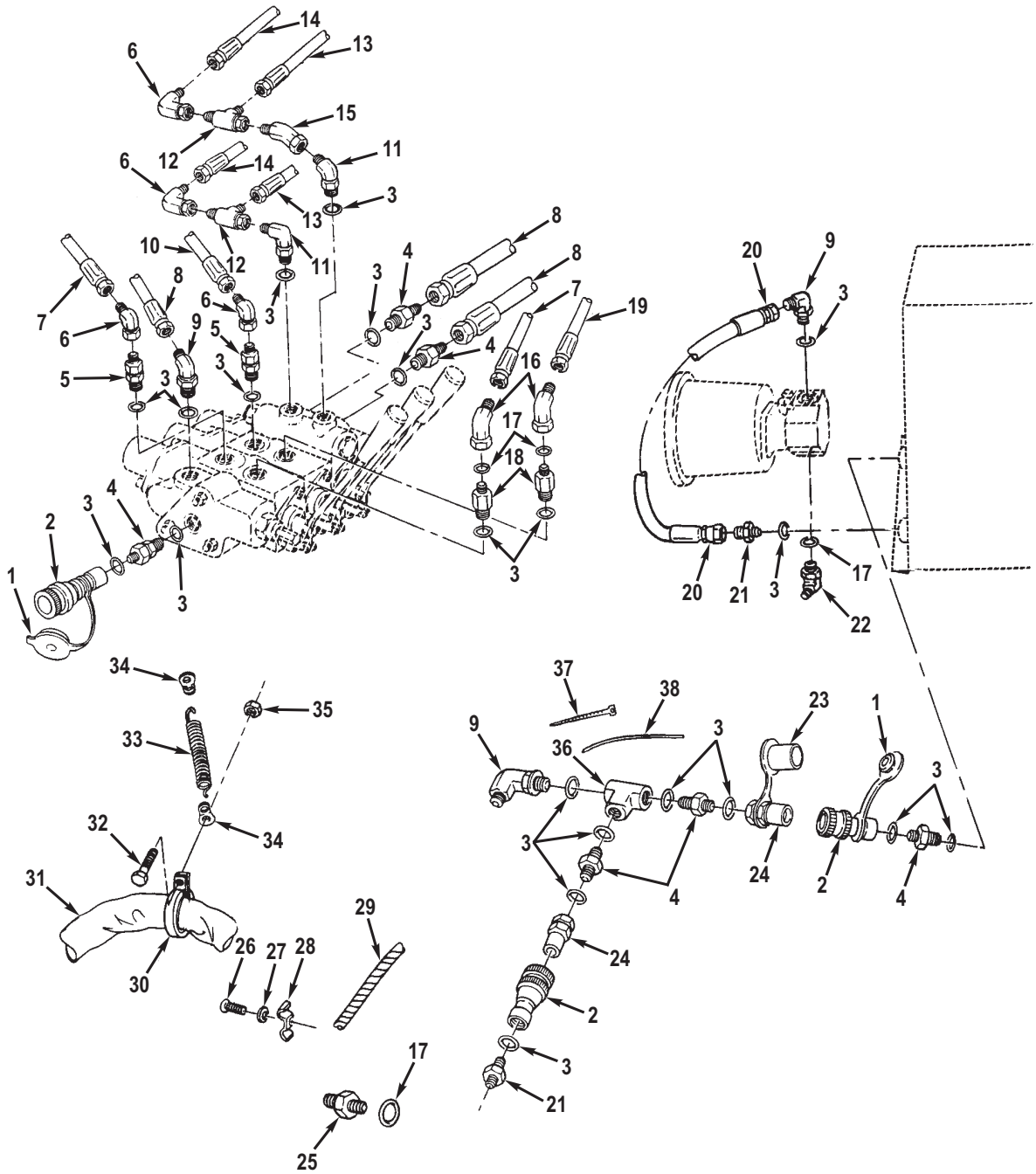
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Figure 29. Control Valve.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|---|------------|
| GROUP 2402 MANIFOLD AND/OR CONTROL VALVES | | | | | | |
| FIG. 29. CONTROL VALVE. | | | | | | |
| 1 | PAFFF | 4820-01-431-2389 | 1NHH8 | 8D00109-14 | BODY SECTION,WORKIN CLT | 2 |
| 2 | PFFZZ | 2530-01-393-5878 | 29260 | 660401003 | . PARTS KIT,STEERING | 3 |
| 3 | PCFZZ | 4820-01-393-5274 | 1NHH8 | 8D00196-10 | . VALVE,LINER,DIRECT | 1 |
| 4 | KFFZZ | | 21439 | 8D00196-43 | . PIN,CLEVIS PART OF KIT P/N 8D00196-89 | 6 |
| 5 | KFFZZ | | 21439 | 8D00196-40 | . LINK PART OF KIT P/N 8D00196-89 | 3 |
| 6 | KFFZZ | | 21439 | 8D00196-34 | . ADAPTER,SPOOL END PART OF KIT P/N 8D00196-89 | 1 |
| 7 | KFFZZ | | 21439 | 8D00196-42 | . PIN,CLEVIS PART OF KIT P/N 8D00196-89 | 3 |
| 8 | KFFZZ | | 21439 | 8D00196-38 | . PIN,COTTER PART OF KIT P/N 8D00196-89 | 9 |
| 9 | KFFZZ | | 21439 | 8D00196-36 | . SCREW,CAP PART OF KIT P/N 8D00196-89 | 2 |
| 10 | KFFZZ | | 21439 | 8D00196-15 | . PACKING,PREFORMED PART OF KIT P/N 8D00196-86 | 1 |
| 11 | KFFZZ | | 21439 | 8D00196-16 | . PACKING,PREFORMED PART OF KIT P/N 8D00196-86 | 4 |
| 12 | PFFZZ | 4820-01-394-0480 | 29260 | SVE12 | . VALVE,LINER,DIRECT | 1 |
| 13 | PCFZZ | 4820-01-394-0541 | 29260 | SVH1DD1AC | . VALVE,LINER,DIRECT | 1 |
| 14 | PCFZZ | 4820-01-419-7040 | 21439 | 8D00196-72 | . . VALVE,SAFETY RELIEF | 1 |
| 15 | PCFZZ | 4820-01-393-6363 | 29260 | SVW1BA1 | . BODY SECTION,WORKIN | 2 |
| 16 | PFFZZ | 5340-01-432-2903 | 1NHH8 | 8D00196-94 | . HANDLE,BAIL FRONT CLT | 3 |
| 16 | KFFZZ | | 21439 | 8D00196-37 | . HANDLE PART OF KIT P/N 8D00196-89 | 3 |
| 17 | KFFZZ | | 21439 | 8D00196-39 | . KNOB,HANDLE PART OF KIT P/N 8D00196-89 | 3 |
| 18 | KFFZZ | | 21439 | 8D00196-41 | . CLEVIS PART OF KIT P/N 8D00196-89 | 3 |
| 19 | PAFZZ | 5310-00-637-9541 | 81718 | H2525M | WASHER,LOCK 3/8 | 3 |
| 20 | PAFZZ | 5305-00-115-9526 | 80204 | B1821BH038C075D | SCREW,CAP,HEXAGON H 3/8-16 X 3/4 | 3 |

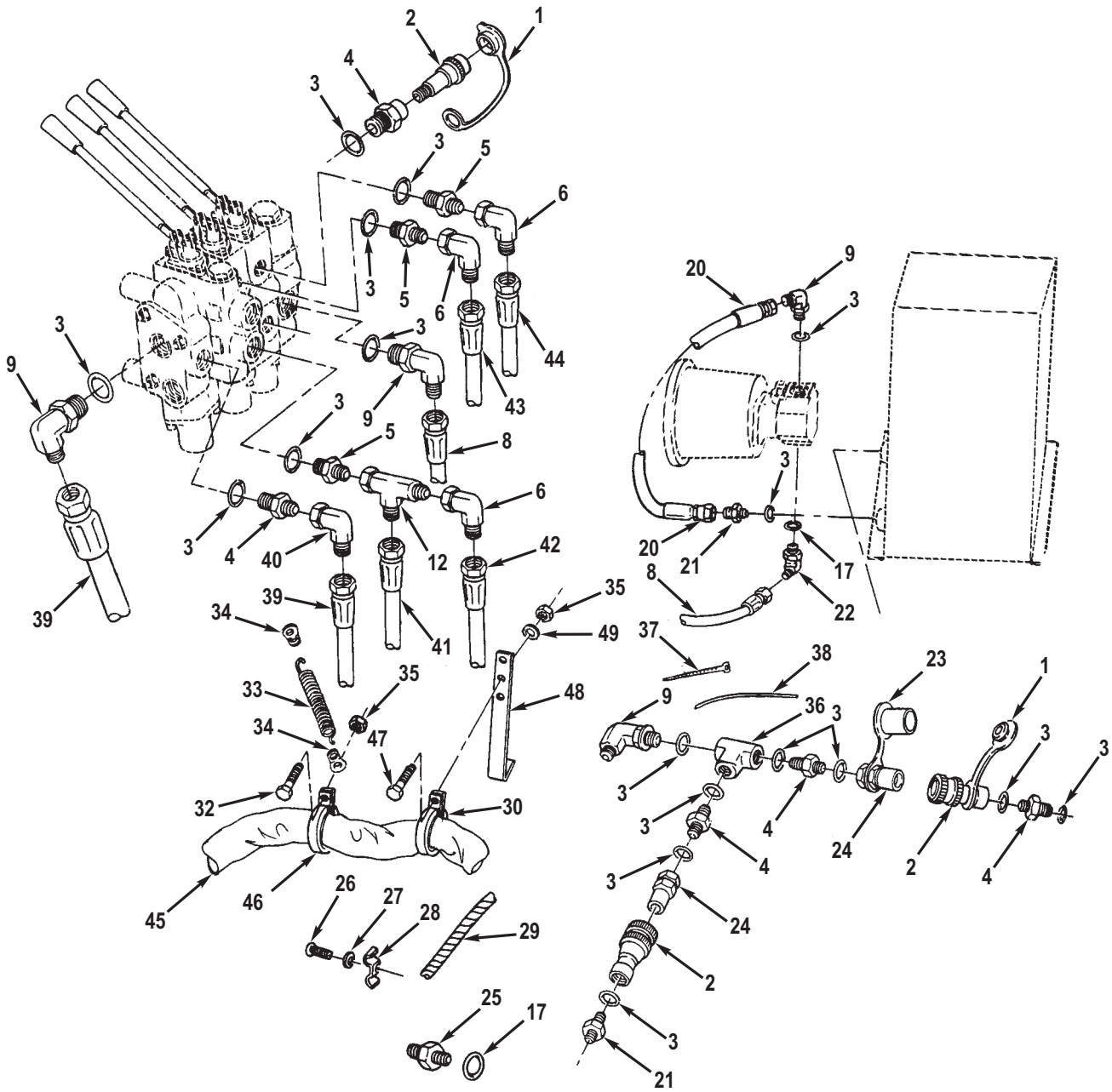
END OF FIGURE

FIELD MAINTENANCE
HYDRAULIC LINES AND FITTINGS



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Figure 30. Hydraulic Lines and Fittings. (Sheet 1 of 2)



R0031JMS

Figure 30. Hydraulic Lines and Fittings. (Sheet 2 of 2)

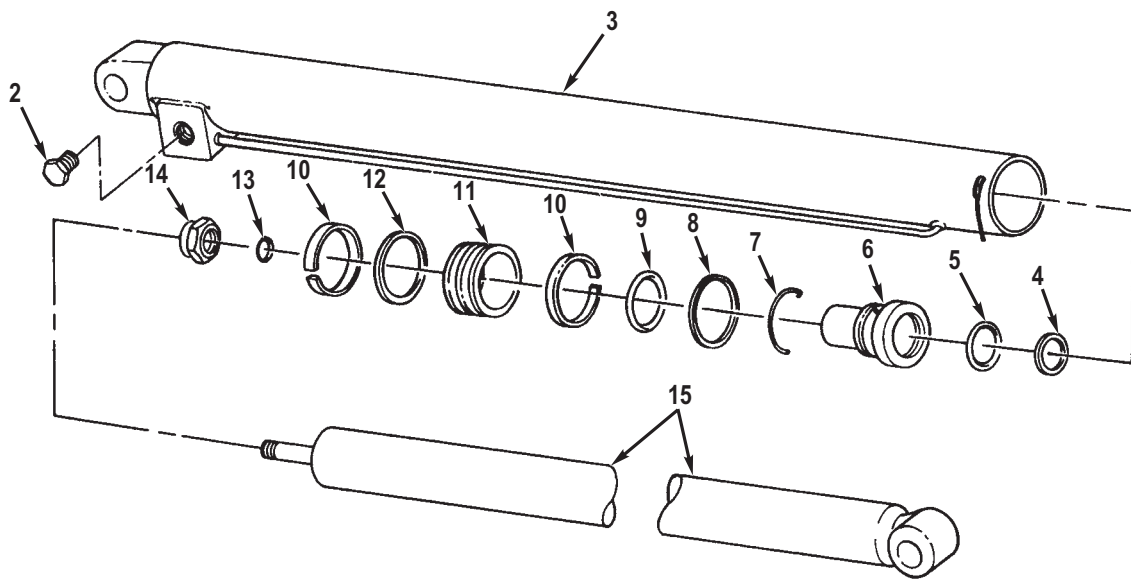
| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2406 STRAINERS, FILTERS, LINES AND FITTINGS, ETC. | | | | | | |
| FIG. 30. HYDRAULIC LINES AND FITTINGS. | | | | | | |
| 1 | PAFZZ | 5340-01-356-5057 | 97111 | H3-65M | CAP,PROTECTIVE,DUST | 2 |
| 2 | PAFZZ | 4730-01-501-3004 | 97111 | H3-62-T8-659 | COUPLING HALF,QUICK | 3 |
| 3 | PCFZZ | 5331-00-808-0794 | 81343 | MS28778-8 | O-RING | 21 |
| 4 | PAFZZ | 4730-00-903-7652 | 11083 | 3R2704 | NIPPLE,TUBE REAR | 5 |
| 4 | PAFZZ | 4730-00-903-7652 | 11083 | 3R2704 | NIPPLE,TUBE FRONT | 6 |
| 5 | PAFZZ | 4730-01-486-6325 | 01276 | 202701-8-6S | ADAPTER,STRAIGHT,TU REAR | 6 |
| 5 | PAFZZ | 4730-00-080-7040 | 96906 | MS51525A6-8 | ADAPTER,STRAIGHT,TU FRONT | 2 |
| 6 | PAFZZ | 4730-00-618-5372 | 96906 | MS51521A6 | ELBOW,TUBE REAR | 6 |
| 6 | PAFZZ | 4730-00-618-5372 | 96906 | MS51521A6 | ELBOW,TUBE FRONT | 4 |
| 7 | PCFZZ | 4720-01-393-4575 | 21439 | 8D00052-5 | HOSE ASSEMBLY,NONME FRONT | 2 |
| 8 | PCFZZ | 4720-01-393-4572 | 21439 | 8D00052-2 | HOSE ASSEMBLY,NONME REAR | 1 |
| 8 | PCFZZ | 4720-01-393-4572 | 21439 | 8D00052-2 | HOSE ASSEMBLY,NONME FRONT | 3 |
| 9 | PAFZZ | 4730-00-822-5609 | 96906 | MS51527A8 | ELBOW,TUBE TO BOSS FRONT | 3 |
| 9 | PAFZZ | 4730-00-822-5609 | 96906 | MS51527A8 | ELBOW,TUBE TO BOSS REAR | 4 |
| 10 | PCFZZ | 4720-01-393-4577 | 1NHH8 | 8D00052-20 | HOSE ASSEMBLY,NONME FRONT | 1 |
| 11 | PFFZA | 4730-00-861-8572 | 89749 | 1300059 | ELBOW,TUBE TO BOSS | 2 |
| 12 | PAFZZ | 4730-00-618-5381 | 96906 | MS51523A6 | TEE,TUBE | 2 |
| 13 | PCFZZ | 4720-01-393-4576 | 21439 | 8D00052-7 | HOSE ASSEMBLY,NONME FRONT | 2 |
| 14 | PCFZZ | 4720-01-393-5278 | 1NHH8 | 8D00052-10 | HOSE ASSEMBLY,NONME FRONT | 2 |
| 15 | PAFZZ | 4730-01-195-7331 | 01276 | 2070-6-6S | ELBOW,TUBE | 1 |
| 16 | PFFZZ | 4730-01-169-7629 | 01276 | 206209-6-6S | ELBOW,TUBE TO BOSS | 2 |
| 17 | PCFZZ | 5331-00-804-5695 | 81343 | MS28778-6 | O-RING REAR | 5 |
| 17 | PCFZZ | 5331-00-804-5695 | 81343 | MS28778-6 | O-RING FRONT | 7 |
| 18 | PAFZZ | 4730-00-933-0727 | 30780 | 8-6-F5G5-S | REDUCER,BOSS | 2 |
| 19 | PCFZZ | 4720-01-393-5277 | 1NHH8 | 8D00052-6 | HOSE ASSEMBLY,NONME FRONT | 1 |
| 20 | PCFZZ | 4720-01-419-7872 | 21439 | 8D00052-3 | HOSE ASSEMBLY,NONME | 1 |
| 21 | PAFZZ | 4730-01-156-4835 | 96906 | MS51525A8 | ADAPTER,STRAIGHT,TU | 2 |
| 22 | PAFZZ | 4730-00-225-0699 | 81343 | 8-6 070220C | ELBOW,TUBE TO BOSS | 1 |
| 23 | PAFZZ | 5340-01-307-4395 | 97111 | H3-66M | PLUG,PROTECTIVE,DUS | 1 |
| 24 | PAFZZ | 4730-01-501-3000 | 97111 | H3-63-T8-659 | COUPLING HALF,QUICK | 2 |
| 25 | PAFZZ | 4730-01-334-5710 | 01276 | 202701-6-6S | ADAPTER,STRAIGHT,TU | 4 |

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|---|------------|
| 26 | PAFZZ | 5305-00-052-6921 | 80205 | MS24629-57 | SCREW,TAPPING 1/4 X 1/2 | 3 |
| 27 | PAFZZ | 5310-00-141-1795 | 80205 | NAS1149F0463P | WASHER,FLAT 1/4 | 3 |
| 28 | PAFZZ | 5340-01-417-7278 | 93061 | 3121-4-10 | CLAMP,LOOP | 3 |
| 29 | XDFZZ | | 21439 | 8D0065-13 | SLEEVE,COIL FRONT | 6 |
| 30 | PAFZZ | 5340-00-531-6857 | 81343 | AS21919WDG40 | CLAMP,LOOP | 1 |
| 31 | XDFZZ | | 21439 | 8D00358-1 | SLEEVE,ABRASION | 1 |
| 32 | PAFZZ | 5305-00-059-3660 | 80205 | MS51958-64 | SCREW,MACHINE | 1 |
| 33 | XDFZZ | | 56988 | 192 | SPRING,EXTENSION | 1 |
| 34 | XDFZZ | | 84256 | C8 | TAB,LANYARD | 1 |
| 35 | PAFZZ | 5310-00-208-9255 | 80205 | MS21044C3 | NUT,SELF-LOCKING,HE | 3 |
| 36 | PAFZZ | 4730-00-277-5056 | 81343 | AS5192-08 | TEE,BOSS | 1 |
| 37 | PAFZZ | 5975-00-985-6630 | 96906 | MS3367-3-0 | STRAP,TIEDOWN,ELECT | 11 |
| 38 | MFFZZ | | 96906 | MS20995C20-12IN | WIRE,NONELECTRICAL MAKE FROM P/N MS20995C20 12 INCHES LONG | 1 |
| 39 | PCFZZ | 4720-01-418-5287 | 1NHH8 | 8D00052-1 | HOSE ASSEMBLY,NONME REAR | 2 |
| 40 | PAFZZ | 4730-00-432-7713 | 30780 | 8C6XS | ELBOW,TUBE REAR | 1 |
| 41 | PCFZZ | 4720-01-393-4581 | 21439 | 8D00052-11 | HOSE ASSEMBLY,NONME REAR | 2 |
| 42 | PCFZZ | 4720-01-393-5880 | 21439 | 8D00052-12 | HOSE ASSEMBLY,NONME REAR | 2 |
| 43 | PCFZZ | 4720-01-393-5886 | 87373 | 451TC0506-6-4-100 | HOSE ASSEMBLY,NONME REAR | 2 |
| 44 | PCFZZ | 4720-01-393-5884 | 87373 | 451AR0506-6-6-4-37 | HOSE ASSEMBLY,NONME REAR | 2 |
| 45 | XDFZZ | | 21439 | 8D00358-1 | SLEEVE,ABRASION | 1 |
| 46 | PAFZZ | 5340-00-200-3045 | 81343 | AS21919WDG24 | CLAMP,LOOP | 1 |
| 47 | PAFZZ | 5305-00-059-3661 | 80205 | MS51958-65 | SCREW,MACHINE | 1 |
| 48 | PFFZZ | 5340-01-500-7834 | 1NHH8 | 8D00359-1 | BRACKET,ANGLE | 1 |
| 49 | PAFZZ | 5310-00-615-1556 | 80205 | MS15795-846 | WASHER,FLAT | 1 |

END OF FIGURE

**FIELD MAINTENANCE
LIFT CYLINDER**

1
2 THRU 15



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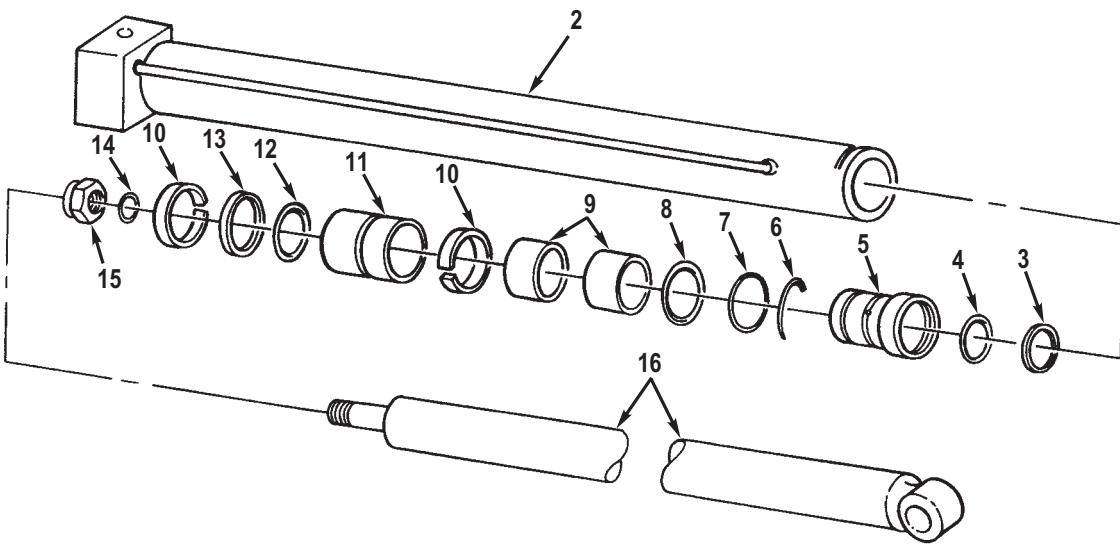
Figure 31. Lift Cylinder.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---------------------------------------|-----------------|------------------|--------------|--------------------|---|------------|
| GROUP 2407 HYDRAULIC CYLINDERS | | | | | | |
| FIG. 31. LIFT CYLINDER. | | | | | | |
| 1 | PBFFF | 3040-01-393-7529 | 1NHH8 | 8D00145-1 | CYLINDER ASSEMBLY,A | 2 |
| 2 | PFFZZ | 4820-01-418-0937 | 1NHH8 | POCI-10-N-O-XX | . VALVE,CHECK | 1 |
| 3 | XAFZZ | | 1NHH8 | 8D00051-10 | . BARREL ASSY | 1 |
| 4 | KFFZZ | | 1NHH8 | 8D00051-15 | . WIPER,ROD PART OF KIT P/N 8D00051-17 | 1 |
| 5 | KFFZZ | | 1NHH8 | 8D00051-16 | . SEAL,ROD PART OF KIT P/N 8D00051-17 | 1 |
| 6 | XAFZZ | | 1NHH8 | 8D00051-13 | . HEAD | 1 |
| 7 | XDFZZ | | 1NHH8 | 8D00051-14 | . LOCKWIRE | 1 |
| 8 | KFFZZ | | 1NHH8 | 8D00051-12 | . SEAL,BACKUP PART OF KIT P/N 8D00051-17 | 1 |
| 9 | KFFZZ | | 1NHH8 | 8D00051-8 | . PACKING,PREFORMED PART OF KIT P/N 8D00051-17 | 1 |
| 10 | KFFZZ | | 1NHH8 | 8D00051-5 | . RING,WEAR PART OF KIT P/N 8D00051-17 | 2 |
| 11 | PFFZZ | 3040-01-466-0005 | 1NHH8 | 8D00051-7 | . PISTON,LINEAR ACTUA | 1 |
| 12 | KFFZZ | | 1NHH8 | 8D00051-6 | . SEAL,PISTON PART OF KIT P/N 8D00051-17 | 1 |
| 13 | KFFZZ | | 1NHH8 | 8D00051-11 | . PACKING,PREFORMED PART OF KIT P/N 8D00051-17 | 1 |
| 14 | PFFZZ | 5310-01-501-0294 | 1NHH8 | 8D00051-4 | . NUT,SELF-LOCKING,HE | 1 |
| 15 | XAFZZ | | 1NHH8 | 8D00051-9 | . ROD ASSY | 1 |

END OF FIGURE

**FIELD MAINTENANCE
POSITIONING CYLINDER**

1
2 THRU 16



R0033JMS

Figure 32. Positioning Cylinder.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---------------------------------------|-----------------|------------------|--------------|--------------------|---|------------|
| GROUP 2407 HYDRAULIC CYLINDERS | | | | | | |
| FIG. 32. POSITIONING CYLINDER. | | | | | | |
| 1 | PBFFF | 3040-01-393-7983 | 1NHH8 | 8D00146-1 | CYLINDER ASSEMBLY,A | 1 |
| 2 | XAFZZ | | 1NHH8 | 8D00152-12 | . BARREL ASSY | 1 |
| 3 | KFFZZ | | 1NHH8 | 8D00152-17 | . WIPER,ROD PART OF KIT P/N 8D00152-21 | 1 |
| 4 | KFFZZ | | 1NHH8 | 8D00152-18 | . SEAL,ROD PART OF KIT P/N 8D00152-21 | 1 |
| 5 | XAFZZ | | 1NHH8 | 8D00152-16 | . HEAD | 1 |
| 6 | PFFZZ | 5365-01-466-9524 | 1NHH8 | 8D00152-15 | . RING SET TAPPERED | 1 |
| 7 | KFFZZ | | 1NHH8 | 8D00152-13 | . PACKING,PREFORMED PART OF KIT P/N 8D00152-21 | 1 |
| 8 | KFFZZ | | 1NHH8 | 8D00152-20 | . SEAL,BACKUP PART OF KIT P/N 8D00152-21 | 1 |
| 9 | PAFZZ | 4710-01-424-8106 | 1NHH8 | 8D00152-23 | . TUBE ASSEMBLY,METAL | 2 |
| 10 | KFFZZ | | 21439 | 8D00152-22 | . RING,WEAR PART OF KIT P/N 8D00152-21 | 2 |
| 11 | PFFZZ | 3040-01-466-0004 | 1NHH8 | 8D00152-8 | . PISTON,LINEAR ACTUA | 1 |
| 12 | KFFZZ | | 1NHH8 | 8D00152-19 | . PACKING,PREFORMED PART OF KIT P/N 8D00152-21 | 1 |
| 13 | KFFZZ | | 1NHH8 | 8D00152-7 | . PACKING,PREFORMED PART OF KIT P/N 8D00152-21 | 1 |
| 14 | KFFZZ | | 1NHH8 | 8D00152-6 | . SEAL,PISTON PART OF KIT P/N 8D00152-21 | 1 |
| 15 | PFFZZ | 5310-01-509-8943 | 1NHH8 | 8D00152-4 | . NUT,PLAIN,HEXAGON | 1 |
| 16 | XAFZZ | | 1NHH8 | 8D00152-11 | . ROD ASSY PART OF KIT P/N 8D00152-21 | 1 |

END OF FIGURE

**FIELD MAINTENANCE
HYDRAULIC CYLINDER MOUNTING**

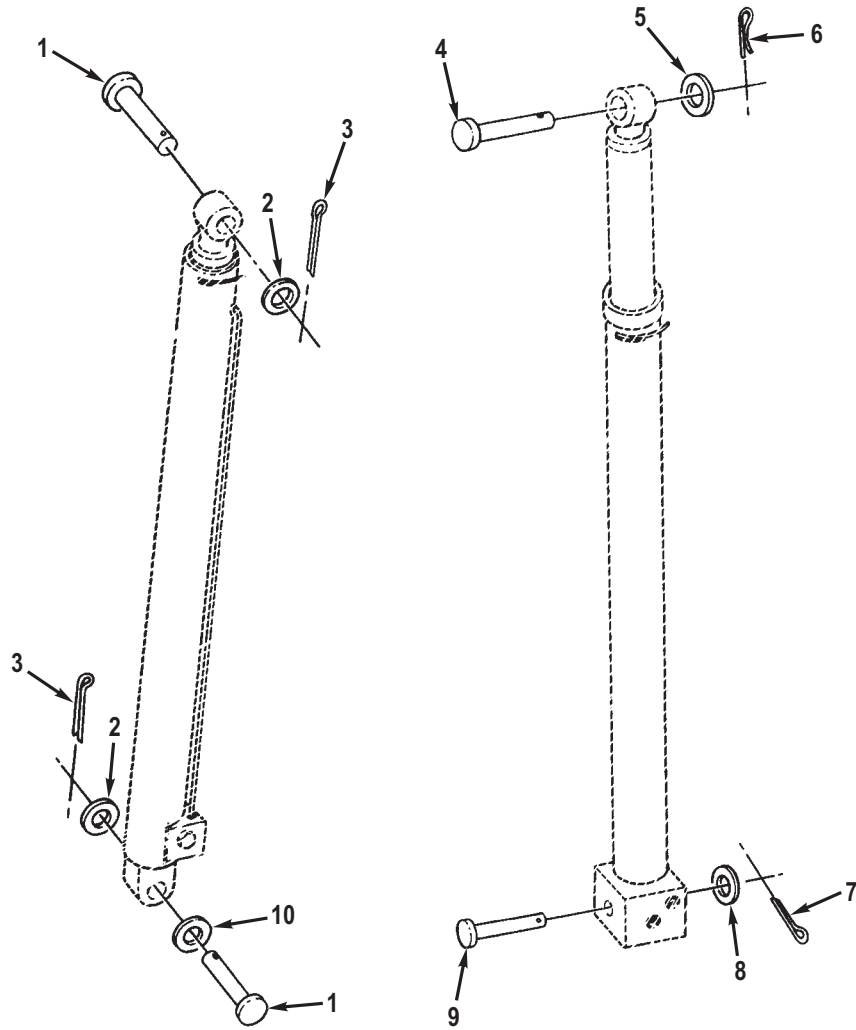


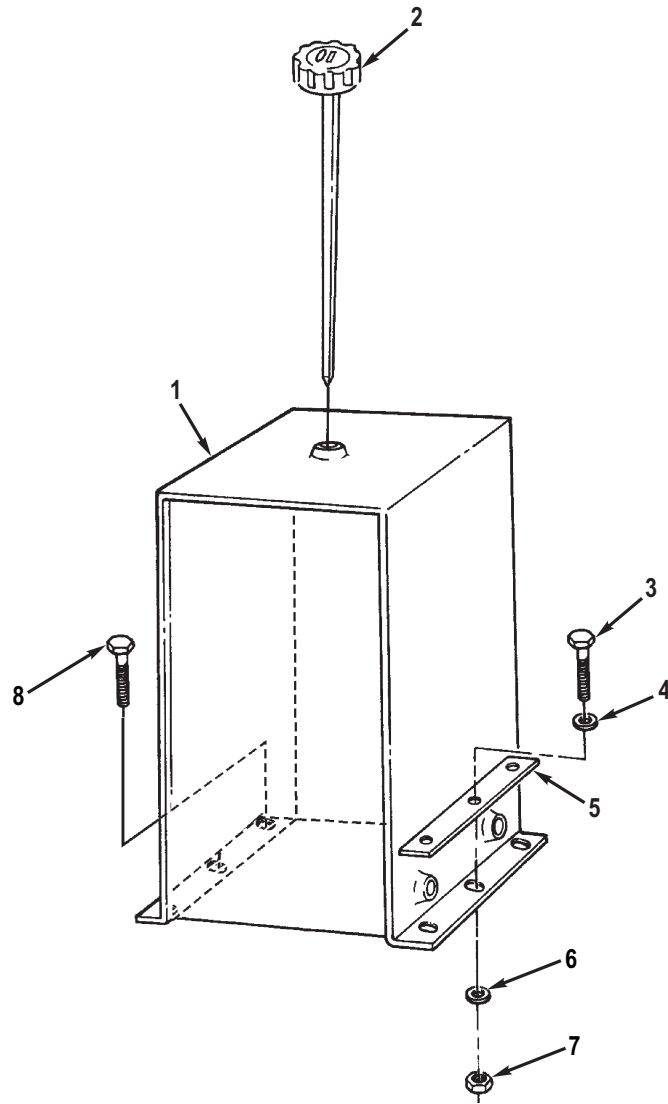
Figure 33. Hydraulic Cylinder Mounting.

R0034JMS

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2407 HYDRAULIC CYLINDERS | | | | | | |
| FIG. 33. HYDRAULIC CYLINDER MOUNTING. | | | | | | |
| 1 | PAFZZ | 5315-01-392-9397 | 1NHH8 | 8D00060-1 | PIN,STRAIGHT,HEADED | 2 |
| 2 | PAFZZ | 5310-00-616-1124 | 88044 | AN960-2016L | WASHER,FLAT 1 1/4 | 2 |
| 3 | PAFZZ | 5315-00-059-0217 | 80205 | MS24665-624 | PIN,COTTER | 2 |
| 4 | PAFZZ | 5315-01-392-9394 | 1NHH8 | 8D00060-2 | PIN,STRAIGHT,HEADED | 1 |
| 5 | PAFZZ | 5310-00-167-0828 | 88044 | AN960-1616 | WASHER,FLAT 1 IN. | 1 |
| 6 | PAFZZ | 5315-00-234-1664 | 80205 | MS24665-495 | PIN,COTTER | 1 |
| 7 | PAFZZ | 5315-00-839-5821 | 80205 | MS24665-351 | PIN,COTTER | 1 |
| 8 | PAFZZ | 5310-01-267-1685 | 96906 | MS51412-8 | WASHER,FLAT 1/2 | 1 |
| 9 | PAFZZ | 5315-01-392-9391 | 1NHH8 | 8D00060-3 | PIN,STRAIGHT,HEADED | 1 |
| 10 | PFFZZ | 5365-01-416-9992 | 1NHH8 | 8D00226-1 | SPACER,RING REAR | 2 |
| 10 | PFFZZ | 5365-01-416-9992 | 1NHH8 | 8D00226-1 | SPACER,RING L.H. FRONT | 1 |

END OF FIGURE

**FIELD MAINTENANCE
HYDRAULIC RESERVOIR**



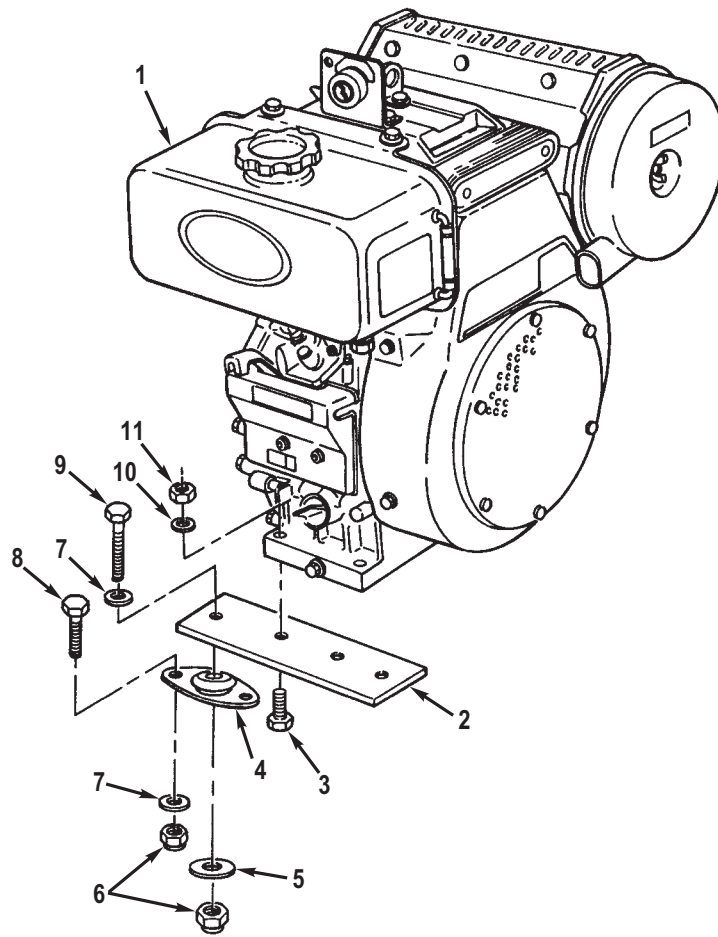
R0035JMS

Figure 34. Hydraulic Reservoir.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2408 LIQUID TANKS OR RESERVOIR | | | | | | |
| FIG. 34. HYDRAULIC RESERVOIR. | | | | | | |
| 1 | PFFZZ | 4320-01-393-9844 | 1NHH8 | 8D00115-1 | RESERVOIR, HYDRAULIC | 1 |
| 2 | XDFZZ | | 1NHH8 | 8D00189-1 | GAGE ROD-BREATHING, L | 1 |
| 3 | PAFZZ | 5306-00-226-4825 | 80204 | B1821BH031C075N | BOLT, MACHINE 5/16-18 X 3/4 QTY 5 FOR REAR TRAY | 6 |
| 4 | PAFZZ | 5310-00-167-0820 | 62983 | 48488 | WASHER, FLAT 5/16 | 6 |
| 5 | PFFZZ | 5340-01-421-9482 | 21439 | 8D00281-1 | PLATE, MOUNTING | 2 |
| 6 | PAFZZ | 5310-00-044-6477 | 96906 | MS51412-25 | WASHER, FLAT 5/16 | 6 |
| 7 | PAFZZ | 5310-00-984-3806 | 81349 | M45913/1-5CG5C | NUT, SELF-LOCKING, HE 5/16-18 | 6 |
| 8 | PAFZZ | 5306-00-225-8499 | 80205 | MS90725-34 | BOLT, MACHINE 5/16-18 X 1 REAR TRAY ONLY | 1 |

END OF FIGURE

**FIELD MAINTENANCE
ENGINE ASSEMBLY**



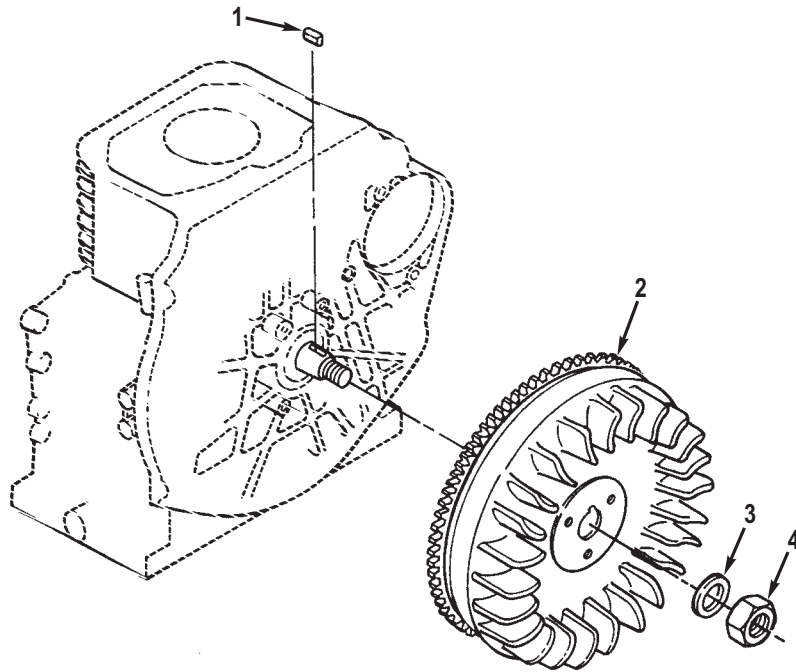
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Figure 35. Engine Assembly.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-----------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2910 ENGINE ASSEMBLY | | | | | | |
| FIG. 35. ENGINE ASSEMBLY. | | | | | | |
| 1 | PAFZZ | 2815-01-393-9846 | 31013 | OC60E1 | ENGINE,DIESEL | 1 |
| 2 | PFFZZ | 5340-01-393-1860 | 21439 | 8D00133-1 | PLATE,MOUNTING | 2 |
| 3 | PAFZZ | 5305-00-821-3869 | 80204 | B1821BH038C175N | SCREW,CAP,HEXAGON H 3/8-16 X 1 3/4 | 4 |
| 4 | PCFZZ | 5342-01-393-2877 | 81860 | 505-1LS/02 | MOUNT,RESILIENT,WEA | 4 |
| 5 | PFFZZ | 5310-01-393-6783 | 81860 | R18733-6 | WASHER,SHOULDERED | 4 |
| 6 | PAFZZ | 5310-00-984-3806 | 81349 | M45913/1-5CG5C | NUT,SELF-LOCKING,HE 5/16-18 | 12 |
| 7 | PAFZZ | 5310-00-044-6477 | 96906 | MS51412-25 | WASHER,FLAT 7/16 | 12 |
| 8 | PAFZZ | 5306-00-226-4825 | 80204 | B1821BH031C075N | BOLT,MACHINE 5/16-18 X 3/4 | 8 |
| 9 | PAFZZ | 5306-00-226-4834 | 80204 | B1821BH031C225N | BOLT,MACHINE 5/16-18 X 2 1/4 | 4 |
| 10 | PAFZZ | 5310-00-167-0821 | 80205 | NAS1149F0663P | WASHER,FLAT 3/8 | 4 |
| 11 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | NUT,SELF-LOCKING,HE 3/8-16 | 4 |

END OF FIGURE

**FIELD MAINTENANCE
FLYWHEEL AND RING GEAR**



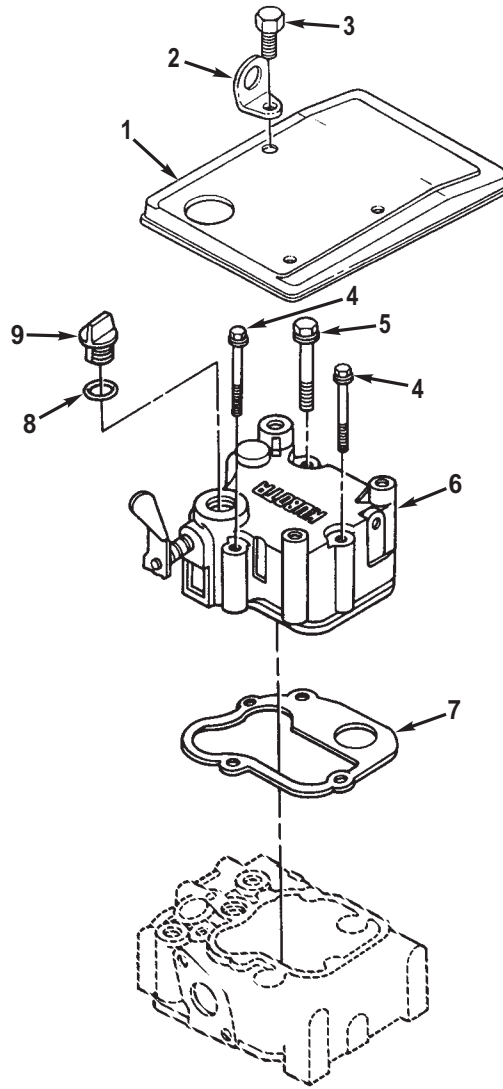
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Figure 36. Flywheel and Ring Gear.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2913 FLYWHEEL ASSEMBLY | | | | | | |
| FIG. 36. FLYWHEEL AND RING GEAR. | | | | | | |
| 1 | PAFZZ | 5315-01-393-1316 | 31013 | 05712-00520 | KEY,MACHINE | 1 |
| 2 | PAFZZ | 2815-01-393-7541 | 31013 | 11420-6703-2 | FLYWHEEL,ENGINE | 1 |
| 3 | PAFZZ | 5310-01-393-6782 | 31013 | 11420-2337-0 | WASHER,FLAT | 1 |
| 4 | PAFZZ | 5310-01-393-6785 | 31013 | 15261-2336-0 | NUT,PLAIN,HEXAGON | 1 |

END OF FIGURE

**FIELD MAINTENANCE
ROCKER ARM COVER**



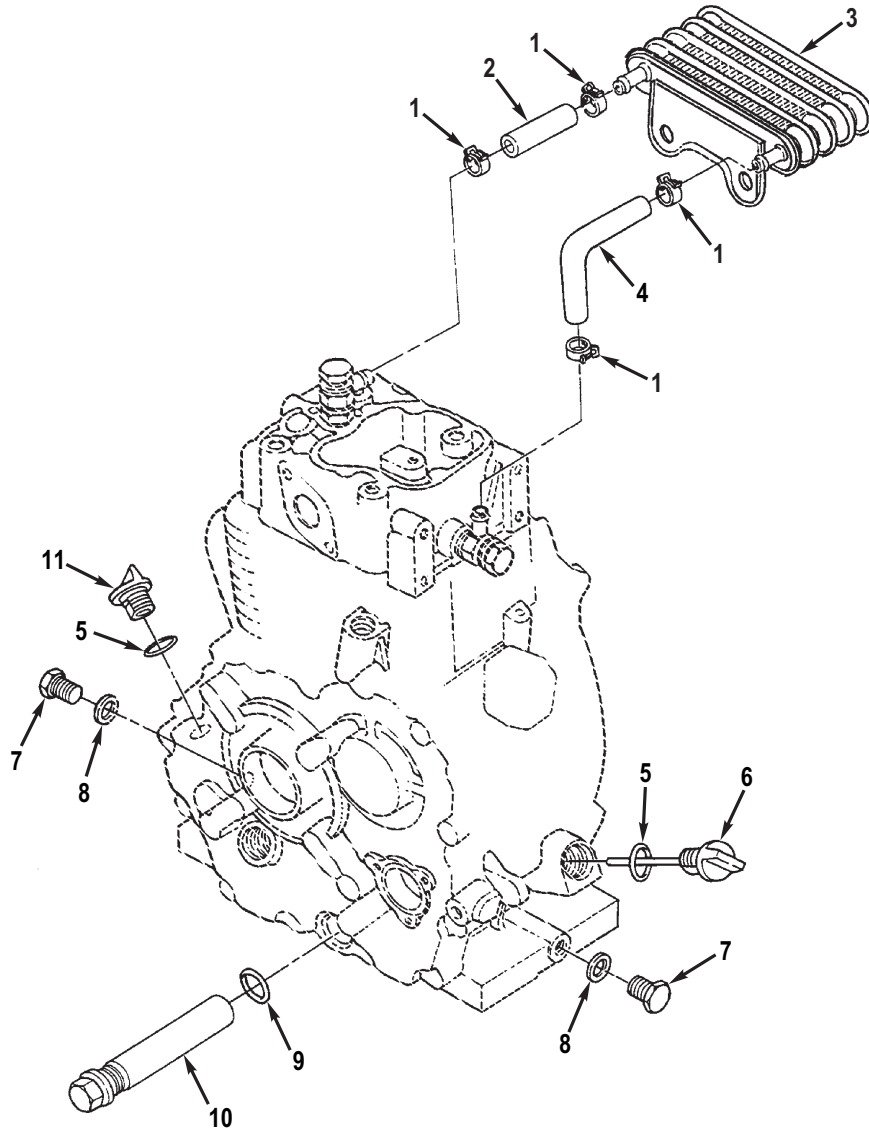
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Figure 37. Rocker Arm Cover.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2915 VALVES, CAMSHAFT, AND TIMING SYSTEM | | | | | | |
| FIG. 37. ROCKER ARM COVER. | | | | | | |
| 1 | PFFZZ | 5340-01-420-4519 | 31013 | 11811-3703-0 | COVER,ACCESS | 1 |
| 2 | PFFZZ | 1730-01-419-6112 | 31013 | 11811-0175-0 | HOOK ASSEMBLY,ENGIN | 1 |
| 3 | PAFZZ | 5305-01-393-4859 | 31013 | 01754-50835 | SCREW,CAP,HEXAGON H | 1 |
| 4 | PFFZZ | 5306-01-393-4862 | 31013 | 01754-50650 | BOLT,MACHINE | 2 |
| 5 | PFFZZ | 5306-01-393-4864 | 31013 | 01754-50855 | BOLT,MACHINE | 1 |
| 6 | PFFZZ | 5340-01-393-2876 | 31013 | 11520-1450-0 | COVER,ACCESS | 1 |
| 7 | PCFZZ | 5330-01-393-3744 | 31013 | 00420-1452-2 | GASKET | 1 |
| 8 | PCFZZ | 5331-01-393-2861 | 31013 | 04811-00180 | O-RING | 1 |
| 9 | PAFZZ | 5342-01-393-2869 | 31013 | 11420-3308-2 | CAP,FILLER OPENING | 1 |

END OF FIGURE

**FIELD MAINTENANCE
OIL FILTER, LINES, AND PLUGS**



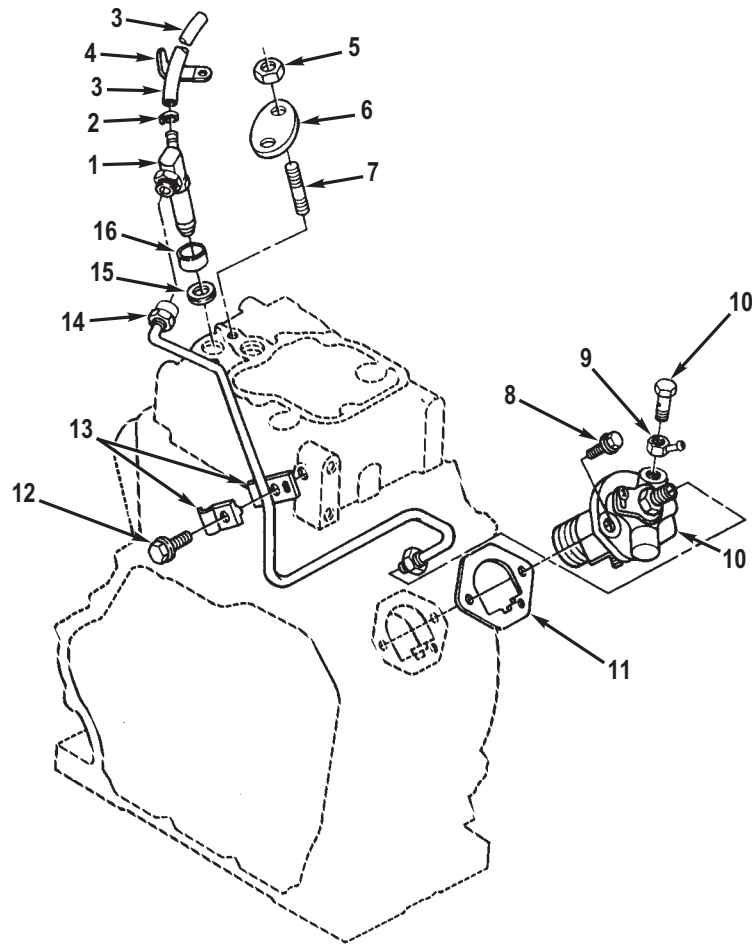
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Figure 38. Oil Filter, Lines, and Plugs.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2916 ENGINE LUBRICATION SYSTEM | | | | | | |
| FIG. 38. OIL FILTER, LINES, AND PLUGS. | | | | | | |
| 1 | PAFZZ | 4730-01-393-2164 | 31013 | 14941-0557-0 | CLAMP,HOSE | 4 |
| 2 | PCFZZ | 4710-01-393-5241 | 31013 | 11420-3715-0 | TUBE | 1 |
| 3 | XDFZZ | | 31013 | 11420-3701-0 | COOLER,LUBRICATING | 2 |
| 4 | PCFZZ | 4710-01-393-5245 | 31013 | 11420-3717-0 | TUBE,BENT | 1 |
| 5 | PCFZZ | 5331-01-393-2861 | 31013 | 04811-00180 | O-RING | 2 |
| 6 | PAFZZ | 6680-01-393-4020 | 31013 | 11420-3640-2 | GAGE ROD-CAP,LIQUID | 1 |
| 7 | PAFZZ | 5365-01-393-1859 | 31013 | 13901-3375-0 | PLUG,MACHINE THREAD | 2 |
| 8 | PCFZZ | 5331-01-393-5639 | 31013 | 04724-00120 | O-RING | 2 |
| 9 | PCFZZ | 5331-01-320-9556 | S4532 | 04811-40140 | O-RING | 1 |
| 10 | PAFZZ | 2910-01-393-7530 | 31013 | 14911-32110 | FILTER ELEMENT,FLUI | 1 |
| 11 | PAFZZ | 5342-01-393-6306 | 31013 | 11521-3308-0 | CAP,FILLER OPENING | 1 |

END OF FIGURE

**FIELD MAINTENANCE
FUEL INJECTION PUMP, NOZZLE, AND LINES**



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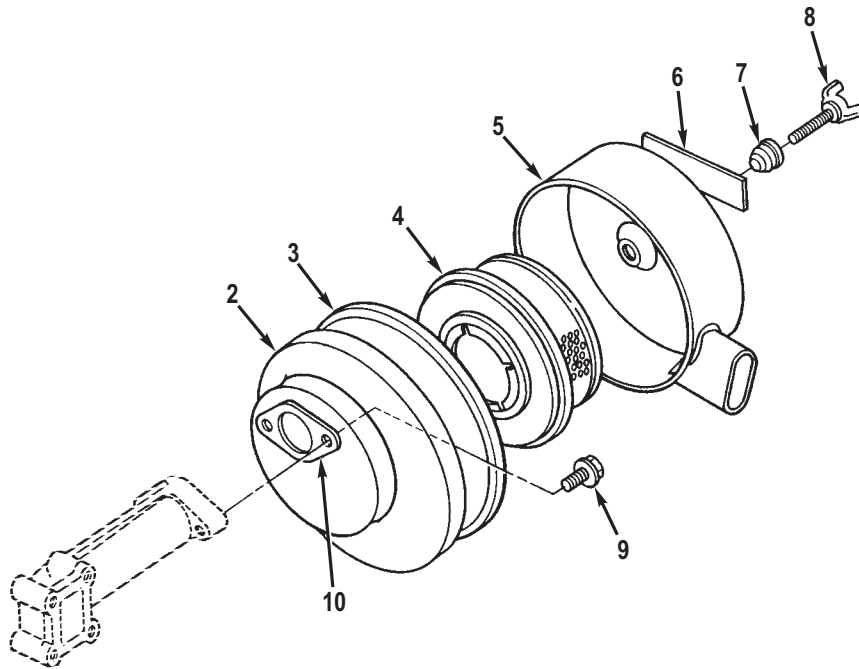
Figure 39. Fuel Injection Pump, Nozzle, and Lines.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|---|------------|
| GROUP 2932 ENGINE FUEL PUMP | | | | | | |
| FIG. 39. FUEL INJECTION PUMP, NOZZLE, AND LINES. | | | | | | |
| 1 | PAFZZ | 4820-01-395-0406 | 31013 | 1G141-53000 | NOZZLE, VALVE | 1 |
| 2 | PAFZZ | 4730-01-359-4773 | 31013 | 10244-4232-0 | CLAMP, HOSE | 2 |
| 3 | PCFZZ | 4710-01-393-5244 | 31013 | 11420-4250-0 | TUBE | 1 |
| 4 | PAFZZ | 5340-01-393-6307 | 4AER7 | 32240-3449-0 | CLAMP, LOOP | 1 |
| 5 | PAFZZ | 5310-01-393-6781 | 31013 | 02156-50080 | NUT, PLAIN, HEXAGON | 2 |
| 6 | PAFZZ | 5340-01-393-2859 | 31013 | 11420-5345-0 | PLATE, MOUNTING | 1 |
| 7 | PAFZZ | 5307-01-393-4854 | 31013 | 01513-50855 | STUD, PLAIN | 2 |
| 8 | PAFZZ | 5306-01-393-7080 | 31013 | 01754-50620 | BOLT, MACHINE | 2 |
| 9 | PAFZZ | 4730-01-393-2162 | 31013 | 15471-9569-0 | CONNECTOR, MULTIPLE, | 1 |
| 10 | PAFZZ | 2910-01-416-6523 | 31013 | 1G131-51012 | PUMP, FUEL, METERING | 1 |
| 11 | PCFZZ | 5365-01-393-1857 | 31013 | 11420-5211-0 | SHIM | 5 |
| 12 | PAFZZ | 5306-01-393-4847 | 31013 | 01754-60816 | BOLT, MACHINE | 1 |
| 13 | PAFZZ | 5340-01-393-6308 | 31013 | 11420-5385-0 | CLAMP, LOOP | 1 |
| 14 | PAFZZ | 4710-01-393-5872 | 31013 | 11420-5371-0 | TUBE ASSEMBLY, METAL | 1 |
| 15 | PCFZZ | 5331-01-431-3621 | 0XWR1 | 15841-53622 | O-RING FOR MODEL 0C60E1 ONLY | 1 |
| 15 | PCFZZ | 5331-01-393-2862 | 0XWR1 | 11420-5362-0 | O-RING FOR MODEL 0C60D1 ONLY | 1 |
| 16 | PCFZZ | 5330-01-431-3620 | 31013 | 19077-53650 | SEAL, PLAIN ENCASED USE WITH P/N 1G141-53000 | 1 |

END OF FIGURE

**FIELD MAINTENANCE
AIR CLEANER ASSEMBLY**

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2 THRU 8



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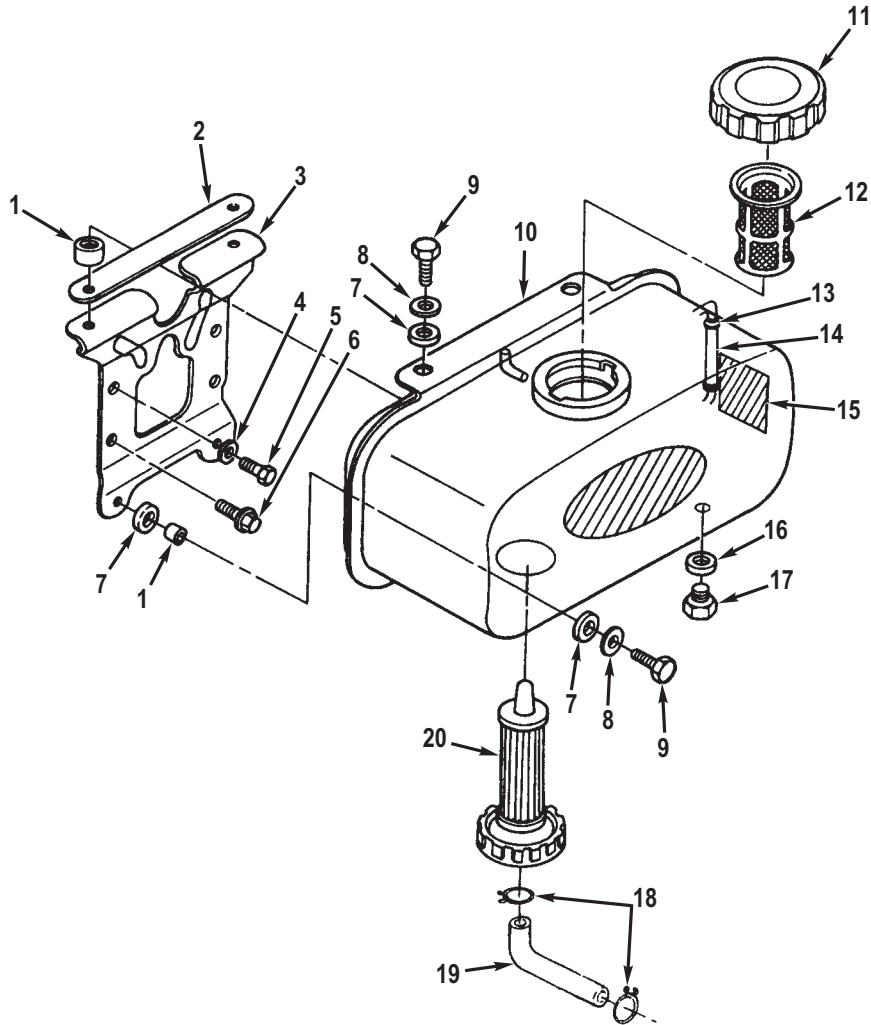
Figure 40. Air Cleaner Assembly.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---------------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2933 ENGINE AIR CLEANER | | | | | | |
| FIG. 40. AIR CLEANER ASSEMBLY. | | | | | | |
| 1 | PFFFF | 2940-01-393-7532 | 31013 | 11420-1101-4 | AIR CLEANER,INTAKE | 1 |
| 2 | XAFZZ | | 31013 | 11420-1115-0 | . BODY,AIR CLEANER | 1 |
| 3 | PCFZZ | 5331-01-393-2874 | 31013 | 12752-1117-0 | . O-RING | 1 |
| 4 | PAFZZ | 2940-22-121-8648 | S4532 | 11420-1118-0 | . FILTER ELEMENT,INTA | 1 |
| 5 | XAFZZ | | 31013 | 11420-1116-0 | . COVER,AIR CLEANER | 1 |
| 6 | XBFZZ | | 31013 | 11420-8745-0 | . PLATE, INSTRUCTION | 1 |
| 7 | PAFZZ | 5310-01-393-6779 | 31013 | 14351-1134-0 | . WASHER,SEAL | 1 |
| 8 | PAFZZ | 5305-01-393-4856 | 31013 | 12752-1133-0 | . THUMBSCREW | 1 |
| 9 | PAFZZ | 5306-01-393-4847 | 31013 | 01754-60816 | BOLT,MACHINE | 2 |
| 10 | PCFZZ | 5330-01-393-5638 | 1Q0C4 | 12035-11510 | GASKET | 1 |

END OF FIGURE

**FIELD MAINTENANCE
FUEL TANK ASSEMBLY**

10
11 THRU 17



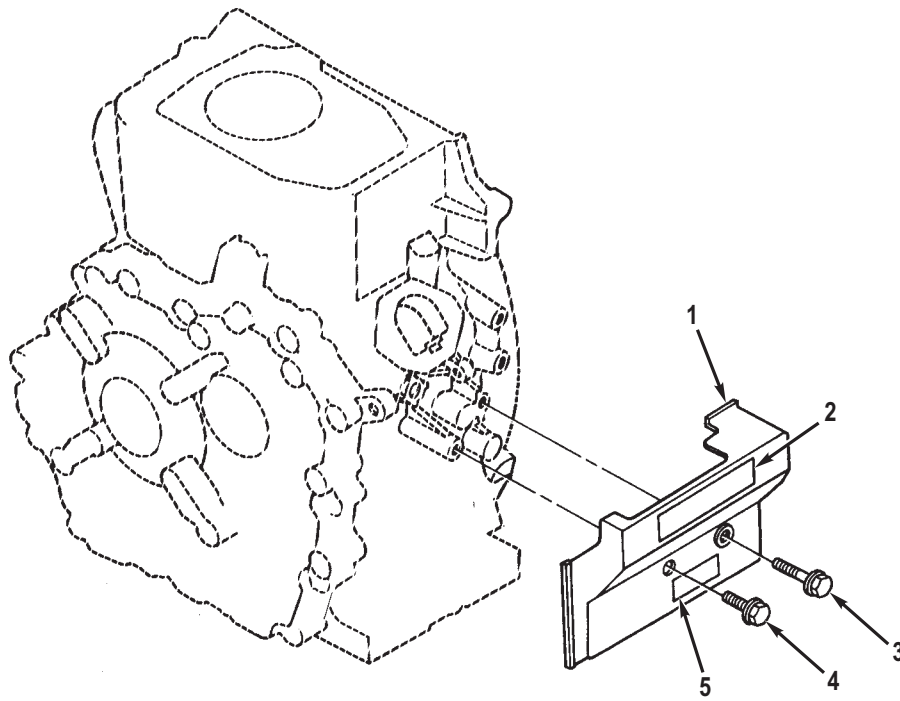
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Figure 41. Fuel Tank Assembly.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|-------------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2935 ENGINE FUEL TANK | | | | | | |
| FIG. 41. FUEL TANK ASSEMBLY. | | | | | | |
| 1 | PFFZZ | 5325-01-393-8382 | 31013 | 11151-4144-0 | GROMMET, NONMETALLIC | 4 |
| 2 | PFFZZ | 5340-01-393-2860 | 31013 | 11420-4141-0 | PLATE, MOUNTING | 1 |
| 3 | PFFZZ | 5340-01-393-2870 | 31013 | 11420-4113-2 | BRACKET, MOUNTING | 1 |
| 4 | PFFZZ | 5310-01-393-6780 | 31013 | 11420-4137-0 | WASHER, FLAT | 2 |
| 5 | PFFZZ | 5306-01-393-4849 | 31013 | 01153-50818 | BOLT, MACHINE | 2 |
| 6 | PAFZZ | 5306-01-393-4847 | 31013 | 01754-60816 | BOLT, MACHINE | 2 |
| 7 | PCFZZ | 5365-01-393-1864 | 31013 | 11151-7732-0 | BUSHING, NONMETALLIC | 6 |
| 8 | PFFZZ | 5310-01-393-6776 | 31013 | 04015-50060 | WASHER, FLAT | 4 |
| 9 | PFFZZ | 5305-01-393-4850 | 31013 | 01053-50620 | SCREW, CAP, HEXAGON H | 4 |
| 10 | PFFFF | 2910-01-393-5249 | 1Q0C4 | 11520-41022 | TANK, FUEL, ENGINE | 1 |
| 11 | PFFZZ | 5342-01-393-2872 | 31013 | 11420-4103-0 | . CAP, FILLER OPENING | 1 |
| 12 | PFFZZ | 2910-01-393-5246 | 31013 | 13901-4135-0 | . FILTER ELEMENT, FLUI | 1 |
| 13 | PFFZZ | 4730-01-394-3739 | 31013 | 14301-4236-0 | . CLAMP, HOSE | 2 |
| 14 | PFFZZ | 6680-01-393-4021 | 31013 | 11420-4171-0 | . INDICATOR, SIGHT, LIQ | 1 |
| 15 | XDFZZ | | 06PN5 | 11520-8821-0 | . PLATE, INSTRUCTION | 1 |
| 16 | PCFZZ | 5331-01-393-5639 | 31013 | 04724-00120 | . O-RING | 1 |
| 17 | PFFZZ | 5365-01-393-1858 | 31013 | 06331-35012 | . PLUG, MACHINE THREAD | 1 |
| 18 | PAFZZ | 4730-01-359-4772 | 98255 | 14911-4275-0 | CLAMP, HOSE | 2 |
| 19 | PCFZZ | 4710-01-393-5867 | 31013 | 11420-4201-0 | TUBE, BENT | 1 |
| 20 | PCFZZ | 2910-01-393-5254 | 31013 | 11420-43012 | FILTER BODY, FLUID | 1 |

END OF FIGURE

**FIELD MAINTENANCE
ENGINE SIDE COVER**



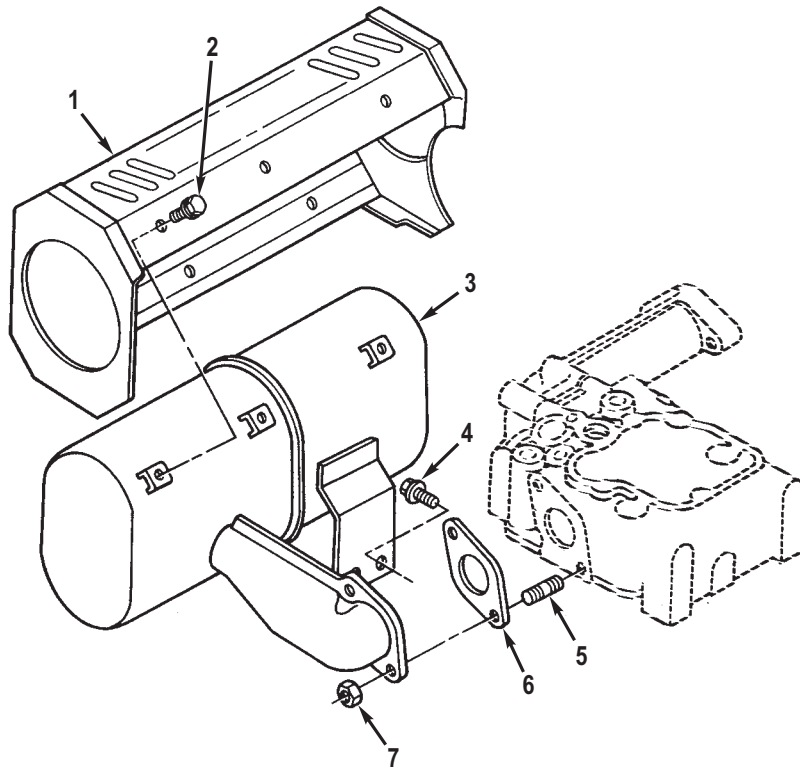
R0043JMS

Figure 42. Engine Side Cover.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| | | | | | GROUP 2936 ENGINE SPEED GOVERNOR AND CONTROLS | |
| | | | | | FIG. 42. ENGINE SIDE COVER. | |
| 1 | PFFZZ | 5340-01-393-2871 | 31013 | 11420-0480-3 | COVER,ACCESS | 1 |
| 2 | PFFZZ | 9905-01-395-2087 | 31013 | 11420-8755-0 | PLATE,INSTRUCTION | 1 |
| 3 | PAFZZ | 5306-01-393-4853 | 31013 | 01754-50630 | BOLT,MACHINE | 1 |
| 4 | PAFZZ | 5306-01-393-4857 | S4532 | 01754-50612 | BOLT,MACHINE | 1 |
| 5 | XDFZZ | | 06PN5 | 11420-8715-0 | PLATE,INSTRUCTION | 1 |

END OF FIGURE

**FIELD MAINTENANCE
MUFFLER AND COVER ASSEMBLY**



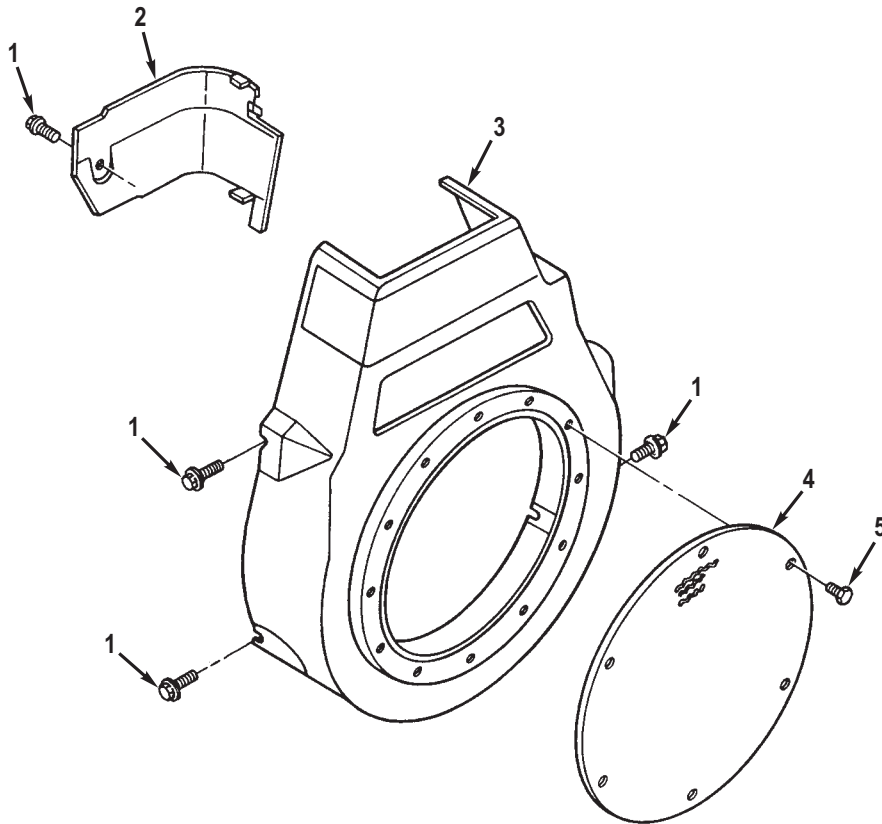
R0044JMS

Figure 43. Muffler and Cover Assembly.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|---|------------|
| | | | | | GROUP 2941 ENGINE MUFFLER, EXHAUST, AND TAIL PIPES | |
| | | | | | FIG. 43. MUFFLER AND COVER ASSEMBLY. | |
| 1 | PFFZZ | 5340-01-393-2863 | 31013 | 11520-1270-0 | COVER,ACCESS | 1 |
| 2 | PFFZZ | 5305-01-393-4860 | 31013 | 11420-9101-0 | SCREW,CAP,HEXAGON H | 6 |
| 3 | PBFZZ | 2990-01-393-5247 | 31013 | 11520-1205-0 | MUFFLER,EXHAUST | 1 |
| 4 | PAFZZ | 5306-01-393-4847 | 31013 | 01754-60816 | BOLT,MACHINE | 2 |
| 5 | PFFZZ | 5307-01-393-4851 | 31013 | 01513-50814 | STUD,SHOULDERED | 2 |
| 6 | PCFZZ | 5330-01-393-2864 | 31013 | 11420-1223-0 | GASKET | 1 |
| 7 | PAFZZ | 5310-01-320-7060 | S4532 | 02114-50080 | NUT,SELF-LOCKING,HE | 2 |

END OF FIGURE

**FIELD MAINTENANCE
SPIRAL CASE ASSEMBLY**



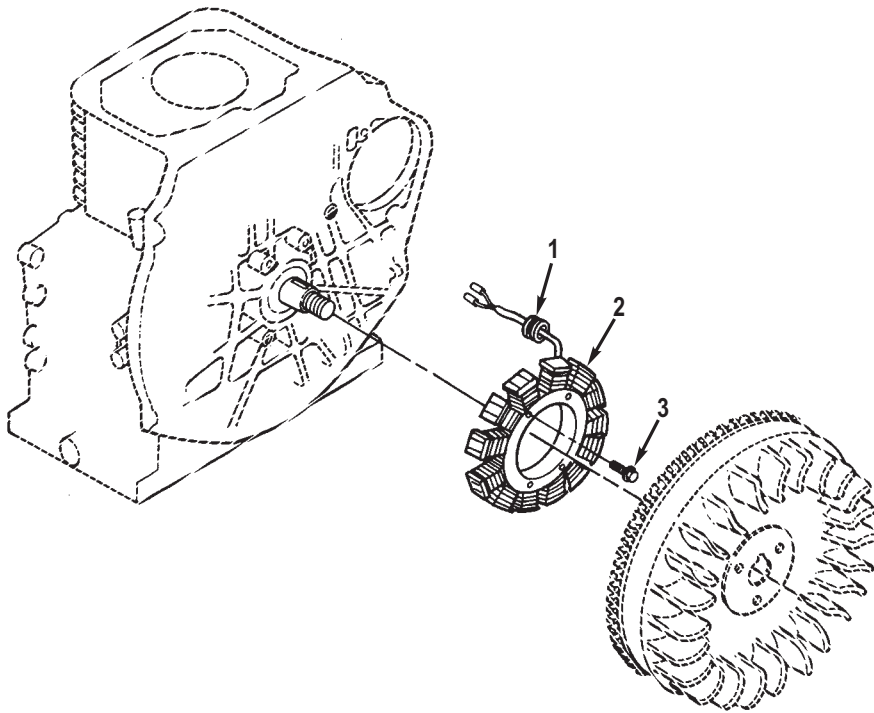
R0045JMS

Figure 44. Spiral Case Assembly.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|---|------------|
| | | | | | GROUP 2952 ENGINE COWLING DEFLECTORS, AIR DUCTS, AND SHROUDS | |
| | | | | | FIG. 44. SPIRAL CASE ASSEMBLY. | |
| 1 | PAFZZ | 5306-01-393-4857 | S4532 | 01754-50612 | BOLT,MACHINE | 5 |
| 2 | PFFZZ | 5340-01-393-2865 | 31013 | 11420-7449-0 | COVER,ACCESS | 1 |
| 3 | PFFZZ | 5340-01-393-2873 | 31013 | 11420-732083 | COVER,ACCESS | 1 |
| 4 | PFFZZ | 5340-01-393-2866 | 31013 | 11420-7537-0 | COVER,ACCESS | 1 |
| 5 | PFFZZ | 2990-99-917-5958 | S8029 | 01754-50610 | BOLT,FLANGE | 6 |

END OF FIGURE

**FIELD MAINTENANCE
STATOR ASSEMBLY**



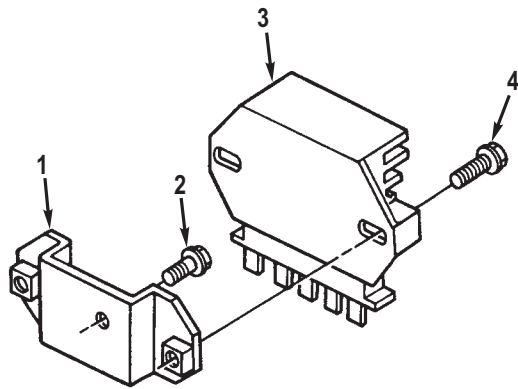
R0046JMS

Figure 45. Stator Assembly.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|----------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2961 GENERATOR | | | | | | |
| FIG. 45. STATOR ASSEMBLY. | | | | | | |
| 1 | PCFZZ | 5325-01-438-9353 | 31013 | 11420-6768-0 | GROMMET, NONMETALLIC | 1 |
| 2 | PAFZZ | 2920-01-393-5268 | 31013 | 11420-6705-0 | STATOR ASSEMBLY, IGN | 1 |
| 3 | PAFZZ | 5306-01-393-7080 | 31013 | 01754-50620 | BOLT, MACHINE | 4 |

END OF FIGURE

**FIELD MAINTENANCE
REGULATOR AND MOUNT**



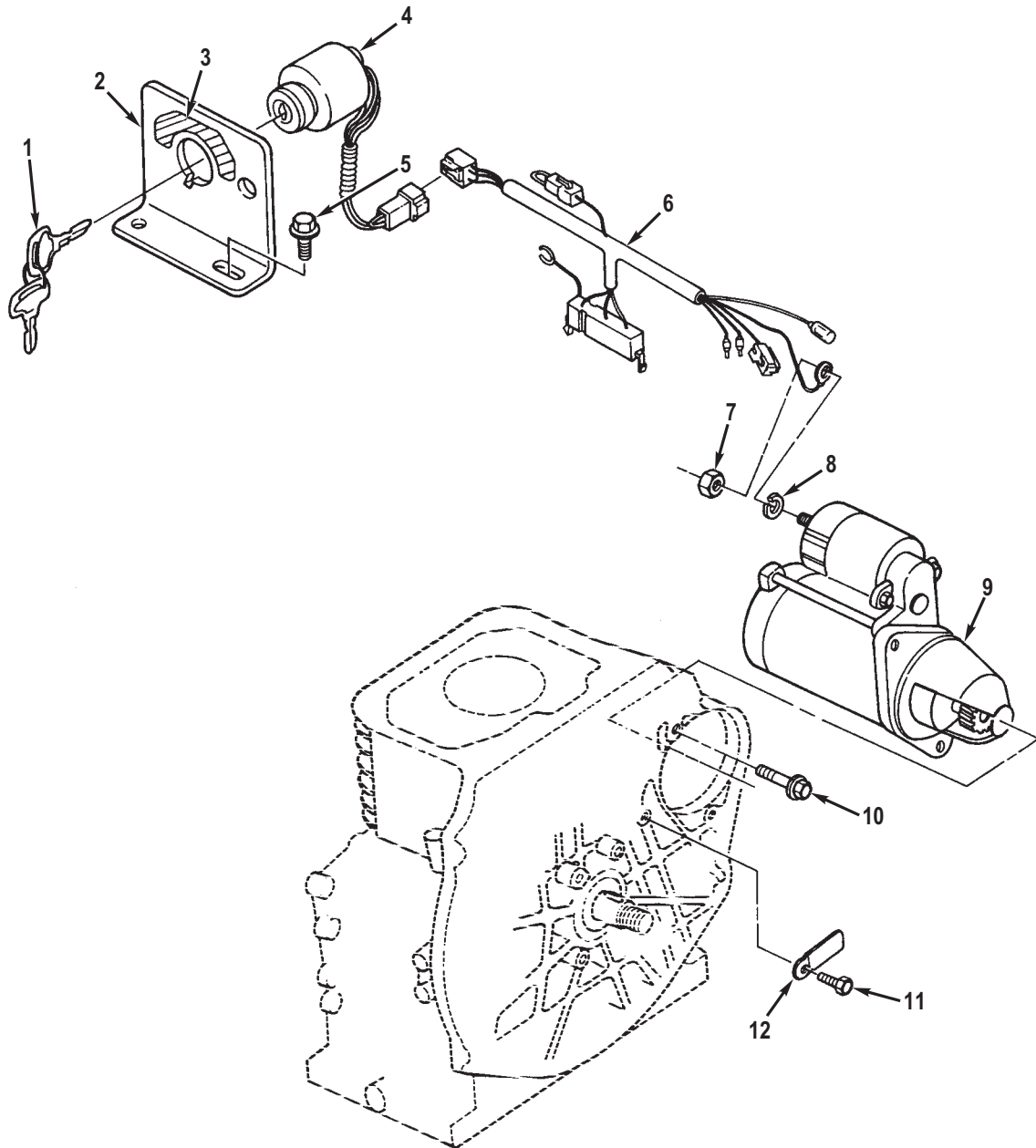
R0047JMS

Figure 46. Regulator and Mount.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2962 REGULATOR | | | | | | |
| FIG. 46. REGULATOR AND MOUNT. | | | | | | |
| 1 | PFFZZ | 5340-01-393-2868 | 31013 | 11420-6461-0 | PLATE,MOUNTING | 1 |
| 2 | PAFZZ | 5306-01-393-4847 | 31013 | 01754-60816 | BOLT,MACHINE | 1 |
| 3 | PAFZZ | 6110-01-431-9890 | 31013 | 11420-6460-0 | REGULATOR,CURRENT | 1 |
| 4 | PAFZZ | 5306-01-393-7080 | 31013 | 01754-50620 | BOLT,MACHINE | 2 |

END OF FIGURE

**FIELD MAINTENANCE
STARTER, SWITCH, AND HARNESS**



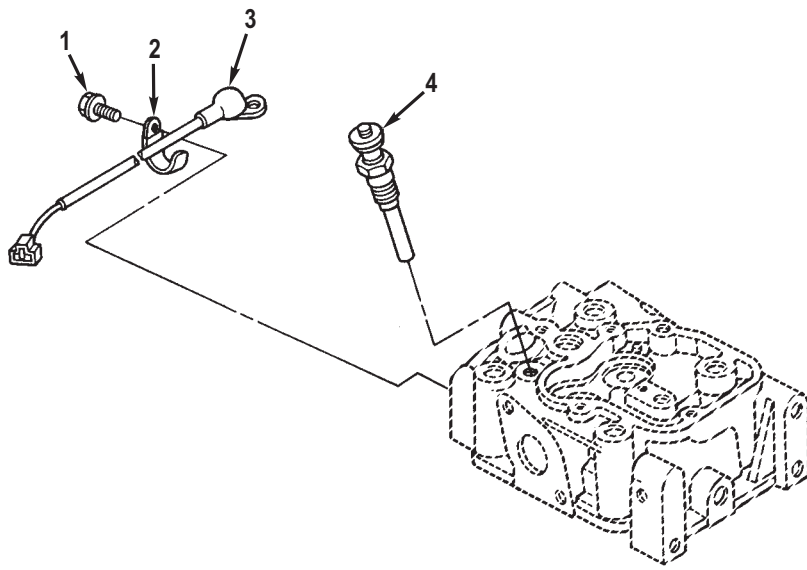
R0048JMS

Figure 47. Starter, Switch, and Harness.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2963 STARTER, SOLENOIDS, CIRCUIT BREAKERS, WIRING, AND SWITCHES | | | | | | |
| FIG. 47. STARTER, SWITCH, AND HARNES. | | | | | | |
| 1 | PFFZZ | 5930-01-393-4710 | 31013 | 37410-55-150 | KEY,SWITCH | 2 |
| 2 | PFFZZ | 5340-01-393-6310 | 31013 | 11420-6360-2 | BRACKET,MOUNTING | 1 |
| 3 | XDFZZ | | 06PN5 | 11420-8752-0 | PLATE,INSTRUCTION | 1 |
| 4 | PAFZZ | 2920-01-393-5869 | K5F98 | 37410-5911-0 | SWITCH,LOCK,IGNITIO | 1 |
| 5 | PAFZZ | 5306-01-393-4857 | S4532 | 01754-50612 | BOLT,MACHINE | 1 |
| 6 | PAFZZ | 6150-01-393-5115 | 0XWR1 | 11420-65752 | CABLE ASSEMBLY,SPEC | 1 |
| 7 | PFFZZ | 5310-01-320-7060 | S4532 | 02114-50080 | NUT,SELF-LOCKING,HE | 1 |
| 8 | PFFZZ | 5310-01-321-3477 | S4532 | 04512-50080 | WASHER,LOCK | 1 |
| 9 | PAFZZ | 2920-01-393-4550 | 31013 | 11420-6301-0 | STARTER,ENGINE,ELEC | 1 |
| 10 | PFFZZ | 5305-01-393-4859 | 31013 | 01754-50835 | SCREW,CAP,HEXAGON H | 2 |
| 11 | PFFZZ | 2990-99-917-5958 | S8029 | 01754-50610 | BOLT,FLANGE | 1 |
| 12 | PFFZZ | 5340-01-395-0121 | 31013 | 15241-6758-0 | CLAMP,LOOP | 1 |

END OF FIGURE

**FIELD MAINTENANCE
GLOW PLUG AND CORD**



R0049JMS

Figure 48. Glow Plug and Cord.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| | | | | | GROUP 2965 IGNITION COIL | |
| | | | | | FIG. 48. GLOW PLUG AND CORD. | |
| 1 | PFFZZ | 5306-01-393-4861 | 31013 | 01023-50610 | BOLT,MACHINE | 1 |
| 2 | PFFZZ | 5340-01-395-0121 | 31013 | 15241-6758-0 | CLAMP,LOOP | 1 |
| 3 | PCFZZ | 6150-01-393-5104 | 31013 | 11420-6556-0 | LEAD,ELECTRICAL | 1 |
| 4 | PAFZZ | 2920-99-258-0033 | S8029 | 16241-65510 | GLOW PLUG | 1 |

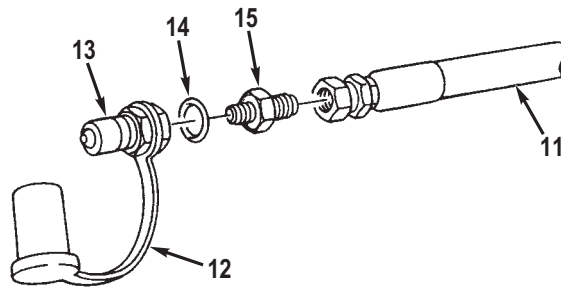
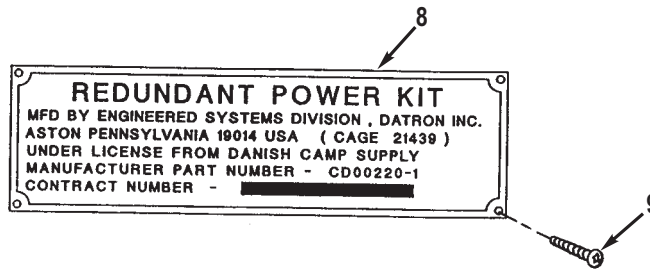
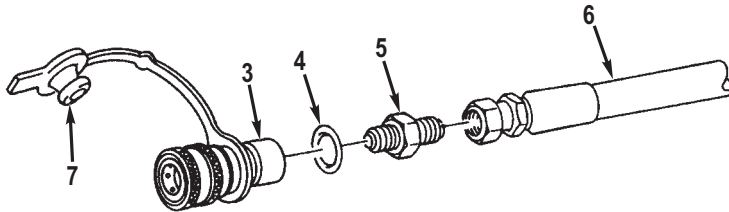
END OF FIGURE

**FIELD MAINTENANCE
REDUNDANT POWER KIT**

1
2 THRU 15

2
3 THRU 7

10
11 THRU 15



R0050JMS

Figure 49. Redundant Power Kit.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 3307 SPECIAL PURPOSE KITS | | | | | | |
| FIG. 49. REDUNDANT POWER KIT. | | | | | | |
| 1 | PCFZZ | 1730-01-406-2585 | 1NHH8 | 8D00220-1 | KIT,REDUNDANT POWER | 1 |
| 2 | PCFZZ | 4720-01-406-1935 | 1NHH8 | 8D00220-3 | . HOSE ASSEMBLY,NONME | 1 |
| 3 | PAFZZ | 4730-01-501-3004 | 97111 | H3-62-T8-659 | . . COUPLING HALF,QUICK | 2 |
| 4 | PCFZZ | 5331-00-808-0794 | 81343 | MS28778-8 | . . O-RING | 2 |
| 5 | PAFZZ | 4730-01-156-4835 | 96906 | MS51525A8 | . . ADAPTER,STRAIGHT,TU | 2 |
| 6 | PCFZZ | 4720-01-406-1934 | 1NHH8 | 8D00052-4 | . . HOSE ASSEMBLY,NONME | 1 |
| 7 | PAFZZ | 5340-01-356-5057 | 97111 | H3-65M | . . CAP,PROTECTIVE,DUST | 2 |
| 8 | PFFZZ | 9905-01-421-1715 | 21439 | 8D00062-24 | . PLATE,IDENTIFICATIO | 1 |
| 9 | XDFZZ | | 45722 | NO. 4-5/16 | . SCREW,MACHINE #4 X 5/16 | 4 |
| 10 | PCFZZ | 4720-01-406-1936 | 1NHH8 | 8D00220-2 | . HOSE ASSEMBLY,NONME | 1 |
| 11 | PCFZZ | 4720-01-406-1934 | 1NHH8 | 8D00052-4 | . . HOSE ASSEMBLY,NONME | 1 |
| 12 | PAFZZ | 5340-01-307-4395 | 97111 | H3-66M | . . PLUG,PROTECTIVE,DUS | 2 |
| 13 | PAFZZ | 4730-01-501-3000 | 97111 | H3-63-T8-659 | . . COUPLING HALF,QUICK | 2 |
| 14 | PCFZZ | 5331-00-808-0794 | 81343 | MS28778-8 | . . O-RING | 2 |
| 15 | PAFZZ | 4730-01-156-4835 | 96906 | MS51525A8 | . . ADAPTER,STRAIGHT,TU | 2 |

END OF FIGURE

**FIELD MAINTENANCE
SIDE LIFT KIT COMPONENT PARTS**

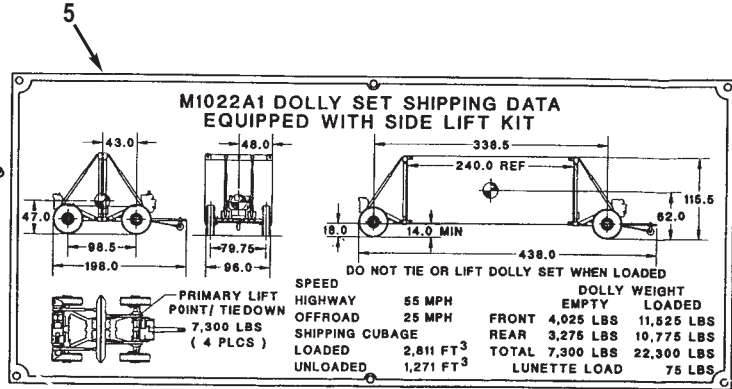
1
2 THRU 26

SIDE LIFT COUPLING

- 1 POSITION DOLLIES ON CENTERLINE AT EACH SIDE OF CONTAINER.
- 2 REMOVE & PLACE CROSS BRACE ASSEMBLIES ON TOP OF CONTAINER.
- 3 INSERT THE TWIST LOCK COUPLERS THROUGH THE SLOTS OF THE DOLLY'S TOP BEAM.
- 4 ROTATE THE TWIST LOCK COUPLERS 90 DEGREES & INSERT THEM INTO THE CROSS BRACE BRACKETS.
- 5 SECURE THE CROSS BRACE BRACKETS TO THE DOLLY BY TIGHTENING THE TWIST LOCK COUPLERS.
- 6 ASSEMBLE CHAINS & SLINGS TO DOLLY.
- 7 INSTALL ADAPTER ON BOTTOM OF CONTAINER USING TWIST LOCK COUPLERS.
- 8 RAISE OR LOWER CONTAINER USING DOLLY CYLINDERS.

SIDE LIFT UNCOUPLING

- 1 LOWER CONTAINER USING DOLLY CYLINDERS.
- 2 REMOVE TWIST LOCK COUPLERS & ADAPTER FROM BOTTOM OF CONTAINER.
- 3 DISASSEMBLE CHAINS & SLINGS FROM DOLLY.
- 4 REMOVE TWIST LOCK COUPLERS FROM CROSS BRACE BRACKETS.
- 5 REMOVE CROSS BRACE ASSEMBLIES FROM TOP OF CONTAINER & STORE.
- 6 POSITION DOLLIES IN THEIR MANEUVERING POSITION.

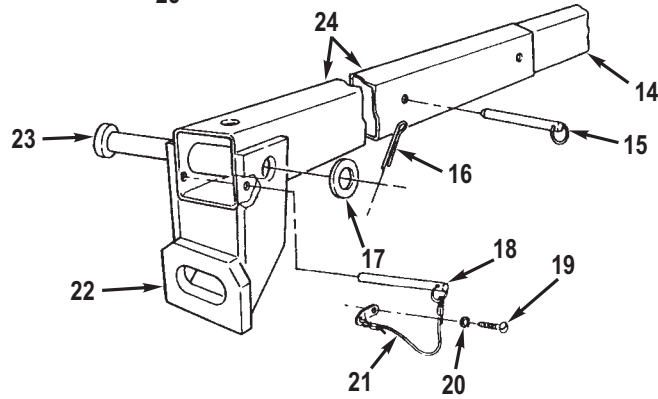
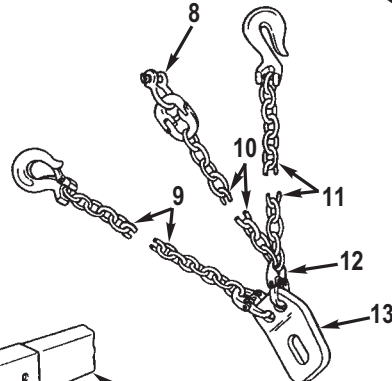
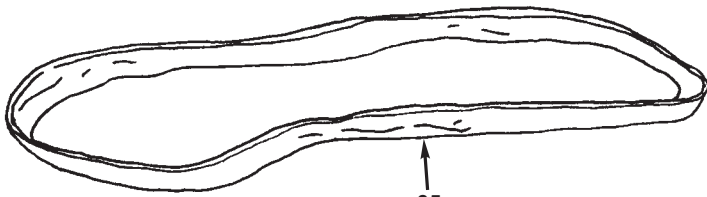


WARNING

REDUNDANT POWER KIT IS NOT TO BE USED FOR SIDE LIFT OPERATIONS

SIDE LIFT KIT

MFD BY ENGINEERED SYSTEMS DIVISION, DATRON INC.
ASTON PENNSYLVANIA 19014 USA (CAGE 21439)
UNDER LICENSE FROM DANISH CAMP SUPPLY
MANUFACTURER PART NUMBER - 8D00194-1
CONTRACT NUMBER - DAAE07-93-D-J001



R0051JMS

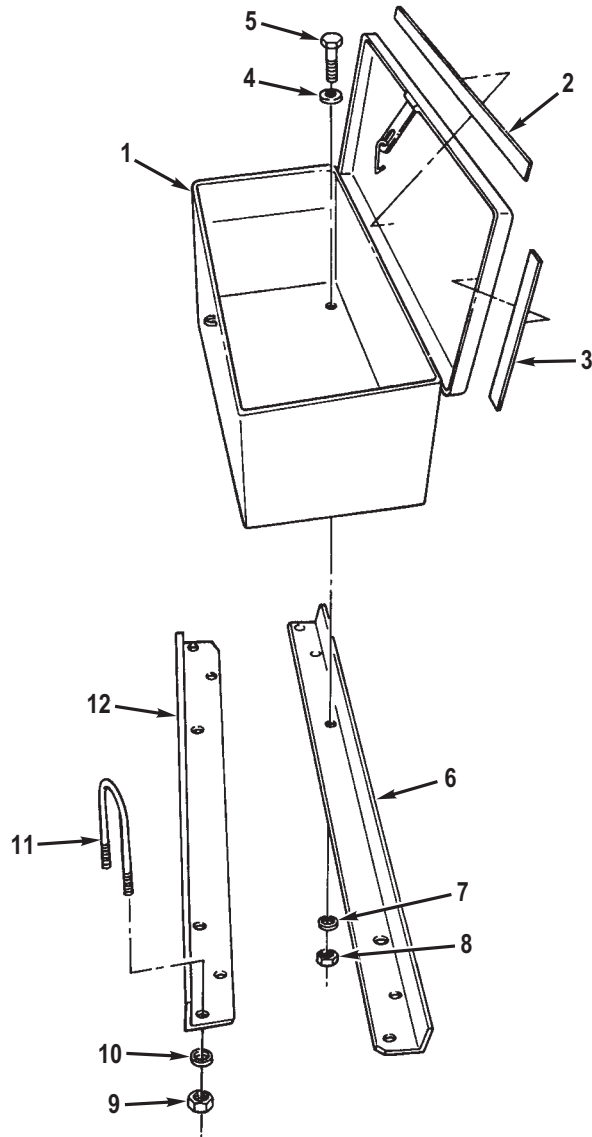
Figure 50. Side Lift Kit Component Parts.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|---|------------|
| GROUP 3307 SPECIAL PURPOSE KITS | | | | | | |
| FIG. 50. SIDE LIFT KIT COMPONENT PARTS. | | | | | | |
| 1 | PDFZZ | 3950-01-418-0930 | 1NHH8 | 8D00194-1 | PARTS KIT,LINEAR AC INCLUDES FIGURES 51 THRU 54 | 1 |
| 2 | PFFZZ | 9905-01-420-2785 | 21439 | 8D00062-11 | . PLATE,INSTRUCTION | 1 |
| 3 | XDFZZ | | 21439 | 8D00062-12 | . PLATE,INSTRUCTION | 1 |
| 4 | XDFZZ | | 45722 | NO. 4-3/16 | . SCREW,MACHINE #4 X 3/16 | 10 |
| 5 | PFFZZ | 9905-01-421-0349 | 21439 | 8D00062-22 | . PLATE,IDENTIFICATIO | 1 |
| 6 | PFFZZ | 9905-01-421-2970 | 21439 | 8D00062-23 | . PLATE,INSTRUCTION | 1 |
| 7 | XDFZZ | | 45722 | NO. 4-5/16 | . SCREW,MACHINE #4 X 5/16 | 18 |
| 8 | PFFZZ | 4030-01-416-9994 | 76257 | G-209-A-5/8 | . SHACKLE | 4 |
| 9 | PFFZZ | 4010-01-417-1548 | 1NHH8 | 8D00209-3 | . CHAIN ASSEMBLY,SING AXLE | 1 |
| 10 | PFFZZ | 4010-01-405-9922 | 21439 | 8D00209-2 | . CHAIN ASSEMBLY,SING TAKE-UP | 4 |
| 11 | PFFZZ | 4010-01-417-1547 | 21439 | 8D00209-1 | . CHAIN ASSEMBLY,SING LIFTING | 4 |
| 12 | PAFZZ | 4010-01-226-8812 | 75535 | A-337-1/2 | . LINK,CHAIN,DETACHAB | 8 |
| 13 | PFFZZ | 5340-01-426-8784 | 21439 | 8D00201-1 | . BRACKET,MOUNTING | 4 |
| 14 | PAFZZ | 5340-01-501-0306 | 1NHH8 | 8D00199-1 | . PLATE,MOUNTING | 2 |
| 15 | PFFZZ | 5315-01-416-8903 | 0AYE7 | 8D00202-5 | . PIN,QUICK RELEASE | 4 |
| 16 | PAFZZ | 5315-00-059-0217 | 80205 | MS24665-624 | . PIN,COTTER | 4 |
| 17 | PAFZZ | 5310-00-282-6903 | 88044 | AN960-2016 | . WASHER,FLAT 1 1/4 | 4 |
| 18 | PFFZZ | 5315-01-428-5920 | 21439 | 8D00202-6 | . PIN,QUICK RELEASE | 2 |
| 19 | PAFZZ | 5305-00-058-1082 | 08645 | 92760 | . SCREW,TAPPING #8 X 1/4 | 2 |
| 20 | PAFZZ | 5310-00-045-3299 | 80205 | MS35338-42 | . WASHER,LOCK #8 | 2 |
| 21 | XDFZZ | | 96652 | 79-08 | . LANYARD ASSY | 2 |
| 22 | PFFZZ | 2590-01-418-5568 | 1NHH8 | 8D00200-1 | . BRACKET,VEHICULAR C | 4 |
| 23 | PFFZZ | 5315-01-416-8905 | 0AYE7 | 8D00060-8 | . PIN,STRAIGHT,HEADED | 4 |
| 24 | PAFZZ | 5340-01-501-0309 | 1NHH8 | 8D00198-1 | . PLATE,MOUNTING | 2 |
| 25 | PFFZZ | 3940-01-418-3504 | 21439 | 8D00208-1 | . SLING,ENDLESS | 4 |
| 26 | PFFZZ | 7690-01-431-8639 | 21439 | 8D00062-27 | . LABEL | 2 |

END OF FIGURE

**FIELD MAINTENANCE
SIDE LIFT KIT STORAGE BOX**

1
2 AND 3



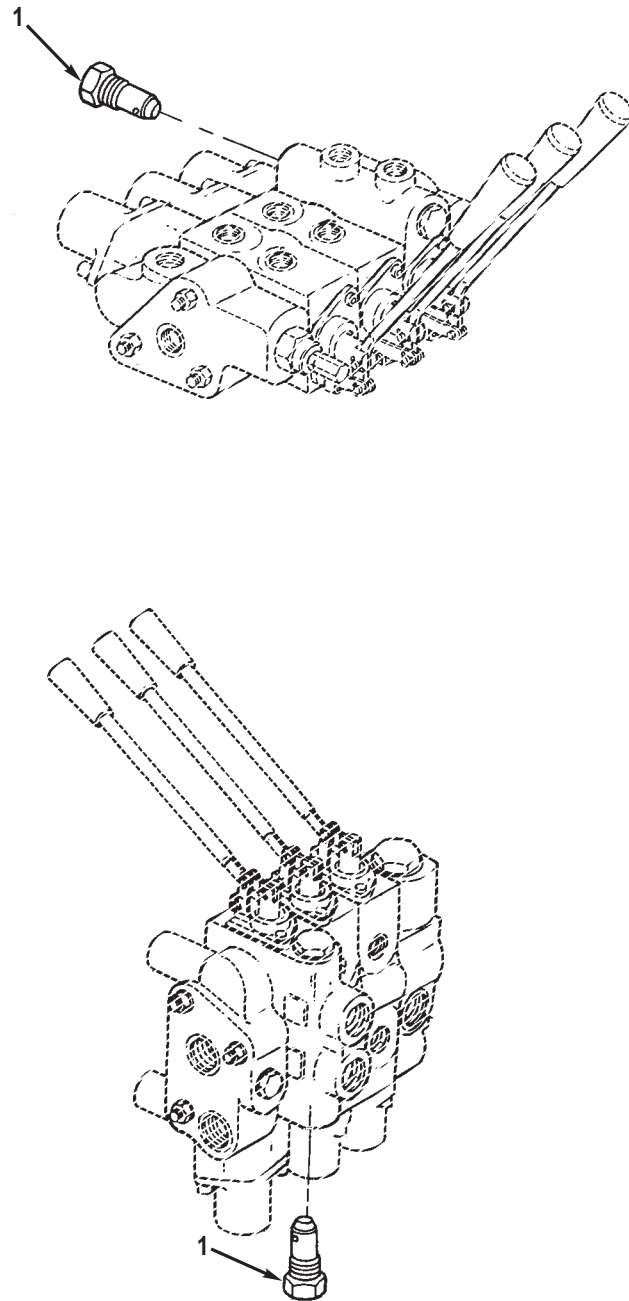
R0052JMS

Figure 51. Side Lift Kit Storage Box.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 3307 SPECIAL PURPOSE KITS | | | | | | |
| FIG. 51. SIDE LIFT KIT STORAGE BOX. | | | | | | |
| 1 | PPFZZ | 2540-01-418-5575 | 1NHH8 | 8D00228-1 | . BOX,ACCESSORIES STO PART OF SIDE LIFT KIT FIG 50 ITEM 1 | 1 |
| 2 | PCFZZ | 5330-01-431-3107 | 21439 | 8D00228-4 | . . SEAL,PLAIN | 2 |
| 3 | PCFZZ | 5330-01-431-3100 | 21439 | 8D00228-5 | . . SEAL,PLAIN | 2 |
| 4 | PAFZZ | 5310-00-167-0766 | 80205 | AN970-4 | . WASHER,FLAT 1/4 | 4 |
| 5 | PAFZZ | 5305-00-071-2505 | 80204 | B1821BH025C088N | . SCREW,CAP,HEXAGON H 1/4-20 X 7/8 | 4 |
| 6 | PPFZZ | 5340-01-417-2485 | 94414 | 8D00229-1 | . BRACKET,ANGLE | 1 |
| 7 | PAFZZ | 5310-00-141-1795 | 80205 | NAS1149F0463P | . WASHER,FLAT 1/4 | 4 |
| 8 | PAFZZ | 5310-00-088-1251 | 81349 | M45913/1-4CG5C | . NUT,SELF-LOCKING,HE 1/4-20 | 4 |
| 9 | PAFZZ | 5310-00-087-4652 | 81349 | M45913/1-6CG5C | . NUT,SELF-LOCKING,HE 3/8-16 | 8 |
| 10 | PAFZZ | 5310-00-167-0821 | 80205 | NAS1149F0663P | . WASHER,FLAT 3/8 | 8 |
| 11 | PPFZZ | 5306-01-417-8590 | 94414 | 8D00227-2 | . BOLT,U | 4 |
| 12 | PPFZZ | 5340-01-417-2483 | 94414 | 8D00229-2 | . BRACKET,ANGLE | 1 |

END OF FIGURE

**FIELD MAINTENANCE
SIDE LIFT KIT HYDRAULIC VALVE PLUG**



R0053JMS

Figure 52. Side Lift Kit Hydraulic Valve Plug.

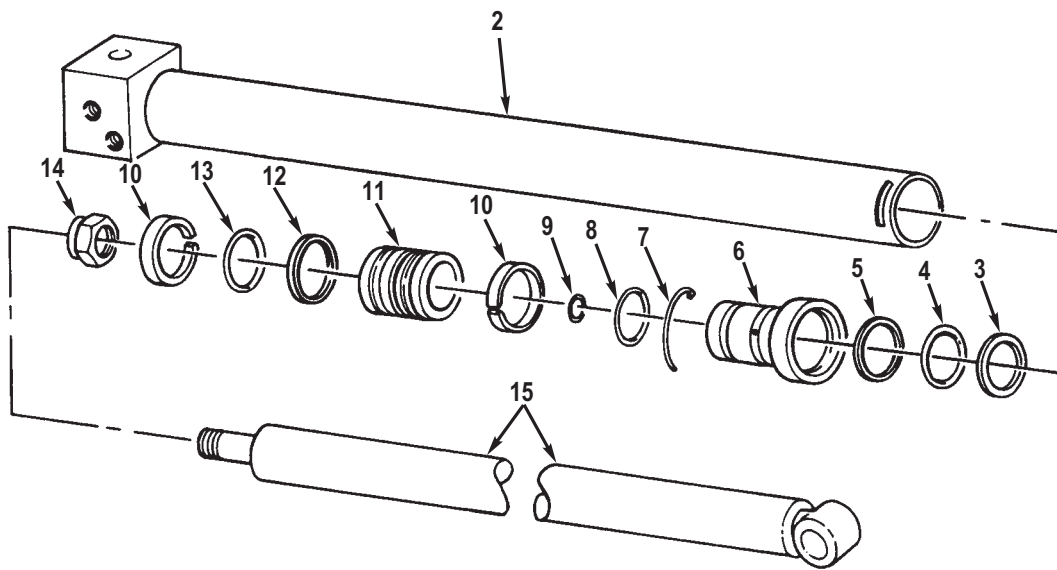
| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------|--------------|--------------------|--|------------|
|--------------------|-----------------|------------|--------------|--------------------|--|------------|

| | | | | | | |
|---|-------|------------------|-------|-----------|--|--|
| 1 | PCFZZ | 4820-01-419-4120 | 29260 | 660280004 | <p>GROUP 3307 SPECIAL PURPOSE KITS</p> <p>FIG. 52. SIDE LIFT KIT HYDRAULIC VALVE PLUG.</p> <p>. VALVE,RELIEF,PRESSU PART OF SIDE LIFT KIT FIGURE 50 ITEM 1 2</p> | |
|---|-------|------------------|-------|-----------|--|--|

END OF FIGURE

**FIELD MAINTENANCE
SIDE LIFT KIT POSITIONING CYLINDER**

1
2 THRU 15



R0054JMS

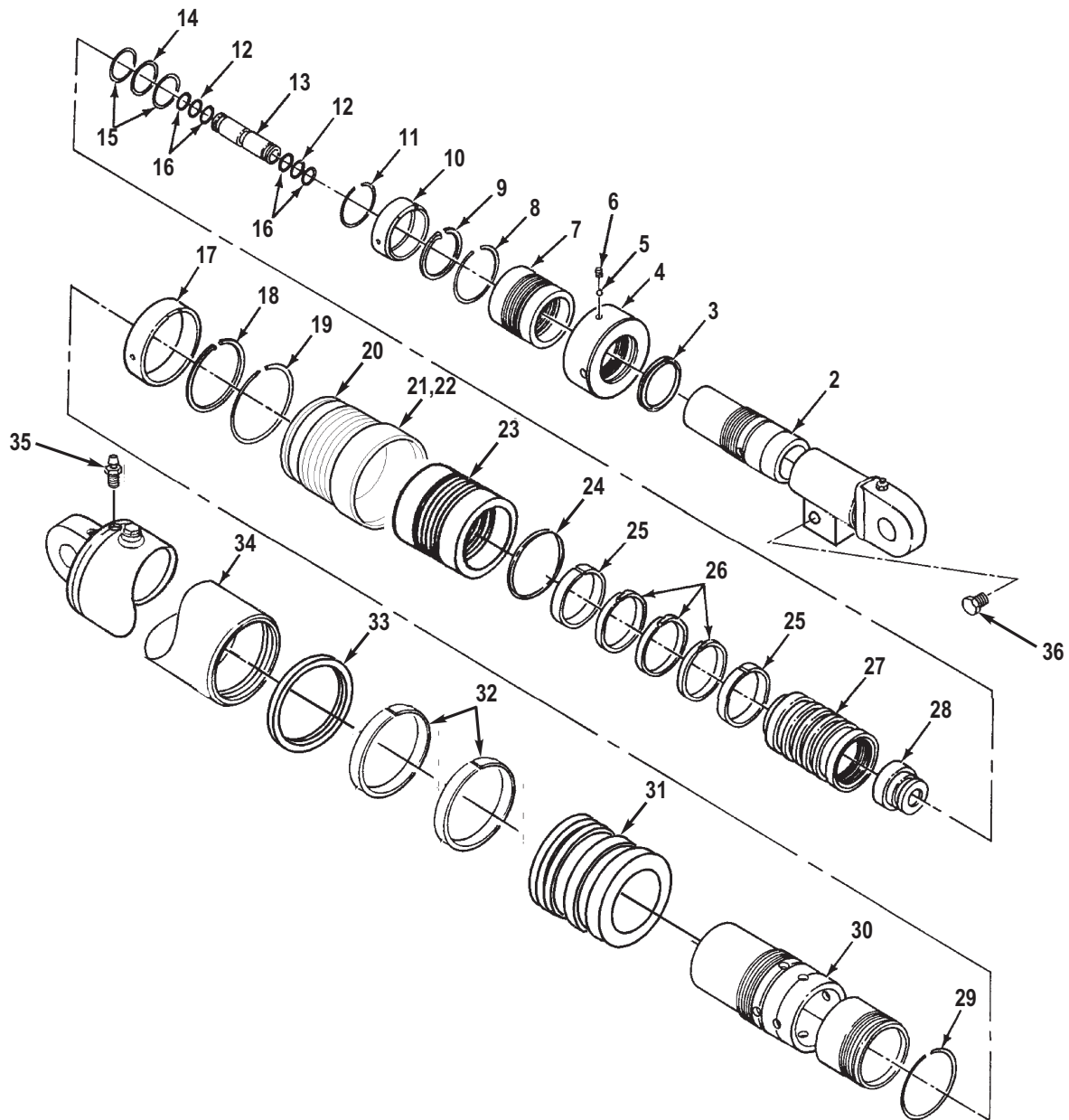
Figure 53. Side Lift Kit Positioning Cylinder.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---|-----------------|------------------|--------------|--------------------|---|------------|
| GROUP 3307 SPECIAL PURPOSE KITS | | | | | | |
| FIG. 53. SIDE LIFT KIT POSITIONING CYLINDER. | | | | | | |
| 1 | PFFFF | 3040-01-417-9823 | 1NHH8 | 8D00191-1 | . CYLINDER ASSEMBLY,A PART OF SIDE LIFT KIT FIGURE 50 ITEM 1 | 4 |
| 2 | PFFZZ | 3040-01-418-4572 | 1NHH8 | 8D00235-4 | . . CYLINDER,ACTUATING, | 1 |
| 3 | KFFZZ | | 21439 | 8D00235-22 | . . WIPER,ROD PART OF KIT P/N 8D00235-25 | 1 |
| 4 | KFFZZ | | 21439 | 8D00235-26 | . . SEAL,BACKUP PART OF KIT P/N 8D00235-25 | 1 |
| 5 | KFFZZ | | 21439 | 8D00235-20 | . . O-RING PART OF KIT P/N 8D00235-25 | 1 |
| 6 | PFFZZ | 3040-01-418-4574 | 1NHH8 | 8D00235-23 | . . HEAD,LINEAR ACTUATI | 1 |
| 7 | PFFZZ | 3040-01-418-1718 | 1NHH8 | 8D00235-24 | . . RING,ROD,PISTON | 1 |
| 8 | KFFZZ | | 21439 | 8D00235-21 | . . O-RING PART OF KIT P/N 8D00235-25 | 1 |
| 9 | KFFZZ | | 21439 | 8D00235-9 | . . O-RING PART OF KIT P/N 8D00235-25 | 1 |
| 10 | KFFZZ | | 21439 | 8D00235-16 | . . RING,WEAR PART OF KIT P/N 8D00235-25 | 2 |
| 11 | PFFZZ | 3040-01-418-1734 | 1NHH8 | 8D00235-17 | . . PISTON,LINEAR ACTUA | 1 |
| 12 | KFFZZ | | 21439 | 8D00235-18 | . . O-RING PART OF KIT P/N 8D00235-25 EXPANDER | 1 |
| 13 | KFFZZ | | 21439 | 8D00235-15 | . . SEAL,PISTON PART OF KIT P/N 8D00235-25 | 1 |
| 14 | PFFZZ | 5310-01-417-1543 | 21439 | 8D00235-10 | . . NUT,SELF-LOCKING,CA | 1 |
| 15 | PFFZZ | 3040-01-418-3026 | 1NHH8 | 8D00235-11 | . . ROD,PISTON,LINEAR A | 1 |

END OF FIGURE

**FIELD MAINTENANCE
SIDE LIFT KIT LIFT CYLINDER**

1
2 THRU 36



R0055JMS

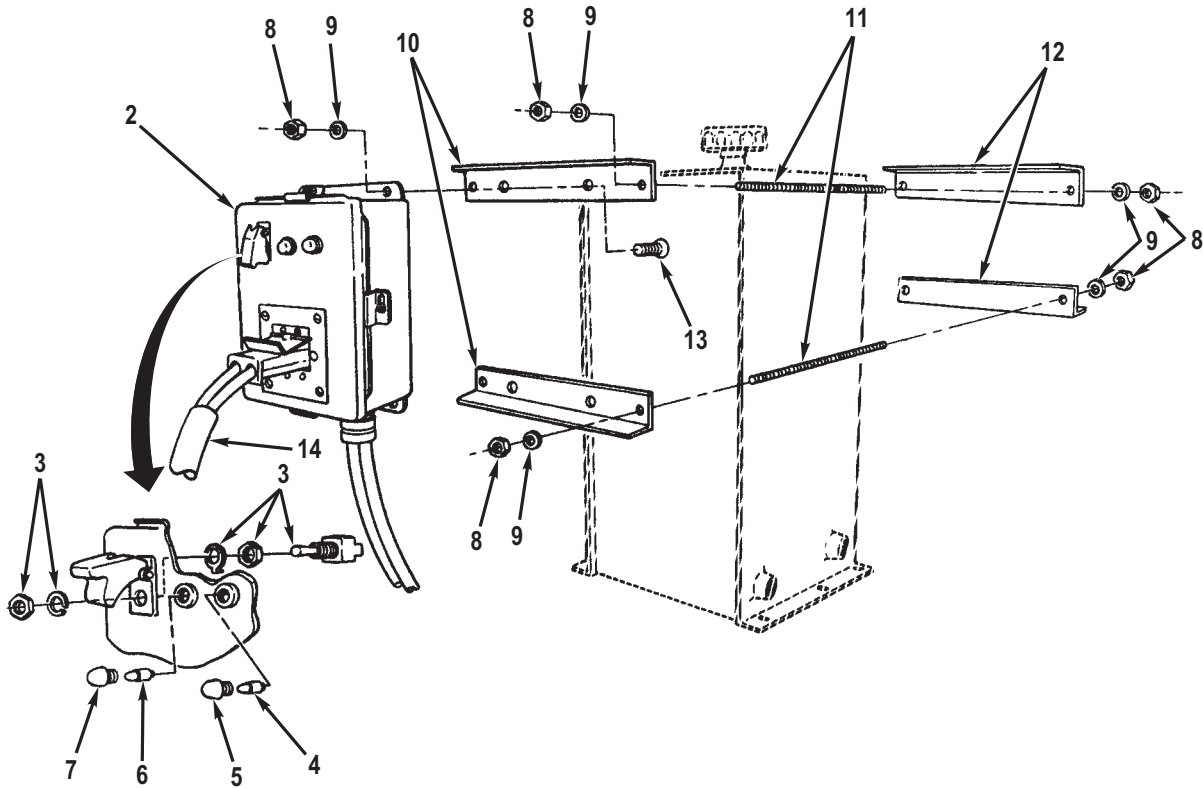
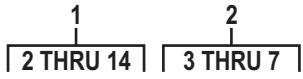
Figure 54. Side Lift Kit Lift Cylinder.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 3307 SPECIAL PURPOSE KITS | | | | | | |
| FIG. 54. SIDE LIFT KIT LIFT CYLINDER. | | | | | | |
| 1 | PFHZZ | 3040-01-420-9855 | 1NHH8 | 8D00193-1 | . CYLINDER ASSEMBLY,A PART OF SIDE LIFT KIT FIGURE 50 ITEM 1 | 4 |
| 2 | PAHZZ | 3040-01-501-4388 | 1NHH8 | 8D00234-5 | . . PISTON LINEAR ACTUA | 1 |
| 3 | KFFZZ | | 21439 | 8D00234-34 | . . WIPER PART OF KIT P/N 8D00234-37 | 1 |
| 4 | PFHZZ | 5342-01-426-8904 | 21439 | 8D00234-13 | . . CAP,FILLER OPENING | 1 |
| 5 | PAHZZ | 5340-01-501-3408 | 1NHH8 | 8D00234-16 | . . LOCK NYLON | 2 |
| 6 | PFHZZ | 5305-01-417-1542 | 21439 | 8D00234-15 | . . SETSCREW | 2 |
| 7 | KFFZZ | | 21439 | 8D00234-24 | . . PACKING SET PART OF KIT P/N 8D00234-37 | 1 |
| 8 | PFHZZ | 3040-01-418-3102 | 1NHH8 | 8D00234-22 | . . RING,ROD,PISTON | 1 |
| 9 | PFHZZ | 5325-01-405-9921 | 21439 | 8D00234-17 | . . RING,RETAINING | 1 |
| 10 | PFHZZ | 5340-01-466-3781 | 21439 | 8D00234-10 | . . STOP MECHANICAL | 1 |
| 11 | PFHZZ | 3040-01-418-3031 | 1NHH8 | 8D00234-23 | . . RING,ROD,PISTON | 1 |
| 12 | KFFZZ | | 21439 | 8D00234-26 | . . O-RING PART OF KIT P/N 8D00234-37 | 2 |
| 13 | PFHZZ | 3040-01-429-3287 | 1NHH8 | 8D00234-6 | . . ROD,PISTON,LINEAR A | 1 |
| 14 | KFFZZ | | 21439 | 8D00234-27 | . . O-RING PART OF KIT P/N 8D00234-37 | 1 |
| 15 | KFFZZ | | 21439 | 8D00234-33 | . . WASHER,BACK-UP PART OF KIT P/N 8D00234-37 | 2 |
| 16 | KFFZZ | | 21439 | 8D00234-32 | . . WASHER,BACK-UP PART OF KIT P/N 8D00234-37 | 4 |
| 17 | PFHZZ | 5325-01-416-9990 | 21439 | 8D00234-11 | . . RING,RETAINING | 1 |
| 18 | PFHZZ | 5325-01-416-9993 | 1NHH8 | 8D00234-18 | . . RING,RETAINING | 1 |
| 19 | XDHZZ | | 1NHH8 | 8D00234-20 | . . RING,RETAINING | 1 |
| 20 | KFFZZ | | 21439 | 8D00234-25 | . . PACKING SET PART OF KIT P/N 8D00234-37 | 1 |
| 21 | PFHZZ | 3040-01-501-4407 | 1NHH8 | 8D00234-12 | . . GLAND CYLINDER | 1 |
| 22 | XDHZZ | | 21439 | 8D00234-44 | . . T-SEAL | 1 |
| 23 | XDHZZ | | 21439 | 8D00234-42 | . . BUSHING,SLEEVE | 1 |
| 24 | KFFZZ | | 21439 | 8D00234-35 | . . WIPER RING PART OF KIT P/N 8D00234-37 | 1 |
| 25 | KFFZZ | | 21439 | 8D00234-30 | . . BEARING RING PART OF KIT P/N 8D00234-37 | 2 |
| 26 | KFFZZ | | 21439 | 8D00234-29 | . . RING,PISTON PART OF KIT P/N 8D00234-37 | 3 |
| 27 | PAHZZ | 3040-01-465-1259 | 29260 | 071700117 | . . PISTON,LINEAR ACTUA | 1 |

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|---|------------|
| 28 | PAHZZ | 5330-01-501-3129 | 1NHH8 | 8D00234-38 | . . RETAINER,SEAL | 1 |
| 29 | PFHZZ | 3040-01-418-1846 | 1NHH8 | 8D00234-21 | . . RING,ROD,PISTON | 1 |
| 30 | PFHZZ | 3040-01-429-3289 | 1NHH8 | 8D00234-4 | . . CYLINDER,ACTUATING, | 1 |
| 31 | KFFZZ | | 21439 | 8D00234-9 | . . PISTON,LINEAR ACTUA PART OF KIT P/N 8D00234-37 | 1 |
| 32 | KFFZZ | | 21439 | 8D00234-31 | . . BEARING RING PART OF KIT P/N 8D00234-37 | 2 |
| 33 | KFFZZ | | 21439 | 8D00234-28 | . . RING,PISTON PART OF KIT P/N 8D00234-37 | 3 |
| 34 | PFHZZ | 3040-01-418-4576 | 21439 | 8D00234-7 | . . CYLINDER,ACTUATING, | 1 |
| 35 | PFFZZ | 4820-01-418-5573 | 1NHH8 | 8D00234-39 | . . VALVE,BLEEDER,HYDRA | 1 |
| 36 | PAFZZ | 4820-01-418-0937 | 1NHH8 | POCI-10-N-0-XX | . . VALVE,CHECK | 1 |

END OF FIGURE

**FIELD MAINTENANCE
COLD START KIT**



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Figure 55. Cold Start Kit.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 3307 SPECIAL PURPOSE KITS | | | | | | |
| FIG. 55. COLD START KIT. | | | | | | |
| 1 | PDFZA | 6110-01-466-6395 | 1NHH8 | 8D00350-1 | DISTRIBUTION BOX | 1 |
| 2 | PAFZZ | 5930-01-467-2945 | 21439 | 8D00346-1 | . SWITCH,BOX | 1 |
| 3 | PAFZZ | 5930-00-683-1628 | 96906 | MS24523-22 | . . SWITCH,TOGGLE | 1 |
| 4 | PAFZZ | 6240-00-965-1381 | 55335 | 382 | . . LAMP,INCANDESCENT | 1 |
| 5 | PAFZZ | 6210-01-003-4277 | 81349 | LH89/1-LC35GN2 | . . LIGHT,INDICATOR | 1 |
| 6 | XDFZZ | | F0022 | 327 | . . LAMP | 1 |
| 7 | PAFZA | 6210-01-218-4050 | 83330 | 367-8430-0931-503 | . . LIGHT,PANEL | 1 |
| 8 | PAFZZ | 5310-00-088-1251 | 81349 | M45913/1-4CG5C | . NUT,SELF-LOCKING,HE | 12 |
| 9 | PAFZZ | 5310-00-809-4058 | 96906 | MS27183-10 | . WASHER,FLAT | 12 |
| 10 | PAFZZ | 5340-01-438-1615 | 21439 | 8D00347-1 | . BRACKET,ANGLE | 2 |
| 11 | PAFZZ | 5340-01-438-7023 | 21439 | 8D00350-6 | . ROD END,THREADED | 4 |
| 12 | PAFZA | 5340-01-438-7485 | 21439 | 8D00347-2 | . BRACKET,MOUNTING | 2 |
| 13 | PAFZZ | 5305-01-412-0890 | 96906 | MS24693-95 | . SCREW,MACHINE | 4 |
| 14 | PAFZA | 6150-01-466-9167 | 21439 | 8D00362-1 | . JUMPER CABLE,BATTER | 1 |

END OF FIGURE

**FIELD MAINTENANCE
HARDWARE SUPPLIES AND BULK MATERIAL, COMMON**

FIGURE ILLUSTRATION NOT REQUIRED

Figure BULK. Hardware Supplies and Bulk Material, Common.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|---|------------|
| 1 | PAFZZ | 9505-00-221-2650 | 80205 | MS20995C20 | GROUP 9501 HARDWARE SUPPLIES AND BULK MATERIAL, COMMON FIG. BULK. HARDWARE SUPPLIES AND BULK MATERIAL, COMMON. WIRE,NONELECTRICAL | 1 |

END OF FIGURE

**FIELD MAINTENANCE
REPAIR KITS**

FIGURE ILLUSTRATION NOT REQUIRED

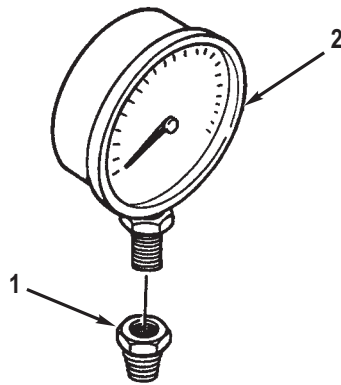
Figure KITS. Repair Kits.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 9401 REPAIR KITS | | | | | | |
| FIG. KITS. REPAIR KITS. | | | | | | |
| 1 | PCFZZ | 5330-01-498-1120 | 1NHH8 | 8D00051-17 | PARTS KIT,SEAL REPL (WIPE 31-4 R,ROD 1) (1) 31-5 SEAL,BACKUP (1) 31-8 PACKING, PERFORMED (1) 31-9 RING,WEAR (2) 31-10 SEAL,PISTON (1) 31-12 PACKING, PERFORMED (1) 31-13 | 1 |
| 2 | PCFZZ | 3950-01-501-4397 | 1NHH8 | 8D00152-21 | PARTS KIT,LINEAR AC WIPER,ROD (1) 32-3 SEAL,ROD (1) 32-4 PACKING, PERFORMED (1) 32-7 SEAL,BACKUP (1) 32-8 RING,WEAR (2) 32-10 PACKING, PERFORMED (1) 32-12 PACKING, PERFORMED (1) 32-13 SEAL,PISTON (1) 32-14 ROD ASSY (1) 32-16 | 1 |
| 3 | PCFZZ | 5330-01-393-4783 | 1NHH8 | 8D00196-86 | PARTS KIT,SEAL REPL PACKING, PERFORMED (1) 29-10 PACKING, PERFORMED (4) 29-11 | 1 |
| 4 | PFFZZ | 3040-01-393-7546 | 1NHH8 | 8D00196-89 | PARTS KIT,LINEAR AC PIN,CLEVIS (6) 29-4 LINK (3) 29-5 ADAPTER,SPOOL (1) 29-6 END PIN,CLEVIS (3) 29-7 PIN,COTTER (9) 29-8 SCREW,CAP (2) 29-9 HANDLE (3) 29-16 KNOB,HANDLE (3) 29-17 CLEVIS (3) 29-18 | 1 |

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|--------------------|-----------------|------------------|--------------|--------------------|--|------------|
| 5 | PCFZZ | 5330-01-408-0885 | 21439 | 8D00234-37 | PARTS KIT,SEAL REPL | 1 |
| | | | | | WIPER (1) 54-3 | |
| | | | | | PACKING SET (1) 54-7 | |
| | | | | | O-RING (2) 54-12 | |
| | | | | | O-RING (1) 54-14 | |
| | | | | | WASHER,BACK-UP (2) 54-15 | |
| | | | | | WASHER,BACK-UP (4) 54-16 | |
| | | | | | PACKING SET (1) 54-20 | |
| | | | | | WIPER RING (1) 54-24 | |
| | | | | | BEARING RING (2) 54-25 | |
| | | | | | RING,PISTON (3) 54-26 | |
| | | | | | PISTON,LINEAR (1) 54-31 | |
| | | | | | ACTUA | |
| | | | | | BEARING RING (2) 54-32 | |
| | | | | | RING,PISTON (3) 54-33 | |
| 6 | PCFZZ | 5330-01-566-4193 | 21439 | 8D00235-25 | GASKET AMD PREFORME | 1 |
| | | | | | WIPER,ROD (1) 53-3 | |
| | | | | | SEAL,BACKUP (1) 53-4 | |
| | | | | | O-RING (1) 53-5 | |
| | | | | | O-RING (1) 53-8 | |
| | | | | | O-RING (1) 53-9 | |
| | | | | | RING,WEAR (2) 53-10 | |
| | | | | | O-RING (1) 53-12 | |
| | | | | | SEAL,PISTON (1) 53-13 | |

END OF FIGURE

**FIELD MAINTENANCE
SPECIAL TOOLS**



R0057JMS

Figure 56. Special Tools.

| (1) ITEM NO. | (2) SMR CODE | (3) NSN | (4) CAGEC | (5) PART NUMBER | (6) DESCRIPTION AND USABLE ON CODE (UOC) | (7) QTY |
|---------------------------------|-----------------|------------------|--------------|--------------------|--|------------|
| GROUP 2604 SPECIAL TOOLS | | | | | | |
| FIG. 56. SPECIAL TOOLS. | | | | | | |
| 1 | PEFZA | 4730-00-222-0135 | 10001 | 2256784PC3 | ADAPTER,STRAIGHT,PI | 1 |
| 2 | PEFZZ | 6685-01-373-7976 | 61349 | 356021 | GAGE,PRESSURE,DIAL | 1 |

END OF FIGURE

**FIELD MAINTENANCE
NATIONAL STOCK NUMBER INDEX**

| STOCK NUMBER | FIG. | ITEM | STOCK NUMBER | FIG. | ITEM |
|------------------|------|------|------------------|------|------|
| - | 5 | 12 | 5975-00-074-2072 | 1 | 14 |
| | 27 | 21 | | 2 | 25 |
| | 47 | 3 | | 3 | 22 |
| 4730-00-011-3176 | 13 | 17 | 5310-00-080-6004 | 20 | 72 |
| | 16 | 12 | 4730-00-080-7040 | 30 | 5 |
| 2610-00-029-0563 | 18 | 3 | 5310-00-087-4652 | 13 | 24 |
| 5305-00-044-4153 | 22 | 3 | | 14 | 1 |
| 5310-00-044-6477 | 20 | 63 | | 15 | 20 |
| | 34 | 6 | | 20 | 26 |
| | 35 | 7 | | 20 | 46 |
| 5310-00-045-3296 | 15 | 14 | | 20 | 71 |
| 5310-00-045-3299 | 9 | 20 | | 21 | 3 |
| | 20 | 17 | | 35 | 11 |
| | 50 | 20 | | 51 | 9 |
| 5305-00-050-9231 | 15 | 15 | 5310-00-088-1251 | 7 | 5 |
| 5305-00-052-6921 | 30 | 26 | | 20 | 66 |
| 5305-00-054-6654 | 6 | 13 | | 25 | 4 |
| 5305-00-054-6655 | 6 | 12 | | 51 | 8 |
| 5305-00-054-6656 | 1 | 18 | | 55 | 8 |
| | 3 | 28 | 5935-00-115-2307 | 5 | 7 |
| 5305-00-054-6659 | 1 | 17 | | 6 | 4 |
| 5305-00-054-6671 | 5 | 14 | 5305-00-115-9526 | 14 | 4 |
| 5305-00-058-1082 | 9 | 21 | | 29 | 20 |
| | 20 | 16 | 5310-00-141-1795 | 7 | 6 |
| | 50 | 19 | | 20 | 67 |
| 5315-00-059-0217 | 33 | 3 | | 30 | 27 |
| | 50 | 16 | | 51 | 7 |
| 5305-00-059-3660 | 5 | 26 | 5310-00-144-8453 | 2 | 8 |
| | 30 | 32 | 5975-00-152-1075 | 2 | 29 |
| 5305-00-059-3661 | 2 | 33 | 6240-00-155-8717 | 4 | 7 |
| | 4 | 8 | | 5 | 20 |
| | 30 | 47 | 5306-00-156-2338 | 3 | 33 |
| 5305-00-059-3676 | 26 | 4 | | 5 | 30 |
| 5305-00-059-3677 | 26 | 6 | 5306-00-156-2339 | 1 | 23 |
| 5305-00-059-5432 | 26 | 4 | 5310-00-167-0766 | 51 | 4 |
| 5305-00-068-0500 | 2 | 15 | 5310-00-167-0820 | 16 | 5 |
| 5305-00-068-0501 | 1 | 11 | | 20 | 55 |
| | 3 | 21 | | 34 | 4 |
| 5305-00-068-0502 | 2 | 12 | 5310-00-167-0821 | 13 | 23 |
| | 3 | 15 | | 14 | 2 |
| 5305-00-068-0508 | 9 | 10 | | 15 | 19 |
| | 11 | 11 | | 20 | 27 |
| 5305-00-068-0511 | 28 | 11 | | 20 | 47 |
| 5306-00-068-0513 | 17 | 2 | | 35 | 10 |
| 4730-00-068-8656 | 13 | 12 | | 51 | 10 |
| 5305-00-071-2078 | 23 | 1 | 5310-00-167-0823 | 20 | 7 |
| 5305-00-071-2505 | 20 | 73 | 5310-00-167-0825 | 20 | 10 |
| | 51 | 5 | 5310-00-167-0828 | 24 | 7 |

| STOCK NUMBER | FIG. | ITEM | STOCK NUMBER | FIG. | ITEM |
|------------------|------|------|------------------|------|------|
| | 33 | 5 | 4730-00-287-3281 | 15 | 13 |
| 5310-00-167-1304 | 20 | 4 | 4730-00-287-4852 | 13 | 3 |
| 5935-00-167-7775 | 4 | 3 | | 16 | 14 |
| | 5 | 22 | 3110-00-293-8998 | 17 | 9 |
| 5330-00-171-8363 | 25 | 3 | 2530-00-359-1518 | 19 | 16 |
| 5330-00-172-1919 | 13 | 2 | 5940-00-399-6676 | 4 | 6 |
| | 13 | 29 | | 5 | 10 |
| | 14 | 12 | | 5 | 25 |
| | 14 | 14 | | 6 | 7 |
| 5340-00-200-3045 | 30 | 46 | 4730-00-407-0571 | 14 | 6 |
| 5340-00-200-8559 | 2 | 32 | | 16 | 13 |
| 9905-00-202-3639 | 26 | 3 | 5310-00-407-9566 | 28 | 12 |
| 9905-00-205-2795 | 26 | 7 | 5305-00-411-0682 | 3 | 27 |
| 5310-00-208-9255 | 2 | 30 | 4730-00-427-5121 | 13 | 32 |
| | 4 | 11 | | 14 | 7 |
| | 5 | 29 | | 15 | 30 |
| | 30 | 35 | 4730-00-432-7713 | 30 | 40 |
| 5310-00-209-0788 | 1 | 16 | 5310-00-449-2376 | 20 | 74 |
| | 3 | 26 | 4730-00-469-7797 | 13 | 5 |
| 9505-00-221-2650 | BULK | 1 | 4730-00-511-1677 | 13 | 4 |
| 4730-00-222-0135 | 56 | 1 | 5310-00-515-8058 | 22 | 7 |
| 4730-00-225-0699 | 30 | 22 | 5330-00-526-5783 | 28 | 2 |
| 5305-00-225-3843 | 7 | 8 | 5340-00-531-6857 | 30 | 30 |
| | 25 | 2 | 5310-00-543-2739 | 5 | 13 |
| 5310-00-225-6993 | 23 | 6 | 5310-00-543-5933 | 4 | 9 |
| | 24 | 2 | | 5 | 27 |
| 5306-00-225-8498 | 20 | 58 | 2640-00-555-2824 | 18 | 4 |
| 5306-00-225-8499 | 16 | 6 | 5310-00-582-5677 | 25 | 5 |
| | 34 | 8 | 5310-00-582-5965 | 1 | 12 |
| 5306-00-226-4825 | 28 | 13 | | 2 | 17 |
| | 34 | 3 | | 3 | 23 |
| | 35 | 8 | 5310-00-584-5272 | 22 | 2 |
| 5306-00-226-4834 | 35 | 9 | 3010-00-585-4215 | 28 | 7 |
| 5315-00-234-1664 | 24 | 8 | 4730-00-595-0083 | 13 | 1 |
| | 33 | 6 | | 13 | 28 |
| 5315-00-234-1673 | 20 | 36 | | 14 | 11 |
| 4730-00-249-9714 | 13 | 10 | | 14 | 13 |
| 5305-00-269-3211 | 13 | 22 | | 16 | 8 |
| | 15 | 18 | | 16 | 9 |
| | 20 | 61 | 4730-00-595-0251 | 15 | 10 |
| | 20 | 68 | 4730-00-595-3108 | 16 | 2 |
| | 21 | 1 | 2530-00-603-5768 | 17 | 16 |
| 5305-00-269-3217 | 20 | 48 | 5310-00-615-1556 | 2 | 31 |
| 5305-00-269-3219 | 20 | 64 | | 4 | 10 |
| 5310-00-269-4040 | 20 | 9 | | 5 | 28 |
| 5310-00-274-8715 | 17 | 3 | | 30 | 49 |
| 4730-00-277-5056 | 30 | 36 | 5310-00-616-1124 | 33 | 2 |
| 4730-00-277-7331 | 16 | 18 | 5310-00-616-3555 | 6 | 9 |
| 4730-00-277-8257 | 15 | 3 | 4730-00-618-5372 | 30 | 6 |
| 4730-00-278-4822 | 13 | 18 | 4730-00-618-5381 | 30 | 12 |
| | 15 | 21 | 5310-00-637-9541 | 28 | 10 |
| 5310-00-282-6903 | 50 | 17 | | 29 | 19 |
| 5310-00-285-8124 | 7 | 7 | 5975-00-642-7261 | 3 | 29 |

| STOCK NUMBER | FIG. | ITEM | STOCK NUMBER | FIG. | ITEM |
|------------------|------|------|------------------|------|------|
| 5975-00-660-5962 | 5 | 8 | 5925-00-900-1903 | 2 | 9 |
| | 6 | 5 | 5310-00-902-0423 | 20 | 37 |
| 5930-00-683-1628 | 55 | 3 | 4730-00-903-7652 | 30 | 4 |
| 5310-00-722-5998 | 1 | 6 | 4730-00-933-0727 | 30 | 18 |
| | 3 | 13 | 5310-00-934-9761 | 1 | 15 |
| | 6 | 10 | | 3 | 25 |
| 5305-00-726-2551 | 12 | 18 | 5310-00-934-9764 | 2 | 7 |
| 5310-00-732-0558 | 2 | 27 | 6240-00-965-1381 | 55 | 4 |
| 2530-00-738-9061 | 17 | 18 | 5310-00-982-6813 | 1 | 7 |
| 5310-00-765-3197 | 2 | 4 | | 3 | 14 |
| 5310-00-767-9425 | 23 | 7 | | 6 | 11 |
| 5310-00-773-7618 | 20 | 62 | 5310-00-982-6814 | 5 | 16 |
| | 21 | 4 | 5310-00-984-3806 | 16 | 7 |
| 5331-00-804-5695 | 30 | 17 | | 20 | 56 |
| 5331-00-808-0794 | 30 | 3 | | 34 | 7 |
| | 49 | 4 | | 35 | 6 |
| | 49 | 14 | 5305-00-984-6195 | 22 | 9 |
| 5310-00-809-4058 | 55 | 9 | 5305-00-984-6214 | 2 | 5 |
| 5310-00-809-8546 | 2 | 6 | 5975-00-985-6630 | 28 | 4 |
| 4730-00-810-0059 | 15 | 12 | | 30 | 37 |
| 5310-00-811-3494 | 22 | 6 | 5310-00-997-1888 | 1 | 13 |
| 5310-00-820-6653 | 12 | 17 | | 2 | 18 |
| 5305-00-821-3869 | 35 | 3 | | 3 | 24 |
| 4730-00-822-5609 | 30 | 9 | 9905-00-999-7369 | 27 | 8 |
| 5310-00-832-9719 | 24 | 5 | 9905-00-999-7370 | 27 | 9 |
| 5935-00-833-8561 | 4 | 4 | 6210-01-003-4277 | 55 | 5 |
| | 5 | 23 | 5315-01-054-8531 | 20 | 19 |
| 5970-00-833-8562 | 4 | 5 | 6220-01-085-3391 | 6 | 8 |
| | 5 | 9 | 6220-01-088-5915 | 5 | 17 |
| | 5 | 24 | 2640-01-093-2842 | 18 | 4 |
| | 6 | 6 | 2530-01-095-3561 | 15 | 26 |
| 2540-00-835-9039 | 22 | 1 | 5995-01-096-0733 | 6 | 2 |
| 5315-00-839-5821 | 33 | 7 | 5975-01-131-9487 | 2 | 20 |
| 5315-00-842-3044 | 9 | 24 | | 3 | 4 |
| 5935-00-846-3883 | 2 | 16 | 4730-01-156-4835 | 30 | 21 |
| | 3 | 19 | | 49 | 5 |
| 5935-00-846-3884 | 1 | 9 | | 49 | 15 |
| 5310-00-850-6881 | 9 | 6 | 5975-01-166-1786 | 3 | 8 |
| | 11 | 5 | 4730-01-169-7629 | 30 | 16 |
| 5305-00-855-0960 | 9 | 7 | 5315-01-171-0750 | 20 | 24 |
| | 11 | 3 | 4730-01-195-7331 | 30 | 15 |
| 5305-00-858-5558 | 20 | 15 | 5975-01-207-0229 | 1 | 19 |
| 4730-00-861-8572 | 30 | 11 | | 2 | 24 |
| 5310-00-877-5795 | 20 | 8 | 5935-01-211-4434 | 2 | 13 |
| 5310-00-880-5978 | 5 | 15 | 5925-01-214-3228 | 2 | 10 |
| 5305-00-881-0705 | 20 | 2 | 6210-01-218-4050 | 55 | 7 |
| 6240-00-889-1799 | 5 | 5 | 4010-01-226-8812 | 50 | 12 |
| 5310-00-889-2589 | 1 | 21 | 5310-01-267-1685 | 24 | 1 |
| | 3 | 30 | | 33 | 8 |
| | 5 | 31 | 2610-01-281-0675 | 18 | 1 |
| | 26 | 5 | 5340-01-288-3093 | 27 | 14 |
| 5305-00-889-3002 | 2 | 3 | 4730-01-289-9536 | 13 | 13 |
| 5310-00-897-6145 | 26 | 1 | 5310-01-304-8733 | 1 | 22 |

| STOCK NUMBER | FIG. | ITEM | STOCK NUMBER | FIG. | ITEM |
|------------------|------|------|------------------|------|------|
| | 3 | 31 | 5365-01-393-1864 | 41 | 7 |
| | 5 | 32 | 3010-01-393-2160 | 28 | 6 |
| | 26 | 2 | 4720-01-393-2161 | 14 | 5 |
| 5340-01-307-4395 | 30 | 23 | 4730-01-393-2162 | 39 | 9 |
| | 49 | 12 | 4730-01-393-2164 | 38 | 1 |
| 5325-01-317-4273 | 22 | 13 | 6220-01-393-2331 | 5 | 19 |
| 5310-01-320-7060 | 43 | 7 | 6220-01-393-2332 | 5 | 2 |
| | 47 | 7 | 6220-01-393-2333 | 5 | 18 |
| 5331-01-320-9556 | 38 | 9 | 6220-01-393-2335 | 5 | 2 |
| 5310-01-321-3477 | 47 | 8 | 5120-01-393-2582 | 7 | 2 |
| 5975-01-321-7295 | 1 | 10 | 5340-01-393-2609 | 17 | 4 |
| | 2 | 14 | 2510-01-393-2666 | 20 | 1 |
| | 3 | 20 | 2530-01-393-2672 | 10 | 1 |
| 2530-01-329-7523 | 17 | 16 | 2530-01-393-2675 | 10 | 1 |
| 4730-01-334-5710 | 30 | 25 | 5340-01-393-2859 | 39 | 6 |
| 6140-01-337-0210 | 7 | 4 | 5340-01-393-2860 | 41 | 2 |
| 5940-01-346-1336 | 1 | 4 | 5331-01-393-2861 | 37 | 8 |
| | 3 | 11 | | 38 | 5 |
| 5340-01-356-5057 | 30 | 1 | 5331-01-393-2862 | 39 | 15 |
| | 49 | 7 | 5340-01-393-2863 | 43 | 1 |
| 5975-01-356-6962 | 27 | 14 | 5330-01-393-2864 | 43 | 6 |
| 5315-01-359-1451 | 9 | 26 | 5340-01-393-2865 | 44 | 2 |
| 4730-01-359-4772 | 41 | 18 | 5340-01-393-2866 | 44 | 4 |
| 4730-01-359-4773 | 39 | 2 | 5340-01-393-2867 | 2 | 2 |
| 6685-01-373-7976 | 56 | 2 | 5340-01-393-2868 | 46 | 1 |
| 4730-01-385-6972 | 13 | 30 | 5342-01-393-2869 | 37 | 9 |
| | 15 | 24 | 5340-01-393-2870 | 41 | 3 |
| 5360-01-388-5783 | 13 | 31 | 5340-01-393-2871 | 42 | 1 |
| | 15 | 23 | 5342-01-393-2872 | 41 | 11 |
| 5315-01-392-8539 | 24 | 9 | 5340-01-393-2873 | 44 | 3 |
| 5315-01-392-8542 | 24 | 11 | 5331-01-393-2874 | 40 | 3 |
| 5315-01-392-9391 | 33 | 9 | 5340-01-393-2876 | 37 | 6 |
| 5315-01-392-9393 | 24 | 11 | 5342-01-393-2877 | 35 | 4 |
| 5315-01-392-9394 | 33 | 4 | 5340-01-393-2878 | 10 | 2 |
| 5315-01-392-9395 | 20 | 39 | 5306-01-393-3741 | 9 | 12 |
| 5315-01-392-9397 | 20 | 23 | | 11 | 6 |
| | 33 | 1 | 5307-01-393-3742 | 9 | 17 |
| 4030-01-393-0836 | 12 | 7 | 5330-01-393-3744 | 37 | 7 |
| 5315-01-393-0837 | 10 | 4 | 6220-01-393-4019 | 5 | 18 |
| 5315-01-393-0838 | 19 | 4 | 6680-01-393-4020 | 38 | 6 |
| 5360-01-393-0839 | 12 | 11 | 6680-01-393-4021 | 41 | 14 |
| 5365-01-393-0840 | 10 | 3 | 6220-01-393-4024 | 4 | 1 |
| 5365-01-393-0841 | 20 | 6 | 2530-01-393-4548 | 13 | 11 |
| 5320-01-393-0842 | 20 | 34 | 4820-01-393-4549 | 13 | 9 |
| 5340-01-393-1315 | 23 | 2 | 2920-01-393-4550 | 47 | 9 |
| 5315-01-393-1316 | 36 | 1 | 4820-01-393-4551 | 15 | 11 |
| 5315-01-393-1318 | 19 | 3 | 4820-01-393-4552 | 16 | 15 |
| 5315-01-393-1319 | 22 | 12 | 4820-01-393-4553 | 13 | 20 |
| 5365-01-393-1857 | 39 | 11 | | 15 | 7 |
| 5365-01-393-1858 | 41 | 17 | 4820-01-393-4555 | 13 | 27 |
| 5365-01-393-1859 | 38 | 7 | | 15 | 22 |
| 5340-01-393-1860 | 35 | 2 | 4720-01-393-4572 | 30 | 8 |
| 5340-01-393-1862 | 20 | 70 | 4720-01-393-4575 | 30 | 7 |

| STOCK NUMBER | FIG. | ITEM | STOCK NUMBER | FIG. | ITEM |
|------------------|------|------|------------------|------|------|
| 4720-01-393-4576 | 30 | 13 | 2910-01-393-5246 | 41 | 12 |
| 4720-01-393-4577 | 30 | 10 | 2990-01-393-5247 | 43 | 3 |
| 4720-01-393-4578 | 15 | 4 | 2910-01-393-5249 | 41 | 10 |
| 4720-01-393-4579 | 15 | 8 | 4720-01-393-5250 | 14 | 15 |
| 4720-01-393-4580 | 16 | 16 | 3040-01-393-5251 | 20 | 52 |
| 4720-01-393-4581 | 30 | 41 | 4720-01-393-5252 | 14 | 10 |
| 5930-01-393-4710 | 47 | 1 | 2910-01-393-5254 | 41 | 20 |
| 5330-01-393-4783 | KITS | 3 | 4820-01-393-5255 | 15 | 1 |
| 5306-01-393-4847 | 39 | 12 | 2530-01-393-5256 | 15 | 17 |
| | 40 | 9 | 4720-01-393-5257 | 14 | 9 |
| | 41 | 6 | 3040-01-393-5258 | 20 | 52 |
| | 43 | 4 | 2510-01-393-5259 | 24 | 10 |
| | 46 | 2 | 2920-01-393-5268 | 45 | 2 |
| 5306-01-393-4849 | 41 | 5 | 2530-01-393-5270 | 10 | 5 |
| 5305-01-393-4850 | 41 | 9 | 2530-01-393-5271 | 17 | 12 |
| 5307-01-393-4851 | 43 | 5 | 2590-01-393-5273 | 20 | 54 |
| 5306-01-393-4853 | 42 | 3 | 4820-01-393-5274 | 29 | 3 |
| 5307-01-393-4854 | 39 | 7 | 3040-01-393-5275 | 9 | 25 |
| 5330-01-393-4855 | 1 | 20 | 4720-01-393-5277 | 30 | 19 |
| | 2 | 26 | 4720-01-393-5278 | 30 | 14 |
| | 3 | 3 | 2530-01-393-5279 | 15 | 25 |
| 5305-01-393-4856 | 40 | 8 | 5330-01-393-5637 | 2 | 19 |
| 5306-01-393-4857 | 42 | 4 | | 3 | 9 |
| | 44 | 1 | 5330-01-393-5638 | 40 | 10 |
| | 47 | 5 | 5331-01-393-5639 | 38 | 8 |
| 5305-01-393-4859 | 37 | 3 | | 41 | 16 |
| | 47 | 10 | 5306-01-393-5641 | 12 | 3 |
| 5305-01-393-4860 | 43 | 2 | 5307-01-393-5642 | 9 | 23 |
| 5306-01-393-4861 | 48 | 1 | 5310-01-393-5643 | 12 | 8 |
| 5306-01-393-4862 | 37 | 4 | 5310-01-393-5644 | 19 | 13 |
| 5306-01-393-4864 | 37 | 5 | 5305-01-393-5645 | 12 | 14 |
| 5340-01-393-4865 | 20 | 69 | 5310-01-393-5646 | 12 | 16 |
| 5331-01-393-4866 | 12 | 9 | 5310-01-393-5647 | 17 | 8 |
| 2510-01-393-5087 | 20 | 12 | 5310-01-393-5648 | 17 | 7 |
| 2510-01-393-5091 | 20 | 75 | 5310-01-393-5649 | 19 | 15 |
| 6150-01-393-5104 | 48 | 3 | 5340-01-393-5650 | 20 | 65 |
| 6150-01-393-5107 | 2 | 22 | 5307-01-393-5652 | 17 | 14 |
| 6150-01-393-5109 | 3 | 6 | 5310-01-393-5653 | 17 | 11 |
| 6150-01-393-5110 | 3 | 5 | 2510-01-393-5744 | 20 | 38 |
| 6220-01-393-5111 | 21 | 2 | 4710-01-393-5867 | 41 | 19 |
| 6150-01-393-5112 | 8 | 1 | 2510-01-393-5868 | 20 | 38 |
| 6150-01-393-5113 | 8 | 3 | 2920-01-393-5869 | 47 | 4 |
| 6150-01-393-5114 | 2 | 23 | 2510-01-393-5870 | 20 | 1 |
| 6150-01-393-5115 | 47 | 6 | 2590-01-393-5871 | 20 | 13 |
| 6150-01-393-5118 | 8 | 2 | 4710-01-393-5872 | 39 | 14 |
| 2510-01-393-5168 | 20 | 60 | 2590-01-393-5873 | 20 | 3 |
| 2530-01-393-5169 | 9 | 1 | 4940-01-393-5874 | 3 | 2 |
| 2530-01-393-5173 | 19 | 20 | 2530-01-393-5875 | 11 | 1 |
| 3040-01-393-5240 | 20 | 52 | 2530-01-393-5876 | 12 | 12 |
| 4710-01-393-5241 | 38 | 2 | 2530-01-393-5877 | 13 | 26 |
| 3040-01-393-5243 | 20 | 52 | 2530-01-393-5878 | 29 | 2 |
| 4710-01-393-5244 | 39 | 3 | 2530-01-393-5879 | 12 | 2 |
| 4710-01-393-5245 | 38 | 4 | 4720-01-393-5880 | 30 | 42 |

| STOCK NUMBER | FIG. | ITEM | STOCK NUMBER | FIG. | ITEM |
|------------------|------|------|------------------|------|------|
| 2530-01-393-5881 | 12 | 10 | 3040-01-393-7546 | KITS | 4 |
| 4720-01-393-5884 | 30 | 44 | 2540-01-393-7972 | 23 | 4 |
| 4720-01-393-5886 | 30 | 43 | 3040-01-393-7983 | 32 | 1 |
| 6150-01-393-6171 | 1 | 8 | 5325-01-393-8382 | 41 | 1 |
| 6150-01-393-6172 | 3 | 18 | 6110-01-393-8897 | 3 | 1 |
| 6150-01-393-6173 | 3 | 7 | 6110-01-393-8898 | 1 | 1 |
| 6150-01-393-6208 | 3 | 17 | 5340-01-393-9366 | 20 | 35 |
| 5342-01-393-6306 | 38 | 11 | 4320-01-393-9843 | 28 | 1 |
| 5340-01-393-6307 | 39 | 4 | 4320-01-393-9844 | 34 | 1 |
| 5340-01-393-6308 | 39 | 13 | 2815-01-393-9846 | 35 | 1 |
| 5340-01-393-6309 | 12 | 15 | 5340-01-394-0005 | 23 | 5 |
| 5340-01-393-6310 | 47 | 2 | 4820-01-394-0480 | 29 | 12 |
| 5310-01-393-6312 | 12 | 13 | 4820-01-394-0541 | 29 | 13 |
| 5310-01-393-6313 | 19 | 1 | 5140-01-394-2021 | 25 | 1 |
| 5307-01-393-6314 | 17 | 14 | 5935-01-394-2106 | 3 | 16 |
| 5340-01-393-6315 | 12 | 5 | 5310-01-394-2370 | 17 | 11 |
| 5310-01-393-6316 | 12 | 4 | 4730-01-394-3739 | 41 | 13 |
| 4820-01-393-6363 | 29 | 15 | 4710-01-394-4779 | 20 | 49 |
| 2510-01-393-6526 | 24 | 3 | 4710-01-394-4780 | 20 | 33 |
| 5310-01-393-6776 | 41 | 8 | 3120-01-394-7284 | 20 | 5 |
| 5310-01-393-6777 | 9 | 15 | 5315-01-394-7521 | 20 | 59 |
| 5310-01-393-6779 | 40 | 7 | 5315-01-394-7522 | 20 | 31 |
| 5310-01-393-6780 | 41 | 4 | 5315-01-394-7523 | 20 | 22 |
| 5310-01-393-6781 | 39 | 5 | 3110-01-394-7718 | 17 | 10 |
| 5310-01-393-6782 | 36 | 3 | 9905-01-394-9841 | 27 | 4 |
| 5310-01-393-6783 | 35 | 5 | 9905-01-394-9843 | 27 | 3 |
| 5340-01-393-6784 | 12 | 6 | 9905-01-394-9845 | 27 | 2 |
| 5310-01-393-6785 | 36 | 4 | 9905-01-394-9849 | 27 | 17 |
| 5340-01-393-6786 | 20 | 49 | 9905-01-394-9851 | 27 | 20 |
| 5340-01-393-6788 | 21 | 6 | 9905-01-394-9853 | 27 | 5 |
| 5340-01-393-7079 | 20 | 57 | 9905-01-394-9856 | 27 | 18 |
| 5306-01-393-7080 | 39 | 8 | 5340-01-395-0121 | 47 | 12 |
| | 45 | 3 | | 48 | 2 |
| | 46 | 4 | 4820-01-395-0406 | 39 | 1 |
| 5310-01-393-7081 | 9 | 9 | 5305-01-395-0884 | 9 | 27 |
| | 11 | 12 | 9905-01-395-2087 | 42 | 2 |
| 5340-01-393-7082 | 21 | 5 | 9905-01-395-2088 | 27 | 6 |
| 5340-01-393-7083 | 20 | 32 | 9905-01-395-2089 | 27 | 1 |
| 2530-01-393-7163 | 14 | 8 | 5340-01-395-2166 | 14 | 3 |
| 3040-01-393-7529 | 31 | 1 | 9905-01-395-2713 | 27 | 13 |
| 2910-01-393-7530 | 38 | 10 | 9905-01-395-4077 | 27 | 19 |
| 2590-01-393-7531 | 20 | 3 | 5310-01-397-1776 | 20 | 11 |
| 2940-01-393-7532 | 40 | 1 | | 24 | 6 |
| 3040-01-393-7533 | 28 | 5 | 5325-01-405-9921 | 54 | 9 |
| 2540-01-393-7534 | 22 | 4 | 4010-01-405-9922 | 50 | 10 |
| 2530-01-393-7535 | 13 | 16 | 4010-01-406-0511 | 9 | 18 |
| | 16 | 1 | 4710-01-406-1921 | 16 | 17 |
| 4710-01-393-7540 | 13 | 21 | 4710-01-406-1922 | 15 | 9 |
| 2815-01-393-7541 | 36 | 2 | 4730-01-406-1923 | 9 | 4 |
| 2530-01-393-7543 | 17 | 15 | | 11 | 7 |
| 2540-01-393-7544 | 9 | 16 | 4720-01-406-1924 | 14 | 16 |
| 2530-01-393-7545 | 19 | 8 | 4710-01-406-1925 | 15 | 16 |
| | 19 | 9 | 4710-01-406-1927 | 16 | 10 |

| STOCK NUMBER | FIG. | ITEM | STOCK NUMBER | FIG. | ITEM |
|------------------|------|------|------------------|------|------|
| 4710-01-406-1928 | 16 | 3 | 2540-01-418-5567 | 20 | 25 |
| 4720-01-406-1934 | 49 | 6 | 2590-01-418-5568 | 50 | 22 |
| | 49 | 11 | 2590-01-418-5571 | 22 | 5 |
| 4720-01-406-1935 | 49 | 2 | 4820-01-418-5573 | 54 | 35 |
| 4720-01-406-1936 | 49 | 10 | 2540-01-418-5575 | 51 | 1 |
| 1730-01-406-2585 | 49 | 1 | 5975-01-418-6041 | 1 | 3 |
| 6150-01-406-2906 | 7 | 3 | 5310-01-418-6243 | 1 | 2 |
| 2590-01-406-3526 | 21 | 6 | | 2 | 28 |
| 6150-01-406-8993 | 7 | 1 | 3990-01-418-8755 | 9 | 19 |
| 5330-01-408-0885 | KITS | 5 | | 20 | 18 |
| 5305-01-412-0890 | 55 | 13 | | 22 | 8 |
| 2910-01-416-6523 | 39 | 10 | 5315-01-419-2308 | 20 | 14 |
| 5315-01-416-8903 | 50 | 15 | 5340-01-419-3838 | 9 | 5 |
| 5315-01-416-8905 | 50 | 23 | | 11 | 2 |
| 5325-01-416-9990 | 54 | 17 | 4820-01-419-4120 | 52 | 1 |
| 5365-01-416-9992 | 33 | 10 | 5310-01-419-5660 | 19 | 10 |
| 5325-01-416-9993 | 54 | 18 | | 19 | 17 |
| 4030-01-416-9994 | 50 | 8 | 1730-01-419-6112 | 37 | 2 |
| 5305-01-417-1542 | 54 | 6 | 4820-01-419-7040 | 29 | 14 |
| 5310-01-417-1543 | 53 | 14 | 4720-01-419-7872 | 30 | 20 |
| 4010-01-417-1547 | 50 | 11 | 9905-01-420-2785 | 50 | 2 |
| 4010-01-417-1548 | 50 | 9 | 5340-01-420-4519 | 37 | 1 |
| 5340-01-417-2483 | 51 | 12 | 3040-01-420-9855 | 54 | 1 |
| 5340-01-417-2485 | 51 | 6 | 9905-01-421-0349 | 50 | 5 |
| 5306-01-417-5740 | 20 | 29 | 9905-01-421-1714 | 27 | 7 |
| 6210-01-417-7034 | 5 | 4 | 9905-01-421-1715 | 49 | 8 |
| 5340-01-417-7276 | 21 | 2 | 9905-01-421-2970 | 50 | 6 |
| 5340-01-417-7277 | 21 | 5 | 3990-01-421-4290 | 25 | 6 |
| 5340-01-417-7278 | 30 | 28 | 4730-01-421-6441 | 19 | 7 |
| 6220-01-417-7414 | 6 | 1 | | 22 | 11 |
| 6150-01-417-8062 | 7 | 1 | | 22 | 15 |
| 5306-01-417-8590 | 51 | 11 | 4820-01-421-8062 | 24 | 4 |
| 3040-01-417-9823 | 53 | 1 | 5310-01-421-9481 | 17 | 6 |
| 7690-01-418-0407 | 4 | 2 | 5340-01-421-9482 | 34 | 5 |
| | 5 | 11 | 2530-01-422-0248 | 28 | 8 |
| | 5 | 21 | 4730-01-422-4155 | 13 | 25 |
| | 6 | 3 | 4730-01-422-4160 | 13 | 14 |
| 5331-01-418-0621 | 17 | 5 | 4730-01-422-5721 | 13 | 15 |
| 3950-01-418-0930 | 50 | 1 | 5306-01-422-5966 | 9 | 2 |
| 4820-01-418-0937 | 31 | 2 | | 11 | 9 |
| | 54 | 36 | 2590-01-422-7462 | 20 | 28 |
| 3040-01-418-1718 | 53 | 7 | 2530-01-422-7473 | 16 | 4 |
| 3040-01-418-1734 | 53 | 11 | 4720-01-422-7846 | 13 | 6 |
| 3040-01-418-1846 | 54 | 29 | 4820-01-423-4847 | 16 | 11 |
| 3040-01-418-3026 | 53 | 15 | 5315-01-424-7838 | 20 | 51 |
| 3040-01-418-3031 | 54 | 11 | 4710-01-424-8106 | 32 | 9 |
| 3040-01-418-3102 | 54 | 8 | 2510-01-426-2443 | 20 | 12 |
| 3940-01-418-3504 | 50 | 25 | 5340-01-426-8784 | 50 | 13 |
| 3040-01-418-4572 | 53 | 2 | 5342-01-426-8904 | 54 | 4 |
| 3040-01-418-4574 | 53 | 6 | 2590-01-428-1697 | 19 | 6 |
| 3040-01-418-4576 | 54 | 34 | | 22 | 14 |
| 5975-01-418-5108 | 3 | 10 | 5315-01-428-5920 | 50 | 18 |
| 4720-01-418-5287 | 30 | 39 | 4720-01-428-9691 | 15 | 2 |

| STOCK NUMBER | FIG. | ITEM | STOCK NUMBER | FIG. | ITEM |
|------------------|------|------|------------------|------|------|
| 4720-01-428-9692 | 14 | 9 | 4730-01-486-6325 | 30 | 5 |
| | 15 | 29 | 5330-01-498-1120 | KITS | 1 |
| 4730-01-429-1321 | 9 | 13 | 5340-01-500-7834 | 30 | 48 |
| 3040-01-429-3287 | 54 | 13 | 5315-01-501-0030 | 19 | 11 |
| 3040-01-429-3289 | 54 | 30 | | 19 | 18 |
| 5310-01-429-5029 | 9 | 14 | 5310-01-501-0294 | 31 | 14 |
| 5315-01-429-7277 | 9 | 22 | 5310-01-501-0296 | 19 | 12 |
| | 20 | 53 | | 19 | 19 |
| | 22 | 10 | 5340-01-501-0306 | 50 | 14 |
| 5310-01-429-8520 | 9 | 11 | 5340-01-501-0309 | 50 | 24 |
| | 11 | 10 | 4710-01-501-2886 | 13 | 19 |
| 5306-01-430-3411 | 19 | 2 | 4710-01-501-2910 | 13 | 7 |
| 4820-01-431-2389 | 29 | 1 | 4730-01-501-3000 | 30 | 24 |
| 5330-01-431-3100 | 51 | 3 | | 49 | 13 |
| 5330-01-431-3107 | 51 | 2 | 4730-01-501-3004 | 30 | 2 |
| 4010-01-431-3239 | 9 | 8 | | 49 | 3 |
| | 11 | 4 | 5330-01-501-3129 | 54 | 28 |
| 5330-01-431-3620 | 39 | 16 | 4710-01-501-3199 | 13 | 33 |
| 5331-01-431-3621 | 39 | 15 | 4710-01-501-3203 | 16 | 19 |
| 5340-01-431-4073 | 9 | 3 | 4710-01-501-3204 | 15 | 6 |
| | 11 | 8 | 5340-01-501-3408 | 54 | 5 |
| 5310-01-431-4074 | 15 | 28 | 3040-01-501-4388 | 54 | 2 |
| 7690-01-431-8639 | 50 | 26 | 3950-01-501-4397 | KITS | 2 |
| 7690-01-431-8641 | 27 | 21 | 3040-01-501-4407 | 54 | 21 |
| 7690-01-431-8642 | 27 | 15 | 5310-01-505-0271 | 20 | 43 |
| 7690-01-431-8645 | 27 | 7 | 3120-01-505-4227 | 20 | 42 |
| 6110-01-431-9890 | 46 | 3 | 5365-01-505-4642 | 20 | 20 |
| 5340-01-432-2903 | 29 | 16 | 5305-01-505-4928 | 20 | 41 |
| 5340-01-432-4862 | 20 | 50 | 5305-01-505-5084 | 20 | 45 |
| 5340-01-438-1615 | 55 | 10 | 5310-01-509-8943 | 32 | 15 |
| 5340-01-438-7023 | 55 | 11 | 4730-01-515-4774 | 15 | 5 |
| 5340-01-438-7485 | 55 | 12 | 3940-01-536-2137 | 20 | 12 |
| 5325-01-438-9353 | 45 | 1 | 5315-01-542-3873 | 20 | 21 |
| 5330-01-464-9956 | 17 | 13 | 3040-01-542-4036 | 20 | 40 |
| 3040-01-465-1259 | 54 | 27 | 3040-01-542-4039 | 20 | 76 |
| 2610-01-465-5823 | 18 | 1 | 3040-01-542-4043 | 20 | 76 |
| 6110-01-465-7511 | 2 | 11 | 5365-01-542-4047 | 20 | 44 |
| 3040-01-466-0004 | 32 | 11 | 3940-01-542-4243 | 20 | 38 |
| 3040-01-466-0005 | 31 | 11 | 3940-01-542-4245 | 20 | 38 |
| 4720-01-466-2736 | 13 | 8 | 3940-01-542-4246 | 20 | 12 |
| 5340-01-466-3781 | 54 | 10 | 9905-01-542-9894 | 27 | 6 |
| 6150-01-466-5416 | 7 | 3 | 4010-01-542-9978 | 20 | 77 |
| 5340-01-466-6315 | 3 | 32 | 5315-01-542-9980 | 20 | 78 |
| 6110-01-466-6395 | 55 | 1 | 5330-01-566-4193 | KITS | 6 |
| 6150-01-466-9167 | 55 | 14 | 6150-01-567-4392 | 2 | 21 |
| 5365-01-466-9524 | 32 | 6 | 2940-22-121-8648 | 40 | 4 |
| 5930-01-467-2945 | 55 | 2 | 2920-99-258-0033 | 48 | 4 |
| 5315-01-473-2046 | 19 | 5 | 2990-99-917-5958 | 44 | 5 |
| 2610-01-473-3997 | 18 | 1 | | 47 | 11 |

END OF WORK PACKAGE

**FIELD MAINTENANCE
PART NUMBER INDEX**

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|--------------------|-------------|-------------|-----------------------|-------------|-------------|
| A-337-1/2 | 50 | 12 | B1821BH038C175N | 35 | 3 |
| A-A-52483-2 | 27 | 8 | B1821BH050C375N | 23 | 1 |
| A52483-1 | 27 | 9 | B1821BH063F200N | 12 | 18 |
| A52484-1 | 13 | 1 | C243 | 13 | 31 |
| | 13 | 28 | | 15 | 23 |
| | 14 | 11 | C8 | 30 | 34 |
| | 14 | 13 | CL-13 | 14 | 3 |
| | 16 | 8 | CM8SZ | 20 | 5 |
| | 16 | 9 | DD34050-29 | 9 | 14 |
| AA50553-3-1-P-02-5 | 3 | 29 | DT318 | 2 | 11 |
| AA50553-31PX01S | 2 | 29 | ES176R | 19 | 16 |
| AA52463-A04 | 4 | 7 | G-209-A-5/8 | 50 | 8 |
| | 5 | 20 | GP2/11.00R20/TR444/ON | | |
| AA52550-4 | 22 | 1 | CENTER | 18 | 3 |
| ALI-00-C | 27 | 10 | H2525M | 28 | 10 |
| ALI-23 | 27 | 11 | | 29 | 19 |
| ALI-6 | 27 | 12 | H3-62-T8-659 | 30 | 2 |
| AN316-8R | 20 | 4 | | 49 | 3 |
| AN4C6A | 3 | 33 | H3-63-T8-659 | 30 | 24 |
| | 5 | 30 | | 49 | 13 |
| AN4C7A | 1 | 23 | H3-65M | 30 | 1 |
| AN960-1016 | 20 | 10 | | 49 | 7 |
| AN960-1616 | 24 | 7 | H3-66M | 30 | 23 |
| | 33 | 5 | | 49 | 12 |
| AN960-2016 | 50 | 17 | HM212049 | 17 | 9 |
| AN960-2016L | 33 | 2 | JP0-0031 | 2 | 13 |
| AN960-8 | 22 | 7 | L-090/095 | 28 | 8 |
| AN960-816 | 20 | 7 | L-095-1/2 | 28 | 9 |
| AN970-4 | 51 | 4 | L095 3/4X3/4 BORE | | |
| AS21919WDG24 | 30 | 46 | 3/16X3/32KWY | 28 | 7 |
| AS21919WDG40 | 30 | 30 | LC1.37X5.00 | 23 | 5 |
| AS21919WDG7 | 2 | 32 | LH89/1-LC35GN2 | 55 | 5 |
| AS3367-3-0 | 28 | 4 | M45913/1-10CG5C | 20 | 9 |
| AS5192-08 | 30 | 36 | M45913/1-4CG5C | 7 | 5 |
| B1821BH025C075N | 9 | 10 | | 20 | 66 |
| | 11 | 11 | | 25 | 4 |
| B1821BH025C088N | 20 | 73 | | 51 | 8 |
| | 51 | 5 | | 55 | 8 |
| B1821BH025C100N | 7 | 8 | M45913/1-5CG5C | 16 | 7 |
| | 25 | 2 | | 20 | 56 |
| B1821BH025F075N | 17 | 2 | | 34 | 7 |
| B1821BH031C075N | 28 | 13 | | 35 | 6 |
| | 34 | 3 | M45913/1-6CG5C | 13 | 24 |
| | 35 | 8 | | 14 | 1 |
| B1821BH031C225N | 35 | 9 | | 15 | 20 |
| B1821BH038C075D | 14 | 4 | | 20 | 26 |
| | 29 | 20 | | 20 | 46 |
| B1821BH038C125N | 28 | 11 | | 20 | 71 |

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|-----------------|------|------|--------------|------|------|
| | 21 | 3 | | 50 | 16 |
| | 35 | 11 | MS24665-688 | 20 | 36 |
| | 51 | 9 | MS24693-95 | 55 | 13 |
| M45913/1-8CG5C | 23 | 6 | MS27144-1 | 4 | 3 |
| | 24 | 2 | | 5 | 22 |
| M45913/2-12FG5C | 24 | 5 | MS27144-2 | 5 | 7 |
| MLT4H-LP | 27 | 14 | | 6 | 4 |
| MLT6H-LP | 27 | 14 | MS27183-10 | 55 | 9 |
| MS15795-805 | 1 | 6 | MS27183-14 | 20 | 72 |
| | 3 | 13 | MS27183-41 | 2 | 4 |
| | 6 | 10 | MS27183-50 | 7 | 7 |
| MS15795-807 | 5 | 15 | MS27183-8 | 2 | 6 |
| MS15795-810 | 25 | 5 | MS28778-6 | 30 | 17 |
| MS15795-814 | 20 | 62 | MS28778-8 | 30 | 3 |
| | 21 | 4 | | 49 | 4 |
| MS15795-818 | 23 | 7 | | 49 | 14 |
| MS15795-835 | 20 | 37 | MS3367-1-9 | 1 | 14 |
| MS15795-846 | 2 | 31 | | 2 | 25 |
| | 4 | 10 | | 3 | 22 |
| | 5 | 28 | MS3367-3-0 | 30 | 37 |
| | 30 | 49 | MS35206-242 | 2 | 3 |
| MS15795-852 | 1 | 22 | MS35206-247 | 22 | 9 |
| | 3 | 31 | MS35206-267 | 2 | 5 |
| | 5 | 32 | MS35333-71 | 6 | 9 |
| | 26 | 2 | MS35333-72 | 5 | 13 |
| MS20995C20 | BULK | 1 | MS35333-73 | 4 | 9 |
| MS20995C20-12IN | 30 | 38 | | 5 | 27 |
| MS21044-N8 | 20 | 8 | MS35335-30 | 1 | 16 |
| MS21044C06 | 1 | 7 | | 3 | 26 |
| | 3 | 14 | MS35338-42 | 9 | 20 |
| | 6 | 11 | | 20 | 17 |
| MS21044C08 | 5 | 16 | | 50 | 20 |
| MS21044C3 | 2 | 30 | MS35338-43 | 15 | 14 |
| | 4 | 11 | MS35338-44 | 1 | 12 |
| | 5 | 29 | | 2 | 17 |
| | 30 | 35 | | 3 | 23 |
| MS21044C4 | 1 | 21 | MS35338-45 | 28 | 12 |
| | 3 | 30 | MS35338-48 | 22 | 2 |
| | 5 | 31 | MS35338-50 | 12 | 17 |
| | 26 | 5 | MS35338-63 | 17 | 3 |
| MS21044N08 | 22 | 6 | MS35649-205B | 2 | 7 |
| MS21083C4 | 26 | 1 | MS35649-2252 | 1 | 13 |
| MS21245-8 | 20 | 74 | | 2 | 18 |
| MS24523-22 | 55 | 3 | | 3 | 24 |
| MS24629-36 | 9 | 7 | MS35649-264 | 1 | 15 |
| | 11 | 3 | | 3 | 25 |
| MS24629-57 | 30 | 26 | MS35692-57 | 9 | 6 |
| MS24665-283 | 9 | 24 | | 11 | 5 |
| MS24665-285 | 9 | 26 | MS51412-25 | 20 | 63 |
| MS24665-351 | 33 | 7 | | 34 | 6 |
| MS24665-495 | 24 | 8 | | 35 | 7 |
| | 33 | 6 | MS51412-8 | 24 | 1 |
| MS24665-624 | 33 | 3 | | 33 | 8 |

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|---------------|------|------|------------------------|------|------|
| MS51521A6 | 30 | 6 | | 20 | 27 |
| MS51523A6 | 30 | 12 | | 20 | 47 |
| MS51525A6-8 | 30 | 5 | | 35 | 10 |
| MS51525A8 | 30 | 21 | | 51 | 10 |
| | 49 | 5 | NAS1149F1290P | 20 | 11 |
| | 49 | 15 | | 24 | 6 |
| MS51527A8 | 30 | 9 | NAS1715D15NH | 3 | 32 |
| MS51957-124 | 3 | 27 | NAS9301BNS-8-08 | 20 | 34 |
| MS51957-30 | 6 | 13 | NO. 4-3/16 | 27 | 23 |
| MS51957-31 | 6 | 12 | | 50 | 4 |
| MS51957-32 | 1 | 18 | NO. 4-5/16 | 27 | 22 |
| | 3 | 28 | | 49 | 9 |
| MS51957-35 | 1 | 17 | | 50 | 7 |
| MS51957-46 | 5 | 14 | OC60E1 | 35 | 1 |
| MS51957-65 | 15 | 15 | POCI-10-N-0-XX | 54 | 36 |
| MS51958-64 | 5 | 26 | POCI-10-N-O-XX | 31 | 2 |
| | 30 | 32 | R18733-6 | 35 | 5 |
| MS51958-65 | 2 | 33 | SAE J530 6-6 130339B | 15 | 3 |
| | 4 | 8 | SAE J530 6-6-6 130438B | 16 | 18 |
| | 30 | 47 | SAE J530 8-6 130137B | 13 | 3 |
| MS51958-80 | 26 | 4 | | 16 | 14 |
| MS51958-81 | 26 | 6 | SCH-1014 | 3 | 8 |
| MS51958-82 | 26 | 4 | SHC-1018 | 2 | 20 |
| MS51967-8 | 2 | 27 | | 3 | 4 |
| MS51975-17 | 20 | 2 | SVE12 | 29 | 12 |
| MS51975-55 | 20 | 15 | SVH1DD1AC | 29 | 13 |
| MS75021-1 | 2 | 16 | SVW1BA1 | 29 | 15 |
| | 3 | 19 | T-211M11 | 15 | 27 |
| MS75021-2 | 1 | 9 | T10A | 26 | 7 |
| MS90724-7 | 2 | 8 | T11A | 26 | 3 |
| MS90725-109 | 22 | 3 | TR573 | 18 | 4 |
| MS90725-33 | 20 | 58 | 004-00293-1 | 1 | 5 |
| MS90725-34 | 16 | 6 | | 3 | 12 |
| | 34 | 8 | 00420-1452-2 | 37 | 7 |
| MS90725-5 | 1 | 11 | 01023-50610 | 48 | 1 |
| | 3 | 21 | 01053-50620 | 41 | 9 |
| MS90725-6 | 2 | 12 | 01153-50818 | 41 | 5 |
| | 3 | 15 | 01513-50814 | 43 | 5 |
| MS90725-60 | 13 | 22 | 01513-50855 | 39 | 7 |
| | 15 | 18 | 015587T | 2 | 15 |
| | 20 | 61 | 01754-50610 | 44 | 5 |
| | 20 | 68 | | 47 | 11 |
| | 21 | 1 | 01754-50612 | 42 | 4 |
| MS90725-67 | 20 | 48 | | 44 | 1 |
| MS90725-69 | 20 | 64 | | 47 | 5 |
| NAS 1523AA4F | 25 | 3 | 01754-50620 | 39 | 8 |
| NAS1149F0463P | 7 | 6 | | 45 | 3 |
| | 20 | 67 | | 46 | 4 |
| | 30 | 27 | 01754-50630 | 42 | 3 |
| | 51 | 7 | 01754-50650 | 37 | 4 |
| NAS1149F0663P | 13 | 23 | 01754-50835 | 37 | 3 |
| | 14 | 2 | | 47 | 10 |
| | 15 | 19 | 01754-50855 | 37 | 5 |

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|--------------|------|------|---------------|------|------|
| 01754-60816 | 39 | 12 | 11420-6360-2 | 47 | 2 |
| | 40 | 9 | 11420-6460-0 | 46 | 3 |
| | 41 | 6 | 11420-6461-0 | 46 | 1 |
| | 43 | 4 | 11420-6556-0 | 48 | 3 |
| | 46 | 2 | 11420-65752 | 47 | 6 |
| 02114-50080 | 43 | 7 | 11420-6703-2 | 36 | 2 |
| | 47 | 7 | 11420-6705-0 | 45 | 2 |
| 02156-50080 | 39 | 5 | 11420-6768-0 | 45 | 1 |
| 04015-50060 | 41 | 8 | 11420-732083 | 44 | 3 |
| 04512-50080 | 47 | 8 | 11420-7449-0 | 44 | 2 |
| 04724-00120 | 38 | 8 | 11420-7537-0 | 44 | 4 |
| | 41 | 16 | 11420-8715-0 | 42 | 5 |
| 04811-00180 | 37 | 8 | 11420-8745-0 | 40 | 6 |
| | 38 | 5 | 11420-8752-0 | 47 | 3 |
| 04811-40140 | 38 | 9 | 11420-8755-0 | 42 | 2 |
| 05-047522-1 | 10 | 3 | 11420-9101-0 | 43 | 2 |
| 05-047525 | 19 | 13 | 11520-1205-0 | 43 | 3 |
| 05712-00520 | 36 | 1 | 11520-1270-0 | 43 | 1 |
| 06331-35012 | 41 | 17 | 11520-1450-0 | 37 | 6 |
| 071700117 | 54 | 27 | 11520-41022 | 41 | 10 |
| 1-2SHPB | 13 | 17 | 11520-8821-0 | 41 | 15 |
| | 16 | 12 | 11521-3308-0 | 38 | 11 |
| 101A-E | 13 | 14 | 1157 | 5 | 5 |
| 10244-4232-0 | 39 | 2 | 11811-0175-0 | 37 | 2 |
| 11151-4144-0 | 41 | 1 | 11811-3703-0 | 37 | 1 |
| 11151-7732-0 | 41 | 7 | 12-12 140137B | 13 | 12 |
| 113RB-E3.0 | 13 | 25 | 1202P-4-4 | 15 | 5 |
| 11420-0480-3 | 42 | 1 | 12035-11510 | 40 | 10 |
| 11420-1101-4 | 40 | 1 | 120401 | 15 | 12 |
| 11420-1115-0 | 40 | 2 | 12258212 | 5 | 17 |
| 11420-1116-0 | 40 | 5 | 12368919 | 2 | 10 |
| 11420-1118-0 | 40 | 4 | 123A-ED | 13 | 15 |
| 11420-1223-0 | 43 | 6 | 12501504 | 20 | 38 |
| 11420-2337-0 | 36 | 3 | 12501505 | 20 | 12 |
| 11420-3308-2 | 37 | 9 | 12501507 | 20 | 38 |
| 11420-3640-2 | 38 | 6 | 12501508 | 20 | 12 |
| 11420-3701-0 | 38 | 3 | 12501509 | 20 | 40 |
| 11420-3715-0 | 38 | 2 | 12501510 | 20 | 76 |
| 11420-3717-0 | 38 | 4 | 12501511 | 20 | 76 |
| 11420-4103-0 | 41 | 11 | 12501516 | 20 | 44 |
| 11420-4113-2 | 41 | 3 | 12501523 | 20 | 42 |
| 11420-4137-0 | 41 | 4 | 12501531 | 20 | 21 |
| 11420-4141-0 | 41 | 2 | 12501532 | 20 | 43 |
| 11420-4171-0 | 41 | 14 | 12501535 | 20 | 77 |
| 11420-4201-0 | 41 | 19 | 12501538 | 20 | 45 |
| 11420-4250-0 | 39 | 3 | 12501539 | 20 | 20 |
| 11420-43012 | 41 | 20 | 12501541 | 27 | 6 |
| 11420-5211-0 | 39 | 11 | 12752-1117-0 | 40 | 3 |
| 11420-5345-0 | 39 | 6 | 12752-1133-0 | 40 | 8 |
| 11420-5362-0 | 39 | 15 | 129-B-08X24 | 14 | 6 |
| 11420-5371-0 | 39 | 14 | 1300059 | 30 | 11 |
| 11420-5385-0 | 39 | 13 | 138-382-231 | 18 | 1 |
| 11420-6301-0 | 47 | 9 | 138-382-667 | 18 | 1 |

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|-------------------|------|------|-----------------------|------|------|
| 13901-3375-0 | 38 | 7 | 367-8430-0931-503 | 55 | 7 |
| 13901-4135-0 | 41 | 12 | 37410-55-150 | 47 | 1 |
| 14301-4236-0 | 41 | 13 | 37410-5911-0 | 47 | 4 |
| 14351-1134-0 | 40 | 7 | 382 | 55 | 4 |
| 14911-32110 | 38 | 10 | 3R2704 | 30 | 4 |
| 14911-4275-0 | 41 | 18 | 451AR0506-6-6-4-37.00 | 30 | 44 |
| 14941-0557-0 | 38 | 1 | 451TC0506-6-4-100.00 | 30 | 43 |
| 1507A | 13 | 30 | 47573 | 9 | 27 |
| | 15 | 24 | 48139 | 9 | 13 |
| 1509 | 13 | 2 | 48488 | 16 | 5 |
| | 13 | 29 | | 20 | 55 |
| | 14 | 12 | | 34 | 4 |
| | 14 | 14 | 505-1LS/02 | 35 | 4 |
| 15241-6758-0 | 47 | 12 | 506.5G2 | 23 | 3 |
| | 48 | 2 | 5062 | 28 | 2 |
| 15261-2336-0 | 36 | 4 | 578-92-9-122 | 24 | 4 |
| 15471-9569-0 | 39 | 9 | 6-6 130137B | 13 | 10 |
| 15841-53622 | 39 | 15 | 6-6-6 130424B | 13 | 5 |
| 16241-65510 | 48 | 4 | 6035768.2 | 17 | 18 |
| 19077-53650 | 39 | 16 | 620800.2 | 18 | 2 |
| 192 | 30 | 33 | 624MF | 7 | 4 |
| 1AL60 | 15 | 26 | 64-0183 | 1 | 19 |
| 1G131-51012 | 39 | 10 | | 2 | 24 |
| 1G141-53000 | 39 | 1 | 660280004 | 52 | 1 |
| 1R11-094 | 24 | 3 | 660401003 | 29 | 2 |
| 2-130109E | 15 | 13 | 68150 | 5 | 6 |
| 202701-6-6S | 30 | 25 | 710-0107 | 9 | 15 |
| 202701-8-6S | 30 | 5 | 7388820 | 17 | 16 |
| 206209-6-6S | 30 | 16 | 7389493 | 17 | 17 |
| 2070-6-6S | 30 | 15 | 741590-BLUE | 14 | 15 |
| 207ACBH-6 | 13 | 4 | 741590-RED | 14 | 10 |
| 207ACBH-8 | 16 | 13 | 7731428 | 1 | 10 |
| 2200P8-8 | 13 | 13 | | 2 | 14 |
| 2202P-6-6 | 13 | 18 | | 3 | 20 |
| | 15 | 21 | 79-07 | 9 | 19 |
| 2224P-2 | 15 | 10 | | 20 | 18 |
| 2256784PC3 | 56 | 1 | | 22 | 8 |
| 2300622 | 28 | 3 | 79-08 | 20 | 30 |
| 23325X8 | 16 | 2 | | 50 | 21 |
| 2491848 | 20 | 19 | 8-6 070220C | 30 | 22 |
| 2730101-6-8-6B-64 | 14 | 9 | 8-6-F5G5-S | 30 | 18 |
| 27404PG | 17 | 16 | 805869-3 | 1 | 4 |
| 30056-15 | 2 | 9 | | 3 | 11 |
| 30200R | 6 | 8 | 8310025 | 20 | 24 |
| 3121-4-10 | 30 | 28 | 8338561 | 4 | 4 |
| 3152X6 | 13 | 32 | | 5 | 23 |
| | 14 | 7 | 8338562 | 4 | 5 |
| | 15 | 30 | | 5 | 9 |
| 32240-3449-0 | 39 | 4 | | 5 | 24 |
| 327 | 55 | 6 | | 6 | 6 |
| 33-306 | 18 | 4 | 8338564 | 4 | 6 |
| 35086 | 17 | 13 | | 5 | 10 |
| 356021 | 56 | 2 | | 5 | 25 |

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|-------------|------|------|-------------|------|------|
| | 6 | 7 | 8D00062-19 | 27 | 13 |
| 85335 | 18 | 1 | 8D00062-20 | 27 | 1 |
| 8724494 | 5 | 8 | 8D00062-21 | 27 | 7 |
| | 6 | 5 | 8D00062-22 | 50 | 5 |
| 8C6XS | 30 | 40 | 8D00062-23 | 50 | 6 |
| 8D00044-1 | 7 | 2 | 8D00062-24 | 49 | 8 |
| 8D00051-10 | 31 | 3 | 8D00062-25 | 27 | 21 |
| 8D00051-11 | 31 | 13 | 8D00062-26 | 27 | 15 |
| 8D00051-12 | 31 | 8 | 8D00062-27 | 50 | 26 |
| 8D00051-13 | 31 | 6 | 8D00062-28 | 27 | 7 |
| 8D00051-14 | 31 | 7 | 8D00062-6 | 27 | 4 |
| 8D00051-15 | 31 | 4 | 8D00062-7 | 27 | 3 |
| 8D00051-16 | 31 | 5 | 8D00062-8 | 27 | 2 |
| 8D00051-17 | KITS | 1 | 8D00062-9 | 27 | 18 |
| 8D00051-4 | 31 | 14 | 8D00063-1 | 15 | 2 |
| 8D00051-5 | 31 | 10 | 8D00063-2 | 14 | 5 |
| 8D00051-6 | 31 | 12 | 8D00063-3 | 14 | 9 |
| 8D00051-7 | 31 | 11 | | 15 | 29 |
| 8D00051-8 | 31 | 9 | 8D00063-7 | 14 | 16 |
| 8D00051-9 | 31 | 15 | 8D00064-10 | 16 | 16 |
| 8D00052-1 | 30 | 39 | 8D00064-12 | 16 | 17 |
| 8D00052-10 | 30 | 14 | 8D00064-13 | 16 | 19 |
| 8D00052-11 | 30 | 41 | 8D00064-14 | 15 | 4 |
| 8D00052-12 | 30 | 42 | 8D00064-15 | 15 | 8 |
| 8D00052-2 | 30 | 8 | 8D00064-17 | 16 | 10 |
| 8D00052-20 | 30 | 10 | 8D00064-18 | 16 | 3 |
| 8D00052-3 | 30 | 20 | 8D00064-19 | 15 | 16 |
| 8D00052-4 | 49 | 6 | 8D00064-20 | 15 | 9 |
| | 49 | 11 | 8D00064-21 | 13 | 7 |
| 8D00052-5 | 30 | 7 | 8D00064-22 | 13 | 6 |
| 8D00052-6 | 30 | 19 | 8D00064-23 | 13 | 8 |
| 8D00052-7 | 30 | 13 | 8D00064-24 | 13 | 33 |
| 8D00059-1 | 24 | 10 | 8D00064-3 | 13 | 21 |
| 8D00060-1 | 20 | 23 | 8D00064-4 | 13 | 19 |
| | 33 | 1 | 8D00064-8 | 15 | 6 |
| 8D00060-2 | 33 | 4 | 8D00066-1 | 8 | 1 |
| 8D00060-3 | 33 | 9 | 8D00066-10 | 1 | 8 |
| 8D00060-4 | 24 | 9 | 8D00066-11 | 3 | 18 |
| 8D00060-5 | 24 | 11 | 8D00066-12 | 3 | 17 |
| 8D00060-6 | 24 | 11 | 8D00066-2 | 8 | 3 |
| 8D00060-7 | 20 | 39 | 8D00066-3 | 8 | 2 |
| 8D00060-8 | 50 | 23 | 8D00066-4 | 2 | 23 |
| 8D00061-1 | 20 | 33 | 8D00066-5 | 2 | 21 |
| 8D00061-6 | 20 | 50 | 8D00066-6 | 2 | 22 |
| 8D00062-10 | 27 | 17 | 8D00066-7 | 3 | 6 |
| 8D00062-11 | 50 | 2 | 8D00066-8 | 3 | 5 |
| 8D00062-12 | 50 | 3 | 8D00066-9 | 3 | 7 |
| 8D00062-13 | 27 | 16 | 8D00067-1 | 21 | 2 |
| 8D00062-14 | 27 | 20 | 8D00068-1 | 21 | 5 |
| 8D00062-15 | 27 | 6 | 8D00068-2 | 21 | 5 |
| 8D00062-16 | 27 | 5 | 8D00070-1 | 9 | 18 |
| 8D00062-17 | 27 | 19 | 8D00073-1 | 20 | 1 |
| 8D00062-18 | 27 | 21 | 8D00073-2 | 20 | 3 |

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|-------------|------|------|-------------|------|------|
| 8D00077-41 | 20 | 51 | 8D00121-8 | 16 | 4 |
| 8D00079-1 | 20 | 49 | 8D00121-9 | 15 | 11 |
| 8D00079-2 | 20 | 49 | 8D00123-31R | 7 | 1 |
| 8D00080-1 | 20 | 52 | 8D00123-38B | 7 | 3 |
| 8D00080-2 | 20 | 52 | 8D00123-42B | 7 | 3 |
| 8D00081-1 | 20 | 13 | 8D00123-48R | 7 | 1 |
| 8D00082-18 | 9 | 23 | 8D00125-1 | 20 | 1 |
| 8D00082-19 | 9 | 17 | 8D00125-2 | 20 | 3 |
| 8D00082-20 | 9 | 25 | 8D00125-3 | 20 | 65 |
| 8D00087-1 | 23 | 4 | 8D00129-1 | 3 | 1 |
| 8D00088-1 | 23 | 2 | 8D00129-6 | 3 | 16 |
| 8D00091-1 | 9 | 16 | 8D00130-1 | 11 | 1 |
| 8D00093-1 | 9 | 1 | 8D00131-1 | 22 | 4 |
| 8D00095-1 | 28 | 1 | 8D00131-4 | 22 | 12 |
| 8D00096-1 | 28 | 5 | 8D00133-1 | 35 | 2 |
| 8D00097-1 | 13 | 26 | 8D00135-1 | 3 | 2 |
| 8D00097-2 | 15 | 17 | 8D00138-1 | 5 | 1 |
| 8D00101-1 | 1 | 1 | 8D00138-2 | 5 | 1 |
| 8D00102-1 | 20 | 60 | 8D00139-1 | 5 | 18 |
| 8D00102-2 | 20 | 75 | 8D00139-2 | 5 | 18 |
| 8D00105-1 | 5 | 2 | 8D00140-1 | 20 | 38 |
| 8D00105-13 | 4 | 2 | 8D00141-1 | 20 | 12 |
| | 5 | 11 | 8D00143-1 | 28 | 6 |
| | 5 | 21 | 8D00145-1 | 31 | 1 |
| | 6 | 3 | 8D00146-1 | 32 | 1 |
| 8D00105-14 | 5 | 12 | 8D00151-1 | 9 | 12 |
| 8D00105-15 | 5 | 12 | | 11 | 6 |
| 8D00105-2 | 5 | 19 | 8D00151-2 | 9 | 9 |
| 8D00105-3 | 4 | 1 | | 11 | 12 |
| 8D00105-4 | 6 | 1 | 8D00152-11 | 32 | 16 |
| 8D00105-5 | 5 | 2 | 8D00152-12 | 32 | 2 |
| 8D00106-1 | 20 | 38 | 8D00152-13 | 32 | 7 |
| 8D00107-1 | 20 | 12 | 8D00152-15 | 32 | 6 |
| 8D00109-14 | 29 | 1 | 8D00152-16 | 32 | 5 |
| 8D00110-33 | 20 | 6 | 8D00152-17 | 32 | 3 |
| 8D00112-1 | 2 | 1 | 8D00152-18 | 32 | 4 |
| 8D00112-3B | 2 | 2 | 8D00152-19 | 32 | 12 |
| 8D00114-1 | 25 | 1 | 8D00152-20 | 32 | 8 |
| 8D00115-1 | 34 | 1 | 8D00152-21 | KITS | 2 |
| 8D00119-1 | 20 | 52 | 8D00152-22 | 32 | 10 |
| 8D00119-2 | 20 | 52 | 8D00152-23 | 32 | 9 |
| 8D00121-1 | 13 | 20 | 8D00152-4 | 32 | 15 |
| | 15 | 7 | 8D00152-6 | 32 | 14 |
| 8D00121-10 | 13 | 11 | 8D00152-7 | 32 | 13 |
| 8D00121-11 | 13 | 9 | 8D00152-8 | 32 | 11 |
| 8D00121-12 | 15 | 1 | 8D00186-1 | 1 | 3 |
| 8D00121-2 | 16 | 15 | 8D00189-1 | 34 | 2 |
| 8D00121-25 | 16 | 11 | 8D00191-1 | 53 | 1 |
| 8D00121-5 | 13 | 16 | 8D00193-1 | 54 | 1 |
| | 16 | 1 | 8D00194-1 | 50 | 1 |
| 8D00121-6 | 13 | 27 | 8D00195-10 | 10 | 1 |
| | 15 | 22 | 8D00195-12 | 10 | 1 |
| 8D00121-7 | 20 | 57 | 8D00195-16 | 10 | 2 |

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|-------------|------|------|-------------|------|------|
| 8D00195-20 | 19 | 8 | 8D00196-89 | KITS | 4 |
| | 19 | 9 | 8D00196-94 | 29 | 16 |
| 8D00195-22 | 19 | 14 | 8D00197-10 | 12 | 1 |
| 8D00195-23 | 19 | 15 | 8D00197-11 | 14 | 8 |
| 8D00195-25 | 10 | 5 | 8D00197-12 | 15 | 28 |
| 8D00195-26 | 10 | 4 | 8D00197-13 | 12 | 12 |
| 8D00195-29 | 12 | 16 | 8D00197-14 | 12 | 15 |
| 8D00195-31 | 17 | 1 | 8D00197-15 | 12 | 2 |
| 8D00195-35 | 17 | 5 | 8D00197-16 | 12 | 6 |
| 8D00195-36 | 17 | 4 | 8D00197-19 | 12 | 5 |
| 8D00195-37 | 17 | 11 | 8D00197-20 | 12 | 4 |
| 8D00195-38 | 17 | 8 | 8D00197-21 | 12 | 3 |
| 8D00195-39 | 17 | 7 | 8D00197-30 | 12 | 10 |
| 8D00195-40 | 17 | 6 | 8D00197-31 | 12 | 13 |
| 8D00195-41 | 17 | 1 | 8D00197-32 | 12 | 14 |
| 8D00195-43 | 17 | 11 | 8D00197-33 | 12 | 11 |
| 8D00195-44 | 19 | 5 | 8D00197-34 | 12 | 1 |
| 8D00195-45 | 19 | 1 | 8D00197-35 | 12 | 1 |
| 8D00195-46 | 19 | 2 | 8D00197-36 | 15 | 25 |
| 8D00195-53 | 17 | 12 | 8D00197-37 | 12 | 7 |
| 8D00195-54 | 17 | 15 | 8D00197-38 | 12 | 1 |
| 8D00195-55 | 17 | 10 | 8D00197-39 | 12 | 8 |
| 8D00195-56 | 17 | 14 | 8D00197-40 | 12 | 9 |
| 8D00195-57 | 17 | 14 | 8D00198-1 | 50 | 24 |
| 8D00195-58 | 19 | 3 | 8D00199-1 | 50 | 14 |
| 8D00195-59 | 19 | 4 | 8D00200-1 | 50 | 22 |
| 8D00195-66 | 19 | 7 | 8D00201-1 | 50 | 13 |
| | 22 | 11 | 8D00202-1 | 20 | 14 |
| | 22 | 15 | 8D00202-2 | 20 | 59 |
| 8D00195-7 | 19 | 20 | 8D00202-3 | 20 | 22 |
| 8D00195-70 | 19 | 6 | 8D00202-4 | 20 | 31 |
| | 22 | 14 | 8D00202-5 | 50 | 15 |
| 8D00195-71 | 22 | 13 | 8D00202-6 | 50 | 18 |
| 8D00195-72 | 19 | 10 | 8D00203-1 | 20 | 70 |
| | 19 | 17 | 8D00204-1 | 20 | 54 |
| 8D00195-73 | 19 | 11 | 8D00205-1 | 20 | 69 |
| | 19 | 18 | 8D00207-1 | 20 | 32 |
| 8D00195-74 | 19 | 12 | 8D00207-2 | 20 | 35 |
| | 19 | 19 | 8D00208-1 | 50 | 25 |
| 8D00196-10 | 29 | 3 | 8D00209-1 | 50 | 11 |
| 8D00196-15 | 29 | 10 | 8D00209-2 | 50 | 10 |
| 8D00196-16 | 29 | 11 | 8D00209-3 | 50 | 9 |
| 8D00196-34 | 29 | 6 | 8D00212-1 | 21 | 2 |
| 8D00196-36 | 29 | 9 | 8D00214-1 | 21 | 6 |
| 8D00196-37 | 29 | 16 | 8D00215-1 | 21 | 6 |
| 8D00196-38 | 29 | 8 | 8D00217-1 | 20 | 28 |
| 8D00196-39 | 29 | 17 | 8D00220-1 | 49 | 1 |
| 8D00196-40 | 29 | 5 | 8D00220-2 | 49 | 10 |
| 8D00196-41 | 29 | 18 | 8D00220-3 | 49 | 2 |
| 8D00196-42 | 29 | 7 | 8D00222-1 | 22 | 5 |
| 8D00196-43 | 29 | 4 | 8D00223-1 | 25 | 6 |
| 8D00196-72 | 29 | 14 | 8D00226-1 | 33 | 10 |
| 8D00196-86 | KITS | 3 | 8D00227-1 | 20 | 29 |

| PART NUMBER | FIG. | ITEM | PART NUMBER | FIG. | ITEM |
|-------------|------|------|-------------|------|------|
| 8D00227-2 | 51 | 11 | 8D00235-17 | 53 | 11 |
| 8D00228-1 | 51 | 1 | 8D00235-18 | 53 | 12 |
| 8D00228-4 | 51 | 2 | 8D00235-20 | 53 | 5 |
| 8D00228-5 | 51 | 3 | 8D00235-21 | 53 | 8 |
| 8D00229-1 | 51 | 6 | 8D00235-22 | 53 | 3 |
| 8D00229-2 | 51 | 12 | 8D00235-23 | 53 | 6 |
| 8D00231-1 | 20 | 25 | 8D00235-24 | 53 | 7 |
| 8D00232-1 | 9 | 5 | 8D00235-25 | KITS | 6 |
| | 11 | 2 | 8D00235-26 | 53 | 4 |
| 8D00232-2 | 9 | 3 | 8D00235-4 | 53 | 2 |
| | 11 | 8 | 8D00235-9 | 53 | 9 |
| 8D00234-10 | 54 | 10 | 8D00236-1 | 9 | 2 |
| 8D00234-11 | 54 | 17 | | 11 | 9 |
| 8D00234-12 | 54 | 21 | 8D00237-1 | 9 | 4 |
| 8D00234-13 | 54 | 4 | | 11 | 7 |
| 8D00234-15 | 54 | 6 | 8D00281-1 | 34 | 5 |
| 8D00234-16 | 54 | 5 | 8D00298-1 | 9 | 11 |
| 8D00234-17 | 54 | 9 | | 11 | 10 |
| 8D00234-18 | 54 | 18 | 8D00316-1 | 9 | 8 |
| 8D00234-20 | 54 | 19 | | 11 | 4 |
| 8D00234-21 | 54 | 29 | 8D00341-1 | 9 | 22 |
| 8D00234-22 | 54 | 8 | | 20 | 53 |
| 8D00234-23 | 54 | 11 | | 22 | 10 |
| 8D00234-24 | 54 | 7 | 8D00346-1 | 55 | 2 |
| 8D00234-25 | 54 | 20 | 8D00347-1 | 55 | 10 |
| 8D00234-26 | 54 | 12 | 8D00347-2 | 55 | 12 |
| 8D00234-27 | 54 | 14 | 8D00350-1 | 55 | 1 |
| 8D00234-28 | 54 | 33 | 8D00350-6 | 55 | 11 |
| 8D00234-29 | 54 | 26 | 8D00358-1 | 30 | 31 |
| 8D00234-30 | 54 | 25 | | 30 | 45 |
| 8D00234-31 | 54 | 32 | 8D00359-1 | 30 | 48 |
| 8D00234-32 | 54 | 16 | 8D00362-1 | 55 | 14 |
| 8D00234-33 | 54 | 15 | 8D0065-13 | 30 | 29 |
| 8D00234-34 | 54 | 3 | 90012 | 5 | 4 |
| 8D00234-35 | 54 | 24 | 91257A738 | 20 | 41 |
| 8D00234-37 | KITS | 5 | 92760 | 9 | 21 |
| 8D00234-38 | 54 | 28 | | 20 | 16 |
| 8D00234-39 | 54 | 35 | | 50 | 19 |
| 8D00234-4 | 54 | 30 | 93906 | 6 | 2 |
| 8D00234-42 | 54 | 23 | 97245A709 | 20 | 78 |
| 8D00234-44 | 54 | 22 | 99595-3 | 5 | 3 |
| 8D00234-5 | 54 | 2 | 9C00015-15 | 3 | 10 |
| 8D00234-6 | 54 | 13 | 9C00015-16 | 1 | 2 |
| 8D00234-7 | 54 | 34 | | 2 | 28 |
| 8D00234-9 | 54 | 31 | 9C00015-17 | 2 | 19 |
| 8D00235-10 | 53 | 14 | | 3 | 9 |
| 8D00235-11 | 53 | 15 | 9C00015-18 | 1 | 20 |
| 8D00235-15 | 53 | 13 | | 2 | 26 |
| 8D00235-16 | 53 | 10 | | 3 | 3 |

END OF WORK PACKAGE

CHAPTER 8
SUPPORTING INFORMATION

FIELD MAINTENANCE REFERENCES

SCOPE

This work package lists all forms, field manuals, technical bulletins, technical manuals, and other publications referenced in this manual which apply to the operation and maintenance of the M1022A1 Dolly Set.

PUBLICATION INDEXES

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

| | |
|--------------|---|
| DA PAM 750-8 | The Army Maintenance Management System (TAMMS) Users Manual |
|--------------|---|

FORMS

Refer to DA PAM 750-8, *The Army Maintenance Management System (TAMMS) Users Manual*, for instructions on the use of maintenance forms.

| | |
|----------------|---|
| DA Form 2404 | Equipment Inspection and Maintenance Worksheet |
| DA Form 2407 | Maintenance Request |
| DA Form 2408 | Equipment Log Assembly (Records) |
| DA Form 5988-E | Equipment Inspection and Maintenance Worksheet (EGA) |
| DA Form 5990-E | Maintenance Request (EGA) |
| 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 |

FIELD MANUALS

| | |
|------------|--|
| FM 4-25.11 | First Aid |
| FM 9-207 | Operation and Maintenance of Ordnance Materiel in Cold Weather |
| FM 55-30 | Army Motor Transport Units and Operations |

TECHNICAL BULLETINS

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

TECHNICAL MANUALS

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

TM 9-6140-200-13 Technical Manual Operator and Field Maintenance for Automotive Lead-Acid Storage Batteries

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 (U.S. Army Tank-Automotive Command)

OTHER PUBLICATIONS

AR 25-30 The Army Publishing Program

AR 750-1 Army Materiel Maintenance Policy

ATTP 3-34.39 Camouflage, Concealment, and Decoys

ATTP 3-97.11 Cold Region Operations

CTA 8-100 Army Medical Department Expendable/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

END OF WORK PACKAGE

FIELD MAINTENANCE MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION

The Army Maintenance System MAC

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, C (Crew) and F (Maintainer).

Sustainment - includes two subcolumns, H (Below Depot) and D (Depot).

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. **Maintainer 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:

Maintenance Functions - 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. **Repack.** 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.

NOTE

The following definitions are applicable to the "repair" maintenance function:

- **Services.** Inspect, test, service, adjust, align, calibrate, and/or replace.

Maintenance Functions - Continued

- **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 numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

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).

Column (4), Maintenance Level. 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 subcolumns. This work-time figure represents the active time required to perform that maintenance function. The work-time figure represents the average time required to restore an item 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.

The symbol designations for the various maintenance levels are as follows:

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 a 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 and Allocation Chart (MAC).

| (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 | M1022A1 DOLLY SET | | | | | | | |
| 06 | ELECTRICAL SYSTEM | | | | | | | |
| 0608 | Miscellaneous Items | | | | | | | |
| | | Front Distribution Box Assembly | Replace | 0.5 | | | 1 | |
| | | Repair | 1.0 | | | 1, 2 | | |
| | Signal Conditioning Box | Replace | 0.5 | | | 1 | | |
| | | Repair | 1.0 | | | 1, 2 | | |
| | Rear Distribution Box Assembly | Replace | 0.5 | | | 1 | | |
| Repair | | 1.5 | | | 1, 2 | | | |
| 0609 | Lights | | | | | | | |
| | | Marker Clearance Lights Assembly | Replace | 0.5 | | | 1 | |
| | | Repair | 0.5 | | | 1, 2 | | |
| | Taillight, Rear Blackout Lights and Housing Assembly | Replace | 1.0 | | | 1, 2 | | |
| | | Repair | 0.5 | | | 1 | | |

Table 1. Maintenance and Allocation Chart (MAC) - 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 | | |
| 0612 | Identification Light | Replace | | 0.5 | | | 1 | |
| | | Repair | | 0.5 | | | 1, 2 | |
| | Batteries, Storage | Inspect | 0.2 | | | | | |
| | | Test | | 0.3 | | | 2 | |
| | | Service | | 0.5 | | | 1, 2 | |
| | | Replace | | 0.3 | | | 1, 2 | |
| | Battery Case | Replace | | 0.5 | | | 1, 2 | |
| Battery Cables | Replace | | 0.5 | | | 1 | | |
| 0613 | Hull or Chassis Wiring Harness | | | | | | | |
| | | Replace | | 0.2 | | | 1 | |
| | Signal Conditioning Box-to-Front Distribution Box Assembly | | | | | | | |
| 10 | Interconnect Cables | Replace | | 0.5 | | | 1 | A, B |
| | FRONT AXLE | | | | | | | |
| 1000 | Front Axle Assembly | Service | | 0.3 | | | 1, 2 | |
| | | Replace | | 4.0 | | | 1, 2 | |
| | | Repair | | 1.0 | | | 1, 2 | |
| | Safety Chains | Replace | | 1.0 | | | 1 | |
| 1004 | Front Drawbar | Replace | | 1.0 | | | 1, 2 | |
| | Steering and Leaning Wheel Mechanism | | | | | | | |

Table 1. Maintenance and Allocation Chart (MAC) - 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 | | |
| 11 | Steering Knuckle Assembly REAR AXLE | Replace | | 3.0 | | | 1, 2 | |
| 1100 | Rear Axle Assembly | Replace | | 4.0 | | | 1, 2 | |
| 12 | BRAKES | | | | | | | |
| 1202 | Service Brakes | Adjust | | 0.5 | | | 1, 2 | |
| | | Replace | | 1.0 | | | 1, 2 | |
| | | Repair | | 0.5 | | | 1, 2 | |
| 1208 | Airbrake System | | | | | | | |
| | Air Reservoir | Replace | | 0.5 | | | 1 | |
| | Airbrake Valves | Replace | | 1.0 | | | 1 | B |
| | Lines and Fittings | Replace | | 1.0 | | | 1, 2 | |
| | Airbrake Chamber | Replace | | 1.0 | | | 1 | |
| 13 | WHEELS AND TRACKS | | | | | | | |
| 13 | Wheel and Tire Assembly | Inspect | 0.1 | | | | | |
| | | Service | | 0.5 | | | 1, 2 | |
| | | Adjust | | 0.5 | | | 1, 2 | |
| | | Replace | | 0.5 | | | 1, 2 | |
| | | Repair | | 0.5 | | | 1, 2 | |
| | Hub/ Brakedrum | Replace | | 0.5 | | | 1, 2 | |

Table 1. Maintenance and Allocation Chart (MAC) - 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 | | |
| 14 | STEERING | | | | | | | |
| 1401 | Mechanical Steering Gear Assembly | Service | 0.3 | | | 1, 2 | | |
| | Tie-Rod Assembly | Adjust | 0.5 | | | 1, 2 | | |
| | | Replace | 0.5 | | | 1, 2 | | |
| | | Repair | 0.5 | | | 1, 2 | | |
| | Steering Link | Replace | 2.0 | | | 1, 2 | | |
| 15 | FRAME, TOWING ATTACHMEN TS, DRAWBARS, AND ARTICULATIO N SYSTEMS | | | | | | | |
| 1501 | Frame Assembly | Replace | 10.0 | | | 1, 2 | | |
| | Suspension Link | Replace | 6.0 | | | 1, 2 | | |
| | Pivoting Tray | Service | 0.2 | | | 1, 2 | | |
| | | Replace | 2.0 | | | 1, 2 | | |
| | Telescopic Brace | Replace | 1.0 | | | 1 | | |
| 1503 | Pintles and Towing Attachments | | | | | | | |
| | Rear Drawbar/ Pintle Hook | Replace | 1.0 | | | 1 | | |
| 1507 | Landing Gear, Leveling Jacks | | | | | | | |

Table 1. Maintenance and Allocation Chart (MAC) - 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 | | |
| 16 | Caster Wheel Assembly | Service | 1.0 | 0.2 | | | 1, 2 | |
| | | Replace | | 0.5 | | | 1, 2 | |
| | | Repair | | 0.5 | | | 1, 2 | |
| 1604 | SPRINGS AND SHOCK ABSORBERS | | | | | | | |
| 1808 | Shock Absorber Equipment | | | | | | | |
| | | Replace | | 0.7 | | | 1 | |
| | | | | | | | | |
| 18 | Air Bag | Service | 2.0 | | | | | |
| | | Replace | | 1.0 | | | 1, 2 | |
| 1808 | BODY, CAB, HOOD, AND HULL | | | | | | | |
| 22 | Stowage Racks, Boxes, Straps, Carrying Cases, Cable Reels, Hose Reels, etc. | | | | | | | |
| | | Replace | | 0.5 | | | 1, 2 | |
| 22.2 | BODY, CHASSIS, AND HULL ACCESSORY ITEMS | | | | | | | |
| 22.2 | Accessory Items | | | | | | | |
| | | Replace | | 0.5 | | | 1 | |
| | Reflectors | Replace | | 0.5 | | | 1 | |

Table 1. Maintenance and Allocation Chart (MAC) - 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 | | |
| 2210 | Data Plates and Instructions Holders | | | | | | | |
| | Data Plates | Replace | 0.5 | | | 1 | | |
| 24 | HYDRAULIC AND FLUID SYSTEMS | | | | | | | |
| 2401 | Pump and Motor | | | | | | | |
| | Hydraulic Pump | Replace | 1.0 | | | 1, 2 | | |
| 2402 | Manifold and/or Control Valves | | | | | | | |
| | Hydraulic Control Valve | Replace | 1.0 | | | 1, 2 | | |
| | | Repair | 1.0 | | | 1, 2 | | |
| 2406 | Strainers, Filters, Lines, and Fittings, etc. | | | | | | | |
| | Hydraulic Lines and Fittings | Replace | 1.0 | | | 1, 2 | | |
| 2407 | Hydraulic Cylinders | | | | | | | |
| | Hydraulic Lift Cylinder | Service | 0.2 | | | 1, 2 | | |
| | | Replace | 1.5 | | | 1, 2 | | |
| | Hydraulic Positioning Cylinder | Replace | 1.5 | | | 1, 2 | | |

Table 1. Maintenance and Allocation Chart (MAC) - 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 | | |
| 2408 | Liquid Tanks of Reservoirs | | | | | | | |
| | Hydraulic Reservoir | Service | 0.1 | 0.5 | | | 1, 2 | |
| | | Replace | | 0.5 | | | 1, 2 | |
| 29 | AUXILIARY GENERATOR AND ENGINE, AND CONTROLS | | | | | | | |
| 2910 | Engine Assembly | Inspect | 0.1 | | | | | |
| | | Service | 0.1 | 0.3 | | | 1, 2 | |
| | | Adjust | | 0.5 | | | 1, 2 | |
| | | Replace | | 1.0 | | | 1, 2 | |
| 2913 | Flywheel Assembly | Replace | | 0.5 | | | 1, 2 | |
| 2915 | Valves, Camshafts, and Timing System | | | | | | | |
| | Rocker Arm Cover | Replace | | 0.5 | | | 1, 2 | |
| 2916 | Engine Lubrication System | | | | | | | |
| | Oil Cooler Lines | Replace | | 0.5 | | | 1 | |
| | Oil Filter | Replace | | 0.5 | | | 1, 2 | |

Table 1. Maintenance and Allocation Chart (MAC) - 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 | | |
| 2932 | Engine Fuel Pump | | | | | | | |
| | Injection Pump | Replace | | 1.0 | | | 1, 2 | |
| | Nozzle Holder | Test Replace | | 0.5 1.0 | | | 1, 2 | |
| 2933 | Engine Air Cleaner | Service Replace | 0.3 | | | | 1, 2 | |
| | | | | 1.0 | | | | |
| 2935 | Engine Fuel Tank | Replace | | 0.5 | | | 1, 2 | |
| 2941 | Engine, Muffler, Exhaust, and Tail Pipes | | | | | | | |
| | Muffler Assembly | Replace | | 0.5 | | | 1, 2 | |
| 2952 | Engine Cowling Deflectors, Air Ducts, and Shrouds | Replace | | 0.5 | | | 1 | |
| 2961 | Generator | | | | | | | |
| | Stator Assembly | Replace | | 1.0 | | | 1, 2 | |
| 2962 | Regulator | Replace | | 0.5 | | | 1 | |

Table 1. Maintenance and Allocation Chart (MAC) - 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 | | |
| 2963 | Starter, Solenoids, Circuit Breakers, Wiring, and Switches | | | | | | | |
| | Engine Starter and Switch | Replace | 1.0 | | | 1 | | |
| 2965 | Ignition Coil | | | | | | | |
| 2965 | Glow Plug | Replace | 0.5 | | | 1, 2 | | |
| 33 | SPECIAL PURPOSE KITS | | | | | | | |
| 3307 | Special Purpose Kits | | | | | | | |
| | Redundant Power Kit | Repair | 0.5 | | | 1, 2 | | |
| | Side Lift Kit | Replace | 8.0 | | | 1, 2, 3, 4, 5 | | |
| | Cold Start Kit | Replace | 0.5 | | | 1 | | |
| | | Repair | 0.3 | | | 1 | | |

Table 2. Tools and Test Equipment.

| TOOL OR TEST EQUIPMENT REF CODE | MAINTENANCE CATEGORY | NOMENCLATURE | NATIONAL/NATO STOCK NUMBER | TOOL NUMBER |
|---------------------------------|----------------------|---|----------------------------|----------------|
| 1 | F | Tool Kit, General Mechanic's | 5180-01-548-7643 | PD484 |
| 2 | F | Tool Kit, SATS, Base | 4910-01-490-6453 | SC 4910-95-A81 |
| 3 | F | Adapter, Straight, Pipe to Boss | 4730-00-222-0135 | 2256784PC3 |
| 4 | F | Gage, Pressure, Dial, Indicating 0-6000 psi | 6665-01-373-7976 | 356021 |
| 5 | F | Sling, Nylon | 2835-01-078-2081 | EE2802DTX8 |

Table 3. Remarks.

| REMARK CODE | REMARKS |
|-------------|---|
| A | Task includes: Side Lift Kit (WP 0044), Front Dolly Marker Clearance Light Cable Assemblies Replacement (WP 0045), Rear Dolly Taillight Assembly Cable Assembly Replacement (WP 0046), and Identification Light Cable Assembly Replacement (WP 0047). |
| B | Test time for individual task. Not for all. |

END OF WORK PACKAGE

**OPERATOR MAINTENANCE
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS**

SCOPE

This work package lists COEI and BII for the M1022A1 Dolly Set to help you inventory items required for safe and efficient operation.

GENERAL

The COEI and BII information is divided into the following lists:

- **Components of End Item (COEI).** This list is for informational purposes only and is not authority to requisition replacements. These items are part of the M1022A1 Dolly Set. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to assist you in identifying the items.
- **Basic Issue Items (BII).** These essential items are required to place the M1022A1 Dolly Set in operation, to operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the M1022A1 Dolly Set during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the Table of Organization and Equipment (TOE)/ Modified Table of Organization and Equipment (MTOE). Illustrations are furnished to assist you in identifying the items.

EXPLANATION OF COLUMNS IN THE COEI LIST AND BII LIST

Column (1) ITEM NUMBER. Gives you the reference number of the item listed.

Column (2) NATIONAL STOCK NUMBER (NSN). Identifies the stock number of the item to be used for requisitioning purposes and provides an illustration of the item.

Column (3) DESCRIPTION, PART NUMBER/(CAGEC). Identifies the federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the part number and the CAGEC (Commercial and Government Entity Code) (in parentheses).

Column (4) USABLE ON CODE. When applicable, gives you a code if the item you need is not the same for different models of equipment.

Column (5) U/I. Unit of Issue (U/I) indicates the physical measurement or count of the item issued per the National Stock Number shown in column (2).

Column (6) QTY RQR. Indicates the quantity required.

Table 1. Components of End Item (COEI).



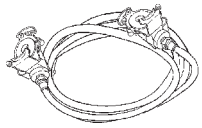
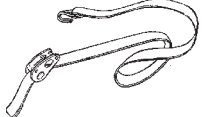


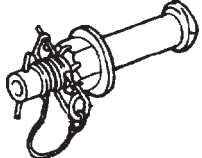

| (1) ITEM NUMBER | (2) NATIONAL STOCK NUMBER (NSN) AND ILLUSTRATION | (3) DESCRIPTION, PART NUMBER/(CAGEC) | (4) USABLE ON CODE | (5) U/I | (6) QTY RQR |
|--------------------|--|--|-----------------------|------------|----------------|
| 1 |  | CABLE ASSEMBLY, MILITARY 13 ft 6 in. 8D00066-1(21439) | | ea | 1 |
| 2 |  | CABLE ASSEMBLY, SAE 13 ft 6 in. 8D00066-2(21439) | | ea | 1 |
| 3 |  | HOSE ASSEMBLY, PNEUMATIC 8D00063-5 or 8D00063-6(1NHH8) | | ea | 1 |
| 4 |  | STRAP ASSEMBLY 8D00223-1(21439) | | ea | 6 |
| 5 |  | CABLE ASSEMBLY, MILITARY 8D00066-3(21439) | | ea | 1 |

Table 2. Basic Issue Items (BII).

| (1) ITEM NUMBER | (2) NATIONAL STOCK NUMBER (NSN) AND ILLUSTRATION | (3) DESCRIPTION, PART NUMBER/(CAGEC) | (4) USABLE ON CODE | (5) U/I | (6) QTY RQR |
|--------------------|---|--|-----------------------|------------|----------------|
| 1 |  | CHARGING ASSEMBLY, AIR BAG 8D00054-1 (21439) | | ea | 1 |
| 2 |  | TWIST LOCK ASSEMBLY 8D00137-1 (21439) | | ea | 8 |
| 3 |  | WRENCH, TWIST LOCK 8D00136 (21439) | | ea | 1 |

END OF WORK PACKAGE

**FIELD MAINTENANCE
ADDITIONAL AUTHORIZATION LIST (AAL)**

INTRODUCTION

Scope

This work package lists additional items you are authorized for the support of the M1022A1 Dolly Set.

General

This list identifies items that do not have to accompany the M1022A1 Dolly Set and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

Explanations of Columns in 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 |
|---------------------------------------|---|--------------------------|------------|-----------------|
| | Kit, Cold Start 8D00350-1(21439) | | ea | 2 |

END OF WORK PACKAGE

**FIELD MAINTENANCE
EXPENDABLE AND DURABLE ITEMS LIST**

SCOPE

This work package lists expendable and durable items that you will need to operate and maintain the M1022A1 Dolly Set. 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 IN THE EXPENDABLE/DURABLE ITEMS LIST

Column (1) ITEM NO. 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 0044, Item 5).

Column (2) LEVEL. This entry identifies the lowest level of maintenance that requires the listed item: C = Crew, O = AMC, 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) shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List.

| (1) ITEM NO. | (2) LEVEL | (3) NATIONAL STOCK NUMBER (NSN) | (4) ITEM NAME, DESCRIPTION, PART NUMBER/ (CAGEC) | (5) U/I |
|--------------------|--------------|---------------------------------------|--|------------|
| 1 | F | 8040-01-284-3984 | Adhesive 1 Ounce can 38050 (05972) | oz |
| 2 | C | 8135-00-753-4662 | Barrier Material: Greaseproof, Waterproofed, Flexible 100 Yard Roll MIL-B-121 (81349) | yd |
| 3 | C | 7920-00-061-0038 | Brush: Scrub 7920-00-061-0038 (83421) | ea |
| 4 | C | 7920-00-900-3577 | Brush: Wire 15SS (17987) | ea |
| 5 | F | 5350-00-187-6294 | Cloth: Abrasive, Aluminum Oxide 50 Yard Roll 5350-00-187-6294 (83421) | yd |
| 6 | F | 5350-00-221-0872 | Cloth: Abrasive, Crocus Package of 50 A-A-1206 (58536) | ea |
| 7 | C | 7930-00-899-9534 | Compound: Dishwashing, Hand 5 Gallon Can 7930-00-899-9534 (83421) | gl |
| 8 | F | 8030-01-303-0502 | Compound: Sealing 50 Cubic Centimeter Bottle 68035 (05972) | cc |
| 9 | F | | Compound: Sealing, Pneumatic/Hydraulic Seal 50 Cubic Centimeter Bottle 54531 (05973) | cc |
| 10 | F | 8030-01-104-5392 | Compound: Sealing, Resin, Type II, Grade N 10 Cubic Centimeter Bottle 242-41 (05974) | cc |
| 11 | F | 8030-01-063-7510 | Compound: Sealing, Thread-Locking 50 Cubic Centimeter Bottle MIL-S-46163TY1GRL (81349) | cc |
| 12 | F | 6850-01-159-4844 | Compound: Silicone, RTV Rubber Sealant 101/7 Ounce Tube 1052914 (11862) | oz |
| 13 | C | 7930-00-282-9699 | Detergent: General Purpose, Liquid 1 Gallon Can 7930-00-282-9699 (83421) | gl |
| 14 | F | 6810-00-249-9354 | Electrolyte: Sulfuric Acid 1 Gallon Bottle 10875529 (19207) | gl |
| 15 | C | 9150-01-252-6383 | Fluid: Hydraulic, Petroleum Base, OHA 1 Quart Can MIL-PRF-5606 (81349) | qt |
| 16 | C | 9150-01-223-4134 | Fluid: Hydraulic, Petroleum Base, OHA 1 Gallon Can MIL-PRF-5606 (81349) | gl |
| 17 | C | 9150-00-082-7524 | Fluid: Hydraulic, Petroleum Base, OHA 10 Gallon Drum MIL-PRF-5606 (81349) | gl |
| 18 | C | 9150-00-265-9408 | Fluid: Hydraulic, Petroleum Base, OHA 55 Gallon Drum MIL-PRF-5606 (81349) | gl |

Table 1. Expendable and Durable Items List - Continued.

| (1) ITEM NO. | (2) LEVEL | (3) NATIONAL STOCK NUMBER (NSN) | (4) ITEM NAME, DESCRIPTION, PART NUMBER/ (CAGEC) | (5) U/I |
|--------------------|--------------|---------------------------------------|---|------------|
| 19 | F | 3439-00-255---35 | Flux: Soldering 1 Pound Can A-A-51145 TY1 Form A (58536) | lb |
| 20 | C | 9140-00-286-5295 | Fuel, Diesel: DF-2 Grade 5 Gallon Can VVF800GRADEDF2RE (81348) | gl |
| 21 | C | 9140-00-286-5296 | Fuel, Diesel: DF-2 Grade 55 Gallon Drum, 16 Gage VVF800GRADEDF2RE (81348) | gl |
| 22 | C | 9140-00-286-5297 | Fuel, Diesel: DF-2 Grade 55 Gallon Drum, 18 Gage VVF800GRADEDF2RE (81348) | gl |
| 23 | C | 9140-00-286-5282 | Fuel, Diesel: DF-A Grade 5 Gallon Can VVF800GRADEDF2RE (81348) | gl |
| 24 | C | 9140-00-286-5284 | Fuel, Diesel: DF-A Grade 55 Gallon Drum, 16 Gage VVF800GRADEDF2RE (81348) | gl |
| 25 | C | 9140-00-286-5285 | Fuel, Diesel: DF-A Grade 55 Gallon Drum, 18 Gage VVF800GRADEDF2RE (81348) | gl |
| 26 | F | 9150-01-262-3358 | Grease: Aircraft, WTR 14 Ounce Cartridge MIL-PRF-81322 (81349) | oz |
| 27 | F | 9150-00-181-7724 | Grease: Aircraft, WTR 8 Ounce Tube MIL-PRF-81322 (81349) | oz |
| 28 | F | 9150-00-935-5851 | Grease: Aircraft, WTR 35 Pound Can MIL-PRF-81322 (81349) | lb |
| 29 | F | 9150-01-237-7468 | Grease: Aircraft, WTR 120 Pound Drum MIL-PRF-81322 (81349) | lb |
| 30 | F | 9150-01-197-7690 | Grease: Automotive and Artillery, GAA 1-3/4 Pound Can M-10924-C (81349) | lb |
| 31 | F | 5970-00-767-0524 | Insulation Sleeving: Electrical, 1/4 Inch Inside Diameter FIT-221-1/4CLEAR (92194) | ft |
| 32 | C | 9150-00-402-4478 | Oil: Lubricating, Engine, Arctic, OEA 1 Quart Can MIL-PRF-46167 (81349) | qt |
| 33 | C | 9150-00-402-2372 | Oil: Lubricating, Engine, Arctic, OEA 5 Gallon Can MIL-PRF-46167 (81349) | gl |
| 34 | C | 9150-00-491-7197 | Oil: Lubricating, Engine, Arctic, OEA 55 Gallon Drum MIL-PRF-46167 (81349) | gl |
| 35 | C | 9150-00-189-6727 | Oil: Lubricating, Engine, OE/HDO 10 1 Quart Can MIL-PRF-2104 (81349) | qt |
| 36 | C | 9150-00-186-6668 | Oil : Lubricating, Engine, OE/HDO 10 5 Gallon Can MIL-PRF-2104 (81349) | gl |
| 37 | C | 9150-00-191-2772 | Oil: Lubricating, Engine, OE/HDO 10 55 Gallon Drum MIL-PRF-2104 (81349) | gl |
| 38 | C | 9150-00-186-6681 | Oil: Lubricating, Engine, OE/HDO 30 1 Quart Can MIL-PRF-2104 (81349) | qt |

Table 1. Expendable and Durable Items List - Continued.

| (1) ITEM NO. | (2) LEVEL | (3) NATIONAL STOCK NUMBER (NSN) | (4) ITEM NAME, DESCRIPTION, PART NUMBER/ (CAGEC) | (5) U/I |
|--------------------|--------------|---------------------------------------|---|------------|
| 39 | C | 9150-00-188-9858 | Oil: Lubricating, Engine, OE/HDO 30 5 Gallon Can MIL-PRF-2104 (81349) | gl |
| 40 | C | 9150-00-189-6729 | Oil: Lubricating, Engine, OE/HDO 30 55 Gallon Drum MIL-PRF-2104 (81349) | gl |
| 41 | F | 9150-00-231-6689 | Oil: Lubricating, General Purpose, Preservative, PL-S 1 Quart Can V-VL-800 (81348) | qt |
| 42 | C | 7920-00-205-1711 | Rag: Wiping 50 Pound Bale 7920-00-205-1711 (64067) | lb |
| 43 | C | 5305-01-561-7606 | Screw, Cap Hexagon head 91280A346 (39428) | ea |
| 44 | F | 3439-00-265-7102 | Solder: Lead Alloy 1 Pound Spool SN10WRP2 0.063 1LB (81348) | lb |
| 45 | C | 6850-01-474-2319 | Solvent: Cleaning, Type II 1 Gallon Can MIL-PRF-680 TYII (81349) | gl |
| 46 | F | 5975-00-903-2284 | Strap: Tiedown Electrical Component MS3367-4-0 (96906) | ea |
| 47 | F | 5975-00-984-6582 | Strap: Tiedown Electrical Component MS3367-1-0 (96906) | ea |
| 48 | F | 5975-00-935-5946 | Strap: Tiedown Electrical Component MS3367-2-1 (96906) | ea |
| 49 | F | 9905-00-537-8954 | Tag: Marker Bundle of 50 MIL-T-12755 (81349) | ea |
| 50 | F | 8030-00-889-3535 | Tape: Antiseize, 1/2 Inch Width 160 Inch Spool MIL-T-27730 (81349) | in |
| 51 | C | 5640-00-103-2254 | Tape: Duct, 2 Inch Width 60 Yard Roll 1791K70 (39428) | yd |
| 52 | F | 7510-00-266-6712 | Tape: Pressure Sensitive Adhesive, Masking, Flat, 1 Inch Width 60 Yard Roll 8783476 (19203) | yd |
| 53 | C | 7510-00-473-9513 | Tape: Pressure Sensitive Adhesive, Masking, Flat, 2 Inch Width 60 Yard Roll MIL-T-23397 (81349) | yd |
| 54 | F | 7510-00-852-8180 | Tape: Pressure Sensitive Adhesive, 2 Inch Width, Black 36 Yard Roll 481 2 IN. BLACK (52152) | yd |
| 55 | F | 9330-00-402-5407 | Tubing: Nonmetallic, 0.187 Inch Inside Diameter MIL-P-22296 (81349) | ft |

Table 1. Expendable and Durable Items List - Continued.

| (1) ITEM NO. | (2) LEVEL | (3) NATIONAL STOCK NUMBER (NSN) | (4) ITEM NAME, DESCRIPTION, PART NUMBER/ (CAGEC) | (5) U/I |
|--------------------|--------------|---------------------------------------|--|------------|
| 56 | F | 9505-00-596-0191 | Wire: Nonelectrical 5 Pound Roll AMSTA A641 (81346) | lb |

END OF WORK PACKAGE

**FIELD MAINTENANCE
TOOL IDENTIFICATION LIST**

SCOPE

This work package lists special tools and equipment needed to maintain the M1022A1 Dolly Set.

Most PM-SKOT products have lifetime warranties and replacement capabilities and are supported world-wide through PM-SKOT. The PM-SKOT implemented a Web-based tool replacement and warranty program in May 2005 for tools authorized in SKO. User may access the online program by first accessing the PM-SKOT web site at <https://pmskot.army.mil> and clicking on the Tool Replacement/Warranty banner.

EXPLANATION OF ENTRIES 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., Crowfoot, 19 mm).

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.

| (1) ITEM NO. | (2) ITEM NAME | (3) NATIONAL STOCK NUMBER (NSN) | (4) PART NUMBER /(CAGEC) | (5) REFERENCE |
|-----------------|--|---------------------------------------|-----------------------------------|-------------------------|
| 1 | Adapter, Socket Wrench: 3/8 in. to 1/2 in. | 5180-01-548-7634 | PD484 19200 | SATS CL 4910-95- A81 |
| 2 | Adapter, Straight, Pipe to Boss | 4730-00-222-0135 | 2256784PC3 10001 | |
| 3 | Caliper, Micrometer, Inside | - | KTC S0998 00NS2 | SATS CL 4910-95- A81 |
| 4 | Compressor Unit, Reciprocating | - | KTC S0157 00NS2 | SATS CL 4910-95- A81 |
| 5 | Crowfoot Attachment: 3/8 in. drive | - | KTC S0161 00NS2 | SATS CL 4910-95- A81 |
| 6 | Cylinder, Compressed Gas: for acetylene | 8120-00-268-3360 | MIL-C-3701 81349 | |

Table 1. Tool Identification List - Continued.

| (1) ITEM NO. | (2) ITEM NAME | (3) NATIONAL STOCK NUMBER (NSN) | (4) PART NUMBER /(CAGEC) | (5) REFERENCE |
|-----------------|--|---------------------------------------|-----------------------------------|-------------------------|
| 7 | Cylinder, Compressed Gas: for oxygen | 8120-00-357-7992 | C901/1-15 81348 | |
| 8 | Drill, Electric, Portable | - | KTC S0189 00NS2 | SATS CL 4910-95- A81 |
| 9 | Drill Set, Twist | - | KTC S0194 00NS2 | SATS CL 4910-95- A81 |
| 10 | Duplex Hose, Rubber | 4720-01-043-4099 | 574F92 30367 | |
| 11 | Gage, Pressure, Dial, Indicating 0-6000 psi | 6665-01-373-7976 | 356021 61349 | |
| 12 | Gloves, Welder's | 8415-00-268-7859 | A-S-50022 58536 | |
| 13 | Goggles, Industrial | - | KTC S0209 00NS2 | SATS CL 4910-95- A81 |
| 14 | Gun, Air Blow | - | KTC S0142 00NS2 | SATS CL 4910-95- A81 |
| 15 | Igniter, Friction | 5120-00-965-0326 | 5-13-2003-55 81337 | |
| 16 | Jack, Bottle, Hydraulic: 12 ton | - | KTC S0237 00NS2 | SATS CL 4910-95- A81 |
| 17 | Jack, Dolly Type, Hydraulic: 10 ton | 4910-00-289-7233 | 93660 36251 | |
| 18 | Lubricating Gun, Hand | - | KTC S0248 00NS2 | SATS CL 4910-95- A81 |
| 19 | Multimeter, Digital | - | KTC S0252 00NS2 | SATS CL 4910-95- A81 |
| 20 | Pliers, Brake Repair | - | KTC S0261 00NS2 | SATS CL 4910-95- A81 |
| 21 | Press, Arbor | 3444-00-449-7295 | A-A-51194 80244 | |
| 22 | Puller Kit, Mechanical: gear and bearing | - | KTC S0269 00NS2 | SATS CL 4910-95- A81 |

Table 1. Tool Identification List - Continued.

| (1) ITEM NO. | (2) ITEM NAME | (3) NATIONAL STOCK NUMBER (NSN) | (4) PART NUMBER /(CAGEC) | (5) REFERENCE |
|-----------------|--|---------------------------------------|-----------------------------------|-------------------------|
| 23 | Riveter, Blind Hand: 3/32 in., 1/8 in., 5/32 in., and 3/18 in. diameters | - | KTC S0700 00NS2 | SATS CL 4910-95- A81 |
| 24 | Sling, Nylon | 2835-01-078-2081 | EE2802DTX8 23755 | |
| 25 | Soldering Gun | - | KTC S0695 00NS2 | SATS CL 4910-95- A81 |
| 26 | Stepladder: 8 ft, aluminum alloy | 5440-00-514-4487 | 5440-00-514- 4487 83421 | |
| 27 | Stud Remover and Inserter: wedge type | - | KTC S0569 00NS2 | SATS CL 4910-95- A81 |
| 28 | Tape, Measuring: 50 ft | - | KTC S0697 00NS2 | SATS CL 4910-95- A81 |
| 29 | Tool Kit, General Mechanic's | 5180-01-548-7634 | PD484 19200 | |
| 30 | Torch Set, Cutting and Welding | 3433-00-294-6743 | MIL-T-13880 81349 | |
| 31 | Trestle, Motor Vehicle Maintenance: 7-ton capacity | 4910-00-251-8013 | 306 79805 | |
| 32 | Truck, Hand, Two-Wheeled: gas cylinder type | 3920-00-113-0117 | KKK-T-683 81348 | |
| 33 | Truck, Lift, Wheel | 4910-00-554-5983 | MILT14537 81349 | SATS CL 4910-95- A81 |
| 34 | Valve, Regulating, Fluid Pressure: for acetylene | 4820-00-285-6067 | 0781-3983 63026 | |
| 35 | Valve, Regulating, Fluid Pressure: for oxygen | 4820-00-641-3519 | MILR13877 81349 | |
| 36 | Vise, Machinist's | - | KTC S0725 00NS2 | SATS CL 4910-95- A81 |
| 37 | Wrench, Adjustable: 0-3 5/8 in. jaw opening | - | KTC S0979 00NS2 | SATS CL 4910-95- A81 |
| 38 | Wrench, pneumatic impact, 1/2 in. sq. drive | - | KTC S0960 00NS2 | SATS CL 4910-95- A81 |

Table 1. Tool Identification List - Continued.

| (1) ITEM NO. | (2) ITEM NAME | (3) NATIONAL STOCK NUMBER (NSN) | (4) PART NUMBER /(CAGEC) | (5) REFERENCE |
|-----------------|---|---------------------------------------|-----------------------------------|-------------------------|
| 39 | Wrench Set, Socket: 3/4 in. drive, wheel-bearing | - | KTC S0661 00NS2 | SATS CL 4910-95- A81 |
| 40 | Wrench Set, Socket: 3/4 in. drive | - | KTC S0961 00NS2 | SATS CL 4910-95- A81 |
| 41 | Wrench, Strap, Pipe: 1-6 in. diameter | 5120-00-776-1840 | 9171739 18876 | |
| 42 | Wrench, Torque: 1/2 in. drive, 0-250 lb-ft capacity | - | KTC S0991 00NS2 | SATS CL 4910-95- A81 |
| 43 | Wrench, Torque: 3/8 in. drive, 0-300 lb-in capacity | - | KTC S0987 00NS2 | SATS CL 4910-95- A81 |
| 44 | Wrench, Torque: 3/4 in. drive, 0-600 lb-ft capacity | - | KTC S0988 00NS2 | SATS CL 4910-95- A81 |

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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 (Forward to proponent of publication or form) (Include ZIP Code) U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000 | | | | | | FROM (Activity and location) (Include ZIP Code) <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-GRAPH | 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> |

| | | |
|--|---|---|
| TO (Forward direct to addressee listed in publication) U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000 | FROM (Activity and location) (Include ZIP Code) <i>Your Address</i> | DATE <i>Date you filled out this form</i> |
|--|---|---|

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

| | | |
|--|-------------------------------|---------------------------------|
| PUBLICATION NUMBER <i>TM Number</i> | DATE <i>Date of the TM</i> | TITLE <i>Title of the TM</i> |
|--|-------------------------------|---------------------------------|

| PAGE NO. | COLM NO. | LINE NO. | NATIONAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
|-----------------|----------|----------|-----------------------|---------------|------------|----------|------------------------------------|--------------------|
| <h1>SAMPLE</h1> | | | | | | | | |

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.)

| | | |
|--|--|------------------------------------|
| 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 (reverse) for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM). | DATE |
|---|------|------------|------|------------|--|---|---|
| For use of this form, see AR 25-30; the proponent agency is OAASA | | | | | | | |
| TO (Forward to proponent of publication or form) (Include ZIP Code) U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000 | | | | | | FROM (Activity and location) (Include ZIP Code) | |
| PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS | | | | | | | |
| PUBLICATION/FORM NUMBER TM 9-2330-390-13&P | | | | | | DATE 18 June 2012 | TITLE Dolly Set: Lift, Transportable Shelter, 7-1/2 Ton, M1022A1 |
| ITEM | PAGE | PARA-GRAPH | LINE | FIGURE NO. | TABLE | RECOMMENDED CHANGES AND REASON | |
| | | | | | | | |
| TYPED NAME, GRADE OR TITLE | | | | | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION | | SIGNATURE |

| | | |
|---|---|-------------|
| TO <i>(Forward direct to addressee listed in publication)</i> U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000 | FROM <i>(Activity and location) (Include ZIP Code)</i> | DATE |
|---|---|-------------|

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

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| PAGE NO. | COLM NO. | LINE NO. | NATIONAL STOCK NUMBER | REFERENCE NO. | FIGURE NO. | ITEM NO. | TOTAL NO. OF MAJOR ITEMS SUPPORTED | RECOMMENDED ACTION |
|----------|----------|----------|-----------------------|---------------|------------|----------|------------------------------------|--------------------|
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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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| TYPED NAME, GRADE OR TITLE | TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION | SIGNATURE |
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| For use of this form, see AR 25-30; the proponent agency is OAASA | | | | | | | |
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By Order of the Secretary of the Army:

Official:



JOYCE E. MORROW
*Administrative Assistant to the
Secretary of the Army*

1213002

RAYMOND T. ODIERNO
*General, United States Army
Chief of Staff*

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 391016 requirements for TM 9-2330-390-13&P.

THE METRIC SYSTEM AND EQUIVALENTS

| | |
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| <p>Linear Measure</p> <p>1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches 1 Kilometer = 1000 Meters = 0.621 Miles</p> <p>Weights</p> <p>1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces 1 Kilogram = 1000 Grams = 2.2 Pounds 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons</p> <p>Liquid Measure</p> <p>1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces 1 Liter = 1000 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>$9/5 C^{\circ} + 32 = F^{\circ}$ $5/9 (F^{\circ} - 32) = C^{\circ}$ 212° Fahrenheit is equivalent to 100° Celsius 90° Fahrenheit is equivalent to 32.2° Celsius 32° Fahrenheit is equivalent to 0° Celsius</p> |
|--|--|

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 |

