TM 9-2330-330-14&P

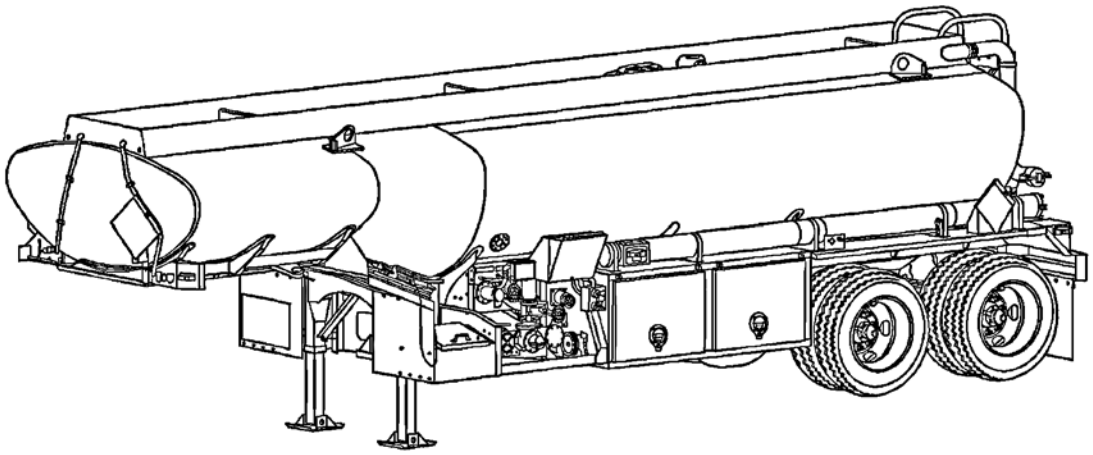
TECHNICAL MANUAL

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

FOR

SEMITRAILER, FUEL TANKER: 5000-GALLON, FUEL-DISPENSING, AUTOMOTIVE, M969A3

(NSN 2330-01-495-0043)



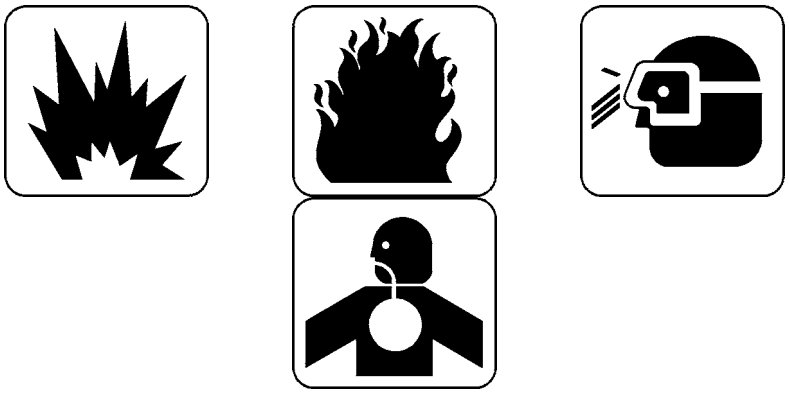
This manual supersedes TM 9-2330-330-14&P, dated December 2003, and all changes.

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

HEADQUARTERS, DEPARTMENT OF THE ARMY
NOVEMBER 2005

WARNING

CLEANING COMPOUND HAZARDS



Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

Cleaning compound is toxic and flammable. Always wear protective goggles and gloves and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes and DO NOT breathe vapors. DO NOT use near open flames or excessive heat.

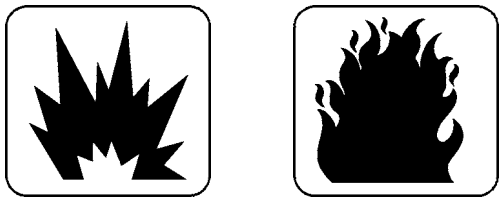
Improper cleaning methods and the use of unauthorized cleaning liquids or compounds can injure personnel and damage equipment. To prevent this, refer to TM 9-247 for further instruction.

DO NOT wash oil seals, electrical cables, and flexible hoses with cleaning compounds or mineral spirits. Serious damage or destruction of material would result.

Compressed air used for cleaning or drying purposes, or for clearing restrictions, should ever exceed 30 psi (207 kPa). Wear protective clothing (goggles/shield, gloves, etc.) and use caution to avoid injury to personnel.

WARNING

GROUNDING SEMITRAILER



Be sure that grounding connections are made properly and firmly before any fueling operations begin. This will ensure that grounding connections will not release, thus eliminating the possibility of sparks caused by static electricity that will ignite the fuel. This applies to top loading and bottom loading at a fixed loading facility. Bottom loading is the preferred method when facilities are available. Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.

WARNING

BONDING AND GROUNDING VEHICLE TO SEMITRAILER





Bond the fuel nozzle to the v ehicle before opening the filler cap. Connect closed-circuit nozzles securely before beginning fuel flow . Electrical hazards may be introduced in several ways such as:

- **Electrostatic sparks.**
- **Operation of auxiliary power units and heaters.**
- **Operation of automotiv e equipment, other than that performing the fuel-servicing functions, w ithin 50 ft (15.25 m) of the vehicle during fuel-servicing operations.**
- **Arcing of electrical circuits.**
- **Open flames.**
- **Energy from energized equipment.**
- **Lightning.**

Due to the dangers of static electrici ty, grounding the semitrailer to the v ehicle while refueling is mandatory , regardless of the amount of fuel to be dispensed. Failure to follow this warning may cause spark to ignite, resulting in serious injury or death to personnel.

Before performing maintenance on the semitrailer, the semitrailer must be grounded to an approved (earth) ground and it must be safe to proceed. Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.

WARNING

FUEL HANDLING



To av oid serious injury or death to personnel, DO NOT fill tanker while pump engine is running, w hile smoking, or w hen near open flame. Nev er ov erfill the tanker or spill fuel. If fuel is spilled, clean it up immediately.

Post signs that read "NO SMOKING WITHIN 50 FEET" w hen performing any fueling operation. Failure to follow this w arning can cause fuel to ignite, resulting in serious injury or death to personnel.

DO NOT smoke w hile performing any fueling operation, or when located within 50 ft (15.25 m) of fueling and fuel storage areas.

DO NOT let fuel or oil drain on hot engine. Fuel or oil can catch fire and cause injury or death to personnel.

Keep fuel away from open flames and keep fire extinguisher w ithin easy reach when working with fuel. Fuel is very flammable and can explode easily, resulting in serious injury or death to personnel.

Spilled fuel is slippery and can cause y ou to slip and fall. To av oid injury, w ipe up spilled fuel immediately with rags.

Follow all fuel-handling procedures precisely to prev ent injury or death to personnel. A detailed study of FM 10-67-1 is essential for all fuel handling operations.

All fueling/defueling operations must be performed outside. Failure to follow this warning may cause spark to ignite fuel v apors, resulting in serious injury or death to personnel.

Before and after all fuel-serv icing operations, all v alves must be in the closed position. Failure to follow this w arning could cause excessiv e spillage or fires, resulting in serious injury or death to personnel.

DO NOT permit automotiv e equipment, other than that performing the fuel-servicing functions, to be within 50 ft (15.25 m) of the v ehicle during fuel-servicing operations.

Remove v ent cap from either side of v apor recov ery tube to v ent tank during fueling operations.

WARNING



When the semitrailer is emptied of fuel, a mixture of vapor and air remains that may be, and often is, within the flammable range. Refilling the semitrailer with a different type of fuel other than it originally contained can cause a potential explosive atmosphere within the semitrailer. Know what fuel was previously carried so that preventive measures may be taken to ensure that injurious or explosive fumes are not released. Failure to follow this warning may result in serious injury or death to personnel.

When filling tank by means of bottom loading, or self-loading, a test of the precheck system is mandatory. If this system is not functioning, stop all operations. Determine the problem and have it corrected by a qualified technician. Failure of automatic shutoff to function may cause uncontrolled fuel spillage, fire, and/or explosion, resulting in serious injury or death to personnel.

When top loading through fill cover, there is no automatic shutdown. Man the loading hose to avoid fuel spillage. Use the capacity indicator gage and dipstick gage to determine amount of fuel loaded. Failure to follow this warning may cause uncontrolled fuel spillage, fire, and/or explosion, resulting in serious injury or death to personnel.

DO NOT mix incompatible fuels in the tank. Dangerous fumes and explosion may result. Know what fuel was previously carried so that preventive measures may be taken to ensure that injurious or explosive fumes are not released. Failure to follow this warning may result in serious injury or death to personnel.

DO NOT fill semitrailer with more than 3000 gallons (11,356 liters) of fuel when semitrailer is being towed by one of the following five-ton tractors: M931/M932 Series with ABS air brakes. Overfilling semitrailer when using one of these tractors creates an overload condition, resulting in difficulty in braking and maintaining control of tractor/semitrailer in critical braking situations. Failure to heed this warning may result in injury or death to personnel or serious damage to equipment.

In an emergency, pull emergency valve A control handle to CLOSED or pull emergency valve A shutoff valve on opposite side (curb side) of semitrailer. Failure to do so may result in injury to personnel.

WARNING

The operator must be alert for leaking or malfunctioning equipment. Stop all servicing operations immediately at th e first sign of leaks or malfunctions. Corrective action must be performed by qualified technicians before resuming any operations. Failure to follow this w arning may cause fire or explosion, resulting in serious injury or death to personnel.

Parking areas for fuel-servicing vehicles should be arranged to:

- **Facilitate the dispersal of vehicles in event of an emergency.**
- **Provide a distance of at least 25 ft (7.62 m) of clear space between vehicles for accessibility for fire control purposes.**
- **Prevent fuel from any vehicle from draining into an adjacent building.**
- **Provide a distance of at least 50 ft (15.25 m) from any structure that houses the public and may have windows or doors in exposed walls.**

All vapor-freeing w ork by any method should be carried on outdoors, remote from vehicles and other know n sources of ignition, and the fuel tank must be stationed where flammable v apors w ill not blow or drift indoors. Failure to follow this warning may result in serious injury or death to personnel.

DO NOT allow fuel-dispensing nozzle sp ray to contact skin. Diesel fuel under pressure can penetrate flesh and cause serious injury and infection.

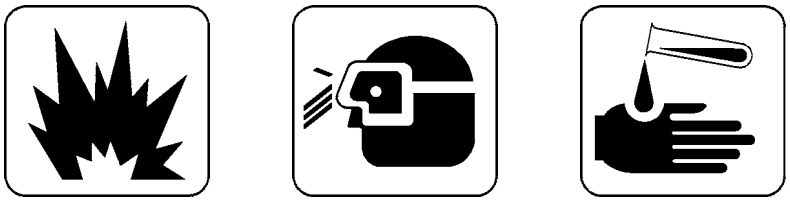
The following must be observed if the semitrailer is to be moved indoors:

- **The tank must be completely drained and purged.**
- **The interior of the tank must be checked w ith explosiv e meter prior to moving into the building.**
- **The combustible gas indicator set must be used to check the tank prior to starting w ork each day, and random checks must be performed during the day.**
- **No open flames, w elding, or use of heat-producing dev ices is permitted near the tank during maintenance unless the tank tests safe w ith the combustible gas indicator set.**
- **No smoking is allowed within 50 ft (15.25 m) of semitrailer at any time.**

DO NOT climb into tank unless interior of tank has been drained and purged and an explosiv e meter check indicates that it is safe to do so. Adequate forced-air ventilation or a self-contained breathing apparatus must be used. Any person entering tank must hav e an attached lifeline. An observ er must be stationed at the manhole opening so assistance may be summoned in the ev ent of an emergency. Failure to follow this warning may result in serious injury or death to personnel.

WARNING

BATTERY HAZARDS



Lead-acid batteries can explode. DO NOT smoke, have open flames, or make sparks around a battery, especially if the caps are off. If a battery is gassing, it can explode and cause injury to personnel.

Ventilate when charging or using a battery in an enclosed space.

Wear safety goggles and acid-proof gloves when battery cover must be removed or when adding electrolyte.

Avoid contact between battery electrolyte and skin, eyes, or clothing. If electrolyte spills, take immediate action to stop burning effects:

- **EXTERNAL. Immediately flush with cold running water to remove all acid.**
- **EYES. Flush with cold water for at least 15 minutes. Seek immediate medical attention.**
- **INTERNAL. Drink large amounts of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Seek immediate medical attention.**
- **CLOTHING OR VEHICLE. Wash at once with cold water. Neutralize with baking soda or household ammonia solution.**

Wear safety glasses or goggles when checking batteries. Always check electrolyte level with engine stopped. DO NOT smoke or use exposed flame when checking battery; explosive gases are present and severe injury to personnel can result.

Remove or disconnect batteries prior to performing maintenance in immediate battery area or working on electrical system. Such disconnections prevent electrical shock to personnel or equipment.

Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and DO NOT smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent damage to clothing.

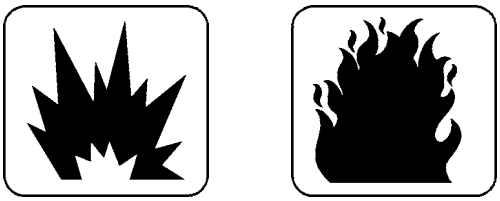
Remove all jewelry, such as rings, identification tags, bracelets, and so on. If jewelry contacts battery terminal, a direct short may result in instant heating of tools, damage to equipment, and injury or death to personnel.

WARNING

GENERAL OPERATION

DO NOT let go of static reel cable w hen rewinding until ball stop is firmly touching the reel. Failure to follow this warning may cause injury to personnel.

WARNING



Sudden changes in temperature may cause semitrailer to develop leaks at the fittings and connectors. Use caution and pa y special attention to these areas. If something is broken or w orn out, report it to Organizational maintenance. Corrective action must be performed before resuming any operations. Failure to follow this warning may result in injury to personnel.

The semitrailer must not be operated if there are any fuel leaks from semitrailer tank or from engine. Report any fuel leaks to y our superv isor or Organizational Maintenance. Failure to do so w ill result in a fire haz ard, w hich can cause sev ere injury or death to personnel.

WARNING

Wipe excess lubricant from area of brake shoe linings to av oid grease from contacting linings. If brake shoe linings become soaked w ith grease, replace them. Failure to follow this w arning may cause brakes to malfunction, resulting in serious injury or death.

WARNING

Air reserv oir is heav y. Get help w hen remov ing air reservoir from semitrailer. Failure to follow this warning could result in injury to personnel.

WARNING

Kingpin coupler is v ery heav y, DO NOT attempt to lift or maneuv er coupler by yourself, get help.

WARNING

Kingpin spacer is very heavy. Attempting to lift or maneuver coupler by yourself could result in injury or death to personnel.

WARNING

To av oid personal injury , use a hoist or some lifting device when lifting 4-inch pump. DO NOT attempt to lift pump using just ey ebolt, or damage to pump may occur.

The spring load on mechanical seal may cause impeller to fly off shaft while being removed, causing serious injury to personnel.

WARNING

Piping frame is heavy. Position a forklift or other suitable lifting device underneath framework. DO NOT attempt to lift it by yourself or damage to equipment or injury to personnel could result.

WARNING

Maneuver forklift under engine and pump cabinet frame for support when replacing.

WARNING

Spare tire and ladder are heav y. Make sure cable is not fray ed or damaged. DO NOT raise spare tire and ladder past the v ertical position or they will slam into carrier assembly. Failure to follow this w arning may result in sev ere injury to personnel or damage to equipment.

WARNING

Ladder has narrow treads. To prevent injury, use care when climbing.

WARNING

The following should be done w hen servicing a semitrailer connected to the prime mover, regardless of the nature of the repair:

- **The prime mover's engine should be shut down.**
- **The prime mover's parking brakes should be applied.**
- **The prime mover's ignition key should be remov ed and be in the hands of the operating technician or be locked in an area away from the vehicle.**

WARNING

Replace w heel w ith semitrailer connected to prime mover if possible. If semitrailer is not connected to prime mov er, ensure that landing gear is low ered and locked and w heels are chocked. Failure to follow this w arning may cause semitrailer to roll resulting in injury to personnel or damage equipment.

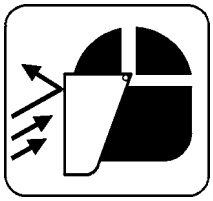
WARNING

Wheel assembly is heavy. Use two people to remove wheel assembly from studs. Failure to follow this warning could result in injury to personnel.

WARNING

Failure to torque outer wheel bearing nut properly could cause wheel to come off during vehicle operation, which could result in death to personnel or property damage.

WARNING



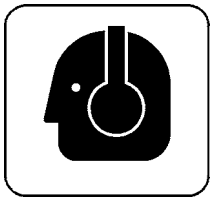
Handle charged fire extinguisher cylinders with care. To prevent serious injury to personnel, DO NOT jar or expose to temperature above 140°F (60°C).

WARNING



Voltage of 115–220 volts can cause personal injury or death. Take extreme care when working with this much voltage.

WARNING



Operators must wear ear protection while on the engine side of semitrailer when engine is running. Failure to follow this warning may result in injury to personnel.

WARNING

Hearing protection is required w ithin 50 ft (15.25 m) of tanker during operation of the engine. Failure to follow this warning may result in injury to personnel.

WARNING

Manhole cover does not lock open. Injury may occur if manhole cov er accidentally closes on personnel.

WARNING

Relieve pressure in tank shell prior to opening or removal of manhole cover.

WARNING

DO NOT crawl underneath, on top, or near the tires of the semitrailer unless the brakes are positively locked and all other personnel are aware of your presence.

WARNING

Read and observe all safety precautions listed in the Warning Summary before performing any maintenance on filter separator. Make sure semitrailer is grounded to an approv ed (earth) ground and is safe to proceed. Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.

WARNING

HOSE REEL

DO NOT attempt to lift hose reel cabinet by hand or personal injury or damage to equipment may occur.

WARNING

When the hose has been pulled from the hose reel, the hose reel is under spring tension. To av oid mov ement of the hose reel by accidental activ ation of the hose reel rewind switch, tighten the hose reel lock. Failure to follow this w arning may result in personal injury.

WARNING

Use extreme caution when operating electric rewind on the hose reels. NEVER use the electric rew ind on both hose reels at the same time. Electric rew ind should be halted, then resumed carefully, as the fuel-dispensing nozzle approaches the vehicle. As the hose becomes fully w ound on the hose reel, the nozzle may slam against the vehicle with force sufficient to cause injury to personnel and/or damage to equipment. Extreme care is to be used, ensuring that the hose is rewound slowly. Caution should be used at the hose reels to prev ent accidental tripping of the rew ind sw itches. If these are accidentally depressed by hand or falling objects, serious injury to personnel and/or damage to equipment may occur.

WARNING

DO NOT operate engine w ith engine access door open. Hot exhaust can cause injury to personnel or damage to equipment.

WARNING

All personnel must stand clear of prime mover and M969A3 prior to connecting. Failure to follow this warning may result in severe injury or death to personnel.

WARNING

The M969A3 is ONLY authorized to be towed by the following prime movers WITH ABS: M915A2, MI915A3, M915A4, M1088 (FMTV), and M931/M932 Series . Failure to follow this warning may result in severe injury or death to personnel.

WARNING

- **No disassembly of air brake chamber is authorized. Before any work is performed on the spring brake system, chock the wheel front and rear to prevent semitrailer movement. When inspecting or caging air brake chambers, do not position yourself in front of, or in line with, the chamber. Serious injury or death may occur if this warning is not followed.**

- **Discarded air brake chambers must be safely and properly disposed of. They should be disarmed prior to disposal to prevent present and future injury.**

WARNING

VAPOR INTEGRITY TEST

Use extreme caution when walking or working on the top of semitrailer. Walkway can become slippery due to moisture or fuel spillage. Failure to follow this warning may result in serious injury.

Before performing the pressure or vacuum test, the semitrailer must be grounded to an approved (earth) ground and must be safe to proceed. Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.

Make sure tank and piping system are free of all liquid and that tank is purged of all fuel vapor (implement the cleaning procedures, as applicable, refer to TB 43-0212). Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.

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Original 30 November 2005

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TM 9-2330-330-14&P

TECHNICAL MANUAL

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

FOR

SEMITRAILER, FUEL TANKER: 5000-GALLON FUEL-DISPENSING, AUTOMOTIVE, M969A3

(NSN 2330-01-495-0043)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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

This manual supersedes TM 9-2330-330-14&P, dated December 2003, and all changes.

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HEADQUARTERS, DEPARTMENT OF THE ARMY

30 NOVEMBER 2005

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HOW TO USE THIS MANUAL

SCOPE

This manual provides you with the information you will need to operate and maintain the semitrailer.

MANUAL CONTENT

The front matter in this manual consists of general warnings, title block page, and table of contents.

The information contained in this manual is presented in nine chapters. Each chapter is divided into Work Packages (WPs) that cover operating procedures, maintenance procedures, troubleshooting procedures, and other information for specific systems or components. Each WP starts on a right-hand page. Page number consists of the WP number followed by a dash and another number. For example “0007 00-9” means WP 0007 00, page 9.

At the end of this manual are an alphabetical index, DA Form 2028-2, and metric conversion chart.

Front Matter

There are general warnings that start on the first right-hand page immediately after the cover that should be read before performing any maintenance on the semitrailer.

The title block page includes the reporting of errors and recommending improvements statement.

The table of contents lists the chapters and WPs in the manual.

Chapters

Chapter 1 provides general information, equipment descriptions, and theory of operation.

Chapter 2 provides the description and use of controls and indicators, and operating instructions.

Chapter 3 provides Operator troubleshooting procedures.

Chapter 4 provides Organizational troubleshooting procedures.

Chapter 5 provides Direct Support and General Support troubleshooting.

Chapter 6 provides Operator maintenance instructions.

Chapter 7 provides Organizational maintenance instructions.

Chapter 8 provides Direct Support and General Support maintenance instructions.

Chapter 9 provides supporting information, including the publications referenced in this manual, Maintenance Allocation Chart (MAC), Basic Issue Items (BII) list, expendable and durable items list, torque limits, and Repair Parts and Special Tools List (RPSTL).

Alphabetical Index

An index is located after the last WP in this manual that provides an alphabetical listing of information and components/assemblies contained in this manual.

HOW TO USE THIS MANUAL—Continued

DA Form 2028

DA Form 2028 is used to report errors and to recommend improvements for the tasks in this manual.

Metric Conversion Chart

This metric conversion chart converts English measurements to metric equivalents. Measurements in this manual are provided in both English and metric units.

WARNINGS, CAUTIONS, AND NOTES

You must read and understand this manual BEFORE operating the semitrailer.

Throughout this manual, you will see **WARNING, CAUTION,** and **NOTE** headings. There are good reasons for every one of these notices:

WARNING

A warning is used to alert the user to hazardous operating and maintenance procedures, practices, or conditions that could result in injury or death. Warnings must be strictly observed.

CAUTION

A caution is used to alert the user to hazardous operating and maintenance procedures, practices, or conditions that could result in damage to, or destruction of, equipment or mission effectiveness. Cautions must be strictly observed.

NOTE

A note highlights an essential operating or maintenance procedure, condition, or statement.

Warnings and cautions appear immediately preceding the step to which they pertain. It is important to read and thoroughly understand the warnings and/or cautions before beginning maintenance. Notes may precede or follow the steps to which they pertain, depending on what makes the most sense.

INITIAL SETUPS

Before starting a task, you must obtain all the tools, supplies, and personnel listed in the initial setup. Be sure to read the task before performing the maintenance. If any other tasks are referenced, you must go to the initial setup page for each of these tasks to find out what tools, supplies, and personnel will be needed.

INDEXING

Three indexing procedures are used in this manual to help you locate information quickly:

- Table of contents
- Controls and indicators index in WP 0006 00
- Alphabetical index at the back of this manual

SEMITRAILER GENERAL INFORMATION 0001 00

TYPE OF MANUAL

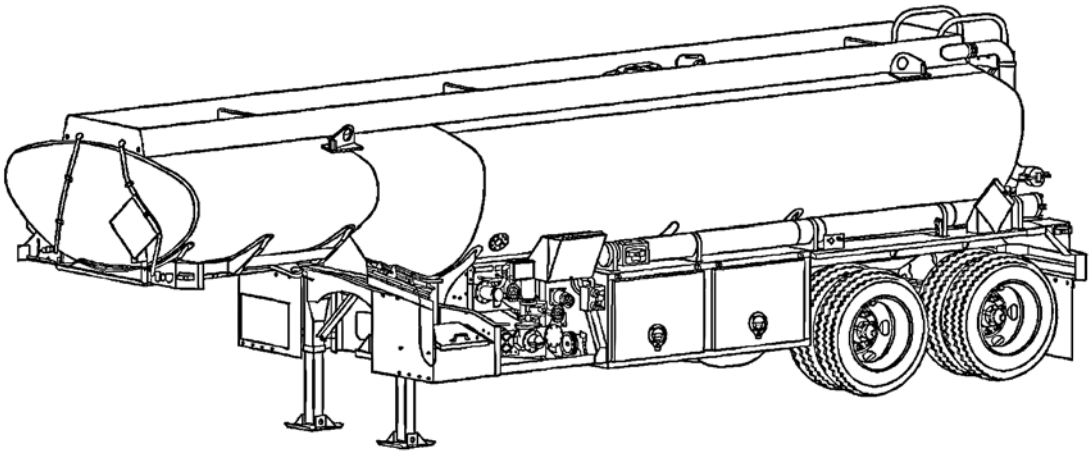
TM 9-2330-330-14&P is an Operator's, Organizational, Direct Support, and General Support Maintenance Manual including a RPSTL.

EQUIPMENT NAME AND MODEL NUMBER

This manual covers: Semitrailer, Fuel Tanker: 5000-Gallon, Fuel-Dispensing, Automotive, M969A3.

PURPOSE OF EQUIPMENT

The purpose of this semitrailer is to haul and dispense fuel.



M969A3 Semitrailer

MAINTENANCE FORMS, RECORDS, AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 738-750, Functional Users Manual for the Army Maintenance Management System (TAMMS) or AR 700-138, Army Logistics Readiness and Sustainability.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs)

If your semitrailer needs improvement let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to the address specified in DA PAM 738-750, Functional Users Manual for TAMMS, or as specified by the contracting activity. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC)

CPC of Army material is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items.

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.

If a corrosion problem is identified, it can be reported using SF 368, Product Maintenance Deficiency Report. Use of key words such as “corrosion,” ”rust,” “deterioration,” or “cracking” will ensure that the information is identified as a CPC problem.

The form should be submitted to the address specified in DA PAM 738-750, TAMMS.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

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

WARRANTY STATEMENT

Heil Trailer International warrants its Tank Trailer Equipment to be free from defects in material and workmanship under normal use, when proper service and maintenance as described in its Service Bulletins and Operation Manuals are performed, for a period of 12 months from the date when these products are delivered to the first purchaser.

This warranty is expressly limited to the repair or replacement of any component or part thereof, of any such unit manufactured by Heil Trailer International, that is proven to Heil’s satisfaction to have been defective in material or workmanship. Such components or parts thereof shall be repaired or replaced without cost to the first purchaser for parts and labor provided such unit is returned for such repair or replacement to an authorized Heil Distributor, or such other place as may be designated by Heil, within 12 months from the date on which the unit was delivered to such first purchaser.

Heil Trailer International neither warrants, nor does it accept liability for products manufactured by others and installed by Heil. Purchaser and/or end user must pursue any claims of any nature whatsoever, including warranties with the manufacturer of said product.

Heil Trailer International makes no other warranty, expressed or implied, and makes no warranty of merchantability or of fitness for any particular purpose.

Heil Trailer International does not assume any other liability of any nature whatsover, including but not limited to, any direct or indirect or consequential loss, transportation charges, loss of profits, damages, or delays. Any improper use, operation beyond rated capacity, substitution of parts not approved by us, or any alteration or repair by others in such manner as in our judgment affects the product materially and adversely, shall void this warranty.

Other than extension of the warranty period under Heil’s Extended Warranty Program, no employee or representative is authorized to change this warranty in any way or grant any other warranty.

Heil Trailer International warrants that this trailer is manufactured in accordance with the specifications on the order. Heil Trailer International does not warranty this piece of equipment for use in hauling any specific product. Heil Trailer International accepts no responsibility for damage to the equipment, or for cargo losses, due to an adverse effect on the equipment caused by the incompatibility of the product being hauled in the trailer. Where tanks are prepared for lining, all agreements that concern the tank

barrel lining will be the responsibility of the customer and the lining company. In this connection, Heil Trailer International makes no warranty of products, including lining manufactured and/or installed by others, the same being subject to warranties, if any, of their respective manufacturers or installers. The customer shall bear the risk for damage or loss to the tank or injury to property or person, while the tank is either at or in transit to or from the lining company. In those instances where the lining application is performed by a Heil Trailer International facility, no warranty will be provided to the installation or application of those lining materials.

Heil Trailer International does no assume any liability for interior cleanliness and finish requirements of trailers due to different operations and circumstances. As such, Heil Trailer International does not certify that trailers are ready to be placed in service for product upon delivery. The trailer must be inspected, cleaned, washed, and otherwise prepared for its intended service by the user to the requirements of the customer prior to placing into service.

The above warranty supersedes and is in lieu of all other warranties expressed or implied.

LIST OF ABBREVIATIONS/ACRONYMS

AAL.....Additional Authorization List
ABS ..... Antilock Brake System
BII ..... Basic Issue Items
CAGEC..... Commercial and Government Entity Code
cm.....centimeters
CPC.....Corrosion Prevention and Control
dc..... direct current
DS ..... Direct Support
EA.....each
ECU..... Electronic Control Unit
EIR .....Equipment Improvement Recommendation
EPA .....Environmental Protection Agency
FMTV.....Family of Medium Tactical Vehicles
gal..... gallons
GL..... gallons
gpm .....gallons per minute
GS .....General Support
in.....inches
kg.....kilograms
km/h..... kilometers per hour
kPa .....kilopascals
L .....liters
LB ..... pound
lb-ft ..... pound-feet
Lpm .....liters per minute
MAC ..... Maintenance Allocation Chart
m ..... meters
mm ..... millimeters
mph .....miles per hour
MWO ..... Modification Work Order
NATO .....North Atlantic Treaty Organization
NSN..... National Stock Number

N•m.....Newton-meters
P/N .....Part Number
PMCS..... Preventive Maintenance Checks and Services
psi.....pounds per square inch
PT.....pint
QT ..... quart
RO .....roll
ROM..... Refuel on the Move
RPSTL.....Repair Parts and Special Tools List
SC .....Supply Catalog
SMR ..... Source, Maintenance, and Recoverability
SRA.....Specialized Repair Activity
TAMMS .....The Army Maintenance Managmenet System
TAMMS-A..... The Army Maintenance Management System—Aviation
TB.....Technical Bulletin
TM .....Technical Manual
TMDE .....Test, Measurement, and Diagnostic Equipment
V .....volts
WC ..... Water Column
WP.....Work Package

END OF TASK

CHAPTER 1

INTRODUCTORY INFORMATION
WITH
THEORY OF OPERATION

SEMITRAILER EQUIPMENT DESCRIPTION AND DATA 0002 00

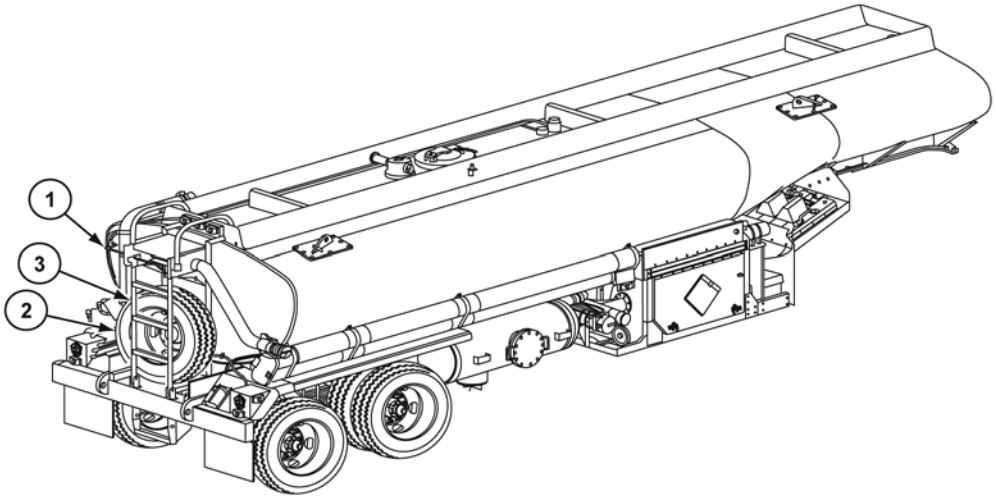
EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

The M969A3 Semitrailer is constructed of welded stainless steel, with a single compartment tank of 5000 gal (18,927 L) plus a 3% capacity for product expansion. The chassis is constructed of welded stainless steel and is equipped with full floating tandem axles and manually operated landing gear.

The M969A3 5,000-Gallon Tanker may be used **ONLY** with the following prime movers that **HAVE** ABS braking systems: M915A2, M915A3, M915A4, M1088 (FMTV), and M931/M932 series. Use of the M969A3 with the M931/M932 **WITHOUT** ABS brakes is **NOT** authorized. Tankers are not to be filled to exceed the load capacities of the tractors. Due to limited payload capacity, some of the tractors will not be able to haul fully loaded tankers. No over-load wavier is allowed for these tankers. When driving on hard-surface highways, only the 10-ton military-adapted commercial 6x4 prime movers, M915A2, M915A3, and M915A4, with ABS are authorized. The M969A3 Semitrailer can be loaded through the bottom or top fill opening. The Lombardini three-cylinder diesel engine in combination with the Gorman Rupp 4-in. pump provides self-load/unload capability.

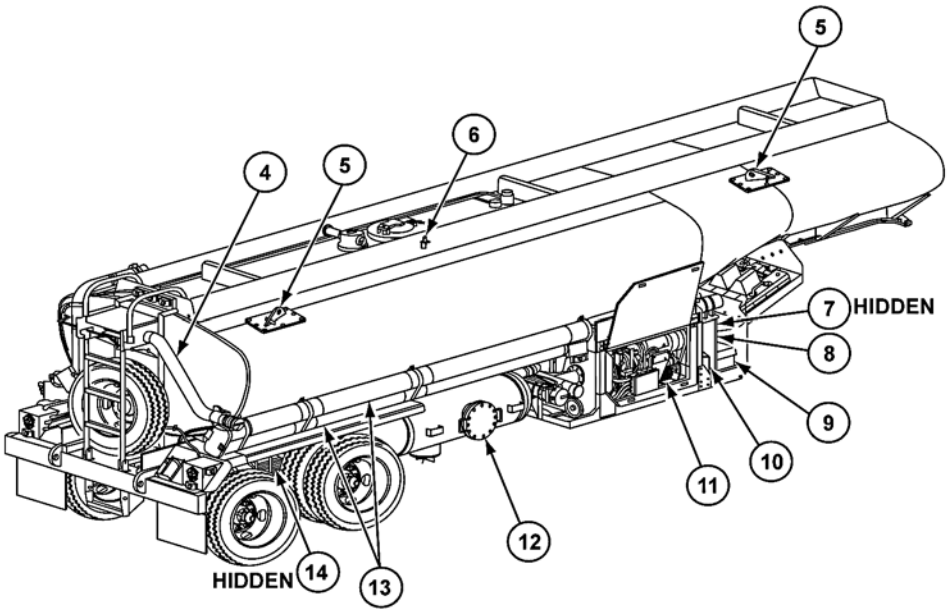
The M969A3 is equipped with pressure and vacuum vents, a sealed manhole, an improved vapor recovery system, two 50-foot (15.2 m) lengths of 1-1/4 in. fuel-dispensing hoses, three 4-in. hoses for loading/off loading and bulk delivery, a portable grounding rod, three static reels, and a spare tire. A ladder is provided at the rear of the semitrailer for easy access to the top of the M969A3.

KEY	COMPONENTS	DESCRIPTION
1	Winch assembly	Winds and rewinds the spare tire.
2	Spare tire	Provides spare tire.
3	Ladder	Provides access to top of tanker.



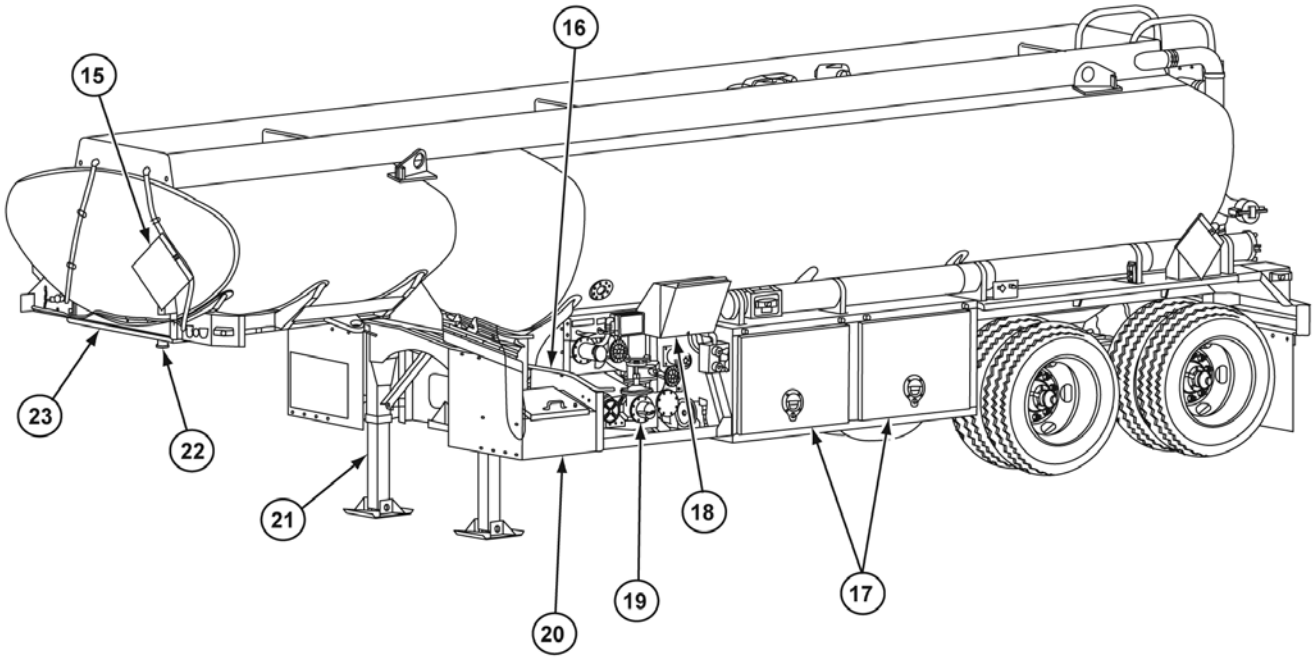
SEMITRAILER EQUIPMENT DESCRIPTION AND DATA—Continued **0002 00**

KEY	COMPONENTS	DESCRIPTION
4	Vapor recovery system	Allows fuel depot to collect/recover vapors.
5	Lifting lugs (4)	Provides lift capability for semitrailer.
6	Ground studs (3)	Allows semitrailer to discharge static electricity.
7	NATO slave connection	Provides emergency source of electricity for starting engine.
8	Optic socket box	Provides fuel depot with automatic shut off capability.
9	Batteries	Provides electricity for starting engine.
10	Engine fuel tank	Store fuel for engine.
11	Engine/pump	Provides semitrailer with pumping capability.
12	Filter/separator	Filters water from fuel and filters fuel.
13	Hose tubes (3)	Stores semitrailers three 4-in. hoses.
14	Suspension	Cushions road shock.



SEMITRAILER EQUIPMENT DESCRIPTION AND DATA—Continued **0002 00**

KEY	COMPONENTS	DESCRIPTION
15	Hazardous materials placard (4)	Displays hazmat symbols.
16	Landing gear handcrank	Raises/lowers landing gear.
17	Hose reel cabinet	Protects and stores 1-1/4 in. hoses.
18	Engine control panel	Houses engine controls and gages.
19	Piping control	Houses pumping valves and outlets.
20	Tool/storage box	Provides BII/AAL and tool storage.
21	Landing gear	Allows semitrailer to stand on its own.
22	Kingpin	Guides, centers, and locks the prime movers fifth wheel.
23	Spacer plate	Provides semitrailer with an adjustable kingpin height.



SEMITRAILER EQUIPMENT DESCRIPTION AND DATA 0002 00

EQUIPMENT DATA

Bridge Classification:

Empty weight with prime mover	Class. 14
Empty weight without prime mover	Class. 6
Cross-country loaded with prime mover	Class. 25
Cross-country loaded without prime mover	Class. 18
Highway loaded with prime mover	Class. 30
Highway loaded without prime mover	Class. 22

Angle of Departure ..... 60°

Capacities of Tank (Vehicle Capacity):

Hard-surface road and cross-country	5000 gal. (18,927 L)
20% maximum side slope without leakage	5000 gal. (18,927 L)
10% maximum longitudinal slope without leakage	5000 gal. (18,927 L)

Capacities of Tank (with 5-ton Prime Mover other than M1088):

Hard-surface road and cross-country	3000 gal. (11,356 L)
20% maximum side slope without leakage	3000 gal. (11,356 L)
10% maximum longitudinal slope without leakage	3000 gal. (11,356 L)

Center of Gravity:

Empty (vertical)	46.1 in. (117.1 cm)
Empty (horizontal from front)	210.0 in. (533.4 cm)
Loaded (vertical)	62.8 in. (159.5 cm)
Loaded (horizontal from front)	185.0 in. (469.9 cm)

Dimensions Overall:

Height	104.4 in. (265.2 cm)
Length	359.2 in. (912.4 cm)
Width	95.3 in. (242.1 cm)
To outside of tires	96.0 in. (243.8 cm)

Weights:

Empty	17,600 lb (7982 kg)
Kingpin weight	5,500 lb (2494 kg)
Rear axle	12,100 lb (5488 kg)
Loaded (5000 GAL)	52,300 lb (23,719 kg)

Kingpin Location:

From nose of vehicle	17.0 in. (43.2 cm)
To landing gear	84.8 in. (215.4 cm)

Crankcase Capacity ..... 5.29 qt (5.01 L)

Fuel/Filter/Separator Rating ..... 300 gpm @ 150 psi (1136 L @ 1034 kPa)

Fording Depth ..... 30 in. (76.2 cm)

Tire Pressure ..... 95 psi (655 kPa)

END OF TASK

ELECTRICAL SYSTEM THEORY OF OPERATION 0003 00

The M969A3 is equipped with two electrical systems. The first system is a 12/24 V dc electrical system that receives its power from the prime mover through the intervehicular cable assembly. The intervehicular cable assembly is connected to the M969A3 main wiring harness that distributes power to the composite lights, front, side, and rear marker lights, ECU valve, water detection switch, and overflow monitor panel. The second electrical system is the engine electrical system, a self-contained unit that provides power to keep the batteries charged and engine running.

END OF TASK

ENGINE AND PUMP THEORY OF OPERATION 0004 00

ENGINE

The diesel engine provides power through the flexible coupling to the centrifugal pump. The engine is a 3-cylinder, 4-cycle, valve-in-head, air-cooled engine with a maximum rating of 35.4 hp (26.4 kW), located on the curbside of the semitrailer. The engine is operated and monitored by the control panel located on the roadside of the semitrailer.

PUMP

The M969A3 is equipped with a 4-in., self-priming, low-pressure centrifugal pump that provides metered fuel delivery up to 100 gpm (379 Lpm) through one or both fuel-dispensing nozzles.

END OF TASK

ANTILOCK BRAKE SYSTEM (ABS) THEORY OF OPERATION 0005 00

The semitrailer brakes are equipped with 4-sensor 2-modular ABS, axle by axle, to prevent wheel lockup during braking on unstable surfaces. The ABS is automatic, applied through the air brake system and needs no operator assistance.

END OF TASK

CHAPTER 2

OPERATOR INSTRUCTIONS

DESCRIPTION AND USE OF CONTROLS AND INDICATORS 0006 00

GENERAL

The following pages show the location and function of the controls and indicators of the M969A3. Below is an alphabetical listing of them and the page number on which they can be found. Review this section thoroughly before operating the semitrailer.

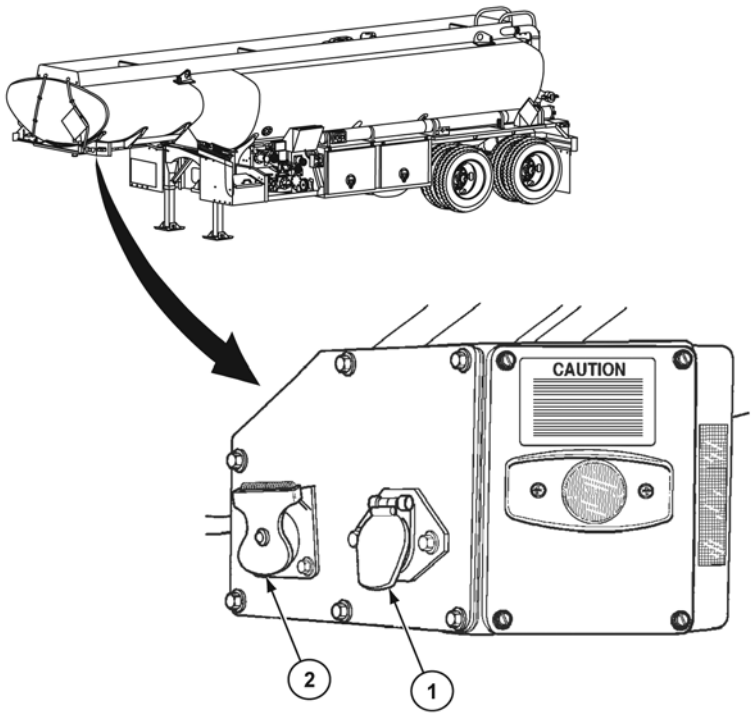
Page Number

Air cleaner restriction indicator 0006 00-14
Battery voltage gage 0006 00-8
Bottom loading adapter 0006 00-5
Control panel light 0006 00-7
Engine control panel assembly 0006 00-7
Engine hours 0006 00-7
Engine switch 0006 00-7
Engine throttle 0006 00-5
Filter separator gage 0006 00-8
Filter/separator controls 0006 00-13
Fuel pressure gage 0006 00-8
Hose reel cabinet 0006 00-9
Indicator light 0006 00-7
Intervehicular cable (12 volt) connector 0006 00-3
Intervehicular cable (24 volt) connector 0006 00-3
Intervehicular cable connectors 0006 00-3
Landing gear handcrank 0006 00-4
Oil pressure gage 0006 00-8
Optic socket box 0006 00-10
Optic socket box (curbside) 0006 00-10
Optic socket box (roadside) 0006 00-10
Outlet valve 0006 00-6
Overfill monitor panel 0006 00-5
Parking brake valve 0006 00-11
Parking brake/Scrader valve 0006 00-11
Piping control assembly 0006 00-5
Preheater switch 0006 00-7
Pump pressure gage 0006 00-8
Schrader valve 0006 00-11
Spare tire lifting device handcrank 0006 00-12
Starter switch 0006 00-7
Tachometer 0006 00-7
Tanker fuel level indicator gage 0006 00-8
Tanker fuel level indicator switch 0006 00-8
Valve A control handle 0006 00-6
Valve B 0006 00-6
Valve D 0006 00-5
Valve E 0006 00-5
Valve F 0006 00-6
Valve G 0006 00-6
Valve H 0006 00-6
Valve K 0006 00-6

DESCRIPTION AND USE OF CONTROLS AND INDICATORS—Continued **0006 00**

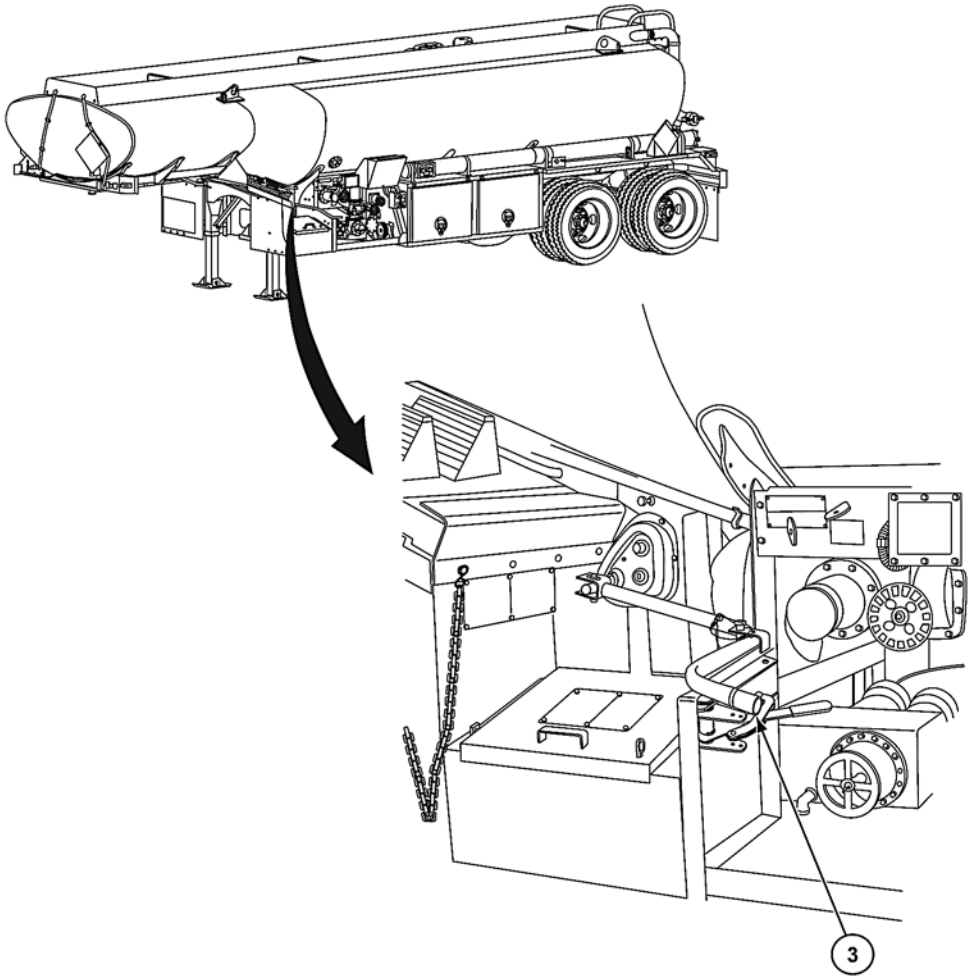
Valve J 0006 00-6
Valve M 0006 00-13
Valve N 0006 00-13
Valve P 0006 00-9
Valve R 0006 00-9
Volumetric meters 0006 00-9
Water level warning light 0006 00-7

INTERVEHICULAR CABLE CONNECTORS



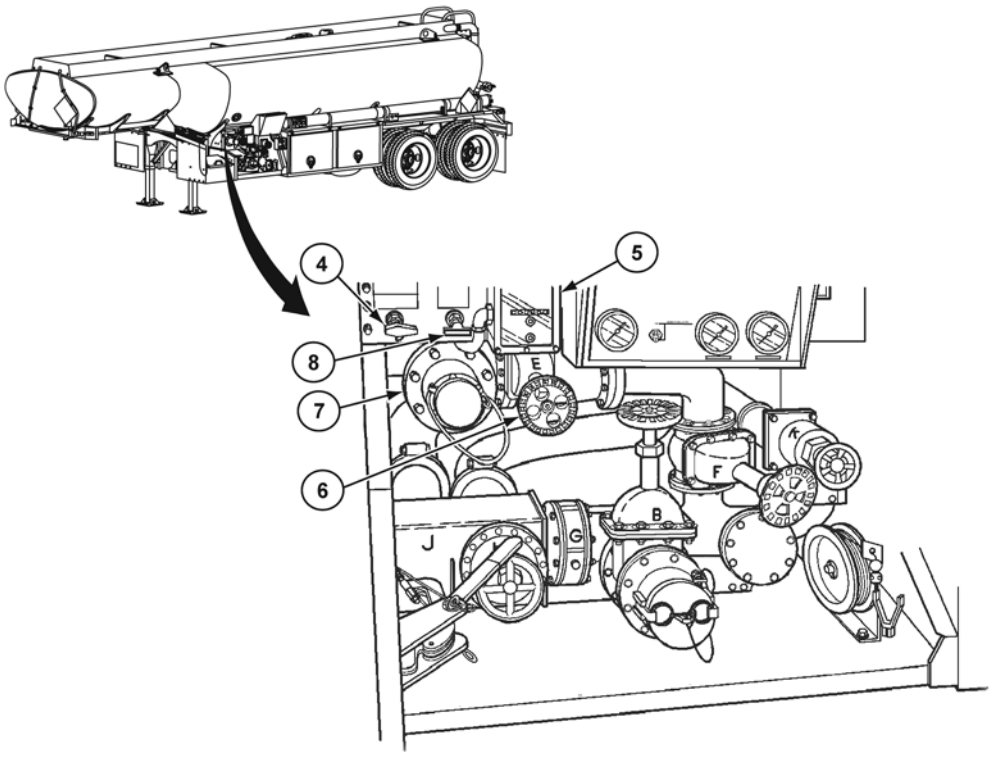
KEY	CONTROL OR INDICATOR	FUNCTION OR USE
1	Intervehicular cable (12 volt) connector	Connects towing vehicle and semitrailer 12-volt electrical systems.
2	Intervehicular cable (24 volt) connector	Connects towing vehicle and semitrailer 24-volt electrical systems.

LANDING GEAR HANDCRANK

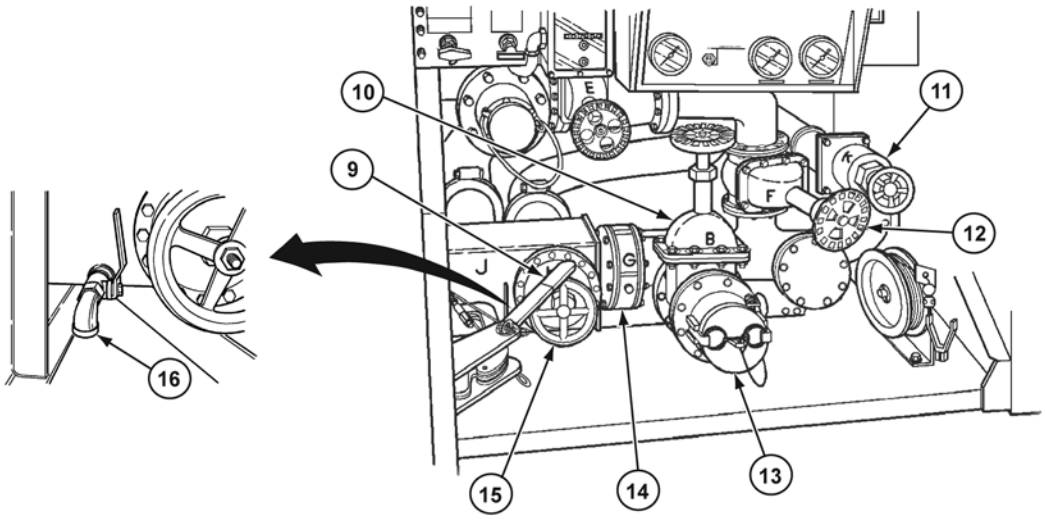


KEY	CONTROL OR INDICATOR	FUNCTION OR USE
3	Landing gear handcrank	Raises and lowers landing gear legs.

PIPING CONTROL ASSEMBLY

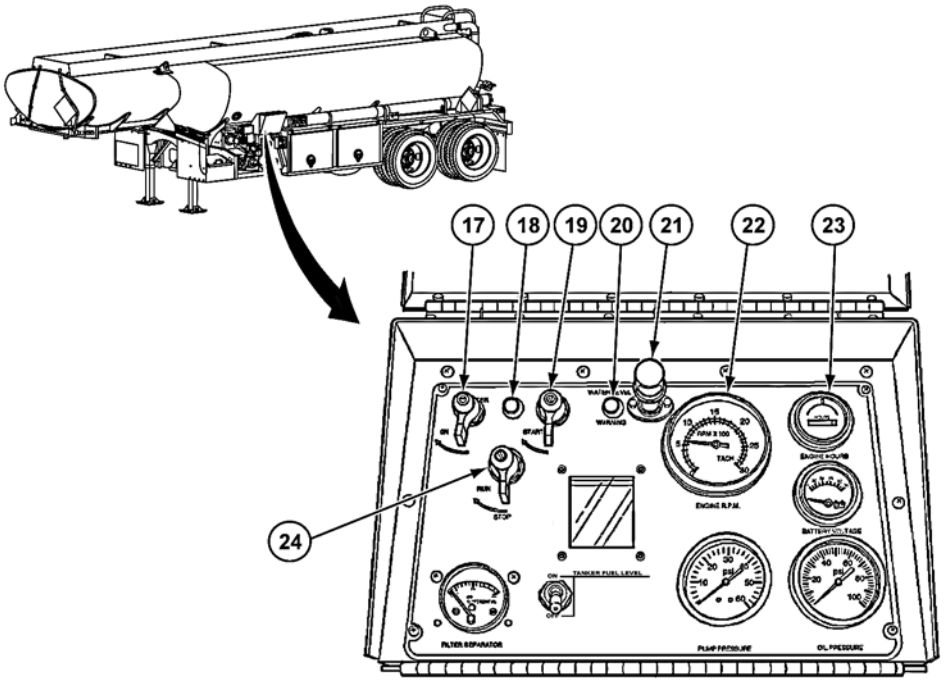


KEY	CONTROL OR INDICATOR	FUNCTION OR USE
4	Valve D	Loading precheck control valve.
5	Overfill monitor panel	Monitor fuel level during loading.
6	Valve E	Self-loading control valve.
7	Bottom loading adapter	Provides self-loading capability.
8	Engine throttle	Advances and retards engine speeds.



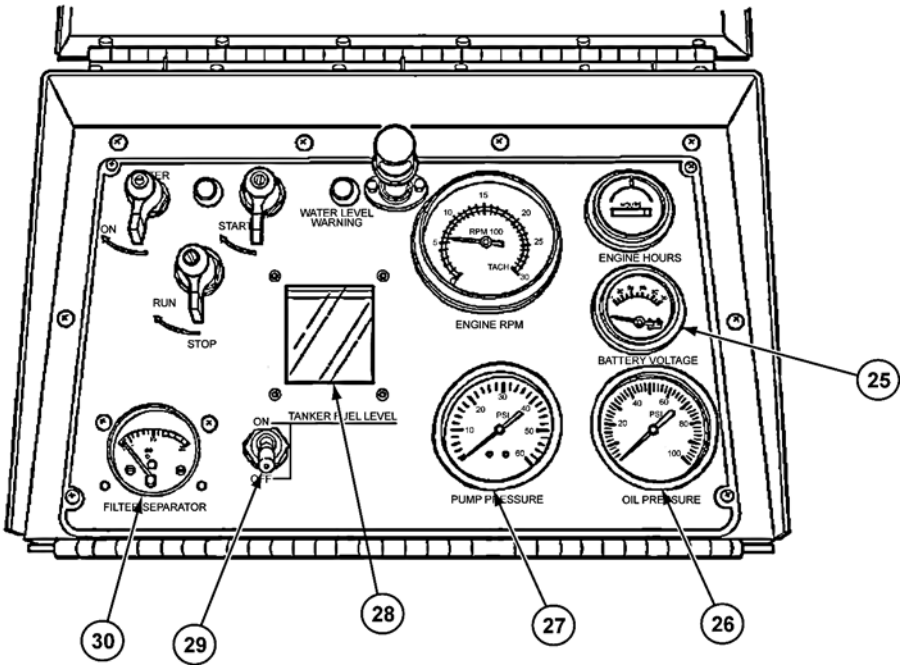
KEY	CONTROL OR INDICATOR	FUNCTION OR USE
9	Valve A control handle	Allows emergency shut down of fueling operations.
10	Valve B	Bulk delivery control valve.
11	Valve K	Allows fuel flow to hose reel cabinet.
12	Valve F	Allows fuel flow to bulk fuel delivery.
13	Outlet valve	Main outlet for bulk fuel delivery.
14	Valve G	Allows gravity unloading and self-loading.
15	Valve H	Allows fuel flow through manifold to pump.
16	Valve J	Allows water to drain from manifold.

ENGINE CONTROL PANEL



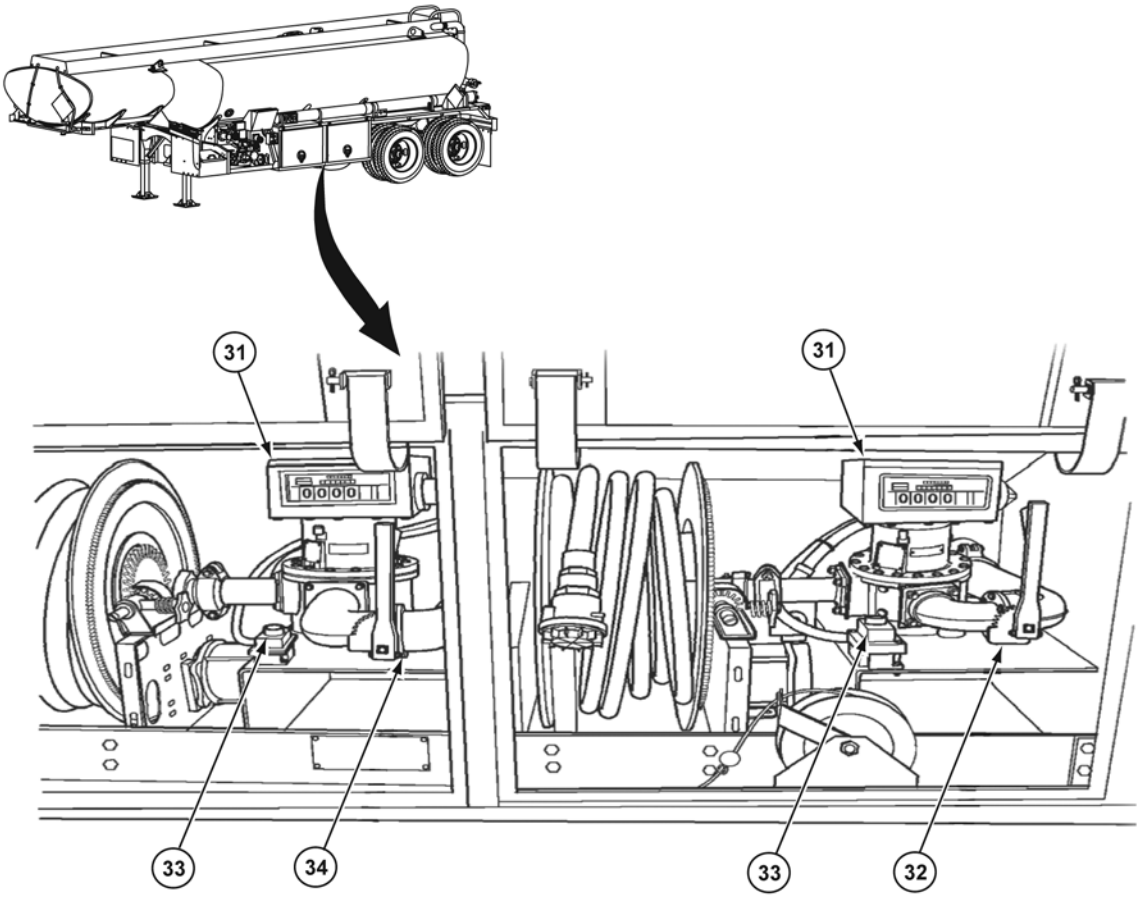
KEY	CONTROL OR INDICATOR	FUNCTION OR USE
17	Preheater switch	Controls engine preheat operations.
18	Indicator light	Indicates preheat operations.
19	Starter switch	Starts engine.
20	Water level warning light	Indicates excess water in filter/separator.
21	Control panel light	Provides light for night viewing.
22	Tachometer	Monitors engine speed.
23	Engine hours	Monitors engine usage time.
24	Engine switch	Controls engine run/stop operations.

DESCRIPTION AND USE OF CONTROLS AND INDICATORS—Continued **0006 00**



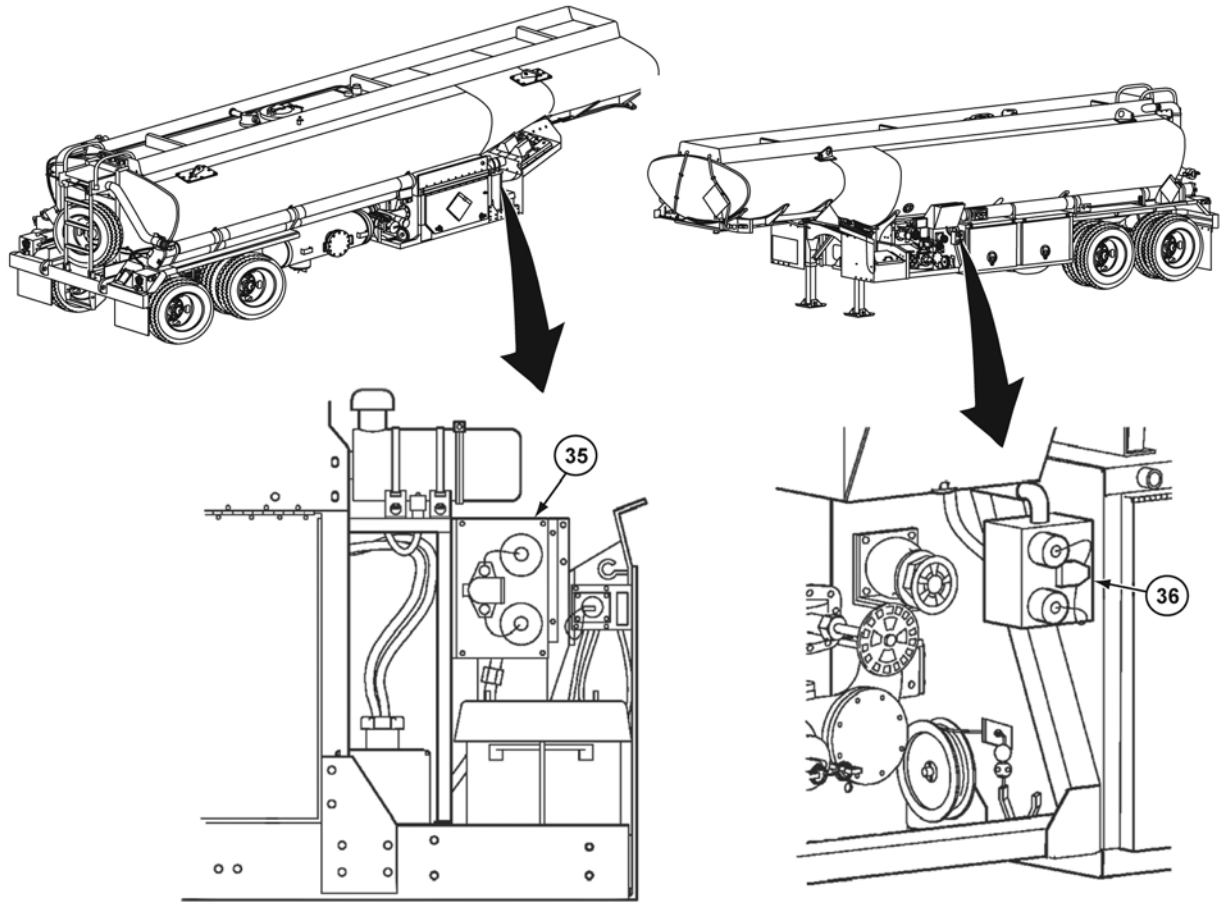
KEY	CONTROL OR INDICATOR	FUNCTION OR USE
25	Battery voltage gage	Monitors battery voltage.
26	Oil pressure gage	Monitors engine oil pressure.
27	Pump pressure gage	Monitors pump pressure.
28	Tanker fuel level indicator gage	Allows operator to monitor in tank fuel level.
29	Tanker fuel level indicator switch	Switch to allow operator to monitor in tank fuel level.
30	Filter/separator gage	Monitors filter/separator pressure.

HOSE REEL CABINET



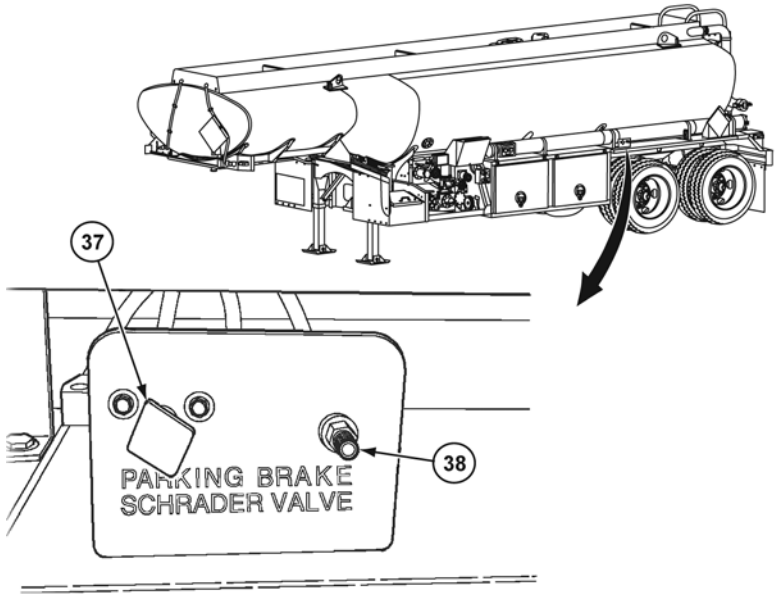
KEY	CONTROL OR INDICATOR	FUNCTION OR USE
31	Volumetric meters	Allows operator to monitor amount of fuel delivered.
32	Valve R	Allows fuel flow to rear hose reel.
33	Hose reel rewind button	Allows operator to rewind hose reels electronically.
34	Valve P	Allows fuel flow to forward hose reel.

OPTIC SOCKET BOXES



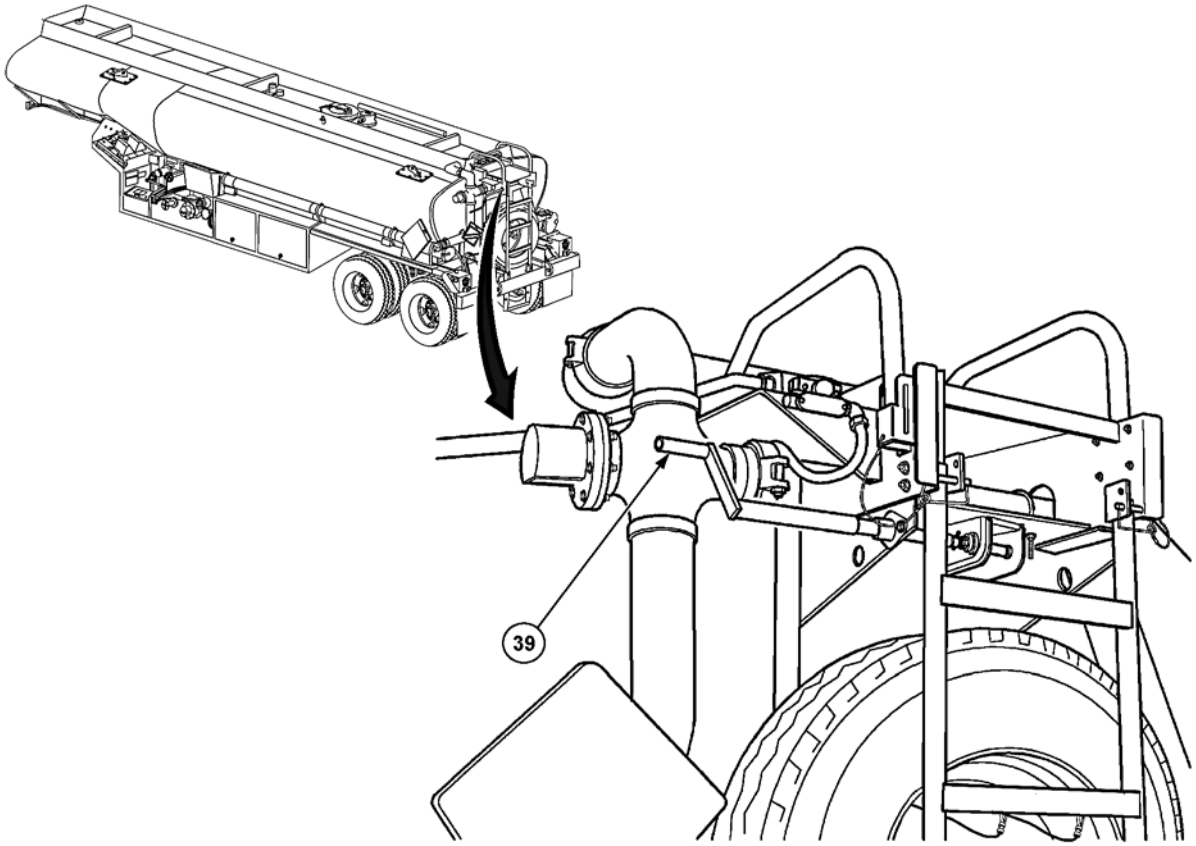
KEY	CONTROL OR INDICATOR	FUNCTION OR USE
35	Optic socket box (curbside)	Controls fuel depot loading operations.
36	Optic socket box (roadside)	Controls fuel depot loading operations.

PARKING BRAKE/SCHRADER VALVE



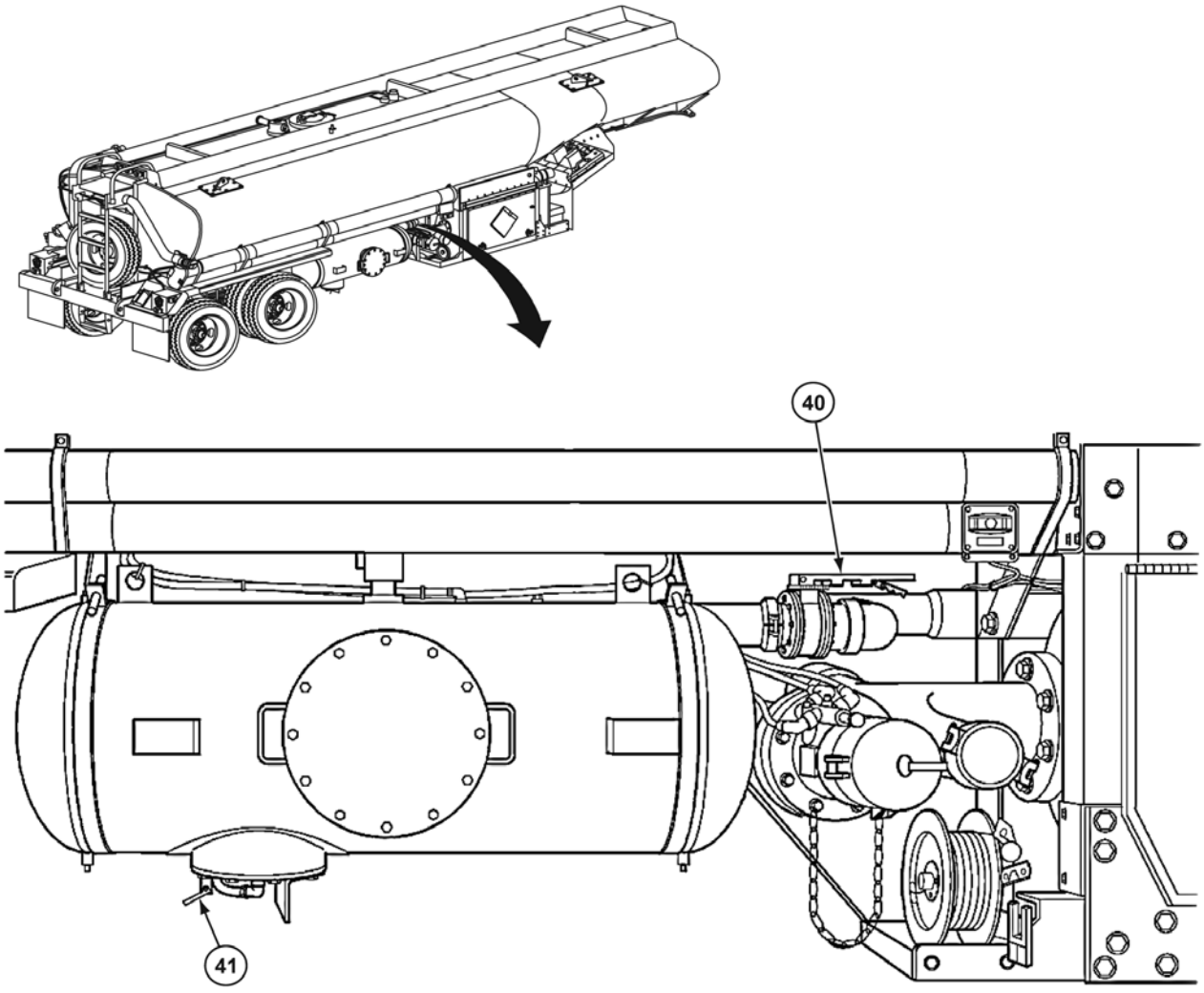
KEY	CONTROL OR INDICATOR	FUNCTION OR USE
37	Parking brake valve	Allows release of air from parking brakes.
38	Schrader valve	Allows an air source other than the prime mover to refill air reservoir.

SPARE TIRE LIFTING DEVICE HANDCRANK



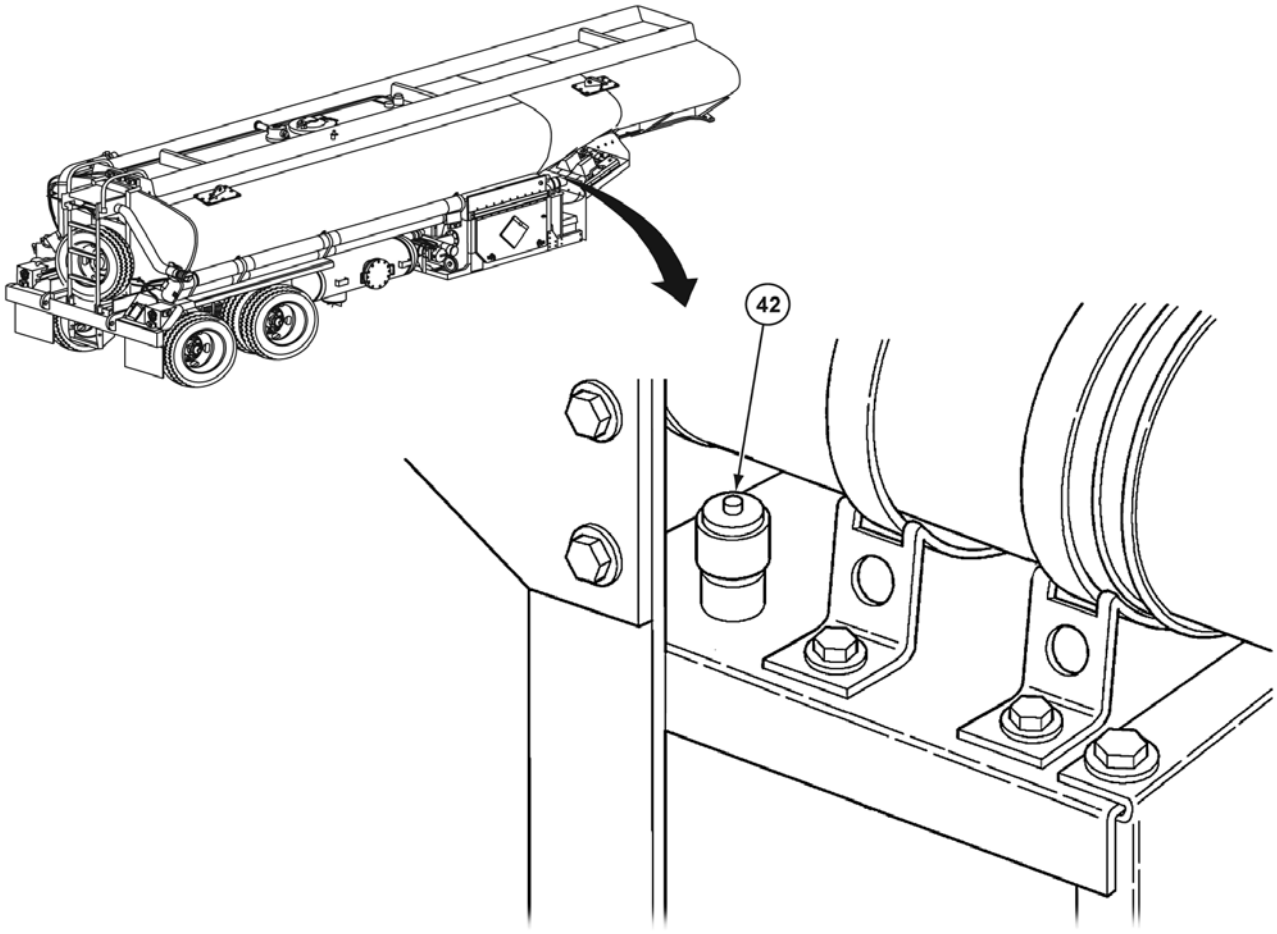
KEY	CONTROL OR INDICATOR	FUNCTION OR USE
39	Spare tire lifting device handcrank	Allows spare tire lifting/raising operations.

FILTER/SEPARATOR CONTROLS



KEY	CONTROL OR INDICATOR	FUNCTION OR USE
40	Valve M	Shuts off fuel flow to filter/separator.
41	Valve N	Filter/separator water drain valve.

AIR CLEANER RESTRICTION INDICATOR



KEY	CONTROL OR INDICATOR	FUNCTION OR USE
42	Air cleaner restriction indicator	Indicates air cleaner is clogged or needs cleaning.

END OF TASK

OPERATION UNDER USUAL CONDITIONS **0007 00**

GENERAL

This WP contains instructions for safely operating the M969A3 Semitrailer under usual conditions. Operation under unusual conditions is covered in WP 0008 00.

Perform all “Before” Operator/Crew Preventive Maintenance Checks and Services (PMCS) prior to operating the semitrailer.

Review all prime mover operating instructions prior to connecting/disconnecting operations. Use of BII from prime mover may be required.

A. CONNECTING PRIME MOVER TO M969A3

WARNING

The M969A3 is ONLY authorized to be towed by the following prime movers WITH ABS: M915A2, M915A3, M915A4, M1088 (FMTV), and M931/M932 Series. Failure to follow this warning may result in severe injury or death to personnel.

WARNING

All personnel must stand clear of prime mover and M969A3 prior to connecting. Failure to follow this warning may result in severe injury or death to personnel.

1. Prepare prime mover for coupling and operation.

NOTE

The M915 Series prime movers are the only prime movers that require the use of the upper coupler plate spacer. All other prime movers require the spacer to be removed for safe and level towing. Removal/installation of spacer (WP 0082 00) to M969A3 may be necessary prior to connecting prime mover.

2. Back prime mover slowly to front of M969A3. Maneuver prime mover so that kingpin (3) on M969A3 is in line with fifth wheel jaws on prime mover. Stop prime mover before upper coupler plate (2) of semitailer starts to ride on fifth wheel of prime mover.

3. Verify M969A3 upper coupler plate (2) height exceeds height of prime mover fifth wheel. Landing gear legs may need to be raised or lowered accordingly.

4. Back prime mover under upper coupler plate (2) until kingpin (3) and fifth wheel hook automatically. Verify kingpin (3) and fifth wheel are engaged and locked. Engage prime mover parking brake.

5. Remove dummy couplings from M969A3 service and emergency air couplings (1). Connect prime mover service and emergency air lines to M969A3 service and emergency air lines at couplings.

6. Ensure drain valve (4) on air reservoir (5) of M969A3 is closed.

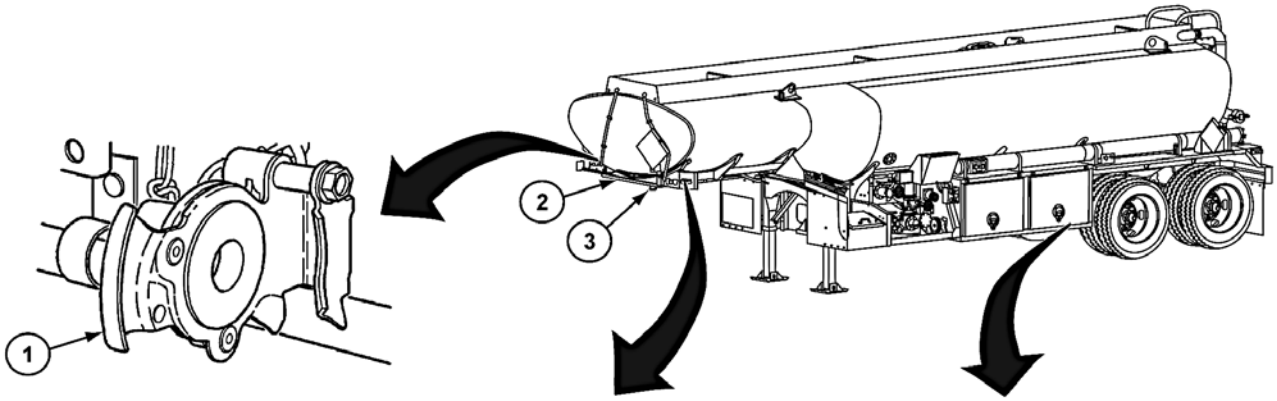
7. Open shut off valves on air lines of prime mover.

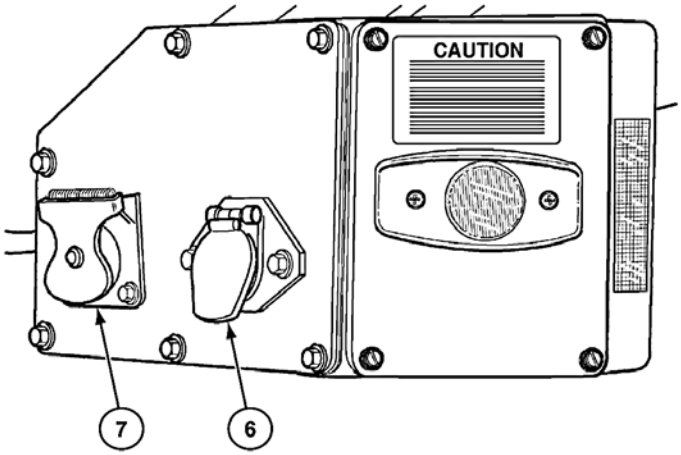
8. Plug 12 volt and/or 24 volt cables from prime mover into the intervehicular 12 volt (6) and 24 volt (7) cable connectors of M969A3.

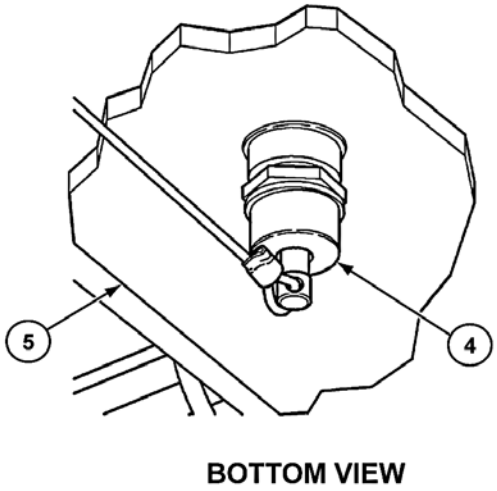
9. Operate lights of prime mover to verify all stoplights, marker, and clearance lights of M969A3 are working. Verify ABS warning indicator is not lit.

NOTE

ABS light functions normally when towing vehicle and when trailer is in blackout mode. Covering the ABS light with tape or mud is recommended during blackout operations.







BOTTOM VIEW

10. Engage landing gear operating crank (12) and raise landing gear legs (10) by rotating crank (12) clockwise. Replace crank (12) in clip (11) when gear are raised sufficiently.

11. If landing gear ground boards (8) were used, stow them in brackets (9) on each side of M969A3.

B. DISCONNECTING PRIME MOVER FROM M969A3

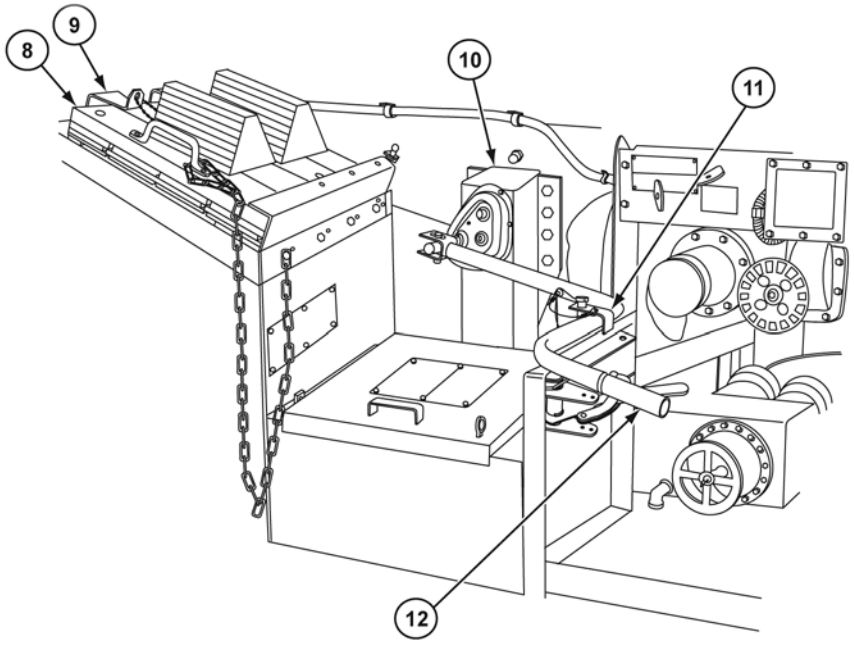
WARNING

All personnel must stand clear of M969A3 and prime mover prior to disconnecting. Failure to follow this warning may result in severe injury or death to personnel.

NOTE

M969A3 is to be uncoupled in mud, sand, or snow, start at step 1. If not start at step 2.

1. Center two ground boards (8) beneath landing gear legs (10).



2. Close shut off valves on service and emergency air lines at rear of prime mover.

NOTE

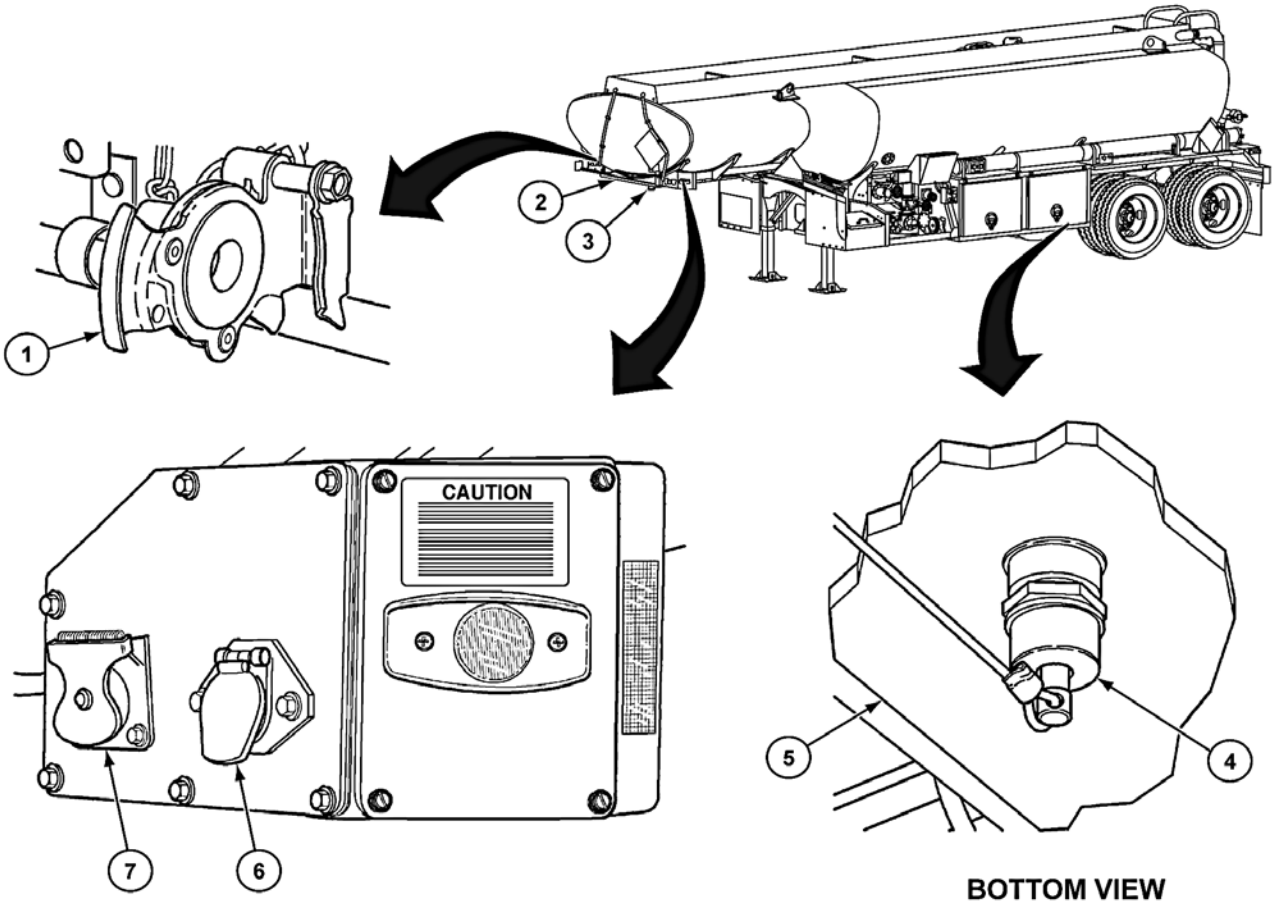
M969A3 air brakes will set automatically when service air brake hose is disconnected.

3. Disconnect emergency and service air lines from emergency and service air couplings on M969A3.

4. Install dummy couplings in M969A3 service and emergency air couplings.

5. Disconnect 12 and/or 24 volt prime mover cables from M969A3 cable connectors.

6. Open drain valve (4) on reservoir (5).


1
2
3
CAUTION
4
5
6
7
BOTTOM VIEW

1. Connect grounding cable from loading rack or stand to any of three grounding studs (1) on M969A3.

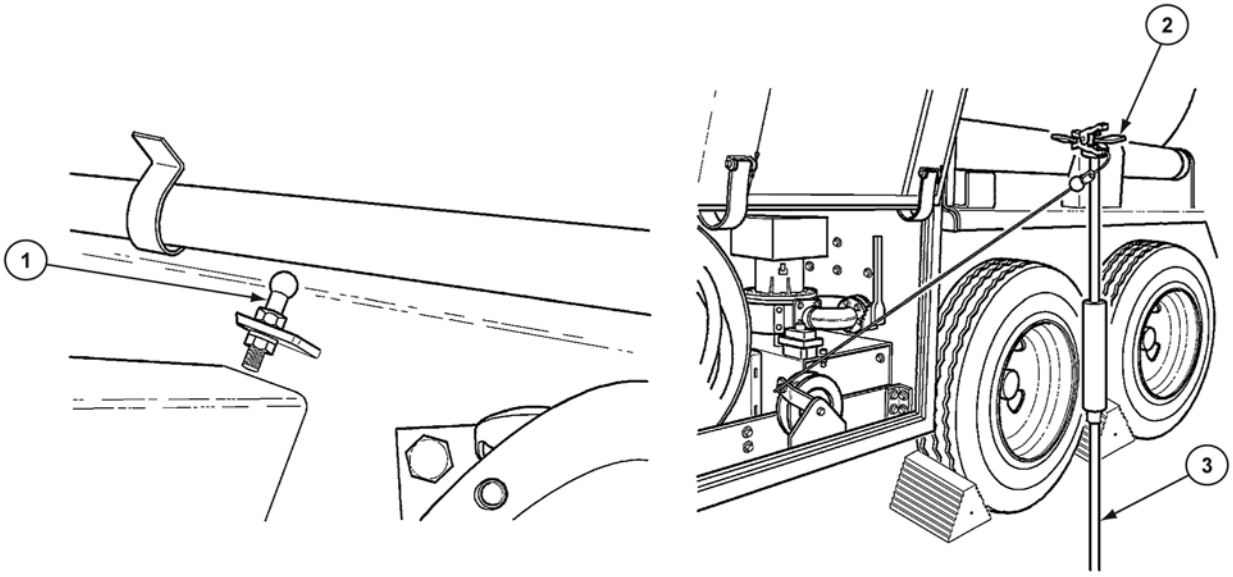
2. Connect any of three M969A3 static reel cables (2) to a facility earth ground (metal rod or metal fence pole).

3. If no suitable ground exists at facility:

   a. Remove portable grounding rod (3) from M969A3.

   b. Insert portable grounding rod (3) in accordance with FM 10-67-1 into the ground a short distance from M969A3.

   c. Connect closest static reel cable (2) to portable grounding rod.



D. REMOVING GROUNDING CABLES

1. Disconnect static reel cable (2) from M969A3 portable grounding rod (3) or facility ground and secure on semitrailer.

2. Reinstall semitrailer portable grounding rod (3) to semitrailer if used.

3. Disconnect static reel cable (2) and return from loading rack or stand.

E. DISCONNECTING NEGATIVE BATTERY TERMINAL

WARNING

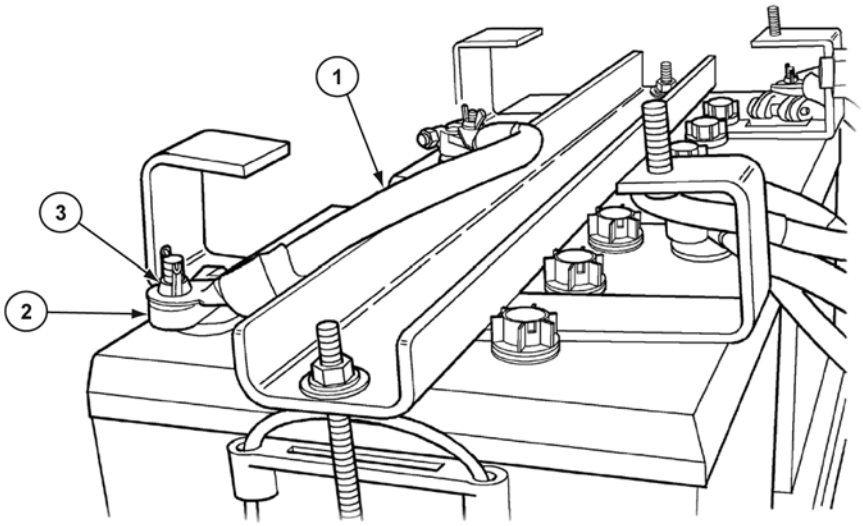
When performing maintenance on any of the M969A3 systems, the negative battery terminal should always be disconnected to prevent against possible electrical shocks or damage to equipment.

1. Remove wingnut (3) from negative battery terminal (2).

2. Remove cables (1) from terminal (2)

CAUTION

Secure cables so that they do not contact battery terminal during maintenance operations.

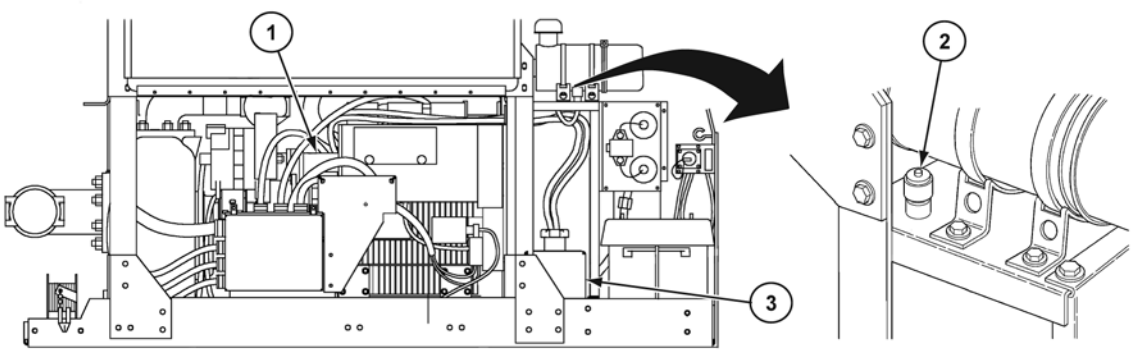


F. RECONNECTING NEGATIVE BATTERY TERMINAL

1. Install cables (1) on negative battery terminal (2).
2. Secure cables (1) with wingnut (3).

G. ENGINE OPERATING PROCEDURES

1. Before starting engine, check fuel level in fuel tank (3). Add fuel as necessary.
2. Check oil level. If dipstick (1) reads L (low), refer to WP 0035 00.
3. Check air cleaner restriction indicator (2). If restriction indicator is red, clean or replace engine air filter per WP 0039 00.



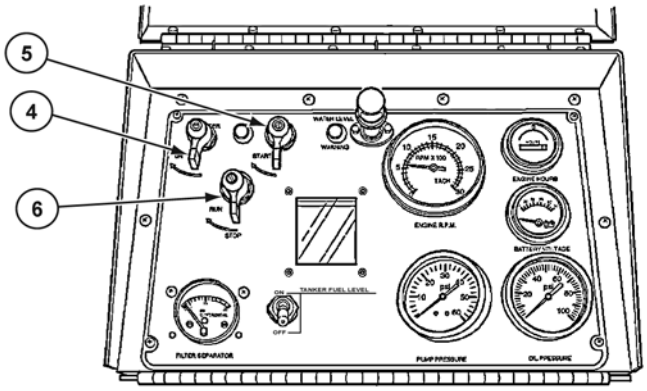
Cold Engine Start

4. Turn engine run switch (6) to RUN position.
5. Turn preheater switch (4) to ON position and hold for 1 minute.
6. Turn starter switch (5) to START position while holding preheater switch (4) in ON position.

NOTE

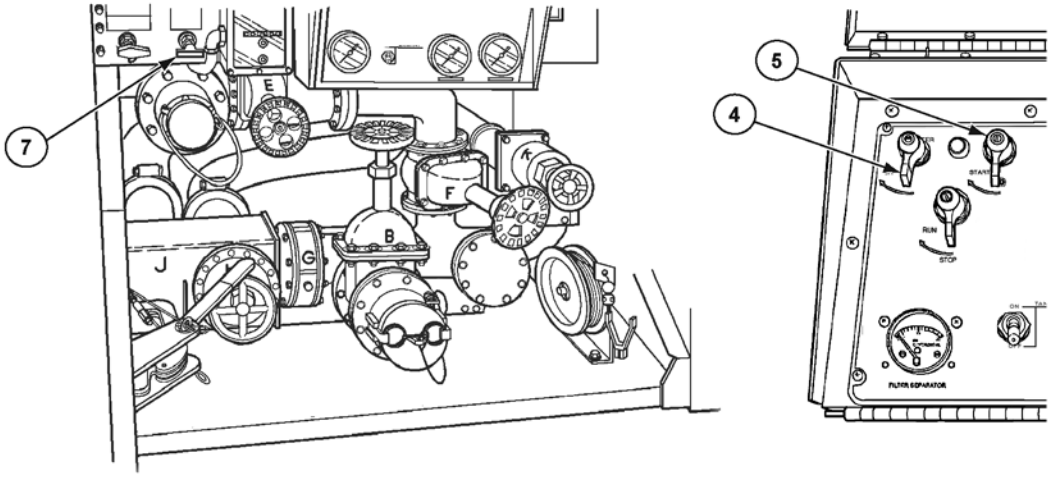
Do not hold starter switch in START position for more than 10 seconds.

7. If engine starts, release starter switch (5) and turn preheater switch (4) to OFF position.



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

8. Adjust throttle (7) to idle setting (1000–1200 rpm).
9. Release starter switch (5) after 10 seconds if engine has not started.
10. Preheat engine for 1 more minute prior to attempting to restart engine.
11. Crank engine intermittently until engine starts.
12. Turn off preheater switch (4).



Hot Engine Start

NOTE

When engine is hot, preheat is not required.

1. Turn starter switch (5) to START position.

NOTE

Do not hold starter switch in the START position for more than 10 seconds.

2. When engine starts, release start switch (5).

H. FUELING OPERATIONS

WARNING

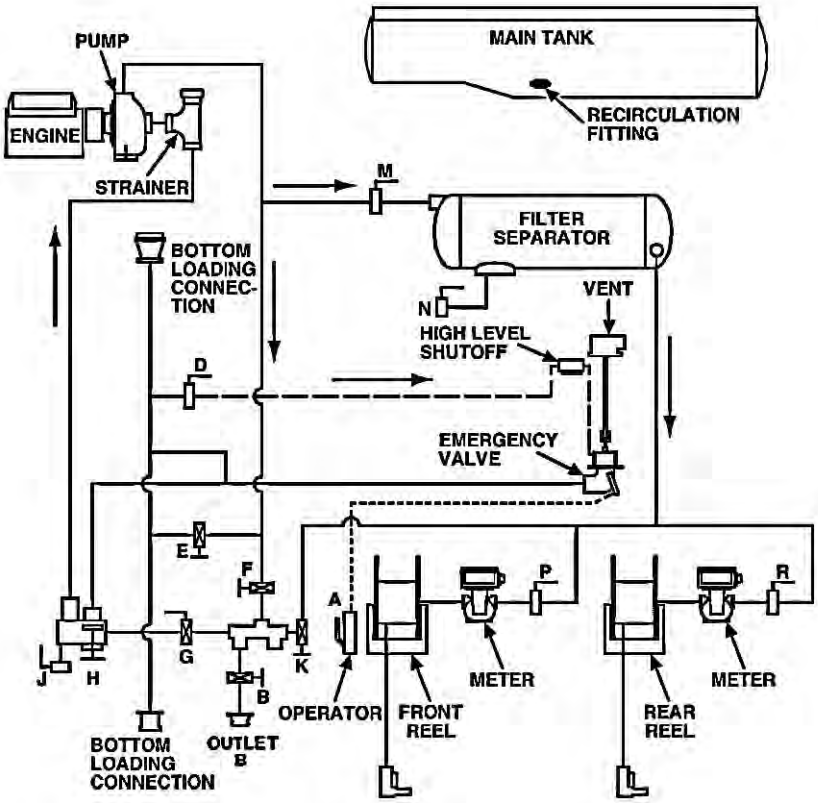
- **Remove vent cap from either side of vapor recovery tube to vent tank during fueling operations.**
- **DO NOT fill semitrailer with more than 3000 gallons (11,356 liters) of fuel when semitrailer is being towed by one of the following five-ton tractors: M931/M932 Series with ABS air brakes. Overfilling semitrailer when using one of these tractors creates an overload condition, resulting in difficulty in braking and maintaining control of tractor/semitrailer in critical braking situations. Failure to heed this warning may result in injury or death to personnel or serious damage to equipment.**

WARNING

Follow all fuel-handling procedures precisely, to prevent injury or death to personnel (refer to FM 10-67-1).

Table 1. Fuel Dispensing Flow Rates.

Self-Load			Dispensing Bulk Filtered		Dispensing Bulk Nonfiltered		Delivery Filtered		Delivery Nonfiltered	
Engine rpm	2200	2400	1200	2400	2200	2400	2200	2400		
Pump gpm	290	320	44	88	44	88	175	190	480	530



1. BOTTOM LOADING—ROADSIDE

NOTE

• Operations begin and end with all valves closed.

• Bottom Loading flow chart WP 0007 00-13.

a. Make sure all valves are closed.

b. Remove fire extinguishers (1) and bring them to point of operation.

c. Ground and bond semitrailer per para. C (WP 0007 00-6).

d. Remove vapor recovery system caps.

e. Remove 4-in. hose (4) from hose tube (5) and connect to bottom loading connection (3) and fuel facility.

f. Place valve D (2) in open position.

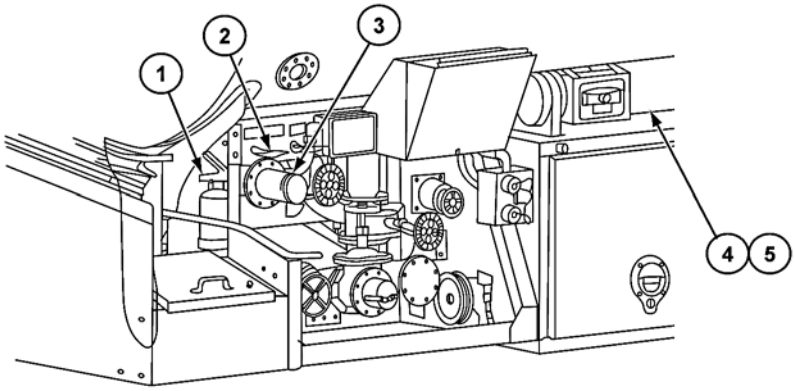
g. Commence bottom loading.

h. After flow has begun, set valve D (2) to closed position to precheck automatic shut off. If shut off is functional, flow should stop after 20–25 seconds.

i. Set valve D (2) to open position. Flow will resume in about 20 seconds.

WARNING

If fuel flow into semitrailer stops because of a shut off malfunction, or the presence of leaks, or if any other unusual conditions are observed, stop fuel supply at loading facility and notify your supervisor.



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

j. When tank is full, fuel flow will stop automatically. When fueling is complete return all valves to the closed position.

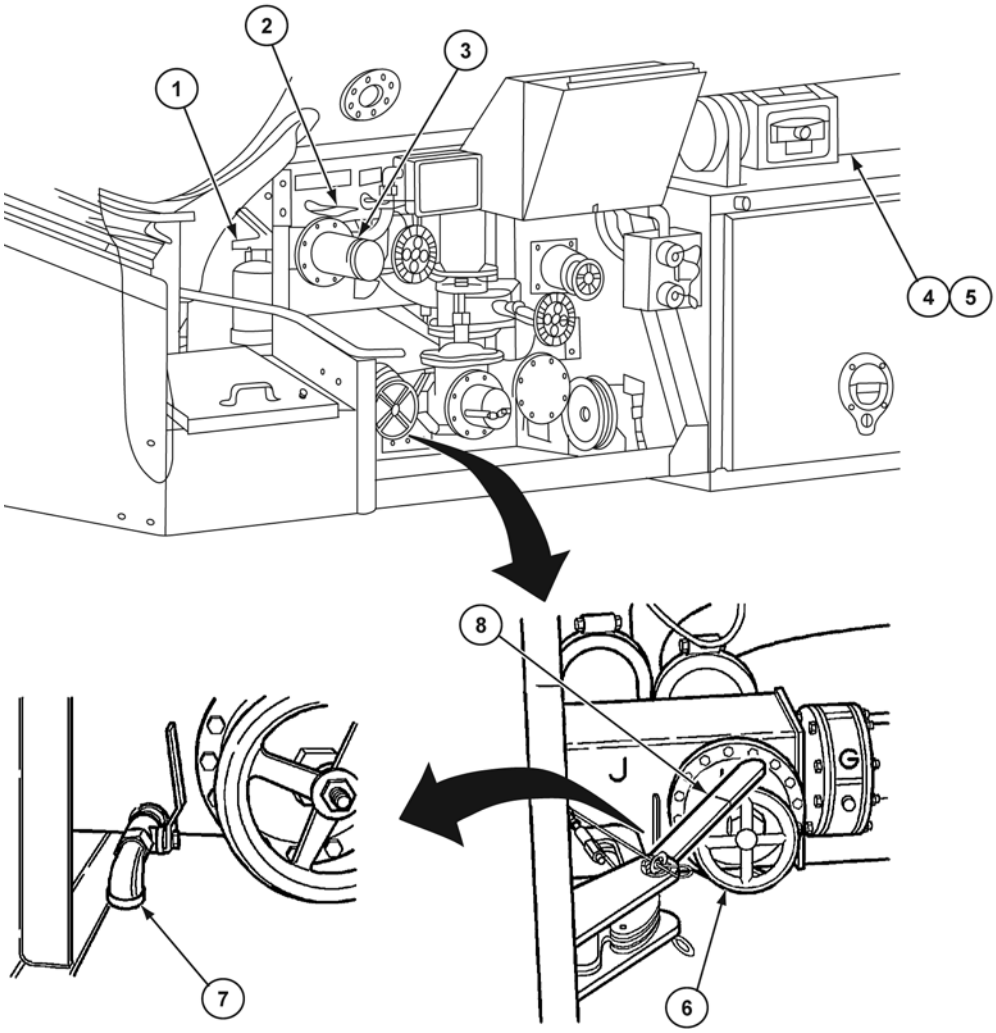
k. Close valve D (2). Disconnect hose (4) from bottom loading connection (3) and install cover. Drain hose into suitable container and store hose (4) in hose tube (5).

l. Open valves A, D, H, and J (8, 2, 6, and 7) and drain accumulated water into a suitable container.

m. Close all valves and vapor recovery system vent cap.

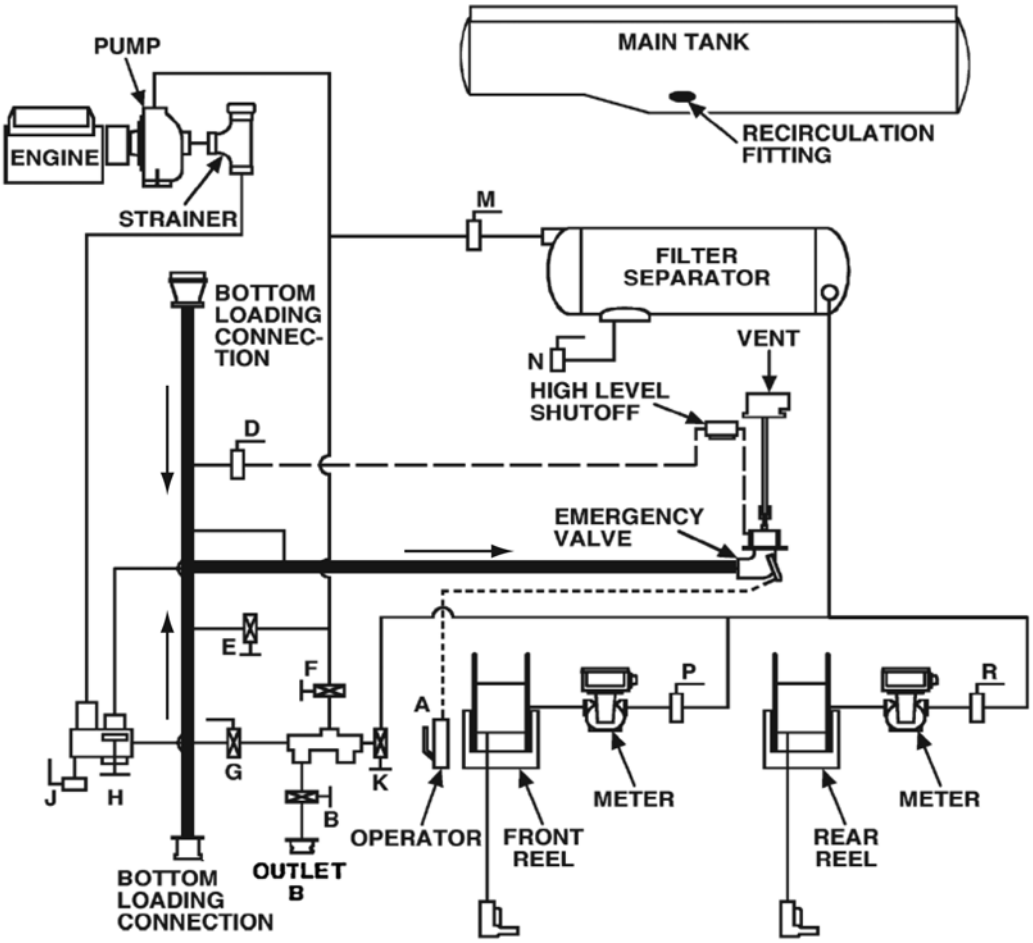
n. Remove all grounding and bonding cables.

o. Store and cover fire extinguishers (1).



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

Roadside and Curbside (CIVACON) Flow for Bottom Loading.



2. BOTTOM LOADING—CURBSIDE AT COMMERICAL FACILITY

NOTE

Bottom Loading flow chart WP 0007 00-13.

a. Set semitrailer park brakes by functioning brake control valve (2) located on top of curbside bottom load coupling or the one located at curbside vapor recovery outlet.

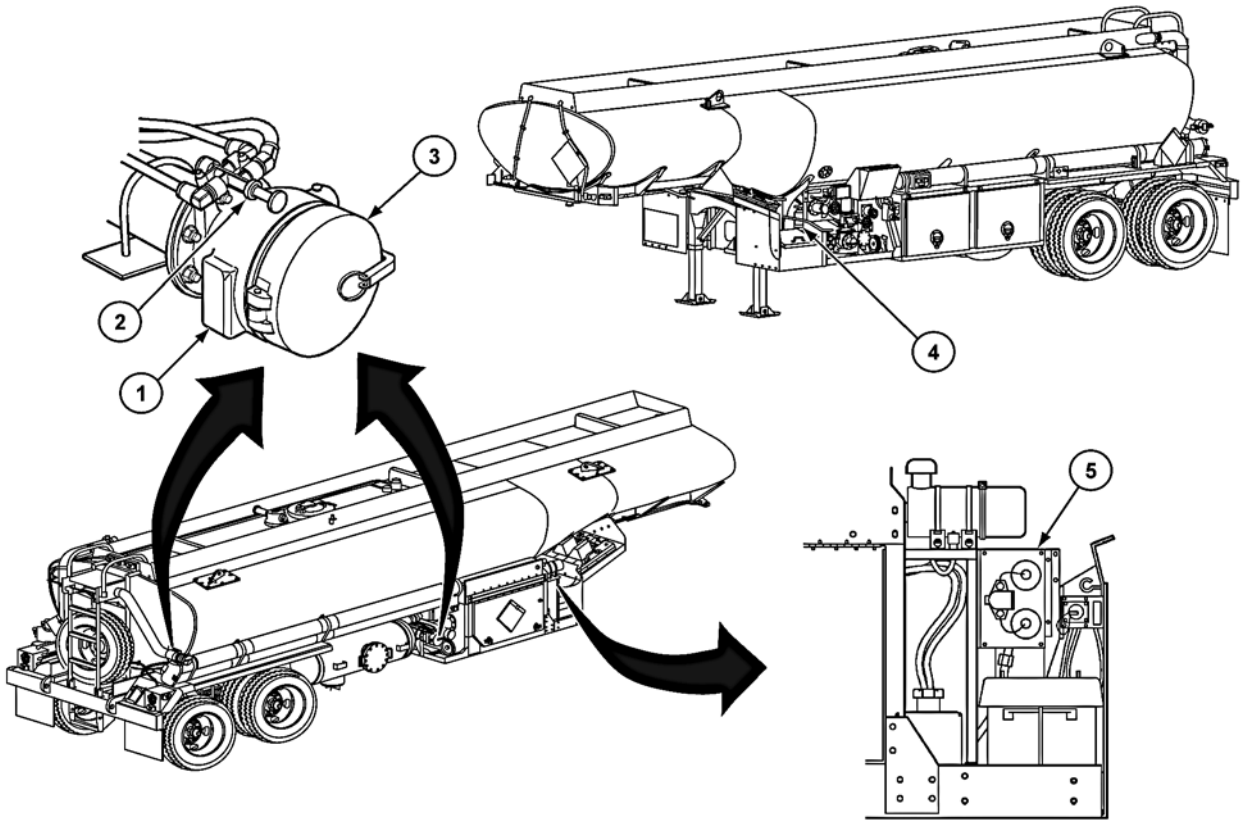
b. Dismount fire extinguishers (4) and bring them to the point of fueling operation.

c. Ground and bond semitrailer to facility ground.

d. Remove curbside vapor recovery system vent cap (3) and attach facility vapor recovery hose.

e. Attach facility fuel transfer hose to bottom load adapter (1) and assure connection is secure.

f. Connect facility monitor and control cables to curbside socket box (5).



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

g. Turn power switch (7) on to ROM II onboard monitor (6). The yellow POWER LED should be on. If there is a red LED showing, this means there is a malfunction in the monitor system and fueling will not be permitted until repairs are made and green LED is on.

h. The green PERMIT LED being on, indicates sensor is operating and NOT detecting an overfill situation.

i. Commence bottom loading. Watch for fuel leaks during bottom loading operation and shut down fuel flow if any occur. When fuel level in semitrailer reaches sensor (5,000 gal), fuel flow into semitrailer will automatically stop.

j. Turn off power switch (7) to ROM II monitor (6) and disconnect facility monitor and control cables.

k. Place suitable container under curbside adaptor hose connection (1) to capture any residual fuel from dry-brake coupling. Dispose of residual fuel in accordance with local SOP.

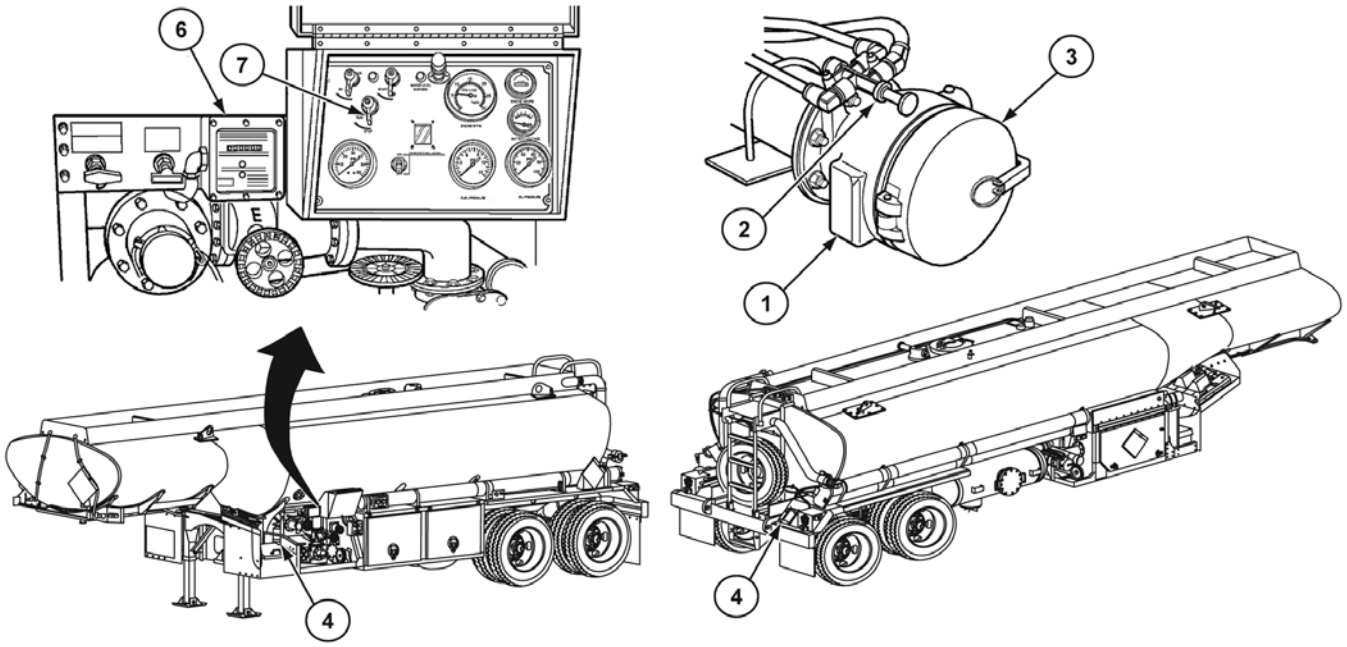
l. Disconnect curbside facility vapor recovery hose and cap (3) vehicle vapor recovery outlet.

m. Close all valves.

n. Return fire extinguishers (4) to their covers and brackets.

o. Disconnect bonding and grounding cables.

p. Deactivate whichever brake control valve (2) was functioning in step 1.



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

3. GRAVITY UNLOAD

WARNING

Remove vent cap from either side of vapor recovery tube to vent tank during pumping operations.

NOTE

Operations begin and end with all valves closed.

a. Remove all fire extinguishers (1) and bring them to the point of operation.

b. Ground and bond semitrailer per para. C (WP 0007 00-6).

c. Remove 4-in. hose (2) from hose tube (3) and connect hose between outlet B (7) and fuel facility.

d. Remove one or both vapor recovery system caps.

e. Open valves A, B, D, G, and H (9, 6, 10, 5, and 8).

f. At end of operation close all valves.

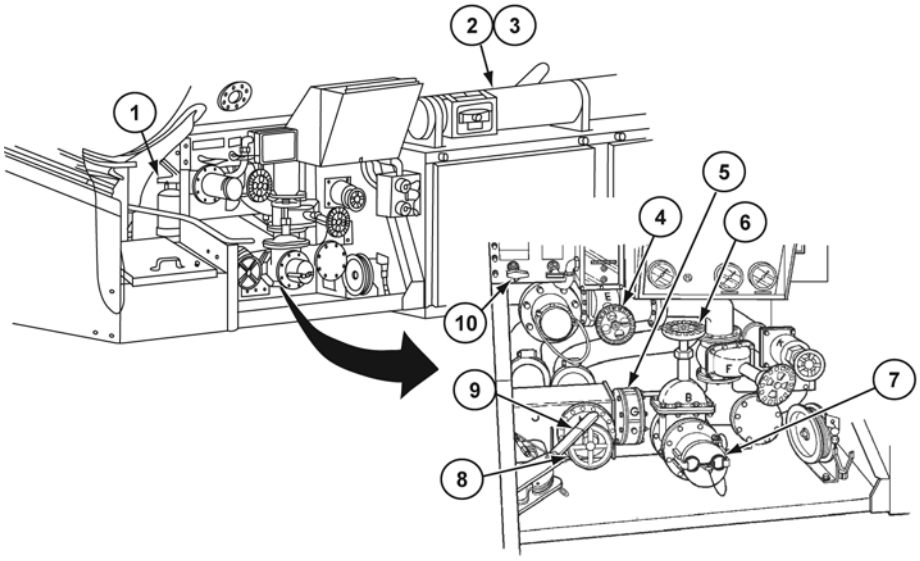
g. Drain 4-in. hose (2) into suitable container.

h. Remove and store hose (2) in hose tube (3).

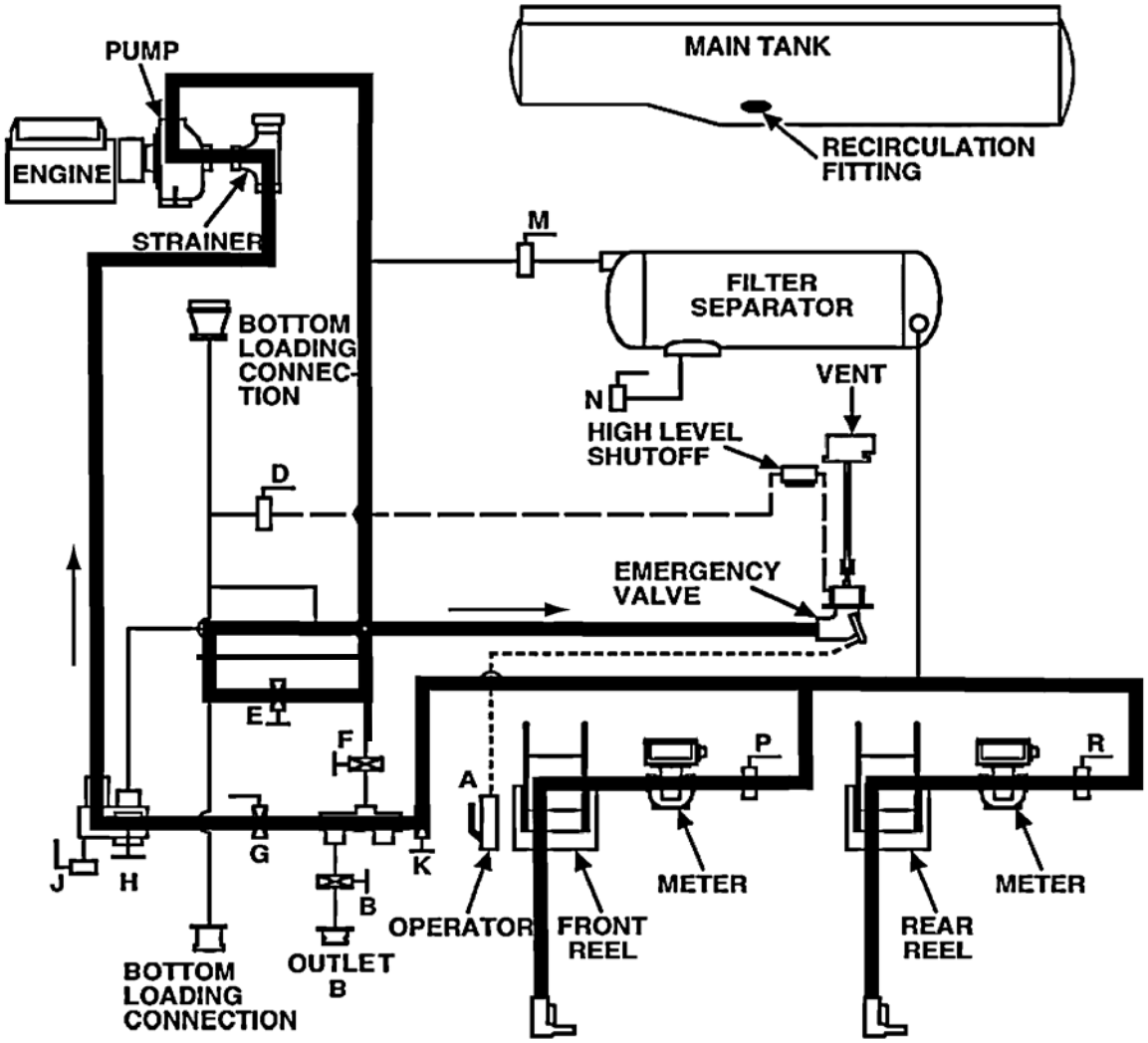
i. Close vapor recovery system caps.

j. Remove grounding and bonding cables.

k. Store and cover fire extinguishers (1).



Gravity Unload Flow Chart



4. SELF-LOADING OPERATIONS

CAUTION

Remove vent cap from either side of vapor recovery tube to vent tank during pumping operations.

NOTE

Operations begin and end with all valves closed.

a. Remove fire extinguishers (1) and bring them to the point of operation.

b. Ground and bond semitrailer per para. C (WP 0007 00-6).

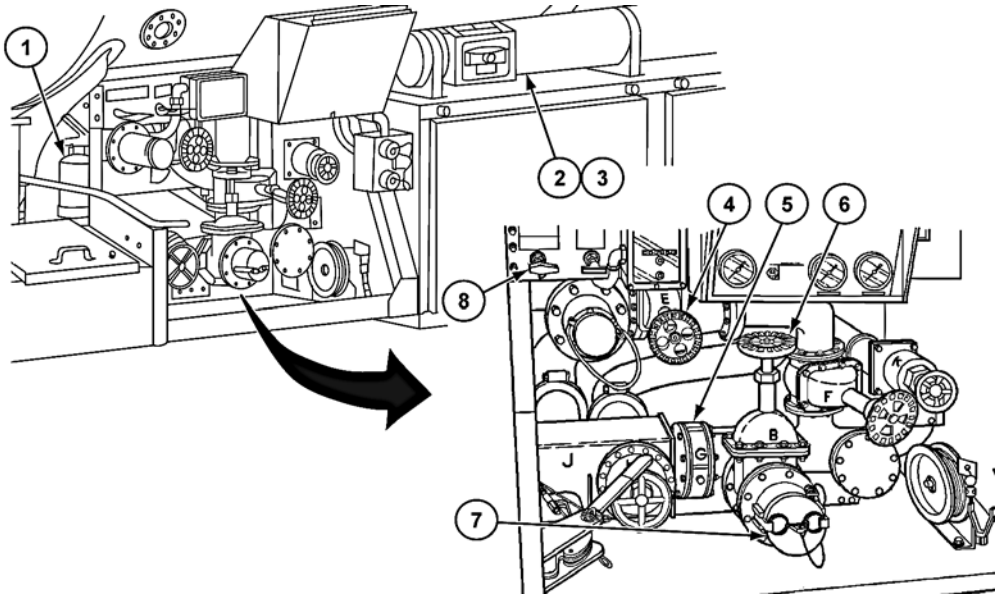
c. Remove one or both vapor recovery system caps.

d. Start engine (para. G). When engine is warm, adjust to idle speed (1000–1200 rpm).

e. Remove 4-in. hose (2) from hose tube (3) and connect hose (2) between outlet B (7) and fuel storage facility.

f. Open valves B, D, E, and G (6, 8, 4, and 5).

g. Adjust engine to desired flow rate (290–320 gpm [1098–1211 Lpm] @ 2200–2400 rpm).



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

h. After flow has begun, set valve D (8) to the closed position to precheck automatic shut off. If shut off isfunctional, flow should stop after 20–25 seconds. Open valve D; flow should resume in 20–25 seconds.

WARNING

If fuel flow into semitrailer stops because of a shut off malfunction, or the presence of leaks, or if any other unusual conditions are observed, stop fuel supply at loading facility and notify your supervisor.

i. When tank is full, flow will stop automatically.

j. Shut off engine.

k. Drain hose (2) into suitable container.

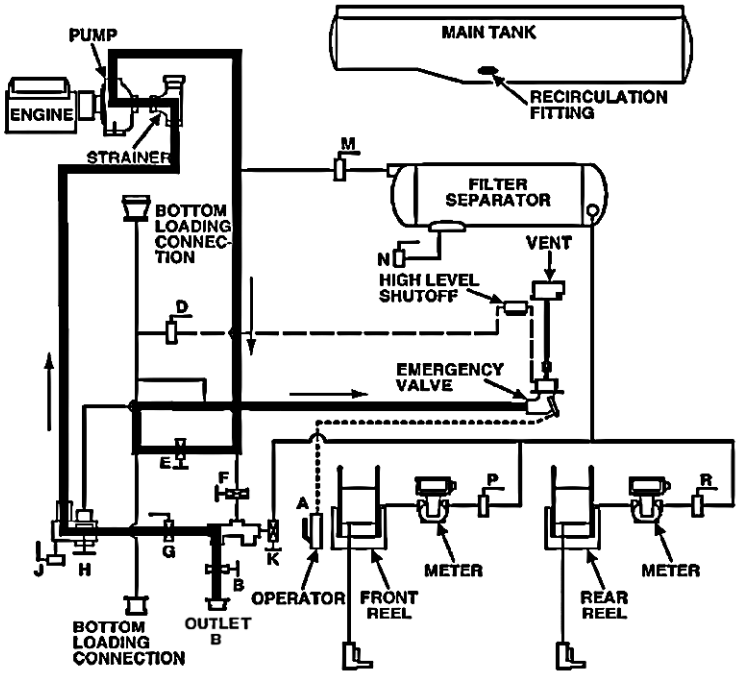
l. Close all valves and vapor system vent caps.

m. Remove and store hose (2) in hose tubes (3).

n. Remove grounding and bonding cables.

o. Store and cover fire extinguishers (1).

Self-Loading Flow Chart



5. BULK DELIVERY

CAUTION

Remove vent cap from either side of vapor recovery tube to vent tank during pumping operations.

NOTE

- **Use this procedure to pump fuel from semitrailer to storage facility.**
- **Operation begins and ends with all valves closed.**

a. Remove fire extinguishers (1) and bring them to the point of operation.

b. Ground and bond semitrailer per para. C(WP 0007 00-6).

c. Remove one or both vapor recovery system caps.

d. Start engine (para. G). When engine is warm, adjust to idle speed (1000–1200 rpm).

e. Remove 4-in. hose (3) from hose tube (2) and connect hose (3) between outlet B (5) and fuel storage facility.

f. Pull emergency valve A control handle (7) to open position. Open valves B, F, and H (4, 5, and 6).

g. Adjust engine speed to desired flow rate (290–320 gpm [1098–1211 Lpm] @ 2200–2400 rpm).

h. Shut off engine after delivery is complete.

i. Close all valves and vapor recovery system vent caps.

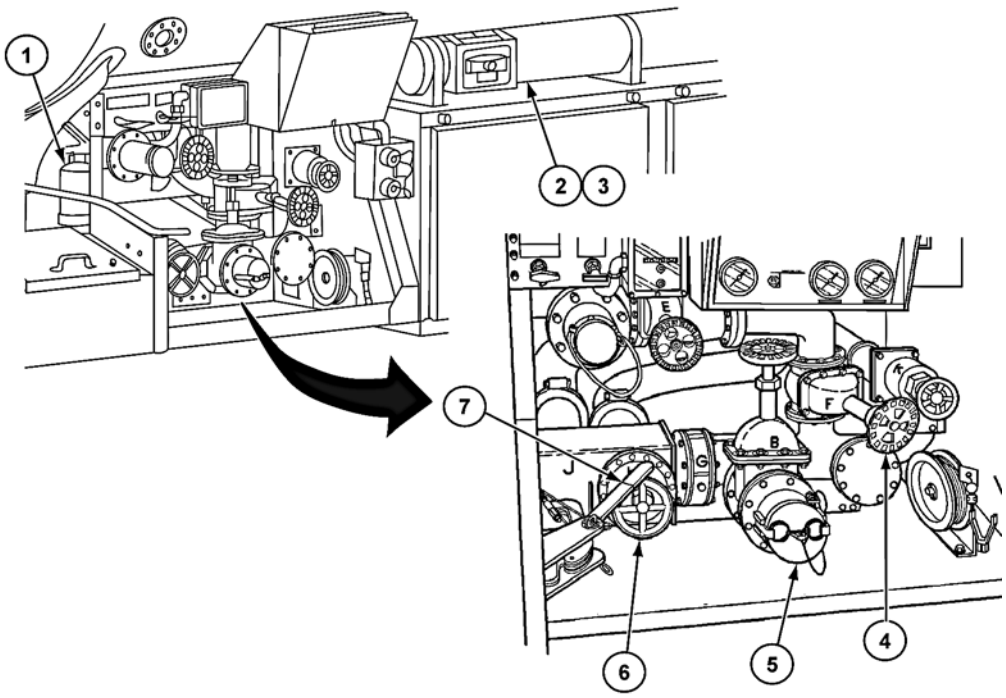
j. Drain hose (2) into suitable container.

k. Remove and store hose (2) in hose tube (3).

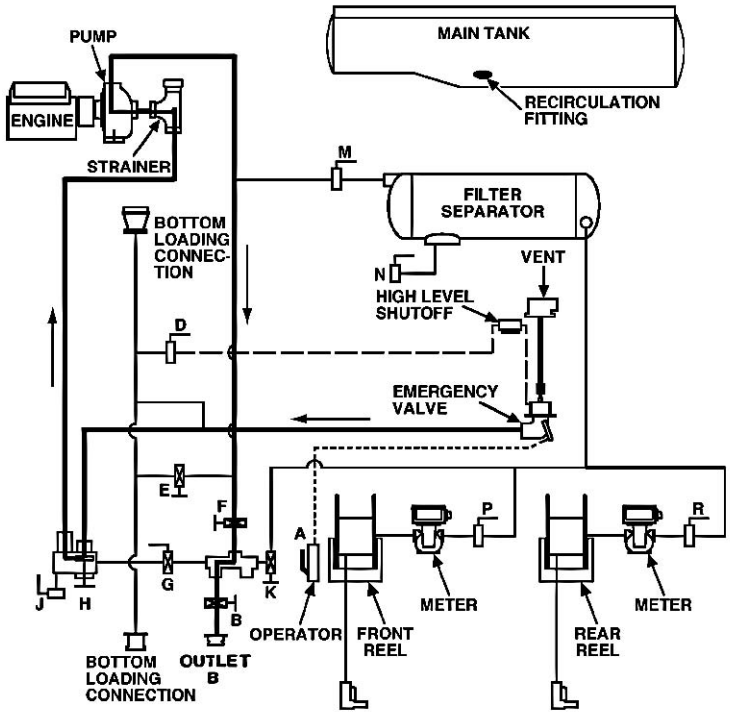
l. Remove grounding and bonding cables.

m. Store and cover fire extinguisher (1).

OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**



Bulk Delivery Flow Chart



6. NON-FILTERED METERED DISPENSING

CAUTION

Remove vent cap from either side of vapor recovery tube to vent

tank during pumping operations.

NOTE

Operation begins and ends with all valves closed.

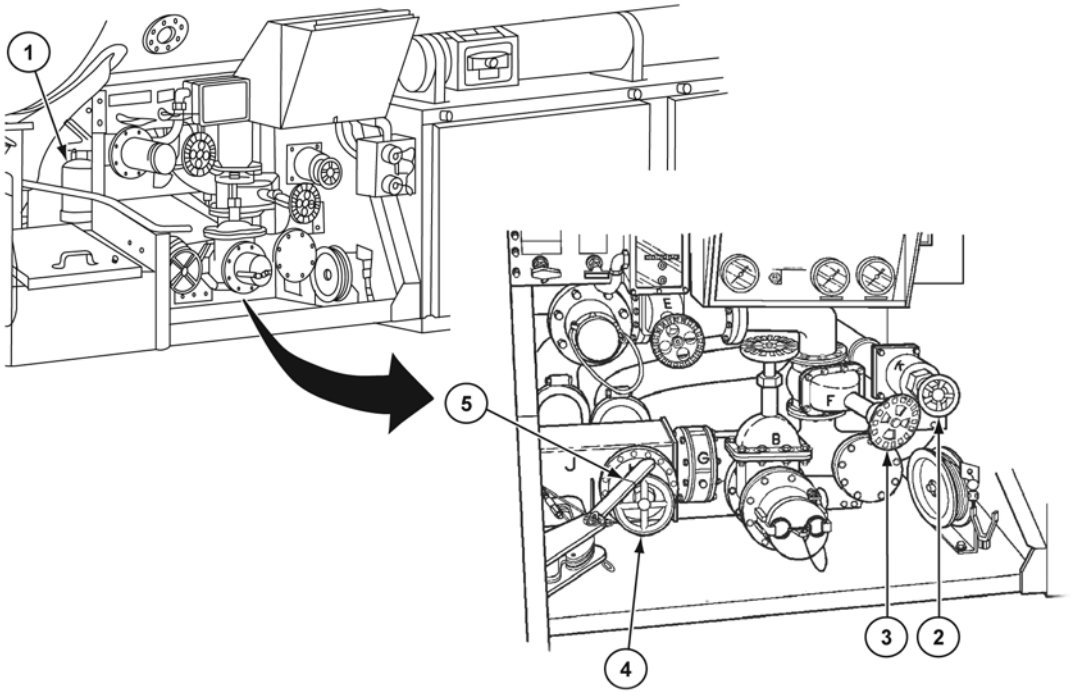
a. Remove fire extinguishers (1) and bring them to the point of operation.

b. Ground and bond semitrailer per para. C(WP 0007 00-6).

c. Remove one or both vapor recovery system caps.

d. Start engine (para. G). When engine is warm, adjust to idle speed (1000–1200 rpm).

e. Pull emergency valve A control handle (5) to open position. Open valves F, H, and K (3, 4, and 2).



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

f. Install fuel dispensing nozzles (8) onto end of 1-1/4 in. hose (7).

g.Install fuel dispensing nozzles (8) into vehicle fuel tank/container.

h. Open valve P (6) for front hose reel or valve R (6) for rear hose reel.

i. Reset meters to zero by pushing in meter reset knobs and turning clockwise.

j. Adjust engine speed to desired flow rate (44–88 gpm [167–333 Lpm] @ 1200–2400 rpm).

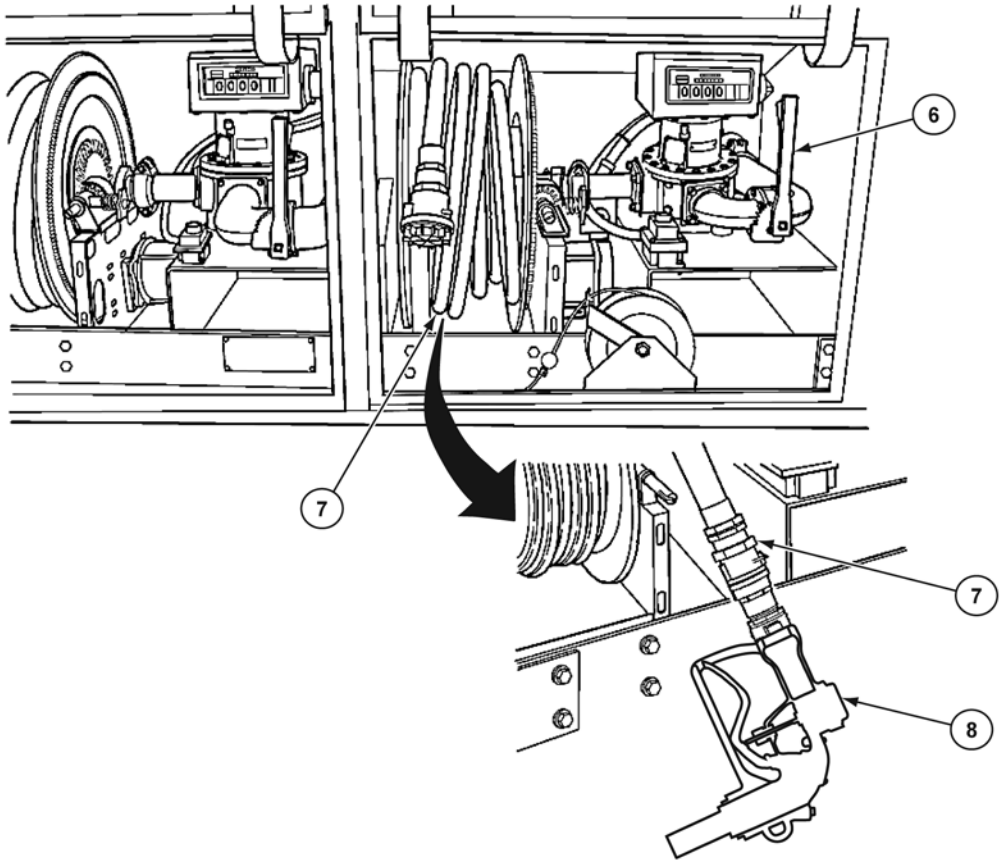
k. Shut off engine after delivery is complete.

l. Remove fuel dispensing nozzle (8) and rewind 1-1/4 in. hoses (7).

m. Close all valves and vapor recovery system vent caps.

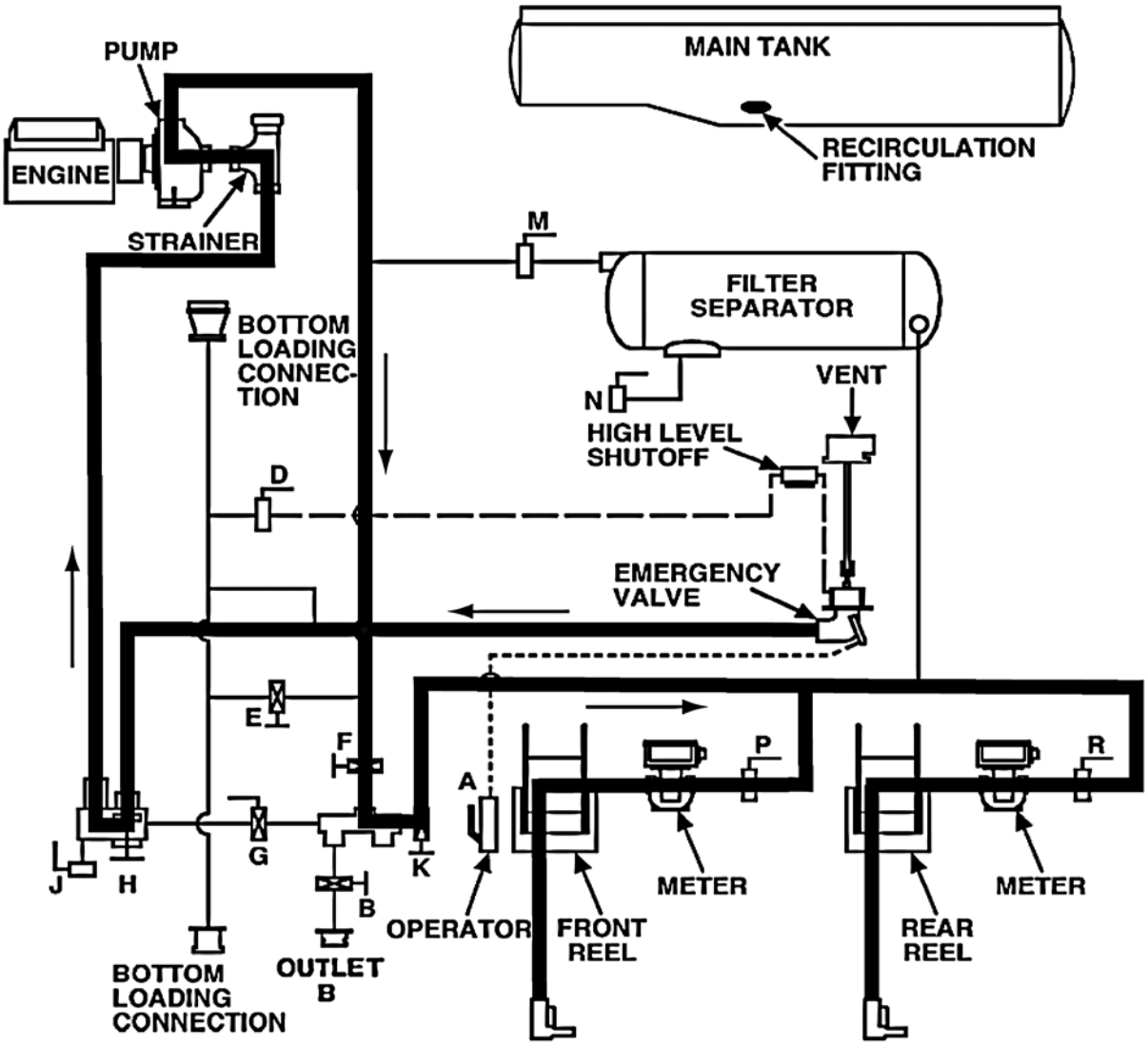
n. Remove grounding and bonding cables.

o. Store and cover fire extinguisher (1).



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

Non-Filtered Metered Flow Chart



7. FILTERED BULK DELIVERY

CAUTION

Remove vent cap from either side of vapor recovery tube to vent tank during pumping operations.

NOTE

- **Use this procedure to pump fuel from semitrailer to storage facility.**
- **Operation begins and ends with all valves closed.**

a. Remove fire extinguishers (1) and bring them to the point of operation.

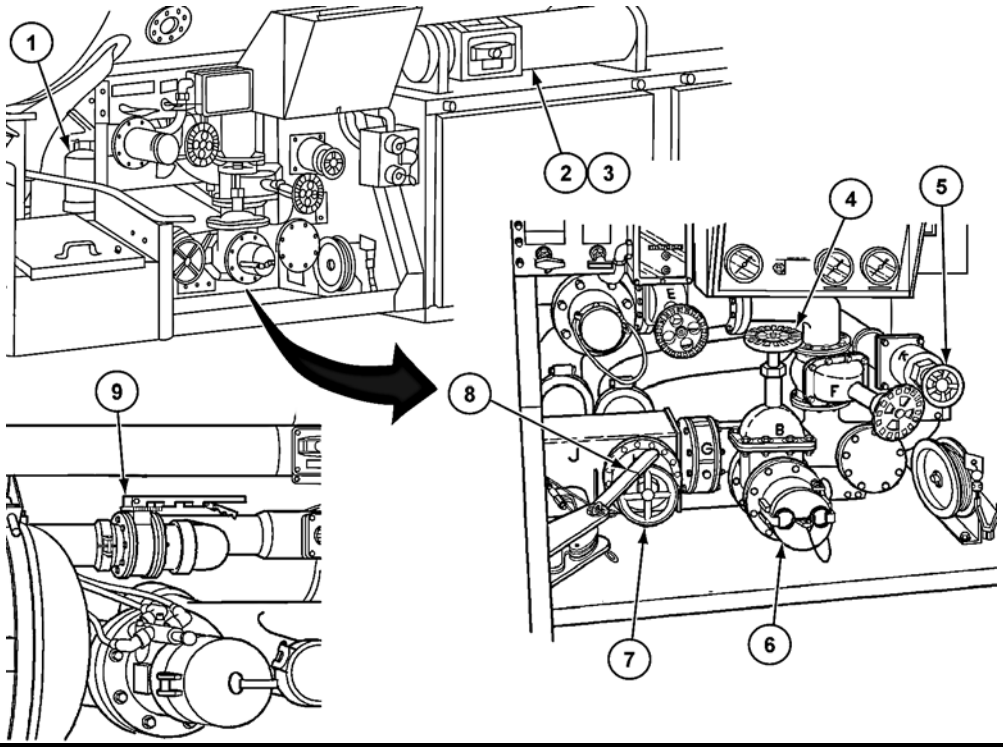
b. Ground and bond semitrailer per para. C (WP 0007 00-6).

c. Remove one or both vapor recovery system caps.

d. Start engine (para. G). When engine is warm, adjust to idle speed (1000–1200 rpm).

e. Remove 4-in. hose (2) from hose tube (3) and connect hose (2) between outlet B (6) and fuel storage facility.

f. Pull emergency valve A control handle (8) to open position. Open valves B, H, M, and K (4, 7, 9, and 5).



OPERATION UNDER USUAL CONDITIONS—Continued **0007**

g. Adjust engine speed to desired flow rate (290–320 gpm [1098–1211 Lpm] @ 2200–2400 rpm).

h. Shut off engine after delivery is complete.

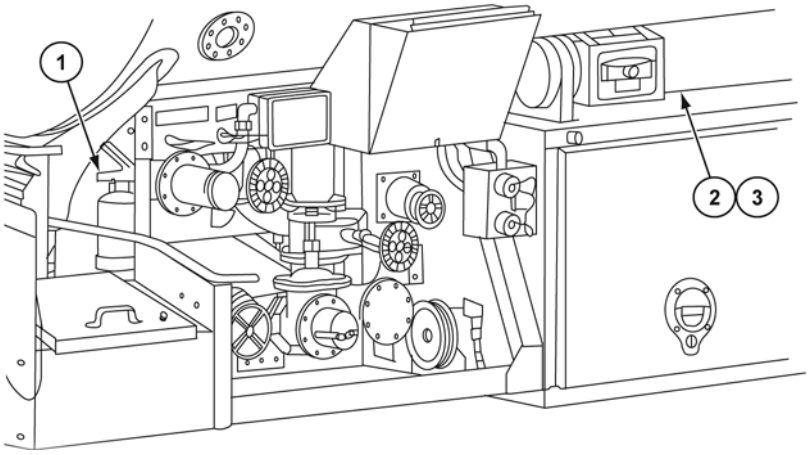
i. Drain hose (2) into suitable container.

j. Close all valves and vapor recovery system vent caps.

k. Remove and store hose (2) in hose tube (3).

l. Remove grounding cables.

m. Store and cover fire extinguishers (1).



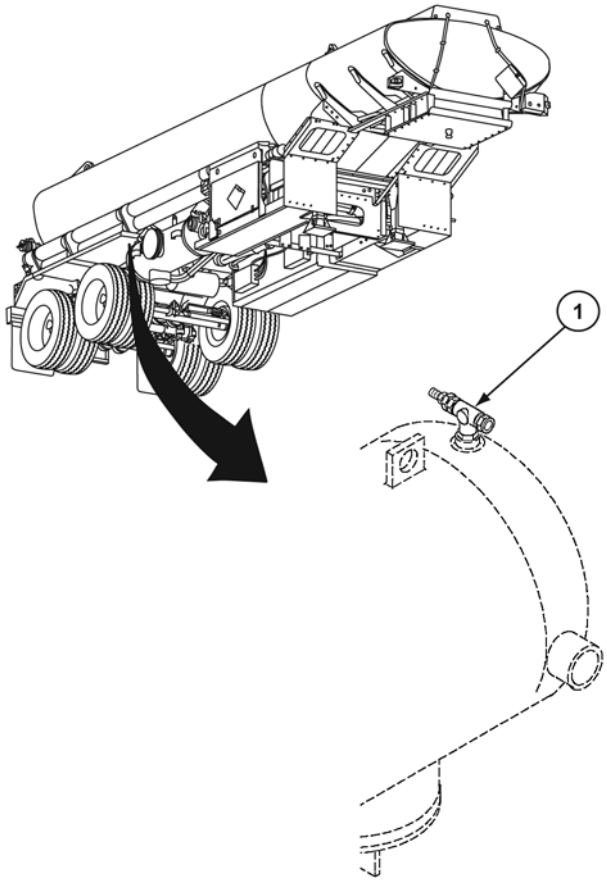
8. FILTERED METERED FUEL DISPENSING

CAUTION

Remove vent cap from either side of vapor recovery tube to vent tank during pumping operations.

NOTE

- **Fuel sampling is done during filtered fuel dispensing operation. Fuel is removed through an Aqua-Glo probe and adapter (1) installed on the filter separator.**



- **Additional information on fuel sampling may be obtained from FM 10-67-1.**
- **Use this procedure to dispense metered fuel from semitrailer tank to vehicle. Fuel is pumped through filter/separator, meter and hose reel to vehicle.**
- **Operation begins and ends with all valves closed.**

OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

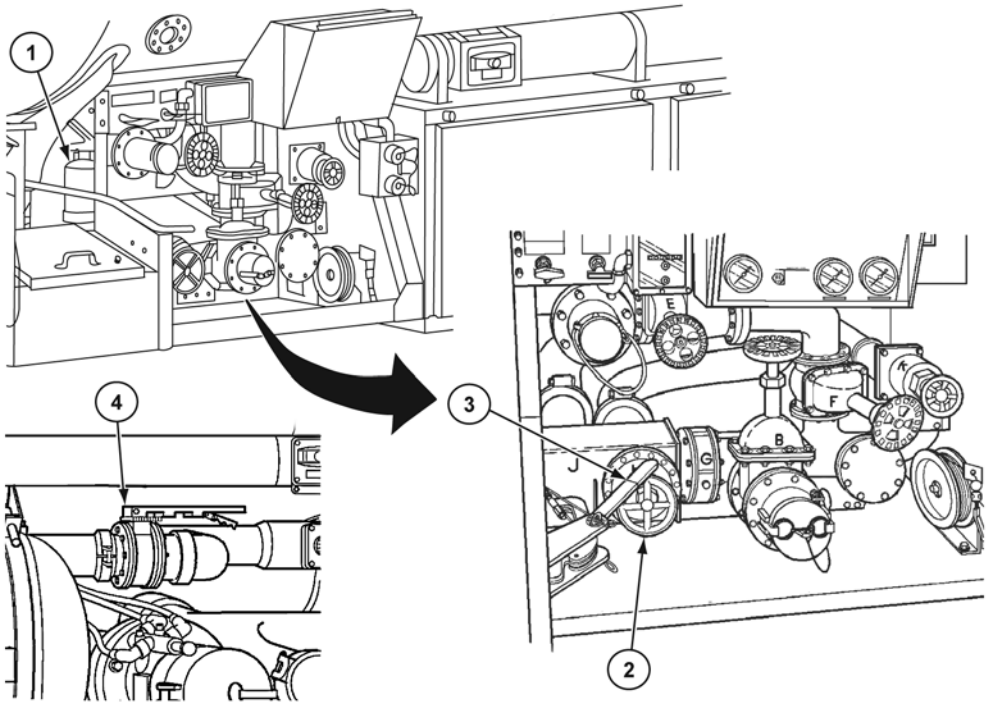
a. Remove fire extinguishers (1) and bring them to the point of operation.

b. Ground and bond semitrailer per para. C (WP 0007 00-6).

c. Remove one or both vapor recovery system caps.

d. Start engine (para. G). When engine is warm, adjust to idle speed (1000–1200 rpm).

e. Pull emergency valve A control handle (3) to open position. Open valves H and M (2 and 4).



f. Install fuel dispensing nozzle (8) onto front or rear hose reel (7).

g. Insert fuel dispensing nozzles (8) into vehicle tank.

h. Open valve P or R (6) for front or rear hose reel.

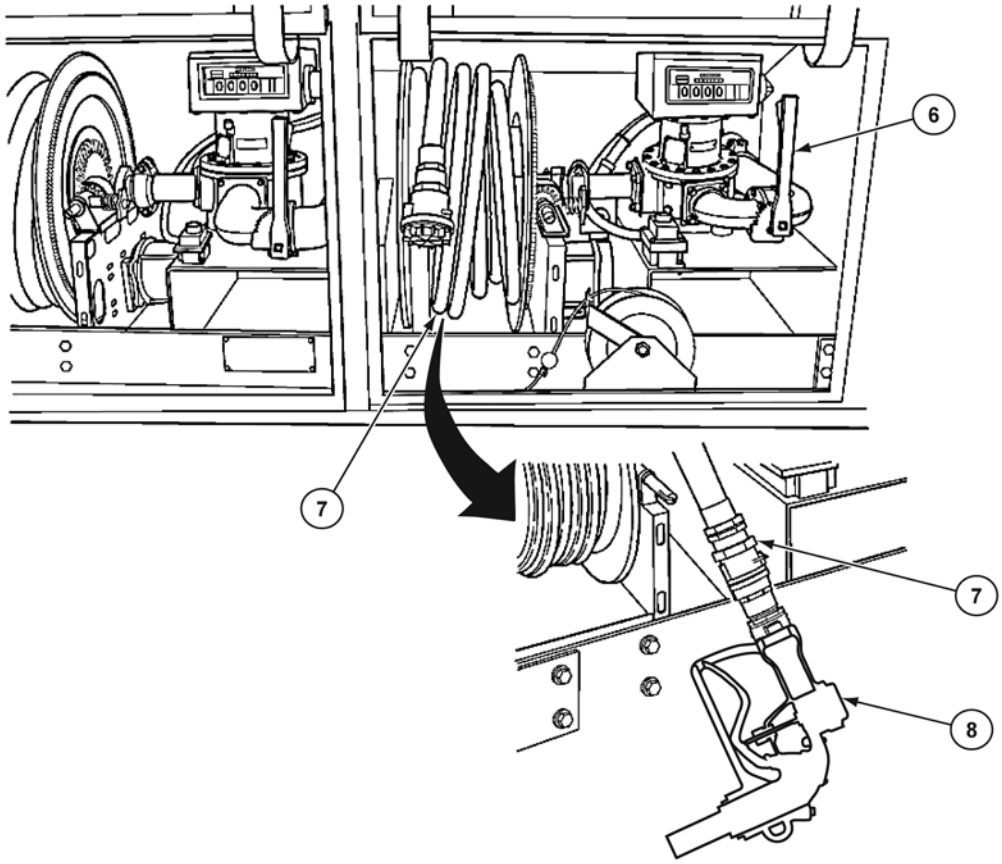
OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

NOTE

Both P and R valves may be opened if two vehicles are being fueled simultaneously.

i. Reset meters to zero by pushing in meter reset knobs and turning clockwise.

j. Adjust engine speed to desired flow rate (44–88 gpm [167–333 Lpm] @ 1200–2400 rpm).



k. Shut off engine after delivery is complete.

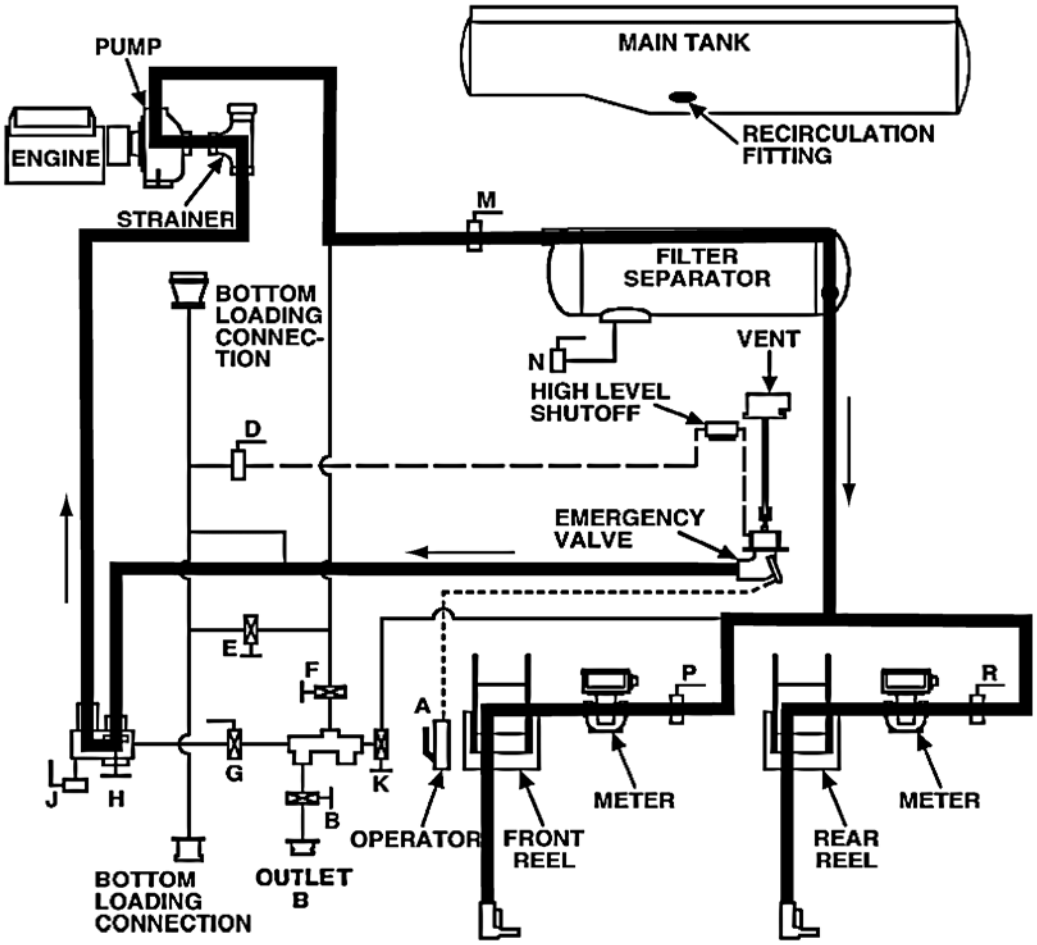
l. Remove fuel dispensing nozzle (8) from hose reel (7) and rewind 1-1/4 hoses..

m. Close all valves and vapor recovery vent caps.

n. Remove grounding and bonding cables.

o. Store and cover fire extinguishers.

Filtered Metered Flow Chart



CAUTION

Remove vent cap from either side of vapor recovery tube to vent tank during pumping operations.

NOTE

- **Use this procedure to recirculate metered fuel through the hose reels. Fuel is pumped through filter/separator, meter and hose reel back into tank of vehicle.**
- **Operation begins and ends with all valves closed.**

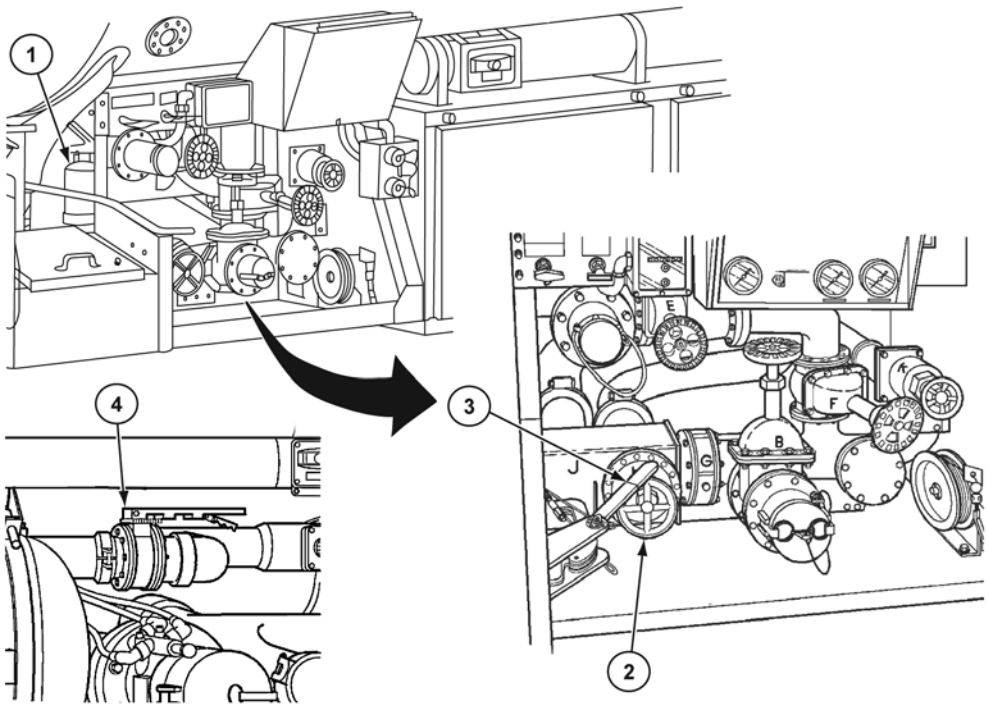
a. Remove fire extinguishers (1) and bring them to the point of operation.

b. Ground and bond semitrailer per para. C(WP 0007 00-6).

c. Remove one or both vapor recovery system caps.

d. Start engine (para. G). When engine is warm, adjust to idle speed (1000–1200 rpm).

e. Pull emergency valve A control handle (3) to open position. Open valves H and M (2 and 4).



f. Install D-1 recirculation nozzle (6) onto 1-1/4 in. hose (8).

g. Install D-1 nozzle to recirculation port (5).

h. Open P or R valve.

i. Open D-1 nozzle to begin recirculation and adjust engine speed to desired flow rate (290–320 gpm [1098–1211 Lpm] @ 2200–2400 rpm).

j. Shut off engine after recirculation is complete.

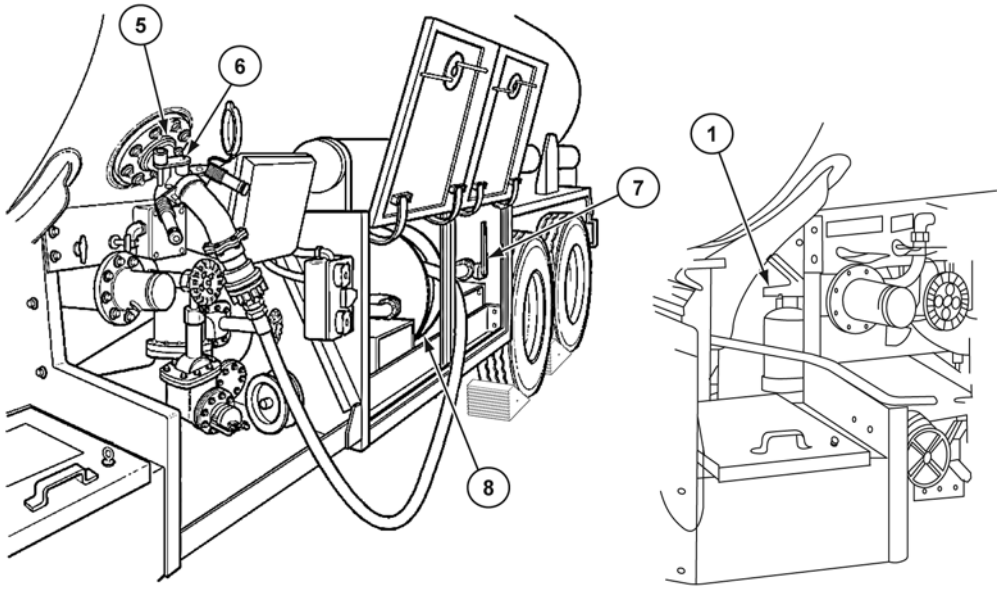
k. Remove D-1 recirculation nozzle (6) from port (5) and 1-1/4 in. hose (8).

l. Close all valves.

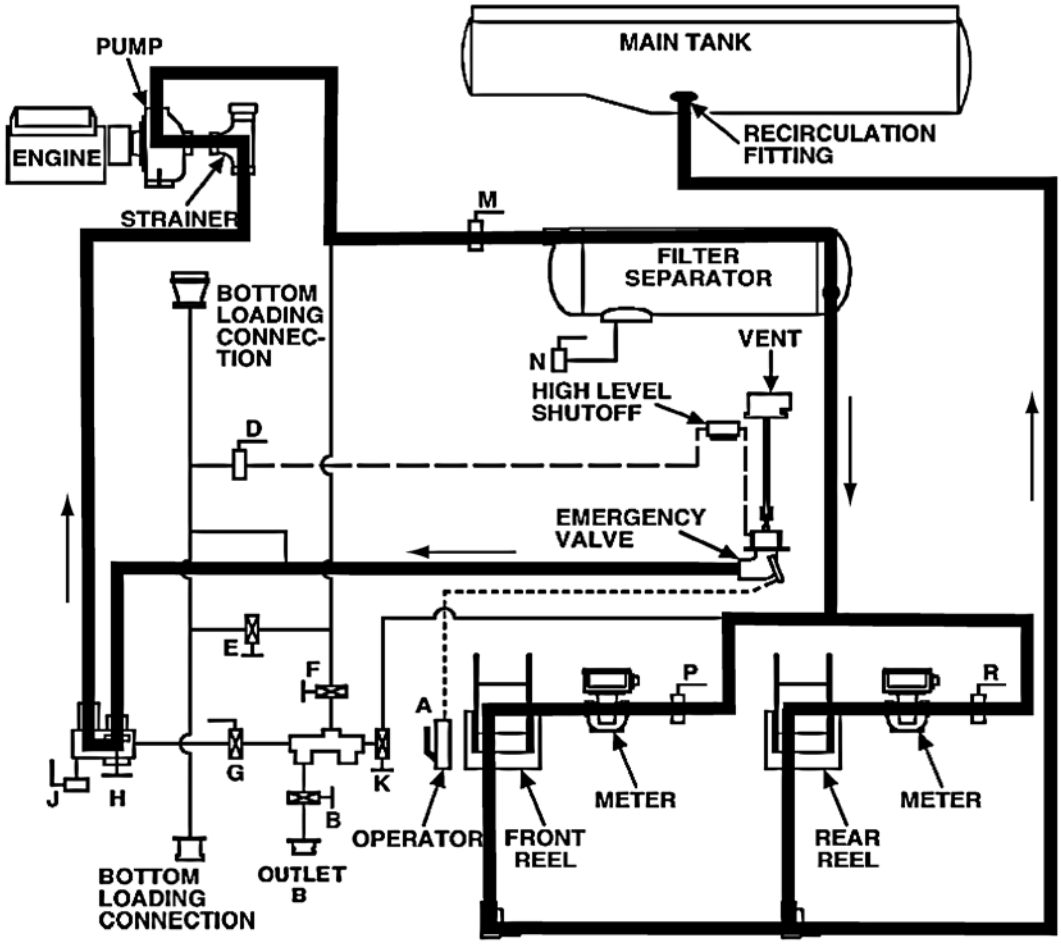
m. Rewind hose (8).

m. Remove grounding and bonding cables.

o. Store and cover fire extinguishers (1).



Recirculation Flow Chart



WARNING

Fuel handlers must wear appropriate safety equipment during fueling operations to avoid injury.

NOTE

Components of the Refuel on the Move (ROM) assembly are listed in WP 0173 00.

p. M969A3 Semitrailers have ROM capabilities. Refer to FM 10-67-1 for instructions on installing, operating, and disassembling the ROM kit.

10. 1-1/4 INCH HOSE EVACUATION

a. Ensure all valves are closed.

b. Ground and bond semitrailer per (WP 0007 00-6).

c. Remove fire extinguishers and bring them to the point of operation.

d. Start engine. When engine is warm, adjust to idle speed (1000-1200 rpm).

e. Open valves A, G, E, and K. Open valve P or R (whichever was used) to evacuate 1-1/4 inch hose. Open P or R hose reel nozzle.

f. Set engine speed to maximum speed (2400 rpm) for a few seconds until evacuation is completed. (Meter turns back slowly until fuel is evacuated).

g. Idle down engine.

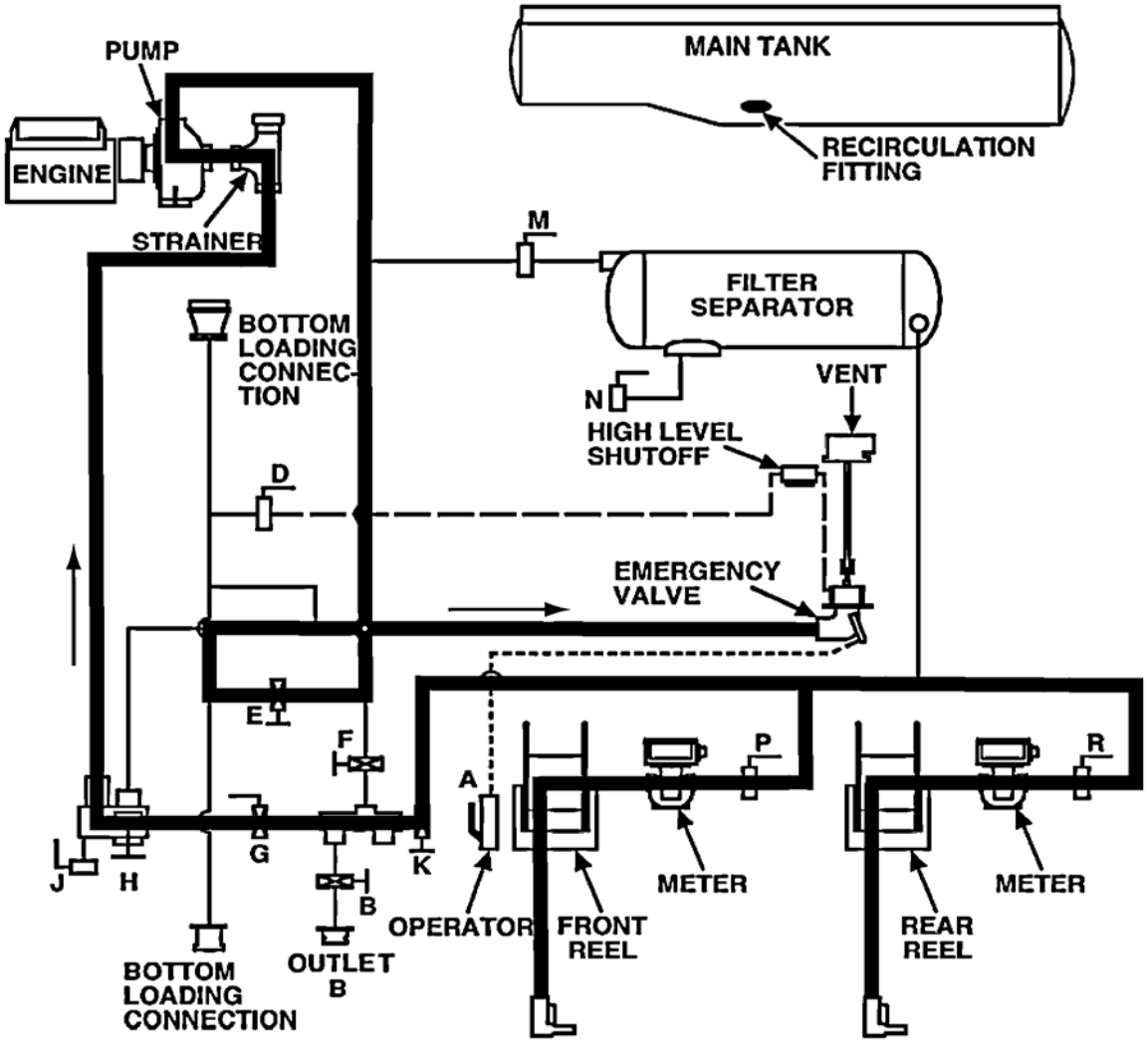
h. Close all valves.

i. Shut off engine.

j. Remove grounding and bonding cables.

k. Store and cover fire extinguishers.

1 1/4 Hose Evacuation Flow Chart



I. SPARE TIRE DISMOUNTING

Dismounting

1. Remove nut (6) and reinforcement channel (5) from stud (7).
2. Remove two quick release pins (2) from ladder (8) and carrier assembly (1).

WARNING

Spare tire and ladder are heavy. Make sure cable is

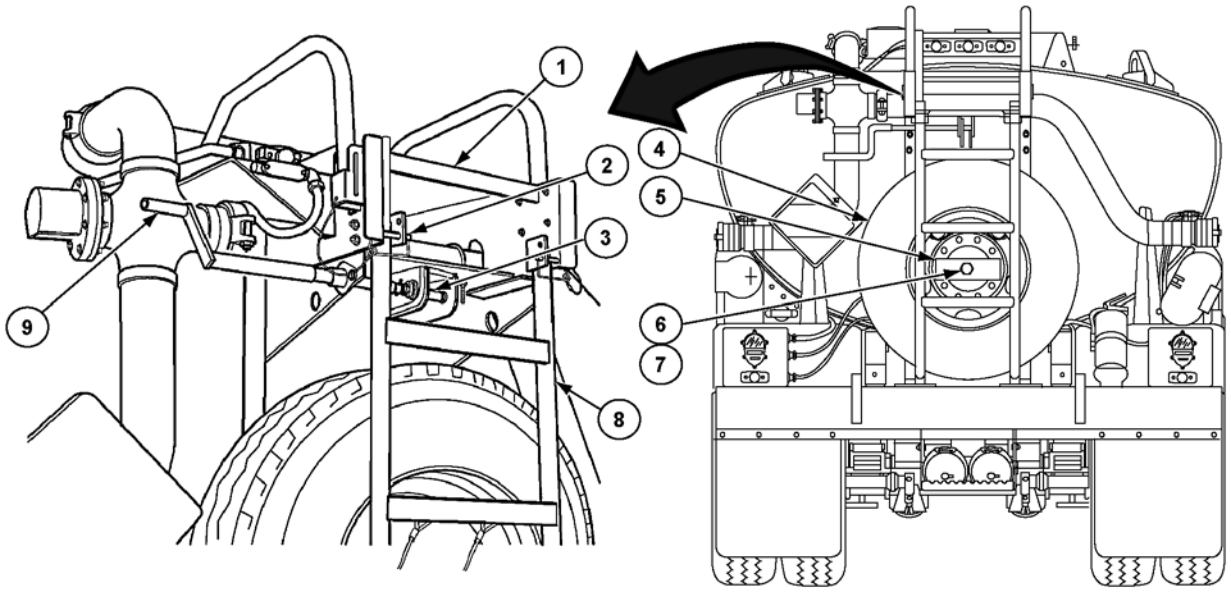
not frayed or damaged. Do not raise spare tire and ladder past the vertical position or they will slam into carrier assembly. Failure to heed this warning may result in severe injury to personnel or damage to equipment.

3. Rotate winch handle (9) until cable (3) is tight, then rotate winch handle (9) 1-1/2 turns in opposite direction.

4. Push spare tire (4) and ladder (8) away from carrier assembly (1) until supported by cable (3).

5. Rotate winch handle (9) until spare tire (4) and ladder (8) are fully lowered to ground and cable (3) is slack.

6. Unhook cable (3) from ladder (8) and remove cable (3) from spare tire (4). Roll spare tire (4) off ladder (8).



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

Mounting

1. Roll spare tire (4) onto ladder (8). Route cable (3) through ventilation holes in spare tire (4) and hook to the middle step of the ladder (8.

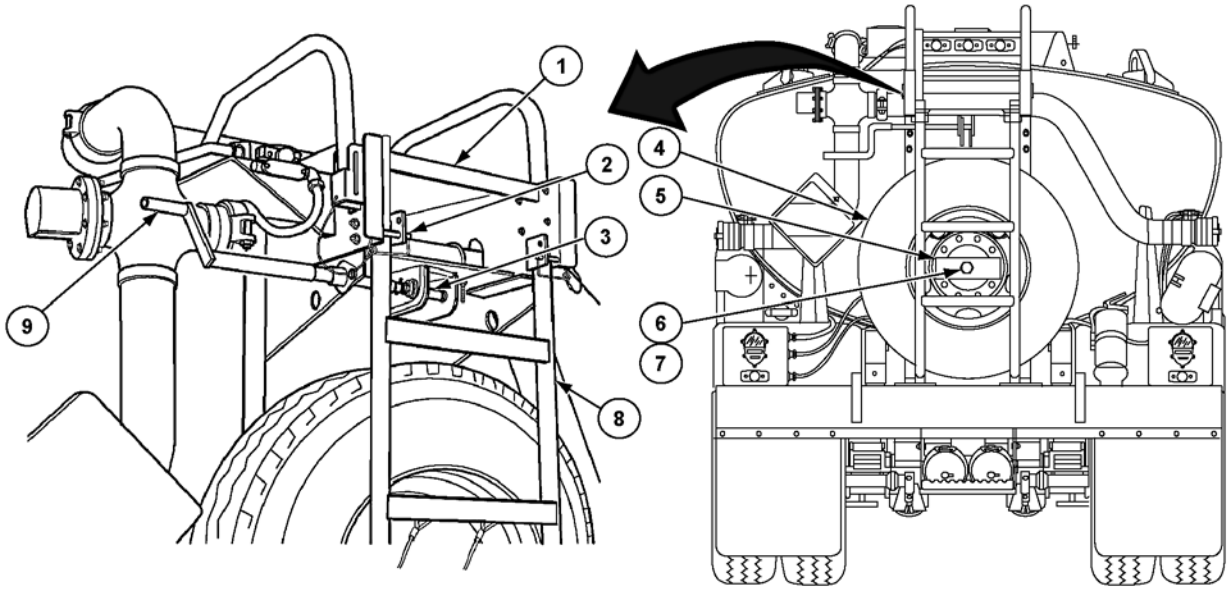
WARNING

Spare tire and ladder are heavy. Make sure cable is not frayed or damaged. Do not raise spare tire and ladder past the vertical position or they will slam into carrier assembly. Failure to heed this warning may result in severe injury to personnel or damage to equipment.

2. Rotate winch handle (9) until spare tire (4) and ladder (8) are nearly vertical, with weight still

supported by cable (3).

3. Carefully push spare tire (4) and ladder (8) in until resting against carrier assembly (1).
4. Install two quick release pins (2) in ladder (8) and carrier assembly (1).
5. Install reinforcement channel (5) to stud (7) with nut (6).
6. Rotate winch handle (9) until cable (3) is tight and winch handle (9) is pointing down.



OPERATION UNDER USUAL CONDITIONS—Continued **0007 00**

J. WHEEL ASSEMBLIES REPLACEMENT

Removal

WARNING

Replace wheel with semitrailer connected to prime mover if possible. If semitrailer is not connected to prime mover ensure that landing gear is lowered and locked and wheels are chocked. Failure to follow this warning may cause semitrailer to roll resulting in injury to personnel or damage equipment.

NOTE

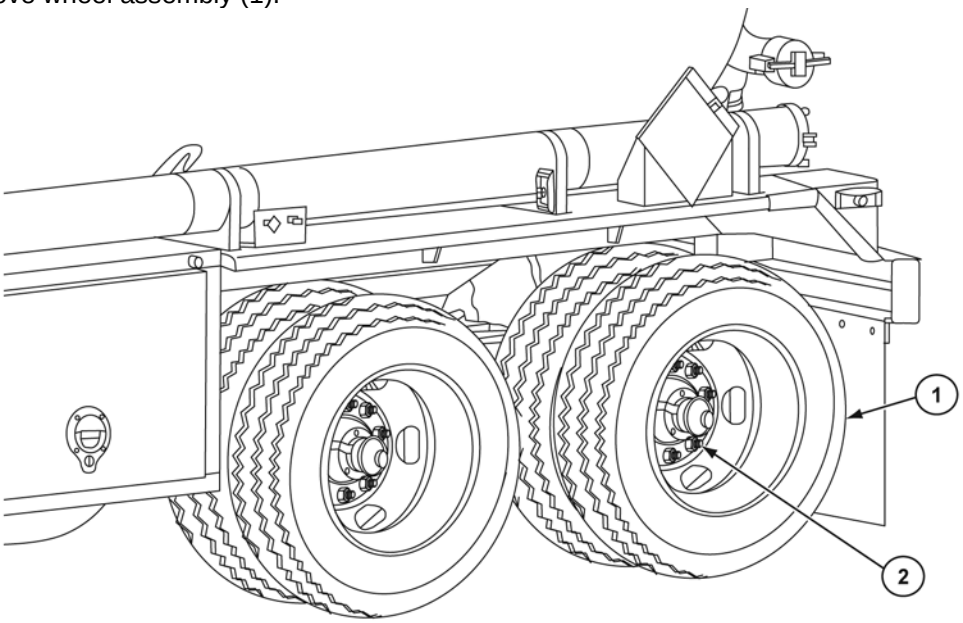
There are four wheel assemblies and they are replaced the same way. This procedure covers one wheel assembly.

1. Loosen but do not remove 10 nuts (2) while wheel assembly (1) is in contact with ground.

WARNING

Wheel assembly is heavy. Use two people to remove wheel assembly from studs. Failure to follow this warning could result in injury to personnel.

2. Raise axle so wheel assembly (1) is off ground.
3. Remove 10 nuts (2).
4. Remove wheel assembly (1).



Installation

WARNING

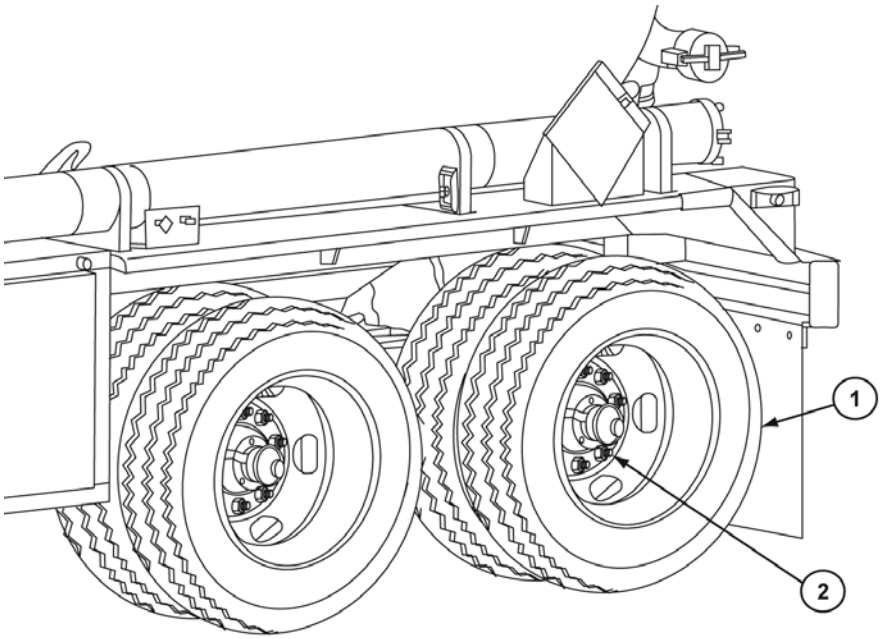
Wheel is heavy. Use two people to install wheel to studs. Failure to follow this warning could result in injury to personnel.

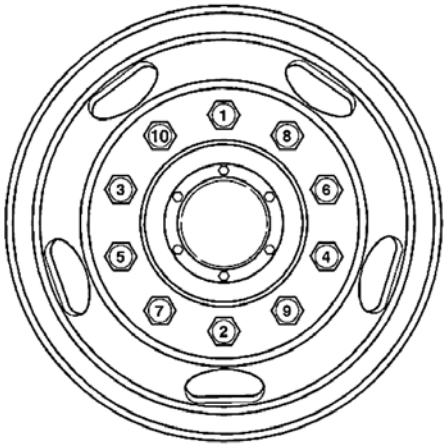
NOTE

Before installing spare wheel, be sure that mounting surfaces of hub and flat mounting surfaces of wheel are clean and free of foreign matter or excess paint. Check to see that threads of studs are clean and not damaged.

1. Raise axle high enough so that wheel assembly (1) can be mounted.
2. Install wheel assembly (1).
3 Install 10 nuts (2) fingertight.
4. Lower wheel assembly (1) to ground.

5. Finish tightening nuts in sequence shown to 450 to 500 lb-ft (610 to 678 N•m).





END OF TASK

GENERAL

This WP contains instructions for safety operating the semitrailer under unusual conditions. In addition to performing normal preventive maintenance service, you must take special care to keep the semitrailer operational in conditions of extreme temperatures and humidity.

For information on driver selection, training, and supervision, refer to FM 55-30.

For more information on special driving instructions for operating wheeled vehicles under unusual conditions, refer to FM 21-305.

OPERATION IN EXTREME COLD

WARNING

Sudden changes in temperature may cause semitrailer to develop leaks at fittings and connectors. Use caution and pay special attention to these areas. If something is broken or worn out, report it to Organizational maintenance. Corrective action must be performed before resuming any operations. Failure to follow this warning may result in injury to personnel.

1. Take special care when operating semitrailer in extremely cold weather. Refer to FM 9-207 for information on operation in cold weather.

2. In addition to performing all normal PMCS, take special care in regard to cleaning and lubrication when extreme in temperature, humidity, and terrain conditions are present or anticipated. Proper cleaning, lubrication, storage, and handling ensures proper operation and function and guards against excessive wear. Refer to WP 0035 00 for proper lubrication during extremely cold weather.

3. Generally, extreme cold causes lubricants to thicken or freeze and various semitrailer construction materials to become hard and brittle and easily damaged or broken.

4. Take care when handling cables. Extremely cold weather can cause insulation material on electrical wire to crack, resulting in short circuits.

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 a footing of planks or brush under tires to prevent them from freezing to the ground. Make sure the tires are properly inflated 95 psi (655 kPa). Under inflated tires will freeze, resulting in flat spots.

6. Use caution when placing semitrailer in motion after a shutdown. Thickened lubricants may cause component failure. Free frozen brake shoes or tire frozen to the ground with care.

OPERATION IN EXTREME HEAT

1. Refer to WP 0035 00 for proper lubrication during high heat conditions.

2. Do not park semitrailer in sunlight for long periods of time. Heat and sunlight shorten tire life.

CAUTION

Do not use gasoline or cleaning compound to remove oil or grease spots from tarpaulin. Use only water and a scrubbing brush. Failure to follow this caution will damage tarpaulin.

3. Cover inactive semitrailer with tarpaulins if no other shelter is available. Tarpaulins are subject to deterioration from mildew and attacks by insects or vermin, so shake out tarpaulins and air them weekly for several hours. Clean mildewed tarpaulins with a dry scrubbing brush. Do not clean with water until mildew is removed. If mildew is found, examine tarpaulin to determine if it is rotted or weakened. Replace it if damaged. If it is not damaged, treat as outlined in FM 10-16.

4. Semitrailer inactive for long periods in hot, humid weather are subject to rusting and accumulation of fungi growth. Frequently inspect, clean, and lubricate to prevent deterioration.

OPERATION IN HIGH HUMIDITY AND SALTWATER AREAS

1. Since dampness increases chances of corrosion, inspect all surfaces and electrical connections for signs of corrosion and remove them. Apply silicone compound (item 6, WP 0174 00) to all electrical connections.

2. Protect semitrailer from direct rainfall whenever possible.

3. Prevent moisture from entering fuel supply.

4. Clean, inspect, and lubricate semitrailer frequently when operating in saltwater areas (refer to WP 0035 00).

OPERATION IN MUD OR SNOW

1. After each operation, remove ice and snow from underneath semitrailer and from hoses, lines, tubes, and electrical connections.

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

3. Immediately after operation in mud or snow, thoroughly clean, inspect, and lubricate if tactical situation permits (refer to WP 0035 00).

OPERATION IN DUSTY OR SANDY AREAS

1. Clean, inspect, and lubricate semitrailer frequently when operating in dusty or sandy areas (refer to WP 0035 00).

2. Maintain proper tire pressure by doing the following:

   - Reduce tire pressure to 32 psi (221 kPa) for operation in soft sand.
   - Reduce tire pressure to 45 psi (310 kPa) for operation on cross-country terrain. Tire pressure must be returned to 95 psi (655 kPa) when operation resumes on hard-surface roads if tactical situation permits.

3. When uncoupling semitrailer in sandy areas, use ground boards to prevent landing gear from sinking.

FORDING

CAUTION

Maximum fording depth is 30 in. (76 cm).

1. M969A3 semitrailer is designed for fording hard bottom water crossings deep enough to submerge the running gear.

2. Refer to the towing vehicle operating instructions for information on fording. Instructions for the towing vehicle also apply to the semitrailer.

3. Before entering water, spray the engine assembly electrical connections with silicone compound (item 6, WP 0174 00). Notify Organizational maintenance to pack wheel bearings after each submersion (refer to WP 0068 00).

4. Reduce tire pressure to aid in amphibious landings.

END OF TASK

CHAPTER 3

OPERATOR TROUBLESHOOTING

GENERAL

This WP provides information on the malfunction/symptom index and procedures of Operator troubleshooting.

MALFUNCTION/SYMPTOM INDEX (WP 0010 00)

The malfunction/symptom index is a quick reference index for finding troubleshooting procedures. Associated with each symptom name is a WP sequence number representing the starting point in a troubleshooting sequence.

TROUBLESHOOTING PROCEDURES (WP 0011 00 thru WP 0016 00)

The troubleshooting WPs contain tables listing the malfunctions, tests or inspections, and corrective actions required to return the M969A3 to normal operation. Perform the steps in the order in which they appear in the tables.

The columns are defined as follows:

1. **MALFUNCTION—**A visual or operational indication that something is wrong with the M969A3.

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

3. **CORRECTIVE ACTION—**A procedure to correct the problem.

If you are unsure of the location of an item mentioned in troubleshooting, refer to WP 0002 00 or to the maintenance task where the item is replaced.

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

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

END OF TASK

MALFUNCTION/SYMPTOM INDEX 0010 00

GENERAL

This index is provided as a quick way to get you to the part of troubleshooting that will help you solve the problem you are having. It lists all of the malfunctions covered in Operator/Crew troubleshooting.

ENGINE

1. Engine will not turn over ..... WP 0011 00-1
2. Engine is hard to start or turns over slowly ..... WP 0011 00-1
3. Engine turns over but fails to start ..... WP 0011 00-2
4. Engine misfires at heavy load or engine power is low ..... WP 0011 00-2
5. Low oil pressure is indicated on gage ..... WP 0011 00-3

ELECTRICAL SYSTEM

1. Lights on trailer will not operate ..... WP 0012 00-1
2. One or more lights (but not all) will not operate or lights are dim or flickering ..... WP 0012 00-1
3. Control panel secure lighting does not operate ..... WP 0012 00-1

BRAKE SYSTEM

1. Brakes will not release ..... WP 0013 00-1
2. No brakes or brakes are weak ..... WP 0013 00-2
3. Brake application or release is slow ..... WP 0013 00-3
4. Brakes grab ..... WP 0013 00-4

FUEL SYSTEM

Fuel does not flow during any fuel servicing operation ..... WP 0014 00-1

TIRES

Tires are excessively worn, scuffed, or cupped ..... WP 0015 00-1

LANDING GEAR

Crank is difficult to operate ..... WP 0016 00-1

END OF TASK

ENGINE TROUBLESHOOTING **0011 00**

THIS WP COVERS:
Engine Troubleshooting

INITIAL SETUP:

Maintenance Level	**References**
Operator/Crew	WP 0035 00 WP 0039 00

To troubleshoot the M969A3 engine, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE WILL NOT TURN OVER	1. Set engine switch on control panel to RUN and check battery voltage gage.	If battery voltage gage indicates less than 24–28 V dc, notify Organizational maintenance. If battery gage voltage is okay, go to step 2.
	2. Remove battery cover and check for loose, frayed, or corroded battery cable connections.	If cables are corroded, frayed, or broken, notify Organizational maintenance. If cables are okay, go to step 3.
	3. Remove vent fill caps from batteries and check for low electrolyte.	If electrolyte is low, notify Organizational maintenance.
2. ENGINE IS HARD TO START OR TURNS OVER SLOWLY	1. Set engine switch on control panel to RUN and check battery voltage gage.	If battery voltage gage indicates less than 24–28 V dc, notify Organizational maintenance. If battery voltage gage is okay, go to step 2.
	2. Remove battery cover and check for loose, frayed, or corroded battery cable connections.	If cables are corroded, frayed, or loose, notify Organizational maintenance. If cables are okay, go to step 3.

Table 1. Troubleshooting Procedures—Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. ENGINE IS HARD TO START OR TURNS OVER SLOWLY—Continued	3. Remove vent fill caps from batteries and check for low electrolyte.	If electrolyte is low, notify Organizational maintenance. If electrolyte is okay, go to step 4.
	4. Check air cleaner restriction indicator for red band.	If red band is showing, service air cleaner (refer to WP 0039 00). If red band is okay, go to step 5.
	5. Check for fuel leaks.	If fuel lines or connections are loose or damaged, notify Organizational maintenance.
3. ENGINE TURNS OVER BUT FAILS TO START	1. Check fuel level in engine fuel tank.	If fuel level is low, add fuel as required. If fuel tank is empty, notify Organizational maintenance. If fuel level is okay, go to step 2.
	2. Check engine for overheated condition.	If engine is overheated, wait 3–5 minutes before attempting engine restart. If engine still will not start, notify Organizational maintenance.
4. ENGINE MISFIRES AT HEAVY LOAD OR ENGINE POWER IS LOW	1. Check air cleaner restriction indicator for red band.	If red band is showing, service air cleaner (refer to WP 0039 00). If red band is okay, go to step 2.
	2. Check for fuel line leaks.	If fuel line connections are loose or damaged, notify Organizational maintenance.

Table 1. Troubleshooting Procedures—Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. LOW OIL PRESSURE IS INDICATED ON GAGE	**NOTE** **Engine must be OFF before checking oil.**	
	1. Remove engine oil dipstick and check oil level.	If engine oil level is low, add oil as necessary (refer to WP 0035 00). If engine oil level is okay, go to step 2.
	2. Check engine oil pressure gage on engine control panel for damage.	If engine oil pressure gage is damaged, notify Organizational maintenance. If engine oil pressure gage is okay, go to step 3.
	3. Start engine and monitor engine oil pressure gage.	If low oil pressure (less than 30 psi [207 kPa]) continues or returns, notify Organizational maintenance.

END OF TASK

ELECTRICAL SYSTEM TROUBLESHOOTING **0012 00**

THIS WP COVERS:
Electrical System Troubleshooting

INITIAL SETUP:
Maintenance Level
Operator/Crew

To troubleshoot the M969A3 electrical system, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. LIGHTS ON TRAILER WILL NOT OPERATE	1. Check switch on prime mover (refer to applicable prime mover TM) is in the ON position.	If taillights do not operate properly, go to step 2.
	2. Check fuse in prime mover (refer to applicable prime mover TM).	If fuse is blown, notify Organizational maintenance. If fuse is okay, go to step 3.
	3. Disconnect intervehicular cable connections of M969A3 and prime mover and check for dirty or corroded contacts in both plugs.	Clean plugs or receptacles and reconnect to M969A3. If semitrailer lights still do not operate properly, notify Organizational maintenance.
2. ONE OR MORE LIGHTS (BUT NOT ALL) WILL NOT OPERATE, OR LIGHTS ARE DIM OR FLICKERING	Disconnect intervehicular cable connections of M969A3 and prime mover and check for dirty or corroded contacts in both plugs.	Clean plugs or receptacles and reconnect to M969A3. If semitrailer lights still do not operate properly, notify Organizational maintenance.
3. CONTROL PANEL SECURE LIGHTING DOES NOT OPERATE		Notify Organizational maintenance.

END OF TASK

BRAKE SYSTEM TROUBLESHOOTING **0013 00**

THIS WP COVERS:
Brake System Troubleshooting

INITIAL SETUP:
Maintenance Level
Operator/Crew

References
WP 0007 00

To troubleshoot the M969A3 brake system, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. BRAKES WILL NOT RELEASE	1. Check shut-off valves on prime mover. **NOTE** **Some prime movers may not be equipped with shut-off valves (refer to applicable prime mover TM).** 2. Check that service and emergency couplings are connected properly to M969A3 (refer to WP 0007 00). 3. Check air pressure gages in prime mover (refer to applicable prime mover TM).	Open shut-off valves. If valves are already open, go to step 2. If couplings are not connected properly, connect couplings (refer to WP 0007 00). Verify problem is solved. If couplings were connected properly, go to step 3. If prime mover air pressure gages do not indicate 90 psi (621 kPa), notify Organizational maintenance. If air pressure gages indicate 90 psi (621 kPa) or higher but brakes still will not release, notify Organizational maintenance.

Table 1. Troubleshooting Procedures—Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. NO BRAKES OR BRAKES ARE WEAK	1. Apply prime mover service brakes. Check position of shut-off valves on prime mover. **NOTE** **Some prime movers may not be equipped with shut-off valves (refer to applicable prime mover TM).**	Open shut-off valves. If valves are already open, go to step 2.
	2. Check airbrake system for leaks or damage.	If no damage or leaks are detected, notify Organizational maintenance that further troubleshooting is required. If damage is detected, notify Organizational maintenance.
3. BRAKE APPLICATION OR RELEASE IS SLOW	Set parking brake of prime mover (refer to applicable prime mover TM). Check to see if airbrake system is leaking or damaged.	If no damage or leaks are detected, notify Organizational maintenance that further troubleshooting is required. If damage is detected, notify Organizational maintenance.
4. BRAKES GRAB	Set parking brake of prime mover (refer to applicable prime mover TM). Check semitrailer air reservoir for moisture.	Open air reservoir, drain valve, and drain any accumulated moisture from valve. If no moisture is present, notify Organizational maintenance that further troubleshooting is required.

END OF TASK

FUEL SYSTEM TROUBLESHOOTING **0014 00**

THIS WP COVERS:
Fuel System Troubleshooting

INITIAL SETUP:
Maintenance Level
Operator/Crew

References
WP 0006 00
WP 0007 00
WP 0040 00
WP 0041 00

To troubleshoot the M969A3 fuel system, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. FUEL DOES NOT FLOW DURING ANY FUEL SERVICING OPERATION	1. Verify fuel in tank.	If tank has fuel, go to step 2. If tank has no fuel, fill tanker. Verify problem is solved.
	2. Verify all valves are set per fuel operations schematic on tool box lid (refer to WP 0007 00).	Set valves per schematic on tool box lid (refer to WP 0007 00). If valves are already set per fuel operations schematic, go to step 3.
	3. Check pump strainer for debris or dirt clogging inlet.	Clean strainer per WP 0041 00. Verify problem is solved. If screen was not clogged, go to step 4.
	4. Check for debris or dirt in nozzle screen of quick coupling.	If dirt or debris are present in nozzle screen, clean screen per WP 0041 00. Verify problem is solved. If dirt and debris are not present, go to step 5.
	5. Verify emergency valve A control handle is in open position.	If valve is not in the open position, open valve. Verify problem is solved. If valve is already open, notify Organizational maintenance that further troubleshooting is required.

Table 1. Troubleshooting Procedures—Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. FUEL DOES NOT FLOW DURING ANY FILTERED FUELING OPERATION	1. Verify fuel in tank.	If tank has fuel, go to step 2. If tank has no fuel, fill tank per WP 0007 00. Verify problem is solved.
	2. Verify all valves are set per fuel operations schematic.	Set valves per schematic on tool box lid (refer to WP 0007 00). If valves are already set per fuel operations schematic, go to step 3
	3. Open N valve on sump of filter/separator and drain accumulated water per WP 0040 00.	If water drains, verify problem is solved. If no water drains, go to step 4.
	4. Check reading of filter/separator pressure gage on engine control panel per WP 0040 00.	If reading is in red zone (18–25 psi) of gage, notify Organizational maintenance to service filter/separator. If reading is normal, go to step 5.
	5. Check for improperly installed fuel dispensing nozzle.	If nozzle is improperly installed, reinstall nozzle correctly per WP 0041 00. Verify problem is solved. If nozzle is satisfactory, go to step 6.
	6. Check for dirt or debris in nozzle screen of quick coupling.	If nozzle screen is clogged, clean screen per WP 0041 00. Verify problem is solved. If nozzle is clean, notify Organizational maintenance that further troubleshooting is required.

Table 1. Troubleshooting Procedures—Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. FUEL DOES NOT FLOW DURING ANY NON-FILTERED FUELING OPERATION	1. Check to see if emergency valve A control handle is in the open position.	If valve A is in closed position, open it. Verify problem is solved. If valve is already in open position, go to step 2.
	2. Verify all valves are set per fuel operations schematic.	Set valves per schematic on tool box lid (refer to WP 0007 00). Verify problem is solved. If valves are already set properly, go to step 3.
	3. Check for debris or dirt in nozzle screen of quick coupling.	If dirt or debris are present in nozzle screen, clean screen per WP 0041 00. Verify problem is solved. If dirt and debris are not present, go to step 4.
	4. Check pump inlet screen for debris or dirt clogging inlet.	Clean inlet screen per WP 0041 00. Verify problem is solved. If screen was clean, notify Organizational maintenance that further troubleshooting is required.

END OF TASK

TIRES TROUBLESHOOTING **0015 00**

THIS WP COVERS:
Tires Troubleshooting

INITIAL SETUP:
Maintenance Level
Operator/Crew

References
WP 0002 00

To troubleshoot the M969A3 tires, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
TIRES ARE EXCESSIVELY WORN, SCUFFED, OR CUPPED	1. Check tire pressure for correct operating pressure (refer to WP 0002 00).	Inflate/deflate tires to correct operating pressure (refer to WP 0002 00). If tire pressure is correct, go to step 2.
	2. Check for loose wheels and wheel stud nuts.	If wheels are loose, tighten wheel stud nuts. Verify problem is solved. If wheels are not loose, go to step 3.
	3. Check for bent wheels.	If wheels are bent, notify Organizational maintenance. If wheels are not bent, notify Organizational maintenance that further troubleshooting is required.

END OF TASK

LANDING GEAR TROUBLESHOOTING 0016 00

THIS WP COVERS:
Landing Gear Troubleshooting

INITIAL SETUP:
Maintenance Level
Operator/Crew

To troubleshoot the M969A3 landing gear, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
HANDCRANK IS DIFFICULT TO OPERATE	1. Check to see if lower legs are bent.	If lower legs are bent, notify Organizational maintenance. If legs are not bent, go to step 2.
	2. Turn handcrank and raise lower legs.	If lower legs return to the fully retracted position, notify Organizational maintenance that further troubleshooting is required. If legs do not retract, notify Organizational maintenance.

END OF TASK

CHAPTER 4

ORGANIZATIONAL TROUBLESHOOTING

INTRODUCTION **0017 00**

GENERAL

This WP provides information on the malfunction/symptom index and procedures of Organizational troubleshooting.

MALFUNCTION/SYMPTOM INDEX (WP 0018 00)

The malfunction/symptom index is a quick reference index for finding troubleshooting procedures. Associated with each symptom name is a WP sequence number representing the starting point in a troubleshooting sequence.

TROUBLESHOOTING PROCEDURES (WP 0019 00 thru WP 0029 00)

The troubleshooting WPs contain tables listing the malfunctions, tests or inspections, and corrective actions required to return the M969A3 to normal operation. Perform the steps in the order in which they appear in the tables.

The columns are defined as follows:

1. **MALFUNCTION—**A visual or operational indication that something is wrong with the M969A3.

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

3. **CORRECTIVE ACTION—**A procedure to correct the problem.

If you are unsure of the location of an item mentioned in troubleshooting, refer to WP 0002 00 or to the maintenance task where the item is replaced.

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

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

END OF TASK

MALFUNCTION/SYMPTOM INDEX 0018 00

GENERAL

This index is provided as a quick way to get you to the part of troubleshooting that will help you solve the problem you are having. It lists all of the malfunctions covered in Organizational troubleshooting.

LIGHT SYSTEMS

1. All semitrailer lights are inoperable/dim or flickering ..... WP 0019 00-1

2. One or more lights will not operate ..... WP 0019 00-1

BRAKE SYSTEM

1. Brakes will not release/brakes drag (one or more brake drums are running hot) ..... WP 0020 00-1

2. No brakes/brakes are weak/application or release is slow ..... WP 0020 00-3

3. ABS warning light comes on and stays on at operating speeds (above 4 mph) ..... WP 0020 00-2

4. ABS warning light does not come on ..... WP 0020 00-2

LANDING GEAR

Handcrank is difficult to turn ..... WP 0021 00-1

MANHOLE COVER

Excessive leakage exists around manhole ..... WP 0022 00-1

ENGINE

1. Engine starter will not run ..... WP 0023 00-1

2. Engine turns over but fails to start ..... WP 0023 00-2

3. Engine is hard to start or has low engine power ..... WP 0023 00-3

4. Low oil pressure is indicated on gage ..... WP 0023 00-4

5. High oil pressure is indicated on gage ..... WP 0023 00-4

6. Engine misfires under heavy load ..... WP 0023 00-5

7. Engine speed is erratic or will not maintain steady rpm ..... WP 0023 00-6

8. Engine speed is too high or too low ..... WP 0023 00-6

9. Engine exhaust is black or fuel consumption is excessive ..... WP 0023 00-6

10. Preheat indicator lamp will not light ..... WP 0023 00-7

CENTRIFUGAL PUMP

Pump fails to deliver fuel ..... WP 0024 00-1

BATTERY

Battery is low or discharged ..... WP 0025 00-1

ALTERNATOR AND CHARGING CIRCUIT

1. Undercharged batteries ..... WP 0026 00-1
2. Overcharged batteries indicated by high water usage ..... WP 0026 00-2
3. High or low alternator output ..... WP 0026 00-2
4. Short voltage regulator life ..... WP 0026 00-2
4. Noisy alternator ..... WP 0026 00-3

FILTER/SEPARATOR

Fuel does not flow during filtered fuel servicing operations ..... WP 0027 00-1

PIPING CONTROL COMPONENTS

With emergency valve A handle in closed position, fuel continues to flow out of tank ..... WP 0028 00-1

FUEL SYSTEM

1. Fuel does not flow during any fueling operation ..... WP 0029 00-1
2. Fuel does not flow during filtered fuel servicing operations ..... WP 0029 00-1

END OF TASK

LIGHT SYSTEMS TROUBLESHOOTING 0019 00

THIS WP COVERS:
Light Systems Troubleshooting

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Multimeter (item 2, WP 0171 00)

References
Applicable prime mover TM
WP 0046 00
WP 0054 00
WP 0057 00
WP 0058 00
WP 0061 00
WP 0065 00

To troubleshoot the M969A3 light systems, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ALL SEMITRAILER LIGHTS ARE INOPERABLE/DIM OR FLICKERING	At front access hatch cover, check for loose/dirty or corroded receptacle ground leads and terminal strip leads (refer to WP 0058 00). **NOTE** **Refer to WP 0046 00 for routing of electrical wires and electrical schematic.**	Clean/tighten receptacle ground or terminal strip leads. Verify problem is solved.
2. ONE OR MORE LIGHTS WILL NOT OPERATE	1. At front access hatch cover, check for loose/dirty or corroded receptacle ground leads and terminal strip leads (refer to WP 0058 00).	Clean/tighten receptacle ground or terminal strip leads. Verify problem is solved. If loose/dirty or corroded leads are not present, go to step 2.

Table 1. Troubleshooting Procedures—Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. ONE OR MORE LIGHTS WILL NOT OPERATE—Continued	2. At composite stoplight box, check for loose plug connections or broken wires (refer to WP 0054 00).	If loose plugs or broken wires are found, repair wires (refer to WP 0065 00) or tighten connections. Verify problem is solved. If no loose connections or broken wires are found, go to step 3.
	3. At composite stoplight box, insert multimeter leads to ground wire 90 connector and socket of suspected bad wire(s) and check for voltage.	If voltage is present at wires, replace defective composite stoplight assembly (refer to WP 0054 00). If voltage is not present at wires, go to step 4.
	4. Disconnect connectors of main trailer wiring harness from socket box harness inside composite stoplight box. Insert multimeter leads to ground wire 90 connector and suspected bad wire(s) and check for voltage.	If voltage is present at wires, repair (refer to WP 0065 00)/replace (refer to WP 0061 00) defective socket box harness. If voltage is not present, go to step 5.
	5. At front access hatch cover, check suspected bad wires for voltage at terminal strip (refer to WP 0058 00).	If voltage is present at terminal, repair (refer to WP 0065 00)/replace (refer to WP 0057 00) main trailer wiring harness. If voltage is not present at terminal strip, troubleshoot prime mover.

END OF TASK

BRAKE SYSTEM TROUBLESHOOTING 0020 00

THIS WP COVERS:
Brake System Troubleshooting

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

References

Applicable prime mover TM	WP 0069 00
WP 0047 00	WP 0070 00
WP 0066 00	WP 0076 00
WP 0067 00	WP 0078 00
WP 0068 00	

To troubleshoot the M969A3 brake system, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. BRAKES WILL NOT RELEASE/BRAKES DRAG (ONE OR MORE BRAKE DRUMS ARE RUNNING HOT)	1. Check for leaking air brake components.	Push in parking brake release knob. If air leak is detected, replace damaged brake system component (refer to WP 0076 00). If no air leak is detected, go to step 2.
	NOTE **Wheel must be raised prior to performing step 2.**	
	2. Spin wheels to see if brakes are released.	If brakes have released, apply and release service brakes to verify brakes are working. If brakes have not released, go to step 3.
	3. Cage each air brake chamber to see which brake(s) have not released (refer to WP 0078 00).	Repair/replace faulty brake components per WP 0066 00/0067 00.

Table 1. Troubleshooting Procedures—Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. NO BRAKES/BRAKES ARE WEAK/ APPLICATION OR RELEASE IS SLOW	1. Observe brakedrums/dust shields for signs of oil or grease contamination.	If any oil or grease is present on brake components, remove brakedrums (refer to WP 0068 00) and replace contaminated/ out-of-limits brake components per WP 0066 00/0067 00. If no oil or grease is present, go to step 2.
	2. Apply prime mover service brakes and listen for air leaks in lines and hoses.	If air leaks are present, repair/replace components per applicable WP. If no air leaks are present, go to step 3.
	3. Apply prime mover service brakes and observe slack adjustors for correct movement.	If slack adjustors show excess movements or damage, adjust per WP 0069 00. Verify problem is solved.
3. ABS WARNING LIGHT COMES ON AND STAYS ON AT OPERATING SPEEDS (ABOVE 4 MPH [6 KM/H])	Turn prime mover (refer to applicable prime mover TM) ignition switch ON. Turn off ignition switch after less than 5 seconds, and turn switch on again. The ABS warning indicator light will come on and then off. The ABS blink code will then be displayed three times.	Record ABS blink code and refer to ABS diagnostics (refer to WP 0070 00).
4. ABS WARNING LIGHT DOES NOT COME ON	Turn prime mover (refer to applicable prime mover TM) ignition switch ON. Turn off ignition switch after less than 5 seconds, and turn switch on again. ABS indicator light still does not come on.	Check intervehicular connections for corrosion or damage. Verify problem is solved. If light still does not come on, replace 24–12 V converter box (refer to WP 0047 00). Verify problem is solved.

END OF TASK

LANDING GEAR TROUBLESHOOTING 0021 00

THIS WP COVERS:
Landing Gear Troubleshooting

INITIAL SETUP:

Maintenance Level	References
Organizational	WP 0044 00 WP 0084 00 WP 0085 00

To troubleshoot the M969A3 landing gear, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
HANDCRANK IS DIFFICULT TO TURN	1. Check handcrank for lubricants.	If lubricants are present, go to step 2. If no lubricants are present, lubricate per WP 0044 00. Verify problem is solved.
	2. Check lower landing gear leg for bends especially where it retracts into housing.	If landing gear leg is bent, replace leg per WP 0084 00. If leg is not bent, replace drive unit per WP 0085 00.

END OF TASK

MANHOLE COVER TROUBLESHOOTING 0022 00

THIS WP COVERS:
Manhole Cover Troubleshooting

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

References
WP 0098 00

To troubleshoot the M969A3 manhole cover, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
EXCESSIVE LEAKAGE EXISTS AROUND MANHOLE	1. Verify manhole cover is properly secured and latched.	If cover is properly secured and latched, go to step 2. If cover is not secure, secure cover and verify problem is solved.
	2. Check locking ring, cover gasket, and latch for any damage.	If damaged components are found, replace per WP 0098 00. If damage to welds is found, notify Direct Support maintenance.

END OF TASK

ENGINE TROUBLESHOOTING 0023 00

THIS WP COVERS:
Engine Troubleshooting

INITIAL SETUP:

Maintenance Level
Organizational

Personnel Required
Two

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

References

WP 0039 00	WP 0108 00	WP 0113 00
WP 0044 00	WP 0109 00	WP 0119 00
WP 0056 00	WP 0112 00	WP 0120 00
WP 0065 00	WP 0114 00	WP 0151 00
WP 0103 00	WP 0118 00	WP 0152 00
WP 0107 00		

To troubleshoot the engine, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE STARTER WILL NOT RUN	1. Check each battery for output (12–14 V dc).	If battery voltage is less than 12–14 V dc, replace battery (refer to WP 0056 00). Verify problem is solved. If voltage is correct, go to step 2.
	2. Inspect battery cables for broken or frayed cables and loose or corroded terminals.	If cables are broken or frayed, repair/replace cables (refer to WP 0056 00) and clean terminals. Verify problem is solved. If cables are okay, go to step 3.
	3. Turn engine run switch ON and check engine start switch at both terminals for 24–28 V dc when engine start switch is placed in START position.	If 24–28 V dc are present at both terminals, go to step 4. If 24–28 V dc is not present, replace engine start switch (refer to WP 0120 00). Verify problem is solved.

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE STARTER WILL NOT RUN—Continued	4. Check engine solenoid start terminal for 24–28 V dc with engine start switch in START position.	If 24–28 V dc are present at engine starter terminal, go to step 5. If 24–28 V dc are not present at terminal, repair wiring between engine start switch and solenoid (refer to WP 0065 00).
	5. Check solenoid to starter terminal for 24–28 V dc.	If 24–28 V dc are not present at solenoid to starter terminal, replace starter (refer to WP 0119 00). If 24–28 V dc are present at solenoid to starter terminal, replace engine starter. Verify problem is solved.
2. ENGINE TURNS OVER BUT FAILS TO START	1. Check fuel lines for leaks or damage.	If fuel lines are leaking/damaged, tighten all connections and repair/replace any damaged fuel lines (refer to WP 0109 00). Verify problem is solved. If fuel lines are not leaking, go to step 2. If fuel lines still leak, notify Direct Support maintenance.
	2. Bleed fuel system.	If no fuel flows while fuel system is being bled, replace fuel pump (refer to WP 0107 00). Verify problem is solved. If fuel flows, go to step 3.
	3. Check for dirty fuel.	If fuel is dirty, drain and remove fuel tank (refer to WP 0108 00) and fuel lines and replace and refill tank with clean fuel. Replace fuel filter (refer to WP 0109 00). Verify problem is solved and go to step 5. If fuel was okay, go to step 4.

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. ENGINE TURNS OVER BUT FAILS TO START—Continued	4. Check condition of fuel filter.	If fuel filter is clogged, replace fuel filter (refer to WP 0109 00). Verify problem is solved. If condition of fuel filter was okay, go to step 5.
	5. Check engine for high operating temperature.	If engine is hot, allow 3–5 minutes to cool before attempting restart. Verify problem is solved. If engine will not start after cooling, go to step 6.
	6. Check for restricted air passages or red band in air restriction indicator (refer to WP 0112 00).	If air passages are restricted, clear restricted passages and/or replace air element (refer to WP 0039 00 and WP 0113 00). Verify problem is solved. If air passages are okay, go to step 7.
	7. Check for defective glow plugs.	If glow plugs are defective, replace glow plugs (refer to WP 0103 00). Verify problem is solved. If glow plugs were okay, notify Direct Support maintenance that further troubleshooting is required.
3. ENGINE IS HARD TO START OR HAS LOW POWER	1. Check to see if engine oil is proper grade for ambient temperature.	Drain oil and refill with proper grade oil (refer to WP 0044 00). Verify problem is solved. If oil was okay, go to step 2.
	2. Check for dirty, contaminated, or wrong grade of fuel.	If fuel is dirty, drain and remove fuel tank (refer to WP 0108 00) and fuel lines and replace and refill tank with clean fuel. Replace fuel filter (refer to WP 0109 00). Verify problem is solved. If fuel was okay, go to step 3.

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. ENGINE IS HARD TO START OR HAS LOW POWER—Continued	3. Check fuel lines for leaks or damage.	If fuel lines are leaking/damaged, tighten all connections and repair/replace any damaged fuel lines (refer to WP 0109 00). Verify problem is solved. If fuel lines are not leaking, go to step 4. If fuel lines still leak, notify Direct Support maintenance.
	4. Check for restricted air passages or red band in air restriction indicator.	If air passages are restricted, clear restricted passages and/or replace air element. Verify problem is solved. If engine is still hard starting or has low power, notify Direct Support maintenance.
4. LOW OIL PRESSURE (LESS THAN 30 PSI [276 KPA]) IS INDICATED ON GAGE	1. Check oil level.	If oil level is low, add oil (refer to WP 0044 00). Verify problem is solved. If oil level was okay, go to step 2.
	2. Check for external oil leaks.	If leaks are detected, notify Direct Support maintenance. If no leaks are detected, go to step 3.
	3. Inspect for defective oil pressure gage.	If gage is defective, replace gage (refer to WP 0120 00). Verify problem is solved. If gage is not defective, notify Direct Support maintenance.
5. HIGH OIL PRESSURE (ABOVE 95 PSI [655 KPA]) IS INDICATED ON GAGE	1. Check for overfilling of engine oil.	If engine oil level is too high, drain oil until oil is at proper level. Verify problem is solved. If engine oil level was normal, go to step 2.

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. HIGH OIL PRESSURE IS INDICATED ON GAGE—Continued	2. Check to see that engine oil is the proper grade.	If grade of engine oil is not proper, drain and replace oil with correct grade (refer to WP 0044 00). Verify problem is solved. If oil grade was correct, go to step 3.
	3. Check for defective oil pressure gage.	If gage is defective, replace gage per WP 0120 00. Verify problem is solved. If gage is not defective, go to step 4.
	4. Check for plugged or restricted oil cooler or hoses.	If hoses/oil cooler are plugged or restricted, notify Direct Support maintenance.
6. ENGINE MISFIRES UNDER HEAVY LOAD	1. Check for restricted air passages or red band in air restriction indicator.	If air passages are restricted, clear restricted passages and/or replace air filter element (refer to WP 0039 00 and WP 0113 00). Verify problem is solved. If engine still misfires, go to step 2.
	2. Check for dirty, contaminated, or wrong grade of fuel.	If fuel is dirty, drain and remove fuel tank (refer to WP 0108 00) and fuel lines and replace and refill tank with clean fuel. Replace fuel filter (refer to WP 0109 00). Verify problem is solved. If fuel was okay, go to step 3.
	3. Check fuel lines for leaks.	If fuel lines are leaking/damaged, tighten all connections and repair/replace any damaged fuel lines (refer to WP 0109 00). Verify problem is solved. If fuel lines still leak, notify Direct Support maintenance.

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
7. ENGINE SPEED IS ERRATIC OR WILL NOT MAINTAIN STEADY RPM	1. Check for proper operation of throttle cable.	If cable is loose, tighten throttle cable (refer to WP 0114 00). Verify problem is solved. If throttle cable is not loose, go to step 2.
	2. Check fuel lines for leaks.	If fuel lines are leaking/damaged, tighten all connections and repair/replace any damaged fuel lines (refer to WP 0109 00). Verify problem is solved. If fuel lines are not leaking, go to step 3. If fuel lines still leak, notify Direct Support maintenance.
	3. Check for restricted air passages or red band in air restriction indicator.	If air passages are restricted, clear restricted passages and/or replace air element (refer to WP 0039 00 and WP 0113 00). Verify problem is solved. If air passages are okay, and engine still will not maintain steady rpm, notify Direct Support maintenance that further troubleshooting is required.
8. ENGINE SPEED IS TOO HIGH OR TOO LOW	Check for proper operation of throttle cable.	If cable is loose or damaged, repair/replace cable (refer to WP 0114 00). Verify problem is solved. If cable is not loose or damaged, notify Direct Support maintenance that further troubleshooting is required.
9. ENGINE EXHAUST IS BLACK OR FUEL CONSUMPTION IS EXCESSIVE	**NOTE** **Brown or black color in exhaust indicates incomplete combustion. Exhaust gases are never invisible but darker exhaust may indicate trouble especially if there has been no change in engine condition.**	

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
9. ENGINE EXHAUST IS BLACK OR FUEL CONSUMPTION IS EXCESSIVE—Continued	1. Check for restricted air passages or red band in air restriction indicator.	If air passages are restricted, clear restricted passages (refer to WP 0113 00) and/or replace air filter element (refer to WP 0039 00). Verify problem is solved. If air passages were clear, go to step 2.
	2. Check for dirty, contaminated, or wrong grade of fuel.	If fuel is dirty, drain and remove fuel tank (refer to WP 0108 00) and fuel lines and replace and refill tank with clean fuel. Replace fuel filter (refer to WP 0109 00). Verify problem is solved. If fuel was okay, go to step 3.
	3. Check tachometer to see if engine is operating at proper rpm.	If engine is not operating at proper rpm, adjust throttle cable (refer to WP 0114 00). Verify problem is solved. If engine is operating at proper rpm, notify Direct Support maintenance that further troubleshooting is required.
10. PREHEAT INDICATOR LAMP WILL NOT LIGHT	1. Listen for clicking noise at engine control box when preheat indicator lamp switch is moved to ON position.	If clicking noise is heard, replace indicator lamp (refer to WP 0120 00). Verify problem is solved. If noise is not heard, go to step 2.
	2. Check for continuity at preheat switch.	If continuity is not present in switch, replace switch (refer to WP 0120 00). Verify problem is solved. If continuity is present, go to step 3.

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
10. PREHEAT INDICATOR LAMP WILL NOT LIGHT—Continued	3. Check for continuity in wires between preheat indicator lamp on engine control panel and glow plug solenoid in engine control box.	If continuity exists in wires, replace glow plug solenoid (refer to WP 0118 00). Verify problem is solved. If continuity does not exist in wires, repair/replace wires (refer to WP 0065 00).

END OF TASK

CENTRIFUGAL PUMP TROUBLESHOOTING 0024 00

THIS WP COVERS:
Centrifugal Pump Troubleshooting

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

References
WP 0007 00
WP 0041 00

To troubleshoot the M969A3 centrifugal pump, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
PUMP FAILS TO DELIVER FUEL	1. Check pump strainer for debris or dirt clogging inlet.	Clean strainer (refer to WP 0041 00). Verify problem is solved. If screen is not clogged, go to step 2.
	2. Check to see if pump is primed.	If pump is not primed, manually prime pump per WP 0041 00. If pump is already primed, go to step 3.
	3. Verify all required valves are open per fueling operations schematic on tool box lid (refer to WP 0007 00).	Set valves per schematic on tool box lid (refer to WP 0007 00). If valves are already set per schematic, go to step 4.
	4. Check pump tubing and connections for air leakage.	If air is leaking into pump tubing and connections, tighten all connections. Verify problem is solved. If gaskets need replacement, notify Direct Support maintenance.

END OF TASK

BATTERY TROUBLESHOOTING 0025 00

THIS WP COVERS:
Battery Troubleshooting

INITIAL SETUP:
Maintenance Level
Organizational

References
TM 9-6140-200-14
WP 0056 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Multimeter (item 2, WP 0171 00)

To troubleshoot the batteries, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
BATTERY IS LOW OR DISCHARGED	**NOTE** **Batteries should be removed from M969A3 prior to servicing, checking, and charging. All battery servicing, testing, and charging shall be in accordance with TM 9-6140-200-14.**	
	1. Check for excess moisture or dirt on top of batteries.	Clean battery top. If electrolyte is low, replenish electrolyte. Go to step 2.
	2. Perform specific gravity test on battery (refer to TM 9-6140-200-14).	If battery passes specific gravity test, go to step 3.
	NOTE **Verify battery is fully charged prior to performing load test.**	
	3. Perform load test on battery (refer to TM 9-6140-200-14).	If battery passed load test, battery is serviceable and may be reinstalled in M969A3. If battery fails, replace battery (refer to WP 0056 00).

END OF TASK

ALTERNATOR AND CHARGING CIRCUIT TROUBLESHOOTING 0026 00

THIS WP COVERS:
Alternator and Charging Circuit Troubleshooting

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Multimeter (item 2, WP 0171 00)

References
TM 9-6140-200-14
WP 0056 00
WP 0116 00
WP 0117 00

To troubleshoot M969A3 alternator and charging circuit, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. UNDERCHARGED BATTERIES	1. Check for loose or corroded battery terminals, cables, and connections, and moisture and dirt on top of batteries.	Clean battery and clean and tighten battery connections (refer to WP 0056 00). Replace any damaged cables (refer to WP 0056 00). Charge and test batteries (refer to TM 9-6140-200-14). Verify problem is solved. If battery still does not hold a charge, go to step 2.
	2. Look for worn or glazed pulley or loose belt on alternator.	Adjust alternator drive belt (refer to WP 0116 00) if loose. Replace alternator belt (refer to WP 0117 00) if glazed, cracked or worn. If pulley is worn or glazed, notify Direct Support maintenance.

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. UNDERCHARGED BATTERIES—Continued	3. Check for excessive voltage drop between alternator and batteries (refer to TM 9-6140-200-14).	If test reveals excessive voltage drop, clean and tighten connections at positive and negative output terminals on alternator (refer to WP 0117 00). Check ground cable connections between negative battery terminal and engine frame. Verify problem is solved. If connections were okay, notify Direct Support maintenance.
2. OVERCHARGED BATTERIES (INDICATED BY HIGH WATER USAGE)	1. Check battery case for cracks or damage.	Replace damaged batteries (refer to WP 0056 00). Verify problem is solved. If batteries were okay, go to step 2.
	2. Check specific gravity and individual voltage of each battery cell (refer to TM 9-6140-200-14).	Replace defective battery (refer to WP 0056 00). Verify problem is solved. If battery is okay, notify Direct Support maintenance.
3. HIGH OR LOW ALTERNATOR OUTPUT	Obtain and record battery voltage for both batteries in series with engine not running. Start engine and adjust to 1000 rpm. Take another battery voltage reading.	If voltage does not increase notably between engine not running and engine running (0.6 V dc or more), notify Direct Support maintenance.
4. SHORT VOLTAGE REGULATOR LIFE	Check that alternator and battery connections are correct. (Note that reversed polarity, even momentarily, will damage voltage regulator).	Correct battery connection errors (refer to WP 0056 00). If problem is not corrected, notify Direct Support maintenance.

Table 1. Troubleshooting Procedures—Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. NOISY ALTERNATOR	1. Check for loose pulley or mounting bolts (refer to WP 0116 00).	Tighten mounting bolts and if pulley is loose, replace alternator (refer to WP 0116 00). Verify problem is solved. If mounting bolts or drive pulley were okay, go to step 2.
	2. Check for worn or sticking bearings by removing alternator belt and spinning alternator by hand (refer to WP 0116 00).	If bearings are worn or sticking, replace alternator (refer to WP 0116 00). Verify problem is solved.

END OF TASK

FILTER/SEPARATOR TROUBLESHOOTING 0027 00

THIS WP COVERS:
Filter/Separator Troubleshooting

INITIAL SETUP:

Maintenance Level	References
Organizational	WP 0007 00

To troubleshoot the M969A3 filter/separator, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
FUEL DOES NOT FLOW DURING FILTERED FUEL SERVICING OPERATION	1. Verify all valves are set per fuel operations schematic on tool box lid (refer to WP 0007 00).	Set valves per schematic on tool box lid (refer to WP 0007 00). If valves are already set per fuel operations schematic, go to step 2.
	2. Check reading of filter/separator gage.	If gage reads 17–25 psi (117–123 kPa), replace clogged fuses. Verify problem is solved. If gage is in normal range, troubleshoot centrifugal pump.

END OF TASK

PIPING CONTROL COMPONENTS TROUBLESHOOTING 0028 00

THIS WP COVERS:
Piping Control Components Troubleshooting

INITIAL SETUP:

Maintenance Level	References
Organizational	WP 0007 00 WP 0130 00

To troubleshoot the M969A3 piping control components, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
WITH EMERGENCY VALVE A HANDLE IN CLOSED POSITION, FUEL CONTINUES TO FLOW OUT OF TANK	1. Verify all valves are set per fuel operations schematic on tool box lid (refer to WP 0007 00).	Set valves per schematic on tool box lid (refer to WP 0007 00). If valves are set properly, go to step 2.
	2. Move handle and observe valve A lever movement at valve A under tank (refer to WP 0130 00).	If lever movement is observed and fuel flow stops, verify problem is solved. If fuel continues to flow, notify Direct Support maintenance.

END OF TASK

FUEL SYSTEM TROUBLESHOOTING 0029 00

THIS WP COVERS:
Fuel System Troubleshooting

INITIAL SETUP:

Maintenance Level	References
Organizational	WP 0007 00 WP 0130 00 WP 0137 00

To troubleshoot the M969A3 fuel system, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. FUEL DOES NOT FLOW DURING ANY FUELING OPERATIONS	1. Verify all valves are set per fuel operations schematic on tool box lid (refer to WP 0007 00).	Set valves per schematic on tool box lid (refer to WP 0007 00). Verify problem is solved. If valves are set per fuel operations schematic, go to step 2.
	2. Move handle and observe valve A lever movement at valve A under tank (refer to WP 0130 00).	If lever movement is observed and fuel flow starts, problem is solved. If fuel does not flow, notify Direct Support maintenance that further troubleshooting is required.
2. FUEL DOES NOT FLOW DURING ANY FILTERED FUELING OPERATION	1. Verify all valves are set per fuel operations schematic.	Set valves per schematic on tool box lid (refer to WP 0007 00). Verify problem is solved. If valves are set per fuel operations schematic, go to step 2.
	2. Check filter/separator gage reading.	If gage reads 17–25 psi (117–172 kPa) (red zone), replace clogged fuses (refer to WP 0137 00). Verify problem is solved. If filter/separator gage reading was below 17 psi (117 kPa), go to step 3.

Table 1. Troubleshooting Procedures—Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. FUEL DOES NOT FLOW DURING ANY FILTERED FUELING OPERATION—Continued.	3. Move handle and observe valve A lever movement at valve A under tank.	If lever movement is observed and fuel flow starts, problem is solved. If fuel does not flow, notify Direct Support maintenance that further troubleshooting is required.

END OF TASK

CHAPTER 5

DIRECT SUPPORT/GENERAL SUPPORT TROUBLESHOOTING

INTRODUCTION **0030 00**

GENERAL

This WP provides information on the malfunction/symptom index and procedures of Direct Support/General Support troubleshooting.

MALFUNCTION/SYMPTOM INDEX (WP 0031 00)

The malfunction/symptom index is a quick reference index for finding troubleshooting procedures. Associated with each symptom name is a WP sequence number representing the starting point in a troubleshooting sequence.

TROUBLESHOOTING PROCEDURES (WP 0032 00 and WP 0033 00)

The troubleshooting WPs contain tables listing the malfunctions, tests or inspections, and corrective actions required to return the M969A3 to normal operation. Perform the steps in the order in which they appear in the tables.

The columns are defined as follows:

1. **MALFUNCTION—**A visual or operational indication that something is wrong with the M969A3.

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

3. **CORRECTIVE ACTION—**A procedure to correct the problem.

If you are unsure of the location of an item mentioned in troubleshooting, refer to WP 0002 00 or to the maintenance task where the item is replaced.

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

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

END OF TASK

MALFUNCTION/SYMPTOM INDEX 0031 00

GENERAL

This malfunction/symptom index is provided as a quick way to get you to the part of troubleshooting that will help you solve the problem you are having. It lists all of the malfunctions covered in Direct Support troubleshooting.

ENGINE

1. Engine turns over but fails to start ..... WP 0032 00-1
2. Engine is hard to start or has low engine power ..... WP 0032 00-1
3. Low oil pressure is indicated on gage ..... WP 0032 00-1
4. High oil pressure is indicated on gage ..... WP 0032 00-1
5. Engine misfires under heavy load ..... WP 0032 00-1

ALTERNATOR OR CHARGING CIRCUIT

1. Undercharged batteries ..... WP 0033 00-1
2. Overcharged batteries (indicated by high water usage rates) ..... WP 0033 00-1
3. Low alternator output ..... WP 0033 00-1
4. Short voltage regulator life ..... WP 0033 00-1
5. Noisy alternator ..... WP 0033 00-1

END OF TASK

ENGINE TROUBLESHOOTING 0032 00

THIS WP COVERS:
Engine Troubleshooting

INITIAL SETUP:
Maintenance Level
Direct and General Support

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

References
WP 0011 00 WP 0144 00
WP 0023 00 WP 0157 00

To troubleshoot the engine, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE TURNS OVER BUT FAILS TO START	Verify all Operator/Crew and Organizational troubleshooting has been performed in accordance with WP 0011 00 and WP 0023 00.	Replace engine (refer to WP 0157 00).
2. ENGINE IS HARD TO START OR HAS LOW ENGINE POWER.	Verify all Operator/Crew and Organizational troubleshooting has been performed in accordance with WP 0011 00 and WP 0023 00.	Replace engine (refer to WP 0157 00).
3. LOW OIL PRESSURE IS INDICATED ON GAGE	Verify all Operator/Crew and Organizational troubleshooting has been performed in accordance with WP 0011 00 and WP 0023 00.	Replace engine (refer to WP 0157 00).
4. HIGH OIL PRESSURE IS INDICATED ON GAGE	Verify all Operator/Crew and Organizational troubleshooting has been performed in accordance with WP 0011 00 and WP 0023 00.	Check that oil bypass valve is not stuck in closed position (refer to WP 0144 00). If valve is stuck, clean, inspect, and repair (refer to WP 0144 00). If valve is not stuck, replace engine (refer to WP 0157 00).
5. ENGINE MISFIRES UNDER HEAVY LOAD	Verify all Operator/Crew and Organizational troubleshooting has been performed in accordance with WP 0011 00 and WP 0023 00.	Replace engine (refer to WP 0157 00).

END OF TASK

ALTERNATOR AND CHARGING CIRCUIT TROUBLESHOOTING 0033 00

THIS WP COVERS:
Alternator and Charging Circuit Troubleshooting

INITIAL SETUP:
Maintenance Level
Direct and General Support

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

References
WP 0026 00
WP 0160 00

To troubleshoot the alternator and charging circuit, perform the test/inspections and corrective actions provided in Table 1.

Table 1. Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. UNDERCHARGED BATTERIES	Verify all Organizational troubleshooting has been performed in accordance with WP 0026 00.	Repair/replace alternator (refer to WP 0160 00).
2. OVERCHARGED BATTERIES (INDICATED BY HIGH WATER USAGE)	Verify all Organizational troubleshooting has been performed in accordance with WP 0026 00.	Repair/replace alternator (refer to WP 0160 00).
3. LOW ALTERNATOR OUTPUT	Verify all Organizational troubleshooting has been performed in accordance with WP 0026 00.	Repair/replace alternator (refer to WP 0160 00).
4. SHORT VOLTAGE REGULATOR LIFE	Verify all Organizational troubleshooting has been performed in accordance with WP 0026 00.	Repair/replace alternator (refer to WP 0160 00).
5. NOISY ALTERNATOR	Verify all Organizational troubleshooting has been performed in accordance with WP 0026 00.	Repair/replace alternator (refer to WP 0160 00).

END OF TASK

CHAPTER 6

OPERATOR MAINTENANCE INSTRUCTIONS

OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) 0034 00

THIS WP COVERS:
PMCS Procedures

INITIAL SETUP:

Maintenance Level
Operator/Crew

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

References

DA Form 2404	WP 0007 00
DA Form 5988-E	WP 0035 00
DA PAM 738-750	WP 0039 00
DD Form 314	WP 0069 00

GENERAL

To ensure that the M969A3 Semitrailer 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. This WP contains systematic instructions on inspections, adjustments, and corrections to be performed by Operator maintenance.

SERVICE INTERVALS

Perform the PMCS procedures listed in Table 1 at the following intervals:

Perform "Before" PMCS just before operating the semitrailer.

Perform "During" PMCS while operating the semitrailer.

Perform "After" PMCS immediately after operating the semitrailer.

Perform "Weekly" PMCS once a week.

Perform "Monthly" PMCS once a month.

Perform "Annual" PMCS once a year.

PMCS items and intervals are to be scheduled on DD Form 314 in accordance with DA PAM 738-750.

After operation in water, mud, or loose sand, clean the semitrailer as soon as possible. Lubricate without waiting for the next scheduled service.

Lubrication instructions are included in WP 0035 00 (Operator/Crew).

REPORTING REPAIRS

Report all defects and corrective actions on DA Form 2404 or DA Form 5988-E. If a serious problem is found, report it to your supervisor.

GENERAL PMCS PROCEDURES

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

Keep equipment clean. Dirt, oil, and debris may cover up a serious problem. Clean as you work and as needed. Use cleaning compound on all metal surfaces. Use solution of soap and water on rubber, plastic, and painted surfaces.

While performing PMCS, inspect the following components:

Bolts, Nuts, and Screws. Make sure they are not loose, missing, bent, or broken. Tighten any that are loose.

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

Electrical Wires or Connectors. Inspect for cracked or broken insulation, bare wires, and loose or broken connectors. Report defects to your supervisor.

Hoses, Lines, and Fittings. Inspect for wear, damage, and leaks. Make sure clamps and fittings are tight. If leak originates from a loose fitting or connector, tighten it. If not authorized, report it to your supervisor.

SPECIFIC PMCS PROCEDURES

Operator PMCS procedures are listed in Table 1. Always perform PMCS procedures in the order listed. Once this becomes a habit, you will spot anything that is not right in a minute. If anything wrong is discovered through PMCS, perform the appropriate troubleshooting task. If any component or system is not serviceable, or if the service given does not correct the problem, notify your supervisor.

Before performing PMCS, read all the checks required for the applicable interval and prepare the tools needed to make all the checks.

The column headings in Table 1 are defined as follows:

Item No. The item number column of your PMCS table is to be used for reference. When completing DA Form 2404 or DA Form 5988-E, include the item number for the checks /service indicating a fault. Item numbers also appear in the order that you must do the checks and services for the intervals listed.

Interval. This column tells you when to do a certain check or service. Special intervals will also be specified (e.g., every 100 hours) when the component requires service more frequently than semiannually or annually.

Item To Be Inspected. This column tells you what item is to be inspected and how to do the required checks and services. Carefully follow these instructions. If you do not have the tools, or if the procedure tells you to, have Organizational maintenance do the work.

Procedure. This column tells you how to do the required checks and services and which crewmember is responsible for each check or service. Carefully follow these instructions. If you do not have the tools, or if the procedure tells you to, have Organizational maintenance do the work.

Not Fully Mission Capable If. Information in this column tells you what faults will keep the equipment from being capable of performing its mission. If PMCS reveals any of the faults listed in this column, do not operate the equipment. Follow standard procedure for maintaining the equipment or reporting equipment failure.

LEAKAGE DEFINITIONS

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

Class I Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

Class II Leakage great enough to form drops, but not great enough to cause drops to drip from item being inspected.

Class III Leakage of fluid great enough to form drops that fall from the time being inspected.

WARNING

The semitrailer must not be operated if there are any fuel leaks from semitrailer tank or from engine. Report any fuel leaks to your supervisor or Organizational maintenance. Failure to do so will result in fire hazard, which can cause severe injury or death to personnel.

CAUTION

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

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

Report Class III oil leaks immediately to your supervisor or Organizational maintenance.

Table 1. Operator/Crew PMCS.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
			NOTE **Perform "Weekly" as well as "Before" PMCS if you are the assigned operator but have not operated the semitrailer since the last weekly PMCS, or if you are operating the semitrailer for the first time.**	
1	Before	Exterior of Semitrailer	a. Walk around semitrailer. Check for evidence of product leakage on or under semitrailer.	Any product leakage is evident.
			b. Check each fire extinguisher. Make sure red button is down. Check security of mounting bracket or security pin.	Fire extinguisher is missing. Red button is up. Security pin is missing (if so equipped).
			c. Check for operation of hazardous materials placards.	Any placard is missing or inoperative.
			d. Check optic socket boxes for obvious damage.	Optic socket boxes are required for mission, but are damaged.
			e. Check overfill monitor panel for obvious damage.	
2	Before	Tank	a. Inspect tank shell for dents, leaks, and broken welds.	Tank shell has fuel leaks.

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
2—Continued	Before	Tank	b. Check for leaks around fusible vent caps. Tighten if loose.	Any fuel leaks are present.
			c. Check for leaks around manhole cover. If leaks are evident, check for damaged cover gasket or loose mounting ring. Also, check to see that cover can be opened, closed, and securely latched.	Manhole cover gasket is damaged, manhole cover cannot be securely closed, or any fuel leaks are present.
			d. Inspect front and rear catwalk drains for clogs or restrictions. Remove any debris or foreign matter.	
			e. Inspect vapor recovery hood for any loose, damaged, or missing hardware.	
			f. Check tank for rust at intersections where brackets are welded to tank. Check condition of paint. If any damage is found, notify your supervisor.	
3	Before	Kingpin, Upper Coupler, and Spacer Plate	a. Inspect kingpin, upper coupler and spacer plate for damage or loose mounting bolts.	Kingpin, upper coupler, and spacer plate is damaged or mounting bolts are loose.
			b. Visually inspect for obvious cracked or broken welds around kingpin.	

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
4	Before	Engine	Perform before engine operating procedures listed in WP 0007 00, paragraph G.	Engine does not operate and is required for mission.
5	Before	Centrifugal Pump	Inspect pump for signs of leaks.	Any fuel leaks are present.
6	Before	Batteries	Check batteries for secure mounting.	Battery is required for mission but is damaged.
7	Before	Filter/Separator	Check relief valve for debris at top of filter/separator. Remove debris.	
8	Before	Hose Tubes	Inspect hose tube lock bars for obvious damage or missing parts. Check all mounting hardware for loose or missing components. Check drain holes for clogs or debris. Remove debris.	
9	Before	Hoses	Inspect for completeness and serviceability.	Hoses are damaged or missing.
10	Before	Vapor Recovery Kit	Check discharge outlet for debris or any other foreign matter. Clean debris and foreign matter from discharge outlet. Check all mounting hardware for loose or missing components.	Vapor recovery kit is required for mission, but is damaged.
11	Before	Tires and Wheels	Inspect tires and wheels for unusual wear or damage.	Tires or wheels have damage that could result in tire failure.
12	Before	Hubodometer	Inspect for proper mounting and damage.	

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
13	Before	Spare Tire Winch	a. Inspect spare tire winch for loose, damaged, or missing components.	Spare tire winch is required for mission, but is damaged.
			b. Visually inspect for frayed or worn cable.	Cable is frayed or worn.
14	Before	Hose Reels	Check operation of rewind handle for front and rear hose reels.	Either front or rear hose reel is inoperable.
15	Before	Grounding Devices	a. Check static reel operation. Inspect for missing ground clips and loose or missing mounting hardware.	Both static reels are missing from vehicle or damaged.
			b. Check portable grounding rod to ensure that it is not damaged or missing.	Portable grounding rod is missing from vehicle or is damaged.
16	Before	Monitor Panel	Inspect for proper mounting and damage.	

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
17	Before	Towing Connections	a. Connect air lines of prime mover to couplings on semitrailer. With prime mover engine running, check air lines and couplings for air leaks.	Air leaks are present.
			b. Connect intervehicular cable of prime mover to couplings on semitrailer. Check all lights for damage. Check to see that all lights are operating, and check tightness of connection at receptacle. If tight, and lights still do not operate, notify Organizational maintenance. Check cable for damage.	Turn signal and stop lights are not operating. Prime mover inter-vehicular cable is damaged (cuts, cracks, and broken wires).
18	Before	Brake System	a. Check ABS warning light for flash.	ABS warning light does not flash or stays lit.
			b. With prime mover coupled to semitrailer, apply prime mover brakes and inspect semitrailer service and emergency air brake couplings and all air lines and fittings for leaks. If leaks are found, notify Organizational maintenance.	Any leaks are present.
			c. Push in brake interlock valve and observe slack adjusters for proper operation (refer to WP 0069 00).	No slack adjuster movement.

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
19	During	Brake System	Apply semitrailer brakes and observe operation.	Brakes do not stop semitrailer, or semitrailer pulls to one side.
20	During	Piping System	a. Check all valves and couplings for leaks.	Any fuel leaks are present.
			b. Check valves P and R for proper operation.	Any air leaks are present.
21	During	ABS Warning Light	If warning light stays on above 4 mph (6 km/h), notify Organizational maintenance after completing mission.	
22	During	Landing Gear	a. With prime mover coupled to semitrailer, engage landing gear handle and raise and lower landing gear legs.	Landing gear legs cannot be raised or lowered.
			b. Inspect landing gear ground boards for serviceability.	Ground boards are required for mission but are dry-rotted.
			c. Wheel chocks for serviceability.	
23	During	Emergency Handles	Make sure all valves are closed. Move emergency valve A control handle to open position. On front of semitrailer, pull one emergency handle. Make sure emergency handle has moved to the closed position. Repeat procedure for second emergency handle.	Emergency valve A does not move to the closed position.

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
24	During	Engine	a. Check air cleaner restriction indicator for red area. If red area is visible, remove and clean engine air cleaner filter element (WP 0039 00). Notify Organizational maintenance to replace air cleaner filter element after six cleanings or annually.	Restriction indicator has red area visible.
			b. Check engine assembly for fuel and oil leaks.	Any fuel leaks or Class lll oil leaks are present.
25	During	Filter/Separator	Place suitable container under N valve on bottom of filter/separator. Check for fuel seepage. No other liquid except water should be detected at the valve.	Any fuel leaks are present.
26	During	Rear Axles	During movement of semitrailer, be aware of wander or side pull. Listen for unusual noises. These are indications of improper rear axle alignment.	Semitrailer wanders, has side pull, or rear axles make unusual noises.
27	During	Hoses and Hose Reels	a. When unwinding hoses, look for binding in front or rear hose reel.	Hose reel binds or will not unwind hose.
			b. Inspect hoses for cuts and cracks.	Either hose has cuts or cracks that allow leakage.

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
			WARNING **When filling tank by means of bottom loading, or self-loading, a test of the precheck system is mandatory. If this system is not functioning, stop all operations. Determine the problem and have it corrected by a qualified technician. Failure of automatic shutoff to function may cause uncontrolled fuel spillage, fire, and/or explosion, resulting in serious injury or death to personnel.**	
28	During	Loading Precheck (D Valve)	Check operation of upper level sensor.	Loading precheck does not operate.
29	During	Control Panel	a. Check switches for proper operation.	Any switch does not work.
			b. Check to see that preheat indicator light is lit when engine is preheating.	Preheat indicator light is not lit.
			c. Check gages for proper operation as follows.	
			1. Check tachometer operation.	Tachometer is inoperative or operates erratically.
			2. Battery voltage gage should read 24 to 28 V dc with engine running.	Voltage gage reads below 24 V dc or above 28 V dc consistently.
			3. Oil pressure gage should read 30 to 95 psi (207 to 655 kPa) at normal operating temperature	Oil pressure gage reads below 30 psi (276 kPa), or above 95 psi (655 kPa).

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
29—Continued	During	Control Panel	c. Check gages for proper operation as follows:	
			4. Fuel pressure gage should read 12 to 14 psi (83 to 97 kPa).	Fuel pressure gage reads below 12 or above 14 psi consistently.
			5. Pump pressure gage should read no less than 30 psi (207 kPa) for pump.	Pump pressure gage is not functioning properly during pumping operations.
			6. Check filter/ separator gage.	Filter/separator gage indicates 20 psi (138 kPa) or higher.
			d. Check control panel light for proper operations.	
30	During	Emergency Valve and Vent	Make sure all valves are closed. Operate emergency handle, and make sure cable is actuating emergency valve shutoff lever fully and opens vent on top of semitrailer.	Emergency valve handle will not actuate emergency valve shutoff lever.
31	After	Exterior of semitrailer	a. Walk around semitrailer. Check for loose, missing, or damaged hardware.	Hardware is loose, missing, or damaged.
			b. Check for evidence of any leak	Any leak is evident.
32	After	Piping System	a. Inspect all pipes for dents or cracks.	Any pipe is damaged to the extent that fuel flow will be restricted.
			b. Drain water from N and J valves.	

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
33	After	Brake System	a. Drain water from air reservoir by opening air reservoir drain cock.	
			b. Check mounting screws and mounting brackets for loose, missing, or damaged hardware.	
34	After	Engine	a. Inspect for debris in grille of air cooling intake area.	
			b. Inspect alternator belt for damage, tightness, and cracks.	Alternator belt is loose, cracked, or frayed.
			c. Inspect hoses and connections for tightness and leaks.	Any hose or connection is damaged, loose, or leaking.
			d. Inspect electrical harnesses for tightness and cracks.	Any electrical harness is damaged or loose.
			e. Check engine oil level. Add oil if needed. For oil specifications, refer to WP 0035 00.	
			f. Check fuel tank for fuel. Add if needed; 1/4 of a tank is required.	
35	After	Hose Tubes	Inspect hose tubes for debris. Remove any debris found and check to see that water drain holes are open.	
36	Weekly	Landing Gear	Inspect for loose landing gear shoes, bent or damaged landing gear legs, and loose or missing mounting bolts.	Mounting bolts are loose or missing.

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
37	Weekly	Engine	Inspect engine area for loose, damaged, or missing panels and covers.	Any panel or cover is loose, damaged, or missing.
38	Weekly	Centrifugal Pump	Remove pipe plug and check oil level. Add oil if below bottom of pipe plug hole. For oil specification, refer to WP 0035 00.	
39	Weekly	Batteries	a. Remove battery cover. Inspect batteries for damage.	Any battery is damaged.
			b. Check water level in each cell. Fill if low	If electrolyte level is low, notify unit maintenance.
			c. Check for corrosion at terminals. Check cable tightness on terminals. Check for cable damage.	If terminals are loose or damaged, notify Organizational maintenance.
40	Weekly	NATO Slave Connector	Check for corrosion and if cap/protective cover is present.	
41	Weekly	Tires and Wheels	Check for proper air pressure: Hard road surface: 96 psi (665 kPa). Cross country: 45 psi (310 kPa).	
42	Weekly	Static Reels	Check for proper operation by fully extending and retracting cable. Lubricate per WP 0035 00.	Both static reels are missing or damaged.

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
43	Monthly	Tires and Wheels	a. Inspect wheels for cracks or other damage. Check tightness of wheel nuts.	Wheel is damaged or three or more wheel nuts are missing (from one wheel).
			b. Inspect spare tire for secure mounting. Tighten and secure as necessary.	
			c. Inspect wheel assemblies.	
44	Monthly	Suspension	a. Inspect suspension for loose, missing, or damaged hardware.	Suspension hardware is loose, missing, or damaged.
			b. Using a suitable container, drain water from both fuel filters. Loosen but do not remove drain plugs at bottom of filters. Allow fuel to drain until clear of water. Tighten drain plugs.	
			c. Clean nozzle screens.	
			WARNING **Handle charged fire extinguisher cylinders with care. Do not jar or expose to temperatures above 140°F (60°C).**	
45	Monthly	Fire Extinguishers	a. Remove cover from each fire extinguisher. Check to see that lockup handle moves freely and is not damaged.	Lockup handle is missing, damaged, or inoperative.
			b. Check to see that plastic indicator on top of fire extinguisher is intact.	Plastic indicator is missing, damaged, or inoperative.

Table 1. Operator/Crew PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
45—Continued	Monthly	Fire Extinguishers	**NOTE** **Some extinguishers have a safety wire lead or plastic seal attached to pull pin.**	
			c. Check to see that safety wire lead or plastic seal is not broken or missing.	Safety wire lead or plastic seal is missing, damaged, or inoperative.
			d. Check to see that tube is not kinked and nozzle is free of obstruction.	Tube or nozzle is missing, damaged, or inoperative.
46	Annual	Exterior of Tank	a. Walk around semitrailer. Check for evidence of product leakage on or under semitrailer.	Any product leakage is evident.
			b. Inspect tank shell and heads for corrosion, dents, abraded areas, distortions, defects in welds, and leakage.	Any product leakage is evident.
			c. Inspect piping, valves, and gaskets for corrosion, dents, abraded areas, distortions, defects in welds and leakage.	Any product leakage is evident.

END OF TASK

OPERATOR/CREW LUBRICATION INSTRUCTIONS 0035 00

THIS WP COVERS:
Lubrication Instructions

INITIAL SETUP:
Maintenance Level
Operator

References
DA PAM 738-750
FM 9-207
TM 9-238

Materials/Parts
Compound, cleaning (item 4, WP 0174 00)
Grease (item 8, WP 0174 00)
Oil, lubrication (item 9, WP 0174 00)
Oil, lubrication (item 10, WP 0174 00)

REMOVAL

NOTE

These instructions are mandatory.

The trailer must receive lubrication with the approved lubricants at the recommended interval in order to be mission-ready at all times.

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

The lubrication chart shows the lubrication points, names the item to be lubricated, the required lubricants, and recommended interval for lubrication. Special lubricating instructions are contained in the NOTE section of the chart.

The recommended interval is based on normal conditions of operation, temperature, and humidity. When operating under extreme conditions, the lubricants should always be changed more frequently. When in doubt, notify your supervisor.

SPECIFIC LUBRICATION INSTRUCTIONS

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

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

Keep all external parts of equipment not requiring lubrication free of lubricants. All lubrication, wipe off excess oil to prevent accumulation of foreign matter.

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

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

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

LUBRICATION CHART

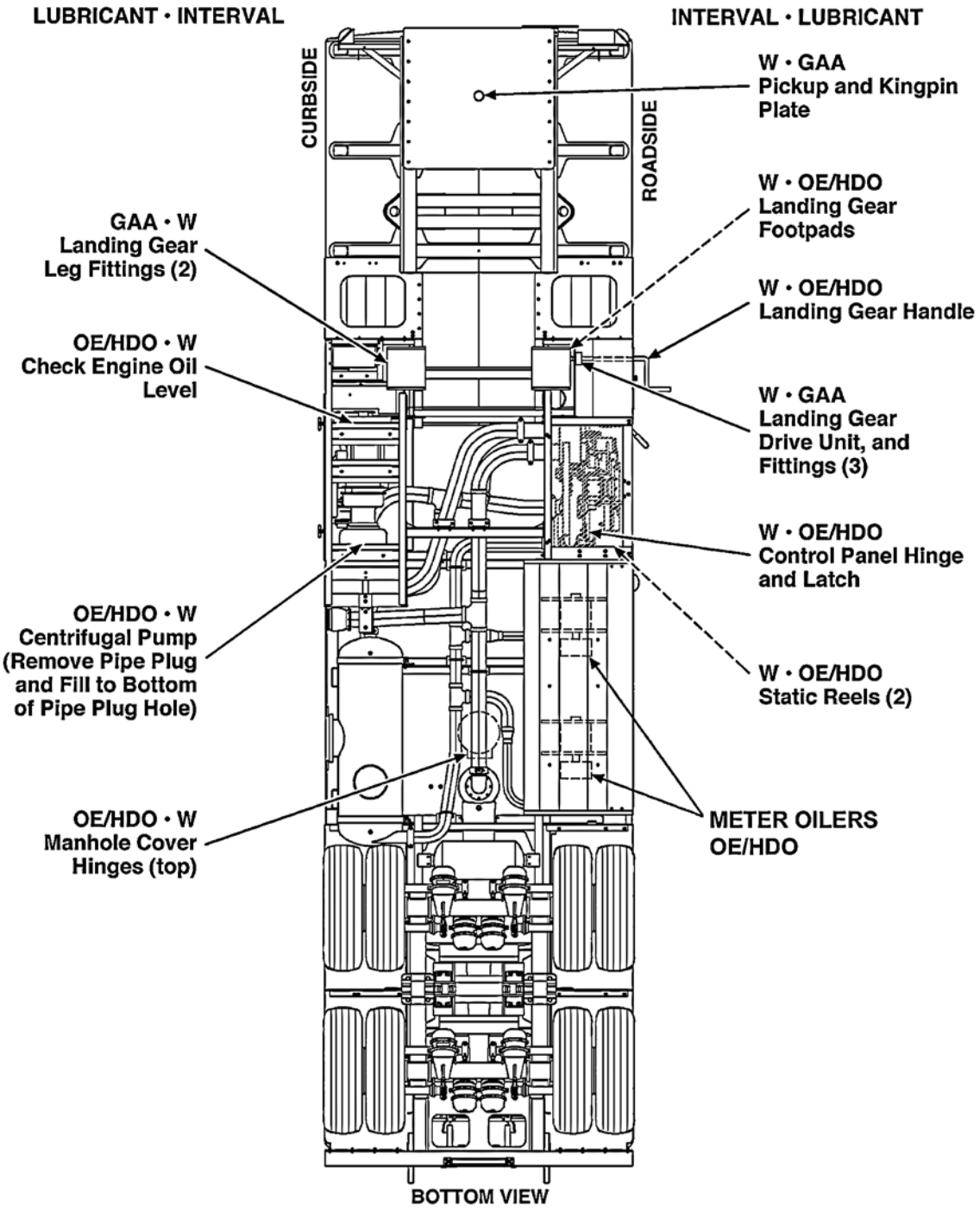
The interval (on-condition and hard time) and related man-hour time specified is the time you need to do the service prescribed for a particular interval. Decrease the interval if your lubricants are contaminated, or if you are operating equipment under adverse conditions, including longer than usual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

Dotted leader line indicates lubrication is required on both sides of the trailer.

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

Clean the area around the lubrication points with cleaning compound or equivalent before lubricating equipment. After lubrication, wipe off excess oil to prevent accumulation of foreign matter.


LUBRICANT • INTERVAL
INTERVAL • LUBRICANT
CURBSIDE
ROADSIDE
W • GAA
Pickup and Kingpin Plate
W • OE/HDO
Landing Gear Footpads
W • OE/HDO
Landing Gear Handle
GAA • W
Landing Gear Leg Fittings (2)
OE/HDO • W
Check Engine Oil Level
W • GAA
Landing Gear Drive Unit, and Fittings (3)
W • OE/HDO
Control Panel Hinge and Latch
OE/HDO • W
Centrifugal Pump (Remove Pipe Plug and Fill to Bottom of Pipe Plug Hole)
W • OE/HDO
Static Reels (2)
OE/HDO • W
Manhole Cover Hinges (top)
METER OILERS
OE/HDO
BOTTOM VIEW

TOTAL MAN-HOUR*	
INTERVAL MAN-HOUR	
W	0.75

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

—KEY—

LUBRICANTS	**EXPECTED TEMPERATURES**			**INTERVAL**
	ABOVE +15°F (ABOVE –9°C)	**+40°F to -15°F (+4°C to -26°C)**	**+40°F to -65°F (+4°C to -54°C)**	
OE/HDO (MIL-L-2104) Lubricating Oil, Internal Combustion, Engine, Tactical Service	OE/HDO-30	OE/HDO-30	—	W—Weekly
OEA (MIL-L-46167) Lubricating Oil, Internal Combustion, Engine, Arctic	—	—	OEA	

*For Arctic operation, refer to FM 9-207.

NOTE:

Oil Can Points. Every 6 months, lubricate linkage pins, clevises, and all exposed adjusting threads with OE/HDO.

END OF TASK

BATTERIES, TERMINALS, AND CABLES SERVICE **0036 00**

THIS WP COVERS:
Inspection and Service

INITIAL SETUP:
Maintenance Level
Operator

References
TM 9-6140-200-14

Materials/Parts
Soda, baking (item 13, WP 0174 00)
Self-locking nuts (2) (item 77, WP 0175 00)

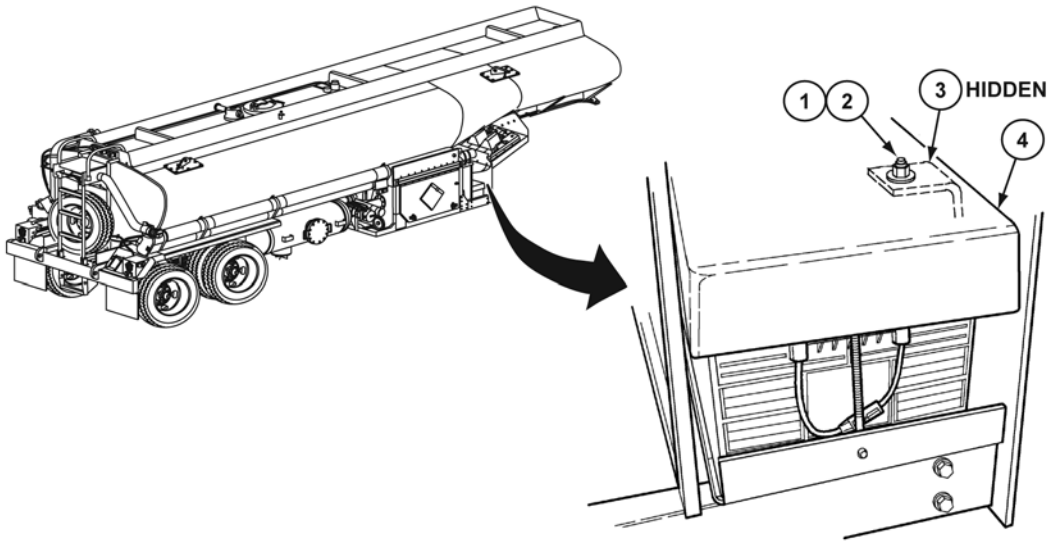
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)

INSPECTION AND SERVICE

WARNING

Batteries produce explosive gases; keep sparks, flames, and smoking material away. Ventilate when charging or using in an enclosed space. The batteries contain sulfuric acid that causes severe burns. If acid contacts eyes, skin, or clothing, flush immediately with water. For contact with eyes, get immediate medical attention.

1. Remove two self-locking nuts (1), washers (2), and battery cover (4) from battery holddown bracket (3). Discard self-locking nuts.



2. Inspect battery area for excessive dirt and corrosion. Clean battery area with mixture of baking soda and water, then flush battery area with clean water (refer to TM 9-6140-200-14).

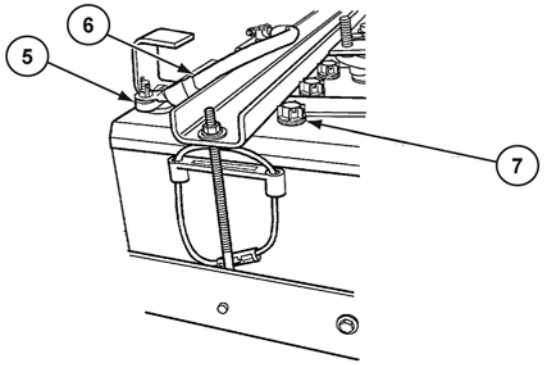
3. Check cables (6) for frayed insulation. If insulation is frayed or worn, notify Organizational maintenance.

4. Check terminals (5) for looseness. If loose, notify Organizational maintenance.

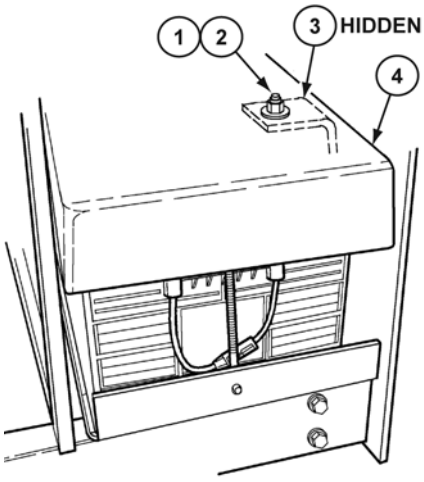
NOTE

Proceed to step 6 if vehicle is equipped with maintenance-free batteries.

5. Remove 12 vent fill caps (7) and check water level. Water level must be just below ring at bottom of each cell opening. If water level is low, notify Organizational maintenance. Install 12 vent fill caps (7).



6. Install battery cover (4), two new self-locking nuts (1), and washers (2) to holddown bracket (3).



END OF TASK

AIR RESERVOIR MAINTENANCE 0037 00

THIS WP COVERS:
Draining water from air reservoir

INITIAL SETUP:
Maintenance Level
Operator

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)

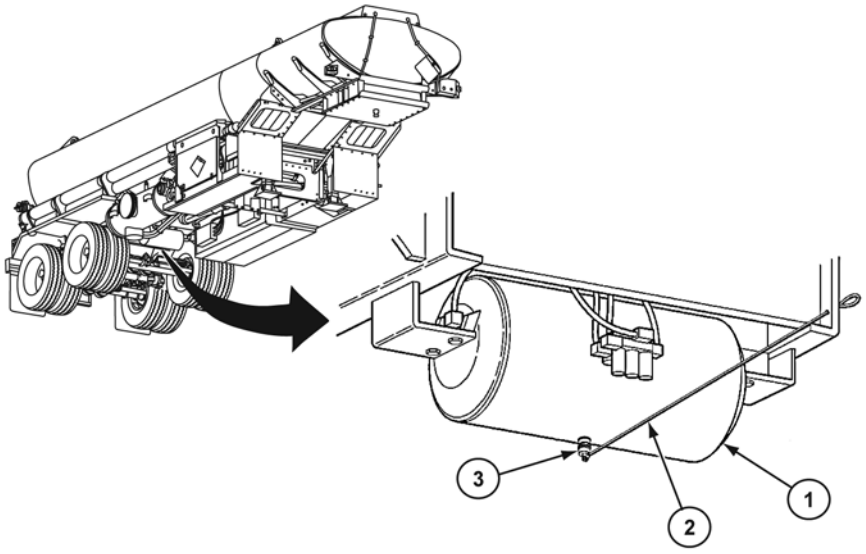
DRAINING WATER

1. Pull cable (2) and open drain valve (3) on air reservoir (1) and allow water to flow out.

NOTE

Drain valve closes automatically when cable is released.

2. Release cable (2).



END OF TASK

STORAGE BOX MAINTENANCE 0038 00

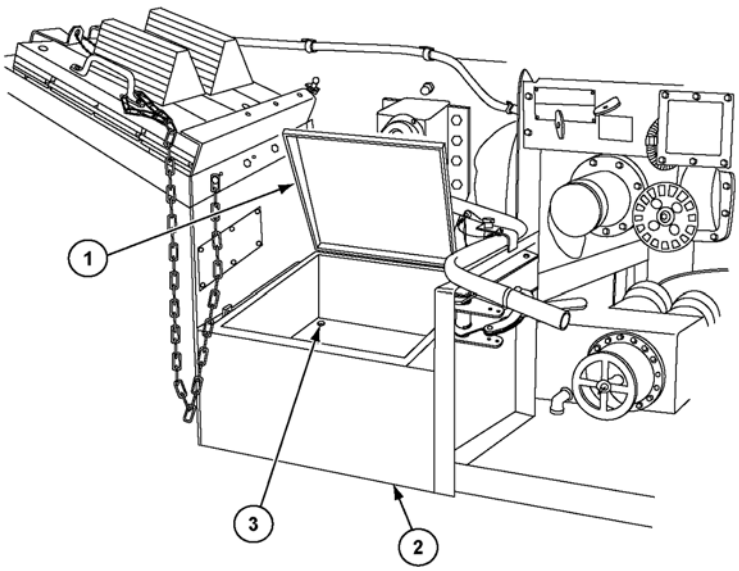
THIS WP COVERS:
Cleaning, Inspection

INITIAL SETUP:
Maintenance Level
Operator

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)

CLEANING

Periodically clean dirt and debris from storage box (2) and cover (1). Make sure all drain holes (3) are clear of debris or restrictions.



INSPECTION

Inspect storage box (2) and cover (1) for damage. Report any damage to Organizational maintenance.

END OF TASK

ENGINE AIR FILTER CLEANER MAINTENANCE 0039 00

THIS WP COVERS:
Disassembly, Cleaning and Inspection, Assembly, Follow-On Task

INITIAL SETUP:
Maintenance Level
Operator

Material/Parts
Rag (item 11, WP 0174 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

DISASSEMBLY

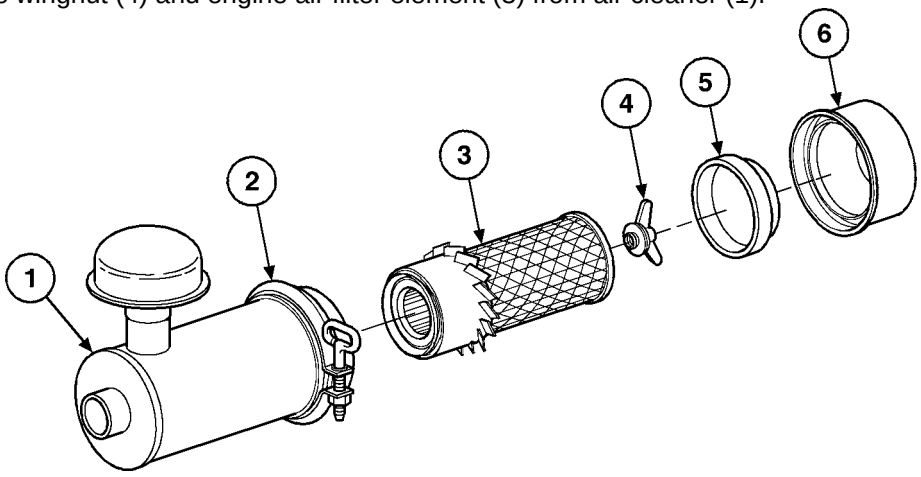
CAUTION

Do not run engine if red band is showing in restriction indicator or damage to engine could result.

NOTE

Service air cleaner whenever restriction indicator shows a red band.

1. Loosen air cleaner housing clamp (2) and remove dust cap (6) from air cleaner (1).
2. Remove baffle (5) from dust cap (6).
3. Empty dust and debris collected in dust cap (6) and baffle (5).
4. Remove wingnut (4) and engine air filter element (3) from air cleaner (1).



CLEANING AND INSPECTION

1. Check filter element for rips, tears, or holes. Replace element if damaged.

WARNING

Compressed air should be used for cleaning purposes and should not exceed 30 psi (207Pa). Use only with effective chip-guarding and personal protective equipment (e.g., goggles/shield and gloves). Failure to follow this warning may result in injury to personnel.

2. Clean filter element with low-pressure compressed air directed inside filter element.

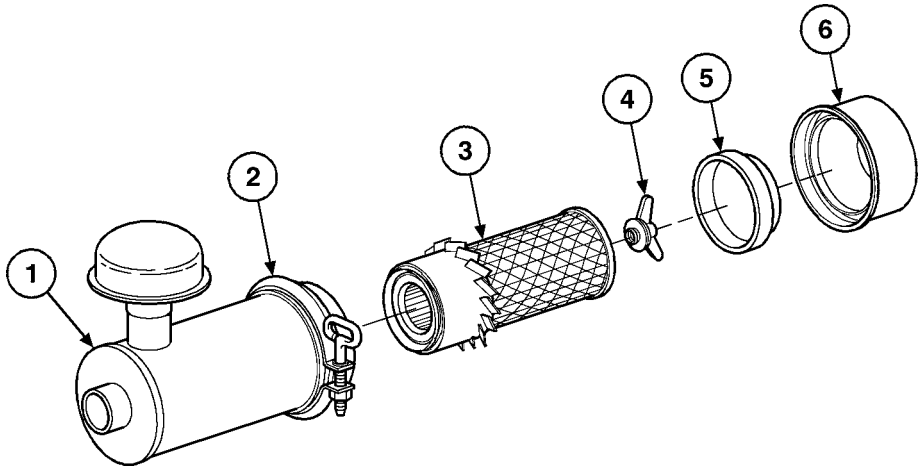
3. Wipe inside of air cleaner with clean, damp rag.

ASSEMBLY

1. Install engine air filter element (3) and wingnut (4) to air cleaner (1).

2. Install baffle (5) to dust cap (6).

3. Install dust cap (6) and tighten air cleaner housing clamp (2) to air cleaner (1).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FILTER/SEPARATOR SUMP MAINTENANCE 0040 00

THIS WP COVERS:
Draining Filter/Separator Sump, Follow-On Task

INITIAL SETUP:

Maintenance Level
Operator

Materials/Parts Equipment
Rags (item 11, WP 0174 00)

Tools and Special Tools
Suitable container (item 1, WP 0171 00)

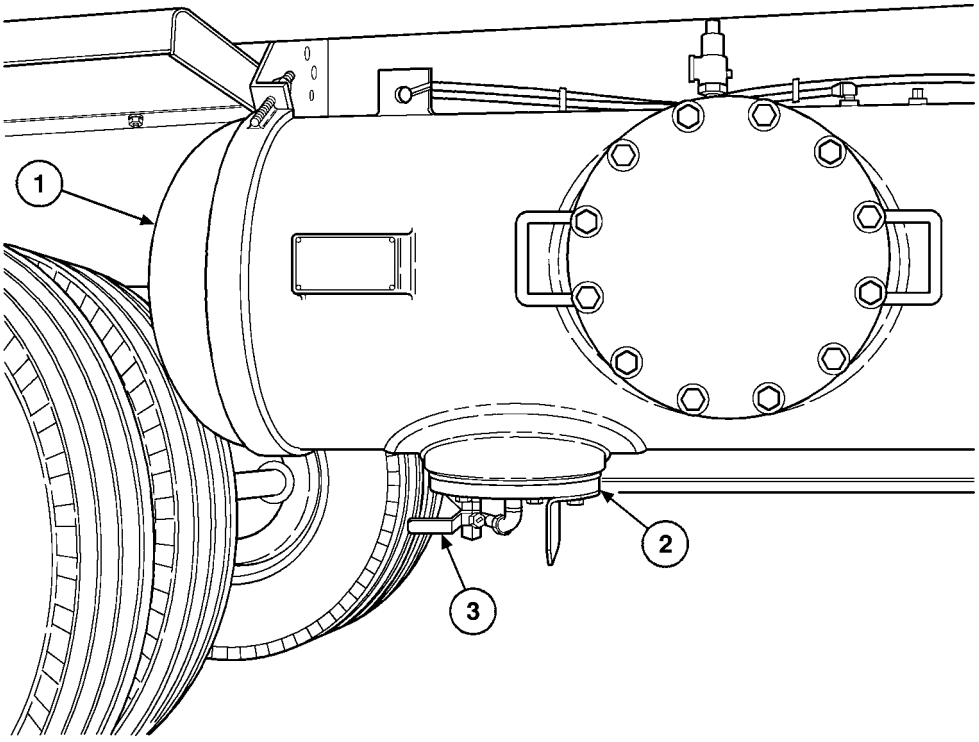
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

DRAINING SUMP

NOTE

Place suitable container under sump before, during, and after operation.

Place suitable container under valve N (3) of filter/separator sump (2). Open valve N (3) to drain water from filter/separator (1) after each period of operation (refer to WP 0007 00).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FUEL-DISPENSING NOZZLE AND PUMP STRAINER MAINTENANCE AND MANUAL PUMP PRIMING

0041 00

THIS WP COVERS:
Fuel-Dispensing Nozzle Removal, Service, Fuel-Dispensing Nozzle Installation, Pump Strainer Removal, Cleaning and Inspection, Pump Strainer Installation, Manual Pump Priming, Follow-On Task

INITIAL SETUP:

Maintenance Level
Operator

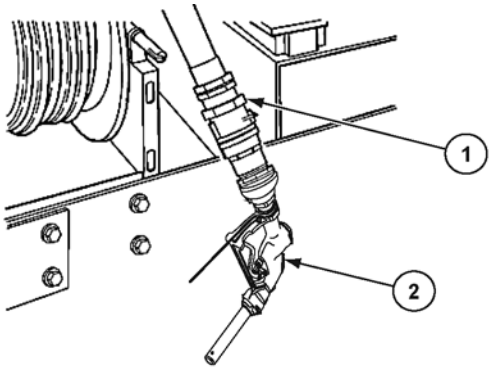
Material/Parts
Compound, cleaning (item 4, WP 0174 00)
Oil (item 9, WP 0174 00)
Rags (item 11, WP 0174 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
All fuel-handling valves closed (refer to WP 0007 00)

FUEL-DISPENSING NOZZLE REMOVAL

1. Uncouple fuel-dispensing nozzle (2) from hose (1).
2. Using suitable container, drain fuel from nozzle (2).



NOTE

Install dust caps on hose coupling and nozzle coupling to keep out dirt and debris.

FUEL-DISPENSING NOZZLE AND PUMP STRAINER MAINTENANCE AND MANUAL PUMP PRIMING—Continued **0041 00**

SERVICE

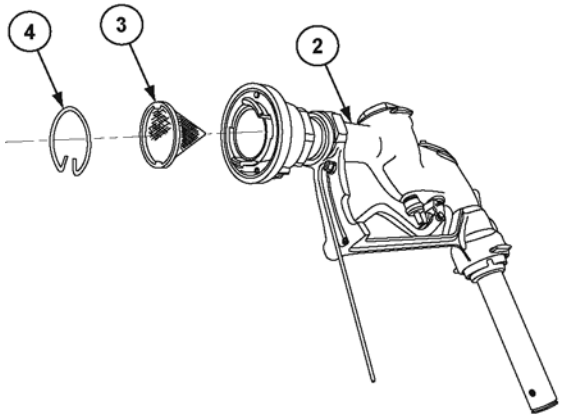
NOTE

Screen in nozzle coupling must be cleaned periodically and whenever flow through nozzle is restricted.

1. Remove clip ring (4) and screen (3) from inside of nozzle coupling (2).

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

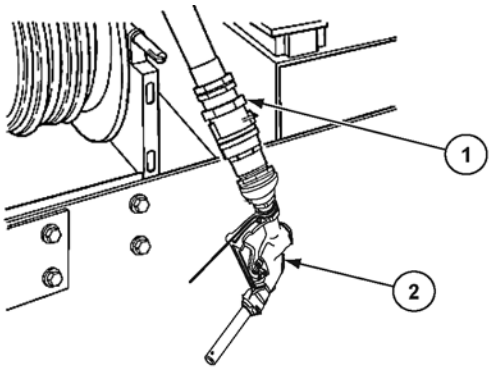


2. Clean screen (3) with cleaning compound and rag. Use compressed air to dry screen and remove any excess material.

3. Install screen (3) and clip ring (4) in nozzle coupling (2).

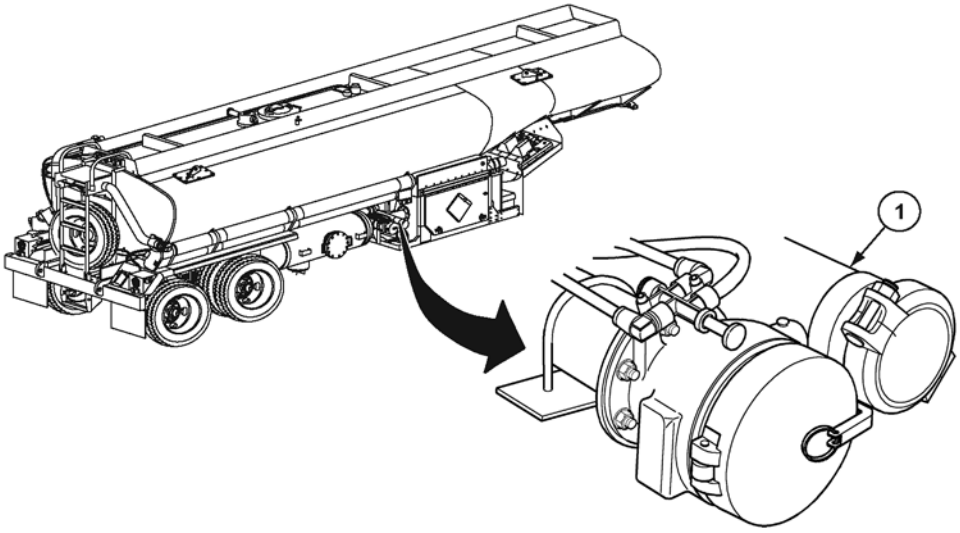
FUEL-DISPENSING NOZZLE INSTALLATION

Install nozzle (2) on hose (1).

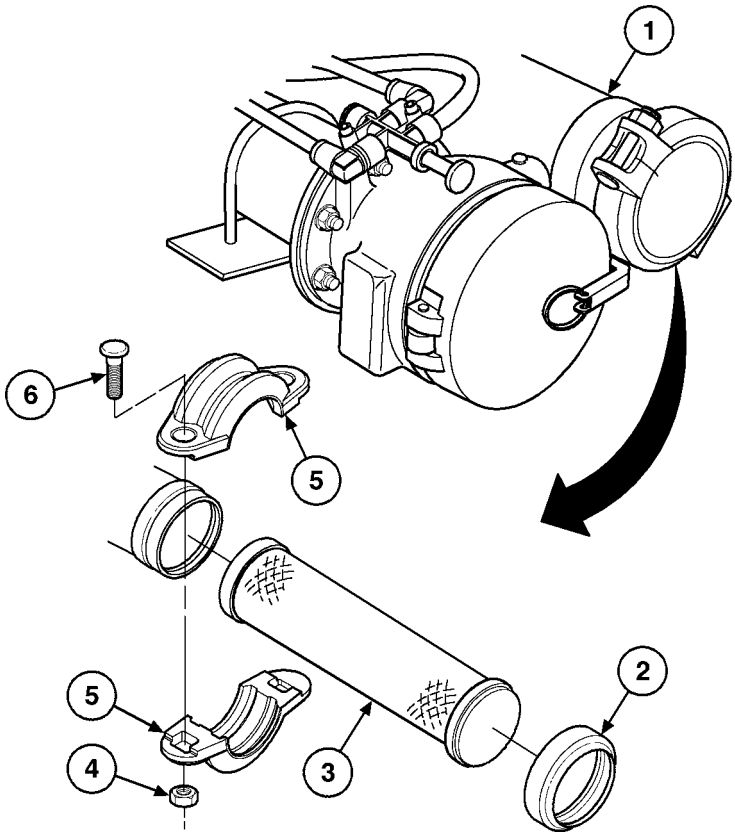


PUMP STRAINER REMOVAL

1. Place suitable container under pump inlet pipe (1).



2. Remove two nuts (4), bolts (6), split coupling (5), seal (2), and pump strainer (3) from pipe (1).



CLEANING AND INSPECTION

Clean strainer if necessary and replace seal or strainer if damaged.

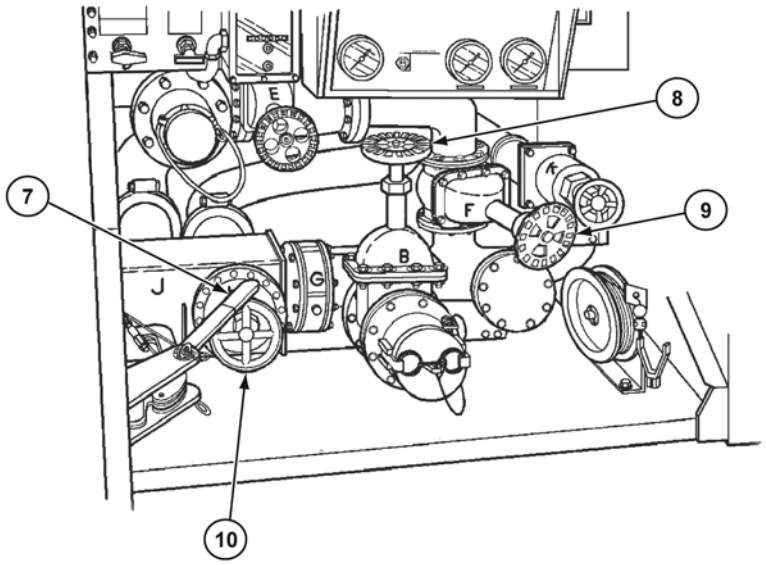
PUMP STRAINER INSTALLATION

1. Lubricate seal (2) with oil.

2. Install clean pump strainer (3), seal (2), split coupling (5), two bolts (6), and nuts (4) to pump inlet pipe (1).

MANUAL PUMP PRIMING

1. Remove fire extinguishers and bring them to point of operation.
2. Place suitable container under valve B (8).
3. Open valves A, F, H (7, 9, and 10) and slowly open valve B (8) until fuel begins to flow.
4. Close all valves.
5. Cap valve B (8).
6. Store and cover fire extinguishers.



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

CHAPTER 7

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

SERVICE UPON RECEIPT **0042 00**

THIS WP COVERS:
General, Inspection, Servicing

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References
Compound, cleaning (item 4, WP 0174 00)

DA Form 2404
DA Form 5988-E
DA PAM 738-750
DD Form 314
DD Form 1397

GENERAL

When a new, used, or reconditioned semitrailer is first received, determine whether it has been properly prepared for service and is in condition to perform its mission. Follow the inspection and servicing instructions specified below.

INSPECTION INSTRUCTIONS

1. Read and follow all instructions on DD Form 1397 attached to conspicuous part of semitrailer.

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

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well ventilated area. If solvent gets on skin and clothing, wash immediately with soap and water.

3. Remove corrosion preventive compound from coated exterior parts of semitrailer using cleaning compound and rags.

4. Inspect semitrailer for damage incurred during shipment. Also check to see if equipment has been modified.

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

SERVICING INSTRUCTIONS

1. Perform all Operator/Crew and Organizational Preventive Maintenance Checks and Services (PMCS) (refer to WP 0034 00 and WP 0043 00). Schedule next PMCS on DD Form 314.

2. Lubricate all lubrication points as described in Operator/Crew and Organizational lubrication charts (refer to WP 0035 00 and WP 0044 00).

3. Perform a break-in road test of 25 miles (40 km) at maximum speed of 30 mph (48 km/h).

4. Report any problems on DA Form 2404 or DA Form 5988-E.

CAUTION

Do not use abrasive powder, steel wool, or other material that will scratch the inside surfaces of the tank.

5. Place a suitable container under all drain valves to remove all preservatives.

6. Perform depreservation in accordance with DD Form 1397.

WARNING

Remove vent cap from either side of vapor recovery tube and open valve A to vent tank.

7. Open manhole cover.

WARNING

Do not climb into tank unless interior of tank has been drained and purged and an explosive meter check indicates that it is safe to do so. Adequate forced air ventilation self-contained breathing apparatus must be used. Any person entering tank must have an attached lifeline. An observer must be stationed at the manhole opening so assistance may be summoned in the event of an emergency. Failure to follow this warning may result in serious injury or death to personnel.

8. Climb into tank through manhole and inspect for cleanliness. Remove all sediment and debris using a lint-free cloth.

9. Remove all bands and anti-theft bolts and nuts from hose tubes and fire extinguishers.

10. Remove all tape from exhaust and intake ports of engine.

11. Check engine oil level. If necessary, add oil per WP 0044 00.

12. Notify Direct Support maintenance to perform vapor integrity test specified in WP 0167 00.

END OF TASK

ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

0043 00

THIS WP COVERS:
PMCS Procedures

INITIAL SETUP:

Maintenance Level
Organizational

Material/Parts
Compound, cleaning (item 4, WP 0174 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

References

DA Form 2404	WP 0067 00
DA Form 5988-E	WP 0068 00
DA PAM 738-750	WP 0069 00
DD Form 314	WP 0082 00
WP 0007 00	WP 0084 00
WP 0041 00	WP 0104 00
WP 0044 00	WP 0110 00
WP 0050 00	WP 0133 00
WP 0065 00	WP 0173 00

GENERAL

To ensure that the semitrailer 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. This WP contains instructions on inspections, adjustments, and corrections to be performed by organizational maintenance.

SERVICE INTERVALS

Perform the PMCS procedures listed in Table 1 at the following intervals:

Perform "Monthly" procedures once each month.

Perform "Semiannual" PMCS procedures twice each year.

Perform "Annual" procedures once each year.

Perform "Biannual" procedure every other year.

Perform "Every 100 Hours" procedures every 100 hours.

Perform "Every 200 Hours" procedures every 200 hours.

Perform "Every 600 Hours" procedures every 600 hours.

PMCS items and intervals are to be scheduled on DD Form 314 in accordance with DA PAM 738–750.

After operation in water, mud, or loose sand, clean the semitrailer as soon as possible. Lubricate without waiting for the next scheduled service.

Lubrication instructions are provided in WP 0044 00.

REPORTING REPAIRS

Report all defects and corrective actions on DA Form 2404 or DA Form 5988-E. If a serious problem is found, report it to your supervisor.

GENERAL PMCS PROCEDURES

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

Keep equipment clean. Dirt, oil, and debris may cover up a serious problem. Clean as you work and as needed. Use cleaning compound on all metal surfaces. Use solution of soap and water on rubber, plastic, and painted surfaces.

While performing PMCS, inspect the following components:

Bolts, Nuts, and Screws. Make sure they are not loose, missing, bent, or broken. Tighten any that are loose.

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

Electrical Wires or Connectors. Inspect for cracked or broken insulation, bare wires, and loose or broken connectors. Make repairs or replace as required.

Hoses, Lines, and Fittings. Inspect for wear, damage, and leaks. Make sure clamps and fittings are tight. If leak originates from a loose fitting or connector, tighten it. If not authorized, report it to your supervisor.

SPECIFIC PMCS PROCEDURES

Organizational PMCS procedures are listed in Table 1. Always perform PMCS procedures in the order listed. Once this becomes a habit, you will spot anything that is not right in a minute. If anything wrong is discovered through PMCS, perform the appropriate troubleshooting task. If any component or system is not serviceable, or if the service given does not correct the problem, notify your supervisor.

Before performing PMCS, read all the checks required for the applicable interval and prepare the tools needed to make all the checks.

The column headings in Table 1 are defined as follows:

Item No. The item number column of your PMCS table is to be used for reference. When completing DA Form 2404 or DA Form 5988-E, include the item number for the checks and service indicating a fault. Item numbers also appear in the order that you must do the checks and services for the intervals listed.

Interval. This column tells you when to do a certain check or service. Special intervals will also be specified (e.g., every 100 hours) when the component requires service more frequently than semiannually or annually.

ORGANIZATIONAL PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)—Continued **0043 00**

Item To Be Inspected. This column tells you what item is to be inspected and how to do the required checks and services. Carefully follow these instructions.

Procedure. Provides the procedure that must be performed to check or service the item.

Not Fully Mission Capable If. Information in this column tells you what faults will keep the equipment from being capable of performing its mission. If PMCS reveals any of the faults listed in this column, do not operate the equipment. Follow standard procedure for maintaining the equipment or reporting equipment failure.

Table 1. Organizational PMCS.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
1	Monthly	Brakes	a. Lubricate slack adjusters (refer to WP 0044 00). b. Inspect slack adjusters for function and adjustment (refer to WP 0067 00). c. Lubricate camshaft bearings (refer to WP 0044 00). d. Inspect components for wear or looseness.	
2	Monthly	Centrifugal Pump	Check oil in centrifugal pump and fill if necessary (refer to WP 0044 00).	
3	Semiannual	Electrical System	Inspect intervehicular cable receptacles for damage or corrosion. Repair/replace damaged intervehicular cable receptacles (refer to WP 0065 00). **WARNING** **Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.**	
4	Semiannual	Pump Strainer	Inspect pump strainer and clean with cleaning compound if necessary (refer to WP 0041 00).	

Table 1. Organizational PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
5	Semiannual	Landing Gear	Check condition and operation of landing gear. Inspect for damage or wear. Replace damaged parts (refer to WP 0084 00).	
6	Semiannual	Bogie Assembly	a. Position semitrailer on hard level surface with front resting on landing gear. Jack and block frame. Remove wheel assemblies (refer to WP 0007 00).	
			NOTE **Clean axle and suspension system with water and fiber brush to allow for careful inspection.**	
			b. Inspect general condition of trunnion tube, axles, and leaf springs. Look for cracks or damage. If cracked or damaged, notify Direct Support maintenance.	Any cracks or damage are evident.
			c. Check tightness of U-bolts and clips on leaf springs. Tighten loose U-bolts and clips. If damage or wear is evident, notify Direct Support maintenance.	Any damage or wear is evident.
			d. Check tightness of U-bolts and screws on leaf spring cap and seat. Tighten loose U-bolts and screws. If damage or wear is evident, notify Direct Support maintenance.	Any damage or wear is evident.

Table 1. Organizational PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
6—Continued	Semiannual	Bogie Assembly	e. Check tightness of bolts fastening bogie assembly to trailer frame. Tighten loose bolts. If damage or wear is evident, notify Direct Support maintenance.	Any damage or wear is evident.
7	Semiannual	Brakes	a. Remove brakedrums and check springs, clips, and rollers for function. Look for heat cracks, loose rivets, and broken welds on shoes. Replace as necessary (refer to WP 0069 00/0067 00). b. Check brake shoe lining thickness. Replace if lining is within 0.063 in. (1.60 mm) of rivet heads (refer to WP 0067 00). c. Check brakedrums for overheating. d. Check for cracked brakedrum. If cracked or damaged, replace (refer to WP 0068 00). e. Check for damaged brake camshaft. If damaged, replace (refer to WP 0069 00). f. Check for worn brake hoses or damaged brake chamber. If worn or damaged, replace (refer to WP 0067 00).	

Table 1. Organizational PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
7—Continued	Semiannual	Brakes	g. Lubricate brake shoe roller and brake anchor pin (refer to WP 0067 00).	
8	Semiannual	Batteries	Check electrolyte specific gravity. Replace batteries if necessary.	
9	Annual	Towing Connections	Inspect condition of upper coupler plate and spacer. Plate/spacer should be replaced (refer to WP 0082 00) when any of the following conditions exist:	
			a. Wear of 0.063 in. (1.60 mm) or more over 1/4 of the circumference of kingpin. This would be a condition of uneven wear on one or more sides of the kingpin wear surface.	
			b. Even wear over kingpin surface causing the diameter to be reduced by 0.063 in. (1.60 mm) or more.	
			c. A crack of any size noted anywhere on or in associated welds.	Any cracks are evident.
			d. A nick, chip, or gouge deeper than 0.125 in. (3.18 mm) noted anywhere on wear surface of kingpin.	
10	Annual	Vapor Integrity Test	Notify Direct Support to perform test.	Semitrailer does not pass test.

Table 1. Organizational PMCS—Continued.

ITEM NO.	INTERVAL	ITEM TO BE INSPECTED	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
11	Annual	Optic Socket Box	Use instructions with test equipment (refer to WP 0173 00).	Semitrailer fails any portion of test.
12	Biannual	Wheels and Hubs	a. Check for cracked wheels or hubs and missing or loose wheel stud nuts. Repair or replace as required. b. Disassemble hub and drum assembly (refer to WP 0068 00). Clean and repack wheel bearings (refer to WP 0068 00).	Three or more wheel stud nuts missing (on one wheel).
13	Every 100 Hours Every 100 Hours Every 200 Hours Every 600 Hours	Engine	a. Check for loose or missing hardware. b. Change crankcase oil (refer to WP 0044 00). c. Replace oil filter (refer to WP 0104 00). d. Replace fuel filter (refer to WP 0110 00).	

END OF TASK

ORGANIZATIONAL LUBRICATION INSTRUCTIONS 0044 00

THIS WP COVERS:
Lubrication Instructions

INITIAL SETUP:

Maintenance Level	Tools and Special Tools
Organizational	Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References	
Compound, cleaning (item 4, WP WP 0174 00)	DA PAM 738-750
Grease (item 8, WP 0174 00)	FM 9-207
Oil, lubrication (item 9, WP 0174 00)	TM 9-214
Rags (item 11, WP0174 00)	TM 9-238

GENERAL

This WP contains lubrication instructions showing location, intervals, and proper materials for lubricating the trailer. These instructions are mandatory.

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

DETAILED LUBRICATION INFORMATION

Clean lubrication points, grease fittings, and surrounding areas before applying lubricant.

Clean all lubrication points after lubricating to prevent accumulation of foreign matter.

Clean and lubricate bearings as specified in TM 9-214.

Maintain a record of vehicle lubrication and report any discrepancies noted during lubrication. Refer to DA PAM 738-750 for maintenance forms and procedures to record and report any findings.

SPECIFIC LUBRICATION INSTRUCTIONS

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

WARNING

Wipe excess lubricant from area of brake shoe linings to avoid grease from contacting linings. If brake shoe linings become soaked with grease, replace them. Failure to follow this warning may cause brakes to malfunction, resulting in serious injury or death.

LUBRICANT CHART

Intervals are based on normal operation. Adjust to compensate for abnormal and severe condition or contaminated lubricants. During inactive periods, intervals may be extended with adequate preservation.

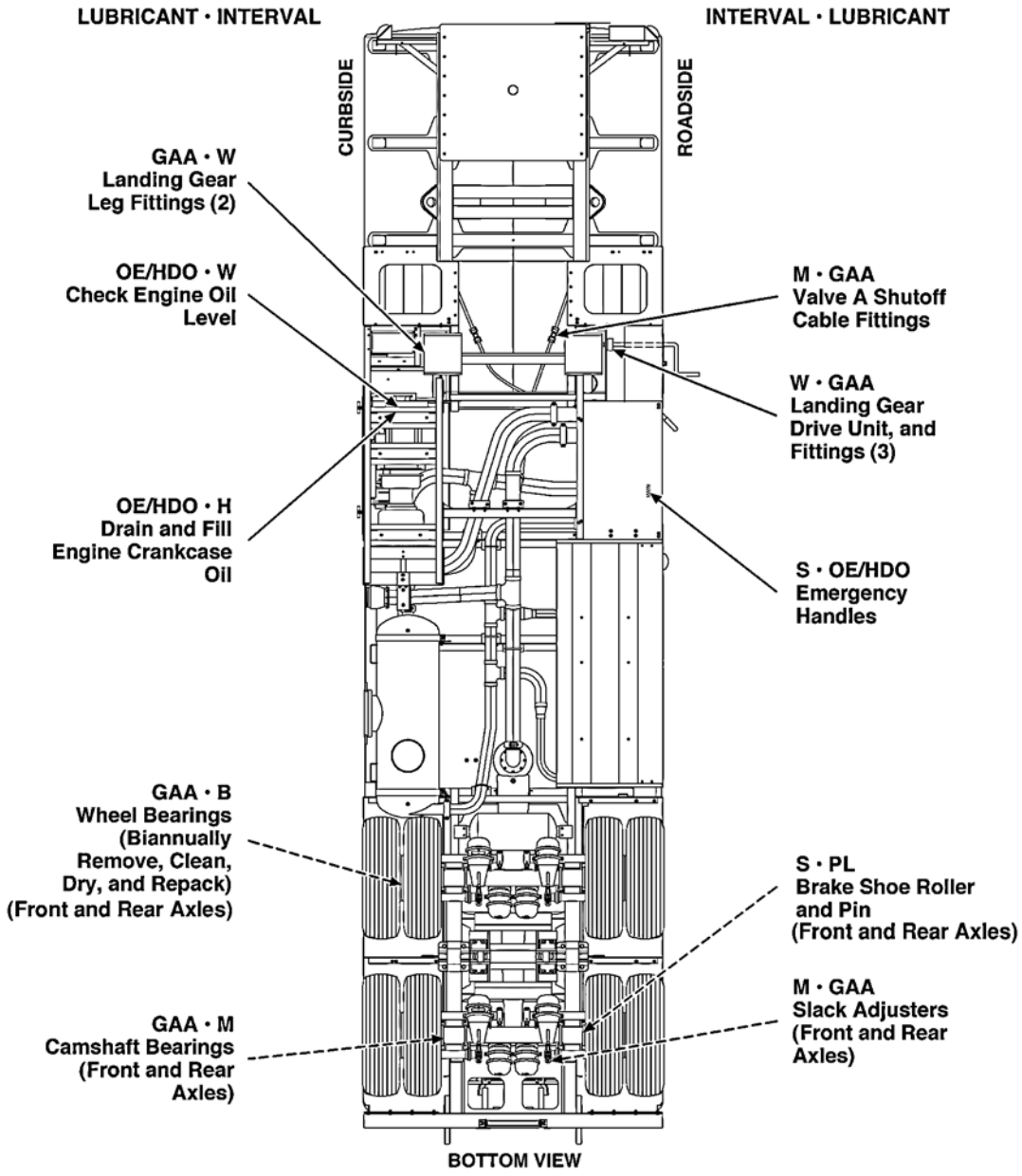
WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

Clean fittings before lubrication using cleaning compound. Dry before lubricating.

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

Re-lubricate after washing or fording as necessary.


LUBRICANT · INTERVAL
INTERVAL · LUBRICANT
CURBSIDE
ROADSIDE
GAA · W
Landing Gear
Leg Fittings (2)
OE/HDO · W
Check Engine Oil
Level
OE/HDO · H
Drain and Fill
Engine Crankcase
Oil
GAA · B
Wheel Bearings
(Biannually
Remove, Clean,
Dry, and Repack)
(Front and Rear Axles)
GAA · M
Camshaft Bearings
(Front and Rear
Axles)
M · GAA
Valve A Shutoff
Cable Fittings
W · GAA
Landing Gear
Drive Unit, and
Fittings (3)
S · OE/HDO
Emergency
Handles
S · PL
Brake Shoe Roller
and Pin
(Front and Rear Axles)
M · GAA
Slack Adjusters
(Front and Rear
Axles)
BOTTOM VIEW

TOTAL MAN-HOURS*	
INTERVAL MAN-HOUR	
B	2.50
A	0.50
S	0.50
M	0.50
W	0.10
H	0.25

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

—KEY—

	EXPECTED TEMPERATURES*			
LUBRICANTS	**ABOVE +15°F (ABOVE –9°C)**	**+40°F to -15°F (+4°C to -26°C)**	**+40°F to -65°F (+4°C to -54°C)**	**INTERVAL**
OE/HDO (MIL-L-2104) Lubricating Oil, Internal Combustion, Engine, Tactical Service	OE/HDO-30	OE/HDO-30	—	B—Biannual A—Annual S—Semiannual M—Month W—Weekly H—Hours
OEA (MIL-L-46167) Lubricating Oil, Internal Combustion, Engine, Arctic	—	—	OEA	

*For Arctic operation, refer to FM 9-207.

END OF TASK

GENERAL MAINTENANCE INSTRUCTIONS 0045 00

THIS WP COVERS:
General, Work Safety, Cleaning Instructions, Inspection Instructions, Repair Instructions, Tagging Hoses and Tubes, Painting and Stenciling, Piping Replacement, Lubrication Instructions, Torque Values, Decal Replacement

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Brush, scrub (item 1, WP 0174 00)
Cloth (item 2, WP 0174 00)
Compound, antiseize (item 3, WP 0174 00)
Compound, cleaning (item 4, WP 0174 00)
Oil (item 9, WP 0174 00)
Rags (item 11, WP 0174 00)
Soap (item 12, WP 0174 00)
Tags, marker (item 15, WP 0174 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
File (item 4, WP 0171 00)
Thread tap (item 1, WP 0171 00)

References
TB 43-0209
TM 9-214
TM 9-237
TM 9-247
TB 43-0139
WP 0044 00
WP 0176 00

GENERAL

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

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

The following initial setup information applies to all procedures: Resources are not listed unless they apply to the procedure. Personnel are listed only if more than one technician is required to complete the task. If Personnel Required is not listed, one technician can complete the task. You must check all tags and forms attached to equipment to learn the reason for removal from service. Be sure to also check modification work orders and technical bulletins for equipment changes and updates.

In some cases, a part may be damaged by removal. If the part appears to be good and other parts behind it are not defective, leave it on and continue with the procedure. Make sure you adhere to the following rules:

- Do not remove dowel pins or studs unless loose, bent, broken or otherwise damaged.
- Do not remove bearings or bushings unless damaged. If you need to remove them to access parts, pull bearings and bushings out carefully (refer to TM 9-214).

- Replace all gaskets, seals, lockwashers, cotter pins, performed packings, and other locking hardware.
- Apply antiseize compound to wherever stainless steel nuts are used on stainless steel bolts.

WORK SAFETY

Observe all warnings and cautions. Always use power tools carefully. Protect yourself against injury. Wear protective gear, such as safety goggles or lenses, safety shoes, rubber apron, or gloves.

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

All maintenance should be performed with:

- Semitrailer parking brake engaged.
- Tow vehicle in neutral with parking brake engaged, if attached.
- Tow vehicle engine stopped, if attached.

CLEANING INSTRUCTIONS

WARNING

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

General

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

- Clean all parts before inspection, after repair, and before assembly.
- Keep hands free of grease which can collect dust, dirt, and grit.
- After cleaning, cover or wrap all parts to protect them from dust and dirt. Parts that are subject to rust should be lightly oiled.

Steam Cleaning

1. Before steam cleaning exterior of semitrailer, protect all electrical equipment that could be damaged by steam or moisture.
2. Place disassembled parts in a suitable container to steam clean. Parts that are subject to rust should be dried and lightly oiled after cleaning.

WARNING

Compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If compound gets on skin or clothing, wash immediately with soap and water.

Castings, Forgings, and Machined Metal Parts:

- Clean inner and outer surfaces with cleaning compound.
- Remove grease and accumulated deposits with a scrub brush.

WARNING

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

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

WARNING

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

Oil Seals, Electrical Cables, and Flexible Hoses

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

Bearings

Clean bearings in accordance with TM 9-214.

INSPECTION INSTRUCTIONS

NOTE

All damaged areas should be marked for repair or replacement.

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

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

1. Wear, distortion, cracks, and any other damage in or around holes.
2. Threaded areas for wear, distortion (stretching), and any evidence of cross-threading.

3. Inspect metal lines, flexible lines (hoses), and metal fittings for the following:
   - Metal lines for sharp kinks, cracks, bad bends, and dents.
   - Flexible lines for fraying, evidence of leakage, and loose metal fittings or connectors.
   - Metal fittings and connectors, thread damage, and worn or rounded hex heads.
4. Inspect castings, forgings, and machined metal parts for the following:
   - Machined surfaces for nicks, burrs, raised metal, wear, and other damage.
   - Inner and outer surfaces for breaks and cracks.
   - Inspect air lines, fittings, and connectors for leaks by coating fittings and connectors with solution of soap and water. No leakage is permissible.
5. Inspect bearings in accordance with TM 9-214.

REPAIR INSTRUCTIONS

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

Repair castings, forging, and machined parts using the following instructions:

WARNING

Compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If compound gets on skin or clothing, wash immediately with soap and water.

NOTE

See TM 9-237 for instructions on repairing minor cracked castings or forgings.

1. Repair minor damage to machined surfaces with a fine mill file or abrasive cloth dipped in cleaning compound.
2. Replace any deeply nicked machined surfaces that could affect the assembled operation.
3. Repair minor damage to threaded screw holes with thread tap of same size, to prevent cutting oversize.

TAGGING HOSES AND TUBES

As soon as the first hose or tube is disconnected, write number “1” on two tags. Secure one tag to the hose or tube and the other tag to the nipple or fitting. After disconnecting the second hose or tube, write number “2” on two tags. Secure one tag to the hose or tube and the other tag to the nipple or fitting. Do the same for all hoses and tubes. Note which numbers you used in pencil on the art in this manual. This will help you retag properly when you remove tags from some parts to perform cleaning and maintenance work.

Remove all tags when finished.

PAINTING AND STENCILING

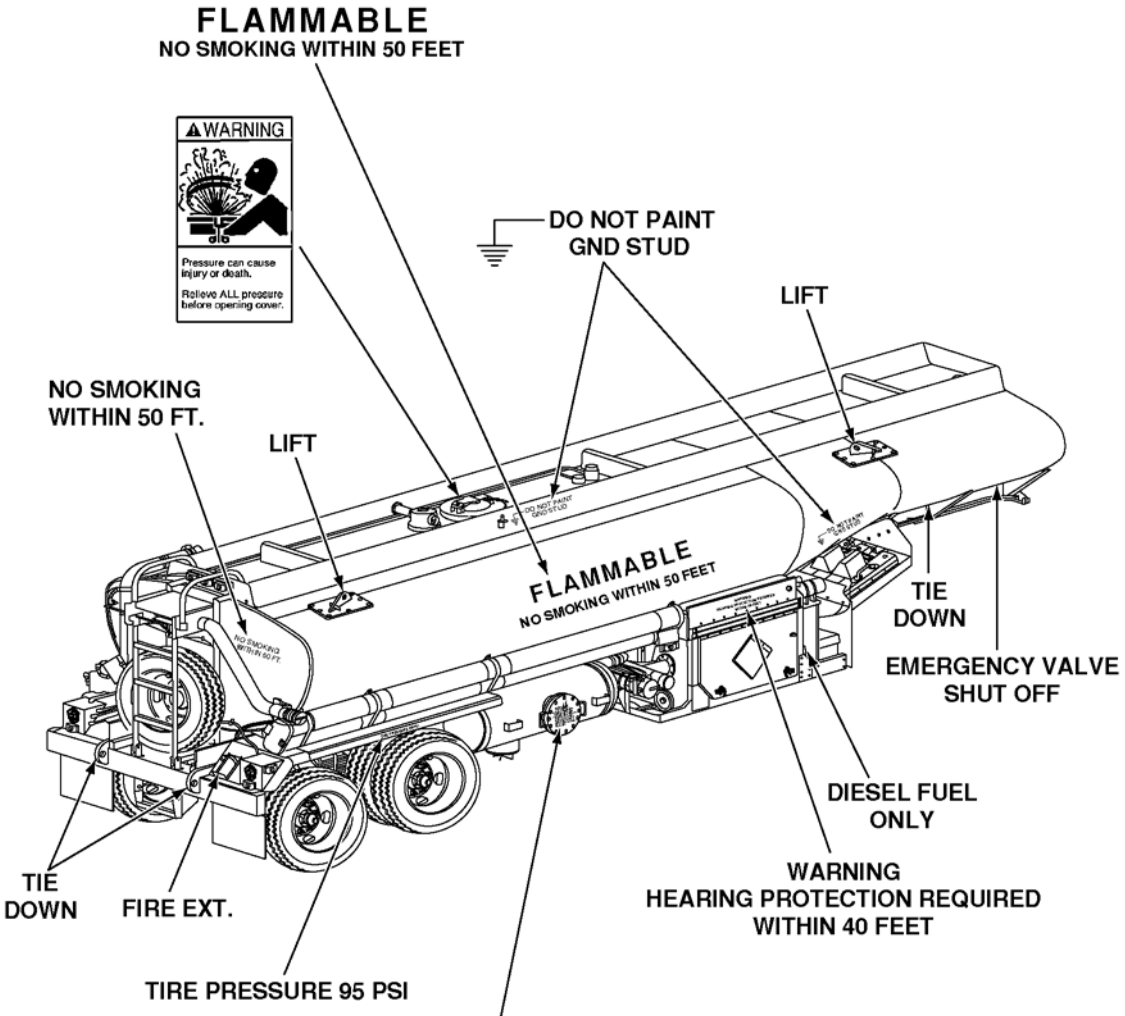
General instructions for painting and stenciling are located in TB 43-0209 and TM 43-0139.

Spot painting and stenciling will be performed under the control of the Organizational maintenance personnel.

Painting of a complete semitrailer can be authorized and performed only by the direct support maintenance personnel or higher support levels.

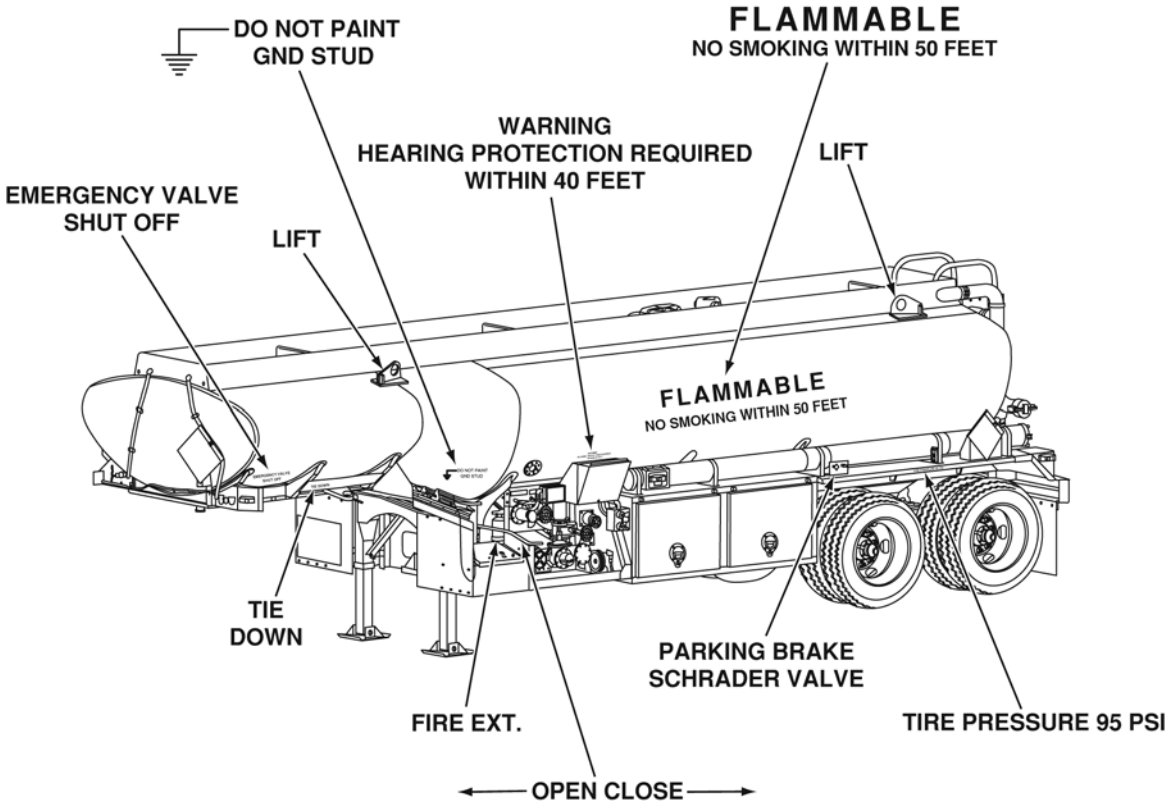
PIPING REPLACEMENT

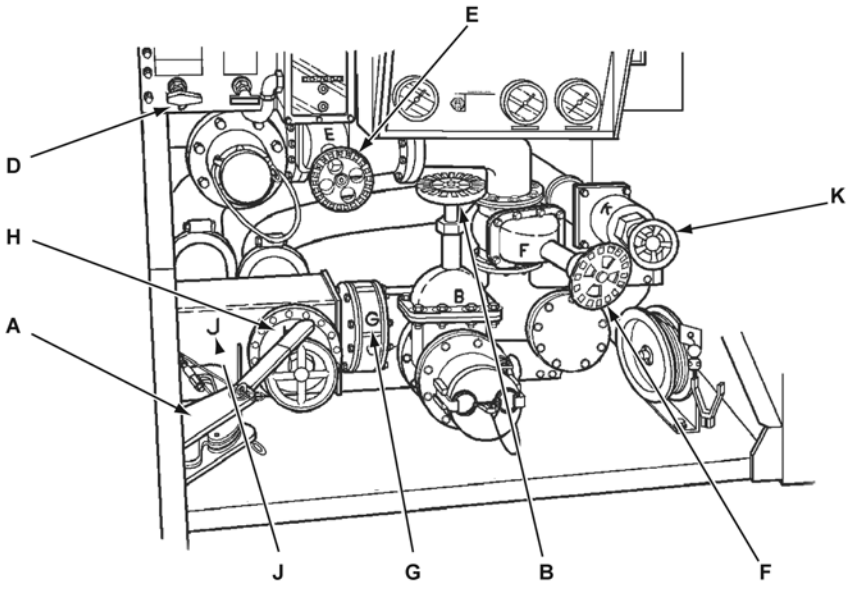
All piping not identified in specific WPs is replaced by removing split couplings at all ends, and U-bolts and hangers where necessary. Replace all seals, lockwashers, and self-locking nuts. Install in reverse order.

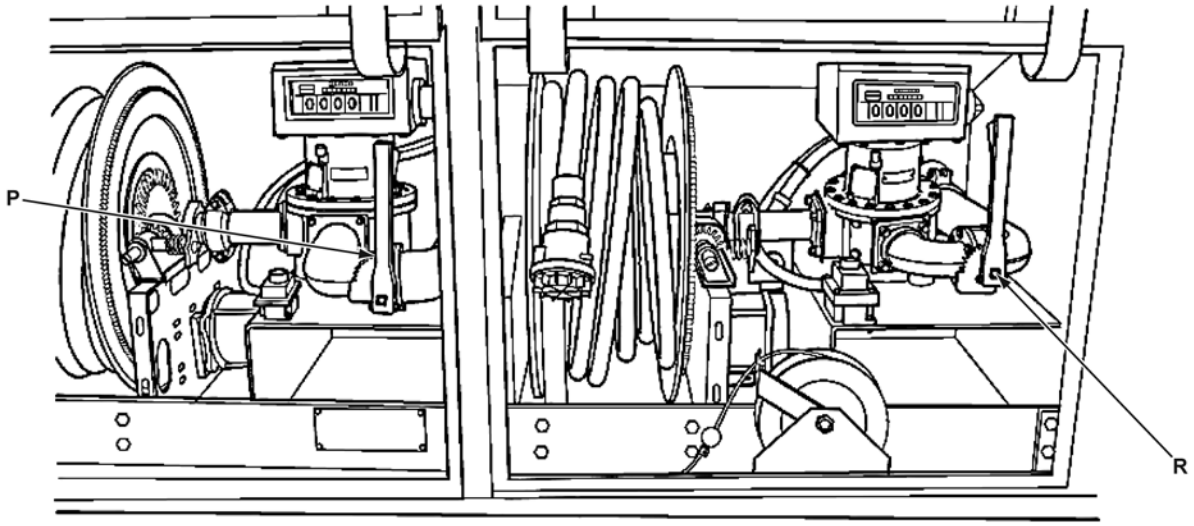


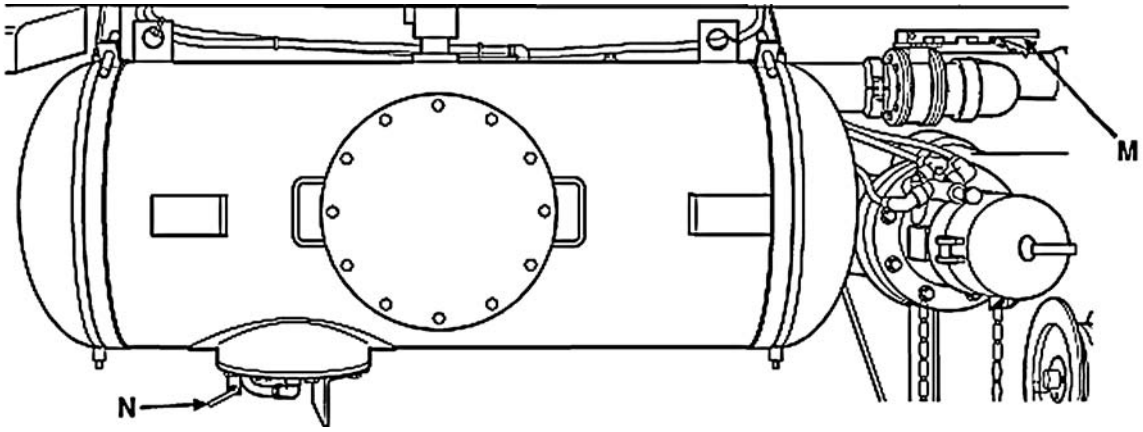
FOR SAFE CLEAN FUEL DISPENSING:

1. ELEMENTS AND GO-NO-GO FUSE MUST BE IN PLACE.
2. LEAD SEALS INTERCONNECTED AND SEALED ON 4 BOLTS OF THIS ACCESS COVER. MANDATORY-SEALS IN PLACE BEFORE REFUELING OPERATION.


DO NOT PAINT
GND STUD
FLAMMABLE
NO SMOKING WITHIN 50 FEET
WARNING
HEARING PROTECTION REQUIRED
WITHIN 40 FEET
LIFT
EMERGENCY VALVE
SHUT OFF
LIFT
FLAMMABLE
NO SMOKING WITHIN 50 FEET
TIE
DOWN
PARKING BRAKE
SCHRADER VALVE
FIRE EXT.
TIRE PRESSURE 95 PSI
OPEN CLOSE


E
D
K
H
A
J
G
B
F


P
R



LUBRICATION INSTRUCTIONS

To prevent corrosion, apply a light coat of lubricating oil to metal parts after they are cleaned but before they are assembled. Lubricate components and systems in accordance with the instructions in PMCS and WP 0044 00.

TORQUE VALUES

Torque values given in maintenance procedures apply to un-lubricated threads. Follow the torque values given in the maintenance procedures. If no torque value is given, refer to WP 0176 00.

DECAL REPLACEMENT

WARNING

Compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If compound gets on skin or clothing, wash immediately with soap and water.

NOTE

For proper installation of a decal, note its location before removing.

Use cleaning compound to loosen damaged decal, and remove the decal from the surface. Discard the decal. Clean any decal residue from the surface with a cleaning compound. Wipe the surface with a clean rag.

Remove protective backing from the new decal and position it on the surface.

Wipe the surface with a clean rag.

Using a dry rag, press the decal into position. Start in the center of the decal and press outward to remove any air bubbles.

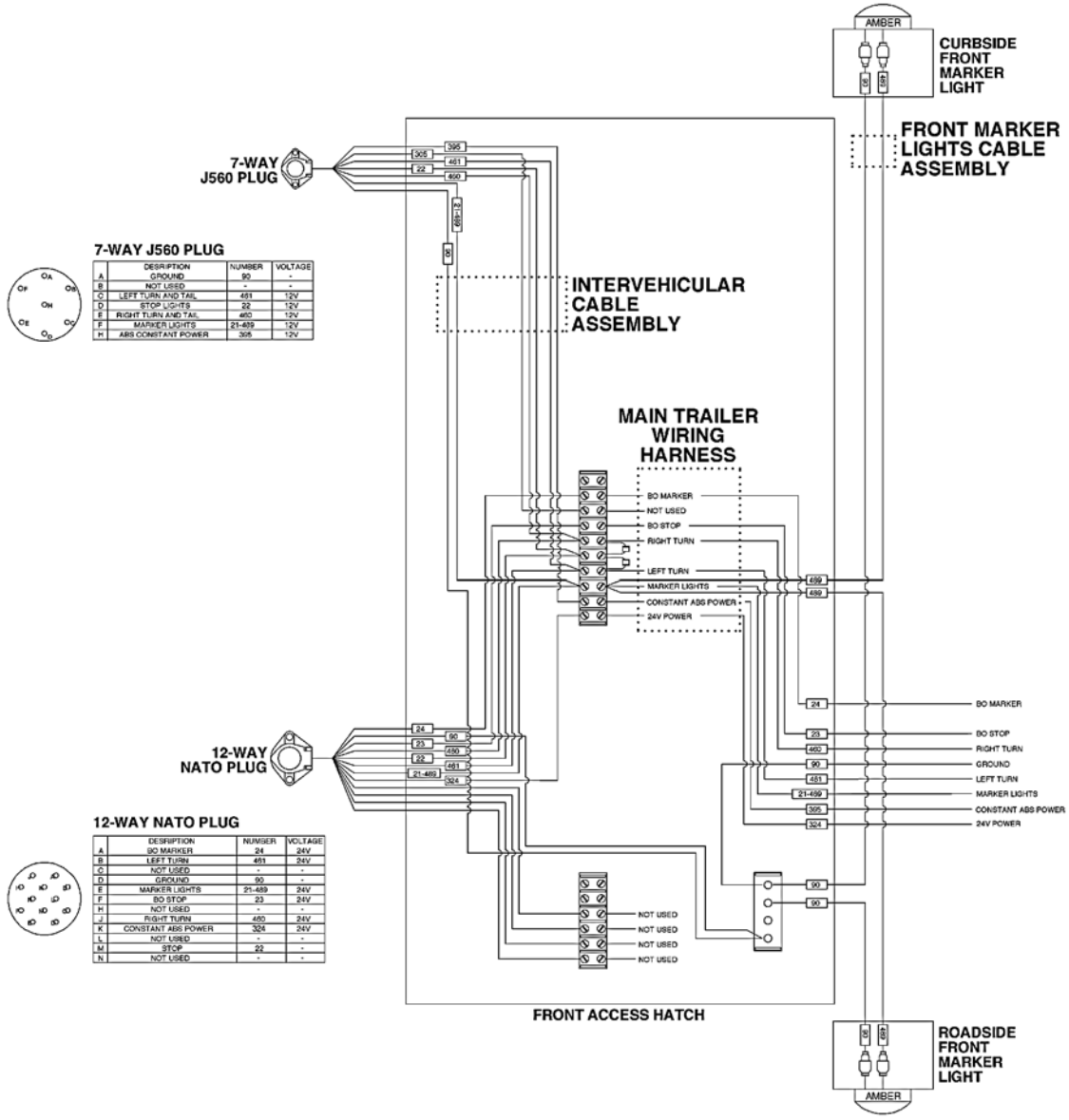
END OF TASK

ELECTRICAL SCHEMATICS **0046 00**

THIS WP COVERS:
M969A3 Semitrailer Electrical Schematic, M969A3 Engine Electrical Control Box Schematic, M969A3 Engine Electrical Schematic, M969A3 Engine Control Panel Schematic, Fuel Tank Capacity Gage Wiring Diagram, and Overflow Protection Wiring Diagram

INITIAL SETUP:
Maintenance Level
Organizational

M969A3 SEMITRAILER ELECTRICAL SCHEMATIC (1 of 3)



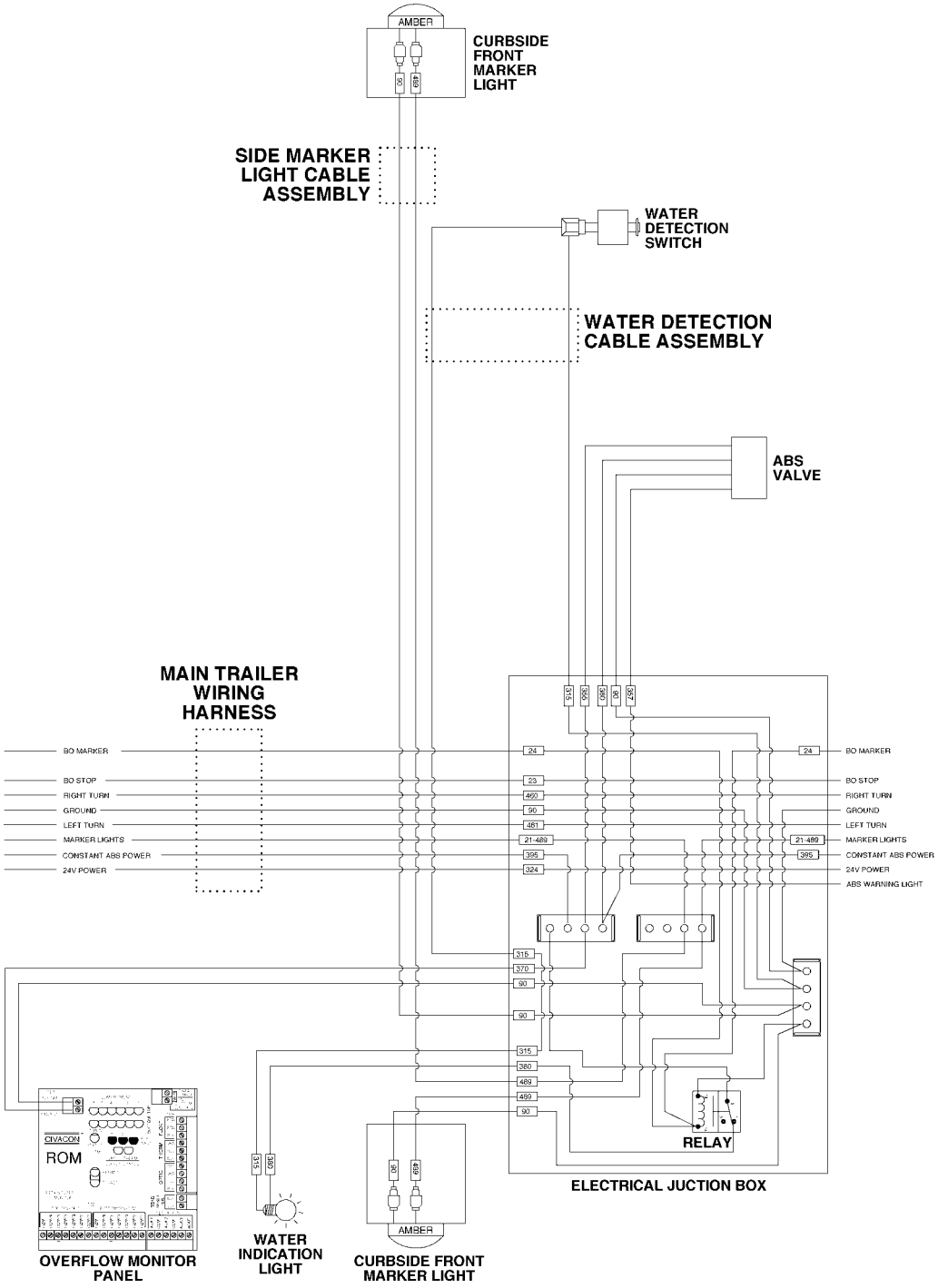
7-WAY J560 PLUG

	DESRIPTION	NUMBER	VOLTAGE
A	GROUND	90	-
B	NOT USED	-	-
C	LEFT TURN AND TAIL	461	12V
D	STOP LIGHTS	22	12V
E	RIGHT TURN AND TAIL	460	12V
F	MARKER LIGHTS	21-469	12V
H	ABS CONSTANT POWER	305	12V

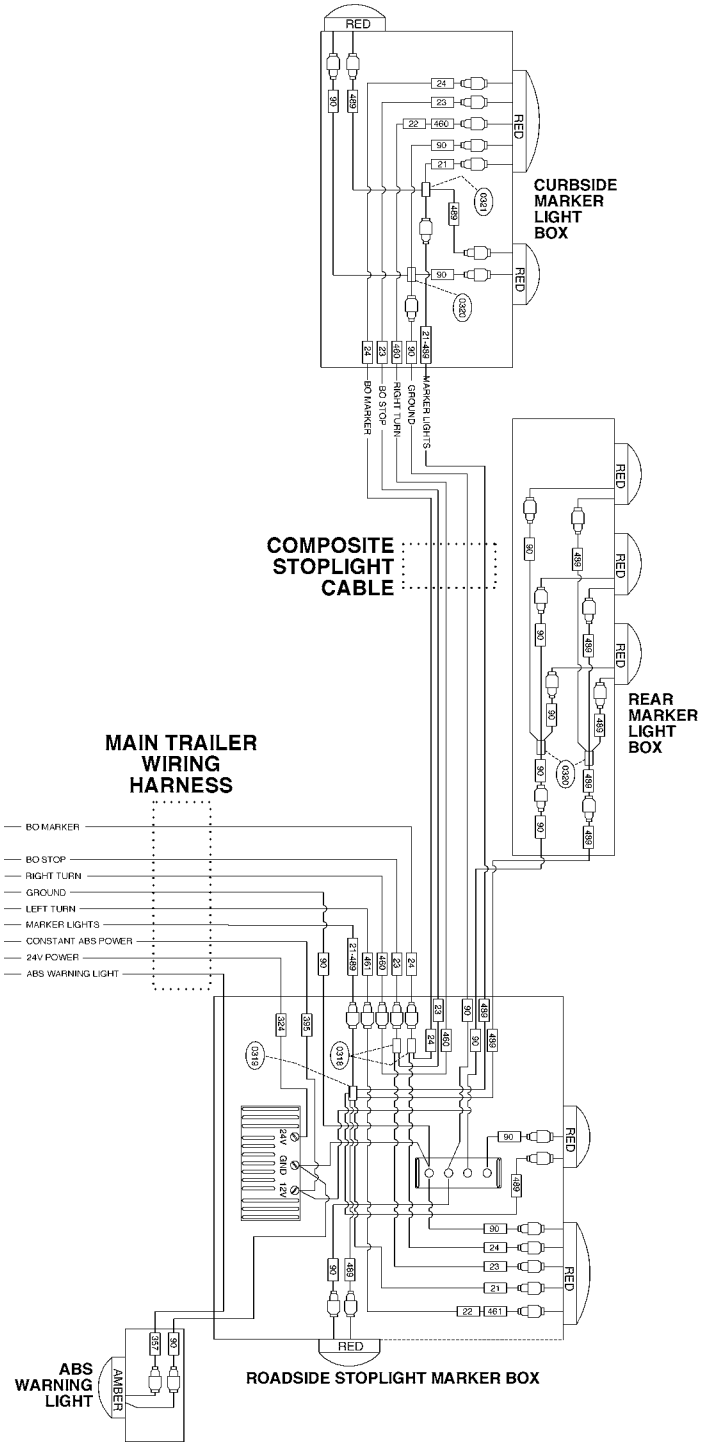
12-WAY NATO PLUG

	DESRIPTION	NUMBER	VOLTAGE
A	BO MARKER	24	24V
B	LEFT TURN	461	24V
C	NOT USED	-	-
D	GROUND	90	-
E	MARKER LIGHTS	21-469	24V
F	BO STOP	23	24V
H	NOT USED	-	-
J	RIGHT TURN	460	24V
K	CONSTANT ABS POWER	324	24V
L	NOT USED	-	-
M	STOP	22	-
N	NOT USED	-	-

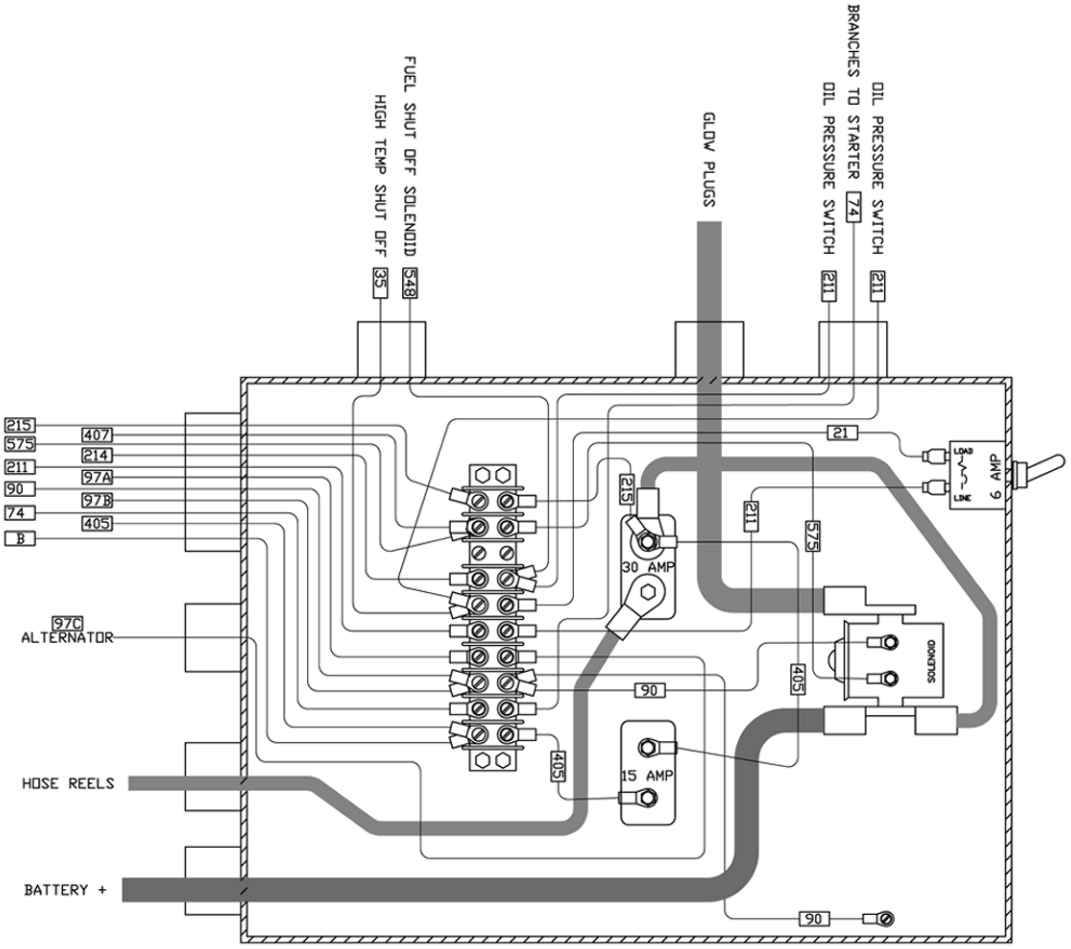
M969A3 SEMITRAILER ELECTRICAL SCHEMATIC (2 of 3)



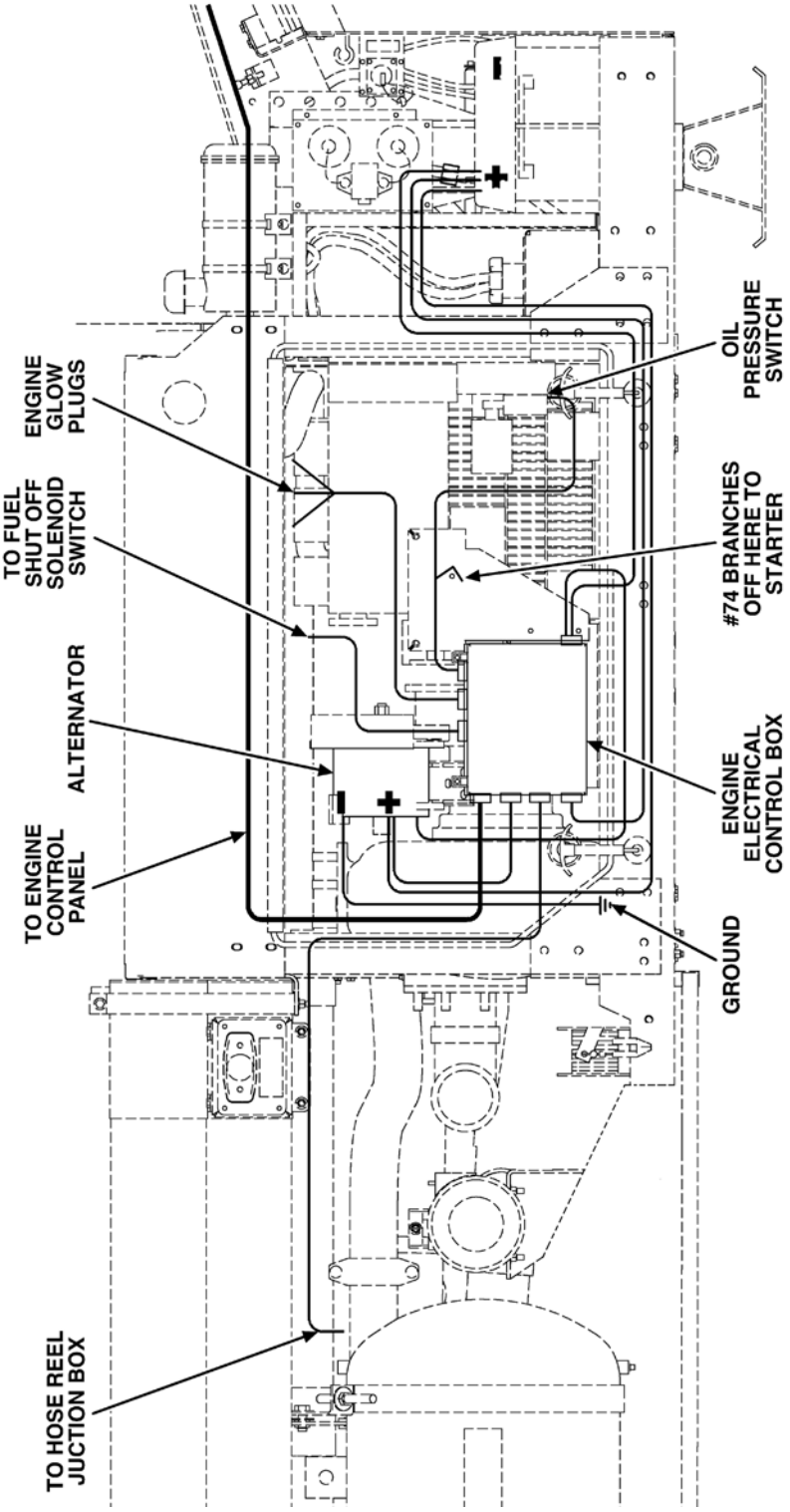
M969A3 SEMITRAILER ELECTRICAL SCHEMATIC (3 of 3)



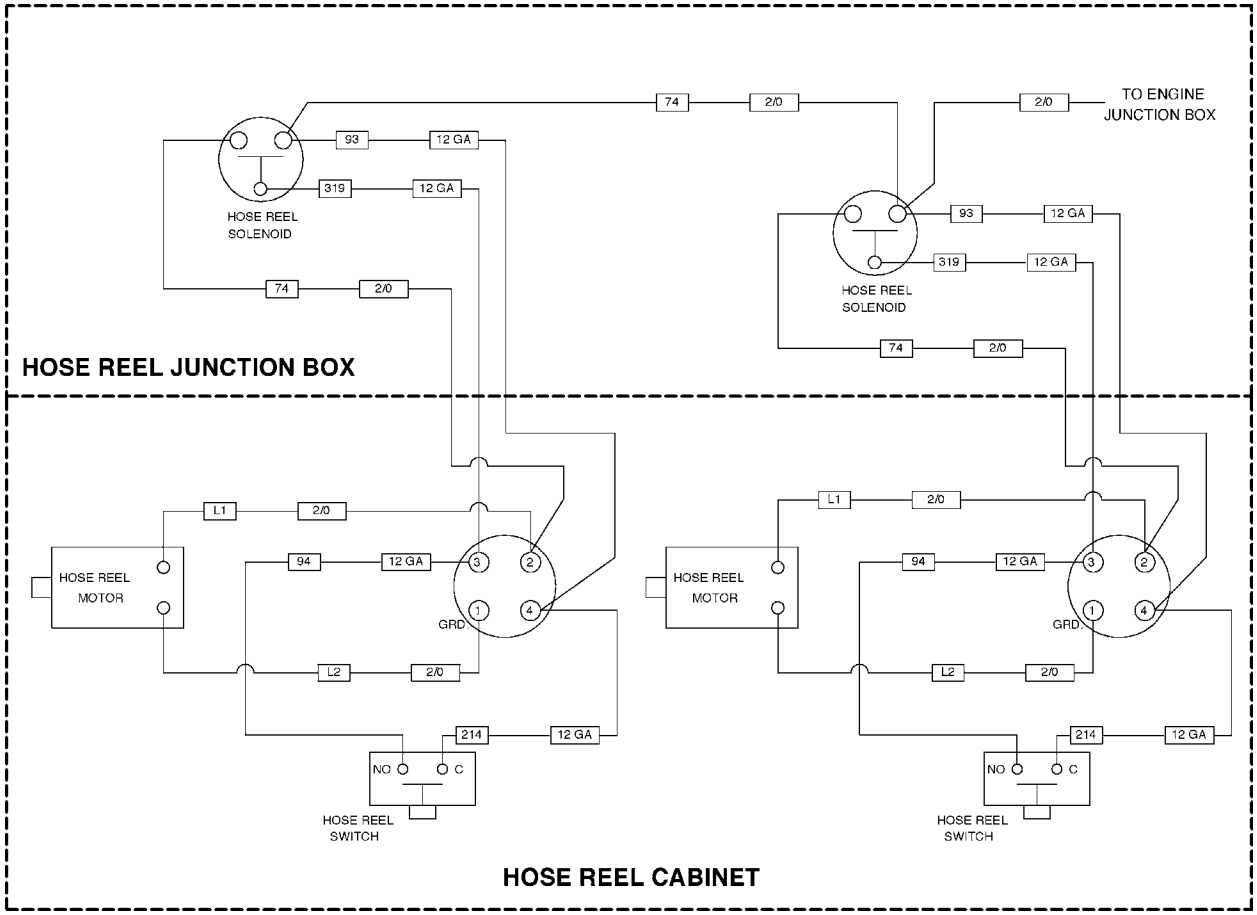
M969A3 ENGINE ELECTRICAL CONTROL BOX SCHEMATIC



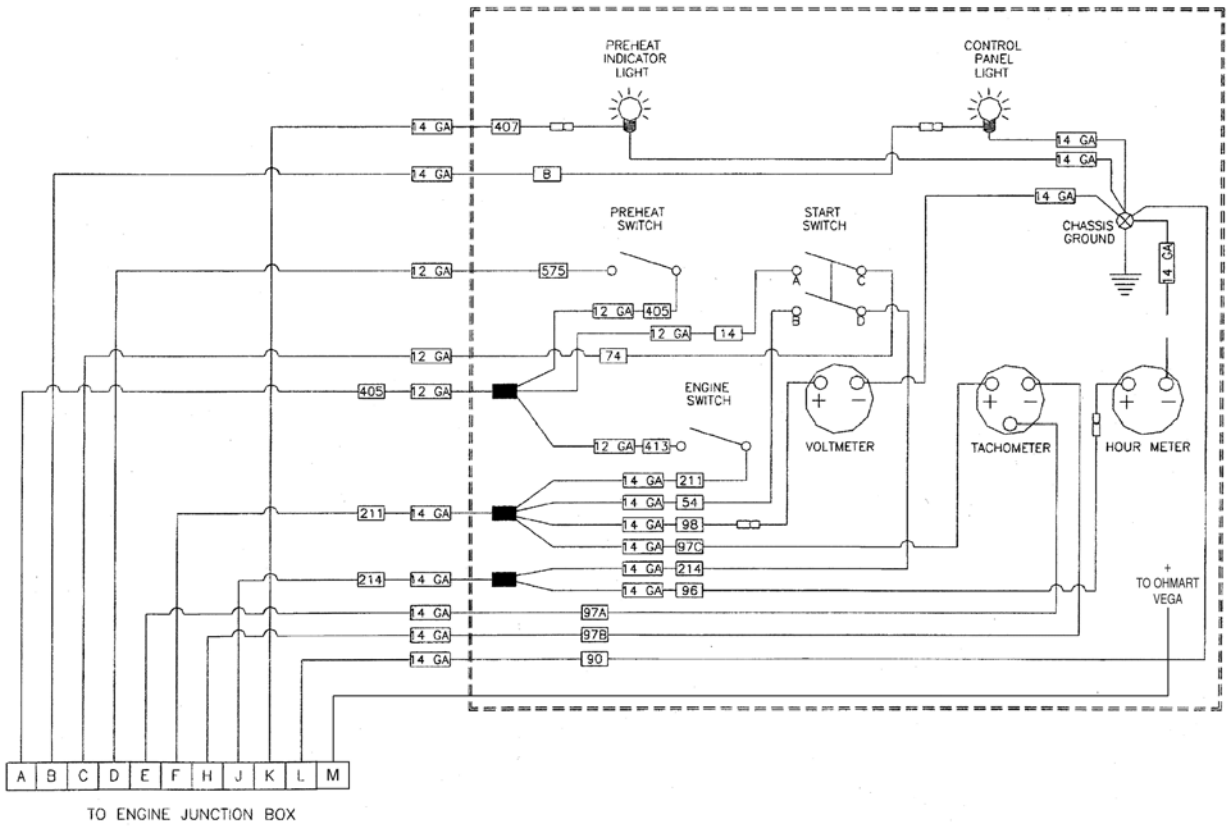
M969A3 ENGINE ELECTRICAL SCHEMATIC



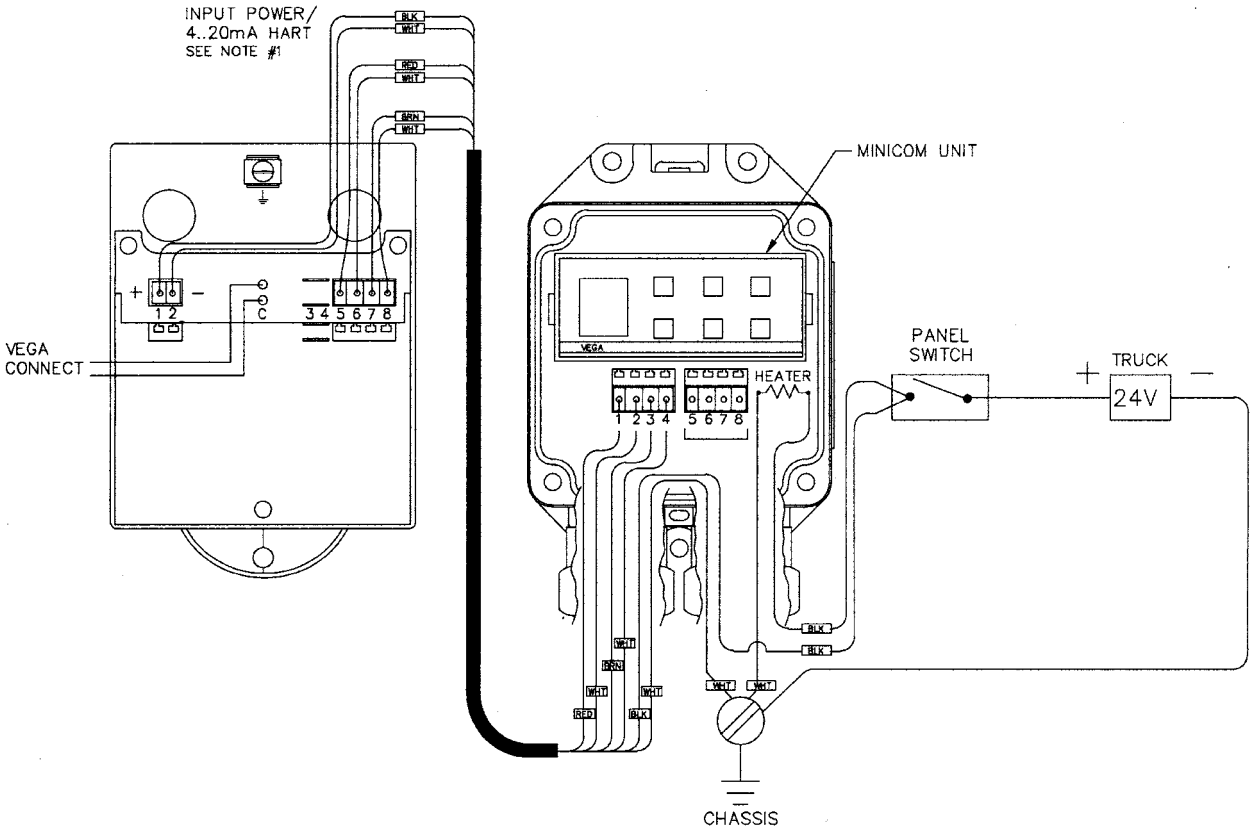
M969A3 HOSE REEL JUNCTION BOX/CABINET ELECTRICAL SCHEMATIC



M969A3 ENGINE CONTROL PANEL SCHEMATIC

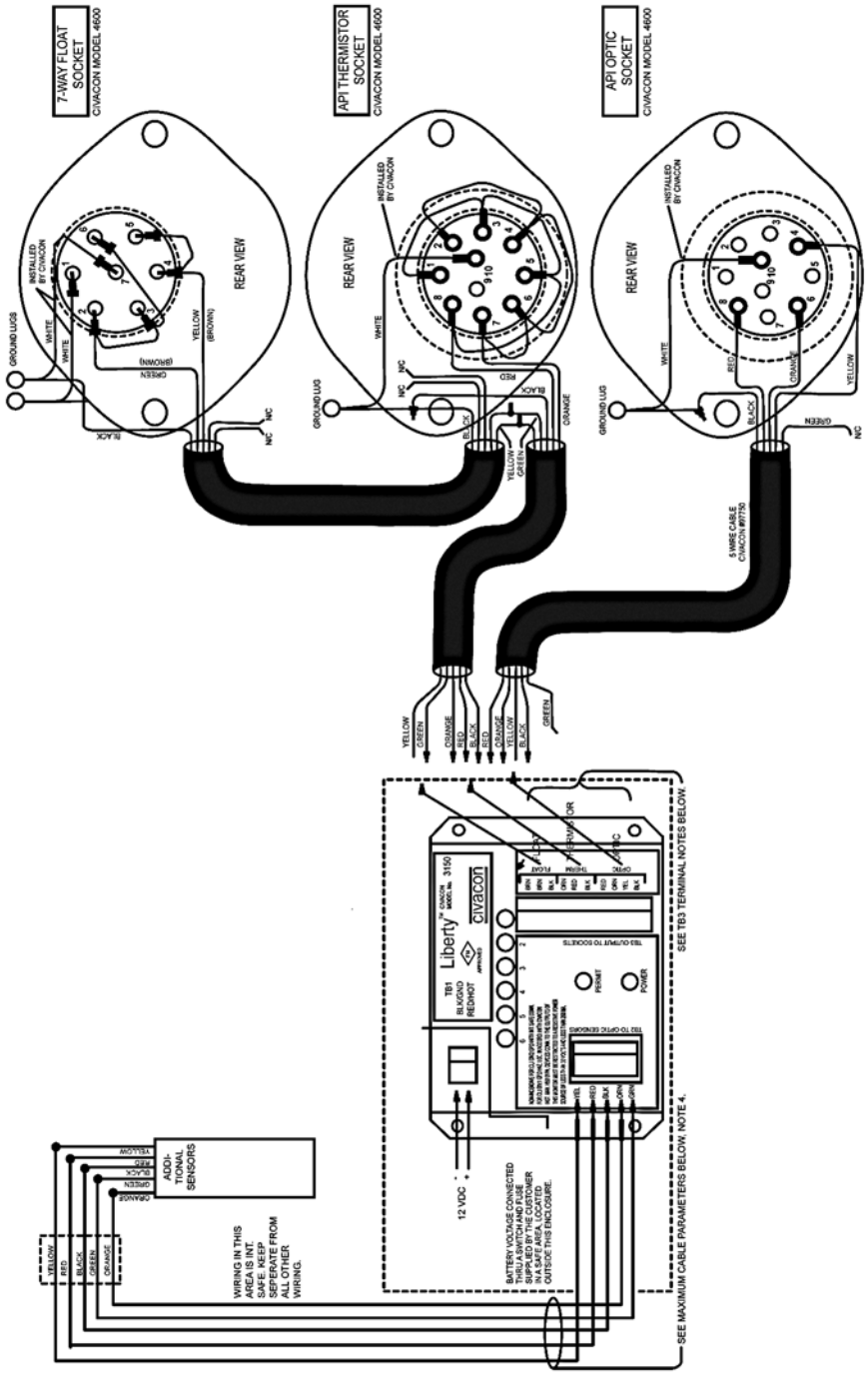


FUEL TANK CAPACITY GAGE WIRING DIAGRAM



ELECTRICAL SCHEMATICS—Continued **0046 00**

OVERFLOW PROTECTION WIRING DIAGRAM



END OF TASK

24–12 V CONVERTER REPLACEMENT 0047 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts Equipment
Gasket (item 82, WP 0175 00)
Self-locking nuts (4) (item 14, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

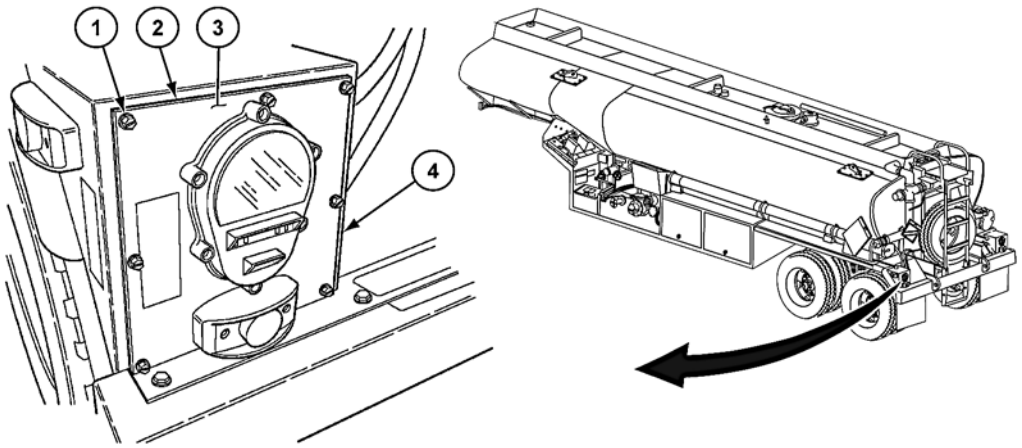
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00).

REMOVAL

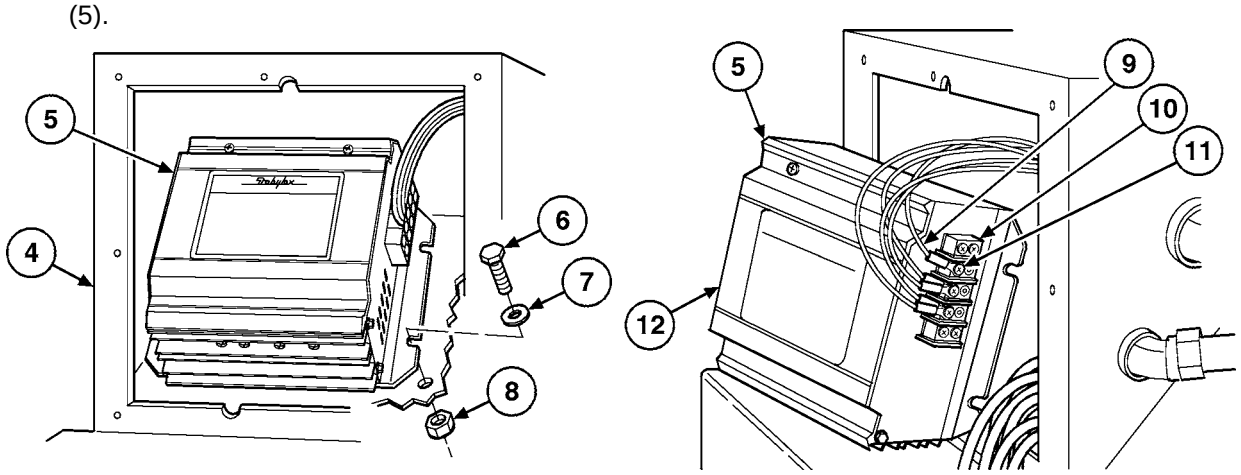
NOTE

Tag all wire connectors prior to disconnecting if they are not already identified or if metal ID band is missing or illegible.

1. Remove seven screws (1), gasket (2), and cover plate (3) from composite stoplight box (4). Discard gasket.

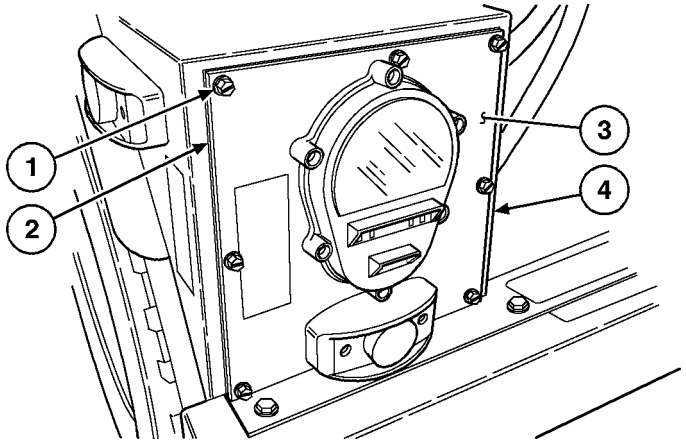


2. Push in fuse (12), turn counterclockwise, and remove from converter (5). Replace fuse if unserviceable.
3. Remove four self-locking nuts (8), washers (7), and bolts (6) and pull converter (5) out from stoplight box (4). Discard self-locking nuts.
4. Remove three screws (11), disconnect five wires (9) from terminal strip (10), and remove converter (5).



INSTALLATION

1. Connect five wires (9) and install three screws (11) to terminal strip (10).
2. Install converter (5), four bolts (6), washers (7), and new self-locking nuts (8) into stoplight box (4).
3. Install new gasket (2), cover plate (3), and seven screws (1) to stoplight box (4).



FOLLOW-ON TASKS

1. Disconnect semitrailer grounding cables (WP 0007 00).
2. Reconnect negative battery terminal (WP 0007 00).

END OF TASK

OVERFLOW PROTECTION MONITOR PANEL REPLACEMENT 0048 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

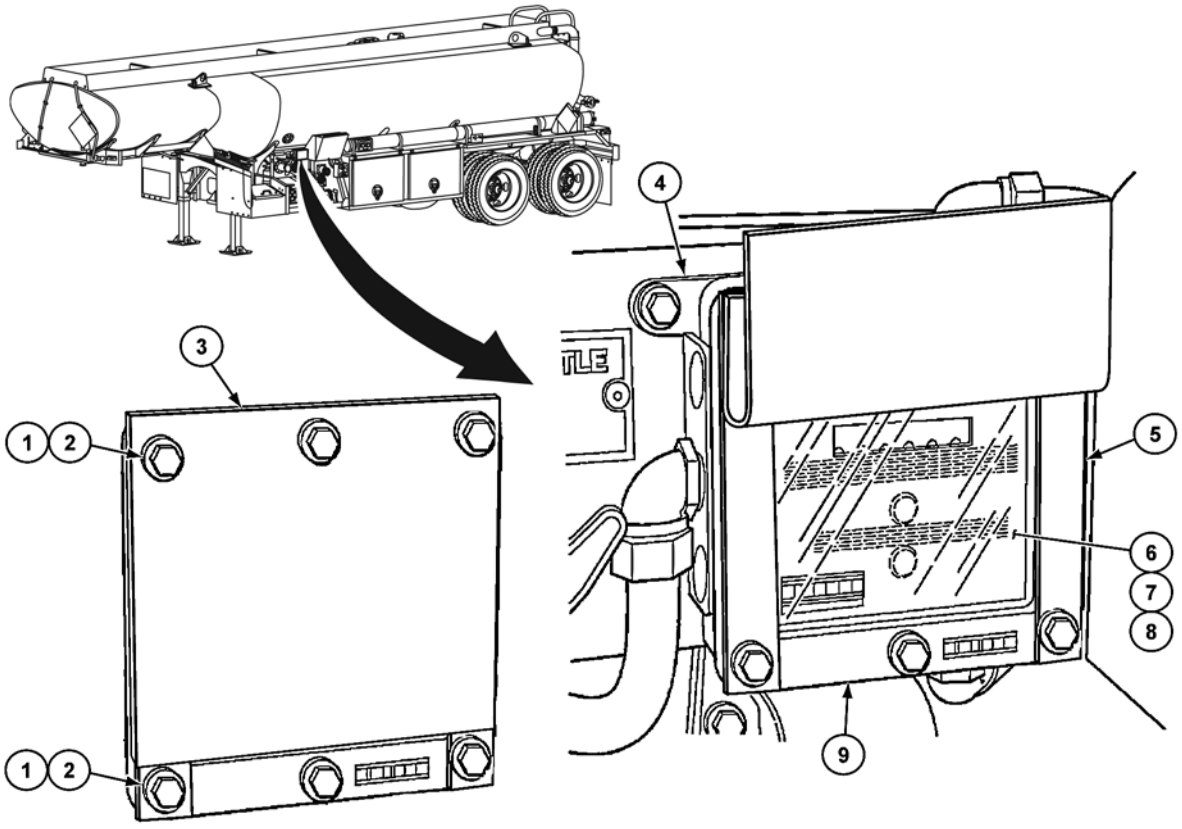
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Gasket (item 109, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

1. Remove six screws (1), washer (2), cover (3), cover straps (4), frame (5), window (7), identification plate (8), and gasket (6) from base (9). Discard gasket.

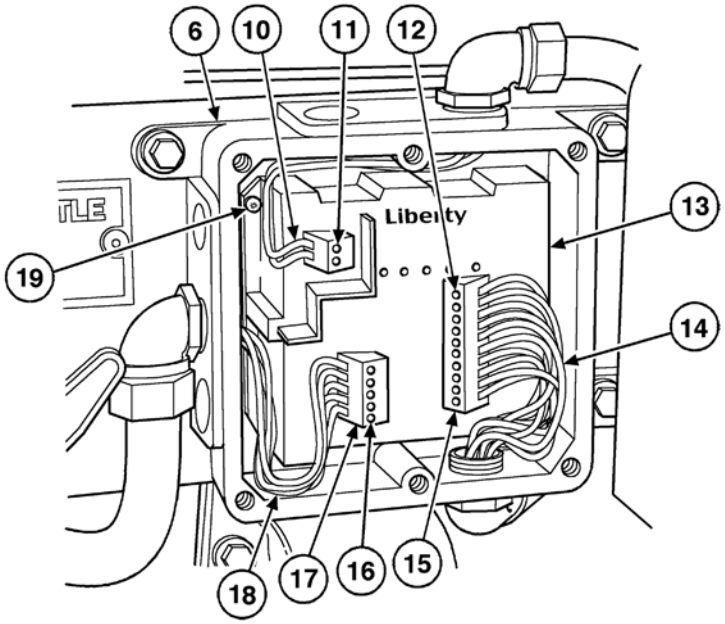


2. Loosen two screws (11) and disconnect two power wires (10) from sensor pack (13).

NOTE

Wires are color coded at strips for easy identification.

3. Loosen 10 screws (12) and disconnect 10 wires (14) from terminal strip (15).
4. Loosen five screws (16) and disconnect five wires (18) from terminal strip (17).
5. Remove four screws (19) and sensor pack (13) from base (6).

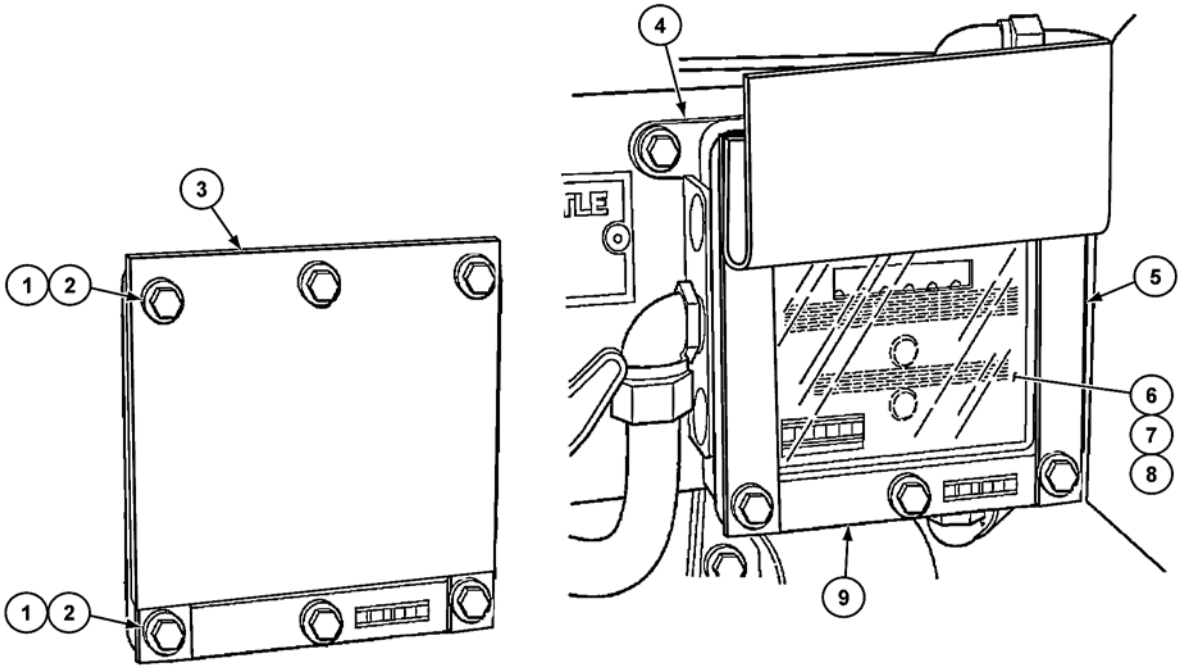


INSTALLATION

1. Install sensor pack (13) and four screws (19) to base (6).
2. Connect five color coded wires (18) to terminal strip (17) and tighten five screws (16).
3. Connect 10 color coded wires (14) to terminal strip (15) and tighten 10 screws (12).
4. Connect two power wires (10) to sensor pack (13) and tighten two screws (11).

OVERFLOW PROTECTION MONITOR PANEL REPLACEMENT—Continued **0048 00**

5. Install new gasket (4), plate (8), window (7), frame (5), cover straps (4), cover (3), washer (2), and six screws (1) to base (7).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

OVERFLOW PROTECTION SENSOR REPLACEMENT 0049 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

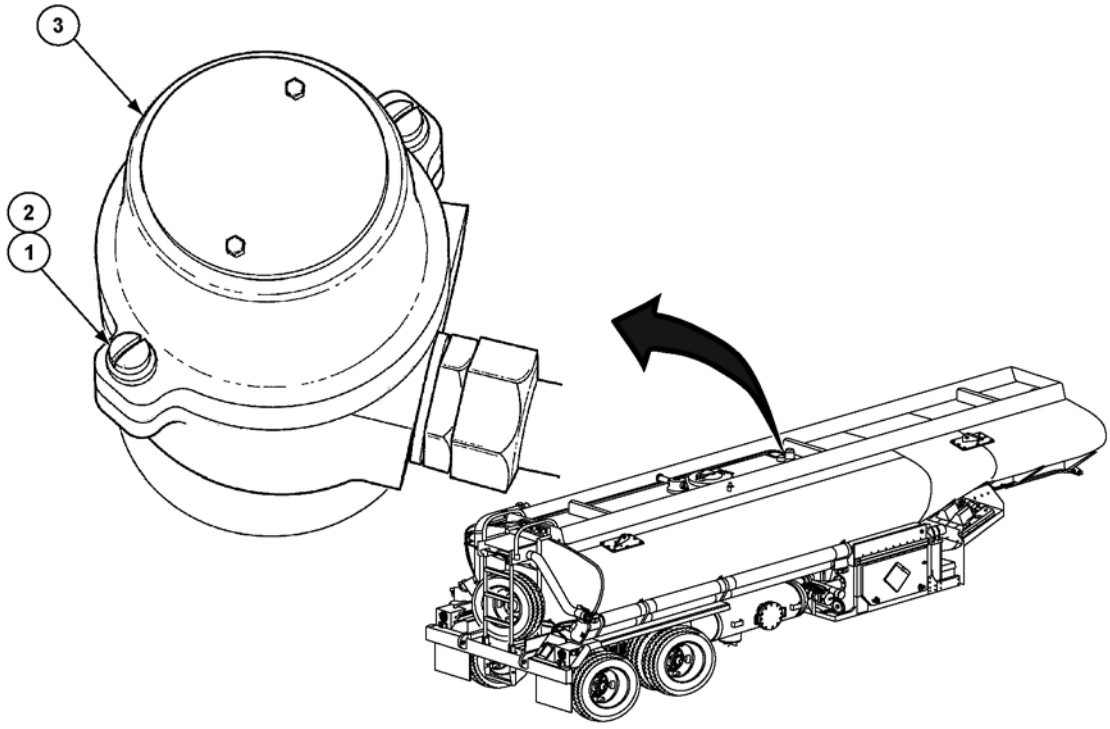
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References
Lockwashers (2) (item 110, WP 0175 00) WP 0065 00

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

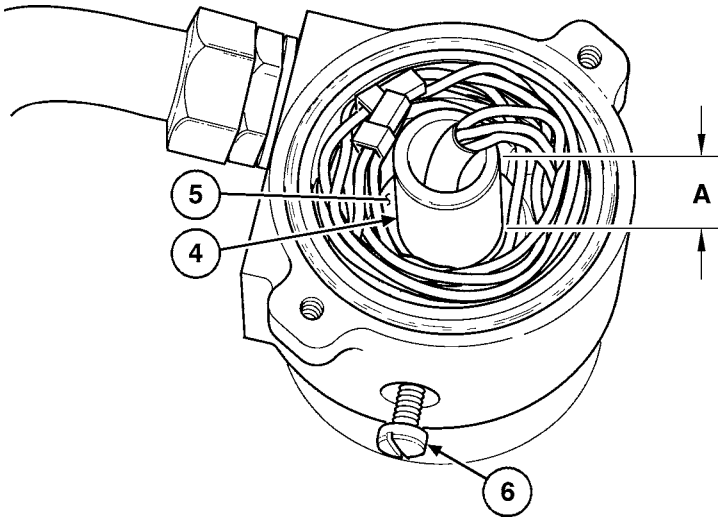
REMOVAL

1. Remove two screws (1), lockwashers (2), and cap (3). Discard lockwashers.

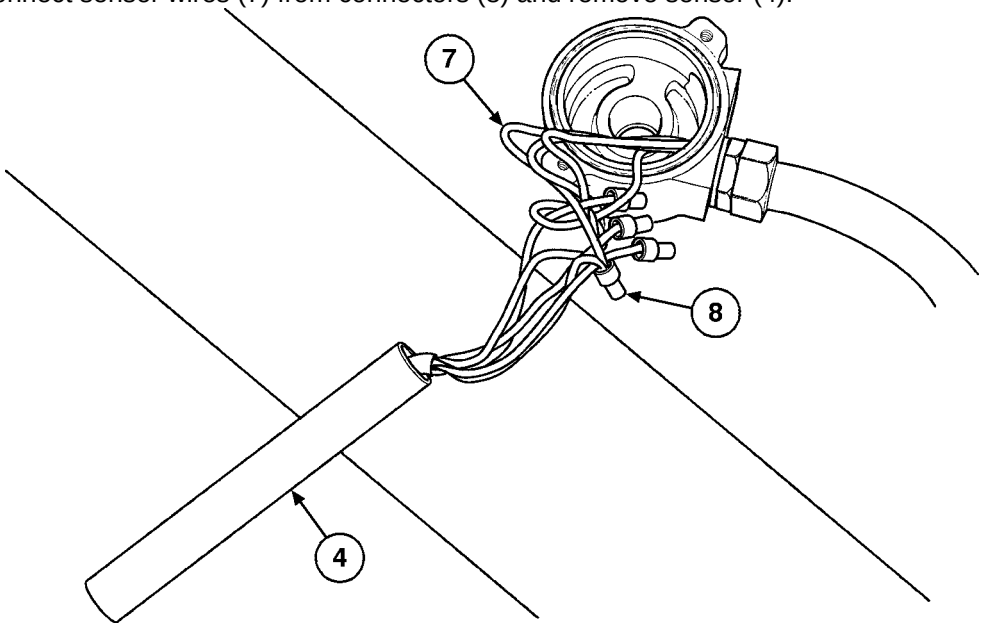


2. Measure and record height “A” sensor (4) protrudes from well (5).

3. Loosen set screw (6) and lift sensor (4) from well (5).



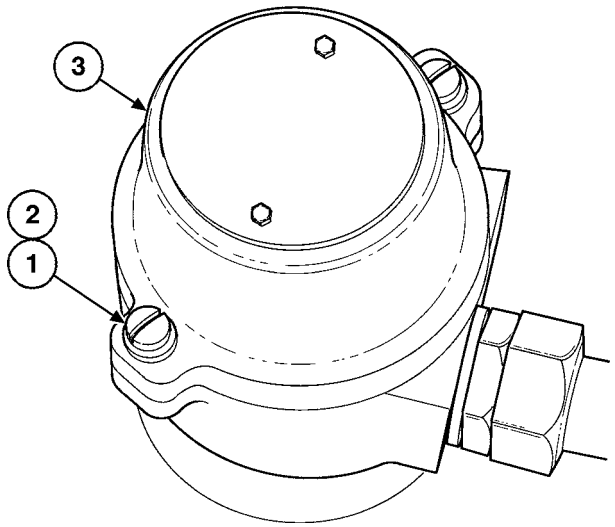
4. Disconnect sensor wires (7) from connectors (8) and remove sensor (4).



INSTALLATION

1. Connect sensor wires (7) to connectors (8) per WP 0065 00.

2. Install sensor (4) into well (5) to height “A” recorded at removal.
3. Tighten set screw (6).
4. Install cap (3), two new lockwashers (2), and screws (1).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

OVERFLOW PROTECTION OPTIC SOCKET BOXES REPLACEMENT 0050 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (11) (item 87, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

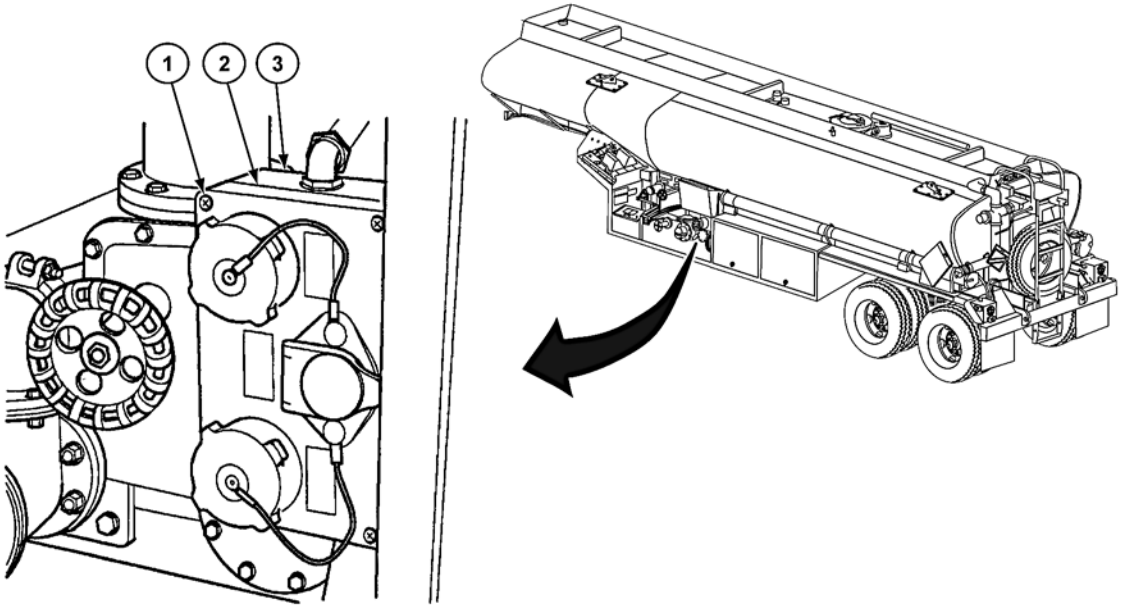
REMOVAL

NOTE

Tag all wiring lead connectors prior to disconnecting if they are not already identified or if metal ID band is missing or illegible.

Roadside Optic Socket Box

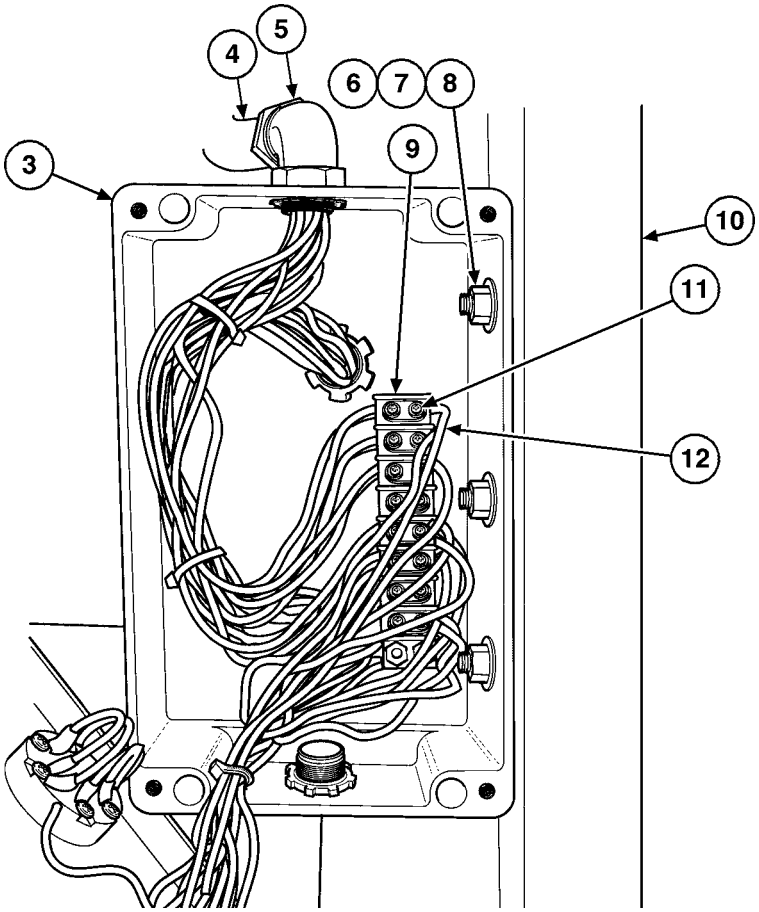
1. Loosen four screws (1) and pull cover (2) from optic socket box (3).



NOTE

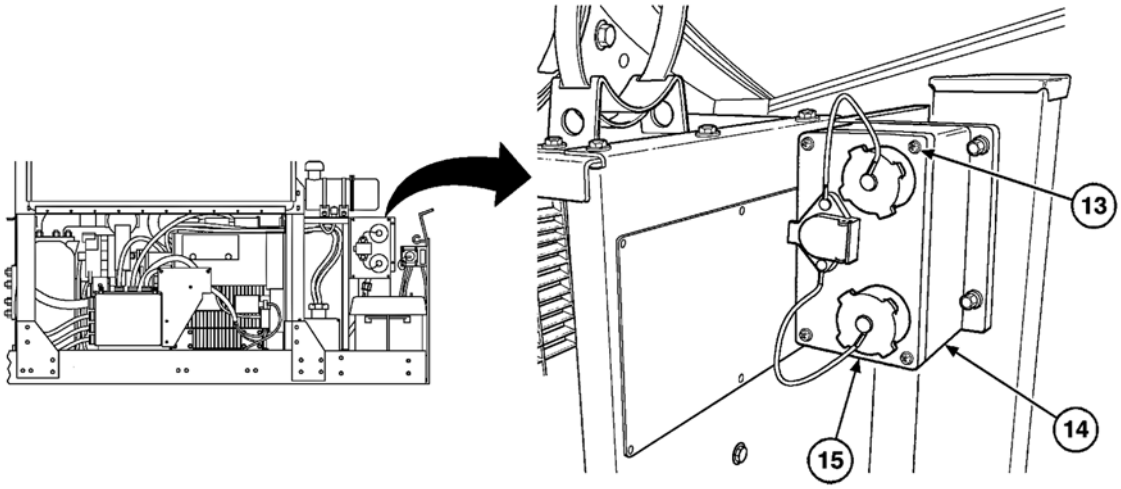
Tag all wires prior to removal for easy installation.

2. Loosen 20 screws (11) and remove 30 wires (12) from terminal strip (9).
3. Loosen conduit nut (5) from flexible conduit (4).
4. Remove three self-locking nuts (6), six washers (7), three bolts (8), and box (3) from side of piping frame (10). Discard self-locking nuts.

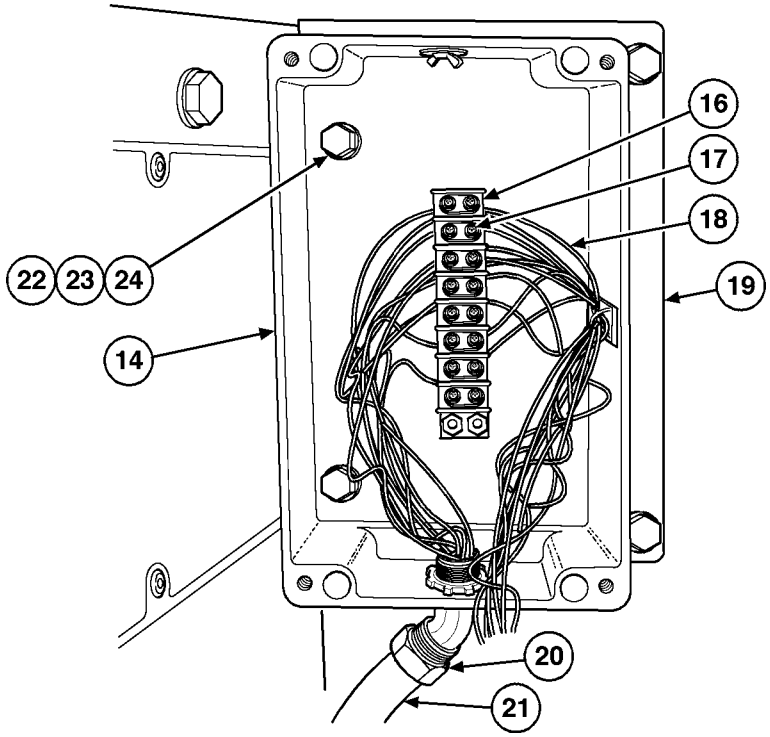


Curbside Optic Socket Box

5. Loosen four screws (13) and remove cover (15) from socket box (14).



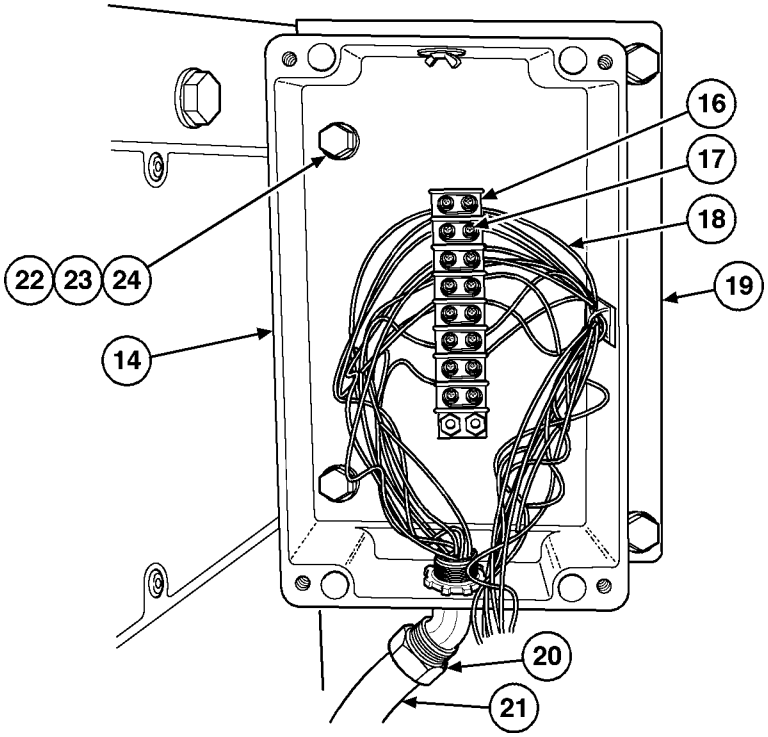
6. Remove screws (17) and wires (18) from terminal strip (16).
7. Remove conduit nut (20) and flexible conduit (21) from box (14).
8. Remove two self-locking nuts (22), four washers (23), two bolts (24), and box (14) from bracket (19). Discard self-locking nuts.



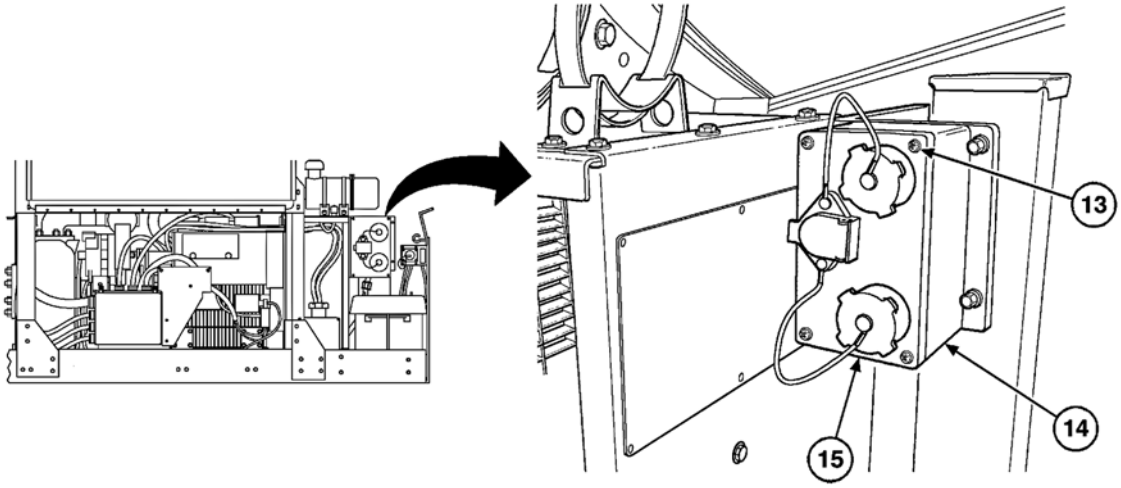
INSTALLATION

Curbside Optic Socket Box

1. Install two bolts (24), four washers (23), box (14), and two new self-locking nuts (22) to bracket (19).
2. Install flexible conduit (21) and conduit nut (20) to box (14).
3. Install wires (18) and screws (17) to terminal strip (16).



4. Install cover (15) and four screws (13) to box (14).

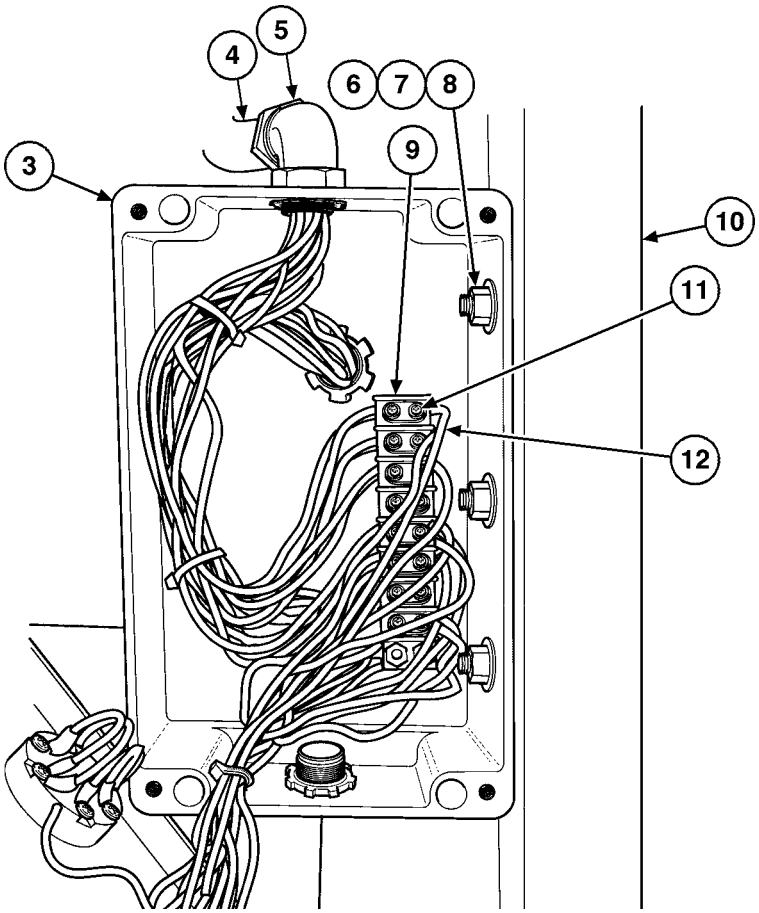


Roadside Optic Socket Box

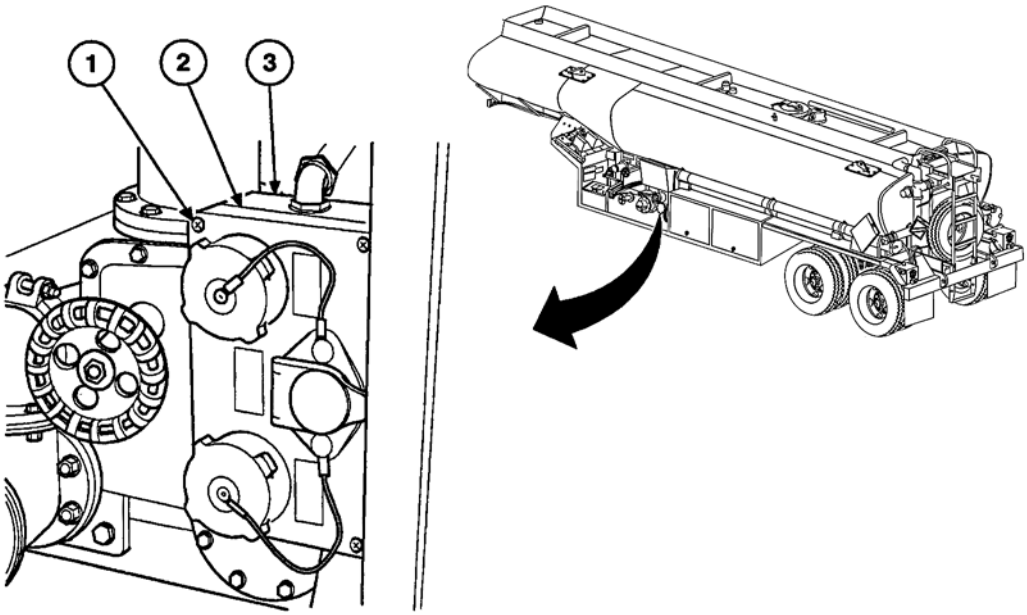
5. Install box (3), three bolts (8), six washers (7), and three new self-locking nuts (6) to side of piping frame (10).

6. Tighten conduit nut (5) to flexible conduit (4).

7. Install 30 wires (12) and tighten 20 screws (11) to terminal strip (9).



8. Install cover (2) and four screws (1) to box (3).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

CONTROL PANEL LIGHT REPLACEMENT 0051 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

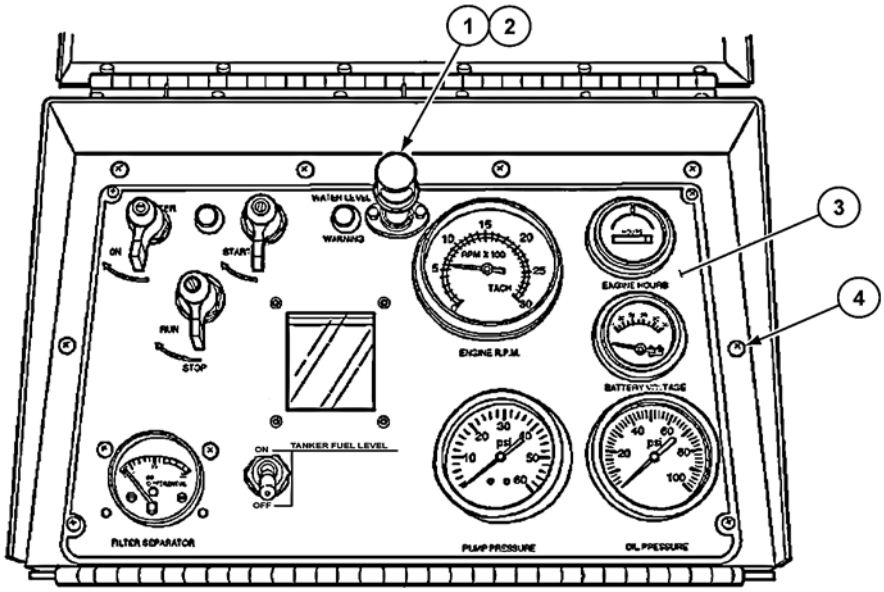
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (2) (item 69, WP 0175 00)

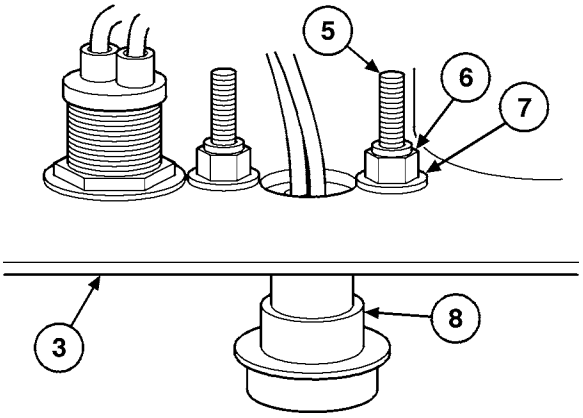
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

1. Remove light bulb protector (1) and light bulb (2) from control panel (3).
2. Remove six screws (4) from front of control panel (3) and pull down.

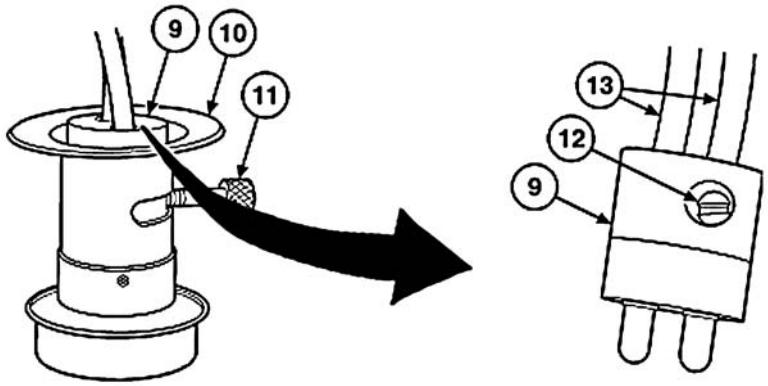


3. Remove two self-locking nuts (6), washers (7), and bolts (5) and disconnect light (8) from control panel (3). Discard self-locking nuts.



4. Remove knurled screw (11) and bracket (10) from socket (9).

5. Loosen two screws (12) and remove socket (9) from two wires (13).



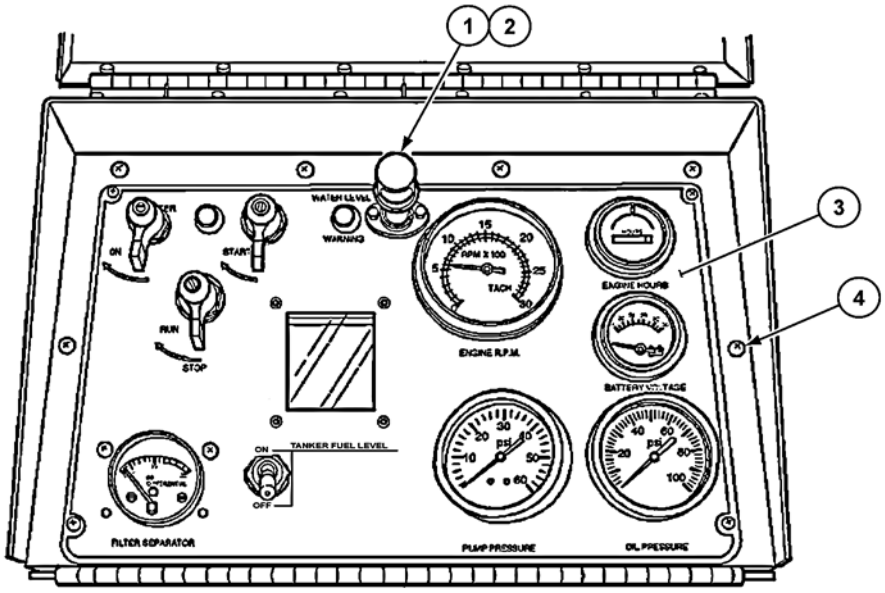
INSTALLATION

1. Install socket (9) to two wires (13) and tighten two screws (12).

2. Install bracket (10) and knurled screw (11) to socket (9).

CONTROL PANEL LIGHT REPLACEMENT—Continued **0051 00**

3. Connect light (8) to control panel (3) and install two bolts (5), washers (7), and new self-locking nuts (6).
4. Lift control panel (3) up into position and install six screws (4).
5. Install light bulb (2) and light bulb protector (1) to control panel (3).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

MARKER LIGHT LEDs REPLACEMENT 0052 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

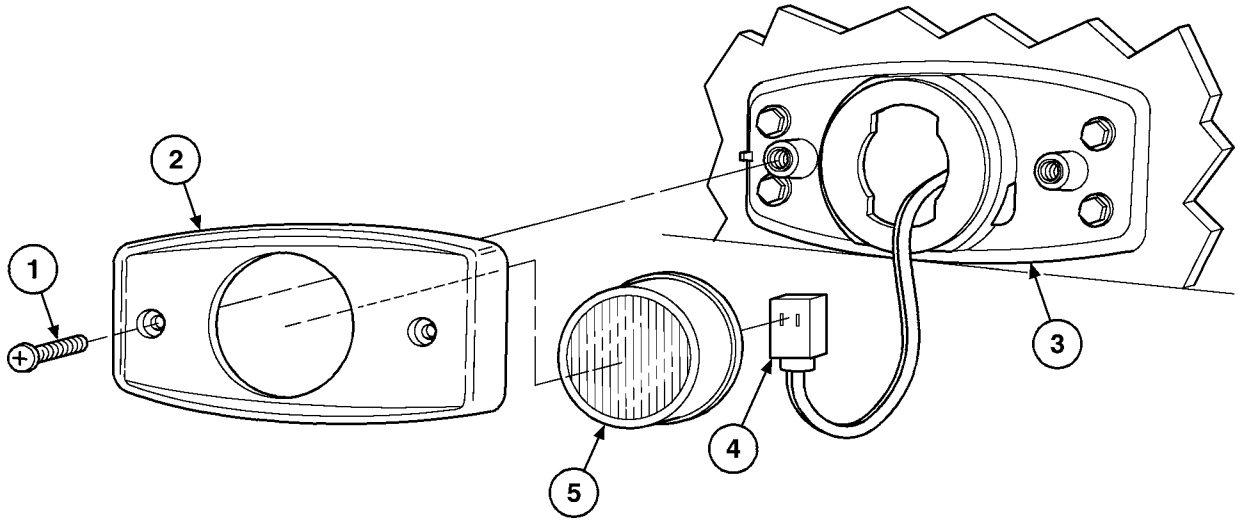
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

NOTE

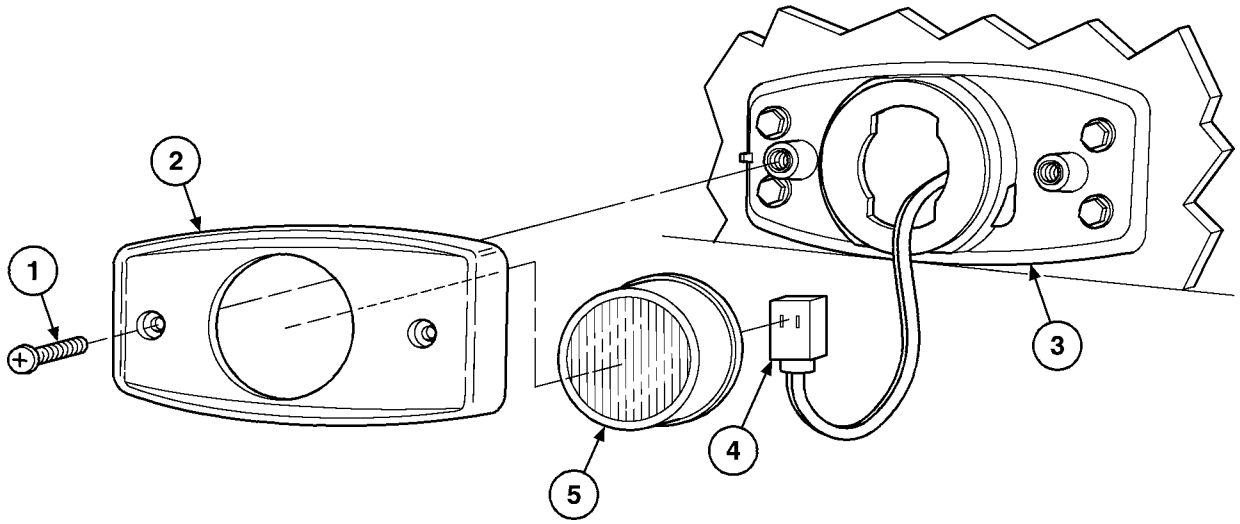
There are 11 marker light LEDs (7 red and 4 amber) and they are replaced the same way. This procedure replaces one marker light LED.

1. Remove two screws (1) and marker light LED bracket (2).
2. Remove marker light LED (5) from receptacle (3) by twisting LED 90° counterclockwise.
3. Disconnect LED wire connector (4) from back of LED (5).



INSTALLATION

1. Connect LED wire connector (4) to back of LED (5).
2. Install LED (5) to receptacle (3) by twisting 90° clockwise until LED locks into place.
3. Install marker light LED bracket (2) and two screws (1).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

MARKER LIGHT RECEPTACLES REPLACEMENT 0053 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts Equipment
Self-locking nuts (44) (item 3, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

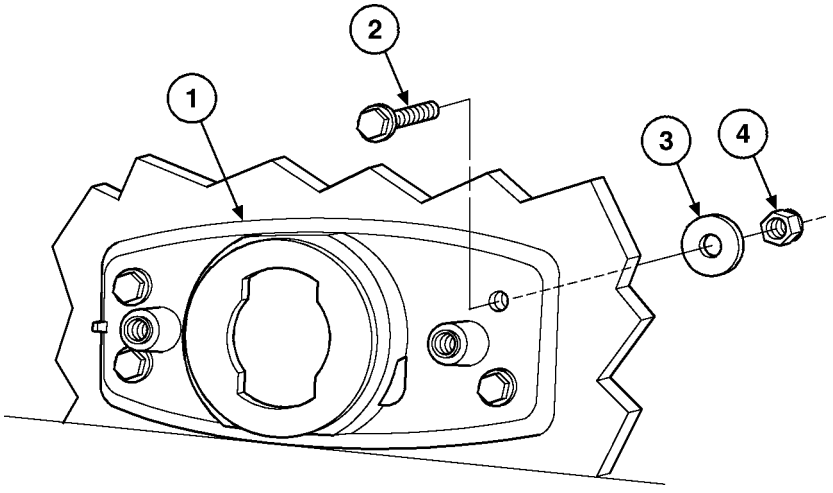
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Marker light LED removed (refer to WP 0052 00)
Composite stoplight cover plate removed (refer to WP 0054 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

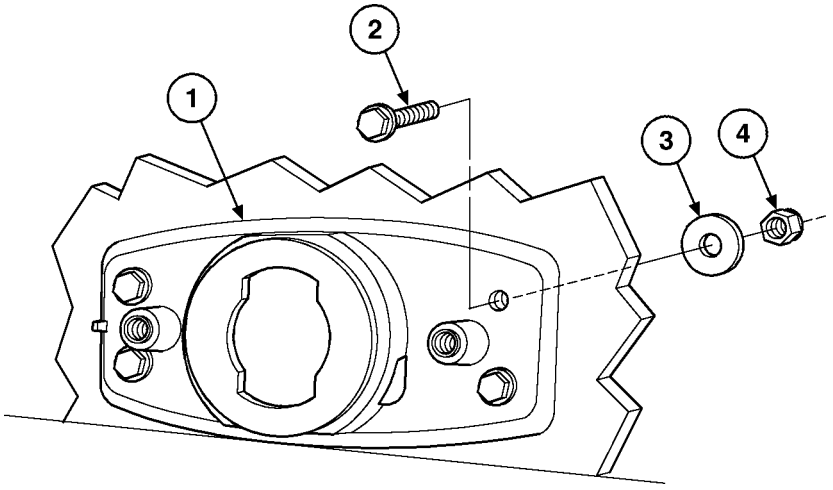
- **There are 11 marker light LEDs (7 red and 4 amber) and they are replaced the same way. This procedure will cover the four rear marker light receptacles.**
- **The remaining seven marker light receptacles can be removed by unscrewing the access plate or rear marker light box the marker lights are mounted on.**

Remove four self-locking nuts (4), washers (3), screws (2), and marker light receptacle (1). Discard self-locking nuts.



INSTALLATION

Install marker light receptacle (1), four screws (2), washers (3), and new self-locking nuts (4).



FOLLOW-ON TASKS

1. Install marker light LED (WP 0052 00).
2. Install composite stoplights (WP 0054 00).
3. Reconnect negative battery terminal (WP 0007 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

COMPOSITE STOPLIGHTS REPLACEMENT 0054 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Gaskets (2) (item 82, WP 0175 00)
Self-locking nuts (12) (item 114, WP 0175 00)

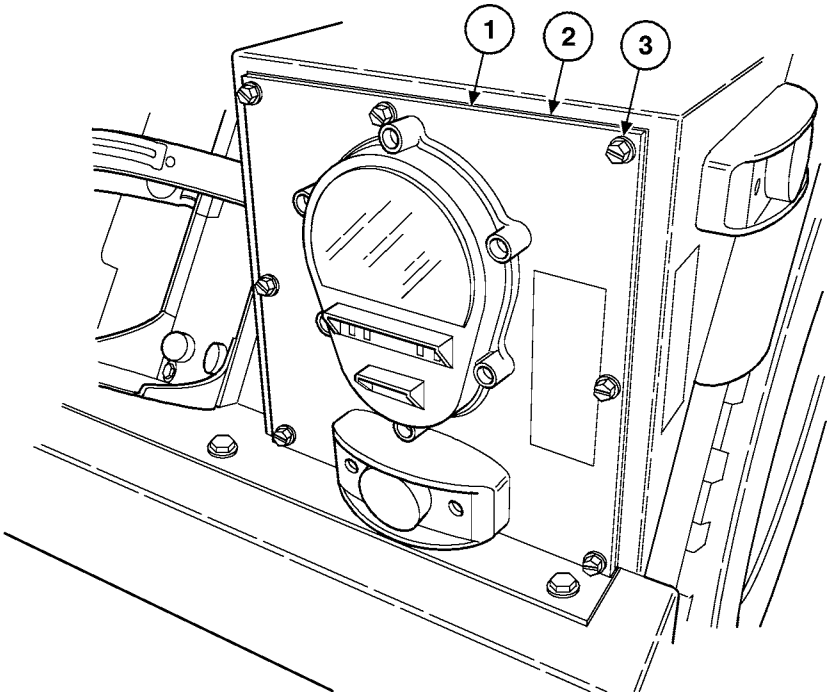
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

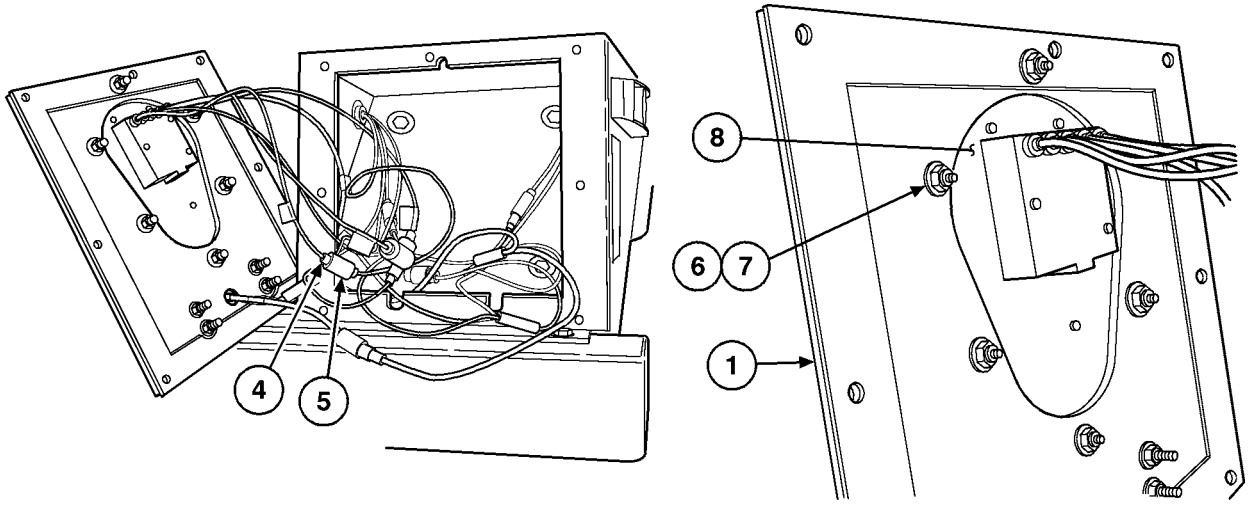
NOTE

- **There are two composite stoplights and they are replaced the same way. This procedure covers one stoplight.**
- **Tag wires for identification.**

1. Remove seven screws (3), cover plate (1), and gasket (2) from semitrailer. Discard gasket.

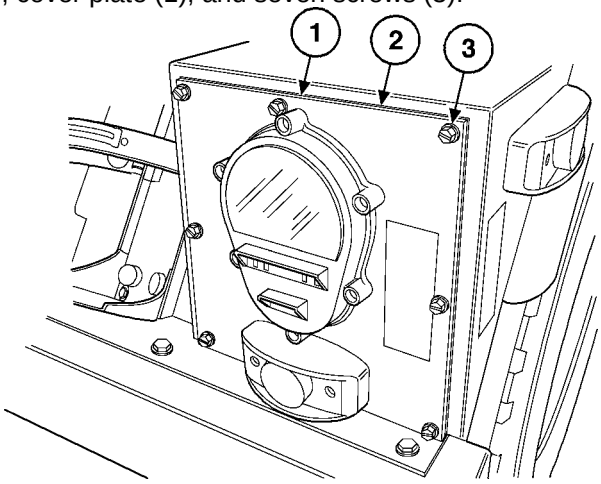


2. Disconnect semitrailer wiring harness connectors (5) from composite stoplight wire lead connectors (4).
3. Remove six self-locking nuts (6), washers (7), and composite stoplight (8) from cover plate (1). Discard self-locking nuts.



INSTALLATION

1. Install composite stoplight (8), six new self-locking nuts (6), and washers (7) to cover plate (1).
2. Connect composite stoplight wire lead connectors (4) to semitrailer wiring harness connectors (5).
3. Install new gasket (2), cover plate (1), and seven screws (3).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

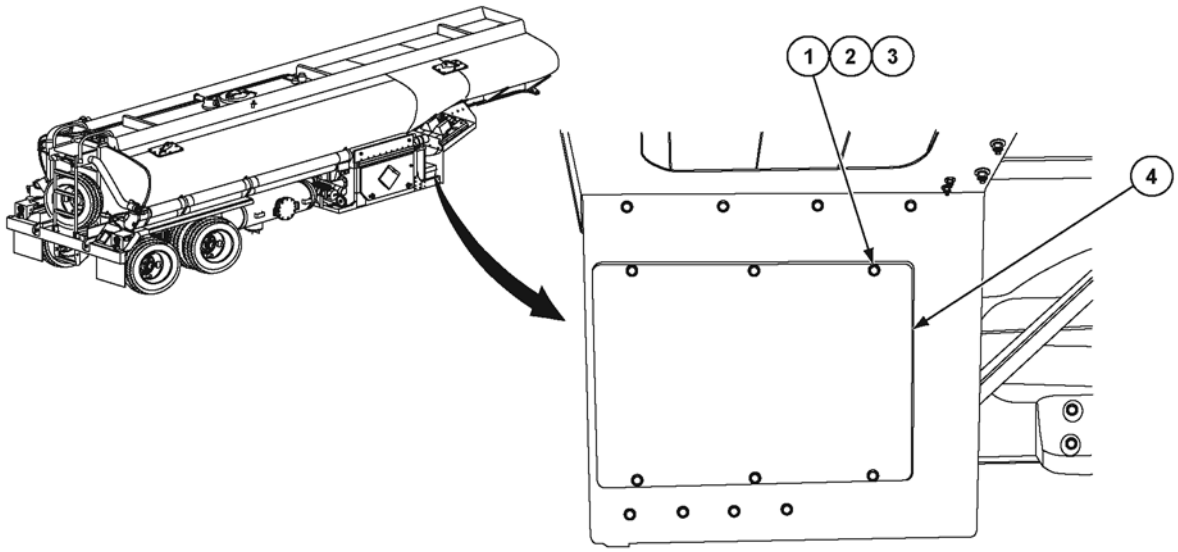
Materials/Parts Equipment
Self-locking nuts (6) (item 77, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)

REPLACEMENT

Remove six bolts (1), locknuts (2), washers (3), and access panel (4). Discard locknuts (2).

Install access panel (4) using six bolts (1), washers (3), and new locknuts (2).



END OF TASK

BATTERY AND BATTERY CABLES REPLACEMENT 0056 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

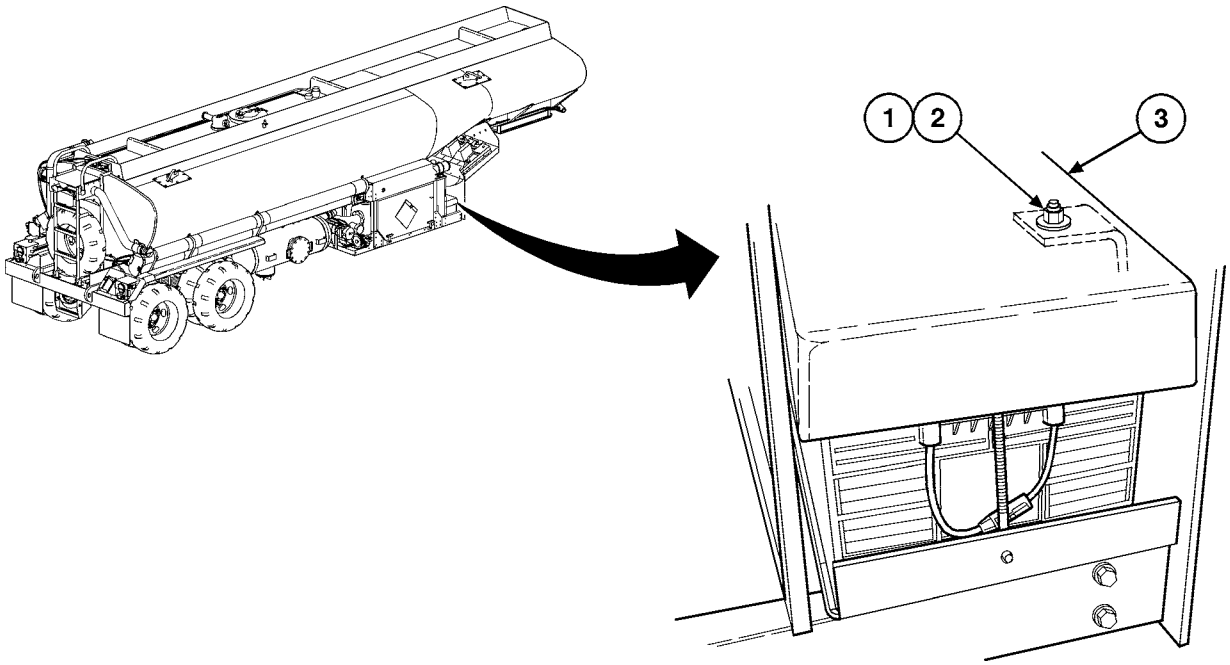
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (2) (item 77, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
NATO slave receptacle removed (refer to WP 0064 00)
Semitrailer grounded (refer to WP 0007 00)
Remove battery access panel (refer to WP 0055 00)

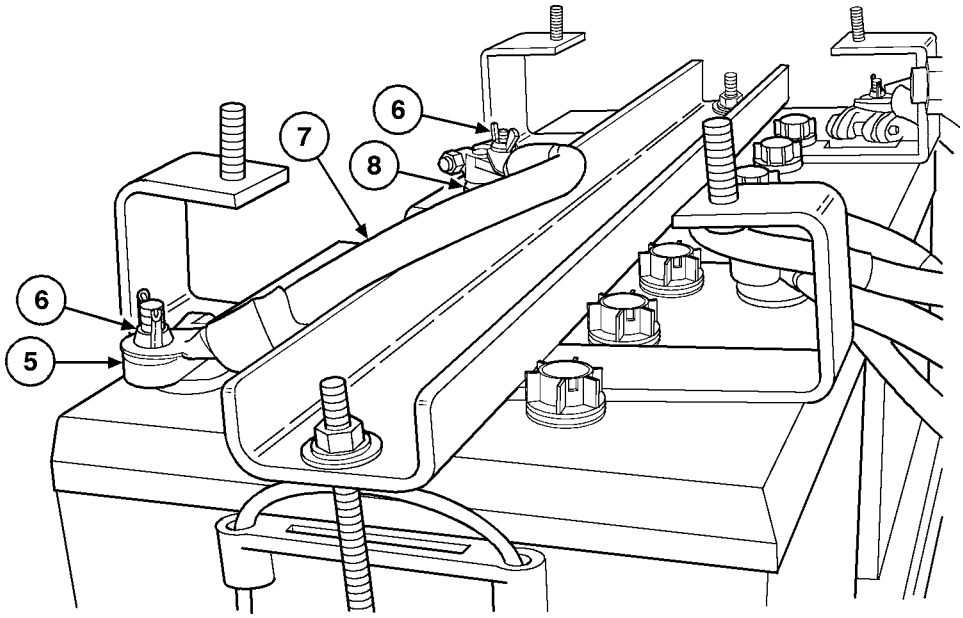
REMOVAL

1. Remove two self-locking nuts (1), washers (2), and battery cover (3). Discard self-locking nuts.

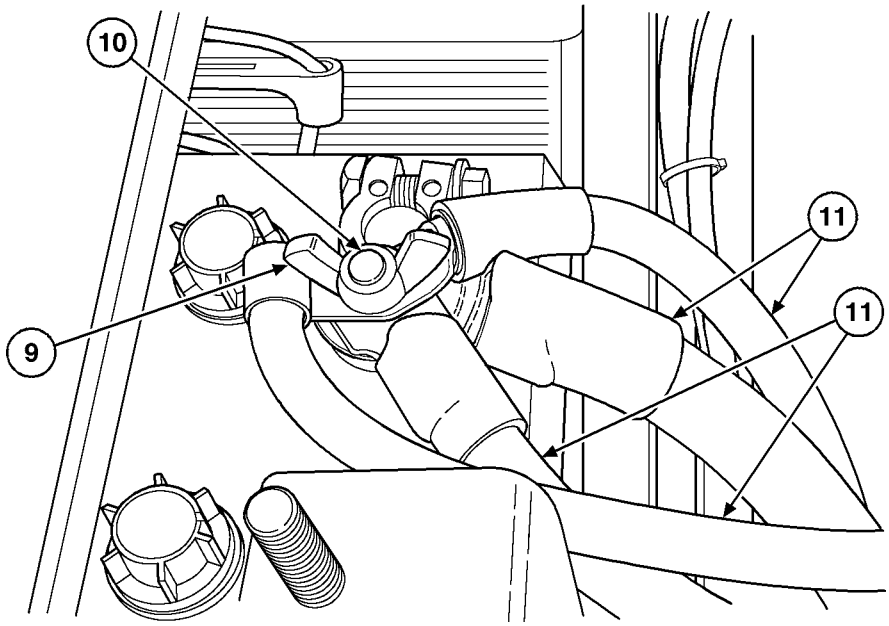


2. Remove wing nuts (6) from positive terminal (8) and negative terminal (5).

3. Remove jumper cable (7) from both terminals.

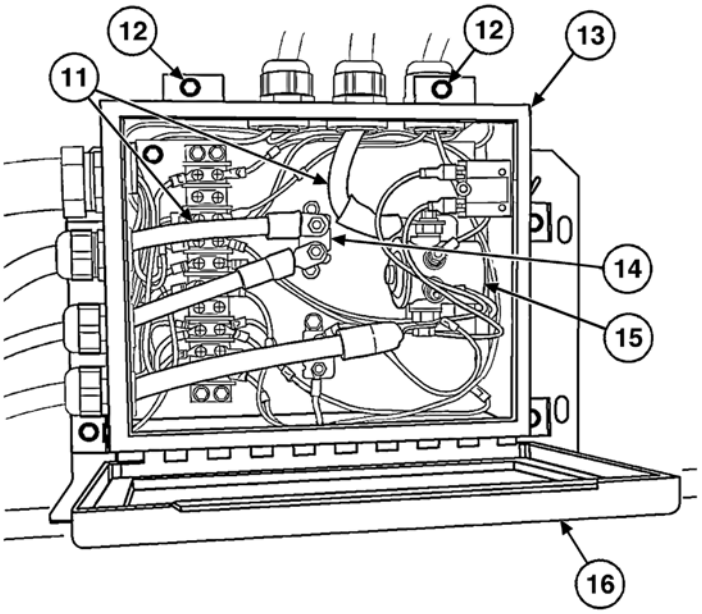


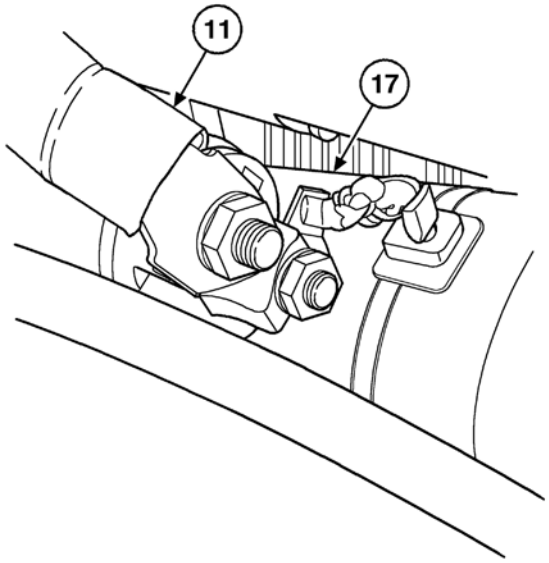
4. Remove wing nut (9) and disconnect cables (11) from positive terminal (10).

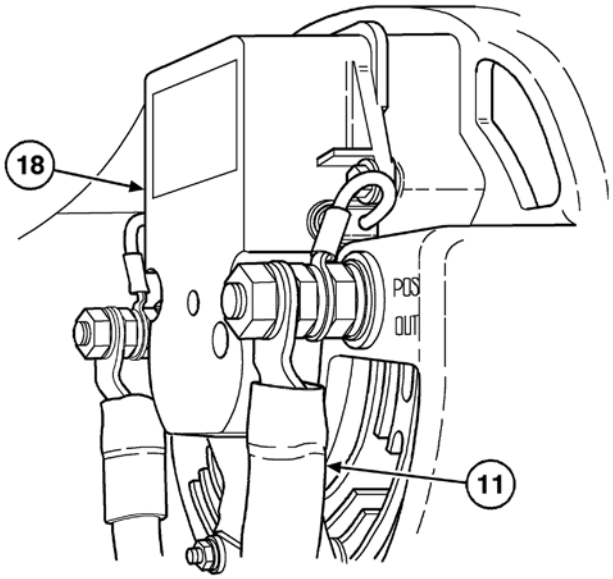


5. Loosen two screws (12) at top of engine control box (13) and lower front cover (16) from control box (13).

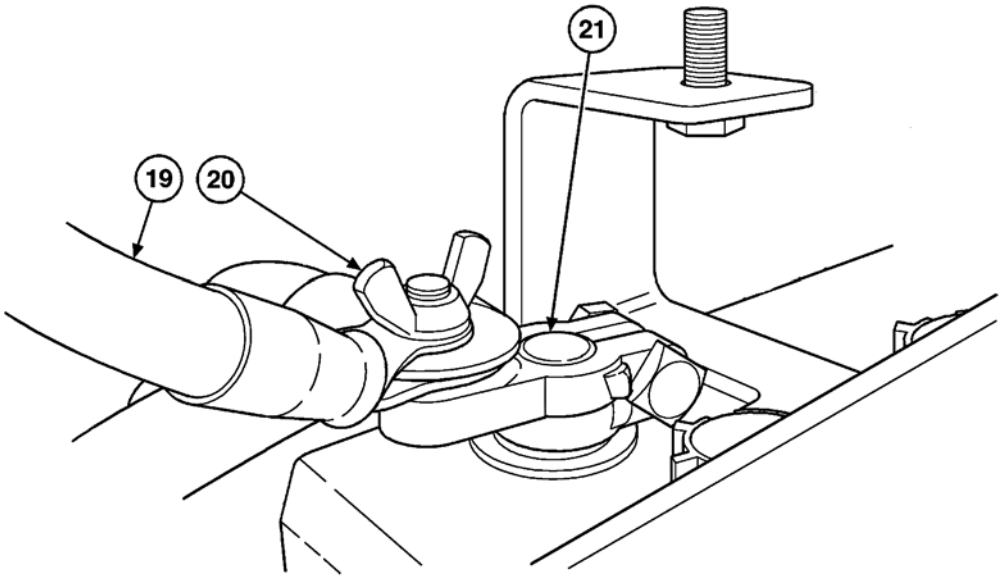
6. Remove opposite ends of cables (11) from engine control box 30 amp circuit breaker (14), engine control box glow plug solenoid (15), engine starter (17), and alternator (18).



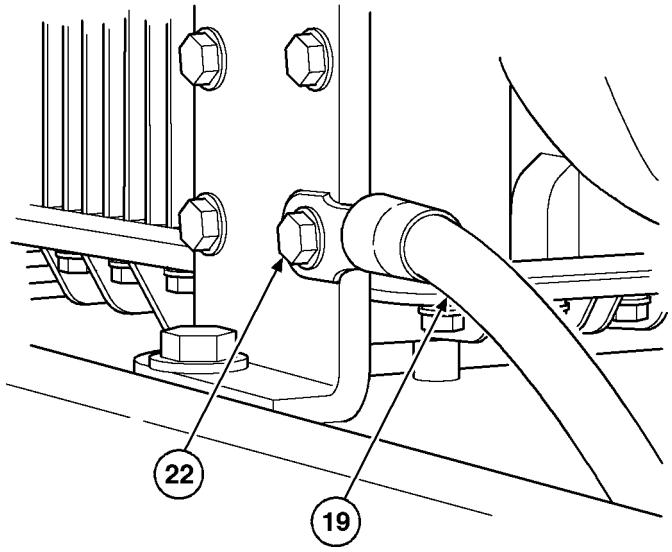


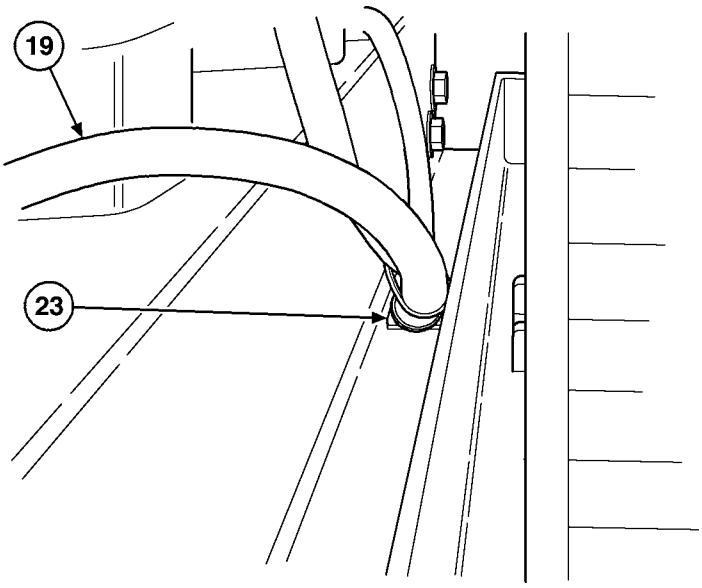


7. Remove wing nut (20) and cables (19) from negative terminal (21).



8. Remove opposite ends of cables (19) from engine ground (22) and chassis ground (23).



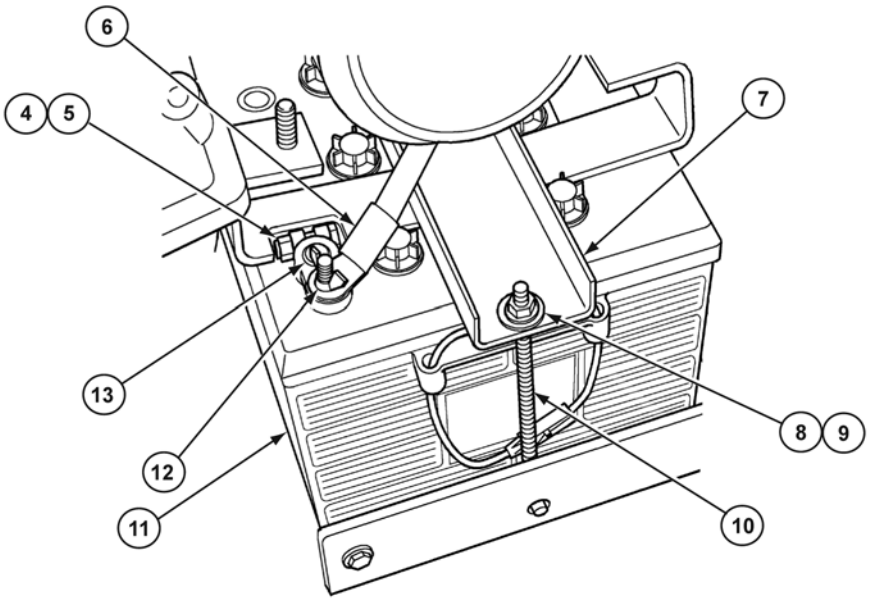


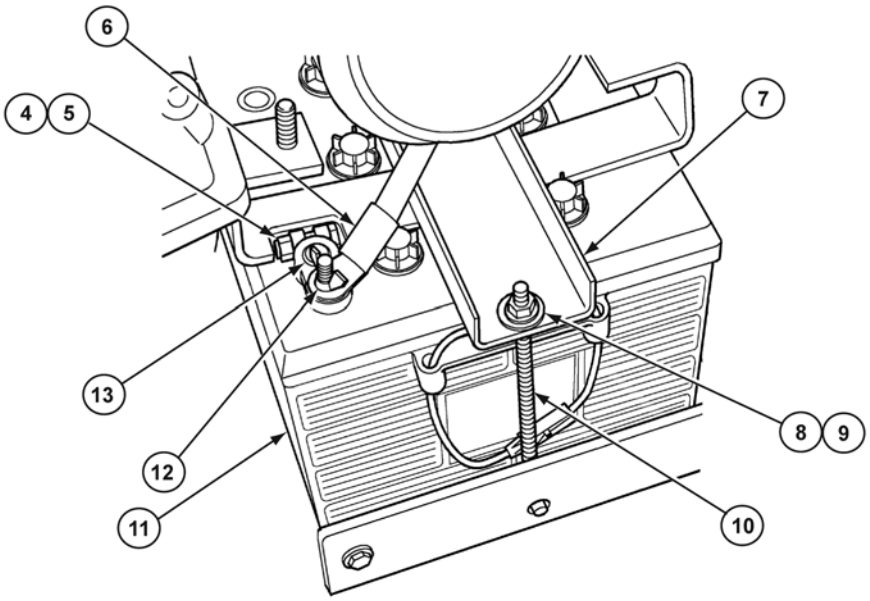
BATTERY REMOVAL

WARNING

Batteries produce explosive gases; keep sparks, flames, and smoking material away. Ventilate when charging or using in an enclosed space. The batteries contain sulfuric acid that causes severe burns. If acid contacts eyes, skin, or clothing, flush immediately with water. For contact with eyes, get immediate medical attention.

1. Remove four wing nuts (12) and cables (6) from four battery terminals (13).
2. Loosen four screws (4) and nuts (5) and remove four battery terminals (13) from two batteries (11).
3. Remove two nuts (8), four washers (9), two hook bolts (10), and retainer (7) from battery (11).
4. Remove two batteries (11) from semitrailer.

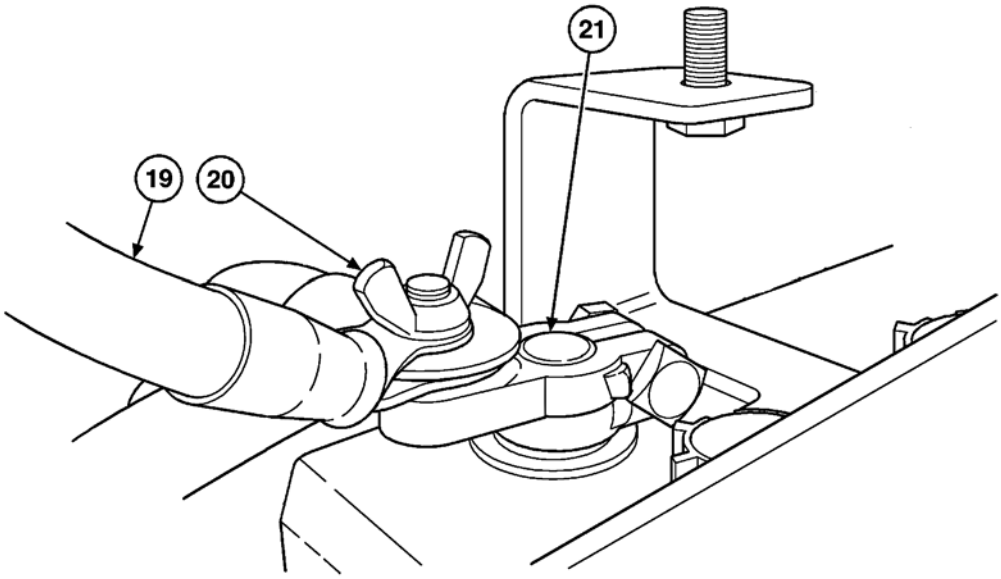




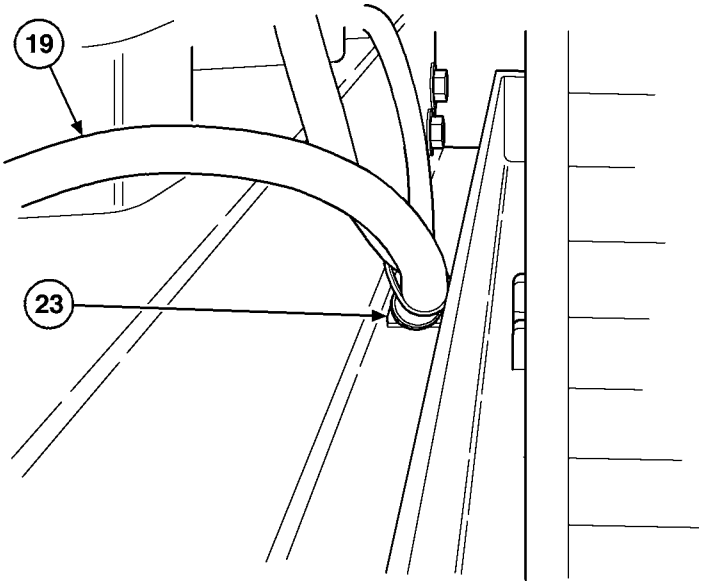
BATTERY INSTALLATION

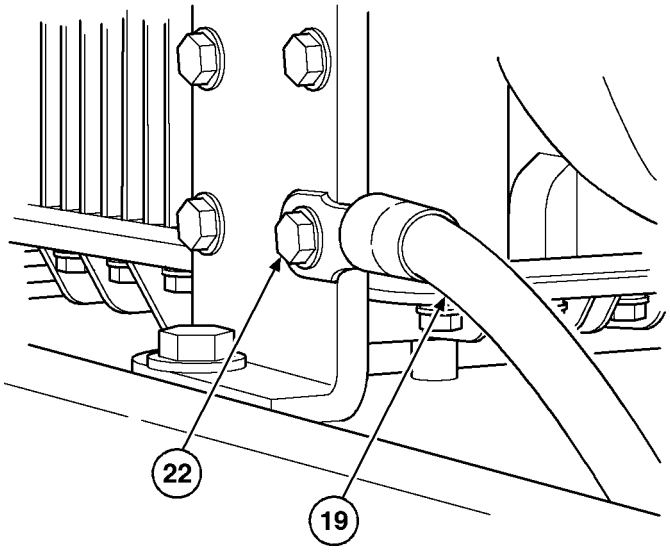
1. Install two batteries (11) to semitrailer.
2. Install battery retainer (7), two hook bolts (10), four washers (9), and two nuts (8) to battery (11).
3. Install four battery terminals (13), nuts (5), and screws (4) to two batteries (11).
4. Install four cables (6) and wing nuts (12) to four battery terminals (13).

1. Install cables (19) to negative terminal (21) and secure with wing nut (20).

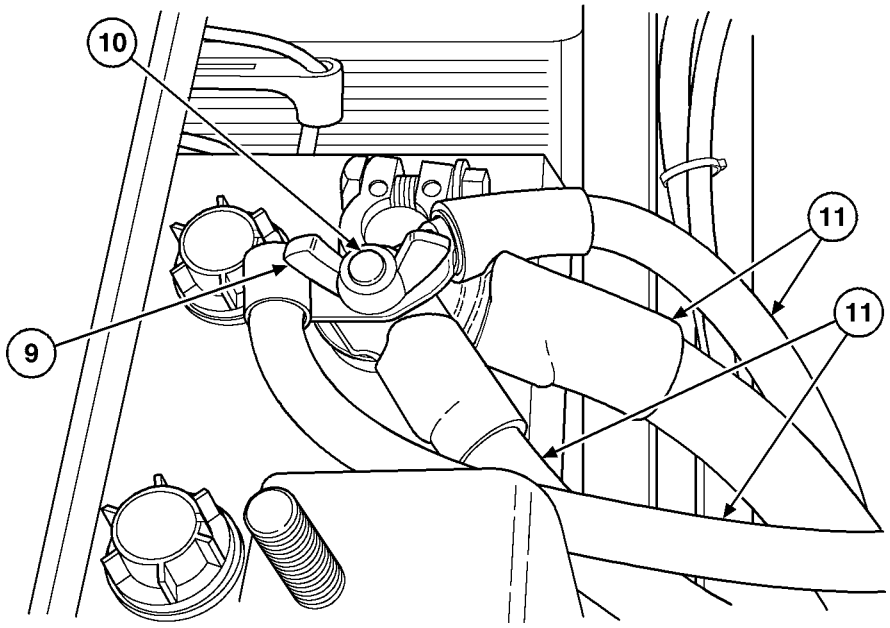


2. Install opposite ends of cables (19) to chassis ground (23), and engine ground (22).

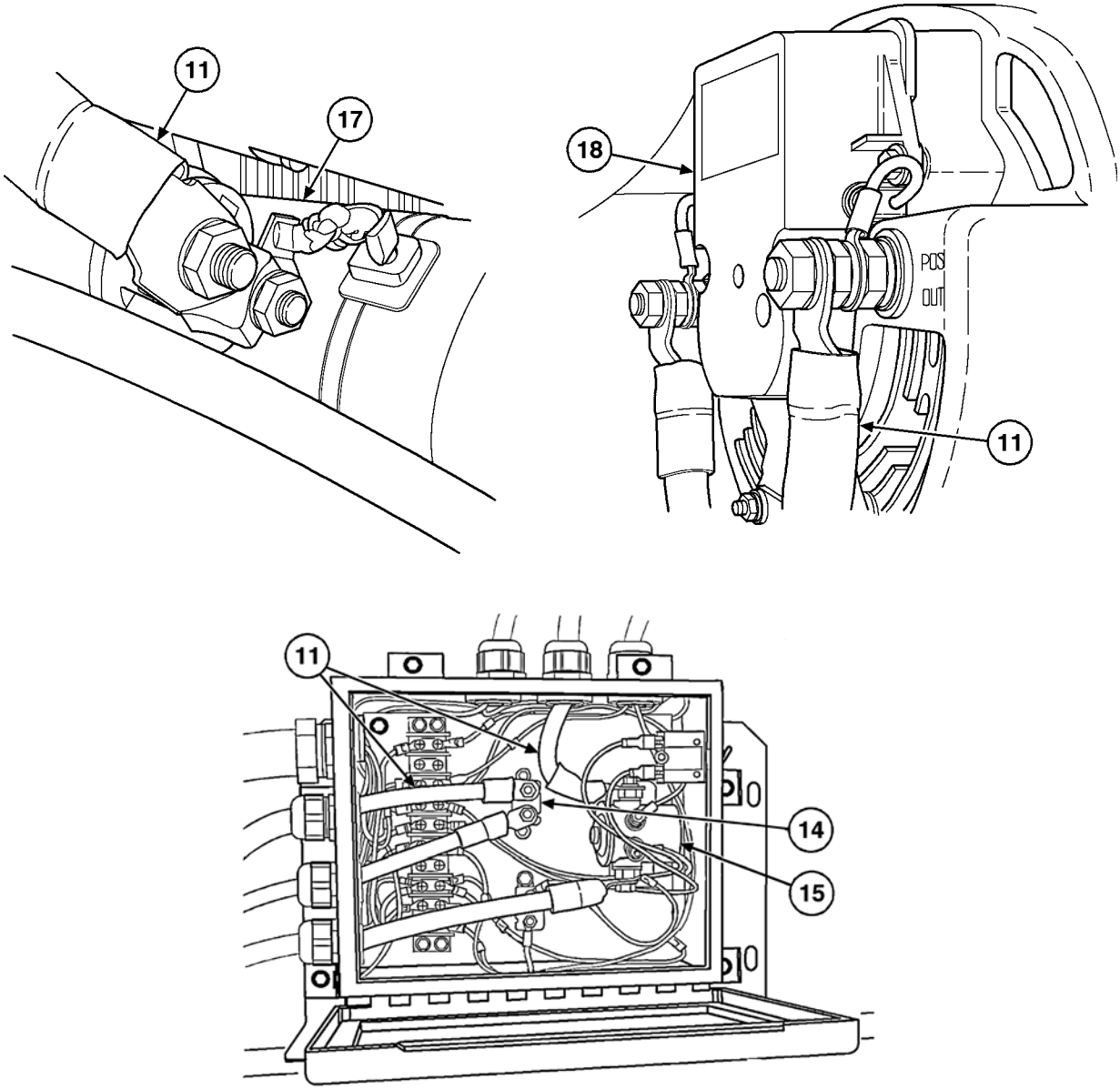




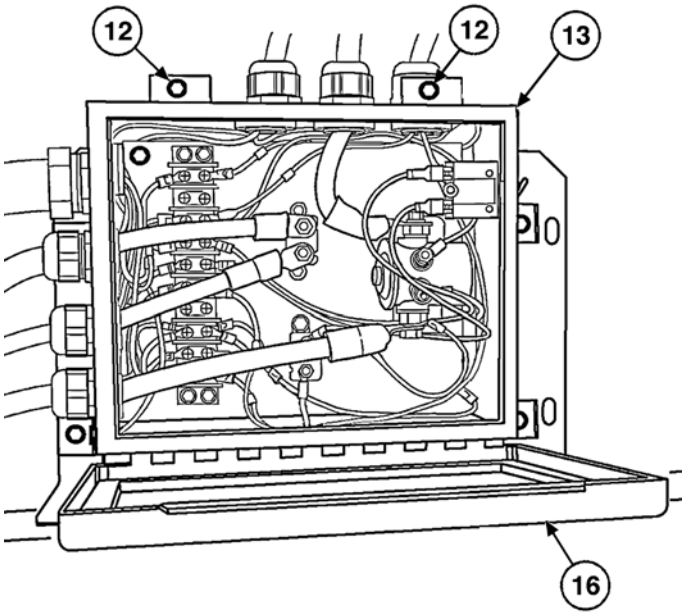
3. Install cables (11) to positive terminal (10) and secure with wing nut (9).



4. Install opposite ends of cables (11) to alternator (18), engine starter (17), engine control box glow plug solenoid (15), and engine control box 30 amp circuit breaker (14).

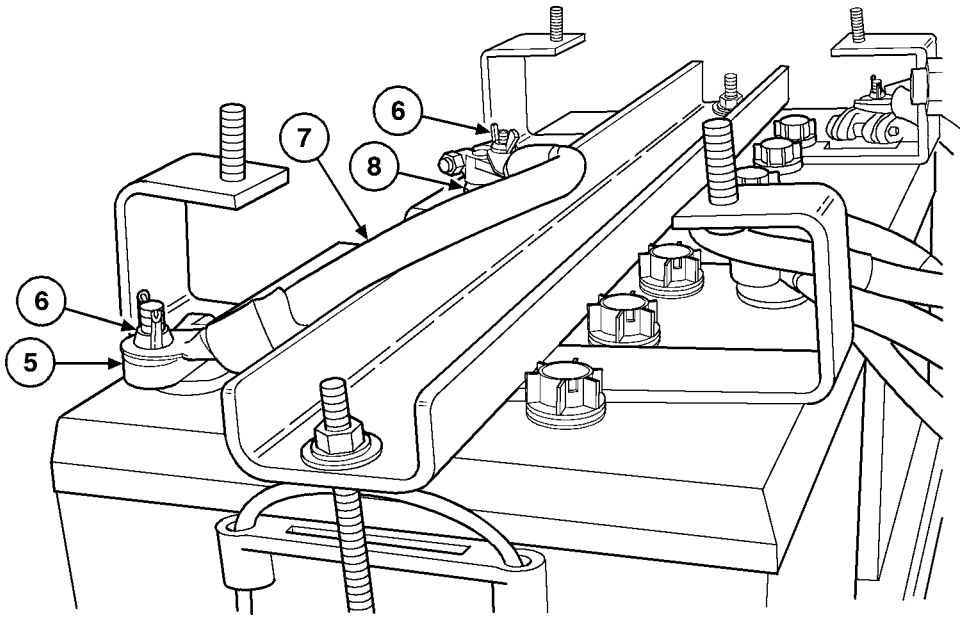


5. Install front cover (16) and two screws (12) to engine control box (13).

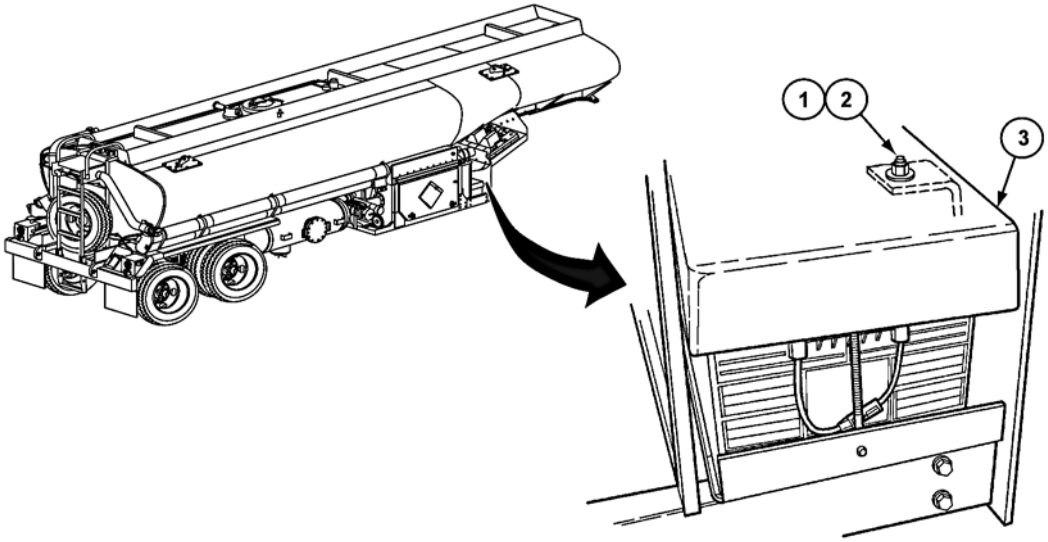


6. Install jumper cable (7) to negative terminal (5) and positive terminal (8).

7. Install jumper cable (7) and two wing nuts (6).



8. Install battery cover (3), washers (2), and new self-locking nuts (1).



FOLLOW-ON TASKS

1. Install battery access panel (WP 0055 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).
3. Install NATO slave receptacle (WP 0064 00).

END OF TASK

MAIN WIRING HARNESS MAINTENANCE 0057 00

THIS WP COVERS:
Removal, Inspection, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts References
Gasket (item 82, WP 0175 00)
Gasket (item 83, WP 0175 00)
Gasket (item 84, WP 0175 00)
Self-locking nuts (6) (item 88, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

WP 0065 00

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (WP 0007 00)

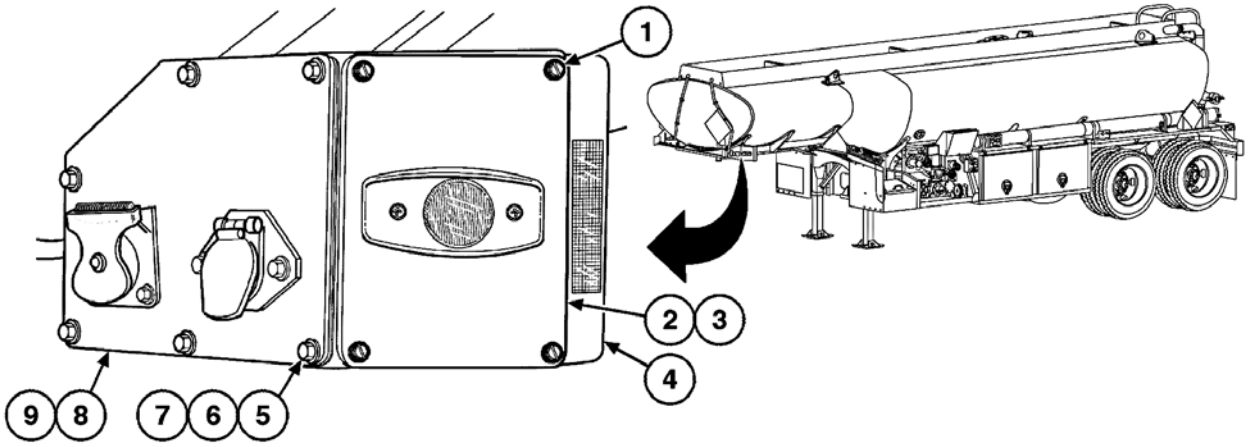
REMOVAL

NOTE

Tag all wiring harness connectors prior to disconnecting if they are not already identified or if metal ID band is missing or illegible.

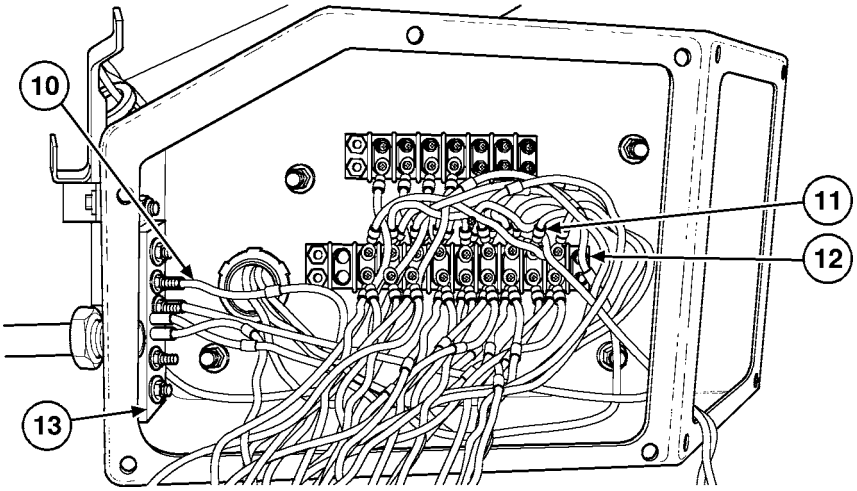
1. Remove four screws (1), gasket (2), and marker light cover (3) from front bulkhead (4). Discard gasket.

2. Remove six self-locking nuts (5), washers (6), bolts (7), and gasket (8) from front access hatch cover (9). Discard self-locking nuts and gasket.



3. Disconnect wire numbers 24, 23, 460, 461, 21-489, 395, and 324 (11) from terminal strip (12).

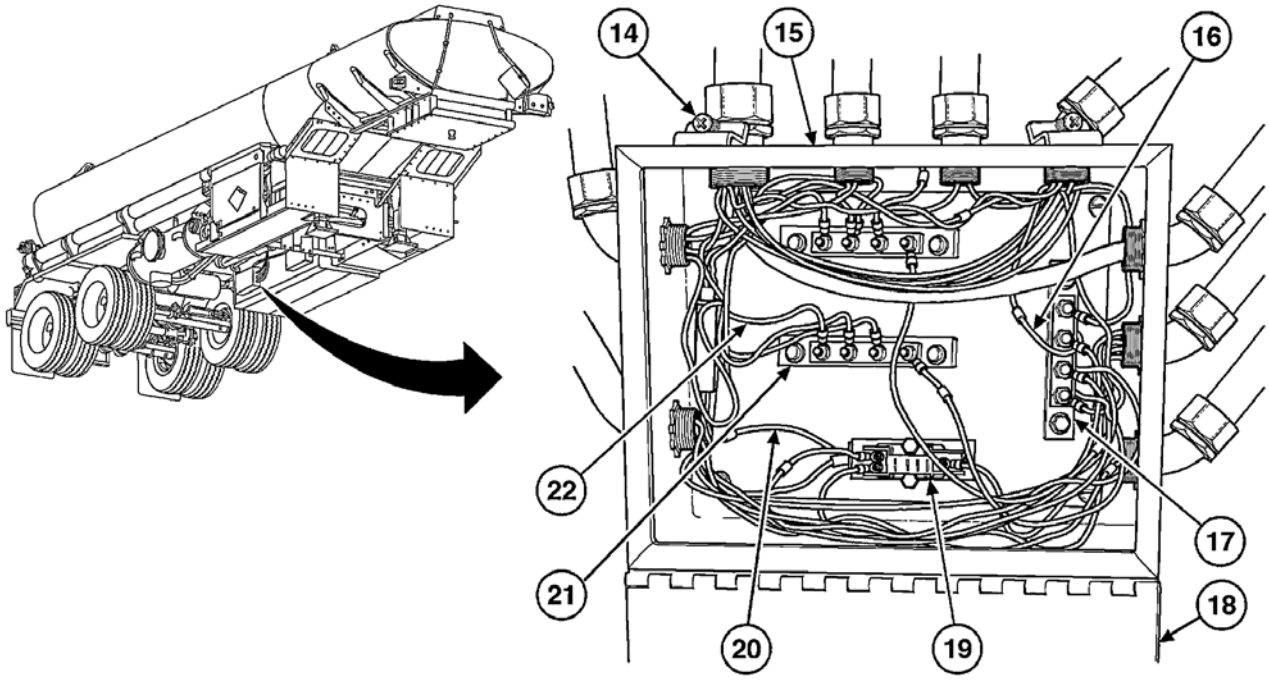
4. Disconnect wire number 90 (10) from grounding strip (13).



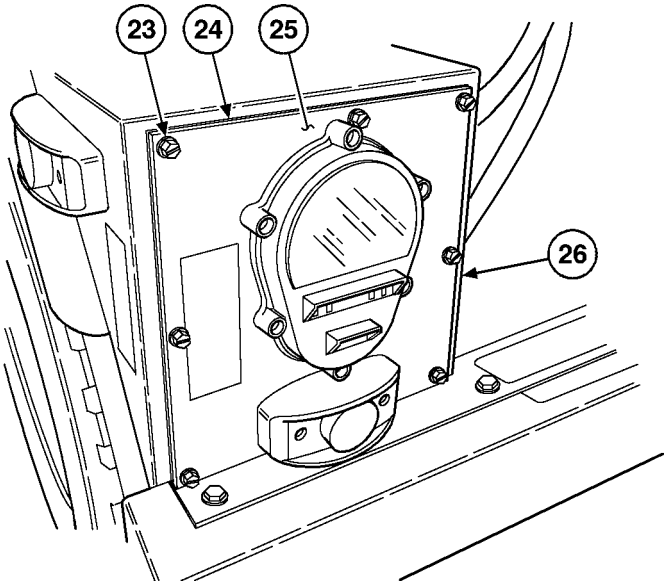
5. Loosen two screws (22) at bottom of electrical junction box (14) and raise front cover (15).

6. Disconnect wire number 395 (16) from upper terminal strip (17).

7. Disconnect wire number 489 (21) from lower terminal strip (20) and wire number 90 (18) from grounding strip (19).

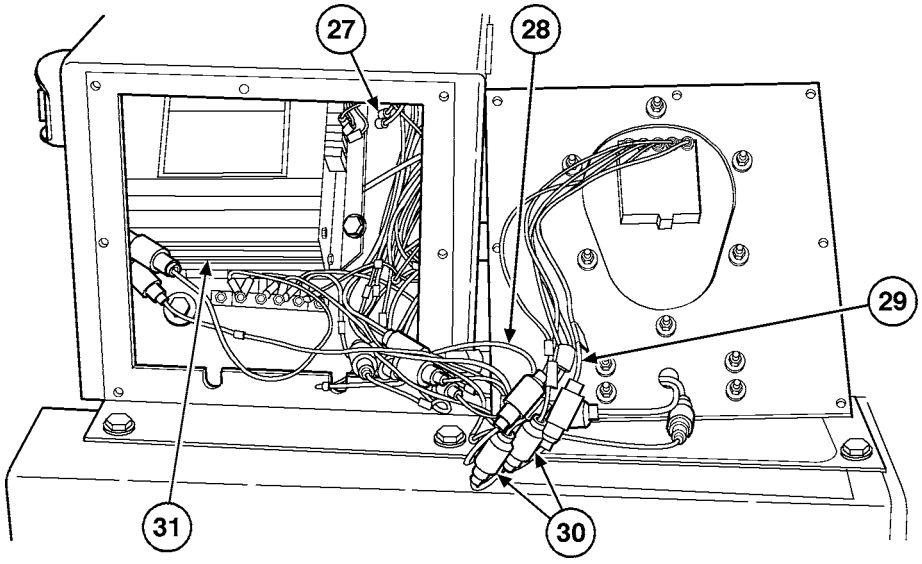


8. Remove seven screws (23), gasket (24), and roadside composite stoplight assembly cover plate (25) from composite stoplight box (26). Discard gasket.



9. Disconnect wire number 324 (27) from 24–12 V converter (31).

10. Disconnect wire numbers 23, 461, and 460 (28) from connectors (30) at composite stoplight wiring harness (29).

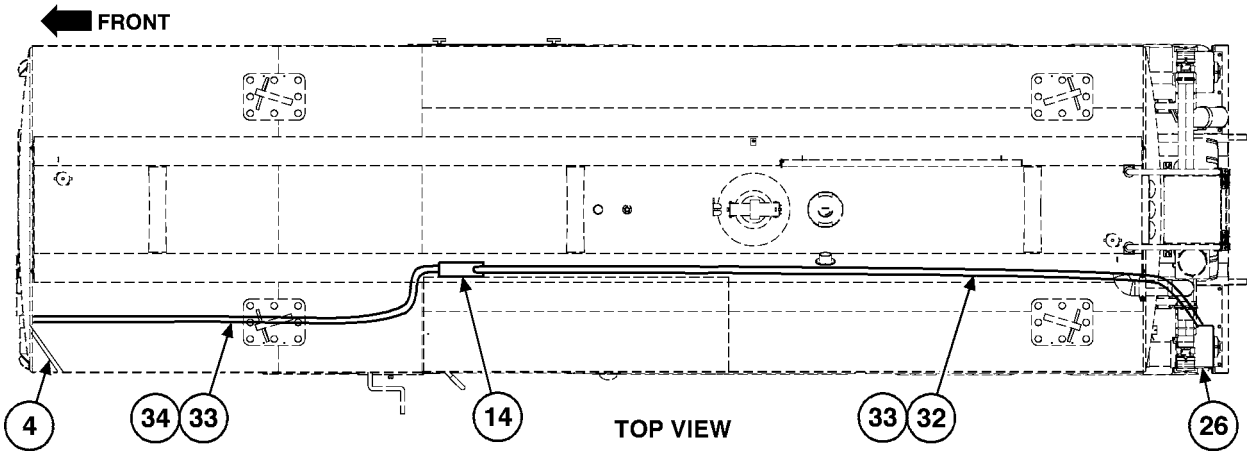


NOTE

Connectors must be cut from harness leads in order to fit through conduit.

11. Pull main wiring harness (33) through conduit (32) from composite stoplight assembly box (26) to electrical junction box (14).

12. Pull harness (33) through conduit (34) from electrical junction box (14) to front bulkhead (4).



INSPECTION

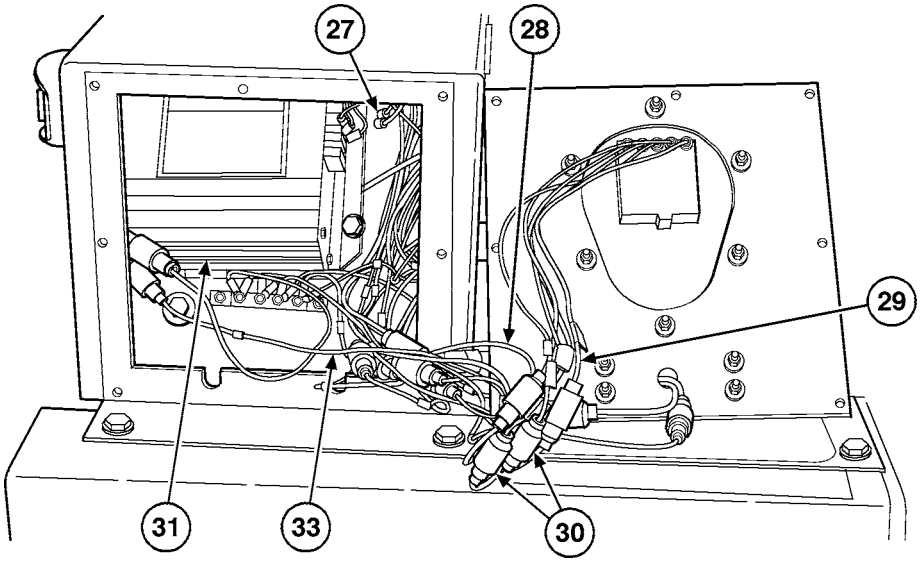
Inspect wiring harness for cracked or missing insulation, frayed or exposed wires, and loose or damaged connectors. If any of these conditions exist, repair per WP 0065 00.

INSTALLATION

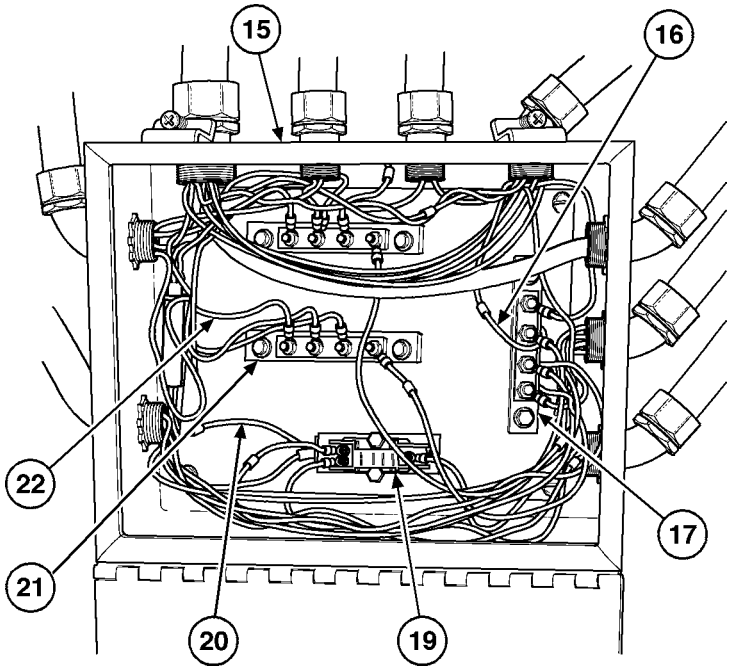
1. Install leads of harness (33) to front of bulkhead (4) through conduit (34) to electrical junction box (14).

2. From electrical junction box (14), install leads of harness (33) through conduit (32) to the roadside composite stoplight assembly (26).

3. Install new connectors (30) on all wiring harness leads per WP 0065 00.
4. Install connectors of wire numbers 23, 461, and 460 (28), main wiring harness (33) to corresponding connectors (30) of composite stoplight wiring harness (29).
5. Connect wire number 324 (27) to 24–12 V converter (31).

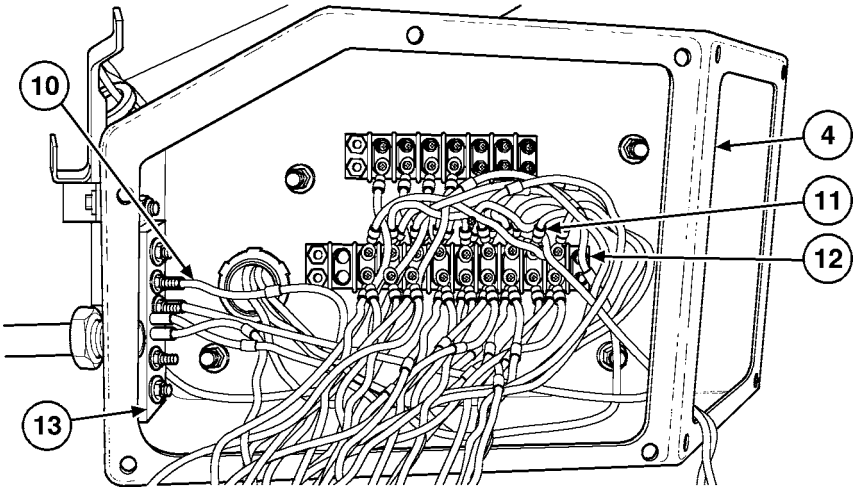


6. Connect wire number 489 (21) to lower terminal strip (20) and wire number 90 (18) to grounding strip (19).
7. Connect wire number 395 (16) to upper terminal strip (17).

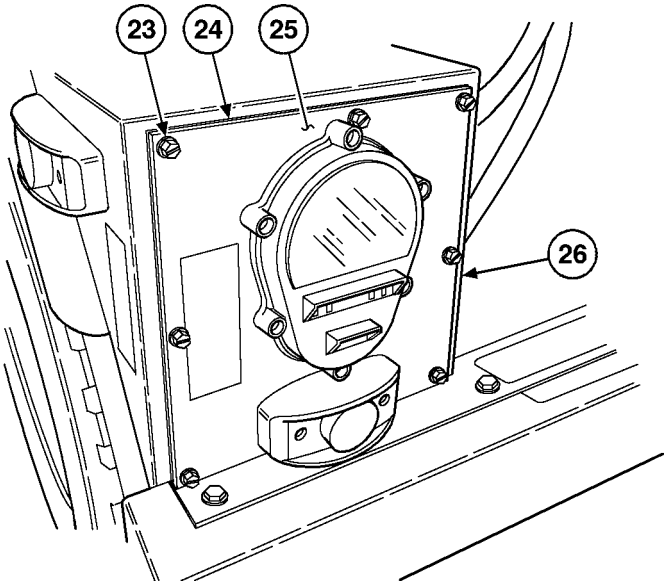


8. Connect wire number 90 (10) to grounding strip (13) at front of bulkhead (4).

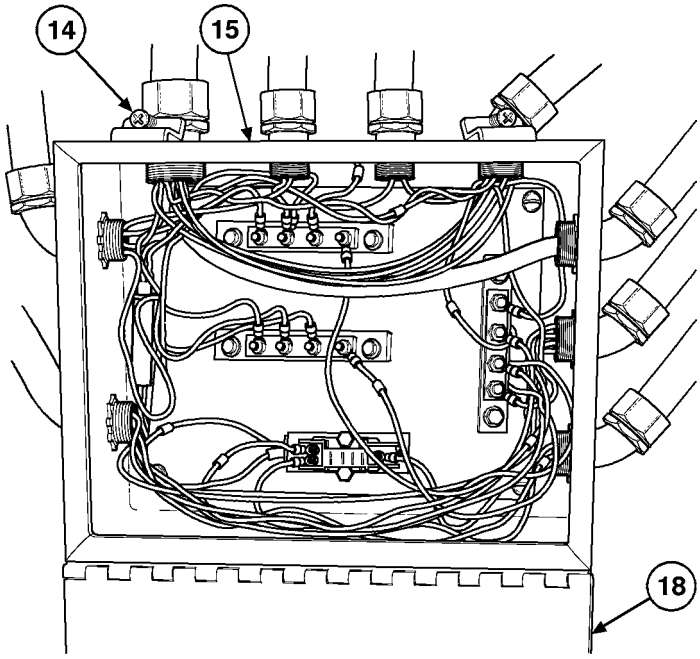
9. Connect wire numbers 324, 395, 21-489, 461, 460, 23, and 24 (11) to terminal strip (12).



10. Install new gasket (24), roadside composite stoplight assembly cover plate (25), and seven screws (23) to composite stoplight box (26).

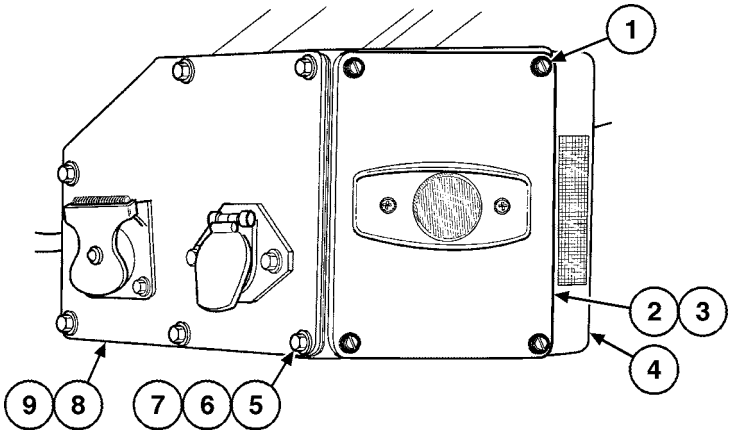


11. Install electrical junction box cover (15) to junction box (14) and secure with two screws (22).



12. Install new gasket (8), six bolts (7), washers (6), front access hatch cover (9), and six new self-locking nuts (5) to front of bulkhead (4).

13. Install marker light cover (3), new gasket (2), and four screws (1) to front of bulkhead (4).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).

2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FRONT MARKER LIGHTS WIRING HARNESS MAINTENANCE 0058 00

THIS WP COVERS:
Removal, Inspection, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts References
Connectors (AR) (item 119, WP 0175 00)
Gasket (item 83, WP 0175 00)
Gaskets (2) (item 84, WP 0175 00)
Self-locking nuts (6) (item 88, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

WP 0065 00

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

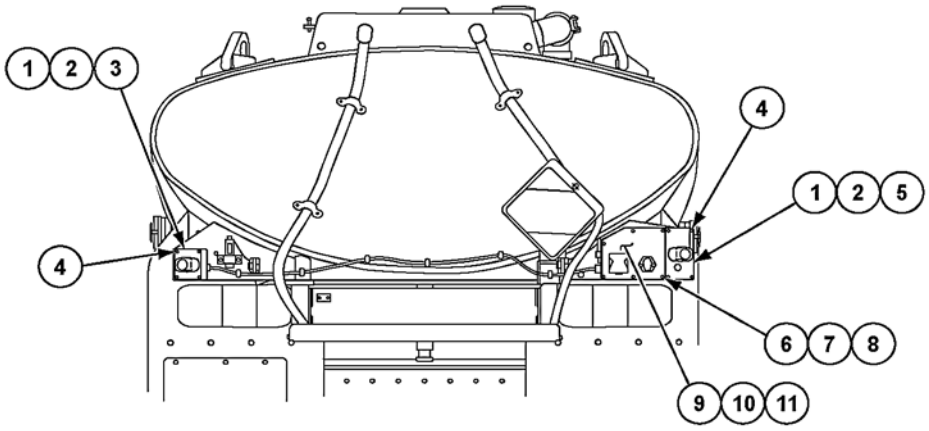
REMOVAL

NOTE

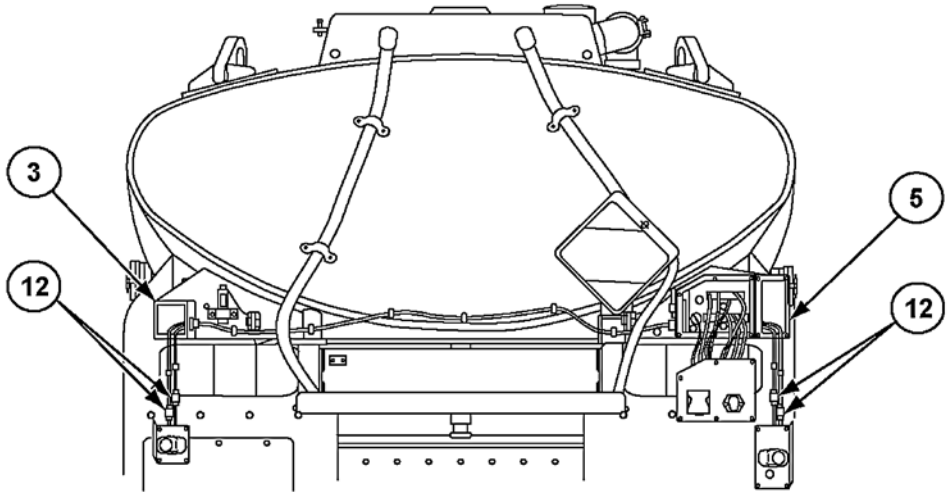
Tag all wiring harness connectors prior to disconnecting if they are not already identified or if metal ID band is missing or illegible.

1. Remove eight screws (4), two gaskets (1), and covers (2) from roadside (5) and curbside (3) front marker light boxes. Discard gaskets.

2. Remove six self-locking nuts (6), washers (7), screws (8), gasket (9), and front access hatch cover (10) from front access hatch (11). Discard self-locking nuts and gasket.



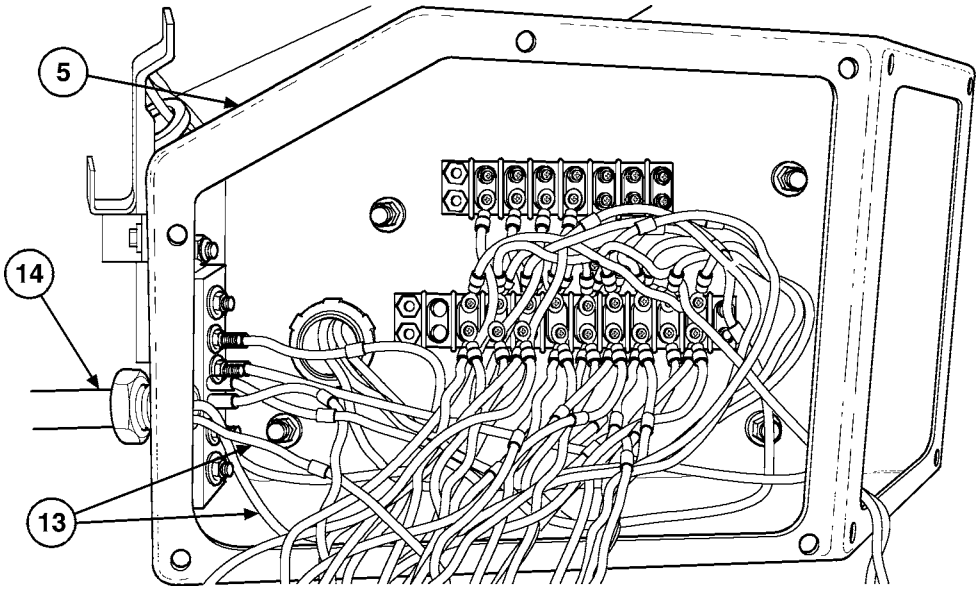
3. Disconnect two connectors (12) at curbside (3) and roadside (5) boxes.



NOTE

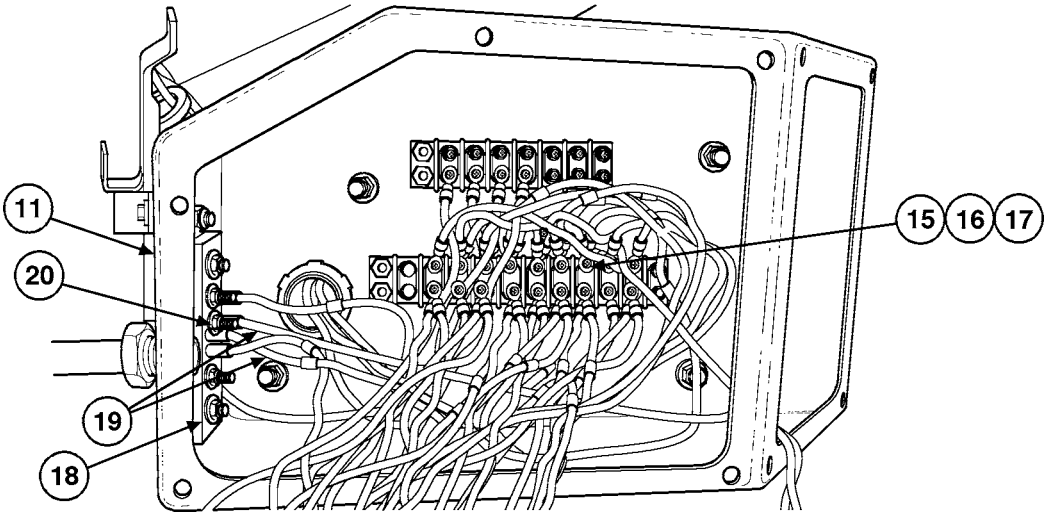
Connectors must be cut from harness leads in order to fit through conduit.

4. At roadside box (5), pull two wires (13) from curbside box (3) through conduit (14). Discard connectors.



5. Remove screw (15) from terminal strip (16) in hatch (11) and remove two wires (17).

6. Remove two screws (20) and wires (19) from grounding strip (18) in hatch (11).



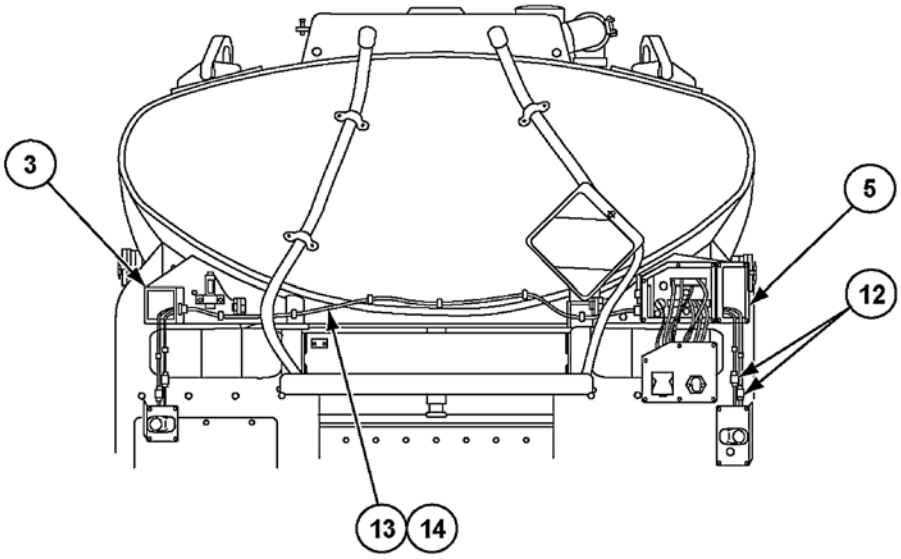
INSPECTION

Inspect wiring harness for cracked or missing insulation, frayed or exposed wires, and loose or damaged connectors. If any of these conditions exist, repair per WP 0065 00.

INSTALLATION

1. Install two wires (19) and screws (20) to grounding strip (18) in hatch (11).

2. Install two wires (17) and screw (15) to terminal strip (16) in hatch (11).



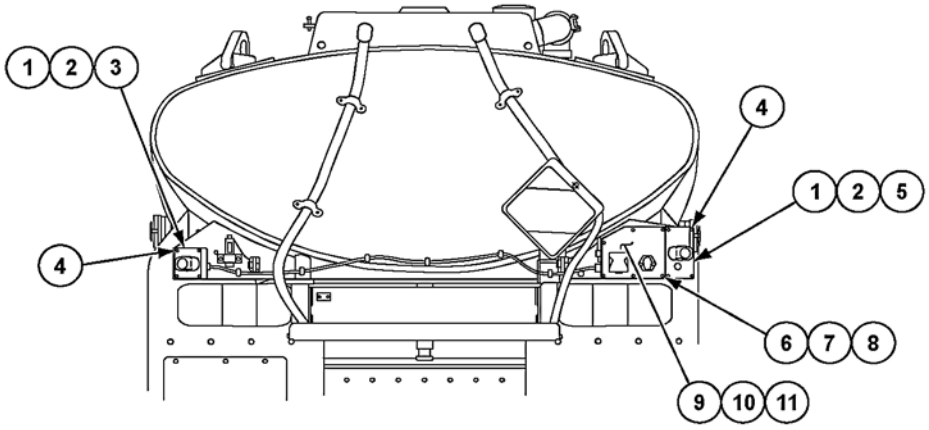
3. At roadside box (5), install two wires (13) through conduit (14) to curbside box (3).

4. Install new connectors (12) on wiring harness leads per WP 0065 00.

5. Install new connectors (12) at roadside (5) and curbside (3) boxes.

6. Install new gasket (9), front access hatch cover (10), six screws (8), washer (7), and new self-locking nuts (6) to hatch (11).

7. Install two new gaskets (1), eight screws (4), and two covers (2) to roadside (5) and curbside (3) boxes.



FOLLOW-ON TASKS

1. Disconnect semitrailer grounding cables (WP 0007 00).

2. Reconnect negative battery terminal (WP 0007 00).

END OF TASK

SIDE MARKER LIGHTS HARNESS MAINTENANCE 0059 00

THIS WP COVERS:
Removal, Inspection, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References
Connectors (AR) (item 119, WP 0175 00)
Gasket (item 84, WP 0175 00)
WP 0065 00

Equipment

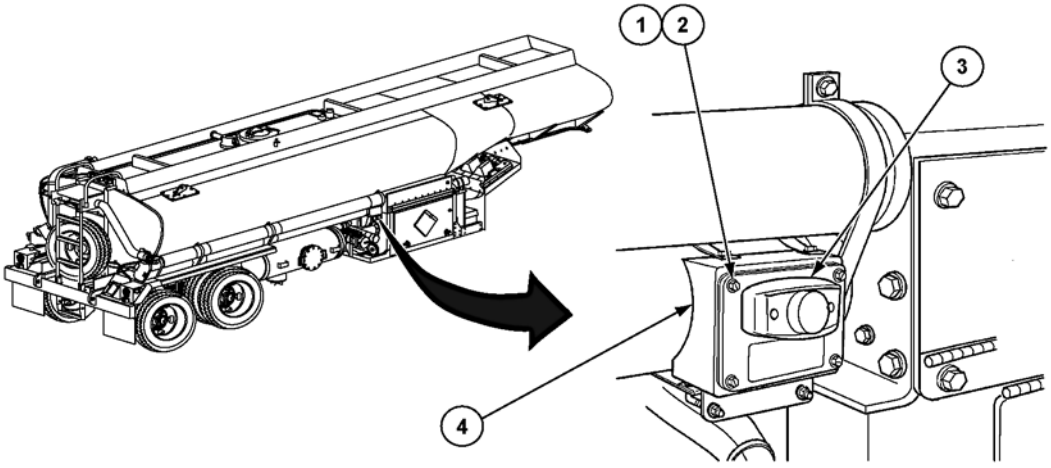
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

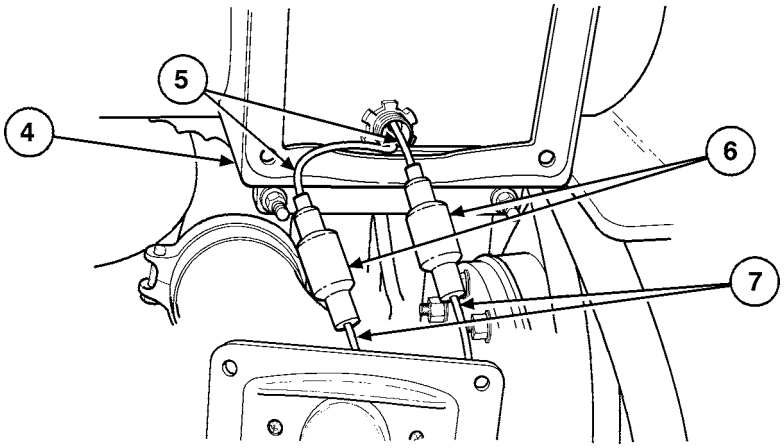
NOTE

- **Tag all wiring harness connectors prior to disconnecting if they are not already identified or if metal ID band is missing or illegible.**
- **There are two side marker light boxes, curbside and roadside, on the semitrailer. This procedure covers the curbside marker light box.**

1. Remove four screws (1), gasket (2), and marker light cover (3) from curbside marker light box (4). Discard gasket.



2. Disconnect two wires (5) and connectors (6) from marker light leads (7) in curbside marker box (4).



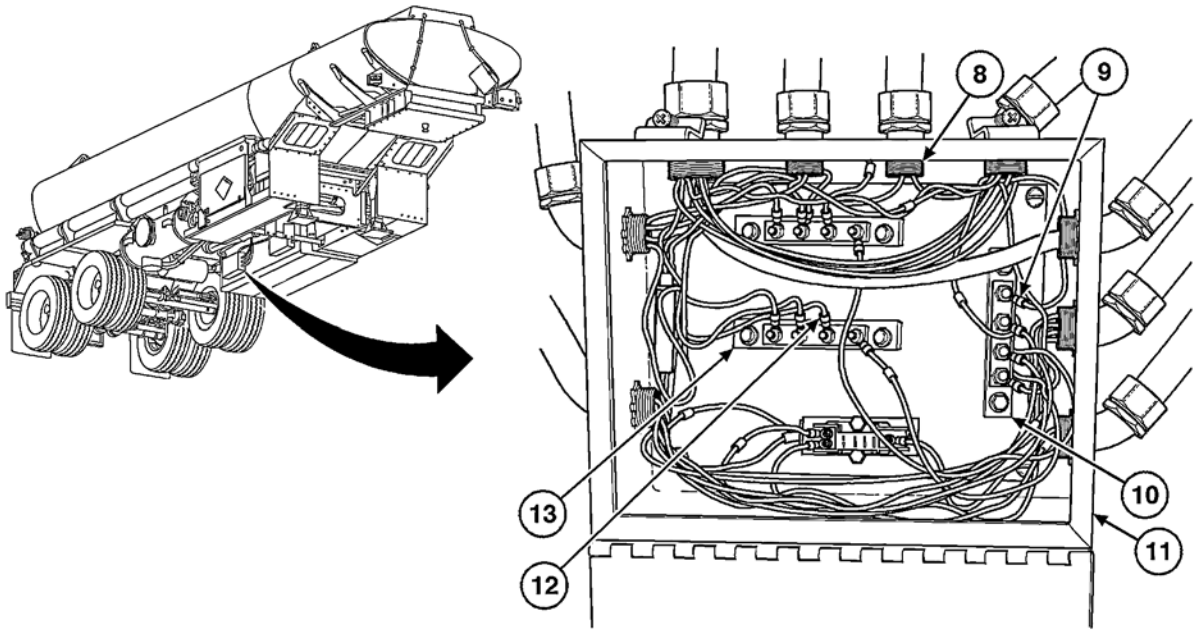
3. Disconnect wire (9) from grounding strip (10) in electrical junction box (11).

4. Disconnect wire (12) from terminal strip (13) in junction box (11).

NOTE

Connectors must be cut from harness leads in order to fit through conduit.

5. Pull two harness wires (9 and 12) through conduit (8) and out through curbside marker light box (4). Discard connectors.



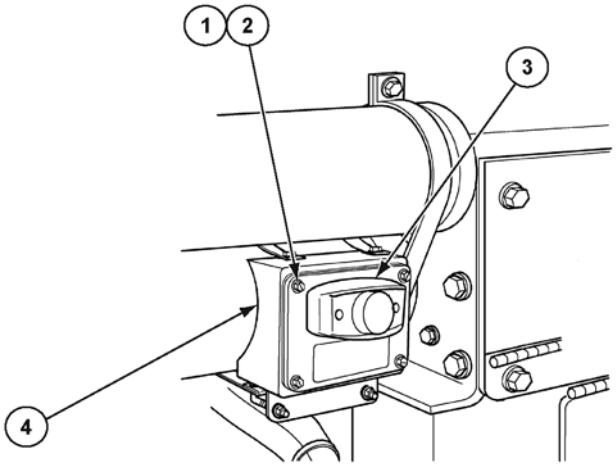
SIDE MARKER LIGHTS HARNESS MAINTENANCE—Continued 0059 **00**

INSPECTION

Inspect wiring harness for cracked or missing insulation, frayed or exposed wires, and loose or damaged connectors. If any of these conditions exist, repair per WP 0065 00.

INSTALLATION

1. Install side marker light harness wires (9 and 12) through conduit (8) to junction box (11) from curbside marker light box (4).
2. Install new connectors (6) on all wires (5) per WP 0065 00.
3. Connect wire (12) to terminal strip (13) in junction box (11).
4. Connect wire (9) to grounding strip (10) in junction box (11).
5. Connect two wires (5) and connectors (6) to marker light leads (7) in curbside box (4).
6. Install marker light cover (3), new gasket (2), and four screws (1) to curbside marker light box (4).



FOLLOW-ON TASKS

1. Disconnect semitrailer grounding cables (WP 0007 00).
2. Reconnect negative battery terminal (WP 0007 00).

END OF TASK

WATER DETECTION SWITCH AND HARNESS MAINTENANCE 0060 00

THIS WP COVERS:
Removal, Inspection, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References
Compound, thread sealing (item 7, WP 0174 00)
Connectors (6) (item 74, WP 0175 00)

WP 0065 00

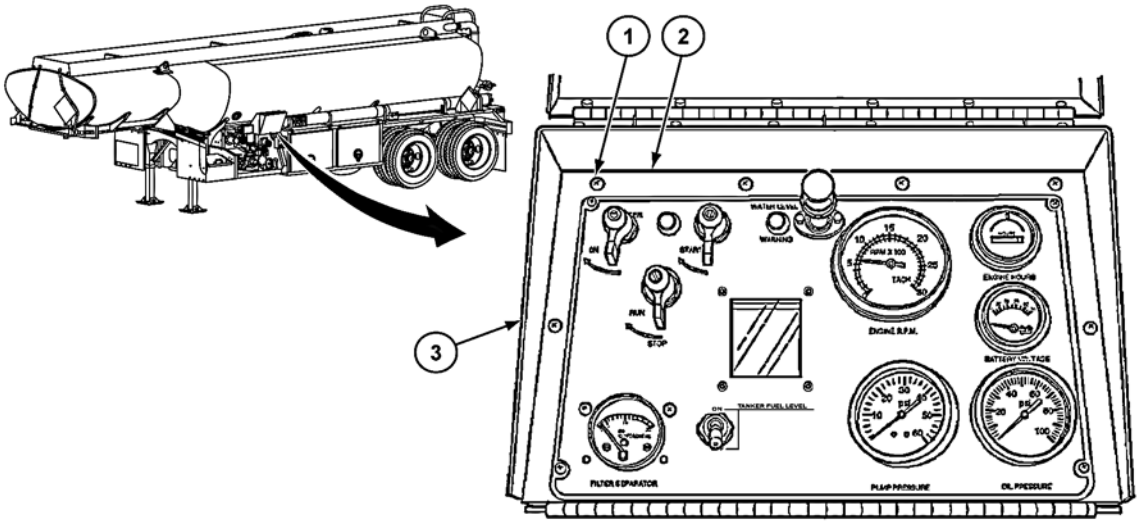
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Fuel separator drained (refer to WP 0124 00)

REMOVAL

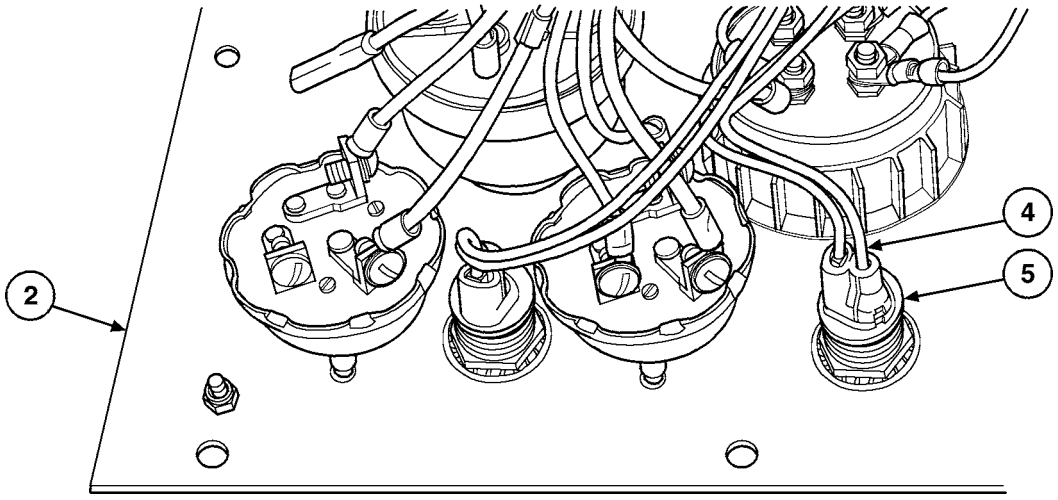
NOTE

Tag all wiring harness connectors prior to disconnecting if they are not already identified or if metal ID band is missing or illegible.

1. Remove six screws (1) and lower front of panel (2) from control panel assembly (3).

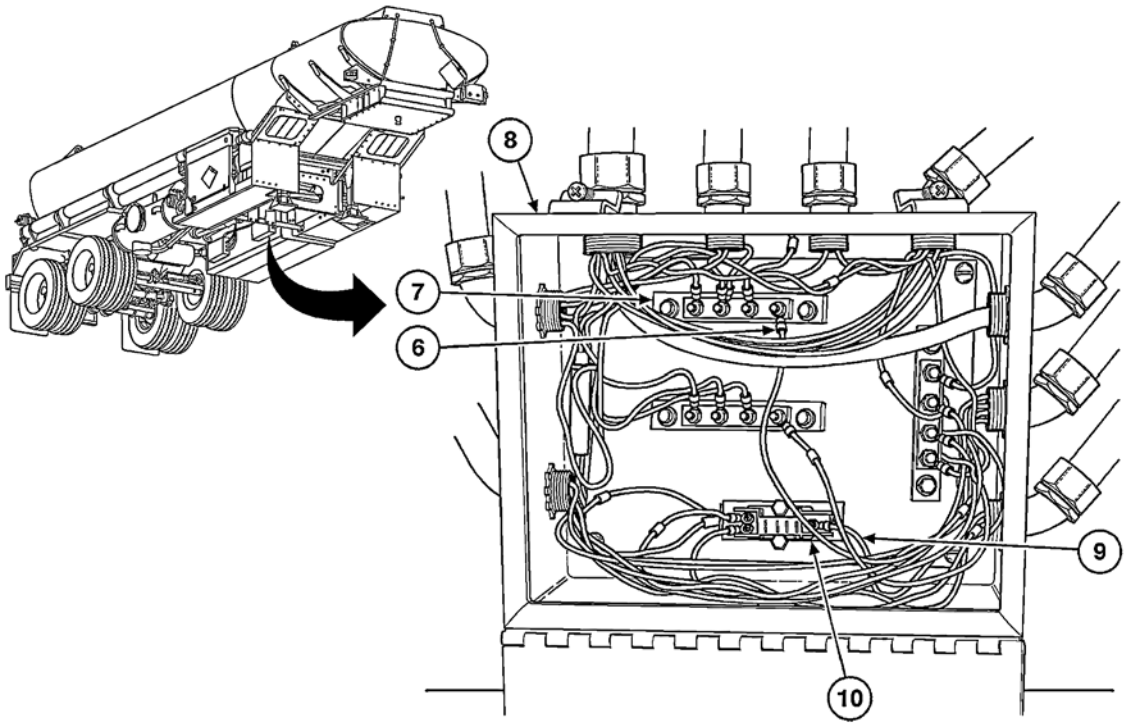


2. Disconnect two wires (4) from water level warning indicator light (5) on back of panel (2).



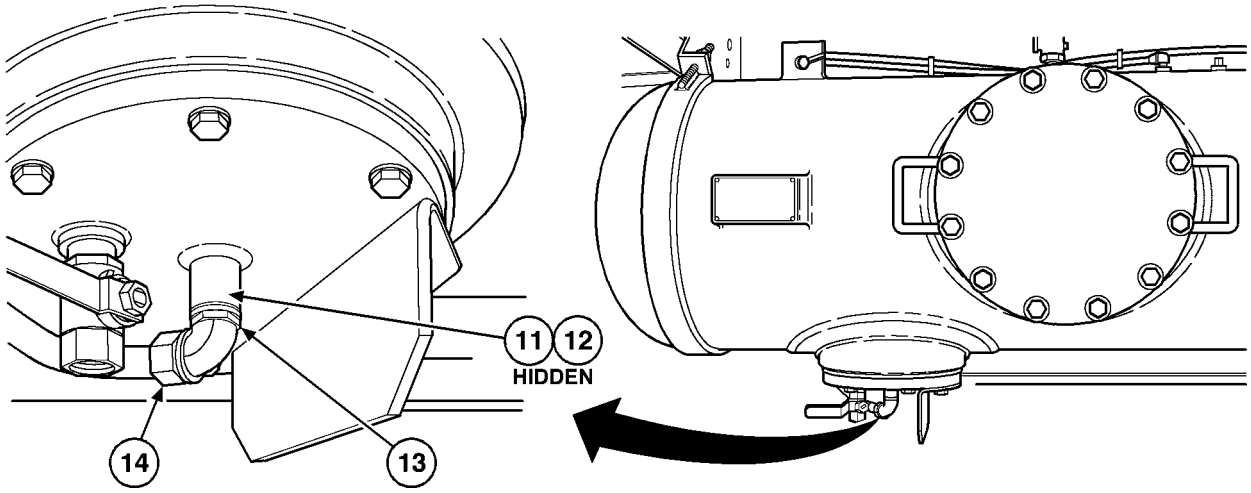
3. Disconnect wire (6) from terminal strip (7) in electrical junction box (8).

4. Disconnect wire (9) from relay (10) in junction box (8).



5. Remove nut (13) from water detection switch conduit (14) and remove conduit from switch (11).

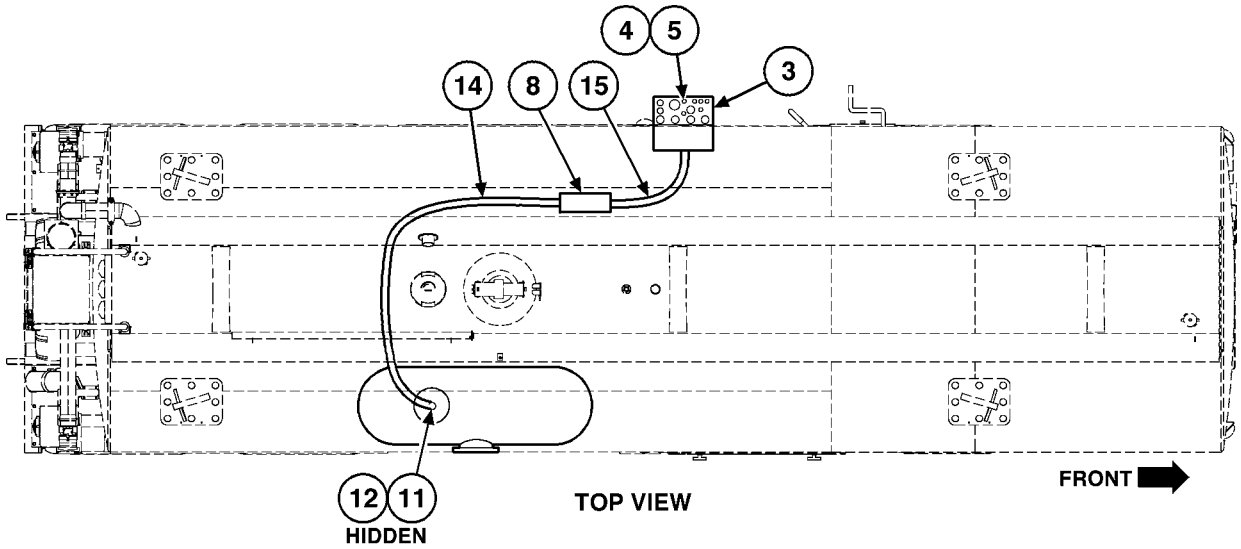
6. Disconnect two wires (12) from water detection switch (11).



NOTE

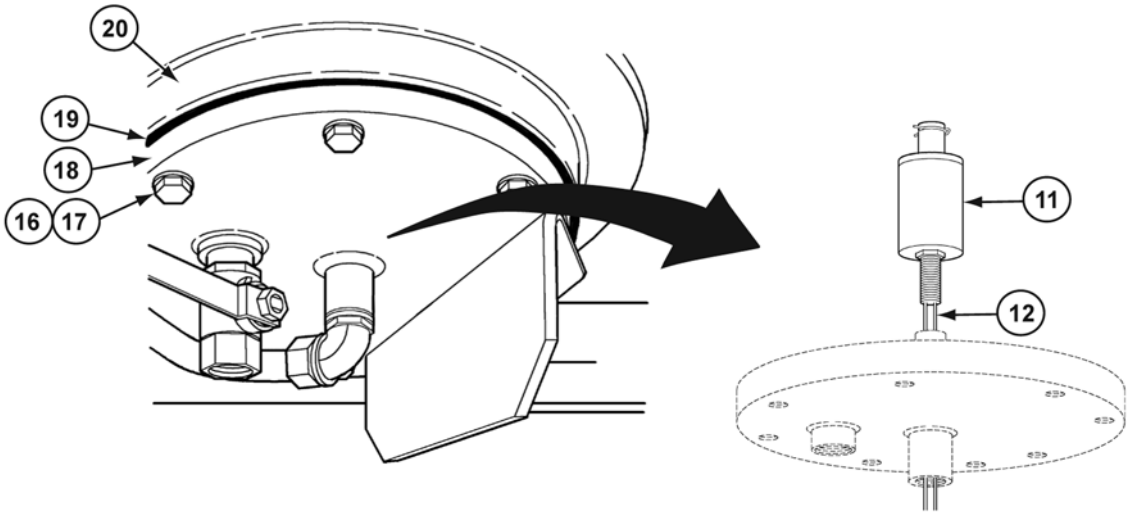
Connectors must be removed from harness leads in order to fit through conduit.

7. At junction box (8) pull two wires (4) from water level warning indicator light (5) at control panel (3) through conduit (15) and wires (12) from water detection switch (11) through conduit (14).



8. Remove 8 screws (16), lock washers (17), sump plate (18), and gasket (19) from filter separator (20). Discard lock washers and gasket.

9. Remove water detection switch (11).



INSPECTION

Inspect wires for cracks, fraying or exposed insulation and loose or damaged connectors. If any of these conditions exist, repair per WP 0065 00.

INSTALLATION

NOTE

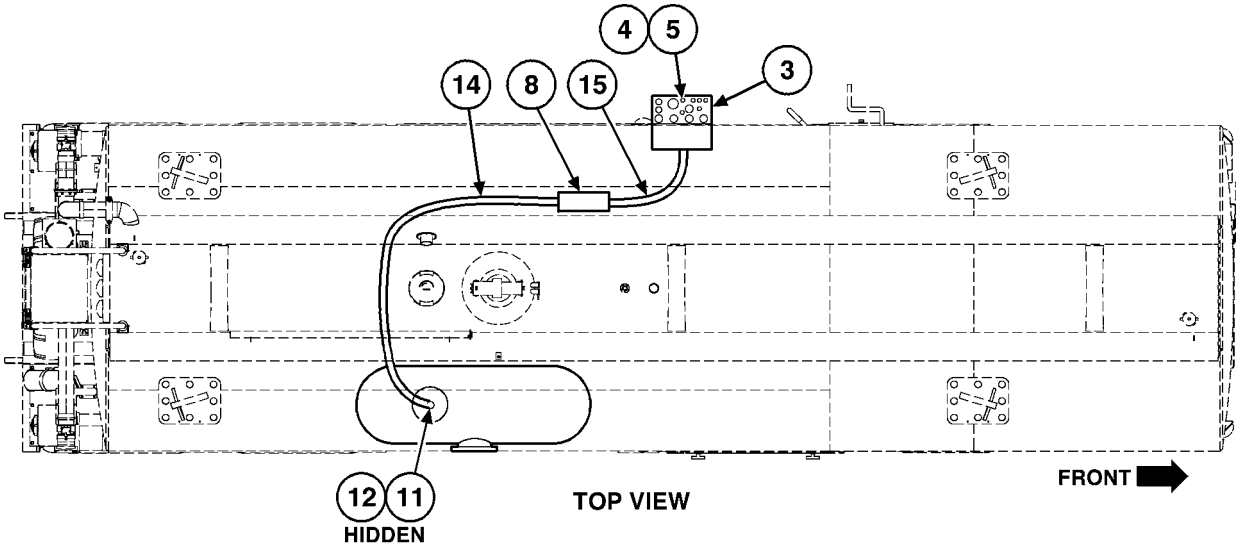
Use thread sealing compound on screw threads.

1. Install water detection switch (11) on sump plate (18).

2. Install new gasket (19), sump plate (18), 8 new lock washers (17), and 8 screws (16).

3. From junction box (8) thread two wires (4) through conduit (15) leading to water level warning indicator light (5) at control panel (3).

4. From junction box (8) thread two wires (12) through conduit (14) leading to water detection switch (11).

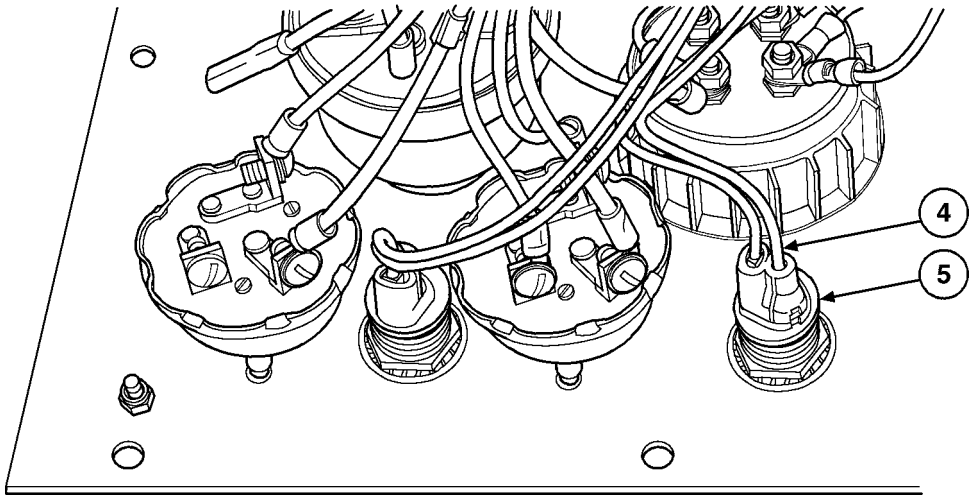


NOTE

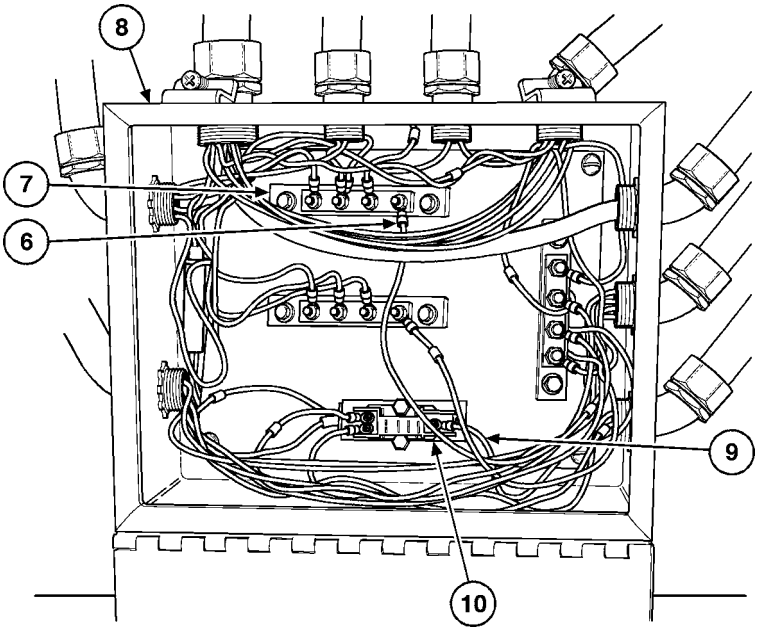
Install new connectors on all wiring harness leads per WP 0065 00.

5. Connect two wires (12) at water detection switch (11).

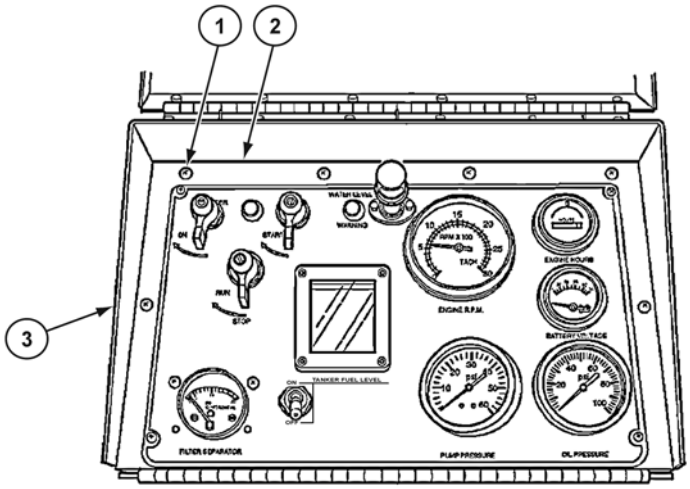
6. Connect two wires (4) at water level warning indicator light (5).



7. Connect wire (9) to relay (10) in junction box (8).
8. Connect wire (6) to terminal strip (7) in junction box (8).



9. Install six screws (1) and secure front panel (2) to control panel assembly (3).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

COMPOSITE STOPLIGHT HARNESS MAINTENANCE 0061 00

THIS WP COVERS:
Removal, Inspection, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References
Compound, silicone (item 6, WP 0174 00)
Connectors (AR) (item 119, WP 0175 00)
Gaskets(2) (item 82, WP 0175 00)
Self-locking nuts (4) (item 114, WP 0175 00)

WP 0065 00

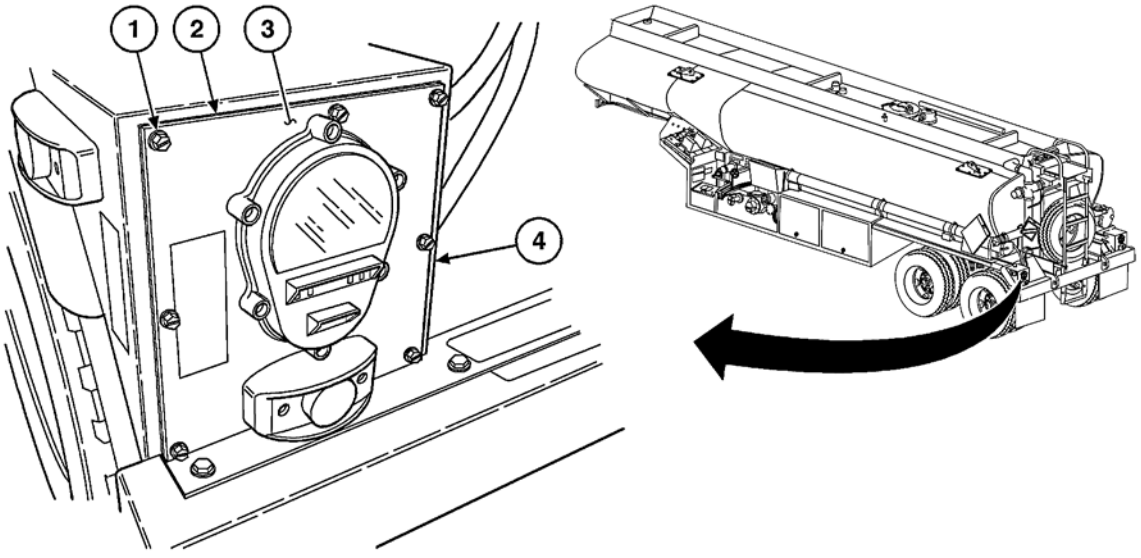
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

NOTE

Tag all wiring harness connectors prior to disconnecting if they are not already identified or if metal ID band is missing or illegible.

1. Remove seven screws (1), gasket (2), and composite stoplight cover plate (3) from roadside marker stoplight box (4). Discard gasket.

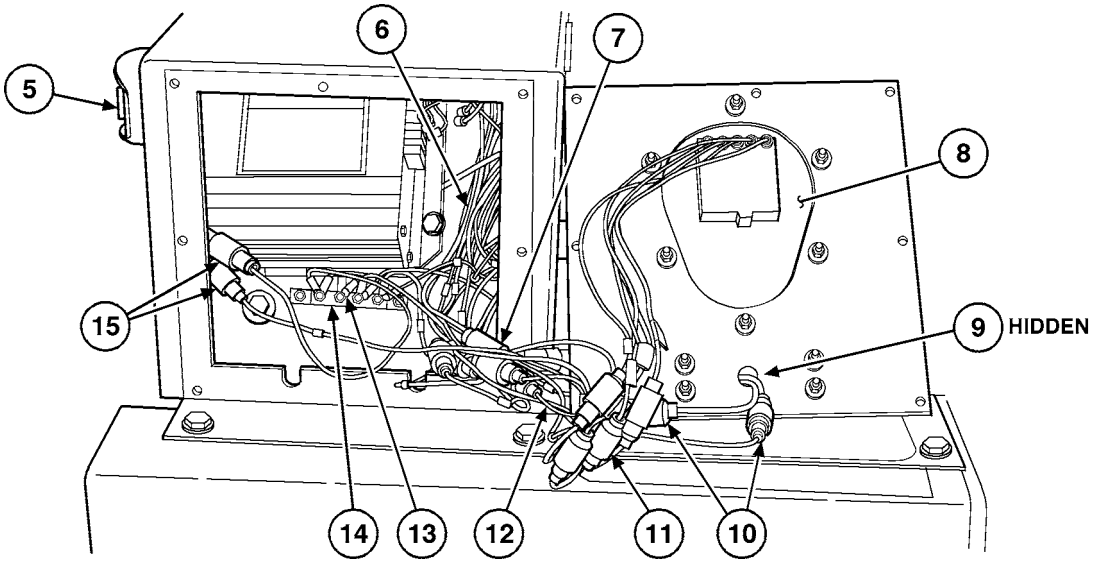


2. Disconnect five connectors (7) of main trailer harness (6) from composite stoplight harness (12).

3. Disconnect two connectors (10) from rear marker light (9) and two connectors (15) from side marker light (5).

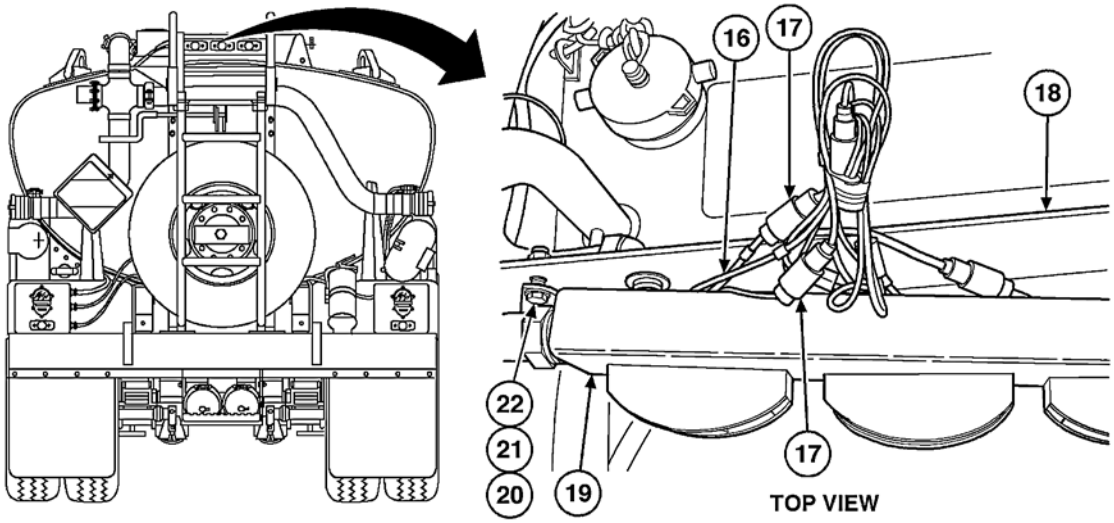
4. Disconnect five connectors (11) from roadside composite stoplight assembly (8).

5. Disconnect eight wires (13) from grounding strip (14).

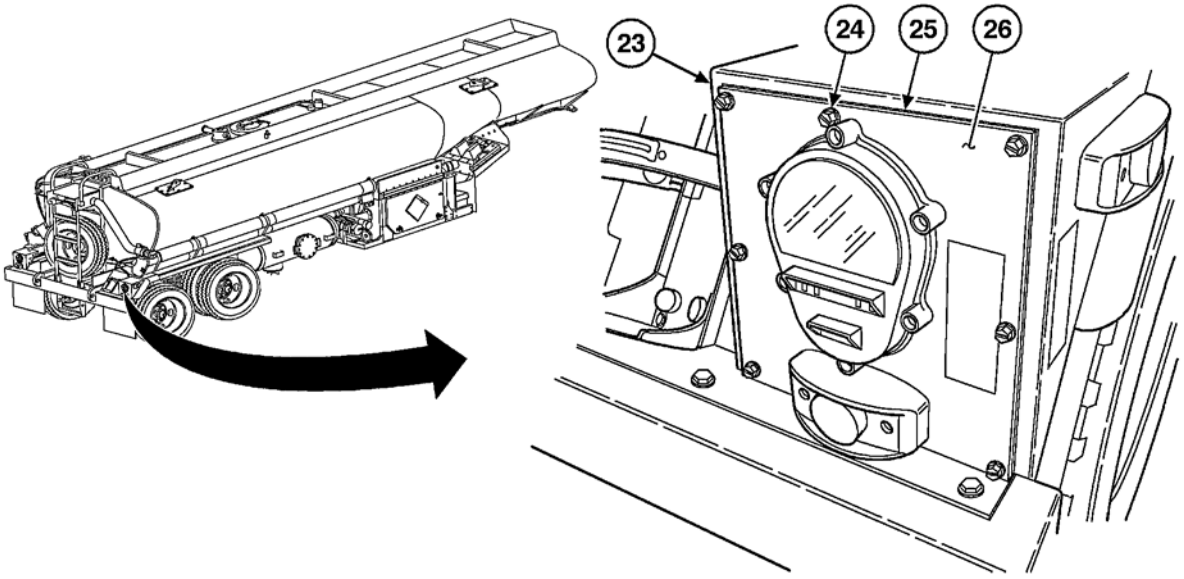


6. Remove four self-locking nuts (20), eight washers (21), four bolts (22), and top marker light box (19) from bulkhead (18). Discard self-locking nuts.

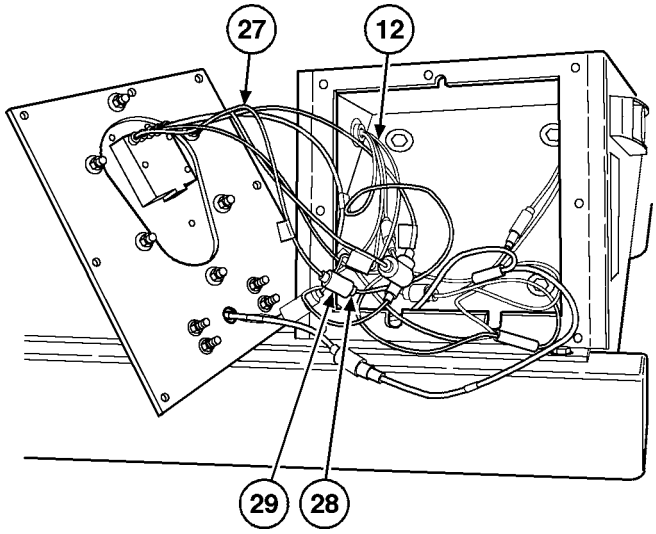
7. Disconnect two connectors (17) from top marker light harness (16) inside box (19).



8. Remove seven screws (24), gasket (25), and composite stoplight cover plate (26) from curbside box (23). Discard gasket.



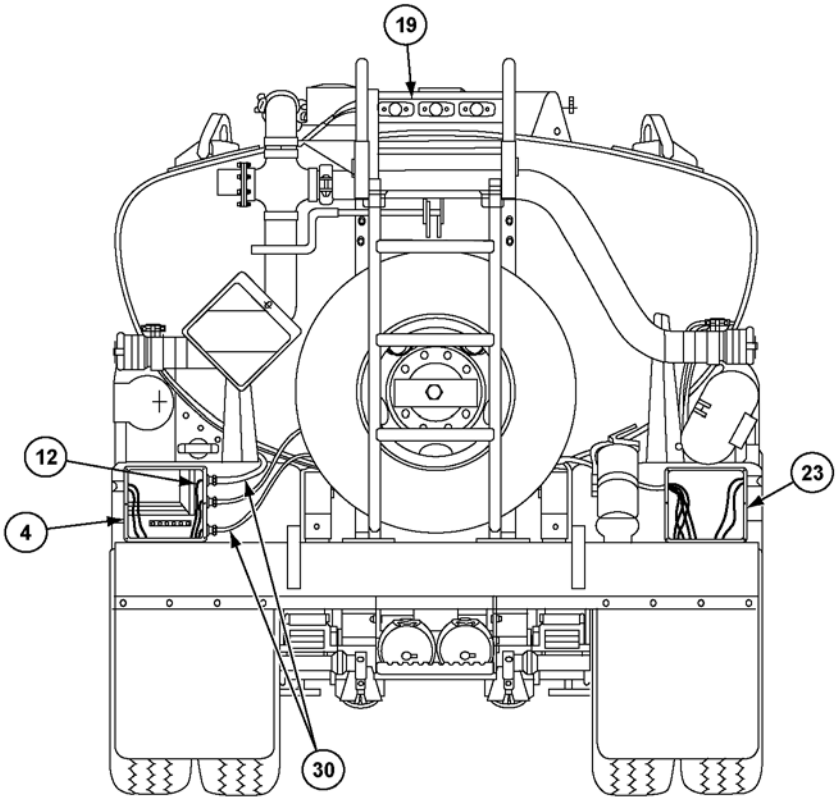
9. Disconnect five connectors (28) of composite stoplight harness (12) from connectors (29) of curbside stoplight harness (27).



NOTE

Connectors must be cut from harness in order to fit through conduits.

10. Pull composite stoplight harness (12) at roadside marker stoplight box (4) through two conduits (30) from curbside marker stoplight box (23) and top marker light box (19). Discard connectors.



INSPECTION

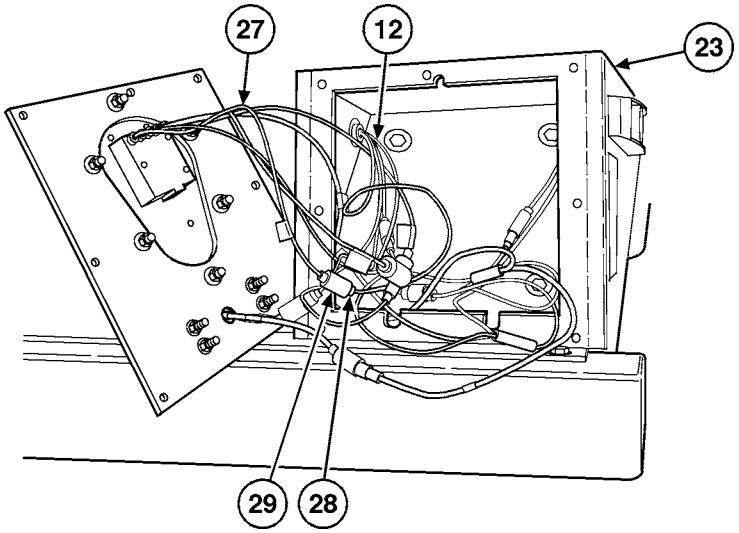
Inspect wiring harness for cracked or missing insulation, frayed or exposed wires, and loose or damaged connectors. If any of these conditions exist, repair per WP 0065 00.

INSTALLATION

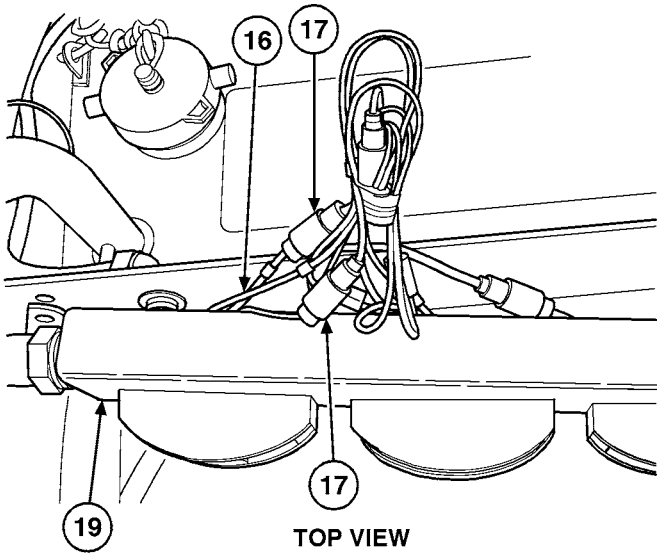
1. Install leads of harness (12) through two conduits (30) from roadside marker stoplight box (4) to top marker light box (19) and curbside marker stoplight box (23).

2. Install new connectors on all leads per WP 0065 00.

3. Connect five connectors (28) of composite stoplight harness (12) to connectors (29) of curbside stoplight harness leads (27) in curbside marker stoplight box (23).



4. Connect two connectors (17) to top marker light harness (16) in top marker light box (19).

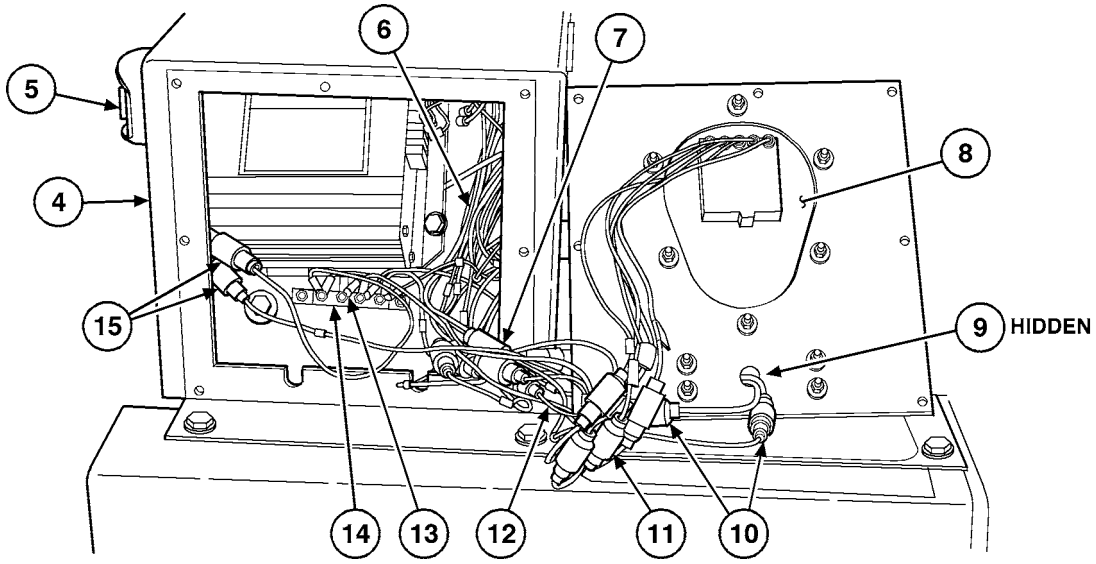


5. Connect eight wires (13) to grounding strip (14) in roadside composite marker stoplight box (4).

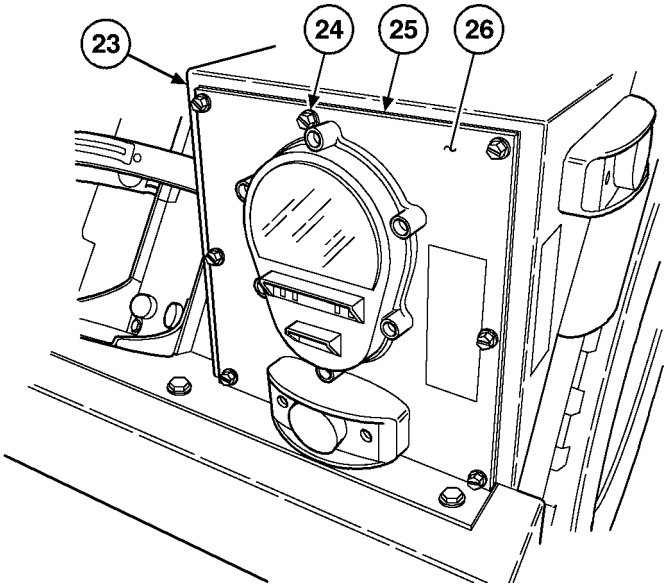
6. Connect five connectors (11) to roadside composite stoplight assembly (8).

7. Connect two connectors (10) to rear marker light (9) and two connectors (15) to side marker light (5).

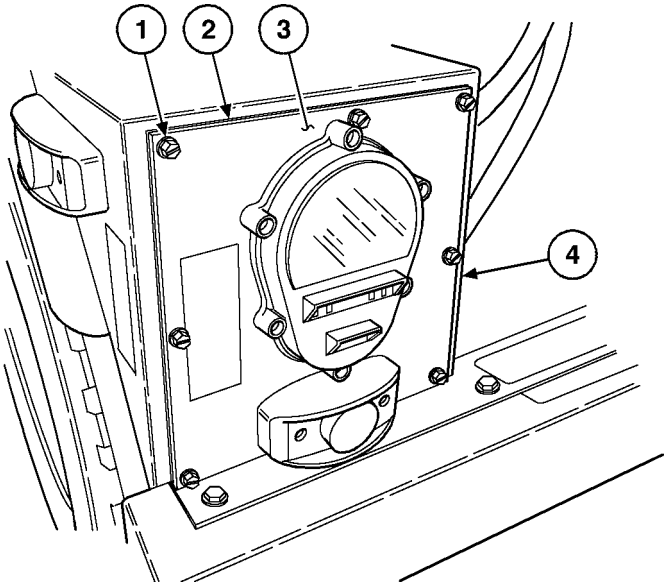
8. Connect five connectors (7) of main trailer harness (6) to composite stoplight harness (12).



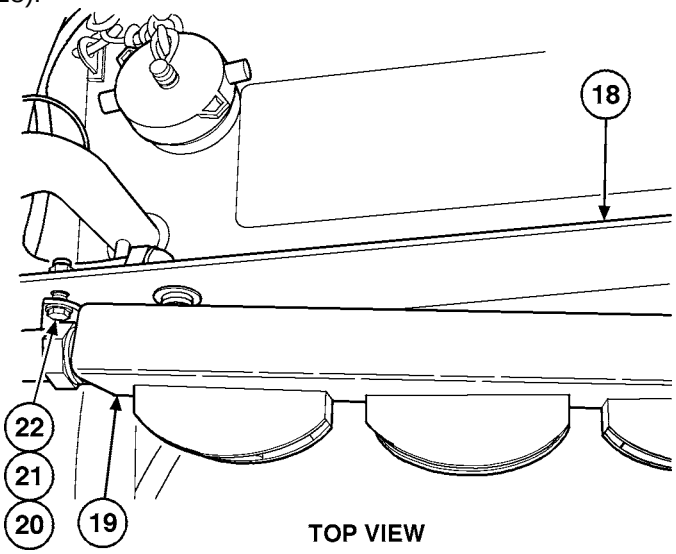
9. Install new gasket (25), composite stoplight cover plate (26), and seven screws (24) to curbside marker stoplight box (23).



10. Install new gasket (2), composite stoplight cover plate (3), and seven screws (1) to roadside marker stoplight box (4).



11. Install top marker light box (19), four bolts (22), eight washers (21), and four new self-locking nuts (20) to bulkhead (18).



12. Apply silicone sealant around edges of top marker light box (19).

FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

INTERVEHICULAR WIRING HARNESSES MAINTENANCE 0062 00

THIS WP COVERS:
Removal, Inspection, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References
Connectors (AR) (item 74, WP 0175 00)
Gasket (item 83, WP 0175 00)
Gasket (item 84, WP 0175 00)
Self-locking nuts (12) (item 88, WP 0175 00)

WP 0065 00

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

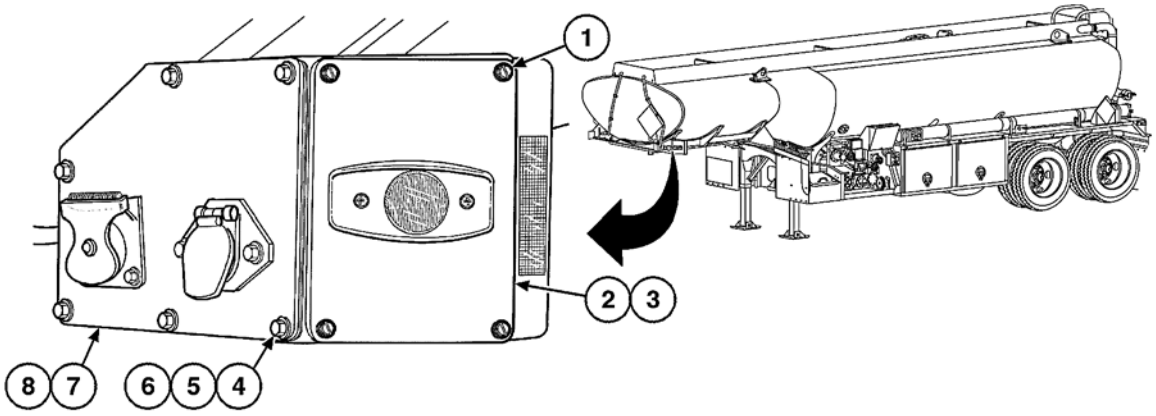
REMOVAL

NOTE

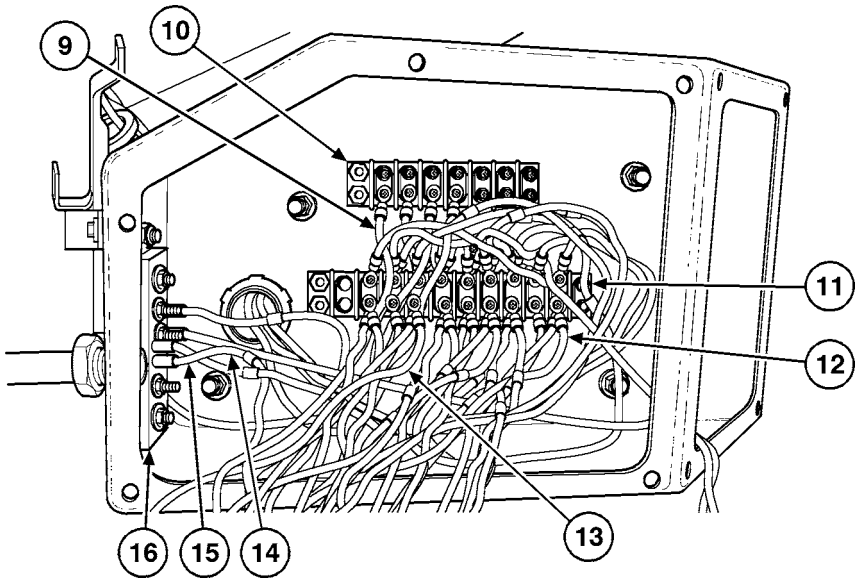
Tag all wiring harness connectors prior to disconnecting if they are not already identified or if metal ID band is missing or illegible.

1. Remove four screws (1), gasket (2), and marker light cover (3). Discard gasket.

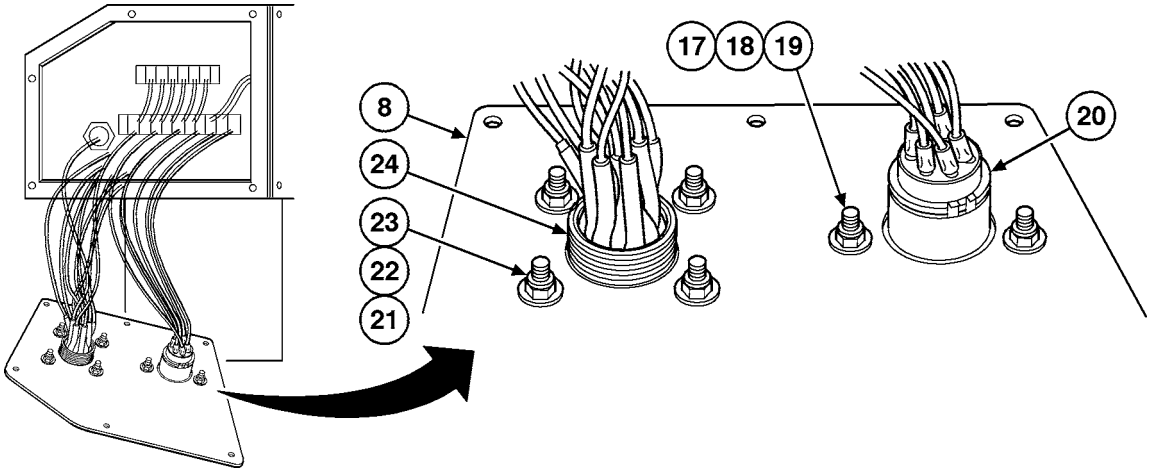
2. Remove six self-locking nuts (4), washers (5), bolts (6), and gasket (7) from front access cover (8). Discard self-locking nuts and gasket.



3. Disconnect four wires (9) from upper terminal strip (10).
4. Disconnect six wires (12) from lower terminal strip (11).
5. Disconnect seven wires (13) from lower terminal strip (11).
6. Disconnect wire (14) from grounding strip (16).
7. Disconnect wire (15) from grounding strip (16).



8. Remove two self-locking nuts (17), four washers (18), two bolts (19), and 7-way intervehicular wiring harness (20) from hatch cover (8). Discard self-locking nuts.
9. Remove four self-locking nuts (21), washers (22), bolts (23), and 12-way intervehicular wiring harness (24) from hatch cover (8). Discard self-locking nuts.



INSPECTION

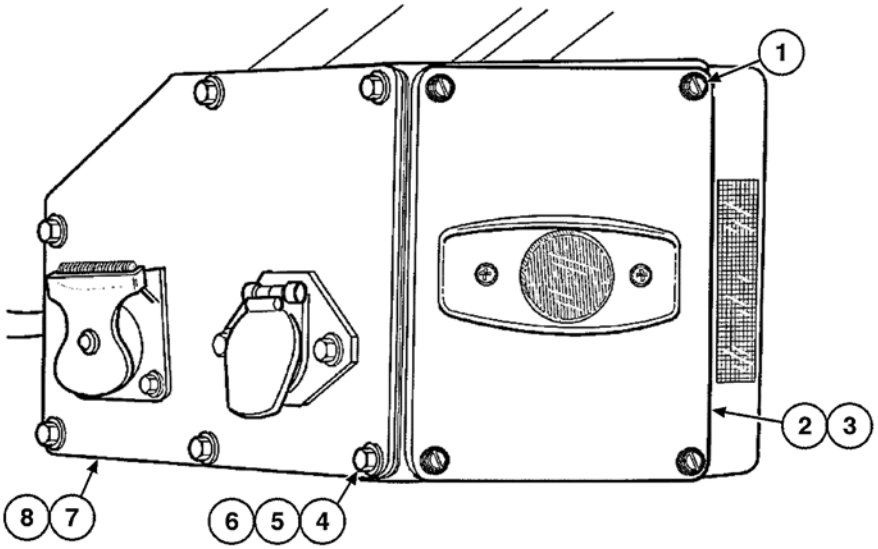
Inspect wiring harness for cracked or missing insulation, frayed or exposed wires, and loose or damaged connectors. If any of these conditions exist, repair per WP 0065 00.

INSTALLATION

1. Install 12-way intervehicular wiring harness (24), four bolts (23), washers (22), and new self-locking nuts (21) to cover (8).
2. Install 7-way intervehicular wiring harness (20), two bolts (19), four washers (18), and two new self-locking nuts (17) to hatch cover (8).
3. Connect wire (15) to grounding strip (16).
4. Connect wire (14) to grounding strip (16).
5. Connect seven wires (13) to lower terminal strip (11).
6. Connect six wires (12) to lower terminal strip (11).
7. Connect four wires (9) to upper terminal strip (10).

8. Install new gasket (7), six bolts (6), washers (5), and new self-locking nuts (4) to cover (8).

9. Install marker light cover (3), new gasket (2), and four screws (1).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).

2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

CONDUITS REPLACEMENT **0063 00**

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Organizational

Materials/Parts Equipment
Conduits (AR) (item 73, WP 0175 00)
Inserts (2) (item 38, WP 0175 00)
Sleeves (2) (item 38, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

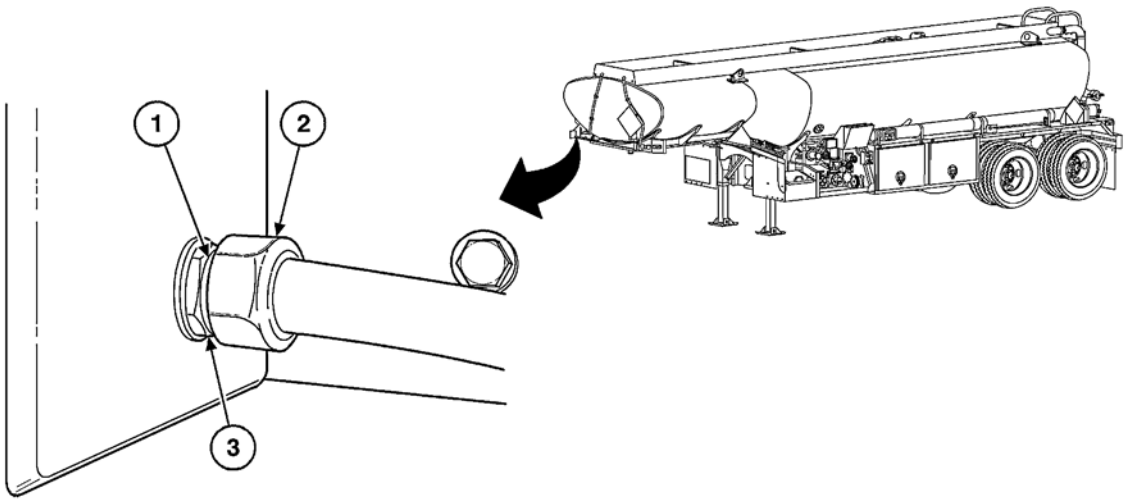
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Front marker lights wiring harness removed (refer to WP 0058)

REMOVAL

NOTE

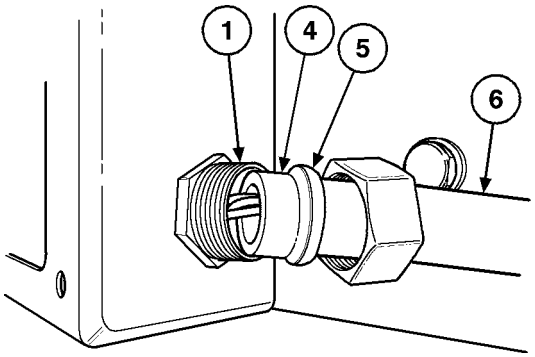
All conduits are replaced the same way, only the number of clips and brackets vary. This procedure replaces the front conduit.

1. Remove conduit nut (2) from threads of conduit fitting (1).
2. Loosen nut (3) at fitting (1).



3. Remove conduit (6), insert (4), and compression sleeve (5) from fitting (1).

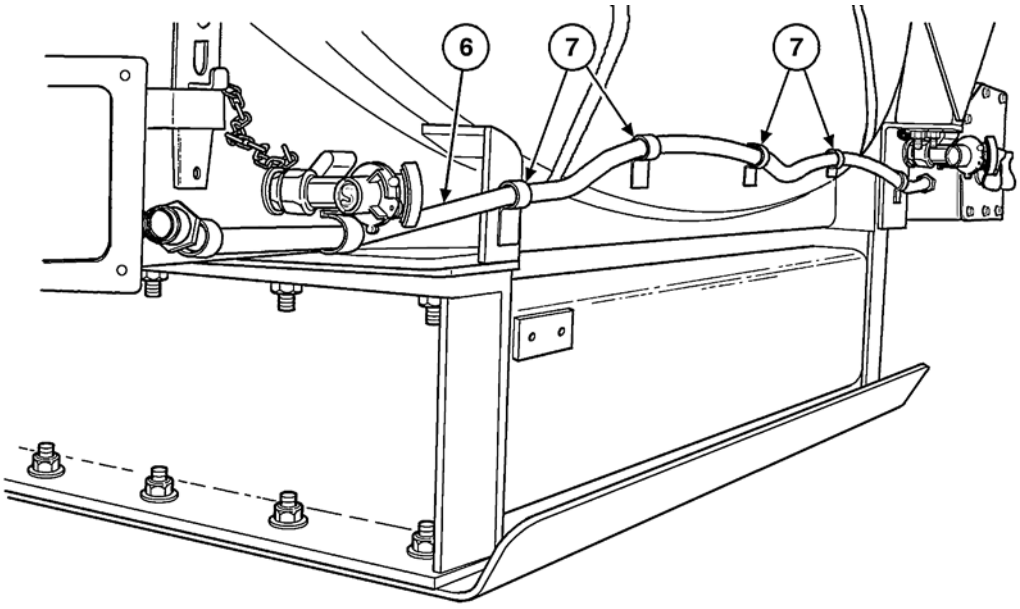
4. Remove insert (4) and sleeve (5) from conduit (6). Discard insert and sleeve.



CAUTION

Do not bend clips too much or they may break.

5. Bend clips (7) and remove conduit (6).

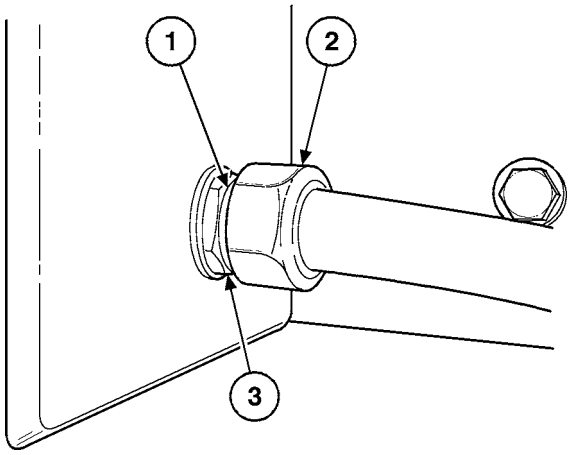


INSTALLATION

NOTE

Conduits are stocked in bulk lengths. Measure original conduit and cut new conduit to same length. Trim ends of conduit to get a smooth, square cut.

1. Install conduit nut (2), new insert (4), and new sleeve (5) onto end of new conduit (6).
2. Install new conduit (6), new insert (4), and new sleeve (5) into end of fitting (1).
3. Tighten nut (3) at fitting (1).
4. Install conduit nut (2) onto fitting (1) and tighten.



5. Install new conduit (6) to clips (7) and bend to secure.

FOLLOW-ON TASKS

1. Install front marker light cable (WP 0058 00).
2. Reconnect negative battery terminal (WP 0007 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

NATO SLAVE RECEPTACLE REPLACEMENT 0064 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

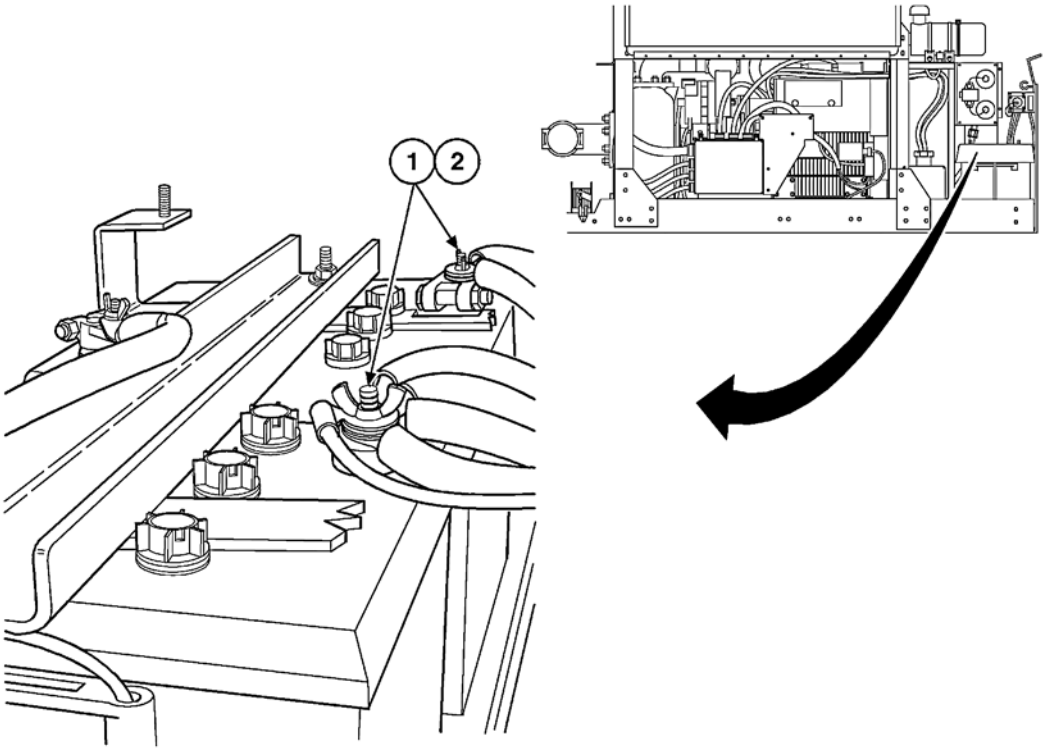
Materials/Parts Equipment
Self-locking nuts (2) (item 58, WP 0175 00)
Self-locking nuts (4) (item 76, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

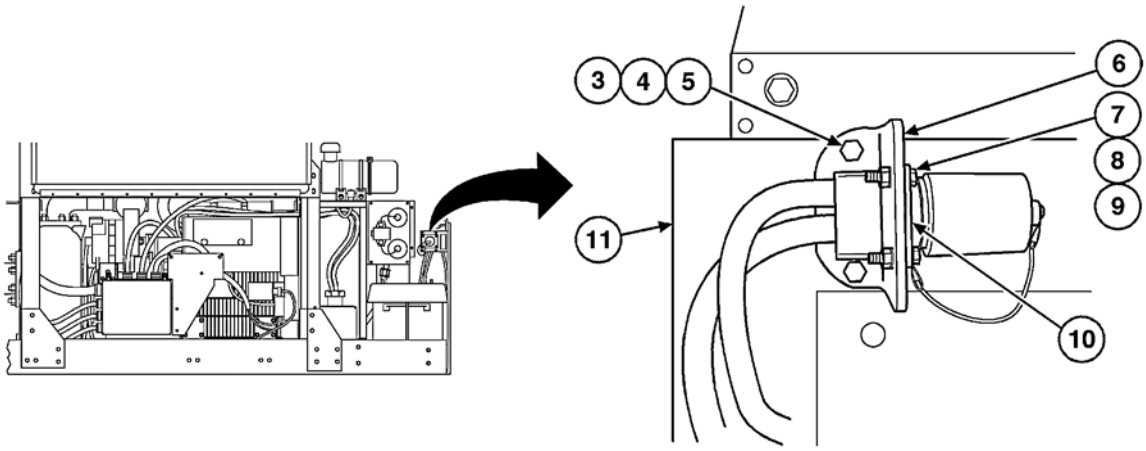
NOTE
Tag cables for easy installation.

1. Remove two cables (1) from two battery terminals (2).



2. Remove four self-locking nuts (7), washers (8), bolts (9), and NATO slave receptacle (10) from bracket (6). Discard self-locking nuts.

3. Remove two self-locking nuts (3), four washers (4), bolts (5), and bracket (6) from engine splash shield (11). Discard self-locking nuts.

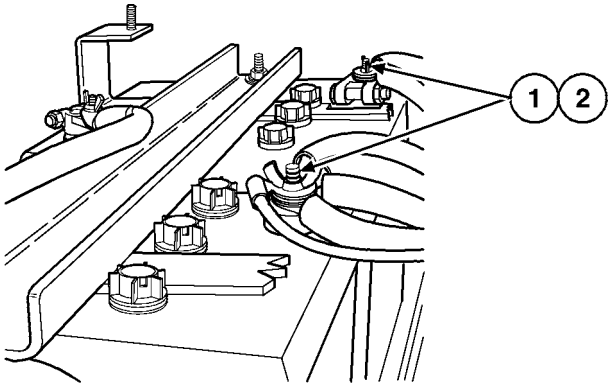


INSTALLATION

1. Install bracket (6), two bolts (5), four washers (4), and two new self-locking nuts (3) to engine splash shield (11).

2. Install NATO slave receptacle (10), four bolts (9), washers (8), and new self-locking nuts (7) to bracket (6).

3. Install two cables (1) to two battery terminals (2).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ELECTRICAL WIRING REPAIR **0065 00**

THIS WP COVERS:
Repair

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts
Solder (AR) (item 14, WP 0174 00)
Tape, electrical (AR) (item 16, WP 0174 00)
ID bands (AR) (item 55, WP 0175 00)

REPAIR

1. Check cable assemblies and leads for damaged insulation. Repair using electrical tape. If insulation is too badly damaged to repair with tape, go to step 3.

2. Check ends of wires for bent, broken, or damaged electrical connectors. Replace missing or damaged connectors per step 5.

3. Remove damaged wires from components. Cut off and discard electrical connectors.

4. Measure length of removed wire and install new length of identical wire. After installing new wire, replace electrical connectors per step 5 and tag wires with ID bands as necessary.

5. Install new connector parts as follows.

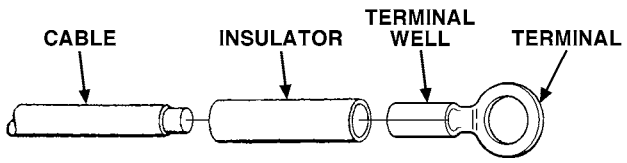
    a. Terminal type cable connector:

        1) Strip cable insulation equal to depth of terminal well.

        2) Slide insulator over cable.

        3) Insert cable into terminal well and crimp terminal.

        4) Slide insulator over crimped end of terminal.



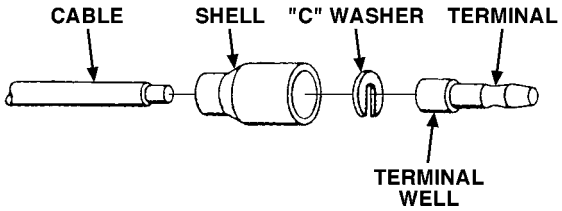
b. Male cable connector:

1) Strip cable insulation equal to depth of terminal well.

2) Slide shell over cable.

3) Insert cable into terminal well.

4) Place “C” washer over cable at crimped junction and slide shell over “C” washer and terminal.



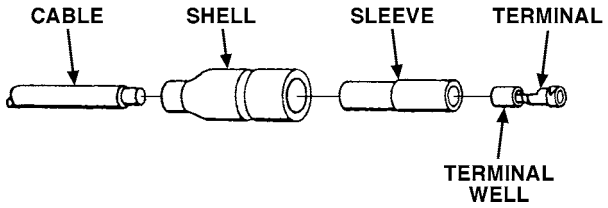
c. Female cable connector (with sleeve):

1) Strip cable insulation equal to depth of terminal well.

2) Slide shell and sleeve over cable.

3) Insert cable into terminal well and crimp.

4) Slide shell and sleeve over terminal.



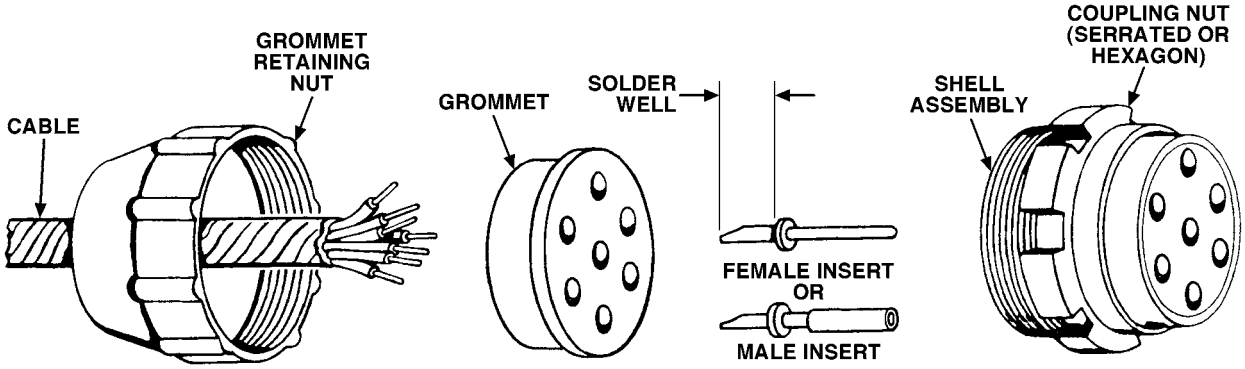
d. Plug and receptacle assemblies:

1) Strip cable insulation equal to depth of solder wells of inserts.

2) Pass cable ends through grommet retaining nut, grommet, and coupling nut and into solder wells of inserts and solder.

3) Slide grommet over inserts and press into shell assembly until seated.

4) Thread grommet retaining nut to shell assembly until seated.



END OF TASK

BRAKE ACTUATING CAMSHAFT REPLACEMENT 0066 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Lockwashers (16) (item 130, WP 0175 00)
O-rings (8) (item 22, WP 0175 00)
Retaining rings (4) (item 17, WP 0175 00)

References
WP 0044 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Jack stands (item 3, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Axles supported by jack stands (refer to WP 0007 00)
Wheel assemblies removed (refer to WP 0007 00)
Brakedrum assemblies removed (refer to WP 0068 00)
Brakeshoes removed (refer to WP 0067 00)
Slack adjusters removed (refer to WP 0069 00)

REMOVAL

WARNING

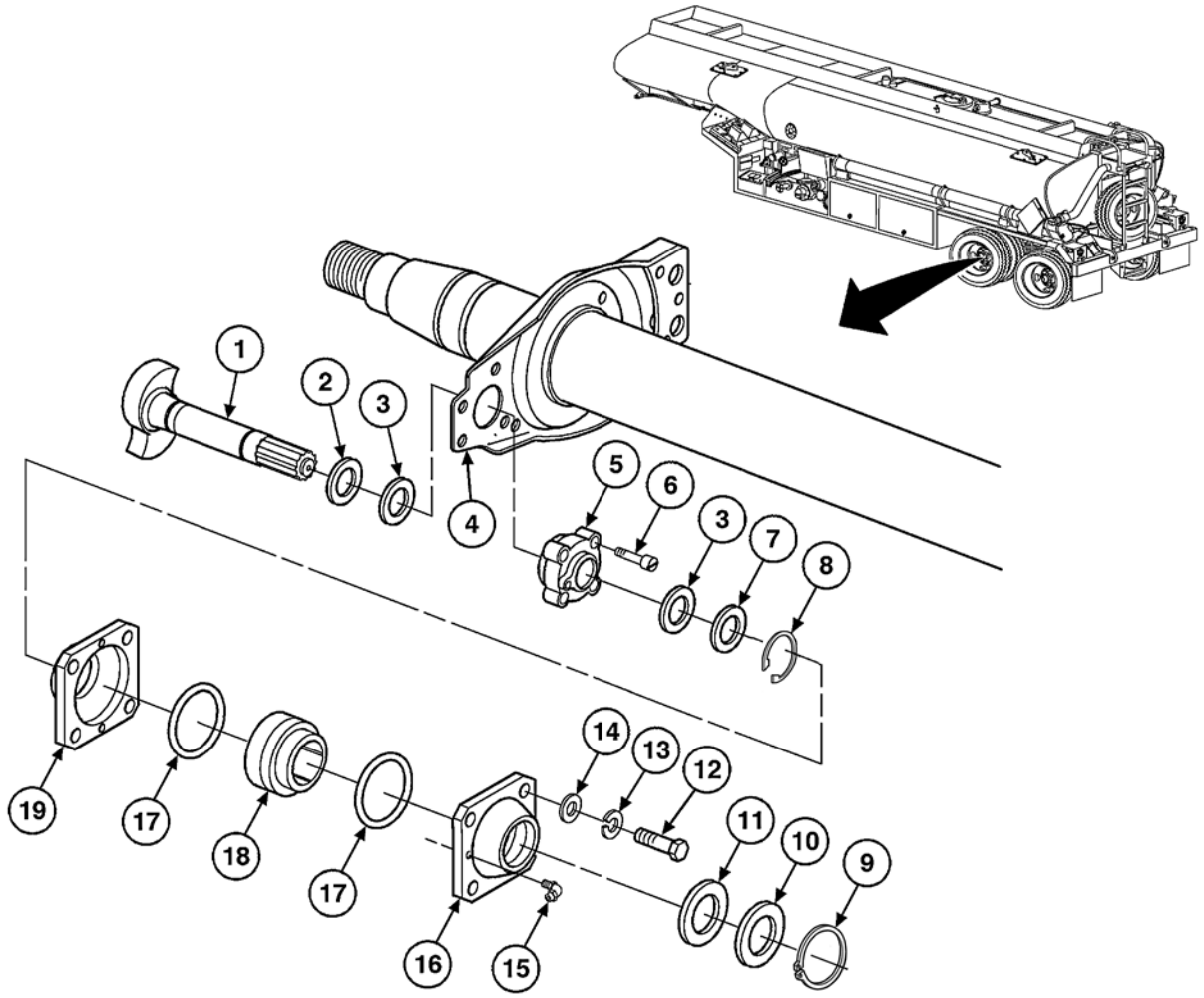
The axle must be firmly supported to prevent shifting of the semitrailer. Shifting may cause serious injury to personnel and damage to equipment.

NOTE

There are four brake camshafts and they are replaced the same way. This procedure replaces one brake camshaft.

BRAKE ACTUATING CAMSHAFT REPLACEMENT—Continued **0066 00**

1. Remove snap ring (9), washer (10), spacer (11), and retainer bushing (19) from camshaft (1).
2. Remove retaining ring (8), spacer (7), washer (3), four cap screws (6), bushing retainer (5), washer (3), washer (2), and camshaft (1) from bracket (4). Discard retaining ring.
3. Remove four screws (12), lockwashers (13), washers (14), retainer (16), bushing bracket (18), two O-rings (17), and retainer bushing (19). Discard lockwashers and O-rings.
4. Remove lubrication fitting (15) from retainer (16).



INSTALLATION

1. Install lubrication fitting (15) to retainer bushing (16).
2. Install two new O-rings (17), bushing bracket (18), retainer (16), four washers (14), new lockwashers (13), and screws (12) to retainer bushing (19).
3. Install washer (2), washer (3), and camshaft (1) through bracket (4) to bushing retainer (5) and secure with four cap screws (6), washer (3), spacer (7), and new retaining ring (8).
4. Install retainer bushing (19), spacer (11), washer (10), and snap ring (9) to camshaft (1).
5. Lubricate per WP 0044 00.

FOLLOW-ON TASKS

1. Install slack adjusters (WP 0069 00).
2. Install brakeshoes (WP 0067 00).
3. Install brakedrum (WP 0068 00).
4. Install wheel assemblies (WP 0007 00).
5. Remove jack stands from axles (WP 0007 00).
6. Adjust brakes (WP 0069 00).
7. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

BRAKESHOES REPLACEMENT 0067 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Rags (item 11, WP 0174 00)

References
WP 0044 00
WP 0068 00
WP 0069 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Jack stands (item 3, WP 0171 00)

Personnel Required
Two

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Axle supported by jack stands (refer to WP 0007 00)
Wheel assemblies removed (refer to WP 0007 00)
Brakedrums removed (refer to WP 0068 00)

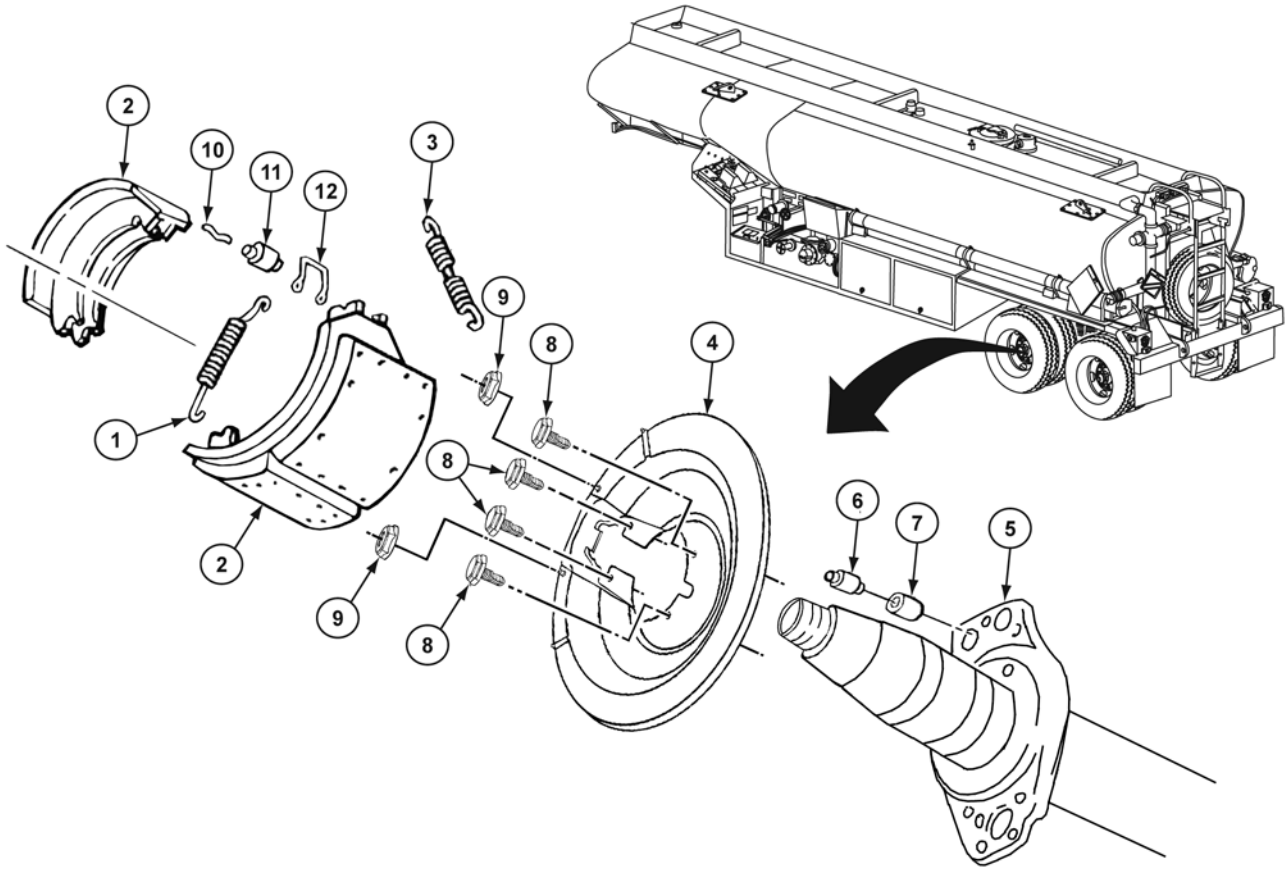
REMOVAL

NOTE

There are four brakeshoes and they are replaced the same way. This procedure replaces one brakeshoe.

BRAKESHOES REPLACEMENT—Continued **0067 00**

1. Remove spring (1) and spring (3) from right and left sides of brakeshoe (2).
2. Remove shoulder pin (7), bushing (6), roller (11), clip (12), and spring pin (10).
3. Remove brakeshoe (2) from axle shaft (5).
4. Remove capscrew (8), washer (9), and dustshield (4) from axle shaft (5).



INSTALLATION

1. Install dustshield (4), washer (9), and capscrew (8) to axle shaft (5).
2. Install brakeshoes (2) around axle shaft (5).
3. Install spring (1) and spring (3) to brakeshoes (2).
4. Lubricate per WP 0044 00.
5. Install shoulder pin (7), bushing (6), roller (11), clip (12), and spring pin (10) to brakeshoes (2).

FOLLOW-ON TASKS

1. Install brakedrums (WP 0068 00).
2. Install wheel assemblies (WP 0007 00).
3. Adjust brakes (WP 0069 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HUBS, BRAKEDRUMS, AND ABS SENSOR MAINTENANCE 0068 00

THIS WP COVERS:
Removal, Cleaning and Inspection, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts Personnel
Compound, cleaning (item 4, WP 0174 00)
Grease (item 8, WP 0174 00)
Rags (item 11, WP 0174 00)
ABS sensor clips (4) (item 126, WP 0175 00)
Cable ties (AR) (item 98, WP 0175 00)
Gaskets (4) (item 37, WP 0175 00)
Grommets (4) (item 35, WP 0175 00)
Lockwashers (24) (item 100, WP 0175 00)
Seals (4) (item 102, WP 0175 00)

Tools and Special Equipment
Tool kit, general mechanic's (item 4, WP 0171 00)

Required
Two

References
TM 9-214
WP 0070 00

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Wheel assembly removed (refer to WP 0007 00)
Fail-safe brake chambers caged (refer to WP 0078 00)

WARNING

Brakedrum is heavy and requires two people to lift.

NOTE

There are four hub and brakedrums and they are replaced the same way. This procedure replaces one hub and brakedrum.

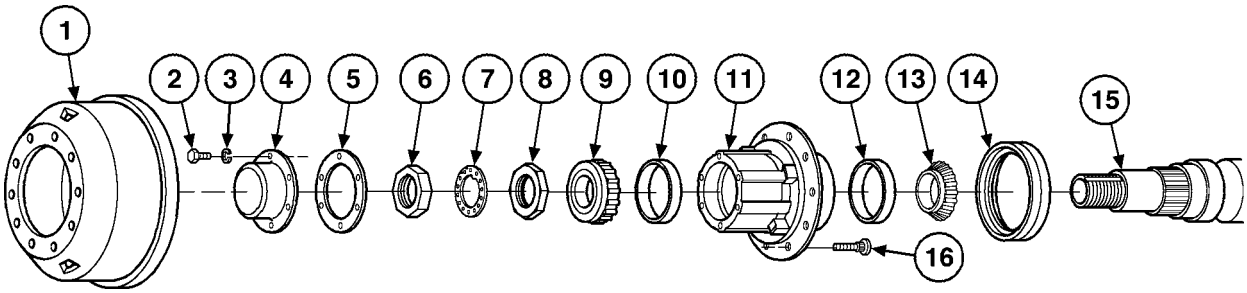
REMOVAL

1. Slide brakedrum (1) off hub (11).

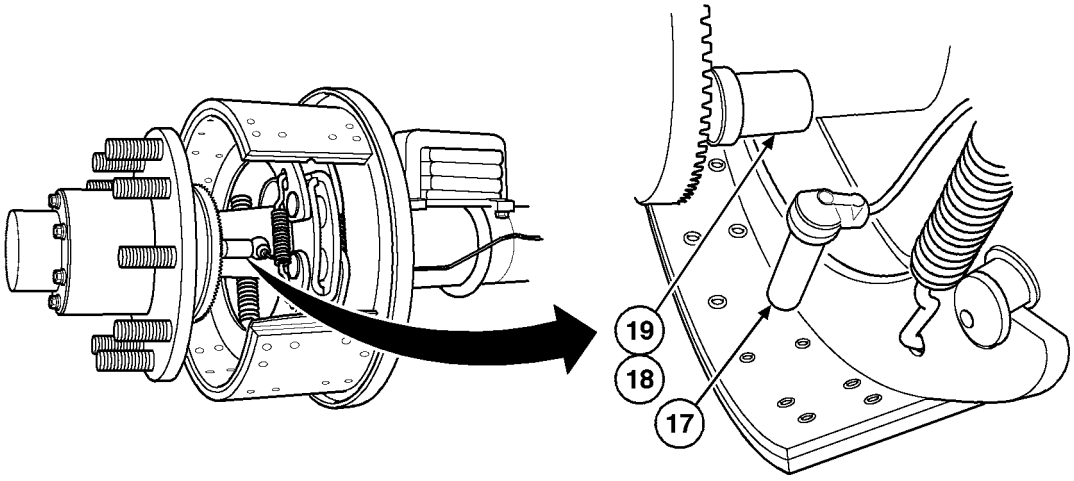
NOTE

If performing brake system maintenance only, stop here.

2. Remove six bolts (2), lockwashers (3), hubcap (4), and gasket (5) from hub (11). Discard lockwashers and gasket.
3. Remove outer bearing nut (6), lockring (7), and inner wheel nut (8) from spindle (15).
4. Remove outer wheel bearing (9) from outer wheel bearing cup (10), and slide hub (11) off spindle (15).
5. Remove seal (14), inner wheel bearing (13), and cup (12) from hub (11). Discard seal.
6. Remove wheel studs (16) if necessary.



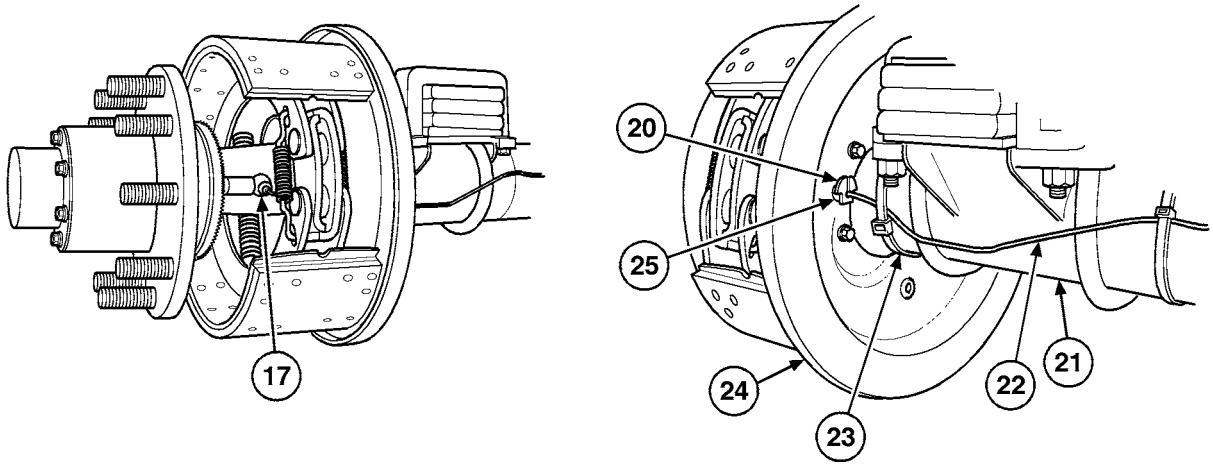
7. Remove sensor (17) and sensor clip (18) from mounting block (19). Discard sensor clip.



8. Remove all cable ties (23) from sensor cable (22) along axle (21). Discard ties.

9. Remove grommet (20), sensor (17), and sensor cable (22) from axle flange (24) and dust shield (25). Discard grommet.

10. Remove sensor cable from ECU (refer to WP 0067 00).



CLEANING AND INSPECTION

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

CAUTION

- **Do not clean parts with gasoline, in a hot solution tank, or with water and alkaline solutions.**
- **Do not use compressed air to spin bearings.**

1. Thoroughly clean all parts with cleaning compound and stiff fiber brush. Make sure parts are completely dry. Use low-pressure compressed air to dry parts (refer to TM 9-214).

2. Inspect hubcap for damage to flange that would allow water to leak into wheel bearings. Replace if damaged.

3. Check for damage to threads of studs and screws. Replace if damaged.

4. Inspect brakedrum for pitting or scoring. If brakedrum is damaged, replace it.

5. Inspect hub for rust, pitting, or cracks.

NOTE

Wheel bearings and bearing cups are matched sets. If wheel bearings need replacing, bearing cups must also be replaced.

6. Inspect inner and outer wheel bearings for cracks or breaks in bearing cage, etching or pitting on roller surfaces, and any evidence of wear. Replace if worn or damaged.

7. Pack inner and outer wheel bearings from large end of cone with grease, making sure all cavities between rollers and cage are filled. Cover bearings with clean, lint-free rag until time to install.

8. Inspect inner and outer bearing cup in hub for pits, grooves, or flaking. If damaged, replace with new bearing cup.

INSTALLATION

1. Install wheel studs (16) if removed.

2. Install inner and outer bearing cups (10 and 12) into hub (11).

3. Install inner wheel bearing (13) and new seal (14) into hub (11).

4. Install hub (11) fully to spindle (15).

5. Install outer wheel bearing (9) to spindle (15).

6. Install inner bearing nut (8) to spindle (15) and tighten to 75 lb-ft (101.7 N•m) to ensure proper seating of wheel bearings.

7. Loosen inner bearing nut (8) so wheel will turn freely.

8. Tighten inner bearing nut (8) to 50 lb-ft (67.8 N•m) while rotating hub (11) in order to position bearings for proper adjustment.

WARNING

Failure to torque outer bearing nut properly could cause wheel to come off during vehicle operation, which could result in severe injury or death to personnel or severe damage to property.

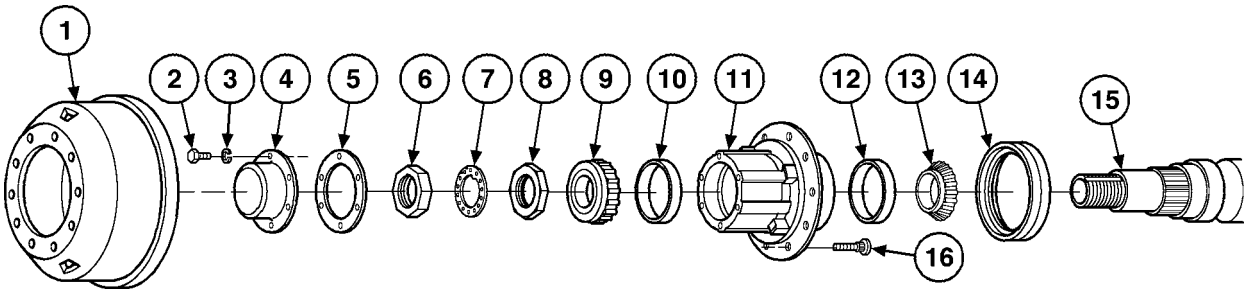
9. Loosen inner bearing nut (8) 1/3 turn.

10. Install lockring (7) so dowel on inner bearing nut (8) aligns with hole in lockring (7) and tang fits in keyway of spindle (15).

11. Install outer bearing nut (6) and tighten to 250 to 400 lb-ft (339 to 542 N•m).
12. Apply light coat of grease on new gasket (5) and position gasket on hub (11).
13. Install hubcap (4), six new lockwashers (3), and bolts (2) to hub (11).
14. Install sensor (17), sensor cable (22), and new grommet (20) through dust shield (25) and axle flange (24).

NOTE

Coat sensor with grease prior to installation.

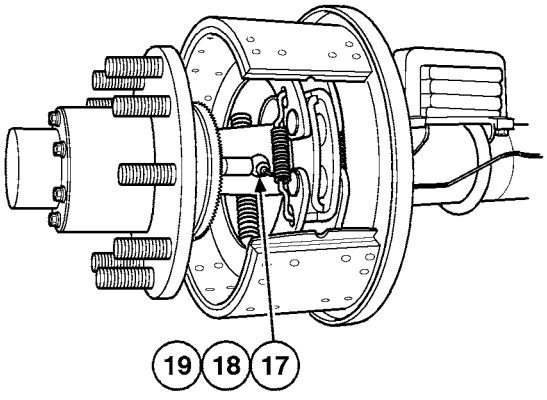


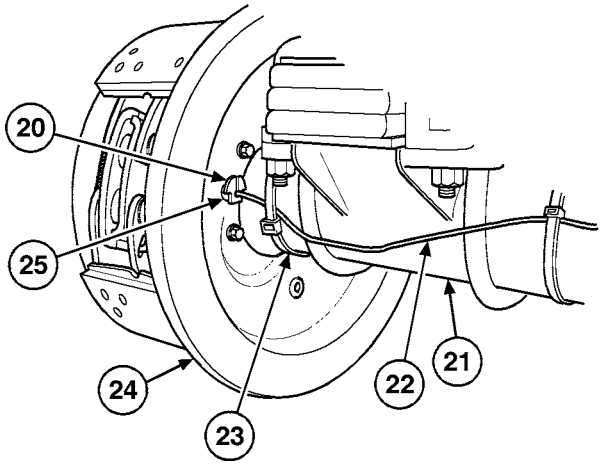
15. Install new sensor clip (18) and sensor (17) to mounting block (19).
16. Install brakedrum (1) to hub (11).

NOTE

Push sensor through mounting block as far as possible or until sensor contacts toothed wheel hub.

17. Secure sensor cable (22) to axle (21) with cable ties (23) as required.
18. Connect sensor cable to ECU (refer to WP 0070 00).





FOLLOW-ON TASKS

1. Uncage fail-safe brake chambers (WP 0078 00).
2. Install wheel assembly (WP 0007 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

SLACK ADJUSTERS MAINTENANCE 0069 00

THIS WP COVERS:
Removal, Cleaning and Inspection, Installation, Adjustment, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Rags (item 11, WP 0174 00)
Cotter pins (4) (item 111, WP 0175 00)
Cotter pins (4) (item 131, WP 0175 00)
Retaining rings (4) (item 17, WP 0175 00)

Tools and Specific Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Tool set, common no. 1 (item 1, WP 0171 00)

References
WP 0044 00

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)
Fail-safe brake chambers caged (refer to WP 0078 00)

NOTE

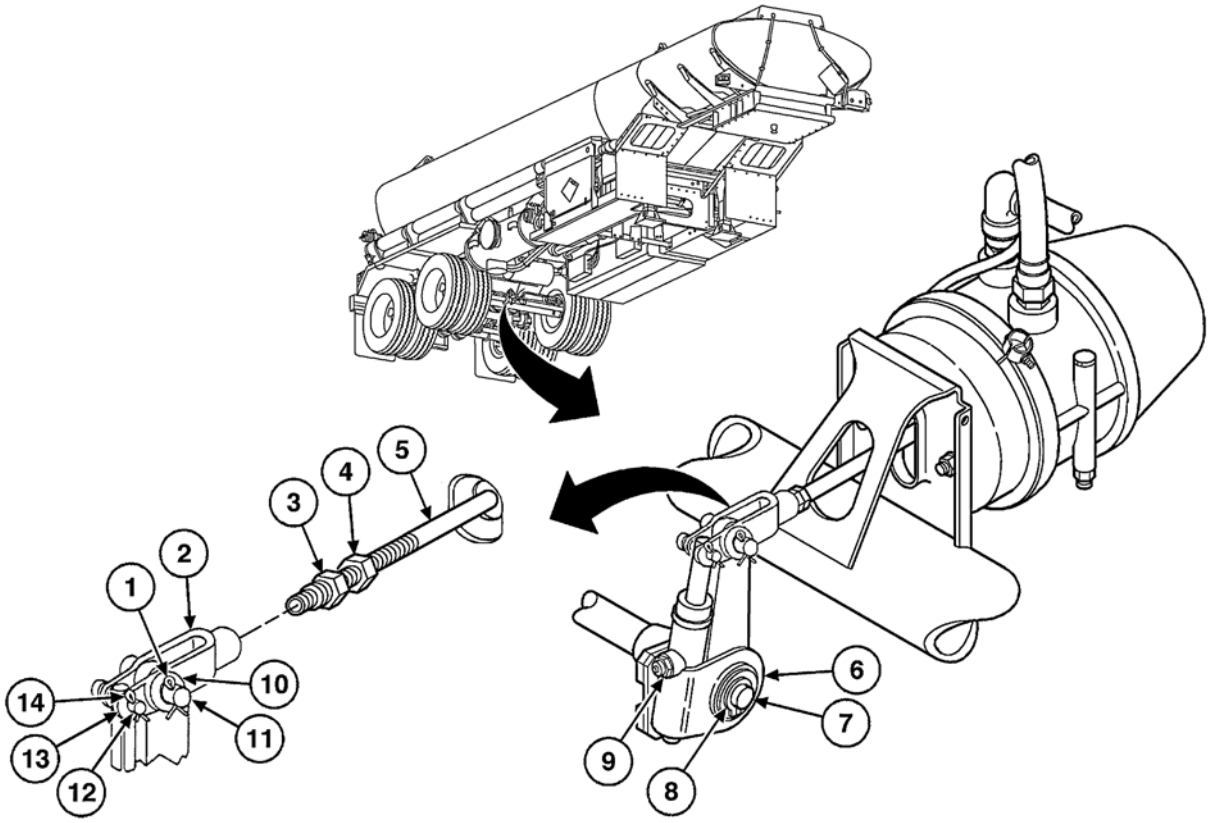
There are four slack adjusters and they are replaced the same way. This procedure replaces one slack adjuster.

REMOVAL

1. Loosen brake actuator push-rod jamnut (4). Loosen yoke adapter (3) until it is free of yoke (2).

NOTE

More torque is required to rotate slack adjuster manual adjustment hex counterclockwise than is necessary to rotate it clockwise. Torque may be as high as 70 lb-ft (94.9 N•m).



2. Rotate slack adjuster manual adjustment hex (9) counterclockwise until slack adjuster (6) is clear of brake actuator push rod (5).

3. Remove retaining ring (8) from recess on end of camshaft (7). Discard retaining ring.

4. Using soft-faced hammer, tap on slack adjuster (6) lightly until it can be removed from camshaft (7).

5. Remove two cotter pins (1 and 14), yoke pin (11), link pin (12), two washers (10 and 13), and yoke (2) from slack adjuster (6). Discard cotter pins.

CLEANING AND INSPECTION

NOTE

Do not use solvents or soap and water for cleaning.

1. Clean slack adjuster, splines of camshaft, and other metal parts using stiff fiber brush, and wipe clean.

2. Inspect slack adjuster for bent, broken, loose, or misaligned brake actuator push rods and cracked or damaged brake actuator brackets. Replace slack adjuster if damaged.

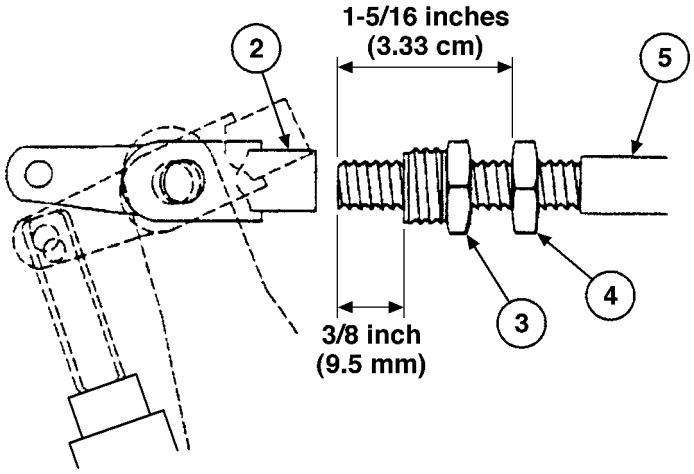
INSTALLATION

1. Install yoke (2), yoke pin (11), link pin (12), two washers (10 and 13), and new cotter pins (1 and 14) on slack adjuster (6).

2. Install slack adjuster (6) and new retaining ring (8) on end of camshaft (7).

3. Install jamnut (4) approximately 1-5/16 in. (3.33 cm) from end of push rod (5).

4 Install yoke adapter (3) on push rod (5) approximately 3/8 in. (9.5 mm) from end of push rod (5).



5. Turn manual adjustment hex (9) clockwise until yoke adapter (3) extends into bore of yoke (2) approximately 1/8 inch (3.2 mm). Thread adapter into yoke and tighten to 10 lb-ft (13.6 N•m).

6. Tighten jamnut (4) to 34 to 50 lb-ft (46.0 to 67.8 N•m).

7. Lubricate slack adjusters per WP 0044 00.

ADJUSTMENT

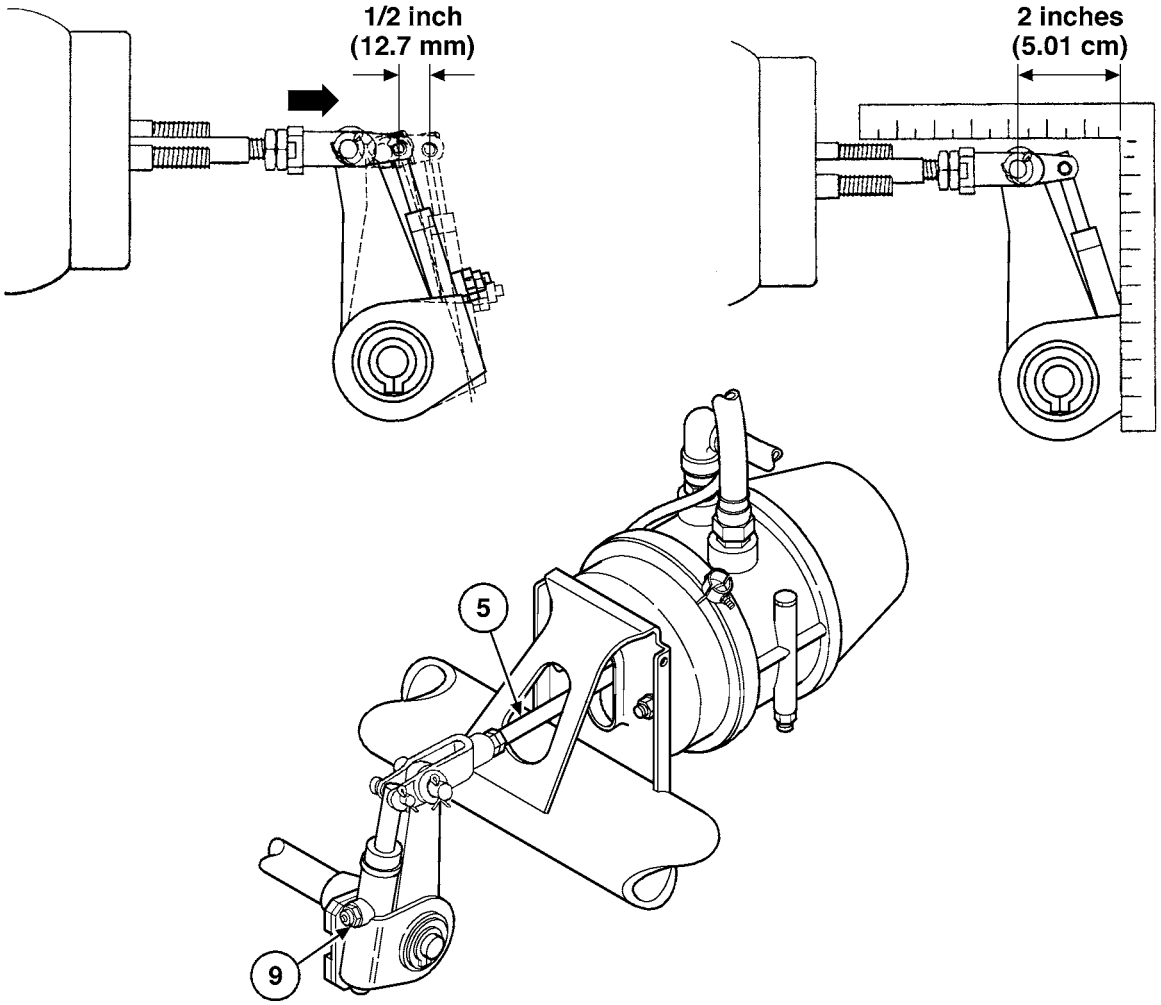
1. Raise rear axle until wheels clear ground. Rotate manual adjustment hex (9) clockwise until brake linings are snug against brakedrum.

NOTE

More torque is required to rotate manual adjustment hex counterclockwise than is necessary to rotate it clockwise. Torque may be as high as 70 lb-ft (94.9 N•m).

2. Turn manual adjustment hex (9) counterclockwise 1/4 turn. Pull push rod (5) to confirm that push rod (5) has approximately 0.50 in. (12.7 mm) of free travel.

3. Apply 90 to 95 psi (621 to 655 kPa) air pressure from towing vehicle air gage. Make and hold a full brake application. Measure push-rod stroke. Two in. (5.1 cm) is maximum stroke. If stroke exceeds 2-in. (5.1-cm) limit, inspect all brake system components for serviceability.



FOLLOW-ON TASKS

1. Uncage fail-safe brake chambers (WP 0078 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ABS DIAGNOSTICS/ECU VALVE REPLACEMENT 0070 00

THIS WP COVERS:
ABS Diagnostics, ECU Valve Removal, ECI Valve Installation, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

ABS DIAGNOSTICS

NOTE

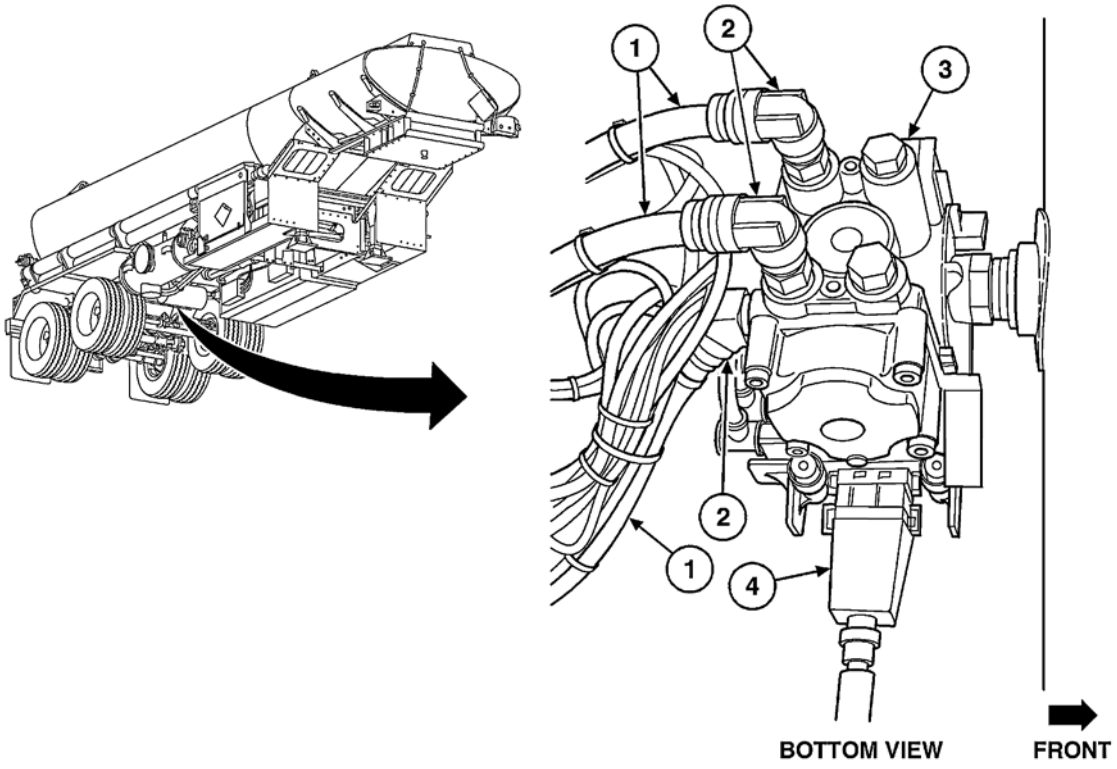
The ABS warning light must operate. If nonoperational, correct that fault before proceeding.

Table 1. ABS Diagnostic Blink Codes.

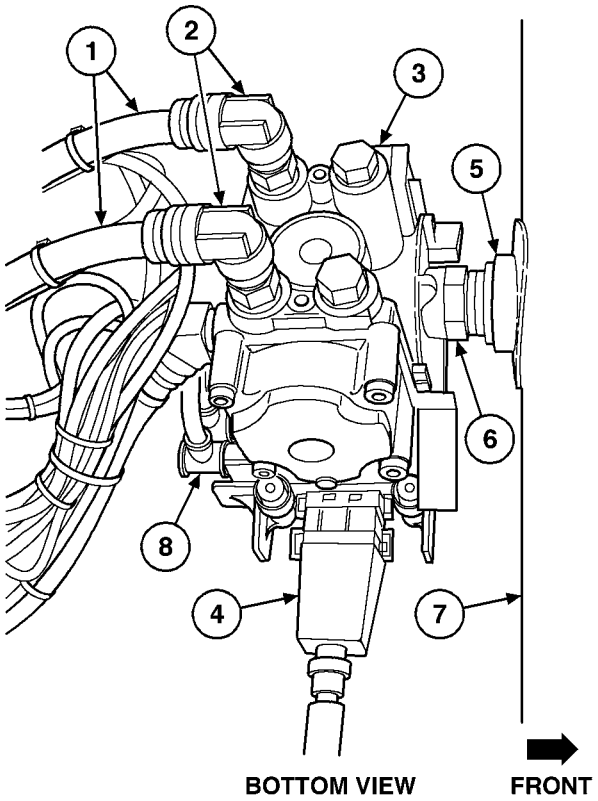
Blink Code	Problem Area	Action
3	Sensor BU1 Roadside front	Check sensor installation. Make necessary repairs.
4	Sensor YE1 Curbside front	Check sensor installation. Make necessary repairs.
5	Sensor BU2 Roadside rear	Check sensor installation. Make necessary repairs.
6	Sensor YE2 Curbside rear	Check sensor installation. Make necessary repairs.
7	External ABS modulator valve	Verify proper electrical installation. Check power supply. Make necessary corrections.
9	Internal modulator failure, inlet valve #2	Very proper installation. If code continues, replace inlet valve #2.
10	Internal modulator failure, inlet valve #1	Verify proper installation. If code continues, replace inlet valve #1.
11	Internal modulator failure, outlet valve	Verify proper installation. If code continues, replace outlet valve.
14	Power supply	Verify proper electrical installation. Check power supply. Make necessary corrections.
15	ECU failure	Verify proper installation. If code continues, replace ECU.
16	SAE J1708 failure	Replace ECU.
17	SAE J2497 (PLC) failure	Replace ECU.
18	Generic I/O failure	Verify proper electrical installation. Check power supply. Make necessary corrections.

ECU VALVE REMOVAL

1. Disconnect electrical connector (4) from ECU valve (3).
2. Tag and disconnect four air hoses (1) from elbow fittings (2).



3. Tag and disconnect four ABS sensors (8) from ECU valve (3).
4. Remove ECU valve (3) from air reservoir (7) by loosening nut (6) from threaded fitting (5).



ECU VALVE INSTALLATION

1. Install ECU valve (3) to air reservoir (7) by tightening nut (6) to threaded fitting (5).
2. Install four ABS sensors (8) to ECU valve (3). Remove tags.
3. Install four air hoses (1) to elbow fittings (2). Remove tags.
4. Install electrical connector (4) to ECU valve (3).

FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

AIR BRAKE CHAMBERS MAINTENANCE 0071 00

THIS WP COVERS:
Removal, Installation, Test, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References

Compound, thread sealing (item 7, WP 0174 00)	WP 0069 00
Lockwashers (8) (item 13, WP 0175 00)	WP 0076 00

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)
Fail-safe brake chambers caged (refer to WP 0078 00)

WARNING

- **No disassembly of air brake chamber is authorized. Before any work is performed on the spring brake system, chock the wheel front and rear to prevent semitrailer movement. When inspecting or caging air brake chambers, do not position yourself in front of, or in line with, the chamber. Serious injury or death may occur if this warning is not followed.**
- **Discarded air brake chambers must be safely and properly disposed of. They should be disarmed prior to disposal to prevent present and future injury.**

NOTE

There are four air brake chambers and they are replaced the same way. This procedure replaces one air brake chamber.

REMOVAL

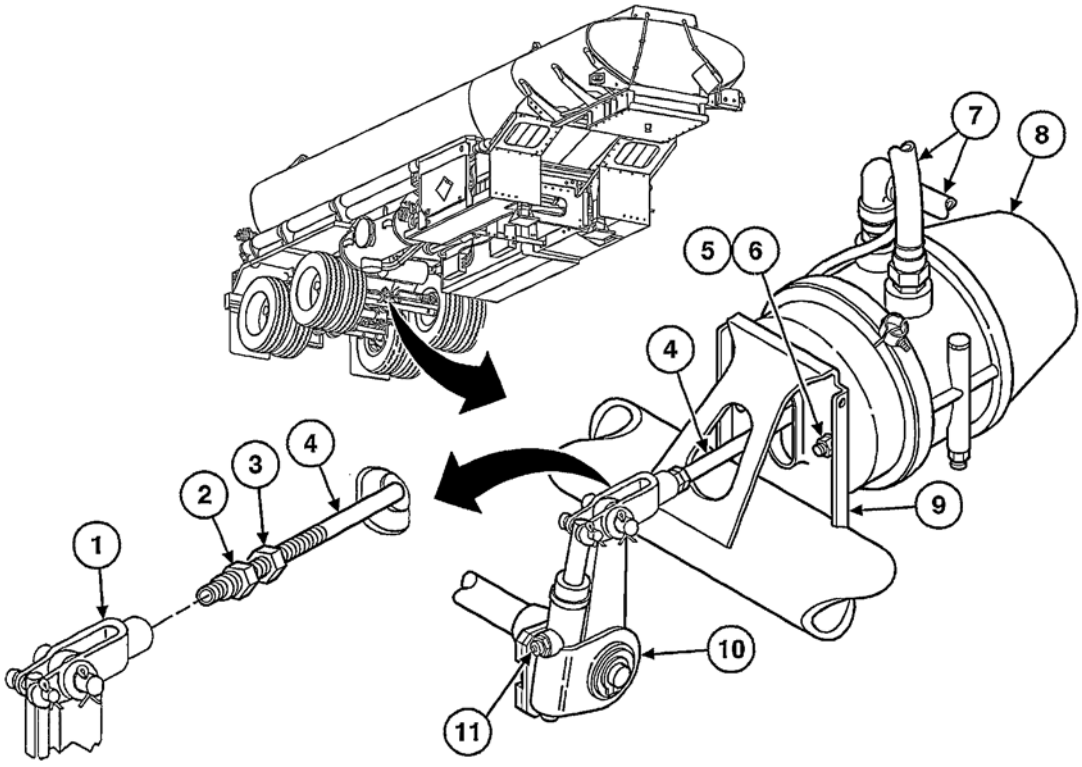
1. Disconnect two brake hoses (7) from air brake chamber (8) (refer to WP 0078 00).

2. Loosen brake actuator push-rod jamnut (3). Loosen yoke adapter (2) until it is free of yoke (1).

NOTE

More torque is required to rotate slack adjuster manual adjustment hex counterclockwise than is necessary to rotate it clockwise. Torque may be as high as 70 lb-ft (94.9 N•m).

3. Rotate slack adjuster manual adjustment hex (11) counterclockwise until slack adjuster (10) is clear of brake actuator push rod (4).



4. Remove two nuts (5), lockwashers (6), and air brake chamber (8) from bracket (9). Discard lockwashers.

5. Remove fittings, yoke adapter (2), and jamnut (3) from air brake chamber (8).

INSTALLATION

NOTE

Apply thread sealing compound to threads of fittings.

1. Install fittings on air brake chamber (8).
2. Install air brake chamber (8) on bracket (9) with two nuts (5) and new lockwashers (6).

NOTE

Refer to WP 0069 00 for slack adjuster adjustment.

3. Install jamnut (3) approximately 1-5/16 in. (3.33 cm) from end of push rod (4).
4. Install yoke adapter (2) on push rod (4) approximately 3/8 in. (9.5 mm) from end of push rod (4).
5. Turn manual adjustment hex (11) clockwise until yoke adapter (2) extends into the bore of yoke (1) approximately 1/8 in. (3.2 mm). Thread adapter into yoke and tighten to 10 lb-ft (13.6 N•m).
6. Tighten jamnut (3) to 34 to 50 lb-ft (46.0 to 67.8 N•m).
7. Connect two brake hoses (7) to air brake chamber (8).

TEST

1. Apply and hold a full-pressure brake application.

NOTE

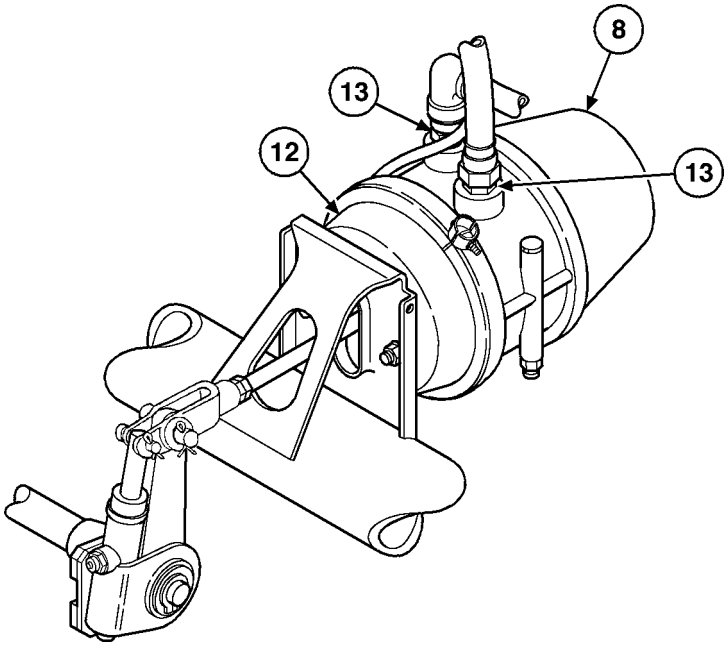
Initial brake application will force out a small amount of air. No air should be expelled from air chamber after initial application. If air continues to be expelled from air chamber, replace air chamber.

2. With prime mover connected (refer to WP 0007 00) and semitrailer brakes applied, coat flanges (12) and connections (13) on air brake chamber (8) with soapy water.

3. Inspect flanges (12) and connections (13) for leakage, indicated by bubbles.

4. If leakage is found at flange (12), replace chamber (8).

5. If leakage is found at connections (13), tighten fittings.



FOLLOW-ON TASKS

1. Uncage fail-safe brake chambers (WP 0078 00).

2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

BRAKE INTERLOCK VALVES MAINTENANCE 0072 00

THIS WP COVERS:
Removal, Installation, Test, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References
Compound, thread sealing (item 7, WP 0174 00)
Lockwashers (4) (item 78, WP 0175 00)
WP 0076 00

Equipment

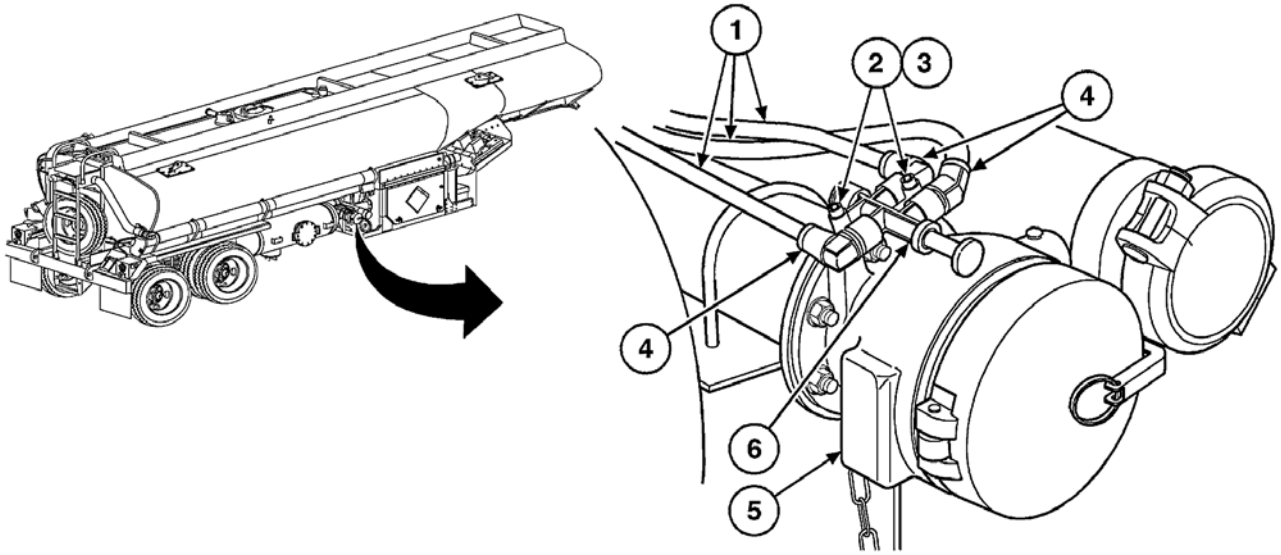
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

- **There are two brake interlock valves and they are both replaced the same way. This procedure replaces one brake interlock valve.**
- **Identify lines prior to disconnecting from brake interlock valve.**

1. Disconnect three lines (1) and remove fittings (4) from brake interlock valve (6) (refer to WP 0076 00).
2. Remove two screws (2), lockwashers (3), and brake interlock valve (6) from bottom loading valve (5). Discard lockwashers.



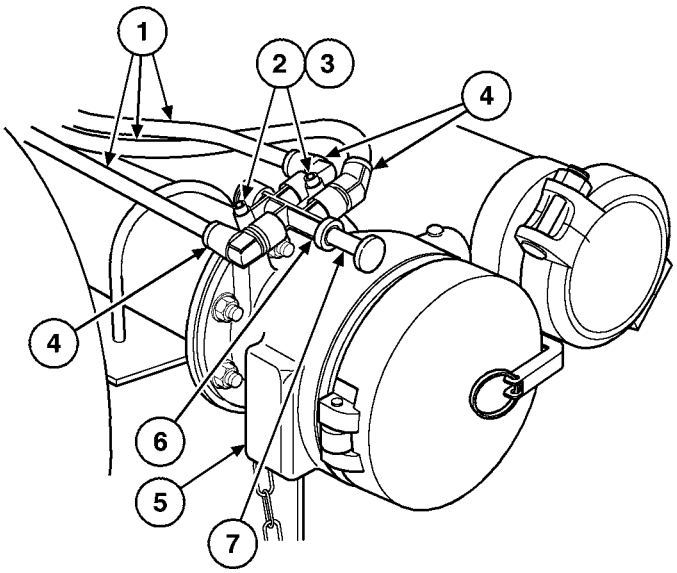
INSTALLATION

1. Install brake interlock valve (6), two new lockwashers (3), and screws (2) to bottom loading valve (5).

NOTE

Apply thread sealing compound to threads of fittings.

2. Install three fittings (4) to brake interlock valve (6) and connect three lines (1).



TEST

1. With prime mover connected (refer to WP 0007 00) and brake interlock valve (6) applied, coat fittings (4) and connections on brake interlock valve (6) with soapy water.
2. Inspect fittings (4) and brake interlock valve (6) for leakage, indicated by bubbles.
3. If leakage is found at fittings (4), tighten fittings.
4. If leakage is found at plunger (7), replace brake interlock valve (6).

FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

AIR RESERVOIR REPLACEMENT 0073 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Organizational

Materials/Parts Personnel
Compound, thread sealing (item 7, WP 0174 00)
Self-locking nuts (4) (item 93, WP 0175 00)

References
WP 0076 00

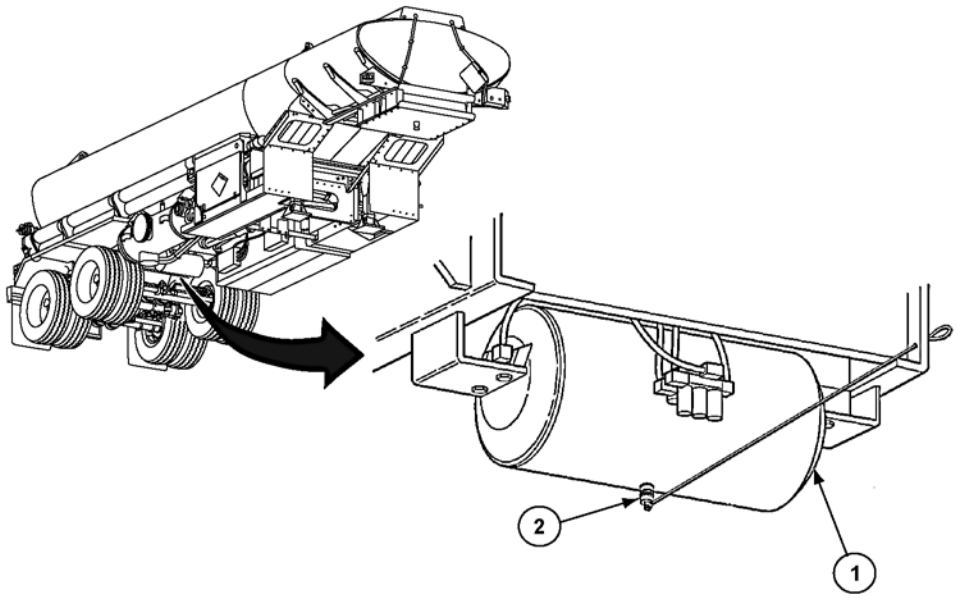
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Required
Two

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Spring brake control valve removed (refer to WP 0074 00)
ECU valve removed (refer to WP 0070 00)

REMOVAL

1. Remove air drain valve (2) from bottom of air reservoir (1).



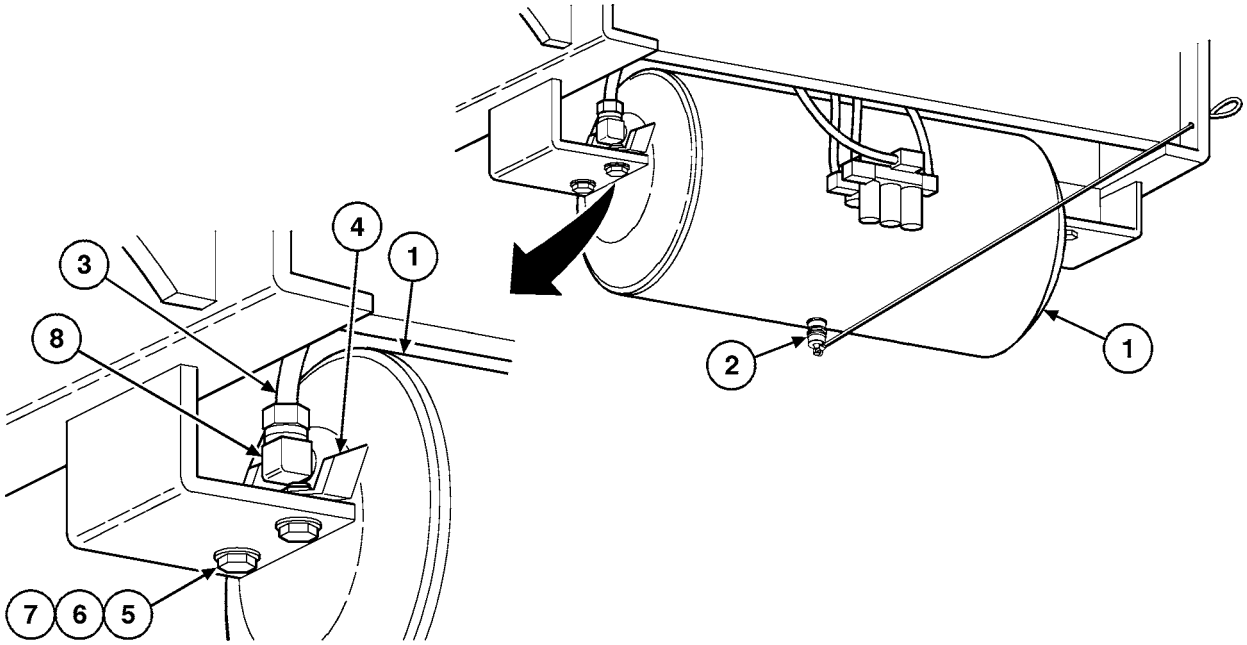
2. Remove air lines (3) from curbside and roadside ends of air reservoir (1) (refer to WP 0076 00).

WARNING

Air reservoir is heavy. Get help when removing air reservoir from semitrailer. Failure to follow this warning could result in injury to personnel.

3. Remove four self-locking nuts (7), eight washers (6), four screws (5), and air reservoir (1) from two air reservoir brackets (4). Discard self-locking nuts.

4. Remove fittings (8) from air reservoir (1).



INSTALLATION

WARNING

Air reservoir is heavy. Get help when installing air reservoir to semitrailer. Failure to follow this warning could result in injury to personnel.

NOTE

Apply thread sealing compound to threads of fittings and air drain valve.

1. Install fittings (8) to air reservoir (1).

2. Install air reservoir (1), four bolts (5), eight washers (6), and four new self-locking nuts (7) to two air reservoir brackets (4).
3. Install air lines (3) on curbside and roadside ends of air reservoir (1).
4. Install air drain valve (2) to underside of air reservoir (1).

FOLLOW-ON TASKS

1. Install ECU valve (WP 0070 00).
2. Install spring brake control valve (WP 0074 00).
3. Reconnect negative battery terminal (WP 0007 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

SPRING BRAKE CONTROL VALVE MAINTENANCE 0074 00

THIS WP COVERS:
Removal, Installation, Test, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

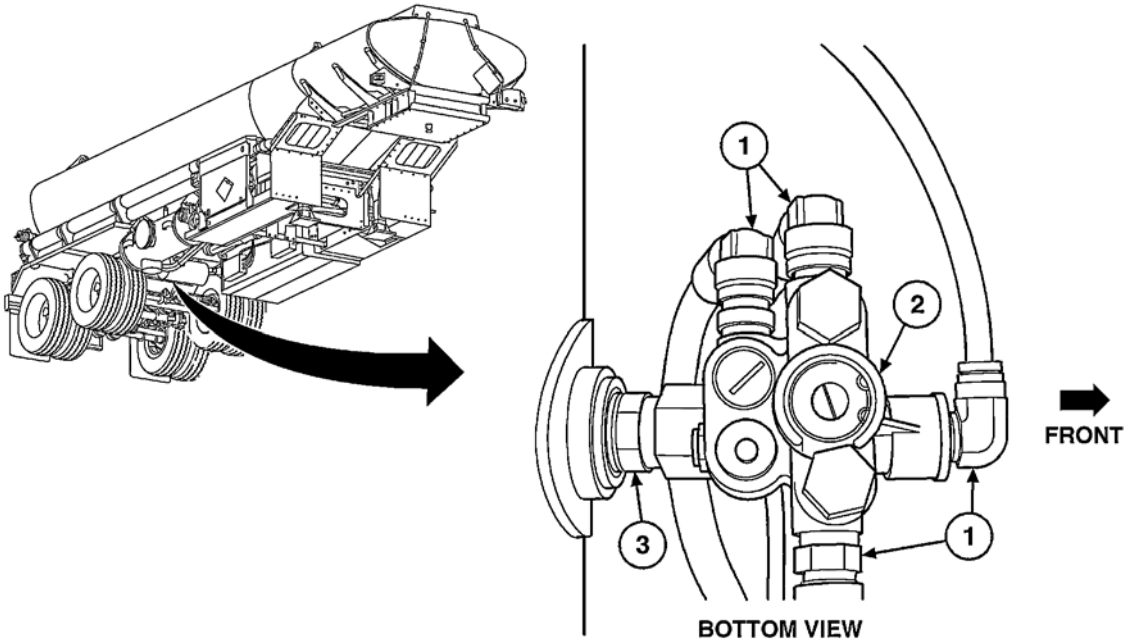
Materials/Parts Equipment
Compound, thread sealing (item 7, WP 0174 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)

References
WP 0076 00

REMOVAL

1. Tag and disconnect four air lines (1) at spring brake control valve (2) (refer to WP0076 00).
2. Remove valve (2) from air reservoir fitting (3).
3. Remove four fittings from valve (2).

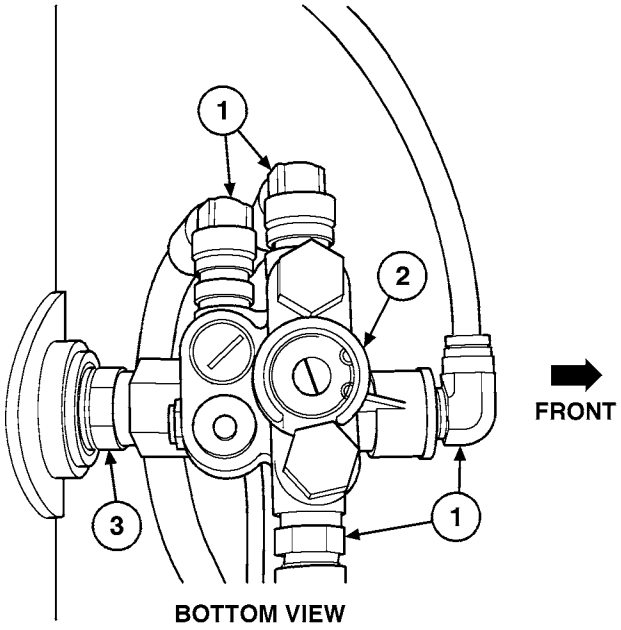


INSTALLATION

NOTE

Apply thread sealing compound to threads of fittings.

1. Install four fittings to valve (2).
2. Install valve (2) to air reservoir fitting (3).
3. Connect four air lines (1) to valve (2).



BOTTOM VIEW

TEST

Test all components for leakage (WP 0076 00).

FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

PARKING BRAKE CONTROL VALVE MAINTENANCE 0075 00

THIS WP COVERS:
Removal, Installation, Test, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, thread sealing (item 7, WP 0174 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)

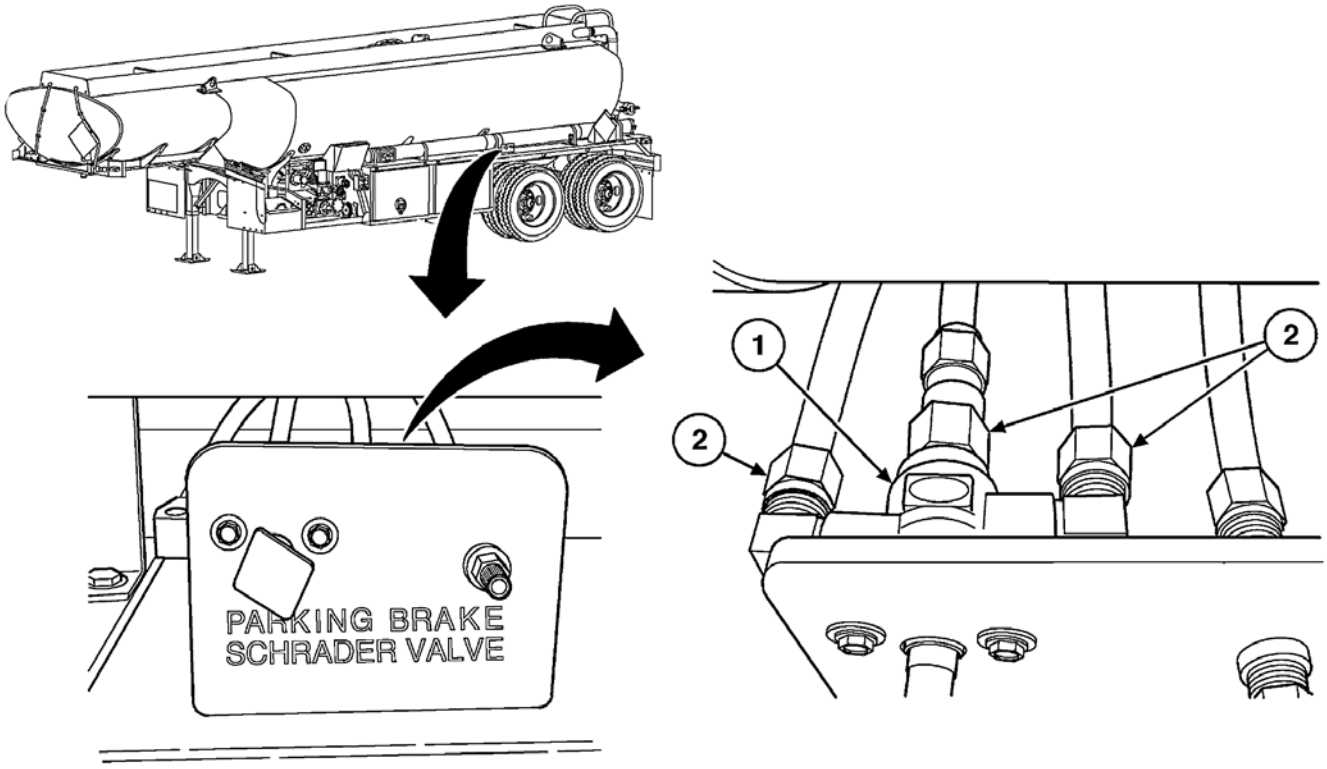
References
WP 0076 00

REMOVAL

NOTE

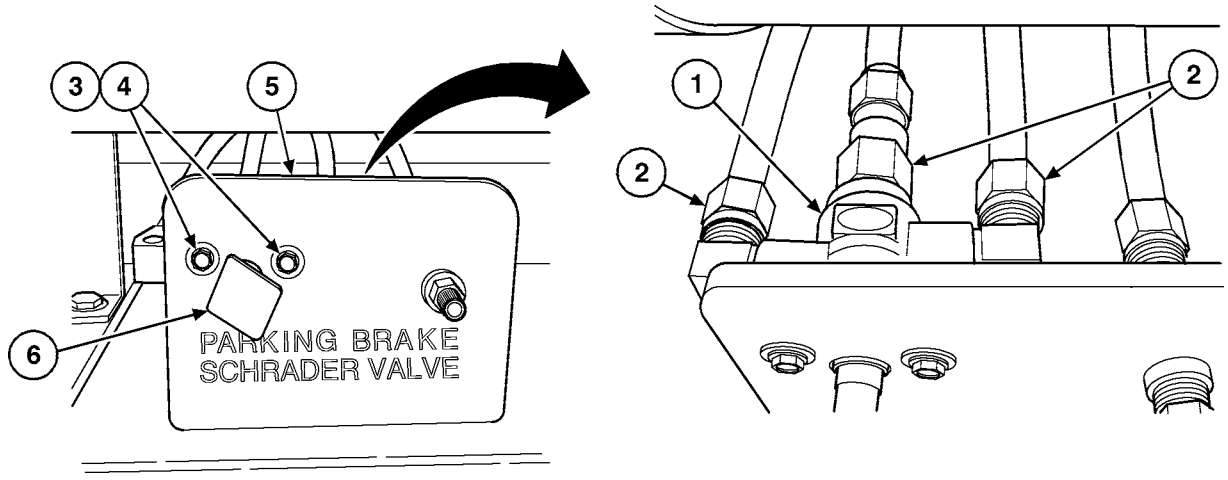
Tag all lines and hoses prior to disconnecting.

1. Remove three air lines (2) from valve fittings (1).



2. Remove two screws (3) and washers (4) from bracket (5).

3. Remove knob (6) and valve fittings (1) from bracket (5).



INSTALLATION

1. Install three air lines (2) to valve fittings (1).

2. Install two screws (3), washers (4), and valve fittings (1) to bracket (5).

3. Install knob (6) to valve fittings (1).

TEST

Test all components for leakage (WP 0076 00).

FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

AIR TUBING AND FITTINGS MAINTENANCE **0076 00**

THIS WP COVERS:
Compression Sleeve Fittings Removal, Cleaning and Inspection, Compression Sleeve Fittings Installation, Push-In Fittings Removal, Push-In Fittings Installation, Test, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, thread sealing (item 7, WP 0174 00)
Soap (item 12, WP 0174 00)
Cable ties (AR) (item 98, WP 0175 00)
Compression sleeves (AR) (item 38, WP 0175 00)

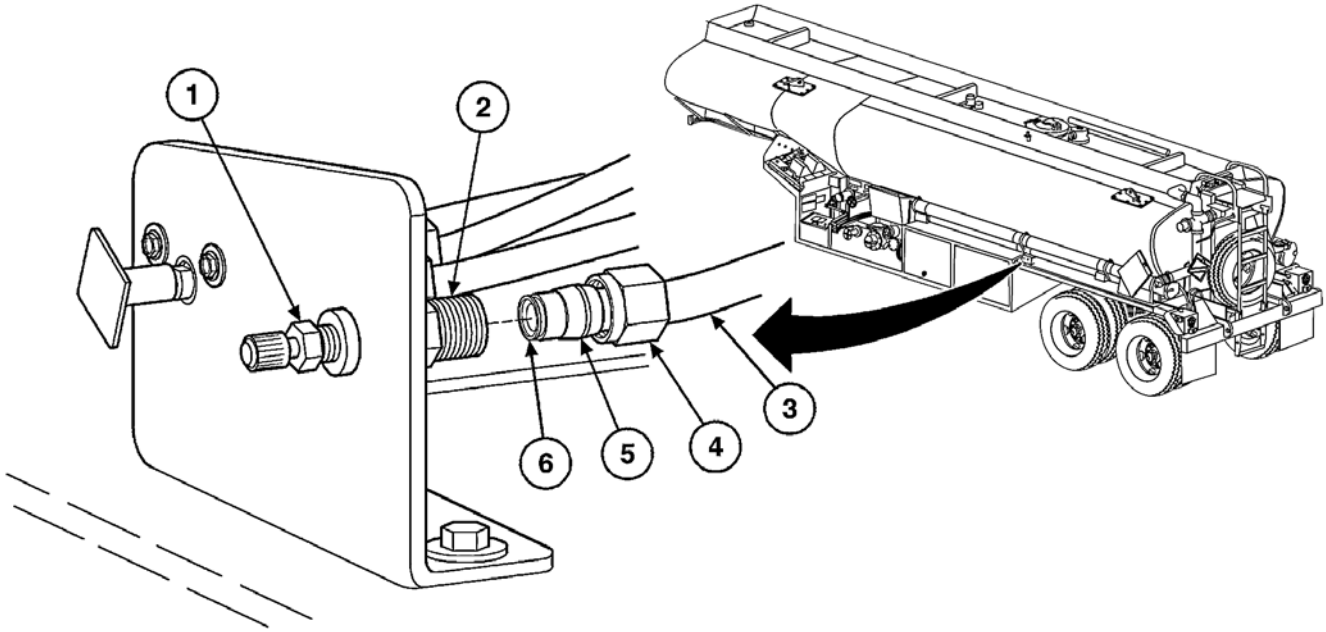
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)

COMPRESSION SLEEVE FITTINGS REMOVAL

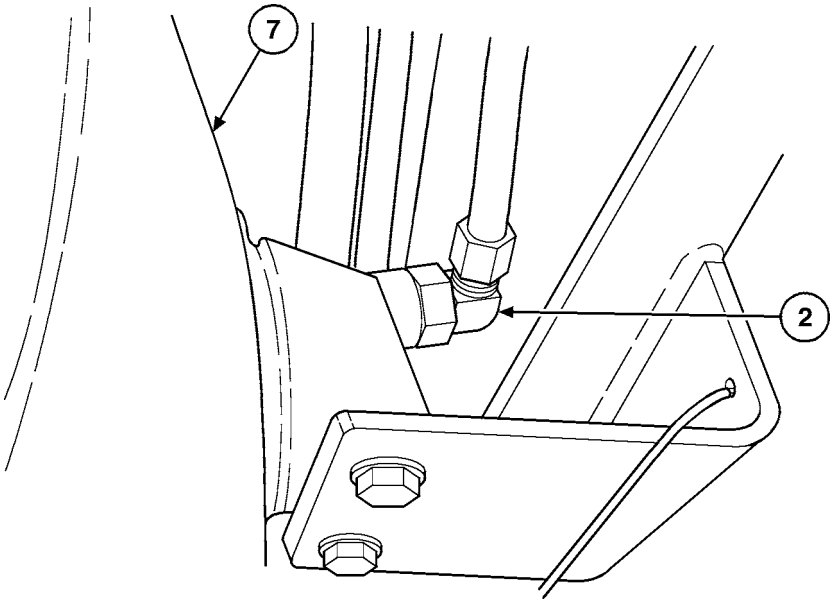
NOTE

All compression sleeve fittings are replaced the same way, only the number of clips varies. This procedure replaces the fittings and tubing between the Schrader valve and air reservoir.

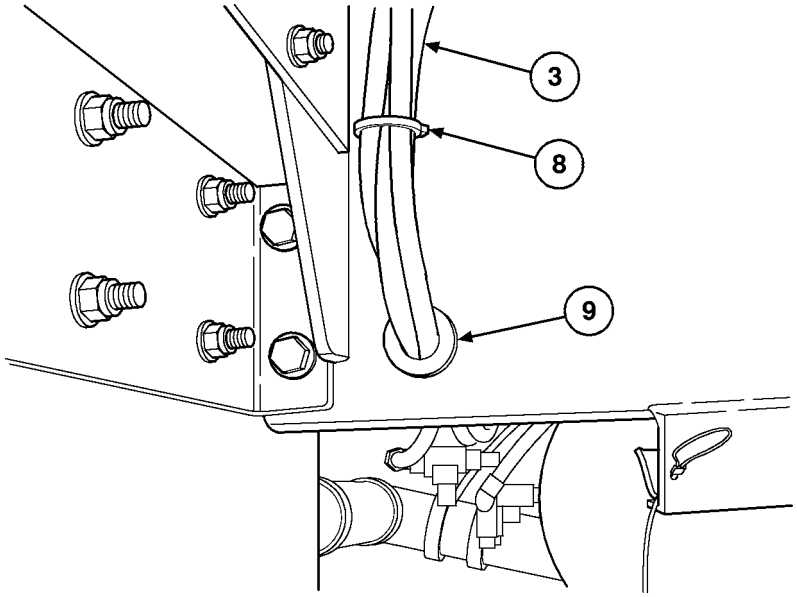
1. Disconnect tube nut (4) and tube (3) from fitting (2) at Schrader valve (1).
2. Remove compression sleeve (5), insert (6), and tube nut (4) from tubing (3). Discard sleeve.



3. Repeat steps 1–2 for fitting (2) and tubing at air reservoir (7) and remove fitting.



4. Remove clips (8) from tubing (3) and pull tubing through grommets (9). Discard cable ties.



CLEANING AND INSPECTION

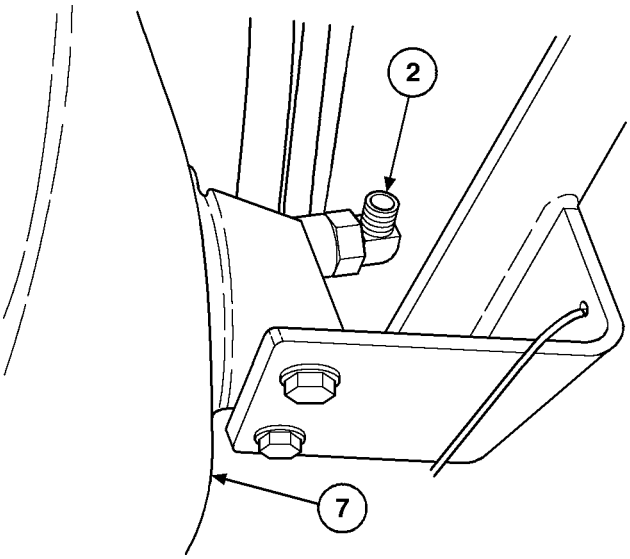
1. Clean dirt and sealing compound from fittings.
2. Inspect fittings for cracks and damage that could cause leaks.

COMPRESSION SLEEVE FITTINGS INSTALLATION

NOTE

Apply thread sealing compound to threads of fitting.

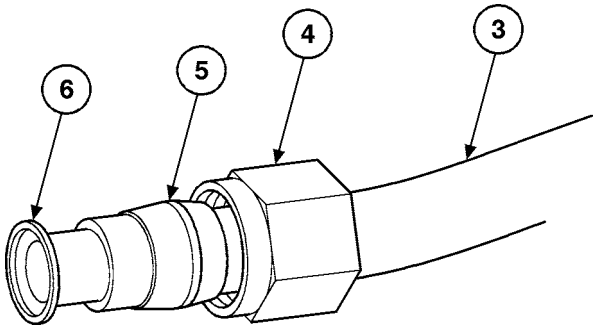
1. Install fitting (2) to air reservoir (7).



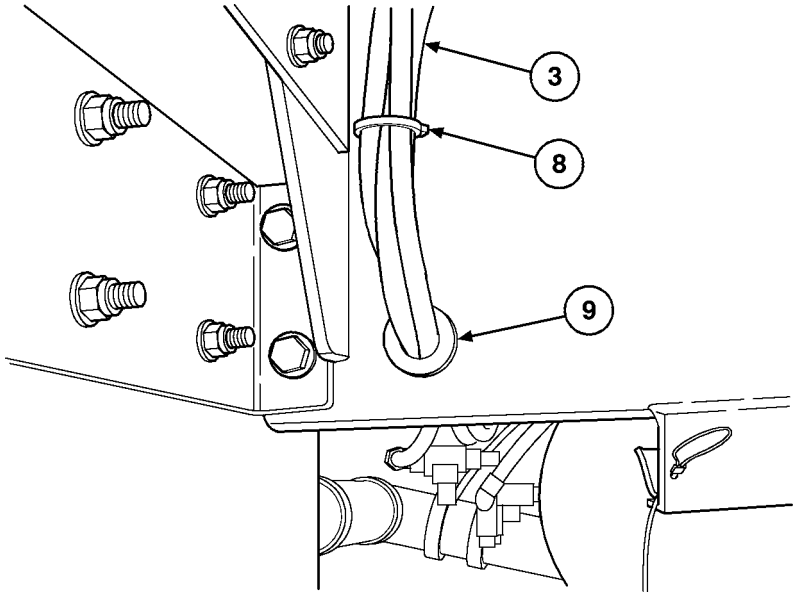
NOTE

Air tubing is stocked in bulk lengths. Measure original air tubing and cut new tubing to same length. Trim ends of tubing to get a smooth, square cut.

2. Install tube nut (4), new compression sleeve (5), and insert (6) on both ends of air line tubing (3).

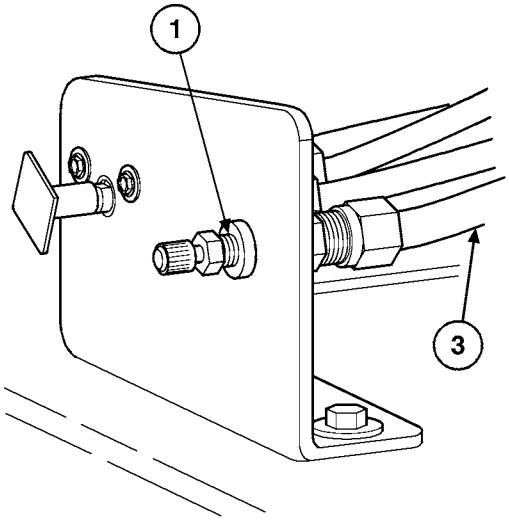


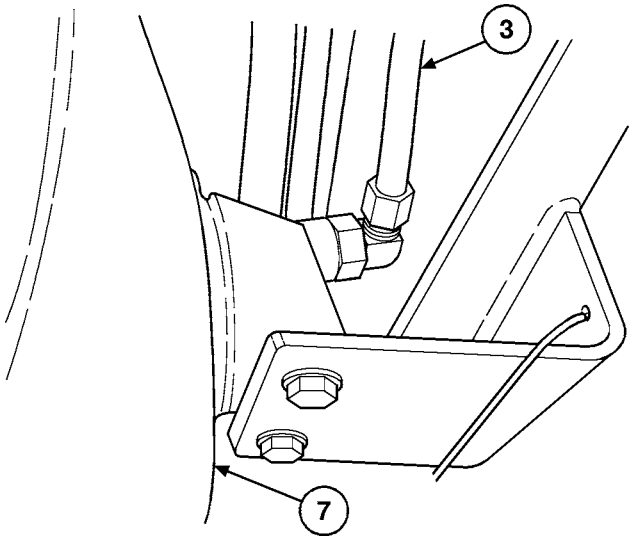
3. Slide new tubing (3) through grommet (9).



4. Install both ends of new tubing (3) to fittings at Schrader valve (1) and air reservoir (7).

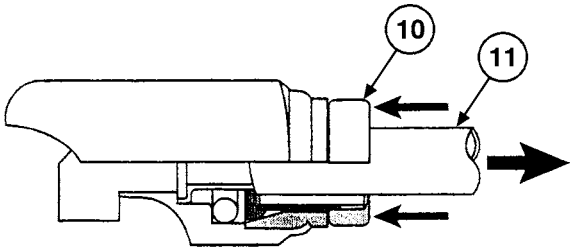
5. Secure new tubing (3) with new clips (8) as necessary.





PUSH-IN FITTINGS REMOVAL

Depress collar (10) and disconnect tubing (11).

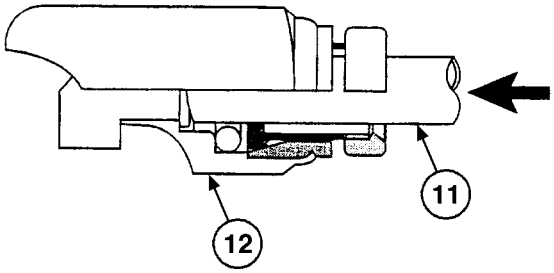


PUSH-IN FITTINGS INSTALLATION

NOTE

Air tubing is stocked in bulk lengths. Measure original air tubing and cut new tubing to same length. Trim ends of tubing to get a smooth, square cut.

1. Install tubing (11) into fitting (12) until tubing bottoms out.



2. Pull on tubing (11) to verify it is fully installed.

TEST

NOTE

Semitrailer must be coupled to a prime mover or to an air source at the Schrader valve to perform test.

Apply soapy water to air tubings and fittings and check for leaks. If a compression sleeve fitting leaks during test, tighten nut. If a push-in fitting leaks during test, verify tubing is bottomed out. If tubing leaks, replace tubing.

FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

AIR BRAKE HOSES MAINTENANCE 0077 00

THIS WP COVERS:
Removal, Installation, Test, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, thread sealing (item 7, WP 0174 00)
Cable ties (AR) (item 98, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)

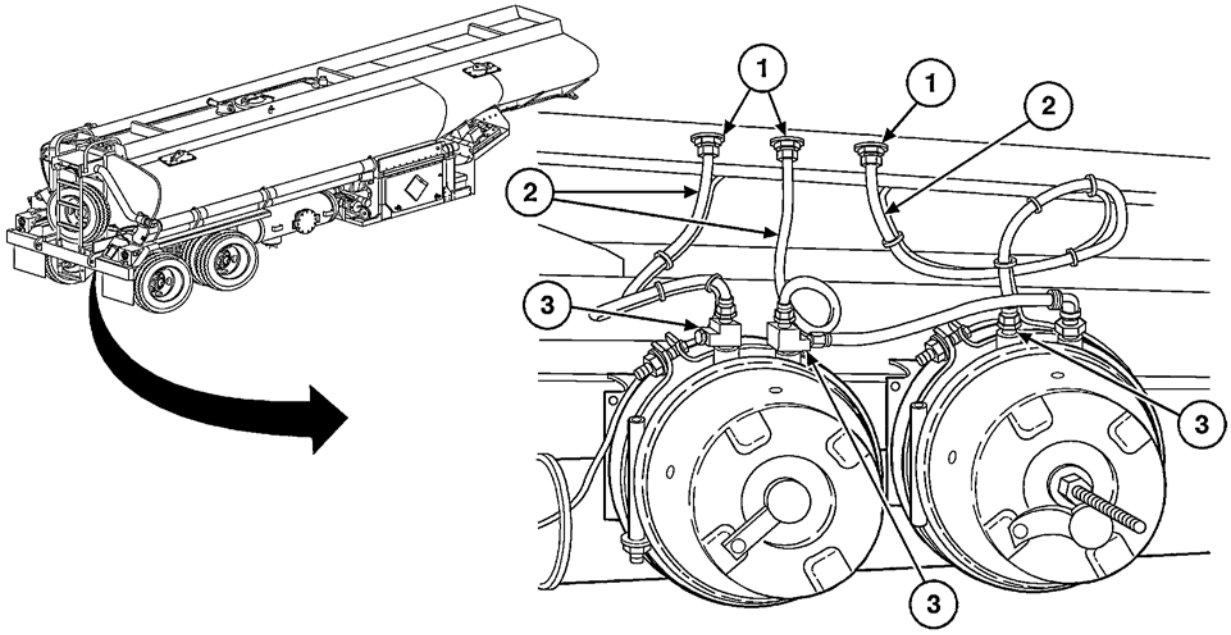
References
WP 0076 00

REMOVAL

NOTE

- **There are two sets of air brake hoses and they are replaced the same way. This procedure replaces the set from the semitrailer trailing axle.**
- **Remove and discard cable ties as necessary.**

1. Disconnect three brake hoses (2) from air brake chamber fittings (3).
2. Remove three brake hoses (2) from airline mounting plate fittings (1).

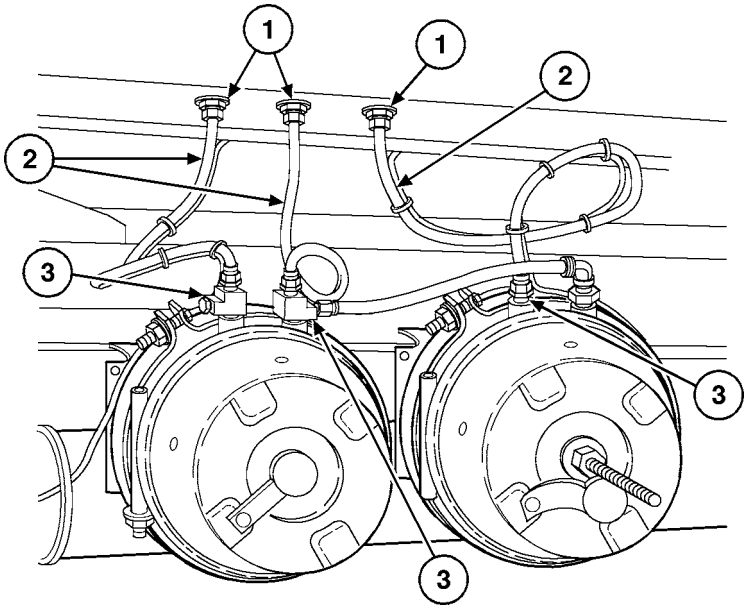


INSTALLATION

NOTE

- **Apply thread sealing compound to threads of fittings.**
- **Install new cable ties as required.**

1. Install three air brake hoses (2) to three air brake chamber fittings (3).
2. Connect three air brake hoses (2) to three airline mounting plate fittings (1).



TEST

Test per WP 0076 00.

FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FAIL-SAFE CHAMBER BRAKES RELEASE 0078 00

THIS WP COVERS:
Reserve Release, Manual Release, Follow-On Task

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

NOTE

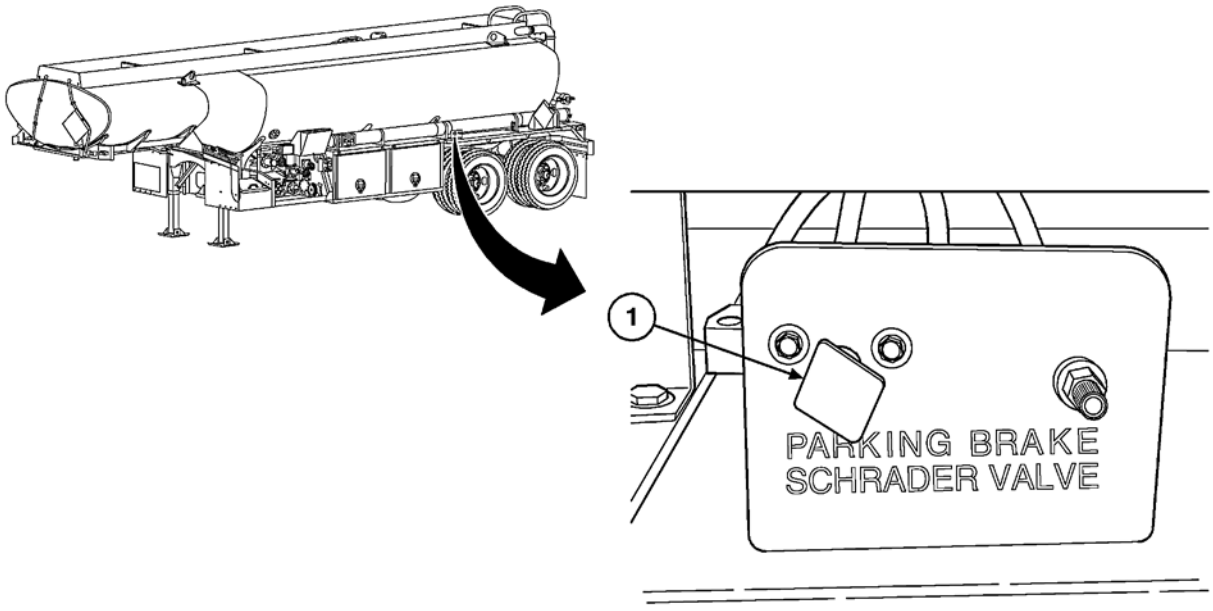
There are four air brake chambers and they are released the same way. This procedure covers one air brake chamber.

RESERVE RELEASE

WARNING

Chock semitrailer wheels to prevent movement of semitrailer.

1. Push brake release plunger (1) on roadside of semitrailer to release fail-safe brakes.



FAIL-SAFE CHAMBER BRAKES RELEASE—Continued **0078 00**

NOTE

Use manual release (caging) when air is unavailable.

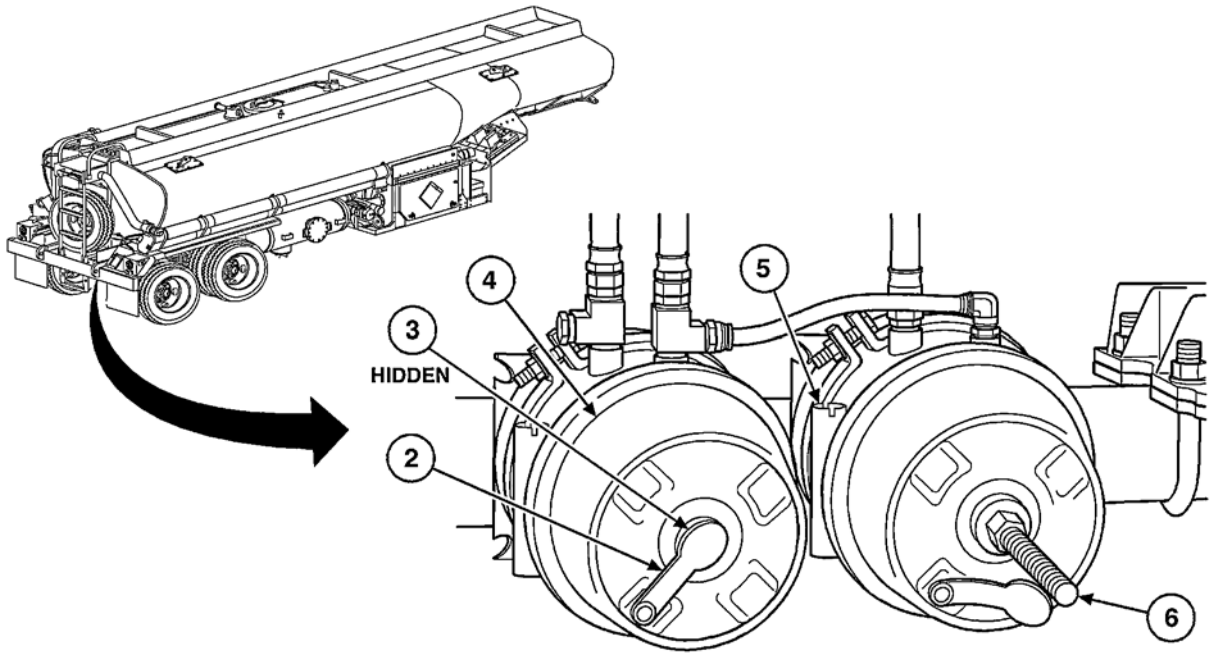
MANUAL RELEASE

1. Remove manual caging tool (6) from storage tube (5).
2. Unsnap breather cap (2) from air brake chamber (4) and insert manual caging tool (6) into access hole (3).
3. Turn nut clockwise on manual caging tool (6) until brakeshoes are released on brakedrum.

NOTE

Snap breather caps back into place on air brake chamber as quickly as possible to prevent contaminants from fouling interiors of air chambers.

4. To release brakes, turn nut counterclockwise on manual caging tool (6) until fail-safe unit is released.



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

SERVICE AND EMERGENCY COUPLINGS (GLADHANDS) MAINTENANCE 0079 00

THIS WP COVERS:
Removal, Repair, Installation, Test, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, thread sealing (item 7, WP 0174 00)
Packing rings (2) (item 133, WP 0175 00)
S-hooks (2) (item 124, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)

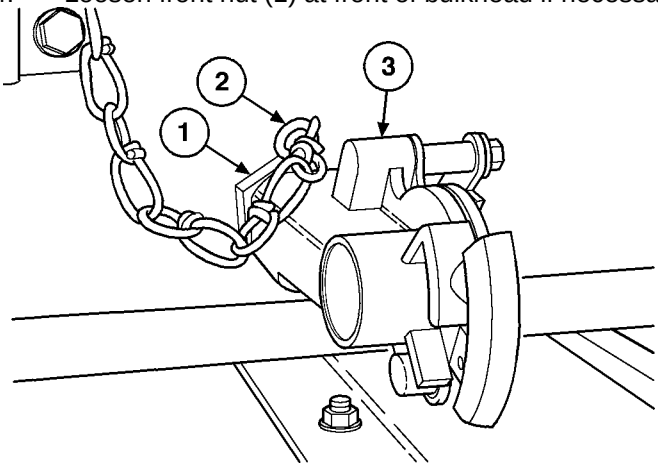
References
WP 0076 00

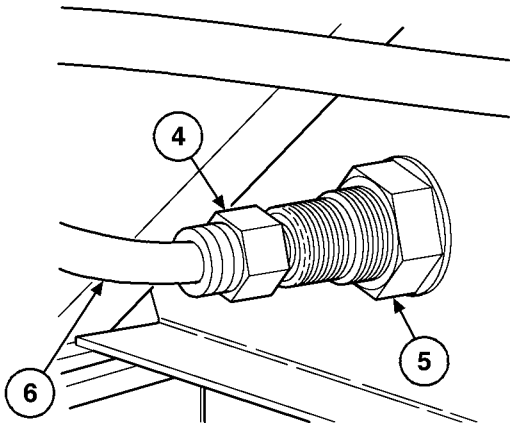
REMOVAL

NOTE

- **There are two gladhands and both are replaced the same way. This procedure replaces the service (blue coded) gladhand.**
- **It is not necessary to remove gladhand if only replacing packing ring.**

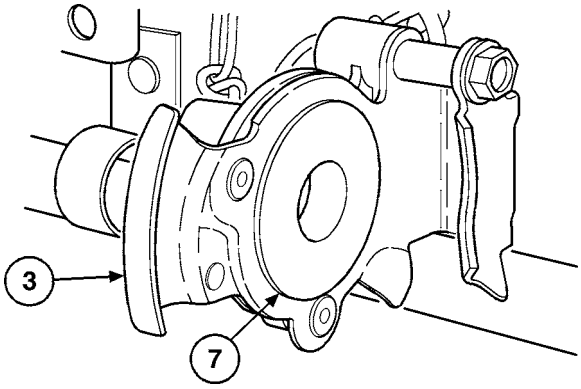
1. Remove S-hook (2) from gladhand (3). Discard S-hook.
2. Disconnect tube (6) from push-lock fitting (4) (refer to WP 0076 00) and remove push-lock fitting from gladhand (3) at rear of bulkhead.
3. Remove rear nut (5) from gladhand (3) at rear of bulkhead.
4. Loosen front nut (1) at front of bulkhead if necessary and remove gladhand (3).





REPAIR

1. Remove packing ring (7) from gladhand (3). Discard packing ring.
2. Clean groove in gladhand (3).
3. Install new packing ring (7) into groove of gladhand (3) using a blunt tool or other instrument.



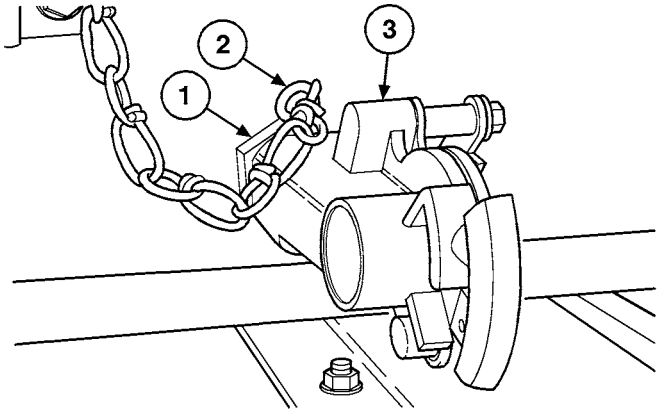
INSTALLATION

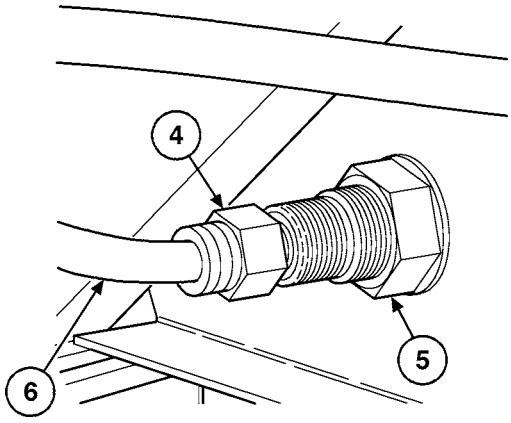
1. Install gladhand (3) to bulkhead.
2. Install rear nut (5) on threads of gladhand (3) at rear of bulkhead and secure gladhand (3) with front nut (1) at bulkhead.

NOTE

Apply thread sealing compound to threads of fitting.

3. Install push-lock fitting (4) to gladhand (3) at rear of bulkhead and connect tube (6) to push-lock fitting (refer to WP 0076 00).
4. Install new S-hook (2) on gladhand (3) at front of bulkhead.





TEST

Test per WP 0076 00.

FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

TIRE MAINTENANCE **0080 00**

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

KINGPIN COUPLER REPLACEMENT 0081 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Self-locking nuts (14) (item 97, WP 0175 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer parked on hard level surface (refer to WP 0007 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Lifting device (item 1, WP 0171 00)

Personnel Required
Two

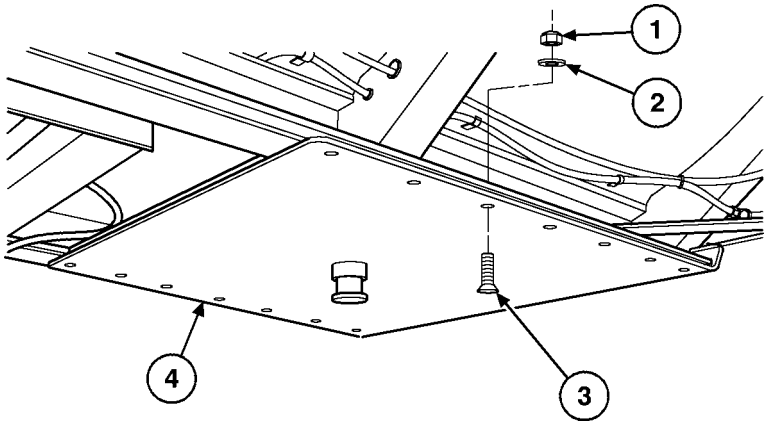
REMOVAL

1. Position lifting device under kingpin coupler (4).

WARNING

Kingpin coupler is very heavy. Attempting to lift or maneuver coupler by yourself could result in injury or death to personnel.

2. Remove 14 self-locking nuts (1), washers (2), bolts (3), and kingpin coupler (4) from semitrailer. Discard self-locking nuts.

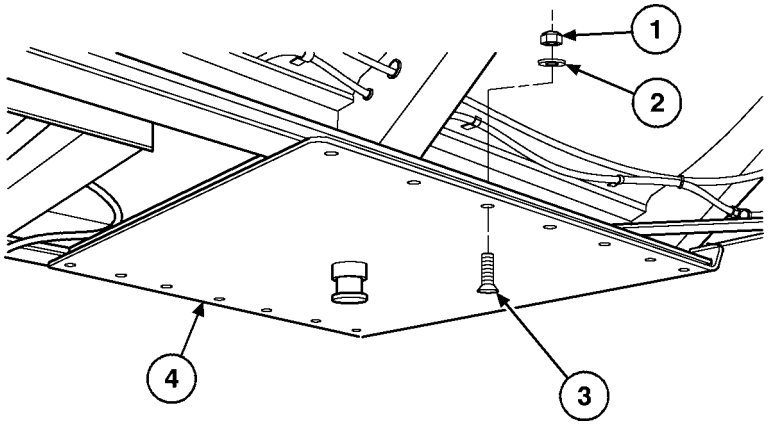


INSTALLATION

WARNING

Kingpin coupler is very heavy. Attempting to lift or maneuver coupler by yourself could result in injury or death to personnel.

1. Using a lifting device, position kingpin coupler (4) under semitrailer.
2. Install kingpin coupler (4), 14 bolts (3), washers (2), and new self-locking nuts (1) to semitrailer. Torque nuts to 140 lb-ft (190 N•m).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

KINGPIN SPACER REPLACEMENT 0082 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:
Maintenance Level
Organizational

Personnel Required
Two

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0156 00)
Lifting device (item 1, WP 0156 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer parked on hard level surface (refer to WP 0007 00)
Semitrailer kingpin coupler removed (refer to WP 0081 00)

NOTE

This is an AAL item procedure.

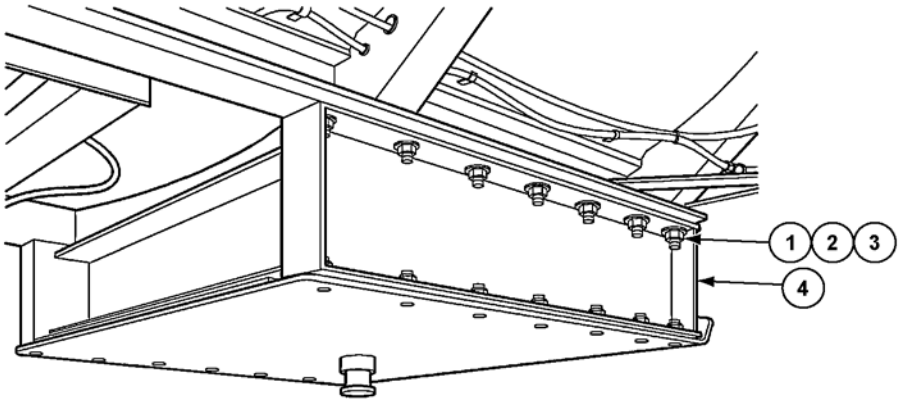
REMOVAL

1. Position lifting device under kingpin spacer (4).

WARNING

Kingpin spacer is very heavy. Attempting to lift or maneuver coupler by yourself could result in injury or death to personnel.

2. Remove 14 self-locking nuts (1), 28 washers (2), 14 bolts (3), and kingpin spacer (4) from semitrailer.

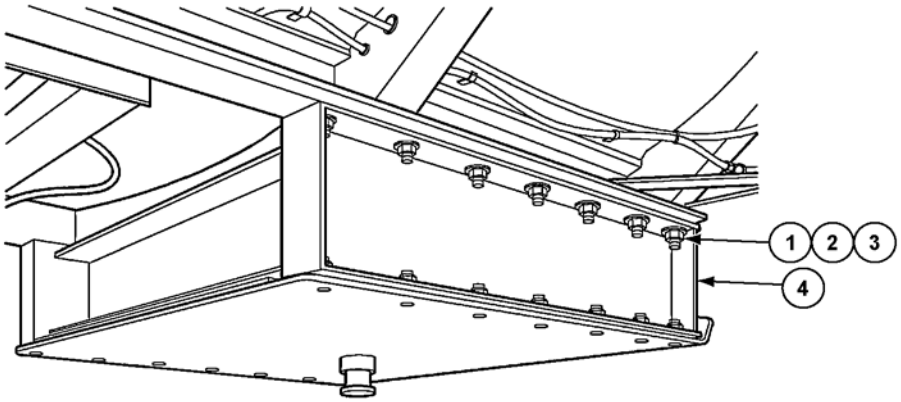


INSTALLATION

WARNING

Kingpin spacer is very heavy. Attempting to lift or maneuver spacer by yourself could result in injury or death to personnel.

1. Using a lifting device, position kingpin spacer (4) under semitrailer.
2. Install kingpin spacer (4), 14 bolts (3), 28 washers (2), and 14 self-locking nuts (1) to semitrailer. Torque nuts to 140 lb-ft (190 N•m).



FOLLOW-ON TASK

1. Install king pin coupler (WP 0081 00)
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

LANDING GEAR GROUND BOARDS REPLACEMENT 0083 00

THIS WP COVERS:
Removal, Installation

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (6) (item 87, WP 0175 00)

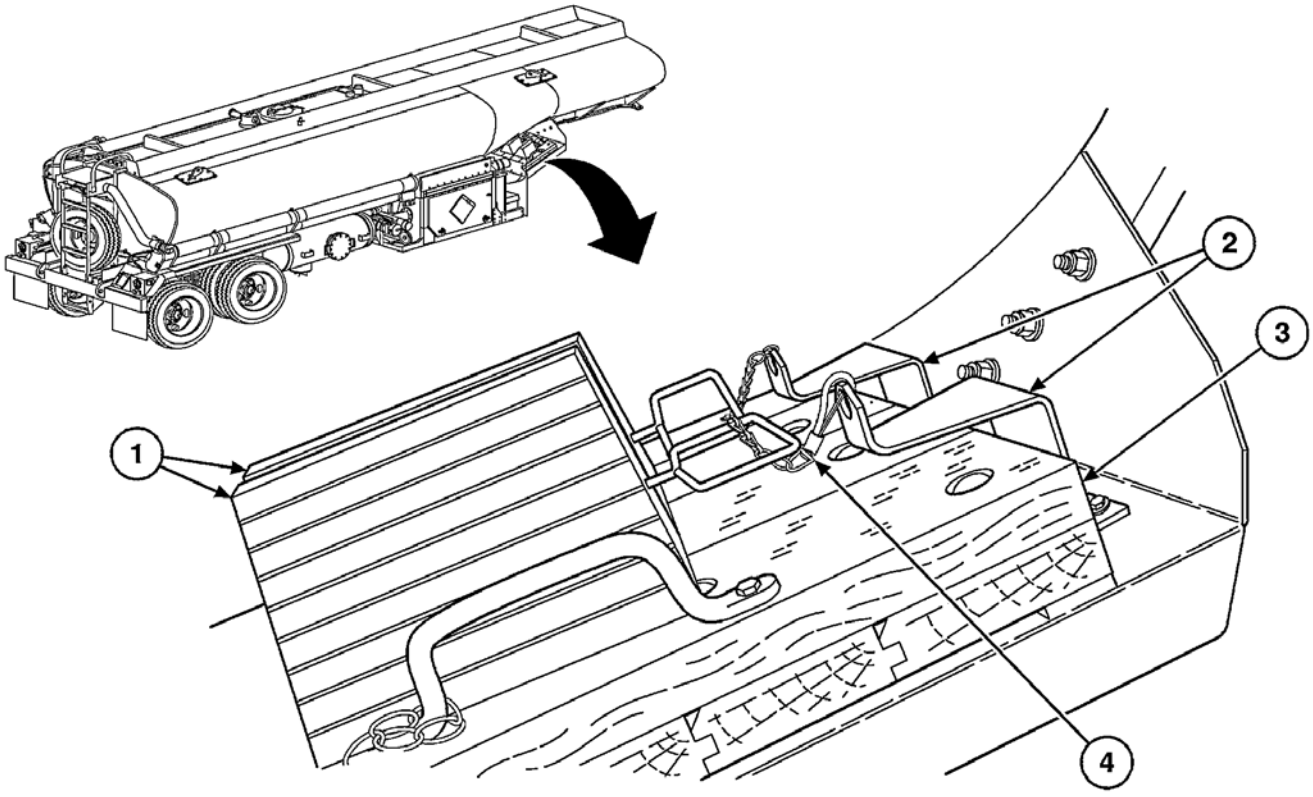
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)

REMOVAL

NOTE

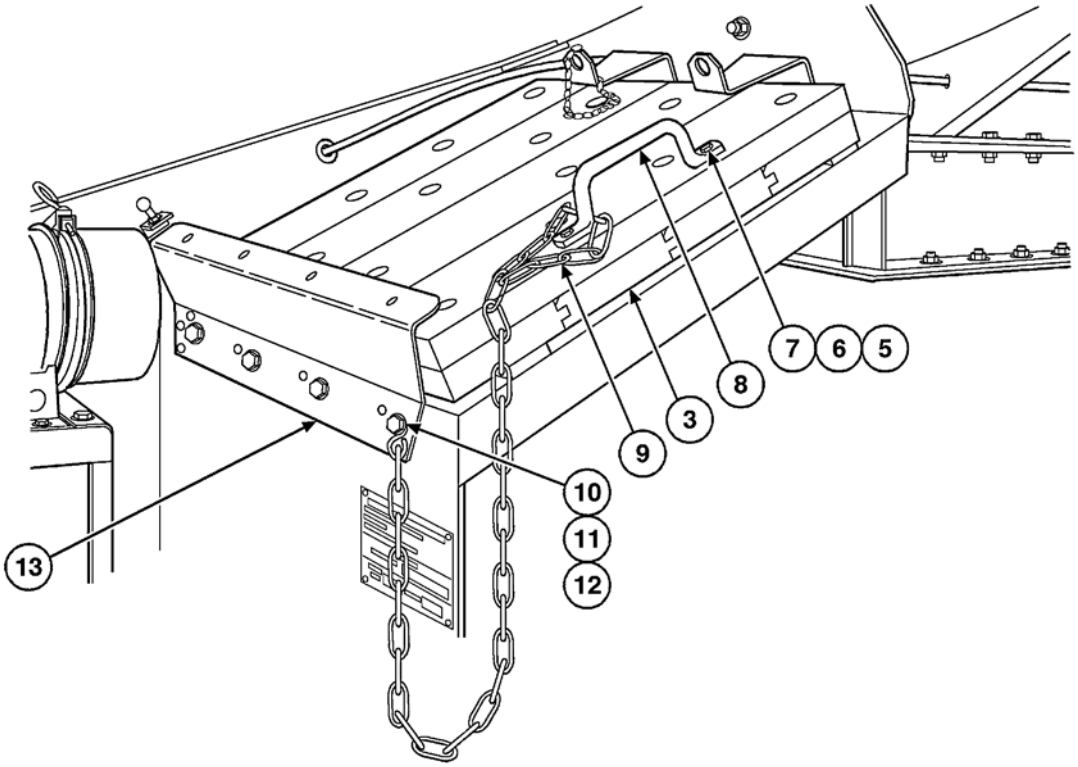
There are two landing gear ground boards and they are both replaced the same way. This procedure replaces the curbside ground board.

1. Remove chain (4) and two chocks (1) from bracket (2) securing landing gear ground board (3).



2. Remove two self-locking nuts (7), washers (6), screws (5), handle (8), and chain (9) from landing gear ground board (3). Discard self-locking nuts.

3. Remove self-locking nut (12), two washers (11), bolt (10), and chain (9) from bracket (13). Discard self-locking nut.

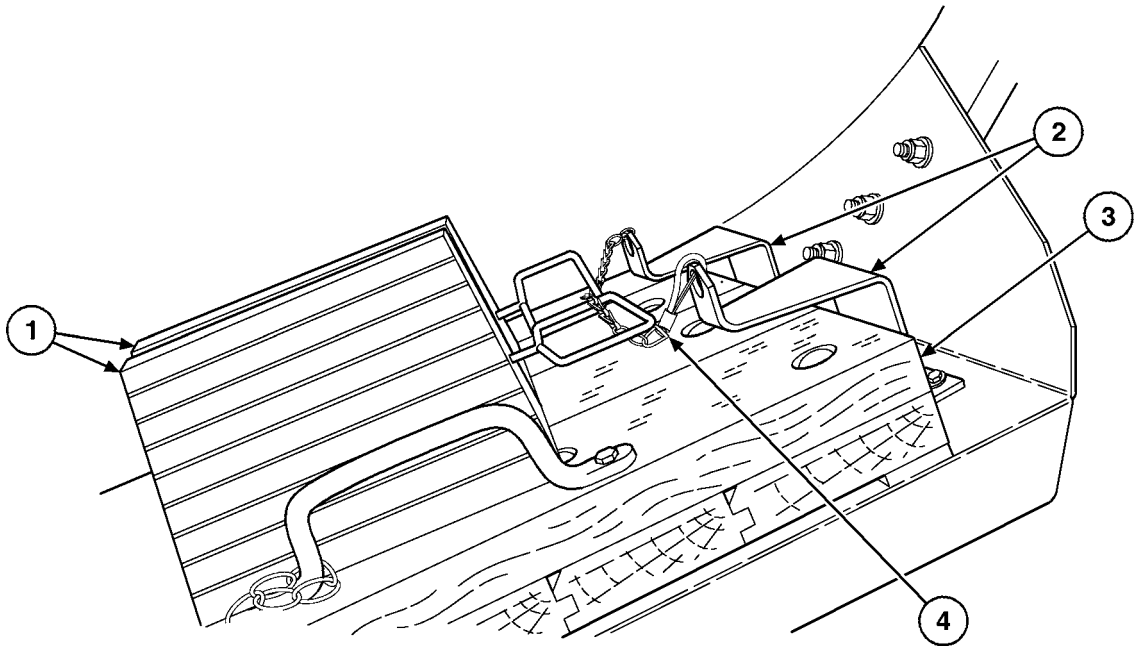


INSTALLATION

1. Install chain (9), bolt (10), two washers (11), and new self-locking nut (12) to bracket (13).

2. Install chain (9), handle (8), two screws (5), washers (6), and new self-locking nuts (7) to landing gear ground board (3).

3. Install chain (4) and two chocks (1) to bracket (2) securing landing gear ground board (3).



END OF TASK

CURBSIDE LANDING LEG REPLACEMENT 0084 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Self-locking nuts (10) (item 97, WP 0175 00)
Self-locking nuts (2) (item 132, WP 0175 00)

Personnel Required
Two

References
WP 0035 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Jack stands (item 3, WP 0171 00)
Lifting device (item 1, WP 0171 00)

Equipment Conditions
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)

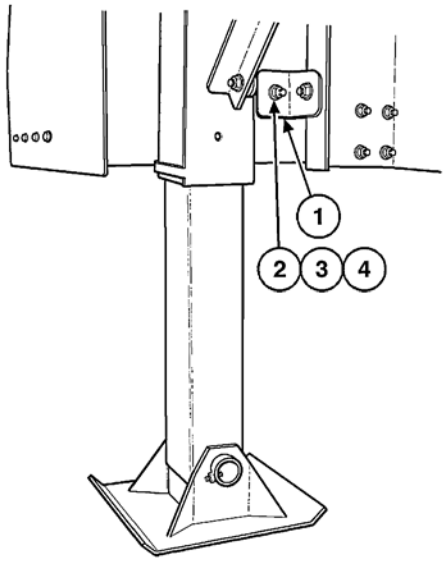
Batteries removed (refer to WP 0055 00)
Optic socket box mounting bracket disconnected (refer to WP 0050 00)

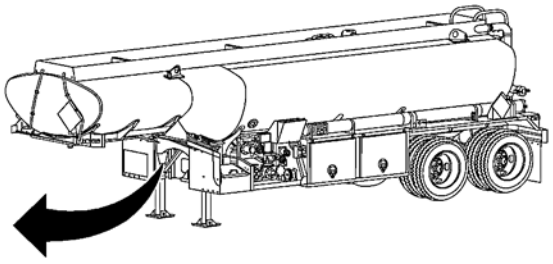
REMOVAL

NOTE

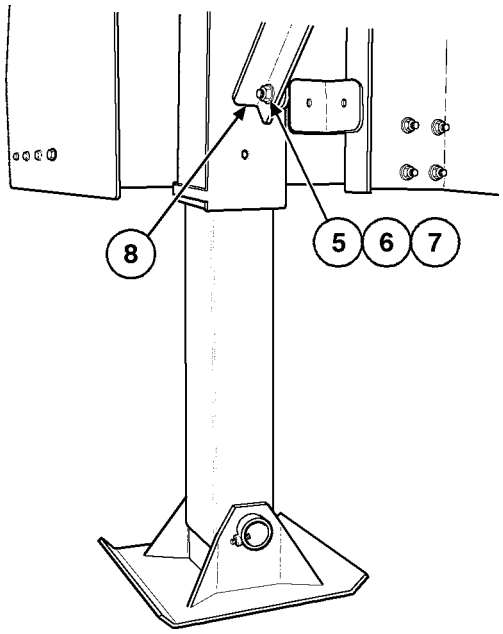
- **Landing gear legs should be raised 6 inches (15.2 cm) off the ground prior to performing this procedure.**
- **Semitrailer must be on jack stands or connected to a prime mover prior to performing this procedure.**

1. Remove self-locking nut (2), two washers (3), and bolt (4) from leg support bracket (1). Discard self-locking nut.

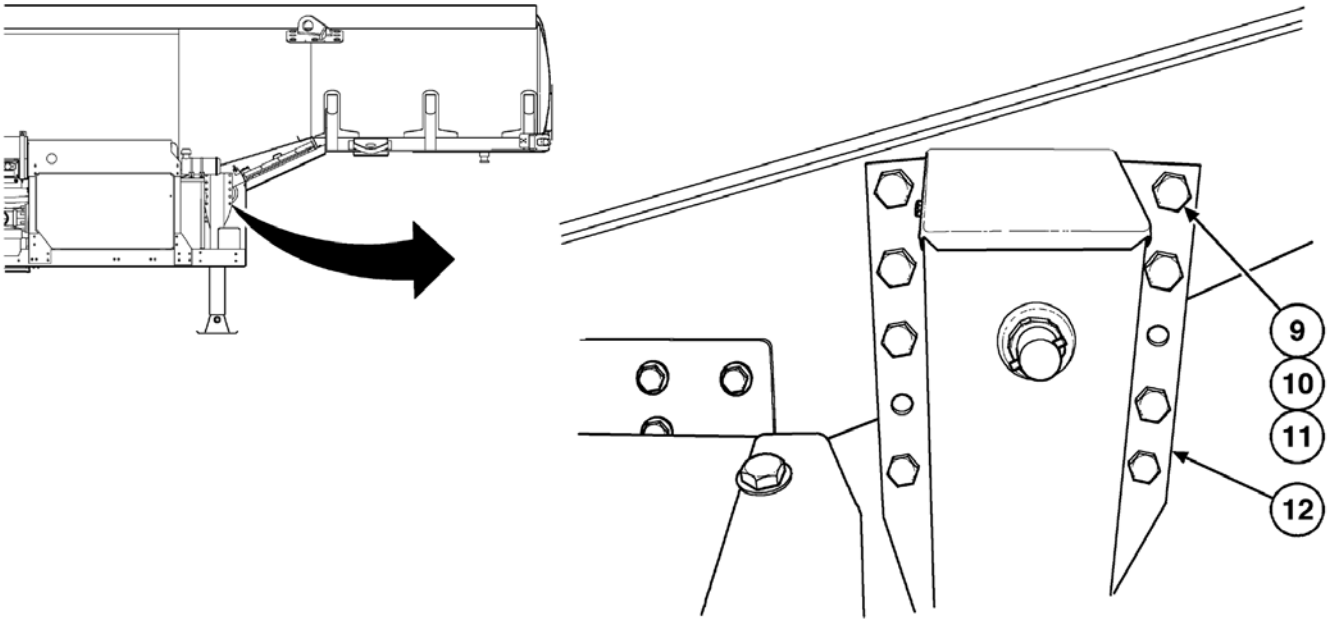




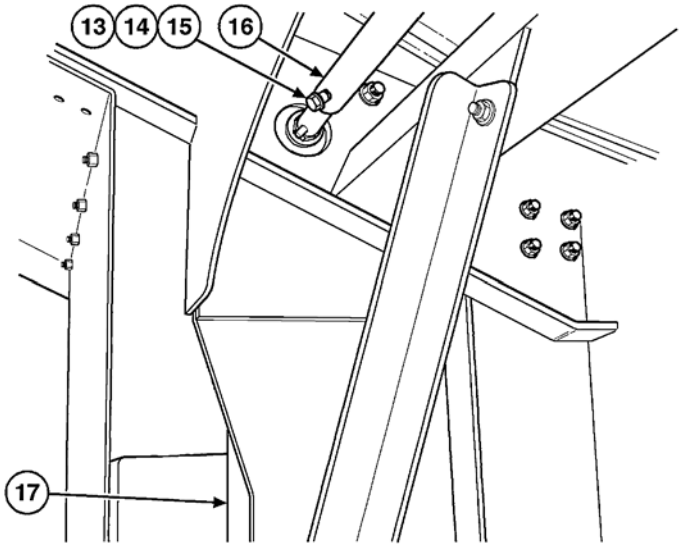
2. Remove self-locking nut (5), two washers (6), and bolt (7) from landing gear leg support (8). Discard self locking nut.



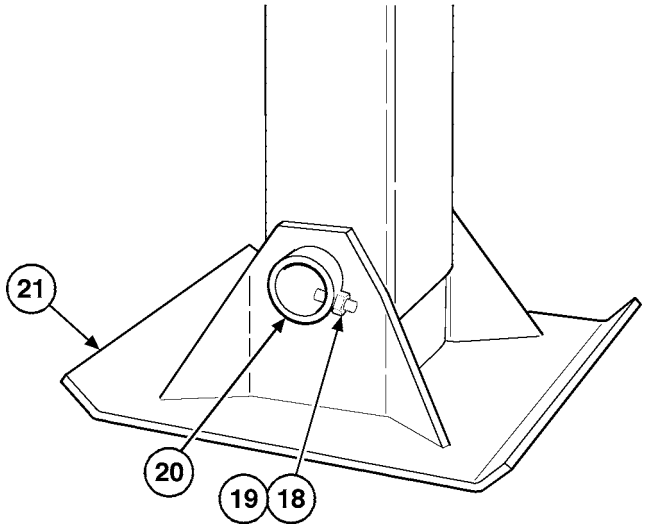
3. Remove eight self-locking nuts (9), washers (10), and bolts (11) from landing gear leg bracket (12). Discard self-locking nuts.



4. Remove self-locking nut (13), two washers (14), bolt (15), cross-drive shaft (16), and landing gear leg (17) from semitrailer. Discard self-locking nut.



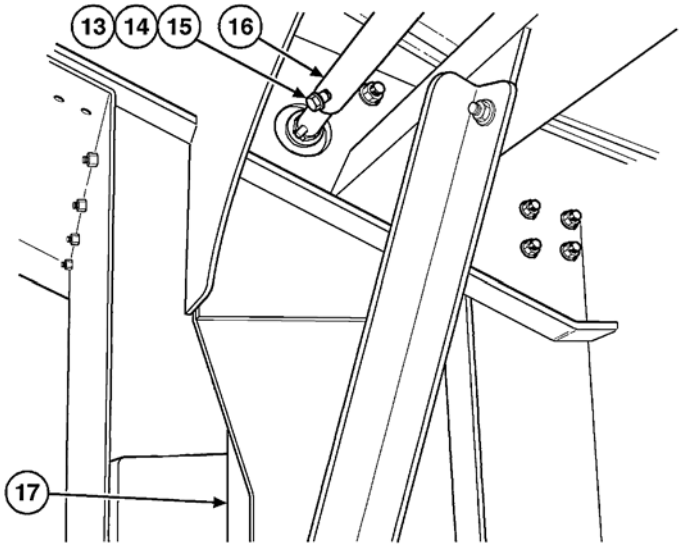
5. Remove self-locking nut (18), bolt (19), shaft (20), and landing gear shoe (21) from landing gear leg (17). Discard self-locking nut.



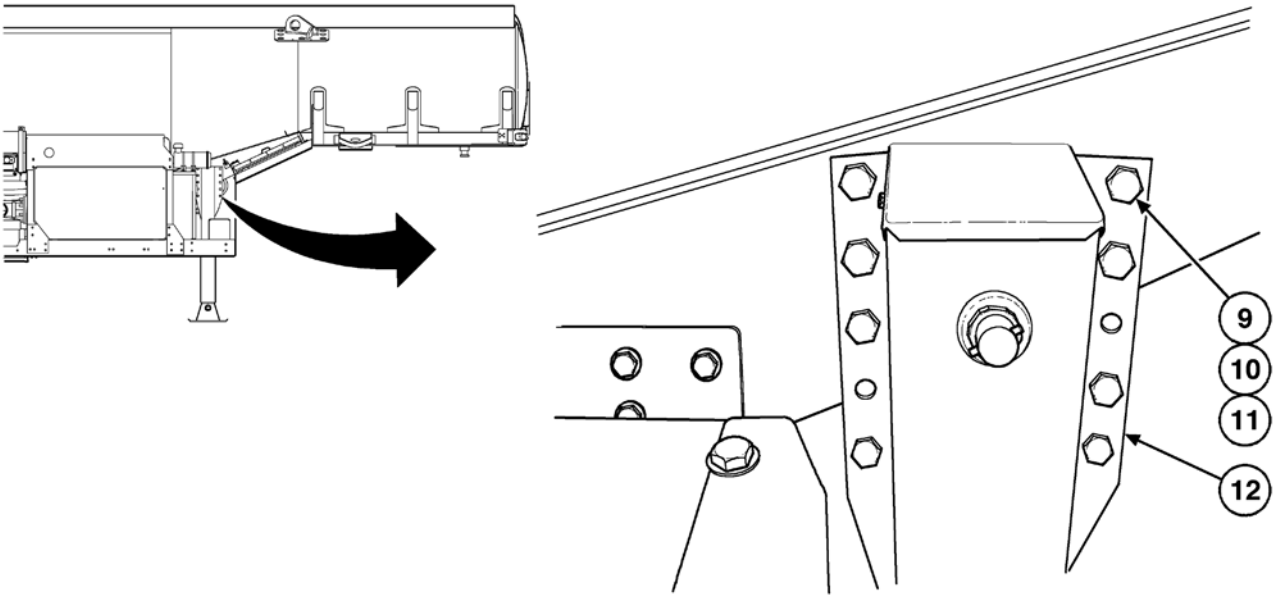
INSTALLATION

1. Install landing gear shoe (21), shaft (20), bolt (19), and nut (18) to landing gear leg (17).

2. Install landing gear leg (17), cross-drive shaft (16), two bolts (15), four washers (14), and two new self-locking nuts (13) to semitrailer.

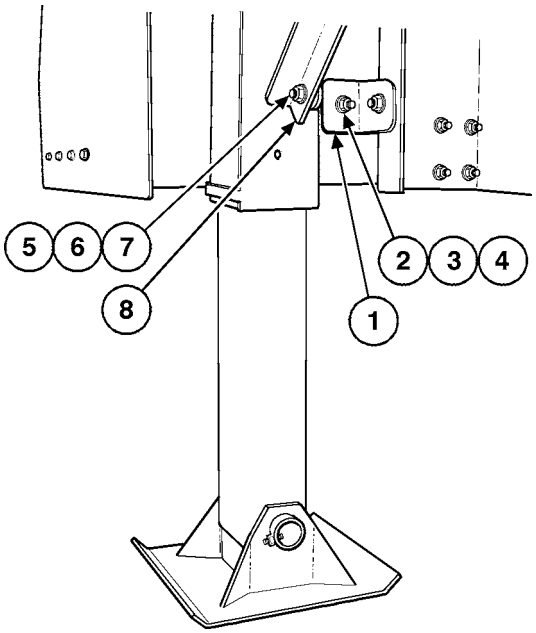


3. Install eight bolts (11), washers (10), and new self-locking nuts (9) to landing leg bracket (12).



CURBSIDE LANDING LEG REPLACEMENT—Continued **0084 00**

4. Install bolt (7), two washers (6), and new self-locking nut (5) to landing gear leg support (8).
5. Install bolt (4), two washers (3), and new self-locking nut (2) to leg supports bracket (1).



FOLLOW-ON TASKS

1. Disconnect semitrailer grounding cables (WP 0007 00).
2. Connect optic socket box mounting bracket (WP 0050 00).
3. Install batteries (WP 0055 00).
4. Lubricate per WP 0035 00.

END OF TASK

ROADSIDE LANDING LEG AND HANDCRANK REPLACEMENT 0085 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Organizational

Materials/Parts
Self-locking nuts (2) (item 97, WP 0175 00)
Self-locking nuts (10) (item 132, WP 0175 00)

References
WP 0035 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Jack stands (item 3, WP 0171 00)
Lifting device (item 1, WP 0171 00)

Personnel Required
Two

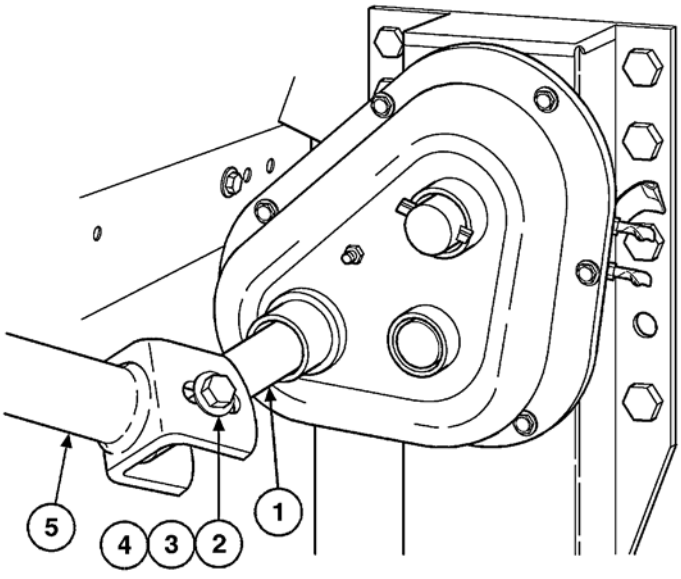
Equipment Conditions
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)

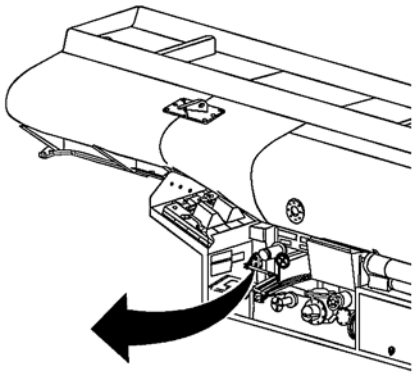
REMOVAL

NOTE

- **Landing gear legs should be raised 6 inches (15.2 cm) off the ground prior to performing this procedure.**
- **Semitrailer must be on jack stands or connected to a prime mover prior to performing this procedure.**

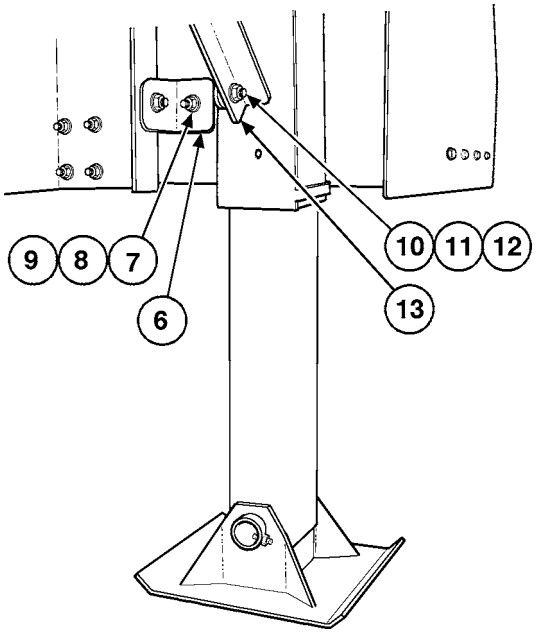
1. Remove nut (2), two washers (3), bolt (4), and handcrank (5) from shaft (1).



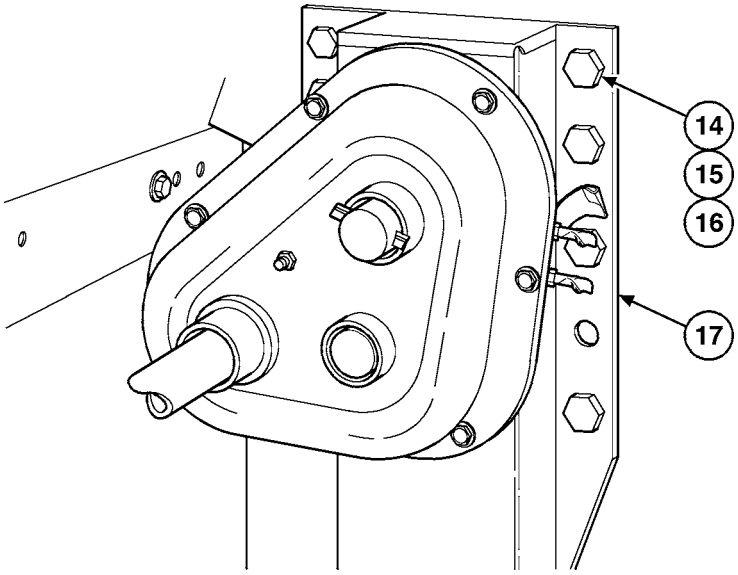


2. Remove self-locking nut (7), two washers (8), and bolt (9) from leg support bracket (6). Discard self-locking nut.

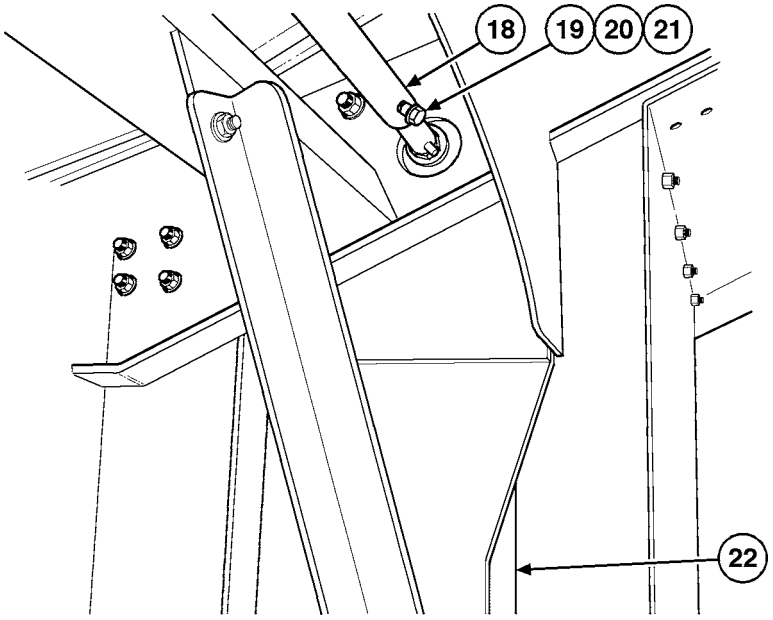
3. Remove self-locking nut (10), two washers (11), and bolt (12) from landing gear leg support (13). Discard self locking nut.



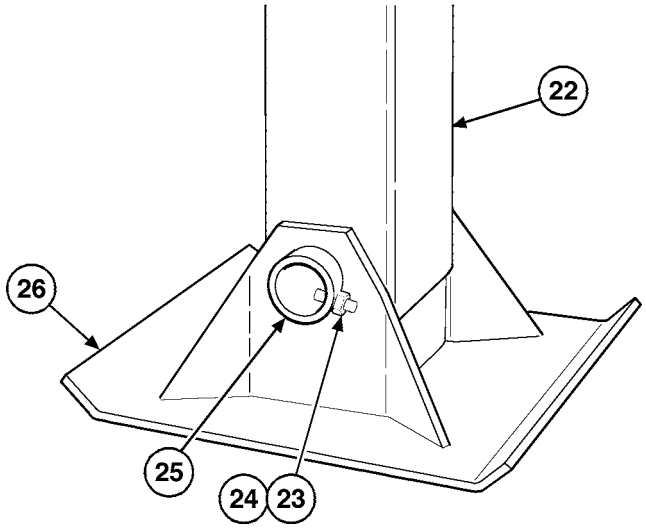
4. Remove eight self-locking nuts (14), washers (15), and bolts (16) from landing gear leg bracket (17). Discard self-locking nuts.



5. Remove two self-locking nuts (21), four washers (20), two bolts (19), cross-drive shaft (18), and landing gear leg (22) from semitrailer. Discard self-locking nuts.



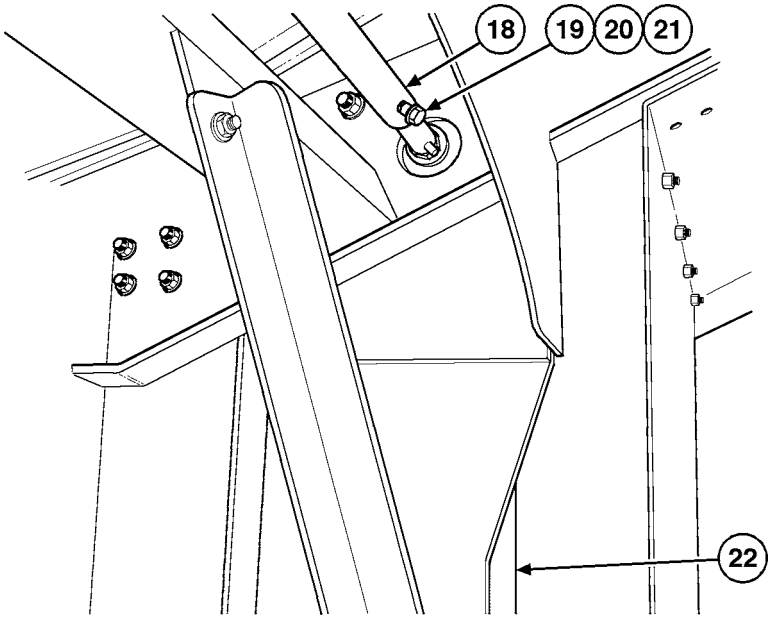
6. Remove nut (23), bolt (24), shaft (25), and landing gear shoe (26) from landing gear leg (22).



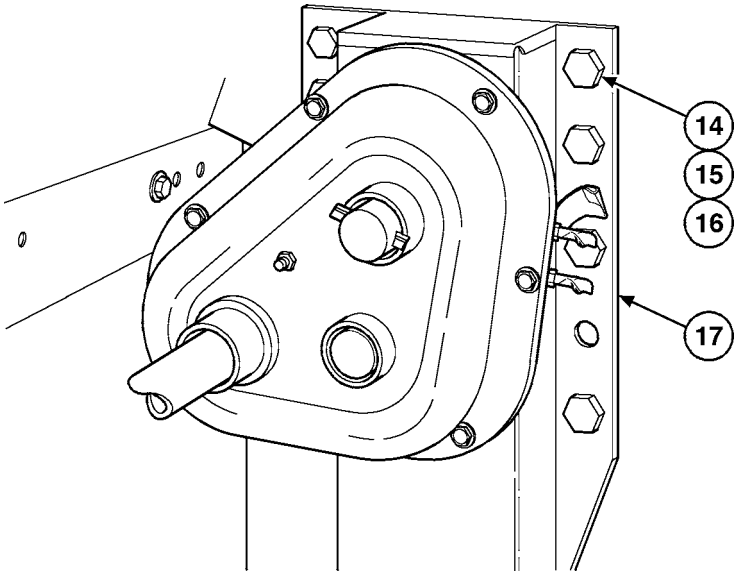
INSTALLATION

1. Install landing gear shoe (26), shaft (25), bolt (24), and nut (23) to landing gear leg (22).

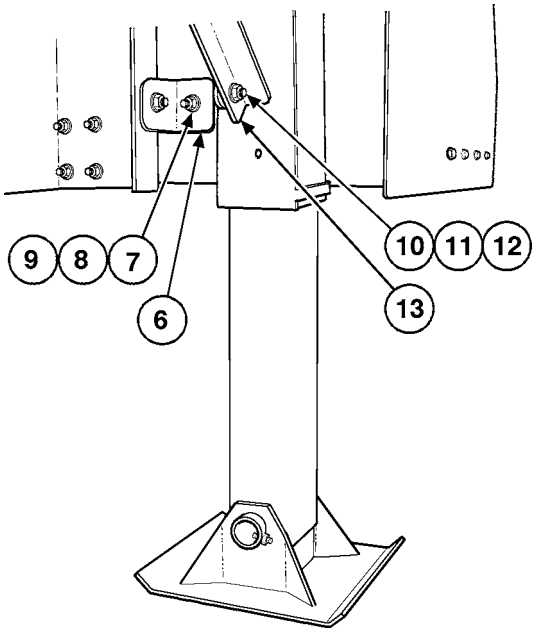
2. Install landing gear leg (22), cross-drive shaft (18), two bolts (19), four washers (20), and two new self-locking nuts (21) to semitrailer.



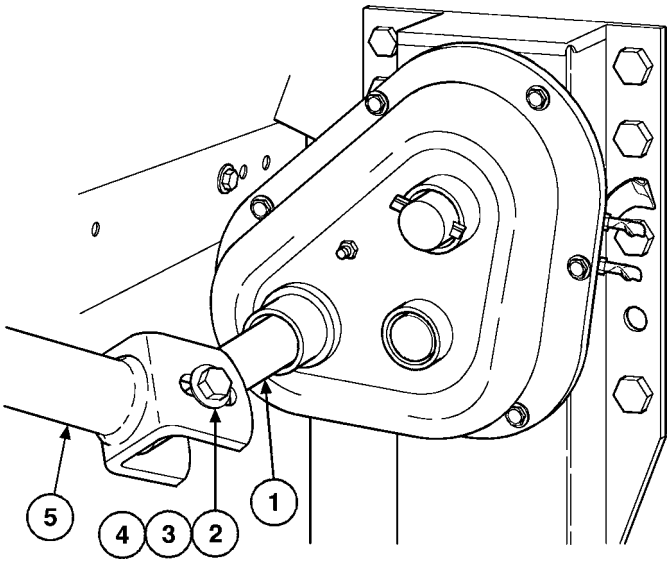
3. Install eight bolts (16), washers (15), and new self-locking nuts (14) to landing leg bracket (17).



4. Install bolt (12), two washers (11), and new self-locking nut (10) to landing gear leg support (13).
5. Install bolt (9), two washers (8), and new self-locking nut (7) to leg support bracket (6).



6. Install handcrank (5), two washers (3), bolt (4), and nut (2) to shaft (1).



FOLLOW-ON TASKS

1. Disconnect semitrailer grounding cables (WP 0007 00).
2. Lubricate per WP 0035 00.

END OF TASK

MUDFLAPS REPLACEMENT 0086 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (8) (item 87, WP 0175 00)

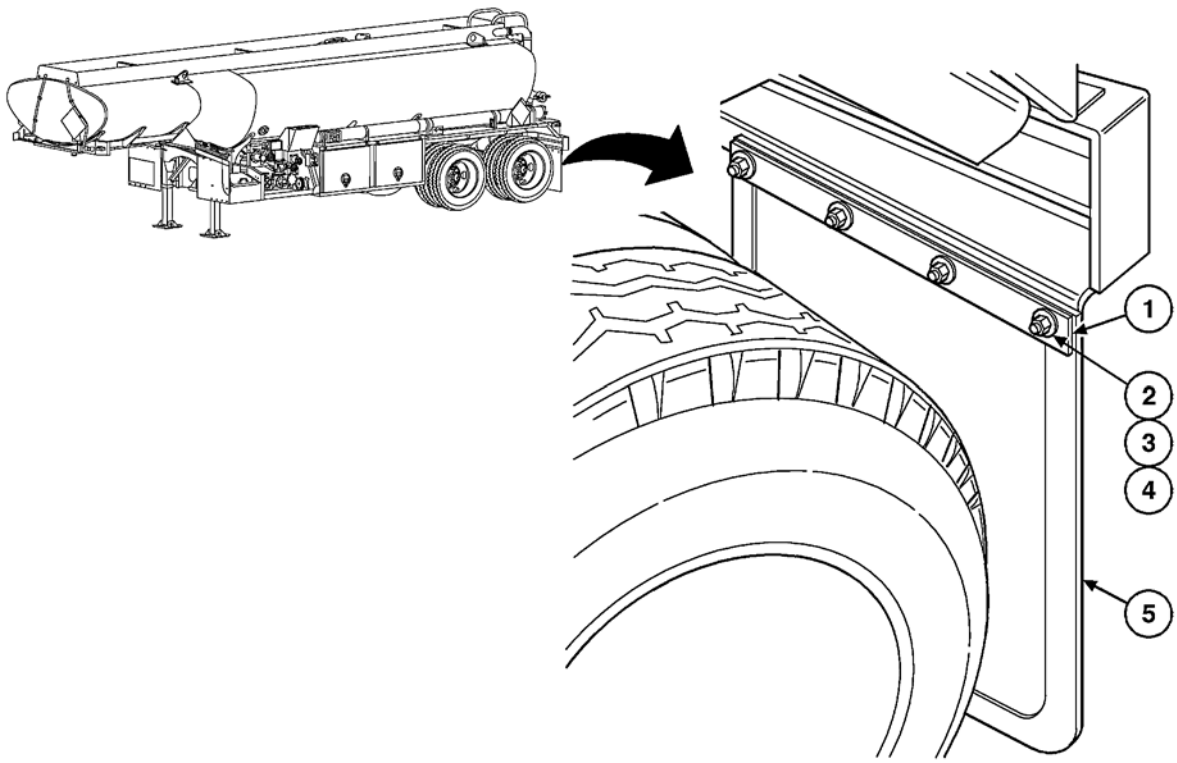
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

There are two mudflaps and they are replaced the same way. This procedure replaces one mudflap assembly.

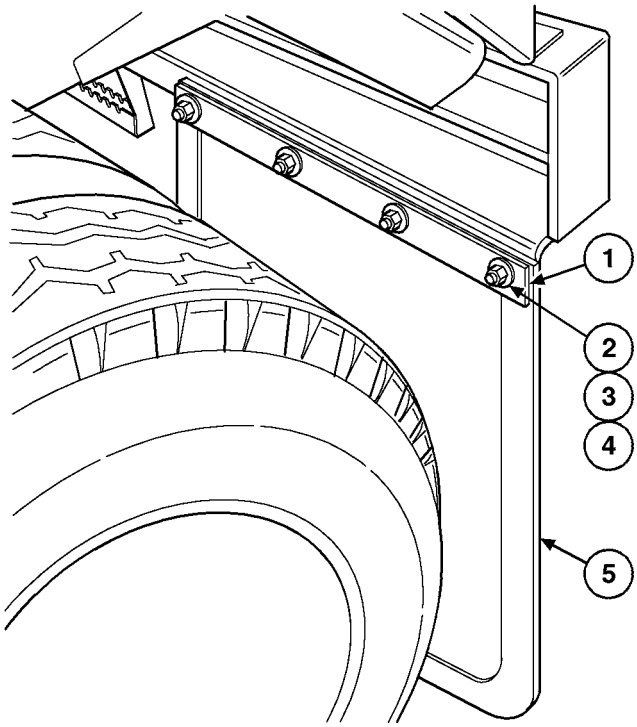
Remove four self-locking nuts (2), eight washers (3), four bolts (4), bracket (1), and mudflap (5) from semitrailer. Discard self-locking nuts.



MUDFLAPS REPLACEMENT—Continued **0086 00**

INSTALLATION

Install mudflap (5), bracket (1), four bolts (4), eight washers (3), and four new self-locking nuts (2) to semitrailer.



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

STATIC REELS AND ELECTRICAL CLIPS REPLACEMENT 0087 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (6) (item 113, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

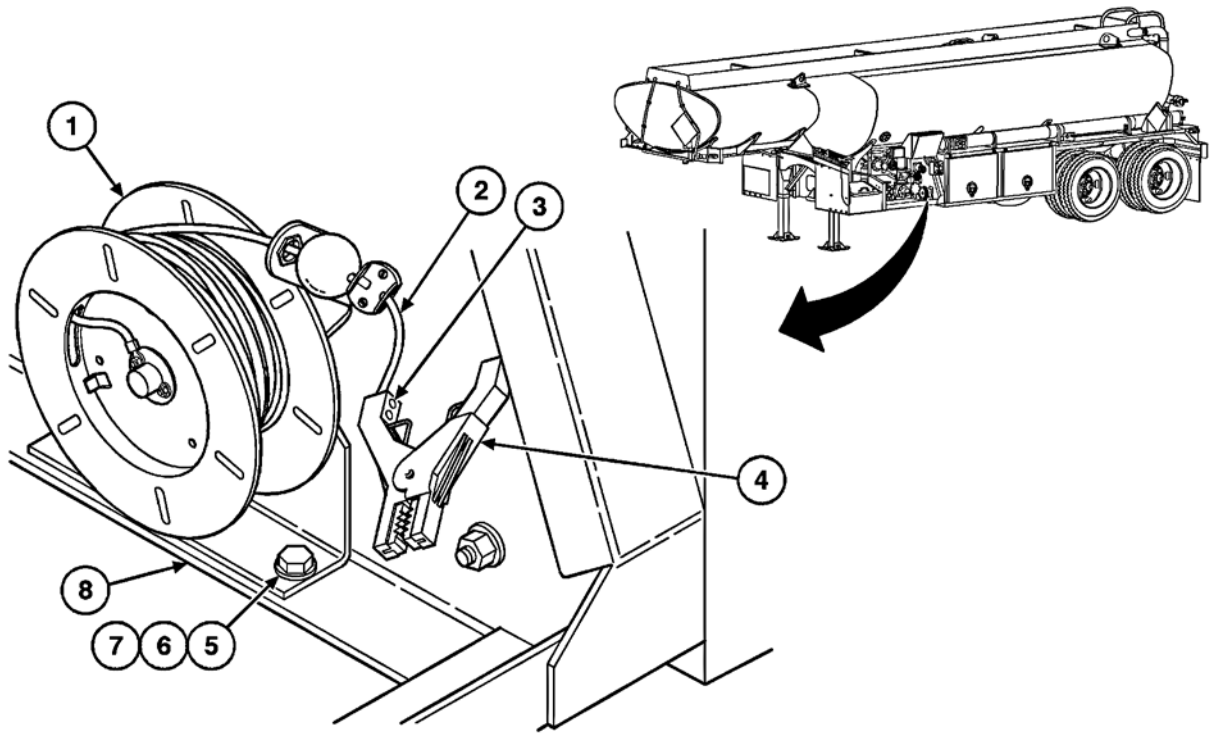
REMOVAL

NOTE

There are three static reels and they are replaced the same way. This procedure replaces the static reel from the piping control area.

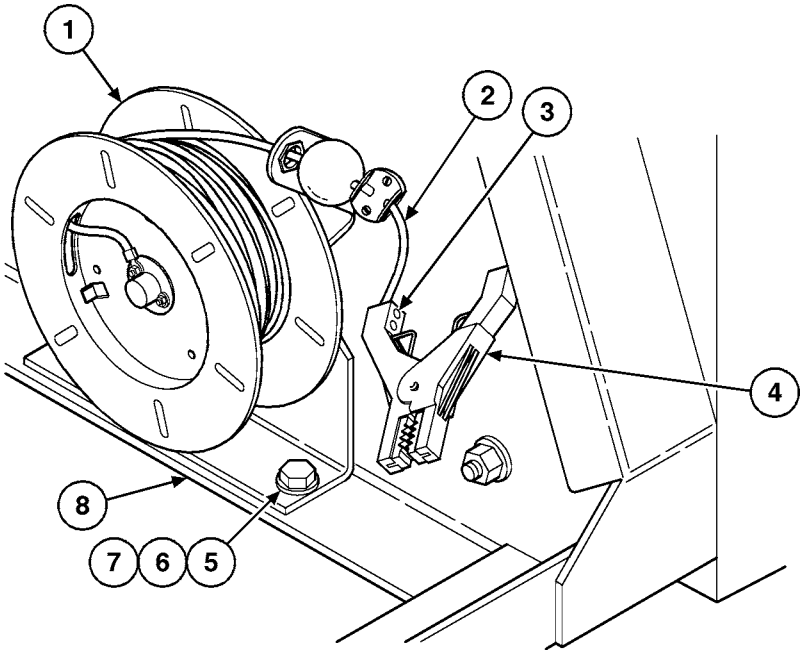
1. Remove two self-locking nuts (5), four washers (6), two bolts (7), and static reel (1) from frame (8). Discard self-locking nuts.

2. Remove two Allen head screws (3) and electrical clip (4) from cable (2).



INSTALLATION

1. Install electrical clip (4) and two Allen head screws (3) to cable (2).
2. Install static reel (1), two bolts (7), four washers (6), and two new self-locking nuts (5) to frame (8).



FOLLOW-ON TASK

Disconnect semitrailer grounding cable (WP 0007 00).

END OF TASK

TOOL BOX REPLACEMENT 0088 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

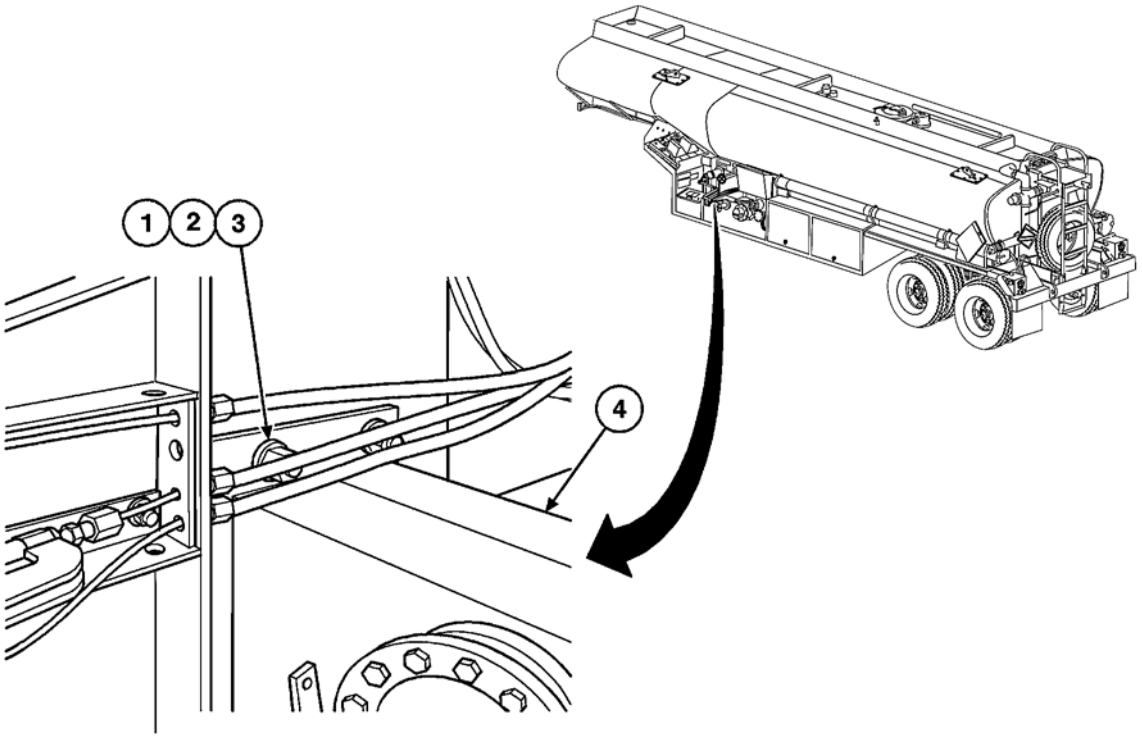
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Pop rivets (6) (item 96, WP 0175 00)
Self-locking nut (item 19, WP 0175 00)
Self-locking nuts (11) (item 86, WP 0175 00)

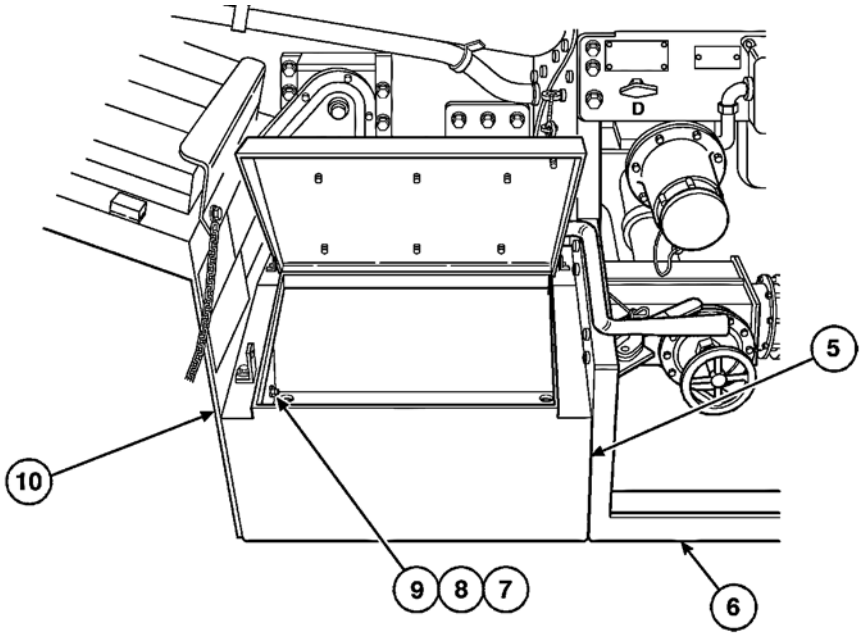
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

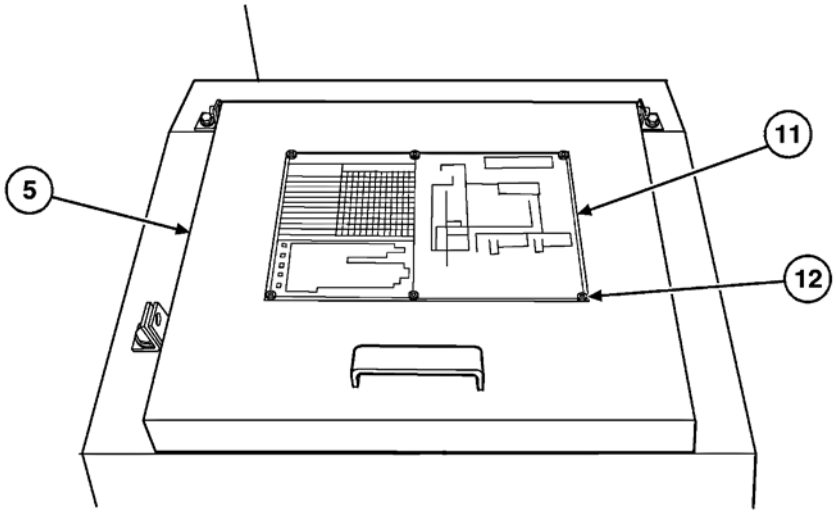
1. Remove self-locking nut (1), two washers (2), and bolt (3) from manifold (4). Discard self-locking nut.



2. Remove 11 self-locking nuts (7), 22 washers (8), 11 bolts (9), and tool box (5) from between front skid plate (10) and piping frame (6). Discard self-locking nuts.



3. Remove six pop rivets (12) and operating instruction plate (11) from tool box (5). Discard pop rivets.



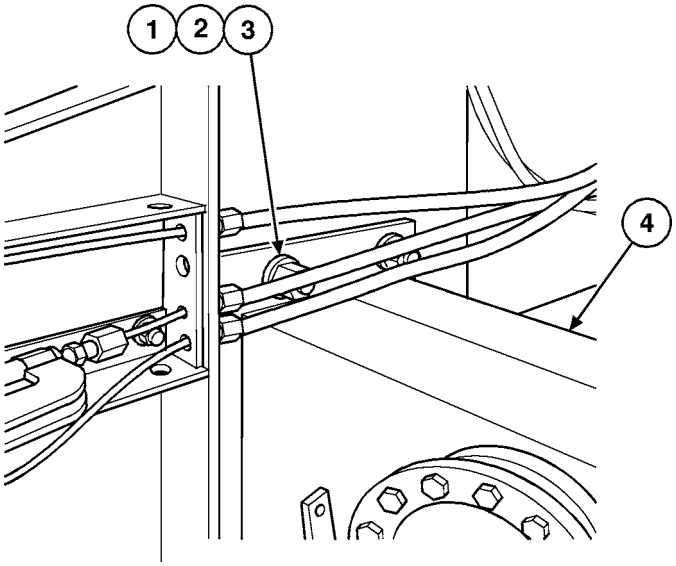
INSTALLATION

1. Install operating instruction plate (11) and six new pop rivets (12) to tool box (5).

TOOL BOX REPLACEMENT—Continued **0088 00**

2. Install tool box (5), 11 bolts (9), 22 washers (8), and 11 new self-locking nuts (7) to front skid plate (10) and piping frame (6).

3. Install bolt (3), two washers (2), and new self-locking nut (1) to manifold (4).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

GROUNDING ROD STORAGE TUBE RETAINING PIN REPLACEMENT 0089 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

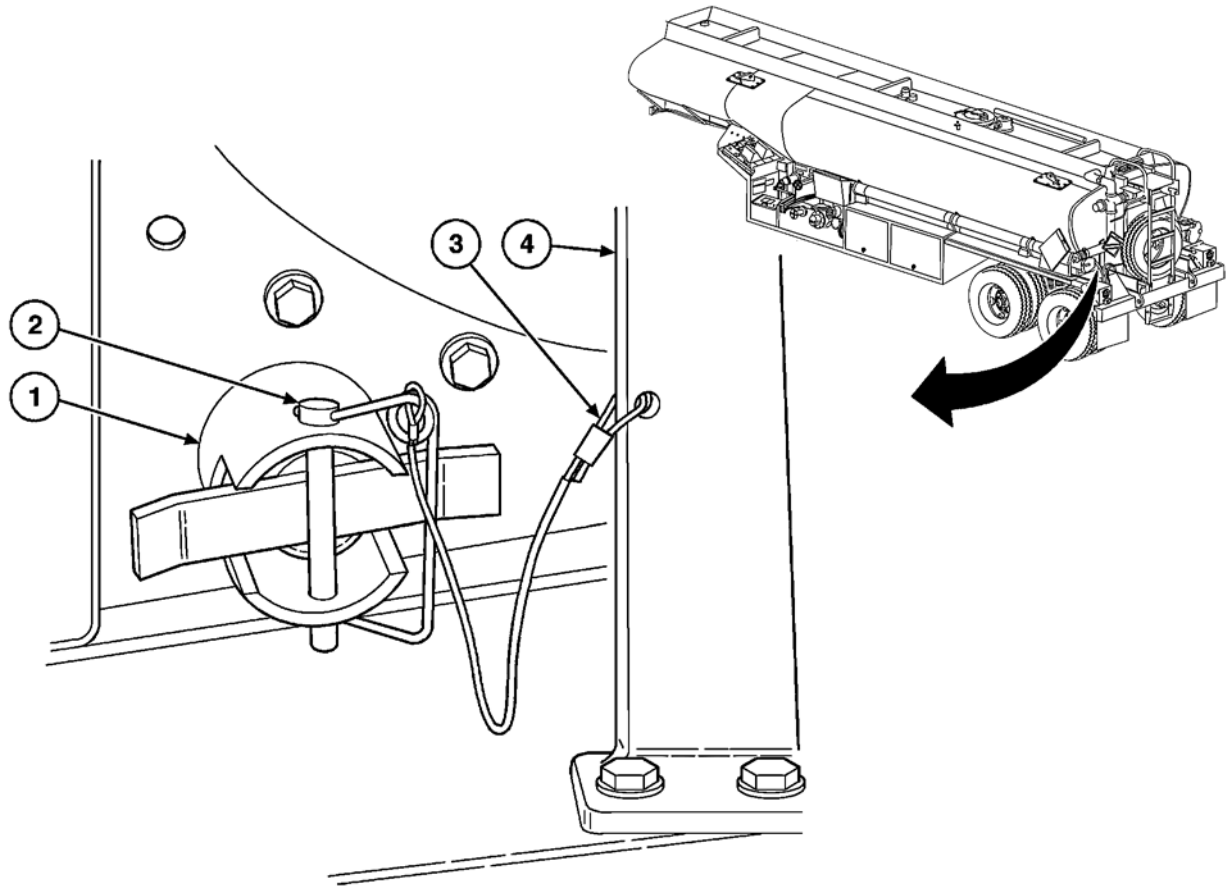
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Retaining pin (item 99, WP 0175 00)
Retaining wire (item 67, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

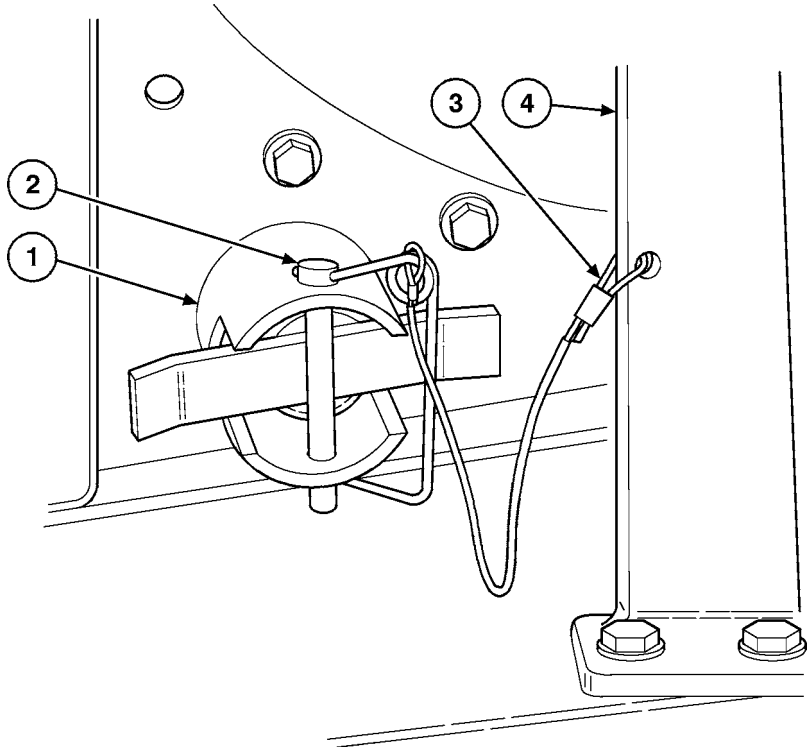
REMOVAL

1. Remove retaining pin (2) from grounding rod storage tube (1).
2. Remove retaining wire (3) from support post (4). Discard pin and retaining wire.



INSTALLATION

1. Install new retaining wire (3) to support post (4) and pin (2).
2. Install new retaining pin (2) to grounding rod storage tube (1).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HOSE REEL CABINET DOOR LOCK RELEASE LEVERS REPLACEMENT 0090 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Cotter pins (4) (item 103, WP 0175)

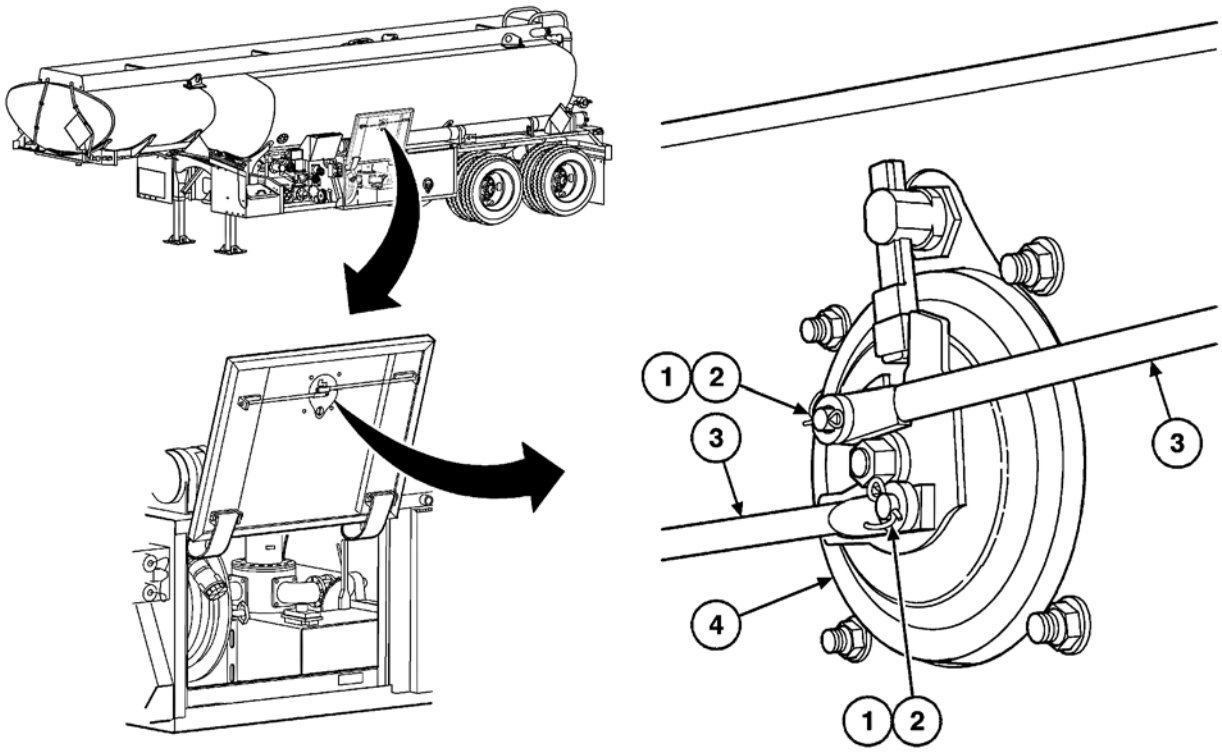
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

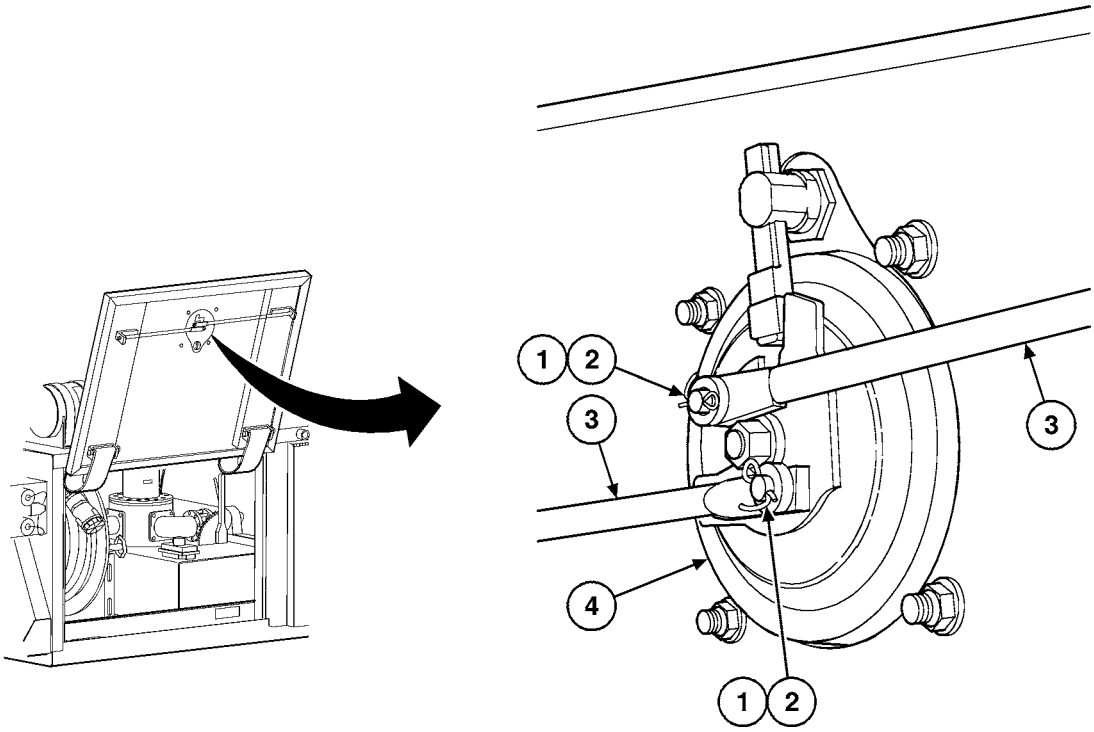
There are two hose reel cabinet door lock release levers and they are both replaced the same way. This procedure replaces the front cabinet door lock release lever.

Remove two cotter pins (1), washers (2), and lock release levers (3) from inside cabinet door lock mechanism (4). Discard cotter pins.



INSTALLATION

Install lock release levers (3), two washers (2), and new cotter pins (1) to inside cabinet door lock mechanism (4).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HOSE REEL CABINET DOOR LATCHES REPLACEMENT 0091 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (8) (item 88, WP 0175 00)

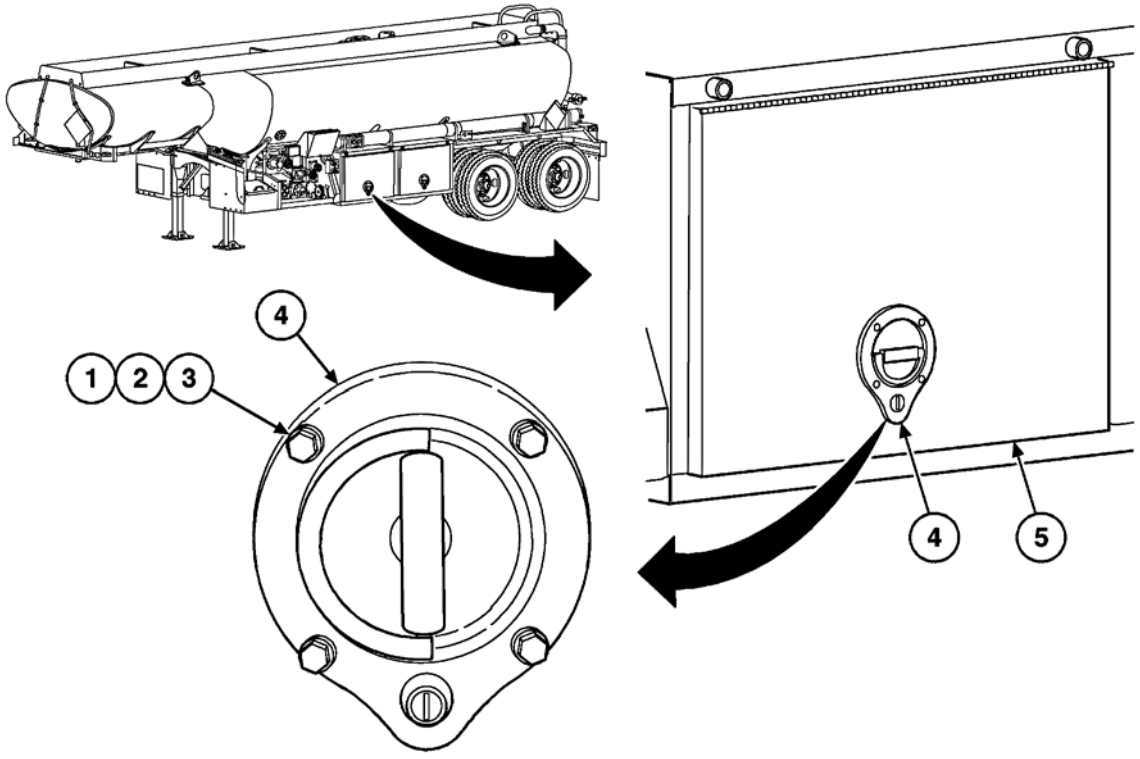
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Hose reel cabinet door lock release lever removed (refer to WP 0090 00)

REMOVAL

NOTE

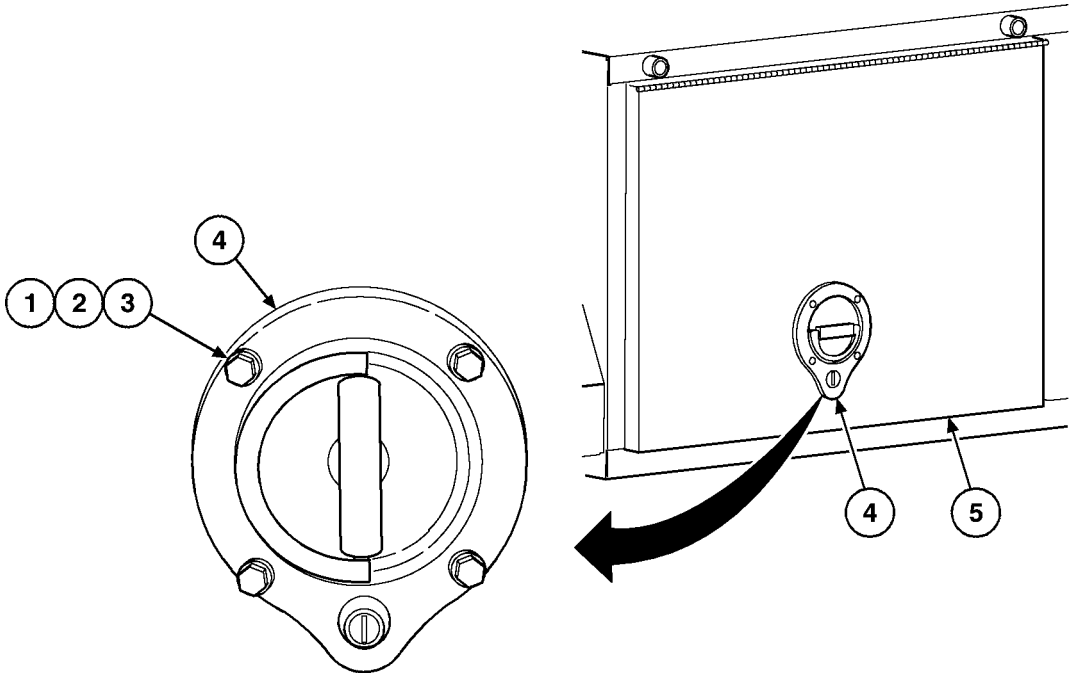
There are two hose reel cabinet door latches and they are both replaced the same way. This procedure removes the front hose reel cabinet door latch.

Remove four self-locking nuts (1), eight washers (2), four bolts (3), and latch (4) from cabinet door (5). Discard self-locking nuts.



INSTALLATION

Install latch (4), four bolts (3), eight washers (2), and four new self-locking nuts (1) to cabinet door (5).



FOLLOW-ON TASKS

1. Hose reel cabinet door lock release lever installed (WP 0090 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HOSE REEL CABINET DOOR SPRINGS REPLACEMENT 0092 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Cotter pins (8) (item 94, WP 0175 00)

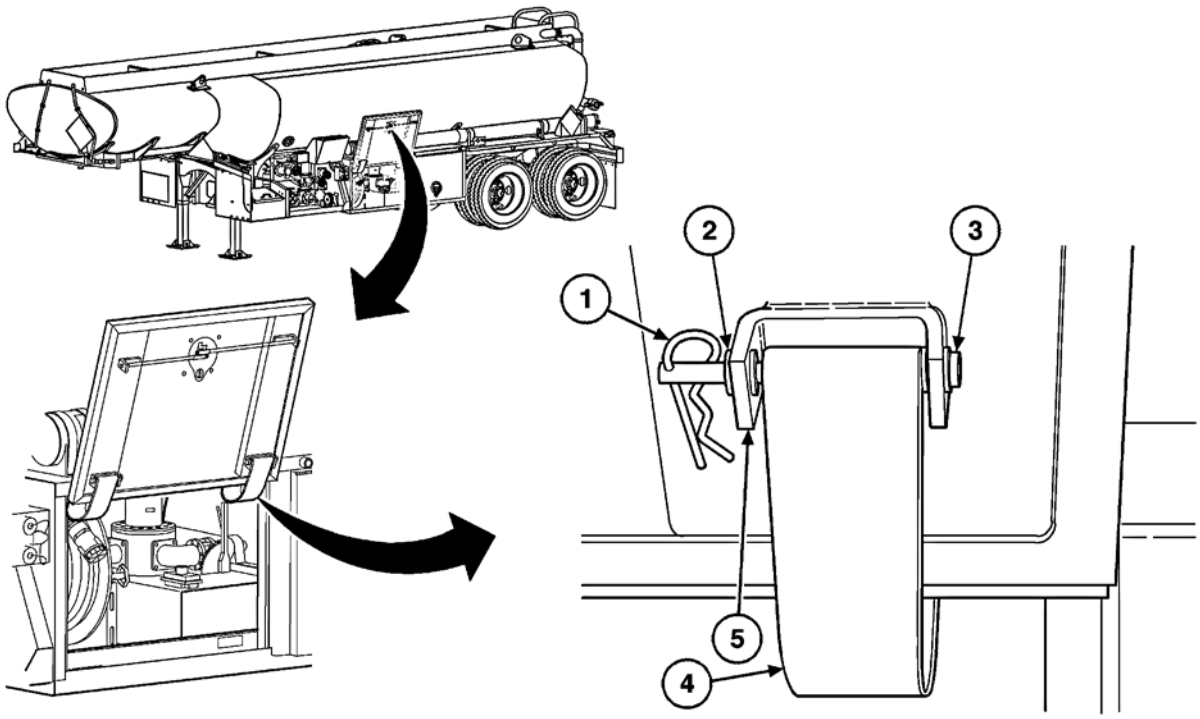
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

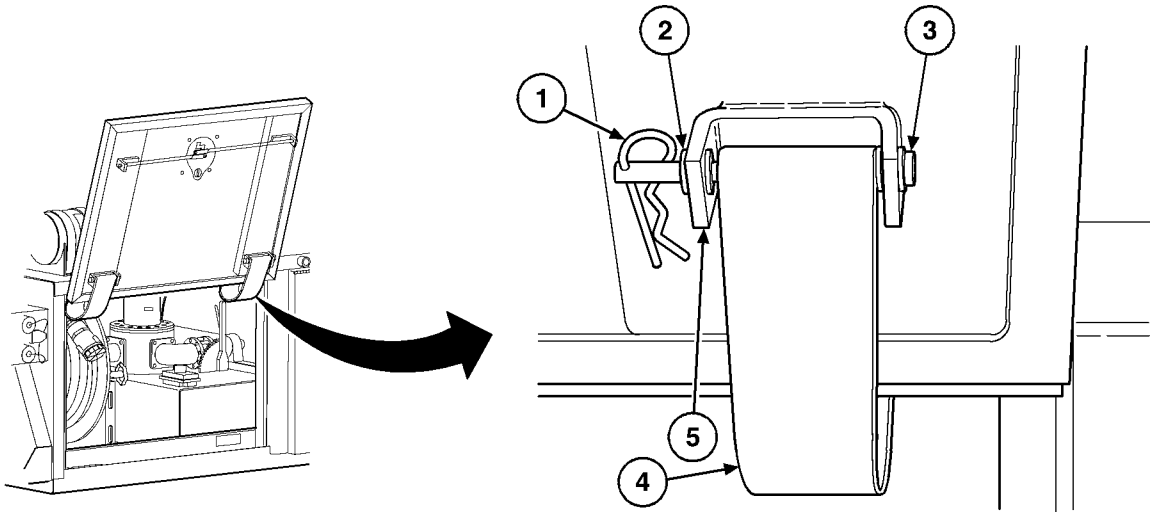
- **There are two hose reel cabinet door springs per cabinet and two cabinets on the M969A3. This procedure replaces the door springs from the front cabinet.**
- **Cabinet door must be secured in the open position prior to replacement of hinges.**

Remove four cotter pins (1), eight washers (2), four pins (3), and two hinges (4) from four door spring brackets (5). Discard cotter pins.



INSTALLATION

Install two hinges (4), four pins (3), eight washers (2), and four new cotter pins (1) to four door hinge brackets (5).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

GROUNDING STUDS REPLACEMENT 0093 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (3) (item 54, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

WARNING

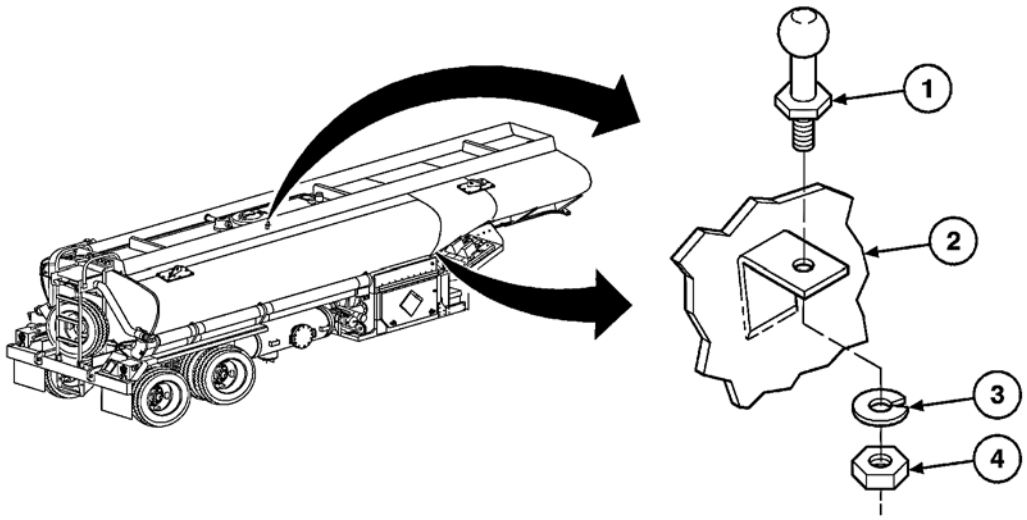
Ladder has narrow tread. Use care when climbing to prevent injury.

NOTE

There are three grounding studs and they are replaced the same way. This procedure replaces the upper grounding stud.

REMOVAL

Remove self-locking nut (4), washer (3), and grounding stud (1) from frame (2). Discard self-locking nut.

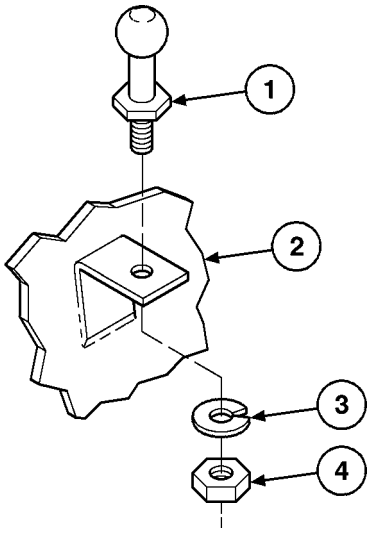


INSTALLATION

NOTE

Make sure grounding studs are installed on clean, unpainted metal surface. If mounting surface is painted, scrape off paint to bare metal.

1. Install grounding stud (1), washer (3), and new self-locking nut (4) to frame (2).
2. Make sure International Grounding Symbol and DO NOT PAINT GND STUD stencils are present and legible.



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HOSE TUBES REPLACEMENT 0094 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts Equipment
Gaskets (2) (item 84, WP 0175 00)
Self-locking nuts (22) (item 87, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Hose tube access covers removed (refer to WP 0095 00)
Roadside Haz/Mat placard bracket removed (refer to WP 0102 00)

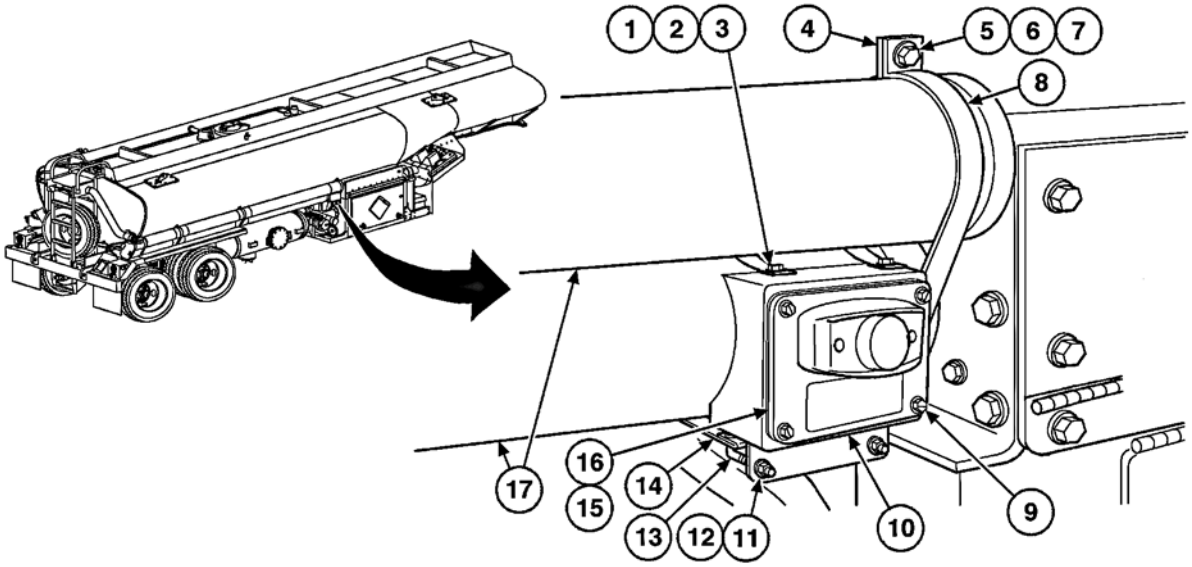
REMOVAL

NOTE

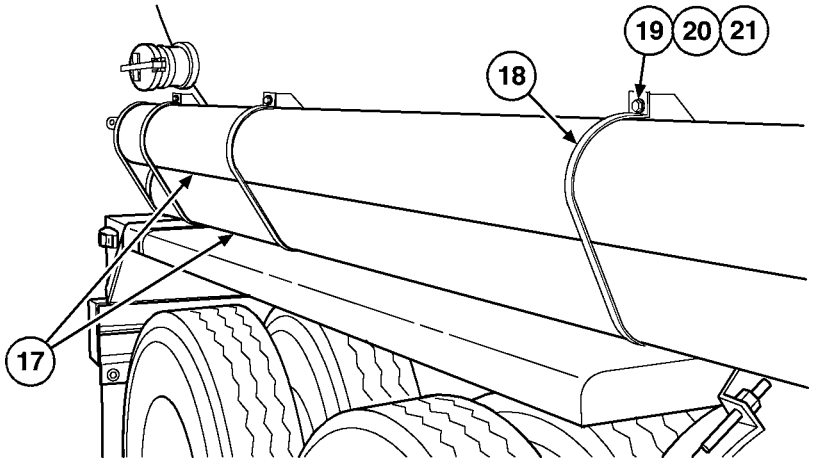
Roadside and curbside hose tubes are different. The curbside hose tube consists of two hose tubes and the roadside hose tube consists of only one hose tube. This procedure replaces the hose tubes from both sides.

Curbside Hose Tube

1. Remove four screws (9), marker light cover (16), and gasket (15) from marker light box (10). Discard gasket.
2. Remove two self-locking nuts (12), washers (11), and J-bolts (13) from two bands (14). Discard self-locking nuts.
3. Remove self-locking nut (5), two washers (6), bolt (7), and band (8) from bracket (4). Discard self-locking nut.
4. Remove two self-locking nuts (1), four washers (2), two bolts (3), bands (14), and marker light box (10) from hose tubes (17). Discard self-locking nuts.



5. Remove three self-locking nuts (19), six washers (20), three bolts (21), bands (18), and two curbside hose tubes (17) from semitrailer. Discard self-locking nuts.



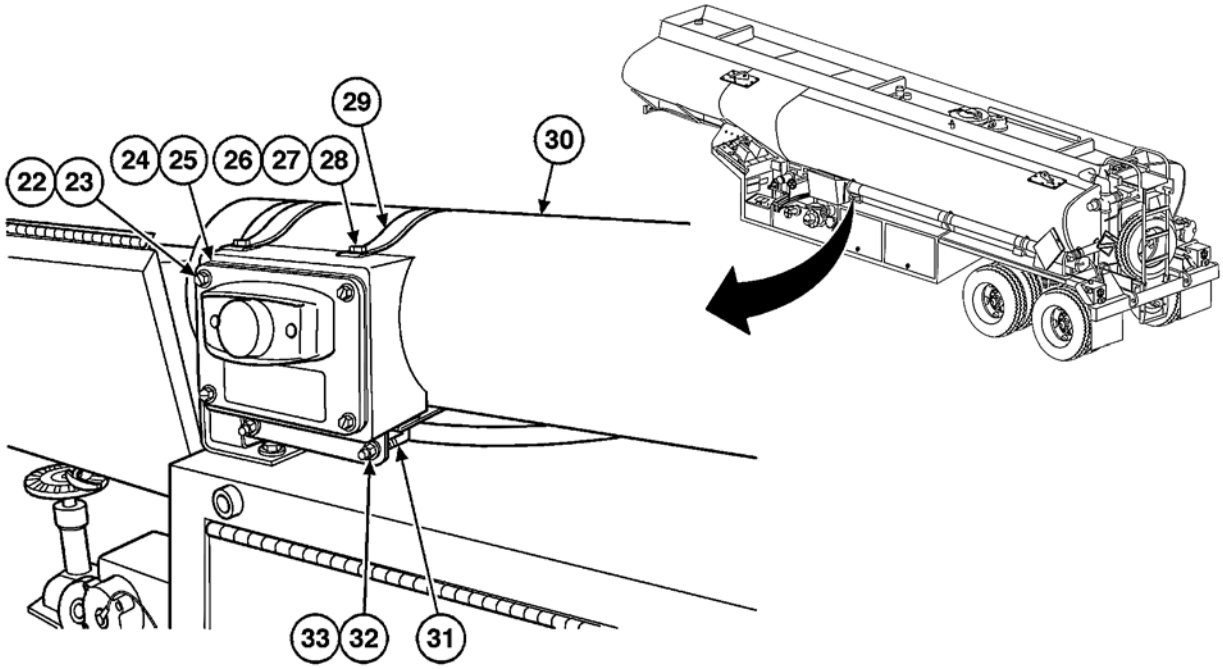
HOSE TUBES REPLACEMENT—Continued **0094 00**

Roadside Hose Tube

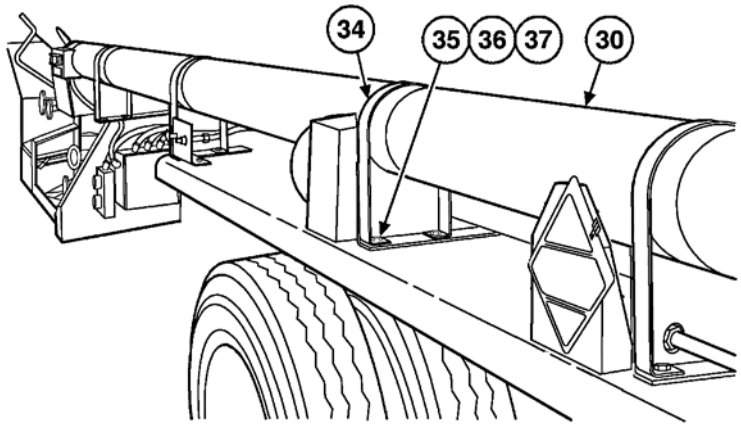
6. Remove four screws (22), marker light cover (23), and gasket (24) from marker light box (25).

7. Remove two self-locking nuts (26), four washers (27), two bolts (28), and bands (29) from marker light box (25). Discard self-locking nuts.

8. Remove two self-locking nuts (32), washers (33), J-bolts (31), bands (29), and marker light box (25) from hose tubes (30). Discard self-locking nuts.



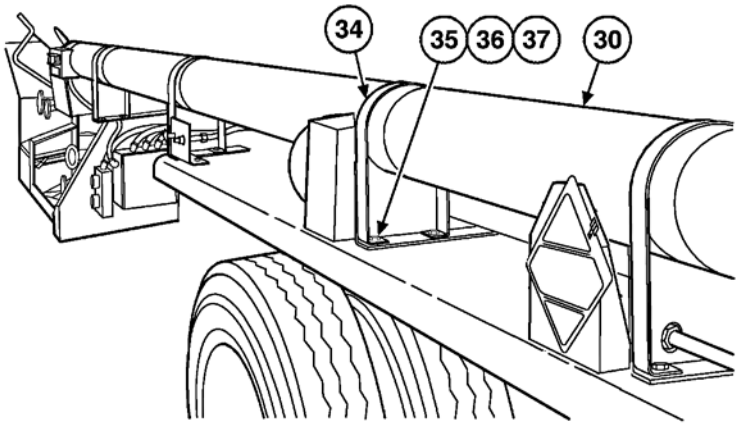
9. Remove 10 self-locking nuts (35), 20 washers (36), 10 bolts (37), 5 brackets (34), and hose tube (30) from semitrailer. Discard self-locking nuts.



INSTALLATION

Roadside Hose Tube

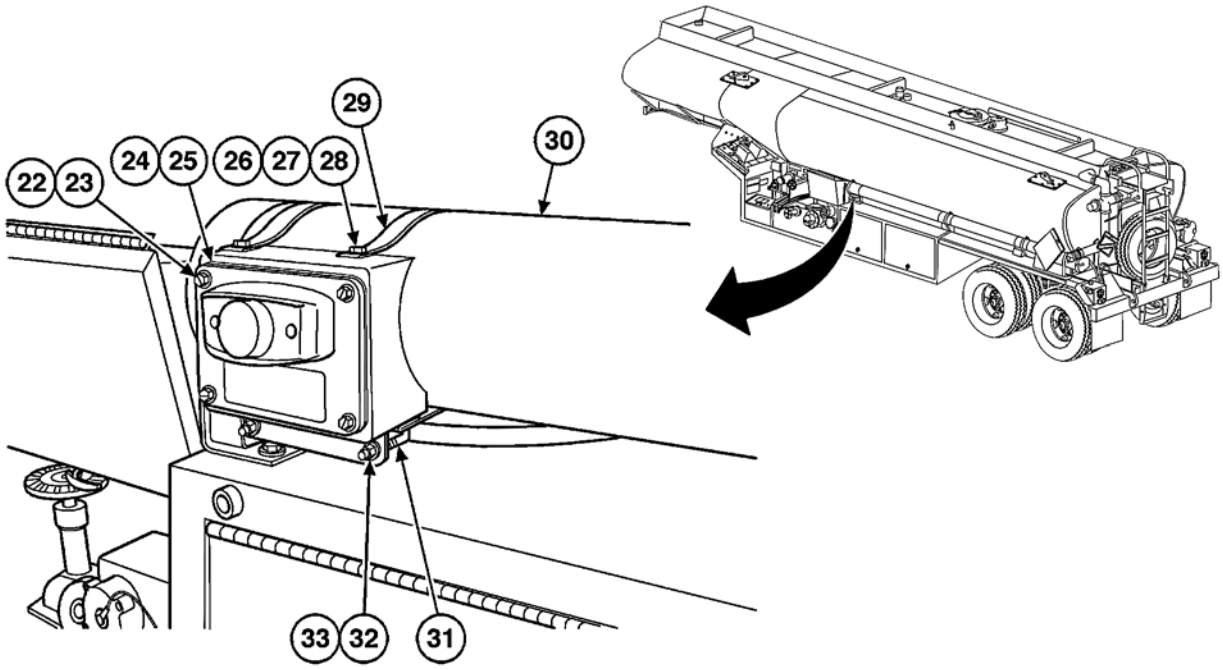
1. Install hose tube (30), 5 bands (34), 10 bolts (37), 20 washers (36), and 10 new self-locking nuts (35).



2. Install marker light box (25), two bands (29), J-bolts (31), washers (33), and new self-locking nuts (32) to hose tubes (30).

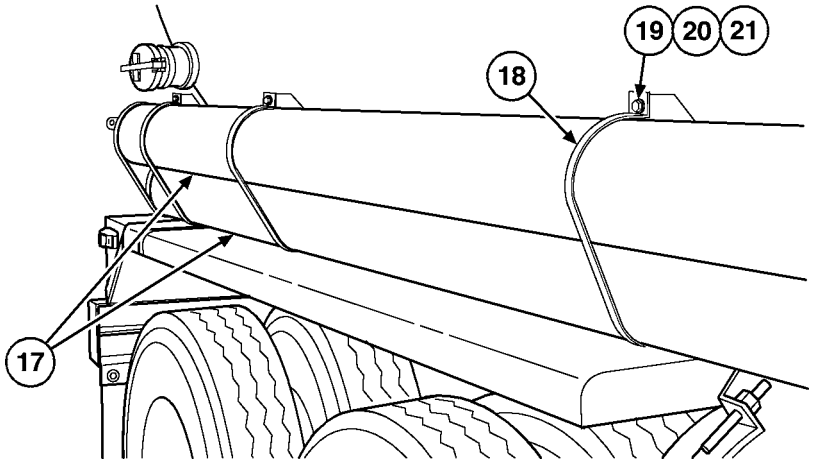
3. Install two bands (29), bolts (28), four washers (27), and two new self-locking nuts (26) to marker light box (25).

4. Install new gasket (24), marker light cover (23), and four screws (22) to marker light box (25).



Curbside Hose Tubes

5. Install two curbside hose tubes (17), three bands (18), bolts (21), six washers (20), and three new self-locking nuts (19) to semitrailer.

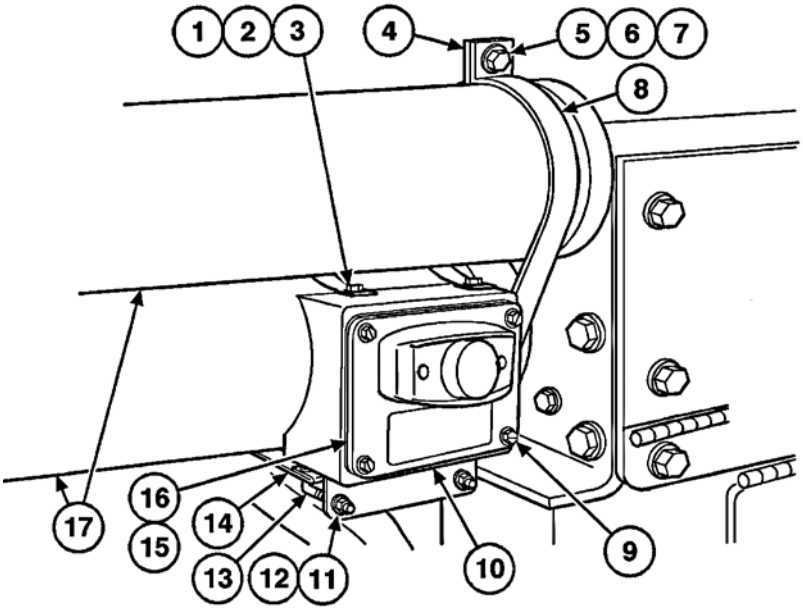


6. Install marker light box (10), two bands (14), bolts (3), four washers (2), and two new self-locking nuts (1) to hose tubes (17).

7. Install band (8), bolt (7), two washers (6), and new self-locking nut (5) to bracket (4).

8. Install two J-bolts (13), washers (11), and new self-locking nuts (12) to bands (14).

9. Install new gasket (15), marker light cover (16), and four screws (9) to marker light box (10).



FOLLOW-ON TASKS

1. Install roadside Haz/Mat placard bracket (WP 0102 00).
2. Install hose tube access covers and hoses (WP 0095 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HOSE TUBES ACCESS COVERS REPLACEMENT 0095 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (9) (item 87, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

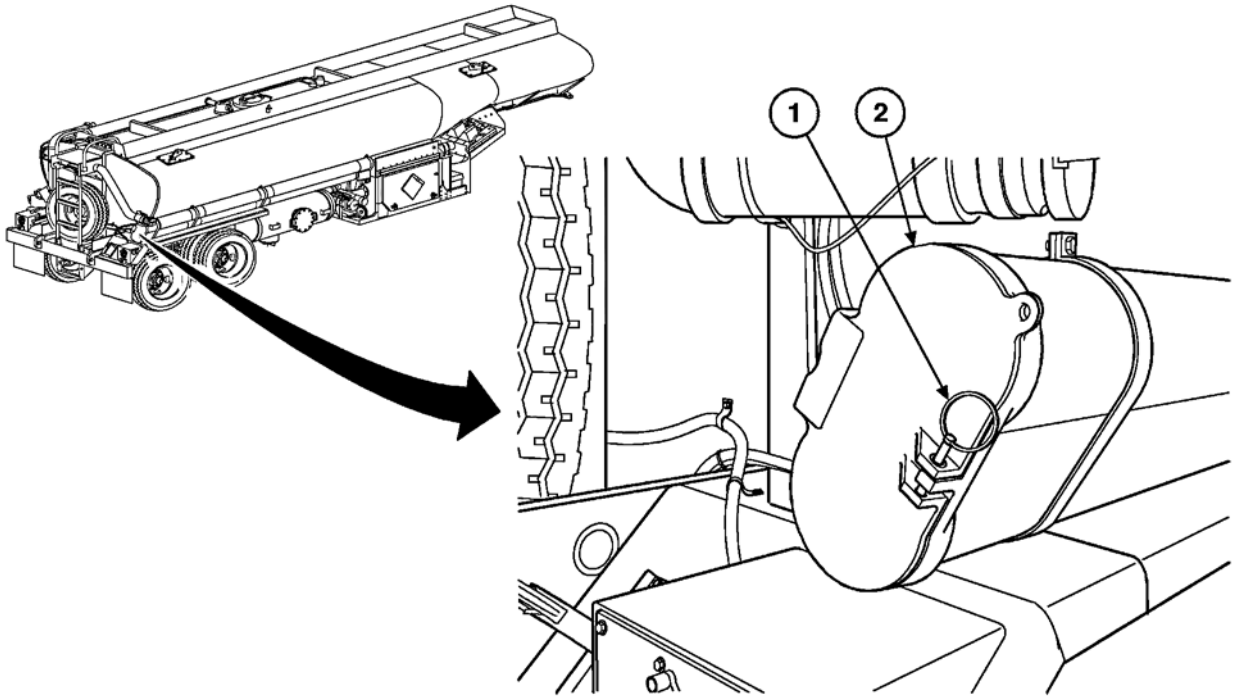
REMOVAL

NOTE

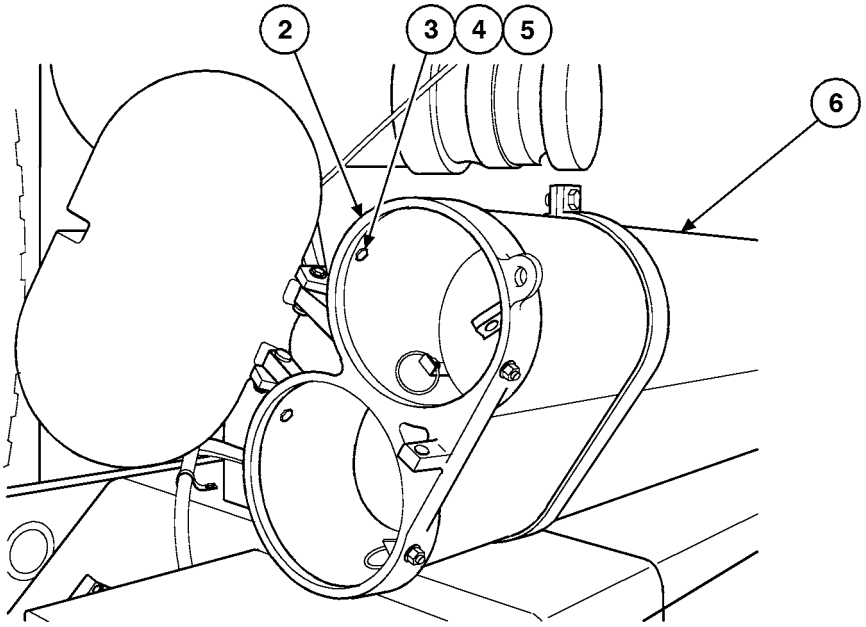
Roadside and curbside hose tube access covers are different. The curbside hose tube assembly consists of two hose tubes and the roadside hose tube assembly consists of only one hose tube.

Curbside Hose Tube Access Cover

1. Release pin (1) and open access cover (2).

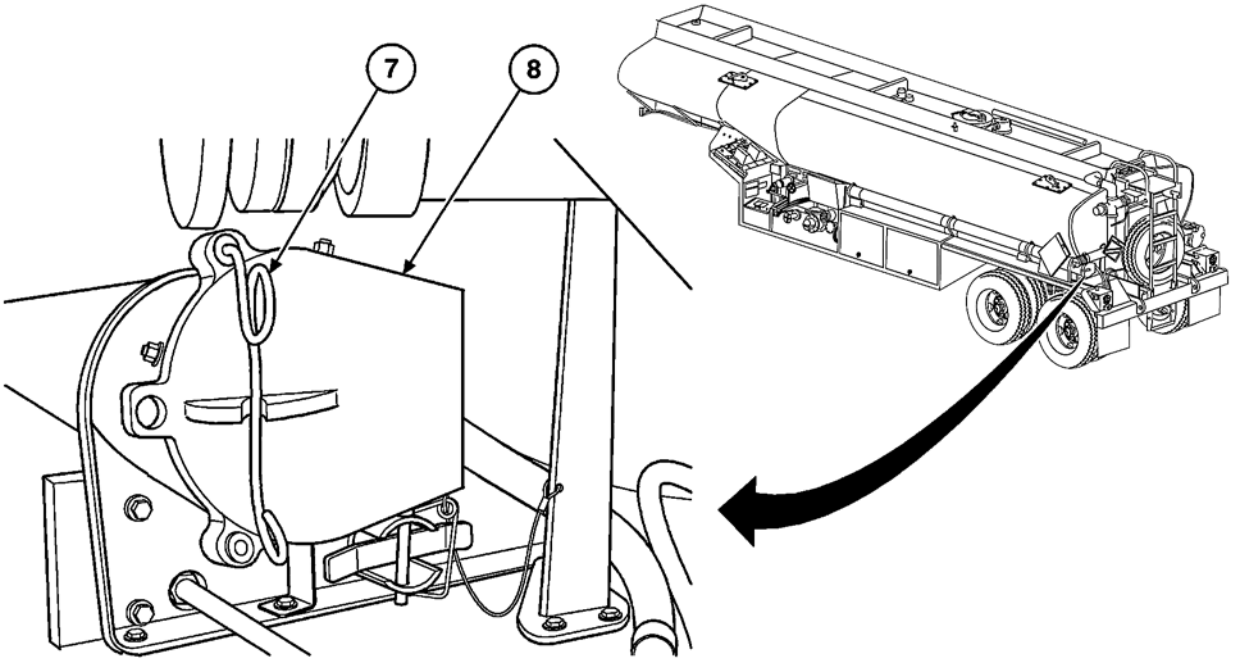


2. Remove six self-locking nuts (3), washers (4), bolts (5), and access cover (2) from hose tube (6). Discard self-locking nuts.

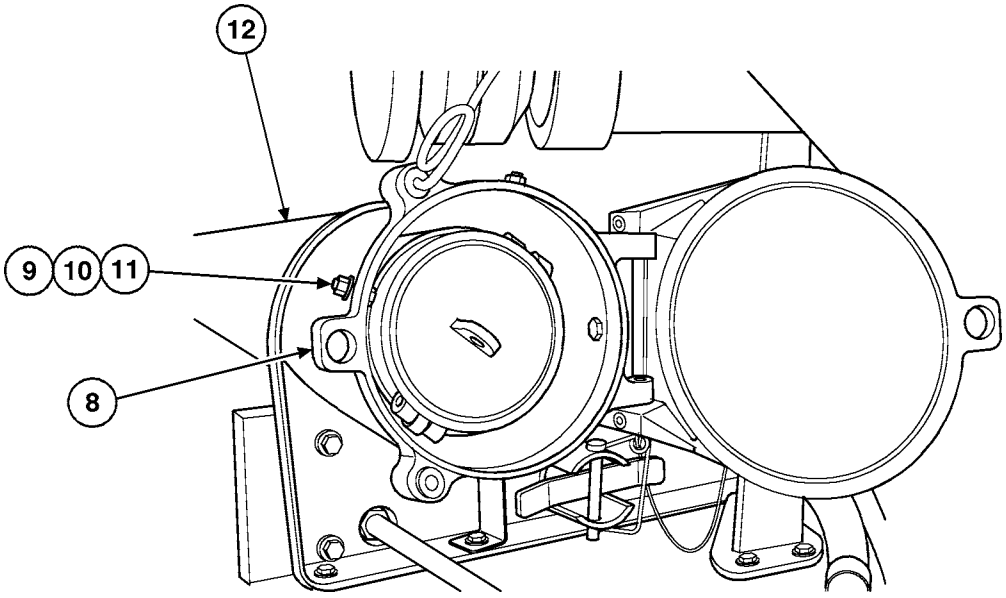


Roadside Hose Tube Access Cover

3. Release pin (7) and open access cover (8).



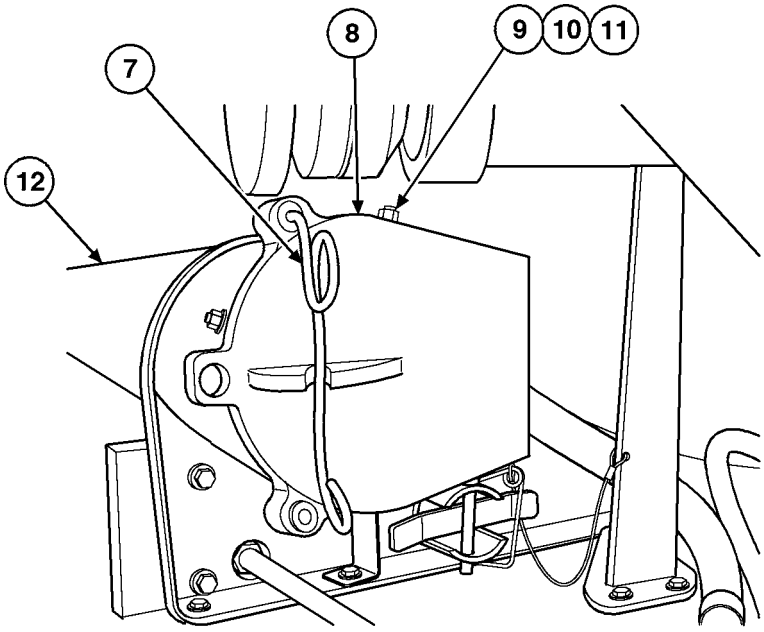
4. Remove four self-locking nuts (9), washers (10), bolts (11), and access cover (8) from hose tube (12). Discard self-locking nuts.



INSTALLATION

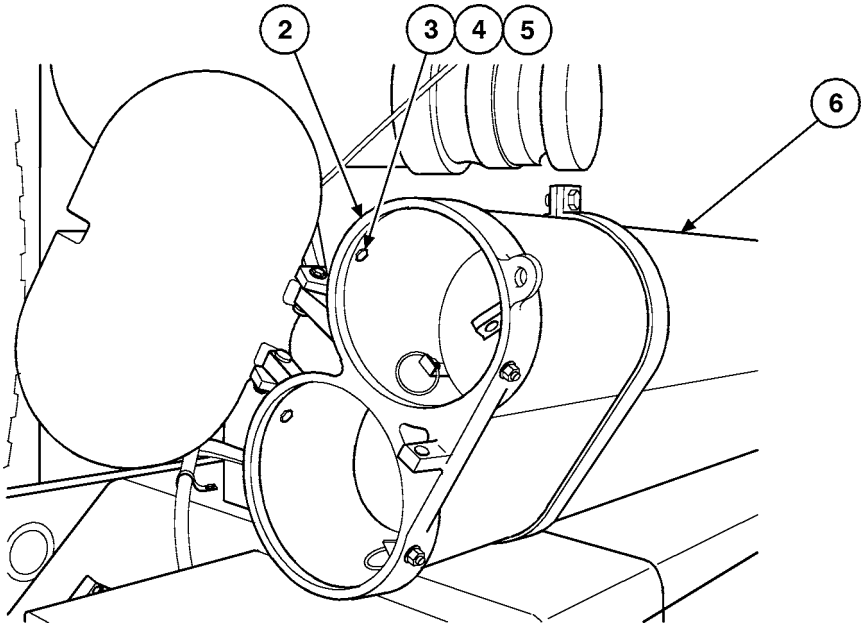
Roadside Hose Tube Access Cover

1. Install access cover (8), four bolts (11), washers (10), and new self-locking nuts (9) to hose tube (12).
2. Lock access cover (8) into place with pin (7).

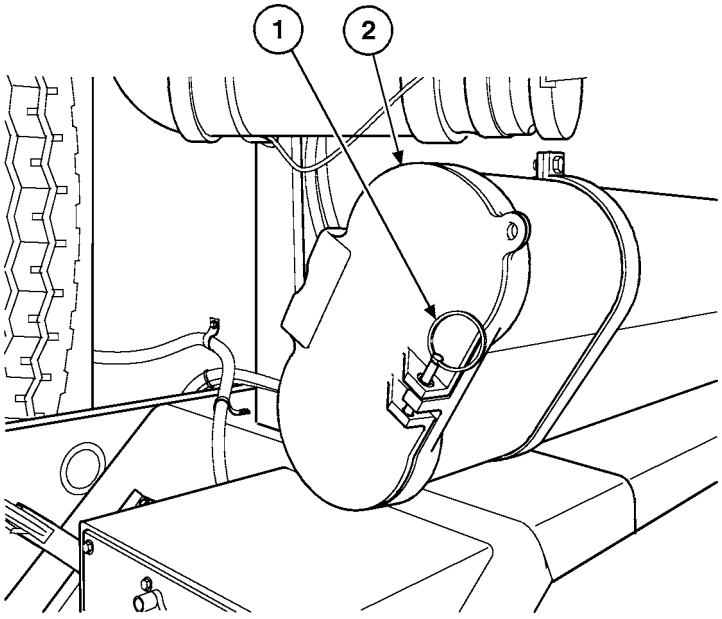


Curbside Hose Tube Access Cover

3. Install access cover (2), six bolts (5), washers (4), and new self-locking nuts (3) to hose tube (6).



4. Lock access cover (2) into place with pin (1).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

SPARE TIRE LIFTING DEVICE (WINCH) REPLACEMENT 0096 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (6) (item 87, WP 0175 00)

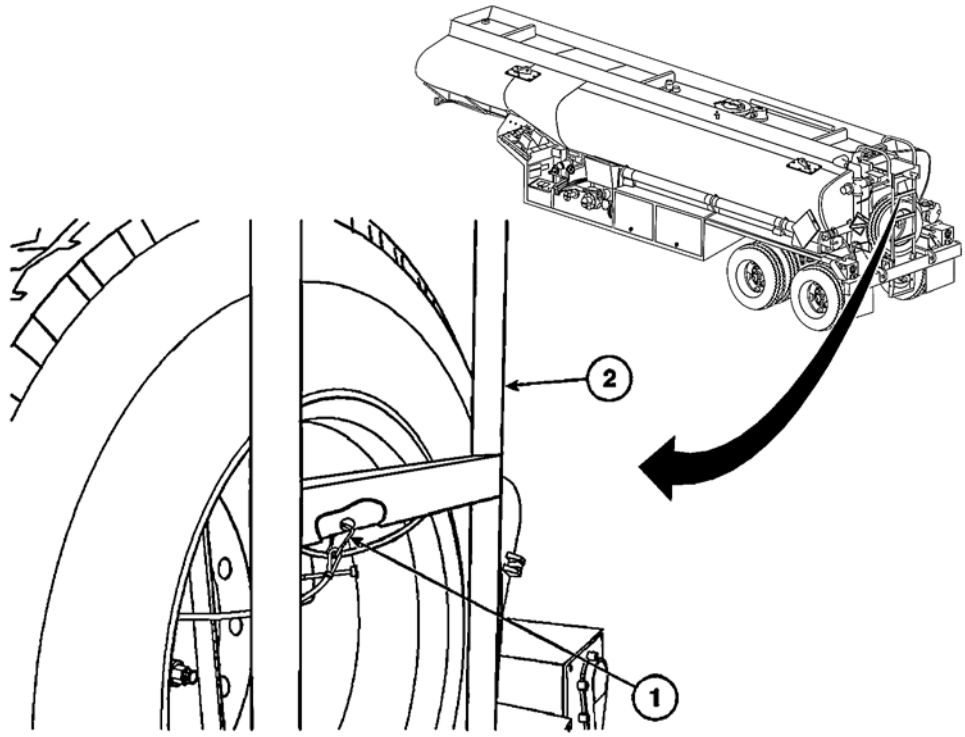
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

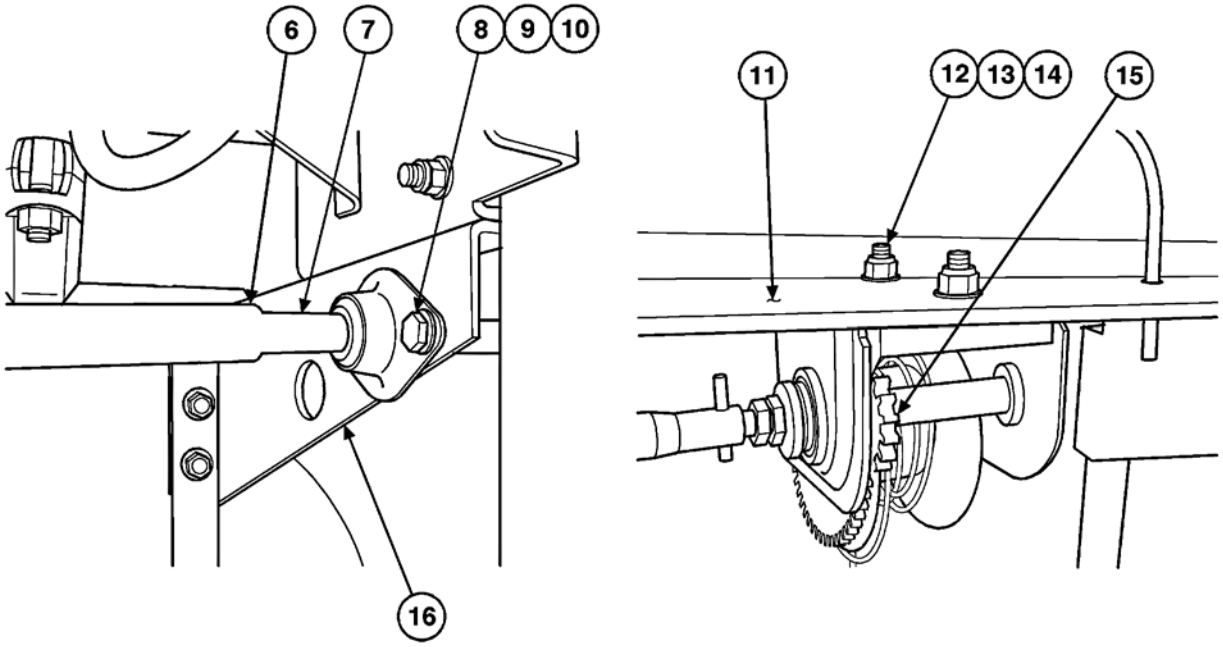
Loosen winch cable as necessary.

1. Remove two hooks (1) from ladder (2).



2. Remove two self-locking nuts (8), four washers (9), two bolts (10), bracket (16), hand crank (6) and shaft (7) from platform (11). Discard self-locking nuts.

3. Remove two self-locking nuts (12), four washers (13), two bolts (14), and winch (15) from platform (11). Discard self-locking nuts.

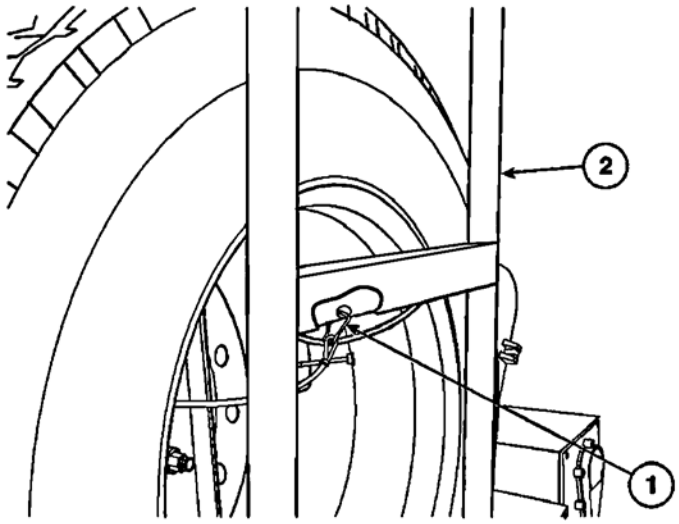


INSTALLATION

1. Install winch (15), two bolts (14), four washers (13), and two new self-locking nuts (12) to platform (11).

2. Install shaft (7), hand crank (6), bracket (16), two bolts (10), four washers (9), and two new self-locking nuts (8) to platform (11).

3. Install two hooks (1) to ladder (2).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

DRAIN PIPES REPLACEMENT **0097 00**

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Organizational

Materials/Parts Equipment
Self-locking nuts (4) (item 88, WP 0175 00)
Self-locking nuts (12) (item 92, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

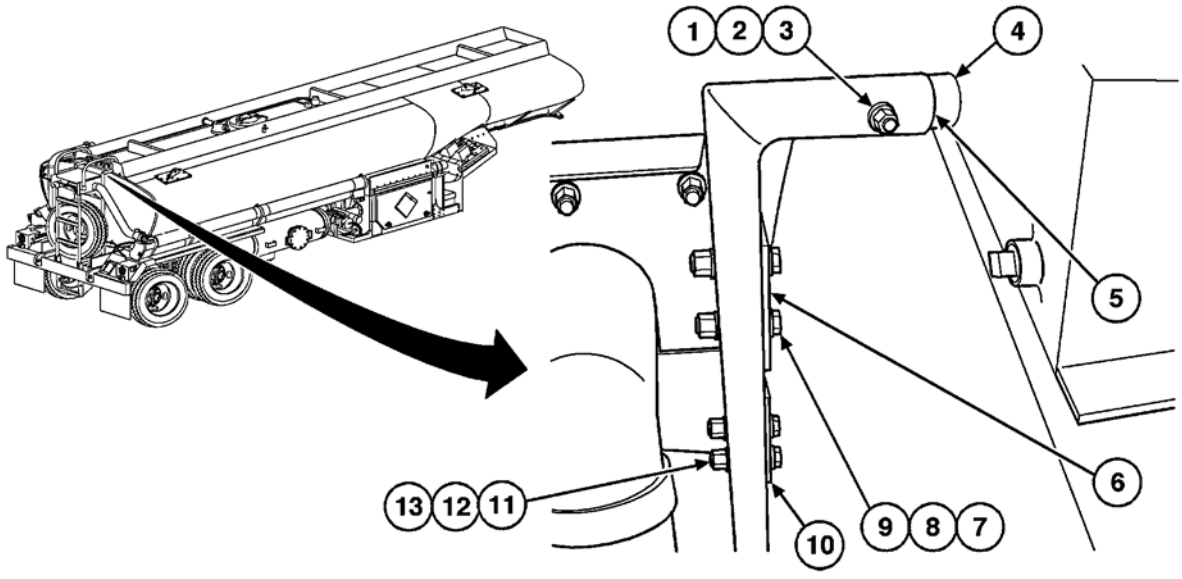
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Spare tire dismounted (refer to WP 0007 00)

REMOVAL

NOTE

There are two rear drain pipes and they are both replaced the same way. This procedure replaces the curbside drain pipe.

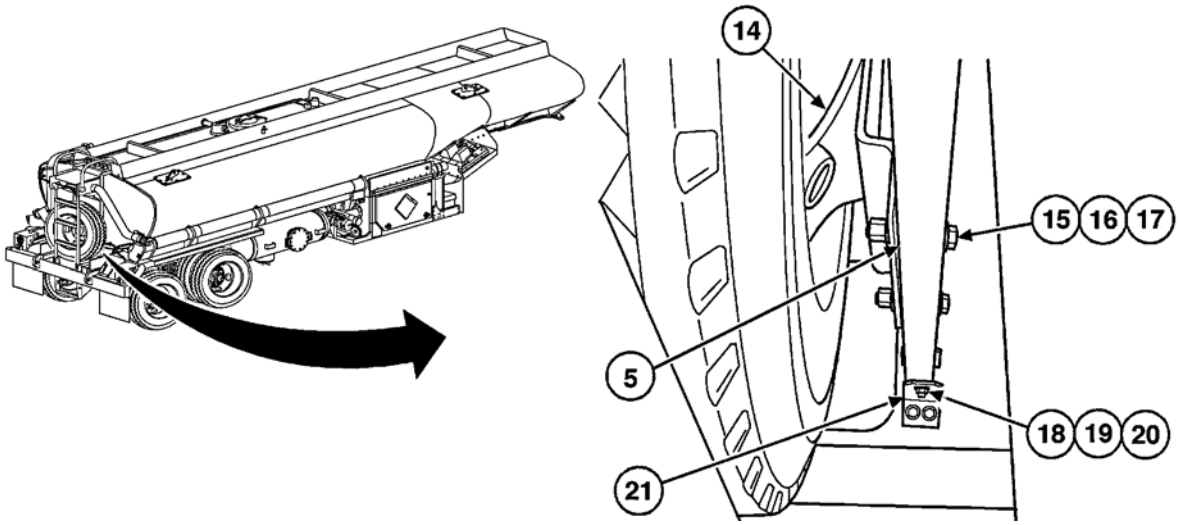
1. Remove self-locking nut (1), two washers (2), and one bolt (3) from channel (4) at top of drain pipe (5). Discard self-locking nut.
2. Remove two self-locking nuts (7), four washers (8), and two bolts (9) from platform support (10). Discard self-locking nuts.
3. Remove two self-locking nuts (11), four washers (12), and two bolts (13) from angle bracket (6). Discard self-locking nuts.



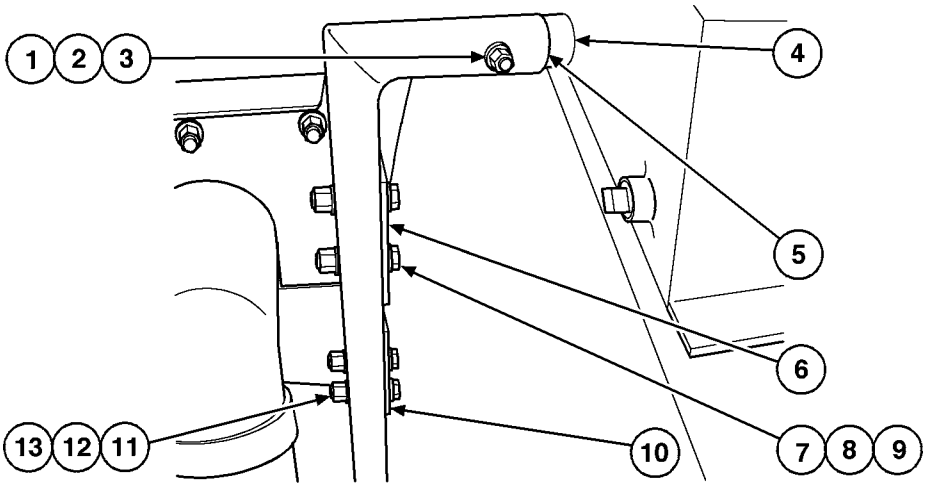
4. Remove two self-locking nuts (15), four washers (16), and two bolts (17) from spare tire support (14). Discard self-locking nuts.
5. Remove self-locking nut (18), two washers (19), bolt (20), and drain pipe (5) from bottom support bracket (21). Discard self-locking nut.

INSTALLATION

1. Install drain pipe (5), bolt (20), two washers (19), and new self-locking nut (18) to bottom support bracket (21).



2. Install drain pipe (5), bolt (3), two washers (2), and new self-locking nut (1) at channel (4).
3. Install drain pipe (5), two bolts (9), four washers (8), and two new self-locking nuts (7) to platform support (10).
4. Install drain pipe (5), two bolts (13), four washers (12), and two new self-locking nuts (11) to angle bracket (6).
5. Install drain pipe (5), two bolts (17), four washers (16), and two new self-locking nuts (15) to spare tire support (14).



FOLLOW-ON TASKS

1. Remount spare tire (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

MANHOLE COVER MAINTENANCE 0098 00

THIS WP COVERS:
Removal, Disassembly, Assembly, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Gasket (item 39, WP 0175 00)
Starwasher (item 101, WP 0175 00)

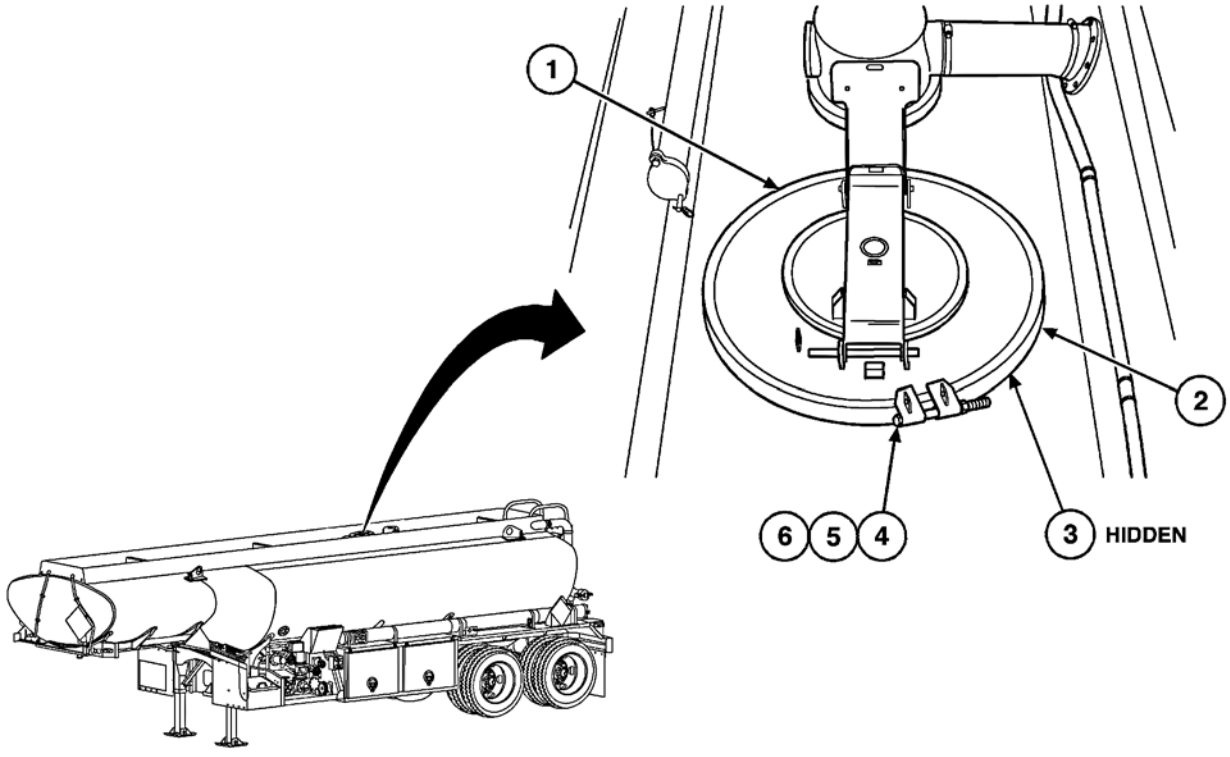
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)

REMOVAL

WARNING

Remove vent cap from either side of vapor recovery tube and open emergency valve A to vent tank.

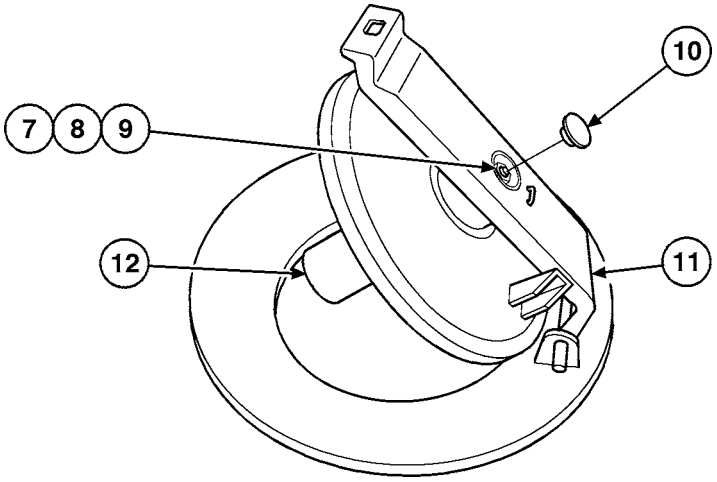
1. Remove nut (6), washer (5), and bolt (4) from locking ring (1).
2. Remove locking ring (1), manhole cover (2), and manhole cover gasket (3). Discard gasket.



MANHOLE COVER MAINTENANCE—Continued **0098 00**

DISASSEMBLY

1. Remove plug (10) from latch handle (11).
2. Remove nut (7), starwasher (8), Allen head screw (9), and cylinder (12) from underneath latch handle (11). Discard starwasher.

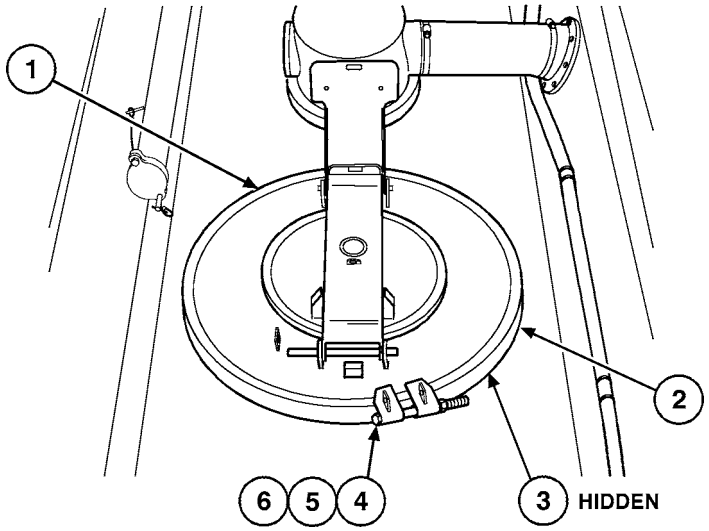


ASSEMBLY

1. Install cylinder (12), Allen head screw (9), new starwasher (8), and nut (7) to latch handle (11).
2. Install plug (10) in latch handle (11).

INSTALLATION

1. Install new manhole cover gasket (3), manhole cover (2), and locking ring (1) to manhole.
2. Install bolt (4), washer (5), nut (6), and locking ring (1) to manhole cover (2).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

VENT CAP REPLACEMENT 0099 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, antiseize (item 3, WP 0174 00)
Gasket (item 42, WP 0175 00)

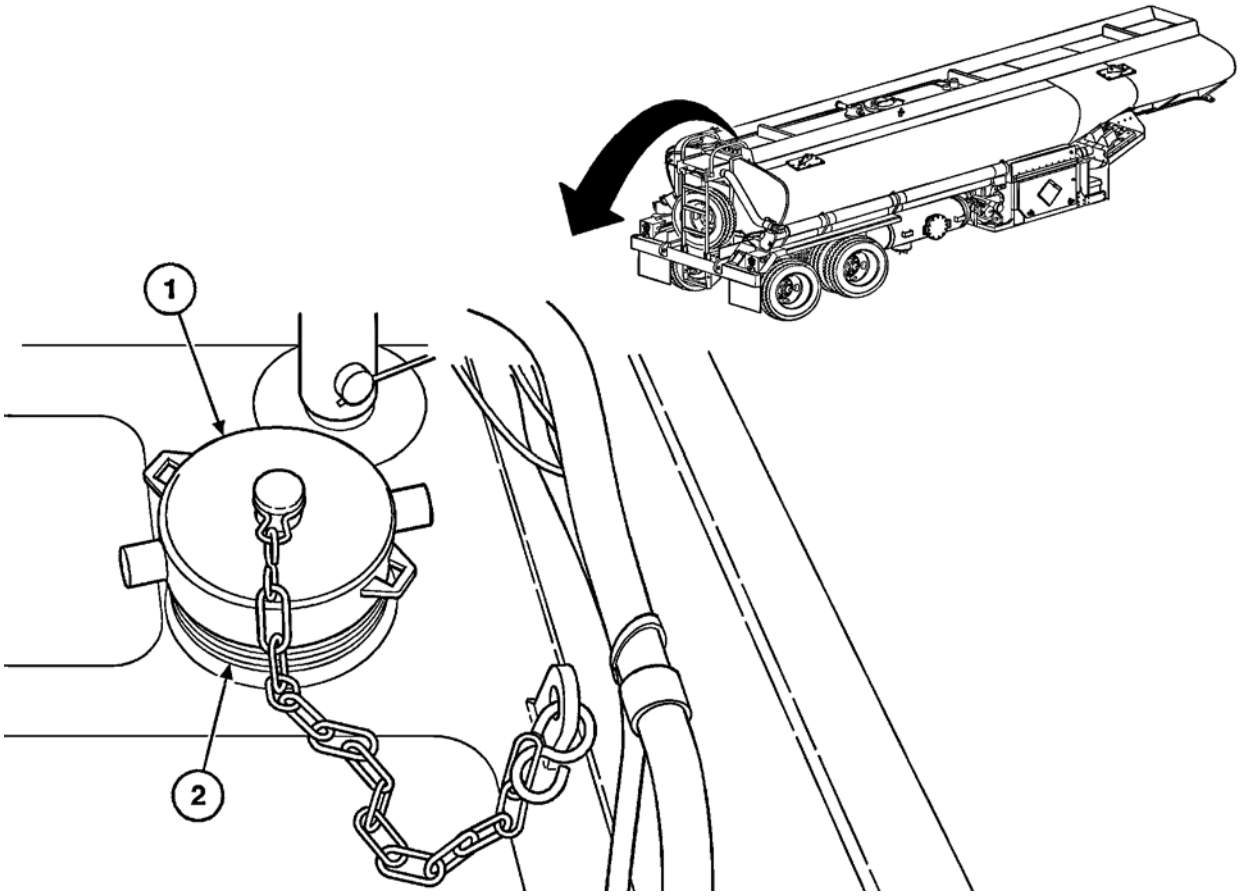
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)

REMOVAL

WARNING

Remove vent cap from either side of vapor recovery tube and open emergency valve A to vent tank.

1. Remove vent cap (1) from pipe nipple (2).



2. Disconnect hook (3) and chain (4) from vent cap (1).

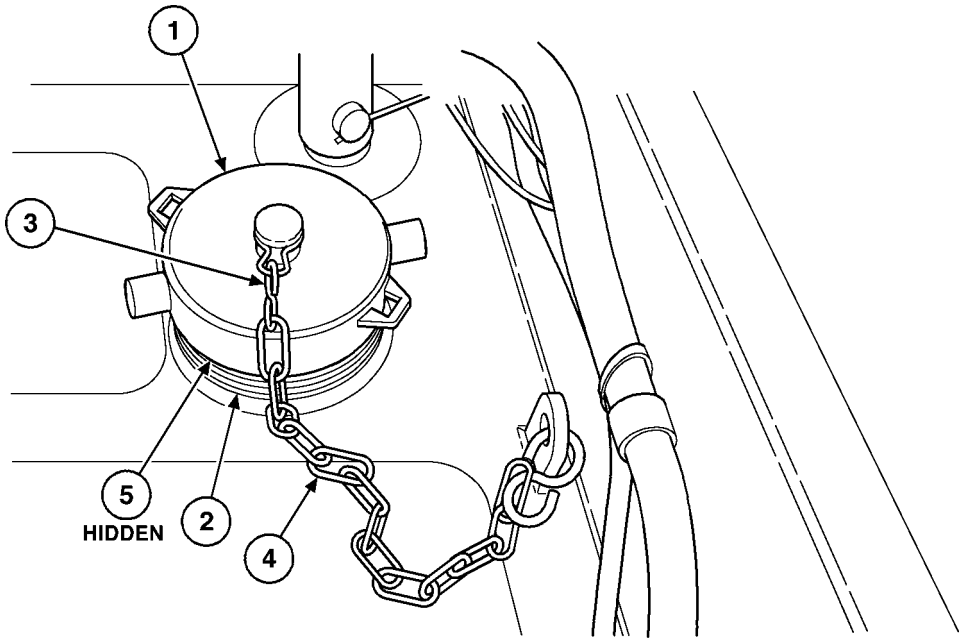
3. Remove gasket (5) from vent cap (1). Discard gasket.

INSTALLATION

1. Install new gasket (5) to vent cap (1).

2. Connect chain (4) and hook (3) to vent cap (1).

3. Install antiseize compound to threads of pipe nipple (2) and install vent cap (1).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

REFLECTORS REPLACEMENT **0100 00**

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, cleaning (item 4, WP 0174 00)
Rags (item 11, WP 0174 00)
Reflectors (AR) (items 106 and 107, WP 0175 00)

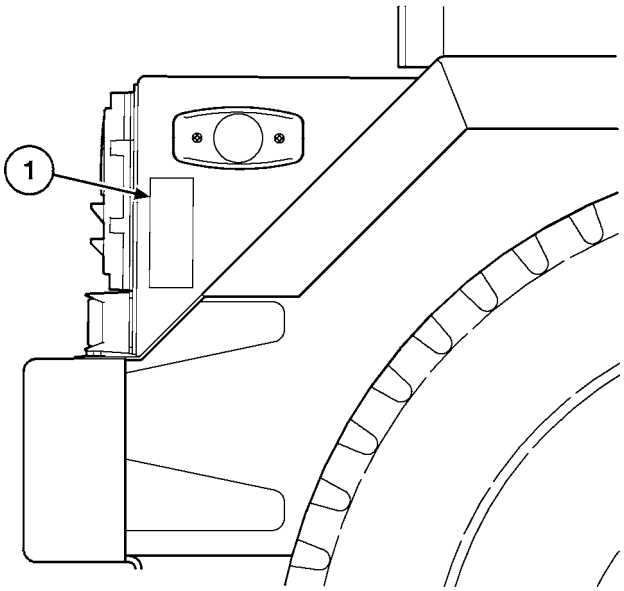
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

There are eight reflectors (four red and four amber) and they are replaced the same way. This procedure replaces the rear curbside reflector.

1. Peel away damaged reflector (1) from semitrailer. Discard reflector.

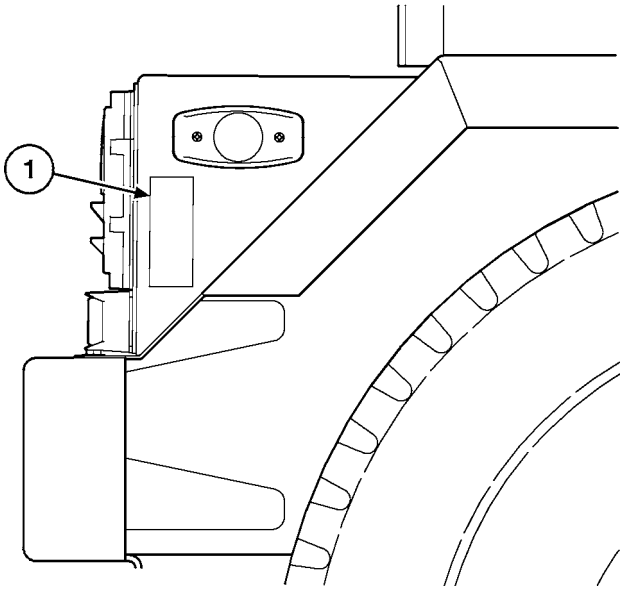


INSTALLATION

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin and clothing, wash immediately with soap and water.

1. Remove any residual dirt or grit from area where reflector is to be installed using cleaning compound. Surface must be clean and dry before installing reflector.
2. Remove protective backing from new reflector (1) and position on semitrailer.
3. Use a clean dry rag, press down reflector (1), and smooth away any air bubbles.



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ID/INSTRUCTION PLATES REPLACEMENT 0101 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:
Maintenance Level
Organizational

Materials/Parts
Rivets (AR) (item 96, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Rivet gun (item 1, WP 0171 00)

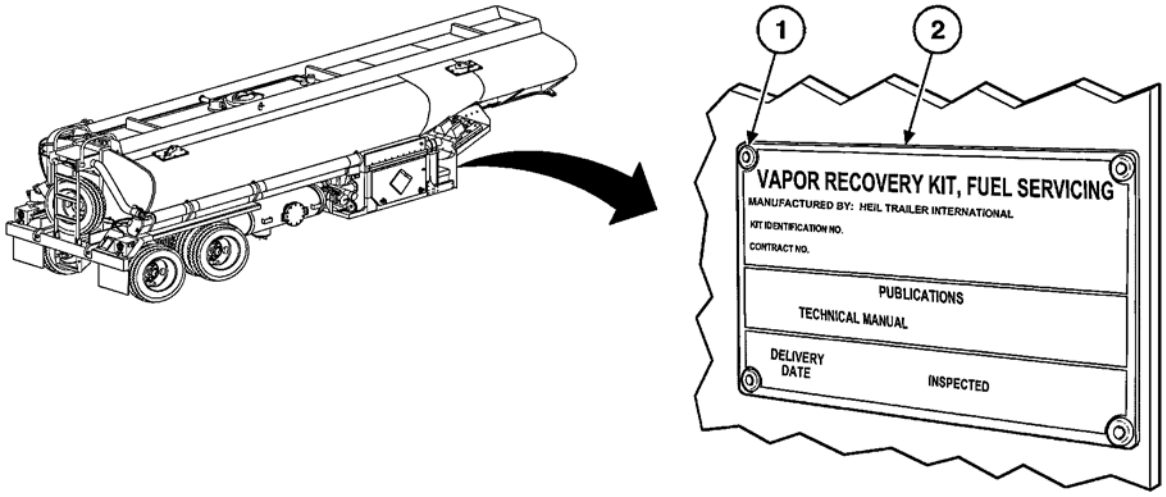
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

The ID/instruction plates are replaced the same way.
This procedure covers the vapor recovery kit instruction plate.

Drill out four rivets (1) and remove vapor recovery kit instruction plate (2). Discard rivets.

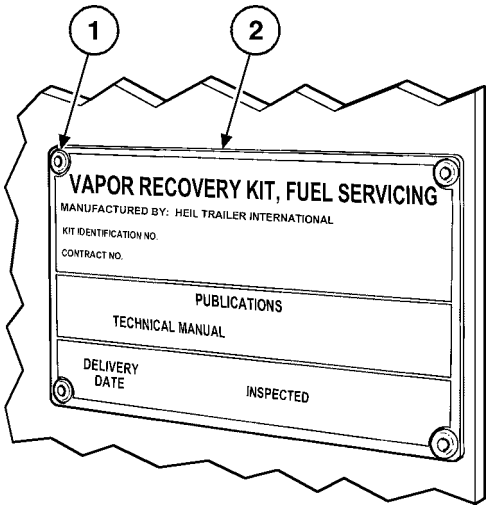


INSTALLATION

NOTE

Update information on new ID/instruction plates as necessary.

Install vapor recovery kit instruction plate (2) and four new rivets (1).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HAZARDOUS MATERIALS PLACARD HOLDERS/BRACKETS REPLACEMENT 0102 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

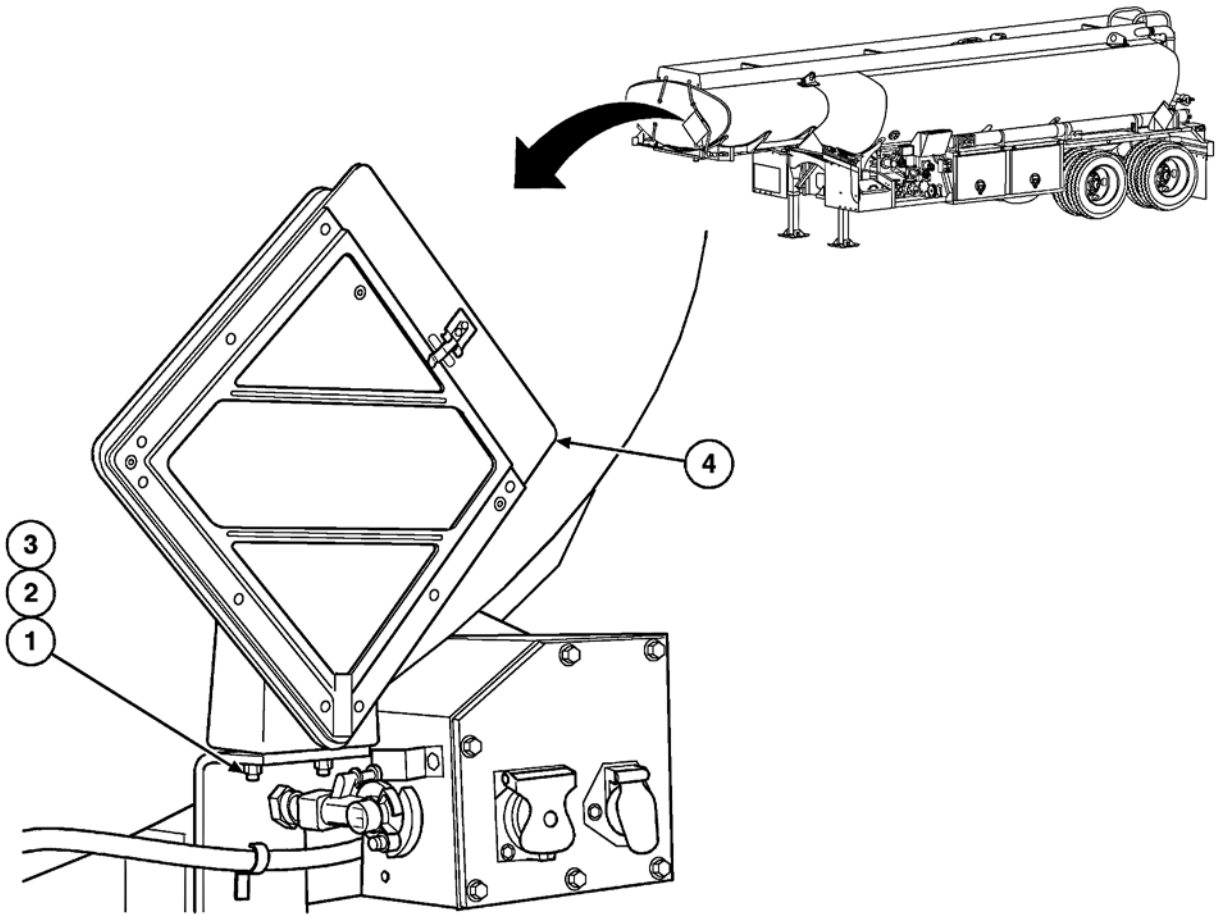
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (7) (item 88, WP 0175 00)

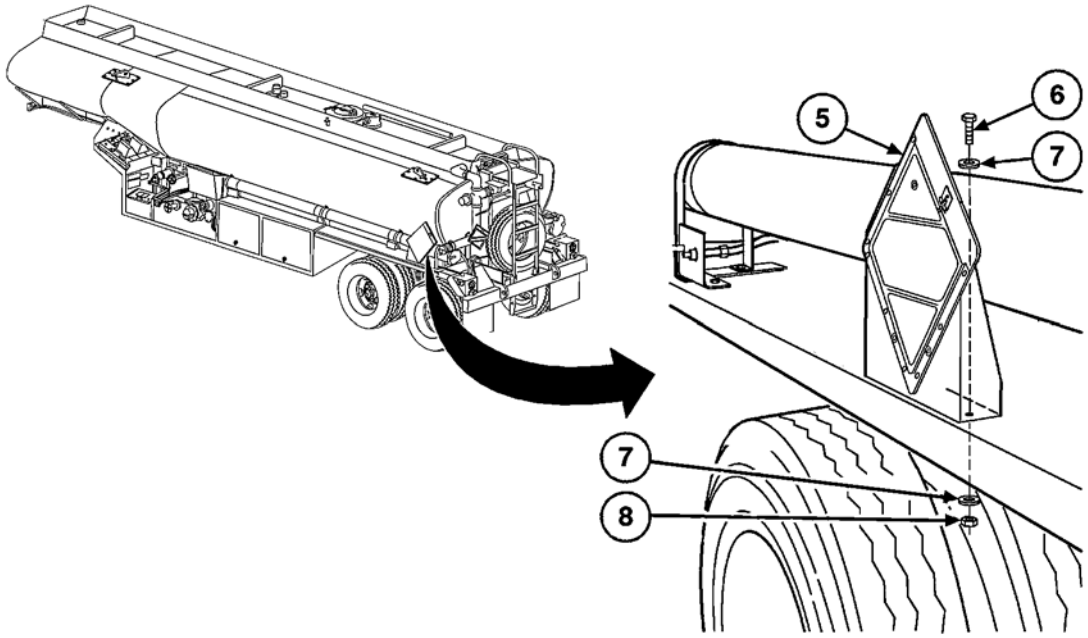
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

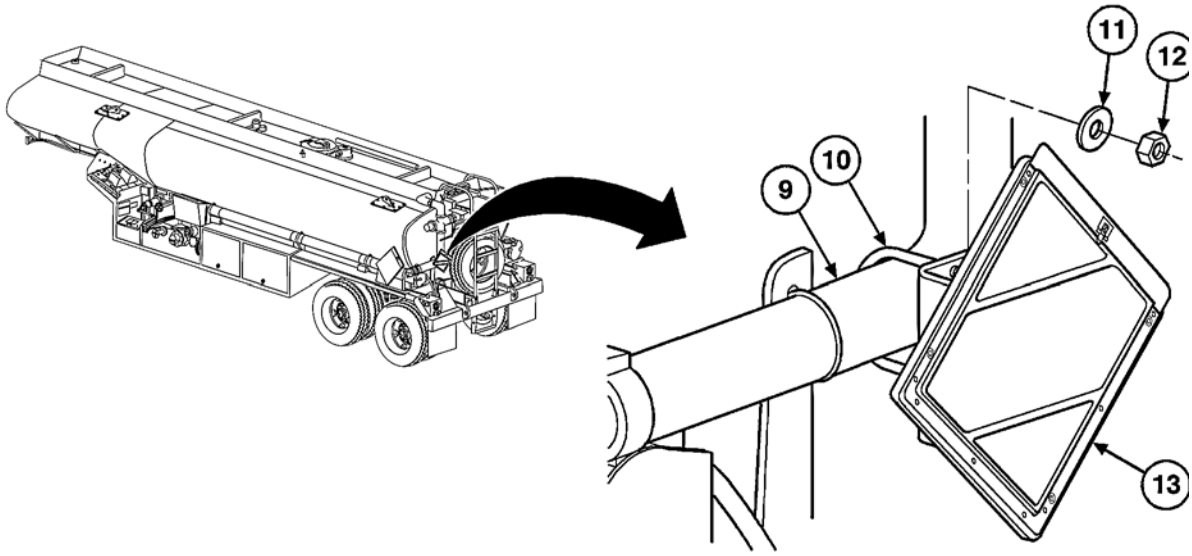
1. Remove two self-locking nuts (1), four washers (2), two bolts (3), and hazardous materials placard bracket (4) as a unit from front of semitrailer. Discard self-locking nuts.



2. Remove three self-locking nuts (8), six washers (7), three bolts (6), and hazardous materials placard bracket (5) from roadside of trailer. Discard self-locking nuts.



3. Remove two self-locking nuts (12), two washers (11), U-bolt (10), and hazardous materials placard bracket (13) from vapor recovery pipe (9) at rear of semitrailer. Discard self-locking nuts.



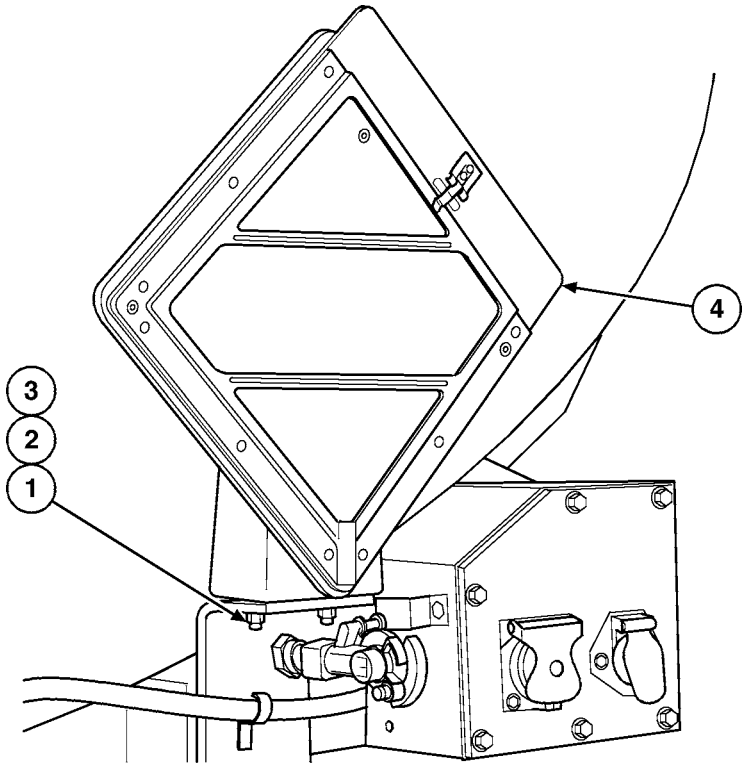
HAZARDOUS MATERIALS PLACARD HOLDERS/BRACKETS REPLACEMENT—Continued 0102 00

INSTALLATION

1. Install hazardous materials placard bracket (13), U-bolt (10), two washers (11), and new self-locking nuts (12) to vapor recovery pipe (9) at rear of semitrailer.

2. Install hazardous materials placard bracket (5), three bolts (6), six washers (7), and three new self-locking nuts (8) at roadside of semitrailer.

3. Install hazardous materials placard bracket (4) as a unit, two bolts (3), four washers (2), and two new self-locking nuts (1) at front of semitrailer.



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

GLOW PLUGS REPLACEMENT 0103 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

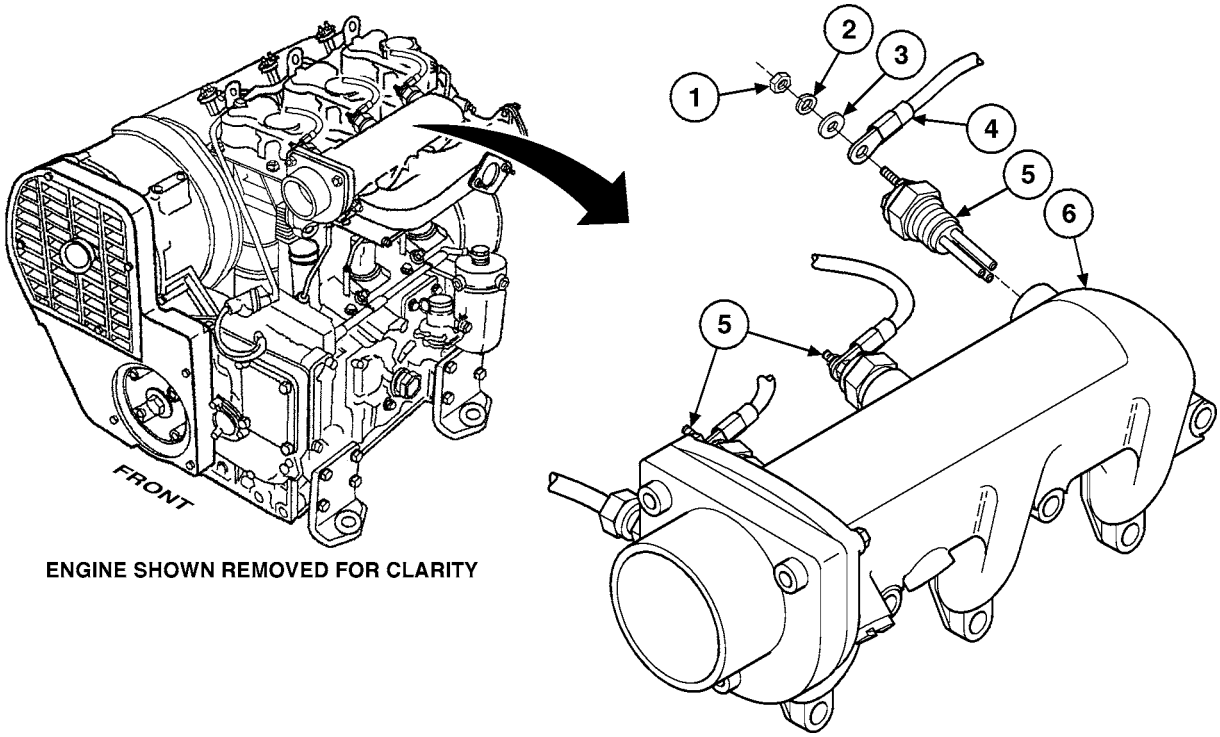
Materials/Parts Equipment
Compound, antiseize (item 3, WP 0174 00)
Lockwashers (3) (item 28, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Exhaust manifold removed (refer to WP 0105 00)
Intake manifold removed (refer to WP 0106 00)

REMOVAL

1. Remove three nuts (1), lockwashers (2), washers (3), and cables (4) from glow plugs (5). Discard lockwashers.

2. Remove three glow plugs (5) from intake manifold (6).



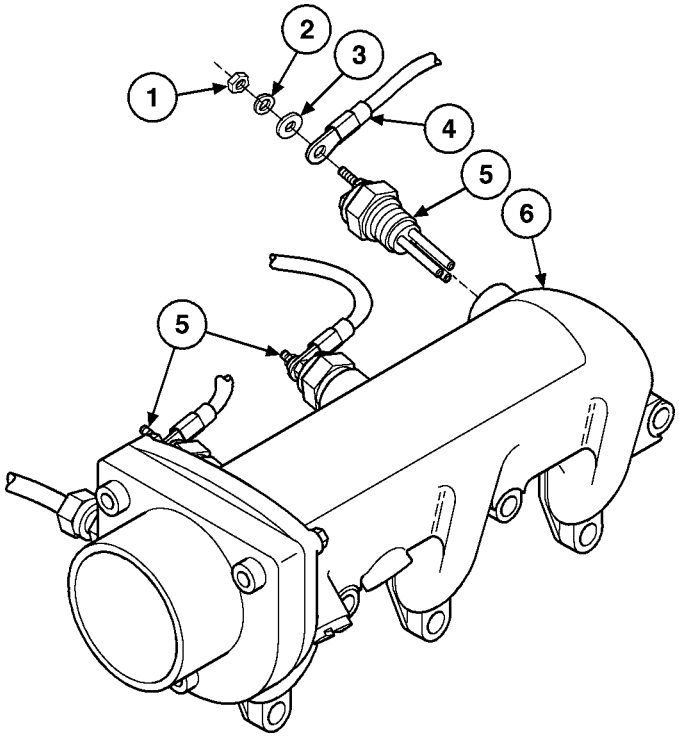
ENGINE SHOWN REMOVED FOR CLARITY

INSTALLATION

NOTE

Apply antiseize compound to threads.

1. Install three glow plugs (5) to intake manifold (6). Tighten glow plugs to 50 lb-ft (67.8 N•m).
2. Install three cables (4), washers (3), new lockwashers (2), and nuts (1) to glow plugs (5).



FOLLOW-ON TASKS

1. Install intake manifold (WP 0106 00).
2. Install exhaust manifold (WP 0105 00).
3. Reconnect negative battery terminal (WP 0007 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE OIL FILTER AND OIL PRESSURE SWITCH REPLACEMENT 0104 00

THIS WP COVERS:
Engine Oil Filter Removal, Engine Oil Filter Installation, Oil Pressure Switch Removal, Oil Pressure Switch Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

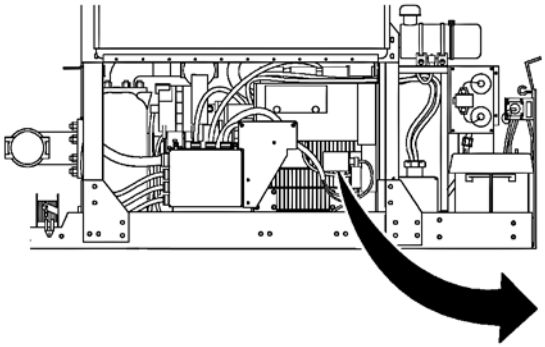
Materials/Parts
Compound, thread sealing (item 7, WP 0174 00)
Rags (item 11, WP 0174 00)
Oil filter (item 134, WP 0175 00)
Seals (2) (item 50, WP 0175 00)

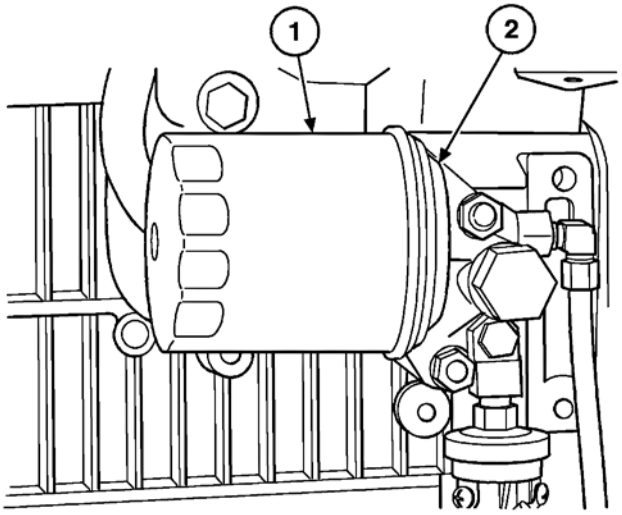
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Drain pan (item 1, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Engine oil crankcase drained (refer to WP 0044 00)

ENGINE OIL FILTER REMOVAL

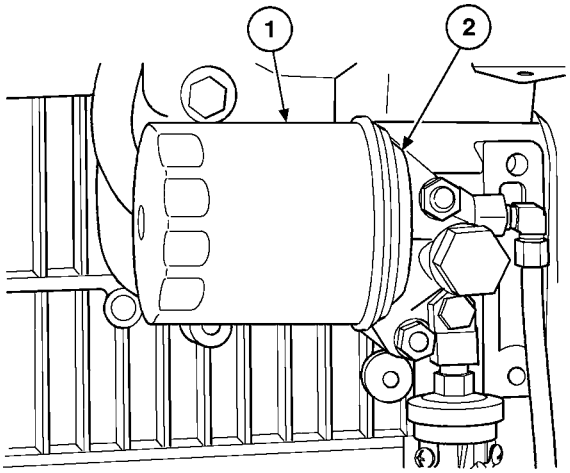
1. Place drain pan under oil filter (1).
2. Remove oil filter (1) from oil filter head (2). Discard filter.
3. Wipe oil filter head (2) area clean with rags.





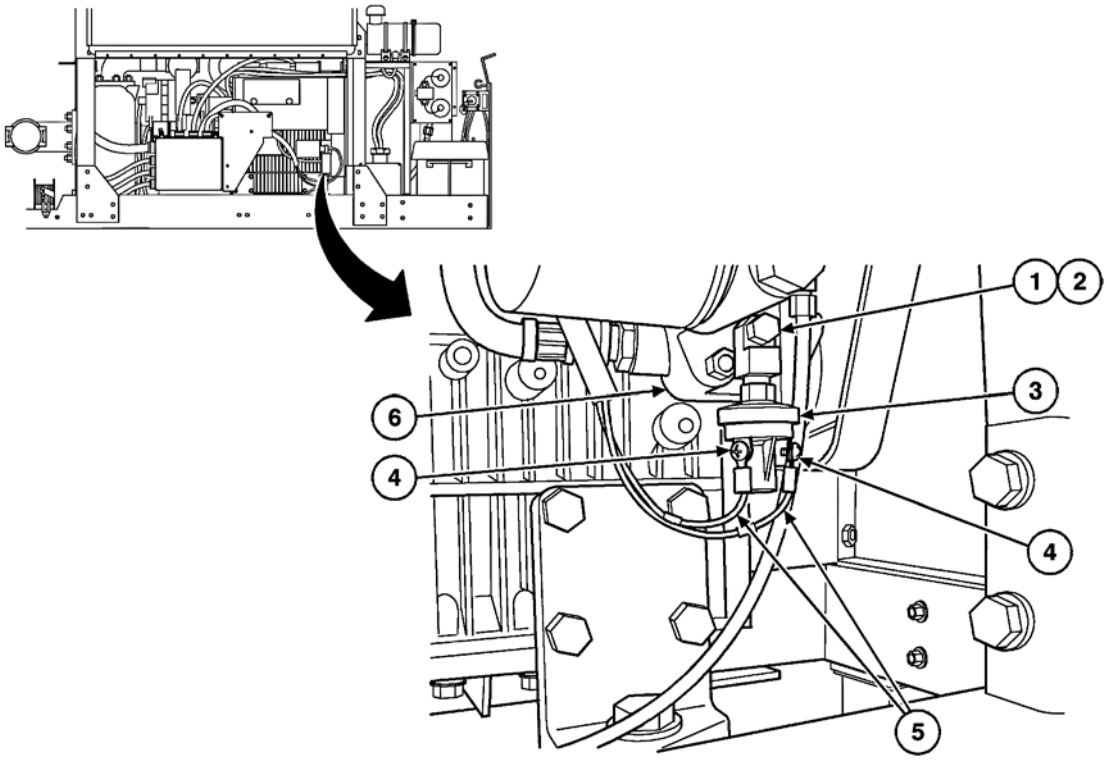
ENGINE OIL FILTER INSTALLATION

1. Coat gasket of new oil filter (1) with clean engine oil.
2. Install new oil filter (1) to oil filter head (2) until contact is made and tighten an additional 1/4 turn.



OIL PRESSURE SWITCH REMOVAL

1. Remove two screws (4) and disconnect wires (5) from oil pressure switch (3).
2. Remove bolt (1), two seals (2), and oil pressure switch (3) from oil filter head (6). Discard seals.



OIL PRESSURE SWITCH INSTALLATION

NOTE

Apply thread sealing compound to threads.

1. Install oil pressure switch (3), two new seals (2), and bolt (1) to oil filter head (6).
2. Connect two wires (5) and install screws (4) to oil pressure switch (3).

FOLLOW-ON TASKS

1. Refill engine oil crankcase (WP 0044 00).
2. Reconnect negative battery terminal (WP 0007 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE EXHAUST MANIFOLD REPLACEMENT 0105 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

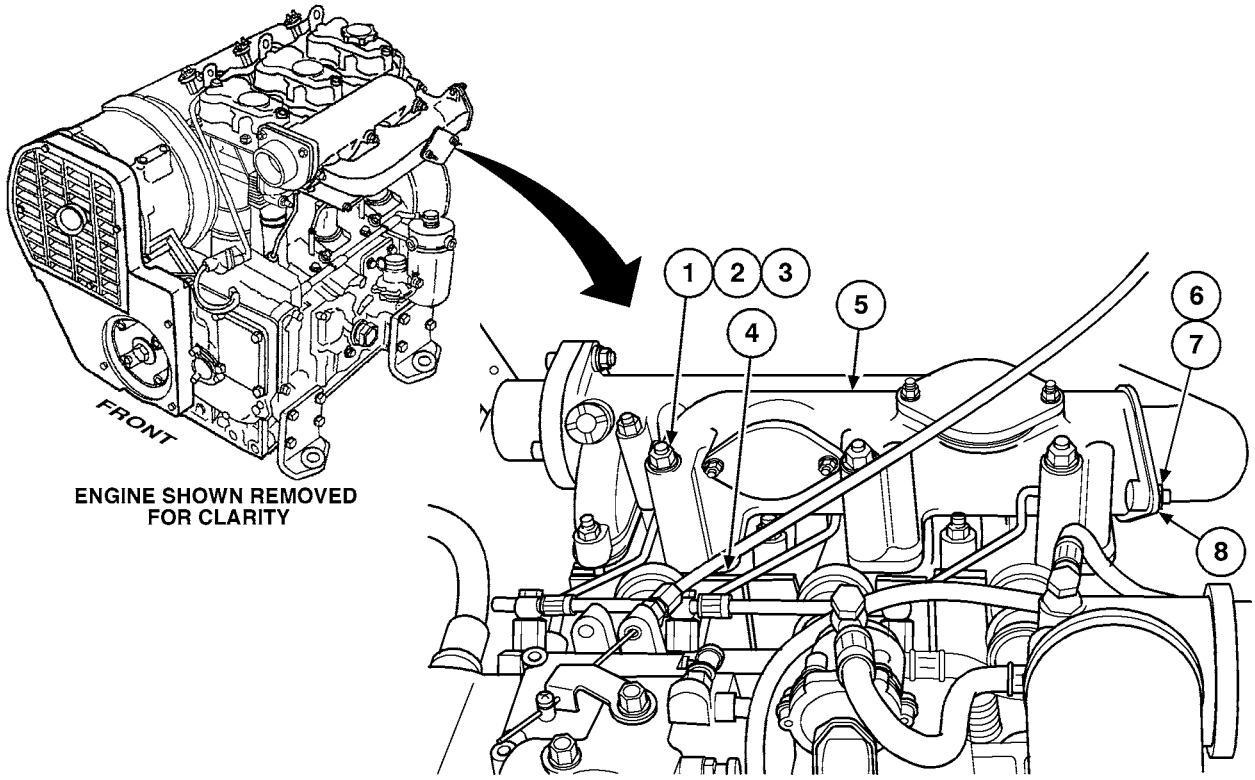
Materials/Parts Equipment
Gaskets (3) (item 48, WP 0175 00)
Gaskets (2) (item 49, WP 0175 00)
Lockwashers (6) (item 65, WP 0175 00)
Self-locking nuts (4) (item 61, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

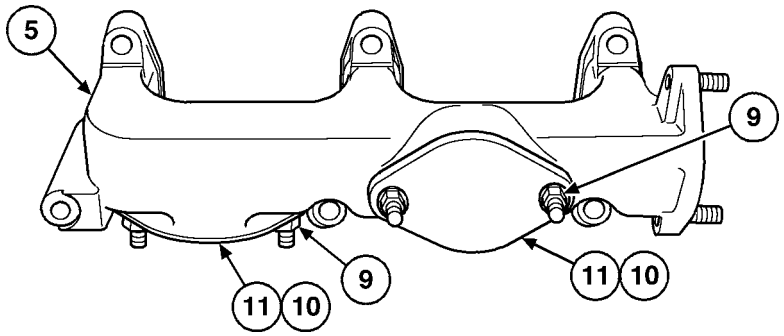
1. Remove two nuts (6), exhaust pipe flange (8), and gasket (7) from exhaust manifold (5). Discard gasket.

2. Remove six nuts (2), lockwashers (3), exhaust manifold (5), and three gaskets (4) from studs (1). Discard lockwashers and gaskets.



ENGINE SHOWN REMOVED FOR CLARITY

3. Remove four self-locking nuts (9), two metal plates (10), and gaskets (11) from exhaust manifold (5). Discard self-locking nuts and gaskets.

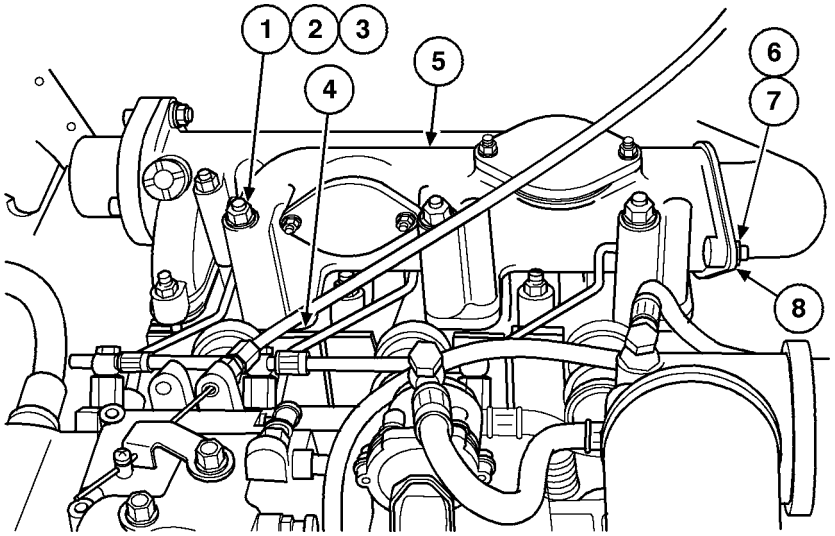


INSTALLATION

1. Install two new gaskets (11), metal plates (10), and four new self-locking nuts (9) to exhaust manifold (5).

2. Install three gaskets (4), exhaust manifold (5), six new lockwashers (3), and nuts (2) to studs (1).

3. Install new gasket (7), exhaust pipe flange (8), and two nuts (6) to exhaust manifold (5).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).

2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

INTAKE MANIFOLD REPLACEMENT 0106 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts Equipment
Compound, antiseize (item 3, WP 0174 00)
Gaskets (3) (item 135, WP 0175 00)
Lockwashers (3) (item 28, WP 0175 00)
Lockwashers (6) (item 65, WP 0175 00)

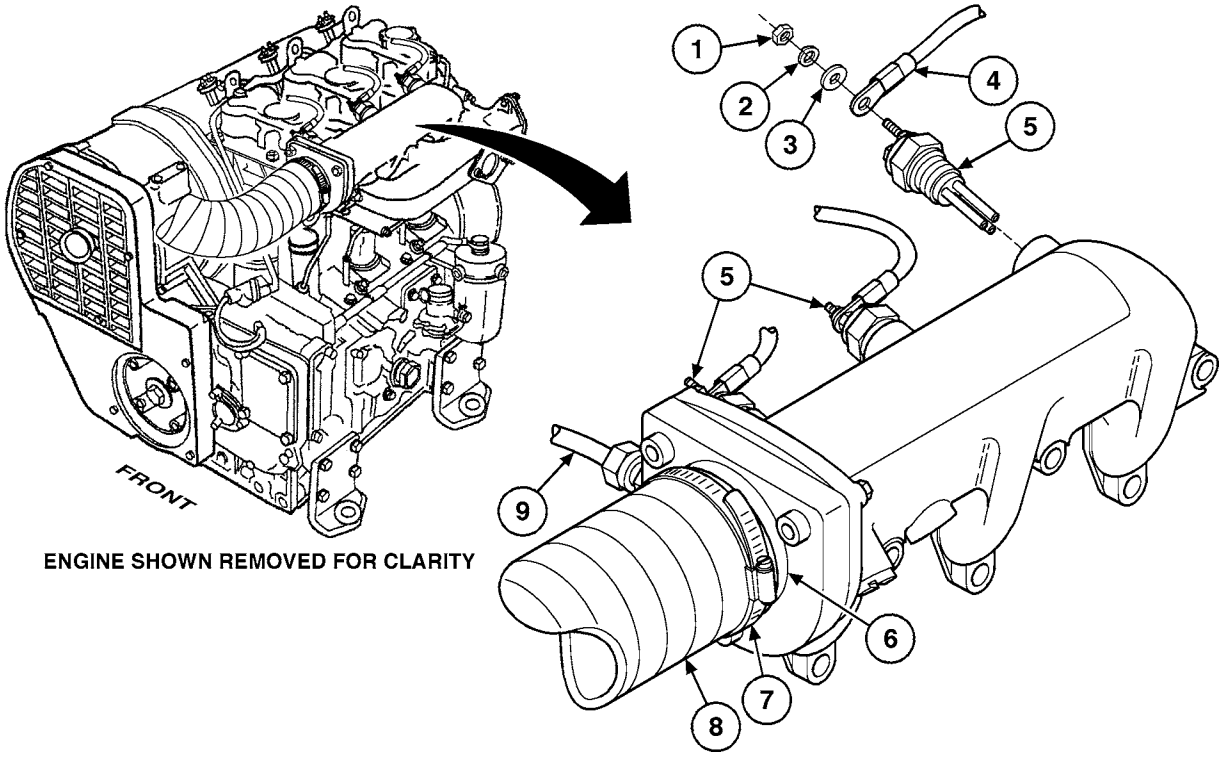
References
WP 0103 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Exhaust manifold removed (refer to WP 0105 00)

REMOVAL

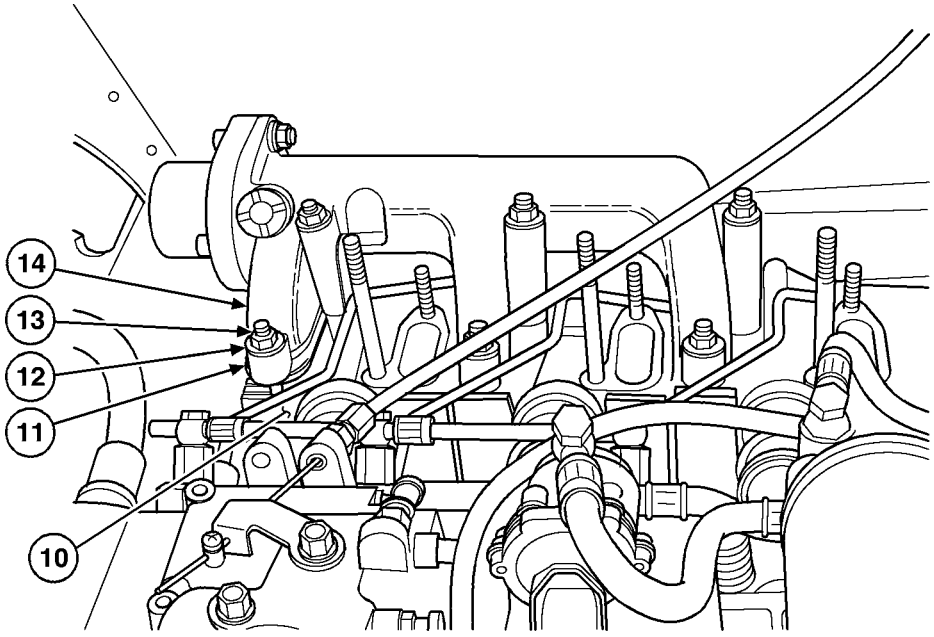
1. Remove hose clamp (7) and hose (8) from flange (6).
2. Remove three nuts (1), lockwashers (2), washers (3), and cables (4) from glow plugs (5). Discard lockwashers.
3. Disconnect air cleaner restriction indicator line (9).



ENGINE SHOWN REMOVED FOR CLARITY

4. Remove six nuts (13), lockwashers (12), three gaskets (11), and intake manifold (14) from engine (10). Discard lockwashers and gaskets.

5. Remove glow plugs from intake manifold (14) (refer to WP 0103 00).



BOTTOM VIEW

INSTALLATION

NOTE

Apply antiseize compound to threads.

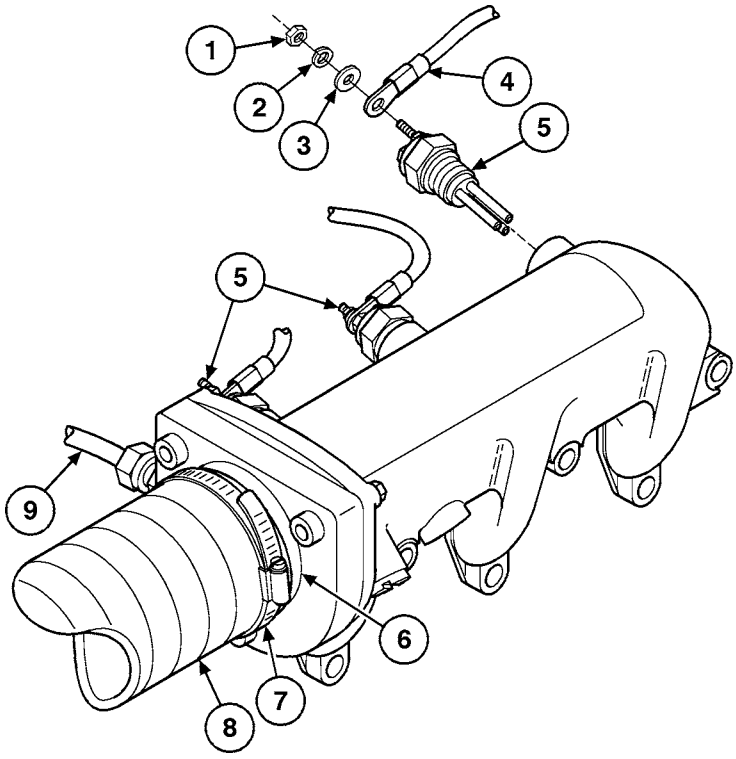
1. Install glow plugs to intake manifold (14) (refer to WP 0103 00).

2. Install intake manifold (14), three new gaskets (11), six new lockwashers (12), and nuts (13) to engine (10).

3. Connect air cleaner restriction indicator line (9).

4. Install three cables (4), washers (3), new lockwashers (2), and nuts (1) to glow plugs (5).

5. Install hose (8) and hose clamp (7) to flange (6).



FOLLOW-ON TASKS

1. Install exhaust manifold (WP 0105 00).
2. Reconnect negative battery terminal (WP 0007 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FUEL PUMP REPLACEMENT 0107 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Copper washers (4) (item 63, WP 0175 00)
Lockwashers (2) (item 65, WP 0175 00)
Gasket (item 136, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

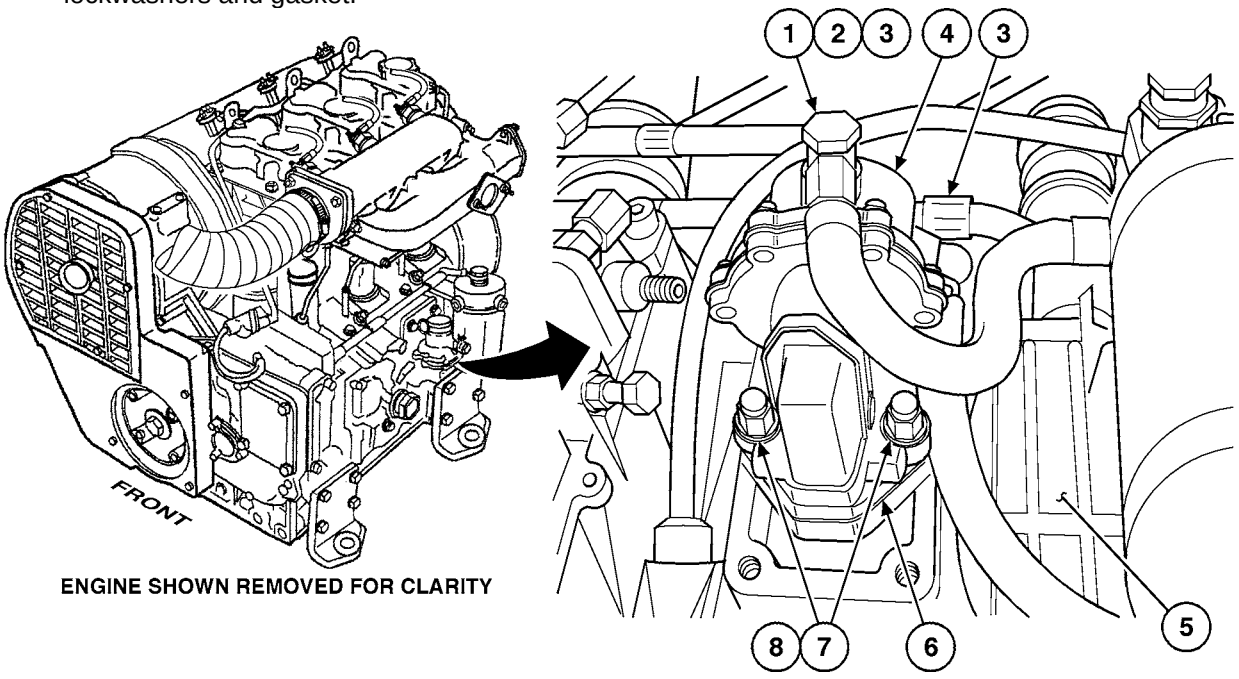
REMOVAL

NOTE

Tag fuel lines prior to disconnecting.

1. Remove two screws (1), copper washers (2), fuel lines (3), and copper washers (2) from fuel pump (4). Discard copper washers.

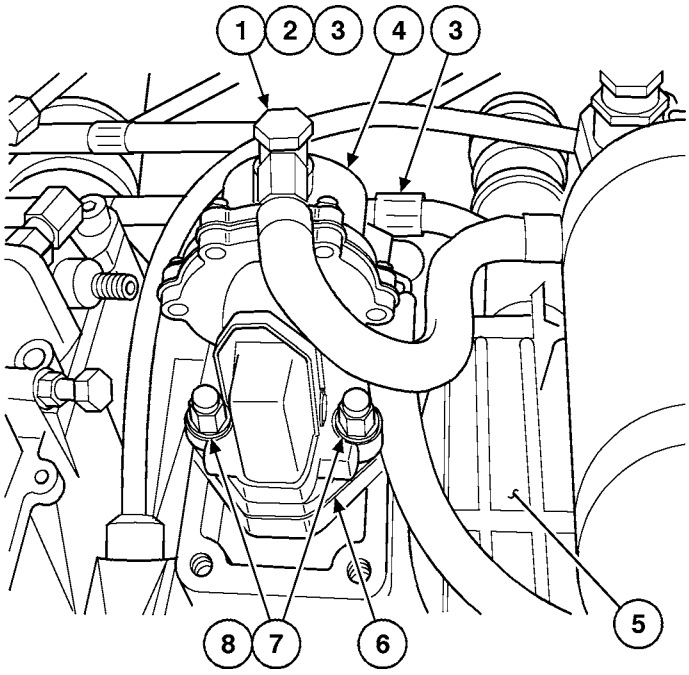
2. Remove two nuts (8), lockwashers (7), fuel pump (4), and gasket (6) from crankcase (5). Discard lockwashers and gasket.



ENGINE SHOWN REMOVED FOR CLARITY

INSTALLATION

1. Install new gasket (6), fuel pump (4), two new lockwashers (7), and nuts (8) to crankcase (5).
2. Install two new lockwashers (2), fuel lines (3), new copper washers (2), and screws (1) to fuel pump (4).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE FUEL TANK REPLACEMENT 0108 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

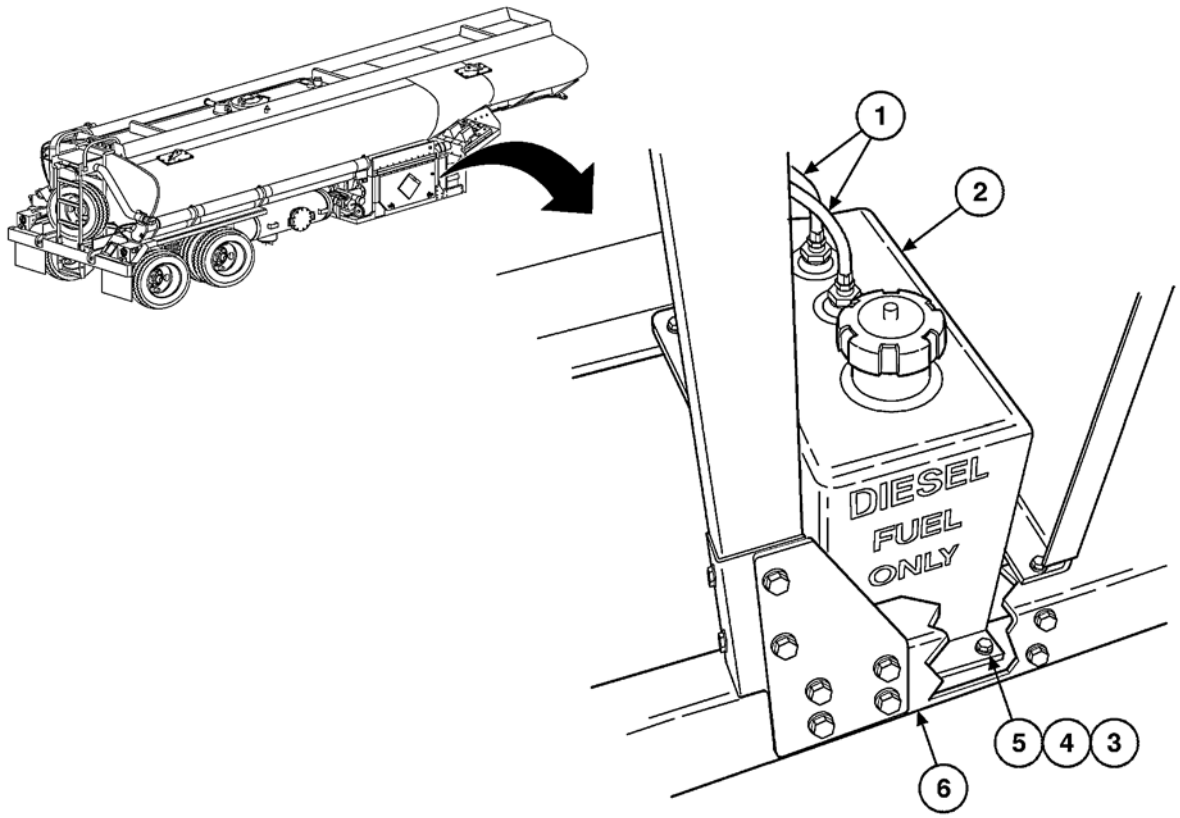
Materials/Parts Equipment
Fuel line crimp clamps (2) (items 71 and 72, WP 0175 00)
Self-locking nuts (4) (item 87, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

1. Disconnect two fuel lines (1) from top of engine fuel tank (2).

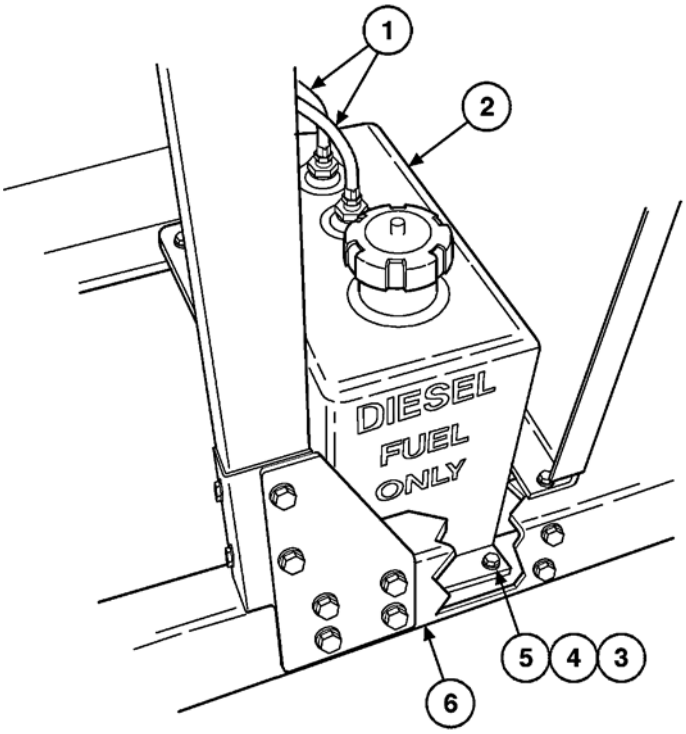
2. Remove four self-locking nuts (3), eight washers (4), four bolts (5), and engine fuel tank (2) from engine support frame (6). Discard self-locking nuts.



INSTALLATION

1. Install engine fuel tank (2), four bolts (5), eight washers (4), and four new self-locking nuts (3) to engine support frame (6).

2. Connect two fuel lines (1) to top of engine fuel tank (2).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE FUEL LINES REPLACEMENT 0109 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

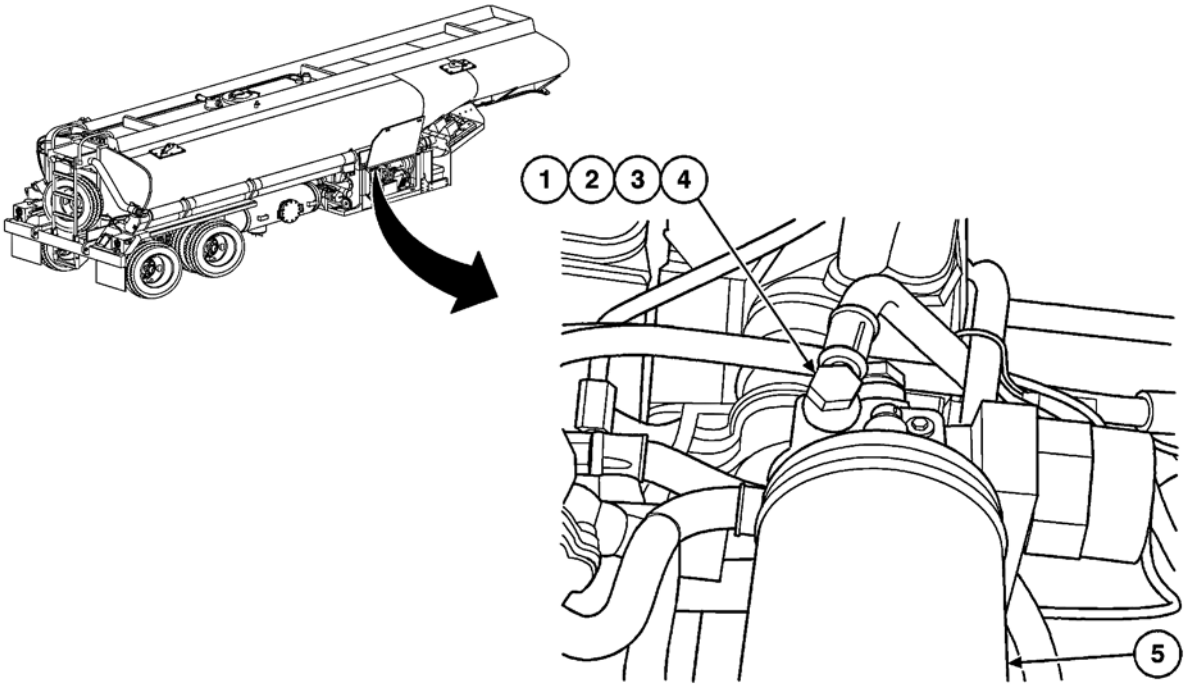
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Cable ties (AR) (item 98, WP 0175 00)
Copper washer (2) (item 63, WP 0175 00)
Crimp clamps (3) (item 4, WP 0175 00)
Crimp clamp (item 15, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

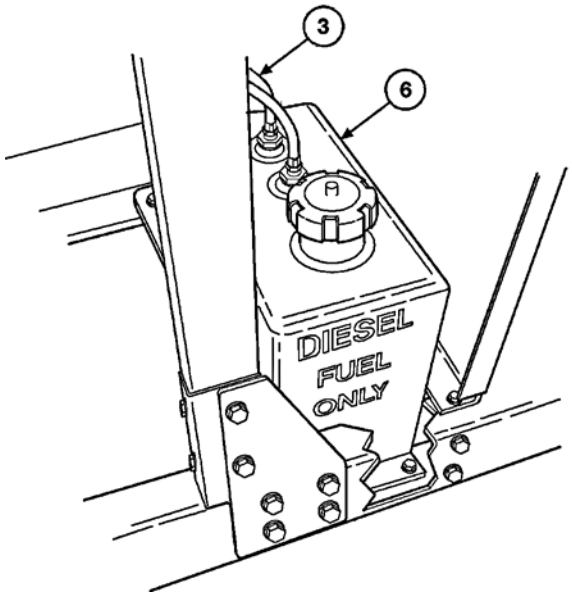
1. Remove bolt (1), copper washer (2), fuel supply line (3), and copper washer (4) from fuel filter (5). Discard copper washers.



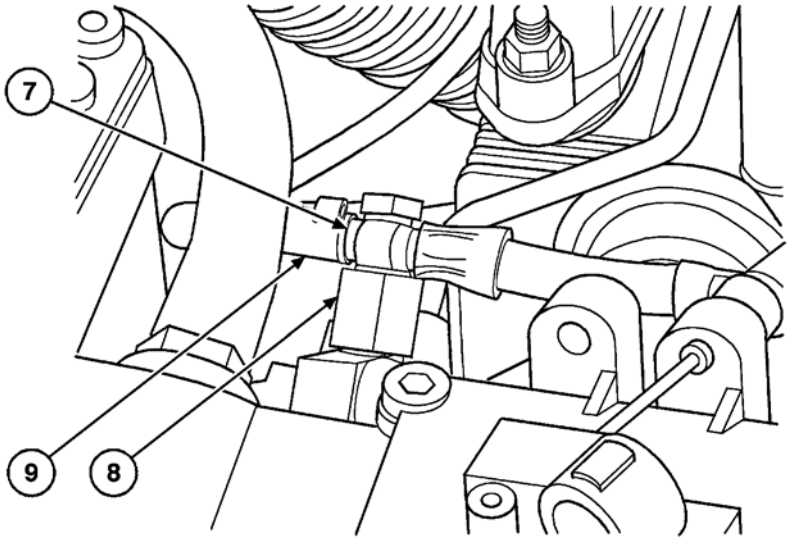
NOTE

Remove and discard cable ties.

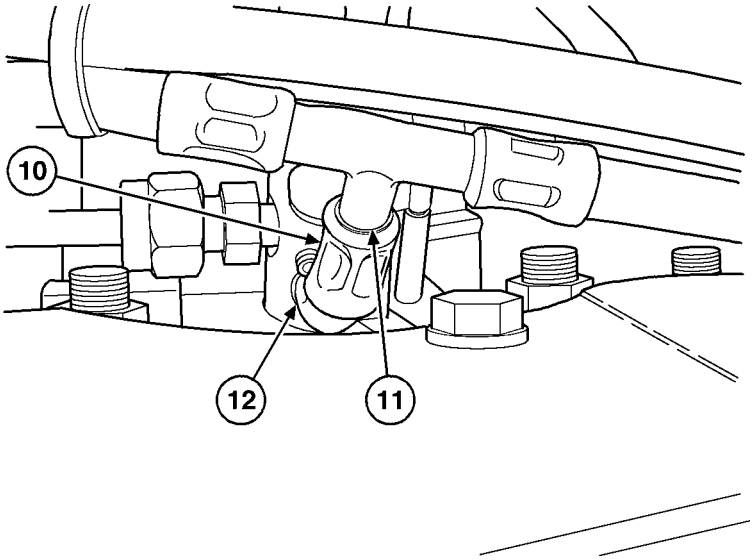
2. Remove fuel supply line (3) from fuel tank (6).



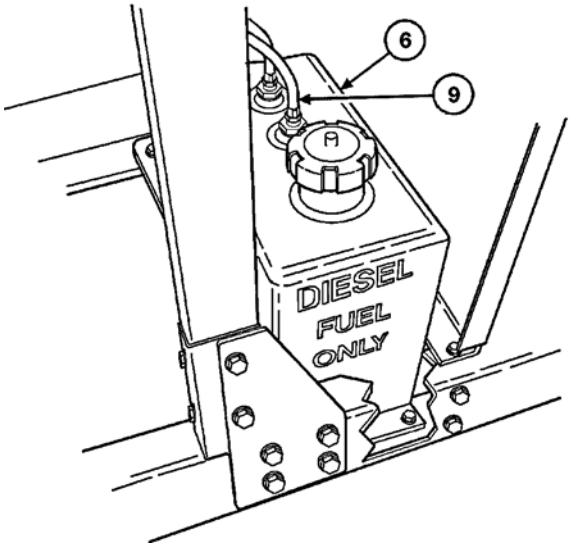
3. Remove crimp clamp (7) and fuel return line (9) from forward injector pump (8). Discard clamp.



4. Remove three crimp clamps (10) and fuel lines (11) from three fuel nozzles (12). Discard clamps.



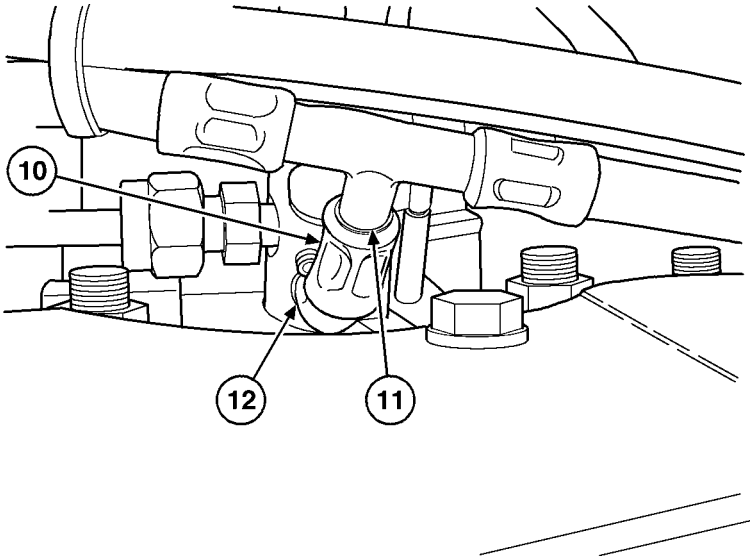
5. Remove fuel return line (9) from fuel tank (6).



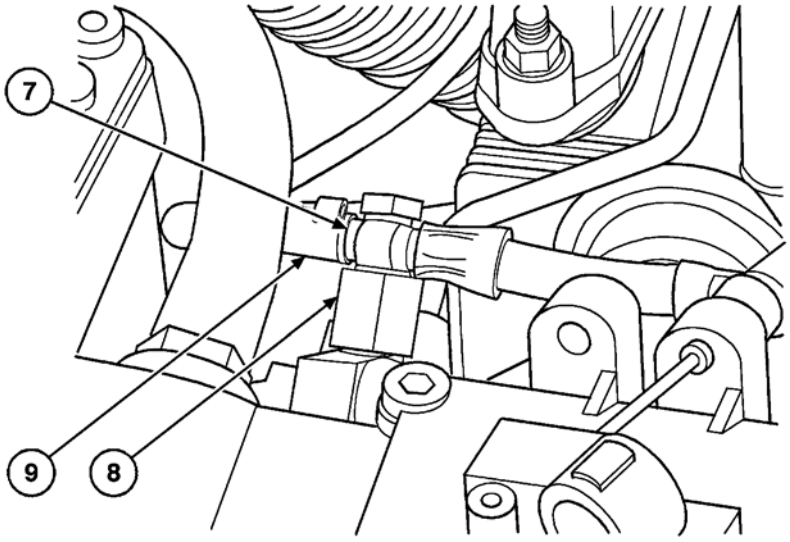
INSTALLATION

1. Install fuel return line (9) to fuel tank (6).

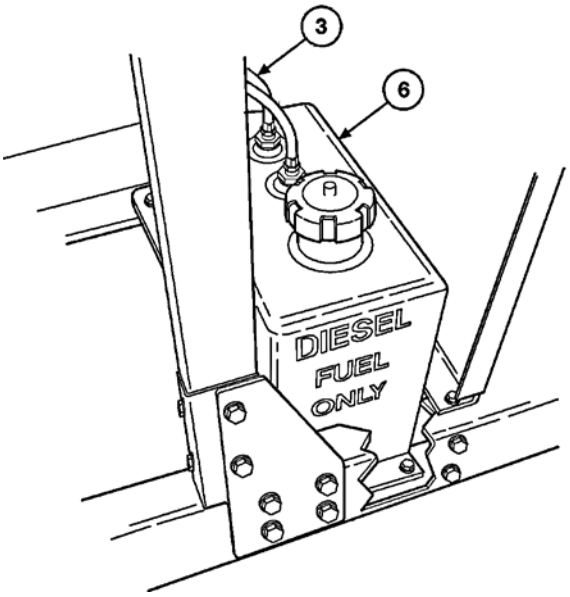
2. Install three fuel lines (11) and new crimp clamps (10) to three fuel nozzles (12).



3. Install fuel return line (9) and new crimp clamp (7) to forward injector pump (8).



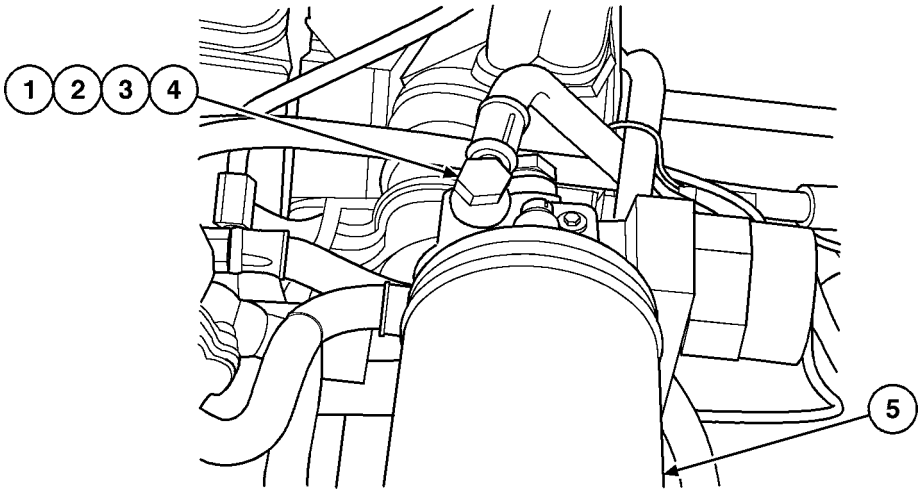
4. Install fuel supply line (3) to fuel tank (6).



NOTE

Install new cable ties as necessary.

5. Install new copper washer (4), fuel supply line (3), new copper washer (2), and bolt (1) to fuel filter (5).



FUEL SYSTEM BLEEDING

NOTE

Refer to WP 107, 108, and 109 for placement and components needed to bleed the system.

1. Position suitable container in place under fuel injection pump.
2. Disconnect fuel return line from fuel injection pump.
3. Turn engine switch to run position to energize system and both fuel injection pumps.
4. Run both fuel injection pumps until there are no air bubbles in the fuel flowing from fuel injection pumps.
5. Turn engine switch to Off.
6. Connect fuel return line to fuel injection pump.

FOLLOW-ON TASKS

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE FAN BELT REPLACEMENT 0110 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

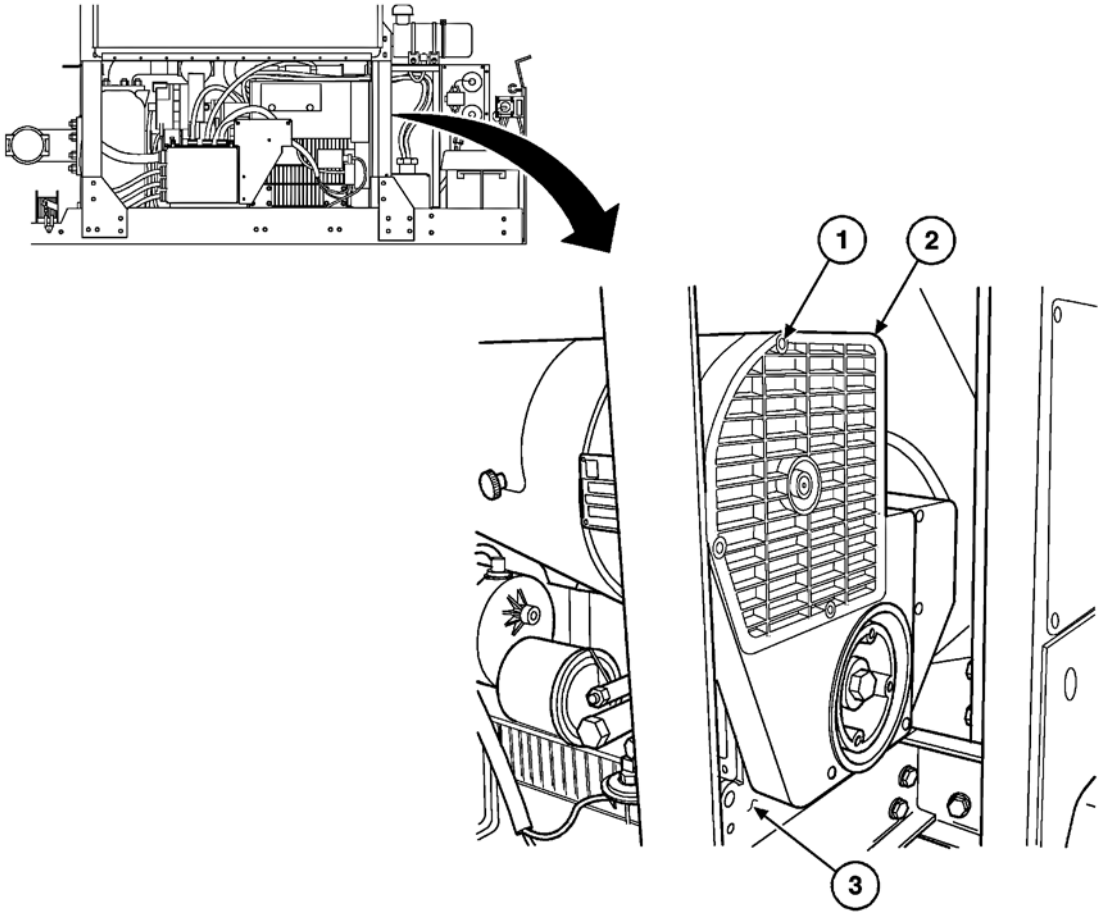
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Engine fan belt (item 30, WP 0175 00)
Lockwashers (3) (item 53, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Fuel tank removed (refer to WP 0108 00)

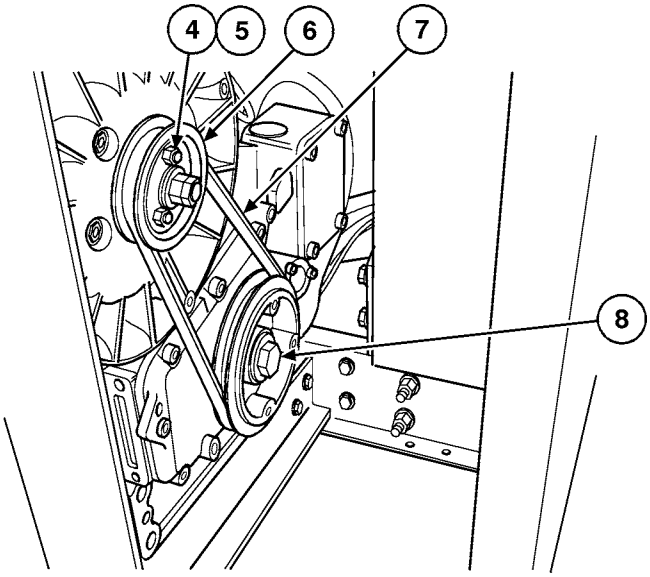
REMOVAL

1. Remove seven Allen head screws (1) and grille (2) from engine (3).



2. Remove three nuts (4) and lockwashers (5) from outer pulley half (6). Discard lockwashers.

3. Remover outer pulley half (6) and fan belt (7). Discard fan belt.



INSTALLATION

1. Install new belt (7), outer pulley half (6), three new lockwashers (5), and nuts (4).

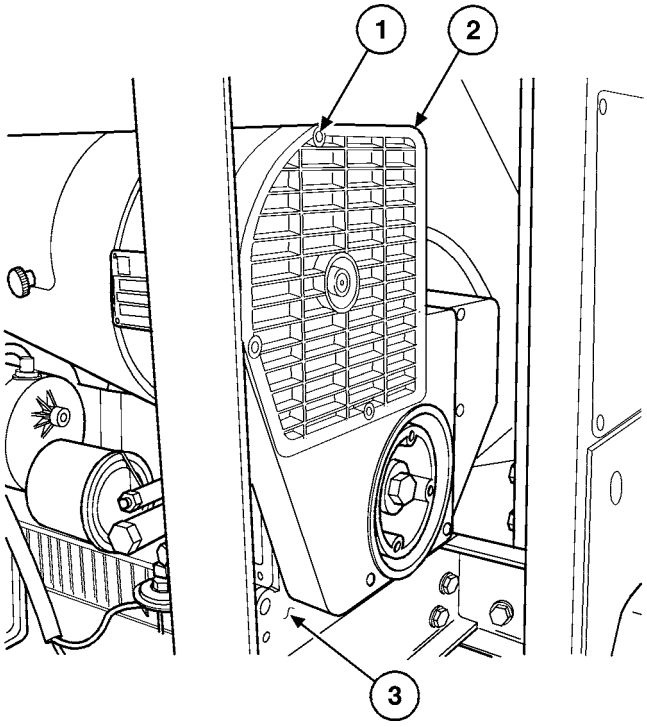
2. Alternately tighten nuts (4) on outer pulley half (6), while slowly rotating crank shaft pulley bolt (8).

NOTE

- **After tightening belt per step 2, belt deflection should be 3/16 (4.8 mm) to 1/4 in. (6.4 mm). If deflection exceeds 1/4 in. (6.4 mm), remove outer pulley half and one shim. Repeat steps 1 and 2 until proper deflection is achieved.**

- **When installing grille, note that the two short screws fit in the two lower holes in grille.**

3. Install grille (2) and seven Allen head screws (1) to engine (3).



FOLLOW-ON TASKS

1. Install fuel tank (WP 0108 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE FAN SHROUD AND INTAKE AIR CLEANER REPLACEMENT 0111 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts Equipment
Self-locking nuts (9) (item 88, WP 0175 00)
Self-locking nuts (4) (item 92, WP 0175 00)

References
WP 0039 00

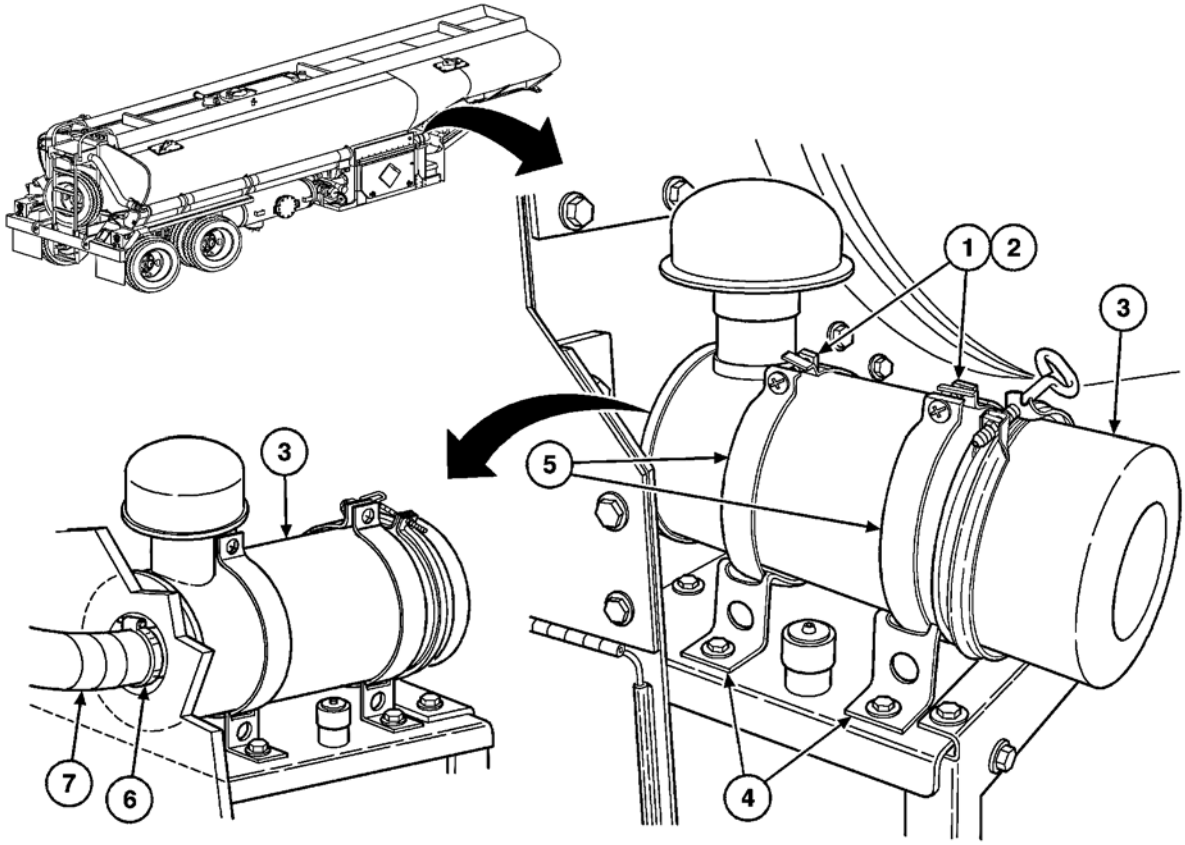
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Fuel tank removed (refer to WP 0108 00)
Semitrailer grounded (refer to WP 0007 00)
Curbside optic socket box bracket removed from fan shroud (refer to WP 0050 00)
Air restriction indicator removed (refer to WP 0112 00)

INTAKE AIR CLEANER REMOVAL

1. Remove hose clamp (6) and air intake hose (7) from air cleaner (3).

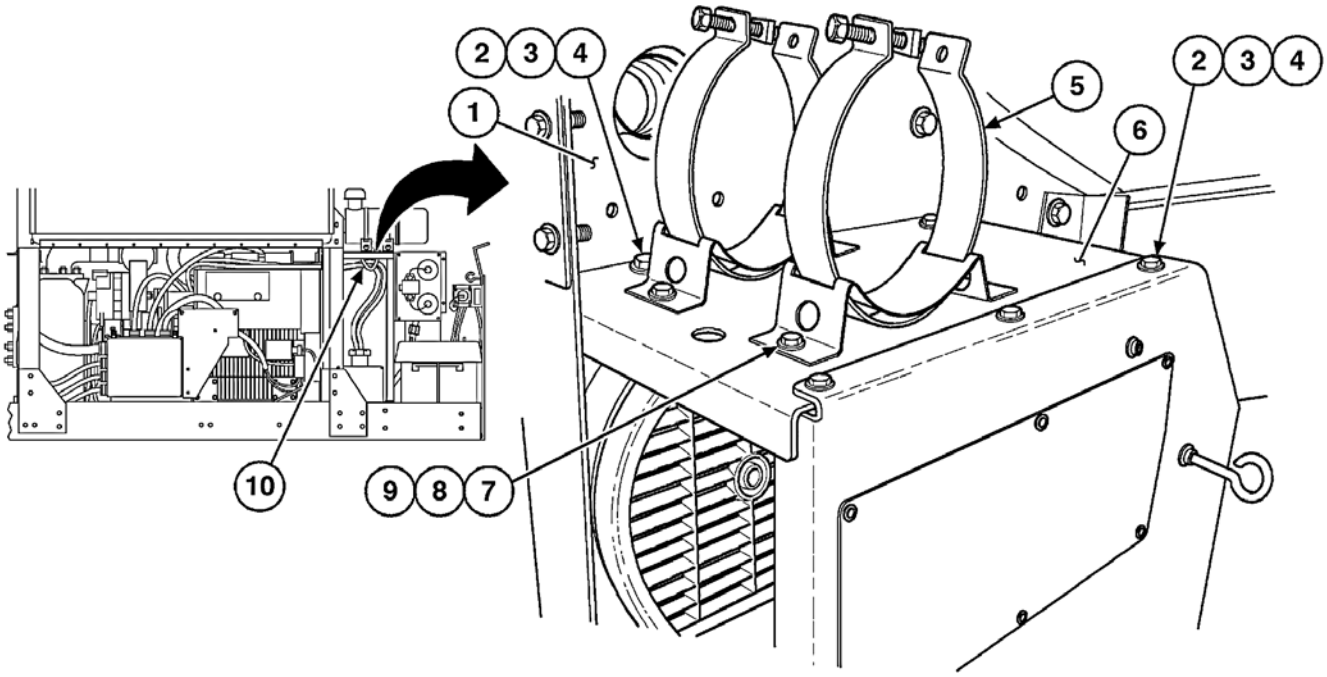
2. Remove two screws (1), nuts (2), clamping rings (5), and air cleaner (3) from two engine fan shroud brackets (4).



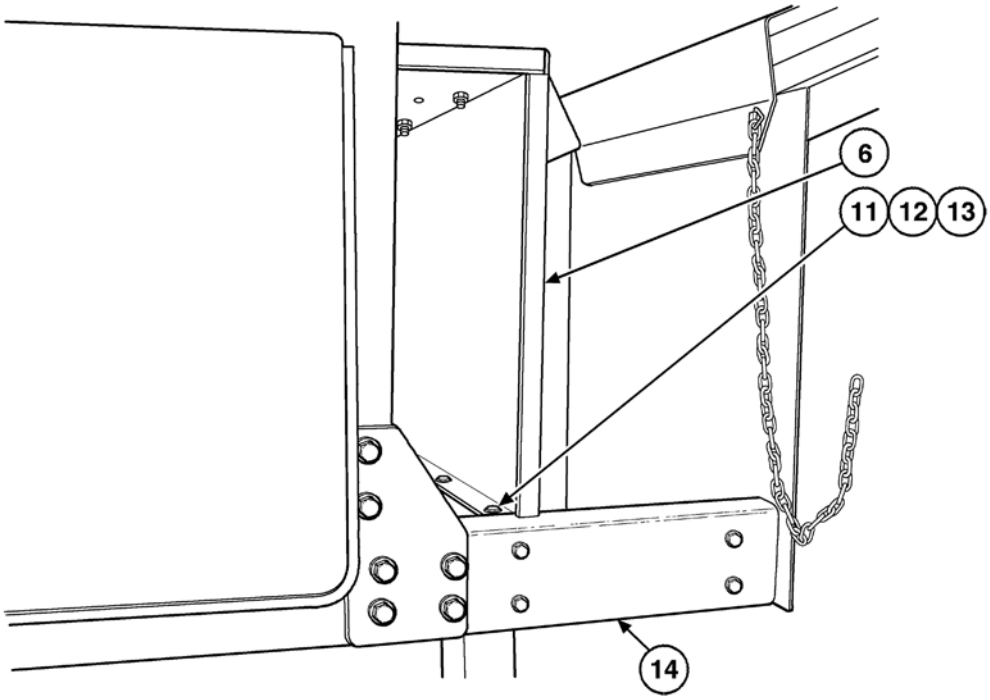
ENGINE FAN SHROUD REMOVAL

1. Remove four self-locking nuts (7), eight washers (8), four bolts (9), and two air cleaner brackets (5), and three lines (10) from engine fan shroud (6). Discard self-locking nuts.

2. Remove three self-locking nuts (2), six washers (3), three bolts (4), and shroud (6) from muffler shield (1). Discard self-locking nuts.

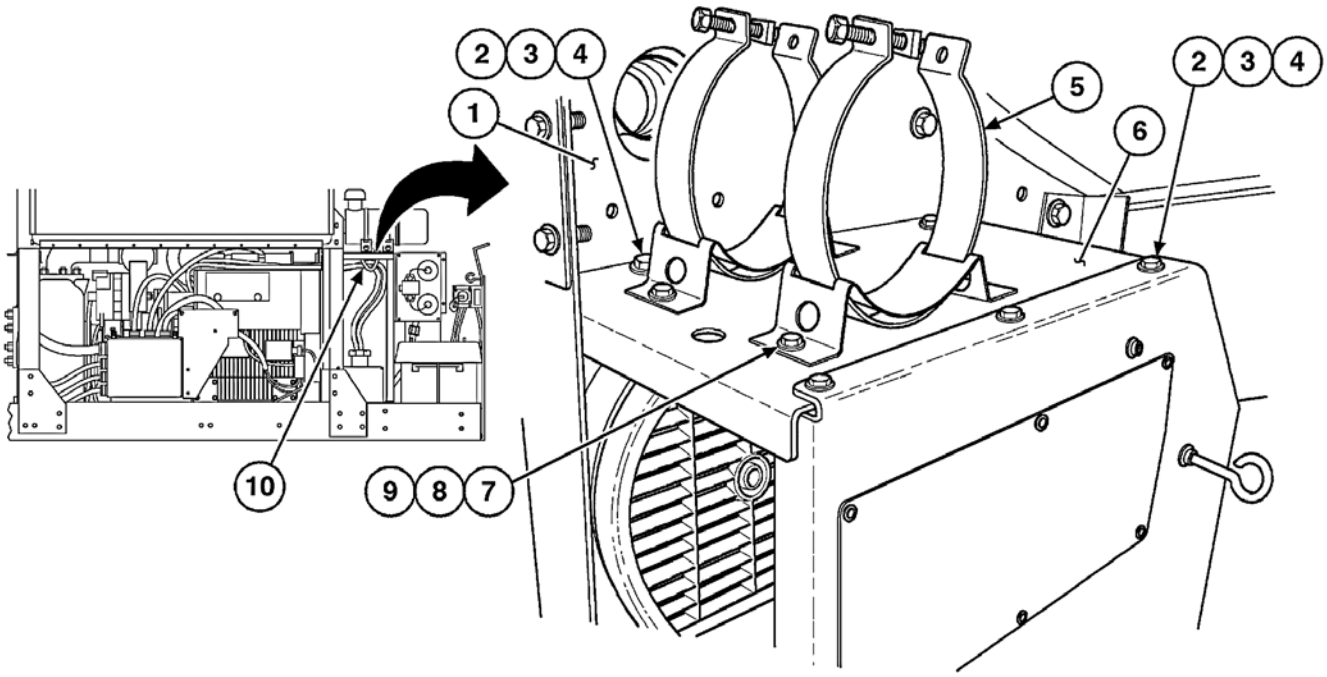


3. Remove 6 self locking nuts (11), 12 washers (12), 6 bolts (13), and shroud (6) from engine frame (14). Discard self-locking nuts.



ENGINE FAN SHROUD INSTALLATION

1. Install shroud (6), 6 bolts (13), 12 washers (12), and 6 new self-locking nuts (11) to frame (14).
2. Install shroud (6), three bolts (4), six washers (3), and three new self-locking nuts (2) to shield (1).
3. Install two air cleaner brackets (5), four bolts (9), eight washers (8), four new self-locking nuts (7), and three lines (10) to shroud (6).

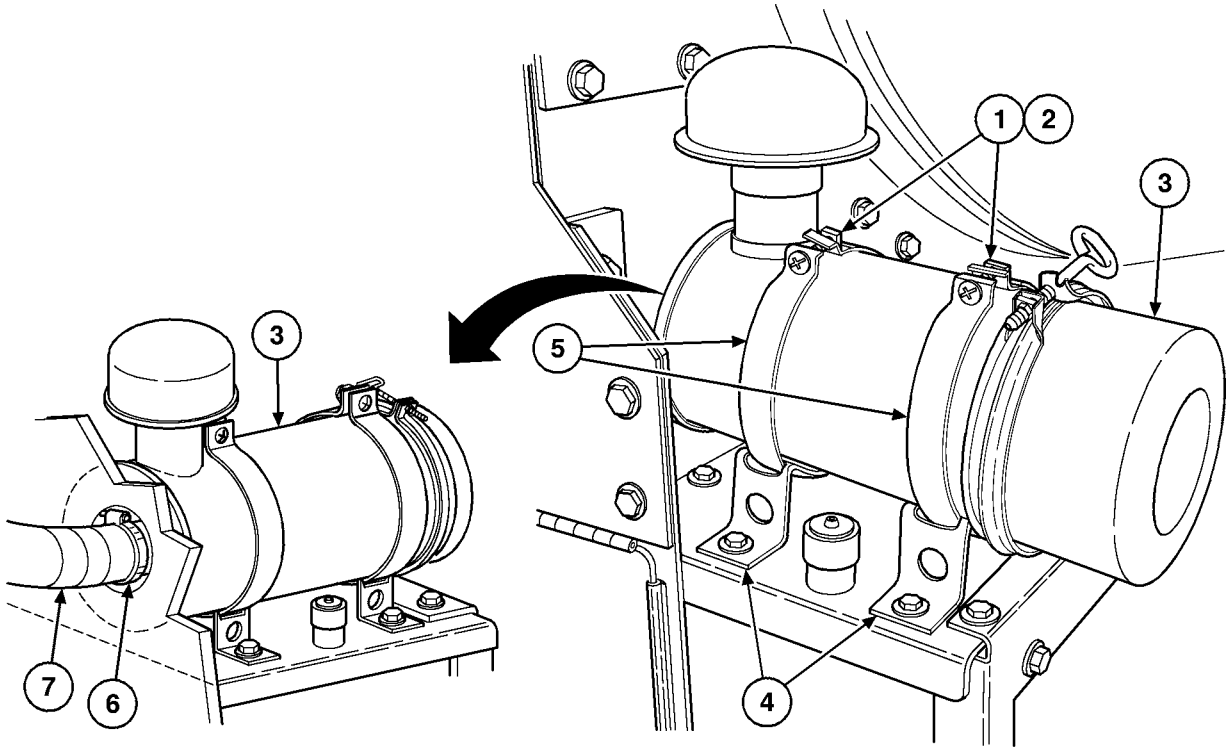


ENGINE FAN SHROUD AND INTAKE AIR CLEANER REPLACEMENT **0111 00**

INTAKE AIR CLEANER INSTALLATION NOTE

Install air filter if necessary (refer to WP 0039 00).

1. Install air cleaner (3), two clamping rings (5), nuts (2), and screws (1) to brackets (4).
2. Install air intake hose (7) and hose clamp (6) to air cleaner (3).



FOLLOW-ON TASKS

1. Install fuel tank (WP 0108 00).
2. Install air restriction indicator (WP 0112 00).
3. Install curbside optic socket box bracket to fan shroud (WP 0050 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

AIR CLEANER RESTRICTION INDICATOR REPLACEMENT 0112 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:
Maintenance Level
Organizational

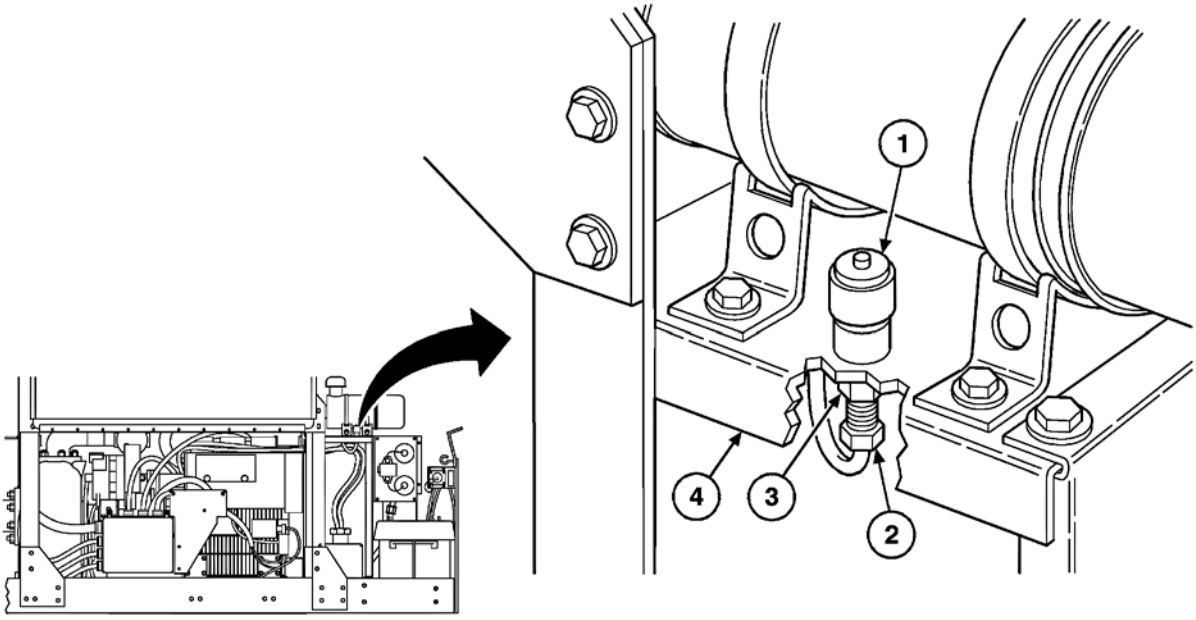
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

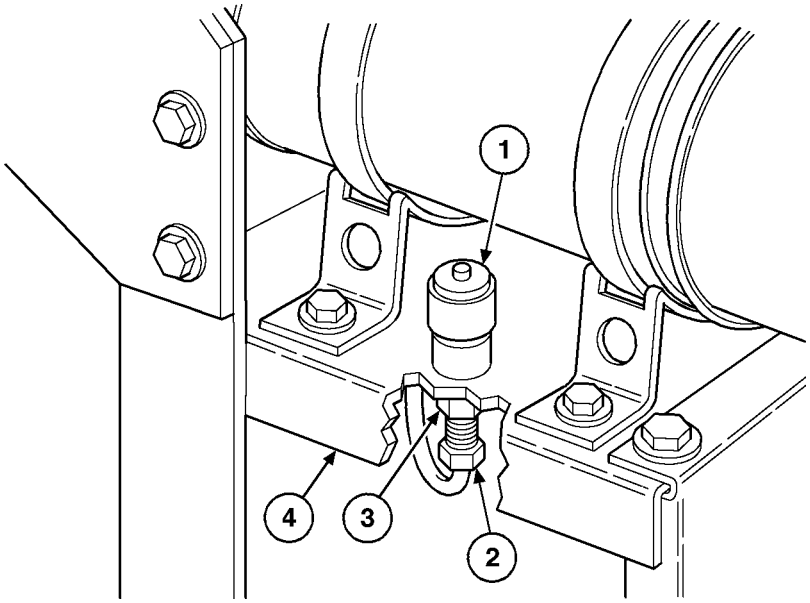
1. Loosen tube nut (2) from underside of engine shroud (4).

2. Loosen coupling nut (3) from underside of engine shroud (4) and remove air restriction indicator (1).



INSTALLATION

1. Install indicator (1) to top of engine shroud (4) and tighten coupling nut (3).
2. Tighten tube nut (2) to underside of engine shroud (4).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

AIR DUCT HOSE REPLACEMENT 0113 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

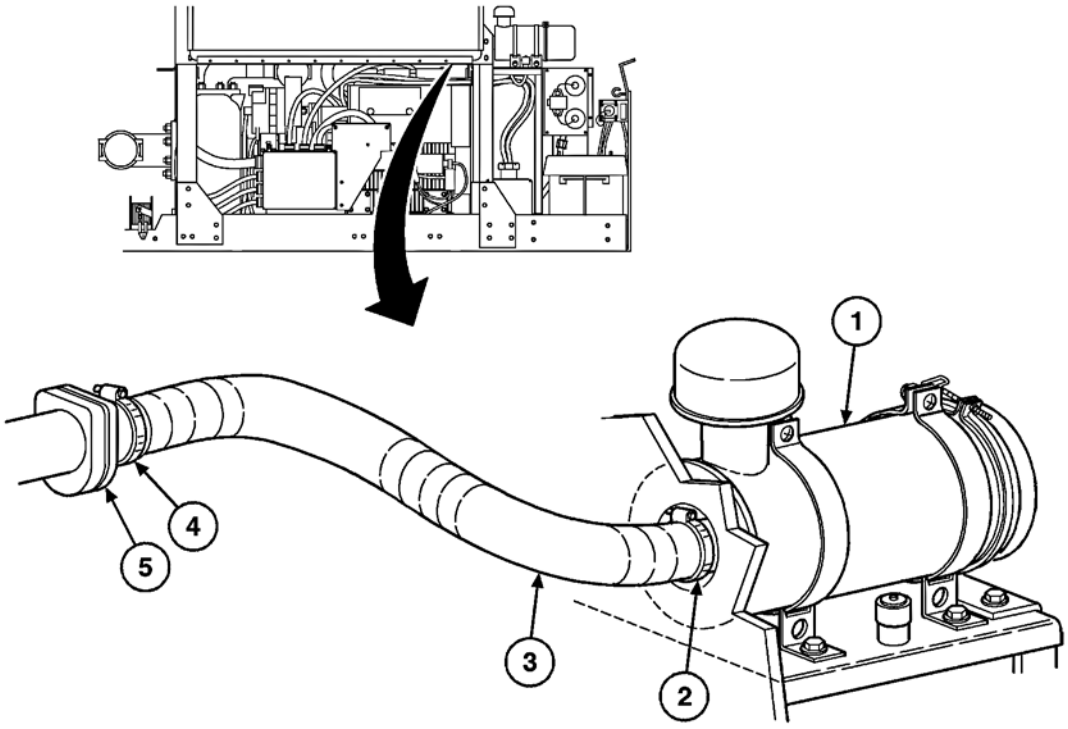
INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

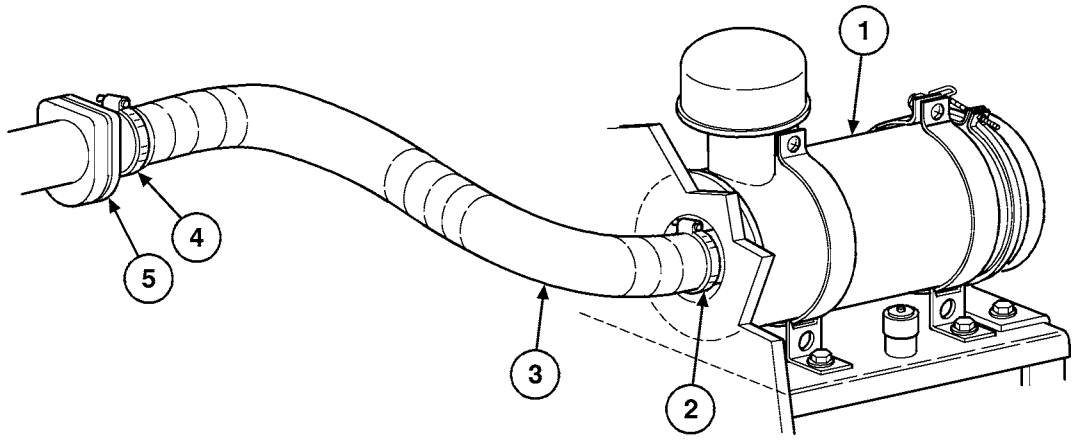
REMOVAL

1. Loosen hose clamp (2) at air cleaner (1) and disconnect air duct hose (3).
2. Loosen hose clamp (4) at air intake manifold (5) and remove air duct hose (3).



INSTALLATION

1. Connect air duct hose (3) on air intake manifold (5) and tighten hose clamp (4).
2. Install opposite end of air duct hose (3) at air cleaner (1) and tighten hose clamp (2).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE THROTTLE CABLE REPLACEMENT 0114 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Cable ties (AR) (item 98, WP 0175 00)

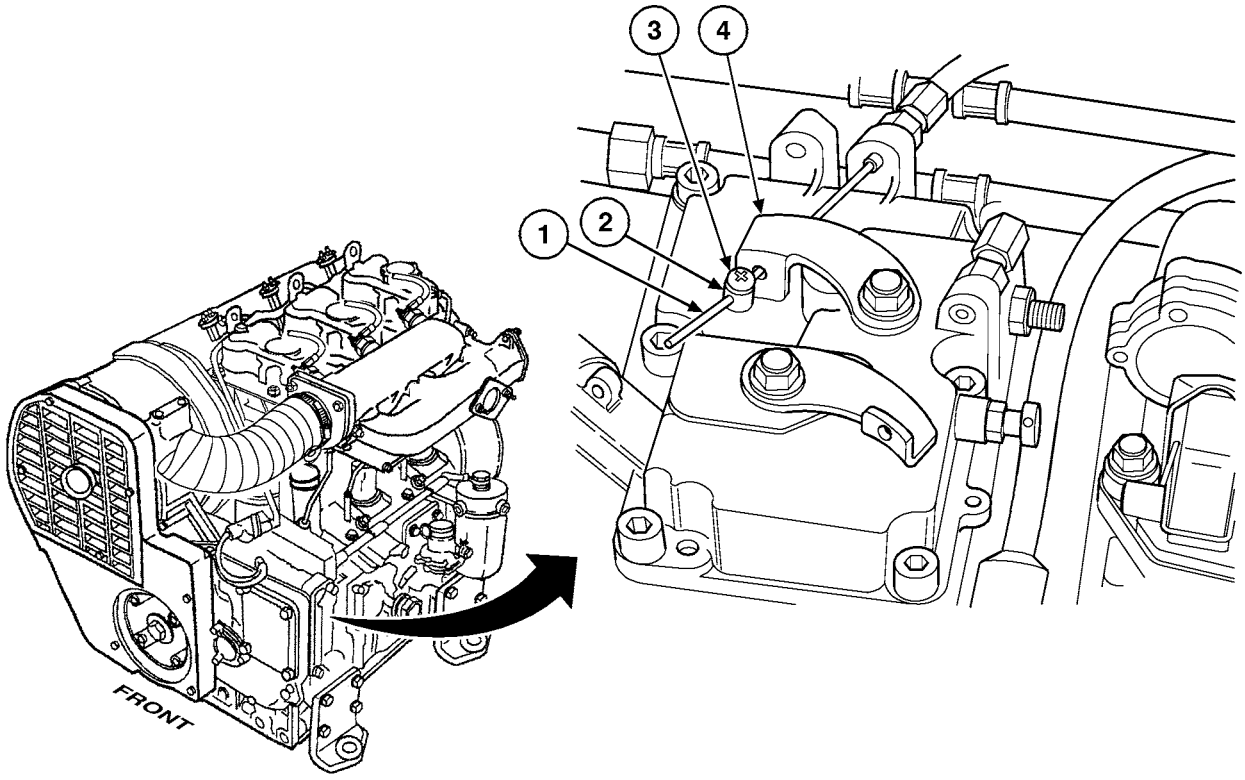
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

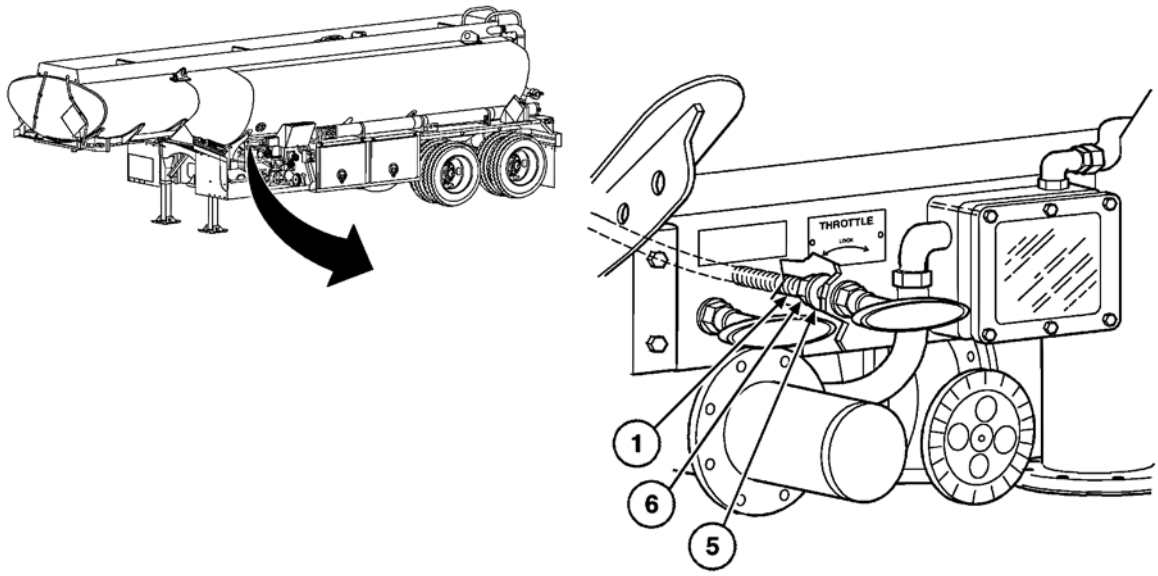
Remove and discard cable ties as necessary.

1. Loosen screw (3) on cable stop (2) at governor throttle lever (4) and disconnect throttle cable (1).



ENGINE SHOWN REMOVED FOR CLARITY

2. Remove nut (6), washer (5), and throttle cable (1).

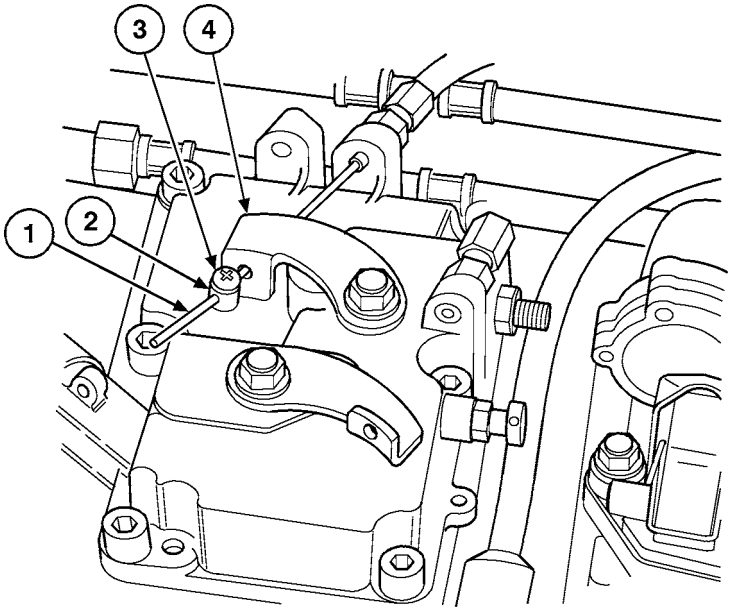


INSTALLATION

1. Connect throttle cable (1) and install washer (5) and nut (6).
2. Install cable (1) through cable stop (2) at governor throttle lever (4) and tighten screw (3).

NOTE

Install new cable ties as necessary.



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

MUFFLER AND EXHAUST PIPE REPLACEMENT 0115 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

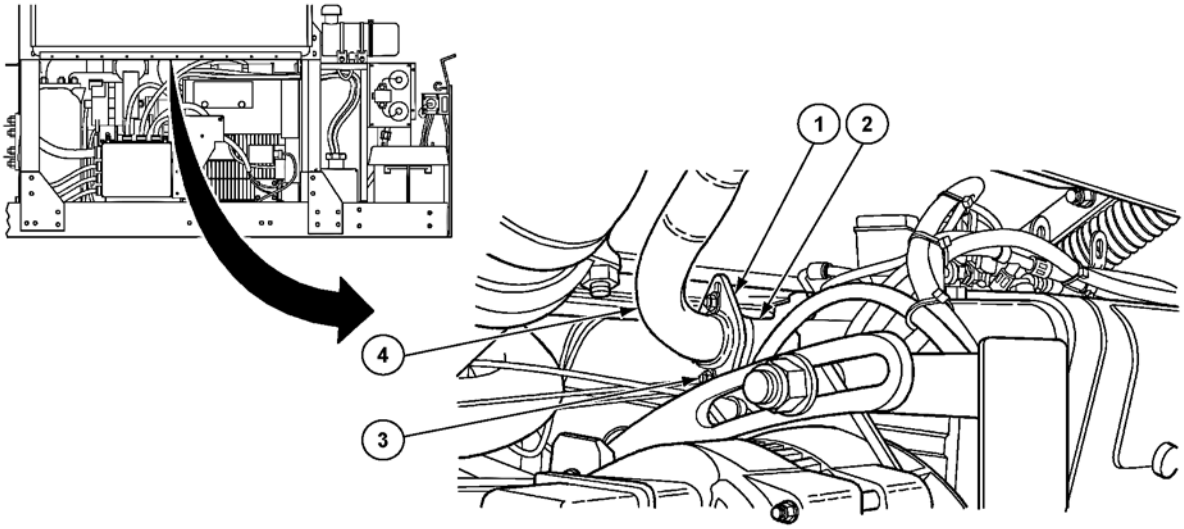
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Gasket (item 49, WP 0175 00)
Self-locking nuts (2) (item 61, WP 0175 00)
Self-locking nuts (8) (item 95, WP 0175 00)
Self-locking nuts (2) (item 115, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Curbside hose tubes loosened (refer to WP 0094 00)

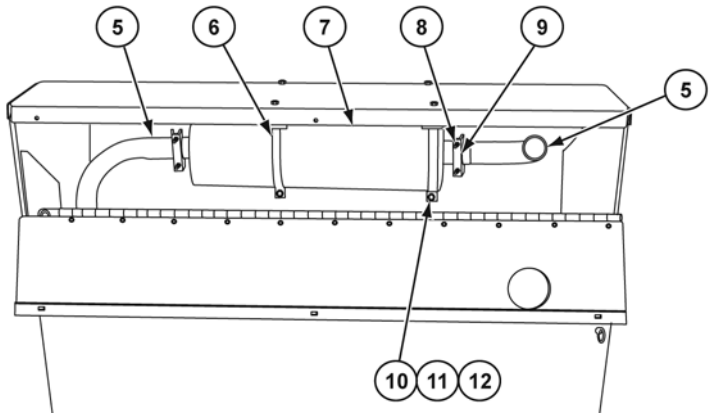
REMOVAL

1. Remove two self-locking nuts (3) and gasket (1) from exhaust pipe (4) at exhaust manifold (2). Discard self-locking nuts and gasket.



2. Remove two self-locking nuts (10), four washers (11), two bolts (12), and muffler (7) from muffler support (5). Discard self-locking nuts.

3. Remove four nuts (8), two U-bolts (9), and exhaust pipe (5) from muffler (7).

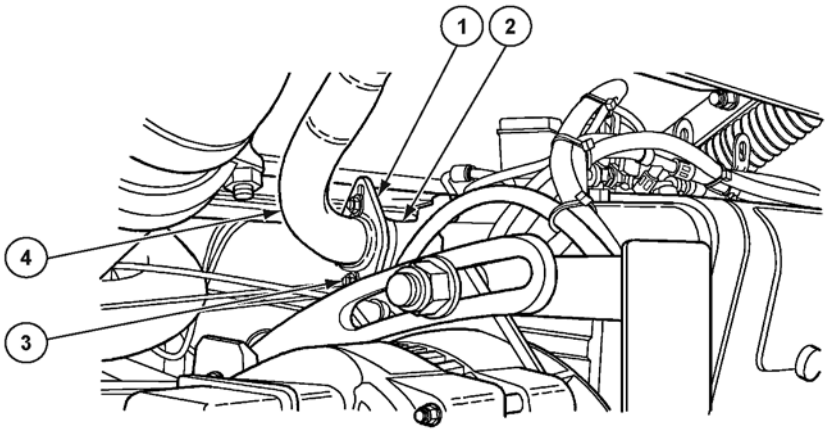


INSTALLATION

1. Install exhaust pipe (5), two U-bolts (9), and four nuts (8) to muffler (7).

2. Install muffler (6), two bolts (12), four washers (11), and two new self-locking nuts (10) to muffler support (6).

3. Install new gasket (1) and two new self-locking nuts (3) to exhaust pipe (4) at exhaust manifold (2).



FOLLOW-ON TASKS

1. Tighten curbside hose tubes (WP 0094 00)
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ALTERNATOR AND MOUNTING BRACKET MAINTENANCE 0116 00

THIS WP COVERS:
Removal, Installation, Adjustment, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Lockwashers (3) (item 120, WP 0175 00)
Self-locking nuts (3) (item 92, WP 0175 00)

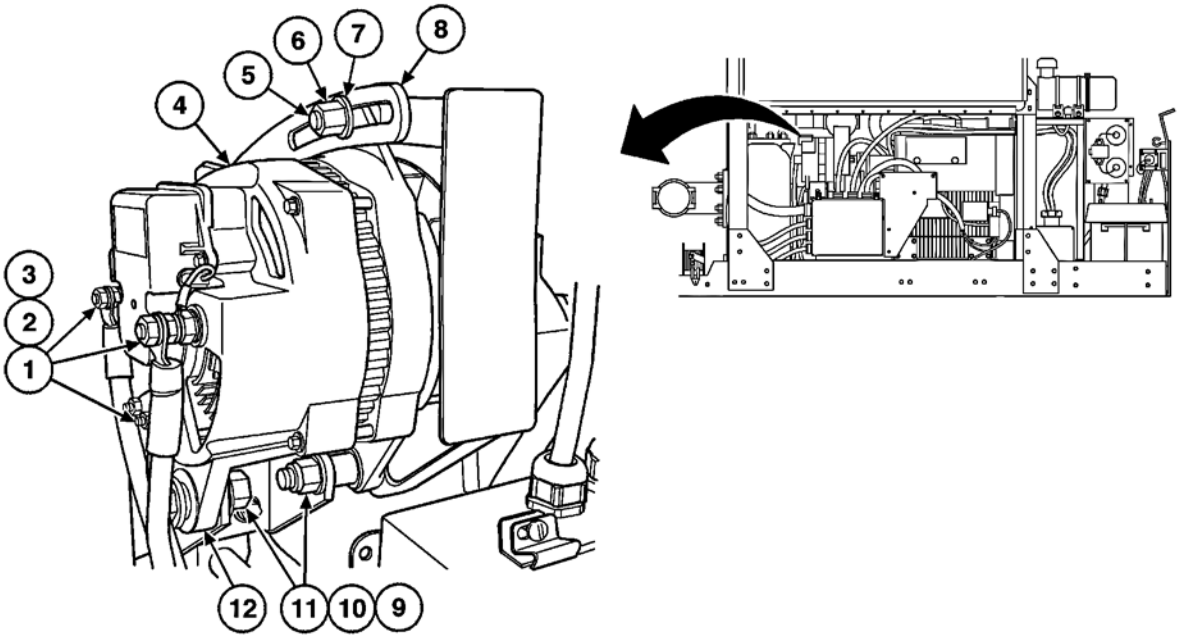
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

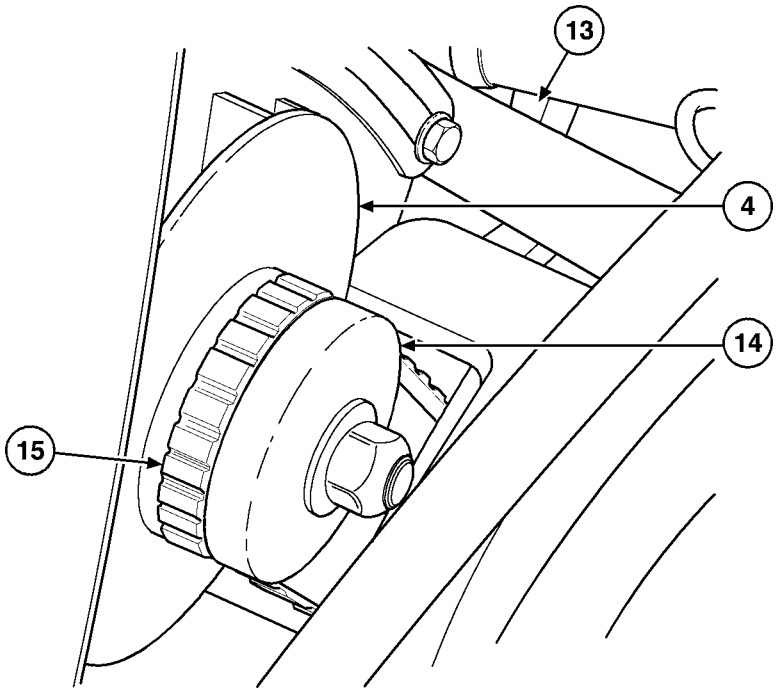
NOTE

Tag all wires prior to disconnecting.

1. Remove three nuts (1), washers (2), and cables (3) from alternator (4).
2. Loosen self-locking nut (6), two washers (7), and bolt (5) at adjuster arm (8).
3. Loosen two self-locking nuts (9), six washers (10), and two bolts (11) at mounting bracket (12).

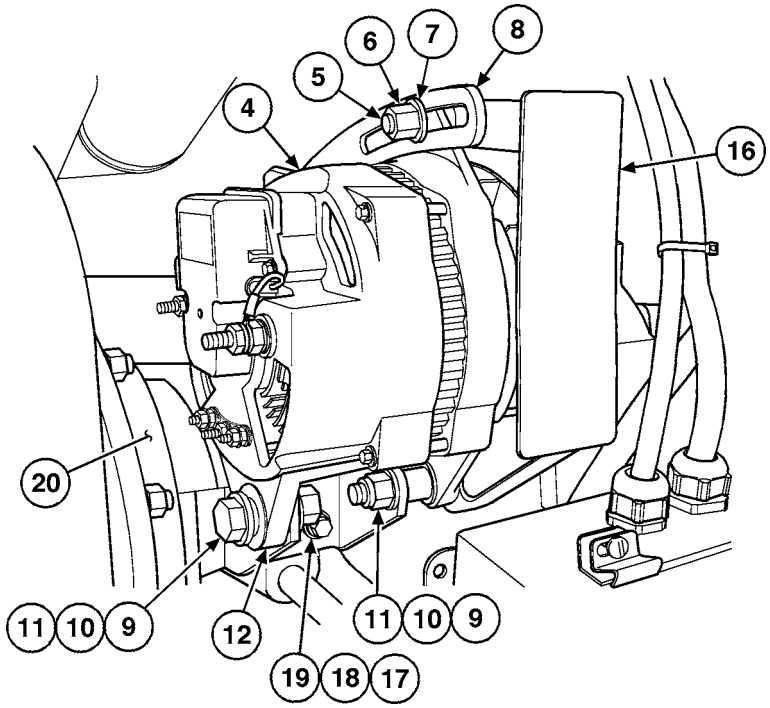


4. Push alternator (4) toward engine (13) and release belt (15) from pulley (14).



5. Remove three bolts (17), lockwashers (18), washers (19), mounting bracket (12), and alternator (4) from intermediate housing (20). Discard lockwashers.

6. Remove three self-locking nuts (9 and 6), eight washers (10 and 7), three bolts (5 and 11), alternator guard (16), mounting bracket (12), and adjuster arm (8) from alternator (4). Discard self-locking nuts.



INSTALLATION

1. Install mounting bracket (12), bottom bracket of alternator guard (16), two bolts (11), six washers (10), and two new self-locking nuts (9) to alternator (4). Do not tighten.

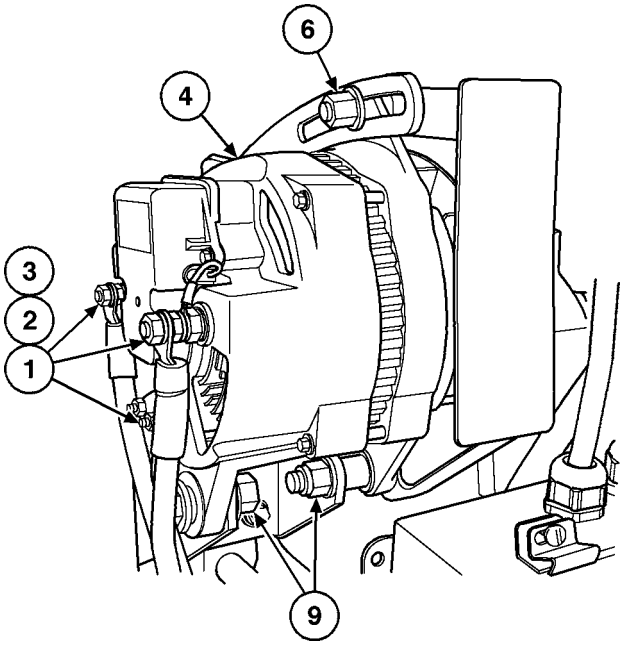
2. Install alternator (4), mounting bracket (12), three new lockwashers (18), washers (19), and bolts (17) to intermediate housing (20).

3. Install top bracket of alternator guard (16), alternator (4), new self-locking nut (6), two washers (7), and bolt (5) to adjuster arm (8). Do not tighten.

4. Push alternator (4) toward engine (13) far enough to allow belt (15) to be installed on pulley (14).

5. Pull alternator (4) from engine (13) to apply tension to belt (15), and hand tighten nut (6) to adjuster arm (8) so alternator remains in place.

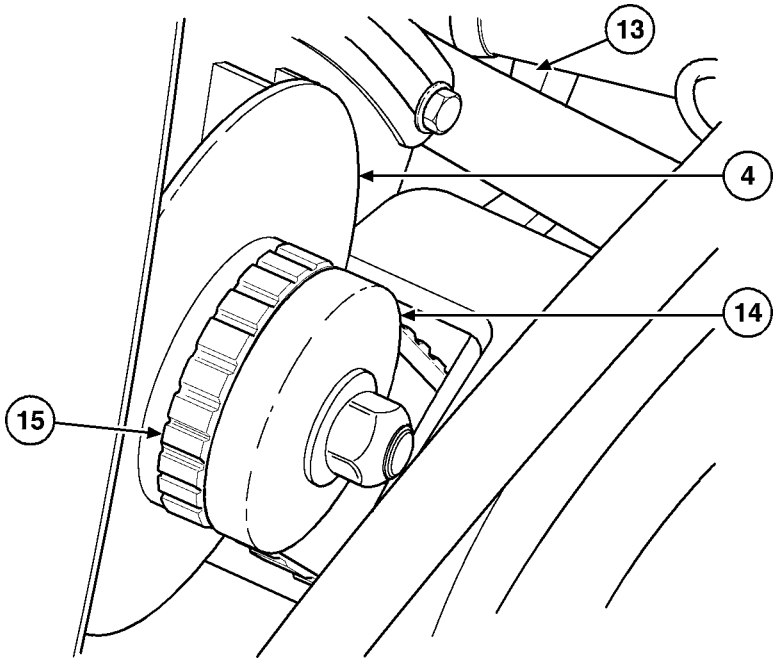
6. Install three cables (3), washers (2), and nuts (1) to alternator (4).



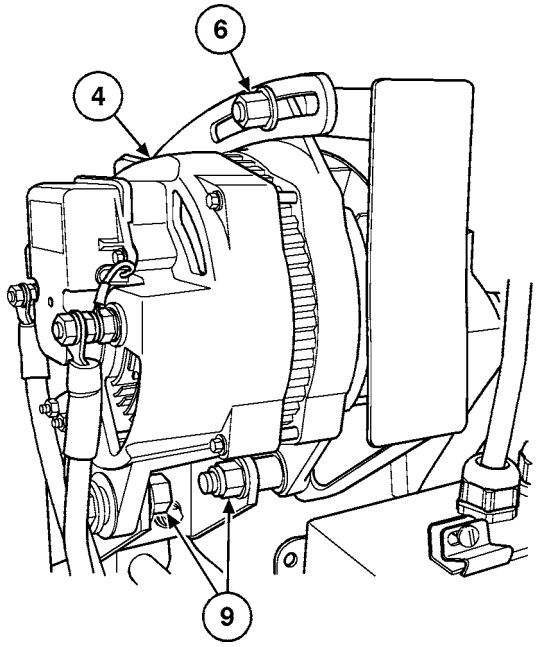
ADJUSTMENT

1. Loosen three nuts (6 and 9) holding alternator (4) in place.

2. Pull alternator (4) away from engine (13) until tension on belt (15) only allows 1/8 to 1/4 in. (3.2 to 6.4 mm) deflection.



3. Tighten three nuts (6 and 9) to secure alternator (4) in place.



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ALTERNATOR DRIVE BELT REPLACEMENT 0117 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Fan belt (item 30, WP 0175 00)
Lockwashers (8) (item 44, WP 0175 00)

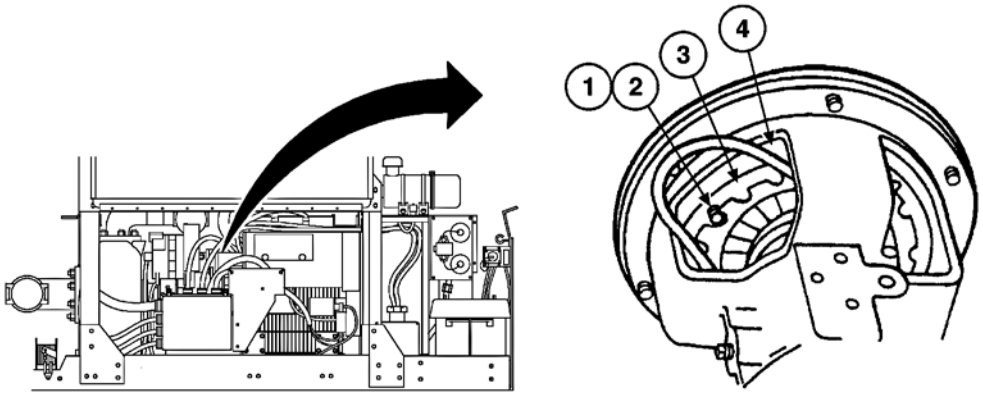
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Alternator removed (refer to WP 0116 00)

REMOVAL

NOTE

It will be necessary to rotate crankshaft to access mounting screws securing flex plate to alternator drive belt pulley. Engine is turned using crankshaft pulley bolt.

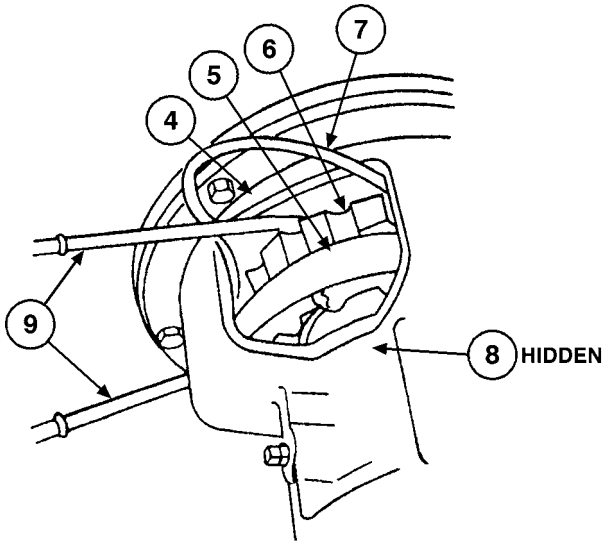
1. Remove eight screws (1) and lockwashers (2) from ring (3) and flywheel (4). Discard lockwashers.



2. Separate drivering (5) from rubber element (6) and push drivering toward rear.

3. Maneuver drivebelt (7) through drivering (5) and over rubber element (6).

4. Using two pry bars (9), pry rubber element (6) from flywheel (4) and maneuver drivebelt (7) from between rubber element and flywheel.



INSTALLATION

1. Using two pry bars (9), pry rubber element (6) from flywheel (4) and maneuver drivebelt (7) down and around rubber element.

2. Maneuver drivebelt (7) over rubber element (6) and through drivering (5).

3. Position drivebelt (7) on pulley (8).

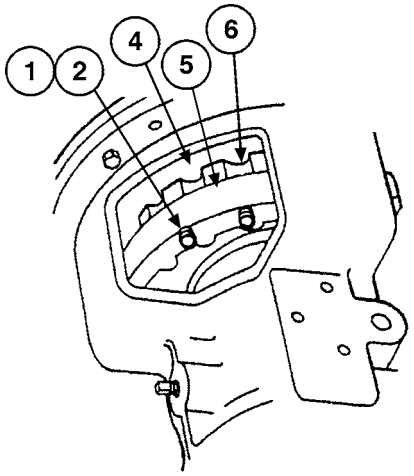
CAUTION

Do not fully tighten screws at this time. Screws act as guides for installing drivering. Failure to follow this caution could result in damage to equipment.

4. Slide drivering (5) on rubber element (6).

5. Align holes of drivering (5) with mounting holes of flywheel (4) and install eight new lockwashers (2) and screws (1).

6. Alternately tighten screws (1) to 10.5 lb-ft (14.2 N•m).



FOLLOW-ON TASKS

1. Install alternator (WP 0116 00).

2. Reconnect negative battery terminal (WP 0007 00).

3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE ELECTRICAL BOX REPLACEMENT 0118 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Lockwashers (4) (item 138, WP 0175 00)
Self-locking nuts (4) (item 23, WP 0175 00)
Starwashers (4) (item 101, WP 0175 00)

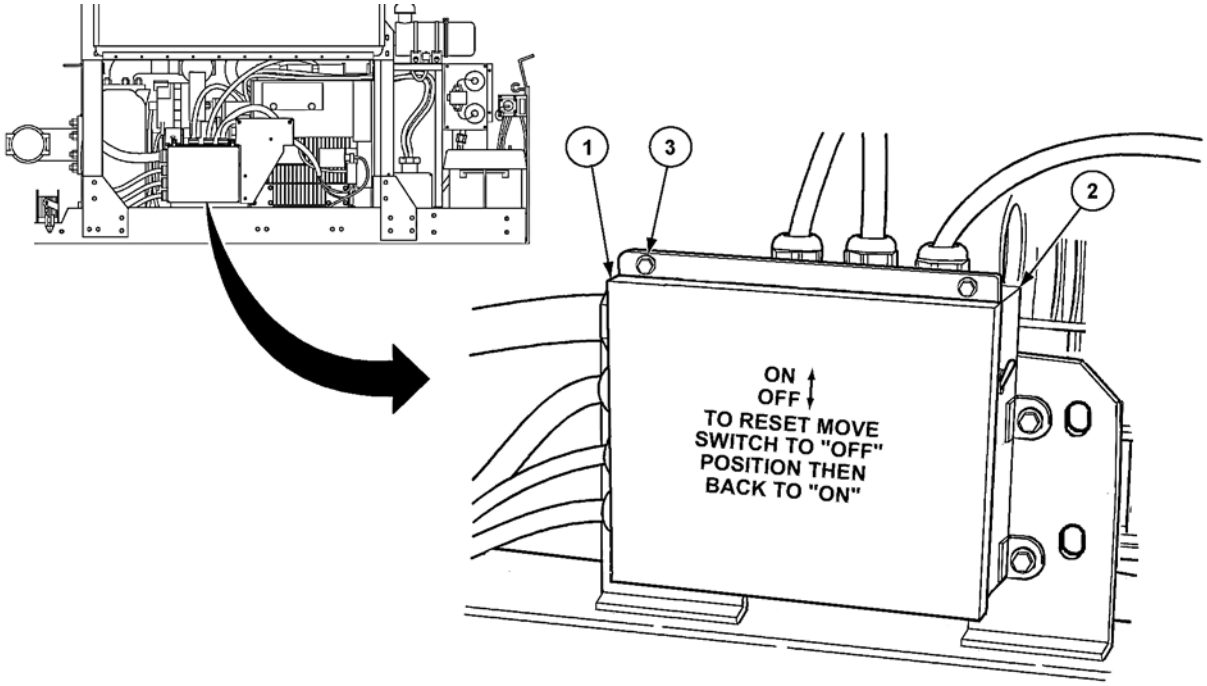
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

NOTE

Tag all wires and conduits prior to disconnection.

1. Loosen two screws (3) at top of engine electrical control box (2) and lower front cover (1).



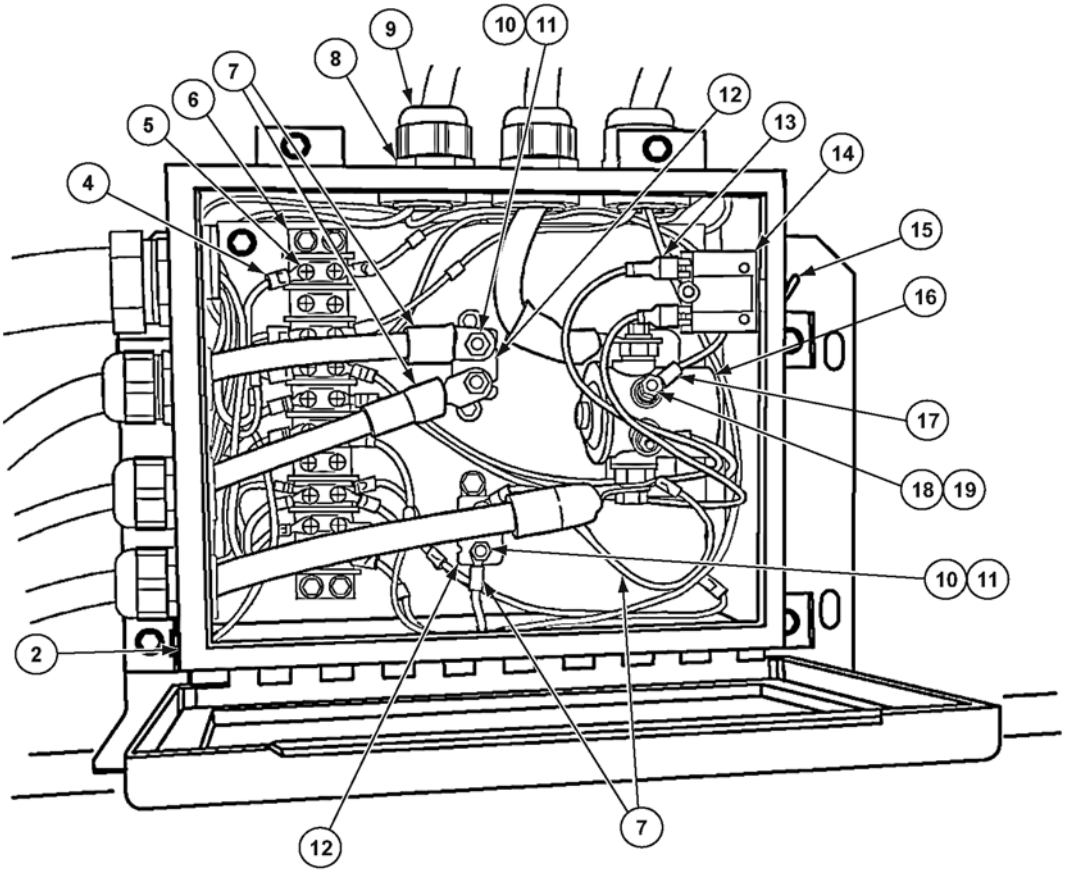
2. Remove four nuts (10), starwashers (11), and wires (7) from two circuit breakers (12). Discard starwashers.

3. Remove four nuts (18), lockwashers (19), and five wires (17) from solenoid (16). Discard lockwashers.

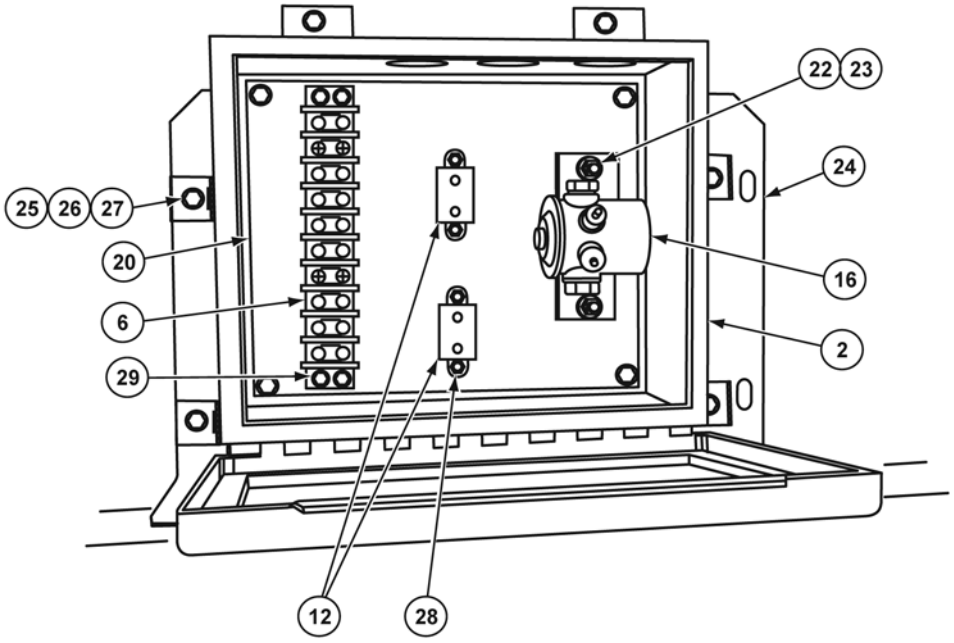
4. Remove two connectors (13), circuit breaker (14), and nut (15).

5. Remove 16 screws (5) and 22 wires (4) from busbar (6).

6. Remove eight nuts (8) and conduits (9) from control box (2).



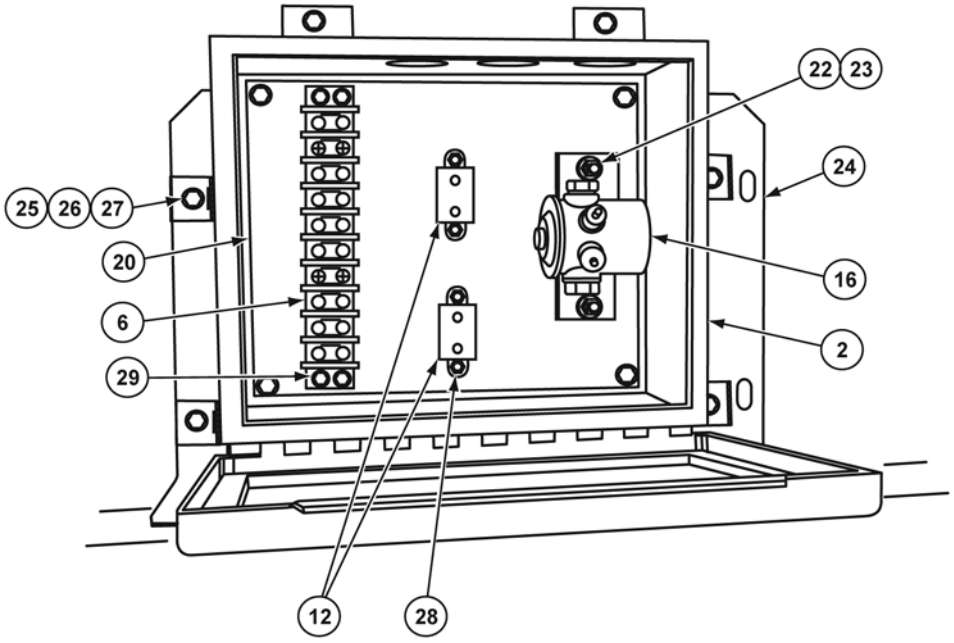
7. Remove four screws (29) and busbar (6) from control box (2).
8. Remove four nuts (28) and two circuit breakers (12) from control box (2).
9. Remove two self-locking nuts (22), washers (23), and solenoid (16) from control box (2). Discard self-locking nuts.
10. Remove four self-locking nuts (25), four washers (26), four bolts (27), and control box (2) from bracket (24). Discard self-locking nuts.



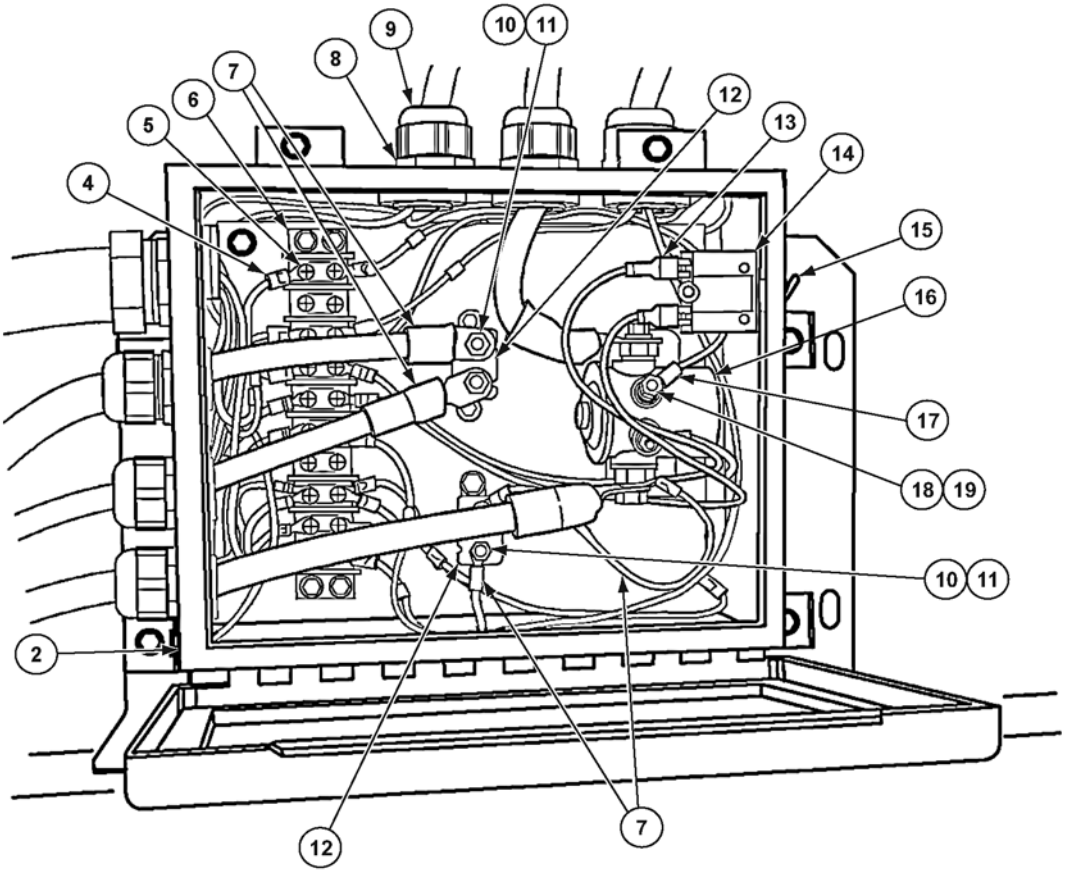
ENGINE ELECTRICAL BOX REPLACEMENT—Continued **0118 00**

INSTALLATION

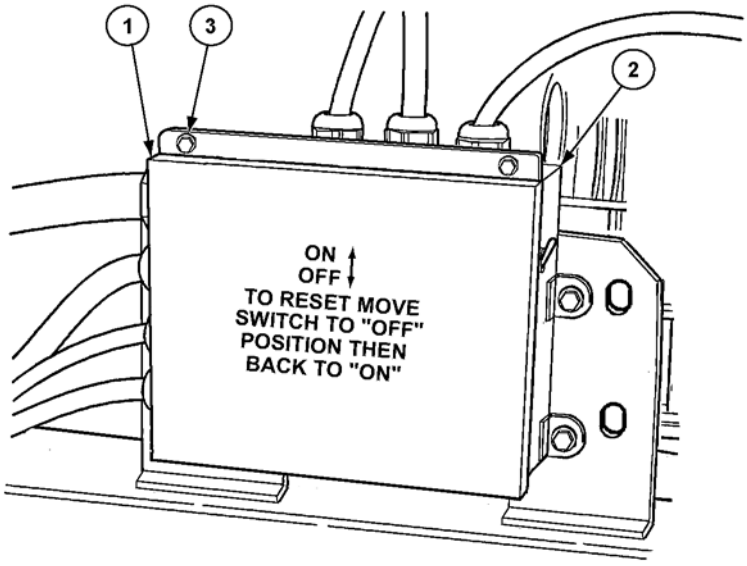
1. Install control box (2), four bolts (27), four washers (26), and four self-locking nuts (25) to bracket (24).
2. Install solenoid (16), two washers (23), and new self-locking nuts (22) to control box (2).
3. Install two circuit breakers (12) and four nuts (28) to control box (2).
4. Install busbar (6) and four screws (29) to control box (2).



5. Install eight conduits (9) and nuts (8) to control box (2).
6. Install 22 wires (4) and 16 screws (5) to busbar (6).
7. Install nut (15), circuit breaker (14), and two connectors (13).
8. Install five wires (17), four new lockwashers (19), and nuts (18) to solenoid (16).
9. Install four wires (7), new starwashers (11), and nuts (10) on two circuit breakers (12).



10. Close control box (2) front cover (1) and tighten two screws (3).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

STARTER REPLACEMENT 0119 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

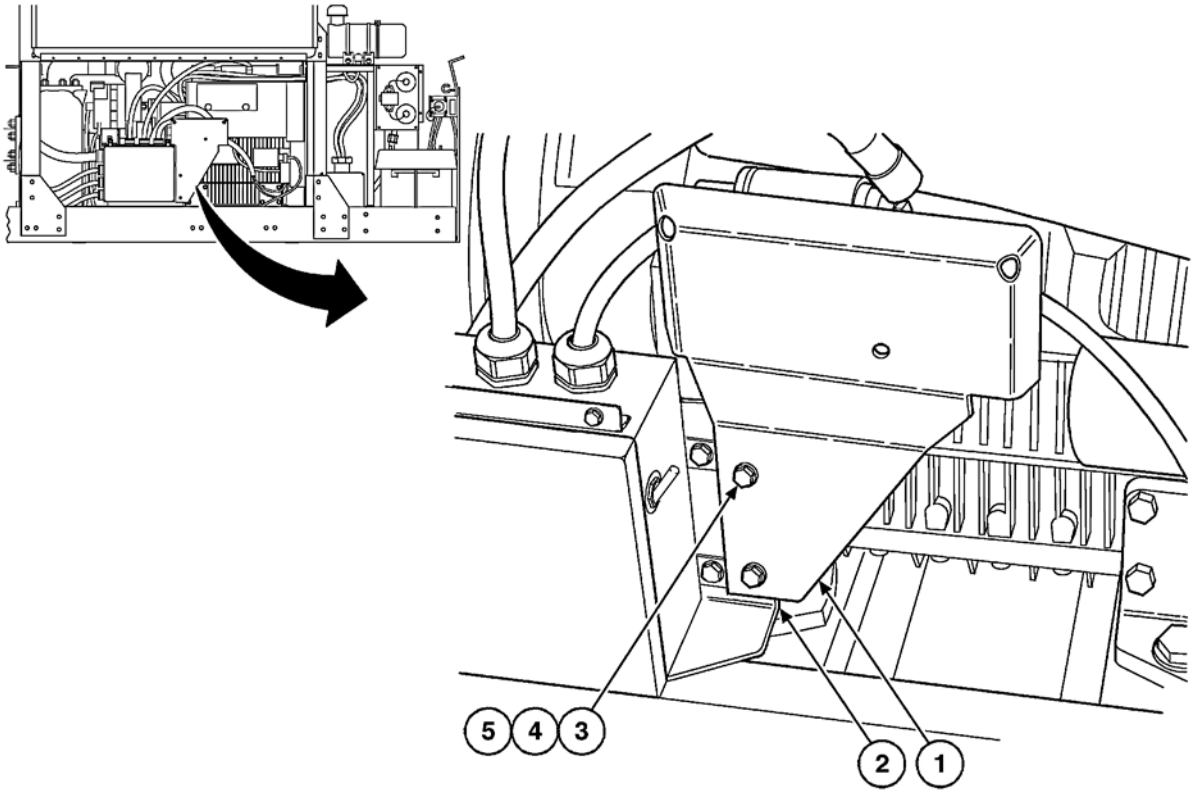
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Lockwasher (item 123, WP 0175 00)
Lockwashers (2) (item 139, WP 0175 00)
Self-locking nuts (2) (item 88, WP 0175 00)

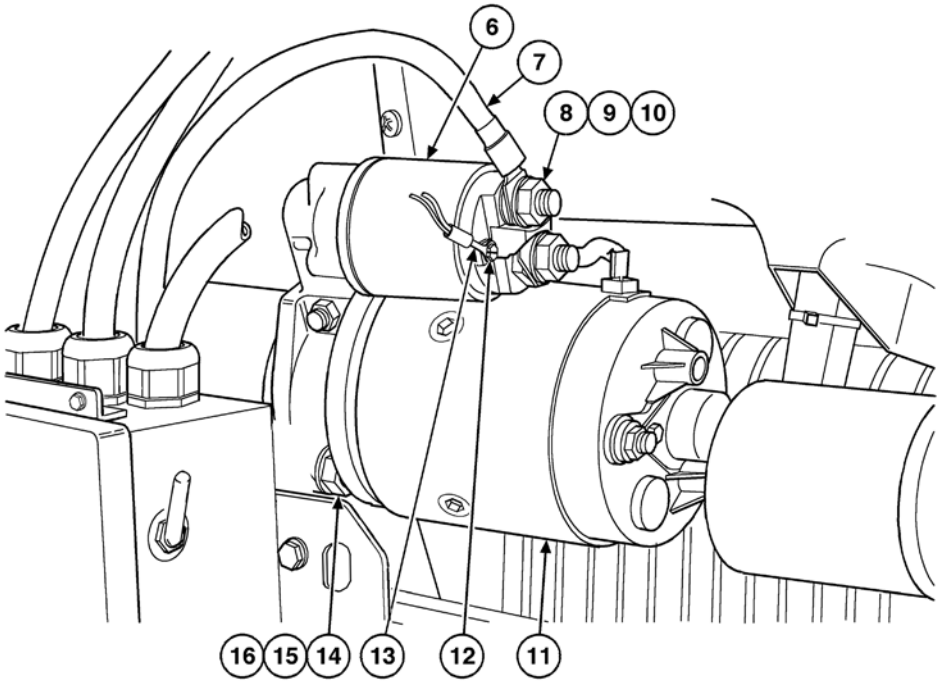
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

1. Remove two self-locking nuts (3), four washers (4), two bolts (5), and shroud (1) from bracket (2). Discard self-locking nuts.

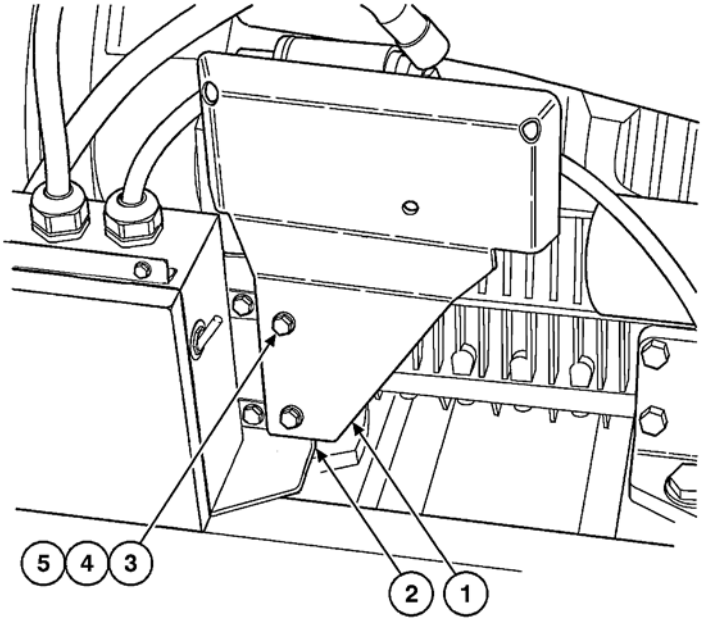


2. Remove nut (8), washer (9), lockwasher (10), and wire (7) from solenoid (6). Discard lockwasher.
3. Remove screw (12) and electrical connector (13) from solenoid start terminal (6).
4. Remove two nuts (14), lockwashers (15), and starter (11) from studs (16). Discard lockwashers.



INSTALLATION

1. Install starter (11), two new lockwashers (15), and nuts (14) to studs (16).
2. Install electrical connector (13) and screw (12) to solenoid (6).
3. Install wire (7), new lockwasher (10), washer (9), and nut (8) to solenoid start terminal (6).
4. Install shroud (1), two bolts (5), four washers (4), and two new self-locking nuts (3) to bracket (2).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE CONTROL PANEL MAINTENANCE 0120 00

THIS WP COVERS:
Removal, Inspection, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, silicone (item 6, WP 0174 00)
Lockwashers (3) (item 6, WP 0175 00)
Lockwashers (3) (item 25, WP 0175 00)
Lockwashers (3) (item 56, WP 0175 00)
Self-locking nuts (2) (item 11, WP 0175 00)
Self-locking nuts (2) (item 12, WP 0175 00)
Self-locking nuts (2) (item 45, WP 0175 00)
Self-locking nuts (2) (item 46, WP 0175 00)
Self-locking nuts (4) (item 116, WP 0175 00)
Self-locking nuts (4) (item 117, WP 0175 00)
Starwashers (5) (item 7, WP 0175 00)
Rivets (4) (item 96, WP 0175 00)
Teflon nuts (6) (item 47, WP 0175 00)

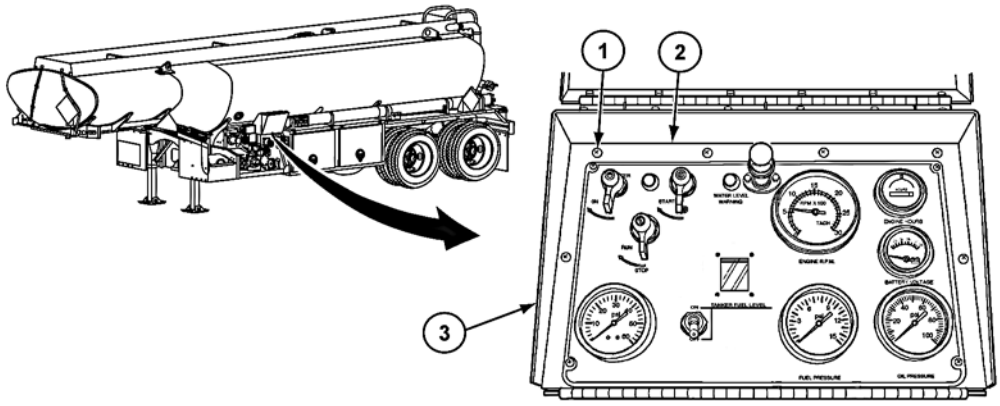
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

NOTE

Tag all wires and hoses prior to disconnecting.

1. Remove six screws (1) from control panel frame (3) and pull control panel (2) down.



2. Remove two screws (14), lockwashers (15), and disconnect two wires (16) from engine hourmeter (18). Discard lockwasher.

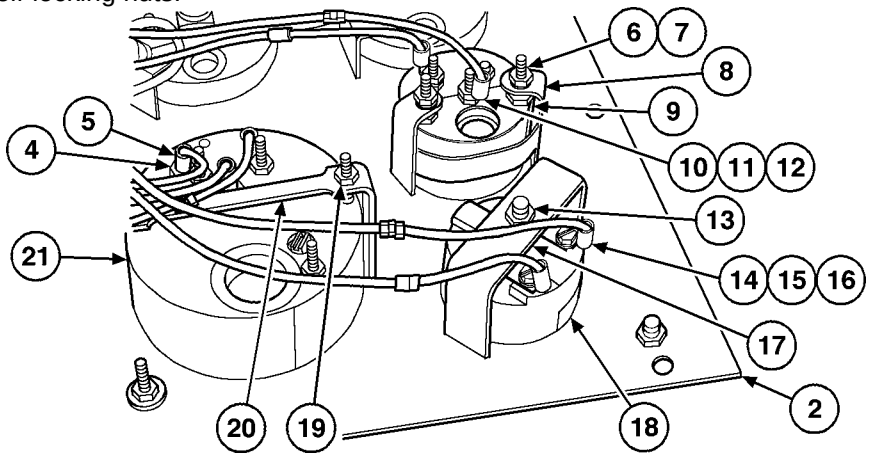
3. Remove self-locking nut (13), bracket (17), and hourmeter (18) from control panel (2). Discard self-locking nut.

4. Remove two screws (10), starwashers (11), and disconnect wires (12) from voltmeter (9). Discard starwashers.

5. Remove two nuts (6), starwashers (7), bracket (8), and voltmeter (9) from control panel (2). Discard starwashers.

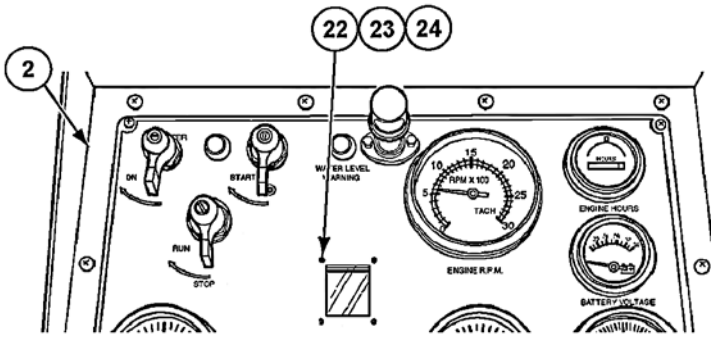
6. Remove three nuts (4) and disconnect wires (5) from tachometer (21).

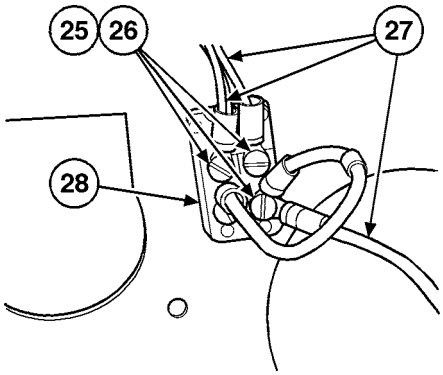
7. Remove two self-locking nuts (19), bracket (20), and tachometer (21) from control panel (2). Discard self-locking nuts.



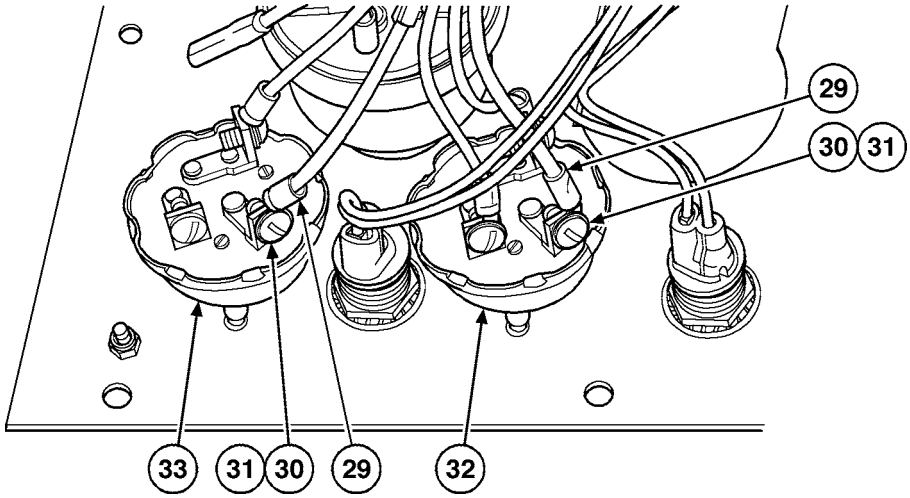
8. Remove four Allen head screws (22), washers (23), and bezel (24) from front of control panel (2).

9. Remove three screws (25), washers (26), and wires (27) from fuel level switch (28).



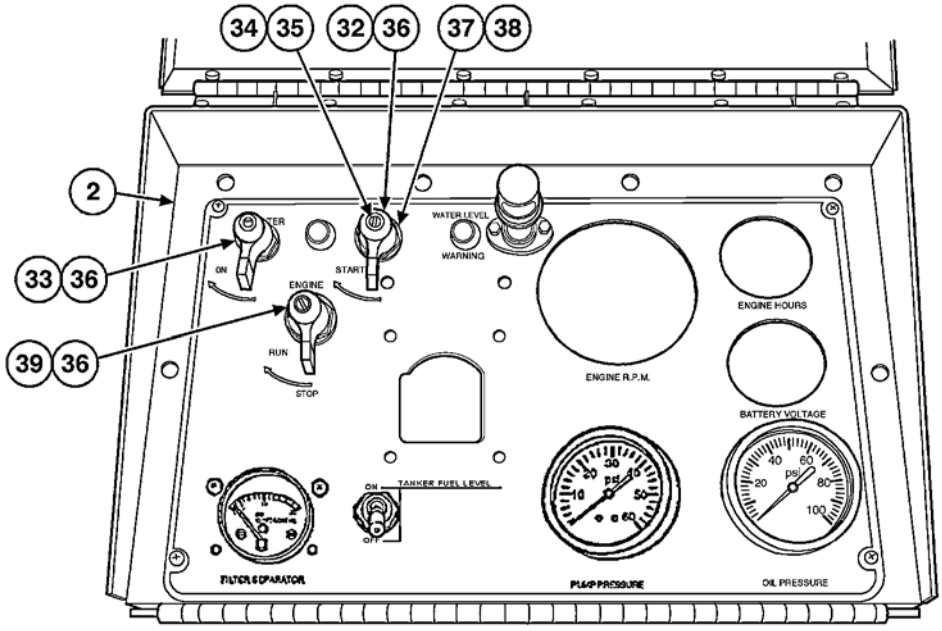


10. Remove five screws (30), washers (31), and disconnect electrical connectors (29) from engine starter (32) and engine preheat switch (33).

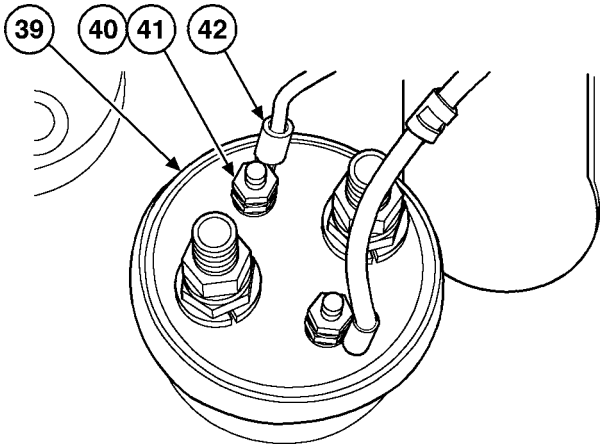


11. Remove three screws (34), lockwashers (35), and toggles (36) from control panel (2). Discard lockwashers.

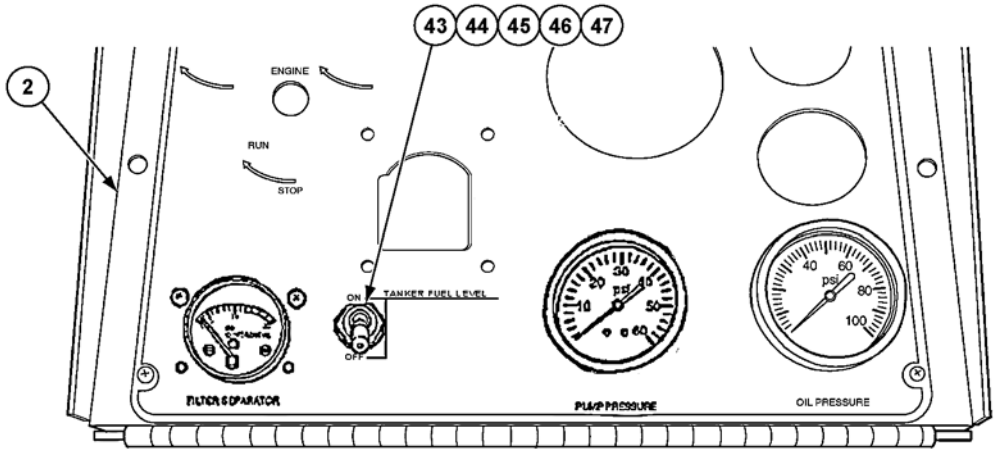
12. Remove three nuts (37) and nine washers (38) from engine starter (32), engine preheat switch (33), and engine run/stop switch (39).



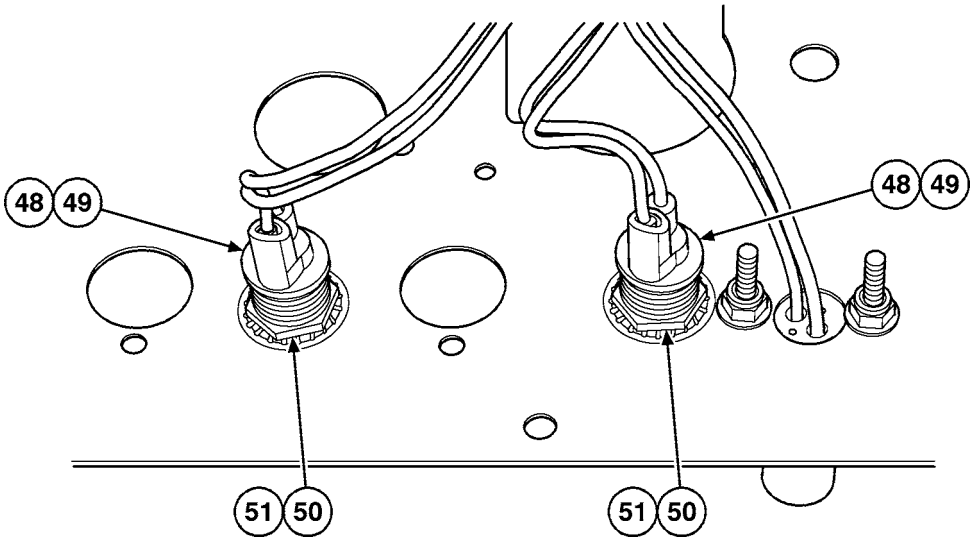
13. Remove two nuts (40), four washers (41), and electrical connectors (42) from engine run/stop switch (39).



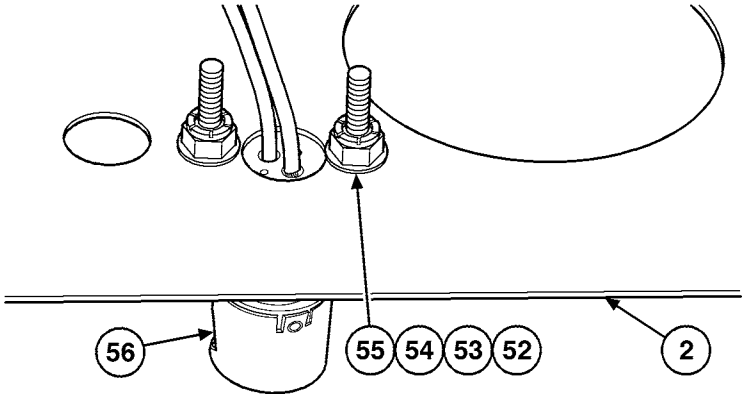
14. Remove nut (43), washers (44), nut (45), washer (46), and switch (47) from control panel (2).



15. Remove two indicator lights (48), nuts (50), starwashers (51), and indicator light assemblies (49). Discard starwashers.



16. Remove two self-locking nuts (52), washers (53), screws (54), bracket (55), and socket (56) from control panel (2). Discard self-locking nuts.



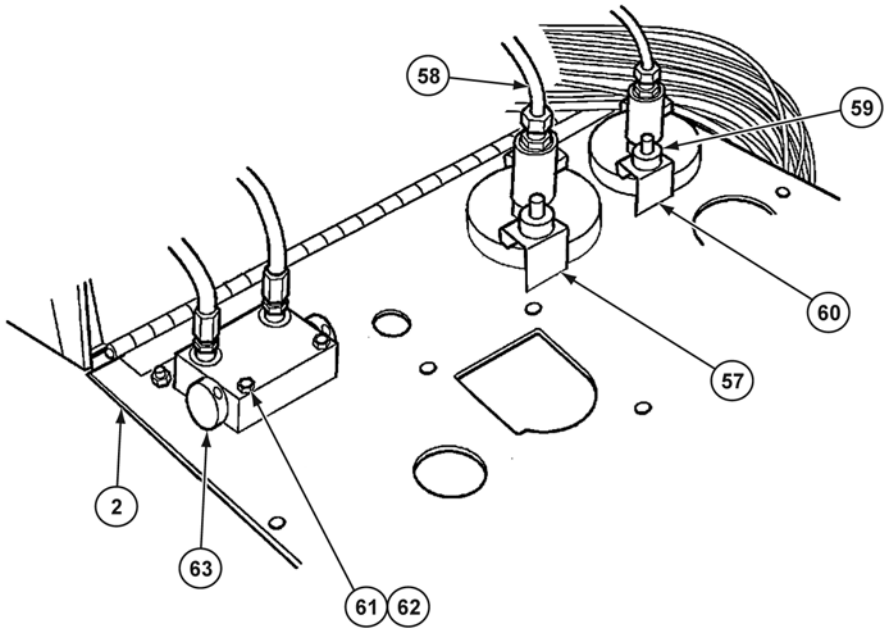
NOTE

Place drain pan or suitable container under control panel to catch fuel and oil spilled from disassembly of hoses.

17. Remove four hose fittings (58) from three gages (57).

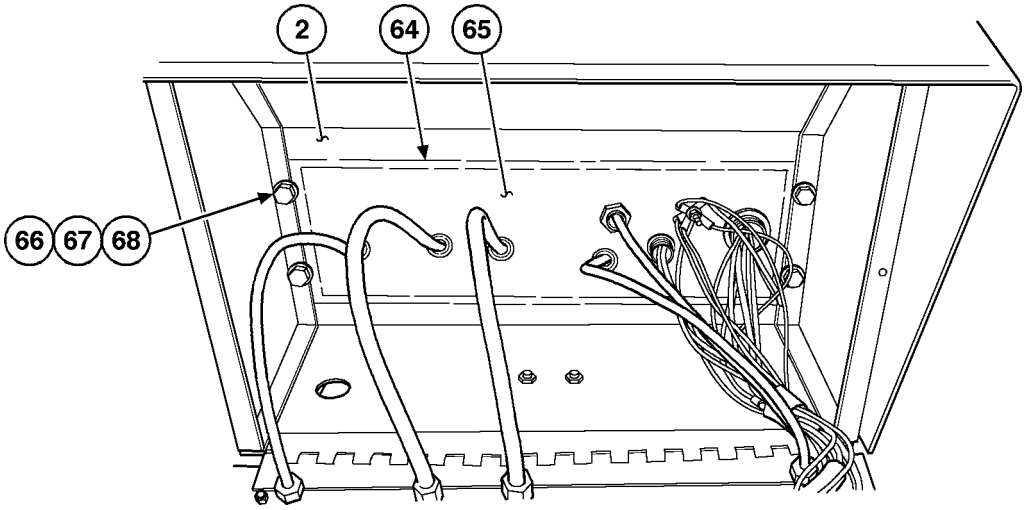
18. Remove four teflon nuts (59), brackets (60), and two gages (57) from control panel (2). Discard teflon nuts.

19. Remove two self-locking nuts (61), two screws (62), and gage (63) from control panel (2). Discard self-locking nuts.

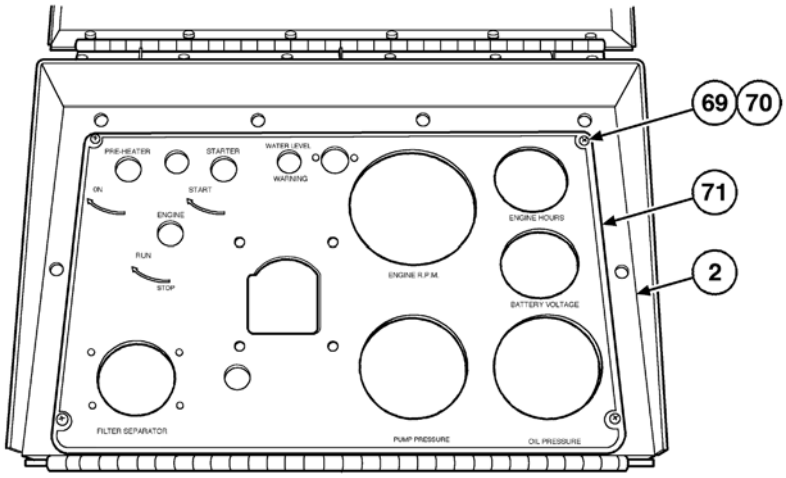


20. Remove silicone bead (64) from edges of cutout (65) at control panel rear (2). Discard silicone.

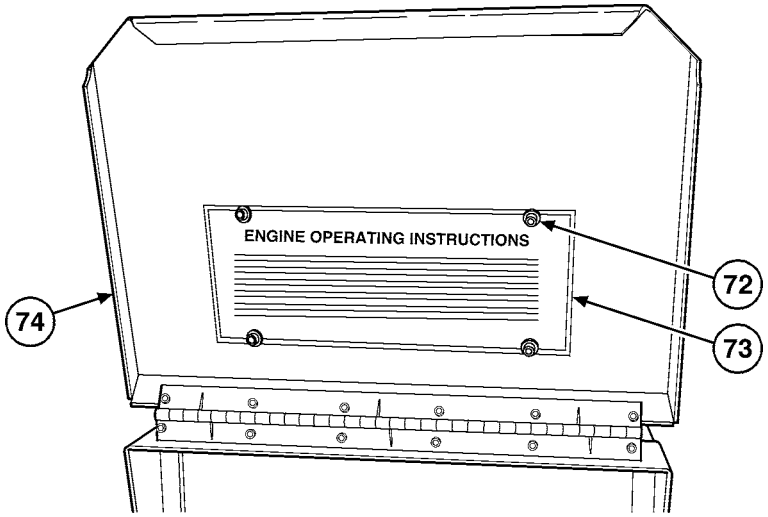
21. Remove four self-locking nuts (66), eight washers (67), four bolts (68), and control panel (2) from semitrailer. Discard self-locking nuts.



22. Remove four self-locking nuts (69), screws (70), and control panel plate (71) from control panel (2). Discard self-locking nuts.



23. Remove four rivets (72) and engine operating instruction plate (73) from control panel lid (74). Discard rivets.



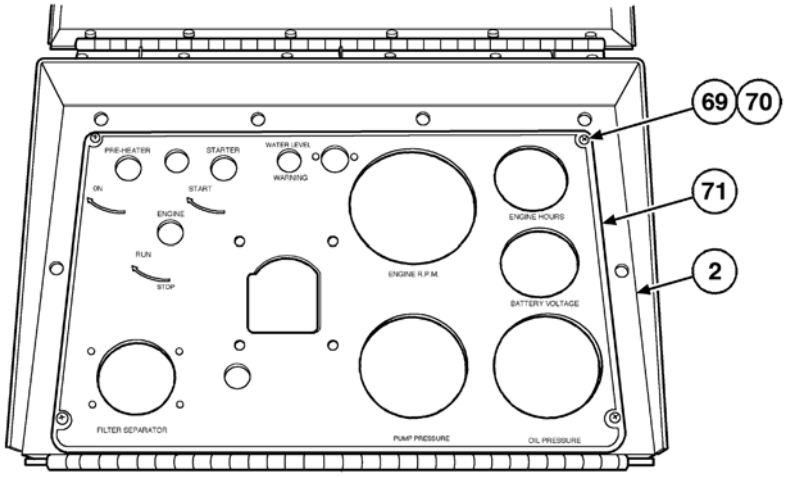
INSPECTION

Check all instruments for broken glass, damaged or broken terminals, corrosion, and damage to cases and tubes. Replace damaged instrumentation. Check wiring for fraying, breaks or damaged insulation. Check hoses for leaks, tears or other damage. Replace damaged wiring or hoses.

INSTALLATION

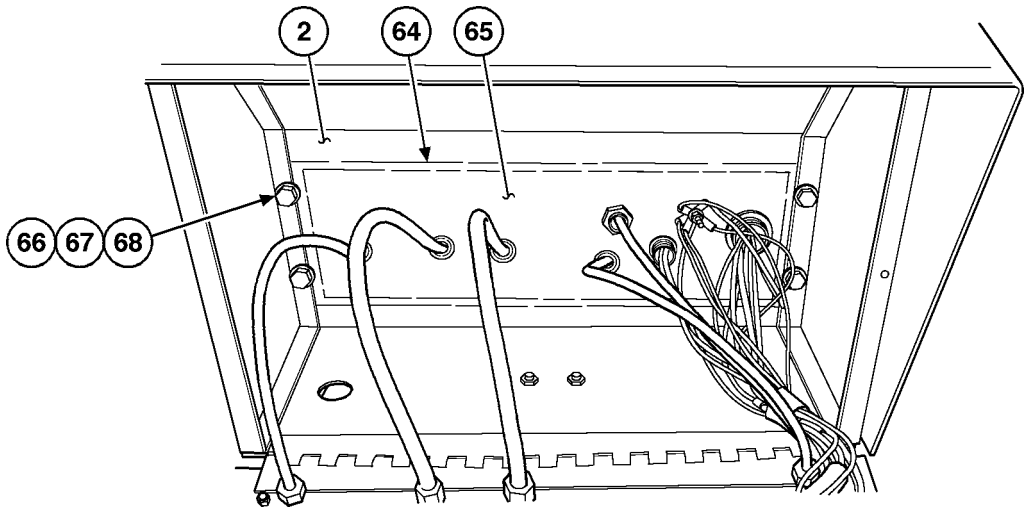
1. Install engine operating instruction plate (73) and four new rivets (72) to control panel lid (74).

2. Install control panel plate (71), four screws (70), and new self-locking nuts (69) to control panel (2).



3. Install control panel (2), four bolts (68), eight washers (67), and four new self-locking nuts (66) to semitrailer.

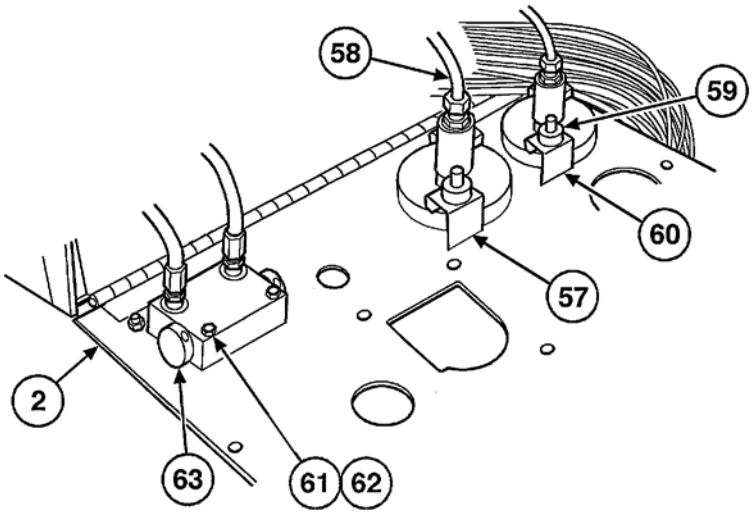
4. Apply new silicone bead (64) to edges of cutout (65) at the control panel rear (2).



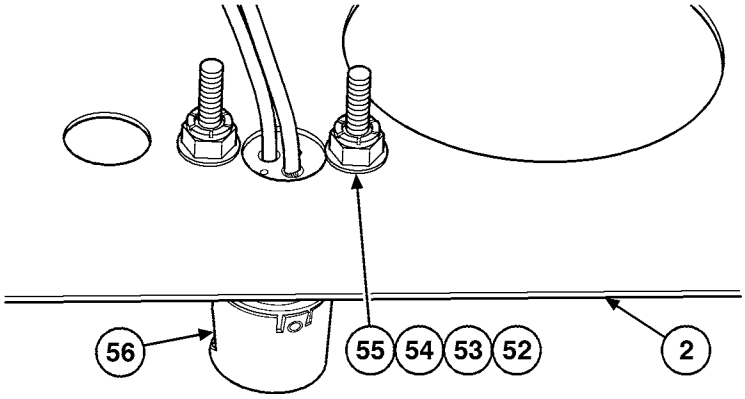
5. Install gage (63), two screws (62), and two new self-locking nuts (61) to control panel (2).

6. Install three gages (57), six brackets (60), and new teflon nuts (59) to control panel (2).

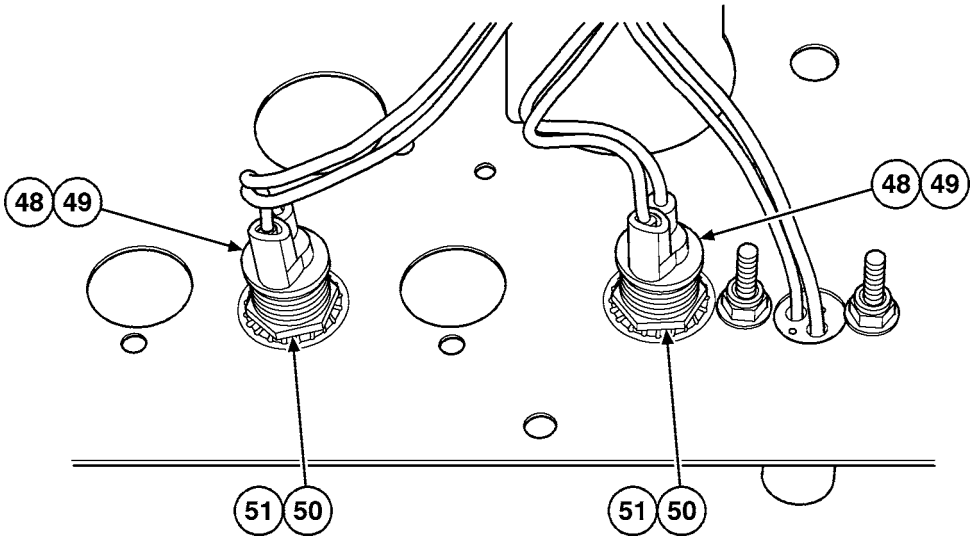
7. Install four hose fittings (58) to three gages (57).



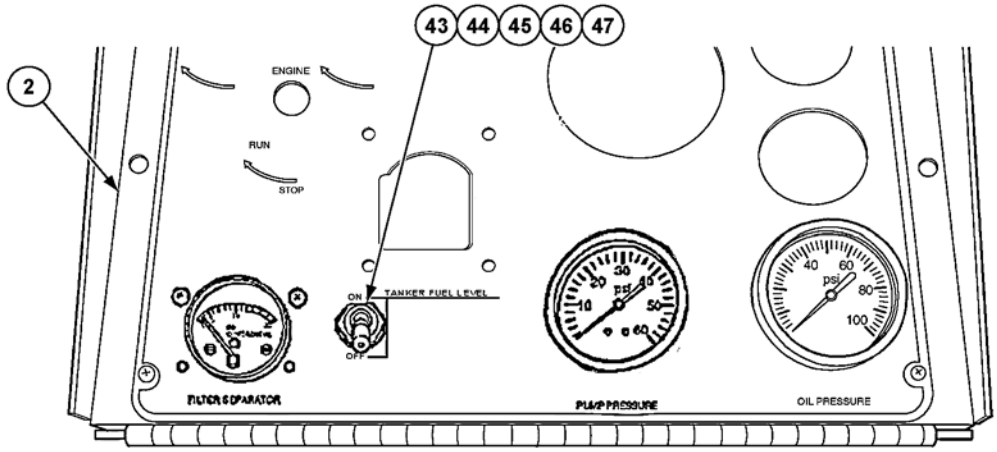
8. Install socket (56), bracket (55), two screws (54), washers (53), and new self-locking nuts (52) to control panel (2).



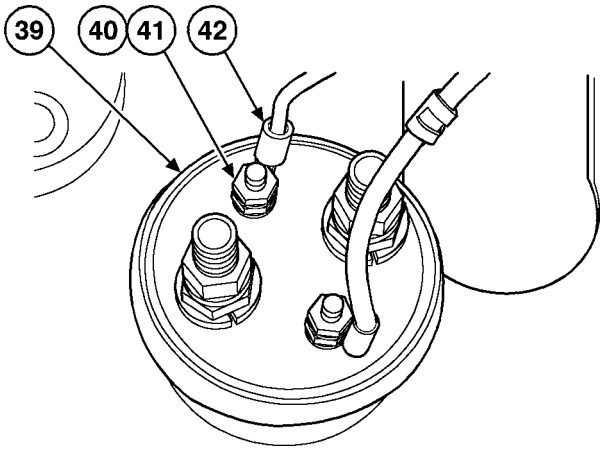
9. Install two indicator light assemblies (49), new starwashers (51), nuts (50), and two indicator lights (48) to control panel (2).



10. Install switch (47), washer (46), nut (45), washer (44), and nut (43) to control panel (2).

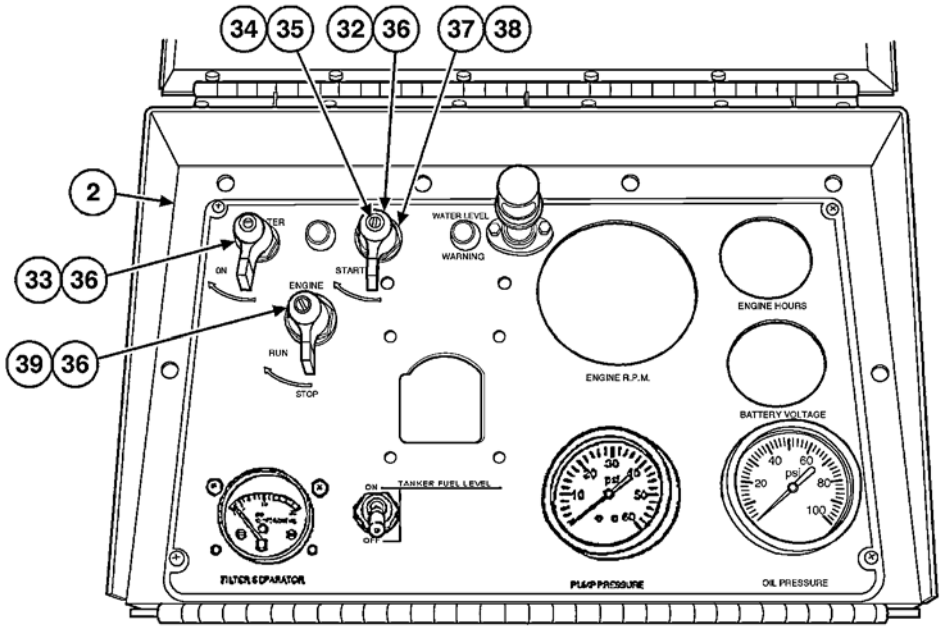


11. Install two electrical connectors (42), four washers (41), and two nuts (40) to engine run/stop switch (39).

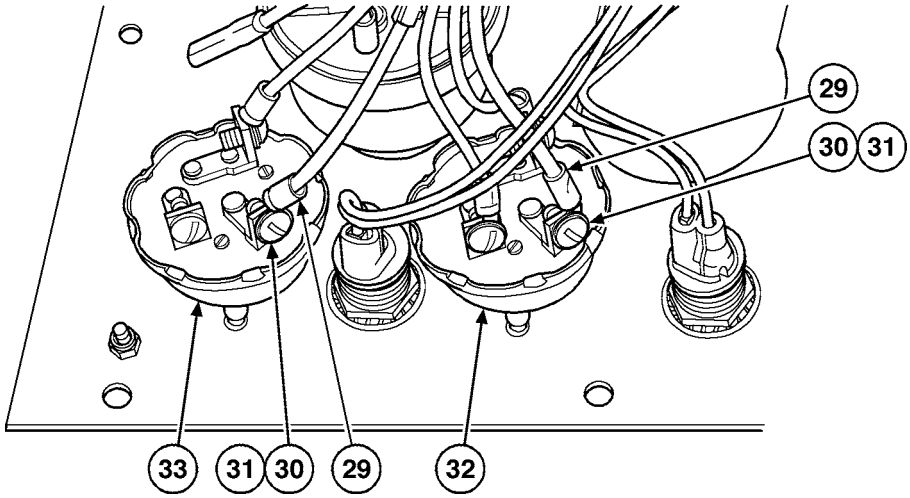


12. Install nine washers (38) and three nuts (37) to engine run/stop switch (39), engine preheat switch (33), and engine starter (32).

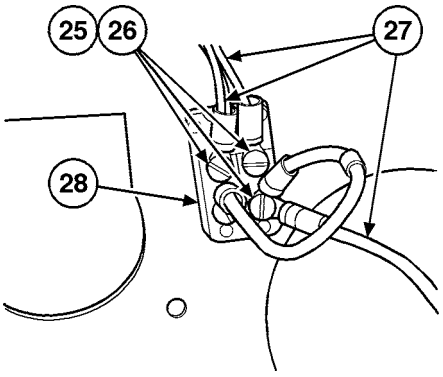
13. Install three toggles (36), new lockwashers (35), and screws (34) to control panel front (2).



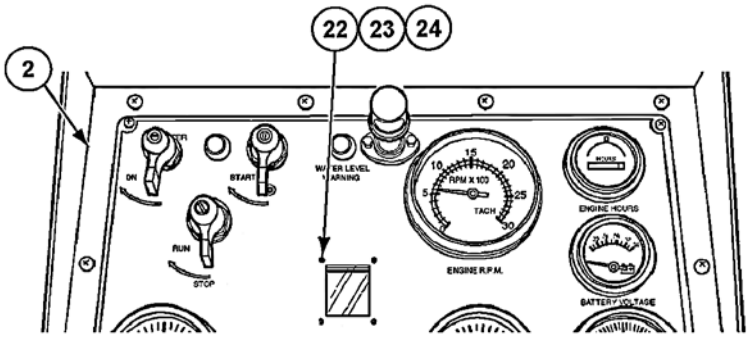
14. Connect five electrical connectors (29), washers (31), and screws (30) to engine preheat (33) and engine starter (32) switches.



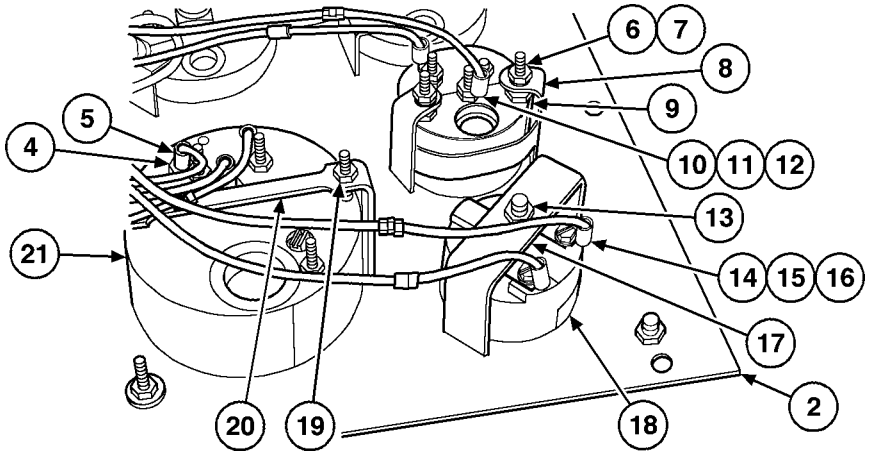
15. Install three wires (27), washers (26), and screws (25) on fuel level switch (28).



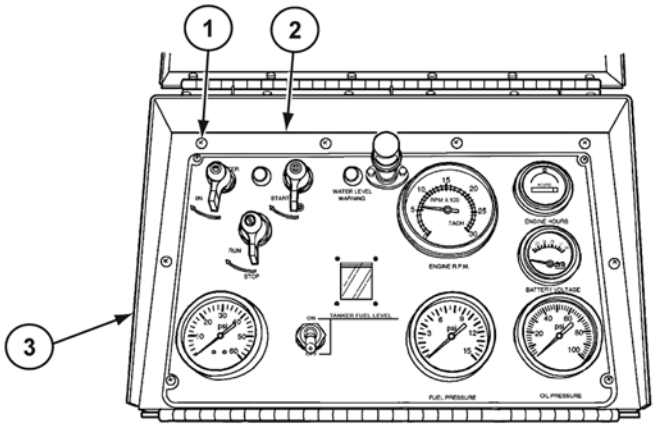
16. Install bezel (24), four washers (23), and Allen head screws (22) on control panel (2).



17. Install tachometer (21), bracket (20), and two new self-locking nuts (19) to control panel (2).
18. Connect three wires (5) and nuts (4) to tachometer (21).
19. Install voltmeter (9), bracket (8), two new star washers (7), and nuts (6) to control panel (2).
20. Connect two wires (12), new starwashers (11), and screws (10) to voltmeter (9).
21. Install hourmeter (18), bracket (17), and new self-locking nut (13) to control panel (2).
22. Connect two wires (16), new lockwashers (15), and screws (14) to hourmeter (18).



23. Install six screws (1) and control panel front cover (2) to control panel frame (3).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FUEL LEVEL SENSOR AND SENSOR TUBE MAINTENANCE 0121 00

THIS WP COVERS:
Removal, Disassembly, Assembly, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Gaskets (2) (item 127, WP 0175 00)
Lockwasher (2) (item 140, WP 0175 00)

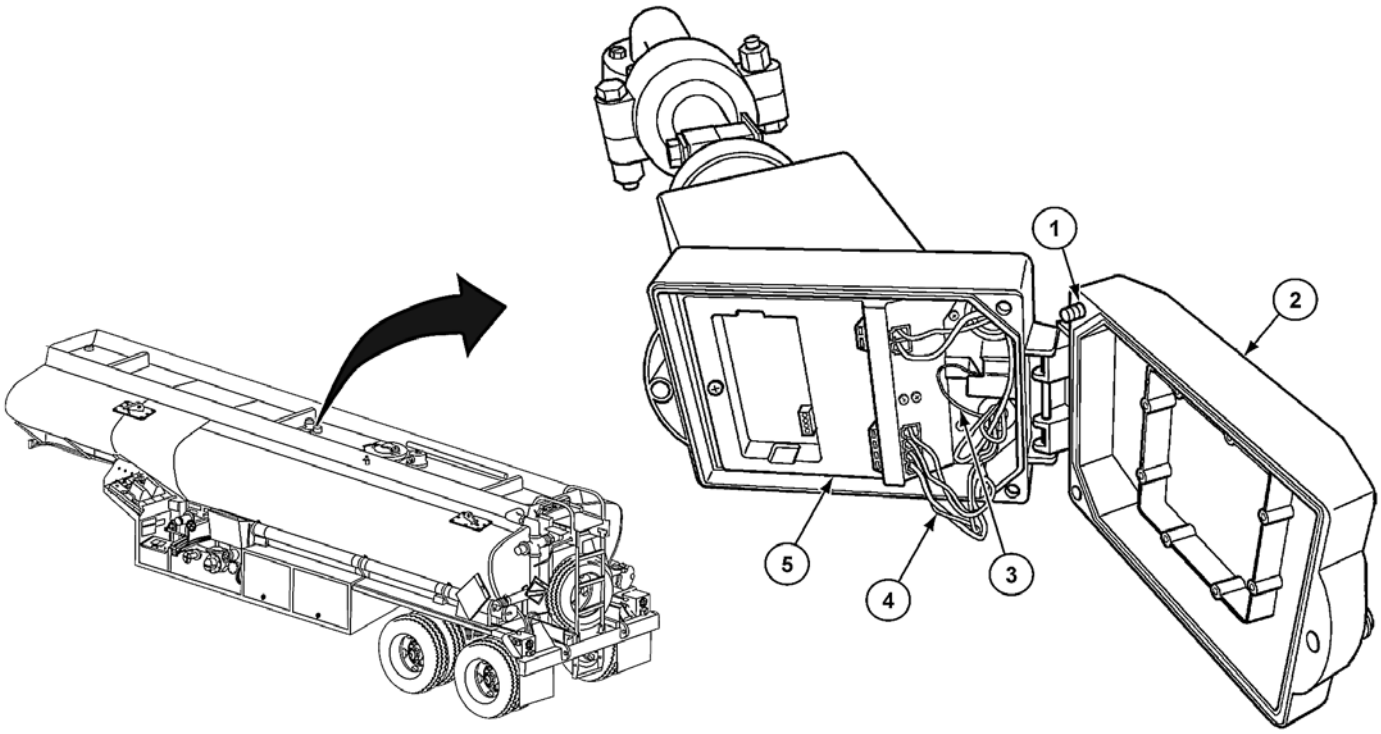
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

NOTE

Tag all wires prior to disconnecting.

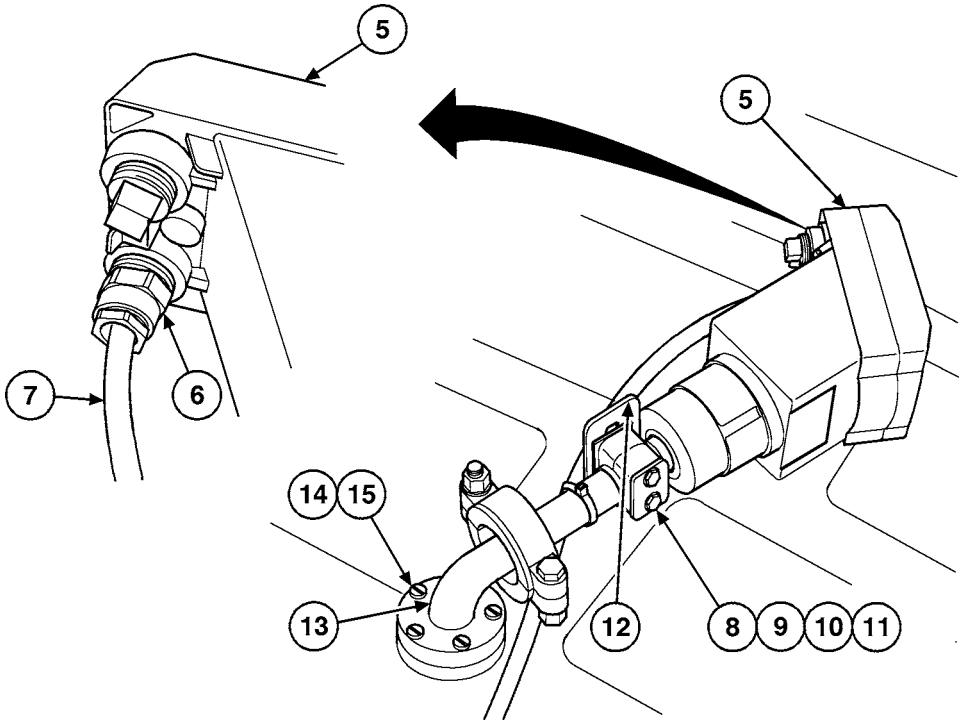
1. Loosen three screws (1) and open cover (2).
2. Disconnect six sensor wires (4) and one ground wire (3) from sensor (5).



3. Unscrew conduit nut (6) and remove conduit (7) from sensor (5).

4. Remove two bolts (8), lockwashers (9), coupling halves (10), and plate (11) from support bracket (12). Discard lockwashers.

5. Remove five screws (14), gasket (15), sensor tube (13), and sensor (5) from semitrailer. Discard gasket.

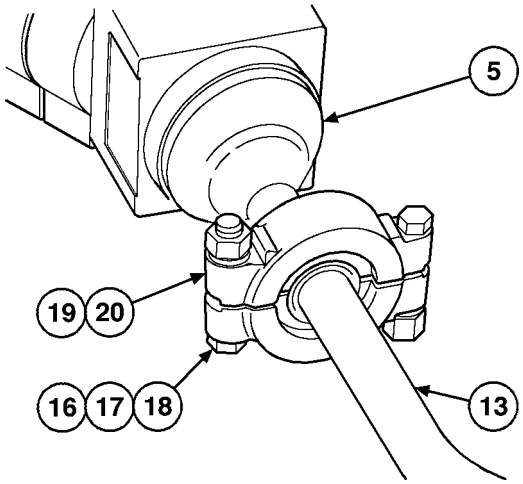


DISASSEMBLY

Remove two nuts (16), washers (17), bolts (18), clamp halves (19), gasket (20), and separate sensor tube (13) from sensor (5). Discard gasket.

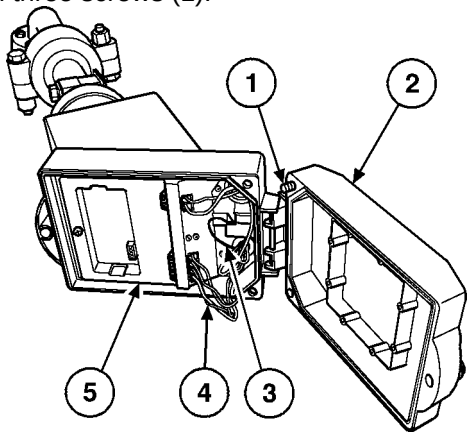
ASSEMBLY

Install new gasket (20), sensor tube (13), sensor (5), clamp halves (19), two bolts (18), washers (17), and nuts (16).



INSTALLATION

1. Install new gasket (15), sensor tube (13), sensor (5), and five screws (14).
2. Install plate (11), coupling halves (10), two new lockwashers (9), and bolts (8) to support bracket (12).
3. Install conduit (7) and conduit nut (6) to sensor (5).
4. Connect six sensor wires (4) and one ground wire (3) to sensor (5).
5. Close cover (2) and tighten three screws (1).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

VAPOR RECOVERY SYSTEM REPLACEMENT 0122 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts References
Compound, antiseize (item 3, WP 0174 00)
Gasket (item 79, WP 0175 00)
Gasket (item 80, WP 0175 00)
Seals (2) (item 129, WP 0175 00)
Self-locking nuts (16) (item 60, WP 0175 00)
WP 0130 00

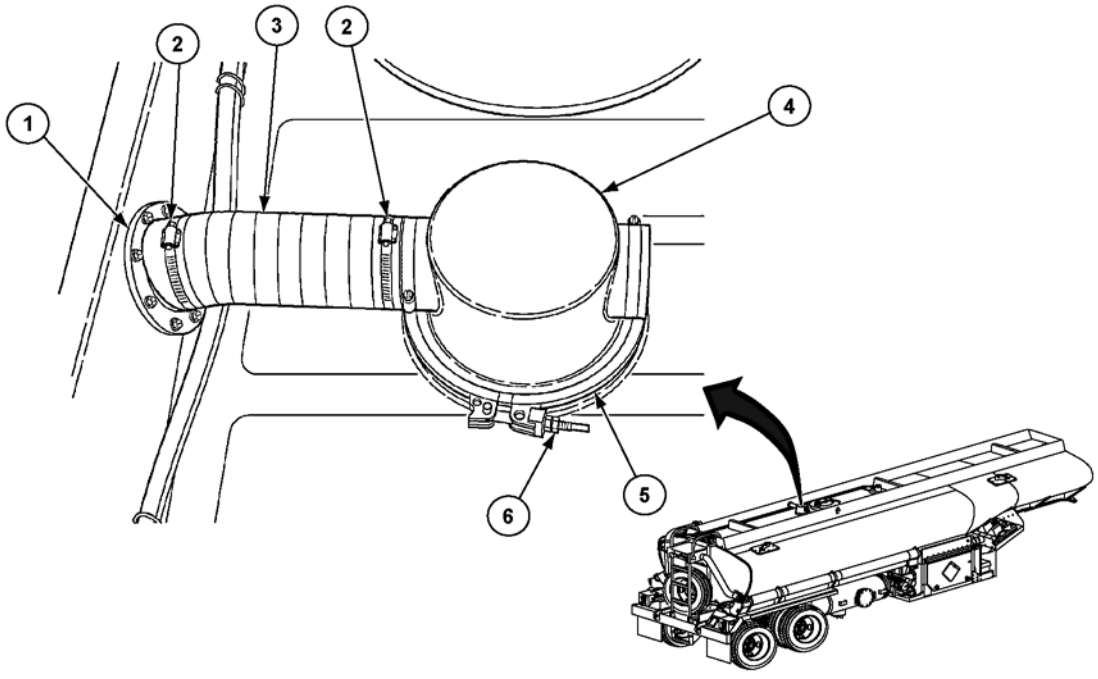
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Brake interlock valve removed (refer to WP 0072 00)
Rear hazard plate, remove (WP 0102 00)

REMOVAL

WARNING

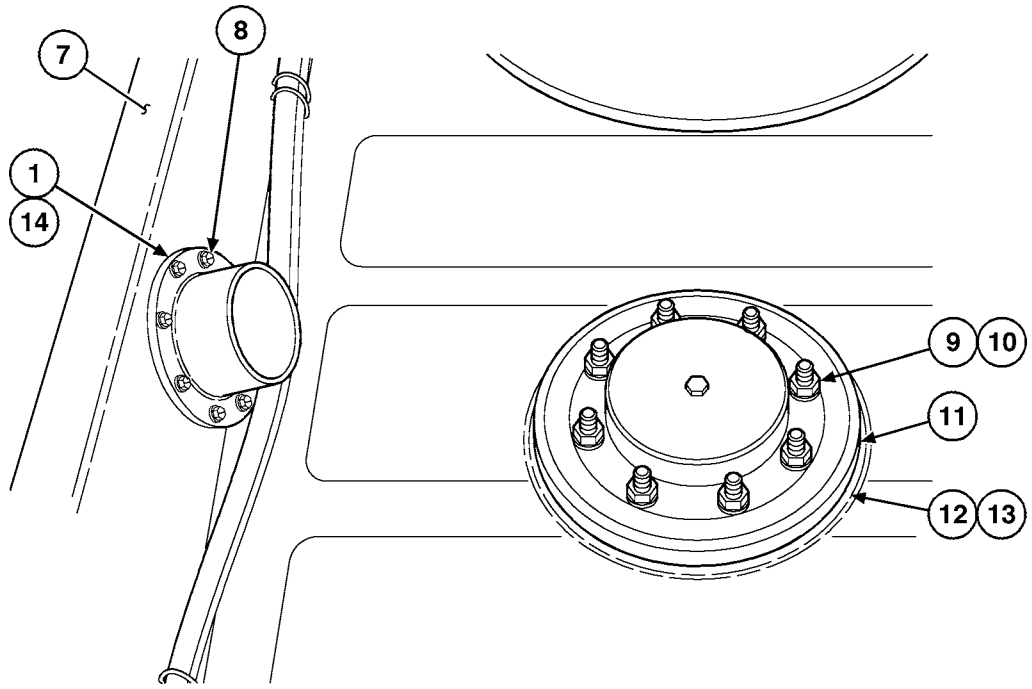
Remove vent cap from either side of vapor recovery tube and open emergency valve A to vent tank.

1. Remove two nuts (6) and band clamp (5) from cap (4).
2. Remove two hose clamps (2) and hose (3) from hose flange (1) and cap (4).



3. Remove eight self-locking nuts (10), washers (9), vent valve (11), and gasket (13) from vent flange (12). Discard self-locking washers and gasket.

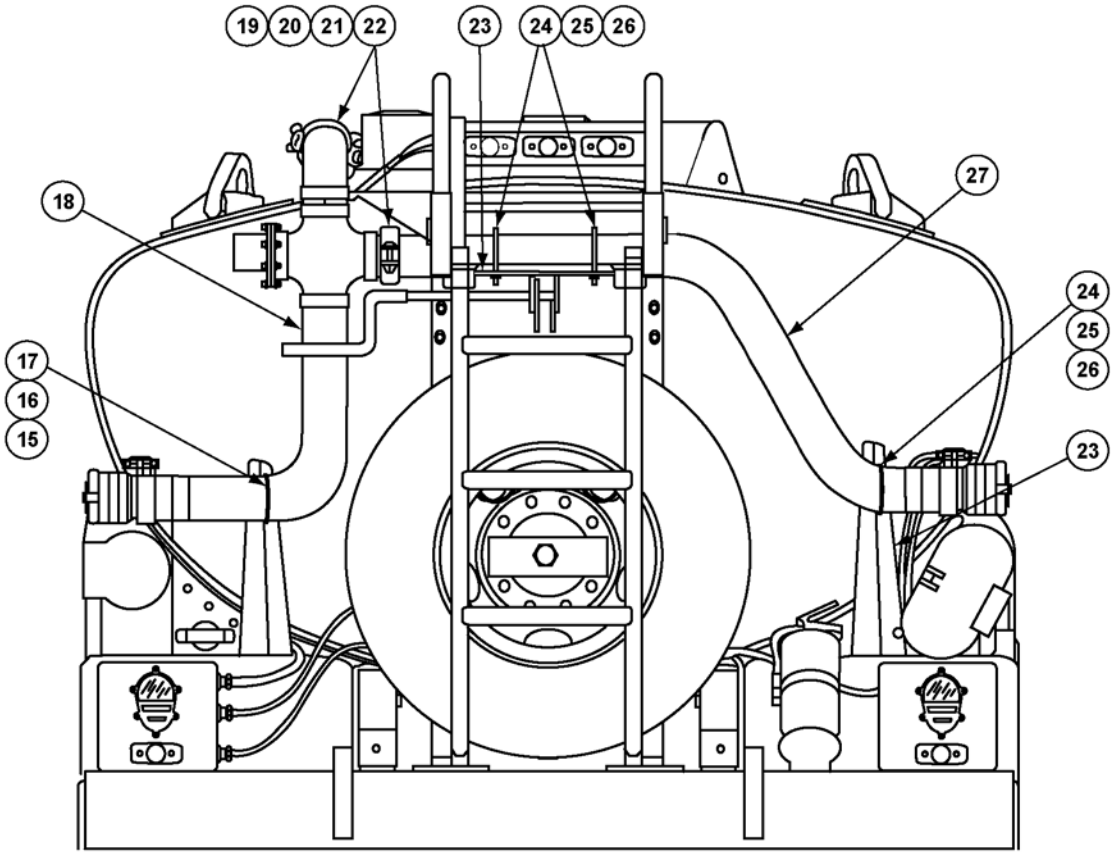
4. Remove eight screws (8), hose flange (1), and gasket (14) from rollover rails (7). Discard gasket.



5. Remove six self-locking nuts (24), washers (25), three U-bolts (26), and pipe (27) from three brackets (23). Discard self-locking nuts.

6. Remove four nuts (19), bolts (20), two seals (21), and split pipe couplings (22) from pipe (18). Discard seals.

7. Remove two self-locking nuts (15), washers (16), U-bolt (17), and pipe (18) from semitrailer. Discard self-locking nuts.



INSTALLATION

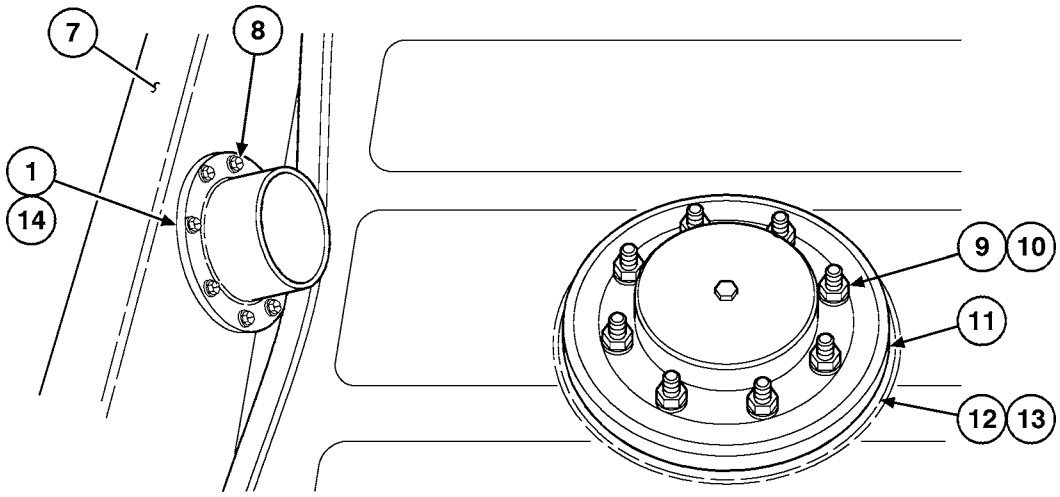
1. Install pipe (18), U-bolt (17), two washers (16), and new self-locking nuts (15) to semitrailer.
2. Install two split pipe couplings (22), new seals (21), four bolts (20), and nuts (19) to pipe (18).
3. Install pipe (27), three U-bolts (26), six washers (25), and new self-locking nuts (24) to three brackets (23).

4. Install hose flange (1), new gasket (14), and eight screws (8) to rollover rails (7).

NOTE

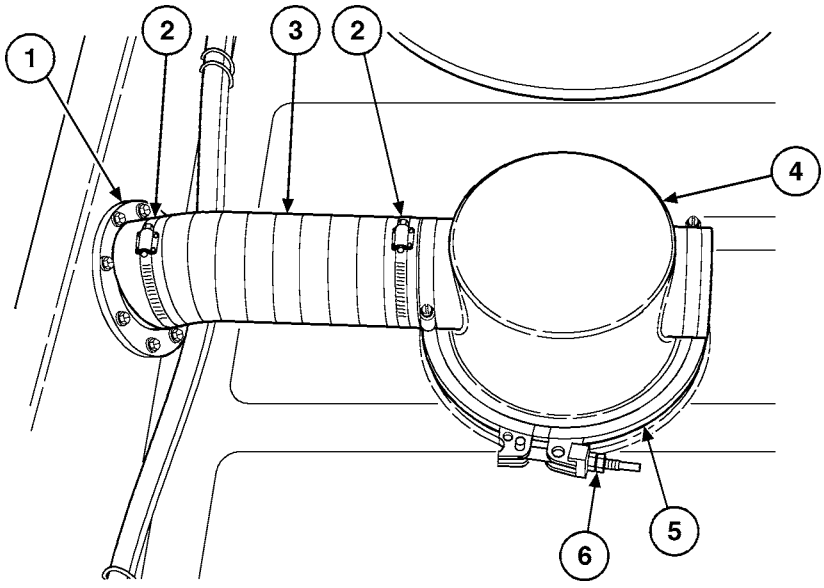
Apply antiseize compound to threads of vent valve mounting studs.

5. Install new gasket (13), vent valve (11), eight washers (9), and new self-locking nuts (10) to vent flange (12).



6. Install hose (3) and hose clamps (2) to flange (1) and cap (4).

7. Install band clamp (5) and two nuts (6) to cap (4).



FOLLOW-ON TASKS

1. Install brake interlock valve (WP 0072 00).
2. Install rear hazard placard (WP 0102 00).
3. Adjust vent valve push rod (WP 0130 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HUBODOMETER REPLACEMENT 0123 00

THIS WP COVERS:
Removal, Installation

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Lockwashers (2) (item 121, WP 0175 00)

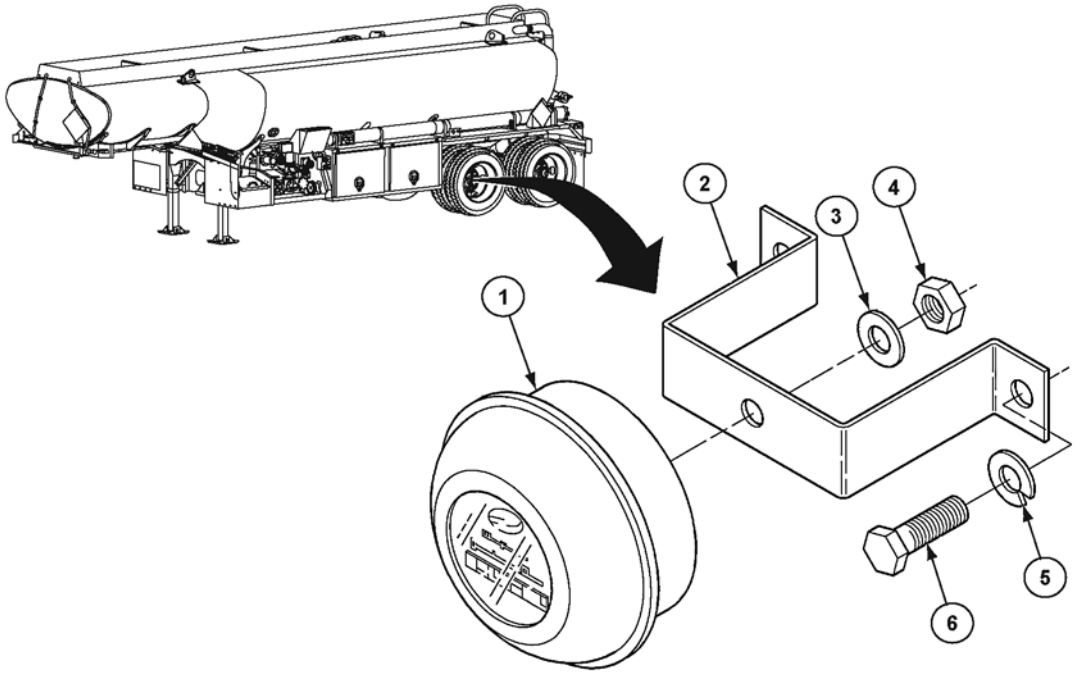
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)

REMOVAL

NOTE

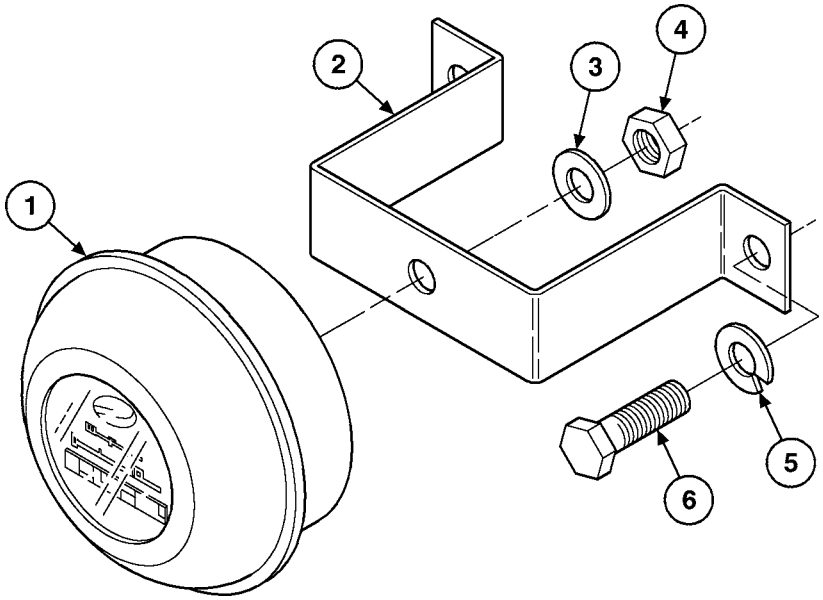
Record mileage and date prior to removing hubodometer.

1. Remove two bolts (6) and lockwashers (5) from bracket (2). Discard lockwashers.
2. Remove nut (4), washer (3), and hubodometer (1) from bracket (2).



INSTALLATION

1. Install hubodometer (1), washer (3), and nut (4) to bracket (2).
2. Install bracket (2), two new lockwashers (5), and bolts (6).



END OF TASK

FILTER/SEPARATOR REPLACEMENT 0124 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Organizational

Materials/Parts
Compound, thread sealing (item 7, WP 0174 00)
Clips (AR) (item 98, WP 0175 00)
Seals (2) (item 143, WP 0175 00)
Self-locking nuts (4) (item 57, WP 0175 00)

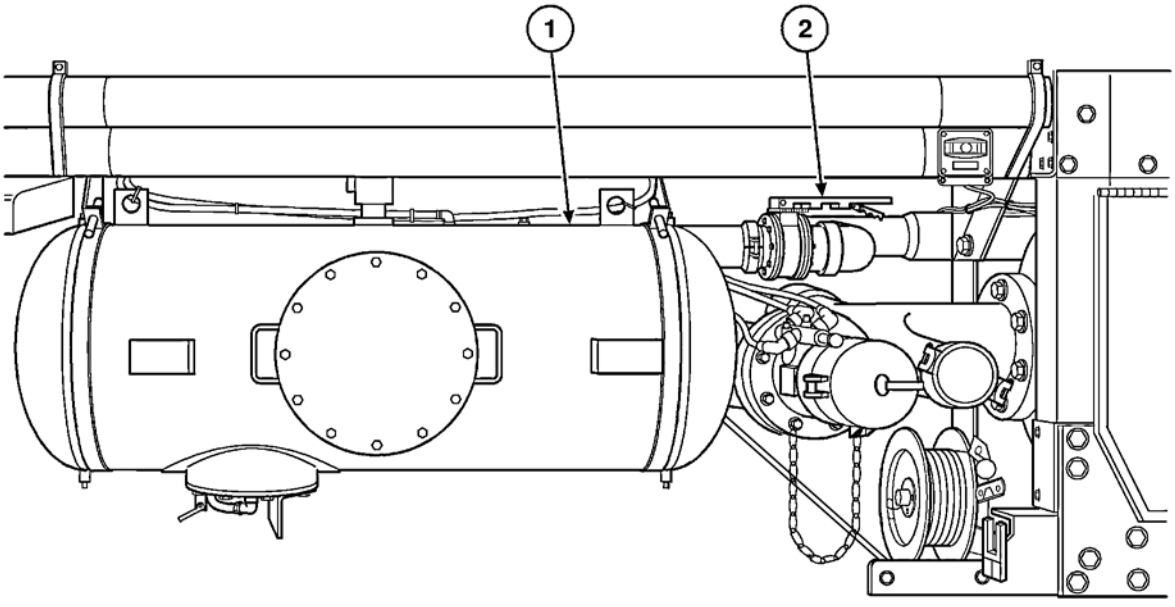
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Fluid regulating (relief) valve removed (refer to WP 0126 00)
N valve sump plate removed (WP 0060 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Forklift truck (item 1, WP 0171 00)
Suitable container (item 1, WP 0171 00)

Personnel Required
Two

REMOVAL

1. Close valve (2) at side of filter/separator (1).



2. Place suitable container under filter/separator (1), remove plug to assist draining, and open valve (13) to drain any residual fuel.

3. Remove four nuts (9), bolts (10), two split couplings (11), and seals (12) from filter/separator (1). Discard seals.

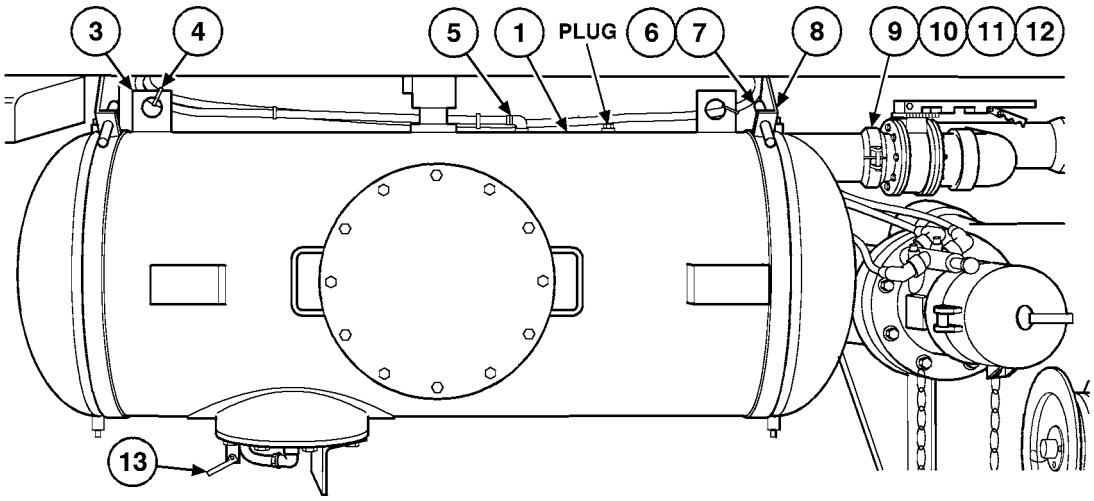
4. Remove four fittings (5) from filter/separator (1).

5. Remove clips (4) from brackets (3) at top of filter/separator (1). Discard clips.

WARNING

Position forklift under filter/separator to support weight. Failure to follow this warning could result in injury in personnel or damage to equipment.

6. Remove four self-locking nuts (6), washers (7), two mounting brackets (8), and filter/separator (1) from semitrailer. Discard self-locking nuts.



INSTALLATION

1. Install filter/separator (1), two mounting brackets (8), four washers (7), and new self-locking nuts (6) to semitrailer.

2. Install four fittings (5) on filter/separator (1).

3. Install two new seals (12), split couplings (11), four bolts (10), and nuts (9) to filter/separator (1).

4. Install clips (4) to brackets (3) at top of filter/separator (1).

NOTE

Apply thread sealing compound to threads of plug.

5. Close valve (13) and install plug.

FOLLOW-ON TASKS

1. Install N valve sump plate (WP 0060 00).
2. Install fluid regulating (relief) valve (WP 0126 00).
3. Reconnect negative battery terminal (WP 0007 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FILTER/SEPARATOR FILTER ELEMENTS MAINTENANCE 0125 00

THIS WP COVERS:
Removal, Disassembly, Assembly, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Compound, thread sealing (item 7, WP 0174 00)
Antipilferage seals (2) (item 5, WP 0175 00)
Gasket (item 2, WP 0175 00)
Gaskets (5) (item 8, WP 0175 00)
Gaskets (5) (item 9, WP 0175 00)
Lockwashers (12) (item 26, WP 0175 00)
Lockwashers (7) (item 27, WP 0175 00)

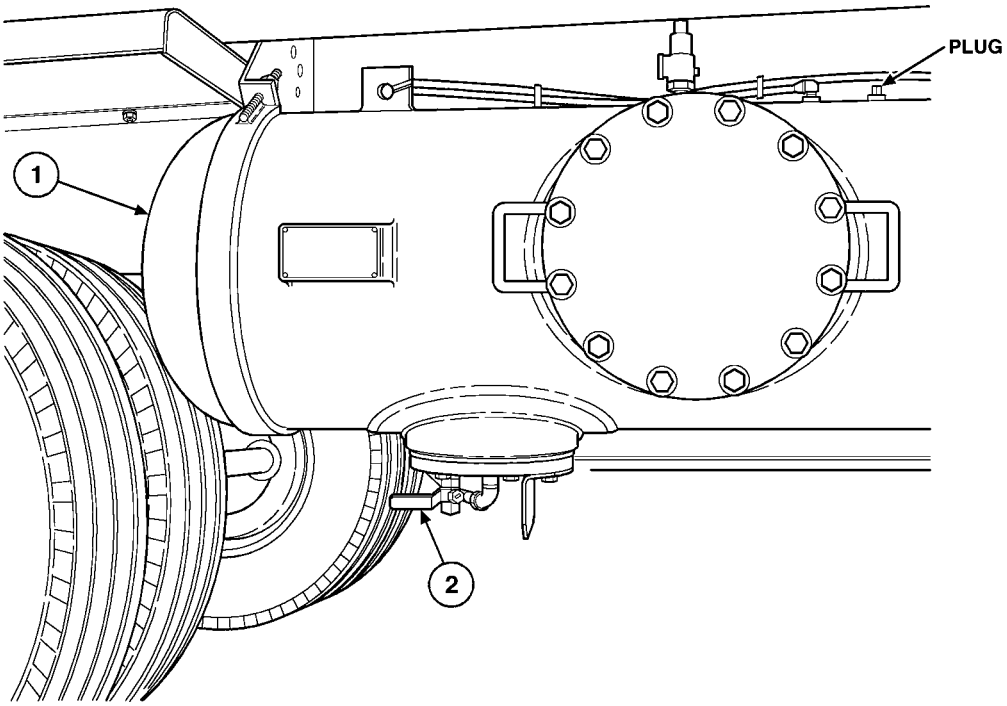
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

Personnel Required
Two

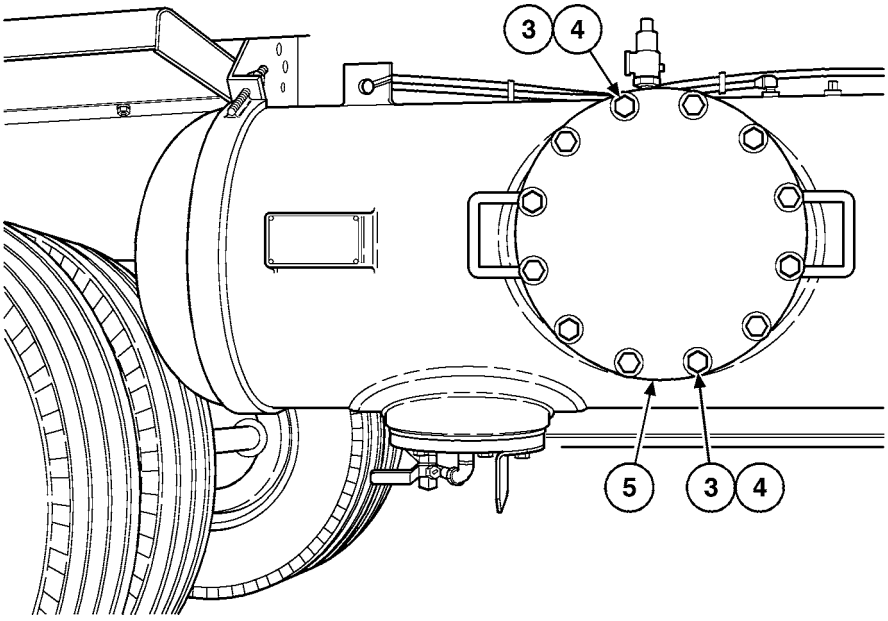
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
All fuel dispensing valves closed (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

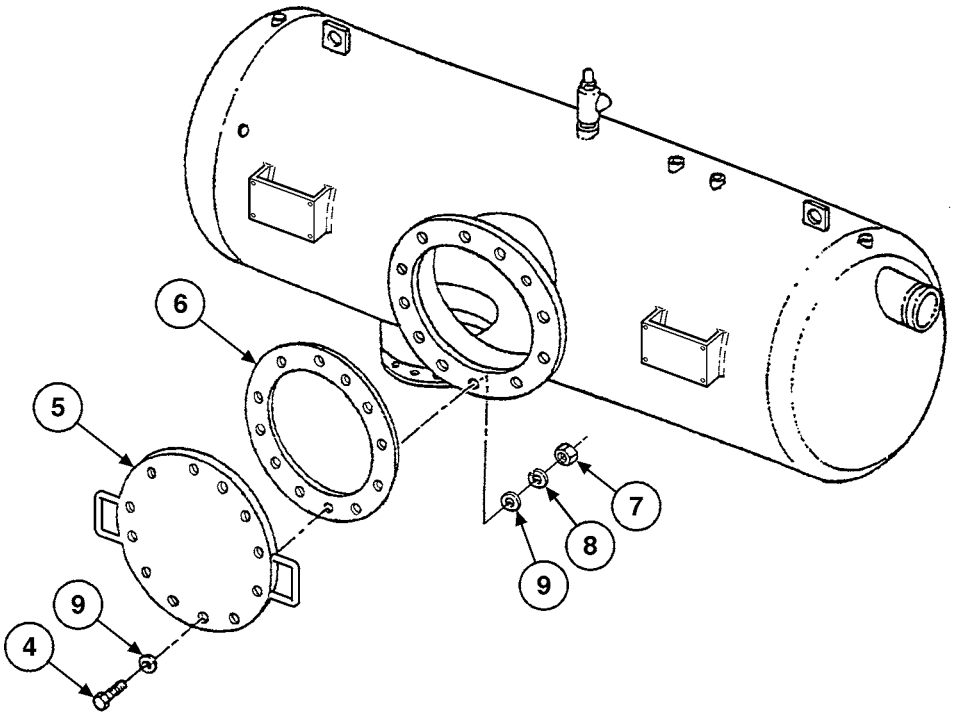
1. Position suitable container in place under filter/separator (1), remove plug to assist draining, open manual drain valve N (2), and drain any fluid from filter/separator (1). Close manual valve N (2) after filter/separator (1) is drained.



2. Remove two antipilferage seals (3) from four drilled bolts (4) at top and bottom of access cover (5). Discard seals.

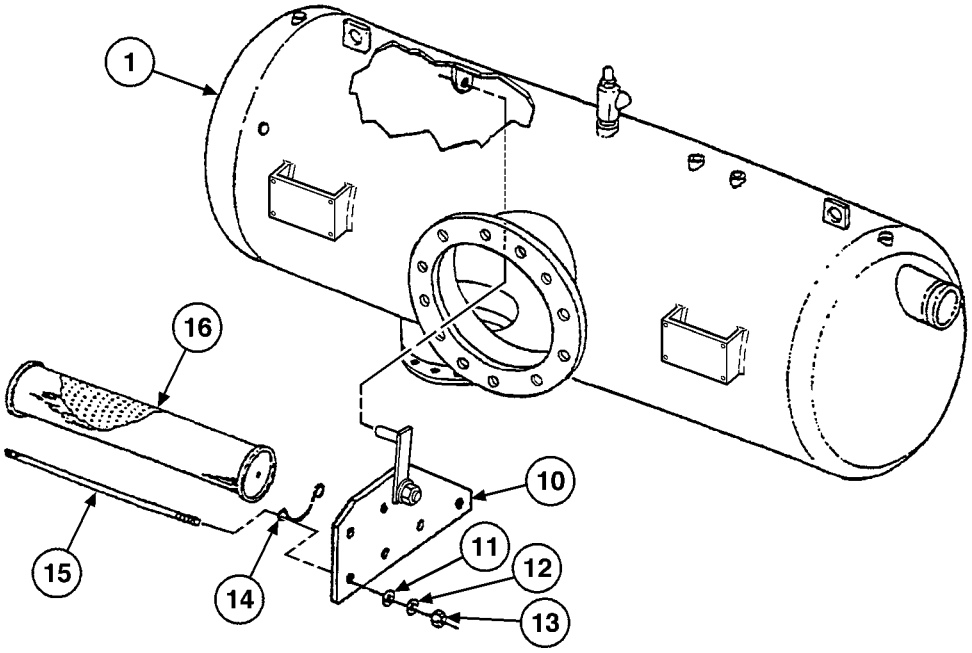


3. Remove 12 nuts (7), 24 washers (9), 12 lockwashers (8), bolts (4), and gasket (6) from access cover (5). Discard lockwashers and gasket.

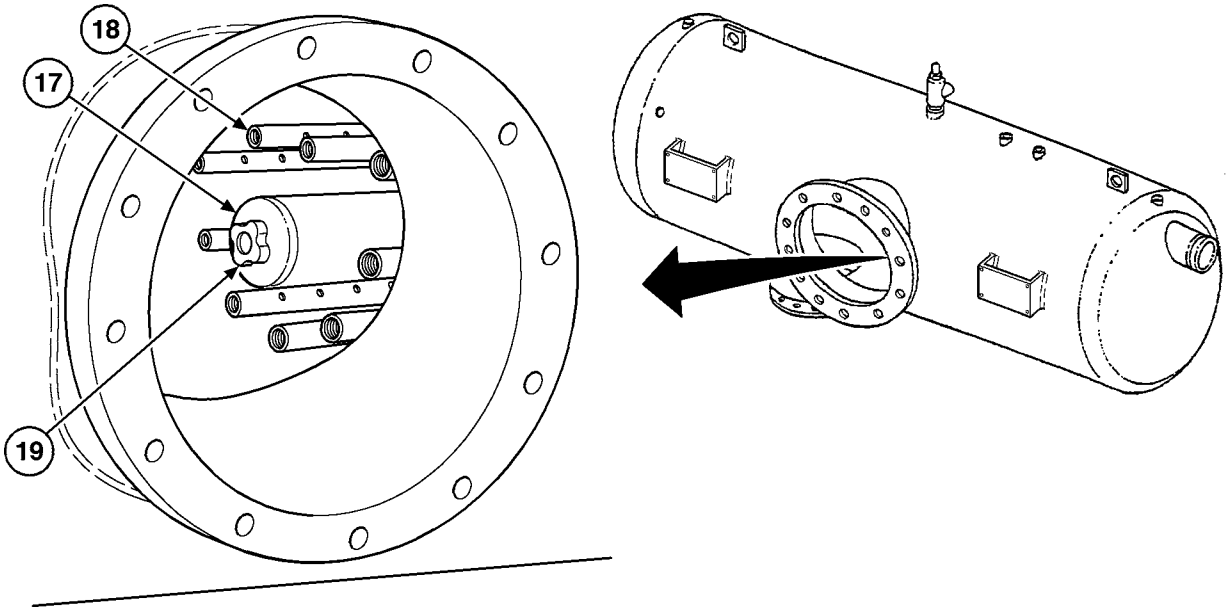


4 At left side of filter/separator (1), remove seven nuts (13), lockwashers (12), washers (11), and retaining plate (10) from seven support rods (15). Discard lockwashers.

5. Remove five spring tension clips (14) and filter assemblies (16) from seven support rods (15).

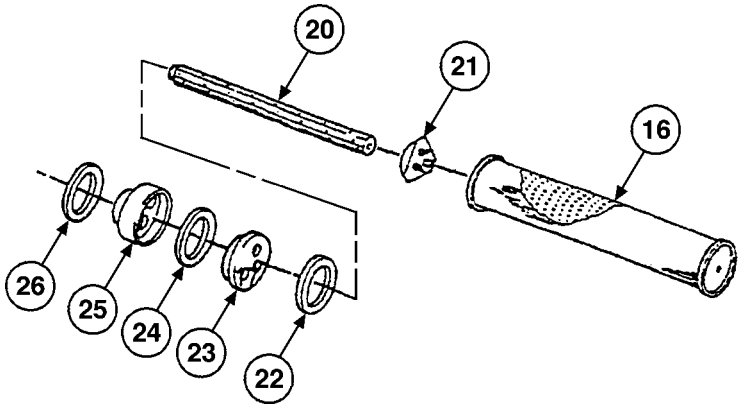


6. At right side of filter/separator (1), remove 15 retainer nuts (19) from 15 filter elements (17) and slide elements off 15 guide pipes (18). Discard elements (17) IAW local HAZMAT Procedures.



DISASSEMBLY

1. Remove gasket (26), adapter (25), gasket (24), go-no go fuse mounting plate (23), gasket (22), three go-no go fuses (20), and fuse bracket (21) from filter assembly (16). Discard gaskets and go-no go fuses IAW local HAZMAT Procedures. Clean and replace filter assembly (16) if damaged.

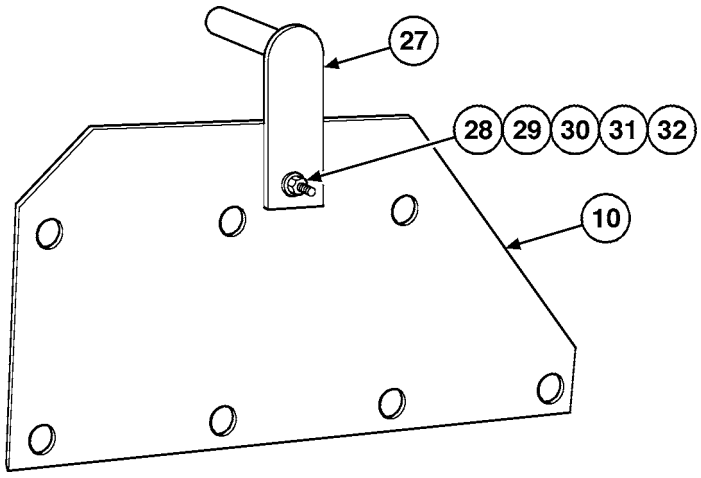


2. Repeat step 1 for four remaining filter assemblies (16).

NOTE

Step 3 is not required if full assembly is being reused.

3. Remove nut (28), lockwasher (29), washer (30), guide bar (27), washer (31), and bolt (32) from retaining plate (10). Discard lockwasher.



CLEANING/INSPECTION

1. Rinse inside of filter separator with a clean gallon of the fuel being carried in tanker.
2. Wipe out inside of filter separator and all components being reused with a clean lint free cloth.
3. Inspect for damaged support rods and guide pipes.
4. Inspect water detection float for damage and free movement.

ASSEMBLY

NOTE

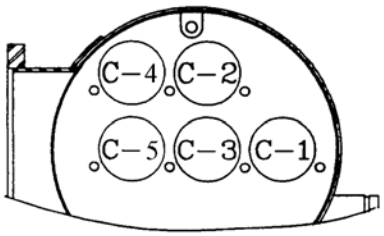
Step 1 is not required if full assembly is being reused.

1. Install bolt (32), washer (31), guide bar (27), washer (30), new lockwasher (29), and nut (28) to retaining plate (10).
2. Install gasket (24) and go- no go fuse mounting plate (23) into adapter (25).
3. Lubricate O-ring on bottom of three new go-no go fuses (20) and mount mounting plate (23).
4. Install gasket (22) over new go-no go fuses (20) and push into adapter (25).
5. Install fuse bracket (21) onto go-no go fuses (20).
6. Install fuse canister (16) over go-no go fuses (20).
7. Repeat steps 2 through 6 for four remaining filter assemblies (16).

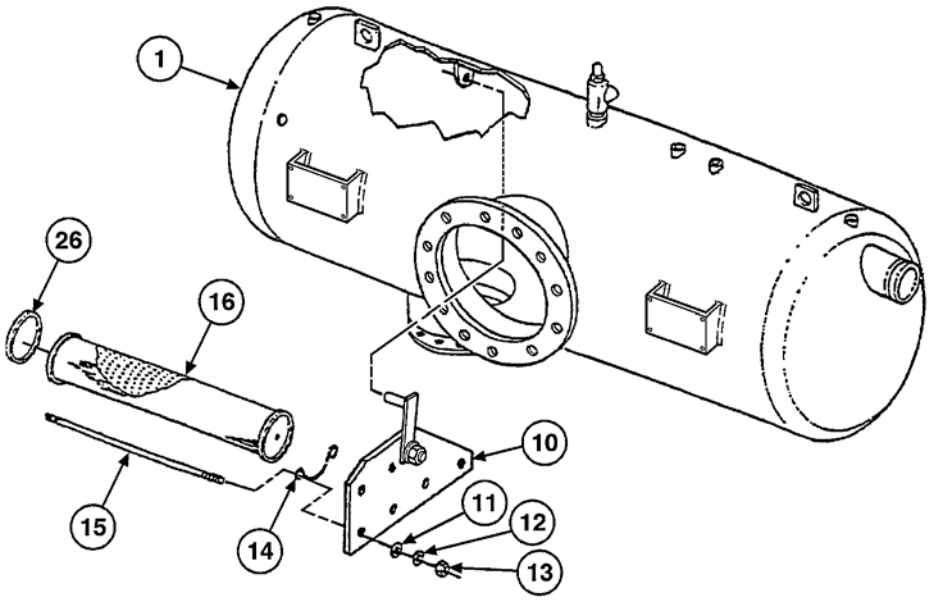
INSTALLATION

1. Install gasket (26) on end of filter assembly (16).

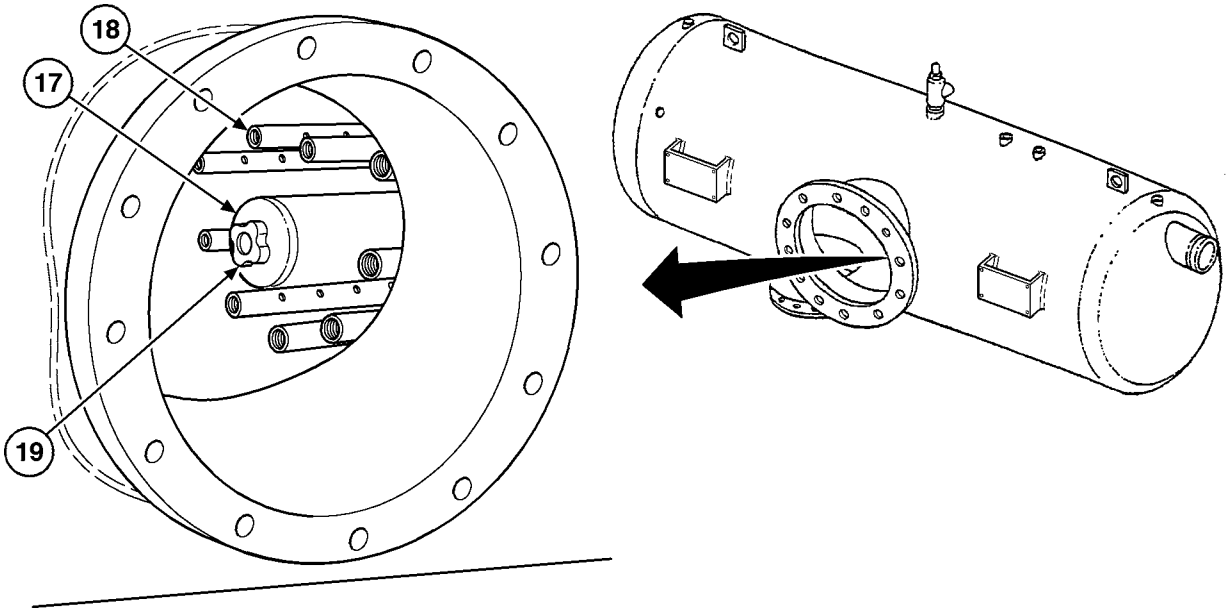
2. Install five filter assemblies (16) and spring tension clips (14) in sequence shown below onto seven support rods (15).



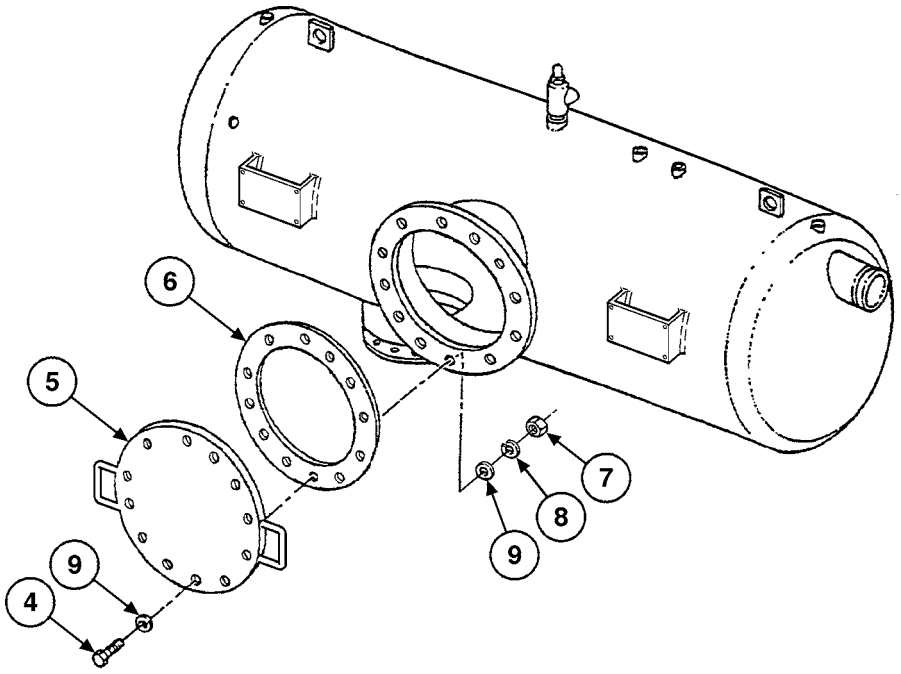
3. Install retaining plate (10), seven washers (11), new lockwashers (12), and nuts (13) to seven support rods (15).



4. Install 15 retainer nuts (19) to 15 filter elements (17) and slide filter elements (17) onto 15 guide pipes (18).



5. Install new gasket (6), 12 bolts (4), new lockwashers (8), 24 washers (9), and 12 nuts (7) to access cover (5).

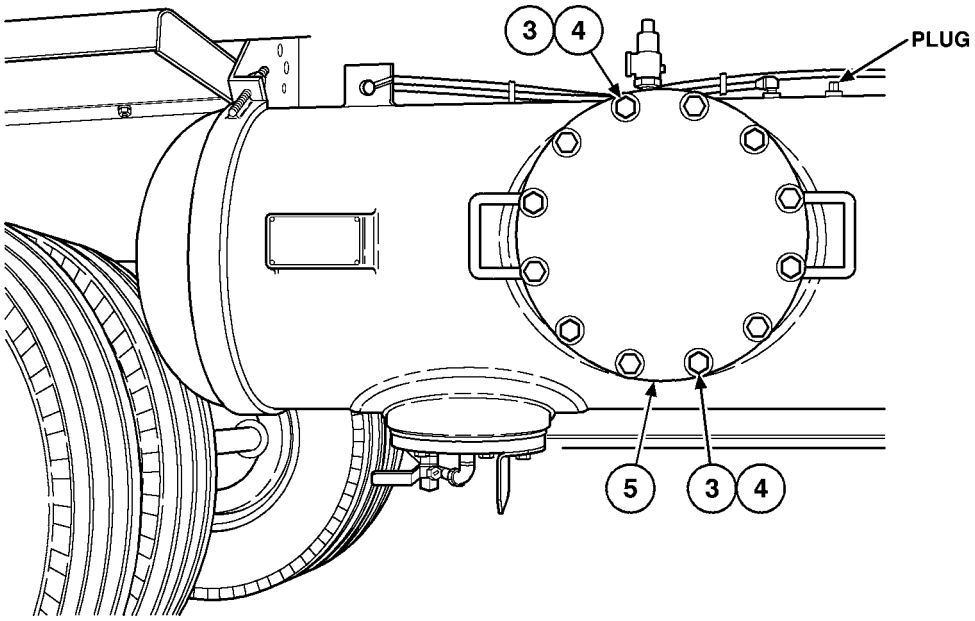


6. Install two new antipilferage seals (3) to four drilled bolts (4) at top and bottom of access cover (5).

NOTE

Apply thread sealing compound to threads of plug.

7. Install plug.



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FLUID REGULATING (RELIEF) AND FUEL SAMPLING VALVE REPLACEMENT 0126 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Compound, thread sealing (item 7, WP 0174 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
All valves closed

RELIEF VALVE REMOVAL

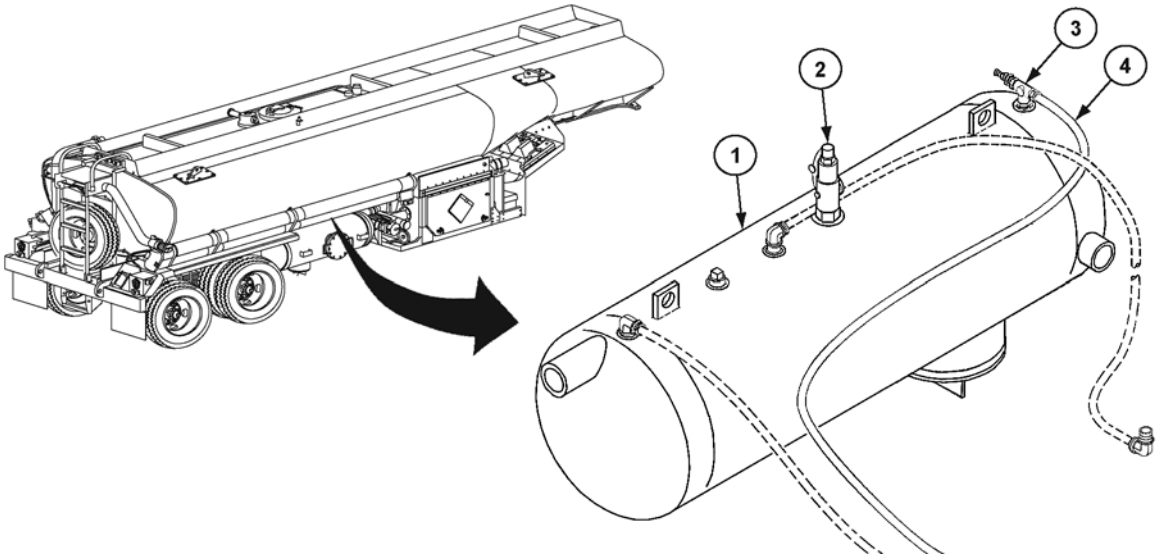
WARNING

Read and observe all safety precautions listed in the Warning Summary before performing any maintenance on filter separator. Make sure semitrailer is grounded to an approved (earth) ground and is safe to proceed. Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.

NOTE

Place suitable container under filter/separator.

1. Remove fluid regulating valve (2) from top of filter separator (1).
2. Plug opening in top of filter separator (1) with plug from cap and plug set.



RELIEF VALVE INSTALLATION

1. Remove plug from opening in top of filter separator (1).

NOTE

Apply thread sealing compound to threads of valve.

2. Install fluid regulating valve (2) in top of filter separator (1).

FUEL SAMPLING VALVE REMOVAL

1. Disconnect hose (4) from fuel sampling valve (3).
2. Remove fuel sampling valve (3) from top of filter separator (1).
3. Plug opening in top of filter separator (1) with plug from cap and plug set.

FUEL SAMPLING VALVE INSTALLATION

1. Remove plug from opening in top of filter separator (1).

NOTE

Apply thread sealing compound to threads of valve.

2. Install fuel sampling valve (3) in top of filter separator (1).
3. Connect hose (4) to fuel sampling valve (3).

FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

VOLUMETRIC METER AND PIPING REPLACEMENT 0127 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Gaskets (4) (item 1, WP 0175 00)
Lockwashers (22) (item 122, WP 0175 00)
Seals (2) (item 75, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

Personnel Required
Two

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
P or R valve removed (refer to WP 0129 00)

REMOVAL

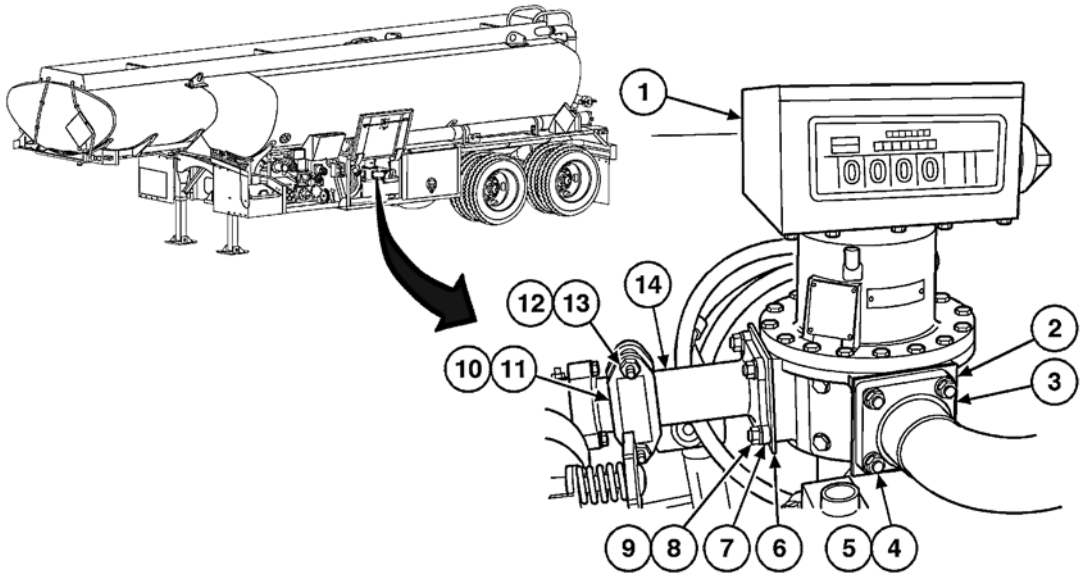
NOTE

- **There are two volumetric meters assemblies and they are both replaced the same way. This procedure replaces one volumetric meter assembly.**
- **Place a drain pan or a suitable container under the split coupling flanges and the meter assembly during removal.**

1. Remove two nuts (12), bolts (13), split coupling (10), and seal (11) from pipe (14). Discard seal.

2. Remove four nuts (8), lockwashers (9), flange (7), and gasket (6) from volumetric meter assembly (1). Discard lockwashers and gasket.

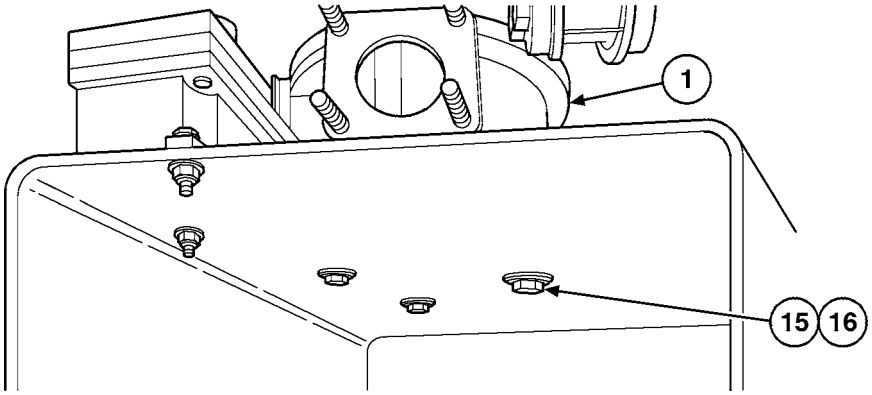
3. Remove four nuts (5), lockwashers (4), flange (3), and gasket (2) from meter assembly (1). Discard lockwashers and gasket.



WARNING

Volumetric meter assembly is very heavy. Get help to lift meter assembly from semitrailer.

4. Remove three bolts (15), lockwashers (16), and meter assembly (1) from semitrailer. Discard lockwashers.



INSTALLATION

WARNING

Volumetric meter assembly is very heavy. Get help to lift meter assembly on to semitrailer.

1. Install meter assembly (1), three new lockwashers (16), and bolts (15) to semitrailer.
2. Install new gasket (2), flange (3), four new lockwashers (4), and nuts (5) to meter assembly (1).
3. Install new gasket (6), flange (7), four new lockwashers (9), and nuts (8) to meter assembly (1).
4. Install new seal (11), split coupling (10), two bolts (13), and nuts (12) to pipe (14).

FOLLOW-ON TASKS

1. Install P or R valve (WP 0129 00).
2. Reconnect negative battery terminal (WP 0007 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

G AND M VALVES REPLACEMENT 0128 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Seals (4) (item 80, WP 0175 00)
Self-locking nuts (16) (item 87, WP 0175 00)

References
WP 0133 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

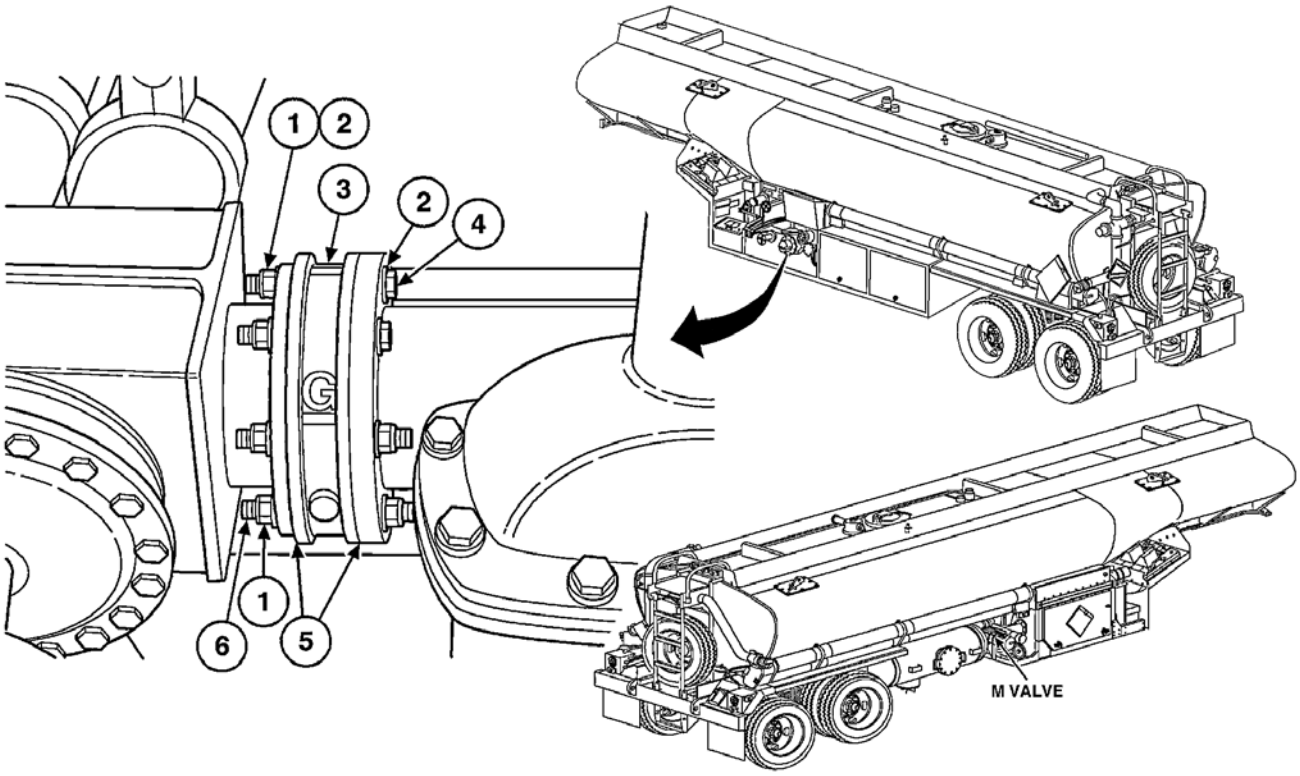
REMOVAL

NOTE

- **The G & M valves are both replaced the same way. This procedure replaces the G valve.**
- **Place a suitable container under valve prior to removal.**
- **It may be necessary to loosen piping control components (refer to WP 0133 00) prior to removal of valve.**

G AND M VALVES REPLACEMENT—Continued **0128 00**

1. Remove 8 self-locking nuts (1), 16 washers (2), 6 bolts (4) and 2 studs (6), 2 seals (5), and valve (3). Discard self-locking nuts and seals.



INSTALLATION

1. Install valve (3), 2 new seals (5), 6 bolts (4) and 2 studs (6), 16 washers (2), and 8 new self-locking nuts (1).

FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Tighten any loosened components (WP 0133 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

P AND R VALVES REPLACEMENT 0129 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Gaskets (2) (item 81, WP 0175 00)
Lockwashers (8) (item 91, WP 0175 00)
Seals (4) (item 85, WP 0175 00)
Self-locking nuts (12) (item 93, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

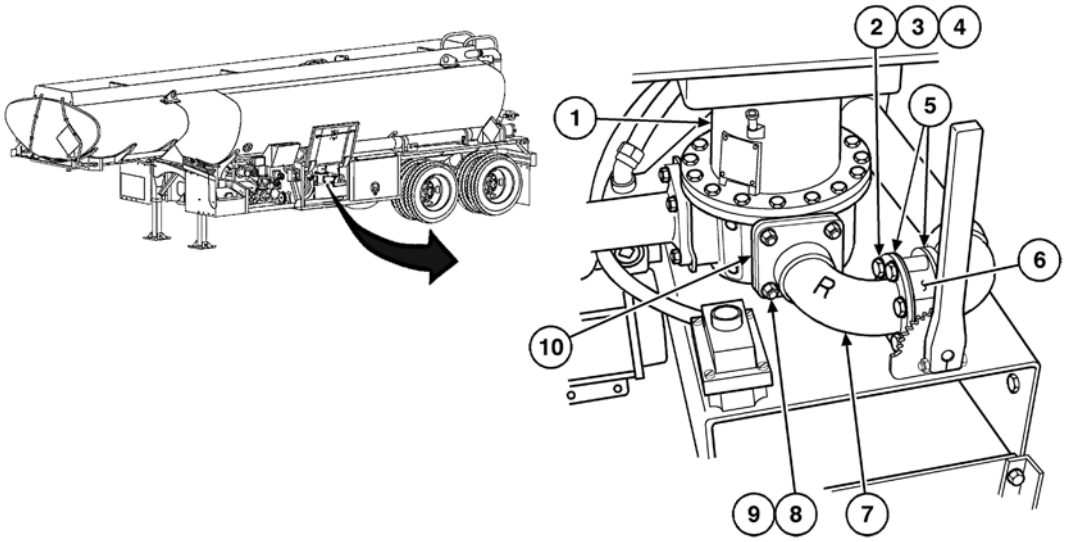
REMOVAL

NOTE

There are two valves and they are replaced the same way. This procedure covers the R valve.

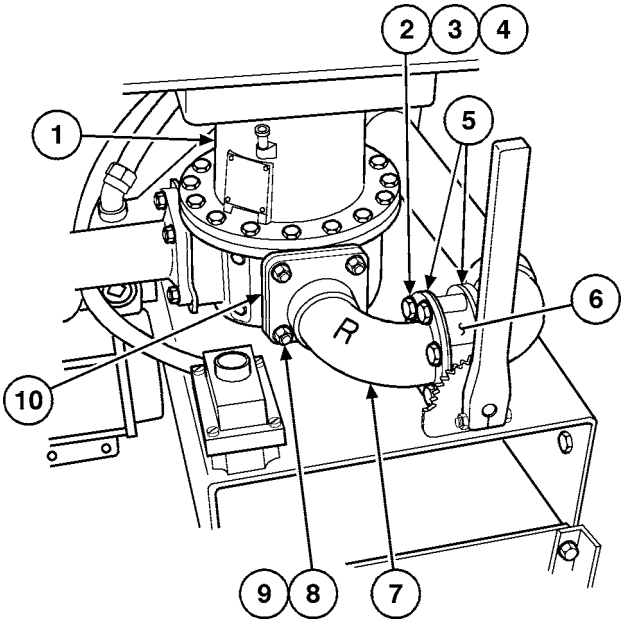
1. Remove four nuts (9), lockwashers (8), gasket (10), and pipe (7) from meter (1). Discard lockwashers and gasket.

2. Remove 6 self-locking nuts (2), 12 washers (3), 6 bolts (4), 2 seals (5), and valve (6). Discard self-locking nuts and seals.



INSTALLATION

1. Install valve (6), 2 new seals (5), 6 bolts (4), 12 washers (3), and 6 new self-locking nuts (2).
2. Install pipe (7), new gasket (10), four new lockwashers (8), and nuts (9) to meter (1).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

EMERGENCY VALVE MAINTENANCE 0130 00

THIS WP COVERS:
Removal, Installation, Adjustment, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Compound, antiseize (item 3, WP 0174 00)
Gaskets (2) (items 29 and 104, WP 0175 00)
Seal (item 105, WP 0175 00)
Self-locking nuts (8) (item 24, WP 0175 00)
O-ring (items 3 and 14 WP 0271 00)
Preformed packing (item 9 WP 0271 00)
Wipe ring (item 10 WP 0271 00)
Seal (item 41 WP 0271 00)
Gasket (item 42 WP 0271 00)

References
WP 0139 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

Personnel Required
Two

Equipment Conditions
Semitrailer disconnected from prime mover (refer to
WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Fuel tank drained (refer to WP 0007 00)

EMERGENCY VALVE MAINTENANCE—Continued **0130 00**

REMOVAL

NOTE

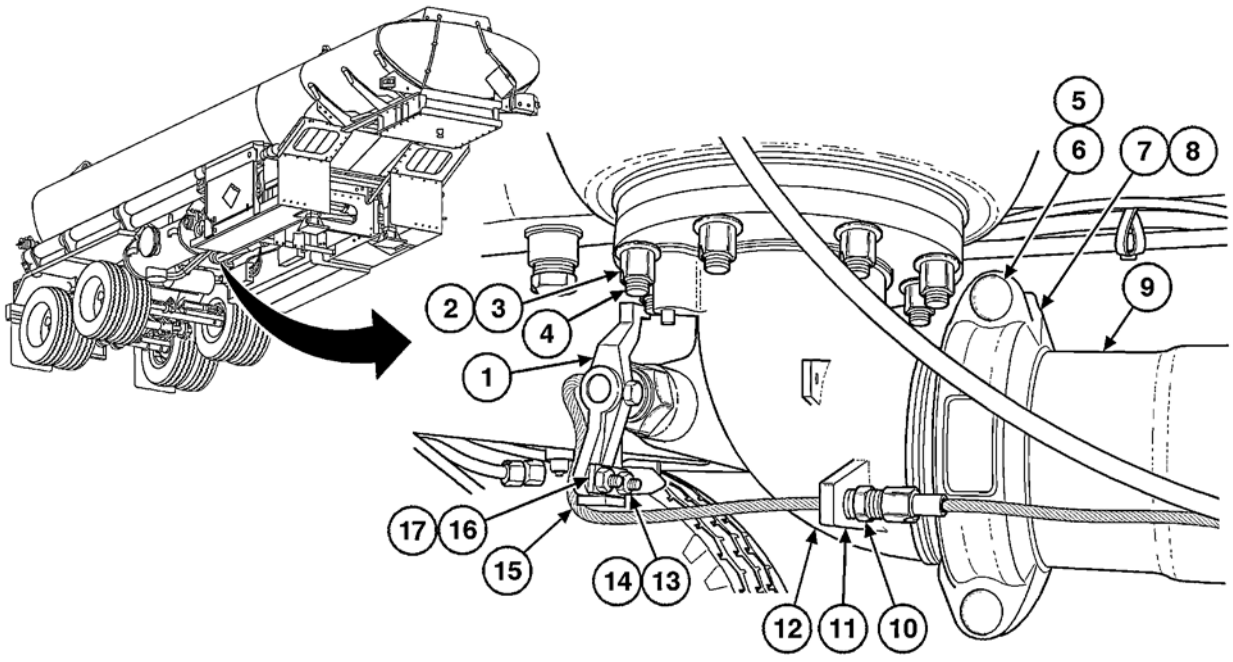
Place suitable container under emergency valve prior to removal.

1. Remove two nuts (13), fuse plate (16), reinforcing plate (17) U-bolt (14), and cable (15) from lever (1).
2. Remove fitting (10), and cable (15) from cable support (11).
3. Remove split coupling (7), two bolts (5), nuts (6), and seal (8) from pipe (9). Discard seal.

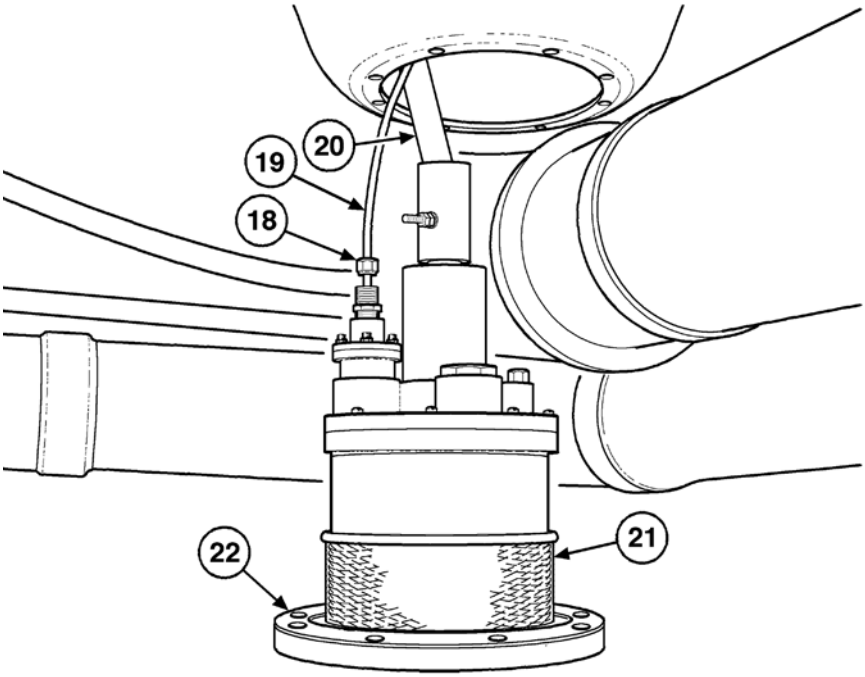
CAUTION

- **Assistance may be necessary when removing elbow and emergency valve.**
- **Elbow and emergency valve may not come down together. If they do not pressure MUST be applied to keep the emergency valve in place until it is removed.**

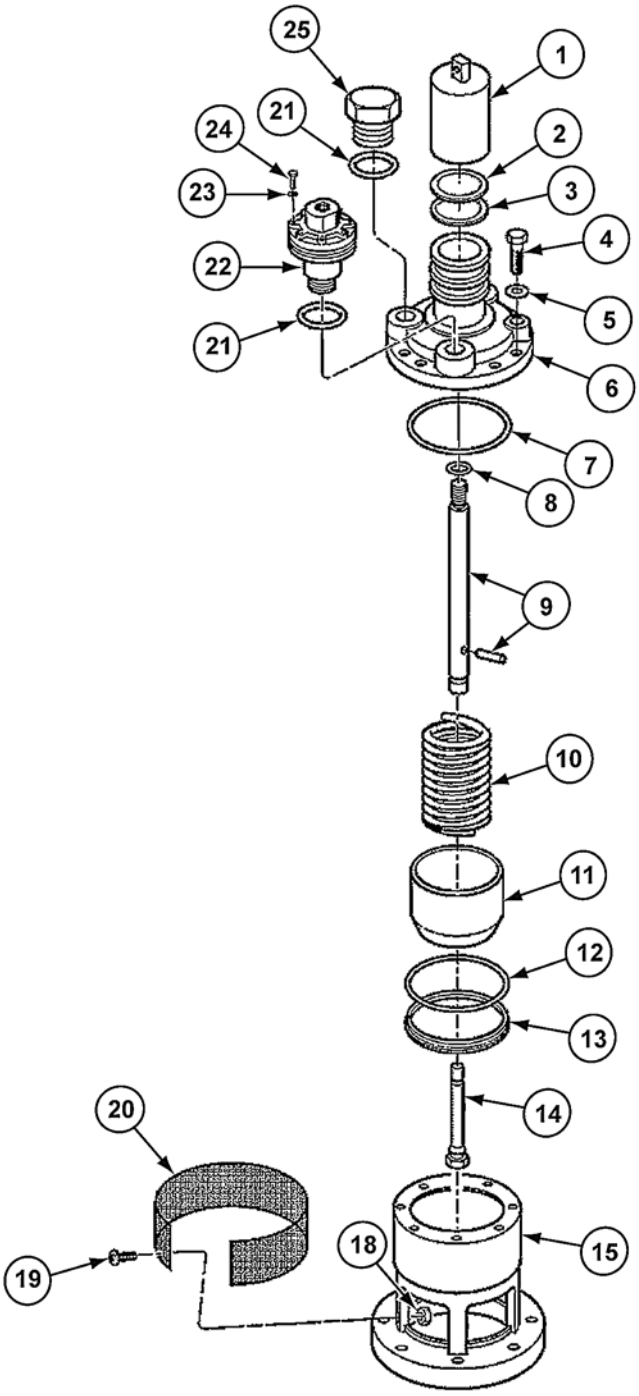
4. Remove eight self-locking nuts (2), washers (3), and elbow (12) from studs (4). Discard self-locking nuts.



5. Lower internal valve (21) to access line (19) and fitting (18).
6. Remove line (19) and fitting (18) from internal valve (21).
7. Remove internal valve (21), push rod (20), and two gaskets (22). Discard gaskets.



DISASSEMBLY



EMERGENCY VALVE MAINTENANCE—Continued **0130 00**

1. Remove the six screws (4) and washers (5) from the bonnet (6).
2. Rotate the bonnet slightly in either direction and pull it from the body (15).

3. Hold spring pin (9) and remove rod (14) by unscrewing it.

CAUTION

Do NOT drop piston while removing it.

4. Remove piston (11) and spring (10).

5. Remove o-ring (7) from bonnet (6). Discard o-ring.

6. Hold spring pin (9) while unscrewing housing (1). Remove housing (1) from bonnet (6).

7. Remove wipe ring (2) and quad-ring (3) from bonnet (6). Discard wipe ring and quad-ring.

8 Remove o-ring (12) and seal (13) from body (15). Discard o-ring and seal.

NOTE

Step 9 is not required unless screen is damaged.

9. Remove screws (14), nuts (18), and screen (20).

NOTE

Step 10 is only required if plug is leaking.

10. Remove plug (25) and gasket (21) from bonnet (6). Discard gasket.

11. Unscrew pilot valve (22) and gasket (21) from bonnet (6). Discard gasket.

12. Remove o-ring (26). Discard o-ring.

13. Remove screw (33), nut (28), and pull lever (32) from valve assembly.

14. Remove bushing (30), o-ring (29), and quad-ring (31) from valve. Discard o-ring and quad-ring.

15. Rotate shaft assembly (36) counter-clockwise to line up pins on shaft assembly to allow it to be

removed from the body.

NOTE

Steps 16-17 are only required if parts are damaged or leaking.

16. Remove pins (35) from shaft assembly (36).

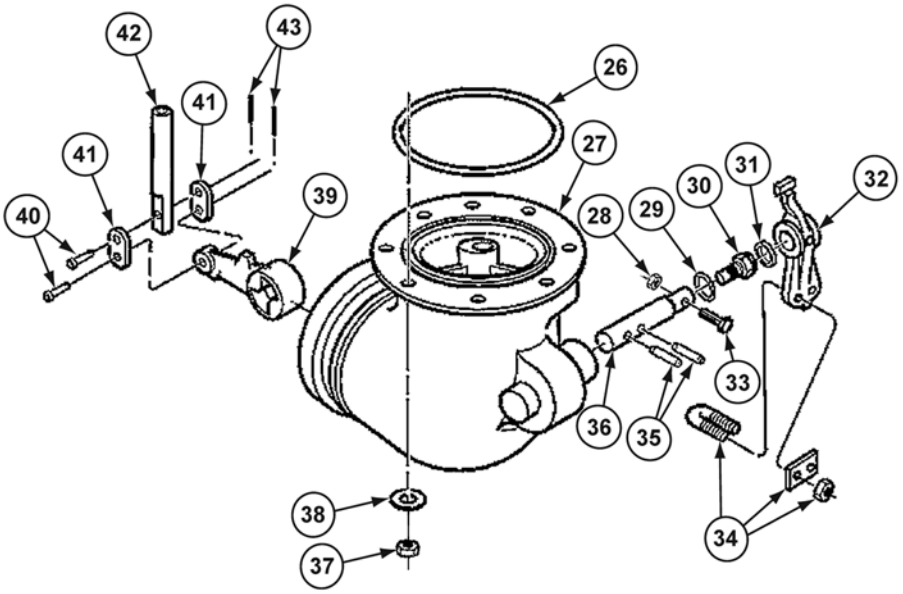
17. Remove cotter pins (43), links (40 and 41), and cam (39). Discard cotter pins.

Inspection

1. Inspect all components for scratches and damage that may cause leaks.

2. Replace any damaged components.

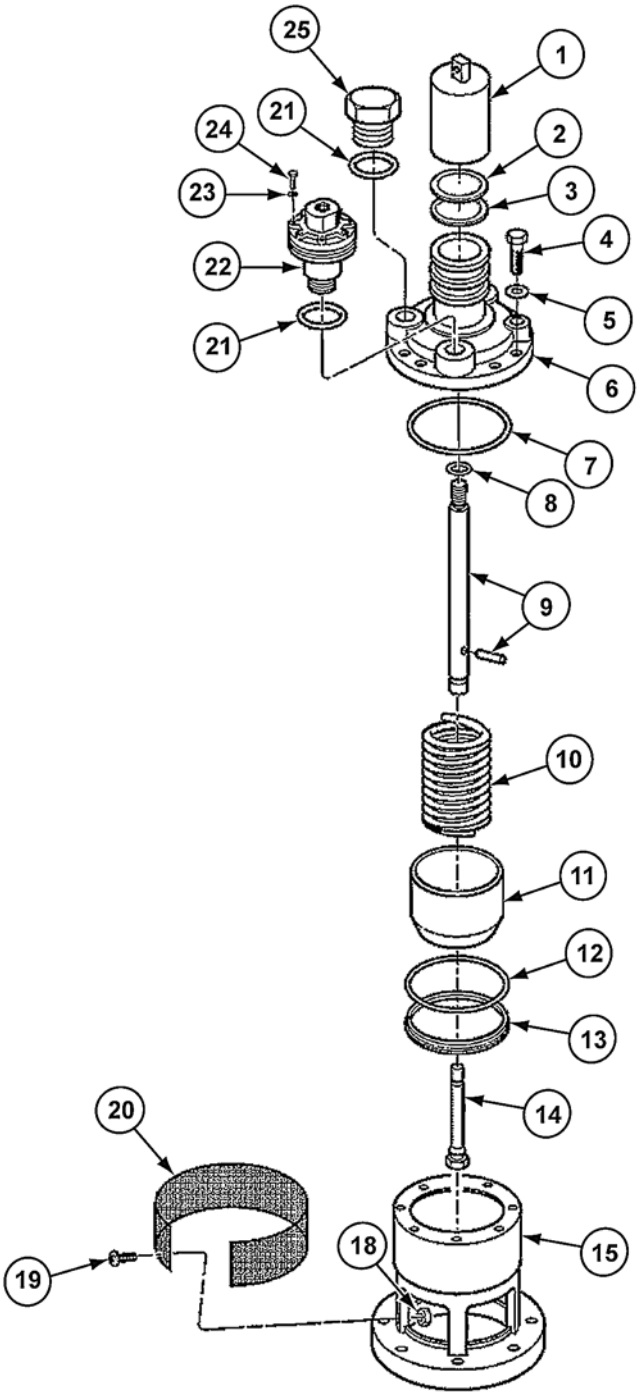
ASSEMBLY



NOTE

Steps 1-2 are only required if parts were removed.

1. Install cam (39), links (40 and 41), and new cotter pins (43).
2. Install pins (35) in shaft assembly (36).
3. Rotate shaft assembly (36) clockwise to line up pins on shaft assembly to allow it to be installed in the body.
4. Install new o-ring (29), new quad-ring (31), and bushing (30), in valve.
5. Install pull lever (32), screw (33), and nut (28) in valve assembly.
6. Install new o-ring (26).



7. Install new gasket (21) and pilot valve (22) in bonnet (6).

NOTE

Step 9 is only required if plug was removed.

8. Install new gasket (21) and plug (25).

NOTE

Step 10 is not required unless screen was removed.

9. Install screen (20), nuts (18), and screws (19).

CAUTION

Seal must be installed with the seal flange toward the valve body to avoid leakage.

10. Install new seal (13) and o-ring (12) in body (15).
11. Install new quad-ring (3) and new wipe ring (2) on bonnet (6).
12. Hold spring pin while screwing housing (1) onto bonnet (6).
13. Install new o-ring (7) in bonnet (6).

CAUTION

Do NOT drop piston while installing it.

14. Install spring (10) and piston (11).
15. Hold spring pin (9) and attach rod (14).
16. Rotate the bonnet (6) slightly in either direction and push it on the body (15).
17. Install six screws (4) and washers (5) on the bonnet (6).

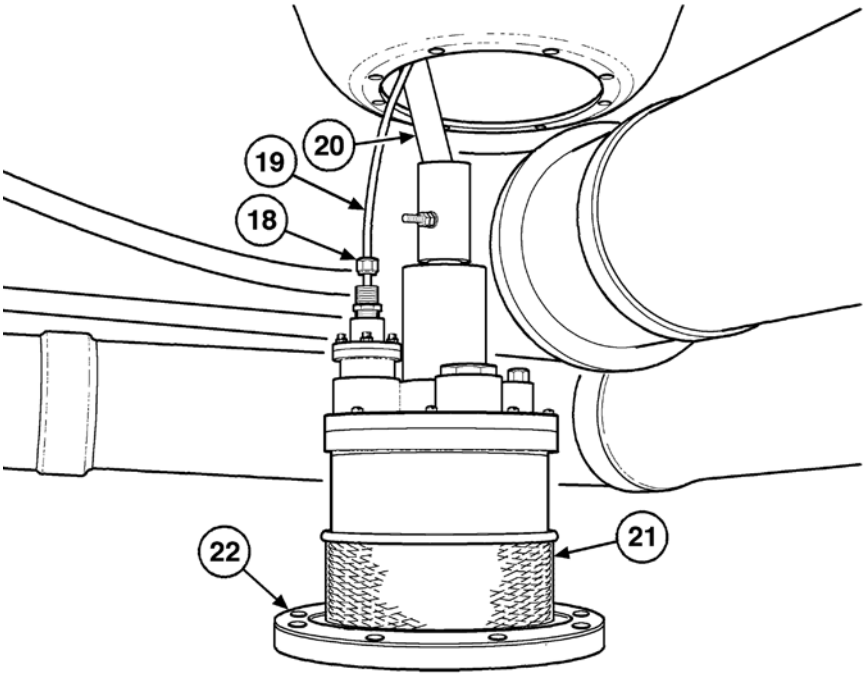
INSTALLATION

1. Place push rod (20) and new gasket (22) to internal valve (21).

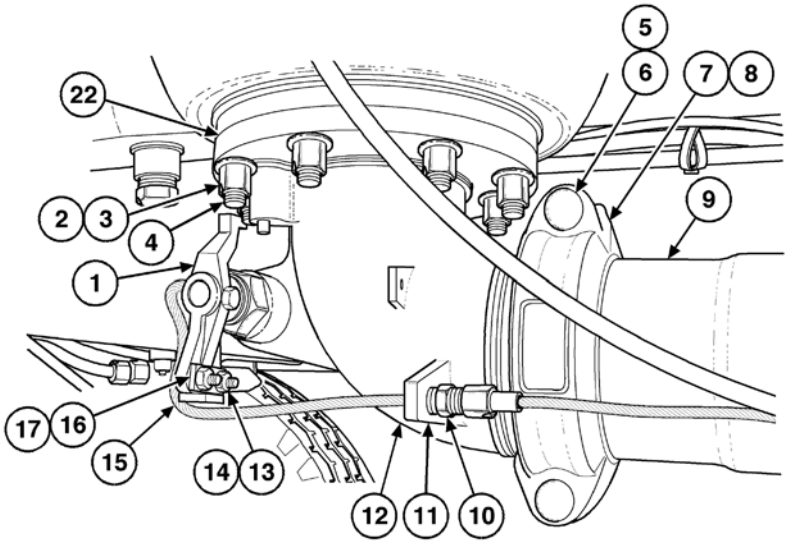
NOTE

- **Have an assistant guide top of push rod into vent valve at top of tank.**
- **Apply antiseize compound to threads.**

2. Install line (19) and fitting (18) to internal valve (21).



3. Install new gasket (22), elbow (12), eight washers (3), and new self-locking nuts (2) to studs (4).
4. Install new seal (8), two nuts (6), bolts (5), and split coupling (7) to pipe (9).
5. Install fitting (10) and cable (15) to cable support (11).
6. Install cable (15), U-bolt (14), reinforcing plate (16), fuse plate (17), and two nuts (13) to lever (1).



ADJUSTMENT

Reach down through manhole and grasp push rod to verify push rod has slight up and down movement.

FOLLOW-ON TASKS

1. Adjust emergency valve cable (WP 0139 00).
2. Reconnect negative battery terminal (WP 0007 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HIGH LEVEL SHUTOFF SENSOR AND FILTER REPLACEMENT 0131 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Equipment Conditions
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Manhole cover removed (refer to WP 0098 00)

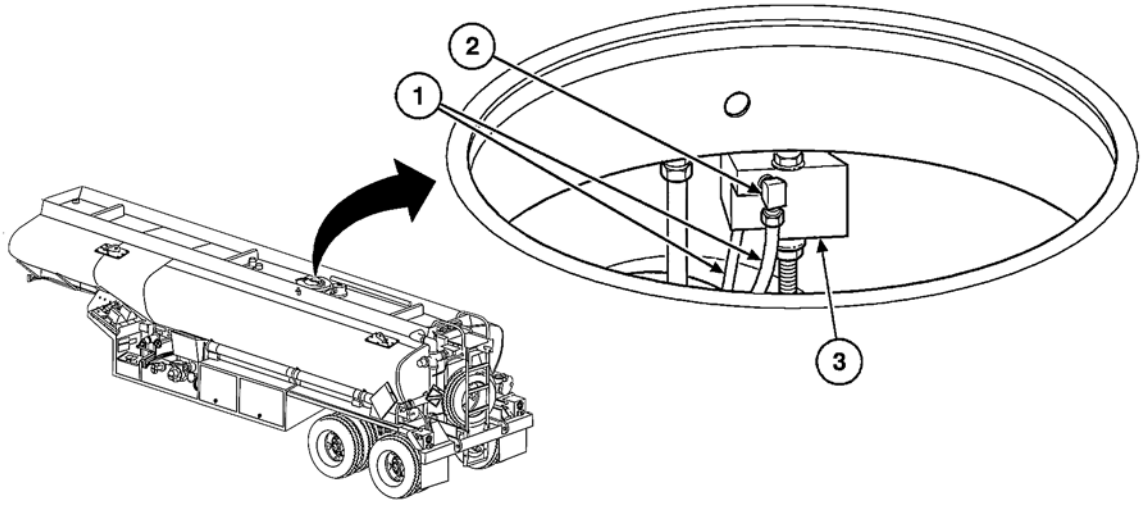
Materials/Parts
Hose clips (Item 6, WP 0275 00)

SENSOR REMOVAL

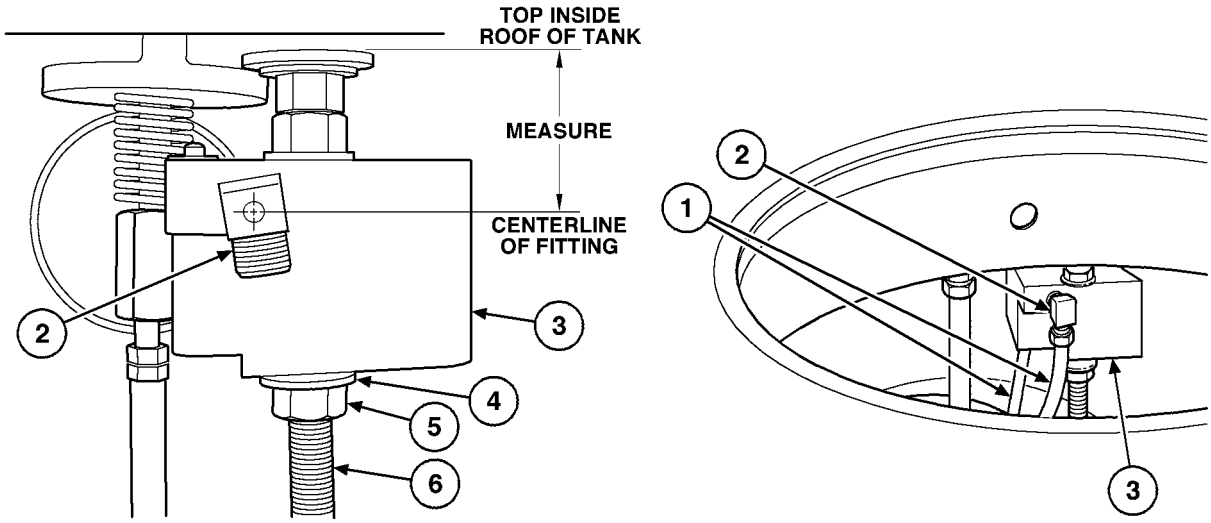
NOTE

- **Manhole cover removal is only required for sensor replacement.**
- **Tie up lines for ease of maintenance.**

1. Remove two lines (1) from fittings (2) on sensor (3).



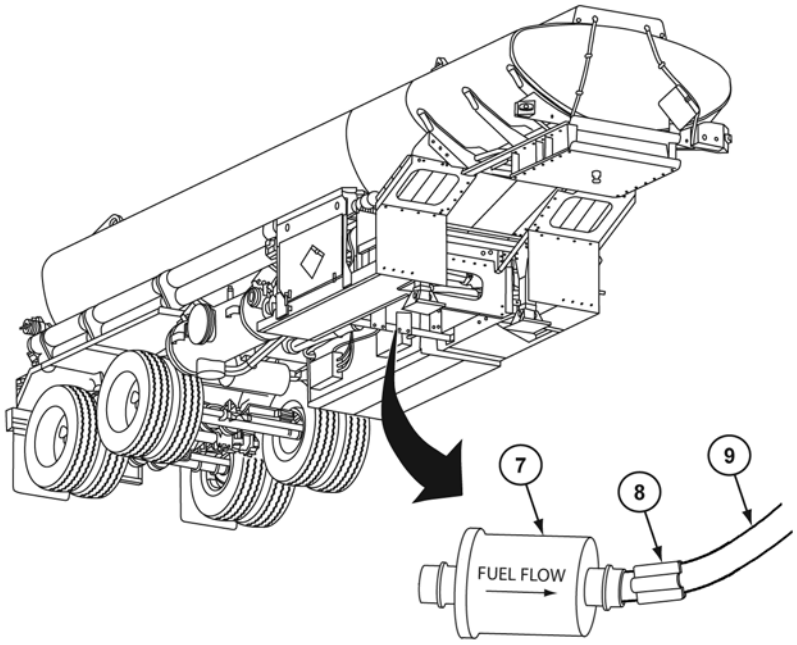
2. Measure and record distance from top inside roof of tank to centerline of fitting.
3. Remove lower nut (5), washer (4), and sensor (3) from rod (6).
4. Remove two fittings (2) from sensor (3).



SENSOR INSTALLATION

1. Install two fittings (2) to sensor (3).
2. Install sensor (3), washer (4), and nut (5) to rod (6). Verify measurement.
3. Install two lines (1) to fittings (2) on sensor (3).

FILTER REMOVAL



1. Cut clips (8) from hose (9) on both ends of filter (7). Discard Clips.
2. Remove filter (7) from hose (9).

FILTER INSTALLATION

1. Insert new clips (8) on each hose (9) end.
2. Install filter (7) on hose (9) and secure by crimping clips (8).

FOLLOW-ON TASKS

1. Install manhole cover (WP 0098 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FLANGE AND PIPING MANIFOLDS, HANDWHEELS, AND F, E, AND B VALVES REPLACEMENT **0132 00**

THIS WP COVERS:
Valve Removal, Valve Installation, Handwheel Removal, Handwheel Installation, Follow-On Task

INITIAL SETUP:
Maintenance Level
Organizational

Materials/Parts
Gaskets (7) (item 80, WP 0175 00)
Self-locking nuts (48) (item 87, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Fuel tank drained (refer to WP 0007 00)

NOTE

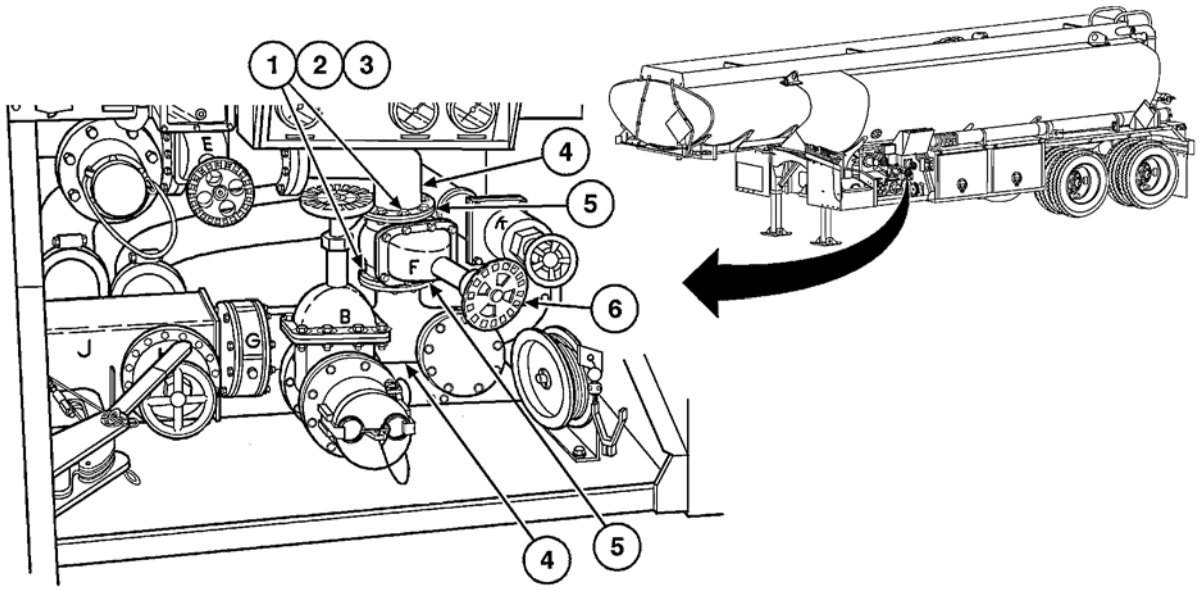
Use this task to replace F, E, and B valves and handwheel.
F valve and handwheel is shown.

VALVE REMOVAL

Remove 16 screws (3), self-locking nuts (1), washers (2), 2 gaskets (5), and F valve (6) from piping (4). Discard self-locking nuts and gaskets.

VALVE INSTALLATION

Install F valve (6) and 2 new gaskets (5) on piping (4) with 16 screws (3), new self-locking nuts (1), and washers (2).



FLANGE AND PIPING MANIFOLDS, HANDWHEELS, AND F, E, AND B VALVES REPLACEMENT **0132 00**

FLANGE MANIFOLD REMOVAL

1. Remove 8 screws (3), self-locking nuts (1), washers (2), gasket (5), and roadside bottom load adapter (10) from flange manifold (13). Discard self-locking nuts and gaskets.

2. Remove 8 screws (3), self-locking nuts (1), washers (2), and gasket (5) from E valve (6). Discard self-locking nuts and gaskets.

3. Remove 2 screws (11) and self-locking nuts (12) from cabinet frame. Discard self-locking nuts.

4. Remove piping clamp and flange manifold (13).

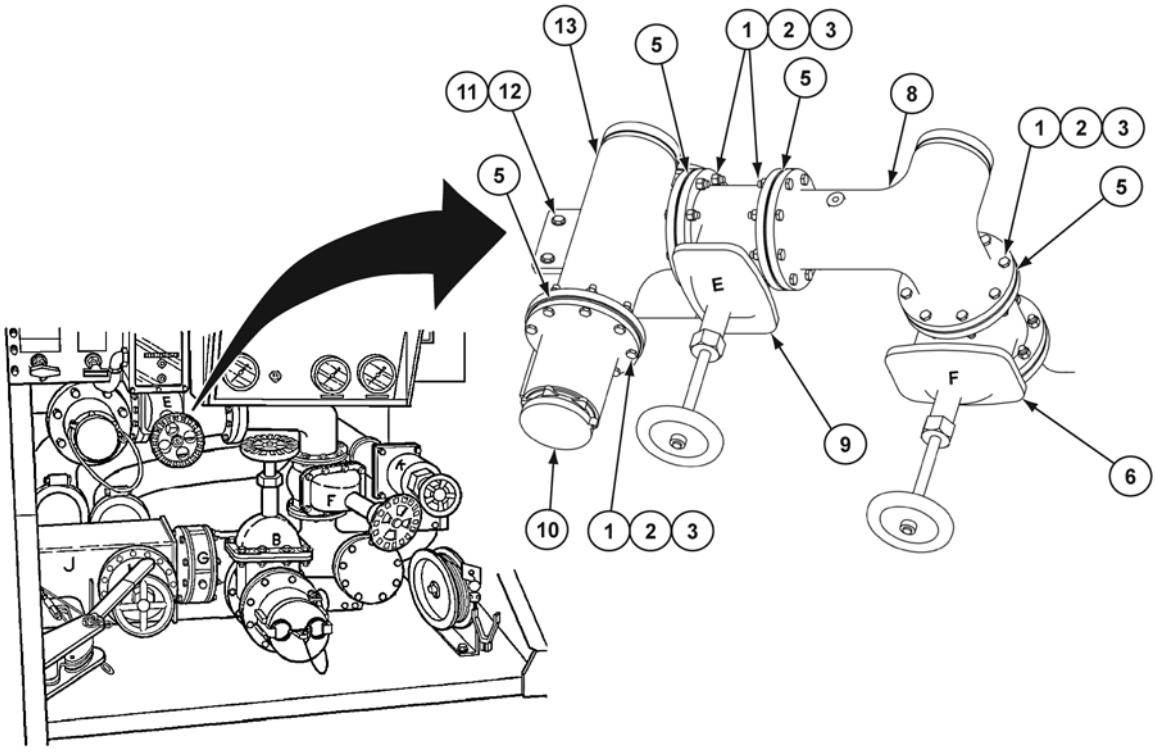
FLANGE MANIFOLD INSTALLATION

1. Install flange manifold (13) and piping clamp.

2. Install 2 screws (11) and new self-locking nuts (12) to cabinet frame.

3. Install new gasket (5), 8 screws (3), washers (2), and new self-locking nuts (1) to E valve (6).

4. Install new gasket (5), roadside bottom load adapter (10), 8 screws (3), washers (2), and new self-locking nuts (1), to flange manifold (13).



FLANGE AND PIPING MANIFOLDS, HANDWHEELS, AND F, E, AND B VALVES REPLACEMENT

0132 00

PIPING MANIFOLD REMOVAL

1. Remove 16 screws (3), self-locking nuts (1), washers (2), and two gaskets (5), from piping manifold (8). Discard self-locking nuts and gaskets.

2. Remove piping clamp and piping manifold (8).

PIPING MANIFOLD INSTALLATION

1. Install piping manifold (8) and piping clamp.

2. Install two new gaskets (5), 16 screws (3), washers (2), and new self-locking nuts (1), to piping manifold (8).

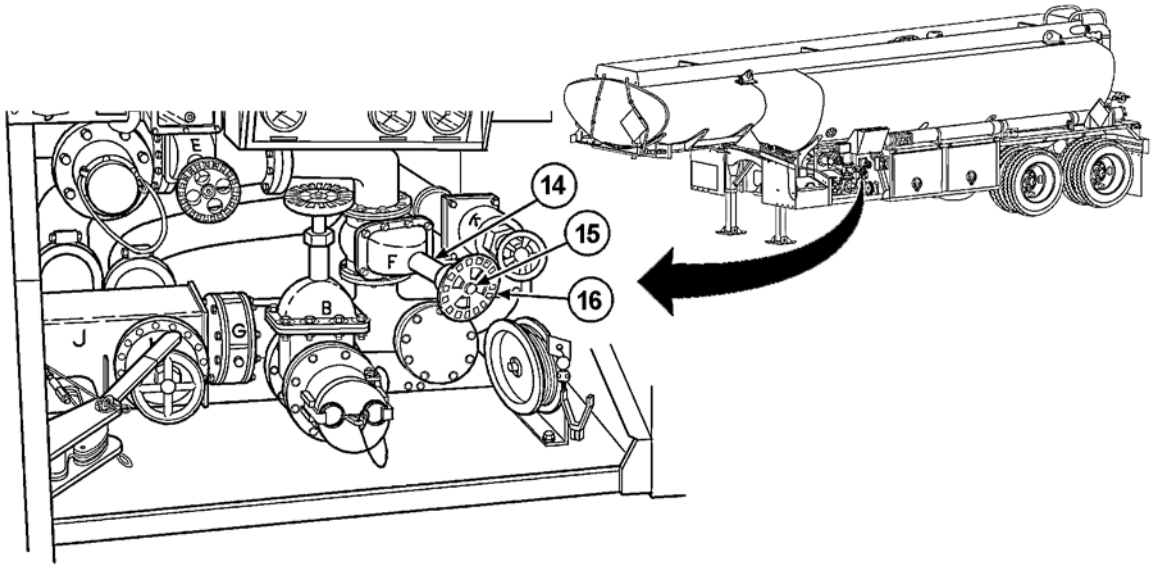
HANDWHEEL REMOVAL

1. Loosen nut (15) and turn handwheel (16) counterclockwise.

2. Remove nut (15) and handwheel (16) from F valve (14).

HANDWHEEL INSTALLATION

Install handwheel (16) and nut (15) on F valve (14). Turn handwheel (16) clockwise and tighten nut (15).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

DISCHARGE MANIFOLD REPLACEMENT 0133 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Gasket (item 80, WP 0175 00)
Self-locking nuts (10) (item 87, WP 0175 00)
Self-locking nuts (3) (item 92, WP 0175 00)

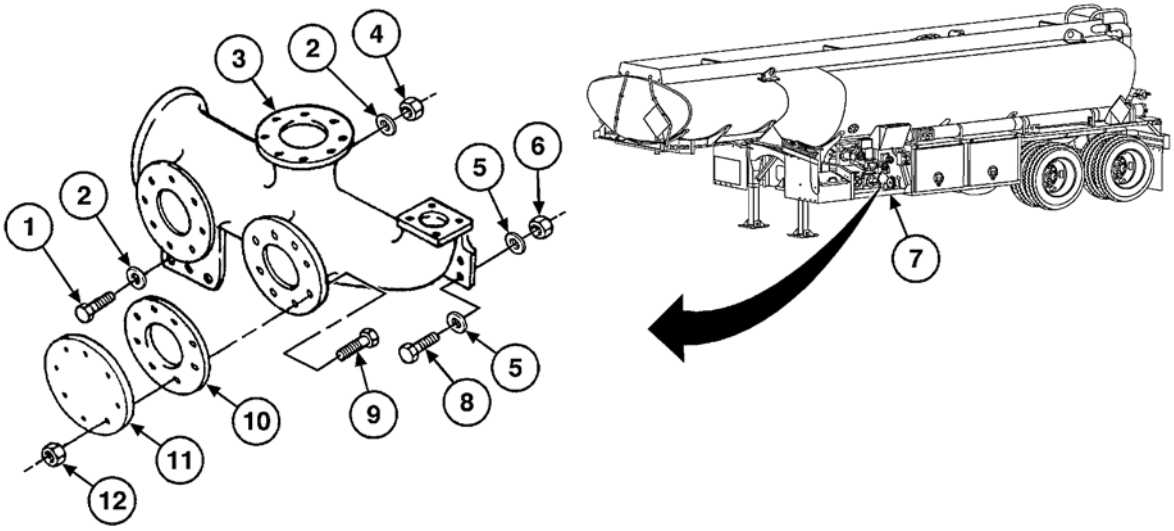
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
F valve assembly removed (refer to WP 0132 00)
B valve assembly removed (refer to WP 0132 00)
G valve assembly removed (refer to WP 0128 00)

REMOVAL

1. Remove eight screws (9), self-locking nuts (12), access cover (11), and gasket (10) from discharge manifold (3). Discard self-locking nuts and gasket.

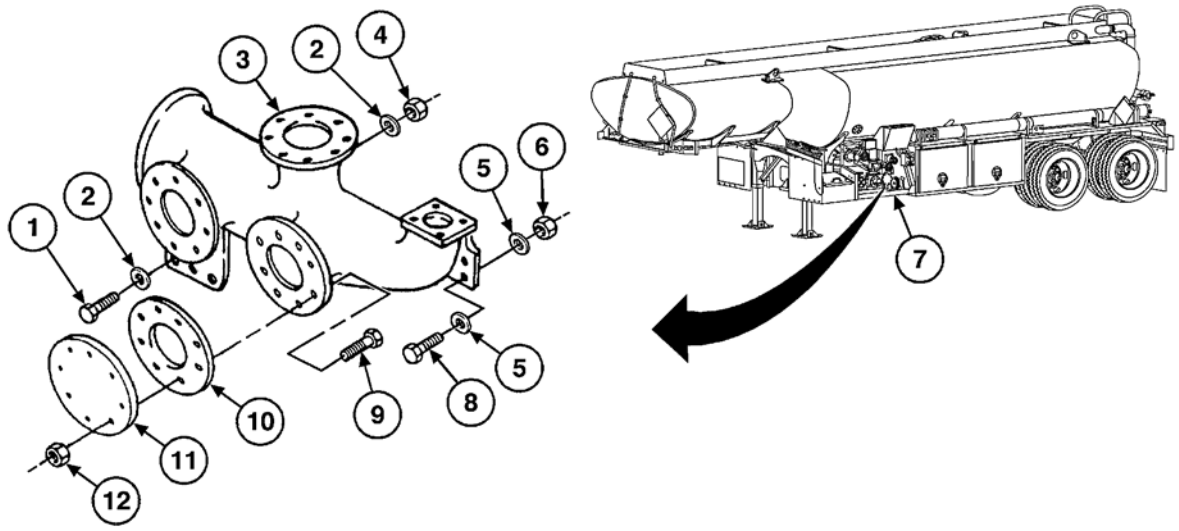
2. Remove three screws (1), six washers (2), and three self-locking nuts (4) from discharge manifold (3). Discard self-locking nuts.

3. Remove two screws (8), four washers (5), two self-locking nuts (6), and discharge manifold (3) from piping control cabinet (7). Discard self-locking nuts.



INSTALLATION

1. Install discharge manifold (3) in piping control cabinet (7) with two screws (8), four washers (5), and two new self-locking nuts (6).
2. Install three screws (1), six washers (2), and three new self-locking nuts (11) on discharge manifold (3).
3. Install access cover (11) and new gasket (10) on discharge manifold (3) with eight screws (9) and new self-locking nuts (12).



FOLLOW-ON TASKS

1. Install G valve assembly (WP 0128 00).
2. Install B valve assembly (WP 0132 00).
3. Install F valve assembly (WP 0132 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

BOTTOM LOADING VALVE REPLACEMENT 0134 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

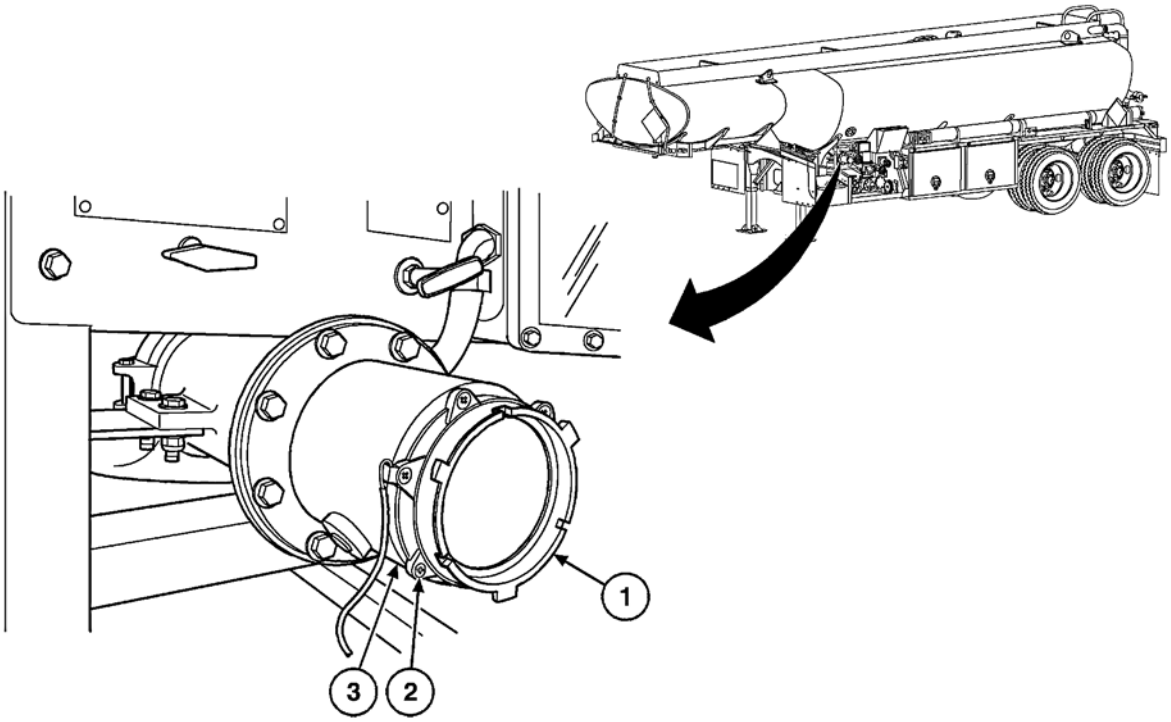
Materials/Parts Equipment
Gasket (item 80, WP 0175 00)
Self-locking nuts (8) (item 92, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)

REMOVAL

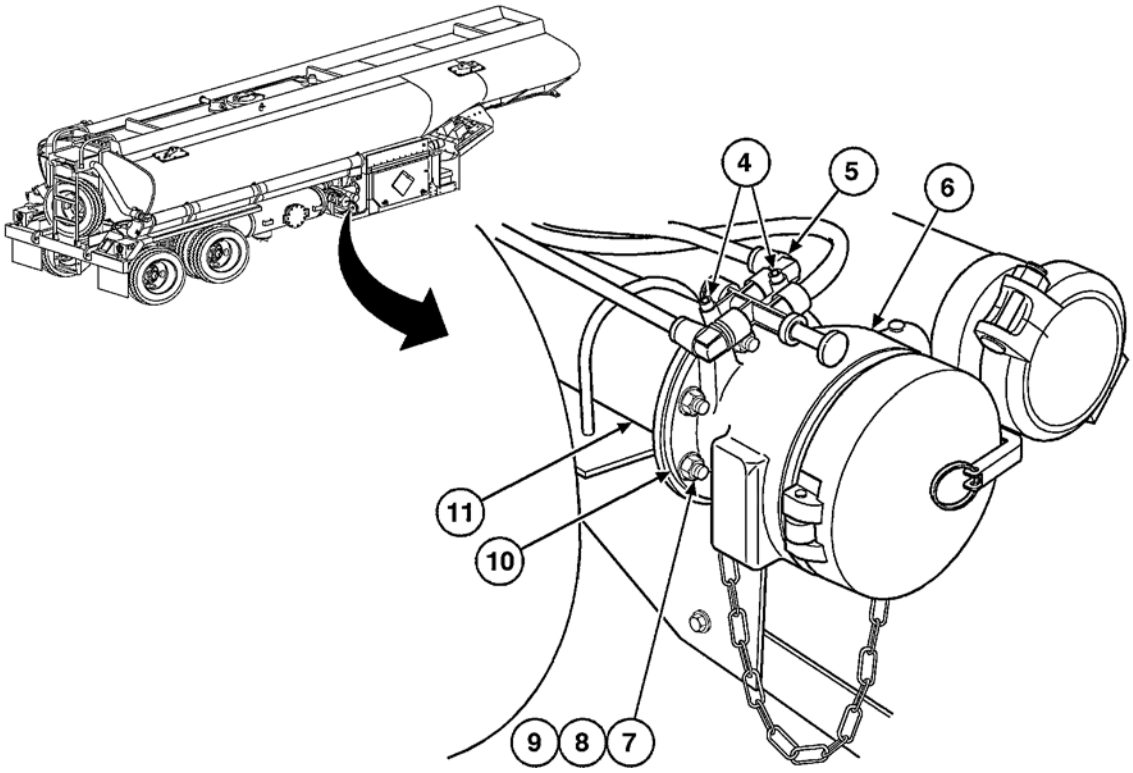
Roadside Bottom Loading Valve

Remove six screws (2) and bottom loading valve (1) from pipe (3).



Curbside Bottom Loading Valve

1. Remove two screws (4) and brake interlock valve (5) from top of curbside bottom loading valve (6).
2. Remove 8 self-locking nuts (7), 16 washers (8), 8 bolts (9), and bottom loading valve (6), and gasket (10) from pipe (11). Discard self-locking nuts and gasket.



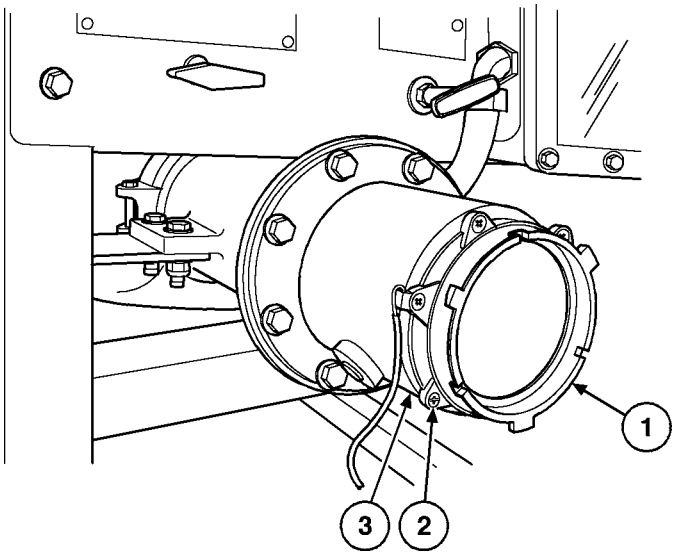
INSTALLATION

Curbside Bottom Loading Valve

1. Install new gasket (10), bottom loading valve (6), 8 bolts (9), 16 washers (8), and 8 new self-locking nuts (7) to pipe (11).
2. Install brake interlock valve (5) and two screws (4) to top of curbside bottom loading valve (6).

Roadside Bottom Loading Valve

Install bottom loading valve (1) and six screws (2) to pipe (3).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

MANIFOLD VALVE REPLACEMENT 0135 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts Equipment
Seals (2) (item 129, WP 0175 00)
Self-locking nuts (2) (item 90, WP 0175 00)

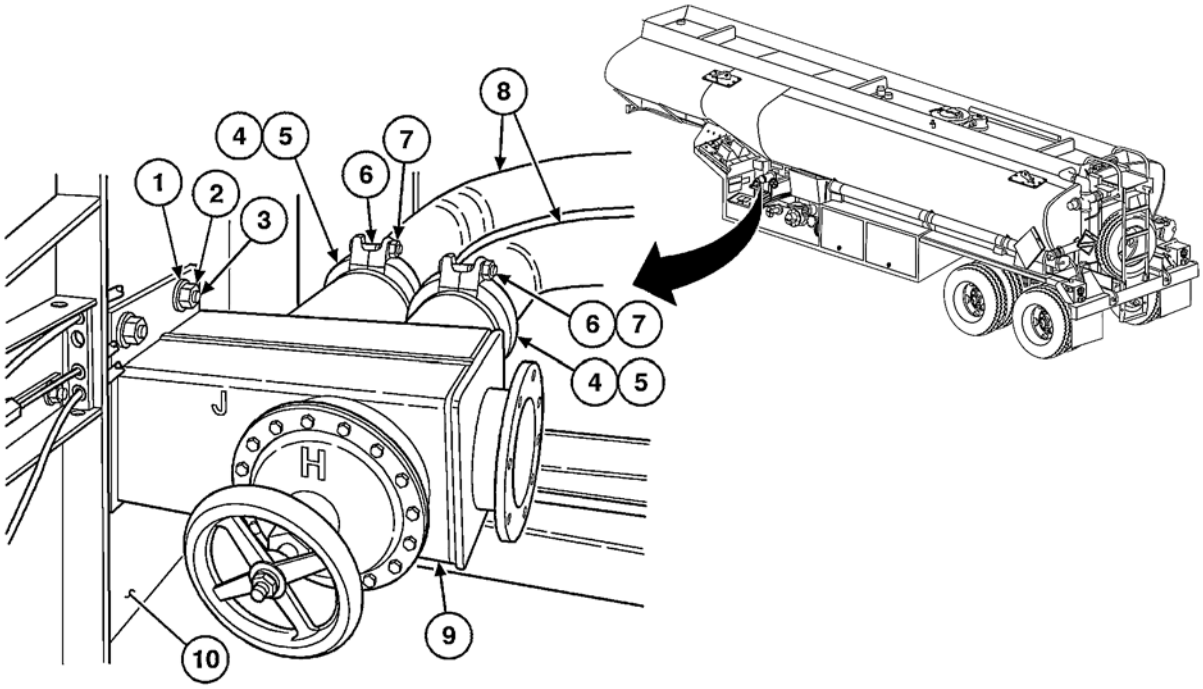
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
G valve removed (refer to WP 0128 00)
J valve removed (refer to WP 0137 00)

REMOVAL

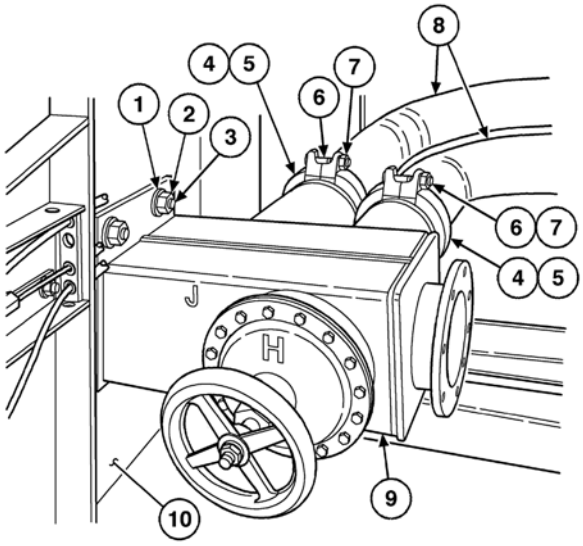
1. Remove four nuts (7), bolts (6), two split couplings (4), and seals (5) from two pipes (8). Discard seals.

2. Remove two self-locking nuts (2), washers (1), bolts (3), and manifold valve (9) from frame (10). Discard self-locking nuts.



INSTALLATION

1. Install manifold valve (9), two bolts (3), washers (1), and new self-locking nuts (2) to frame (10).
2. Install two new seals (5), split couplings (4), four bolts (6), and nuts (7) to two pipes (8).



FOLLOW-ON TASKS

1. Install J valve (WP 0137 00).
2. Install G valve (WP 0128 00).
3. Reconnect negative battery terminal (WP 0007 00).
4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

K VALVE REPLACEMENT 0136 00

THIS WP COVERS:
Removal, Installation

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

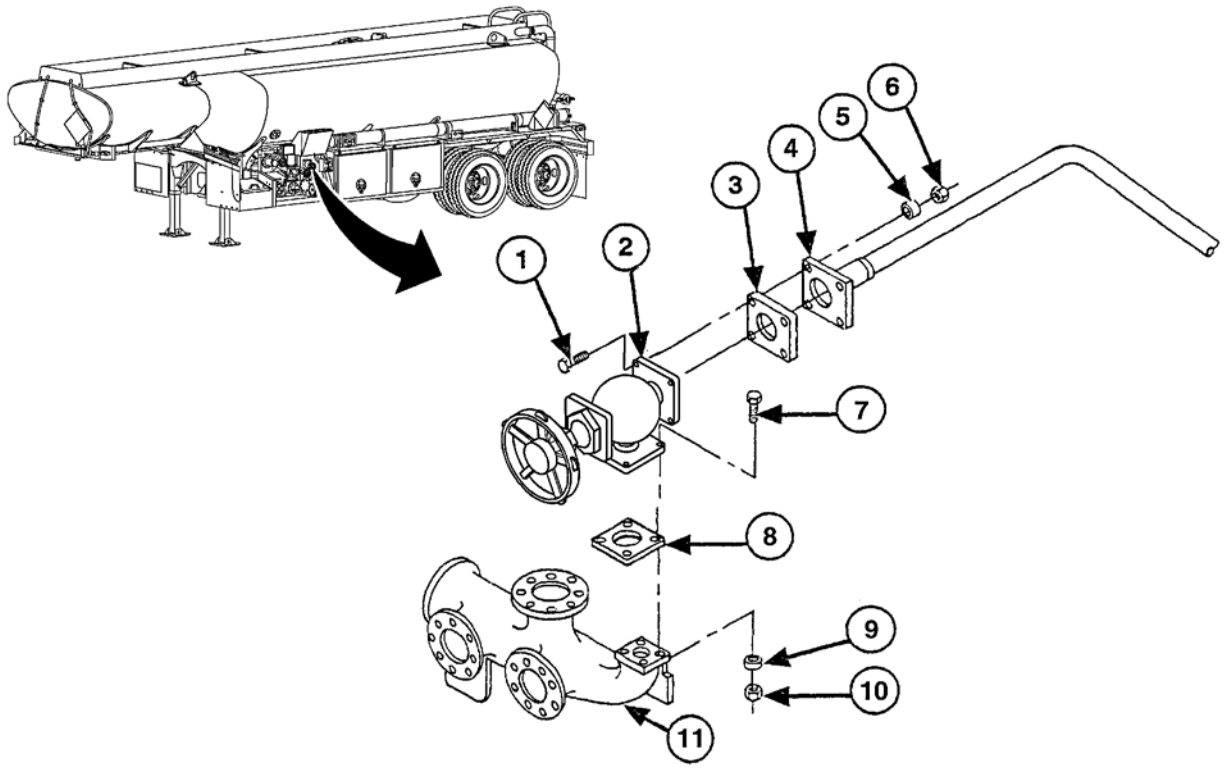
Materials/Parts Equipment
Gaskets (2) (item 18, WP 0175 00)
Self-locking nuts (8) (item 92, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)

REMOVAL

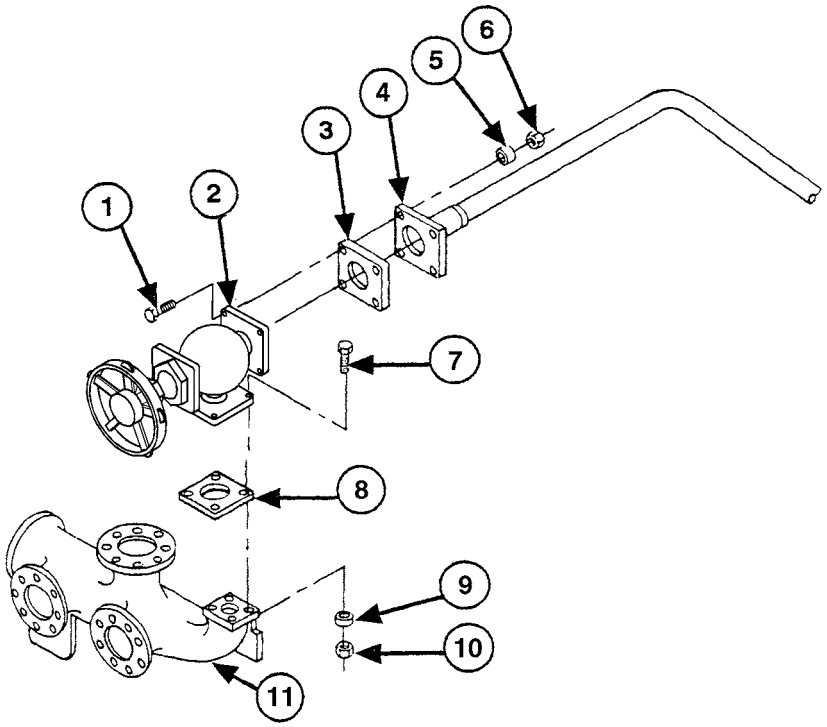
1. Remove self-locking nuts (10), washers (9), four screws (7), and gasket (8) and disconnect K valve (2) from discharge manifold (11). Discard self-locking nuts and gasket.

2. Remove self-locking nuts (6), washers (5), four screws (1), and gasket (3) from K valve (2) and pipe (4). Discard self-locking nuts and gasket.



INSTALLATION

1. Install new gasket (3), K valve (2), four screws (1), washers (5), and new self-locking nuts (6).
2. Install K valve (2) and new gasket (8) on discharge manifold (11) with four screws (7), washers (9), and new self-locking nuts (10).



END OF TASK

J AND N BALL VALVES REPLACEMENT 0137 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts
Compound, thread sealing (item 7, WP 0174 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

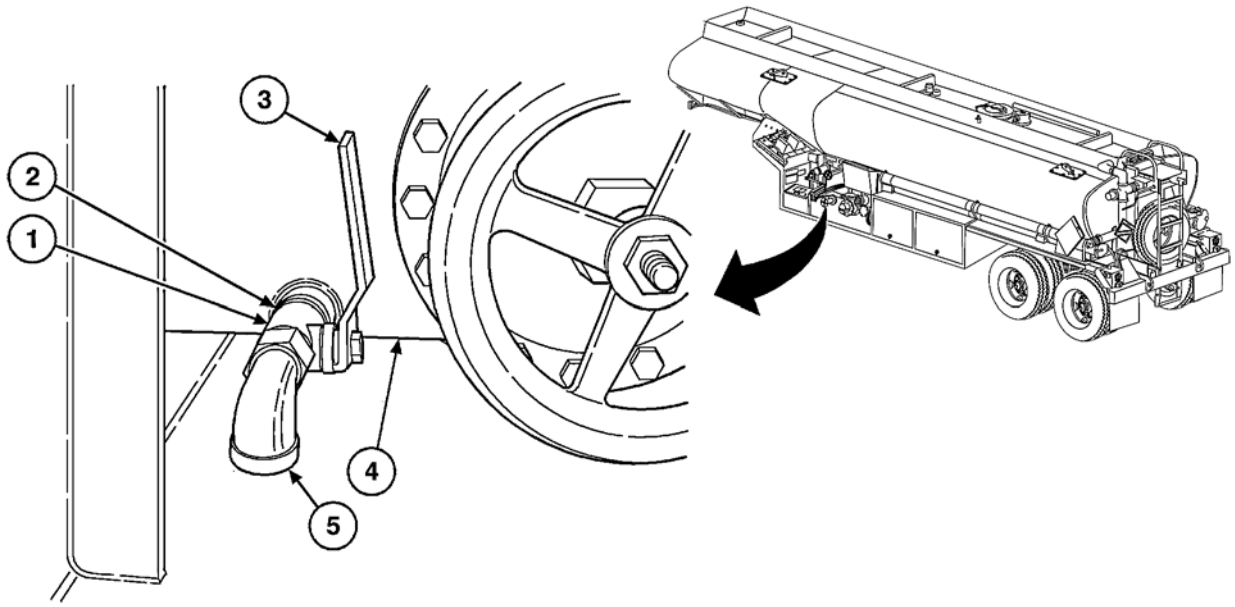
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Filter seperator drained (refer to WP 0125 00)

REMOVAL

NOTE

- **There are two ball valves and they are both replaced the same way. This procedure covers the J valve.**
- **Place a suitable container underneath manifold or filter separator prior to removal.**
- **Close valves H, G, and A if removing valve J. Close valve M if removing valve N.**

Move handle (3) 90° counterclockwise and remove elbow (5), J valve (1), and fitting (2) from manifold (4).

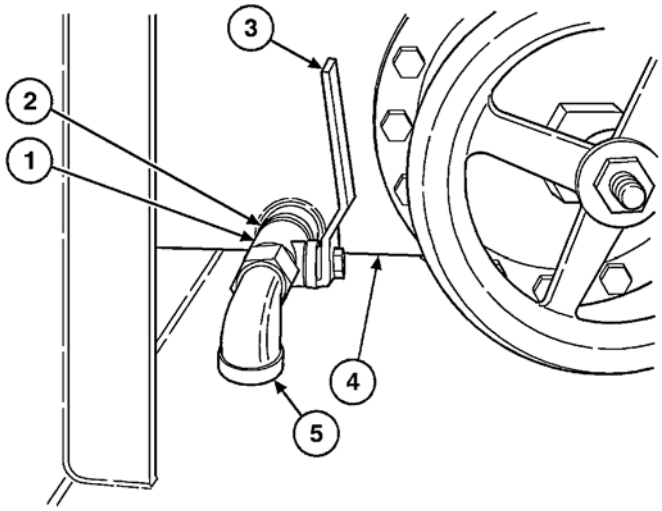


INSTALLATION

NOTE

Apply thread sealing compound to threads.

Install fitting (2), J valve (1), and elbow (5) to manifold (4).



FOLLOW-ON TASKS

1. Open H, G, and A valves if J valve was replaced; open M valve if N valve was replaced.
2. Reconnect negative battery terminal (WP 0007 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

CABINET PIPING ASSEMBLY REPLACEMENT 0138 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Gasket (item 18, WP 0175 00)
Seals (2) (item 128, WP 0175 00)
Seals (2) (item 129, WP 0175 00)
Self-locking nuts (2) (item 90, WP 0175 00)
Self-locking nuts (4) (item 92, WP 0175 00)

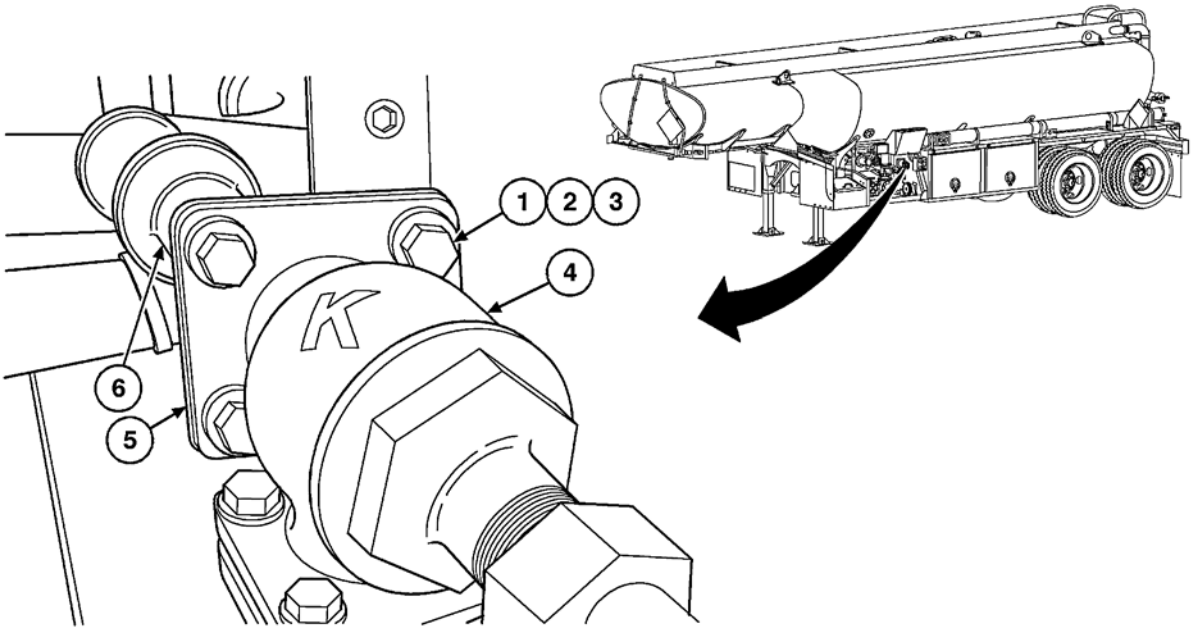
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

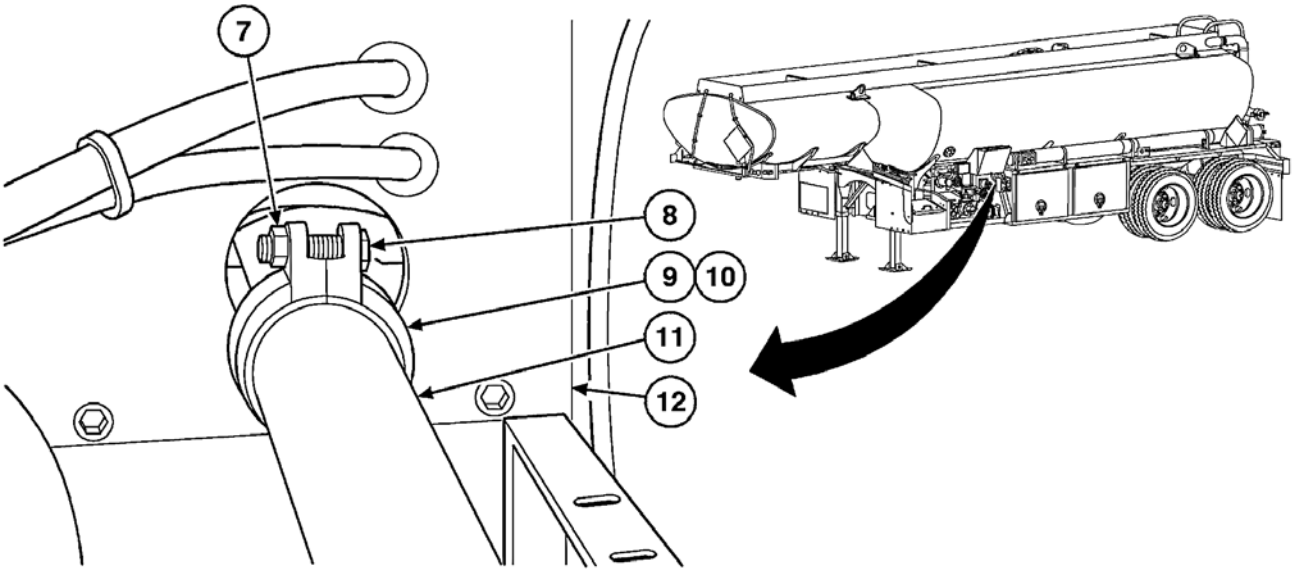
NOTE

All pipe sections are removed and installed using this procedure. The piping assemblies consist of sections joined at couplings. Be sure to place supports at intervals under the piping assembly before beginning disassembly.

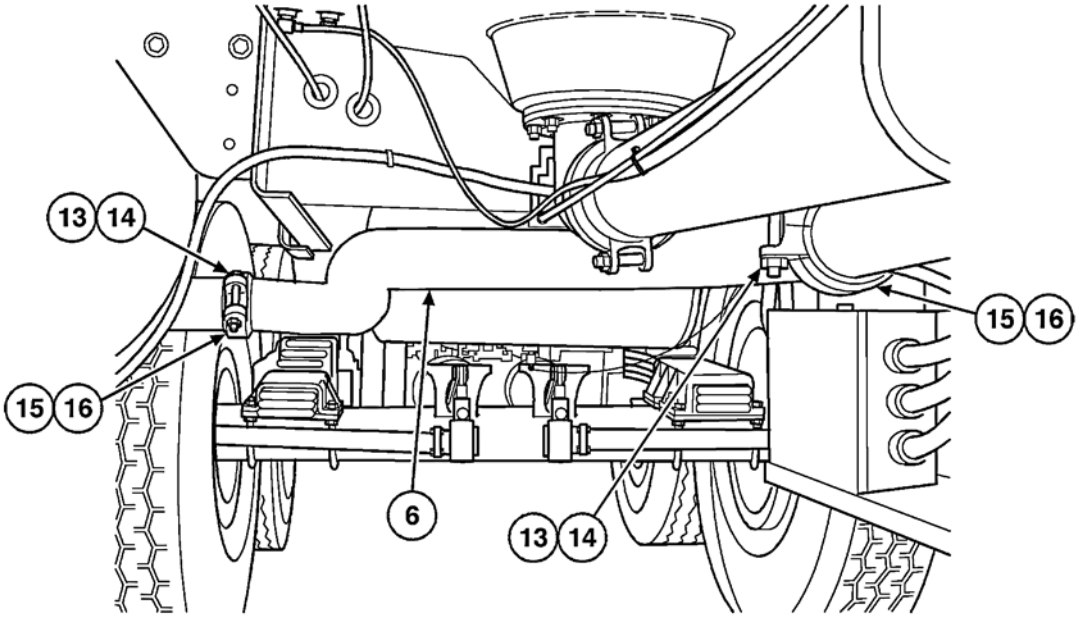
1. Remove four self-locking nuts (1), eight washers (2), four bolts (3), and gasket (5) from piping assembly (6) at valve (4). Discard self-locking nuts and gasket.



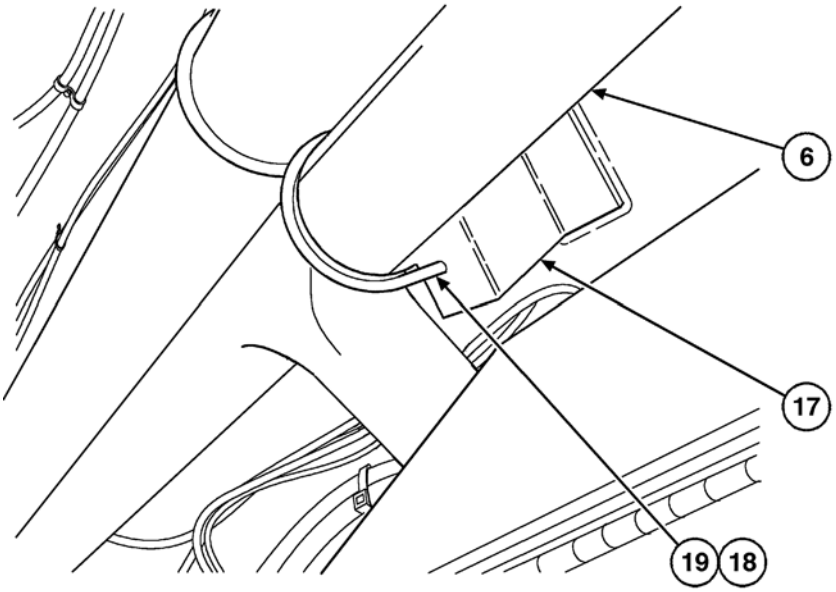
2. Remove four nuts (7), bolts (8), two split couplings (9), and seals (10) from two pipes (11) inside hose reel cabinets (12). Discard seals.



3. Remove four nuts (13), bolts (14), two split couplings (15), and seals (16) from piping assembly (6). Discard seals.



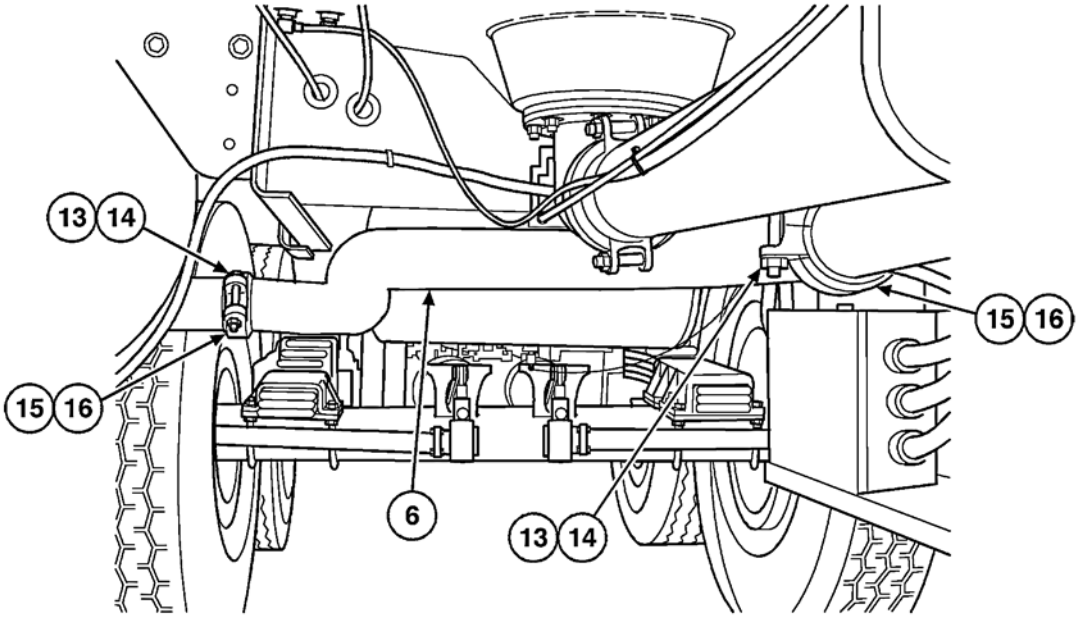
4. Remove two self-locking nuts (19), U-bolt (18), and piping assembly (6) from cross member bracket (17). Discard self-locking nuts.



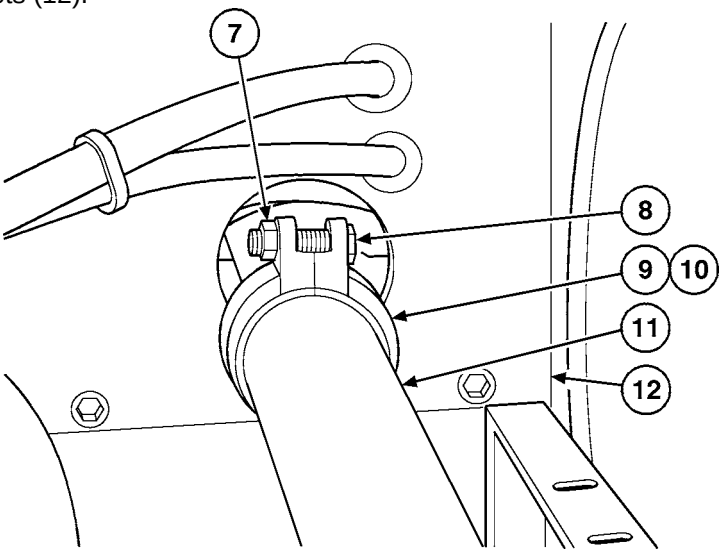
INSTALLATION

1. Install piping assembly (6), U-bolt (18), and two new self-locking nuts (19) to cross member bracket (17).

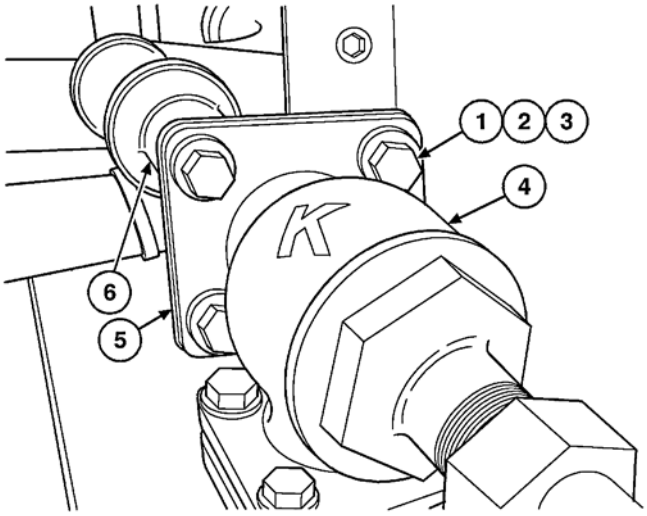
2. Install two new seals (16), split couplings (15), four bolts (14), and nuts (13) to piping assembly (6).



3. Install two new seals (10), split couplings (9), four bolts (8), and nuts (7) to two pipes (11) inside hose reel cabinets (12).



4. Install new gasket (5), four bolts (3), eight washers (2), and four new self-locking nuts (1) to piping assembly (6) at valve (4).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

EMERGENCY VALVE A CONTROL HANDLE MAINTENANCE 0139 00

THIS WP COVERS:
Removal, Installation, Adjustment, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Materials/Parts Personnel
Self-locking nuts (4) (item 76, WP 0175 00)
Self-locking nuts (4) (item 87, WP 0175 00)

Equipment

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Required
Two

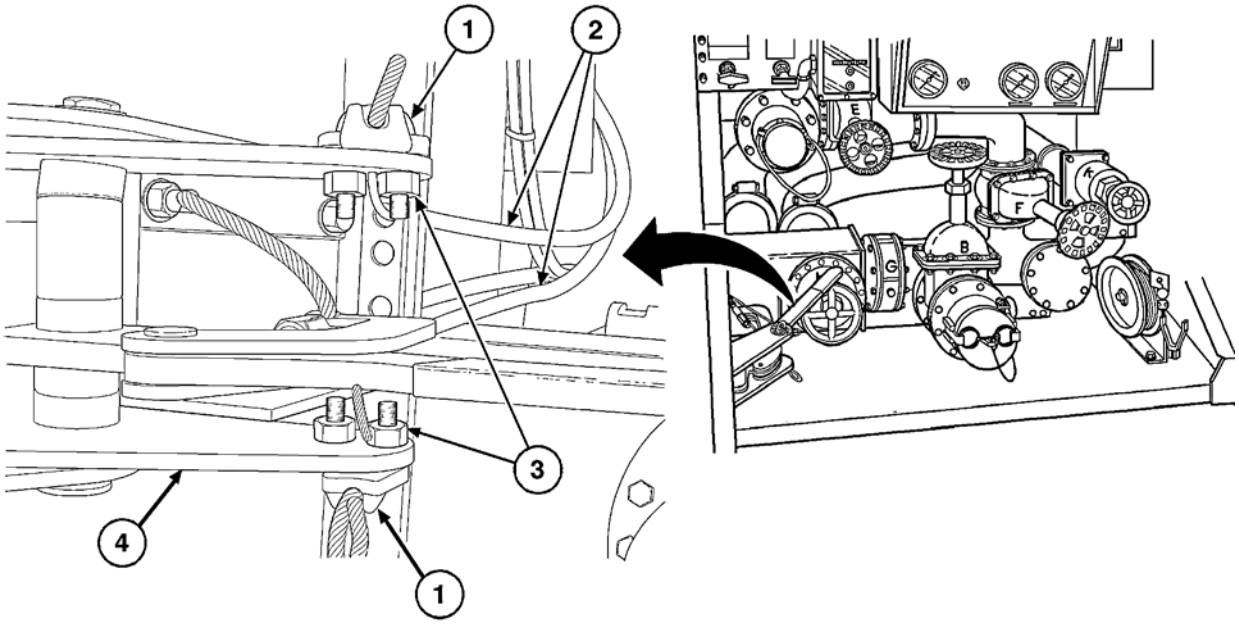
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

NOTE

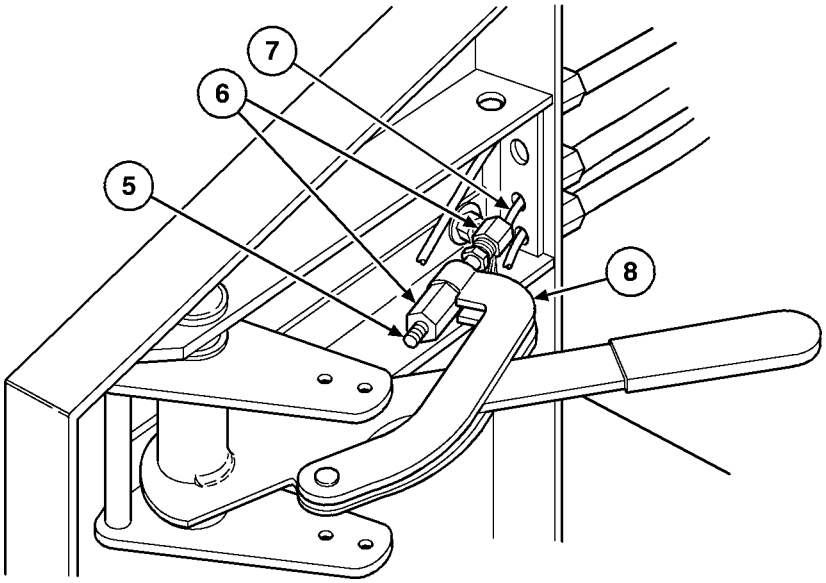
- **Put handle in closed position prior to removing cables.**
- **Tag cables before removing from handle.**

1. Remove four self-locking nuts (3), two U-bolts (1), and cables (2) from bracket (4). Discard self-locking nuts.

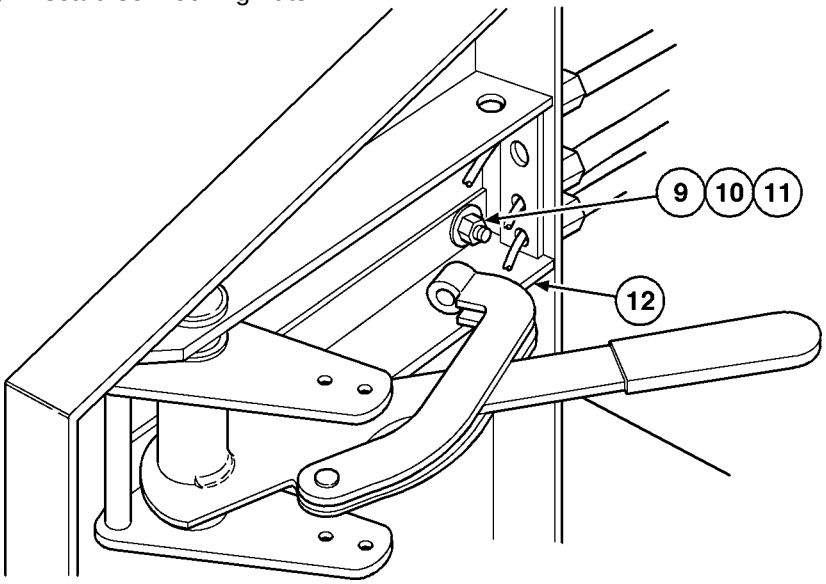


2. Remove two shaft nuts (6) and cable (7) from threaded shaft (5).

3. Remove threaded shaft (5) from lever (8).



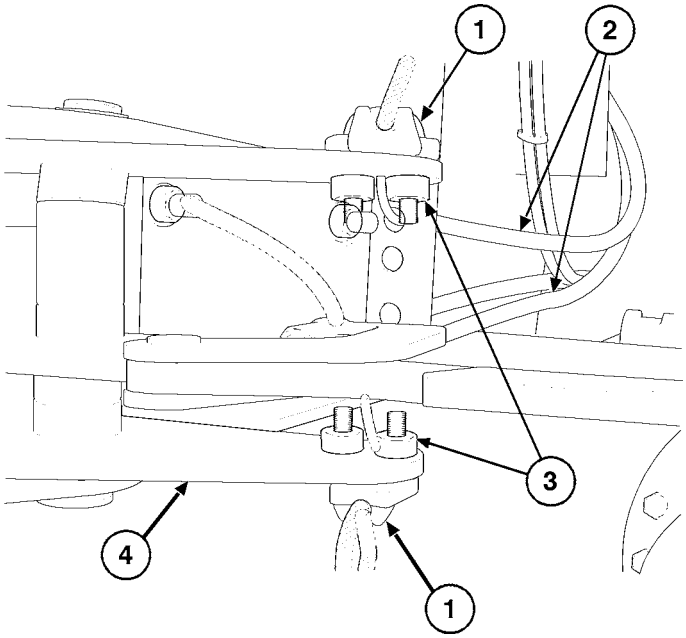
4. Remove four self-locking nuts (9), eight washers (10), four bolts (11), and handle mounting bracket (12). Discard self-locking nuts.



INSTALLATION

1. Install handle mounting bracket (12), four bolts (11), eight washers (10), and four new self-locking nuts (9).

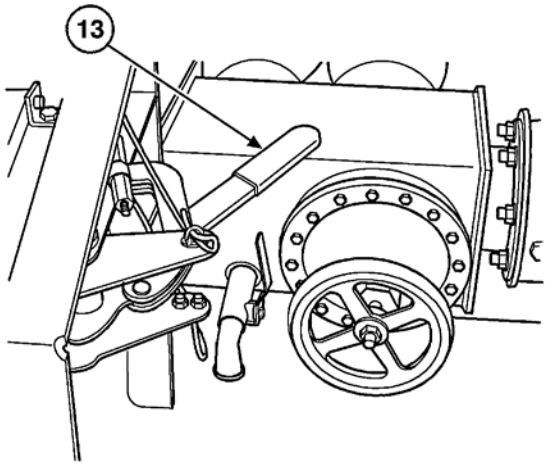
2. Install threaded shaft (5) to lever (8).
3. Install cable (7) and two shaft nuts (6) to threaded shaft (5).
4. Install two cables (2), U-bolts (1), and four new self-locking nuts (3) to bracket (4).



ADJUSTMENT

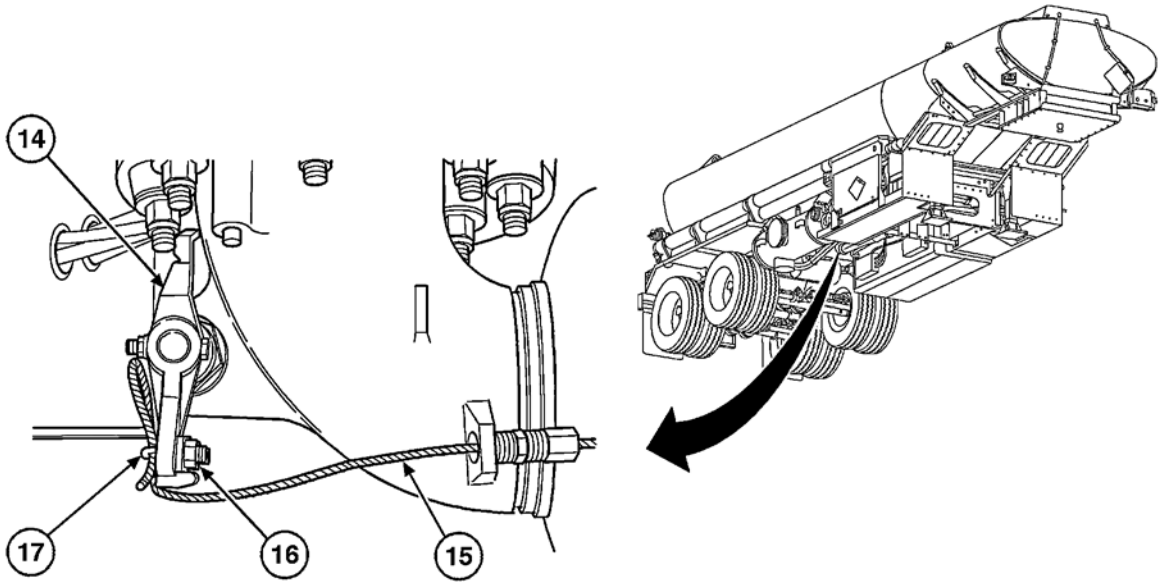
Emergency Valve A Cable

1. Make sure emergency valve A handle (13) is closed.

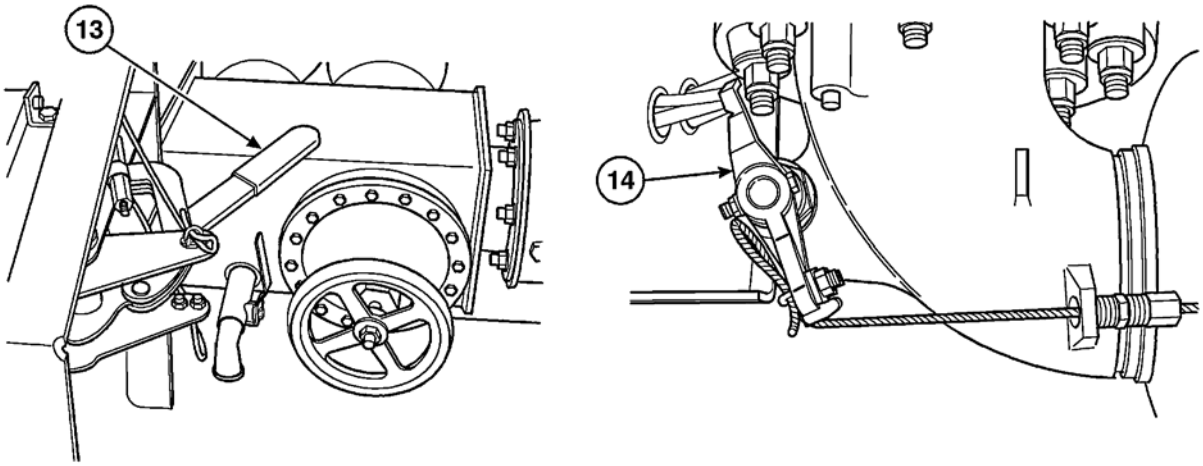


2. Loosen two nuts (16) and U-bolt (17) on emergency valve A lever (14).

3. Remove slack from control cable (15) at lever (14) while tightening two nuts (16) and U-bolt (17).



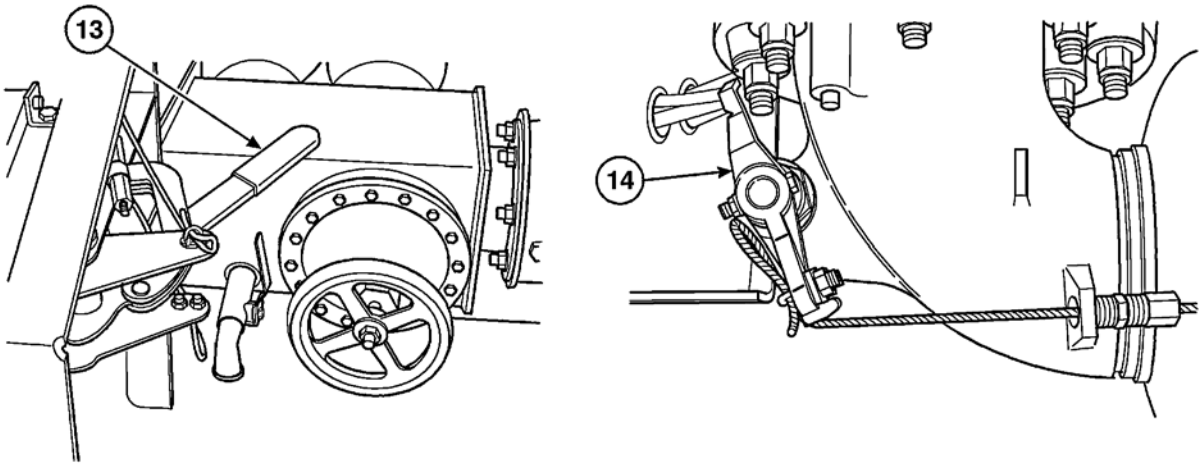
4. Pull control handle (13) to open position and verify that lever (14) opens fully.



NOTE

Have an assistant observe and verify correct emergency valve A lever operation.

5. Push control handle (13) to closed position and verify that lever (14) closes.

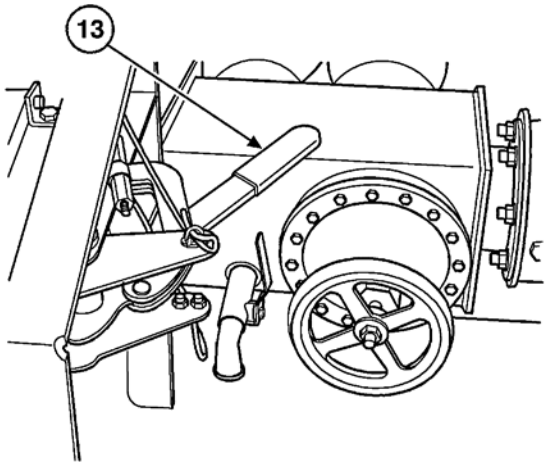


NOTE

It may be necessary to repeat steps 1 thru 5 until control handle fully opens emergency valve A.

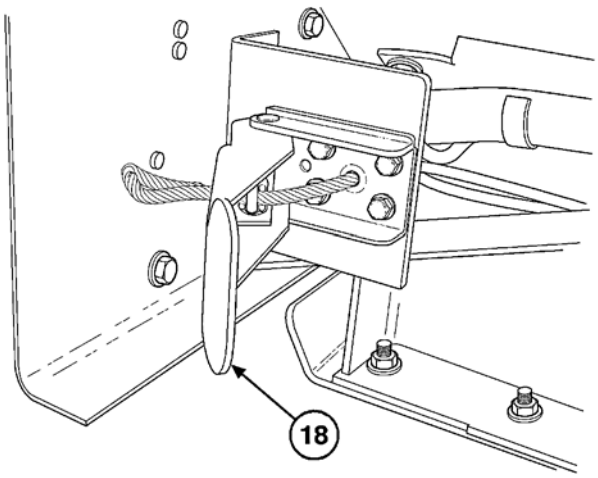
Shut-Off Handles Cables

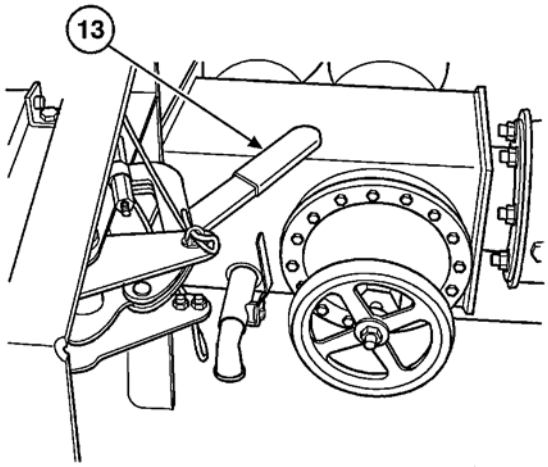
1. Pull control handle (13) to open position.



EMERGENCY VALVE A CONTROL HANDLE MAINTENANCE—Continued **0139 00**

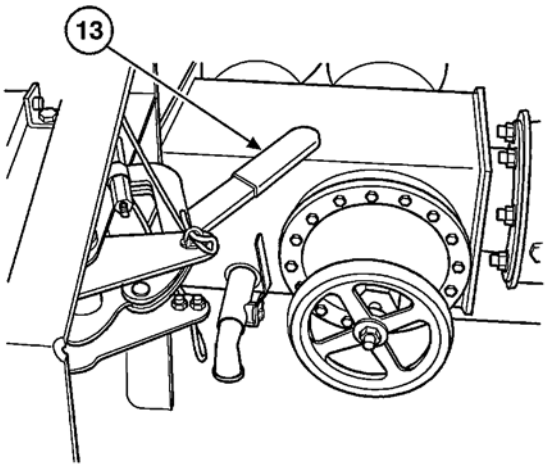
2. Pull roadside emergency valve handle (18) into closed position and verify control handle (13) closes.

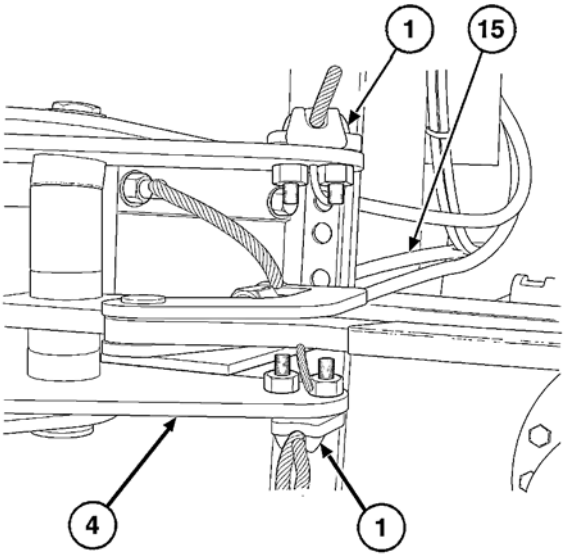




3. If control handle (13) does not close, loosen U-bolt (1) at control handle bracket (4) and remove slack in shut-off cable (15) so that it closes control handle (13).

4. Repeat steps 1 thru 3 for curbside emergency valve handle.





FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

CONTROL CABLE REPLACEMENT 0140 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

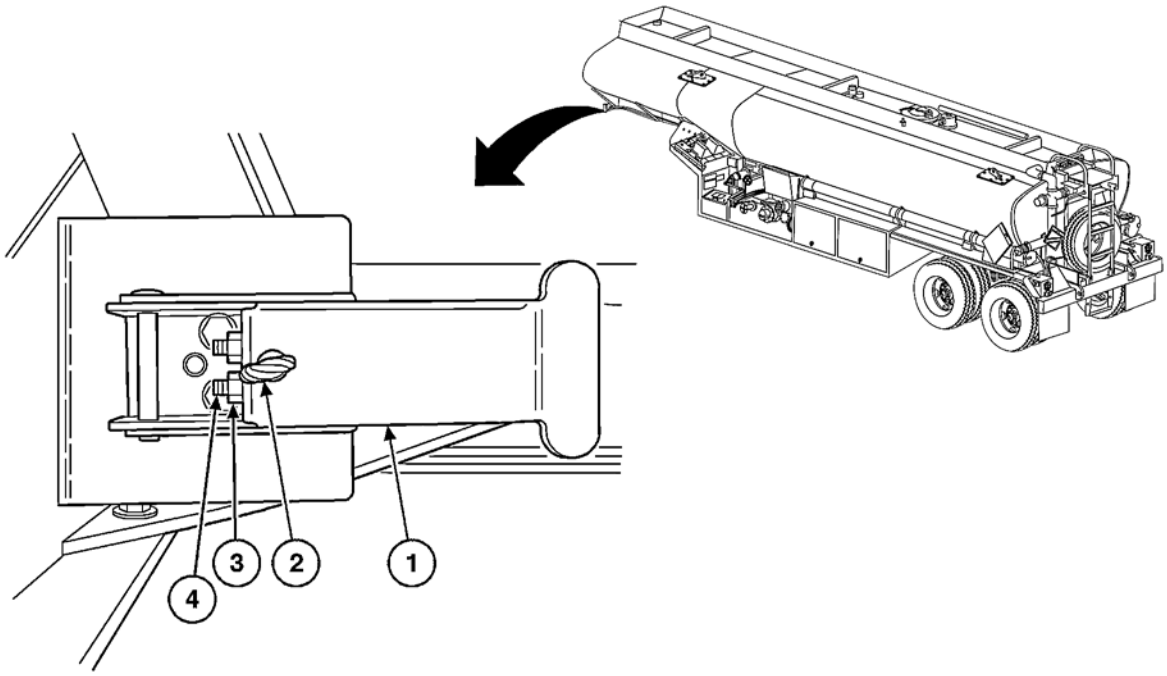
INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

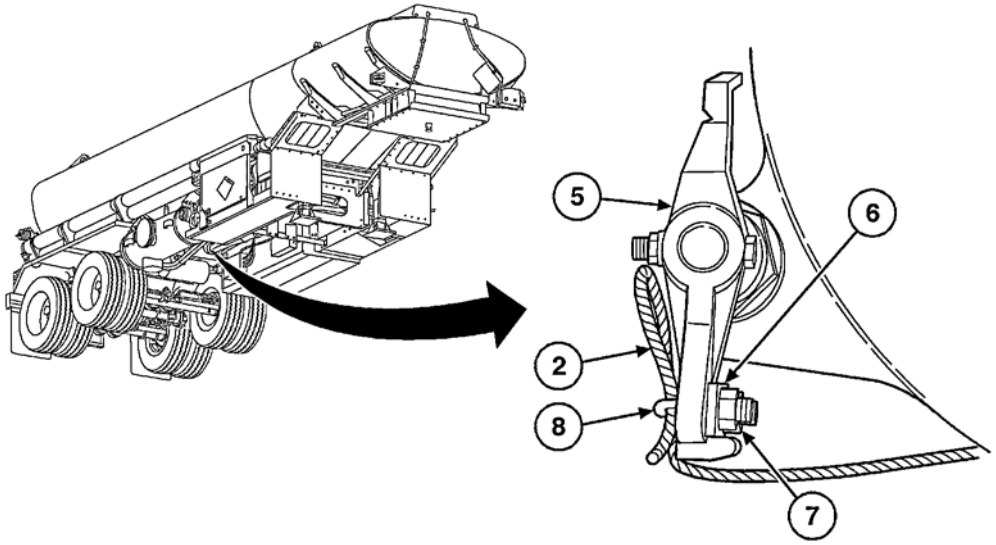
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Cables disconnected from valve A control handle (refer to WP 0139 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

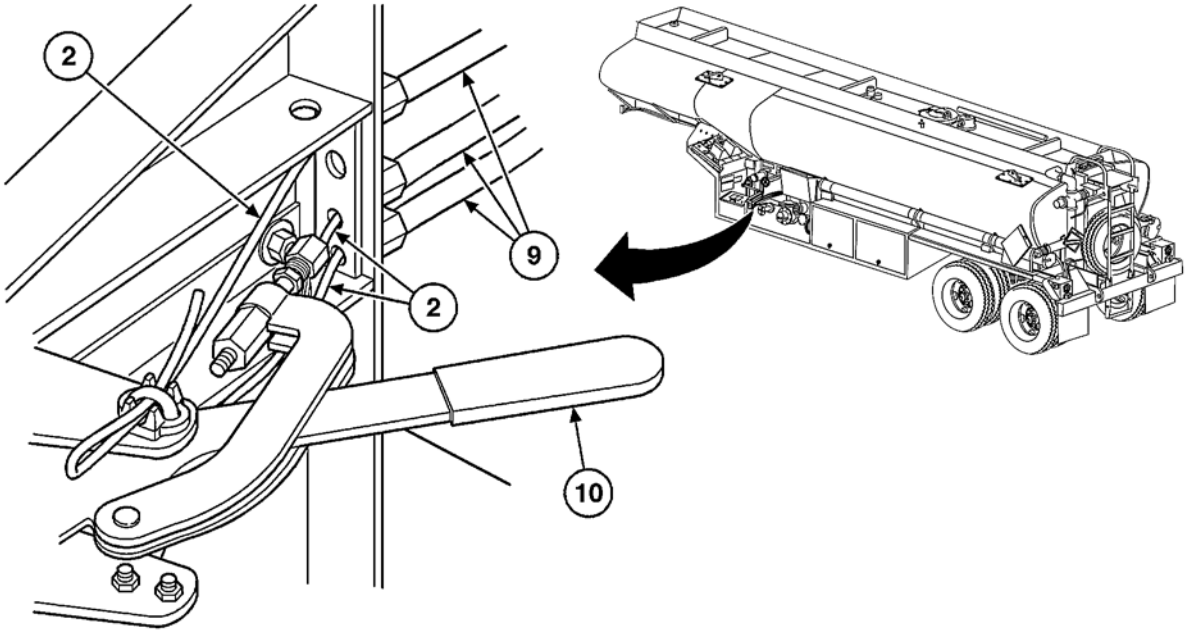
1. Remove four nuts (3), two U-bolts (4), and cables (2) from handles (1).



2. Remove two nuts (7), U-bolt (8), fuse plate and reinforcing plate (6), and cable (2) from lever (5).



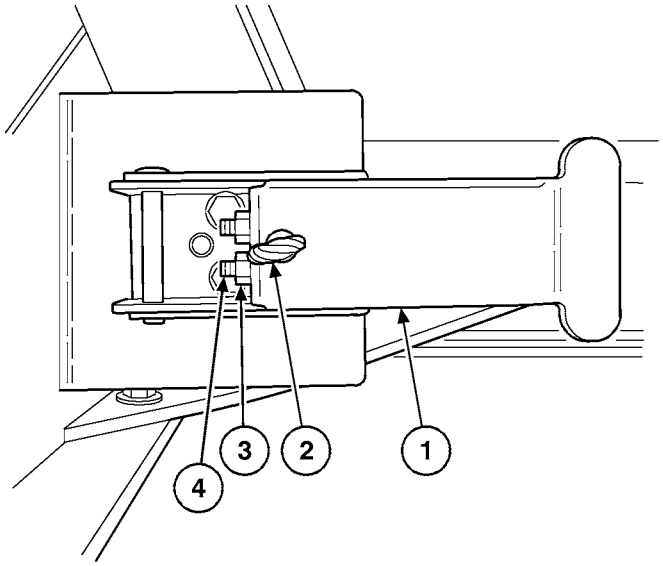
3. Remove three cables (2) from conduit (9) at valve A control handle (10).



INSTALLATION

1. Install three cables (2) through conduit (9) to handle (10).

2. Install two cables (2), U-bolts (4), and four nuts (3) to handles (1).



3. Install cable (2) to U-bolt (8), fuse plate and reinforcing plate (6), and two nuts (7) to lever (5).

FOLLOW-ON TASKS

1. Install cables to valve A control handle (WP 0139 00).
2. Disconnect semitrailer grounding cables (WP 0007 00)

END OF TASK

RECIRCULATION VALVE ASSEMBLY REPLACEMENT 0141 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

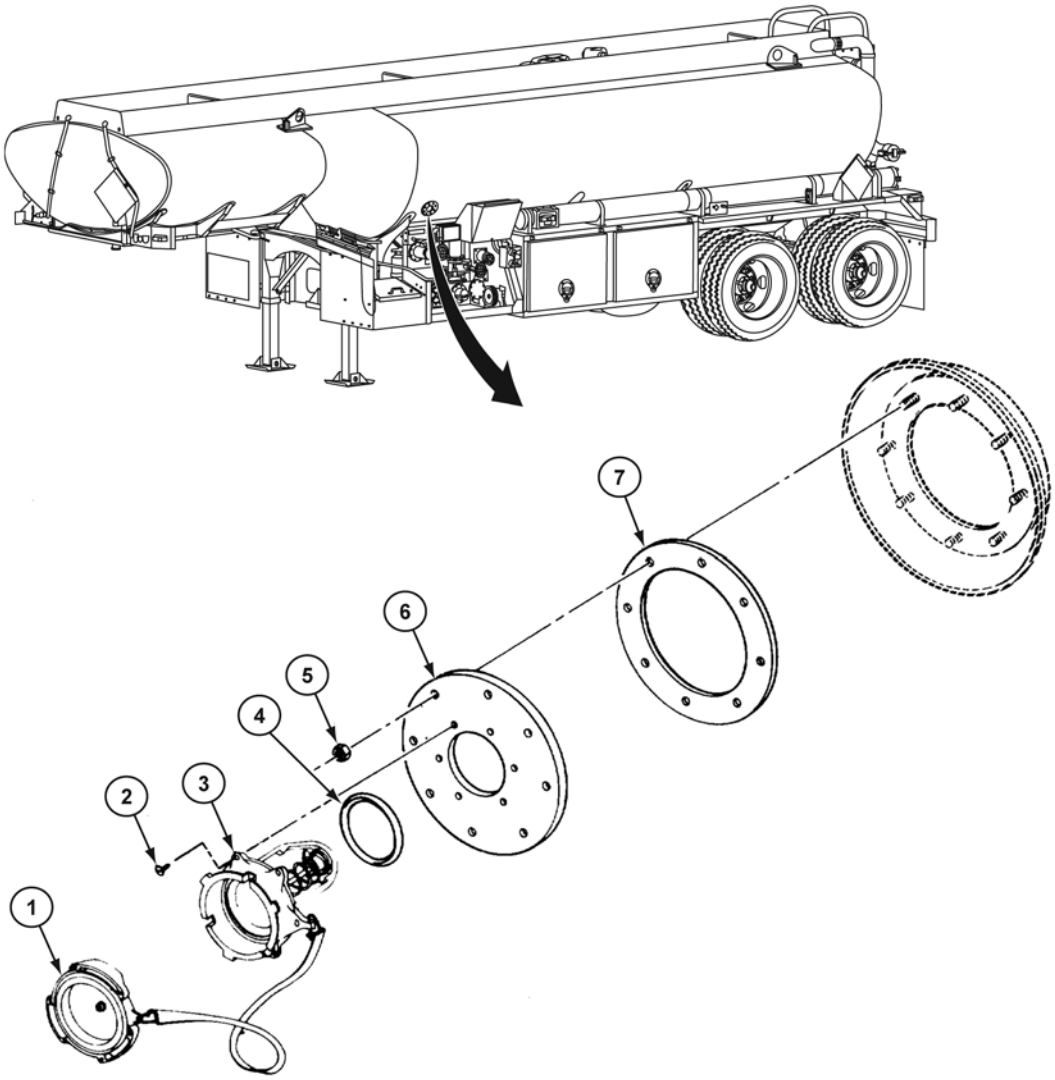
INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (8) (item 87, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer drained (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Fire extinguisher removed


1
2
3
4
5
6
7

RECIRCULATION VALVE ASSEMBLY REPLACEMENT —Continued **0141 00**

GASKET REPLACEMENT

1. Remove eight self-locking nuts (5). Discard nuts.
2. Remove adapter plate (6) and Gasket (7). Discard gasket
3. Install new gasket (7) over eight studs.
4. Replace adapter plate (6) and secure with eight self-locking nuts (5).

ADAPTER REPLACEMENT

1. Remove six screws (2).
2. Remove adapter (3) and O-ring (4) by pulling adapter from the adapter plate (6).
3. Install O-ring (4) in groove on adapter.
4. Install adapter (3) into hole in adapter plate and secure with six screws (2).

DUST CAP REPLACEMENT

1. Remove the dust cap (1) from the adapter (3).
2. Release the spring clip at the adapter (3) and remove cable and dust cap (1).
3. Attach spring clip to the adapter (3) and install dust cap (1) on adapter.

FOLLOW-ON TASKS

1. Install fire extinguisher.
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FIRE EXTINGUISHER BRACKETS REPLACEMENT 0142 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (8) (item 87, WP 0175 00)

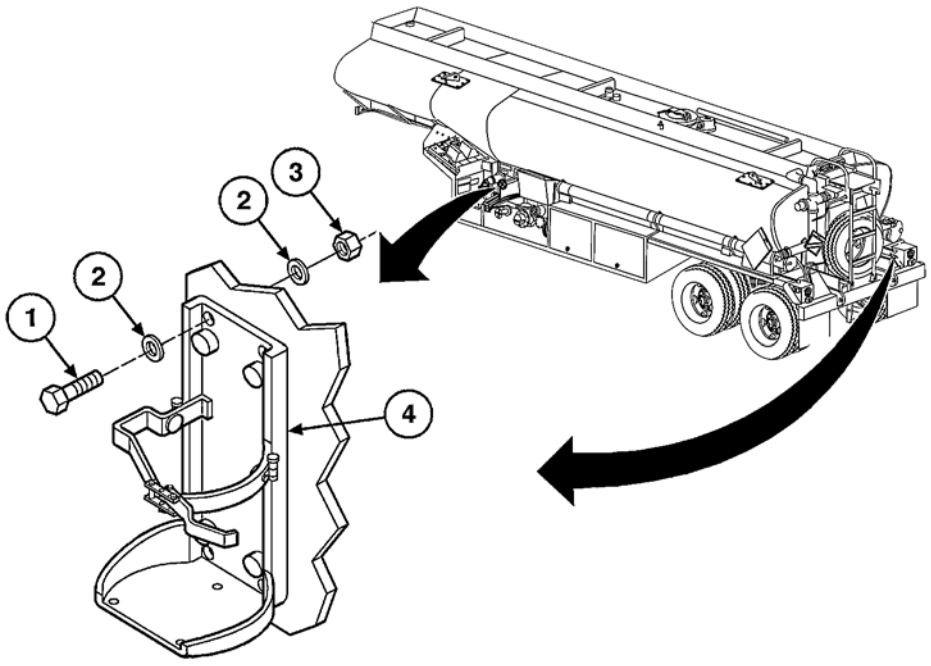
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Fire extinguisher removed

REMOVAL

NOTE

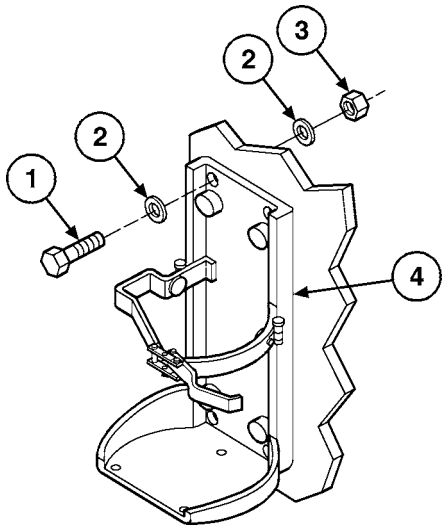
There are two fire extinguisher brackets and they are replaced the same way. This procedure replaces one fire extinguisher bracket.

Remove four self-locking nuts (3), eight washers (2), four bolts (1), and fire extinguisher bracket (4) from semitrailer. Discard self-locking nuts.



INSTALLATION

Install fire extinguisher bracket (4), four bolts (1), eight washers (2), and four new self-locking nuts (3) to semitrailer.



FOLLOW-ON TASKS

1. Install fire extinguisher.
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

DECONTAMINATION APPARATUS BRACKET REPLACEMENT 0143 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

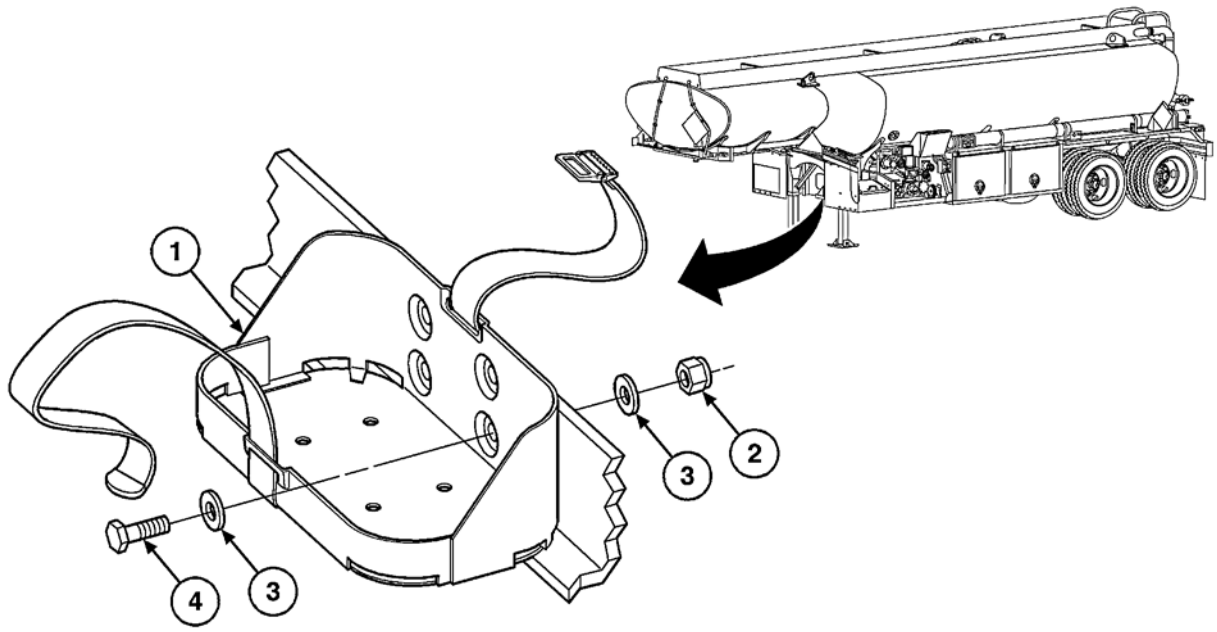
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Self-locking nuts (4) (item 87, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Decontamination apparatus removed

REMOVAL

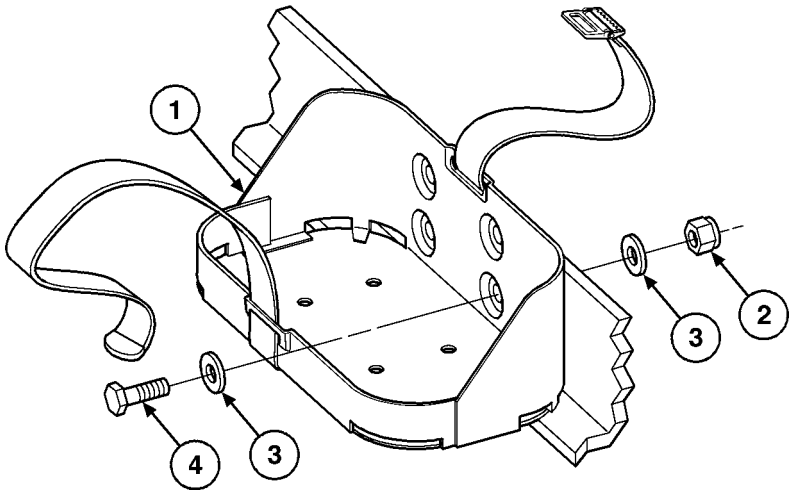
Remove four self-locking nuts (2), eight washers (3), four bolts (4), and decontamination apparatus bracket (1) from semitrailer. Discard self-locking nuts.



DECONTAMINATION APPARATUS BRACKET REPLACEMENT—Continued **0143 00**

INSTALLATION

Install decontamination apparatus bracket (1), four bolts (4), eight washers (3), and four new self-locking nuts (2) to semitrailer.



FOLLOW-ON TASKS

1. Install decontamination apparatus.
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FILL GAGE STORAGE TUBE CAP REPLACEMENT 0144 00

THIS WP COVERS:
Removal, Installation, Follow-On Task

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

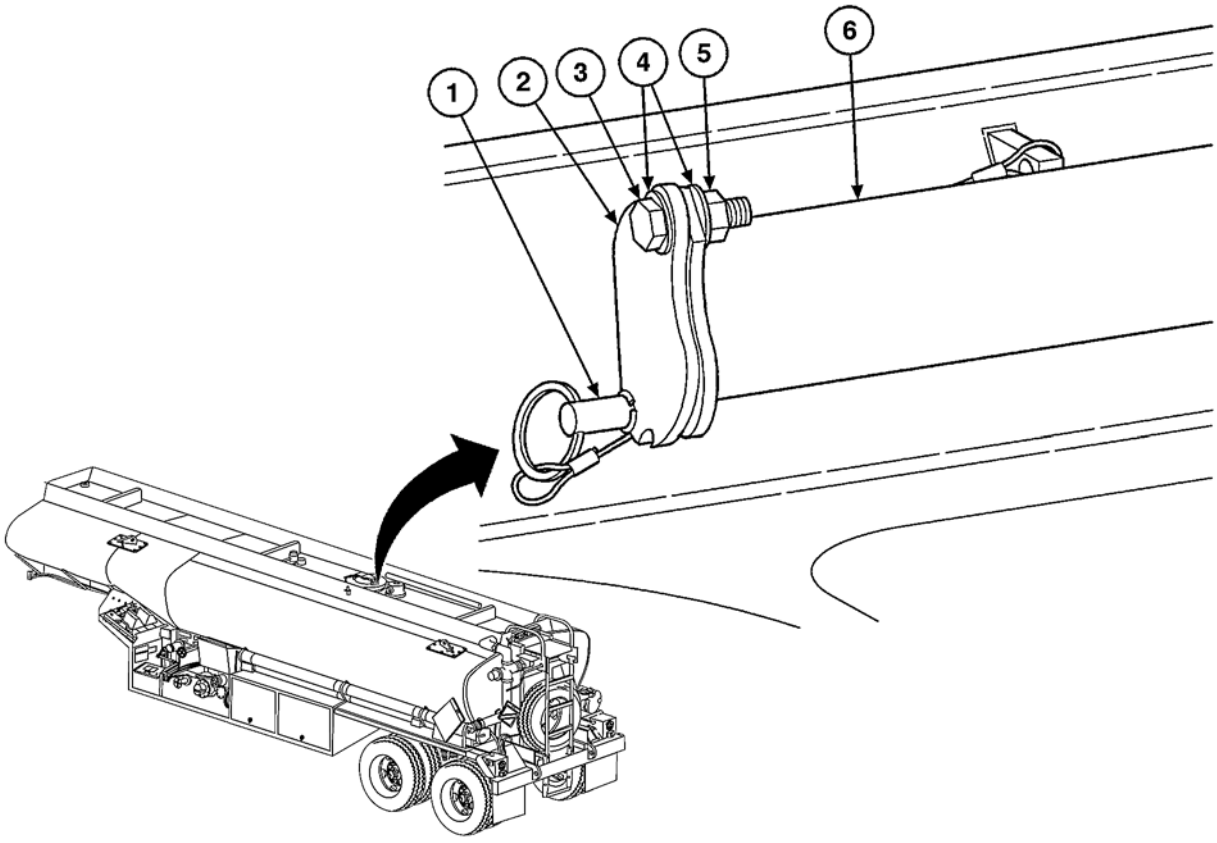
Materials/Parts Equipment
Self-locking nut (item 66, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

REMOVAL

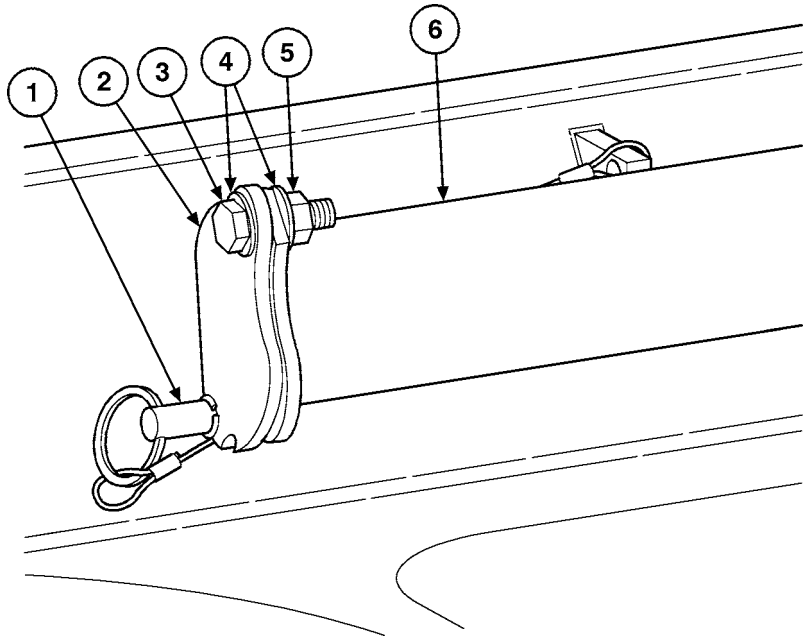
1. Remove pin (1) from end cap (2) and storage tube (6).

2. Remove self-locking nut (5), two washers (4), bolt (3), and endcap (2) from storage tube (6). Discard self-locking nut.



INSTALLATION

1. Install endcap (2), bolt (3), two washers (4), and new self-locking nut (5) to storage tube (6).
2. Install pin (1) to endcap (2) and storage tube (6).



FOLLOW-ON TASK

Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE OIL FILTER HEAD REPLACEMENT 0145 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, thread sealing (item 7, WP 0174 00)
Gaskets (2) (item 68, WP 0175 00)
Gaskets (2) (item 137, WP 0175 00)
Seal (item 36, WP 0175 00)

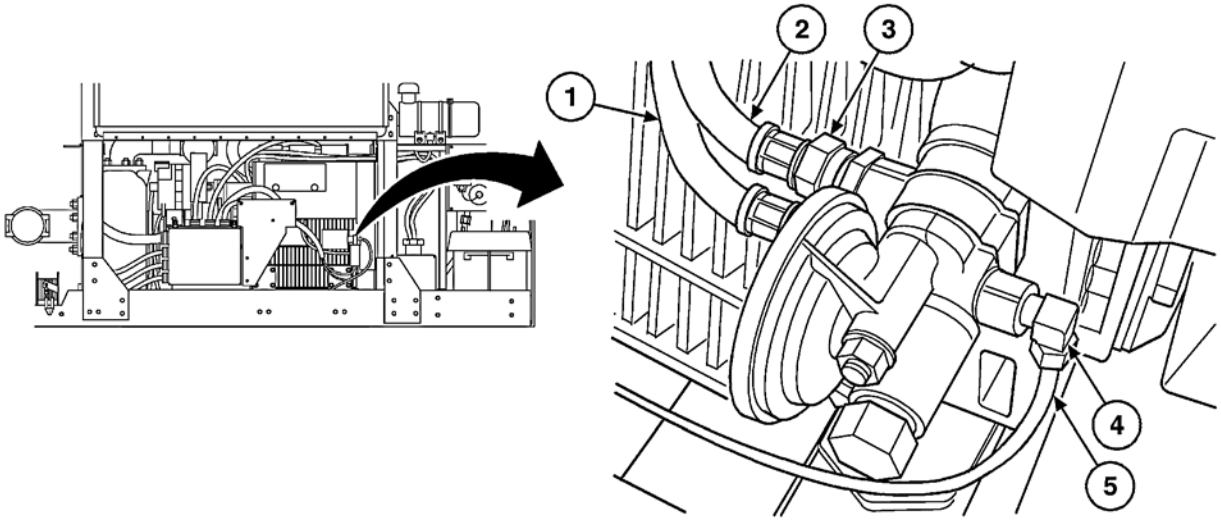
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Oil pressure switch removed (refer to WP 0104 00)
Oil filter removed (refer to WP 0104 00)

REMOVAL

NOTE

Tag oil lines prior to disconnecting.

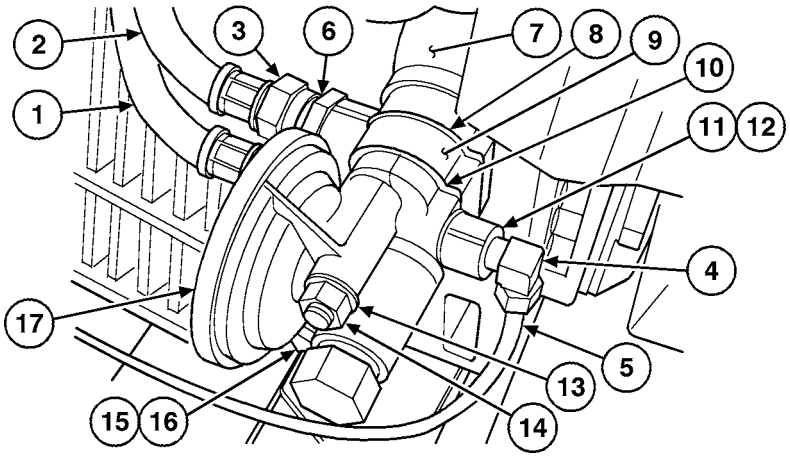
1. Disconnect oil cooler supply line (1) and return line (2) from fittings (3).
2. Disconnect oil pressure line (5) from fitting (4).



3. Remove two nuts (15 and 14), washers (16 and 13), oil filter head (17), gasket (10), plate (9), and gasket (8) from engine (7). Discard gaskets.

4. Remove two fittings (3) and gaskets (6) from plate (9). Discard gaskets.

5. Remove two fittings (4 and 11) and seal (12) from oil filter head (17). Discard seal.



INSTALLATION

NOTE

Apply thread sealing compound to threads of fittings.

1. Install new seal (12) and two fittings (4 and 11) to oil filter head (17).

2. Install two new gaskets (6) and fittings (3) to plate (9).

3. Install new gasket (8), plate (9), new gasket (10), oil filter head (17), washers (16 and 13), and nuts (15 and 14) to engine (7).

4. Connect oil pressure line (5) to fitting (4).

5. Connect return line (2) and oil cooler supply line (1) to fittings (3).

FOLLOW-ON TASKS

1. Install oil pressure switch (WP 0104 00).

2. Install oil filter (WP 0104 00).

3. Reconnect negative battery terminal (WP 0007 00).

4. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE OIL COOLER REPLACEMENT 0146 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Organizational

Materials/Parts
Cable tie (item 98, WP 0175 00)
Lockwashers (2) (item 43, WP 0175 00)

References
WP 0044 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Suitable container (item 1, WP 0171 00)

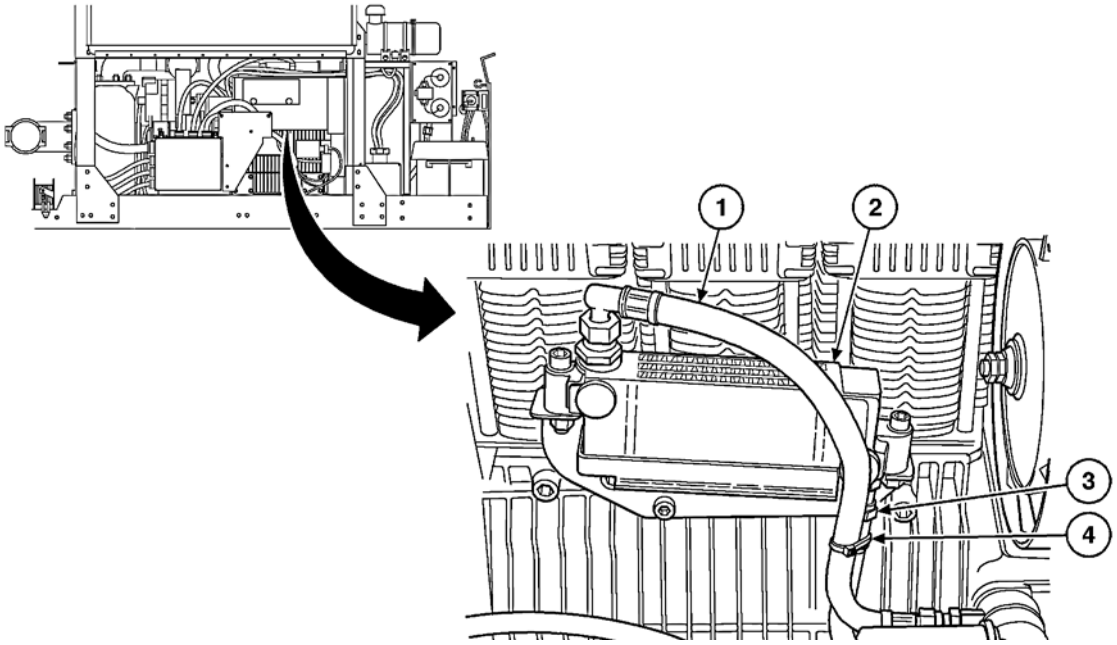
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Engine shroud removed (refer to WP 0148 00)

REMOVAL

NOTE

Position suitable container under oil cooler.

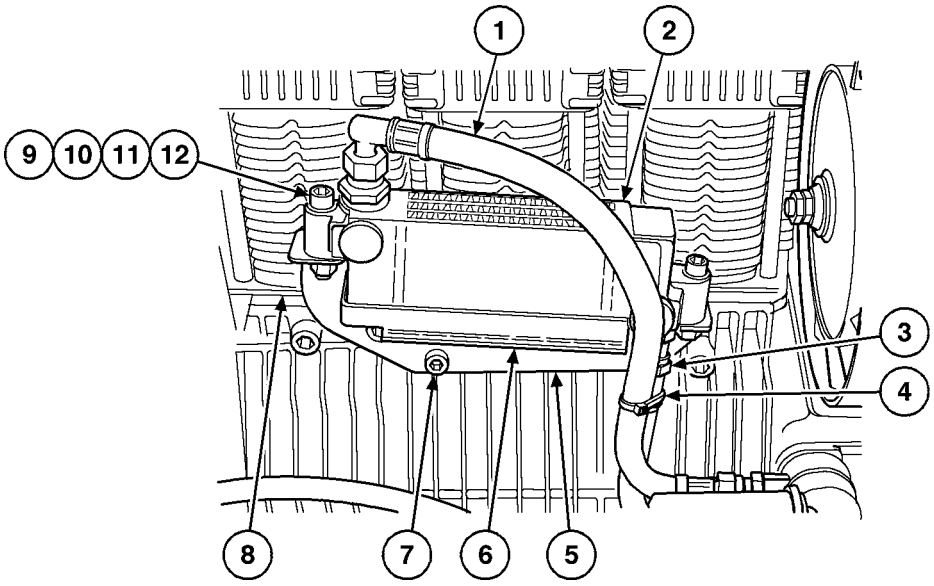
1. Remove oil return line (3) and supply line (1) from oil cooler (2).
2. Remove cable tie (4) from oil return line (3) and supply line (1). Discard cable tie.



3. Remove two nuts (9), lockwashers (10), washers (11), screws (12), and oil cooler (2) from bracket (5). Discard lockwashers.

4. Remove guard (6) from oil cooler (2).

5. Remove three screws (7) and bracket (5) from engine (8).



INSTALLATION

1. Install bracket (5) and three screws (7) to engine (8).

2. Install guard (6) to oil cooler (2).

3. Install oil cooler (2), two screws (12), washers (11), new lockwashers (10), and nuts (9) to bracket (5).

4. Install oil supply line (1) and return line (3) to oil cooler (2).

5. Install new cable tie (4) to oil supply line (1) and return line (3).

FOLLOW-ON TASKS

1. Install engine shroud (WP 0148 00).

2. Add engine oil as necessary (WP 0044 00).

3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

FUEL INJECTION LINES AND FITTINGS REPLACEMENT 0147 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4 WP 0171 00)

Materials/Parts Equipment
Copper washers (6) (item 62, WP 0175 00)
Copper washers (3) (item 64, WP 0175 00)

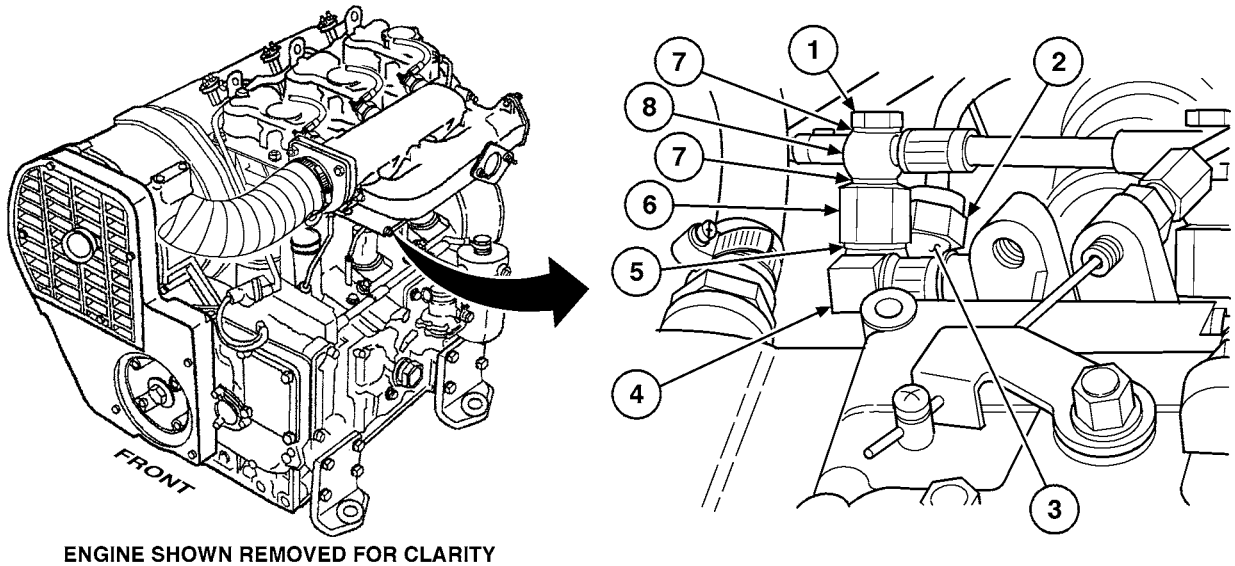
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

NOTE

There are three sets of fuel injection lines and they are replaced the same way. This procedure covers one fuel injection line.

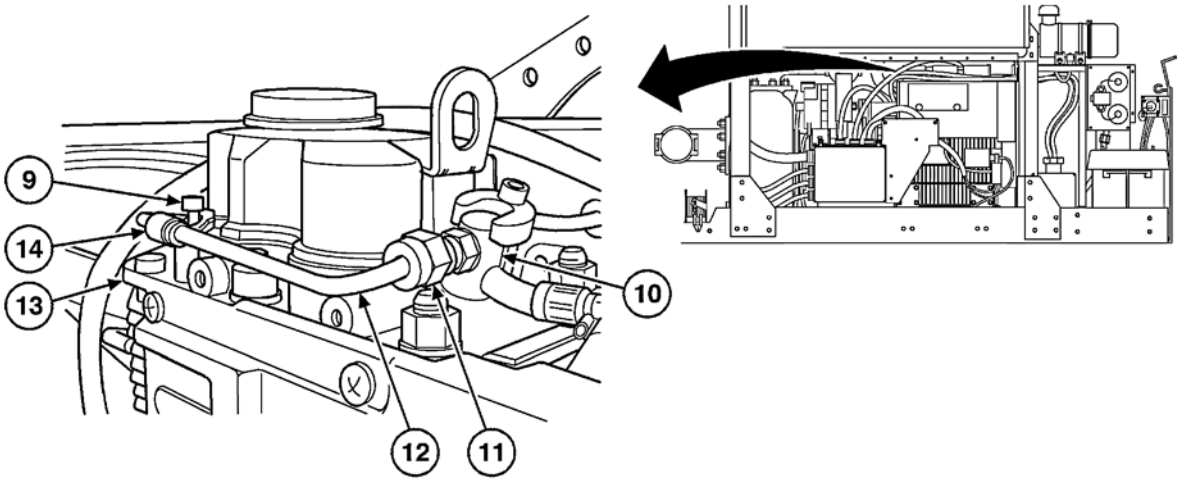
1. Remove screw (1), copper washer (7), fuel injection return line (8), and copper washer (7) from ported screw (6). Discard copper washers.
2. Remove ported screw (6), copper washer (5), fuel supply line (4), and copper washer (5) from fuel metering pump (3). Discard copper washers.
3. Loosen coupling nut (2) at fuel metering pump (3).



ENGINE SHOWN REMOVED FOR CLARITY

4. Remove screw (9) and clamp (14) from engine (13).

5. Loosen coupling nut (11) and remove fuel injection line (12) from fuel injector nozzle (10).



INSTALLATION

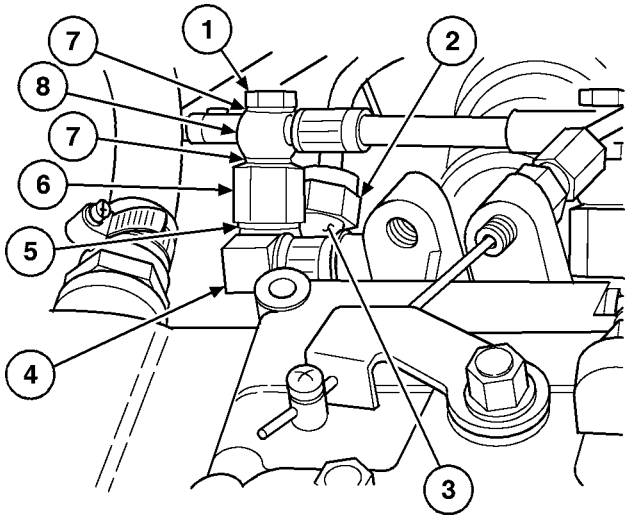
1. Install fuel injection line (12) to fuel injector nozzle (10) and tighten coupling nut (11).

2. Install fuel injection line (12) at fuel metering pump (3) and tighten coupling nut (2).

3. Install clamp (14) and screw (9) to engine (13).

4. Install new copper washer (5), fuel supply line (4), new copper washer (5), and ported screw (6) to fuel metering pump (3).

5. Install new copper washer (7), fuel injection return line (8), new copper washer (7), and screw (1) to fuel metering pump (3).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE SHROUD REPLACEMENT 0148 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

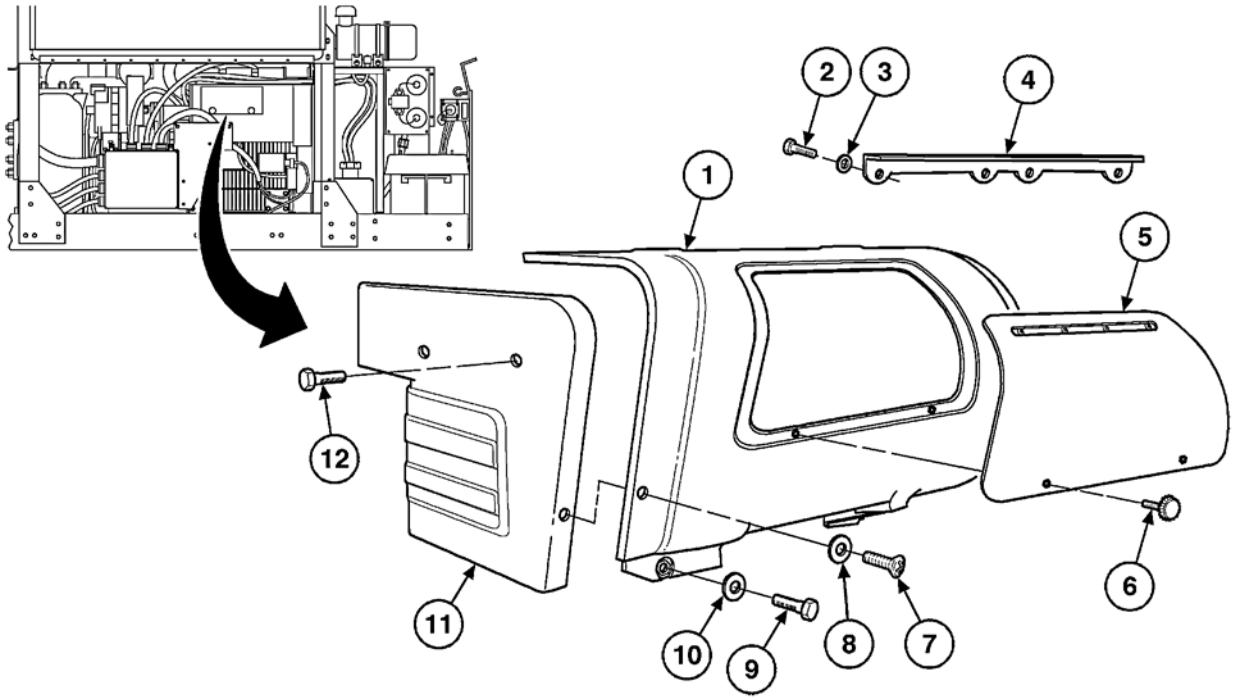
INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

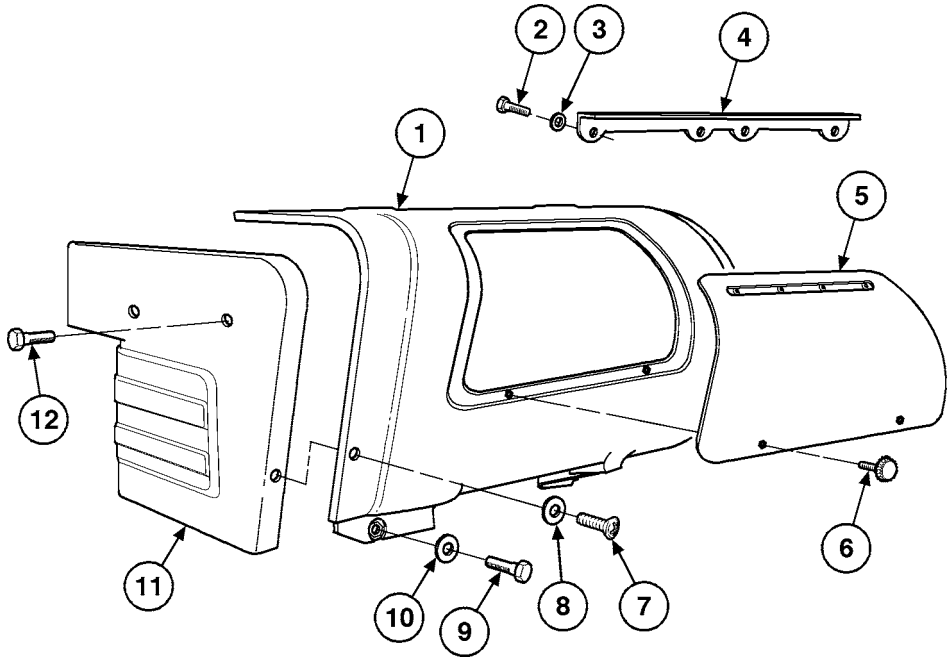
REMOVAL

1. Remove two thumb screws (6) and pan (5) from shroud (1).
2. Remove two screws (7), washers (8), five bolts (9), washers (10), and shroud (1).
3. Remove two screws (12) and rear shroud (11).
4. Remove four bolts (2), washers (3), and shroud mount (4).



INSTALLATION

1. Install shroud mount (4), four washers (3), and bolts (2).
2. Install rear shroud (11) and two screws (12).
3. Install shroud (1), five washers (10), bolts (9), two washers (8), and screws (7).
4. Install pan (5) and two thumb screws (6) to shroud (1).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

PUMP TUBING REPLACEMENT 0149 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

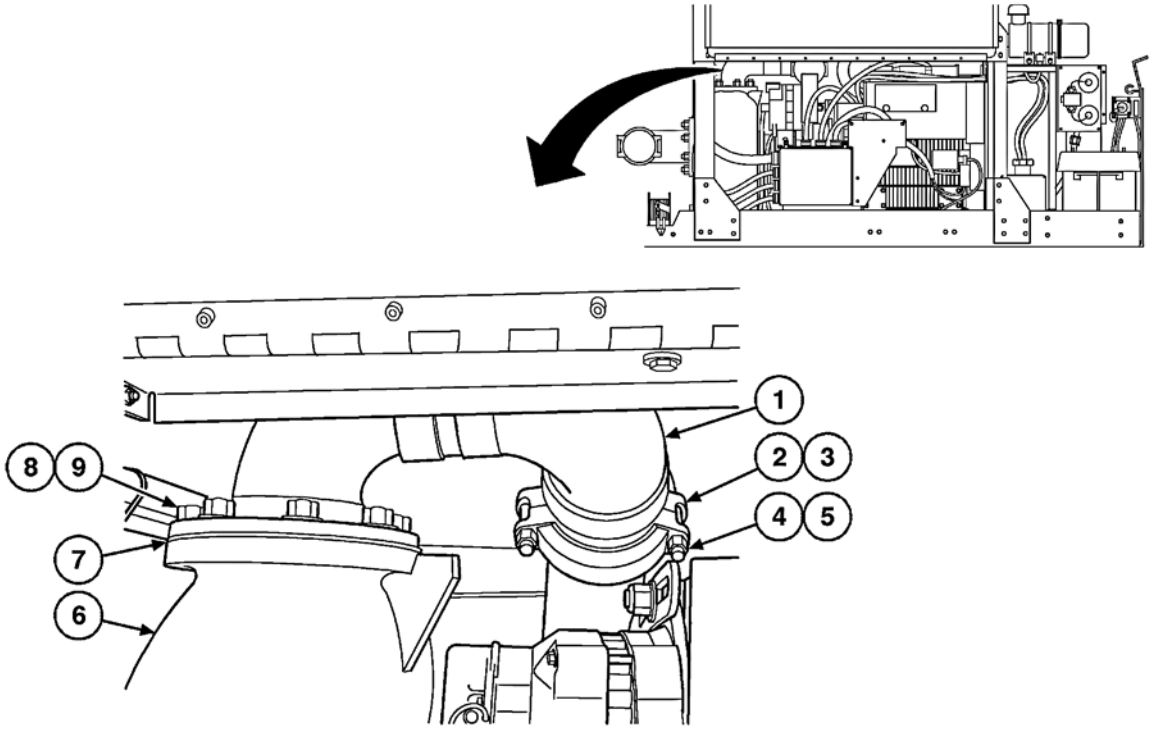
Materials/Parts Equipment
Gaskets (2) (item 142, WP 0175 00)
Lockwashers (16) (item 13, WP 0175 00)
Seals (4) (item 129, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)

REMOVAL

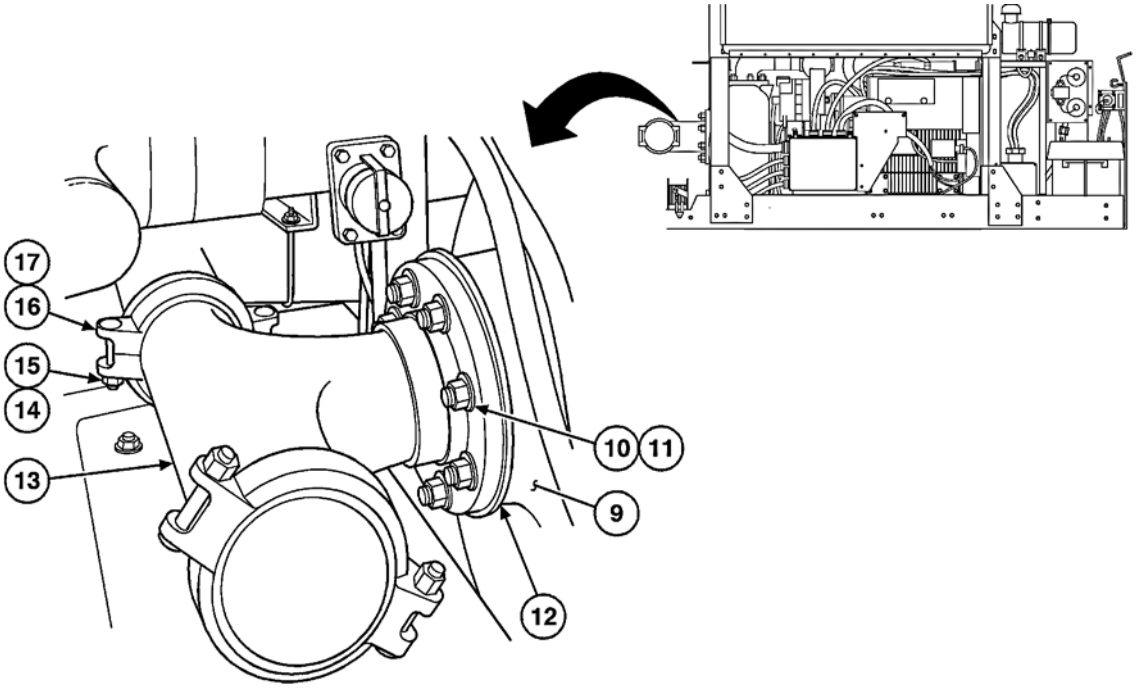
1. Remove four nuts (4), bolts (5), two split couplings (2), and seals (3) from pipe (1). Discard seals.

2. Remove eight bolts (8), lockwashers (9), gasket (7), and pipe (1) from pump (6). Discard lockwashers and gasket.



3. Remove four bolts (14), nuts (15), two split couplings (16), and seals (17) from pipe (13). Discard seals.

4. Remove eight nuts (10), lockwashers (11), gasket (12), and pipe (13) from pump (6). Discard lockwashers and gasket.

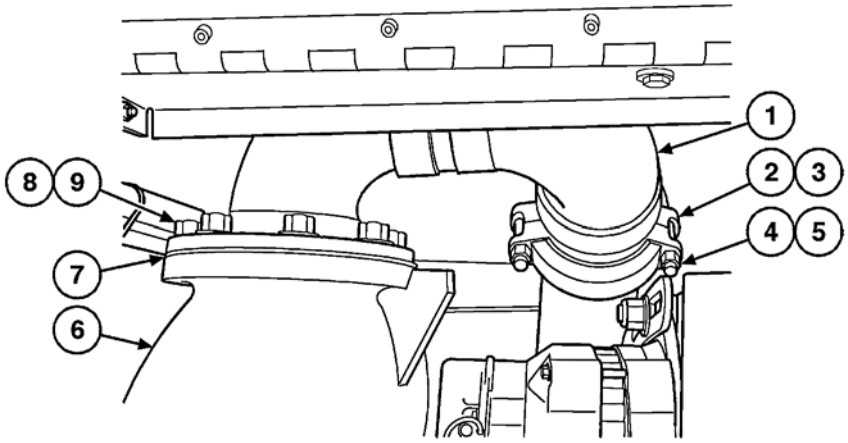


INSTALLATION

1. Install pipe (13), new gasket (12), eight new lockwashers (11), and nuts (10) to pump (6).

2. Install two new seals (17), split couplings (16), four nuts (15), and bolts (14) to pipe (13).

3. Install pipe (1), new gasket (7), eight new lockwashers (9), and bolts (8) to pump (6).
4. Install two new seals (3), split couplings (2), bolts (5), and nuts (4).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

PREPARATION FOR STORAGE OR SHIPMENT 0150 00

THIS WP COVERS:
General, Definition of Administrative Storage, Preparation for Administrative Storage, Exercise Schedule, Removal from Administrative Storage, Preparation of Equipment for Shipment

INITIAL SETUP:
Maintenance Level
Organizational

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

References

AR 20-1	MTMCTEA PAM 55-19
AR 55-355	TM 55-2350-293-14
AR 190-13	WP 0035 00
AR 190-51	WP 0044 00
AR 700-138	WP 0045 00
AR 750-1	TM 38-470
DA Form 2404	
DA Form 5988-E	
DA PAM 738-750	
DD Form 314	
DD Form 1397	

GENERAL

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

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

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

Report equipment in administrative storage in material readiness and unit readiness reports as prescribed for all reportable equipment.

Perform inspection, maintenance services, and lubrication as specified herein.

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

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

DEFINITION OF ADMINISTRATIVE STORAGE

Equipment placement in administrative storage can be for short periods when:

a. Units lack operating funds, personnel, other resources, or normal usage of its organic material.

b. Material exceeding the owning unit's capability for operation and maintenance must be retained by that unit for contingency or other reasons.

Installation or unit commanders may authorize the administrative storage of their material through guidance furnished by AR 750-1.

PREPARATION FOR ADMINISTRATIVE STORAGE

1. Except as indicated elsewhere in this WP, equipment placed in administrative storage should be capable of mission readiness with a 24-hour period or as otherwise prescribed by the approving authority. Before equipment is placed in administrative storage, perform current maintenance services, and correct any shortcomings or deficiencies. Apply all Modification Work Orders (MWOs).

2. Report equipment in administrative storage in material readiness and unit readiness reports as prescribed for all reportable equipment. Refer to AR 700-138 and AR 20-1.

3. Perform inspections, maintenance services, and lubrication in accordance with this manual.

4. Maintain records and reports for equipment in administrative storage as prescribed by DA PAM 738-750 for equipment in use.

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

Security

Instructions in this WP do not modify security procedures and requirements for classified or pilferable items. Refer to AR 190-13 and AR 190-51.

Storage Site

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

2. Covered storage space is preferred. When insufficient covered space is available for all semitrailers to be stored, select an open site.

3. Open sites should be improved hardstand, if available. Unimproved sites should be firm, well drained, and kept free of excessive vegetation.

Storage Plan

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

2. Take into account environmental conditions, such as extreme heat or cold, high humidity, blowing sand, dust or loose debris, soft ground, mud, heavy snows, earthquakes, or combinations thereof and take adequate precautions.

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

Maintenance Services and Inspections

Prior to storage, perform the next scheduled major preventive maintenance service (semi-annually or annually).

Basic Issue Items (BII)

1. Process BII simultaneously with the semitrailer to which they are assigned. If possible, store BII with the semitrailer.

2. If stored apart from the semitrailer, label BII with tags designating the vehicle, its registration, or serial number and location and store in protection-type closures.

3. In addition, place a tag or list indicating the location of the removed items in a conspicuous place in the semitrailer.

Corrections of Shortcomings and Deficiencies

Correct all shortcomings and deficiencies prior to storage, or get a deferment from the approving authority.

Lubrication

Lubricate equipment in accordance with applicable lubrication instructions (WP 0035 00, 0044 00) of this manual.

General Cleaning, Painting, and Preservation

1. Clean dirt, grease, and other contaminants from the equipment in accordance with this manual (WP 0045 00).

CAUTION

Do not direct high-pressure water or steam against air cleaner, air duct outlets, exhaust outlets, unsealed electrical systems, Automatic Fire Extinguishing System (AFES) equipment, or any exterior components. Moisture will cause electrical malfunctions. Condensation in ducts can cause corrosion.

2. After cleaning and drying, immediately coat all unpainted metal surfaces with oil or grease as appropriate.

NOTE

- **Air circulation under draped covers reduces deterioration from moisture and heat.**
- **Place a piece of cloth or other material between desiccant bags and metal surfaces.**

3. Sunlight, heat, humidity, and dirt tend to accelerate deterioration. Install all covers (including vehicle protection 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.

4. Place equipment and provide blocking or framing to allow for ventilation and water drainage. Support cover away from semitrailer surfaces that may rust, rot, or mildew.

Maintenance Services

After equipment has been placed in administrative storage, suspend all regularly scheduled preventive maintenance checks, services, inspections, and exercise as specified in this WP.

Inspection

1. A vehicle to be prepared for administrative storage must be given a limited technical inspection and be processed as prescribed on DD Form 1397. Enter the result of the inspection and classification on DA Form 2404 or DA Form 5988-E.

2. If a vehicle is not shipped or issued upon expiration of the administrative storage period, process as applicable in accordance with the appropriate vehicle specification.

3. If a vehicle to be shipped will reach its destination within the administrative storage period, it need not be reprocessed when removed from storage, unless necessary because of anticipated in-transit weather conditions.

4. Inspection will be visual and must consist of a walk-around examination of all equipment to observe any deficiencies that may have occurred. Inspect equipment in open storage weekly and equipment in covered storage monthly. Immediately after any severe storm or environmental change, inspect all equipment. The following are examples of things to look for during visual inspection:

    a. Leaks (coolant, fuel, or oil).

    b. Condition of preservation, seals, and wraps. Seals may develop leaks during storage during exercise, or shortly thereafter. If leaking continues, refer to the repair procedure in this manual.

    c. Corrosion or other deterioration.

    d. Damaged or missing parts.

e. Water in compartments.

f. Any other readily recognizable shortcomings or deficiencies.

EXERCISE SCHEDULE

To ensure use of all assigned material, rotate items in accordance with any rotational plan that will keep equipment in operational condition and reduce maintenance effort.

REMOVAL FROM ADMINISTRATIVE STORAGE

1. Remove preservative materials. Perform the next scheduled maintenance service and prepare equipment for service in accordance with instructions on DD Form 1397 and in this manual.

2. Resume the maintenance service schedule in effect after the commencement or storage as in accordance with DD Form 314. Refer to DA PAM 738-750.

PREPARATION OF EQUIPMENT FOR SHIPMENT

When shipping the semitrailer, the officer in charge of preparing the shipment will be responsible for furnishing the material in serviceable condition, properly cleaned, processed, packaged, and packed. Transport the semitrailer in accordance with TM 55-2350-293-14.

Removal of Preservatives Prior to Shipment

Personnel removing vehicle from storage for shipment must not remove preservatives other than to make sure the material is complete and serviceable. If preservatives have been removed, they must be restored to the prescribed level of preservation prior to shipment.

Army Shipping Documents

Prepare all Army shipping documents in accordance with AR 55-355.

Loading

CAUTION

When prepared for rail transportation, the vehicle's height and width must not exceed limitations prescribed for particular railway lines. Whenever possible, consult local transportation officers about limitations of particular railroad lines to be used for movement in order to avoid delays, dangerous conditions, or damage to equipment.

1. When the vehicle is shipped by rail, take every precaution to see that it is properly loaded, blocked, and securely fastened to the flatcar floor.

2. Inspect flatcar prior to loading. Make sure flatcar is in suitable condition to carry loads safely.

3. Prepare the flatcar for loading by removing debris, previous blocking, nails, and other obstructions. Inspect the flatcar for loose or broken floor planks. If found unsatisfactory, reject the flatcar for use.

4 If suitable hoisting equipment, permanent loading ramps, and handling equipment are not available for loading or unloading material, construct improvised runways, ramps, and spanning platforms.

5. Loading must be governed by the capacity and length of flatcars available at the time of shipment, as well as requirements of bills of loading and shipping instructions.

6. Position the vehicle as far from the brake wheel end of the flatcar as space permits. Provide minimum clearance of 4 in. (10.2 cm) below and 6 in. (15.2 cm) above, behind, and to each side of the flatcar brake wheel.

Blocking

All blocking instructions specified herein are minimum and are in accordance with the Association of American Railroads Pamphlet, Section No. 6 (Rules for Governing the Loading of Department of Defense Material on Open-Top Cars). Additional blocking may be added at the discretion of the officer in charge.

Blocks

Construct four chock blocks: two to fit the angle between the front wheels and car deck and two to fit the angle between the rear wheels and car deck at the rear of the vehicle.

1. Using lumber 1-5/8 in. (4.13 cm) thick, make chock blocks 12 in. (30.5 cm) wide and a minimum of 18 in. (45.7 cm) high. Nail the pieces together with 20-penny nails.

2. Place one chock block against the front of each wheel and against the rear of each wheel. Toenail chock blocks to the car floor with 40-penny nails.

End Cleats

1. Place one end cleat (2 x 4 x 12 in. [5.1 x 10.2 x 30.5 cm]) against the end of each chock block and secure it to the car deck with 30-penny nails. Eight are required.

2. Place upper cleat on top of lower cleat and secure to lower cleat with 30-penny nails.

Side Cleats

1. Locate one cleat (2 x 3 x 10 in. [5.1 x 7.6 x 25.4 cm]) against inside and outside of each chock block. Eight are required.

2. Secure each to the car deck with 20-penny nails.

Holddown Rods

1. Thread both ends of the holddown rod (1-1/4 in. [3.2 cm] in diameter) as long as required.

2. Insert one end of the holddown rod through the lifting eye on the front of the vehicle.

3. Bend the rod and insert the other end through the stake picket on opposite side of the flatcar.

4. Repeat the operation with the second rod and lifting eye on the front of the vehicle and with two rods on the rear of the vehicle.

Transportation

When transporting the semitrailers by any means other than railroad flatcar, transport in accordance with MTMCTEA PAM 55-19.

END OF TASK

CHAPTER 8

DIRECT SUPPORT/GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

GENERAL MAINTENANCE INSTRUCTIONS 0151 00

THIS WP COVERS:
General Maintenance Procedures

INITIAL SETUP:

Maintenance Level	Tools and Special Tools
Direct and General Support	Tool kit, general mechanic's (item 4, WP 0171 00)
Materials/Parts References	
Compound, cleaning (item 4, WP 0174 00)	TM 9-214

This WP contains general maintenance instructions that are the responsibility of Direct and General Support maintenance personnel. These instructions pertain to the cleaning and servicing of components and assemblies.

Make sure that all safety precautions listed in the Warning Summary are followed while performing maintenance. Pay close attention to all Warnings and Cautions.

WORK AREA

1. Make sure the work area is clean before you begin repair procedures.

2. Make sure that materials needed for the maintenance task are at hand. These may include cleaning compound, lubricants, buckets, or other containers for cleaning or for keeping components separated, clean wiping cloths, and proper tools.

CLEANING OF COMPONENTS, ASSEMBLIES, AND PARTS

CAUTION

To prevent damage to machine-surfaced parts, be sure to clean the exterior of the component or assembly before disassembly.

1. Clean exterior of component or assembly before disassembly to keep foreign matter from bearings, gears, and other machine-surfaced parts that are subject to scoring and other such damage.

WARNING

Compressed air used for drying or cleaning purposes must not exceed 30 psi (207 kPa). Wear protective clothing (goggles and gloves) and use caution to avoid injury to personnel.

2. If compressed air is used to clean parts, make sure it is free of dirt and other contaminants.

3. Protect disassembled parts from dust, blowing sand, and moisture, which can cause rapid wear and deterioration of bearings, gears, and other machine parts.

GENERAL INSTRUCTIONS

1. During disassembly, remove only as many parts or components as required for indicated repair. Complete disassembly of a component is not always necessary. Use good judgment to keep disassembly operations to a minimum.

2. During disassembly, tag critical parts to ensure proper reassembly. Mark mating parts by scribe marks or indelible ink to be certain of correct positioning at assembly.

3. Check any tags or forms attached to equipment to learn the reason for the equipment having been removed from service. Check Modification Work Orders (MWOs) and Technical Bulletins (TBs) for equipment changes and updates.

4. Unserviceable or unrepairable assemblies will be broken down into items of issue and serviceable parts will be returned to stock. Parts or assemblies that cannot be repaired, selective fitted, or reclaimed to standards contained in this manual will be salvaged and replaced with new parts.

5. If required new part is not available, reconditioning of the old part is necessary. Carefully inspect such parts to determine their suitability and probable service life. Immediately requisition replacement parts.

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

7. Do not remove dowel pins or studs unless loose, bent, broken, or otherwise damaged.

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

9. Replace seals and gaskets of all disassembled components.

10. Replace springs if broken, distorted, cracked, or if they do not conform to specific tensile standards.

11. Replace screws or nuts having damaged threads or rounded corners. Replace cotter pins, lockwashers, self-locking nuts, and self-locking screws.

12. Replace keys if damaged.

13. During assembly, assemble the subassemblies first. Then combine the subassemblies into major components and install to make a complete major assembly.

WARNING

Cleaning compounds can burn easily, give off harmful vapors and are harmful to skin and clothing. When using them, keep away from open fire and use in a well-ventilated area to avoid possible injury or death. If cleaning compound gets on skin or clothing, wash immediately with soap and water.

WARNING

Compressed air used for drying or cleaning purposes must not exceed 30 psi (207 kPa). Wear protective clothing (goggles and gloves) and use caution to avoid injury to personnel.

NOTE

Refer to TM 9-214 for more information on the inspection, care, and maintenance of bearings.

14. Clean ball and roller bearings by placing in a wire basket and immersing in a container of fresh cleaning compound. Agitate bearings in compound to remove all traces of old lubricant.

15. After cleaning bearings, dry them with clean compressed air. Take care to prevent spinning the bearings when using compressed air jet.

16. Dip cleaned bearings in clean engine oil and immediately wrap them in a lint-free cloth to protect them from dust and other foreign matter.

END OF TASK

SPECIFIC MAINTENANCE INSTRUCTIONS **0152 00**

THIS WP COVERS:
Welding; Surface Protection; Repair of Damaged Threads; Removal of Burrs; Scratches; and Raised Metal; Tagging Wires and Hoses; Cleaning Materials and Methods; Cleaning of Materiel Received from Storage; Cleaning After Shop Inspection; Lubrication; Pneumatic Leakage Test

INITIAL SETUP:

Maintenance Level
Direct and General Support

Materials/Parts
Brush, scrub (item 1, WP 0174 00)
Cloth, abrasive (item 2, WP 0174 00)
Compound, cleaning (item 4, WP 0174 00)
Compound, corrosion preventive (item 5, WP 0174 00)
Tags, marker (item 15, WP 0174 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
File (item 4, WP 0171 00)

References
TB-43-0209
TM 9-237
TM 9-247
TM 43-0139
WP 0035 00
WP 0044 00
WP 0167 00

This WP contains maintenance instructions that are the responsibility of Direct Support maintenance personnel; these instructions pertain to several components or assemblies. Specific information on welding, surface protection, repair of damaged threads, removal of burrs and other imperfections, tagging of wires and hoses, cleaning materials and methods, and a reference for performing a pneumatic leakage test are provided.

Make sure that all safety precautions listed in the Warning Summary are followed while performing maintenance. Pay close attention to all Warnings and Cautions.

WELDING

1. Refer to TM 9-237 for welding instructions and materials. All welds must reflect good workmanship and approved welding procedures. Welds must be secure and free from cracks, excessive spatter, and obvious defects.

2. Read and observe all safety precautions in the Warning Summary before performing any welding operation.

PAINTING AND STENCILING

1. General instructions are included in TB 43-0209 and TM 43-0139.

2. Spot painting and marking (stenciling) of tactical vehicles will be performed under the control of Organizational maintenance personnel.

3. Painting of a complete tactical vehicle can be authorized and performed on by Direct Support maintenance or by higher support elements.

4. Do not paint grounding studs, electrical harnesses, or leads.

REPAIR OF DAMAGED THREADS

1. When determined feasible by inspection, damaged threads should be repaired by re-tapping, using a thread die or a thread restorer file.

2. Tapped holes for screw thread inserts that have mutilated threads may be repaired by either of the following methods:

   a. Drilling and tapping to make the hole oversize, then installing larger screw

   b. Filling tapped hole by welding, then re-drilling and tapping hole to original size.

REMOVAL OF BURRS, SCRATCHES, AND RAISED METAL

WARNING

Cleaning compounds can burn easily, give off harmful vapors, and are harmful to skin and clothing. When using them, keep away from open fire and use in a well-ventilated area to avoid possible injury or death. If cleaning compound gets on skin or clothing, wash immediately with soap and water.

1. Use a file or abrasive cloth dipped in cleaning compound to remove burrs, scratches, or raised metal.

2. When filing aluminum, clean file often with a scrub brush to avoid loading file with aluminum particles, which will gouge work surfaces.

TAGGING WIRES AND HOSES

1. As soon as the first wire, hose, or tube is disconnected, write number “1” on two tags. Secure one tag to the wire, hose, or tube and the other tag to the terminal, nipple, or fitting.

2. After disconnecting the second wire, hose, or tube, write number “2” on two tags. Secure one tag to the wire, hose, or tube, and second tag to the terminal, nipple, or fitting.

3. Do the same for all wires, hoses, and tubes.

4. Note which numbers you used in pencil, on art in this manual. This will help you to accurately re-tag, if tags are removed to perform cleaning and maintenance work.

5. Remove all tags when finished.

CLEANING MATERIALS AND METHODS

1. Refer to TM 9-247 for cleaning materials to be used.

WARNING

Cleaning compound is toxic and flammable. Always wear protective goggles and gloves and use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes and do not breathe vapors. Do not use near open flames or excessive heat.

2. Cleaning is normally done by the dip-tank and/or vapor-degreaser methods, or by cleaning with cloths soaked in cleaning compound.

CLEANING OF MATERIEL RECEIVED FROM STORAGE

1. Clean materiel received from storage by Direct Support maintenance units by the dip-tank, vapor-degreaser, or steam method, whichever is applicable or available.

WARNING

Cleaning compounds can burn easily, give off harmful vapors, and are harmful to skin and clothing. When using them, keep away from open fire and use in a well-ventilated area to avoid possible injury or death. If cleaning compound gets on skin or clothing, wash immediately with soap and water.

a. Dip-tank method. Disassemble as required and place parts in a perforated metal basket. Submerge and agitate basket in a tank containing cleaning compound. Repeat using a second tank with cleaning compound. Extent of treatment in each tank will depend on ease with which parts are cleaned.

b. Vapor-degreaser method. Tanks containing a heated solution of perchloroethylene (Type II) or other degreaser is used for degreasing items that are very greasy or oily and are not readily cleaned by the dip-tank method. Place parts in a perforated metal basket and submerge below the vapor tank. Keep basket in this position until all grease, oil, or dirt melts and runs off the parts. If necessary, materiel may be washed with a degreasing spray unit.

c. Steam method. Place parts in a perforated metal basket and steam-treat until clean. This method is less efficient than vapor-degreaser method, and parts may require additional cleaning to remove final traces of grease, oil, or dirt, particularly from recesses.

2. If some time is to elapse before the start of repair or overhaul operation, apply a coat of corrosion preventive oil to all finished metal surfaces to prevent rusting.

CLEANING AFTER SHOP INSPECTION

WARNING

Compressed air used for drying or cleaning purposes must not exceed 30 psi (207 kPa). Wear protective clothing (goggles and gloves) and use caution to avoid injury to personnel.

After in-process shop inspection, dip parts in tank containing corrosion preventive. Remove parts using rubber gloves and dry thoroughly with compressed air or by wiping with clean lint-free cloths. Apply preservatives as soon as possible after cleaning.

LUBRICATION

Refer to WP 0035 00 and WP 0044 00 for lubrication instructions.

VAPOR INTEGRITY TEST

Refer to WP 0168 00.

END OF TASK

TRUNNION TUBE AND HANGERS REPLACEMENT 0153 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Materials/Parts
Self-locking nuts (4) (item 59, WP 0175 00)
Self-locking nuts (8) (item 112, WP 0175 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Axles removed (refer to WP 0153 00)
Leaf springs removed (refer to WP 0154 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Tool set, common no. 1 (item 1, WP 0171 00)

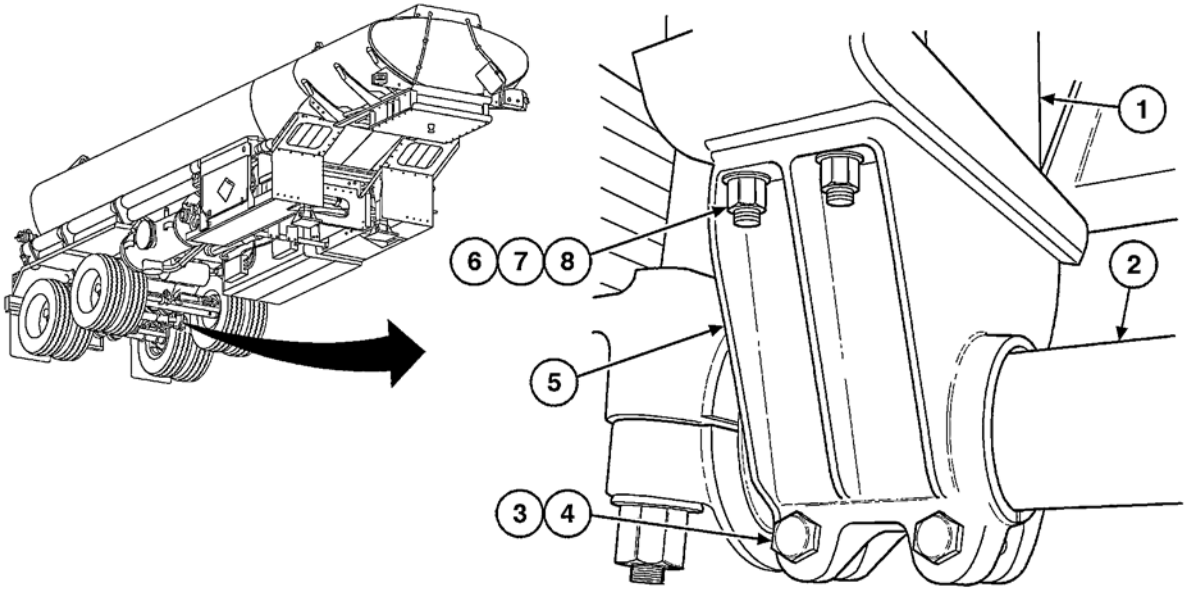
References
TB 9-2510-242-40

REMOVAL

1. Remove four self-locking nuts (3), bolts (4), and trunnion tube (2) from two trunnion hangers (5). Discard self-locking nuts.

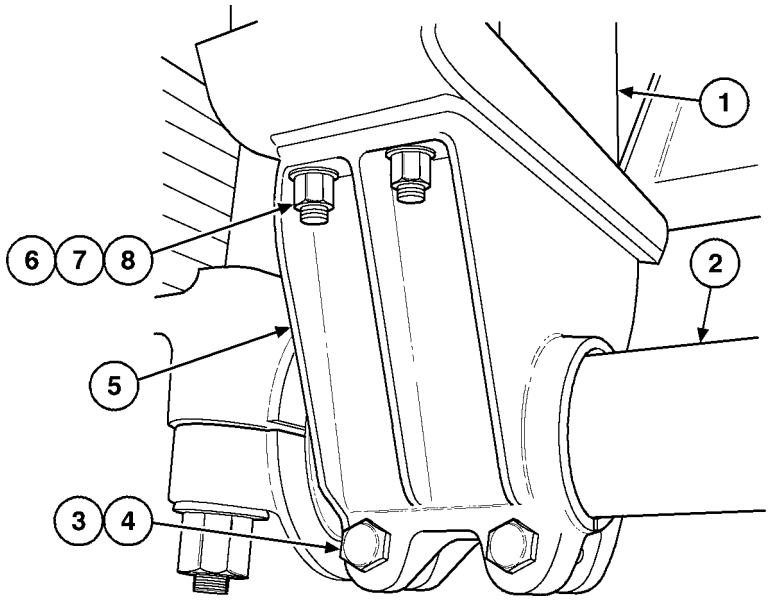
2. Remove 8 self-locking nuts (6), 16 washers (7), and 8 bolts (8) from two trunnion hangers (5). Discard self-locking nuts.

3. Remove two trunnion hangers (5) from frame (1) (refer to TB 9-2510-242-40).



INSTALLATION

1. Install two trunnion hangers (5) to frame (1) (refer to TB 9-2510-242-40).
2. Install 8 bolts (8), 16 washers (7), and 8 new self-locking nuts (6) to two trunnion hangers (5).
3. Install trunnion tube (2), four bolts (4), and new self-locking nuts (3) to two trunnion hangers (5).



FOLLOW-ON TASKS

1. Install leaf springs (WP 0154 00).
2. Install axles (WP 0153 00).
3. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

AXLES REPLACEMENT 0154 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Personnel Required
Two

References Equipment
WP 0070 00

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Tool set, common no. 1 (item 1, WP 0171 00)
Jacks (2) (item 3, WP 0171 00)
Lifting device (item 1, WP 0171 00)

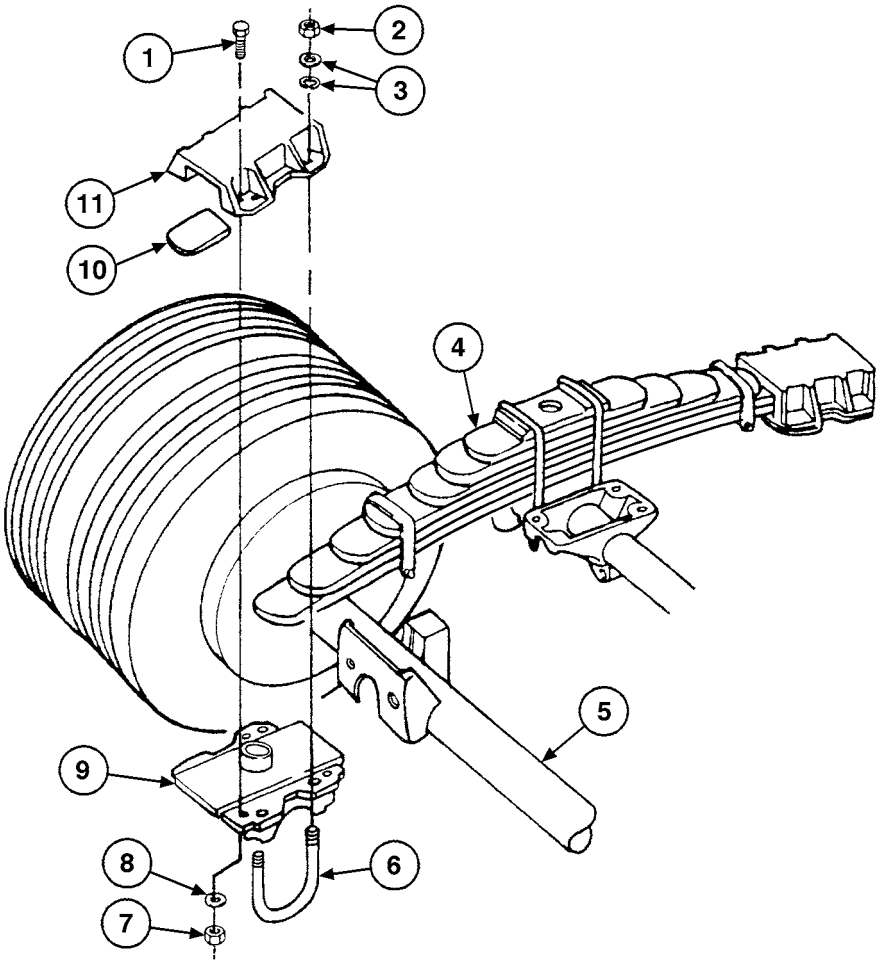
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer parked on hard level surface (refer to WP 0007 00)
Air reservoir drained (refer to WP 0007 00)
Wheel assemblies removed (refer to WP 0007 00)
Hub and brakedrum assemblies removed (refer to WP 0068 00)
Air brake chambers removed (refer to WP 0071 00)
Slack Adjusters Removed (refer to WP 0069 00)

NOTE

- **There are two axles and they are replaced the same way. This procedure replaces one axle.**
- **Unplug ABS sensors if necessary (refer to WP 0070).**

REMOVAL

1. Using lifting device, raise rear of semitrailer until weight of both suspension springs (4) has been removed from axle (5). Support or crib semitrailer frame securely.
2. Position and raise two jacks to support axle (5). Remove supports or cribbing from under axle.
3. Remove four nuts (7), washers (8), and screws (1) from spring end cap (11), and spring seat (9) on axle (5).
4. Remove four nuts (2), eight washers (3), and two U-bolts (6) from spring seat (9) and spring end cap (11) on axle (5).
5. Remove spring seats (9) and two cushioning pads (10) from axle (5).
6. Repeat steps 3 thru 5 for other side of axle (5).
7. Using jacks, slowly lower and remove axle (5) from under semitrailer.



INSTALLATION

1. Using jacks, position axle (5) in place under semitrailer. Raise jacks and rotate axle into position on ends of both suspension springs (4).
2. At each end of axle (5), loosely install spring seats (9), two cushioning pads (10), and spring end cap (11) with two U-bolts (6), eight washers (3), and four nuts (2).
3. At each end of axle (5), loosely install spring end cap (11) on spring seat (9) on axle (5) with four screws (1), washers (8), and nuts (7).
4. Torque eight nuts (2 and 7) evenly to 200 to 320 lb-ft (271 to 434 N•m).
5 Position supports or cribbing under axle (5). Lower and remove jacks.
6. Using lifting device, raise rear of semitrailer and remove supports or cribbing. Lower semitrailer to ground.

NOTE

Plug in ABS sensors if necessary (refer to WP 0068 00).

FOLLOW-ON TASKS

1. Install air brake chambers (WP 0071 00).
2. Install slack adjusters (WP 0069 00)
3. Install hub and brakedrum assemblies (WP 0068 00).
4. Install wheel assemblies (WP 0007 00).
5. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

LEAF SPRINGS REPLACEMENT 0155 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Materials/Parts
Grease (item 8, WP 0174 00)
Self-locking nuts (WP 0208 00)
U-bolts (WP 0208 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Tool set, common no.1 (item 1, WP 0171 00)
Lifting device (item 1, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Air reservoir drained (refer to WP 0070 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Axles removed (refer to WP 0154 00)

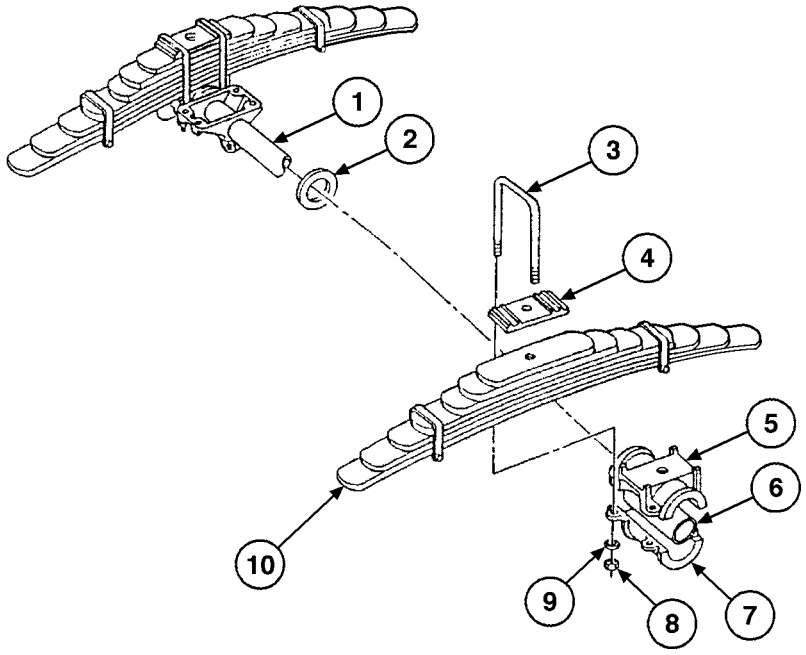
REMOVAL

NOTE

Semitrailer has two leaf springs. This procedure covers only one leaf spring.

LEAF SPRINGS REPLACEMENT—Continued **0155 00**

1. Remove four self locking nuts (8) and washers (9) from two U-bolts (3). Discard nuts.
2. Remove two U-bolts (3), and wear plate (4) from leaf spring (10) and trunnion tube (1). Discard U-bolts.
3. Using lifting device, remove leaf spring (10) from upper trunnion hub (5).
4. Remove upper trunnion hub (5), lower trunnion hub (7), rubber bushing (6), and trunnion washer (2) from trunnion tube (1).



INSTALLATION

NOTE

If rubber bushings (6) are worn or damaged replace with new bushings.

1. Install trunnion washer (2), rubber bushing (6), upper trunnion hub (5), and lower trunnion hub (7) on trunnion tube (1).
2. Using lifting device, position leaf spring (10) on upper trunnion hub (5) so that center bolt of leaf spring is in recess of upper trunnion hub.
3. Position wear plate (4) in place on leaf spring (10). Nut on center bolt of leaf spring fits into hole in wear plate.
4. Install two new U-bolts (3) over wear plate (4) and through holes in upper and lower trunnion hubs (5 and 7).
5. Install four washers (9) and new self locking nuts (8) on two U-bolts (3), and tighten evenly to 200 to 320 lb-ft (271 to 434 N•m).
6. Repeat steps 1 thru 5 for opposite side.

FOLLOW-ON TASKS

1. Install axles (WP 0154 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

HOSE REEL CABINET REPLACEMENT 0156 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Materials/Parts
Self-locking nuts (22) (item 87, WP 0175 00)
Self-locking nuts (9) (item 88, WP 0175 00)

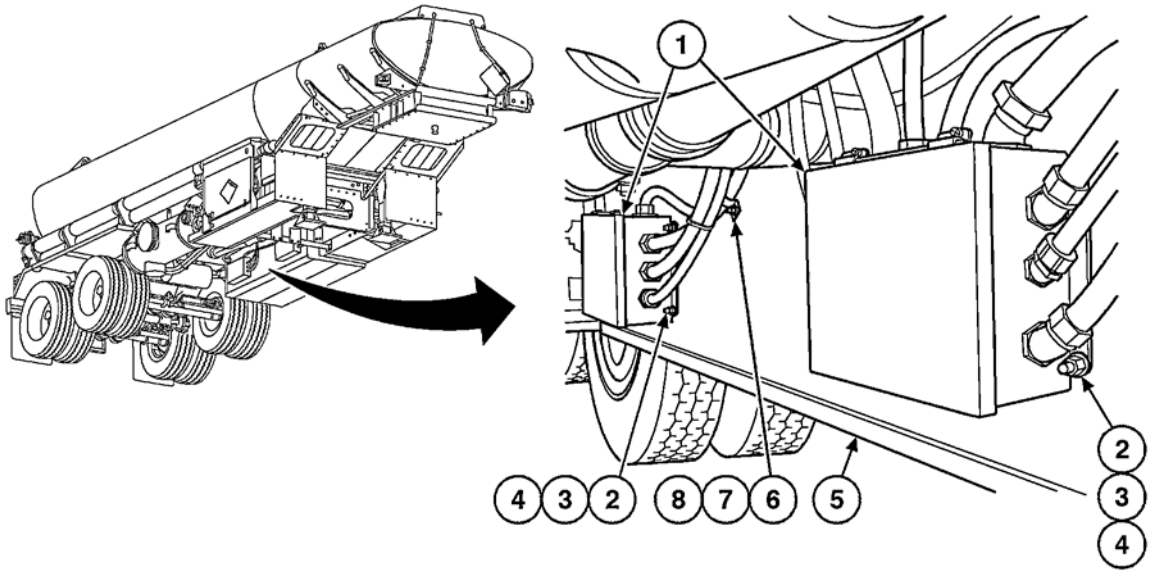
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Forklift truck (item 1, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Volumetric meters removed (refer to WP 0127 00)
Hose reels removed (refer to WP 0157 00)
P and R valves removed (refer to WP 0129 00)
Roadside hose tubes removed (refer to WP 0094 00)
Optic socket box removed (refer to WP 0050 00)
Remove piping in hose reel cabinet (refer to WP 0138 00)

REMOVAL

1. Remove eight self-locking nuts (2), washers (3), bolts (4), and two electrical junction boxes (1) behind hose reel cabinet (5). Discard self-locking nuts.

2. Remove self-locking nut (6), washer (7), and bracket (8) from cabinet (5). Discard self-locking nut.



WARNING

Do not attempt to lift cabinet by hand or personal injury or damage to equipment may occur.

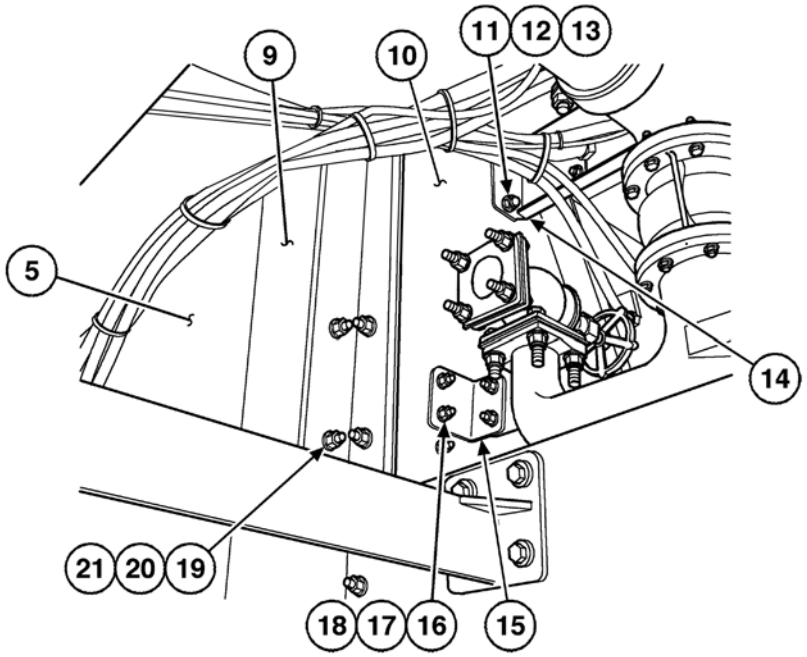
NOTE

Position forklift under cabinet to support weight of cabinet and lift slightly to relieve pressure on mounting screws and nuts.

3. Remove three self-locking nuts (19), six washers (20), three bolts (21), and angle bracket (9) from cabinet (5). Discard self-locking nuts.

4. Remove three self-locking nuts (16), six washers (17), three bolts (18), bracket (15), and piping frame (10) from cabinet (5). Discard self-locking nuts.

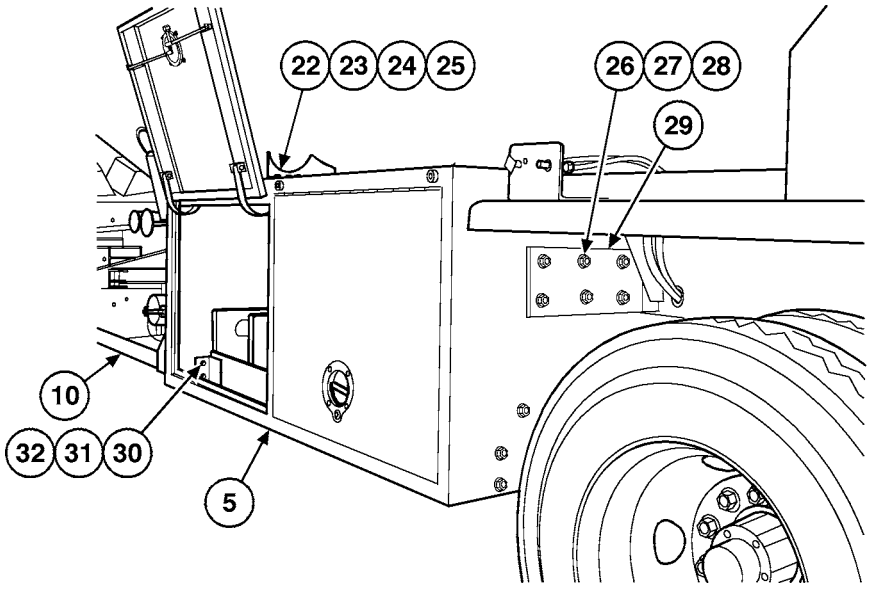
5. Remove self-locking nut (11), two washers (12), bolt (13), bracket (14), and piping frame (10) from cabinet (5). Discard self-locking nut.



6. Remove four self-locking nuts (30), eight washers (31), four bolts (32), and piping frame (10) from cabinet (5). Discard self-locking nuts.

7. Remove 6 self-locking nuts (22), 12 washers (23), 6 bolts (24), and 2 brackets (25) from cabinet (5). Discard self-locking nuts.

8. Remove 8 self-locking nuts (26), 16 washers (27), 8 bolts (28), and bracket (29) from cabinet (5). Discard self-locking nuts.



INSTALLATION

NOTE

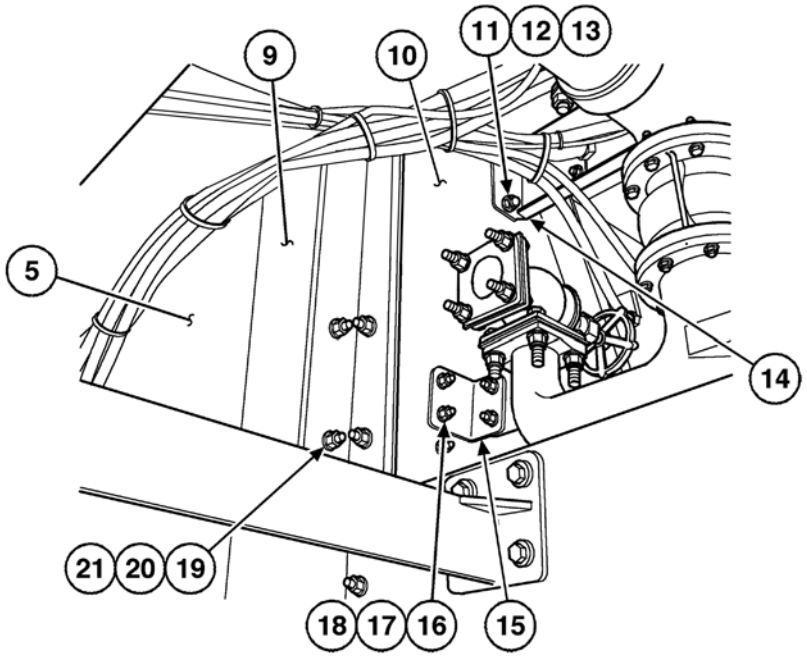
Position forklift under cabinet to support weight of cabinet during installation procedure.

1. Install bracket (29), 8 bolts (28), 16 washers (27), and 8 new self-locking nuts (26) to cabinet (5).

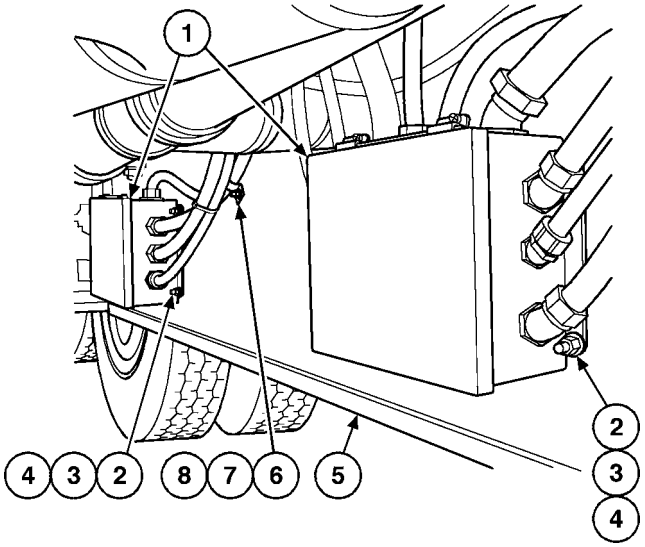
2. Install 2 brackets (25), 6 bolts (24), 12 washers (23), and 6 new self-locking nuts (22) to cabinet (5).

3. Install piping frame (10), four bolts (32), eight washers (31), and four new self-locking nuts (30) to cabinet (5).

4. Install piping frame (10), bracket (14), bolt (13), two washers (12), and new self-locking nut (11) to cabinet (5).
5. Install piping frame (10), bracket (15), three bolts (18), six washers (17), and three new self-locking nuts (16) to cabinet (5).
6. Install angle bracket (9), three bolts (21), six washers (20), and three new self-locking nuts (19) to cabinet (5).



7. Install bracket (8), washer (7), and new self-locking nut (6) to cabinet (5).
8. Install two electrical junction boxes (1), eight bolts (4), washers (3), and new self-locking nuts (2) to cabinet (5).



FOLLOW-ON TASKS

1. Install volumetric meters (WP 0127 00).
2. Install hose reels (WP 0157 00).
3. Install P & R valves (WP 0129 00).
4. Install roadside hose tubes (WP 0094 00).
5. Install optic socket box (WP 0050 00).
6. Install hose reel piping (WP 0138 00)
7. Reconnect negative battery terminal (WP 0007 00).
8. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

1-1/4-INCH HOSE REELS REPLACEMENT 0157 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, thread sealing (item 7, WP 0174 00)
Cable ties (AR) (item 98, WP 0175 00)
Lockwashers (20) (item 108, WP 0175 00)
Self-locking nuts (2) (item 88, WP 0175 00)
Self-locking nuts (16) (item 92, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
R and P valves removed (refer to WP 0129 00)
Volumetric meters removed (refer to WP 0127 00)

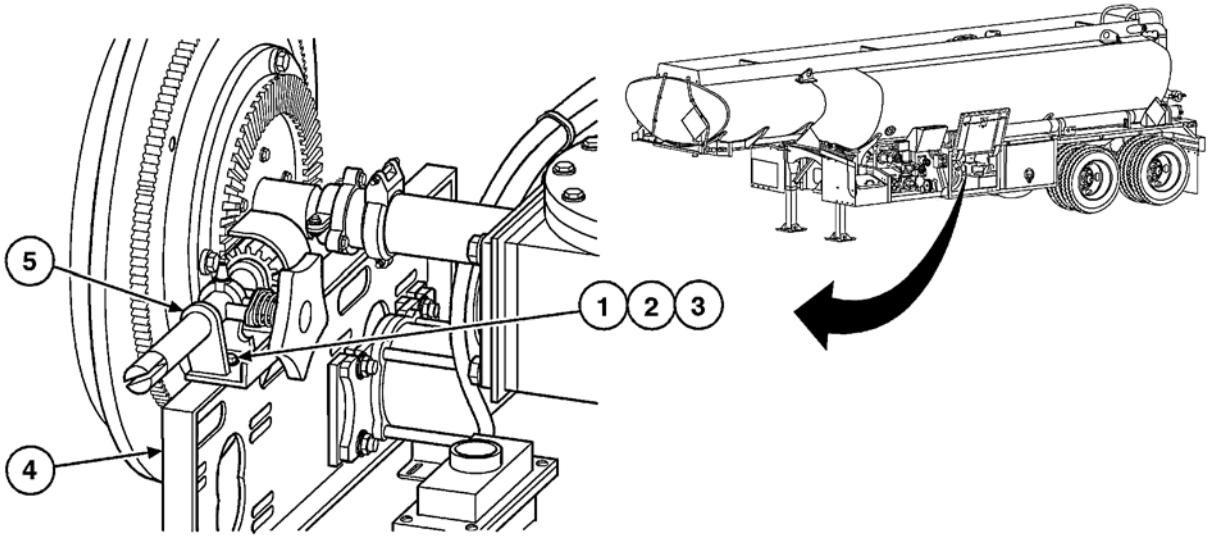
REMOVAL

Hose Reel

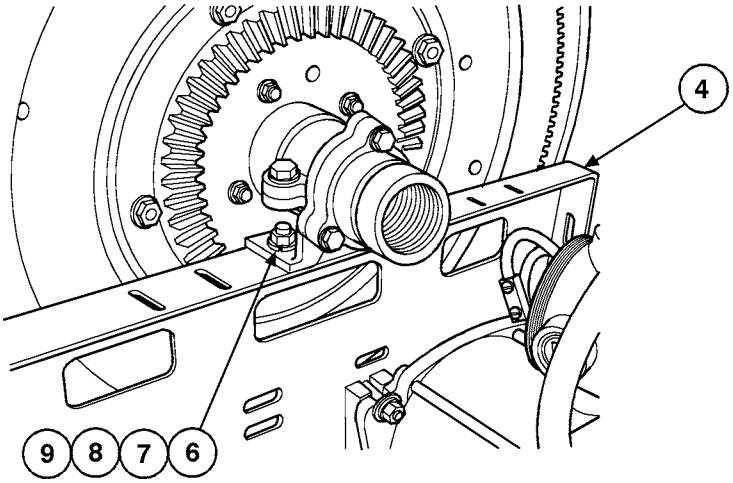
NOTE

There are two 1-1/4-inch hose reel assemblies and they are both replaced the same way. This procedure replaces one hose reel assembly.

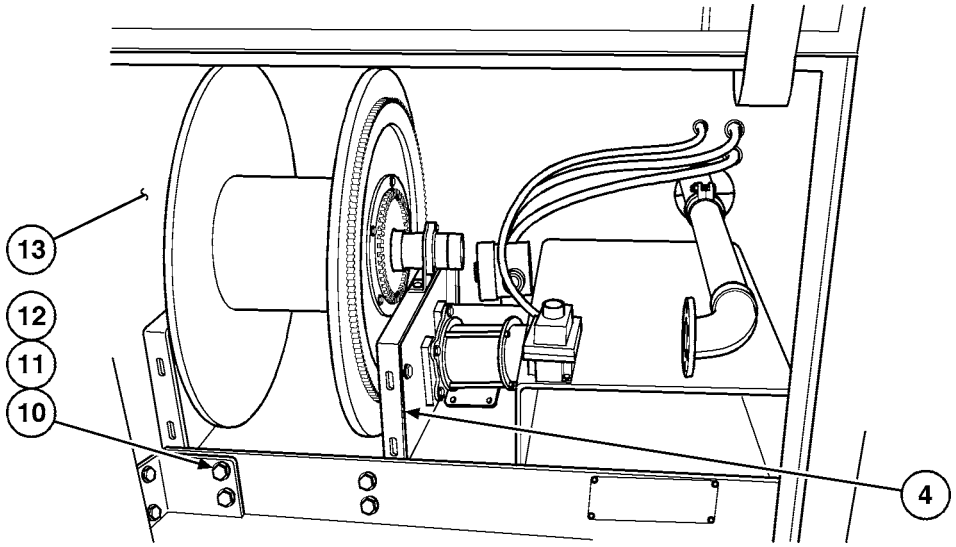
1. Remove and disconnect hose from hose reel.
2. Remove two nuts (1) washers (2), lockwashers (3), and tensioner (5) from hose reel frame (4). Discard lockwashers.



3. Remove two nuts (6), lockwashers (7), washers (8), and bolts (9) from frame (4). Discard lockwashers.



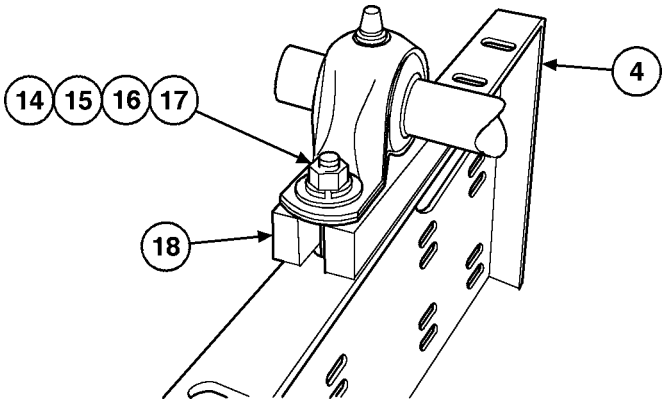
4. Remove 8 self-locking nuts (10), 16 washers (11), and 8 bolts (12), securing frame (4) to cabinet (13). Discard self-locking nuts.



NOTE

Maneuver hose reel frame so that left side of hose reel bearing can be reached with a wrench.

5. Remove two bolts (14), four washers (15), two lockwashers (16), nuts (17), and spacer (18), from frame (4). Discard lockwashers.



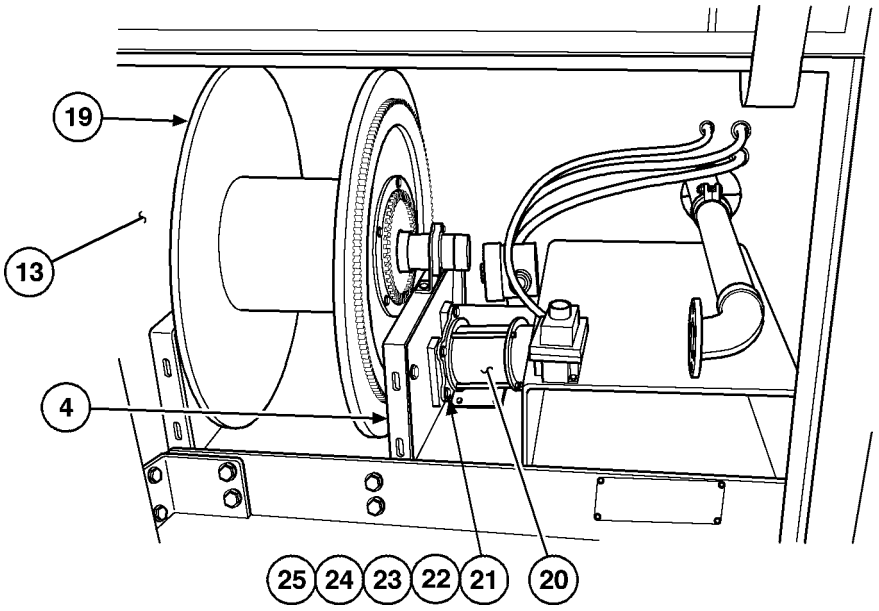
6. Remove hose reel drum (19) from frame (4).

NOTE

Leave motor in cabinet after disconnecting from frame.

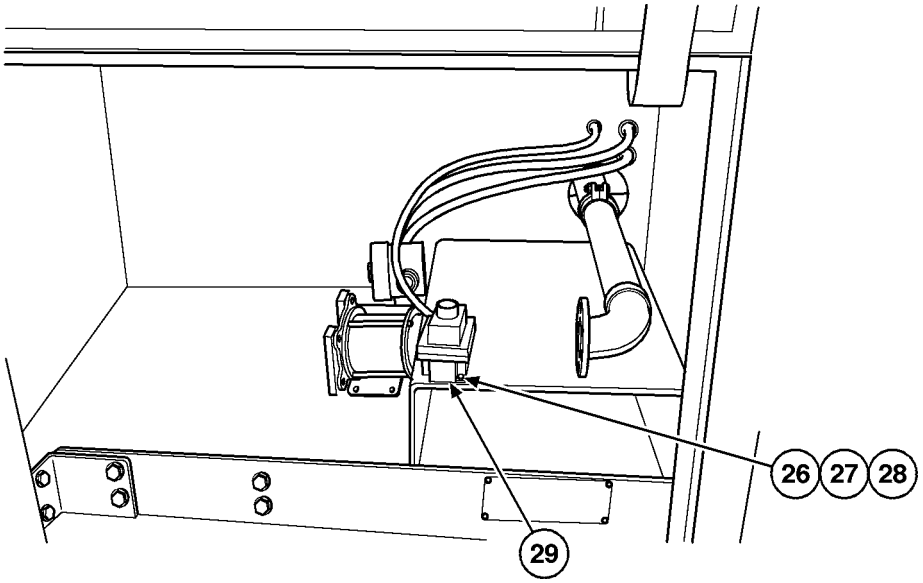
7. Remove four bolts (21), eight washers (22), four lockwashers (23), nuts (24), and two spacers (25) from motor (20) and frame (4). Discard lockwashers.

8. Remove frame (4) from hose reel cabinet (13).



Motor

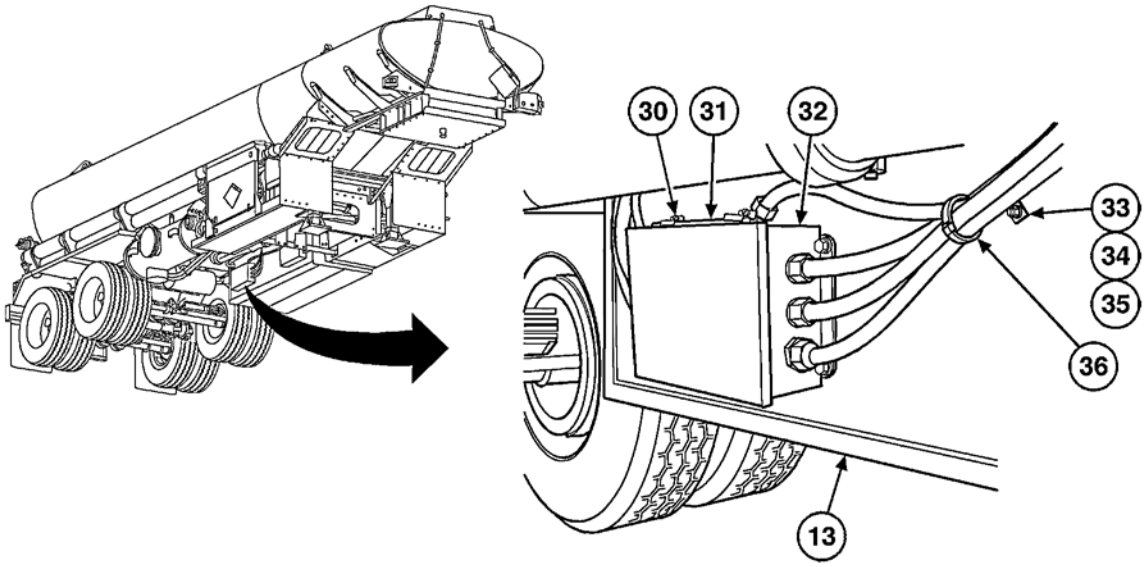
1. Remove two nuts (26), washers (27), and screws (28) from hose reel motor rewind switch (29).



2. Loosen two screws (30) and remove cover (31) from electrical junction box (32).

3. Remove self-locking nut (33), washer (34), and bracket (35) from cabinet (13). Discard self-locking nuts.

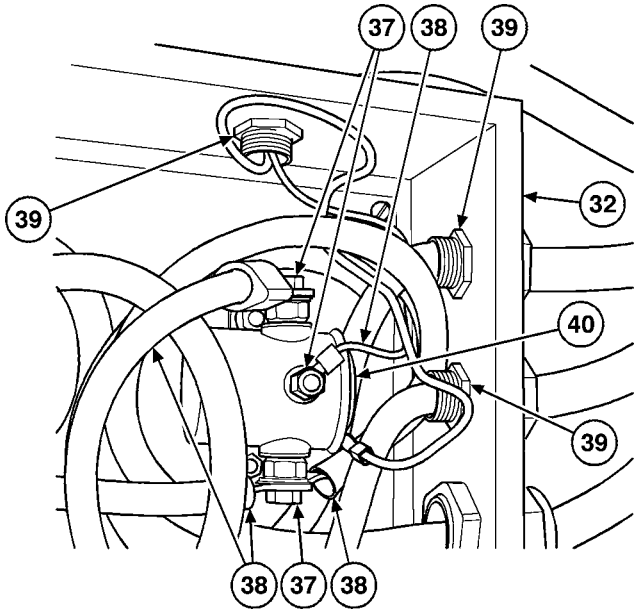
4. Remove and discard cable ties (36) as necessary.



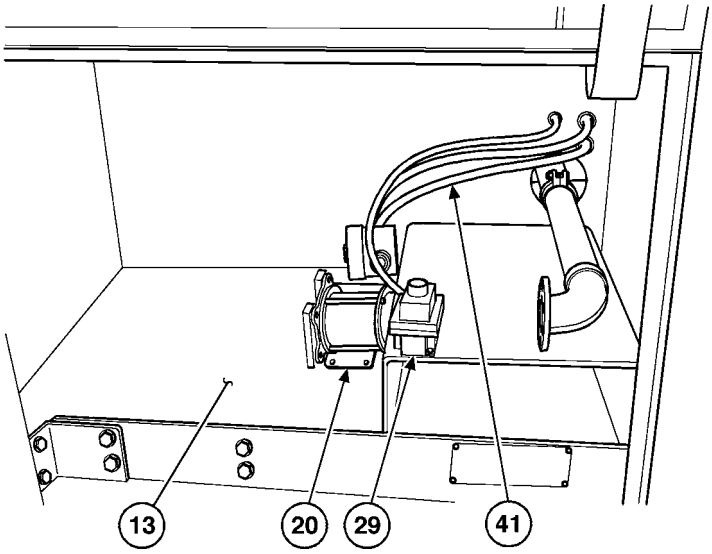
NOTE

Tag all wires before removal.

5. Remove three nuts (37) and four wires (38) from solenoid (40).
6. Remove three conduit nuts (39) from junction box (32).



7. Remove motor (20), motor rewind switch (29), and three conduits (41) from cabinet (13).

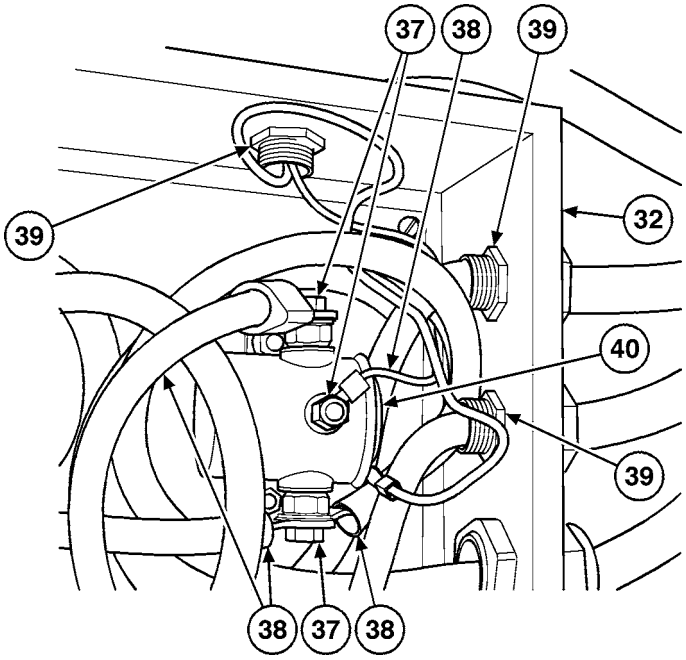


INSTALLATION

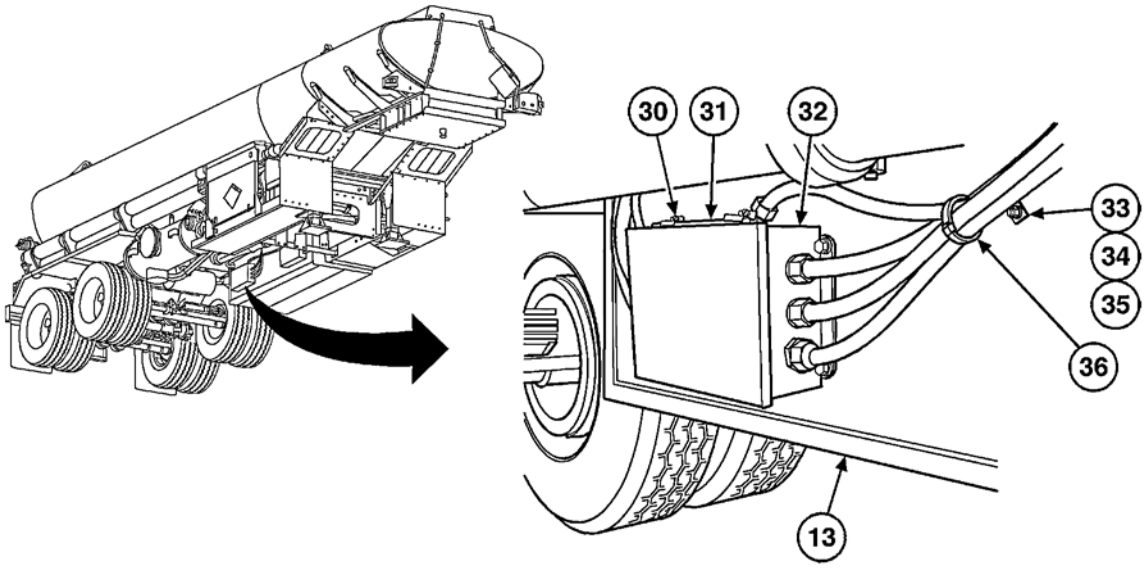
Motor

1. Install three conduits (41), motor rewind switch (29), and motor (20) to hose reel cabinet (13).

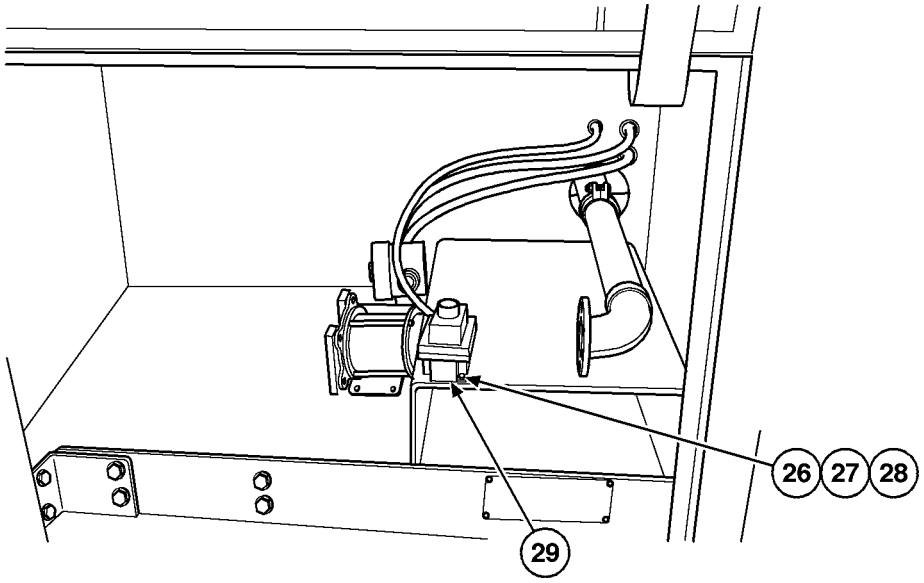
2. Install three conduit nuts (39) to junction box (32).
3. Install four wires (38) and three nuts (37) to solenoid (40).



4. Install new cable ties (36) as necessary.
5. Install bracket (35), washer (34), and new self-locking nut (33) to cabinet (13).
6. Close cover (31) to electrical junction box (32) and tighten two screws (30).



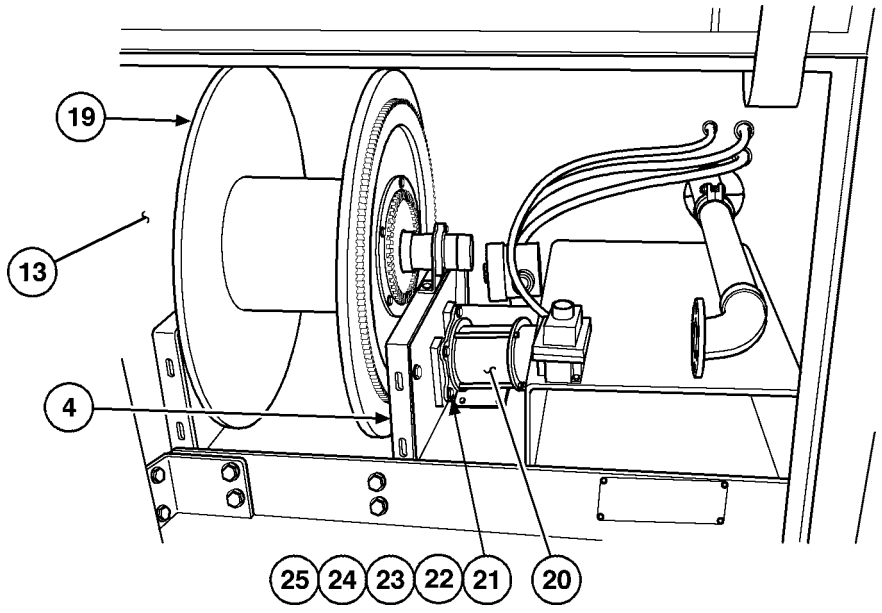
7. Install screws (28) washers (27) and two nuts (26) to hose reel motor rewind switch (29).



Hose Reel

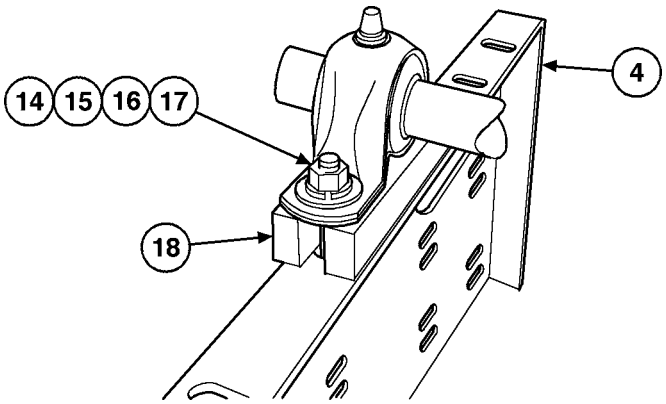
1. Install frame (4) in hose reel cabinet (13).

2. Install two spacers (25), four nuts (24), new lockwashers (23), eight washers (22), and four bolts (21), to frame (4) and motor (20).

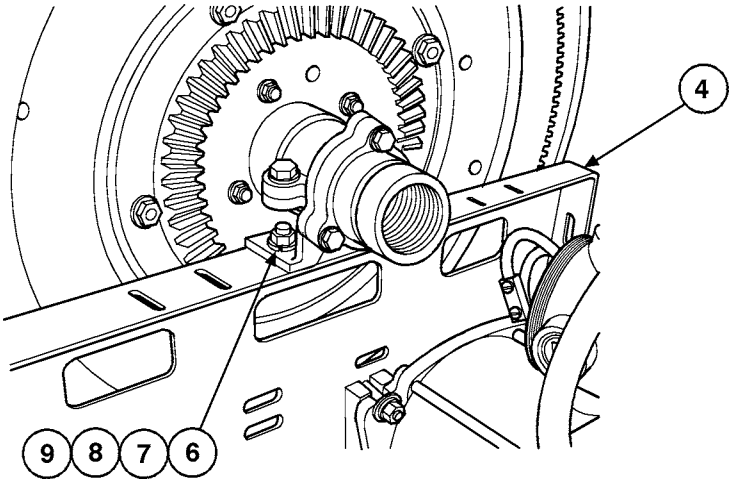


3. Install hose reel drum (19) on frame (4).

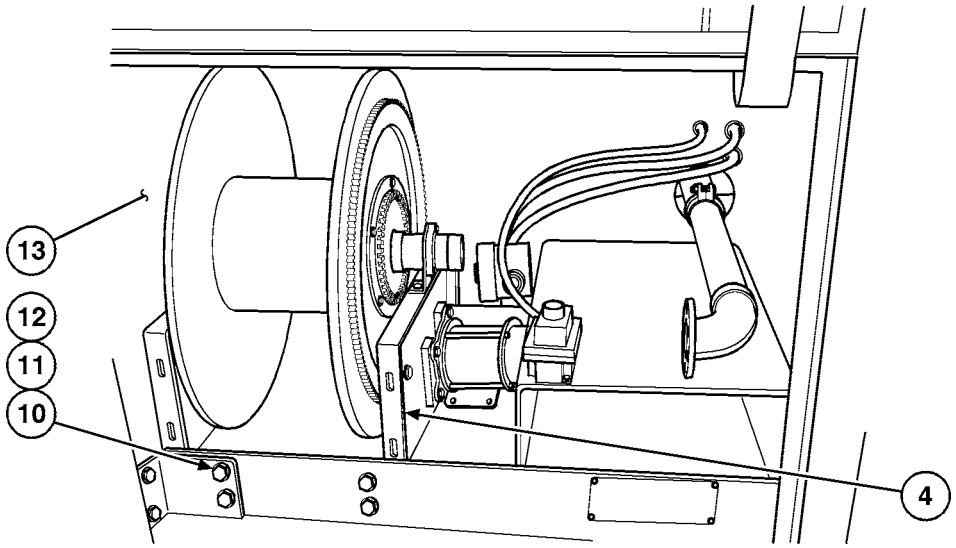
4. Install spacer (18), two nuts (17), new lockwashers (16), four washers (15), and two bolts (14), to frame (4).



5. Install two bolts (9), washers (8), new lockwashers (7), and nuts (6), to frame (4).



6. Install frame (4), 8 bolts (12), 16 washers (11), and 8 new self-locking nuts (10), to hose reel cabinet (13).

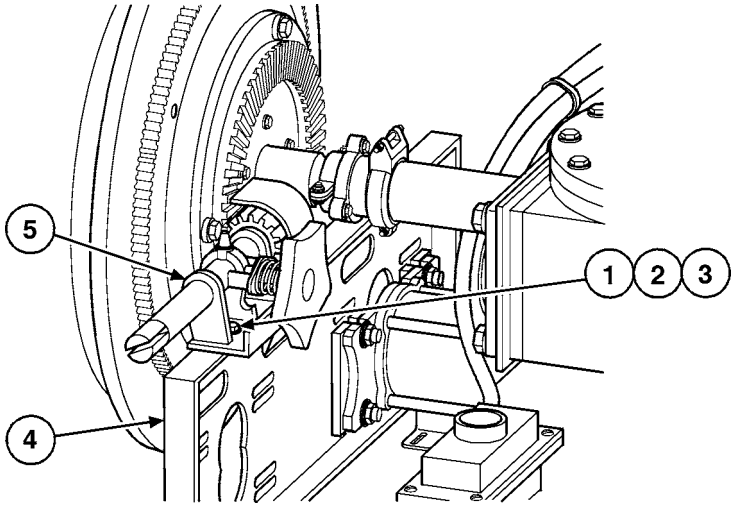


7. Install tensioner (5), two new lockwashers (3), washer (2), and nuts (1), to hose reel frame (4).

NOTE

Apply thread sealing compound to threads

8. Install hose onto hose reel and rewind.



FOLLOW-ON TASKS

1. Install P and R valve (WP0129 00).
2. Install volumetric meters (WP0127 00).
3. Reconnect negative battery terminal (WP0007 00).
4. Disconnect semitrailer grounding cables (WP0007 00).

END OF TASK

ENGINE AND PUMP CABINET FRAME REPLACEMENT 0158 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Materials/Parts
Seals (2) (item 129, WP 0175 00)
Self-locking nuts (2) (item 23, WP 0175 00)
Self-locking nuts (4) (item 70, WP 0175 00)
Self-locking nuts (4) (item 87, WP 0175 00)
Self-locking nuts (2) (item 88, WP 0175 00)
Self-locking nuts (8) (item 89, WP 0175 00)
Self-locking nuts (41) (item 92, WP 0175 00)

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Jack stands (item 3, WP 0171 00)

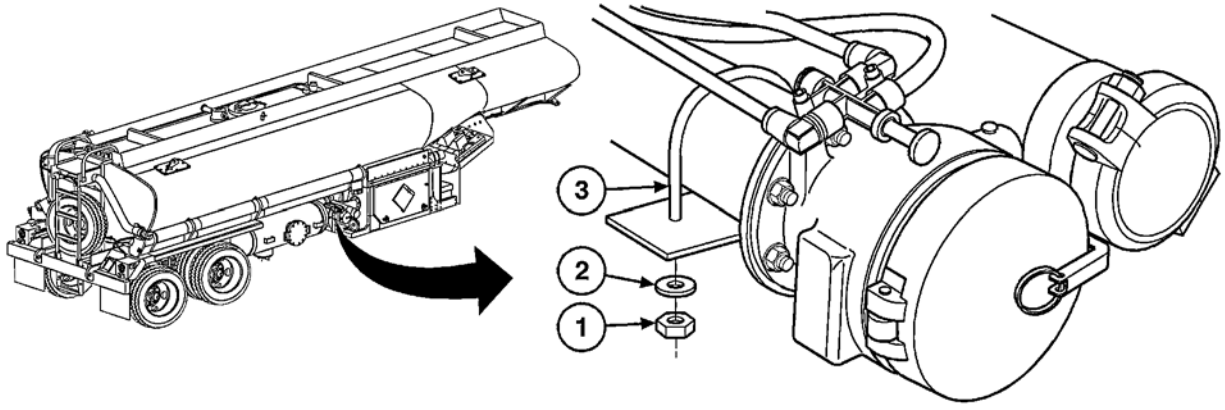
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Batteries removed (refer to WP 0055 00)
Fuel lines disconnected (refer to WP 0109 00)
Fuel tank removed (refer to WP 0108 00)
Two hose tubes loosened at engine cabinet (refer to WP 0094 00)
Air cleaner and hose removed (refer to WP 0111 00)
Alternator removed (refer to WP 0116 00)
Muffler plate and muffler removed (refer to WP 0115 00)
Optic socket box removed (refer to WP 0050 00)
Static reel removed (refer to WP 0087 00)
Brake interlock valve removed (refer to WP 0072 00)

REMOVAL

1. Remove two self-locking nuts (1) and washers (2) from U-bolt (3). Discard self-locking nuts.

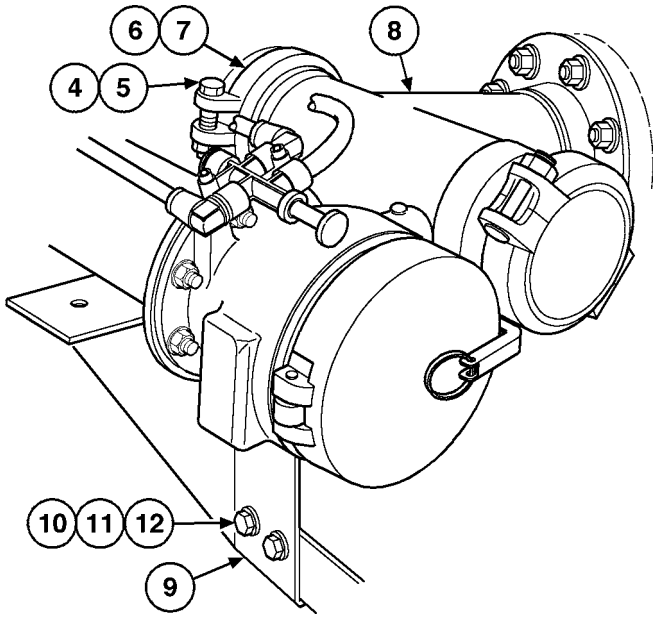
NOTE

Secure inlet valve to filter separator.

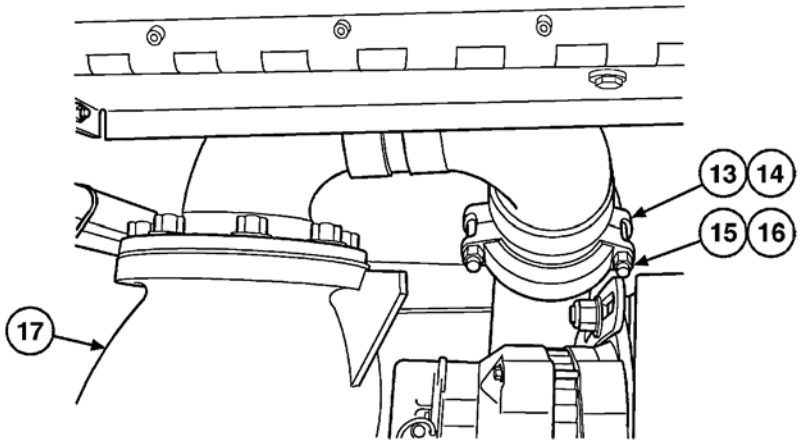


2. Remove four self-locking nuts (12), eight washers (11), and four bolts (10) from side and bottom of bottom loading support bracket (9). Discard self-locking nuts.

3. Remove two bolts (5), nuts (4), seal (7), and split coupling (6) at inlet T (8). Discard seal.



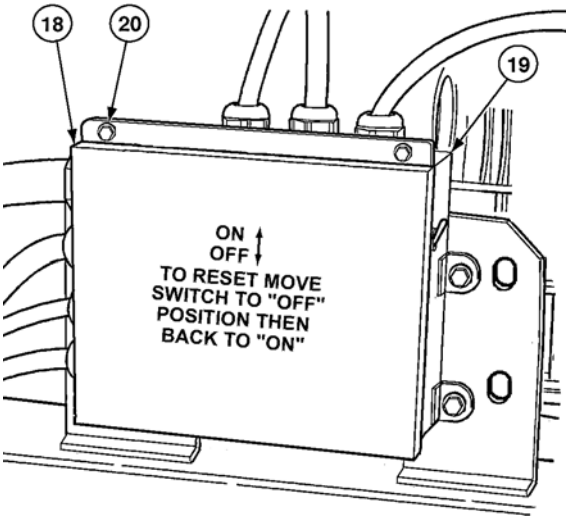
4. Remove two bolts (15), nuts (16), seal (13), and split coupling (14) at top of centrifugal pump (17). Discard seal.



NOTE

Close all valves and drain fuel from centrifugal pump using plug at bottom of pump.

5. Loosen two screws (20) on engine electrical control box (19) and open front cover (18).

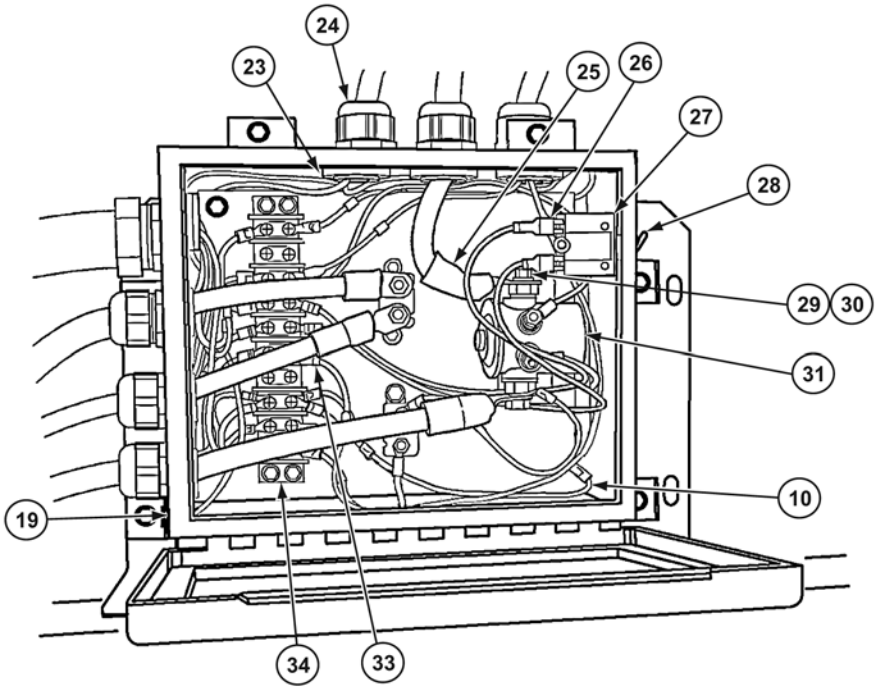


6. Disconnect two wires (26) and remove nut (28) and circuit breaker (27) from control box (19).

7. Remove nut (29), washer (30), and glow plug cable (25) from solenoid (31).

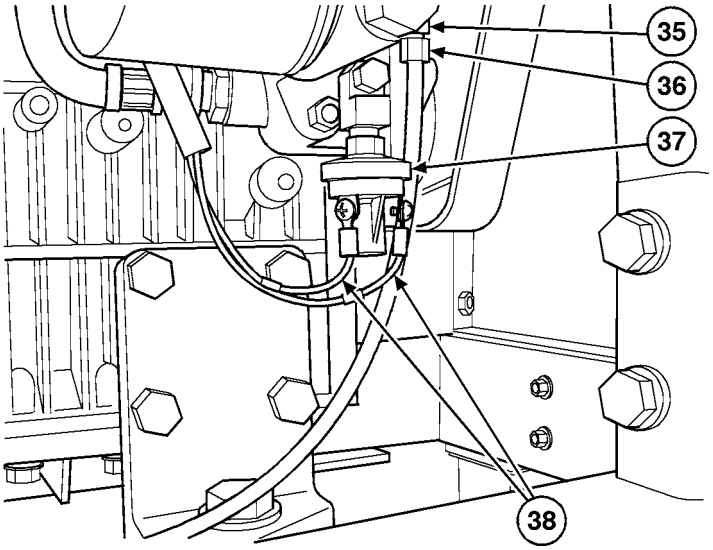
8. Remove nut (23), conduit nut (24), and cable (25) from control box (19).

9. Disconnect wire (33) from terminal strip (34).

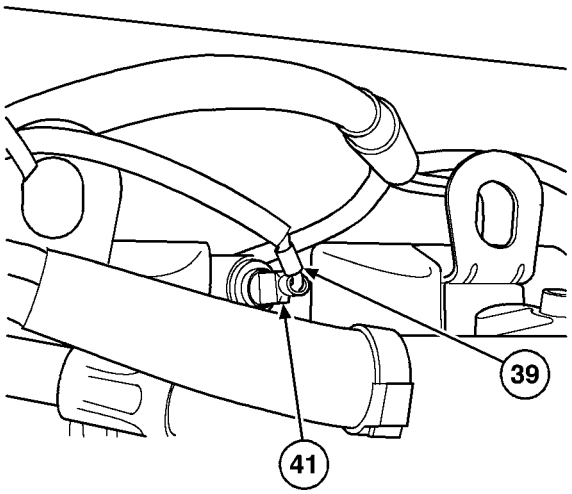


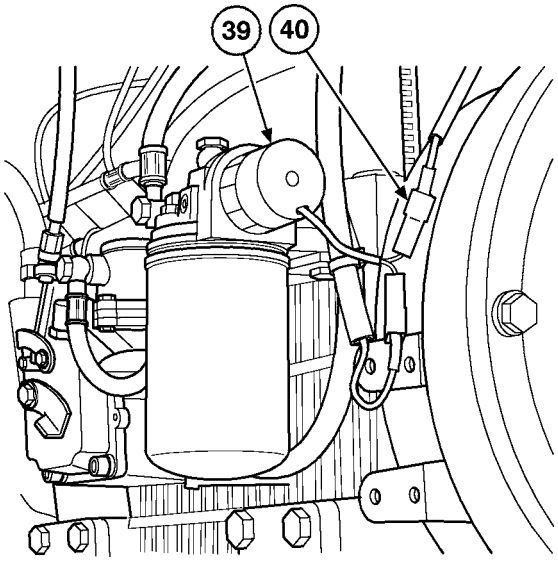
10. Remove oil pressure gage line (36) from fitting (35).

11. Disconnect two wires (38) from oil pressure switch (37).

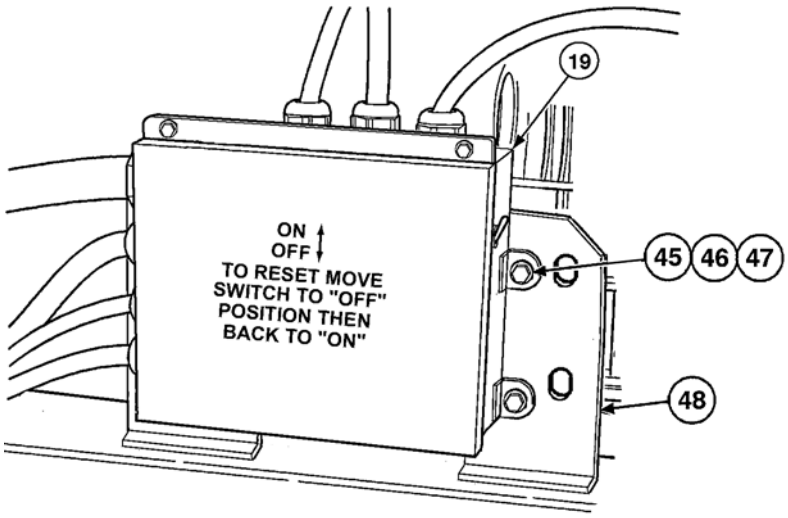


12. Disconnect two connectors (40) from overheat shutdown switch (41) and fuel stop solenoid (39).



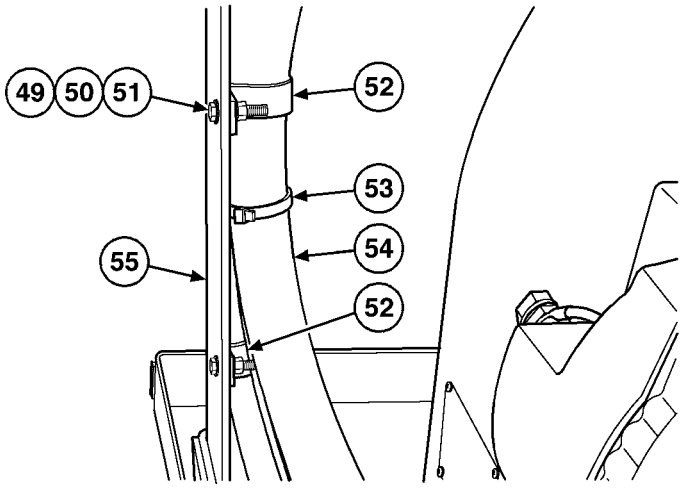


13. Remove four self-locking nuts (45), eight washers (46), four bolts (47), and control box (19) from bracket (48). Discard self-locking nuts.

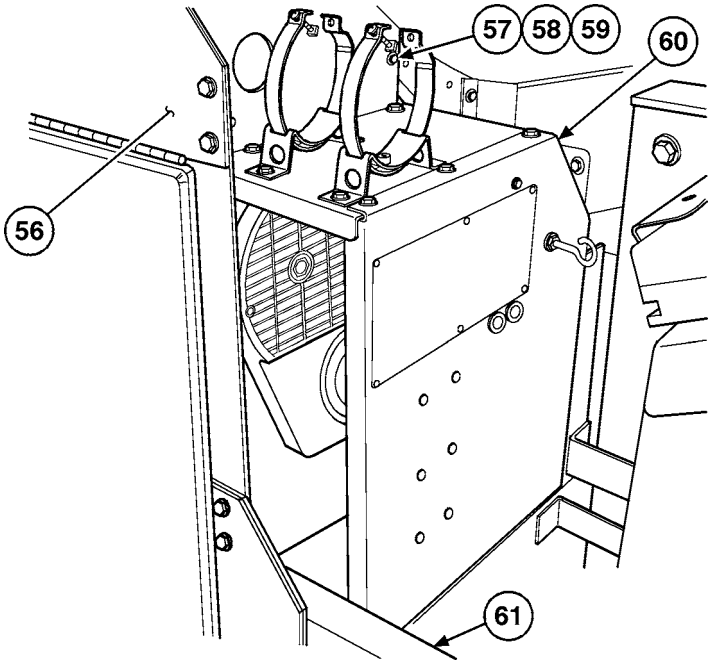


14. Clip and remove cable ties (53) from wires (54).

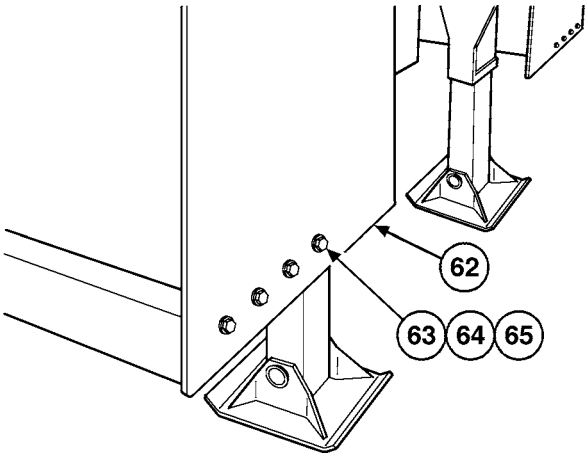
15. Remove two self-locking nuts (49), four washers (50), two bolts (51), and clamps (52) from vertical support (55). Discard self-locking nuts.



16. Remove 8 self-locking nuts (57), 16 washers (58), 8 bolts (59), and engine fan shroud (60) from frame (61) and engine shroud (56). Discard self-locking nuts.



17. Remove four self-locking nuts (63), eight washers (64), and four bolts (65) from bottom of splash shield (62). Discard self-locking nuts.



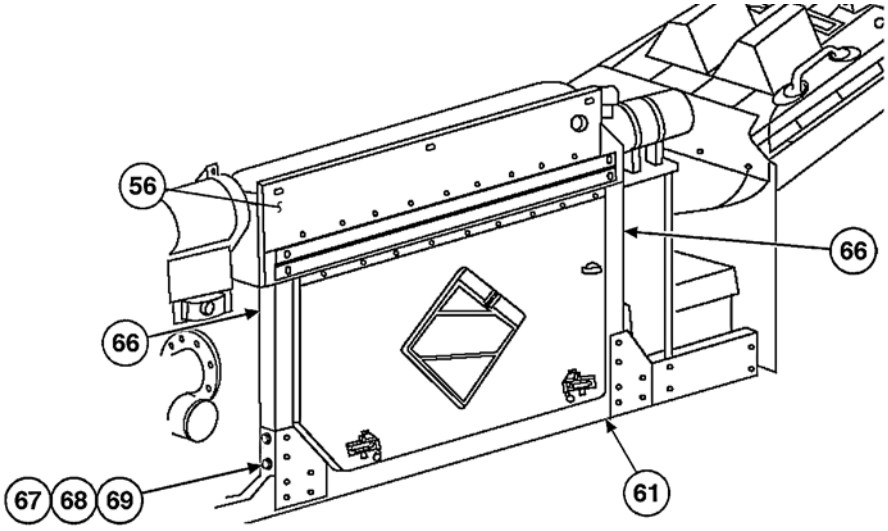
WARNING

At this point, maneuver forklift under engine and pump cabinet frame.

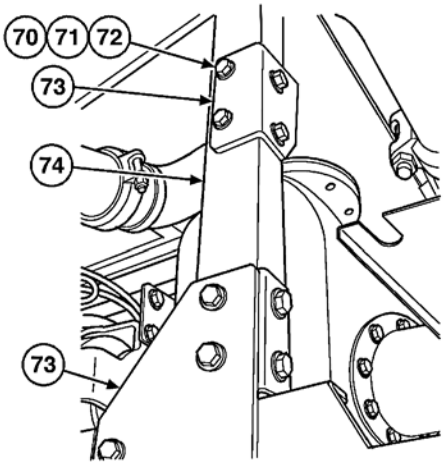
CAUTION

Position jack stands under engine and pump cabinet before removing vertical supports. Failure to do so could result in damage to components.

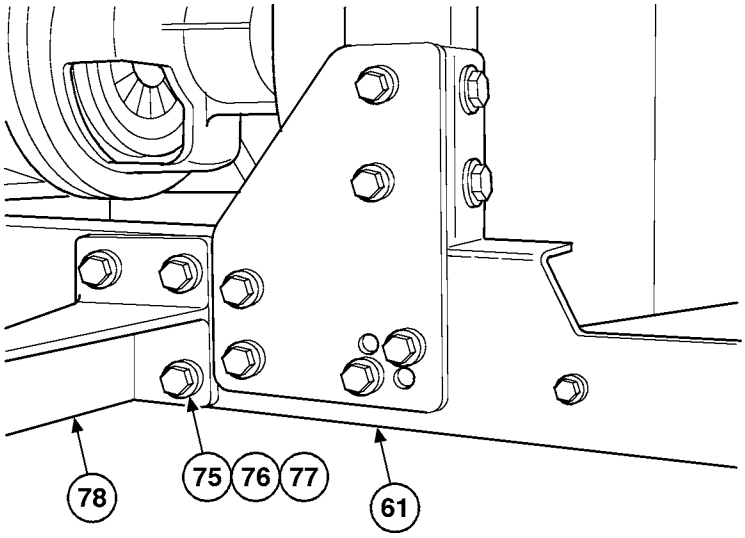
18. Remove 16 self-locking nuts (67), 32 washers (68), 16 bolts (69), and two outside vertical supports (66) from frame (61) and engine shroud (56). Discard self-locking nuts.



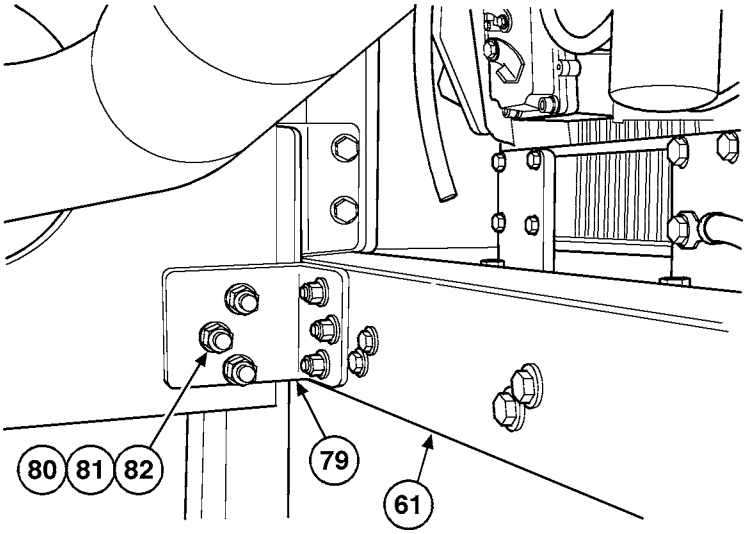
19. Remove eight self-locking nuts (70), 16 washers (71), and eight bolts (72) from two brackets (73) on rear inside vertical support (74). Discard self-locking nuts.



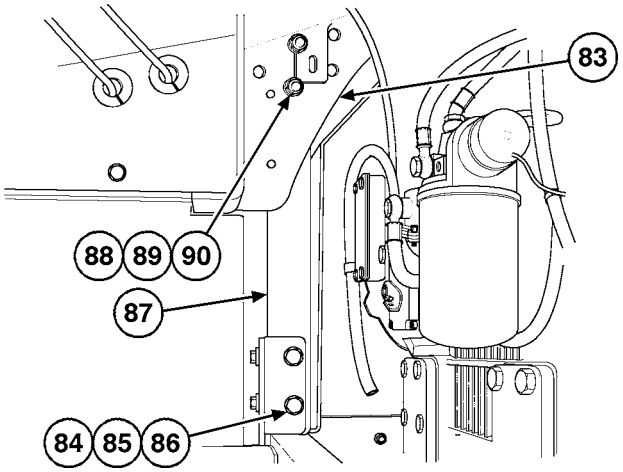
20. Remove four self-locking nuts (75), eight washers (76), four bolts (77), and rear cross member (78) from engine frame (61). Discard self-locking nuts.



21. Remove three self-locking nuts (82), six washers (81), and three bolts (80) from angle bracket (79) and engine frame (61). Discard self-locking nuts.



22. Remove four self-locking nuts (84), eight washers (85), and four bolts (86) from inside vertical support (87). Discard self-locking nuts.
23. Remove two self-locking nuts (88), four washers (89), two bolts (90), and front inside vertical support (87) from semitrailer tank rib (83). Discard self-locking nuts.
24. Using a forklift, lower engine frame.
25. Separate engine and pump from frame.
26. Remove damaged components from engine frame and discard self-locking nuts.

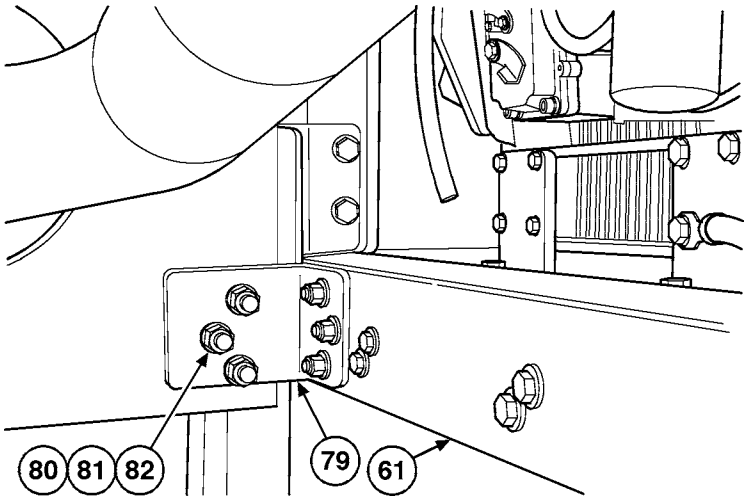


NOTE

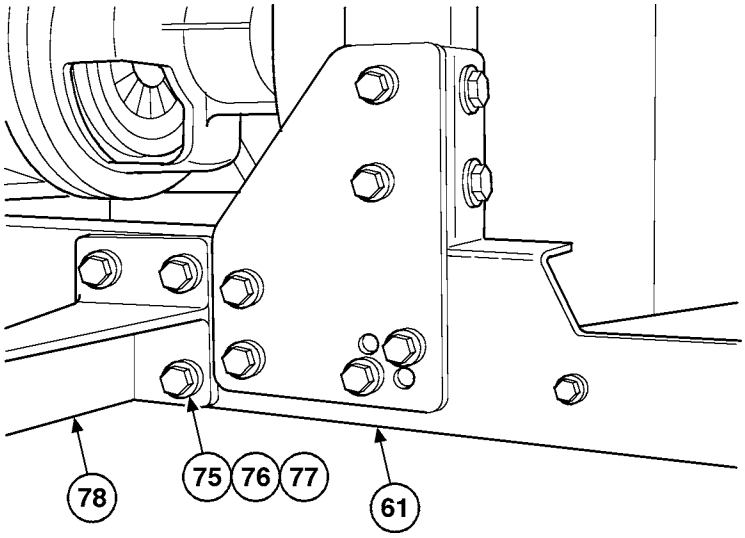
Engine frame is bolted together. Loosely assemble frame Components on a flat surface. Tighten fasteners on cross members last.

INSTALLATION

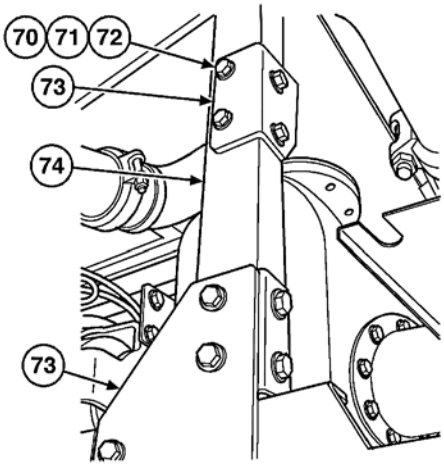
1. Install engine and pump to frame.
2. Using a forklift, maneuver engine cabinet in place at semitrailer.
3. Install front inside vertical support (87), two bolts (90), four washers (89), and two new self-locking nuts (88) to semitrailer tank rib (83).
4. Install front inside vertical support (87) with four bolts (86), eight washers (85), and four new self-locking nuts (84).
5. Install angle bracket (79), three bolts (80), six washers (81), and three new self-locking nuts (82) to engine frame (61).



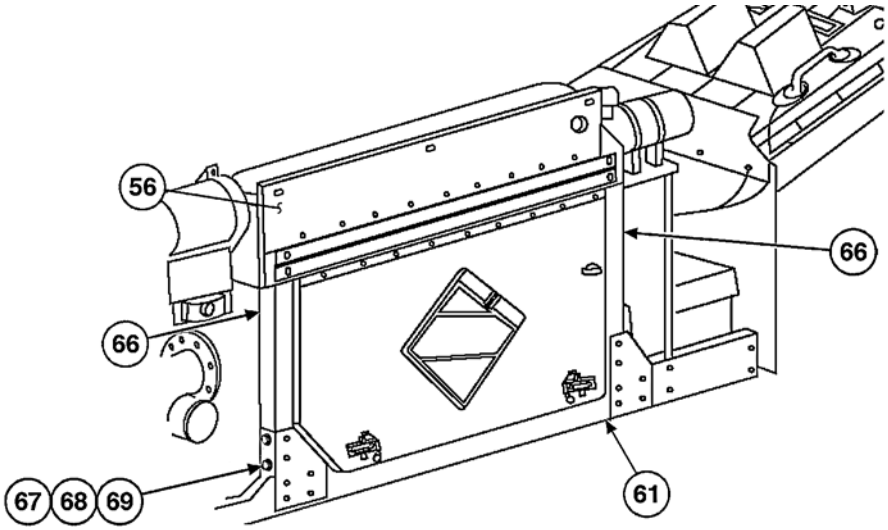
6. Install rear cross member (78) to engine frame (61) with four bolts (77), eight washers (76), and four new self-locking nuts (75).



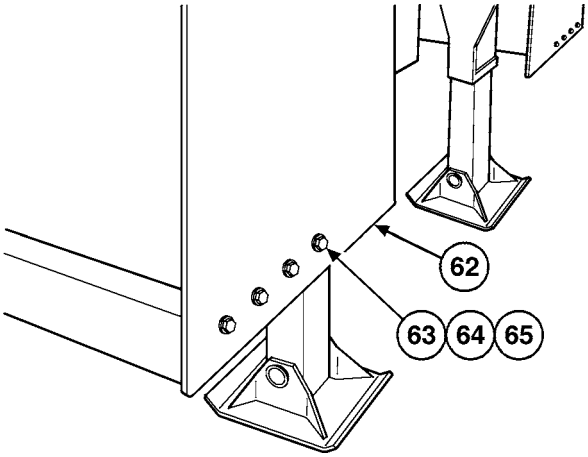
7. Install 8 bolts (72), 16 washers (71), and 8 new self-locking nuts (70) to two brackets (73) on rear inside vertical support (74).



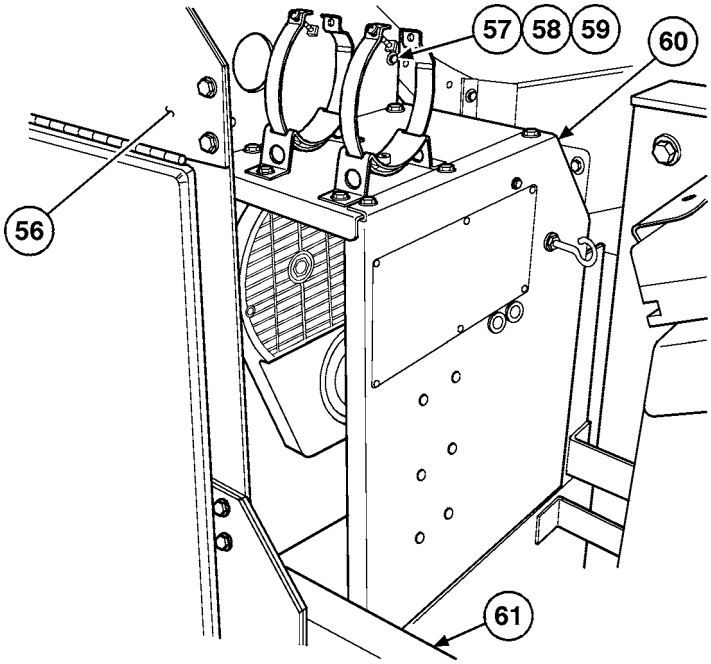
8. Install two outside vertical supports (66), 16 bolts (69), 32 washers (68), and 16 new self-locking nuts (67) to frame (61) and engine shroud (56).



9. Install four bolts (65), eight washers (64), and four new self-locking nuts (63) to bottom of splash shield (62).

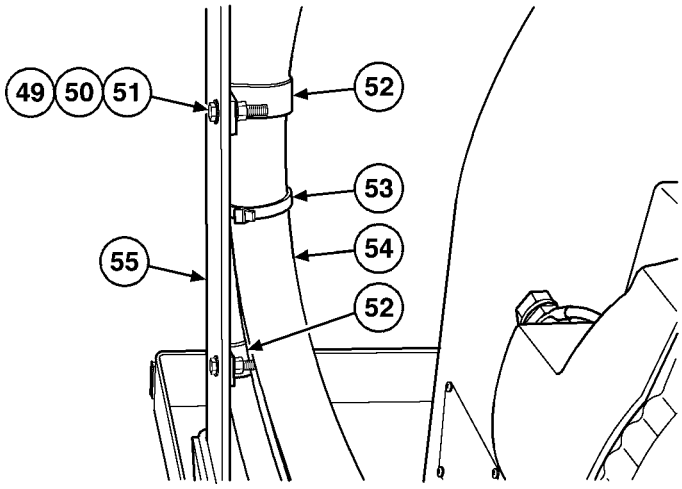


10. Install engine fan shroud (60), 8 bolts (59), 16 washers (58), and 8 new self-locking nuts (57) to frame (61) and engine shroud (56).

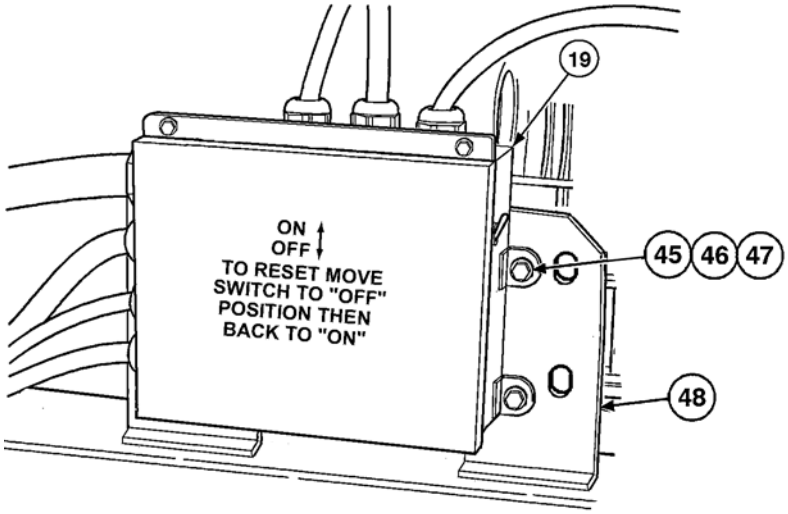


11. Install two clamps (52), bolts (51), four washers (50), and two new self-locking nuts (49) to vertical support (55).

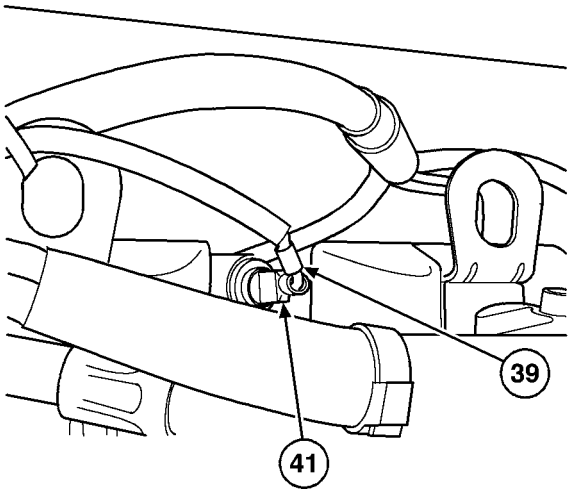
12. Install cable ties (53) to wires (54) as necessary.

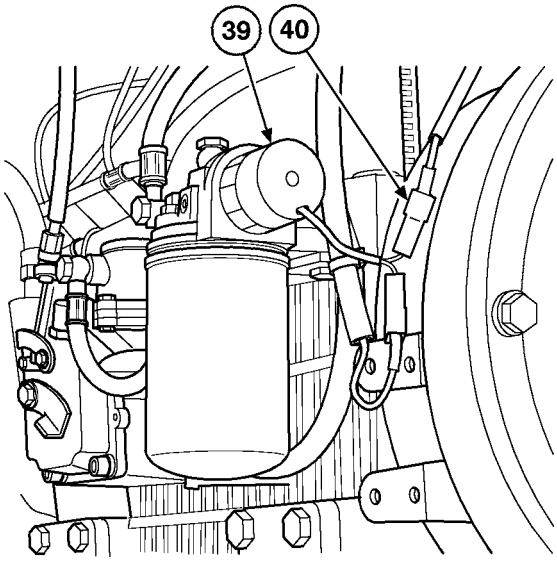


13. Install control box (19), four bolts (47), eight washers (46), and four new self-locking nuts (45) to bracket (48).

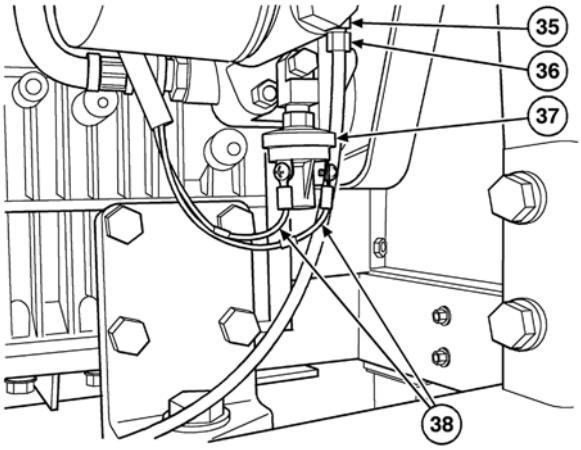


14. Connect two connectors (40) to overheat shutdown switch (41) and fuel stop solenoid (39).

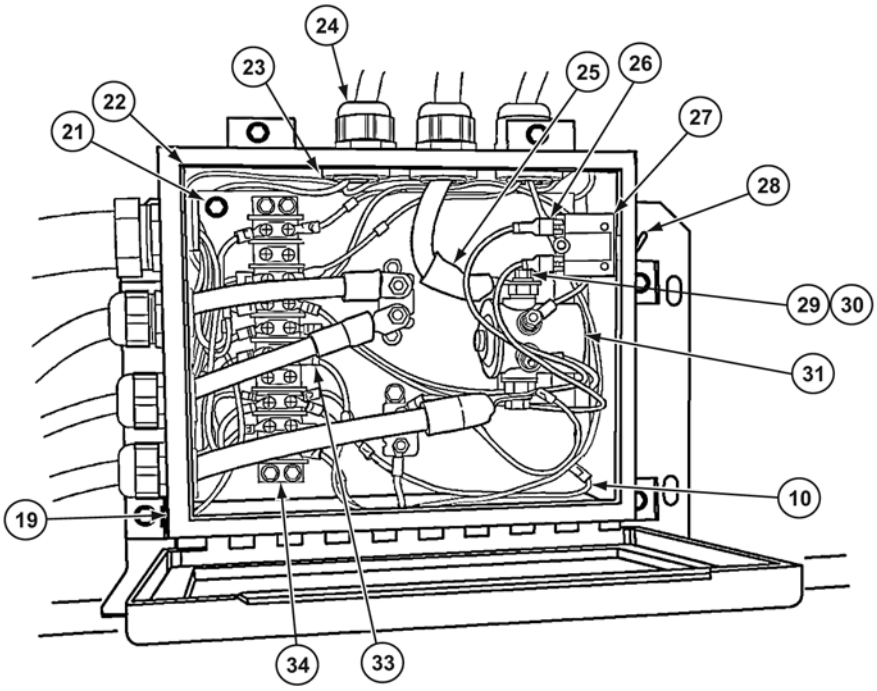




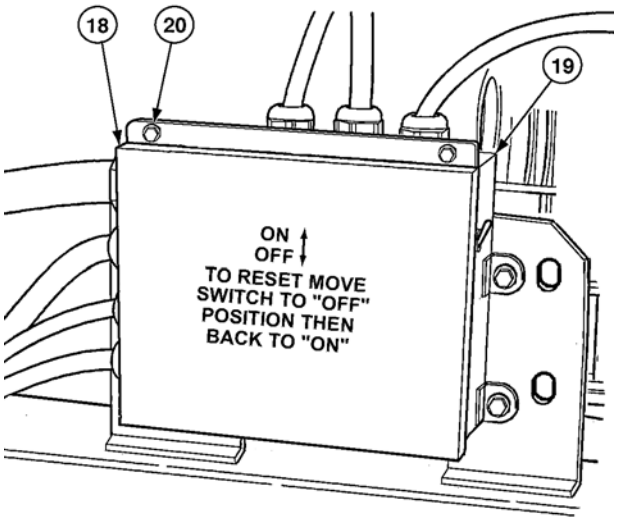
15. Connect two wires (38) to oil pressure switch (37).
16. Install oil pressure gage line (36) to fitting (35).



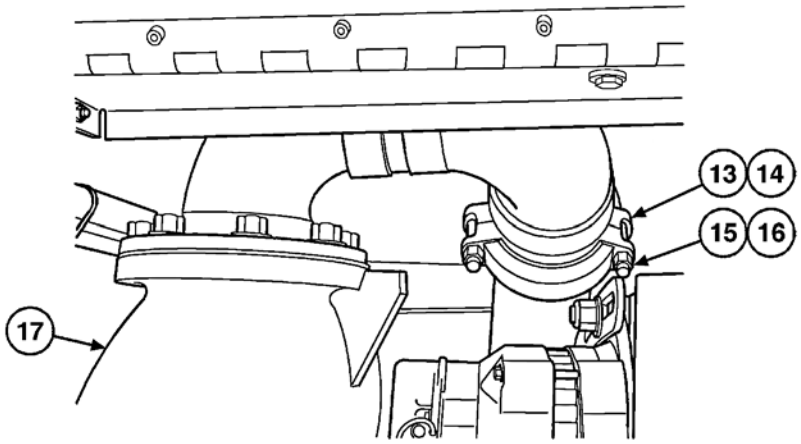
17. Connect wire (33) to terminal strip (34).
18. Install glow plug cable (25), conduit nut (24), and nut (23) to control box (19).
19. Install cable (25), washer (30), and nut (29) to solenoid (31).
20. Install circuit breaker (27), nut (28), and connect two wires (26) to control box (19).



21. Tighten two screws (20) on control box (19) and close front cover (18).



22. Install split coupling (14), new seal (13), two nuts (16), and bolts (15) at top of centrifugal pump (17).

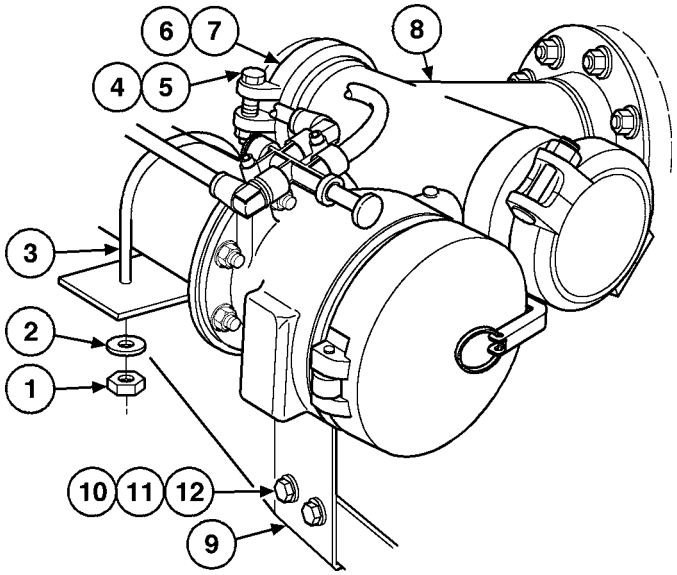


ENGINE AND PUMP CABINET FRAME REPLACEMENT—Continued **0158 00**

23. Install split coupling (6), new seal (7), two nuts (4), and bolts (5) at inlet T (8).

24. Install four bolts (10), eight washers (11), and four new self-locking nuts (12) to side and bottom of bottom loading support bracket (9).

25. Install two washers (2) and new self-locking nuts (1) to U-bolt (3).



FOLLOW-ON TASKS

1. Install muffler plate and muffler (WP 0115 00).
2. Install alternator (WP 0116 00).
3. Install air cleaner and hose (WP 0111 00).
4. Install two hose tubes at engine cabinet (WP 0094 00).
5. Install brake interlock valve (WP 0072 00).
6. Install static reel (WP 0087 00).
7. Install fuel tank (WP 0108 00).
8. Install fuel lines (WP 0109 00).
9. Install optic socket box (WP 0050 00).
10. Install batteries (WP 0055 00).
11. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

ENGINE HEAT SHIELD REPLACEMENT 0159 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

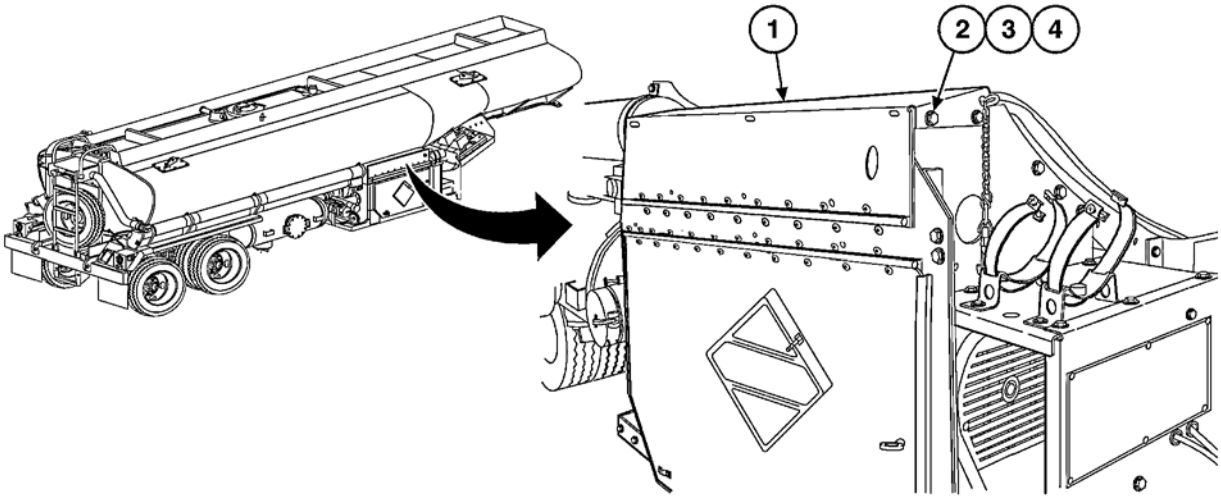
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts **Personnel** **Required**
Self-locking nuts (8) (item 88, WP 0175 00) Two
Self-locking nuts (2) (item 89, WP 0175 00)

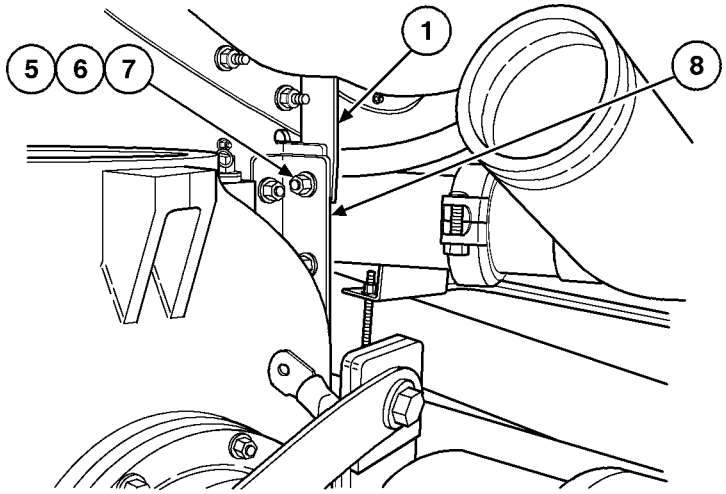
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
Two hose tubes loosened at engine cabinet (refer to WP 0094 00)
Air cleaner and hose removed (refer to WP 0111 00)
Pump tubing removed from top of pump (refer to WP 0148 00)
Muffler plate and muffler removed (refer to WP 0115 00)

REMOVAL

1. Remove 8 self-locking nuts (2), 16 washers (3), and 8 bolts (4) from top right and left edges of heat shield (1). Discard self-locking nuts.

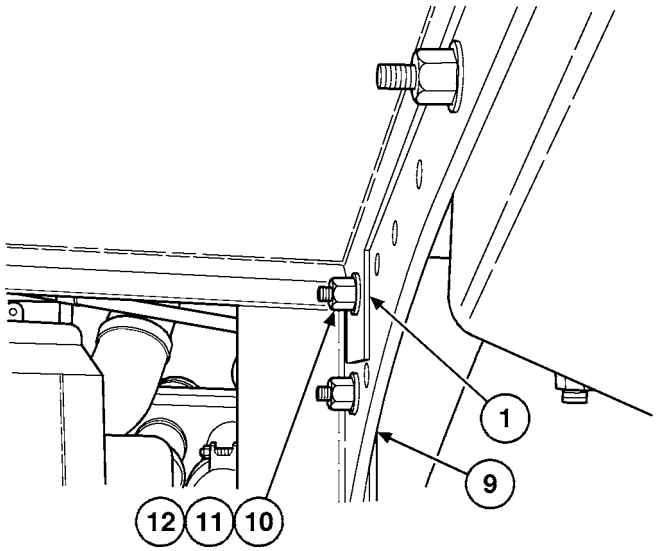


2. Remove self-locking nut (5), two washers (6), bolt (7), and heat shield (1) from rear inside vertical support post (8). Discard self-locking nut.



3. Remove self-locking nut (10), two washers (11), bolt (12), and heat shield (1) from front inside vertical support post (9). Discard self-locking nut.

4. With an assistant, lift heat shield (1) from semitrailer.



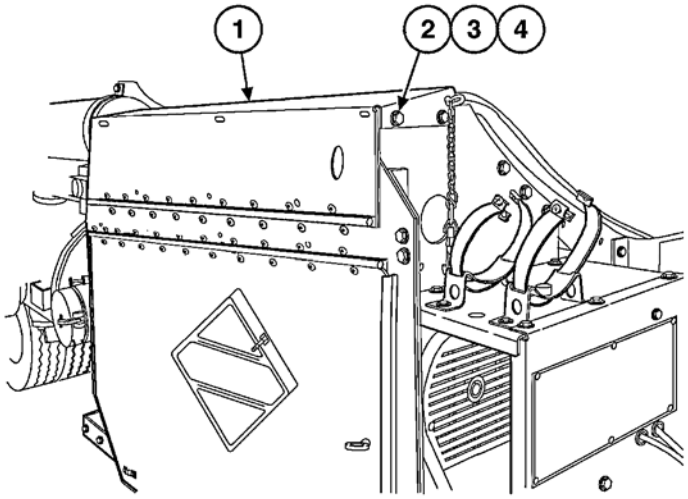
INSTALLATION

1. With an assistant, lift heat shield (1) into position on semitrailer.

2. Install bolt (12), two washers (11), new self-locking nut (10), and heat shield (1) to front inside vertical support post (9).

3. Install bolt (7), two washers (6), new self-locking nut (5), and heat shield (1) to rear inside vertical support post (8).

4. Install 8 bolts (4), 16 washers (3), and 8 new self-locking nuts (2) to top right and left edges of heat shield (1).



FOLLOW-ON TASKS

1. Install muffler plate and muffler (WP 0115 00).

2. Install air cleaner and hose (WP 0111 00).

3. Install two hose tubes at engine cabinet (WP 0094 00).

4. Install pump tubing (WP 0148 00).

5. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

BLANK **0160 00**

ALTERNATOR MAINTENANCE 0161 00

THIS WP COVERS:
Disassembly; Inspection, Testing, and Repair; Assembly; Adjustment; Follow-On Task

INITIAL SETUP:

Maintenance Level
Direct and General Support

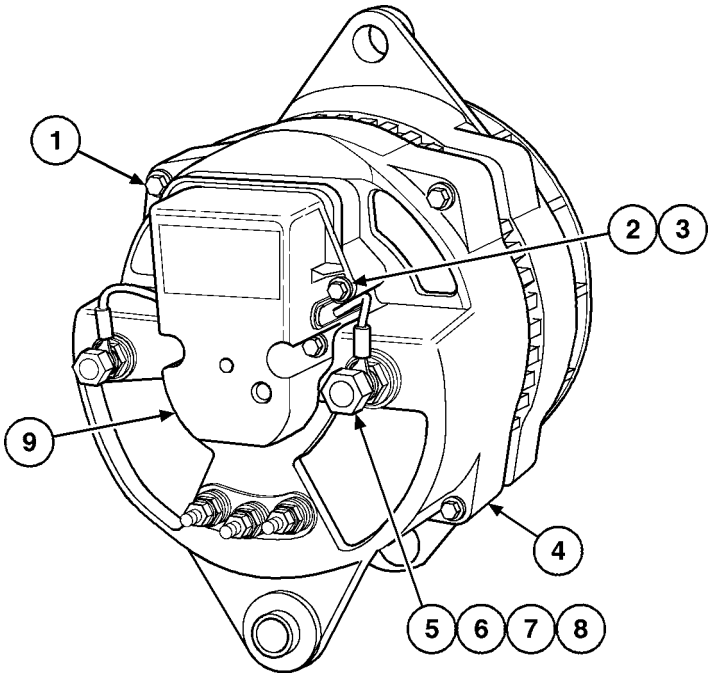
Tools and Special Tools
Common no. 1 tool set (item 1, WP 0171 00)

Materials/Parts Equipment
Compound, cleaning (item 4, WP 0174 00)
Bearing (item 14, WP 0175 00)
Bearing (item 16, WP 0175 00)
Brush assembly (item 141, WP 0175 00)
Gasket (item 10, WP 0175 00)
Lockwashers (3) (item 20, WP 0175 00)
Self-locking nut (item 21, WP 0175 00)

Conditions
Alternator removed (refer to WP 0116 00)

DISASSEMBLY

1. Loosen four thru-bolts (1).
2. Remove two nuts (5), washers (6), regulator leads (7), and washers (8) from alternator rear housing (4).
3. Remove four screws (2), washers (3), and regulator (9).



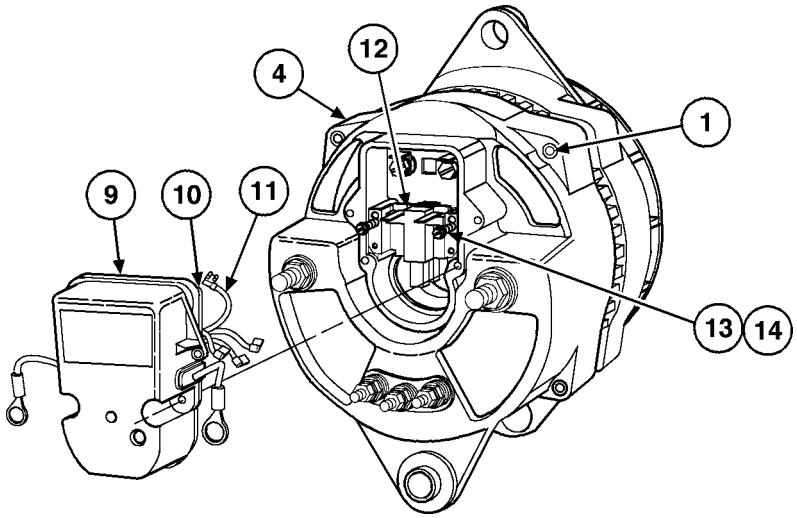
4. Remove gasket (10) from regulator (9). Discard gasket.

NOTE

Tag wires prior to disconnecting.

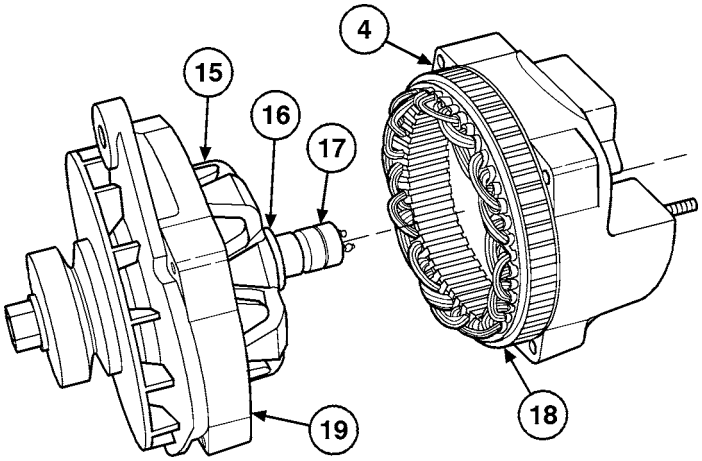
5. Disconnect two sets of yellow and green wires (11) at regulator (9) from brush assembly (12) and rear housing (4).

6. Remove two screws (13), washers (14), and brush assembly (12). Discard brush assembly.

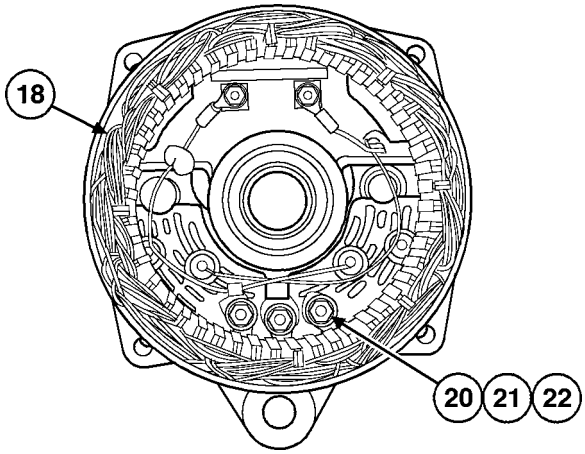


7. Remove four thru-bolts (1).

8. Separate rear housing (4) and stator (18) from front housing (19) and rotor (15). Remove spacer (16) from rotor shaft (17).

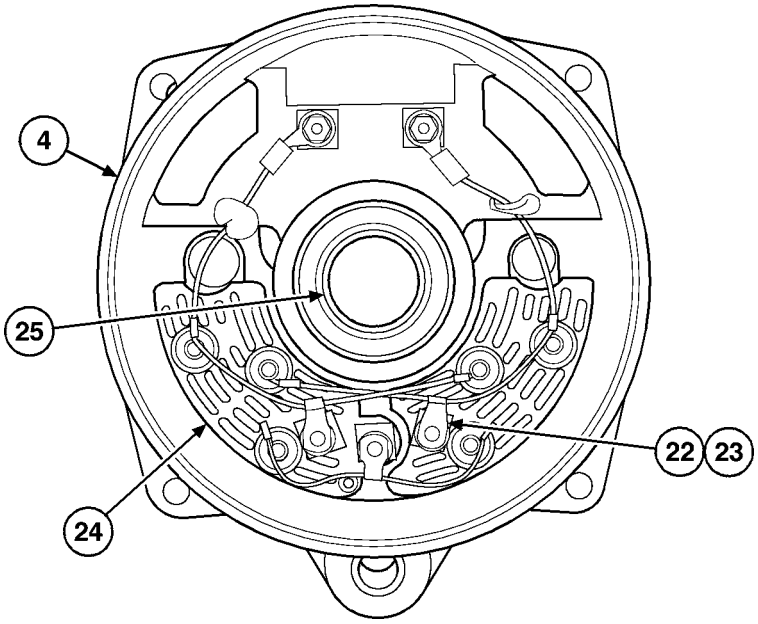


9. Remove three nuts (20) and stator leads (21) from studs (22) and stator (18).

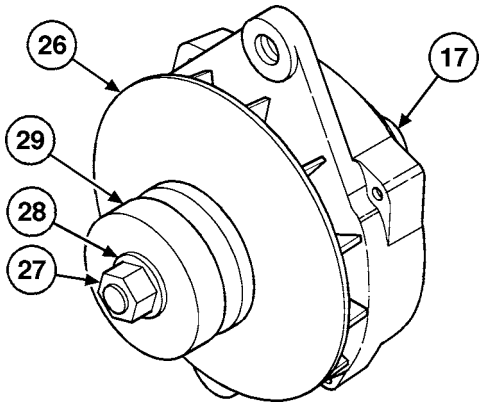


10. Remove three connectors (23) from studs (22) in heat sink bridge (24).

11. Remove rear bearing (25) from rear housing (4). Discard bearing.



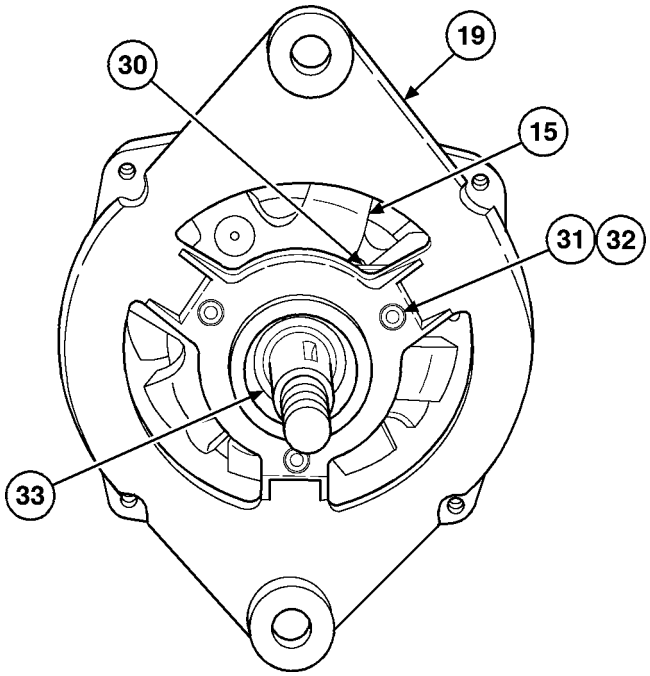
12. Remove self-locking nut (27), washer (28), pulley (29), and fan (26) from rotor shaft (17). Discard self-locking nut.



13. Remove three front bearing retainer screws (31) and lockwashers (32). Discard lockwashers.

14. Remove rotor (15) from front housing (19).

15. Remove bearing (33) and bearing retainer (30) from rotor (15). Discard bearing.



INSPECTION, TESTING, AND REPAIR

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

CAUTION

Do not use excessive air pressure or parts could be damaged.

NOTE

All parts to be reused should be cleaned in cleaning compound and air-dried.

1. **Regulator**. Check regulator for any signs of corrosion or burns in circuit board. If either is present, replace regulator.

2. **Brush Assembly**. Replace brushes and brush holder.

3. **Stator**. Check for signs of physical damage, such as evidence of rotor striking stator laminations, broken insulation, or presence of foreign material that would restrict cooling of stator. If damage is present, replace alternator.

   Check stator windings with a multimeter. Place one test lead on stator lamination and other on each of stator connectors. Multimeter should show no continuity. If continuity is present, replace alternator.

   Place test leads alternately between three connectors. Continuity should be present between connectors. If continuity is not present, replace alternator.

4. **Rectifier Heat Sink Diodes**. If excess physical damage is evident, replace alternator.

   Connect positive lead of multimeter to positive heat sink and touch negative test lead to each of three diode terminals. High resistance should be indicated. If any or all diodes indicate low or no resistance, replace alternator.

   Reverse multimeter leads so that negative test lead is connected to positive heat sink. Touch positive test lead to each of three diode terminals. Low resistance should be indicated. If any or all diodes show high resistance, replace alternator.

   Connect negative test lead of multimeter to negative heat sink and touch positive test lead to each of three diode terminals. High resistance should be indicated. If any or all diodes show high resistance, replace alternator.

   Reverse multimeter leads so that positive test lead is connected to negative heat sink. Touch negative lead to each of three diode terminals. A low or absent resistance reading should be obtained.

   If a shorted open diode is detected in any test, replace alternator.

5. **Fan and Pulley**. Check fan for bent fins and excessive wear around center bore. Check pulley for worn drive surfaces in belt area, or wear around bore. If damage is present, replace alternator.

6. **Rotor Assembly**. Check rotor assembly for signs of wear or damaged threads on shaft. If rotor is damaged, replace alternator. If rotor is not damaged, test rotor as follows:

   Place multimeter leads on rotor shaft and either slip ring. There should be no continuity. If continuity is present, replace alternator.

   Place multimeter leads on two slip rings. The resistance should measure 2.4 to 3.5 ohms. If not, replace alternator.

7. **Front and Rear Housing**. Inspect front and rear housing for wear and damage. If excess damage is present, discard alternator.

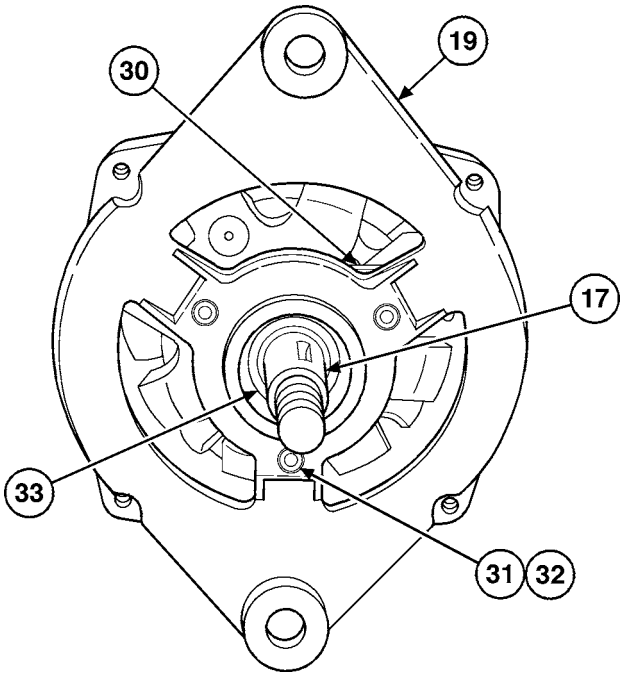
8. **Bearings**. Bearings should be replaced whenever the alternator is disassembled.

ASSEMBLY

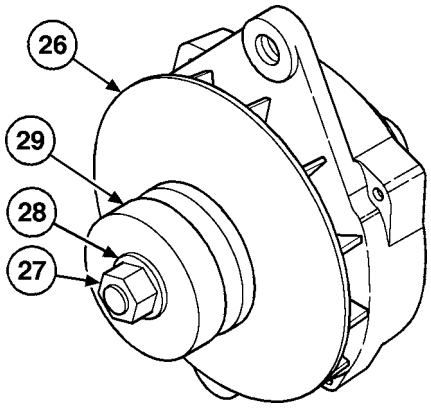
1. Install new front bearing (33) in front housing (19).

2. Install front bearing retainer (30), three new lockwashers (32), and screws (31).

3. Install front housing (19) to rotor shaft (17).

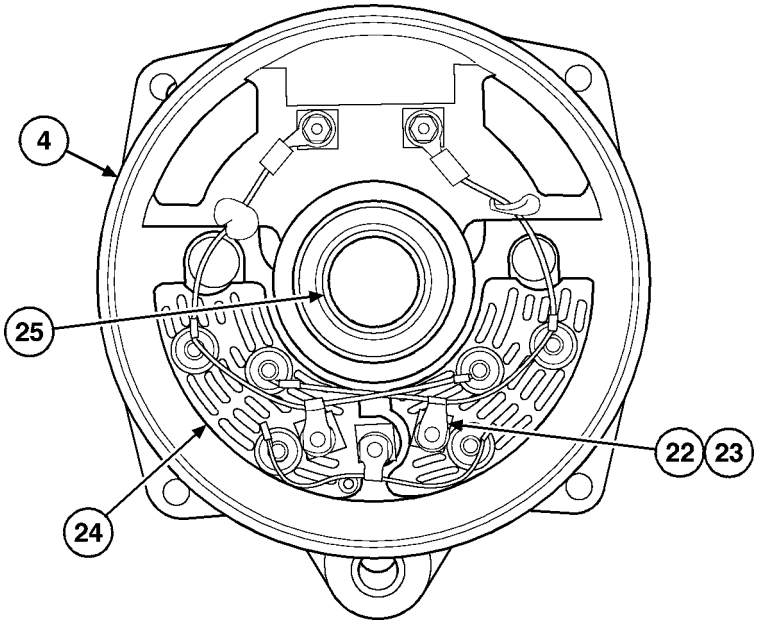


4. Install fan (26), pulley (29), washer (28), and new self-locking nut (27). Tighten nut 70 to 80 lb-ft (95 to 108 N•m).

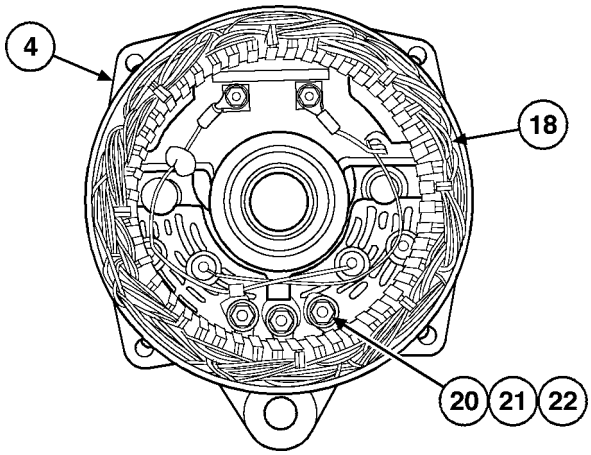


5. Install new bearing (25) into rear housing (4).

6. Install three connectors (23) to studs (22) on heat sink bridge (24).

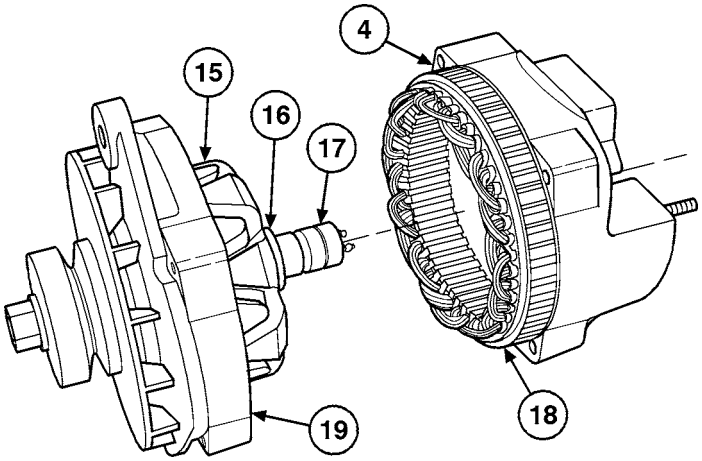


7. Install stator (18) into rear housing (4) with stator leads (21) onto three studs (22) and nuts (20) with integral washers to studs.

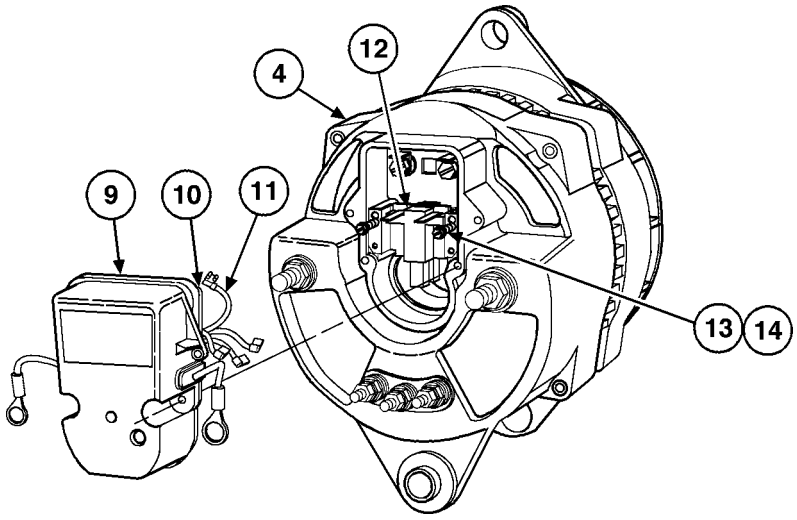


8. Install spacer (16) onto rotor shaft (17).

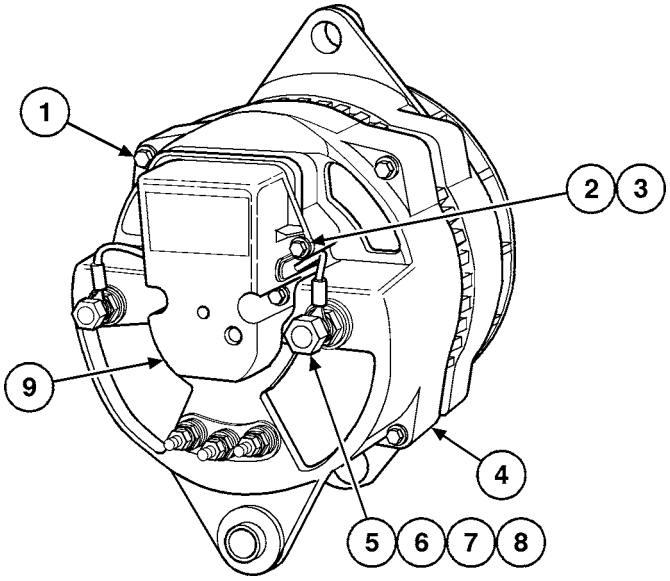
9. Install rear housing (4), stator (18), rotor (15), and front housing (19). Hand press halves together.



10. Install four thru-bolts (1) and tighten evenly to 50 to 60 lb-in (5.6 to 6.8 N•m).
11. Install new brush assembly (12) with two washers (14) and screws (13).
12. Install new gasket (10) to regulator (9).
13. Connect yellow and green wires (11) from regulator (9) to brush assembly (12) and rear housing (4).



14. Install regulator (9) to rear housing (4) with four washers (3) and screws (2).
15. Install two washers (6), leads (7), washers (8), and nuts (5) to rear housing (4).



ADJUSTMENT

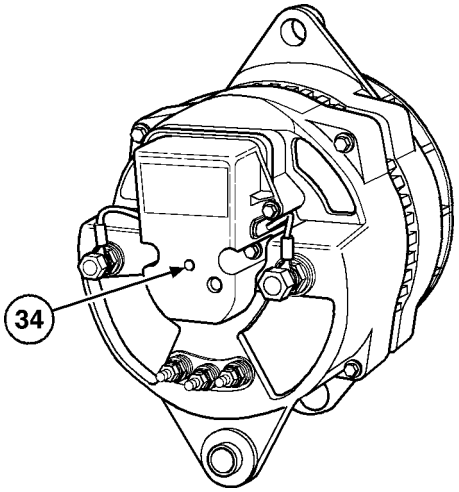
CAUTION

Do not force screwdriver past the set stops at either end of adjustment range to avoid regulator damage.

NOTE

Adjustments may be required during prolonged operation in extremely low or high temperatures to make sure batteries are properly charged.

Insert small screwdriver in hole (34) and turn clockwise to raise voltage. Turn screwdriver counterclockwise to lower voltage. Set voltage to 28.0 to 28.4 volts.



FOLLOW-ON TASK

Install alternator and adjust belt (WP 0116 00).

END OF TASK

4-INCH PUMP MAINTENANCE 0162 00

THIS WP COVERS:
Removal, Disassembly, Cleaning, Inspection and Repair, Assembly, Installation, Testing, Follow-On Task

INITIAL SETUP:

Maintenance Level
Direct and General Support

Materials/Parts
Compound, cleaning (item 4, WP 0174 00)
Gaskets (AR) (item 31, WP 0175 00)
Gasket (item 41, WP 0175 00)
Lockwashers (20) (item 122, WP 0175 00)
Mechanical seal (item 34, WP 0175 00)
Seal (item 32, WP 0175 00)
Seal (item 33, WP 0175 00)
Self-locking nuts (4) (item 144, WP 0175 00)

Equipment Conditions
Engine and pump cabinet removed (refer to WP 0157 00)

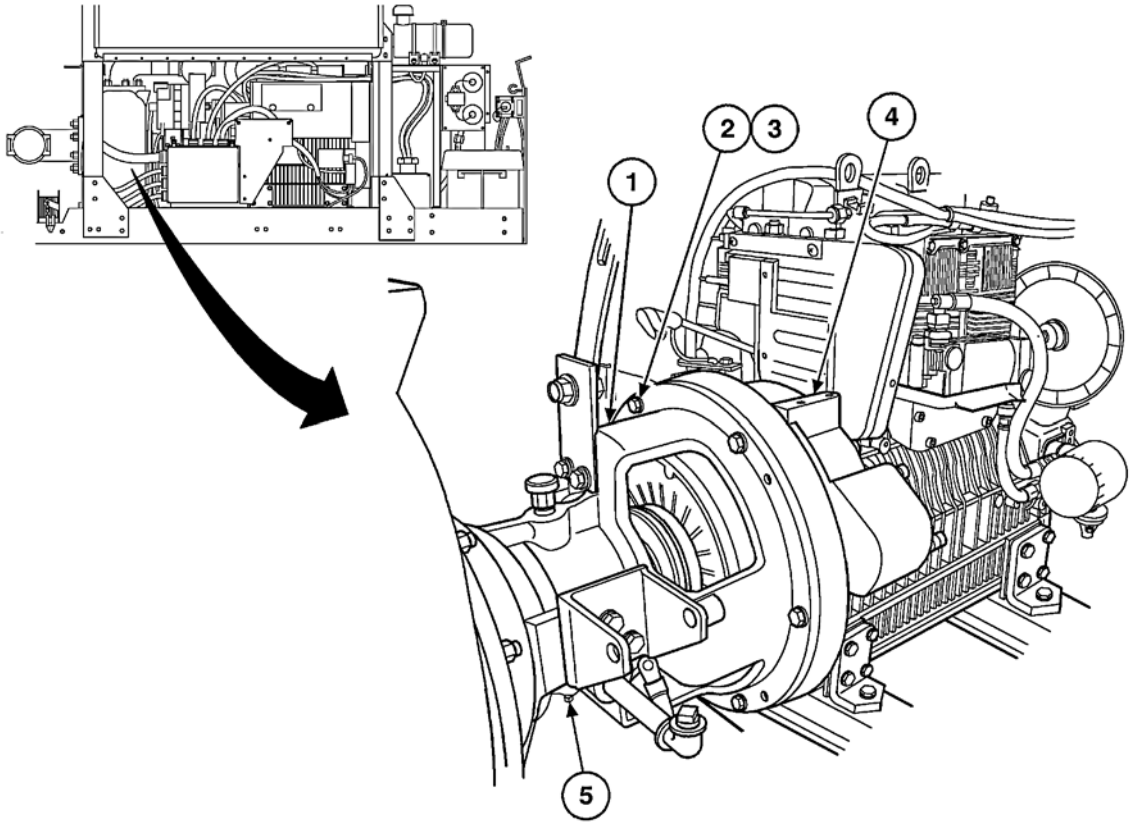
Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)
Forklift truck (item 1, WP 0171 00)
Lifting device (item 1, WP 0171 00)

References
WP 0035 00

REMOVAL

1. Remove pipe plug (5) and drain lubricant.

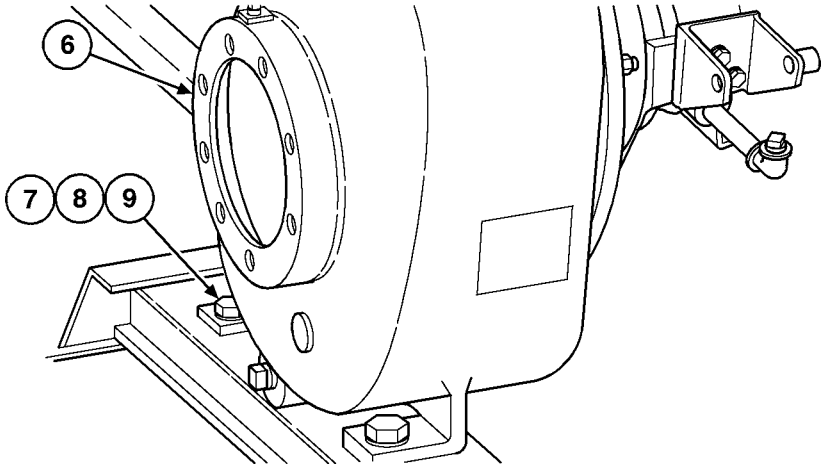
2. Remove six screws (2) and lockwashers (3) connecting intermediate housing (1) to engine (4). Discard lockwashers.



NOTE

A shim pack is located under one of the pump mounts. If the same pump is going to be reinstalled, mark the location of the shim pack and the number of shims. Set the shim pack aside for installation.

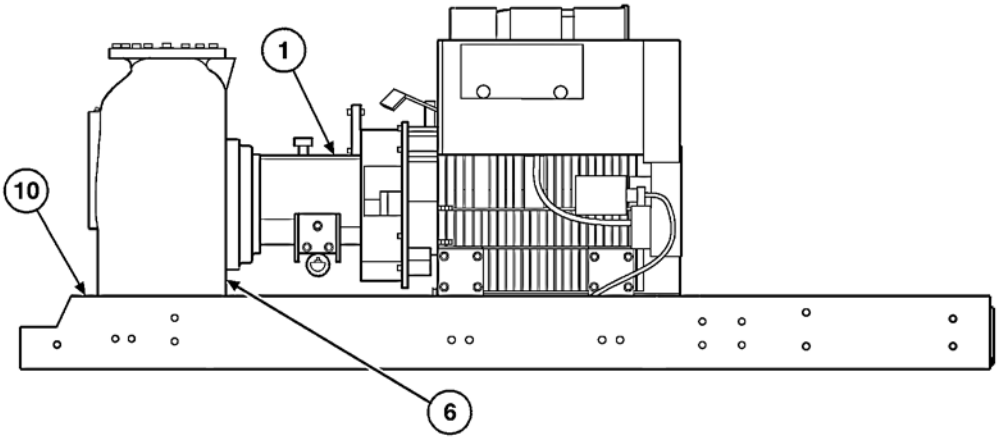
3. Remove two self-locking nuts (7), washers (8), and bolts (9) at bottom of pump (6). Discard self-locking nuts.



WARNING

To avoid personal injury, use a hoist or other lifting device when lifting pump.

4. Remove pump (6) and intermediate housing (1) from cabinet frame (10).

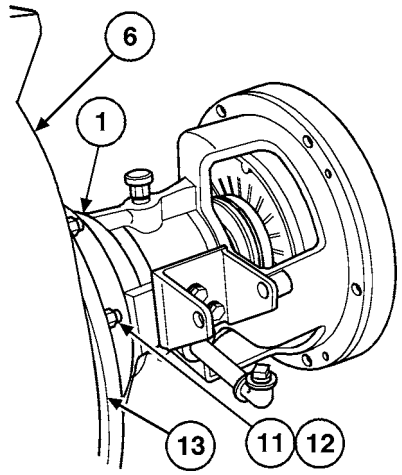


DISASSEMBLY

NOTE

Measure and record thickness of gasket(s) for ease of assembly.

1. Remove eight nuts (11), lockwashers (12), intermediate housing (1), and gasket(s) (13) from pump (6) as an assembly. Discard lockwashers and gasket(s).



WARNING

The spring load on mechanical seal may cause impeller to fly off shaft while being removed, causing serious injury to personnel.

2. Remove impeller (21) from impeller shaft (33) by unscrewing it in the same direction as pump turns.

3. Remove seal plate (25), mechanical seal (24), spring seat (23), and shims (22) from impeller shaft (33). Discard mechanical seal.

NOTE

If there are shims between bearing cap and bearing, set aside for use at assembly.

4. Remove four screws (38), lockwashers (37), bearing cap (28), gasket (29), and shims (30). Discard lockwashers and gasket.

5. Remove pump coupling (36) and key (34) from impeller shaft (33).

6. Remove impeller shaft (33) and bearings (32) from intermediate housing (1) as an assembly by using a soft hammer to hit the keyed end of the impeller shaft.

7. Remove seal (35) from intermediate housing (1). Discard seal.

8. Remove seal (27) from bearing cap (28). Discard seal.

9. Remove snap ring (31) and two bearings (32) from impeller shaft (33).

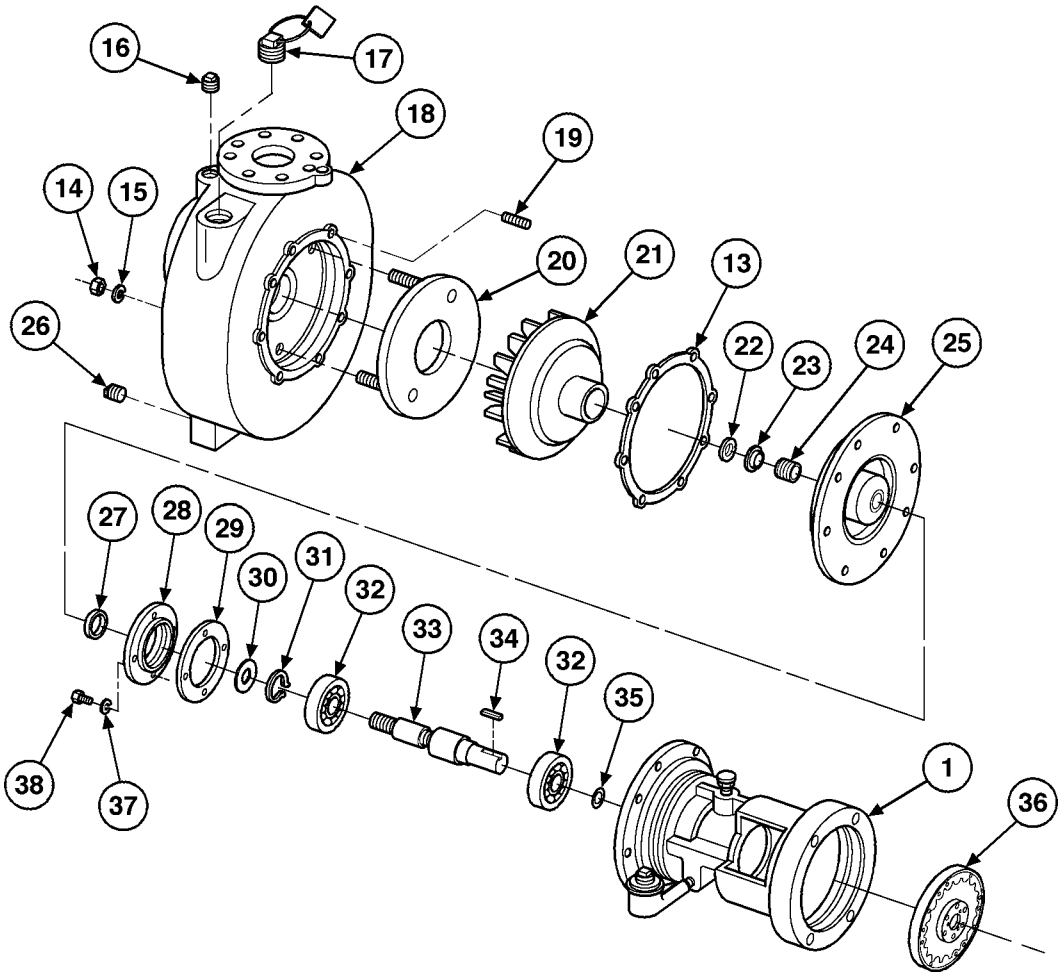
NOTE

Remove wear plate only if excessive wear is evident and replacement is necessary.

10. Remove two nuts (14), lockwashers (15), and wear plate (20) from volute (18). Discard lockwashers.

11. Remove eight studs (19) from volute (18).

12. Remove three plugs (16, 17, and 26).



CLEANING

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

Clean shaft and all component parts (except bearings) with a soft cloth soaked in cleaning solvent. Inspect parts for wear or damage and replace as necessary.

INSPECTION AND REPAIR

1. Remove minor nicks on edges of impeller vanes with a fine finishing stone.
2. Replace all seals, gaskets, and bearings.
3. Inspect impeller shaft for nicks, scratches, scoring, or other damage. Replace shaft if damaged.
4. If shaft is worn so bearings slip on and off easily, shaft must be replaced. Replace housing if bearings do not fit snugly into bearing bore.

ASSEMBLY

1. Install three plugs (16, 17, and 26) in volute (18) and plug (5) in intermediate housing (1).
2. Install eight studs (19) in volute (18).
3. Install wear plate (20) to volute (18) with two new lockwashers (15) and nuts (14).
4. Install two bearings (32), and snap ring (31) to impeller shaft (33).
5. Install new seal (27) in bearing cap (28). Lip of seal must be towards inside of cap.
6. Install new seal (35) in intermediate housing (1).
7. Install bearings (32) and impeller shaft (33) in intermediate housing (1) as an assembly.

NOTE

If shims were present at disassembly, put back in at assembly.

8. Install shims (30), new gasket (29), bearing cap (28), four new lockwashers (37), and screws (38) to intermediate housing (1).

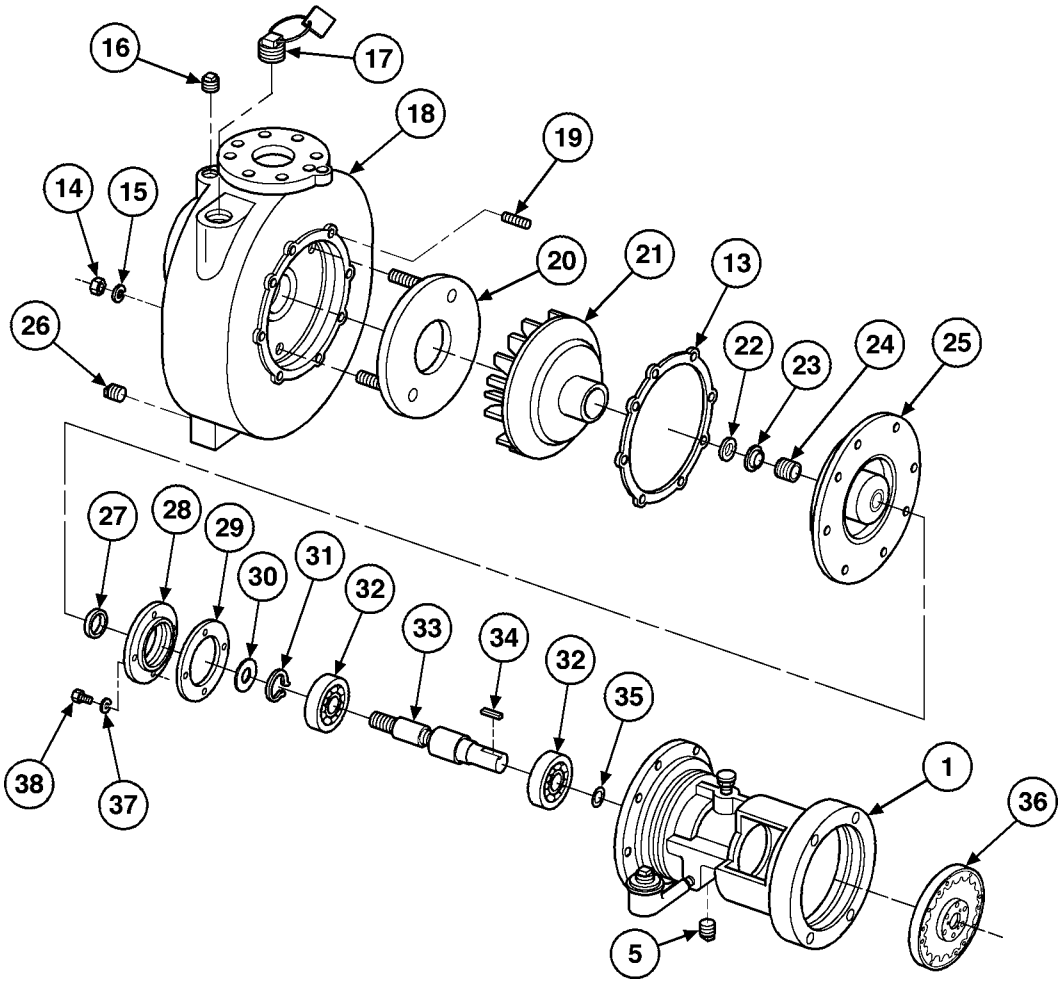
9. Install pump coupling (36) and key (34) to impeller shaft (33).

10. Install shims (22), spring seat (23), new mechanical seal (24), and seal plate (25) to impeller shaft (33).

NOTE

A clearance of 0.020 to 0.040 in. (0.51 to 1.02 mm) between the impeller and seal plate is necessary for maximum pump efficiency. Measure this clearance and add or remove shims until the clearance is reached.

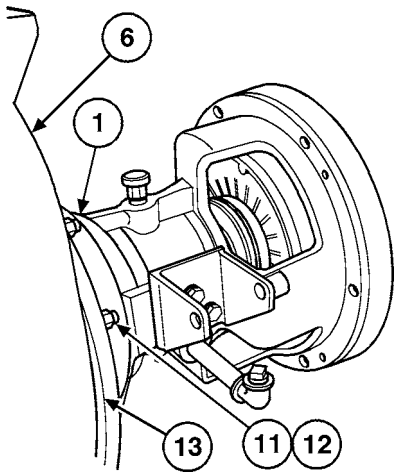
11. Install impeller (21) to impeller shaft (33).



NOTE

Install same thickness of gasket(s) as previously removed.

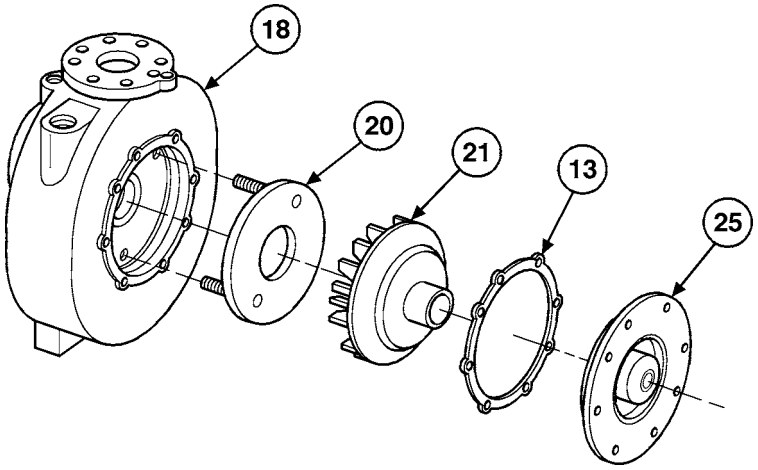
12. Install new gasket(s) (13), intermediate housing (1), eight new lockwashers (12), and nuts (11) to pump (6) as an assembly.



NOTE

A clearance of 0.010 to 0.020 in. (0.25 to 0.51 mm) between impeller and wear plate. Set this clearance by adding or removing gasket(s).

13. Check for clearance between front of impeller (21) and wear plate (20). If impeller scrapes, add another gasket (13) of sufficient thickness between seal plate (25) and volute (18).

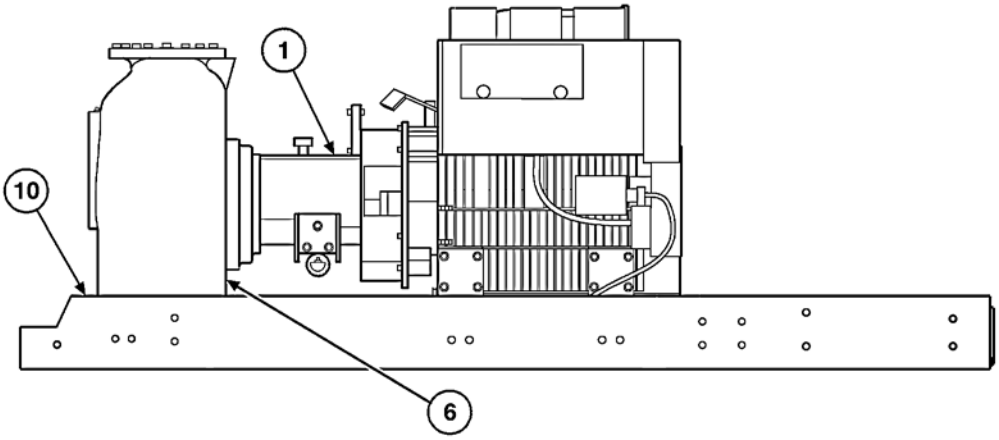


INSTALLATION

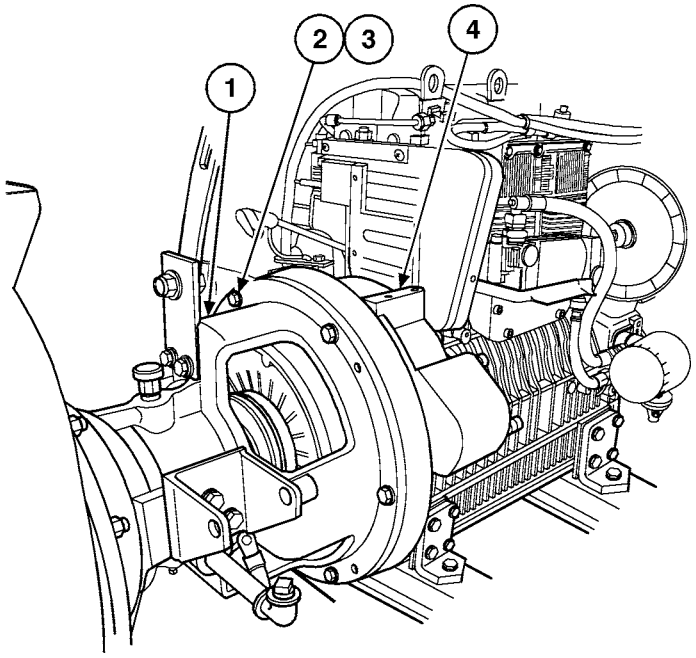
WARNING

To avoid personal injury, use a hoist or some lifting device when lifting pump.

1. Install pump (6) and intermediate housing (1) to cabinet frame (10).



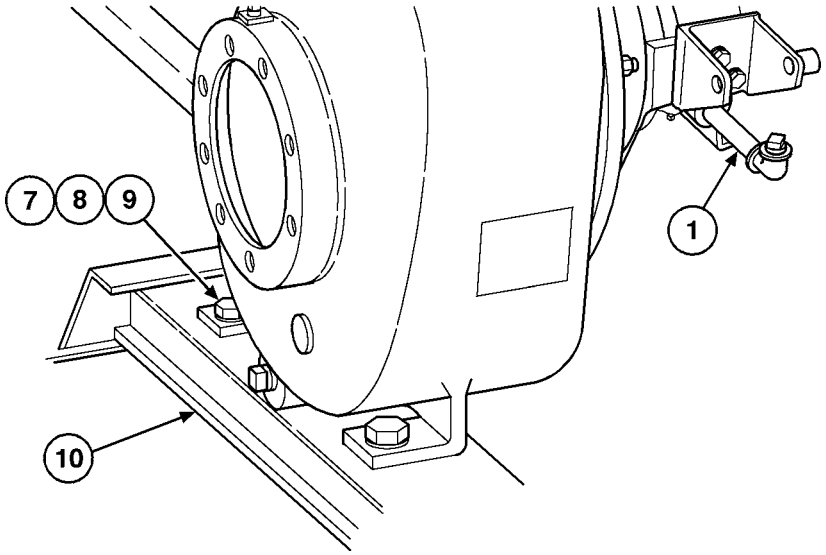
2. Install six screws (2) and new lockwashers (3) connecting intermediate housing (1) to engine (4).



NOTE

Install shim packs removed in removal step 3.

3. Install shim pack in location from where it was removed.
4. Install two bolts (9), washers (8), and new self-locking nuts (7) through pump mounts to cabinet frame (10).
5. Fill intermediate housing (1) with oil. Refer to lube instructions (WP 0035 00).



FOLLOW-ON TASK

Install engine and pump cabinet (WP 0157 00).

END OF TASK

PIPING FRAME ASSEMBLY REPLACEMENT 0163 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Materials/Parts
Self-locking nuts (26) (item 86, WP 0175 00)
Self-locking nuts (11) (item 87, WP 0175 00)

Personnel Required
Two

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

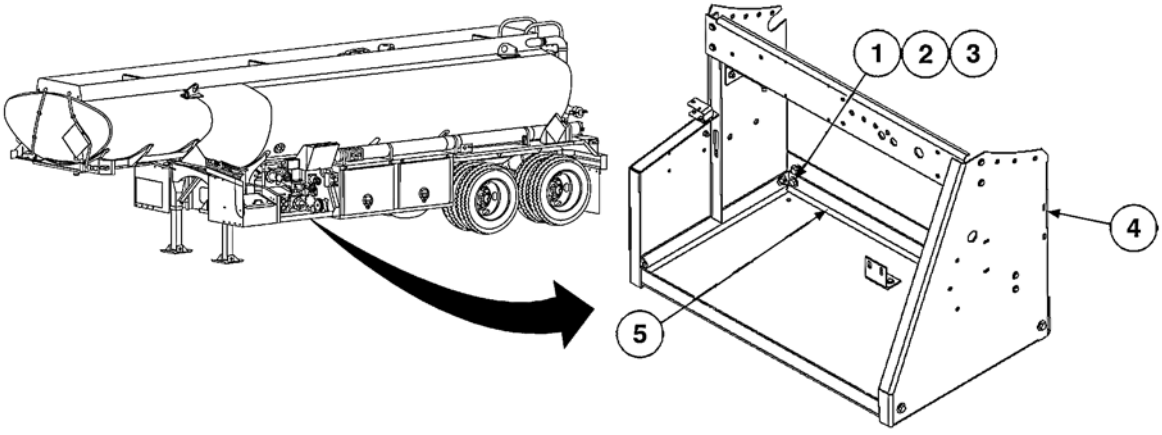
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Manifold valve removed (refer to WP 0135 00)
Discharge manifold valve removed (refer to WP 0133 00)
G valve removed (refer to WP 0128 00)
Bottom loading valve removed (refer to WP 0134 00)
Emergency valve A control handle removed (refer to WP 0139 00)
Main wiring harness removed (refer to WP 0057 00)
F, E, and B valve and handwheels (refer to WP 0132 00)
Static reels and electrical clips (refer to WP 0087 00)

REMOVAL

1. Remove 8 self-locking nuts (1), 16 washers (2), 8 bolts (3), and rear of piping frame (4) from bulkhead (5). Discard self-locking nuts.

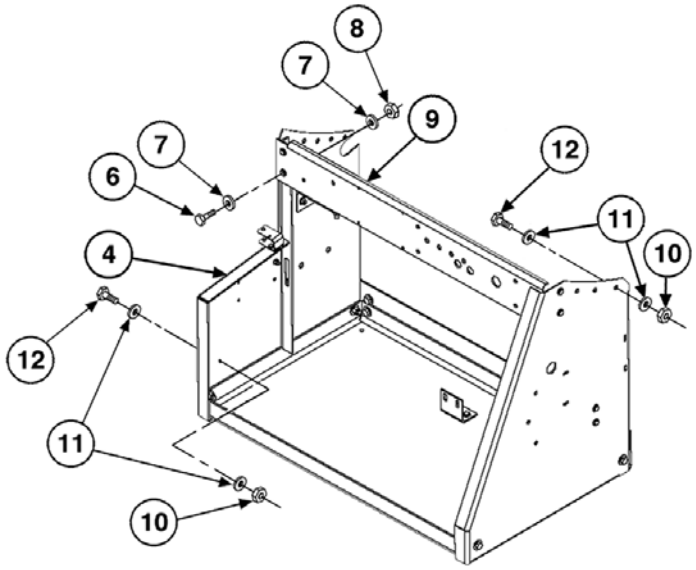
WARNING

Piping frame is heavy. Position a forklift or other lifting device underneath framework. Do not attempt to lift it by yourself or damage to equipment or injury to personnel could result.



2. Remove 26 self-locking nuts (10), 52 washers (11), and 26 bolts (12) from both sides of piping frame (4). Discard self-locking nuts.

3. Remove three self-locking nuts (8), six washers (7), and three bolts (6) from panel (9). Discard self-locking nuts.

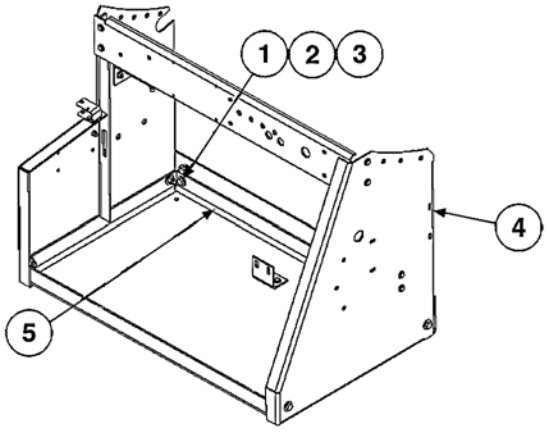


INSTALLATION

WARNING

Piping frame is heavy. Position a forklift or other lifting device underneath framework. Do not attempt to lift it by yourself or damage to equipment or injury to personnel could result.

1. Install 8 bolts (3), 16 washers (2), 8 new self-locking nuts (1), and rear of piping frame (4) to bulkhead (5).



2. Install 26 bolts (12), 52 washers (11), 26 new self-locking nuts (10), and both sides of piping frame (4) to semitrailer.
3. Install three bolts (6), six washers (7), and three new self-locking nuts (8) to panel (9).

FOLLOW-ON TASKS

1. Install main wiring harness (WP 0057 00).
2. Install emergency valve A control handle (WP 0139 00).
3. Install bottom loading valve (WP 0134 00).
4. Install valve G (WP 0128 00).
5. Install discharge manifold valve (WP 0133 00).
6. Install manifold valve (WP 0135 00).
7. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

G, M, P, AND R VALVES MAINTENANCE 0164 00

THIS WP COVERS:
Disassembly, Cleaning and Inspection, Assembly, Follow-On Tasks

INITIAL SETUP:
Maintenance Level
Direct and General Support

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

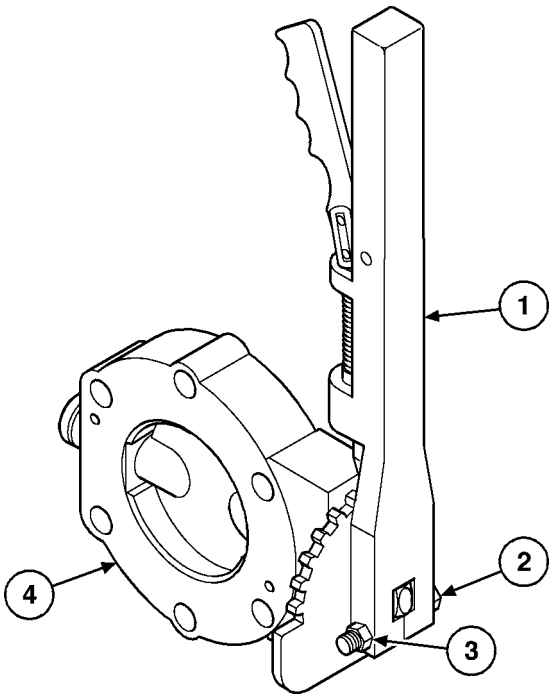
Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Semitrailer fuel tank drained (refer to WP 0007 00)
R and P valves removed (refer to WP 0129 00)
G and M valves removed (refer to WP 0128 00)

DISASSEMBLY

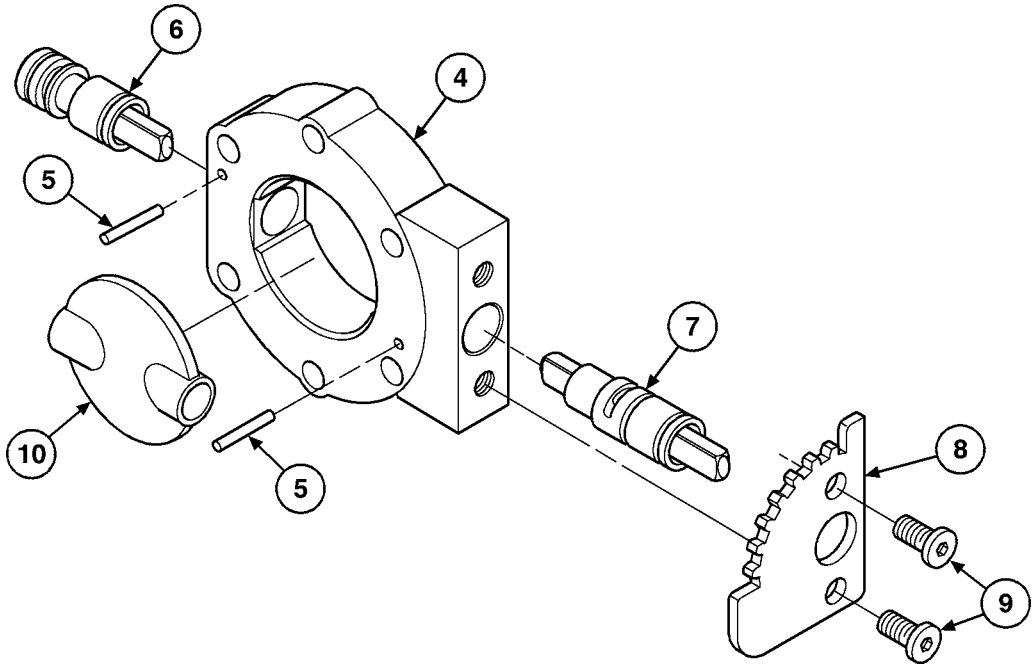
NOTE

All four valves are identical except in size. Valves G and M are larger than valves P and R. This procedure covers the P valve.

1. Remove nut (3), bolt (2), and handle (1) from valve (4).



2. Remove two screws (9) and ratchet plate (8).
3. Remove two retaining pins (5) from top side of valve (4).
4. Remove stems (7 and 6) and disc (10) from valve (4).



CLEANING AND INSPECTION

WARNING

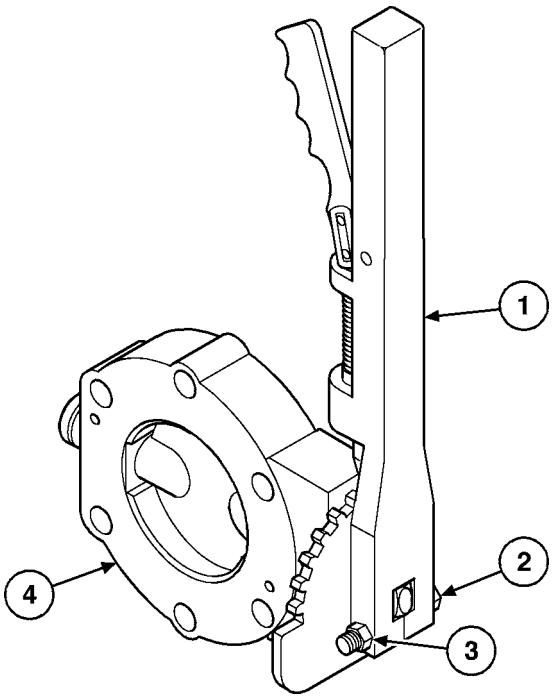
Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

1. Clean all metal parts with cleaning compound. Check for any obvious damage such as cracks in parts. Replace any damaged parts.

ASSEMBLY

1. Assemble disc (10) to valve (4) with stems (7 and 6).
2. Insert smooth ends of two retaining pins (5) into valve (4).
3. Assemble ratchet plate (8) to valve (4) with two screws (9).

4. Assemble handle (1) to valve (4) with bolt (2) and nut (3).



FOLLOW-ON TASKS

1. Install valves (WPs 0128 00 and 0129 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

BLANK **0165 00**

F, E, AND B VALVES REPAIR 0166 00

THIS WP COVERS:
Disassembly, Cleaning and Inspection, Assembly, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Materials/Parts Equipment
Compound, cleaning (item 4, WP 0174 00)
Rags (item 11, WP 0174 00)
Gaskets (3) (item 52, WP 0175 00)
Lockwashers (48) (item 40, WP 0175 00)
Packings (3) (item 51, WP 0175 00)

Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
F, E, and B valves removed (refer to WP 0132 00)

NOTE

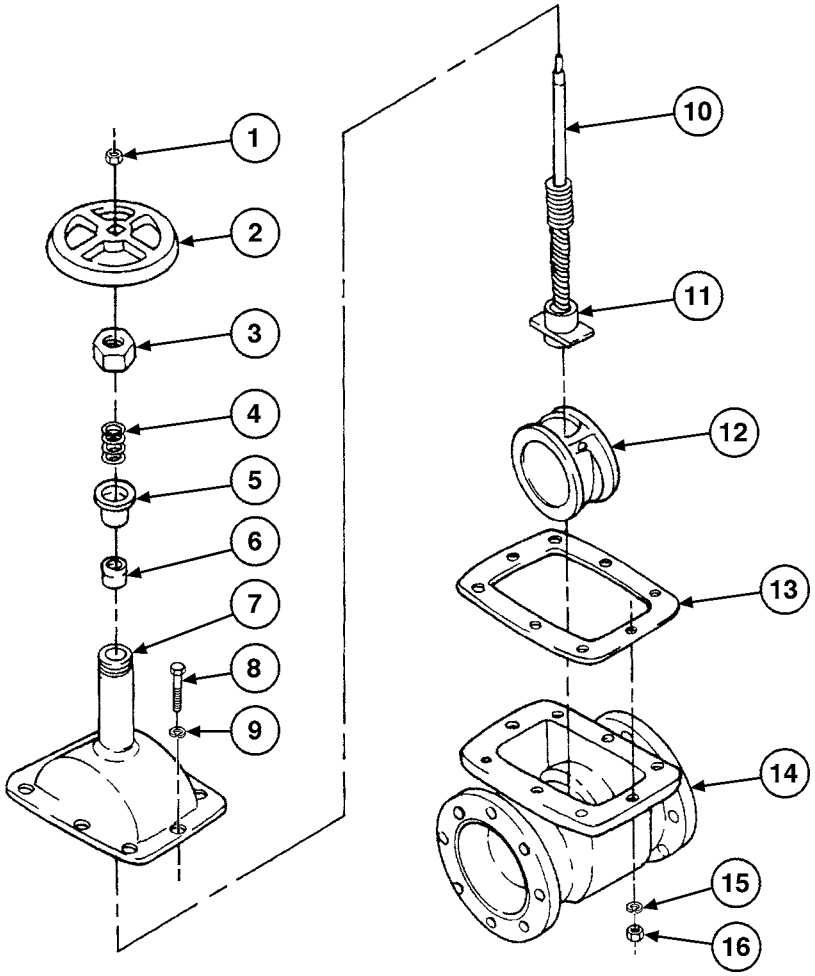
Use this task to repair the F, E, and B valves. The F valve is shown.

DISASSEMBLY

1. Remove eight screws (8), lockwashers (9), lockwashers (15), nuts (16), gasket (13), and bonnet (7) from valve body (14). Discard lockwashers and gasket.

2. Loosen packing nut (3) and turn handwheel (2) counterclockwise. Remove nut (1), handwheel, packing nut, spring (4), packing retainer (5), and packing (6) from bonnet (7). Discard packing.

3. Remove stem (10), pull nut (11), and disc assembly (12) from valve body (14).



CLEANING AND INSPECTION

WARNING

Solvents can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If solvent gets on skin or clothing, wash immediately with soap and water.

1. Clean all metal parts with cleaning compound and rags.
2. Inspect metal parts for cracks, scoring, and pitting. Replace any damaged parts.
3. If disc assembly or disc assembly mating surfaces are pitted or scored, replace entire valve assembly.

ASSEMBLY

1. Install stem (10), pull nut (11), and disc assembly (12) in valve body (14).
2. Install new packing (6), packing retainer (5), spring (4), packing nut (3), handwheel (2), and nut (1) on bonnet (7).
3. Install eight screws (8), new lockwashers (15), new lockwashers (9), nuts (16), new gasket (13), and bonnet (7) on valve body (14).

FOLLOW-ON TASKS

1. Install F, E, and B valves (WP 0132 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

D VALVE AND LINES REPLACEMENT 0167 00

THIS WP COVERS:
Removal, Installation, Follow-On Tasks

INITIAL SETUP:

Maintenance Level
Direct and General Support

Material/Parts Equipment
Cable ties (AR) (item 98, WP 0175 00)

References
TB 43-0212

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

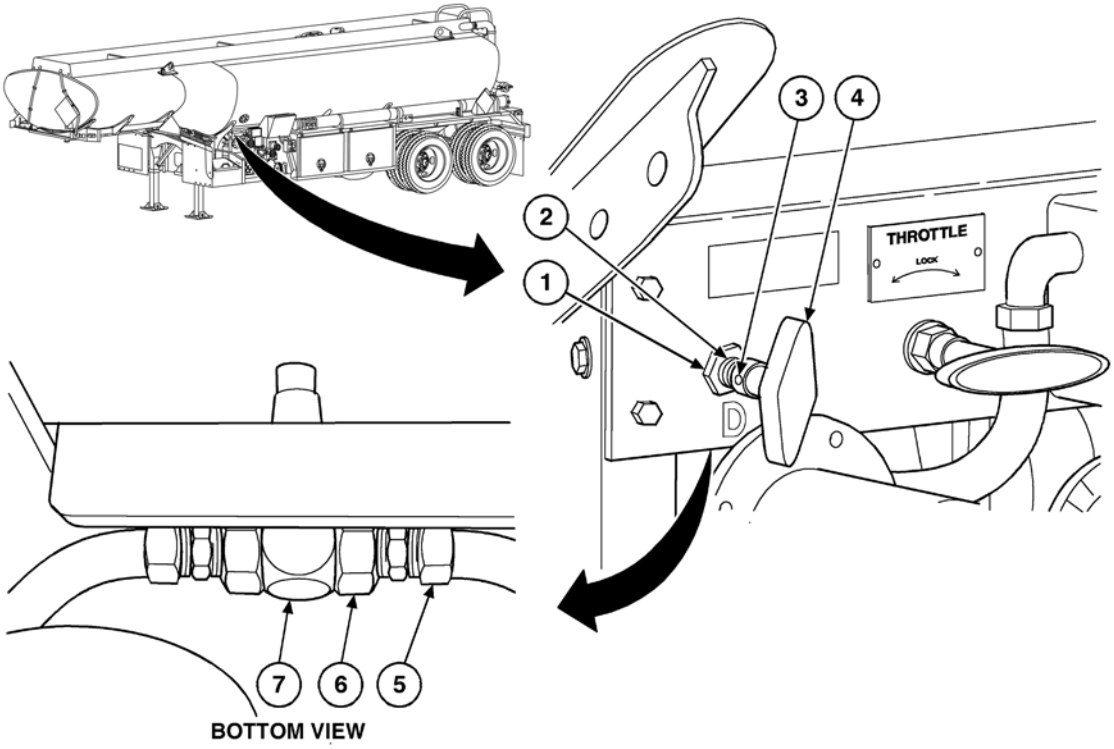
Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)
Negative terminal disconnected from battery (refer to WP 0007 00)
Semitrailer emptied and purged per TB 43-0212

NOTE

Replace in line fuel filter when replacing hoses. (WP 0131 00)

REMOVAL

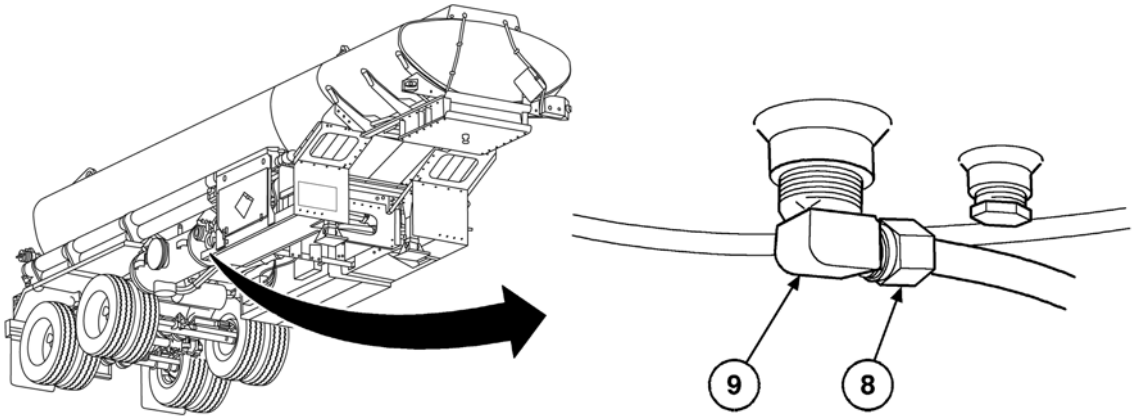
1. Loosen set screw (3) and remove knob (4) and nut (1) from D valve stem (2).
2. Remove two fitting nuts (5), fittings (6), and D valve body (7).



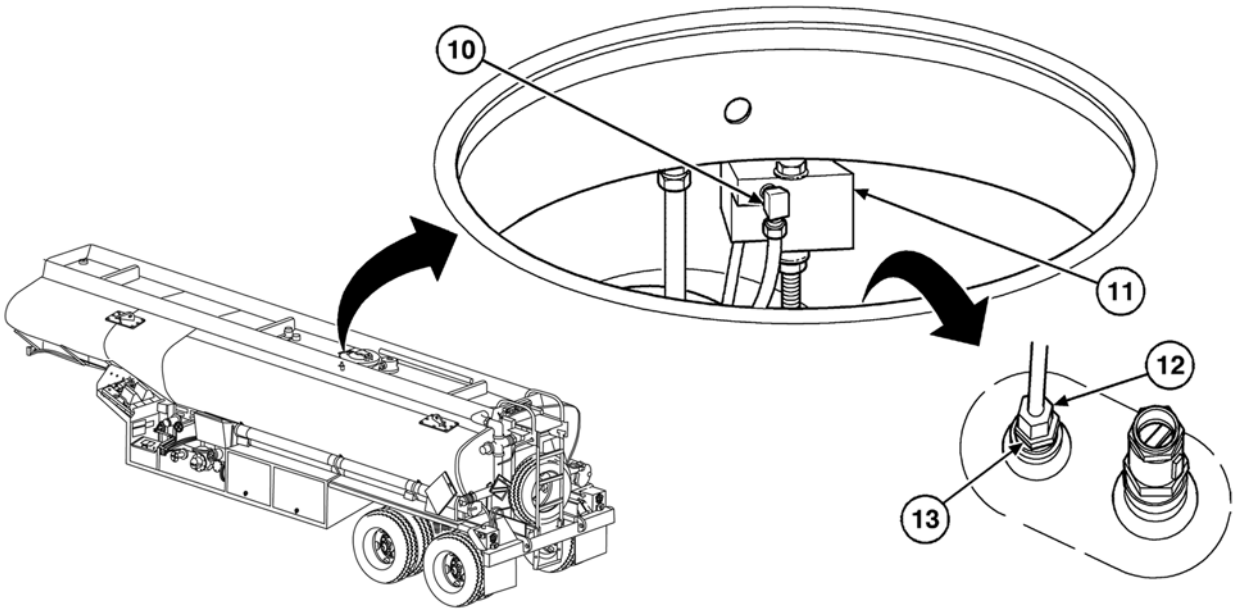
NOTE

Remove cable ties as necessary.

3. Remove pipe fitting (8) and fitting (9).



4. Disconnect two hose nuts (12) at high lever shutoff (11) and at D valve fitting (13).
5. Remove elbow fitting (10) from high level shutoff (11).
6. Remove D valve fitting (13).



"Interior View"

D VALVE AND LINES REPLACEMENT—Continued **0167 00**

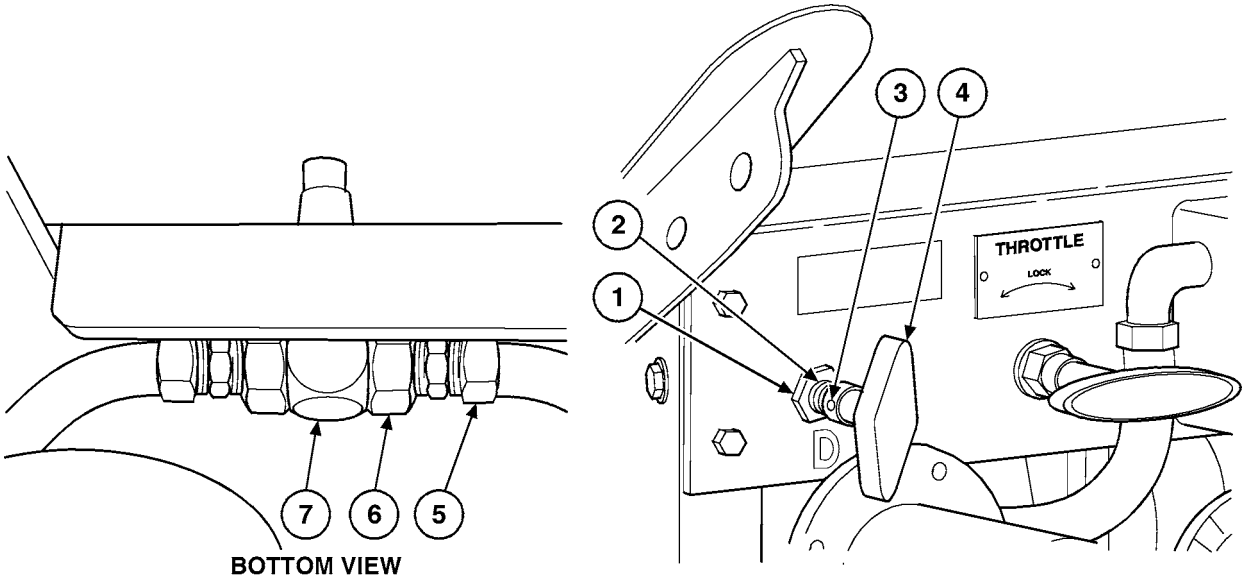
INSTALLATION

1. Install D valve fitting (13).
2. Install elbow fitting (10) to high level shutoff (11).
3. Install two hose nuts (12) to high level shutoff (11) and to D valve fitting (13).
4. Install fitting (9) and pipe fitting (8).

NOTE

Install new cable ties as necessary.

5. Install two fittings (6), fitting nuts (5), and D valve body (7).
6. Install nut (1) and knob (4) to D valve stem (2) and tighten set screw (3).



FOLLOW-ON TASKS

1. Reconnect negative battery terminal (WP 0007 00).
2. Disconnect semitrailer grounding cables (WP 0007 00).

END OF TASK

VAPOR INTEGRITY TEST 0168 00

THIS WP COVERS:
Pressure Test Preparation; Pressure Test Procedure; Vacuum Test Preparation; Vacuum Test Procedure

INITIAL SETUP:

Maintenance Level
Direct and General Support

Tools and Special Tools
Tool kit, general mechanic's (item 4, WP 0171 00)

Equipment Conditions
Semitrailer disconnected from prime mover (refer to WP 0007 00)
Semitrailer grounded (refer to WP 0007 00)

References

DOT 49CF180.407	TB 43-0212
DOT 49CFR180.409	WP 0122 00
DOT 49CFR180.415	WP 0164 00

NOTE

Testing personnel must be registered with DOT in accordance with DOT regulation 49CFR180.409.

PRESSURE TEST PREPARATION

WARNING

- **Use extreme caution when walking or working on the top of semitrailer. Walkway can become slippery due to moisture or fuel spillage. Failure to follow this warning may result in serious injury.**
- **Before performing the pressure or vacuum test, the semitrailer must be grounded to an approved (earth) ground and must be safe to proceed. Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.**
- **Make sure tank and piping system are free of all liquid and that tank is purged of all fuel vapor (implement the cleaning procedures, as applicable, refer to TB 43-0212). Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.**

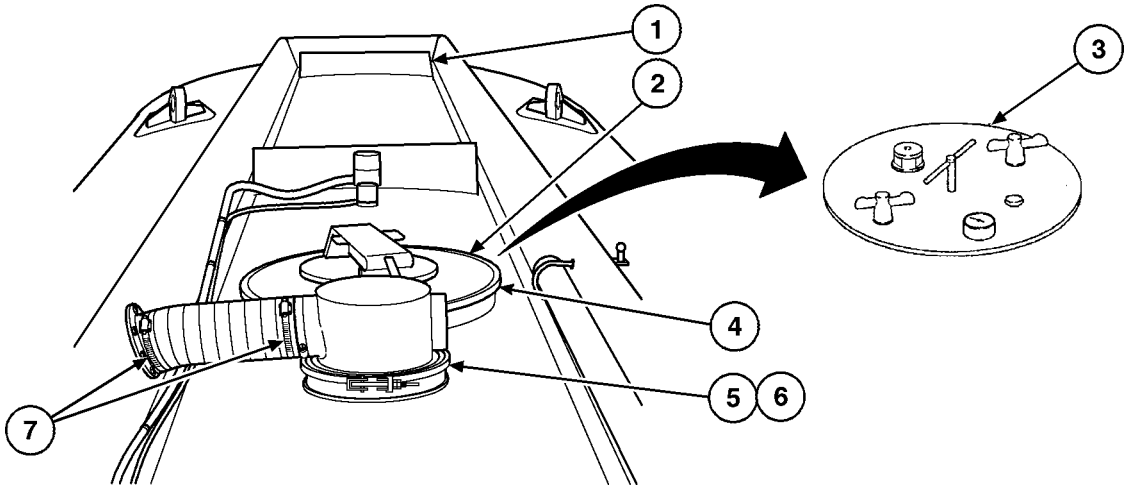
VAPOR INTEGRITY TEST **0168 00**

NOTE

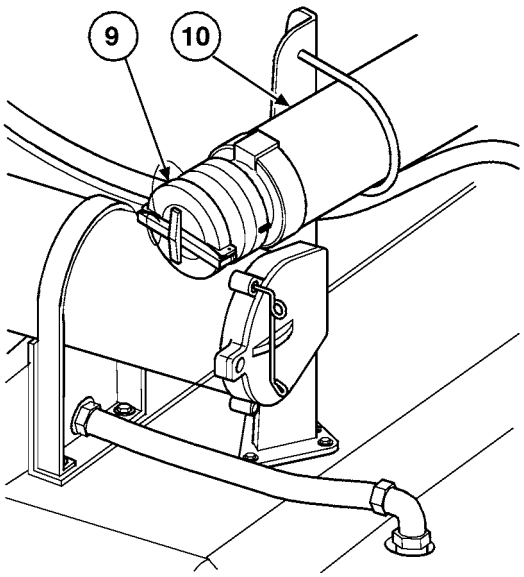
- **Select an area with minimum temperature changes, which directly affect pressure readings. Do not perform the pressure test in direct sunlight.**
- **Visually inspect outside of tank and all associated piping. Look for stained areas that indicate obvious leakage. Repair obvious leaks prior to performing pressure test. Inspect discharge valve to ensure leak-free operation.**
- **Make sure test equipment gages are set to zero by turning adjusting screw on each gage.**
- **Perform EPA (Environmental Protection Agency) Method 27 for the leak test; this procedure tests tankers to MC306 or DOT406 standards.**

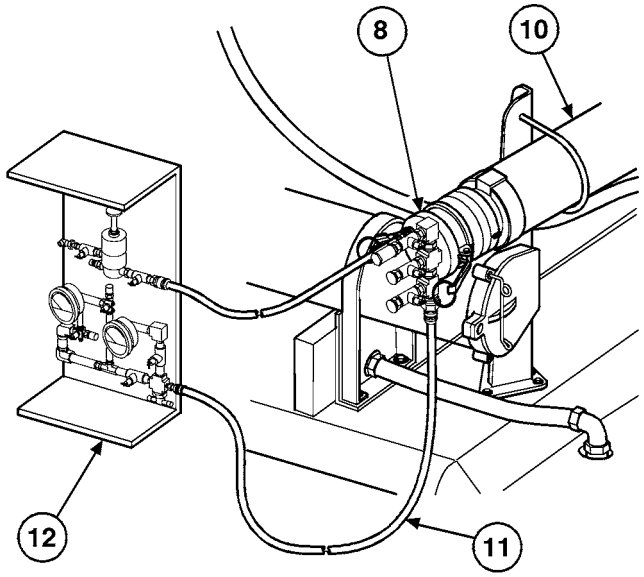
VAPOR INTEGRITY TEST—Continued **0168 00**

1. Open manhole cover (2), install test plate (3), and fasten securely.
2. Ensure clamp ring (4) for manhole cover (2) is fastened securely.
3. Ensure both 3-in. (diameter) cleanout caps (1) are fastened securely.
4 Ensure vapor vent valve (5), hood clamp (6), and hose clamps (7) are fastened securely.



5. Remove dust cap (9) from vapor vent line (10).
6. Attach coupling assembly (8) to vapor vent line (10).
7. Attach regulator assembly (12) to coupling assembly (8) using two hose assemblies (11).





VAPOR INTEGRITY TEST—Continued **0168 00**

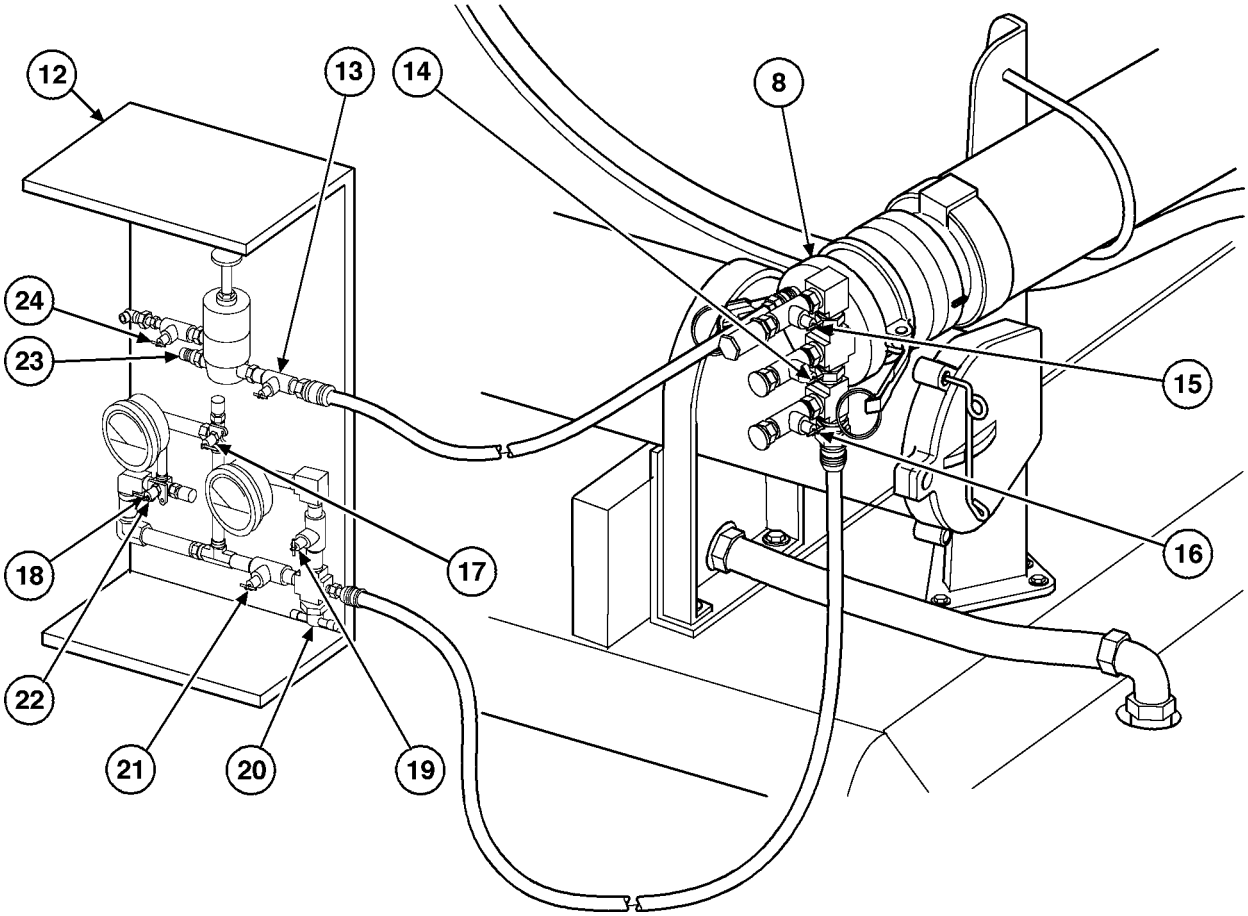
8. On regulator assembly (12), close control shutoff valve (13), valve (19), draincock valve (20), and valve (24), and open valve (21). On coupling assembly (8), close valves (14 and 15) and open valve (16).

9. Turn valves (17 and 18/22) on regulator assembly (12) to the horizontal position for positive pressure reading.

WARNING

Make sure regulator is set to its lowest setting (turned fully counterclockwise) to avoid overpressure in tank. The pneumatic test pressure in tank must be reached gradually. Failure to follow this warning may result in serious injury to personnel or damage to equipment.

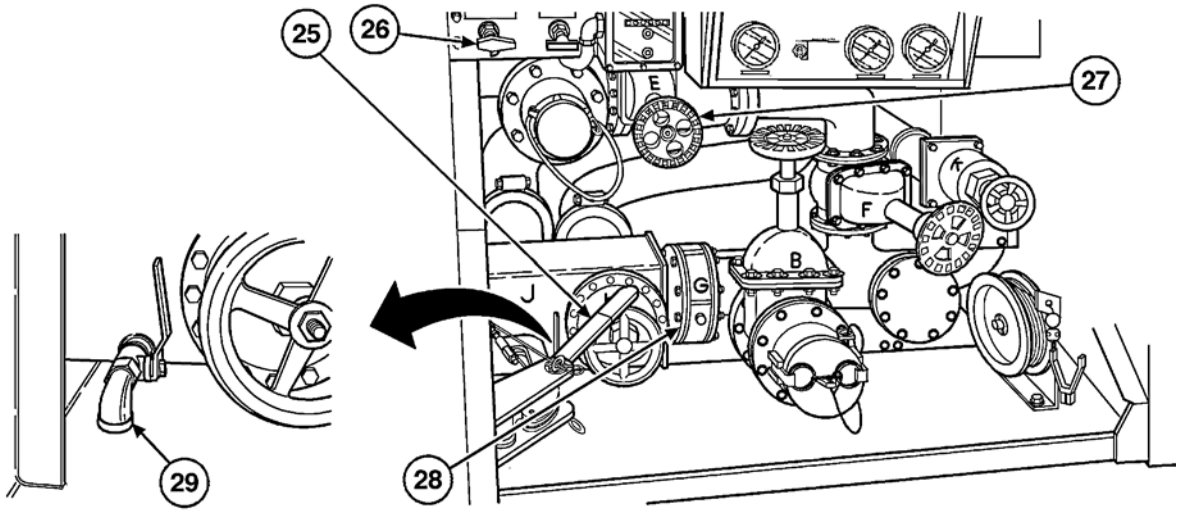
10. Connect air pressure supply to regulator assembly port (23).



VAPOR INTEGRITY TEST—Continued **0168 00**

PRESSURE TEST PROCEDURE

1. Open emergency valve A (25) and valves D and E (26 and 27). Close valves G and J (28 and 29).



2. Open control shutoff valve (13) on regulator assembly (12).

WARNING

- **Never remove any accessory items (e.g., manhole cover, cleanout caps) during pressure test; severe injury or death may result.**
- **Do not overpressure tank. If tank is overpressurized, close control shutoff valve and open draincock valve to reduce overpressure. Failure to follow this warning may result in serious injury to personnel or damage to equipment.**

3. Slowly adjust regulator assembly (12) by turning regulator knob (31) clockwise to increase flow of air into vapor return line and tank until a pressure reading of 17.5 to 18.5 in. water column (wc) is obtained on gage (30).

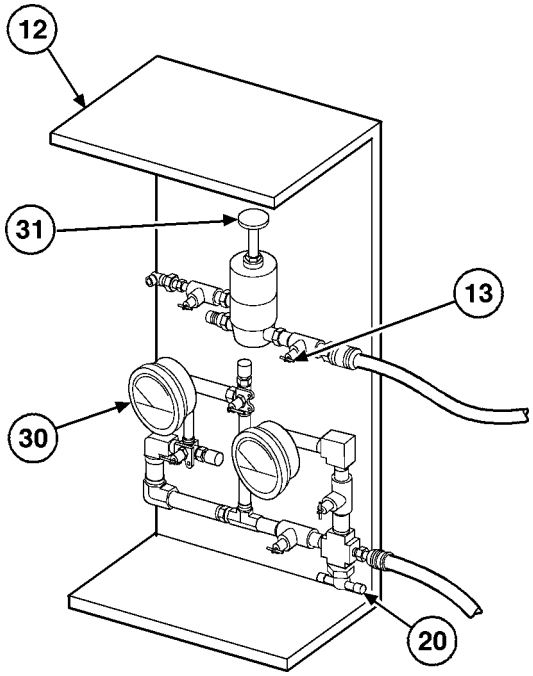
4. Close control shutoff valve (13) on regulator assembly (12).

5. Wait 5 minutes to verify that pressure reading remains stable at 17.5 to 18.5 in. wc.

6. Close draincock valve (20) after tank pressure has dropped to 17.5 to 18.5 in. ± 0.5 in. wc on gage (30).

7. At the end of an additional 5 minutes, record the time and final pressure from gage (30). If pressure drops more than 0.5 in. wc, repressurize tank per step 3 before connecting.

VAPOR INTEGRITY TEST—Continued **0168 00**

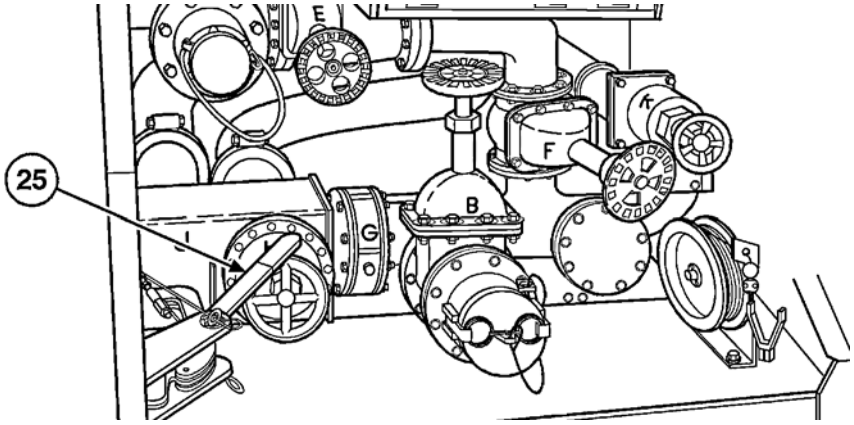


CAUTION

Although an emergency valve leak does not constitute a K stamp (indicating compliance with DOT 49CF180.407 (h)) failure if the leak is internal, proper emergency valve operator function is required for safe operation.

8. Close emergency valve A (25) and monitor gage (30) on regulator assembly (12).

9. Wait 5 minutes to verify that pressure reading remains stable. If pressure drops more than 0.5 in. wc on gage (30), go to step 10. If pressure remains at 17.5 to 18.5 in. wc, go to step 13.



VAPOR INTEGRITY TEST—Continued **0168 00**

10. Look for leaks in vapor vent line (10); check vapor vent hood (7), vapor vent hose (32), and pipe joints (33).

11. Return tank and piping system to normal atmospheric pressure by opening G valve (28) and emergency valve A (25).

12. Repair any leaks found in vapor vent line (10) (refer to WP 0122 00). Restart test at step 1.

13. Return vapor vent line (10) to atmospheric pressure by opening draincock valve (20) of regulator assembly (12).

14. On regulator assembly (12), close draincock valve (20) and monitor gage (30) for 5 minutes.

15. If no increase in pressure is indicated on gage (30), vapor vent valve (5) is functional. Go to step 18. If there is an increase in pressure more than 0.5 in. wc, vapor vent valve (5) is leaking. Go to step 16.

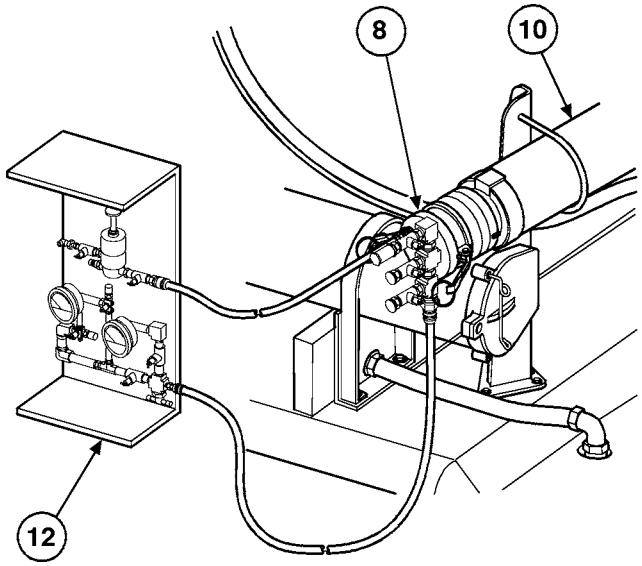
16. Return vapor vent line (10) to atmospheric pressure by opening draincock valve (20) of regulator assembly (12).

17. Repair any leaks found in vapor vent valve (5). Restart test at step 1.

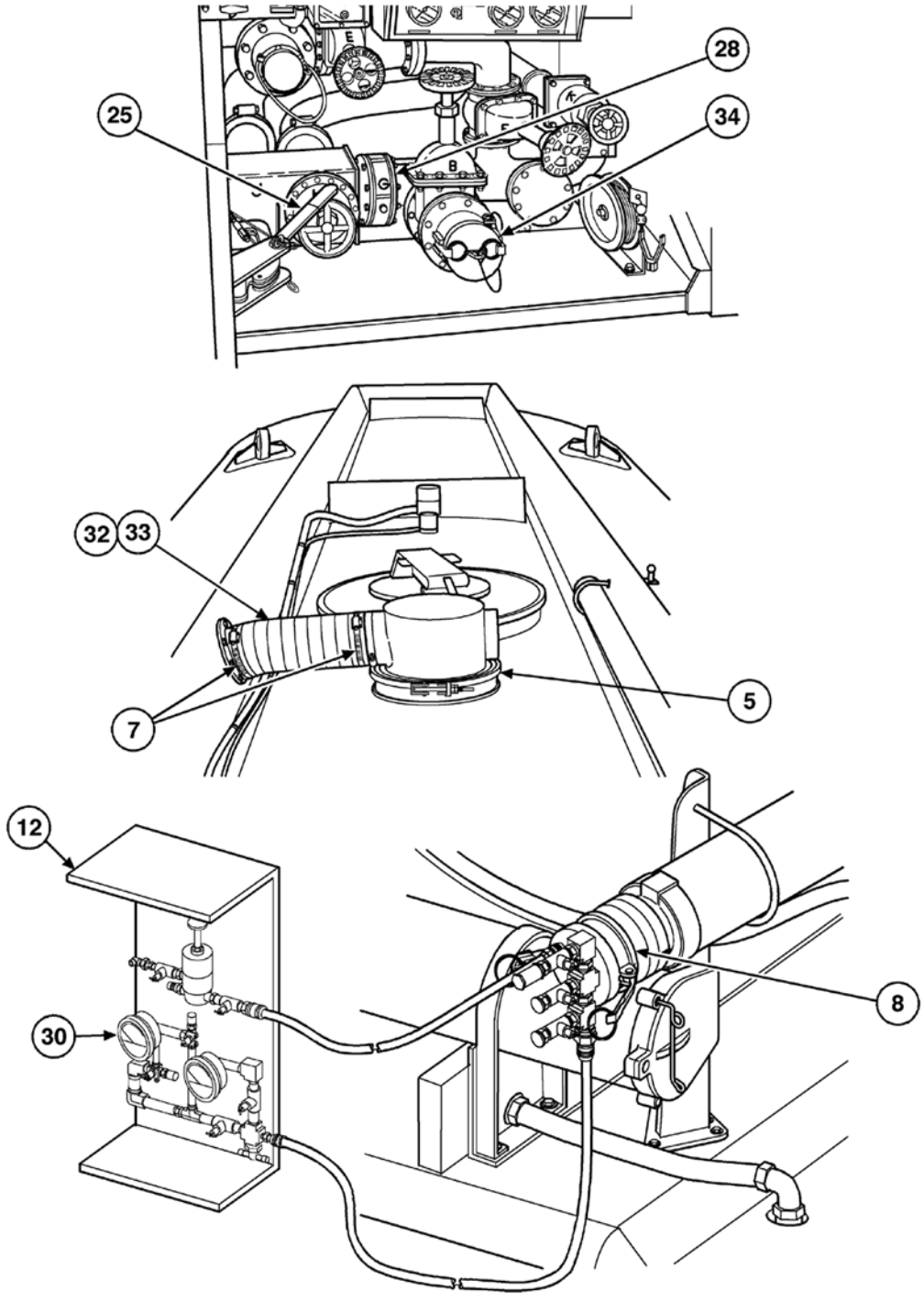
18. Return tank and piping system to normal atmospheric pressure by opening G valve (28) and emergency valve A (25).

19. Remove coupling assembly (8) from vapor vent line (10). Install coupling assembly (8) on discharge port of valve B (34). Install a closed cap on the open vapor vent line (10).

20. Open emergency valve A (25). Pressurize tank and piping system according to steps 3 thru 5 and then continue with step 21.



VAPOR INTEGRITY TEST—Continued 0168 00



VAPOR INTEGRITY TEST—Continued **0168 00**

21. On regulator assembly (12), monitor gage (30) for 5 minutes to verify that pressure reading remains stable at 17.5 to 18.5 in. wc. If pressure does not drop more than 0.5 in. wc, go to step 22.

22. Repressurize tank and piping system according to steps 3 thru 5. Close emergency valve A (25). Monitor gage (30) for 5 minutes. If pressure does not drop and tank is leaking, go to step 23. If pressure drops more than 0.5 in. wc piping system is leaking. Go to step 26.

23. Locate tank leak, check cleanout caps (1), manhole cover (2) and precheck circuit, and weld seams.

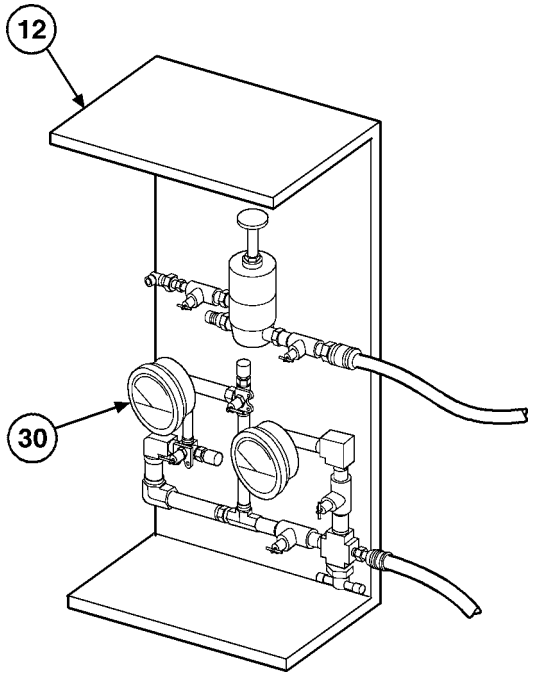
24. Return tank and piping system to atmospheric pressure by opening manifold drain valve (29) and emergency valve A (25).

25. Repair tank leak as required. Restart test from step 1.

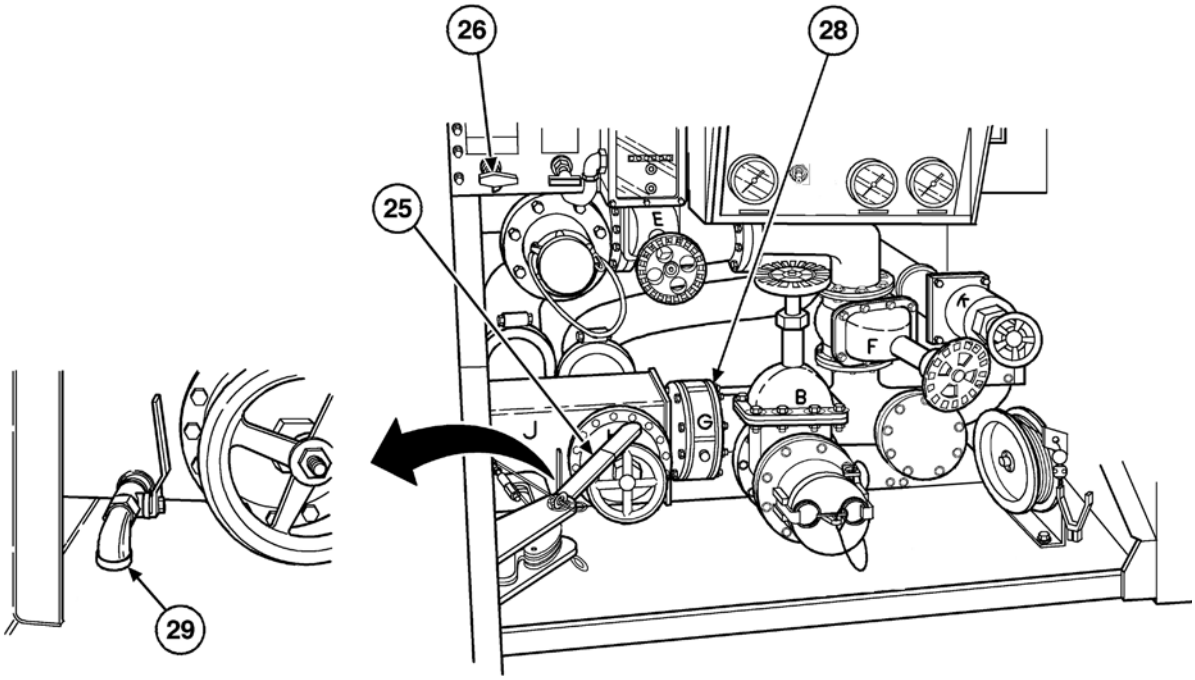
26. Locate leak in piping system, check G valve (28), D valve (26), precheck circuit, and pipe joints.

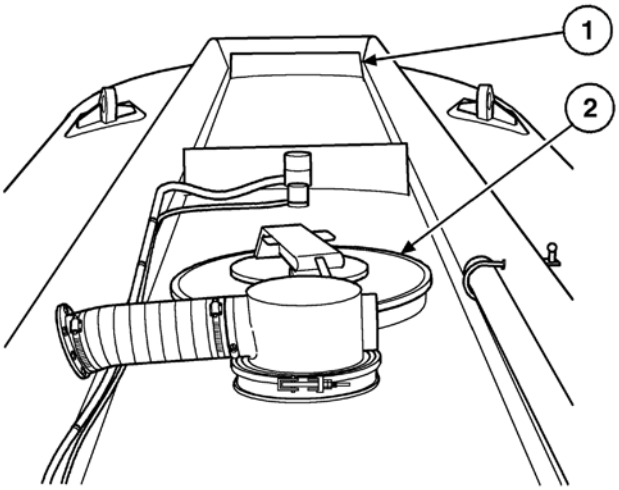
27. Return tank and piping system to atmospheric pressure by opening manifold drain valve (29) and emergency valve A (25).

28. Repair piping system leak as required. Restart test from step 1.



VAPOR INTEGRITY TEST—Continued 0168 00





VAPOR INTEGRITY TEST—Continued **0168 00**

29. Return tank and piping system to atmospheric pressure by closing emergency valve A (25).

30. Open manifold drain valve (29) and monitor gage (30) on regulator assembly (12).

31. Wait 5 minutes. If pressure on gage (30) does not increase, go to step 34. If pressure increases more than 0.5 in. wc and emergency valve is leaking, go to step 32.

CAUTION

Although an emergency valve leak does not constitute a K stamp (indicating compliance with DOT 49CF180.407 (h)) failure if the leak is internal, proper emergency valve operator function is required for safe trailer operation.

32. Return tank and piping system to atmospheric pressure by opening manifold drain valve (29) and emergency valve A (25).

33. Repair emergency valve in accordance with WP 0164 00. Restart test from step 1.

NOTE

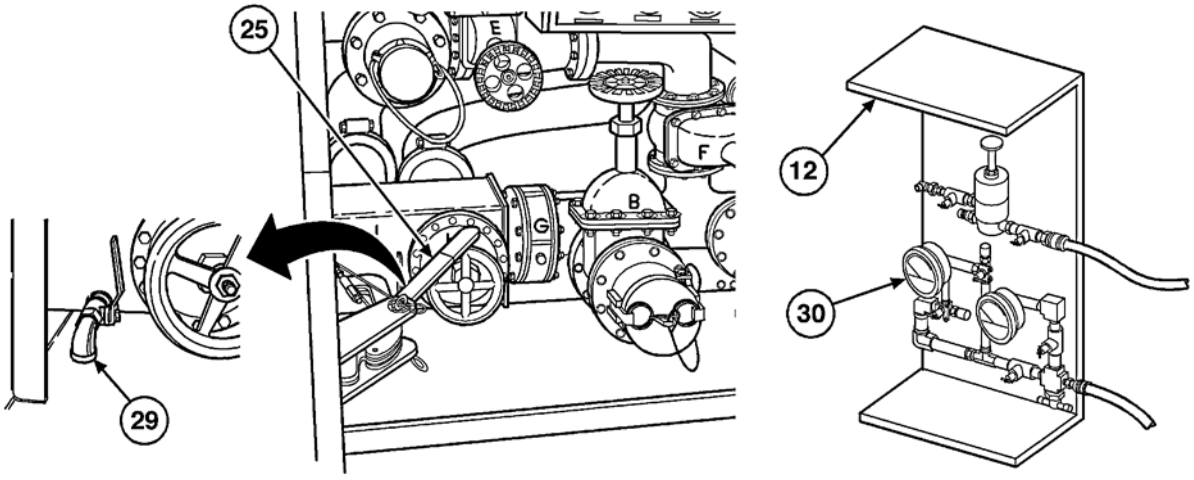
Do steps 34 and 35 after test has been completed.

34. Return tank and piping system to atmospheric pressure by opening manifold drain valve (29) and emergency valve A (25).

35. Close all valves initially opened for pneumatic leak test, to allow fuel storage.

NOTE

After successful completion of various tests, DOT regulation 49CFR180.415 requires that a tanker be stamped with the appropriate letter (“K” stamp for leak test), as well as the test date (month and year).



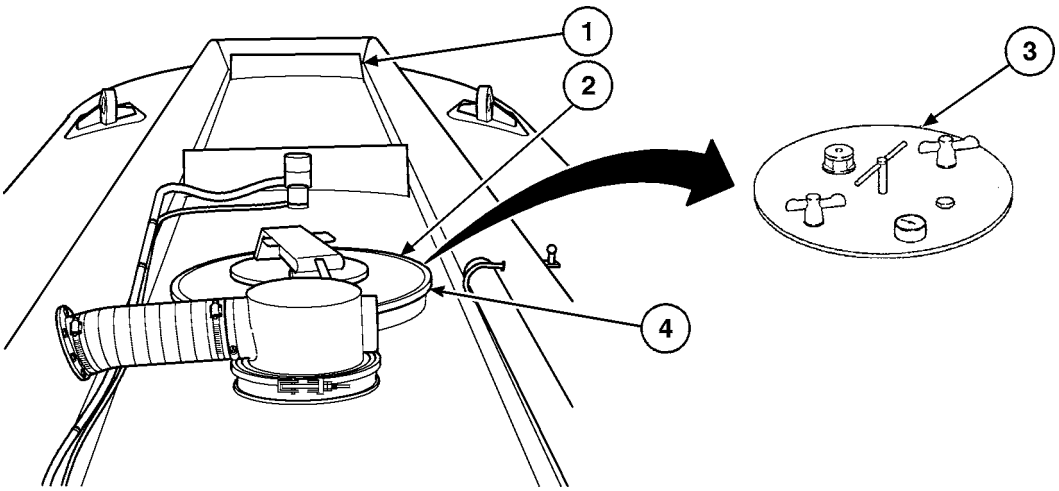
VAPOR INTEGRITY TEST—Continued **0168 00**

VACUUM TEST PREPARATION

WARNING

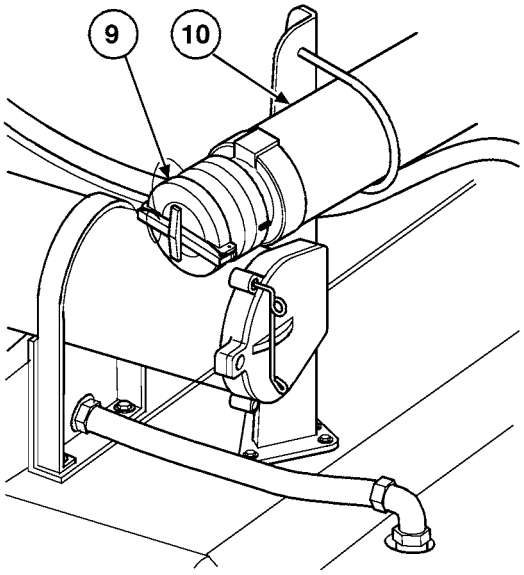
- **Use extreme caution when walking or working on the top of semitrailer. Walkway can become slippery due to moisture or fuel spillage. Failure to follow this warning may result in serious injury.**
- **Before performing the pressure or vacuum test, the semitrailer must be grounded to an approved (earth) ground and must be safe to proceed. Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.**
- **Make sure tank and piping system are free of all liquid and that tank is purged of all fuel vapor (implement the cleaning procedures, as applicable, refer to TB 43-0212). Failure to follow this warning may cause a spark to ignite, resulting in serious injury or death to personnel.**

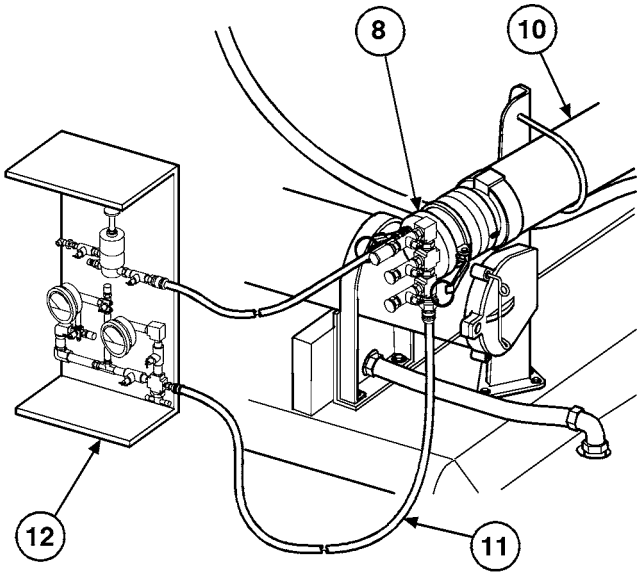
1. Open manhole cover (2), install test plate (3), and fasten securely.
2. Ensure clamp ring (4) for manhole cover (2) is fastened securely.
3. Ensure both 3-in. (diameter) cleanout caps (1) are fastened securely.



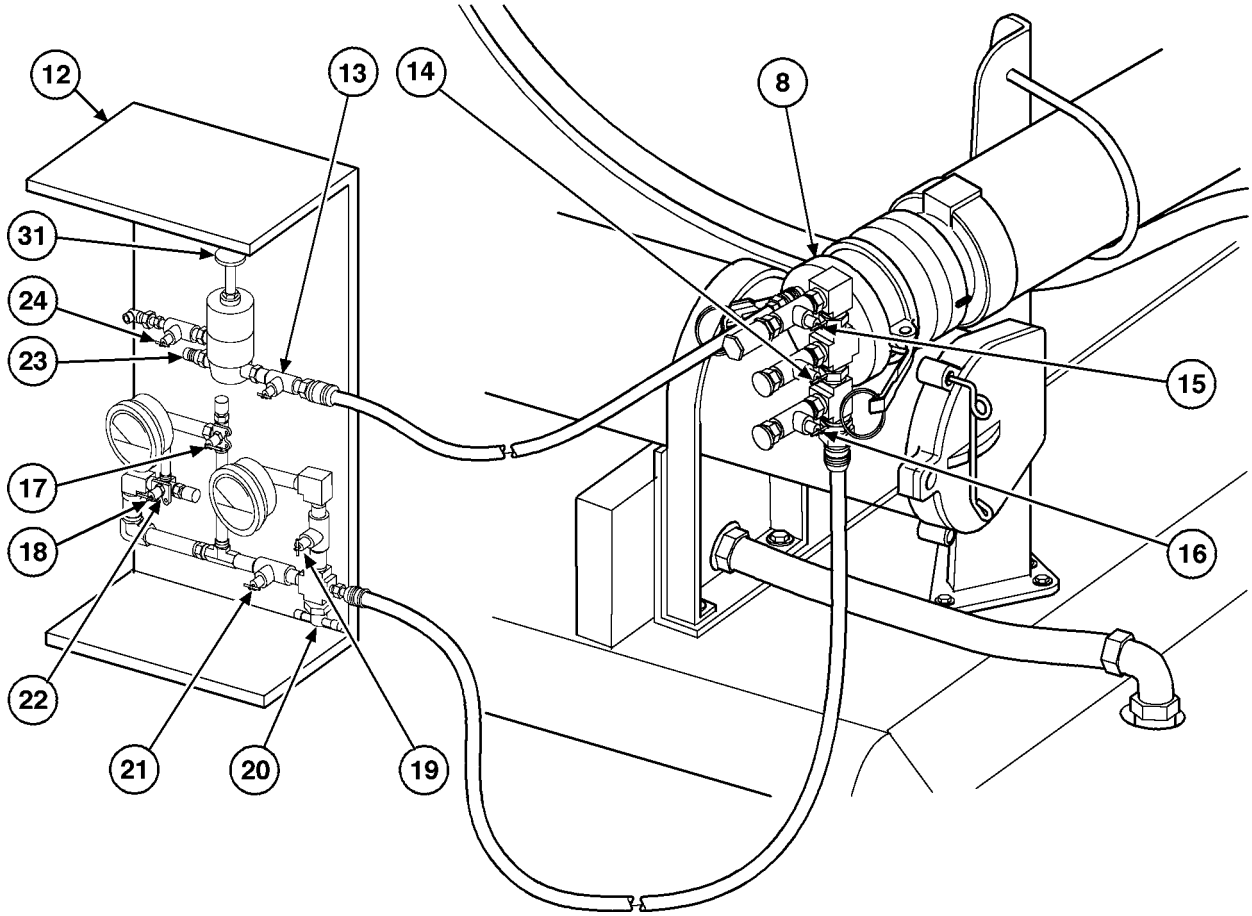
VAPOR INTEGRITY TEST—Continued **0168 00**

4. Remove dust cap (9) from vapor vent line (10).
5. Attach coupling assembly (8) to vapor vent line (10).
6. Attach regulator assembly (12) to hose assemblies (11), and attach hose assemblies (11) to coupling assemblies (8).
7. On regulator assembly (12), close control shutoff valve (13) and draincock valve (20), and open valves (21 and 24).
8. On coupling assembly (8), close valves (14 and 15) and open valve (16).
9. On regulator assembly (12), turn valves (17 and 18/22) to vertical position for negative pressure reading.
10. Slowly adjust regulatory assembly (12) to its lowest setting by turning regulator knob (31) fully clockwise.
11. Connect vacuum supply to regulator assembly port (23).





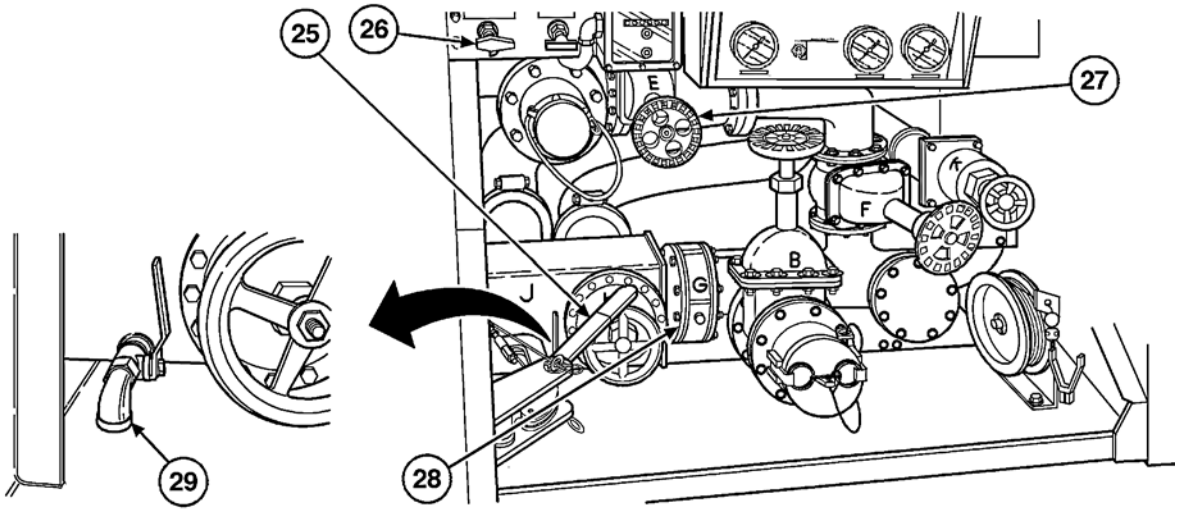
VAPOR INTEGRITY TEST—Continued 0168 00



VAPOR INTEGRITY TEST—Continued **0168 00**

VACUUM TEST PROCEDURE

1. Open valves (26 and 27) and emergency valve A (25). Close G valve (28) and manifold drain valve (29).



2. Open control shutoff valve (13) on regulator assembly (12).

WARNING

Never remove any accessory items (e.g., manhole cover, cleanout caps) during pressure or vacuum test; severe injury or death may result.

3. Slowly adjust regulator assembly (12) by turning regulator knob (31) counterclockwise to increase flow of air and evacuate tank and piping system, until a vacuum reading of 6.0 in. ± 0.5 in. wc is obtained on gage (35).

4. Close control shutoff valve (13) on regulator assembly (12).

5. Wait 5 minutes to verify that pressure reading remains stable at 6.0 in. ± 0.5 in. wc on gage (35).

6. If vacuum reading increases or decreases more than 0.5 in. wc on gage (35), reevacuate tank per steps 3 thru 5 and continue with step 7. Initial test vacuum must be at 6.0 in. ± 0.5 in. wc.

WARNING

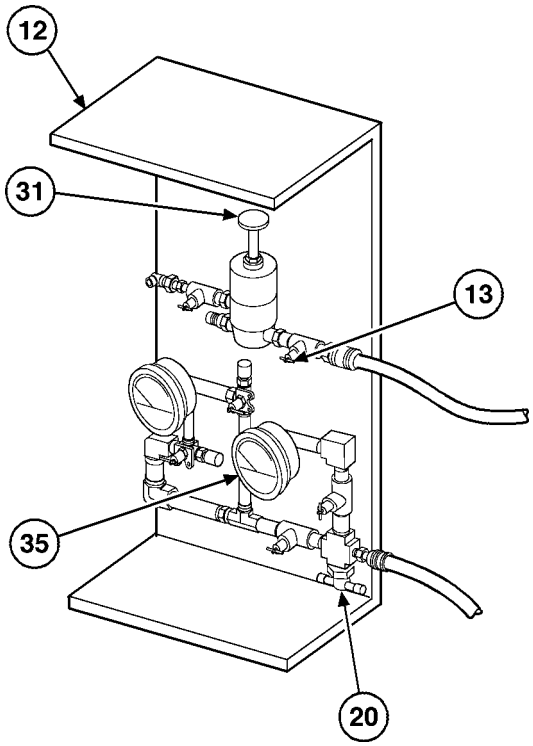
Do not overpressurize tank; serious injury or equipment damage may result.

VAPOR INTEGRITY TEST—Continued **0168 00**

7. If tank is overpressurized, close control shutoff valve (13) and open draincock valve (20) to reduce tank pressure. When tank pressure has dropped to 6.0 in. ± 0.5 in. wc, close draincock valve (23).

8. Wait an additional 5 minutes, then record the time and final vacuum from gage (35).

9. If vacuum does not drop on gage (35), tank is leak free. If pressure drops more than 0.5 in. wc, reevacuate tank and piping system according to steps 3 thru 5 then continue with step 8.



VAPOR INTEGRITY TEST—Continued **0168 00**

10. Close emergency valve A (25) and monitor gage (35) on regulator assembly (12).

11. Wait 5 minutes. If pressure does not drop more than 0.5 in. wc on gage (35), go to step 13. If pressure drops more than 0.5 in. wc, go to step 12.

12. Locate the leak in vapor vent line (10), check vapor vent hood (7), vapor vent hose (32), and pipe joints (33).

13. Return tank and piping system to atmospheric pressure.

14. Repair any leaks found in vapor vent valve (5). Restart test at step 1.

15 Return vapor vent line to atmospheric pressure by opening draincock valve (20) of regulatory assembly (12).

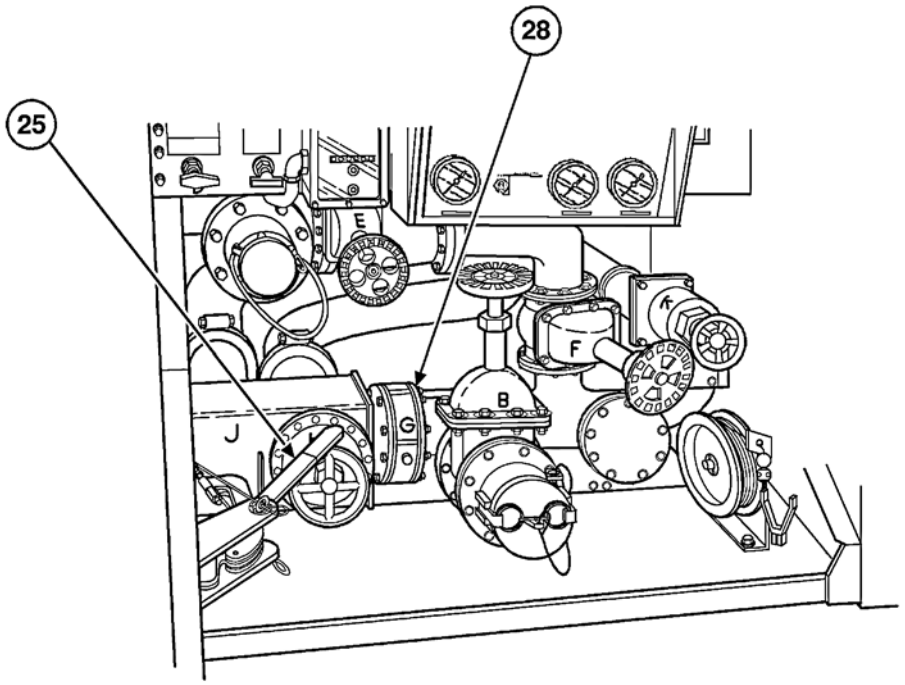
16. On regulatory assembly (12), close draincock valve (20) and monitor gage (35) for 5 minutes.

17. If pressure on gage (35) does not increase, vapor vent is functional; go to step 20. If vacuum increases more than 0.5 in. wc, vapor vent valve is leaking. Go to step 18.

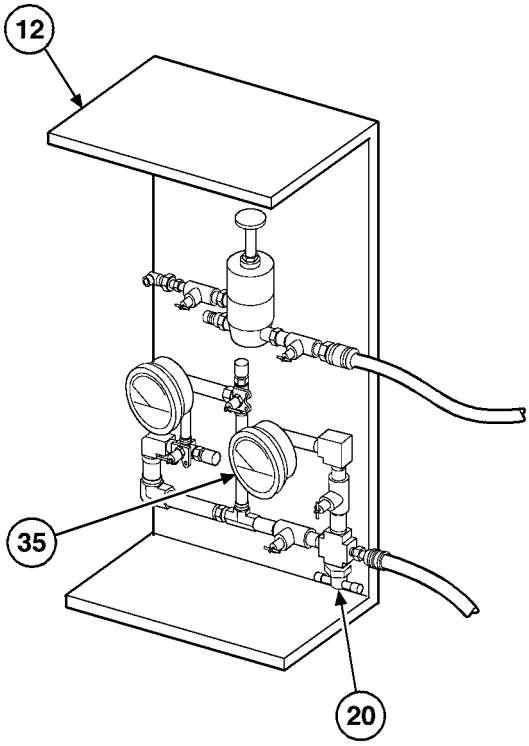
18. Return tank and piping system to atmospheric pressure by opening G valve (28) and emergency valve A (25).

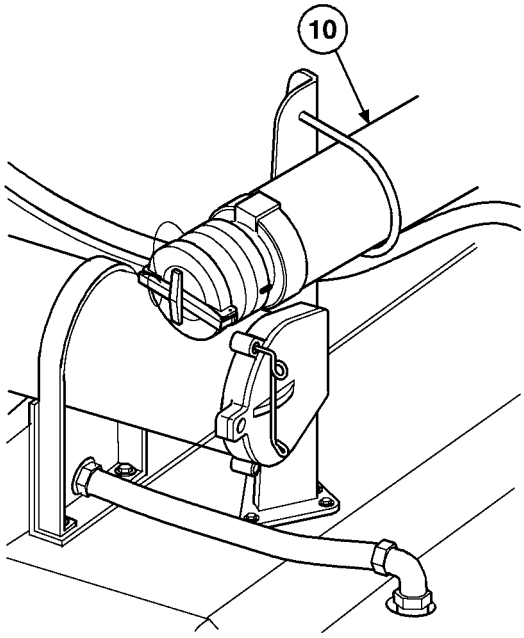
19. Repair any leaks found in vapor vent valve (5) as required. Restart test from step 1.

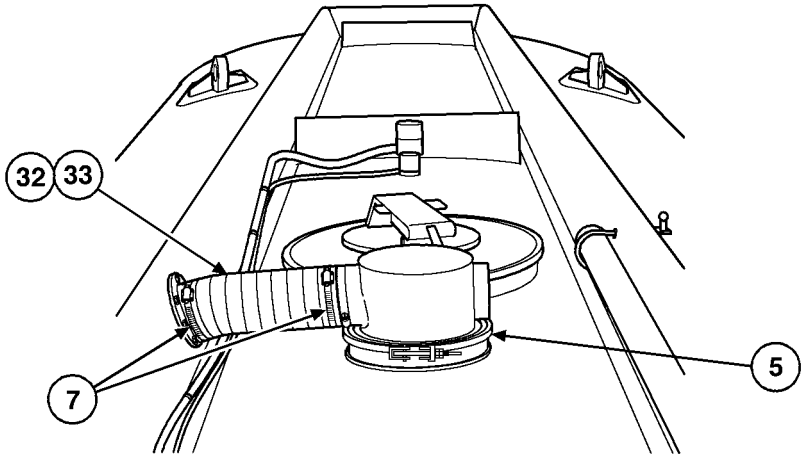
20. Return tank and piping system to atmospheric pressure by opening G valve (28) and emergency valve A (25).



VAPOR INTEGRITY TEST—Continued **0168 00**







VAPOR INTEGRITY TEST—Continued **0168 00**

21. Remove coupling assembly (8) from vapor vent line (10).

22. Install coupling assembly (8) on discharge port of valve B (34).

23. Install a closed cap on the now open vapor vent line (10).

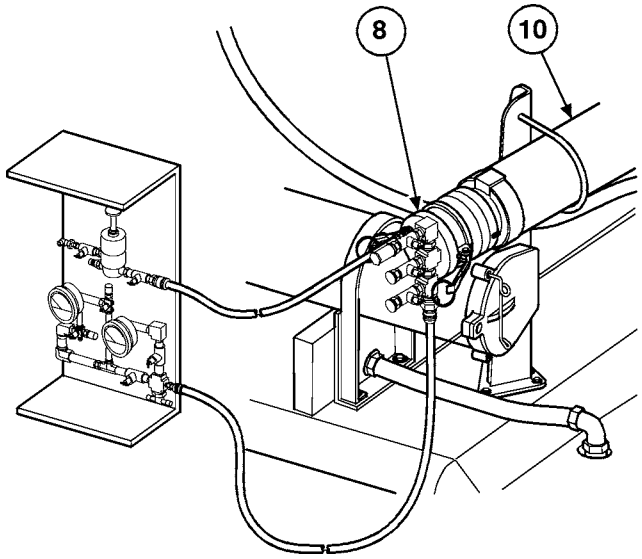
24. Open emergency valve A (25). Evacuate tank and piping system according to steps 3 and 5, then continue with step 25.

25. Wait 5 minutes to verify that vacuum reading on gage (35) remains stable. If vacuum does not drop, go to step 34. If vacuum drops more than 0.5 in. wc, go to step 26.

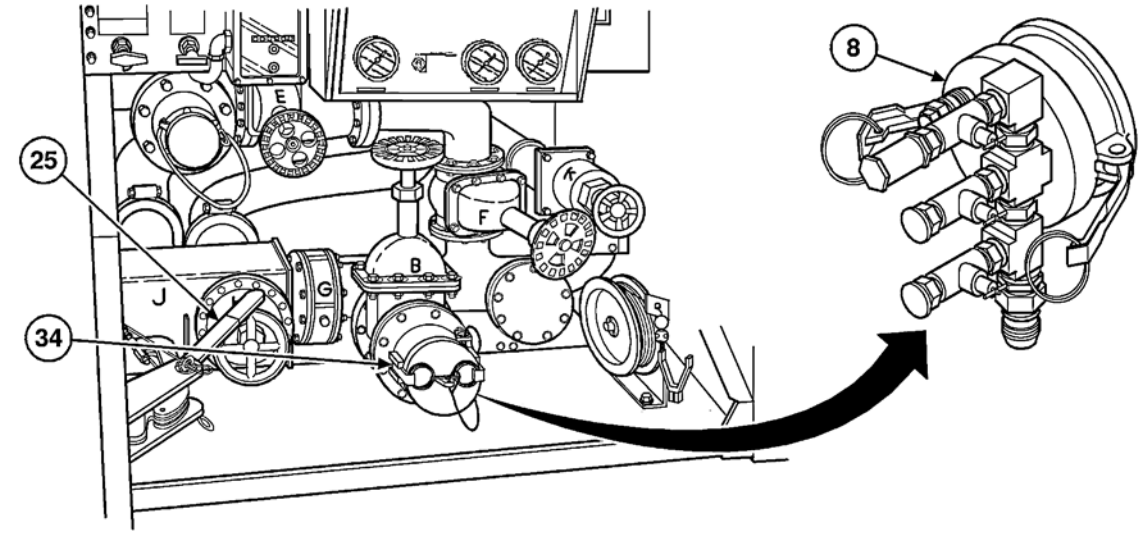
26. Reevacuate tank and piping system according to steps 3 thru 5; then continue with step 27.

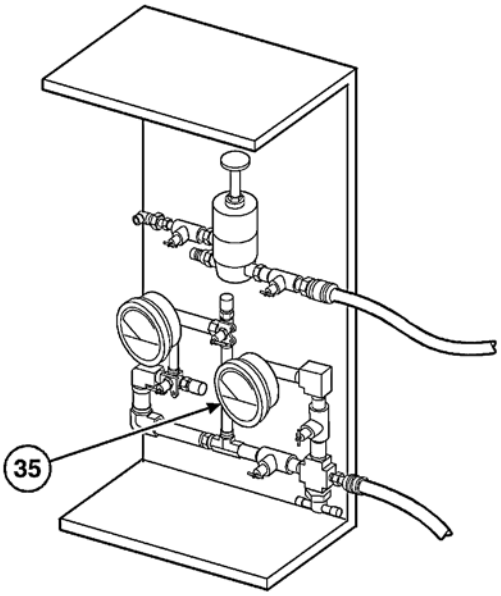
27. Close emergency valve A (25). Wait 5 minutes to verify that vacuum reading on gage (35) remains stable. If vacuum does not drop, tank is leaking; go to 28. If vacuum drops more than 0.5 in. wc, piping system is leaking. Go to step 31.

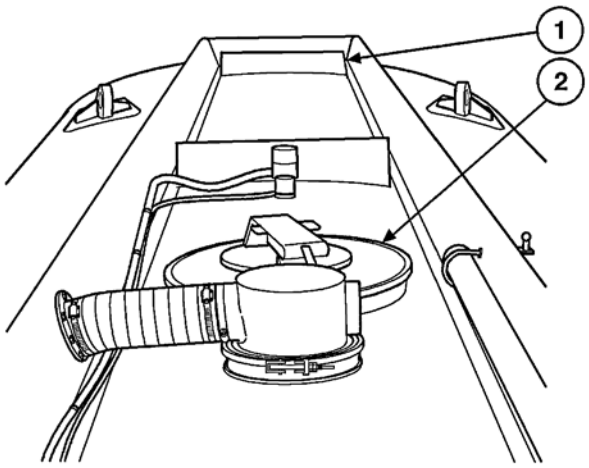
28. Locate leak in tank, check cleanout caps (1), manhole cover (2), precheck circuit and weld seams.



VAPOR INTEGRITY TEST—Continued **0168 00**







VAPOR INTEGRITY TEST—Continued **0168 00**

29. Return tank and piping system to atmospheric pressure by opening manifold drain valve (29) and emergency valve A (25).

30. Repair tank leak as required. Restart test at step 1.

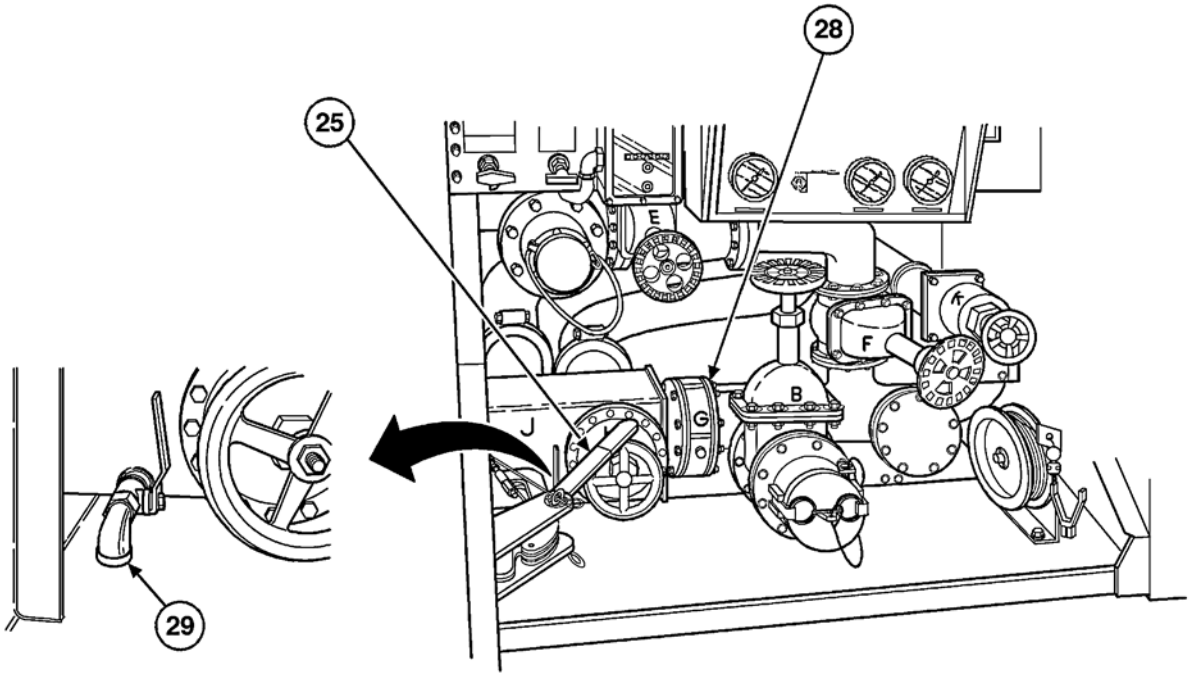
31. Locate leak in piping system, check G valve (28), precheck circuit, and pipe joints.

32. Return tank and piping system to atmospheric pressure by opening manifold valve (29) and emergency valve A (25).

33. Repair piping system leaks. Restart test at step 1.

34. Return tank and piping system to atmospheric pressure by opening emergency valve A (25).

35. Open manifold drain valve (29) to relieve vacuum.



VAPOR INTEGRITY TEST—Continued **0168 00**

36. Close manifold drain valve (29) and monitor gage (35) on regulator assembly (12).

37. Wait 5 minutes to verify that the vacuum reading on gage (35) remains stable. If the vacuum does not increase, go to step 40. If the vacuum reading increases more than 0.5 in. wc, emergency valve is leaking, go to step 38.

CAUTION

Although an emergency valve leak does not constitute a K stamp (indicating compliance with DOT 49CF180.407 (h)) failure if the leak is internal, proper emergency valve operator function is required for safe tanker operation.

38. Return tank and piping system to atmospheric pressure by opening manifold drain valve (29) and emergency valve A (25).

39. Repair emergency valve in accordance with WP 0164 00. Restart test at step 1.

NOTE

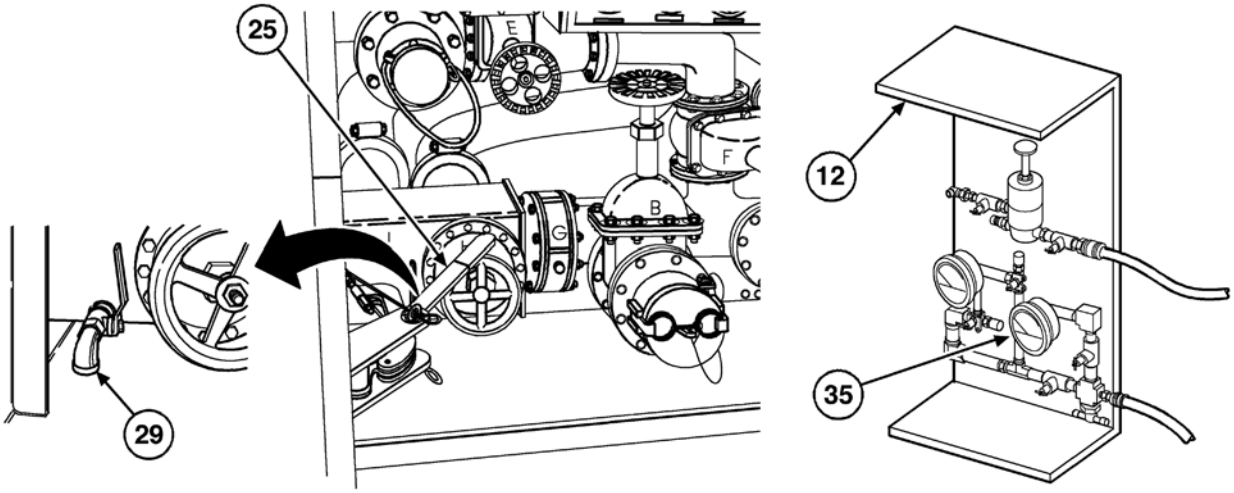
Do steps 40 and 41 after test has been completed.

40. Return tank and piping system to atmospheric pressure by opening manifold drain valve (29) and emergency valve A (25).

41. Close all valves.

NOTE

After successful completion of various tests, DOT regulation 49CFR180.415 requires that a tanker be stamped with the appropriate letter (“K” stamp for leak test), as well as the test date (month and year).



END OF TASK

This WP intentionally blank.

CHAPTER 9

SUPPORTING INFORMATION

REFERENCES 0170 00

SCOPE

This WP lists the publications referenced in this manual. These should be consulted frequently for the latest changes or revisions to references listed in this WP and for new publications relating to material covered in this manual.

MILITARY PUBLICATION INDEX

Consolidated Index of Publications and Blank Forms ..... DA PAM 25-30

ARMY REGULATION

Army Material Maintenance Policy and Retail Maintenance Operations..... AR 750-1
Army Logistics Readiness and Sustainability ..... AR 700-138
Security of Army Property at Unit and Installation Level..... 190-51
The Army Physical Security Program ..... AR 190-13

FIELD MANUALS

Army Motor Transport Units and Operations ..... FM 55-30
General Fabric Repair..... FM 10-16
Concepts and Equipment of Petroleum Operations ..... FM 10-67-1
Manual for the Wheeled Vehicle Driver ..... FM 21-305
Operation and Maintenance of Ordnance Material in Cold Weather (0° to -65°F)..... FM 9-207

FORMS

Equipment Inspection and Maintenance Worksheet ..... DA Form 2404
Equipment Inspection and Maintenance Worksheet (Electronic)..... DA Form 5988-E
Preventive Maintenance Schedule and Record..... DD Form 314
Processing and Deprocessing Record for Shipment, Storage, and Issue of Vehicles and Spare Engines..... DD Form1397
Product Quality Deficiency Report..... SF Form 368
Recommended Changes to Publications and Blank Forms ..... DA Form 2028-2

PAMPHLETS

Functional Users Manual for The Army Maintenance Management System (TAMMS)..... DA PAM 738-750
Tiedown Handbook for Rail Movement..... MTMCTEA PAM 55-19

TECHNICAL BULLETINS

Color, Marking, and Camouflage Painting of Military Vehicles, Construction Equipment, and Materials Handling Equipment ..... TB 43-0209
Towed Wheeled Vehicles, FSC Class 2330, Lunette Trailers and Semitrailers: Repair of Frames ..... TB 9-2510-242-40
Purging, Cleaning and Coating Interior Ferrous and Terne Sheet Fuel Tanks ..... TB 43-0212

REFERENCES—Continued 0170 **00**

TECHNICAL MANUALS

Deepwater Fording of Ordnance Material.....TM 9-238
Destruction of Army Material to Prevent Enemy Use ..... TM 750-244-6
Inspection, Care and Maintenance of Antifriction Bearings.....TM 9-214
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Material and Related Items Including Chemicals .....TM 9-247
Operator's Manual for Welding Theory and Application .....TM 9-237
Organizational, Direct Support, and General Support Care, Maintenance, and Repair of Pneumatic Tires and Inner Tubes..... TM 9-2610-200-24
Painting Instructions for Field Use .....TM 43-0139
Storage and Maintenance of Army Propositioned Stock Material .....TM 38-470

B-1. General

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.

The 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, Unit (C (operator/crew) and O (unit) maintenance) and Direct Support (F) maintenance

Sustainment — includes two subcolumns, general support (H) and depot (D)

The tools and test equipment requirements (immediately following the MAC) list the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced for the MAC).

The remarks (immediately following the tools and test equipment requirements) contain supplemental instructions and explanatory notes for a particular maintenance function.

B-2. Maintenance Functions

Maintenance functions are limited to and defined as follows:

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 gagings 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 or recoil mechanisms.

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 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. 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.

9. 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.

- Fault location/troubleshooting. The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system of 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 of the level of maintenance under consideration (i.e., identified as maintenance significant).

- Actions. Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

10. 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.

11. 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 FGC numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

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

Column (3) Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions, refer to “Maintenance Functions” outlined above).

Column (4) Maintenance Level. Column (4) specifies each level of maintenance authorized to perform each function listed in column (3), by indicating work time required (expressed as man-hours in whole hours or decimals) in the appropriate subcolumn. This work time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance levels, appropriate work time figures are to be shown for each level. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the MAC. The symbol designations for the various maintenance functions are as follows:

Field:
C Operator or crew maintenance
O Unit maintenance
F Direction support maintenance

Sustainment:
H General support 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, model number, or type 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.

Table 1. MAC for CHASSIS, TRAILER: GENERATOR, 2 1/2-TON, 2-WHEEL, M200A1

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQPT	(6) REMARKS
			FIELD		SUSTAINMENT				
			UNIT	DS	GS	DEPOT			
			C	O	F	H	D		

Table 2. Tools and Test Equipment for CHASSIS, TRAILER: GENERATOR, 2 1/2-TON, 2-WHEEL, M200A1

(1) TOOLS OR TEST EQUIPMENT	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(5) NATIONAL STOCK NUMBER	(6) TOOL NUMBER

Table 3. Remarks for CHASSIS, TRAILER: GENERATOR, 2 1/2-TON, 2-WHEEL, M200A1

REMARK CODES	REMARKS

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
06	ELECTRICAL SYSTEM								
0608	24–12 V Converter	Remove/ Replace		0.50				1, 4	
	Overfill Monitor Panel	Remove/ Replace		0.50				1, 4	
	Optic Socket Box	Remove/ Replace		1.00				1, 4	
		Fault Locate		0.50					
	Overflow Sensor	Remove/ Replace		0.50				1, 4	
0609	Light Assembly Control Panel	Remove/ Replace		0.27				4	
		Repair		0.25				4	
	Light, Marker, Clearance	Remove/ Replace		0.35				4	
		Repair		0.52				4	
		Fault Locate		1.50					
	Taillight, Vehicular	Remove/ Replace		0.43				4	
		Fault Locate		1.00					
0612	Wiring Harness, Main Trailer	Inspect	0.10	0.10					
		Remove/ Replace		0.60				4	
		Repair		1.00				1	
	Battery, Storage	Inspect	0.10	0.10					
		Remove/ Replace		0.33				4	
		Fault Locate		0.70					

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
0612	Terminal, Lug	Remove/ Replace		0.33				4	
	Terminal, Lug	Remove/ Replace		0.33				4	
	Cover, Access	Remove/ Replace		0.10				4	
	Wiring Harness, Front Marker Lights	Inspect	0.10	0.10					
		Remove/ Replace		0.85				4	
		Repair		1.00				1, 4	
	Wiring Harness, Side Marker Lights	Inspect	0.10	0.10					
		Remove/ Replace		0.50				4	
		Repair		1.00				1	
	Wiring Harness, Water Detection Switch	Remove/ Replace		0.68				4	
		Repair		1.00				1, 4	
	Wiring Harness, Taillight/Stoplight/ Composite Light	Inspect	0.10						
		Remove/ Replace		0.27				4	
		Repair		0.50				1, 4	
	Wiring Harness, Intervehicle Cable	Inspect	0.10	0.02					
		Remove/ Replace		1.35				4	
		Repair		1.00				1, 4	
	Lead, Electrical	Inspect	0.10						
		Remove/ Replace		0.27				4	
		Repair		0.50				1, 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
0613	Bend, Electrical	Remove/ Replace		4.52				1, 4	
	Bend, Electrical	Remove/ Replace		4.52				1, 4	
	Bend, Electrical	Remove/ Replace		2.85				1, 4	
	Tube	Remove/ Replace		5.18				1, 4	
	NATO Slave	Remove/ Replace		0.50				1, 4	
11	REAR AXLE								
1100	Rear Axle Assembly	Inspect	0.10	0.10					
	Axle Assembly	Remove/ Replace			3.18			1, 4	
	Camshaft, Actuating	Remove/ Replace		3.58				1, 4	
	Bracket, Brake Cam	Lubricate		0.01					
	Tube Assembly, Cross	Remove/ Replace Repair			4.44 5.98			1, 4 1, 4	
	Seat, Spring, Axle	Inspect Remove/ Replace Lubricate	0.10	0.10 0.10	 3.18			 1, 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
12	BRAKES								
1202	Brake Shoe	Inspect		0.50					
		Adjust		0.50				1, 4	
		Remove/ Replace		1.50				1, 4	
		Repair		1.00				1, 4	
	Brake Drum	Remove/ Replace		2.75				1, 4	
	Pin, Grooved, Headless	Lubricate		0.10					
	Adjuster, Slack	Remove/ Replace		2.00				4	
		Lubricate		0.10					
	Pin, Shoulder	Lubricate		0.10					
	ABS ECU	Fault Locate		1.00					
		Remove/ Replace		1.00				1, 4	
1208	Chamber, Air Brake	Inspect	0.13	0.17					
		Adjust		0.16				1, 4	
		Remove/ Replace		2.60				1, 4	
		Fault Locate	0.38	1.00					
	Brake Hose	Remove/ Replace		1.00				1, 4	
	Valve, Brake Interlock	Remove/ Replace		0.50				1, 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
1208	Air Reservoir	Remove/ Replace		1.33				1, 4	
	Valve, Safety Relief	Remove/ Replace		1.33				1, 4	
	Valve, Brake Control	Adjust		0.50				4	
		Remove/ Replace		1.33				1, 4	
	Gladhands/Dummy Coupling	Remove/ Replace		0.16				4	
	Packing, Preformed	Remove/ Replace		0.42				4	
	Lines, Hoses, and Fittings, Spring Brake Control Valve	Adjust		0.17				4	
		Remove/ Replace		1.33				1, 4	
13	WHEELS								
1311	Wheel, Pneumatic Tire	Inspect	0.10						
		Remove/ Replace		0.50				4	
		Repair		1.00				1, 4	
		Fault Locate	0.25						
	ABS Sensor	Remove/ Replace		1.00				1, 4	
	Hub, Wheel, Vehicular	Inspect		1.00					
	Wheel Stud	Remove/ Replace		1.00				1, 4	
	Cone and Rollers	Lubricate		2.50					

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
15	FRAME, TOWING ATTACHMENTS, DRAWBARS, AND ARTICULATION SYSTEM								
1503	Coupler Assembly and Spacer	Inspect	0.30	0.80					
		Remove/ Replace		1.50				1, 4	
		Lubricate	0.30						
1507	Ground Board	Inspect	0.10						
		Remove/ Replace		0.25				1, 4	
	Leg/Gear Box	Inspect	0.70	0.08					
		Remove/ Replace		3.18				1, 4	
		Repair		3.43				1, 4	
		Fault Locate	0108	0.58					
	Shaft, Straight	Remove/ Replace		0.50				1, 4	
	Crank, Hand	Remove/ Replace		0.50				1, 4	
		Lubricate	0.10						
	Shoe	Lubricate	0.10						
		Remove/ Replace		0.33				4	
16	SPRING AND SHOCK ABSORBERS								
1601	Spring Assembly, Leaf	Inspect	0.10	0.10					
		Remove/ Replace			10.40			1, 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
18	BODY, CAB, HOOD, AND HULL								
1801	Mudflap Assembly	Inspect	0.30						
		Remove/ Replace		0.67				4	
1808	Static Reel Assembly	Inspect	0.10						
		Remove/ Replace		0.33				1, 4	
	Cabinet, Hose Reel (Weldment)	Remove/ Replace			3.50			1, 4, 6	
	Reel Assembly, Hose	Inspect	0.10						
		Remove/ Replace		2.50				1, 4	
		Repair			4.00			1, 4	
	Swing Joint, Pipe	Lubricate	0.10						
	Brake Assembly, Pin	Lubricate	0.10						
	Frame Hose Reel (Weldment)	Remove/ Replace			1.95			1, 4, 6	
	Tool Box Assembly	Inspect	0.10						
		Remove/ Replace		1.00				1, 4	
	Rod, Ground	Inspect	0.10						
	Storage Tube Retaining Pin	Remove/ Replace	0.10					1, 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
1808	Door, Access, Hinges and Hold-Open Spring	Remove/ Replace		2.62				1, 4	
		Repair		2.69				1, 4	
		Lubricate	0.70						
	Latch Assembly	Remove/ Replace		1.00				1, 4	
	Door Lock Release Rods	Remove/ Replace		0.50				1, 4	
1811	Terminal, Quick Disconnect (Grounding Stud)	Remove/ Replace		0.50				1, 4	
	Cap	Remove/ Replace		0.42				4	
	Hose Tubes	Remove/ Replace		1.50				4	
	Hose Tube Covers	Remove/ Replace		0.50				1	
	Lifting Device and Drain Ladder	Inspect	0.10						
		Remove/ Replace		2.38				1, 4	
	Winch Assembly	Inspect	0.20						
		Remove/ Replace		1.09				1, 4	
		Lubricate	0.10						
	Cover, Manhole	Inspect	0.10						
		Lubricate	0.10						
		Remove/ Replace		1.00				1, 4	
		Repair		0.50				1, 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
22	BODY, CHASSIS, AND HULL ACCESSORY ITEMS								
2210	Reflective tape	Remove/ Replace		1.50				4	
	Plate, Instruction	Remove/ Replace		0.42				4	
	Plate, Instruction	Remove/ Replace		0.42				4	
	Plate, Identification	Remove/ Replace		0.42				4	
	Hazmat Placards	Remove/ Replace		0.50				4	
	Hazmat Supports	Remove/ Replace		0.50				4	
29	AUXILIARY GENERATOR AND ENGINE AND CONTROLS								
2910	Engine, Assembly	Inspect	0.10	0.30					
		Remove/ Replace			10.00			3, 4, 5	
		Fault Locate	0.73	2.00					
		Lubricate		0.50					
	Switch, Pressure	Remove/ Replace		0.55				3, 4	
		Fault Locate		0.55					

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			FIELD SUSTA			INMENT			
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	UNIT DS			GS	DEPOT	TOOLS AND EQUIPMENT	REMARKS
			C O		F	H	D		
2915	Parts Kit, Glow Plug	Remove/ Replace		1.55				1, 4	
		Fault Locate		0.55					
2916	Filter, Oil	Remove/ Replace		0.10				1, 4	
	Cooler, Fluid, Oil	Remove/ Replace		2.00				1, 4	
	Lines, Oil	Remove/ Replace		2.00				1, 4	
	Filter, Fluid (Engine Oil), Element	Inspect	0.10	0.17					
		Remove/ Replace		0.67				1, 4	
2918	Intake Manifold	Remove/ Replace		1.00				1, 4	
2932	Fuel Injector Lines and Fittings	Remove/ Replace		2.35				1, 4	
	Pump, Fuel Solenoid, Fuel Stop	Remove/ Replace		0.50				1, 4	
	Filter, Fuel, Base	Remove/ Replace		1.00				1, 4	
	Filter, Fluid (Fuel), Element	Inspect	0.10						
		Remove/ Replace		0.67				1, 4	
	Engine Fuel Tank and Lines	Repair		0.50				1, 4	
2933	Air Cleaner, Intake	Inspect	0.10						
		Service		0.50				1	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			FIELD SUSTA			INMENT			
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	UNIT DS			GS	DEPOT	TOOLS AND EQUIPMENT	REMARKS
			C O		F	H	D		
2933	Air Restriction Indicator	Remove/ Replace		0.30				1	
	Air Duct Hose	Remove/ Replace		0.30				1	
2939	Throttle Cable	Remove/ Replace		0.50				1, 4	
2941	Manifold, Exhaust	Remove/ Replace		2.85				1, 4	
	Muffler and Exhaust Pipe	Remove/ Replace		1.00				1	
2952	Engine Shrouding/ Engine Heat Shield	Remove/ Replace			6.13			1, 4	
	Guard, Engine Fan	Remove/ Replace		0.50				1, 4	
	Belt, Fan	Remove/ Replace		0.50				1, 4	
2961	Alternator	Test Adjust Remove/ Replace Repair		0.33 0.17 0.68	 1.02			 1, 4 1, 3, 4 3, 4	
	Alternator Belt	Remove/ Replace		1.00				1, 4	
2963	Box, Electrical	Remove/ Replace		1.17				1, 4	
	Starter, Engine	Test Remove/ Replace			0.50 2.02			 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
2963	Switch, Thermostatic, Engine Overheat	Remove/ Replace		1.00				4	
		Fault Locate		0.55					
	Solenoid, Electrical, Glow Plug	Remove/ Replace		0.50				4	
2967	Control Panel Assembly	Inspect	0.10						
		Remove/ Replace		2.35				1, 4	
		Lubricate	0.08						
	Meter, Time, Totalizer	Remove/ Replace		0.33				4	
	Tachometer, Electronic	Remove/ Replace		0.33				4	
	Voltmeter	Remove/ Replace		0.33				4	
	Switch, Rotary	Remove/ Replace		0.25				4	
	Switch, Rotary	Remove/ Replace		0.25				4	
	Ohmart-Vega Screen Unit	Remove/ Replace		0.50				1, 4	
		Fault Locate		1.00					

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
2967	Sensor	Remove/ Replace		0.50				1, 4	
		Fault Locate		1.00					
	Tube	Remove/ Replace		1.00				1, 4	
33	SPECIAL PURPOSE KITS								
3307	Vapor Recovery Kit	Inspect	0.10						
		Remove/ Replace		0.67				1, 4	
		Repair		0.50				1, 4	
		Test			1.00				
42	ELECTRICAL EQUIPMENT								
4216	Hose Reel Cable Assembly	Remove/ Replace		0.27				4	
47	GAGES (NONELECTRICAL), WEIGHING AND MEASURING DEVICES								
4702	Gage, Differential	Inspect	0.03						
		Remove/ Replace		0.33				1, 4	
	Hubodometer	Remove/ Replace		0.50				1, 4	
	Gage, Pressure, Dial	Remove/ Replace		0.33				1, 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
4702	Gage, Pressure, Dial	Remove/ Replace		0.33				1, 4	
56	FILTER SEPARATORS AND PURIFIERS								
5600	Filter Separator	Inspect	0.10						
		Remove/ Replace			7.08			1, 4, 5	
		Fault Locate		0.03					
		Service		1.50					
		Drain Water	0.10						
	Valve, Regulating	Inspect	0.10						
		Remove/ Replace		0.50				1, 4	
72	DISPENSING AND SERVICING EQUIPMENT								
7202	Meter, Volumetric	Inspect	0.10						
		Remove/ Replace		0.50				1, 4	
	Pump, Centrifugal	Inspect	0.17						
		Remove/ Replace			1.52			3, 4, 5	
		Repair						3, 4	
		Fault Locate		0.33					
		Lubricate		0.50					

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O		F	H	D		
7202	Coupling, Pump	Test			0.17				
		Remove/ Replace			0.50			1, 4	
7203	Valve, Butterfly (G-Valve and M-Valve)	Remove/ Replace		1.00				1, 4	
		Repair			1.50			4	
	Tube Assembly, Metal	Inspect	0.10						
		Remove/ Replace		4.00				1, 4	
	Tube	Remove/ Replace		4.00				1, 4	
	Tube, Bent, Metallic	Remove/ Replace		4.00				1, 4	
	Filter, Fluid, Element, Filter Separator	Remove/ Replace		1.50				1, 4	
	Valve, Ball	Remove/ Replace		0.50				4	
	Frame, Piping	Remove/ Replace			3.62			1, 4	
		Repair			4.20			1, 4	
	Tube, Bent, Metallic	Remove/ Replace		9.27				1, 4	
	Tube, Bent, Metallic	Remove/ Replace		9.27				1, 4	
	Valve, Butterfly (R-Valve and P-Valve)	Remove/ Replace		1.00				1, 4	
		Repair			1.50			4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1)	(2)	(3)	(4) MAINTENANCE LEVEL					(5)	(6)
			FIELD SUSTA			INMENT			
GROUP NUMBER	COMPONENT/ASSEMBLY	MAINTENANCE FUNCTION	UNIT DS			GS	DEPOT	TOOLS AND EQUIPMENT	REMARKS
			C O		F	H	D		
7203	Coupling, Pipe Clamp	Remove/ Replace		0.70				1, 4	
	Nozzle, Fuel and Oil	Repair		0.50				4	
		Clean Screen	0.25						
	Strainer, Nozzle Coupling, Element	Inspect	0.10						
	Pipe, Bent, Metallic	Remove/ Replace		4.00				1, 4	
	Valve and Elbow, Internal (A-Valve)	Inspect	0.10						
		Remove/ Replace		0.50				4	
		Repair			2.50			4	
	Vent Assembly	Adjust		0.10				4	
		Remove/ Replace		0.67				1, 4	
		Repair		1.00				1, 4	
	Sensor, High Level Shutoff	Remove/ Replace		0.50				4	
		Repair		1.00				1, 4	
	Valve, Butterfly	Remove/ Replace		0.50				1, 4	
		Repair			1.00			4	
	Valve, Gate (F-Valve, B-Valve, and E-Valve)	Remove/ Replace		0.50				1, 4	
		Repair			1.50			4	
	Coupling Half, Quick Disconnect (Bottom Loading—Road Side, Curbside, Recirculation)	Remove/ Replace		0.17				1, 4	

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O F			H	D		
7203	Valve Assembly, Manifold	Remove/ Replace		0.50				1, 4	
	Manifold, Discharge	Remove/ Replace		3.00				1, 4	
	Valve, Globe (K-Valve)	Remove/ Replace		0.50				1, 4	
	Valve, Ball (J-Valve and N-Valve)	Remove/ Replace		0.50				1	
	Cabinet Piping	Remove/ Replace		1.00				1, 4	
7204	Lever Assembly, Valve	Remove/ Replace		0.28				1, 4	
	Cable, A-Valve	Remove/ Replace		1.50				1, 4	
		Adjust		0.50				1	
	Cable, Shutoff Handle	Remove/ Replace		0.50				1, 4	
76	FIRE FIGHTING EQUIPMENT COMPONENTS								
7638	Bracket Assembly, Fire Extinguisher	Remove/ Replace		0.32				1, 4	
	Extinguisher, Fire	Inspect	0.10	0.10					

Table 1. MAC for SEMITRAILER, TANKER: 5000-GALLON, M969A3—Continued.

(1) GROUP NUMBER	(2) COMPONENT/ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQUIPMENT	(6) REMARKS
			FIELD SUSTA			INMENT			
			UNIT DS			GS	DEPOT		
			C O F			H	D		
91	CHEMICAL, BIO-LOGICAL, AND RADIOLOGICAL (CBR) EQUIPMENT								
9120	Bracket Assembly	Remove/ Replace		0.20				1, 4	

Table 2. Tools and Test Equipment Requirements.

(1) TOOL OR TEST EQUIPMENT REF. CODE	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL/NATO STOCK NUMBER	(5) TOOL NUMBER
1	O, F	Shop Equipment, Automotive Maintenance and Repair: Organizational Maintenance, Common No. 1	4910-00-754-0654	SC 4910-95-CL-A74
2	O	Shop Equipment, Automotive Maintenance and Repair: Organizational Maintenance, Common No. 2	4910-00-754-0653	SC 4910-95-CL-A72
3	F, H	Shop Equipment, Automotive Maintenance and Repair: Field Maintenance, Basic, Less Power	4910-00-348-7696	SC 4910-95-CL-A31
4	O, F	Tool Kit, General Mechanic's Automotive	5180-00-177-7033	SC 5180-90-CL-N26

Table 3. Remarks.

(1) (2) REMARKS CODE	REMARKS
A	Composite light repair is limited to door, preformed packing, and lamp/LED replacement.
B	Chassis wiring harness and intervehicular cable assembly repair is limited to terminal, lug, insulator, shell, and hardware replacement.
C	Brake drum repair is limited to refacing braking surface using a brake drum lathe.
D	Refer to TM 9-2610-200-24 for tire repair.
E	Refer for TB 9-2300-247-40 and TC 9-237 for frame assembly repair.
F	Frame assembly, fender, and cargo body repair consists of welding, straightening, and reconditioning of damaged part or parts.
G	Refer to TC 9-237 and TM 43-0139 for fender and cargo body repair.

BASIC ISSUE ITEMS (BII) LIST 0172 00

INTRODUCTION

Scope

This WP lists Basic Issue Items (BII) for the semitrailer to help you inventory items for safe and efficient operation.

General

BII are required to place the semitrailer in operation, operate it, and do emergency repairs. Although shipped separately packaged, BII must be with the semitrailer 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 help you find and identify the items.

Explanation of Columns in the BII List

Column (1)—Illus. Number. Gives you the number of the item illustrated.

Column (2)—National Stock Number (NSN). Identifies the stock number of the item to be used for requisitioning purposes.

Column (3)—Description, CAGEC, and Part Number. Identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location for BII is also included in this column. The last line below the description is the Commercial and Government Entity Code (CAGEC) (in parentheses) and the part number.

Column (4)—Unit of Measure (U/M). Indicates the measure used in performing the actual operation/maintenance function. This measure is expressed by a two-character alphabetical abbreviation.

Column (5)—Qty. Req. Indicates the quantity of the item authorized to be used with/on the equipment.

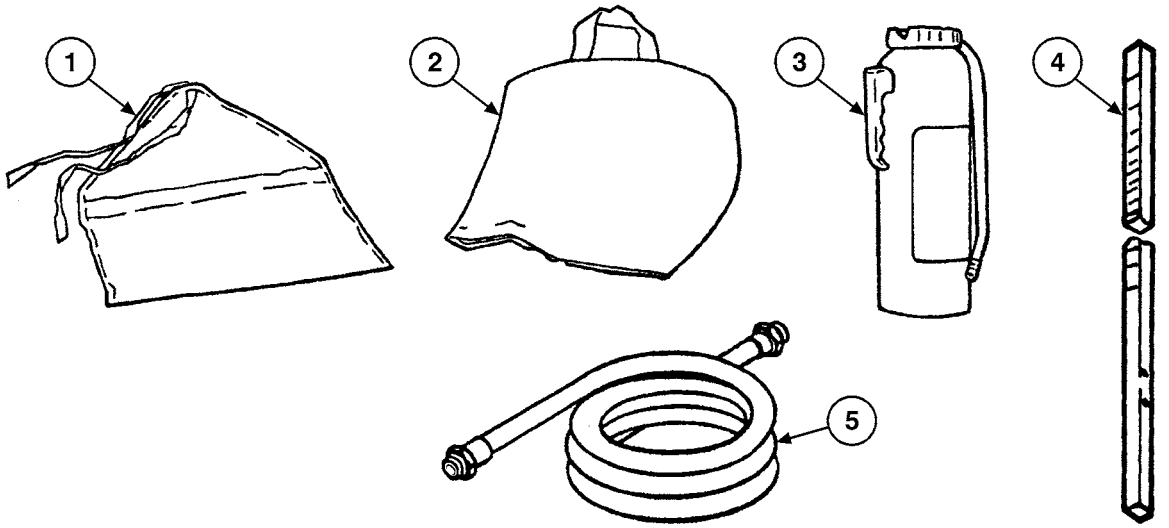


Table 1. BII List.

(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) U/M	(5) QTY. REQ.
1	5140-00-772-4142	BAG, TOOL (stowed in tool box) (19207) 7724142	EA	2
2	5340-01-290-2727	COVER, ACCESS (on fire extinguishers) (03670) 67637	EA	2
3	4210-00-808-4544	EXTINGUISHER, FIRE (stowed on rear and side bracket) (03670) 25201	EA	2
4	5210-01-054-9934	GAGE, STICK (stowed on stowage tube) (19207) 11685988	EA	1
5	4720-01-058-6032	HOSE ASSEMBLY, 1-1/4 IN. x 50 FT (19207) 11685953	EA	2

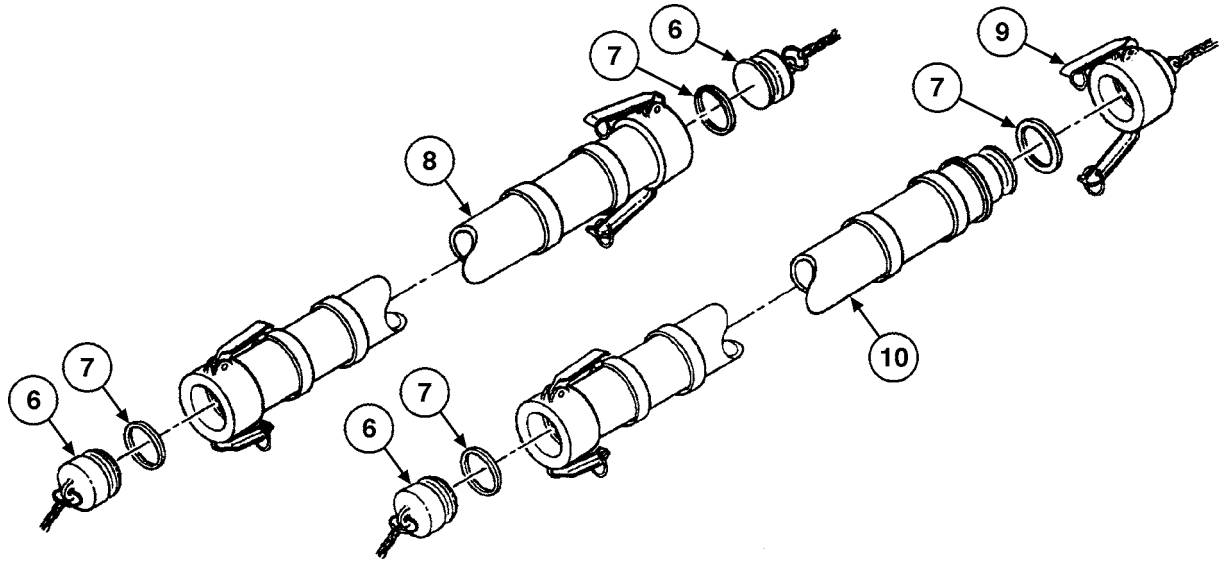


Table 1. BII List—Continued.

(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) U/M	(5) QTY. REQ.
6	4730-00-640-6188	PLUG, QUICK-DISCONNECT (58536) AA59326X19	EA	4
7	5330-00-899-4509	GASKET (58536) AA59326-9	EA	6
8	4720-01-096-4390	HOSE, TRANSFER (stowed in hose tubes) (19207) 11685834	EA	1
9	4730-00-640-6156	CAP, QUICK-DISCONNECT (58536) AA59326IX19	EA	2
10	4720-01-087-5876	HOSE, TRANSFER (stowed in hose tubes) (19207) 11685835	EA	2

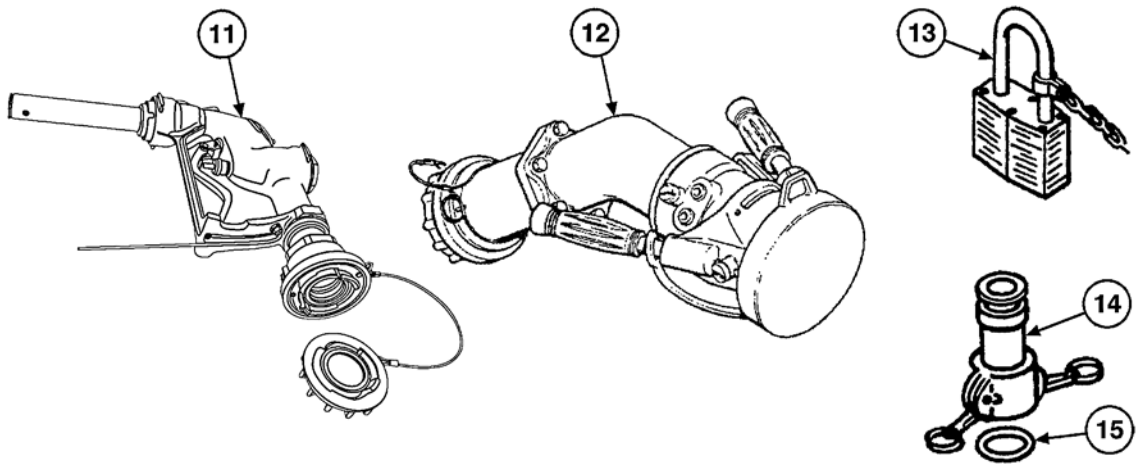


Table 1. BII List—Continued.

(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) U/M	(5) QTY. REQ.
11	4930-01-290-0756	NOZZLE ASSEMBLY (stowed in tool box) (81718) OPW1290	EA	2
12	4930-01-297-3777	NOZZLE ASSEMBLY (stowed in tool box) (ODT23) 64349CHX	EA	1
13	5340-00-912-4086	PADLOCK SET, W/CLEVIS AND CHAIN COMPOSED OF 2 PADLOCKS AND 2 KEYS (22107) 5200GLKAZ	EA	1
14	4730-00-951-3293	REDUCER, QUICK-DISCONNECT (stowed in tool box) (58536) AA59326XI11	EA	1
15	5310-00-612-2414	GASKET, REDUCER (stowed in tool box) (58536) AA59326-G6	EA	1

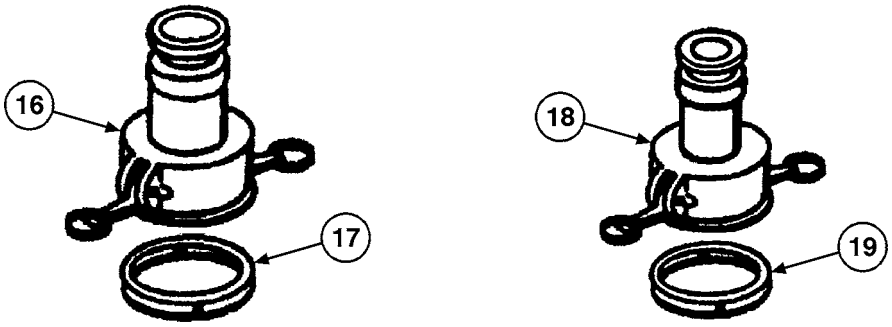


Table 1. BII List—Continued.

(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) U/M	(5) QTY. REQ.
16	4730-00-951-3295	REDUCER, QUICK-DISCONNECT (stowed in tool box) (58536) A-A-59326/12-3A	EA	1
17	5330-00-899-4509	GASKET, REDUCER (stowed in toolbox) (58536) AA59326-9	EA	1
18	4730-01-064-0560	REDUCER, QUICK-DISCONNECT (stowed in toolbox) (58536) AA59326/12-9-A-1	EA	1
19	5330-00-899-4509	GASKET, REDUCER (stowed in tool box) (58536) AA59326-9	EA	1

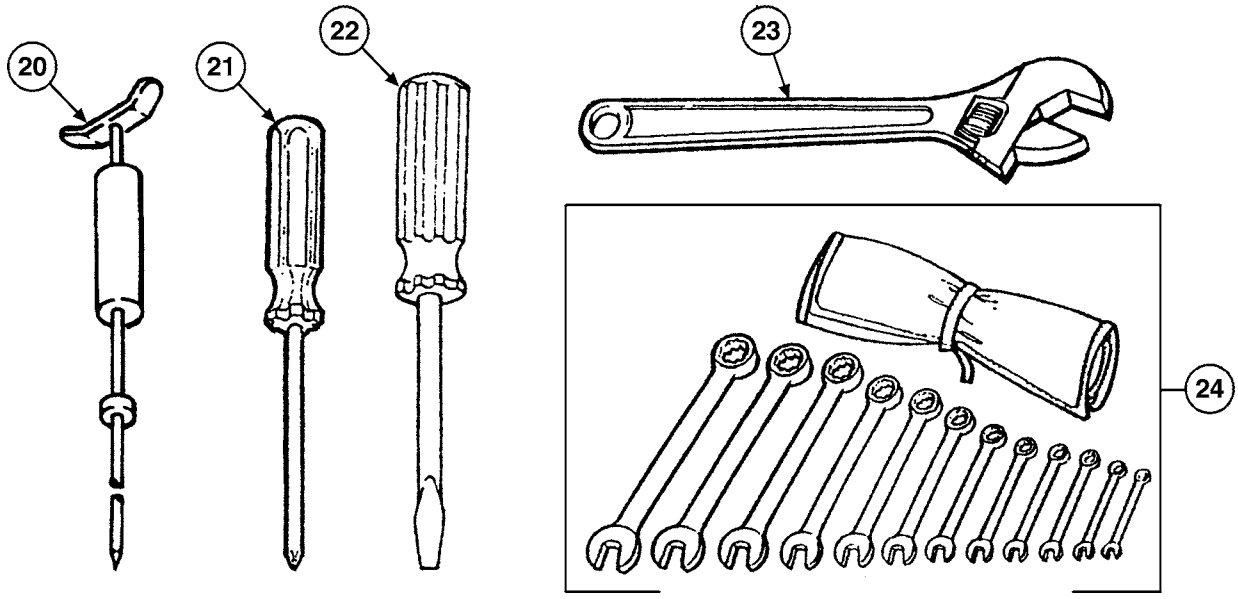


Table 1. BII List—Continued.

(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) U/M	(5) QTY. REQ.
20	5975-01-050-5707	ROD, GROUND (stowed in stowage tube) (97403) 13219E0462	EA	1
21	5120-00-234-8913	SCREWDRIVER, CROSS-TIP (19207) 111655777-12	EA	1
22	5120-00-222-8852	SCREWDRIVER, FLAT-TIP (80063) SCC539502-2	EA	1
23	5120-00-240-5328	WRENCH, ADJUSTABLE (19207) 11655778-3	EA	1
24	5120-00-148-9488	WRENCH SET, COMBINATION (99285) 1200EG	EA	1

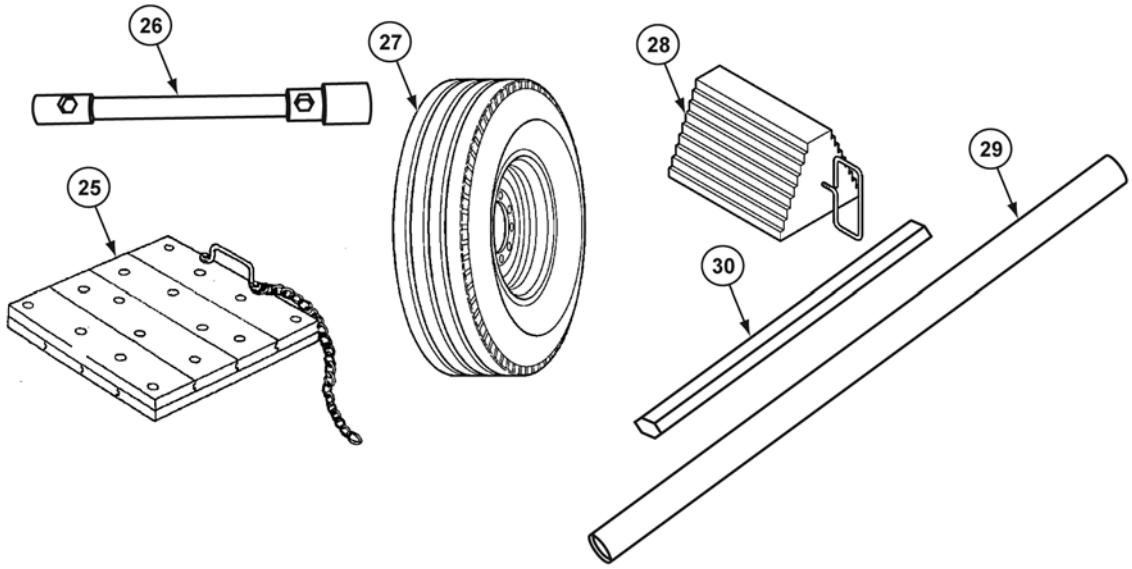


Table 1. BII List—Continued.

(1) ILLUS. NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) U/M	(5) QTY. REQ.
25	2510-00-741-7585	BOARD, GROUND (stowed on splash guards) (19207) 7417585	EA	2
26	5120-01-514-3465	WRENCH, SOCKET (0FBD6) 50939001	EA	1
27	2610-01-045-3688	TIRE, SPARE, RADIAL (stowed on rear bracket) (81348) X/GP3/TYRA/CLR/T/ 11.00R22.5G	EA	1
28	2540-01-510-2836	CHOCK, WHEEL (25795) 2A092	EA	4
29	——	HANDLE, TIRE, WRENCH, LEVERAGE (1R5C8) 9970-0006	EA	1
30	5120-01-170-4950	BAR, SOCKET WRENCH HANDLE (0FBD6) 50939002	EA	1

END OF TASK

ADDITIONAL AUTHORIZATION LIST (AAL) 0173 00

INTRODUCTION

General

This WP lists additional items you are authorized for the support of the semitrailer.

Explanation of Columns in the AAL

Column (1)—National Stock Number (NSN). This is the NSN assigned to the item that you can use to requisition it.

Column (2)—Description, CAGEC, and Part Number (P/N). Helps you identify and request the item you require to support this equipment.

Column (3)—Unit of Measure (U/M). Indicates the measure used in performing the actual operation/maintenance function. This measure is expressed by a two-character alphabetical abbreviation.

Column (4)—Quantity Recommended (QTY RECM). Indicates the quantity of the item recommended to be used with/on the equipment.

Table 1. AAL.

(1) NSN	(2) DESCRIPTION, CAGEC, AND P/N	(3) U/M	(4) QTY RECM
2590-00-473-6331	BRACKET, VEHICULAR (19207) 6566675	EA	1
7240-00-337-5269	CAN, GASOLINE (81349) MIL-C-53109	EA	1
4930-01-068-5100	NOZZLE, UNLEADED FUEL (33456) OPW11AP	EA	1
4730-00-889-2382	REDUCER, QUICK-DISCONNECT 1-1/2-IN. FEMALE–1-IN. MALE (58536) AA59326XI14	EA	1
4730-01-295-1842	REFUEL ON THE MOVE (ROM) ASSEMBLY (19207) 12356117	EA	1
	Consisting of:		
4730-01-298-0150	• ADAPTER (2 IN. UNISEX TO 2 IN. FEMALE CAM LOCK)	EA	2
4730-01-298-0151	• ADAPTER (2 IN. UNISEX TO 2 IN. MALE CAM LOCK)	EA	2

Table 1. AAL—Continued.

(1) NSN	(2) DESCRIPTION, CAGEC, AND P/N	(3) U/M	(4) QTY RECM
5430-01-298-9787	• CARRYING STRAP	EA	23
——	• COUPLING P/N: 64020H (UNISEX COUPLING w/1-1/2 IN. NPT, MALE)	EA	8
4730-01-297-3765	• COUPLING HALF, QUICK DISCONNECT (UNISEX 1-1/2 IN. NPT, FEMALE)	EA	8
4720-01-298-0732	• DISCHARGE HOSE 2 IN. 50 FT (w/2 IN. UNISEX FITTING)	EA	22
4720-01-299-5983	• DISCHARGE HOSE 3 IN. 50 FT (w/3 IN. CAM LOCK FITTING AND 2 IN. UNISEX FITTING)	EA	1
4210-00-257-5343	• FIRE EXTINGUISHER	EA	8
5975-01-050-5707	• GROUND ROD	EA	8
2910-01-448-7761	• NOZZLE, FUEL AND OIL SERVICING (1 IN. NPT, FEMALE) P/N: OPW7HB-0400	EA	8
4930-01-290-0756	• NOZZLE, FUEL AND OIL SERVICING (1-1/2 IN. NPT, FEMALE)	EA	8
4730-00-951-3293	• REDUCER (4 IN. FEMALE CAM LOCK TO 3 IN. MALE CAM LOCK)	EA	1
——	• SS REDUCER NIPPLE (1-1/2 IN. x 1 IN. NPT, MALE BOTH ENDS) P/N: 1.5 x 1TBE4	EA	8
4730-01-297-6812	• TEE CONNECTOR (w/THREE 2 IN. UNISEX CONNECTIONS)	EA	9
5340-01-502-8660	SPACER PLATE, KINGPIN (1R5C8) M234-1396	EA	1
6625-01-510-2722	TESTER, CIVACON OPTIC SYSTEM MODEL 1391 (1UYK1) 1391	EA	1
4720-01-064-8820	TUBING ASSEMBLY, NONMETALLIC (19207) 11668857	EA	1
	OIL FIIL, ENGINE (1C2H1) 10003	EA	1

END OF TASK

EXPENDABLE AND DURABLE ITEMS LIST 0174 00

INTRODUCTION

Scope

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

Explanation of Columns in Table 1. Expendable and Durable Items List

Column (1)—Item Number. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item, e.g., Compound, thread sealing (item 7, WP 0174 00).

Column (2)—Level. This column identifies the lowest level of maintenance that requires the listed item:
C = Operator/Crew
O = Organizational

Column (3)—National Stock Number (NSN). This is the NSN assigned to the item that you can use to requisition it.

Column (4)—Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5)—Unit of Measure (U/M). This code shows the physical measurement or count of an item.

Table 1. Expendable and Durable Items List.

ITEM	LEVEL	NSN	ITEM NAME, DESCRIPTION, CAGEC, P/N	U/M
1	O	7920-00-061-0038	Brush, scrub (83421) 7920-00-061-0038	EA
2	O	5350-00-221-0872	Cloth, abrasive (80204) ANSI B74-18	EA
3	O	 8030-00-087-8630 9150-00-961-8995	Compound, antiseize (81349) MIL-T-83483 1-lb can 8-oz tube	 LB TU
4	C	7930-01-328-2030	Compound, cleaning, solvent detergent, 5-gal. can (66724) PF degreaser	GL
5	O	8030-00-244-1296	Compound, corrosion preventive Grade 3, MIL-PRF-16173E	GL
6	C	 6850-01-290-9943 6850-00-177-5094 6850-00-295-7685	Compound, silicone NATO code no. S-736 (81343) SAE-AS8660 2-oz tube 5.3-oz tube 10-lb-can	 TU TU CN
7	O	8030-00-543-4384	Compound, thread sealing, 1-pt can (81349) MIL-S-7916	PT
8	O	 9150-01-197-7688 9150-01-197-7693 9150-01-197-7690 9150-01-197-7689 9150-01-197-7692 9150-01-197-7691	Grease, automotive and artillery (GAA) (81349) MIL-PRF-10924 2 1/4-oz tube 14-oz cartridge 1 3/4-lb can 6 1/2-lb can 35-lb pail 120-lb drum	 TU CA CN CN CN DR
9	C	 9150-01-178-4725 9150-01-152-4117 9150-01-152-4118 9150-01-152-4119	Oil, lubricating, internal combustion engine, tactical service (81349) MIL-PRF-2104 1-qt can 1-qt can (metal) 5-gal. can 55-gal. drum	 QT QT GL GL

Table 1. Expendable and Durable Items List—Continued.

ITEM	LEVEL	NSN	ITEM NAME, DESCRIPTION, CAGEC, P/N	U/M
10	C		Oil, lubricating, internal combustion engine, arctic (81349) MIL-L-46167	
		9150-00-402-4478	1-qt can	QT
		9150-00-401-2372	5-gal. can	GL
		9150-00-491-7197	55-gal. drum	GL
11	C	7920-00-205-1711	Rags, wiping (64067) 7920-00-205-1711	LB
12	O	7930-00-899-9534	Soap (83421) 7930-00-899-9534	GL
13	O	8950-00-292-9611	Soda, baking (UR162)	LB
14	O	3439-01-150-1051	Solder, alloy S060 rosin, multicore, 18 SWG5 core, 1-lb roll (17794) 1243-0001	RO
15	O	9905-00-537-8954	Tag, marker (81349) MIL-T-12755	EA
16	O	5970-00-816-6056	Tape, electrical, insulating, pressure-sensitive, black overall (81349) HH-I-595	RO

END OF TASK

MANDATORY REPLACEMENT PARTS LIST 0175 00

GENERAL

This WP lists all mandatory replacement parts referenced in the initial setups and procedures. These are items that must be replaced during maintenance whether they have failed or not.

Explanation of Columns in Table 1. Mandatory Replacement Parts List

Column (1)—Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item.

Column (2)—Part Number. This column identifies the part number of the item.

Column (3)— Commercial And Government Entity Code (CAGEC). This column provides the CAGEC of the item.

Column (4)—National Stock Number (NSN). This is the NSN assigned to the item that you can use to requisition it.

Column (5)—Nomenclature This column provides the item name.

Table 1. Mandatory Replacement Parts List.

(1) ITEM NUMBER	(2) PART NUMBER	(3) CAGEC	(4) NSN	(5) NOMENCLATURE
1	003958-001	83590	—	GASKET
2	055285	87405	5330-00-778-7229	GASKET
3	07406	13548	6220-01-482-6113	CLEARANCE LIGHT
4	0911	25281	4730-00-541-5538	CLAMP
5	FF-S-2738	81348	5340-02-469-7199	SEAL, ANTI-PILFRIDGE
6	100222	16476	6645-01-263-9434	METER, TIME TOTALIZING
7	100264	16476	6620-01-470-6835	VOLTMETER
8	100397	OBUN9	5330-01-423-9479	GASKET
9	100398	OBUN9	—	GASKET
10	103-49	68505	5330-01-362-4994	GASKET
11	10525	82423	5310-00-902-6676	NUT, SELF-LOCKING
12	107646	16476	6680-01-508-5909	TACHOMETER
13	11028	08302	5310-00-481-6481	LOCKWASHER
14	111-34	35510	—	BEARING, FRONT
15	1113SS	25281	4730-01-003-7359	CLAMP
16	111-40	35510	—	BEARING, REAR
17	11662296-9	19207	5325-00-204-5061	RING, RETAINING
18	11670915	1R5C8	5330-01-060-6890	GASKET
19	1177860	49181	—	NUT, SELF-LOCKING
20	120-111	35510	—	LOCKWASHER
21	120-128	35510	5310-01-430-7169	NUT, SELF-LOCKING

Table 1. Mandatory Replacement Parts List—Continued.

(1) ITEM NUMBER	(2) PART NUMBER	(3) CAGEC	(4) NSN	(5) NOMENCLATURE
22	1205X726	78500	5331-00-205-3583	O-RING
23	1459-246	72452	5310-00-088-1251	NUT, SELF-LOCKING
24	8712289	19207	5310-00-044-3340	NUT, SELF-LOCKING
25	162284	64104	5930-00-084-7570	SWITCH, ROTARY
26	200084	OBUN9	5310-01-423-3728	LOCKWASHER
27	200273	OBUN9	5310-01-423-3724	LOCKWASHER
28	2100-056	2X179	—	GLOW PLUG
29	220456	81343	—	SEAL
30	2440.034	2X179	3030-01-457-8833	BELTING, V
31	2474-GA	25567	5330-01-060-7266	GASKET SET
32	25227-363	25567	5331-01-504-6856	SEAL, OIL
33	25227-689	25567	5330-01-060-9610	SEAL
34	25271-207	25567	5330-01-078-2005	SEAL
35	2564	70485	5325-00-641-2800	GROMMET
36	276.4670.014	2X179	5310-01-324-8325	WASHER
37	330-3009	26151	5330-01-071-8179	GASKET
38	3401	28488	5975-00-655-3136	CONNECTOR, BOX
39	3560NB	13226	5330-01-134-1986	GASKET
40	38084-C	76364	5310-01-077-9647	LOCKWASHER
41	38683-207	25567	5330-01-060-9614	GASKET
42	3TR	8K828	—	GASKET

Table 1. Mandatory Replacement Parts List—Continued.

(1) ITEM NUMBER	(2) PART NUMBER	(3) CAGEC	(4) NSN	(5) NOMENCLATURE
43	40383	0Y3H3	—	LOCKWASHER
44	40384	0Y3H3	—	LOCKWASHER
45	4201028	OKMP4	6685-01-506-1133	GAGE, FUEL PRESSURE
46	4204089	OKMP4	6685-01-506-1151	GAGE, PUMP PRESSURE
47	4306148	OKMP4	6685-01-506-1061	GAGE, OIL PRESSURE
48	4420.019	2X179	5330-01-395-0878	GASKET
49	4500.079	2X179	5330-01-394-7944	GASKET
50	4670-058	2X179	—	WASHER
51	65146-K-A993	76364	5330-00-400-3515	PACKING
52	6686N	76364	5330-00-346-2732	GASKET
53	6975.134	2X179	3020-01-453-9083	PULLEY ASSEMBLY
54	7523	91840	5307-01-389-3445	STUD, BALL
55	7524649	19207	9905-00-752-4649	BAND, MARKER
56	75904-01	13445	5930-01-420-9746	SWITCH, ROTARY
57	761-847	90031	5310-00-763-8905	WASHER
58	81839A029	39428	5310-01-374-1809	NUT, SELF-LOCKING
59	841-00	92967	5310-01-098-7827	NUT, SELF-LOCKING
60	8712289-9	19207	5310-00-930-9759	NUT, SELF-LOCKING
61	9.3240.163	2X179	5310-01-458-4307	NUT
62	9.4670.060	2X179	5310-01-327-3419	WASHER
63	9.4670-061	2X179	5310-01-458-4309	WASHER

Table 1. Mandatory Replacement Parts List—Continued.

(1) ITEM NUMBER	(2) PART NUMBER	(3) CAGEC	(4) NSN	(5) NOMENCLATURE
64	9.4776.196	2X179	5310-01-327-3418	WASHER
65	9.7565.007	2X179	5310-01-340-8352	LOCKWASHER
66	9010A237	39428	5310-01-446-0272	NUT, LOCKING
67	90312A64	39428	4010-01-508-6020	LANYARD
68	904.4730.533	2X179	5330-01-458-5601	GASKET
69	90715A011	39428	5310-01-482-0431	NUT, SELF-LOCKING
70	90715A145	39428	5310-01-508-5774	NUT, LOCKING
71	9125-0146	1R5C8	4730-01-506-1946	CLAMP
72	9125-0147	1R5C8	4730-01-506-1798	CLAMP
73	9131-0005	1R5C8	—	CONDUIT
74	9133-0083	19207	5940-01-508-5912	CONNECTOR
75	9142-0273	1R5C8	4730-01-511-6206	COUPLING
76	91831A011	39428	5310-01-463-4929	NUT, SELF-LOCKING
77	91831A030	2V507	5310-01-499-3569	NUT, SELF-LOCKING
78	92147A029	39428	5310-01-482-5442	NUT, SELF-LOCKING
79	9326-0191	1R5C8	—	GASKET
80	9326-0254	1R5C8	5330-01-511-1565	GASKET
81	9326-0256	1R5C8	—	GASKET
82	9326-0262	1R5C8	5330-01-510-7082	GASKET
83	9326-0265	1R5C8	—	GASKET
84	9326-0266	1R5C8	—	GASKET

Table 1. Mandatory Replacement Parts List—Continued.

(1) ITEM NUMBER	(2) PART NUMBER	(3) CAGEC	(4) NSN	(5) NOMENCLATURE
85	9326-0268	1R5C8	—	GASKET
86	9419476	24617	5310-00-984-3807	NUT, SELF-LOCKING
87	9562-0044	1R5C8	5310-01-502-8329	NUT, SELF-LOCKING
88	9562-0046	1R5C8	5310-01-502-8330	NUT, SELF-LOCKING
89	9562-0049	1R5C8	—	NUT, FINISHING
90	9562-0055	1R5C8	5310-01-508-6899	NUT, SELF-LOCKING
91	9562-0091	1R5C8	—	NUT, SELF-LOCKING
92	9562-0133	1R5C8	5310-01-502-8323	NUT, LOCKING
93	9562-0165	1R5C8	5310-01-506-1215	NUT, SELF-LOCKING
94	9595-0019	1R5C8	5310-01-504-8330	PIN, HAIR
96	9682-0047	1R5C8	5320-01-504-6880	RIVET, POP
97	97135A275	39428	5310-01-508-5907	NUT, SELF-LOCKING
98	9752-0022	1RC58	—	CABLE TIE
99	98700A366	39428	5315-01-508-5988	PIN, QUICK RELEASE
100	9965-0039	1RC58	5310-01-502-8467	LOCKWASHER
101	9Q5961	13226	5310-01-486-4256	WASHER, EXTERNAL TOOTH
102	A-1205-X-1662	78500	5330-01-047-9367	SEAL
103	ALH 2102L SS	3J615	5340-01-504-6861	LOCK, D-RING
104	AS29513-248	81343	5331-00-291-3268	GASKET
105	AS29513-353	81343	5331-01-217-1787	O-RING

Table 1. Mandatory Replacement Parts List—Continued.

(1) ITEM NUMBER	(2) PART NUMBER	(3) CAGEC	(4) NSN	(5) NOMENCLATURE
106	B491A	12662	6220-01-506-2956	REFLECTOR
107	B491R	12662	6220-01-506-2958	REFLECTOR
108	C01100011	38205	5310-20-000-5251	LOCKWASHER
109	C40015M	1UYK1	5330-01-502-8335	GASKET
110	H50086M	1UYK1	—	LOCKWASHER
111	K235	78500	5315-01-092-1953	PIN, COTTER
112	M45913/1-10CG5C	81349	5310-00-269-4040	NUT, SELF-LOCKING
113	M45913/2-6FG5C	81349	5310-00-959-1488	NUT, SELF-LOCKING
114	MS17829-3C	96906	5310-00-689-3877	NUT, SELF-LOCKING
115	MS17829-6C	96906	5310-00-483-8790	NUT, SELF-LOCKING
116	MS21044N4	80205	5310-00-877-5796	NUT, SELF-LOCKING
117	MS21083N3	96906	5310-00-902-6676	NUT, SELF-LOCKING
118	MS24665-103	80205	5315-00-243-7992	PIN, COTTER
119	MS27144-1	96906	5935-00-167-7775	CONNECTOR
120	MS27183-57	80205	5310-00-614-3506	WASHER, FLAT
121	MS35338-44	96906	5310-00-582-5965	LOCKWASHER
122	MS35338-46	96906	5310-00-637-9541	LOCKWASHER
123	MS35338-50	80205	5310-00-820-6653	LOCKWASHER
124	N13048	06721	2530-00-270-3878	DUMMY COUPLING
125	Q4114-366Y	07322	5330-01-019-6879	PACKING, PREFORMED
126	S899 759 815 4	78500	5340-01-499-3481	CLIP

Table 1. Mandatory Replacement Parts List—Continued.

(1) ITEM NUMBER	(2) PART NUMBER	(3) CAGEC	(4) NSN	(5) NOMENCLATURE
127	VE205340	1K2S2	5330-01-506-1859	GASKET
128	VIC75TG03	79154	4730-01-514-5018	COUPLING
129	VIC75TG04	79154	4730-01-503-0247	COUPLING, PIPE
130	WA16	78500	5310-00-261-7340	LOCKWASHER
131	X1975	78500	5315-00-010-3389	PIN, COTTER
132	XB-SLN-012-04	99411	5310-01-502-8371	NUT, SELF-LOCKING
133	10028	98343	5330-00-172-1919	PACKING, PREFORMED
134	904.2175.040	2X179	2940-01-324-5153	FILTER ELEMENT
135	9.6780.085	2X179	5307-01-327-3439	GASKET
136	9.1200.087	2X179	5331-01-458-2589	O-RING
137	625.4501.025	2X179	5330-01-452-7383	GASKET
138	0910164	2X179	5310-00-045-3296	LOCKWASHER
139	9.7565.011	2X179	5310-01-324-8343	LOCKWASHER
140	229182	1K2S2	5310-01-514-2751	LOCKWASHER
141	103-48	24975	5977-01-506-1001	BRUSH ASSEMBLY
142	9326-0255	1R5C8	—	GASKET
143	9142-0099	IR5C8	—	SEAL
144	9562-0039	1R5C8	5310-01-510-9767	SELF-LOCKING NUT

TORQUE VALUES FOR THREADED FASTENERS 0176 00

SCOPE

This WP lists standard torque values (Table 1) and provides general information for applying torque. Special torque values and tightening sequences are included in the maintenance procedures for applicable components.

GENERAL

Always use the torque values listed in Table 1 when the maintenance procedure does not give a specific torque value.

Unless otherwise specified, standard torque tolerance shall be ±10%.

Torque values are based on clean, dry threads. Reduce torque by 10% when engine oil is used as a lubricant. Reduce torque by 20% if new plated capscrews are used.

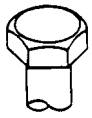
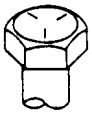
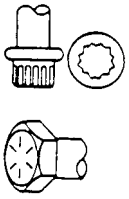
Capscrews threaded into aluminum may require reductions in torque of 30% or more of Grade 5 capscrew torque. Capscrews threaded into aluminum must also attain two capscrew diameters of thread engagement.

CAUTION

If replacement capscrews are of a higher grade than originally supplied, use torque specifications for the original. This will prevent equipment damage due to overtorquing.

TORQUE VALUES FOR THREADED FASTENERS—Continued 0176 00

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
CAPSCREW HEAD MARKINGS					
MANUFACTURER'S MARKS MAY VARY					
THESE ARE ALL SAE GRADE 5 (3 LINE)					
CAPSCREW BODY SIZE inches – thread		TORQUE lb-ft (N•m)	TORQUE lb-ft (N•m)	TORQUE lb-ft (N•m)	TORQUE lb-ft (N•m)
1/4	20	5 (7)	8 (11)	10 (14)	12 (16)
	28	6 (8)	10 (14)		14 (19)
5/16	18	11 (15)	17 (23)	19 (26)	24 (33)
	24	13 (18)	19 (26)		27 (37)
3/8	16	18 (24)	31 (42)	34 (46)	44 (60)
	24	20 (27)	35 (47)		49 (66)
7/16	14	28 (38)	49 (66)	55 (75)	70 (95)
	20	30 (41)	55 (75)		78 (106)
1/2	13	39 (53)	75 (102)	85 (115)	105 (142)
	20	41 (56)	85 (115)		120 (163)
9/16	12	51 (69)	110 (149)	120 (163)	155 (210)
	18	55 (75)	120 (163)		170 (231)
5/8	11	83 (113)	150 (203)	167 (226)	210 (285)
	18	95 (129)	170 (231)		240 (325)
3/4	10	105 (142)	270 (366)	280 (380)	375 (508)
	16	115 (156)	295 (400)		420 (569)
7/8	9	160 (217)	395 (536)	440 (597)	605 (820)
	14	175 (237)	435 (590)		675 (915)
1	8	235 (319)	590 (800)	660 (895)	910 (1234)
	14	250 (339)	660 (895)		990 (1342)

END OF TASK

TORQUE VALUES FOR THREADED FASTENERS—Continued **0176 00**

Table 2. Metric Torque Limits.

DESCRIPTION	 8.8	 10.9 = R10	 12.9 = R12
Diagram per Pitch (mm)	High-carbon steel	Alloy steel	Special alloy steel
	Kgm	Kgm	Kgm
4x0.70	0.37	0.52	0.62
5x0.80	0.72	1.01	1.2
6x1.00	1.23	1.73	2.08
7x1.00	2.02	2.84	3.40
8x1.25	3.02	4.25	5.10
9x1.25	3.88	5.45	6.55
10x1.50	5.36	7.54	9.05
12x1.75	9.09	12.80	15.30
14x2.00	13.80	19.40	23.30
16x2.00	21.00	29.50	35.40
18x2.50	26.30	37.00	44.40
20x2.50	36.60	51.50	61.80
22x2.50	44.40	62.40	74.90
24x3.00	56.90	80.00	96.00

END OF TASK

RPSTL INTRODUCTION **0177 00**

SCOPE

The RPSTL lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of organizational, direct support and general support maintenance of the M969A3 Automotive Fuel Dispensing 5,000-Gallon Tank Semitrailer. 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 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) 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 LISTS AND SPECIAL TOOLS LIST WORK PACKAGES.

ITEM NO. (Column (1)). Indicates the number used to identify items called out in the illustration.

SMR CODE (Column (2)). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout:

Source Maintenance Code	Code		Recoverability Code
xx	xx		x
1st two positions: How to get an item.	3rd position: Who can Install, replace, or use item.	4th position: Who can 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 you get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Source Code	Application/Explanation
PA PB PC PD PE PF PG	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 3rd position of the SMR code. **NOTE** Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the 3rd position of the SMR code. The complete kit must be requisitioned and applied.
MO-Made at unit/ AVUM level MF-Made at DS/ AVIM level MH-Made at GS level ML-Made at SRA MD-Made at depot	Items with these codes are not to be requisitioned/requested individually. They must be made from bulk material which is identified by the P/N in the DESCRIPTION AND USABLE ON CODE (UOC) column and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the 3rd position code of the SMR code, but the source code indicates it is made at higher level, order the item from higher level of maintenance.

AO-Assembled by unit/AVUM level AF-Assembled by DS/AVIM level AH-Assembled by GS level AL-Assembled by SRA AD-Assembled by depot	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned of fabricated and assembled at the level of maintenance indicated by the source code. If the 3rd 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 the higher level of maintenance.
XA	Do not requisition an "XA" coded item. Order the next higher assembly. (Refer to NOTE below.)
XB	If an item is not available from salvage, order it using the CAGEC and P/N.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer's P/N.
XD	Item is not stocked. Order an XD-coded item through normal supply channels using the CAGEC and P/N given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those items source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance:

Maintenance Code Application/Explanation

C - Crew or operator maintenance done within unit/AVUM maintenance.

O - Unit level/AVUM maintenance can remove, replace, and use the item.

F - Direct support/AVIM maintenance can remove, replace, and use the item.

H - General support maintenance can remove, replace, and use the item.

L - Specialized repair activity can remove, replace, and use the item.

D - Depot can remove, replace, and use the item.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance level with the capability to do complete repair (perform all authorized repair functions).

NOTE

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

Maintenance Code Application/Explanation

O - Unit/AVUM is the lowest level that can do complete repair of the item.

F - Direct support/AVIM is the lowest level that can do complete repair of the item.

H - General support is the lowest level that can do complete repair of the item.

L - Specialized repair activity is the lowest level that can do complete repair of the item.

D - Depot is the lowest level that can do complete repair of the item.

Z - Nonrepairable. No repair is authorized.

B - No repair is Authorized. No parts or special tools are authorized for maintenance of “B” coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

Recoverability Code Application/Explanation

Z - Nonreparable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.

O - Reparable item. When uneconomically reparable, condemn and dispose of the item at the unit level.

F - Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support level.

H - Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support level.

D - Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.

L - Reparable item. Condemnation and disposal of item 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.

NSN (Column (3)). The NSN for an 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 it's 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 P/N from the one listed.

DESCRIPTION AND USEABLE 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. P/Ns 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 column (6) for a given figure in both the repair parts list and the special tools list work packages.

QTY (Column (7)). The QTY (quantity per figure) column indicates the quantity of the item used in the breakout sown 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.

STOCK NUMBER Column. This column lists the NSN in National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN.

NSN (e.g., 5385-01-574-1476) NIIN	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.

FIG. Column. This column lists the number of the figure where the item is identified/located. The figures are in numerical order in the repair parts list and special tools list work packages.

ITEM Column. The item number identifies the item associated with the figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

2. Part Number (P/N) Index Work Package. P/Ns in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

PART NUMBER Column. Indicates the P/N assigned to the item.

FIG. Column. This column lists the number of the figure where the item is identified/located in the repair parts list and special tools list work packages.

ITEM Column. The item number is the number assigned to the item as it appears in the figure referenced in the adjacent figure number column.

SPECIAL INFORMATION

UOC. The UOC appears in the lower left corner of the Description Column heading. Useable on codes are shown as “UOC: …” in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Identification of the UOCs used in the RPSTL are:

Code Used	On
C94	M969A3

Fabrication Instructions. Bulk materials required to manufacture items are listed in the bulk material functional group of this RPSTL. Part numbers for bulk materials are also referenced in the Description Column of the line item entry for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in Appendix (x) of this manual.

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 / P/N index work packages and the bulk material list in the repair parts list work package.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or P/Ns Are Not Known.

RPSTL INTRODUCTION — Continued **0177 00**

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the figure and note the number(s).

Fourth. Look in the repair parts list work packages for the figure and item numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN Is Known.

First. If you have the NSN, look in the STOCK NUMBER column NSN index work package. The NSN is arranged in NIIN sequence. Note the figure and item number next to the NSN.

Second. Turn to the figure and locate the item number. Verify that the item is the one you are looking for.

3. When P/N Is Known.

First. If you have the P/N and not the NSN look in the PART NUMBER column of the part number index work package. Identify the figure and item number.

Second. Look up the item on the figure in the applicable repair parts list work package.

ABBREVIATIONS

No uncommon abbreviations are used in this RPSTL
.

GROUP 0608 LIBERTY ONBOARD MONITOR 0178 00

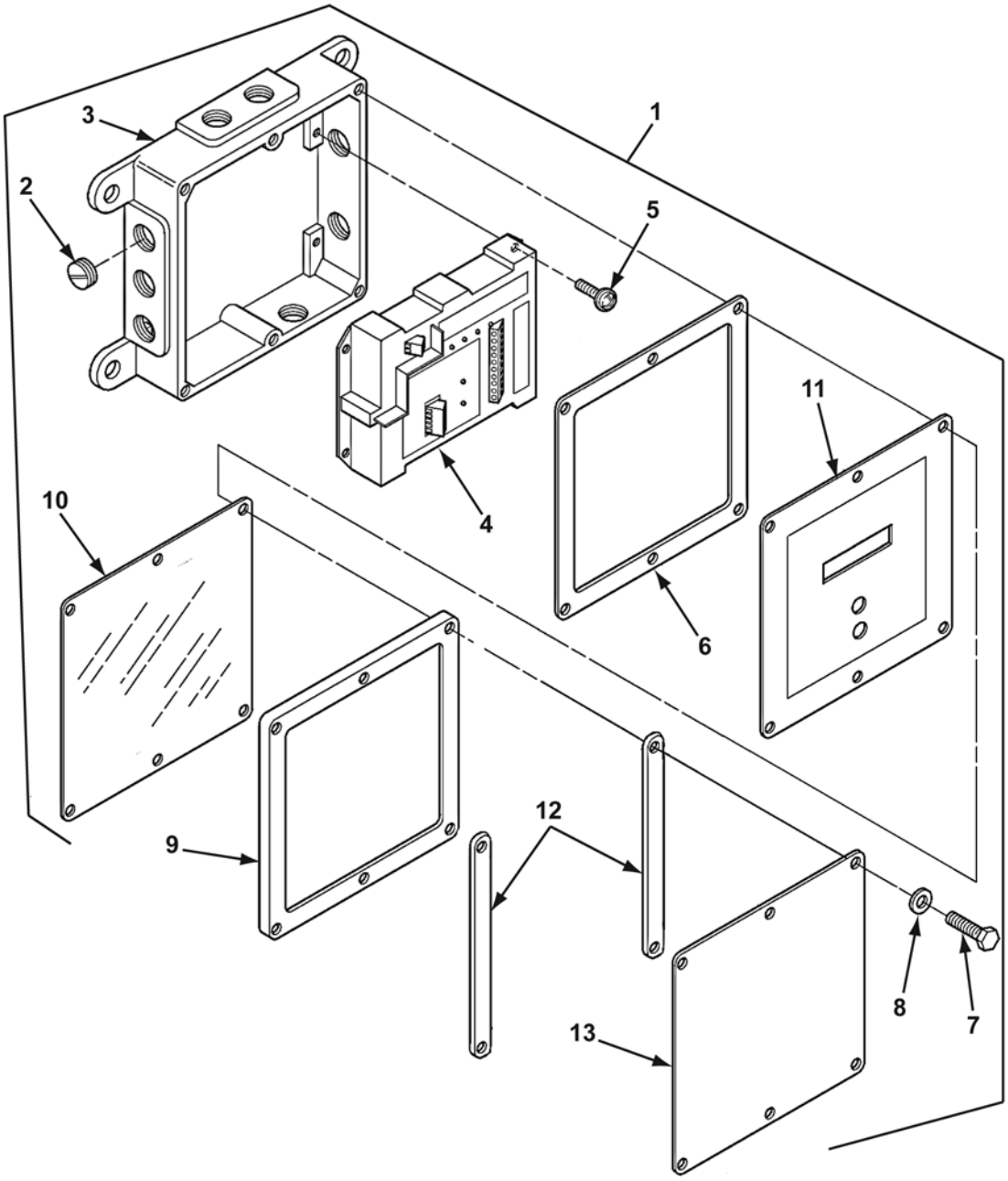


FIGURE 1. LIBERTY ONBOARD MONITOR

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 06 ELECTRICAL SYSTEM	
						GROUP 0608 ELECTRICAL SYSTEM (ENGINE AND VEHICULAR, ETC.)	
						FIG. 1 LIBERTY ONBOARD MONITOR	
ABAB	1	PFOOO	5940-01-502-9386	1UYK1	3100	TERMINAL BOX	1
ABBZ	2	PFOZZ	5365-01-502-9393	1UYK1	H50070M	.PLUG, MACHINE THREAD	1
ABBJ	3	PFOZZ	5975-01-502-9391	1UYK1	D40006A	.JUNCTION BOX	1
ABAY	4	PFOZZ	6680-01-502-9390	1UYK1	3150	.RECORDER SUBASSEMBLY	1
ABBY	5	PFOZZ	5305-01-502-8415	1UYK1	H50623M-2	.SCREW, MACHINE	4
ABAJ	6	PFOZZ	5330-01-502-8335	1UYK1	C40015M	.GASKET	1
ABBS	7	PFOZZ	5305-01-502-8411	1UYK1	H50114M	.SCREW, MACHINE	6
ABBM	8	PFOZZ	5310-01-229-6260	39428	92146A029	.WASHER, LOCK	6
ABAS	9	PFOZZ	5940-01-502-9388	1UYK1	C40104A	.COVER, TERMINAL BOX	1
ABAM	10	PFOZZ	9330-01-502-8339	1UYK1	C40097A	.WINDOW, OBSERVATION	1
ABBA	11	XDOZZ		1UYK1	C40180M	.NAME PLATE	1
ABAE	12	PFOZZ		1R5C8	M234-1638	.PLATE, RETAINER, STEEL	2
ABAG	13	PFOZZ		1R5C8	M112-9801	.COVER, MAGNETIC FLAP	1
			TM-CODE 2VE			END OF FIGURE	

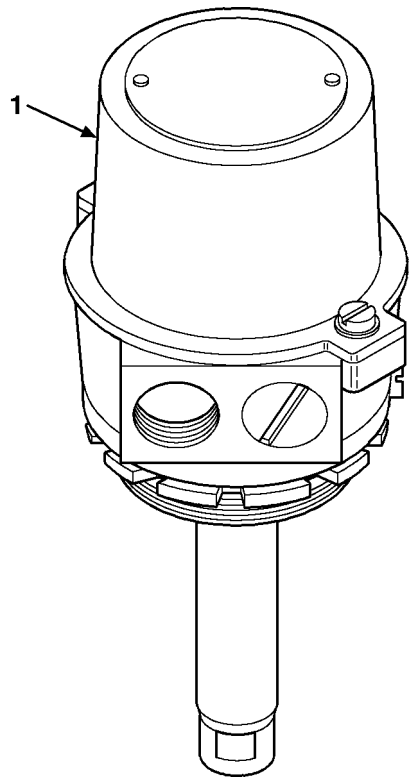


FIGURE 2. LIBERTY OPTIC SENSOR

GROUP 0608 LIBERTY OPTIC SENSOR — Continued **0179 00**

PLISN	(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 LIBERTY OPTIC SENSOR	
ABCA1	1	PFOZZ	6625-01-503-1773	1UYK1	1300	PROBE SUBASSEMBLY	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 0608 SOCKET BOX **0180 00**

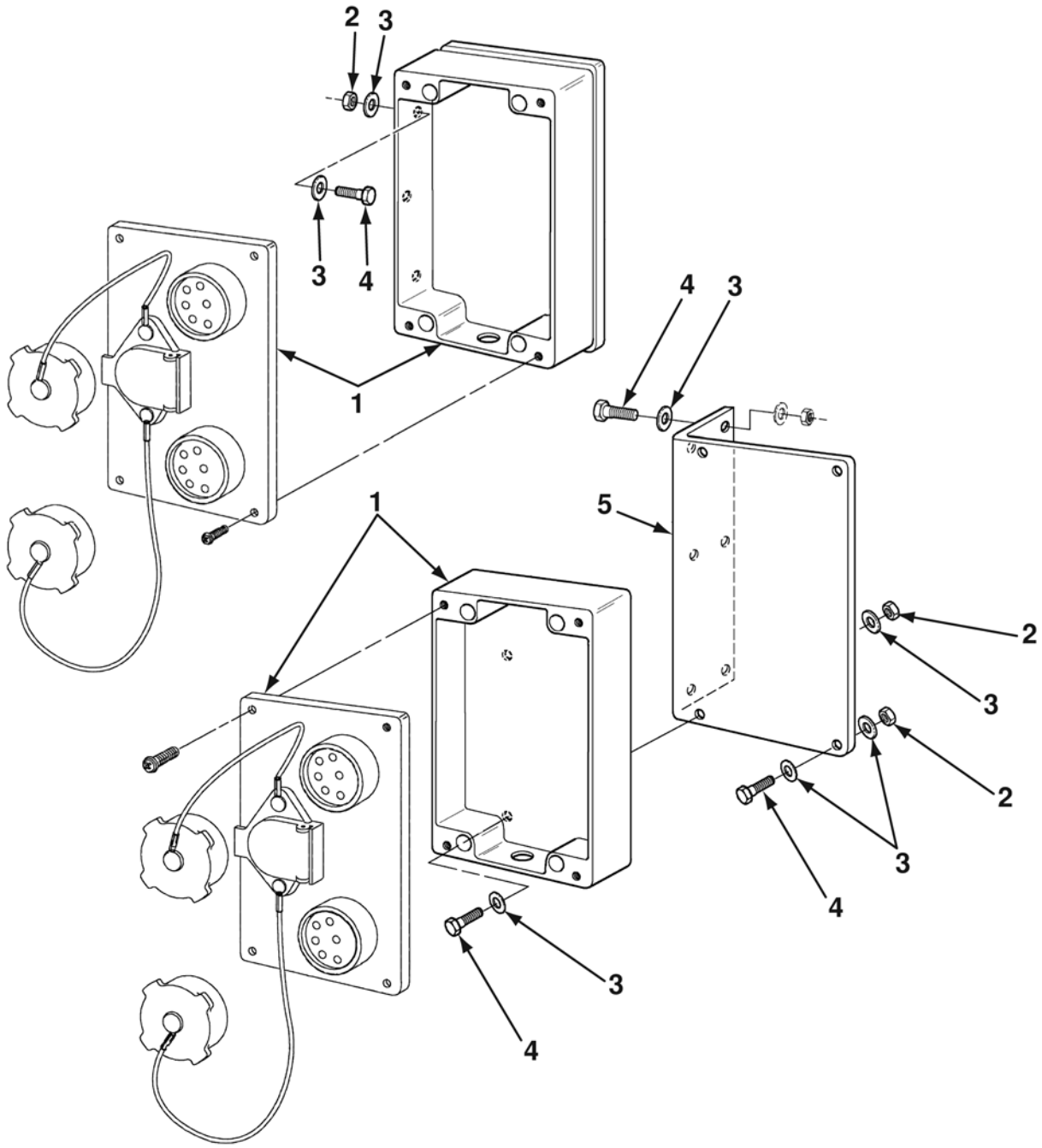


FIGURE 3. SOCKET BOX

GROUP 0608 SOCKET BOX — Continued 0180 00

PLISN	(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 SOCKET BOX	
ABFE	1	PFOZZ	6110-01-504-7539	1UYK1	D52068M	BOX ASSEMBLY, SOCKET.....	2
ABFM	2	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING, FLANGE 3/8-16.....	13
ABFA1	3	PAOZZ		1R5C8	9965-0044	WASHER,FLAT 3/8.....	26
ABFJ	4	PAOZZ	5305-01-406-5528	17454	01070-0281ITEM06-15	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1-1/4.....	13
ABFS	5	PAOZZ	5340-01-506-1076	1R5C8	M311-3778	BRACKET, ANGLE	1
			TM-CODE 2VE			END OF FIGURE	

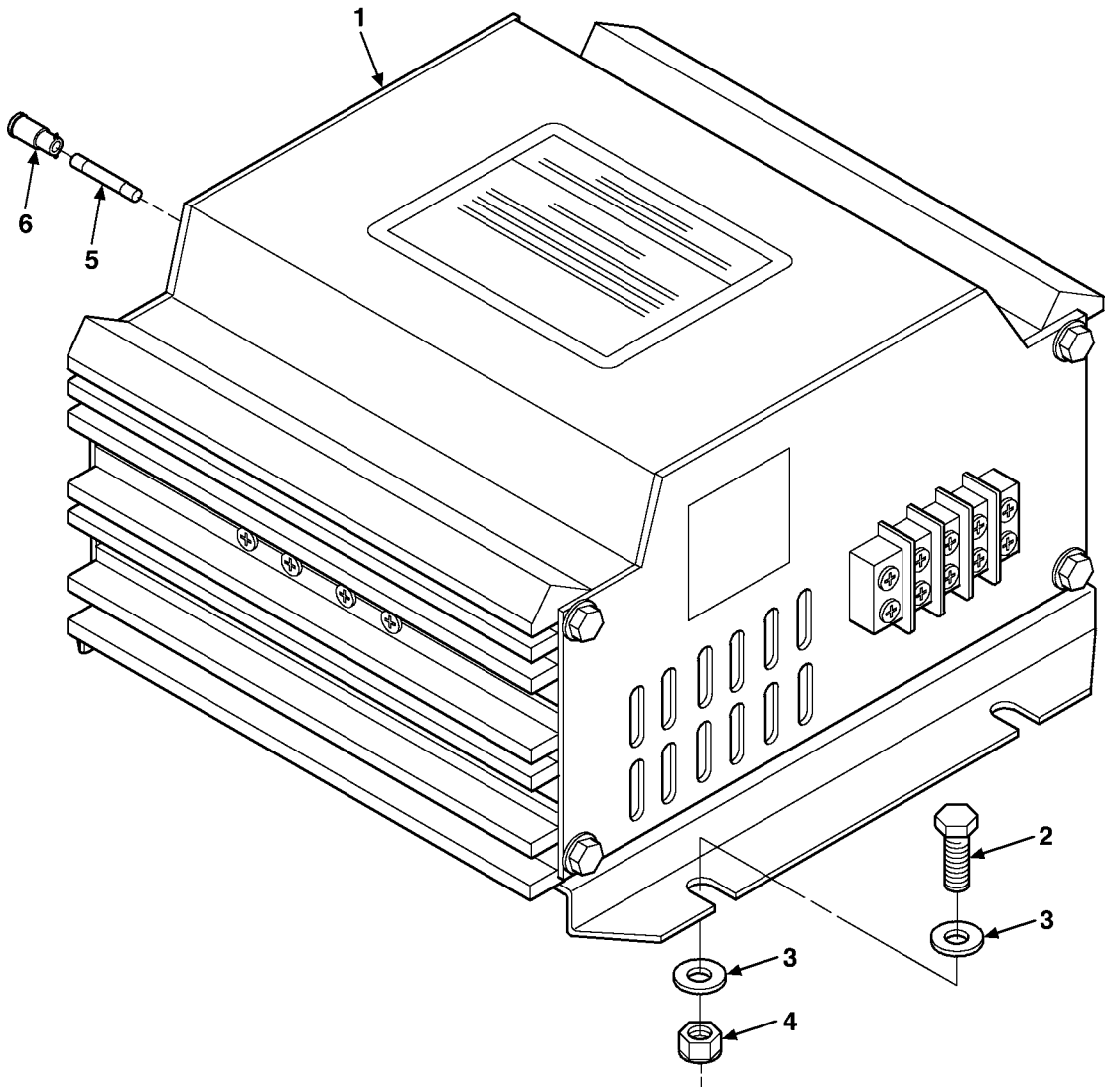


FIGURE 4. ELECTRICAL CONVERTER

PLISN	(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. 4 ELECTRICAL CONVERTER	
ABLA1	1	PFOZZ	6130-01-506-3502	07KU1	MODEL 362	CONVERTER, ELECTRICAL	1
ABLE	2	PAOZZ	5305-01-508-6246	39428	93075A245	SCREW,CAP, HEXAGON HEAD #10-24 X 3/4	4
ABLJ	3	PAOZZ	5310-01-312-4959	96906	MS27183-47	WASHER,FLAT #10	8
ABLM	4	PAOZZ	5310-00-689-3877	80205	MS17829-3C	NUT,SELF-LOCKING, HEXAGON #10-24	4
ABLS	5	PAOZZ	5920-00-131-9915	81349	F02A32V20A	FUSE,CARTRIDGE	1
ABLY	6	PAOZZ	5920-01-508-4243	71400	HTB-36I	HOLDER,FUSE	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 0609 CLEARANCE LIGHTS **0182 00**

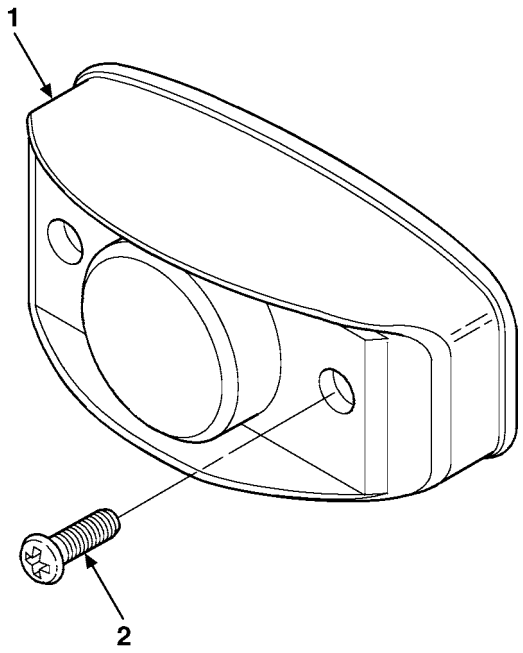


FIGURE 5. CLEARANCE LIGHTS

GROUP 0609 CLEARANCE LIGHTS — Continued **0182 00**

PLISN	(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 CLEARANCE LIGHTS	
ABAA	1	PAOZZ	6220-01-482-6113	13548	07406	CLEARANCE LIGHT,RED.....	7
ABAK	1	PAOZZ	6220-01-482-5574	13548	07407	CLEARANCE LIGHT,AMBER.....	5
ABAN	2	PAOZZ	5305-00-050-9233	96906	MS51957-67	SCREW, MACHINE.....	24
			TM-CODE 2VE			END OF FIGURE	

GROUP 0609 STOP, TAIL AND BLACKOUT LIGHTS 0183 00

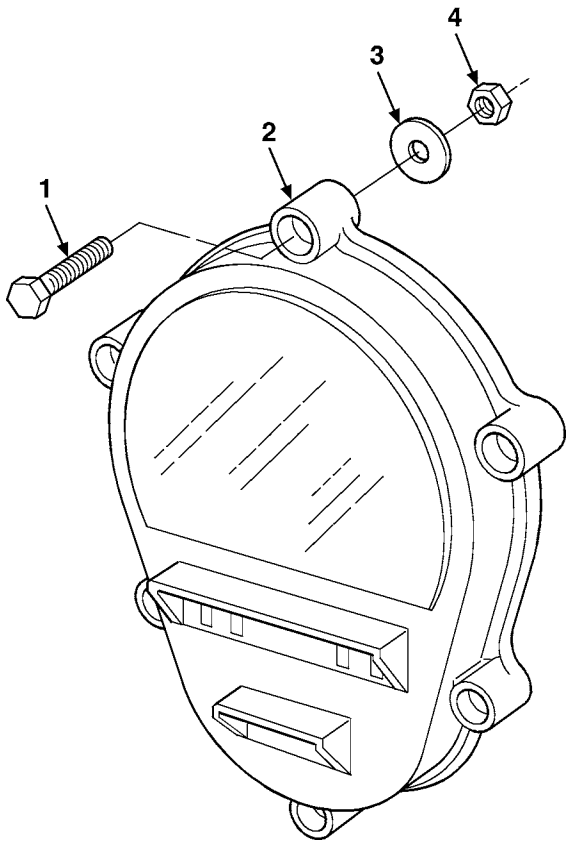


FIGURE 6. STOP, TAIL AND BLACKOUT LIGHTS

GROUP 0609 STOP, TAIL AND BLACKOUT LIGHTS — Continued 0183 00

PLISN	(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. STOP, TAIL AND BLACKOUT LIGHTS	
ABAQ	1	PAOZZ	5305-01-506-1119	39428	90316A247	SCREW,MACHINE #10-24 X 1	12
ABAT	2	PAOZZ	6220-01-482-9850	13548	07240	STOP LIGHT, VEHICULAR.....	2
ABAR	3	PAOZZ	5310-01-312-4959	96906	MS27183-47	WASHER,FLAT #10	12
ABAV	4	PAOZZ	5310-00-689-3877	96906	MS17829-3C	NUT,SELF-LOCKING, HEXAGON #10-24	12
			TM-CODE 2VE			END OF FIGURE	

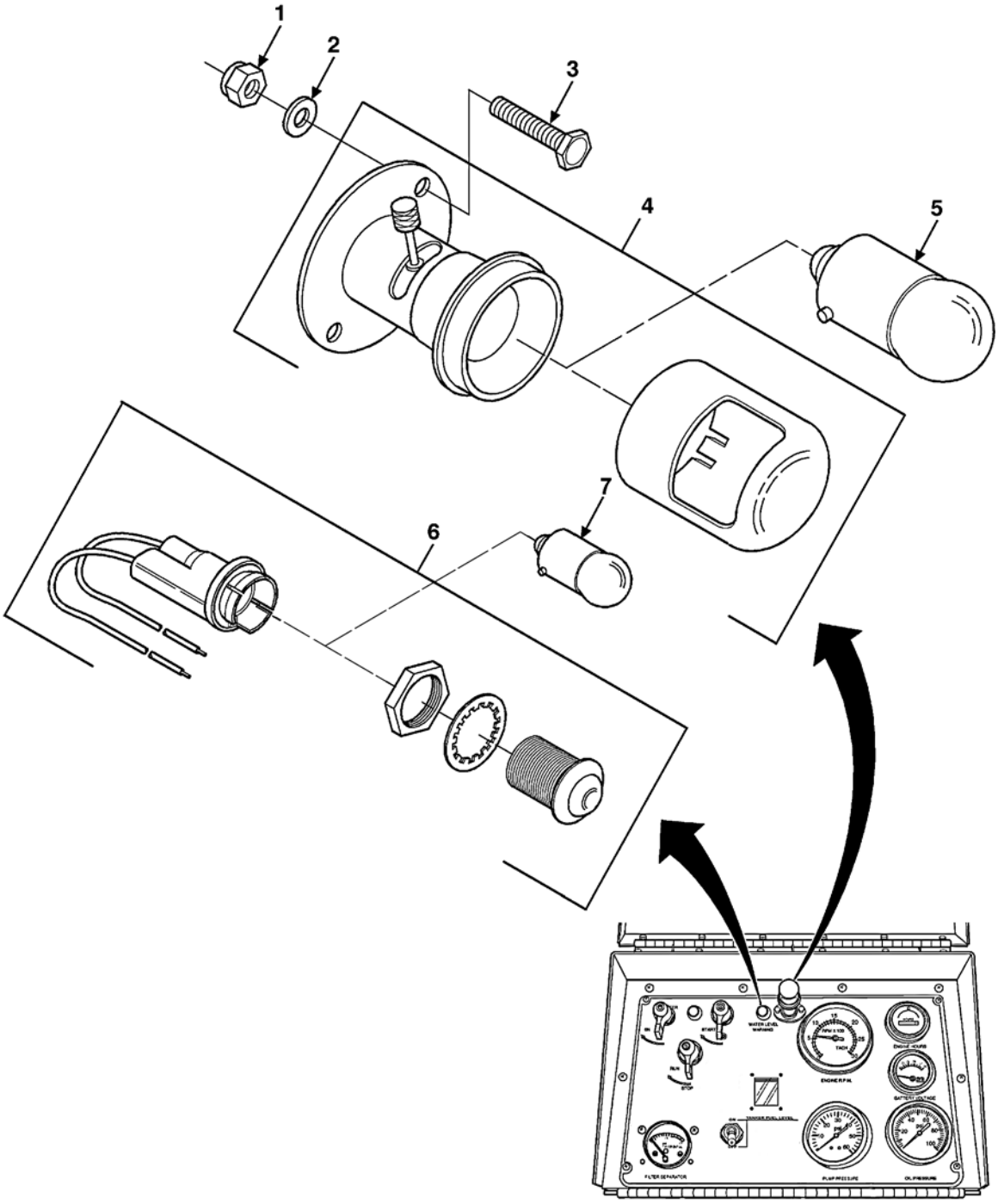


FIGURE 7. CONTROL PANEL LIGHT ASSEMBLIES

GROUP 0609 CONTROL PANEL LIGHT ASSEMBLIES — Continued 0184 00

PLISN	(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. 7 CONTROL PANEL LIGHT ASSEMBLIES	
AEA9	1	PAOZZ	5310-01-482-0431	39428	90715A011	NUT, SELF-LOCKING, HEXGAON #10-24	2
AEA6	2	PAOZZ	5310-00-517-4192	19205	5174192	WASHER, FLAT #10	2
AEA2	3	PAOZZ	5305-00-245-6035	11083	3S4488	SCREW,MACHINE #10-24 X 1	2
AEA1	4	PAOZZ	6210-00-887-8432	13445	M451	LIGHT, PANEL	1
AEA3	5	PAOZZ	6240-00-019-0878	08108	1252	LAMP, INCANDESCENT	1
AEA5	6	PAOOO	6210-01-069-0434	13445	PL-20-RC	LIGHT, INDICATOR	2
AEA7	7	PAOZZ	6240-00-013-1282	08108	53	.LAMP,INCANDESCENT	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 0612 BATTERY, COVER AND CABLES 0185 00

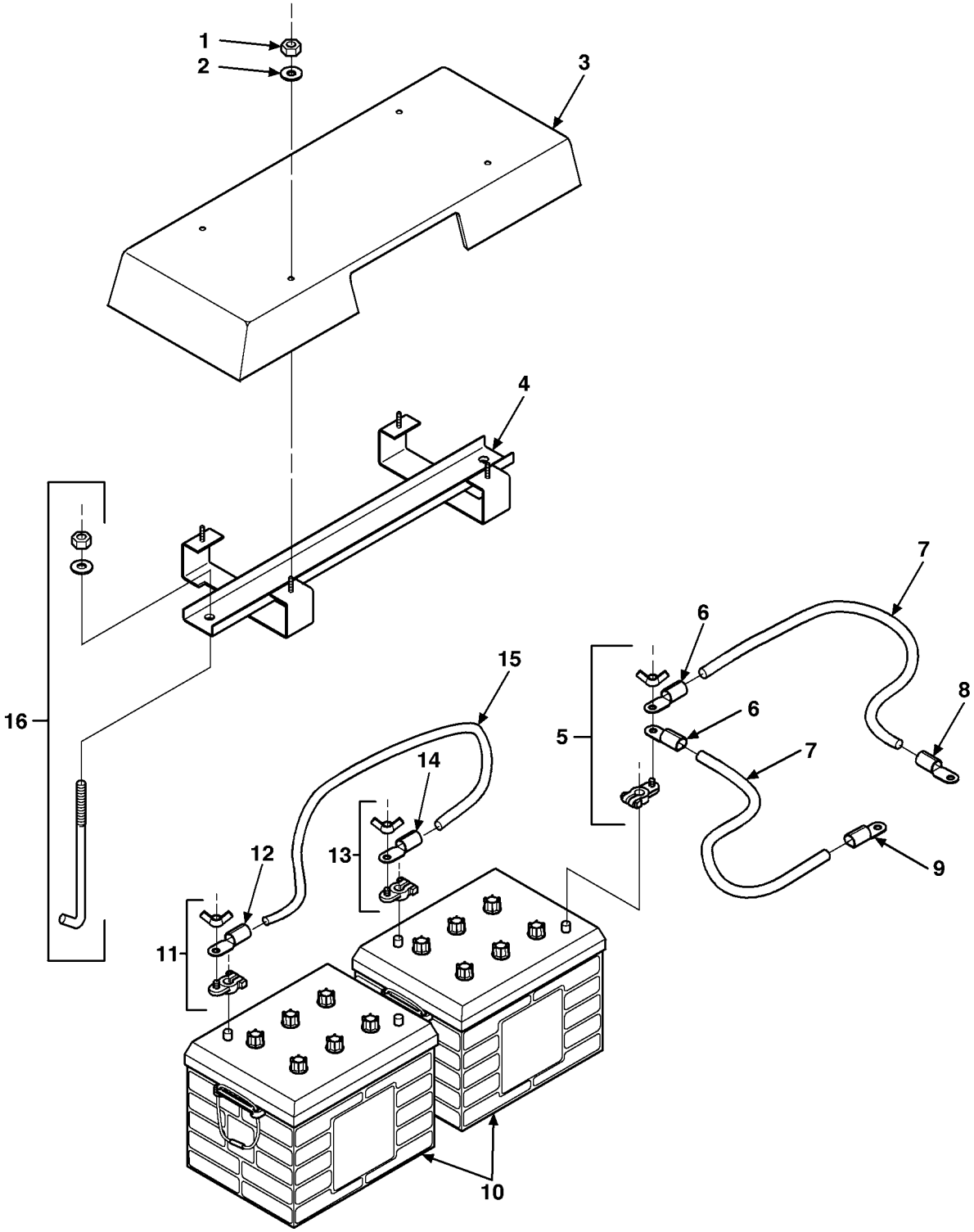


FIGURE 8. BATTERY, COVER AND CABLES

GROUP 0612 BATTERY, COVER AND CABLES — Continued 0185 00

PLISN	(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 (WET OR DRY)	
						FIG. 8 BATTERY, COVER AND CABLES	
AASA1	1	PAOZZ	5310-01-499-3569	2V507	91831A030	NUT,SELF-LOCKING,HEX 5/16-18	4
AASE	2	PAOZZ	5310-00-880-5977	80205	MS15795-811	WASHER, FLAT 5/16	4
AASJ	3	PFOZZ	6160-01-504-7515	1R5C8	9137-0045	COVER, BATTERY	1
AASM	4	PFOZZ	6160-01-504-7523	1R5C8	M311-3321	RETAINER, BATTERY	1
AASC	5	PFOZZ	5940-01-504-7527	1R5C8	9133-0089	CONNECTOR, BATTERY	1
AASG	6	PFOZZ	5940-01-506-2504	1R5C8	9133-0093	TERMINAL, LUG	2
AASK	7	MOOZZ		1R5C8	9968-0056-AR	WIRE, ELECTRICAL MAKE FROM WIRE P/N 9968-0056 (1R5C8), AS REQUIRED	2
AASL	8	PFOZZ	5940-01-506-2504	1R5C8	9133-0093	TERMINAL, LUG	1
AASQ	9	PFOZZ	5940-01-506-2589	1R5C8	9133-0091	CONNECTOR	1
ABPB	10	PFOZZ	6140-01-446-9506	19207	6TMF/TYPEII	BATTERY, STORAGE, WET	2
AAPF	10	PFOZZ	6140-01-469-9184	19207	6TMF/TYPEIII	BATTERY, STORAGE, DRY	2
AAS1	11	PFOZZ	5940-01-506-1319	1R5C8	9133-0088	TERMINAL, LUG.POSITIVE	1
AAS3	12	PFOZZ	5940-01-506-2490	1R5C8	9133-0086	TERMINAL, LUG	1
AASY	13	PFOZZ	5940-01-504-7527	1R5C8	9133-0089	TERMINAL, LUG, NEGATIVE	1
ABNE	14	PFOZZ	5940-01-506-2497	1R5C8	9133-0098	TERMINAL, LUG	1
ABNA	15	MOOZZ		1R5C8	9968-0057-AR	WIRE, ELECTRICAL MAKE FROM WIRE P/N 9968-0057 (1R5C8), AS REQUIRED	1
AASS	16	PFOZZ	5306-01-504-6498	39428	98760A112	BOLT, BATTERY HOLD-DOWN	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 0613 SLAVE START RECEPTACLE **0186 00**

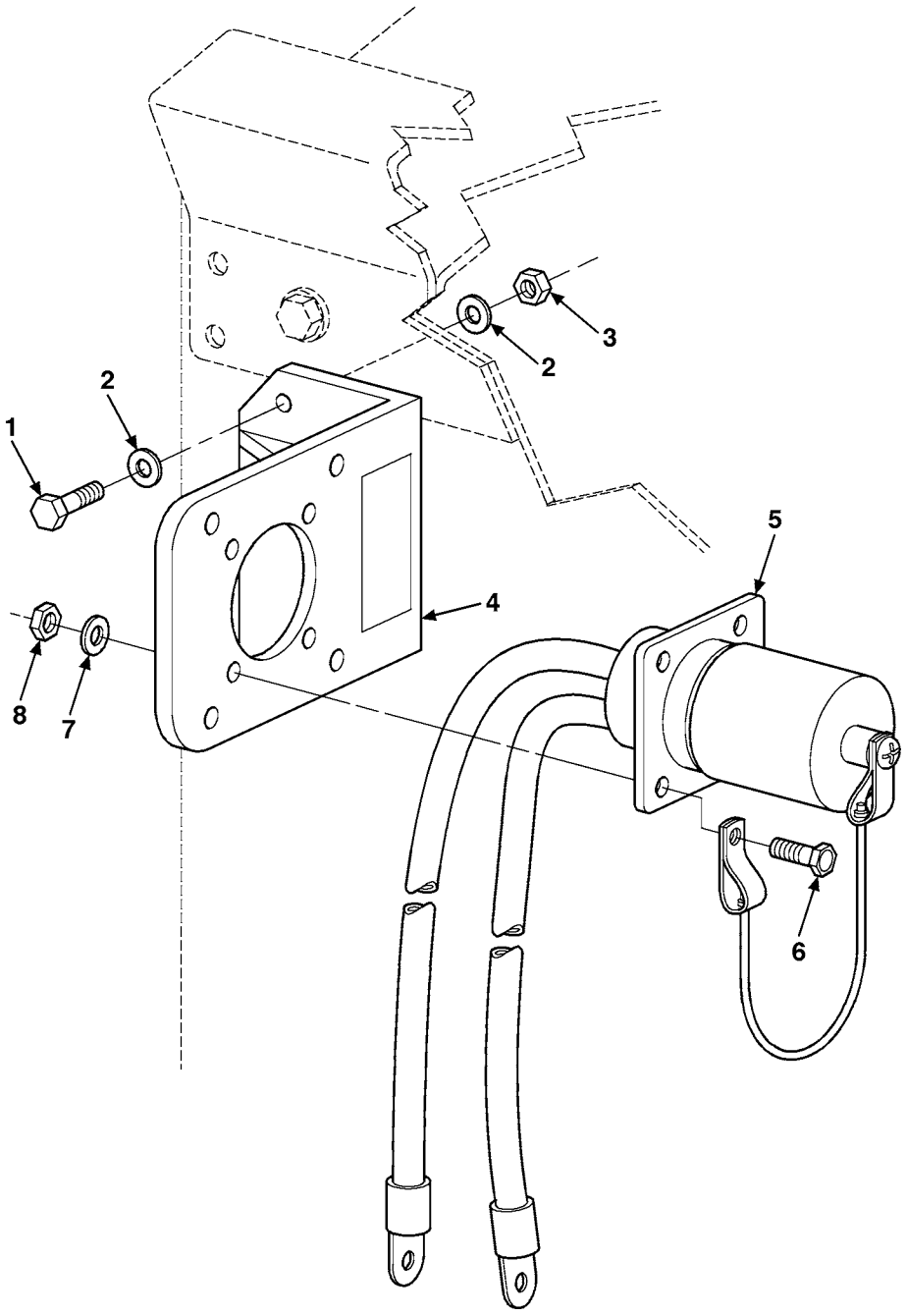


FIGURE 9. SLAVE START RECEPTACLE

GROUP 0613 SLAVE START RECEPTACLE — Continued 0186 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 0613 HULL OR CHASSIS WIRING HARNESS	
						FIG. 9 SLAVE START RECEPTACLE	
ABGC	1	PAOZZ	5305-00-702-4523	80205	MS35307-306	SCREW, CAP, HEXAGON HEAD 1/4-20 X 3/4	2
ABGS	2	PAOZZ	5310-01-303-3917	80205	MS15795-851	WASHER, FLAT 1/4	4
ABGY	3	PAOZZ	5310-01-374-1809	39428	81839A029	NUT,SELF-LOCKING, HEXAGON 1/4-20	2
ABGZ	4	PFOZZ	5340-01-508-6208	1R5C8	M311-3649	BRACKET, MOUNTING	1
ABGA	5	PAOZZ	6150-01-367-0599	96139	MB14106-2	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL	1
ABGE	6	PAOZZ	5305-01-506-1119	39428	90316A247	SCREW,MACHINE #10-24 X 1	4
ABGJ	7	PAOZZ	5310-00-167-0818	80205	NAS1149F0363P	WASHER, FLAT #10	4
ABGM1	8	PAOZZ	5310-01-463-4929	39428	91831A011	NUT,SELF-LOCKING, HEXAGON #10-24	4
			TM-CODE 2VE			END OF FIGURE	

GROUP 0613 CHASSIS WIRING HARNESSES 0187 00

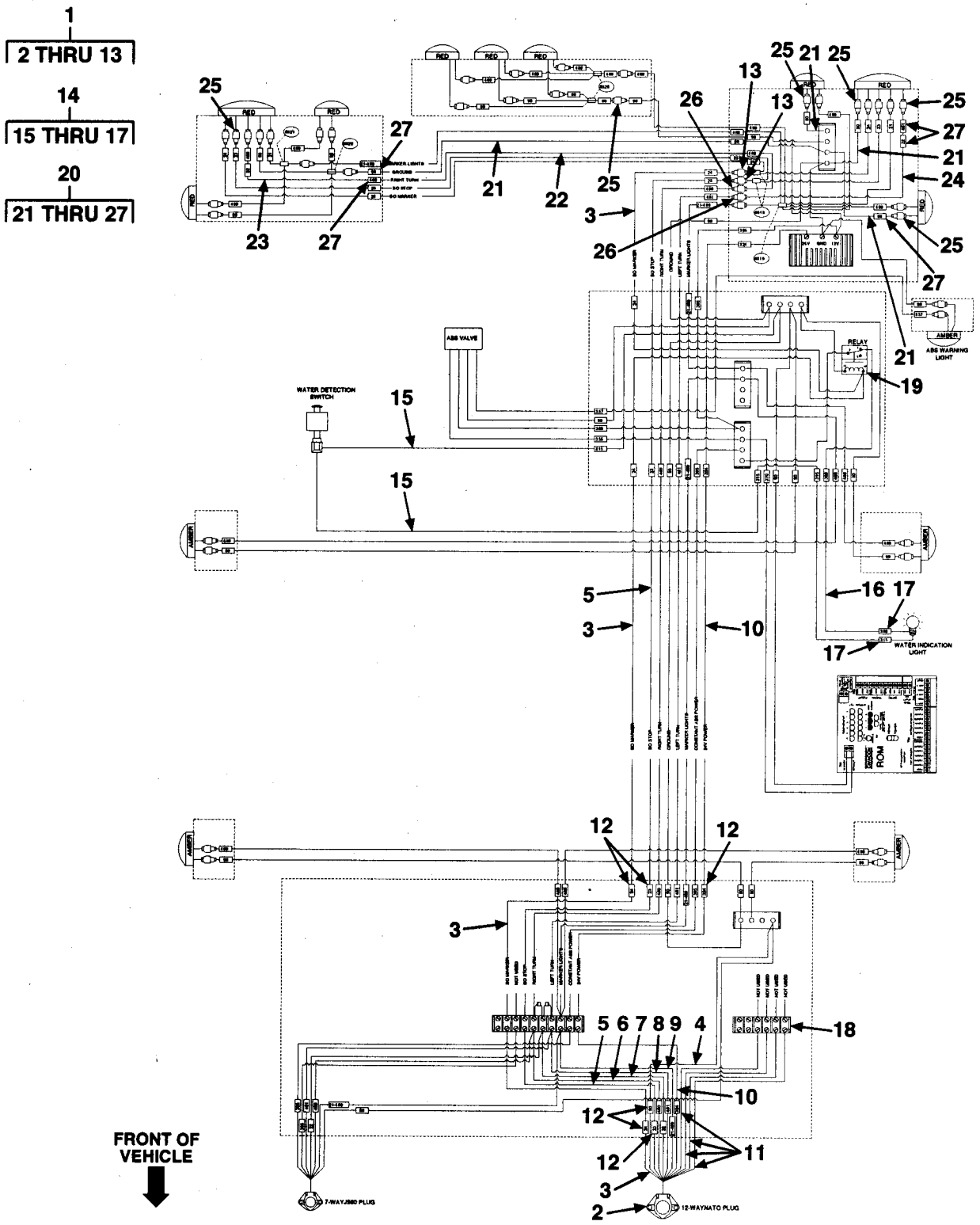


FIGURE 10. CHASSIS WIRING HARNESSES

GROUP 0613 CHASSIS WIRING HARNESSES — Continued 0187 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 0609 HULL OR CHASSIS WIRING WIRING HARNESS	
						FIG. 10 CHASSIS WIRING HARNESSES	
ABTA	1	AOOOO		1R5C8	108-6110-2	WIRING HARNESS, VEHICLE, MAIN	1
ABTC	2	PFOZZ	5935-00-754-9083	19207	8724257	.CONNECTOR, PLUG, ELECTRICAL 12-WAY	1
ABTE	3	MOOZZ		1R5C8	9968-0055-2-1	.WIRE, BO MARKER(24) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABTG	4	MOOZZ		1R5C8	9968-0055-2-2	.WIRE, (90) TO SIDE MARKER CABLE ASSEMBLY MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABTJ	5	MOOZZ		1R5C8	9968-0055-2-3	.WIRE, BO STOP(23) MAKE FROM WIRE P/N WL14-0 (58961), 'AS REQUIRED	AR
ABTL	6	MOOZZ		1R5C8	9968-0055-2-4	.WIRE, (460) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABTN	7	MOOZZ		1R5C8	9968-0055-2-5	.WIRE, (22) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABTQ	8	MOOZZ		1R5C8	9968-0055-2-6	.WIRE, (461) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABTS	9	MOOZZ		1R5C8	9968-0055-2-7	.WIRE, (21-489) TO SIDE MARKER CABLE ASSEMBLY MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABTU	10	MOOZZ		1R5C8	9968-0055-2-8	.WIRE, (324) 24 V POWER MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABTW	11	MOOZZ		1R5C8	9968-0055-2-9	WIRE MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABTY	12	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	AR
ABT1	13	PAOZZ	5935-00-167-7775	96906	MS27144-1	.CONNECTOR, PLUG, ELECTRICAL	2
ABT3	14	AOOOO		1R5C8	108-6110-4	CABLE ASSEMBLY, WATER DETECTION	1
ABT5	15	MOOZZ		1R5C8	9968-0055-4-1	.WIRE MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABT7	16	MOOZZ		1R5C8	9968-0055-4-2	.WIRE MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABT9	17	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	AR
ABUA1	18	PAOZZ	5940-01-508-5925	13445	M-427	TERMINAL BLOCK, 6-PIN	1
ABUC	19	PAOZZ	5945-01-441-9279	1E255	339P0161-083009 SH D IT31	RELAY, ELECTROMAGNETIC	1
ABUE	20	AOOOO		1R5C8	108-6110-5	COMPOSITE STOP LAMP CABLE	1
ABUJ	21	MOOZZ		1R5C8	108-6110-5-1	.WIRE (90) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABUM	22	MOOZZ		1R5C8	108-6110-5-2	.WIRE (460) RIGHT TURN MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR

GROUP 0613 CHASSIS WIRING HARNESSES — Continued **0187 00**

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
ABUS	23	MOOZZ		1R5C8	108-6110-5-3	.WIRE (22-460) LEFT TURN MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABUY	24	MOOZZ		1R5C8	108-6110-5-4	.WIRE (22-461) LEFT TURN MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABU3	25	PAOZZ	5935-00-167-7775	96906	MS27144-1	.CONNECTOR, PLUG, ELECTRICAL	6
ABU5	26	PAOZZ	5935-00-115-2306	96906	MS27142-3	.CONNECTOR, PLUG, ELECTRICAL	2
ABU7	27	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	AR
			TM-CODE 2VE			END OF FIGURE	

GROUP 0613 BRAKE LIGHT AND MARKER LIGHT HARNESSES 0188 00

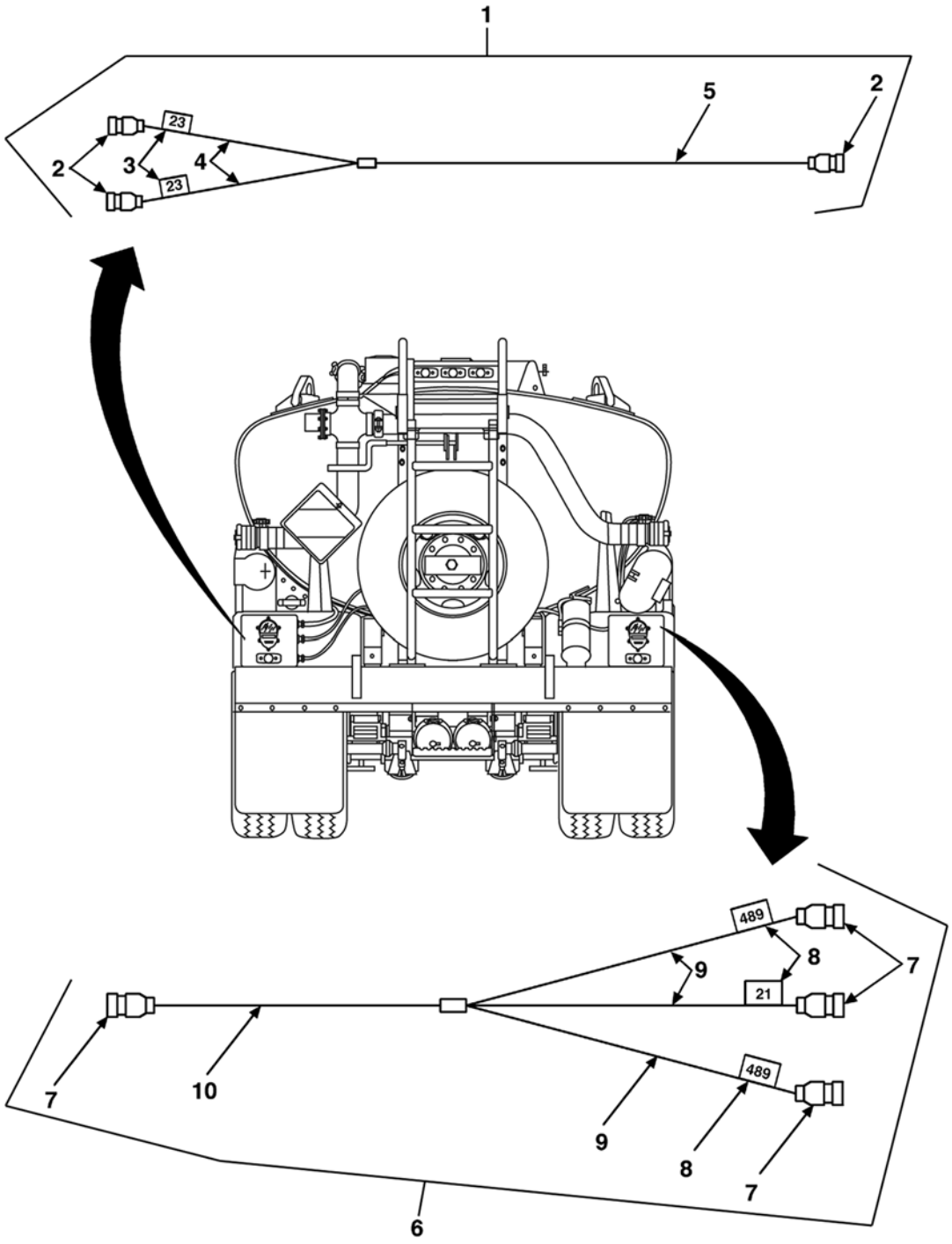


FIGURE 11. BRAKE LIGHT AND MARKER LIGHT HARNESSES

GROUP 0613 BRAKE LIGHT AND MARKER LIGHT HARNESSES — Continued 0188 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 0613 HULL OR CHASSIS WIRING HARNESS	
						FIG. 11 BRAKE LIGHT AND MARKER WIRING HARNESSES	
ABJA	1	PAOOO	6150-01-506-1279	1R5C8	9380-0318	HARNESS, LIGHT	2
ABJE	2	PAOZZ	5935-00-167-7775	96906	MS27144-1	.CONNECTOR, PLUG, ELECTRICAL	3
ABJJ	3	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	2
ABJM	4	MOOZZ		1R5C8	9380-0318-2	.WIRE, MAKE FROM WIRE P/N M13486/1-5 (81349), 18 INCHES	2
ABJS	5	MOOZZ		1R5C8	9380-0318-1	.WIRE, MAKE FROM WIRE P/N M13486/1-5 (81349), 144 INCHES	1
ABJY	6	PAOOO	6150-01-506-1286	1R5C8	9380-0321	HARNESS, LIGHT.....	2
ABJ1	7	PAOZZ	5935-00-167-7775	96906	MS27144-1	.CONNECTOR, PLUG, ELECTRICAL	4
ABJ7	8	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	3
ABJ5	9	MOOZZ		1R5C8	9380-0321-2	.WIRE, MAKE FROM WIRE P/N M13486/1-5 (81349), 12 INCHES	3
ABJ3	10	MOOZZ		1R5C8	9380-0321-1	.WIRE, MAKE FROM WIRE P/N M13486/1-5 (81349), 6 INCHES	1
			TM-CODE 2VE			END OF FIGURE	

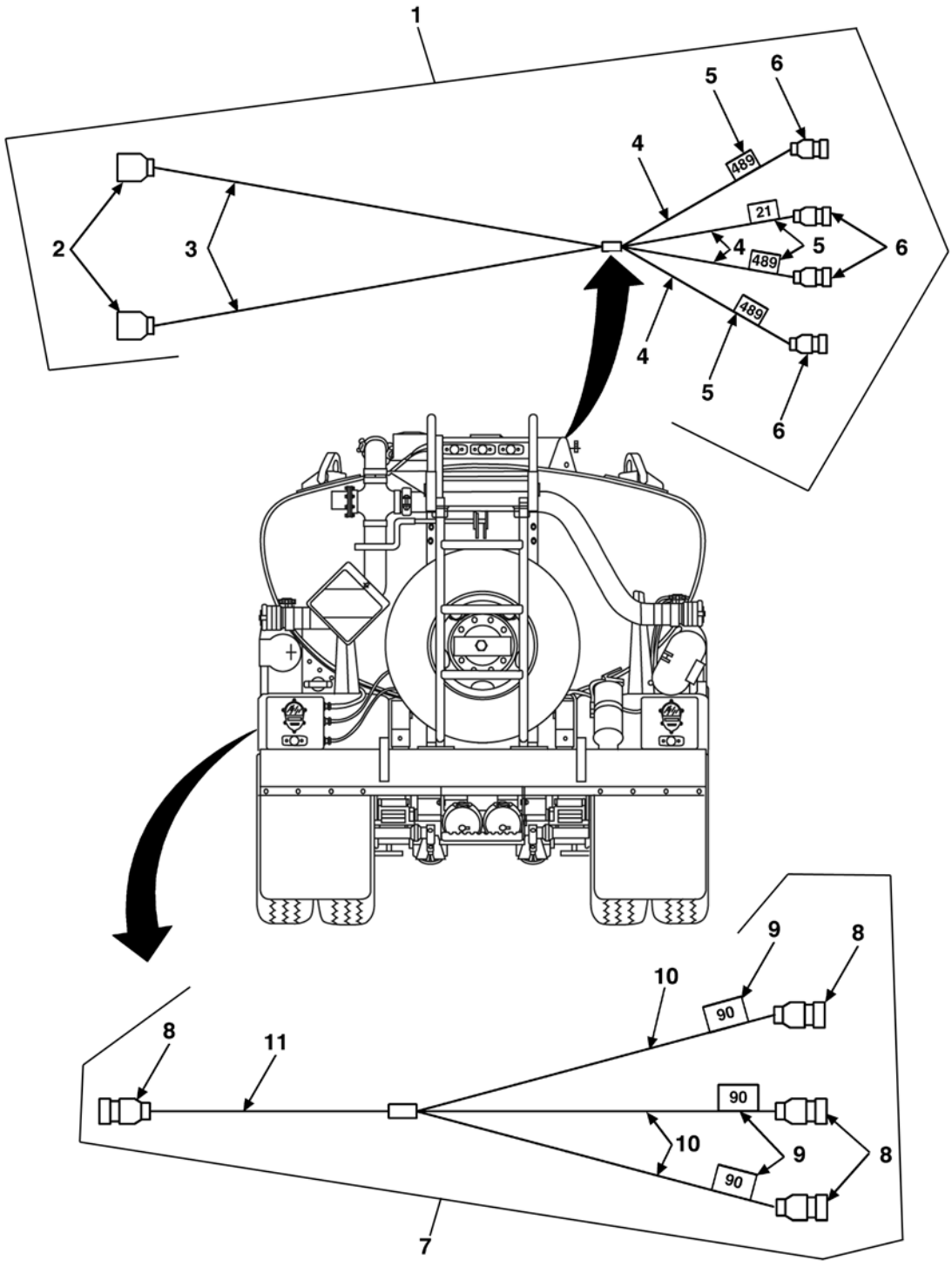


FIGURE 12. BRAKE LIGHT, MARKER LIGHT, AND 3-IN-LINE WIRING HARNESSES

GROUP 0613 BRAKE LIGHT, MARKER LIGHT AND 3-IN-LINE WIRING HARNESSES — Continued

0189 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 0613 HULL OR CHASSIS WIRING HARNESS	
						FIG. 12 BRAKE LIGHT, MARKER LIGHT, AND 3-IN-LINE WIRING HARNESSES	
ABHA	1	PAOOO	6150-01-506-1260	1R5C8	9380-0319	HARNESS, LIGHT	1
ABHE	2	PAOZZ	5935-00-115-2306	96906	MS27142-3	.CONNECTOR, PLUG	2
ABHJ	3	MOOZZ		1R5C8	9380-0319-1	.WIRE MAKE FROM FROM WIRE P/N M13486/1-5 (81349), 144 INCHES	2
ABHM	4	MOOZZ		1R5C8	9380-0319-2	.WIRE MAKE FROM WIRE P/N M13486/1-5 (81349), 18 INCHES	4
ABHS	5	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	4
ABHY	6	PAOZZ	5935-00-167-7775	96906	MS27144-1	.CONNECTOR, PLUG	4
ABH1	7	PAOOO	6150-01-506-1271	1R5C8	9380-0320	HARNESS, LIGHT	2
ABH3	8	PAOZZ	5935-00-167-7775	96906	MS27144-1	.CONNECTOR, PLUG	4
ABH9	9	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	3
ABH7	10	MOOZZ		1R5C8	9380-0320-2	.WIRE MAKE FROM WIRE P/N M13486/1-5 (81349), 18 INCHES	3
ABH5	11	MOOZZ		1R5C8	9380-0320-1	.WIRE MAKE FROM WIRE P/N M13486/1-5 (81349), 6 INCHES	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 0613 INTERVEHICULAR AND SIDE MARKER LIGHT WIRING HARNESSES 0190 00

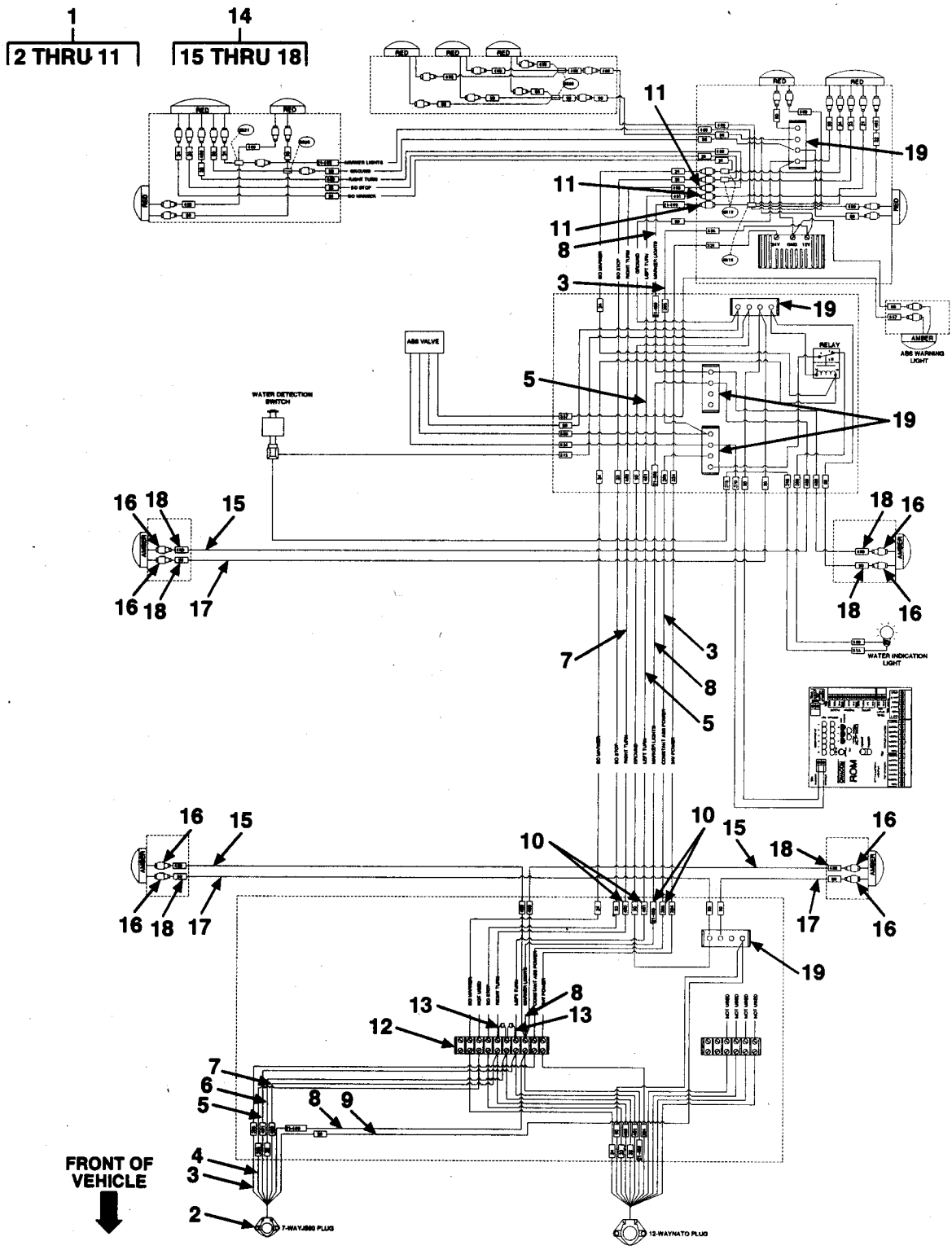


FIGURE 13. INTERVEHICULAR AND SIDE MARKER LIGHT WIRING HARNESSES

GROUP 0613 CHASSIS WIRING HARNESSES — Continued 0190 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 0613 HULL OR CHASSIS WIRING WIRING HARNESS	
						FIG. 13 INTERVEHICULAR AND SIDE MARKER LIGHT WIRING HARNESSES	
ABRA1	1	AOOOO		1R5C8	108-6110-1	WIRING HARNESS, INTERVEHICULAR	1
ABRC	2	PFOZZ	5935-00-987-4536	13445	1251	.CONNECTOR, RECEPTACLE, ELECTRIC, 7-WAY	1
ABRE	3	MOOZZ		1R5C8	9968-0055-1-1	.WIRE, CONSTANT ABS POWER (395) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABRG	4	MOOZZ		1R5C8	9968-0055-1-2	.WIRE, GROUND (305) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABRJ	5	MOOZZ		1R5C8	9968-0055-1-3	.WIRE, LEFT TURN (461) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABRL	6	MOOZZ		1R5C8	9968-0055-1-4	.WIRE, (22) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABRN	7	MOOZZ		1R5C8	9968-0055-1-5	.WIRE, RIGHT TURN (460) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABRR	8	MOOZZ		1R5C8	9968-0055-1-6	.WIRE, MARKER LIGHTS (21-489) MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABRT	9	MOOZZ		1R5C8	9968-0055-1-7	.WIRE, (90) TO SIDE MARKER CABLE ASSEMBLY MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	AR
ABRV	10	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	AR
ABRX	11	PAOZZ	5935-00-167-7775	96906	MS27144-1	.CONNECTOR, PLUG, ELECTRICAL	3
ABRY	12	PAOZZ	5940-00-983-6105	58536	39TB10	TERMINAL BOARD	1
ABRZ	13	PAOZZ	5961-01-350-7227	04713	MR754	SEMICONDUCTOR DEVICE, DIODE	2
ABR1	14	AOOOO		1R5C8	108-6110-3	CABLE ASSEMBLY, FRONT AND SIDE MARKER LIGHTS	2
ABR3	15	MOOZZ		1R5C8	9968-0055-3-1	.WIRE (489) MAKE FROM WIRE P/N GXL14-0 (58961), AS REQUIRED	AR
ABR5	16	PAOZZ	5935-00-167-7775	96906	MS27144-1	.CONNECTOR, PLUG, ELECTRICAL	4
ABR6	17	MOOZZ		1R5C8	9968-0055-3-2	.WIRE (90) MAKE FROM WIRE P/N GXL14-0 (58961), AS REQUIRED	AR
ABR7	18	PAOZZ	9905-00-752-4649	19207	7524649	.BAND, MARKER	AR
ABR9	19	PAOZZ	5940-01-508-5919	13445	46206-14	CONNECTOR, BUS BAR	5
			TM-CODE 2VE			END OF FIGURE	

GROUP 0613 WIRING HARNESS CONDUIT COMPONENTS 0191 00

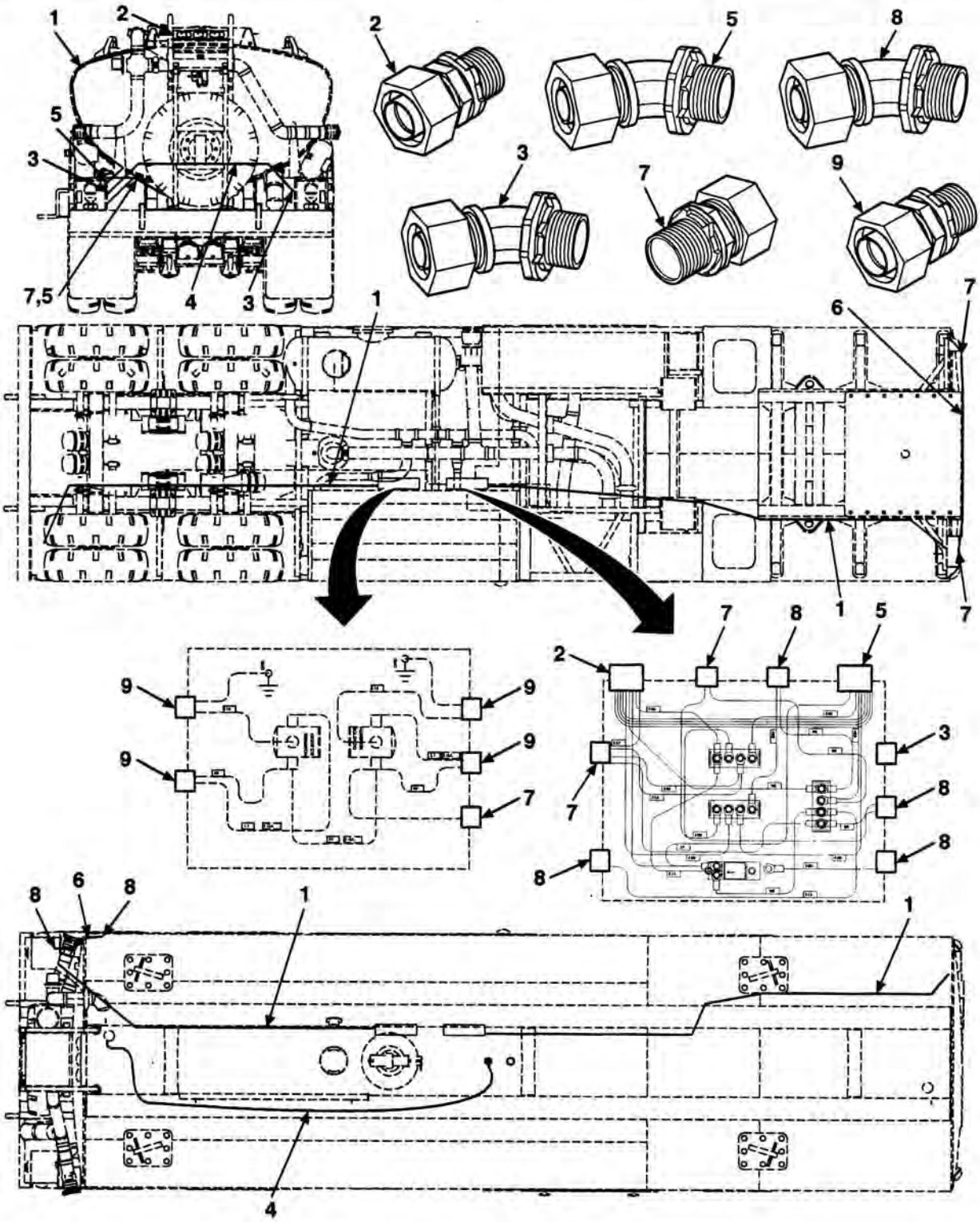


FIGURE 14. WIRING HARNESS CONDUIT COMPONENTS

GROUP 0613 WIRING HARNESS CONDUIT COMPONENTS — Continued 0191 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 0613 HULL OR CHASSIS WIRING	
						FIG. 14 WIRING HARNESS CONDUIT COMPONENTS	
ABMA1	1	MOOZZ		1R5C8	9131-0005	CONDUIT MAKE FROM CONDUIT P/N LT-11 (09641), AS REQUIRED	1
ABME1	2	PAOZZ	5975-01-432-4122	28488	3442	ELBOW, ELEC CONDUIT 45 DEGREE.....	3
ABMJ1	3	PAOZZ	5975-00-578-9364	28488	3404	BOX CONNECTOR, ELECTRICAL	2
ABMM1	4	MOOZZ		1R5C8	9131-0006	CONDUIT MAKE FROM CONDUIT P/N LA11 (09641), AS REQUIRED	2
ABMS1	5	PAOZZ	5975-00-995-8168	03743	ST45100	BOX CONNECTOR, ELECTRICAL	8
ABM51	6	MOOZZ		1R5C8	9131-0004	CONDUIT MAKE FROM CONDUIT P/N EF3-8 (70510), AS REQUIRED.....	2
ABM11	7	PAOZZ	5975-00-655-3136	28488	3401	BOX CONNECTOR, ELECTRICAL	5
ABM31	8	PAOZZ	5975-01-506-2618	28488	3441	BOX CONNECTOR, ELECTRICAL	6
ABMY1	9	PAOZZ	5975-00-833-1776	28488	3402	BOX CONNECTOR, ELECTRICAL	4
			TM-CODE 2VE			END OF FIGURE	

GROUP 1101 REAR AXLE ASSEMBLY **0192 00**

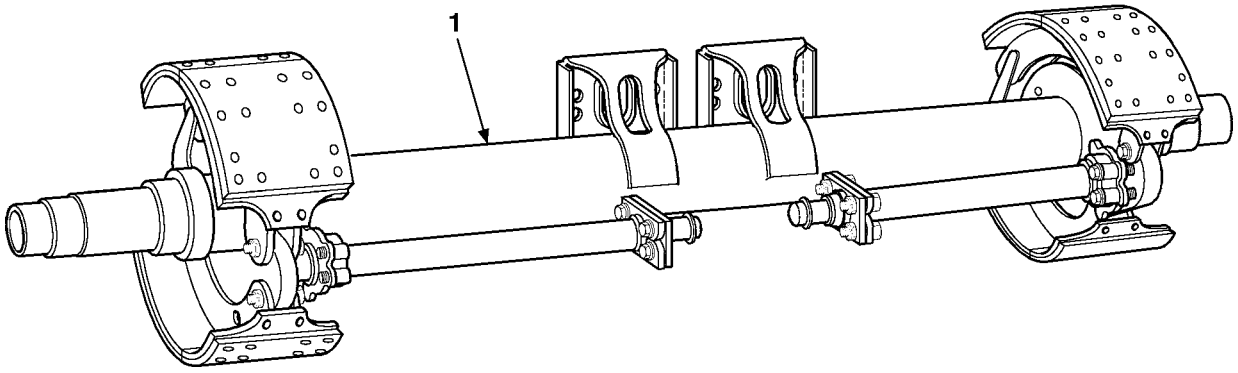


FIGURE 15. REAR AXLE ASSEMBLY

GROUP 1101 REAR AXLE ASSEMBLY — Continued 0192 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 11 REAR AXLE	
						GROUP 1101 REAR AXLE ASSEMBLY	
						FIG. 15 REAR AXLE ASSEMBLY	
ACAA1	1	PFFFF	2530-01-503-0331	3D6E9	TQ4671Q5023	AXLE ASSEMBLY	2
			TM-CODE 2VE			END OF FIGURE	

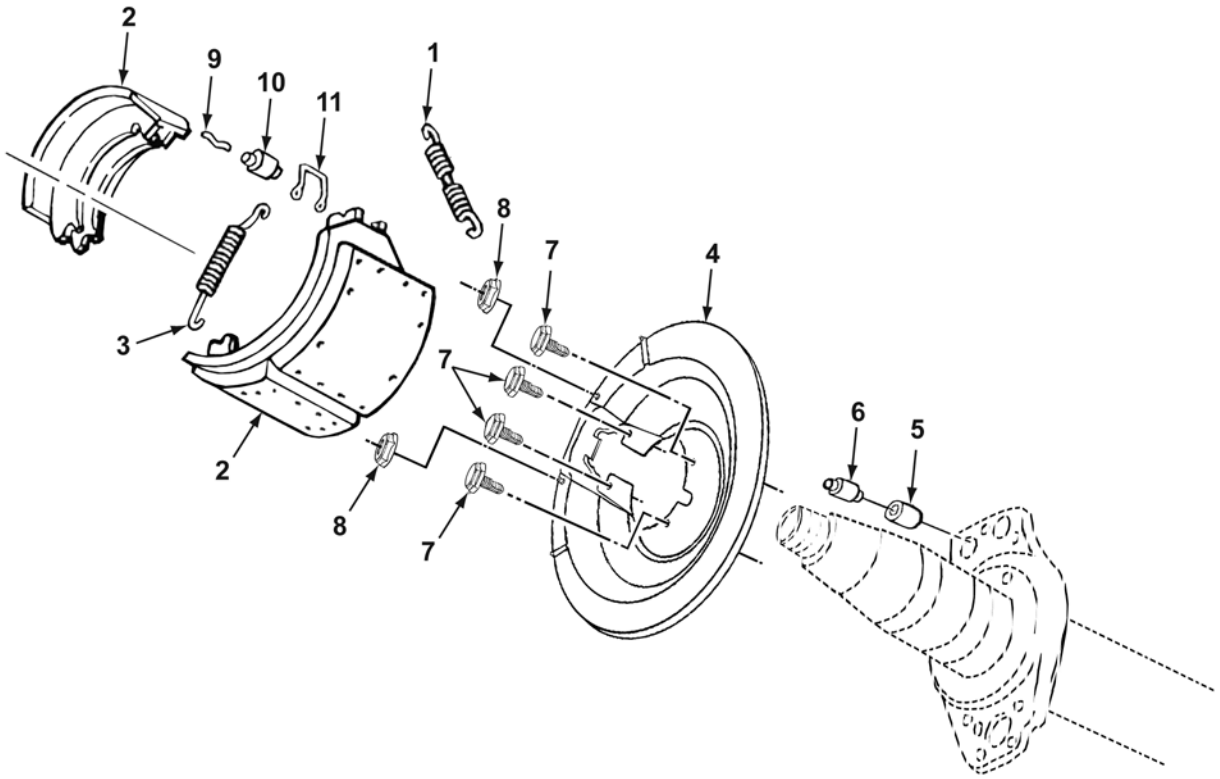


FIGURE 16. SHOE AND LINING ASSEMBLY

GROUP 1202 SHOE AND LINING ASSEMBLY — Continued 0193 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 12 BRAKES	
						GROUP 1202 SERVICE BRAKES	
						FIG. 16 SHOE AND LINING ASSEMBLY	
ADBN	1	PFOZZ	5360-01-499-3396	3D6E9	2258-W-803	SPRING,RETURN PART OF KIT P/N KIT 8000HD	4
ADBP	2	PFOZZ	2530-01-526-8495	78500	SMA2124515Q	SHOE AND LINING ASSEMBLY, NON-ASBESTOS.....	4
ADBQ	3	PFOZZ	5360-01-158-1974	3D6E9	2258-Q-615	SPRING,HELICAL,EXTENSION RETAINER PART OF KIT P/N KIT 8000HD	8
ADBR	4	PFOZZ	5340-01-499-3618	3D6E9	3264-A-1457	SHIELD,DUST	4
ADBS	5	PFOZZ	3120-00-255-6042	3D6E9	1225B496	BUSHING,ANCHOR PIN PART OF KIT P/N KIT 8000HD	8
ADBT	6	PFOZZ	5315-01-129-6898	78500	1259-N-274	PIN,SHOULDER,HEADLESS PART OF KIT P/N KIT 8000HD	8
ADBU	7	PFOZZ		0FBD6	52106005	SCREW,CAP	16
ADBV	8	PFOZZ	5310-01-504-6132	0FBD6	55752004	WASHER,FLAT.....	16
ADBW	9	PFOZZ	5315-00-784-0637	78500	1218G85	PIN,RETURN SPRING PART OF KIT P/N KIT 8000HD	8
ADBX	10	PFOZZ	3120-00-322-6430	05643	T1779R18	ROLLER,LINEAR-ROTARY MOTION PART OF KIT P/N KIT 8000HD	8
ADBY	11	PFOZZ	5340-01-328-4418	3D6E9	3105-B-210	CLIP,TENSION PART OF KIT P/N KIT 8000HD	8
			TM-CODE 2VE			END OF FIGURE	

GROUP 1202 BRAKE CAMSHAFTS **0194 00**

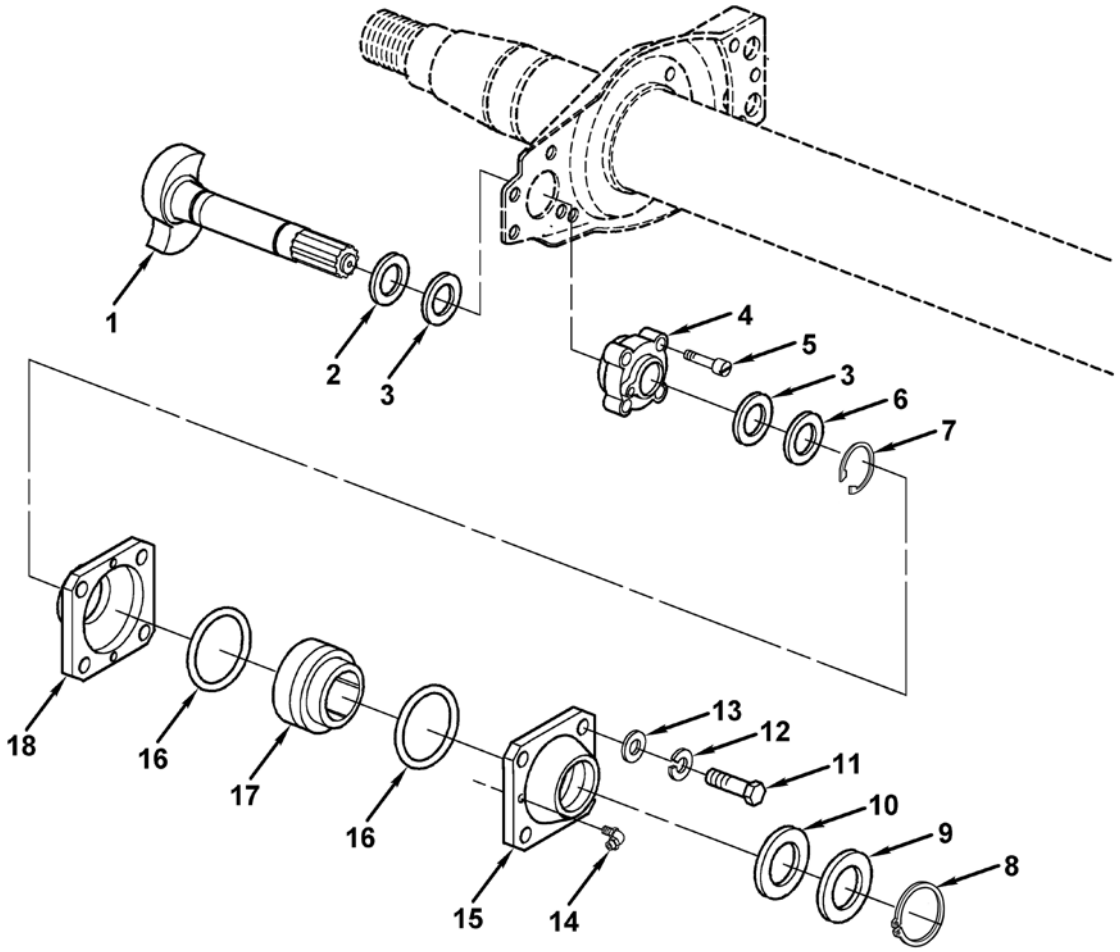


FIGURE 17. BRAKE CAMSHAFTS

GROUP 1202 BRAKE CAMSHAFTS — Continued 0194 00

PLISN	(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. 17 BRAKE CAMSHAFTS	
ADFA1	1	PAOZZ	2530-01-499-3135	78500	2210-D-6868	CAMSHAFT,ACTUATING, BRAKE RIGHT HAND	2
ADFJ	1	PAOZZ	2530-01-499-3159	3D6E9	2210-D-6869	CAMSHAFT,ACTUATING, BRAKE LEFT HAND	2
ADFM	2	PAOZZ	5310-01-499-3382	3D6E9	1229-R-4100	WASHER PART OF KIT P/N 8289	2
ADFS	3	PAOZZ	5330-01-328-6090	78500	1205-Q-2123	GASKET PART OF KIT P/N 8289	4
ADFY	4	PAOZZ	2530-01-359-8091	45152	2GL765	RETAINER,ARM BUSHING PART OF KIT P/N 8289	2
ADGA1	5	PAOZZ	5305-01-359-1367	3D6E9	10-X-1421	SCREW,TAPPING PART OF KIT P/N 8289	8
ADGJ	6	PAOZZ	5310-01-499-3372	3D6E9	1229-S-4101	WASHER,FLAT PART OF KIT P/N 8289	2
ADGM	7	PAOZZ	5325-01-499-3380	3D6E9	1229-T-4102	RING,RETAINING PART OF KIT P/N 8289	2
ADGS	8	PAOZZ	5325-00-204-5061	19207	7750101	RING,RETAINING	2
ADGY	9	PAOZZ	5310-01-133-5373	3D6E9	1229-B-1848	WASHER,FLAT	2
ADHA	10	PAOZZ	5365-00-753-4865	19207	7534865	SPACER,RING	2
ADHJ	11	PAOZZ	5305-00-207-7669	3D6E9	S266	SCREW,CAP,HEXAGON HEAD	8
ADHM1	12	PAOZZ	5310-00-261-7340	78500	WA16	WASHER,LOCK	8
ADHS	13	PAOZZ	5310-01-499-3459	3D6E9	WA-36	WASHER,FLAT	8
ADHY	14	PAOZZ	4730-01-499-3385	78500	2297-B-5046	FITTING, LUBRICATION PART OF KIT P/N A-3105-V-282	1
ADJA1	15	PAOZZ	3130-01-502-9395	3D6E9	3105-V-282	HOUSING,BEARING UNIT PART OF KIT P/N A-3105-V-282	1
ADJJ	16	PAOZZ	5331-00-205-3583	78500	1205X726	O-RING BUSHING PART OF P/N KIT A-3105-V-282	2
ADJM	17	PAOZZ	3120-01-499-3388	78500	1225-R-1058	BUSHING, SLEEVE PART OF KIT P/N A-3105-V-282	1
ADJS	18	PAOZZ	3130-01-502-9445	3D6E9	3105-U-281	RETAINER, BUSHING PART OF KIT P/N A-3105-V-282	1
			TM-CODE 2VE			END OF FIGURE	

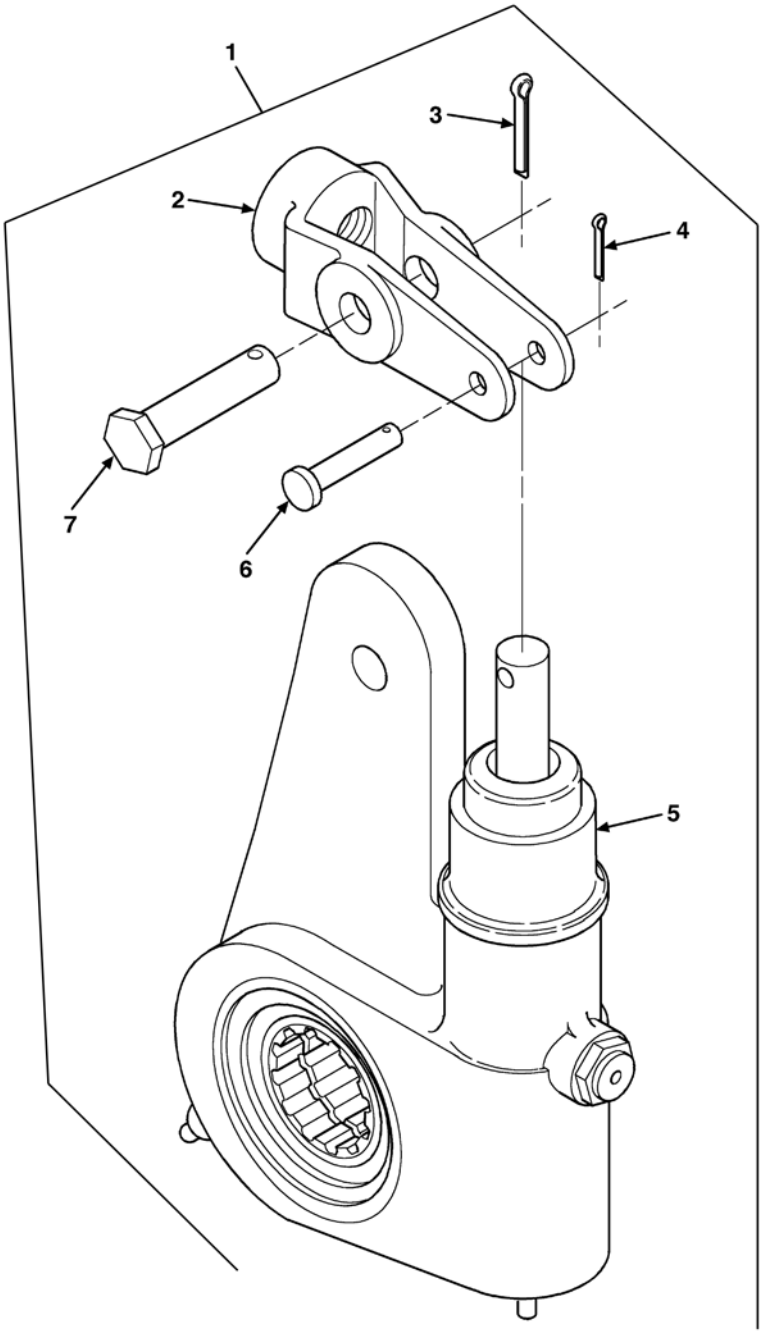


FIGURE 18. SLACK ADJUSTER

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 1206 MECHANICAL BRAKES	
						FIG. 18 SLACK ADJUSTER	
ADPB	1	PAOOO	2530-01-316-9165	78500	R801074	AUTOMATIC SLACK ADJUSTER.....	4
ADPD	2	PFOZZ	5340-01-314-2961	78500	R810019	.CLEVIS, STRAIGHT.....	1
ADPF	3	PAOZZ	5315-00-010-3389	78500	K2416	.PIN, COTTER.....	1
ADPR	4	PAOZZ	5315-01-092-1953	3D6E9	K235	.PIN.....	1
ADPJ	5	XAOZZ		78500	R803112	.SLACK ADJUSTER.....	1
ADPT	6	PAOZZ	5315-01-315-3614	3D6E9	19X127	.PIN, STRAIGHT HEADED.....	1
ADPL	7	PAOZZ	5315-01-357-0826	78500	19X1084	.PIN, STRAIGHT.....	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 1207 ANTI-LOCK BRAKING SYSTEM **0196 00**

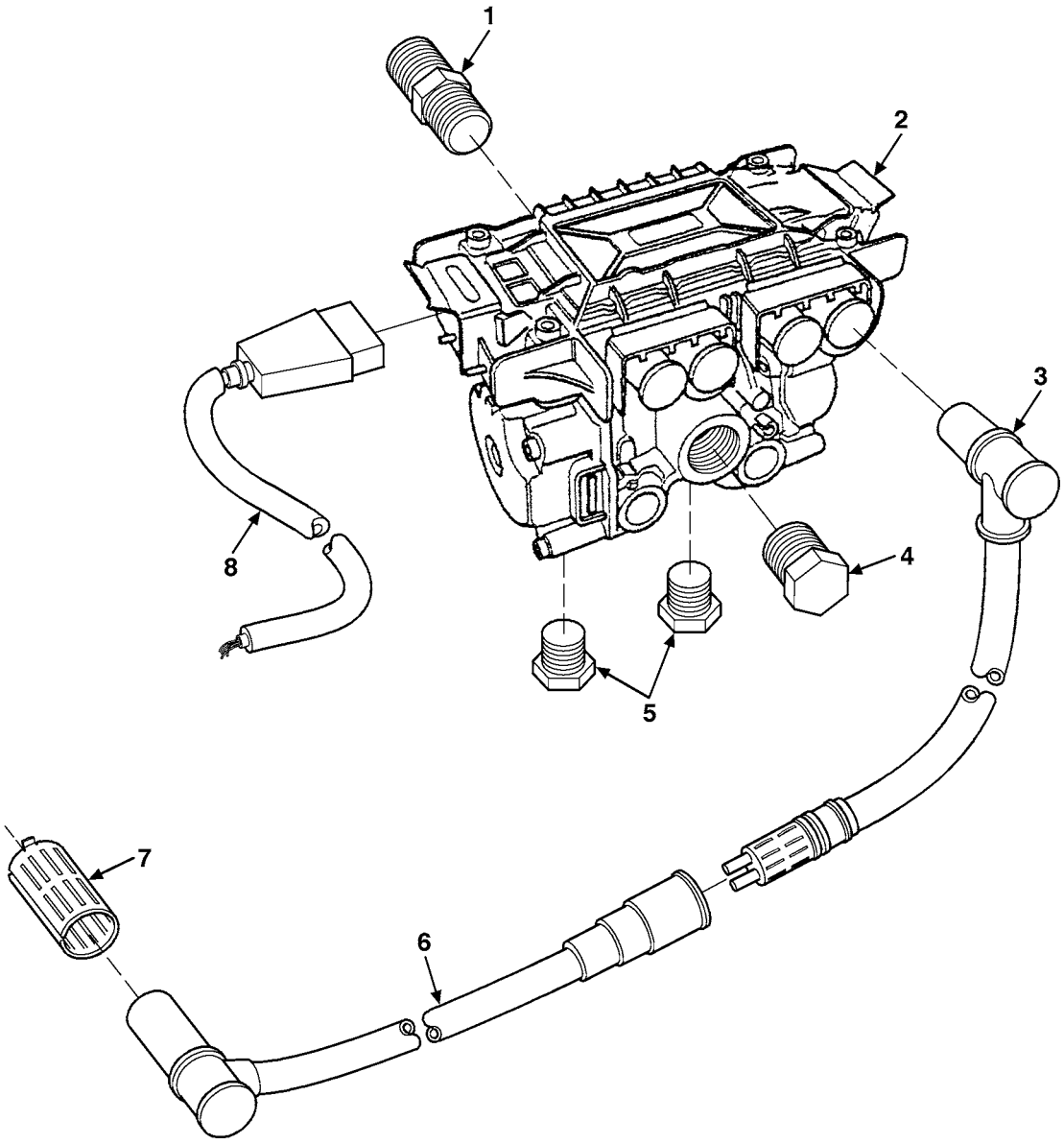


FIGURE 19. ANTI-LOCK BRAKING SYSTEM

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 1207 ELECTRICAL BRAKE SYSTEM	
						FIG. 19 ANTI-LOCK BRAKING SYSTEM	
ADNZ	1	PAOZZ	4730-01-502-9555	10125	6006	NIPPLE, PIPE.....	1
ADNY1	2	PAOZZ	4810-01-499-3407	78500	S4005001030	CONTROLLER, ECU/VALVE/ABS.....	1
ADMM	3	PAOZZ	6150-01-502-9447	3D6E9	441 032 809 0	CABLE ASSEMBLY, SPECIAL	4
ADNS	4	PAOZZ	5365-01-502-9551	93061	218P-12	PLUG, MACHINE THREAD 3/4	1
ADNM	5	PAOZZ	4730-00-427-5121	79470	3152X6	PLUG, PIPE 3/8.....	2
ADMJ	6	PAOZZ	2530-01-499-3170	78500	S4497130300	CABLE, SENSOR EXTENSION.....	4
ADMS	7	PAOZZ	5340-01-499-3481	78500	S8997598154	CLIP, SENSOR SPRING.....	4
ADNJ	8	PAOZZ	6150-01-502-9449	78500	449 328 110 0	CABLE ASSEMBLY, SPECIAL	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 1208 AIR BRAKE CHAMBERS **0197 00**

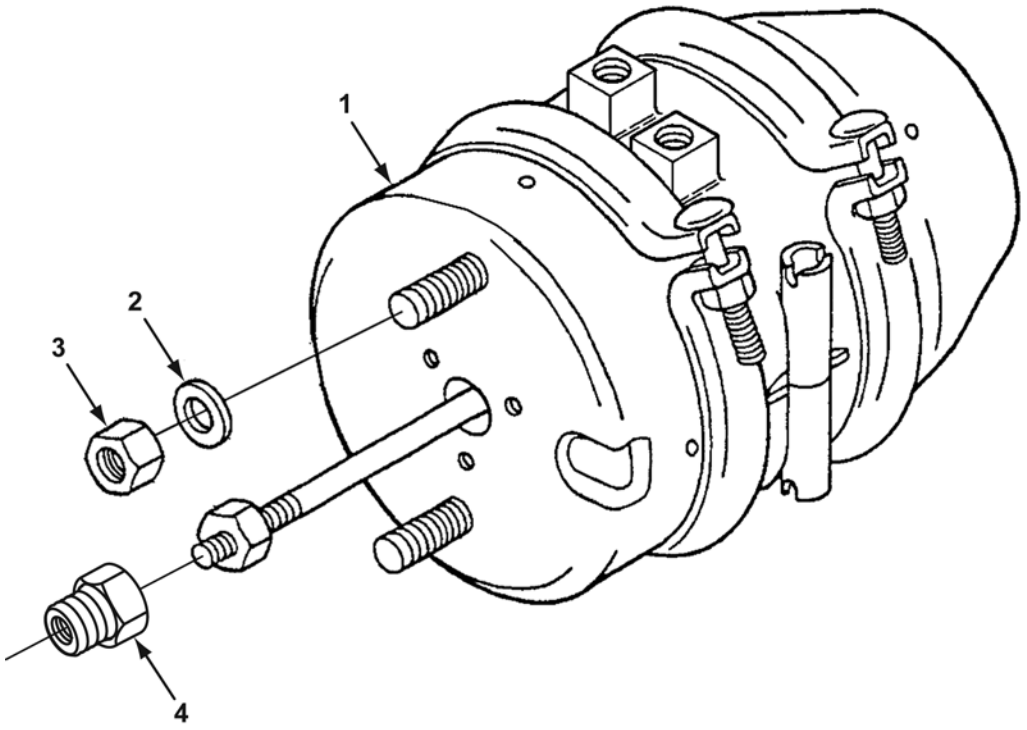


FIGURE 20. AIR BRAKE CHAMBERS

GROUP 1208 AIR BRAKE CHAMBERS — Continued 0197 00

PLISN	(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. 20 AIR BRAKE CHAMBERS	
AYAA	1	PAOZZ	2530-01-506-3298	64565	3030TA3-1260	CHAMBER, BRAKE.....	4
AYAE	2	PAOZZ		1R5C8	9965-0046	WASHER, FLAT	8
AYAJ	3	PAOZZ	5310-01-508-5908	39428	90101A038	NUT, SELF-LOCKING	8
AYAM	4	PAOZZ	4730-01-400-3146	06853	291452	ADAPTER, SLACK ADJUSTER	4
			TM-CODE 2VE			END OF FIGURE	

GROUP 1208 AIR BRAKE CONTROL VALVE **0198 00**

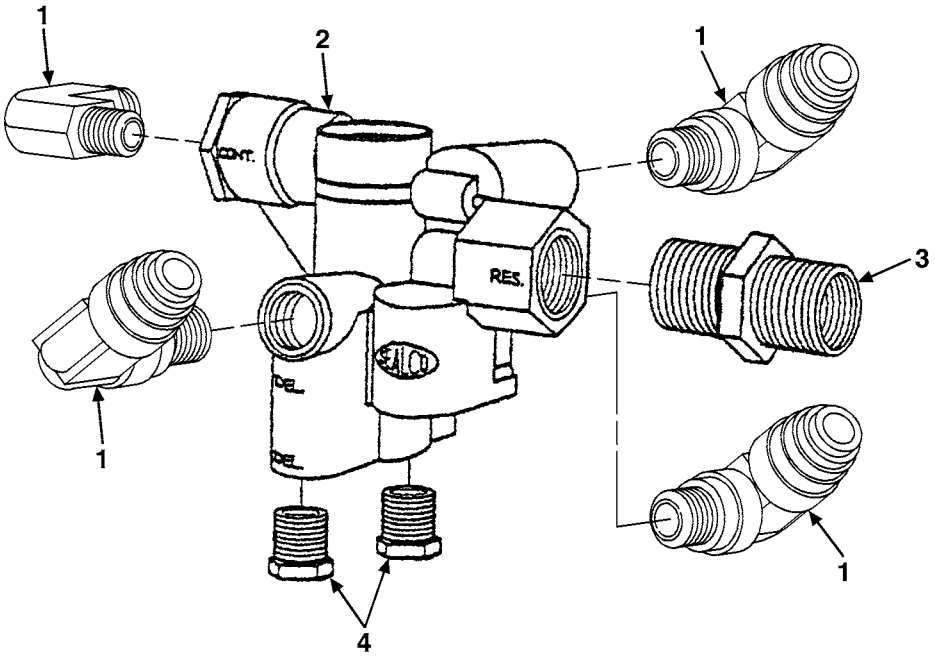


FIGURE 21. AIR BRAKE CONTROL VALVE

GROUP 1208 AIR BRAKE CONTROL VALVE — Continued 0198 00

PLISN	(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. 21 AIR BRAKE CONTROL VALVE	
ADPA	1	PAOZZ		96358	AQ69-DOT-6X6	FITTING, TUBE 90 DEGREE.....	4
ADPC	2	PFOZZ	4820-01-517-3465	63576	110700	VALVE, FLOW CONTROL.....	8
ADPE	3	PAOZZ	4730-01-506-2006	93061	VS209P-8-6	NIPPLE, MOUNTING	1
ADPG	4	PAOZZ	4730-00-427-5121	79470	3152X6	PLUG, PIPE.....	2
						END OF FIGURE	

GROUP 1208 AIR COUPLINGS **0199 00**

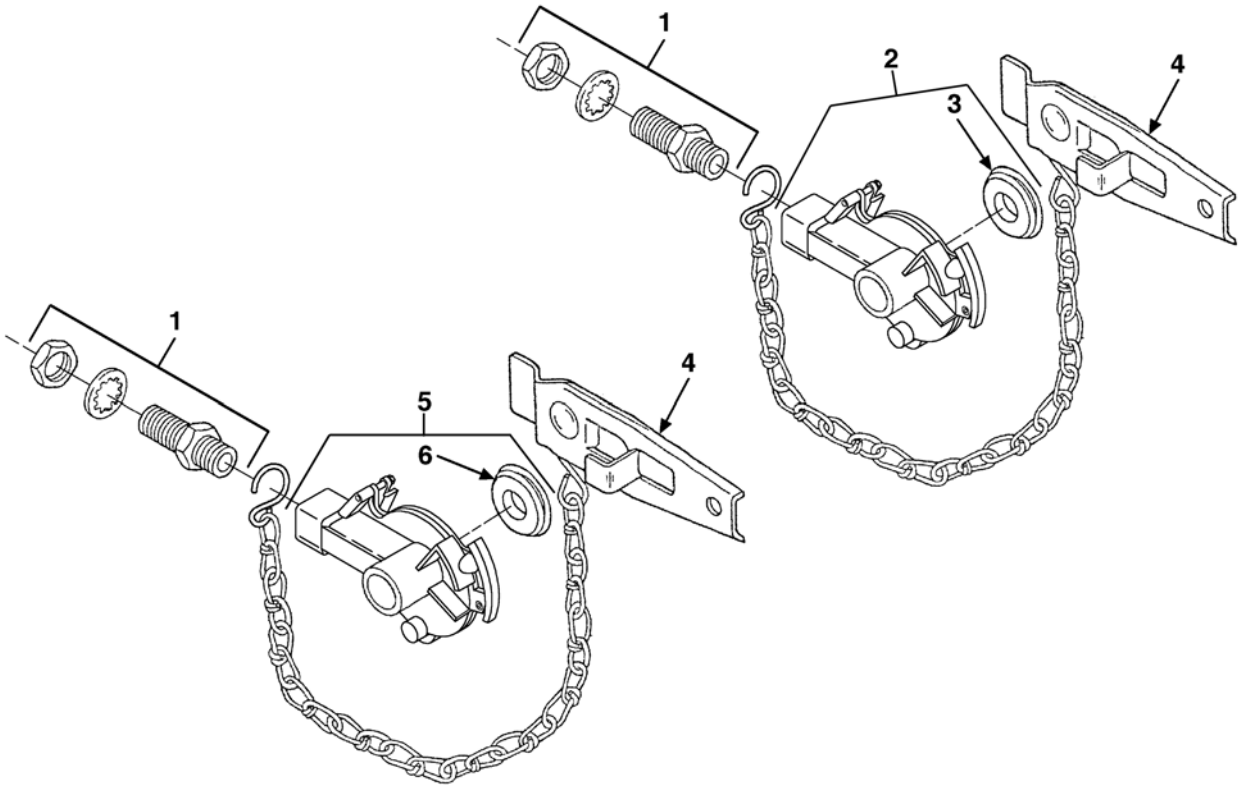


FIGURE 22. AIR COUPLINGS

GROUP 1208 AIR COUPLINGS — Continued **0199 00**

PLISN	(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. 22 AIR COUPLINGS	
ADPH	1	PAOZZ	4730-00-244-9848	28548	5228623	NIPPLE, TANK	2
ADPK	2	PAOOO	3040-01-382-8736	06721	N-20415-NB	GLADHAND, EMERGENCY	1
ADPM	3	PAOZZ	5330-00-172-1919	98343	10028	.PACKING, PREFORMED.....	1
ADPQ	4	PAOZZ	2530-00-270-3878	06721	N13048	DUMMY COUPLING, AUTOMOTIVE AIR BRAKE HOSE	2
ADPS	5	PAOOO	4730-01-384-1441	06721	N20415PB	GLADHAND, SERVICE ASSEMBLY	1
ADPU	6	PAOZZ	5330-00-172-1919	98343	10028	.PACKING, PREFORMED.....	1
			TM-CODE 2VD			END OF FIGURE	

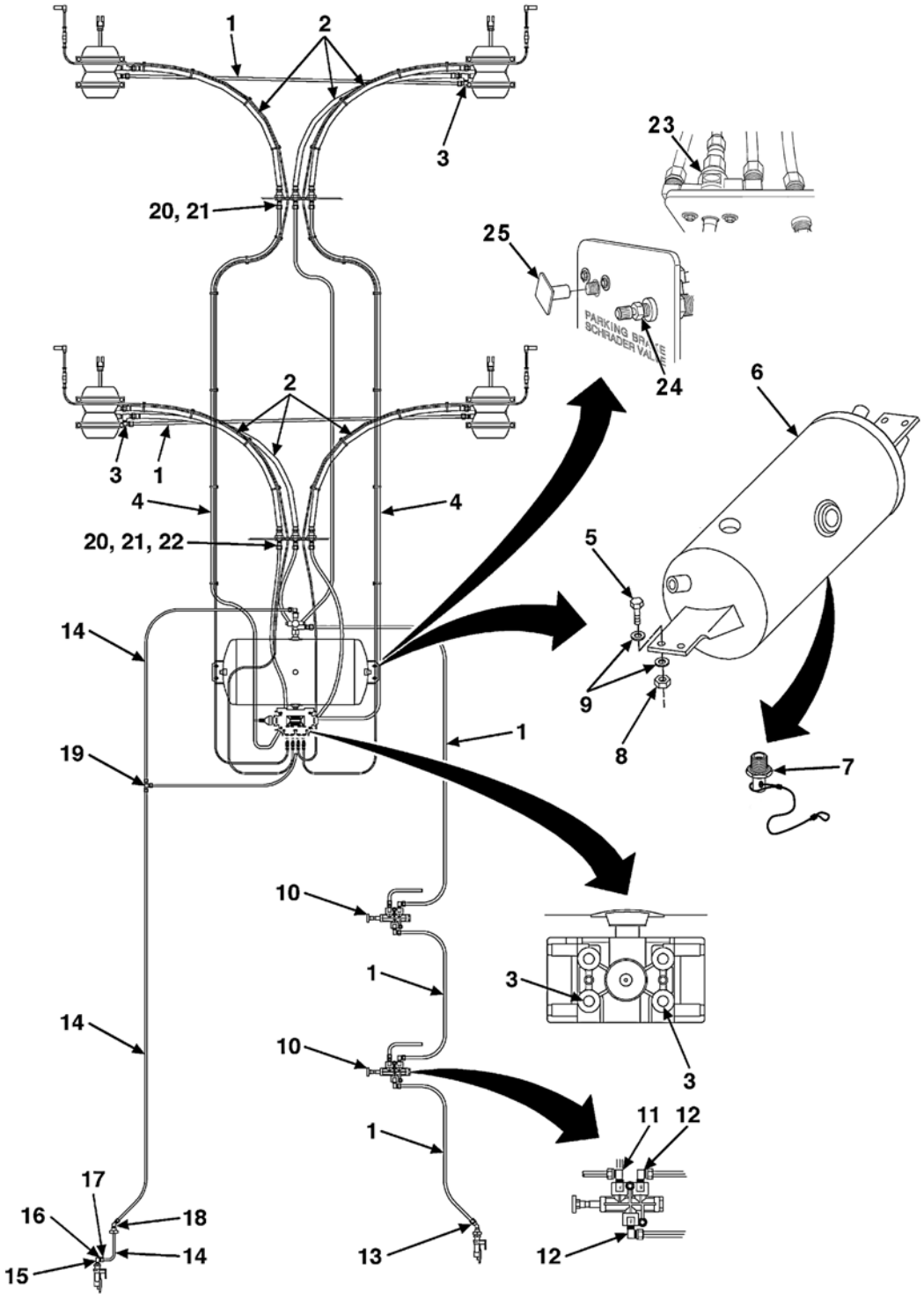


FIGURE 23. BRAKE LINES/AIR RESERVOIRS

PLISN	(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. 23 BRAKE LINES/AIR RESERVOIRS	
ADQ1	1	MOOZZ		1R5C8	9881-0027	TUBING, AIR BRAKE 1/2 INCH, RED MAKE FROM TUBING P/N PFT-8B-RED-500 (98441) AS REQUIRED	AR
ADRA	2	PFOZZ	4720-01-506-2578	06721	16626	HOSE ASSEMBLY	6
ADQ3	3	PFOZZ	4730-01-506-2048	93061	VS169PMT-8-6	FITTING, TUBE 90 DEGREE	4
ADQZ	4	MOOZZ		1R5C8	9881-0022	TUBING, AIR BRAKE 1/2 INCH BLUE MAKE FROM TUBING P/N PFT-8B-BLU (98441) AS REQUIRED	AR
ADRY1	5	PAOZZ	5305-00-576-5417	80205	MS35207-360	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1	4
ADRJ	6	PFOZZ	4310-01-506-2601	1R5C8	9674-0013	TANK,PRESSURE	1
ADRE	7	PFOZZ	4820-01-506-2586	06721	N3613AF	DRAIN VALVE	1
ADRM1	8	PFOZZ	5310-01-506-1215	1R5C8	9562-0165	NUT, SELF-LOCKING HEXAGON	4
ADRS1	9	PFOZZ		1FH10	WFSS375	WASHER, FLAT 3/8	8
ADRZ	10	PFOZZ	4820-01-106-2210	1UYK1	100-0001	VALVE, 3 WAY AIR INTERLOCK	2
ADR3	11	PFOZZ	4730-01-506-2680	93061	179PMTNS-8-4	FITTING, TUBE 45 DEGREE	2
ADR1	12	PFOZZ	4730-01-506-2676	93061	169PMTNS-8-4	FITTING, TUBE 90 DEGREE	4
ADR5	13	PFOZZ	4730-01-506-2684	96358	AQ54-DOT-8X6	FITTING, TUBE 45 DEGREE	2
ADQM	14	MOOZZ		1R5C8	9881-0020	TUBING, AIR BRAKE 3/8 MAKE FROM TUBING P/N PFT-6B-BLU (98441) AS REQUIRED	AR
ADQA	15	PFOZZ	4730-01-470-0091	93061	169PMT-6-6	FITTING, TUBE 45 DEGREE	1
ADQE	16	PFOZZ	4730-01-506-2006	93061	VS209P-8-6	BUSHING, REDUCER	1
ADQJ	17	PAOZZ	4730-01-441-3483	93061	VS215PN-6	NIPPLE, CLOSE 3/8 NPT	1
ADQS	18	PFOZZ	4730-01-514-5670	1TNF3	AQ54-DOT-6X4	FITTING, TUBE 45 DEGREE	1
ADQY	19	PFOZZ	4730-01-456-5915	93061	164PMT-6	FITTING, TUBE,	1
ADQ5	20	PFOZZ	4730-01-506-2074	93061	VS68PMT-8-6	FITTING, TUBE	8
ADQ7	21	PFOZZ	4730-01-506-2095	0DGK3	HB-607	ADAPTER, COUPLING	6
ADQ9	22	PAOZZ	5325-00-641-2800	70485	2564	GROMMET,NONMETALLIC	3
ADRC	23	PFOZZ		1R5C8	9941-0778	VALVE, DOLLY & TRLR PARK BRAKE RELEASE, W/O HANDLE	1
ADRG	24	PAOZZ	4820-01-443-1916	94894	684-4	VALVE, PNEUMATIC TANK	1
ADRK	25	PFOZZ		1R5C8	9378-0039	HANDLE, PLASTIC	1
			TM-CODE 2VE			END OF FIGURE	

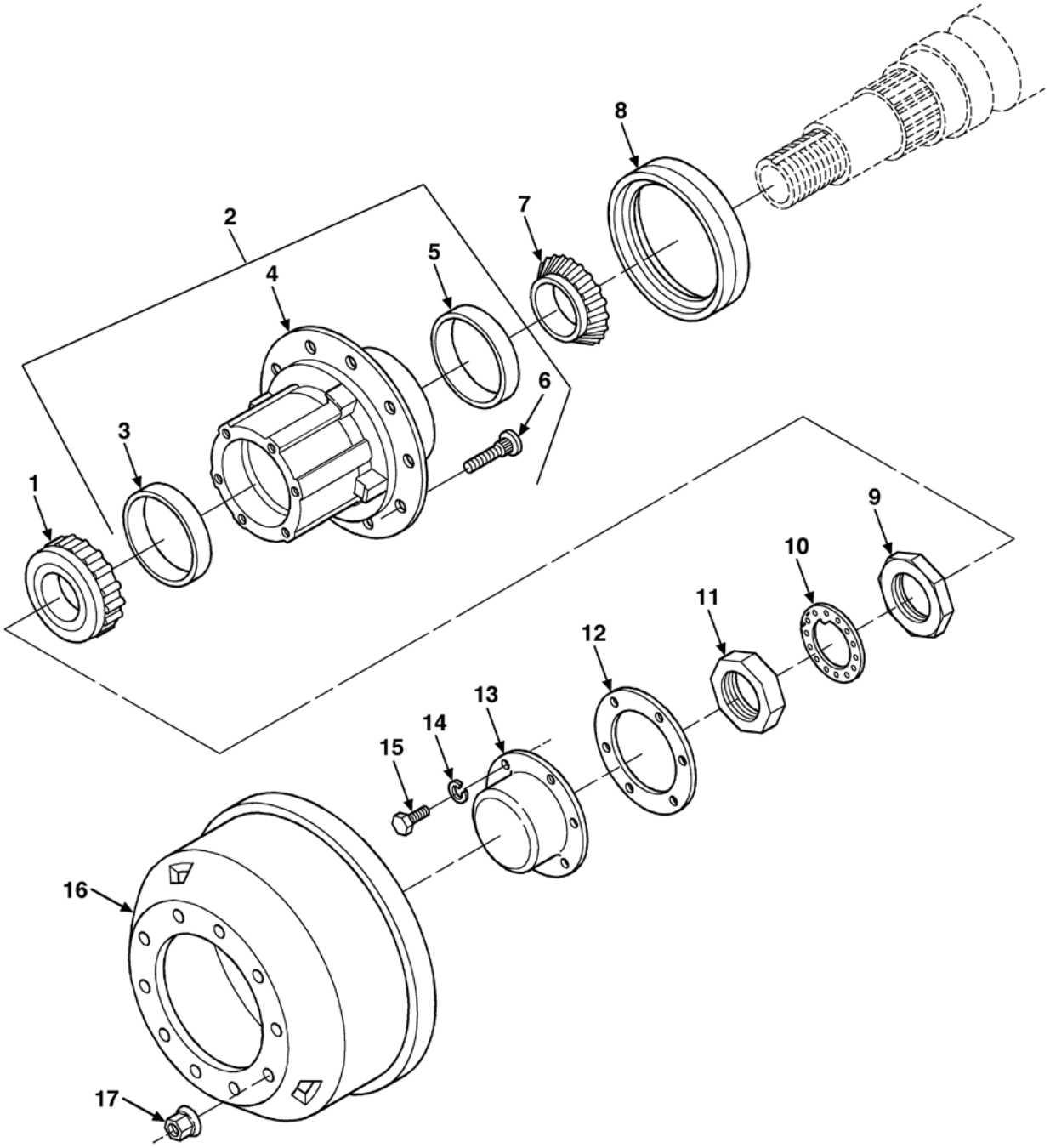


FIGURE 24. HUB AND DRUM

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 13 WHEELS, HUBS AND DRUMS	
						GROUP 1311 WHEEL ASSEMBLY	
						FIG. 24 HUB AND DRUM	
AFDA	1	PAOZZ	3110-00-293-8998	60038	HM212049	CONE AND ROLLERS, TAPERED ROLLER BEARING	4
AFDB	2	PFOOO	2530-01-506-2721	1S0R6	4819001	HUB AND BOLT ASSEMBLY	4
AFDJ	3	PAOZZ	3110-00-293-8997	60038	HM212011	.CUP, TAPERED ROLLER	1
AFDD	4	XAOZZ		1S0R6	2229101	.HUB-FINISHED	1
AFDS	5	PAOZZ	3110-00-618-0249	60038	HM218210	.CUP, TAPERED ROLLER	1
AFD1	6	PAOZZ	5306-01-508-5764	1S0R6	3018503	.BOLT, WHEEL	10
AFEA	7	PAOZZ	3110-00-618-0248	60038	HM218248	CONE AND ROLLERS, TAPERED ROLLER BEARING	4
AFEJ	8	PAOZZ	5330-01-047-9367	78500	A-1205-X-1662	SEAL, PLAIN	4
AFEM	9	PAOZZ	2530-00-886-1103	78500	R000540	NUT, INNER WHEEL BEARING	4
AFEY	10	PAOZZ	5310-01-116-4765	78500	R000573	WASHER, LOCK	4
AFES	11	PAOZZ	5310-01-117-2404	78500	R000572	NUT, PLAIN, HEXAGON	4
AFFA	12	PAOZZ	5330-01-071-8179	26151	330-3009	GASKET	4
AFFJ	13	PAOZZ	2530-01-507-8611	1R5C8	9395-0043	HUBCAP	4
AFFM1	14	PAOZZ	5310-01-502-8467	1RC58	9965-0039	WASHER, FLAT	24
AFFS	15	PAOZZ	5306-00-637-9675	10001	2Z24PC421	BOLT, MACHINE	24
AFET	16	PAOZZ	2530-01-506-2738	1S0R6	2308709	BRAKE DRUM	4
AFEU	17	PAOZZ	5310-01-349-0759	41885	88881	NUT, PLAIN	40
			TM-CODE 2VE			END OF FIGURE	

GROUP 1311 WHEEL ASSEMBLY **0202 00**

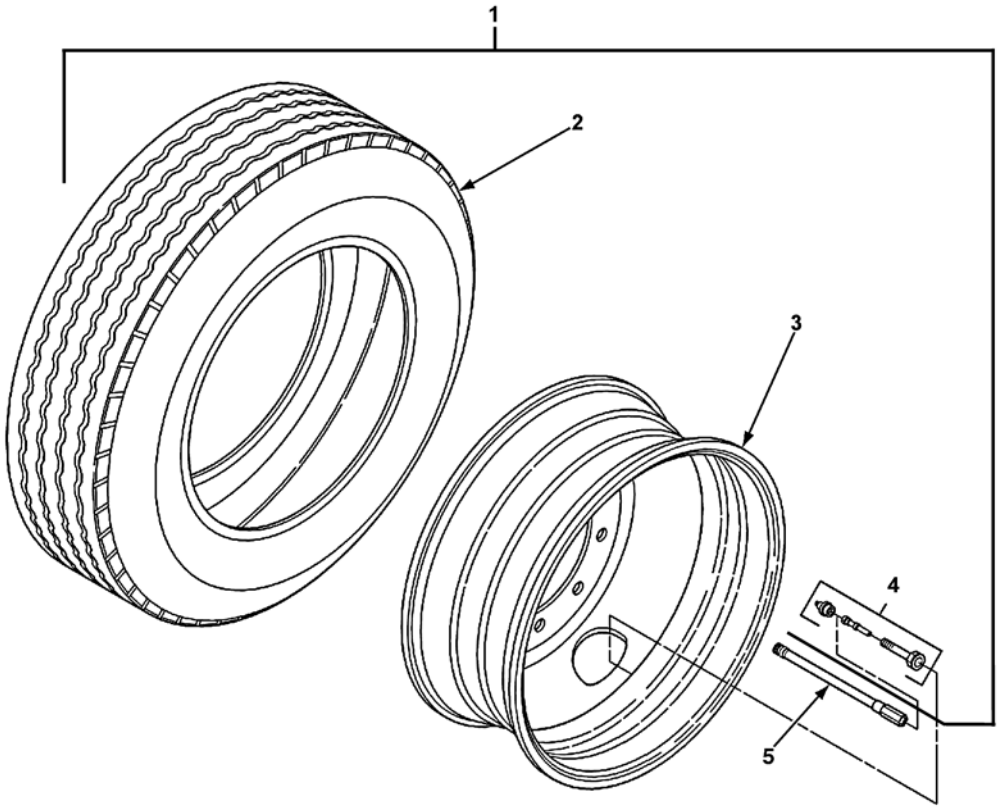


FIGURE 25. WHEEL ASSEMBLY

PLISN	(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. 25 WHEEL ASSEMBLY	
AHFC	1	PCOFH	2530-01-527-4609	19207	M969A2-M969A3	WHEEL ASSEMBLY.....	9
AFHJ	2	PCOFH	2610-01-045-3688	81348	X/GP3/TYRA/CLR/T /11.00R22.5/G	.TIRE, PNEUMATIC, VEHICULAR.....	1
AFHE	3	PFOZZ	2530-01-510-6121	1R5C8	9966-0115	.WHEEL, PNEUMATIC TIRE.....	1
AFHA1	4	PAOZZ	2640-00-555-2824	27783	TR573	.VALVE, PNEUMATIC TIRE.....	1
AFHG	5	PAOZZ		63900	HE-392	EXTENSION, TIRE VALVE INSIDE DUAL WHEELS ONLY	4
			TM-CODE 2VE			END OF FIGURE	

GROUP 1501 LADDER ASSEMBLY **0203 00**

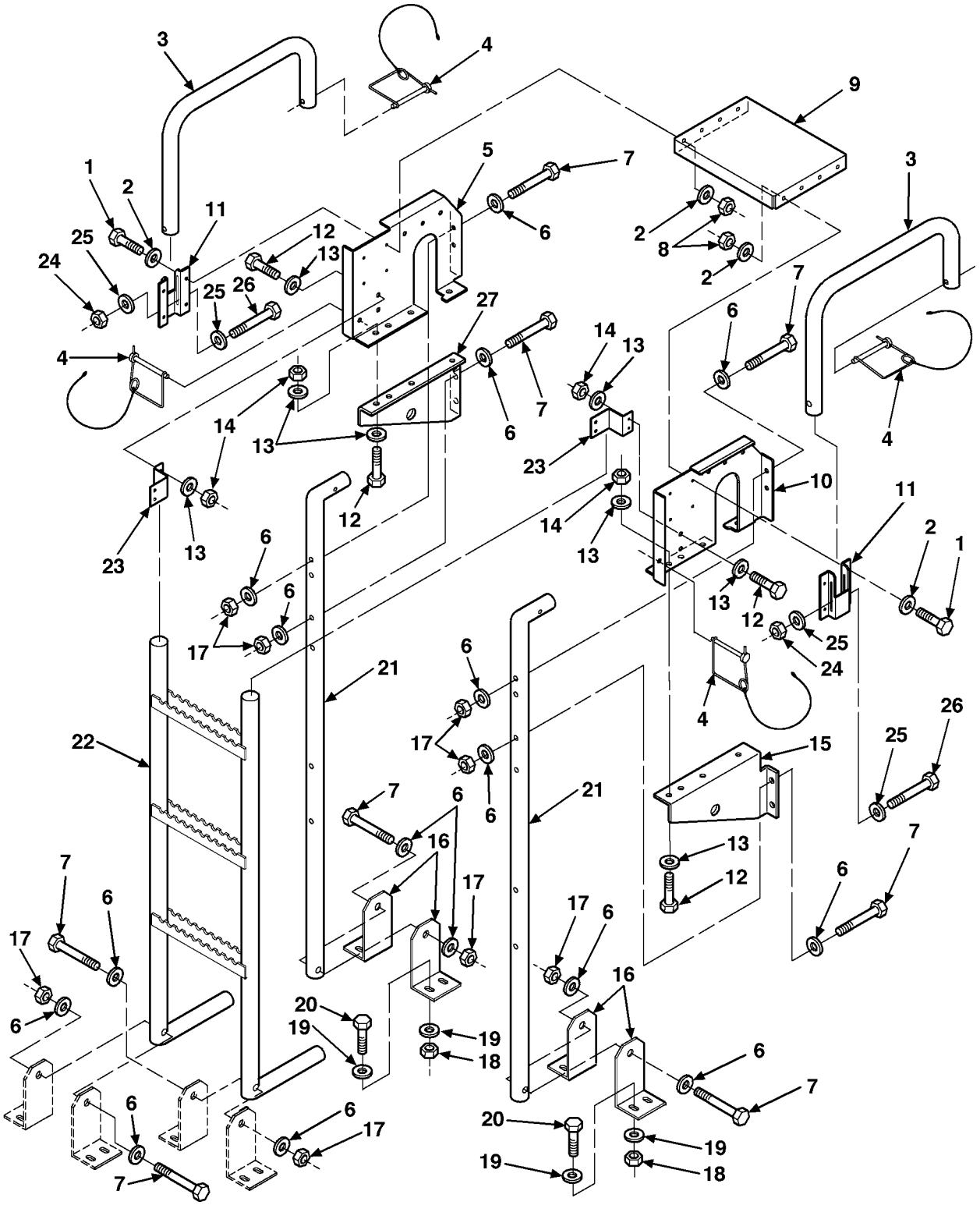


FIGURE 26. LADDER ASSEMBLY

GROUP 1501 LADDER ASSEMBLY — Continued 0203 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 15 FRAME, TOWING ATTACHMENTS AND DRAWBARS	
						GROUP 1501 FRAME ASSEMBLY	
						FIG. 26 LADDER ASSEMBLY	
AHEM1	1	PAOZZ	5305-00-225-3839	80205	MS90725-8	SCREW, CAP, HEXAGON HEAD 1/4-20 X 1	12
AHAV	2	PAOZZ	5310-01-308-8205	96906	MS27183-48	WASHER, FLAT 1/4	24
AHBM1	3	PFOZZ	2590-01-502-9569	1R5C8	M121-2624	HANDRAIL, VEHICULAR	2
AHCY	4	PAOZZ	5315-01-502-8308	2V507	97143A635	PIN, RETAINING	4
AHAY	5	PFOZZ	5340-01-502-8661	1R5C8	M121-2636	BRACKET, MOUNTING	1
AHDA	6	PAOZZ	5310-00-614-3506	80205	MS15795-817	WASHER, FLAT 1/2	28
AHDJ	7	PAOZZ	5305-00-165-8074	96906	MS51095-420	SCREW, CAP, HEXAGON HEAD 1/2-13 X 3	16
AHAX	8	PAOZZ	5310-01-502-8330	1R5C8	9562-0046	NUT, SELF-LOCKING HEXAGON 1/4-20	12
AHAS	9	PFOZZ	2510-01-502-9566	1R5C8	M121-2628	TREAD, METALLIC, NONSKID	1
AHBJ	10	PFOZZ	5340-01-502-8663	1R5C8	M121-2637	BRACKET, MOUNTING	1
AHBA1	11	PFOZZ	5340-01-502-8662	1R5C8	M121-2625	BRACKET, MOUNTING	2
AHDY	12	PAOZZ	5305-00-576-5417	80205	MS90725-360	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1	14
AHEJ	13	PAOZZ	5310-00-802-4701	80205	MS15795-813	WASHER, FLAT 3/8	28
AHEA1	14	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING HEXAGON 3/8-16	14
AHCS	15	PFOZZ	5340-01-502-8285	1R5C8	M121-2646	BRACKET, MOUNTING	1
AHAJ	16	PFOZZ	5340-01-502-8659	1R5C8	M121-2635	BRACKET, MOUNTING	4
AHA3	17	PAOZZ	5310-01-502-8323	1R5C8	9562-0133	NUT, SELF-LOCKING HEXAGON 1/2-13	16
AHDK	18	PAOZZ	5310-01-386-3517	39428	9009A031	NUT, SELF LOCKING HEXAGON	8
AHDL	19	PAOZZ	5310-01-421-7439	08427	8730000-21	WASHER, FLAT	16
AHDR	20	PAOZZ	5305-01-107-3549	11083	5P7128	SCREW, CAP, HEXAGON HEAD	8
AHBY	21	PFOZZ	5340-01-502-8279	1R5C8	M121-2638	BRACKET, MOUNTING	2
AHAM1	22	PFOZZ	2541-01-502-9576	1R5C8	M121-2621	LADDER VEHICLE BOARDING	1
AHCA	23	PFOZZ	5340-01-502-8282	1R5C8	M121-2639	BRACKET, MOUNTING	2
AHES1	24	PAOZZ	5310-01-461-1300	81349	M45913/2-7CG5C	NUT, SELF-LOCKING HEXAGON	2
AHA5	25	PAOZZ	5310-00-167-0822	88044	AN960-716	WASHER, FLAT	4
AHA7	26	PAOZZ	5305-00-069-5583	80205	MS90725-99	SCREW, CAP, HEXAGON HEAD	2
AHCM1	27	PFOZZ	5310-01-502-8283	1R5C8	M121-2645	BRACKET, MOUNTING	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 1503 COUPLER ASSEMBLY **0204 00**

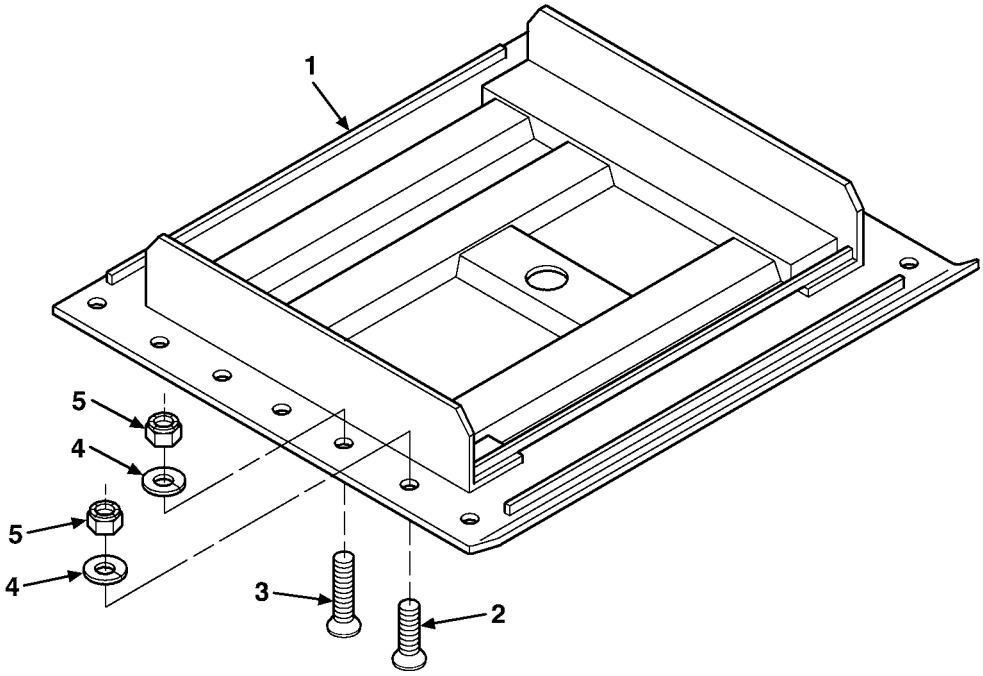


FIGURE 27. COUPLER ASSEMBLY

GROUP 1503 COUPLER ASSEMBLY — Continued **0204 00**

PLISN	(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. 27 COUPLER ASSEMBLY	
AHAH	1	PFOZZ	2510-01-502-9161	1R5C8	M234-1388	COUPLER,UPPER,FIFTH WHEEL PLATE.....	1
AHAB1	2	PAOZZ	5305-01-508-5775	1R5C8	9738-0379	.SCREW,CAP, SOCKET HD 5/8-18 X 1-1/4.....	12
AHAP	3	PAOZZ	5305-01-508-5889	1R5C8	9738-0380	.SCREW,CAP,SOCKET HD 5/8-18 X 2-1/4 FOR SCREWS MOUNTED TO FRAME BRACE ONLY	2
AHAQ	4	PAOZZ	5310-00-481-6481	08302	11028	.WASHER,LOCK 5/8.....	14
AHAR	5	PAOZZ	5310-01-508-5907	39428	97135A275	.NUT,SELF-LOCKING, HEXAGON 5/8-18	14
			TM-CODE 2VE			END OF FIGURE	

GROUP 1504 SPARE WHEEL CARRIER AND HOIST **0205 00**

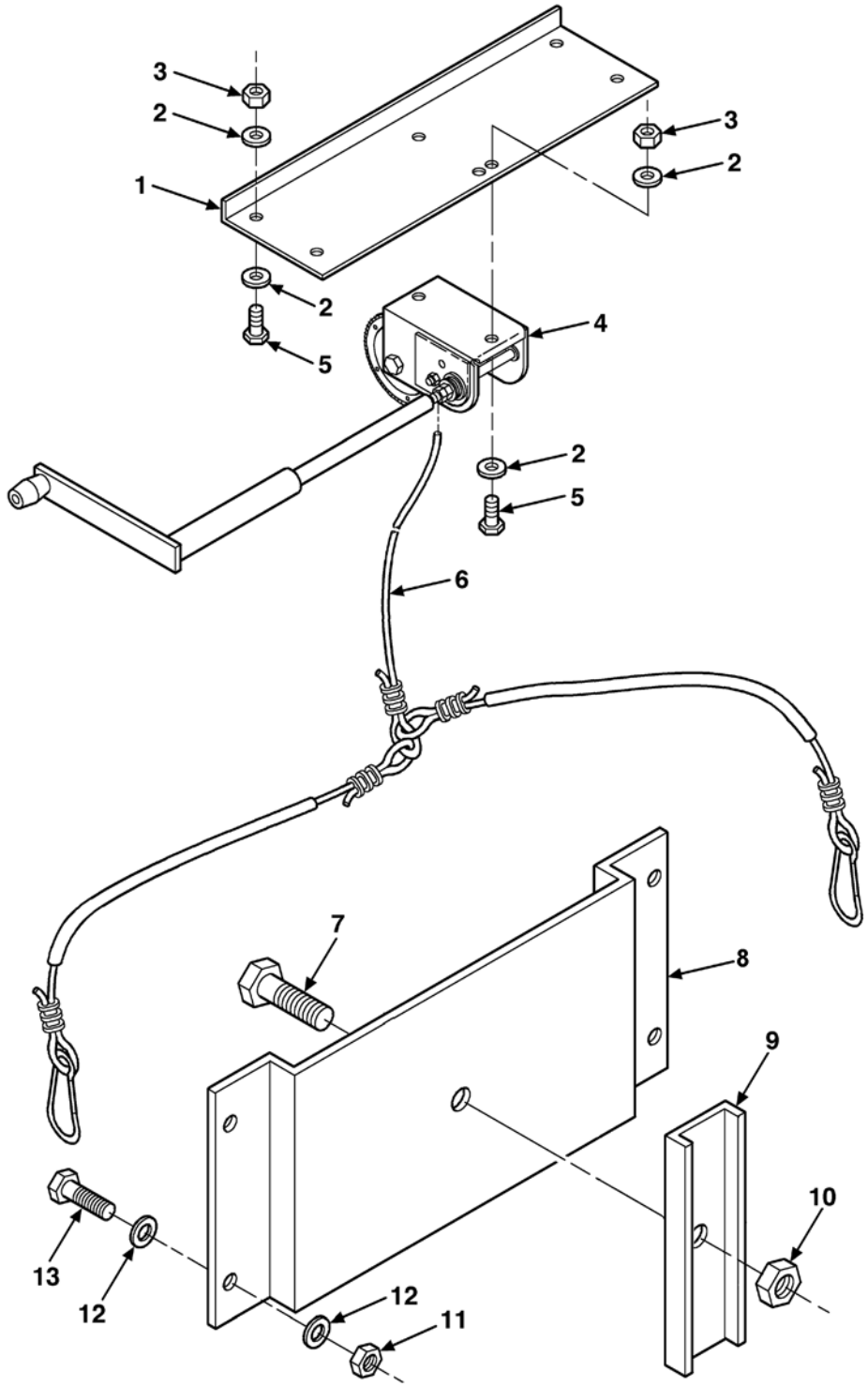


FIGURE 28. SPARE WHEEL CARRIER AND HOIST

GROUP 1504 SPARE WHEEL CARRIER AND HOIST — Continued 0205 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 1504 SPARE WHEEL CARRIER AND TIRE LOCK	
						FIG 28 SPARE WHEEL CARRIER AND HOIST	
AHBS	1	PFOZZ	5340-01-502-8286	1R5C8	M121-2631	BRACKET, WINCH	1
AHEJ	2	PAOZZ	5310-00-802-4701	80205	MS15795-813	WASHER, FLAT	6
AHEA1	3	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING	6
AHCJ	4	PAOZZ	4910-01-100-4984	39428	3196T26	HOIST, TIRE	1
AHGY	5	PAOZZ	5305-00-269-3211	80205	MS90725-60	SCREW, CAP,HEXAGON HEAD	6
AHGC	6	PAOZZ	4010-01-514-2386	1R5C8	M097-0425	CABLE ASSEMBLY	1
AHFK	7	PAOZZ		1R5C8	9738-0384	SCREW, CAP, HEXAGON METRIC, M22-1.5X70M	1
AHFM	8	PFOZZ	5340-01-502-8332	1R5C8	M311-2828	BRACKET, TIRE MOUNTING	1
AHFA1	9	PFOZZ	5340-01-502-8331	1R5C8	M311-2829	LOCKING BRACKET, TIRE	1
AHBT	10	PAOZZ	5310-01-349-0759	41885	88881	NUT, PLAIN	1
AHDM	11	PAOZZ	5310-01-502-8323	1R5C8	9562-0133	NUT, SELF-LOCKING	4
AHDA	12	PAOZZ	5310-00-614-3506	80205	MS15795-817	WASHER, FLAT	4
AHDJ	13	PAOZZ	5305-00-165-8074	96906	MS51095-420	SCREW, CAP, HEXAGON HEAD	4
			TM-CODE 2VE			END OF FIGURE	

GROUP 1507 GROUND BOARD ASSEMBLY **0206 00**

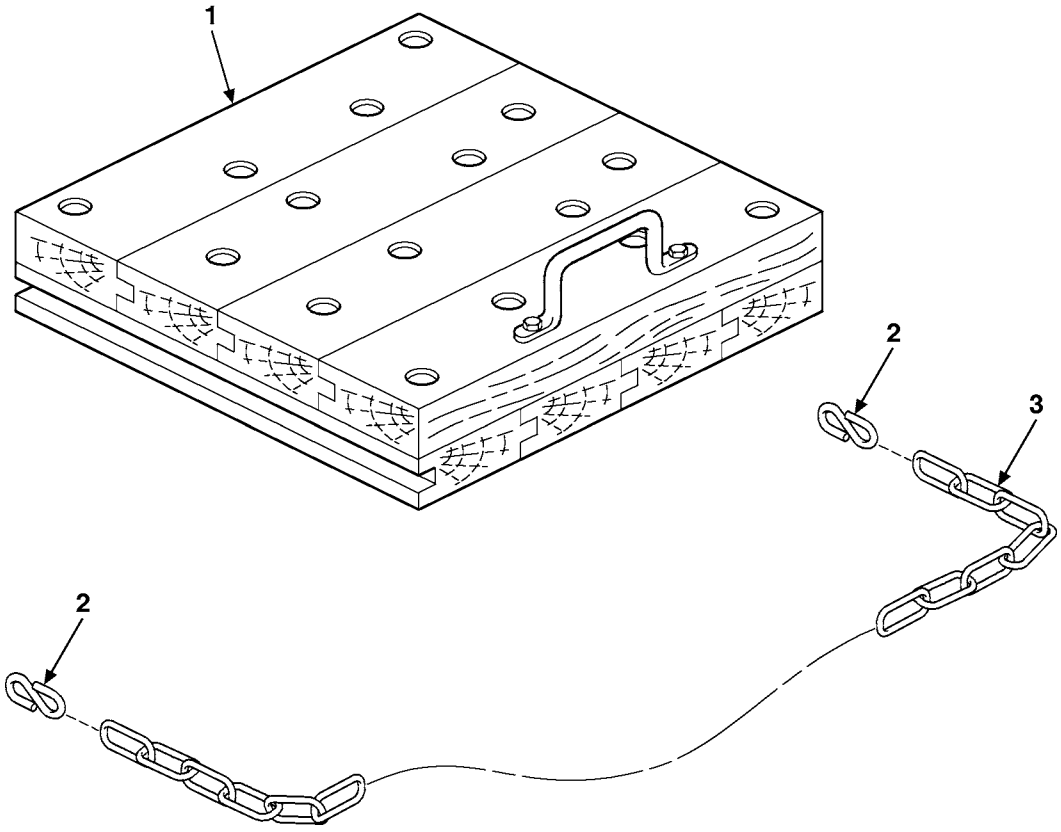


FIGURE 29. GROUND BOARD ASSEMBLY

GROUP 1507 GROUND BOARD ASSEMBLY — Continued 0206 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 1507 LANDING GEAR, LEVELING JACKS	
						FIG. 29 GROUND BOARD ASSEMBLY	
AHKA	1	PAOZZ	2510-00-741-7585	19207	7417585	BOARD GROUND JACK.....	2
AHKC	2	PAOZZ	4030-01-503-0447	1R5C8	2AHOOKSS	HOOK, CHAIN, S.....	4
AHKE	3	MOOZZ		1R5C8	9121-0005-AR	CHAIN,STEEL MAKE FROM CHAIN P/N 9121-0005 (1R5C8),AS REQUIRED ..	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 1507 LANDING GEAR ASSEMBLY **0207 00**

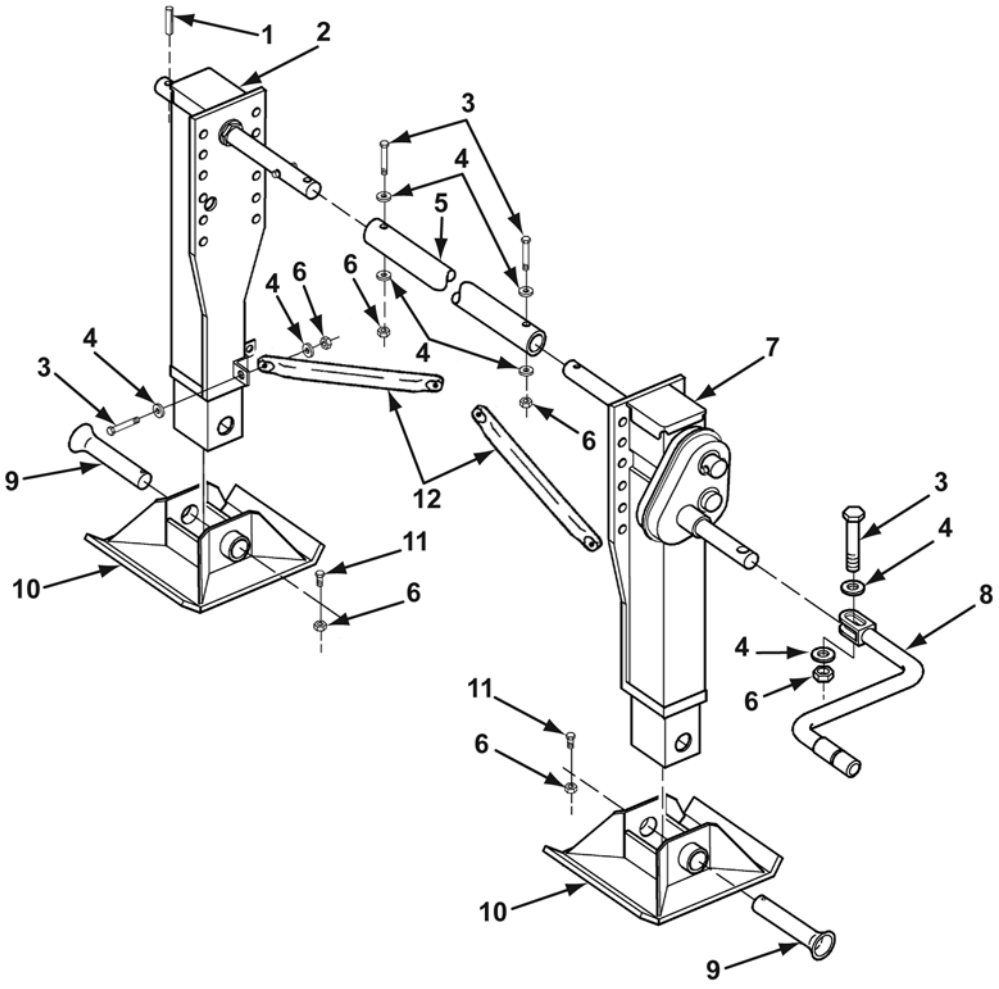


FIGURE 30. LANDING GEAR ASSEMBLY

GROUP 1507 LANDING GEAR ASSEMBLY — Continued 0207 00

PLISN	(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. 30 LANDING GEAR ASSEMBLY	
AHMG	1	PFOZZ	5315-01-502-8342	99411	XB-SP-014-27	.PIN, ROLL	4
AHMA1	2	PFOOO		99411	LG5199-90002J477	LANDING GEAR ASSY	1
AHMJ	3	PFOZZ	5306-01-502-8344	99411	XB-HHC-050-42	.BOLT	3
AHNS	4	PFOZZ	5310-01-502-8369	99411	XB-PW-016-03	.WASHER, FLAT	6
AHML	5	PFOZZ	3040-01-502-9794	99411	LG0094-3275	.SHAFT, CROSS DRIVE	1
AHNU	6	PFOZZ	5310-01-502-8371	99411	XB-SLN-012-04	.NUT, SELF-LOCKING	5
AHMT	7	PFOZZ	2590-01-508-6058	99411	LG5191-920B23000	.LANDING LEG, W/ GEAR BOX	1
AHNW	8	PAOZZ	5340-01-175-0564	99411	LG0083-05	.CRANK, HAND	1
AHN1	9	PAOZZ	5315-01-316-7547	99411	LG0070-02	.PIN, STRAIGHT, HEADLESS	2
AHN2	10	PFOZZ	2590-01-502-9582	99411	LG0065-03	.SHOE	2
AHN3	11	PFOZZ	5306-01-510-4972	99411	XB-HHC-050-69	.BOLT	2
AHN6	12	PFOZZ		1R5C8	M311-3179	BRACKET,LANDING LEG	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 1601 SUSPENSION 0208 00

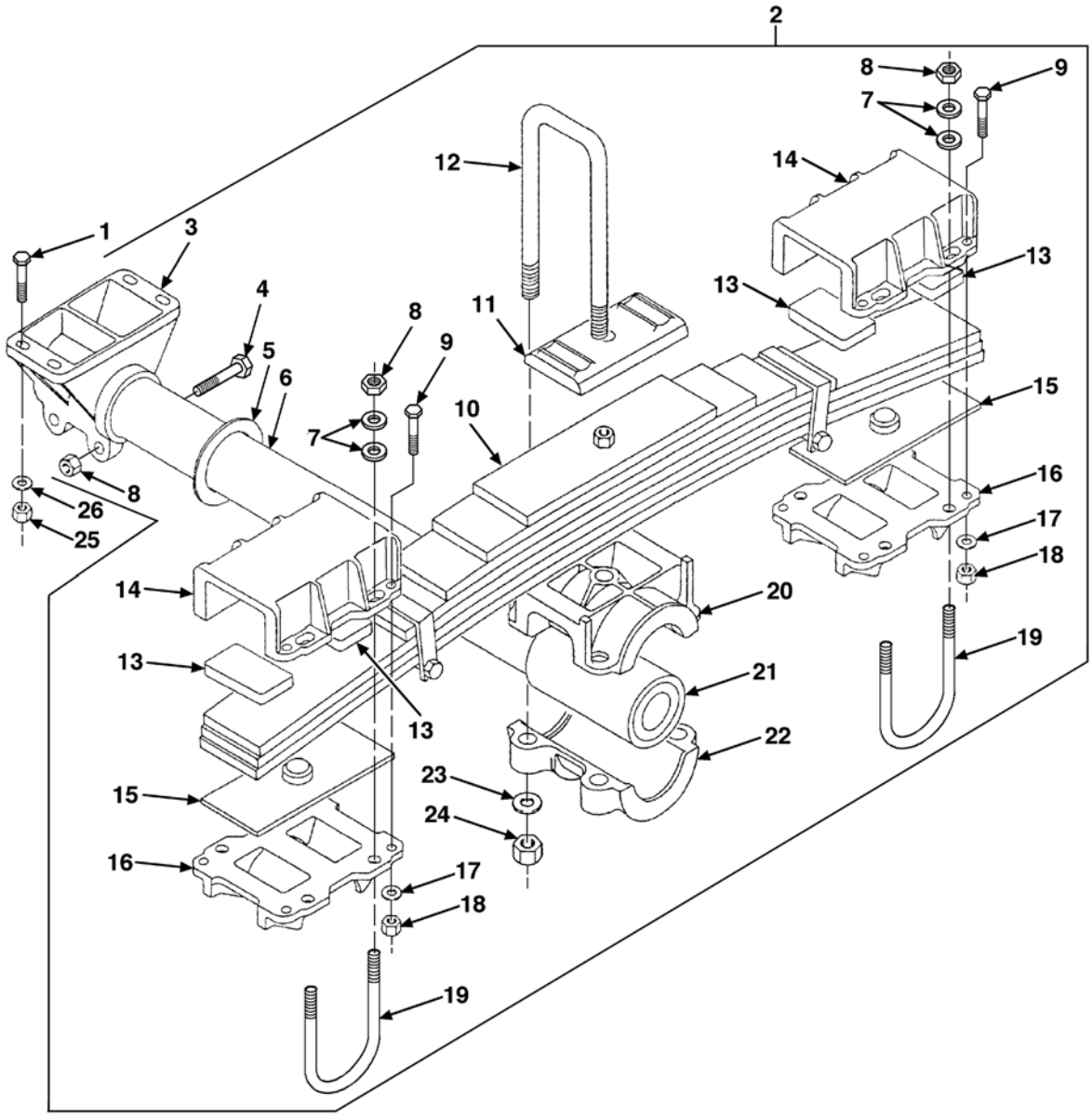


FIGURE 31. SUSPENSION

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 16 SPRING AND SHOCK ABSORBERS	
						GROUP 1601 SPRINGS	
						FIG. 31 SUSPENSION	
AJAG	1	PAFZZ	5305-00-726-2557	80204	B1821BH063F350N	SCREW, CAP, HEXAGON HEAD	8
AFAE1	2	PFFFF	2510-01-503-0716	92967	900-50	SUSPENSION, SINGLE POINT	1
AJAC	3	PFFZZ	2520-01-101-1802	92967	849-01	.HANGER, TRUNNION	2
AJAD	4	PAFZZ	5306-01-347-5921	92967	10376-00	.BOLT, HEX HEAD	4
AJAM	5	PAFZZ	5310-01-098-7247	92967	895-00	.WASHER,FLAT	2
AJAS	6	PAFZZ	4710-01-240-9431	92967	B893-02	.TUBE,METALLIC	1
AJAY	7	PAFZZ	5310-01-098-7245	92967	817-00	.WASHER,FLAT	32
AJBA	8	PAFZZ	5310-01-098-7827	92967	841-00	.NUT,SELF-LOCKING,HEXAGON	20
AJBJ	9	PAFZZ	5305-00-726-2551	80204	B1821BH063F200N	.SCREW, CAP, HEXAGON HEAD	16
AJBM1	10	PAFZZ	2510-01-114-3209	92967	9999-00	.SPRING ASSEMBLY, LEAF	2
AJBS	11	PAFZZ	2510-01-101-2559	92967	9640-00	.PLATE,WEAR, LEAF SPRING	2
AJBY	12	PAFZZ	5306-01-098-7198	92967	9639-03	.BOLT, U	4
AJCA	13	PAFZZ	2590-01-100-9001	92967	814-00	.PAD, CUSHIONING	8
AJCJ	14	PAFZZ	2510-01-100-7167	92967	9937-00	.END CAP, SPRING	4
AJCM	15	PAFZZ	2510-01-101-2890	92967	10608-00	.PLATE, ALIGNMENT, LEAF SPRING	4
AJCS	16	PAFZZ	2510-01-100-9270	92967	9934-02	.SEAT, LEAF SPRING	4
AJCY	17	PAFZZ	5310-01-098-7244	92967	10273-00	.WASHER, FLAT	16
AJCZ	18	PAFZZ	5310-01-499-4209	92967	11513-03	.NUT,SELF-LOCKING,HEXAGON	16
AJDJ	19	PAFZZ	5306-01-098-7197	92967	10060-01	.BOLT, U	8
AJDM1	20	PAFZZ	2520-01-101-0935	92967	891-00	.HUB, TRUNNION, UPPER	2
AJDS	21	PAFZZ	5365-01-316-3300	92967	11357-00	.BUSHING, NONMETALLIC	2
AJDY	22	PAFZZ	2520-01-101-2551	92967	898-00	.TRUNNION HUB, LOWER	2
AJEA	23	PAFZZ	5310-01-098-7246	92967	837-00	.WASHER, FLAT	8
AJEJ	24	PAFZZ	5310-01-098-7236	92967	836-00	.NUT, HEXAGON	8
AJES	25	PAFZZ	5310-00-269-4040	81349	M45913/1-10CG5C	NUT, SELF-LOCKING HEXAGON	8
AJEY	26	PAFZZ	5310-01-014-4280	26919	004-003081-042	WASHER, FLAT	8
			TM-CODE 2VE			END OF FIGURE	

GROUP 1801 MUD FLAPS AND SPLASH GUARDS **0209 00**

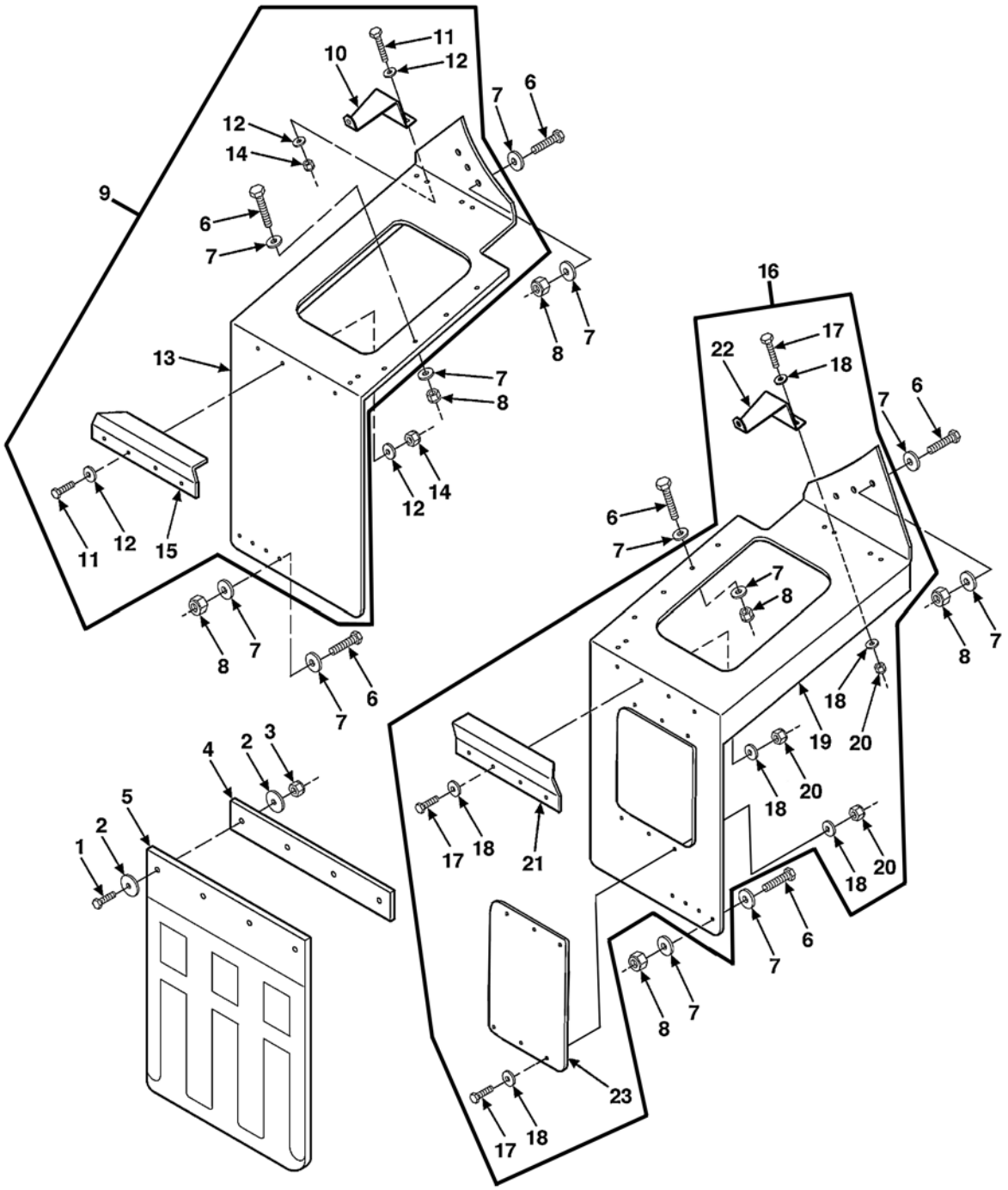


FIGURE 32. MUD FLAPS AND SPLASH GUARDS

GROUP 1801 MUD FLAPS AND SPLASH GUARDS — Continued 0209 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 18 BODY, CAB, HOOD, AND HULL	
						GROUP 1801 BODY,CAB,HOOD,AND HULL ASSEMBLIES.	
						FIG. 32 MUDFLAPS AND SPLASH GUARDS	
AKAA	1	PFOZZ	5305-01-406-5528	1R5C8	9738-0014	SCREW,CAP,HEXAGON HEAD PART OF KIT P/N M035-3134	8
AKAJ	2	PFOZZ	5310-01-280-5796	96906	MS27183-57	WASHER,FLAT PART OF KIT P/N M035-3134	16
AKAM	3	PFOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT,LOCK PART OF KIT P/N M035-3134	8
AKAS	4	PFOZZ	5340-01-504-8556	1R5C8	021-2732	BAR,MUDFLAP PART OF KIT P/N M035-3134	2
AKAY	5	PFOZZ	2540-01-502-9571	1R5C8	9543-0036	MUDFLAP,RUBBER PART OF KIT P/N M035-3134	2
AKAZ	6	PAOZZ	5305-01-482-4487	39428	93190A593	SCREW, CAP, HEXAGON HEAD	7
AKCS	7	PAOZZ		1R5C8	9965-0044	WASHER, FLAT	14
AKCU	8	PAOZZ	5310-01-508-5774	39428	90715A145	NUT, LOCKING	7
AKCW	9	PAOOO	2540-01-503-0413	1R5C8	M311-2847	SPLASH GUARD ASSEMBLY, LEFT	1
AKCY	10	PAOZZ	5340-01-502-8696	1R5C8	M311-2843	.BRACKET, SUPPORT, GROUNDBOARD	2
AKCZ	11	PAOZZ	5306-00-637-9675	96906	MS35307-332	.SCREW, CAP, HEXAGON HEAD	12
AKC1	12	PAOZZ	5310-01-280-5796	96906	MS27183-57	.WASHER, FLAT	24
AKC3	13	PAOZZ	2540-01-502-9942	1R5C8	M311-2844	.SPLASH GUARD, LEFT	1
AKC5	14	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	.NUT, LOCKING	12
AKC7	15	PAOZZ	5340-01-502-8463	1R5C8	M311-2845	.BRACKET, SUPPORT, GROUNDBOARD	1
AKCA	16	PAOOO	2540-01-503-0396	1R5C8	M311-2846	SPLASH GUARD ASSEMBLY, RIGHT	1
AKCC	17	PAOZZ	5306-00-637-9675	96906	MS35307-332	.BOLT,MACHINE	18
AKCE	18	PAOZZ	5310-01-280-5796	96906	MS27183-57	.WASHER, FLAT	36
AKCJ	19	PAOZZ	2540-01-502-9947	1R5C8	M311-2839	.SPLASH GUARD, RIGHT	1
AKCN	20	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	.NUT,SELF-LOCKING	18
AKCG	21	PAOZZ	5340-01-502-8528	1R5C8	M311-2840	.BRACKET, SUPPORT, GROUNDBOARD	1
AKCL	22	PAOZZ	5340-01-502-8696	1R5C8	M311-2843	.BRACKET, SUPPORT, GROUNDBOARD	2
AKCD	23	PAOZZ		1R5C8	M112-9704	.PANEL, ACCESS, BATTERY	1
			TM-CODE 2VE			END OF FIGURE	

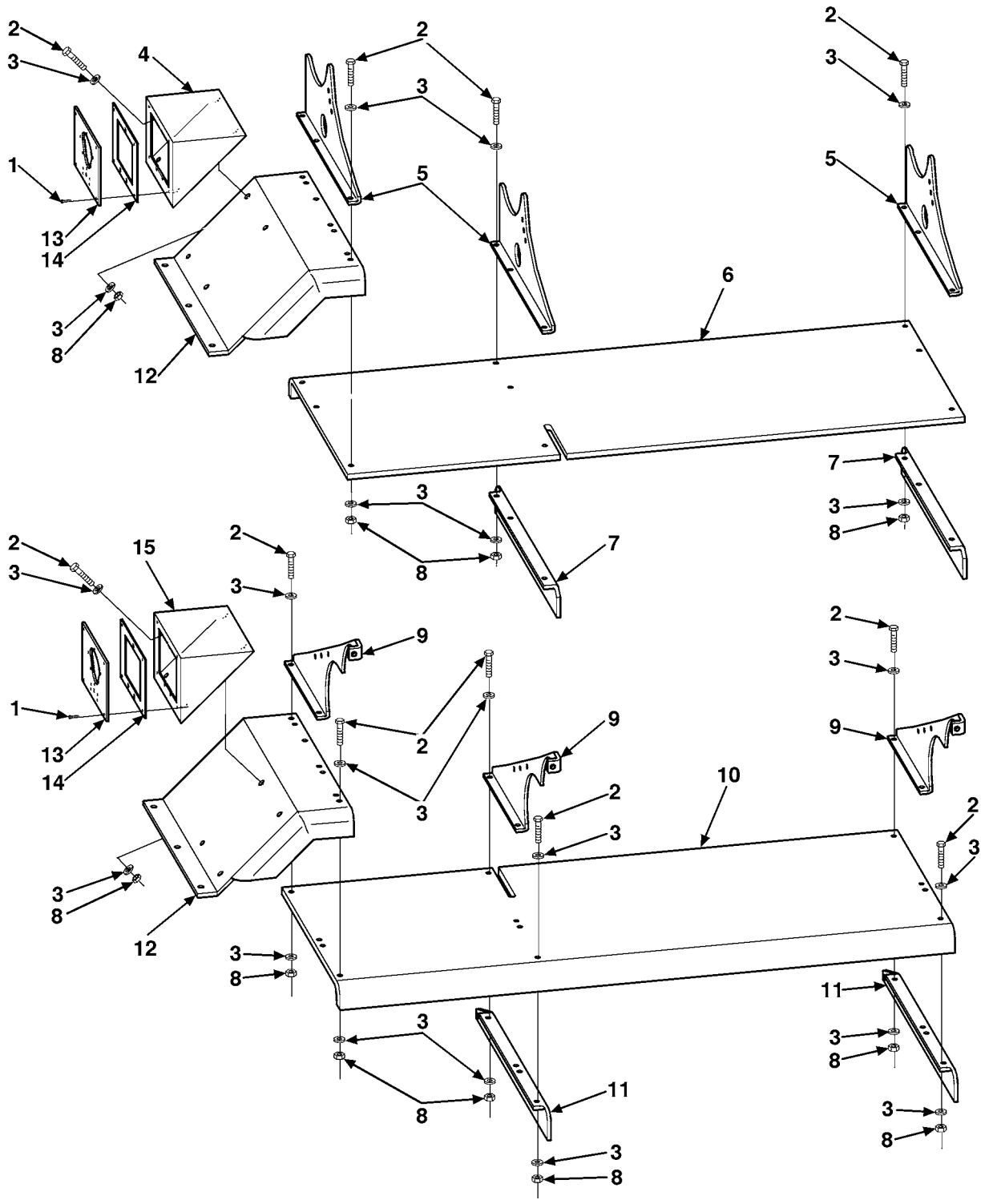


FIGURE 33. FENDERS

GROUP 1801 FENDERS — Continued **0210 00**

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 1801 FENDERS	
						FIG. 33 FENDERS	
AKSY	1	PAOZZ	5305-01-187-8757	7X677	274707	SCREW,MACHINE #10-24 X 1/2	12
AKPM1	2	PAOZZ	5305-00-068-0511	80204	B1821BH038C125N	SCREW, CAP, HEXAGON HEAD	18
AKPS	3	PAOZZ	5310-00-167-0820	80205	NAS1149F0563P	WASHER, FLAT	36
AKPY	4	PFOZZ	6210-01-502-8676	1R5C8	M151-4877-002	HOUSING, LIGHT	1
AKP3	5	PFOZZ	5340-01-502-8666	1R5C8	M311-2815	BRACKET, MOUNTING	3
AKP5	6	PFOZZ	2510-01-503-0304	1R5C8	M217-1814	FENDER, VEHICULAR	1
AKP7	7	PFOZZ	2510-01-503-0307	1R5C8	M311-2813	BRACE, FENDER	2
AKQM1	8	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING	18
AKP9	9	PFOZZ	5340-01-502-8667	1R5C8	M311-2812	BRACKET, MOUNTING	3
AKQA	10	PFOZZ	2510-01-503-0313	1R5C8	M217-1815	FENDER, VEHICULAR	1
AKQJ	11	PFOZZ	2510-01-503-0241	1R5C8	M311-2814	BRACE, FENDER	2
AKP1	12	PFOZZ	2510-01-503-0309	1R5C8	M217-1812	FENDER, VEHICULAR	2
AKPJ	13	PFOZZ	5340-01-502-8673	1R5C8	M151-4878	PLATE, MOUNTING	2
AKPE	14	PAOZZ	5330-01-510-7082	1R5C8	9326-0262	GASKET	2
AKQS	15	PFOZZ	6210-01-502-8677	1R5C8	M151-4877-001	HOUSING, LIGHT	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 1808 STATIC REEL ASSEMBLY 0211 00

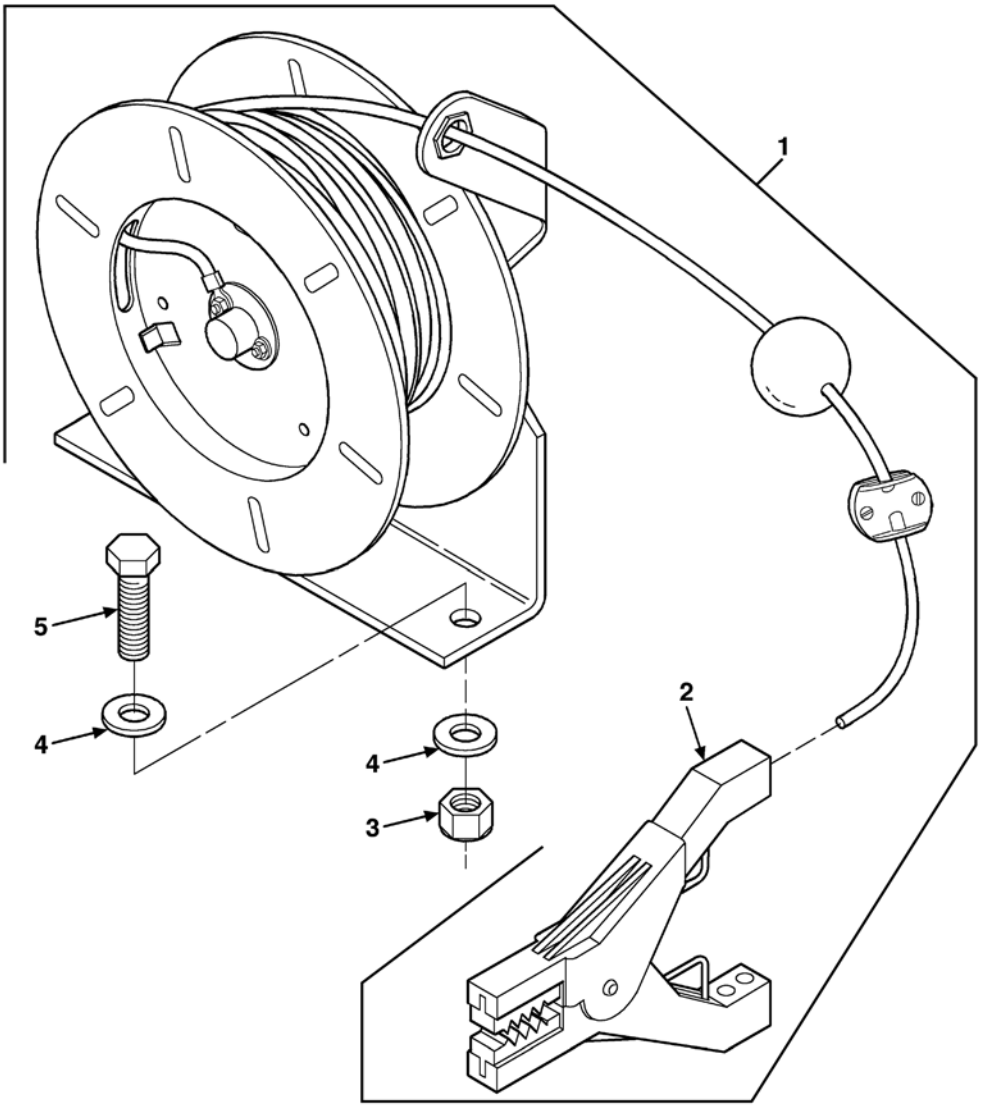


FIGURE 34. STATIC REEL ASSEMBLY

GROUP 1808 STATIC REEL ASSEMBLY — Continued 0211 00

PLISN	(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. 34 STATIC REEL ASSEMBLY	
AKWA1	1	PFOZZ	4930-01-502-8434	32218	ML-2930-58	REEL ASSEMBLY, STATIC DISCHARGE	1
AKWB	2	PAOZZ	5999-00-134-5844	81349	M83413/7-1	.CLIP, ELECTRICAL	1
AKWE	3	PAOZZ	5310-00-959-1488	81349	M45913/2-6FG5C	NUT, SELF-LOCKING, HEXAGON	2
AKWD	4	PAOZZ	5310-01-280-5795	96906	MS27183-56	WASHER, FLAT	4
AKWC	5	PAOZZ	5305-00-269-3211	80205	MS90725-60	SCREW, CAP, HEXAGON HEAD	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 1808 HOSE TUBES **0212 00**

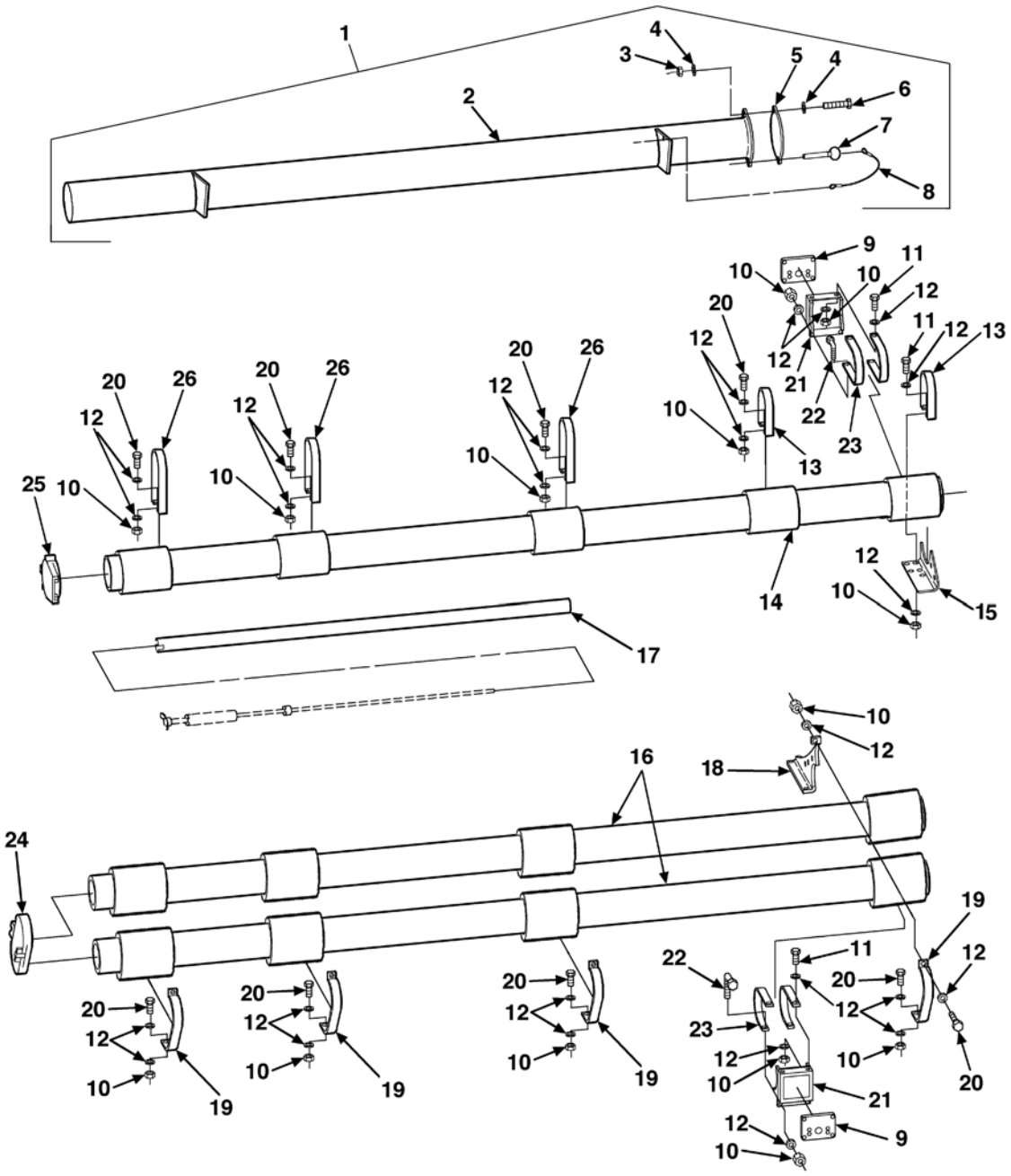


FIGURE 35. HOSE TUBES

GROUP 1808 HOSE TUBES — Continued 0212 00

PLISN	(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. 35 HOSE TUBES	
AKUC	1	PAFFF	5340-01-508-5897	1R5C8	M054-9850	DIPSTICK TUBE ASSY	1
AKUF	2	PFFZZ	5340-01-508-5902	1R5C8	M054-9851	.DIPSTICK TUBE	1
AKUX	3	PAFZZ	5310-01-446-0272	39428	90101A237	.NUT, LOCKING	1
AKUW	4	PAFZZ	5310-00-625-5756	80205	MS15795-812	.WASHER, FLAT, 5/16	2
AKUK	5	PFFZZ	5340-01-508-5979	1R5C8	M054-9854	.END PLATE COVER	1
AKUT	6	PAFZZ	5305-01-508-6037	39428	93190A583	.SCREW, CAP, HEXAGON HEAD, 5/16-18 X 1	1
AKUL	7	PAFZZ	5315-01-508-5988	39428	98700A366	.PIN, QUICK RELEASE	1
AKUP	8	PAFZZ	4010-01-508-6020	39428	90312A64	.LANYARD	1
AKUS	9	PFOZZ	6220-01-502-8734	1R5C8	M311-3236	BRACKET, LIGHT RETENTION	2
AKT9	10	PFOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING	10
AKU1	11	PFOZZ	5305-00-269-3211	80205	MS90725-60	SCREW, CAP, HEXAGON HEAD	4
AKT7	12	PAOZZ	5310-00-167-0820	80205	NAS1149F0563P	WASHER, FLAT	20
AKTS	13	PFOZZ	5340-01-502-8698	1R5C8	M177-4011-001	STRAP, RETAINING	2
AKTJ1	14	PFOZZ		1R5C8	M054-9866-001	TUBE, METALLIC	1
AKT5	15	PFOZZ	5340-01-502-8681	1R5C8	M151-4871	BRACKET, MOUNTING	1
AKT1	16	PFOZZ		1R5C8	M054-9866-002	TUBE, METALLIC	2
AKU9	17	PFOZZ	4710-01-503-0243	1R5C8	M054-9848	TUBE, METALLIC	1
AKUA	18	PFOZZ	5340-01-502-8667	1R5C8	M311-2812	BRACKET, MOUNTING	1
AKUJ	19	PFOZZ	5340-01-502-8731	1R5C8	M177-4010	STRAP, RETAINING	4
AKUM	20	PAOZZ	5305-00-269-3213	80205	MS90725-62	SCREW, CAP, HEXAGON HEAD	10
AKUY	21	PFOZZ	6220-01-502-8737	1R5C8	M311-3233	HOUSING, LIGHT	2
AKU3	22	PFOZZ	5306-01-502-8710	1R5C8	9043-0012	BOLT, HOOK	4
AKU5	23	PFOZZ	5340-01-502-8719	1R5C8	M311-3232	STRAP, RETAINING	4
AKU7	24	PFOZZ	5340-01-502-8724	1R5C8	9227-0012	DOOR, ACCESS, GENERAL	1
AKTA1	25	PFOZZ	5340-01-502-8689	1R5C8	9227-0010	DOOR, ACCESS, GENERAL	1
AKTM1	26	PFOZZ	5340-01-502-8697	1R5C8	M177-4011	STRAP, RETAINING	3
			TM-CODE 2VE			END OF FIGURE	

GROUP 1808 HOSE REEL ASSEMBLIES 0213 00

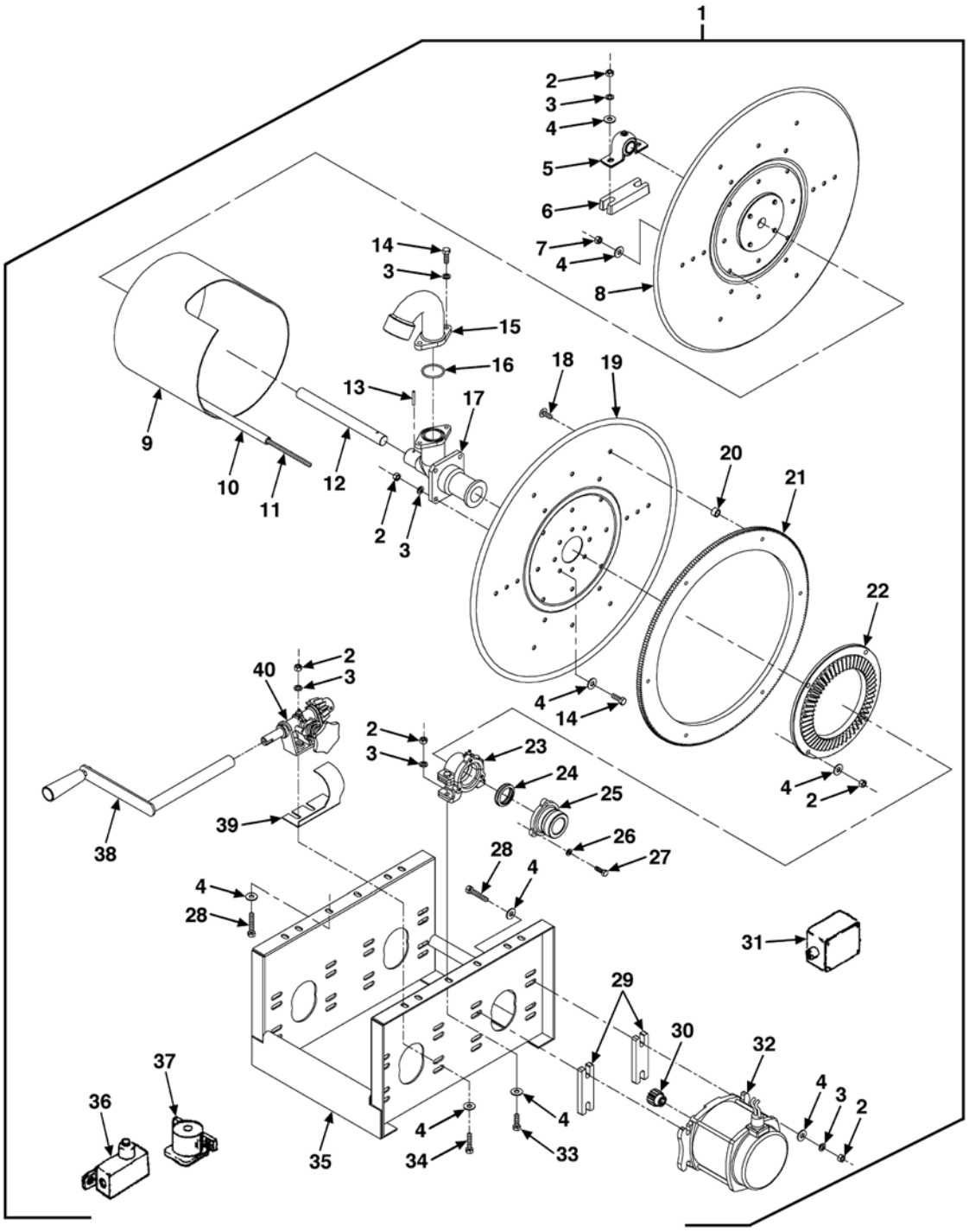


FIGURE 36. HOSE REEL ASSEMBLIES

GROUP 1808 HOSE REEL ASSEMBLIES — Continued 0213 00

PLISN	(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. 36 HOSE REEL ASSEMBLIES	
AKDA1	1	PAOFF	4930-20-000-5356	38205	EP3909-25-10J12FR	HOSE REEL	1
AKKS	2	PAFZZ	5310-20-000-5246	38205	C22020312	.NUT, PLAIN HEXAGON	18
AKLA1	3	PAFZZ	5310-20-000-5251	38205	C01100011	.WASHER,LOCK	16
AKLM1	4	PAFZZ	5310-20-000-5240	38205	C01010223	.WASHER,FLAT	28
AKHG	5	PAFZZ	3040-01-161-6611	38205	310211	.BEARING	1
AKFG	6	PAFZZ	5365-20-000-5273	38205	323207	.SPACER, SPECIAL SHAPE	1
AKKY	7	PAFZZ	5310-20-000-5247	38205	C22710190	.NUT, PLAIN HEXAGON	4
AKDM	8	PFFZZ	5340-20-000-5231	38205	326250-25X11X0.94	.PLATE,MOUNTING	1
AKDS	9	PFFZZ	4930-20-000-5263	38205	326100-10X11	.DRUM,HOSE REEL	1
AKES	10	PAFZZ	5365-20-000-5272	38205	326475-10	.SPACER	4
AKEG	11	PAFZZ	5306-20-000-5237	38205	326468P-10	.ROD, CONTINUOUS THREAD	4
AKEA1	12	PAFZZ	3040-20-000-5217	38205	326460P-9.25	.SHAFT,DRUM	1
AKJG	13	PAFZZ	5315-20-000-5233	38205	C00510247	.PIN, SPRING	1
AKJS	14	PAFZZ	5305-20-000-5234	38205	C11040613	.SCREW,CAP,HEXAGON HEAD	6
AKGY	15	PAFZZ	4730-20-000-5223	38205	323083	.ELBOW, HOSE	1
AKHA1	16	PAFZZ	5331-20-000-5244	38205	014224	.O-RING	1
AKGM1	17	PAFZZ	4730-20-000-5224	38205	323361ANZ	.TEE, FLANGE TO HOSE	1
AKJM	18	PAFZZ	5305-20-000-5243	38205	C06030647	.SCREW,MACHINE	6
AKDG	19	PFFZZ	5340-20-000-5230	38205	326250-25X11X2.5	.PLATE, MOUNTING	1
AKEM1	20	PAFZZ	5365-20-000-5276	38205	326488	.SPACER, SLEEVE	6
AKHM	21	PAFZZ	3020-20-000-5221	38205	316999	.GEAR, SPUR	1
AKFA1	22	PAFZZ	3020-20-000-5220	38205	323058M	.GEAR, BEVEL	1
AKGG	23	PAFZZ	4730-01-161-1301	38205	327078	.HOUSING	1
AKGS	24	PAFZZ	5330-20-000-5235	38205	314080-RED	.SEAL, NONMETALLIC ROUND	1
AKGA	25	PAFZZ	4730-20-000-5222	38205	323075	.ADAPTER, STRAIGHT	1
AKLG	26	PAFZZ	5310-20-000-5254	38205	C01100010	.WASHER,LOCK	3
AKKM	27	PAFZZ	5305-20-000-5242	38205	C11040644	.SCREW,CAP,HEXAGON HEAD	3
AKKG	28	PAFZZ	5305-20-000-5241	38205	C11040640	.SCREW,CAP,HEXAGON HEAD	6
AKEY	29	PAFZZ	5365-20-000-5275	38205	323807	.SPACER, SPECIAL SHAPED	2
AKHS	30	PAFZZ	3020-20-000-5216	38205	316998	.GEAR, SPUR	1
AKLS	31	PAFZZ	5975-20-000-5281	38205	370200	.JUNCTION BOX	1
AKJA1	32	PAFZZ	6105-20-000-5286	38205	370024	.MOTOR,DIRECT CURRENT	1
AKJY	33	PAFZZ	5305-20-000-5238	38205	C11040616	.SCREW,CAP,HEXAGON HEAD	2
AKKA	34	PAFZZ	5305-20-000-5239	38205	C11040621	.SCREW,CAP,HEXAGON HEAD	2
AKDY	35	XAFZZ	4930-20-000-5262	38205	366150-25X10Z	.FRAME, HOSE REEL	1

GROUP 1808 HOSE REEL ASSEMBLIES — Continued 0213 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
AKLY	36	PAFZZ	5930-20-000-5328	38205	370210	.SWITCH,EXPLOSION PROOF (SINGLE POLE)	1
AKMA	37	PAFZZ	5945-20-000-5329	38205	370018	.SOLENOID-24 VOLT DC	1
AKFM1	38	PAFZZ	5340-20-000-5228	38205	366060-10	.CRANK, HAND	1
AKFY	39	PAFZZ	3020-20-000-5218	38205	326905	.GUARD, MECHANICAL DRIVE	1
AKFS	40	PAFZZ	5340-01-151-0993	37260	360268	.HANDWIND ASSEMBLY	1
			TM-CODE 2VE			END OF FIGURE	

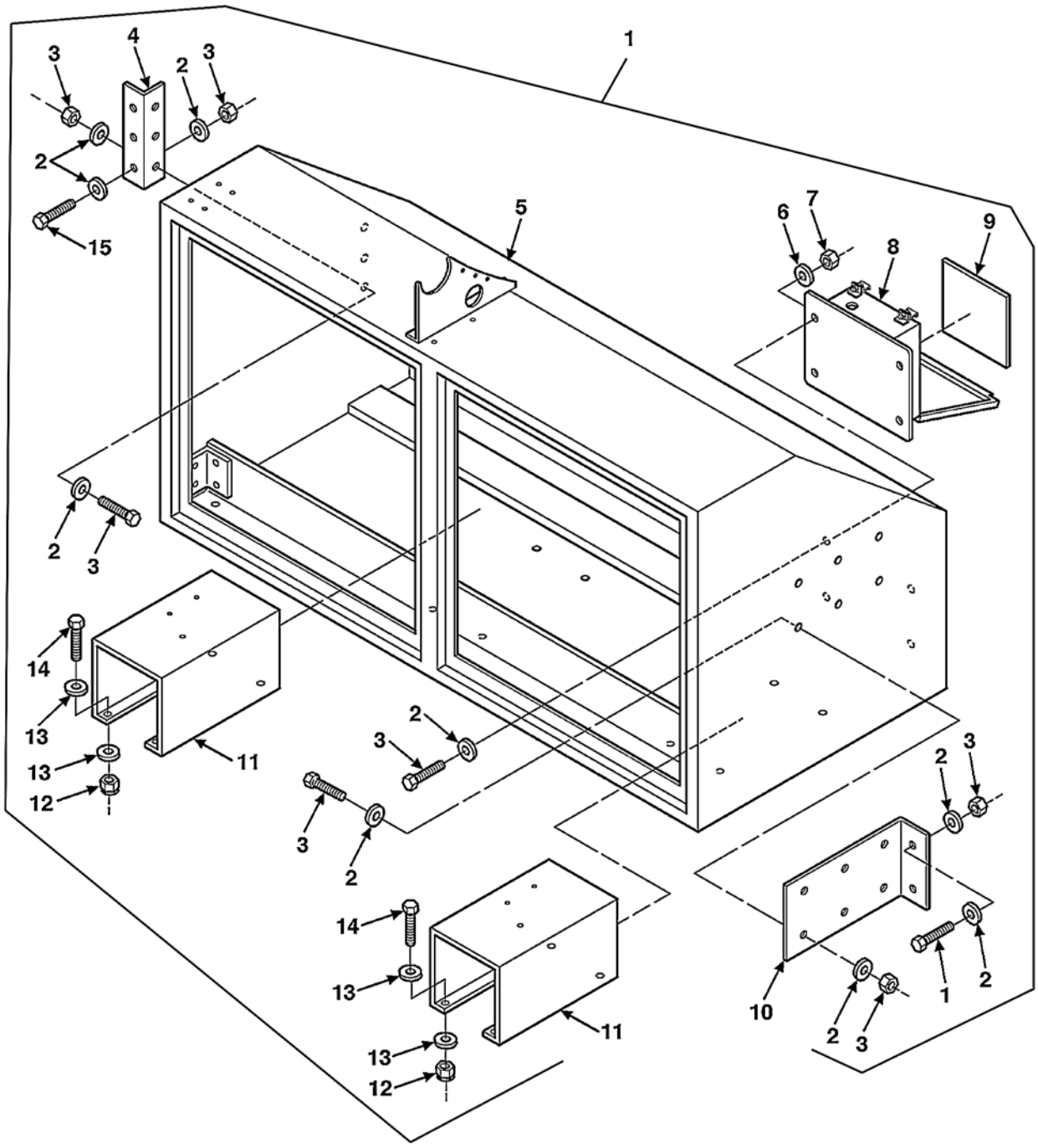


FIGURE 37. HOSE REEL CABINET

GROUP 1808 HOSE REEL CABINET — Continued 0214 00

PLISN	(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. 37 HOSE REEL CABINET	
AUMA1	1	PAFFF		1R5C8	M151-4834	CABINET ASSEMBLY,HOSE REEL.....	1
AUZG	2	PAFZZ	5310-01-280-5796	96906	MS27183-57	.WASHER,FLAT 3/8	36
AUZP	3	PAFZZ	5310-01-502-8329	1R5C8	9562-0044	.NUT,LOCKING 3/8-16	18
AUZA	4	PFFZZ	5340-01-506-2787	1R5C8	M151-4864	.BRACKET,MOUNTING	1
AUZB	5	XAFZZ		1R5C8	M151-4834-1	.CABINET,HOSE REEL	1
AUZS	6	PAFZZ	5310-00-802-4701	96906	MS15795-813	.WASHER,FLAT 1/4	8
AUZM	7	PAFZZ	5310-01-502-8330	1R5C8	9562-0046	.NUT,SELF-LOCKING, HEXAGON 1/4-20	4
AUZJ	8	PFFZZ	5975-01-504-7503	81435	1084-12CHC	.BOX,JUNCTION.....	2
AUZK	9	PFFZZ	5340-01-504-6407	81435	AW108P	.PANEL,INNER.....	1
AUZZ	10	PFFZZ	5340-01-506-2838	1R5C8	M311-3276	.BRACKET,MOUNTING	2
AUZ1	11	PFFZZ	5340-01-508-6937	1R5C8	M151-4865	.MOUNT,METER.....	2
AUZ3	12	PAFZZ	5305-00-068-0510	80204	B1821BH038C100N	.SCREW,CAP, HEXAGON HEAD 3/8-16 X 1.....	8
AUZ5	13	PAFZZ	5310-00-080-6004	96906	MS27183-14	.WASHER,FLAT 3/8	16
AUZ7	14	PAFZZ	5310-01-502-8329	1R5C8	9562-0044	.NUT,SELF-LOCKING, HEXAGON 3/8-16	8
AUZC	15	PAFZZ	5305-00-576-5417	80205	MS35307-360	.SCREW,CAP, HEXAGON HEAD 3/8-16 X 1.....	18
			TM-CODE 2VE			END OF FIGURE	

GROUP 1808 HOSE REEL CABINET DOOR ASSEMBLY **0215 00**

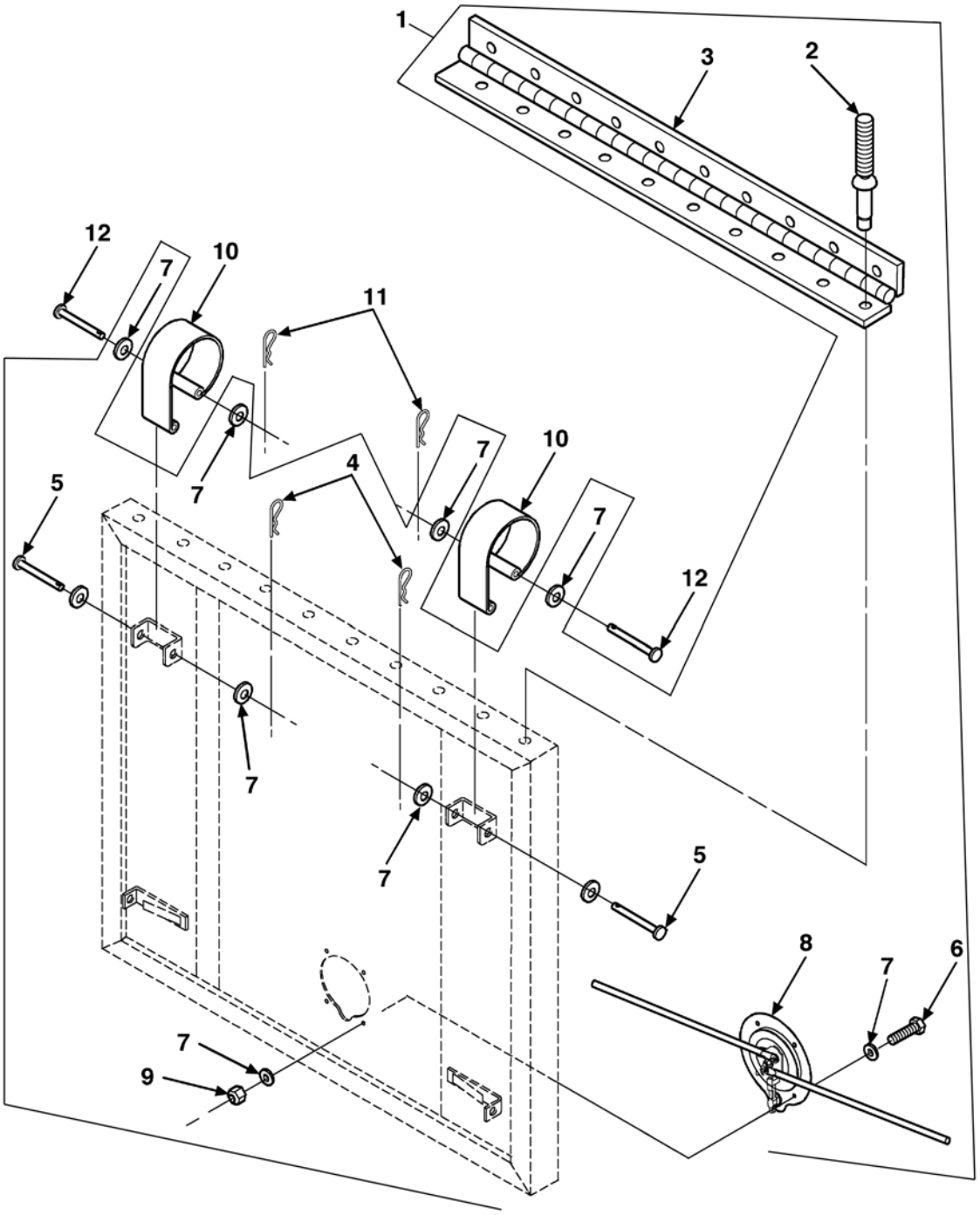


FIGURE 38. HOSE REEL CABINET DOOR ASSEMBLY

GROUP 1808 HOSE REEL CABINET DOOR ASSEMBLY — Continued 0215 00

PLISN	(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. 38 HOSE REEL CABINET DOOR ASSEMBLY	
AUUA	1	PFOOO	5340-01-504-7321	1R5C8	M112-9658	DOOR ASSEMBLY, HOSE REEL CABINET	2
AUUB	2	PAOZZ	5320-99-807-2969	9K475	MGLP-U8-6	.RIVET	18
AUUE	3	PFOZZ	5340-01-504-7331	1R5C8	005-4062-036	.HINGE	1
AUUJ	4	PAOZZ	5315-01-504-7332	1R5C8	9595-0019	.PIN, HAIR	2
AUUM	5	PAOZZ	5315-01-504-7333	39428	92390A231	.PIN, CLEVIS	2
AUUS	6	PAOZZ	5305-01-424-8152	49181	13005	.SCREW, CAP, HEXAGON HEAD 1/4-20 X 1	4
AUUY	7	PAOZZ	5310-00-009-5661	43999	LD137-0026-2003	.WASHER, FLAT 1/4	8
AUU1	8	PFOZZ	5340-01-504-6861	3J615	ALH 2102L SS	.LOCK, D-RING	1
AUU3	9	PAOZZ	5310-01-502-8330	1R5C8	9562-0046	.NUT, SELF-LOCKING HEXAGON 1/4-20	4
AUU5	10	PAOZZ		1R5C8	9745-0001	SPRING, STAY	4
AUU7	11	PAOZZ	5315-01-504-7332	1R5C8	9595-0019	PIN, HAIR	2
AUU9	12	PAOZZ	5315-01-504-7333	39428	92390A231	PIN, CLEVIS	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 1808 STORAGE BOX **0216 00**

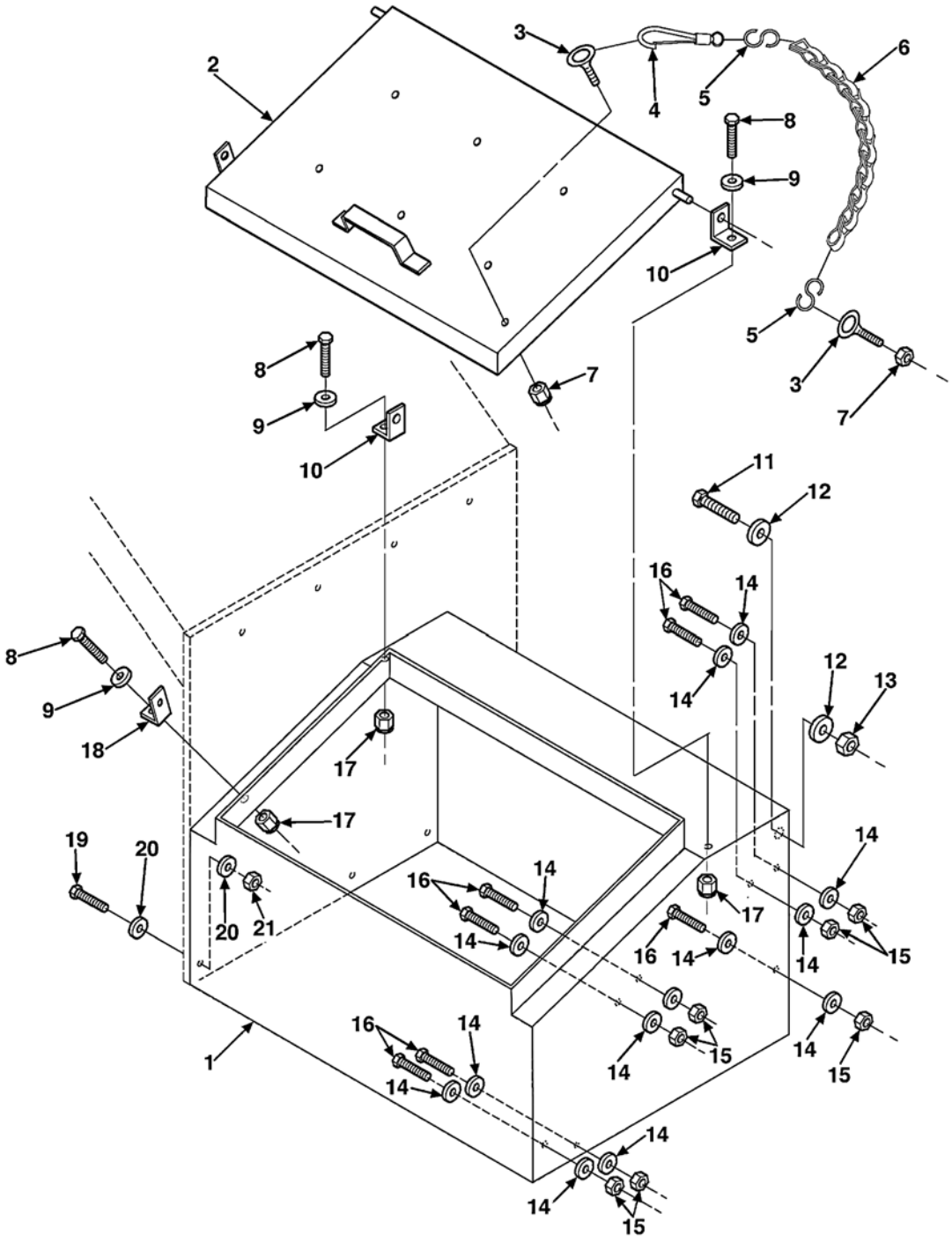


FIGURE 39. STORAGE BOX

GROUP 1808 STORAGE BOX — Continued 0216 00

PLISN	(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. 39 STORAGE BOX	
AKVC1	1	PFOZZ		1R5C8	M151-4846	BOX, STORAGE	1
AKVF	2	PFOZZ	2540-01-502-9185	1R5C8	M151-4851	COVER, BOX, ACCESSORIES	1
AKVJ	3	PFOZZ	5306-01-502-8739	49181	42310	BOLT, EYE	2
AKVM	4	PFOZZ	4030-01-503-0537	1R5C8	9389-0015	HOOK, HOIST	1
AKVP	5	PFOZZ	4030-01-503-0447	1R5C8	2AHOOKSS	HOOK, CHAIN, S	2
AKVQ	6	MOOZZ		1R5C8	9121-0019	CHAIN,STEEL MAKE FROM CHAIN P/N 45116 (0Y3H3)	1
AKVR	7	PAOZZ		49181	1177860	NUT, SELF-LOCKING, HEXAGON 1/4-20	2
AKVS	8	PAOZZ	5305-00-269-3211	80205	MS90725-60	SCREW, CAP, HEXAGON HEAD	3
AKVV	9	PAOZZ	5310-00-595-6057	80205	MS15795-815	WASHER, FLAT	3
AKVY	10	PFOZZ	5340-01-502-8741	1R5C8	M151-4843	BRACKET, ANGLE	2
AKVZ	11	PAOZZ	5305-01-106-9541	80205	MS90725-263	SCREW, CAP, HEXAGON HEAD 1-1/8-12 X 5-1/2	1
AKV1	12	PAOZZ	5310-00-823-8803	96906	MS27183-21	WASHER, FLAT	2
AKV2	13	PAOZZ	5310-00-225-6408	19207	8712289-6	NUT, SELF-LOCKING, HEXAGON 5/8-18	1
AKV3	14	PAOZZ	5310-01-467-9965	01365	92007A1255	WASHER, FLAT	12
AKV4	15	PAOZZ	5310-00-984-3807	24617	9419476	NUT, SELF-LOCKING, HEXAGON	6
AKVN	16	PAOZZ	5306-00-225-9089	80205	MS90726-34	BOLT, MACHINE 5/16-24 X 1	6
AKV5	17	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING	3
AKV6	18	PFOZZ	5340-01-502-8738	1R5C8	M151-4845	BRACKET, ANGLE	1
AKV7	19	PAOZZ	5305-00-269-2803	80205	MS90726-60	SCREW, CAP, HEXAGON HEAD 3/8-24 X 1	4
AKV8	20	PAOZZ	5310-00-080-6004	96906	MS27183-14	WASHER, FLAT 3/8	8
AKV9	21	PAOZZ	5310-00-959-1488	81349	M45913/2-6FG5C	NUT, SELF-LOCKING, HEXAGON 3/8-24	4
						TM-CODE 2VE	
						END OF FIGURE	

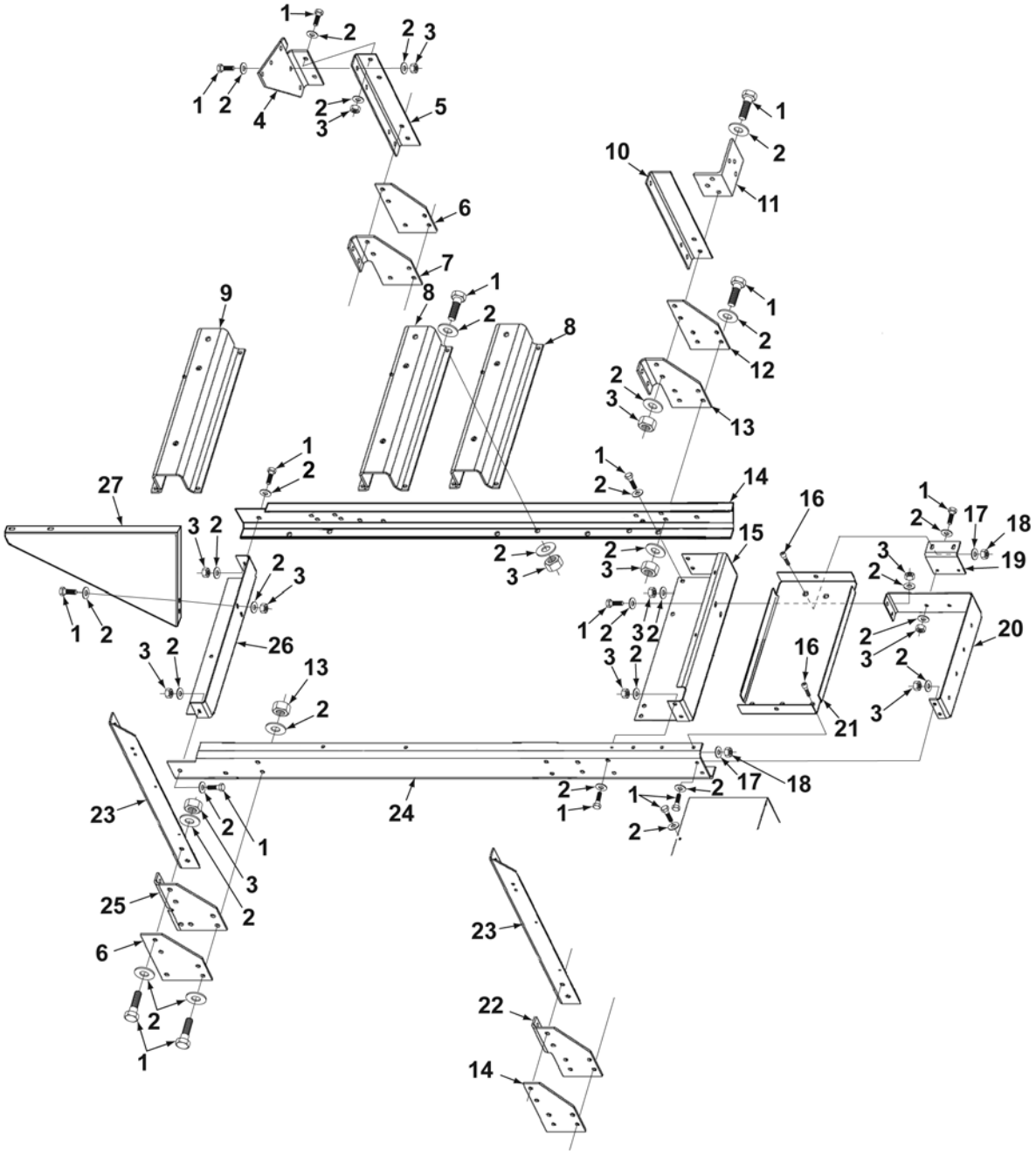


FIGURE 40. ENGINE HOUSING AND FRAME ASSEMBLY

PLISN	(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. 40 ENGINE HOUSING AND FRAME ASSEMBLY	
AAUJ	1	PFOZZ	5306-00-174-9462	1R5C8	9738-0015	SCREW, CAP, HEXAGON HEAD	24
AAUG	2	PFOZZ	5310-00-614-3506	80205	MS15795-817	WASHER, FLAT	48
AAUE	3	PFOZZ	5310-01-502-8323	1R5C8	9562-0133	NUT, LOCKING	24
AAUC	4	PFOZZ	5340-01-504-6540	1R5C8	M311-2894	BRACKET, SUPPORT	1
AAUU	5	PFOZZ	5340-01-504-6553	1R5C8	M311-2881	ANGLE	1
AAUY	6	PFOZZ	2510-01-504-6558	1R5C8	M311-3180	BRACKET, MOTOR SUPPORT, OUTER	2
AAUW	7	PFOZZ	2510-01-511-5621	1R5C8	M311-2890	BRACKET, MOTOR SUPPORT, INNER	1
AAVW	8	PFOZZ	5340-01-504-7810	1R5C8	M311-2882	HAT CHANNEL, ENGINE MOUNT	2
AAVY	9	PFOZZ	5340-01-504-7814	1R5C8	M311-2883	HAT CHANNEL, PUMP MOUNT	1
AAU5	10	PFOZZ	5340-01-504-6525	1R5C8	M311-2880	ANGLE	1
AAU2	11	PFOZZ		1R5C8	M311-2893	BRACKET, MOTOR SUPPORT	1
AAU1	12	PFOZZ	2510-01-504-6535	1R5C8	M311-3181	BRACKET, MOTOR SUPPORT, OUTER	2
AAU3	13	PFOZZ	2510-01-504-6539	1R5C8	M311-2885	BRACKET, MOTOR SUPPORT, INNER	1
AAU7	14	PFOZZ	2510-01-504-6545	1R5C8	M237-9470	RAIL, MOTOR FRAME, INNER	1
AAVG	15	PFOZZ	5340-01-504-7798	1R5C8	M311-2888	CROSSMEMBER, FUEL TANK	1
AAV3	16	PFOZZ	5305-01-508-6135	39428	92186A673	SCREW, CAP HEXAGON HEAD	8
AAV5	17	PFOZZ	5310-01-476-4801	39428	90107A032	WASHER, FLAT	16
AAV7	18	PFOZZ	5310-01-508-6136	39428	90715A032	NUT, SELF-LOCKING HEXAGON	8
AAU4	19	PFOZZ		1R5C8	M311-3677	BRACKET, BATTERY SUPPORT	1
AAVL	20	PFOZZ	5340-01-504-7802	1R5C8	M311-2887	SUPPORT, FUEL TANK, FRONT	1
AAU6	21	PFOZZ		1R5C8	M311-3674	TRAY, BRACKET	1
AAVQ	22	PFOZZ	2510-01-504-6588	1R5C8	M311-2886	BRACKET, ENGINE SUPPORT	1
AAVU	23	PFOZZ	5340-01-504-2879	1R5C8	M311-2879	ANGLE	2
AAVN	24	PFOZZ	2510-01-504-6565	1R5C8	M237-9469	RAIL, MOTOR FRAME, OUTER	1
AAVS	25	PFOZZ	2510-01-504-6592	1R5C8	M311-2889	BRACKET, ENGINE SUPPORT	1
AAUA	26	PFOZZ	6160-01-504-7532	1R5C8	M311-2899	BRACKET, MOUNTING	2
AAU8	27	PFOZZ		1R5C8	M311-3211	BRACKET, MOUNTING	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 1811 MANHOLE COVER ASSEMBLY 0218 00

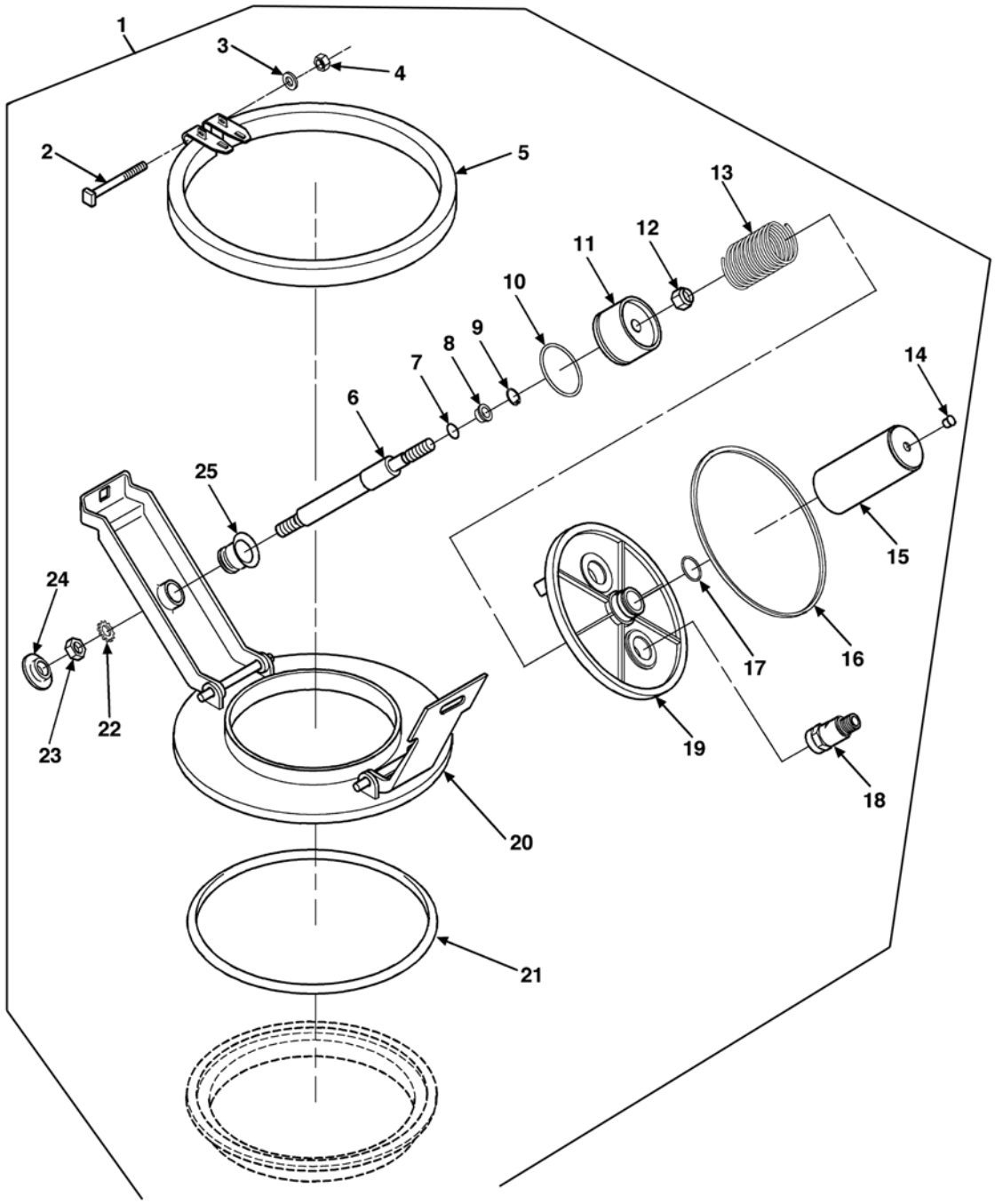


FIGURE 41. MANHOLE COVER ASSEMBLY

GROUP 1811 MANHOLE COVER ASSEMBLY — Continued 0218 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 1811 TANK BODIES	
						FIG. 41 MANHOLE COVER ASSEMBLY	
AKYA1	1	PAOOO	4930-01-420-7874	13226	PPVL763CXB262	COVER, MANHOLE	1
AKZE	2	PAOZZ	5306-01-077-5119	13226	3029SL	.BOLT, MACHINE	1
AKZJ	3	PAOZZ	5310-01-077-6773	13226	3031-SL	.WASHER	1
AKZG	4	PAOZZ	5310-01-061-8727	13226	3030-BR	.NUT	1
AKZC	5	PFOZZ		13226	3036SL262	.RING,CLAMPING	1
AKYQ	6	PFOZZ		13226	6688SL	.STEM	1
AKYG	7	PFOZZ		13226	4118BN	.O-RING, STEM	1
AKYE	8	PFOZZ		13226	4117ALEY	.RETAINER, O-RING	1
AKYU	9	PFOZZ		13226	9Q4961	.RING, RETAINING	1
AKYC	10	PAOZZ	5331-01-424-3860	13226	4015TS	.O-RING	1
AKYL	11	PFOZZ		13226	6654AL	.PISTON	1
AKYW	12	PFOZZ		13226	9Q5896	.NUT, HEXAGON, WITH INSERT	1
AKYJ	13	PFOZZ		13226	4122MS	.SPRING	1
AKYY	14	PFOZZ		13226	9V4907	.PLUG, PIPE	1
AKYN1	15	PFOZZ		13226	6657AL117	.CYLINDER ASSEMBLY	1
AKYB	16	PAOZZ	5330-01-024-2311	13226	3119BN	.PACKING, PREFORMED	1
AKZQ	17	PAOZZ	5331-01-510-6944	13226	4015BN	.O-RING, CYLINDER	1
AKY9	18	PFOZZ		13226	6496ALB117	.VENT ASSEMBLY	1
AKYS	19	PFOZZ		13226	8297ALEY	.COVER, MACHINED	1
AKZA1	20	PFOZZ		13226	6778SL	.CLOSURE ASSEMBLY	1
AKZL	21	PAOZZ	5330-01-134-1986	13226	3560BN	.GASKET	1
AKY3	22	PFOZZ	5310-01-486-4256	13226	9Q5961	.WASHER, EXTERNAL TOOTH	1
AKY5	23	PFOZZ		13226	9Q5960	.NUT, HEXAGON	1
AKY7	24	PFOZZ	5340-01-486-0635	13226	9Z6163	.PLUG, PLASTIC	1
AKY1	25	PFOZZ	3010-01-485-3100	13226	4020EPDM	.BELLOWS	1
			TM-CODE TVE			END OF FIGURE	

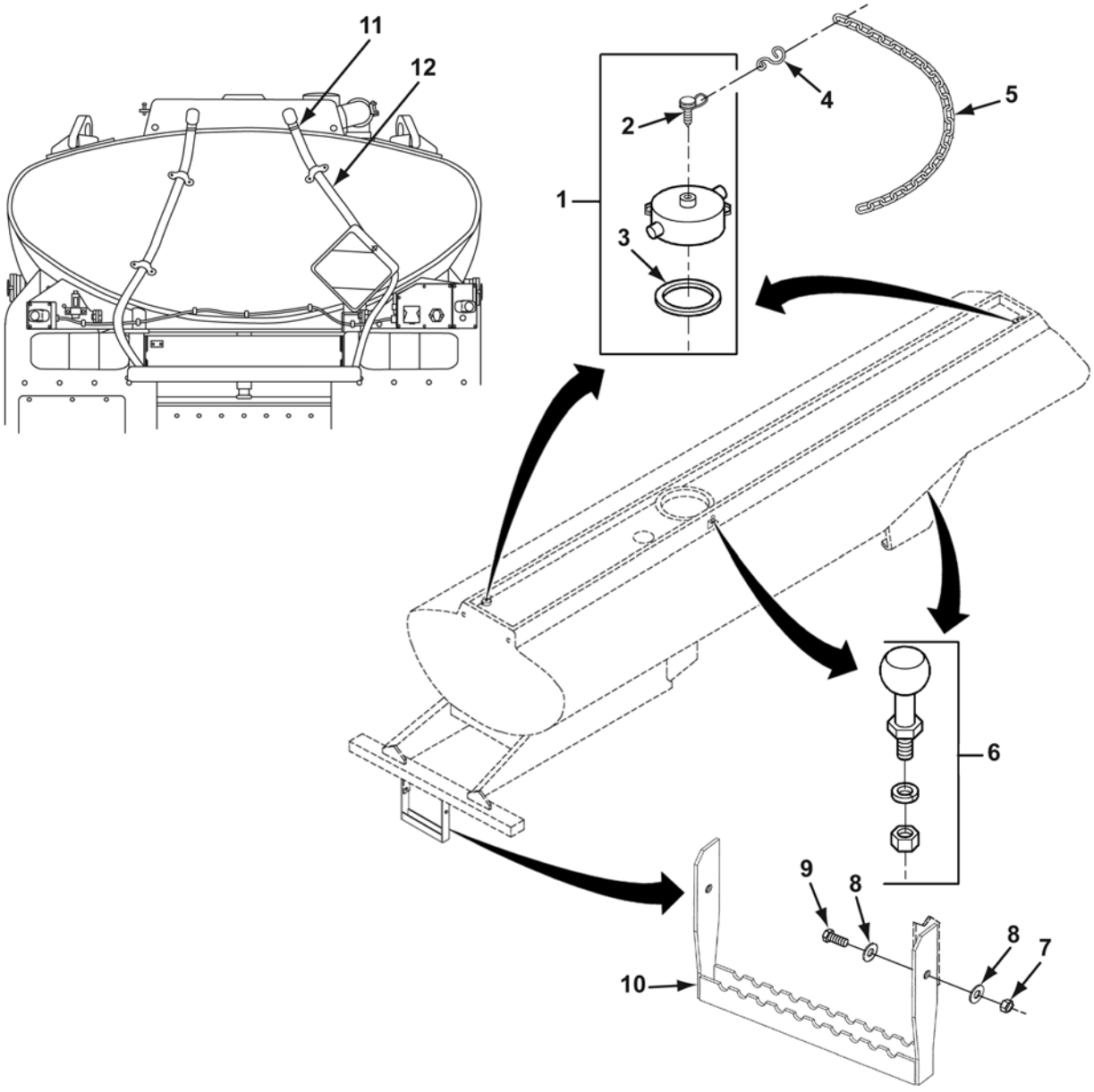


FIGURE 42. MISCELLANEOUS BODY PARTS

GROUP 1811 MISCELLANEOUS BODY PARTS — Continued 0219 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 1811 TANK BODIES	
						FIG. 42 MISCELLANEOUS BODY PARTS	
ARAA1	1	PFOOO	5340-01-508-6874	8K828	3SC	CAP	2
ARAE	2	PFOZZ	5340-01-508-6906	8K828	CLIP	.CLIP, CAP	1
ARAC	3	PFOZZ	5330-01-508-6904	8K828	3TR	.GASKET, RING	1
ARAL	4	PAOZZ	4030-01-503-0447	1R5C8	2AHOOKSS	HOOK, CHAIN, S	2
ARAJ	5	MOOZZ		1R5C8	9121-0005-24	CHAIN,STEEL MAKE FROM CHAIN P/N 9121-0005 (1R5C8), 24 INCHES	2
ARAS	6	PAOZZ	5307-01-389-3445	91840	7523	STUD, BALL	3
ARAY	7	PFOZZ	5310-01-502-8323	1R5C8	9562-0133	NUT, SELF LOCKING HEXAGON 1/2-13	2
ARA1	8	PAOZZ	5310-00-614-3506	80205	MS15795-817	WASHER, FLAT 1/2	4
ARA5	9	PFOZZ	5308-00-174-9462	1R5C8	9738-0015	BOLT, MACHINE 1/2-13 X 1-1/2	2
ARA3	10	PFOZZ	2510-01-508-6055	1R5C8	M121-2651	STEP	1
ARA7	11	PAOZZ		1R5C8	9125-0116	CLAMP, HOSE	2
ARA9	12	PFOZZ		1R5C8	M054-9860	HOSE, FRONT, DRAIN	1
			TM-CODE 2VE			END OF FIGURE	

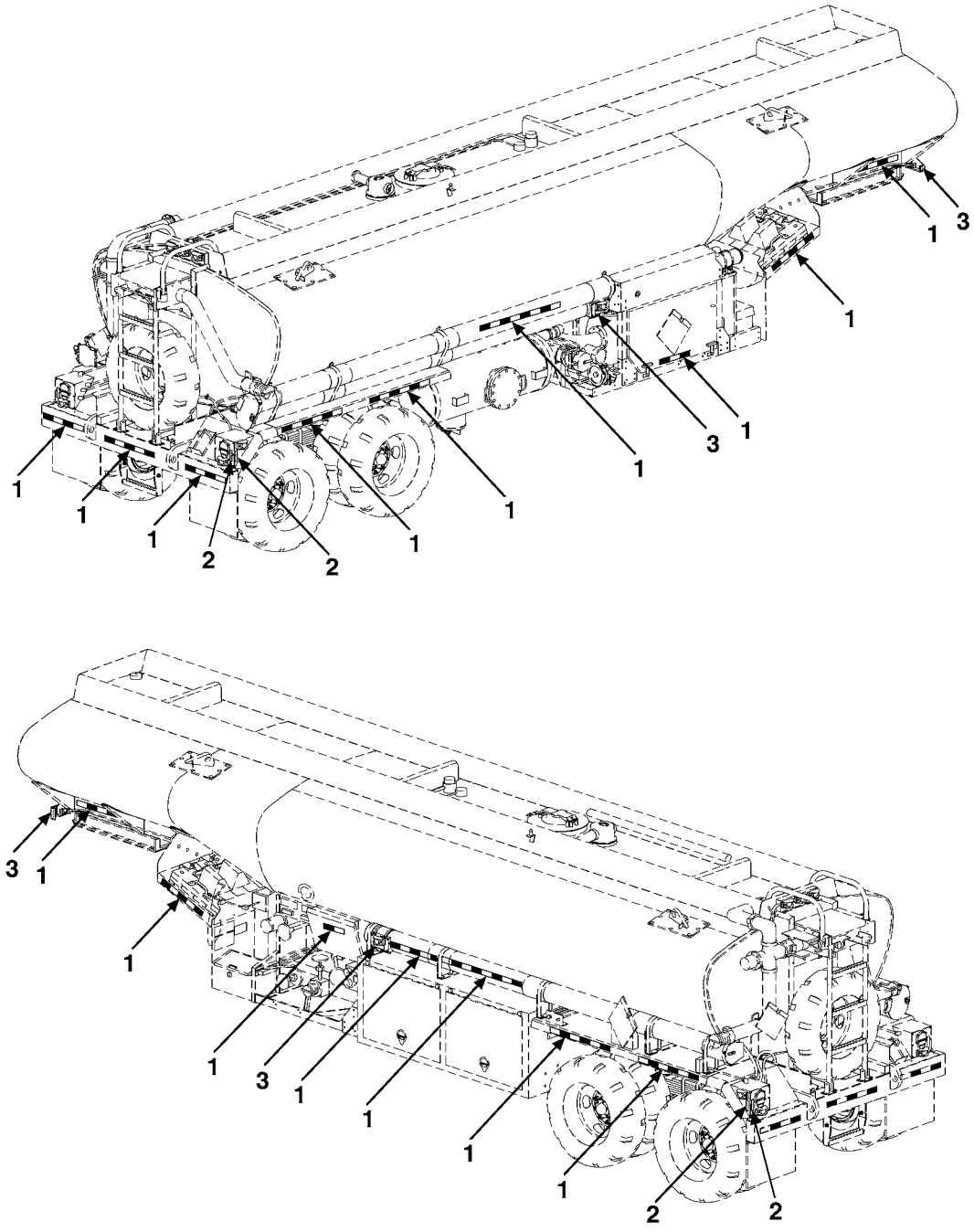


FIGURE 43. REFLECTORS

GROUP 2202 REFLECTORS — Continued **0220 00**

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 22 BODY, CHASSIS AND HULL ACCESSORY ITEMS	
						GROUP 2202 ACCESSORY ITEMS	
						FIG. 43 REFLECTORS	
AKRJ	1	PFOZZ	9390-01-504-6187	13548	98107	TAPE,CONSPICUITY,RED/WHITE, 2 INCH	AR
AKRE	2	PFOZZ	6220-01-506-2958	12662	B491R	REFLECTOR, RED	4
AKRA	3	PFOZZ	6220-01-506-2956	12662	B491A	REFLECTOR, AMBER	4
			TM-CODE 2VE			END OF FIGURE	

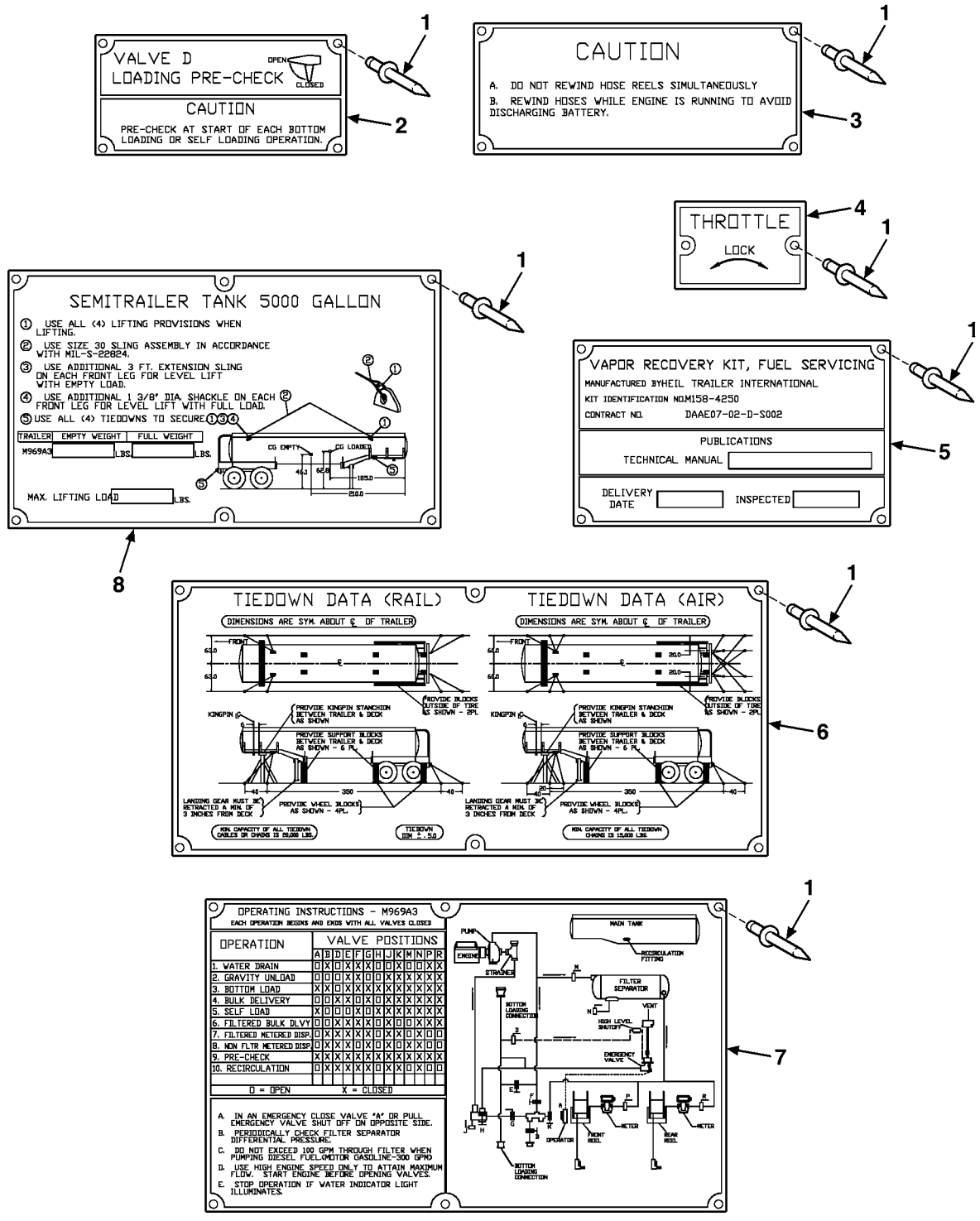


FIGURE 44. VEHICLE I.D., INSTRUCTION PLATES, AND MOUNTING HARDWARE

GROUP 2210 VEHICLE I.D., INSTRUCTION PLATES, AND MOUNTING HARDWARE — Continued

PLISN	(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. 44 VEHICLE I.D., INSTRUCTION PLATES AND MOUNTING HARDWARE	
ALAA	1	PAOZZ	5320-01-504-6880	1R5C8	9682-0047	RIVET, POP	32
ALAJ	2	PFOZZ	9905-01-518-1229	1R5C8	9222-0321	PLATE, LOADING, PRECHECK	1
ALAM	3	PFOZZ	9905-01-518-1230	1R5C8	9222-0313	PLATE, CAUTION, HOSE REEL	1
ALAS	4	PFOZZ	9905-01-518-1231	1R5C8	9222-0320	PLATE, THROTTLE LOCK	1
ALAY	5	PFOZZ	9905-01-518-1228	1R5C8	9222-0317	PLATE, VAPOR RECOVERY KIT	1
ALA1	6	PFOZZ	9905-01-518-1227	1R5C8	9222-0324	PLATE, VEHICLE TIE-DOWN DATA	1
ALA5	7	PFOZZ	9905-01-518-1233	1R5C8	9222-0310	PLATE, VEHICLE OPERATING INSTRUCTIONS	1
ALA9	8	PFOZZ	9905-01-518-1232	1R5C8	9222-0322	PLATE, LIFTING PROVISIONS	1
			TM-CODE 2VE			END OF FIGURE	

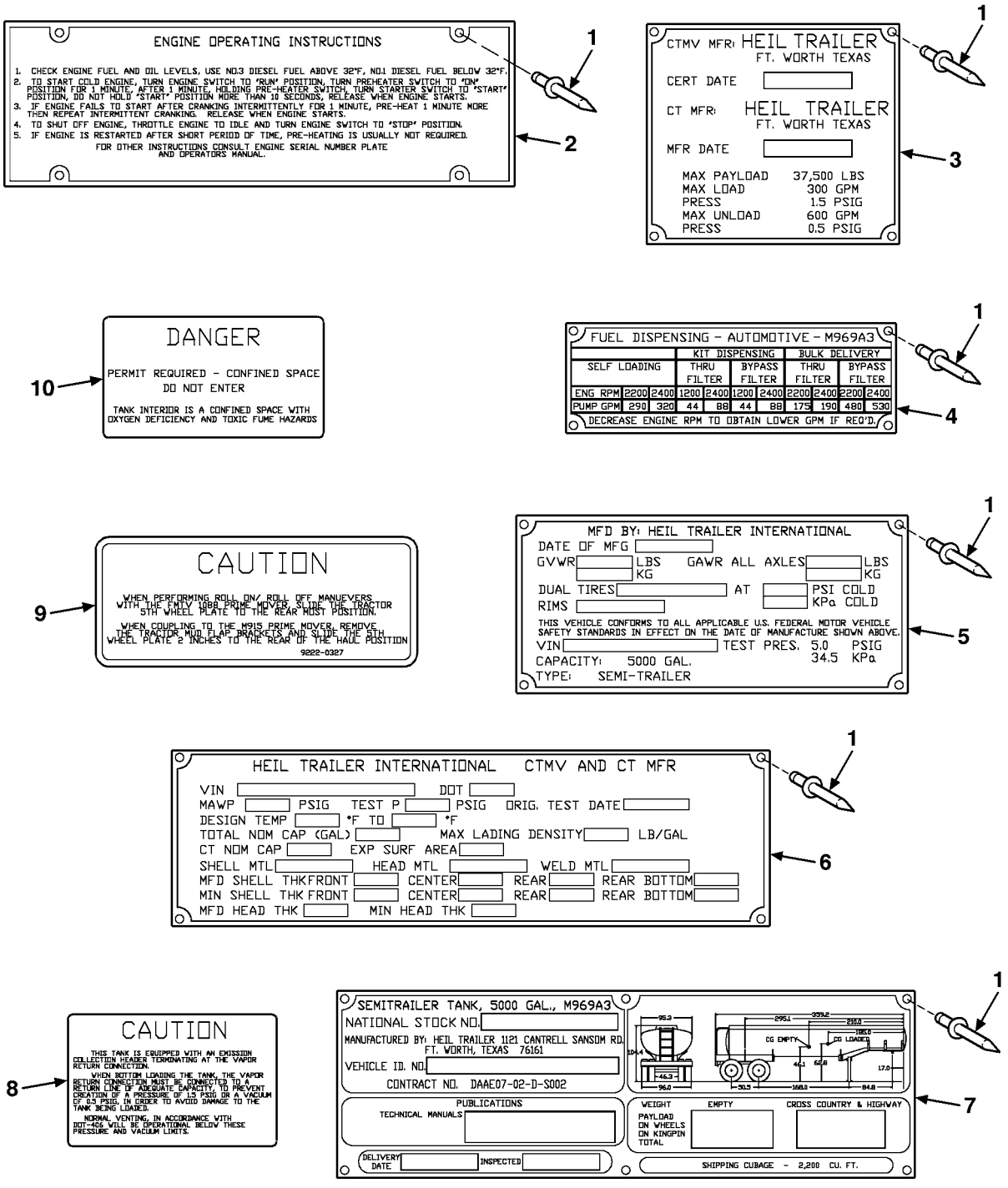


FIGURE 45. VEHICLE I.D., INSTRUCTION PLATES, AND MOUNTING HARDWARE

GROUP 2210 VEHICLE I.D., INSTRUCTION PLATES, AND MOUNTING HARDWARE — Continued

PLISN	(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. 45 VEHICLE I.D., INSTRUCTION PLATES AND MOUNTING HARDWARE	
ALAA	1	PAOZZ	5320-01-504-6880	1R5C8	9682-0047	RIVET, POP	26
ALBE	2	PFOZZ	9905-01-518-0035	1R5C8	9222-0312	PLATE, ENGINE INSTRUCTIONS	1
ALB5	3	PFOZZ	9905-01-518-0034	1R5C8	9653-0044	NAMEPLATE, SPECIFICATION, CTMV & CT MFG	1
ALBJ	4	PFOZZ	9905-01-518-0033	1R5C8	9222-0314	PLATE, 969A3 FLOW RATES	1
ALB3	5	PFOZZ	9905-01-518-3264	1R5C8	9653-0045	NAMEPLATE, FMVSS SAFETY, TIRE	1
ALB7	6	PFOZZ	9905-01-518-0036	1R5C8	9653-0043	NAMEPLATE, DOT, CTMV & CT MFG	1
ALBY	7	PFOZZ	9905-01-518-0032	1R5C8	9222-0318	PLATE, WEIGHT DISTRIBUTION	1
ALBS	8	PBOZZ	7690-01-504-6952	1R5C8	9222-0316	DECAL, CAUTION VAPOR CONNECTION	1
ALB8	9	PBOZZ	7690-01-504-6901	1R5C8	9222-0327	DECAL, CAUTION ROLL ON/OFF MANEUVERS	1
ALB9	10	PBOZZ	7690-01-504-6947	1R5C8	9222-0328	DECAL, CAUTION CONFINED SPACE	1
			TM-CODE 2VE			END OF FIGURE	

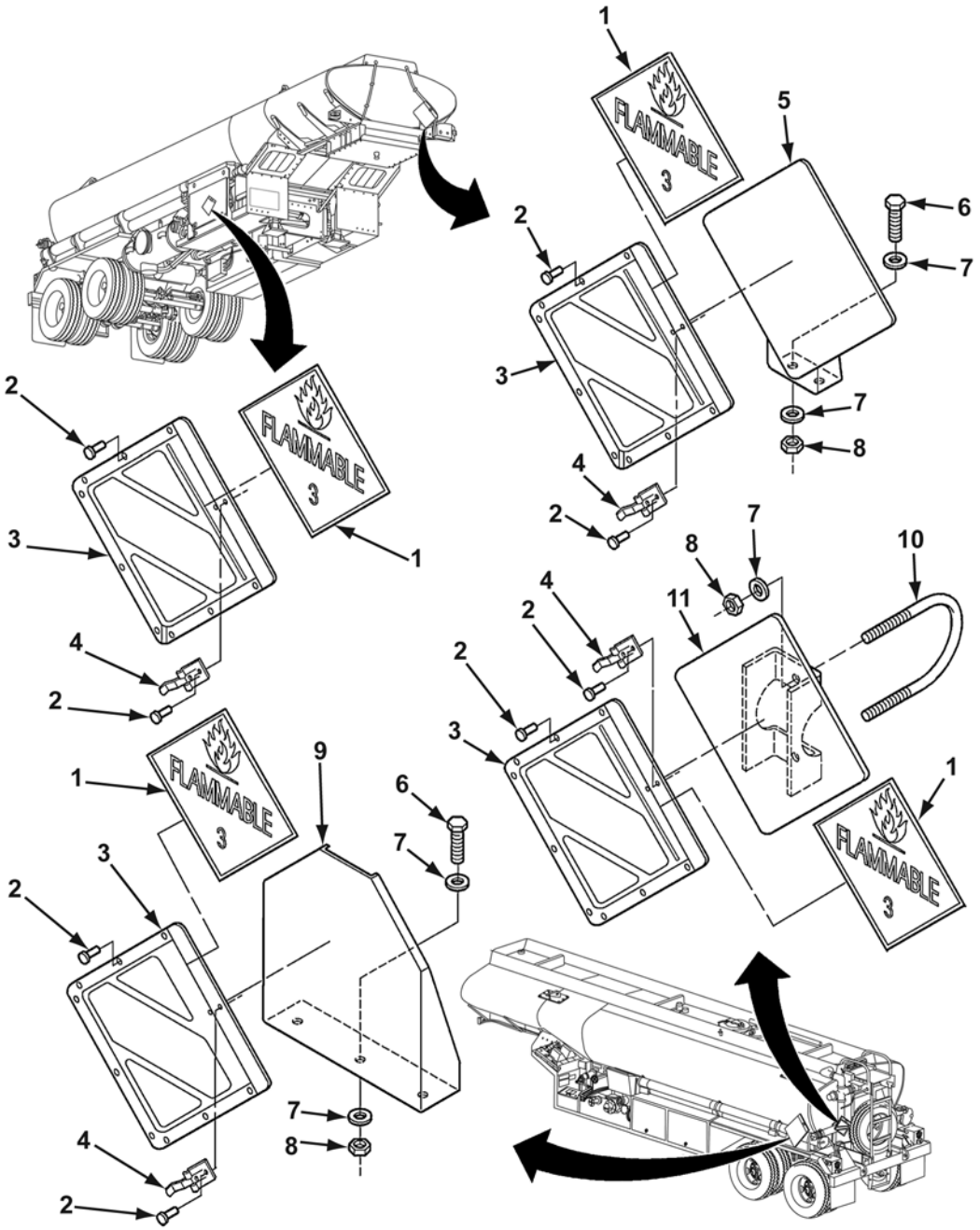


FIGURE 46. HAZARDOUS MATERIAL PLACARDS

GROUP 2210 HAZARDOUS MATERIAL PLACARDS — Continued 0223 00

PLISN	(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. 46 HAZARDOUS MATERIAL PLACARDS	
AVAA	1	PFOZZ	7690-01-506-2946	67634	ZT2-1203	PLACARD,TAGBOARD	4
AVAJ	2	PFOZZ	5320-01-504-6880	1R5C8	9682-0047	POP RIVET	44
AVAC	3	PFOZZ	9905-01-517-8477	67634	80SM97	HOLDER,PLACARD,SLIDEMASTER	4
AVAE	4	PFOZZ	5340-01-506-2928	67634	80-CLIP	CLIP,SLIDEMASTER	3
AVA3	5	PFOZZ	5340-01-506-2895	1R5C8	M311-3199	MOUNT	1
AVAS	6	PFOZZ	5305-00-021-3668	80205	M835307-310	SCREW,CAP,HEXAGON HEAD	5
AVAY	7	PFOZZ	5310-00-802-4701	96906	MS15795-813	WASHER,FLAT	12
AVA1	8	PFOZZ	5310-01-502-8330	1R5C8	9562-0046	NUT,LOCK	7
AVAM	9	PFOZZ	5340-01-506-2859	1R5C8	M311-2180	MOUNT	1
AVA7	10	PFOZZ	5306-01-510-2708	1R5C8	9043-0084	U BOLT	1
AVA5	11	PFOZZ	5340-01-506-2901	1R5C8	M311-3202	MOUNT	1
			TM-CODE 2VE			END OF FIGURE	

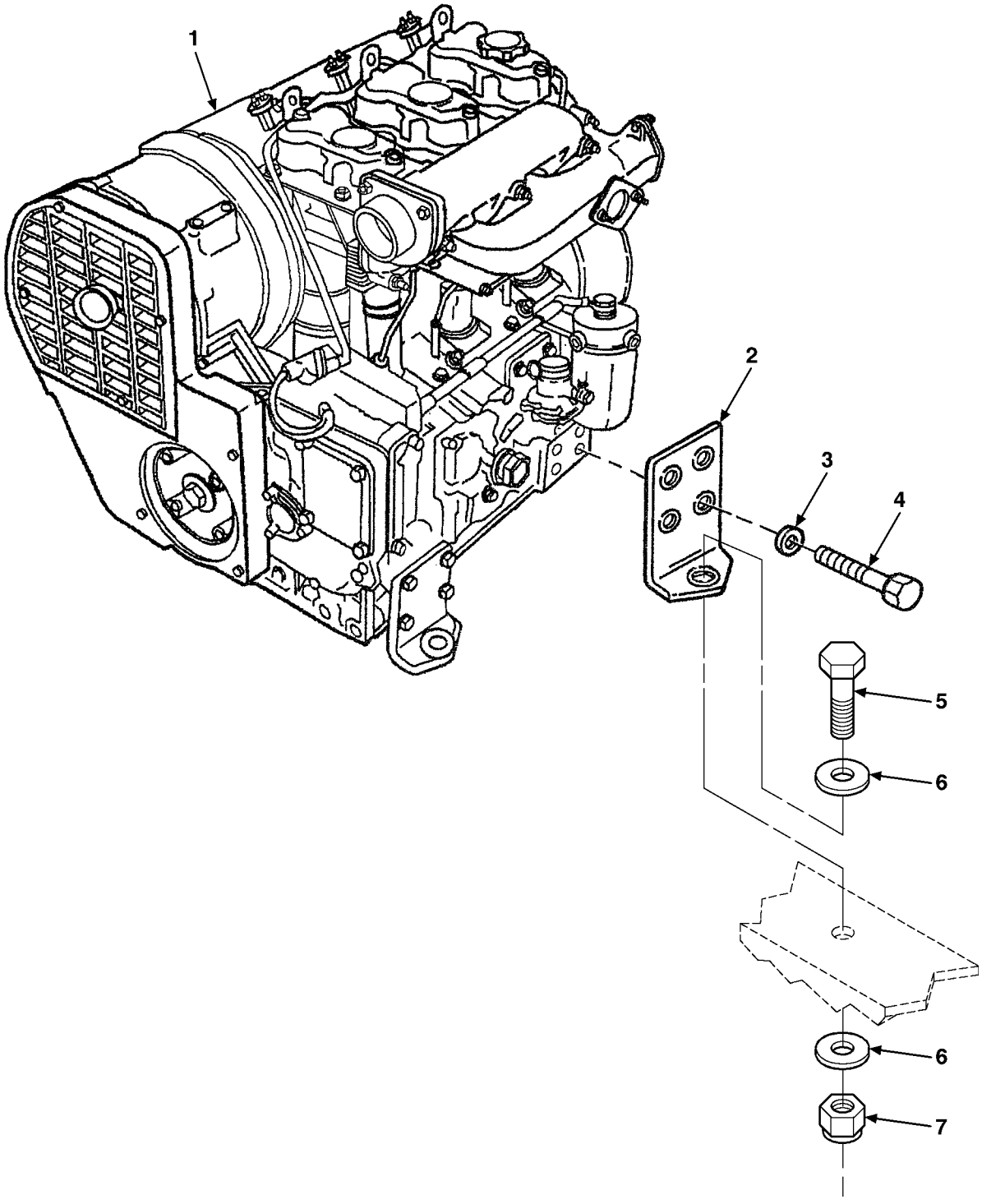


FIGURE 47. ENGINE ASSEMBLY

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 29 AUXILIARY GENERATOR AND ENGINE AND CONTROLS	
						GROUP 2910 ENGINE ASSEMBLY	
						FIG. 47 ENGINE ASSEMBLY	
AMAA	1	PFOFF	2815-01-446-2035	2X179	11LD626-3	ENGINE, DIESEL	1
AMAC	2	PAFZZ	5340-01-458-7226	2X179	625.6429.047	BRACKET, MOUNTING	4
AMAE	3	PAFZZ	5310-01-324-8343	2X179	9.7565.011	WASHER, LOCK	16
AMAG	4	PAFZZ	5305-01-333-5381	2X179	9.1780.007	SCREW, CAP, HEXAGON HEAD	16
AMAJ	5	PAFZZ	5305-01-508-6013	39428	91257A826	SCREW, CAP, HEXAGON HEAD 5/8-18 X 2-1/2	4
AMAL	6	PAFZZ	5310-00-614-3505	80205	MS15795-820	WASHER, FLAT 5/8	8
AMAQ	7	PAFZZ	5310-01-508-5907	39428	97135A275	NUT, SELF-LOCKING, HEXAGON 5/8-18	4
			TM-CODE 2VE			END OF FIGURE	

GROUP 2911 ENGINE BLOCK ASSEMBLY **0225 00**

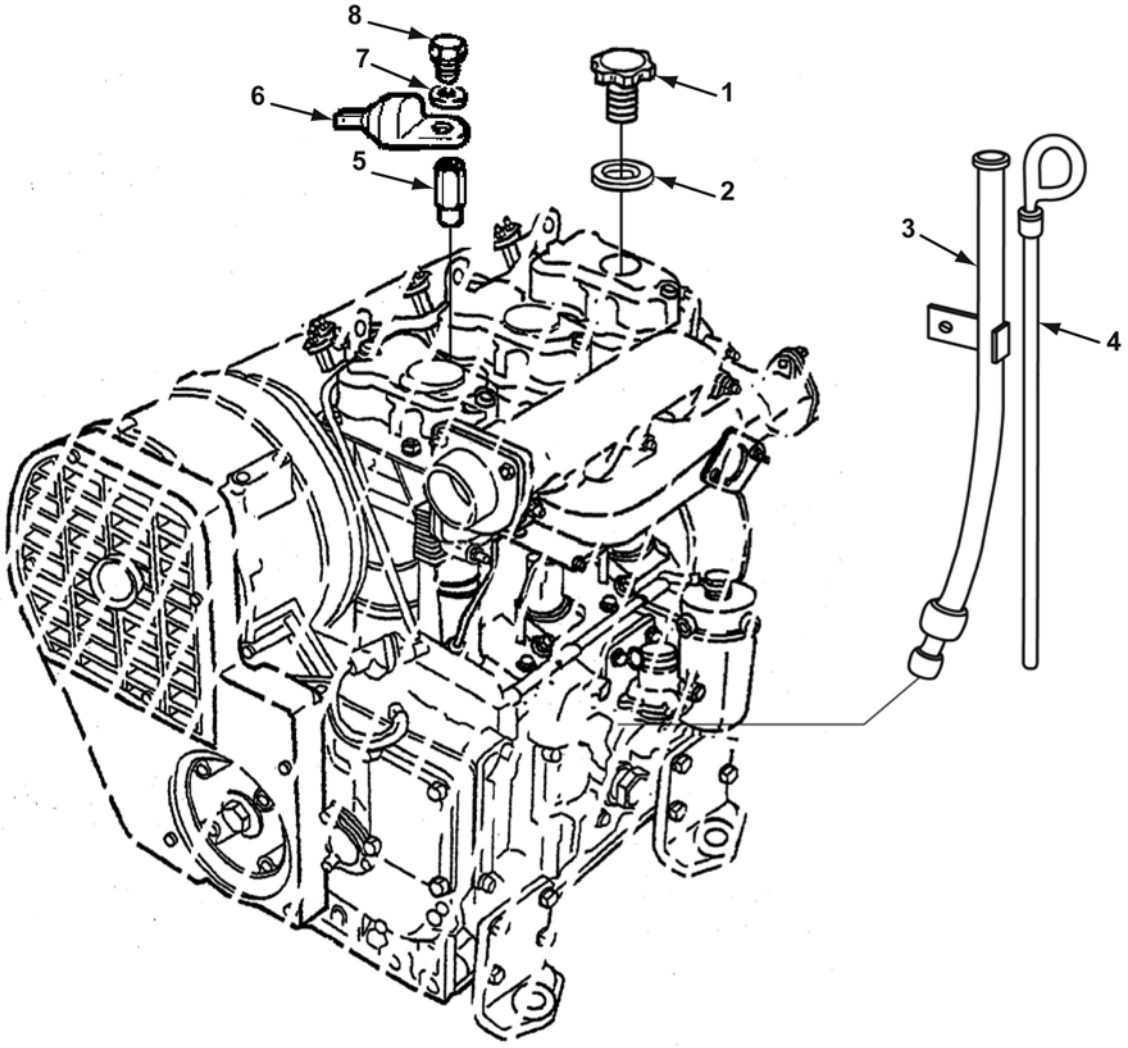


FIGURE 48. ENGINE BLOCK ASSEMBLY

GROUP 2911 ENGINE BLOCK ASSEMBLY — Continued 0225 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 2911 CRANKCASE, CYLINDER SLEEVE, CYLINDER HEAD AND BLOCK	
						FIG. 48 ENGINE BLOCK ASSEMBLY	
AMHA	1	PAOZZ	2590-01-395-0523	2X179	9032.064	CAP, FILLER OPENING	1
AMHE	2	PAOZZ	5330-01-323-5455	2X179	9.1200.015	SEAL, PLAIN	1
AMHL1	3	PAOZZ		2X179	9330.024	GUARD, DIPSTICK	1
AMHQ1	4	PAOZZ		2X179	1400.135	DIPSTICK	1
AMHU1	5	PAOZZ		2X179	3300.227	NUT, ELONGATED	1
AMHZ1	6	PFOZZ		2X179	9195.104	HEAD, THERMOSTAT	1
AMH31	7	PAOZZ		2X179	7565.011	WASHER, FLAT	1
AMH71	8	PAOZZ		2X179	1780.003	BOLT, HEXAGON HEAD	1
			TM-CODE 2VE			END OF FIGURE	

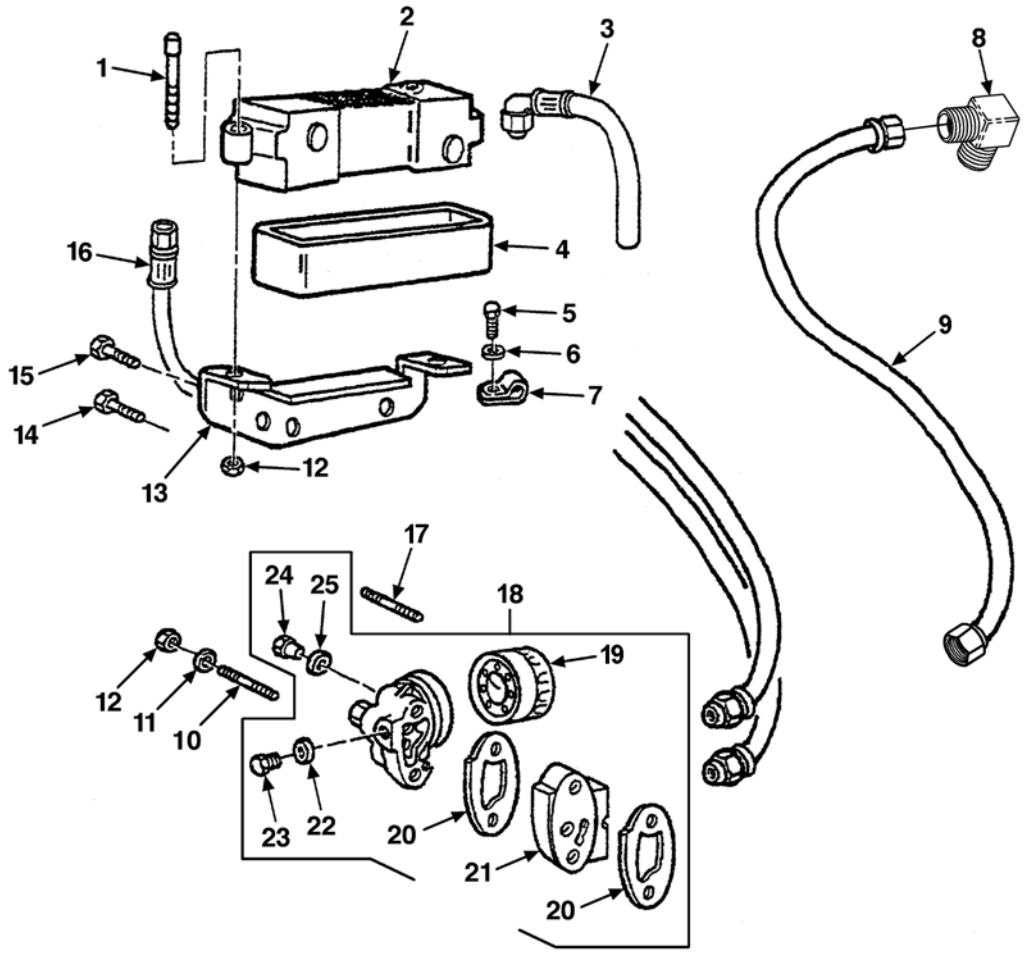


FIGURE 49. ENGINE OIL SYSTEMS GROUP

GROUP 2916 ENGINE OIL SYSTEMS GROUP — Continued 0226 00

PLISN	(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. 49 ENGINE OIL SYSTEMS GROUP	
AMJA1	1	PAOZZ	5205-01-324-8388	2X179	9.9730.032	SCREW, CAP, HEXAGON HEAD	2
AMJE	2	PFOZZ	2930-01-436-2109	2X179	832.7350.007	RADIATOR, ENGINE COOLING	1
AMJL	3	PAOZZ	4720-01-453-2929	2X179	9485.176	OIL PIPE	1
AML3	4	PAOZZ	2930-15-148-1969	2X179	625.4775.422	GUARD, DIESEL ENGINE	1
AMJQ	5	PAOZZ	5305-01-453-7239	2X179	9.1770.001	SCREW, CAP, HEXAGON HEAD	1
AMJU	6	PAOZZ	5310-01-324-8334	2X179	9.7625.010	WASHER, FLAT	1
AMJZ	7	PAOZZ	5340-01-325-2650	2X179	5000.3617.021	CLAMP, LOOP	1
AMMZ1	8	PAOZZ		1R5C7	9292-0129	FITTING, BRASS, 90 DEGREE	1
AMM11	9	PAOZZ		2X179	9485.083	HOSE,OIL	1
AMK9	10	PAOZZ	5307-01-454-3501	2X179	9.6780.028	STUD, PLAIN	1
AMLA	11	PAOZZ	5310-01-324-8334	2X179	9.7625.010	WASHER, FLAT	2
AMLE	12	PAOZZ	5310-01-324-8246	2X179	3240.018	NUT, PLAIN, HEXAGON	4
AMLQ	13	PFOZZ	2930-01-455-7597	2X179	625.8545.271	BRACE, OIL COOLER	1
AMLU	14	PAFZZ	5305-01-458-1623	2X179	1770-056	SCREW, CAP, HEXAGON HEAD	1
AMLZ	15	PAFZZ	5305-01-324-8355	2X179	9.9732.074	SCREW, CAP, SOCKET HEAD	3
AML1	16	PAOZZ	4920-01-455-3224	2X179	9485.177	OIL PIPE	1
AML7	17	PAOZZ	5307-01-454-3504	2X179	9.6780.034	STUD, PLAIN	1
AML9	18	PFOZZ	2940-01-452-9419	2X179	3740.043	HEAD, FLUID FILTER	1
AMMA	19	PAOZZ	2940-01-324-5153	2X179	904.2175.040	.FILTER ELEMENT, FLUID	1
AMMQ	20	PAOZZ	5330-01-458-5601	2X179	904.4730.533	.GASKET	2
AMMU	21	PAOZZ	9515-01-510-5881	2X179	625.6370.137	.PLATE	1
AMK5	22	PAOZZ	5310-01-324-8325	2X179	276.4670.014	.WASHER, FLAT	1
AMK7	23	PAOZZ	4730-01-461-1297	2X179	9.8965.021	.PLUG,PIPE	1
AMLL	24	PAOZZ	5365-01-333-5129	2X179	9.8965.003	.PLUG,MACHINE THREAD	1
AML5	25	PAOZZ	5310-01-332-8236	2X179	9.4670.058	.WASHER, FLAT	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 2918 ENGINE INTAKE MANIFOLD **0227 00**

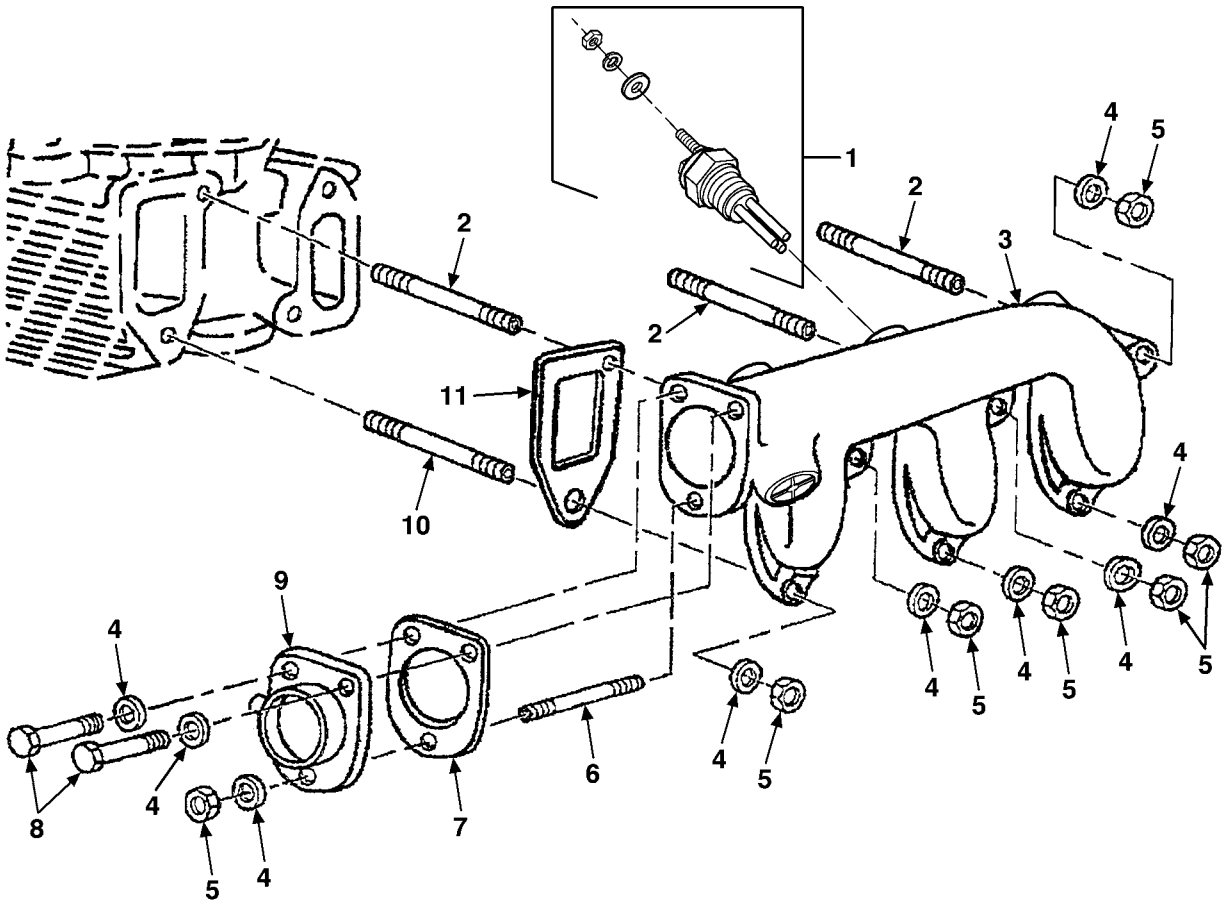


FIGURE 50. ENGINE INTAKE MANIFOLD

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 2918 MANIFOLDS	
						FIG. 50 ENGINE INTAKE MANIFOLD	
AMPW	1	PAOZZ	2920-15-155-5288	A1212	2100.056	GLOW PLUG	3
AMPA	2	PAOZZ	5307-01-454-3503	2X179	9.6780.031	STUD, PLAIN	3
AMPE	3	PBOZZ	2990-01-452-7605	2X179	625.2486.043	MANIFOLD, INTAKE	1
AMPG	4	PAOZZ	5310-01-340-8352	2X179	9.7565.007	WASHER, LOCK	9
AMPJ	5	PAOZZ	5310-01-324-8246	2X179	3240.018	NUT, PLAIN, HEXAGON	17
AMPL	6	PAOZZ	5307-01-341-2950	2X179	9.6780.008	STUD, PLAIN	1
AMPN	7	PAOZZ	5330-00-459-2294	2X179	625.4490.086	GASKET	1
AMPQ	8	PAOZZ	5305-01-458-1622	2X179	1770-006	SCREW, CAP, HEXAGON HEAD	2
AMPU	9	PAOZZ	2805-01-502-9885	2X179	0000-N6E	ADAPTER, INTAKE MANIFOLD	1
AMPS	10	PAOZZ	5307-01-327-3439	2X179	9.6780.084	STUD, PLAIN	3
AMPC	11	PAOZZ	5330-01-351-7676	2X179	560.4420.020	GASKET	3
			TM-CODE 2V3			END OF FIGURE	

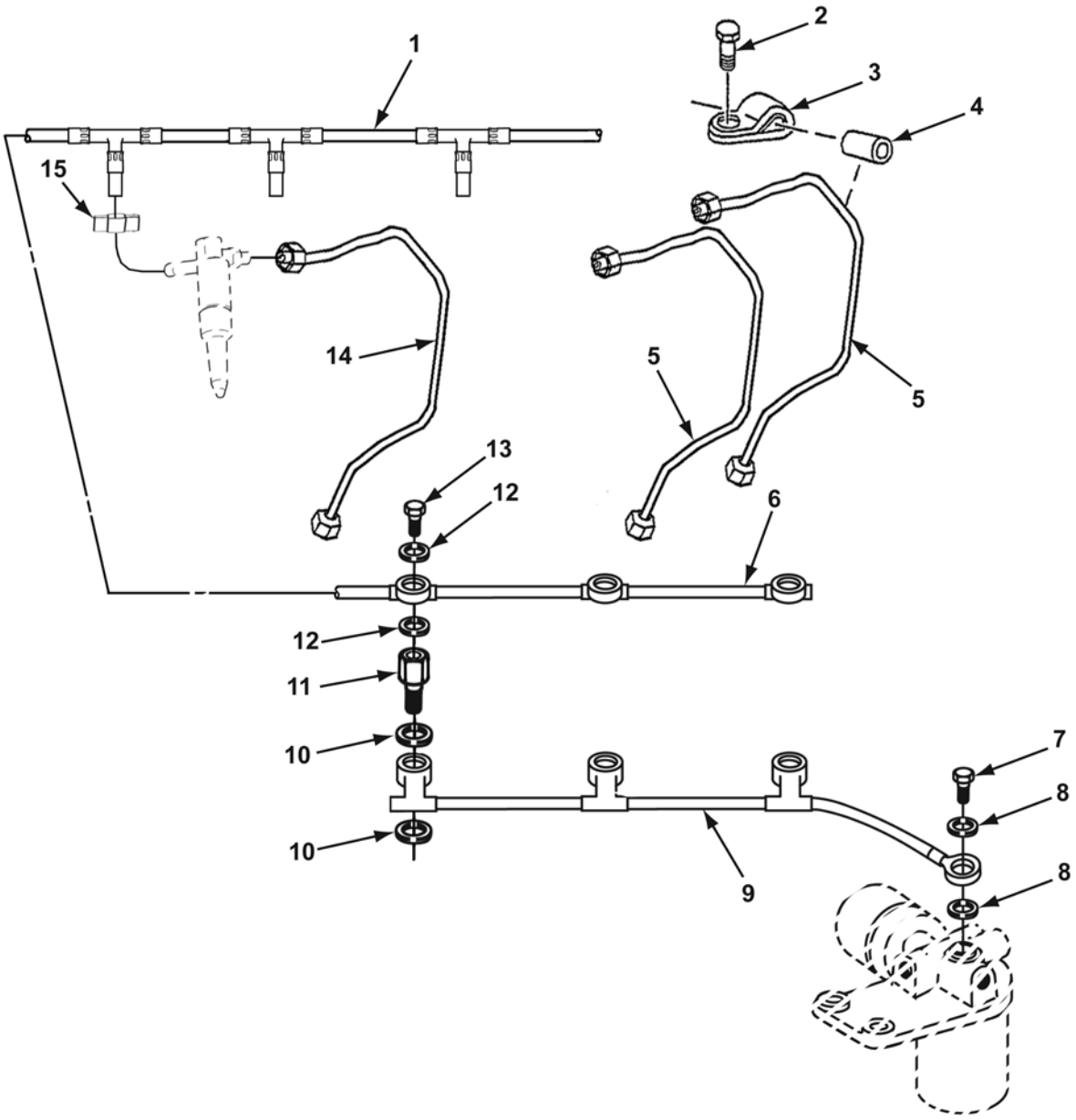


FIGURE 51. ENGINE FUEL INJECTOR SYSTEM

GROUP 2932 ENGINE FUEL INJECTOR SYSTEM — Continued 0228 00

PLISN	(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. 51 ENGINE FUEL INJECTOR SYSTEM	
AMB11	1	PAOZZ		2X179	9571.229	PIPE, METALLIC	1
AMBE	2	PAOZZ	5305-01-454-3506	2X179	9.1755.002	SCREW, CAP, SOCKET HEAD	3
AMBG	3	PAOZZ	5340-01-327-3444	2X179	276.3616.018	CLAMP, LOOP	3
AMBH	4	PAOZZ	5365-01-324-3425	2X179	276.5400.046	BUSHING, NONMETALLIC	3
AMBK	5	PFOZZ	4710-01-453-3278	2X179	9375.165	TUBE ASSEMBLY, METAL	2
AMBR1	6	PAOZZ		2X179	9375.281	PIPE, METALLIC	1
AMBM1	7	PAOZZ	5306-01-458-1625	2X179	1901-032	BOLT, MACHINE	1
AMBP	8	PAOZZ	5310-01-458-4309	2X179	9.4670.061	WASHER, FLAT	2
AMBT1	9	PAOZZ		2X179	9375.660	PIPE, METALLIC	1
AMBV2	10	PAOZZ		2X179	4620.060	WASHER, FLAT	6
AMBX1	11	PAOZZ		2X179	1901.031	BOLT, UNION	3
AMBC	12	PAOZZ	5310-01-332-8236	2X179	9.4670.058	WASHER, FLAT	6
AMBA	13	PAOZZ	5306-01-323-8814	2X179	9.1901.029	BOLT, METRIC	3
AMBZ	14	PFOZZ	4710-01-453-3273	2X179	9375.167	PIPE, FUEL INJECTOR	1
AMBF	15	PAOZZ		2X179	3630.050	CLAMP, HOSE	3
			TM-CODE 2VE			END OF FIGURE	

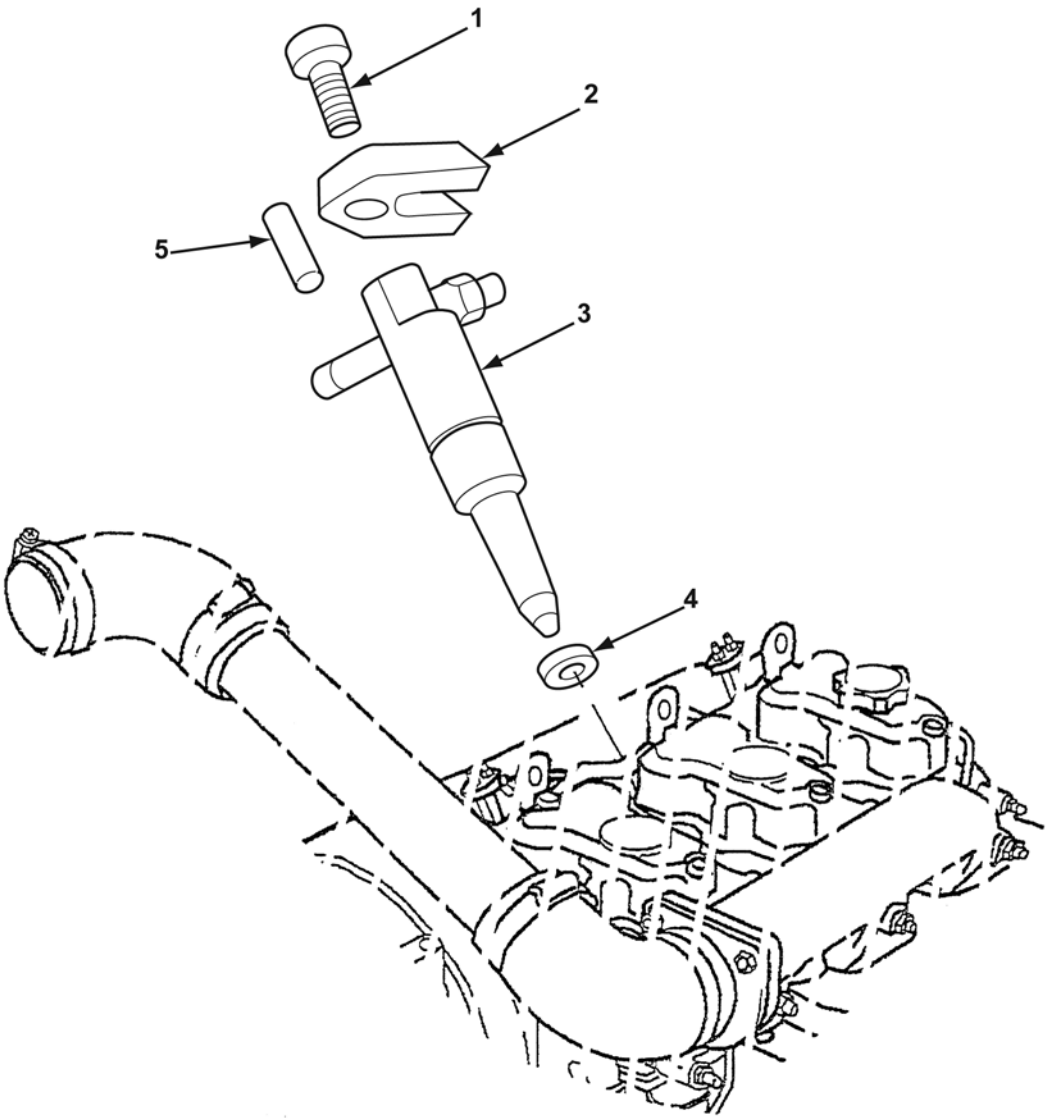


FIGURE 52. NOZZLE AND HOLDER ASSEMBLY

GROUP 2932 NOZZLE AND HOLDER ASSEMBLY — Continued 0229 00

PLISN	(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. 52 NOZZLE AND HOLDER ASSEMBLY	
AMCA2	1	PAOZZ		2X179	9738-018	SCREW, METRIC 6X45	3
AMCD1	2	PAOZZ		2X179	8545.610	BRACKET	3
AMCG1	3	PAOOO		2X179	6615.104	NOZZLE, FUEL INJECTION	3
AMCP1	4	PAOZZ		2X179	4670.107	GASKET	3
AMCZ1	5	PAOZZ		2X179	8400.139	PIN, LOCK	3
			TM-CODE 2VE			END OF FIGURE	

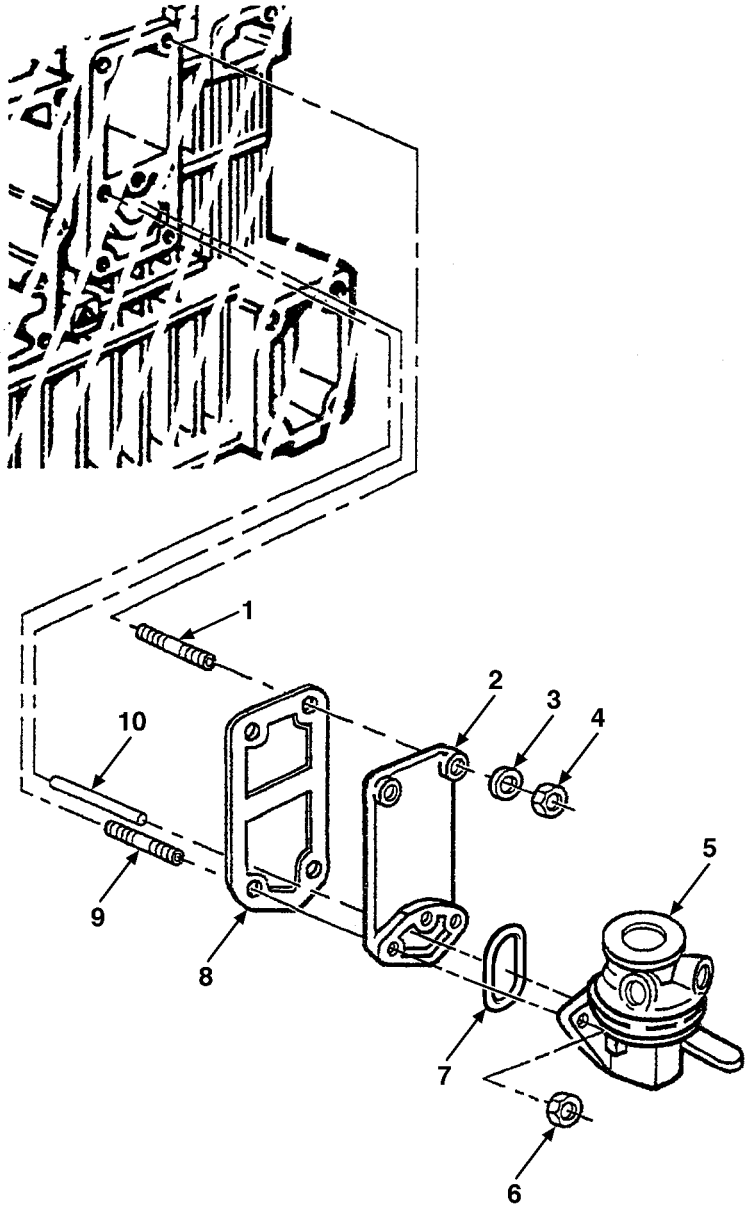


FIGURE 53. ENGINE FUEL PUMP ASSEMBLY

GROUP 2932 ENGINE FUEL PUMP ASSEMBLY — Continued 0230 00

PLISN	(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. 53 ENGINE FUEL PUMP ASSEMBLY	
AMDA1	1	PAOZZ	5307-01-341-2950	2X179	9.6780.008	STUD, PLAIN	2
AMDC	2	PFOZZ	5340-01-458-8586	2X179	625.2655.032	COVER, ACCESS	1
AMDF	3	PAOZZ	5310-01-340-8352	2X179	9.7565.007	WASHER, LOCK	2
AMDH	4	PAOZZ	5310-01-324-8246	2X179	3240.018	NUT, PLAIN, HEXAGON	2
AMDK	5	PFOZZ	2910-01-511-8382	2X179	625.6585.079	PUMP, FUEL, CAM ACTUATED	1
AMDM1	6	PAOZZ	5310-01-458-4305	2X179	9.3203.093	NUT, PLAIN, HEXAGON	2
AMDP	7	PAOZZ	5331-01-458-2589	2X179	9.1200.087	O-RING	1
AMDR	8	PAOZZ	5330-01-453-5497	2X179	625.4431.069	GASKET	1
AMDT	9	PAOZZ	5307-01-458-1627	2X179	6780-070	STUD, PLAIN	2
AMDV	10	PFOZZ	5340-01-459-1516	2X179	625.7200.167	ROD, STRAIGHT, HEADLESS	1
			TM-CODE 2VE			END OF FIGURE	

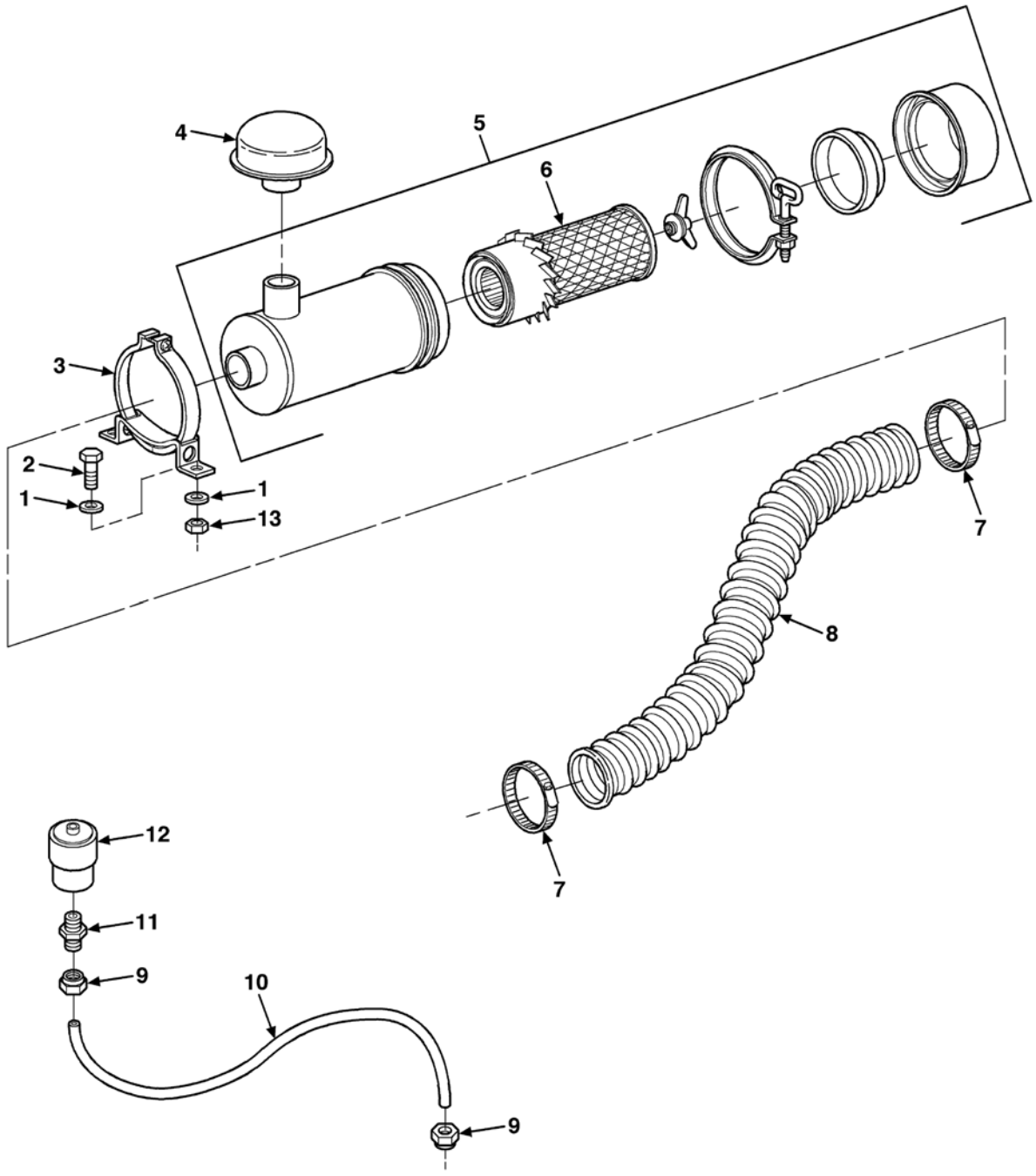


FIGURE 54. AIR CLEANER ASSEMBLY

PLISN	(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. 54 AIR CLEANER ASSEMBLY	
AMEA	1	PAOZZ	5310-00-614-3506	80205	MS15795-817	WASHER, FLAT	8
AMEC	2	PAOZZ	5305-01-512-0581	1R5C8	9738-0015	SCREW, CAP, HEXAGON HEAD	4
AMEE	3	PAOZZ	5340-01-074-8126	19207	11668089	CLAMP, LOOP	2
AMEG	4	PAOZZ	2940-00-325-4438	18265	DNX002018	HOOD, INLET	1
AMEH	5	PAOOO	2940-00-494-9491	18265	FWG05-2510	AIR CLEANER, INTAKE	1
AMEK	6	PAOZZ	2940-00-934-7989	18265	SMP18-1050	.FILTER ELEMENT, INTAKE AIR CLEANER	1
AMEM	7	PAOZZ	4730-00-278-9211	91340	D9484-57-41	.CLAMP, HOSE	2
AMEP	8	PAOZZ		1R5C8	9229-0001	HOSE, AIR DUCT	1
AMER	9	PAOZZ	4730-01-055-4017	93061	VS68NTA-4-2	ADAPTER,STRAIGHT PIPE TO TUBE	2
AMET	10	MOOZZ		1R5C8	9392-0219	HOSE, NONMETALLIC MAKE FROM HOSE PART NUMBER 4LOLA (24161), 3 FEET	1
AMEV	11	PAOZZ	4730-00-706-7761	75755	AR44361	NIPPLE, PIPE	1
AMEX	12	PAOZZ	2910-00-400-6861	6N299	4021600	RESTRICTION INDICATOR	1
AMEZ	13	PAOZZ	5310-01-502-8323	1R5C8	9562-0133	NUT, SELF-LOCKING, HEXAGON	4
			TM-CODE 2VE			END OF FIGURE	

GROUP 2935 ENGINE FUEL LINES **0232 00**

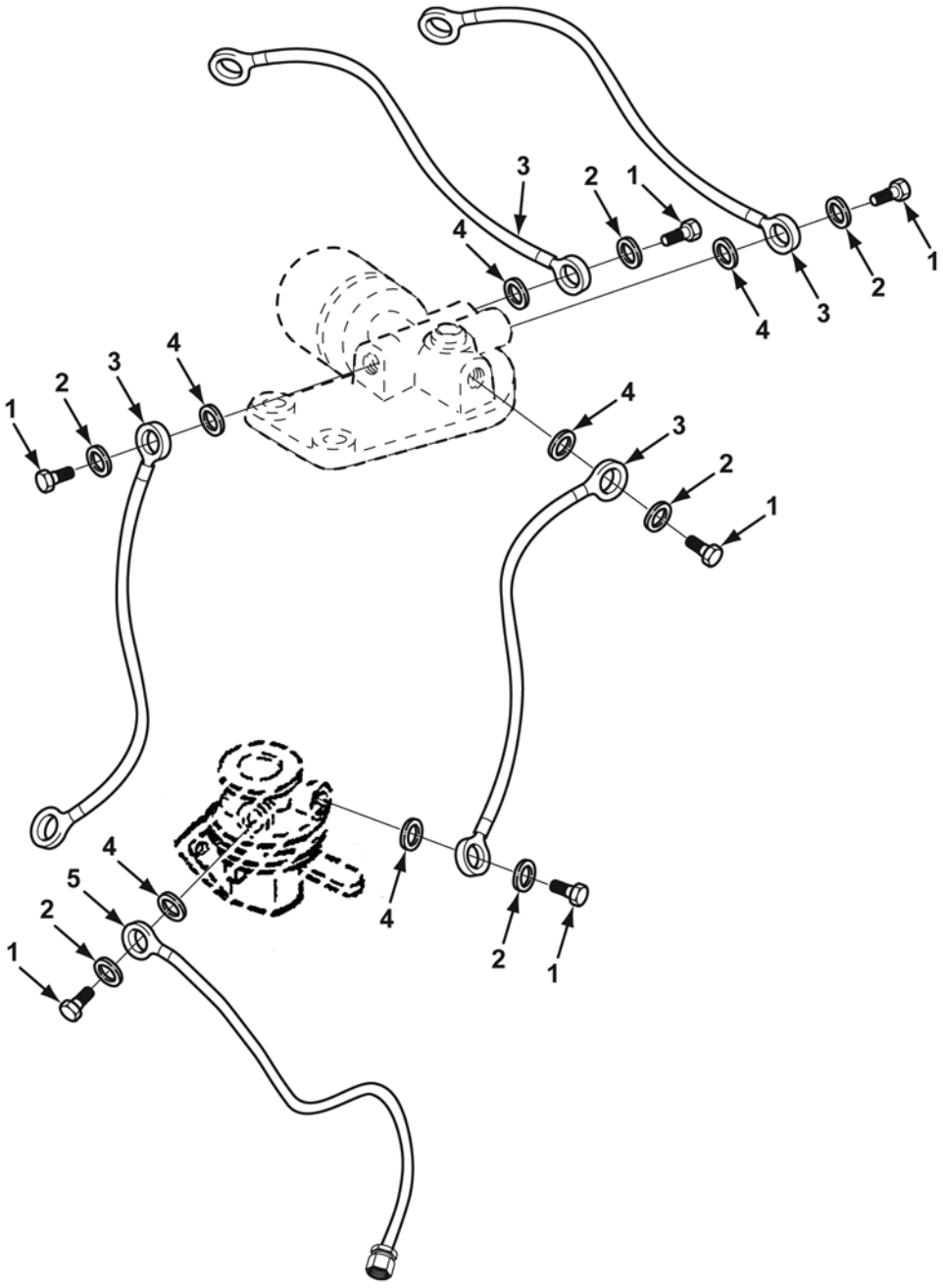


FIGURE 55. ENGINE FUEL LINES

PLISN	(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. 55 ENGINE FUEL LINES	
AMQC	1	PAOZZ	5306-01-458-1625	2X179	1901-032	BOLT, MACHINE	6
AMQA	2	PAOZZ	5310-01-458-4309	2X179	9.4670.061	WASHER, FLAT	6
AMQN1	3	PAOZZ		2X179	9373.002	HOSE, FUEL	4
AMQG	4	PAOZZ	5310-01-351-7802	2X179	9.4670.059	WASHER, FLAT	6
AMQJ	5	PAOZZ	4710-01-459-0003	2X179	9375-855	PIPE, FUEL	1
			TM-CODE 2VE			END OF FIGURE	

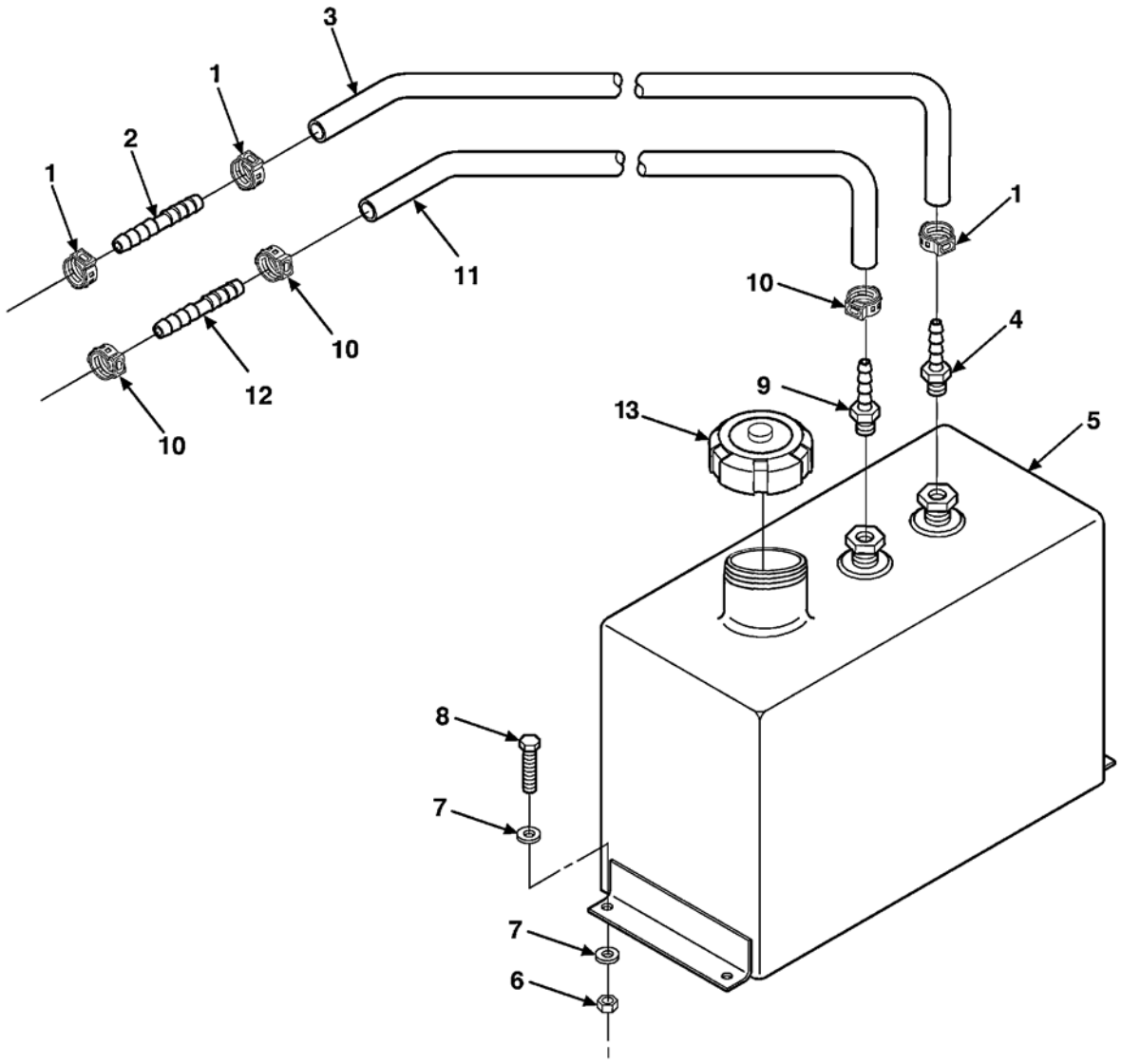


FIGURE 56. FUEL TANK ASSEMBLY

GROUP 2935 FUEL TANK ASSEMBLY — Continued 0233 00

PLISN	(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. 56 FUEL TANK ASSEMBLY	
AAPC	1	PAOZZ	4730-01-506-1798	1R5C8	9125-0147	CLAMP, HOSE, CRIMP 3/8	3
AAPE	2	PAOZZ	4730-01-506-1815	73402	178-0404	MENDER, HOSE 1/4	1
AAPJ	3	MOOZZ		1R5C8	9392-0219	HOSE, NONMETALLIC 1/4 INCH, MAKE FROM HOSE P/N 4LOLA (24161), AS REQUIRED	1
AAPM	4	PAOZZ	4730-01-506-1838	73402	104-0304	ADAPTER, STRAIGHT 3/16 X 3/8	1
AAPA	5	PFOZZ	2910-01-504-6509	2R206	TM5005	TANK, FUEL, 5 GALLON	1
AAPB	6	PA0ZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING, FLANGE 3/8-16	4
AAPD	7	PA0ZZ	5310-01-280-5796	96906	MS27183-57	WASHER, FLAT 3/8	8
AAPG	8	PA0ZZ	5305-00-269-3211	80205	MS90725-60	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1	4
AAPS	9	PA0ZZ	4730-01-466-4498	73402	102-0404	ADAPTER, STRAIGHT ¼ X 3/8	1
AAPY	10	PAOZZ	4730-01-506-1946	1R5C8	9125-0146	CLAMP, HOSE, CRIMP 1/4	3
AAP1	11	MOOZZ		1R5C8	9392-0220	HOSE, NONMETALLIC 3/16 INCH, MAKE FROM HOSE P/N 70650 (61125), AS REQUIRED	1
AAP3	12	PAOZZ	4730-01-055-6082	73402	178-0303	MENDER, HOSE 3/16	1
AAP5	13	PAOZZ		1R5C8	9118-0159	CAP, FUEL	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 2937 ENGINE FUEL FILTER ASSEMBLY 0234 00

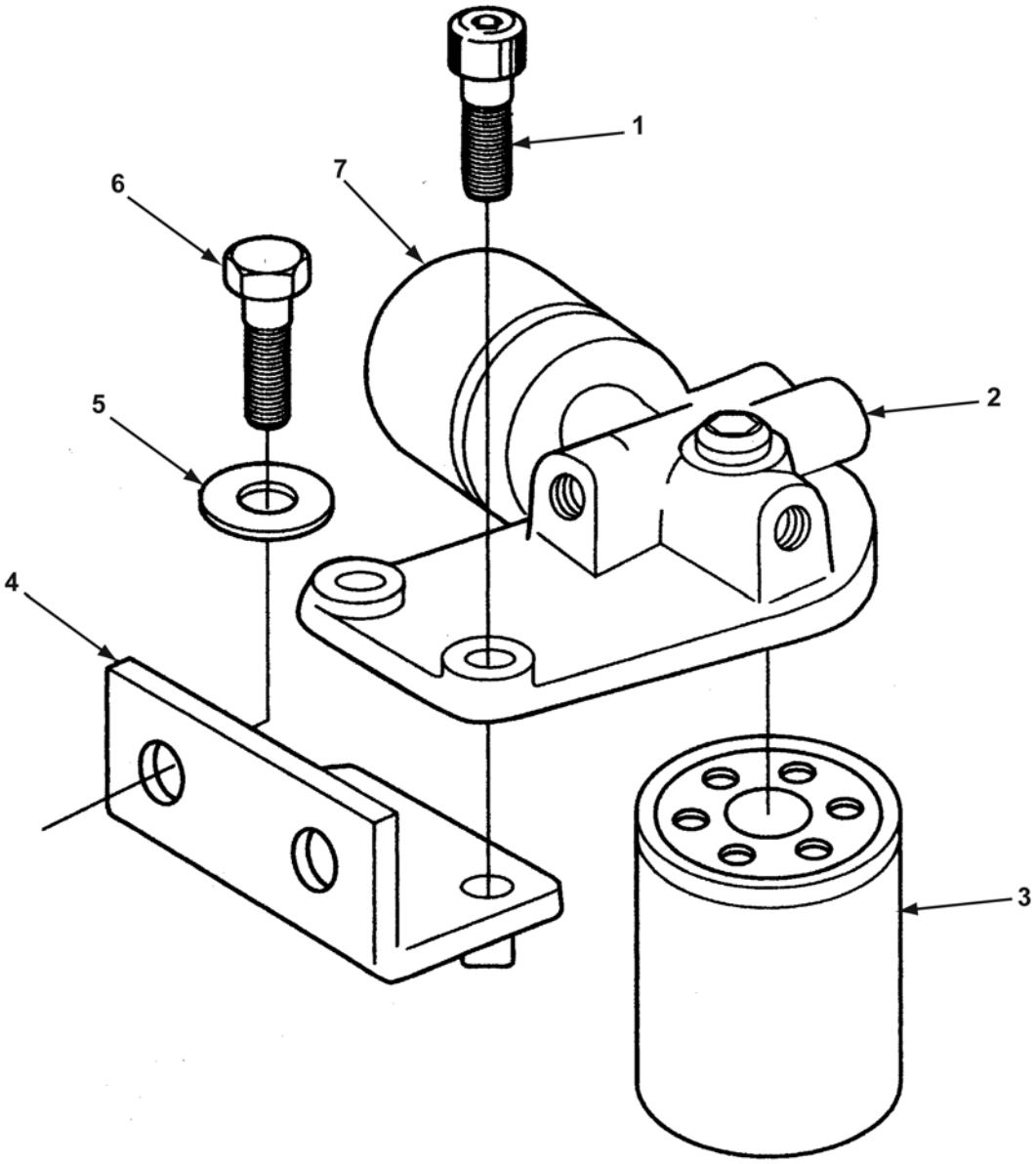


FIGURE 57. ENGINE FUEL FILTER ASSEMBLY

GROUP 2937 ENGINE FUEL FILTER ASSEMBLY — Continued 0234 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 2937 ENGINE FUEL FILTER	
						FIG. 57 ENGINE FUEL FILTER ASSEMBLY	
AMRB	1	PAOZZ		2X179	9730.100	SCREW, METRIC, 8X25-2	2
AMRA	2	PFOZZ	2910-01-459-0148	2X179	3440.049	HOUSING, FUEL FILTER	1
AMRM	3	PAOZZ	2910-00-238-0033	2X179	2175.046	FILTER ELEMENT, FLUID	1
AMRG	4	PAOZZ		2X179	8760.090	BRACKET	1
AMRD	5	PAOZZ	5310-01-324-8343	2X179	9.7565.011	WASHER, FLAT	2
AMRC	6	PAOZZ	5306-01-458-1618	2X179	1780.004	BOLT, MACHINE	2
AMRL	7	PAOZZ		2X179	3586.060	VALVE, ELECTRIC	2
			TM-CODE 2VE			END OF FIGURE	

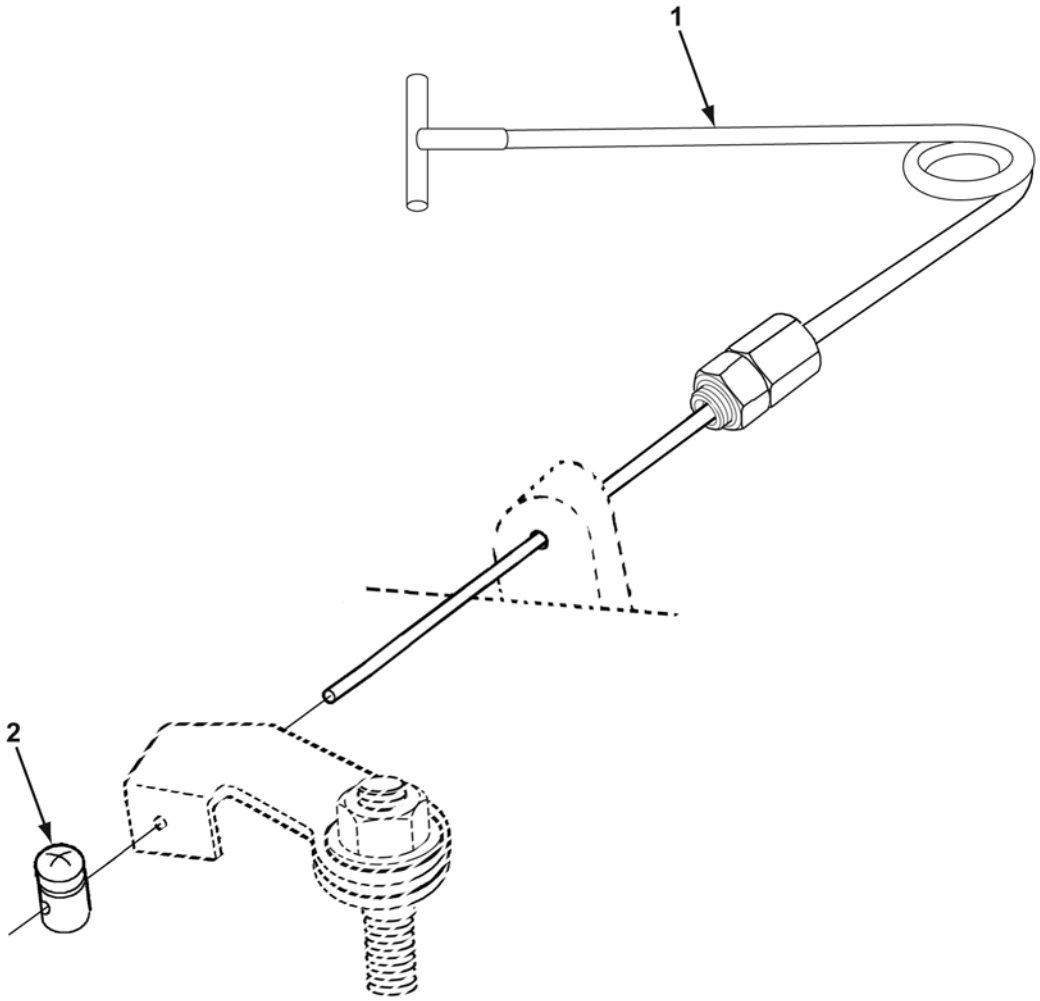


FIGURE 58. ENGINE THROTTLE ASSEMBLY

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 2939 ENGINE THROTTLE AND CHOKE CONTROLS	
						FIG. 58 ENGINE THROTTLE ASSEMBLY	
AMSJ1	1	PAOZZ		1R5C8	9117-0140	CABLE.....	1
AMSG	2	PAOZZ		2X179	9.5830.119	RETAINER, CABLE	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 2941 MUFFLER ASSEMBLY **0236 00**

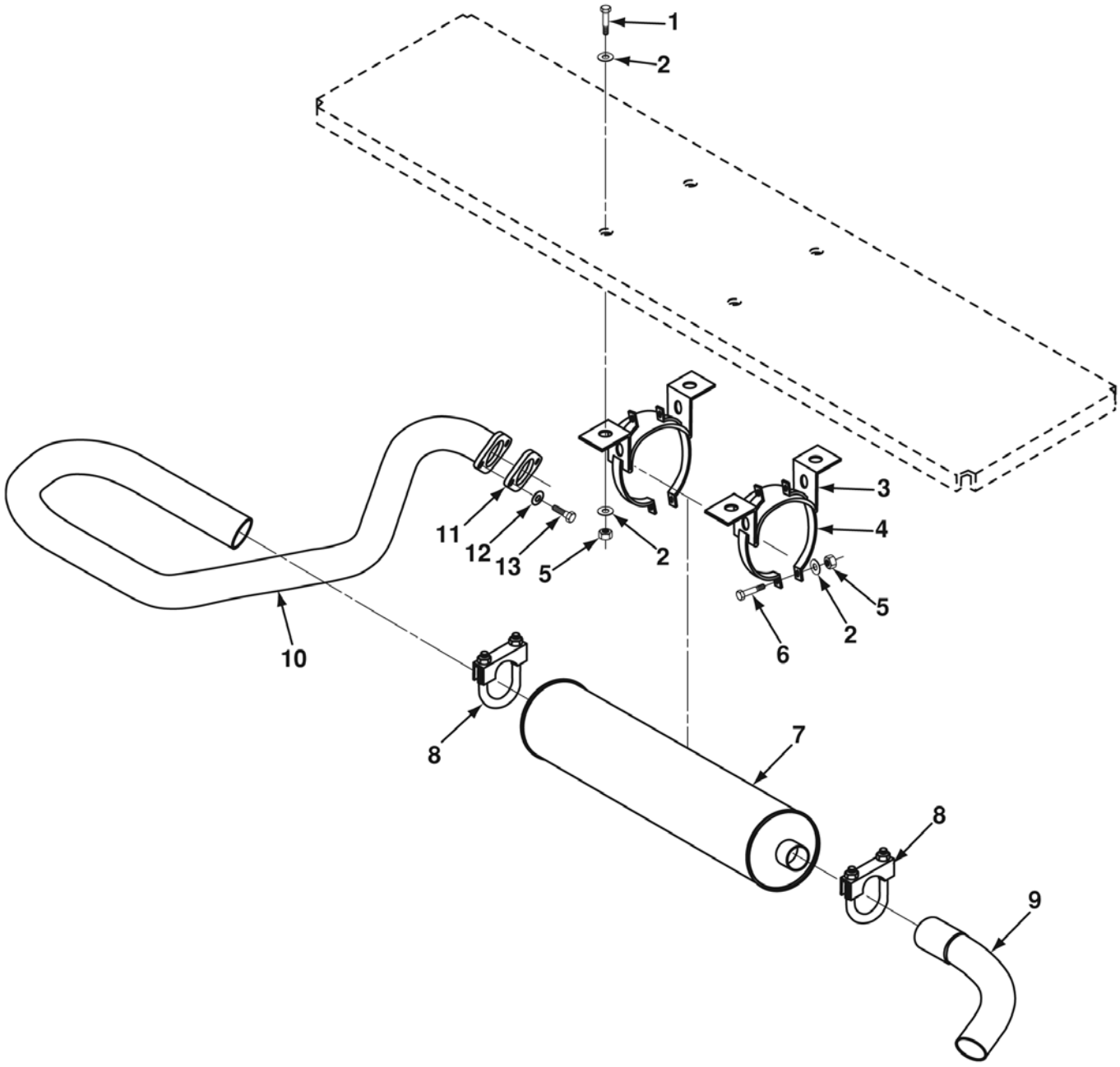


FIGURE 59. MUFFLER ASSEMBLY

GROUP 2941 MUFFLER ASSEMBLY — Continued 0236 00

PLISN	(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. 59 MUFFLER ASSEMBLY	
AATB	1	PAOZZ		1R5C8	9738-0081	BOLT, MACHINE	4
AATQ	2	PAOZZ		1R5C8	9965-0013	WASHER, FLAT	10
AATR	3	PFOZZ		1R5C8	M311-2895	BRACKET, MUFFLER STRAP	2
AATS	4	PAOZZ	5340-01-504-6510	1R5C8	M311-2896	STRAP, MUFFLER	2
AATU	5	PAOZZ	5310-01-502-8330	1R5C8	9562-0046	NUT, SELF-LOCKING	6
AATV	6	PAOZZ		1R5C8	9738-0010	SCREW,CAP,HEXAGON HEAD	2
AATE	7	PAOZZ	2990-00-759-3639	19207	10936691	MUFFLER, EXHAUST PART OF KIT P/N 9596-0468	2
AATC	8	KFOZZ		1R5C8	9596-0468-2	CLAMP, MUFFLER PART OF KIT P/N 9596-0468	1
AATA	9	PAOZZ	2990-01-504-6529	1R5C8	9596-0468-1	PIPE,MUFFLER PART OF KIT P/N 9596-0468	1
AATP	10	KFOZZ		1R5C8	9596-0468-4	PIPE,MUFFLER PART OF KIT P/N 9596-0468	1
AMUE	11	PAOZZ	5330-01-394-7944	2X179	4500.079	GASKET	1
AATJ	12	PAOZZ	5310-00-614-3506	80205	MS15795-817	WASHER, FLAT	2
AATM	13	PAOZZ	5305-01-512-0581	1R5C8	9738-0015	BOLT	2
			TM CODE 2VE			END OF FIGURE	

GROUP 2941 EXHAUST MANIFOLD **0237 00**

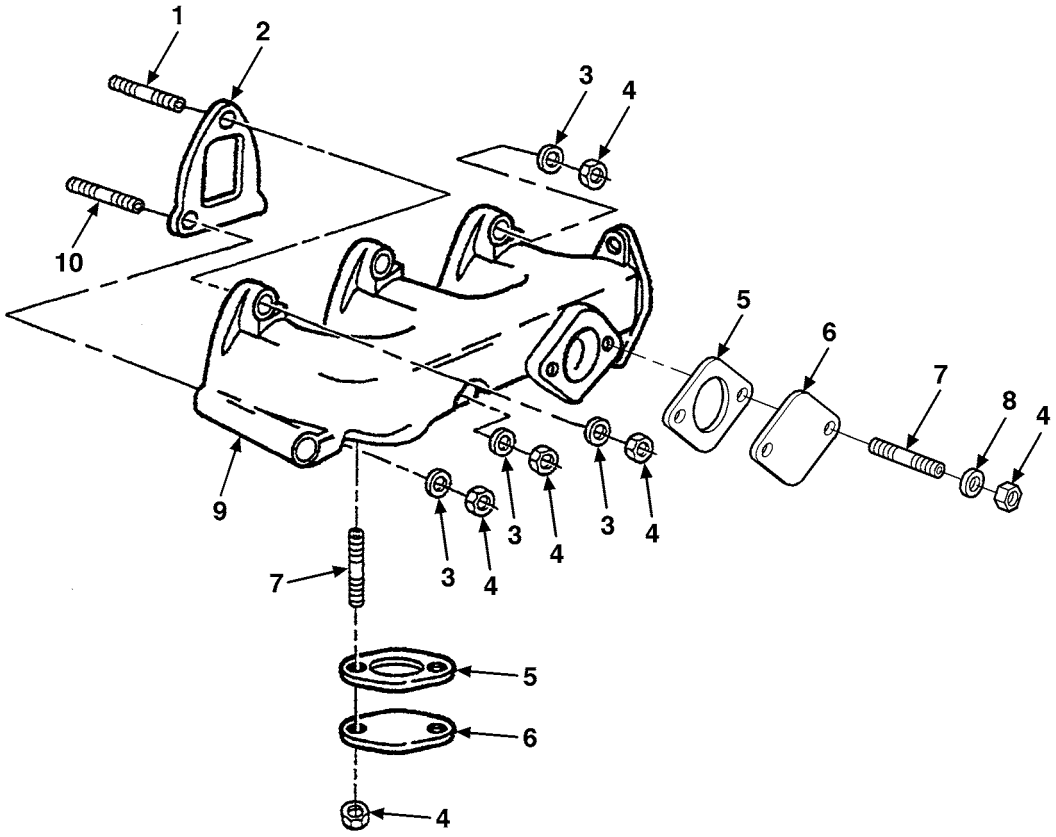


FIGURE 60. EXHAUST MANIFOLD

GROUP 2941 EXHAUST MANIFOLD — Continued 0237 00

PLISN	(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. 60 EXHAUST MANIFOLD	
AMAB	1	PAOZZ	5307-01-327-3439	2X179	9.6780.084	STUD, PLAIN	3
AMAD	2	PAOZZ	5330-01-395-0878	2X179	4420.019	GASKET	3
AMAF	3	PAOZZ	5310-01-340-8352	2X179	9.7565.007	WASHER, LOCK	6
AMAH	4	PAOZZ	5310-01-458-4307	2X179	9.3240.163	NUT, PLAIN, HEXAGON	13
AMAK	5	PAOZZ	5330-01-394-7944	2X179	4500.079	GASKET	2
AMAM1	6	PAFZZ	5365-01-458-6645	2X179	277.6300.018	SPACER, PLATE	2
AMAR	7	PAOZZ	5307-01-341-2950	2X179	9.6780.008	STUD, PLAIN	4
AMAP	8	PAOZZ	5310-01-453-7080	2X179	9.7625.061	WASHER, FLAT	2
AMAT	9	PFOZZ	2805-15-148-1970	A1212	2486.046	MANIFOLD, EXHAUST	1
AMAV	10	PAOZZ	5307-01-454-3504	2X179	9.6780.034	STUD, PLAIN	3
			TM-CODE 2VE			END OF FIGURE	

GROUP 2952 ENGINE SHROUDS **0238 00**

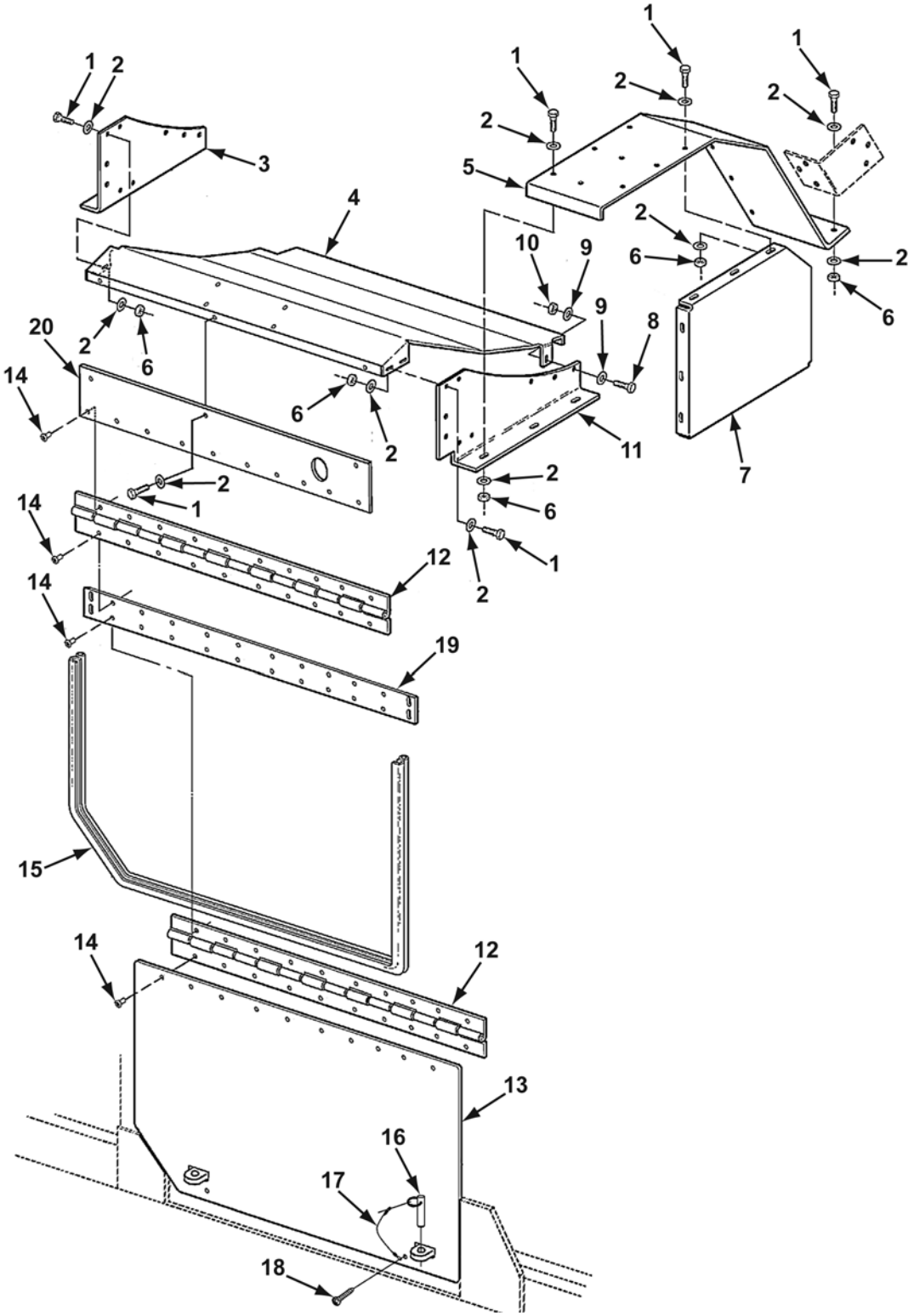


FIGURE 61. ENGINE SHROUDS

PLISN	(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. 61 ENGINE SHROUDS	
AADA	1	PFOZZ	5305-00-225-3839	80205	MS90725-8	SCREW, CAP, HEXAGON HEAD 1/4-20 X 1	13
AADE	2	PFOZZ	5310-00-802-4701	80205	MS15795-813	WASHER, FLAT 1/4	23
AADJ	3	PFOZZ	5340-01-504-6273	1R5C8	M311-2891	ENCLOSURE, REAR PLATE	1
AADM	4	PFOZZ	2990-01-504-6476	1R5C8	M112-9659	COVER, MUFFLER	1
AADS	5	PFOZZ	5340-01-504-6277	1R5C8	M112-9660	COVER, ENGINE SHROUD	1
AADY	6	PFOZZ	5310-01-502-8330	1R5C8	9562-0046	NUT, SELF-LOCKING, HEXAGON, 1/4-20	13
AAD1	7	PFOZZ	5340-01-504-6258	1R5C8	M112-9661	COVER, ENGINE SHROUD, FRONT	1
AAD3	8	PFOZZ	5306-00-174-9462	1R5C8	9738-0015	SCREW, CAP, HEXAGON HEAD 1/2-13 X 1-1/2	2
AAD5	9	PFOZZ	5310-00-614-3506	80205	MS15795-817	WASHER, FLAT 1/2	4
AAD7	10	PFOZZ		1R5C8	9562-0049	NUT, FINISHING 1/2-13	2
AAD9	11	PFOZZ	5340-01-504-6269	1R5C8	M311-2892	ENCLOSURE, FRONT PLATE	1
AAEA1	12	PFOZZ	5340-01-504-6388	1R5C8	005-4062-042	HINGE	1
AAEE	13	PFOZZ	5340-01-504-6391	1R5C8	M112-9683	DOOR, ENGINE COMPARTMENT	1
AAEY	14	PFOZZ	5320-99-807-2969	9K475	MGLP-U8-6	RIVET	AR
AAEZ	15	MOOZZ		1R5C8	9326-0252	GASKET, SEAL, MAKE FROM GASKET P/N 1120A23 (39428), AS REQUIRED	1
AADC	16	PAOZZ		1R5C8	9595-0051	PIN, QUICK RELEASE	1
AADG	17	PAOZZ		1R5C8	9117-0003	CABLE	1
AADP	18	PAOZZ		1R5C8	9738-0035	SCREW	1
AADU	19	PFOZZ		1R5C8	M311-3727	BRACKET, HINGE	1
AADW	20	PFOZZ		1R5C8	M311-3726	DOOR, MUFFLER	1
			TM-CODE 2VE			END OF FIGURE	

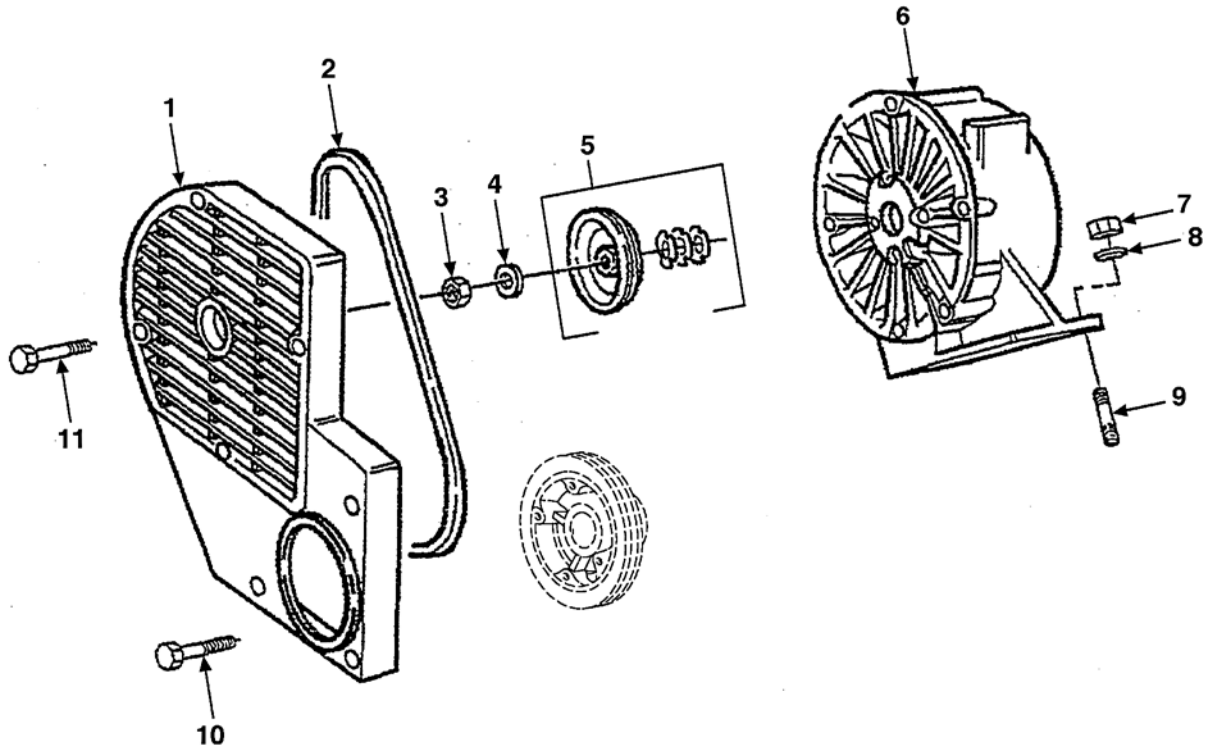


FIGURE 62. ENGINE COOLING SYSTEM

PLISN	(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. 62 ENGINE COOLING SYSTEM	
AMGA1	1	PAOZZ	3020-01-452-9472	2X179	625.6927.073	GUARD, MECHANICAL DRIVE	1
AMGC	2	PAOZZ	3030-01-367-7487	2X179	2440-034	BELTING, V	1
AMGE	3	PAOZZ	5310-01-453-8664	2X179	9.3203.015	NUT, PLAIN, HEXAGON	1
AMGG	4	PAOZZ	5310-01-453-8661	2X179	9.7625.055	WASHER, FLAT	1
AMGJ	5	PAOZZ	3020-01-453-9083	2X179	6975.134	PULLEY ASSEMBLY	1
AMGQ	6	PAOZZ		2X179	625.9718.113	FAN, CENTRIFUGAL	1
AMGS	7	PAOZZ	5310-01-324-8246	2X179	3240.018	NUT, PLAIN, HEXAGON	4
AMGU	8	PAOZZ	5310-01-340-8352	2X179	9.7565.007	WASHER, LOCK	4
AMGW	9	PAOZZ	5307-01-341-2950	2X179	9.6780.008	STUD, PLAIN	4
AMG1	10	PAOZZ	5305-01-341-2906	2X179	9.9732.063	SCREW, MACHINE	2
AMG3	11	PAOZZ	5305-01-324-8388	2X179	9.9730.032	SCREW, CAP, HEXAGON HEAD	5
			TM-CODE 2VE			END OF FIGURE	

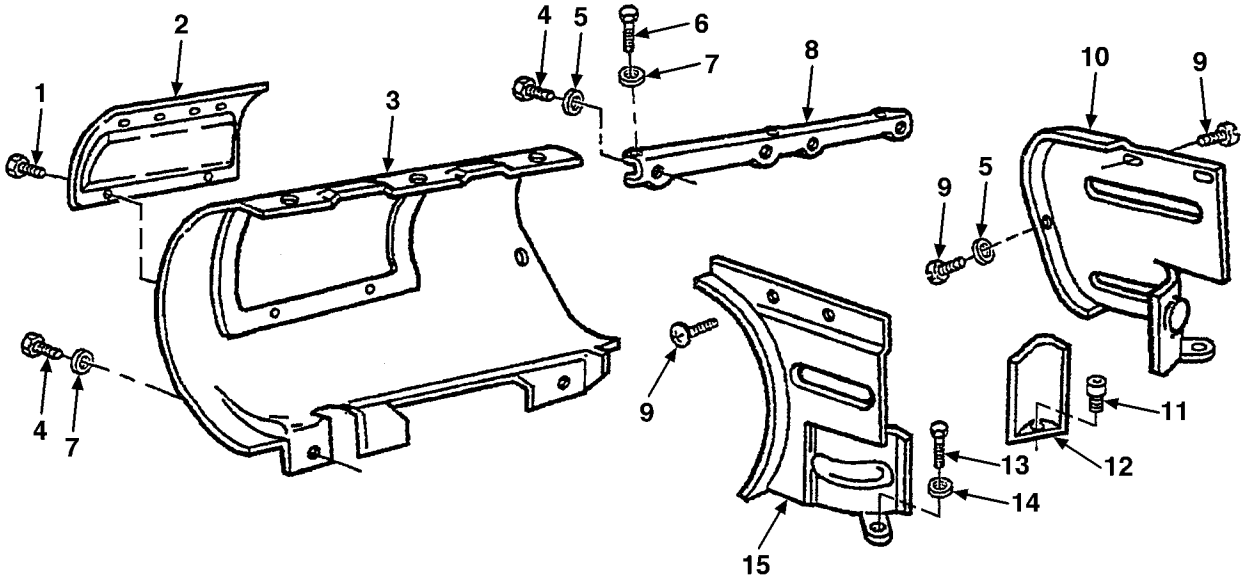


FIGURE 63. ENGINE SHROUDING

PLISN	(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. 63 ENGINE SHROUDING	
AMFA	1	PAOZZ	5315-01-459-1812	2X179	625.9895.055	PIN, SHOULDER, HEADED	2
AMFC	2	PFOZZ	5340-01-455-3825	2X179	625.6660.028	COVER, ACCESS	1
AMFE	3	PFOZZ	5340-01-455-3824	2X179	625.2569.372	COVER, ACCESS	1
AMFG	4	PAOZZ	5306-01-453-7232	2X179	1760-032	BOLT	6
AMFJ	5	PAOZZ	5310-01-453-7096	2X179	9.7625.062	WASHER, FLAT	6
AMFL	6	PAOZZ	5305-01-458-1623	2X179	1770-056	SCREW, CAP, HEXAGON HEAD	4
AMFN	7	PAOZZ	5310-01-453-7095	2X179	9.7625.012	WASHER, FLAT	5
AMFQ	8	PFOZZ	4140-01-454-4074	2X179	625.5066.061	HOUSING, CENTRIFUGAL FAN	1
AMFS	9	PAOZZ	5305-01-323-8928	2X179	9.9790.039	SCREW, CAP, SOCKET HEAD	6
AMFU	10	PFOZZ	5340-01-458-8630	2X179	625.5066.055	COVER, ACCESS	2
AMFW	11	PAOZZ	5305-01-323-8927	2X179	9.9731.092	SCREW, CAP, SOCKET HEAD	2
AMFY	12	PFOZZ	2815-01-453-4065	2X179	3350.077	DEFLECTOR, AIR FLOW	2
AMFZ	13	PAOZZ	5305-01-324-0950	2X179	9.1770.002	SCREW, CAP, HEXAGON HEAD	2
AMF1	14	PAOZZ	5310-01-340-8352	2X179	9.7565.007	WASHER, LOCK	2
AMF3	15	PFOZZ	4140-01-454-3508	2X179	625.5066.056	HOUSING, CENTRIFUGAL FAN	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 2961 ALTERNATOR MOUNTING PARTS 0241 00

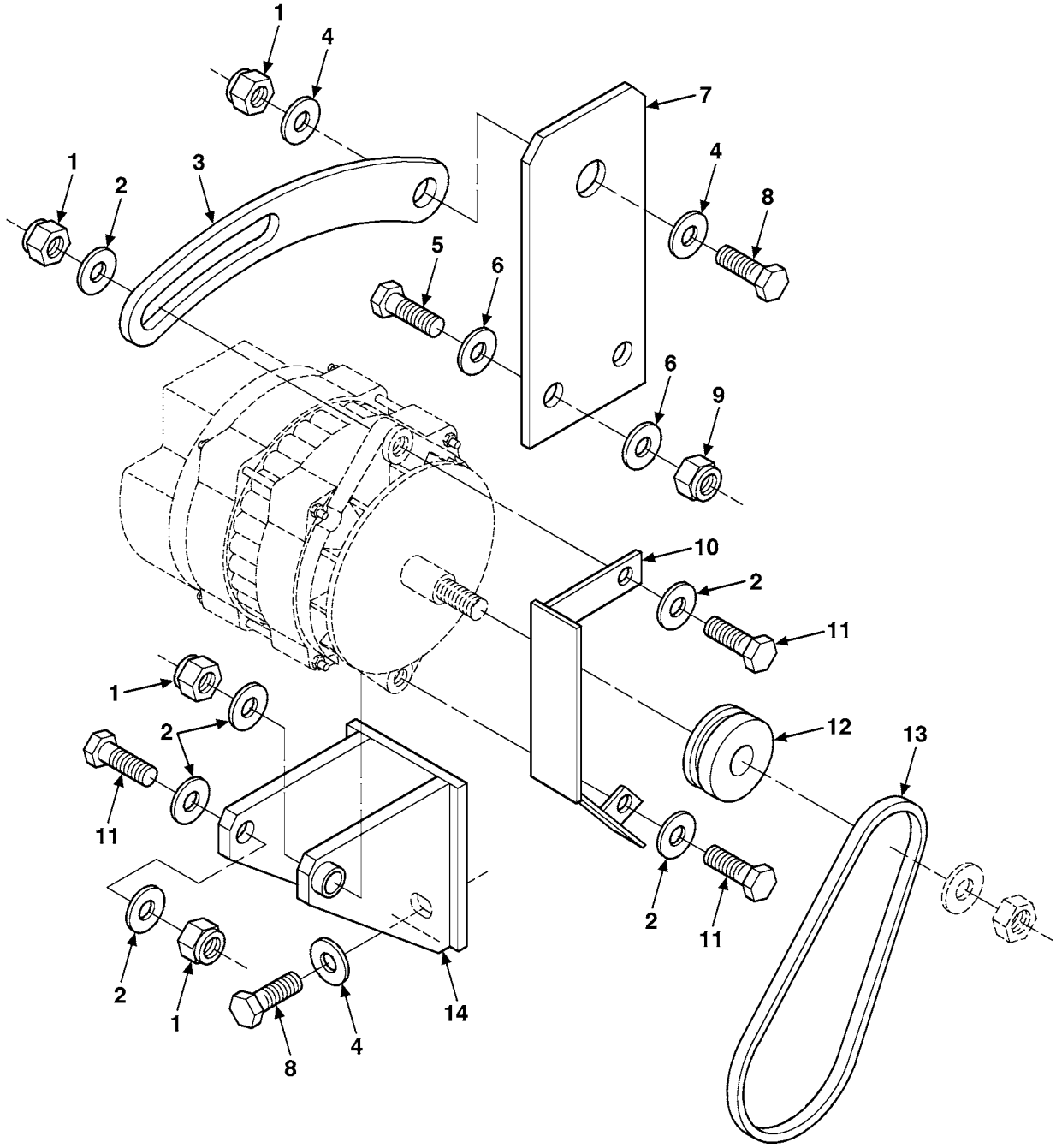


FIGURE 64. ALTERNATOR MOUNTING PARTS

GROUP 2961 ALTERNATOR MOUNTING PARTS — Continued 0241 00

PLISN	(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. 64 ALTERNATOR MOUNTING PARTS	
AALY	1	PAOZZ	5310-01-502-8323	1R5C8	9562-0133	NUT, LOCKING, 1/2-13	1
AAL1	2	PAOZZ	5310-00-614-3506	80205	MS15795-817	WASHER, FLAT 1/2	2
AALM	3	PFOZZ	5340-01-506-0554	1R5C8	M311-3272	BRACKET, ALTERNATOR MOUNTING	1
AALE	4	PAOZZ	5310-00-893-9914	1ML14	ERNJ228	WASHER, FLAT 5/8	2
AALC	5	PAOZZ	5305-01-406-5528	17454	01070-0281ITEM06-15	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1-1/4	2
AALG	6	PAOZZ	5310-01-280-5796	96906	MS27183-57	WASHER, FLAT 3/8	4
AALJ	7	PFOZZ	5340-01-506-0543	1R5C8	M311-3271	BRACKET, ALTERNATOR MOUNTING	1
AALA	8	PAOZZ	5305-00-726-2553	80205	B1821BH063F250N	SCREW, CAP, HEXAGON HEAD 5/8-18 X 2-1/2	1
AALK	9	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING, HEXAGON 3/8-16	2
AAL5	10	PFOZZ	5340-01-506-0985	1R5C8	M311-3269	BRACKET, ALTERNATOR MOUNTING	1
AALS	11	PAOZZ	5305-00-701-7628	96906	MS35207-415	SCREW, CAP, HEXAGON HEAD 1/2-13 X 2	1
AAL7	12	PFOZZ	3020-01-506-1289	1R5C8	9606-0005	PULLEY, GROOVE	1
AAL9	13	PAOZZ	3030-01-457-8833	2X179	2440.034	BELTING, V	1
AAL3	14	PFOZZ	5340-01-506-0567	1R5C8	M311-3265	BRACKET, ALTERNATOR MOUNTING	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 2961 ALTERNATOR COMPONENT PARTS 0242 00

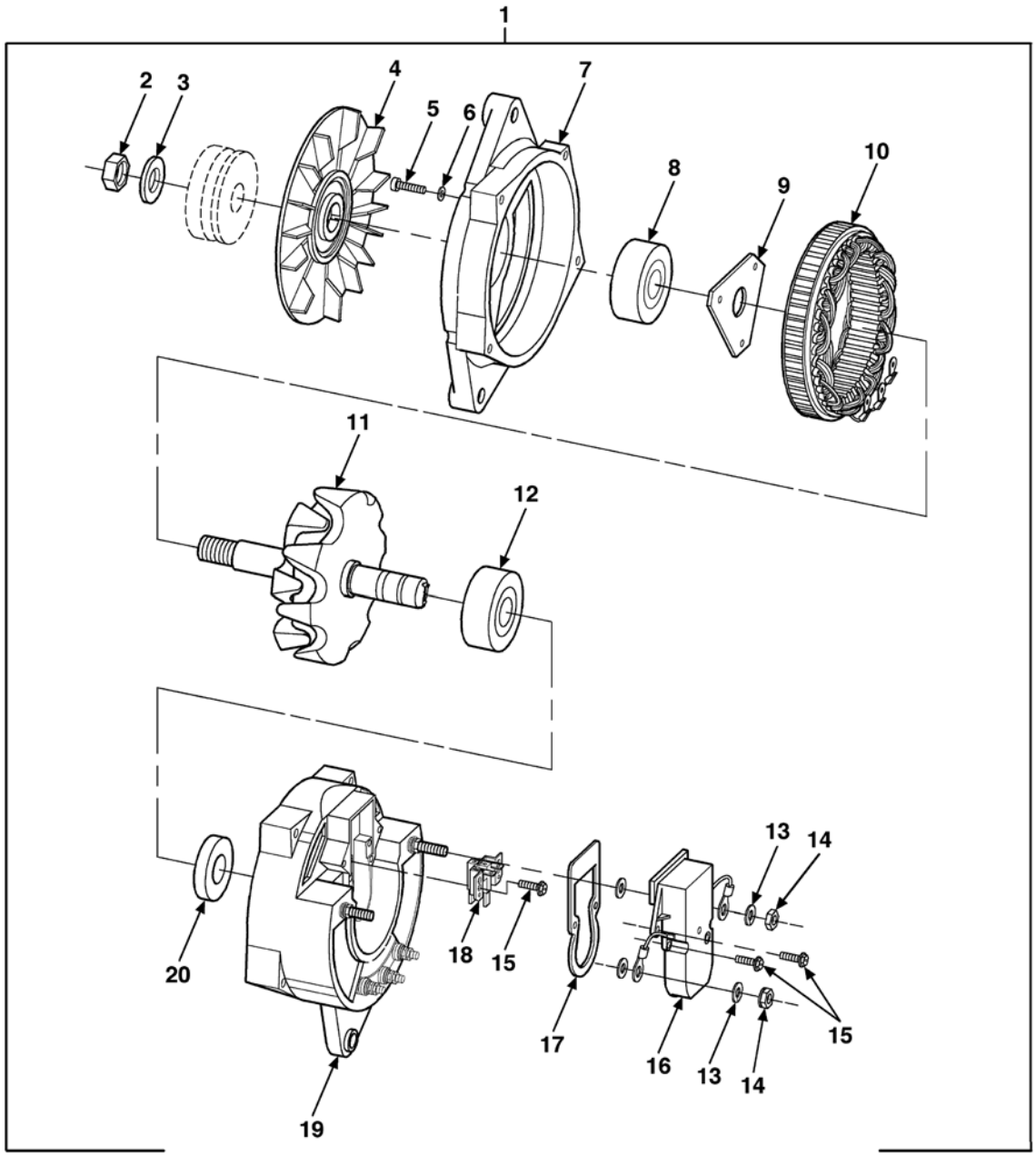


FIGURE 65. ALTERNATOR COMPONENT PARTS

GROUP 2961 ALTERNATOR COMPONENT PARTS — Continued 0242 00

PLISN	(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. 65 ALTERNATOR COMPONENT PARTS	
AANA	1	PAOFF	2920-01-279-3948	24975	8LHA-3071P	GENERATOR, ENGINE ACCESSORY.....	1
AANC	2	PAFZZ	5310-01-430-7169	35510	120-128	.NUT, SELF-LOCKING, HEXAGON 5/8-16.....	1
AANE	3	PAFZZ	5310-01-430-7191	35510	120-129	.WASHER, FLAT	1
AANJ	4	PAFZZ	4140-01-430-7170	24975	107-103	.IMPELLER, FAN, AXIAL.....	1
AANM	5	PFFZZ	5305-01-506-1081	24975	120-153	.SCREW, MACHINE #10-32 X 3/4	3
AANS	6	PFFZZ	5310-01-506-1087	24975	120-111	.WASHER, LOCK #10	3
AANQ	7	XAFZZ		24975	114-164	.HOUSING, FRONT.....	1
AANY	8	PFFZZ	3130-01-506-0783	24975	111-34	.BEARING, FRONT.....	1
AANR	9	XAFZZ		24975	111-35	.RETAINER, BEARING.....	1
AANT	10	PAFZZ	2920-01-310-0990	68505	113-46	.STATOR ASSEMBLY	1
AANU	11	XAFZZ		24975	112-74	.ROTOR ASSEMBLY.....	1
AANZ	12	PFFZZ	3130-01-506-0787	24975	111-40	.BEARING, REAR.....	1
AAND	13	PAFZZ		35510	120-26	.WASHER	4
AANF	14	PAFZZ		35510	120-289	.NUT.....	2
AAN5	15	PAFZZ	5305-01-360-5282	24975	0344209B15	.SCREW, ASSEMBLED WASHER.....	6
AAN1	16	PAFZZ	6110-01-431-2271	24975	8RG3030	.REGULATOR, VOLTAGE.....	1
AAN3	17	PAFZZ	5330-01-362-4994	24975	3244392S01	.GASKET	1
AAN7	18	PFFZZ	5977-01-506-1001	24975	103-48	.BRUSH ASSEMBLY	1
AANG	19	XAFZZ		24975	114-255	.HOUSING, REAR	1
AAN9	20	PAFZZ	3110-01-431-4526	24975	A049102338 (111-86)	.SHIELD, BEARING, REPLACEMENT.....	1
			TM-CODE 2VE			END OF FIGURE	

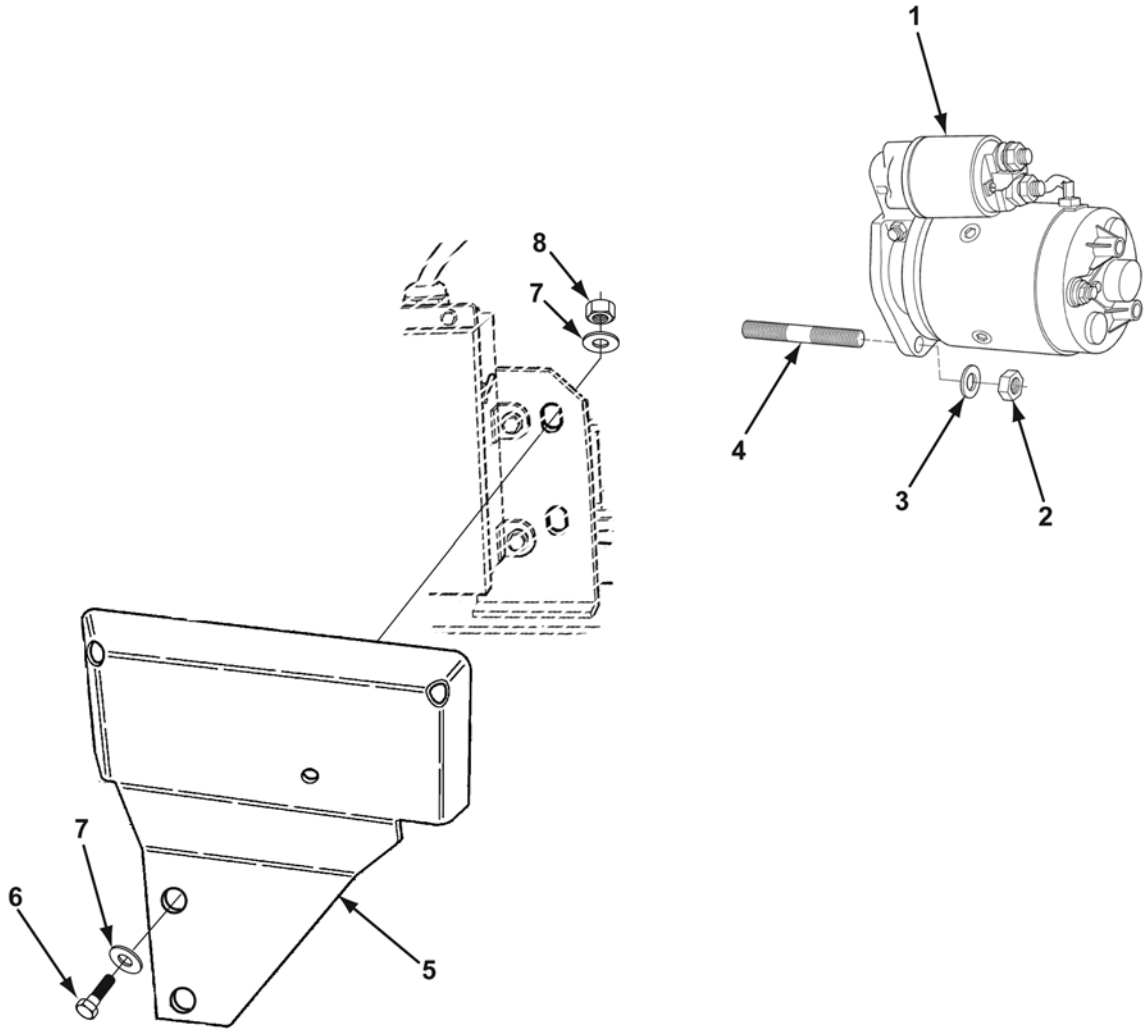


FIGURE 66. STARTING MOTOR AND MOUNTING HARDWARE

GROUP 2963 STARTING MOTOR AND MOUNTING HARDWARE — Continued 0243 00

PLISN	(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. 66 STARTING MOTOR AND MOUNTING HARDWARE	
AAQA	1	PAOZZ	2920-01-463-5526	53867	0.001.363.113	STARTER, ENGINE, ELECTRICAL	1
AAQE	2	PAOZZ	5310-01-325-7141	2X179	9.3240.032	NUT, PLAIN, HEXAGON	2
AAQJ	3	PAOZZ	5310-01-324-8343	2X179	9.7565.011	WASHER, LOCK	2
AAQM	4	PAOZZ	5307-01-454-3517	2X179	9.6820.014	STUD, PLAIN	2
AAQS	5	PAOZZ		1R5C8	M311.2907	COVER, STARTER, ENGINE	1
AAQY	6	PAOZZ	5305-00-068-0502	00756	NASM90725	SCREW, CAP, HEXAGON HEAD 1/4-20 X 3/4	2
AAQ1	7	PAOZZ	5310-00-809-4058	96906	MS27183-10	WASHER, FLAT 1/4	2
AAQ3	8	PAOZZ	5310-00-088-1251	72452	1459-246	NUT, SELF-LOCKING, HEXAGON 1/4-20	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 2963 ENGINE ELECTRICAL BOX **0244 00**

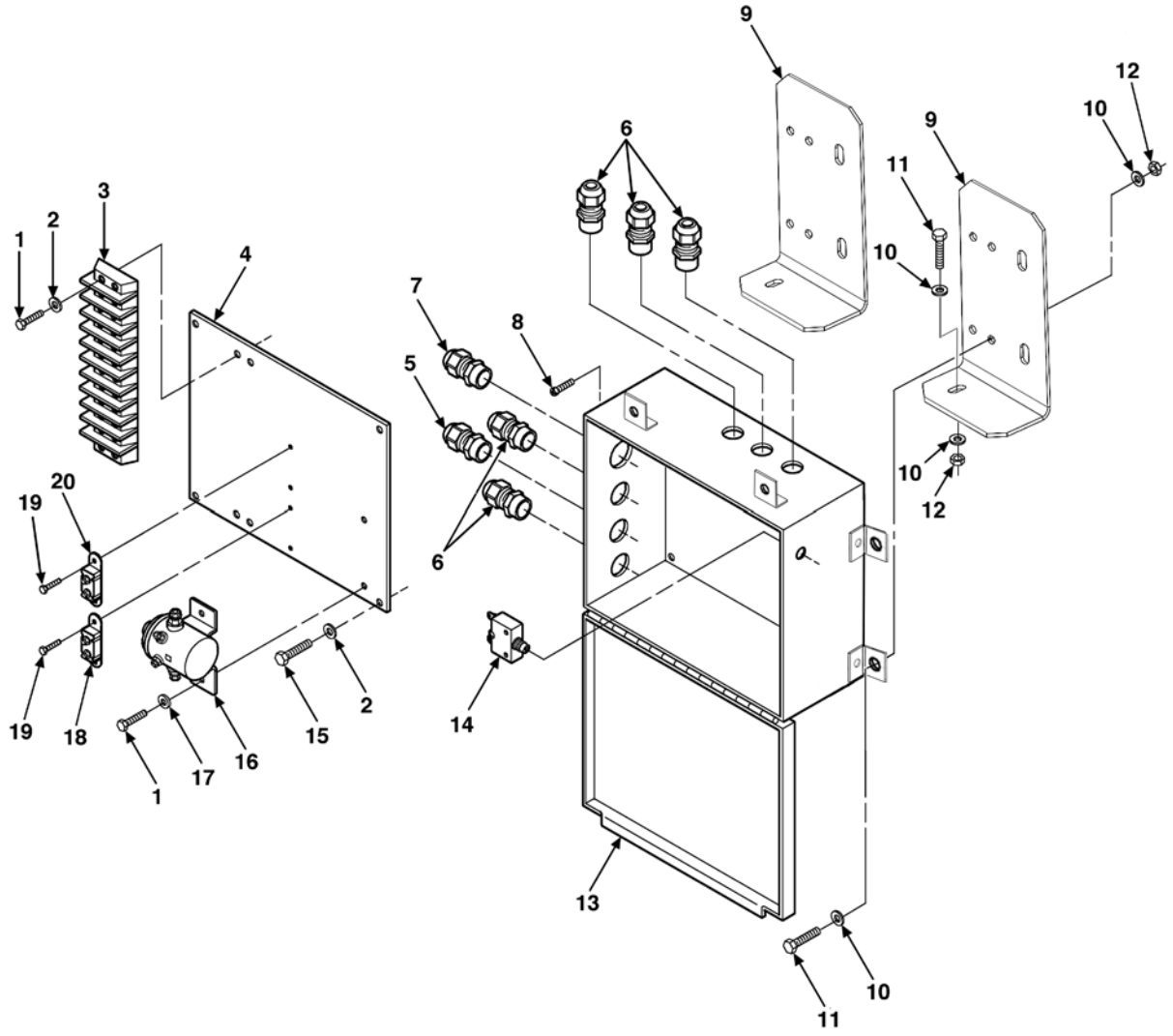


FIGURE 67. ENGINE ELECTRICAL BOX

GROUP 2963 ENGINE ELECTRICAL BOX — Continued 0244 00

PLISN	(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. 67 ENGINE ELECTRICAL BOX	
AAFA1	1	PAOZZ	5305-00-990-6444	89346	453283	SCREW, MACHINE #10-32 X 3/8	6
AAFC	2	PAOZZ	5310-00-045-3296	6N299	0910164	WASHER, LOCK #10	8
AAFE	3	PAOZZ	5940-00-983-6105	26405	22010	BOARD, TERMINAL	1
AAFG	4	PFOZZ	5340-01-504-6407	81435	AW108P	PANEL, INNER	1
AAFL	5	PAOZZ	5975-01-343-2254	13548	50840	FITTING, COMPRESSION .375	1
AAFJ	6	PAOZZ	5975-01-343-2256	13548	50842	FITTING, COMPRESSION .750	5
AAF2	7	PAOZZ		1R5C8	5243	FITING, COMPRESSION	1
AAF1	8	PAOZZ	5305-00-993-2738	19207	8330729	SCREW, MACHINE 1/4-28 X 5/8	4
AAFN	9	PFOZZ	5340-01-504-6422	1R5C8	M311-2905	MOUNT, JUNCTION BOX	1
AAFW	10	PAOZZ	5310-00-809-4058	96906	MS27183-10	WASHER, FLAT 1/4	8
AAFU	11	PAOZZ	5305-00-068-0502	00756	NASM90725	SCREW, CAP, HEXAGON HEAD 1/4-20 X 3/4	4
AAFS	12	PAOZZ	5310-00-088-1251	72452	1459-246	NUT, SELF-LOCKING, HEXAGON 1/4-20	4
AAFY	13	PFOZZ	5975-01-504-7503	81435	1084-12CHC	BOX, ELECTRICAL	1
AAF3	14	PAOZZ	5925-01-504-6095	2A592	5-2106-00BU	BREAKER, CIRCUIT, RESETABLE	1
AAF5	15	PAOZZ	5305-00-984-6210	45152	5903AX	SCREW, MACHINE #10-24 X 1/2	4
AAF7	16	PAOZZ	5945-00-081-9491	13445	24063	RELAY, ELECTROMAGNETIC	1
AAF6	17	PAOZZ	5310-00-576-5752	80205	MS35333-39	WASHER, LOCK #10	2
AAF9	18	PAOZZ	5925-01-469-0075	13445	30172-15	BREAKER, CIRCUIT	1
AAF8	19	PAOZZ	5305-00-984-4988	80205	MS35206-228	SCREW, MACHINE #6-32 X 3/8	4
AAFB	20	PFOZZ	5925-01-506-0593	13445	30172-30	BREAKER, CIRCUIT	1
						TM-CODE 2VE	
						END OF FIGURE	

GROUP 2963 GLOW PLUG WIRING **0245 00**

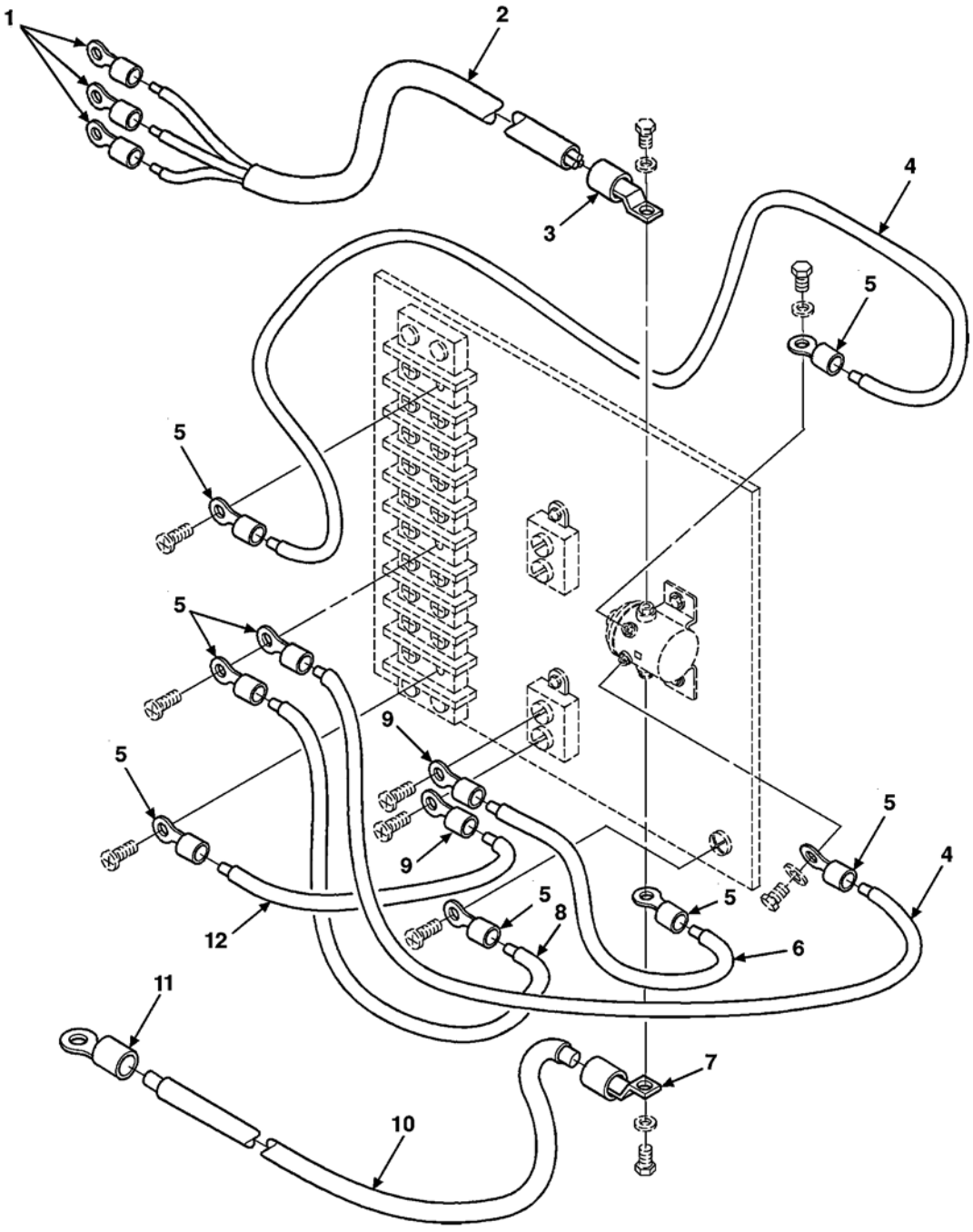


FIGURE 68. GLOW PLUG WIRING

PLISN	(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. 68 GLOW PLUG WIRING	
ABKG	1	PFOZZ	5940-01-506-1319	1R5C8	9133-0088	CONNECTOR	3
ABKF	2	PFOZZ	6150-01-506-1300	1R5C8	9380-0314	WIRE ASSEMBLY	1
ABKH	3	PFOZZ	5940-01-506-2589	1R5C8	9133-0091	CONNECTOR	1
ABKK	4	MOOZZ		1R5C8	9968-0054-1	GLOW PLUG SOLENOID-TO-ENGINE ELECTRICAL BOX TERMINAL LEAD MAKE FROM WIRE P/N WL12-0 (58961), AS REQUIRED	2
ABKL	5	PFOZZ		1R5C8	9968-0083	CONNECTOR	8
ABKM	6	MOOZZ		1R5C8	9968-0054-2	GLOW PLUG SOLENOID-TO-CIRCUIT BREAKER LEAD MAKE FROM WIRE P/N WL12-0 (58961), AS REQUIRED	1
ABKJ	7	PFOZZ	5940-01-506-2589	1R5C8	9133-0091	CONNECTOR	1
ABKY	8	MOOZZ		1R5C8	9968-0054-3	CIRCUIT BREAKER-TO-GROUND LEAD MAKE FROM WIRE P/N WL12-0 (58961), AS REQUIRED	1
ABKS	9	PFOZZ	5940-01-506-2488	1R5C8	9133-0085	CONNECTOR ST 15 AMP CIRCUIT BREAKER	2
ABK1	10	MOOZZ		1R5C8	9968-0058-1	GLOW PLUG SOLENOID-TO-BATTERY WIRING LEAD MAKE FROM WIRE, 2/0 GA., P/N 9968-0058 (1R5C8), AS REQUIRED	1
ABK3	11	PFOZZ	5940-01-506-2490	1R5C8	9133-0086	CONNECTOR (AT BATTERY)	1
ABK5	12	MOOZZ		1R5C8	9968-0054-4	CIRCUIT BREAKER-TO-15 AMP CIRCUIT BREAKER MAKE FROM WIRE P/N WL12-0 (58961),AS REQUIRED	1
						TM-CODE 2VE	
						END OF FIGURE	

GROUP 2963 ALTERNATOR WIRING **0246 00**

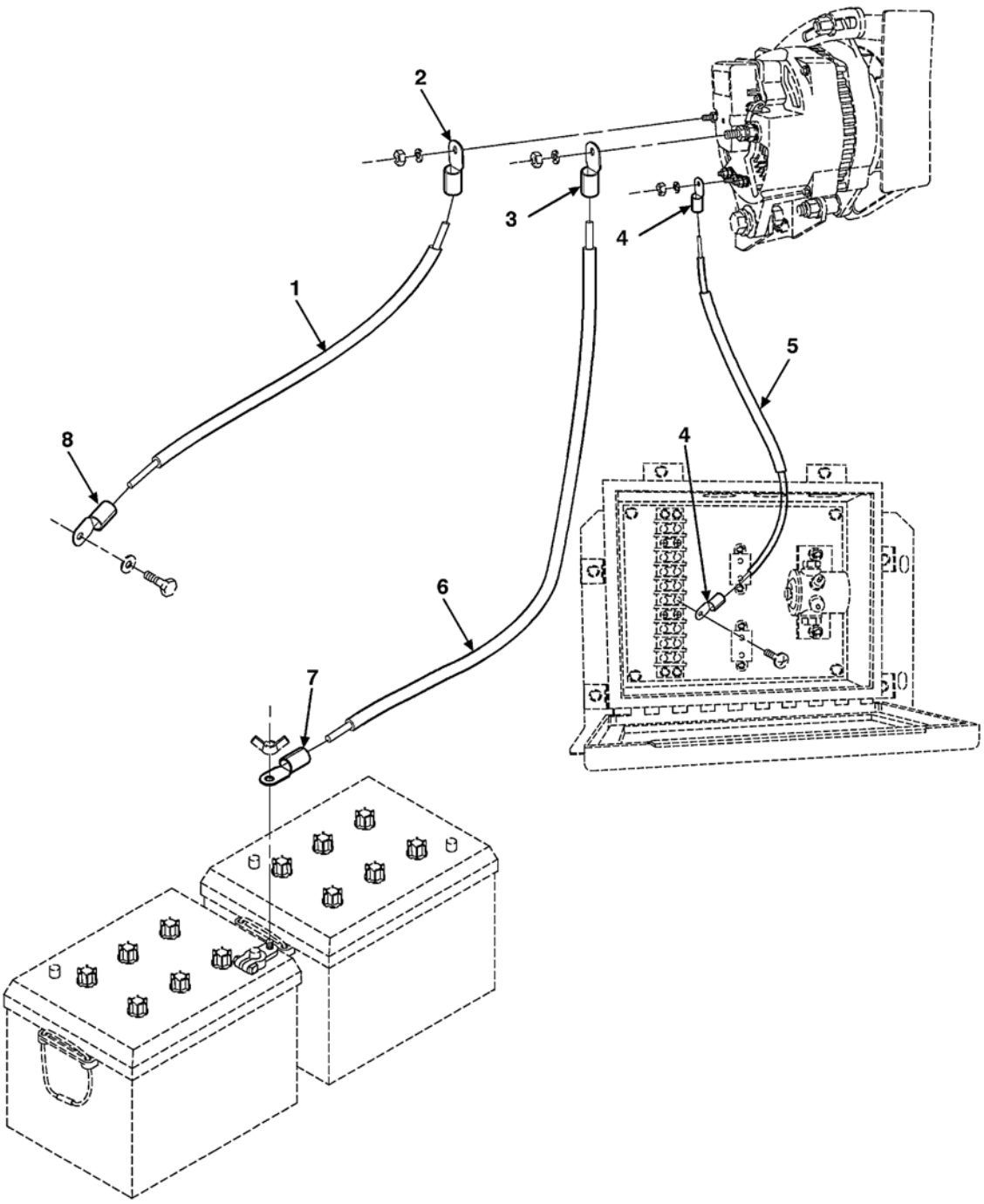


FIGURE 69. ALTERNATOR WIRING

PLISN	(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. 69 ALTERNATOR WIRING	
ABWA	1	MOOZZ		1R5C8	9968-0058-1AR	ALTERNATOR GROUND LEAD MAKE FROM WIRE P/N 9968-0058 (1R5C8), AS REQUIRED	1
ABWB	2	PAOZZ	5940-01-506-1319	1R5C8	9133-0088	CONNECTOR	1
ABWC	3	PAOZZ	5940-01-508-5931	1R5C8	9133-0096	CONNECTOR,LUG,TERMINAL	1
ABWD	4	PAOZZ	5940-01-508-5912	1R5C8	9133-0083	CONNECTOR	2
ABWM	5	MOOZZ		1R5C8	9968-0055-AR	ALTERNATOR-TO-ENGINE ELECTRICAL BOX TERMINAL LEAD MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	1
ABWJ	6	MOOZZ		1R5C8	9968-0058-2AR	ALTERNATOR-TO-BATTERY LEAD MAKE FROM WIRE P/N 9968-0058 (1R5C8), AS REQUIRED	1
ABWF	7	PAOZZ	5940-01-506-2490	1R5C8	9133-0086	CONNECTOR	1
ABWE	8	PAOZZ	5940-01-506-2500	1R5C8	9133-0097	CONNECTOR	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 2963 STARTER WIRING **0247 00**

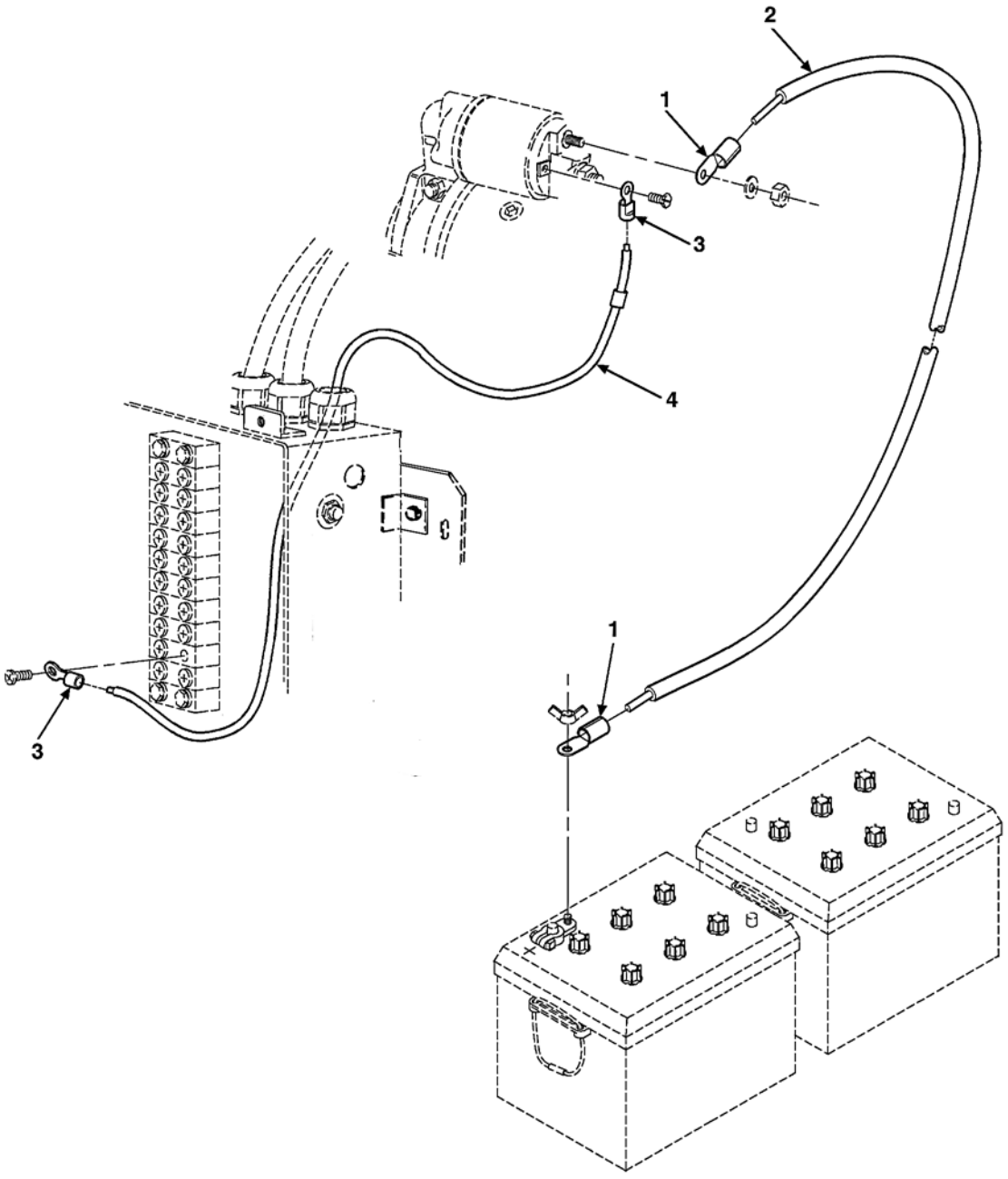


FIGURE 70. STARTER WIRING

PLISN	(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. 70 STARTER WIRING	
ABWS	1	PAOZZ	5940-01-506-2504	1R5C8	9133-0093	CONNECTOR,LUG,TERMINAL	2
ABWY	2	MOOZZ		1R5C8	9968-0056-AR	STARTER-TO-BATTERY LEAD MAKE FROM WIRE P/N 9968-0056 (1R5C8), AS REQUIRED	1
ABW1	3	PAOZZ	5940-01-506-2596	1R5C8	9133-0084	CONNECTOR,BUTT,NYLON	2
ABW3	4	MOOZZ		1R5C8	9968-0054-AR	STARTER-TO-ENGINE ELECTRICAL BOX TERMINAL LEAD MAKE FROM WIRE P/N WL12-0 (58961), AS REQUIRED	1
						END OF FIGURE	

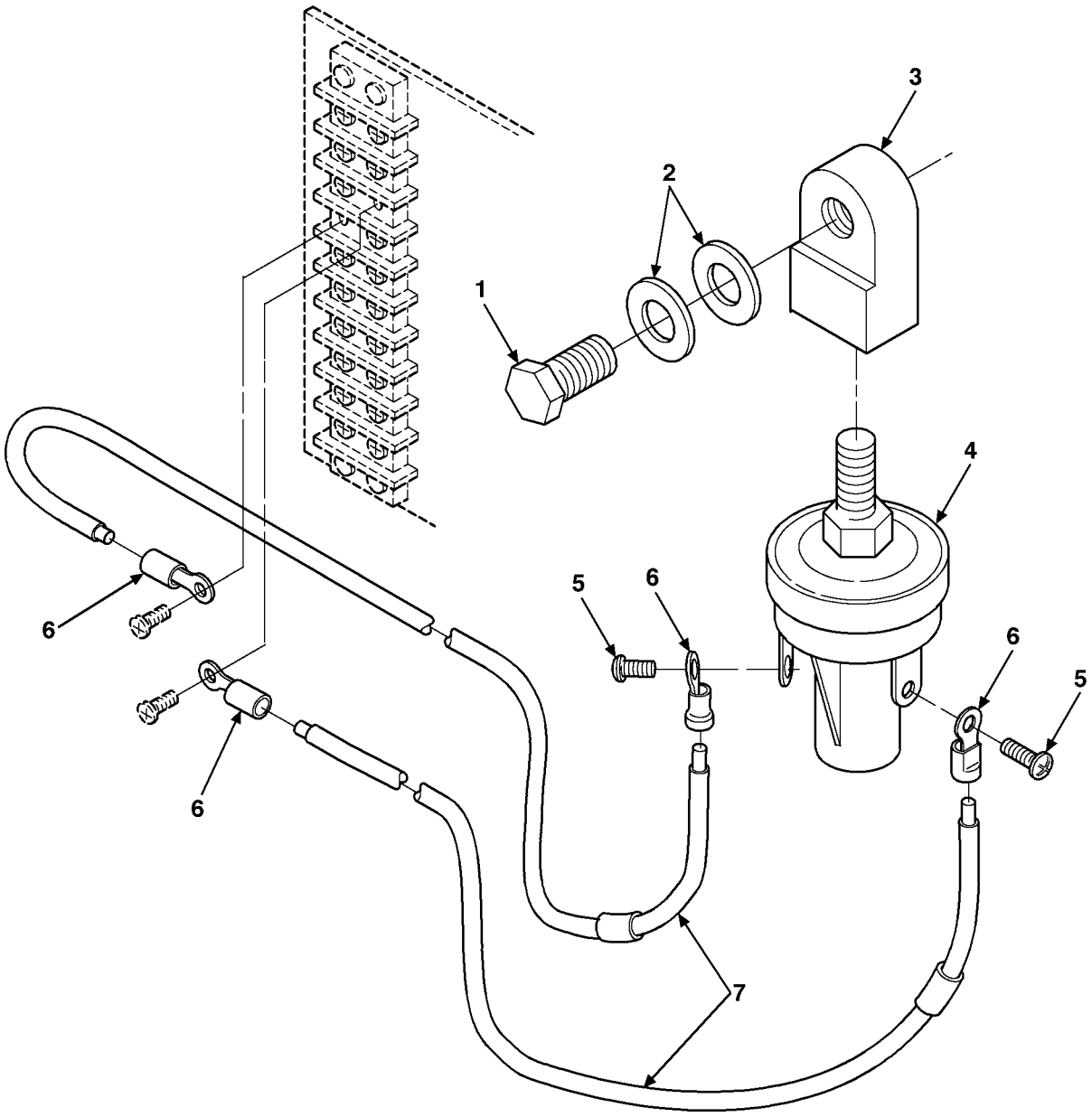


FIGURE 71. OIL PRESSURE SWITCH AND WIRING

GROUP 2963 OIL PRESSURE SWITCH AND WIRING — Continued 0248 00

PLISN	(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. 71 OIL PRESSURE SWITCH AND WIRING	
ARBA	1	PAOZZ	4730-01-508-6074	2X179	1901-048	BOLT,BANJO	1
ARBB	2	PAOZZ		2X179	4670-058	WASHER.....	2
ARBC	3	PAOZZ	5930-01-508-4255	2X179	0000-P1E	BLOCK, LOW OIL PRESSURE SWITCH.....	1
ARBJ	4	PAOZZ	5930-01-508-4257	2X179	0000-Z1Q	SWITCH, LOW OIL PRESSURE.....	1
ARBM	5	PAOZZ	5305-00-984-6206	96906	MS35206-259	SCREW,MACHINE #10-24 X 1/4	2
ARBS	6	PAOZZ	5940-01-508-5912	1R5C8	9133-0083	CONNECTOR,RING TERMINAL	4
ARTS	7	MOOZZ		1R5C8	9968-0055-AR	LEAD, LOW OIL PRESSURE SWITCH TO ENGINE ELECTRICAL TERMINAL BOX MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED.....	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 2967 CONTROL PANEL ASSEMBLY **0249 00**

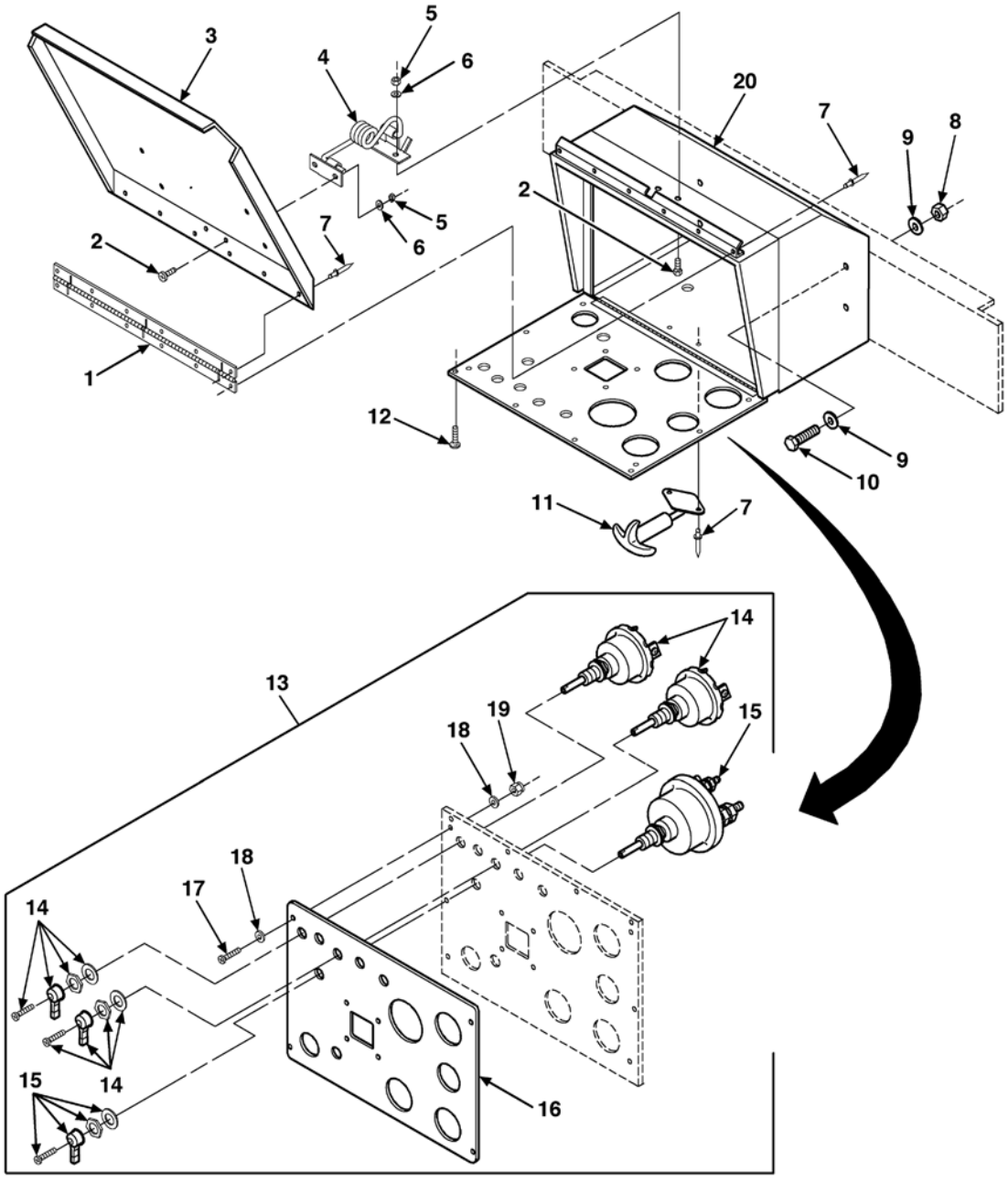


FIGURE 72. CONTROL PANEL ASSEMBLY

GROUP 2967 CONTROL PANEL ASSEMBLY — Continued 0249 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 2967 INSTRUMENT PANEL	
						FIG. 72 CONTROL PANEL ASSEMBLY	
AMTK	1	PAOZZ	5340-01-183-1423	19207	12275456	HINGE, BUTT	1
AMTB	2	PAOZZ	5305-00-989-7434	96906	MS35207-263	SCREW, MACHINE #10-32 X 1/2	4
AMTL	3	PFOZZ		51457	TIP-101	COVER, ACCESS	1
AMTC	4	PAOZZ	5360-00-958-1143	94222	23-10-11-12	SPRING, DOOR, ADJUSTABLE	1
AMTD	5	PAOZZ	5310-00-902-6676	96906	MS21083N3	NUT, SELF-LOCKING, HEXAGON #10-32	4
AMT1	6	PAOZZ	5310-00-809-8546	96906	MS27183-8	WASHER, FLAT #10	4
AMTN	7	PFOZZ		39428	97447A050	RIVET,BLIND	12
AMTP	8	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT,SELF-LOCKING, HEXAGON 3/8-16	4
AMTQ	9	PAOZZ	5310-01-280-5796	96906	MS27183-57	WASHER,FLAT 3/8	8
AMTR	10	PAOZZ	5305-00-576-5417	80205	MS35307-360	SCREW,CAP, HEXAGON HEAD 3/8-16 X 1	4
AMT2	11	PAOZZ	5340-00-753-9214	19207	7539214	FASTENER, CYLINDER	1
AMTS	12	PAOZZ		39428	91773A829	SCREW,MACHINE #10-32 X 1/2	4
AMTE	13	PFOOO		1R5C8	9593-0233	PANEL, CONTROL, ENGINE AND PUMP	1
AMTJ	14	PAOZZ	5930-00-084-7570	64104	162284	.SWITCH, ROTARY	2
AMTM1	15	PAOZZ	5930-01-420-9746	13445	75904-01	.SWITCH, ROTARY	1
AMTZ	16	PFOZZ	5340-01-508-6682	19207	12275418	.NAMEPLATE	1
AMTF	17	PAOZZ	5305-00-432-4252	96906	MS51861-66	.SCREW, TAPPING	4
AMTG	18	PAOZZ	5310-01-121-8521	80205	MS21299-4	.WASHER, FLAT	8
AMTH	19	PAOZZ	5310-00-877-5796	80205	MS21044N4	.NUT, SELF-LOCKING, HEXAGON	4
AMTY	20	PFOZZ		51457	TIP-100	.BOX,CONTROL	1
						END OF FIGURE	

GROUP 2967 RADAR FUEL LEVEL SENSOR **0250 00**

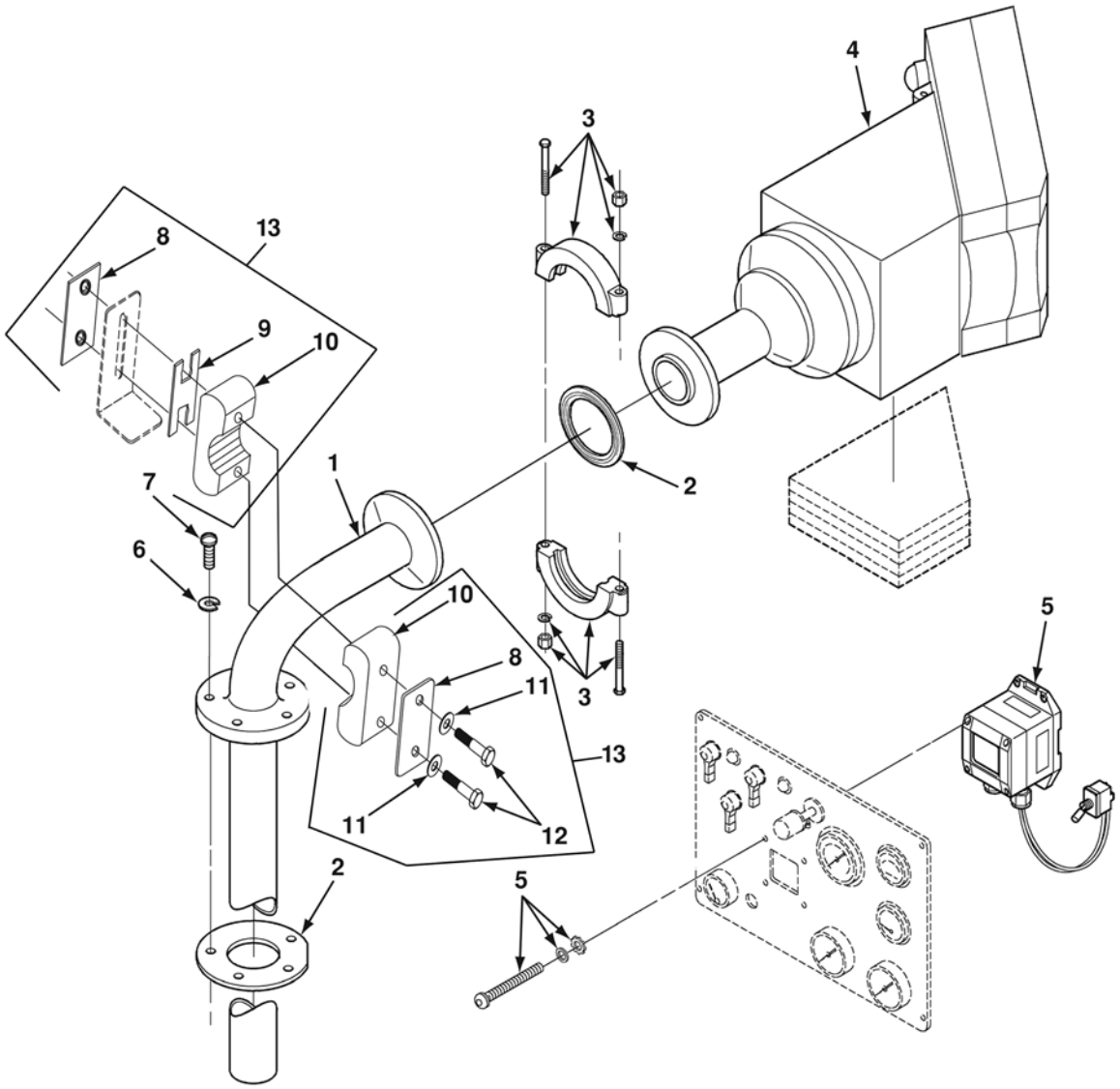


FIGURE 73. RADAR FUEL LEVEL SENSOR

GROUP 2967 RADAR FUEL LEVEL SENSOR — Continued 0250 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 2967 INSTRUMENT PANEL	
						FIG. 73 RADAR FUEL LEVEL SENSOR	
AEBA1	1	PFOOO	4710-01-506-2702	1K2S2	VE205339	WELL ASSEMBLY	1
AEBC	2	PAOZZ	5330-01-506-1859	1K2S2	VE205340	GASKET SET	1
AEBE	3	PAOZZ	4730-01-506-2707	1K2S2	VE204559	CLAMP, HI-PRESSURE	1
AEBJ	4	PFOZZ	5930-01-514-2442	1K2S2	VE205338	HEAD ASSEMBLY, RADAR SENSOR	1
AEBM	5	PFOZZ		1K2S2	VE205247	DISPLAY AND SWITCH ASSEMBLY	1
AEBS	6	PAOZZ	5310-01-514-2751	1K2S2	229182	LOCKWASHER, HELICAL	1
AEBY	7	PAOZZ	5305-01-506-2643	1K2S2	224464	SCREW, SOCKET HEAD	1
AEBQ	8	PAOZZ		1K2S2	VE204599	.CLAMP, VIBRATION	2
AEBV	9	PAOZZ		1K2S2	VE204600	.PLATE, BACKING	1
AEB1	10	PAOZZ		1K2S2	VE204550	.PAD, POLYURETHANE	2
AEB3	11	PAOZZ		1K2S2	229215	.WASHER, SPRING	2
AEB5	12	PAOZZ		1K2S2	28116034	.SCREW, CAP, HEXAGON HEAD	2
AEB7	13	PAOOO		1K2S2	VE204495	BRACKET	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 2967 ENGINE CONTROL PANEL WIRING **0251 00**

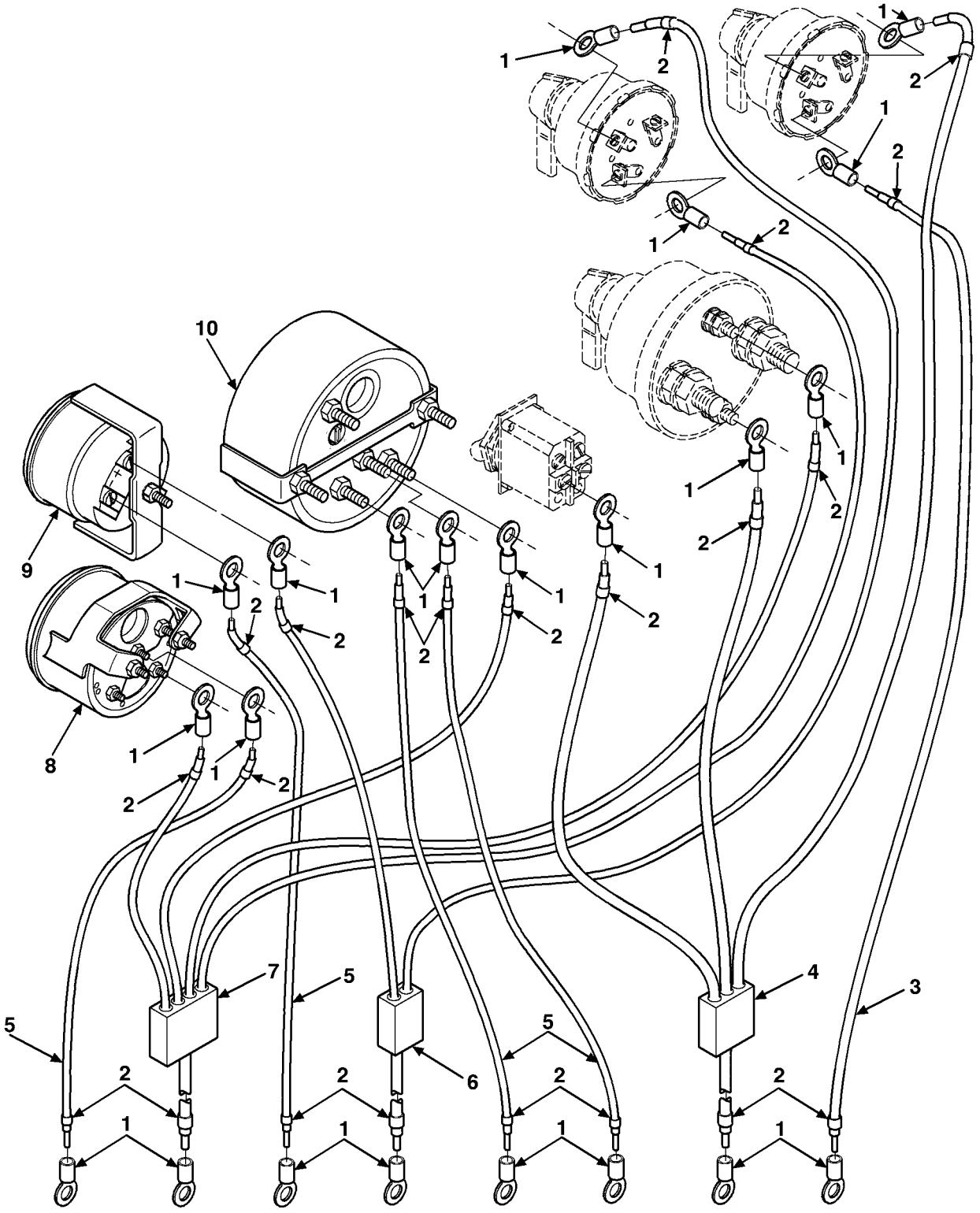


FIGURE 74. ENGINE CONTROL PANEL WIRING

GROUP 2967 ENGINE CONTROL PANEL WIRING — Continued 0251 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 2967 INSTRUMENT PANEL	
						FIG. 74 ENGINE CONTROL PANEL WIRING	
ABQY	1	PAOZZ	5940-01-508-5912	1R5C8	9133-0083	CONNECTOR, RING, TERMINAL	10
ABQ1	2	PAOZZ	9905-00-752-4649	19207	7524649	BAND, MARKER	22
ABQA1	3	MOOZZ		1R5C8	9968-0054	GROUND LEAD 12 GA. MAKE FROM WIRE P/N WL12-0 (58961), AS REQUIRED	1
ABQJ	4	PAOZZ	6150-01-506-2626	1R5C8	9380-0315	HARNESS, ENGINE WIRING	1
ABQE	5	MOOZZ		1R5C8	9968-0055	GROUND LEAD 14 GA. MAKE FROM WIRE P/N WL14-0 (58961), AS REQUIRED	4
ABQS	6	PAOZZ	6150-01-506-2638	1R5C8	9380-0317	HARNESS, ENGINE WIRING	1
ABQM	7	PAOZZ	6150-01-506-2635	1R5C8	9380-0316	HARNESS, ENGINE WIRING	1
ABQH	8	PAOZZ	6645-01-263-9434	16476	100222	METER, TIME TOTALIZING	1
ABQF	9	PAOZZ	6620-01-470-6835	16476	100262	VOLTMETER	1
ABQN	10	PAOZZ	6680-01-508-5909	16476	107646	TACHOMETER	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 3307 VAPOR RECOVERY ASSEMBLY **0252 00**

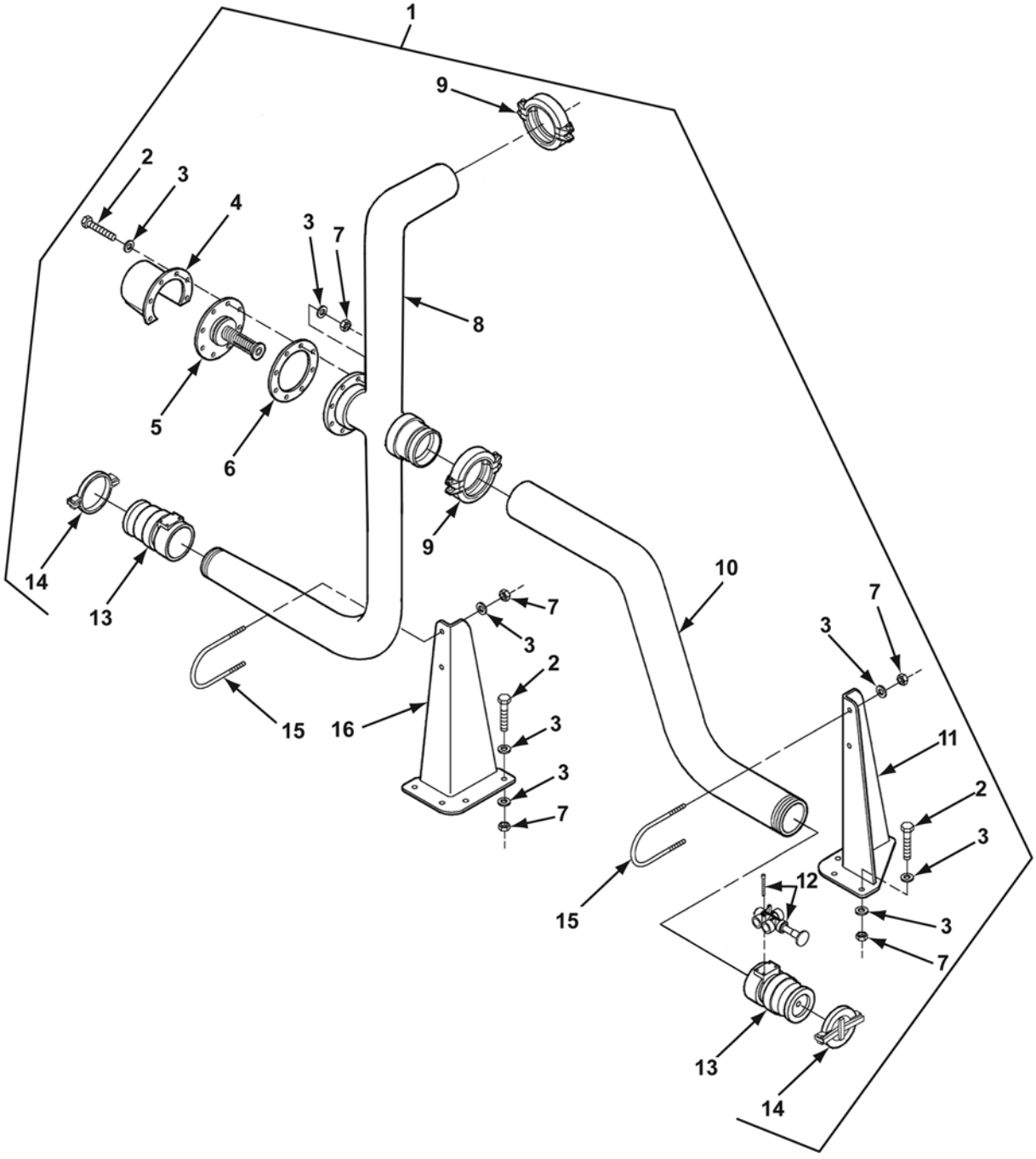


FIGURE 75. VAPOR RECOVERY ASSEMBLY

GROUP 3307 VAPOR RECOVERY KIT — Continued 0252 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 33 SPECIAL PURPOSE KITS	
						GROUP 3307 SPECIAL PURPOSE KITS	
						FIG. 75 VAPOR RECOVERY ASSEMBLY	
AAMA	1	PFFFF	4710-01-506-1776	1R5C8	M158-4250	VAPOR RECOVERY ASSEMBLY	4
AQDY	2	PAOZZ	5305-01-325-8387	80205	MS90725-64	.SCREW,CAP, HEXAGON HEAD.....	8
AAMC1	3	PAOZZ	5310-01-280-5796	96906	MS27183-57	.WASHER, FLAT.....	24
AQBA	4	PFOZZ		96952	035-2994	.SHIELD, RAIN.....	1
AQAY	5	PFOZZ		13226	PV26364ALB	.VENT ASSEMBLY	1
AQAS	6	PFOZZ		1R5C8	9326-0254	.GASKET, FLANGE	1
AQDS	7	PAOZZ	5310-00-930-9759	19207	8712289-9	.NUT, SELF-LOCKING, HEXAGON.....	8
AQAM	8	PFFZZ		1R5C8	M158-4400	. .PIPE, VAPOR RECOVERY, LEFT.....	1
AQCM	9	PFOZZ	4730-01-503-0247	79154	VIC75TG04	.COUPLING, PIPE	2
AQBY	10	PFFZZ		1R5C8	M158-4401	.PIPE, VAPOR RECOVERY, RIGHT	1
AAME	11	PFOZZ	5340-01-506-1011	1R5C8	M311-3398-002	.BRACKET ASSEMBLY.....	1
AAMJ	12	PFOZZ	4810-01-506-2637	1UYK1	100	.VALVE, 3-WAY AIR INTERLOCK.....	1
AQCG	13	PFOZZ		65824	303-444-04	.ADAPTER	2
AQCS	14	PFOZZ		65824	304-200-01	.CAP, DUST	2
AQDG	15	PFOZZ	5306-01-510-2708	1R5C8	9043-0084	.U-BOLT	4
AAMM	16	PFOZZ	5340-01-506-1023	1R5C8	M311-3398-001	.BRACKET ASSEMBLY.....	1
						END OF FIGURE	

GROUP 4216 ELECTRICAL ASSEMBLY FOR HOSE REEL CABINET 0253 00

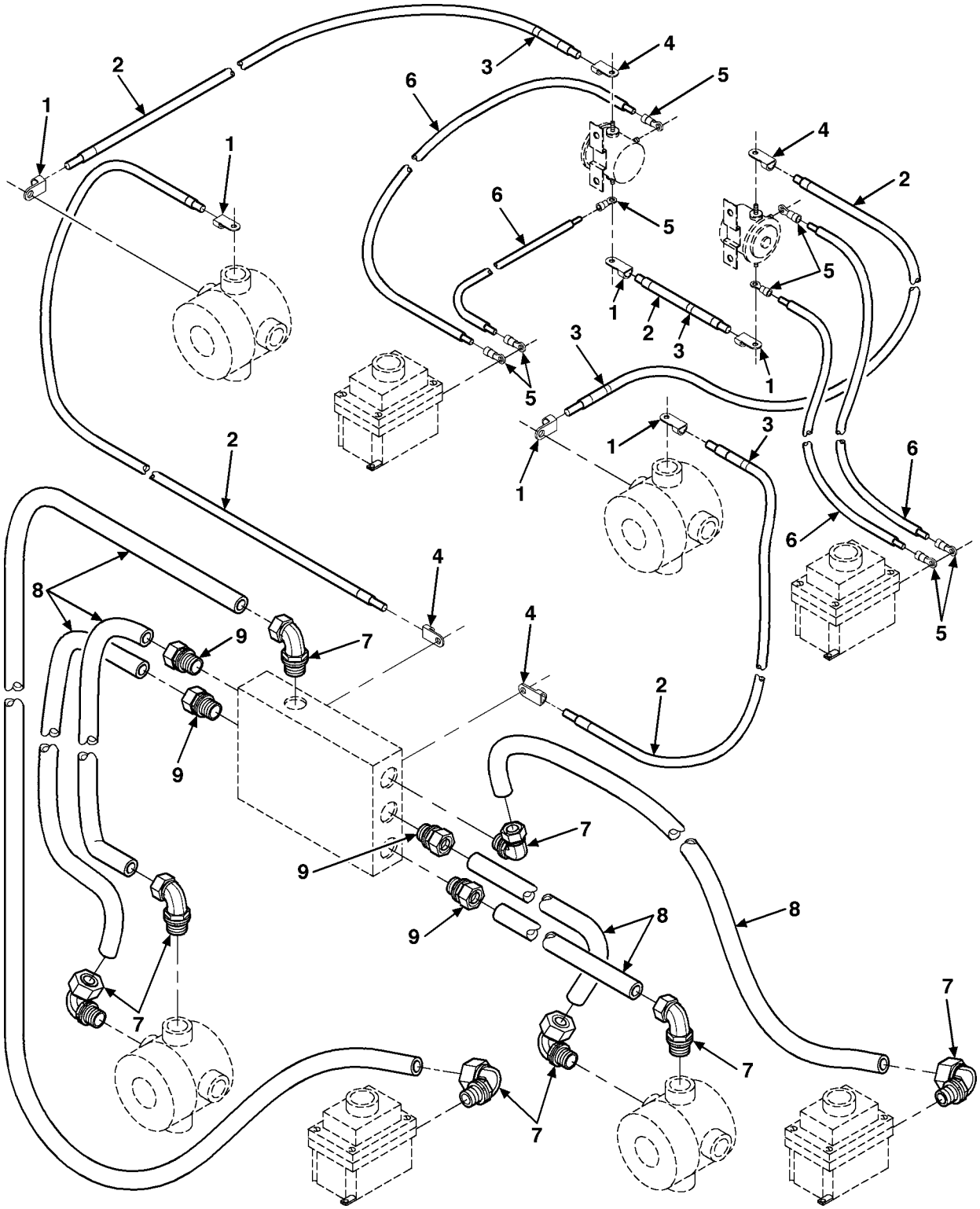


FIGURE 76 ELECTRICAL ASSEMBLY FOR HOSE REEL CABINET

GROUP 4216 MISCELLANEOUS WIRING AND FITTINGS — Continued 0253 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 42 ELECTRICAL EQUIPMENT (NOT CONTAINED IN OTHER FUNCTIONAL GROUPS)	
						GROUP 4216 MISCELLANEOUS WIRING AND FITTINGS	
						FIG. 76 ELECTRICAL ASSEMBLY FOR HOSE REEL CABINET	
ABXA1	1	PAOZZ	5940-01-508-5931	1R5C8	9133-0096	CONNECTOR, LUG, TERMINAL	4
ABXE	2	MOOZZ		1R5C8	9968-0058-AR	WIRE, 2 AWG MAKE FROM P/N 9968-0058 (1R5C8), AS REQUIRED .	5
ABXJ	3	PAOZZ	9905-00-752-4649	19207	7524649	BAND, MARKER	V
ABXM	4	PAOZZ	5940-01-506-2500	1R5C8	9133-0097	CONNECTOR, LUG, TERMINAL	6
ABXS	5	PAOZZ	5940-01-508-5912	1R5C8	9133-0083	CONNECTOR, LUG, TERMINAL	8
ABXY	6	MOOZZ		1R5C8	9968-0054-AR	WIRE, 12 AWG MAKE FROM P/N WL12-0 (58961), AS REQUIRED	4
ABX1	7	PAOZZ	5975-01-432-4122	28488	3442	ELBOW, ELECTRICAL, 45 DEGREE	8
ABX3	8	MOOZZ		1R5C8	9131-0005-AR	CONDUIT, MAKE FROM P/N EF3-8 (70510), AS REQUIRED	6
ABX5	9	PAOZZ	5975-00-833-1776	28488	3402	BOX, ELECTRICAL, STRAIGHT	8
			TM-CODE 2VE			END OF FIGURE	

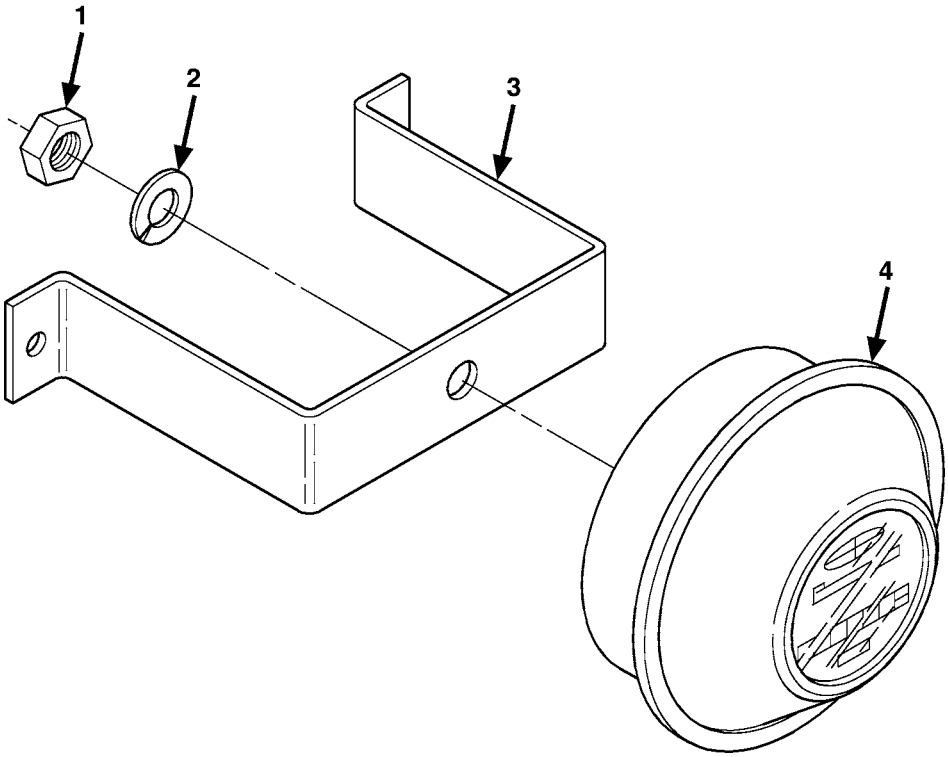


FIGURE 77. HUBODOMETER

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 47 GAGES (NON-ELECTRICAL)	
						GROUP 4701 INSTRUMENTS (SPEED AND DISTANCE)	
						FIG. 77 HUBODOMETER	
ASAA	1	PAOZZ	5310-00-761-6882	96906	MS51967-2	NUT, PLAIN, HEXAGON	1
ASAJ	2	PAOZZ	5310-00-582-5965	96906	MS35338-44	WASHER, LOCK	1
ASAM	3	PAOZZ	2590-01-450-0304	26151	610-0065	BRACKET, VEHICULAR	1
ASAS	4	PAOZZ	6680-01-502-9521	26151	650-0598	FIFTH WHEEL, VEHICLE SPEED AND DISTANCE MONITORING	1
			TM-CODE 2VE			END OF FIGURE	

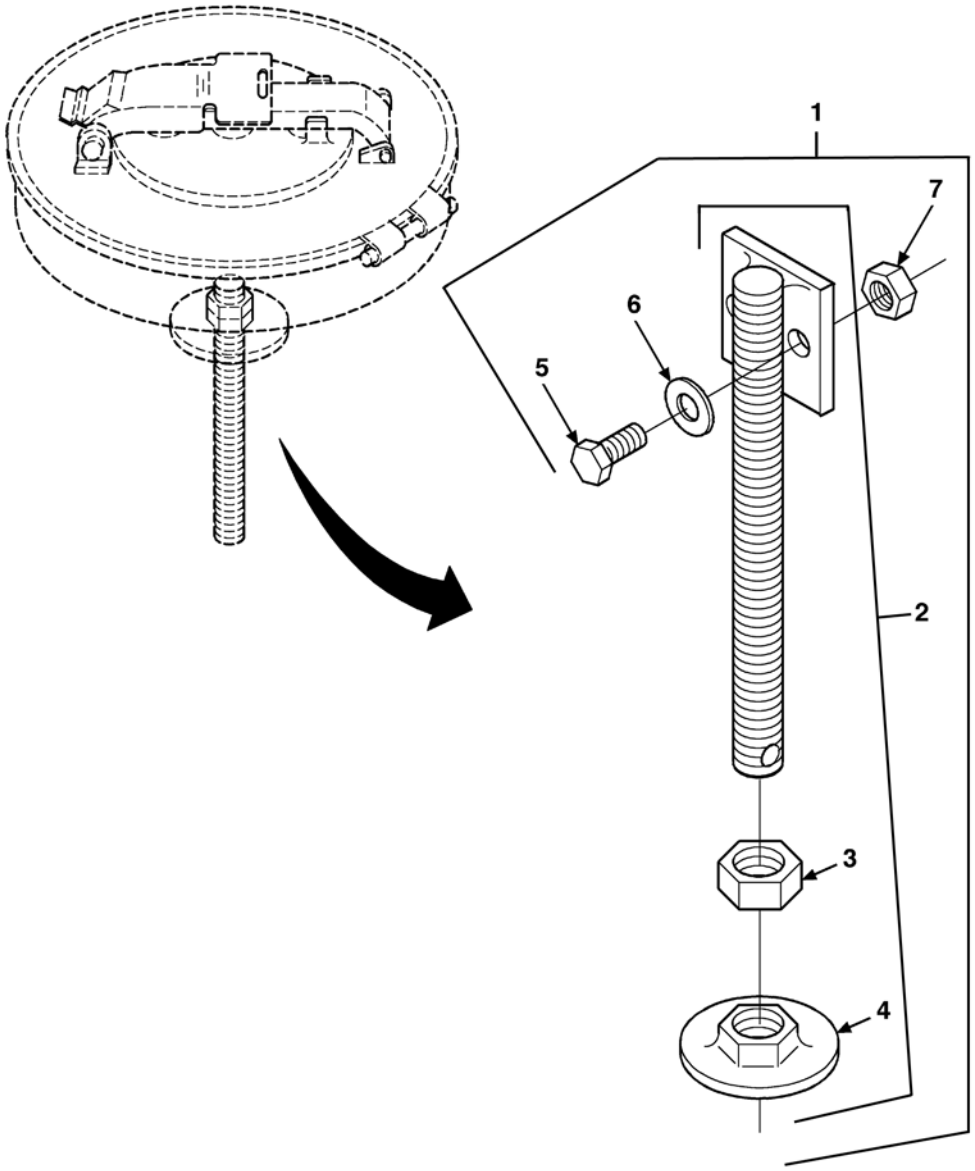


FIGURE 78. GAGE ASSEMBLY, IN-TANK

GROUP 4702 GAGE ASSEMBLY, IN-TANK — Continued 0255 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 4702 GAGES, MOUNTING LINES AND FITTINGS	
						FIG. 78 GAGE ASSEMBLY, IN-TANK	
ARCB	1	PBOOO	6680-01-509-3963	1R5C8	067-0581-001	GAGE ASSEMBLY, IN-TANK.....	1
ARCC	2	XAOOO		1R5C8	067-418-014	.ROD ASSEMBLY.....	1
ARCE	3	PFOZZ	5310-01-508-6918	1R5C8	9562-0009	..NUT,HEXAGON 5/8-11	1
ARCG	4	PFOZZ	5310-01-508-6921	1R5C8	9224-0001	..DISK, CAPACITY INDICATOR.....	1
ARCJ	5	PFOZZ	5305-01-424-8152	49181	13005	.SCREW, CAP, HEXAGON HEAD 1/4-20 X 1	2
ARCN	6	PFOZZ	5310-00-802-4701	80205	MS15795-813	.WASHER, FLAT 1/4	2
ARCS	7	PFOZZ	5310-01-502-8330	1R5C8	9562-0046	.NUT, SELF-LOCKING, HEXAGON 1/4-20.....	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 4702 CONTROL PANEL GAGES 0256 00

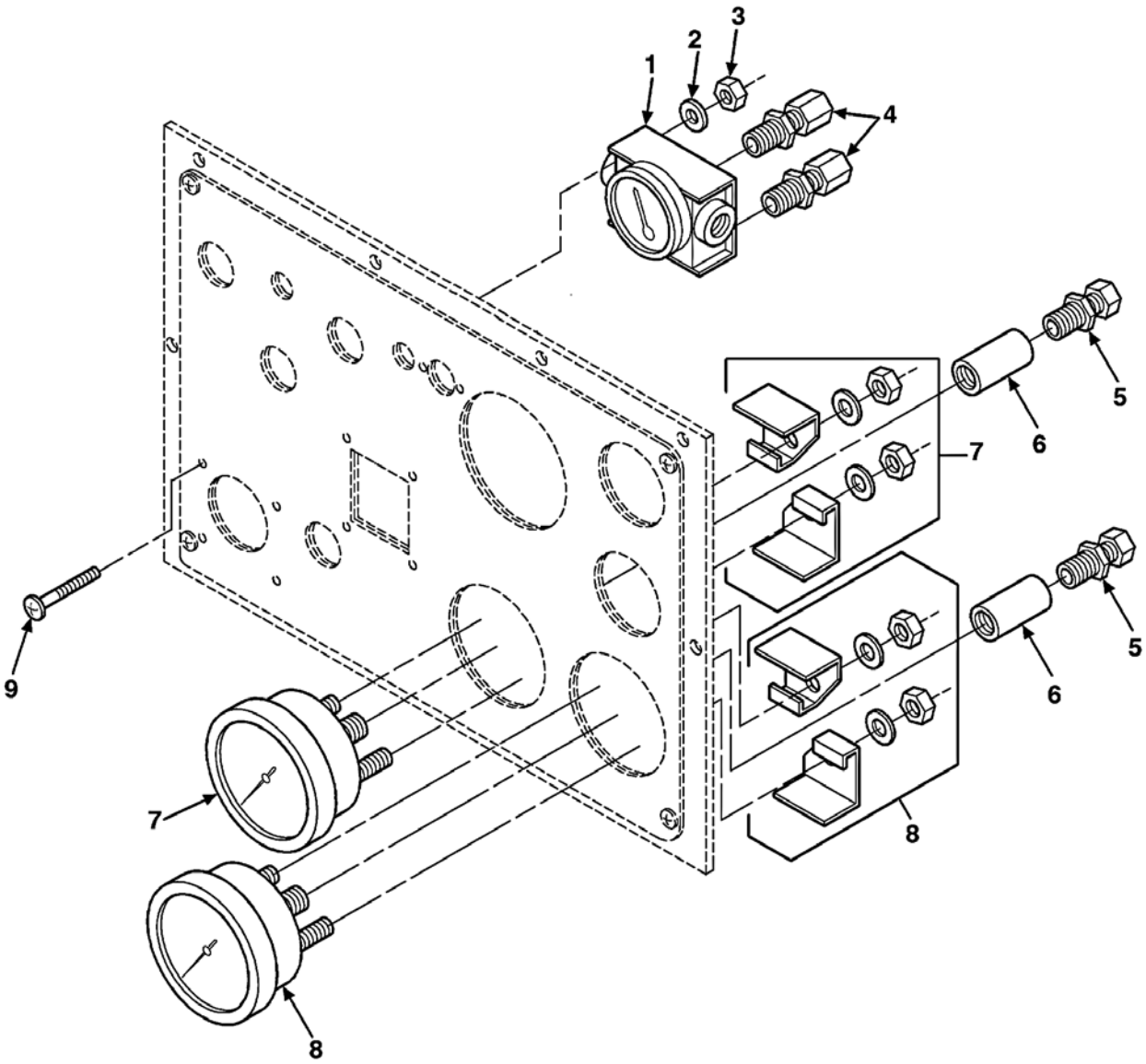


FIGURE 79. CONTROL PANEL GAGES

GROUP 4702 CONTROL PANEL GAGES — Continued 0256 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 4702 GAGES, MOUNTING LINES AND FITTINGS	
						FIG. 79 CONTROL PANEL GAGES	
AAXA	1	PAOZZ	6685-00-022-7988	30389	1201PG-1-A-2L-0/100	GAGE, DIFFERENTIAL, DIAL INDICATING	1
AAXM	2	PAOZZ	5310-00-809-8546	05869	4197500-032	WASHER, FLAT	2
AAXJ	3	PAOZZ	5310-00-902-6676	80205	MS21083N3	NUT, SELF-LOCKING, HEXAGON	2
AAXY	4	PAOZZ	4730-01-096-9398	93061	VS68NTA-4-6	ADAPTER, STRAIGHT, PIPE	3
AAXE	5	PAOZZ	4730-01-274-1830	93061	VS68NTA-6-4	ADAPTER, STRAIGHT, PIPE	2
AAXS	6	PFOZZ	4730-01-508-5999	1R5C8	9142-0206	COUPLING, PIPE, FULL	3
AAX7	7	PFOZZ	6685-01-506-1151	0KMP4	4204089	GAGE, PUMP PRESSURE	1
AAX1	8	PFOZZ	6685-01-506-1061	0KMP4	4306148	GAGE, OIL PRESSURE	1
AAX5	9	PAOZZ	5305-00-995-3441	80205	MS35207-269	SCREW, MACHINE	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 5600 FILTER SEPARATOR **0257 00**

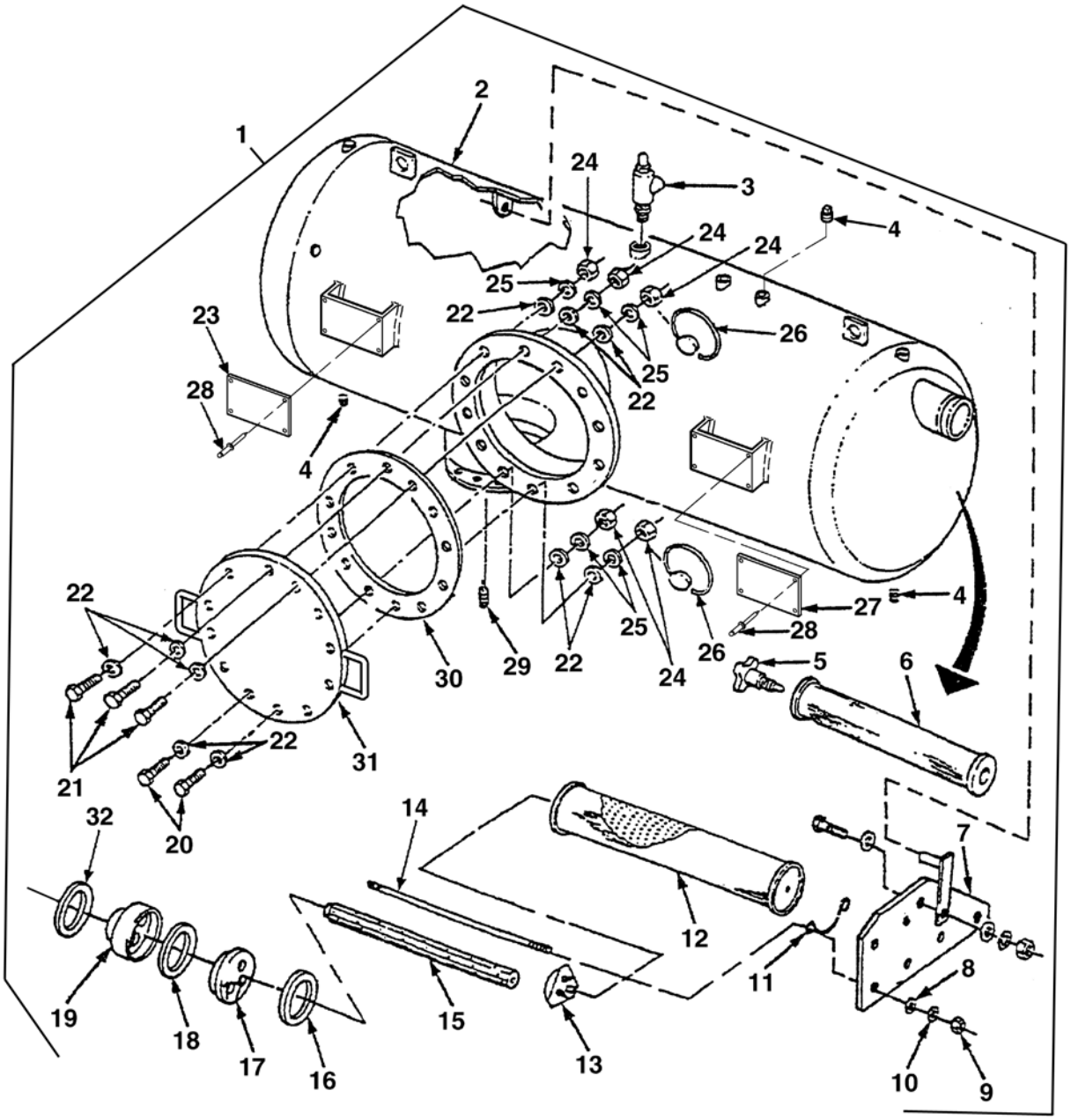


FIGURE 80. FILTER SEPARATOR

GROUP 5600 FILTER SEPARATOR — Continued 0257 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 56 FILTERS, SEPARATORS, AND PURIFIERS	
						GROUP 5600 FUEL, WATER, AIR, FILTER/SEPARATION OR PURIFIER ASSEMBLY	
						FIG. 80 FILTER SEPARATOR	
ATAB	1	PFFFF	4330-01-524-9490	0BUN9	MS155H300	FILTER-SEPARATOR, LIQUID FUEL	1
ATAC	2	XAFZZ		0BUN9	500005S	.TANK, WELDMENT	1
ATAE	3	PAOZZ	4820-01-086-8687	87405	055705-05	.VALVE, REGULATING, FLUID PRESSURE	1
ATAJ1	4	PAOZZ	4730-00-188-3513	98897	299223	.PLUG, PIPE	3
ATAM	5	PAOZZ	4330-01-393-5835	0BUN9	200020	.PLUG, ELEMENT, RETAINER	15
ATAS	6	PAOZZ	4330-01-393-5280	0BUN9	200025	.ELEMENT,FILTER,FLUID	15
ATAY	7	PAOZZ	5340-01-423-3255	0BUN9	300008	.PLATE, MOUNTING	1
ATAZ	8	PAOZZ	5310-01-423-3729	0BUN9	200274	.WASHER, FLAT	7
ATA1	9	PAOZZ	5310-01-423-4035	0BUN9	200272	.NUT, PLAIN, HEXAGON	7
ATA3	10	PAOZZ	5310-01-423-3724	0BUN9	200273	.WASHER, LOCK	7
ATA5	11	PAOZZ	4330-01-393-5834	0BUN9	100101	.HANGER, ELEMENT, SUPPORT	5
ATA71	12	PAOZZ	4330-01-060-3836	87405	640269	.ELEMENT,FILTER	5
ATA9	13	PAOZZ	4330-01-312-2797	0BUN9	300009	.HOLDER, ELEMENT, FILTER-SEPARATOR	5
ATBA	14	PAOZZ	5975-01-050-5705	97403	13219E0462	.ROD, GROUND	7
ATBE	15	PAOZZ	5920-01-424-6740	0BUN9	E1121-2	.FUSE, CARTRIDGE	15
ATBJ	16	PAOZZ		0BUN9	100398	.GASKET	5
ATBM	17	PAOZZ		0BUN9	200021	.PLATE, MONITOR MOUNT	5
ATBS	18	PAOZZ	5330-01-423-9479	0BUN9	100397	.GASKET	5
ATBY	19	PAOZZ	4330-01-429-5981	0BUN9	100103	.HEAD, FLUID FILTER	5
ATBZ	20	PAOZZ	5305-01-256-5202	0BUN9	200254	.SCREW, CAP, HEXAGON HEAD	4
ATB1	21	PAOZZ	5305-01-424-0082	0BUN9	200266	.SCREW, CAP, HEXAGON HEAD	8
ATB3	22	PAOZZ	5310-01-423-3730	0BUN9	200083	.WASHER, FLAT	24
ATB5	23	XAOZZ	9905-01-425-3750	0BUN9	100400	.PLATE, IDENTIFICATION	1
ATB7	24	PAOZZ	5310-01-423-4036	0BUN9	200082	.NUT, PLAIN, HEXAGON	12
ATB9	25	PAOZZ	5310-01-423-3728	0BUN9	200084	.WASHER, LOCK	12
ATCA	26	PAOZZ	5340-01-469-7199	81348	FF-S-2738	.SEAL, ANTIPILFERAGE	2
ATCE	27	XAOZZ	9905-01-425-2196	0BUN9	100401	.PLATE, IDENTIFICATION	1
ATCJ	28	PAOZZ	5320-00-582-3494	80205	MS20600AD4W4	.RIVET, BLIND	8
ATCM1	29	PAOZZ	5325-01-423-3138	0BUN9	200277	.INSERT, SCREW THREAD	8
ATCS	30	PAOZZ	5330-00-778-7229	87405	055285	.GASKET	1
ATCY	31	PAOZZ	5340-01-423-0791	0BUN9	100002S	.COVER, ACCESS	1
ATCX	32	PAOZZ	5330-01-433-9474	0BUN9	100396	.GASKET,CANISTER BASE	5
			TM-CODE 2VE			END OF FIGURE	

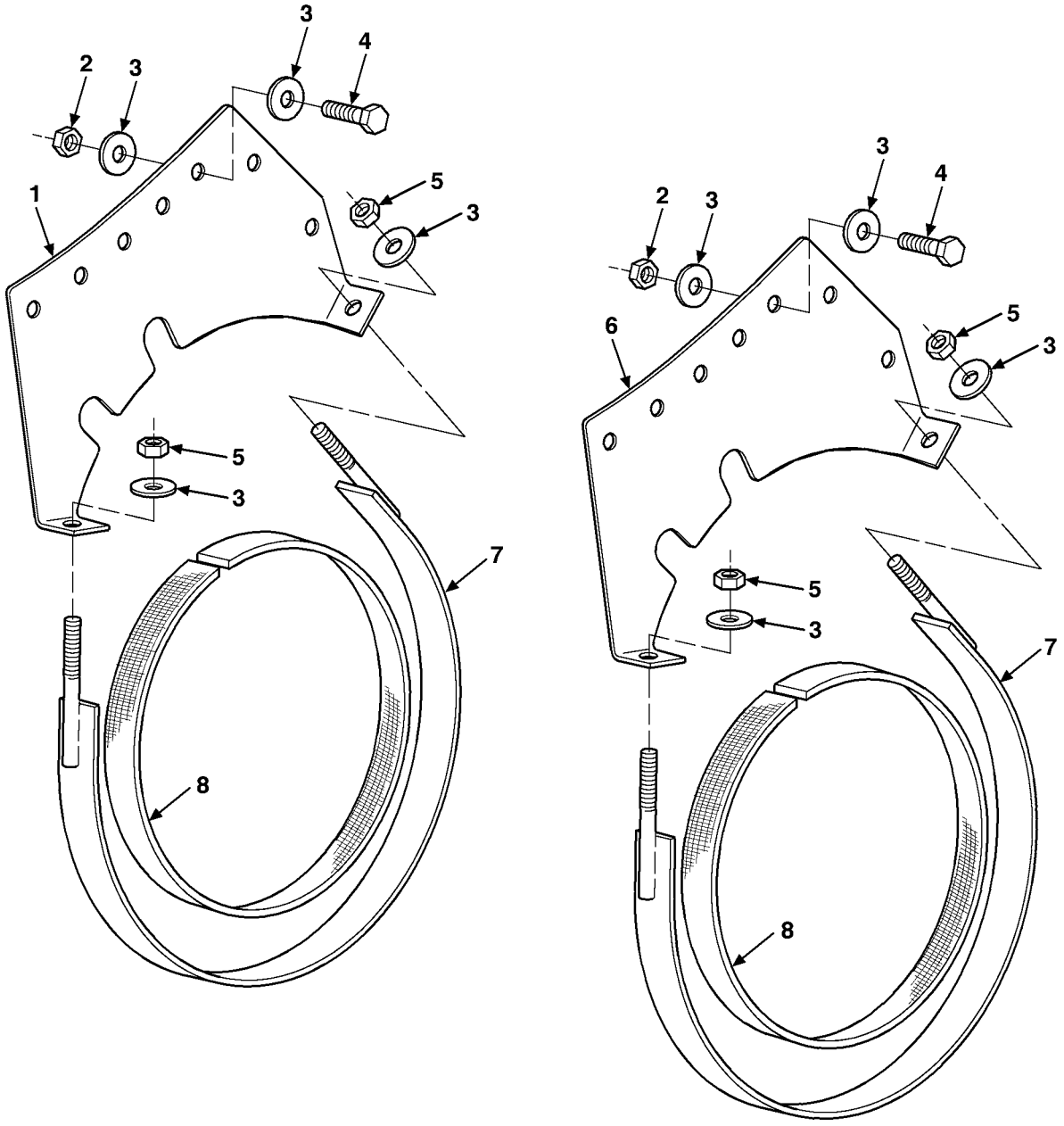


FIGURE 81. SEPARATOR MOUNTING ASSEMBLY

GROUP 5600 SEPARATOR MOUNTING ASSEMBLY — Continued 0258 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 5600 FUEL, WATER, AIR, FILTER/SEPARATION OR PURIFIER ASSEMBLY	
						FIG. 81 SEPARATOR MOUNTING ASSEMBLY	
ATAL	1	PBOZZ	5340-01-502-8547	1R5C8	M311-3144	BRACKET, LEFT	1
ATAJ	2	PAOZZ	5310-00-225-6408	19207	8712289-6	NUT, SELF-LOCKING HEXAGON 5/8-18	11
ATAK	3	PAOZZ	5310-00-823-8803	96906	MS27183-21	WASHER, FLAT 5/8	30
ATAH	4	PAOZZ	5305-00-726-2550	80204	B1821BH063F175N	SCREW, CAP, HEXAGON HEAD 5/8-18 X 1-3/4	11
ATAF	5	PAOZZ	5310-00-763-8905	90031	761-847	NUT, PLAIN, HEXAGON 5/8-18	8
ATAG	6	PBOZZ	5340-01-502-8729	1R5C8	M311-3143	BRACKET, RIGHT	1
ATAP	7	PBOZZ	5340-01-502-8756	1R5C8	M126-4238	STRAP	2
ATAQ	8	MOOZZ		19207	12275562-5	STRAP, WEBBING MAKE FROM STRAP P/N 27-W-924 (19207), AS REQUIRED	2
			TM-CODE 2VE			END OF FIGURE	

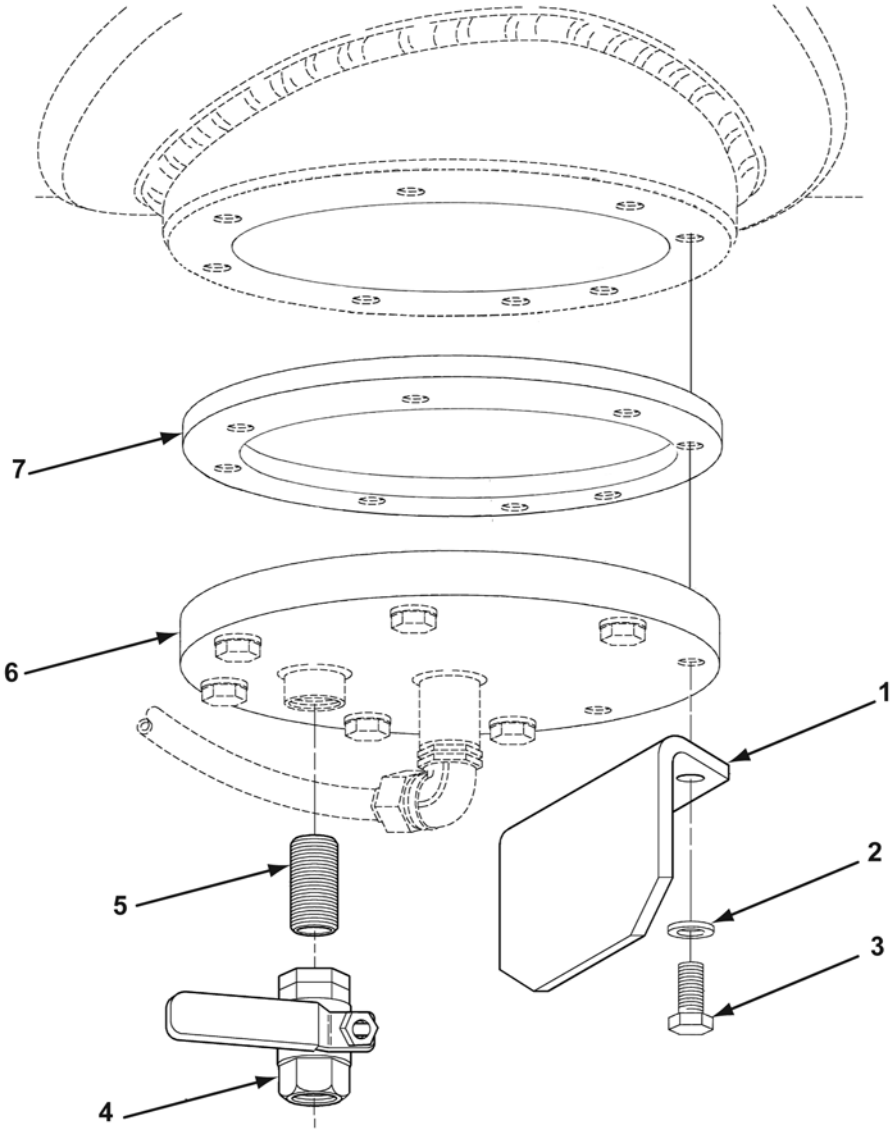


FIGURE 82. DRAIN VALVE ASSEMBLY

GROUP 5601 DRAIN VALVE ASSEMBLY — Continued 0259 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 5601 AUTOMATIC DISCHARGE AND RELIEF VALVE	
						FIG. 82 DRAIN VALVE ASSEMBLY	
ATQA	1	PFOZZ	5340-01-508-6940	1R5C8	M311-2990	BRACKET, VALVE PROTECTION.....	1
ATQB	2	PAOZZ	5310-01-394-3524	0BUN9	A1137-33	WASHER,FLAT	1
ATQD	3	PAOZZ	5305-00-725-2317	80204	B1821BH038C150N	SCREW,CAP,HEXAGON	1
ATQJ	4	PAOZZ	4820-01-243-9951	57661	70-103-01	VALVE, BALL	1
ATQE	5	PAOZZ	4730-01-508-7237	93061	VS215PN-8	NIPPLE, CLOSE.....	1
ATQK	6	PFOZZ		0BUN9	A113724	COVER	1
ATQL	7	PAOZZ	5330-01-398-8741	97403	13228E17721	GASKET	1
			TM-CODE 2VE			END OF FIGURE	

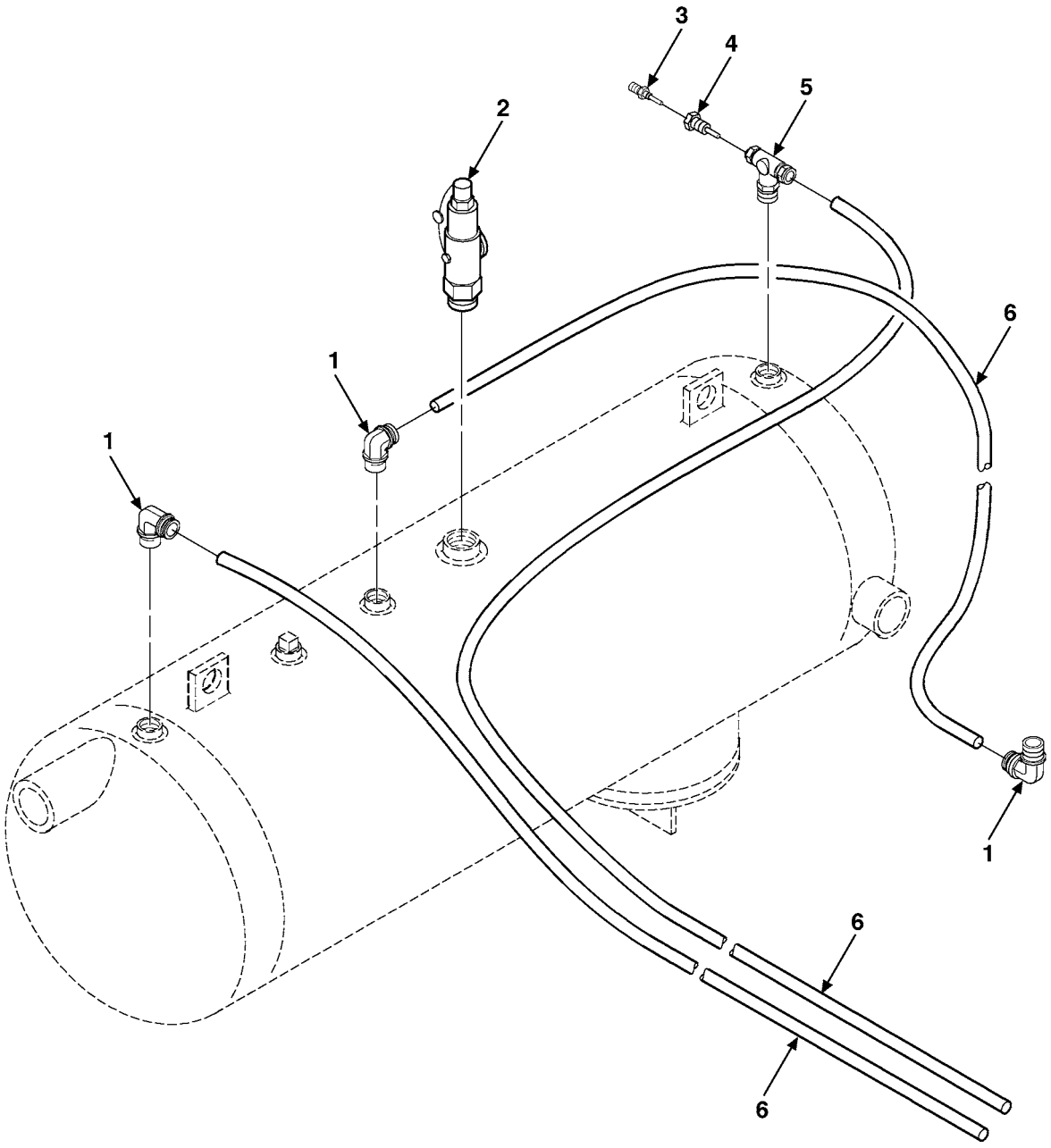


FIGURE 83. FILTER SEPARATOR TUBING ASSEMBLY

GROUP 5605 FILTER SEPARATOR TUBING ASSEMBLY — Continued 0260 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 5605 COMMON VALVES, LINES, AND FITTINGS	
						FIG. 83 FILTER SEPARATOR TUBING ASSEMBLY	
ATPS	1	PFOZZ	4730-01-506-3267	93061	169PMTNS-4-4	FITTING, 90 DEG, NON-SWIVEL	3
ATPE	2	PFOZZ	4820-01-508-7765	OGRW8	79A SET@150LIQUID	VALVE, PRESSURE RELIEF.....	1
ATPW	3	PAOZZ	4730-01-132-9426	32218	GTP-235-2	NIPPLE, ACTUATOR	1
ATPN	4	PAOZZ	4730-01-271-7981	32218	GTP-235-3/8	COUPLING, PIPE.....	1
ATPJ	5	PFOZZ	4730-01-508-7806	0AT06	TRT221	TEE.....	1
ATPA	6	MOOZZ		1R5C8	9881-0005-1	TUBING MAKE FROM TUBING P/N PFT-4A (61424), AS REQUIRED	3
			TM-CODE 2VE			END OF FIGURE	

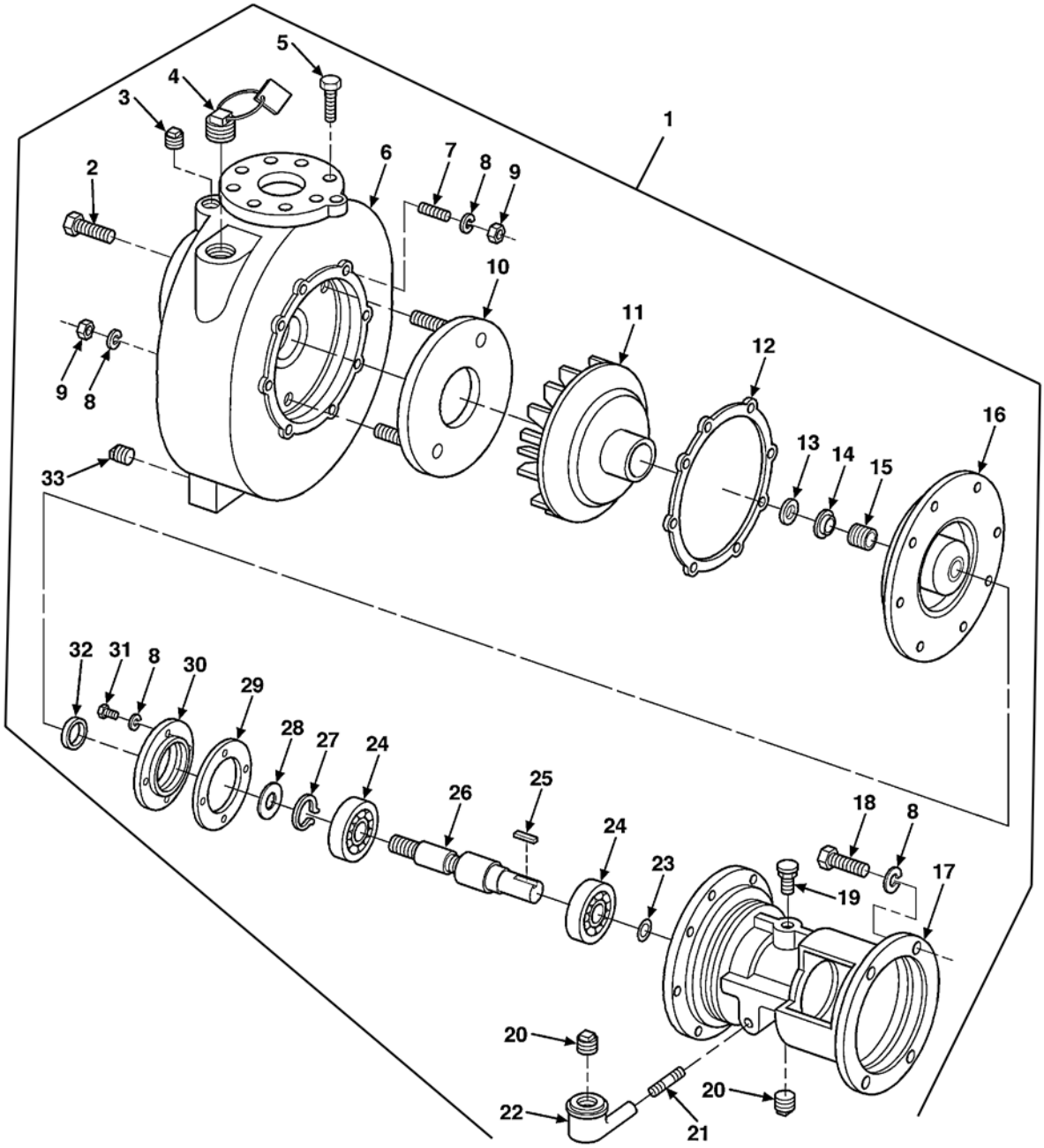


FIGURE 84. PUMP ASSEMBLY

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 72 DISPENSING AND SERVICING EQUIPMENT COMPONENTS	
						GROUP 7202 PUMPS AND METERS	
						FIG. 84 PUMP ASSEMBLY	
AUAA1	1	PBFFF		25567	84B1-(11LD626-3)/S1	PUMP ASSEMBLY, CENTRIFUGAL	1
AUAY	2	PAFZZ	5307-01-088-7388	25567	31343-039 15991	.STUD	8
AUBA	3	PAFZZ	4730-00-223-9268	25567	P04	.PLUG, PIPE	1
AUBM	4	PAFZZ	5340-01-406-4189	25567	48271-094	.PLUG ASSEMBLY, SEALING	1
AUBG	5	PAFZZ	5307-01-088-7388	25567	31343-039 15991	.STUD, PLAIN	8
AUAG	6	XAFZZ		25567	8881	.VOLUTE	1
AUCA1	7	PAFZZ	5307-00-080-2016	25567	C0608	.STUD, PLAIN	8
AUCG	8	PAFZZ	5310-00-637-9541	80205	MS35338-46	.WASHER, LOCK	20
AUCM1	9	PAFZZ	5310-00-725-9479	25567	D06	.NUT, PLAIN, HEXAGON	10
AUBY	10	PAFZZ	4320-01-060-7896	25567	2605-X-14010	.RING, WEARING	1
AUAM	11	PAFZZ	2930-00-407-9270	25567	882A 14000	.IMPELLER, PUMP, CENTRIFUGAL	1
AUHY	12	PAFZZ	5330-01-060-7266	25567	2474-GA	.GASKET SET	1
AUJG	13	PFFZZ	5310-00-496-3676	25567	37J	.WASHER, FLAT	1
AUJA1	14	PFFZZ	5310-01-502-8763	25567	31512-024	.SEAT, SPRING	1
AUAS	15	PFFZZ	5330-01-078-2005	25567	25271-207	.SEAL	1
AUHS	16	PFFZZ		25567	38272-319	.PLATE, SEAL	1
AUEM	17	PFFZZ	2520-01-168-6845	25567	38263-507 100 10	.HOUSING, INTERMEDIATE	1
AUEY	18	PFFZZ	5305-01-504-6855	25567	21672-597	.CAPSCREW, HEX HEAD	6
AUDG	19	PFFZZ	5340-01-502-8758	25567	S1703	.VENT, PIPE PLUG	1
AUGG	20	PAOZZ	4730-00-010-3867	81348	WW-P-471AASBUC	.PLUG, PIPE	2
AUKA	21	PAFZZ	4730-01-503-0244	25567	T0616	.NIPPLE, PIPE	1
AUGA	22	PAFZZ		25567	R06	.ELBOW, PIPE	1
AUFS	23	PAFZZ	5331-01-504-6856	25567	25227-363	.SEAL, OIL	1
AUFY	24	PAFZZ	3110-01-188-0733	25567	S01080	.BALL, BEARING	2
AUFG	25	PFFZZ	5315-01-502-8761	25567	N0507	.KEY, SHAFT	1
AUDS	26	PFFZZ	3040-01-167-8118	25567	38513-406 17030	.SHAFT, SHOULDERED	1
AUGY	27	PFFZZ	5325-01-502-8762	25567	S244	.RING, RETAINING	1
AUDA	28	PFFZZ	5365-01-137-7682	25567	8543 15990	.SHIM	1
AUCY	29	PFFZZ	5330-01-060-9614	25567	38683-207	.GASKET	1
AUCS	30	PFFZZ	3130-01-317-2625	25567	38322-214 10010	.CAP, PILLOW BLOCK	1
AUHG	31	PAFZZ	5305-00-269-3211	80205	MS90725-60	.SCREW, CAP, HEXAGON HEAD	4
AUHA	32	PFFZZ	5330-01-060-9610	25567	25227-689	.SEAL, PLAIN ENCASED	1
AUJY	33	PAOZZ	5365-01-502-9523	25567	P20	.PLUG, PIPE	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 7202 PUMP COUPLING PARTS **0262 00**

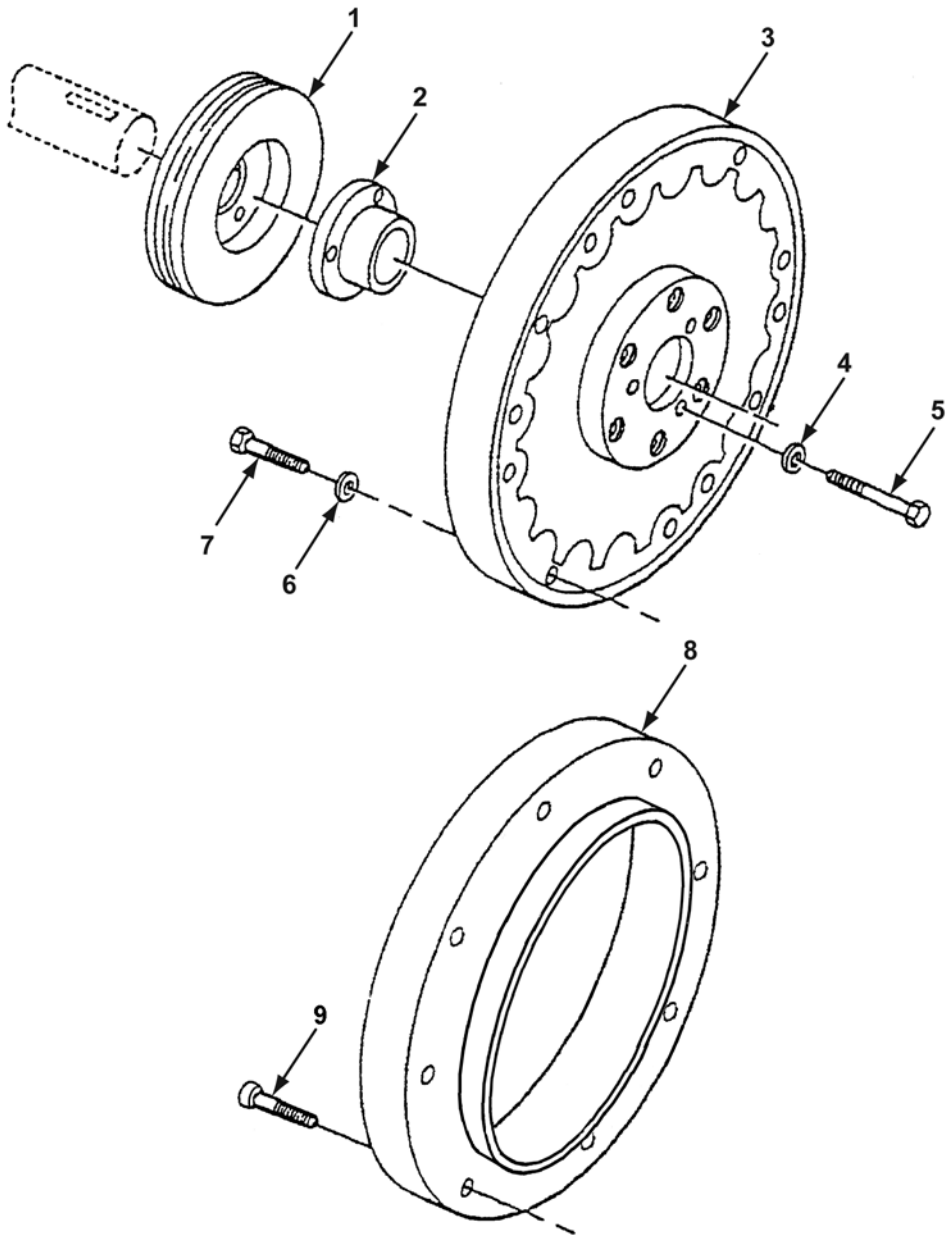


FIGURE 85. PUMP COUPLING PARTS

GROUP 7202 PUMP COUPLING PARTS — Continued 0262 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7202 PUMPS AND METERS	
						FIG. 85 PUMP COUPLING PARTS	
AUDY	1	PFFZZ	3020-01-502-9926	25567	38546-003	DRIVE SHEAVE	1
AUFM1	2	PFFZZ	5365-01-175-0320	25567	31551-001 15990	BUSHING	1
AUKG	3	PFFZZ	4730-01-167-8069	25567	44165-003	COUPLING, PUMP ASSEMBLY	1
AUDM	4	PFFZZ	5310-01-502-8759	25567	J04	WASHER, LOCK	3
AUES	5	PFFZZ	5305-01-502-8760	25567	21672-529	SCREW	3
AUEG	6	PFFZZ	5310-00-407-9566	96906	MS35338-45	WASHER, LOCK	8
AUEB	7	PFFZZ	5306-00-226-4833	80204	B1821BH031C200N	BOLT, MACHINE	8
AUEC	8	PFFZZ		19207	12476065	RING, ADAPTER	1
AUEJ	9	PFFZZ	5305-01-523-0373	05573	42768	SCREW, SOCKET HEAD	8
			TM-CODE 2VE			END OF FIGURE	

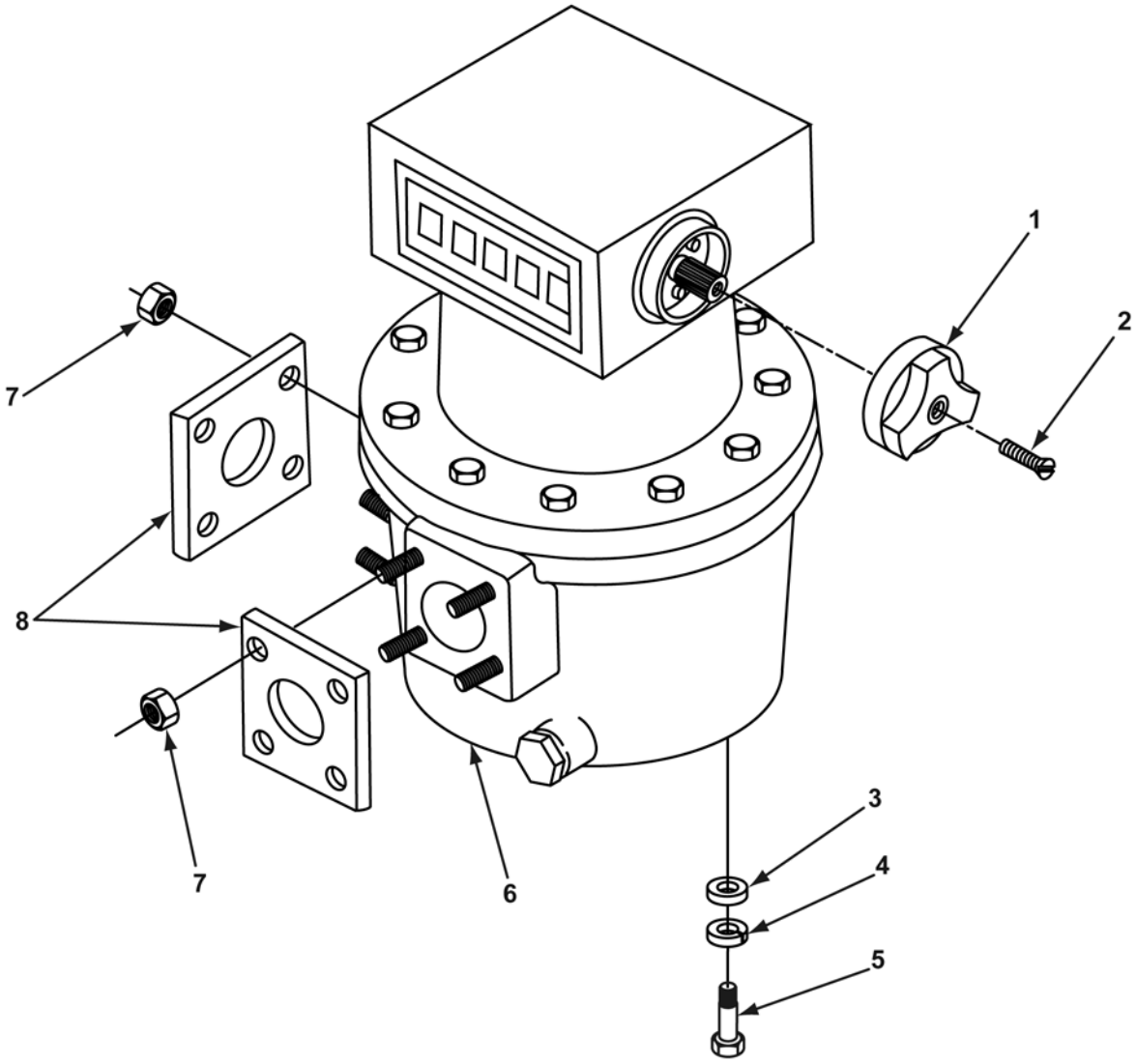


FIGURE 86. METER ASSEMBLY

GROUP 7202 METER ASSEMBLY — Continued 0263 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7202 PUMPS AND METERS	
						FIG. 86 METER ASSEMBLY	
AUPA1	1	PAOZZ	5355-01-154-5198	79142	324757-001	KNOB	1
AUPJ	2	PAOZZ	5305-01-155-4342	79142	503648-001	SCREW, MACHINE	1
AUPS	3	PAOZZ	5310-00-080-6004	96906	MS27183-14	WASHER,FLAT	1
AUPY	4	PAOZZ	5310-00-637-9541	80205	MS35338-46	WASHER,LOCK	6
AUQA	5	PAOZZ	5305-00-068-0511	80204	B1821BH038C125N	SCREW, CAP, HEXAGON HEAD	6
AUQJ	6	PAOZZ	6680-01-065-9645	5U315	T-11-NF-W1-611-G1	METER, VOLUMETRIC	2
AUQM	7	PAOZZ		83590	006618-002	NUT, FLANGE	8
AUQS	8	PAOZZ		83590	003958-001	GASKET	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 7203 PIPING FRAME ASSEMBLY 0264 00

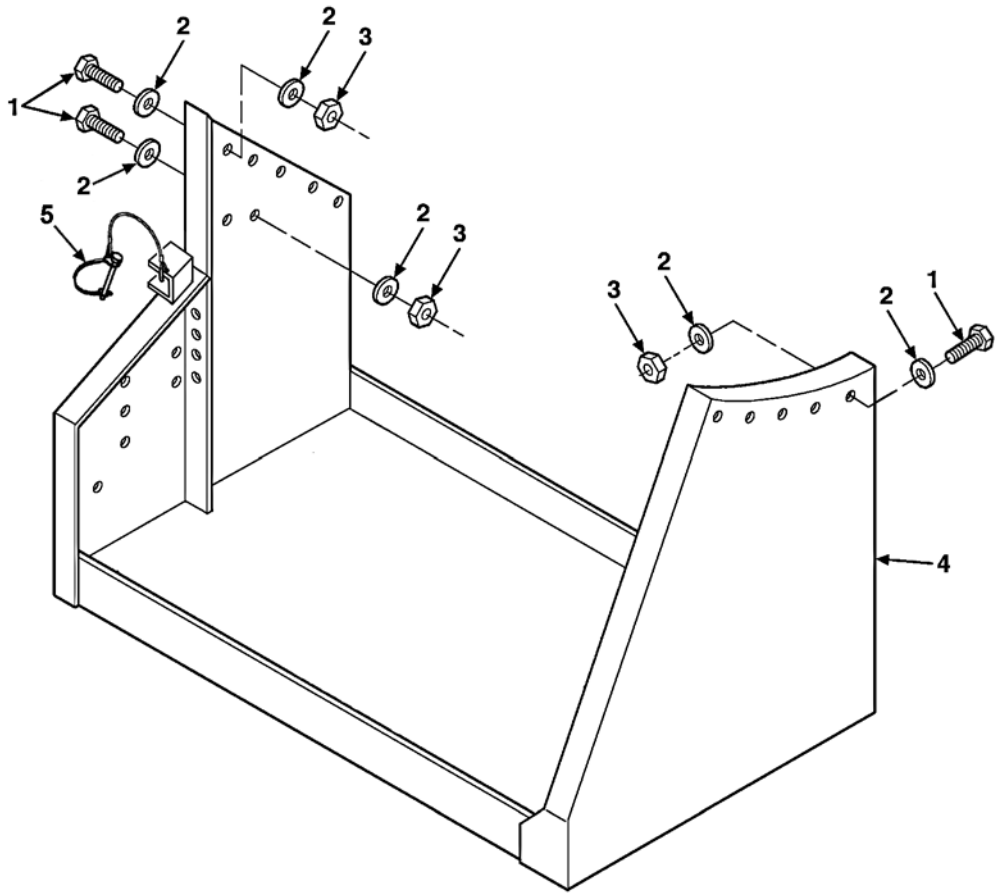


FIGURE 87. PIPING FRAME ASSEMBLY

GROUP 7203 PIPING FRAME ASSEMBLY — Continued 0264 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS, LINES	
						FIG. 87 PIPING FRAME ASSEMBLY	
AURA	1	PAOZZ	5305-01-425-2425	83338	3/8-16X1	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1	12
AURB	2	PAOZZ	5310-01-280-5796	96906	MS27183-57	WASHER, FLAT 3/8	24
AURC	3	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT SELF-LOCKING, HEXAGON HEAD 3/8-16	12
AURD	4	PFOZZ		1R5C8	M311-2869	FRAME ASSEMBLY	1
AKC9	5	PAOZZ	5315-01-502-8717	0CR59	HP30-08MD	PIN, COTTERLESS	1
			TM-CODE 2VE			END OF FIGURE	

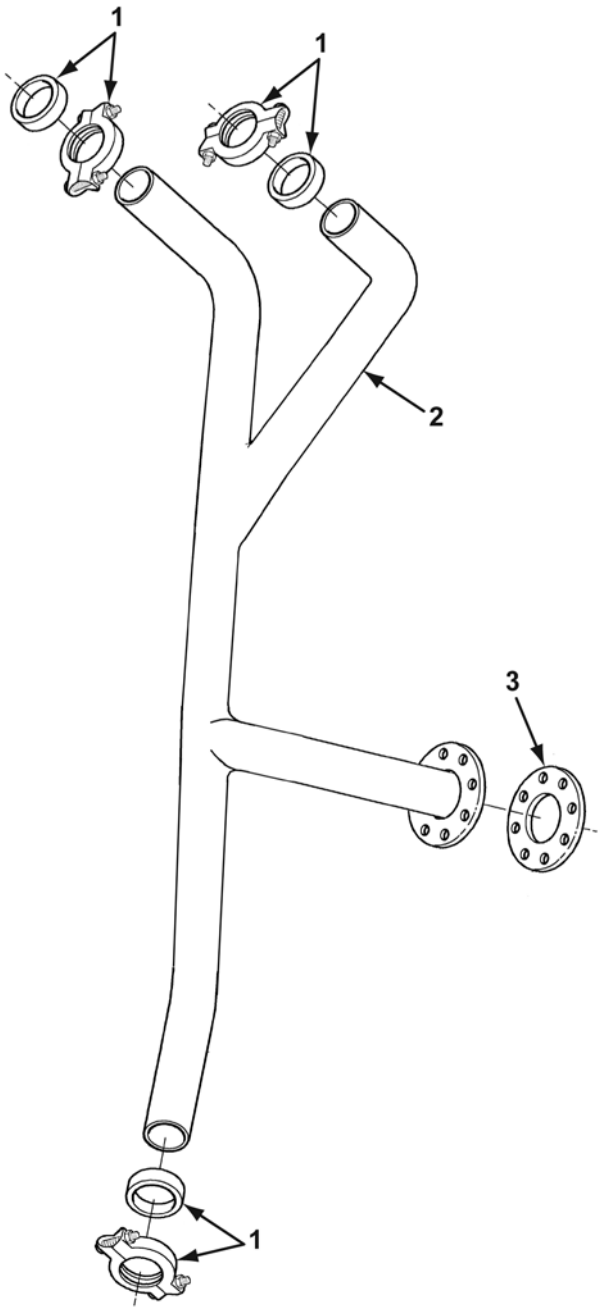


FIGURE 88. EMERGENCY VALVE PIPING

GROUP 7203 EMERGENCY VALVE PIPING — Continued 0265 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS, AND LINES	
						FIG. 88 EMERGENCY VALVE PIPING	
AURE	1	PAOZZ	4730-01-503-0247	79154	VIC75TG04	COUPLING, CLAMP, PIPE	3
AUR1	2	PFOZZ		1R5C8	M158-4396	PIPE, MAIN	1
AUR3	3	PAOZZ	5330-01-081-5070	19207	11670914	GASKET	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 7203 MANIFOLD AND FLANGE ASSEMBLY 0266 00

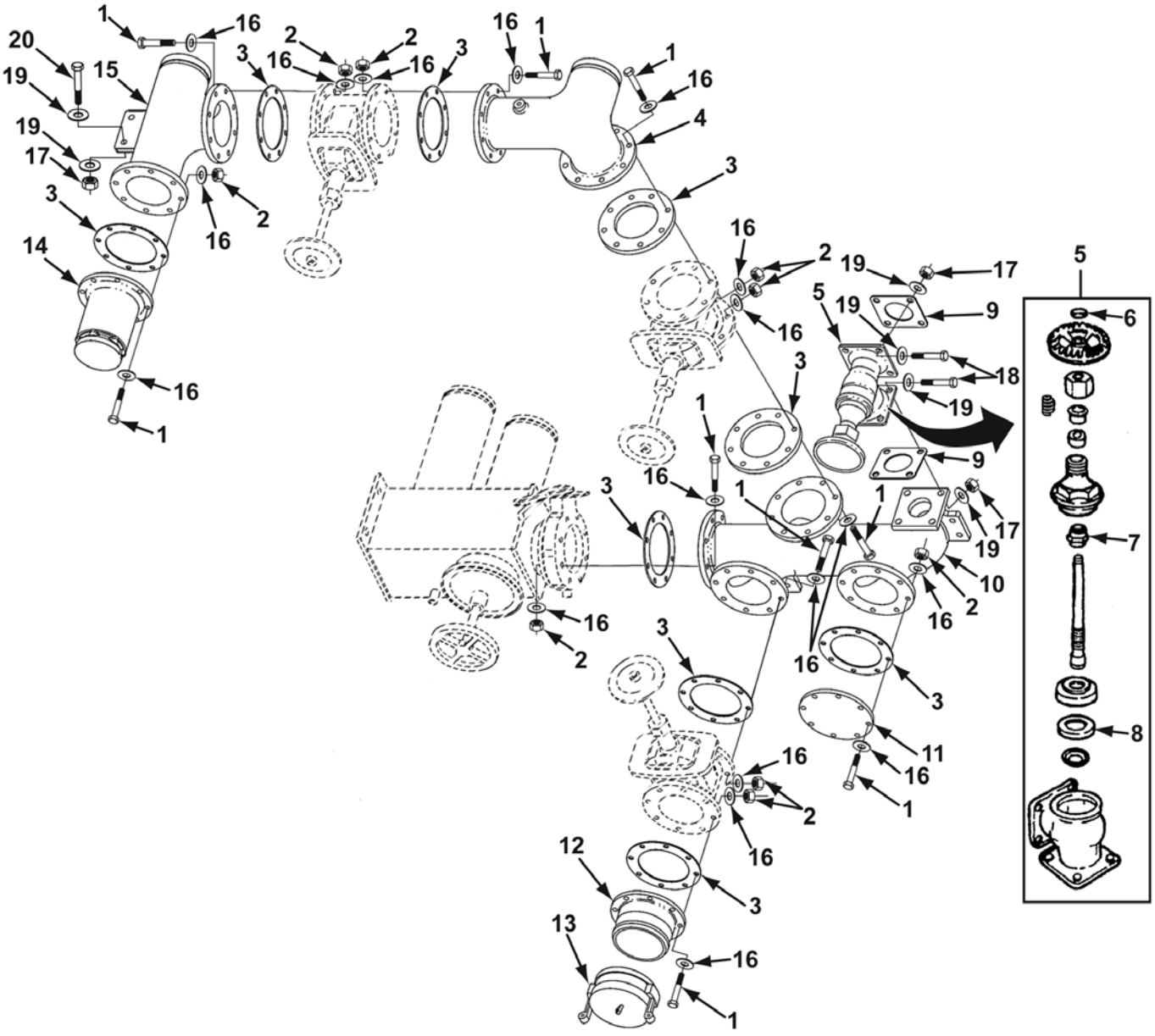


FIGURE 89. MANIFOLD AND FLANGE ASSEMBLY

GROUP 7203 MANIFOLD AND FLANGE ASSEMBLY — Continued 0266 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS AND LINES	
						FIG. 89 MANIFOLD AND FLANGE ASSEMBLY	
AUSV	1	PAOZZ	5305-00-821-3869	80204	B1821BH038C175N	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1-3/4	72
AUSB	2	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING 3/8-16	72
AUSR1	3	PAOZZ	5330-01-081-5070	19207	11670914	GASKET	9
AUSE	4	PFOZZ	4730-01-066-0118	19207	11670911	ELBOW,FLANGE	1
AUSH	5	PAOOO	4820-01-066-1276	76364	P-2637-2	VALVE, ANGLE	1
AUSL	6	PAOZZ	5310-00-654-4537	76364	3116M	.NUT, PLAIN, HEXAGON	1
AUSU	7	PAOZZ	5330-00-889-5483	76364	6593L	.PACKING, PREFORMED	3
AUSN	8	PAOZZ	4820-01-060-8981	76364	3812-J-706	.DISK, VALVE	1
AUSK	9	PAOZZ	5330-01-060-6890	19207	11670915	GASKET	2
AUSZ	10	PFOZZ	4730-01-065-7604	19207	11670913	MANIFOLD, DISCHARGE	1
AUST	11	PFOZZ	4730-01-504-8927	05443	20661D	FLANGE, BLIND	1
AUSY	12	PFOZZ	4730-01-503-0245	1R5C8	9001-0036	ADAPTER W/FLANGE	1
AUSX	13	PFOZZ	5340-01-502-8766	1R5C8	9118-0024	CAP, DUST	1
AUS1	14	PAOZZ	4730-01-184-4883	92003	F418BCS	COUPLING HALF, QUICK DISC	1
AUS3	15	PFOZZ	4730-01-065-9358	14109	11670912	TEE	1
AUSC	16	PAOZZ	5310-00-080-6004	96906	MS27183-14	WASHER, FLAT 3/8	144
AUSM	17	PAOZZ	5310-01-502-8323	1R5C8	9562-0133	NUT, SELF-LOCKING 1/2-13	15
AUSD	18	PAOZZ	5306-00-174-9462	1R5C8	9738-0015	SCREW, CAP, HEXAGON HEAD 1/2-13 X 1-1/2	8
AUSF	19	PAOZZ	5310-01-421-7439	08427	8730000-21	WASHER, FLAT 1/2	30
AUSP	20	PAOZZ	5305-00-071-2071	80204	B1821BH050C200N	SCREW, CAP, HEXAGON HEAD 1/2-13 X 2	7
						TM-CODE 2VE	
						END OF FIGURE	

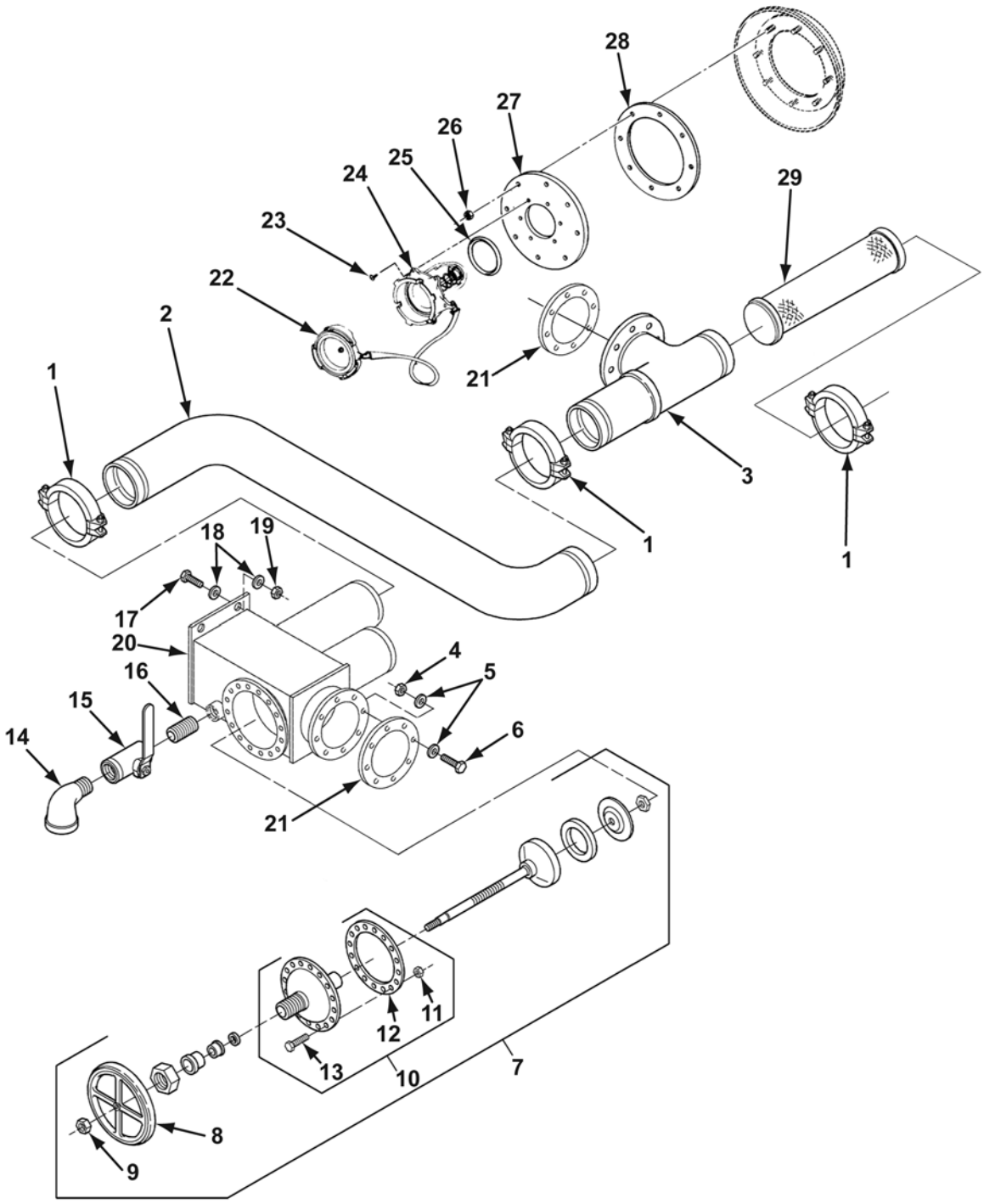


FIGURE 90. PUMP PIPING AND RECIRCULATION VALVE ASSEMBLY

GROUP 7203 PUMP PIPING AND RECIRCULATION VALVE ASSEMBLY — Continued 0267 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS AND LINES	
						FIG 90 PUMP PIPING ASSEMBLY	
ATDA	1	PAOZZ	4730-01-503-0247	79154	VIC75TG04	COUPLING, PIPE	1
ATDE	2	PFOZZ	4710-01-506-2883	1R5C8	9596-0474	PIPE, SWEEP	1
ATDC	3	PFOZZ	4730-01-508-6130	05443	40342CM	TEE ASSEMBLY	1
ATDG	4	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING HEXAGON 3/8-16	8
ATDF	5	PAOZZ	5310-00-186-7448	80205	MS15795-14	WASHER,FLAT 3/8	16
ATDJ	6	PAOZZ	5305-00-269-3219	80205	MS90725-69	SCREW, CAP, HEXAGON HEAD 3/8-16 X 2-3/4	8
ATDK	7	PAOOO	4930-01-085-2652	19207	11668541	VALVE,MANIFOLD	1
ATDM	8	PAOZZ		13226	25245AL	.HANDWHEEL	1
ATDP	9	PAOZZ		13226	9Q5811	.NUT, JAM	1
ATDQ	10	PAOZZ	4820-01-124-8894	13226	WV17594ALB	.VALVE ASSEMBLY, MANIFOLD	1
ATDS	11	PAOOO	5310-01-417-1045	13226	9Q5807	..NUT,SELF-LOCKING,HEXAGON	16
ATDU	12	PAOZZ		13226	15265CB	..GASKET	1
ATDW	13	PAOZZ		13226	9Q5823	..SCREW,CAP,HEXAGON HEAD	16
ATDX	14	PAOZZ	4730-01-508-6961	1R5C8	9261-0085	ELBOW, STREET	1
ATDZ	15	PAOZZ	4820-00-417-1120	72219	32-103-01	VALVE, BALL	1
ATD1	16	PAOZZ	4730-01-508-7237	93061	VS215PN-8	NIPPLE, PIPE	1
ATD3	17	PAOZZ	5305-01-508-6879	39428	92620A798	SCREW, CAP, HEXAGON HEAD 5/8-11 X 1-1/2	2
ATD5	18	PAOZZ	5310-00-823-8803	96906	MS27183-21	WASHER, FLAT 5/8	4
ATD7	19	PAOZZ	5310-01-508-6889	1R5C8	9562-0055	NUT, SELF-LOCKING HEXAGON 5/8-11	2
ATDB	20	POOZZ	4930-01-085-2652	27966	11668541	MANIFOLD, FUELING	1
ATDD	21	PAOZZ	5330-01-081-5070	19207	11670914	GASKET	2
ATDH	22	PAOZZ	1560-00-307-2780	96906	MS29526-2	CAP, FILLER, OPENING	1
ATDL	23	PAOZZ	5305-00-764-2970	96906	MS24667-21	SCREW	1
ATDN	24	PAOZZ	1560-00-949-2087	80205	MS24484-2	ADAPTER, PRESSURE, FUEL	1
ATDR	25	PAOZZ	5330-00-875-8288	96906	MS29513-153	PACKING, PREFORMED	1
ATDT	26	PAOZZ	5310-00-176-6267	96906	MS51922-82	NUT, SELF-LOCKING, HE	1
ATD2	27	PAOZZ	2530-01-164-7125	19207	12275401	ADAPTER	1
ATD4	28	PAOZZ	5330-01-065-8850	19207	11597619	GASKET	1
ATD6	29	PAOZZ	2940-01-061-5734	19207	11685880	FILTER, ELEMENT, FLUID	1
			TM-CODE 2VE			END OF FIGURE	

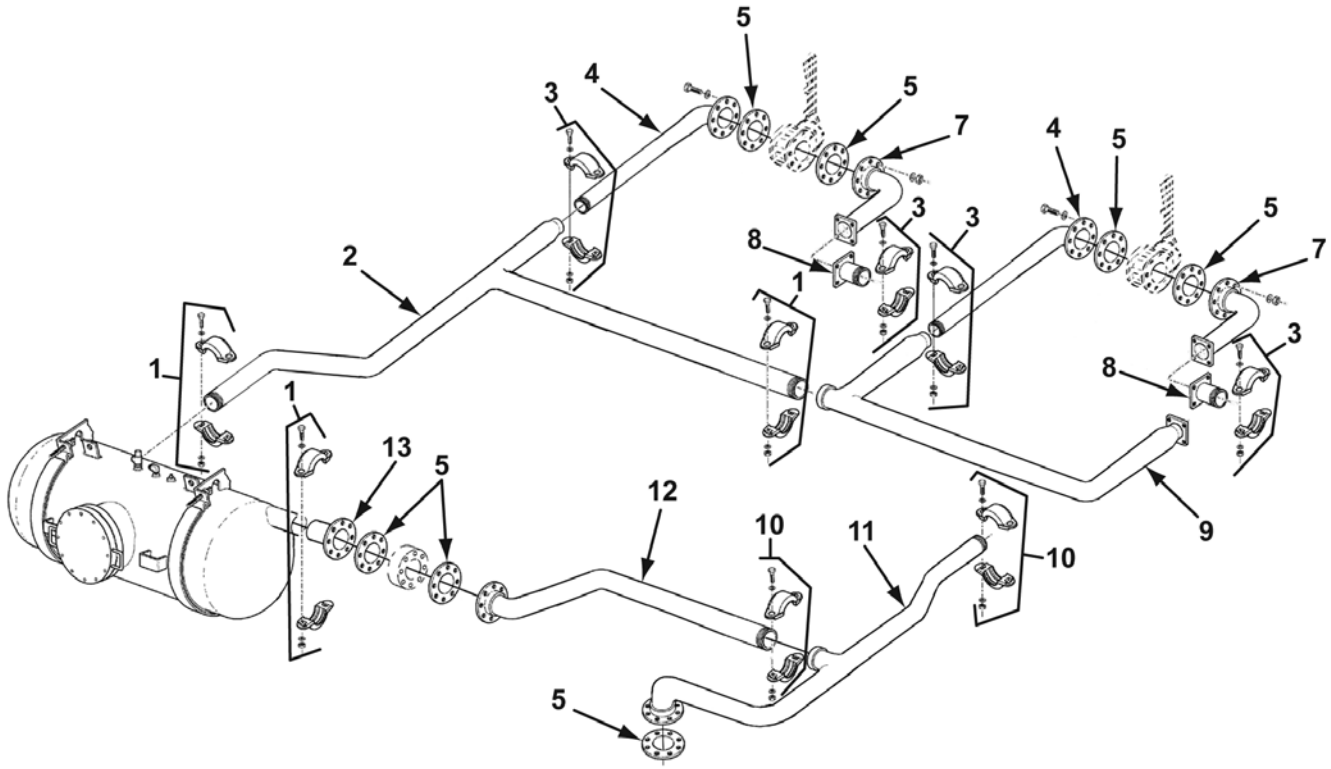


FIGURE 91. CABINET PIPING

GROUP 7203 CABINET PIPING — Continued 0268 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS AND LINES	
						FIG 91 CABINET PIPING	
AQGA1	1	PAOZZ	4730-01-503-0247	79154	VIC75TG04	COUPLING, CLAMP, PIPE	2
AQGC1	2	PFOZZ		1R5C8	M158-4405	PIPE, HOSE REEL TO CABINET	1
AQHW	3	PFOZZ	4730-01-511-5081	79154	VIC75TG03	COUPLING, PIPE, 3 INCH	4
AQGE	4	PFOZZ		1R5C8	M158-4409	PIPE ASSEMBLY BUTTERFLY	2
AQGJ1	5	PFOZZ	5330-01-511-1565	1R5C8	9326-0254	GASKET	7
AQGM1	7	PFOZZ		1R5C8	M158-4406	PIPE ASSEMBLY BUTTERFLY	2
AQGP1	8	PFOZZ		1R5C8	M158-4407	PIPE, METER TO HOSE	2
AQGS1	9	PFOZZ		1R5C8	M158-4404	PIPE, REEL TO MANIFOLD	1
AQKJ	10	PAOZZ	4730-01-511-6206	1R5C8	9142-0273	COUPLING, PIPE	2
AQGU1	11	PAOZZ		1R5C8	M158-4399	PIPE, CROSSOVER PUMP	1
AQGY1	12	PAOZZ		1R5C8	M158-4408	PIPE, CROSSOVER TO FILTER	1
AQGZ1	13	PAOZZ		1R5C8	M158-4410	PIPE, BUTTERFLY TO FILTER	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 7203 HOSE REEL PIPING **0269 00**

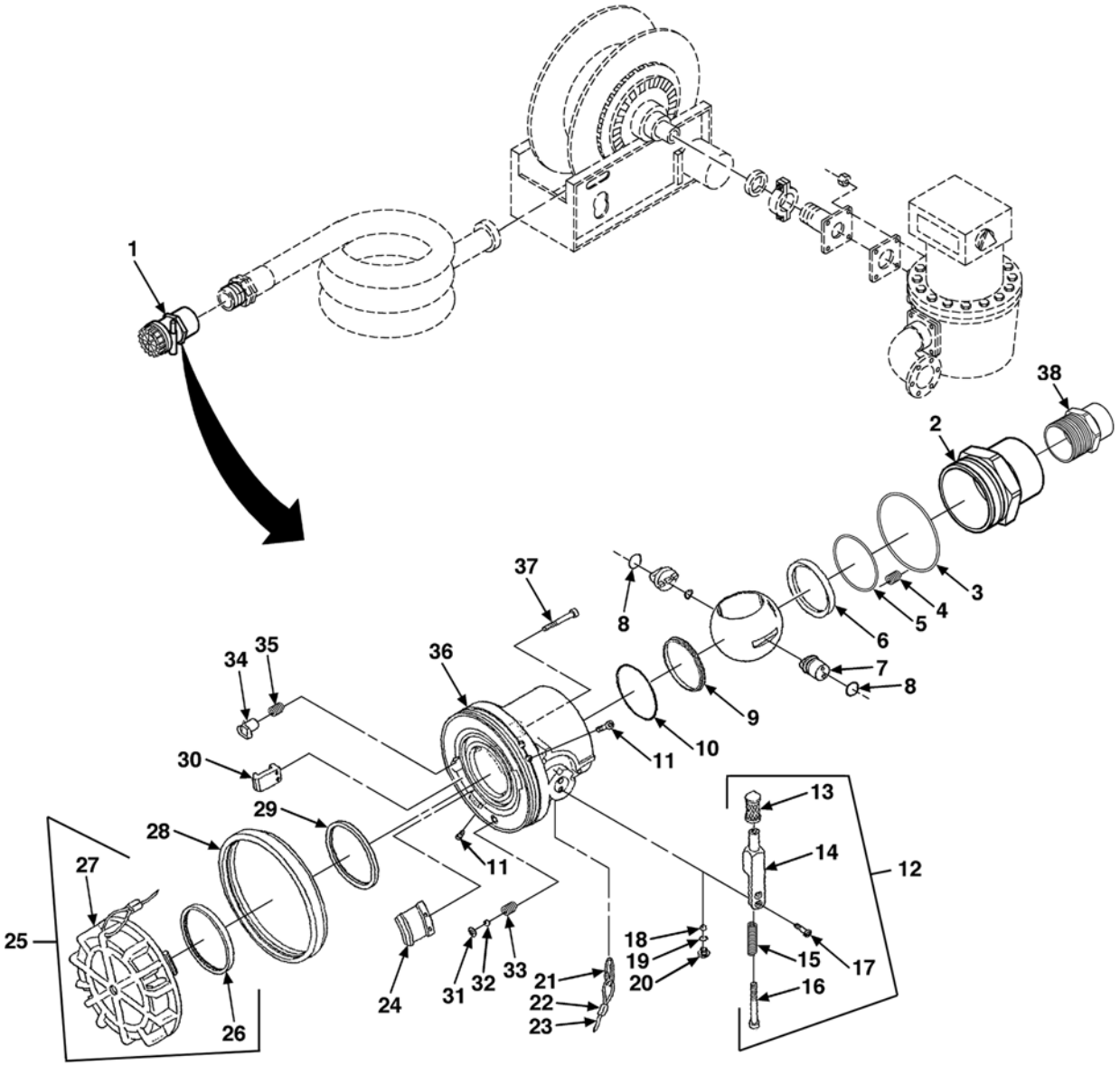


FIGURE 92. HOSE REEL PIPING

GROUP 7203 HOSE REEL PIPING — Continued 0269 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS, LINES	
						FIG. 92 HOSE REEL PIPING	
AUMG	1	PFOFF	4730-01-297-3765	00624	AE88011P	COUPLING HALF, QUICK DISCONNECT	2
AUMJ	2	XAFZZ		00624	AE88011P-1	.INLET	1
AUMK	3	PAFZZ	5331-00-291-7337	19207	8682972	.O-RING	1
AUMN	4	PAFZZ	5360-01-461-5852	0DT23	220153	.SPRING, HELICAL, COMPRESSION	8
AUMQ	5	PAFZZ	5331-00-291-7384	81343	AS29513-133	.O-RING	1
AUMS	6	PAFZZ	5330-01-456-9662	0DT23	220157	.SEAL, PLAIN	1
AUMU	7	PAFZZ	2815-01-456-7605	0DT23	220154	.SHAFT, CONTROL ASSEMBLY	1
AUMW	8	PAFZZ	5331-00-248-3840	81343	MS29513-014	.O-RING	2
AUMY	9	PAFZZ	5330-01-456-9663	0DT23	220158	.SEAL, PLAIN	1
AUMZ	10	PAFZZ	5331-00-641-0119	81343	AS29513-134	.O-RING	1
AUM1	11	PFFZZ	5305-01-191-4578	96906	MS16997-20L	.SCREW, CAP, SOCKET HEAD	4
AUM2	12	PAOOO	5340-01-458-8470	0DT23	47085	.HANDLE, MANUAL CONTROL	1
AUM3	13	XAOZZ		0DT23	220142	..GRIP	1
AUM4	14	XAOZZ		0DT23	220147	..ARM	1
AUM5	15	XAOZZ		0DT23	220145	..SPRING	1
AUM6	16	XAOZZ		0DT23	220204	..SCREW	1
AUM7	17	XAFZZ		0DT23	PL24693C50	.SCREW	2
AUM8	18	PFFZZ	3110-01-504-8557	0DT23	220265	.BALL	41
AUM9	19	PAFZZ	5331-00-248-3835	81343	MS29513-010	.O-RING	1
AUNA	20	PAFZZ	5305-00-988-1720	0DT23	MS35206-276	.SCREW, MACHINE	1
AUNC	21	PAFZZ	5365-01-490-5797	0DT23	220482	.RING, CONNECTING, ROUND	1
AUNE	22	PFFZZ	4030-00-431-5537	76691	28-2G	.SLEEVE	2
AUNG	23	PAFZZ	4010-01-461-0033	0DT23	220201-1-18	.WIRE ROPE ASSEMBLY, SINGLE LEG	1
AUNJ	24	PFFZZ	4820-01-503-0710	0DT23	220159-1	.LUG, LONG	1
AUNL	25	PFOOO	2910-01-456-2273	0DT23	47062	.CAP, DUST	1
AUNN	26	PAOZZ	5330-01-433-9203	0DT23	220146	..SEAL, PLAIN	1
AUNQ	27	XAOZZ		0DT23	220162	..CAP	1
AUNS	28	PAFZZ	2510-01-456-7850	0DT23	220161	.CAP, BUMPER	1
AUNU	29	PFFZZ	5330-01-433-9203	0DT23	220146	.SEAL, PLAIN	1
AUNW	30	PFFZZ	4820-01-504-8923	0DT23	220159-2	.LUG, SHORT	1
AUNY	31	PFFZZ	4820-01-504-8924	0DT23	220334	.RETAINER	1
AUNZ	32	PFFZZ	3110-01-504-8557	0DT23	220265	.BALL	1
AUN1	33	PAFZZ	5360-01-466-5850	0DT23	220335	.SPRING,HELICAL,COMPRESSION	1
AUN3	34	PAFZZ	5315-01-457-2803	0DT23	220151	.PIN, QUICK RELEASE	1
AUN5	35	PAFZZ	5360-01-454-1830	0DT23	220149	.SPRING,HELICAL,COMPRESSION	1
AUN7	36	PFFZZ	4820-01-503-0310	0DT23	220163-1	.BODY	1
AUN9	37	PAFZZ	5305-01-456-1139	96906	MS16997-24L	.SCREW	1
AUN8	38	PAFZZ		0DT23	220138-1	.ADAPTER, MALE	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 7203 FLOAT INSTALLATION **0270 00**

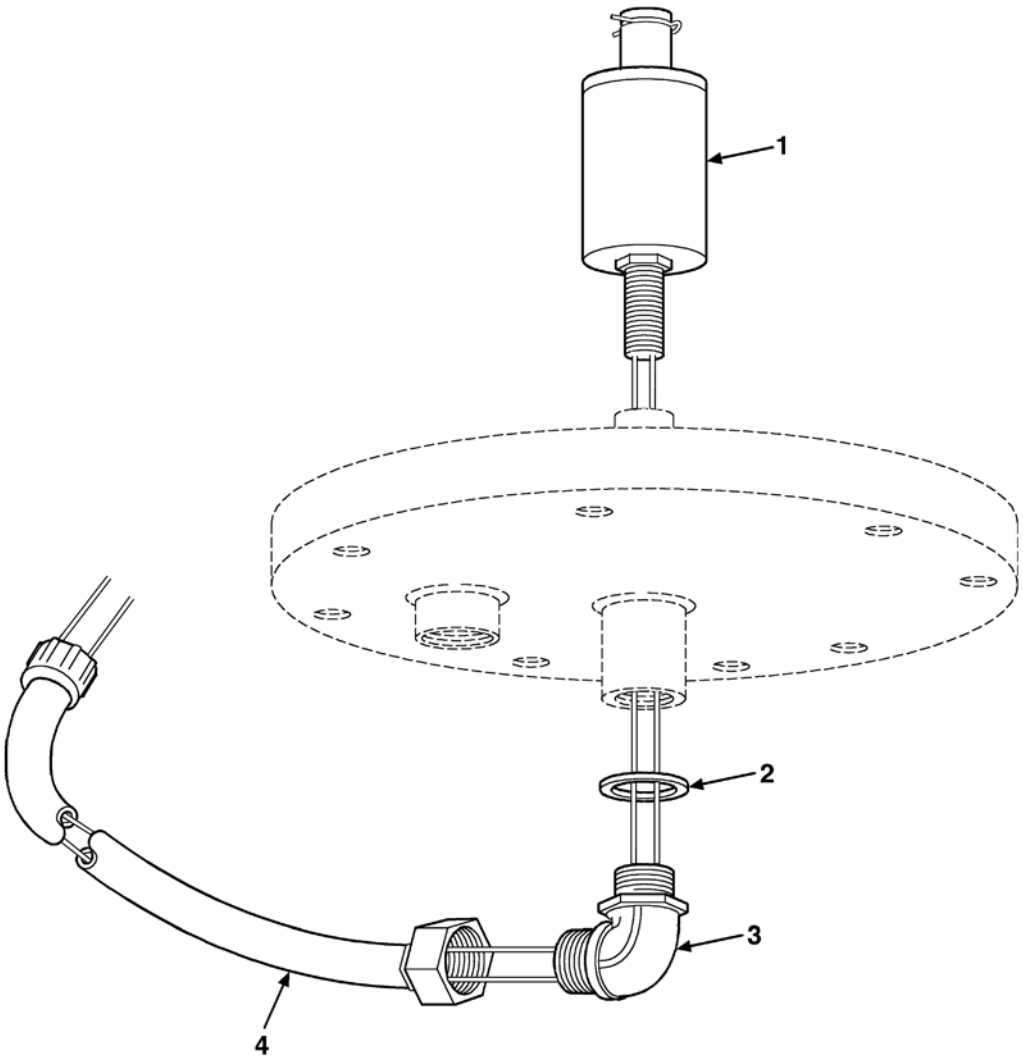


FIGURE 93. FLOAT INSTALLATION

GROUP 7203 FLOAT INSTALLATION — Continued 0270 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS, LINES	
						FIG. 93 FLOAT INSTALLATION	
AAYA	1	PAOZZ	5930-01-514-2439	04034	44233	SWITCH, LIQUID LEVEL	1
AAYC	2	PAOZZ	5310-00-911-2251	0UU57	4343334-1	WASHER, FLAT 3/8	1
AAYE	3	PAOZZ	5975-00-615-9173	56501	5251	BOX,CONNECTOR,ELECT	1
AAYN	4	MOOZZ		1R5C8	9131-0004	CONDUIT, MAKE FROM P/N EF3-8 (70510), AS REQUIRED.....	1
			TM-CODE 2VE			END OF FIGURE	

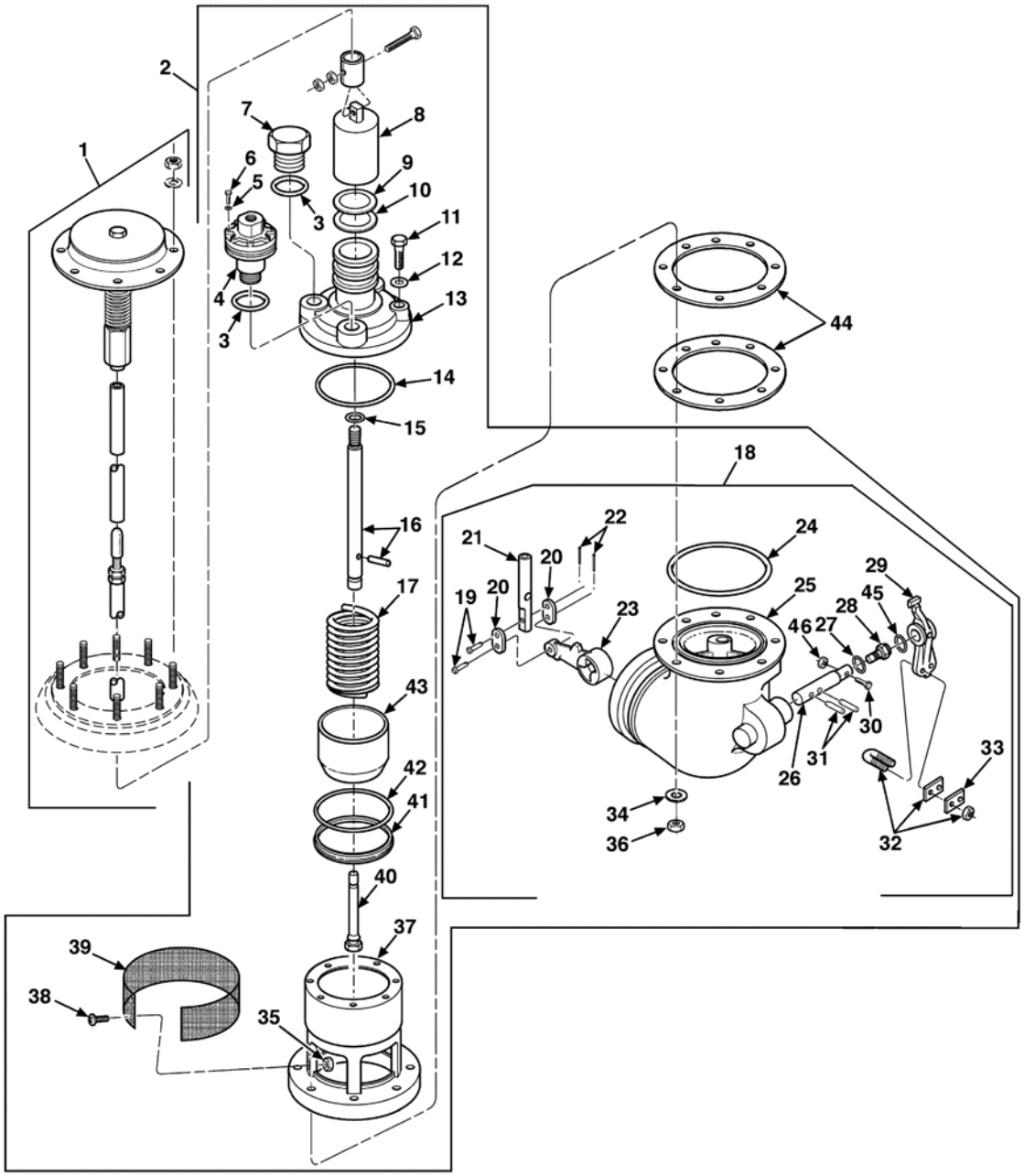


FIGURE 94. VALVE ASSEMBLY, EMERGENCY

GROUP 7203 VALVE ASSEMBLY, EMERGENCY — Continued 0271 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, LINES AND FITTINGS	
						FIG. 94 VALVE ASSEMBLY, EMERGENCY	
AGAA	1	PFOZZ		13226	46186-2	VENT ASSEMBLY	1
ATEA	2	PFOFF	4820-01-504-6971	0DT23	64174AC	VALVE ASSEMBLY, EMERGENCY	1
ATEC	3	PAFZZ	5331-00-263-8032	81343	MS29512-10	.O-RING	2
ATEG	4	PFFZZ	4820-01-508-7369	0DT23	47097	.VALVE,PILOT	1
ATEP	5	PAFZZ	5310-00-773-7624	80205	NAS620C6	.WASHER, FLAT	6
ATEQ	6	PAFZZ	5305-00-940-9491	96906	MS35275-230	.SCREW, MACHINE	6
ATEE	7	PAFZZ	5365-00-278-8803	88044	AN814-10D	.PLUG, MACHINE THREAD	1
ATEJ	8	PFFZZ	4820-01-504-6981	07322	4325-366Y	.HOUSING	1
ATEM	9	PAFZZ	5330-01-239-9430	91069	Q4325	.PACKING, PREFORMED	1
ATE4	10	PAFZZ		0DT23	220453	.WIPE RING	1
ATES	11	PAFZZ	5305-00-939-9190	96906	MS35275-265	.SCREW, MACHINE	8
ATEY	12	PAFZZ	5310-00-933-8120	80204	B27-1	.WASHER	8
ATGM1	13	XAFZZ		0DT23	47099	.BONNET	1
ATGJ	14	PAFZZ	5331-00-182-3170	81343	AS29513-157	.O-RING	1
ATGE	15	PAFZZ	5331-00-733-2208	08179	MS29513112	.O-RING	1
ATF9	16	PFFZZ	3040-01-504-7052	0DT23	47095	.SHAFT ASSEMBLY	1
ATEZ	17	PFFZZ	5360-01-504-6975	0DT23	220436	.SPRING	8
ATFA	18	PFOFF	4710-01-504-7417	0DT23	47371	.ELBOW ASSEMBLY	1
ATEX	19	PAFZZ	5315-01-493-4685	4X630	863-000625	..PIN, STRAIGHT, HEADED	2
ATEK	20	PFFZZ	3040-01-508-7390	0DT23	221302	..LINK	2
ATEH	21	PFFZZ	3040-01-508-7384	0DT23	221301	..SHAFT	1
ATEL	22	PAFZZ	5315-00-243-7992	80205	MS24665-103	..PIN, COTTER	2
ATFS	23	PFFZZ	3040-01-504-7419	0DT23	220675	..CAM	1
ATEZ1	24	PAFZZ	5331-01-217-1787	81343	AS29513-353	..O-RING	1
ATEW	25	XAFZZ		0DT23	221303	..BODY	1
ATFM	26	PFFZZ	3040-01-504-7418	0DT23	220686	..SHAFT	1
ATE6	27	PFFZZ	5330-01-019-6879	07322	Q4114-366Y	..PACKING, PREFORMED	1
ATER	28	PFFZZ	3120-01-508-5969	0DT23	220688	..BUSHING	1
ATFE	29	PFFZZ	5340-01-504-6980	0DT23	220676	..LEVER	1
ATEU1	30	PFFZZ		13226	GF18153-9	..PIN, SPRING	1
ATEV	31	PAFZZ	5315-00-297-0879	72962	79-048-250-0812	..PIN, SPRING	2
ATET	32	PFFZZ	4030-01-508-7449	39428	30325T27	CLIP, WIRE ROPE	1
ATE8	33	PAFZZ		1R5C8	9600-0001M	PLATE, FUSE	1
ATF3	34	PAFZZ	5310-00-857-5548	80205	MS21044D04	.WASHER, FLAT	8
ATFZ	35	PAFZZ	5310-00-044-3340	19207	8712289	.NUT, SELF LOCKING HEXAGON	2
ATF5	36	PAFZZ	5310-00-113-3757	21013	16-161	.NUT,SELF-LOCKING HEXAGON	8
ATE9	37	PFFZZ	4820-01-504-6925	0DT23	220458	.BODY	1
ATF1	38	PAFZZ	5305-00-054-5648	96906	MS51957-14	.SCREW, MACHINE	2

GROUP 7203 VALVE ASSEMBLY, EMERGENCY — Continued **0271 00**

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
ATF7	39	PFFZZ	4730-01-504-7020	0DT23	220431	.SCREEN	1
ATE7	40	PFFZZ	4820-01-504-6863	0DT23	220447	.ROD	1
ATE5	41	PFFZZ	5330-01-504-6964	0DT23	220456	.SEAL	1
ATE3	42	PAFZZ	5331-00-291-3268	81343	AS29513-248	.GASKET	2
ATE1	43	PFFZZ	2540-01-504-6825	0DT23	47096	.PISTON	1
ATE2	44	PAFZZ		1R5C8	9326-0191	.GASKET	2
ATFE	45	PFFZZ		13226	Q4114-366Y	.RING,QUAD	1
ATFK	46	PFFZZ		13226	GF21042-4	.NUT	12

TM-CODE 2VE

END OF FIGURE

GROUP 7203 VALVE ASSEMBLY, “B, E, AND F” 0272 00

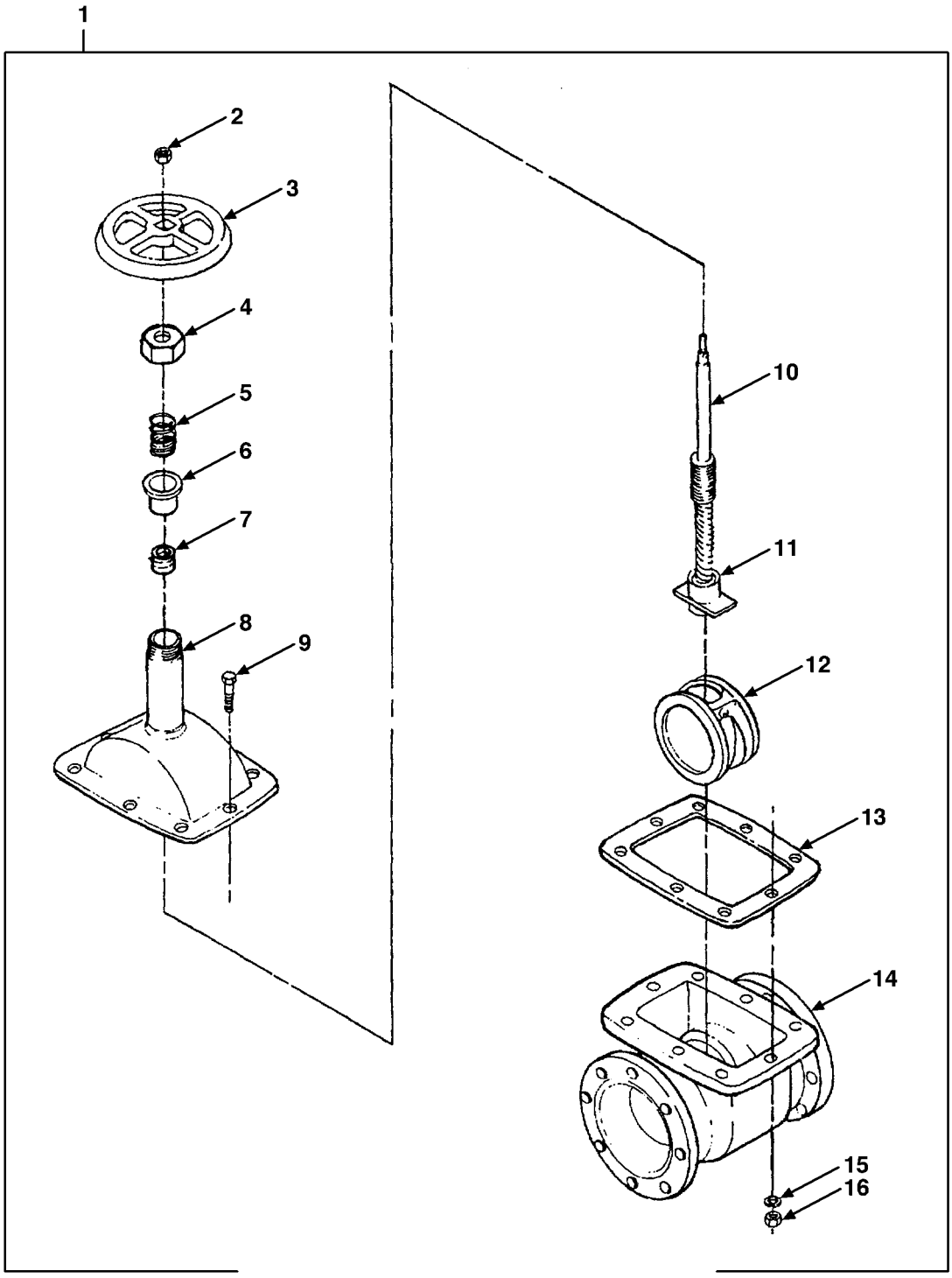


FIGURE 95. VALVE ASSEMBLY, “B, E, AND F”

GROUP 7203 VALVE ASSEMBLY, “B, E, AND F” — Continued 0272 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS, LINES	
						FIG. 95 VALVE ASSEMBLY, "B, E AND F"	
ATHA	1	PFOFF	4820-00-766-8191	76364	35551-6-400	VALVE, GATE	3
ATHC	2	PAOZZ	5310-00-654-4537	76364	3116M	.NUT, PLAIN, HEXAGON	1
ATHE	3	PAOZZ	5340-01-077-4942	76364	7699-K-C56	.HANDWHEEL	1
ATHJ	4	PAFZZ	4730-01-284-6397	76364	2855-N-150	.PACKING NUT	1
ATHM	5	PAFZZ	5360-00-653-0395	76364	7013-H-491	.SPRING, HELICAL, COMPRESSION	1
ATHS	6	PAFZZ	5330-00-367-5005	76364	363H	.RETAINER, PACKING	1
ATHY	7	PAFZZ	5330-00-400-3513	76364	65146-K-A993 SPLIT RING	.PACKING	3
ATH1	8	PAFZZ	4820-01-095-0938	76364	23194-N-560	.BONNET, VALVE	1
ATH3	9	PAFZZ	5305-01-079-6771	76364	4256-L-630	.SCREW, CAP, HEXAGON HEAD	8
ATH5	10	XAFZZ		76364	26344-N	.STEM	1
ATH7	11	XAFZZ		76364	3057-N	.PULL NUT	1
ATH9	12	PAFZZ	4820-01-080-3435	76364	84299-N-940	.DISK ASSEMBLY	1
ATJA1	13	PAFZZ	5330-00-346-2732	76364	6686N	.GASKET	1
ATJE	14	XAFZZ		76364	20115-N	.BODY	1
ATJJ	15	PAFZZ	5310-01-077-9647	76364	38084-C	.WASHER,LOCK	8
ATJM1	16	PAFZZ	5310-01-077-9426	76364	3198-C	.NUT	8
			TM-CODE 2VE			END OF FIGURE	

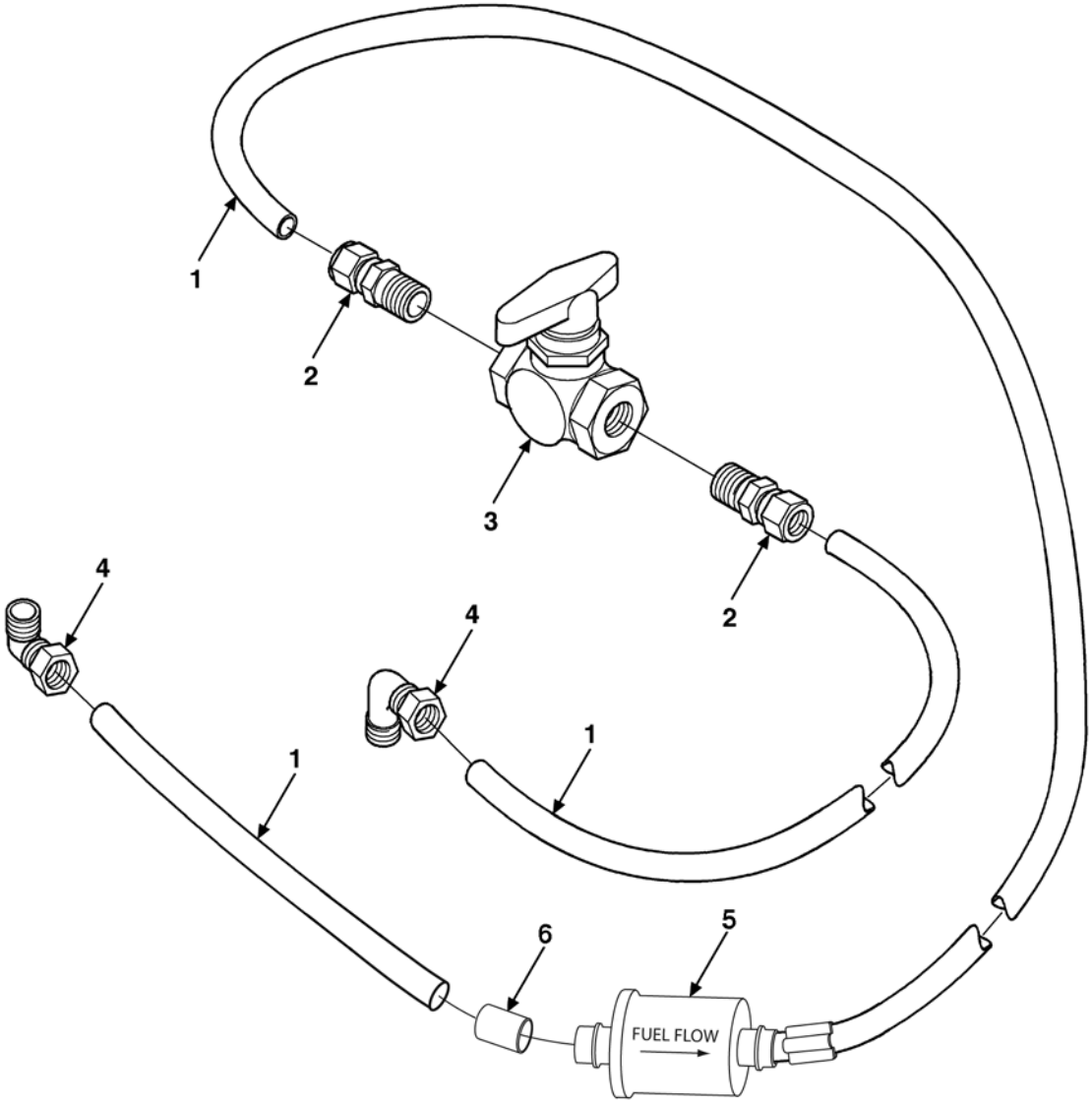


FIGURE 96. “D” VALVE AND TUBING ASSEMBLY

GROUP 7203 “D” VALVE AND TUBING ASSEMBLY — Continued 0273 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, LINES AND FITTINGS	
						FIG. 96 ”D” VALVE AND TUBING ASSEMBLY	
ATSA1	1	MOOZZ		1R5C8	9881-0006-AR	TUBING,NONMETALLIC, 3/8 INCH MAKE FROM TUBING P/N PFT-6B (61424), AS REQUIRED.....	2
ATSE	2	PAOZZ	4730-01-062-2570	93061	68NTA-6-4	ADAPTER, STRAIGHT, PIPE	2
ATSJ	3	PFOZZ		1R5C8	9941-0788	VALVE, BALL	1
ATSN	4	PAOZZ	4730-01-244-3552	93061	VS269NTA-6-4	ELBOW, PIPE TO TUBE.....	2
ATSK	5	PFOZZ		1R5C8	9291-0054	FILTER,FUEL	1
ATSF	6	PAOZZ		1R5C8	9125-0147	CLAMP,CRIMP.....	2
			TM-CODE 2VE			END OF FIGURE	

GROUP 7203 HIGH LEVEL SHUTOFF VALVE **0274 00**

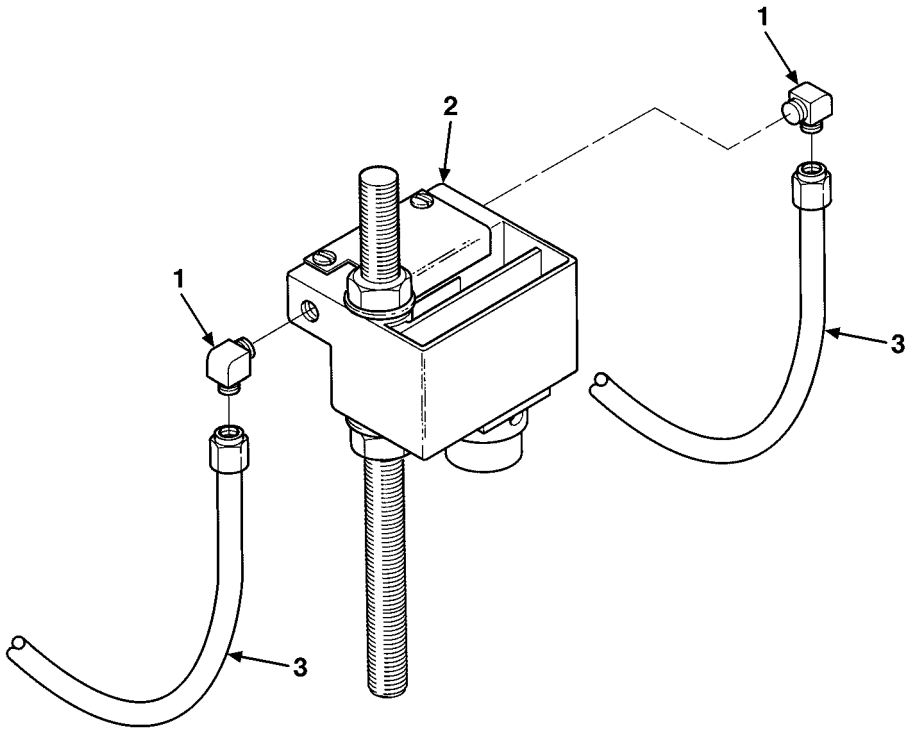


FIGURE 97. HIGH LEVEL SHUTOFF VALVE

GROUP 7203 HIGH LEVEL SHUTOFF VALVE — Continued 0274 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, LINES AND FITTINGS	
						FIG. 97 HIGH LEVEL SHUTOFF VALVE	
AAXF	1	PAOZZ	4730-01-244-3552	93061	VS269NTA-6-4	ELBOW, PIPE TO TUBE	2
AAXC	2	PFOZZ	5930-01-514-2450	0DT23	64079A	VALVE, HIGH LEVEL SHUTOFF	2
AAXD	3	MOOZZ		1R5C8	9881-0006-AR	TUBING,NONMETALLIC MAKE FROM TUBING P/N PFT-6B (61424), AS REQUIRED	2
						END OF FIGURE	

GROUP 7203 VALVE ASSEMBLY, “G” **0275 00**

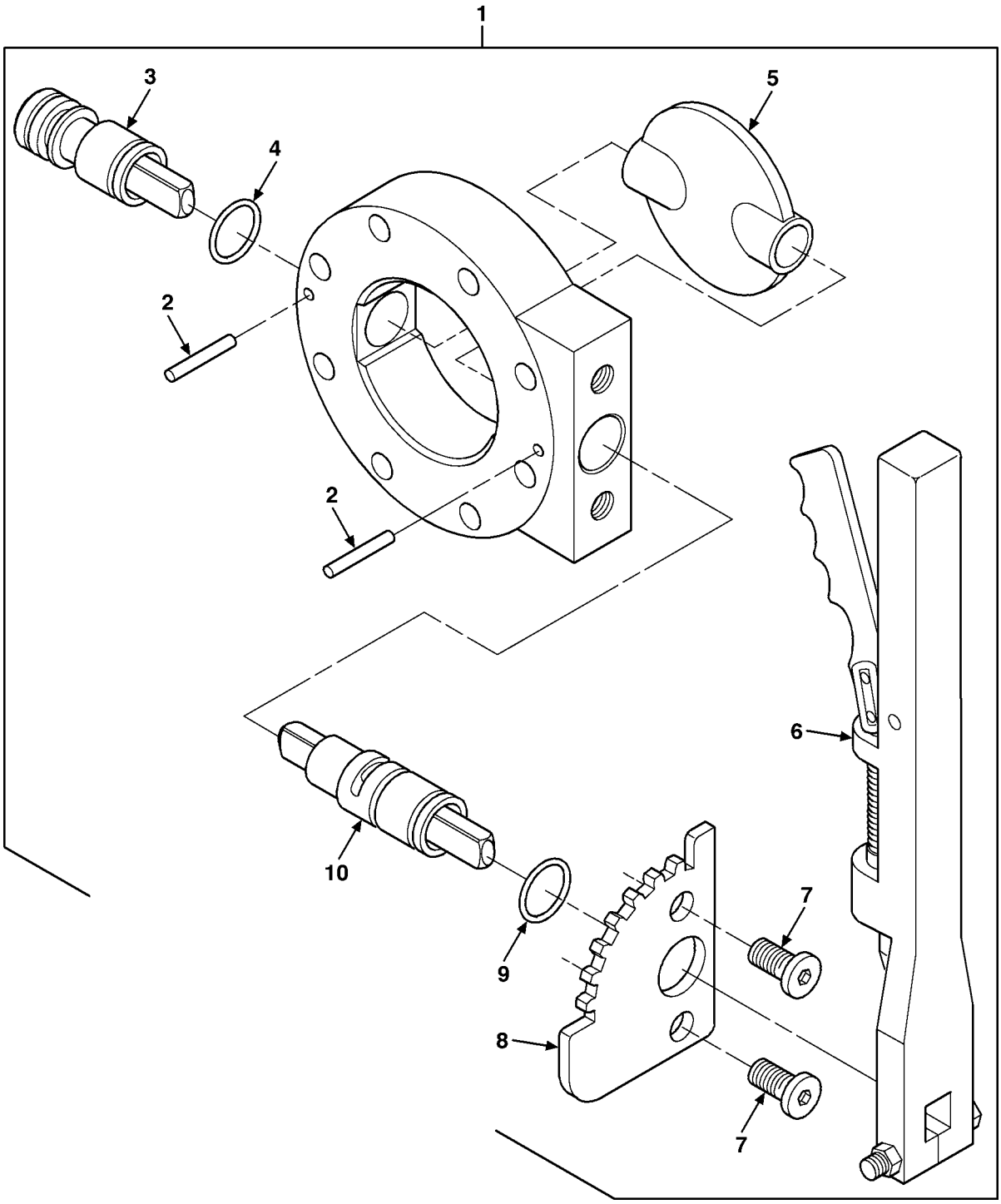


FIGURE 98. VALVE ASSEMBLY, “G”

GROUP 7203 VALVE ASSEMBLY, “G” — Continued 0275 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS, LINES	
						FIG. 98 VALVE ASSEMBLY, “G”	
ATKA	1	PFOFF	4810-01-355-4678	13226	WD404ALB089	VALVE, BUTTERFLY 4 INCH	1
ATKY	2	PAFZZ	5315-01-124-9075	13226	9Q4893	.PIN, SPRING PART OF KIT P/N WD18404VT	2
ATK3	3	PAFZZ	4820-01-133-4121	13226	15913MS	.TEM,FLUID VALVE	1
ATK5	4	PFFZZ	5331-01-134-1982	13226	18141BN	.O-RING PART OF KIT P/N WD18404VT .	1
ATK1	5	PAFZZ	4820-01-294-1857	13226	WD1014BN	.DISC PART OF KIT P/N WD18404VT	1
ATKE	6	PFFZZ	5340-01-504-7309	13226	26284AL	.HANDLE ASSEMBLY.....	1
ATKC	7	PFFZZ	5305-01-504-7427	13226	9Q5884	.SCREW, CAP	2
ATKJ	8	PFFZZ	5340-01-504-7439	13226	17012EY	.PLATE, INDEXING.....	1
ATKM	9	PAFZZ	5331-01-134-1980	13226	17889BN	.O-RING PART OF KIT P/N WD18404VT .	1
ATKS	10	PFFZZ	3040-01-504-7425	13226	27050MS	DRIVE SHAFT	1
						END OF FIGURE	

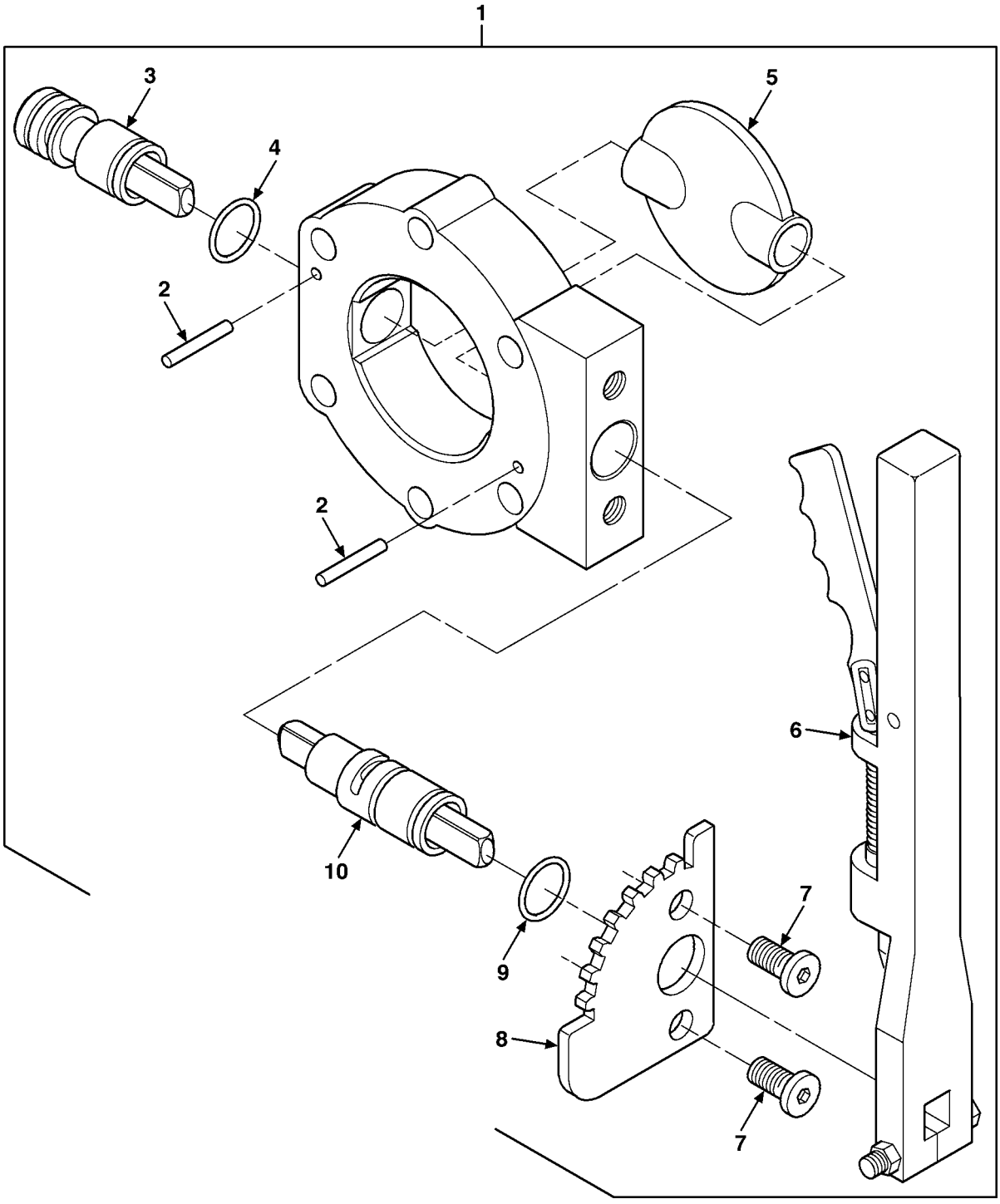


FIGURE 99. VALVE ASSEMBLY, “R AND P”

GROUP 7203 VALVE ASSEMBLY, “R AND P” — Continued 0276 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS, LINES	
						FIG. 99 VALVE ASSEMBLY, “R” AND “P”	
ATLA1	1	PFOFF	4820-01-504-7438	13226	WD204ALB	VALVE, BUTTERFLY 2 INCH	2
ATLY	2	PAFZZ	5315-01-124-9075	13226	9Q4893	.PIN, SPRING PART OF KIT P/N WD18402BN.....	2
ATL3	3	PFFZZ	3040-01-504-7426	13226	16006MS	.BEARING SHAFT.....	1
ATL5	4	PFFZZ	5331-01-354-4162	13226	17781BN	.O-RING PART OF KIT P/N WD18402BN.	1
ATL1	5	PFFZZ	4820-00-059-9953	13226	WD101-2BN	.DISC PART OF KIT P/N WD18402BN.....	1
ATLE	6	PFFZZ	5340-01-504-7309	13226	26284AL	.HANDLE ASSEMBLY.....	1
ATLC	7	PFFZZ	5305-01-504-7427	13226	9Q5884	.SCREW, CAP	2
ATLJ	8	PFFZZ	5340-01-504-7439	13226	17012EY	.PLATE, INDEXING.....	1
ATLM1	9	PAFZZ	5331-01-134-1980	13226	17889BN	.O-RING PART OF KIT P/N WD18402BN.	1
ATLS	10	PFFZZ	3040-01-511-5482	13226	27053MS	.DRIVE SHAFT.....	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 7203 VALVE ASSEMBLY, “M” 0277 00

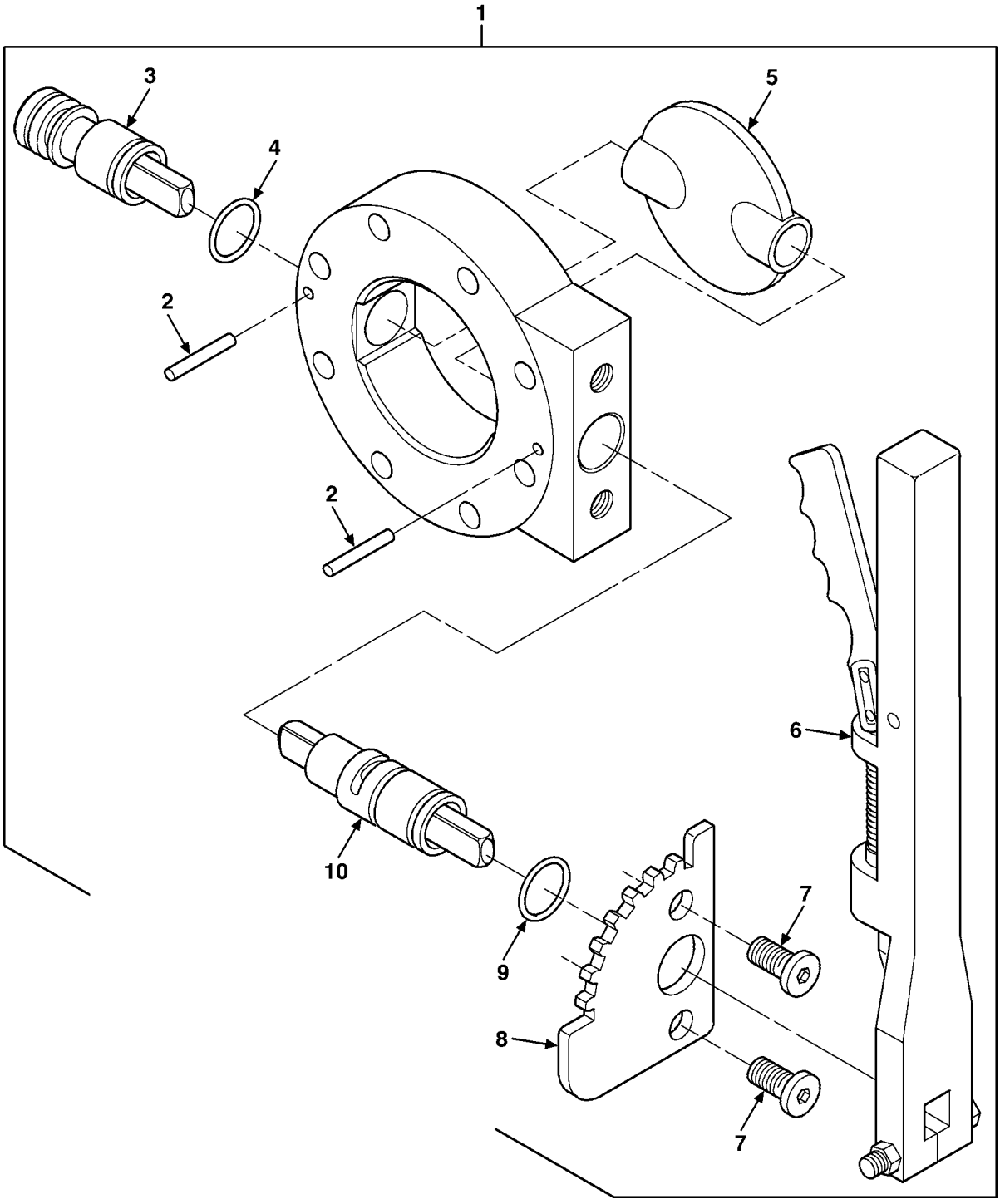


FIGURE 100. VALVE ASSEMBLY, “M”

GROUP 7203 VALVE ASSEMBLY, "M" — Continued 0277 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7203 VALVES, FITTINGS, LINES	
						FIG. 100 VALVE ASSEMBLY, "M"	
ATRA1	1	PFOFF	4820-01-508-7855	13226	WD304ALB089	VALVE, BUTTERFLY 3 INCH	1
ATRC	2	PAFZZ	5315-01-124-9075	13226	9Q4893	.PIN, SPRING PART OF KIT P/N WD18403BN	2
ATRE	3	PFFZZ	4820-01-133-4121	13226	15913MS	.BEARING SHAFT	1
ATRJ	4	PFFZZ	5331-01-134-1982	13226	18141BN	.O-RING PART OF KIT P/N WD18403BN.	1
ATRM	5	PAFZZ	4820-00-059-9998	13226	WD101-3BN	.DISC PART OF KIT P/N WD18403BN	1
ATRS	6	PFFZZ	5340-01-504-7309	13226	26284AL	.HANDLE ASSEMBLY	1
ATRY	7	PFFZZ	5305-01-504-7427	13226	9Q5884	.SCREW, CAP	2
ATR1	8	PFFZZ	5340-01-504-7439	13226	17012EY	.PLATE, INDEXING	1
ATR3	9	PAFZZ	5331-01-134-1980	13226	17889BN	.O-RING PART OF KIT P/N WD18403BN.	1
ATR5	10	PFFZZ	3040-01-504-7425	13226	27050MS	DRIVE SHAFT	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 7204 CONTROL CABLE ASSEMBLIES **0278 00**

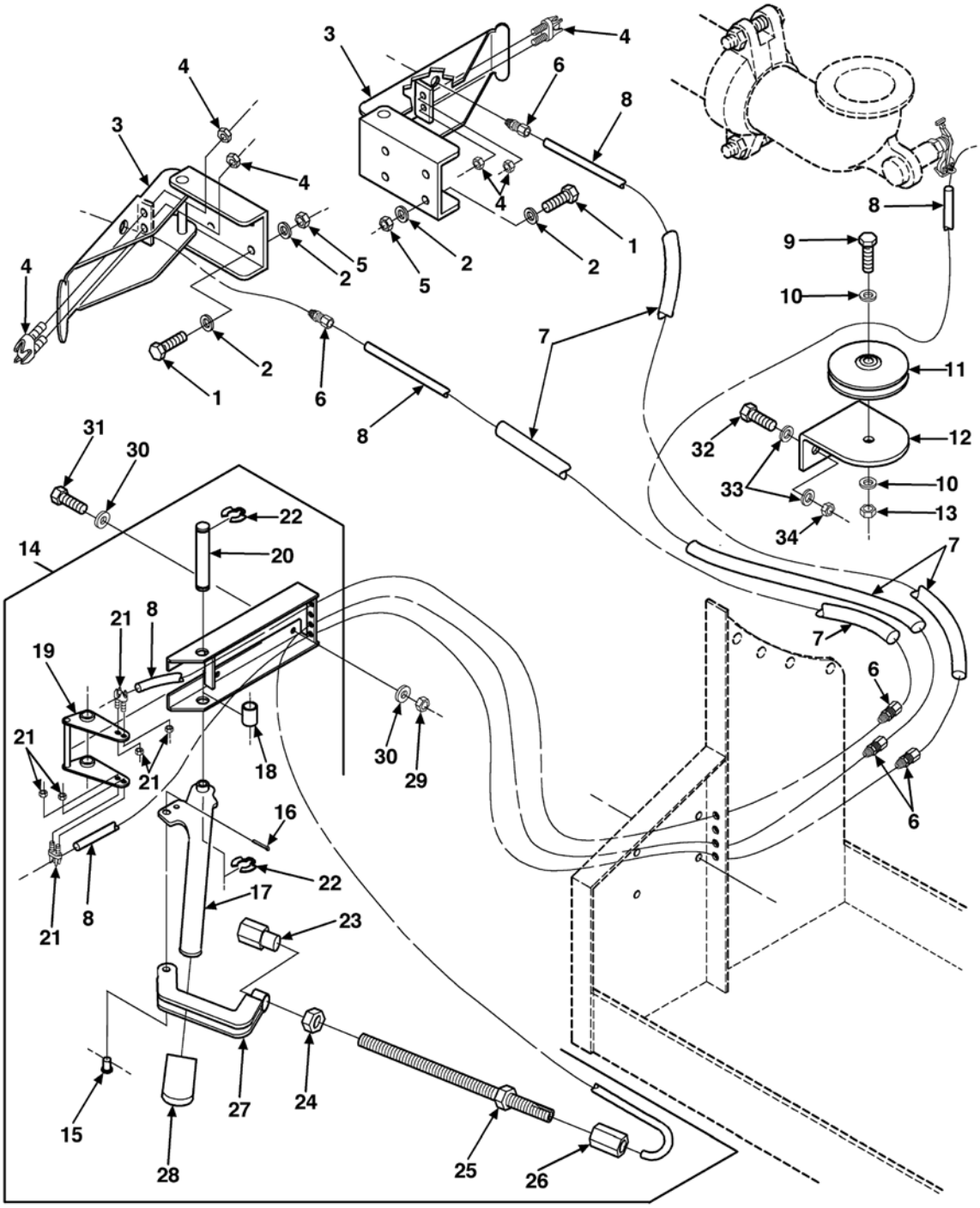


FIGURE 101. CONTROL CABLE ASSEMBLIES

GROUP 7204 CONTROL CABLE ASSEMBLIES — Continued 0278 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7204 MISCELLANEOUS PARTS AND ACCESSORIES	
						FIG. 101 CONTROL CABLE ASSEMBLIES	
ATMA	1	PAOZZ	5305-01-506-1119	39428	90316A247	SCREW, CAP, HEXAGON HEAD #10-24 X 1	8
ATMJ	2	PAOZZ		1R5C8	9965-0034	WASHER, FLAT	16
ATMM1	3	PAOZZ	2590-01-054-0253	13226	3560SL	LATCH ASSEMBLY, DUMP	2
ATMN	4	PAOZZ	5306-01-082-0019	13226	9Q1659	.BOLT, U	1
ATMB	5	PAOZZ	5310-01-463-4929	39428	91831A011	NUT, SELF-LOCKING, HEXAGON	8
ATMP	6	PAOZZ	4730-00-278-4574	79470	168X6	ADAPTER, STRAIGHT PIPE TO TUBE	5
ATMQ	7	MOOZZ		1R5C8	9881-0096	TUBING, STAINLESS STEEL MAKE FROM TUBE P/N TSS375035 (1R5C8), AS REQUIRED	3
ATMR	8	MOOZZ		1R5C8	9117-0121	CABLE,AIRCRAFT MAKE FROM CABLE P/N WR1562 (5S421), AS REQUIRED	3
ATMF	9	PAOZZ	5305-01-514-2774	39428	92240A551	SCREW, CAP, HEXAGON HEAD	1
ATMG	10	PAOZZ	5310-00-802-4701	80205	MS15795-813	WASHER, FLAT	2
ATMC	11	PAOZZ	1640-00-277-1124	29965	20220-3	PULLEY, GROOVE	1
ATMD	12	PFOZZ	5340-01-508-6911	1R5C8	999-00037	BRACKET. PULLEY	1
ATML	13	PAOZZ	5310-01-502-8330	1R5C8	9562-0046	NUT, SELF-LOCKING, HEXAGON	1
ATMS	14	PFOOO	5340-01-504-6831	13226	OP9011EY	OPERATOR, EMERGENCY CABLE	1
ATNA	15	PFOZZ	5315-01-084-4427	13226	15757ZC	.PIN, CLEVIS	1
ATNE	16	PFOZZ	5315-01-504-6841	13226	9Q5865	.PIN, COTTER	1
ATN5	17	PFOZZ	5340-01-504-6837	13226	44631EY	.LEVER ARM ASSEMBLY	1
ATN3	18	PFOZZ	3120-01-504-7543	13226	19624EY	.BUSHING, REPLACEMENT	1
ATM1	19	PFOZZ	3040-01-504-7825	13226	35659EY-2	.EMERGENCY TRIP LEVER ASSEMBLY	1
ATM5	20	PFOZZ	3040-01-504-7438	13226	27818SL-2	.SHAFT	1
ATM3	21	PFOZZ	5306-01-504-7441	13226	9Q1660	.CLAMP, CABLE	2
ATM2	22	PFOZZ	5340-01-504-6827	13226	9Q4974	.RING, RETAINING	2
ATNJ	23	PFOZZ	5310-01-077-3663	13226	19724BR	.NUT	1
ATNM1	24	PFOZZ	5310-01-504-6843	13226	9Q5808A	.NUT, HEXAGON HEAD	1
ATNS	25	PFOZZ	5307-01-504-6845	13226	20040ZC	.BOLT, ADJUSTING	1
ATNY	26	PFOZZ	5310-01-504-6851	13226	10268ZC	.NUT, CLAMPING	1
ATM9	27	PFOZZ	3040-01-504-7440	13226	27733EY	.LINK ARM ASSEMBLY	1
ATN1	28	PFOZZ	5340-01-504-6833	13226	9Z4830	.GRIP, HANDLE	1
ATMK	29	PAOZZ	5310-01-446-0272	39428	90101A237	NUT, PLAIN, HEXAGON 5/16-18	4
ATMU	30	PAOZZ	5310-00-625-5756	80205	MS15795-812	WASHER, FLAT 5/16	8
ATMY	31	PAOZZ	5305-01-508-6037	39428	93190A583	SCREW, CAP, HEXAGON HEAD 5/16-18 X 1	4
ATMX	32	PAOZZ	5305-00-576-5417	80205	MS35307-360	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1	2

GROUP 7204 CONTROL CABLE ASSEMBLIES — Continued 0278 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
ATMV	33	PAOZZ		1R5C8	9965-0044	WASHER, FLAT 3/8	4
ATMW	34	PAOZZ	5310-01-506-1215	1R5C8	9562-0165	NUT, PLAIN, HEXAGON 3/8	2
						END OF FIGURE	

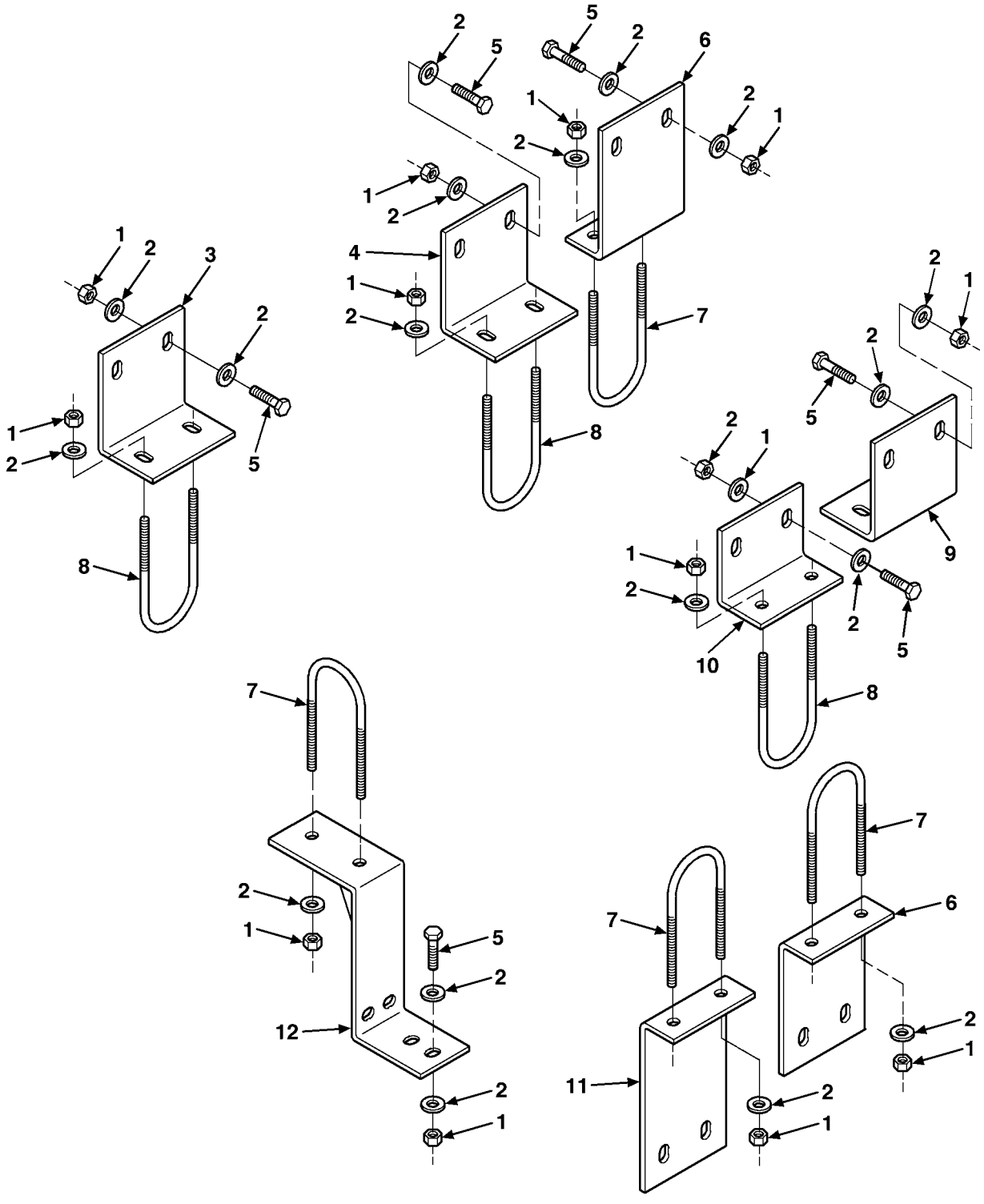


FIGURE 102. MISCELLANEOUS PARTS

GROUP 7204 MISCELLANEOUS PARTS — Continued 0279 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 7204 MISCELLANEOUS PARTS AND ACCESSORIES	
						FIG. 102 MISCELLANEOUS PARTS	
AUTB	1	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, LOCKING	34
AUTD	2	PAOZZ	5310-01-312-4960	96906	MS27183-55	WASHER, FLAT	52
AUTF	3	PFOZZ	5340-01-502-8776	1R5C8	M311-3211-004	BRACKET, MOUNTING 3 INCH PIPE	1
AUTH	4	PFOZZ	5340-01-502-8777	1R5C8	M311-3221-001	BRACKET, MOUNTING 3 INCH PIPE	1
AUTK	5	PAOZZ	5305-01-406-5528	1R5C8	9738-0014	SCREW, CAP, HEXAGON HEAD	18
AUTM	6	PFOZZ	5340-01-502-8780	1R5C8	M311-3213-001	BRACKET, MOUNTING 4 INCH PIPE	2
AUTP	7	PAOZZ	5306-01-510-2708	1R5C8	9043-0084	BOLT, U	4
AUTR	8	PAOZZ	5306-01-009-6675	1R5C8	9043-0127	BOLT, U	4
AUTS	9	PFOZZ	5340-01-502-8785	1R5C8	M311-3211-003	BRACKET, MOUNTING 3 INCH PIPE	1
AUTU	10	PFOZZ	5340-01-502-8788	1R5C8	M311-3221-002	BRACKET, MOUNTING 3 INCH PIPE	1
AUTV1	11	PFOZZ		1R5C8	M311-3214	BRACKET, MOUNTING 4 INCH PIPE	1
AUTX	12	PFOZZ	5340-01-502-8790	1R5C8	M311-3212	BRACKET, MOUNTING, BOTTOM LOAD	1
			TM-CODE 2VE			END OF FIGURE	

GROUP 7638 FIRE EXTINGUISHER BRACKETS **0280 00**

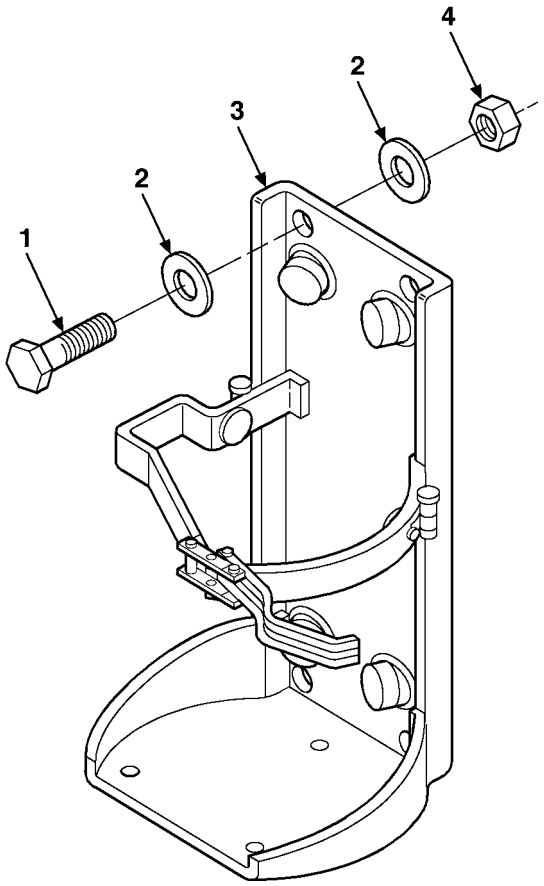


FIGURE 103. FIRE EXTINGUISHER BRACKETS

GROUP 7638 FIRE EXTINGUISHER BRACKETS — Continued 0280 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 76 FIRE FIGHTING EQUIPMENT COMPONENTS	
						GROUP 7638 PORTABLE FIRE FIGHTING EQUIPMENT	
						FIG. 103 FIRE EXTINGUISHER BRACKETS	
AAXN	1	PAOZZ	5305-01-406-5528	1R5C8	9738-0014	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1-1/4	8
AAXT	2	PAOZZ	5310-01-280-5796	96906	MS27183-57	WASHER, FLAT, 3/8	16
AAXW	3	PFOZZ	4210-01-362-5567	03670	30865	BRACKET, FIRE EXTINGUISHER	2
AAXZ	4	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING, HEXAGON 3/8-16	8
			TM-CODE 2VE			END OF FIGURE	

GROUP 9120 DECONTAMINATION APPARATUS BRACKET **0281 00**

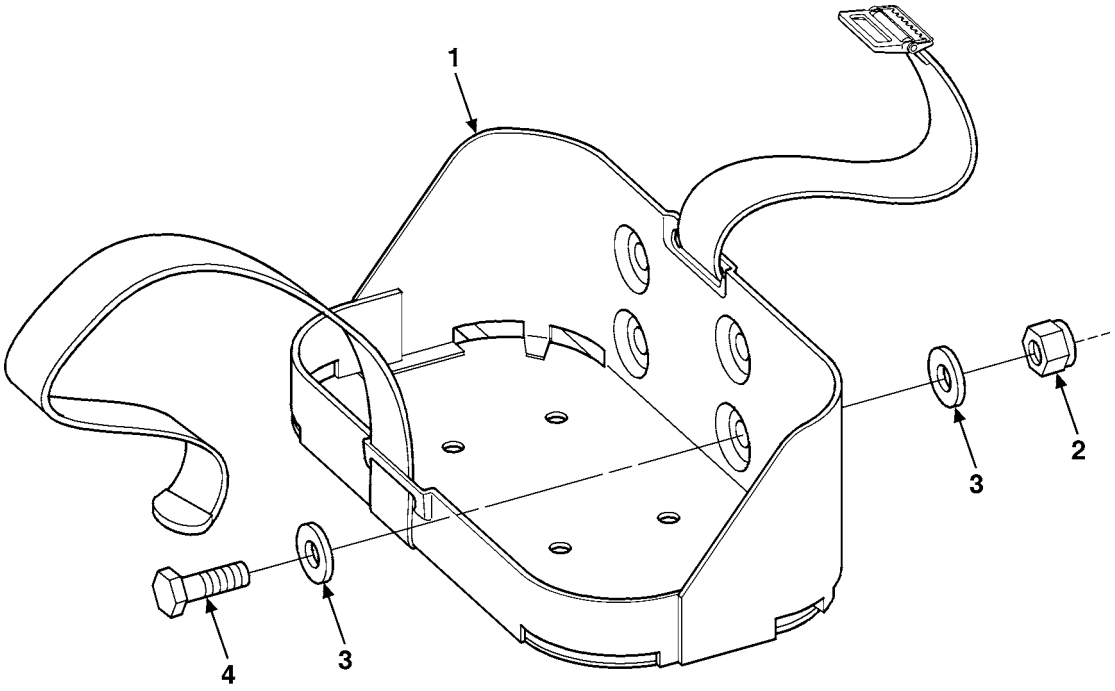


FIGURE 104. DECONTAMINATION APPARATUS BRACKET

GROUP 9120 DECONTAMINATION APPARATUS BRACKET — Continued 0281 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 91 CHEMICAL, BIOLOGICAL AND RADIOLOGICAL (CBR) EQUIPMENT	
						GROUP 9120 DECONTAMINATION EQUIPMENT	
						FIG. 104 DECONTAMINATION APPARATUS BRACKET	
AWAA1	1	PAOZZ	2590-00-473-6331	25022	51-2298	BRACKET,VEHICULAR COMPONENTS.	1
AWAE	2	PAOZZ	5310-01-502-8329	1R5C8	9562-0044	NUT, SELF-LOCKING, HEXAGON 3/8-16	4
AWAJ	3	PAOZZ	5310-01-280-5796	96906	MS27183-57	WASHER, FLAT, 3/8	8
AWAN	4	PAOZZ	5305-01-406-5528	1R5C8	9738-0014	SCREW, CAP, HEXAGON HEAD 3/8-16 X 1-1/4	4
			TM-CODE 2VE			END OF FIGURE	

GROUP 9401 REPAIR PARTS KITS 0282 00

PLISN	(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 PARTS KITS		
						FIG KITS REPAIR PARTS KITS		
A1AJ	1	PAOZZ	2530-01-311-8410	78500	A-3105-V-282	PARTS KIT,BRAKE ADJUSTER		V
						.FITTING, LUBRICATION (1)	17-14	
						.RETAINER, BUSHING (1)	17-15	
						.O-RING (2)	17-16	
						.BUSHING,BRACKET (1)	17-17	
						.RETAINER,BUSHING (1)	17-18	
A1DN	2	PAOZZ	2540-01-502-9571	1R5C8	M035-3134	GUARD,SPLASH,VEHICULAR		V
						.SCREW,HEX (8)	33-1	
						.WASHER,FLAT (16)	33-2	
						.NUT,LOCK (8)	33-3	
						.BAR,MUDFLAP (2)	33-4	
						.MUDFLAP,RUBBER (2)	33-5	
A1CZ	3	PAFZZ	4820-01-424-9099	13226	WD18402 BN	REPAIR KIT,VALVE		V
						.PIN,SPRING (2)	101-2	
						.O-RING (1)	101-4	
						.DISC (1)	101-5	
						.O-RING (1)	101-9	
A1DS	4	PAFZZ	4820-01-424-6203	13226	WD18403BN	PARTS KIT,BUTTERFLY VALVE.....		V
						.PIN,SPRING (2)	102-2	
						.O-RING (1)	102-4	
						.DISC (1)	102-5	
						.O-RING (1)	102-9	
A1DW	5	PAFZZ		13226	WD18404VT	REPAIR KIT,VALVE		V
						.PIN,SPRING (2)	100-2	
						.O-RING (1)	100-4	
						.DISC (1)	100-5	
						.O-RING (1)	100-9	
A1BA1	6	PAOZZ	2530-01-314-4392	78500	KIT 8000HD	PARTS KIT,BRAKE SHOE.....		V
						.SPRING,RETURN (4)	16-1	
						.SPRING,HELICAL (8)	16-3	
						.BUSHING,ANCHOR PIN (8)	16-5	
						.PIN,SHOULDER,HEADLESS (8)	16-6	
						.PIN,RETURN SPRING (8)	16-9	
						.ROLLER,LINEAR-ROTARY (8)	16-10	
						.CLIP,TENSION (8)	16-11	

GROUP 9401 REPAIR PARTS KITS — Continued 0282 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
A1AA1	7	PAOZZ	2530-01-502-9081	78500	8289	PARTS KIT,BRAKE CAMSHAFT	V
						.WASHER (2) 17-2	
						.GASKET (4) 17-3	
						.RETAINER (2) 17-4	
						.SCREW,TAPPING (8) 17-5	
						.WASHER (2) 17-6	
						.LOCKRING (2) 17-7	
						.RING,RETAINING (2) 17-8	
A1EE	8	PAOZZ	2990-01-504-6529	1R5C8	9596-0468	MUFFLER PIPE ASSEMBLY	V
						.PIPE,MUFFLER (1) 60-1	
						.CLAMP,MUFFLER (3) 60-2	
						.SPACER (1) 60-10	
						.PIPE,MUFFLER (1) 60-11	
			TM-CODE 2VE			END OF FIGURE	

GROUP 9501 BULK MATERIAL 0283 00

PLISN	(1) ITEM NO.	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODE (UOC)	(7) QTY
						GROUP 9501 GENERAL USE STANDARDIZED PARTS	
						FIG. BULK BULK MATERIAL	
A2DX	1	PAOZZ		1R5C8	TSS375050	CABLE,AIRCRAFT	V
A2DM1	2	PAOZZ		0Y3H3	45116	CHAIN,STEEL	V
A2EE	3	PAOZZ		1R5C8	9121-0005	CHAIN,STEEL	V
A2BS	4	PAOZZ	5975-00-941-5035	70510	EF3-8	CONDUIT,ELECTRICAL	V
A2BE1	5	PAOZZ	5975-00-421-1317	09641	LA11	CONDUIT,ELECTRICAL	V
AWBN	6	PAOZZ	5975-01-374-5273	09641	LT-11	CONDUIT,ELECTRICAL	V
A2DC	7	PAOZZ		39428	1120A23	GASKET,SEAL	V
A2DD1	8	PAOZZ	4720-01-293-4415	79470	H05703	HOSE,NONMETALLIC	V
A2DU	9	PAFZZ		79470	H16910	HOSE,NONMETALLIC	V
A2DV	10	PAFZZ		81343	J844	HOSE,NONMETALLIC	V
A2DD	11	PAOZZ	4720-00-484-5765	24161	4LOLA	HOSE,NONMETALLIC	V
A2CW	12	PAOZZ		61125	70650	HOSE,NONMETALLIC	V
A2CM1	13	PAOZZ	5340-01-098-2069	19207	27-W-924	STRAP,WEBBING	V
A2CJ	14	PAOZZ	4720-01-316-4673	61424	PFT-4A	TUBING,NONMETALLIC	V
A2EJ	15	PAOZZ	4720-01-169-9891	61424	PFT-6B	TUBING,NONMETALLIC	V
A2EA	16	PAOZZ	4720-01-287-9322	98441	PFT-6B-BLU	TUBING,NONMETALLIC	V
A2DW1	17	PAOZZ	4720-01-364-3393	98441	PFT-8B-BLU	TUBING,NONMETALLIC	V
A2CA1	18	PAOZZ	4720-01-448-6041	98441	PFT-8B-RED-500	TUBING,NONMETALLIC	V
A2DY	19	PAOZZ		1R5C8	WR1562	TUBING,STEEL	V
A2BJ	20	PAOZZ	6145-00-152-6499	81349	M13486/1-5	WIRE,ELECTRICAL	V
A2DG	21	PAOZZ		58961	WL14-0	WIRE,ELECTRICAL	V
A2DF	22	PAOZZ		58961	WL12-0	WIRE,ELECTRICAL	V
A2AW	23	PAOZZ		1R5C8	9968-0056	WIRE,ELECTRICAL	V
A2AA	24	PAOZZ		1R5C8	9968-0057	WIRE,ELECTRICAL	V
A2DH	25	PAOZZ		1R5C8	9968-0058	WIRE,ELECTRICAL	V
			TM-CODE 2VE			END OF FIGURE	

NATIONAL STOCK NUMBER INDEX 0284 00

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-00-009-5661	38	7	5935-00-167-7775	12	6
5315-00-010-3389	18	3	5935-00-167-7775	12	8
4730-00-010-3867	84	20	5935-00-167-7775	13	11
6240-00-013-1282	7	7	5935-00-167-7775	13	16
6240-00-019-0878	7	5	5330-00-172-1919	22	3
5305-00-021-3668	46	6	5330-00-172-1919	22	6
6685-00-022-7988	79	1	5306-00-174-9462	40	1
5310-00-044-3340	94	35	5308-00-174-9462	42	9
5310-00-045-3296	67	2	5306-00-174-9462	61	8
5305-00-050-9233	5	2	5306-00-174-9462	89	18
5305-00-054-5648	94	38	5310-00-176-6267	90	26
4820-00-059-9953	99	5	5331-00-182-3170	94	14
4820-00-059-9998	100	5	5310-00-186-7448	90	5
5305-00-068-0502	66	6	4730-00-188-3513	80	4
5305-00-068-0502	67	11	5325-00-204-5061	17	8
5305-00-068-0510	37	12	5331-00-205-3583	17	16
5305-00-068-0511	33	2	5305-00-207-7669	17	11
5305-00-068-0511	86	5	4730-00-223-9268	84	3
5305-00-069-5583	26	26	5305-00-225-3839	26	1
5305-00-071-2071	89	20	5305-00-225-3839	61	1
5307-00-080-2016	84	7	5310-00-225-6408	39	13
5310-00-080-6004	37	13	5310-00-225-6408	81	2
5310-00-080-6004	39	20	5306-00-225-9089	39	16
5310-00-080-6004	86	3	5306-00-226-4833	85	7
5310-00-080-6004	89	16	2910-00-238-0033	57	3
5330-00-081-5070	88	3	5315-00-243-7992	94	22
5945-00-081-9491	67	16	4730-00-244-9848	22	1
5930-00-084-7570	72	14	5305-00-245-6035	7	3
5310-00-088-1251	66	8	5331-00-248-3835	92	19
5310-00-088-1251	67	12	5331-00-248-3840	92	8
5310-00-113-3757	94	36	3120-00-255-6042	16	5
5935-00-115-2306	10	26	5310-00-261-7340	17	12
5935-00-115-2306	12	2	5331-00-263-8032	94	3
5920-00-131-9915	4	5	5305-00-269-2803	39	19
5999-00-134-5844	34	2	5305-00-269-3211	28	5
6145-00-152-6499	BULK	20	5305-00-269-3211	34	5
5305-00-165-8074	26	7	5305-00-269-3211	35	11
5305-00-165-8074	28	14	5305-00-269-3211	39	8
5310-00-167-0818	9	7	5305-00-269-3211	56	8
5310-00-167-0820	33	3	5305-00-269-3211	84	31
5310-00-167-0820	35	12	5305-00-269-3213	35	22
5310-00-167-0822	26	25	5305-00-269-3219	90	6
5935-00-167-7775	10	13	5310-00-269-4040	31	25
5935-00-167-7775	10	25	2530-00-270-3878	22	4
5935-00-167-7775	11	2	1640-00-277-1124	101	11
5935-00-167-7775	11	7	4730-00-278-4574	101	6

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5365-00-278-8803	94	7	5310-00-614-3506	42	8
4730-00-278-9211	54	7	5310-00-614-3506	54	1
5331-00-291-3268	94	42	5310-00-614-3506	59	12
5331-00-291-7337	92	3	5310-00-614-3506	61	9
5331-00-291-7384	92	5	5310-00-614-3506	64	2
3110-00-293-8997	24	3	5975-00-615-9173	93	3
3110-00-293-8998	24	1	3110-00-618-0248	24	7
5315-00-297-0879	94	31	3110-00-618-0249	24	5
1560-00-307-2780	90	22	5310-00-625-5756	35	4
3120-00-322-6430	16	10	5310-00-625-5756	101	30
2940-00-325-4438	54	4	5310-00-637-9541	84	8
5330-00-346-2732	95	13	5310-00-637-9541	86	4
5330-00-367-5005	95	6	5306-00-637-9675	24	15
5330-00-400-3513	95	7	5306-00-637-9675	32	11
2910-00-400-6861	54	12	5306-00-637-9675	32	18
2930-00-407-9270	84	11	5331-00-641-0119	92	10
5310-00-407-9566	85	6	5325-00-641-2800	23	22
4820-00-417-1120	90	15	5360-00-653-0395	95	5
5975-00-421-1317	BULK	5	5310-00-654-4537	89	6
4730-00-427-5121	19	5	5310-00-654-4537	95	2
4730-00-427-5121	21	4	5975-00-655-3136	14	7
4030-00-431-5537	92	22	5310-00-689-3877	4	4
5305-00-432-4252	72	17	5310-00-689-3877	6	4
5330-00-459-2294	50	7	5305-00-701-7628	64	11
2590-00-473-6331	104	1	5305-00-702-4523	9	1
5310-00-481-6481	27	4	4730-00-706-7761	54	11
4720-00-484-5765	BULK	11	5305-00-725-2317	82	3
5340-01-469-7199	80	26	5310-00-725-9479	84	9
2940-00-494-9491	54	5	5305-00-726-2550	81	4
5310-00-496-3676	84	13	5305-00-726-2551	31	9
5310-00-517-4192	7	2	5305-00-726-2553	64	8
2640-00-555-2824	25	4	5305-00-726-2557	31	1
5305-00-576-5417	23	5	5331-00-733-2208	94	15
5305-00-576-5417	37	15	2510-00-741-7585	29	1
5305-00-576-5417	72	10	9905-00-752-4649	10	12
5305-00-576-5417	101	32	9905-00-752-4649	10	17
5305-00-576-5417	26	12	9905-00-752-4649	10	27
5310-00-576-5752	67	17	9905-00-752-4649	11	3
5975-00-578-9364	14	3	9905-00-752-4649	11	8
5320-00-582-3494	80	28	9905-00-752-4649	12	5
5310-00-582-5965	77	2	9905-00-752-4649	12	9
5310-00-595-6057	39	9	9905-00-752-4649	13	10
5310-00-614-3505	47	6	9905-00-752-4649	13	18
5310-00-614-3506	26	6	9905-00-752-4649	74	2
5310-00-614-3506	28	13	9905-00-752-4649	76	3
5310-00-614-3506	40	2	5365-00-753-4865	17	10

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5340-00-753-9214	72	11	5310-00-959-1488	39	21
5935-00-754-9083	10	2	5940-00-983-6105	67	3
2990-00-759-3639	59	7	5940-00-983-6105	13	12
5310-00-761-6882	77	1	5310-00-984-3807	39	15
5310-00-763-8905	81	5	5305-00-984-4988	67	19
5305-00-764-2970	90	23	5305-00-984-6206	71	5
4820-00-766-8191	95	1	5305-00-984-6210	67	15
5310-00-773-7624	94	5	5935-00-987-4536	13	2
5330-00-778-7229	80	30	5305-00-988-1720	92	20
5315-00-784-0637	16	9	5305-00-989-7434	72	2
5310-00-802-4701	26	13	5305-00-990-6444	67	1
5310-00-802-4701	28	2	5305-00-993-2738	67	8
5310-00-802-4701	37	6	5305-00-995-3441	79	9
5310-00-802-4701	46	7	5975-00-995-8168	14	5
5310-00-802-4701	61	2	5306-01-009-6675	102	8
5310-00-802-4701	78	6	5310-01-014-4280	31	26
5310-00-802-4701	101	10	5330-01-019-6879	94	27
5310-00-809-4058	66	7	5330-01-024-2311	41	16
5310-00-809-4058	67	10	2610-01-045-3688	25	2
5310-00-809-8546	79	2	5330-01-047-9367	24	8
5310-00-809-8546	72	6	5975-01-050-5705	80	14
5305-00-821-3869	89	1	2590-01-054-0253	101	3
5310-00-823-8803	39	12	4730-01-055-4017	54	9
5310-00-823-8803	81	3	4730-01-055-6082	56	12
5310-00-823-8803	90	18	4330-01-060-3836	80	12
5975-00-833-1776	14	9	5330-01-060-6890	89	9
5975-00-833-1776	76	9	5330-01-060-7266	84	12
5310-00-857-5548	94	34	4320-01-060-7896	84	10
5330-00-875-8288	90	25	4820-01-060-8981	89	8
5310-00-877-5796	72	19	5330-01-060-9610	84	32
5310-00-880-5977	8	2	5330-01-060-9614	84	29
2530-00-886-1103	24	9	2940-01-061-5734	90	29
6210-00-887-8432	7	4	5310-01-061-8727	41	4
5330-00-889-5483	89	7	4730-01-062-2570	96	2
5310-00-893-9914	64	4	4730-01-065-7604	89	10
5310-00-902-6676	72	5	5330-01-065-8850	90	28
5310-00-902-6676	79	3	4730-01-065-9358	89	15
5310-00-911-2251	93	2	6680-01-065-9645	86	6
5310-00-930-9759	75	7	4730-01-066-0118	89	4
5310-00-933-8120	94	12	4820-01-066-1276	89	5
2940-00-934-7989	54	6	6210-01-069-0434	7	6
5305-00-939-9190	94	11	5330-01-071-8179	24	12
5305-00-940-9491	94	6	5340-01-074-8126	54	3
5975-00-941-5035	BULK	4	5310-01-077-3663	101	23
1560-00-949-2087	90	24	5340-01-077-4942	95	3
5360-00-958-1143	72	4	5306-01-077-5119	41	2
5310-00-959-1488	34	3	5310-01-077-6773	41	3

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-01-077-9426	95	16	5315-01-129-6898	16	6
5310-01-077-9647	95	15	4730-01-132-9426	83	3
5330-01-078-2005	84	15	4820-01-133-4121	98	3
5305-01-079-6771	95	9	4820-01-133-4121	100	3
4820-01-080-3435	95	12	5310-01-133-5373	17	9
5330-01-081-5070	89	3	5331-01-134-1980	98	9
5330-01-081-5070	90	21	5331-01-134-1980	99	9
5306-01-082-0019	101	4	5331-01-134-1980	100	9
5315-01-084-4427	101	15	5331-01-134-1982	98	4
4930-01-085-2652	90	7	5331-01-134-1982	100	4
4930-01-085-2652	90	20	5330-01-134-1986	41	21
4820-01-086-8687	80	3	5365-01-137-7682	84	28
5307-01-088-7388	84	2	5340-01-151-0993	36	40
5307-01-088-7388	84	5	5355-01-154-5198	86	1
5315-01-092-1953	18	4	5305-01-155-4342	86	2
4820-01-095-0938	95	8	5360-01-158-1974	16	3
4730-01-096-9398	79	4	4730-01-161-1301	36	23
5340-01-098-2069	BULK	13	3040-01-161-6611	36	5
5306-01-098-7197	31	19	2530-01-164-7125	90	27
5306-01-098-7198	31	12	4730-01-167-8069	85	3
5310-01-098-7236	31	24	3040-01-167-8118	84	26
5310-01-098-7244	31	17	2520-01-168-6845	84	17
5310-01-098-7245	31	7	4720-01-169-9891	BULK	15
5310-01-098-7246	31	23	5365-01-175-0320	85	2
5310-01-098-7247	31	5	5340-01-175-0564	30	8
5310-01-098-7827	31	8	5340-01-183-1423	72	1
4910-01-100-4984	28	4	4730-01-184-4883	89	14
2510-01-100-7167	31	14	5305-01-187-8757	33	1
2590-01-100-9001	31	13	3110-01-188-0733	84	24
2510-01-100-9270	31	16	5305-01-191-4578	92	11
2520-01-101-0935	31	20	5331-01-217-1787	94	24
2520-01-101-1802	31	3	5310-01-229-6260	01	8
2520-01-101-2551	31	22	5330-01-239-9430	94	9
2510-01-101-2559	31	11	4710-01-240-9431	31	6
2510-01-101-2890	31	15	4820-01-243-9951	82	4
4820-01-106-2210	23	10	4730-01-244-3552	96	4
5305-01-106-9541	39	11	4730-01-244-3552	97	1
5305-01-107-3549	26	20	5305-01-256-5202	80	20
2510-01-114-3209	31	10	6645-01-263-9434	74	8
5310-01-116-4765	24	10	4730-01-271-7981	83	4
5310-01-117-2404	24	11	4730-01-274-1830	79	5
5310-01-121-8521	72	18	2920-01-279-3948	65	1
4820-01-124-8894	90	10	5310-01-280-5795	34	4
5315-01-124-9075	98	2	5310-01-280-5796	32	2
5315-01-124-9075	99	2	5310-01-280-5796	32	12
5315-01-124-9075	100	2	5310-01-280-5796	32	19

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-01-280-5796	37	2	5305-01-324-8388	62	11
5310-01-280-5796	56	7	5340-01-325-2650	49	7
5310-01-280-5796	64	6	5310-01-325-7141	66	2
5310-01-280-5796	72	9	5305-01-325-8387	75	2
5310-01-280-5796	75	3	5307-01-327-3439	50	10
5310-01-280-5796	87	2	5307-01-327-3439	60	1
5310-01-280-5796	103	2	5340-01-327-3444	51	3
5310-01-280-5796	104	3	5340-01-328-4418	16	11
4730-01-284-6397	95	4	5330-01-328-6090	17	3
4720-01-287-9322	BULK	16	5310-01-332-8236	49	35
4720-01-293-4415	BULK	8	5310-01-332-8236	51	12
4820-01-294-1857	98	5	5365-01-333-5129	49	34
4730-01-297-3765	92	1	5305-01-333-5381	47	4
5310-01-303-3917	9	2	5310-01-340-8352	50	4
5310-01-308-8205	26	2	5310-01-340-8352	53	3
2530-01-311-8410	KITS	1	5310-01-340-8352	60	3
4330-01-312-2797	80	13	5310-01-340-8352	62	8
5310-01-312-4959	4	3	5310-01-340-8352	63	14
5310-01-312-4959	6	3	5305-01-341-2906	62	10
5310-01-312-4960	102	2	5307-01-341-2950	50	6
5340-01-314-2961	18	2	5307-01-341-2950	53	1
2530-01-314-4392	KITS	6	5307-01-341-2950	60	7
5315-01-315-3614	18	6	5307-01-341-2950	62	9
5365-01-316-3300	31	21	5975-01-343-2254	67	5
4720-01-316-4673	BULK	14	5975-01-343-2256	67	6
5315-01-316-7547	30	9	5306-01-347-5921	31	4
2530-01-316-9165	18	1	5310-01-349-0759	24	17
3130-01-317-2625	84	30	5310-01-349-0759	28	11
5330-01-323-5455	48	2	5961-01-350-7227	13	13
5306-01-323-8814	51	13	5330-01-351-7676	50	11
5305-01-323-8927	63	11	5310-01-351-7802	55	4
5305-01-323-8928	63	9	5331-01-354-4162	99	4
5305-01-324-0950	63	13	4810-01-355-4678	98	1
5365-01-324-3425	51	4	5315-01-357-0826	18	7
2940-01-324-5153	49	29	5305-01-359-1367	17	5
5310-01-324-8246	49	22	2530-01-359-8091	17	4
5310-01-324-8246	50	5	5305-01-360-5282	65	15
5310-01-324-8246	53	4	5330-01-362-4994	65	17
5310-01-324-8246	62	7	4210-01-362-5567	103	3
5310-01-324-8325	49	32	4720-01-364-3393	BULK	17
5310-01-324-8334	49	6	6150-01-367-0599	9	5
5310-01-324-8334	49	21	3030-01-367-7487	62	2
5310-01-324-8343	47	3	5310-01-374-1809	9	3
5310-01-324-8343	57	5	5975-01-374-5273	BULK	6
5310-01-324-8343	66	3	3040-01-382-8736	22	2
5305-01-324-8355	49	25	4730-01-384-1441	22	5
5205-01-324-8388	49	1	5310-01-386-3517	26	18

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5307-01-389-3445	42	6	5310-01-430-7191	65	3
4330-01-393-5280	80	6	6110-01-431-2271	65	16
4330-01-393-5834	80	11	3110-01-431-4526	65	20
4330-01-393-5835	80	5	5975-01-432-4122	14	2
5310-01-394-3524	82	2	5975-01-432-4122	76	7
5330-01-394-7944	59	11	5330-01-433-9203	92	26
5330-01-394-7944	60	5	5330-01-433-9203	92	29
2590-01-395-0523	48	1	5330-01-433-9474	80	32
5330-01-395-0878	60	2	2930-01-436-2109	49	2
5330-01-398-8741	82	7	4730-01-441-3483	23	17
4730-01-400-3146	20	4	5945-01-441-9279	10	19
5340-01-406-4189	84	4	4820-01-443-1916	23	24
5305-01-406-5528	64	5	5310-01-446-0272	35	3
5305-01-406-5528	3	4	5310-01-446-0272	101	29
5305-01-406-5528	32	1	2815-01-446-2035	47	1
5305-01-406-5528	102	5	6140-01-446-9506	8	10
5305-01-406-5528	103	1	4720-01-448-6041	BULK	18
5305-01-406-5528	104	4	2590-01-450-0304	77	3
5310-01-417-1045	90	11	2990-01-452-7605	50	3
4930-01-420-7874	41	1	2940-01-452-9419	49	28
5930-01-420-9746	72	15	3020-01-452-9472	62	1
5310-01-421-7439	26	19	4720-01-453-2929	49	3
5310-01-421-7439	89	19	4710-01-453-3273	51	14
5340-01-423-0791	80	31	4710-01-453-3278	51	5
5325-01-423-3138	80	29	2815-01-453-4065	63	12
5340-01-423-3255	80	7	5330-01-453-5497	53	8
5310-01-423-3724	80	10	5310-01-453-7080	60	8
5310-01-423-3728	80	25	5310-01-453-7095	63	7
5310-01-423-3729	80	8	5310-01-453-7096	63	5
5310-01-423-3730	80	22	5306-01-453-7232	63	4
5310-01-423-4035	80	9	5305-01-453-7239	49	5
5310-01-423-4036	80	24	5310-01-453-8661	62	4
5330-01-423-9479	80	18	5310-01-453-8664	62	3
5305-01-424-0082	80	21	3020-01-453-9083	62	5
5331-01-424-3860	41	10	5360-01-454-1830	92	35
4820-01-424-6203	KITS	4	5307-01-454-3501	49	20
5920-01-424-6740	80	15	5307-01-454-3503	50	2
5305-01-424-8152	38	6	5307-01-454-3504	60	10
5305-01-424-8152	78	5	5307-01-454-3504	49	27
4820-01-424-9099	KITS	3	5305-01-454-3506	51	2
9905-01-425-2196	80	27	4140-01-454-3508	63	15
5305-01-425-2425	87	1	5307-01-454-3517	66	4
9905-01-425-3750	80	23	4140-01-454-4074	63	8
4330-01-429-5981	80	19	4920-01-455-3224	49	26
5310-01-430-7169	65	2	5340-01-455-3824	63	3
4140-01-430-7170	65	4	5340-01-455-3825	63	2

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
2930-01-455-7597	49	23	5310-01-482-0431	7	1
5305-01-456-1139	92	37	5305-01-482-4487	32	6
2910-01-456-2273	92	25	6220-01-482-5574	5	1
4730-01-456-5915	23	19	6220-01-482-6113	5	1
2815-01-456-7605	92	7	6220-01-482-9850	6	2
2510-01-456-7850	92	28	3010-01-485-3100	41	25
5330-01-456-9662	92	6	5340-01-486-0635	41	24
5330-01-456-9663	92	9	5310-01-486-4256	41	22
5315-01-457-2803	92	34	5365-01-490-5797	92	21
3030-01-457-8833	64	13	5315-01-493-4685	94	19
5306-01-458-1618	57	6	2530-01-499-3135	17	1
5305-01-458-1622	50	8	2530-01-499-3159	17	1
5305-01-458-1623	49	24	2530-01-499-3170	19	6
5305-01-458-1623	63	6	5310-01-499-3372	17	6
5306-01-458-1625	51	7	5325-01-499-3380	17	7
5306-01-458-1625	55	1	5310-01-499-3382	17	2
5307-01-458-1627	53	9	4730-01-499-3385	17	14
5331-01-458-2589	53	7	3120-01-499-3388	17	17
5310-01-458-4305	53	6	5360-01-499-3396	16	1
5310-01-458-4307	60	4	4810-01-499-3407	19	2
5310-01-458-4309	51	8	5310-01-499-3459	17	13
5310-01-458-4309	55	2	5340-01-499-3481	19	7
5330-01-458-5601	49	30	5310-01-499-3569	8	1
5365-01-458-6645	60	6	5340-01-499-3618	16	4
5340-01-458-7226	47	2	5310-01-499-4209	31	18
5340-01-458-8470	92	12	5340-01-502-8279	26	21
5340-01-458-8586	53	2	5340-01-502-8282	26	23
5340-01-458-8630	63	10	5310-01-502-8283	26	27
4710-01-459-0003	55	5	5340-01-502-8285	26	15
2910-01-459-0148	57	2	5340-01-502-8286	28	1
5340-01-459-1516	53	10	5315-01-502-8308	26	4
5315-01-459-1812	63	1	5310-01-502-8323	26	17
4010-01-461-0033	92	23	5310-01-502-8323	28	12
4730-01-461-1297	49	33	5310-01-502-8323	40	3
5310-01-461-1300	26	24	5310-01-502-8323	42	7
5360-01-461-5852	92	4	5310-01-502-8323	54	13
5310-01-463-4929	9	8	5310-01-502-8323	64	1
5310-01-463-4929	101	5	5310-01-502-8323	89	17
2920-01-463-5526	66	1	5310-01-502-8329	3	2
4730-01-466-4498	56	9	5310-01-502-8329	26	14
5360-01-466-5850	92	33	5310-01-502-8329	28	3
5310-01-467-9965	39	14	5310-01-502-8329	32	3
5925-01-469-0075	67	18	5310-01-502-8329	32	14
6140-01-469-9184	8	10	5310-01-502-8329	32	21
4730-01-470-0091	23	15	5310-01-502-8329	33	8
6620-01-470-6835	74	9	5310-01-502-8329	35	10
5310-01-476-4801	40	17	5310-01-502-8329	37	3

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5310-01-502-8329	37	14	5340-01-502-8696	32	10
5310-01-502-8329	39	17	5340-01-502-8696	32	23
5310-01-502-8329	56	6	5340-01-502-8697	35	28
5310-01-502-8329	64	9	5340-01-502-8698	35	13
5310-01-502-8329	72	8	5306-01-502-8710	35	24
5310-01-502-8329	87	3	5340-01-502-8719	35	25
5310-01-502-8329	89	2	5340-01-502-8724	35	26
5310-01-502-8329	90	4	5340-01-502-8729	81	6
5310-01-502-8329	102	1	5340-01-502-8731	35	21
5310-01-502-8329	103	4	6220-01-502-8734	35	9
5310-01-502-8329	104	2	6220-01-502-8737	35	23
5310-01-502-8330	26	8	5340-01-502-8738	39	18
5310-01-502-8330	37	7	5306-01-502-8739	39	3
5310-01-502-8330	38	9	5340-01-502-8741	39	10
5310-01-502-8330	46	8	5340-01-502-8756	81	7
5310-01-502-8330	59	5	5340-01-502-8758	84	19
5310-01-502-8330	61	6	5310-01-502-8759	85	4
5310-01-502-8330	78	7	5305-01-502-8760	85	5
5310-01-502-8330	101	13	5315-01-502-8761	84	25
5340-01-502-8331	28	10	5325-01-502-8762	84	27
5340-01-502-8332	28	9	5310-01-502-8763	84	14
5330-01-502-8335	1	6	5340-01-502-8766	89	13
9330-01-502-8339	1	10	5340-01-502-8776	102	3
5315-01-502-8342	30	1	5340-01-502-8777	102	4
5306-01-502-8344	30	3	5340-01-502-8780	102	6
5310-01-502-8369	30	4	5340-01-502-8785	102	9
5310-01-502-8371	30	6	5340-01-502-8788	102	10
5305-01-502-8411	1	7	5340-01-502-8790	102	12
5305-01-502-8415	1	5	2530-01-502-9081	KITS	7
4930-01-502-8434	34	1	2510-01-502-9161	27	1
5340-01-502-8463	32	15	2540-01-502-9185	39	2
5310-01-502-8467	24	14	5940-01-502-9386	1	1
5340-01-502-8528	32	22	5940-01-502-9388	1	9
5340-01-502-8547	81	1	6680-01-502-9390	1	4
5340-01-502-8659	26	16	5975-01-502-9391	1	3
5340-01-502-8661	26	5	5365-01-502-9393	1	2
5340-01-502-8662	26	11	3130-01-502-9395	17	15
5340-01-502-8663	26	10	3130-01-502-9445	17	18
5340-01-502-8666	33	5	6150-01-502-9447	19	3
5340-01-502-8667	33	9	6150-01-502-9449	19	8
5340-01-502-8667	35	20	6680-01-502-9521	77	4
5340-01-502-8673	33	13	5365-01-502-9523	84	33
6210-01-502-8676	33	4	5365-01-502-9551	19	4
6210-01-502-8677	33	15	4730-01-502-9555	19	1
5340-01-502-8681	35	16	2510-01-502-9566	26	9
5340-01-502-8689	35	27	2590-01-502-9569	26	3

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
2540-01-502-9571	32	5	5306-01-504-6498	8	16
2540-01-502-9571	KITS	2	2910-01-504-6509	56	5
2541-01-502-9576	26	22	5340-01-504-6510	59	4
2590-01-502-9582	30	10	5340-01-504-6525	40	10
3040-01-502-9794	30	5	2990-01-504-6529	KITS	8
2805-01-502-9885	50	9	2990-01-504-6529	59	9
3020-01-502-9926	85	1	2510-01-504-6535	40	12
2540-01-502-9942	32	13	2510-01-504-6539	40	13
2540-01-502-9947	32	20	5340-01-504-6540	40	4
2510-01-503-0241	33	11	2510-01-504-6545	40	14
4710-01-503-0243	35	19	5340-01-504-6553	40	5
4730-01-503-0244	84	21	2510-01-504-6558	40	6
4730-01-503-0245	89	12	2510-01-504-6565	40	24
4730-01-503-0247	75	10	2510-01-504-6588	40	22
4730-01-503-0247	88	1	2510-01-504-6592	40	25
4730-01-503-0247	90	1	2540-01-504-6825	94	43
4730-01-503-0247	91	1	5340-01-504-6827	101	22
2510-01-503-0304	33	6	5340-01-504-6831	101	14
2510-01-503-0307	33	7	5340-01-504-6833	101	28
2510-01-503-0309	33	12	5340-01-504-6837	101	17
4820-01-503-0310	92	36	5315-01-504-6841	101	16
2510-01-503-0313	33	10	5310-01-504-6843	101	24
2530-01-503-0331	15	1	5307-01-504-6845	101	25
2540-01-503-0396	32	17	5310-01-504-6851	101	26
2540-01-503-0413	32	9	5305-01-504-6855	84	18
4030-01-503-0447	29	2	5331-01-504-6856	84	23
4030-01-503-0447	39	5	5340-01-504-6861	38	8
4030-01-503-0447	42	4	4820-01-504-6863	94	40
4030-01-503-0537	39	4	5320-01-504-6880	44	1
4820-01-503-0710	92	24	5320-01-504-6880	45	1
2510-01-503-0716	31	2	5320-01-504-6880	46	2
6625-01-503-1773	2	1	7690-01-504-6901	45	9
5340-01-504-2879	40	23	4820-01-504-6925	94	37
5925-01-504-6095	67	14	7690-01-504-6947	45	10
5310-01-504-6132	16	8	7690-01-504-6952	45	8
9390-01-504-6187	43	1	5330-01-504-6964	94	41
5340-01-504-6258	61	7	4820-01-504-6971	94	2
5340-01-504-6269	61	11	5360-01-504-6975	94	17
5340-01-504-6273	61	3	5340-01-504-6980	94	29
5340-01-504-6277	61	5	4820-01-504-6981	94	8
5340-01-504-6388	61	12	4730-01-504-7020	94	39
5340-01-504-6391	61	13	3040-01-504-7052	94	16
5340-01-504-6407	37	9	5340-01-504-7309	98	6
5340-01-504-6407	67	4	5340-01-504-7309	99	6
5340-01-504-6422	67	9	5340-01-504-7309	100	6
2990-01-504-6476	61	4	5340-01-504-7321	38	1

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STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
5340-01-504-7331	38	3	3130-01-506-0787	65	12
5315-01-504-7332	38	4	5340-01-506-0985	64	10
5315-01-504-7332	38	11	5977-01-506-1001	65	18
5315-01-504-7333	38	5	5340-01-506-1011	75	14
5315-01-504-7333	38	12	5340-01-506-1023	75	20
4710-01-504-7417	94	18	6685-01-506-1061	79	8
3040-01-504-7418	94	26	5340-01-506-1076	3	5
3040-01-504-7419	94	23	5305-01-506-1081	65	5
3040-01-504-7425	98	10	5310-01-506-1087	65	6
3040-01-504-7425	100	10	5305-01-506-1119	6	1
3040-01-504-7426	99	3	5305-01-506-1119	9	6
5305-01-504-7427	98	7	5305-01-506-1119	101	1
5305-01-504-7427	99	7	6685-01-506-1151	79	7
5305-01-504-7427	100	7	5310-01-506-1215	23	8
3040-01-504-7438	101	20	5310-01-506-1215	101	34
4820-01-504-7438	99	1	6150-01-506-1260	12	1
5340-01-504-7439	98	8	6150-01-506-1271	12	7
5340-01-504-7439	99	8	6150-01-506-1279	11	1
5340-01-504-7439	100	8	6150-01-506-1286	11	6
3040-01-504-7440	101	27	3020-01-506-1289	64	12
5306-01-504-7441	101	21	6150-01-506-1300	68	2
5975-01-504-7503	37	8	5940-01-506-1319	8	11
5975-01-504-7503	67	13	5940-01-506-1319	68	1
6160-01-504-7515	8	3	5940-01-506-1319	69	2
6160-01-504-7523	8	4	4710-01-506-1776	75	1
5940-01-504-7527	8	5	4730-01-506-1798	56	1
5940-01-504-7527	8	13	4730-01-506-1815	56	2
6160-01-504-7532	40	26	4730-01-506-1838	56	4
6110-01-504-7539	3	1	5330-01-506-1859	73	2
3120-01-504-7543	101	18	4730-01-506-1946	56	10
5340-01-504-7798	40	15	4730-01-506-2006	21	3
5340-01-504-7802	40	20	4730-01-506-2006	23	16
5340-01-504-7810	40	8	4730-01-506-2048	23	3
5340-01-504-7814	40	9	4730-01-506-2074	23	20
3040-01-504-7825	101	19	4730-01-506-2095	23	21
5340-01-504-8556	32	4	5940-01-506-2488	68	9
3110-01-504-8557	92	18	5940-01-506-2490	8	12
3110-01-504-8557	92	32	5940-01-506-2490	68	11
4820-01-504-8923	92	30	5940-01-506-2490	69	7
4820-01-504-8924	92	31	5940-01-506-2497	8	14
4730-01-504-8927	89	11	5940-01-506-2500	69	8
5340-01-506-0543	64	7	5940-01-506-2500	76	4
5340-01-506-0554	64	3	5940-01-506-2504	8	6
5340-01-506-0567	64	14	5940-01-506-2504	8	8
5925-01-506-0593	67	20	5940-01-506-2504	70	1
3130-01-506-0783	65	8	4720-01-506-2578	23	2

STOCK NUMBER	FIG.	ITEM	STOCK NUMBER	FIG.	ITEM
4820-01-506-2586	23	7	5940-01-508-5912	69	4
5940-01-506-2589	8	9	5940-01-508-5912	71	6
5940-01-506-2589	68	3	5940-01-508-5912	74	1
5940-01-506-2589	68	7	5940-01-508-5912	76	5
5940-01-506-2596	70	3	5940-01-508-5919	13	19
4310-01-506-2601	23	6	5940-01-508-5925	10	18
5975-01-506-2618	14	8	5940-01-508-5931	69	3
6150-01-506-2626	74	4	5940-01-508-5931	76	1
6150-01-506-2635	74	7	3120-01-508-5969	94	28
4810-01-506-2637	75	15	5340-01-508-5979	35	5
6150-01-506-2638	74	6	5315-01-508-5988	35	7
5305-01-506-2643	73	7	4730-01-508-5999	79	6
4730-01-506-2676	23	12	5305-01-508-6013	47	5
4730-01-506-2680	23	11	4010-01-508-6020	35	8
4730-01-506-2684	23	13	5305-01-508-6037	35	6
4710-01-506-2702	73	1	5305-01-508-6037	101	31
4730-01-506-2707	73	3	2510-01-508-6055	42	10
2530-01-506-2721	24	2	2510-01-508-6055	42	12
2530-01-506-2738	24	16	2590-01-508-6058	30	7
5340-01-506-2787	37	4	4730-01-508-6074	71	1
5340-01-506-2838	37	10	4730-01-508-6130	90	3
5340-01-506-2859	46	9	5305-01-508-6135	40	16
4710-01-506-2883	90	2	5310-01-508-6136	40	18
5340-01-506-2895	46	5	5340-01-508-6208	9	4
5340-01-506-2901	46	11	5305-01-508-6246	4	2
5340-01-506-2928	46	4	5340-01-508-6682	72	16
7690-01-506-2946	46	1	5340-01-508-6874	42	1
6220-01-506-2956	43	3	5305-01-508-6879	90	17
6220-01-506-2958	43	2	5310-01-508-6889	90	19
4730-01-506-3267	83	1	5330-01-508-6904	42	3
2530-01-506-3298	20	1	5340-01-508-6906	42	2
6130-01-506-3502	4	1	5340-01-508-6911	101	12
2530-01-507-8611	24	13	5310-01-508-6918	78	3
5920-01-508-4243	4	6	5310-01-508-6921	78	4
5930-01-508-4255	71	3	5340-01-508-6937	37	11
5930-01-508-4257	71	4	5340-01-508-6940	82	1
5306-01-508-5764	24	6	4730-01-508-6961	90	14
5310-01-508-5774	32	8	4730-01-508-7237	82	5
5305-01-508-5775	27	2	4730-01-508-7237	90	16
5305-01-508-5889	27	3	4820-01-508-7369	94	4
5340-01-508-5897	35	1	3040-01-508-7384	94	21
5340-01-508-5902	35	2	3040-01-508-7390	94	20
5310-01-508-5907	27	5	4030-01-508-7449	94	32
5310-01-508-5907	47	7	4820-01-508-7765	83	2
5310-01-508-5908	20	3	4730-01-508-7806	83	5
6680-01-508-5909	74	10	4820-01-508-7855	100	1

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STOCK NUMBER	FIG.	ITEM
6680-01-509-3963	78	1
5306-01-510-2708	46	10
5306-01-510-2708	75	19
5306-01-510-2708	102	7
5306-01-510-4972	30	11
9515-01-510-5881	49	31
2530-01-510-6121	25	3
5331-01-510-6944	41	17
5330-01-510-7082	33	14
5330-01-511-1565	91	5
4730-01-511-5081	91	3
3040-01-511-5482	99	10
2510-01-511-5621	40	7
4730-01-511-6206	91	10
2910-01-511-8382	53	5
5305-01-512-0581	54	2
5305-01-512-0581	59	13
4010-01-514-2386	28	6
5930-01-514-2439	93	1
5930-01-514-2442	73	4
5930-01-514-2450	97	2
5310-01-514-2751	73	6
5305-01-514-2774	101	9
4730-01-514-5670	23	18
4820-01-517-3465	21	2
9905-01-517-8477	46	3
9905-01-518-0032	45	7
9905-01-518-0033	45	4
9905-01-518-0034	45	3
9905-01-518-0035	45	2
9905-01-518-0036	45	6
9905-01-518-1227	44	6
9905-01-518-1228	44	5
9905-01-518-1229	44	2
9905-01-518-1230	44	3
9905-01-518-1231	44	4
9905-01-518-1232	44	8
9905-01-518-1233	44	7
9905-01-518-3264	45	5
5305-01-523-0373	85	9
4330-01-524-9490	80	1
2530-01-526-8495	16	2
2530-01-527-4609	25	1
2930-15-148-1969	49	4
2805-15-148-1970	60	9
2920-15-155-5288	50	1
3020-20-000-5216	36	30
3040-20-000-5217	36	12
3020-20-000-5218	36	39
3020-20-000-5220	36	22
3020-20-000-5221	36	21
4730-20-000-5222	36	25
4730-20-000-5223	36	15
4730-20-000-5224	36	17
5340-20-000-5228	36	38
5340-20-000-5230	36	19
5340-20-000-5231	36	8
5315-20-000-5233	36	13
5305-20-000-5234	36	14
5330-20-000-5235	36	24
5306-20-000-5237	36	11
5305-20-000-5238	36	33
5305-20-000-5239	36	34
5310-20-000-5240	36	4
5305-20-000-5241	36	28
5305-20-000-5242	36	27
5305-20-000-5243	36	18
5331-20-000-5244	36	16
5310-20-000-5246	36	2
5310-20-000-5247	36	7
5310-20-000-5251	36	3
5310-20-000-5254	36	26
4930-20-000-5262	36	35
4930-20-000-5263	36	9
5365-20-000-5272	36	10
5365-20-000-5273	36	6
5365-20-000-5275	36	29
5365-20-000-5276	36	20
5975-20-000-5281	36	31
6105-20-000-5286	36	32
5945-20-000-5324	36	37
5930-20-000-5328	36	36
4930-20-000-5356	36	1
5320-99-807-2969	38	2
5320-99-807-2969	61	14

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CAGEC	PART NUMBER	NSN FIG		ITEM
53867	0.001.363.113	2920-01-463-5526	66	1
2X179	0000-N6E	2805-01-502-9885	50	9
2X179	0000-P1E	5930-01-508-4255	71	3
2X179	0000-Z1Q	5930-01-508-4257	71	4
83590	003958-001		86	8
26919	004-003081-042	5310-01-014-4280	31	26
1R5C8	005-4062-036	5340-01-504-7331	38	3
1R5C8	005-4062-042	5340-01-504-6388	61	12
83590	006618-002		86	7
17454	01070-0281ITEM06-15	5305-01-406-5528	64	5
17454	0107-0281ITEM06-15	5305-01-406-5528	3	4
1R5C8	021-2732	5340-01-504-8556	32	4
24975	0344209B15	5305-01-360-5282	65	15
96952	035-2994		75	4
87405	055285	5330-00-778-7229	80	30
87405	055705-05	4820-01-086-8687	80	3
1R5C8	067-0581-001	6680-01-509-3963	78	1
1R5C8	067-418-014		78	2
13548	07240	6220-01-482-9850	6	2
13548	07406	6220-01-482-6113	5	1
13548	07407	6220-01-482-5574	5	1
1UYK1	100	4810-01-506-2637	75	15
1UYK1	100-0001	4820-01-106-2210	23	10
0BUN9	100002S	5340-01-423-0791	80	31
0BUN9	100101	4330-01-393-5834	80	11
0BUN9	100103	4330-01-429-5981	80	19
16476	100222	6645-01-263-9434	74	8
16476	100262	6620-01-470-6835	74	9
98343	10028	5330-00-172-1919	22	3
98343	10028	5330-00-172-1919	22	6
0BUN9	100396	5330-01-433-9474	80	32
0BUN9	100397	5330-01-423-9479	80	18
0BUN9	100398		80	16
0BUN9	100400	9905-01-425-3750	80	23
0BUN9	100401	9905-01-425-2196	80	27
92967	10060-01	5306-01-098-7197	31	19
73402	102-0404	4730-01-466-4498	56	9
13226	10268ZC	5310-01-504-6851	101	26
92967	10273-00	5310-01-098-7244	31	17
24975	103-48	5977-01-506-1001	65	18
92967	10376-00	5306-01-347-5921	31	4
73402	104-0304	4730-01-506-1838	56	4
92967	10608-00	2510-01-101-2890	31	15
24975	107-103	4140-01-430-7170	65	4
16476	107646	6680-01-508-5909	74	10
81435	1084-12CHC	5975-01-504-7503	37	8
81435	1084-12CHC	5975-01-504-7503	67	13

CAGEC	PART NUMBER	NSN	FIG	ITEM
1R5C8	108-6110-1		13	1
1R5C8	108-6110-2		10	1
1R5C8	108-6110-3		13	14
1R5C8	108-6110-4		10	14
1R5C8	108-6110-5		10	20
1R5C8	108-6110-5-1		10	21
1R5C8	108-6110-5-2		10	22
1R5C8	108-6110-5-3		10	23
1R5C8	108-6110-5-4		10	24
19207	10936691	2990-00-759-3639	59	7
3D6E9	10-X-1421	5305-01-359-1367	17	5
08302	11028	5310-00-481-6481	27	4
63576	110700	4820-01-517-3465	21	2
24975	111-34	3130-01-506-0783	65	8
24975	111-35		65	9
24975	111-40	3130-01-506-0787	65	12
39428	1120A23		BULK	7
24975	112-74		65	11
24975	113-46		65	10
92967	11357-00	5365-01-316-3300	31	21
24975	114-164		65	7
24975	114-255		65	19
92967	11513-03	5310-01-499-4209	31	18
19207	11597619	5330-01-065-8850	90	28
19207	11668089	5340-01-074-8126	54	3
19207	11668541	4930-01-085-2652	90	7
27966	11668541	4930-01-085-2652	90	20
19207	11670911	4730-01-066-0118	89	4
14109	11670912	4730-01-065-9358	89	15
19207	11670913	4730-01-065-7604	89	10
19207	11670914	5330-01-081-5070	89	3
19207	11670914	5330-01-081-5070	90	21
19207	11670914	5330-00-081-5070	88	3
19207	11670915	5330-01-060-6890	89	9
19207	11685880	2940-01-061-5734	90	29
49181	1177860		39	7
2X179	11LD626-3	2815-01-446-2035	47	1
24975	120-111	5310-01-506-1087	65	6
35510	120-128	5310-01-430-7169	65	2
35510	120-129	5310-01-430-7191	65	3
24975	120-153	5305-01-506-1081	65	5
30389	1201PG-1-A-2L-0/100	6685-00-022-7988	79	1
35510	120-26		65	13
35510	120-289		65	14
78500	1205-Q-2123	5330-01-328-6090	17	3
78500	1205X726	5331-00-205-3583	17	16
78500	1218G85	5315-00-784-0637	16	9
3D6E9	1225B496	3120-00-255-6042	16	5

CAGEC	PART NUMBER	NSN	FIG	ITEM
78500	1225-R-1058	3120-01-499-3388	17	17
19207	12275401	2530-01-164-7125	90	27
19207	12275418	5340-01-508-6682	72	16
19207	12275456	5340-01-183-1423	72	1
19207	12275562-5		81	8
3D6E9	1229-B-1848	5310-01-133-5373	17	9
3D6E9	1229-R-4100	5310-01-499-3382	17	2
3D6E9	1229-S-4101	5310-01-499-3372	17	6
3D6E9	1229-T-4102	5325-01-499-3380	17	7
19207	12476065		85	8
13445	1251	5935-00-987-4536	13	2
08108	1252	6240-00-019-0878	7	5
78500	1259-N-274	5315-01-129-6898	16	6
1UYK1	1300	6625-01-503-1773	2	1
49181	13005	5305-01-424-8152	38	6
49181	13005	5305-01-424-8152	78	5
97403	13219E0462	5975-01-050-5705	80	14
97403	13228E17721	5330-01-398-8741	82	7
2X179	1400.135		48	4
38205	14224	5331-20-000-5244	36	16
72452	1459-246	5310-00-088-1251	66	8
72452	1459-246	5310-00-088-1251	67	12
13226	15265CB		90	12
13226	15757ZC	5315-01-084-4427	101	15
13226	15913MS	4820-01-133-4121	98	3
13226	15913MS	4820-01-133-4121	100	3
13226	16006MS	3040-01-504-7426	99	3
21013	16-161	5310-00-113-3757	94	36
64104	162284	5930-00-084-7570	72	14
93061	164PMT-6	4730-01-456-5915	23	19
06721	16626	4720-01-506-2578	23	2
79470	168X6	4730-00-278-4574	101	6
93061	169PMT-6-6	4730-01-470-0091	23	15
93061	169PMTNS-4-4	4730-01-506-3267	83	1
93061	169PMTNS-8-4	4730-01-506-2676	23	12
13226	17012EY	5340-01-504-7439	98	8
13226	17012EY	5340-01-504-7439	99	8
13226	17012EY	5340-01-504-7439	100	8
2X179	1760-032	5306-01-453-7232	63	4
2X179	1770-006	5305-01-458-1622	50	8
2X179	1770-056	5305-01-458-1623	49	24
2X179	1770-056	5305-01-458-1623	63	6
13226	17781BN	5331-01-354-4162	99	4
2X179	1780.003		48	8
2X179	1780.004	5306-01-458-1618	57	6
73402	178-0303	4730-01-055-6082	56	12
73402	178-0404	4730-01-506-1815	56	2

CAGEC	PART NUMBER	NSN	FIG	ITEM
13226	17889BN	5331-01-134-1980	98	9
13226	17889BN	5331-01-134-1980	99	9
13226	17889BN	5331-01-134-1980	100	9
93061	179PMTNS-8-4	4730-01-506-2680	23	11
13226	18141BN	5331-01-134-1982	98	4
13226	18141BN	5331-01-134-1982	100	4
2X179	1901.031		51	11
2X179	1901-032	5306-01-458-1625	51	7
2X179	1901-032	5306-01-458-1625	55	1
2X179	1901-048	4730-01-508-6074	71	1
13226	19624EY	3120-01-504-7543	101	18
13226	19724BR	5310-01-077-3663	101	23
78500	19X1084	5315-01-357-0826	18	7
3D6E9	19X127	5315-01-315-3614	18	6
0BUN9	200020	4330-01-393-5835	80	5
0BUN9	200021		80	17
0BUN9	200025	4330-01-393-5280	80	6
0BUN9	200082	5310-01-423-4036	80	24
0BUN9	200083	5310-01-423-3730	80	22
0BUN9	200084	5310-01-423-3728	80	25
0BUN9	200254	5305-01-256-5202	80	20
0BUN9	200266	5305-01-424-0082	80	21
0BUN9	200272	5310-01-423-4035	80	9
0BUN9	200273	5310-01-423-3724	80	10
0BUN9	200274	5310-01-423-3729	80	8
0BUN9	200277	5325-01-423-3138	80	29
13226	20040ZC	5307-01-504-6845	101	25
76364	20115-N		95	14
29965	20220-3	1640-00-277-1124	101	11
05443	20661D	4730-01-504-8927	89	11
A1212	2100.056	2920-15-155-5288	50	1
25567	21672-529	5305-01-502-8760	85	5
25567	21672-597	5305-01-504-6855	84	18
2X179	2175.046	2910-00-238-0033	57	3
93061	218P-12	5365-01-502-9551	19	4
26405	22010	5940-00-983-6105	67	3
0DT23	220138-1		92	38
0DT23	220159-2	4820-01-504-8923	92	30
0DT23	220163-1	4820-01-503-0310	92	36
0DT23	220201-1-18	4010-01-461-0033	92	23
0DT23	220142		92	13
0DT23	220145		92	15
0DT23	220146	5330-01-433-9203	92	26
0DT23	220146	5330-01-433-9203	92	29
0DT23	220147		92	14
0DT23	220149	5360-01-454-1830	92	35
0DT23	220151	5315-01-457-2803	92	34

CAGEC	PART NUMBER	NSN	FIG	ITEM
0DT23	220153	5360-01-461-5852	92	4
0DT23	220154	2815-01-456-7605	92	7
0DT23	220157	5330-01-456-9662	92	6
0DT23	220158	5330-01-456-9663	92	9
0DT23	220159-1	4820-01-503-0710	92	24
0DT23	220161	2510-01-456-7850	92	28
0DT23	220162		92	27
0DT23	220204		92	16
0DT23	220265	3110-01-504-8557	92	18
0DT23	220265	3110-01-504-8557	92	32
0DT23	220334	4820-01-504-8924	92	31
0DT23	220335	5360-01-466-5850	92	33
0DT23	220431	4730-01-504-7020	94	39
0DT23	220436	5360-01-504-6975	94	17
0DT23	220447	4820-01-504-6863	94	40
0DT23	220453		94	10
0DT23	220456	5330-01-504-6964	94	41
0DT23	220458	4820-01-504-6925	94	37
0DT23	220482	5365-01-490-5797	92	21
0DT23	220675	3040-01-504-7419	94	23
0DT23	220676	5340-01-504-6980	94	29
0DT23	220686	3040-01-504-7418	94	26
0DT23	220688	3120-01-508-5969	94	28
78500	2210-D-6868	2530-01-499-3135	17	1
3D6E9	2210-D-6869	2530-01-499-3159	17	1
0DT23	221301	3040-01-508-7384	94	21
0DT23	221302	3040-01-508-7390	94	20
0DT23	221303		94	25
1S0R6	2229101		24	4
1K2S2	224464	5305-01-506-2643	73	7
3D6E9	2258-Q-615	5360-01-158-1974	16	3
3D6E9	2258-W-803	5360-01-499-3396	16	1
1K2S2	229182	5310-01-514-2751	73	6
1K2S2	229215		73	11
78500	2297-B-5046	4730-01-499-3385	17	14
1S0R6	2308709	2530-01-506-2738	24	16
94222	23-10-11-12	5360-00-958-1143	72	4
76364	23194-N-560	4820-01-095-0938	95	8
13445	24063	5945-00-081-9491	67	16
2X179	2440.034	3030-01-457-8833	64	13
2X179	2440-034	3030-01-367-7487	62	2
25567	2474-GA	5330-01-060-7266	84	12
A1212	2486.046	2805-15-148-1970	60	9
25567	25227-363	5331-01-504-6856	84	23
25567	25227-689	5330-01-060-9610	84	32
13226	25245AL		90	8
25567	25271-207	5330-01-078-2005	84	15
70485	2564	5325-00-641-2800	23	22

CAGEC	PART NUMBER	NSN	FIG	ITEM
25567	2605-X-14010	4320-01-060-7896	84	10
13226	26284AL	5340-01-504-7309	98	6
13226	26284AL	5340-01-504-7309	99	6
13226	26284AL	5340-01-504-7309	100	6
76364	26344-N		95	10
13226	27050MS	3040-01-504-7425	98	10
13226	27050MS	3040-01-504-7425	100	10
13226	27053MS	3040-01-511-5482	99	10
7X677	274707	5305-01-187-8757	33	1
2X179	276.3616.018	5340-01-327-3444	51	3
2X179	276.4670.014	5310-01-324-8325	49	32
2X179	276.5400.046	5365-01-324-3425	51	4
2X179	277.6300.018	5365-01-458-6645	60	6
13226	27733EY	3040-01-504-7440	101	27
13226	27818SL-2	3040-01-504-7438	101	20
19207	27-W-924	5340-01-098-2069	BULK	13
1K2S2	28116034		73	12
76691	28-2G	4030-00-431-5537	92	22
76364	2855-N-150	4730-01-284-6397	95	4
06853	291452	4730-01-400-3146	20	4
98897	299223	4730-00-188-3513	80	4
1R5C8	2AHOOKSS	4030-01-503-0447	29	2
1R5C8	2AHOOKSS	4030-01-503-0447	39	5
1R5C8	2AHOOKSS	4030-01-503-0447	42	4
45152	2GL765	2530-01-359-8091	17	4
10001	2Z24PC421	5306-00-637-9675	24	15
0BUN9	300008	5340-01-423-3255	80	7
0BUN9	300009	4330-01-312-2797	80	13
13445	30172-15	5925-01-469-0075	67	18
13445	30172-30	5925-01-506-0593	67	20
1S0R6	3018503	5306-01-508-5764	24	6
13226	3029SL	5306-01-077-5119	41	2
13226	3030-BR	5310-01-061-8727	41	4
64565	3030TA3-1260	2530-01-506-3298	20	1
13226	3031-SL	5310-01-077-6773	41	3
39428	30325T27	4030-01-508-7449	94	32
65824	303-444-04		75	16
13226	3036SL262		41	5
65824	304-200-01		75	17
76364	3057-N		95	11
03670	30865	4210-01-362-5567	103	3
1UYK1	3100	5940-01-502-9386	1	1
38205	310211	3040-01-161-6611	36	5
3D6E9	3105-B-210	5340-01-328-4418	16	11
3D6E9	3105-U-281	3130-01-502-9445	17	18
3D6E9	3105-V-282	3130-01-502-9395	17	15
76364	3116M	5310-00-654-4537	89	6
76364	3116M	5310-00-654-4537	95	2

CAGEC	PART NUMBER	NSN	FIG	ITEM
13226	3119BN	5330-01-024-2311	41	16
25567	31343-039 15991	5307-01-088-7388	84	2
25567	31343-039 15991	5307-01-088-7388	84	5
38205	314080-RED	5330-20-000-5235	36	24
1UYK1	3150	6680-01-502-9390	1	4
25567	31512-024	5310-01-502-8763	84	14
79470	3152X6	4730-00-427-5121	19	5
79470	3152X6	4730-00-427-5121	21	4
25567	31551-001 15990	5365-01-175-0320	85	2
38205	316998	3020-20-000-5216	36	30
38205	316999	3020-20-000-5221	36	21
39428	3196T26	4910-01-100-4984	28	4
76364	3198-C	5310-01-077-9426	95	16
72219	32-103-01	4820-00-417-1120	90	15
38205	323058M	3020-20-000-5220	36	22
38205	323075	4730-20-000-5222	36	25
38205	323083	4730-20-000-5223	36	15
38205	323207	5365-20-000-5273	36	6
38205	323361ANZ	4730-20-000-5224	36	17
38205	323807	5365-20-000-5275	36	29
2X179	3240.018	5310-01-324-8246	49	22
2X179	3240.018	5310-01-324-8246	50	5
2X179	3240.018	5310-01-324-8246	53	4
2X179	3240.018	5310-01-324-8246	62	7
24975	3244392S01	5330-01-362-4994	65	17
79142	324757-001	5355-01-154-5198	86	1
38205	326100-10X11	4930-20-000-5263	36	9
38205	326250-25X11X0.94	5340-20-000-5231	36	8
38205	326250-25X11X2.5	5340-20-000-5230	36	19
38205	326488	5365-20-000-5276	36	20
38205	326460P-9.25	3040-20-000-5217	36	12
38205	326468P-10	5306-20-000-5237	36	11
38205	326475-10	5365-20-000-5272	36	10
38205	326905	3020-20-000-5218	36	39
3D6E9	3264-A-1457	5340-01-499-3618	16	4
38205	327078	4730-01-161-1301	36	23
2X179	3300.227		48	5
26151	330-3009	5330-01-071-8179	24	12
2X179	3350.077	2815-01-453-4065	63	12
1E255	339P0161-083009 SH D IT31	5945-01-441-9279	10	19
28488	3401	5975-00-655-3136	14	7
28488	3402	5975-00-833-1776	14	9
28488	3402	5975-00-833-1776	76	9
28488	3404	5975-00-578-9364	14	3
2X179	3440.049	2910-01-459-0148	57	2
28488	3441	5975-01-506-2618	14	8
28488	3442	5975-01-432-4122	14	2

CAGEC	PART NUMBER	NSN	FIG	ITEM
28488	3442	5975-01-432-4122	76	7
76364	35551-6-400	4820-00-766-8191	95	1
13226	3560BN	5330-01-134-1986	41	21
13226	3560SL	2590-01-054-0253	101	3
13226	35659EY-2	3040-01-504-7825	101	19
2X179	3586.060		57	7
37260	360268	5340-01-151-0993	36	40
2X179	3630.05		51	15
76364	363H	5330-00-367-5005	95	6
38205	366060-10	5340-20-000-5228	36	38
38205	366150-25X10Z	4930-20-000-5262	36	35
38205	370018	5945-20-000-5324	36	37
38205	370024	6105-20-000-5286	36	32
38205	370200	5975-20-000-5281	36	31
38205	370210	5930-20-000-5328	36	36
2X179	3740.043	2940-01-452-9419	49	28
25567	37J	5310-00-496-3676	84	13
83338	3/8-16X1	5305-01-425-2425	87	1
76364	38084-C	5310-01-077-9647	95	15
76364	3812-J-706	4820-01-060-8981	89	8
25567	38263-507 100 10	2520-01-168-6845	84	17
25567	38272-319		84	16
25567	38322-214 10010	3130-01-317-2625	84	30
25567	38513-406 17030	3040-01-167-8118	84	26
25567	38546-003	3020-01-502-9926	85	1
25567	38683-207	5330-01-060-9614	84	29
58536	39TB10	5940-00-983-6105	13	12
11083	3S4488	5305-00-245-6035	7	3
8K828	3SC	5340-01-508-6874	42	1
8K828	3TR	5330-01-508-6904	42	3
13226	4015BN	5331-01-510-6944	41	17
13226	4015TS	5331-01-424-3860	41	10
13226	4020EPDM	3010-01-485-3100	41	25
6N299	4021600	2910-00-400-6861	54	12
05443	40342CM	4730-01-508-6130	90	3
13226	4117ALEY		41	8
13226	4118BN		41	7
13226	4122MS		41	13
05869	4197500-032	5310-00-809-8546	79	2
0KMP4	4204089	6685-01-506-1151	79	7
49181	42310	5306-01-502-8739	39	3
76364	4256-L-630	5305-01-079-6771	95	9
05573	42768	5305-01-523-0373	85	9
0KMP4	4306148	6685-01-506-1061	79	8
07322	4325-366Y	4820-01-504-6981	94	8
0UU57	4343334-1	5310-00-911-2251	93	2
3D6E9	441 032 809 0	6150-01-502-9447	19	3

CAGEC	PART NUMBER	NSN FIG		ITEM
25567	44165-003	4730-01-167-8069	85	3
2X179	4420.019	5330-01-395-0878	60	2
04034	44233	5930-01-514-2439	93	1
13226	44631EY	5340-01-504-6837	101	17
78500	449 328 110 0	6150-01-502-9449	19	8
2X179	4500.079	5330-01-394-7944	59	11
2X179	4500.079	5330-01-394-7944	60	5
0Y3H3	45116		BULK	2
89346	453283	5305-00-990-6444	67	1
13226	46186-2		94	1
2X179	4620.060		51	10
13445	46206-04	5940-01-508-5919	13	19
2X179	4670-058		71	2
2X179	4670.107		52	4
0DT23	47062	2910-01-456-2273	92	25
0DT23	47085	5340-01-458-8470	92	12
0DT23	47095	3040-01-504-7052	94	16
0DT23	47096	2540-01-504-6825	94	43
0DT23	47097	4820-01-508-7369	94	4
0DT23	47099		94	13
0DT23	47371	4710-01-504-7417	94	18
1S0R6	4819001	2530-01-506-2721	24	2
25567	48271-094	5340-01-406-4189	84	4
24161	4LOLA	4720-00-484-5765	BULK	11
0BUN9	500005S		80	2
2X179	5000.3617.021	5340-01-325-2650	49	7
79142	503648-001	5305-01-155-4342	86	2
13548	50840	5975-01-343-2254	67	5
13548	50842	5975-01-343-2256	67	6
25022	51-2298	2590-00-473-6331	104	1
19205	5174192	5310-00-517-4192	07	2
0FBD6	52106005		16	7
2A592	5-2106-00BU	5925-01-504-6095	67	14
28548	5228623	4730-00-244-9848	22	1
1R5C8	5243		67	7
56501	5251	5975-00-615-9173	93	3
08108	53	6240-00-013-1282	7	7
0FBD6	55752004	5310-01-504-6132	16	8
2X179	560.4420.020	5330-01-351-7676	50	11
45152	5903AX	5305-00-984-6210	67	15
11083	5P7128	5305-01-107-3549	26	20
10125	6006	4730-01-502-9555	19	1
26151	610-0065	2590-01-450-0304	77	3
2X179	625.2486.043	2990-01-452-7605	50	3
2X179	625.2569.372	5340-01-455-3824	63	3
2X179	625.2655.032	5340-01-458-8586	53	2
2X179	625.4431.069	5330-01-453-5497	53	8
2X179	625.4490.086	5330-00-459-2294	50	7

CAGEC	PART NUMBER	NSN	FIG	ITEM
2X179	625.4775.422	2930-15-148-1969	49	4
2X179	625.5066.055	5340-01-458-8630	63	10
2X179	625.5066.056	4140-01-454-3508	63	15
2X179	625.5066.061	4140-01-454-4074	63	8
2X179	625.6370.137	9515-01-510-5881	49	31
2X179	625.6429.047	5340-01-458-7226	47	2
2X179	625.6585.079	2910-01-511-8382	53	5
2X179	625.6660.028	5340-01-455-3825	63	2
2X179	625.6927.073	3020-01-452-9472	62	1
2X179	625.7200.167	5340-01-459-1516	53	10
2X179	625.8545.271	2930-01-455-7597	49	23
2X179	625.9718.113		62	6
2X179	625.9895.055	5315-01-459-1812	63	1
87405	640269	4330-01-060-3836	80	12
0DT23	64079A	5930-01-514-2450	97	2
0DT23	64174AC	4820-01-504-6971	94	2
13226	6496ALB117		41	18
26151	650-0598	6680-01-502-9521	77	4
76364	65146-K-A993 SPLIT RING	5330-00-400-3513	95	7
76364	6593L	5330-00-889-5483	89	7
2X179	6615.104		52	3
13226	6654AL		41	11
13226	6657AL117		41	15
76364	6686N	5330-00-346-2732	95	13
13226	6688SL		41	6
13226	6778SL		41	20
2X179	6780-070	5307-01-458-1627	53	9
94894	684-4	4820-01-443-1916	23	24
93061	68NTA-6-4	4730-01-062-2570	96	2
2X179	6975.134	3020-01-453-9083	62	5
19207	6TMF/TYPEII	6140-01-446-9506	8	10
19207	6TMF/TYPEIII	6140-01-469-9184	8	10
57661	70-103-01	4820-01-243-9951	82	4
76364	7013-H-491	5360-00-653-0395	95	5
61125	70650		BULK	12
19207	7417585	2510-00-741-7585	29	1
91840	7523	5307-01-389-3445	42	6
19207	7524649	9905-00-752-4649	10	12
19207	7524649	9905-00-752-4649	10	17
19207	7524649	9905-00-752-4649	10	27
19207	7524649	9905-00-752-4649	11	3
19207	7524649	9905-00-752-4649	11	8
19207	7524649	9905-00-752-4649	12	5
19207	7524649	9905-00-752-4649	12	9
19207	7524649	9905-00-752-4649	13	10
19207	7524649	9905-00-752-4649	13	18
19207	7524649	9905-00-752-4649	74	2
19207	7524649	9905-00-752-4649	76	3

CAGEC	PART NUMBER	NSN	FIG	ITEM
19207	7534865	5365-00-753-4865	17	10
19207	7539214	5340-00-753-9214	72	11
2X179	7565.011		48	7
13445	75904-01	5930-01-420-9746	72	15
90031	761-847	5310-00-763-8905	81	5
76364	7699-K-C56	5340-01-077-4942	95	3
19207	7750101	5325-00-204-5061	17	8
72962	79-048-250-0812	5315-00-297-0879	94	31
OGRW8	79A SET@150LIQUID	4820-01-508-7765	83	2
67634	80-CLIP	5340-01-506-2928	46	4
67634	80SM97	9905-01-517-8477	46	3
92967	814-00	2590-01-100-9001	31	13
92967	817-00	5310-01-098-7245	31	7
39428	81839A029	5310-01-374-1809	9	3
78500	8289	2530-01-502-9081	KITS	7
13226	8297ALEY		41	19
2X179	832.7350.007	2930-01-436-2109	49	2
19207	8330729	5305-00-993-2738	67	8
92967	836-00	5310-01-098-7236	31	24
92967	837-00	5310-01-098-7246	31	23
2X179	8400.139		52	5
92967	841-00	5310-01-098-7827	31	8
76364	84299-N-940	4820-01-080-3435	95	12
92967	849-01	2520-01-101-1802	31	3
25567	84B1-(11LD626-3)/S1		84	1
25567	8543 15990	5365-01-137-7682	84	28
2X179	8545.610		52	2
4X630	863-000625	5315-01-493-4685	94	19
19207	8682972	5331-00-291-7337	92	3
19207	8712289	5310-00-044-3340	94	35
19207	8712289-6	5310-00-225-6408	39	13
19207	8712289-6	5310-00-225-6408	81	2
19207	8712289-9	5310-00-930-9759	75	7
19207	8724257	5935-00-754-9083	10	2
08427	8730000-21	5310-01-421-7439	26	19
08427	8730000-21	5310-01-421-7439	89	19
2X179	8760.090		57	4
25567	882A 14000	2930-00-407-9270	84	11
25567	8881		84	6
41885	88881	5310-01-349-0759	24	17
41885	88881	5310-01-349-0759	28	11
92967	891-00	2520-01-101-0935	31	20
92967	895-00	5310-01-098-7247	31	5
92967	898-00	2520-01-101-2551	31	22
24975	8LHA-3071P	2920-01-279-3948	65	1
24975	8RG3030	6110-01-431-2271	65	16
1R5C8	9001-0036	4730-01-503-0245	89	12
92967	900-50	2510-01-503-0716	31	2
39428	9009A031	5310-01-386-3517	26	18

CAGEC	PART NUMBER	NSN FIG		ITEM
39428	90101A038	5310-01-508-5908	20	3
39428	90101A237	5310-01-446-0272	35	3
39428	90101A237	5310-01-446-0272	101	29
39428	90107A032	5310-01-476-4801	40	17
39428	90312A64	4010-01-508-6020	35	8
39428	90316A247	5305-01-506-1119	6	1
39428	90316A247	5305-01-506-1119	9	6
39428	90316A247	5305-01-506-1119	101	1
2X179	9032.064	2590-01-395-0523	48	1
2X179	904.2175.040	2940-01-324-5153	49	29
2X179	904.4730.533	5330-01-458-5601	49	30
1R5C8	9043-0012	5306-01-502-8710	35	24
1R5C8	9043-0084	5306-01-510-2708	46	10
1R5C8	9043-0084	5306-01-510-2708	75	19
1R5C8	9043-0084	5306-01-510-2708	102	7
1R5C8	9043-0127	5306-01-009-6675	102	8
39428	90715A011	5310-01-482-0431	7	1
39428	90715A032	5310-01-508-6136	40	18
39428	90715A145	5310-01-508-5774	32	8
6N299	910164	5310-00-045-3296	67	2
1R5C8	9117-0003		61	17
1R5C8	9117-0121		101	8
1R5C8	9117-0140		58	1
1R5C8	9118-0024	5340-01-502-8766	89	13
1R5C8	9118-0159		56	13
2X179	9.1200.015	5330-01-323-5455	48	2
2X179	9.1200.087	5331-01-458-2589	53	7
1R5C8	9121-0005		BULK	3
1R5C8	9121-0005-24		42	5
1R5C8	9121-0005-AR		29	3
1R5C8	9121-0019		39	6
1R5C8	9125-0116		42	11
1R5C8	9125-0146	4730-01-506-1946	56	10
1R5C8	9125-0147	4730-01-506-1798	56	1
1R5C8	9125-0147		96	6
39428	91257A826	5305-01-508-6013	47	5
1R5C8	9131-0004		14	6
1R5C8	9131-0004		93	4
1R5C8	9131-0005		14	1
1R5C8	9131-0005-AR		76	8
1R5C8	9131-0006		14	4
1R5C8	9133-0083	5940-01-508-5912	69	4
1R5C8	9133-0083	5940-01-508-5912	71	6
1R5C8	9133-0083	5940-01-508-5912	74	1
1R5C8	9133-0083	5940-01-508-5912	76	5
1R5C8	9133-0084	5940-01-506-2596	70	3
1R5C8	9133-0085	5940-01-506-2488	68	9
1R5C8	9133-0086	5940-01-506-2490	8	12
1R5C8	9133-0086	5940-01-506-2490	68	11

CAGEC	PART NUMBER	NSN	FIG	ITEM
1R5C8	9133-0086	5940-01-506-2490	69	7
1R5C8	9133-0088	5940-01-506-1319	8	11
1R5C8	9133-0088	5940-01-506-1319	68	1
1R5C8	9133-0088	5940-01-506-1319	69	2
1R5C8	9133-0089	5940-01-504-7527	8	5
1R5C8	9133-0089	5940-01-504-7527	8	13
1R5C8	9133-0091	5940-01-506-2589	8	9
1R5C8	9133-0091	5940-01-506-2589	68	3
1R5C8	9133-0091	5940-01-506-2589	68	7
1R5C8	9133-0093	5940-01-506-2504	8	6
1R5C8	9133-0093	5940-01-506-2504	8	8
1R5C8	9133-0093	5940-01-506-2504	70	1
1R5C8	9133-0096	5940-01-508-5931	69	3
1R5C8	9133-0096	5940-01-508-5931	76	1
1R5C8	9133-0097	5940-01-506-2500	69	8
1R5C8	9133-0097	5940-01-506-2500	76	4
1R5C8	9133-0098	5940-01-506-2497	8	14
1R5C8	9137-0045	6160-01-504-7515	8	3
1R5C8	9142-0206	4730-01-508-5999	79	6
1R5C8	9142-0273	4730-01-511-6206	91	10
2X179	9.1755.002	5305-01-454-3506	51	2
2X179	9.1770.001	5305-01-453-7239	49	5
2X179	9.1770.002	5305-01-324-0950	63	13
39428	91773A829		72	12
2X179	9.1780.007	5305-01-333-5381	47	4
39428	91831A011	5310-01-463-4929	9	8
39428	91831A011	5310-01-463-4929	101	5
2V507	91831A030	5310-01-499-3569	8	1
2X179	9.1901.029	5306-01-323-8814	51	13
2X179	9195.104		48	6
01365	92007A1255	5310-01-467-9965	39	14
39428	92146A029	5310-01-229-6260	1	8
39428	92186A673	5305-01-508-6135	40	16
1R5C8	9222-0310	9905-01-518-1233	44	7
1R5C8	9222-0312	9905-01-518-0035	45	2
1R5C8	9222-0313	9905-01-518-1230	44	3
1R5C8	9222-0314	9905-01-518-0033	45	4
1R5C8	9222-0316	7690-01-504-6952	45	8
1R5C8	9222-0317	9905-01-518-1228	44	5
1R5C8	9222-0318	9905-01-518-0032	45	7
1R5C8	9222-0320	9905-01-518-1231	44	4
1R5C8	9222-0321	9905-01-518-1229	44	2
1R5C8	9222-0322	9905-01-518-1232	44	8
1R5C8	9222-0324	9905-01-518-1227	44	6
1R5C8	9222-0327	7690-01-504-6901	45	9
1R5C8	9222-0328	7690-01-504-6947	45	10
1R5C8	9224-0001	5310-01-508-6921	78	4
39428	92240A551	5305-01-514-2774	101	9

CAGEC	PART NUMBER	NSN	FIG	ITEM
1R5C8	9227-0010	5340-01-502-8689	35	27
1R5C8	9227-0012	5340-01-502-8724	35	26
1R5C8	9229-0001		54	8
39428	92390A231	5315-01-504-7333	38	5
39428	92390A231	5315-01-504-7333	38	12
1R5C8	9261-0085	4730-01-508-6961	90	14
39428	92620A798	5305-01-508-6879	90	17
1R5C8	9291-0054		96	5
1R5C7	9292-0129		49	8
39428	93075A245	5305-01-508-6246	4	2
39428	93190A583	5305-01-508-6037	35	6
39428	93190A583	5305-01-508-6037	101	31
39428	93190A593	5305-01-482-4487	32	6
2X179	9.3203.015	5310-01-453-8664	62	3
2X179	9.3203.093	5310-01-458-4305	53	6
2X179	9.3240.032	5310-01-325-7141	66	2
2X179	9.3240.163	5310-01-458-4307	60	4
1R5C8	9326-0191		94	44
1R5C8	9326-0252		61	15
1R5C8	9326-0254		75	6
1R5C8	9326-0254	5330-01-511-1565	91	5
1R5C8	9326-0262	5330-01-510-7082	33	14
2X179	9330.024		48	3
2X179	9373.002		55	3
2X179	9375.165	4710-01-453-3278	51	5
2X179	9375.167	4710-01-453-3273	51	14
2X179	9375.281		51	6
2X179	9375.660		51	9
2X179	9375-855	4710-01-459-0003	55	5
1R5C8	9378-0039		23	25
1R5C8	9380-0314	6150-01-506-1300	68	2
1R5C8	9380-0315	6150-01-506-2626	74	4
1R5C8	9380-0316	6150-01-506-2635	74	7
1R5C8	9380-0317	6150-01-506-2638	74	6
1R5C8	9380-0318	6150-01-506-1279	11	1
1R5C8	9380-0318-1		11	5
1R5C8	9380-0318-2		11	4
1R5C8	9380-0319	6150-01-506-1260	12	1
1R5C8	9380-0319-1		12	3
1R5C8	9380-0319-2		12	4
1R5C8	9380-0320	6150-01-506-1271	12	7
1R5C8	9380-0320-1		12	11
1R5C8	9380-0320-2		12	10
1R5C8	9380-0321	6150-01-506-1286	11	6
1R5C8	9380-0321-1		11	10
1R5C8	9380-0321-2		11	9
1R5C8	9389-0015	4030-01-503-0537	39	4
1R5C8	9392-0219		54	10

CAGEC	PART NUMBER	NSN FIG		ITEM
1R5C8	9392-0219		56	3
1R5C8	9392-0220		56	11
1R5C8	9395-0043	2530-01-507-8611	24	13
24617	9419476	5310-00-984-3807	39	15
2X179	9.4670.058	5310-01-332-8236	49	35
2X179	9.4670.058	5310-01-332-8236	51	12
2X179	9.4670.059	5310-01-351-7802	55	4
2X179	9.4670.061	5310-01-458-4309	51	8
2X179	9.4670.061	5310-01-458-4309	55	2
2X179	9485.083		49	10
2X179	9485.176	4720-01-453-2929	49	3
2X179	9485.177	4920-01-455-3224	49	26
2X179	9571.229		51	1
13548	98107	9390-01-504-6187	43	1
1R5C8	9543-0036	2540-01-502-9571	32	5
1R5C8	9562-0009	5310-01-508-6918	78	3
1R5C8	9562-0044	5310-01-502-8329	3	2
1R5C8	9562-0044	5310-01-502-8329	26	14
1R5C8	9562-0044	5310-01-502-8329	28	3
1R5C8	9562-0044	5310-01-502-8329	32	3
1R5C8	9562-0044	5310-01-502-8329	32	14
1R5C8	9562-0044	5310-01-502-8329	32	21
1R5C8	9562-0044	5310-01-502-8329	33	8
1R5C8	9562-0044	5310-01-502-8329	35	10
1R5C8	9562-0044	5310-01-502-8329	37	3
1R5C8	9562-0044	5310-01-502-8329	37	14
1R5C8	9562-0044	5310-01-502-8329	39	17
1R5C8	9562-0044	5310-01-502-8329	56	6
1R5C8	9562-0044	5310-01-502-8329	64	9
1R5C8	9562-0044	5310-01-502-8329	72	8
1R5C8	9562-0044	5310-01-502-8329	87	3
1R5C8	9562-0044	5310-01-502-8329	89	2
1R5C8	9562-0044	5310-01-502-8329	90	4
1R5C8	9562-0044	5310-01-502-8329	102	1
1R5C8	9562-0044	5310-01-502-8329	103	4
1R5C8	9562-0044	5310-01-502-8329	104	2
1R5C8	9562-0046	5310-01-502-8330	26	8
1R5C8	9562-0046	5310-01-502-8330	37	7
1R5C8	9562-0046	5310-01-502-8330	38	9
1R5C8	9562-0046	5310-01-502-8330	46	8
1R5C8	9562-0046	5310-01-502-8330	59	5
1R5C8	9562-0046	5310-01-502-8330	61	6
1R5C8	9562-0046	5310-01-502-8330	78	7
1R5C8	9562-0046	5310-01-502-8330	101	13
1R5C8	9562-0049		61	10
1R5C8	9562-0055	5310-01-508-6889	90	19
1R5C8	9562-0133	5310-01-502-8323	26	17
1R5C8	9562-0133	5310-01-502-8323	28	12

CAGEC	PART NUMBER	NSN	FIG	ITEM
1R5C8	9562-0133	5310-01-502-8323	40	3
1R5C8	9562-0133	5310-01-502-8323	42	7
1R5C8	9562-0133	5310-01-502-8323	54	13
1R5C8	9562-0133	5310-01-502-8323	64	1
1R5C8	9562-0133	5310-01-502-8323	89	17
1R5C8	9562-0165	5310-01-506-1215	23	8
1R5C8	9562-0165	5310-01-506-1215	101	34
1R5C8	9593-0233		72	13
2X179	9.5830.119		58	2
1R5C8	9595-0019	5315-01-504-7332	38	4
1R5C8	9595-0019	5315-01-504-7332	38	11
1R5C8	9595-0051		61	16
1R5C8	9596-0468	2990-01-504-6529	KITS	8
1R5C8	9596-0468-1	2990-01-504-6529	59	9
1R5C8	9596-0468-2		59	8
1R5C8	9596-0468-4		59	10
1R5C8	9596-0474	4710-01-506-2883	90	2
1R5C8	9600-0001M		94	33
1R5C8	9606-0005	3020-01-506-1289	64	12
92967	9639-03	5306-01-098-7198	31	12
92967	9640-00	2510-01-101-2559	31	11
1R5C8	9653-0043	9905-01-518-0036	45	6
1R5C8	9653-0044	9905-01-518-0034	45	3
1R5C8	9653-0045	9905-01-518-3264	45	5
1R5C8	9674-0013	4310-01-506-2601	23	6
2X179	9.6780.008	5307-01-341-2950	50	6
2X179	9.6780.008	5307-01-341-2950	53	1
2X179	9.6780.008	5307-01-341-2950	60	7
2X179	9.6780.008	5307-01-341-2950	62	9
2X179	9.6780.028	5307-01-454-3501	49	20
2X179	9.6780.031	5307-01-454-3503	50	2
2X179	9.6780.034	5307-01-454-3504	60	10
2X179	9.6780.034	5307-01-454-3504	49	27
2X179	9.6780.084	5307-01-327-3439	50	10
2X179	9.6780.084	5307-01-327-3439	60	1
2X179	9.6820.014	5307-01-454-3517	66	4
1R5C8	9682-0047	5320-01-504-6880	44	1
1R5C8	9682-0047	5320-01-504-6880	45	1
1R5C8	9682-0047	5320-01-504-6880	46	2
39428	97135A275	5310-01-508-5907	27	5
39428	97135A275	5310-01-508-5907	47	7
2V507	97143A635	5315-01-502-8308	26	4
2X179	9730.100		57	1
1R5C8	9738-0010		59	6
1R5C8	9738-0014	5305-01-406-5528	32	1
1R5C8	9738-0014	5305-01-406-5528	102	5
1R5C8	9738-0014	5305-01-406-5528	103	1
1R5C8	9738-0014	5305-01-406-5528	104	4

CAGEC	PART NUMBER	NSN FIG		ITEM
1R5C8	9738-0015	5306-00-174-9462	40	1
1R5C8	9738-0015	5308-00-174-9462	42	9
1R5C8	9738-0015	5305-01-512-0581	54	2
1R5C8	9738-0015	5305-01-512-0581	59	13
1R5C8	9738-0015	5306-00-174-9462	61	8
1R5C8	9738-0015	5306-00-174-9462	89	18
1R5C8	9738-0035		61	18
1R5C8	9738-0081		59	1
2X179	9738-018		52	1
1R5C8	9738-0379	5305-01-508-5775	27	2
1R5C8	9738-0380	5305-01-508-5889	27	3
1R5C8	9738-0384		28	7
39428	97447A050		72	7
1R5C8	9745-0001		38	10
2X179	9.7565.007	5310-01-340-8352	50	4
2X179	9.7565.007	5310-01-340-8352	53	3
2X179	9.7565.007	5310-01-340-8352	60	3
2X179	9.7565.007	5310-01-340-8352	62	8
2X179	9.7565.007	5310-01-340-8352	63	14
2X179	9.7565.011	5310-01-324-8343	47	3
2X179	9.7565.011	5310-01-324-8343	57	5
2X179	9.7565.011	5310-01-324-8343	66	3
2X179	9.7625.010	5310-01-324-8334	49	6
2X179	9.7625.010	5310-01-324-8334	49	21
2X179	9.7625.012	5310-01-453-7095	63	7
2X179	9.7625.055	5310-01-453-8661	62	4
2X179	9.7625.061	5310-01-453-7080	60	8
2X179	9.7625.062	5310-01-453-7096	63	5
39428	98700A366	5315-01-508-5988	35	7
39428	98760A112	5306-01-504-6498	8	16
1R5C8	9881-0005-1		83	6
1R5C8	9881-0006-AR		96	1
1R5C8	9881-0006-AR		97	3
1R5C8	9881-0020		23	14
1R5C8	9881-0022		23	4
1R5C8	9881-0027		23	1
1R5C8	9881-0096		101	7
2X179	9.8965.003	5365-01-333-5129	49	34
2X179	9.8965.021	4730-01-461-1297	49	33
92967	9934-02	2510-01-100-9270	31	16
92967	9937-00	2510-01-100-7167	31	14
1R5C8	9941-0778		23	23
1R5C8	9941-0788		96	3
1R5C8	9965-0013		59	2
1R5C8	9965-0034		101	2
1RC58	9965-0039	5310-01-502-8467	24	14
1R5C8	9965-0044		3	3
1R5C8	9965-0044		32	7

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CAGEC	PART NUMBER	NSN FIG		ITEM
1R5C8	9965-0044		101	33
1R5C8	9965-0046		20	2
1R5C8	9966-0115	2530-01-510-6121	25	3
1R5C8	9968-0054		74	3
1R5C8	9968-0054-1		68	4
1R5C8	9968-0054-2		68	6
1R5C8	9968-0054-3		68	8
1R5C8	9968-0054-4		68	12
1R5C8	9968-0054-AR		70	4
1R5C8	9968-0054-AR		76	6
1R5C8	9968-0055		74	5
1R5C8	9968-0055-1-1		13	3
1R5C8	9968-0055-1-2		13	4
1R5C8	9968-0055-1-3		13	5
1R5C8	9968-0055-1-4		13	6
1R5C8	9968-0055-1-5		13	7
1R5C8	9968-0055-1-6		13	8
1R5C8	9968-0055-1-7		13	9
1R5C8	9968-0055-2-1		10	3
1R5C8	9968-0055-2-2		10	4
1R5C8	9968-0055-2-3		10	5
1R5C8	9968-0055-2-4		10	6
1R5C8	9968-0055-2-5		10	7
1R5C8	9968-0055-2-6		10	8
1R5C8	9968-0055-2-7		10	9
1R5C8	9968-0055-2-8		10	10
1R5C8	9968-0055-2-9		10	11
1R5C8	9968-0055-3-1		13	15
1R5C8	9968-0055-3-2		13	17
1R5C8	9968-0055-4-1		10	15
1R5C8	9968-0055-4-2		10	16
1R5C8	9968-0055-AR		69	5
1R5C8	9968-0055-AR		71	7
1R5C8	9968-0056		BULK	23
1R5C8	9968-0056-AR		8	7
1R5C8	9968-0056-AR		70	2
1R5C8	9968-0057		BULK	24
1R5C8	9968-0057-AR		8	15
1R5C8	9968-0058		BULK	25
1R5C8	9968-0058-1		68	10
1R5C8	9968-0058-1AR		69	1
1R5C8	9968-0058-2AR		69	6
1R5C8	9968-0058-AR		76	2
1R5C8	9968-0083		68	5
2X179	9.9730.032	5205-01-324-8388	49	1
2X179	9.9730.032	5305-01-324-8388	62	11
2X179	9.9731.092	5305-01-323-8927	63	11
2X179	9.9732.063	5305-01-341-2906	62	10

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2X179	9.9732.074	5305-01-324-8355	49	25
2X179	9.9790.039	5305-01-323-8928	63	9
1R5C8	999-00037	5340-01-508-6911	101	12
92967	9999-00	2510-01-114-3209	31	10
13226	9Q1659	5306-01-082-0019	101	4
13226	9Q1660	5306-01-504-7441	101	21
13226	9Q4893	5315-01-124-9075	98	2
13226	9Q4893	5315-01-124-9075	99	2
13226	9Q4893	5315-01-124-9075	100	2
13226	9Q4961		41	9
13226	9Q4974	5340-01-504-6827	101	22
13226	9Q5807	5310-01-417-1045	90	11
13226	9Q5808A	5310-01-504-6843	101	24
13226	9Q5811		90	9
13226	9Q5823		90	13
13226	9Q5865	5315-01-504-6841	101	16
13226	9Q5884	5305-01-504-7427	98	7
13226	9Q5884	5305-01-504-7427	99	7
13226	9Q5884	5305-01-504-7427	100	7
13226	9Q5896		41	12
13226	9Q5960		41	23
13226	9Q5961	5310-01-486-4256	41	22
13226	9V4907		41	14
13226	9Z4830	5340-01-504-6833	101	28
13226	9Z6163	5340-01-486-0635	41	24
24975	A049102338 (111-86)	3110-01-431-4526	65	20
0BUN9	A113724		82	6
0BUN9	A1137-33	5310-01-394-3524	82	2
78500	A-1205-X-1662	5330-01-047-9367	24	8
78500	A-3105-V-282	2530-01-311-8410	KITS	1
00624	AE88011P	4730-01-297-3765	92	1
00624	AE88011P-1		92	2
3J615	ALH 2102L SS	5340-01-504-6861	38	8
88044	AN814-10D	5365-00-278-8803	94	7
88044	AN960-716	5310-00-167-0822	26	25
1TNF3	AQ54-DOT-6X4	4730-01-514-5670	23	18
96358	AQ54-DOT-8X6	4730-01-506-2684	23	13
96358	AQ69-DOT-6X6		21	1
75755	AR44361	4730-00-706-7761	54	11
81343	AS29513-133	5331-00-291-7384	92	5
81343	AS29513-134	5331-00-641-0119	92	10
81343	AS29513-157	5331-00-182-3170	94	14
81343	AS29513-248	5331-00-291-3268	94	42
81343	AS29513-353	5331-01-217-1787	94	24
81435	AW108P	5340-01-504-6407	37	9
81435	AW108P	5340-01-504-6407	67	4
80204	B1821BH031C200N	5306-00-226-4833	85	7
80204	B1821BH038C100N	5305-00-068-0510	37	12

CAGEC	PART NUMBER	NSN	FIG	ITEM
80204	B1821BH038C125N	5305-00-068-0511	33	2
80204	B1821BH038C125N	5305-00-068-0511	86	5
80204	B1821BH038C150N	5305-00-725-2317	82	3
80204	B1821BH038C175N	5305-00-821-3869	89	1
80204	B1821BH050C200N	5305-00-071-2071	89	20
80204	B1821BH063F175N	5305-00-726-2550	81	4
80204	B1821BH063F200N	5305-00-726-2551	31	9
80205	B1821BH063F250N	5305-00-726-2553	64	8
80204	B1821BH063F350N	5305-00-726-2557	31	1
80204	B27-1	5310-00-933-8120	94	12
12662	B491A	6220-01-506-2956	43	3
12662	B491R	6220-01-506-2958	43	2
92967	B893-02	4710-01-240-9431	31	6
38205	C00510247	5315-20-000-5233	36	13
38205	C01010223	5310-20-000-5240	36	4
38205	C01100010	5310-20-000-5254	36	26
38205	C01100011	5310-20-000-5251	36	3
38205	C06030647	5305-20-000-5243	36	18
25567	C0608	5307-00-080-2016	84	7
38205	C11040613	5305-20-000-5234	36	14
38205	C11040616	5305-20-000-5238	36	33
38205	C11040621	5305-20-000-5239	36	34
38205	C11040640	5305-20-000-5241	36	28
38205	C11040644	5305-20-000-5242	36	27
38205	C22020312	5310-20-000-5246	36	2
38205	C22710190	5310-20-000-5247	36	7
1UYK1	C40015M	5330-01-502-8335	1	6
1UYK1	C40097A	9330-01-502-8339	1	10
1UYK1	C40104A	5940-01-502-9388	1	9
1UYK1	C40180M		1	11
8K828	CLIP	5340-01-508-6906	42	2
25567	D06	5310-00-725-9479	84	9
1UYK1	D40006A	5975-01-502-9391	1	3
1UYK1	D52068M	6110-01-504-7539	3	1
91340	D9484-57-41	4730-00-278-9211	54	7
18265	DNX002018	2940-00-325-4438	54	4
0BUN9	E1121-2	5920-01-424-6740	80	15
70510	EF3-8	5975-00-941-5035	BULK	4
38205	EP3909-25-10J12FR	4930-20-000-5356	36	1
1ML14	ERNJ228	5310-00-893-9914	64	4
81349	F02A32V20A	5920-00-131-9915	4	5
92003	F418BCS	4730-01-184-4883	89	14
81348	FF-S-2738	5340-01-469-7199	80	26
18265	FWG05-2510	2940-00-494-9491	54	5
13226	GF18153-9		94	30
13226	GF21042-4		94	46
32218	GTP-235-2	4730-01-132-9426	83	3
32218	GTP-235-3/8	4730-01-271-7981	83	4

CAGEC	PART NUMBER	NSN	FIG	ITEM
79470	H05703	4720-01-293-4415	BULK	8
79470	H16910		BULK	9
1UYK1	H50070M	5365-01-502-9393	1	2
1UYK1	H50114M	5305-01-502-8411	1	7
1UYK1	H50623M-2	5305-01-502-8415	1	5
0DGK3	HB-607	4730-01-506-2095	23	21
63900	HE-392		25	5
60038	HM212011	3110-00-293-8997	24	3
60038	HM212049	3110-00-293-8998	24	1
60038	HM218210	3110-00-618-0249	24	5
60038	HM218248	3110-00-618-0248	24	7
71400	HTB-36I	5920-01-508-4243	4	6
25567	J04	5310-01-502-8759	85	4
81343	J844		BULK	10
3D6E9	K235	5315-01-092-1953	18	4
78500	K2416	5315-00-010-3389	18	3
78500	KIT 8000HD	2530-01-314-4392	KITS	6
09641	LA11	5975-00-421-1317	BULK	5
43999	LD137-0026-2003	5310-00-009-5661	38	7
99411	LG0065-03	2590-01-502-9582	30	10
99411	LG0070-02	5315-01-316-7547	30	9
99411	LG0083-05	5340-01-175-0564	30	8
99411	LG0094-3275	3040-01-502-9794	30	5
99411	LG5191-920B23000	2590-01-508-6058	30	7
99411	LG5199-90002J477		30	2
09641	LT-11	5975-01-374-5273	BULK	6
1R5C8	M035-3134	2540-01-502-9571	KITS	2
1R5C8	M054-9848	4710-01-503-0243	35	19
1R5C8	M054-9850	5340-01-508-5897	35	1
1R5C8	M054-9851	5340-01-508-5902	35	2
1R5C8	M054-9854	5340-01-508-5979	35	5
1R5C8	M054-9866-001		35	14
1R5C8	M054-9866-002		35	17
1R5C8	M097-0425	4010-01-514-2386	28	6
1R5C8	M112-9658	5340-01-504-7321	38	1
1R5C8	M112-9659	2990-01-504-6476	61	4
1R5C8	M112-9660	5340-01-504-6277	61	5
1R5C8	M112-9661	5340-01-504-6258	61	7
1R5C8	M112-9683	5340-01-504-6391	61	13
1R5C8	M112-9704		32	24
1R5C8	M112-9801		1	13
1R5C8	M121-2621	2541-01-502-9576	26	22
1R5C8	M121-2624	2590-01-502-9569	26	3
1R5C8	M121-2625	5340-01-502-8662	26	11
1R5C8	M121-2628	2510-01-502-9566	26	9
1R5C8	M121-2631	5340-01-502-8286	28	1
1R5C8	M121-2635	5340-01-502-8659	26	16
1R5C8	M121-2636	5340-01-502-8661	26	5

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1R5C8	M121-2637	5340-01-502-8663	26	10
1R5C8	M121-2638	5340-01-502-8279	26	21
1R5C8	M121-2639	5340-01-502-8282	26	23
1R5C8	M121-2645	5310-01-502-8283	26	27
1R5C8	M121-2646	5340-01-502-8285	26	15
1R5C8	M121-2651	2510-01-508-6055	42	10
1R5C8	M121-2651	2510-01-508-6055	42	12
1R5C8	M126-4238	5340-01-502-8756	81	7
81349	M13486/1-5	6145-00-152-6499	BULK	20
1R5C8	M151-4834		37	1
1R5C8	M151-4834-1		37	5
1R5C8	M151-4843	5340-01-502-8741	39	10
1R5C8	M151-4845	5340-01-502-8738	39	18
1R5C8	M151-4846		39	1
1R5C8	M151-4851	2540-01-502-9185	39	2
1R5C8	M151-4864	5340-01-506-2787	37	4
1R5C8	M151-4865	5340-01-508-6937	37	11
1R5C8	M151-4871	5340-01-502-8681	35	16
1R5C8	M151-4877-001	6210-01-502-8677	33	15
1R5C8	M151-4877-002	6210-01-502-8676	33	4
1R5C8	M151-4878	5340-01-502-8673	33	13
1R5C8	M158-4250	4710-01-506-1776	75	1
1R5C8	M158-4396		88	2
1R5C8	M158-4399		91	11
1R5C8	M158-4400		75	8
1R5C8	M158-4401		75	13
1R5C8	M158-4404		91	9
1R5C8	M158-4405		91	2
1R5C8	M158-4406		91	7
1R5C8	M158-4407		91	8
1R5C8	M158-4408		91	12
1R5C8	M158-4409		91	4
1R5C8	M158-4410		91	13
1R5C8	M177-4010	5340-01-502-8731	35	21
1R5C8	M177-4011	5340-01-502-8697	35	28
1R5C8	M177-4011-001	5340-01-502-8698	35	13
1R5C8	M217-1812	2510-01-503-0309	33	12
1R5C8	M217-1814	2510-01-503-0304	33	6
1R5C8	M217-1815	2510-01-503-0313	33	10
1R5C8	M234-1388	2510-01-502-9161	27	1
1R5C8	M234-1638		1	12
1R5C8	M237-9469	2510-01-504-6565	40	24
1R5C8	M237-9470	2510-01-504-6545	40	14
1R5C8	M311.2907		66	5
1R5C8	M311-2180	5340-01-506-2859	46	9
1R5C8	M311-2812	5340-01-502-8667	33	9
1R5C8	M311-2812	5340-01-502-8667	35	20
1R5C8	M311-2813	2510-01-503-0307	33	7

CAGEC	PART NUMBER	NSN	FIG	ITEM
1R5C8	M311-2814	2510-01-503-0241	33	11
1R5C8	M311-2815	5340-01-502-8666	33	5
1R5C8	M311-2828	5340-01-502-8332	28	9
1R5C8	M311-2829	5340-01-502-8331	28	10
1R5C8	M311-2839	2540-01-502-9947	32	20
1R5C8	M311-2840	5340-01-502-8528	32	22
1R5C8	M311-2843	5340-01-502-8696	32	10
1R5C8	M311-2843	5340-01-502-8696	32	23
1R5C8	M311-2844	2540-01-502-9942	32	13
1R5C8	M311-2845	5340-01-502-8463	32	15
1R5C8	M311-2846	2540-01-503-0396	32	17
1R5C8	M311-2847	2540-01-503-0413	32	9
1R5C8	M311-2869		87	4
1R5C8	M311-2879	5340-01-504-2879	40	23
1R5C8	M311-2880	5340-01-504-6525	40	10
1R5C8	M311-2881	5340-01-504-6553	40	5
1R5C8	M311-2882	5340-01-504-7810	40	8
1R5C8	M311-2883	5340-01-504-7814	40	9
1R5C8	M311-2885	2510-01-504-6539	40	13
1R5C8	M311-2886	2510-01-504-6588	40	22
1R5C8	M311-2887	5340-01-504-7802	40	20
1R5C8	M311-2888	5340-01-504-7798	40	15
1R5C8	M311-2889	2510-01-504-6592	40	25
1R5C8	M311-2890	2510-01-511-5621	40	7
1R5C8	M311-2891	5340-01-504-6273	61	3
1R5C8	M311-2892	5340-01-504-6269	61	11
1R5C8	M311-2893		40	11
1R5C8	M311-2894	5340-01-504-6540	40	4
1R5C8	M311-2895		59	3
1R5C8	M311-2896	5340-01-504-6510	59	4
1R5C8	M311-2899	6160-01-504-7532	40	26
1R5C8	M311-2905	5340-01-504-6422	67	9
1R5C8	M311-2990	5340-01-508-6940	82	1
1R5C8	M311-3143	5340-01-502-8729	81	6
1R5C8	M311-3144	5340-01-502-8547	81	1
1R5C8	M311-3179		30	12
1R5C8	M311-3180	2510-01-504-6558	40	6
1R5C8	M311-3181	2510-01-504-6535	40	12
1R5C8	M311-3199	5340-01-506-2895	46	5
1R5C8	M311-3202	5340-01-506-2901	46	11
1R5C8	M311-3211		40	27
1R5C8	M311-3211-003	5340-01-502-8785	102	9
1R5C8	M311-3211-004	5340-01-502-8776	102	3
1R5C8	M311-3212	5340-01-502-8790	102	12
1R5C8	M311-3213-001	5340-01-502-8780	102	6
1R5C8	M311-3214		102	11
1R5C8	M311-3221-001	5340-01-502-8777	102	4
1R5C8	M311-3221-002	5340-01-502-8788	102	10

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1R5C8	M311-3232	5340-01-502-8719	35	25
1R5C8	M311-3233	6220-01-502-8737	35	23
1R5C8	M311-3236	6220-01-502-8734	35	9
1R5C8	M311-3265	5340-01-506-0567	64	14
1R5C8	M311-3269	5340-01-506-0985	64	10
1R5C8	M311-3271	5340-01-506-0543	64	7
1R5C8	M311-3272	5340-01-506-0554	64	3
1R5C8	M311-3276	5340-01-506-2838	37	10
1R5C8	M311-3321	6160-01-504-7523	8	4
1R5C8	M311-3398-001	5340-01-506-1023	75	20
1R5C8	M311-3398-002	5340-01-506-1011	75	14
1R5C8	M311-3649	5340-01-508-6208	9	4
1R5C8	M311-3674		40	21
1R5C8	M311-3677		40	19
1R5C8	M311-3726		61	20
1R5C8	M311-3727		61	19
1R5C8	M311-3778	5340-01-506-1076	3	5
13445	M-427	5940-01-508-5925	10	18
13445	M451	6210-00-887-8432	7	4
81349	M45913/1-10CG5C	5310-00-269-4040	31	25
81349	M45913/2-6FG5C	5310-00-959-1488	34	3
81349	M45913/2-6FG5C	5310-00-959-1488	39	21
81349	M45913/2-7CG5C	5310-01-461-1300	26	24
81349	M83413/7-1	5999-00-134-5844	34	2
80205	M835307-310	5305-00-021-3668	46	6
19207	M969A2-M969A3	2530-01-527-4609	25	1
96139	MB14106-2	6150-01-367-0599	9	5
9K475	MGLP-U8-6	5320-99-807-2969	38	2
9K475	MGLP-U8-6	5320-99-807-2969	61	14
32218	ML-2930-58	4930-01-502-8434	34	1
07KU1	MODEL 362	6130-01-506-3502	4	1
04713	MR754	5961-01-350-7227	13	13
0BUN9	MS155H300	4330-01-524-9490	80	1
80205	MS15795-14	5310-00-186-7448	90	5
80205	MS15795-811	5310-00-880-5977	8	2
80205	MS15795-812	5310-00-625-5756	35	4
80205	MS15795-812	5310-00-625-5756	101	30
80205	MS15795-813	5310-00-802-4701	26	13
80205	MS15795-813	5310-00-802-4701	28	2
96906	MS15795-813	5310-00-802-4701	37	6
96906	MS15795-813	5310-00-802-4701	46	7
80205	MS15795-813	5310-00-802-4701	61	2
80205	MS15795-813	5310-00-802-4701	78	6
80205	MS15795-813	5310-00-802-4701	101	10
80205	MS15795-815	5310-00-595-6057	39	9
80205	MS15795-817	5310-00-614-3506	26	6
80205	MS15795-817	5310-00-614-3506	28	13
80205	MS15795-817	5310-00-614-3506	40	2

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80205	MS15795-817	5310-00-614-3506	42	8
80205	MS15795-817	5310-00-614-3506	54	1
80205	MS15795-817	5310-00-614-3506	59	12
80205	MS15795-817	5310-00-614-3506	61	9
80205	MS15795-817	5310-00-614-3506	64	2
80205	MS15795-820	5310-00-614-3505	47	6
80205	MS15795-851	5310-01-303-3917	9	2
96906	MS16997-20L	5305-01-191-4578	92	11
96906	MS16997-24L	5305-01-456-1139	92	37
80205	MS17829-3C	5310-00-689-3877	4	4
96906	MS17829-3C	5310-00-689-3877	6	4
80205	MS20600AD4W4	5320-00-582-3494	80	28
80205	MS21044D04	5310-00-857-5548	94	34
80205	MS21044N4	5310-00-877-5796	72	19
96906	MS21083N3	5310-00-902-6676	72	5
80205	MS21083N3	5310-00-902-6676	79	3
80205	MS21299-4	5310-01-121-8521	72	18
80205	MS24484-2	1560-00-949-2087	90	24
80205	MS24665-103	5315-00-243-7992	94	22
96906	MS24667-21	5305-00-764-2970	90	23
96906	MS27142-3	5935-00-115-2306	10	26
96906	MS27142-3	5935-00-115-2306	12	2
96906	MS27144-1	5935-00-167-7775	10	13
96906	MS27144-1	5935-00-167-7775	10	25
96906	MS27144-1	5935-00-167-7775	11	2
96906	MS27144-1	5935-00-167-7775	11	7
96906	MS27144-1	5935-00-167-7775	12	6
96906	MS27144-1	5935-00-167-7775	12	8
96906	MS27144-1	5935-00-167-7775	13	11
96906	MS27144-1	5935-00-167-7775	13	16
96906	MS27183-10	5310-00-809-4058	66	7
96906	MS27183-10	5310-00-809-4058	67	10
96906	MS27183-14	5310-00-080-6004	37	13
96906	MS27183-14	5310-00-080-6004	39	20
96906	MS27183-14	5310-00-080-6004	86	3
96906	MS27183-14	5310-00-080-6004	89	16
96906	MS27183-21	5310-00-823-8803	39	12
96906	MS27183-21	5310-00-823-8803	81	3
96906	MS27183-21	5310-00-823-8803	90	18
96906	MS27183-47	5310-01-312-4959	4	3
96906	MS27183-47	5310-01-312-4959	6	3
96906	MS27183-48	5310-01-308-8205	26	2
96906	MS27183-55	5310-01-312-4960	102	2
96906	MS27183-56	5310-01-280-5795	34	4
96906	MS27183-57	5310-01-280-5796	32	2
96906	MS27183-57	5310-01-280-5796	32	12
96906	MS27183-57	5310-01-280-5796	32	19
96906	MS27183-57	5310-01-280-5796	37	2

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96906	MS27183-57	5310-01-280-5796	56	7
96906	MS27183-57	5310-01-280-5796	64	6
96906	MS27183-57	5310-01-280-5796	72	9
96906	MS27183-57	5310-01-280-5796	75	3
96906	MS27183-57	5310-01-280-5796	87	2
96906	MS27183-57	5310-01-280-5796	103	2
96906	MS27183-57	5310-01-280-5796	104	3
96906	MS27183-8	5310-00-809-8546	72	6
81343	MS29512-10	5331-00-263-8032	94	3
81343	MS29513-010	5331-00-248-3835	92	19
81343	MS29513-014	5331-00-248-3840	92	8
08179	MS29513112	5331-00-733-2208	94	15
96906	MS29513-153	5330-00-875-8288	90	25
96906	MS29526-2	1560-00-307-2780	90	22
80205	MS35206-228	5305-00-984-4988	67	19
96906	MS35206-259	5305-00-984-6206	71	5
0DT23	MS35206-276	5305-00-988-1720	92	20
96906	MS35207-263	5305-00-989-7434	72	2
80205	MS35207-269	5305-00-995-3441	79	9
80205	MS35207-360	5305-00-576-5417	23	5
96906	MS35207-415	5305-00-701-7628	64	11
96906	MS35275-230	5305-00-940-9491	94	6
96906	MS35275-265	5305-00-939-9190	94	11
80205	MS35307-306	5305-00-702-4523	9	1
96906	MS35307-332	5306-00-637-9675	32	11
96906	MS35307-332	5306-00-637-9675	32	18
80205	MS35307-360	5305-00-576-5417	37	15
80205	MS35307-360	5305-00-576-5417	72	10
80205	MS35307-360	5305-00-576-5417	101	32
80205	MS35333-39	5310-00-576-5752	67	17
96906	MS35338-44	5310-00-582-5965	77	2
96906	MS35338-45	5310-00-407-9566	85	6
80205	MS35338-46	5310-00-637-9541	84	8
80205	MS35338-46	5310-00-637-9541	86	4
96906	MS51095-420	5305-00-165-8074	26	7
96906	MS51095-420	5305-00-165-8074	28	14
96906	MS51861-66	5305-00-432-4252	72	17
96906	MS51922-82	5310-00-176-6267	90	26
96906	MS51957-14	5305-00-054-5648	94	38
96906	MS51957-67	5305-00-050-9233	5	2
96906	MS51967-2	5310-00-761-6882	77	1
80205	MS90725-263	5305-01-106-9541	39	11
80205	MS90725-360	5305-00-576-5417	26	12
80205	MS90725-60	5305-00-269-3211	28	5
80205	MS90725-60	5305-00-269-3211	34	5
80205	MS90725-60	5305-00-269-3211	35	11
80205	MS90725-60	5305-00-269-3211	39	8
80205	MS90725-60	5305-00-269-3211	56	8

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80205	MS90725-60	5305-00-269-3211	84	31
80205	MS90725-62	5305-00-269-3213	35	22
80205	MS90725-64	5305-01-325-8387	75	2
80205	MS90725-69	5305-00-269-3219	90	6
80205	MS90725-8	5305-00-225-3839	26	1
80205	MS90725-8	5305-00-225-3839	61	1
80205	MS90725-99	5305-00-069-5583	26	26
80205	MS90726-34	5306-00-225-9089	39	16
80205	MS90726-60	5305-00-269-2803	39	19
25567	N0507	5315-01-502-8761	84	25
06721	N13048	2530-00-270-3878	22	4
06721	N-20415-NB	3040-01-382-8736	22	2
06721	N20415PB	4730-01-384-1441	22	5
06721	N3613AF	4820-01-506-2586	23	7
80205	NAS1149F0363P	5310-00-167-0818	9	7
80205	NAS1149F0563P	5310-00-167-0820	33	3
80205	NAS1149F0563P	5310-00-167-0820	35	12
80205	NAS620C6	5310-00-773-7624	94	5
00756	NASM90725	5305-00-068-0502	66	6
00756	NASM90725	5305-00-068-0502	67	11
13226	OP9011EY	5340-01-504-6831	101	14
25567	P04	4730-00-223-9268	84	3
25567	P20	5365-01-502-9523	84	33
76364	P-2637-2	4820-01-066-1276	89	5
61424	PFT-4A	4720-01-316-4673	BULK	14
61424	PFT-6B	4720-01-169-9891	BULK	15
98441	PFT-6B-BLU	4720-01-287-9322	BULK	16
98441	PFT-8B-BLU	4720-01-364-3393	BULK	17
98441	PFT-8B-RED-500	4720-01-448-6041	BULK	18
13445	PL-20-RC	6210-01-069-0434	7	6
0DT23	PL24693C50		92	17
13226	PPVL763CXB262	4930-01-420-7874	41	1
13226	PV26364ALB		75	5
07322	Q4114-366Y	5330-01-019-6879	94	27
13226	Q4114-366Y		94	45
91069	Q4325	5330-01-239-9430	94	9
78500	R000540	2530-00-886-1103	24	9
78500	R000572	5310-01-117-2404	24	11
78500	R000573	5310-01-116-4765	24	10
25567	R06		84	22
78500	R801074	2530-01-316-9165	18	1
78500	R803112		18	5
78500	R810019	5340-01-314-2961	18	2
25567	S01080	3110-01-188-0733	84	24
25567	S1703	5340-01-502-8758	84	19
25567	S244	5325-01-502-8762	84	27
3D6E9	S266	5305-00-207-7669	17	11
78500	S4005001030	4810-01-499-3407	19	2

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78500	S4497130300	2530-01-499-3170	19	6
78500	S8997598154	5340-01-499-3481	19	7
78500	SMA2124515Q	2530-01-526-8495	16	2
18265	SMP18-1050	2940-00-934-7989	54	6
03743	ST45100	5975-00-995-8168	14	5
25567	T0616	4730-01-503-0244	84	21
5U315	T-11-NF-W1-611-G1	6680-01-065-9645	86	6
05643	T1779R18	3120-00-322-6430	16	10
51457	TIP-100		72	20
51457	TIP-101		72	3
2R206	TM5005	2910-01-504-6509	56	5
3D6E9	TQ4671Q5023	2530-01-503-0331	15	1
27783	TR573	2640-00-555-2824	25	4
0AT06	TRT221	4730-01-508-7806	83	5
1R5C8	TSS375050		BULK	1
1K2S2	VE204495		73	13
1K2S2	VE204550		73	10
1K2S2	VE204559	4730-01-506-2707	73	3
1K2S2	VE204599		73	8
1K2S2	VE204600		73	9
1K2S2	VE205247		73	5
1K2S2	VE205338	5930-01-514-2442	73	4
1K2S2	VE205339	4710-01-506-2702	73	1
1K2S2	VE205340	5330-01-506-1859	73	2
79154	VIC75TG03	4730-01-511-5081	91	3
79154	VIC75TG04	4730-01-503-0247	75	10
79154	VIC75TG04	4730-01-503-0247	88	1
79154	VIC75TG04	4730-01-503-0247	90	1
79154	VIC75TG04	4730-01-503-0247	91	1
93061	VS169PMT-8-6	4730-01-506-2048	23	3
93061	VS209P-8-6	4730-01-506-2006	21	3
93061	VS209P-8-6	4730-01-506-2006	23	16
93061	VS215PN-6	4730-01-441-3483	23	17
93061	VS215PN-8	4730-01-508-7237	82	5
93061	VS215PN-8	4730-01-508-7237	90	16
93061	VS269NTA-6-4	4730-01-244-3552	96	4
93061	VS269NTA-6-4	4730-01-244-3552	97	1
93061	VS68NTA-4-2	4730-01-055-4017	54	9
93061	VS68NTA-4-6	4730-01-096-9398	79	4
93061	VS68NTA-6-4	4730-01-274-1830	79	5
93061	VS68PMT-8-6	4730-01-506-2074	23	20
78500	WA16	5310-00-261-7340	17	12
3D6E9	WA-36	5310-01-499-3459	17	13
13226	WD101-2BN	4820-00-059-9953	99	5
13226	WD101-3BN	4820-00-059-9998	100	5
13226	WD1014BN	4820-01-294-1857	98	5
13226	WD18402 BN	4820-01-424-9099	KITS	3
13226	WD18403BN	4820-01-424-6203	KITS	4

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13226	WD18404VT		KITS	5
13226	WD204ALB	4820-01-504-7438	99	1
13226	WD304ALB089	4820-01-508-7855	100	1
13226	WD404ALB089	4810-01-355-4678	98	1
1FH10	WFSS375		23	9
58961	WL12-0		BULK	22
58961	WL14-0		BULK	21
1R5C8	WR1562		BULK	19
13226	WV17594ALB	4820-01-124-8894	90	10
81348	WW-P-471AASBUC	4730-00-010-3867	84	20
81348	X/GP3/TYRA/CLR/T/11.00 R22.5/G	2610-01-045-3688	25	2
99411	XB-HHC-050-42	5306-01-502-8344	30	3
99411	XB-HHC-050-69	5306-01-510-4972	30	11
99411	XB-PW-016-03	5310-01-502-8369	30	4
99411	XB-SLN-012-04	5310-01-502-8371	30	6
99411	XB-SP-014-27	5315-01-502-8342	30	1
67634	ZT2-1203	7690-01-506-2946	46	1

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By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

SANDRA R. RILEY
Administrative Assistant to the
Secretary of the Army
0520304

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THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.388 Sq Miles

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

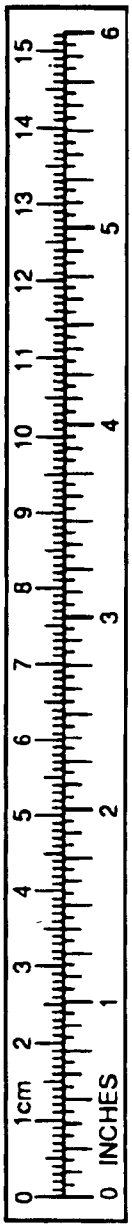
TEMPERATURE

5/9 (°F – 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 C° + 32) = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound–Feet	Newton–Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton–Meters	Pound–Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



PIN: 081077-000