*TM 5-4210-249-13&P-2

TECHNICAL MANUAL

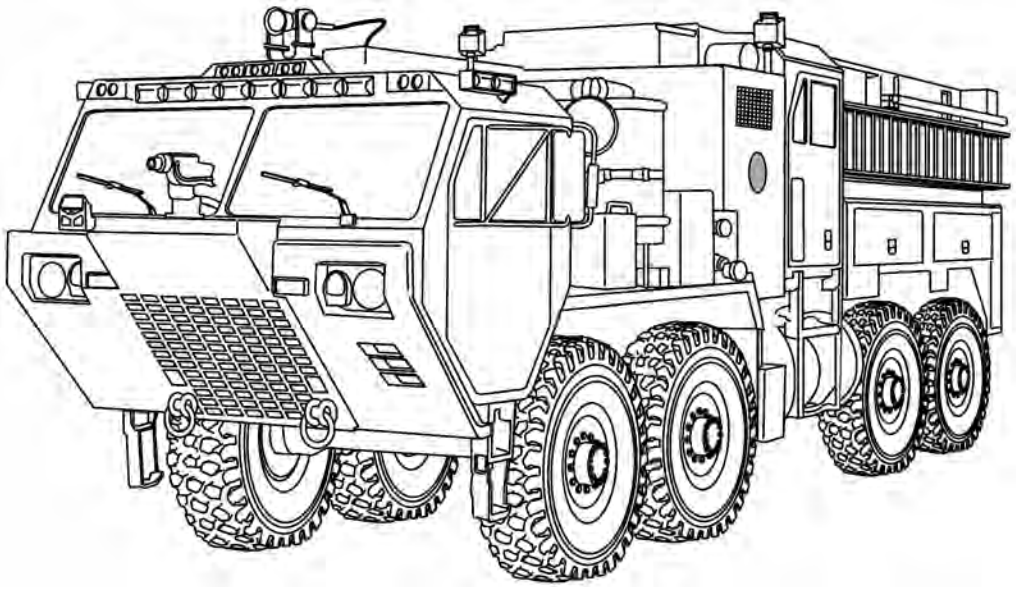
OPERATOR'S AND FIELD LEVEL
MAINTENANCE MANUAL
WITH REPAIR PARTS AND SPECIAL TOOLS LIST
(INCLUDING DEPOT REPAIR PARTS AND SPECIAL TOOLS)

FOR

TACTICAL FIRE FIGHTING TRUCK (TFFT)

MODEL M1142

NSN 4210-01-486-1035



* **SUPERSEDURE NOTICE:** This manual supersedes TM 9-2320-279-10-3 dated 15 March 2004 and TM 9-2320-315-14&P dated 15 October 2004.

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HEADQUARTERS, DEPARTMENT OF THE ARMY

FEBRUARY 2009

WARNING SUMMARY

This list summarizes critical warnings in this technical manual. They are repeated here to let you know how important they are. Study these warnings carefully. They can save your life and the lives of personnel you work with. If there is any doubt about handling tools, materials, equipment, and procedures, see TB 43-0216, Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment.

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

OPERATION HAZARDS

WARNING

- **CARBON MONOXIDE (EXHAUST GAS) CAN CAUSE DEATH**
- **Carbon monoxide is without color or smell, but can cause death. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Brain damage or death can result from heavy exposure. Carbon monoxide occurs in the exhaust fumes of fuel-burning heaters and internal combustion engines. Carbon monoxide can become dangerously concentrated under conditions of no ventilation. Precautions must be followed to ensure crew safety when the personnel heater or engine of any vehicle is operated for any purpose.**
- **DO NOT operate personnel heater or engine of vehicle in a closed place without proper ventilation.**
- **DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment covers removed unless necessary for maintenance purposes.**
- **BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either are present, IMMEDIATELY VENTILATE personnel compartments. If symptoms persist, remove affected crew to fresh air and keep warm. DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give artificial respiration and get immediate medical attention. For artificial respiration, refer to FM 4-25.11.**
- **BE AWARE that the gas particulate filter unit or field protection mask for nuclear-biological-chemical protection WILL NOT offer safety from carbon monoxide poisoning.**
- **THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.**

WARNING

Personnel hearing can be PERMANENTLY DAMAGED if exposed to constant high noise levels of 85 dB or greater. Wear approved hearing protection devices when working in high noise level areas. Hearing loss occurs gradually, but becomes permanent over time.

MODIFICATION HAZARD

WARNING

Unauthorized modifications to, alterations to, or installations of this equipment are prohibited and are in violation of AR 750-10. Any unauthorized modifications, alterations, or installations could result in injury or death to personnel or damage to equipment.

HIGH-PRESSURE HYDRAULIC SYSTEM

WARNING

- **Hydraulic systems can cause serious injury if high-pressure lines or equipment fails.**
- **Never work on hydraulic systems or equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment and can give first aid.**
- **Never disconnect any hydraulic hose or part while the engine is running. Allow several minutes to elapse after shutting off engine, to allow pressure to relieve itself, before attempting to remove hoses. Failure to comply may result in injury to personnel.**

ELECTRICAL SYSTEM

WARNING

- **Remove all jewelry, such as rings, dog tags, bracelets, etc. If jewelry or tools contact electrical circuits, a direct short may result. Damage to equipment or death to personnel may occur.**
- **Do not smoke, use open flame, make sparks or other ignition sources around batteries. A battery giving off gas could explode and cause injury to personnel.**

SOLVENT CLEANING COMPOUND

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

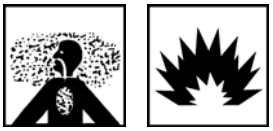
ADHESIVE

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

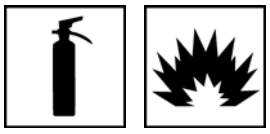
FLAMMABLE LIQUID AND COMBUSTIBLE VAPOR

WARNING



Gasoline, fuel oil, lubricating oil, grease, paint, paint thinner, cleaning solvents, and other combustible liquids present a serious fire hazard. Always store combustible liquids in approved containers and in their designated compartments or deck storage locations. Ensure exhaust and ventilation fans are operating while using cleaning solvents or paint products. Never store or charge batteries in a confined space without ventilation or near electrical equipment.

WARNING



Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. While working with fuel, post signs that read NO SMOKING WITHIN 5O FEET OF VEHICLE.

PARTS UNDER PRESSURE

WARNING

Wear safety goggles and use caution when removing or installing springs, snap rings, retaining rings, and other parts under spring tension. These parts can act as projectiles, resulting in serious injury to personnel.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: This manual supersedes TM 9-2320-279-10-3 dated 15 March 2004 and TM 9-2320-315-14&P dated 15 October 2004. Zero in the "Change No." column indicates an original page or work package.

Date of issue for the original manual is:

Original 20 FEBRUARY 2009

TOTAL NUMBER OF VOLUMES IS 4, TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 290 AND TOTAL NUMBER OF WORK PACKAGES IS 625, CONSISTING OF THE FOLLOWING:

Page/WP No.	Change No.
Chp 5 Title page	0
WP 0187 (12 pgs)	0
WP 0188 (6 pgs)	0
WP 0189 (2 pgs)	0
WP 0190 (2 pgs)	0
WP 0191 (4 pgs)	0
WP 0192 (2 pgs)	0
WP 0193 (6 pgs)	0
WP 0194 (4 pgs)	0
WP 0195 (2 pgs)	0
WP 0196 (8 pgs)	0
WP 0197 (2 pgs)	0
WP 0198 (2 pgs)	0
WP 0199 (4 pgs)	0
WP 0200 (8 pgs)	0
WP 0201 (14 pgs)	0
WP 0202 (6 pgs)	0
WP 0203 (4 pgs)	0
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WP 0205 (2 pgs)	0
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WP 0208 (8 pgs)	0
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WP 0215 (10 pgs)	0
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WP 0279 (4 pgs)	0
WP 0280 (2 pgs)	0
WP 0281 (2 pgs)	0
WP 0282 (2 pgs)	0
WP 0283 (2 pgs)	0

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 20 FEBRUARY 2009

TECHNICAL MANUAL

OPERATOR'S AND FIELD LEVEL MAINTENANCE MANUAL WITH REPAIR PARTS AND SPECIAL TOOLS LIST (INCLUDING DEPOT REPAIR PARTS AND SPECIAL TOOLS)

FOR

TACTICAL FIRE FIGHTING TRUCK (TFFT)

MODEL M1142

NSN 4210-01-486-1035

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS
You can help improve this publication. If you find any errors, or if you would like to recommend any improvements to the procedures in this publication, please let us know. The preferred method is to submit you DA Form 2028 (Recommended Changes to Publications and Blank Forms) through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is https://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, e-mail, or fax your comments of DA Form 2028 directly to the U.S. Army TACOM Life Cycle Management Command. The postal mail address is U.S. Army TACOM Life Cycle Management Command, ATTN: AMSTA-LC-LMPP / TECH PUBS, 1 Rock Island Arsenal, Rock Island, IL 61299-7630. The e-mail address is tacomlcmc.daform2028@us.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

* **SUPERSEDURE NOTICE:** This manual supersedes TM 9-2320-279-10-3 dated 15 March 2004 and TM 9-2320-315-14&P dated 15 October 2004.

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HOW TO USE THIS TECHNICAL MANUAL

This manual is designed to help operate and maintain the Tactical Fire Fighting Truck (TFFT). This technical manual should be used in conjunction with the TM 9-2320-347-10 and TM 9-2320-325-14&P series manuals. Listed below are some of the features included in this manual to help locate and use the needed information:

- Warnings, cautions, subject headings, and other essential information are printed in bold type, making them easier to see.
- In addition to text, there are illustrations showing how to take a component off and put it back on. Cleaning and inspection criteria are also included where necessary.

This manual is subdivided into four volumes containing the following:

Volume 1

- Chapter 1 of this manual supplements the TM 9-2320-347-10 manual and it describes the TFFT specific components. Equipment data is also provided.
- Chapter 2 of this manual supplements the TM 9-2320-347-10 manual and provides TFFT Operating Instructions.
- Chapter 3 of this manual supplements the TM 9-2320-325-14&P manual and provides TFFT Operator and Field Level Troubleshooting Procedures for Refrigeration and Air Conditioning Components, Fire Pump System, Foam Proportioner System, and Water Tank Assembly.

Volume 2

- Chapter 3 (continued) of this manual supplements the TM 9-2320-325-14&P manual and provides TFFT Field Level Troubleshooting Procedures for Instrument Housing Assembly, Siren Assembly, Spotlights, Dome and Engine Light Assembly, Miscellaneous Electrical Components, and Heater, Vehicular Compartment.
- Chapter 4 of this manual supplements the TM 9-2320-325-14&P manual and provides TFFT Preventive Maintenance Checks and Services (PMCS) and Lubrication Instructions.
- Chapter 5 of this manual supplements the TM 9-2320-325-14&P manual and provides Field Level Maintenance Instructions for Adjustments and Alignments on the TFFT, as well as Removal/Installation Instructions for Refrigeration and Air Condition Components, Brake System Maintenance, Fire Pump Assembly, Relief Valve Assembly, Primer Pump Assembly, Drain Valve Assembly, and Foam System Assembly.

Volume 3

- Chapter 5 (continued) of this manual supplements the TM 9-2320-325-14&P manual and provides TFFT Field Level Maintenance Removal/Installation Instructions Water Tank Assembly, Instrument Housing Assembly, Siren Assembly, Warning Light Assembly, Spotlights, Dome and Engine Assembly, Miscellaneous Electrical components, Heater, Vehicular Compartment, Water Pump Engine Cooling Assembly, Piping, Water and Foam, and Special Purpose Body.

Volume 4

- Chapter 5 (continued) of this manual supplements the TM 9-2320-325-14&P manual and provides TFFT Field Level Maintenance Removal/Installation Instructions Mounting Brackets, Fuel Tank, and Air Tank, and Air Reservoir, Fixed Firefighting Equipment, Hydraulic Generator Assembly, and Miscellaneous Winterization Equipment. An Illustrated List of Manufactured Items and Torque Limits are provided at the rear of this chapter.

- Chapter 6 of this manual supplements the TM 9-2320-325-14&P manual and provides Repair Parts and Special Tools List (RPSTL) for the TFFT.
- Chapter 7 of this manual supplements the TM 9-2320-325-14&P manual and provides References, Two-Level Maintenance Allocation Chart (MAC), Components of End Item (COEI) and Basic Issue Items (BII) Lists, Additional Authorization list (AA), and Expendable and Durable Supplies and Material Lists. An Alphabetical Index is provided to help locate items in the text.

The vehicles referenced in the TM 9-2320-347-10 and TM 9-2320-325-14&P manuals are similar, but not identical to the vehicle referenced in the supplemental manual. TFFT vehicle procedures that are common to the M977A2 can be found in the TM 9-2320-347-10 or TM 9-2320-325-14&P manual. Configuration differences can be determined by visually inspecting the vehicle prior to maintenance.

Follow these guidelines when using the manual:

- Read all WARNINGS and CAUTIONS before performing any procedure.
- The operator must read this technical manual along with TM 9-2320-347-10 manual and become familiar with the content of each manual before attempting to operate the vehicle.
- Maintenance personnel must read this technical manual along with TM 9-2320-325-14&P manual and become familiar with the content of each manual before performing any maintenance to the vehicle.

CHAPTER 3

TROUBLESHOOTING PROCEDURES (CONTINUED)

FIELD LEVEL MAINTENANCE

CAB SWITCH BACKLIGHTING DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0311
WP 0315

References (continued)
WP 0401
WP 0402
WP 0440
WP 0441
WP 0443

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

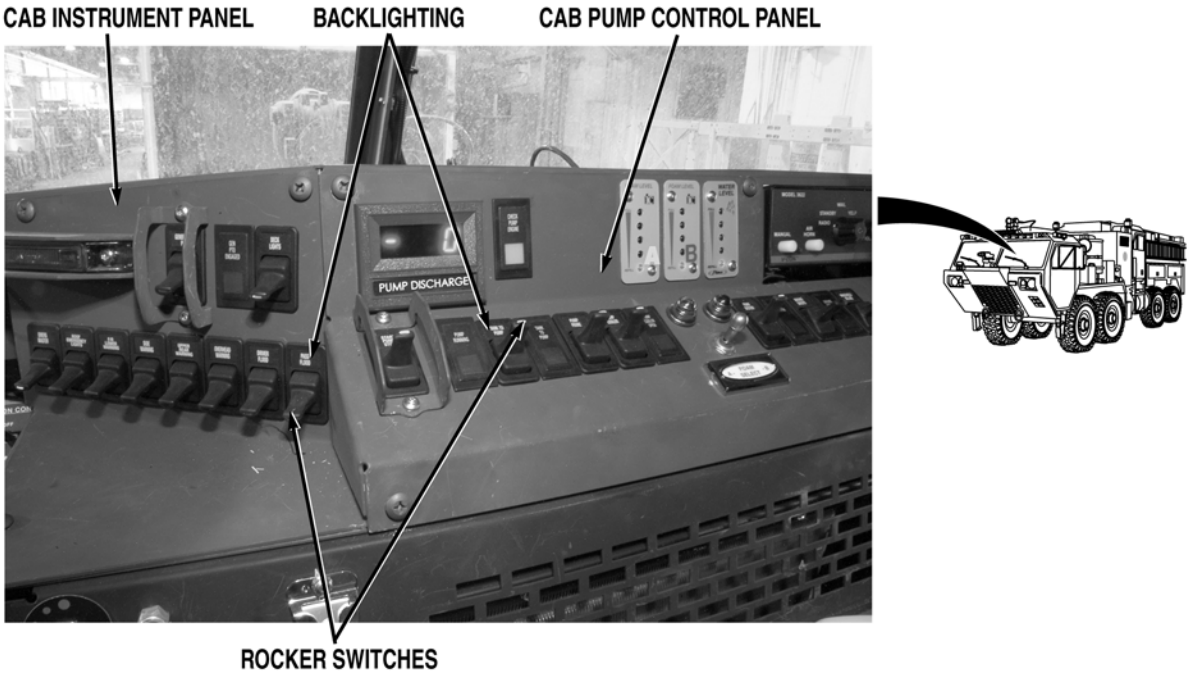
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

CAB SWITCH BACKLIGHTING DOES NOT OPERATE

Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn lighting control PANEL lever to BRT position (TM 9-2320-347-10). Check if backlights on dash panel switches and gauges illuminate.

If backlights on dash panel switches and gauges do not illuminate, troubleshoot Panel Lights Do Not Operate (TM 9-2320-325-14&P).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Cab switch backlights are low intensity red indicators. Close observation may be required to determine if cab switch backlights are illuminated.

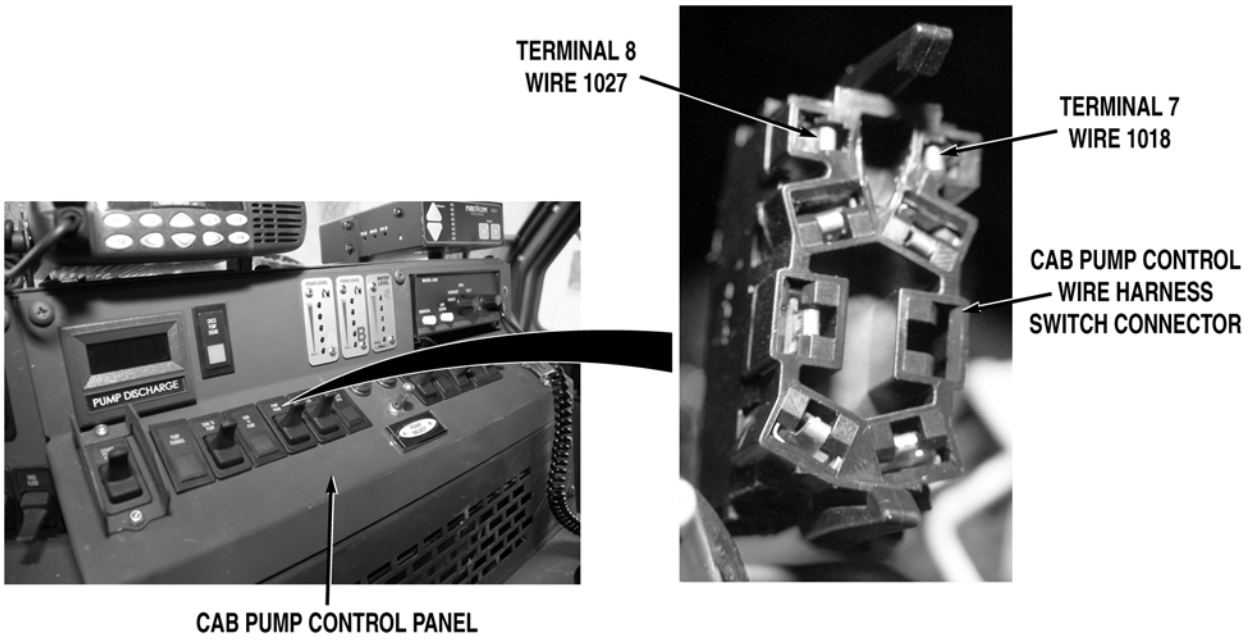
Step 2. Check if backlights on cab instrument panel rocker switches illuminate.

If backlights on cab instrument panel rocker switches do not illuminate, go to Step 8.

Step 3. Check if backlights on cab pump control rocker switches illuminate.

If all backlights on pump control rocker switches do not illuminate, go to Step 6.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



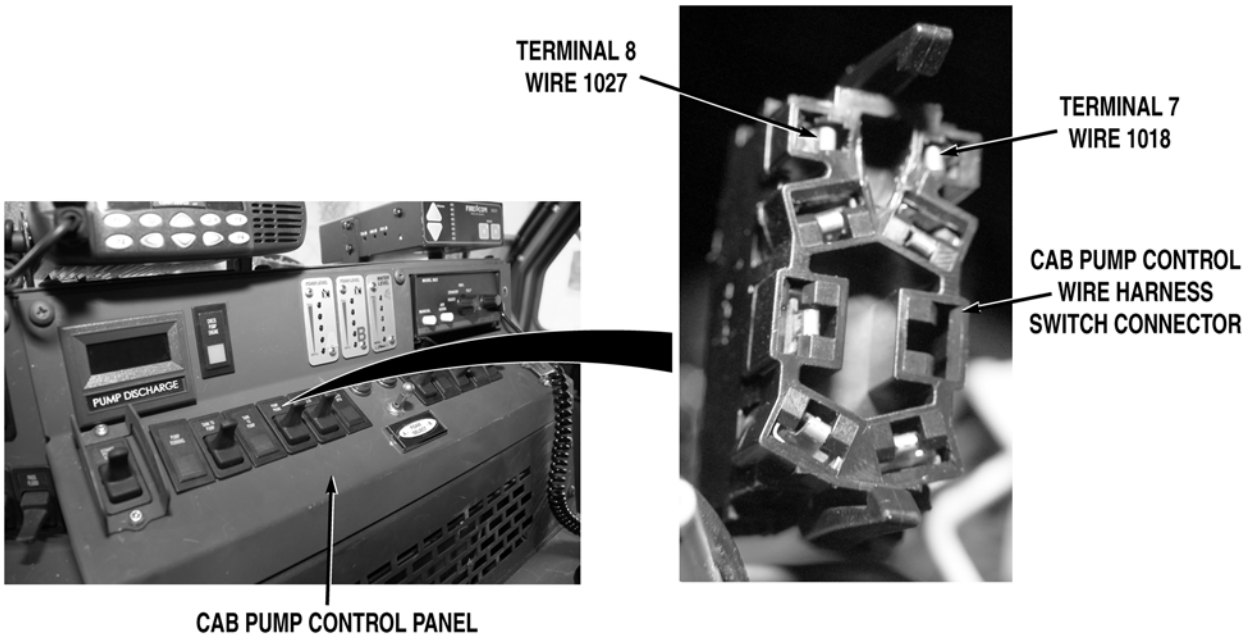
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 4. Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel B (WP 0311). Disconnect cab pump control wire harness switch connector from non-operating switch. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between cab pump control wire harness wire 1018 (violet) at cab pump control wire harness non-operating switch connector, terminal 7 and a known good ground.

If 22 to 28 VDC are not present, repair wire 1018 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

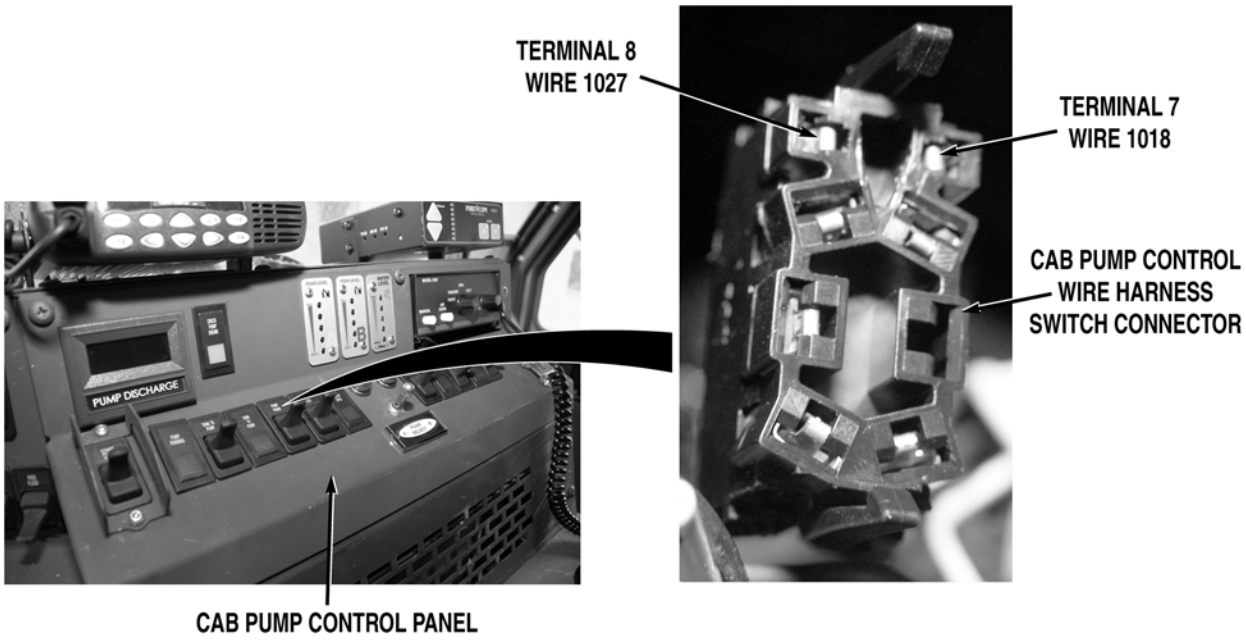


Step 5. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across cab pump control wire harness wire 1027 (black) from cab pump control wire harness non-operating switch connector, terminal 8 to a known good ground.

a. If there is continuity, replace non-operating rocker switch (WP 0315).

b. If there is no continuity, repair wire 1027 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

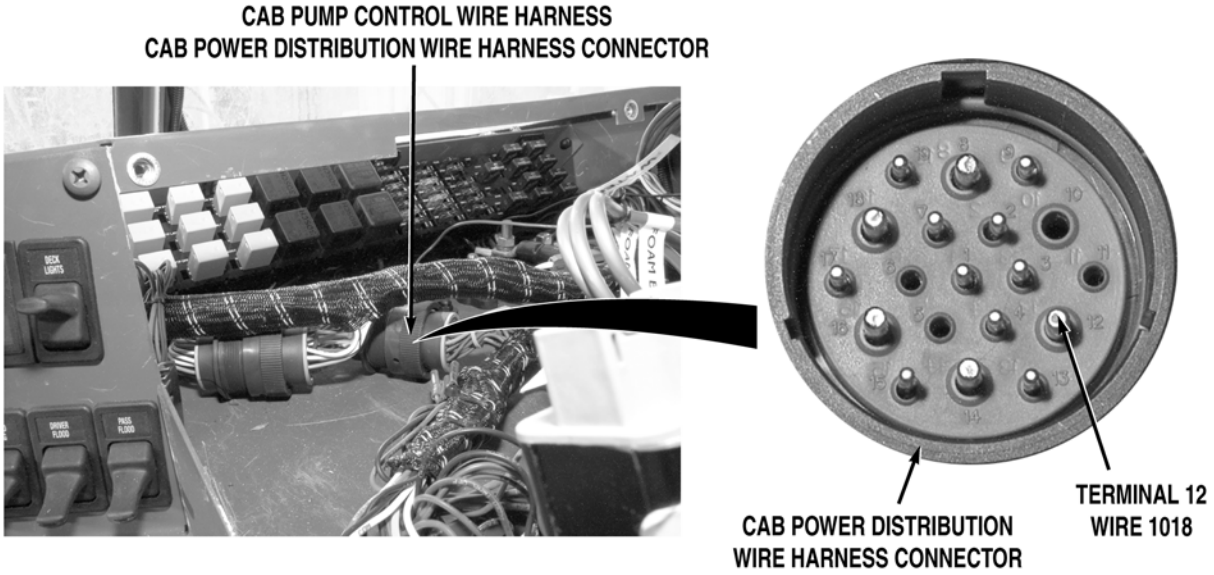
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel B (WP 0311). Disconnect cab pump control wire harness switch connector from non-operating switch. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between cab pump control wire harness wire 1018 (violet) at cab pump control wire harness non-operating switch connector, terminal 7 and a known good ground.

If 22 to 28 VDC are present, repair wire 1027 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Turn battery disconnect switch to ON position (WP 0007). Disconnect cab pump control wire harness cab power distribution wire harness connector. Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for 22 to 28 VDC between cab power distribution wire harness wire 1018 (violet) at cab power distribution wire harness connector, terminal 12 and a known good ground.

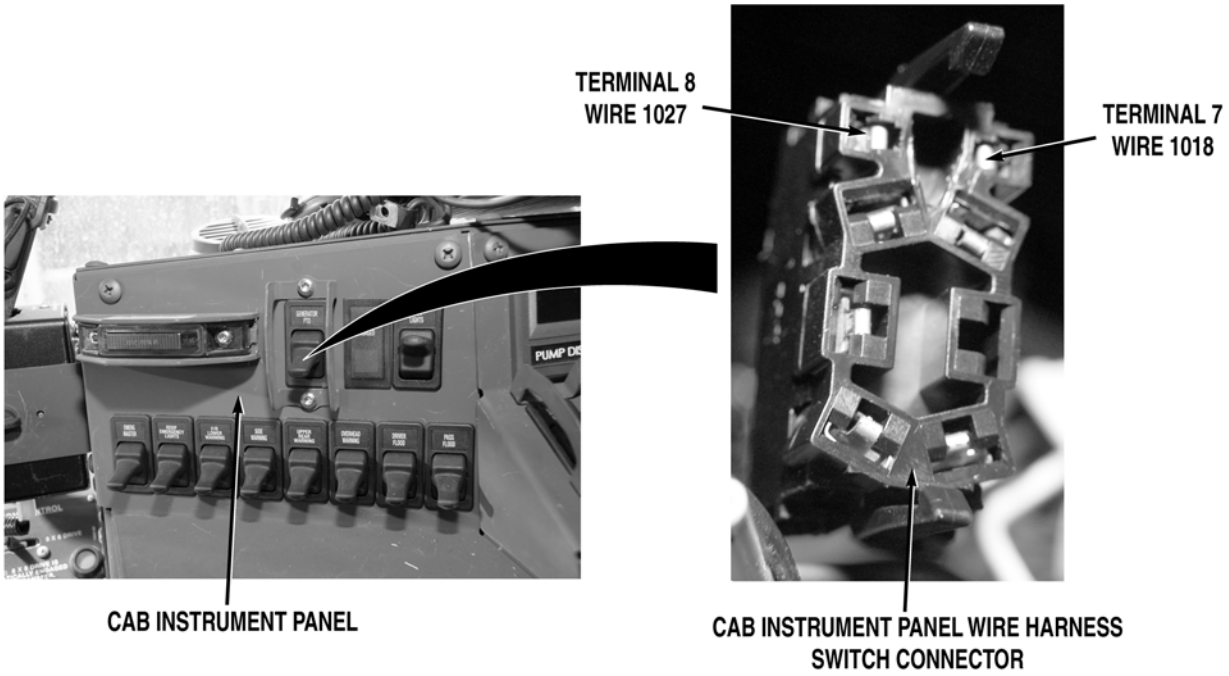
a. If 22 to 28 VDC are present, repair wire 1018 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

b. If 22 to 28 VDC are not present, repair wire 1018 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

Step 8. Check if any backlights on cab pump control switches illuminate.

If all backlights on cab pump control switches do not illuminate, go to Step 11.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness switch connector from non-operating switch connector. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1018 (violet) at non-operating cab instrument panel wire harness switch connector, terminal 7 and a known good ground.

If 22 to 28 VDC are not present, repair wire 1018 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 10. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across cab instrument panel wire harness wire 1027 (black) from non-operating cab instrument panel wire harness switch connector, terminal 8 to a known good ground.

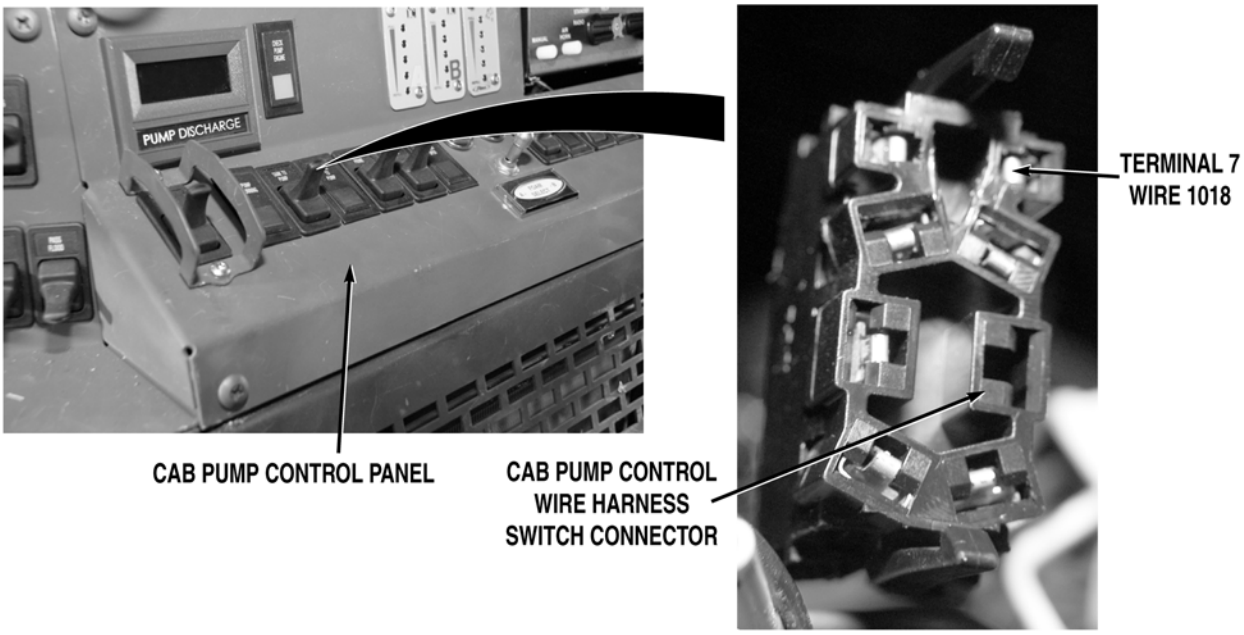
a. If there is continuity, replace non-operating rocker switch (WP 0315).

b. If there is no continuity, repair wire 1027 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 11. Check if any backlights on cab instrument panel switches illuminate.

If all backlights on cab instrument panel switches do not illuminate, go to Step 14.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



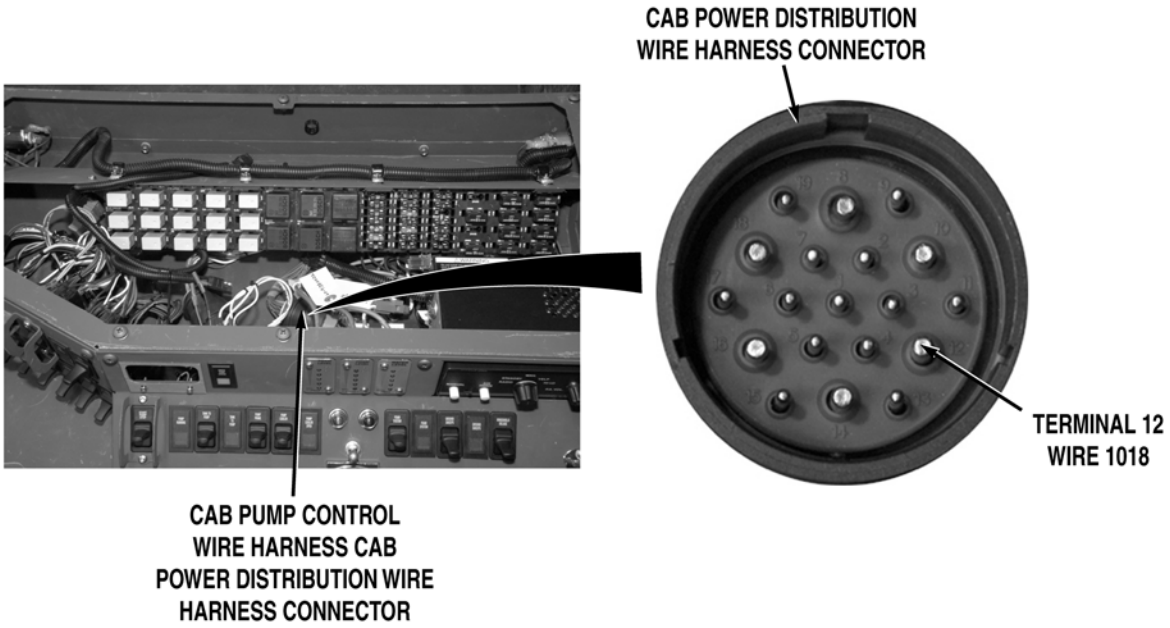
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 12. Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel B (WP 0311). Disconnect cab pump control wire harness non-operating switch connector. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between cab pump control wire harness wire 1018 (violet) at non-operating cab pump control wire harness switch connector (WP 0004), terminal 7 and a known good ground.

If 22 to 28 VDC are present, repair wire 1027 in cab pump control wire harness if repairable (TM 9-2320-325-14&P) or replace cab pump control wire harness (WP 0443).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

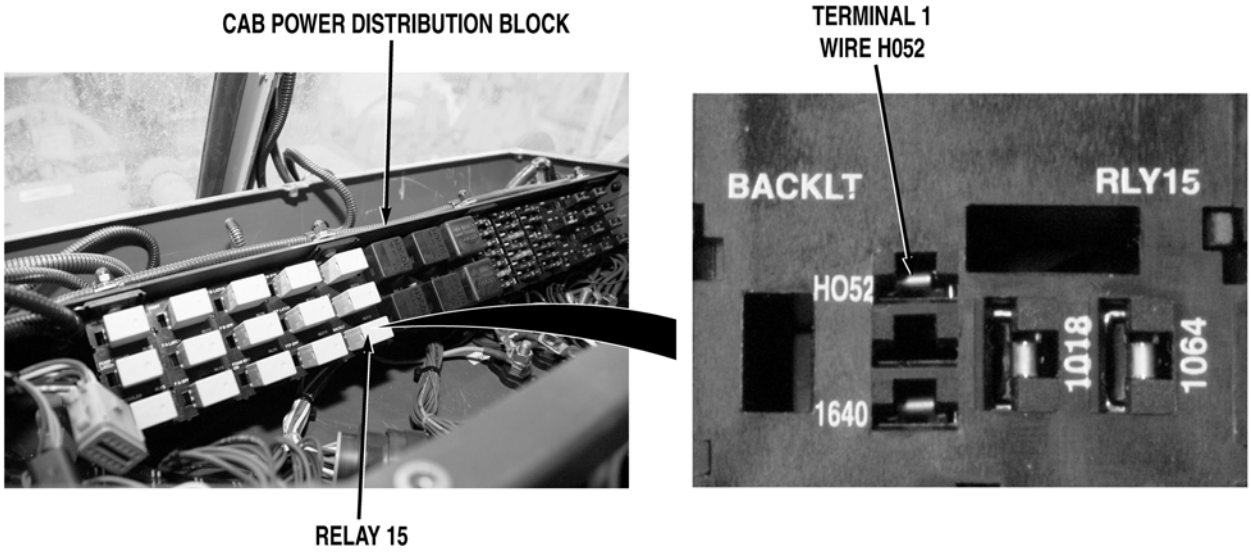


Step 13. Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel A (WP 0311). Disconnect cab pump control wire harness cab power distribution wire harness connector. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between cab power distribution wire harness wire 1018 (violet) at cab pump control wire harness cab pump control wire harness cab power distribution wire harness connector, terminal 12 and a known good ground.

a. If 22 to 28 VDC are present, repair wire 1018 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

b. If 22 to 28 VDC are not present, repair wire 1018 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



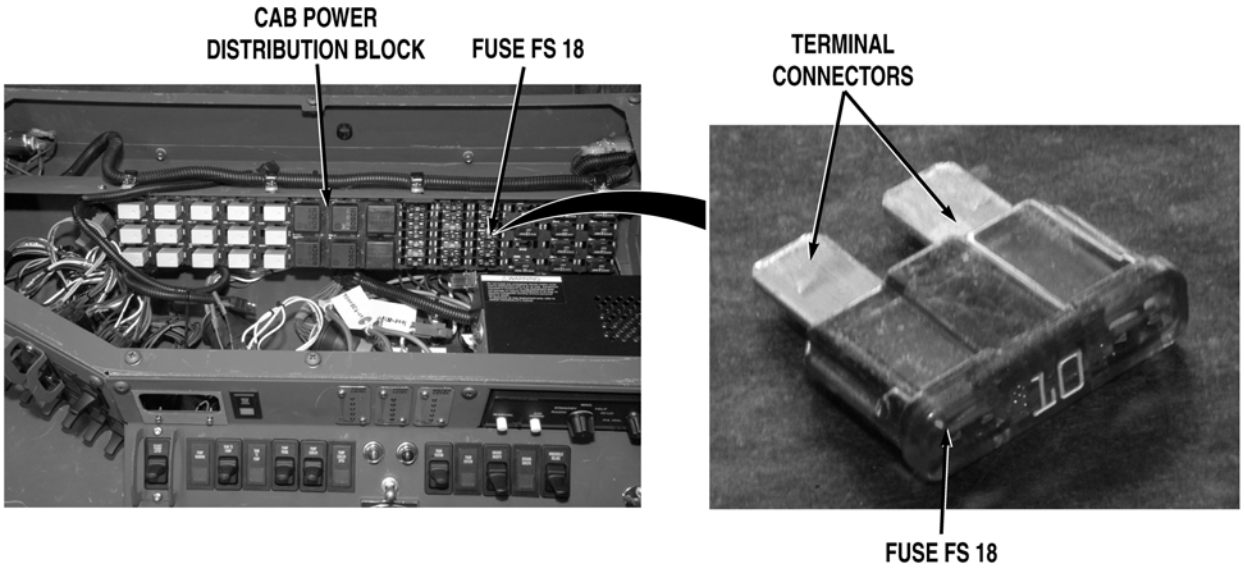
NOTE

Wire numbers with H prefix indicate that circuit is an extension of a HEMTT circuit.

Step 14. Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel A (WP 0311). Remove relay 15 (WP 0402). Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between cab power distribution wire harness wire H052 (white) at relay 15, terminal 1 and a known good ground.

If 22 to 28 VDC are not present, go to Step 19.

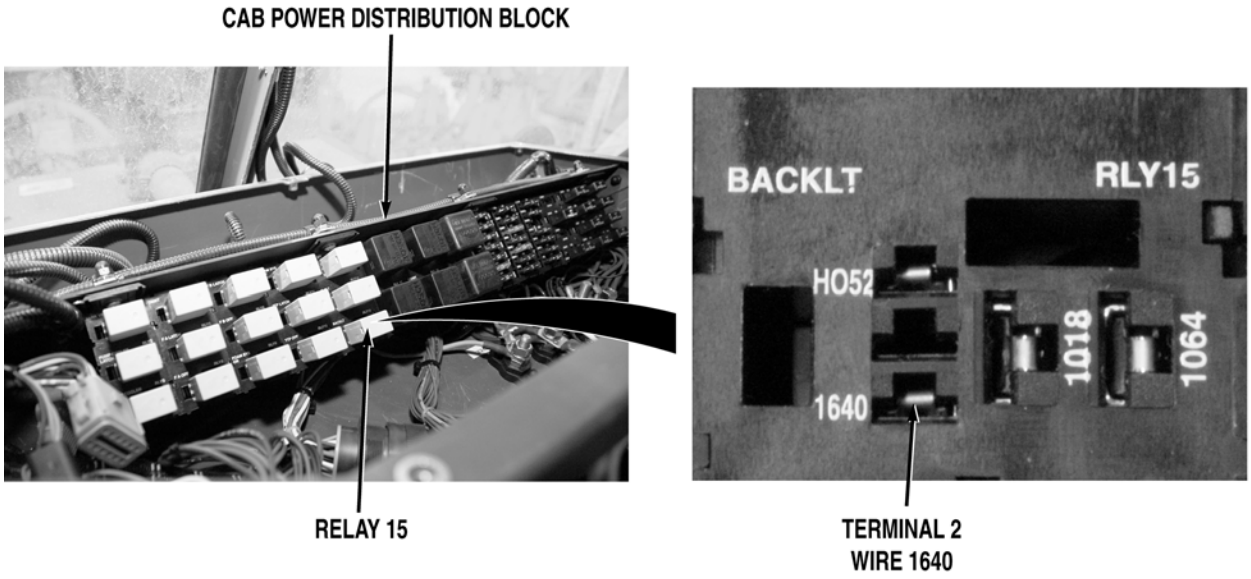
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 15. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove fuse FS 18 (WP 0401). Check for continuity across fuse.

If there is no continuity, replace fuse FS 18 (WP 0401).

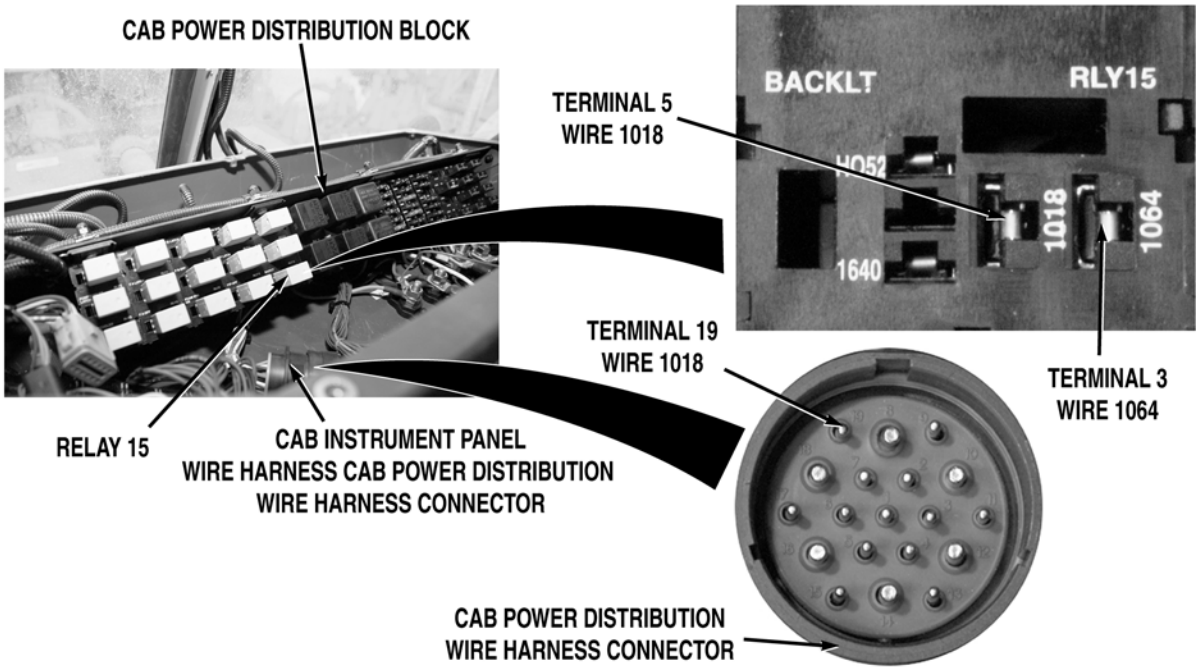
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Install fuse FS 18 (WP 0401). Check for continuity across cab power distribution wire harness wire 1640 (black) from relay 15 connector, terminal 2 to a known good ground.

If there is no continuity, replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity across cab power distribution wire harness wire 1018 (violet) from relay 15, terminal 5 to cab instrument panel wire harness cab power distribution wire harness connector, terminal 19.

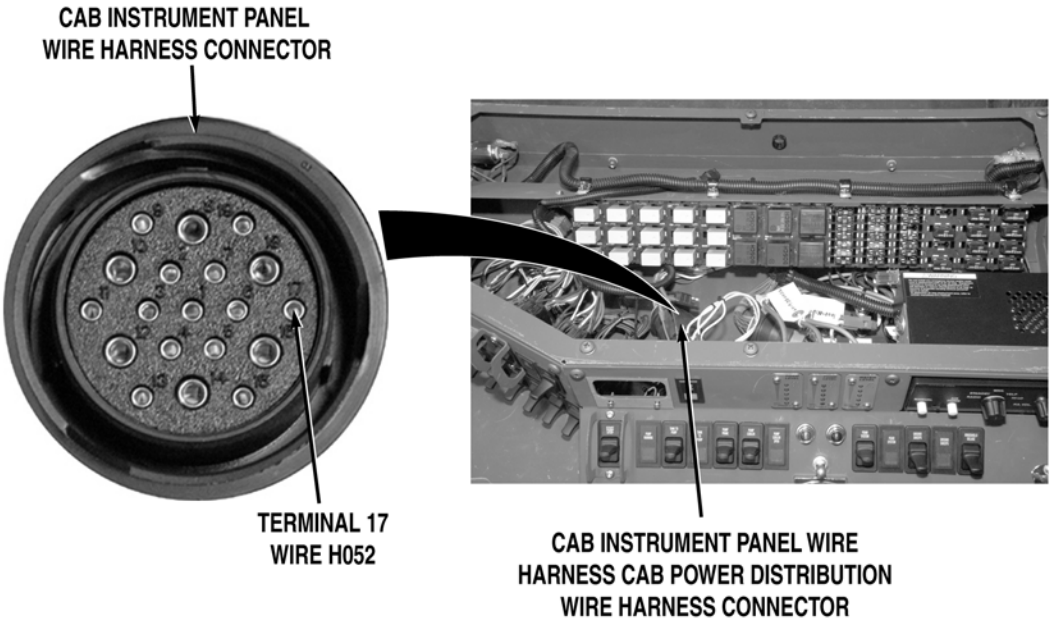
If there is no continuity, repair wire 1018 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

Step 18. Connect cab instrument panel wire harness cab power distribution wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between cab power distribution wire harness wire 1064 (violet) at relay 15, terminal 3 and a known good ground.

a. If 22 to 28 VDC are not present, replace cab power distribution wire harness and block (WP 0441).

b. If 22 to 28 VDC are present, replace relay 15 (WP 0402).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 19. Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between cab instrument panel wire harness wire H052 (white) at cab instrument panel wire harness connector, terminal 17 and a known good ground.

a. If 22 to 28 VDC are present, repair wire H052 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If 22 to 28 VDC are not present, repair wire H052 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install personnel cab instrument panels A, B, and C if removed (WP 0311)
2. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DIGITAL PRESSURE GAUGE(S) DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

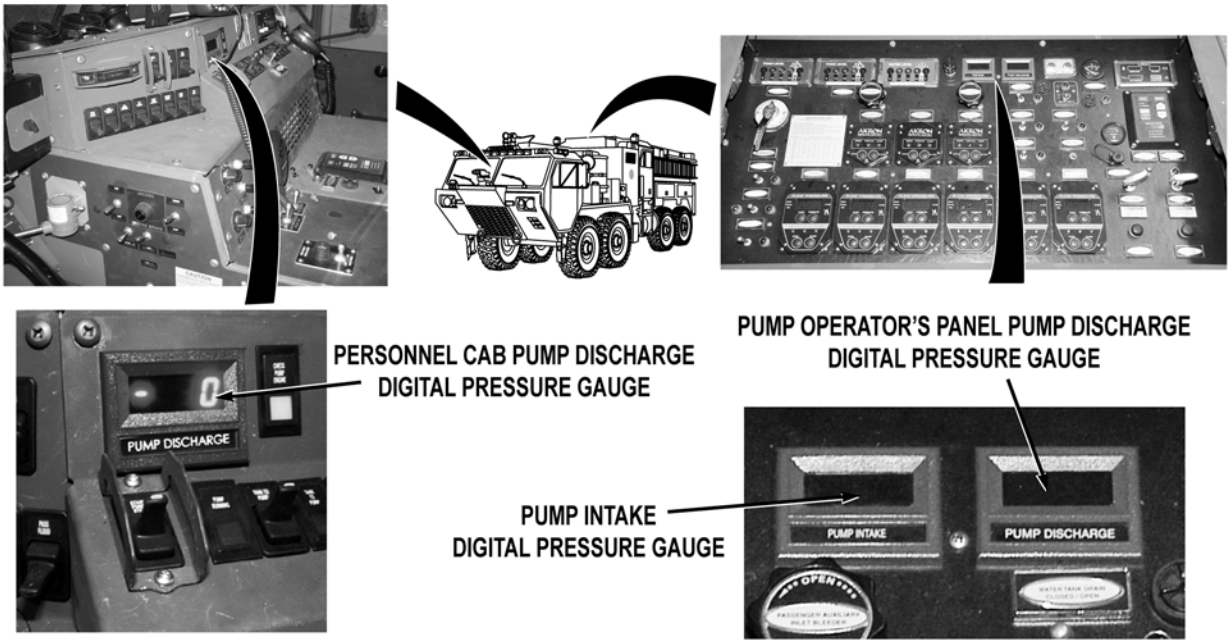
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0311
WP 0317
WP 0325
WP 0398
WP 0411
WP 0438

References (continued)
WP 0441
WP 0455
WP 0459
WP 0460
WP 0490
WP 0539
WP 0540
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
DIGITAL PRESSURE GAUGE(S) DOES NOT OPERATE		

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Turn battery disconnect switch to ON position (WP 0007). Check if pump operator's panel and personnel cab PUMP DISCHARGE digital pressure gauges operate.

If pump operator's panel or personnel cab PUMP DISCHARGE digital pressure gauges do not operate, go to Step 13.

Step 2. Check if PUMP INTAKE digital pressure gauge operates.

If PUMP INTAKE digital pressure gauge does operate, fault corrected.

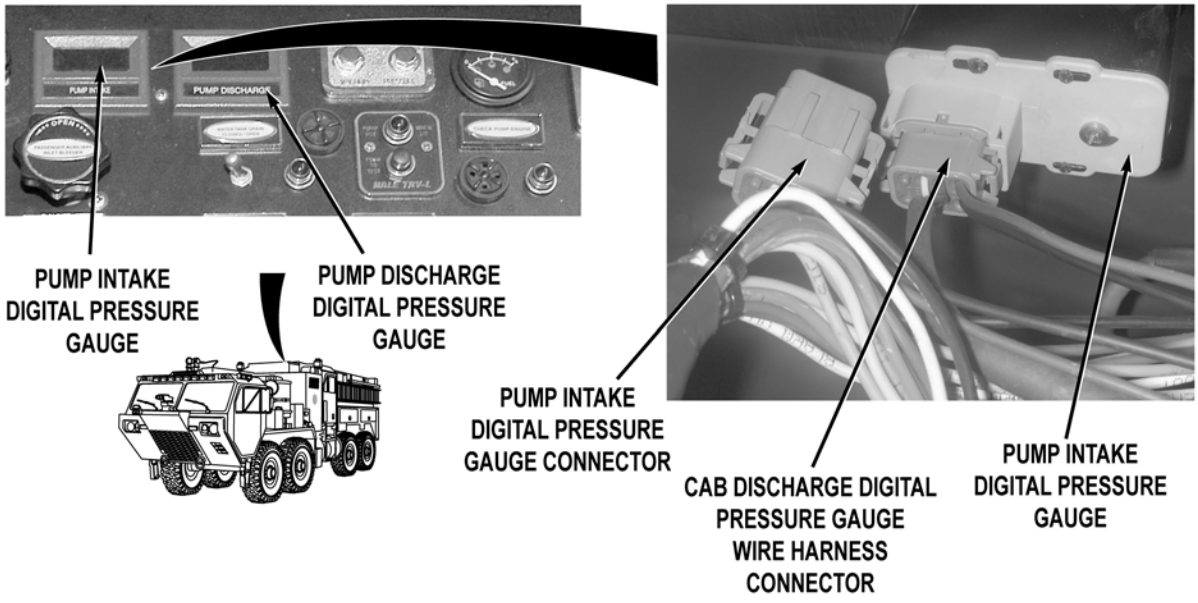
Step 3. Check if PUMP INTAKE digital pressure gauge illuminates.

If PUMP INTAKE digital pressure gauge does not illuminate, go to Step 11.

Step 4. Check if PUMP INTAKE digital pressure gauge displays an error message.

If PUMP INTAKE digital pressure gauge does not display an error message, go to Step 10.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



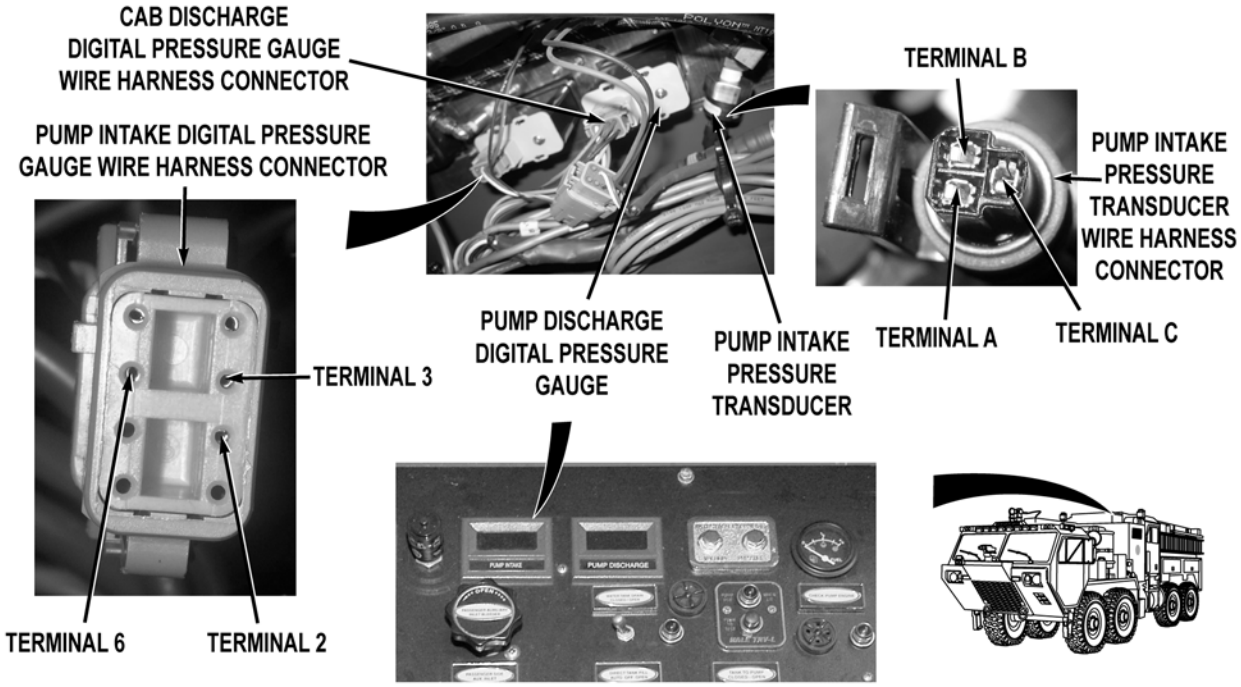
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump intake digital pressure gauge connector from PUMP INTAKE digital pressure gauge. Disconnect cab discharge digital pressure gauge wire harness connector from PUMP DISCHARGE gauge. Connect cab discharge digital pressure gauge wire harness connector to PUMP INTAKE digital pressure gauge. Turn battery disconnect switch to ON position (WP 0007). Check if PUMP INTAKE displays an error message.

If PUMP INTAKE digital pressure gauge displays an error message, replace PUMP INTAKE digital pressure gauge (WP 0317).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Turn battery disconnect switch to OFF position (WP 0007). Reconnect cab discharge digital pressure gauge wire harness connector to PUMP DISCHARGE digital pressure gauge. Disconnect pump intake pressure transducer wire harness connector from pump intake pressure transducer. With a test lead set, check for continuity across sensor signal wire from pump intake digital pressure gauge wire harness connector, terminal 2, to pump intake pressure transducer wire harness connector, terminal C.

If continuity is not present, repair sensor signal wire in pump intake pressure transducer wire harness if repairable (TM 9-2320-325-14&P), or replace pump intake pressure transducer wire harness (WP 0460).

Step 7. With a test lead set, check for continuity across sensor ground wire from pump intake digital pressure gauge wire harness connector, terminal 6, to pump intake pressure transducer wire harness connector, terminal A.

If continuity is not present, repair sensor ground wire in pump intake pressure transducer wire harness if repairable (TM 9-2320-325-14&P), or replace pump intake pressure transducer wire harness (WP 0460).

Step 8. With a test lead set, check for continuity across sensor power wire from pump intake digital pressure gauge wire harness connector, terminal 3, to pump intake pressure transducer wire harness connector, terminal B.

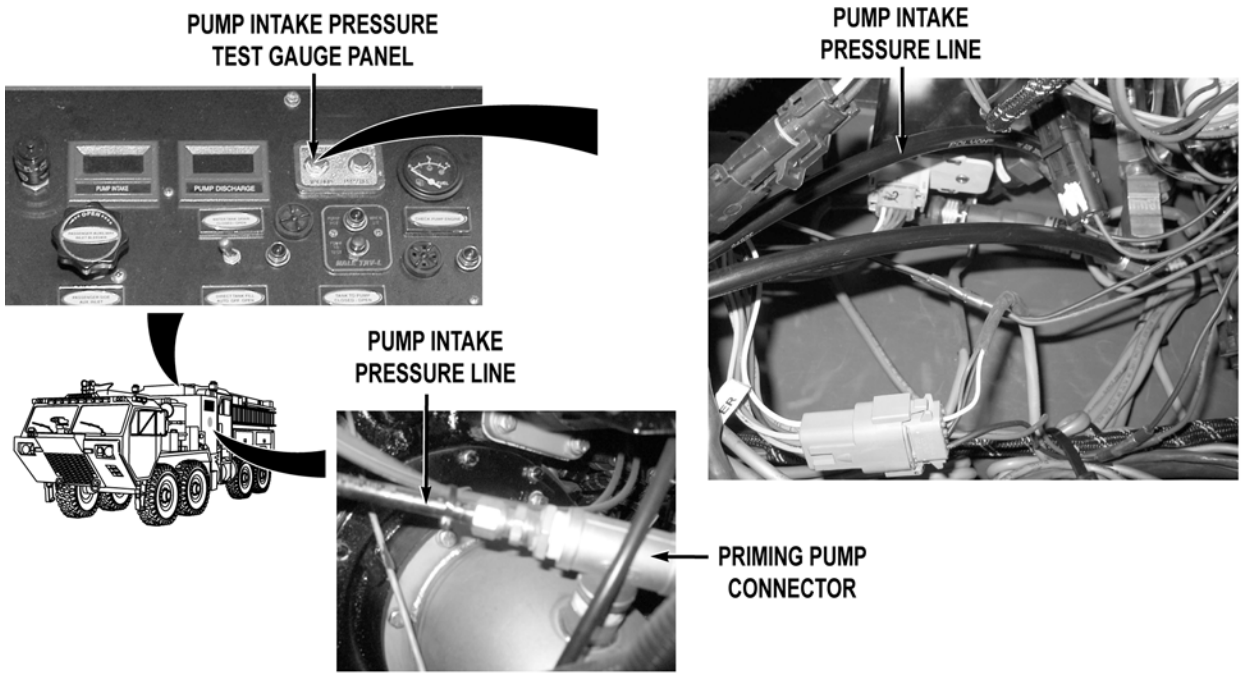
If continuity is not present, repair sensor ground wire in pump intake pressure transducer wire harness if repairable (TM 9-2320-325-14&P), or replace pump intake pressure transducer wire harness (WP 0460).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 9. Connect pump intake digital pressure gauge wire harness connector to PUMP INTAKE digital pressure gauge (WP 0317). Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC from pump intake pressure transducer wire harness connector, terminal B to a known good ground.

a. If 22 to 28 VDC are present, replace pump intake pressure transducer (WP 0411).

b. If 22 to 28 VDC are not present, replace PUMP INTAKE digital pressure gauge (WP 0317).

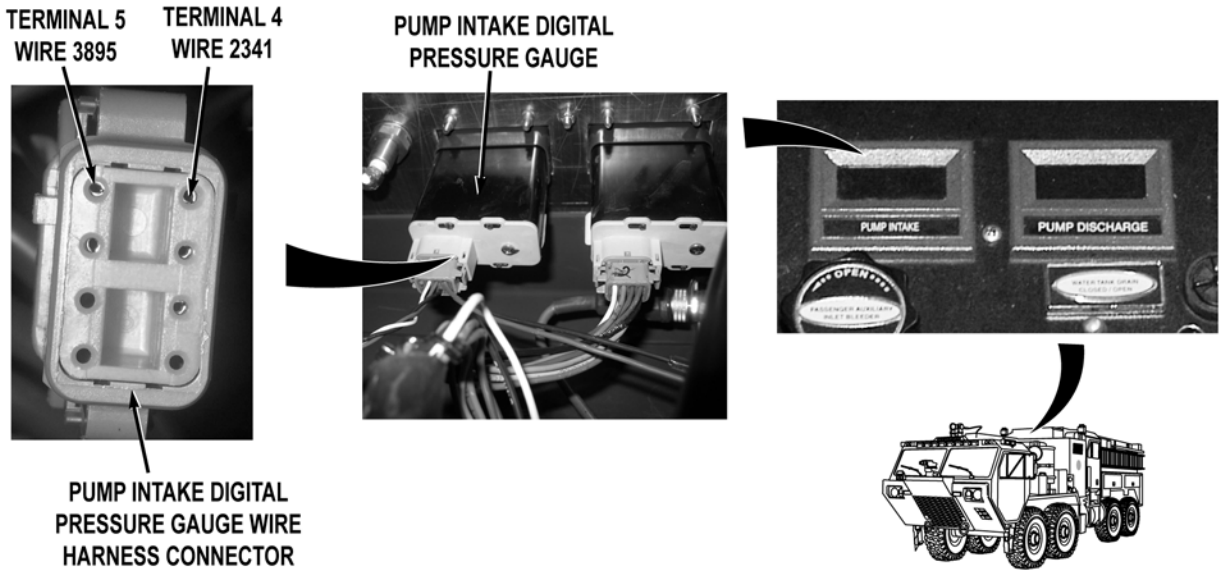


Step 10. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Open pump house panel A (WP 0539). Check pump intake pressure line from pump intake pressure test gauge panel to priming pump connector at water pump intake for leaks, kinks, or damage (WP 0490).

a. If pump intake pressure line is free from leaks, kinks, or damage, replace pump intake pressure transducer (WP 0411).

b. If pump intake pressure line is not free from leaks, kinks, or damage, replace pump intake pressure line (WP 0490).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 11. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump intake digital pressure gauge wire harness connector from PUMP INTAKE digital pressure gauge. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC on wire 2341 at pump intake pressure gauge wire harness connector, terminal 4.

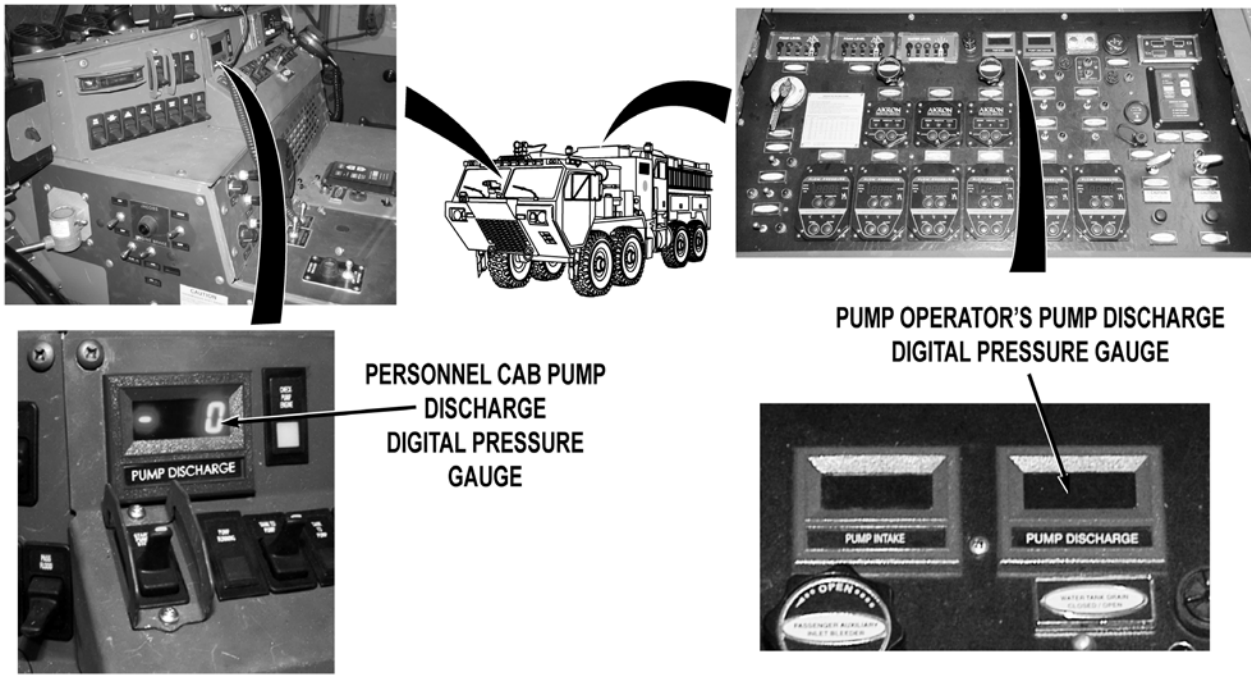
If 22 to 28 VDC are not present, repair wire 2341 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

Step 12. Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across wire 3895 at pump intake pressure gauge wire harness connector, terminal 5, to a known good ground.

a. If continuity is present, replace PUMP INTAKE digital pressure gauge (WP 0317).

b. If continuity is not present, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



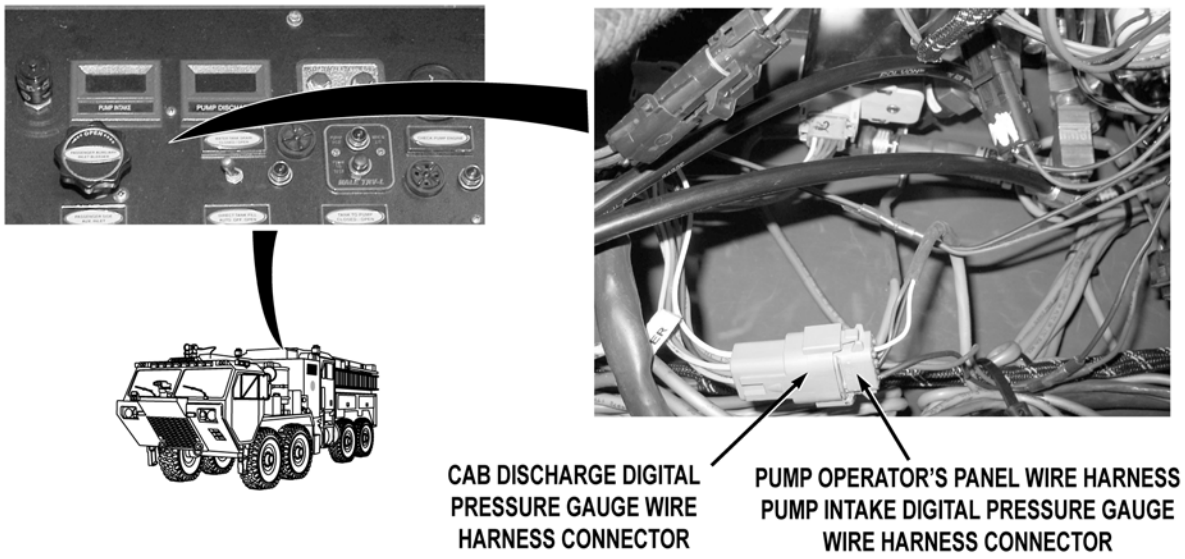
Step 13. Check if personnel cab and pump operator's panel PUMP DISCHARGE digital pressure gauge illuminates.

If personnel cab and pump operator's panel PUMP DISCHARGE digital pressure gauge does not illuminate, go to Step 32.

Step 14. Check if personnel cab and pump operator's panel PUMP DISCHARGE digital pressure gauge displays an error message.

If personnel cab and pump operator's panel PUMP DISCHARGE digital pressure gauge does not display an error message, go to Step 23.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



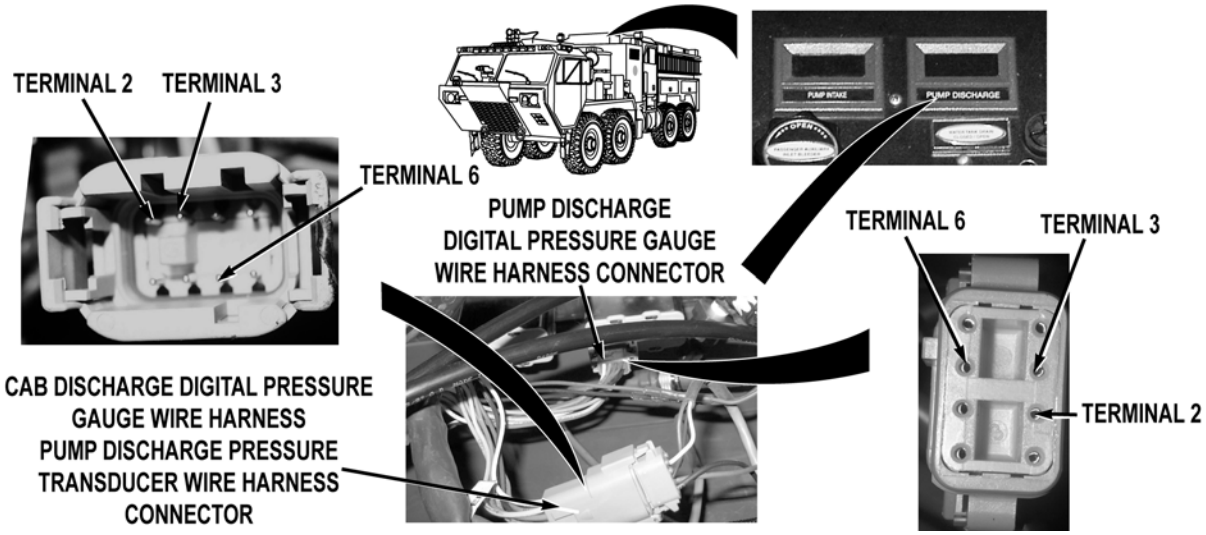
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 15. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel wire harness PUMP INTAKE digital pressure gauge wire harness connector. Disconnect pump operator's panel pump discharge pressure transducer wire harness from cab discharge digital pressure gauge wire harness (WP 0438). Connect pump intake digital pressure gauge wire harness connector to cab discharge digital pressure gauge wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Check if personnel cab and pump operator's panel PUMP DISCHARGE gauge displays an error message (WP 0004).

If personnel cab and pump operator's panel PUMP DISCHARGE digital pressure gauge does not display an error message, go to Step 19.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Turn battery disconnect switch to OFF position (WP 0007). Reconnect pump operator's panel wire harness PUMP INTAKE digital pressure gauge wire harness connector. With a test lead set, check for continuity across sensor power wire, from pump discharge digital pressure gauge wire harness connector, terminal 3 to cab discharge digital pressure gauge wire harness pump discharge pressure transducer connector, terminal 3.

If continuity is not present, repair sensor power wire in cab discharge digital pressure gauge wire harness if repairable (TM 9-2320-325-14&P), or replace cab discharge digital pressure gauge wire harness (WP 0438).

Step 17. With a test lead set, check for continuity across sensor signal wire from pump discharge digital pressure gauge wire harness connector, terminal 2, to cab discharge digital pressure gauge wire harness pump discharge pressure transducer wire harness connector, terminal 2.

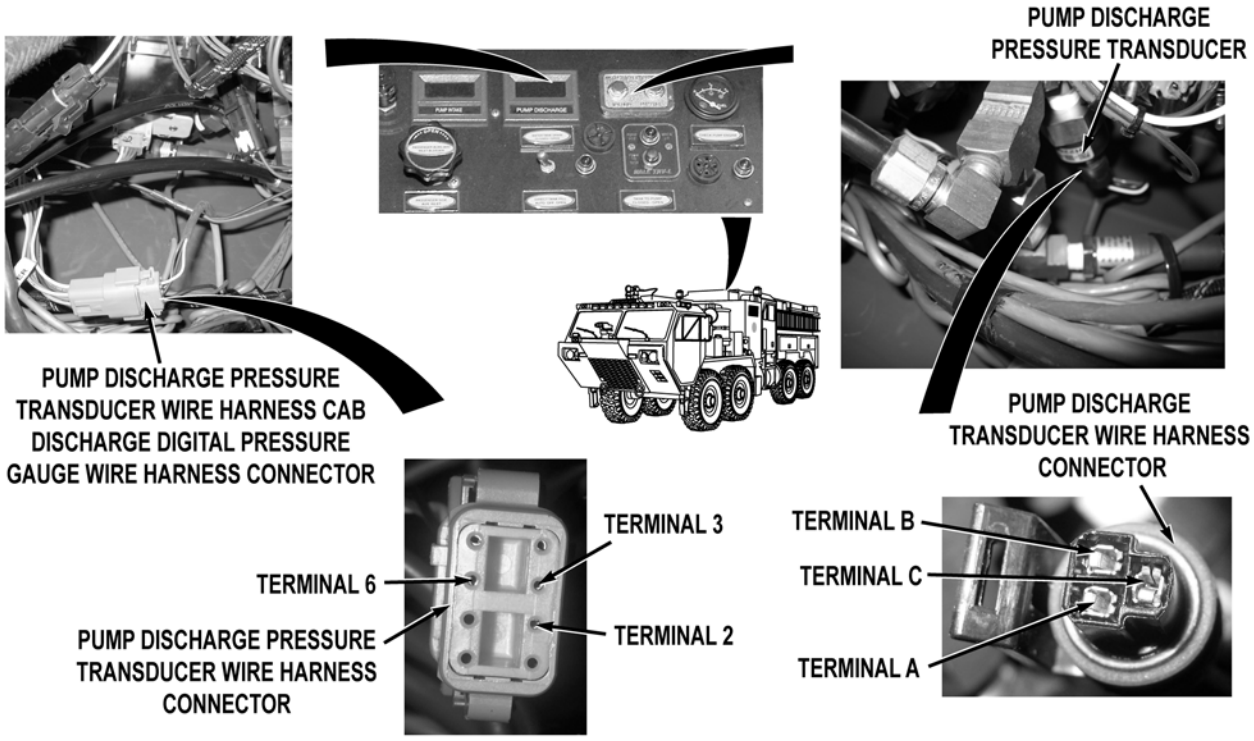
If continuity is not present, repair sensor signal wire in cab discharge digital pressure gauge wire harness if repairable (TM 9-2320-325-14&P), or replace cab discharge digital pressure gauge wire harness (WP 0438).

Step 18. With a test lead set, check for continuity across sensor ground wire from pump discharge digital pressure gauge wire harness connector, terminal 6, to cab discharge digital pressure gauge wire harness pump discharge pressure transducer wire harness connector, terminal 6.

a. If continuity is present, replace pump operator's panel PUMP DIGITAL PRESSURE DISCHARGE gauge (WP 0317).

b. If continuity is not present, repair sensor ground wire in cab discharge digital pressure gauge wire harness if repairable (TM 9-2320-325-14&P), or replace cab discharge digital pressure gauge wire harness (WP 0438).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 19. Turn battery disconnect switch to OFF position (WP 0007). Reconnect pump intake digital gauge pressure transducer wire harness connector to PUMP INTAKE gauge (WP 0317). Disconnect pump discharge pressure transducer from pump discharge transducer wire harness connector. With a test lead set, check for continuity across sensor signal wire from pump discharge pressure transducer wire harness connector, terminal 2, to pump discharge pressure transducer wire harness connector, terminal C.

If continuity is not present, repair sensor ground wire in pump intake pressure transducer wire harness if repairable (TM 9-2320-325-14&P), or replace pressure transducer wire harness (WP 0460).

Step 20. With a test lead set, check for continuity across sensor ground wire from pump discharge pressure transducer wire harness connector, terminal 6, to pump discharge transducer wire harness connector, terminal A.

If continuity is not present, repair sensor ground wire in pump intake pressure transducer wire harness if repairable (TM 9-2320-325-14&P), or replace pressure transducer wire harness (WP 0460).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 21. With a test lead set, check for continuity across sensor power wire from pump discharge pressure transducer wire harness connector, terminal 3, to pump discharge pressure transducer wire harness connector, terminal B.

If continuity is not present, repair sensor ground wire in pump intake pressure transducer wire harness if repairable (TM 9-2320-325-14&P), or replace pressure transducer wire harness (WP 0460).

Step 22. Connect pump discharge pressure transducer wire harness connector to cab discharge digital pressure gauge wire harness connector. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC at pump intake pressure transducer wire harness connector, terminal B to terminal A.

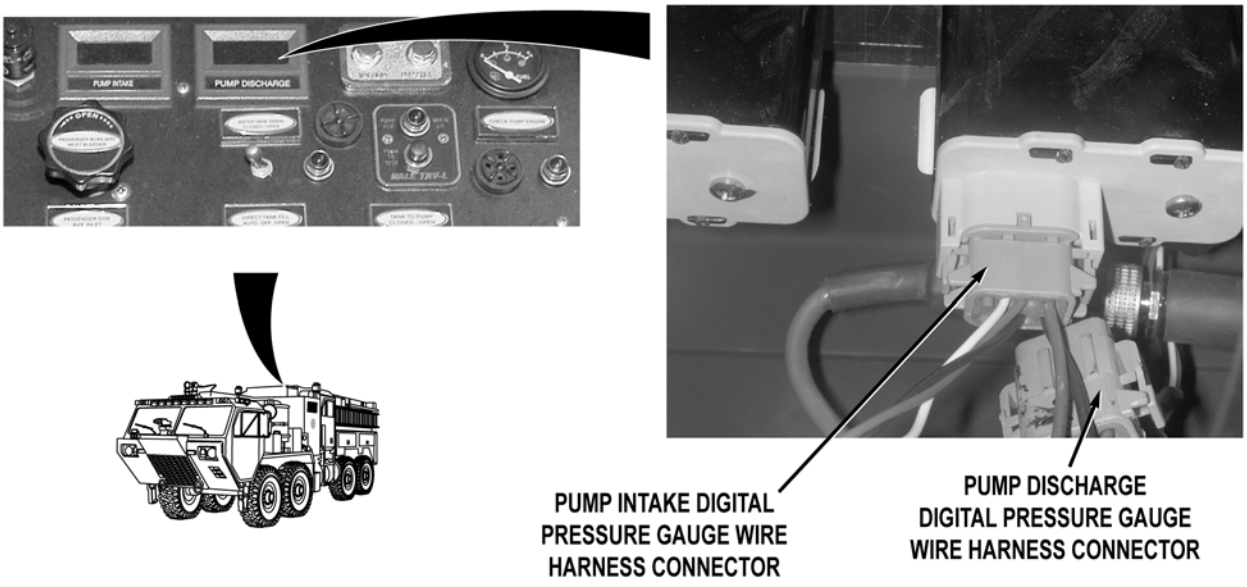
a. If 22 to 28 VDC are present, replace pump intake pressure transducer (WP 0411).

b. If 22 to 28 VDC are not present, replace PUMP INTAKE digital pressure gauge (WP 0317).

Step 23. Check if pump operator's panel PUMP DISCHARGE digital pressure gauge displays an error message.

If pump operator's panel PUMP DISCHARGE digital pressure gauge does not display an error message, go to Step 28.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



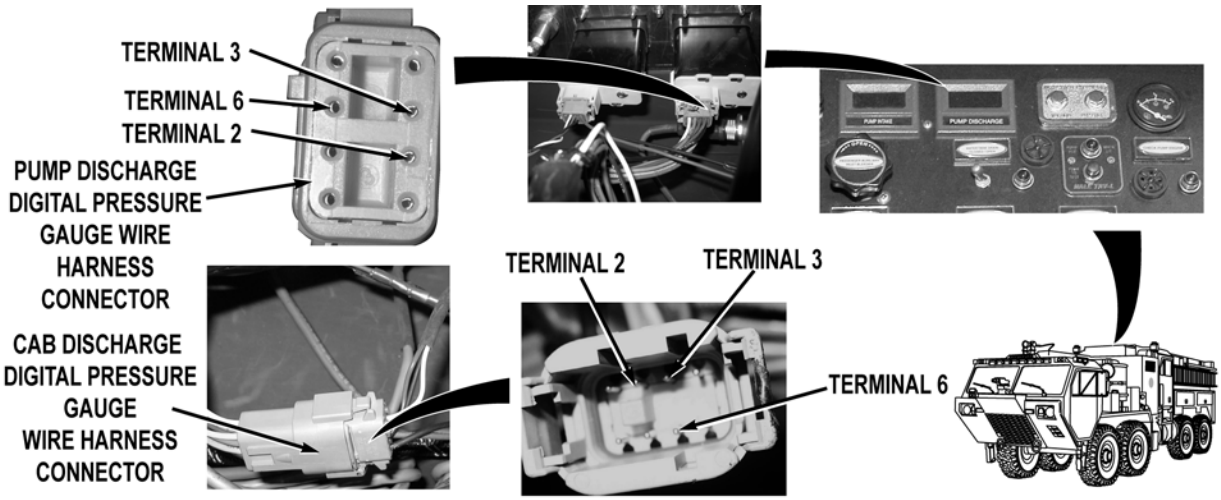
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 24. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump intake digital pressure gauge wire harness connector. Disconnect pump discharge digital pressure gauge wire harness connector. Connect pump intake gauge wire harness connector to pump operator's panel PUMP DISCHARGE digital pressure gauge (WP 0317). Turn battery disconnect switch to ON position (WP 0007). Check if pump operator's panel PUMP DISCHARGE gauge displays an error message (WP 0004).

If pump operator's panel PUMP DISCHARGE digital pressure gauge displays an error message, replace pump operator's panel PUMP DISCHARGE digital pressure gauge (WP 0317).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 25. Reconnect pump intake digital pressure gauge wire harness connector to PUMP INTAKE digital pressure gauge (WP 0317). Disconnect cab discharge digital pressure gauge wire harness connector (WP 0438). With a test lead set, check for continuity across sensor ground wire from pump discharge digital pressure gauge wire harness connector terminal 2, to cab discharge digital pressure wire harness connector, terminal 2.

If continuity is not present, repair sensor ground wire in cab discharge digital pressure gauge wire harness if repairable (TM 9-2320-325-14&P), or replace cab discharge digital pressure gauge wire harness (WP 0438).

Step 26. With a test lead set, check for continuity across sensor power wire from pump discharge digital pressure gauge wire harness connector terminal 3, to cab discharge digital pressure wire harness connector, terminal 3.

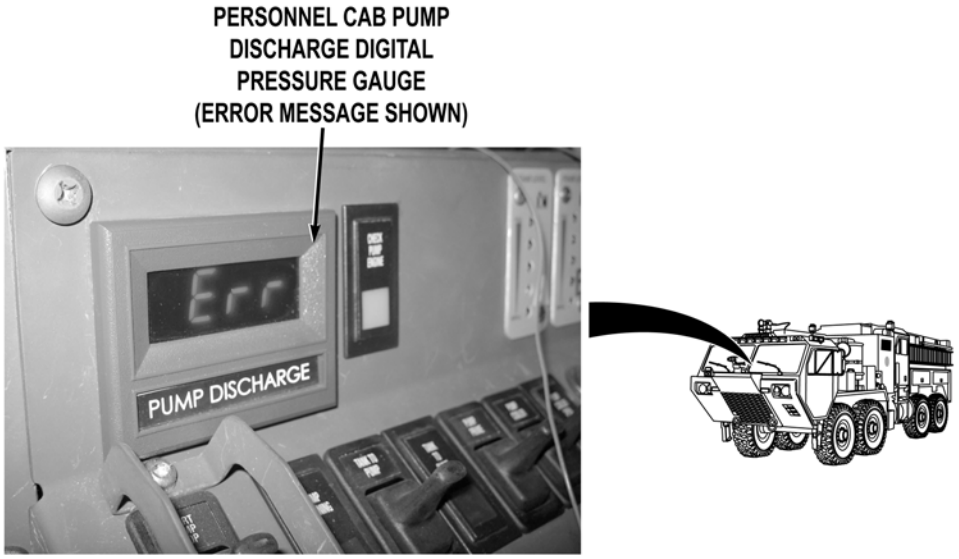
If continuity is not present, repair sensor power wire in cab discharge digital pressure gauge wire harness if repairable (TM 9-2320-325-14&P), or replace cab discharge digital pressure gauge wire harness (WP 0438).

Step 27. With a test lead set, check for continuity across sensor ground wire from pump discharge digital pressure gauge wire harness connector terminal 6, to cab discharge digital pressure wire harness connector, terminal 6.

a. If continuity is present, replace pump operator's panel PUMP DISCHARGE digital pressure gauge (WP 0317).

b. If continuity is not present, repair sensor ground wire in cab discharge digital pressure gauge wire harness if repairable (TM 9-2320-325-14&P), or replace cab discharge digital pressure gauge wire harness (WP 0438).

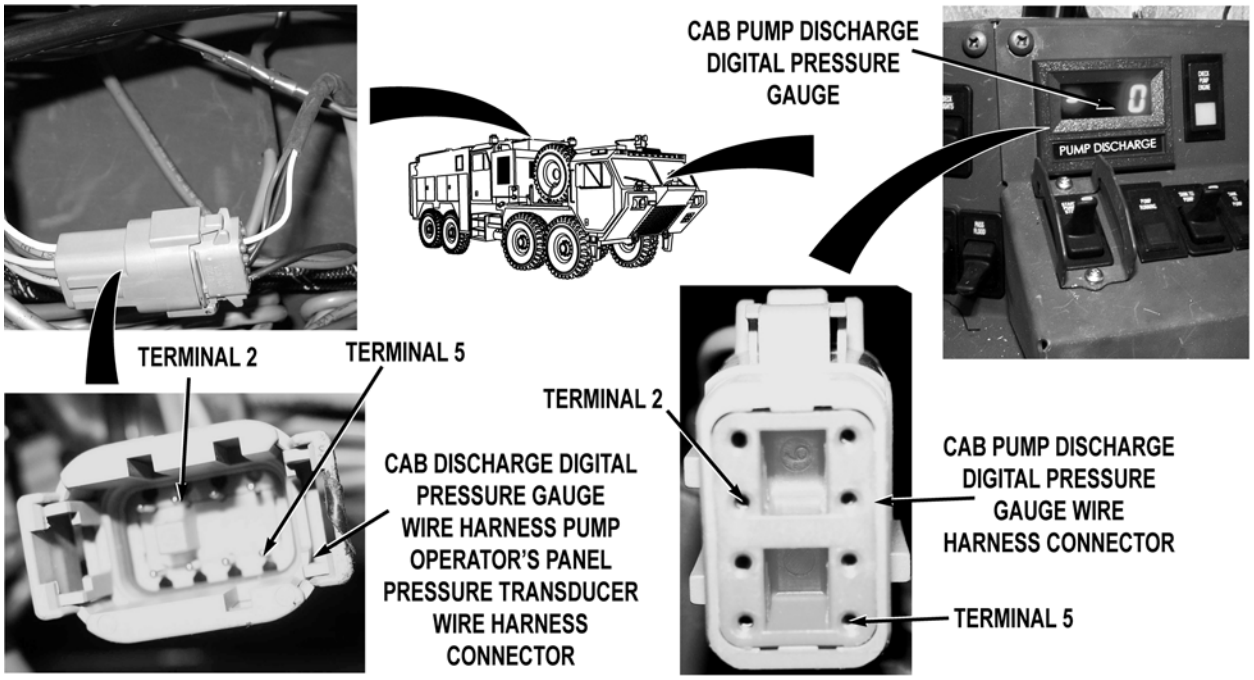
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 28. Check if personnel cab PUMP DISCHARGE digital pressure gauge displays an error message.

If personnel cab PUMP DISCHARGE digital pressure gauge does not display an error message, go to Step 31.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 29. Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab pump discharge digital pressure gauge wire harness connector from cab PUMP DISCHARGE digital pressure gauge. Disconnect cab discharge digital pressure gauge wire harness pump operator's panel pressure transducer wire harness connector. With a test lead set, check for continuity across sensor signal wire in cab pump discharge digital pressure gauge wire harness cab connector terminal 2, to cab discharge digital pressure gauge wire harness pump operator's panel pressure transducer wire harness connector, terminal 2.

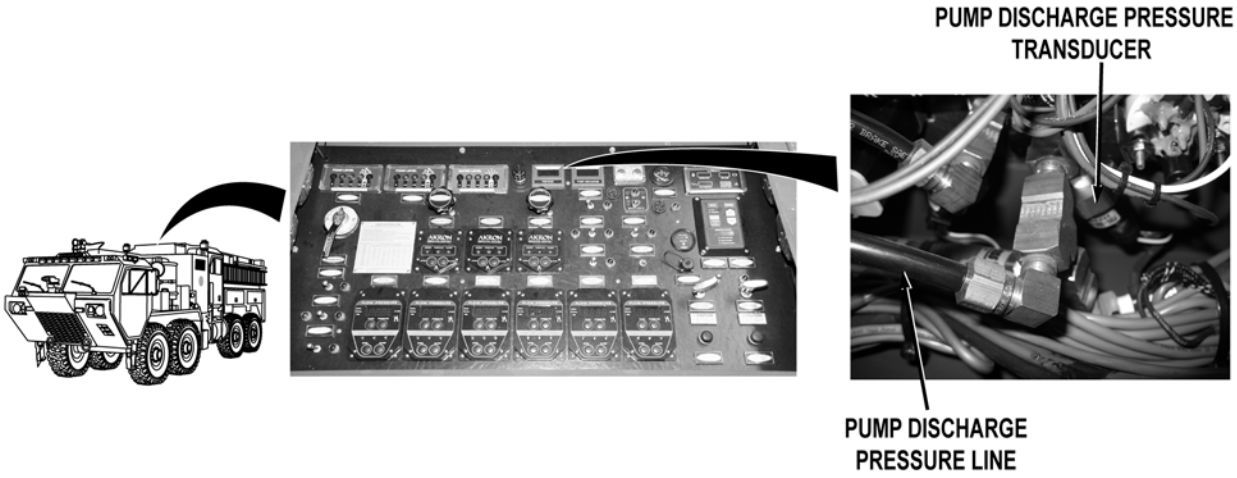
If continuity is not present, repair sensor signal wire in cab pump discharge digital pressure gauge wire harness if repairable (TM 9-2320-325-14&P), or replace cab discharge digital pressure gauge wire harness (WP 0438).

Step 30. With a test lead set, check for continuity across sensor ground wire in cab pump discharge digital pressure gauge wire harness cab connector terminal 5, to cab discharge digital pressure gauge wire harness pump operator's panel pressure transducer wire harness connector, terminal 5.

a. If continuity is present, replace cab PUMP DISCHARGE digital gauge (WP 0317).

b. If continuity is not present, repair ground wire in cab pump discharge digital pressure gauge wire harness if repairable (TM 9-2320-325-14&P), or replace cab discharge digital pressure gauge wire harness (WP 0438).

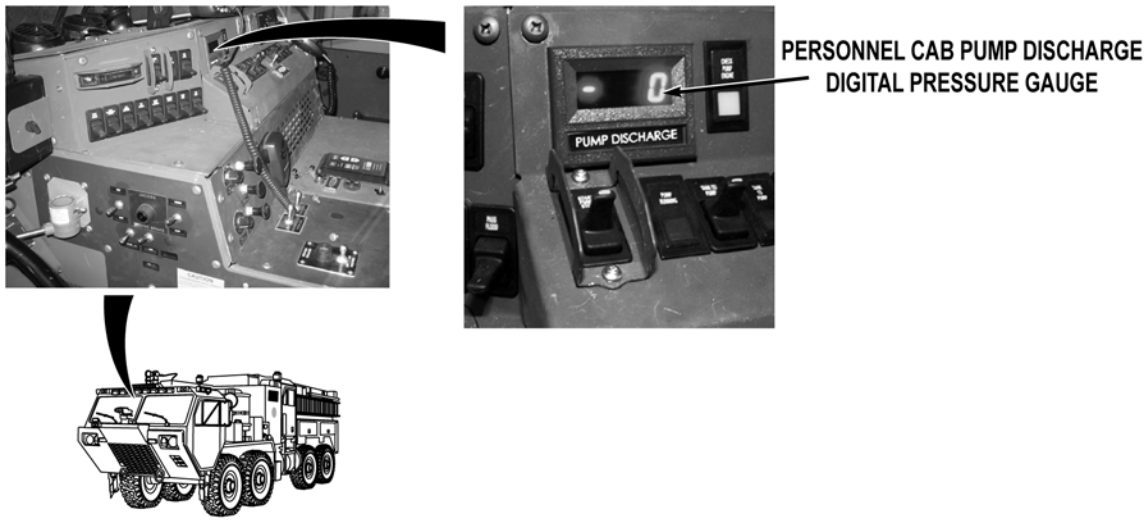
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 31. Open pump operator's panel (WP 0325). Check pump discharge pressure line from pump discharge pressure test gauge panel to primer pump connector at water pump output for leaks, kinks, or damage (WP 0490).

a. If pump discharge pressure line is not free from leaks, kinks, or damage, replace pump intake pressure line (WP 0490).

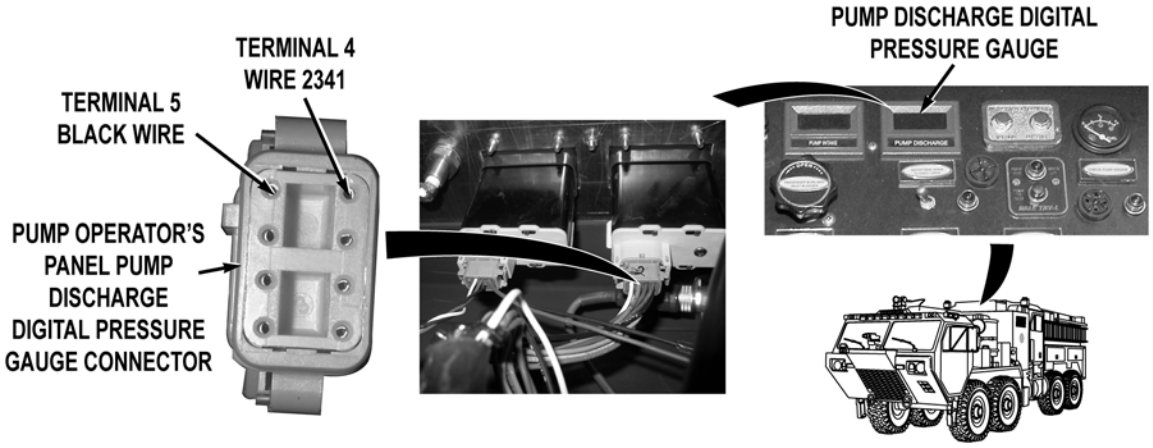
b. If pump discharge pressure line is free from leaks, kinks, or damage, replace pump discharge pressure transducer (WP 0411).



Step 32. Check if personnel cab PUMP DISCHARGE digital pressure gauge illuminates.

If personnel cab PUMP DISCHARGE digital pressure gauge does not illuminate, go to Step 35.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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Step 33. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel cab discharge digital pressure gauge wire harness from PUMP DISCHARGE digital pressure gauge connector. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC at wire 2341 from pump operator's panel cab discharge digital pressure gauge wire harness pump discharge digital pressure gauge wire harness connector, terminal 4 to a known good ground.

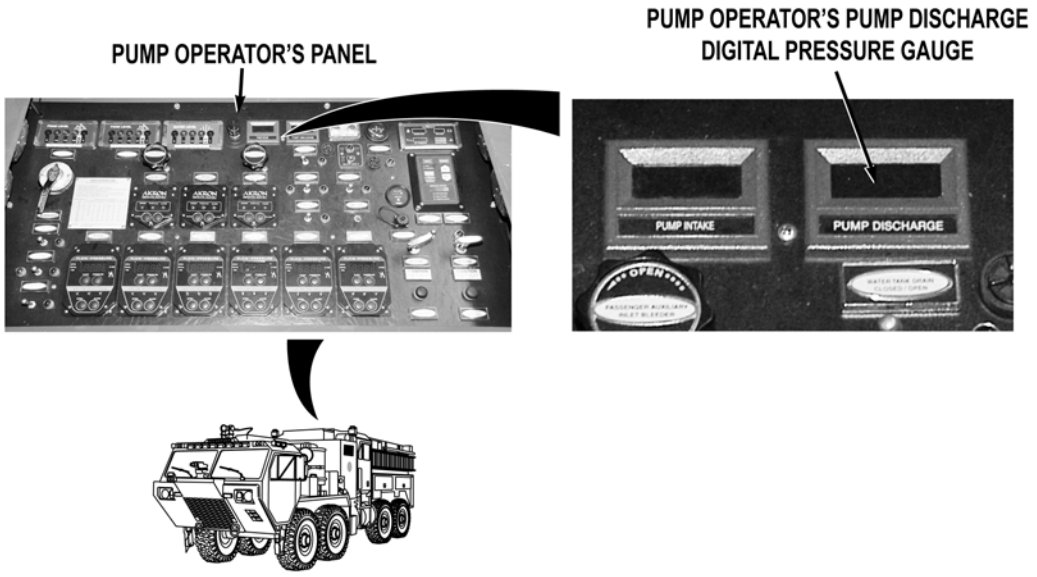
If 22 to 28 VDC are not present, replace cab discharge digital pressure gauge wire harness (WP 0438).

Step 34. Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across black wire at pump operator's panel cab discharge digital pressure gauge wire harness pump discharge digital pressure gauge wire harness connector terminal 5, to a known good ground.

a. If continuity is present, replace pump discharge digital pressure gauge (WP 0317).

b. If continuity is not present, replace cab discharge digital pressure gauge wire harness (WP 0438).

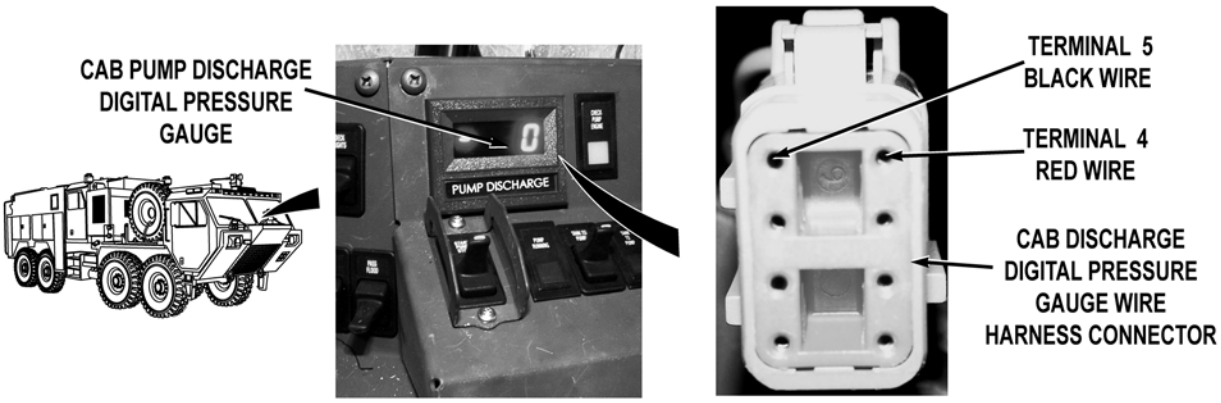
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 35. Check if pump operator's panel PUMP DISCHARGE digital pressure gauge illuminates.

If pump operator's panel PUMP DISCHARGE digital pressure gauge does not illuminate, go to Step 38.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 36. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Disconnect cab discharge digital pressure gauge wire harness connector from cab PUMP DISCHARGE digital pressure gauge. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC at power wire (red) in cab discharge digital pressure gauge wire harness at cab pump discharge digital pressure gauge wire harness connector, terminal 4 to a known good ground.

If 22 to 28 VDC are not present, replace cab discharge digital pressure gauge wire harness (WP 0438).

Step 37. Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across black wire in cab discharge digital pressure gauge wire harness connector, terminal 5 to a known good ground.

a. If continuity is present, replace personnel cab PUMP DISCHARGE digital pressure gauge (WP 0317).

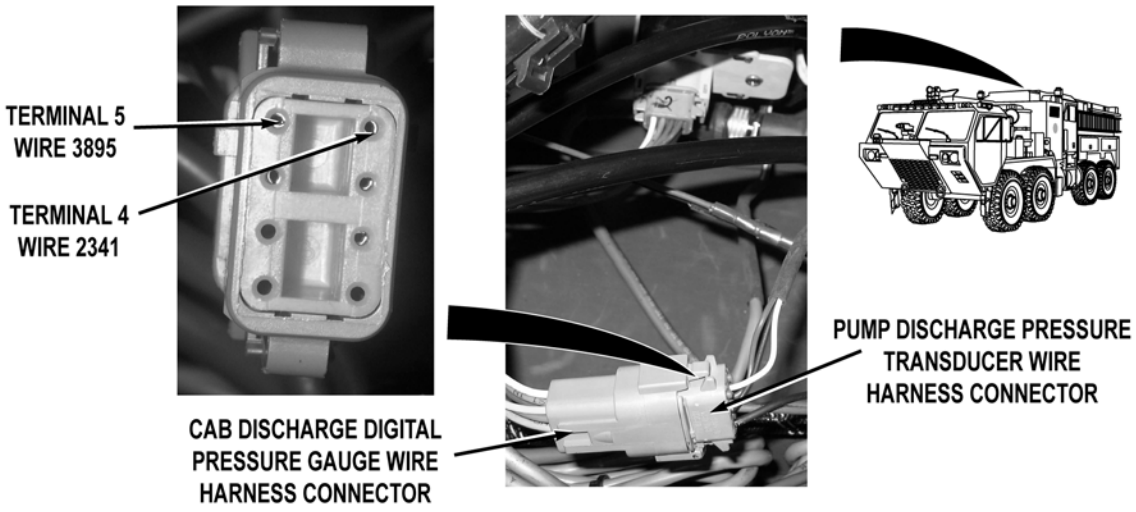
b. Replace cab discharge digital pressure gauge wire harness (WP 0438).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 38. Check if PUMP INTAKE digital pressure gauge illuminates.

If PUMP INTAKE digital pressure gauge does not illuminate, go to Step 41.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 39. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel (WP 0325). Disconnect cab discharge digital pressure gauge wire harness connector from pump discharge pressure transducer wire harness connector. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC on wire 2341 at pump discharge pressure transducer wire harness connector, terminal 4.

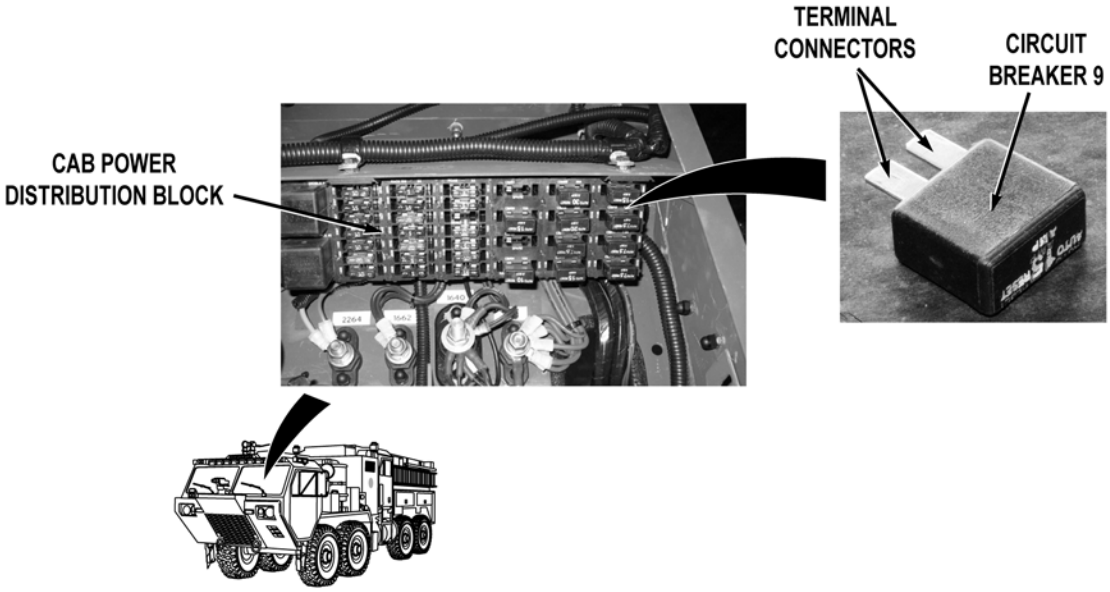
If 22 to 28 VDC are not present, repair wire 2341 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

Step 40. Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across wire 3895 at pump discharge pressure transducer wire harness connector, terminal 5 to a known good ground.

a. If continuity is present, replace cab discharge digital pressure gauge wire harness (WP 0438).

b. If continuity is not present, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

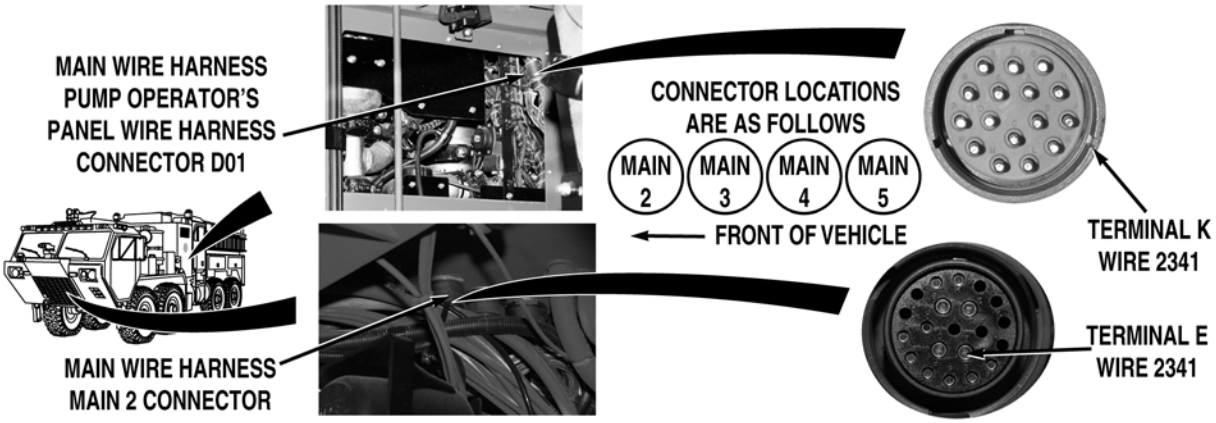
Step 41. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove circuit breaker 9 from cab power distribution block. Check for continuity across circuit breaker 9 across terminal connectors.

If there is no continuity, replace circuit breaker 9 (WP 0398).

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION



Step 42. Install circuit breaker 9 (WP 0398). Remove crew cab access panel (WP 0499). Remove pump house panel Q (WP 0540). Disconnect main wire harness pump operator's panel wire harness connector DO1. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between main wire harness wire 2341(red) at main wire harness pump operator's panel wire harness connector DO1, terminal K and a known good ground.

If 22 to 28 VDC are present, repair wire 2341 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

Step 43. Turn battery disconnect switch to OFF position (WP 0007). Remove skid plate grille (WP 0550). Disconnect main wire harness main 2 wire harness connector. With a test lead set, check for continuity across wire 2341 (red) from main wire harness main 2 connector, terminal E to main wire harness pump operator's panel wire harness connector DO1, terminal K.

a. If there is continuity, repair wire 2341 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 2341 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DIRECT TANK FILL AUTO INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0105

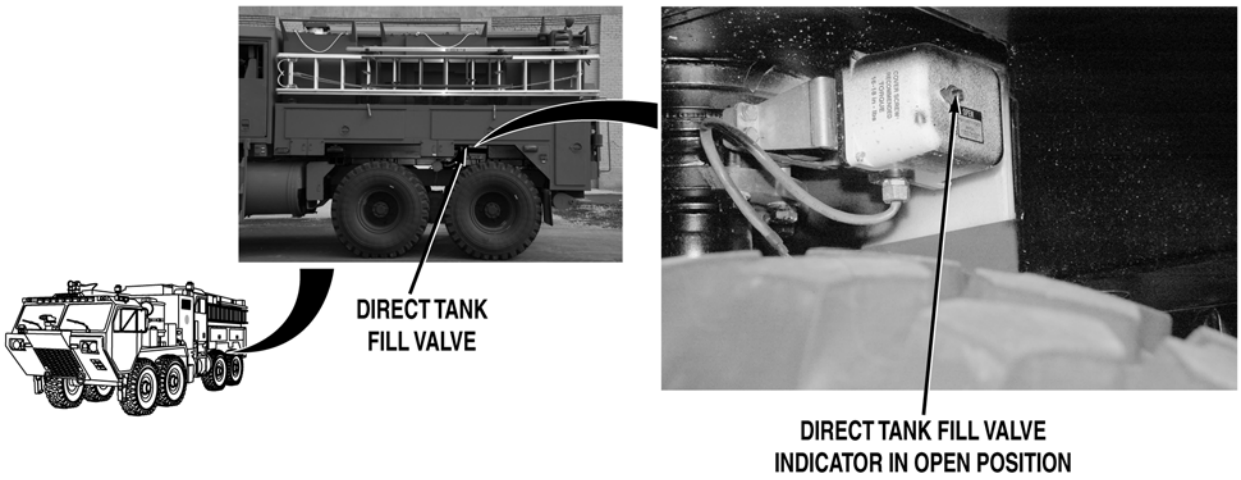
References (continued)
WP 0303
WP 0325
WP 0326
WP 0327
WP 0459

Equipment Conditions
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

DIRECT TANK FILL AUTO INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



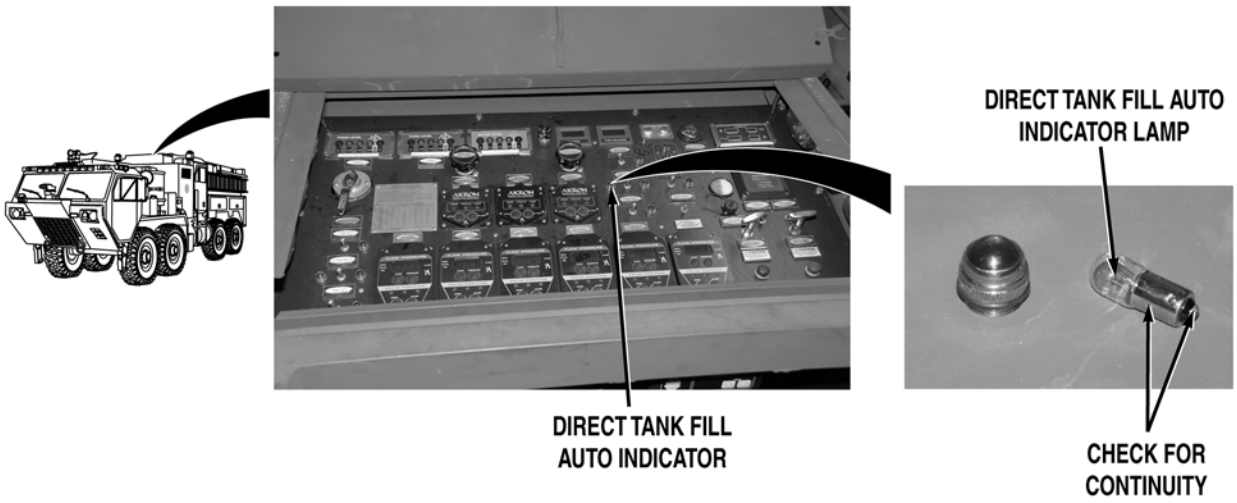
NOTE

- Ensure cap is installed tightly on direct tank fill connector during this procedure. Or, connect hose to direct tank fill connector to drain water into appropriate container or to ground. If direct tank fill valve opens during this procedure, water will discharge from tank uncontrolled.
- Valve operations can be checked by observing valve shaft rotation.
- Step 1 will ensure that direct tank fill system is operating properly or if fault exists in bulb, indicator, or wires leading to indicator.

Step 1. Remove direct tank fill valve cover (WP 0303). Turn battery disconnect switch to ON position (WP 0007). While an assistant puts pump operator's panel DIRECT TANK FILL switch to OPEN position (WP 0004), check if direct tank fill valve operates to open position.

If direct tank fill valve does not operate to open position, troubleshoot Direct Tank Fill Valve Does Not Operate Properly (Auto or Manual Mode) (WP 0105).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



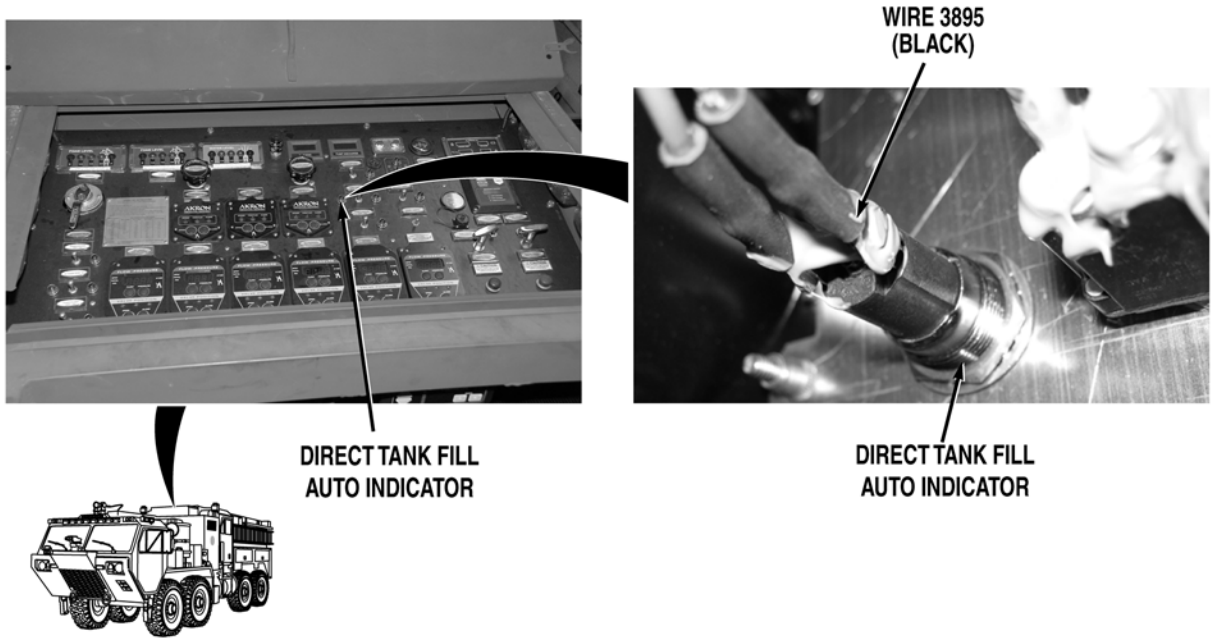
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Put pump operator's panel DIRECT TANK FILL switch to OFF position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from pump operator's panel DIRECT TANK FILL AUTO indicator (WP 0327). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0327).

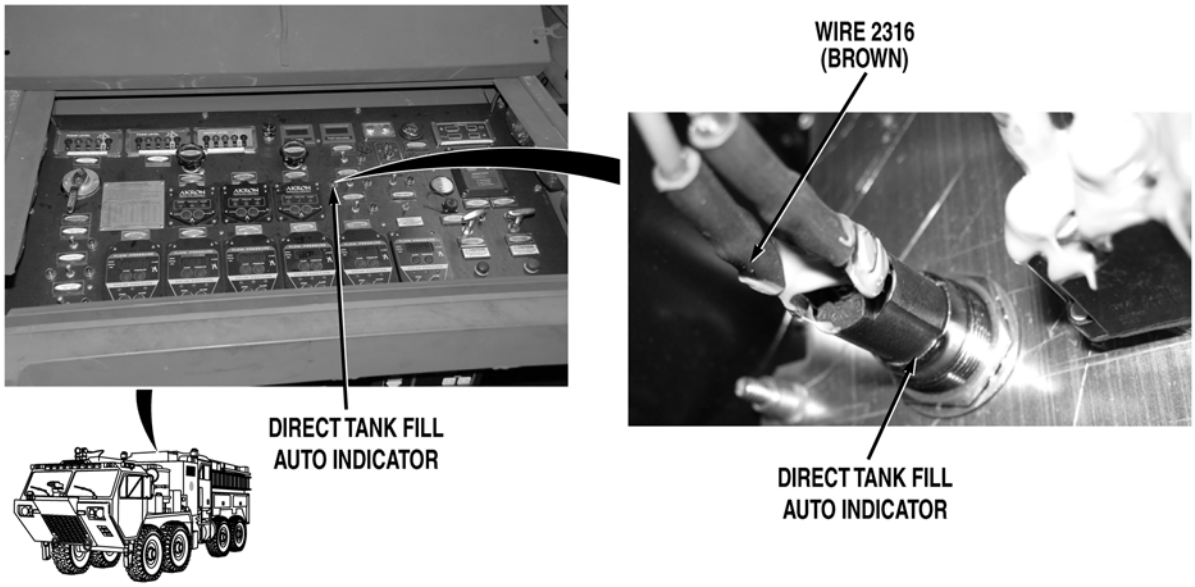
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Install lamp in pump operator's panel DIRECT TANK FILL AUTO indicator (WP 0327). Open pump operator's panel housing (WP 0325). Check for continuity across pump operator's panel wire harness wire 3895 (black) from pump operator's panel DIRECT TANK FILL AUTO indicator to a known good ground.

If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel DIRECT TANK FILL switch to AUTO position (WP 0004). Check for 22 to 28 VDC at pump operator's panel wire harness wire 2316 (brown) from DIRECT TANK FILL AUTO indicator to a known good ground.

a. If 22 to 28 VDC are present, replace DIRECT TANK FILL AUTO indicator (WP 0326).

b. If 22 to 28 VDC are not present, repair wire 2316 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DIRECT TANK FILL OPEN INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0019
WP 0105
WP 0303
WP 0325
WP 0326
WP 0327
WP 0459

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

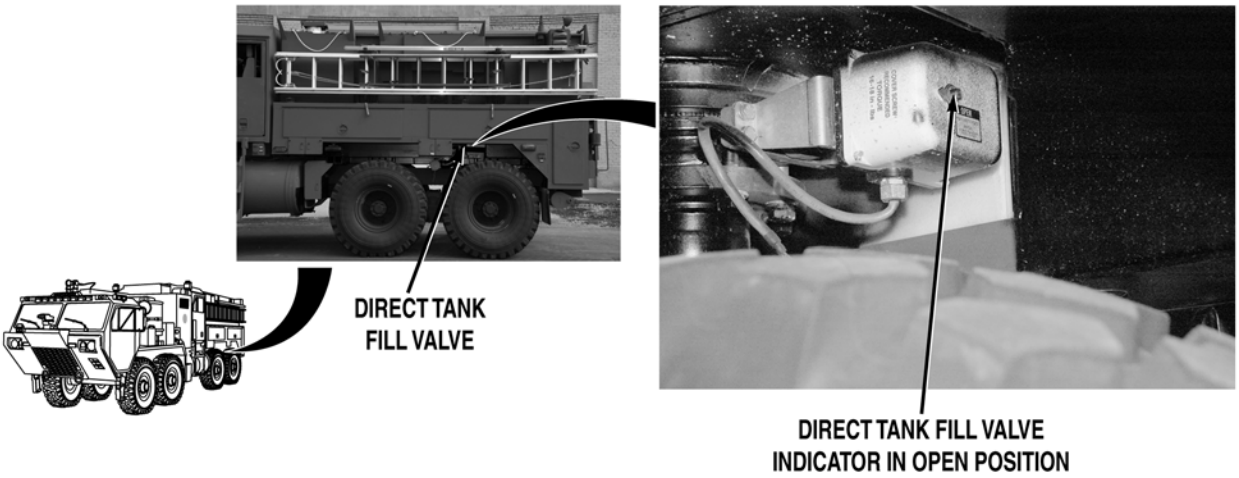
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

DIRECT TANK FILL OPEN INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

NOTE

- Ensure cap is installed tightly on direct tank fill inlet during this procedure. Or, connect hose to direct tank fill inlet to drain water into appropriate container or to ground. If direct tank fill valve opens during this procedure, water will discharge from tank uncontrolled.
- Valve operations can be checked by observing valve shaft rotation.
- Step 1 will ensure that direct tank fill system is operating properly or if fault exists in lamp, indicator, or wires leading to indicator.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Remove direct tank fill valve cover (WP 0303). Turn battery disconnect switch to ON position (WP 0007). Open pump operator's panel (WP 0019). While an assistant puts pump operator's panel DIRECT TANK FILL switch to OPEN position (WP 0004), check if direct tank fill valve operates to open position.

If direct tank fill valve does not operate to open position, troubleshoot Direct Tank Fill Valve Does Not Operate Properly (Auto or Manual Mode) (WP 0105).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

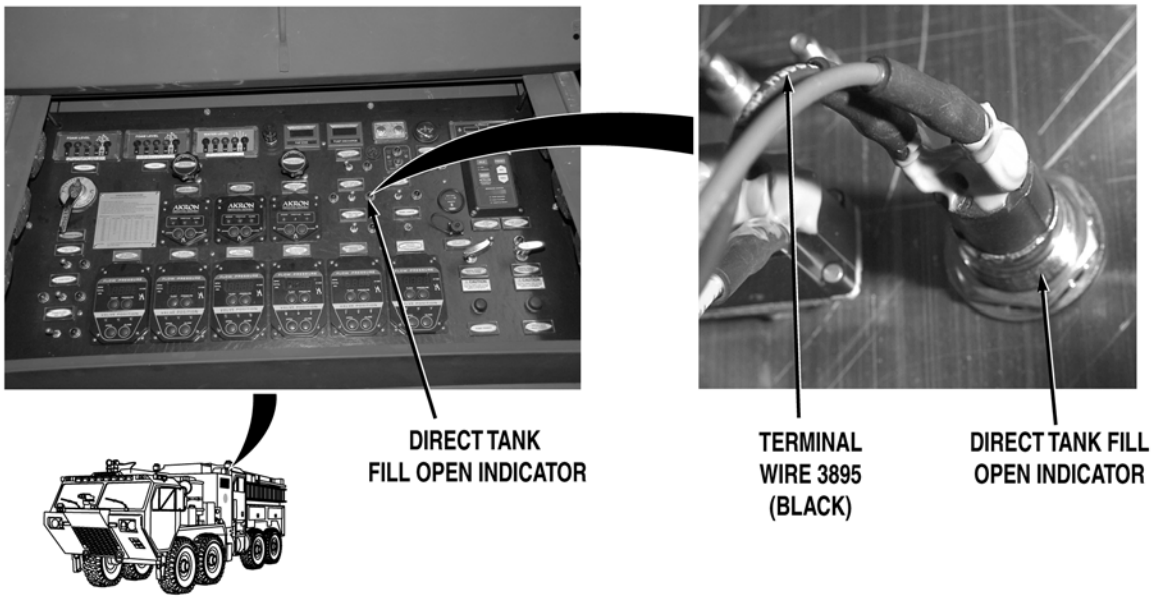
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Put pump operator's panel DIRECT TANK FILL switch to OFF position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from pump operator's panel DIRECT TANK FILL open indicator (WP 0327). Check for continuity across lamp.

If there is no continuity, replace DIRECT TANK FILL open indicator lamp (WP 0327).

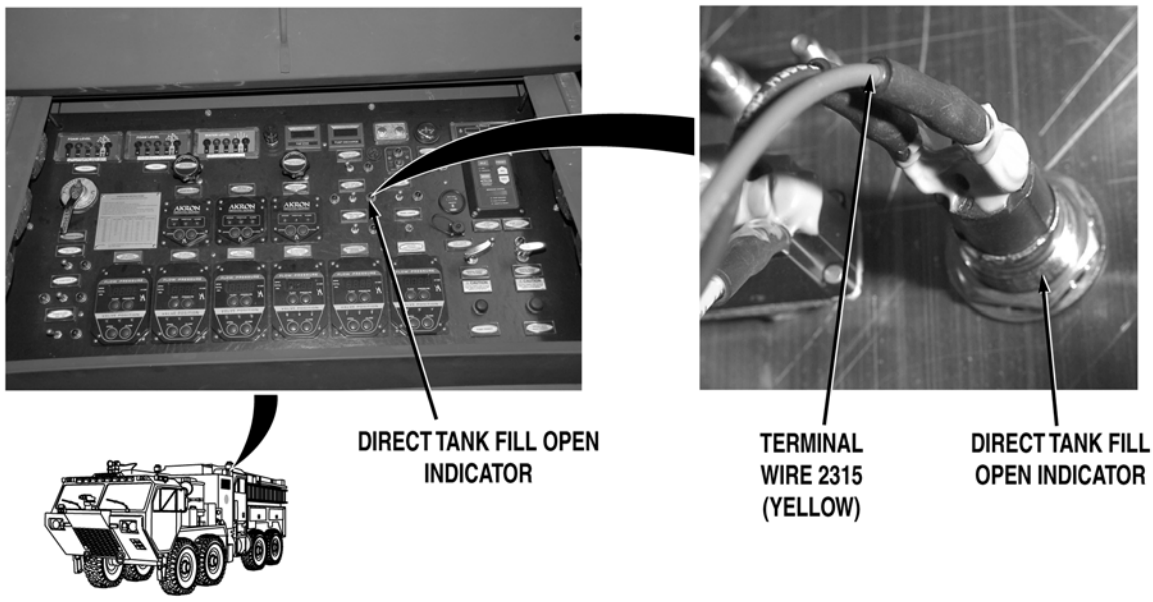
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Install lamp in pump operator's panel DIRECT TANK FILL open indicator (WP 0327). Open pump operator's panel housing (WP 0325). Check for continuity across pump operator's panel wire harness wire 3895 (black) from pump operator's panel DIRECT TANK FILL open indicator to a known good ground.

If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between pump operator's panel wire harness wire 2315 (yellow) from pump operator's panel DIRECT TANK FILL open indicator to a known good ground.

a. If 22 to 28 VDC are present, replace DIRECT TANK FILL open indicator (WP 0326).

b. If 22 to 28 VDC are not present, repair wire 2315 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DO NOT MOVE APPARATUS WHEN LIGHT IS ON INDICATOR DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 15)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0011
WP 0018
WP 0151
WP 0305
WP 0311

References (continued)
WP 0348
WP 0385
WP 0399
WP 0401
WP 0402
WP 0440
WP 0441
WP 0446
WP 0448
WP 0455
WP 0456
WP 0461
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

DO NOT MOVE APPARATUS WHEN LIGHT IS ON INDICATOR DOES NOT OPERATE PROPERLY

NOTE

DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flasher unit receives power when parking brakes are released or ENGINE switch is in OFF position (TM 9-2320-347-10). Make sure that ENGINE switch is in OFF position while performing checks unless directed otherwise.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Open all stowage compartment doors and hatches (WP 0010). Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, go to Step 55.

Step 2. Turn ENGINE switch to ON position (TM 9-2320-347-10). Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator stops flashing.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not stop flashing, go to Step 52.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 3. Close all stowage compartment doors and hatches (WP 0010). Turn ENGINE switch to OFF position (TM 9-2320-347-10). Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes (WP 0004).

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes, go to Step 31.

Step 4. While an assistant opens and closes each of following stowage compartment doors one at a time (WP 0010), check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes when door is open (WP 0004). Open passenger side rear stowage compartment P1 door (WP 0010). Open passenger side center stowage compartment P2 door (WP 0010), then close. Open passenger side center stowage compartment P3 door (WP 0010), then close. Open passenger side top hatch T1 (WP 0010), then close.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash when stowage compartment door is open, go to Step 27.

Step 5. While an assistant opens and closes each following compartment doors, one at a time (WP 0010), check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes when door is open (WP 0004). Open driver side rear stowage compartment D1 door (WP 0010), then close. Open driver side center stowage compartment D2 door (WP 0010), then close. Open driver side front stowage compartment D3 door (WP 0010), then close.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash when stowage compartment door is open or ladder rack is unstowed, go to Step 23.

Step 6. While an assistant opens and closes each of the following crew cab roof hatch and crew cab doors one at a time (WP 0010), check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes when door is open (WP 0004). Open passenger side crew cab door (WP 0010), then close. Open driver side crew cab door (WP 0010), then close. Open crew cab roof hatch (WP 0018), then close.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash when crew cab doors are opened, go to Step 20.

Step 7. While an assistant unstows equipment (ladder) rack, then stows equipment (ladder) rack (WP 0011), check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes when equipment (ladder) rack is unstowed.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash when equipment (ladder) rack is unstowed, go to Step 16.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

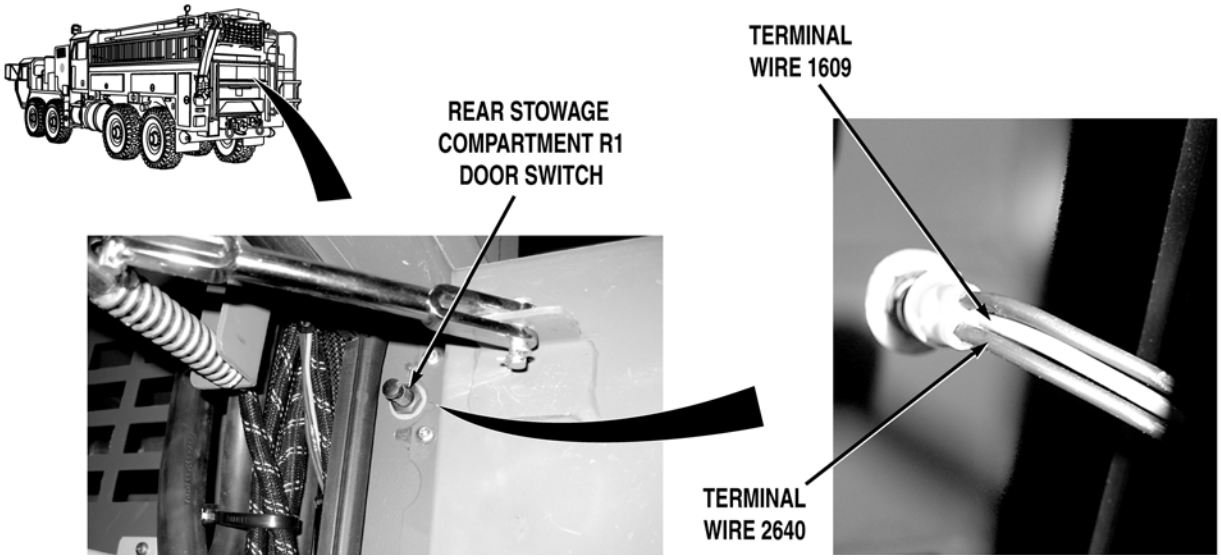
Step 8. While an assistant opens and closes passenger side front stowage compartment P5 door (WP 0010), check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes when passenger side front stowage compartment P5 door is open (WP 0010).

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash when passenger side front stowage compartment P5 door is opened, go to Step 14.

Step 9. While an assistant opens and closes rear stowage compartment R1 (WP 0010), check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes when door is open (WP 0010).

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON WHEN LIGHT IS ON indicator flashes when crew cab and compartment doors are opened, system is operating properly.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Close all crew cab, stowage compartment doors, and hatches except rear stowage compartment doors R1 (WP 0010). Remove door switch at rear stowage compartment door R1 (WP 0385). Do not disconnect wires. Check for continuity between door switch terminal wire 1609 (gray) and a known good ground when switch is closed (door switch is not pressed).

If there is continuity, go to Step 13.

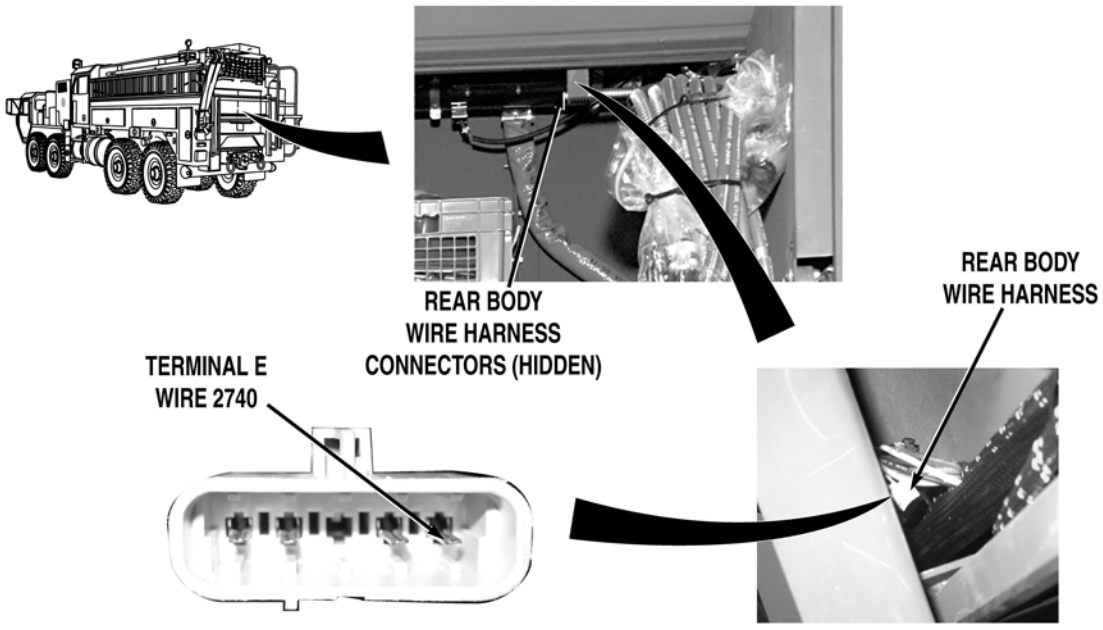
NOTE

If wire 2740 cannot be identified at door switch, measure continuity across switch from terminal wire 1609 (gray) to both black wire terminals. Continuity should be measured between all terminals, when switch is closed (door switch is not pressed).

Step 11. Check for continuity across door switch between terminal wire 1609 (gray) and terminal wire 2740 (black) when switch is closed (door switch is not pressed).

If there is no continuity, replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

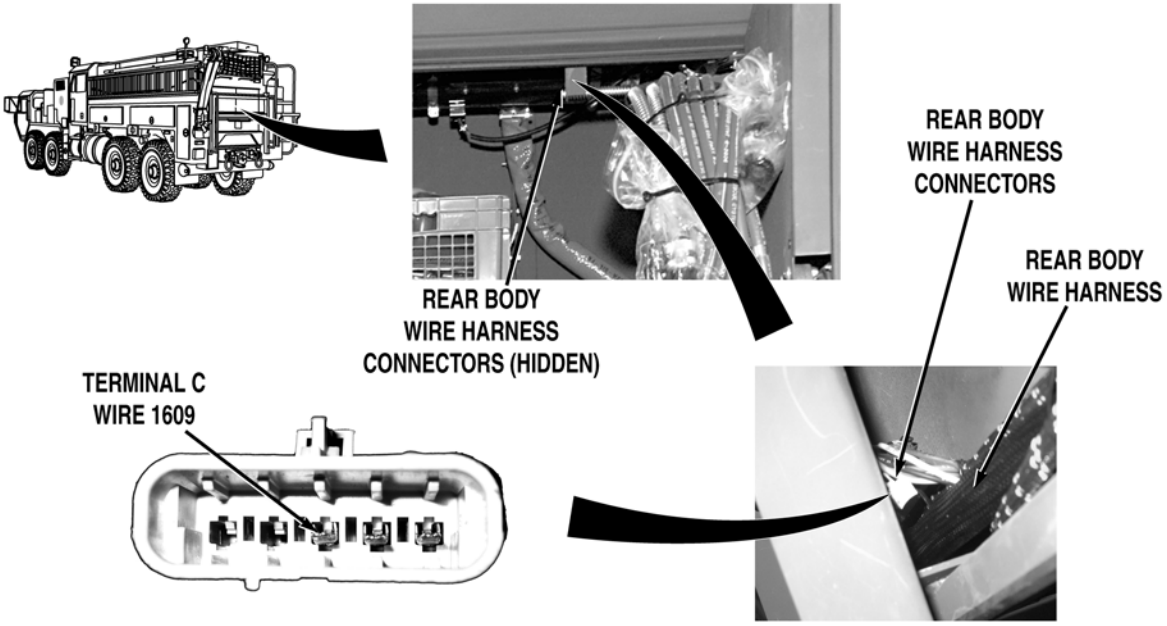


Step 12. Disconnect rear body wire harness passenger side body wire harness connector. With a test lead set, check for continuity across rear body wire harness wire 2740 (black) from rear body wire harness passenger side body wire harness connectors, terminals E to a known good ground.

a. If there is continuity, repair wire 2740 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

b. If there is no continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace in passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

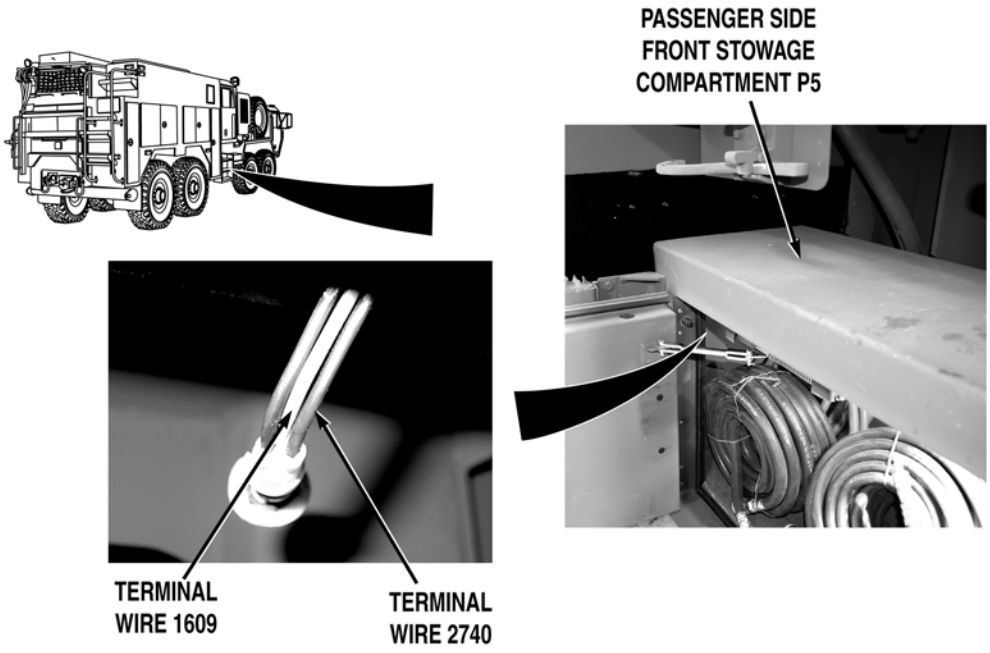


Step 13. Disconnect rear body wire harness passenger side body wire harness connector. With a test lead set, check for continuity across rear body wire harness wire 1609 (gray) from rear body wire harness connector, terminal C to door switch connector terminal.

a. If there is continuity, repair wire 1609 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 1609 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

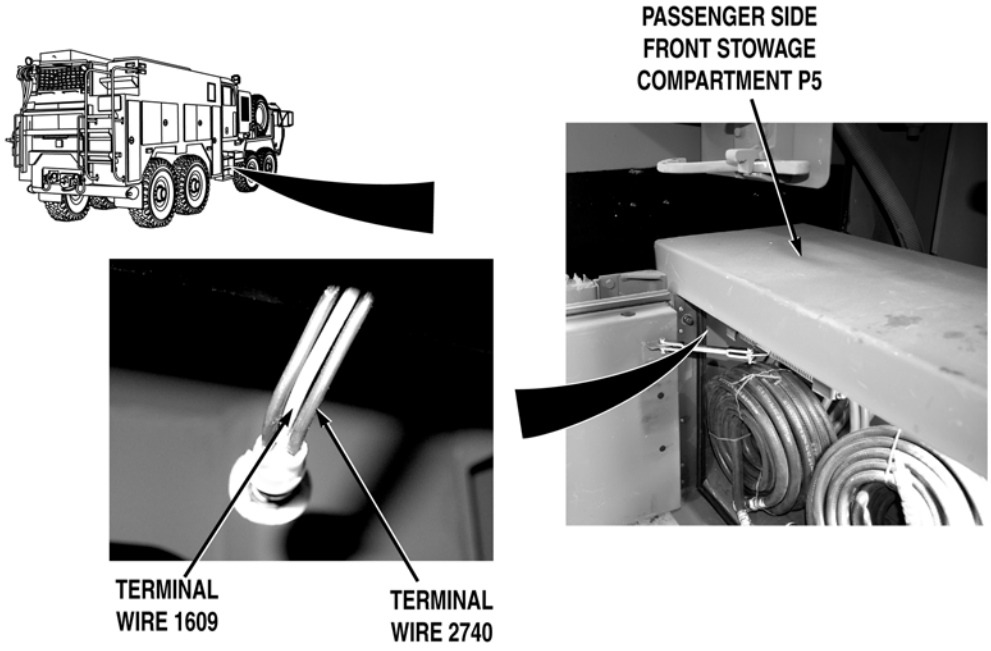
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 14. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Close all stowage compartment doors and hatches except passenger side front stowage compartment P5 door (WP 0010). Remove door switch at passenger side front stowage compartment P5 door (WP 0385). Do not disconnect wires. With a test lead set, check for continuity between door switch terminal wire 1609 (gray) and a known good ground when switch is closed (door switch is not pressed).

If there is continuity, repair wire 1609 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

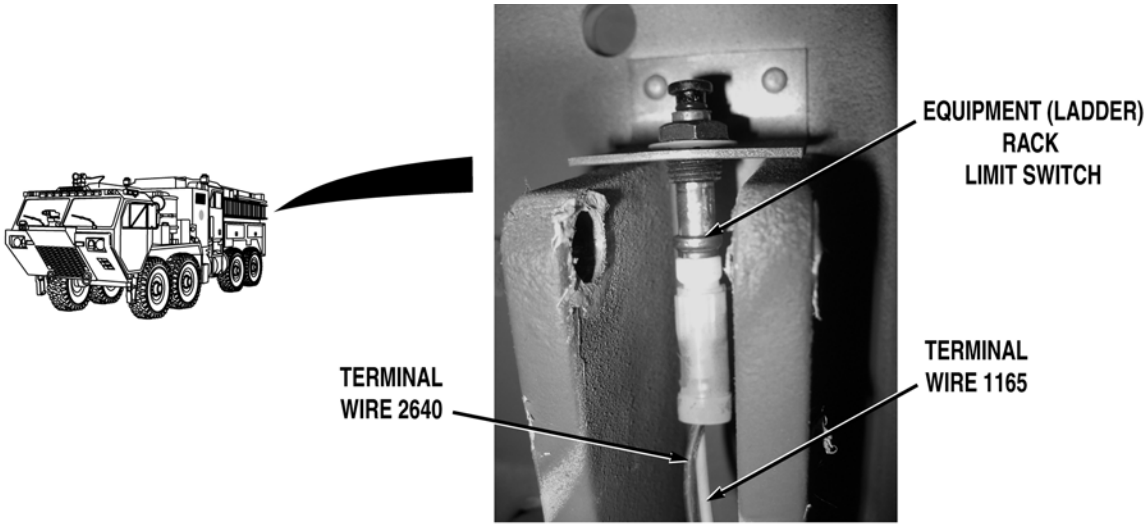
If wire 2740 cannot be identified at door switch, measure continuity across switch from terminal wire 1609 (gray) to both black wire terminals. Continuity should be measured between all terminals, when switch is closed (door switch is not pressed).

Step 15. Check for continuity across door/hatch switch between terminal wire 1609 (gray) and terminal wire 2740 (black) when switch is closed (door switch is not pressed).

a. If there is continuity, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Stay clear of equipment (ladder) rack area unless equipment (ladder) rack is locked in raised position or in fully lowered position with MASTER SWITCH OFF. Sudden equipment (ladder) rack movement may cause injury or death to personnel.

CAUTION

Make sure ladders are clear of crew cab. Ladder could contact crew cab causing damage to equipment.

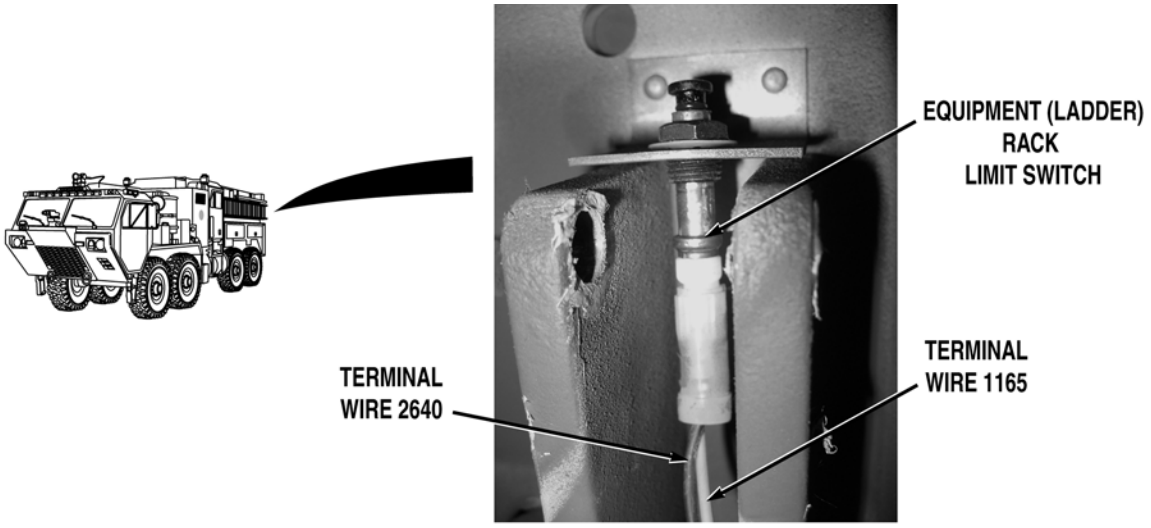
NOTE

Continuity should be measured between all terminals when equipment (ladder) rack limit switch is closed (door switch is not pressed). Do not disconnect driver side body wire equipment (ladder) rack limit switch connector for Step 16. Switch will be back probed for this procedure.

Step 16. Unstow equipment (ladder) rack (WP 0011). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove equipment (ladder) rack limit switch (WP 0385). Check for continuity between ladder rack limit switch 1165 (Yellow) and a known good ground when switch is closed (door switch is not pressed).

If there is continuity, go to Step 19.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Continuity should be measured between all terminals, when switch is closed (door switch is not pressed).

Step 17. Check for continuity across ladder rack limit switch terminal wire 1165 (Yellow) and terminal wire 2640 (black) when switch is closed (door switch is not pressed).

If there is no continuity, replace door switch (WP 0385).

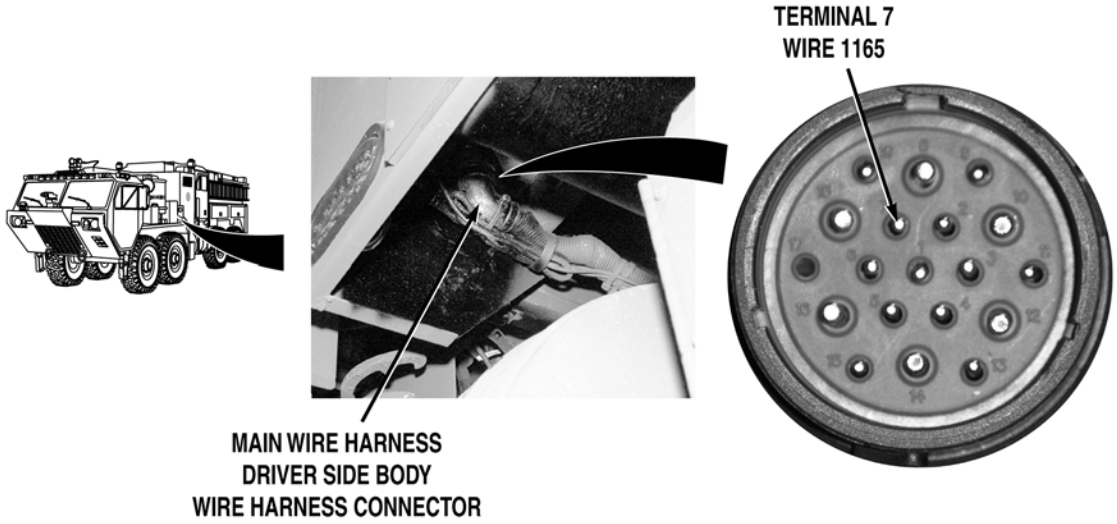
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 18. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across main wire harness 2640 (black) from main wire harness driver side body wire harness connectors, terminal 10 and a known good ground.

a. If there is continuity at both terminals, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity at either terminal, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

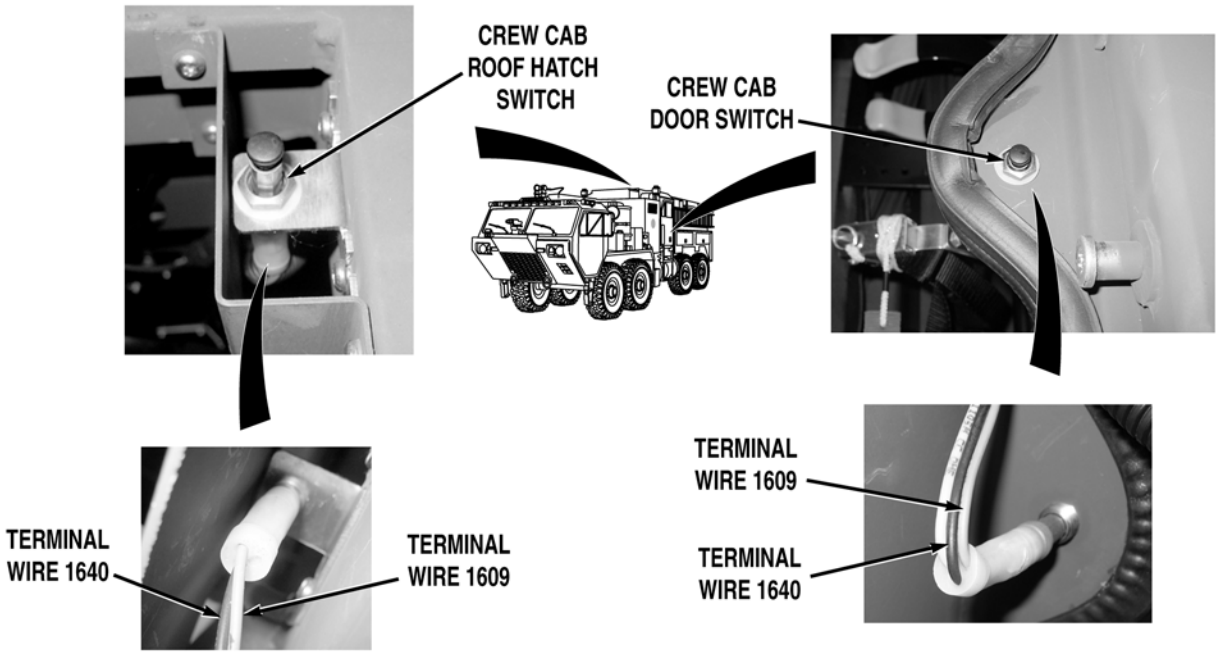


Step 19. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across driver side body wire harness wire 1165 (Yellow) from driver side body wire harness connector, terminal 7 to equipment (ladder) rack limit switch connector terminal.

a. If there is no continuity, repair wire 1165 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 1165 in main body wire harness if repairable (TM 9-2320-325-14&P), or replace main body wire harness (WP 0455).

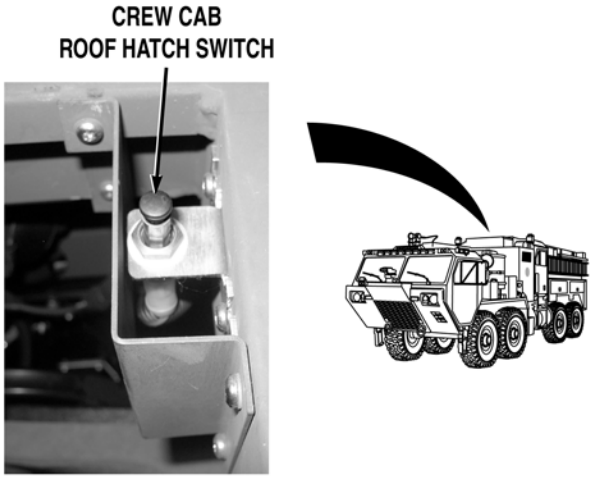
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 20. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Close all crew cab, stowage compartment doors, and hatches except non-operating crew cab door (WP 0010) or crew cab roof hatch (WP 0018). Remove door/hatch switch at non-operating crew cab door or crew cab roof hatch (WP 0385). Do not disconnect wires. Check for continuity between door/hatch switch terminal wire 1609 (gray) and a known good ground when switch is closed (door switch is not pressed).

If there is continuity, go to Step 22.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

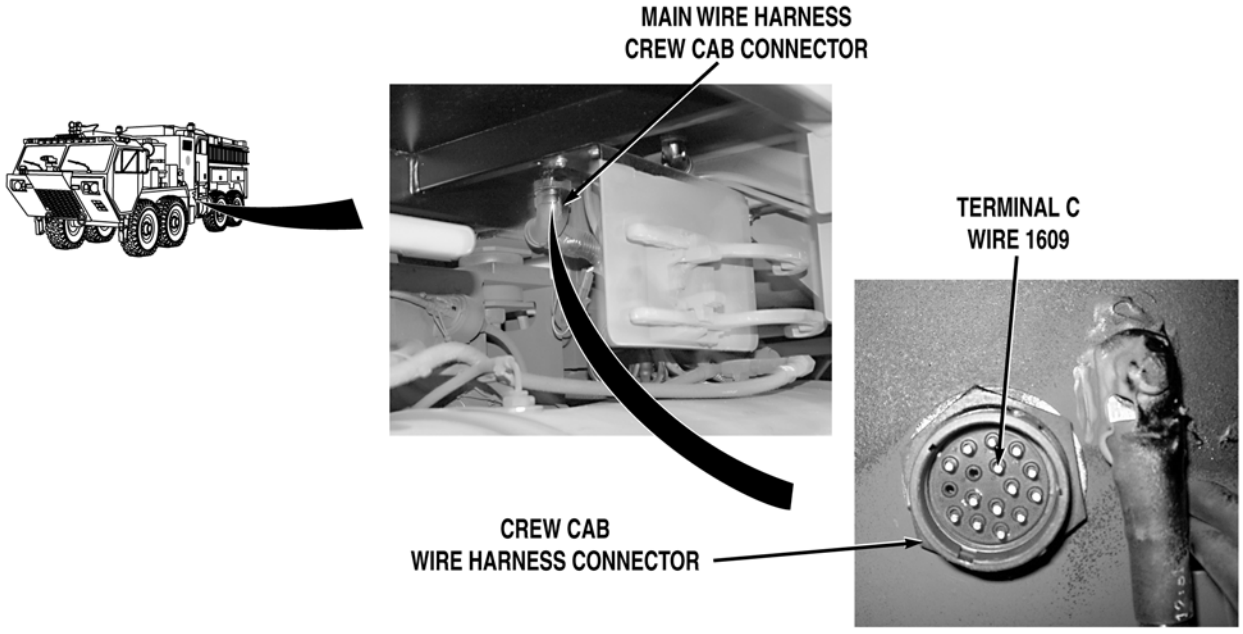
- If wire 1640 (black) cannot be identified at door switch, measure continuity across switch from terminal wire 1609 (gray) to both black wire terminals.
- Continuity should be measured between terminals, when switch is closed (door switch is not pressed).

Step 21. Check for continuity across crew cab door or crew cab roof hatch switch between terminal wire 1609 (gray) and terminal wire 1640 (black).

a. If there is continuity, repair wire 1640 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

b. If there is no continuity, replace door/hatch switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

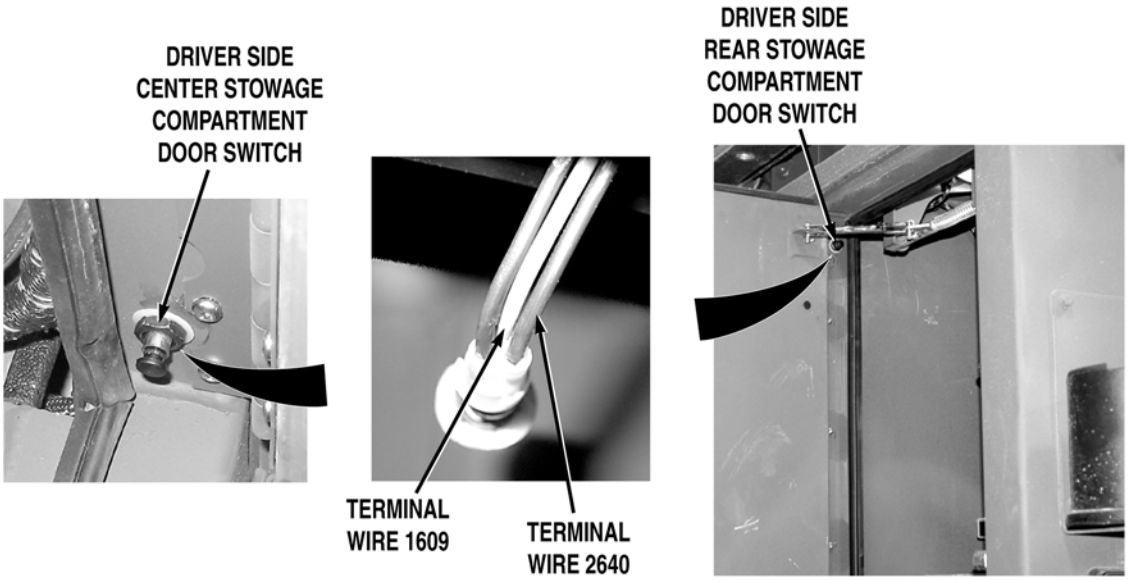


Step 22. Disconnect main wire harness crew cab wire harness connector. With a test lead set, check for continuity across crew cab wire harness wire 1609 (gray) from main wire crew cab main wire harness connector, terminal C to door/hatch switch connector terminal.

a. If there is continuity, repair wire 1609 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1609 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

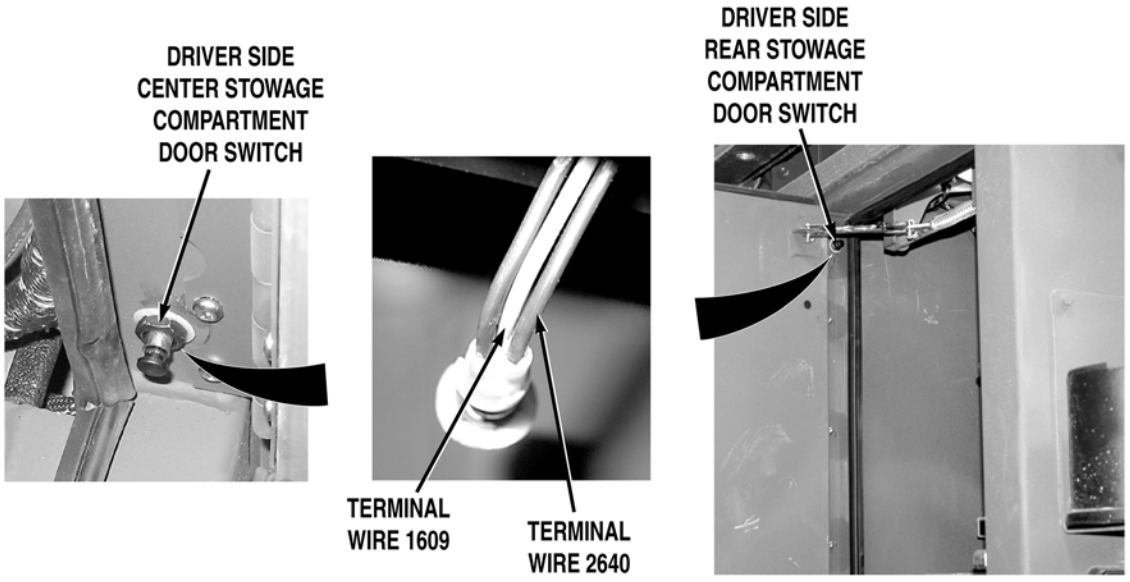
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 23. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Close all stowage compartment doors except non-operating door (WP 0010). Remove door switch at non-operating door (WP 0385). Do not disconnect wires. Check for continuity between door switch terminal wire 1609 (gray) and a known good ground when switch is closed (door switch is not pressed).

If there is continuity, go to Step 26.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

If wire 2640 (black) cannot be identified at door switch, measure continuity across switch from terminal wire 1609 (gray) to both black wire terminals. Continuity should be measured between all terminals, when switch is closed (door switch is not pressed).

Step 24. Check for continuity across door switch between terminal 1609 (gray) and terminal wire 2640 (black) when switch is closed (door switch is not pressed).

If there is no continuity, replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 25. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2640 (black) from main wire harness driver side body wire harness connector, terminal 10 and a known good ground.

a. If there is continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

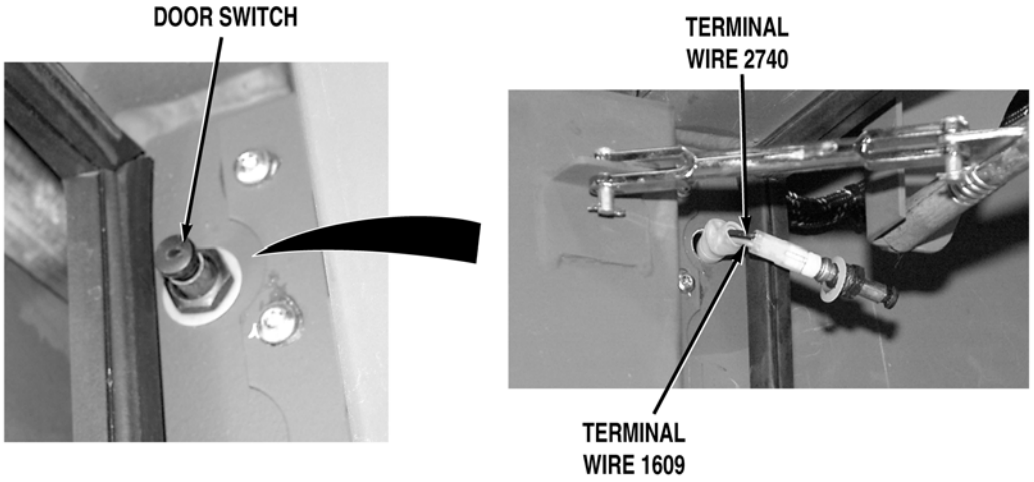
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 26. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across driver side body wire harness wire 1609 (gray) from driver side body wire harness connector, terminal 10 to door switch connector terminal.

a. If there is continuity, repair wire 1609 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1609 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 27. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Close all stowage compartment doors and hatches except non-operating door (WP 0010). Remove door switch at non-operating door (WP 0385). Do not disconnect wires. Check for continuity between door switch terminal wire 1609 (gray) and a known good ground when switch is closed (door switch is not pressed).

If there is no continuity, go to Step 30.

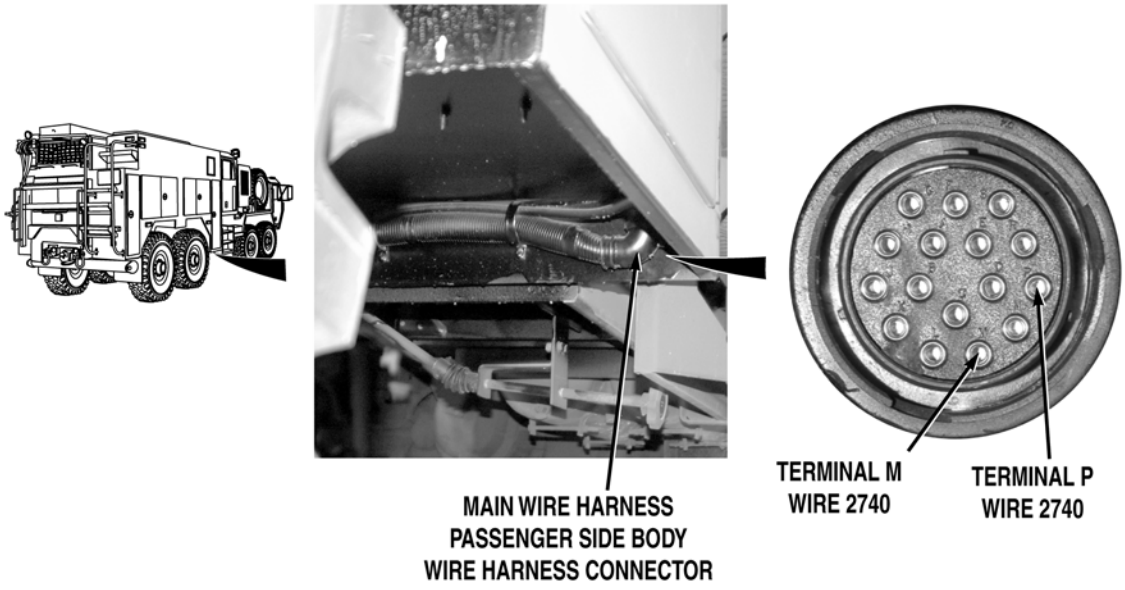
NOTE

If wire 2740 cannot be identified at door switch, measure continuity across switch from terminal wire 1609 (gray) to both black wire terminals. Continuity should be measured between all terminals, when switch is closed (door switch is not pressed).

Step 28. Check for continuity across door switch between terminal wire 1609 (gray) and terminal wire 2740 (black) when switch is closed (door switch is not pressed).

If there is no continuity, replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

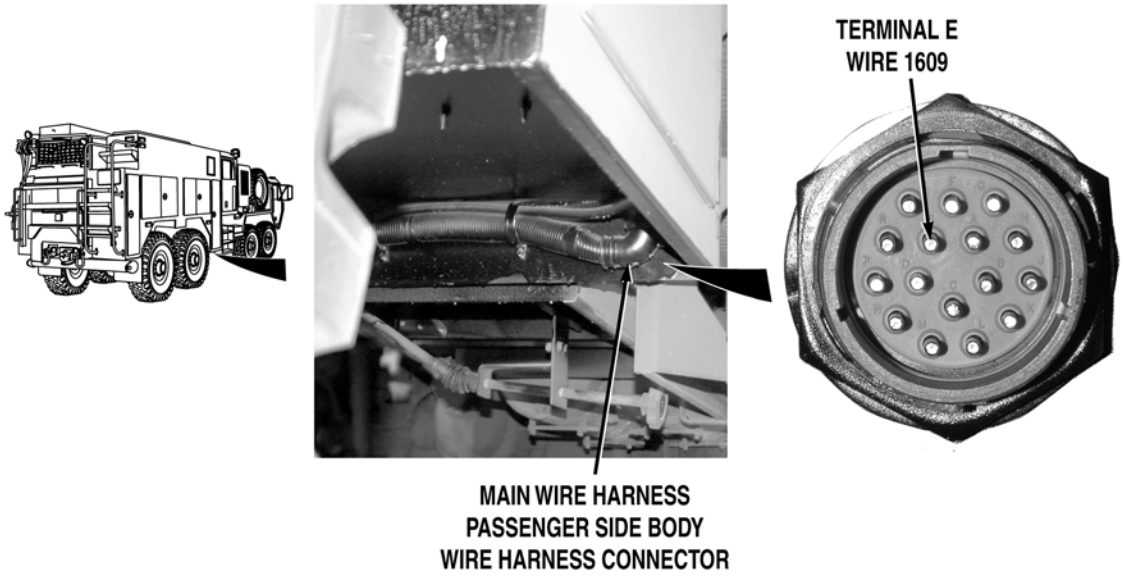


Step 29. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2740 (black) from main wire harness driver side body wire harness connectors, terminal M, terminal P, and a known good ground.

a. If there is continuity at both terminals, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity at either terminal, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

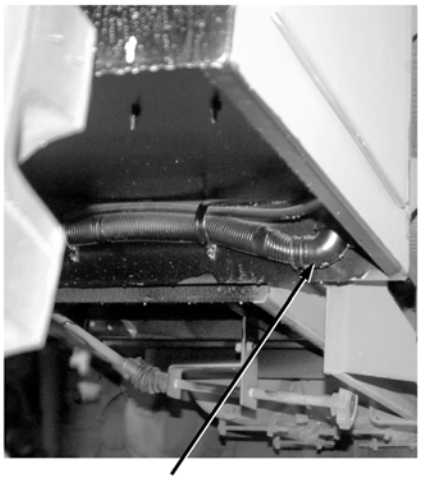


Step 30. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across passenger side body wire harness wire 1609 (gray) from passenger side body wire harness connector, terminal E to door switch connector terminal.

a. If there is continuity, repair wire 1609 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1609 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



MAIN WIRE HARNESS
PASSENGER SIDE BODY
WIRE HARNESS CONNECTOR

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

- A short to ground is present in system. Steps 31 through 37 will isolate fault to a harness.
- Keep all stowage compartment doors/hatches closed and ENGINE switch in OFF position (TM 9-2320-347-10) when performing these Steps.

Step 31. Disconnect main wire harness passenger side body wire harness connector. Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, go to Step 47.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

MAIN WIRE HARNESS
DRIVER SIDE BODY
WIRE HARNESS CONNECTOR

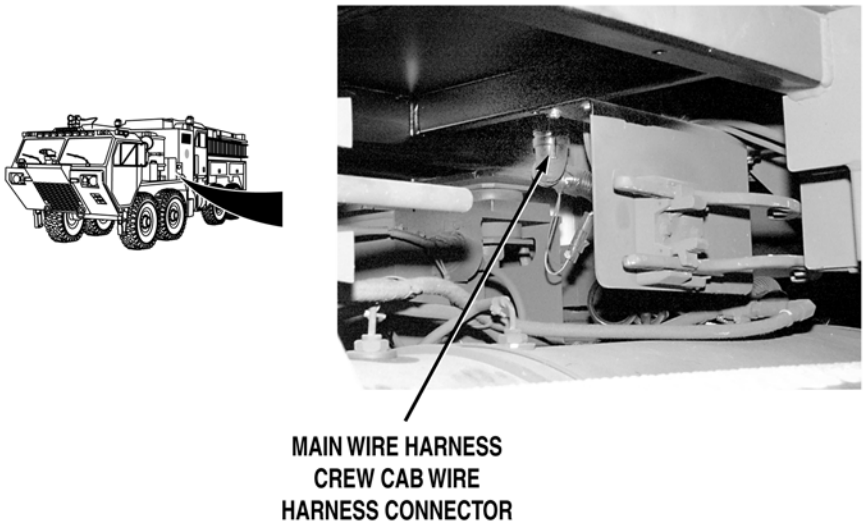
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 32. Connect main wire harness passenger side body wire harness connector. Disconnect main wire harness driver side body wire harness connector. Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

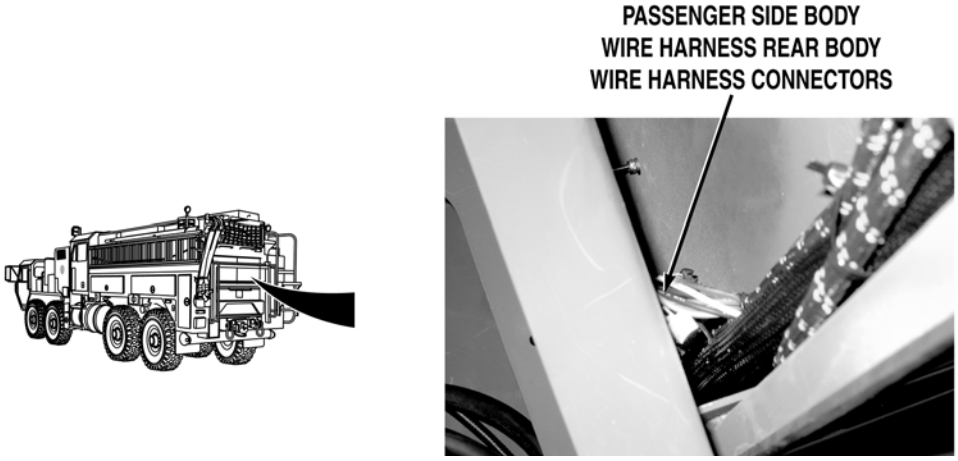
If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, go to Step 43.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 33. Connect main wire harness driver side body wire harness connector. Disconnect main wire harness crew cab wire harness connector. Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

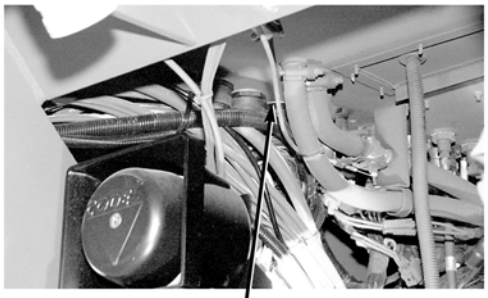
If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, go to Step 40.



Step 34. Connect main wire harness crew cab wire harness connector. Disconnect main wire harness rear body wire harness connectors. Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, go to Step 39.

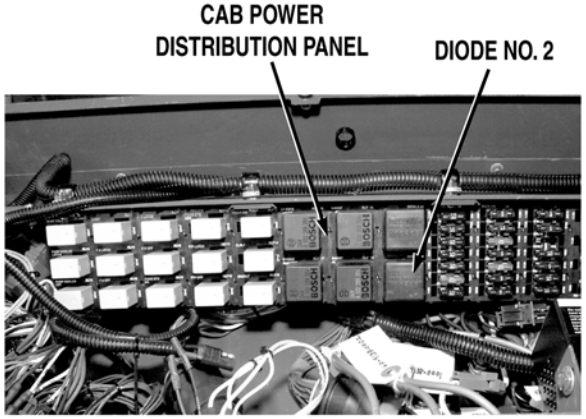
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

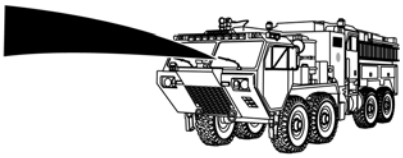


MAIN WIRE HARNESS
MAIN 3
WIRE HARNESS CONNECTOR

Step 35. Connect main wire harness driver side body wire harness connector. Remove skid plate grille (WP 0550). Disconnect main wire harness main 3 wire harness connector. Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, go to Step 38.

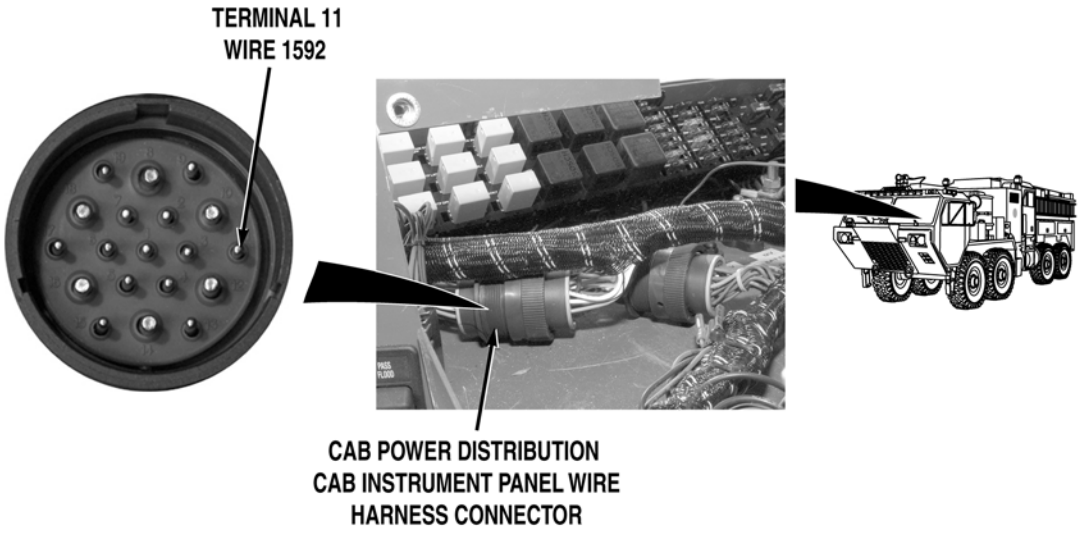




Step 36. Connect main wire harness main 3 connector. Remove cab instrument panel A (WP 0311). Remove diode pack (WP 0399). Turn battery disconnect switch to ON position (WP 0007). Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, repair wire 1609 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

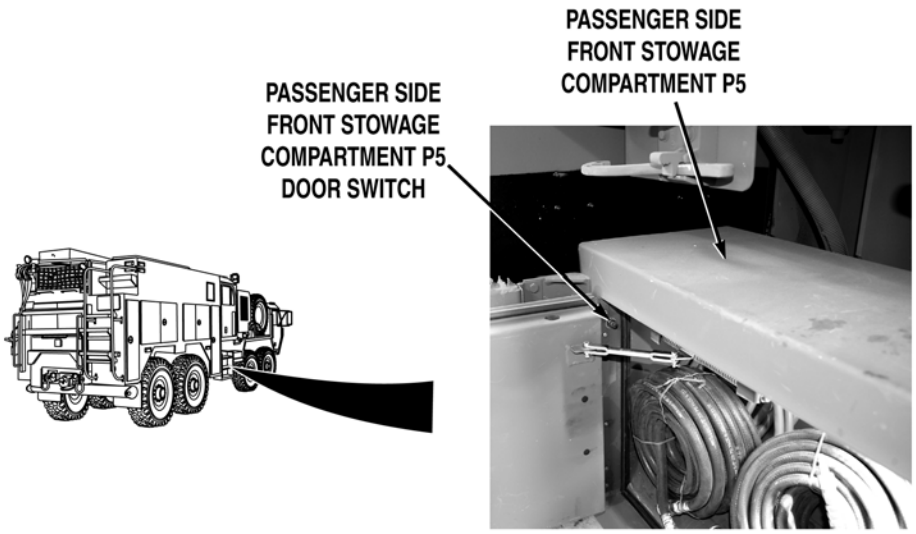


Step 37. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity between cab power distribution wire harness wire 1592 (gray) at cab power distribution wire harness cab instrument panel wire harness connector, terminal 11 and a known good ground.

a. If there is continuity, repair wire 1592 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If there is no continuity, repair wire 1592 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

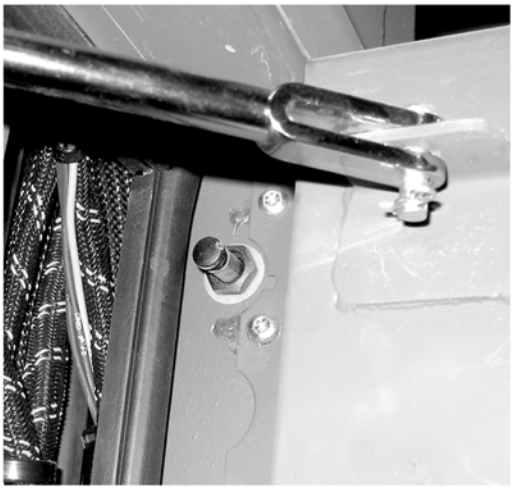
Keep all other stowage compartment door/hatches closed and ENGINE switch in OFF position (TM 9-2320-347-10).

Step 38. Connect rear body wire harness connector. Open passenger side stowage compartment doors P5 (WP 0010). While an assistant pushes passenger side stowage compartment door switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

a. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

b. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes, repair wire 1609 in main body wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

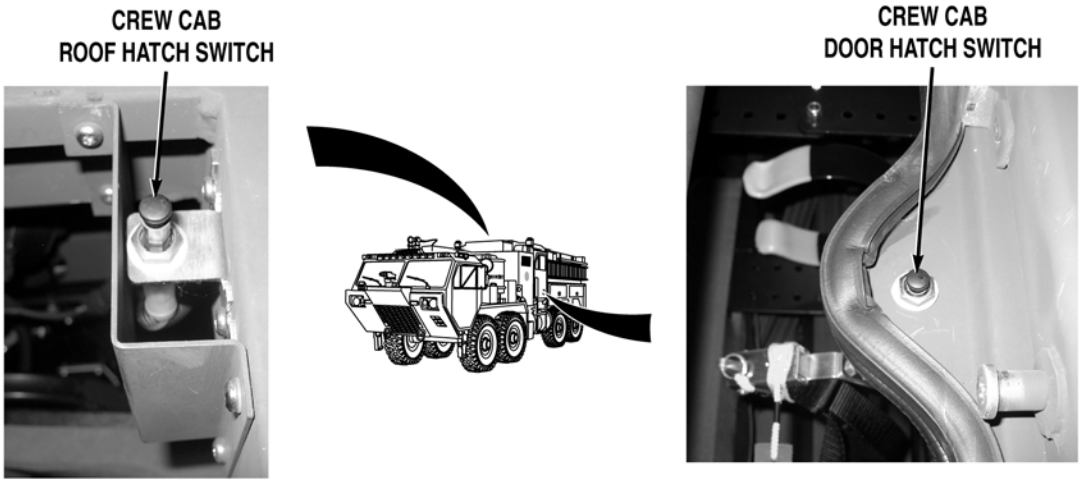
Keep all other stowage compartment door/hatches closed and ENGINE switch in OFF position (TM 9-2320-347-10).

Step 39. Connect rear body wire harness connector. Open rear stowage compartment doors R1 (WP 0010) while an assistant pushes rear stowage compartment door switch.

a. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

b. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes, repair wire 1609 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

Keep all other stowage compartment door/hatches closed and ENGINE switch in OFF position (TM 9-2320-347-10).

Step 40. Connect main wire harness crew cab wire harness connector. Open driver side crew cab door (WP 0010). While an assistant pushes driver side crew cab switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 41. Open passenger side crew cab door (WP 0010). While an assistant pushes passenger side crew cab door switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

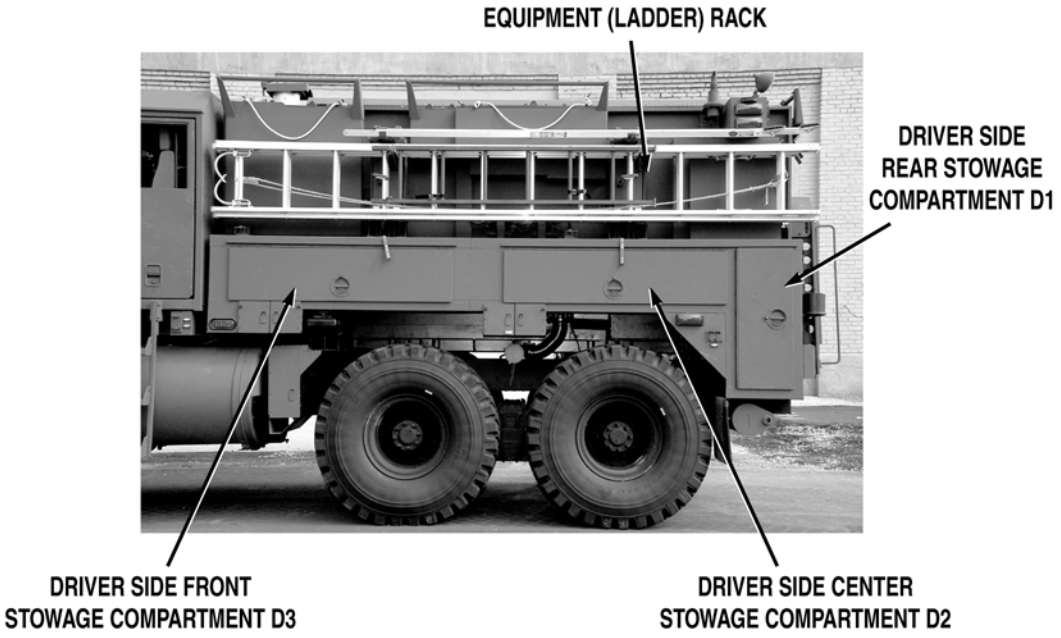
If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

Step 42. Open crew cab roof hatch (WP 0018). While an assistant pushes crew cab roof hatch switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

a. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

b. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes, repair wire 1609 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

Keep all other stowage compartment door/hatches closed and ENGINE switch in OFF position (TM 9-2320-347-10).

Step 43. Connect driver side body wire harness connector. Open driver side front stowage compartment doors D3 (WP 0010). While an assistant pushes driver side front stowage compartment door D3 switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

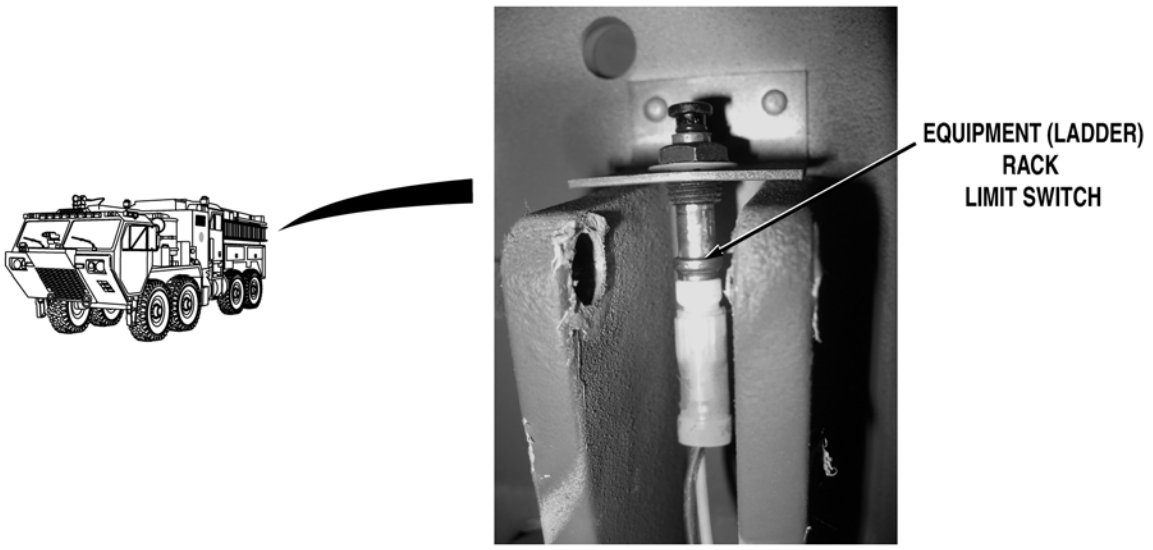
Step 44. Open driver side center stowage compartment doors D2 (WP 0010). While an assistant pushes driver side center stowage compartment door D2 switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

Step 45. Open driver side rear stowage compartment doors D1 (WP 0010). While an assistant pushes driver side rear stowage compartment door D1 switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Stay clear of equipment (ladder) rack area unless equipment (ladder) rack is locked in raised position or in fully lowered position with MASTER SWITCH OFF. Sudden equipment (ladder) rack movement may cause injury or death to personnel.

CAUTION

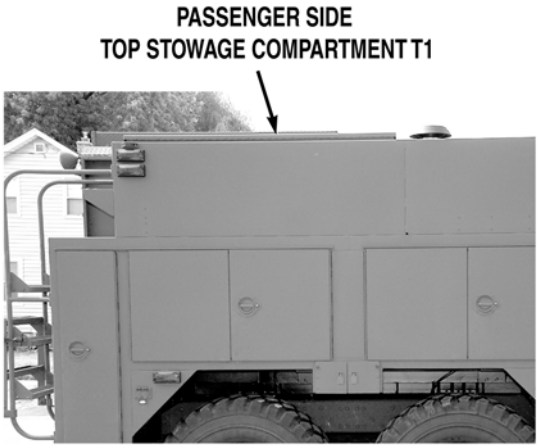
Make sure ladders are clear of crew cab. Ladder could contact crew cab causing damage to equipment.

Step 46. Pull two straps to release locks. Put MASTER SWITCH to ON position. Indicator light will come on. Clear equipment (ladder) rack area and push LIFT SWITCH down to lower equipment (ladder) rack (WP 0011). While an assistant pushes equipment (ladder) rack switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

a. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust, or replace door switch (WP 0385).

b. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes, repair wire 1609 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

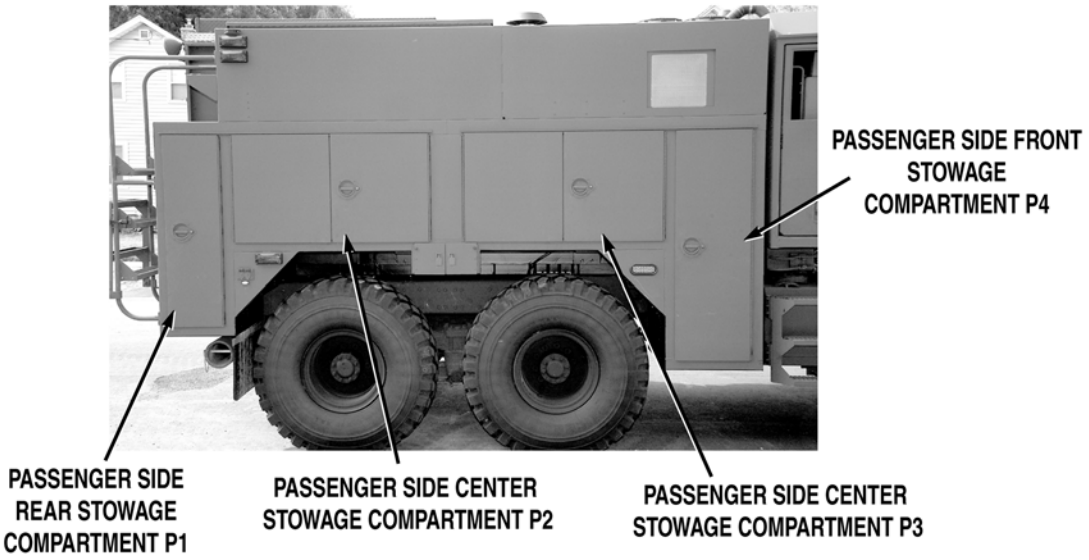
NOTE

Keep all other stowage compartment door/hatches closed and ENGINE switch in OFF position (TM 9-2320-347-10).

Step 47. Connect passenger side body wire harness connector. Open passenger top stowage compartment door T1 (WP 0010). While an assistant pushes passenger top stowage compartment door T1 switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust or replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 48. Open passenger side front stowage compartment P4 (WP 0010). While an assistant pushes passenger side front stowage compartment door P4 switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust or replace door switch (WP 0385).

Step 49. Open passenger side center stowage compartment door P3 (WP 0010). While an assistant pushes passenger side center stowage compartment door P3 switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust or replace door switch (WP 0385).

Step 50. Open passenger side center stowage compartment door P2 (WP 0010). While an assistant pushes passenger side center stowage compartment door P2 switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

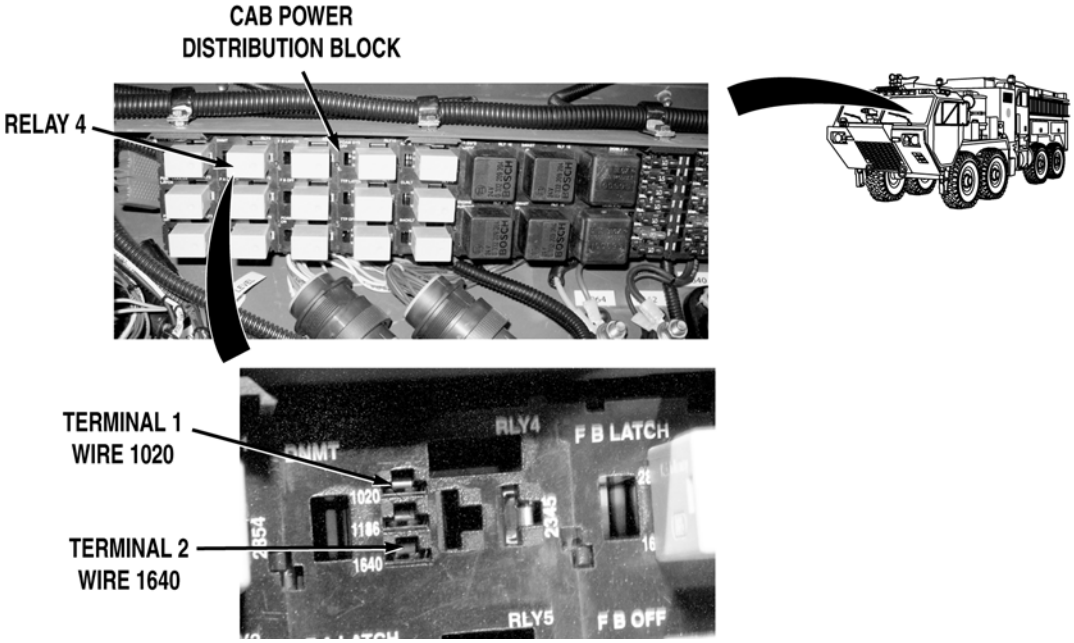
If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust or replace door switch (WP 0385).

Step 51. Open passenger side rear stowage compartment door P1 (WP 0010). While an assistant pushes passenger side rear stowage compartment door P1 switch, check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes.

a. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator does not flash, readjust or replace door switch (WP 0385).

b. If DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes, repair wire 1609 in passenger side wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 52. Remove cab instrument panel A (WP 0311). Remove relay 4 (WP 0240). Turn battery disconnect switch to ON position (WP 0007). Turn ENGINE switch to ON position (TM 9-2320-347-10). Check for 22 to 28 VDC between cab power distribution wire harness wires 1020 (pink) at relay 4 connector, terminal 1.

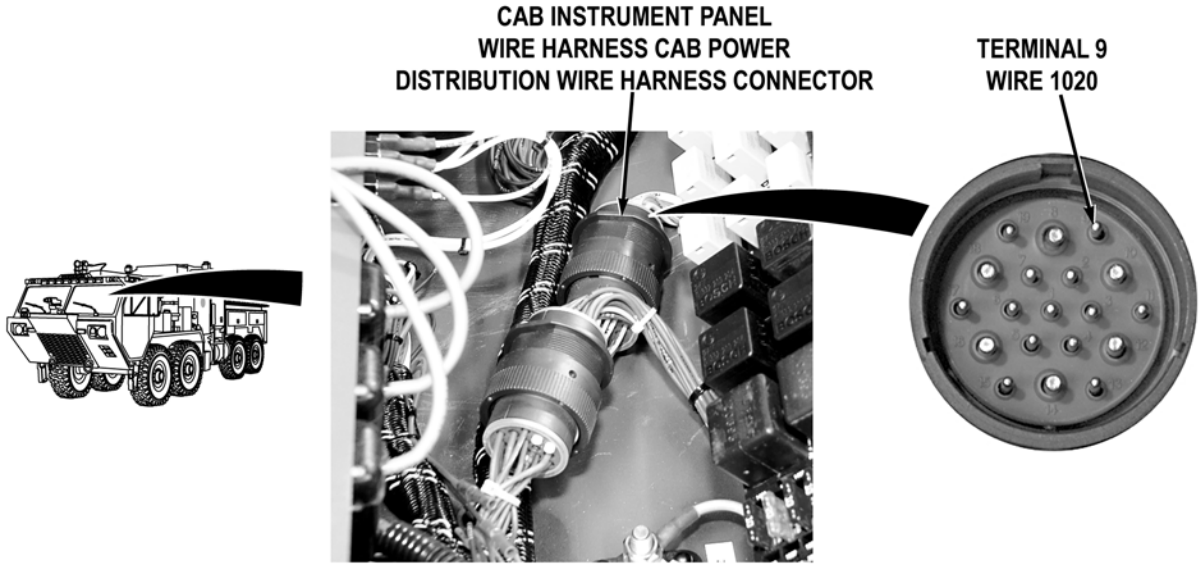
If 22 to 28 VDC are not present, go to Step 54.

Step 53. Turn ENGINE switch to OFF position (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across cab power distribution wire harness wire 1640 (black) from relay 4 connector, terminal 2 to a known good ground.

a. If there is no continuity, replace cab power distribution wire harness and block (WP 0441).

b. If there is continuity, replace relay 4 (WP 0402).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 54. Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for 22 to 28 VDC between cab instrument panel wire harness wire 1020 (pink) at cab instrument panel wire harness cab power distribution wire harness connector, terminal 9 and a known good ground.

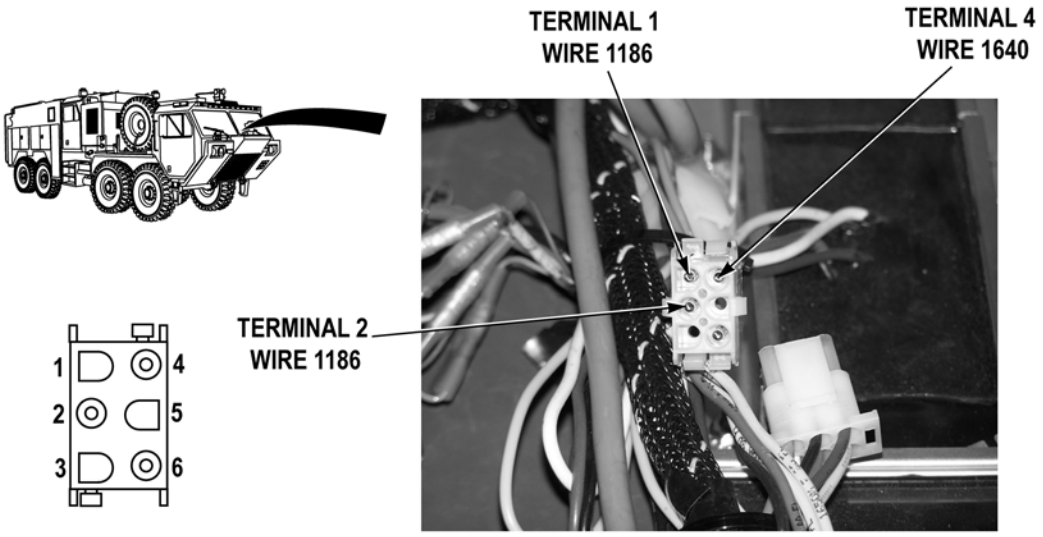
a. If 22 to 28 VDC are present, repair wire 1020 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If 22 to 28 VDC are not present, repair wire 1020 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 55. Put EMERG MASTER and F/R LOWER WARNING switches to on position (WP 0004). Check if front and rear lower warning lights operate.

If front and rear lower warning lights do not operate, troubleshoot Warning Lights (All) Do Not Operate (WP 0151).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

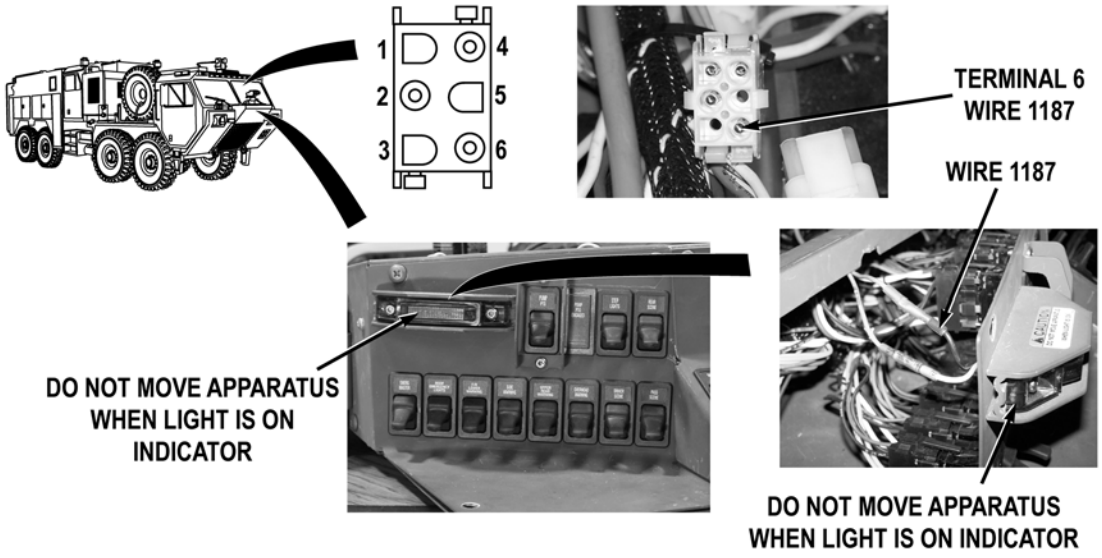
Step 56. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Remove cab instrument panel A (WP 0311). Disconnect cab instrument panel wire harness do not move apparatus when light is on indicator flasher unit connector. Check for 22 to 28 VDC between wire 1186 (gray) at cab instrument panel wire harness do not move apparatus when light is on indicator flasher unit connector, terminals 1 and 2 and a known good ground.

If 22 to 28 VDC are not present, go to Step 66.

Step 57. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across wire 1640 (black) from cab instrument panel wire harness do not move apparatus when light is on indicator flasher unit connector, terminal 4 to a known good ground.

If there is no continuity, repair wire 1640 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



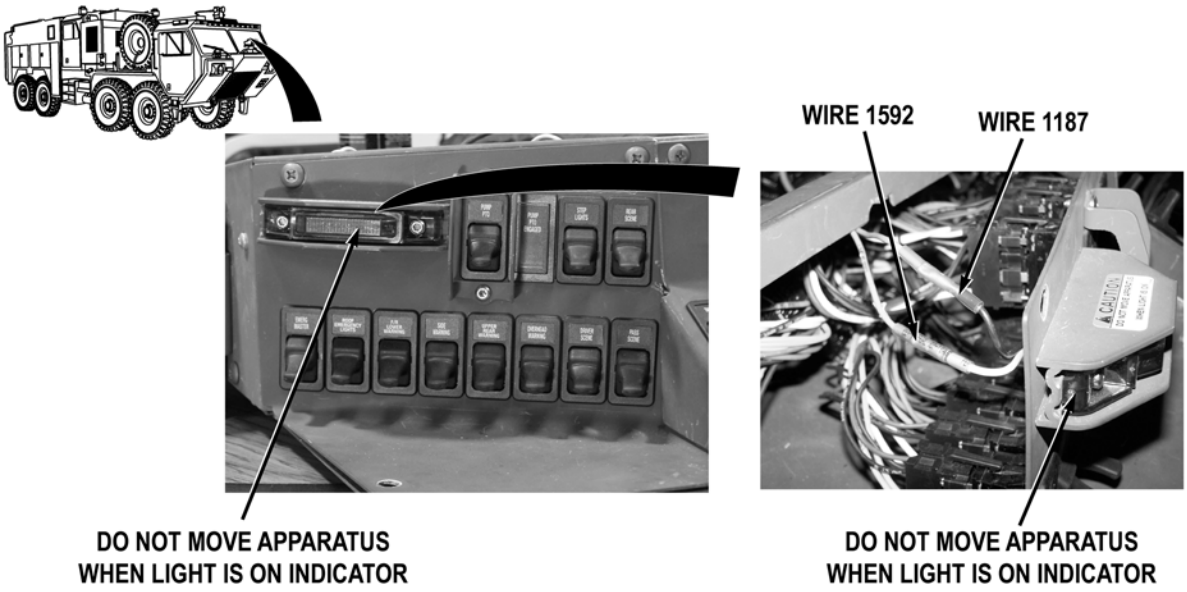
Step 58. Remove cab instrument panel C (WP 0311). Cut cab instrument panel wire harness wire 1187 (gray/black) at do not move apparatus when light is on indicator butt splice connector. Check for continuity across wire 1187 (gray/black) from cab instrument panel wire harness do not move apparatus when light is on indicator flasher unit connector, terminal 6 to cab instrument panel wire harness DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator butt splice connector termination.

If there is no continuity, repair wire 1187 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 59. Cut wire 1592 (gray/white) at DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator butt splice connector. With rear compartment doors open, check for less than 10 K ohms resistance between wire 1592 (gray/white) at cab instrument panel wire harness DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator butt splice connector termination and a known good ground.

If there is greater than 10 K ohms resistance, go to Step 61.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

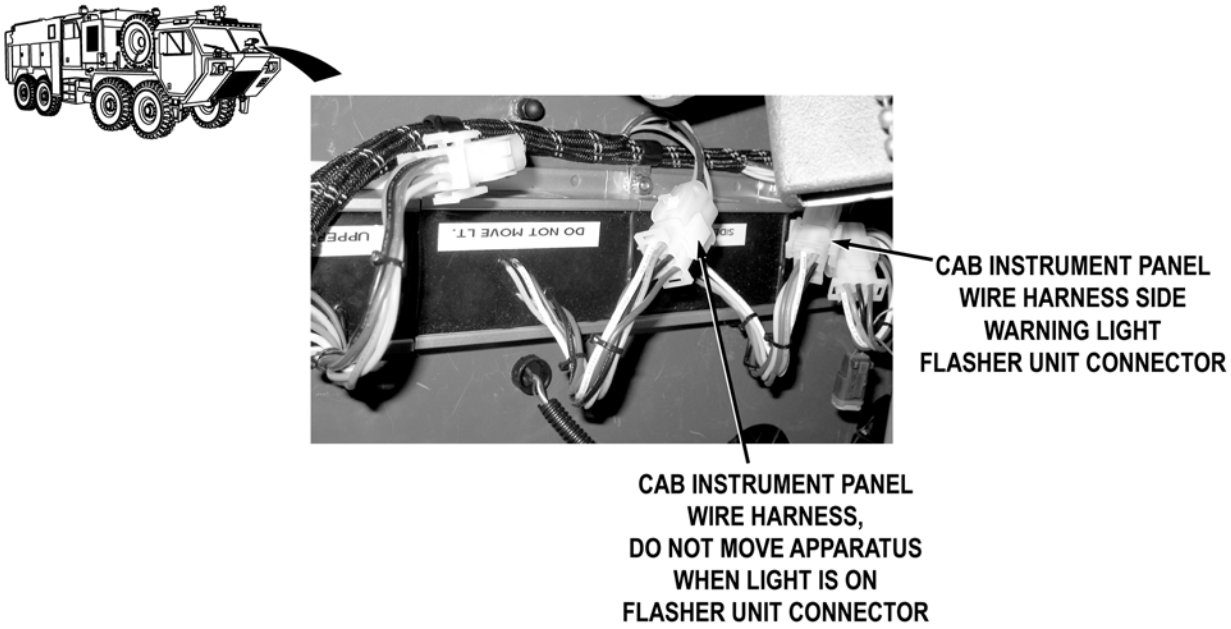


Step 60. Repair wire 1592 and wire 1187 at cab instrument panel wire harness do not move apparatus when light is on indicator (TM 9-2320-347-10). Disconnect cab instrument panel wire harness do not move truck indicator flasher unit connector. Disconnect cab instrument panel wire harness side warning light flasher unit connector. Connect cab instrument panel wire harness DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator connector to side warning flasher unit. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check if DO NOT MOVE APPARATUS WHEN LIGHT IS ON indicator flashes (WP 0004) when rear compartment doors/hatches are opened.

a. If do not move apparatus when light is on indicator does not flash, connect cab instrument panel wire harness flasher unit connectors to original positions and replace do not move apparatus when light is on indicator (WP 0305).

b. If do not move apparatus when light is on indicator flashes, connect cab instrument panel wire harness flasher unit connectors to original positions and replace do not move truck indicator flasher unit (WP 0348).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



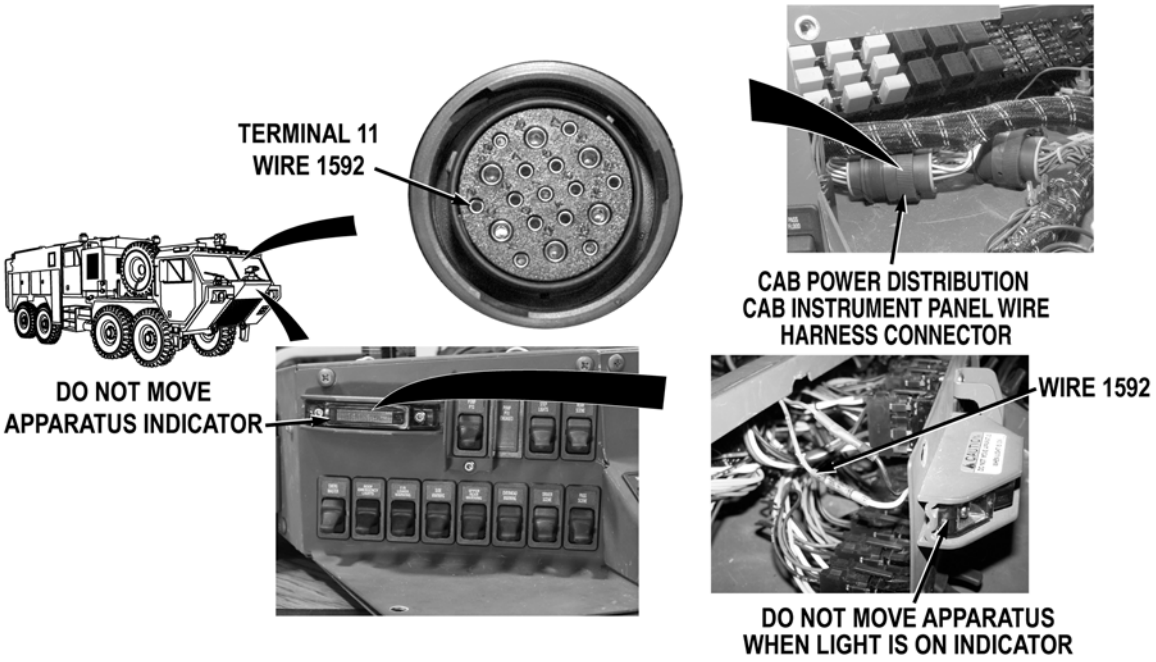
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 61. Disconnect cab instrument panel wire harness cab power distribution wire harness connector. Cut cab instrument panel wire harness wire 1592 (gray or white) at do not move apparatus when light is on indicator butt splice connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1592 (gray/white) between do not move apparatus when light is on indicator termination, wire 1592 (gray/white) and cab instrument panel wire harness connector, terminal 11.

If there is no continuity, repair wire 1592 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

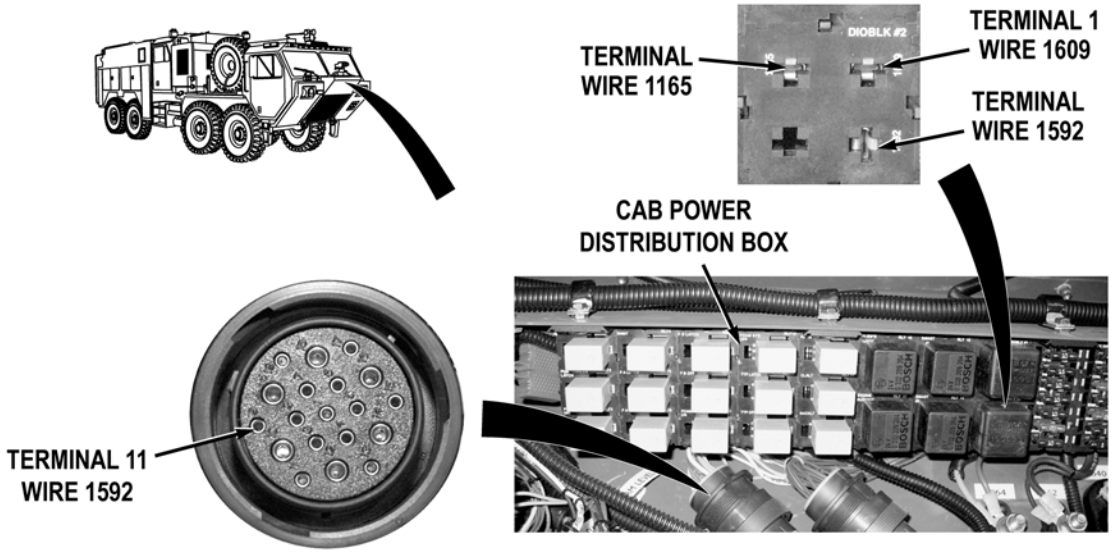
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 62. Remove diode block from cab power distribution block (WP 0399). Install a jumperwire between diode block terminals wire 1592 (gray) and wire 1609 (gray). With rear compartment doors open, check for continuity between wire 1592 (gray) cab instrument panel wire harness connector, terminal 11 and a known good ground.

If there is continuity, replace diode block (WP 0399).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



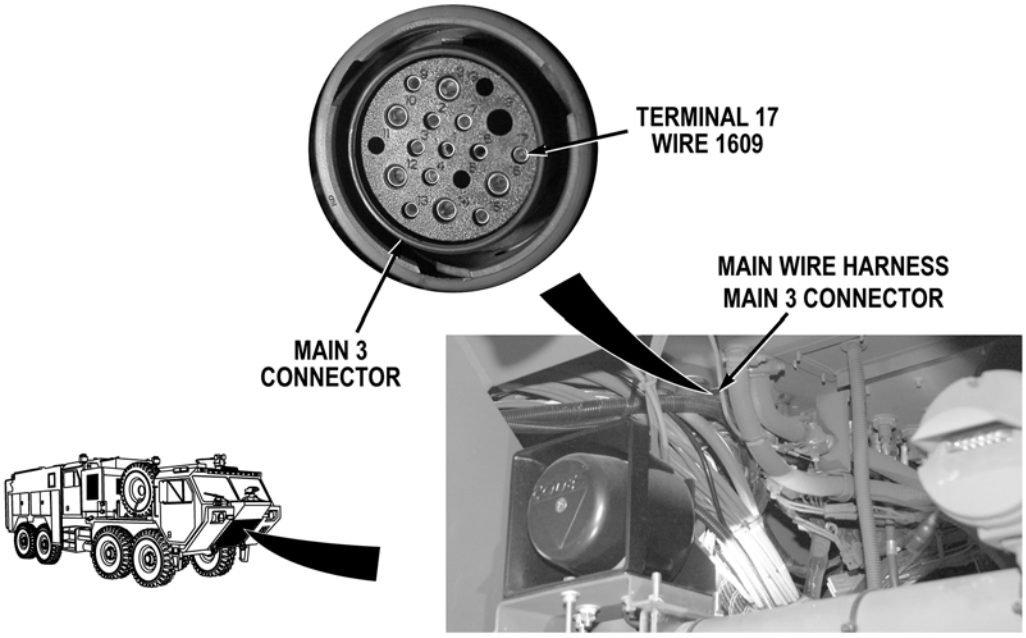
Step 63. Remove diode block from cab power distribution block (WP 0399). Install a jumperwire between diode block terminals wire 1592 (gray) and wire 1165 (gray). With rear compartment doors open, check for continuity between wire 1592 (gray) cab instrument panel wire harness connector, terminal 11 and a known good ground.

If there is continuity, replace diode block (WP 0399).

Step 64. With a test lead set, check for continuity across cab power distribution wire harness wire 1592 (gray) between cab instrument panel wire harness cab power distribution wire harness connector, terminal 11 and diode block connector terminal.

If there is no continuity, repair wire 1592 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

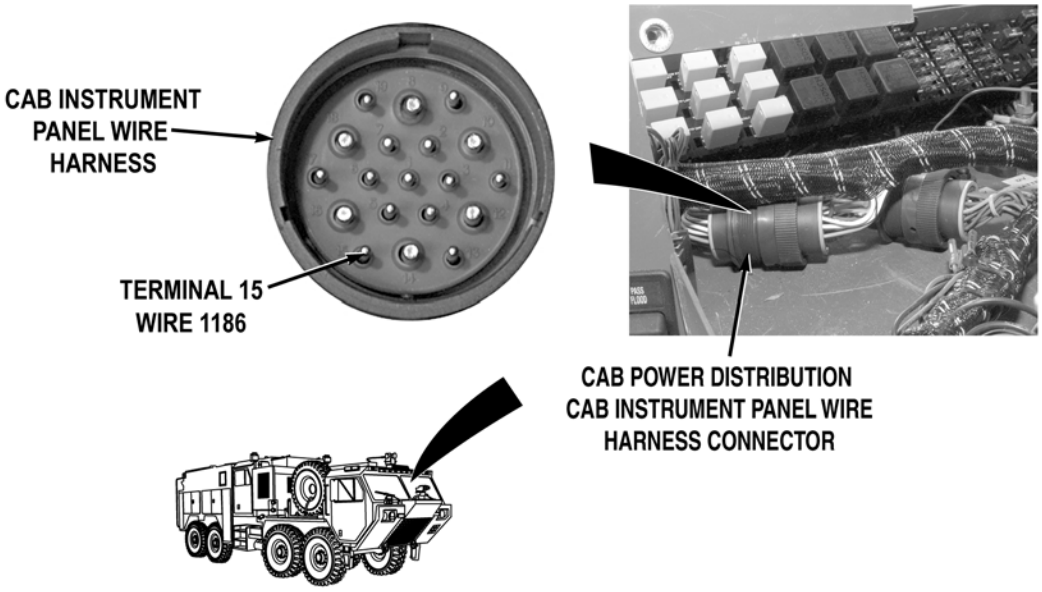


Step 65. Remove skid plate grille (WP 0550). Disconnect main wire harness main 3 connector. With rear compartment doors open and with a lead test set, check for continuity between wire 1609 (gray) at main wire harness main 3 connector, terminal 17 and a known good ground.

a. If there is continuity, repair wire 1609 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1609 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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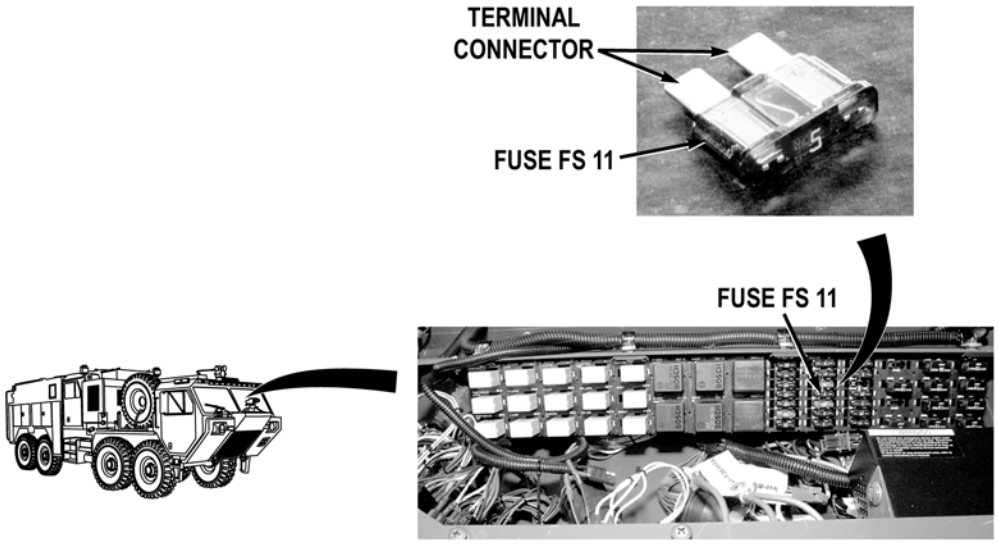
Step 66. Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a lead test set, check for 22 to 28 VDC between wire 1186 (gray) at cab instrument panel wire harness cab power distribution wire harness connector, terminal 15 and a known good ground.

If 22 to 28 VDC are present, repair wire 1186 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

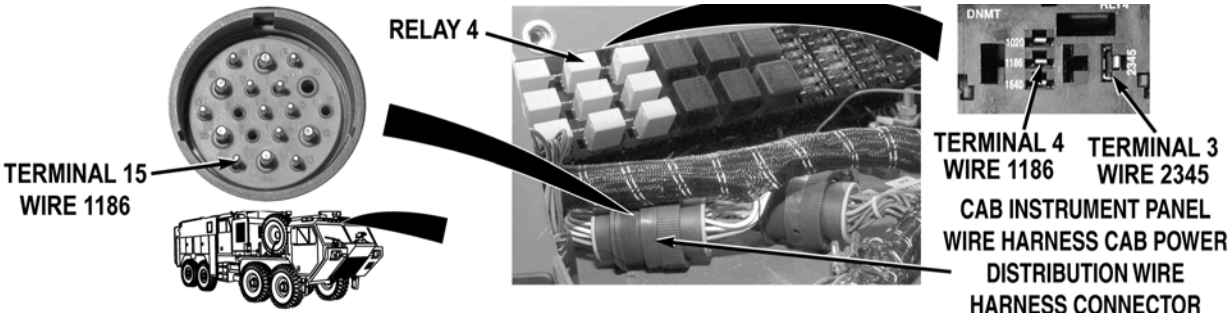
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 67. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove fuse FS 11 (WP 0401). Check for continuity across fuse.

If there is no continuity, replace fuse FS 11 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 68. Install circuit breaker FS 11 (WP 0401). Remove relay 4 (WP 0402). With a test lead set, check for continuity across cab power distribution wire harness wire 1186 (gray) from relay 4 connector, terminal 4 to cab instrument panel wire harness cab power distribution wire harness connector, terminal 15.

If there is no continuity, repair wire 1186 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441)

WARNING

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Step 69. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between wire 2345 (red) at cab power distribution wire harness relay 4 connector, terminal 3 and a known good ground.

a. If 22 to 28 VDC are present, replace relay 4 (WP 0402).

b. If 22 to 28 VDC are not present, replace cab power distribution wire harness and block (WP 0441).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

EQUIPMENT (LADDER) RACK DOES NOT OPERATE

Tools and Special Tools

Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References

TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0011
WP 0186
WP 0311
WP 0385
WP 0389
WP 0398
WP 0399

References (continued)

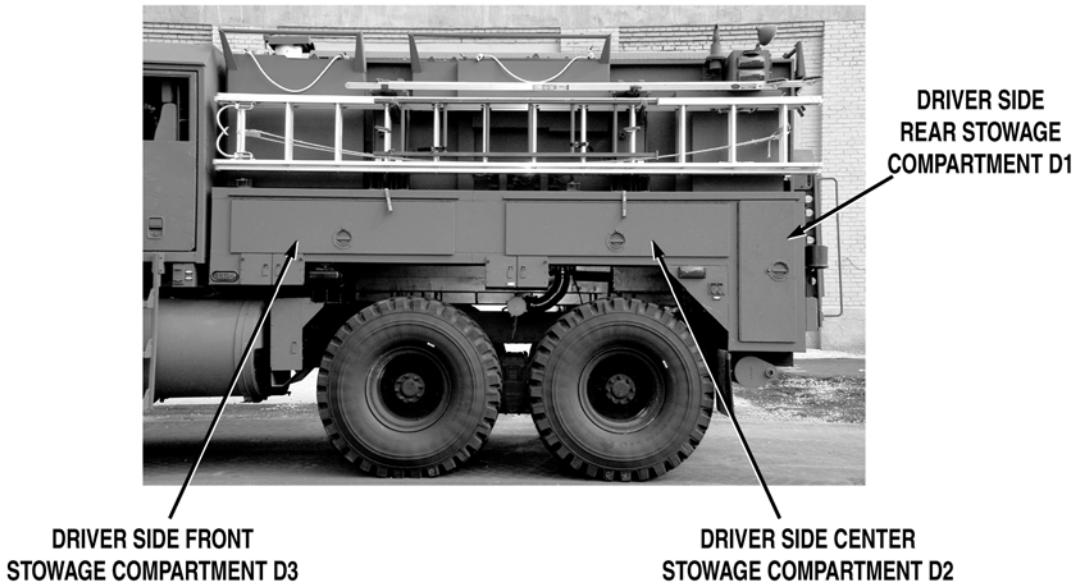
WP 0401
WP 0402
WP 0441
WP 0446
WP 0448
WP 0449
WP 0455
WP 0457
WP 0519
WP 0540
WP 0550

Equipment Conditions

Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

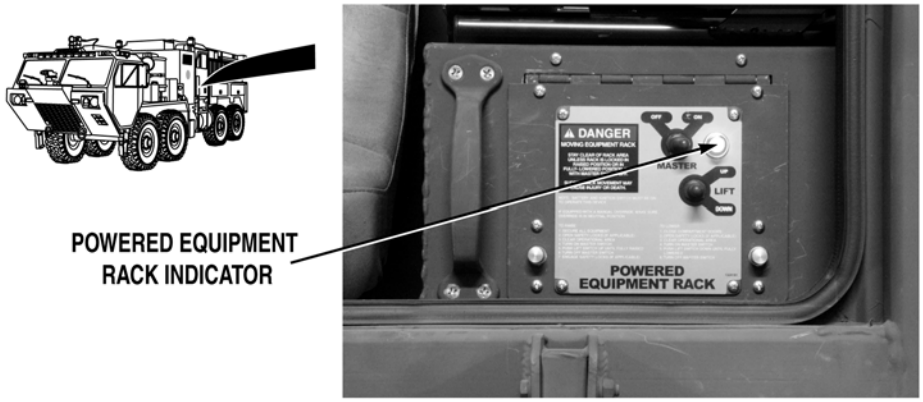
EQUIPMENT (LADDER) RACK DOES NOT OPERATE



Step 1. Check if all driver side stowage compartment doors are closed.

If open, close all driver side stowage compartment doors (WP 0010).

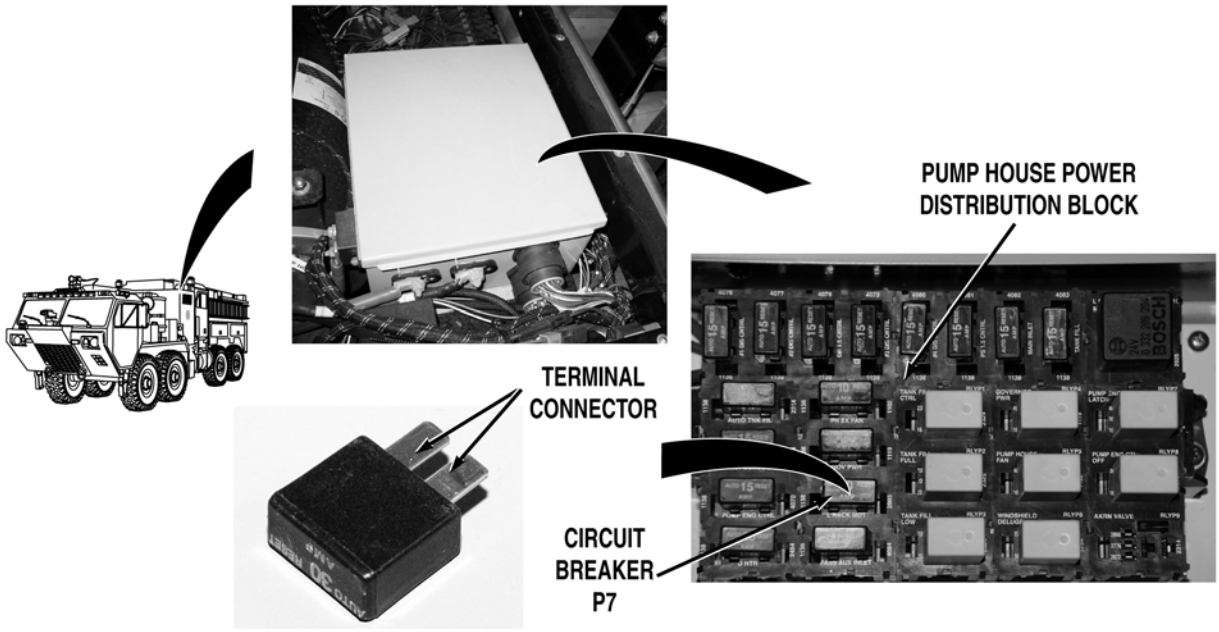
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 2. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put POWERED EQUIPMENT RACK MASTER switch to ON position (WP 0011). Check if POWERED EQUIPMENT RACK indicator light illuminates (WP 0004).

If POWERED EQUIPMENT RACK indicator light illuminates, go to Step 34.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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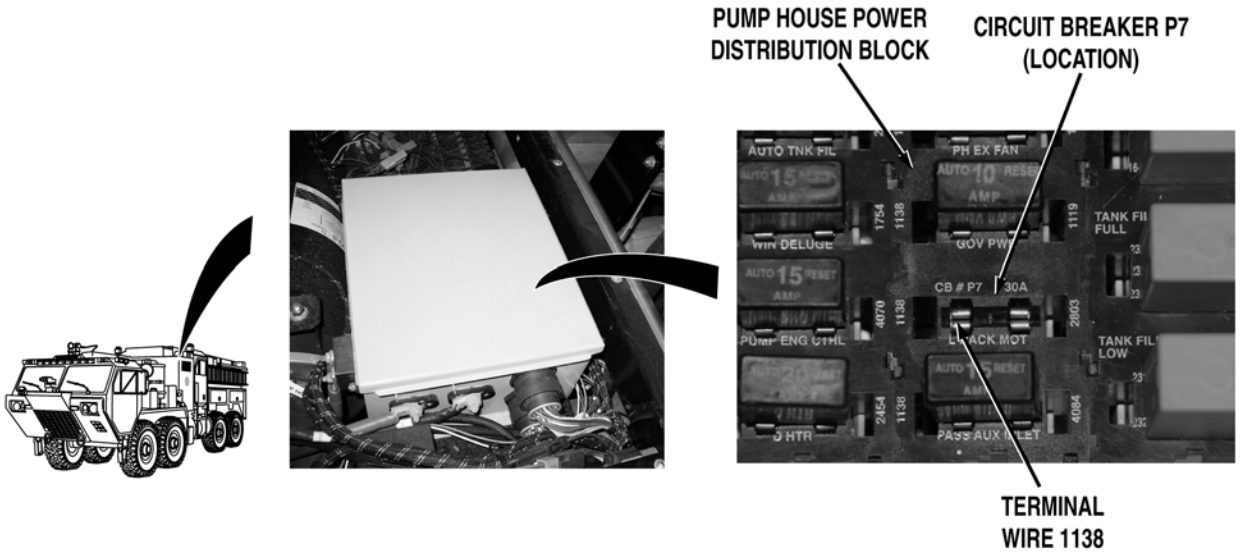
Step 3. Turn battery disconnect switch to OFF position (WP 0007). Remove pump house panel S (WP 0540). Open pump house power distribution (WP 0398). Remove circuit breaker P7 (WP 0398). Check for continuity across circuit breaker P7.

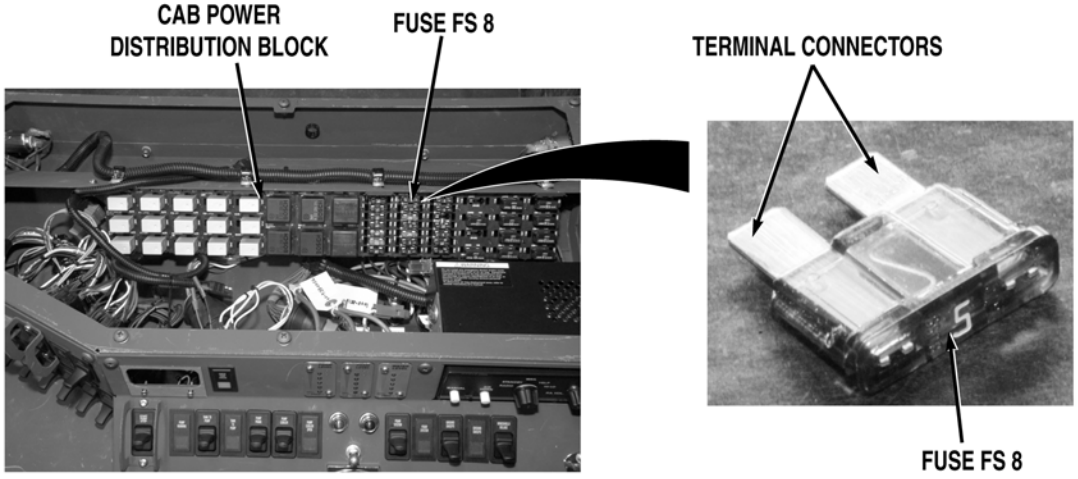
If there is no continuity, replace circuit breaker P7 (WP 0398).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between pump house power distribution wire harness wire 1138 (red) at circuit breaker P7, terminal and a known good ground.

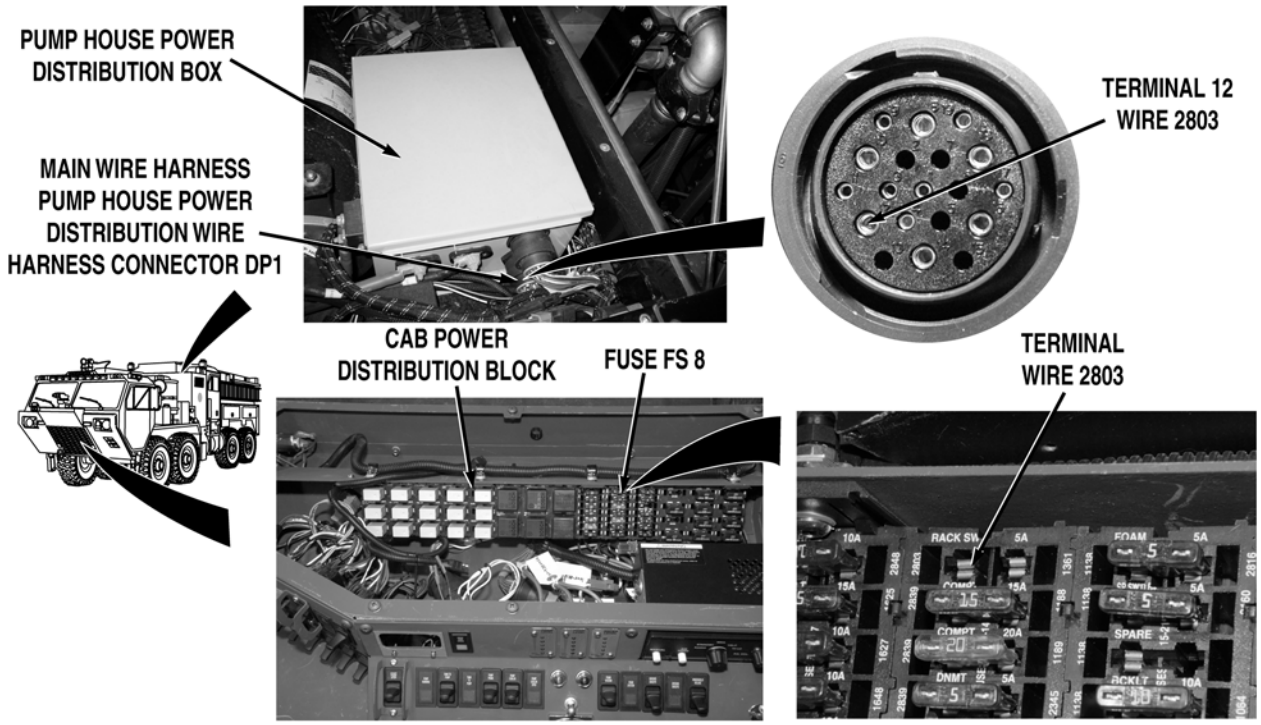
If 22 to 28 VDC are not present, replace pump house power distribution wire harness and block (WP 0457).



Step 5. Turn battery disconnect switch to OFF position (WP 0007). Install circuit breaker P7 (WP 0398). Remove cab instrument panel A (WP 0311). Remove fuse FS 8 (WP 0401). Check for continuity across fuse.

If there is no continuity, replace fuse FS 8 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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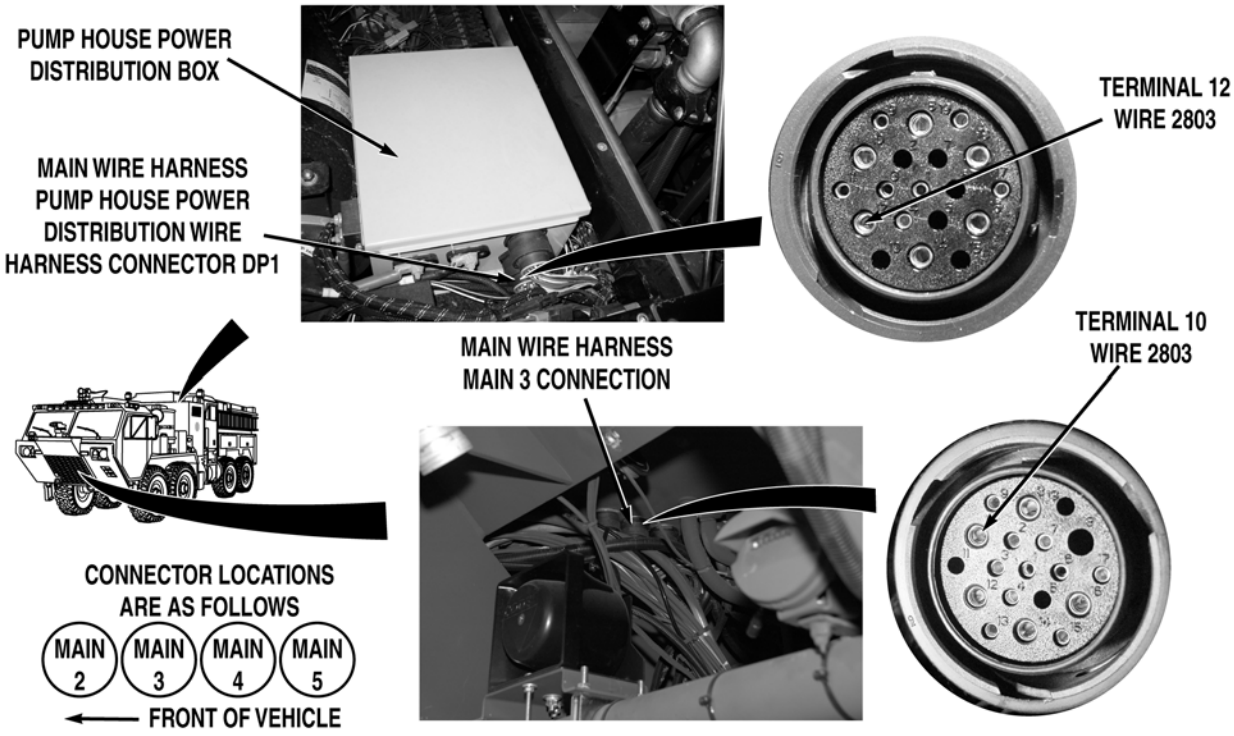
Step 6. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between wire 2803 (grey) at cab power distribution block fuse FS 8, terminal and a known good ground.

If 22 to 28 VDC are present, go to Step 9.

Step 7. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness pump house power distribution wire harness connector DP1. With a test lead set, check for continuity across wire 2803 (grey) from cab power distribution block fuse F8, terminal to main wire harness pump house power distribution wire harness connector DP1, terminal 12.

If there is continuity, replace pump house power distribution wire harness and block (WP 0457).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

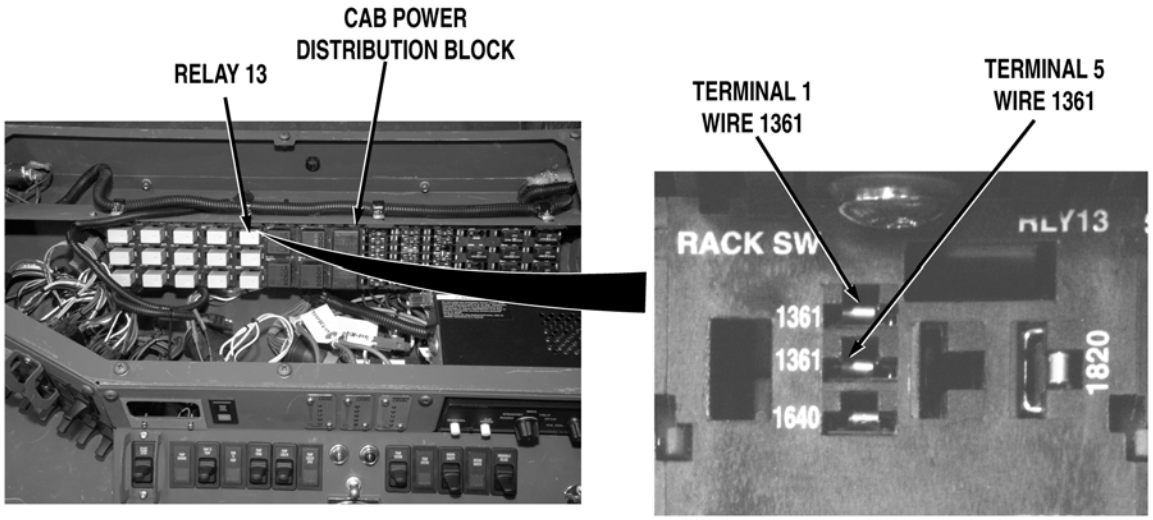


Step 8. Install fuse FS 8 (WP 0401). Remove skid plate grille (WP 0550). Disconnect main wire harness main 3 connector. With a test lead set, check for continuity across main wire harness wire 2803 (grey) from main wire harness main 3 connector, terminal 10 to main wire harness pump house power distribution wire harness connector DP1, terminal 12.

a. If there is continuity, repair wire 2803 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 2803 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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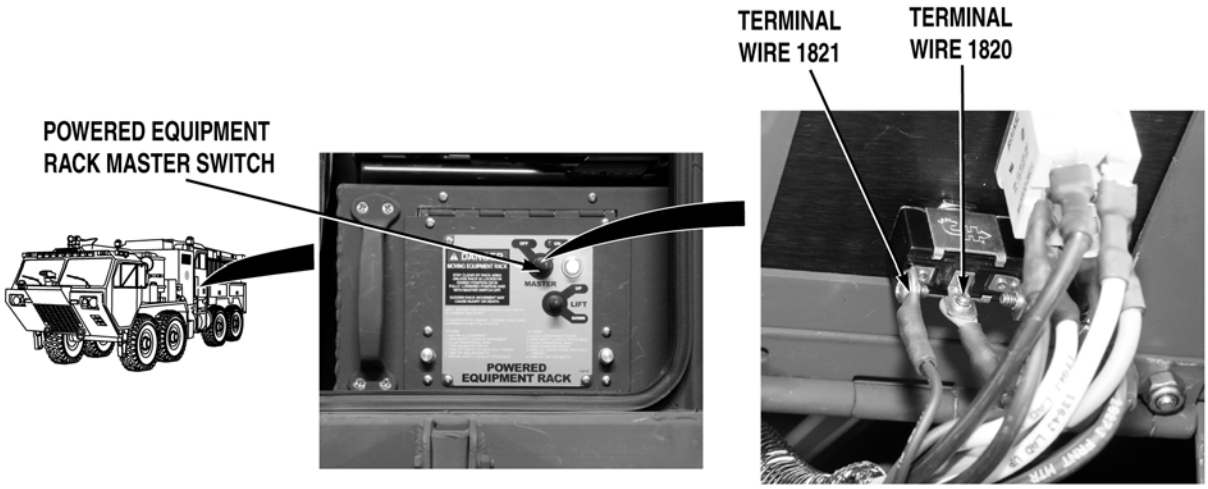
Step 9. Turn battery disconnect switch to OFF position (WP 0007). Remove relay 13 from cab power distribution block (WP 0402). Install fuse FS 8 (WP 0401). Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between cab power distribution wire harness wire 1361 (grey) at relay 13, terminal 1 and terminal 5 to a known good ground.

If 22 to 28 VDC are not present at both terminals, replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



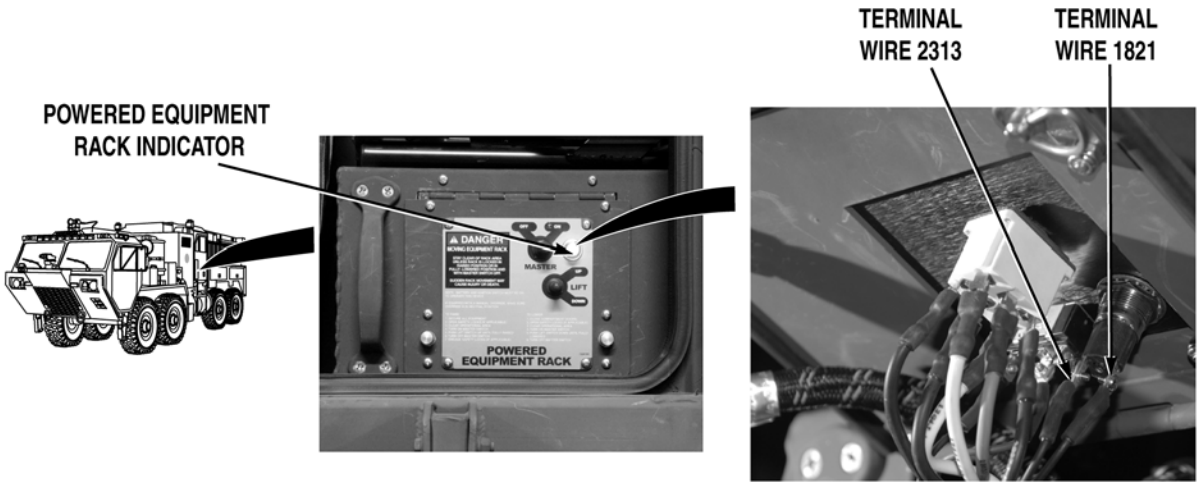
Step 10. Turn battery disconnect switch to OFF position (WP 0007). Install relay 13 on cab power distribution block (WP 0402). Open ladder rack control panel (WP 0010). Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between wire 1820 (red) from POWERED EQUIPMENT RACK MASTER switch, terminal to a known good ground.

If 22 to 28 VDC are not present, go to Step 15.

Step 11. Put POWERED EQUIPMENT RACK MASTER switch to ON position (WP 0011). Check for 22 to 28 VDC between wire 1821 (black) from POWERED EQUIPMENT RACK MASTER switch terminal to a known good ground.

If 22 to 28 VDC are not present, replace POWERED EQUIPMENT RACK MASTER switch (WP 0389).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



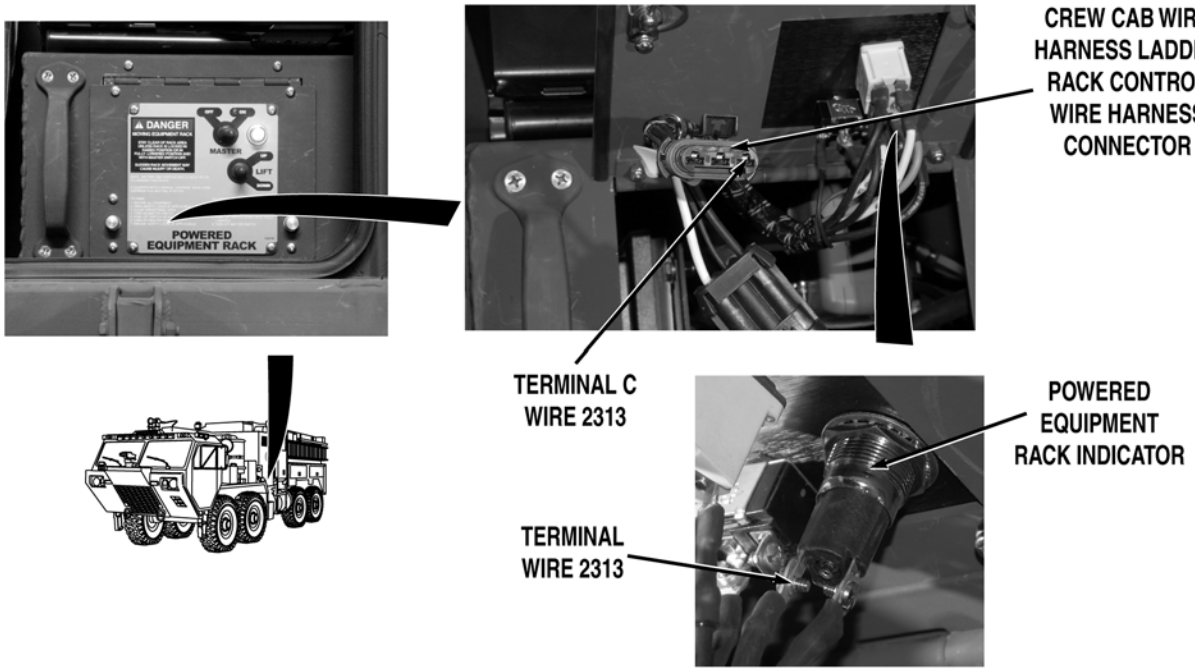
Step 12. Check for 22 to 28 VDC between wire 1821 (black) from POWERED EQUIPMENT RACK indicator, terminal to a known good ground.

If 22 to 28 VDC are not present, repair wire 1821 in ladder rack control wire harness if repairable (TM 9-2320-325-14&P) or replace ladder rack control wire harness (WP 0449).

Step 13. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across wire 2313 (black) from POWERED EQUIPMENT RACK indicator terminal to a known good ground.

If there is continuity, replace POWERED EQUIPMENT RACK indicator (WP 0389).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

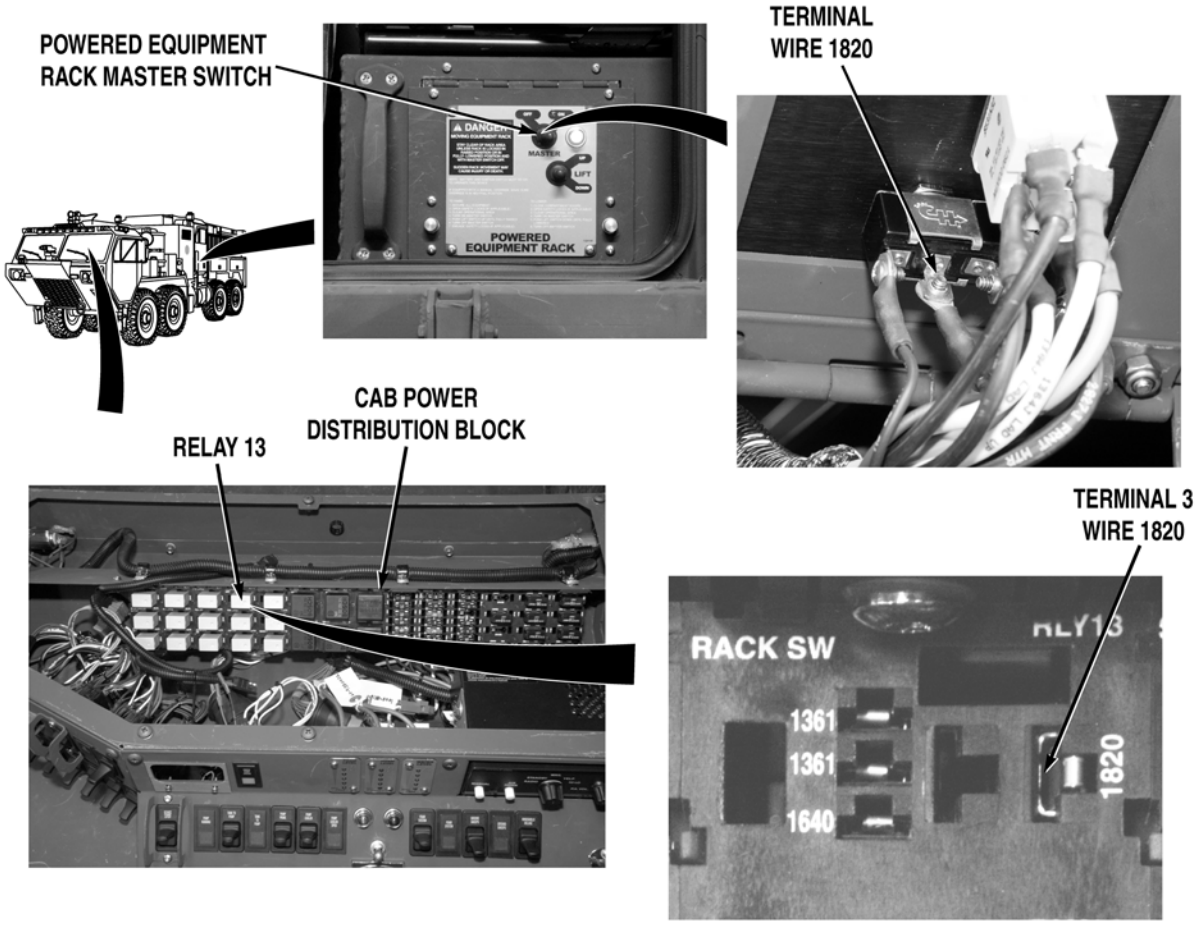


Step 14. Disconnect crew cab wire harness ladder rack control wire harness connector. Check for continuity across ladder rack control wire harness wire 2313 (black) from crew cab wire harness ladder rack control wire harness connector, terminal C to POWERED EQUIPMENT RACK indicator terminal.

a. If there is continuity, repair wire 2313 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

b. If there is no continuity, repair wire 2313 in ladder rack control wire harness if repairable (TM 9-2320-325-14&P), or replace ladder rack control wire harness (WP 0449).

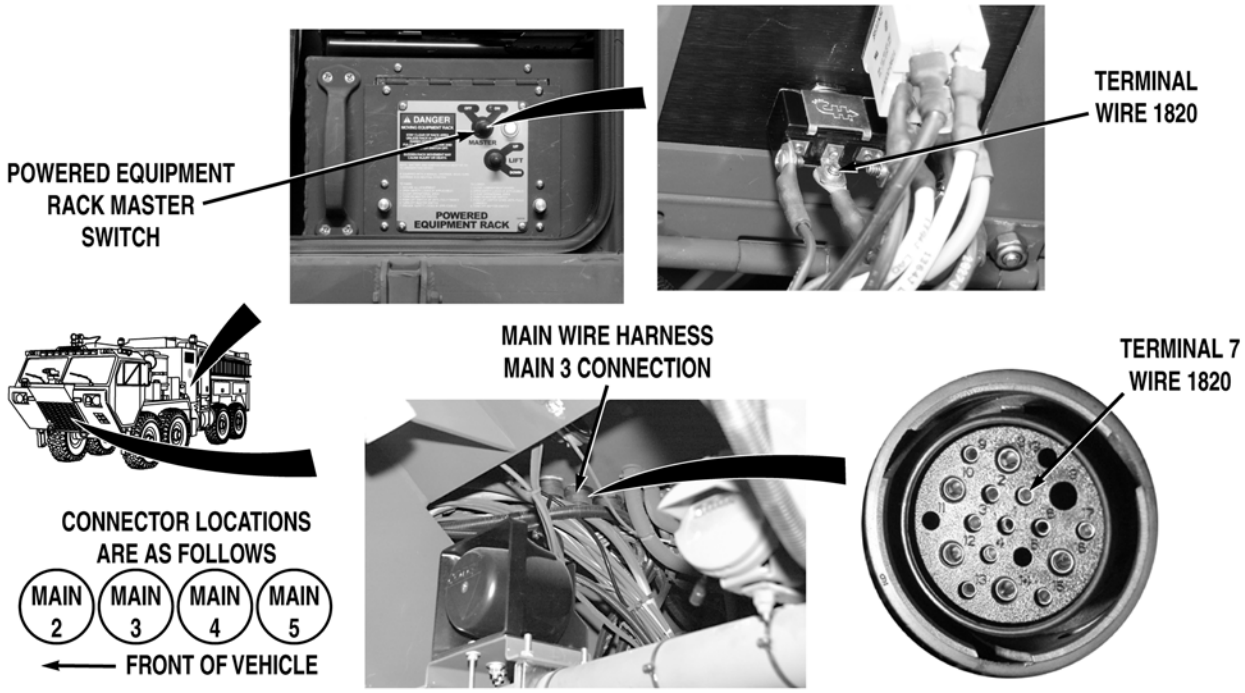
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 15. Turn battery disconnect switch to OFF position (WP 0007). Remove relay 13 from cab power distribution block (WP 0402). With a test lead set, check for continuity across wire 1820 (red) from cab power distribution block relay 13, terminal 3 to POWERED EQUIPMENT RACK MASTER switch terminal.

If there is continuity, go to Step 19.

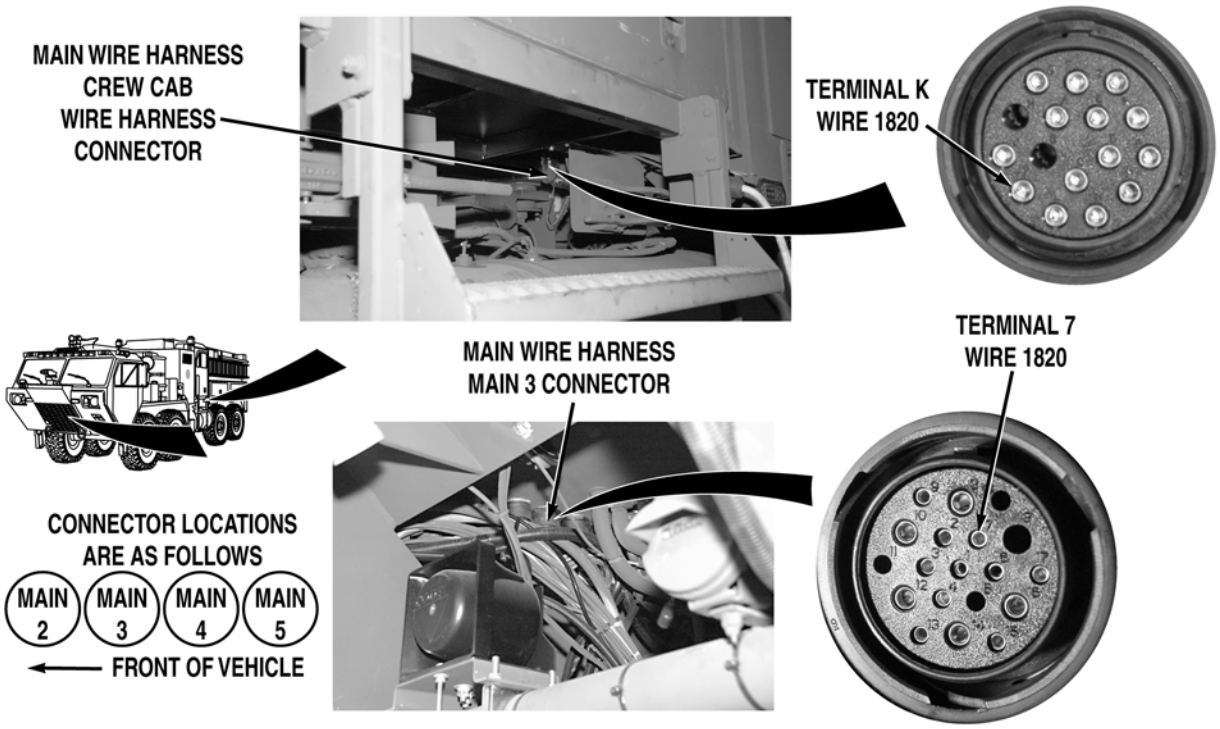
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Remove skid plate grille (WP 0550). Disconnect main wire harness main 3 connector. With a test lead set, check for continuity across wire 1820 (red) from main wire harness main 3 connector, terminal 7 to POWERED EQUIPMENT RACK MASTER switch terminal.

If there is continuity, repair wire 1820 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

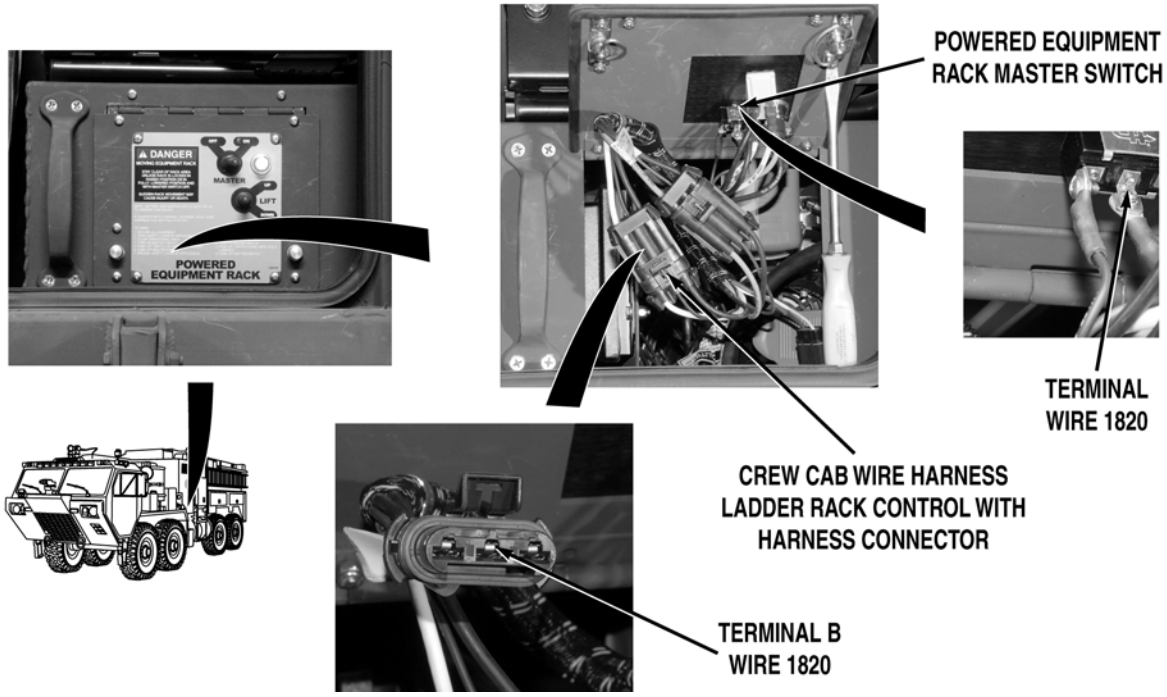
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Disconnect main wire harness crew cab wire harness connector. With a test lead set, check for continuity across wire 1820 (red) from main wire harness main 3 connector, terminal 7 to main wire harness crew cab wire harness connector, terminal K.

If there is no continuity, repair wire 1820 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

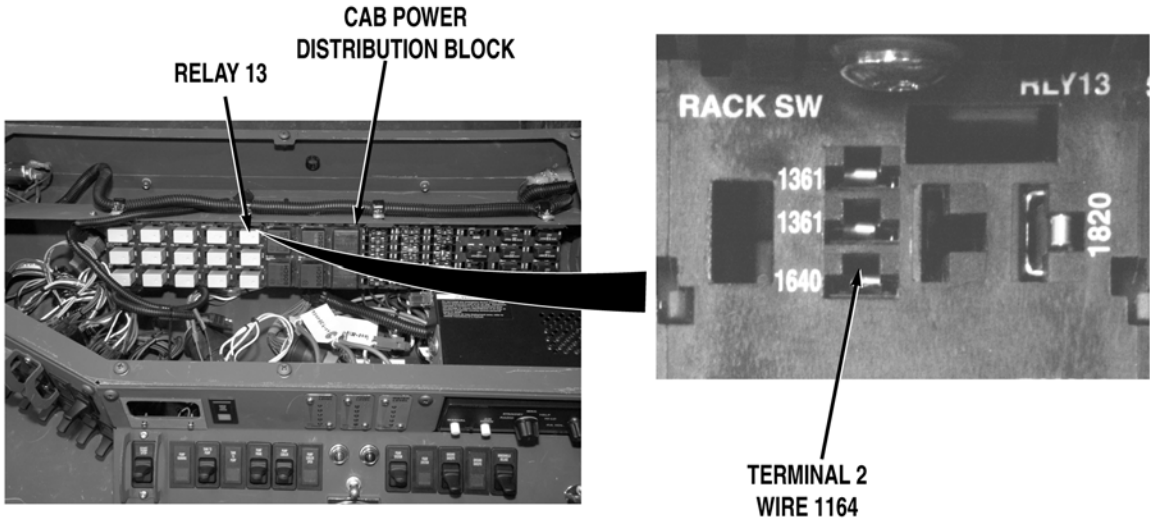


Step 18. Disconnect crew cab wire harness ladder rack control wire harness connector. With a test lead set, check for continuity across wire 1820 (red) from POWERED EQUIPMENT RACK MASTER switch, terminal to crew cab wire harness ladder rack control wire harness connector, terminal B.

a. If there is continuity, repair wire 1820 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

b. If there is no continuity, repair wire 1820 in ladder rack control wire harness if repairable (TM 9-2320-325-14&P), or replace ladder rack control wire harness (WP 0449).

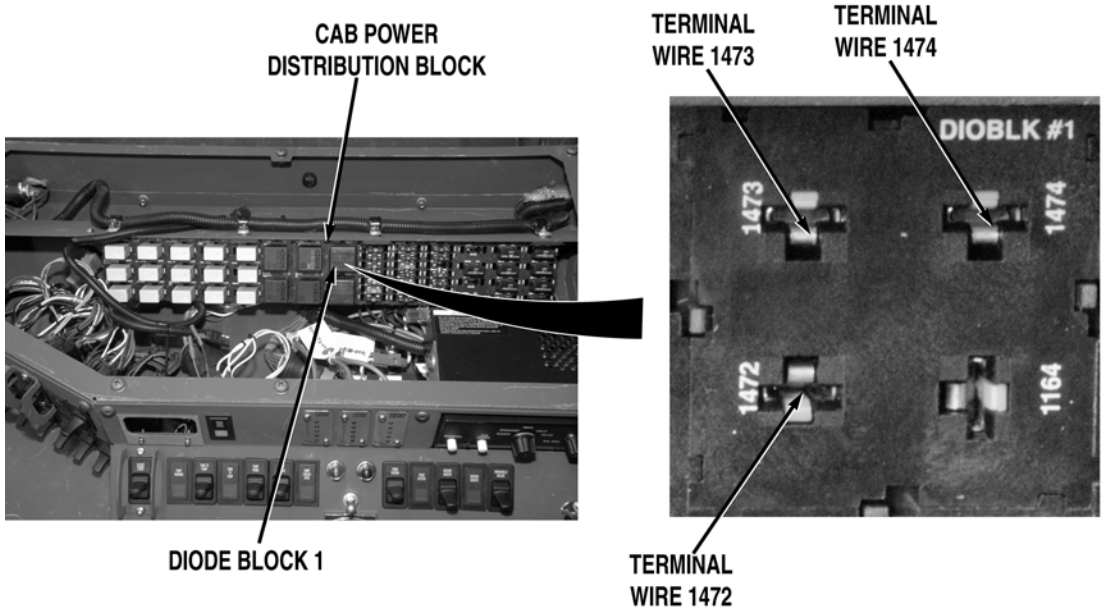
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 19. Check for continuity across cab power distribution wire harness wire 1164 (black) from cab power distribution block relay 13, terminal 2 to a known good ground.

If there is no continuity, go to Step 32.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 20. Remove diode block 1 from cab power distribution wire harness block (WP 0399). With driver side rear stowage compartment D1 door closed, check for continuity across wire 1474 (black) from cab power distribution block diode block 1, terminal to a known good ground.

If there is continuity, go to Step 29.

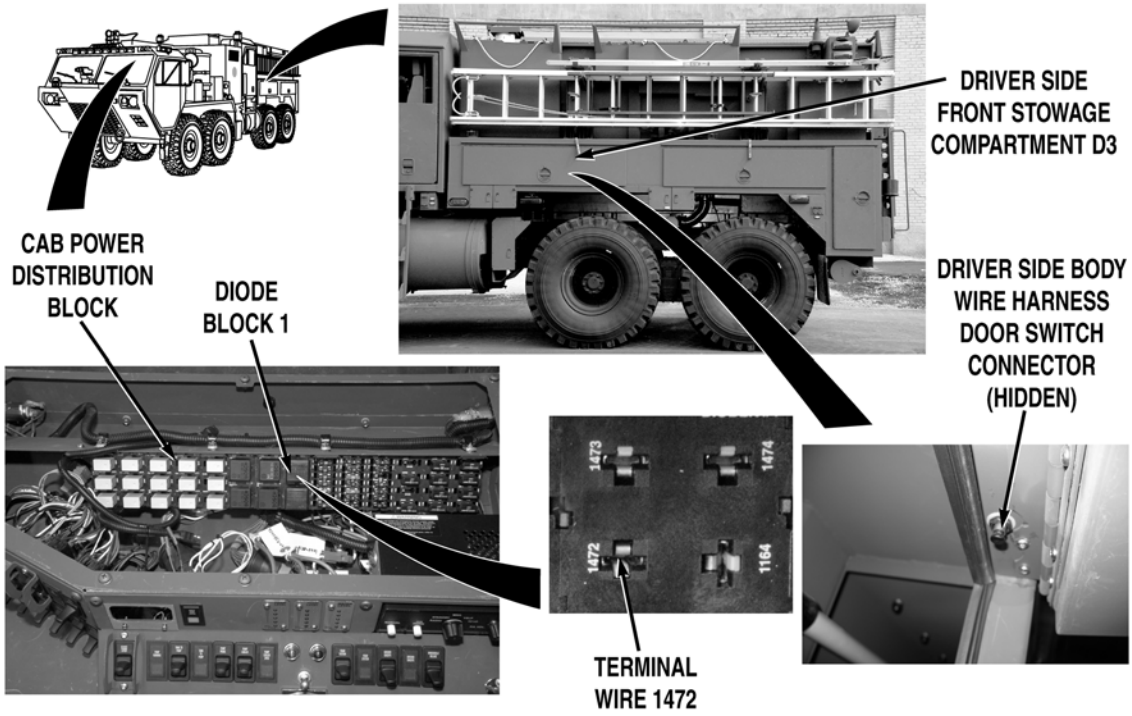
Step 21. With driver side center stowage compartment D2 door closed, check for continuity across wire 1473 (black) from cab power distribution block diode block 1, terminal to a known good ground.

If there is continuity, go to Step 26.

Step 22. With driver side front stowage compartment D3 door closed, check for continuity across wire 1472 (black) from cab power distribution block diode block 1, terminal to a known good ground.

If there is no continuity, replace diode block 1 (WP 0399).

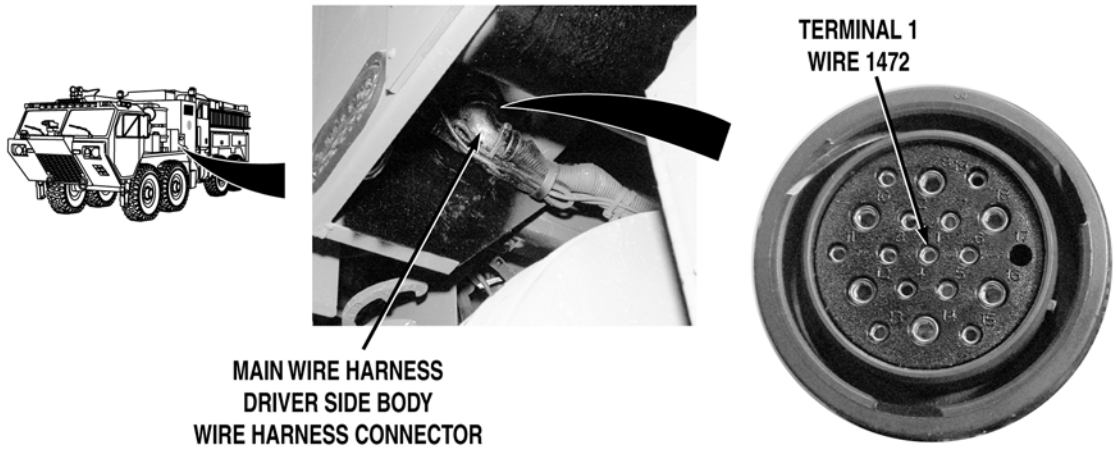
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 23. Open driver side front stowage compartment D3 door (WP 0010). Disconnect driver side body wire harness door switch connector. Check for continuity across wire 1472 (black) from cab power distribution block diode block 1, terminal to a known good ground.

If there is no continuity, replace driver side front stowage compartment D3 door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



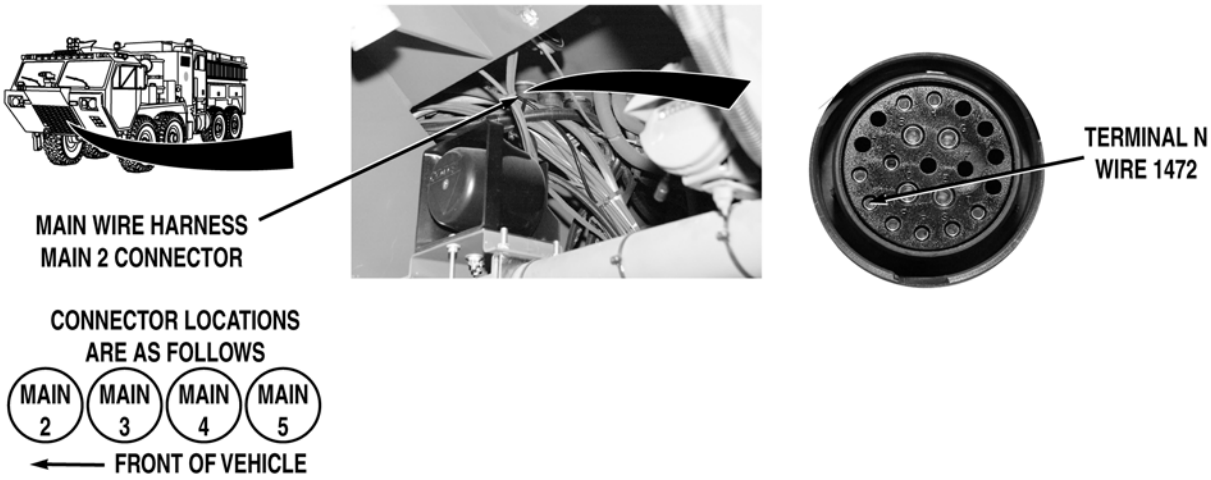
NOTE

A short is present in circuit. Steps 24 and 25 will check for a short between wire 1472 and ground in main wire harness, cab power distribution wire harness, and driver side body wire harness.

Step 24. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across wire 1472 (black) from main wire harness driver side body wire harness connector, terminal 1 to a known good ground.

If there is no continuity, repair wire 1472 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

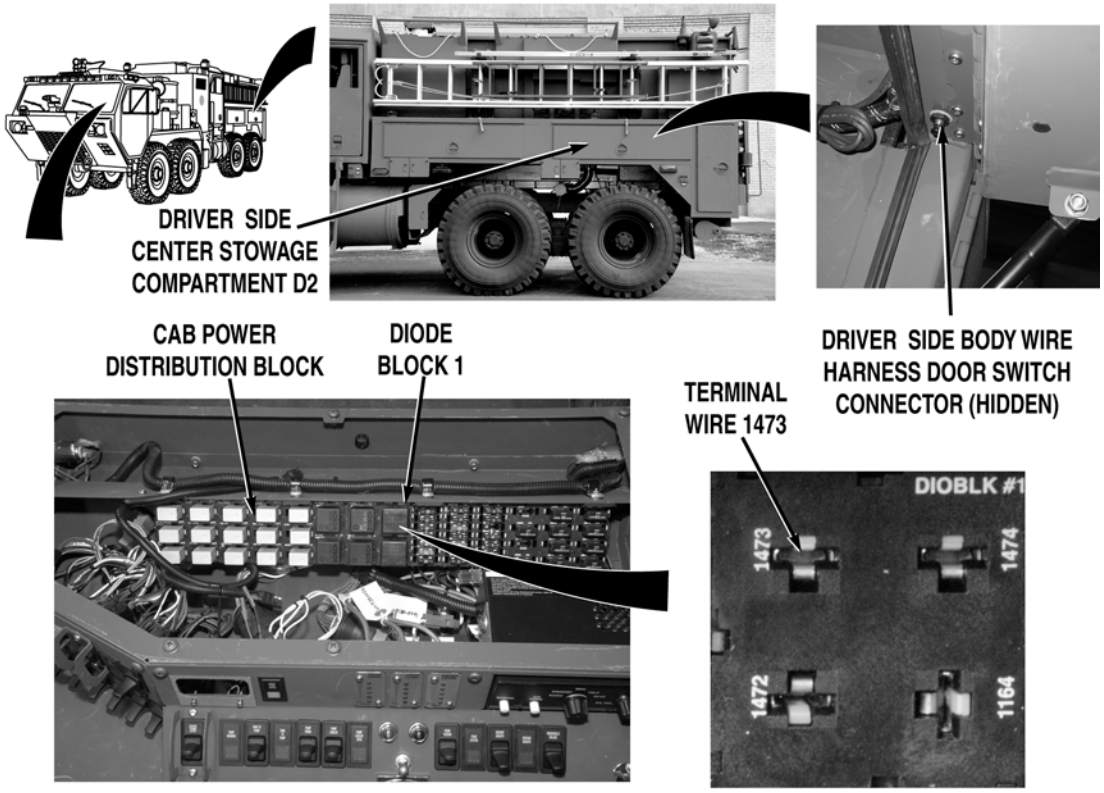


Step 25. Remove skid plate grille (WP 0550). Disconnect main wire harness main 2 connector. With a test lead set, check for continuity across main wire harness wire 1472 (black) from main wire harness main 2 connector, terminal N to a known good ground.

a. If there is continuity, repair wire 1472 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1472 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 26. Open driver side center stowage compartment D2 door (WP 0010). Disconnect driver side body wire harness door switch connector. Check for continuity across wire 1473 (black) from cab power distribution block diode block 1, terminal to a known good ground.

If there is no continuity, replace driver side front stowage compartment D2 door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

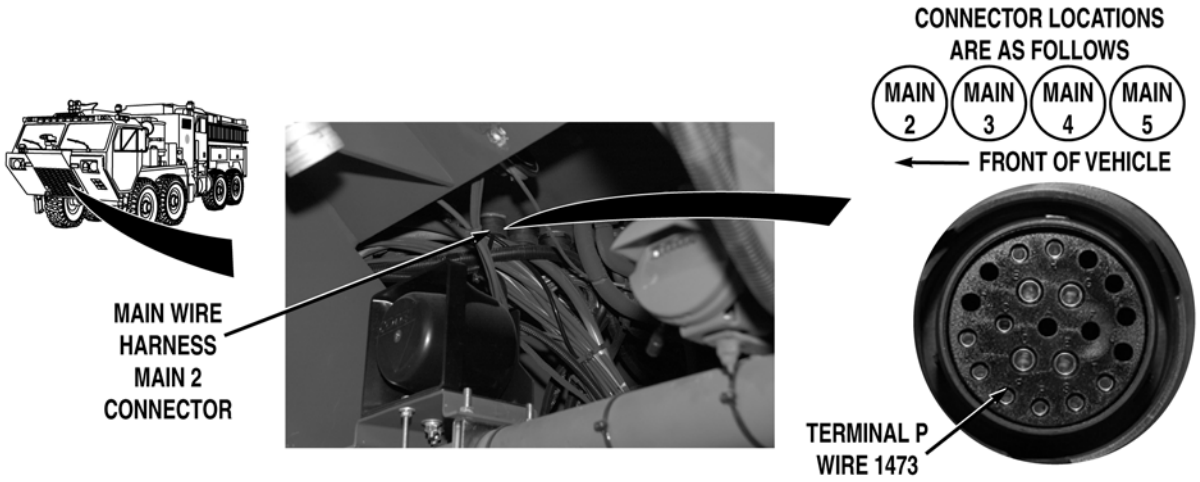
NOTE

A short is present in circuit. Steps 27 and 28 will check for a short circuit between wire 1473 and ground in main wire harness, cab power distribution wire harness, and driver side body wire harness.

Step 27. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across wire 1473 (black) from main wire harness driver side body wire harness connector, terminal 2 to a known good ground.

If there is no continuity, repair wire 1473 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

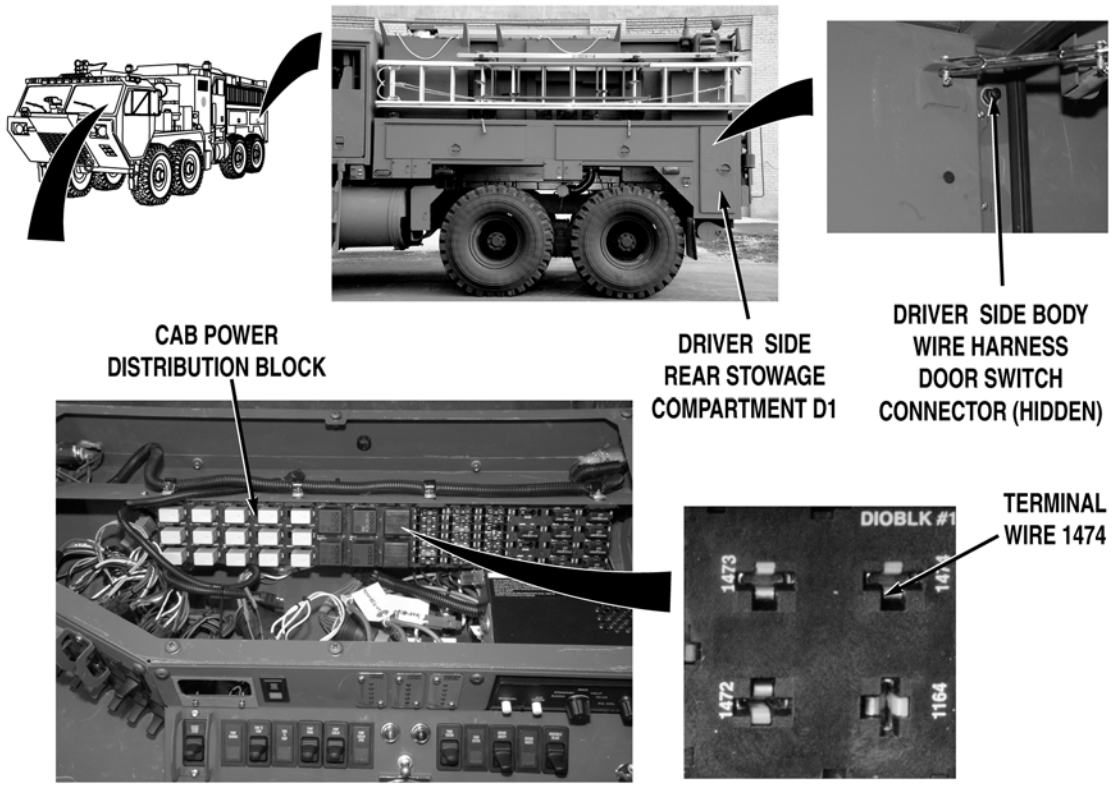


Step 28. Remove skid plate grille (WP 0550). Disconnect main wire harness main 2 connector. With a test lead set, check for continuity across main wire harness wire 1473 (black) from main wire harness main 2 connector, terminal P to a known good ground.

a. If there is continuity, repair wire 1473 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1473 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

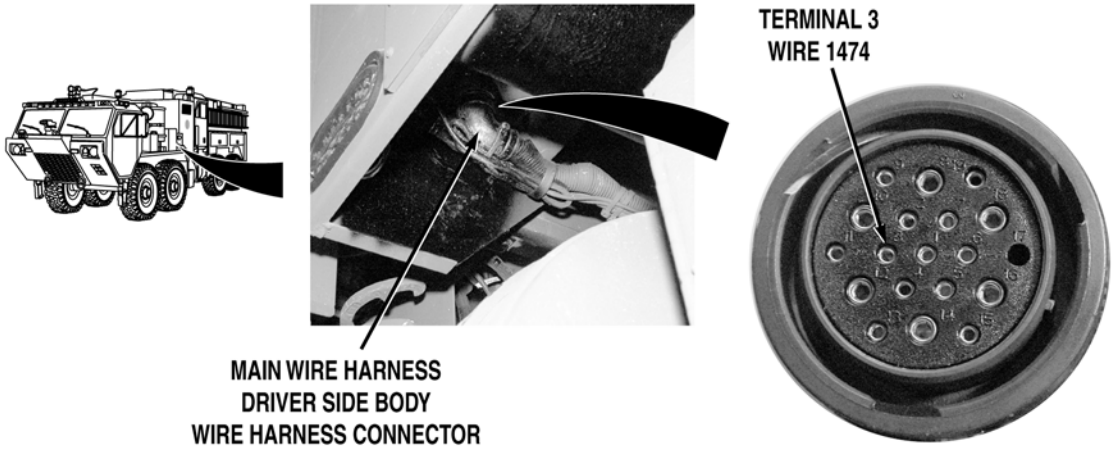
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 29. Open driver side rear stowage compartment D1 door (WP 0010). Disconnect driver side body wire harness door switch connector. Check for continuity across wire 1474 (black) from cab power distribution block diode block 1, terminal to a known good ground.

If there is no continuity, replace driver side front stowage compartment D1 door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

A short is present in circuit. Steps 30 and 31 will check for a short circuit between wire 1474 and ground in main wire harness, cab power distribution wire harness, and driver side body wire harness.

Step 30. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across wire 1474 (black) from main wire harness driver side body wire harness connector, terminal 3 to a known good ground.

If there is no continuity, repair wire 1474 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

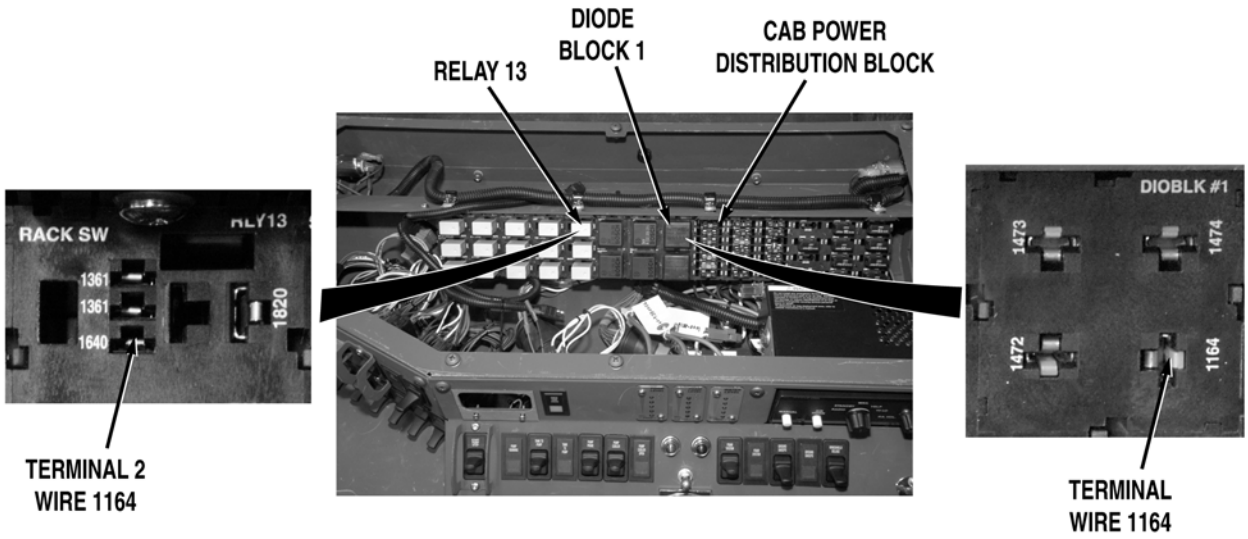
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 31. Remove skid plate grille (WP 0550). Disconnect main wire harness main 2 connector. With a test lead set, check for continuity across main wire harness wire 1474 (black) from main wire harness main 2 connector, terminal R to a known good ground.

a. If there is continuity, repair wire 1474 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1474 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 32. Open any of three driver side stowage compartment doors (WP 0010). Check for continuity across cab power distribution wire harness wire 1164 (black) from cab power distribution block relay 13, terminal 2 to a known good ground.

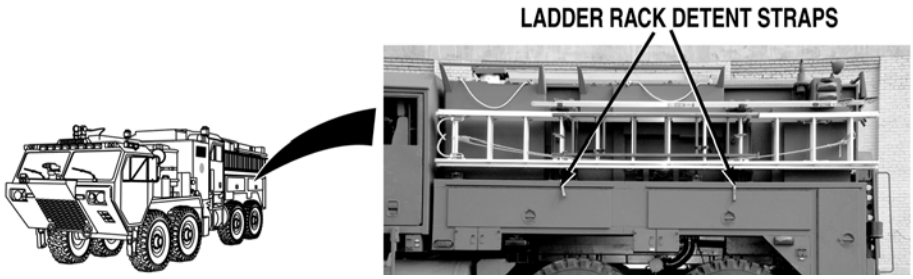
If there is continuity, replace relay 13 (WP 0402).

Step 33. Remove diode block 1 from cab power distribution block (WP 0399). Check for continuity across wire 1164 (black) from cab power distribution block diode block 1, terminal to relay 13, terminal 2.

a. If there is continuity, replace diode block 1 (WP 0399).

b. If there is no continuity, replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Stay clear of equipment ladder rack area unless equipment ladder rack is locked in raised position or in fully lowered position with POWERED EQUIPMENT RACK MASTER switch in OFF position. Failure to comply may cause injury or death to personnel.

NOTE

- Front and rear ladder rack motors operate independently from one another. If either motor operates to a point of binding, actuator arm may begin to make an audible ratcheting noise.
- Clutch ratcheting of ladder rack drive motor actuator is normal operation.
- Front and rear ladder rack drive motors are a matched set. If motors do not move at same speed, it may be necessary to replace both motors as a set.

Step 34. Pull ladder rack detent straps and release (WP 0011). Put POWERED EQUIPMENT RACK LIFT switch to DOWN position (WP 0004). Check if front and rear ladder rack motors operate equipment ladder rack to lowered position.

If both front and rear equipment ladder rack motors do not operate, go to Step 40.

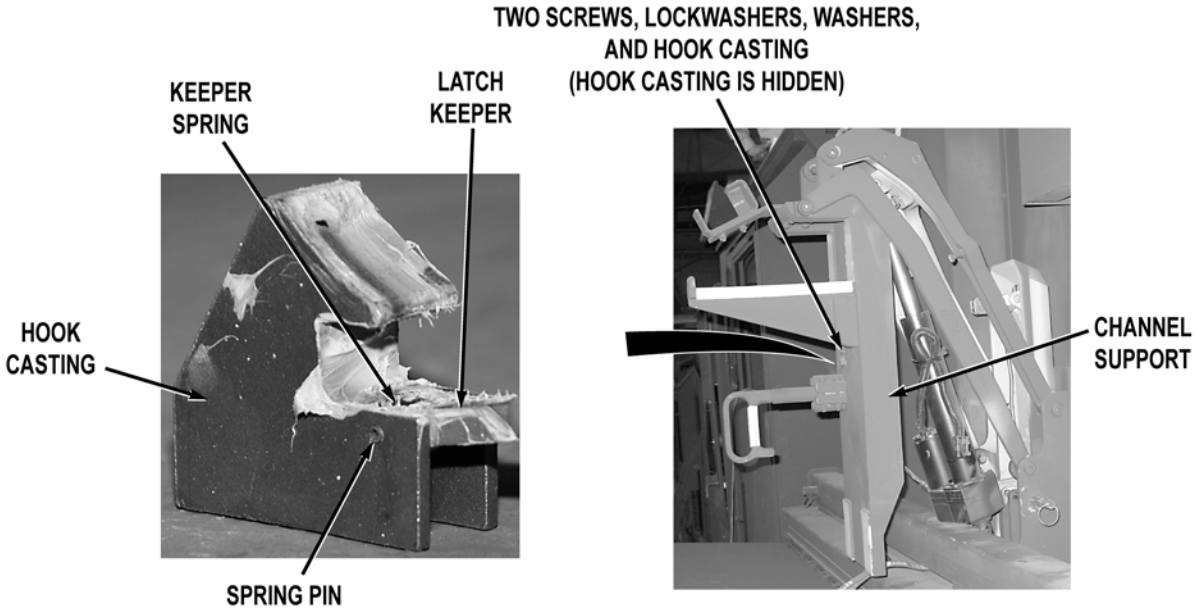
Step 35. Put POWERED EQUIPMENT RACK LIFT switch to UP and back to DOWN position (WP 0004). Check if either front or rear equipment ladder rack actuator motors operate equipment ladder rack to lowered position.

If both equipment ladder racks operate, fault corrected.

Step 36. Remove ladders from equipment ladder rack (WP 0011). While an assistant pulls non-operating ladder rack detent strap and holds (WP 0011), put POWERED EQUIPMENT RACK LIFT switch to DOWN position (WP 0004). Check if non-operating ladder rack actuator motor operates equipment ladder rack to lowered position.

If non-operating equipment ladder rack does not operate to lowered position, go to Step 38.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

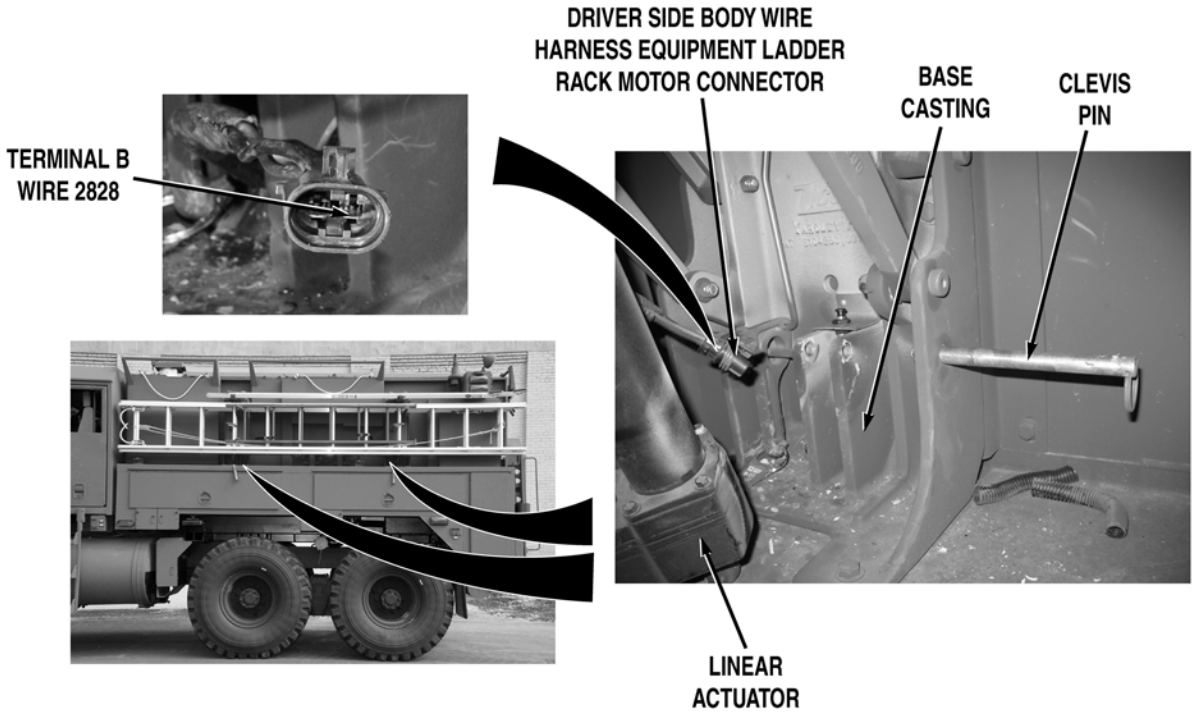


Step 37. Remove two screws, lockwashers, washers, and hook casting from channel support. Inspect hook casting, latch keeper, keeper spring, and spring pin for missing or unserviceable parts (WP 0519).

a. If hook casting, latch keeper, keeper spring, and spring pin are missing or unserviceable, replace hook casting (WP 0519).

b. If hook casting, latch keeper, keeper spring, and spring pin are in place and serviceable, lubricate latch keeper assembly and latch (WP 0186), and install on channel support.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



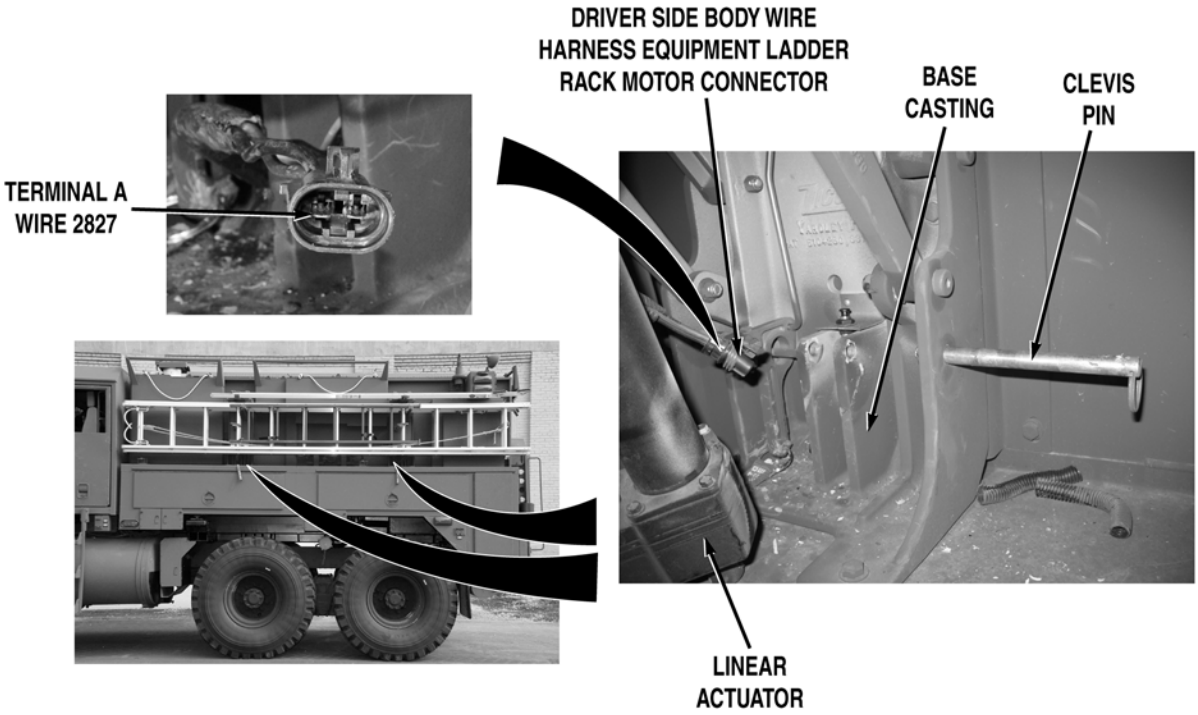
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 38. Turn battery disconnect switch to OFF position (WP 0007). Remove clevis pin from base casting and linear actuator from non-operating equipment ladder rack. Slowly bring channel support down to farthest possible position. Disconnect driver side body wire harness equipment ladder rack motor connector. Turn battery disconnect switch to ON position (WP 0007). While an assistant holds POWERED EQUIPMENT RACK LIFT switch to DOWN position (WP 0011), check for 22 to 28 VDC between driver side body wire harness wire 2828 (red) at driver side body wire harness equipment ladder rack connector, terminal B and a known good ground.

If 22 to 28 are not present, repair wire 2828 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

ICON 3

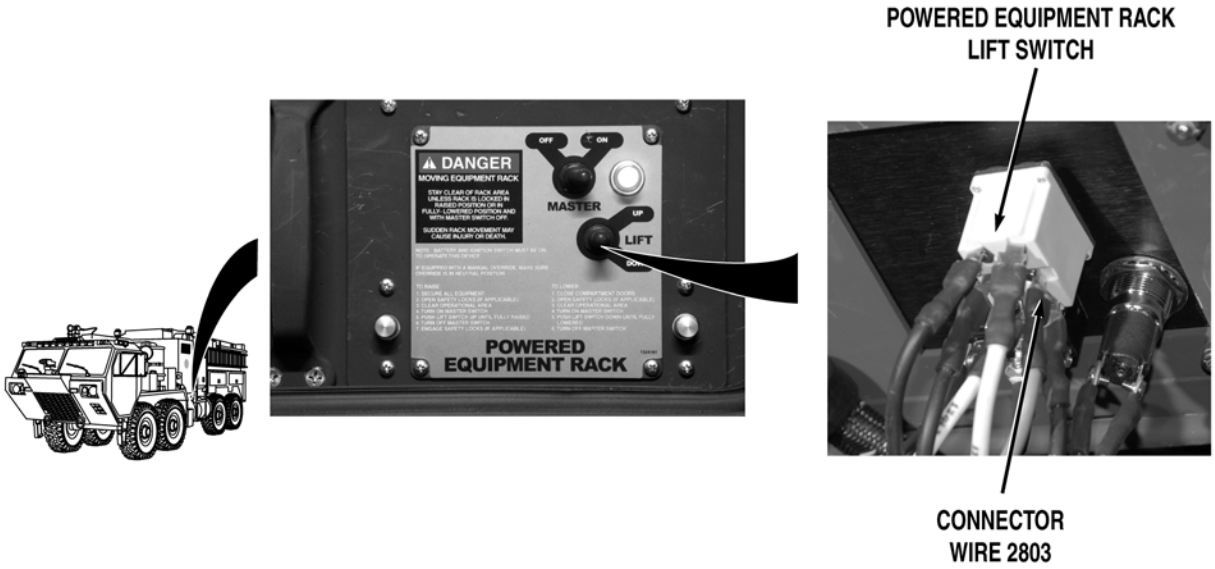
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 39. While an assistant holds POWERED EQUIPMENT RACK LIFT switch to UP position (WP 0011), check for 22 to 28 VDC between driver side body wire harness wire 2827 (black) from driver side body wire harness equipment ladder rack motor connector, terminal A to a known good ground.

a. If 22 to 28 VDC are present, replace equipment ladder rack linear actuator (WP 0519).

b. If 22 to 28 VDC are not present, repair wire 2827 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 40. Check for 22 to 28 VDC between wire 2803 (grey) from POWERED EQUIPMENT RACK LIFT switch connector to a known good ground.

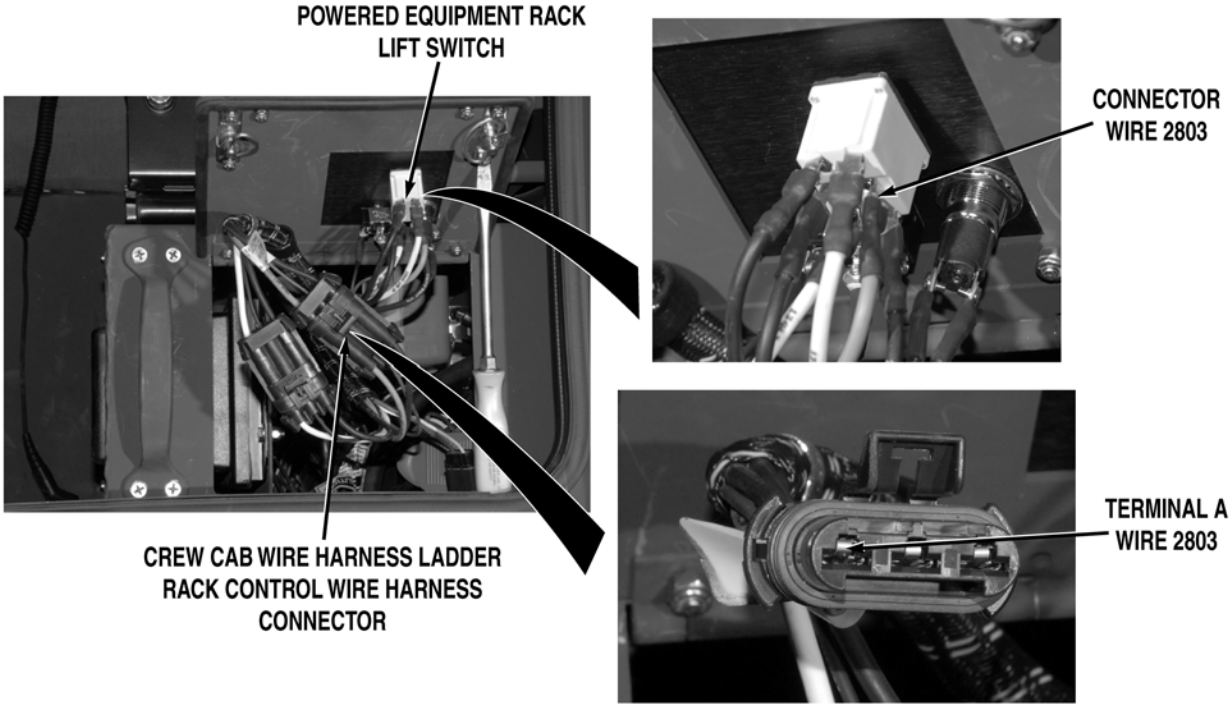
If 22 to 28 VDC are present, go to Step 43.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 41. Disconnect main wire harness crew cab wire harness connector. With a test lead set, check for 22 to 28 VDC between wire 2803 (grey) from main wire harness crew cab wire harness connector, terminal D and terminal R to a known good ground.

If 22 to 28 VDC are not present, repair wire 2803 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

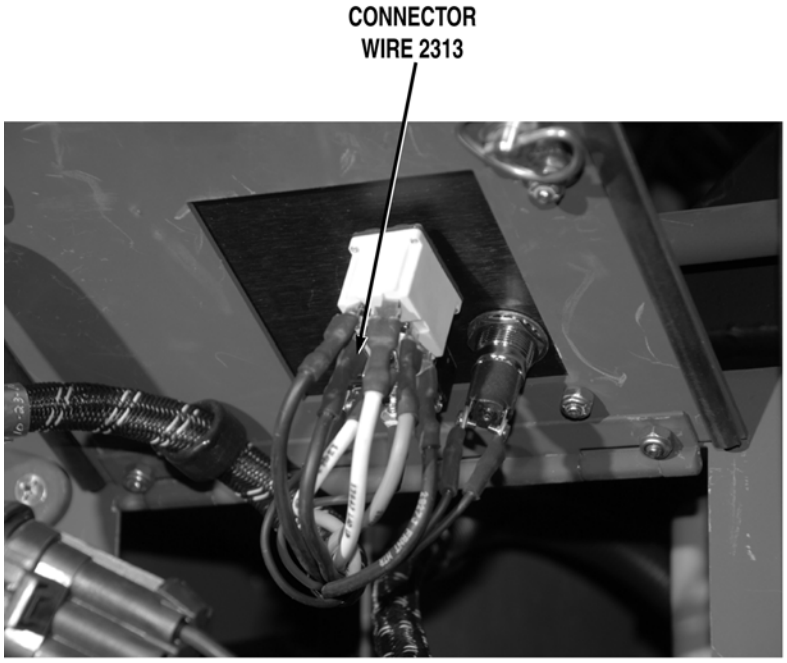


Step 42. Turn battery disconnect switch to OFF position (WP 0007). Disconnect crew cab wire harness ladder rack control wire harness connector. Check for continuity across ladder rack control wire harness wire 2803 (grey) from POWERED EQUIPMENT RACK LIFT switch connector to crew cab wire harness connector, terminal A.

a. If there is continuity, repair wire 2803 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

b. If there is no continuity, repair wire 2803 in ladder rack control wire harness if repairable (TM 9-2320-325-14&P), or replace ladder rack control wire harness (WP 0449).

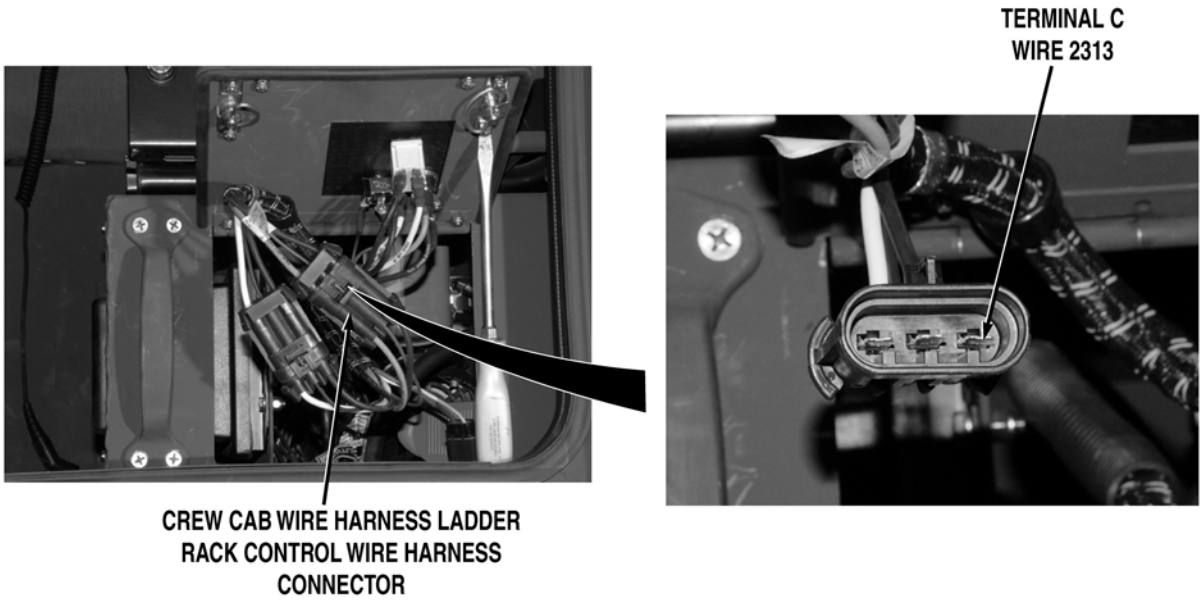
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 43. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across wire 2313 (black) from POWERED EQUIPMENT RACK LIFT switch connector to a known good ground.

If there is continuity, go to Step 45.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

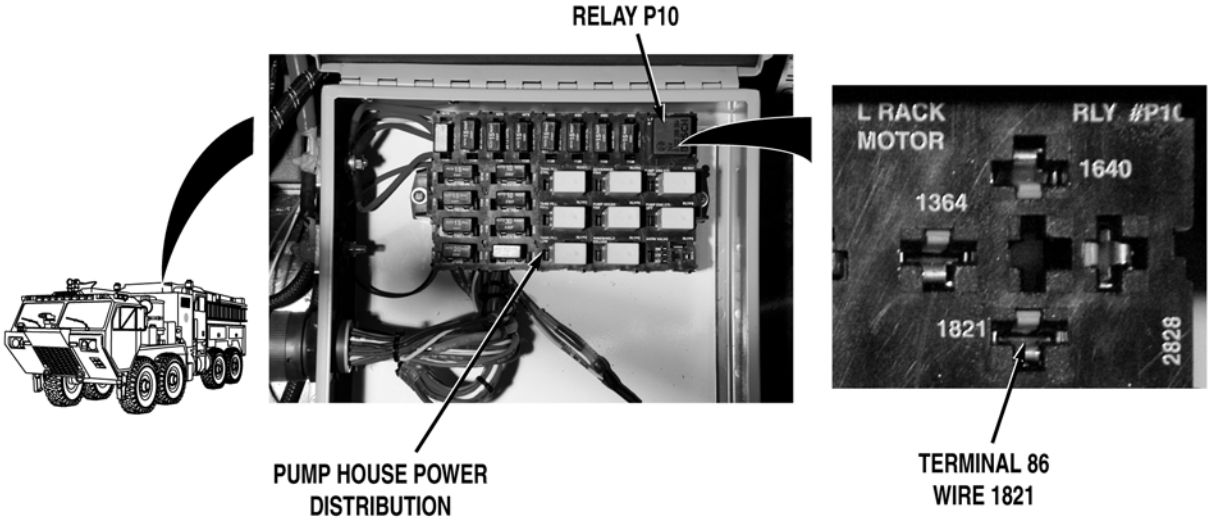


Step 44. Disconnect crew cab wire harness ladder rack control wire harness connector. Check for continuity across crew cab wire harness wire 2313 (black) from crew cab wire harness ladder rack control wire harness connector, terminal C to a known good ground.

a. If there is continuity, repair wire 2313 in ladder rack control wire harness if repairable (TM 9-2320-325-14&P), or replace ladder rack control wire harness (WP 0449).

b. If there is no continuity, repair wire 2313 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

Relay P10 operations can be checked by listening for metallic click or by feeling for slight movement of relay while being energized.

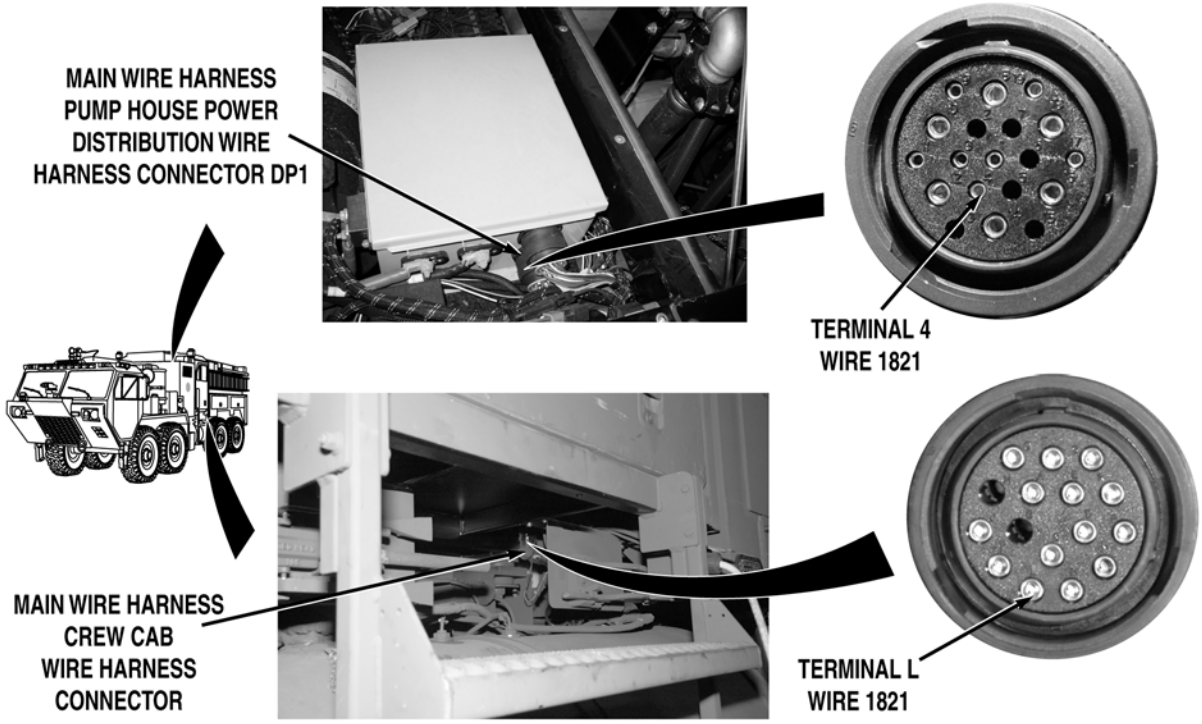
Step 45. Remove pump house panel S (WP 0540). Open pump house power distribution (WP 0398). Turn battery disconnect switch to ON position (WP 0007). While an assistant puts POWERED EQUIPMENT RACK MASTER switch to ON and OFF position (WP 0004), check if relay P10 operates on and off.

If relay P10 operates on and off, go to Step 51.

Step 46. Turn battery disconnect switch to OFF position (WP 0007). Remove relay P10 (WP 0402). Turn battery disconnect switch to ON position (WP 0007). Put POWERED EQUIPMENT RACK MASTER switch to ON position (WP 0011). Check for 22 to 28 VDC between wire 1821 (black) from pump house power distribution block relay P10, terminal 86 to a known good ground.

If 22 to 28 VDC are present, go to Step 50.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



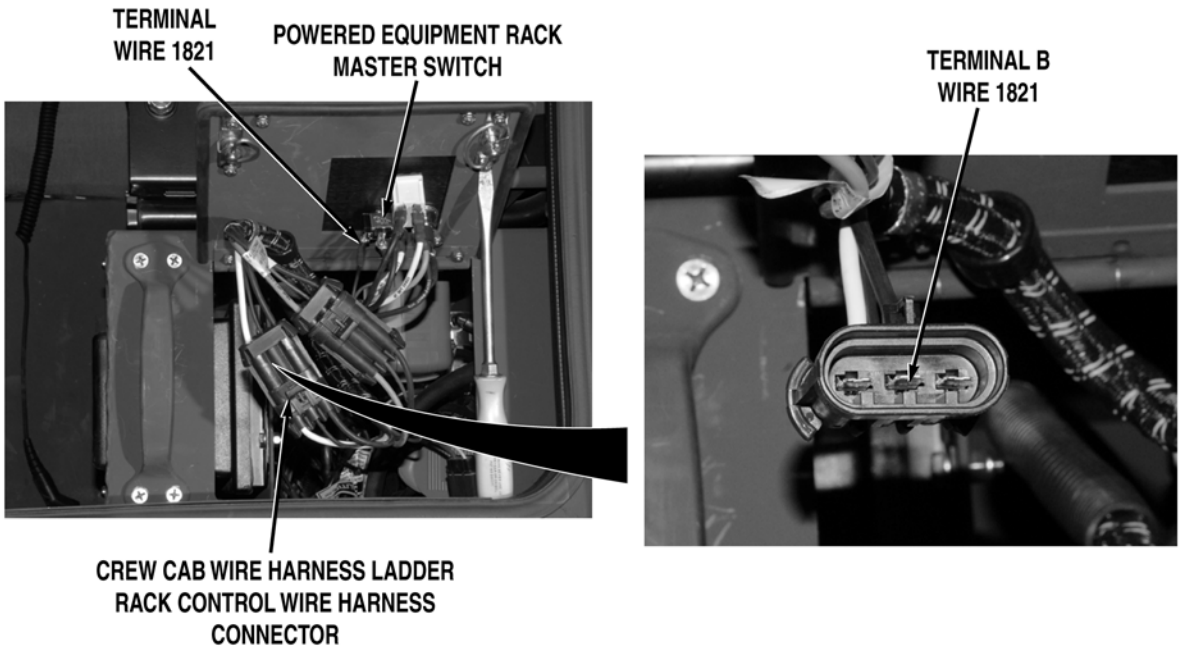
Step 47. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness pump house power distribution wire harness connector DP1. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between wire 1821 (black) from main wire harness connector DP1, terminal 4 to a known good ground.

If 22 to 28 VDC are present, repair wire 1821 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

Step 48. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness crew cab wire harness connector. With a test lead set, check for continuity across main wire harness wire 1821 (black) from main wire harness connector DP1, terminal 4 to main wire harness crew cab wire harness, terminal L.

If there is no continuity, repair wire 1821 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

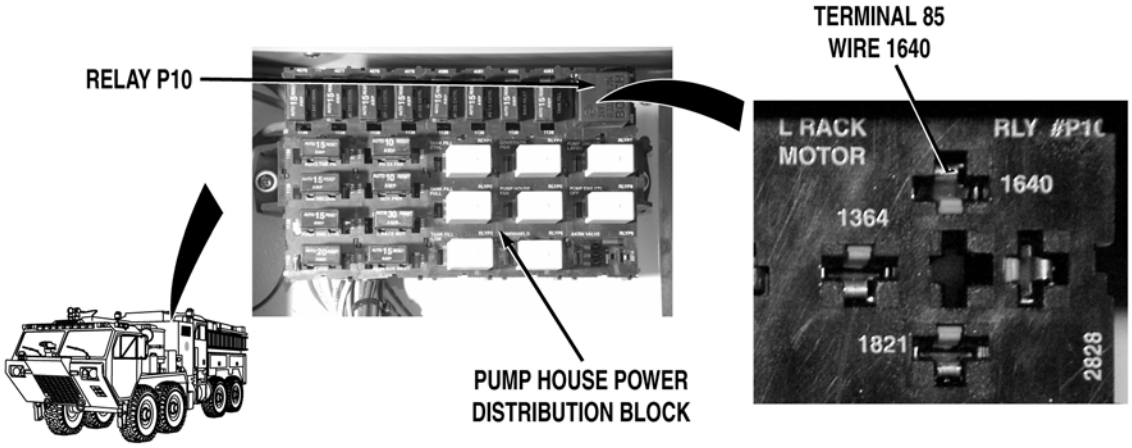


Step 49. Disconnect crew cab wire harness ladder rack control wire harness connector. Check for continuity across ladder rack control wire harness wire 1821 (black) from crew cab wire harness ladder rack control wire harness connector, terminal B to POWERED EQUIPMENT RACK MASTER switch terminal.

a. If there is continuity, repair wire 1821 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

b. If there is no continuity, repair wire 1821 in ladder rack control wire harness if repairable (TM 9-2320-325-14&P), or replace ladder rack control wire harness (WP 0449).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

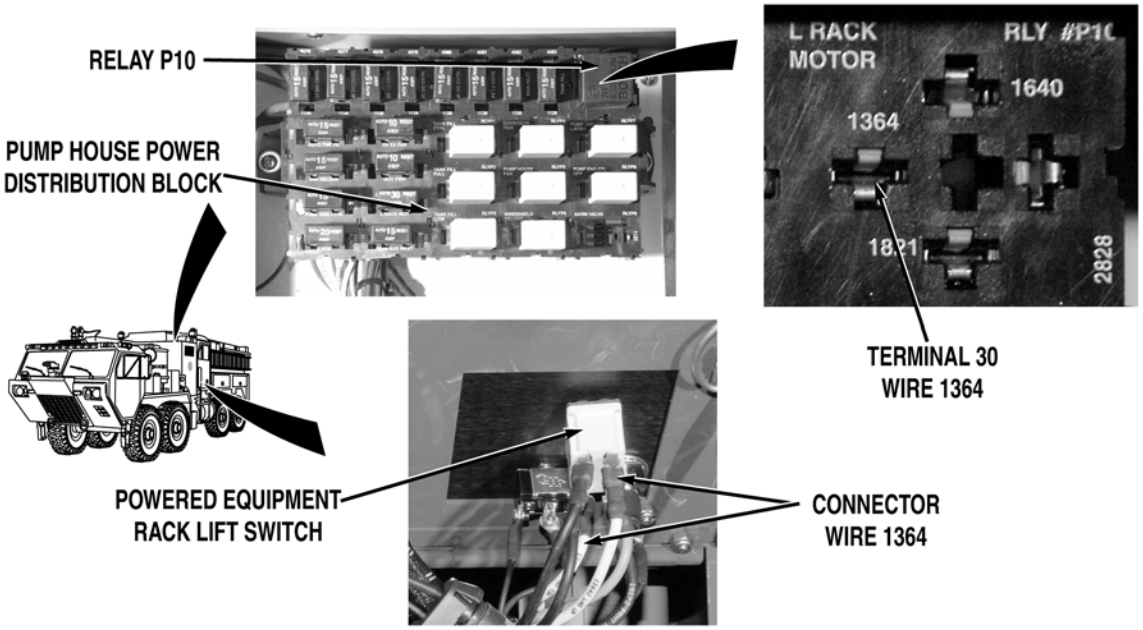


Step 50. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across pump house power distribution wire harness wire 1640 (black) from relay P10, terminal 85 to a known good ground.

a. If there is continuity, replace relay P10 (WP 0402).

b. If there is no continuity, repair wire 1640 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

For Step 51 it will be necessary to check both wires 1364 (white) at POWERED EQUIPMENT RACK LIFT switch. Both wires carry same amperage but are used in reversed voltage at switch to allow equipment ladder rack to raise and lower.

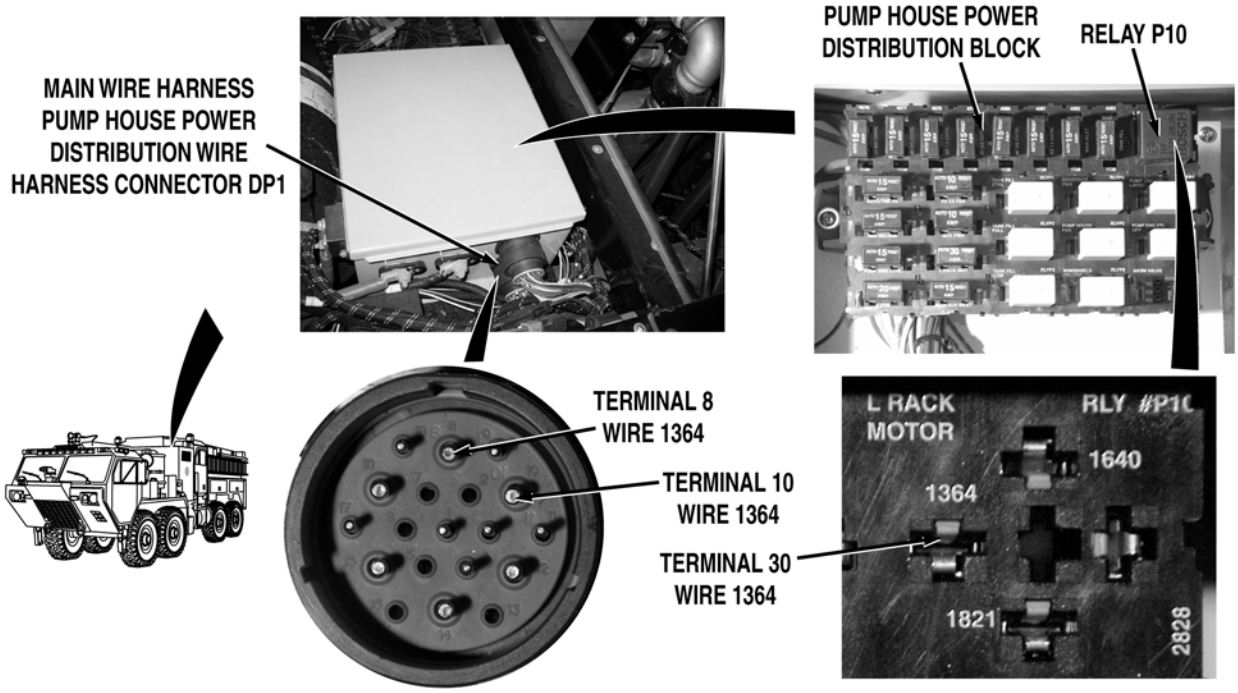
Step 51. Turn battery disconnect switch to OFF position (WP 0007). Remove relay P10 (WP 0402). With a test lead set, check for continuity across wire 1364 (white) from relay P10, terminal 30 to POWERED EQUIPMENT RACK LIFT switch, connector and connector.

a. If there is continuity across both wires 1364, go to Step 54.

b. If there is no continuity across one wire 1364 at POWERED EQUIPMENT RACK LIFT switch, repair wire 1364 in ladder rack control wire harness if repairable (TM 9-2320-325-14&P), or replace ladder rack control wire harness (WP 0449).

c. If there is no continuity across both wires 1364 at POWERED EQUIPMENT RACK LIFT switch, go to Step 52.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



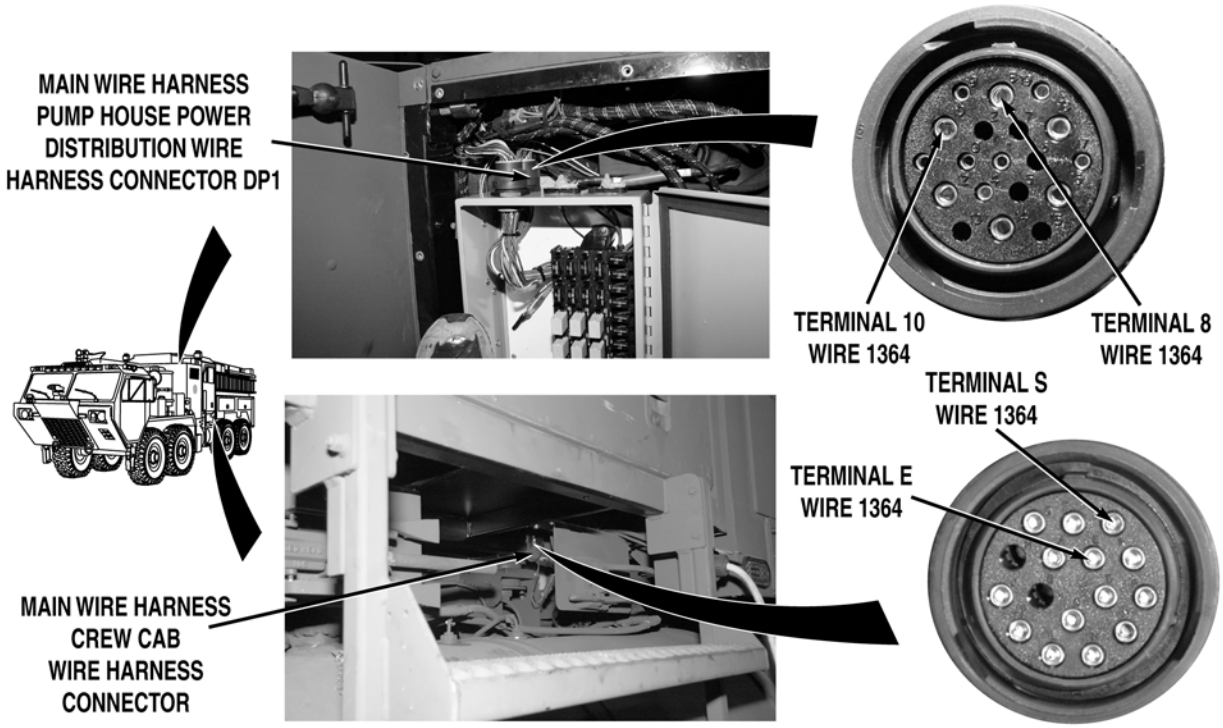
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 52. Disconnect main wire harness pump house power distribution wire harness connector DP1. With a test lead set, check for continuity across pump house power distribution wire harness wire 1364 (white) from pump house power distribution wire harness connector DP1, terminals 8 and 10 to relay P10, terminal 30.

If there is no continuity, repair wire 1364 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

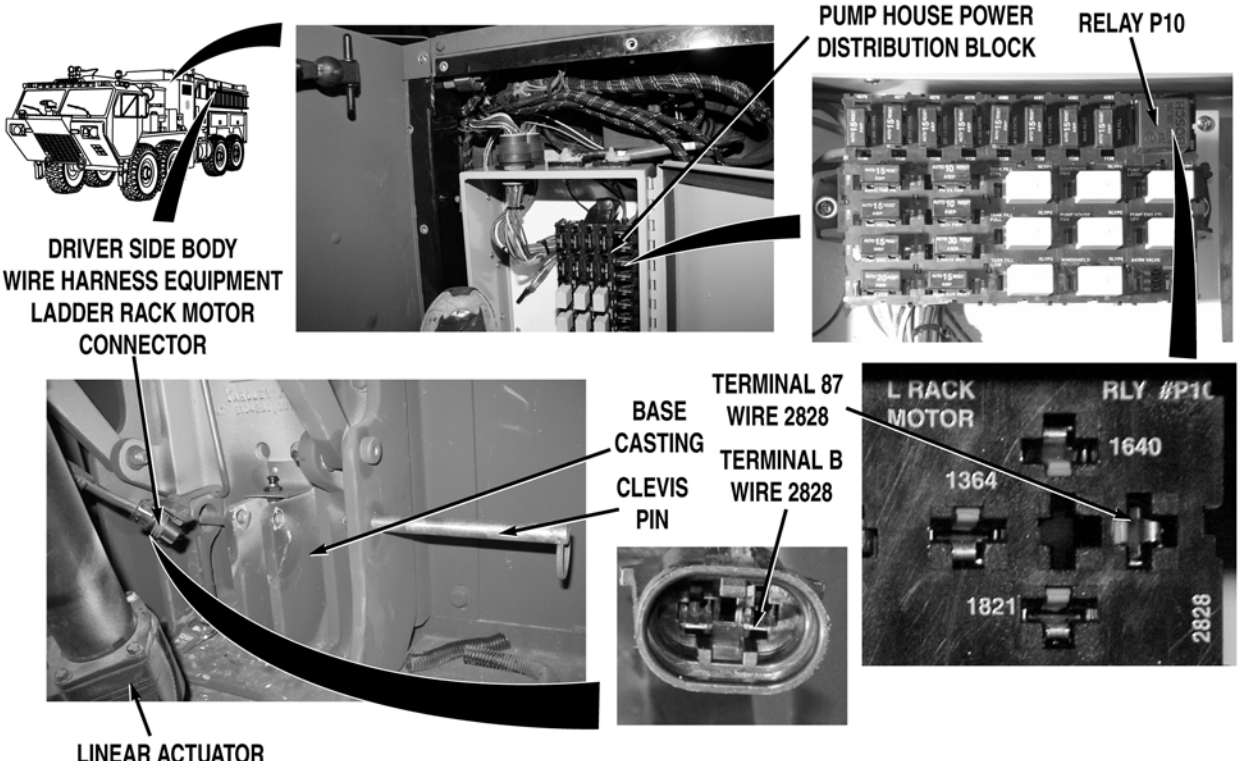


Step 53. Disconnect main wire harness crew cab wire harness connector. With a test lead set, check for continuity across main wire harness wire 1364 (white) from main wire harness pump house power distribution wire harness connector DP1, terminals 8 and 10 to main wire harness crew cab wire harness connector, terminals E and S.

a. If there is continuity across both wires 1364, repair wire 1364 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

b. If there is no continuity across either wire 1364, repair wire 1364 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



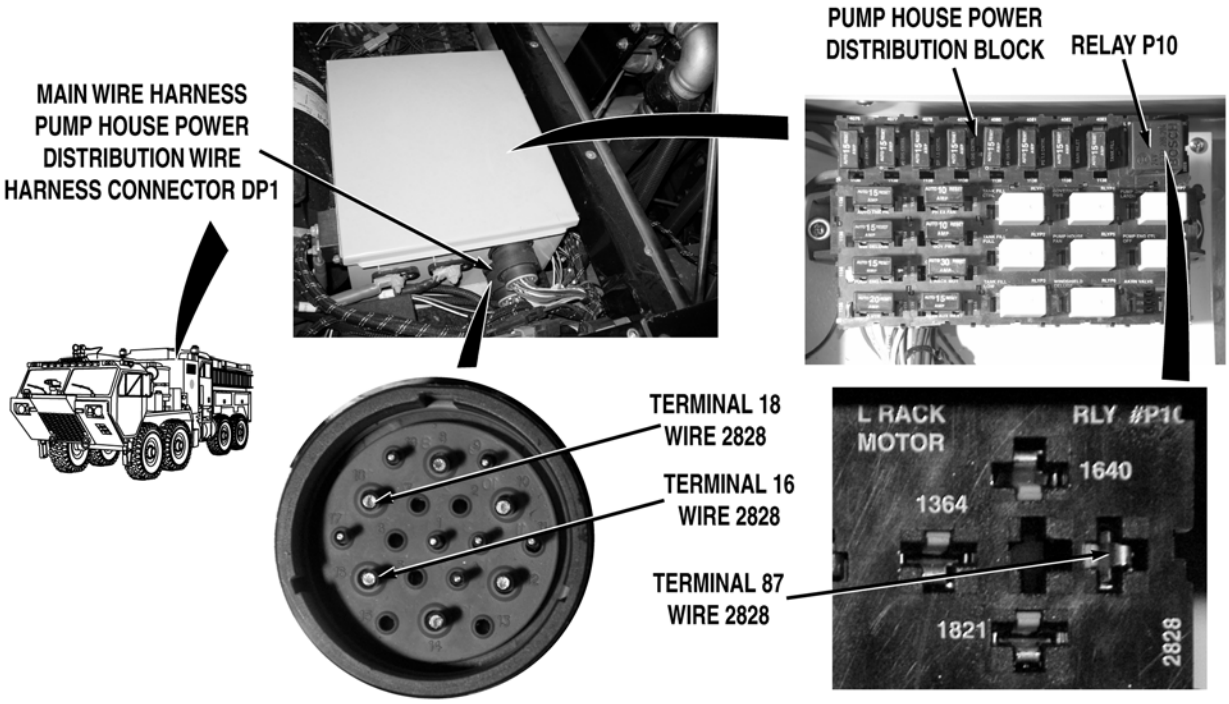
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 54. Remove ladders from equipment ladder rack (WP 0011). Remove clevis pin from either front or rear ladder rack base casting and linear actuator. Slowly bring channel support down to farthest possible position. Disconnect driver side body wire harness equipment ladder rack motor connector. With a test lead set, check for continuity across wire 2828 (red) from relay P10, terminal 87 to driver side body wire harness equipment ladder rack connector, terminal B.

If there is continuity, go to Step 57.

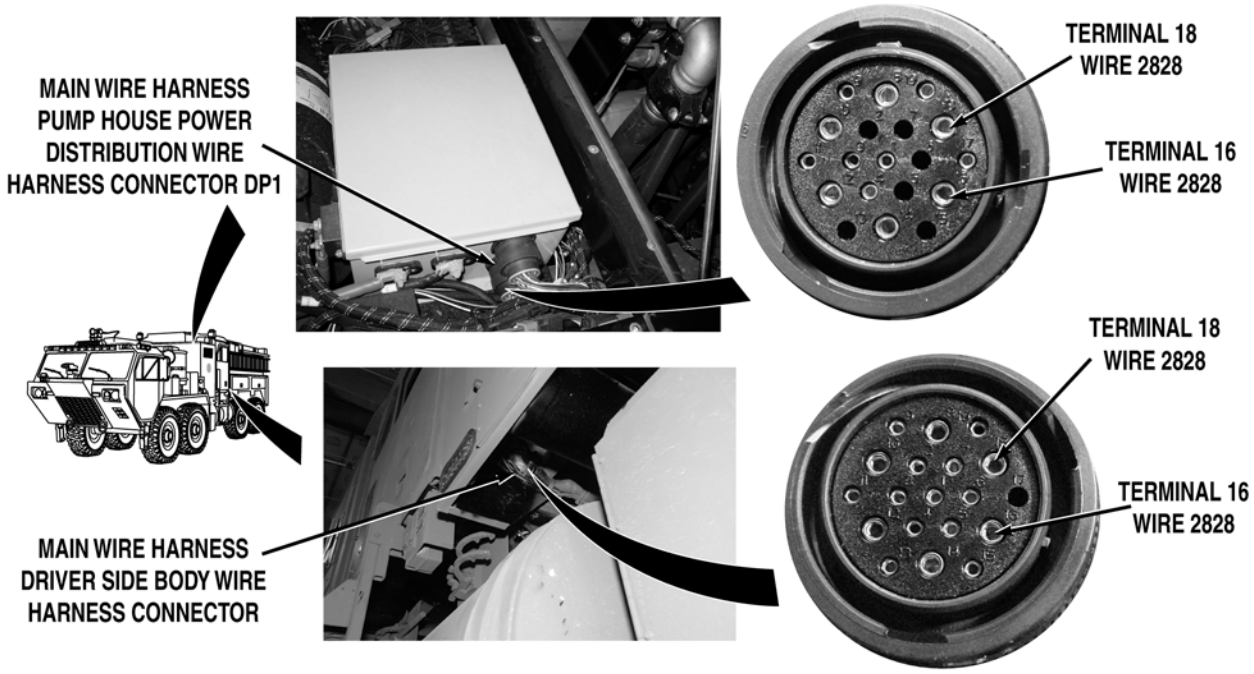
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 55. Disconnect main wire harness pump house power distribution wire harness connector DP1. Check for continuity across pump house power distribution wire harness wire 2828 (red) from pump house power distribution wire harness connector DP1, terminals 16 and 18 to relay P10, terminal 87.

If there is no continuity at either terminal, repair wire 2828 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

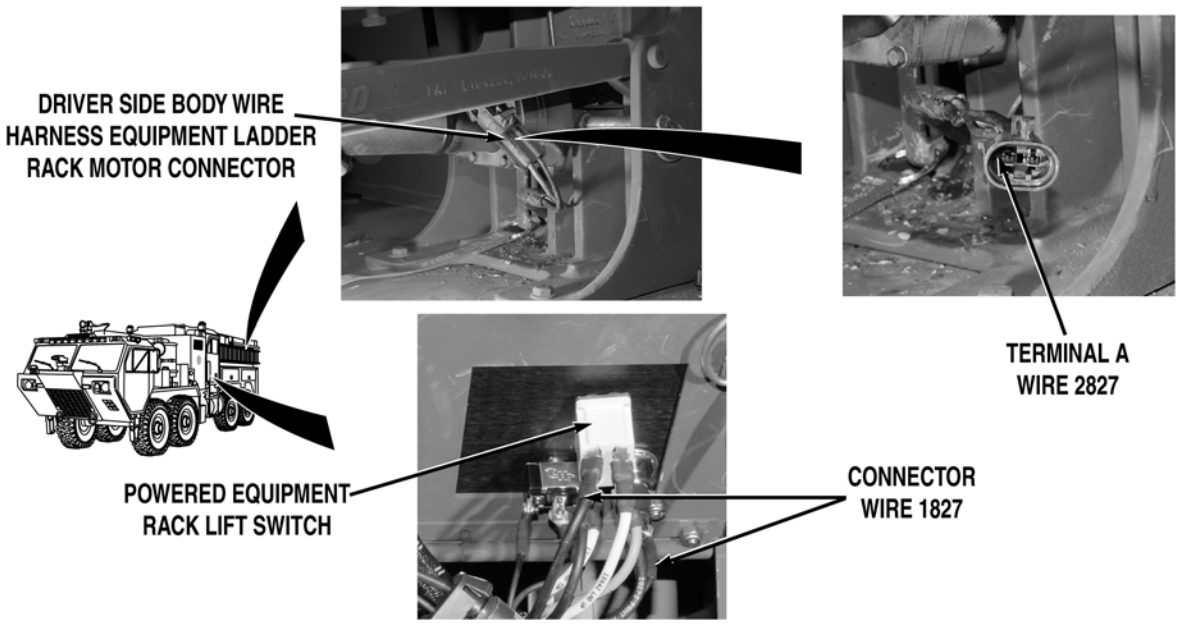


Step 56. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2828 (red) from main wire harness driver side body wire harness connector, terminals 16 and 18 to main wire harness pump house power distribution wire harness connector DP1, terminals 16 and 18.

a. If there is continuity at both terminals, repair wire 2828 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity at terminals 16 and/or 18, repair wire 2828 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

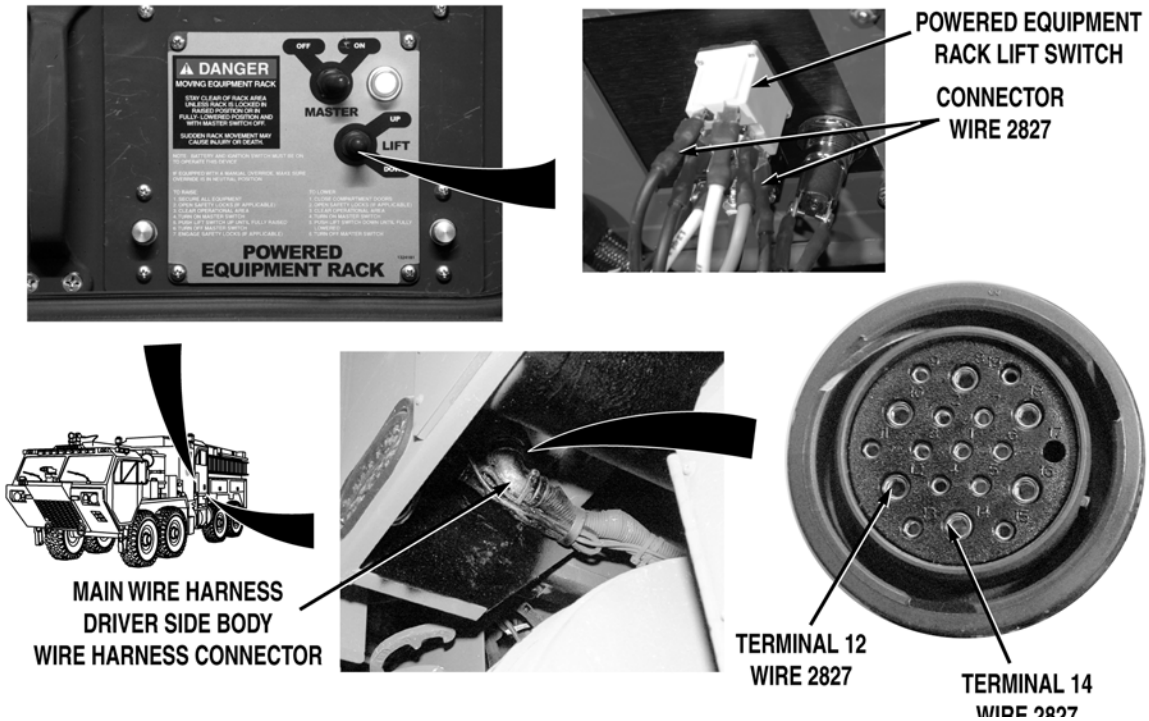
NOTE

For Steps 57 and 58, it will be necessary to check both wires 2827 (black) at POWERED EQUIPMENT RACK LIFT switch. Both wires carry same amperage but are used in reversed voltage at switch to allow equipment ladder rack to raise and lower.

Step 57. Check for continuity across wire 2827 (black) from driver side body wire harness equipment ladder rack motor connector, terminal A to ladder rack control wire harness POWERED EQUIPMENT RACK LIFT switch, connector and connector.

If there is continuity, replace relay P10 (WP 0402).

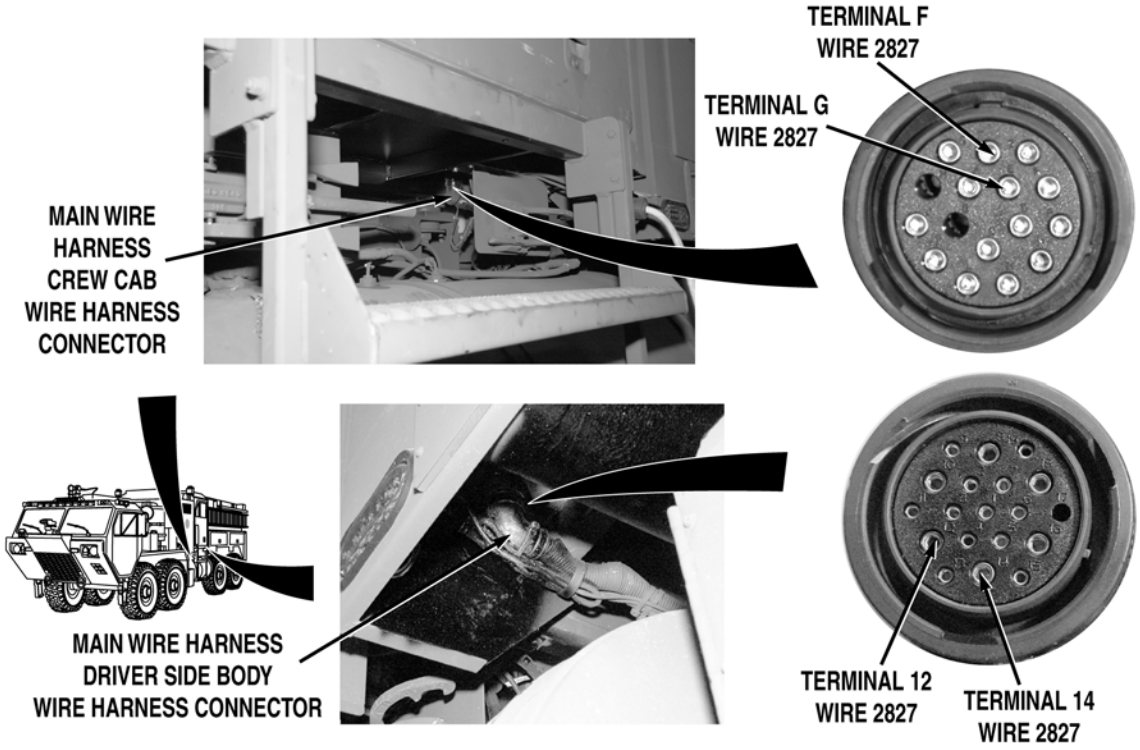
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 58. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across wire 2827 (black) from main wire harness driver side body wire harness connector, terminals 12 and 14 to ladder rack control wire harness POWERED EQUIPMENT RACK LIFT switch, connector and connector.

If there is continuity, repair wire 2827 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

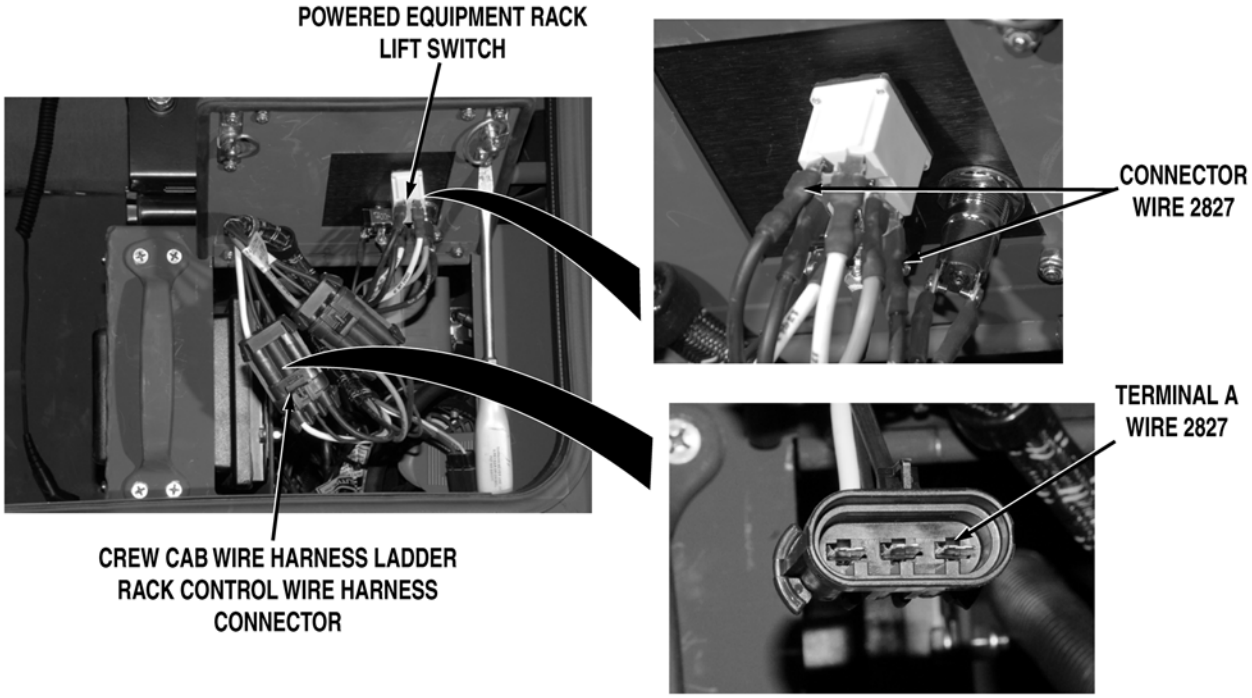
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 59. Disconnect main wire harness crew cab wire harness connector. With a test lead set, check for continuity across main wire harness wire 2827 (black) from main wire harness driver side body wire harness connector, terminals 12 and 14 to main wire harness crew cab wire harness connector, terminals F and G.

If there is no continuity, repair wire 2827 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



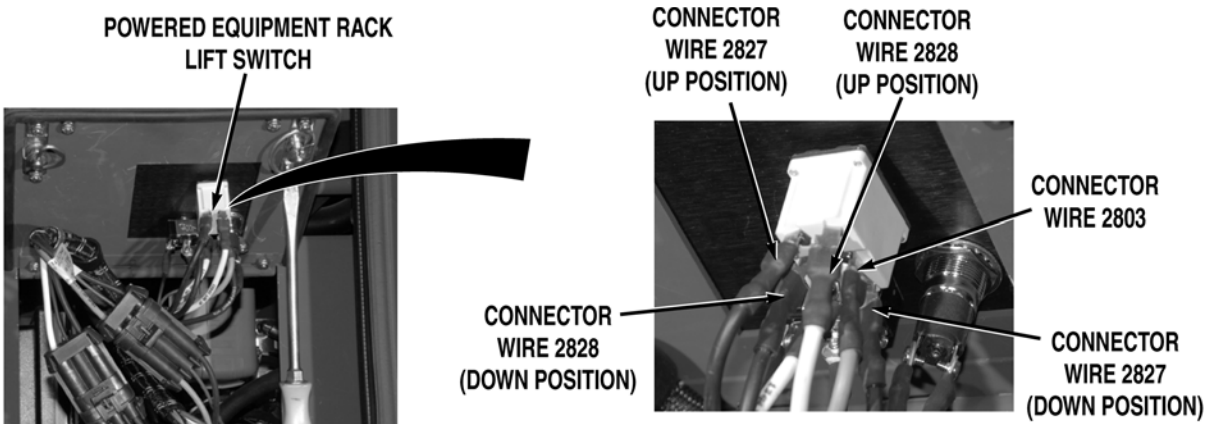
NOTE

For Step 60, it will be necessary to check both wires 2827 (black) at POWERED EQUIPMENT RACK LIFT switch. Both wires carry same amperage but are used in reversed voltage at switch to allow equipment ladder rack to raise and lower.

Step 60. Disconnect crew cab wire harness ladder rack control wire harness connector. Check for continuity across ladder rack control wire harness wire 2827 (black) from crew cab wire harness ladder rack control wire harness connector, terminal A to POWERED EQUIPMENT RACK LIFT switch, connector and connector.

If there is no continuity, repair wire 2827 in ladder rack control wire harness if repairable (TM 9-2320-325-14&P), or replace ladder rack control wire harness (WP 0449).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

ICON 3

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 61. Connect crew cab wire harness ladder rack control wire harness. Turn battery disconnect switch to ON position (WP 0007). While an assistant holds POWERED EQUIPMENT RACK LIFT switch in DOWN position (WP 0011), check for 22 to 28 VDC between wire 2828 (red) and wire 2827 (black) from POWERED EQUIPMENT RACK LIFT switch, connector to connector. Reverse position of terminals at POWERED EQUIPMENT RACK LIFT switch and check for 22 to 28 VDC when POWERED EQUIPMENT RACK LIFT switch is put in UP position.

a. If 22 to 28 VDC are present, repair wire 2827 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

b. If 22 to 28 VDC are not present, replace POWERED EQUIPMENT RACK LIFT switch (WP 0389).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM FLUSH INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0019
WP 0101

References (continued)
WP 0325
WP 0326
WP 0327
WP 0459
WP 0539

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

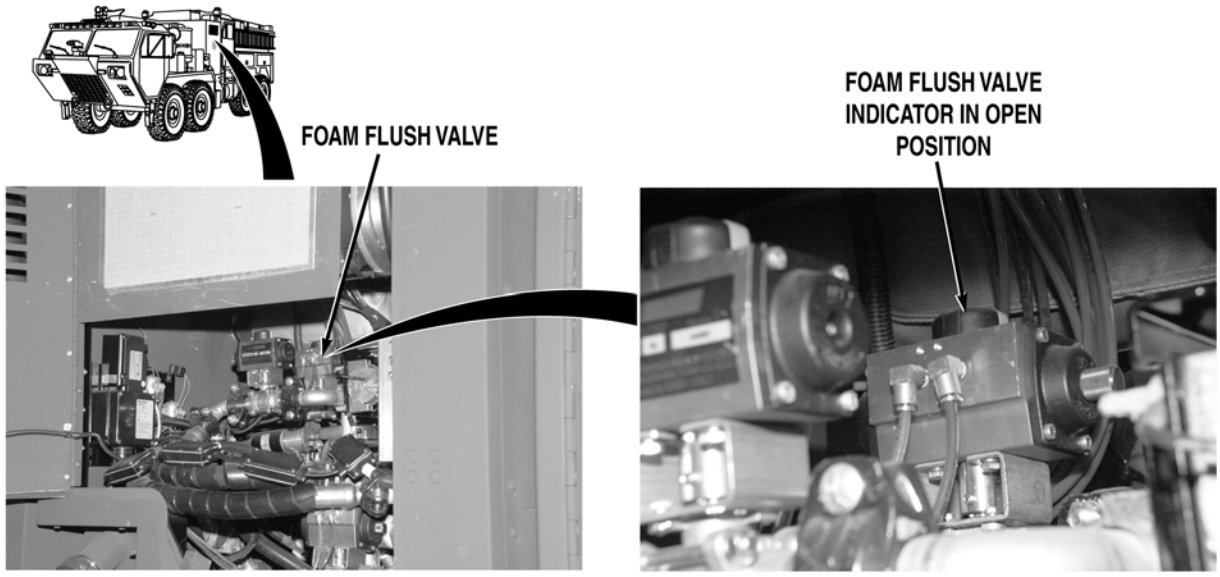
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

FOAM FLUSH INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

NOTE

- Ensure system air pressure is at least 85 psi (586 kPa) when operating foam flush valve during this procedure. System air pressure is required to activate valves.
- Do not engage water pump engine during this procedure. Valve operation can be checked without water pump operation.
- Valve operations can be checked by observing valve shaft rotation. Valves are open when tabs or yellow paint tabs are aligned with direction of fluid flow.
- Step 1 will ensure that foam flush system is operating properly or if fault exists in lamp, indicator, or wires leading to indicator.

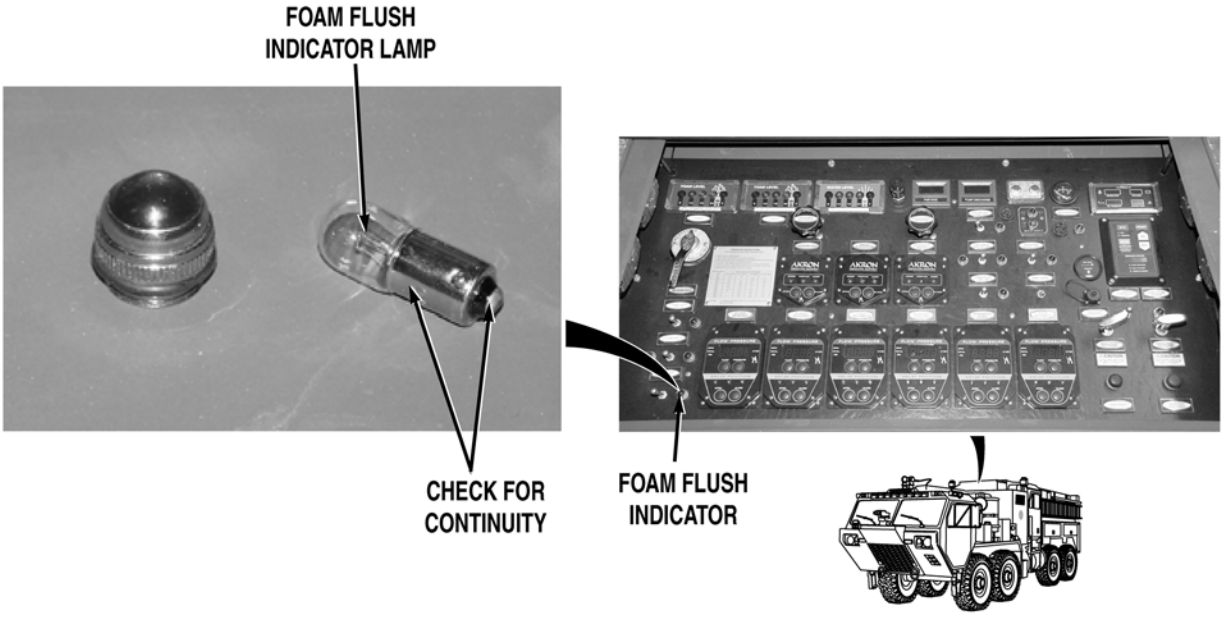
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Open pump operator's panel (WP 0019). Turn battery disconnect switch to ON position (WP 0007). If system air pressure is below 85 psi (586 kPa), start engine and allow system air pressure to build to at least 85 psi (586 kPa) (TM 9-2320-347-10). Then shut off engine (TM 9-2320-347-10). Open pump house panel A (WP 0539). While an assistant puts pump operator's panel FOAM FLUSH switch to ON position (WP 0004), check if foam flush valve operates to open position.

If foam flush valve does not operate to open position, troubleshoot Foam System Cannot Be Flushed (WP 0101).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



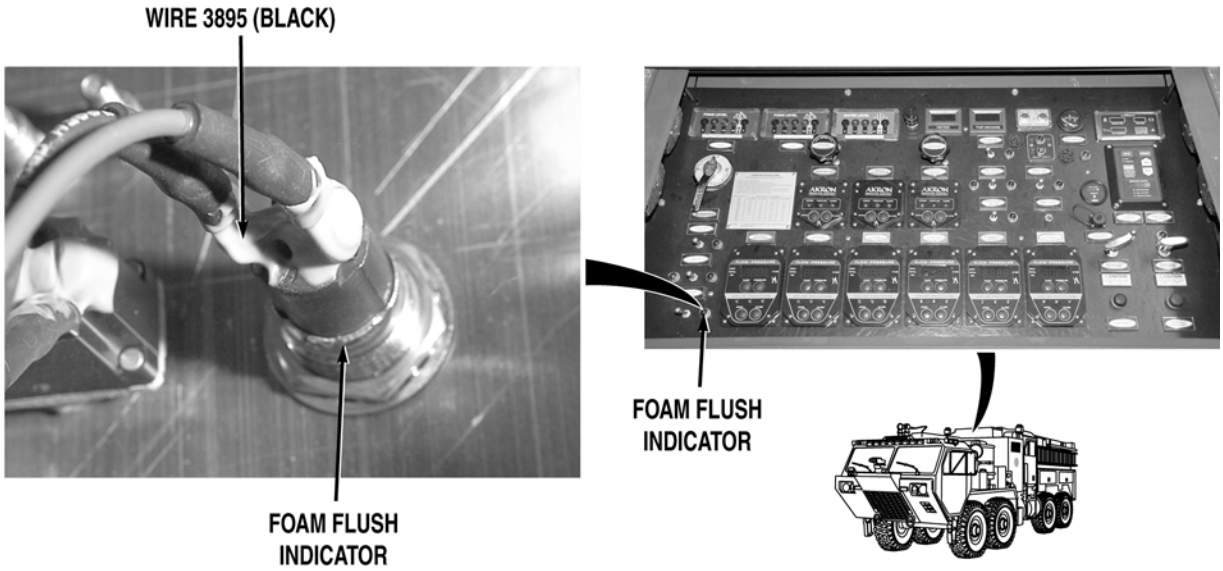
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Put pump operator's panel FOAM FLUSH switch to OFF position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from pump operator's panel FOAM FLUSH indicator (WP 0327). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0327).

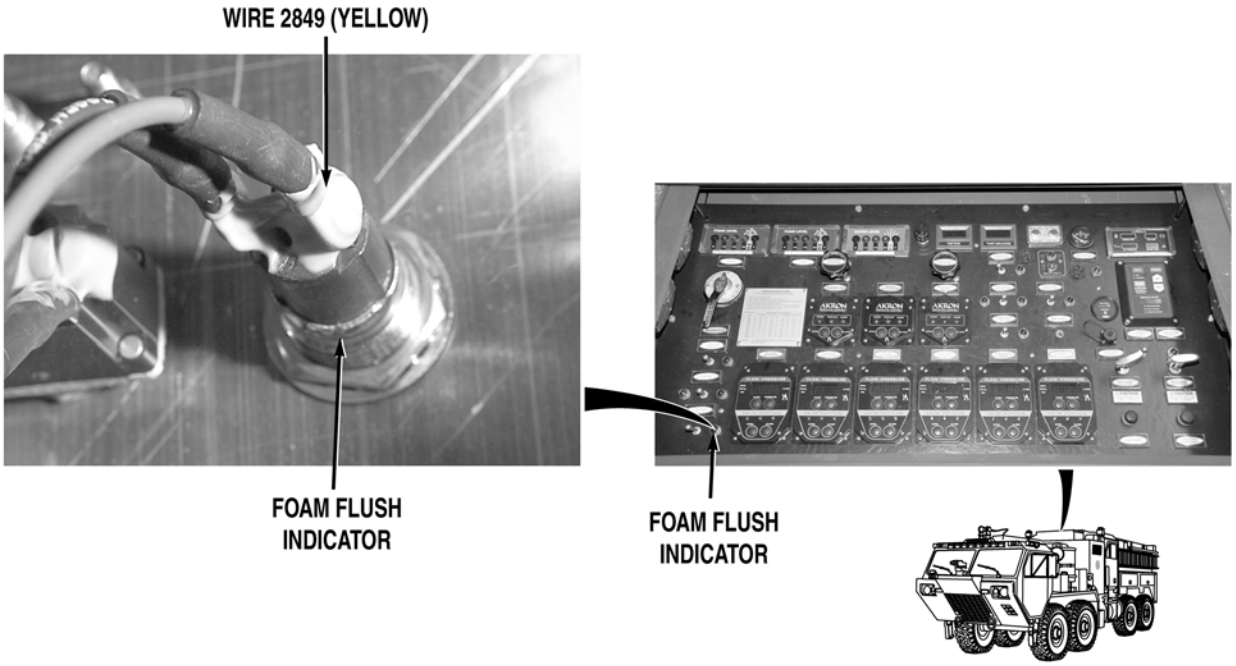
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Install lamp in pump operator's panel FOAM FLUSH indicator (WP 0327). Open pump operator's panel housing (WP 0325). Check for continuity across pump operator's panel wire harness wire 3895 (black) from pump operator's panel FOAM FLUSH indicator to a known good ground.

If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Turn battery disconnect switch to ON position (WP 0007). Turn FOAM FLUSH switch on (WP 0004). Check for 22 to 28 VDC between pump operator's panel wire harness wire 2849 (yellow) from pump operator's panel FOAM FLUSH indicator to a known good ground.

a. If 22 to 28 VDC are present, replace pump operator's panel FOAM FLUSH indicator (WP 0326).

b. If 22 to 28 VDC are not present, repair wire 2849 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM INDICATOR DOES NOT ILLUMINATE (CAB)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

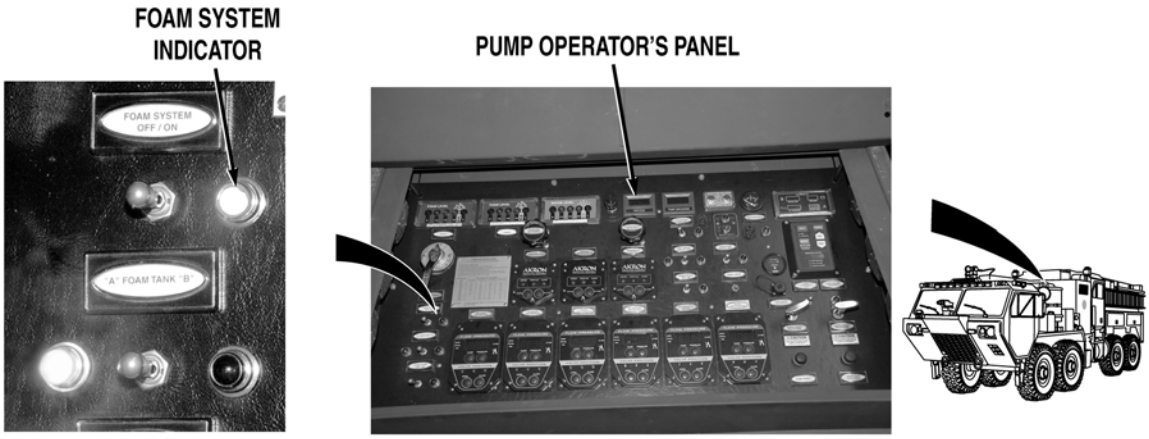
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0019

References (continued)
WP 0094
WP 0311
WP 0313
WP 0443

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

FOAM SYSTEM INDICATOR DOES NOT ILLUMINATE (CAB)



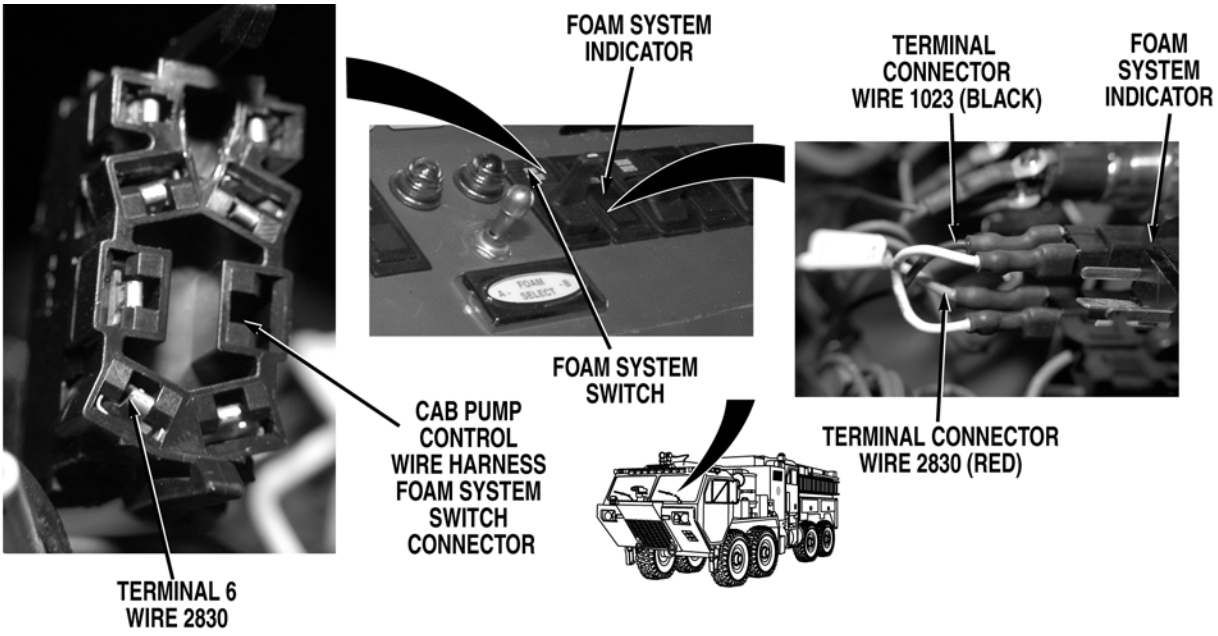
NOTE

Step 1 will ensure that foam system is operating properly or fault exists in bulb, indicator, or wires leading to indicator.

Step 1. Open pump operator's panel (WP 0019). Turn battery disconnect switch to ON position (WP 0007). Put cab FOAM SYSTEM switch to on position (WP 0004) and release. Check if pump operator's panel FOAM SYSTEM indicator illuminates.

If pump operator's panel FOAM SYSTEM indicator does not illuminate, troubleshoot Foam Not Delivered From All Systems (Bumper Turret, Ground Sweeps, and Manual Metering Controls) or System Does Not Shut Off (WP 0094).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

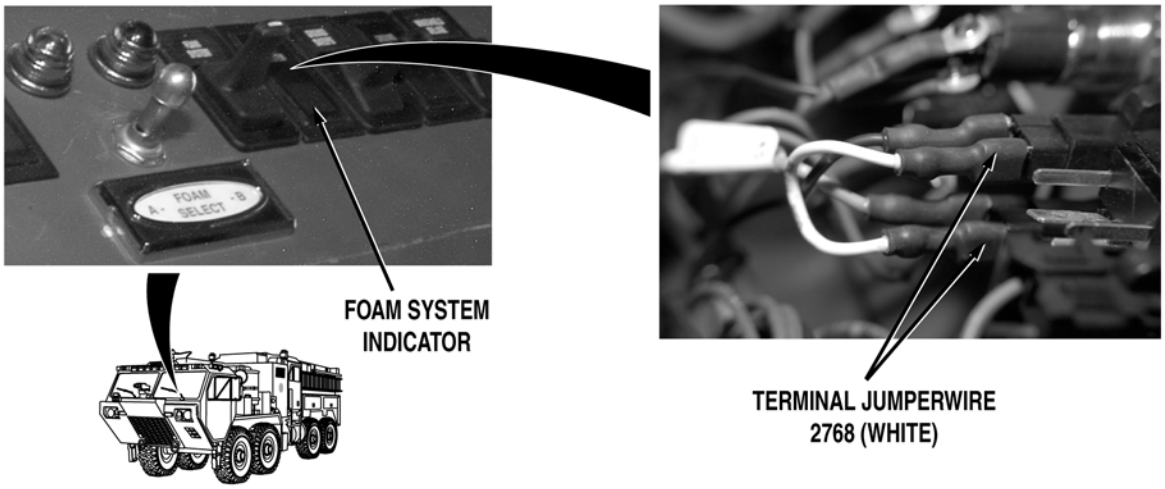
Step 2. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel B (WP 0311). Disconnect cab pump control wire harness FOAM SYSTEM switch connector. Disconnect cab pump control wire harness FOAM SYSTEM indicator wire 2830 (red) from FOAM SYSTEM indicator. Check for continuity across cab pump control wire harness wire 2830 (red) from FOAM SYSTEM switch connector, terminal 6 to FOAM SYSTEM indicator terminal connector.

If there is no continuity, repair wire 2830 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

Step 3. Disconnect cab pump control wire harness FOAM SYSTEM indicator wire 1023 (black). Check for continuity across cab pump control wire harness wire 1023 (black) from FOAM SYSTEM indicator connector to a known good ground.

If there is no continuity, repair wire 1023 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Disconnect jumperwire 2768 (white) from FOAM SYSTEM indicator terminal connectors. Check for continuity across jumperwire 2768 (white) from terminal to terminal.

a. If there is continuity, replace FOAM SYSTEM indicator (WP 0313).

b. If there is no continuity, repair or replace jumperwire 2768 (white) (TM 9-2320-325-14&P).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

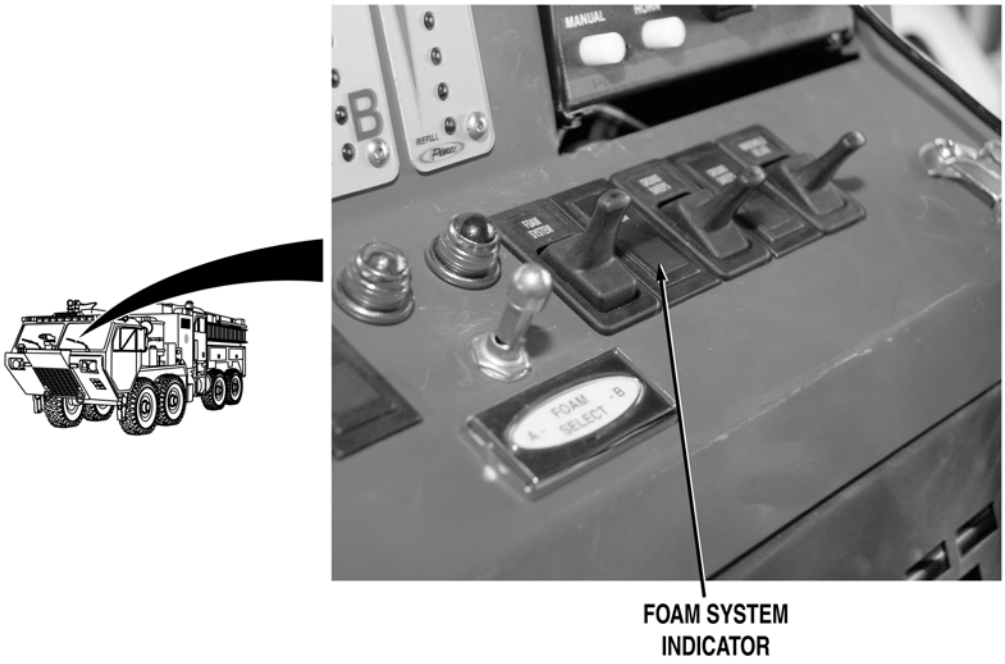
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0019
WP 0094
WP 0325
WP 0327
WP 0459

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

FOAM SYSTEM INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



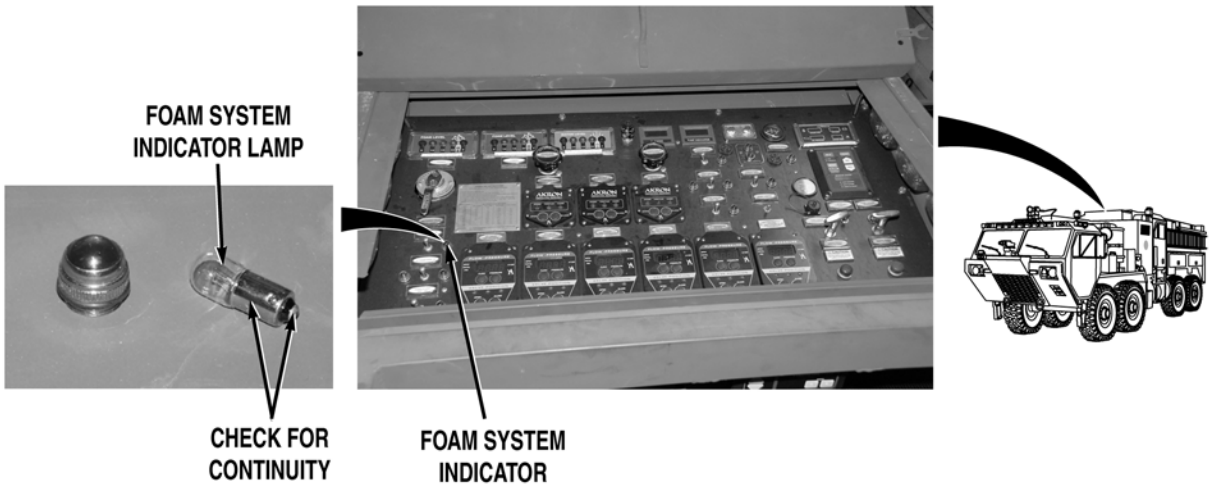
NOTE

Step 1 will ensure that foam system is operating properly or if fault exists in bulb, indicator, or wires leading to indicator.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Open pump operator's panel (WP 0019). Put pump operator's panel FOAM SYSTEM switch to ON position (WP 0004). Check if cab FOAM SYSTEM indicator illuminates.

If cab FOAM SYSTEM indicator does not illuminate, troubleshoot Foam Not Delivered From All Systems (Bumper Turret, Ground Sweeps, and Manual Metering Controls) or System Does Not Shut Off (WP 0094).

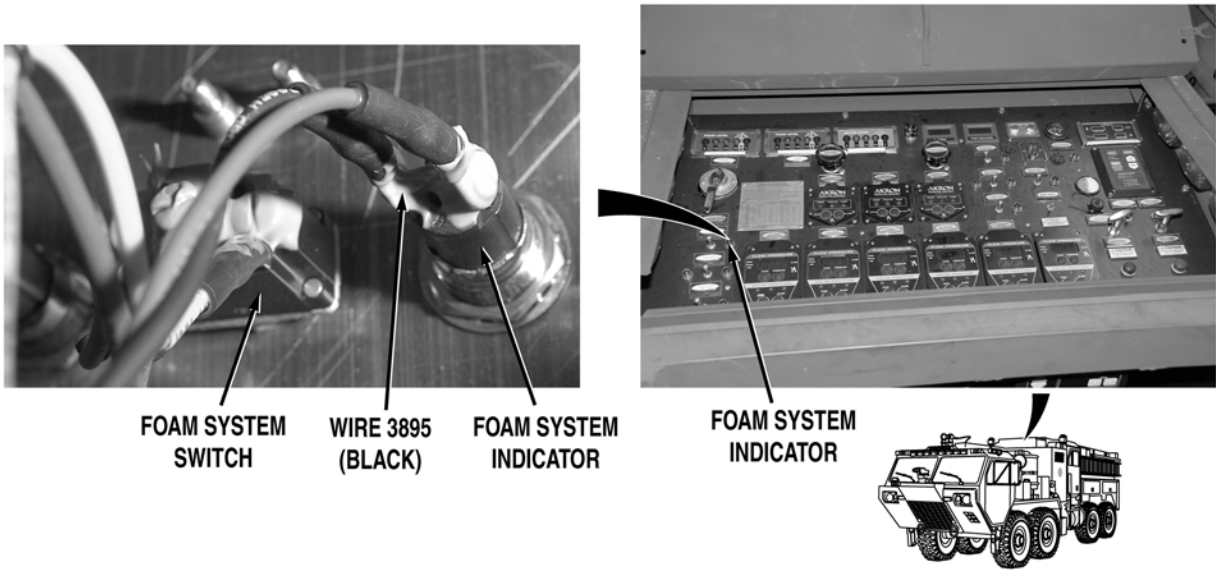
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 2. Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from pump operator's panel FOAM SYSTEM indicator (WP 0327). Check for continuity across lamp.

If there is no continuity, replace FOAM SYSTEM indicator lamp (WP 0327).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



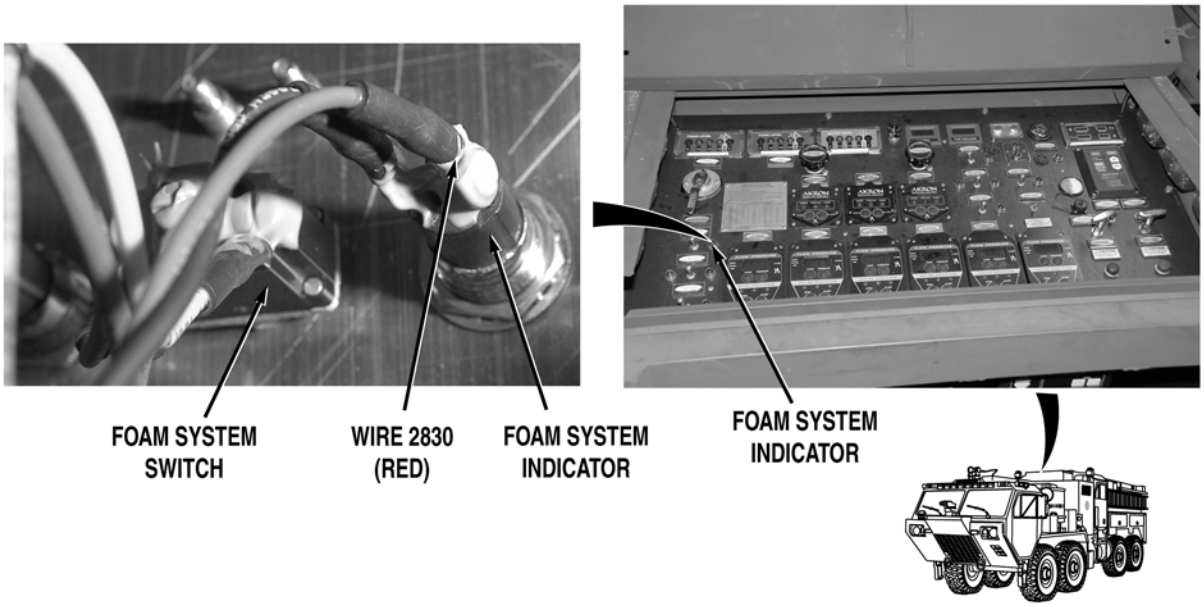
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 3. Install lamp in pump operator's panel FOAM SYSTEM indicator (WP 0327). Open pump operator's panel housing (WP 0325). Check for continuity across pump operator's panel wire harness wire 3895 (black) from pump operator's panel wire harness FOAM SYSTEM indicator terminal to a known good ground.

If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel FOAM SYSTEM switch to ON position (WP 0004). Check for 22 to 28 VDC between wire 2830 (red) at pump operator's panel FOAM SYSTEM indicator terminal and a known good ground.

a. If 22 to 28 VDC are present, replace FOAM SYSTEM indicator (WP 0327).

b. If 22 to 28 VDC are not present, repair wire 2830 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PUMP COOLER OPEN INDICATOR DOES NOT ILLUMINATE (CAB)

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

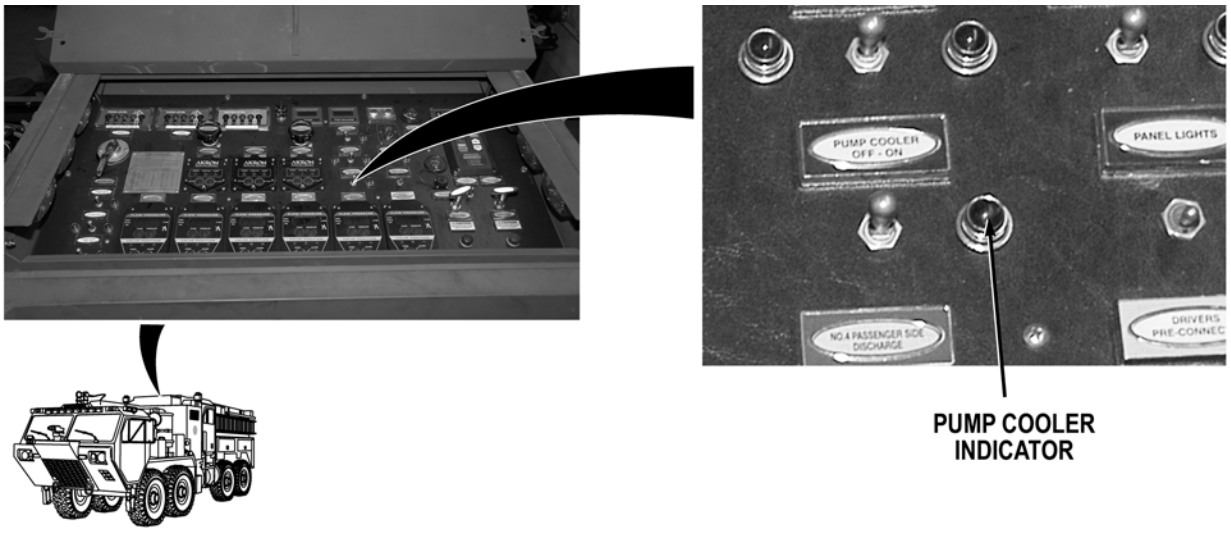
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0019

References (continued)
WP 0114
WP 0311
WP 0313
WP 0443

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

PUMP COOLER OPEN INDICATOR DOES NOT ILLUMINATE (CAB)



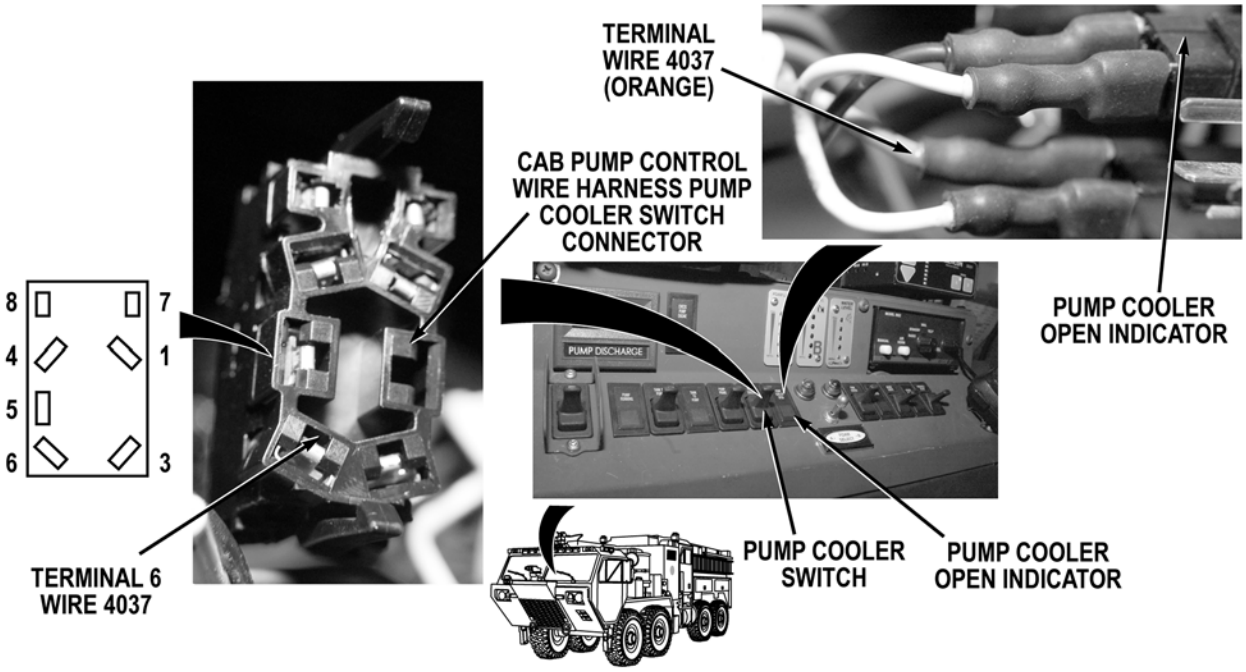
NOTE

Step 1 will ensure that pump cooler system is operating properly or if fault exists in bulb, indicator, or wires leading to indicator.

Step 1. Open pump operator's panel cover (WP 0019). Turn battery disconnect switch to ON position (WP 0007). Put cab PUMP COOLER switch to on position (WP 0004). Check if pump operator's panel PUMP COOLER indicator illuminates (WP 0004).

If pump operator's panel PUMP COOLER indicator does not illuminate, troubleshoot Pump Cooler Valve Does Not Operate Properly (WP 0114).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



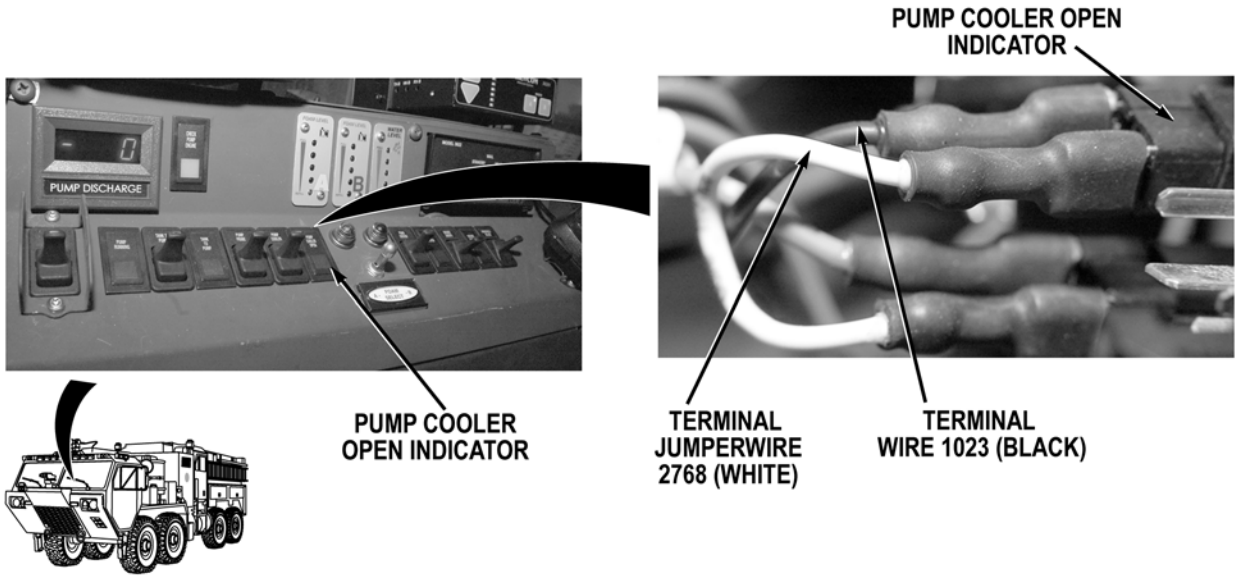
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel B (WP 0311). Disconnect cab pump control wire harness PUMP COOLER switch connector. With a test lead set, check for continuity across cab pump control wire harness wire 4037 (orange) from PUMP COOLER switch connector, terminal 6 to PUMP COOLER OPEN indicator terminal connector.

If there is no continuity, repair wire 4037 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Check for continuity across cab pump control wire harness wire 1023 (black) from PUMP COOLER OPEN indicator terminal connector to a known good ground.

If there is no continuity, repair wire 1023 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

Step 4. Disconnect jumperwire 2768 (white) from PUMP COOLER OPEN indicator terminals. Check for continuity across jumperwire 2768 (white) from terminal to terminal.

a. If there is continuity, replace cab PUMP COOLER OPEN indicator (WP 0313).

b. If there is no continuity, repair or replace jumperwire 2768 if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PUMP COOLER INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

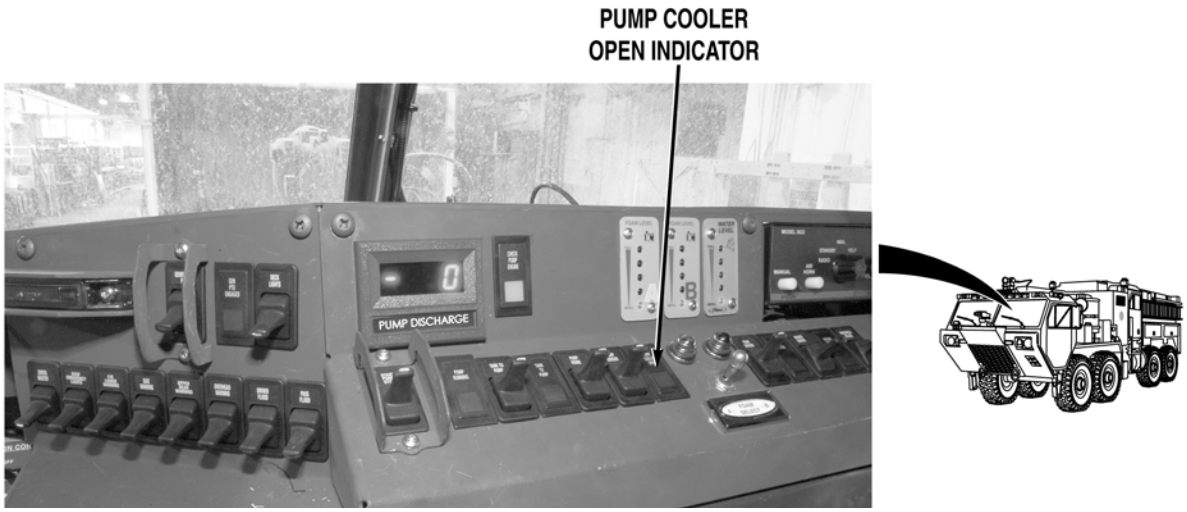
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0019
WP 0114

References (continued)
WP 0325
WP 0326
WP 0327
WP 0459

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

PUMP COOLER INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)



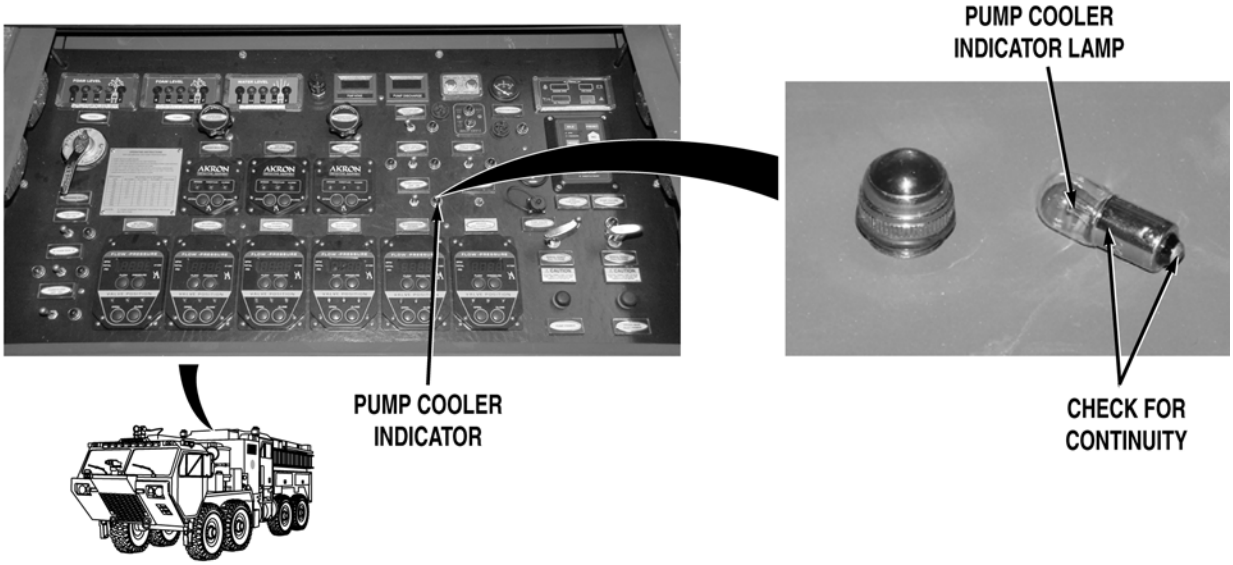
NOTE

Step 1 will ensure that pump cooler system is operating properly or if fault exists in bulb, indicator, or wires leading to indicator.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Open pump operator's panel (WP 0019). Put pump operator's panel PUMP COOLER switch to ON position (WP 0004). Check if cab PUMP COOLER OPEN indicator illuminates.

If cab PUMP COOLER OPEN indicator does not illuminate, troubleshoot Pump Cooler Valve Does Not Operate Properly (WP 0114).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



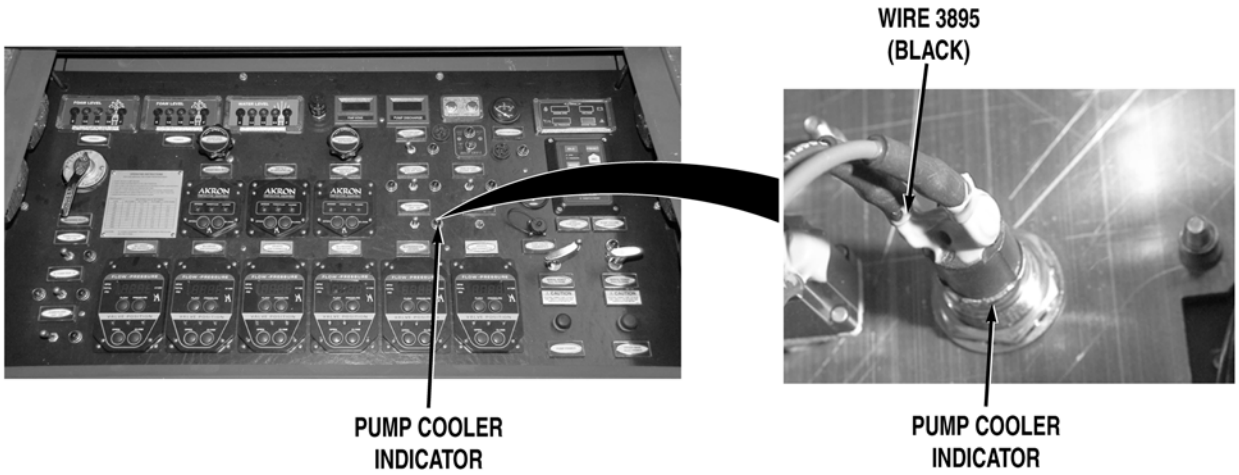
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from pump operator's panel PUMP COOLER indicator (WP 0327). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0327).

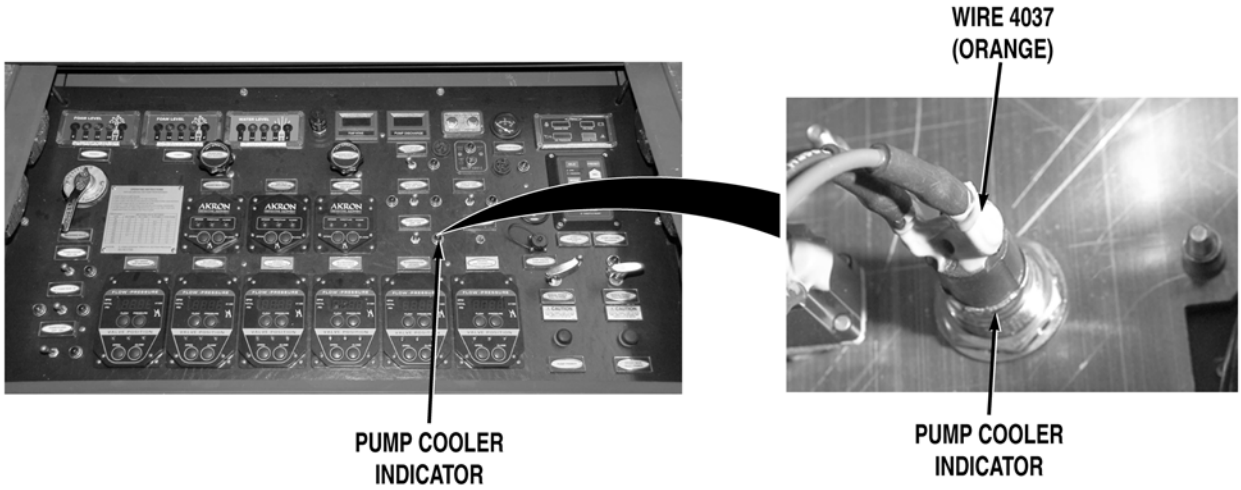
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Install lamp in pump operator's panel PUMP COOLER indicator (WP 0327). Open pump operator's panel housing (WP 0325). Check for continuity across pump operator's panel wire harness wire 3895 (black) from pump operator's panel wire harness PUMP COOLER indicator to a known good ground.

If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel PUMP COOLER switch to ON position (WP 0004). Check for 22 to 28 VDC between wire 4037 (orange) at pump operator's panel wire harness PUMP COOLER indicator terminal, and a known good ground.

a. If 22 to 28 VDC are present, replace pump operator's panel PUMP COOLER indicator (WP 0326).

b. If 22 to 28 VDC are not present, repair wire 4037 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PUMP ENGINE RUNNING INDICATOR NOT ILLUMINATED WHEN WATER PUMP ENGINE IS RUNNING

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
WP 0004
WP 0007
WP 0019
WP 0022
WP 0146
WP 0246
WP 0311
WP 0313

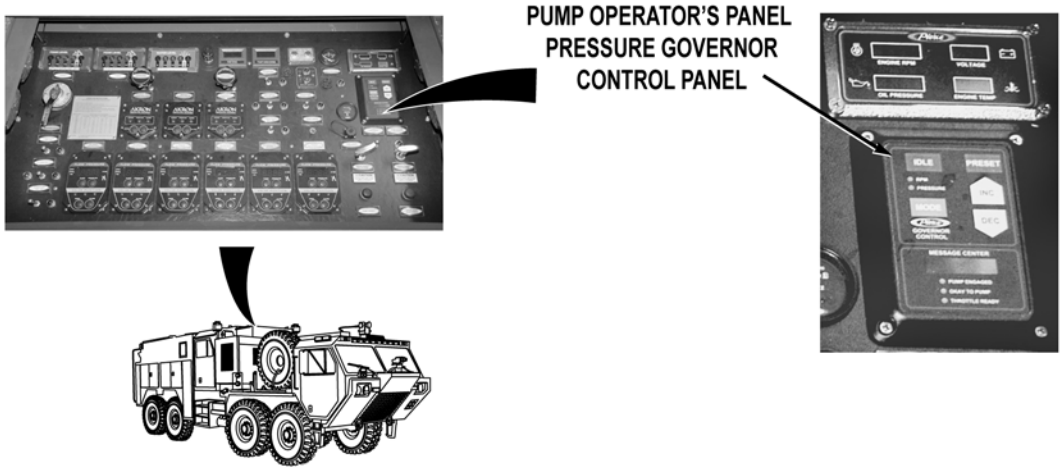
References (continued)
WP 0325
WP 0326
WP 0327
WP 0443
WP 0455
WP 0458
WP 0459
WP 0499
WP 0540
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

PUMP ENGINE RUNNING INDICATOR NOT ILLUMINATED WHEN WATER PUMP ENGINE IS RUNNING

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Turn battery disconnect switch to ON position (WP 0007). Open pump operator's panel (WP 0019). Start water pump engine (WP 0022). Check if pump operator's panel pressure governor control panel display LED indicators illuminate (WP 0004).

If pump operator's panel pressure governor control display LED indicators do not illuminate, troubleshoot Water Pump Engine Pressure Governor Control Panel Does Not Operate Properly (WP 0146).

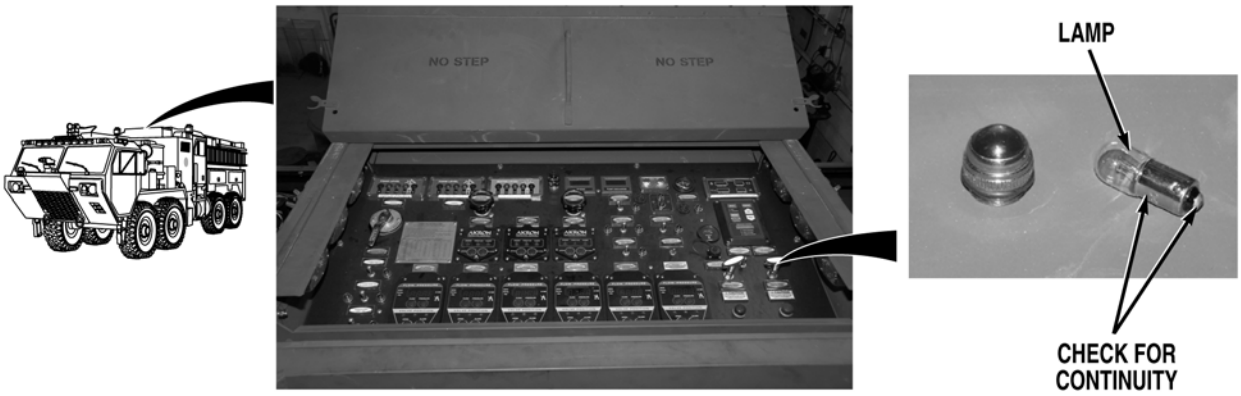
Step 2. Check if personnel cab PUMP RUNNING indicator illuminates (WP 0004).

If personnel cab PUMP RUNNING indicator does not illuminate (WP 0004), go to Step 7.

Step 3. Check if pump operator's panel PUMP ENGINE RUNNING indicator illuminates (WP 0004).

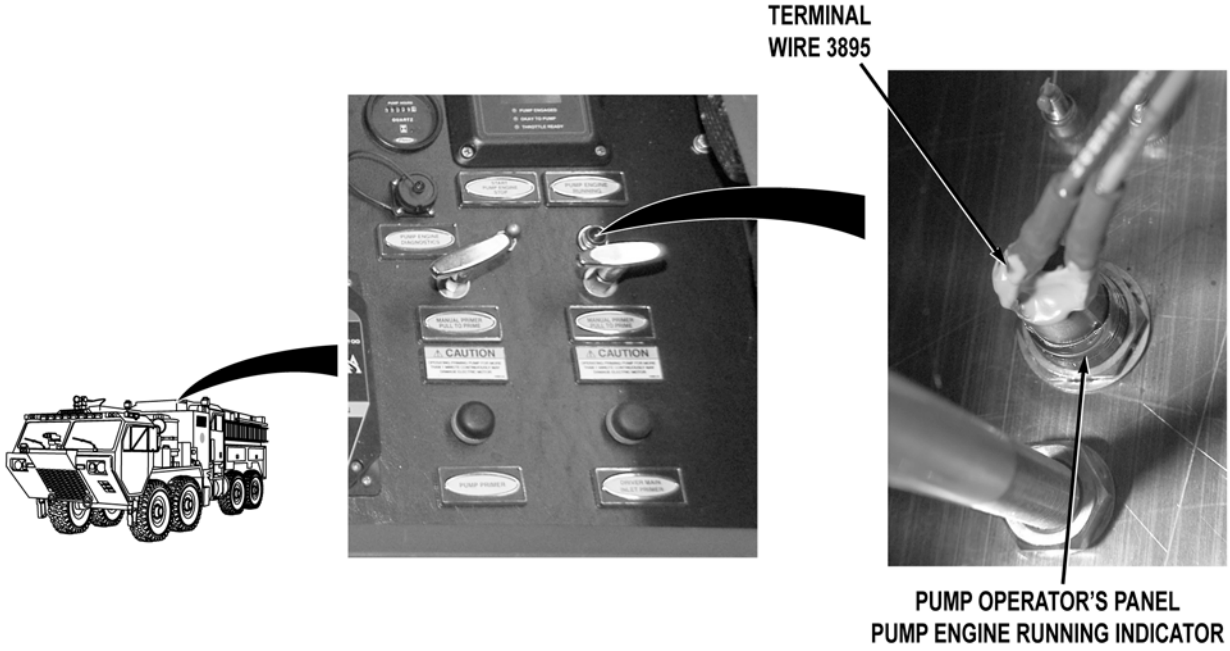
If pump operator's panel PUMP ENGINE RUNNING indicator illuminates (WP 0004), fault corrected.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from pump operator's panel PUMP ENGINE RUNNING indicator (WP 0327). Check for continuity across lamp.

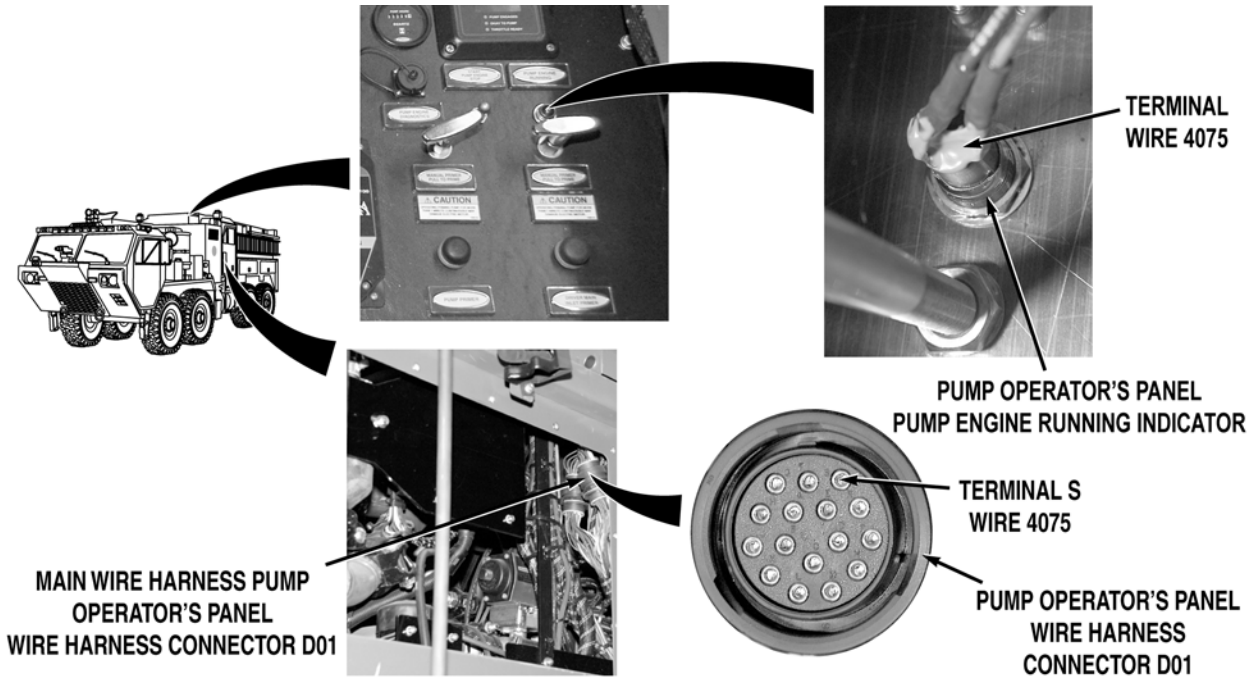
If continuity is not present, replace lamp (WP 0327).



Step 5. Install lamp in pump operator's panel PUMP ENGINE RUNNING indicator (WP 0327). Open pump operator's panel housing (WP 0325). Check for continuity across wire 3895 (black) terminal from pump operator's panel PUMP ENGINE RUNNING indicator to a known good ground.

If continuity is not present, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Remove crew cab driver side access panel (WP 0499). Remove pump house panel Q (WP 0540). Disconnect main wire harness pump operator's panel wire harness connector DO1. With a test lead set, check for continuity across pump operator's panel wire harness wire 4075 (red) from pump operator's panel PUMP ENGINE RUNNING indicator to pump operator's panel wire harness connector DO1, terminal S.

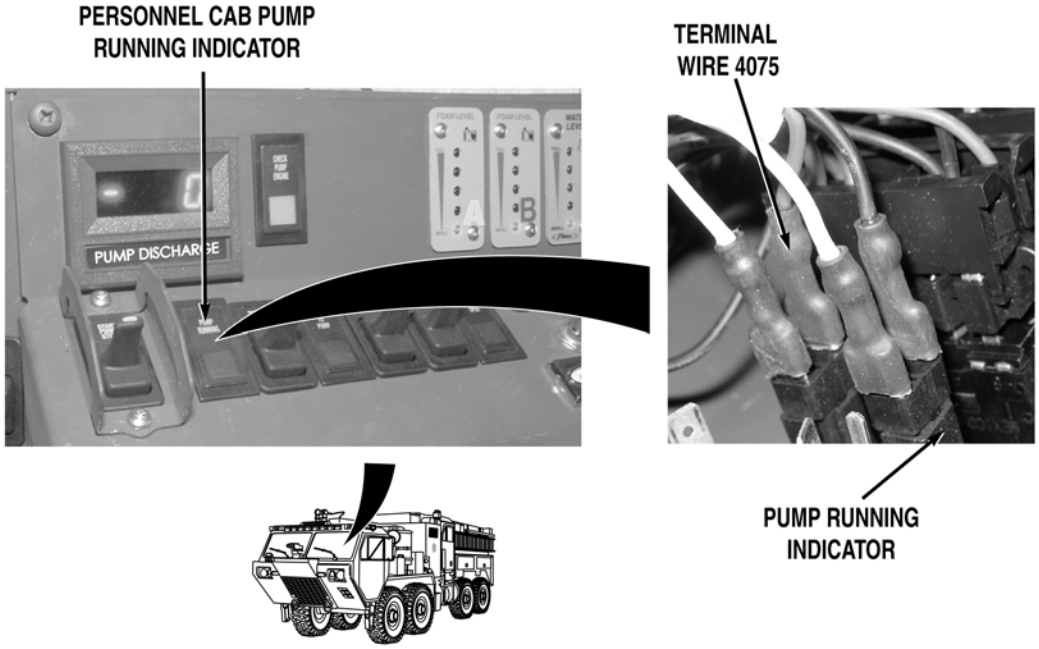
a. If continuity is present, replace pump operator's panel PUMP ENGINE RUNNING indicator (WP 0326).

b. If continuity is not present, repair wire 4075 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

Step 7. Check if pump operator's panel PUMP ENGINE RUNNING indicator illuminates (WP 0004).

If pump operator's panel PUMP ENGINE RUNNING indicator does not illuminate, go to Step 12.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



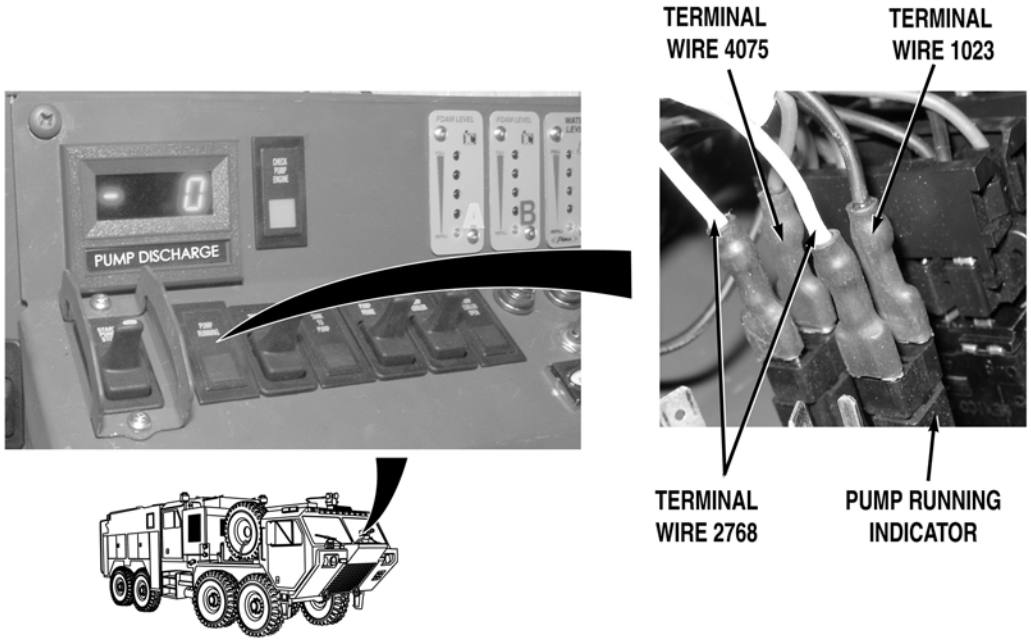
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 8. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel B (WP 0311). Disconnect wire 4075 (red) from personnel cab PUMP RUNNING indicator. Turn battery disconnect switch to ON position (WP 0007). Start water pump engine (WP 0022). Check for 22 to 28 VDC between cab pump control panel wire harness wire 4075 (red) terminal from PUMP RUNNING indicator connector to a known good ground.

If 22 to 28 VDC are not present, go to Step 11.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Connect wire 4075 (red) to TANK TO PUMP indicator terminal. Disconnect wire 1023 (black) from PUMP RUNNING indicator terminal. Check for continuity across wire 1023 (black) from PUMP RUNNING indicator connector terminal to a known good ground.

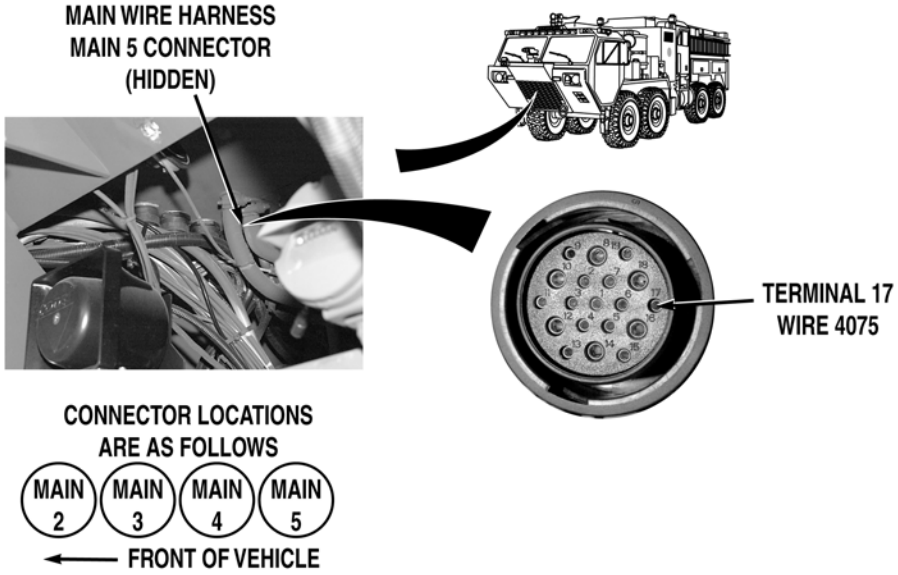
If there is no continuity, repair wire 1023 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

Step 10. Connect wire 1023 (black) to PUMP RUNNING indicator connector. Disconnect jumperwire 2768 (white) from PUMP RUNNING indicator terminals. Check for continuity across wire 2768 (white) from terminal to terminal.

a. If there is continuity, replace PUMP RUNNING indicator (WP 0313).

b. If there is no continuity, repair or replace jumperwire 2768 (TM 9-2320-325-14&P).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

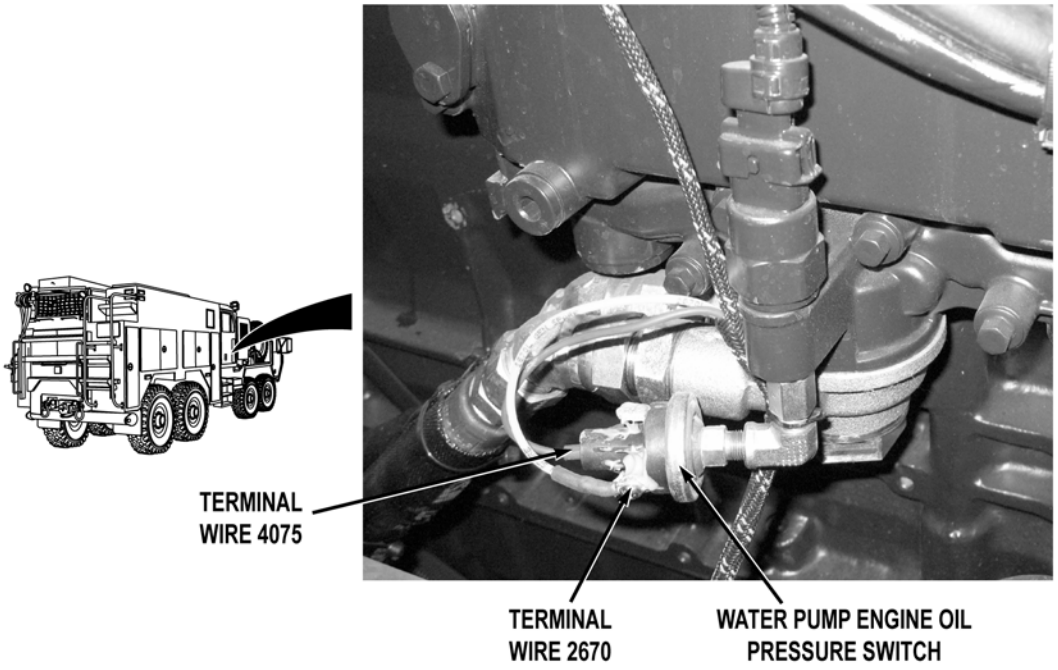
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 11. Stop water pump engine from pump operator's panel (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove skid plate grille (WP 0550). Disconnect main wire harness main 5 connector. Turn battery disconnect switch to ON position (WP 0007). Start water pump engine (WP 0022). With a test lead set, check for 22 to 28 VDC at main wire harness wire 4075 (red) from main wire harness main 5 connector, terminal 17 to a known good ground.

a. If 22 to 28 VDC are present, repair wire 4075 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

b. If 22 to 28 VDC are not present, repair wire 4075 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

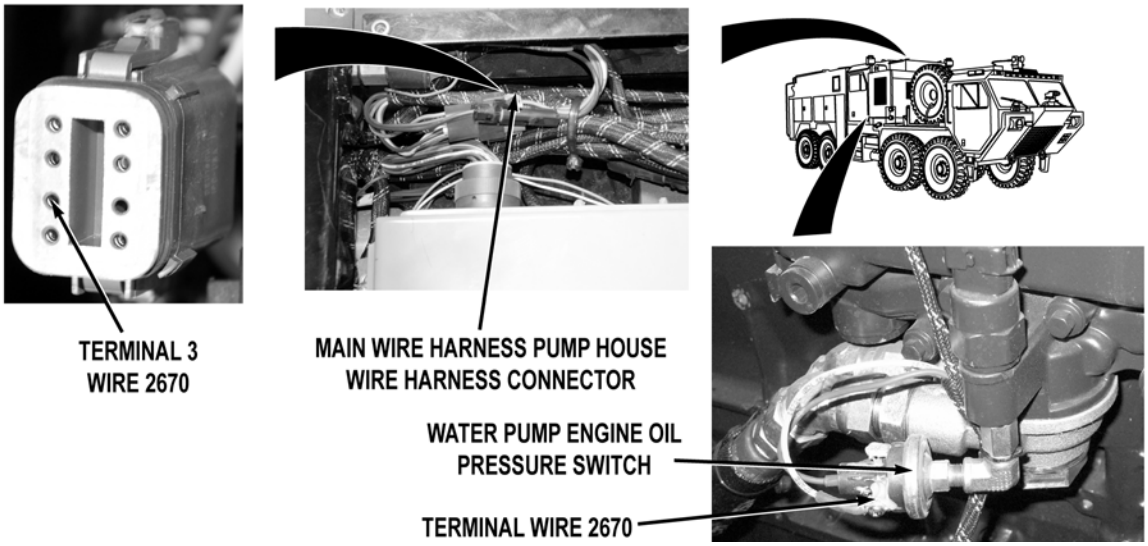
Step 12. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove passenger side crew cab access panel (WP 0499). Remove pump house panel O (WP 0540). Start water pump engine (WP 0022). Check for 22 to 28 VDC at wire 4075 (red) from water pump engine oil pressure switch to a known good ground.

If 22 to 28 VDC are not present, replace water pump engine oil pressure switch (WP 0246).

Step 13. Start water pump engine (WP 0022). Check for 22 to 28 VDC at wire 2670 from water pump engine oil pressure switch to a known good ground.

If 22 to 28 VDC are present, replace water pump engine oil pressure switch (WP 0246).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 14. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness pump house wire harness connector. With a test lead set, check for continuity across wire 2670 (yellow) from main wire harness pump house connector terminal 3, to water pump engine oil pressure switch.

a. If continuity is present, repair wire 2670 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If continuity is not present, repair wire 2670 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install cab instrument panel B if removed (WP 0311)
2. Install skid plate grille if removed (WP 0550)
3. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PUMP HOT ALARM/INDICATOR DOES NOT OPERATE WHEN TESTED OR PUMP OVERHEAT CONDITION (PUMP OPERATOR'S PANEL)

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0019
WP 0115
WP 0259
WP 0319
WP 0325
WP 0326
WP 0327
WP 0328
WP 0331
WP 0394
WP 0458
WP 0459
WP 0499
WP 0539
WP 0540

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

PUMP HOT ALARM/INDICATOR DOES NOT OPERATE WHEN TESTED OR PUMP OVERHEAT CONDITION (PUMP OPERATOR'S PANEL)

⚠ CAUTION

Do not run priming pump for more than 30 seconds. Failure to comply may result in damage to equipment.

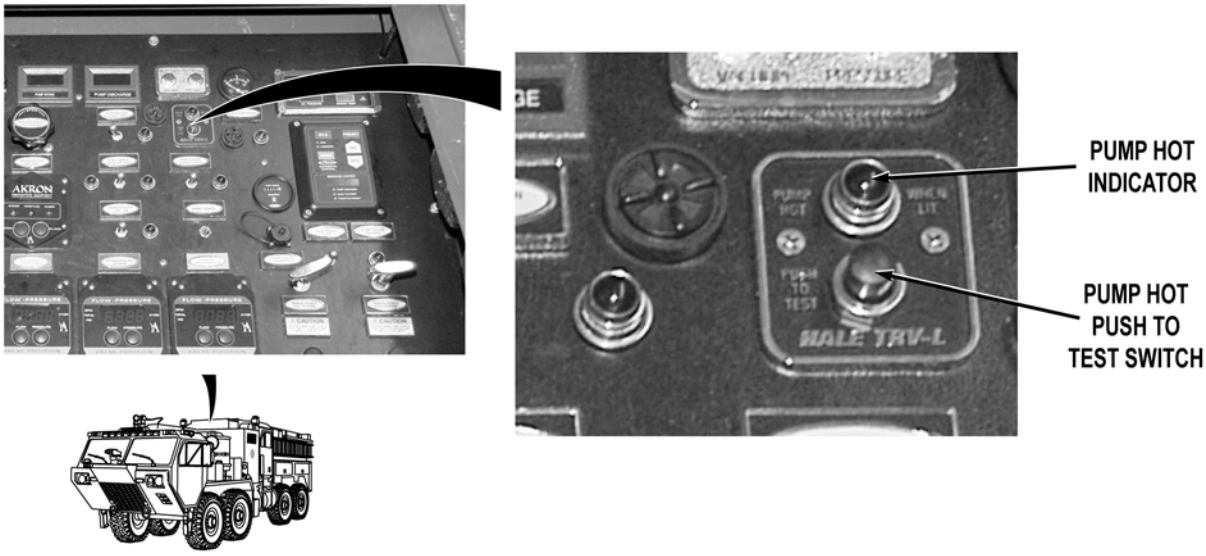
NOTE

- Do not operate water pump during this procedure, except when performing complete system checks. Pump priming system operations can be checked without water pump operation.
- Primer pump operation can be checked by noting loud and distinguishable audible vibrations of primer pump.
- PUMP HOT indication system and primer pump share same power circuit. Step 1 will ensure that pump hot indication system is receiving power.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Open pump operator's panel cover (WP 0019). While an assistant pushes pump operator's panel DRIVER MAIN INLET PRIMER button or puts cab PUMP PRIME switch to on position (WP 0004), check if pump primer motor operates.

If pump primer motor does not operate, troubleshoot Pump Priming System Does Not Operate Properly (WP 0115).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



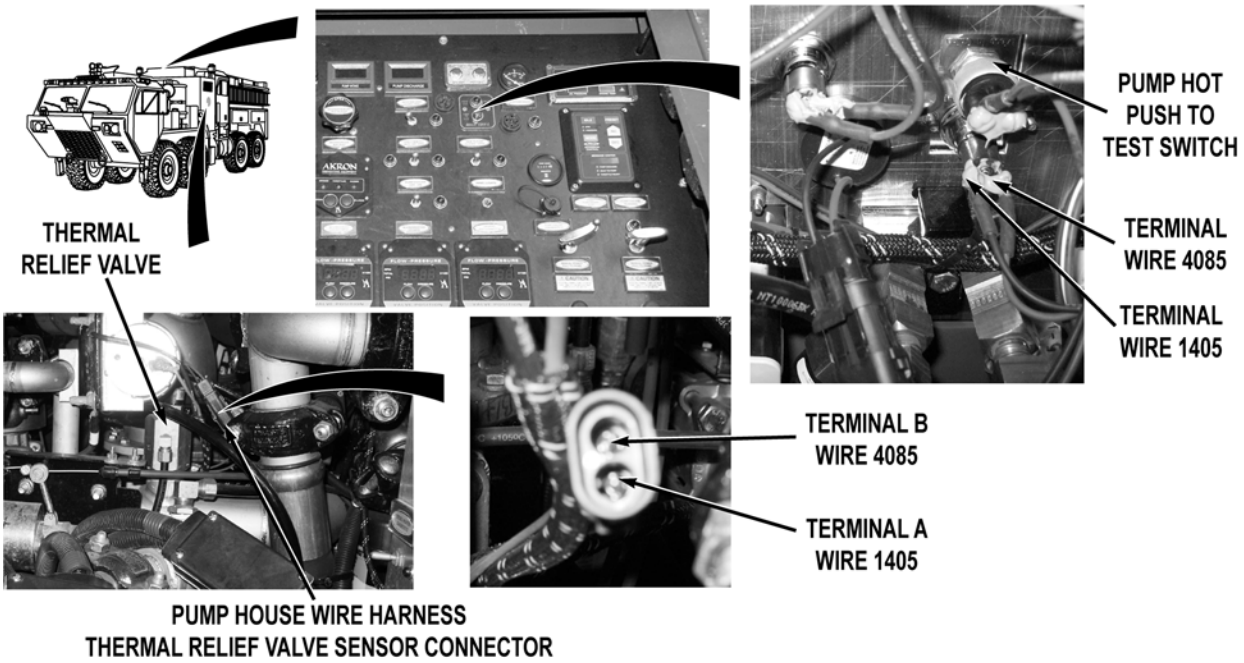
Step 2. Release PUMP PRIME switch (WP 0004). While pressing pump operator's panel PUMP HOT PUSH TO TEST button, check if PUMP HOT audio alarm sounds (WP 0004).

If PUMP HOT audio alarm does not sound, go to Step 10.

Step 3. While pressing pump operator's panel PUMP HOT PUSH TO TEST button, check if PUMP HOT indicator illuminates (WP 0004).

If PUMP HOT indicator does not illuminate, go to Step 8.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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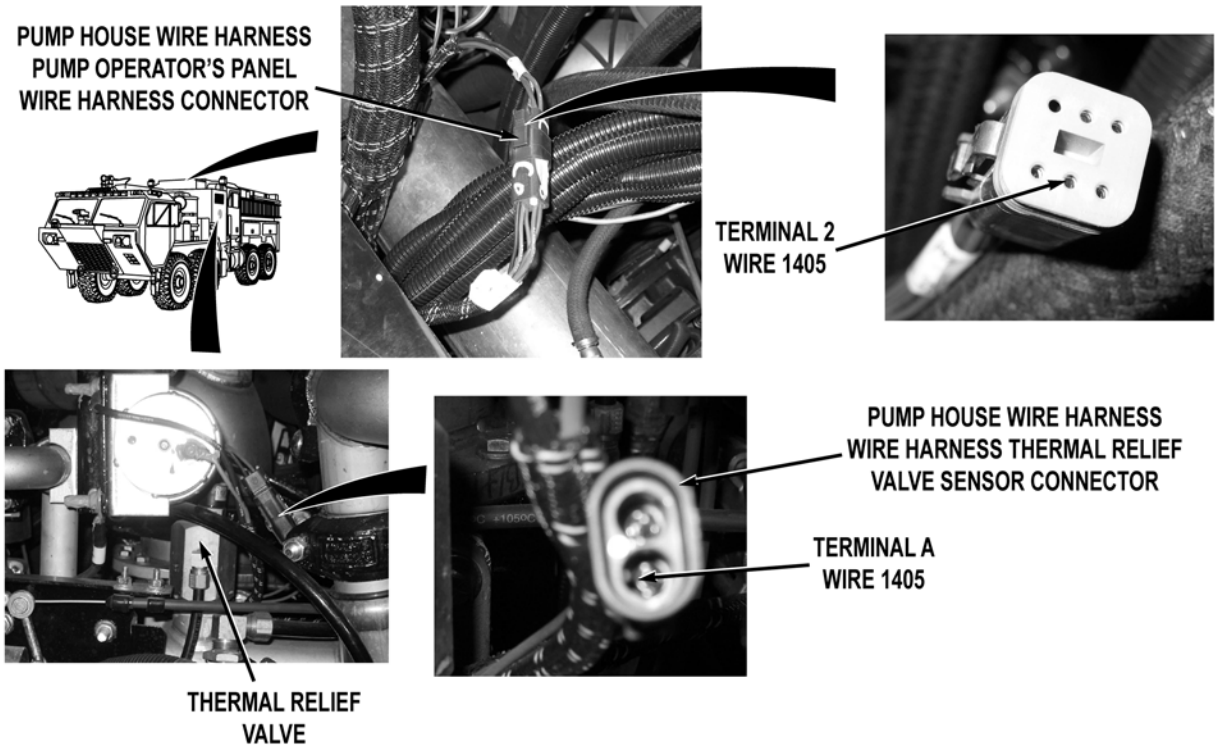
Step 4. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Open pump house panel A (WP 0539). Disconnect pump house wire harness thermal relief valve sensor connector. With a test lead set, check for continuity across wire 4085 (red) from pump operator's panel wire harness PUMP HOT PUSH TO TEST button terminal, to pump house wire harness thermal relief valve sensor connector, terminal B.

If there is no continuity, go to Step 7.

Step 5. With a test lead set, check for continuity across wire 1405 (blue) from pump house wire harness thermal relief valve sensor connector, terminal A to pump operator's panel harness PUMP HOT PUSH TO TEST button terminal.

If there is continuity, replace thermal relief valve sensor (WP 0259).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

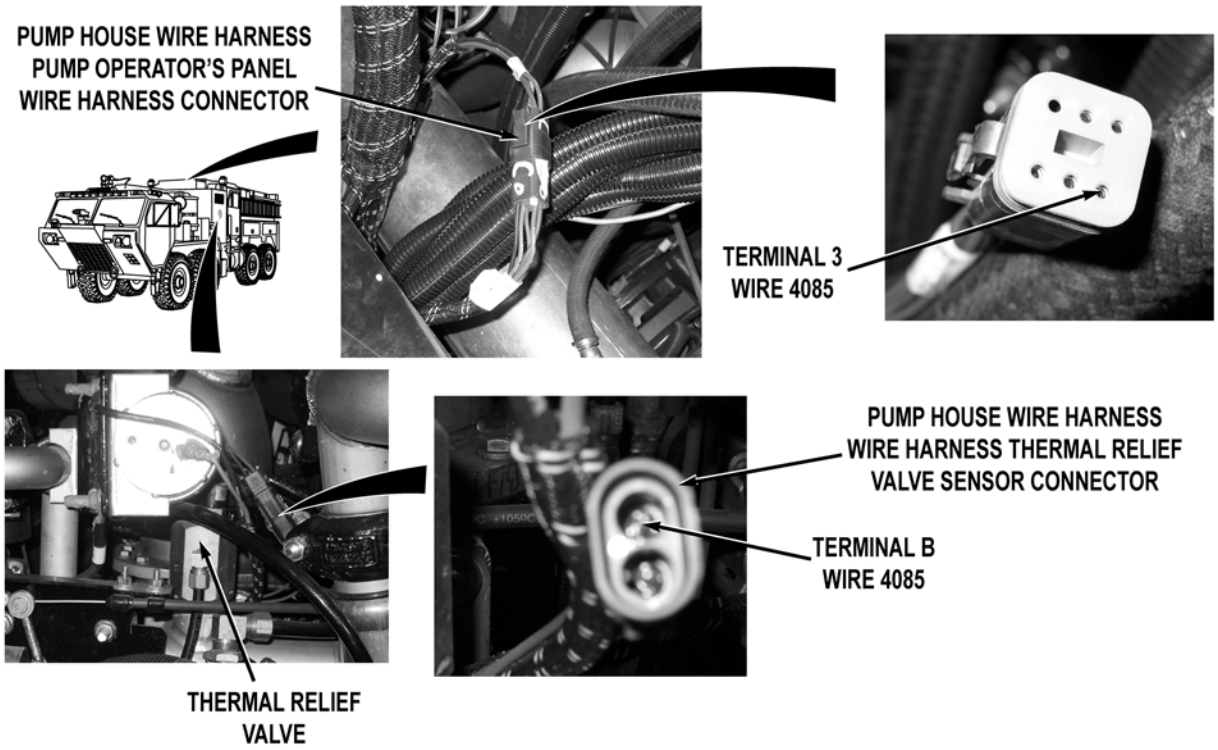


Step 6. Open pump operator's panel housing (WP 0325). Disconnect wire harness pump operator's panel wire harness connector. With a test lead set, check for continuity across wire 1405 (blue) from pump house wire harness thermal relief valve sensor connector, terminal A to pump house wire harness pump operator's panel wire harness connector, terminal 2.

a. If there is continuity, repair wire 1405 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

b. If there is no continuity, repair wire 1405 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

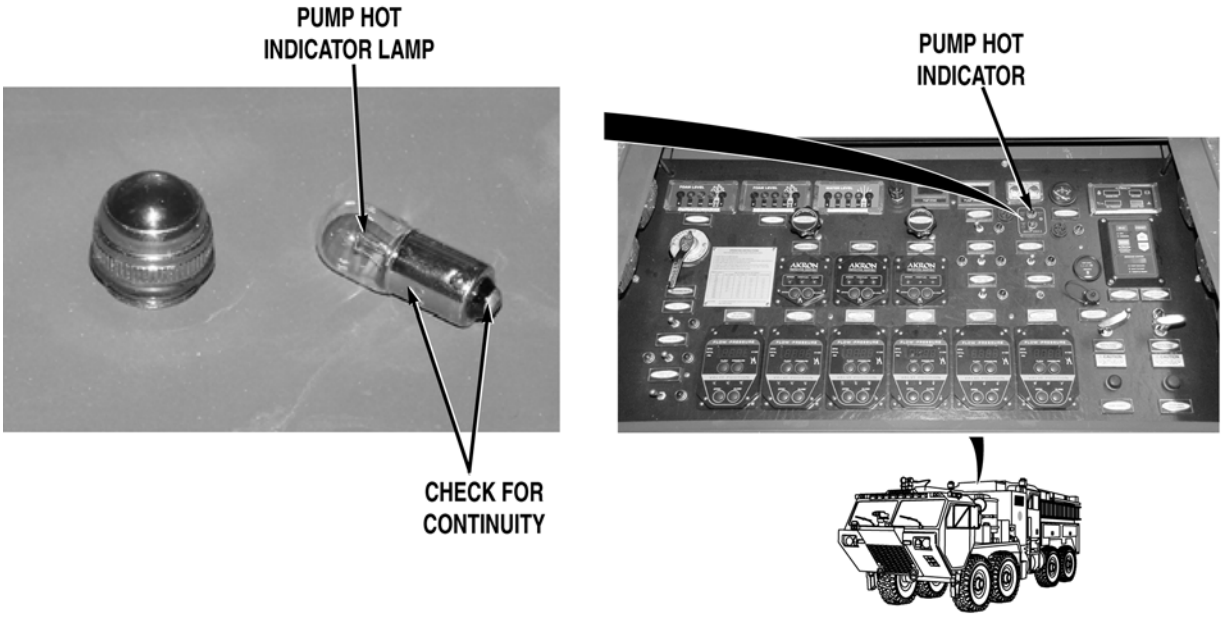


Step 7. Open pump operator's panel housing (WP 0325). Disconnect main wire harness pump operator's panel wire harness connector. With a test lead set, check for continuity across wire 4085 (red) from pump house wire harness pump operator's panel wire harness connector, terminal 3 to pump house wire harness thermal relief valve sensor connector, terminal B.

a. If there is continuity, repair wire 4085 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

b. If there is no continuity, repair wire 4085 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



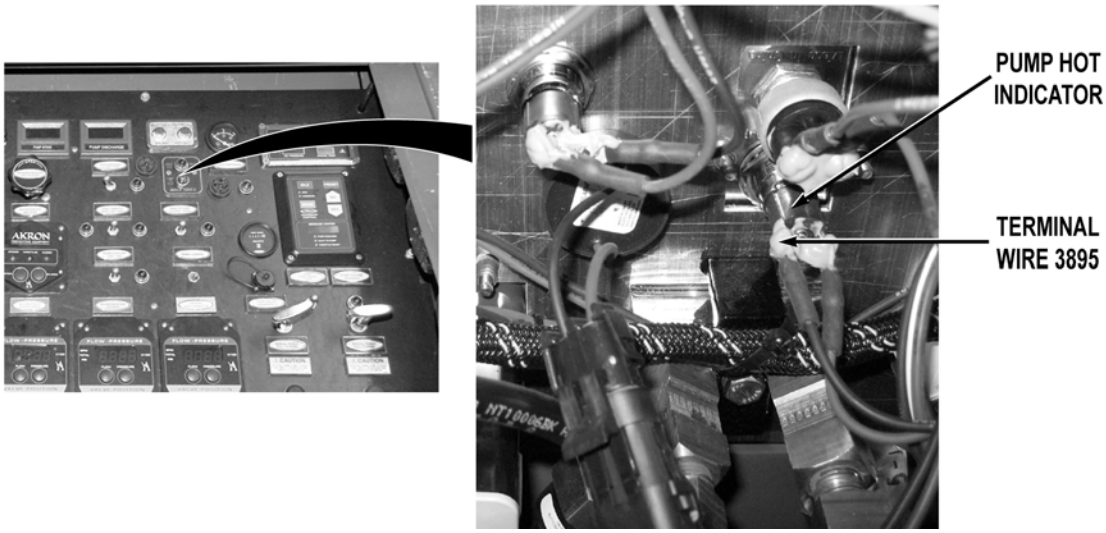
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 8. Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from pump operator's panel pump HOT indicator (WP 0327). Check for continuity across lamp.

If there is no continuity, replace PUMP HOT indicator lamp (WP 0327).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. Check for continuity across pump operator's panel wire harness wire 3895 (black) from PUMP HOT indicator terminal to a known good ground.

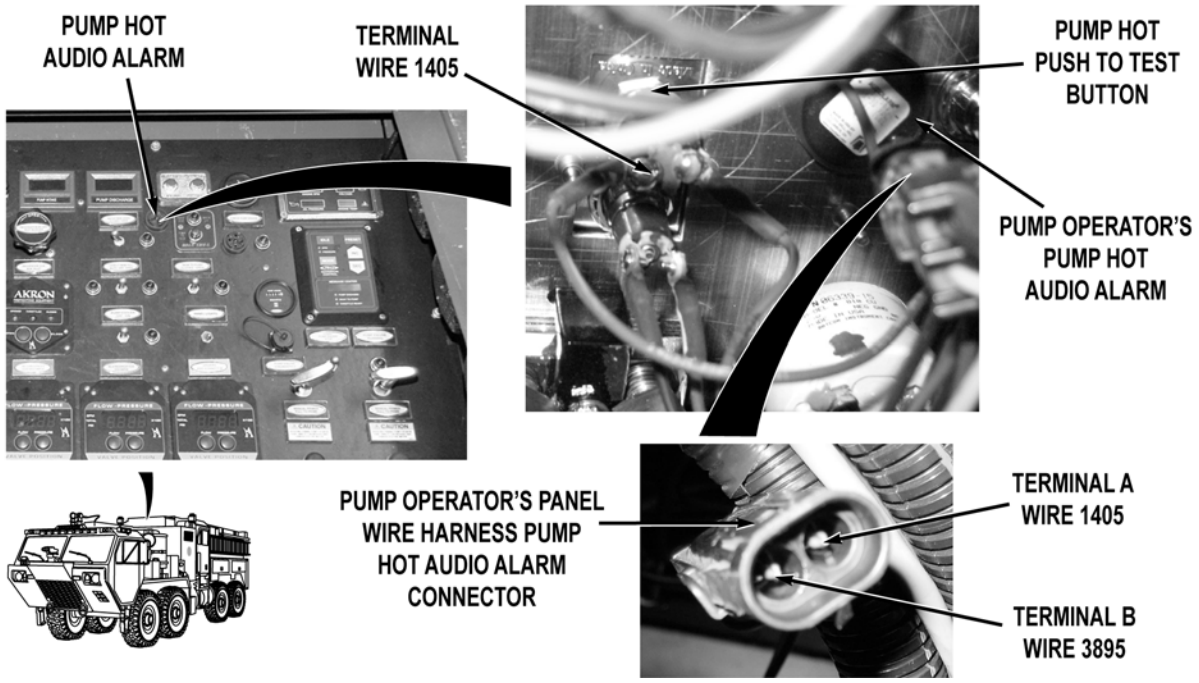
a. If there is continuity, replace PUMP HOT indicator (WP 0326).

b. If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

Step 10. While pushing pump operator's panel PUMP HOT PUSH TO TEST button, check if PUMP HOT indicator illuminates (WP 0004).

If PUMP HOT indicator does not illuminate, go to Step 13.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 11. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel wire harness pump hot audio alarm connector (WP 0319). Check for continuity across pump operator's panel wire harness wire 1405 (blue) from PUMP HOT PUSH TO TEST button, terminal to pump hot audio alarm connector, terminal A.

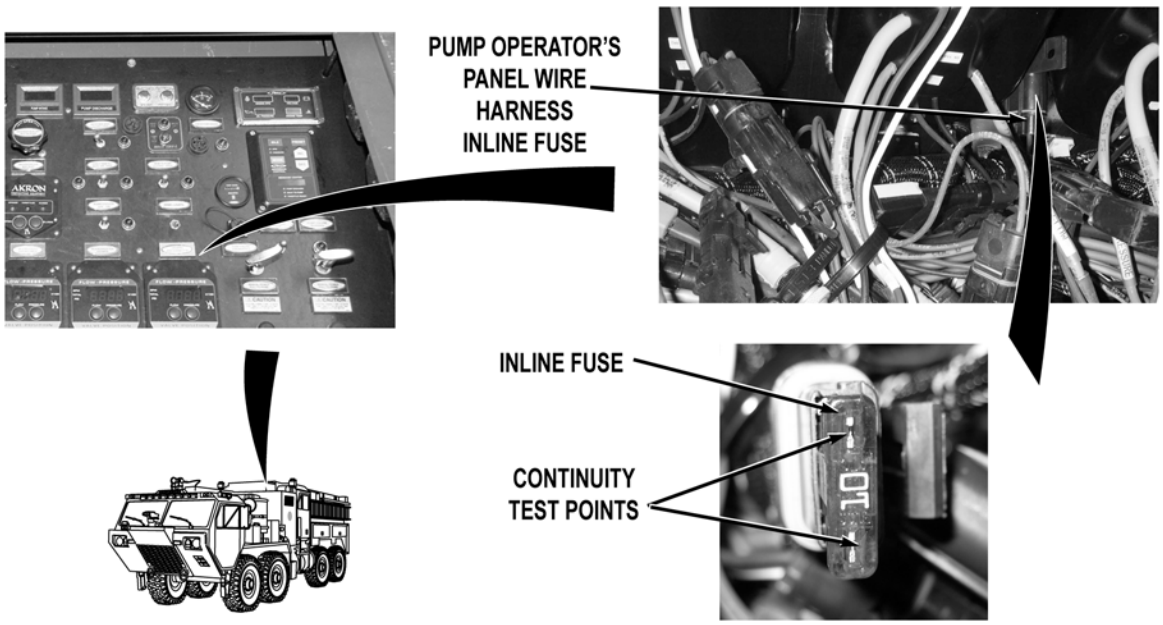
If there is no continuity, repair wire 1405 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

Step 12. Check for continuity across pump operator's panel wire harness wire 3895 (black) from pump hot audio alarm, terminal A to a known good ground.

a. If there is continuity, replace pump hot audio alarm (WP 0328).

b. If there is no continuity, repair wire 1405 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

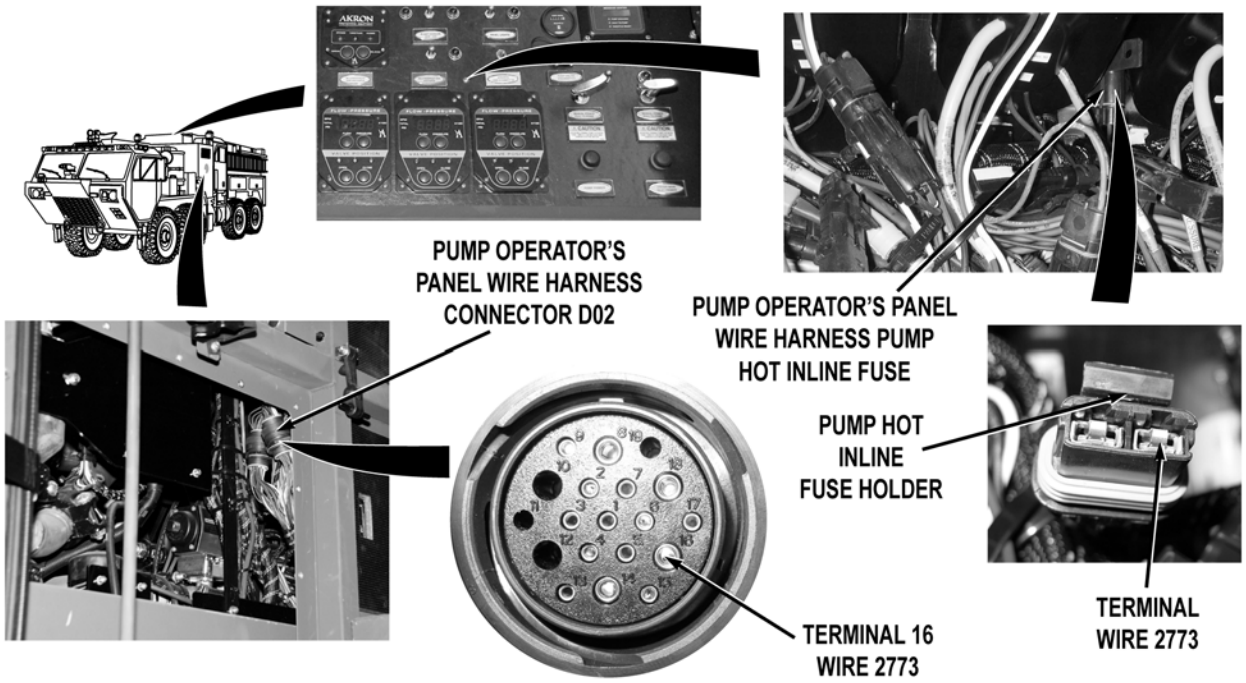
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 13. Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Remove primer pump inline fuse (WP 0394). Check for continuity across fuse.

If there is no continuity, replace fuse (WP 0394).

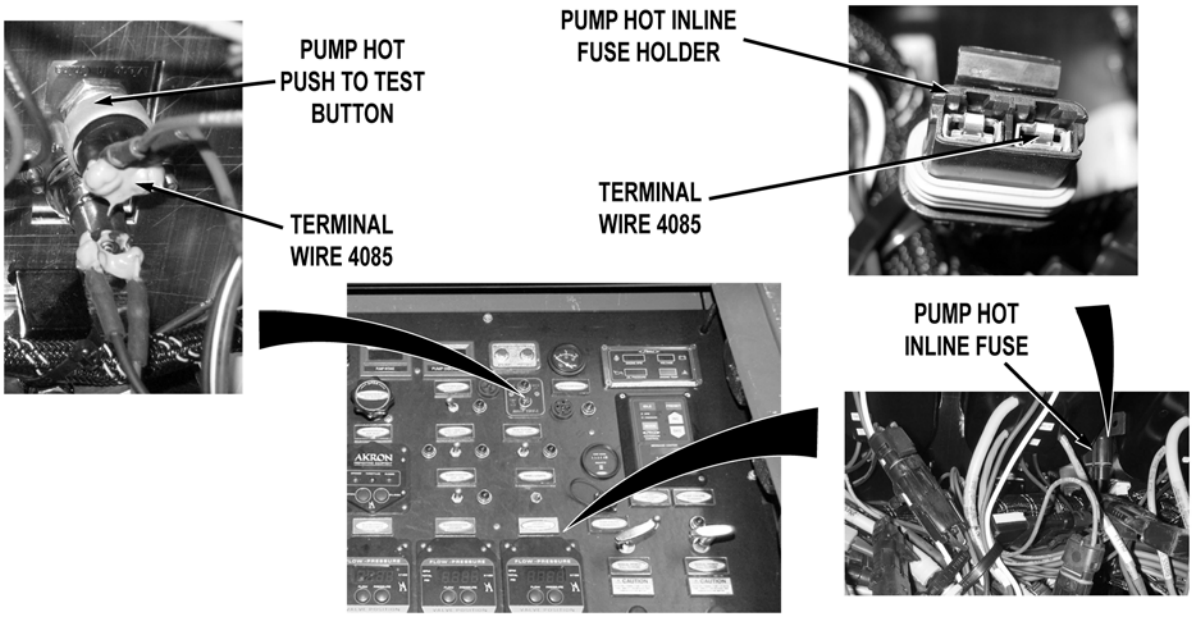
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 14. Remove driver side crew cab panel (WP 0499). Remove pump house panel Q (WP 0540). Disconnect main wire harness pump operator's panel wire harness connector D02. With a test lead set, check for continuity across wire 2773 (red) from inline fuse terminal to main wire harness pump operator's panel wire harness connector D02, terminal 16.

If there is no continuity, repair wire 2773 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

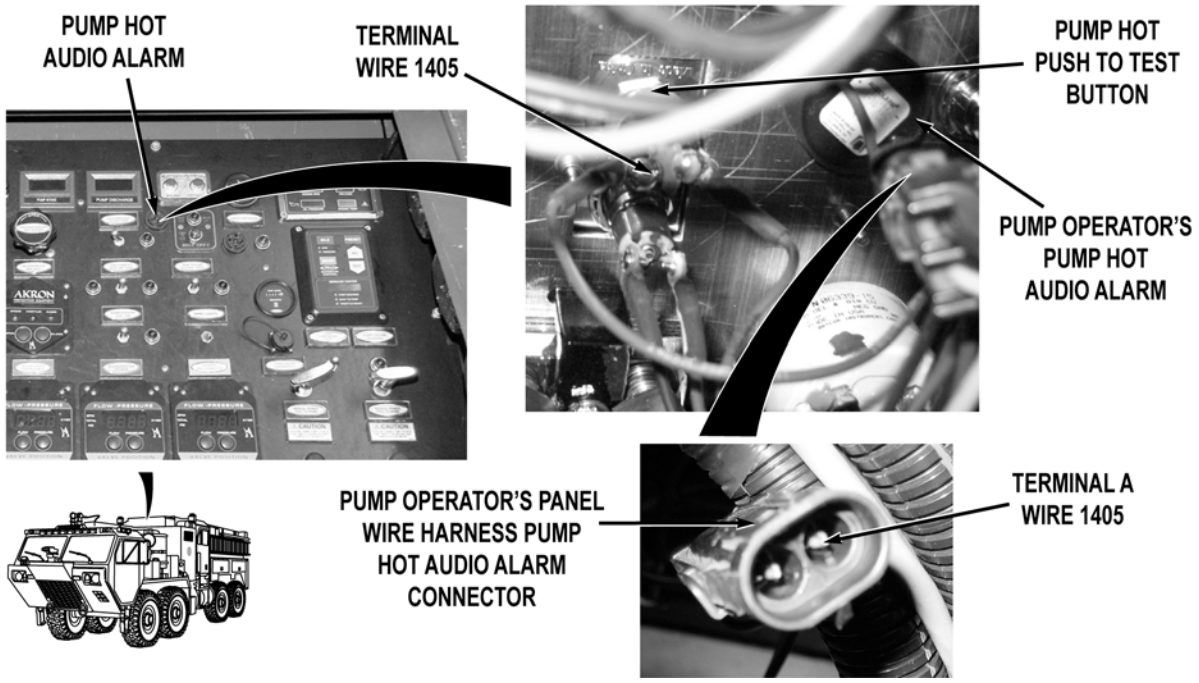
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 15. Check for continuity across pump operator's panel wire 4085 (red) from primer pump inline fuse terminal to PUMP HOT PUSH TO TEST button terminal.

If there is no continuity, repair wire 4085 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

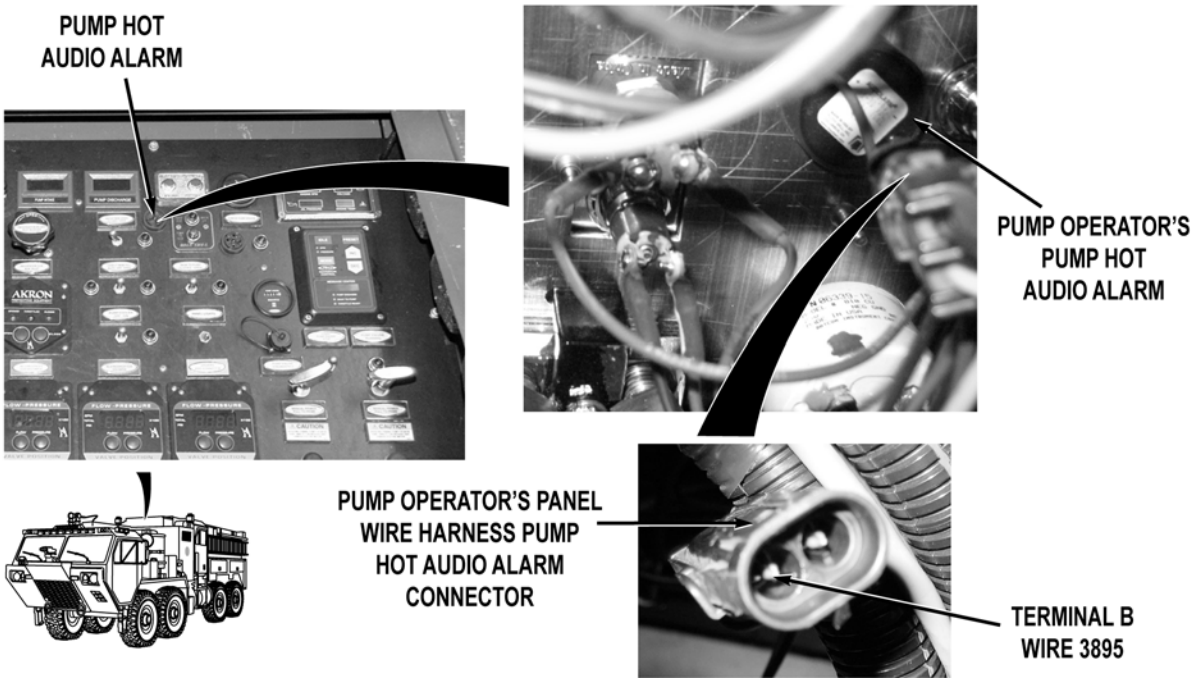
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Check for continuity across pump operator's panel wire harness wire 1405 (blue) from PUMP HOT PUSH TO TEST switch terminal to PUMP HOT audio alarm connector, terminal A.

If there is no continuity, repair wire 1405 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Check for continuity across pump operator's panel wire harness wire 3895 (black) from PUMP HOT audio alarm connector, terminal B to a known good ground.

a. If there is continuity, replace PUMP HOT PUSH TO TEST switch (WP 0331).

b. If there is no continuity, repair wire 1405 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install pump house panel Q if removed (WP 0325)
2. Install driver side crew cab access panel if removed (WP 0499)
3. Close pump operator's panel housing if opened (WP 0325)
4. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

GEN PTO ENGAGE INDICATOR DOES NOT ILLUMINATE (CAB)

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0121
WP 0311
WP 0313

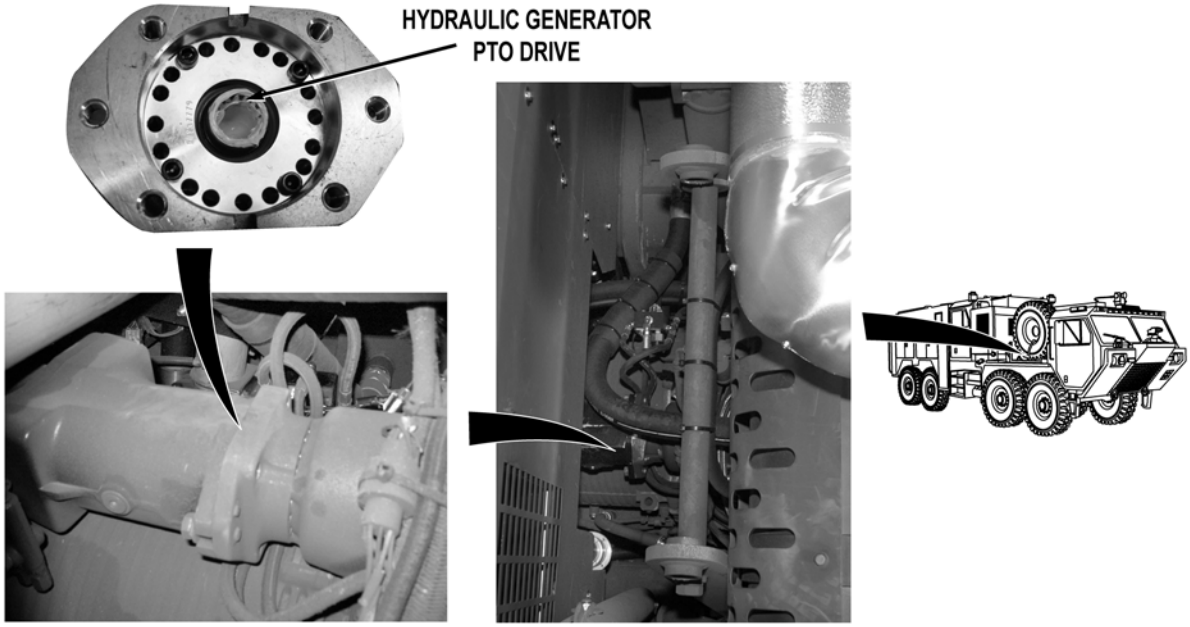
References (continued)
WP 0440
WP 0441
WP 0455
WP 0550
WP 0601
WP 0602

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

GEN PTO ENGAGE INDICATOR DOES NOT ILLUMINATE (CAB)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



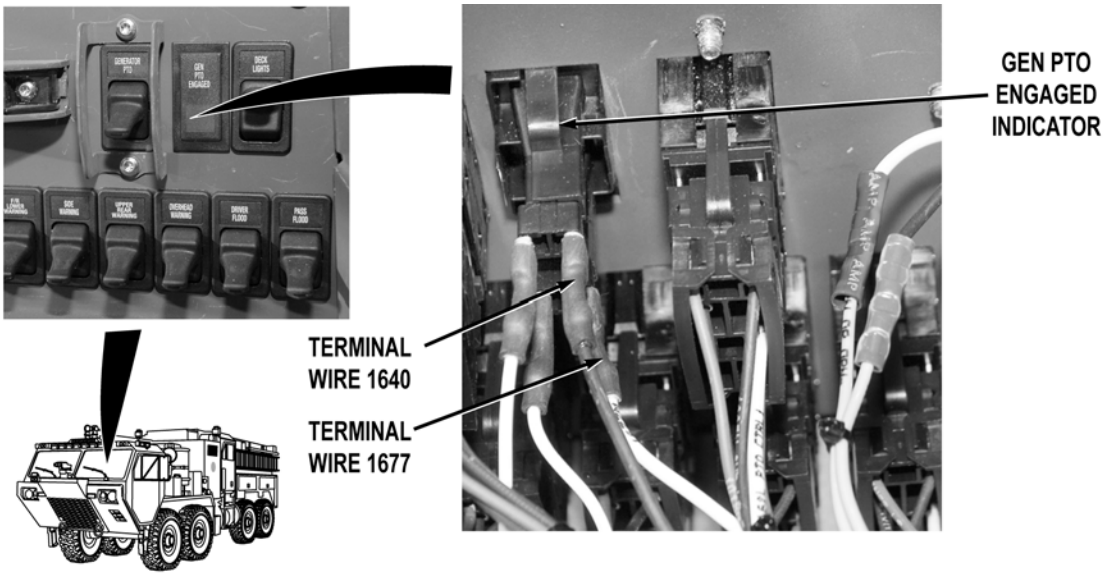
WARNING

Stay clear of rotating PTO drive shaft. Clothing or other material may catch on rotating PTO drive shaft, causing damage to equipment or serious injury or death to personnel.

Step 1. Remove PTO pump (WP 0601). Start engine (TM 9-2320-347-10). Put cab GENERATOR PTO switch to ON position (WP 0004). Check if PTO drive rotates.

If PTO drive does not rotate, troubleshoot Hydraulic Generator PTO Does Not Engage When Selected (WP 0121).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

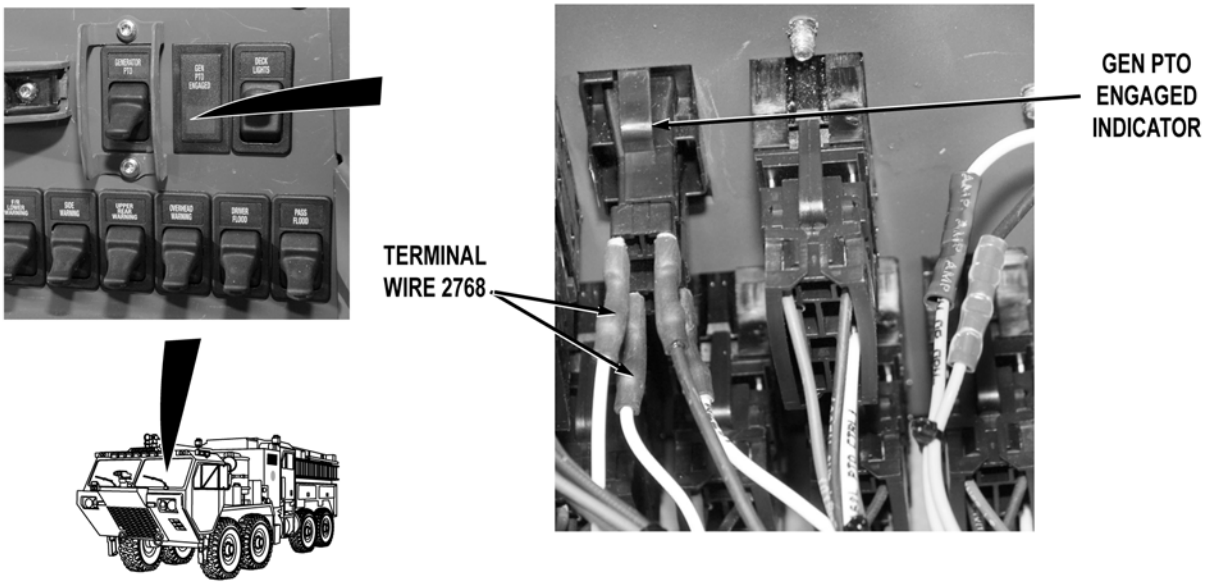
Step 2. Remove cab instrument panel C (WP 0311). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1677 (white) at GEN PTO ENGAGED indicator connector and a known good ground, with GEN PTO engaged.

If 22 to 28 VDC are not present, go to Step 5.

Step 3. Put cab GENERATOR PTO switch to OFF position (WP 0004). Shut off engine (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across cab instrument panel wire harness wire 1640 (black) from GEN PTO ENGAGED indicator connector to a known good ground.

If there is no continuity, repair wire 1640 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

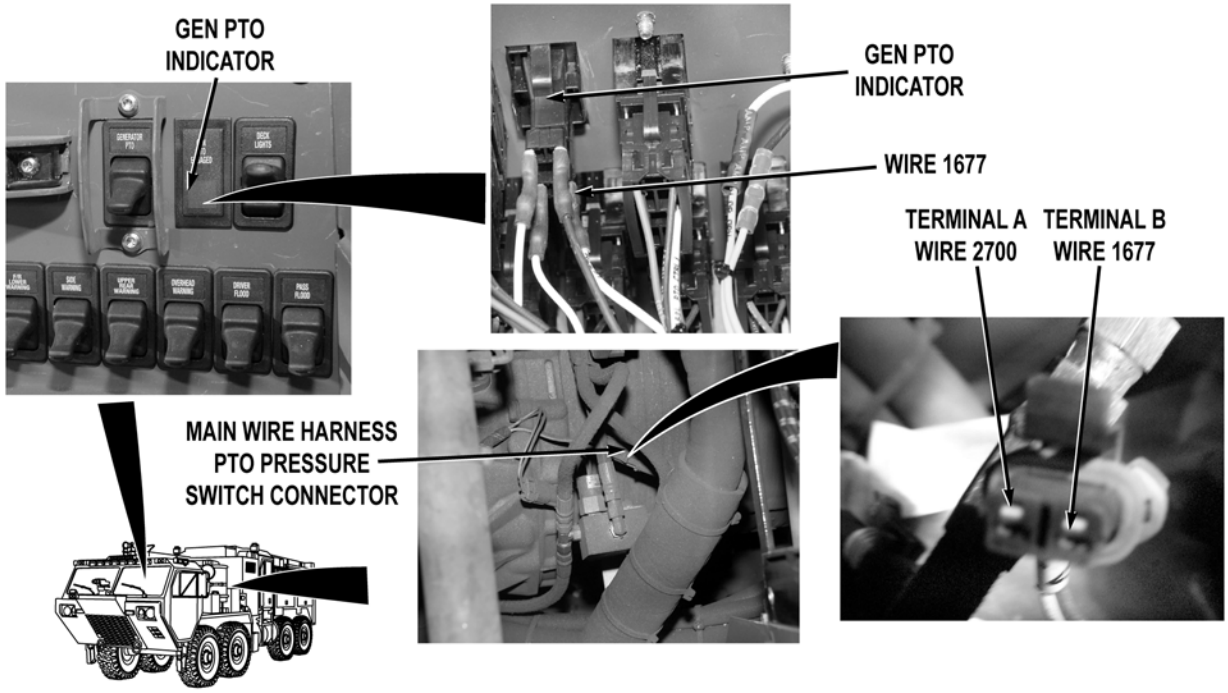


Step 4. Remove jumperwire 2768 (white) from GEN PTO ENGAGED indicator terminals. Check for continuity across wire 2768 (white).

a. If there is continuity, replace GEN PTO ENGAGED indicator (WP 0313).

b. If there is no continuity, repair or replace jumperwire 2768 (TM 9-2320-325-14&P).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



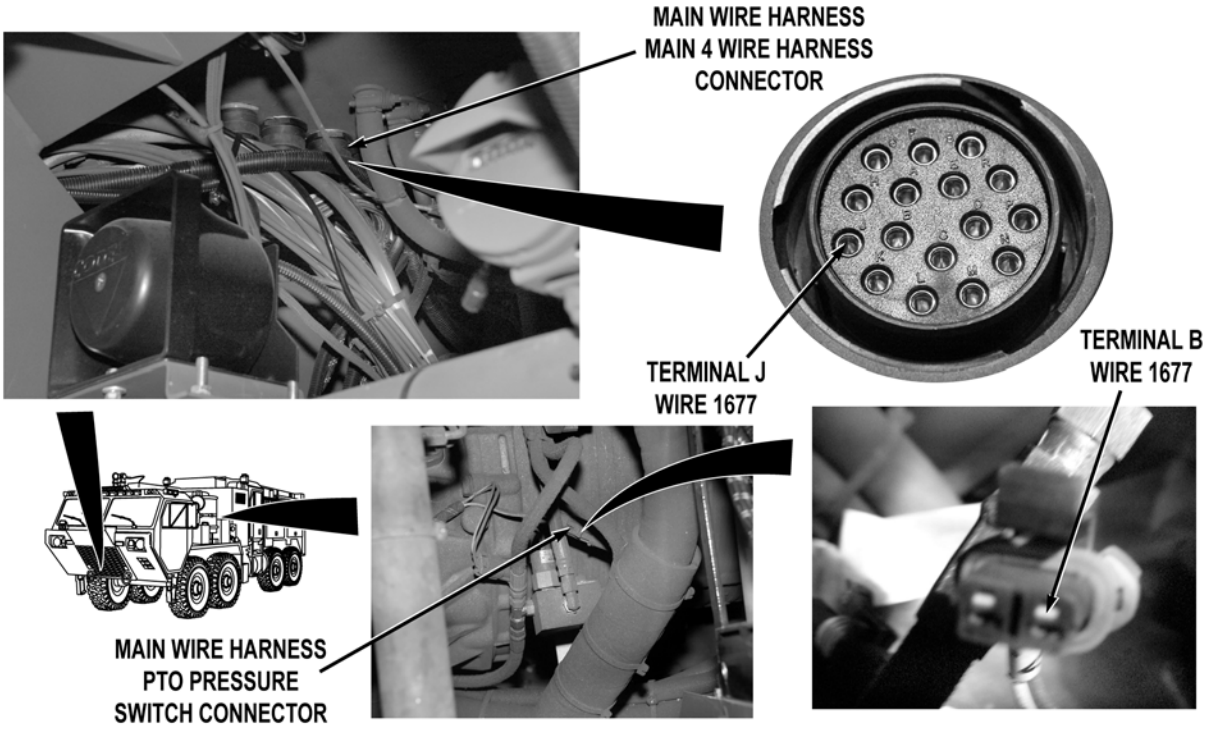
Step 5. Put cab GENERATOR PTO switch to OFF position (WP 0004). Shut off engine (TM 9-2320-347-10). Disconnect main wire harness PTO pressure switch connector. With a test lead set, check for 22 to 28 VDC between main wire harness wire 2700 (red) at PTO pressure switch connector, terminal A and a known good ground.

If 22 to 28 VDC are not present, go to Step 8.

Step 6. Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness GENERATOR PTO ENGAGED indicator wire 1677 (white). With a test lead set, check for continuity across wire 1677 (white) from main wire harness PTO pressure switch connector, terminal B to cab instrument panel wire harness GEN PTO ENGAGED indicator wire 1677 connector.

If there is continuity, replace PTO pressure switch (WP 0602).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

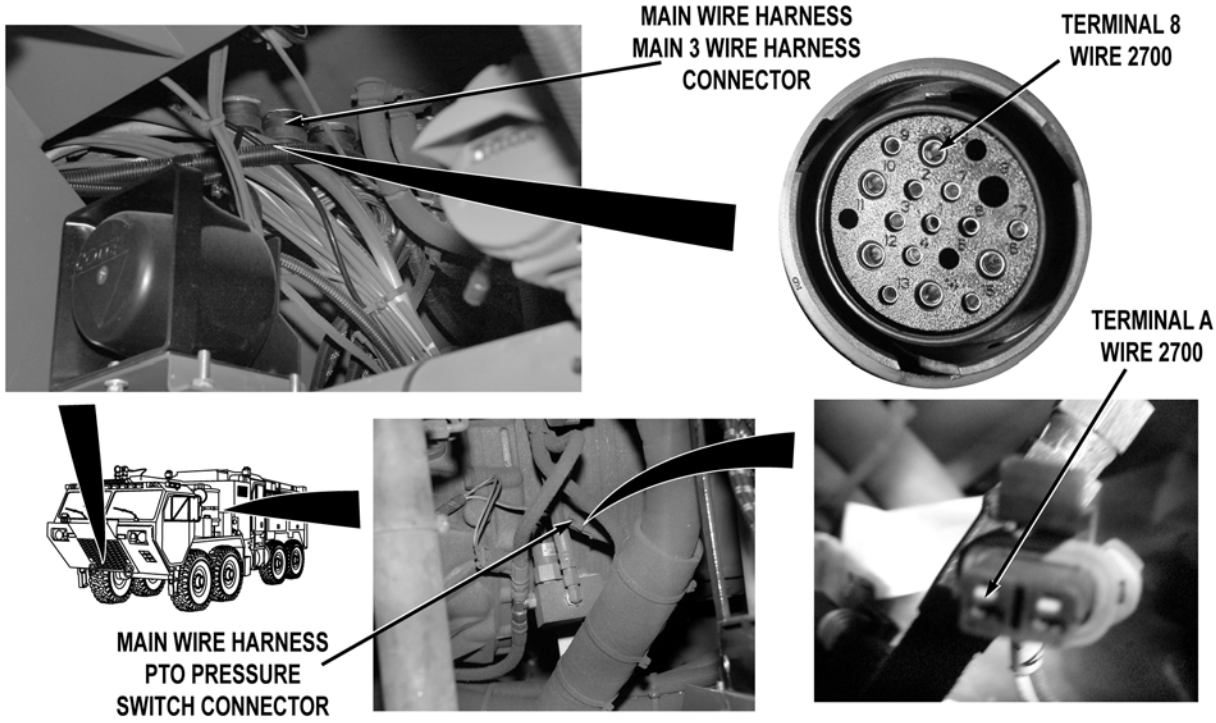


Step 7. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. With a test lead set, check for continuity across main wire harness wire 1677 (white) from main wire harness PTO pressure switch connector, terminal B to main wire harness main 4 connector, terminal J.

a. If there is continuity, repair wire 1677 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If there is no continuity, repair wire 1677 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 8. Remove skid plate grille (WP 0550). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness main 3 connector. With a test lead set, check for continuity across main wire harness wire 2700 (red) from main 3 connector, terminal 8 to PTO pressure switch connector, terminal A.

a. If there is continuity, repair wire 2700 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 2700 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install cab instrument panel C if removed (WP 0311)
2. Install skid plate grille if removed (WP 0550)
3. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

ROOF TURRET INDICATOR DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
WP 0004
WP 0007

References (continued)
WP 0116
WP 0314
WP 0581

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

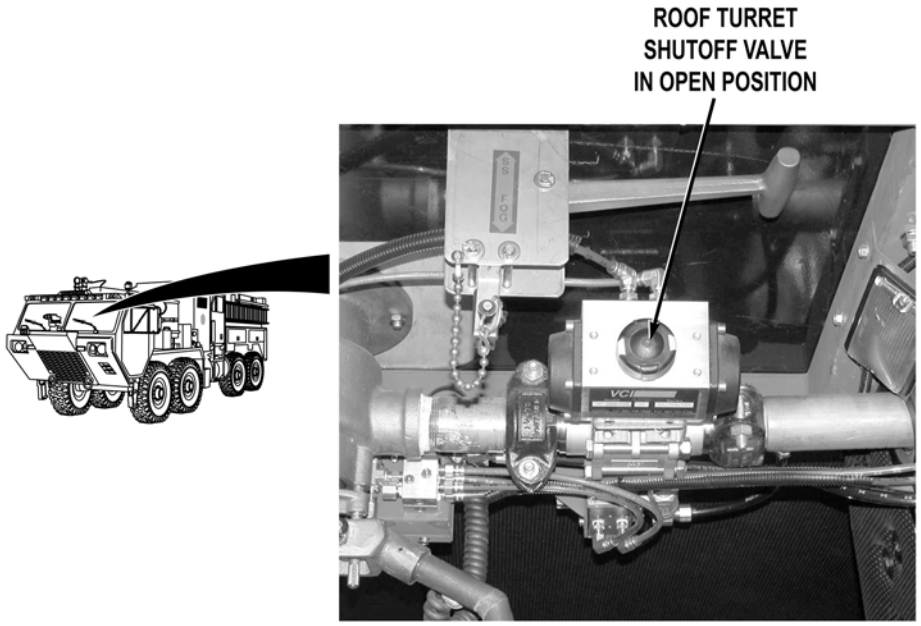
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

ROOF TURRET INDICATOR DOES NOT OPERATE

NOTE

- Ensure system air pressure is at least 85 psi (586 kPa) during this procedure. System air pressure is required to activate valves.
- Do not engage water pump engine during this procedure, except when performing complete system checks. Valve operations can be checked without water pump operation.
- Valve operations can be checked by observing valve shaft rotation. Valves are open when tabs or yellow paint tabs are aligned with fluid flow.

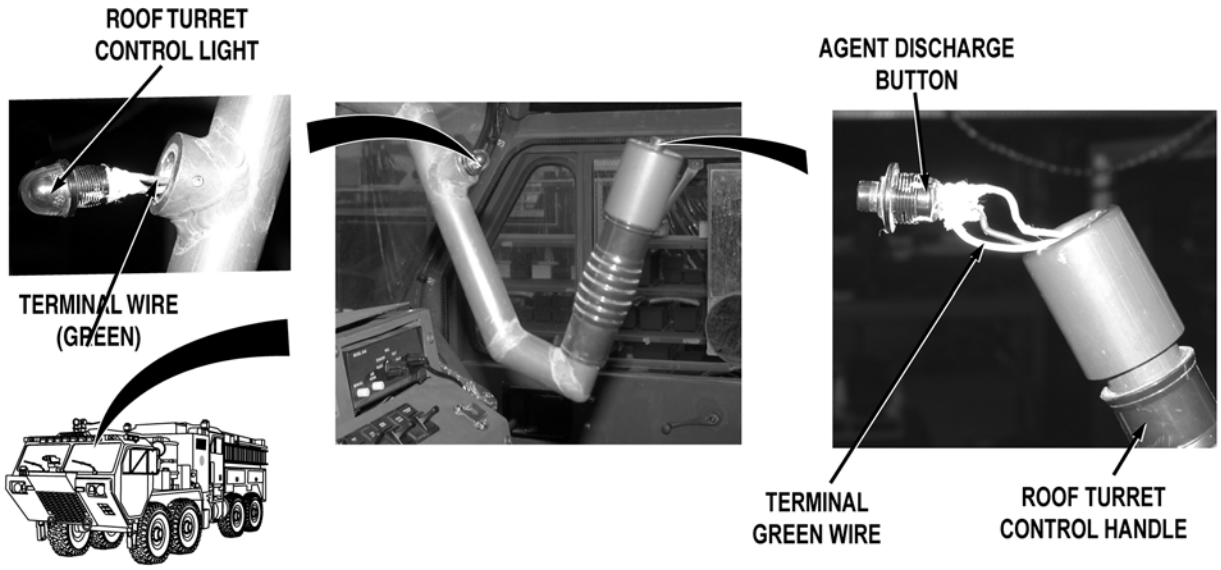
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. If system air pressure is below 85 psi (586 kPa), start vehicle engine and allow system air pressure to build to at least 85 psi (586 kPa) (TM 9-2320-347-10). Shut off vehicle engine (TM 9-2320-347-10). Turn battery disconnect switch to ON position (WP 0007). Push and release agent discharge button on roof turret control handle (WP 0004), check if roof turret valve operates to open position.

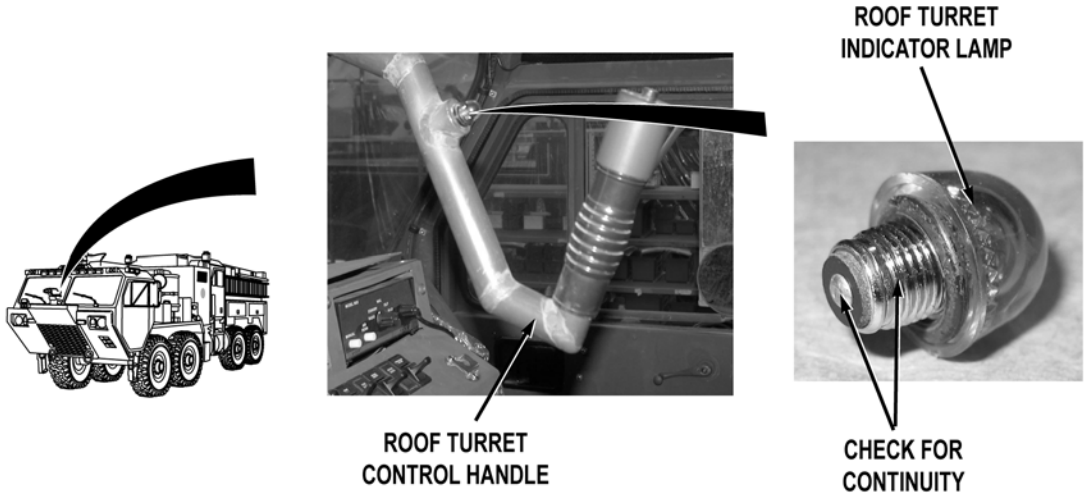
If roof turret valve does not operate, troubleshoot Roof Turret Does Not Operate When Selected (WP 0116).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 2. Turn battery disconnect switch to OFF position (WP 0007). Push and release agent discharge button roof turret control handle (WP 0004). Check for continuity across terminal wire green at agent discharge button and terminal wire green at roof turret indicator.

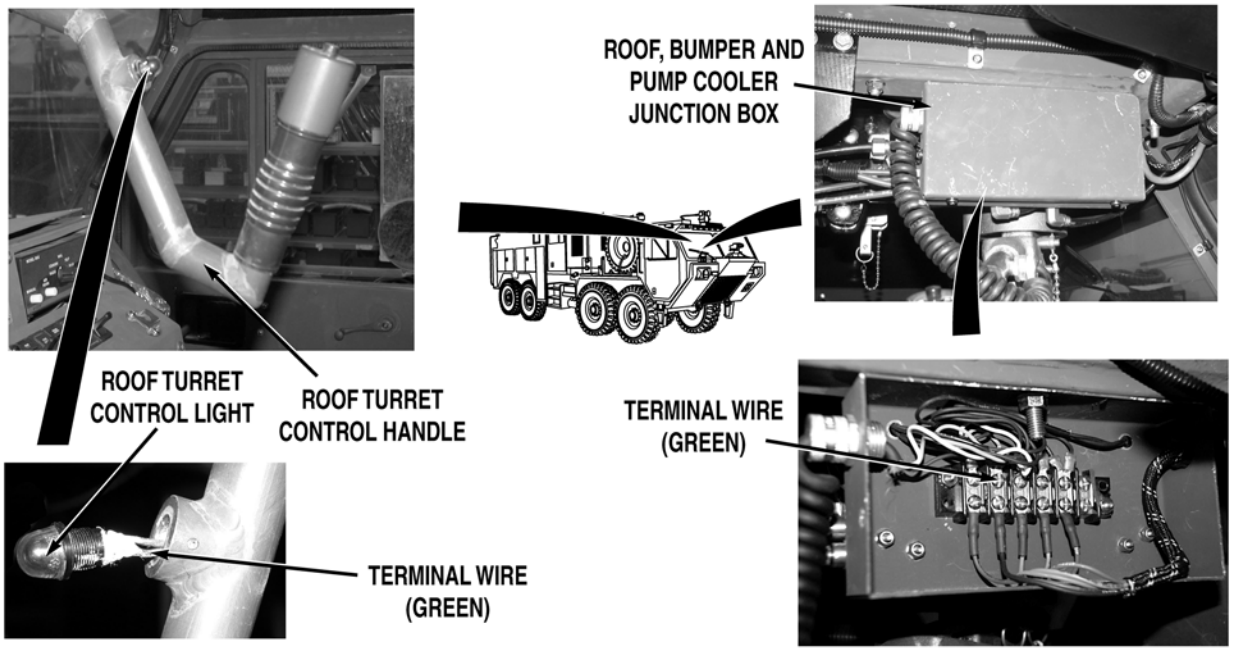
If 22 to 28 VDC are not present, replace agent discharge button (WP 0581).



Step 3. Remove lamp from roof turret control handle (WP 0314). Check for continuity across lamp.

If there is no continuity, replace roof turret indicator lamp (WP 0314).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Check for continuity across terminal wire (green) at roof turret indicator to roof, bumper turret, and pump cooler junction box terminal strip ground terminal wire (green).

a. If there is continuity, replace roof turret indicator (WP 0581).

b. If there is no continuity, replace roof turret power cable (WP 0581).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

TANK DRAIN INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0122
WP 0325

References (continued)
WP 0326
WP 0327
WP 0459
WP 0540

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

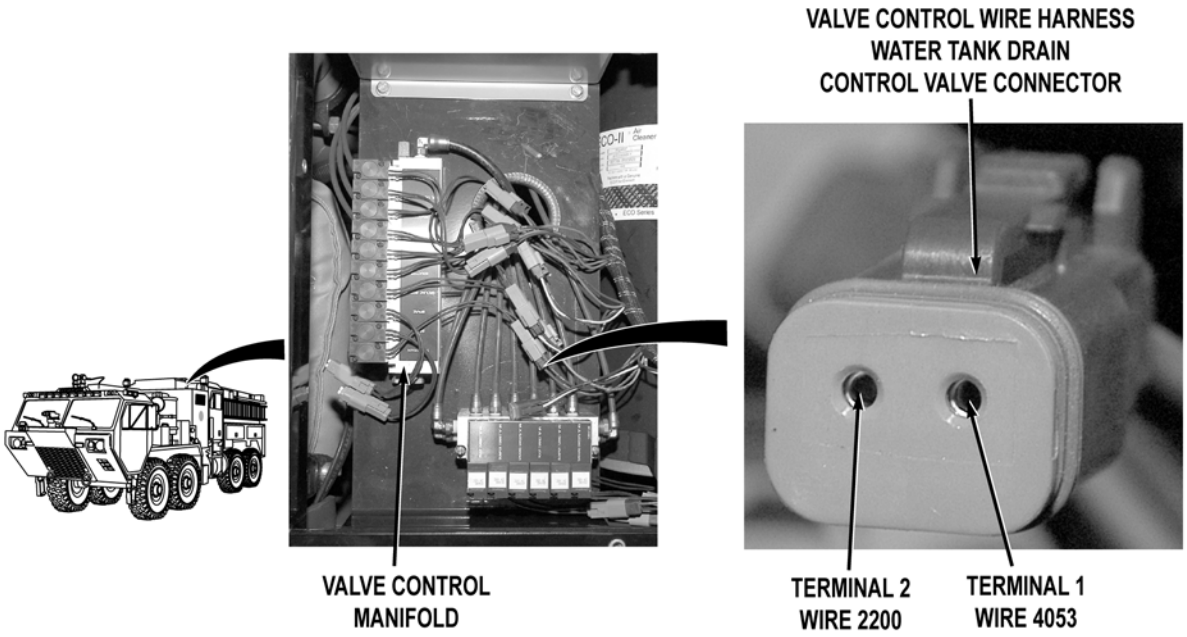
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

TANK DRAIN INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

NOTE

- Do not operate WATER TANK DRAIN switch except when noted in Step 1. If water tank drain valve is operated when water tank is filled, water will be discharged from water tank uncontrolled. Water tank drain valve is not activated in Step 1.
- Step 1 will ensure that water tank drain system is operating properly or if fault exists in lamp, indicator, or wires leading to indicator.

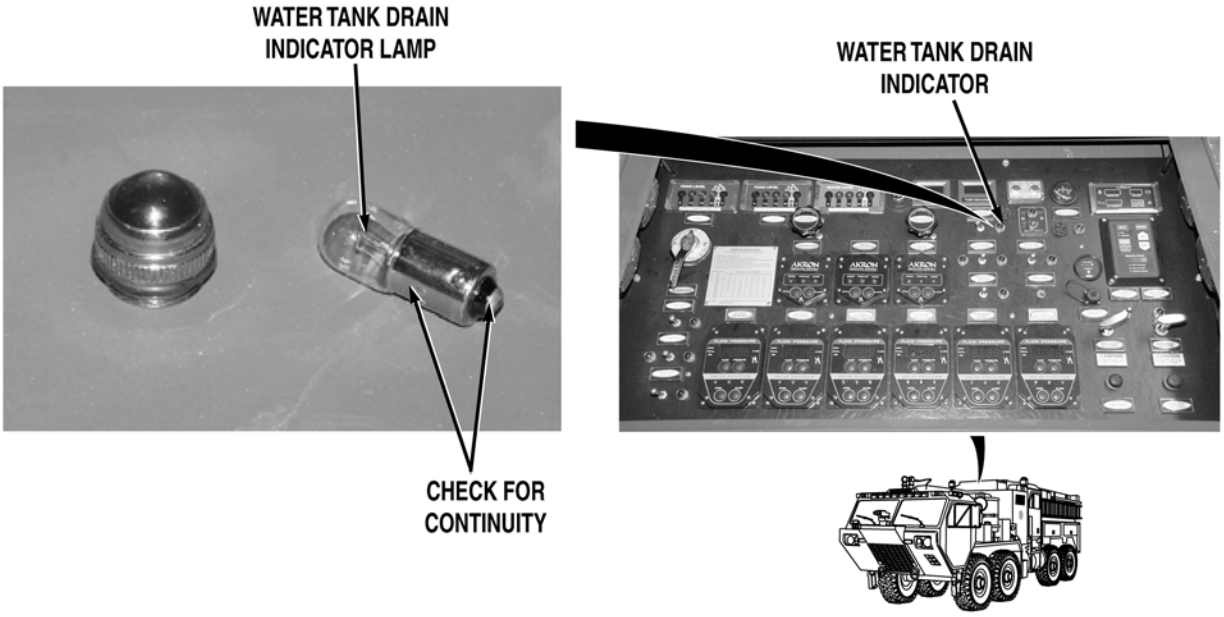
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Remove pump house panel S (WP 0540). Disconnect valve control wire harness water tank drain control valve connector. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel WATER TANK DRAIN switch to OPEN position (WP 0004). With a test lead set, check for 22 to 28 VDC between valve control wire harness wire 4053 (brown) at water tank drain control valve connector, terminal 1 and a known good ground.

If 22 to 28 VDC are not present, troubleshoot Water Tank Drain Valve Does Not Operate When Selected (WP 0122).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



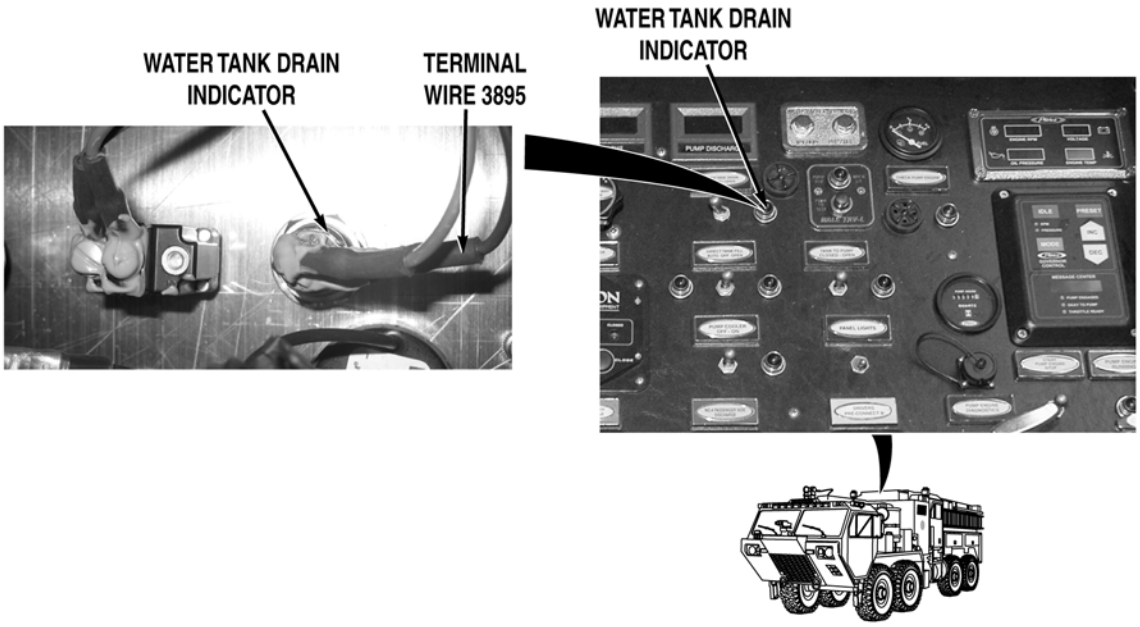
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Remove lamp from pump operator's panel WATER TANK DRAIN indicator (WP 0327). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0327).

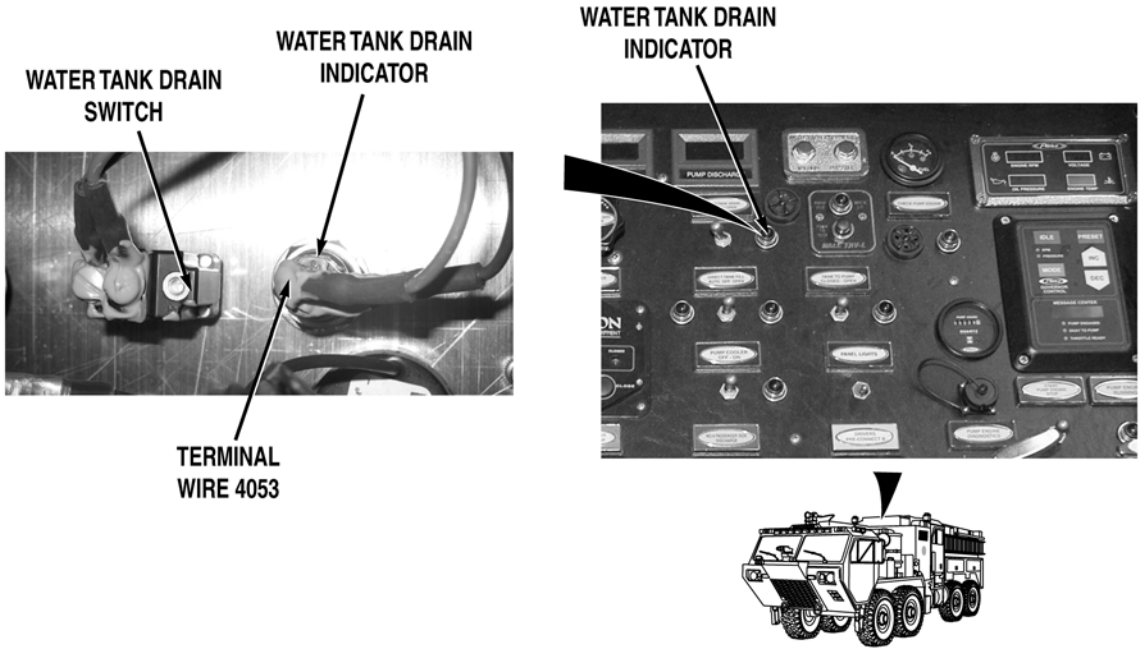
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Install lamp in pump operator's panel WATER TANK DRAIN indicator (WP 0327). Open pump operator's panel housing (WP 0325). Check for continuity across pump operator's panel wire harness wire 3895 (black) from pump operator's panel WATER TANK DRAIN indicator to a known good ground.

If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Turn battery disconnect switch to ON position (WP 0007). Put WATER TANK DRAIN switch to OPEN position (WP 0004). Check for 22 to 28 VDC between pump operator's panel wire harness wire 4053 (brown) at WATER TANK DRAIN indicator and a known good ground. Put pump operator's panel WATER TANK DRAIN switch to CLOSED position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Connect pump house wire harness water tank drain control valve connector.

a. If 22 to 28 VDC are present, replace pump operator's panel WATER TANK DRAIN indicator (WP 0326).

b. If 22 to 28 VDC are not present, repair wire 4053 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

TANK TO PUMP INDICATOR DOES NOT ILLUMINATE (CAB)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

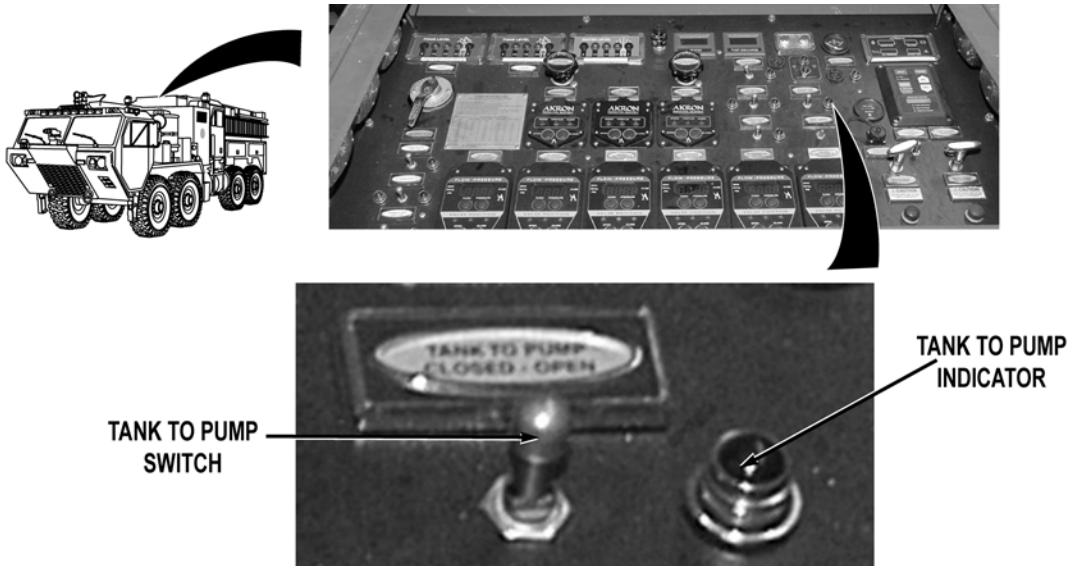
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0143

References (continued)
WP 0311
WP 0313
WP 0443

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

TANK TO PUMP INDICATOR DOES NOT ILLUMINATE (CAB)



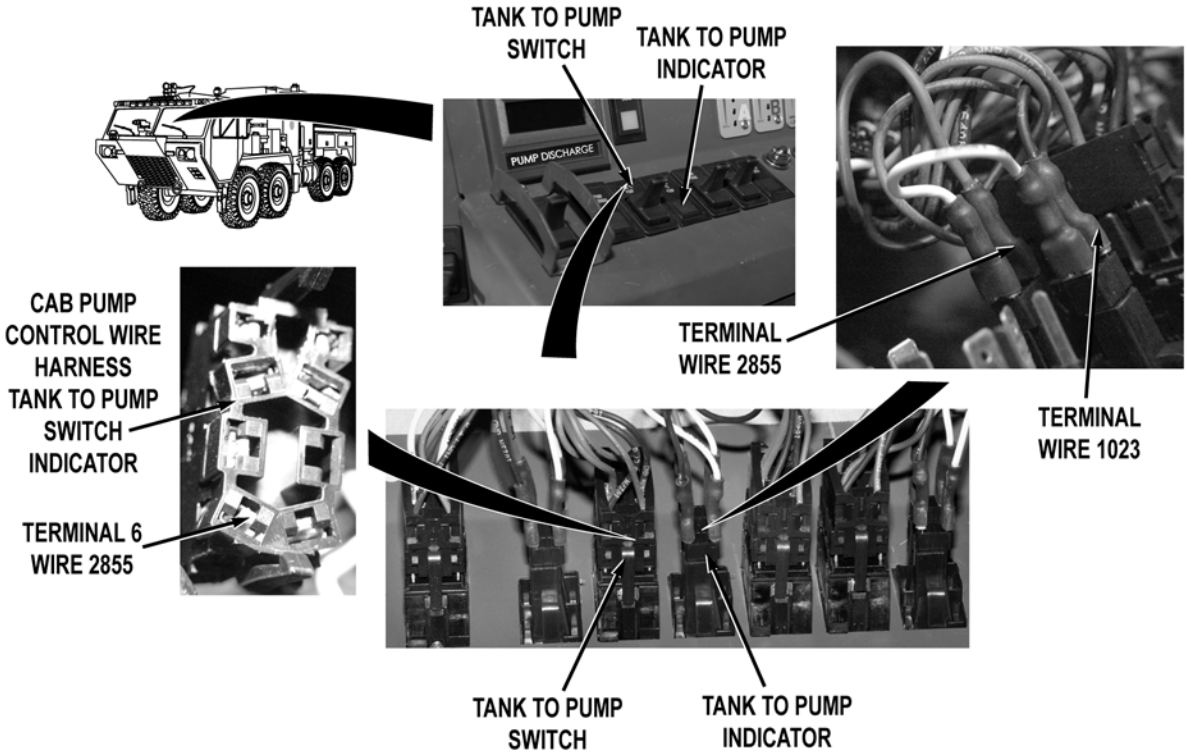
NOTE

Step 1 will ensure that tank-to-pump valve is operating properly or if fault exists in lamp, indicator, or wires leading to indicator.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Put cab TANK TO PUMP switch to open position (WP 0004). Check if pump operator's panel TANK TO PUMP indicator illuminates.

If pump operator's panel TANK TO PUMP indicator does not illuminate, troubleshoot TANK TO PUMP Indicator Does Not Illuminate (Pump Operator's Panel) (WP 0143).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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Step 2. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel B (WP 0311). Disconnect cab pump control wire harness TANK TO PUMP switch connector. Disconnect wire 2855 (red) from TANK TO PUMP indicator terminal. Check for continuity across cab pump control wire harness wire 2855 (red) from TANK TO PUMP switch connector, terminal 6 to TANK TO PUMP indicator connector.

If there is no continuity, repair wire 2855 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

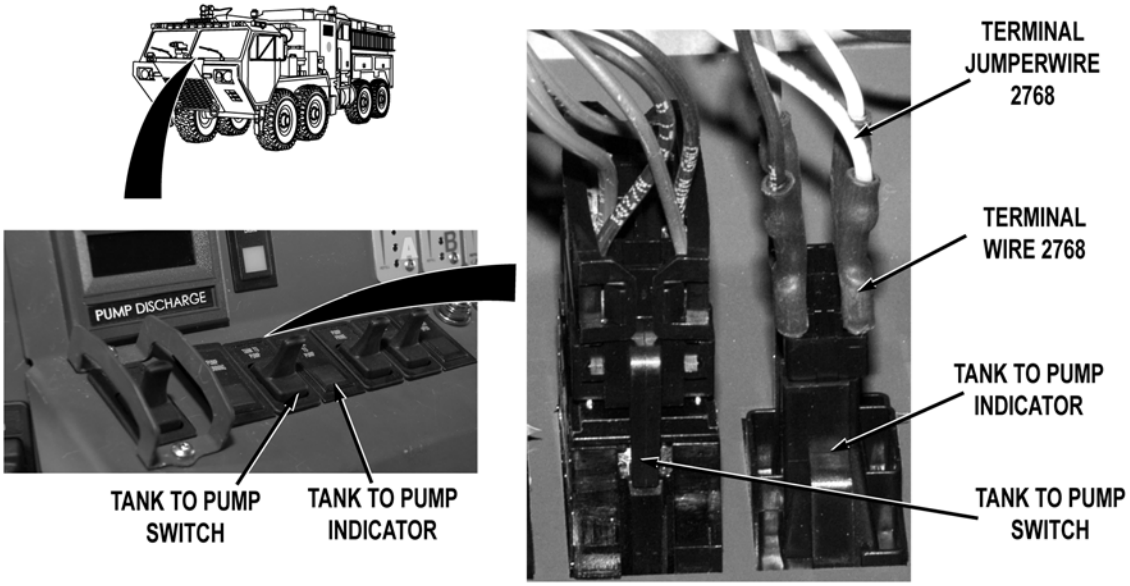
MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

Step 3. Connect wire 2855 (red) to TANK TO PUMP indicator terminal. Disconnect wire 1023 (black) from TANK TO PUMP indicator terminal. Check for continuity across cab pump control wire harness wire 1023 (black) from TANK TO PUMP indicator connector to a known good ground.

If there is no continuity, repair wire 1023 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).



Step 4. Connect wire 1023 (black) to TANK TO PUMP indicator connector. Disconnect jumperwire 2768 (white) from TANK TO PUMP indicator terminals. Check for continuity across jumperwire 2768 (white) from terminal to terminal.

a. If there is continuity, replace TANK TO PUMP indicator (WP 0313).

b. If there is no continuity, repair or replace jumperwire 2768 (TM 9-2320-325-14&P).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

TANK TO PUMP INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)

INITIAL SETUP:

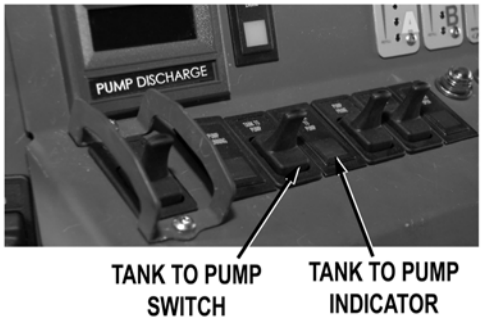
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0119
WP 0325
WP 0326
WP 0327
WP 0459

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

TANK TO PUMP INDICATOR DOES NOT ILLUMINATE (PUMP OPERATOR'S PANEL)



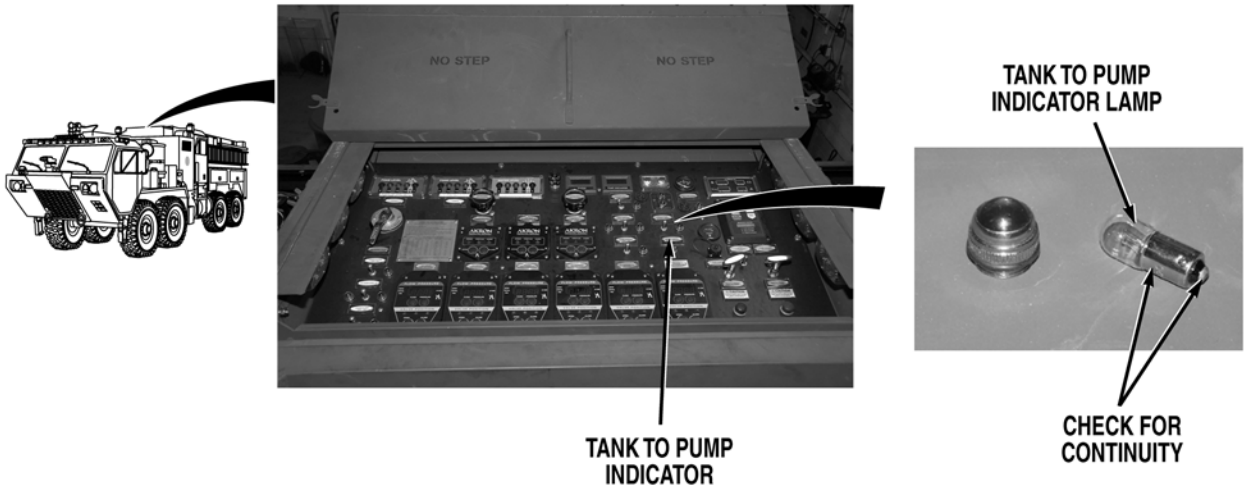
NOTE

Step 1 will ensure that tank-to-pump valve is operating properly or if fault exists in bulb, indicator, or wires leading to indicator.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel TANK TO PUMP switch to OPEN position (WP 0004). Check if cab TANK TO PUMP indicator illuminates.

If cab TANK TO PUMP indicator does not illuminate, troubleshoot Tank-To-Pump Valve(s) Does Not Operate Properly (WP 0119).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



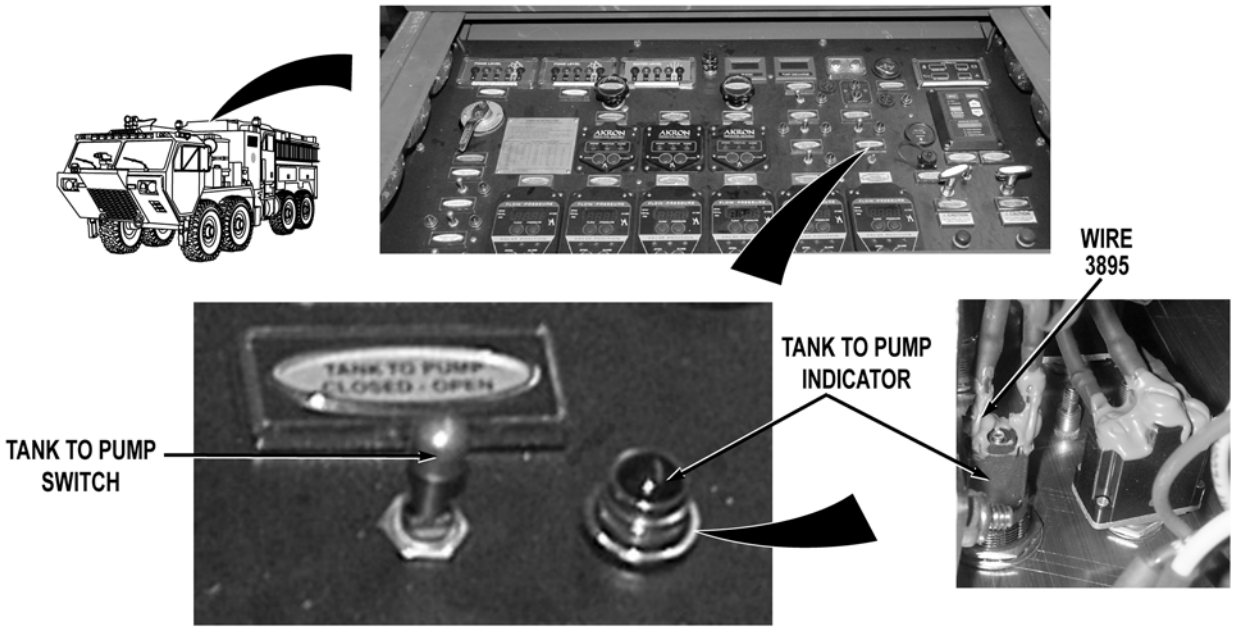
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from pump operator's panel TANK TO PUMP indicator (WP 0327). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0327).

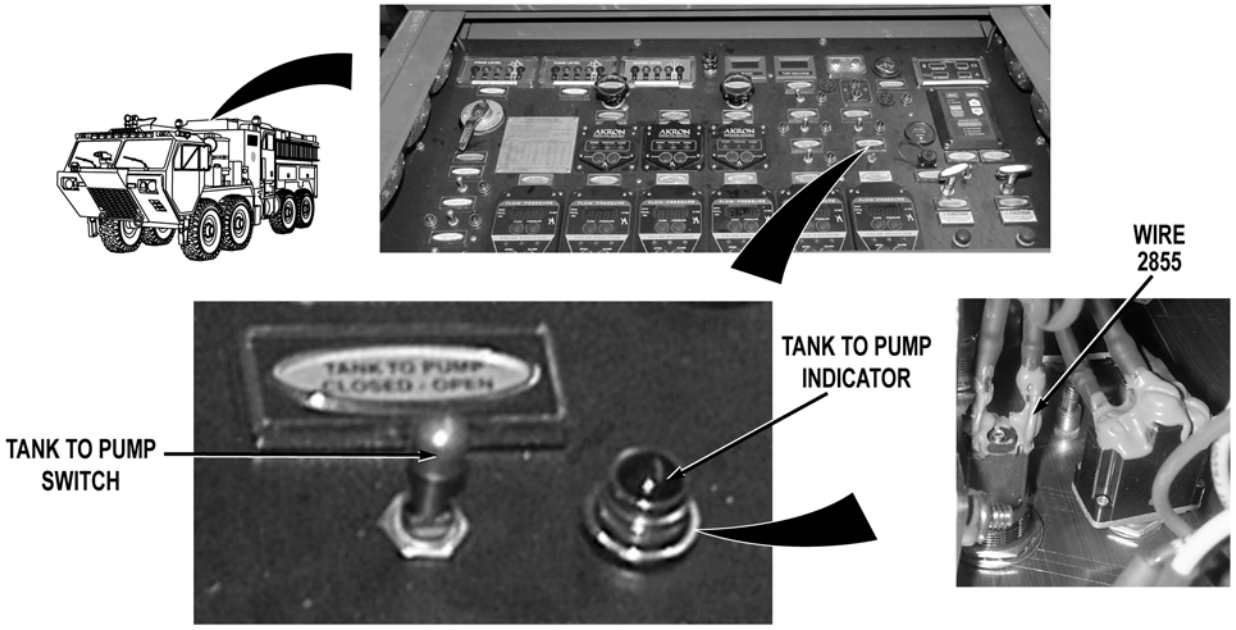
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Install lamp in pump operator's panel TANK TO PUMP indicator (WP 0327). Open pump operator's panel housing (WP 0325). Check for continuity across pump operator's panel wire harness wire 3895 (black) from pump operator's panel TANK TO PUMP indicator to a known good ground.

If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel TANK TO PUMP switch to OPEN position (WP 0004). Check for 22 to 28 VDC between pump operator's panel wire harness wire 2855 (red) from pump operator's panel TANK TO PUMP indicator to a known good ground.

a. If 22 to 28 VDC are present, replace TANK TO PUMP indicator (WP 0326).

b. If 22 to 28 VDC are not present, repair wire 2855 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

GROUND SWEEPS INDICATOR DOES NOT ILLUMINATE (CAB)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0004
WP 0007

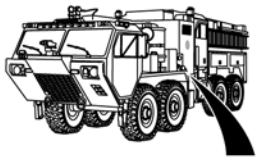
References (continued)
WP 0120
WP 0311
WP 0313
WP 0443
WP 0539

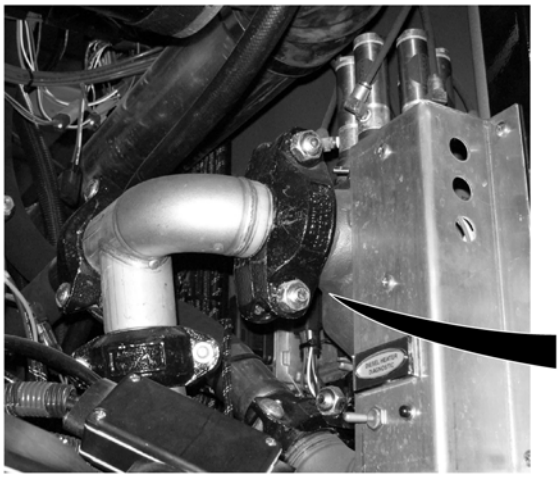
Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

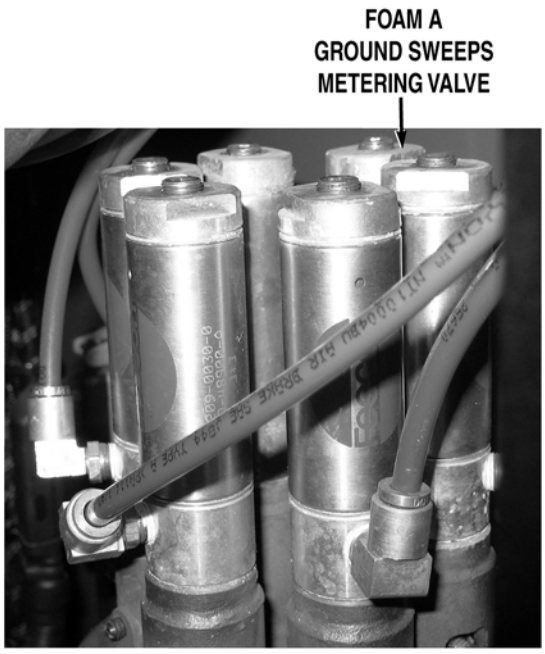
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

GROUND SWEEPS INDICATOR DOES NOT ILLUMINATE (CAB)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION







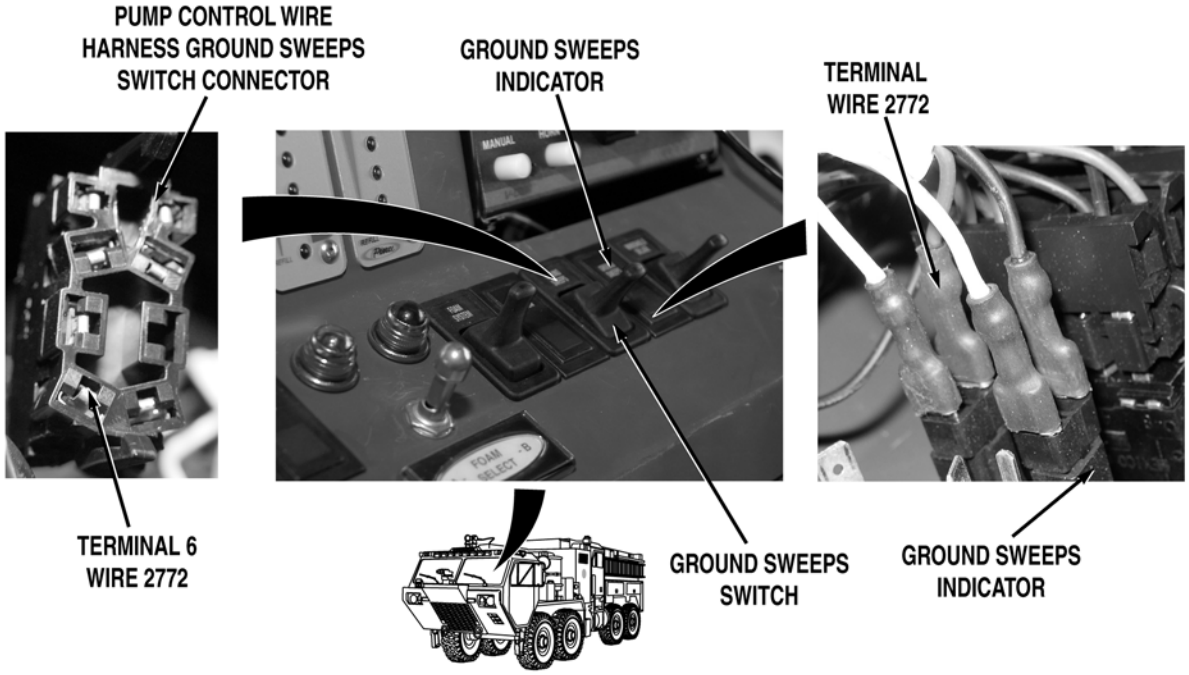
NOTE

- Ensure system air pressure is at least 85 psi (586 kPa) when operating under truck nozzle foam metering valve during this procedure. System air pressure is required to activate valves.
- Do not engage water pump engine during this procedure. Valve operation can be checked without water pump operation.
- Valve operations can be checked by observing valve shaft rotation. Valves are open when tabs or yellow paint tabs are aligned with direction of fluid flow.
- Operation of multi-metering valve cylinder can be checked by listening for metallic click.

Step 1. Put TANK TO PUMP switch to closed position (WP 0004). If system air pressure is below 85 psi (586 kPa), start vehicle engine and allow system air pressure to build to at least 85 psi (586 kPa) (TM 9-2320-347-10). Shut off vehicle engine (TM 9-2320-347-10). Open pump house panel A (WP 0539). Put cab FOAM SYSTEM switch to on position (WP 0004). Put cab FOAM SELECT switch to A position (WP 0004). While an assistant puts GROUND SWEEPS switch to on position (WP 0004), check if ground sweeps foam A metering valve cylinder operates to open position.

If ground sweeps foam A metering valve cylinder does not operate to open position, troubleshoot Ground Sweeps Do Not Operate When Selected (WP 0120).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



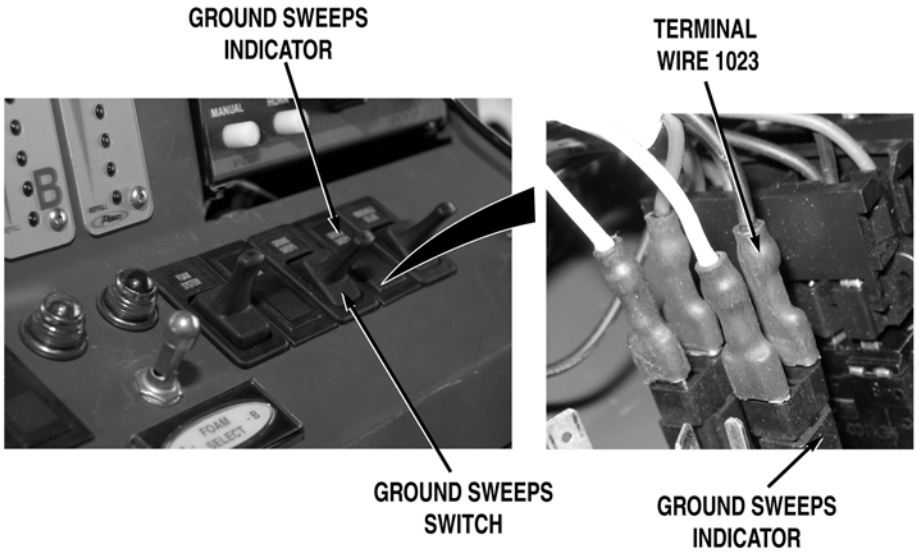
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Put cab GROUND SWEEPS switch to OFF position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel B (WP 0311). Disconnect wire 2772 (gray) terminal connector from GROUND SWEEPS indicator. Disconnect cab pump control wire harness GROUND SWEEPS switch connector from GROUND SWEEPS switch. Check for continuity across cab pump control wire harness wire 2772 (gray) from GROUND SWEEPS switch connector, terminal 6 to GROUND SWEEPS indicator terminal connector.

If there is no continuity, repair wire 2772 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

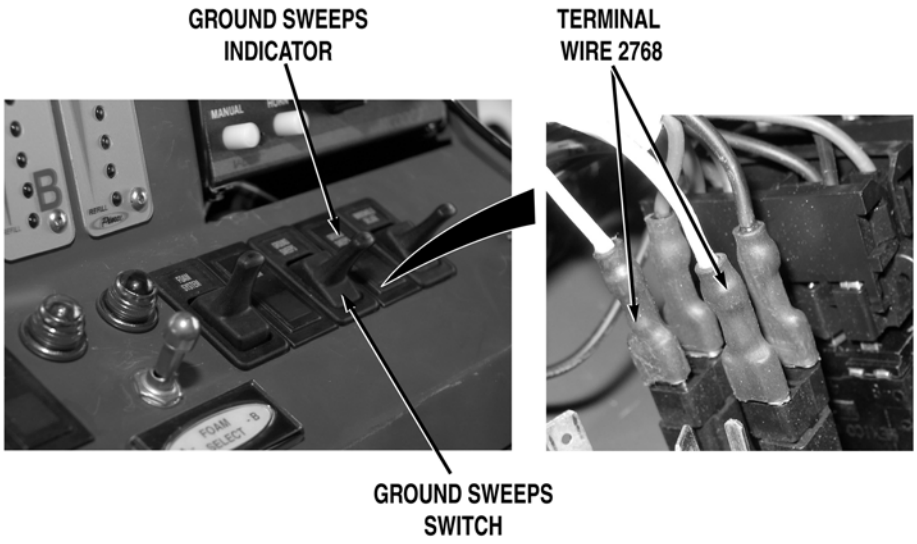
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Disconnect wire 1023 (black) terminal connector from GROUND SWEEPS indicator. Check for continuity across cab pump control wire harness wire 1023 (black) from GROUND SWEEPS indicator connector to a known good ground.

If there is no continuity, repair wire 1023 in cab pump control wire harness if repairable (TM 9-2320-325-14&P), or replace cab pump control wire harness (WP 0443).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Disconnect jumperwire 2768 (white) from GROUND SWEEPS indicator at both terminal connectors. Check for continuity across jumperwire 2768 (white) from terminal to terminal.

a. If there is continuity, replace GROUND SWEEPS indicator (WP 0313).

b. If there is no continuity, repair or replace jumperwire 2768 (white) (TM 9-2320-325-14&P).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE PRESSURE GOVERNOR CONTROL PANEL IS NOT DISABLED, WHEN OTHER GOVERNOR CONTROL PANEL IS ACTIVATED

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

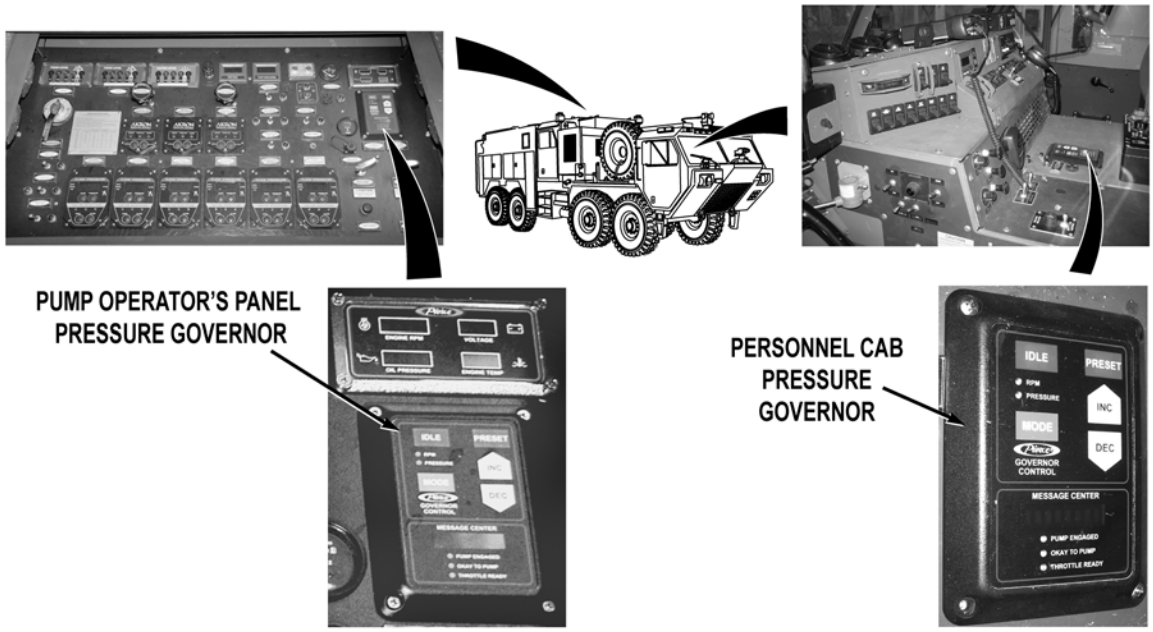
References
WP 0004
WP 0007
WP 0022
WP 0023
WP 0024
WP 0309

References (continued)
WP 0311
WP 0325
WP 0332
WP 0386
WP 0455
WP 0459

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WATER PUMP ENGINE PRESSURE GOVERNOR CONTROL PANEL IS NOT DISABLED, WHEN OTHER GOVERNOR CONTROL PANEL IS ACTIVATED



NOTE

Bring activated pressure governor to idle before activating opposite pressure governor.

Step 1. Start water pump engine (WP 0022). While an assistant operates pump operator's panel pressure governor in PRESSURE mode then pushes PRESET switch (WP 0024), push pump operator's panel pressure governor IDLE switch (WP 0004). Check if personnel cab pressure governor operates in RPM or PRESSURE mode (WP 0024).

If personnel cab pressure governor does not operate in RPM or PRESSURE mode, go to Step 6.

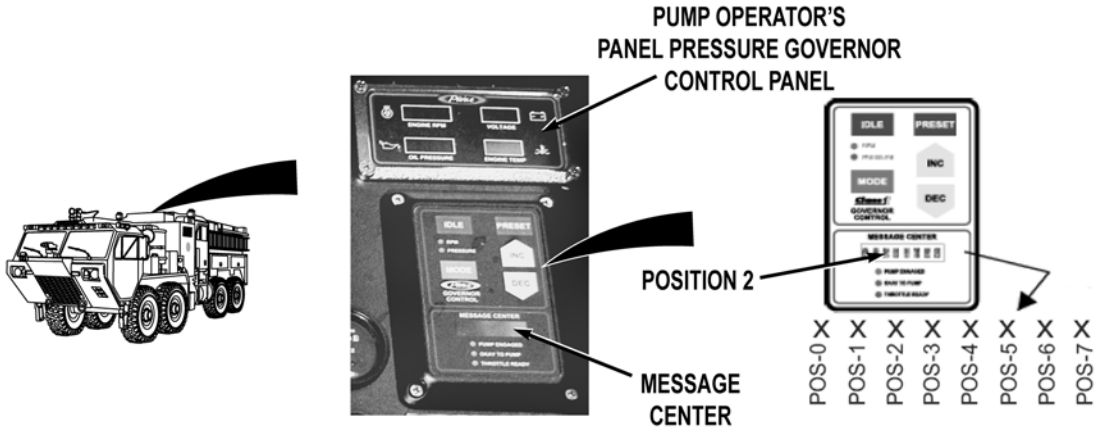
Step 2. While an assistant operates personnel cab pressure governor in PRESSURE mode then pushes PRESET switch (WP 0024), push personnel cab pressure governor IDLE switch (WP 0004). Check if pump operator's panel pressure governor operates in RPM or PRESSURE mode (WP 0024).

If pump operator's panel pressure governor operates in RPM or PRESSURE mode, go to Step 4.

Step 3. Operate either pressure governor in RPM or PRESSURE mode (WP 0024). Bring tested pressure governor to idle (WP 0004). While an assistant operates other pressure governor in RPM or PRESSURE mode (WP 0024), then bring pressure governor to idle. Operate other pressure governor, check if pressure governor operates.

a. If pressure governor switches, fault corrected.

b. If pressure governor does not switch, replace dual governor switch (WP 0386).

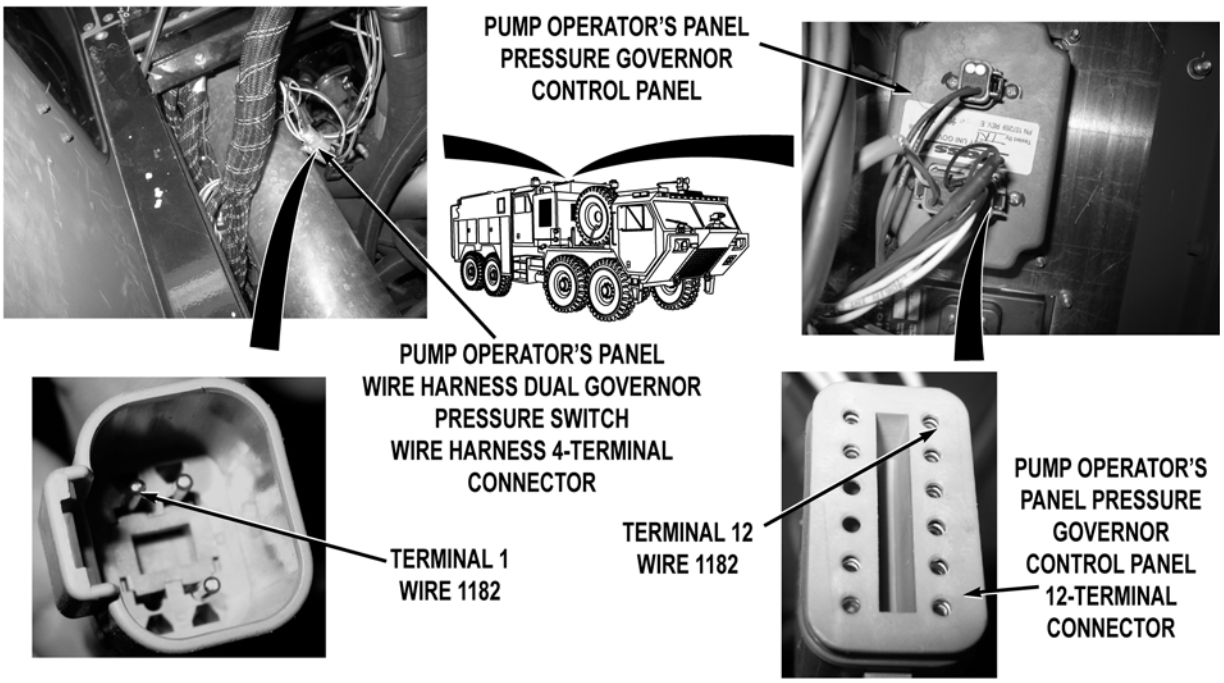


NOTE

The message center must display MODE on pump operator's panel governor control panel, before entering the password. Message center will display xxx3-5xx after entering self-test password. Each time a switch is pressed, a letter will be displayed in position 2, i for IDLE, p for PRESET, u for INC, d for DEC, and m for MODE.

Step 4. Perform pressure governor self-test on pump operator's panel pressure governor by entering self-test password IDLE INC IDLE INC IDLE INC IDLE INC. Press each key on pressure governor, watch message center display for a letter indicating which switch is being pressed. Once all switches, on pump operator's panel pressure governor control panel are pressed, a "2" will be displayed in position 2.

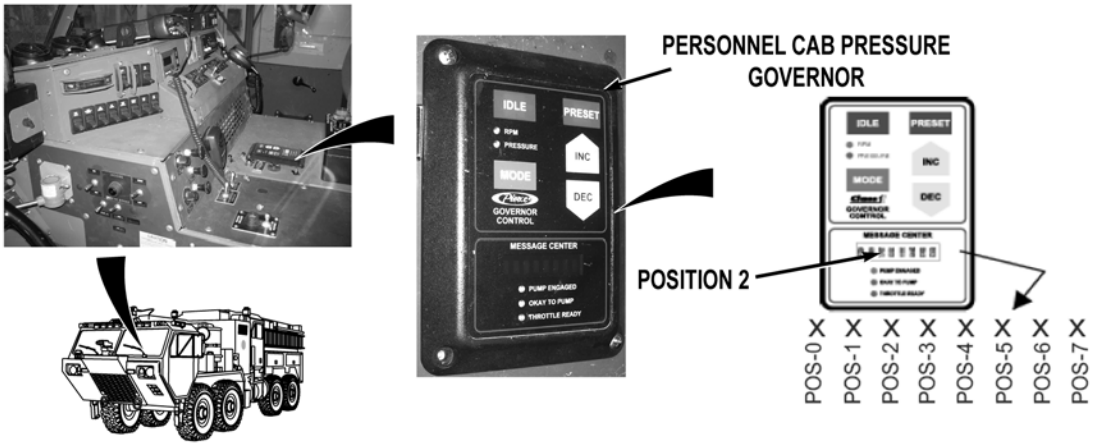
If a letter is displayed constantly, letter is not displayed when pressed, or "2" is not displayed in position 2, replace pump operator's panel pressure governor panel (WP 0332).



Step 5. Turn water pump engine off (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel wire harness dual governor pressure switch wire harness 4-terminal connector. Disconnect pump operator's panel wire harness pump operator's panel pressure governor, 12-terminal wire harness connector. With a test lead set, check for continuity across wire 1182 from pump operator's panel pressure governor 12-terminal connector, terminal 12 to pump operator's pressure governor wire harness 4-terminal connector, terminal 1.

a. If continuity is present, replace dual governor pressure switch (WP 0386).

b. If continuity is not present, repair wire 1182 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

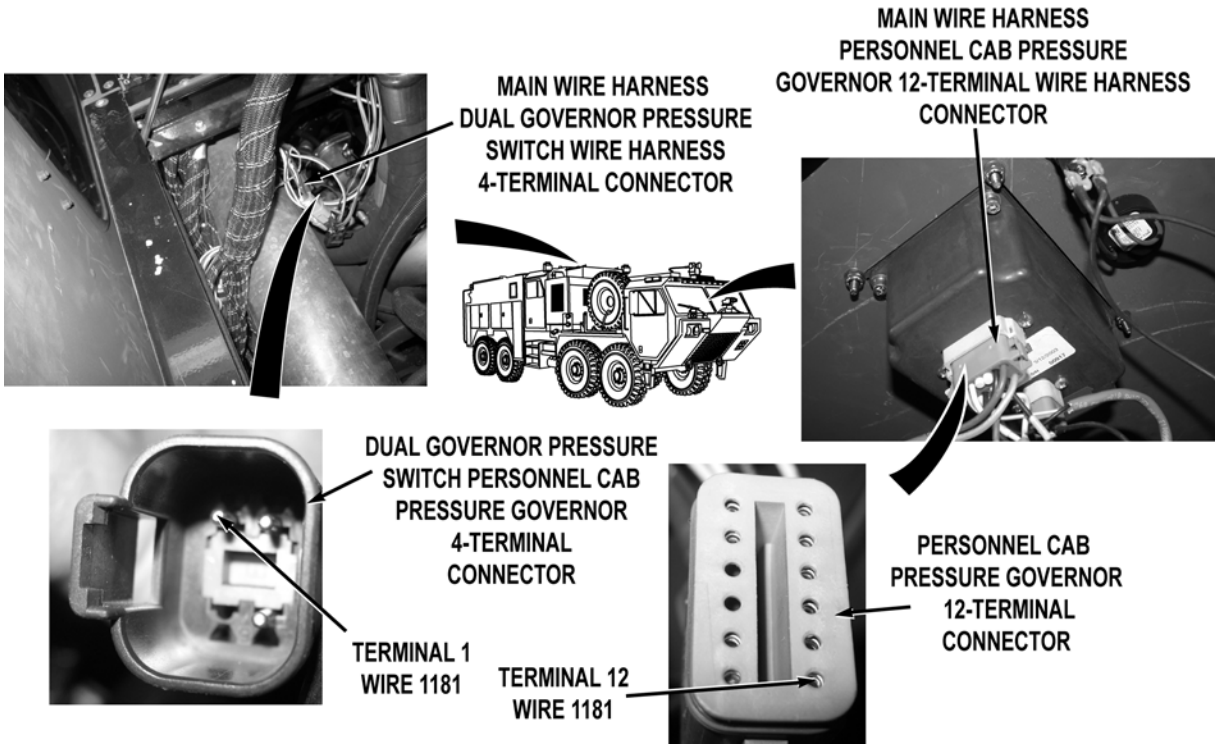


NOTE

The message center must display MODE on personnel cab governor control panels, before entering the password. Message center will display xxx3-5xx after entering self-test password. Each time a switch is pressed a letter will be displayed in position 2, i for IDLE, p for PRESET, u for INC, d for DEC, and m for MODE.

Step 6. Perform pressure governor self-test on personnel cab pressure governor control panel by entering self-test password IDLE INC IDLE INC IDLE INC IDLE INC. Press each key on personnel cab pressure governor control panel, watch message display for a letter indicating which switch is being pressed. Once all switches, on personnel cab pressure governor are pressed, a “2” will be displayed in position 2.

If a letter is displayed constantly, letter is not displayed when pressed, or “2” is not displayed in position 2, replace personnel cab pressure governor control panel (WP 0309).



Step 7. Turn water pump engine off (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect main wire harness dual governor pressure switch wire harness 4-terminal connector. Remove personnel cab instrument panel E (WP 0311). Disconnect main wire harness personnel cab pressure governor 12-terminal wire harness connector. With a test lead set, check for continuity across wire 1181 from personnel cab pressure governor 12-terminal connector, terminal 12 to dual governor pressure switch personnel cab pressure governor 4-terminal connector, terminal 1.

a. If continuity is present, replace dual governor pressure switch (WP 0386).

b. If continuity is not present, repair wire 1182 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE PRESSURE GOVERNOR CONTROL PANEL DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0022
WP 0023
WP 0175
WP 0309
WP 0311

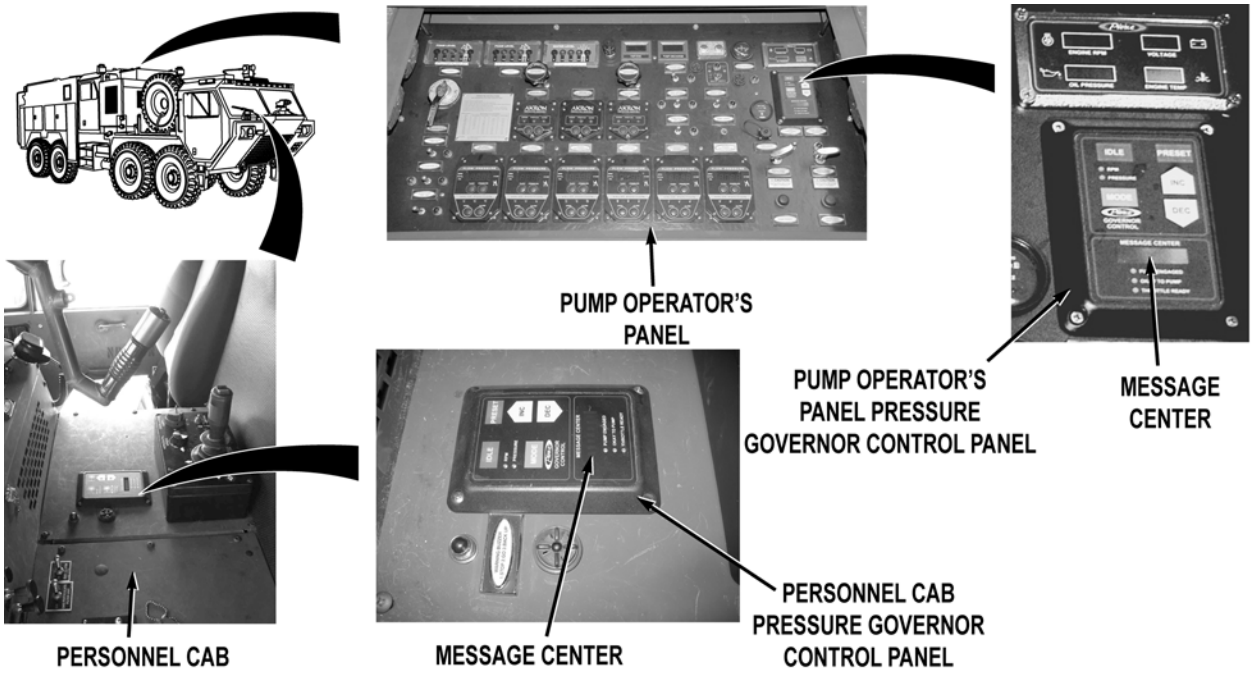
References (continued)
WP 0325
WP 0332
WP 0386
WP 0412
WP 0413
WP 0455
WP 0457
WP 0459
WP 0499
WP 0540

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WATER PUMP ENGINE PRESSURE GOVERNOR CONTROL PANEL DOES NOT OPERATE PROPERLY

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Start water pump engine (WP 0022). Check if pump operator's panel and personnel cab pressure governor control panel message center displays illuminate.

If both pressure governor control panel message center displays do not illuminate, go to Step 9.

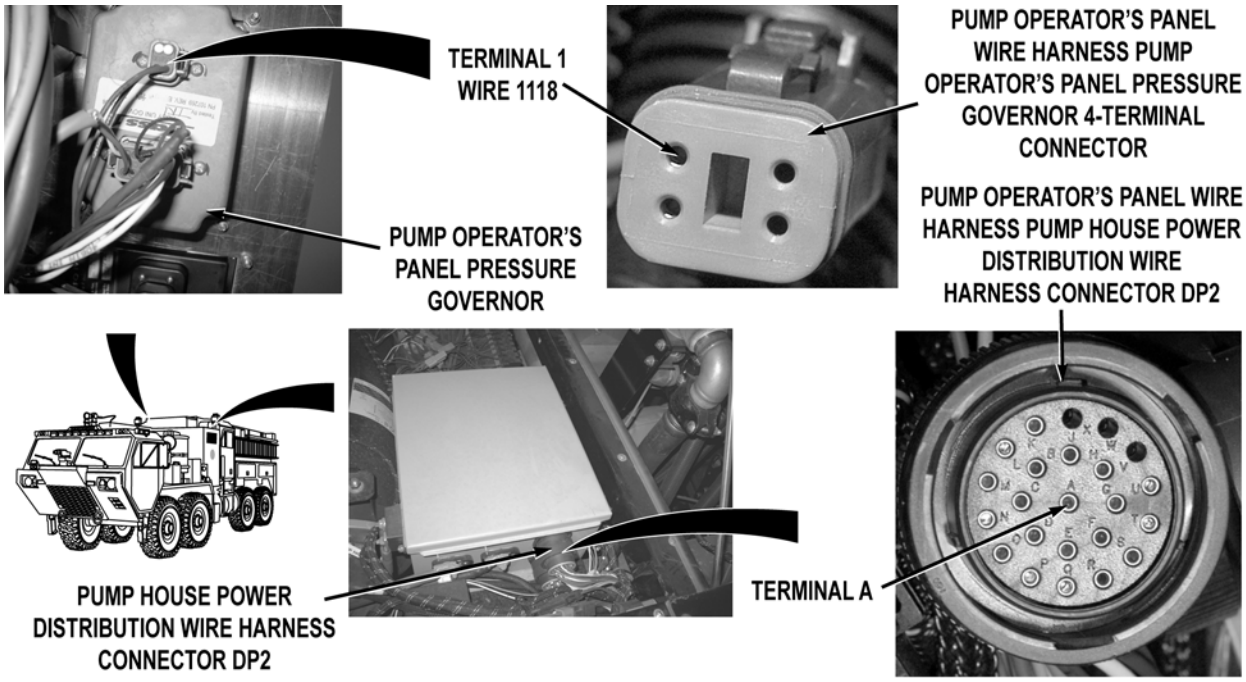
Step 2. Check if personnel cab pressure governor control panel message center display illuminates.

If personnel cab pressure governor control panel does not illuminate, go to Step 6.

Step 3. Operate either pressure governor in RPM or PRESSURE mode (WP 0024). Bringing tested pressure governor to idle (WP 0004). While an assistant operates other pressure governor in RPM or PRESSURE mode (WP 0024), then bring pressure governor to idle. Try to operate other pressure governor, check if pressure governor operates.

If pressure governor does not operate, replace dual pressure governor switch (WP 0386).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



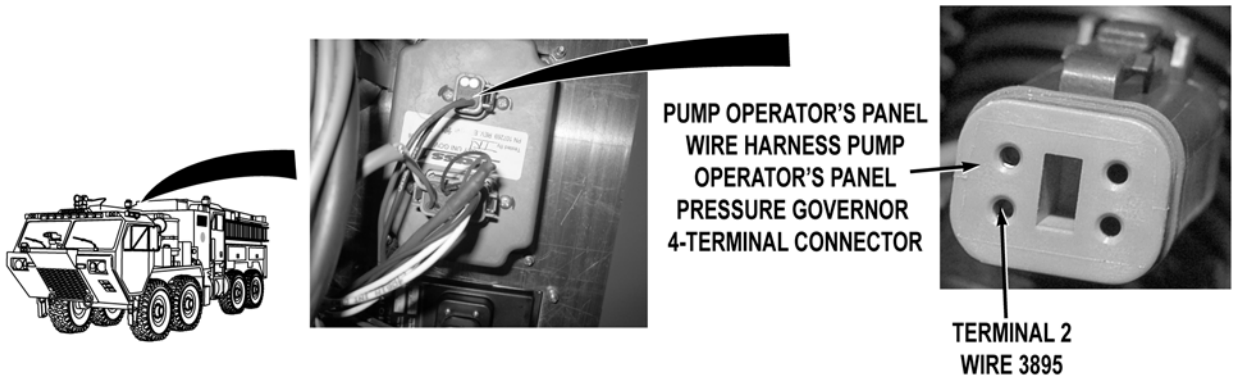
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 4. Shut off water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel wire harness pump operator's panel pressure governor 4-terminal connector from pump operator's panel pressure governor. Remove pump house panel S (WP 0540). Disconnect pump operator's panel wire harness pump house power distribution wire harness connector DP2. With a test lead set, check for continuity across pump operator's panel wire harness wire 1118, from pump operator's panel pressure governor control panel 4-terminal connector, terminal 1 to pump operator's panel wire harness pump house power distribution wire harness connector DP 2, terminal A.

If continuity is not present, repair wire 1118 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

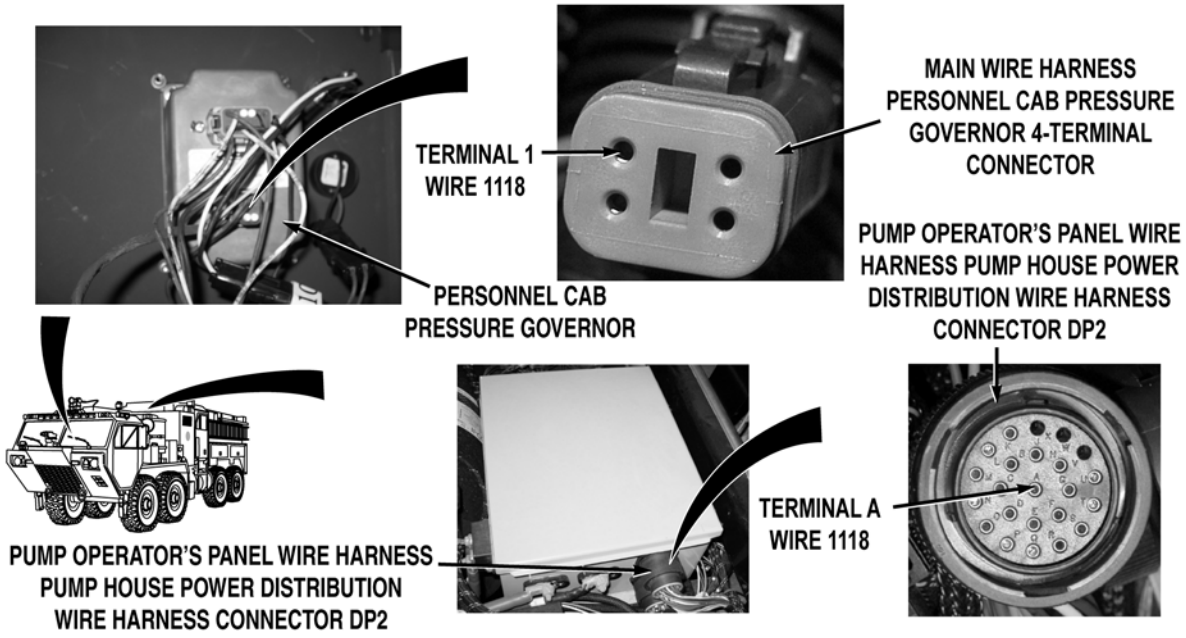


Step 5. With a test lead set, check for continuity across wire 3895 from pump operator's panel wire harness pump operator's panel pressure governor 4-terminal connector, terminal 2 to a known good ground.

a. If continuity is present, replace pump operator's panel pressure governor control panel (WP 0332).

b. If continuity is not present, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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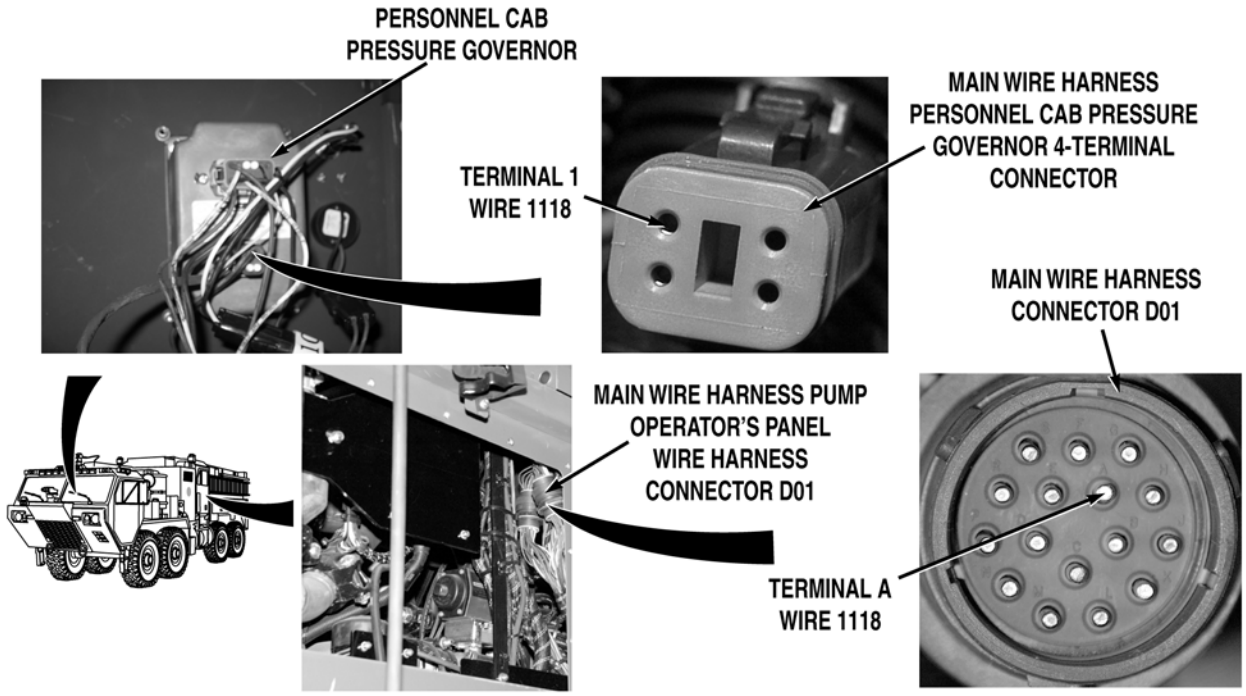
Step 6. Shut off water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel E (WP 0311). Disconnect main wire harness personnel cab pressure governor 4-terminal connector from personnel cab pressure governor. Remove pump house panel S (WP 0540). Disconnect pump operator's panel wire harness pump house power distribution wire harness connector DP2. With a test lead set, check for continuity across main wire harness wire 1118, from main wire harness personnel cab pressure governor panel 4-terminal connector, terminal 1 to pump operator's panel wire harness pump house power distribution wire harness connector DP2, terminal A.

If continuity is present, go to Step 8.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

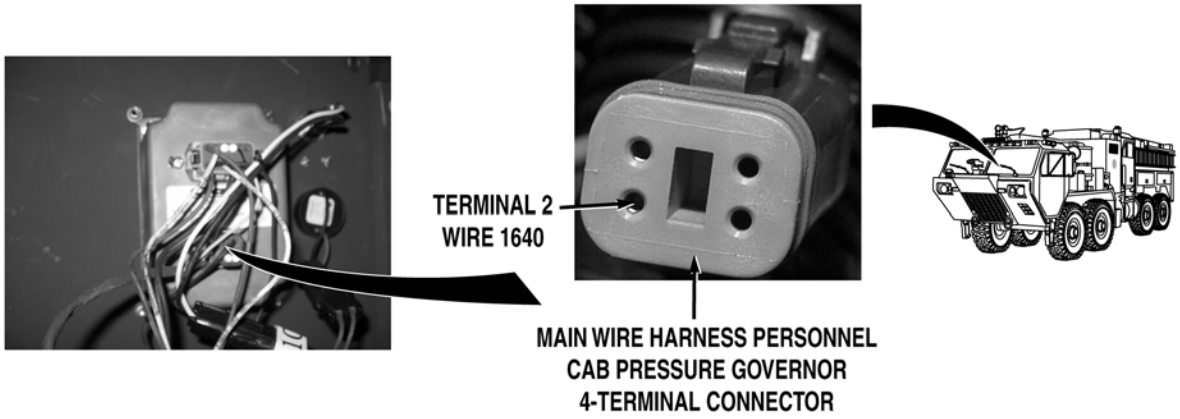


Step 7. Remove driver side crew cab access panel (WP 0499). Remove pump house panel Q (WP 0540). Disconnect main wire harness pump operator's panel wire harness connector DO1. With a test lead set, check for continuity across main wire harness wire 1118 from main wire harness personnel cab pressure governor 4-terminal connector, terminal 1 to main wire harness connector DO1, terminal A.

a. If continuity is present, repair wire 1118 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

b. If continuity is not present, repair wire 1118 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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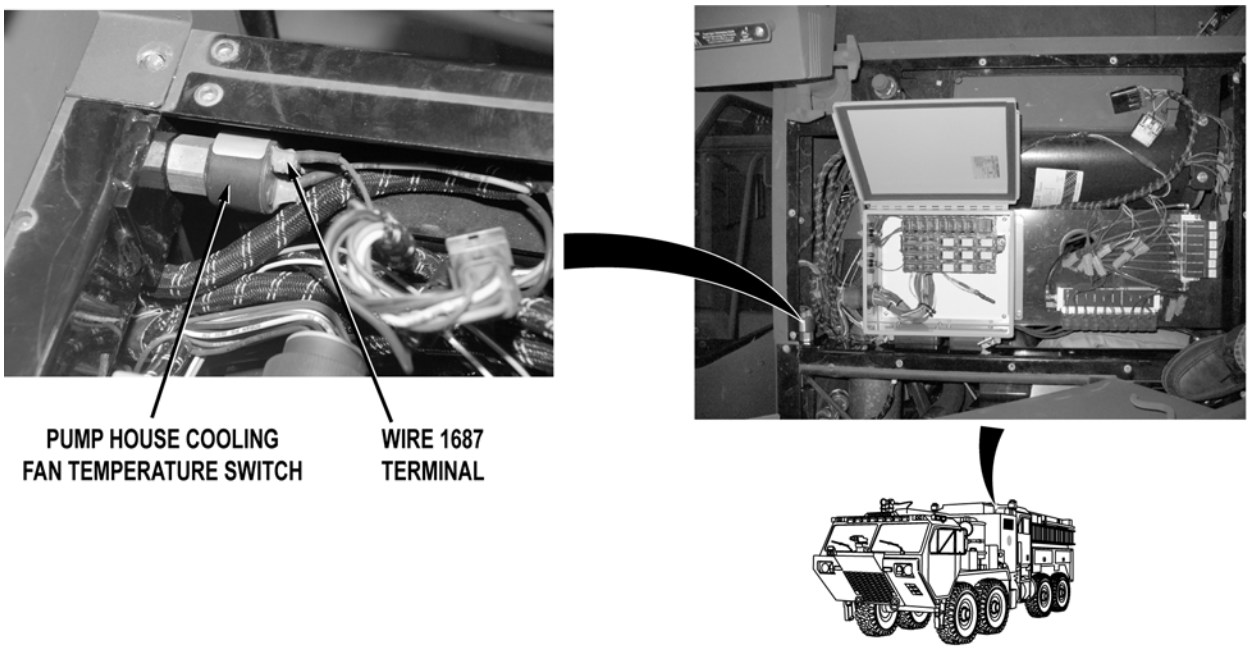
Step 8. With a test lead set, check for continuity across main wire harness wire 1640 from main wire harness personnel cab pressure governor 4-terminal connector, terminal 2 to a known good ground.

a. If continuity is present, replace personnel cab governor control panel (WP 0309).

b. If continuity is not present, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

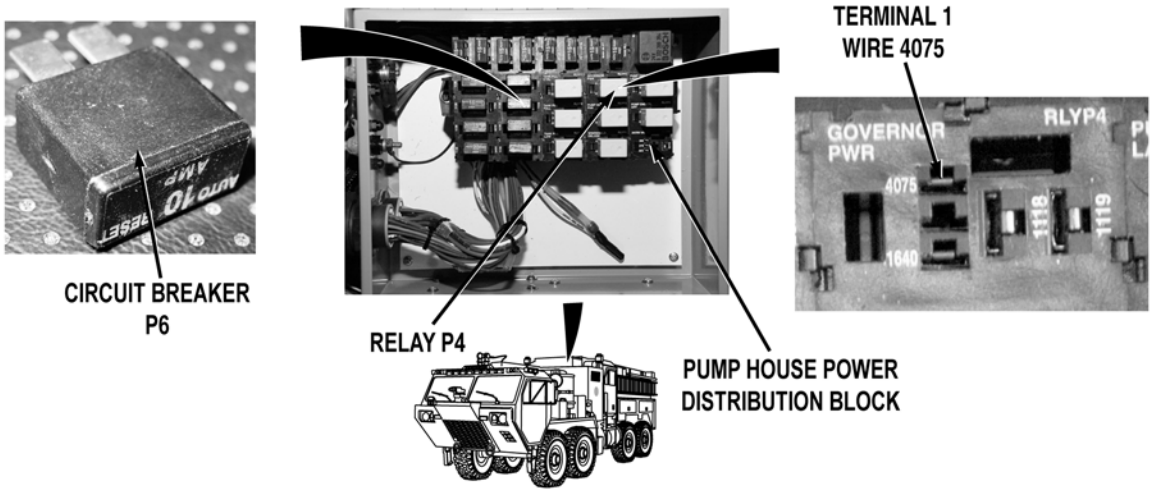
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. Check for 22 to 28 VDC between wire 1687 (brown) from pump house cooling fan temperature switch, terminal to a known good ground.

If 22 to 28 VDC are not present, troubleshoot Pump House Fan Does Not Operate Properly (WP 0175).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

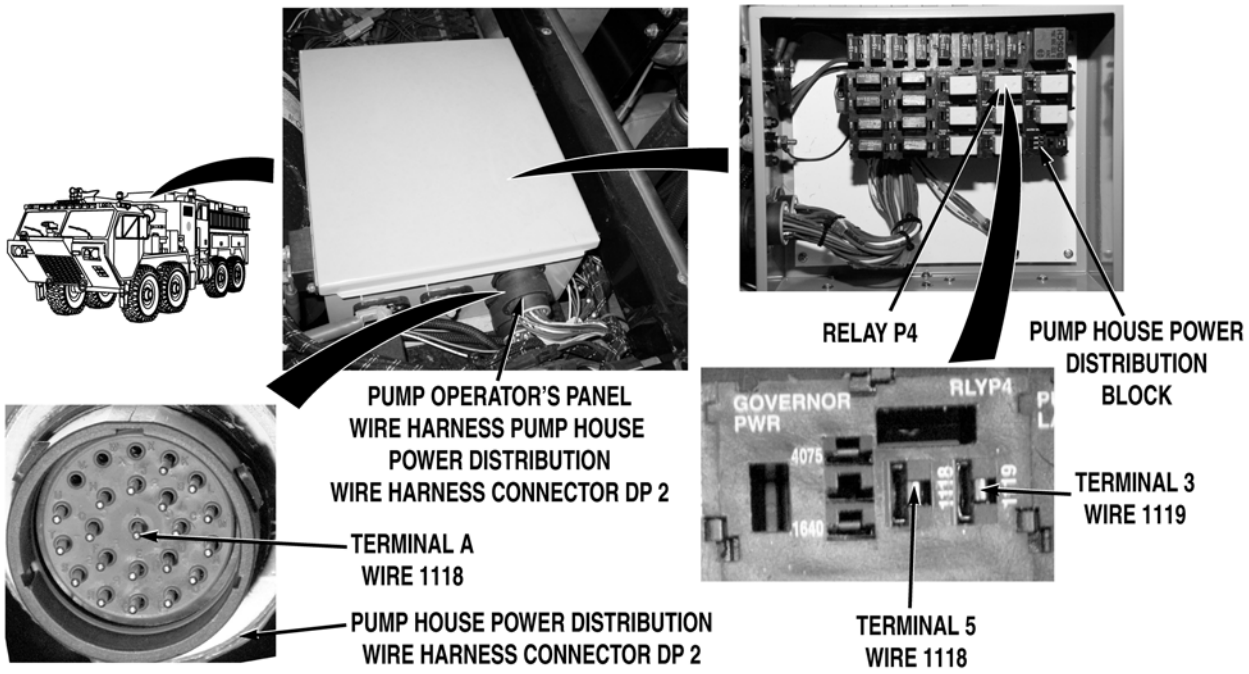
Step 10. Shut off water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove pump house panel S (WP 0540). Remove relay P4 from pump house power distribution block. Start water pump engine (WP 0022). Check for 22 to 28 VDC from wire 4075 at relay P4 terminal 1 to a known good ground.

If 22 to 28 VDC are not present, repair wire 4075 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

Step 11. Shut off water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove circuit breaker P6 from pump house power distribution block. Check for continuity across circuit breaker P6.

If continuity is not present, replace circuit breaker P6 (WP 0412).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 12. Install circuit breaker P6 (WP 0412). Remove relay P4 from pump house power distribution block. With a test lead set, check for continuity across wire 1118 from relay P4 terminal 5 to pump house power distribution wire harness connector DP2, terminal A.

If continuity is not present, repair wire 1118 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

Step 13. Connect pump operator's panel wire harness pump house power distribution wire harness connector DP2. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC from wire 1119 at relay P4, terminal 3 to a known good ground.

a. If 22 to 28 VDC are present, replace relay P4 (WP 0413).

b. If 22 to 28 VDC are not present, repair wire 1119 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE PRESSURE GOVERNOR CONTROL PANEL THROTTLE READY AND/OR PUMP ENGAGE LEDS DO NOT ILLUMINATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

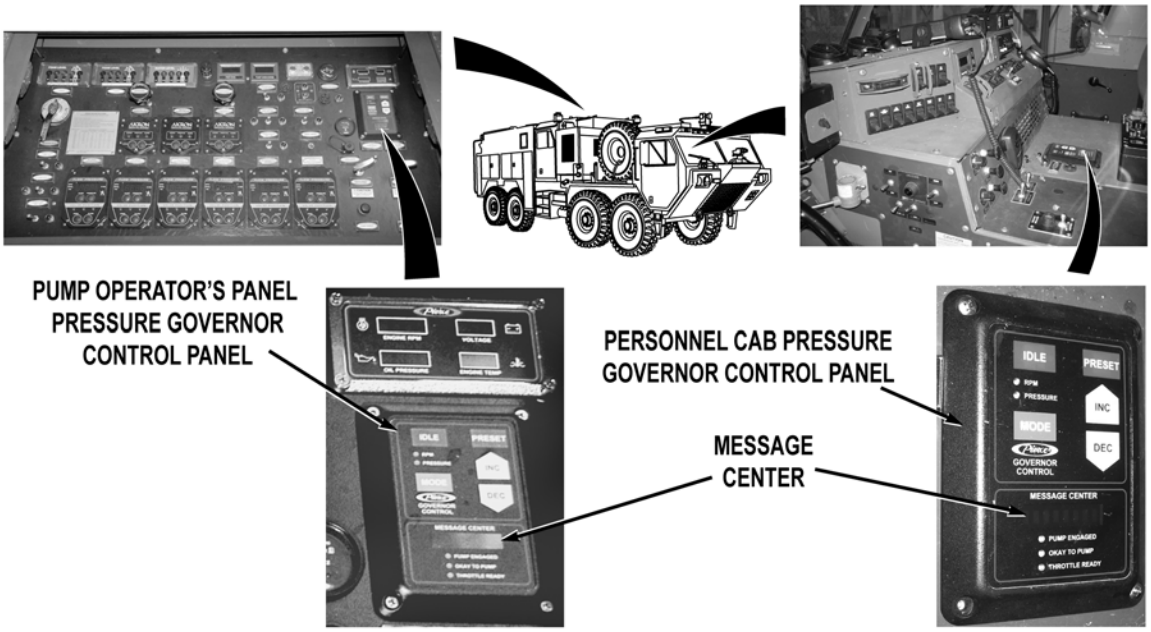
References
WP 0004
WP 0022
WP 0146
WP 0309

References (continued)
WP 0311
WP 0325
WP 0332
WP 0386
WP 0455
WP 0459

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

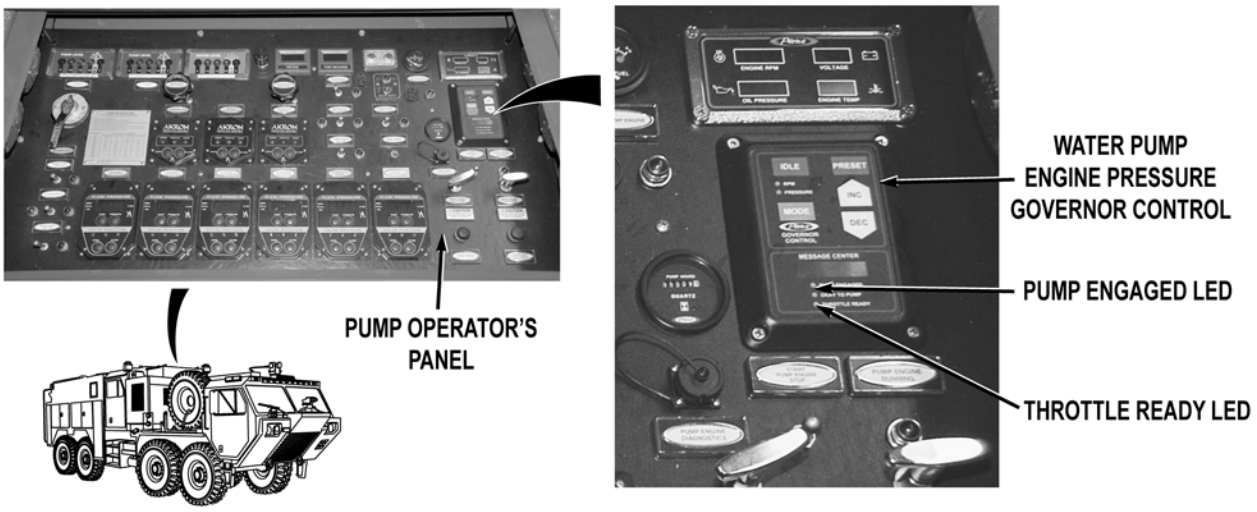
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WATER PUMP ENGINE PRESSURE GOVERNOR CONTROL PANEL THROTTLE READY AND/OR PUMP ENGAGE LEDS DO NOT ILLUMINATE



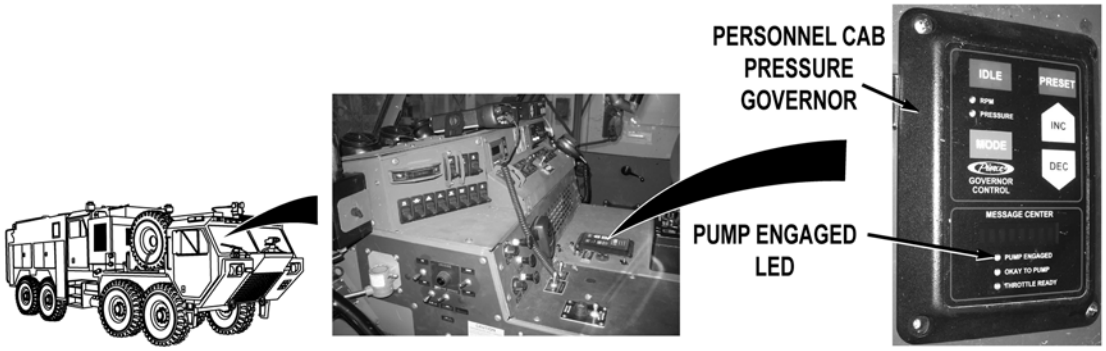
Step 1. Start water pump engine (WP 0022). Check if pump operator's panel and personnel cab pressure governor control panel MESSAGE CENTER displays illuminate.

If pump operator's panel and personnel cab pressure governor MESSAGE CENTER displays do not illuminate, troubleshoot Water Pump Engine Pressure Governor Control Panel Does Not Operate Properly (WP 0146).



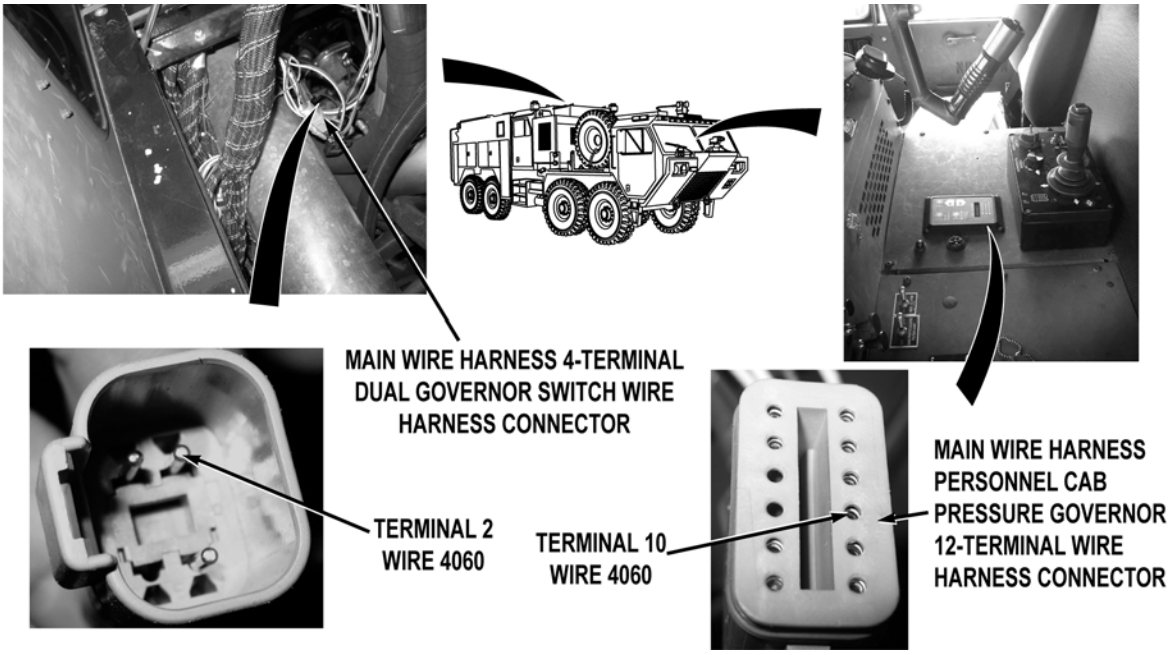
Step 2. With water pump running, check if pump operator's panel water pump engine pressure governor control THROTTLE READY and/or PUMP ENGAGED LEDs illuminate.

If pump operator's panel pressure governor THROTTLE READY and/or PUMP ENGAGED LEDs do not illuminate, go to Step 6.



Step 3. With water pump running, check if personnel cab pressure governor control panel THROTTLE READY and/or PUMP ENGAGED LEDs illuminate (WP 0004).

If personnel cab pressure governor control panel THROTTLE READY and/or PUMP ENGAGED LEDs illuminate, fault corrected.



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

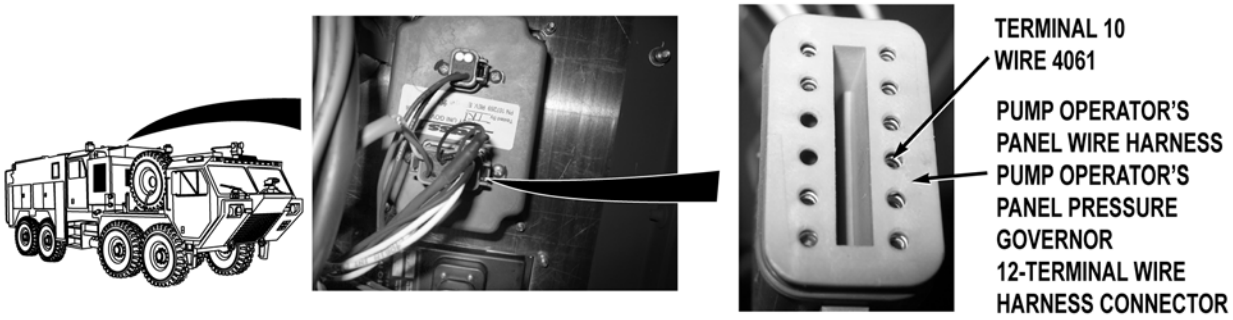
Step 4. Turn water pump engine off (WP 0022). Remove cab instrument panel E (WP 0311). Disconnect main wire harness personnel cab pressure governor 12-terminal wire harness connector. Start water pump engine (WP 0022). With a test lead set, check for 22 to 28 VDC on wire 4060 from personnel cab pressure governor 12-terminal wire harness connector, terminal 10 to a known good ground.

If 22 to 28 VDC are present, replace personnel cab pressure governor control panel (WP 0309).

Step 5. Turn water pump engine off (WP 0022). Open pump operator's panel housing (WP 0325). Disconnect main wire harness 4-terminal dual governor switch wire harness connector. With a test lead set, check for continuity across wire 4060 from pressure governor 12-terminal connector, terminal 10 to main wire harness 4-terminal dual governor switch connector, terminal 2.

a. If continuity is present, replace dual governor pressure switch (WP 0386).

b. If continuity is not present, repair wire 4060 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

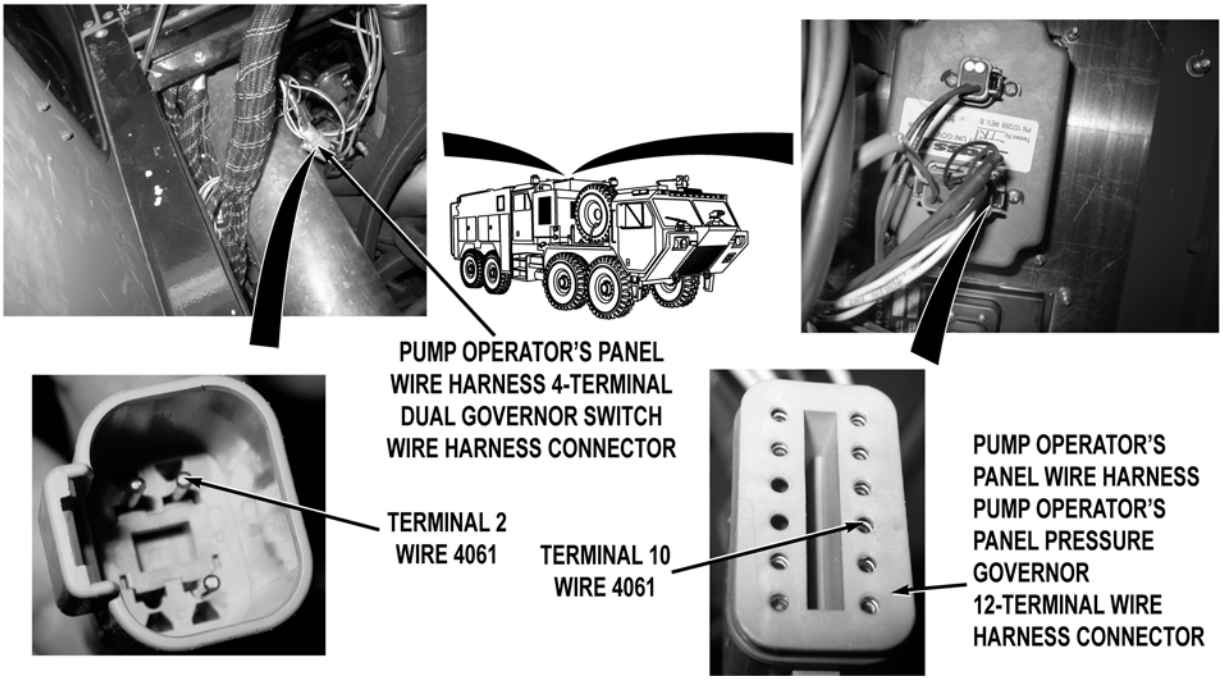


WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 6. Turn water pump engine off (WP 0022). Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel wire harness pump operator's panel pressure governor 12-terminal wire harness connector. Start water pump engine (WP 0022). With a test lead set, check for 22 to 28 VDC on wire 4061 from pump operator's panel pressure governor 12-terminal wire harness connector, terminal 10 to a known good ground.

If 22 to 28 VDC are present, replace pump operator's panel pressure governor control panel (WP 0332).



Step 7. Turn water pump engine off (WP 0022). Disconnect pump operator's panel wire harness 4-terminal dual governor switch wire harness connector. With a test lead set, check for continuity across wire 4061 from pump operator's panel pressure governor 12-terminal wire harness connector, terminal 10 to pump operator's panel wire harness 4-terminal dual governor switch connector, terminal 2.

a. If continuity is present, replace dual governor pressure switch (WP 0386).

b. If continuity is not present, repair wire 4061 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE PRESSURE GOVERNOR CONTROL PANEL MESSAGE DISPLAY IS GARBLED OR DIM

INITIAL SETUP:

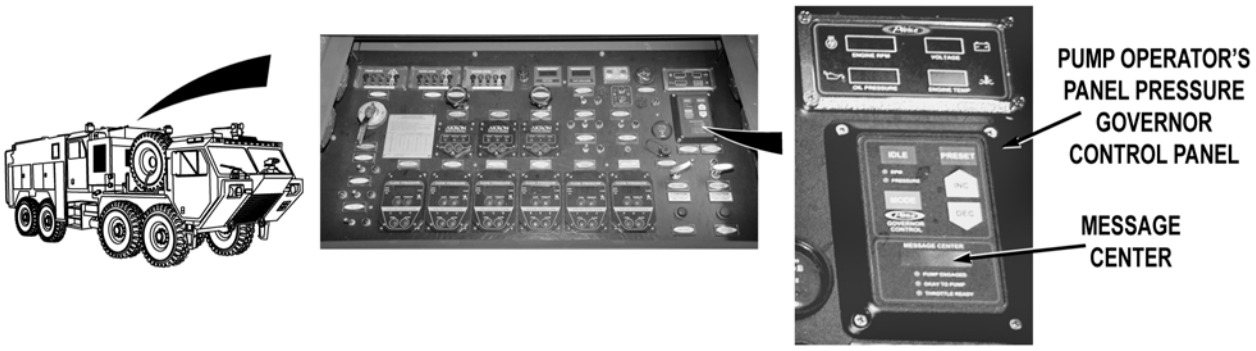
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0022
WP 0309
WP 0332

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WATER PUMP ENGINE PRESSURE GOVERNOR CONTROL PANEL MESSAGE DISPLAY IS GARBLED OR DIM



Step 1. Start water pump engine (WP 0022). Observe pump operator's panel pressure governor control panel MESSAGE CENTER display. Check if MESSAGE CENTER display is garbled or dim.

If MESSAGE CENTER display is garbled or dim, replace pump operator's panel pressure governor control panel (WP 0332).

Step 2. Observe personnel cab pressure governor control panel MESSAGE CENTER display. Check if MESSAGE CENTER display is garbled or dim.

a. If MESSAGE CENTER display is garbled or dim, replace personnel cab governor control panel (WP 0309).

b. If MESSAGE CENTER display is not garbled or dim, fault corrected.

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE GAUGE PANEL DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

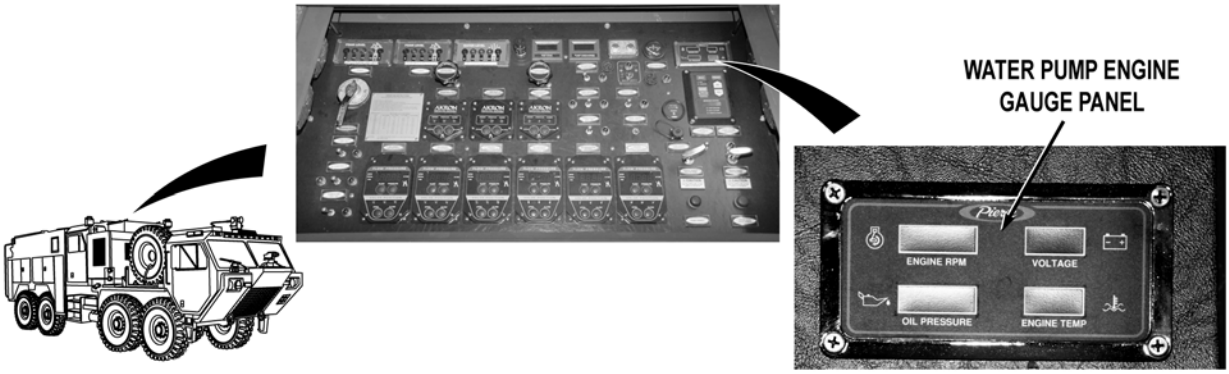
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0022
WP 0024
WP 0146

References (continued)
WP 0226
WP 0325
WP 0340
WP 0459
WP 0539

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WATER PUMP ENGINE GAUGE PANEL DOES NOT OPERATE PROPERLY



Step 1. Start water pump engine (WP 0022). Check if water pump engine gauge panel display illuminates.

If water pump engine gauge panel display does not illuminate, go to Step 13.

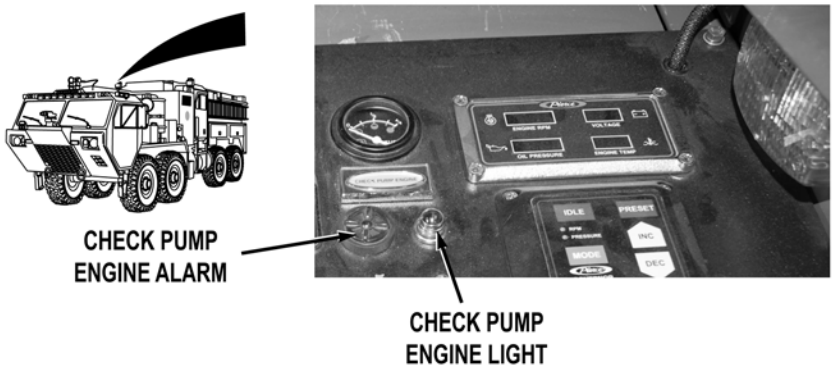
Step 2. Check if water pump engine gauge panel displays a CAN ERR message.

If water pump engine gauge panel displays a CAN ERR message, go to Step 11.

Step 3. Check if information displays intermittently.

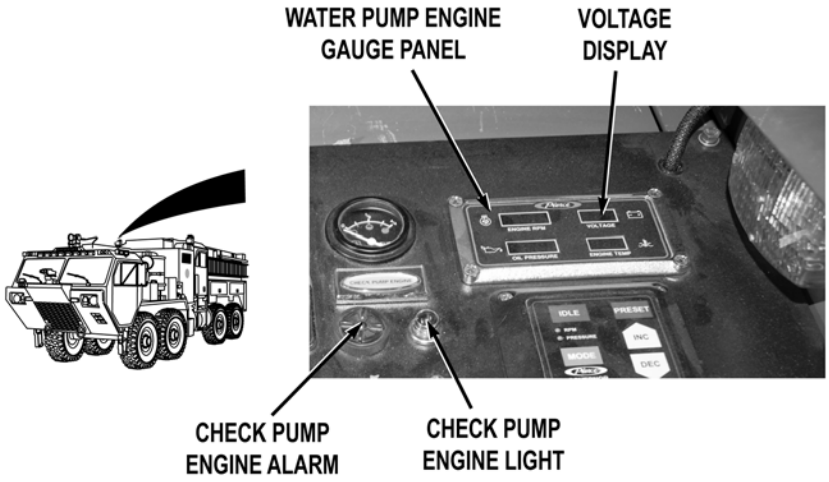
If information displays intermittently, go to Step 9.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Check if CHECK PUMP ENGINE alarm is sounding and check if CHECK PUMP ENGINE light is illuminated.

If CHECK PUMP ENGINE alarm is sounding and CHECK PUMP ENGINE light is illuminated, notify Supervisor.



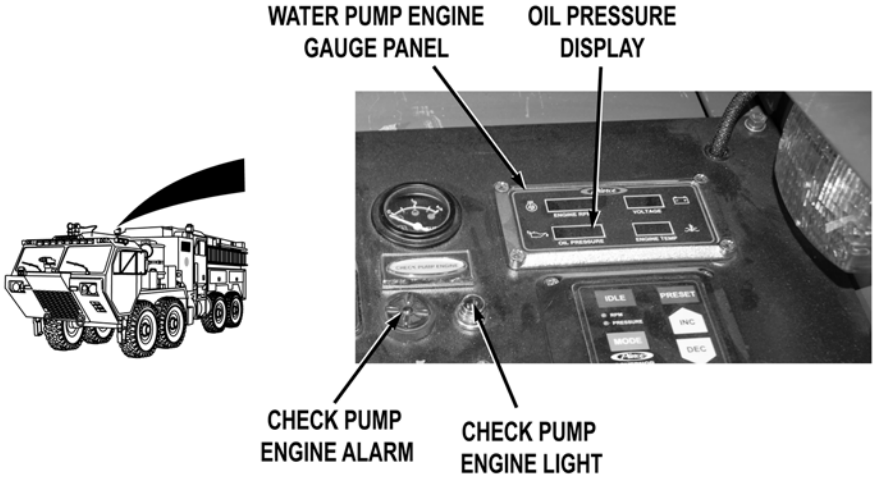
NOTE

Check engine alarm will sound and CHECK PUMP ENGINE light will illuminate if voltage falls to 23.8 VDC and below. Voltage must stay below 24 VDC for more than 2 seconds to activate alarm.

Step 5. Check if water pump engine gauge panel displays system voltage or water pump engine gauge panel displays voltage below 23.8 VDC without CHECK PUMP ENGINE alarm sounding and CHECK PUMP ENGINE light illuminating (WP 0004).

If water pump panel engine gauge panel does not display system voltage or voltage below 23.8 VDC without CHECK PUMP ENGINE alarm sounding and CHECK PUMP ENGINE light illuminating, replace water pump engine gauge panel (WP 0340).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



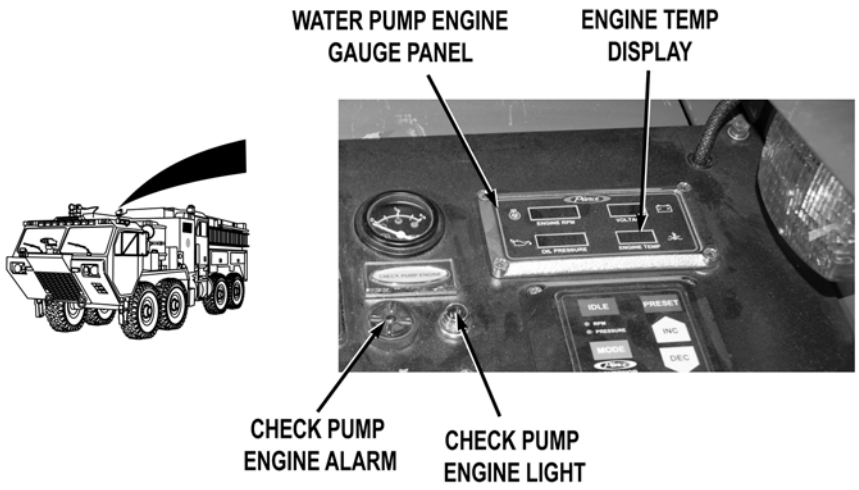
NOTE

CHECK PUMP ENGINE alarm will sound and CHECK PUMP ENGINE light will illuminate if oil pressure falls below 10 psi (69 kPa). When oil pressure is low, display will alternately show oil pressure and “LO”.

Step 6. Check if water pump engine oil pressure is displayed in water pump engine gauge panel, or if displayed below 10 psi (69 kPa) without CHECK PUMP ENGINE alarm sounding and CHECK PUMP ENGINE light illuminating (WP 0004).

If water pump engine oil pressure is not displayed, or is displayed below 10 psi (69 kPa) without CHECK PUMP ENGINE alarm sounding and CHECK PUMP ENGINE light illuminating, replace water pump engine gauge panel (WP 0340).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Check pump engine alarm will sound and CHECK PUMP ENGINE light will illuminate if coolant temperature goes above 250°F (121°C). When coolant temperature is high, the display will alternately show coolant temperature and “HI”.

Step 7. Check if water pump engine coolant temperature is displayed in water pump engine gauge panel, or if displayed above 250°F (121°C) without CHECK PUMP ENGINE alarm sounding and CHECK PUMP ENGINE light illuminating (WP 0004).

If water pump engine coolant temperature is not displayed, or is displayed above 250°F (121°C) without CHECK PUMP ENGINE alarm sounding and CHECK PUMP ENGINE light illuminating, replace water pump engine gauge panel (WP 0340).

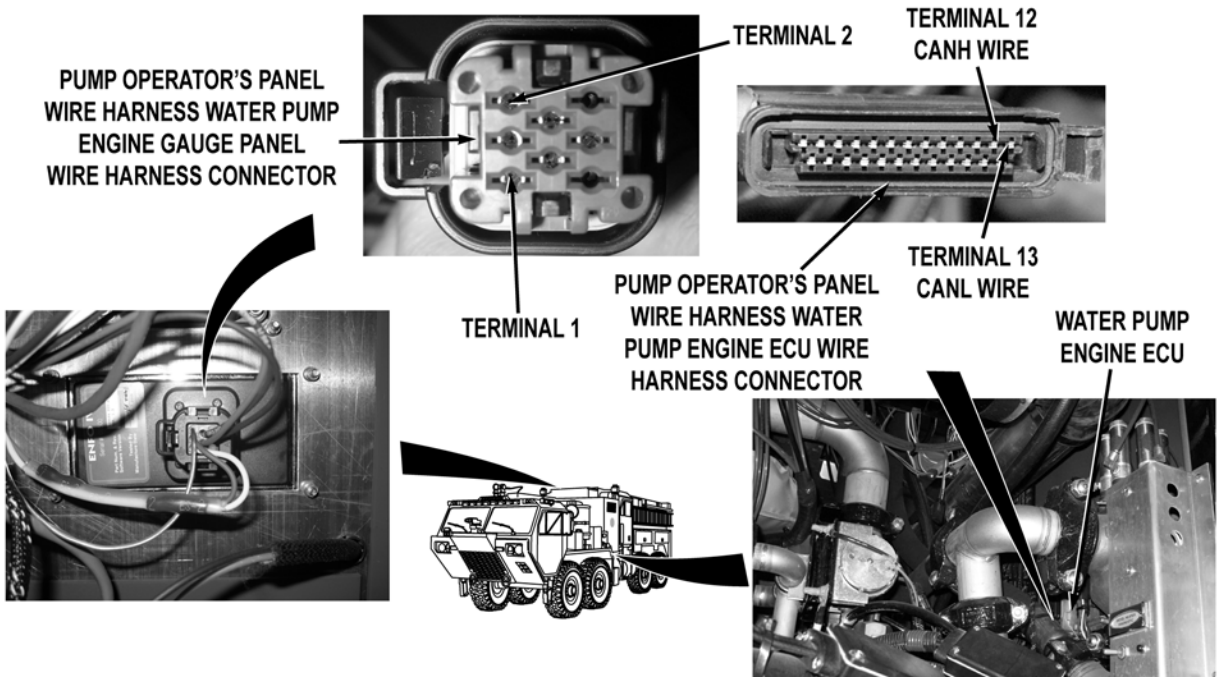
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 8. Operate pump operator's panel pressure governor (WP 0024). Check if water pump engine RPM reading is displayed or RPM changes when pump operator's panel pressure governor is operated (WP 0004).

a. If water pump reading is displayed or RPM changes when pump operator's panel pressure governor is operated, fault corrected.

b. If water pump reading is not displayed or RPM does not change when pump operator's panel pressure is operated, replace water pump engine gauge panel (WP 0340).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. Shut off water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Open pump house panel A (WP 0539). Disconnect pump operator's panel wire harness water pump engine ECU wire harness connector. With a test lead set, check for 60 ohms from water pump ECU wire harness connector, terminal 12 to terminal 13.

If 60 ohms are not present, replace pump operator panel wire harness (WP 0459).

Step 10. Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel wire harness water pump engine gauge panel wire harness connector. With a test lead set, check for 60 ohms from water pump engine gauge panel wire harness connector, terminal 1 to terminal 2.

a. If 60 ohms is present, replace water pump engine gauge panel (WP 0340).

b. If 60 ohms is not present, replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

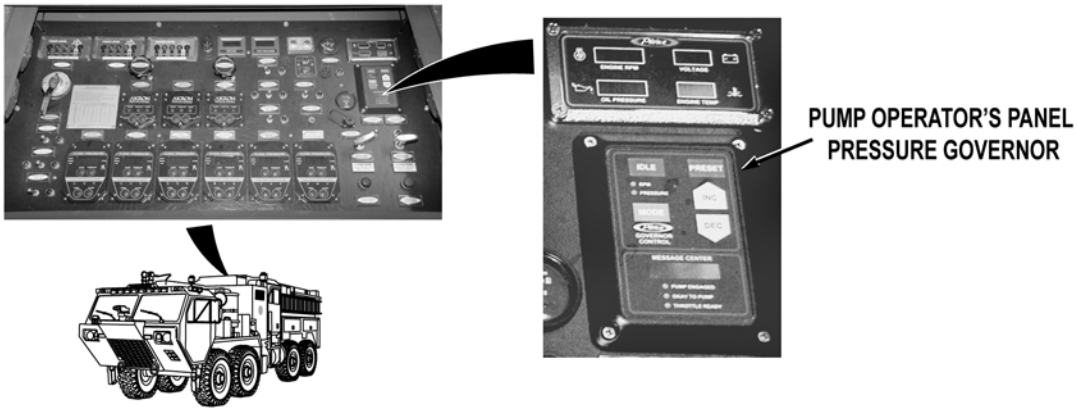
Step 11. Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel wire harness water pump engine gauge panel wire harness connector. Open pump house panel A (WP 0539). Disconnect pump operator's panel wire harness water pump engine ECU wire harness connector. With a test lead set, check for continuity across CANH wire from water pump engine gauge panel connector, terminal 1 to water pump engine ECU connector, terminal 12.

If continuity is not present, repair CANH wire in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

Step 12. With a test lead set, check for continuity across CANL wire from water pump engine gauge panel connector terminal 2, to water pump engine ECU connector, terminal 13.

a. If continuity is present, replace water pump gauge panel (WP 0340).

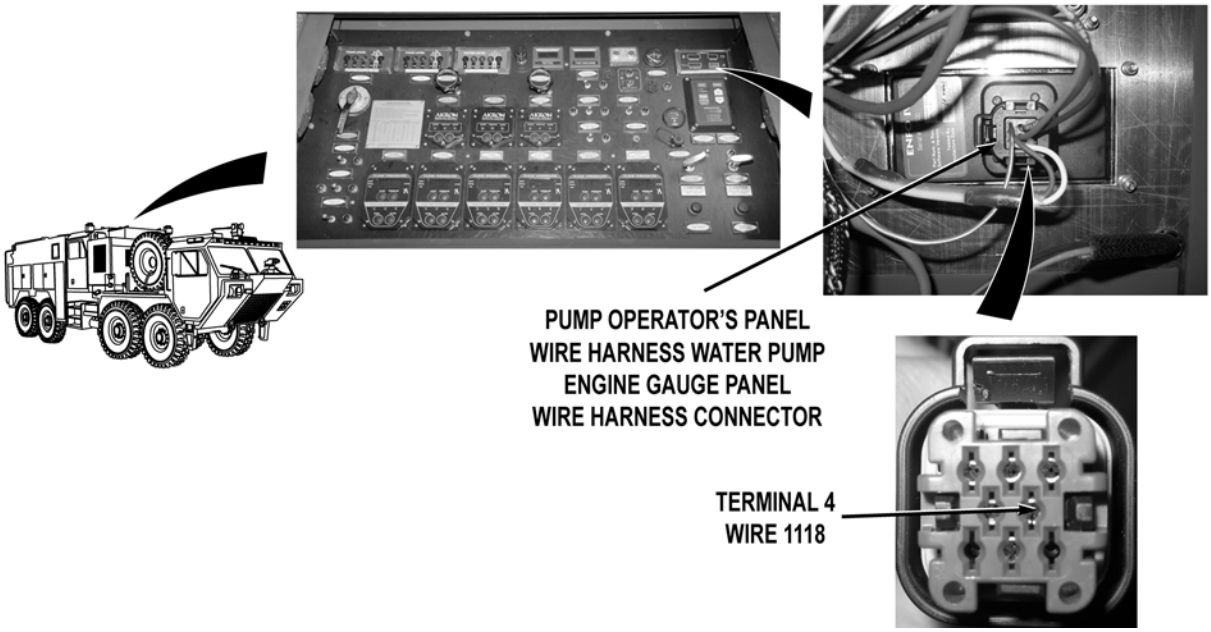
b. If continuity is not present, repair CANL wire in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).



Step 13. Check if pump operator's panel pressure governor illuminates.

If pump operator's panel pressure governor does not illuminate, troubleshoot Water Pump Engine Pressure Governor Control Panel Does Not Operate Properly (WP 0146).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



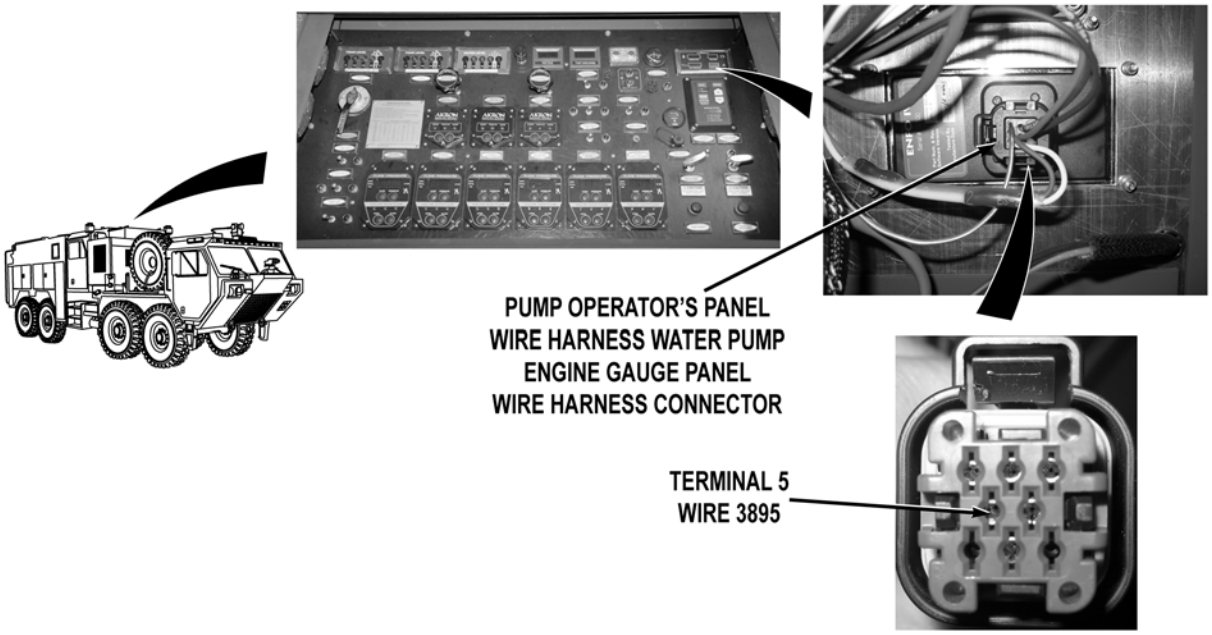
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 14. Turn water pump engine off (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect pump operator's panel wire harness water pump engine gauge panel wire harness connector. Start water pump engine (WP 0022). With a test lead set, check for 22 to 28 VDC at water pump engine gauge panel connector wire 1118 terminal 4, to a known good ground.

If 22 to 28 VDC is not present, repair wire 1118 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 15. Turn water pump engine off (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity at pump operator's panel wire harness water pump engine gauge panel wire harness connector wire 3895 terminal 5, to a known good ground.

a. If continuity is present, replace water pump gauge panel (WP 0340).

b. If continuity is not present, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

SIREN DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0153
WP 0311
WP 0341

References (continued)
WP 0401
WP 0428
WP 0441
WP 0455
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

SIREN DOES NOT OPERATE PROPERLY

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to ON position (WP 0004). Put siren control selector switch to WAIL, YELP, and HI-LO, one position at a time (WP 0004). Check if siren operates.

If siren operates in at least one mode, but not all positions, replace siren control (WP 0341).

NOTE

Integrated siren control amplifier will produce a faint audible signal which can be heard at siren control if siren speaker or wiring leading to speaker fails.

Step 2. Put siren control selector switch to WAIL, YELP, and HI-LO (WP 0004). Check if siren output can be heard at siren control.

If siren is heard faintly at siren control, go to Step 11.

Step 3. Check if siren speaker operates, but with distortion.

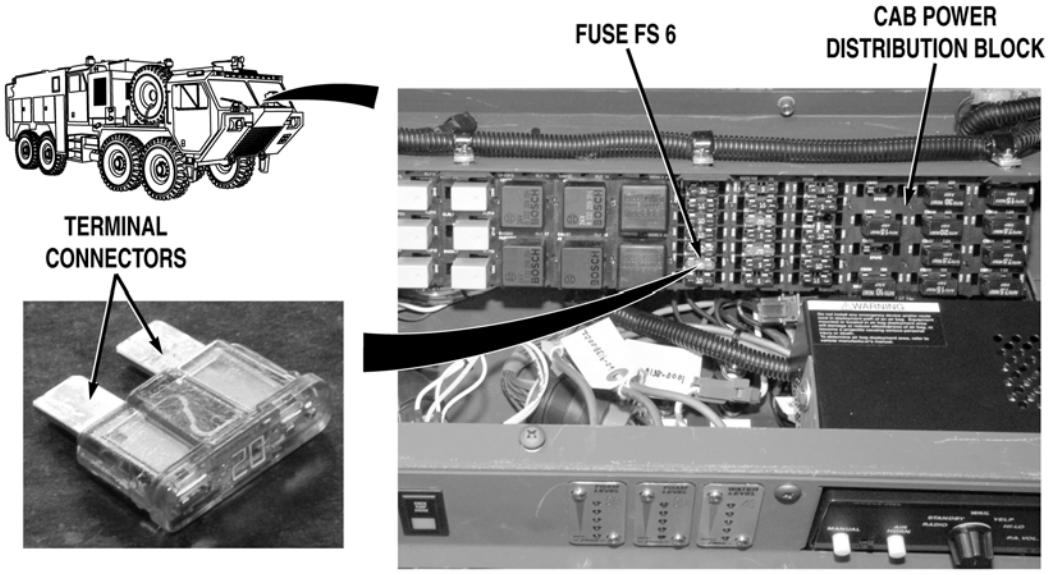
If siren operates with distortion, cut main wire harness wires 1052 (brown), and 1053 (yellow) at siren speaker connector and swap wire connection, if distortion persists, replace siren speaker (WP 0428).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 4. Put OVERHEAD WARNING and UPPER REAR WARNING switches to on position (WP 0004). Check if overhead warning beacon and upper rear warning lights operate.

If overhead warning beacon and upper rear warning lights do not operate, troubleshoot Warning Lights (Overhead Beacon) Do Not Operate (WP 0153).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



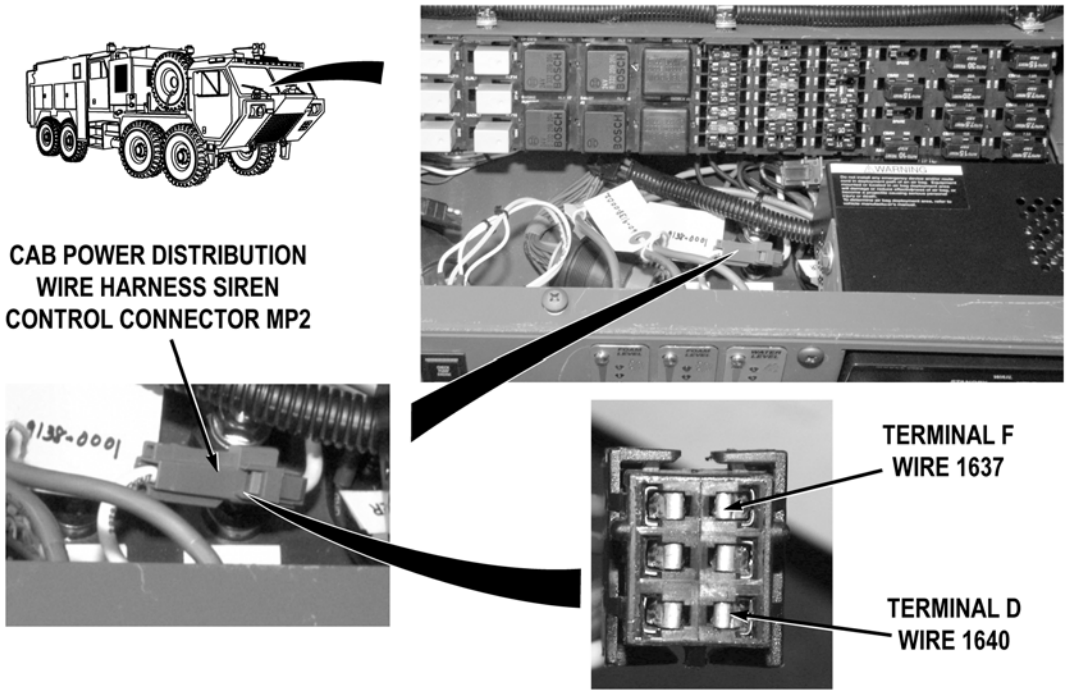
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Put OVERHEAD WARNING and UPPER REAR WARNING switches to off position (WP 0004). Put EMERG MASTER switch to off position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 6 (WP 0401). Check for continuity across fuse.

If there is no continuity, replace fuse FS 6 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



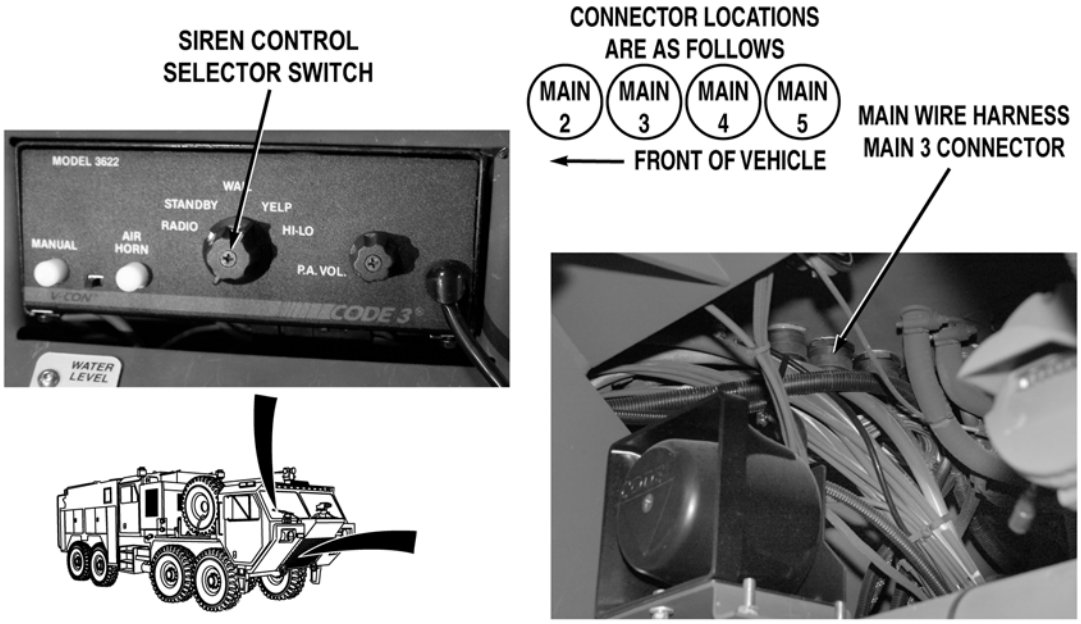
Step 6. Install fuse FS 6 (WP 0401). Disconnect cab power distribution wire harness siren control connector MP2. Turn battery disconnect switch to ON position (WP 0007). Put EMERG MASTER switch to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between wire 1637 (red) at cab power distribution wire harness siren control connector MP2, terminal F and a known good ground.

If 22 to 28 VDC are not present, repair wire 1637 in cab power distribution harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

Step 7. Turn battery disconnect switch to OFF position (WP 0007). Put EMERG MASTER switch to off position (WP 0004). With a test lead set, check for continuity across cab power distribution wire harness wire 1640 (black) from cab power distribution wire harness siren control connector MP2, terminal D to a known good ground.

If there is no continuity, repair wire 1640 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



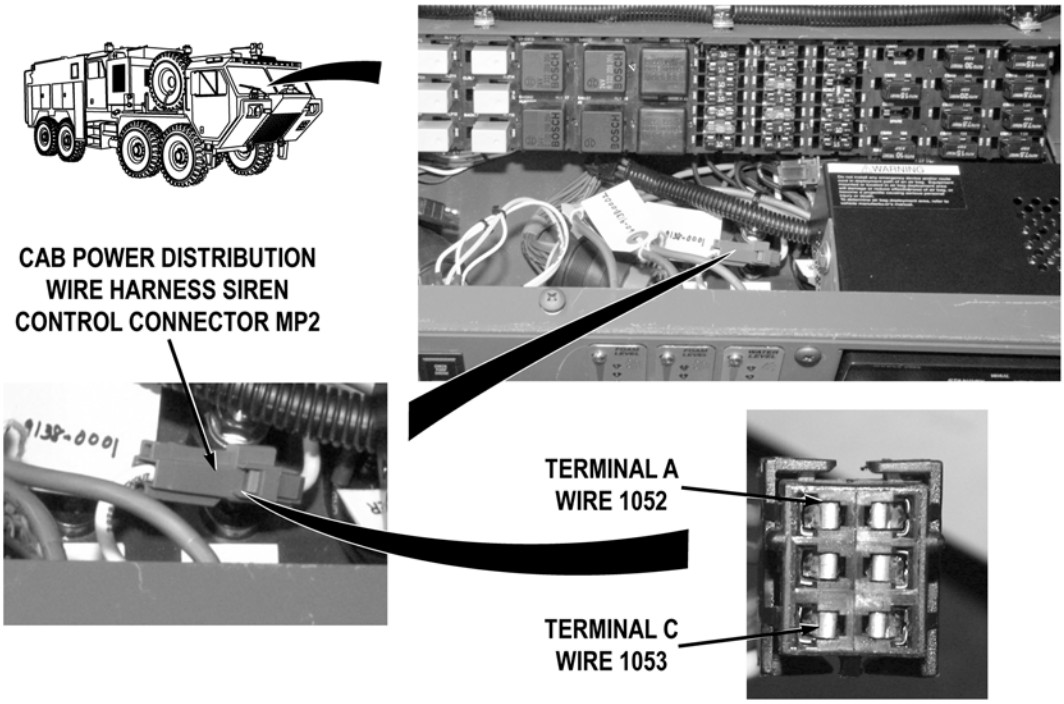
NOTE

Integrated siren control amplifier will produce a faint audible signal which can be heard at siren control even if siren speaker or wiring leading to siren speaker fails.

Step 8. Reconnect cab power distribution wire harness siren control connector MP2. Remove skid plate grille (WP 0550). Disconnect main wire harness main 3 connector. Turn battery disconnect switch to ON position (WP 0007). Put EMERG MASTER switch to on position (WP 0004). Put siren control selector switch to WAIL, YELP, and HI-LO, one position at a time (WP 0004). Check if siren can be heard at siren control.

If siren can be heard at siren control, go to Step 15.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

A short to ground in system may exist. Steps 9 and 10 will verify if wires 1052 (brown) or 1053 (yellow) in cab power distribution wire harness are shorted to ground or if short exist in siren control.

Step 9. Turn battery disconnect switch to OFF position (WP 0007). Put EMERG MASTER switch to off position (WP 0004). Disconnect cab power distribution wire harness siren control connector MP2. With a test lead set, check for continuity (short to ground) across cab power distribution wire harness wire 1052 (brown) from cab power distribution wire harness siren control connector MP2, terminal A to a known good ground.

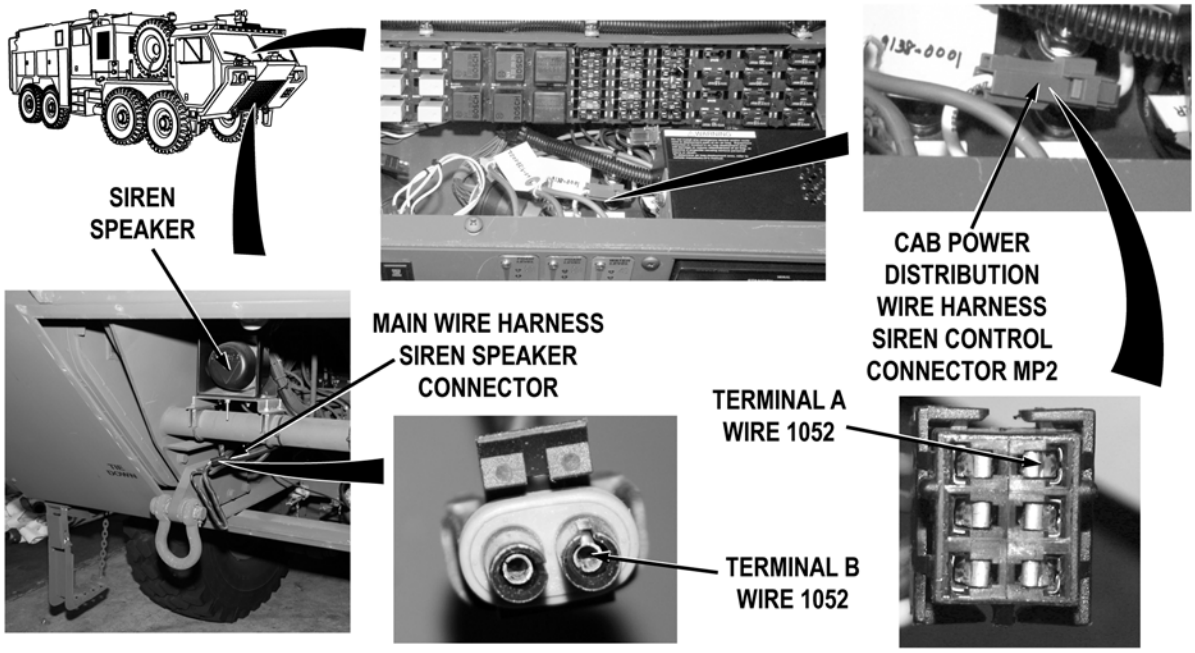
If there is continuity, repair wire 1052 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

Step 10. With a test lead set, check for continuity (short to ground) across cab power distribution wire harness wire 1053 (yellow) from cab power distribution wire harness siren control connector MP2, terminal C to a known good ground.

a. If there is continuity, repair wire 1053 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, replace siren control (WP 0341).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



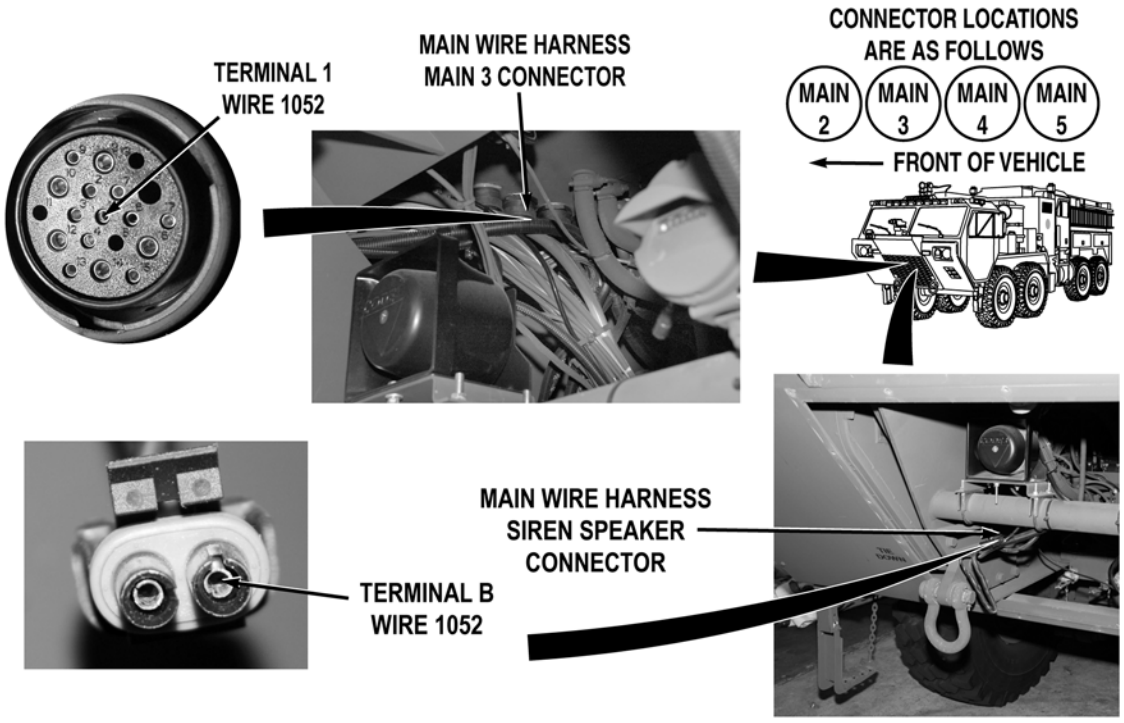
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 11. Turn battery disconnect switch to OFF position (WP 0007). Put EMERG MASTER switch to off position (WP 0004). Remove skid plate grille (WP 0550). Disconnect main wire harness siren speaker connector. Remove personnel cab instrument panel A (WP 0311). Disconnect cab power distribution wire harness siren control connector MP2. With a test lead set, check for continuity across wire 1052 (brown) from main wire harness siren speaker connector, terminal B to cab power distribution wire harness siren control connector MP2, terminal A.

If there is continuity, go to Step 13.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

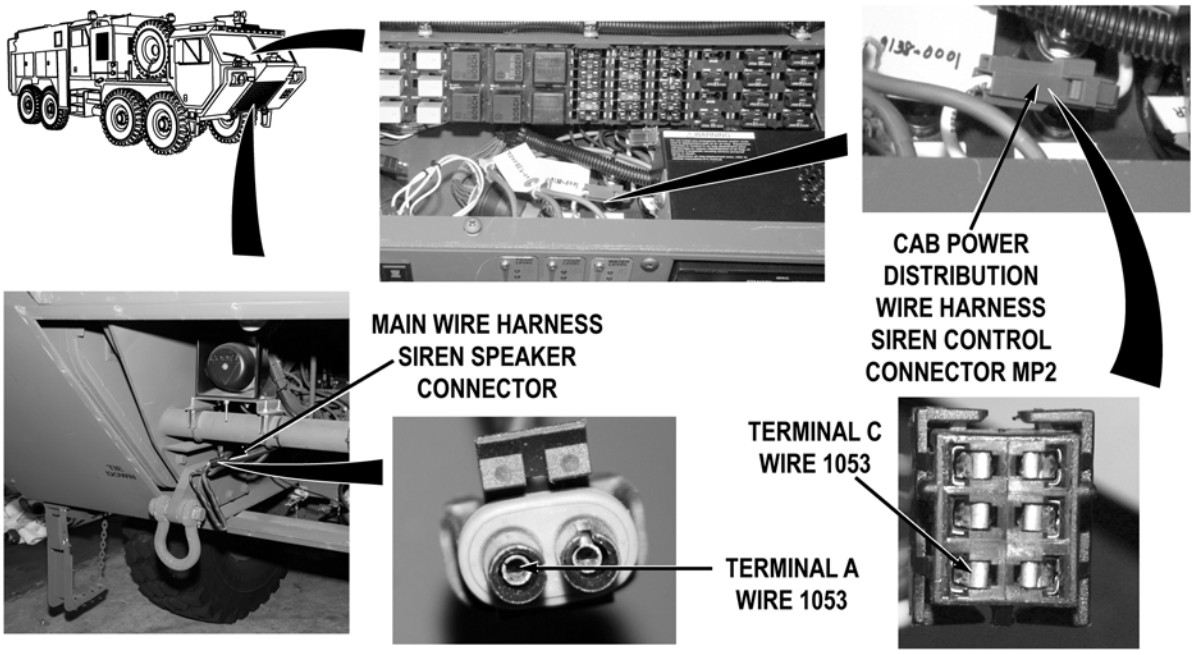


Step 12. Disconnect main wire harness main 3 connector. With a test lead set, check for continuity across wire 1052 (brown) from main wire harness main 3 connector, terminal 1 to main wire harness siren speaker connector, terminal B.

a. If there is continuity, repair wire 1052 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1052 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



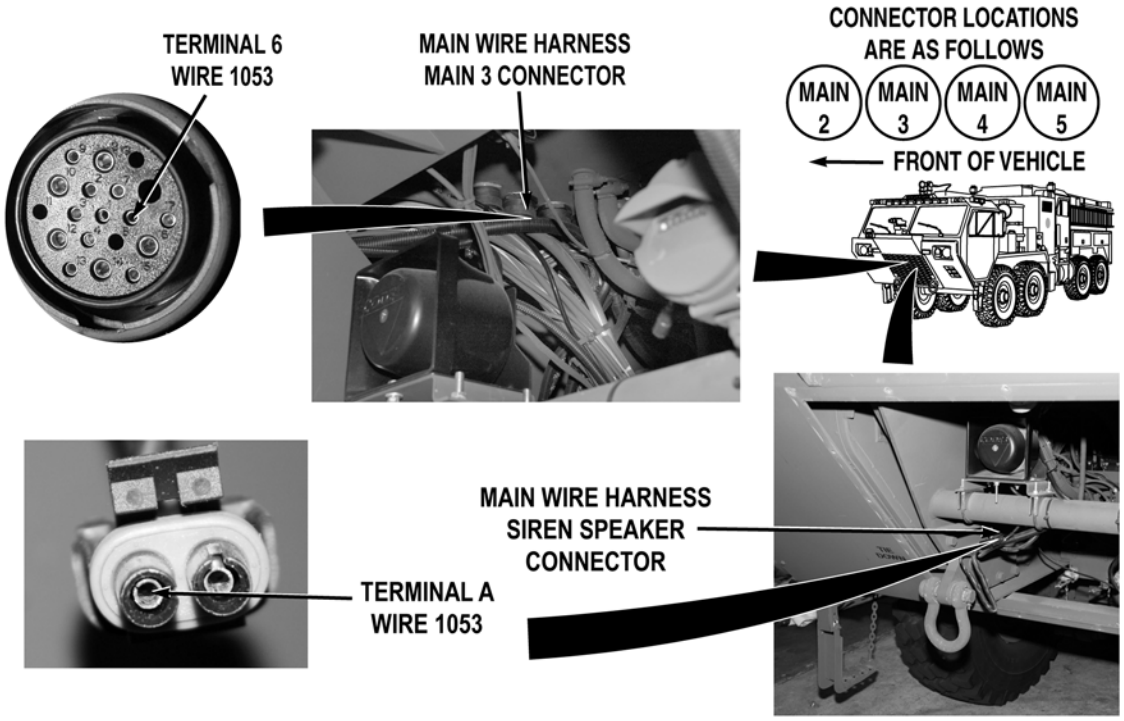
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 13. With a test lead set, check for continuity across wire 1053 (yellow) from main wire harness siren speaker connector, terminal A to cab power distribution wire harness siren control connector MP2, terminal C.

If there is continuity, replace siren speaker (WP 0428).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

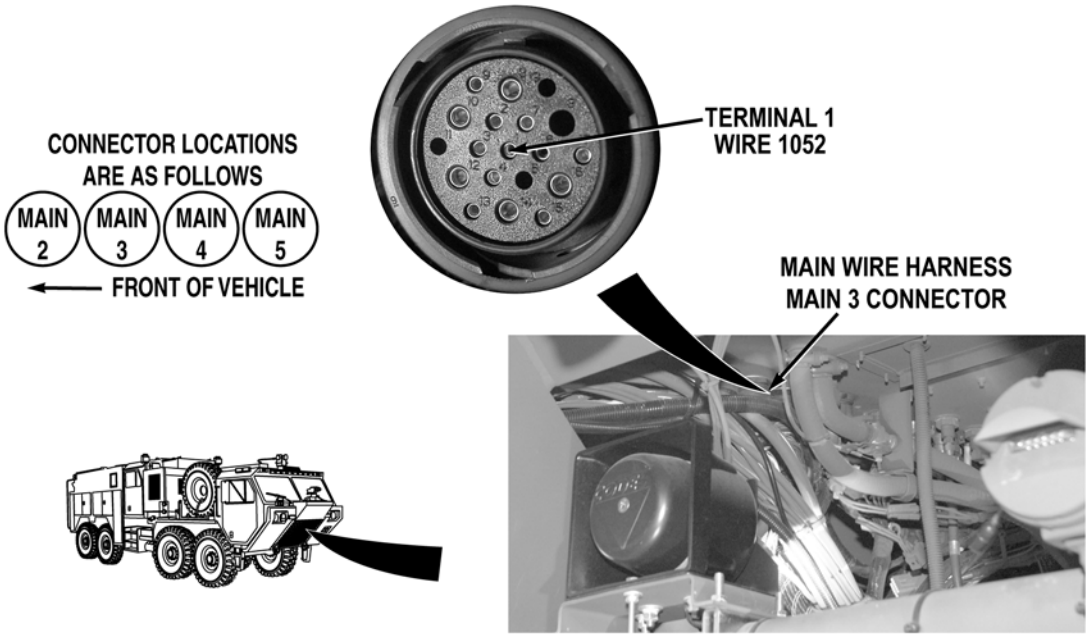


Step 14. Disconnect main wire harness main 3 connector. With a test lead set, check for continuity across wire 1053 (yellow), from main wire harness main 3 connector, terminal 6 to main wire harness siren speaker connector, terminal A.

a. If there is continuity, repair wire 1053 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1053 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

A short to ground in system may exist. Steps 15 and 16 will verify if wire 1052 (brown) and 1053 (yellow) in cab power distribution wire harness are shorted to ground or if short exist in siren control.

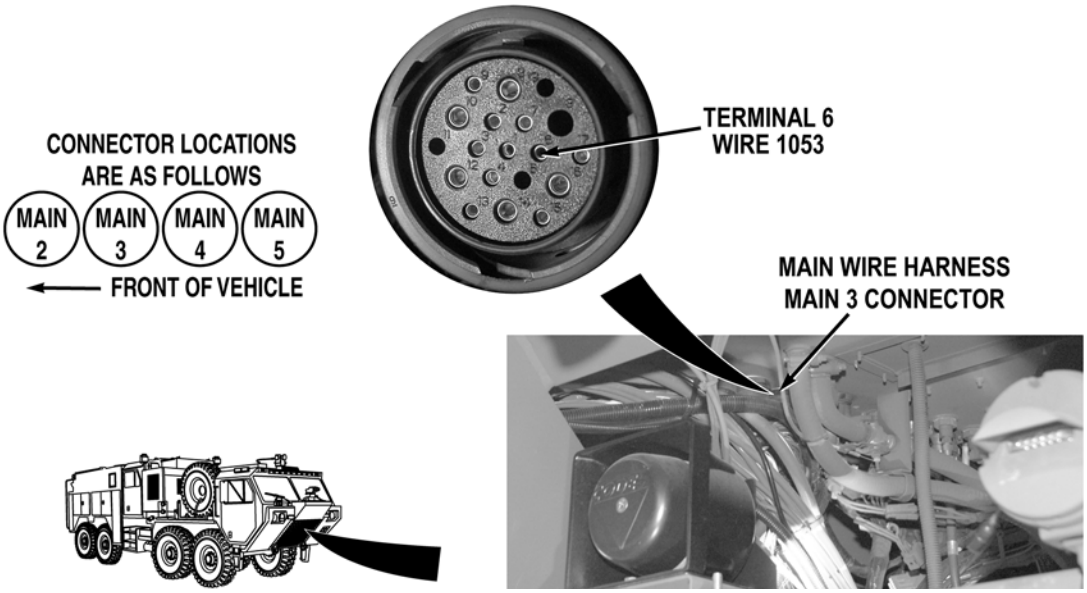
Step 15. Turn battery disconnect switch to OFF position (WP 0007). Put EMERG MASTER switch to OFF position (WP 0007). With a test lead set, check for continuity (short to ground) across main wire harness wire 1052 (brown) from main wire harness main 3 connector, terminal 1 to a known good ground.

If there is continuity, repair wire 1052 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 16. With a test lead set, check for continuity (short to ground) across main wire harness wire 1053 (yellow) from main wire harness main 3 connector, terminal 6 to a known good ground.

a. If there is continuity, repair wire 1053 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness (WP 0441).

b. If there is continuity, replace siren control (WP 0341).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WARNING LIGHTS (ALL) DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

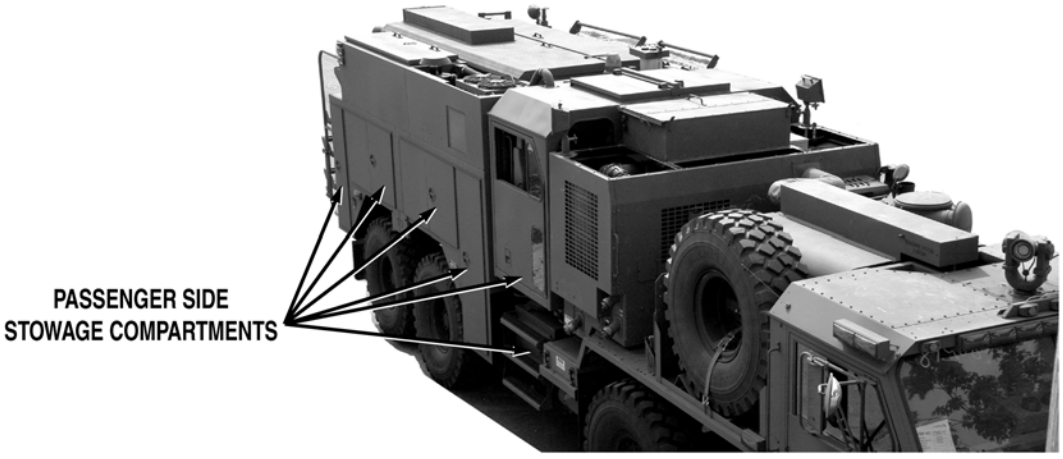
References
TM 9-2320-325-14&P
WP 0007
WP 0010
WP 0174
WP 0177
WP 0311

References (continued)
WP 0315
WP 0401
WP 0402
WP 0440
WP 0441

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

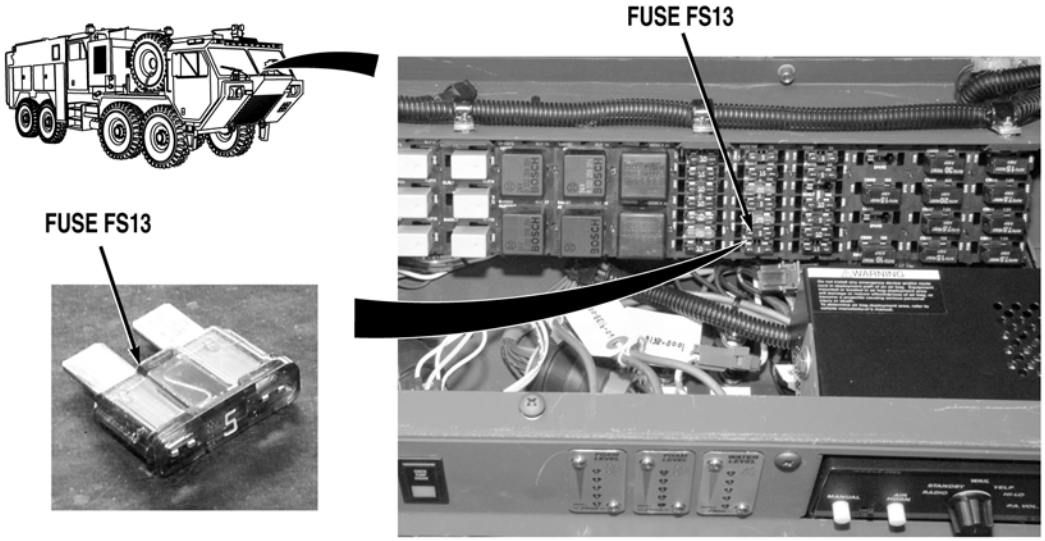
WARNING LIGHTS (ALL) DO NOT OPERATE



Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Open any passenger side compartment door (WP 0010). Check if compartment light operates.

If compartment light does not operate, troubleshoot Passenger Side and Rear Stowage Compartment Light(s) Do Not Operate (WP 0174).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



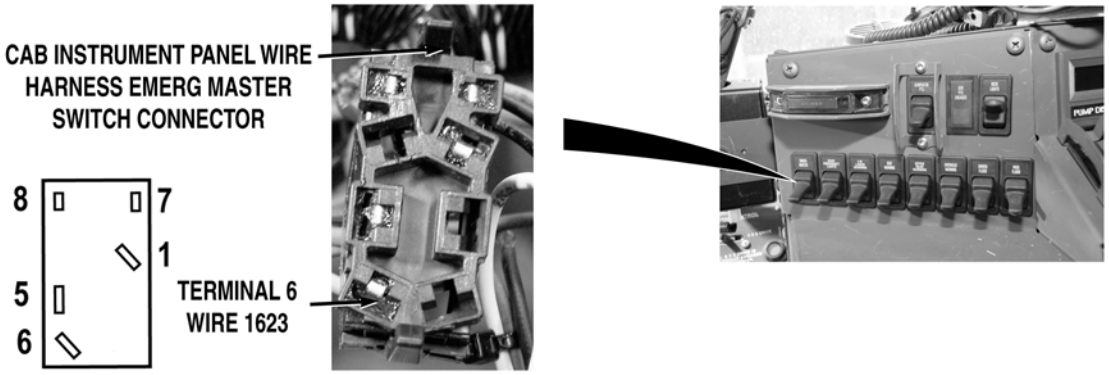
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Close compartment door (WP 0010). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 13 (WP 0401). Check for continuity across fuse FS 13.

If there is no continuity, replace fuse FS 13 (WP 0401).

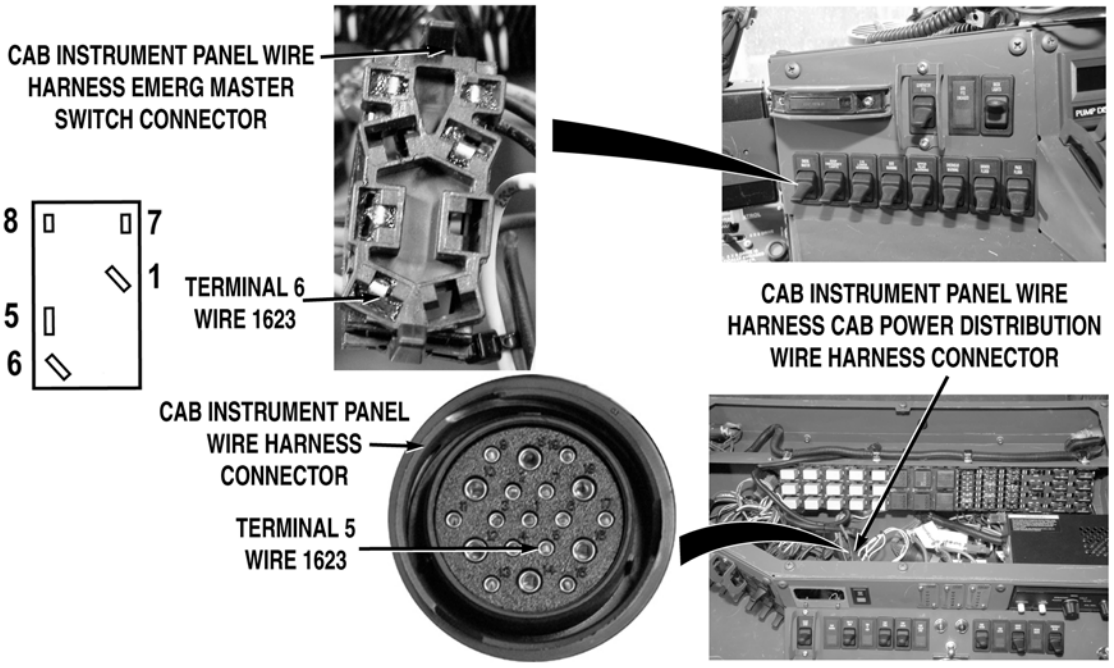
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Install fuse FS 13 (WP 0401). Remove cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness EMERG MASTER switch connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1623 (yellow) at EMERG MASTER switch connector, terminal 6 and a known good ground.

If 22 to 28 VDC are present, go to Step 5.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

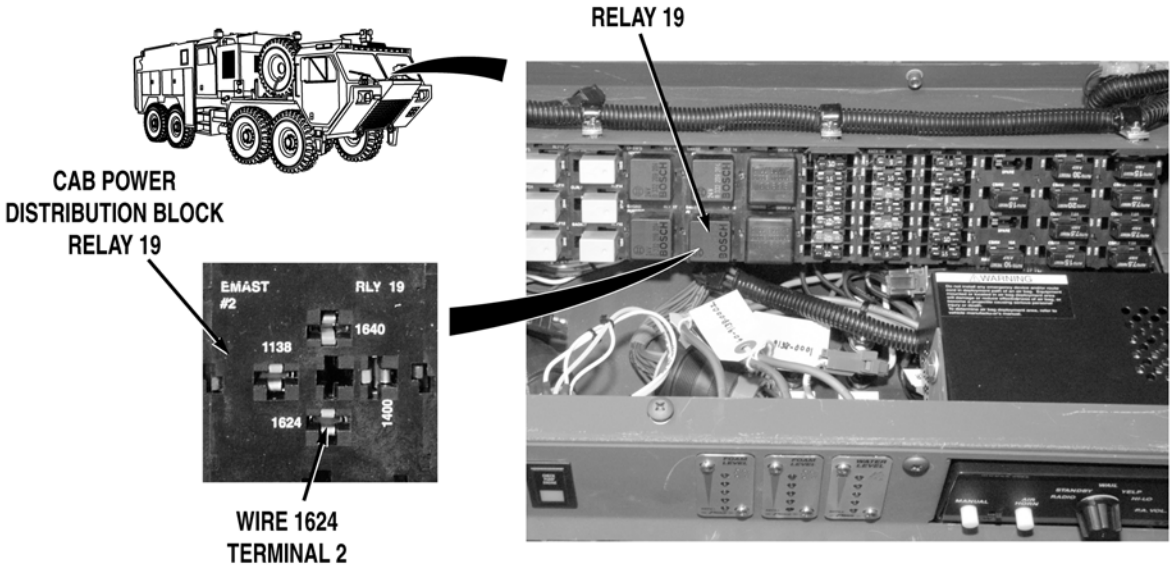


Step 4. Turn battery disconnect switch to OFF position (WP 0007). Turn Service Drive Lights Off (TM 9-2320-347-10). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1623 (yellow) from cab instrument panel wire harness EMERG MASTER switch connector, terminal 6 to cab instrument panel wire harness cab power distribution wire harness connector, terminal 5.

a. If there is continuity, repair wire 1623 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1623 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

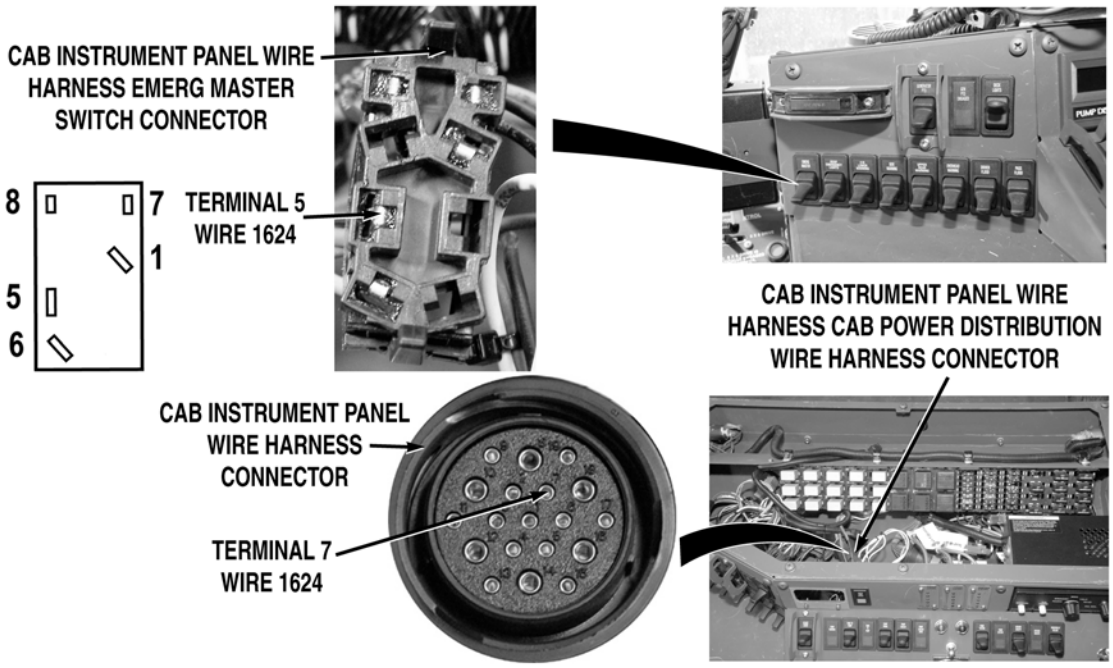
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Turn battery disconnect switch to OFF position (WP 0007). Turn Service Drive Lights Off (TM 9-2320-347-10). Remove relay 19 from cab power distribution block (WP 0402). Check for continuity across cab instrument panel wire harness wire 1624 (yellow) from cab power distribution block relay 19, terminal 2 to cab instrument panel wire harness EMERG MASTER switch connector, terminal 5.

If there is continuity, replace EMERG MASTER switch (WP 0315).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1624 (yellow) from cab instrument panel wire harness EMERG MASTER switch connector, terminal 5 to cab instrument panel wire harness connector, terminal 7.

a. If there is continuity, repair wire 1624 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1624 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WARNING LIGHTS (FRONT AND REAR) DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0151
WP 0311
WP 0315
WP 0348
WP 0351

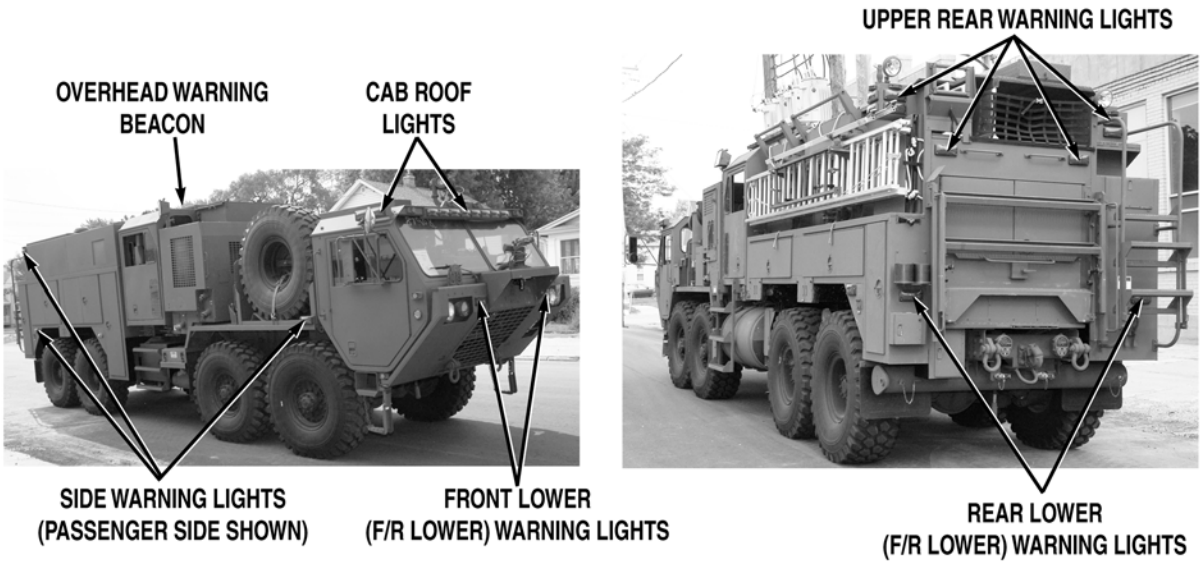
References (continued)
WP 0401
WP 0402
WP 0440
WP 0441
WP 0448
WP 0455
WP 0456
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING LIGHTS (FRONT AND REAR) DO NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and F/R LOWER WARNING switches to on position (WP 0004). Check if at least one front or rear lower warning light operates.

If at least one front or rear lower warning light operates, go to Step 12.

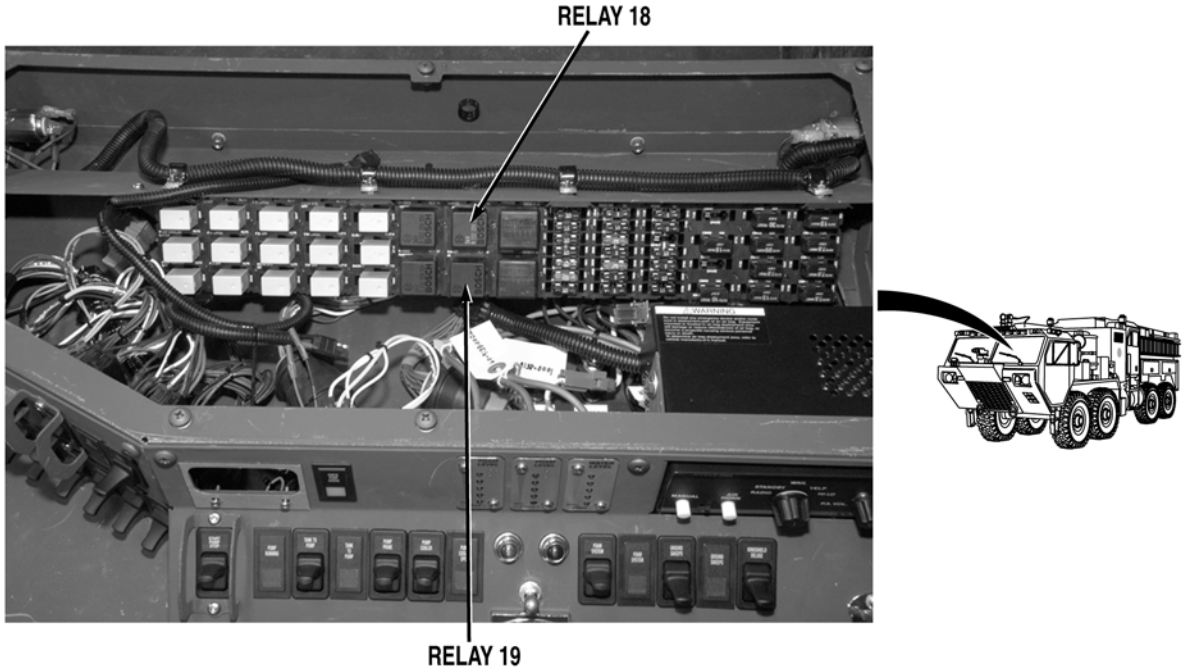
Step 2. Put ROOF EMERGENCY LIGHTS or SIDE WARNING switch to on position (WP 0004). Check if roof or side warning lights operate.

If roof or side warning lights operate, go to Step 5.

Step 3. Put OVERHEAD WARNING or UPPER REAR WARNING switch to on position (WP 0004). Check if overhead warning beacon or upper rear warning lights operate.

If overhead warning beacon and upper rear warning lights do not operate, troubleshoot Warning Lights (All) Do Not Operate (WP 0151).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

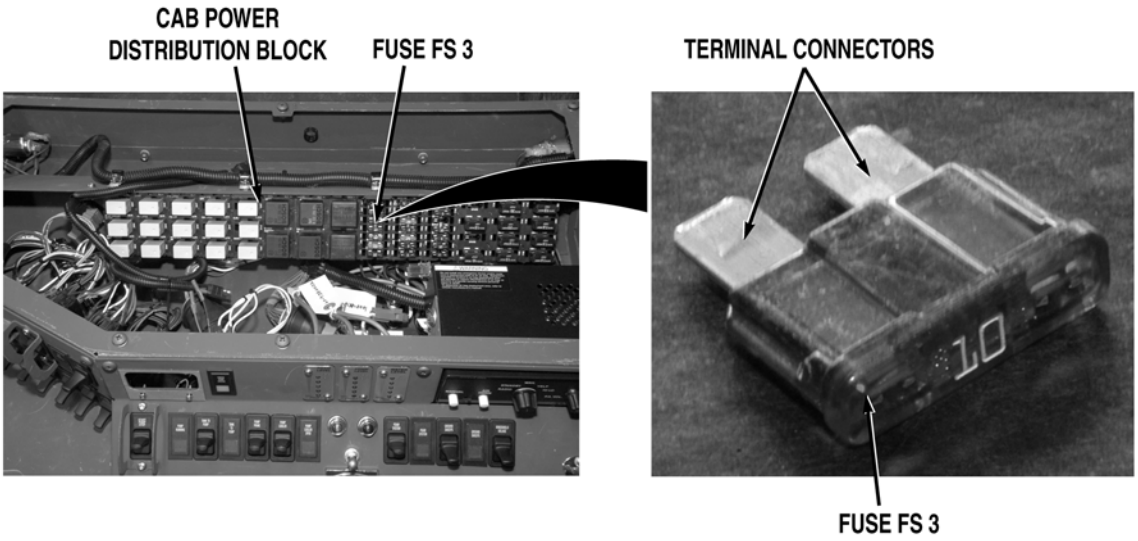
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 4. Put EMERG MASTER, ROOF EMERGENCY LIGHTS, F/R LOWER WARNING, SIDE WARNING, UPPER REAR WARNING and OVERHEAD WARNING switches to off position (WP 0004). Remove cab instrument panel A (WP 0311). Swap relays 18 and 19 (WP 0402). Put EMERG MASTER and F/R LOWER WARNING switches to on position (WP 0004). Check if front and rear lower warning lights operate.

a. If front and rear lower warning lights operate, return relays to original positions and replace relay 18 (WP 0402).

b. If front and rear lower warning lights do not operate, replace cab power distribution wire harness and block (WP 0441).

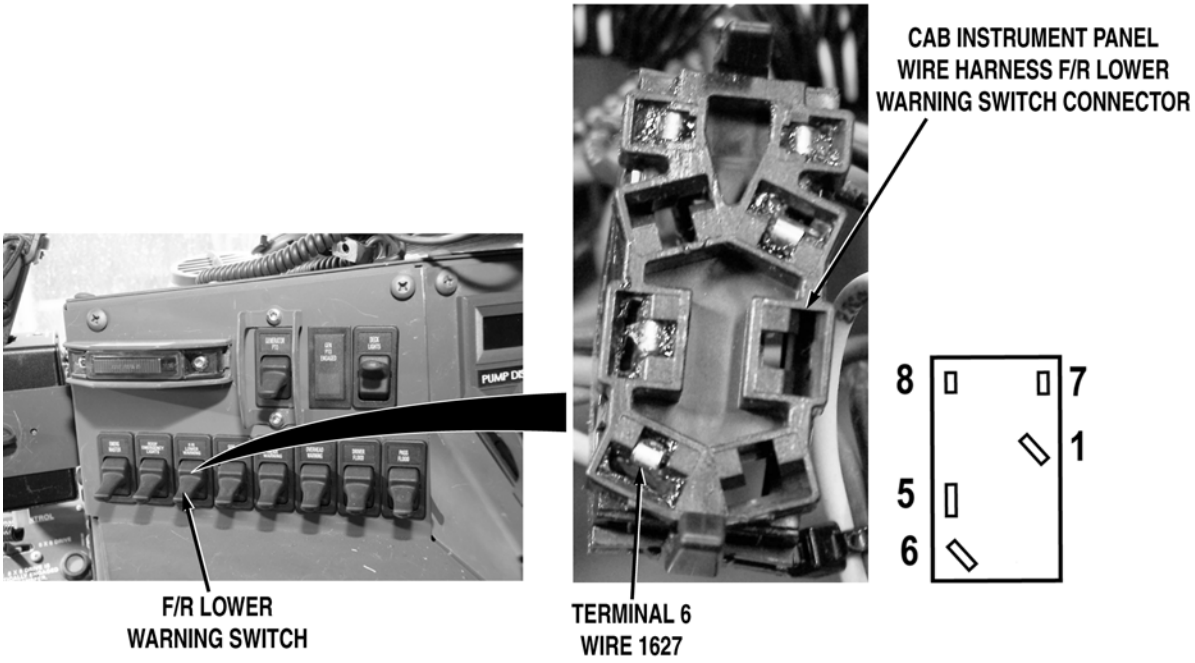
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Put EMERG MASTER, ROOF EMERGENCY LIGHTS, F/R LOWER WARNING, and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 3 (WP 0401). Check for continuity across fuse.

If there is no continuity, replace fuse FS 3 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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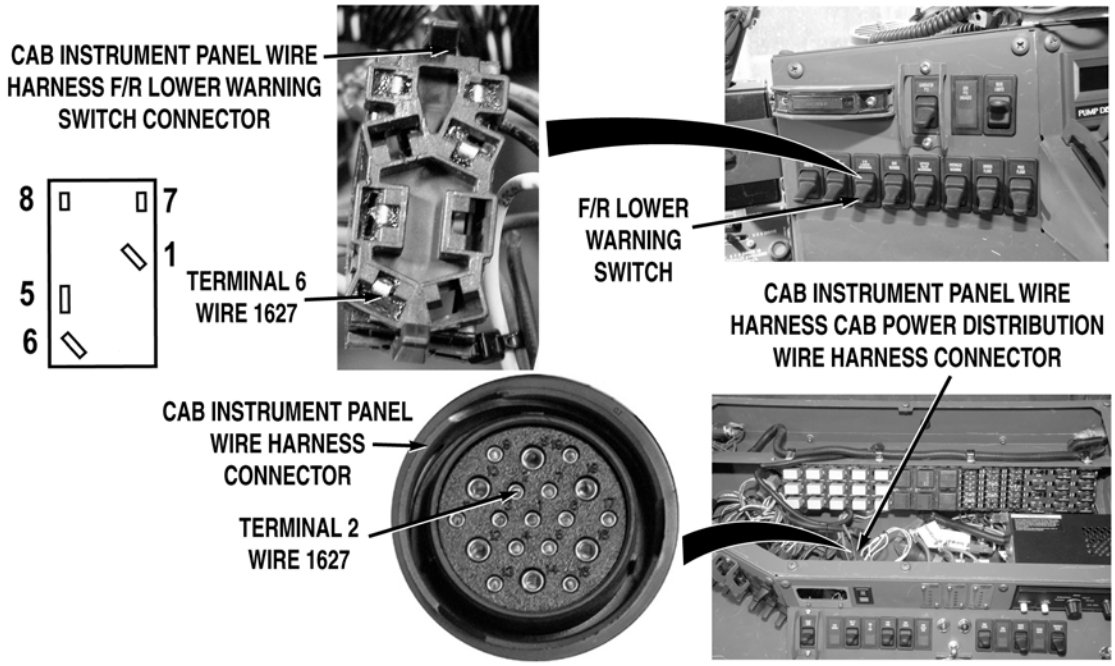
Step 6. Install fuse FS 3 (WP 0401). Remove cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness F/R LOWER WARNING switch connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to on position. (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1627 (blue) at cab instrument panel wire harness F/R LOWER WARNING switch connector, terminal 6 and a known good ground.

If 22 to 28 VDC are present, go to Step 8.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1627 (blue) from cab instrument panel wire harness connector, terminal 2 to F/R LOWER WARNING switch connector, terminal 6.

a. If there is continuity, repair wire 1627 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

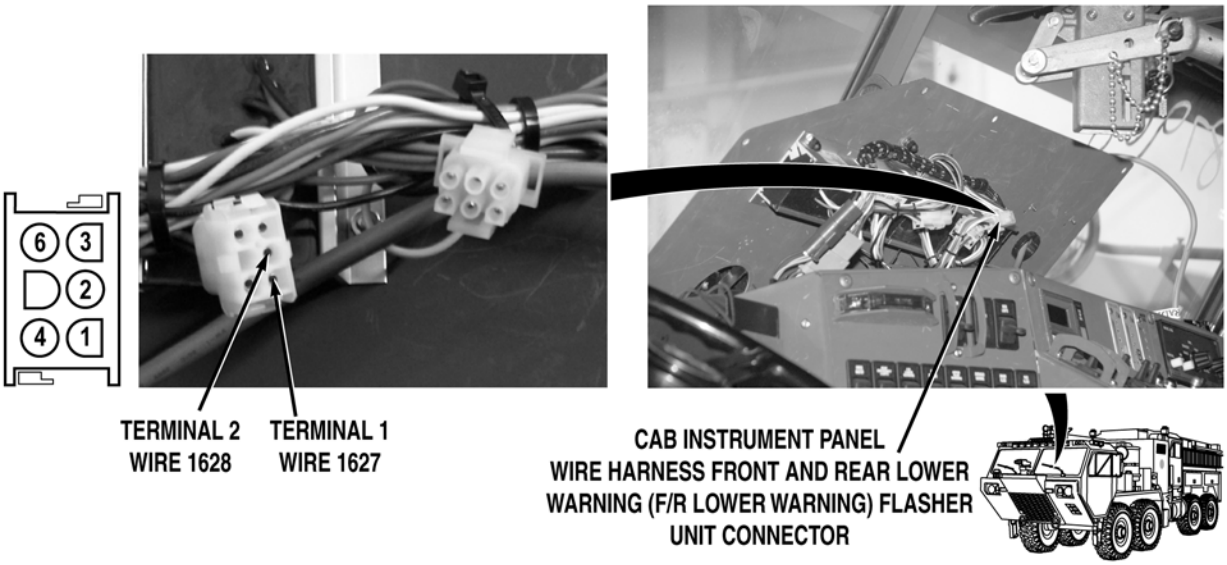
b. If there is no continuity, repair wire 1627 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 8. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across F/R LOWER WARNING switch, from terminal 5 to terminal 6, when switch is in on position.

If there is no continuity, replace F/R LOWER WARNING switch (WP 0315).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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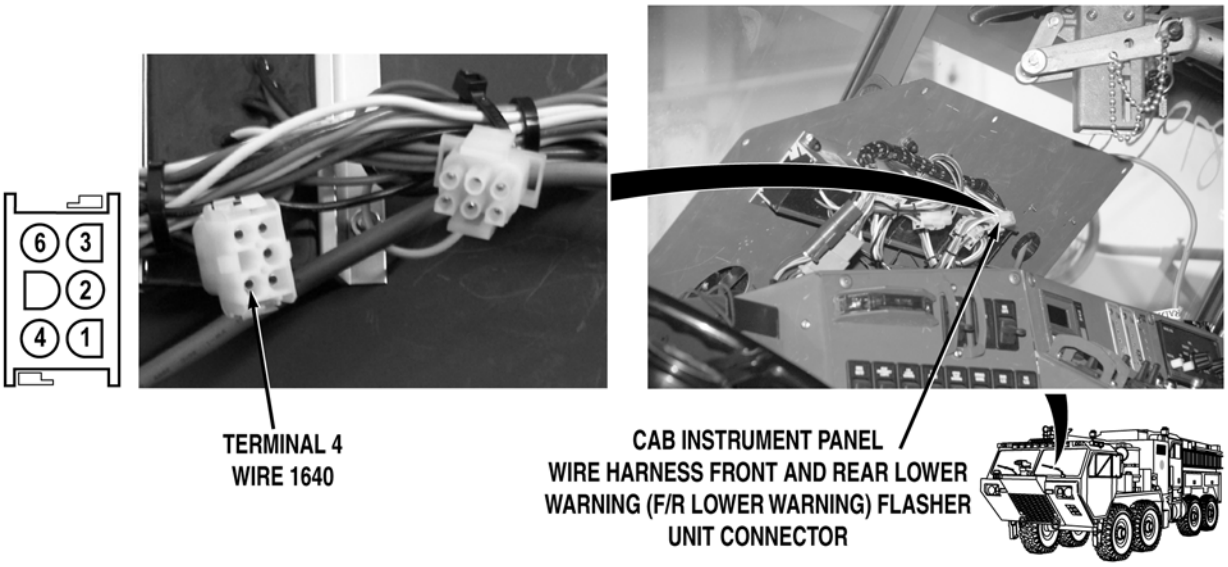
Step 9. Connect cab instrument panel wire harness F/R LOWER WARNING switch connector. Disconnect cab instrument panel wire harness front and rear lower warning light flasher unit connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between cab instrument panel wire harness wire 1627 (blue) at front and rear lower warning light flasher unit connector, terminal 1 and a known good ground.

If 22 to 28 VDC are not present, repair wire 1627 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 10. Put F/R LOWER WARNING switch to on position (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1628 (blue) at front and rear lower warning light flasher unit connector, terminal 2 and a known good ground.

If 22 to 28 VDC are not present, repair wire 1628 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 11. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across wire 1640 (black) from cab instrument panel wire harness front and rear lower warning light flasher unit connector, terminal 4 to a known good ground.

a. If there is continuity, replace front and rear lower warning light flasher unit (WP 0348).

b. If there is no continuity, repair wire 1640 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

FRONT LOWER
(F/R LOWER) WARNING

REAR LOWER
(F/R LOWER) WARNING

Step 12. Check if driver side front and rear lower warning lights operate.

If both driver side front and rear lower warning lights operate, go to Step 24.

Step 13. Check if driver side front or rear lower warning lights operate.

If both driver side front and rear lower warning lights do not operate, go to Step 22.

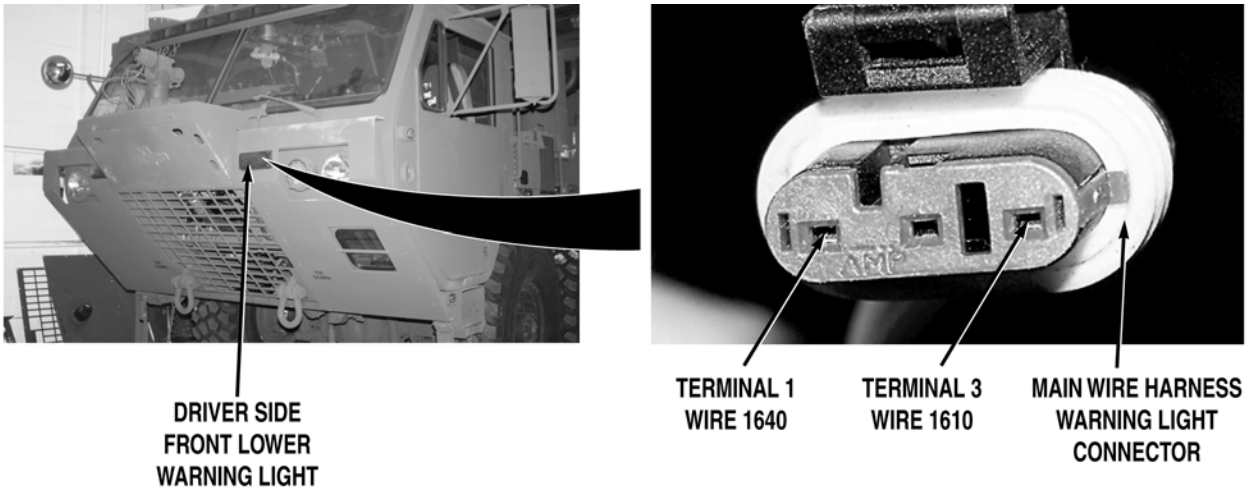
Step 14. Check if driver side front lower warning light operates.

If driver side front lower warning light operates, go to Step 18.

Step 15. Check if passenger side front lower warning light operates.

If passenger side front lower warning light does not operate, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 16. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Remove driver side front lower warning light (WP 0351). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and F/R LOWER WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC across main wire harness wire 1610 (black) from main wire harness warning light connector, terminal 3 to a known good ground.

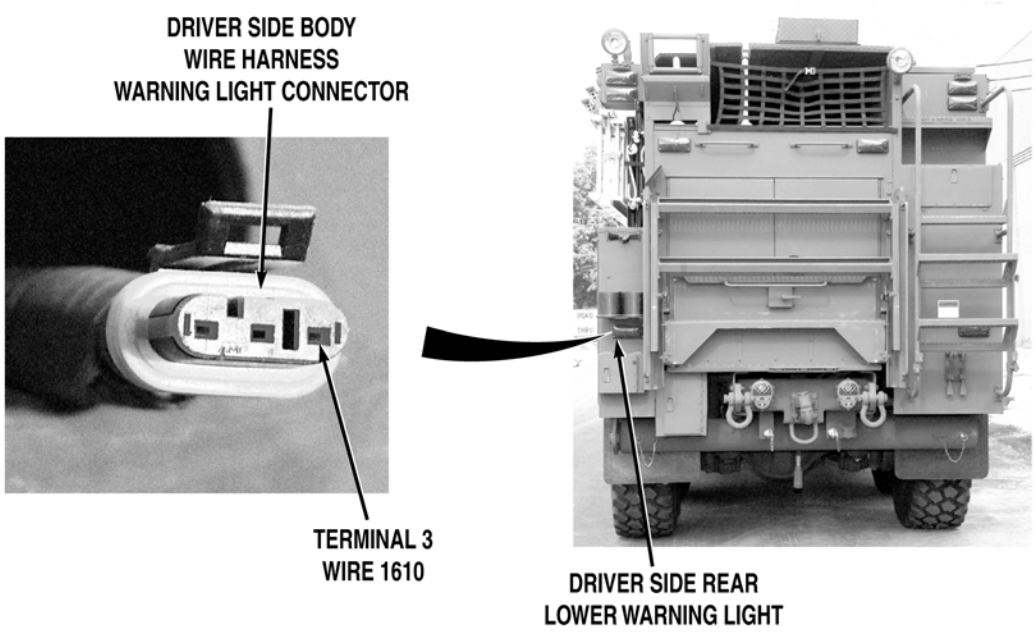
If 22 to 28 VDC are not present, repair wire 1610 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

Step 17. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across main wire harness wire 1640 (black) from main wire harness warning light connector, terminal 1 to a known good ground.

a. If there is continuity, replace driver side front lower warning light (WP 0351).

b. If there is no continuity, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



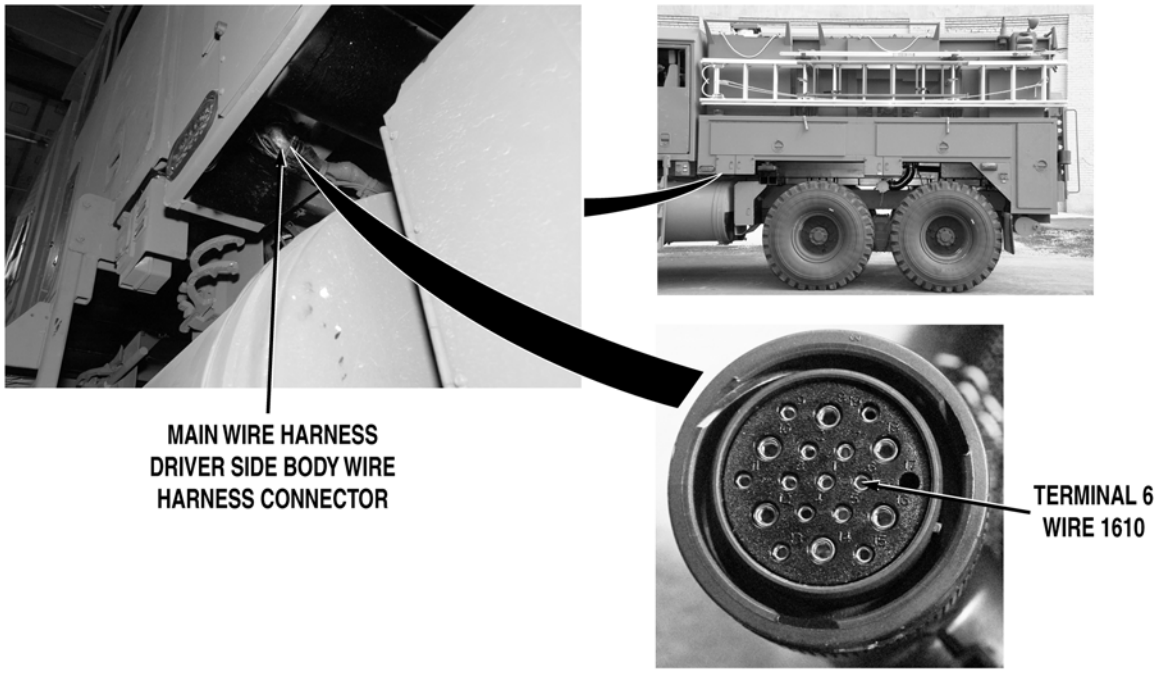
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 18. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Remove driver side rear lower warning light (WP 0351). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and F/R LOWER WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC across wire 1610 (black) from driver side body wire harness warning light connector, terminal 3 to a known good ground.

If 22 to 28 VDC are present, go to Step 20.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

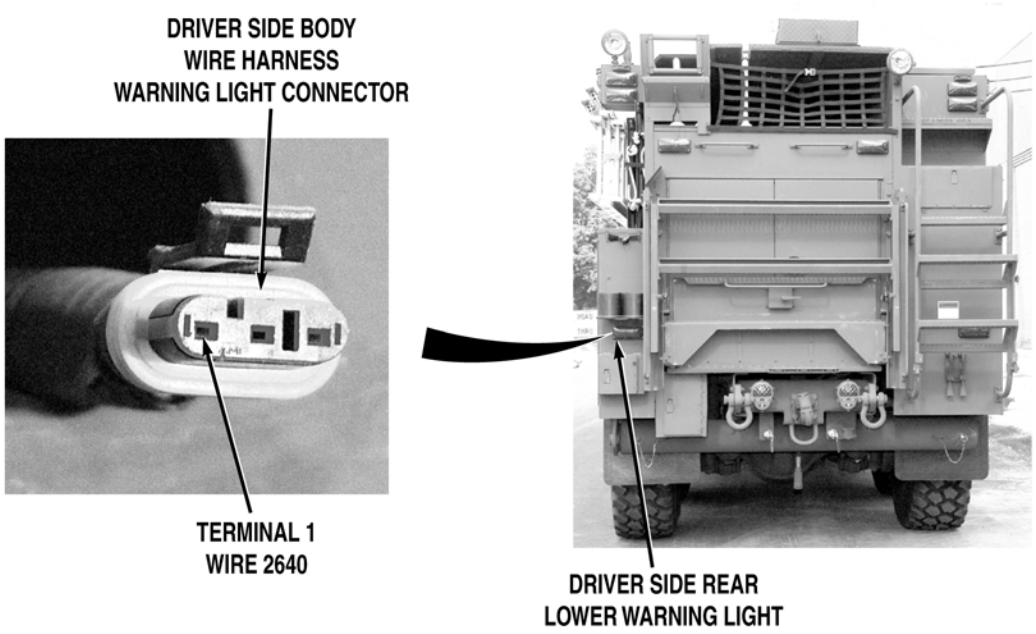


Step 19. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for 22 to 28 VDC across main wire harness wire 1610 (black) from main wire harness driver side body wire harness connector, terminal 6 to a known good ground.

a. If 22 to 28 VDC are present, repair wire 1610 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If 22 to 28 VDC are not present, repair wire 1610 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



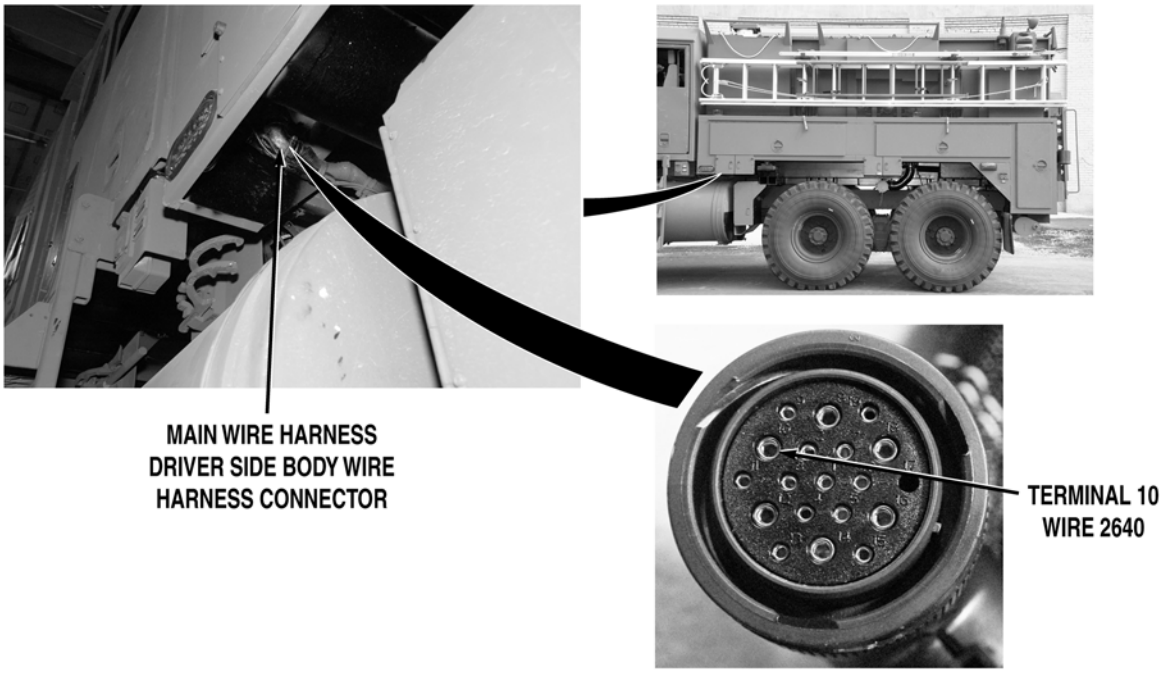
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 20. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across wire 2640 (black) from driver side body wire harness warning light connector, terminal 1 to a known good ground.

If there is continuity, replace driver side rear lower warning light (WP 0351).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

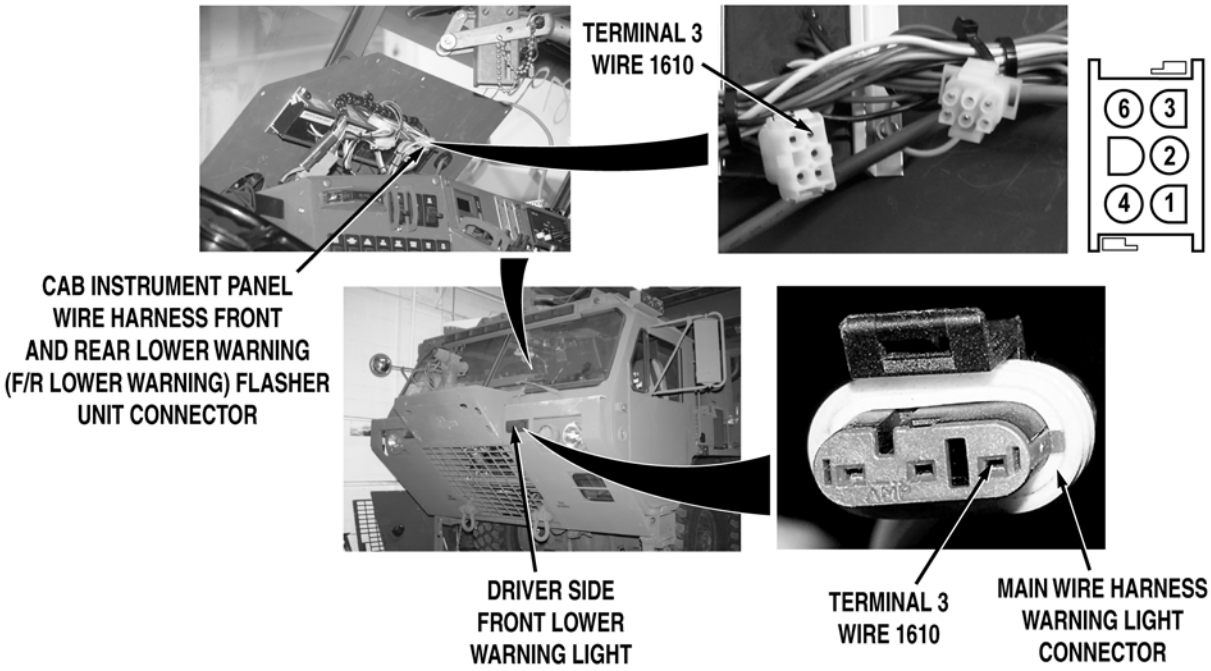


Step 21. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2640 (black) from main wire harness driver side body wire harness connector, terminal 10 to a known good ground.

a. If there is continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



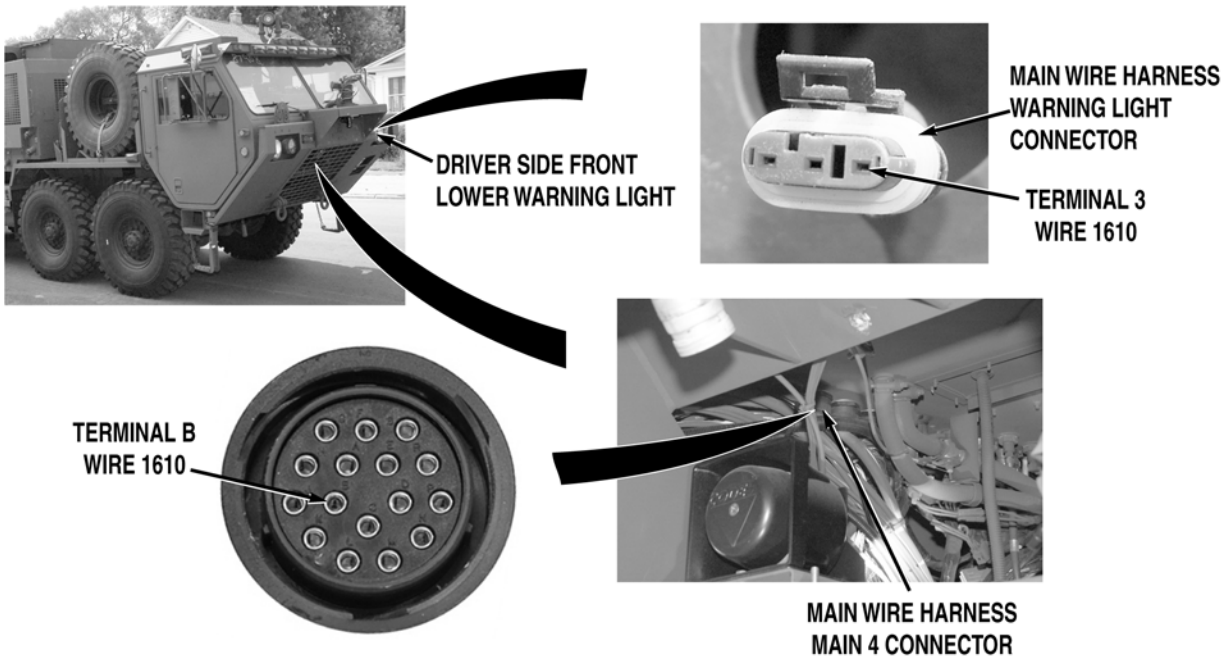
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 22. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove driver side front lower warning light (WP 0351). Remove cab instrument panel A (WP 0311). Disconnect cab instrument panel wire harness front and rear lower warning light flasher unit connector. Check for continuity across wire 1610 (black) from main wire harness warning light connector, terminal 3 to cab instrument panel wire harness front and rear lower warning light flasher unit connector, terminal 3.

If there is continuity, replace front and rear lower warning light flasher unit (WP 0348).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 23. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. Check for continuity across main wire harness wire 1610 (black) from main wire harness warning light connector, terminal 3 to main 4 connector, terminal B.

a. If there is continuity, repair wire 1610 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If there is no continuity, repair wire 1610 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

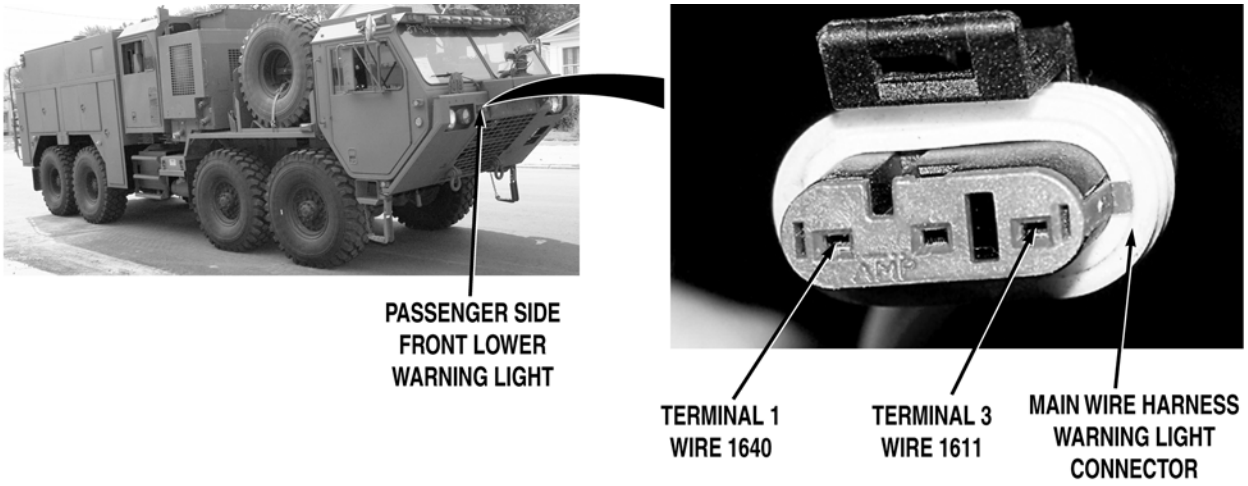
Step 24. Check if passenger side front or rear lower warning light operates.

If both passenger side front and rear lower warning lights do not operate, go to Step 32.

Step 25. Check if passenger side front lower warning light operates.

If passenger side front lower warning light operates, go to Step 28.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 26. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Remove passenger side front lower warning light (WP 0351). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and F/R LOWER WARNING switches to on position (WP 0004). With a test lead set, check for 22-28 VDC across wire 1611 (white) from main wire harness warning light connector, terminal 3 to a known good ground.

If 22 to 28 VDC are not present, repair wire 1611 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

Step 27. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity between main wire harness wire 1640 (black) from main wire harness warning light connector, terminal 1 to a known good ground.

a. If there is continuity, replace passenger side front lower warning light (WP 0351).

b. If there is no continuity, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

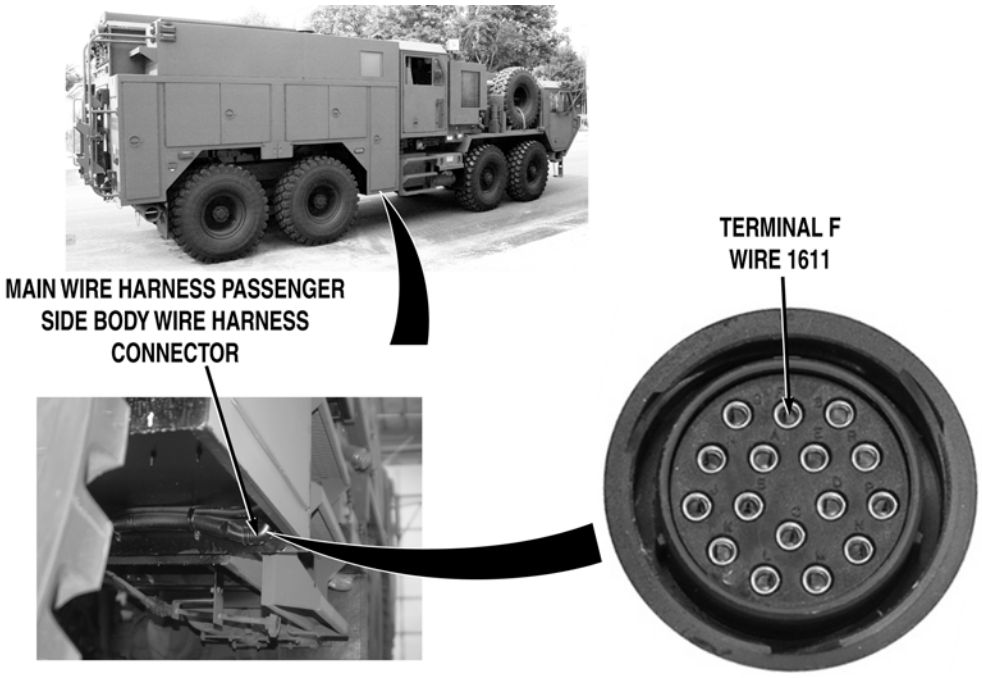
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 28. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Remove passenger side rear lower warning light (WP 0351). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and F/R LOWER WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC across wire 1611 (white) from driver side body wire harness warning light connector, terminal 3 to a known good ground.

If 22 to 28 VDC are present, go to Step 30.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

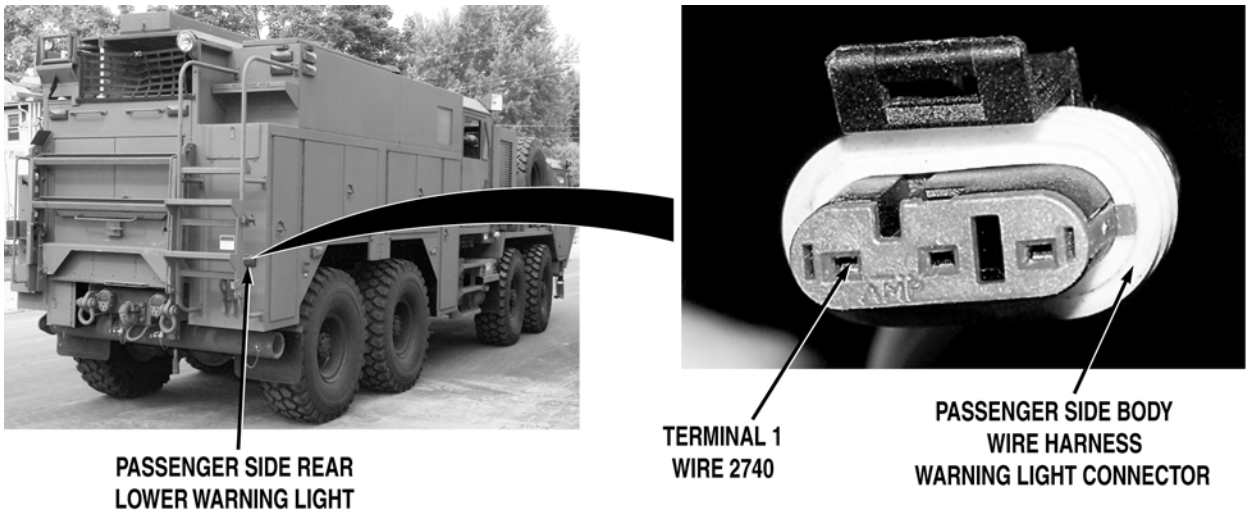


Step 29. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for 22 to 28 VDC across main wire harness wire 1611 (white) from main wire harness passenger side body wire harness connector, terminal F to a known good ground.

a. If 22 to 28 VDC are present, repair wire 1611 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If 22 to 28 VDC are not present, repair wire 1611 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

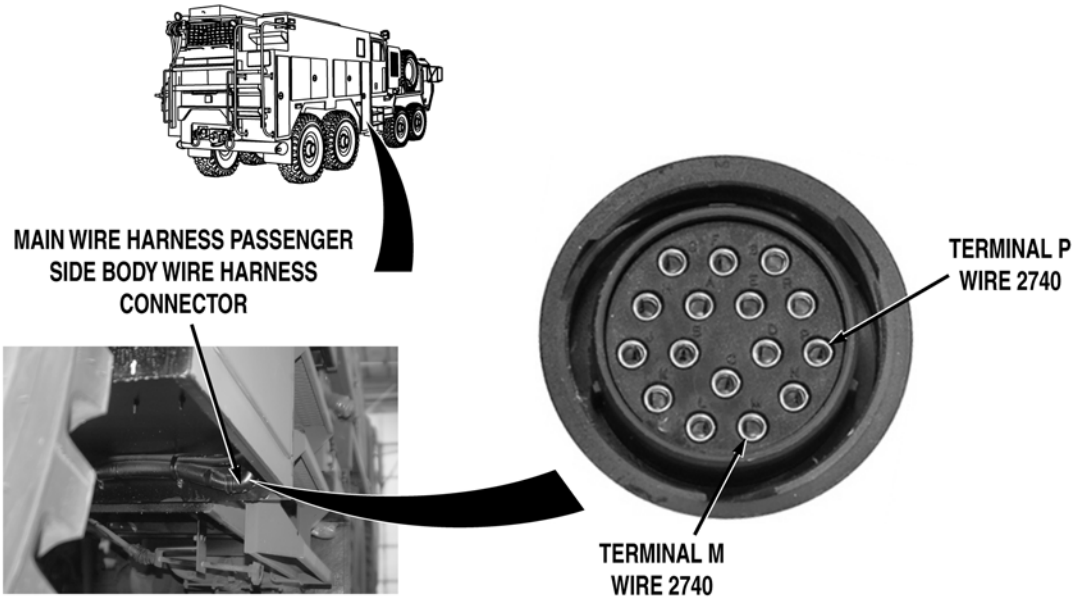
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 30. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity between main wire harness wire 2740 (black) from passenger side body wire harness warning light connector, terminal 1 to a known good ground.

If there is continuity, replace passenger side rear lower warning light (WP 0351).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

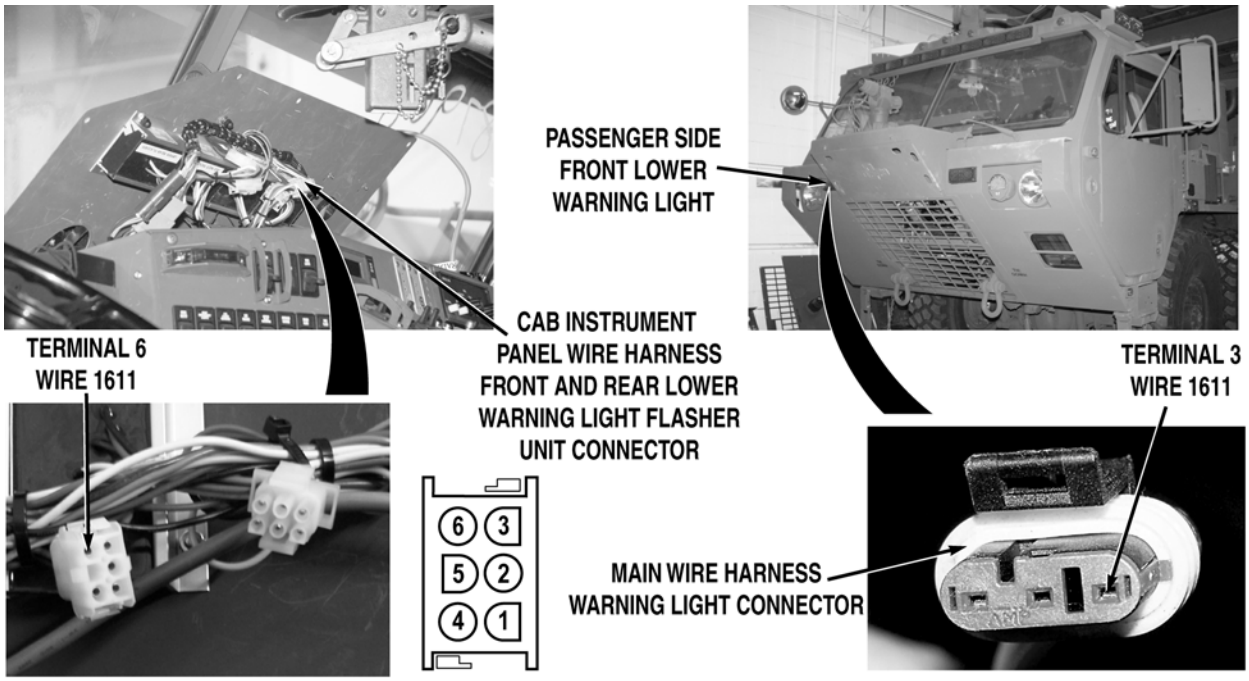
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 31. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2740 (black) from main wire harness passenger side body wire harness connector, terminals M and P to a known good ground.

a. If there is continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity at either terminal, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

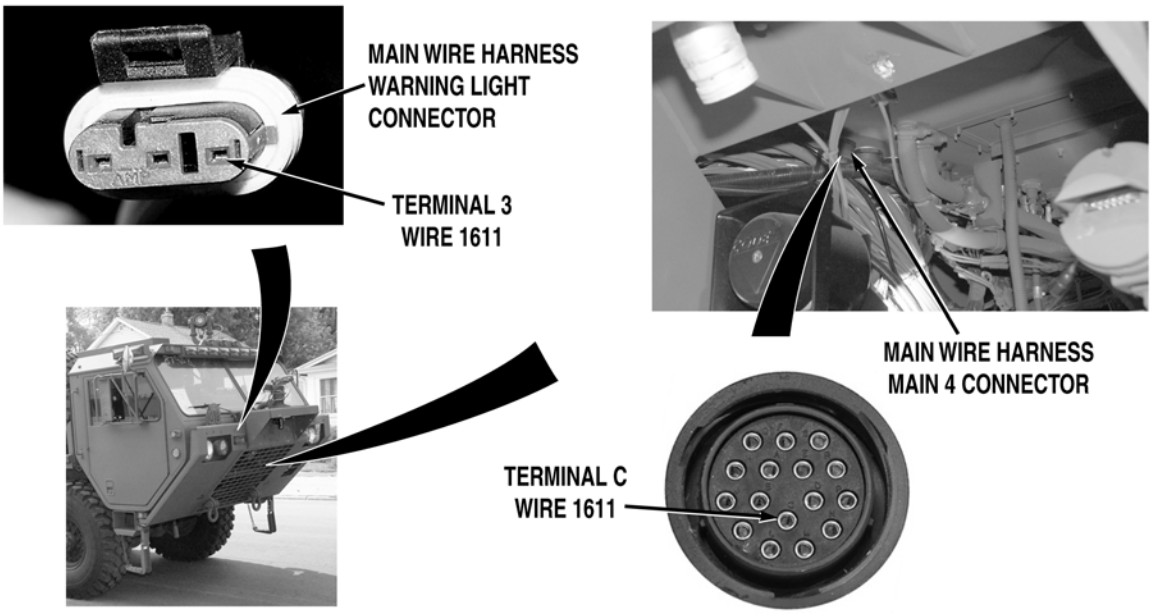
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 32. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove passenger side front lower warning light (WP 0351). Remove cab instrument panel A (WP 0311). Disconnect cab instrument panel wire harness front and rear lower warning light flasher unit connector. With a test lead set, check for continuity across wire 1611 (white) from main wire harness warning light connector, terminal 3 to cab instrument panel wire harness front and rear warning light flasher unit connector, terminal 6.

If there is continuity, replace front and rear lower warning light flasher unit (WP 0348).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 33. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. With a test lead set, check for continuity across main wire harness wire 1611 (white) from warning light connector, terminal 3 to main wire harness main 4 connector, terminal C.

a. If there is continuity, repair wire 1611 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If there is no continuity, repair wire 1611 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheels chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WARNING LIGHTS (OVERHEAD BEACON) DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0151
WP 0311
WP 0315
WP 0356

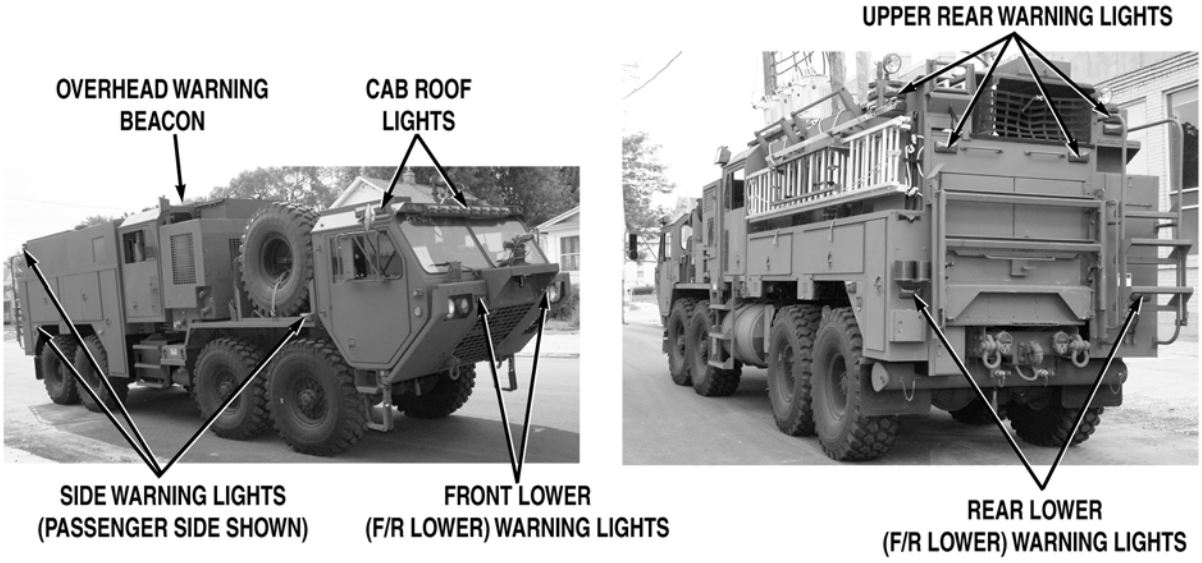
References (continued)
WP 0401
WP 0402
WP 0417
WP 0440
WP 0441
WP 0446
WP 0455
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING LIGHTS (OVERHEAD BEACON) DO NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



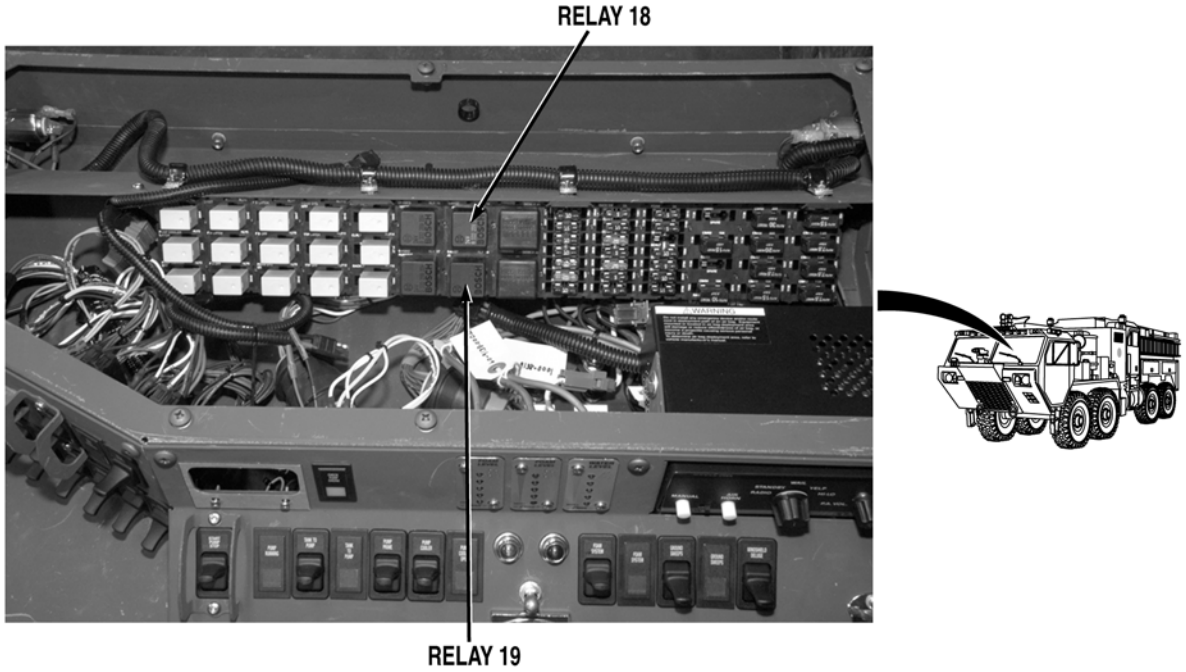
Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). Check if upper rear warning lights operate.

If upper rear warning lights operate, go to Step 4.

Step 2. Put F/R LOWER WARNING, ROOF EMERGENCY LIGHTS, and SIDE WARNING switch to on position (WP 0004). Check if front and rear lower, roof, and side warning lights operate.

If front and rear lower, roof, and side warning lights do not operate, troubleshoot Warning Lights (All) Do Not Operate (WP 0151).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

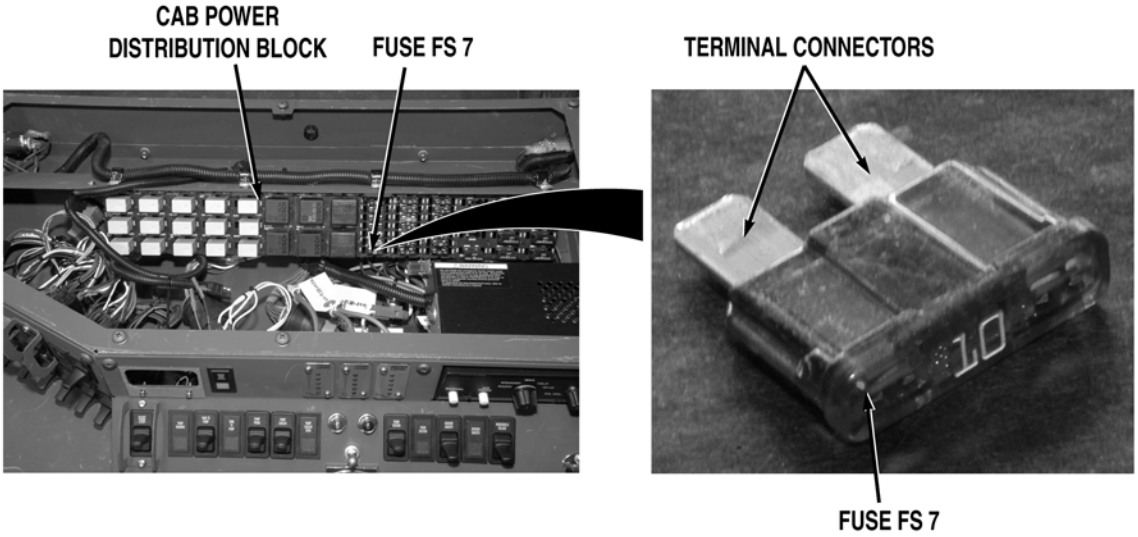
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 3. Put EMERG MASTER, ROOF EMERGENCY LIGHTS, F/R LOWER WARNING, SIDE WARNING, and UPPER REAR WARNING switches to off position (WP 0004). Remove cab instrument panel A (WP 0311). Swap relays 18 and 19 (WP 0402). Put EMERG MASTER and OVERHEAD WARNING switches to on position (WP 0004). Check if overhead warning beacon operates.

a. If overhead warning beacon operates, return relays to original positions and replace relay 19 (WP 0402).

b. If overhead warning beacon does not operate, replace cab power distribution wire harness and block (WP 0441).

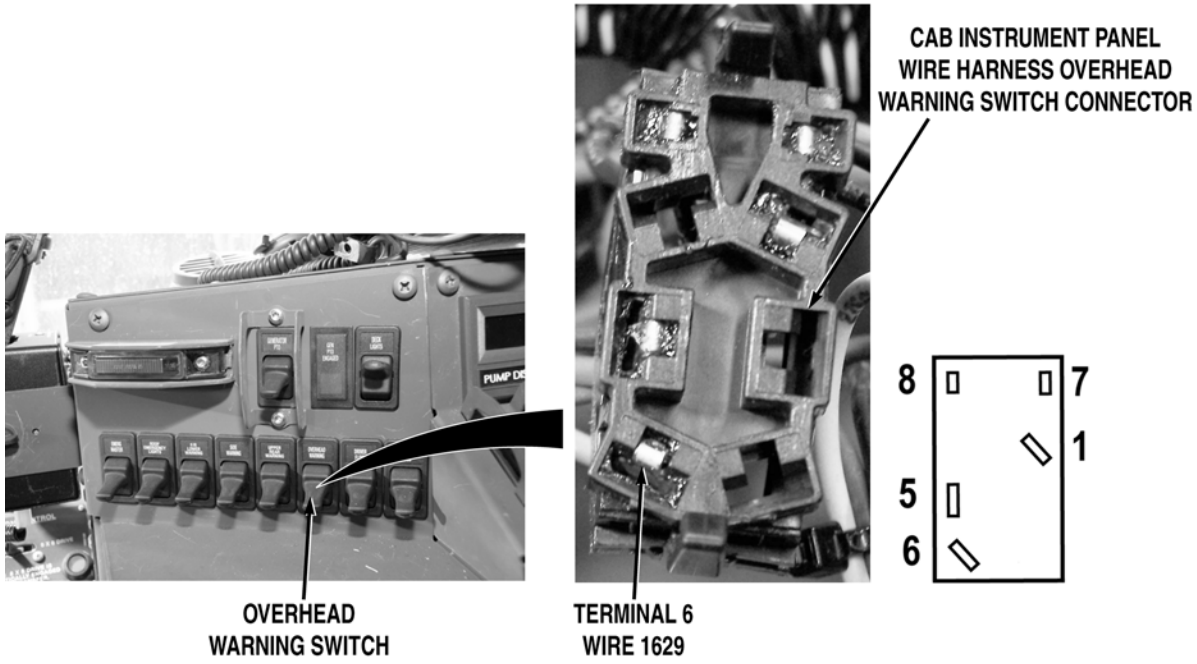
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 7 (WP 0401). Check for continuity across fuse.

If there is no continuity, replace fuse FS 7 (WP 0401).

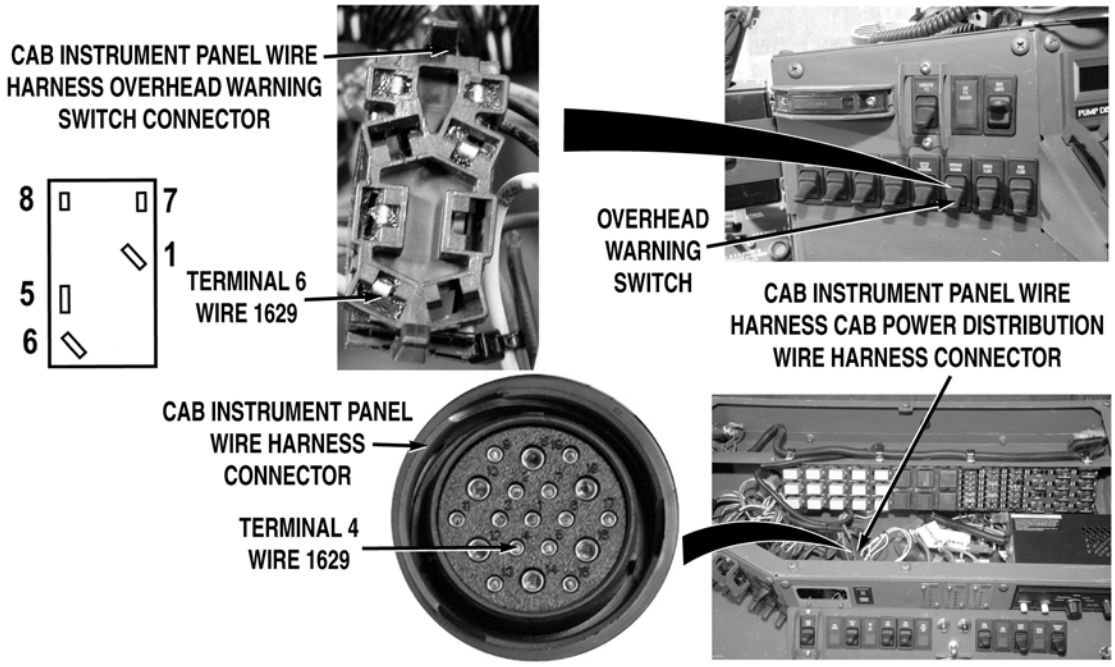
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Install fuse FS 7 (WP 0401). Remove cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness OVERHEAD WARNING switch connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to on position (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1629 (green) at OVERHEAD WARNING switch connector, terminal 6 and a known good ground.

If 22 to 28 VDC are present, go to Step 7.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

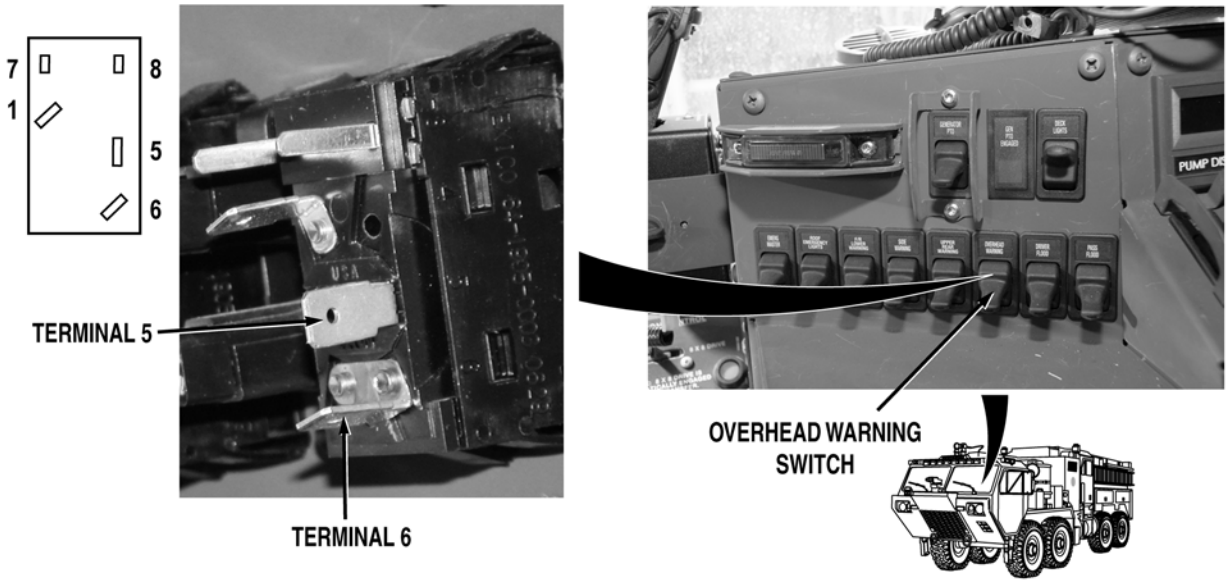


Step 6. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1629 (green) from cab instrument panel wire harness connector, terminal 4 to OVERHEAD WARNING switch connector, terminal 6.

a. If there is continuity, repair wire 1629 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1629 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across OVERHEAD WARNING switch, from terminal 5 to terminal 6, when switch is in on position.

If there is no continuity, replace OVERHEAD WARNING switch (WP 0315).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 8. Connect cab instrument panel wire harness OVERHEAD WARNING switch connector. Disconnect main wire harness crew cab wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and OVERHEAD WARNING switches to on position (WP 0004). Check for 22 to 28 VDC between main wire harness wire 1630 (green) at crew cab harness connector, terminal J and a known good ground.

If 22 to 28 VDC are present, go to Step 10.

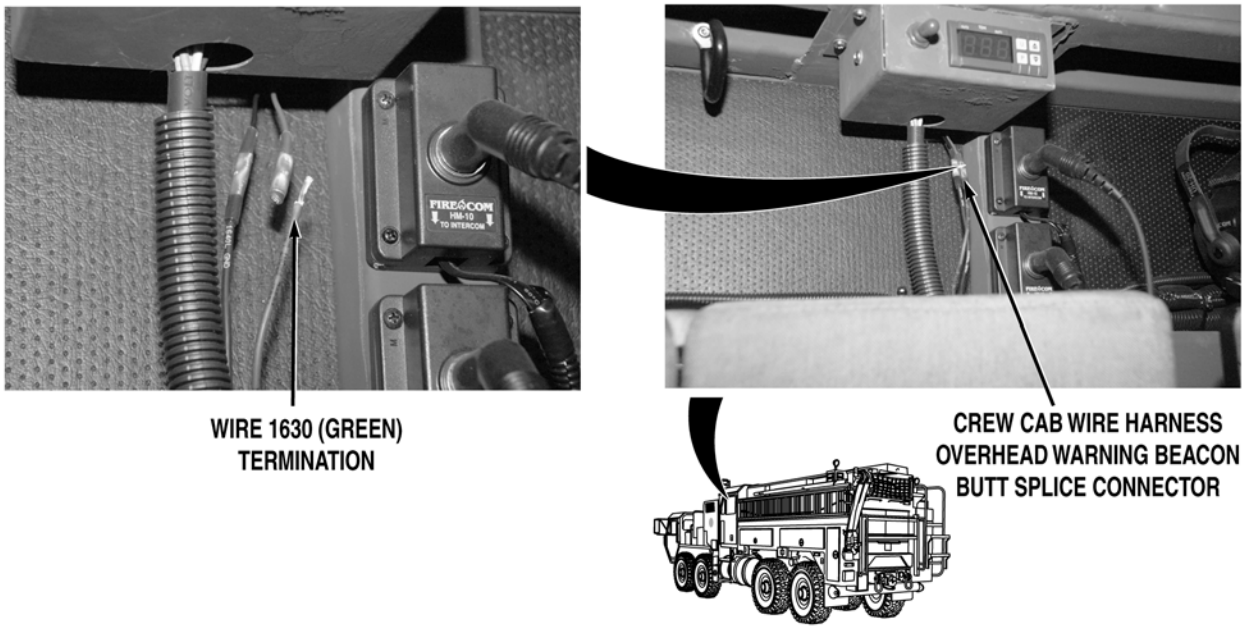
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 9. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and OVERHEAD WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between cab instrument panel wire harness wire 1630 (green) at main 4 connector, terminal A and a known good ground.

a. If 22 to 28 VDC are not present, repair wire 1630 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If 22 to 28 VDC are present, repair wire 1630 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



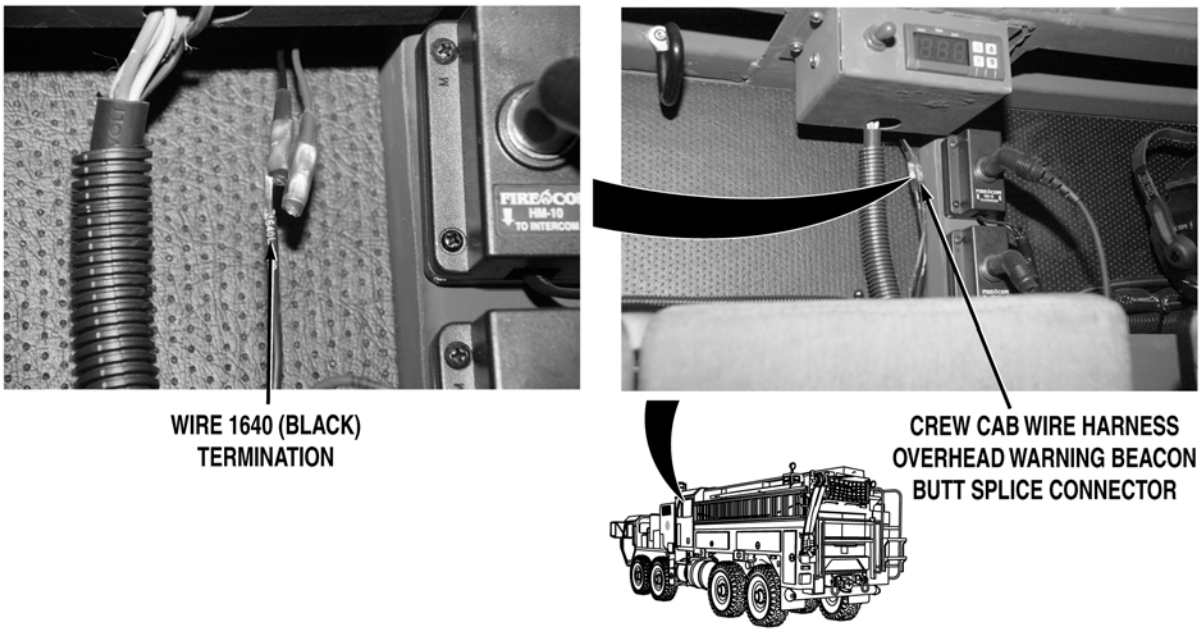
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 10. Connect main wire harness crew cab wire harness connector. Cut crew cab wire harness overhead warning beacon wire 1630 (green) at butt splice connector. Check for 22 to 28 VDC between crew cab wire harness wire 1630 (green) at crew cab wire harness overhead warning beacon butt splice connector termination and a known good ground.

If 22 to 28 VDC are not present, repair wire 1630 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 11. Put EMERG MASTER and OVERHEAD WARNING switches to off position (WP 0004). Turn Service Drive Lights off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Cut overhead warning beacon light assembly wire harness wire 1640 (black) at butt splice connector. Check for continuity across wire 1640 (black) from overhead warning beacon light assembly butt splice connector, termination to a known good ground.

a. If there is no continuity, repair wire 1640 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

b. If there is continuity, replace overhead warning beacon light assembly (WP 0356).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WARNING LIGHTS (CAB ROOF LIGHTBAR) DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0151
WP 0311
WP 0312
WP 0315
WP 0345
WP 0346

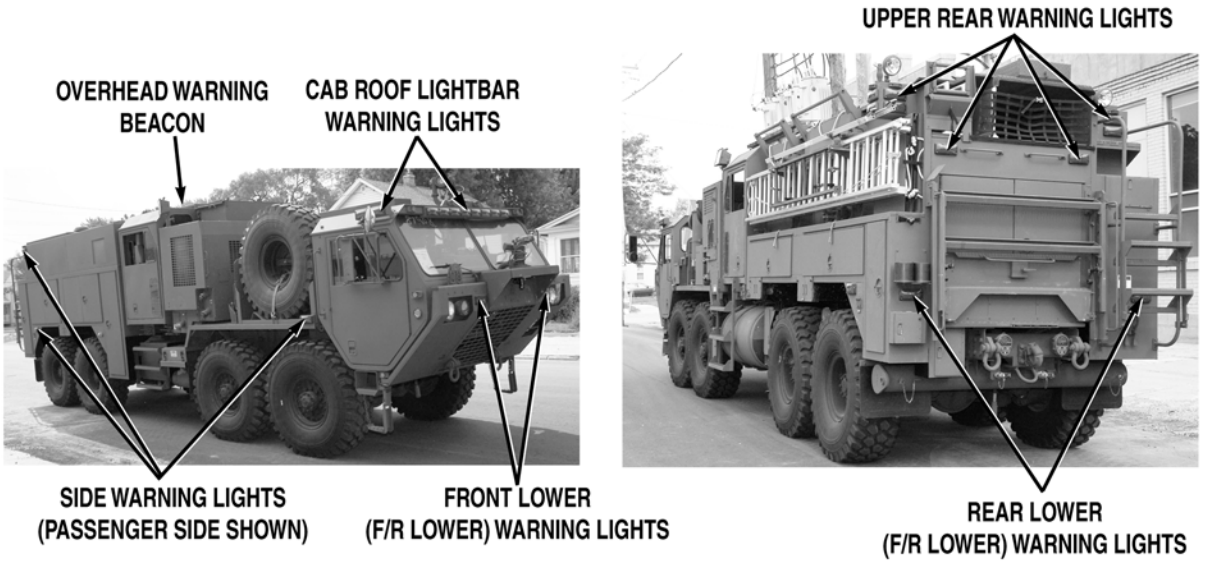
References (continued)
WP 0351
WP 0371
WP 0372
WP 0401
WP 0402
WP 0403
WP 0440
WP 0441
WP 0442

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING LIGHTS (CAB ROOF LIGHTBAR) DO NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and ROOF EMERGENCY LIGHTS switches to on position (WP 0004). Check if at least one cab roof lightbar warning light operates.

If at least one cab roof lightbar warning light operates, go to Step 14.

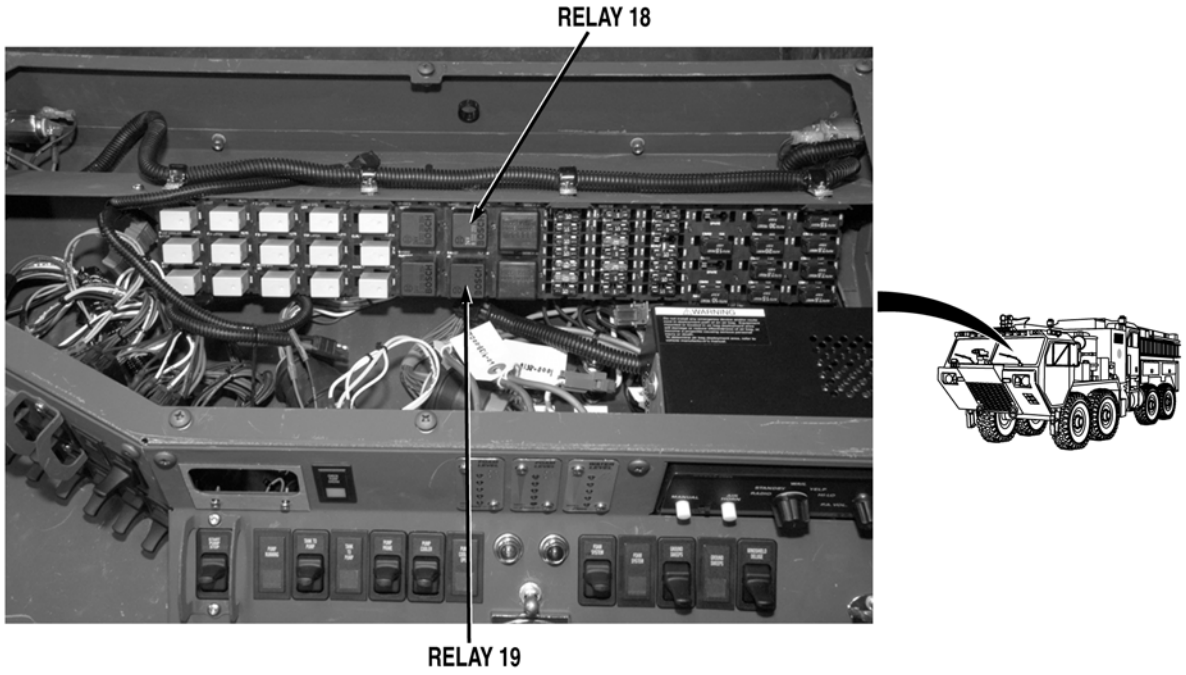
Step 2. Put F/R LOWER WARNING or SIDE WARNING switch to on position (WP 0004). Check if front and rear lower, or side warning lights operate.

If front and rear lower, or side warning lights operate, go to Step 5.

Step 3. Put OVERHEAD WARNING and UPPER REAR WARNING switch to on position (WP 0004). Check if overhead warning beacon and upper rear warning lights operate.

If overhead warning beacon and upper rear warning lights do not operate, troubleshoot Warning Lights (All) Do Not Operate (WP 0151).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

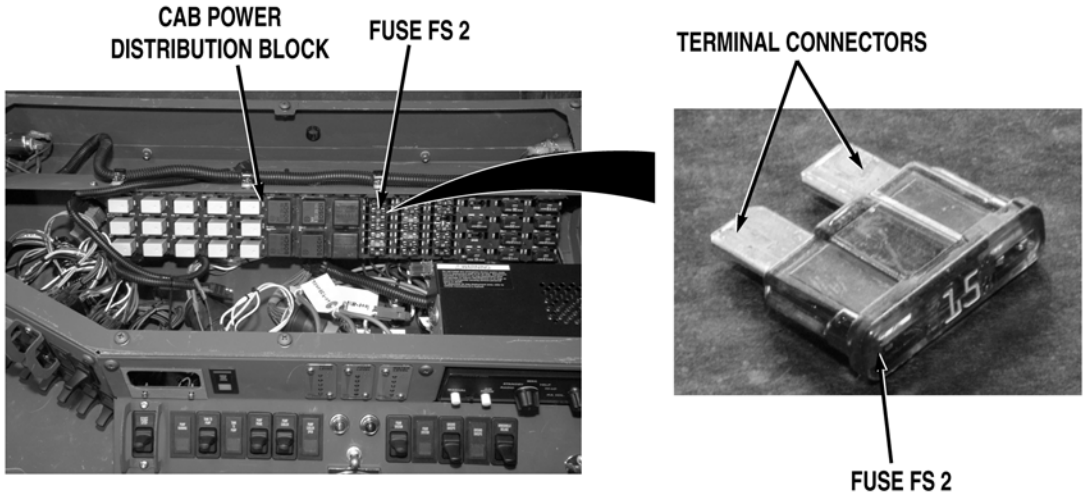
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 4. Put EMERG MASTER, ROOF EMERGENCY LIGHTS, F/R LOWER WARNING, SIDE WARNING, UPPER REAR WARNING, and OVERHEAD WARNING switches to off position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel A (WP 0311). Swap relays 18 and 19 (WP 0402). Turn battery disconnect switch to ON position (WP 0007). Put EMERG MASTER and ROOF EMERGENCY LIGHTS switches to on position (WP 0004). Check if cab roof lightbar warning lights operate.

a. If cab roof lightbar warning lights operate, return relays to original positions and replace relay 18 (WP 0402).

b. If cab roof lightbar warning lights do not operate, replace cab power distribution wire harness and block (WP 0441).

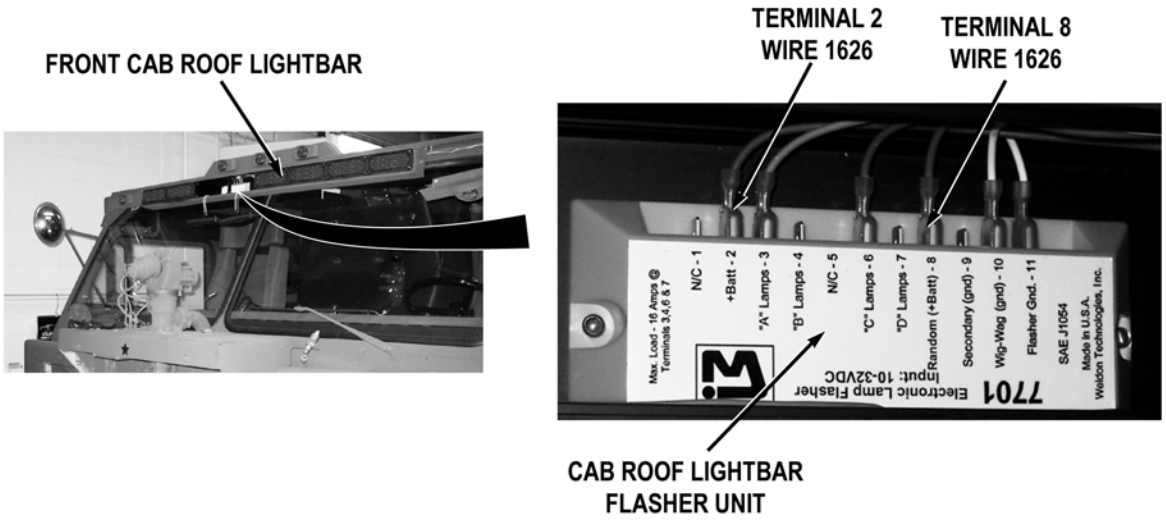
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Put EMERG MASTER, ROOF EMERGENCY LIGHTS, F/R LOWER WARNING, and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel A (WP 0311). Remove fuse FS 2 (WP 0401) from cab power distribution block. Check for continuity across fuse terminal connectors.

If there is no continuity, replace fuse FS 2 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



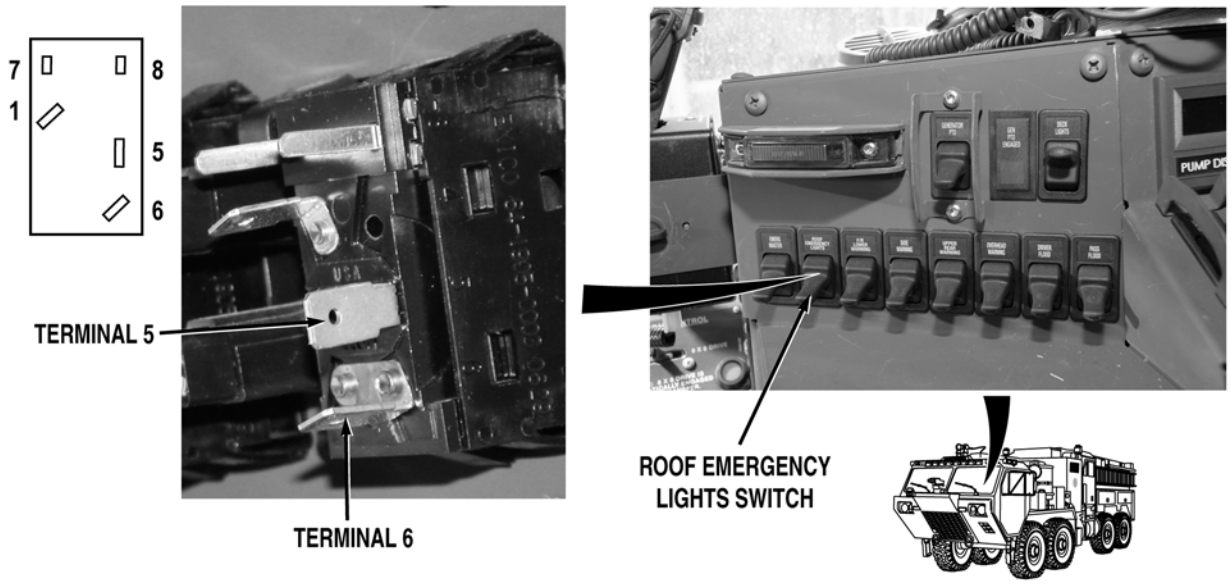
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 6. Install fuse FS 2 (WP 0401). Remove third and fourth warning lights on passenger side of front cab roof lightbar (WP 0351). Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and ROOF EMERGENCY LIGHTS switches to on position (WP 0004). Check for 22 to 28 VDC between front cab roof lightbar cable assembly wire 1626 (red) at cab roof lightbar flasher unit, terminals 2 and 8 and a known good ground.

If 22 to 28 VDC are present, go to Step 12.

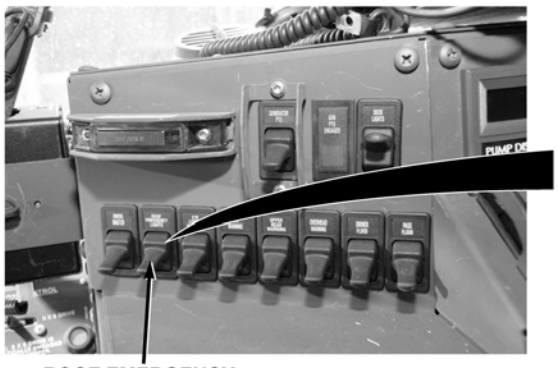
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

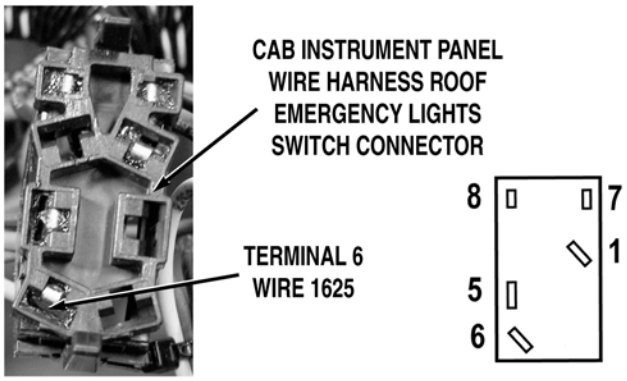


Step 7. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness ROOF EMERGENCY LIGHTS switch connector. Check for continuity across ROOF EMERGENCY LIGHTS switch, from terminal 5 to terminal 6, when switch is in on position.

If there is no continuity, replace ROOF EMERGENCY LIGHTS switch (WP 0315).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

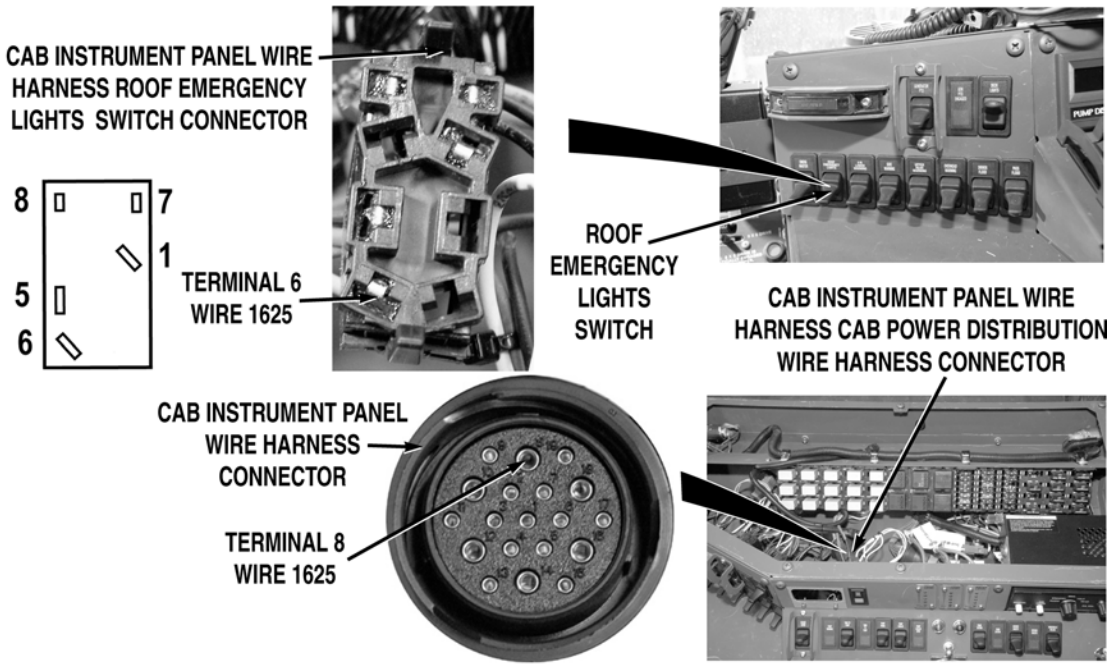




Step 8. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to on position (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1625 (white) at ROOF EMERGENCY LIGHTS switch connector, terminal 6 and a known good ground.

If 22 to 28 VDC are present, go to Step 10.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

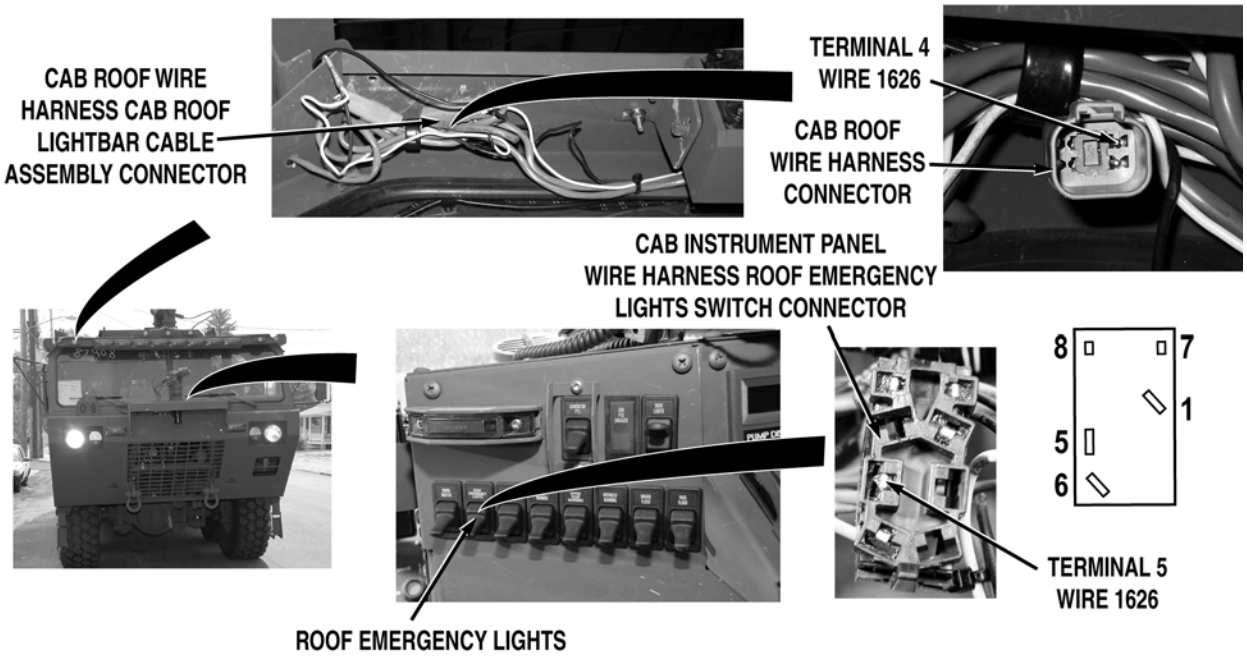


Step 9. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1625 (white) from cab instrument panel wire harness connector, terminal 8 to cab instrument panel wire harness ROOF EMERGENCY LIGHTS switch connector, terminal 6.

a. If there is continuity, repair wire 1625 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1625 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

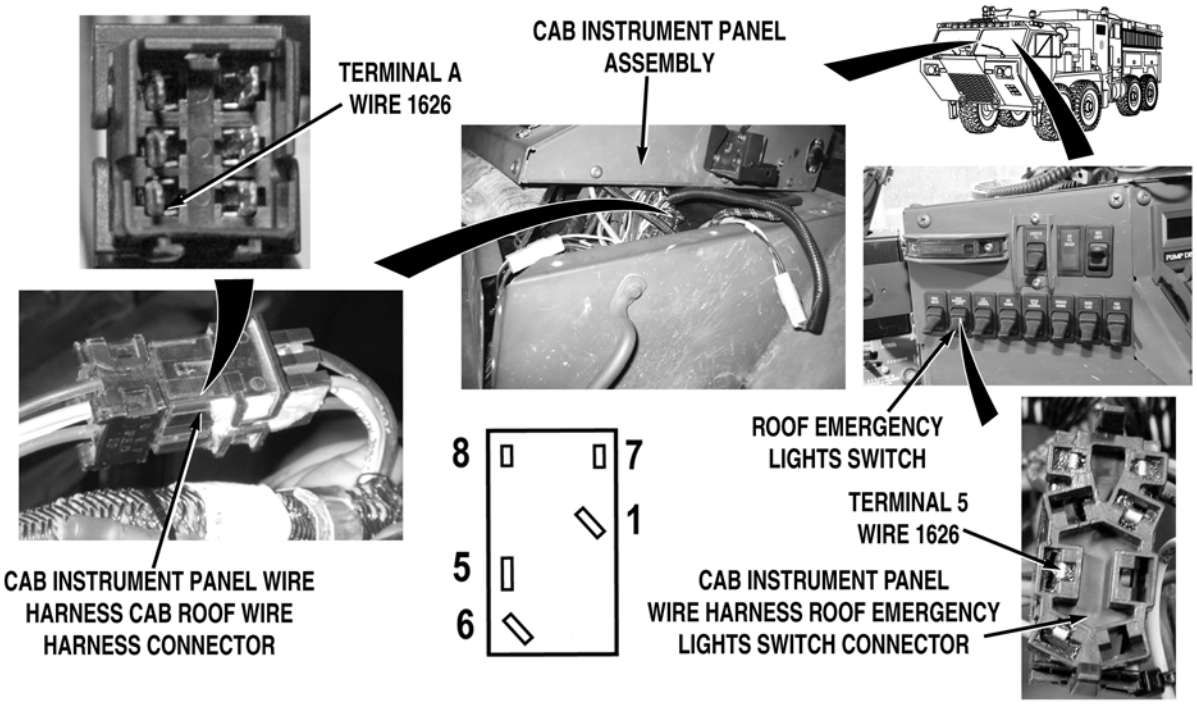
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. Turn battery disconnect switch to OFF position (WP 0007). Turn service drive lights OFF (TM 9-2320-347-10). Put EMERG MASTER switch to off position (WP 0004). Remove passenger side cab roof lightbar cover (WP 0345). Disconnect cab roof wire harness cab roof lightbar cable assembly connector. With a test lead set, check for continuity across 1626 (white) from cab roof wire harness cab roof lightbar cable assembly connector, terminal 4 to cab instrument panel wire harness ROOF EMERGENCY LIGHTS switch connector, terminal 5.

If there is continuity, repair wire 1626 in lightbar cable assembly if repairable (TM 9-2320-325-14&P), or replace lightbar cable assembly (WP 0371).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

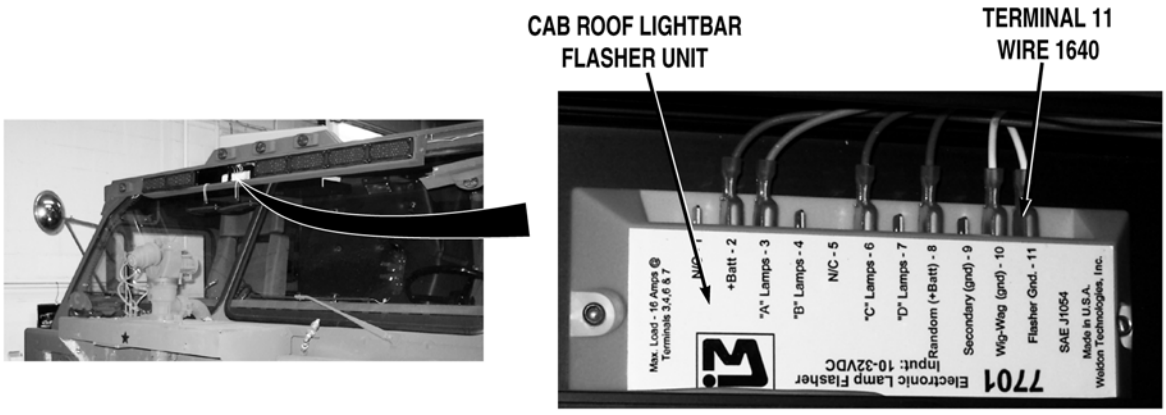


Step 11. Remove cab instrument panel assembly (WP 0312). Disconnect cab instrument panel wire harness cab roof wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1626 (white) from cab instrument panel wire harness cab roof wire harness connector, terminal A to cab instrument panel wire harness ROOF EMERGENCY LIGHT switch connector, terminal 5.

a. If there is continuity, repair wire 1626 in cab roof wire harness if repairable (TM 9-2320-325-14&P), or replace cab roof wire harness (WP 0442).

b. If there is no continuity, repair wire 1626 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

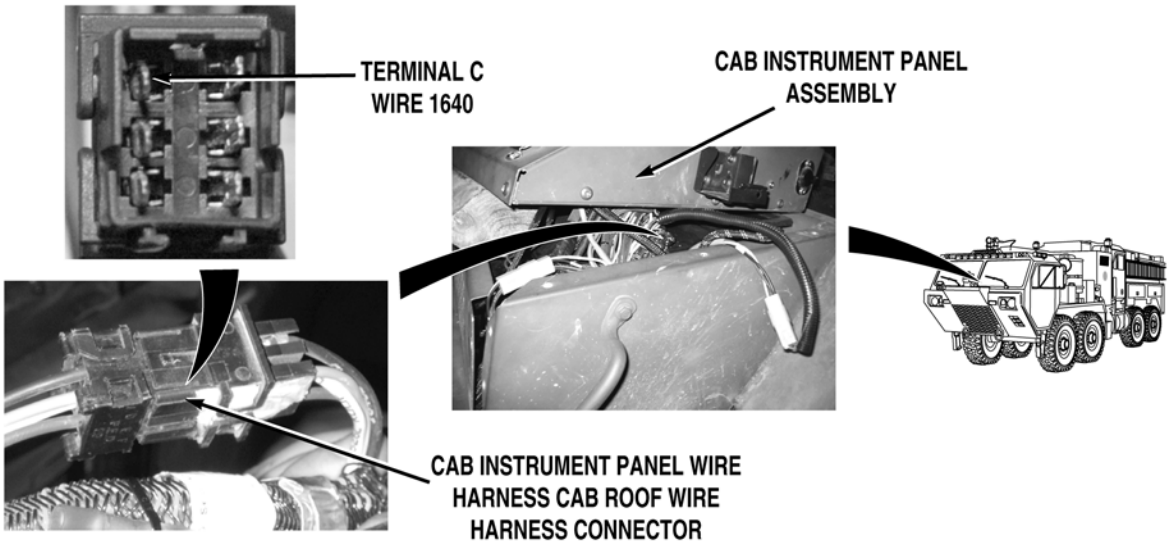
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 12. Put EMERG MASTER and ROOF EMERGENCY LIGHTS switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across ground wire 1640 (white) from cab roof lightbar flasher unit, terminal 11 to a known good ground.

If there is continuity, replace cab roof lightbar flasher unit (WP 0403).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 13. Remove cab instrument panel assembly (WP 0312). Disconnect cab instrument panel wire harness cab roof wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1640 (black) from cab instrument panel wire harness connector, terminal C to a known good ground.

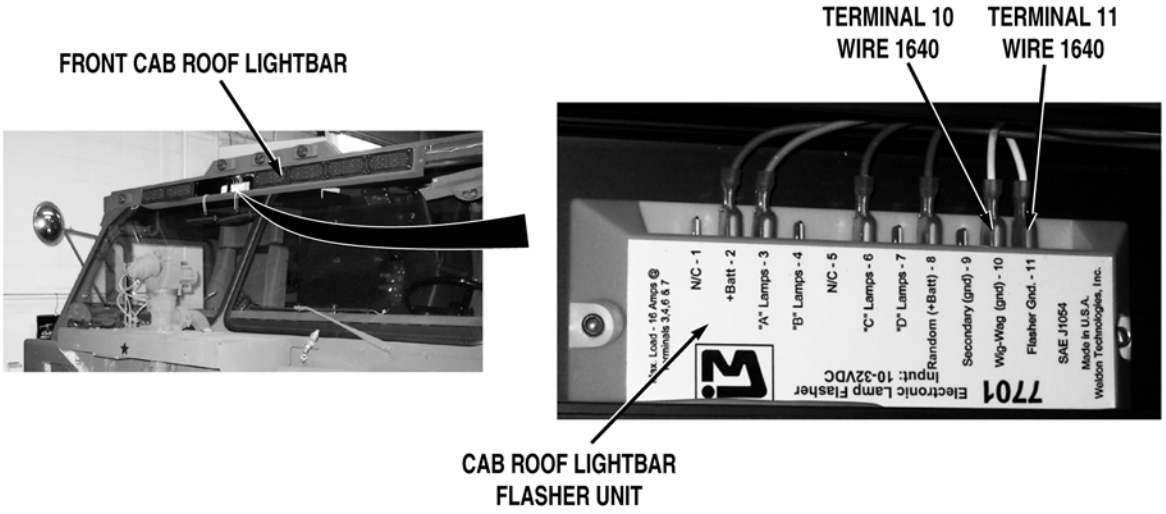
a. If there is continuity, repair wire 1640 in cab roof wire harness if repairable (TM 9-2320-325-14&P), or replace cab roof wire harness (WP 0442).

b. If there is no continuity, repair wire 1640 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 14. Check if cab roof lightbar warning lights flash in an alternating flash pattern, six lights at a time.

If cab roof lightbar warning lights flash in an alternating flash pattern, go to Step 16.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 15. Put EMERG MASTER and ROOF EMERGENCY LIGHTS switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove third and fourth warning lights on passenger side of cab roof lightbar (WP 0345). Check for continuity across cab roof lightbar cable assembly from cab roof lightbar flasher unit, terminals 10 and 11.

a. If there is continuity, replace roof lightbar flasher unit (WP 0403).

b. If there is no continuity, repair wire 1640 between roof lightbar flasher unit, terminals 10 and 11 if repairable (TM 9-2320-325-14&P), or replace cab roof lightbar cable assembly (WP 0371).

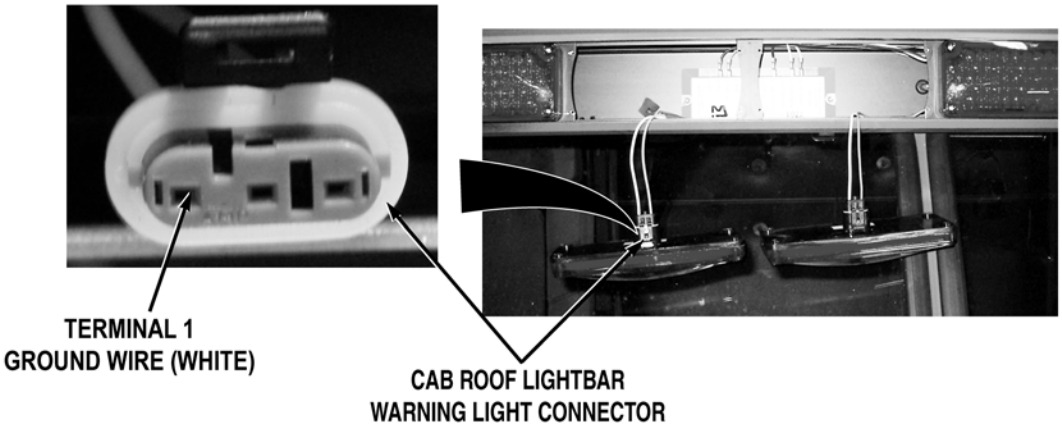
Step 16. Check if there is more than one non-operating cab roof lightbar warning light on front cab roof lightbar.

If there is more than one non-operating cab roof lightbar warning light, go to Step 22.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 17. Check if non-operating warning light is located on front cab roof lightbar.

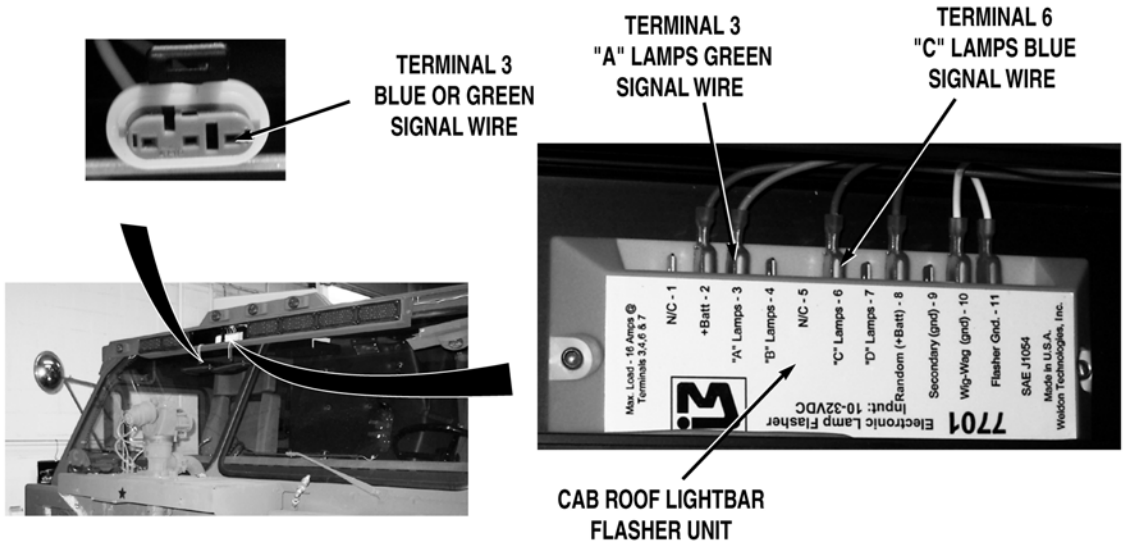
If non-operating warning light is located on passenger side or driver side lightbar, go to Step 24.



Step 18. Put EMERG MASTER and ROOF EMERGENCY LIGHTS switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove non-operating warning light from cab roof lightbar (WP 0345). With a test lead set, check for continuity across cab roof lightbar cable assembly ground wire (white) from non-operating cab roof warning light connector, terminal 1, to a known good ground.

If there is no continuity, repair ground wire in cab roof lightbar cable assembly if repairable (TM 9-2320-325-14&P), or replace cab roof lightbar cable assembly (WP 0371).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Cab roof lightbar flasher unit has four outputs at terminals 3, 4, 6, and 7. Cab roof lightbar flasher unit output terminals 3 and 6 are connected to six warning lights each.

Step 19. Remove non-operating warning light from cab roof lightbar (WP 0345). Check wire colors that are connected to warning light.

If wire colors are white and green go to Step 21.

Step 20. If installed, remove third and fourth warning lights on passenger side of cab roof lightbar (WP 0345). Disconnect lightbar cable assembly from non-operating warning light (WP 0345). Check for continuity across lightbar cable assembly blue signal wire terminal 3 from non-operating warning light connector to cab roof lightbar flasher unit, terminal 6 “C” lamps connector.

a. If there is continuity, replace non-operating warning light (WP 0345).

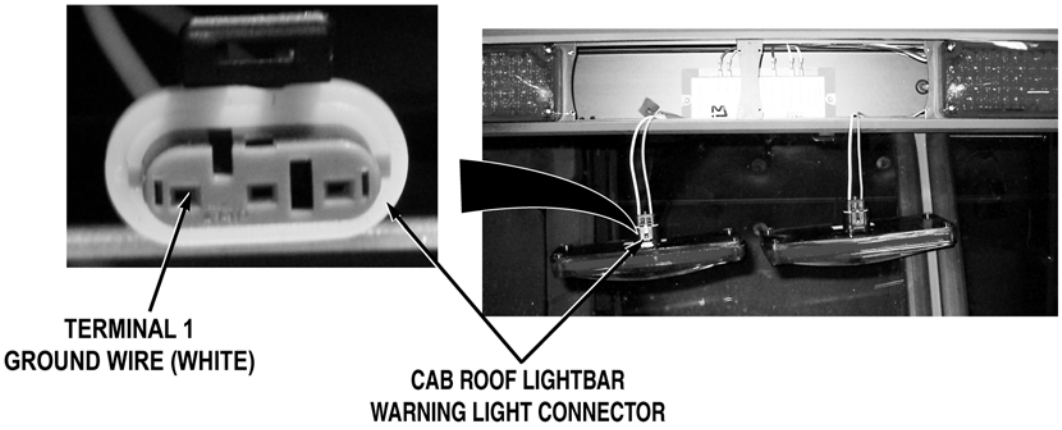
b. If there is no continuity, repair blue signal wire in cab roof if repairable (TM 9-2320-325-14&P), or replace cab roof lightbar cable assembly (WP 0371).

Step 21. If installed, remove third and fourth warning lights on passenger side of cab roof lightbar (WP 0345). Disconnect lightbar cable assembly from non-operating warning light (WP 0345). Check for continuity across lightbar cable assembly green signal wire terminal 3 from non-operating warning light connector to cab roof lightbar flasher unit, terminal 3 “A” lamps connector.

a. If there is continuity, replace non-operating warning light (WP 0345).

b. If there is no continuity, repair green signal wire in lightbar cable assembly if repairable (TM 9-2320-325-14&P), or replace lightbar cable assembly (WP 0371).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



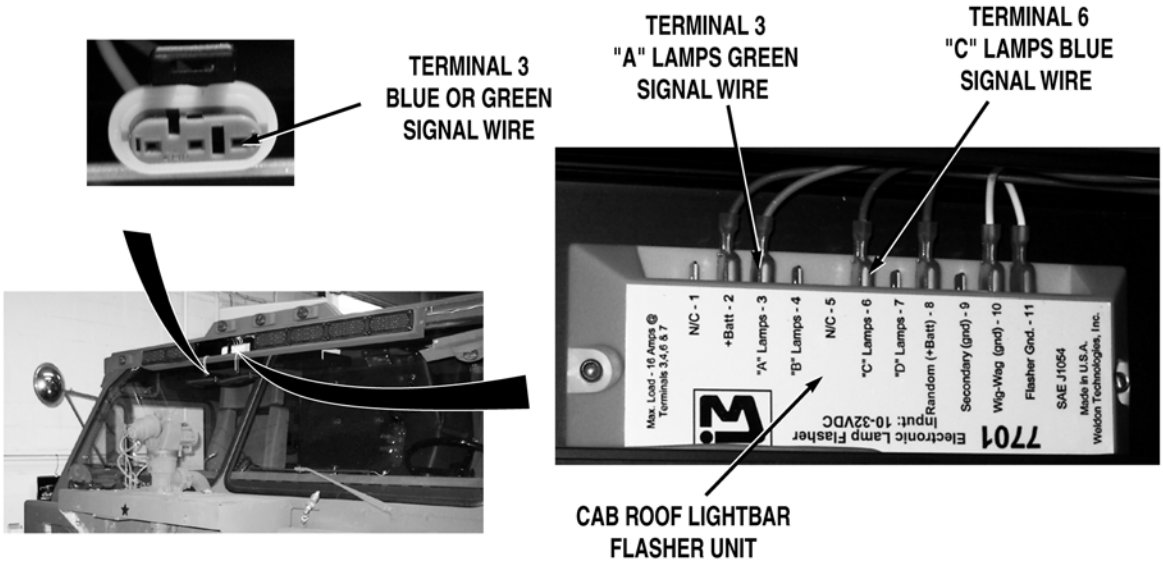
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 22. Put EMERG MASTER and ROOF EMERGENCY LIGHTS switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove non-operating warning light from passenger side or driver side cab roof lightbar (WP 0346). With a test lead set, check for continuity across ground wire (white) from non-operating cab roof lightbar warning light connector terminal 1 to a known good ground.

If there is no continuity, go to Step 24.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

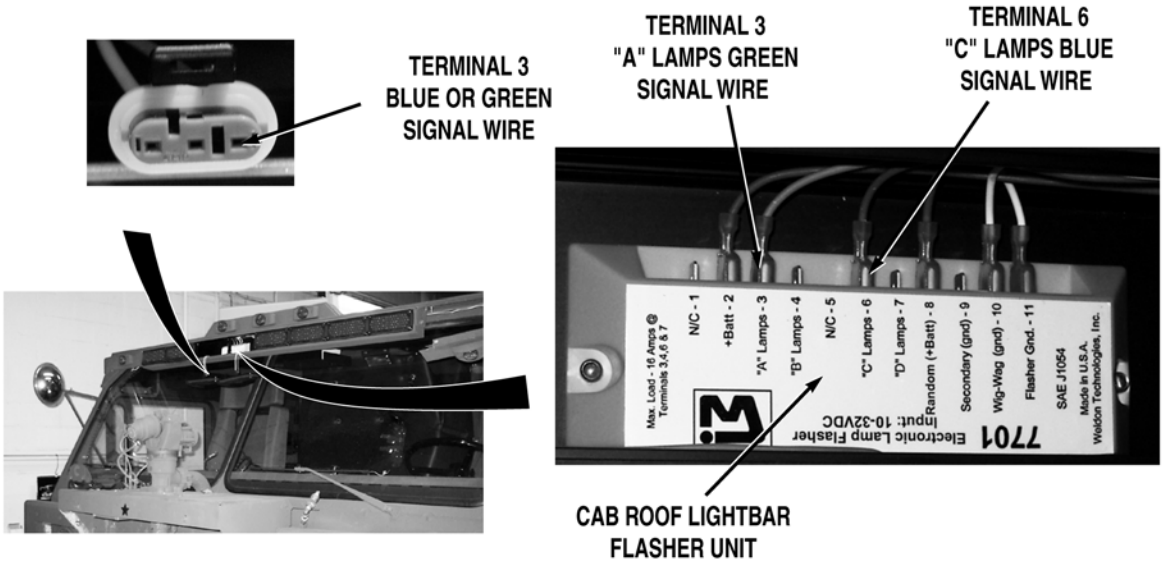
Cab roof lightbar flasher unit has four outputs at terminals 3, 4, 6, and 7. Cab roof lightbar flasher unit output terminals 3 and 6 are connected to six warning lights each.

Step 23. Remove third and fourth warning lights on passenger side of front cab roof lightbar (WP 0345). With a test lead set, check for continuity across blue or green signal wire from non-operating warning light connector terminal 3 to cab roof lightbar flasher unit, terminals 3 or 6.

a. If there is continuity between non-operating warning light connector and cab roof lightbar flasher unit terminals 3 or 6, replace non-operating warning light (WP 0351).

b. If there is no continuity, repair blue or green signal wire if repairable (TM 9-2320-325-14&P), or replace cab roof lightbar cable assembly (WP 0371).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 24. Remove cab roof lightbar cover for associated driver side or passenger side cab roof lightbar (WP 0346). Disconnect driver side or passenger side cab roof lightbar cable assembly branch connector from non-operating warning light (WP 0346). With a test lead set, check for continuity across blue or green signal wire at non-operating warning light lightbar cable assembly branch, terminal 3 to side cab roof lightbar cable assembly branch connector, terminal.

a. If there is continuity, repair green or blue signal wire between associated side cab roof lightbar cable assembly connector terminal and cab roof lightbar flasher unit if repairable (TM 9-2320-325-14&P), or replace lightbar cable assembly (WP 0371).

b. If there is no continuity, repair green or blue signal wires between non-operating warning light and associated side cab roof lightbar cable assembly branch connector if repairable (TM 9-2320-325-14&P), or replace lightbar cable assembly branch (WP 0372).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WARNING LIGHTS (SIDE) DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)
Lead Set, Test (WP 0622, Item 21)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0151
WP 0311
WP 0315
WP 0348

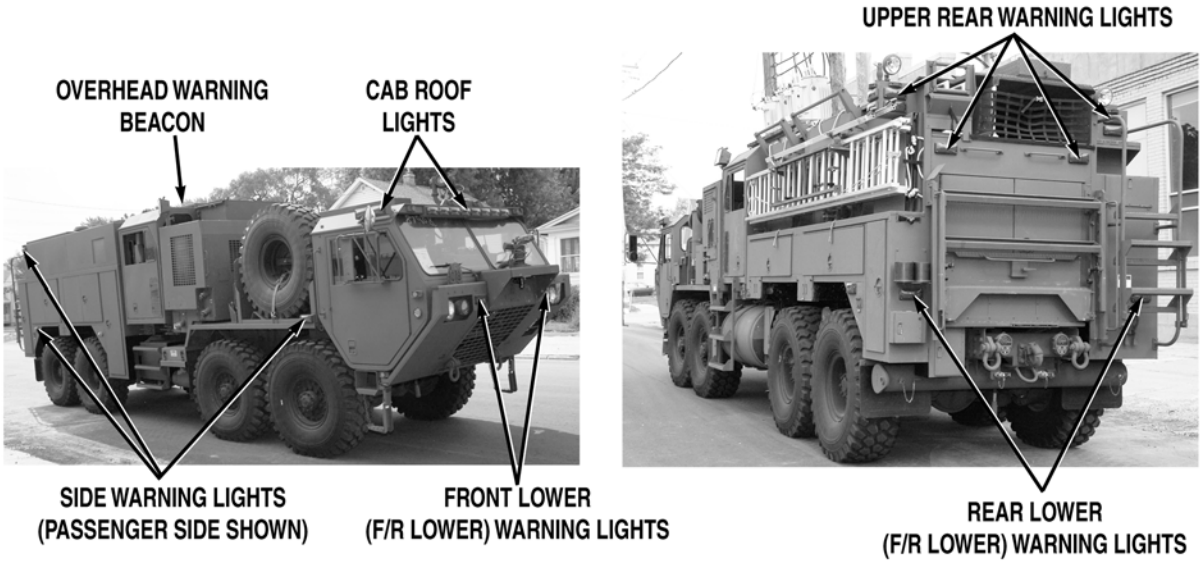
References (continued)
WP 0351
WP 0397
WP 0401
WP 0402
WP 0440
WP 0441
WP 0448
WP 0455
WP 0456
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING LIGHTS (SIDE) DO NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and SIDE WARNING switches to on position (WP 0004). Check if at least one side warning light operates.

If at least one side warning light operates, go to Step 12.

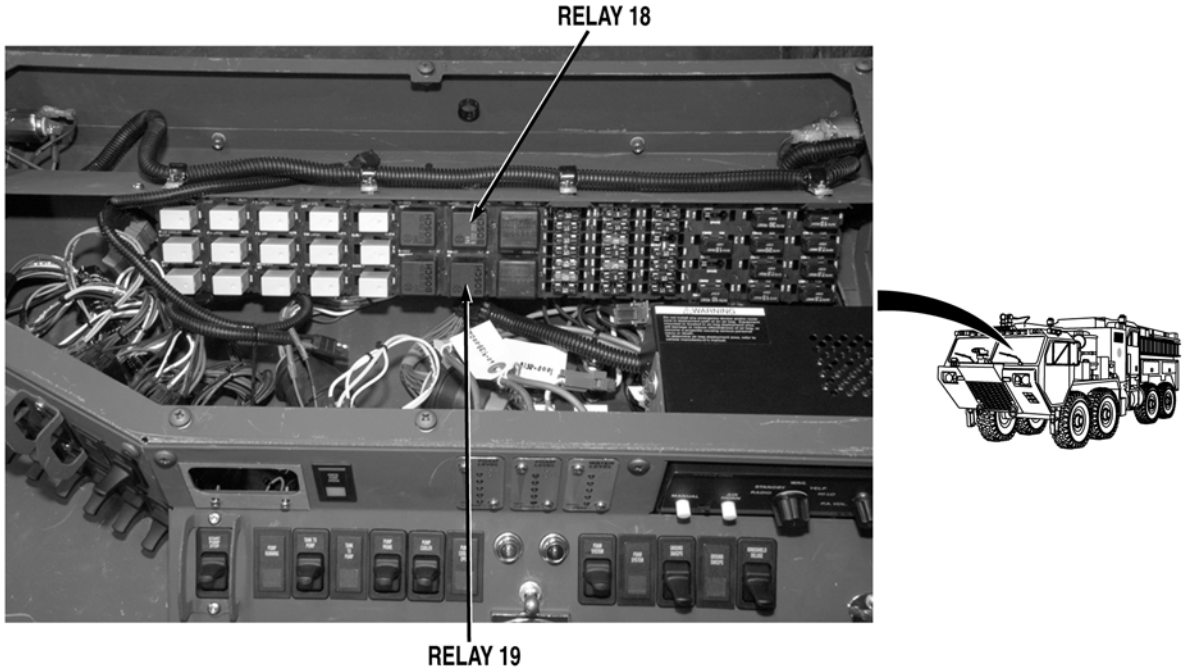
Step 2. Put ROOF EMERGENCY LIGHTS and F/R LOWER WARNING switch to on position (WP 0004). Check if cab roof lightbar and front and rear lower warning lights operate.

If cab roof lightbar and front and rear lower warning lights operate, go to Step 5.

Step 3. Put OVERHEAD WARNING and UPPER REAR WARNING switch to on position (WP 0004). Check if overhead warning beacon and upper rear warning lights operate.

If overhead warning beacon and upper rear warning lights do not operate, troubleshoot Warning Lights (All) Do Not Operate (WP 0151).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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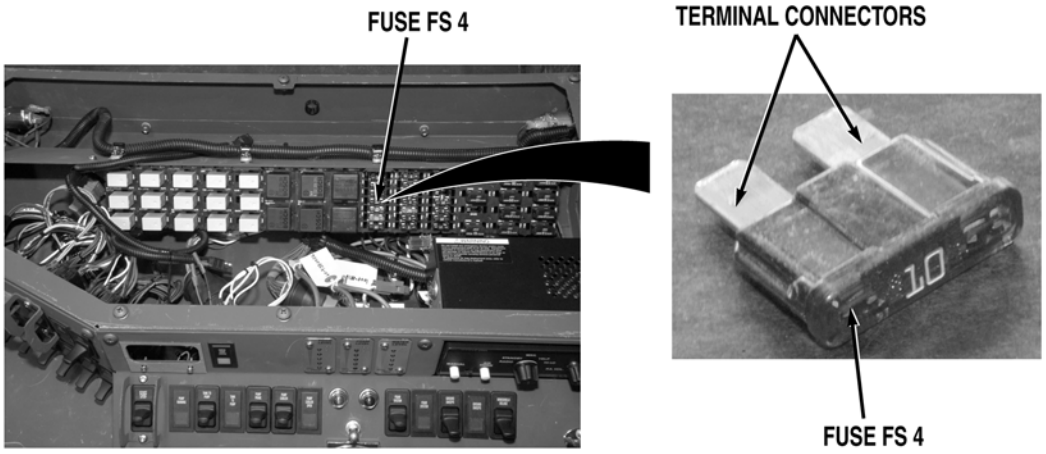
Step 4. Put EMERG MASTER, ROOF EMERGENCY LIGHTS F/R LOWER WARNING, SIDE WARNING, UPPER REAR WARNING, and OVERHEAD WARNING switches to off position (WP 0004). Remove personnel cab instrument panel A (WP 0311). Swap relays 18 and 19 (WP 0402). Put EMERG MASTER and SIDE WARNING switches to on position (WP 0004). Check if side warning lights operate.

a. If side warning lights operate, return relays to original positions and replace relay 18 (WP 0402).

b. If side warning lights do not operate, replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



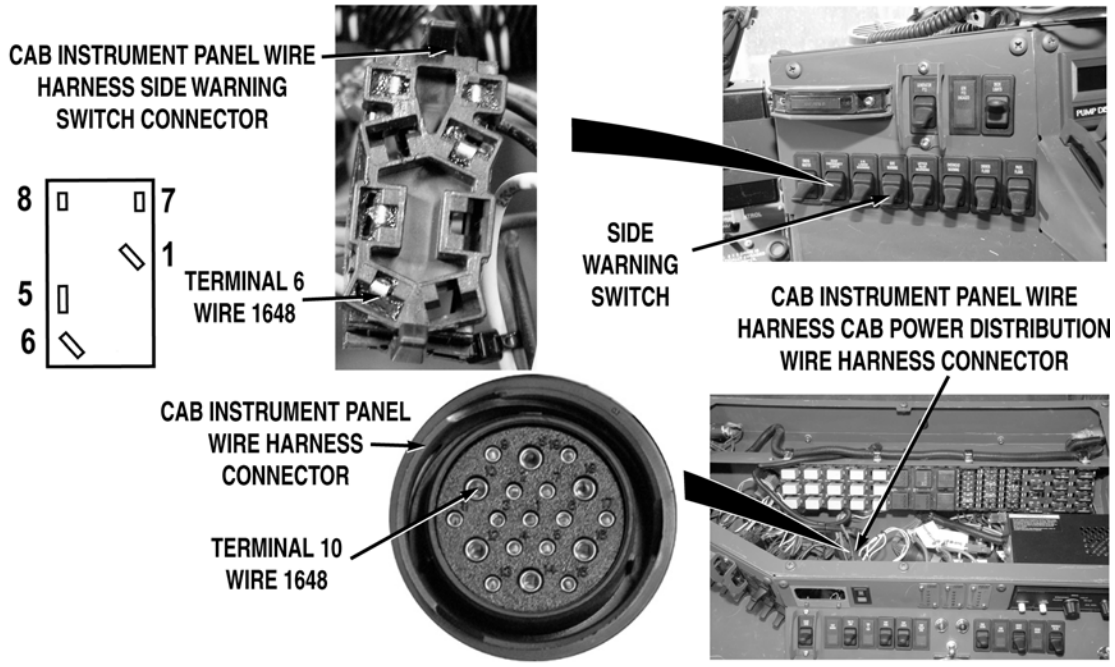
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Put EMERG MASTER, ROOF EMERGENCY LIGHTS, F/R LOWER WARNING, and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel A (WP 0311). Remove fuse FS4 from cab power distribution block (WP 0401). Check for continuity across terminal connectors on fuse FS5.

If there is no continuity, replace fuse FS 4 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Install fuse FS 4 (WP 0401). Remove personnel cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness SIDE WARNING switch connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between cab instrument panel wire harness wire 1648 (yellow) at cab instrument panel wire harness SIDE WARNING switch connector, terminal 6 and a known good ground.

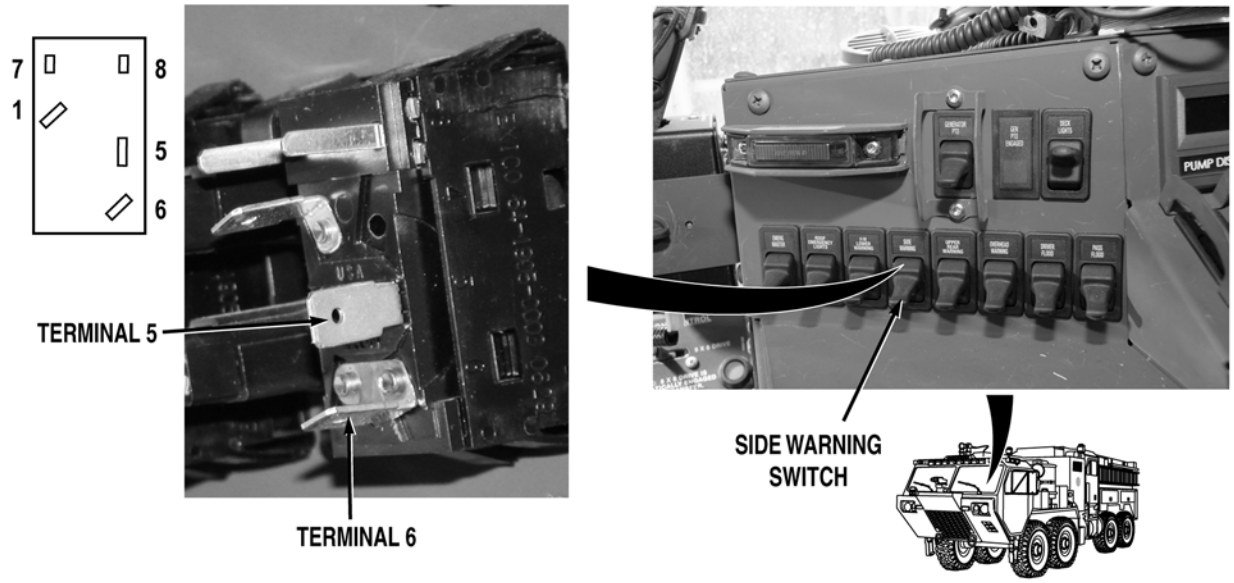
If 22 to 28 VDC are present, go to Step 8.

Step 7. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1648 (yellow) from cab instrument panel wire harness connector, terminal 10 to cab instrument panel wire harness SIDE WARNING switch connector, terminal 6.

a. If there is continuity, repair wire 1648 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

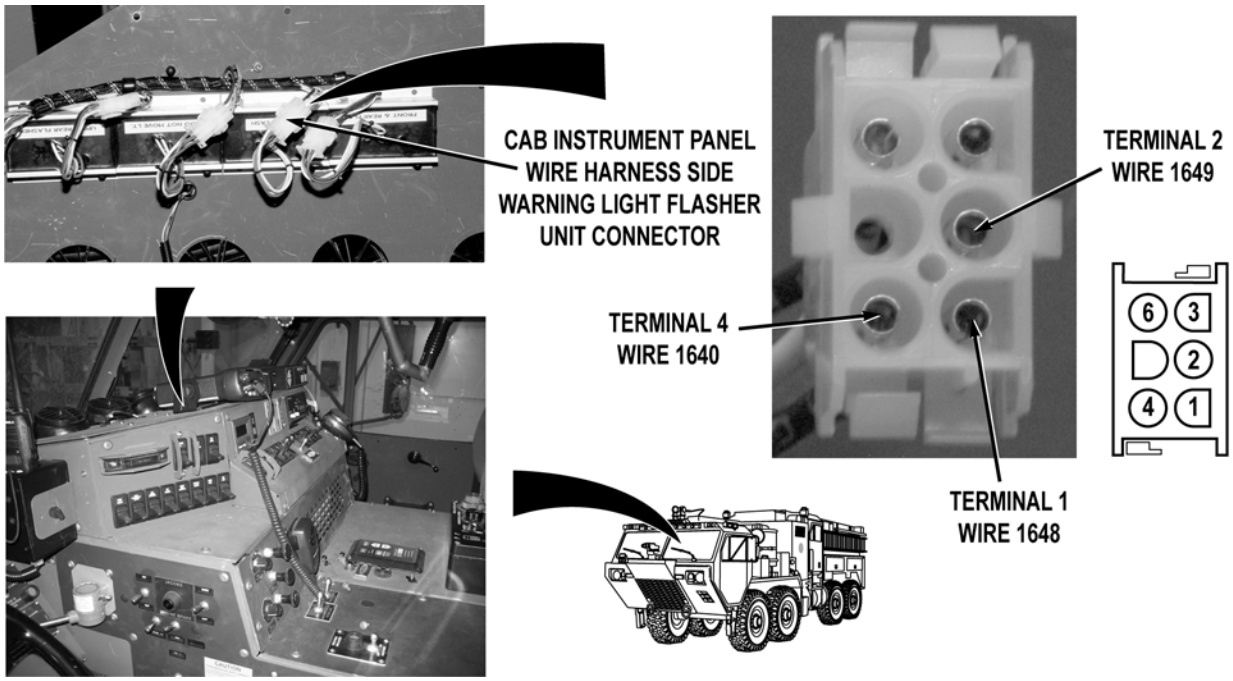
b. If there is no continuity, repair wire 1648 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 8. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across SIDE WARNING switch, from terminal 5 to terminal 6, when switch is in on position.

If there is no continuity, replace SIDE WARNING switch (WP 0315).



MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 9. Connect cab instrument panel wire harness SIDE WARNING switch connector (WP 0315). Disconnect cab instrument panel wire harness side warning light flasher unit connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to on position (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1648 (yellow) at side warning light flasher unit connector, terminal 1 and a known good ground.

If 22 to 28 VDC are not present, repair wire 1648 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 10. Put SIDE WARNING switch to on position (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1649 (yellow) at side warning light flasher unit connector, terminal 2 and a known good ground.

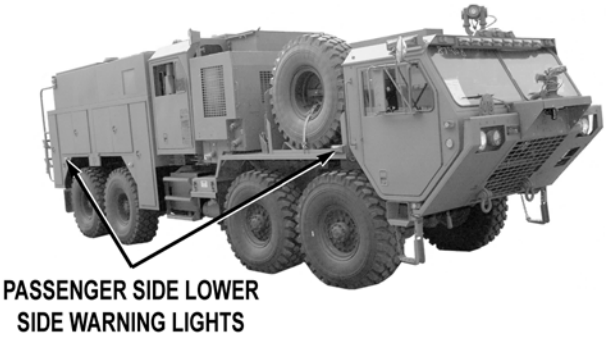
If 22 to 28 VDC are not present, repair wire 1649 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 11. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across wire 1640 (black) from cab instrument panel wire harness side warning light flasher unit connector, terminal 4 to a known good ground.

a. If there is continuity, replace side warning light flasher unit (WP 0348).

b. If there is no continuity, repair wire 1640 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

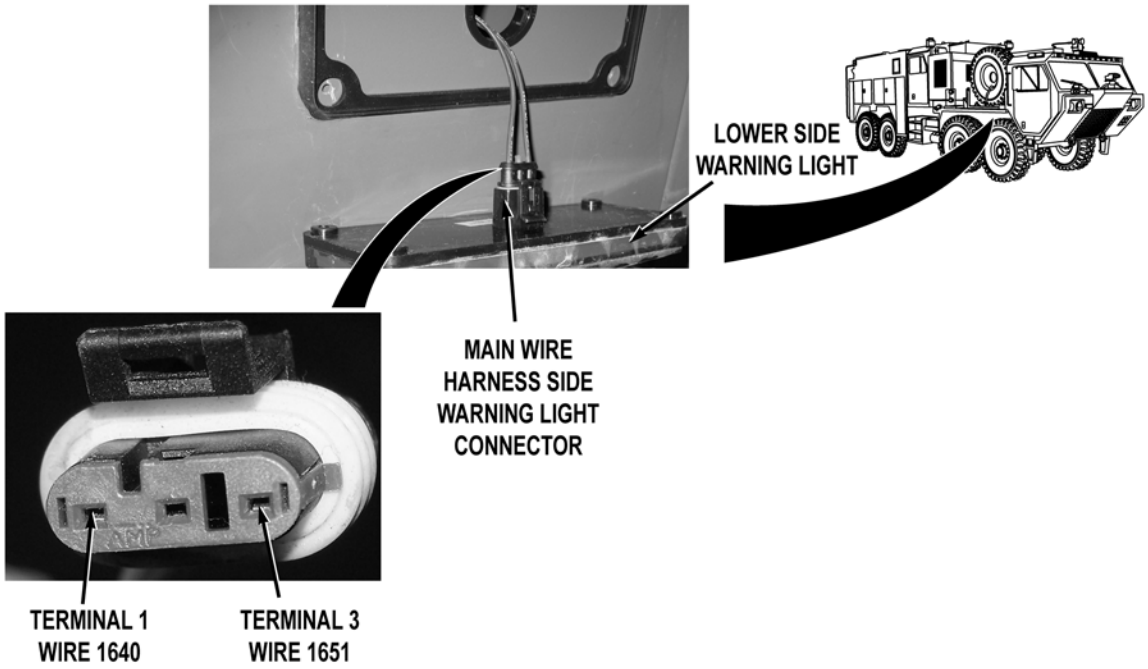


Step 12. Check if passenger or driver side lower side warning lights operate.

If all lower side warning lights operate, go to Step 19.

Step 13. Check if at least one lower side warning light operates on either driver or passenger side.

If at least one lower side warning light operate on either driver or passenger side, go to Step 16.



MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 14. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Remove non-operating lower side warning light (WP 0351). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and SIDE WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between main wire harness wire 1651 (brown) from main wire harness side warning light connector, terminal 3 to a known good ground.

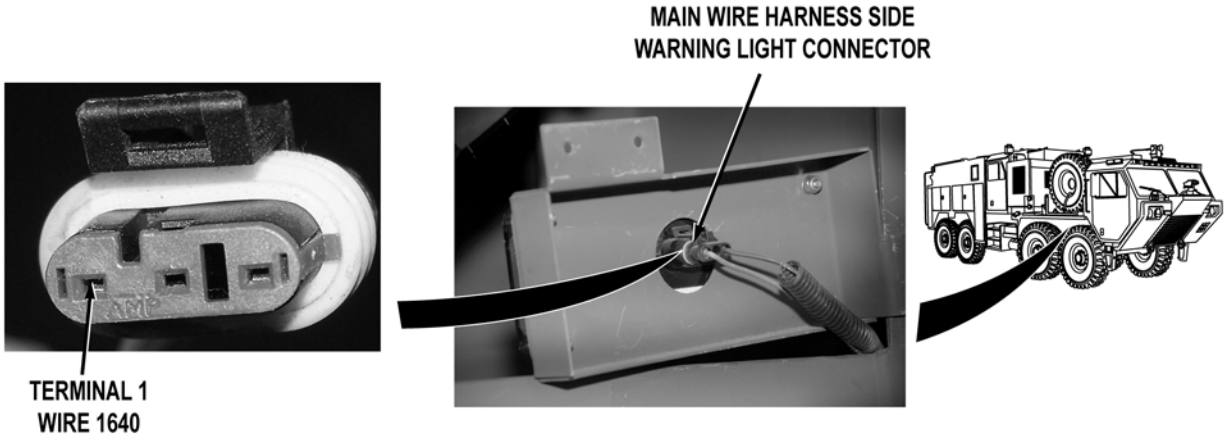
If 22 to 28 VDC are not present, repair wire 1651 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

Step 15. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across main wire harness wire 1640 (black) from main wire harness side warning light connector, terminal 1 to a known good ground.

a. If there is continuity, replace lower side warning light (WP 0351).

b. If there is no continuity, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

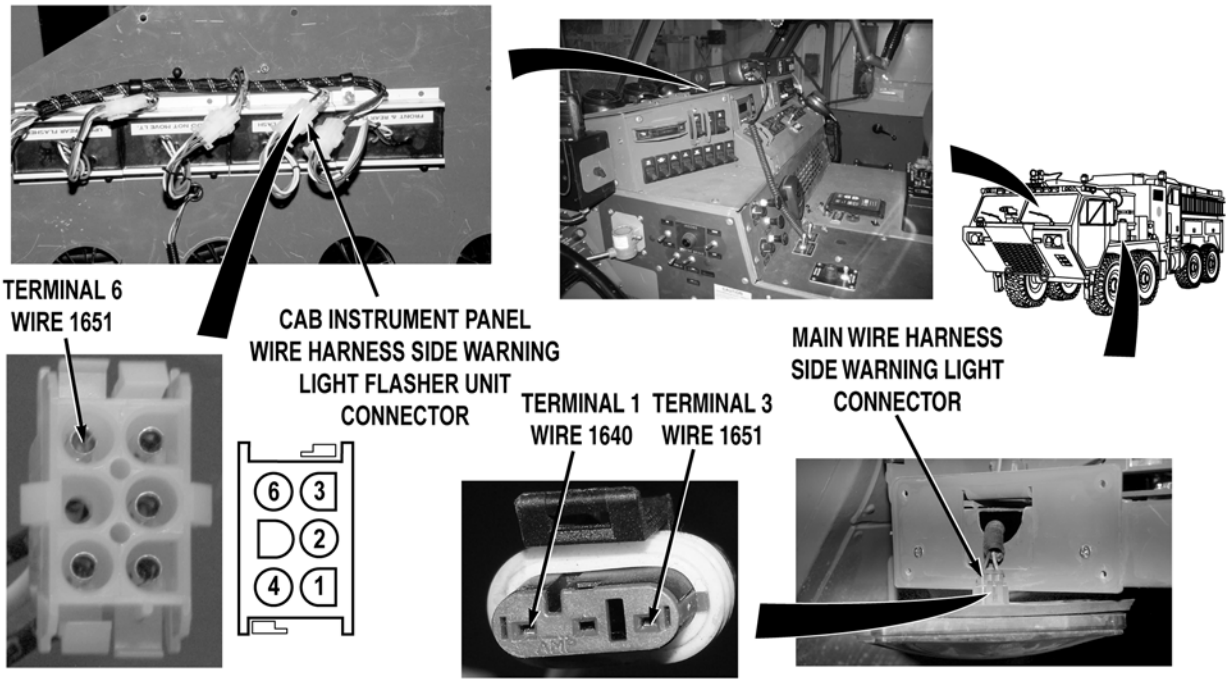
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove one non-operating lower side warning light (WP 0351). With a test lead set, check for continuity across main wire harness wire 1640 (black) from main wire harness side warning light connector, terminal 1 to a known good ground.

If there is no continuity, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

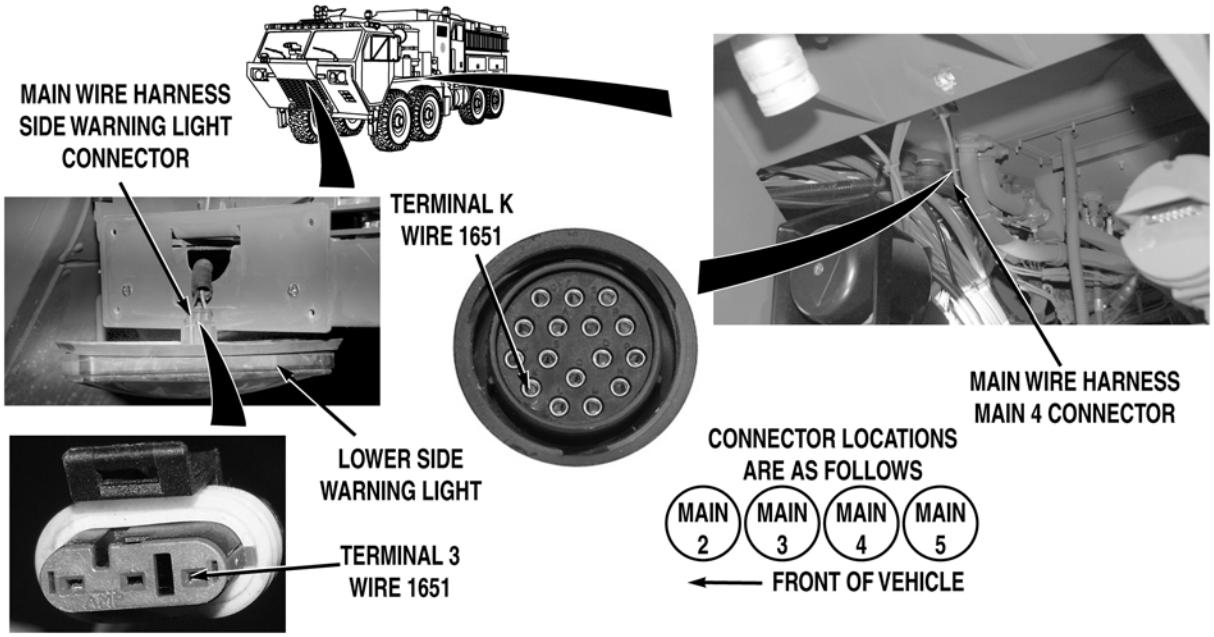
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Remove personnel cab instrument panel A (WP 0311). Disconnect cab instrument panel wire harness side warning light flasher unit connector. With a test lead set, check for continuity across wire 1651 (brown) from main wire harness side warning light connector, terminal 3 to cab instrument panel wire harness side warning light flasher unit connector, terminal 6.

If there is continuity, replace side warning light flasher unit (WP 0348).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

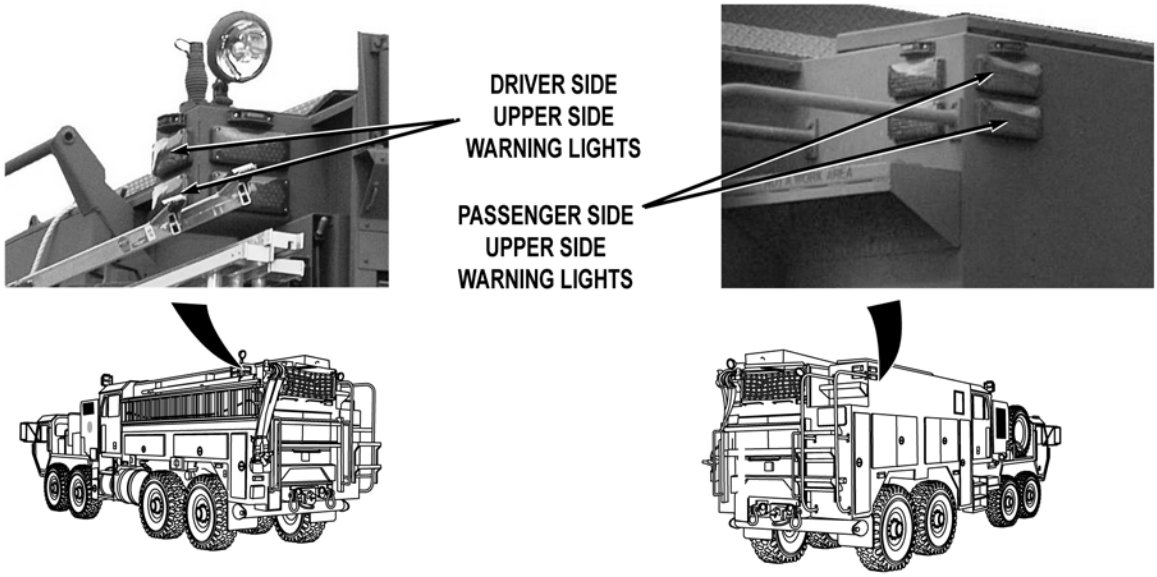


Step 18. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. With a test lead set, check for continuity across main wire harness wire 1651 (brown) from main wire harness side warning light connector, terminal 3 to main wire harness main 4 connector, terminal K.

a. If there is continuity, repair wire 1651 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If there is no continuity, repair wire 1651 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 19. Check if at least one upper driver and passenger side warning light operates.

If all upper side warning lights do not operate, go to Step 33.

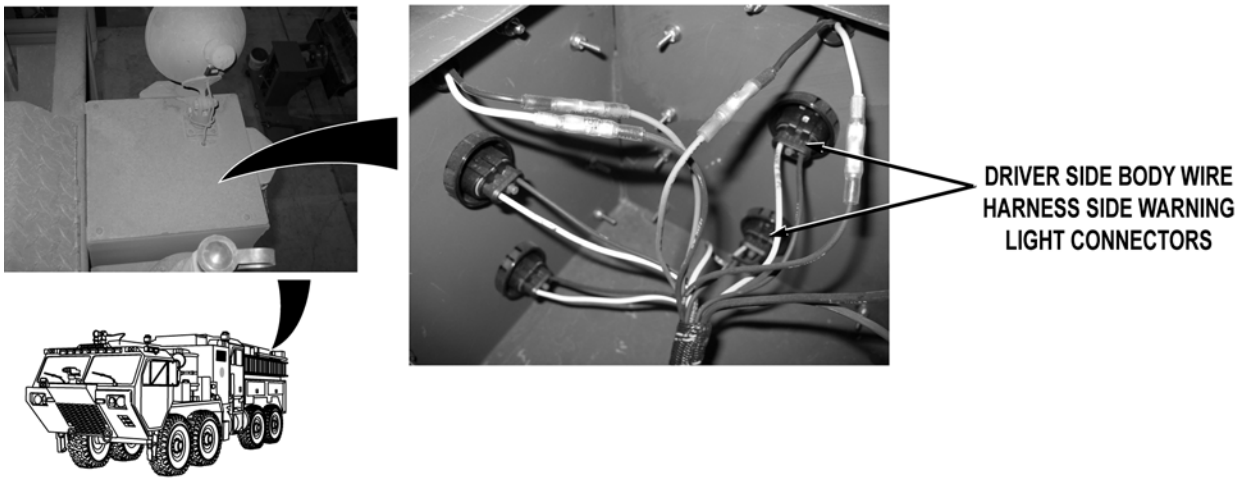
Step 20. Check if both driver side upper side warning lights operate.

If both driver side upper side warning lights operate, go to Step 27.

Step 21. Check if at least one driver side upper side warning light operates.

If both driver side upper side warning lights do not operate, go to Step 24.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



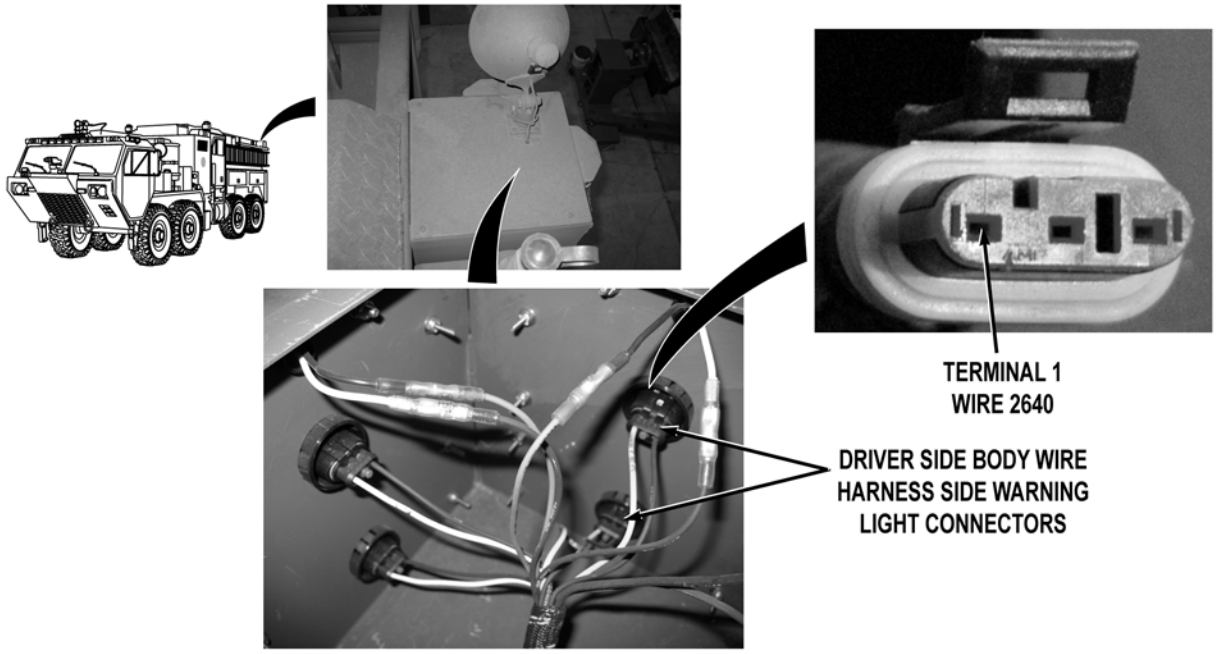
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 22. Put EMERG MASTER and SIDE WARNING switches to OFF position (WP 0007). Turn Service Drive Lights Off (TM 9-2320-347-10). Remove driver side light bezel cover (WP 0397). Disconnect driver side body wire harness side warning light connector from operating side warning light (WP 0351). Disconnect driver side body wire harness side warning light connector from non-operating upper side warning light (WP 0351). Connect driver side body wire harness side warning light connector that was disconnected from operating warning light to non-operating side warning light. Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and SIDE WARNING switches to on position (WP 0004). Check if non-operating warning light operates.

If warning light does not operate while connected to operating driver side body wire harness warning light connector, replace non-operating warning light (WP 0351).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

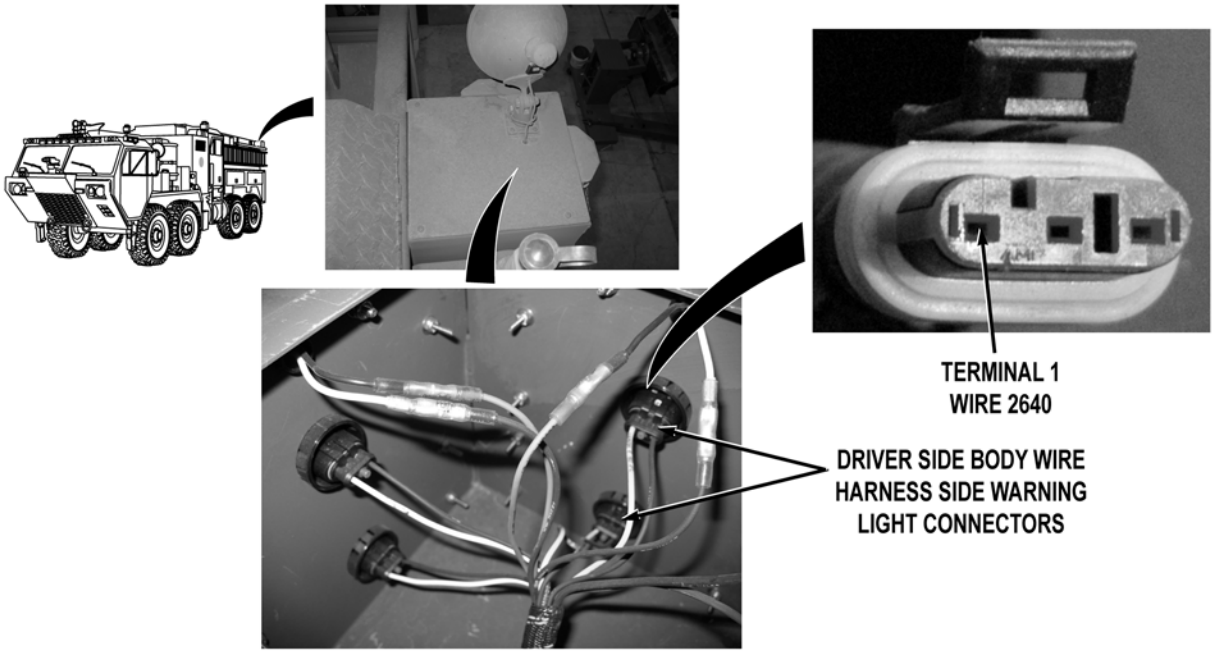


Step 23. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Put driver side body wire harness side warning light connectors back to original positions. Disconnect driver side body wire harness side warning light connector from non-operating upper side warning light (WP 0351). With a test lead set, check for continuity across driver side body wire harness wire 2640 (black) from driver side body wire harness side warning light connector, terminal 1 to a known good ground.

a. If there is continuity, repair wire 1650 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



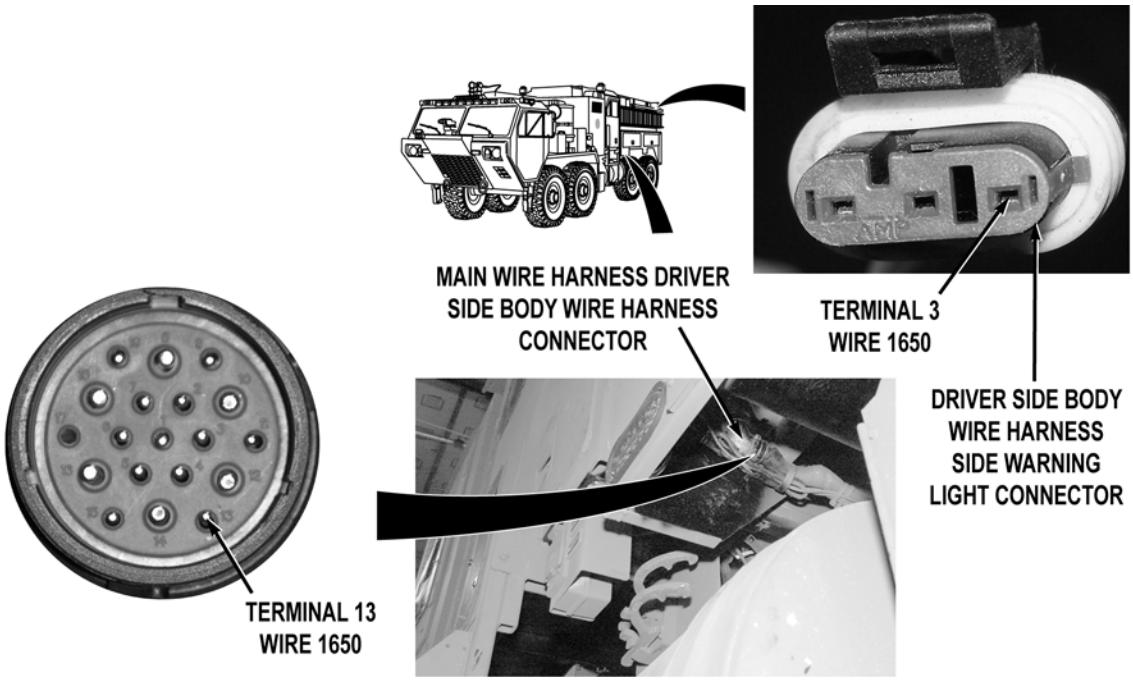
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 24. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove driver side light bezel cover (WP 0397). Disconnect driver side body wire harness side warning light connector from a non-operating upper side warning light. With a test lead set, check for continuity across wire 2640 (black) from driver side body wire harness warning light connector, terminal 1 to a known good ground.

If there is no continuity, go to Step 26.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 25. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across driver side body wire harness wire 1650 (yellow) from driver side body wire harness side warning light connector, terminal 3 to driver side body wire harness connector, terminal 13.

a. If there is continuity, repair wire 1650 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1650 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

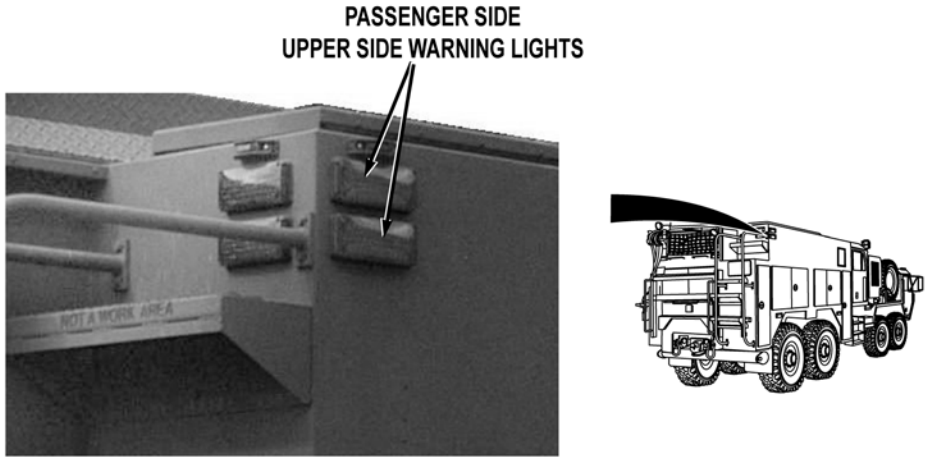
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 26. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2640 (black) from driver side body wire harness connector, terminal 10 to a known good ground.

a. If there is continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity at either terminal, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

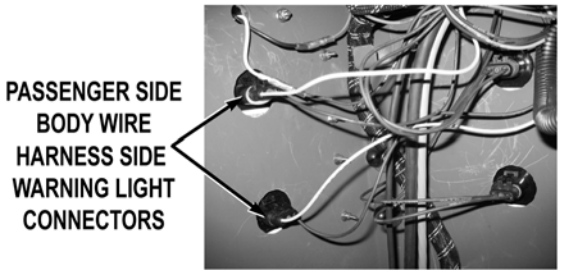
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

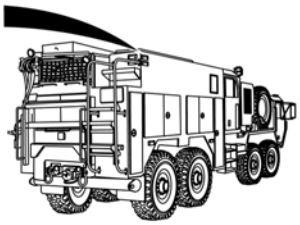


Step 27. Check if at least one passenger side upper side warning light operates.

If both passenger side upper side warning lights do not operate, go to Step 30.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION





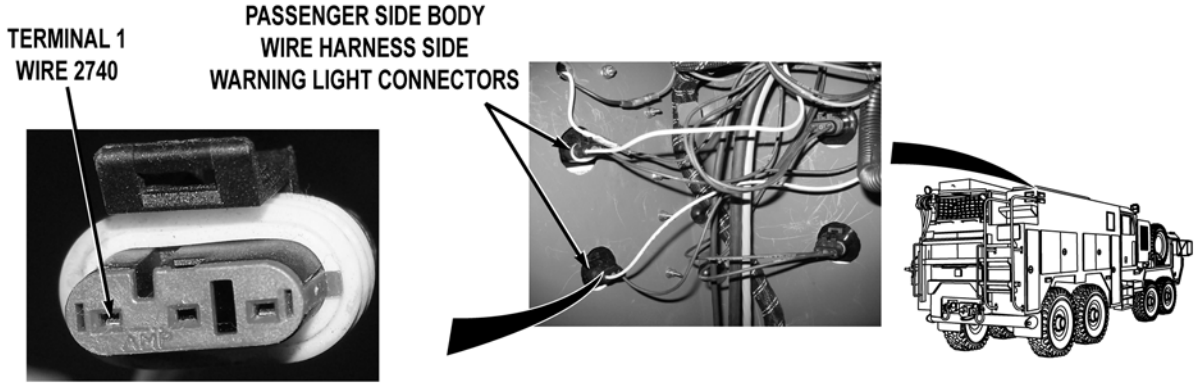
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 28. Put EMERG MASTER and SIDE WARNING switches to OFF position (WP 0007). Turn Service Drive Lights Off (TM 9-2320-347-10). Open upper stowage compartment hatch T1 (WP 0010). Remove cover bracket (WP 0456). Disconnect passenger side body wire harness side warning light connector from operating side warning light (WP 0351). Disconnect passenger side body wire harness side warning light connector from non-operating upper side warning light (WP 0351). Connect passenger side body wire harness side warning light connector that was disconnected from operating warning light to non-operating side warning light. Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and SIDE WARNING switches to on position (WP 0004). Check if non-operating warning light operates.

If warning light does not operate while connected to operating passenger side body wire harness side warning light connector, replace non-operating warning light (WP 0351).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

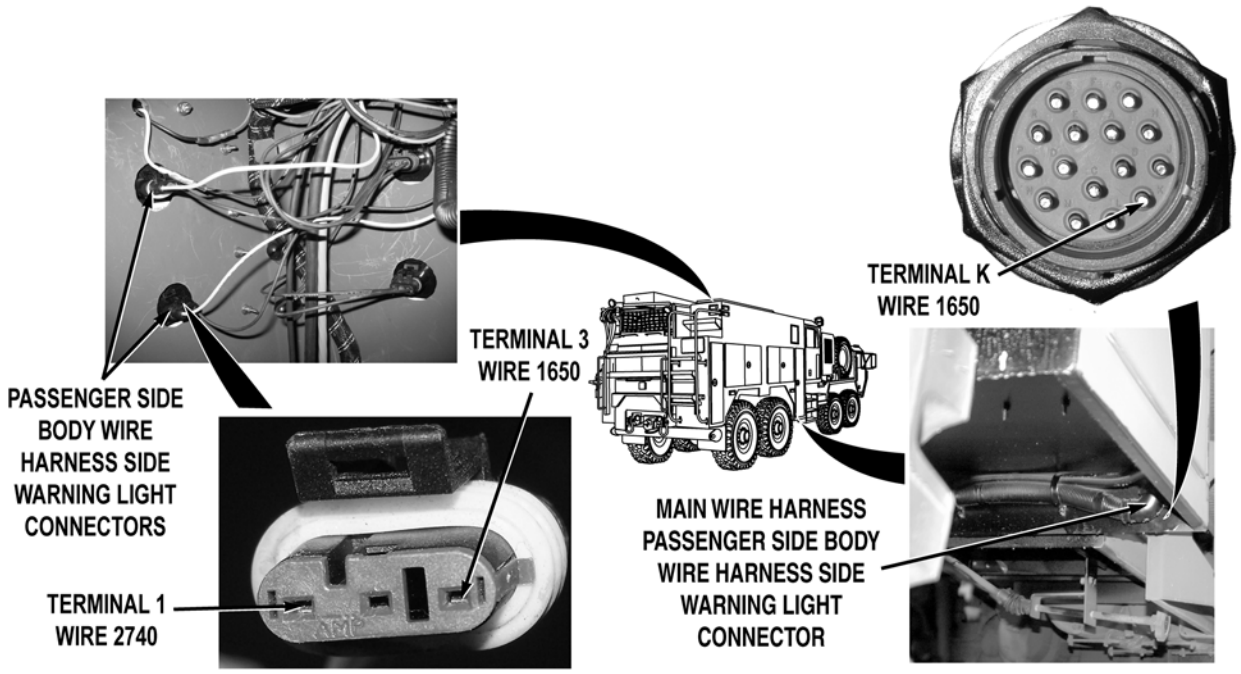


Step 29. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Put passenger side body wire harness side warning light connectors back to original positions. Disconnect passenger side body wire harness side warning light connector from non-operating upper side warning light (WP 0351). With a test load set, check for continuity across passenger side body wire harness wire 2740 (black) from passenger side body wire harness side warning light connector, terminal 1 to a known good ground.

a. If there is continuity, repair wire 1650 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 30. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open upper stowage compartment hatch T1 (WP 0010). Remove cover plate (WP 0456). Disconnect passenger side body wire harness side warning light connector from non-operating upper side warning light (WP 0351). With a test lead set, check for continuity across passenger side body wire harness wire 2740 (black) from passenger side body wire harness side warning light connector, terminal 1 to a known good ground.

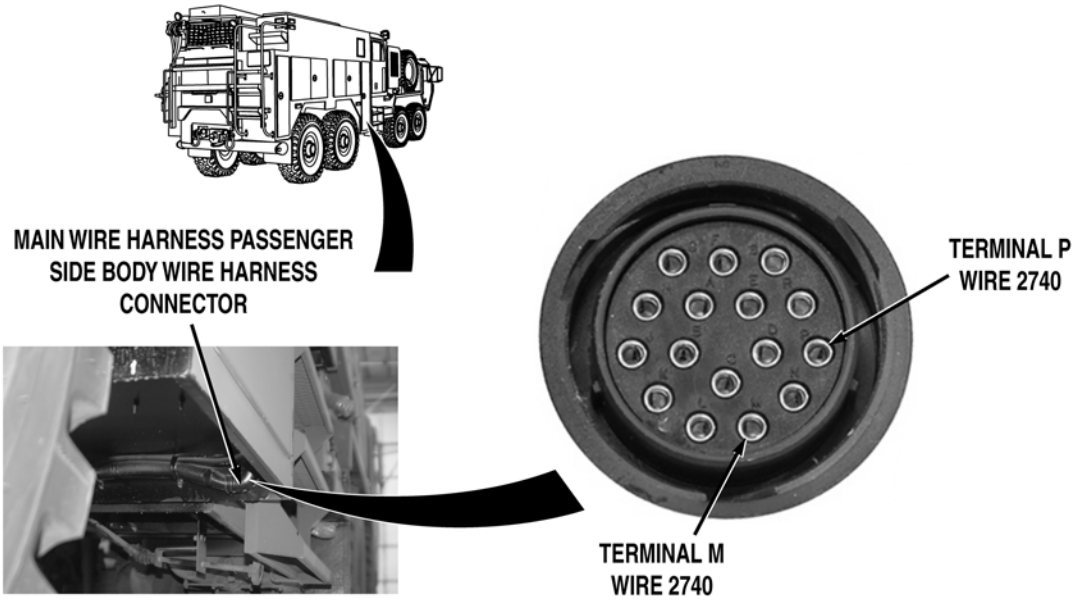
If there is no continuity, go to Step 32.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 31. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across passenger side body wire harness wire 1650 (yellow) from passenger side body wire harness side warning light connector, terminal 3 to passenger side body wire harness connector, terminal K.

a. If there is continuity, repair wire 1650 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1650 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

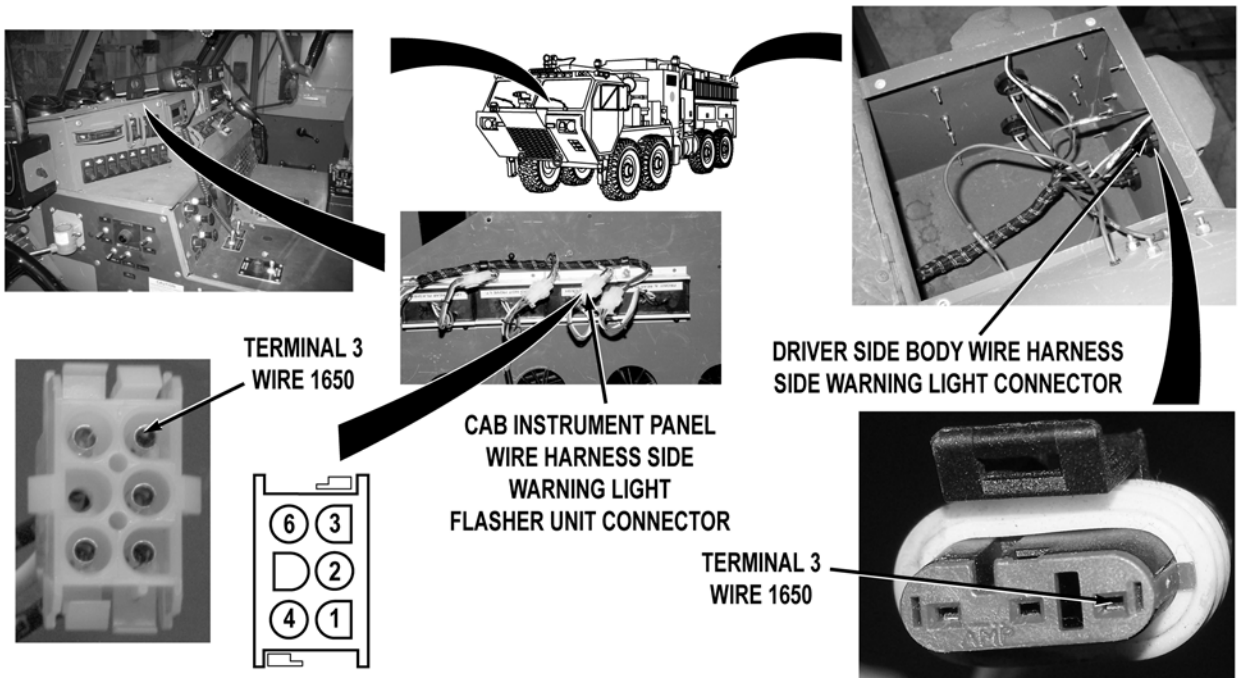


Step 32. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2740 (black) from main wire harness passenger side body wire harness connector, terminals M and P to a known good ground.

a. If there is continuity at both terminals, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity at either terminal, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



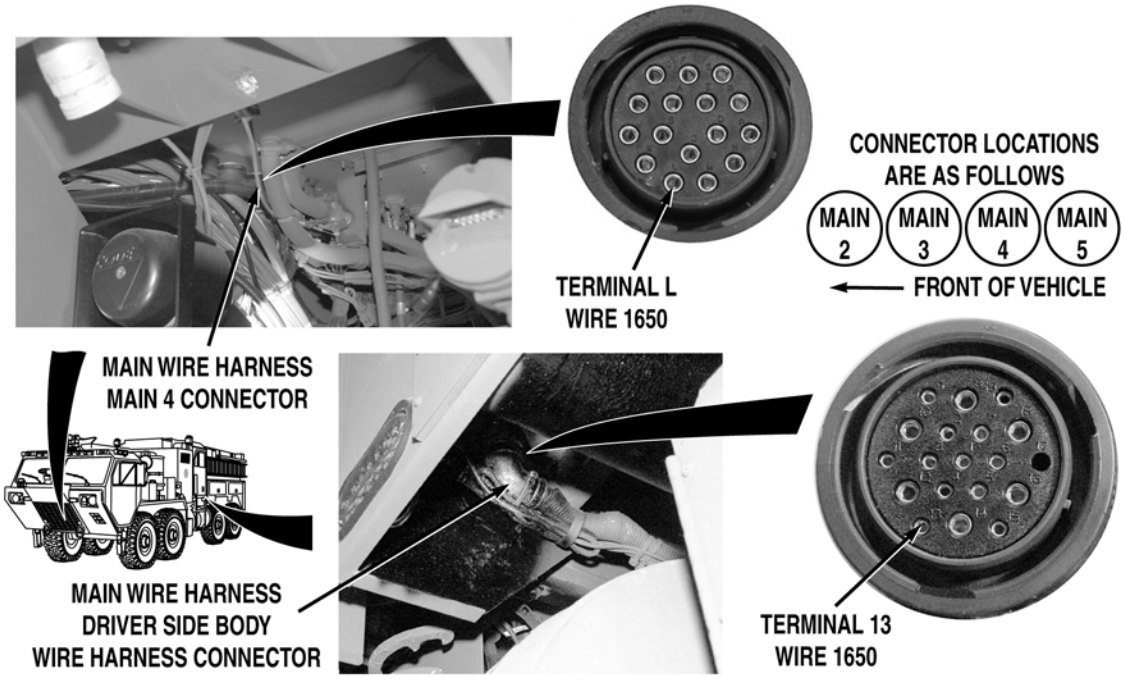
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 33. Put EMERG MASTER and SIDE WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove driver side light bezel cover (WP 0397). Disconnect driver side body wire harness side warning light connector from non-operating upper side warning light (WP 0351). Remove personnel cab instrument panel A (WP 0311). Disconnect cab instrument panel wire harness side warning light flasher unit connector. With a test lead set, check for continuity across wire 1650 (yellow) from driver side body wire harness side warning light connector, terminal 3 to cab instrument panel wire harness side warning light flasher connector, terminal 3.

If there is continuity, replace side warning light flasher unit (WP 0348).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 34. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 1650 (yellow) from main wire harness driver side body wire harness connector, terminal 13 to main wire harness main 4 connector, terminal L.

a. If there is no continuity, repair wire 1650 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is continuity, repair wire 1650 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WARNING LIGHTS (UPPER REAR) DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0151
WP 0182
WP 0311
WP 0348
WP 0351
WP 0352

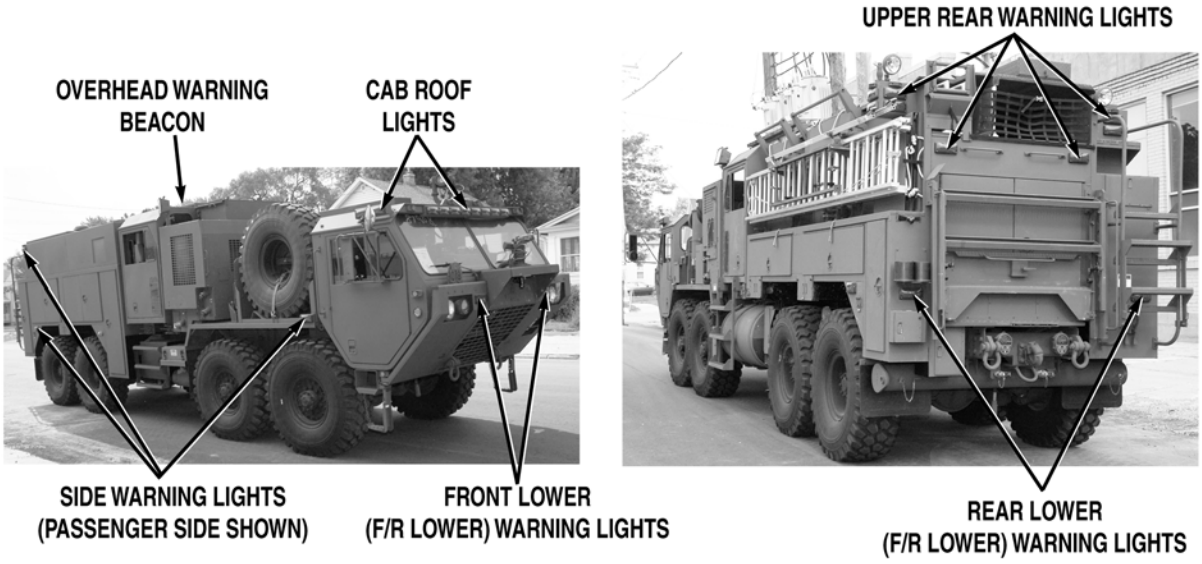
References (continued)
WP 0401
WP 0402
WP 0440
WP 0441
WP 0448
WP 0455
WP 0456
WP 0461
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING LIGHTS (UPPER REAR) DO NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). Check if at least one upper rear warning light operates.

If at least one upper rear warning light operates, go to Step 12.

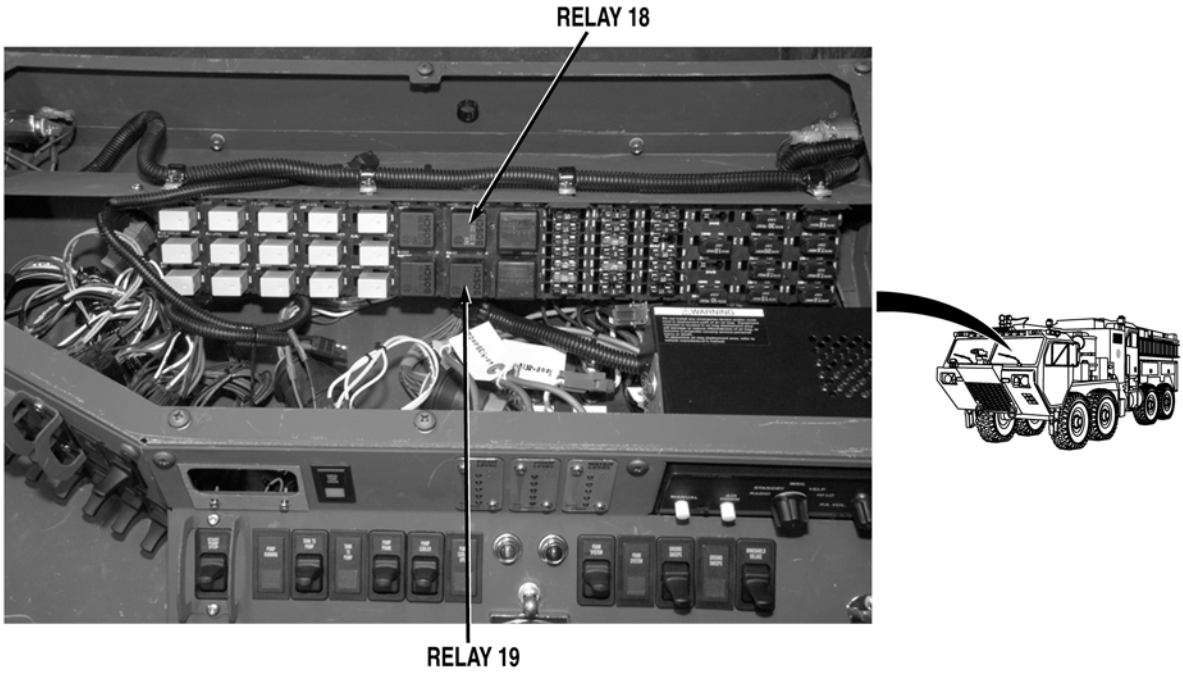
Step 2. Put OVERHEAD WARNING switch to on position (WP 0004). Check if overhead warning beacon operates.

If overhead warning beacon operates, go to Step 5.

Step 3. Put F/R LOWER WARNING, ROOF EMERGENCY LIGHTS, and SIDE WARNING switches to on position (WP 0004). Check if front and rear lower, cab roof, and/or side warning lights operate.

If front and rear lower, cab roof, and/or side warning lights do not operate, troubleshoot Warning Lights (All) Do Not Operate (WP 0151).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

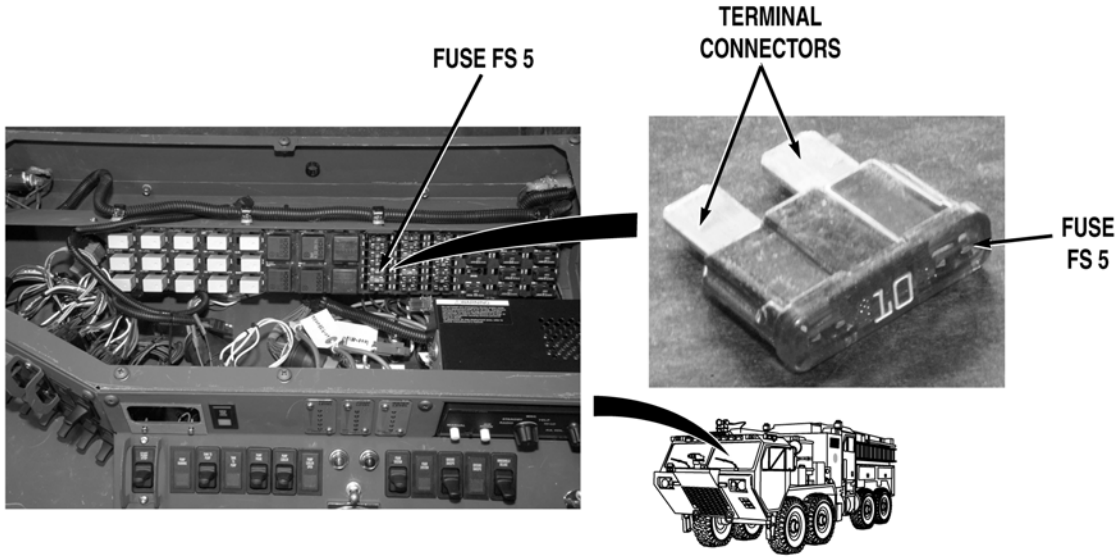
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 4. Put EMERG MASTER, ROOF EMERGENCY LIGHTS, F/R LOWER WARNING, SIDE WARNING, UPPER REAR WARNING, and OVERHEAD WARNING switches to off position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel A (WP 0311). Swap relays 18 and 19 (WP 0402). Turn battery disconnect switch to ON position (WP 0007). Put EMERG MASTER and UPPER REAR switches to on position (WP 0004). Check if upper rear warning lights operate.

a. If upper rear warning lights operate, return relays to original positions and replace relay 19 (WP 0402).

b. If upper rear warning lights do not operate, replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



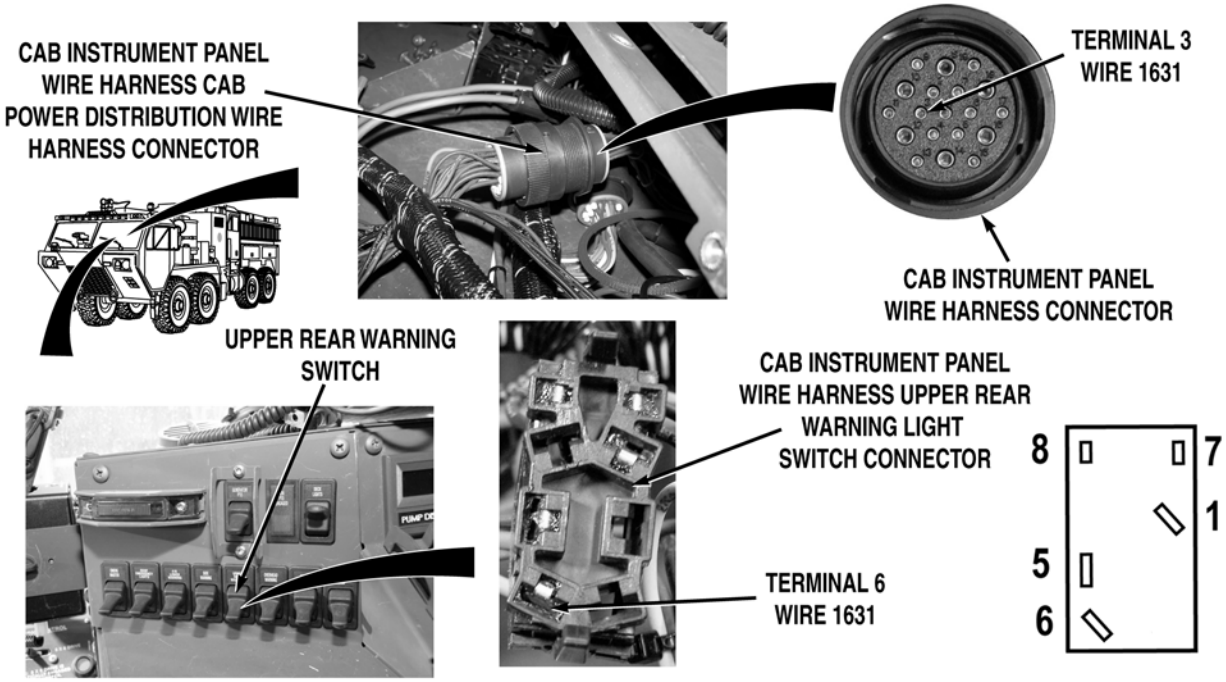
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Put EMERG MASTER, UPPER REAR WARNING, and OVERHEAD WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel A (WP 0311). Remove fuse FS 5 (WP 0401). Check for continuity across terminal connectors on fuse FS 5.

If there is no continuity, replace fuse FS 5 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Install fuse FS 5 (WP 0401). Remove personnel cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness UPPER REAR WARNING switch connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to on position (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1631 (brown) at cab instrument panel wire harness UPPER REAR WARNING switch connector, terminal 6 and a known good ground.

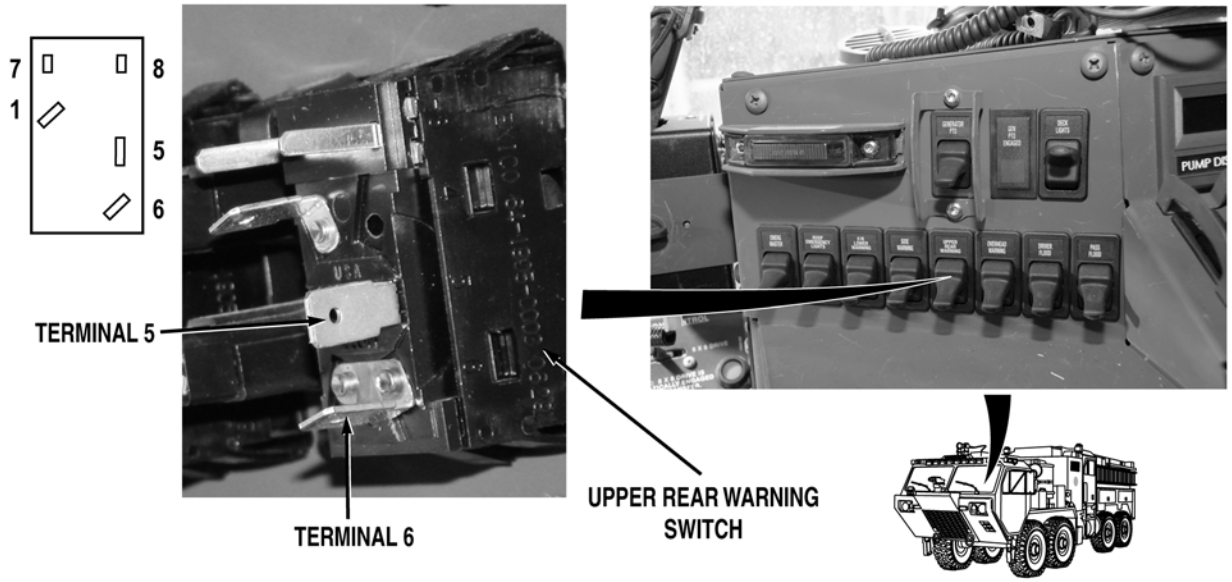
If 22 to 28 VDC are present, go to Step 8.

Step 7. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. Check for continuity across cab instrument panel wire harness wire 1631 (brown) from cab instrument panel wire harness connector, terminal 3 to UPPER REAR WARNING switch connector, terminal 6.

a. If there is continuity, repair wire 1631 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1631 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



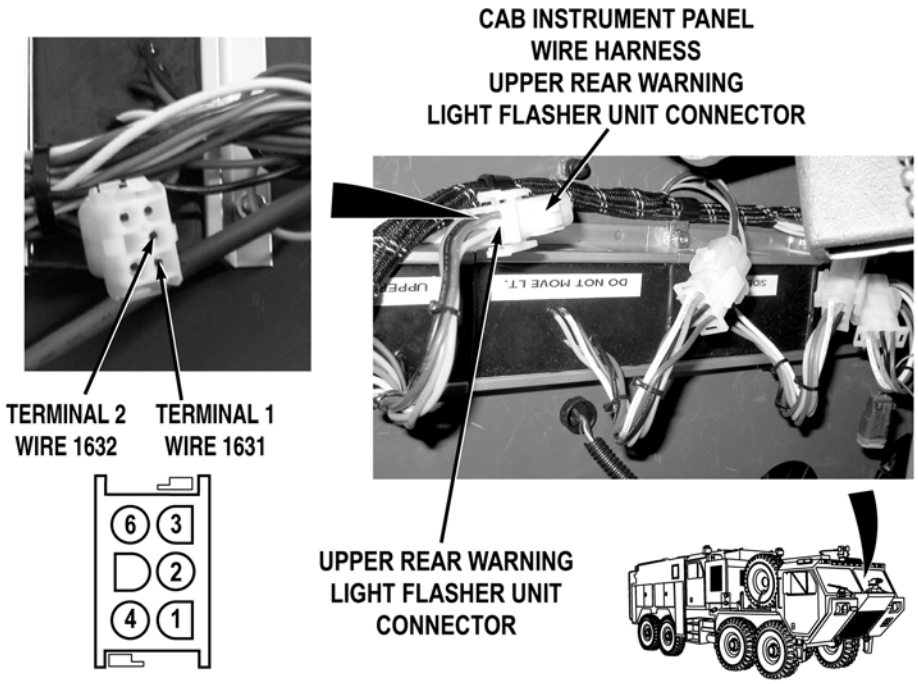
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 8. Put EMERG MASTER switch to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Put UPPER REAR WARNING switch to on position (WP 0004). Check for continuity across UPPER REAR WARNING switch, from terminal 5 to terminal 6.

If there is no continuity, replace UPPER REAR WARNING switch (WP 0315).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



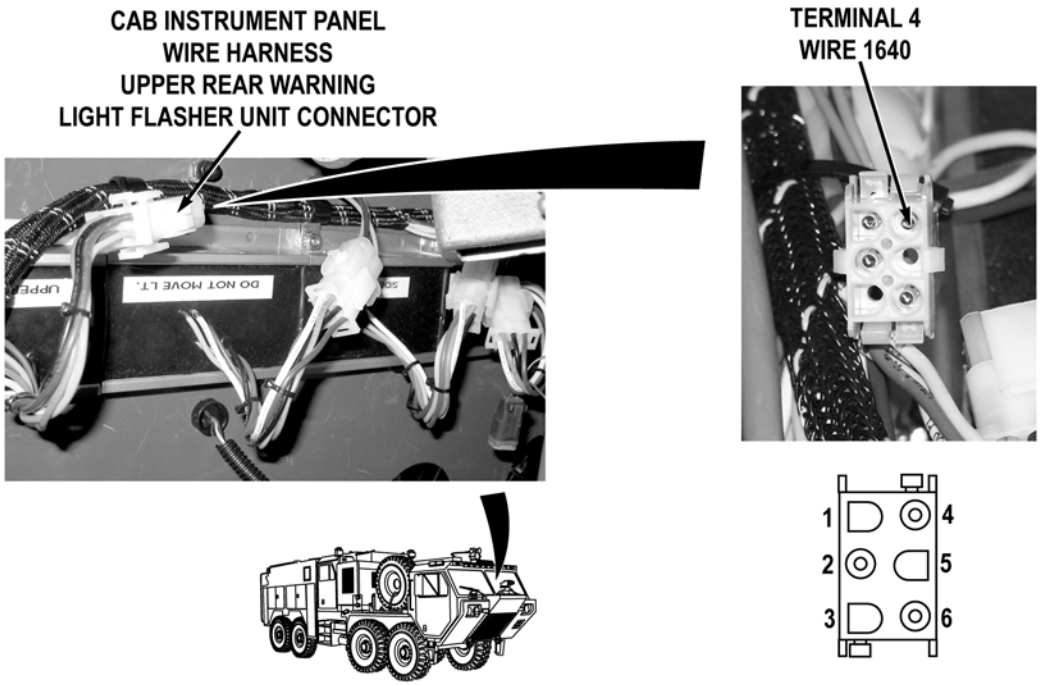
Step 9. Disconnect cab instrument panel wire harness upper rear warning light flasher unit connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER switch to on position (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1631 (brown) at upper rear warning light flasher unit connector, terminal 1 and a known good ground.

If 22 to 28 VDC are not present, repair wire 1631 in cab instrument panel wire harness if repairable, (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

Step 10. Put UPPER REAR WARNING switch to on position (WP 0004). Check for 22 to 28 VDC between cab instrument panel wire harness wire 1632 (brown) at upper rear warning light flasher unit connector, terminal 2 and a known good ground.

If 22 to 28 VDC are not present, repair wire 1632 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 11. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across wire 1640 (black) from cab instrument panel wire harness upper rear warning light flasher unit connector, terminal 4 to a known good ground.

a. If there is continuity, replace upper rear warning light flasher unit (WP 0348).

b. If there is no continuity, repair wire 1640 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 12. Check if all three driver side upper rear warning lights operate.

If all three driver side upper rear warning lights are operating, go to Step 29.

Step 13. Check if at least one driver side upper rear warning light operates.

If all three driver side upper rear warning lights do not operate, go to Step 27.

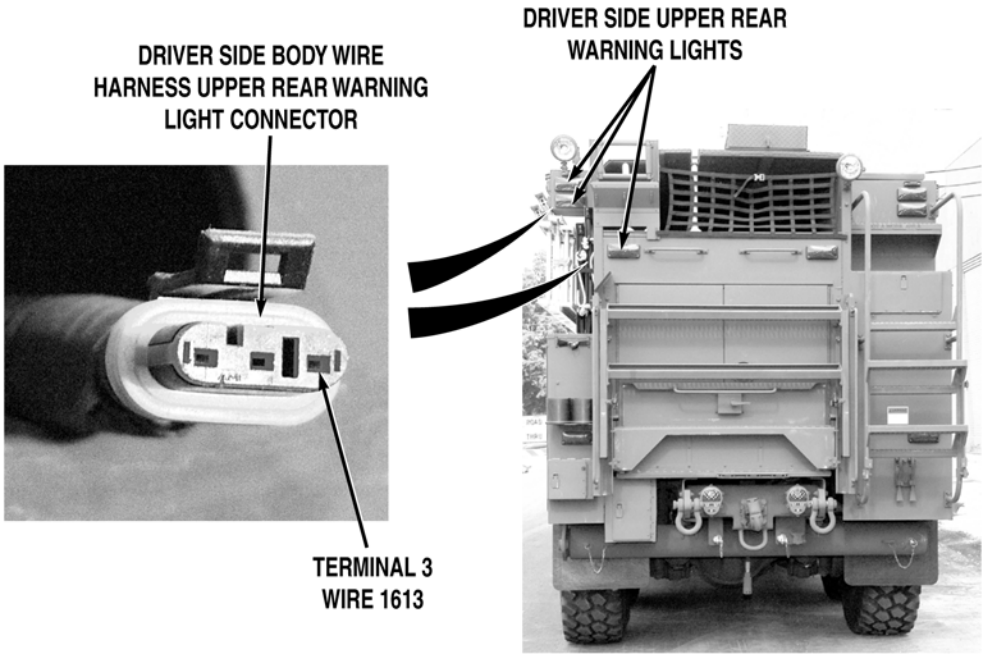
Step 14. Check if lower driver side upper rear warning light operates.

If lower driver side upper rear warning light does not operate, go to Step 21.

Step 15. Check if both upper driver side upper rear warning lights do not operate.

If one upper driver side upper rear warning light operates, go to Step 19.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 16. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove driver side deck spotlight and bezel box cover (WP 0352). Disconnect driver side body wire harness upper rear warning light connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between wire 1613 (white) from driver side body wire harness upper rear warning light connector terminal 3, to a known good ground.

If 22 to 28 VDC are present, go to Step 18.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 17. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness driver side body wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between wire 1613 (white) from main wire harness driver side body wire harness connector, terminal 9 to a known good ground.

a. If 22 to 28 VDC are present, repair wire 1613 in driver side body harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If 22 to 28 VDC are not present, repair wire 1613 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

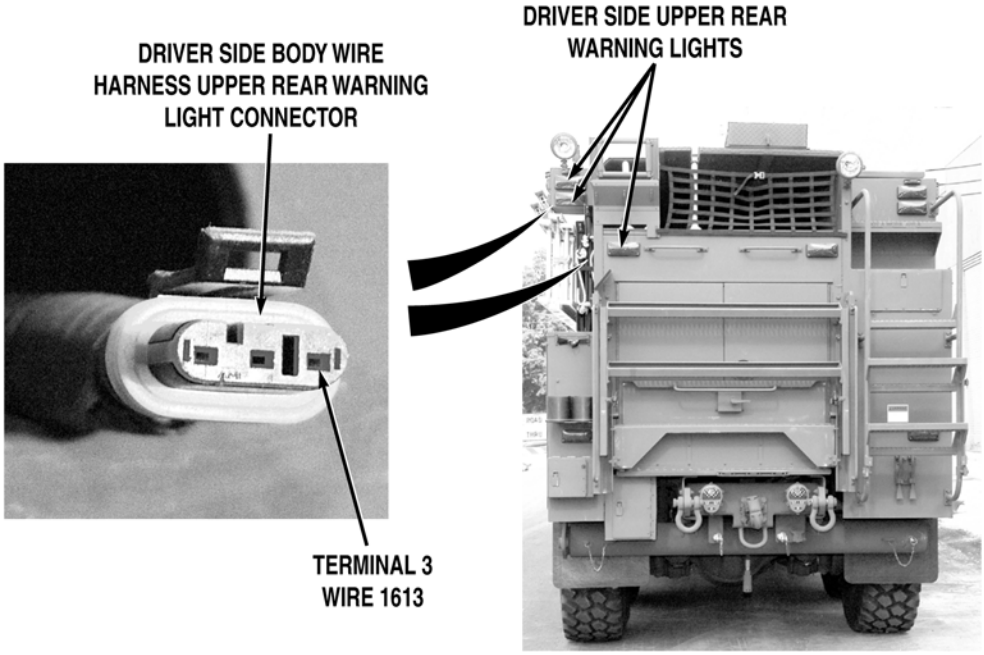
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 18. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across wire 2640 (black) from main wire harness driver side body wire harness connector, terminal 10 to a known good ground.

a. If there is continuity, repair wire 2640 in driver side body harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



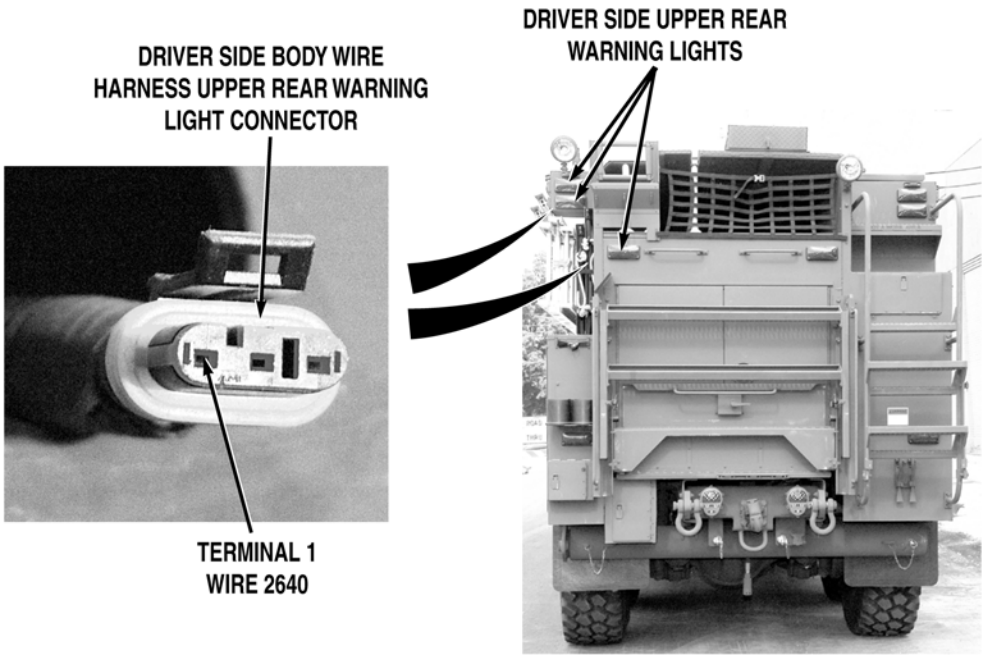
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 19. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove driver side deck spotlight and bezel box cover (WP 0352). Disconnect driver side body wire harness upper rear warning light connector from operating warning light (WP 0351). Disconnect driver side body wire harness upper rear warning light connector from non-operating warning light (WP 0351). Connect driver side body wire harness connector that was disconnected from operating upper rear warning light to non-operating upper rear warning light. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). Check if upper rear warning light in non-operating position operates.

If warning light connected to operating driver side body wire harness connector does not operate, replace non-operating warning light (WP 0351).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

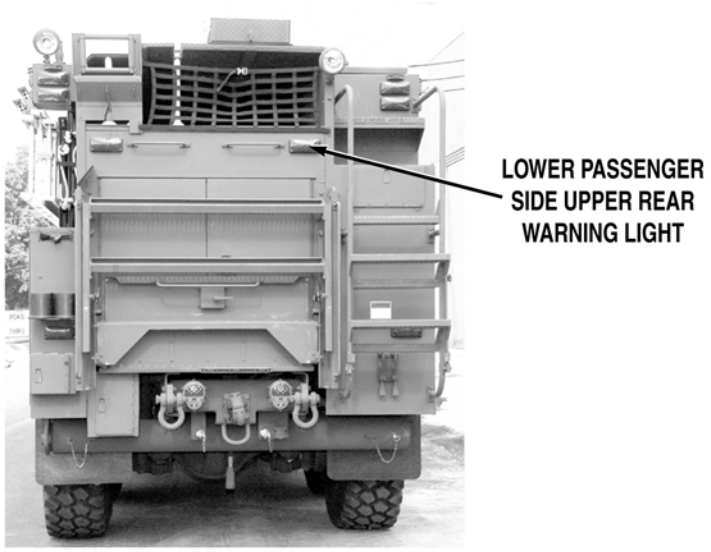


Step 20. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across driver side body wire harness upper rear warning light connector wire 2640 (black) from non-operating warning light connector, terminal 1 to a known good ground.

a. If there is continuity, repair wire 1613 (white) in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 21. Check if lower passenger side upper rear warning light operates.

If lower passenger side upper rear warning light does not operate, go to Step 26.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

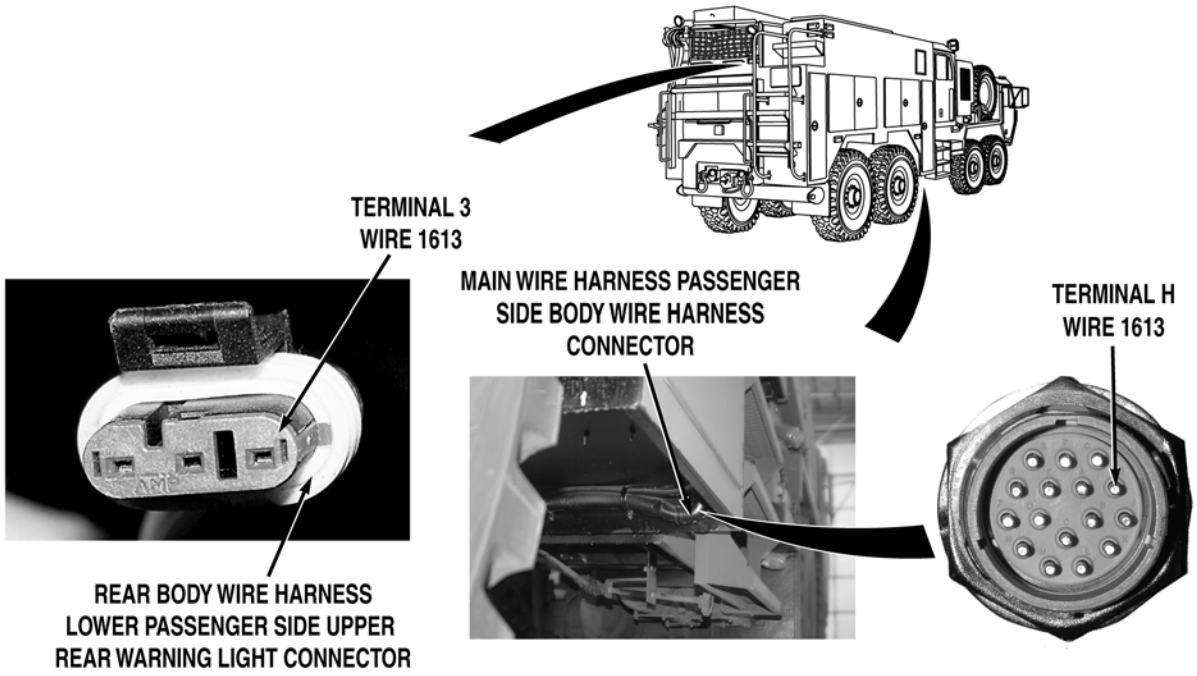
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 22. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect rear body wire harness lower passenger side upper rear warning light connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). Check for 22 to 28 VDC between wire 1613 (white) from rear body wire harness lower passenger side upper rear warning light connector, terminal 3 to a known good ground.

If 22 to 28 VDC are present, go to Step 25.

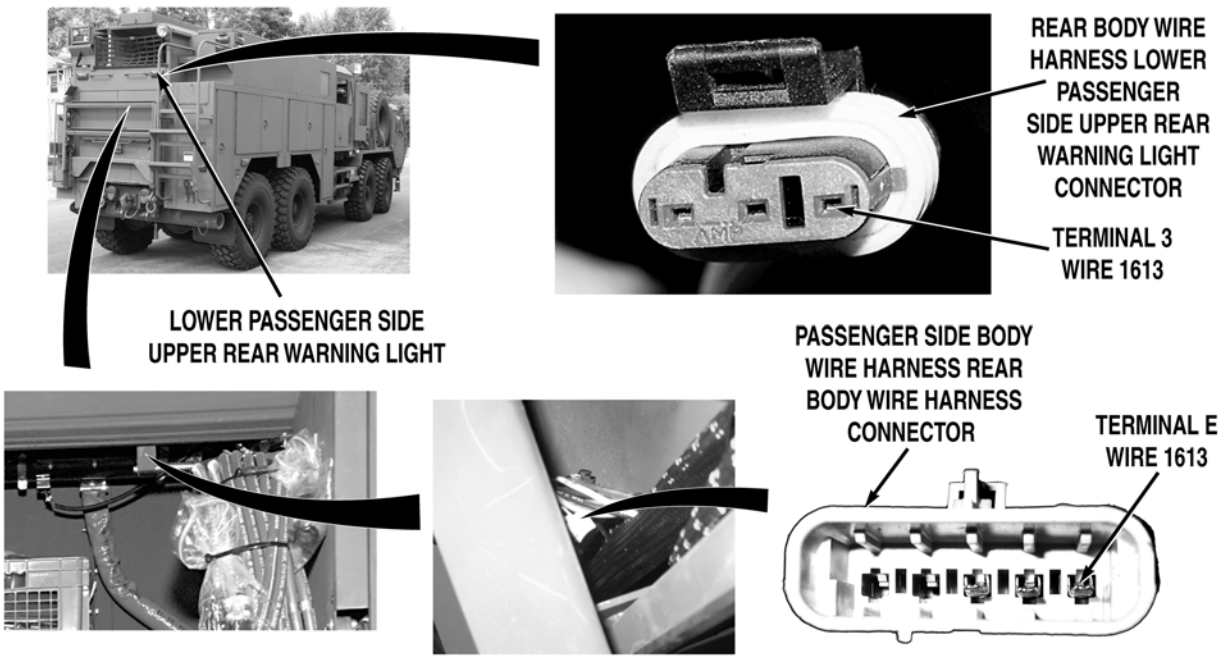
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 23. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across wire 1613 (white) from main wire harness passenger side body wire harness, terminal H to rear body wire harness lower passenger side upper rear warning light connector, terminal 3.

If there is continuity, repair wire 1613 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 24. Disconnect passenger side body wire harness rear body wire harness connector. Check for continuity across rear body wire harness wire 1613 (white) from rear body wire harness lower passenger side upper rear warning light connector, terminal 3 to passenger side body wire harness rear body wire harness connector, terminal E.

a. If there is continuity, repair wire 1613 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 1613 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

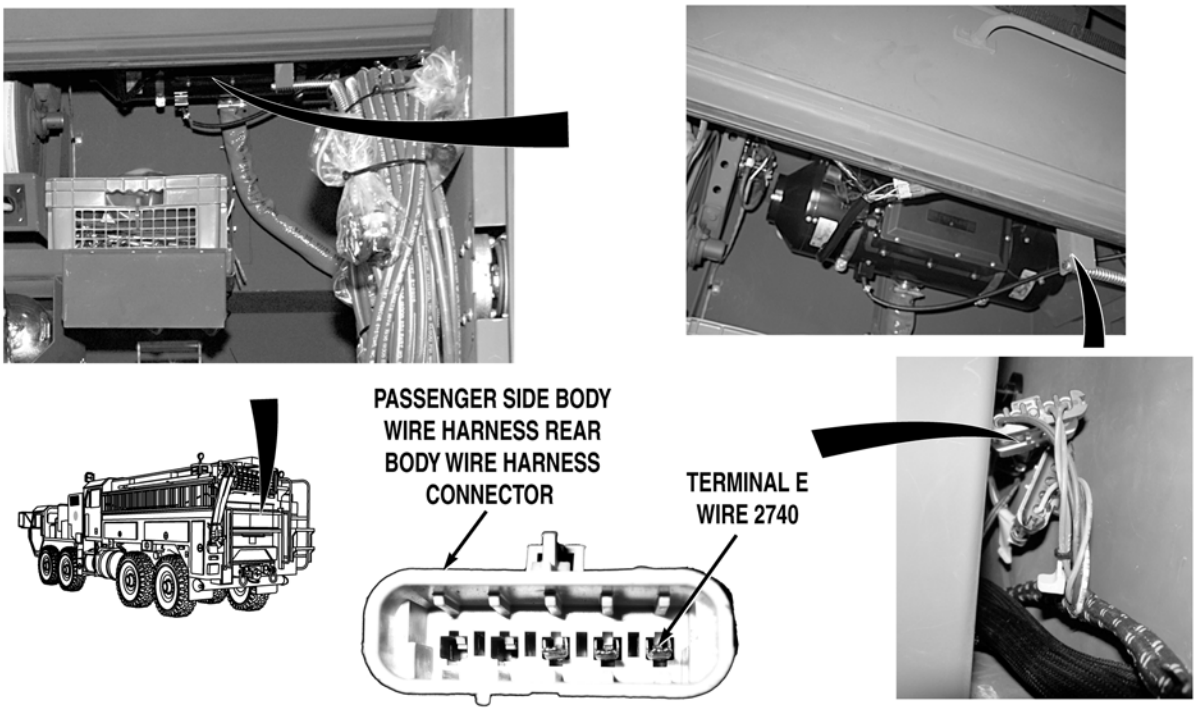
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 25. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across wire 2740 (black) from rear body wire harness lower passenger side upper rear warning light connector, terminal 1 to a known good ground.

a. If there is continuity, replace lower passenger side upper rear warning light (WP 0351).

b. If there is no continuity, repair wire 2740 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

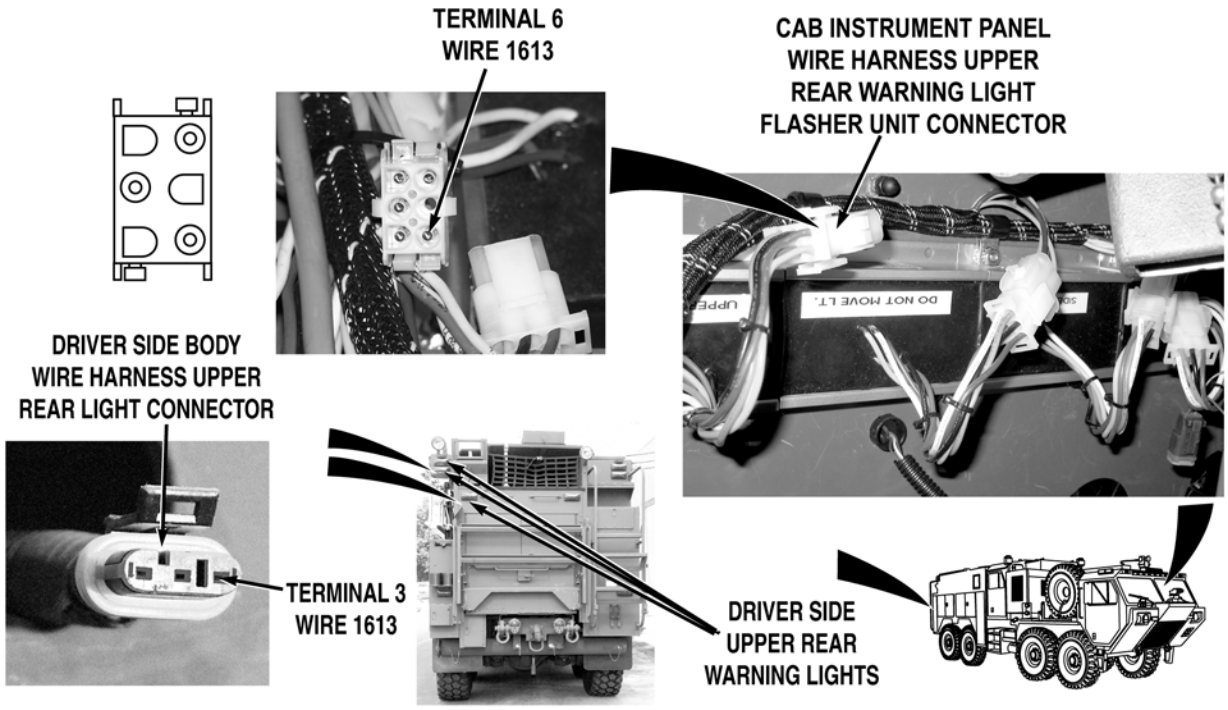


Step 26. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect passenger side body wire harness rear body wire harness connector. Check for continuity across wire 2740 (black) from passenger side body wire harness rear body wire harness connector, terminal E to a known good ground.

a. If there is continuity, repair wire 2740 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

b. If there is no continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



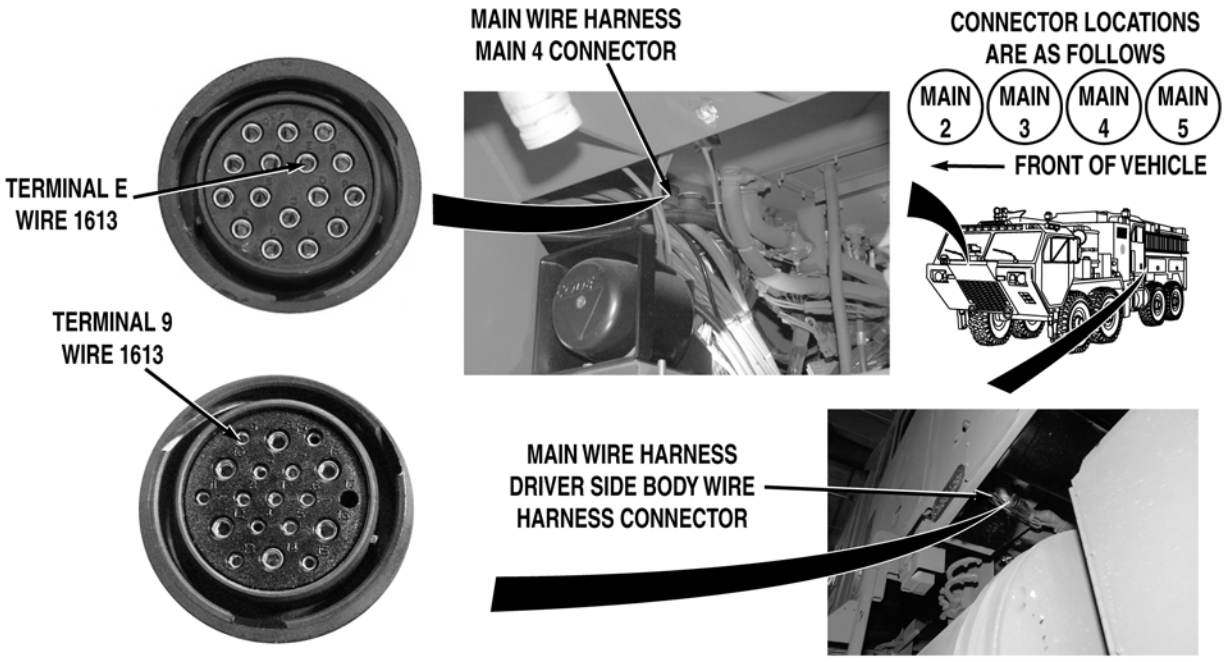
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 27. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove driver side deck spotlight and bezel box cover (WP 0352). Disconnect driver side body wire harness upper rear warning light connector. Remove personnel cab instrument panel A (WP 0311). Disconnect cab instrument panel wire harness upper rear warning light flasher unit connector. With a test lead set, check for continuity across wire 1613 (white) from driver side body wire harness warning light connector, terminal 3 to cab instrument panel wire harness upper rear warning light flasher unit connector, terminal 6.

If there is continuity, replace upper rear warning light flasher unit (WP 0348).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

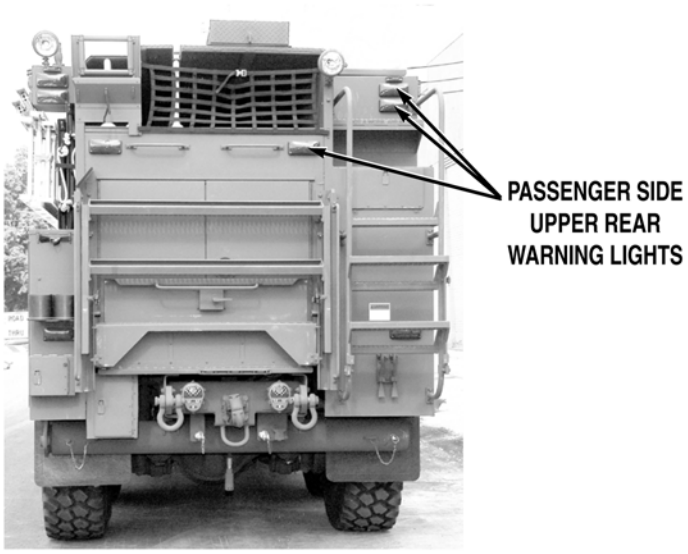


Step 28. Disconnect main wire harness driver side body wire harness connector. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. With a test lead set, check for continuity across main wire harness wire 1613 from main wire harness main 4 connector, terminal E to main wire harness driver side body wire harness connector, terminal 9.

a. If there is continuity, repair wire 1613 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If there is no continuity, repair wire 1613 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 29. Check if at least one passenger side upper rear warning light operates.

If all three passenger side upper rear warning lights do not operate, go to Step 39.

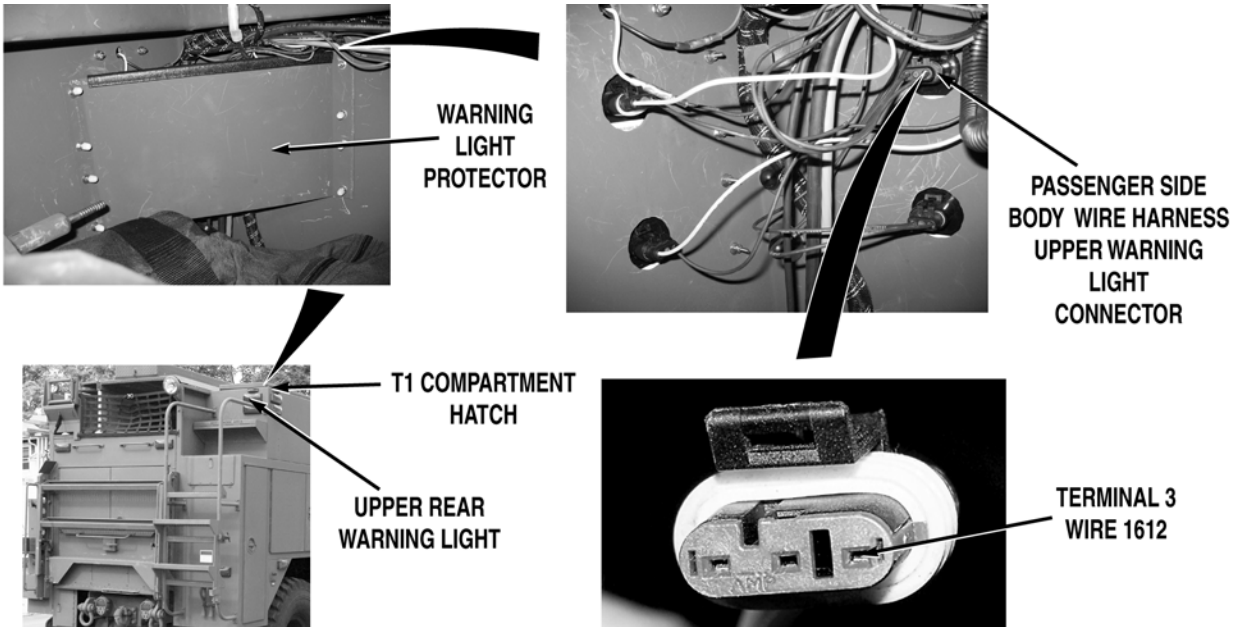
Step 30. Check if lower passenger side upper rear warning light operates.

If lower passenger side upper rear warning light does not operate, go to Step 35.

Step 31. Check if both upper passenger side upper rear warning lights do not operate.

If one upper passenger side upper rear warning light operates, go to Step 33.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

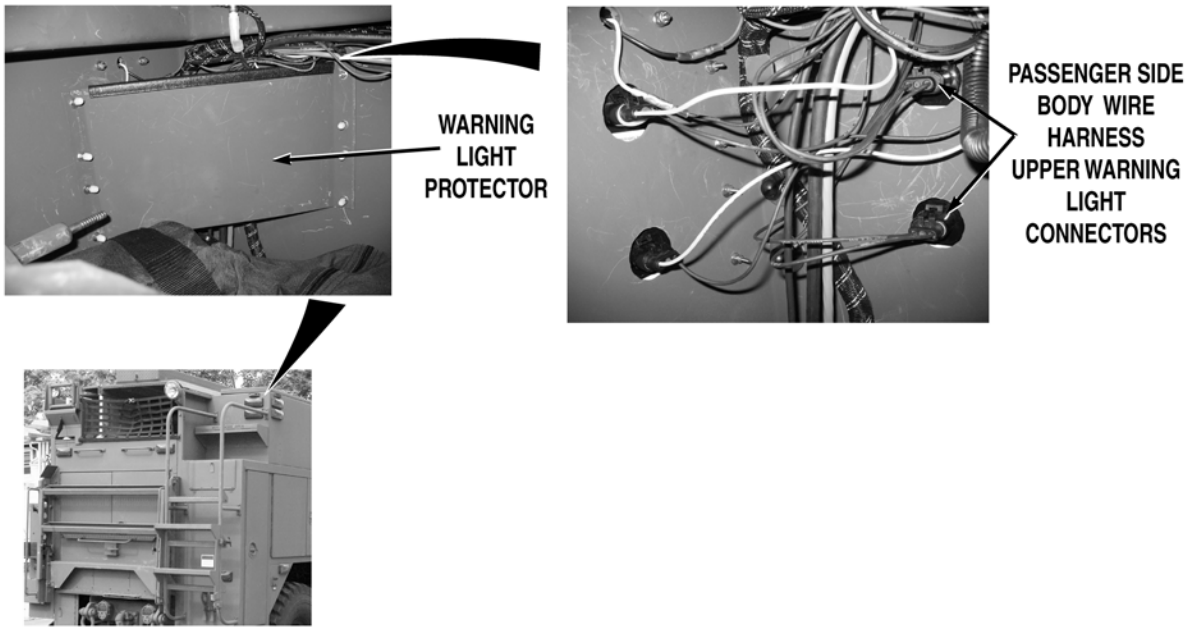
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 32. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open upper stowage compartment hatch T1 (WP 0010). Remove warning light protector (WP 0351). Disconnect passenger side body wire harness upper rear warning light connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between wire 1612 (black) from passenger side body wire harness upper rear warning light connector, terminal 3 to a known good ground.

a. If 22 to 28 VDC are present, repair wire 2740 in passenger side body harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If 22 to 28 VDC are not present, repair wire 1612 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



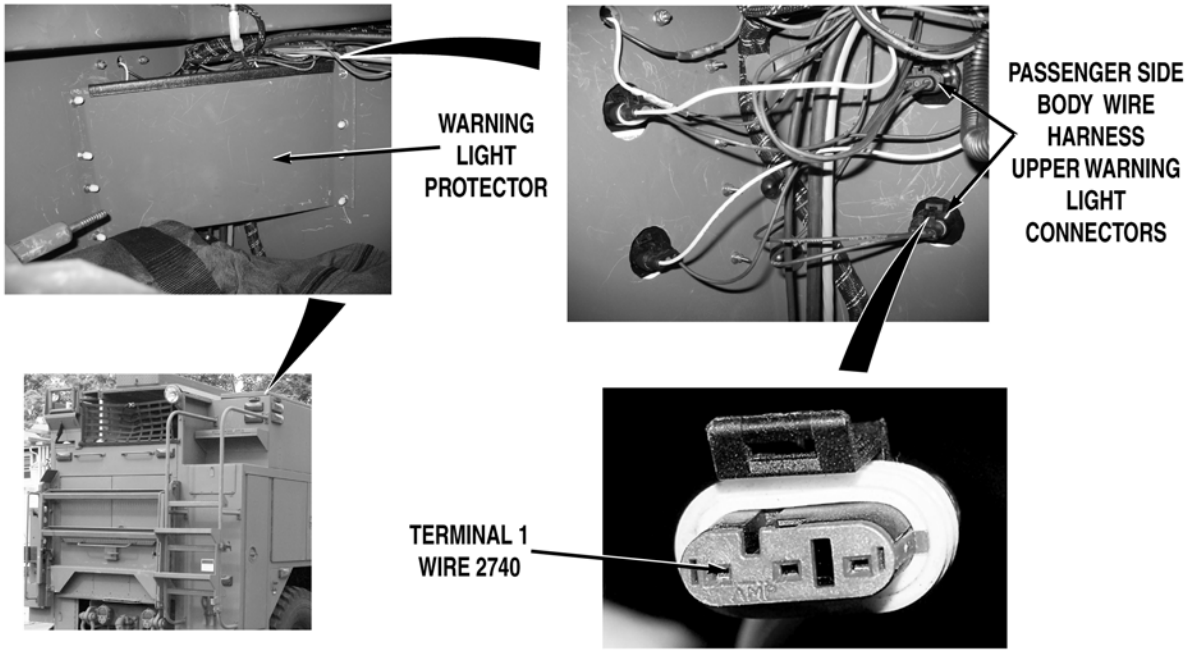
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 33. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open upper stowage compartment hatch T1 (WP 0010). Remove warning light protector (WP 0351). Disconnect passenger side body wire harness upper rear warning light connector from non-operating warning light. Disconnect passenger side body wire harness upper rear warning light connector from operating warning light. Connect passenger side body wire harness upper rear warning light connector which was removed from operating warning light to non-operating warning light. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). Check if upper rear warning light in non-operating position operates.

If warning light connected to operating passenger side body wire harness connector does not operate, replace non-operating warning light (WP 0351).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 34. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across passenger side body wire harness upper warning light wire 2740 (black) from non-operating warning light connector, terminal 1 to a known good ground.

a. If there is continuity, repair wire 1612 (black) in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

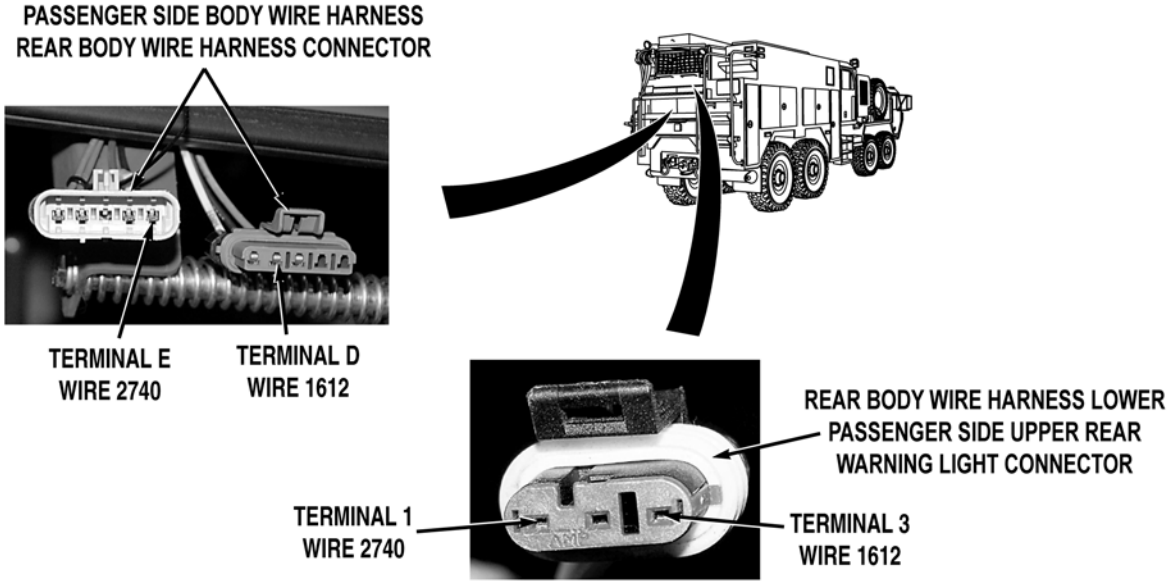
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 35. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect rear body wire harness lower passenger side upper rear warning light connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Put EMERG MASTER and UPPER REAR WARNING switches to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between wire 1612 (black) from rear body wire harness lower passenger side upper rear warning light connector, terminal 3 to a known good ground.

If 22 to 28 VDC are present, go to Step 37.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 36. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect passenger side body wire harness rear body wire harness connector. With a test lead set, check for continuity across wire 1612 (black) from rear body wire harness lower passenger side upper rear warning light connector, terminal 3 to passenger side body wire harness rear body wire harness connector, terminal D.

a. If there is continuity, repair wire 1612 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 1612 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 37. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across wire 2740 (black) from rear body wire harness lower passenger side upper rear warning light connector, terminal 1 to a known good ground.

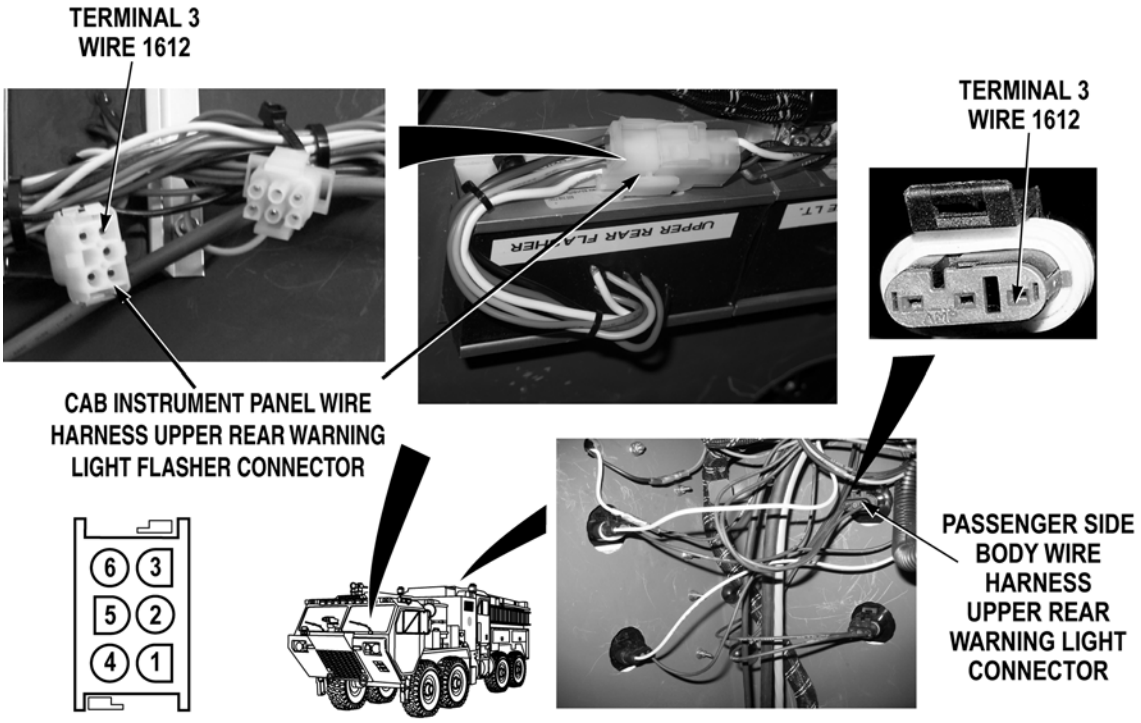
If there is continuity, replace lower passenger side upper rear warning light (WP 0351).

Step 38. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect passenger side body wire harness rear body wire harness connector. With a test lead set, check for continuity across wire 2740 (black) from rear body wire harness lower passenger side upper rear warning light connector, terminal 1 to passenger side body wire harness rear body wire harness connector, terminal E.

a. If there is continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 2740 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



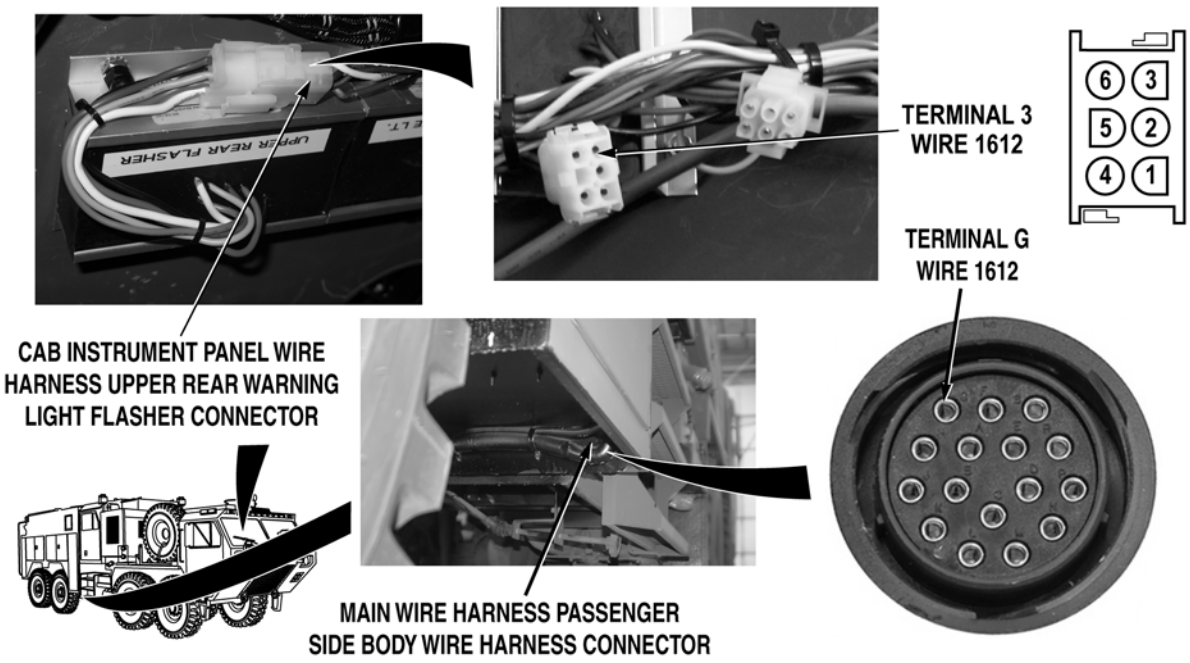
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 39. Put EMERG MASTER and UPPER REAR WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open upper stowage compartment hatch T1 (WP 0010). Remove warning light protector (WP 0351). Disconnect passenger side body wire harness upper rear warning light connector. Remove personnel cab instrument panel A (WP 0311). Disconnect cab instrument panel wire harness upper rear warning light flasher connector. With a test lead set, check for continuity across wire 1612 (black) from passenger side body wire harness warning light connector, terminal 3 to cab instrument panel wire harness upper rear warning light flasher unit connector, terminal 3.

If there is continuity, go to Step 42.

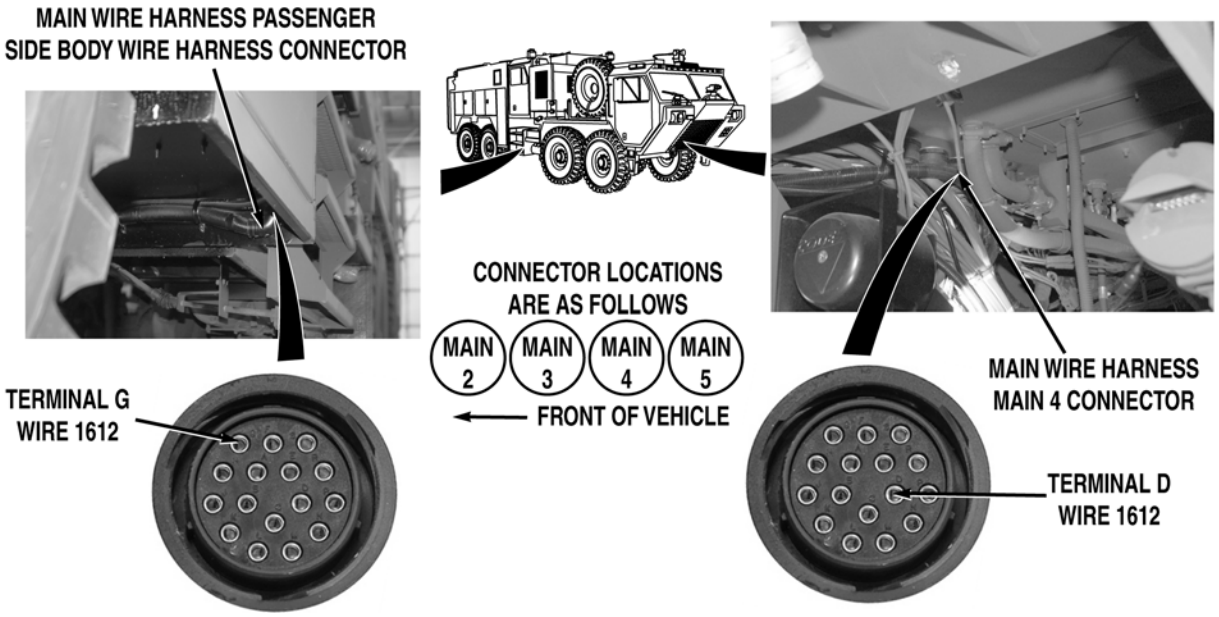
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 40. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across wire 1612 (black) from cab instrument panel wire harness upper rear warning light flasher connector, terminal 3 to main wire harness passenger side body wire harness connector, terminal G.

If there is continuity, repair wire 1612 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 41. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. With a test lead set, check for continuity across main wire harness wire 1612 (black) from main wire harness main 4 connector, terminal D to main wire harness passenger side body wire harness connector, terminal G.

a. If there is continuity, repair wire 1612 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

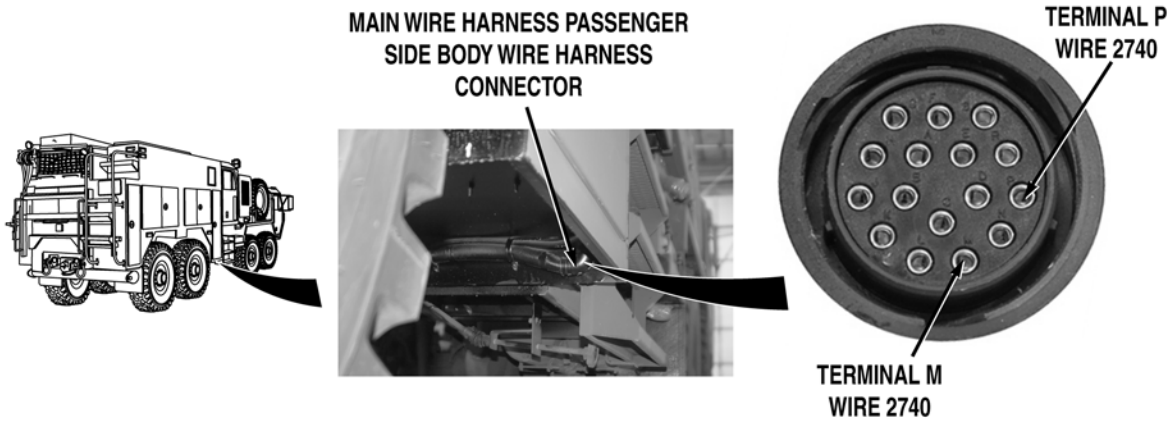
b. If there is no continuity, repair wire 1612 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 42. With a test lead set, check for continuity across wire 2740 (black) from passenger side body wire harness warning light connector, terminal 1 to a known good ground.

If there is continuity, replace upper rear warning light flasher unit (WP 0348).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 43. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2740 (black) from main wire harness passenger side body wire harness connector, terminals M and P to a known good ground.

a. If there is continuity, repair wire(s) 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity at either terminals, repair wire(s) 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DECK LIGHTS DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0007
WP 0010
WP 0177
WP 0311
WP 0315
WP 0353

References (continued)
WP 0401
WP 0440
WP 0441
WP 0448
WP 0455
WP 0456

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

DECK LIGHTS DO NOT OPERATE

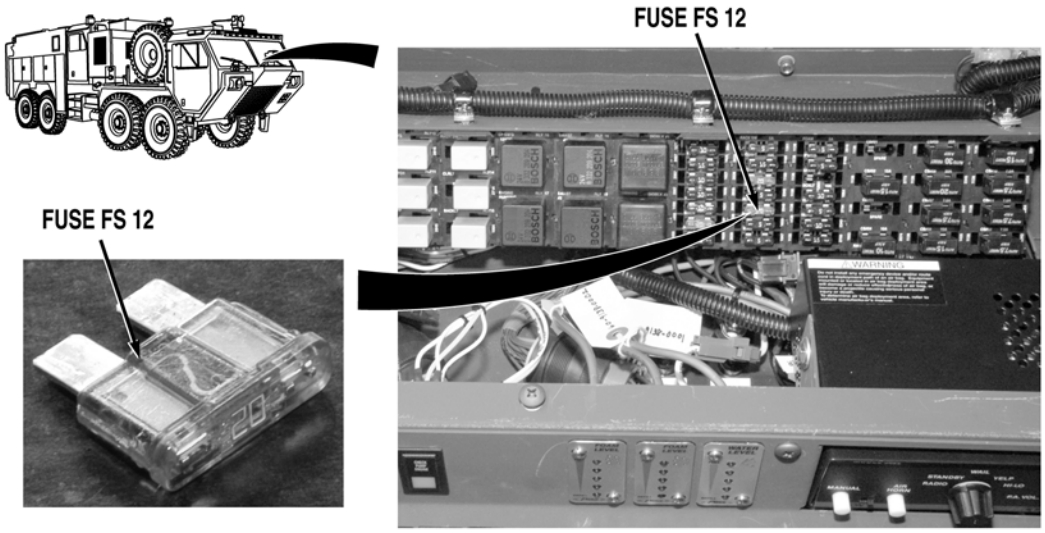
Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn DECK LIGHTS switch to on position. Check operation of passenger side deck light.

If passenger side deck light operates, go to Step 15.

Step 2. Check operation of driver side deck light.

If driver side lights operate, go to Step 10.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

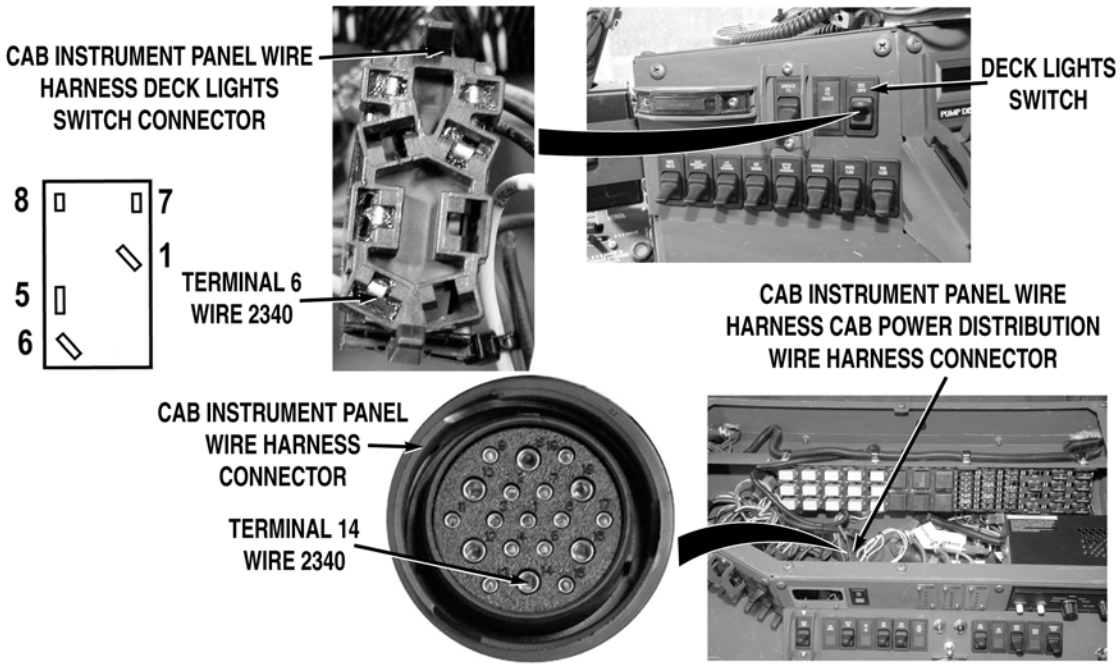
Step 3. Open any side compartment door (WP 0010). Check if compartment light operates.

If rear compartment lights do not operate, troubleshoot Driver Side Stowage Compartment Light(s) Does Not Operate (WP 0177).

Step 4. Close compartment door (WP 0010). Turn Service Drive Lights off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 12 (WP 0401). Check for continuity across fuse.

If there is no continuity, replace fuse FS 12 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Reinstall fuse FS 12 (WP 0401). Disconnect cab instrument panel wire harness DECK LIGHTS switch connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check for 22 to 28 VDC on wire 2340 at DECK LIGHT switch connector, terminal 6.

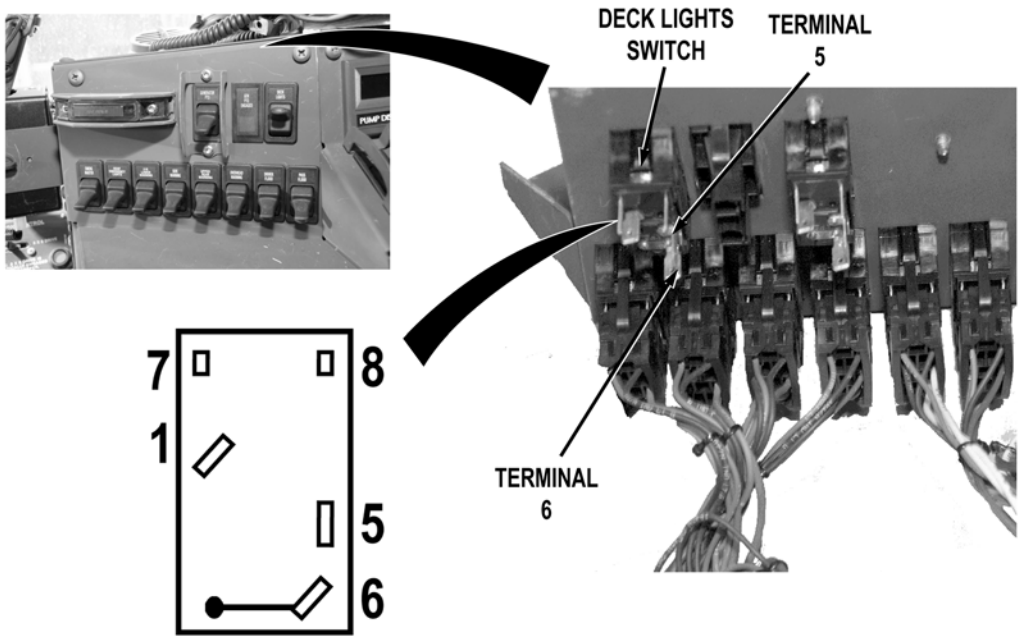
If 22 to 28 VDC are present, go to Step 7.

Step 6. Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 2340 (red) from cab instrument panel wire harness DECK LIGHTS switch connector, terminal 6 to cab instrument panel wire harness cab power distribution wire harness connector, terminal 14.

a. If there is continuity, repair wire 2340 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 2340 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

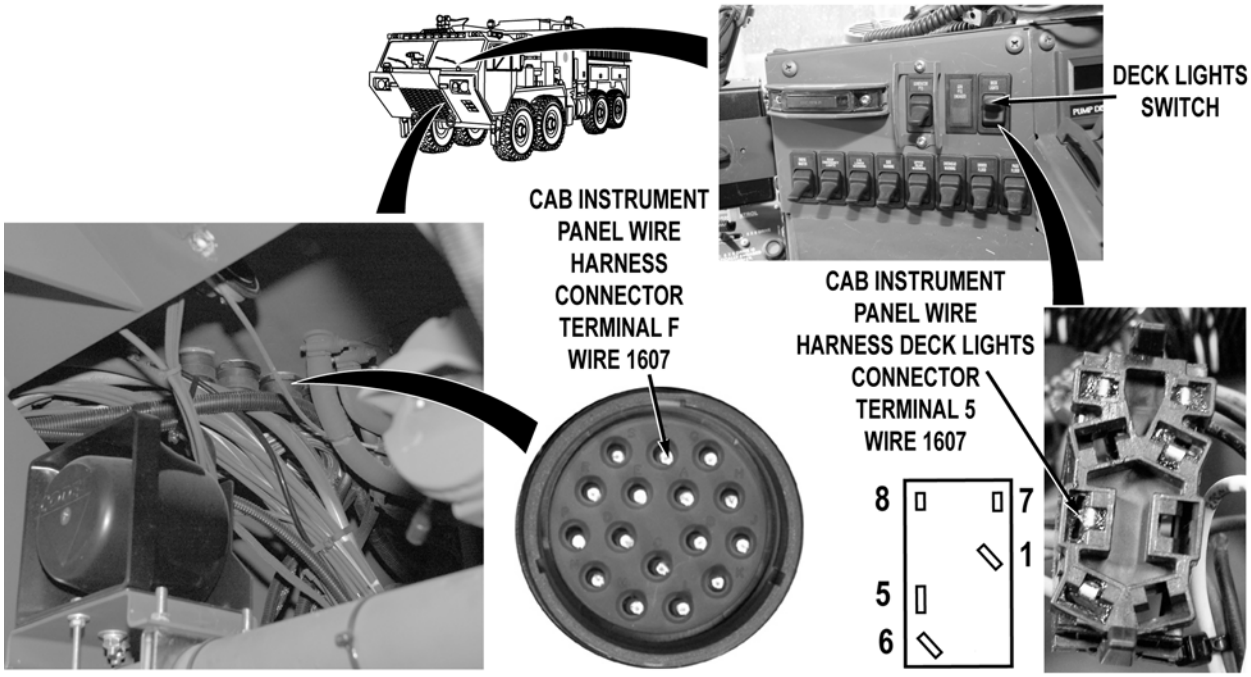


Step 7. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across DECK LIGHT switch, terminal 5 to terminal 6, when switch is in ON position.

a. If there is continuity, go to Step 8.

b. If there is no continuity, replace DECK LIGHT switch (WP 0315).

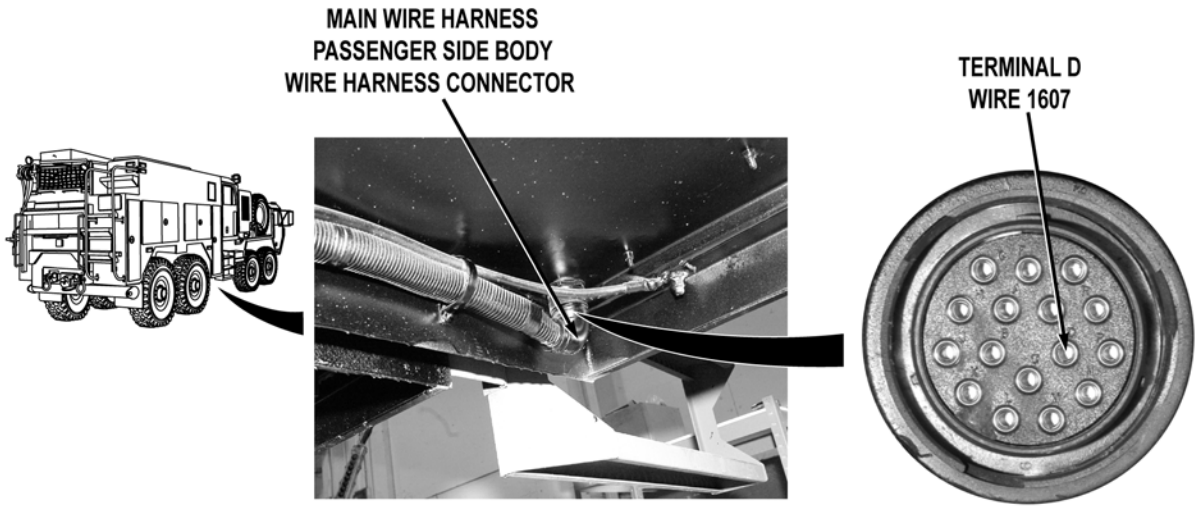
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 8. Disconnect cab instrument panel main wire harness wire harness connector. With a test lead set, check for continuity across cab instrument panel wire harness wire 1607 (blue) from DECK LIGHTS switch connector terminal 5 to cab instrument panel wire harness connector terminal F.

If there is no continuity, repair wire 1607 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

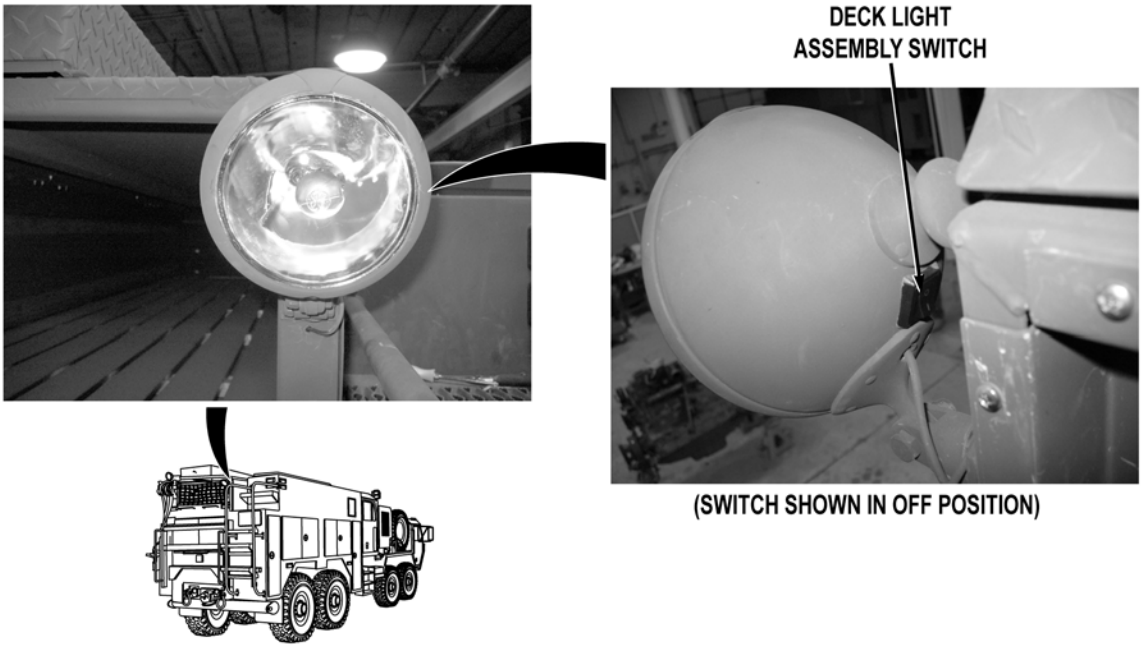


Step 9. Connect DECK LIGHT switch connector (WP 0440). Connect cab instrument panel wire harness main wire harness connector. Disconnect passenger side body wire harness main wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn DECK LIGHTS switch to ON position. Check for 22 to 28 VDC on wire 1607 at main wire harness passenger side body wire harness connector, terminal D.

a. If 22 to 28 VDC are present, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If 22 to 28 VDC are not present, repair wire 1607 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. Check position of switch on passenger side deck light assembly.

If switch is in the OFF position, position switch to the ON position.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

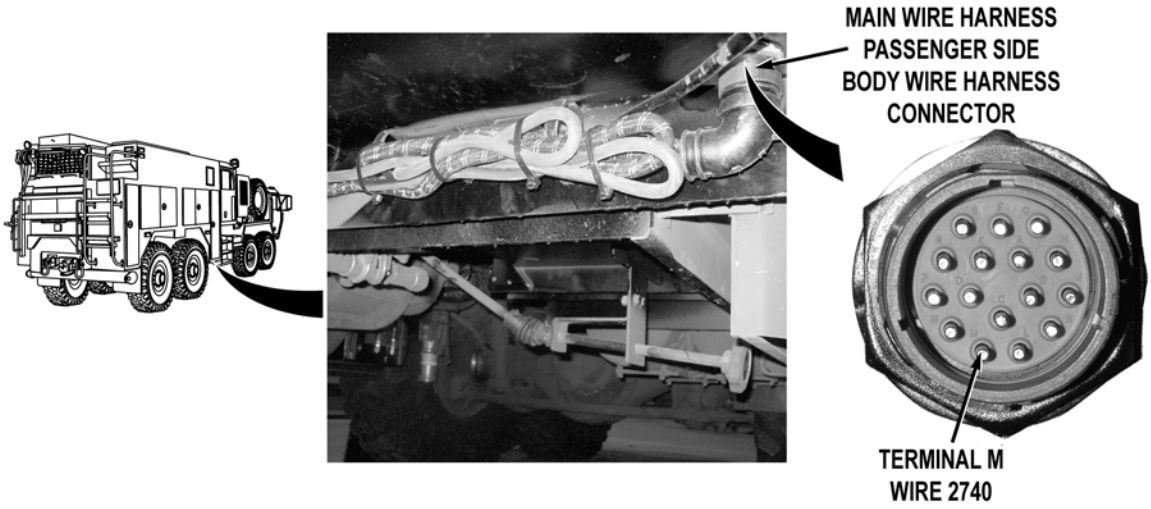
Step 11. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove passenger side deck lamp (WP 0353). Check for continuity across passenger side deck light lamp.

If there is no continuity, replace passenger side deck light lamp (WP 0353).

Step 12. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check for 22 to 28 VDC on wire 1607 at passenger side assembly switch terminal.

If 22 to 28 VDC are not present, go to Step 14.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

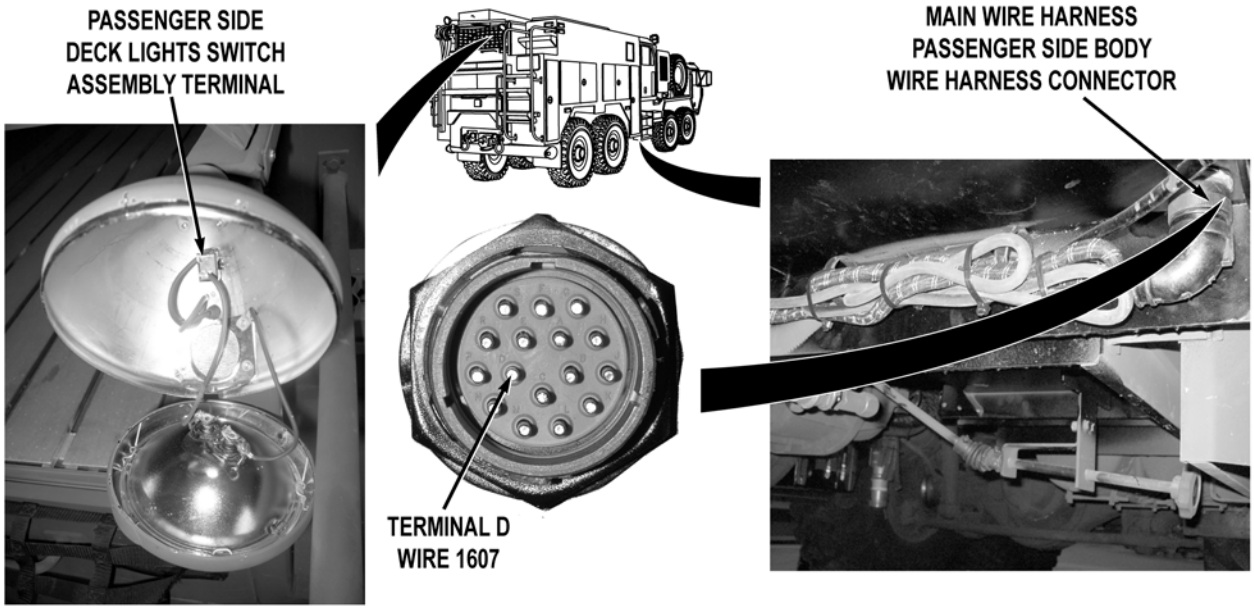


Step 13. Turn battery disconnect switch to OFF position (WP 0007). Disconnect passenger side body wire harness main wire harness connector (WP 0455). With a test lead set, check for continuity across main wire harness wire 2740 (blue) from main wire harness passenger side body wire harness connector, terminal M to a known good ground.

a. If there is continuity, repair wire 2740 in passenger side deck light body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

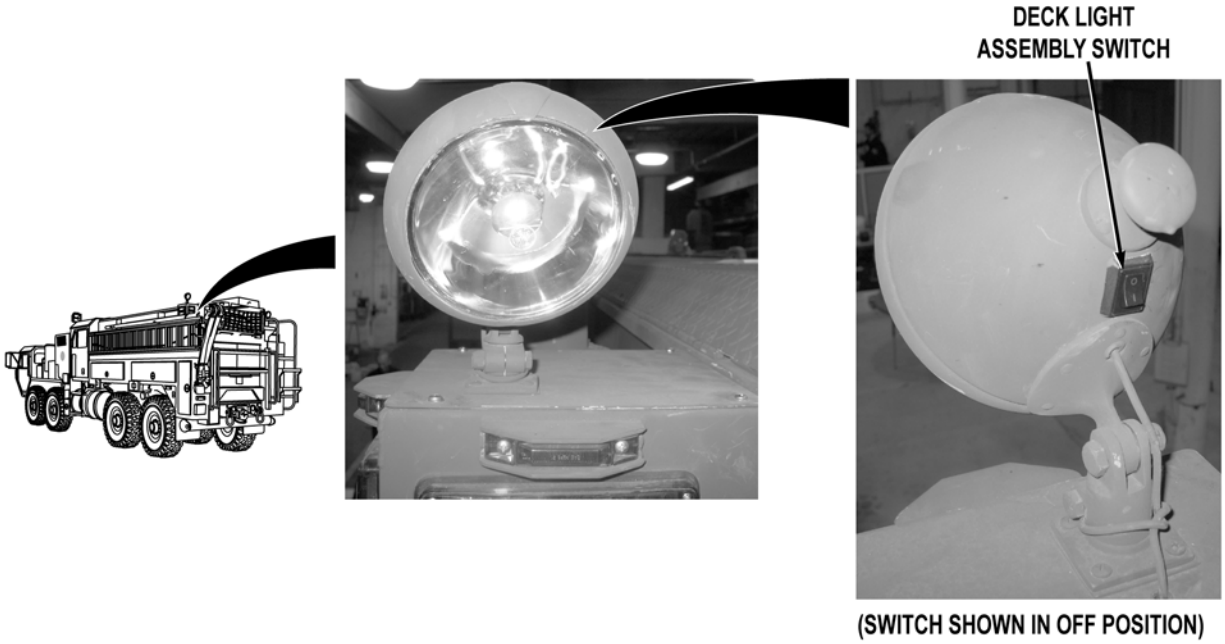


Step 14. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness passenger side body wire harness connector (WP 0455). With a test lead set, check for continuity across main wire harness passenger side body wire harness wire 1607 (blue) from main wire harness passenger side body wire harness connector terminal D to passenger side assembly switch terminal.

a. If there is continuity, repair wire 1607 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1607 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

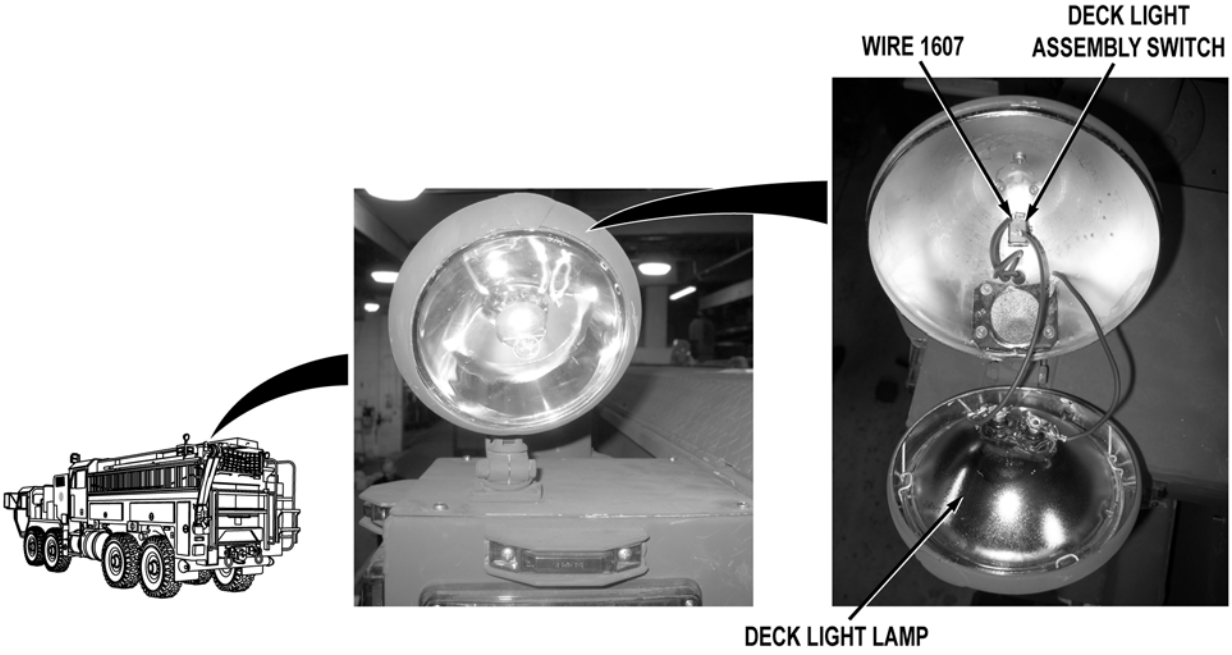


(SWITCH SHOWN IN OFF POSITION)

Step 15. Check position of switch on driver side deck light assembly.

If switch is in the OFF position, position switch to the ON position.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

Do not disconnect wires from deck light lamp.

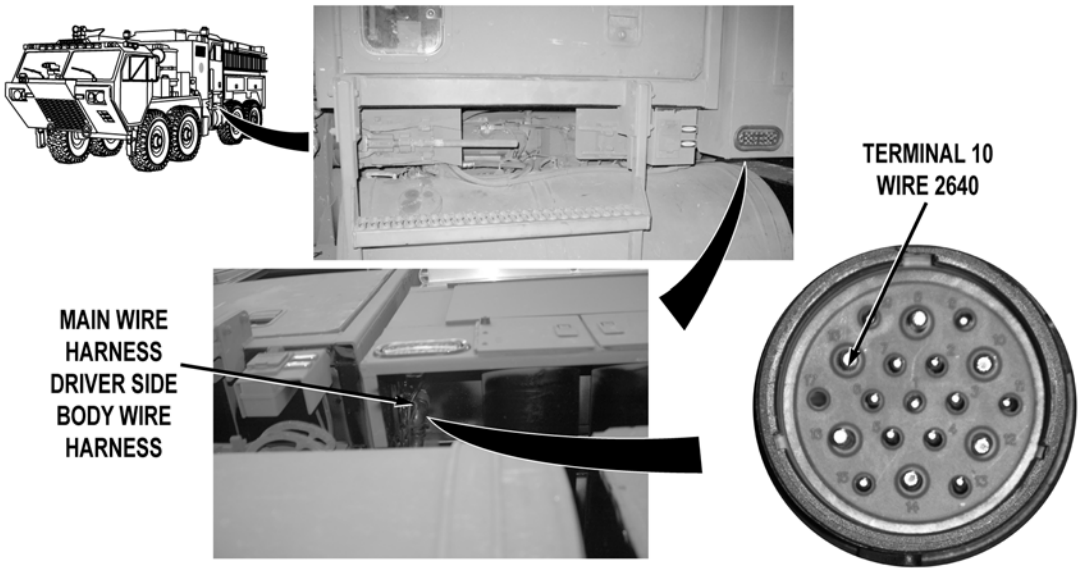
Step 16. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove driver side deck light lamp (WP 0353). Check for continuity across driver side deck light lamp.

If there is no continuity, replace driver side deck light lamp (WP 0353).

Step 17. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check for 22 to 28 VDC on wire 1607 at driver side deck light assembly switch terminal.

If 22 to 28 VDC are not present, go to Step 19.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

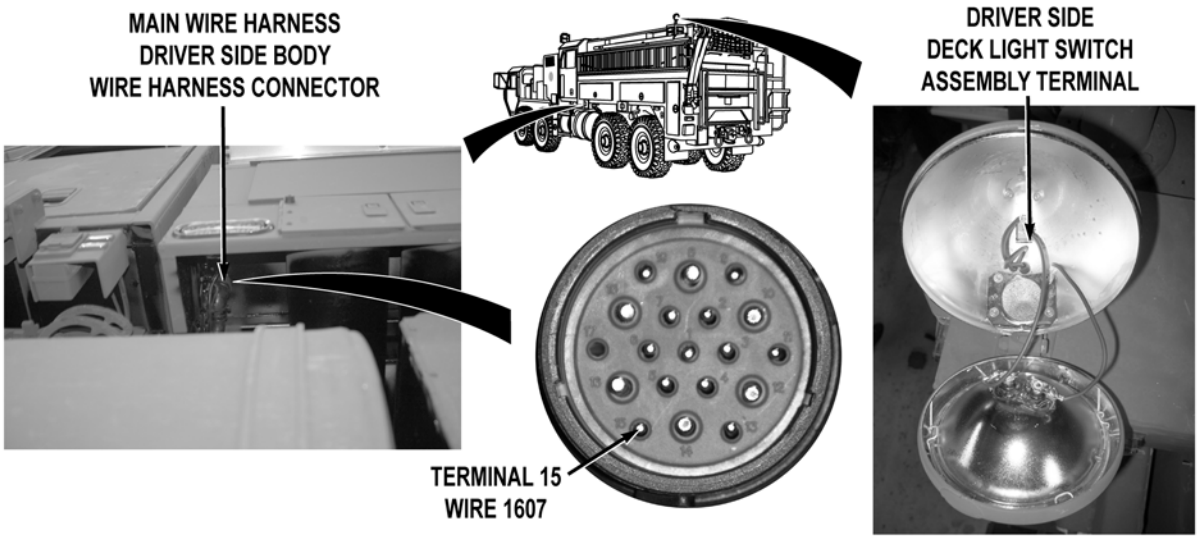


Step 18. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness driver side body wire harness connector (WP 0455). With a test lead set, check for continuity across main wire harness wire 2640 (black) from main wire harness driver side body wire harness connector terminal 10 to a known good ground.

a. If there is continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 19. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness driver side body wire harness connector (WP 0455). With a test lead set, check for continuity across driver side body wire harness wire 1607 (blue) from driver side body wire harness main wire harness connector terminal 15 to driver side deck light assembly switch terminal.

a. If there is continuity, repair wire 1607 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 1607 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

EXTENDABLE FLOODLIGHTS DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
(TM 9-2320-325-14&P)
WP 0004
WP 0007
WP 0010
WP 0021
WP 0174
WP 0311
WP 0315
WP 0354
WP 0355

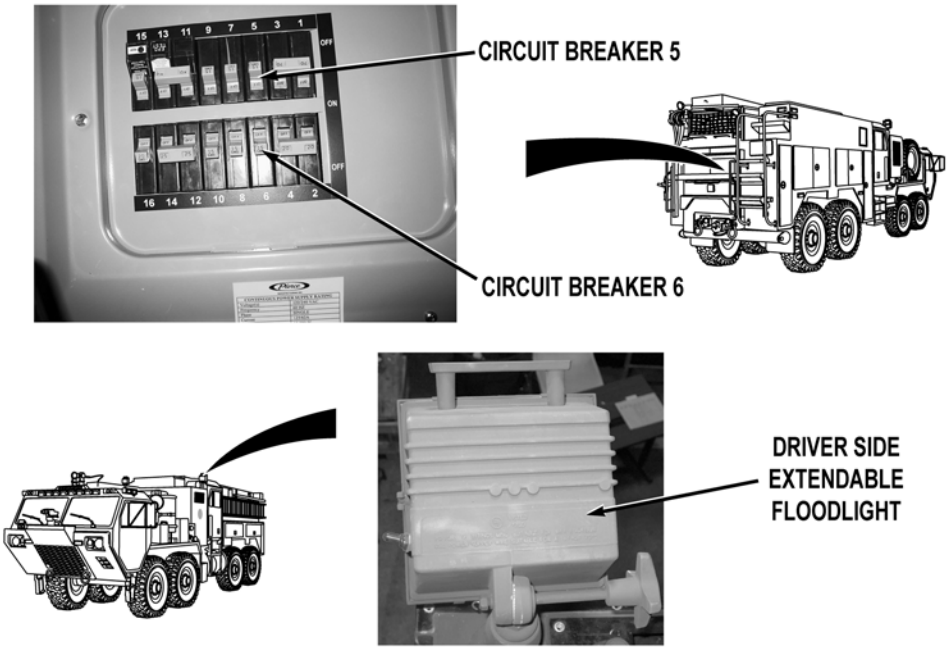
References (continued)
WP 0360
WP 0361
WP 0373
WP 0401
WP 0440
WP 0441
WP 0455
WP 0456
WP 0461
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

EXTENDABLE FLOODLIGHTS DO NOT OPERATE

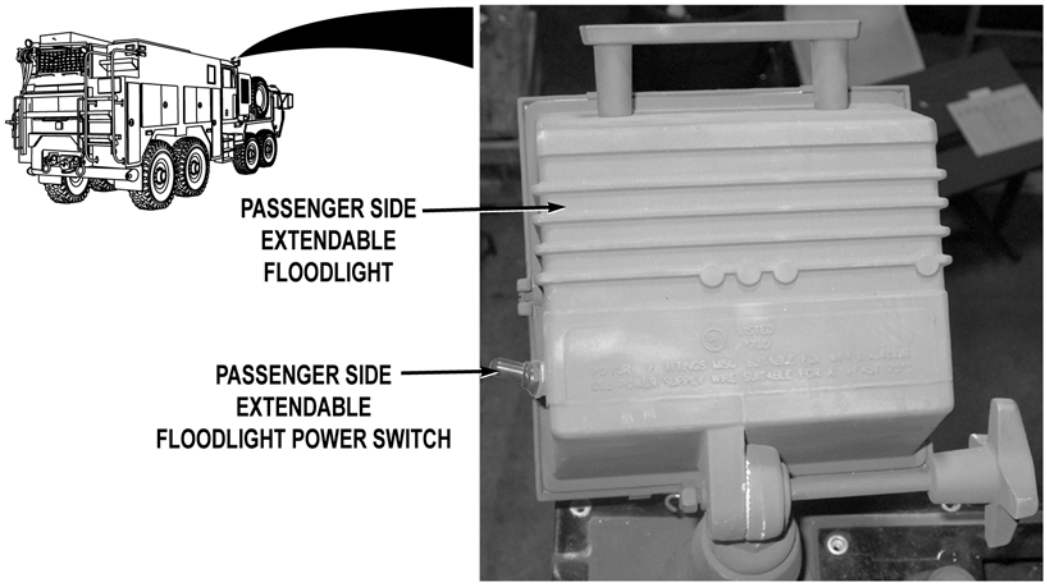
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Start hydraulic generator (WP 0021). Turn on vehicle lights (TM 9-2320-347-10). Open rear stowage compartment doors (WP 0010). Put circuit breakers 5 and 6 to ON position. Put DRIVER FLOOD switch to ON position (WP 0004). Check if driver side extendable floodlight illuminates.

If driver side extendable floodlight does not illuminate, go to Step 20.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



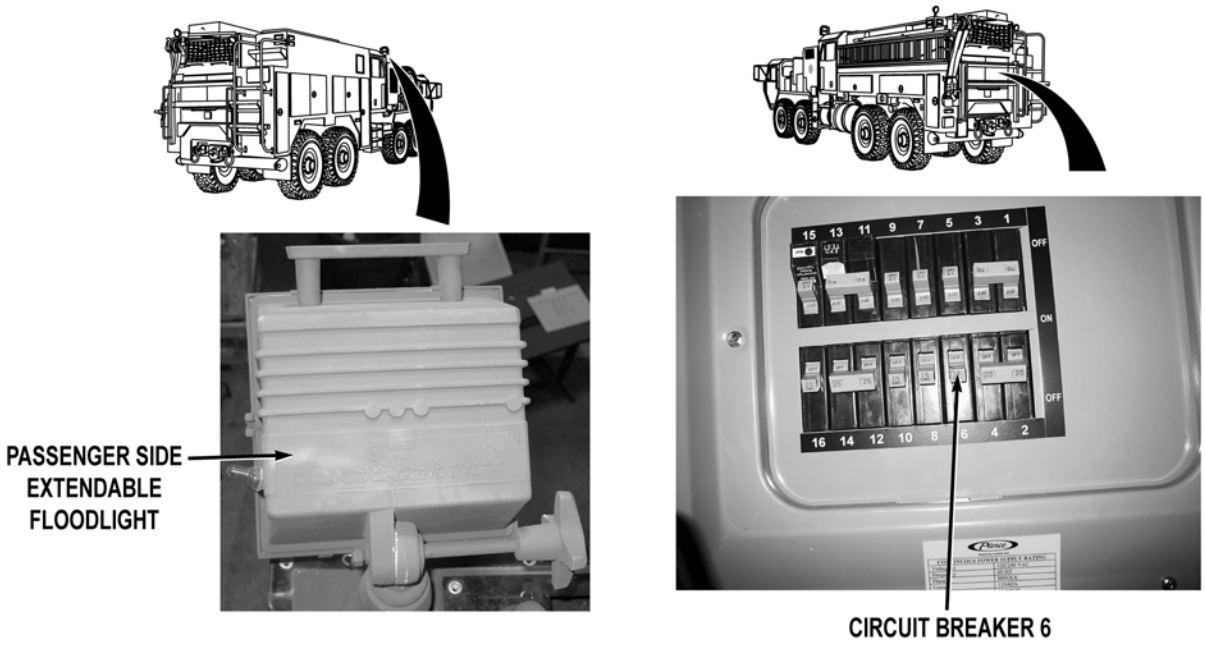
Step 2. Put PASS FLOOD switch to ON position (WP 0004). Check if passenger side extendable floodlight illuminates.

If passenger side extendable floodlight illuminates, fault corrected.

Step 3. Check if passenger side extendable floodlight power switch on list is in OFF position.

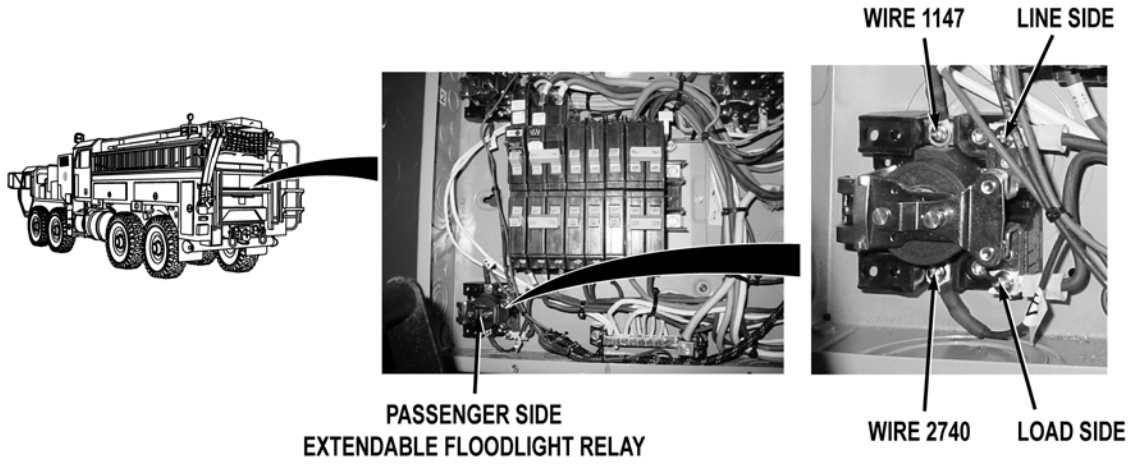
If passenger side extendable floodlight power switch is in OFF position, put switch to ON position.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Put PASS FLOOD switch to ON position (WP 0004). Check if passenger side extendable floodlight trips circuit breaker 6.

If passenger side extendable floodlight trips circuit breaker 6, go to Step 14.



MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Turn off hydraulic generator (WP 0021). Turn OFF vehicle engine (TM 9-2320-347-10). Remove circuit breaker box cover (WP 0360). Check for continuity across passenger side extendable floodlight relay from line side to load side, with PASS FLOOD switch in ON position (WP 0004).

If continuity is not present, go to Step 13.

Step 6. Check for 22 to 28 VDC at wire 1147 (violet) from passenger side extendable floodlight relay to a known good ground.

If 22 to 28 VDC are not present, go to Step 9.

Step 7. Check if rear stowage compartment light illuminates (WP 0010).

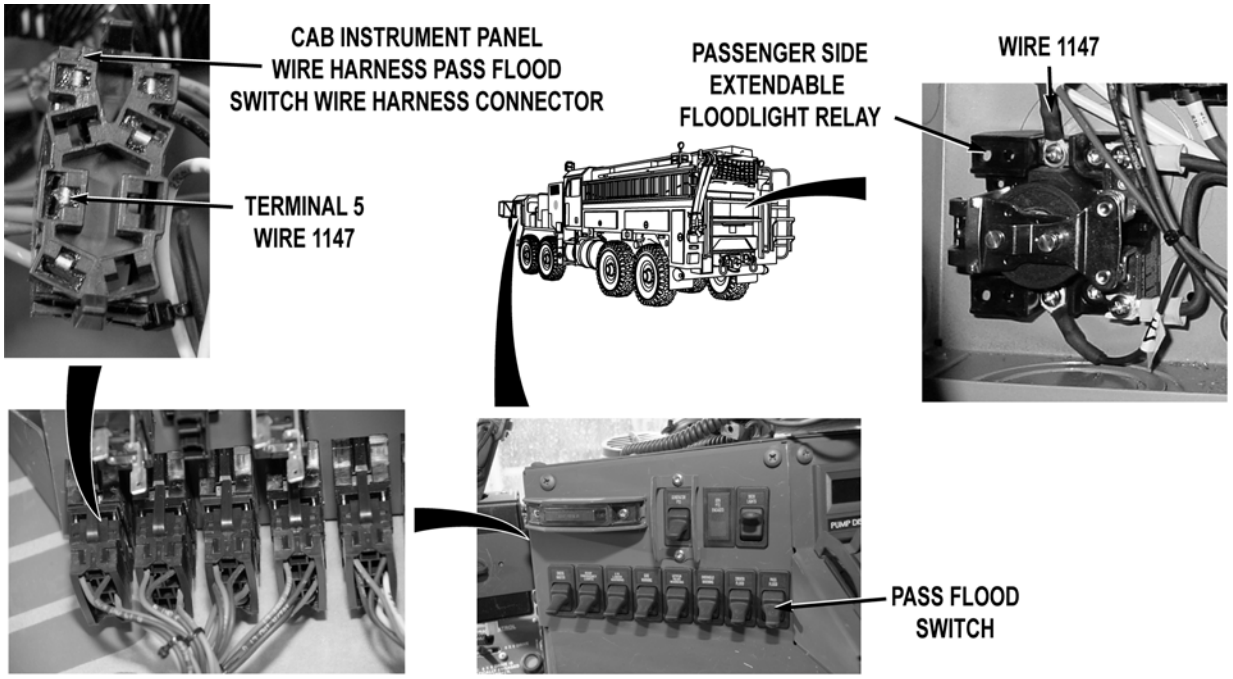
If rear stowage compartment light does not illuminate (WP 0010), troubleshoot Passenger Side and Rear Stowage Compartment Light(s) Do Not Operate (WP 0174).

Step 8. Turn battery disconnect switch to OFF (WP 0007). Check for continuity across wire 2740 (black) from passenger side floodlight relay to a known good ground.

a. If continuity is present, replace passenger extendable light relay (WP 0373).

b. If continuity is not present, repair wire 2740 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



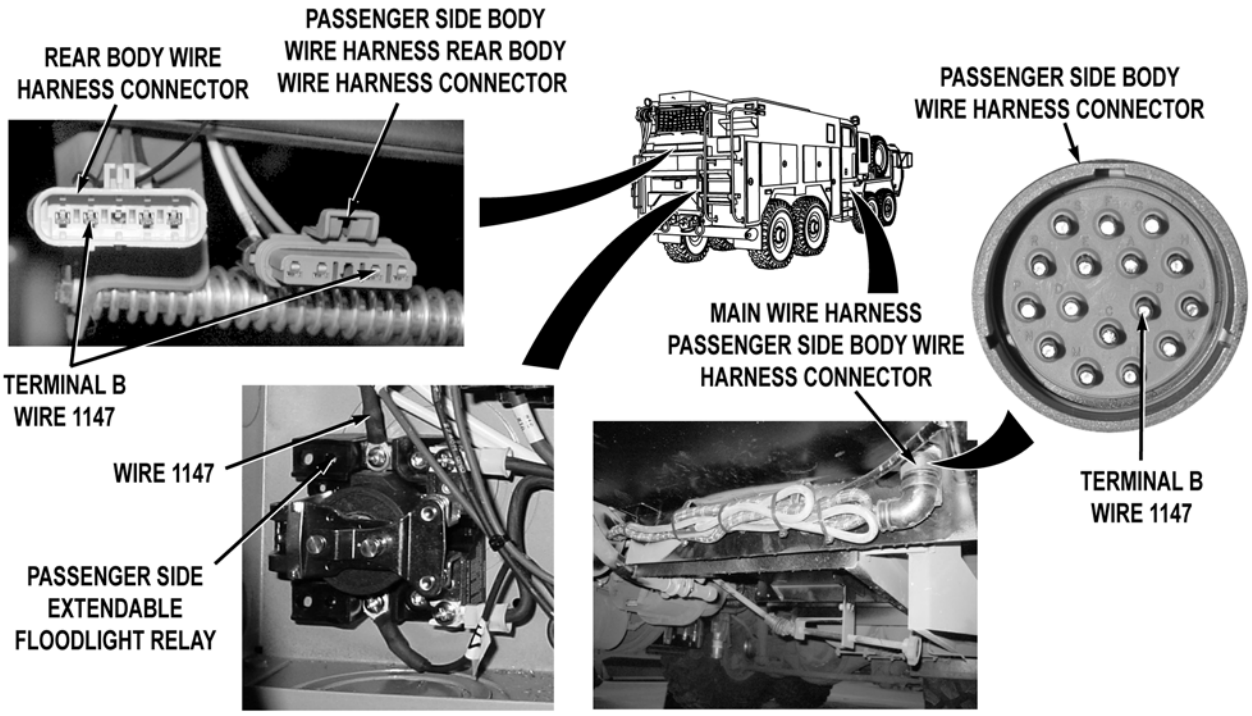
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 9. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness pass flood switch wire harness connector from PASS FLOOD switch. Disconnect wire 1147 (violet) from passenger side extendable floodlight relay (WP 0373). Install jumperwire between wire 1147 (violet) and a known good ground. With a test lead set, check for continuity across wire 1147 (violet) from PASS FLOOD switch wire harness connector, terminal 5 to a known good ground.

If continuity is present, go to Step 13.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



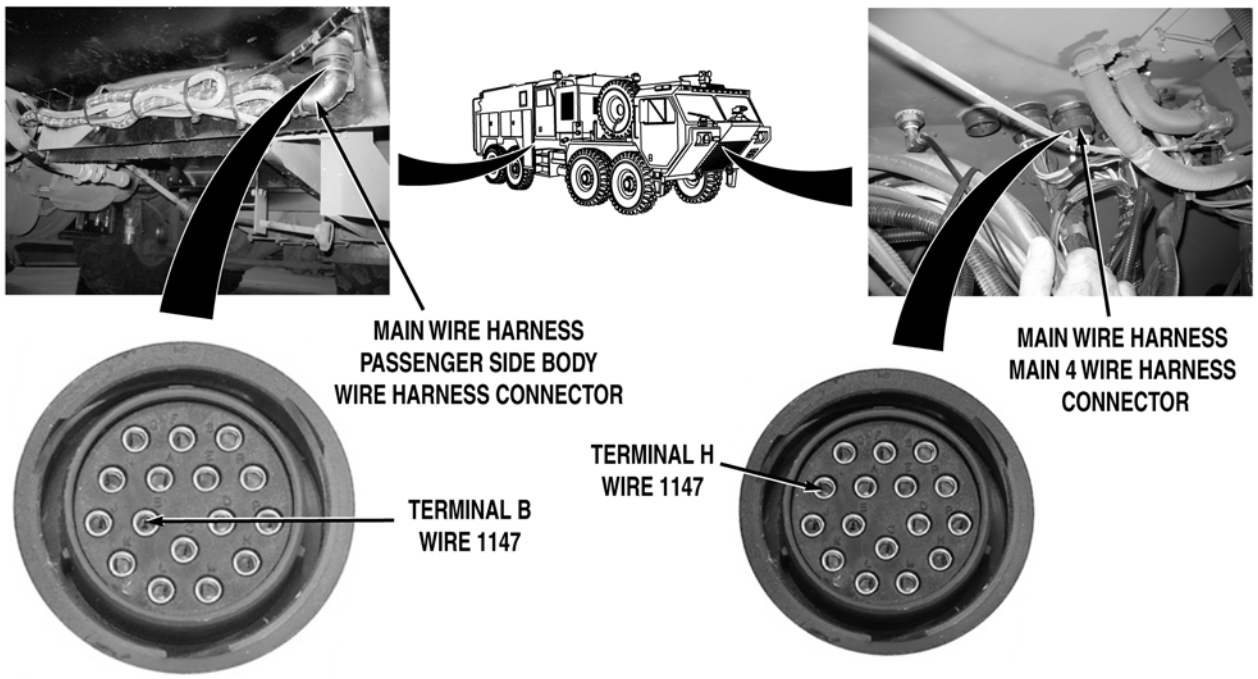
Step 10. Disconnect passenger side body wire harness rear body wire harness connector. With a test lead set, check for continuity across wire 1147 (violet) from passenger side extendable floodlight relay to rear body wire harness connector, terminal B.

If continuity is not present, repair wire 1147 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

Step 11. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across wire 1147 (violet) from rear body wire harness connector, terminal B to passenger side body wire harness connector, terminal B.

If continuity is not present, repair wire 1147 in passenger side body wire harness (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

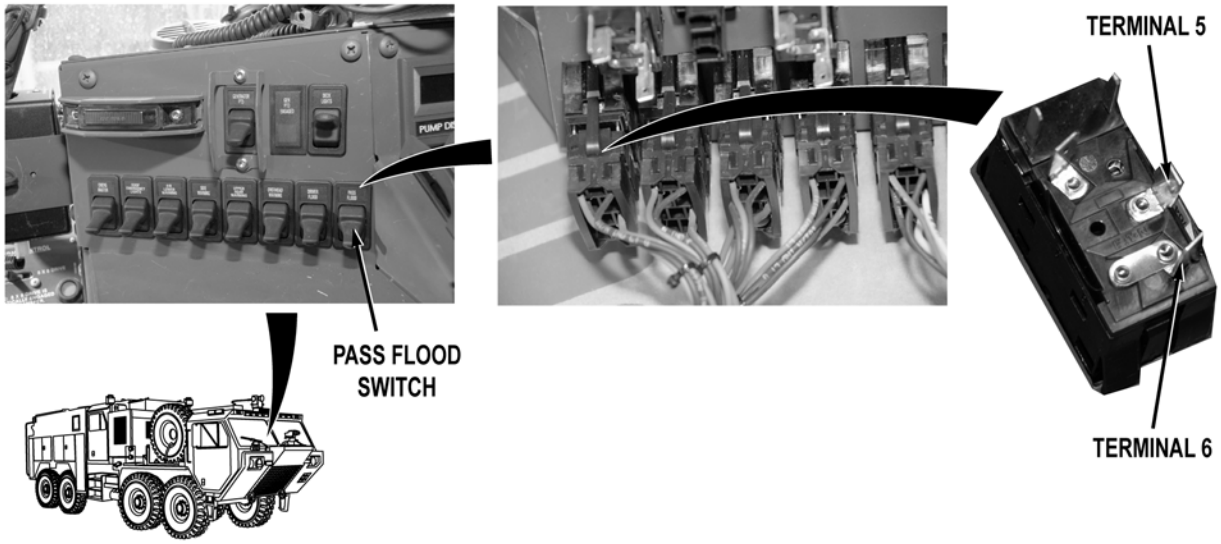


Step 12. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 wire harness connector. With a test lead set, check for continuity across wire 1147 (violet) from main wire harness passenger side body wire harness connector, terminal B to main wire harness main 4 wire harness connector, terminal H.

a. If continuity is present, repair wire 1147 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If continuity is not present, repair wire 1147 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

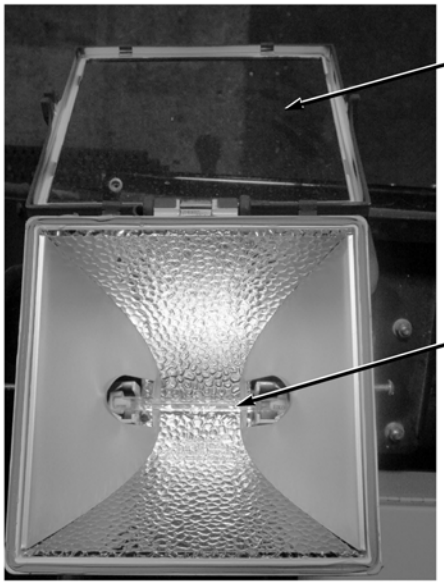
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 13. Put PASS FLOOD switch to ON position (WP 0004). Check for continuity across PASS FLOOD switch from terminal 5 to terminal 6.

a. If continuity is present, repair wire 1147 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If continuity is not present, replace PASS FLOOD switch (WP 0315).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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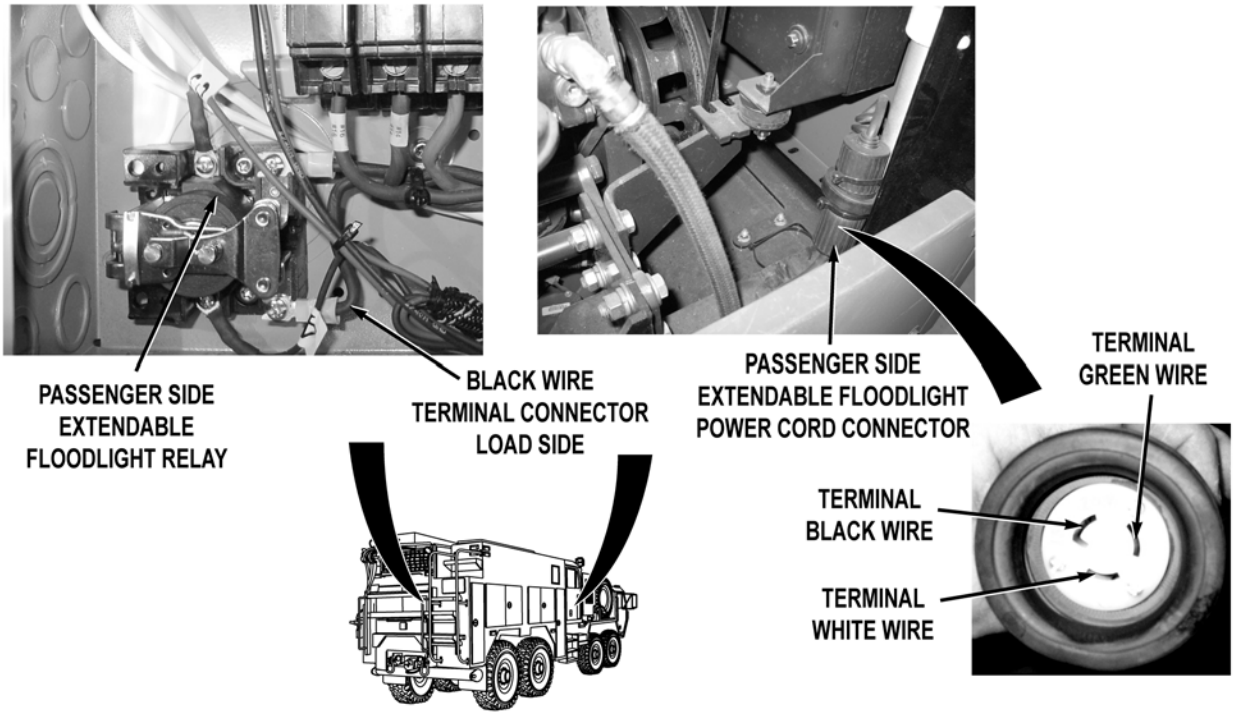
Step 14. Open passenger side extendable floodlight lamp cover. Inspect extendable floodlight lamp for discoloration.

If extendable floodlight lamp is discolored, replace extendable floodlight lamp (WP 0355).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 15. Unplug passenger side extendable floodlight power cord connector. Disconnect black wire from load side of passenger side extendable floodlight relay (WP 0373). Install a jumperwire from passenger side extendable floodlight relay black wire terminal connector to a known good ground. Check for continuity across black wire from extendable floodlight power cord connector terminal to a known good ground.

If continuity is not present, replace extendable floodlight power cord (WP 0361).

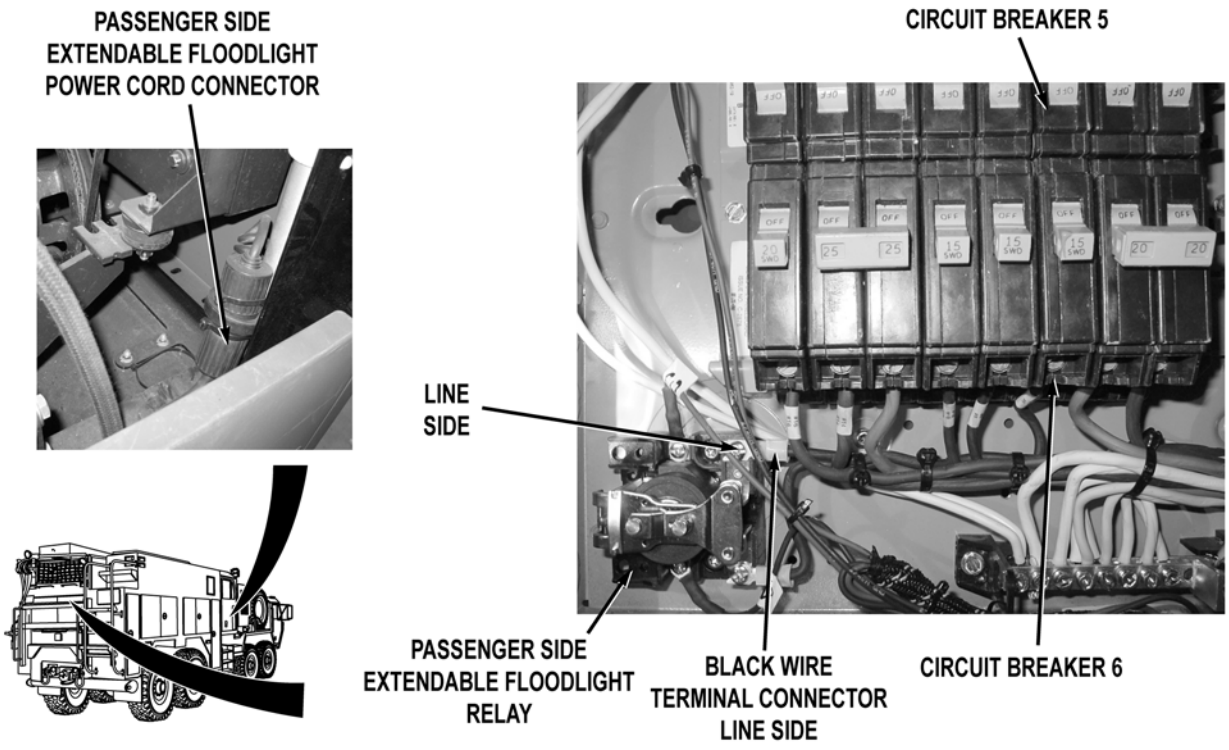
Step 16. Check for continuity across white wire from passenger side extendable floodlight power cord connector terminal to a known good ground.

If continuity is not present, replace passenger side extendable floodlight power cord (WP 0361).

Step 17. Check for continuity across green wire from passenger side extendable floodlight power cord connector terminal to a known good ground.

If continuity is not present, replace passenger side extendable floodlight power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 18. Plug passenger side extendable floodlight to power cord connector. Disconnect black wire from line side of passenger side extendable floodlight relay (WP 0373). Check for continuity across black wire from passenger side floodlight relay black wire terminal connector to circuit breaker 6.

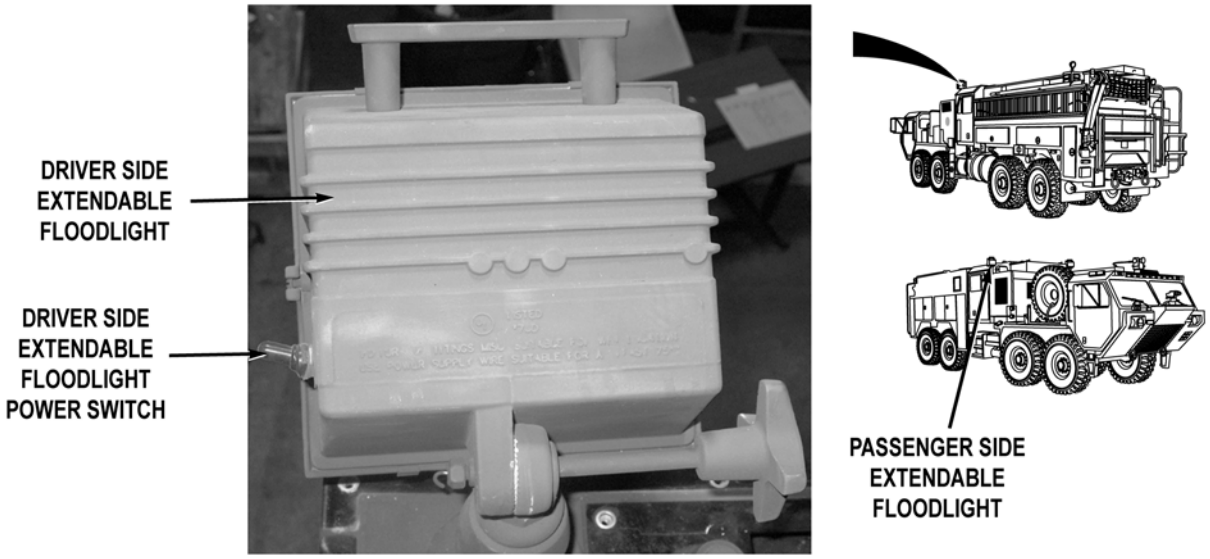
If continuity is not present, replace passenger side extendable floodlight relay line cable (WP 0361).

Step 19. Connect black wire to line side of passenger side extendable floodlight relay (WP 0373). Put circuit breaker 6 to OFF position, then put to ON position. Start hydraulic generator (WP 0021). Put PASS FLOOD switch to ON position (WP 0004). Check if circuit breaker 6 trips.

a. If circuit breaker 6 trips, replace circuit breaker (WP 0360).

b. If circuit breaker 6 does not trip, replace extendable floodlight (WP 0354).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 20. Put PASS FLOOD switch to ON position (WP 0004). Check if passenger side extendable floodlight illuminates.

If passenger side extendable floodlight does not illuminate, go to Step 38.

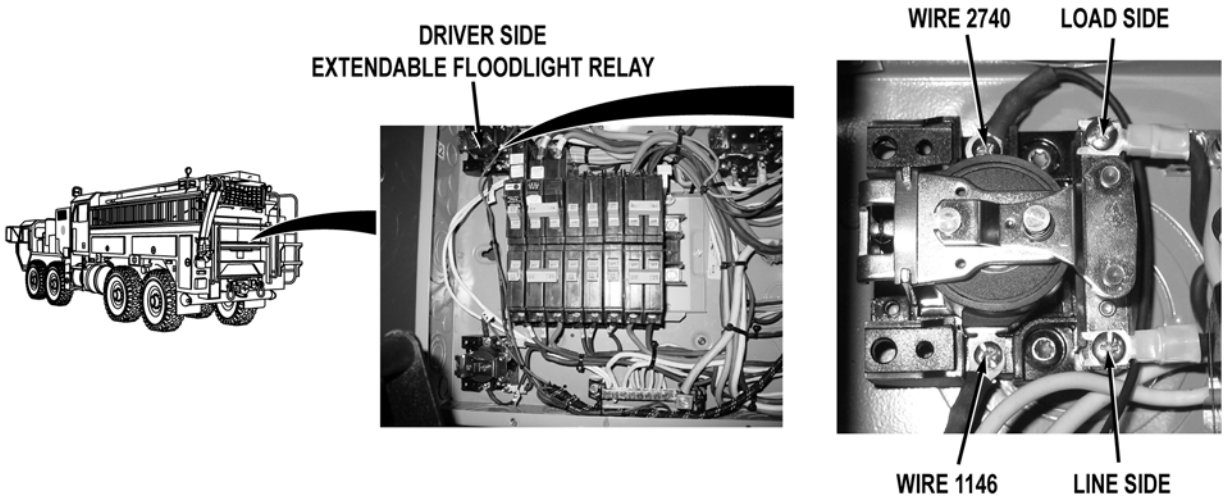
Step 21. Check if driver side extendable floodlight power switch on light is in OFF position.

If driver side extendable floodlight power switch is in OFF position, put switch to ON position.

Step 22. Put DRIVER FLOOD switch to ON position (WP 0004). Check if driver side extendable floodlight trips circuit breaker 5.

If driver side extendable floodlight trips circuit breaker 5, go to Step 38.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 23. Turn off hydraulic generator (WP 0021). Turn OFF vehicle engine (TM 9-2320-347-10). Remove circuit breaker box cover (WP 0360). Check for continuity across driver side extendable floodlight relay from line side to load side, with DRIVER FLOOD switch in ON position (WP 0004).

If continuity is not present, go to Step 32.

Step 24. Check for 22 to 28 VDC at wire 1146 (violet) from driver side extendable floodlight relay to a known good ground.

If 22 to 28 VDC are not present, go to Step 27.

Step 25. Check if rear stowage compartment light illuminates.

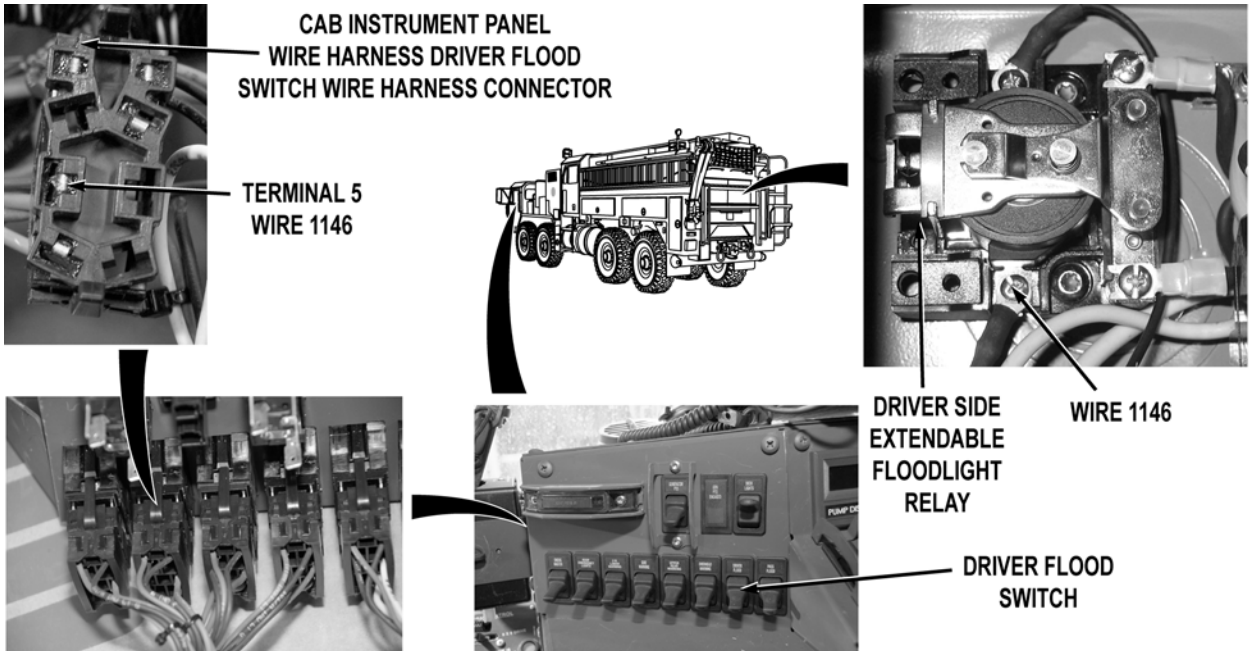
If rear stowage compartment light does not illuminate, troubleshoot Passenger Side and Rear Stowage Compartment Light(s) Do Not Operate (WP 0174).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 26. Turn battery disconnect switch to OFF (WP 0007). Check for continuity across wire 2740 from driver side relay to a known good ground.

a. If continuity is present, replace driver extendable light relay (WP 0373).

b. If continuity is not present, repair wire 2740 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).



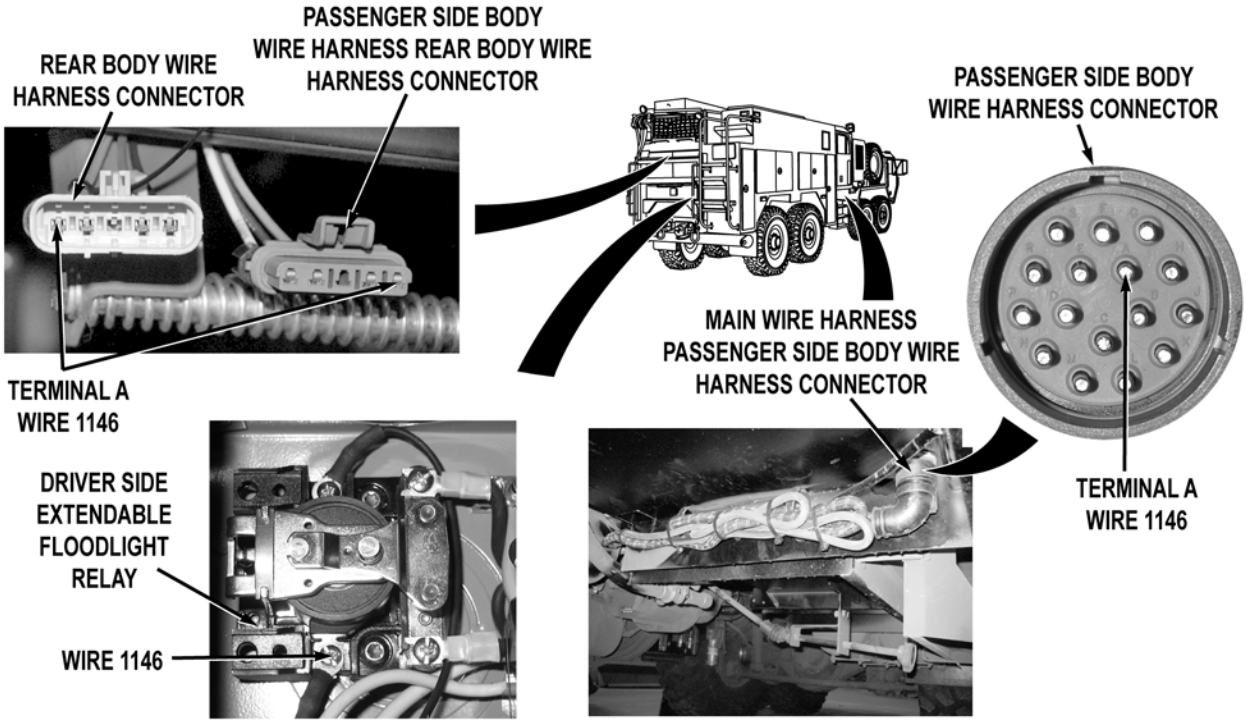
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 27. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel C (WP 0311). Disconnect cab instrument panel wire harness driver flood switch wire harness connector from DRIVER FLOOD switch. Disconnect wire 1146 (violet) from driver side extendable floodlight relay (WP 0373). Install jumperwire between wire 1146 (violet) and a known good ground. With a test lead set, check for continuity across wire 1146 (violet) from driver flood switch wire harness connector, terminal 5 to a known good ground.

If continuity is present, go to Step 31.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



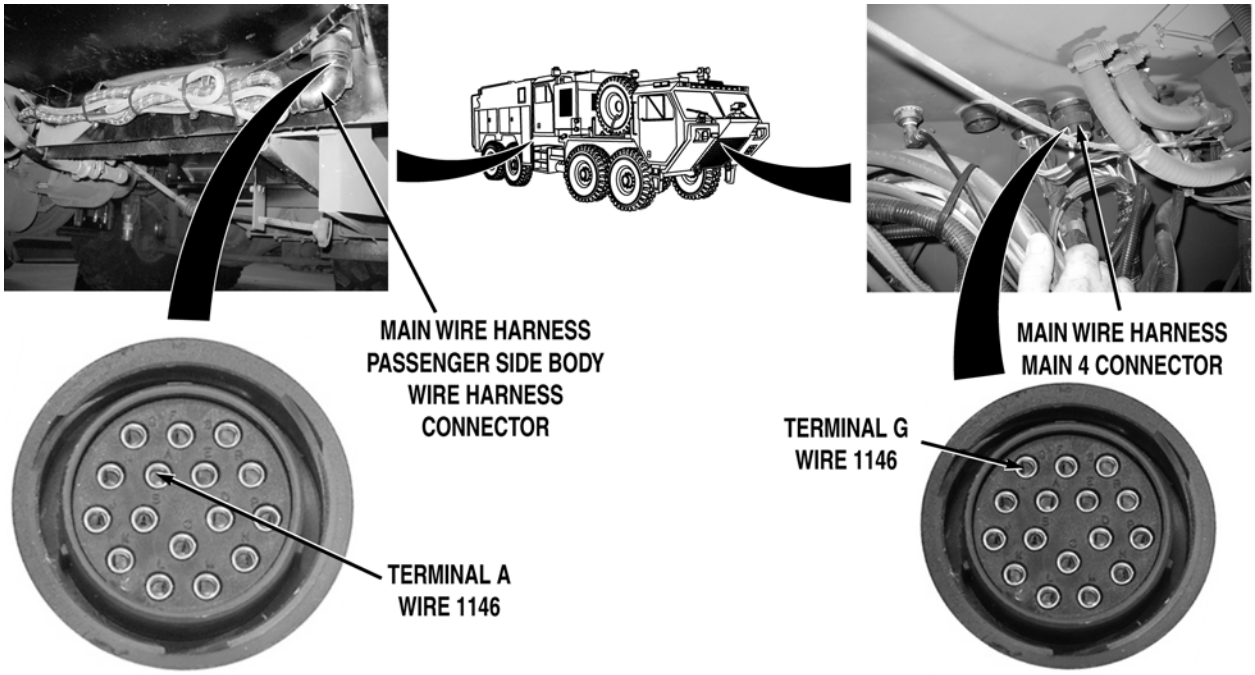
Step 28. Disconnect passenger side body wire harness rear body wire harness connector. With a test lead set, check for continuity across wire 1146 (violet) from driver side extendable floodlight relay to rear body wire harness connector, terminal A.

If continuity is not present, repair wire 1146 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

Step 29. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across wire 1146 (violet) from passenger side body wire harness rear body wire harness connector, terminal A to passenger side body wire harness connector, terminal A.

If continuity is not present, repair wire 1146 in passenger side body wire harness (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

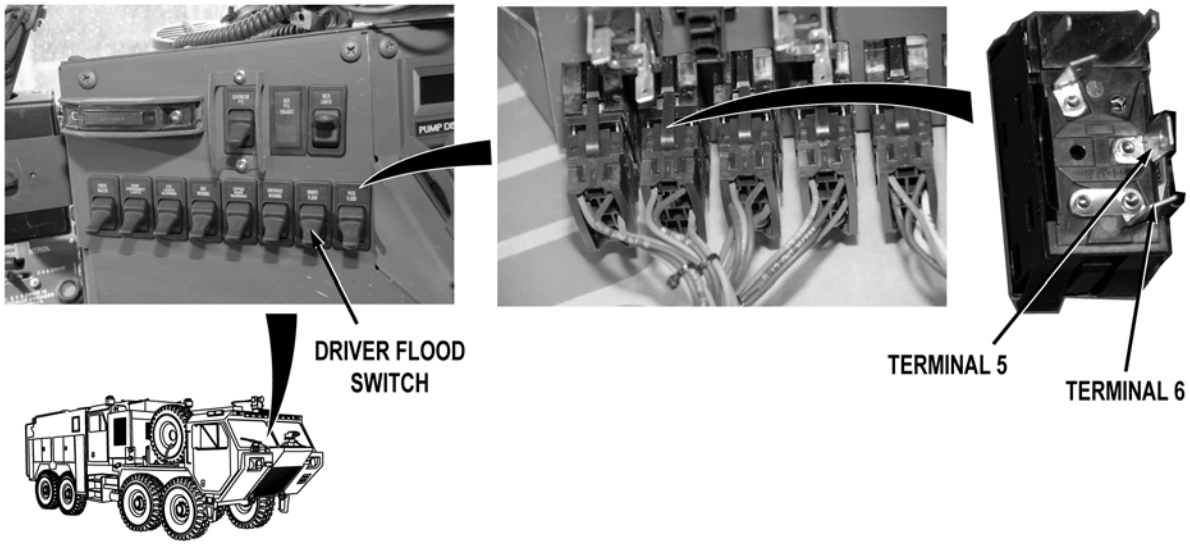


Step 30. Remove skid plate grille (WP 0550). Disconnect main wire harness main 4 connector. With a test lead set, check for continuity across wire 1146 (violet) from main wire harness passenger side body wire harness connector, terminal A to main wire harness main 4 connector, terminal G.

a. If continuity is present, repair wire 1146 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If continuity is not present, repair wire 1146 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

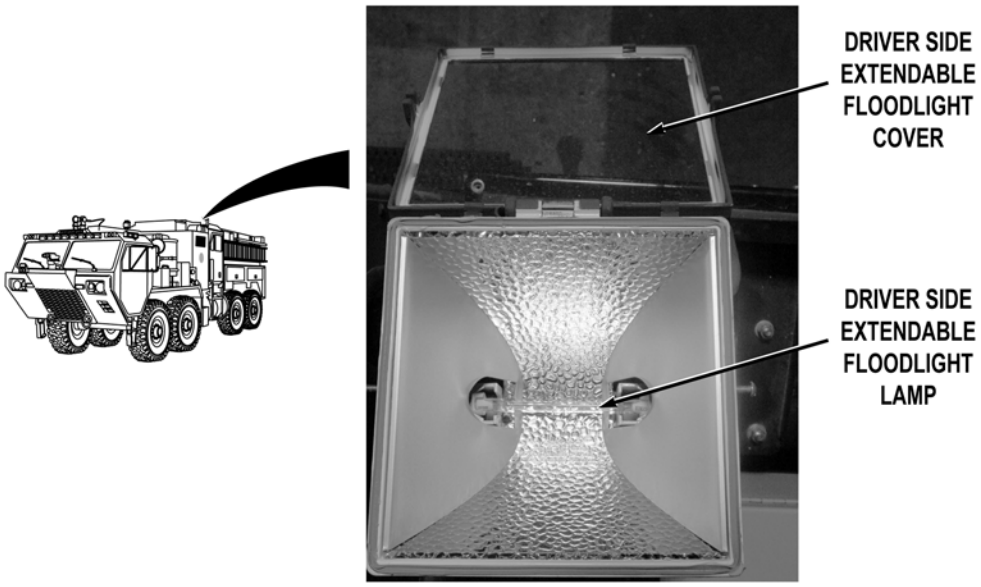
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 31. Put DRIVER FLOOD switch to ON position (WP 0004). Check for continuity across DRIVER FLOOD switch from terminal 5 to terminal 6.

a. If continuity is present, repair wire 1146 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If continuity is not present, replace DRIVER FLOOD switch (WP 0315).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



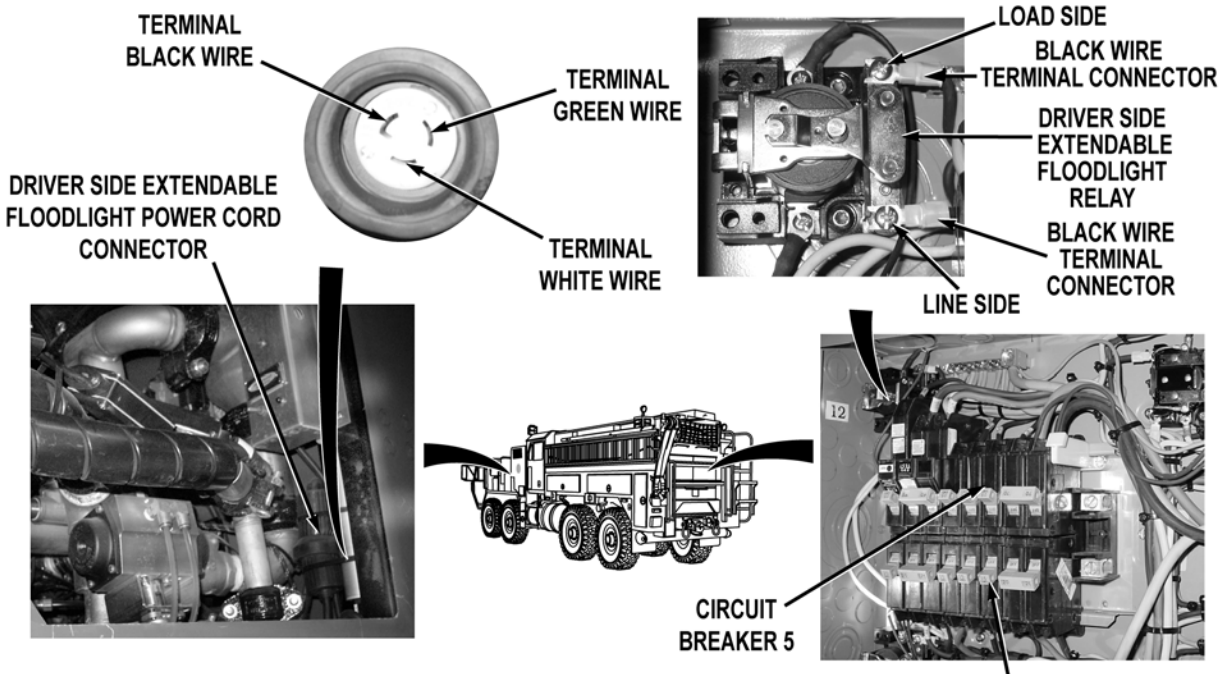
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 32. Open driver side extendable floodlight cover. Inspect driver side extendable floodlight lamp for discoloration.

If driver side extendable floodlight lamp is discolored, replace driver side extendable floodlight lamp (WP 0355).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 33. Unplug driver side extendable floodlight power cord connector. Disconnect black wire from load side of driver side extendable floodlight relay (WP 0373). Install a jumperwire from driver side extendable floodlight relay black wire terminal connector to a known good ground. Check for continuity across black wire terminal from driver side extendable floodlight power cord connector terminal to a known good ground.

If continuity is not present, replace driver side extendable floodlight power cord (WP 0361).

Step 34. Check for continuity across white wire from driver side extendable floodlight power cord connector terminal to a known good ground.

If continuity is not present, replace driver side extendable floodlight power cord (WP 0361).

Step 35. Check for continuity across green wire from driver side extendable floodlight power cord connector terminal to a known good ground.

If continuity is not present, replace driver side extendable floodlight power cord (WP 0361).

Step 36. Plug driver side extendable floodlight to power cord connector. Disconnect black wire from line side of driver side extendable floodlight relay (WP 0373). Check for continuity across black wire from driver side extendable floodlight relay black wire terminal connector to circuit breaker 5.

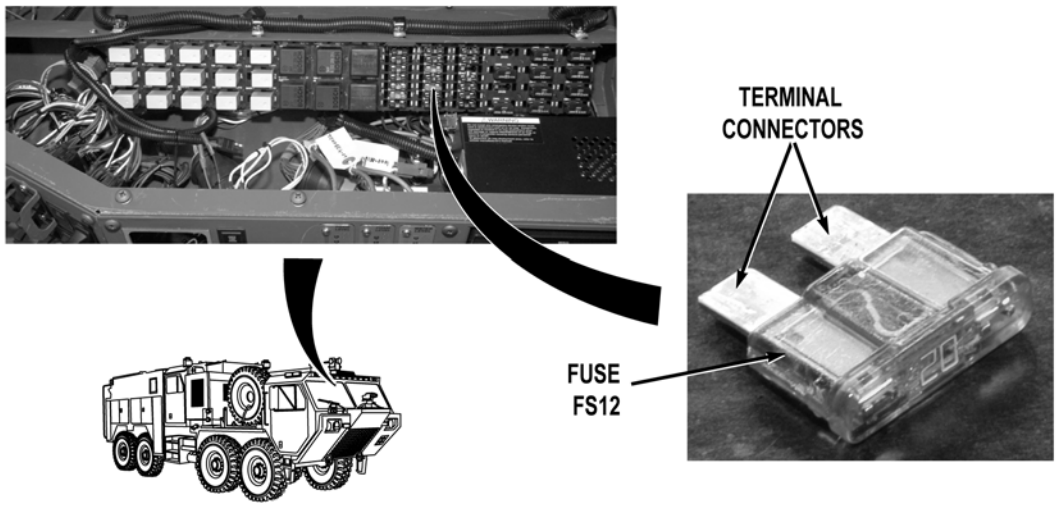
If continuity is not present, replace driver side extendable floodlight relay line cable (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 37. Put circuit breaker 6 to OFF position, then put to ON position. Start hydraulic generator (WP 0021). Put DRIVER FLOOD switch to ON position (WP 0004). Check if circuit breaker 6 trips.

a. If circuit breaker 6 trips, replace circuit breaker (WP 0360).

b. If circuit breaker 6 does not trip, replace driver side extendable floodlight (WP 0354).



WARNING

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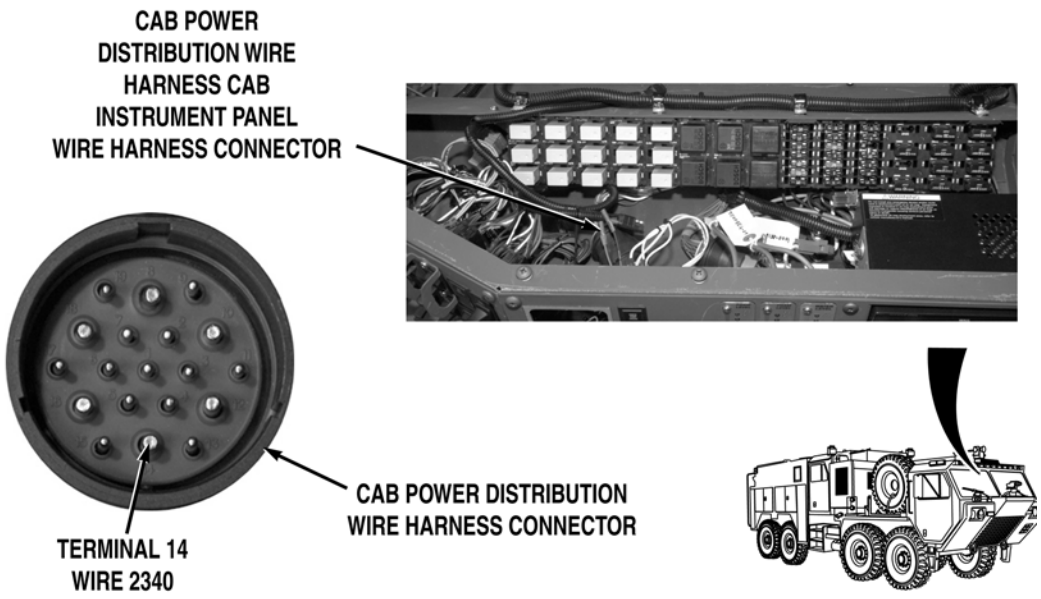
Step 38. Turn hydraulic generator off (WP 0021). Turn vehicle engine OFF (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 12 (WP 0401). Check for continuity across fuse FS 12 terminal connectors.

If continuity is not present, replace fuse FS 12 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 39. Install fuse FS 12 (WP 0401). Disconnect cab power distribution wire harness cab instrument panel wire harness connector. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC at wire 2340 (red) at cab power distribution wire harness connector, terminal 14.

a. If 22 to 28 VDC are present, repair wire 2340 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If 22 to 28 VDC are not present, repair wire 2340 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB DOME LIGHT DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0007
WP 0311
WP 0357
WP 0369
WP 0385

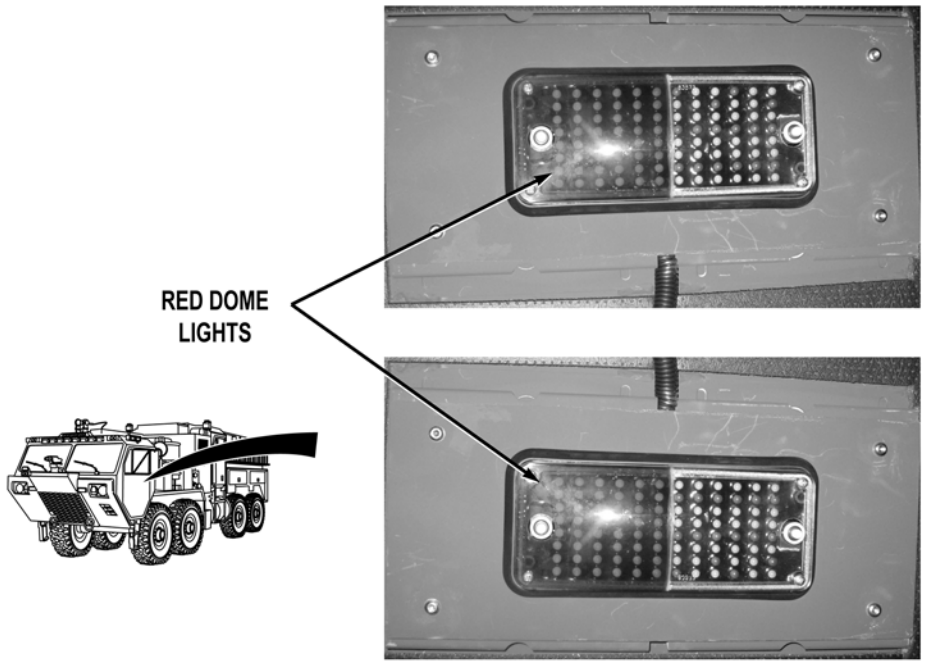
References (continued)
WP 0401
WP 0441
WP 0446
WP 0455

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

CREW CAB DOME LIGHT DOES NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



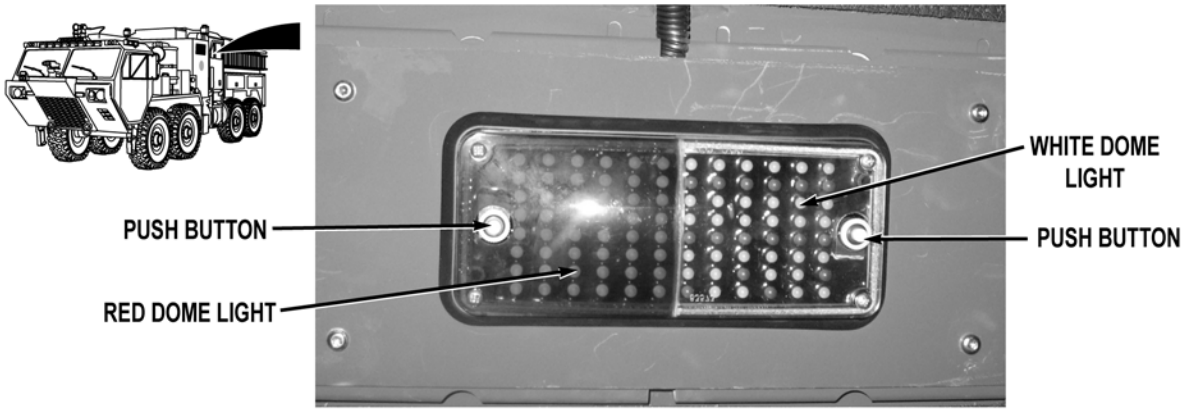
Step 1. Open driver side crew cab access door. Check if both red dome lights operate when driver side crew cab access door is opened.

If both red dome lights do not operate, go to Step 10.

Step 2. Close driver side crew cab access door. Open passenger side crew cab access door. Check if both red dome lights operate.

If both red dome lights do not operate, go to Step 8.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Close passenger side crew cab access door. Check if both red dome lights operate with push buttons.

If both red dome lights do not operate with push buttons, go to Step 5.

Step 4. Check if driver side white dome light operates with push button.

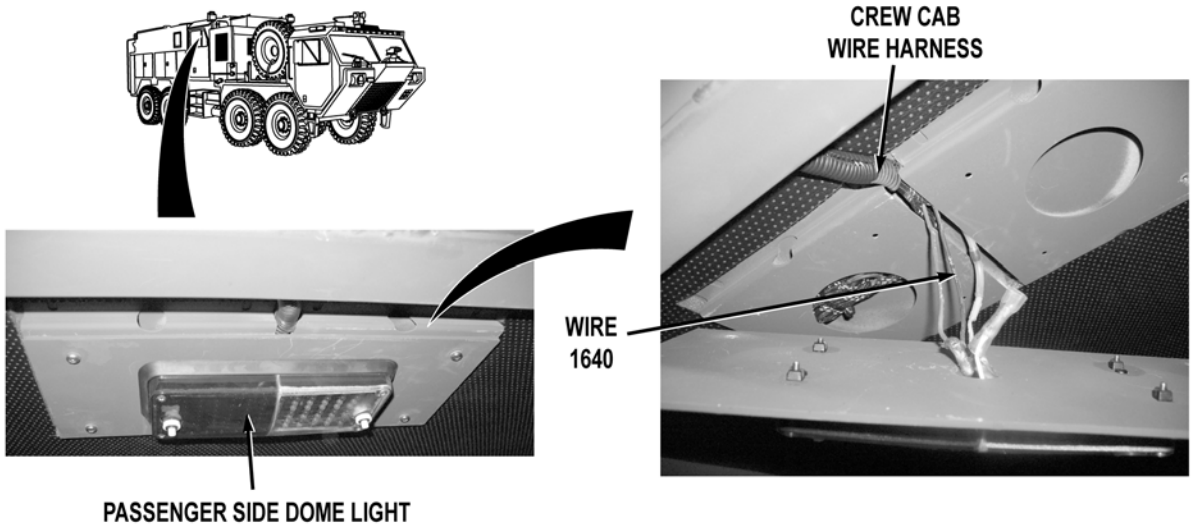
a. If driver side white dome light does not operate with push button, replace driver side dome light (WP 0357).

b. If driver side white dome light does operate with push button, replace passenger side dome light (WP 0357).

Step 5. Check if driver side red dome light operates with push button.

If driver side red dome light does not operate with push button, go to Step 7.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

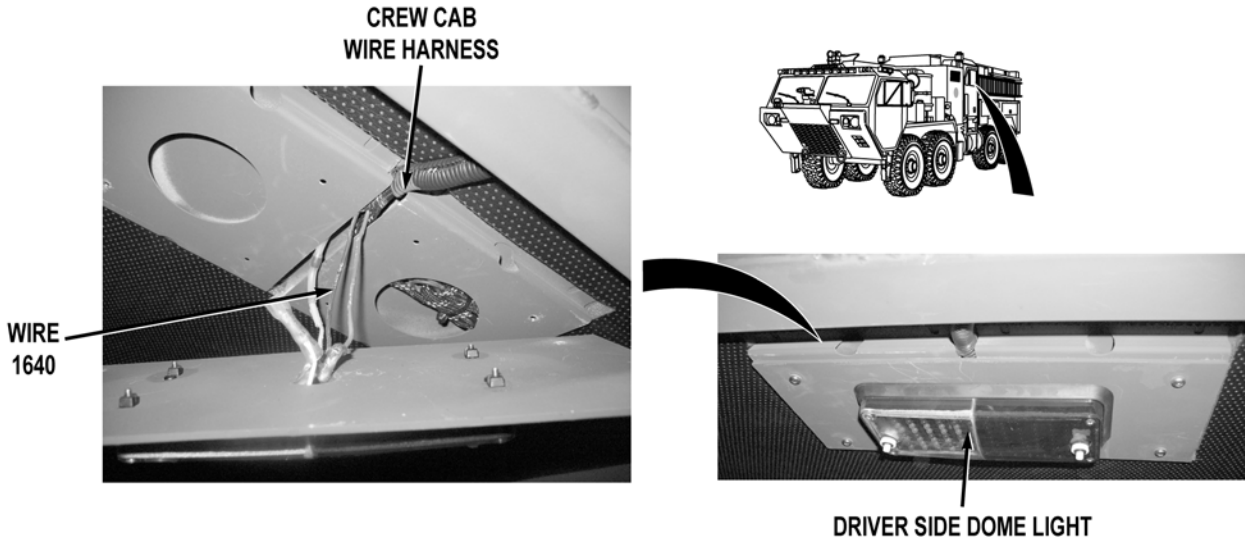
Wire is cut at butt splice connector.

Step 6. Turn battery disconnect switch to OFF position (WP 0007). Remove passenger side dome light (WP 0357). Cut crew cab wire harness wire 1640 at passenger side dome light. Check for continuity across wire 1640 to a known good ground.

a. If continuity is present, replace passenger side dome light (WP 0357).

b. If continuity is not present, repair wire 1640 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

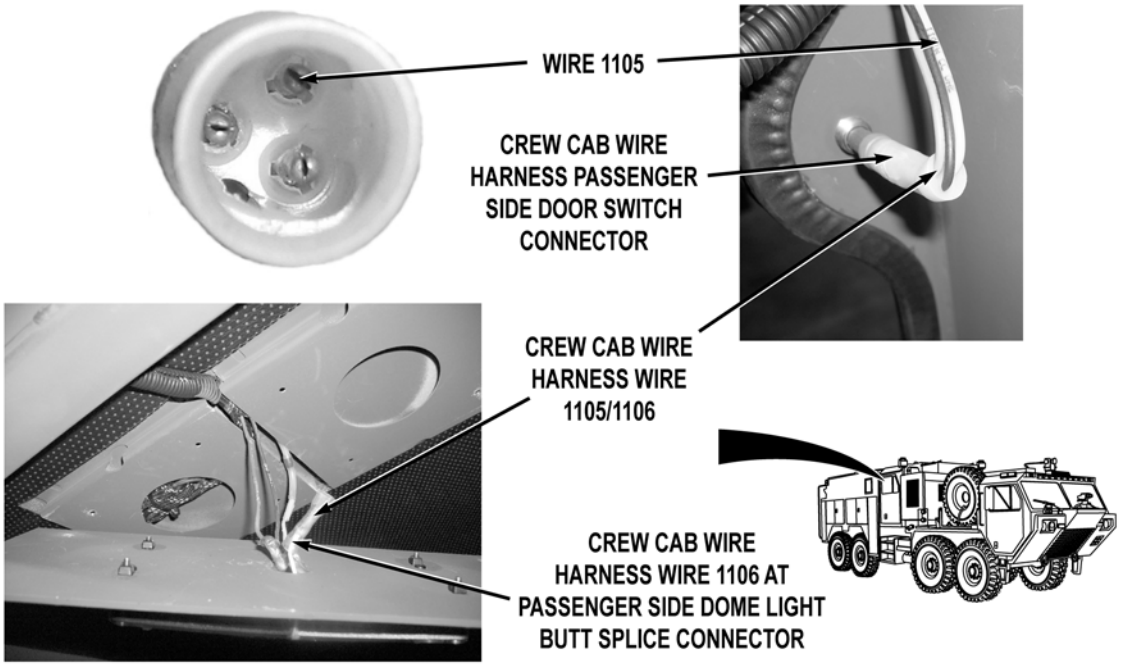
Wire is cut at butt splice connector.

Step 7. Turn battery disconnect switch to OFF position (WP 0007). Remove driver side dome light (WP 0357). Cut crew cab wire harness wire 1640 at driver side dome light. Check for continuity across wire 1640 to a known good ground.

a. If continuity is present, replace driver side dome light (WP 0357).

b. If continuity is not present, repair wire 1640 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

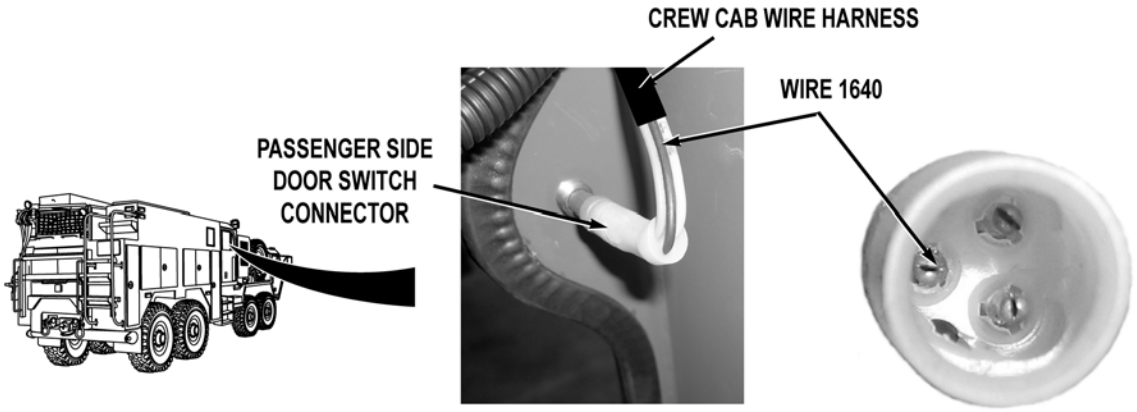
NOTE

- Crew cab wire harness wire 1105/1106 has a 3 amp inline diode located at dome light.
- Red multimeter lead must be attached to wire 1106 at dome light and black lead must be attached to wire 1105 at door switch for reading to be accurate.

Step 8. Turn battery disconnect switch to OFF position (WP 0007). Disconnect passenger side crew cab wire harness door switch connector (WP 0385). Cut crew cab wire harness wire 1106 at passenger side dome light butt splice connector. With a test lead set, check for continuity across crew cab wire harness wire 1105/1106 from passenger side dome light butt splice connector to crew cab wire harness passenger side door switch connector wire 1105.

If continuity is not present, replace crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

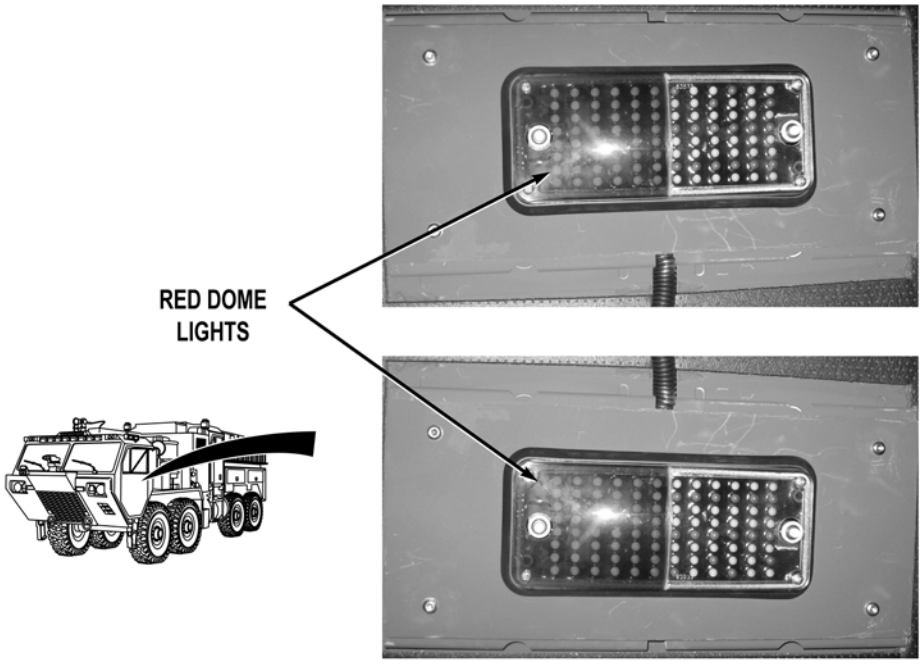


Step 9. Check for continuity across crew cab wire harness wire 1640 from passenger side door switch connector to a known good ground.

a. If continuity is present, replace passenger side door switch (WP 0385).

b. If continuity is not present, repair wire 1640 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

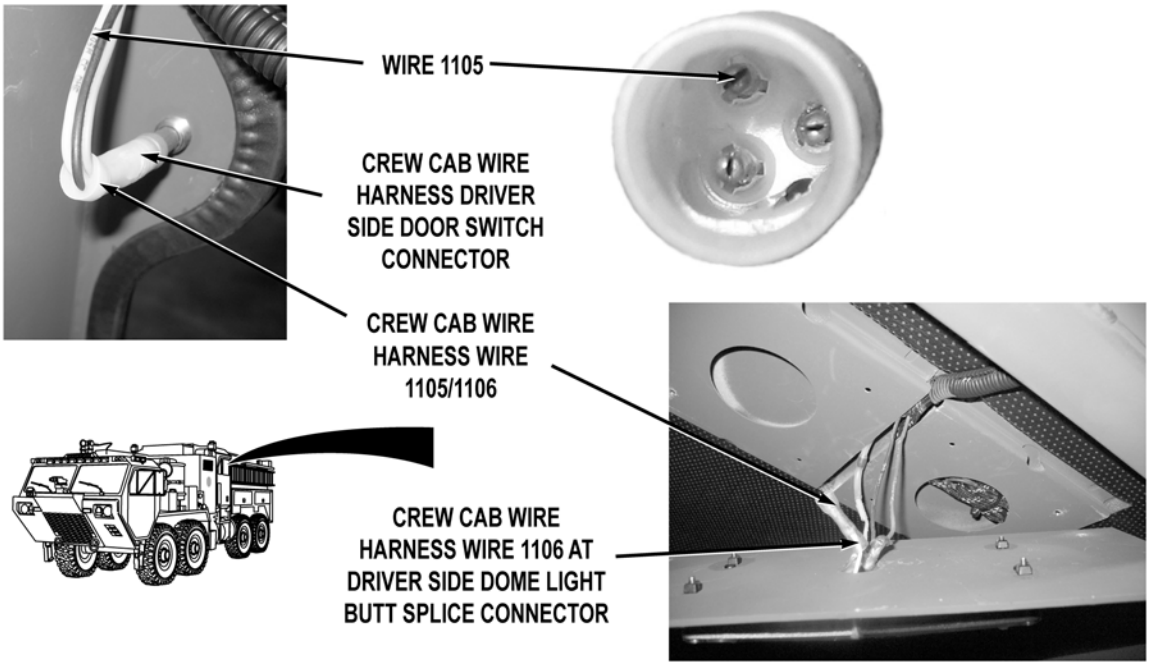
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. Close driver side crew cab access door. Open passenger side crew cab access door. Check if both red dome lights operate.

If both red dome lights do not operate, go to Step 13.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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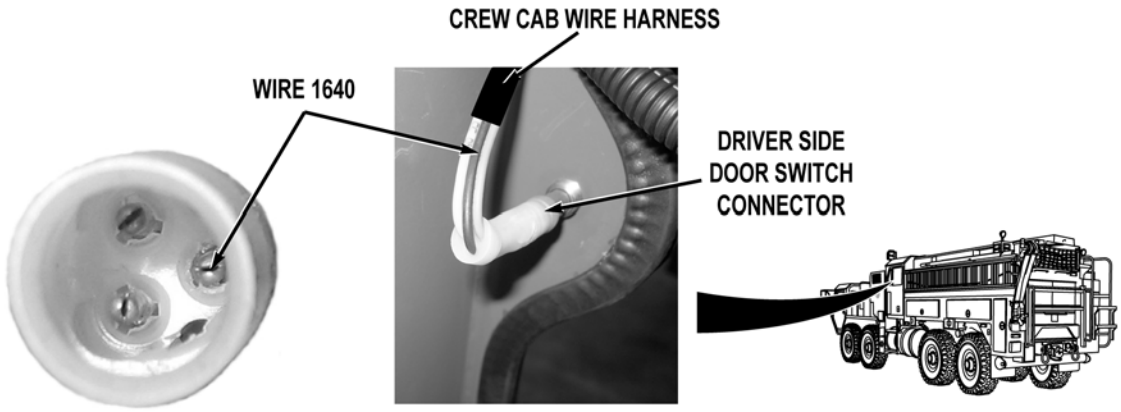
NOTE

- Crew cab wire harness wire 1105/1106 has a 3 amp inline diode located at dome light.
- Red multimeter lead must be attached to wire 1106 at dome light and black lead must be attached to wire 1105 at door switch for reading to be accurate.

Step 11. Turn battery disconnect switch to OFF position (WP 0007). Disconnect driver side crew cab wire harness door switch connector (WP 0385). Cut crew cab wire harness wire 1106 at driver side dome light butt splice connector. With a test lead set, check for continuity across crew cab wire harness wire 1105/1106 from driver side dome light butt splice connector to crew cab wire harness driver side door switch connector wire 1105.

If continuity is not present, replace crew cab wire harness (WP 0446).

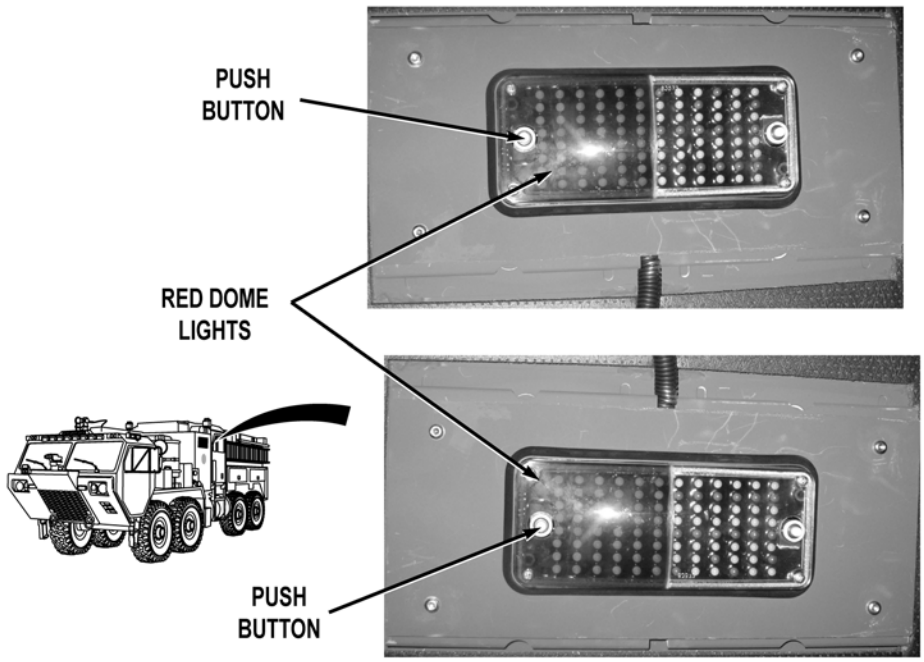
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 12. Check for continuity across crew cab wire harness wire 1640 from driver side door switch connector to a known good ground.

a. If continuity is present, replace driver side door switch (WP 0385).

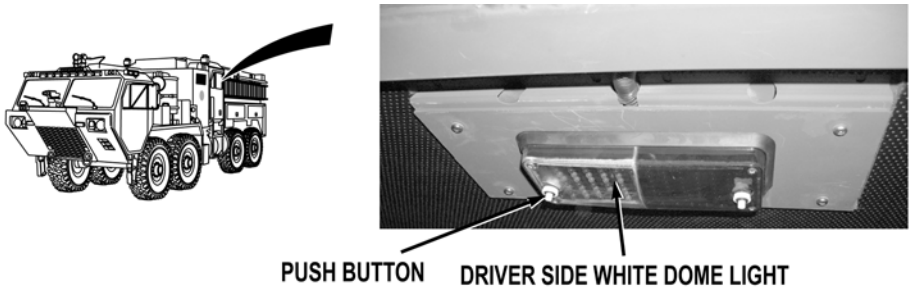
b. If continuity is not present, repair wire 1640 in crew cab wire harness (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).



Step 13. Close passenger side crew cab access door. Check if both red dome lights operate with push buttons.

If both red dome lights do not operate with push buttons, go to Step 15.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 14. Check if driver side white dome light operates with push button.

a. If driver side white dome light does not operate with push button, replace driver side dome light (WP 0357).

b. If driver side white dome light does operate with push button, replace passenger side dome light (WP 0357).

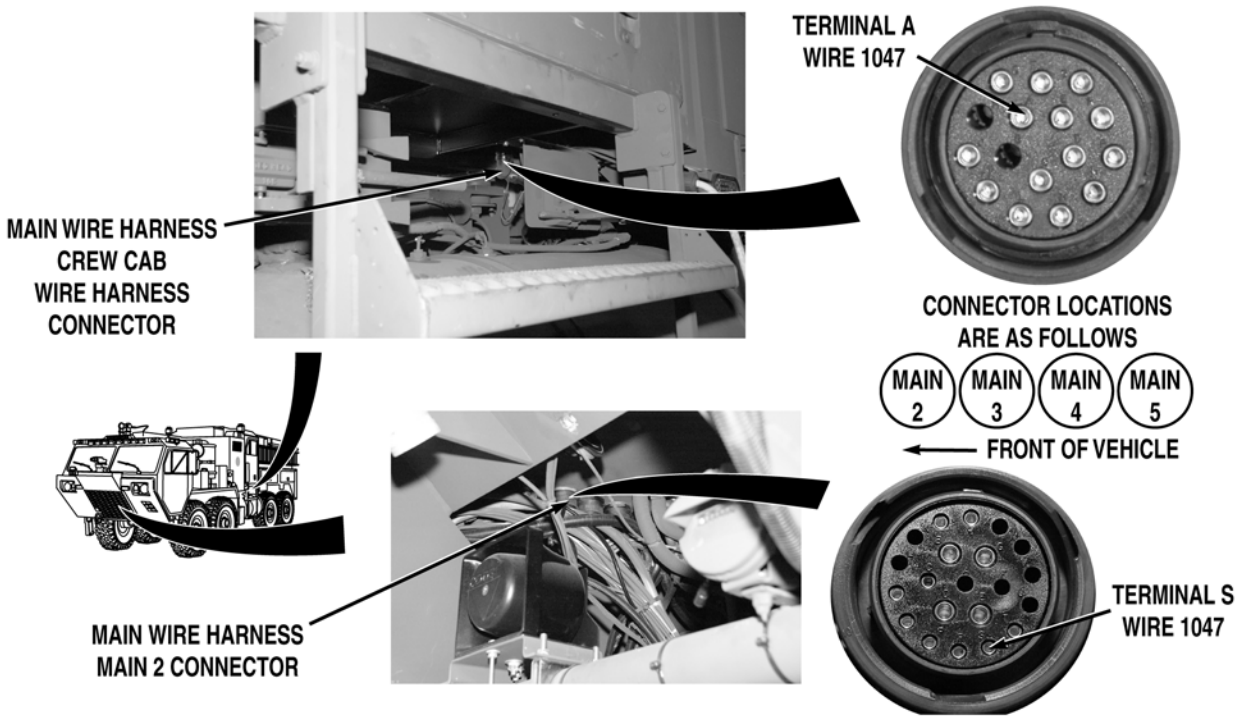
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 15. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness crew cab wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Check if 22 to 28 VDC are present at main wire harness crew cab wire harness connector wire 1047, terminal A and a known good ground.

If 22 to 28 VDC are present, repair wire 1640 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

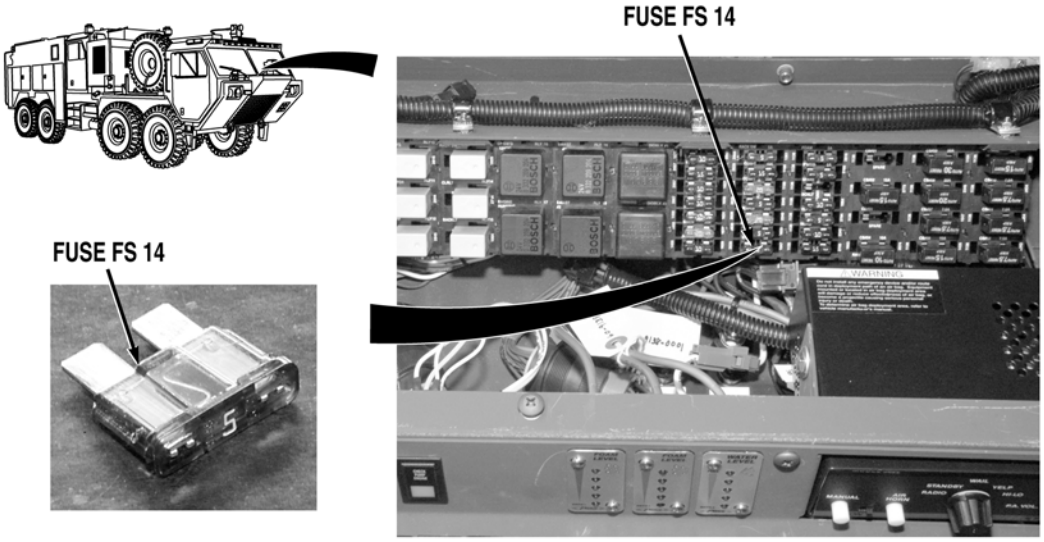
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness main 2 connector. Check for continuity across main wire harness main 2 connector wire 1047, terminal S to main wire harness crew cab wire harness connector, terminal A.

If continuity is not present, repair wire 1047 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 17. Remove cab instrument panel A (WP 0311). Remove fuse FS 14 (WP 0401). Check for continuity across fuse FS 14.

a. If continuity is present, repair wire 1047 in power distribution wire harness and block if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If continuity is not present, replace fuse FS 14 (WP 0401).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

12-VOLT HANDHELD RADIO BATTERY CHARGER(S) DOES NOT OPERATE (PERSONNEL CAB)

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0367
WP 0368
WP 0398

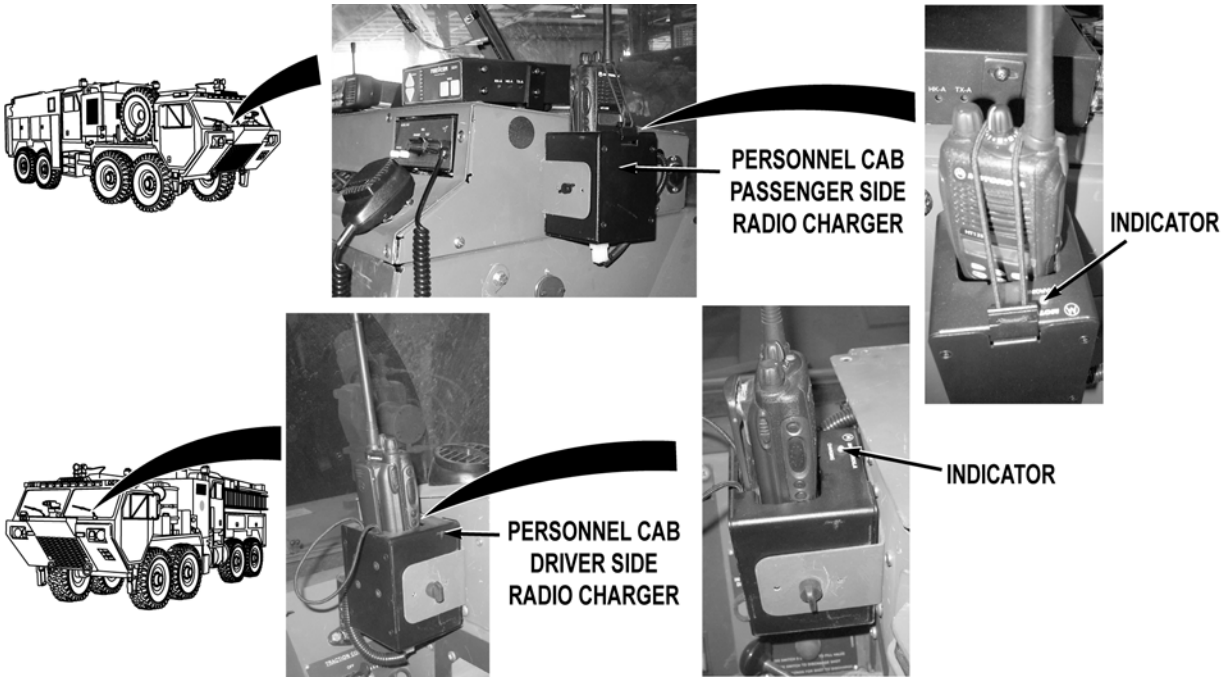
References (continued)
WP 0406
WP 0429
WP 0441

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

12-VOLT HANDHELD RADIO BATTERY CHARGER(S) DOES NOT OPERATE (PERSONNEL CAB)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



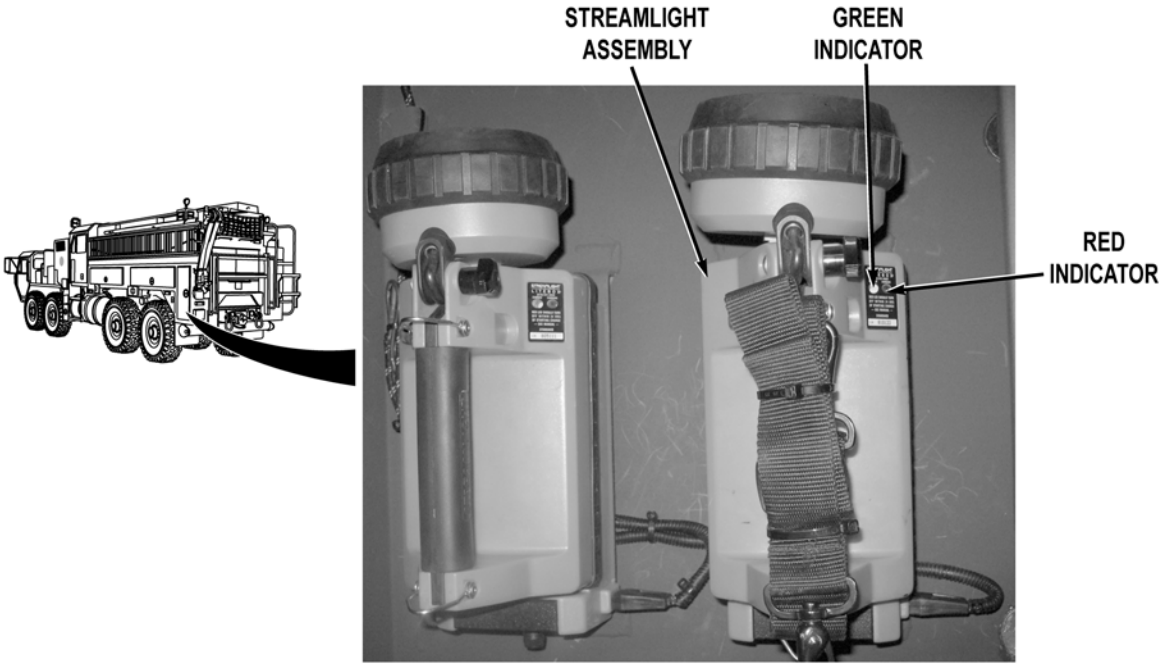
NOTE

- Battery or handheld radio with battery, must be fully seated in handheld radio battery charger before charger indicator will illuminate.
- Handheld radio battery charger red indicator will illuminate when handheld radio battery pack is charging.
- Handheld radio battery charger green indicator will illuminate when handheld radio battery pack is fully charged.
- Handheld radio battery charger red indicator will flash when battery is defective.
- Handheld radio battery charger yellow indicator will flash when battery is too hot or too cold to charge.

Step 1. With handheld radios seated in handheld radio battery chargers, check if indicators on both handheld radio battery chargers illuminate.

If both handheld radio battery charger indicators illuminate, fault corrected.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



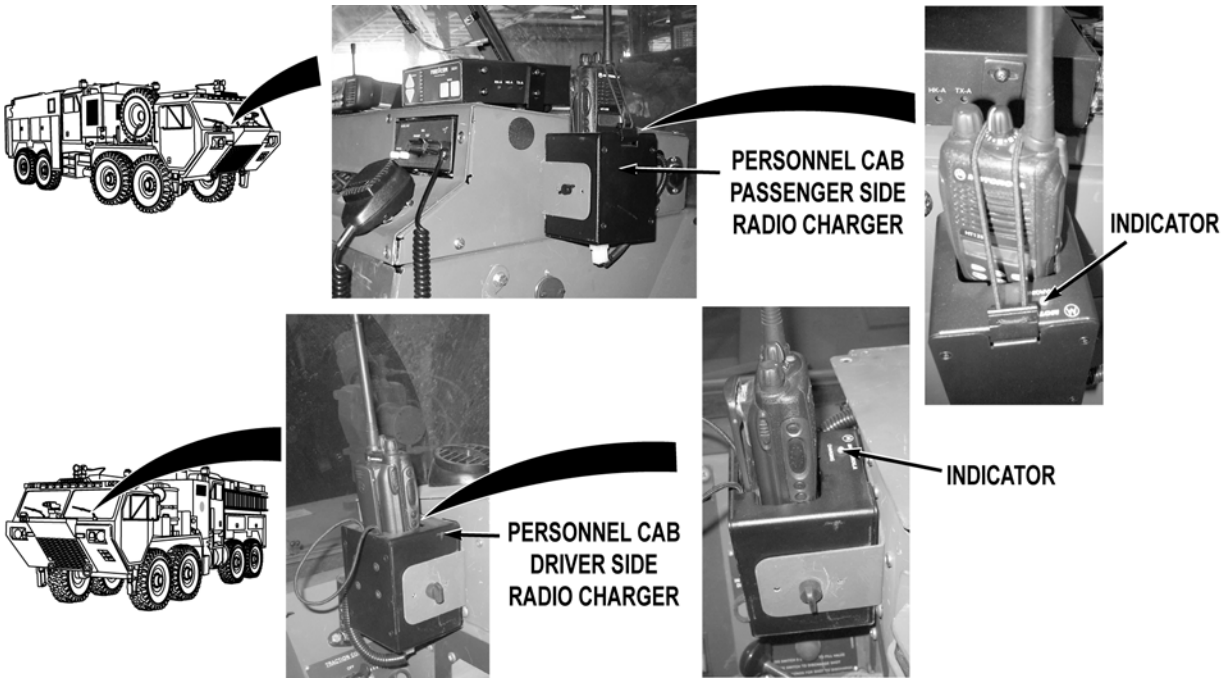
NOTE

- Streamlight assemblies must be fully seated in streamlight chargers before charger indicator will illuminate.
- Streamlight chargers red indicator will illuminate when streamlight assembly is charging.
- Streamlight chargers green indicator will illuminate when streamlight assembly is fully charged.

Step 2. With streamlight assemblies installed in chargers, check if indicators on streamlight chargers illuminate.

If no indicators illuminate on any streamlight chargers, go to Step 14.

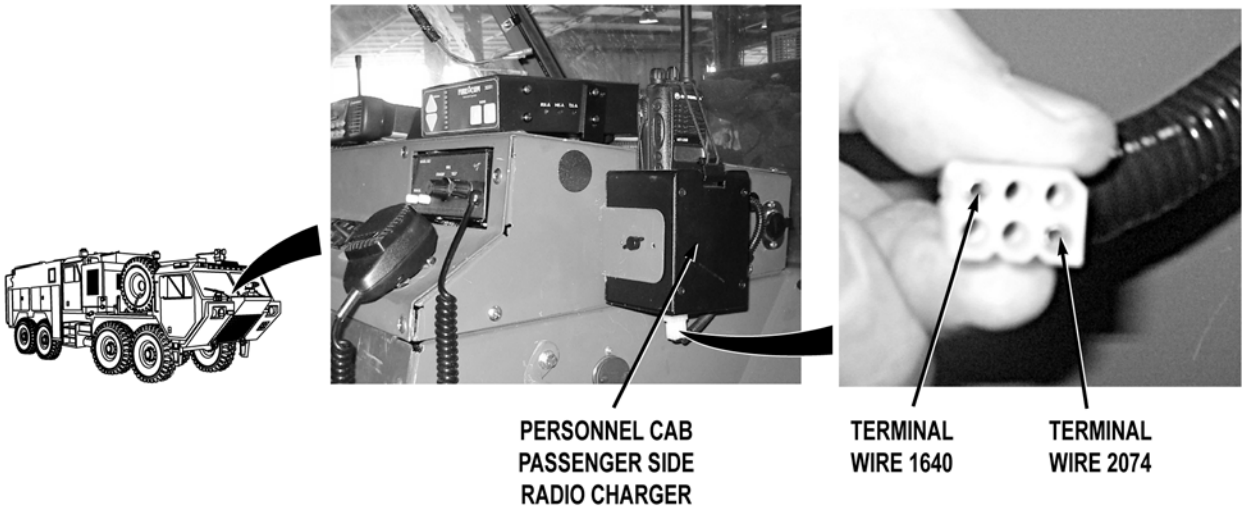
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. With handheld radios seated in handheld radio battery chargers, check if either handheld radio battery charger indicators illuminate.

If both handheld radio battery charger indicators do not illuminate, go to Step 7.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Check if cab power distribution wire harness handheld radio battery charger power cord connector is securely connected on non-operating handheld radio battery charger.

If power cord is not securely connected, reconnect power cord (WP 0406).

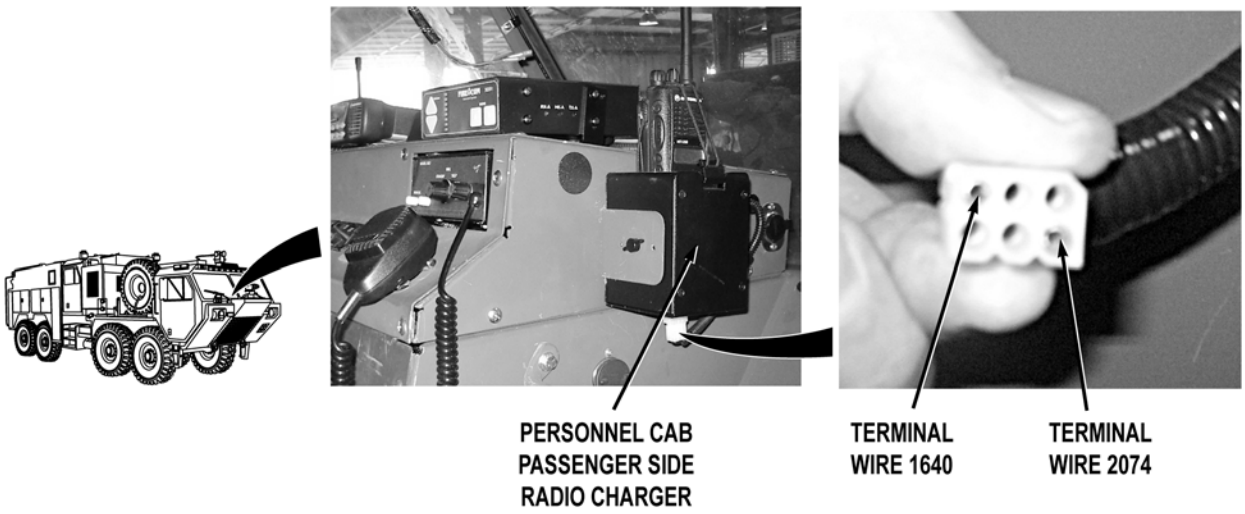
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Disconnect cab power distribution wire harness handheld radio battery charger power cord connector from non-operating handheld radio battery charger. Check for 10 to 14 VDC between wire 2074 (red) at cab power distribution wire harness handheld radio battery charger power cord connector and a known good ground.

If 10 to 14 VDC are not present, repair wire 2074 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Check for continuity across cab power distribution wire harness wire 1640 (black) from non-operating handheld radio battery charger power cord connector to a known good ground.

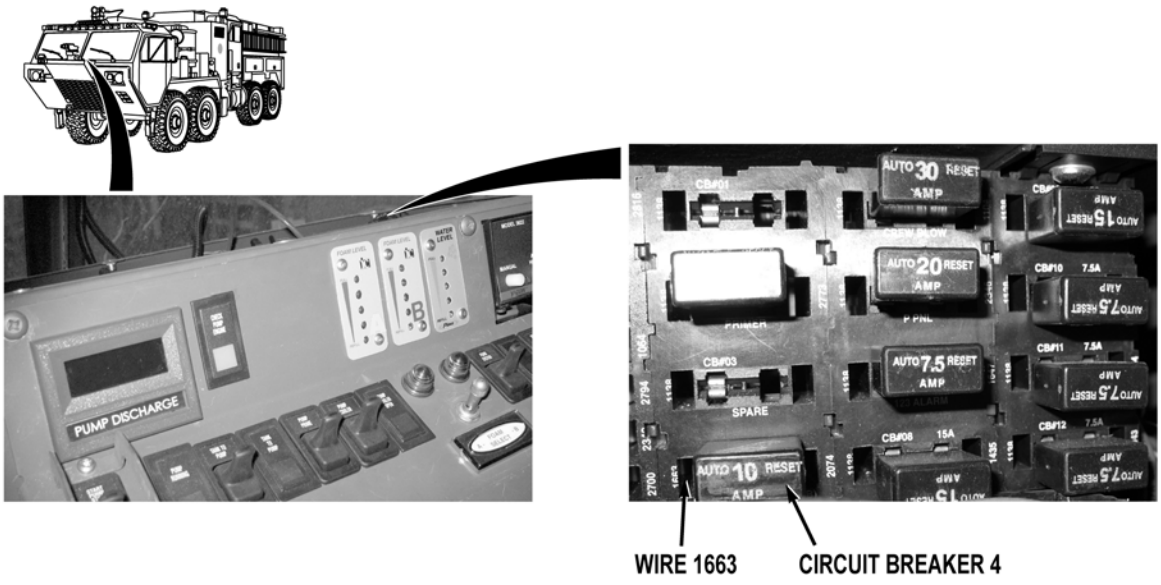
a. If there is continuity, replace non-operating battery charger (WP 0406).

b. If there is no continuity, repair wire 1640 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

Step 7. Disconnect cab power distribution wire harness handheld radio battery charger power cord connector from either handheld radio battery charger. Check for continuity across cab power distribution wire harness wire 1640 (black) from handheld radio battery charger power cord connector to a known good ground.

If there is no continuity, repair wire 1640 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

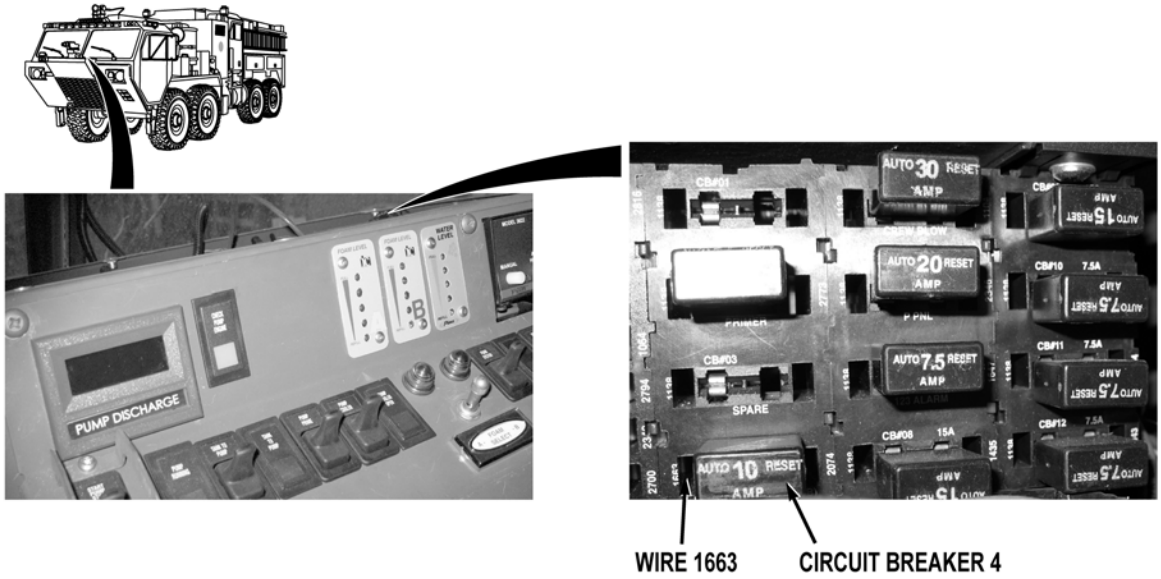
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 8. Remove cab instrument panel A (WP 0311). Disconnect batteries (WP 0368). Remove circuit breaker 4 (WP 0398). Check for continuity across circuit breaker.

If there is no continuity, replace circuit breaker 4 (WP 0398).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



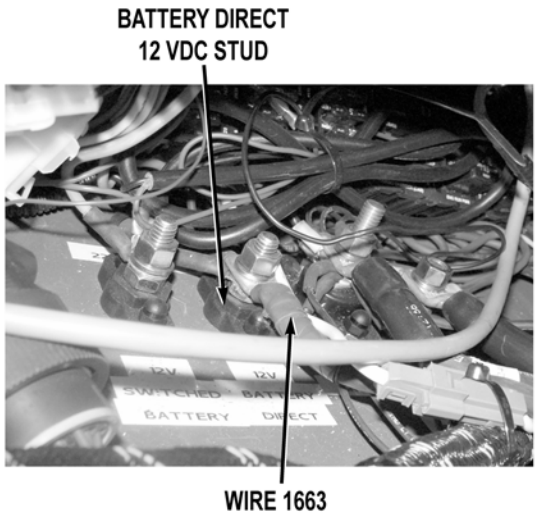
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 9. Connect batteries (WP 0368). Check for 10 to 14 VDC between wire 1663 at cab power distribution wire harness circuit breaker 4 terminal and a known good ground.

If 10 to 14 VDC are present, repair wire 2074 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



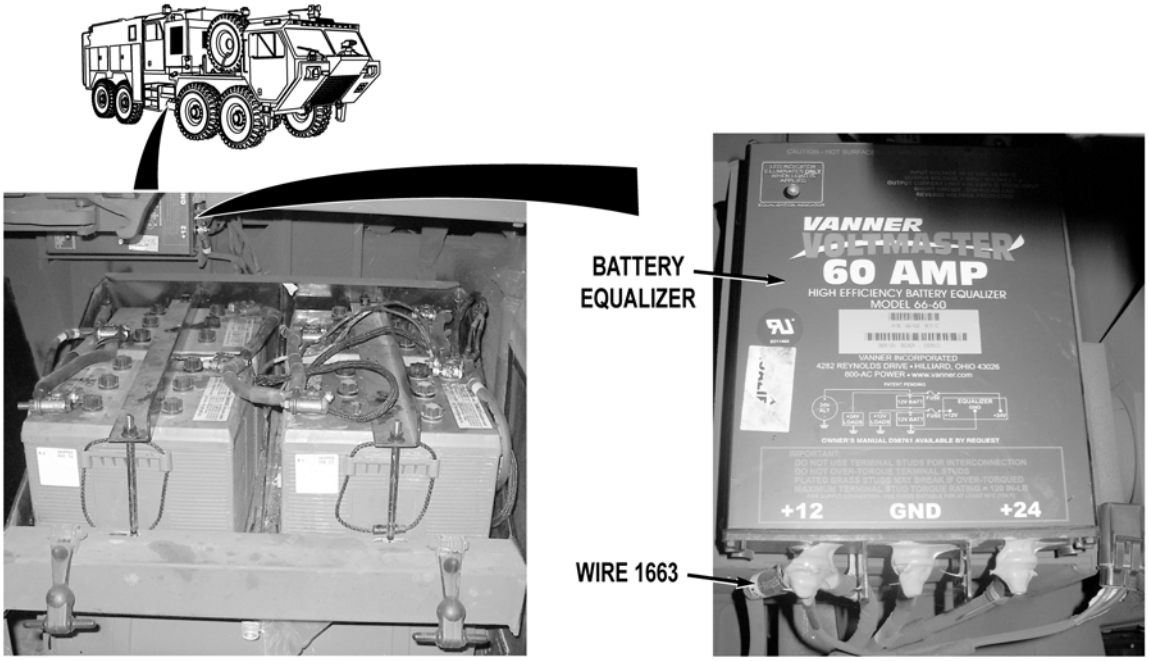
Step 10. Check for 10 to 14 VDC between wire 1663 at Battery Direct 12 VDC terminal block in Power Distribution Panel and a known good ground.

If 10 to 14 VDC are present, repair wire 1663 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

Step 11. Disconnect batteries (TM 9-2320-325-14&P). Check wire connections at Battery Direct 12 VDC terminal block in Power Distribution Panel for loose and corroded terminals.

If connections are loose or corroded, clean and tighten connections or replace Battery Direct 12 VDC terminal block in Power Distribution Panel (WP 0429).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 12. Check battery equalizer wire connections for loose and corroded terminals.

If connections are loose or corroded, clean and tighten connections or replace battery equalizer (WP 0367).

Step 13. Connect batteries (TM 9-2320-325-14&P). Check for 10 to 14 VDC between wire 1663 at 12 VDC connection on battery equalizer and a known good ground.

a. If 10 to 14 VDC are present, repair wire 1663 between battery equalizer and Battery Direct 12 VDC terminal block in Power Distribution Panel if repairable (TM 9-2320-325-14&P), or replace wire 1663 (WP 0368).

b. If 10 to 14 VDC are not present, repair wire 1663 between 12 VDC connection on battery equalizer and battery pack if repairable (TM 9-2320-325-14&P), or replace wire 1663 (WP 0368).

Step 14. Disconnect batteries (TM 9-2320-325-14&P). Check wire connections at battery equalizer for loose and corroded terminals.

a. If connections are loose or corroded, clean and tighten connections or replace battery equalizer (WP 0367).

b. If connections are not loose or corroded, repair wire 1663 between 12 VDC connection on battery equalizer and battery pack if repairable (TM 9-2320-325-14&P), or replace wire 1663 (WP 0368).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

12-VOLT HANDHELD RADIO BATTERY CHARGER(S) DOES NOT OPERATE (CREW CAB)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

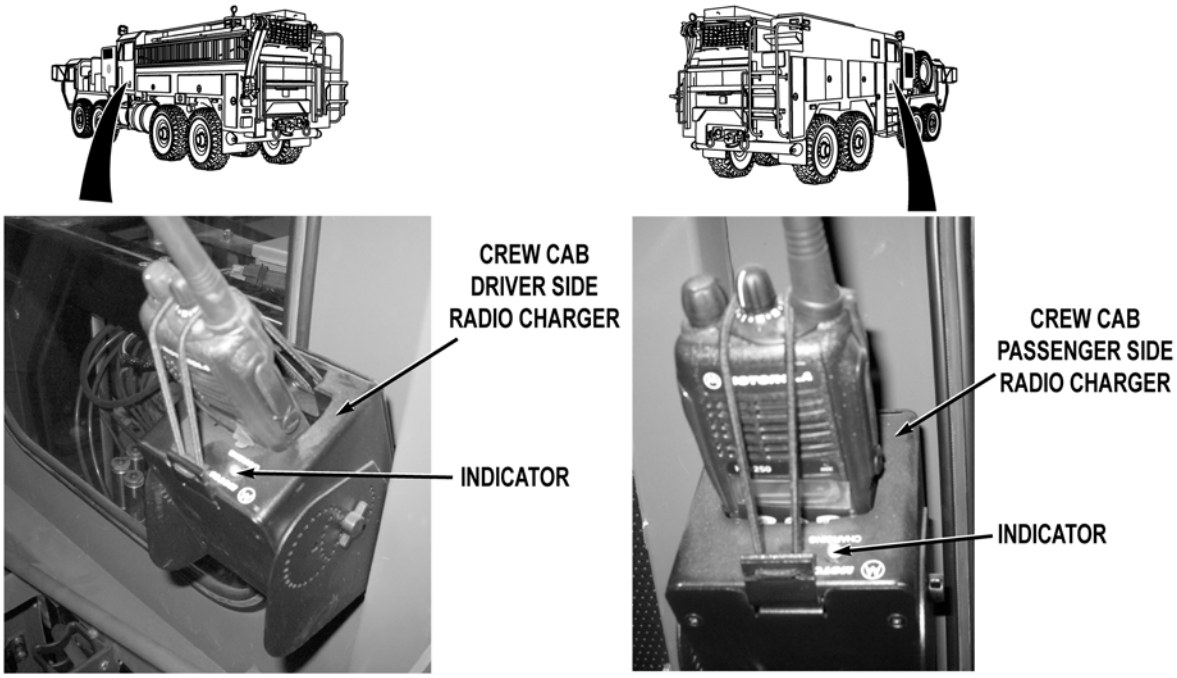
References
TM 9-2320-325-14&P
WP 0367
WP 0368
WP 0394
WP 0401
WP 0406
WP 0446
WP 0455

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

12-VOLT HANDHELD RADIO BATTERY CHARGER(S) DOES NOT OPERATE (CREW CAB)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



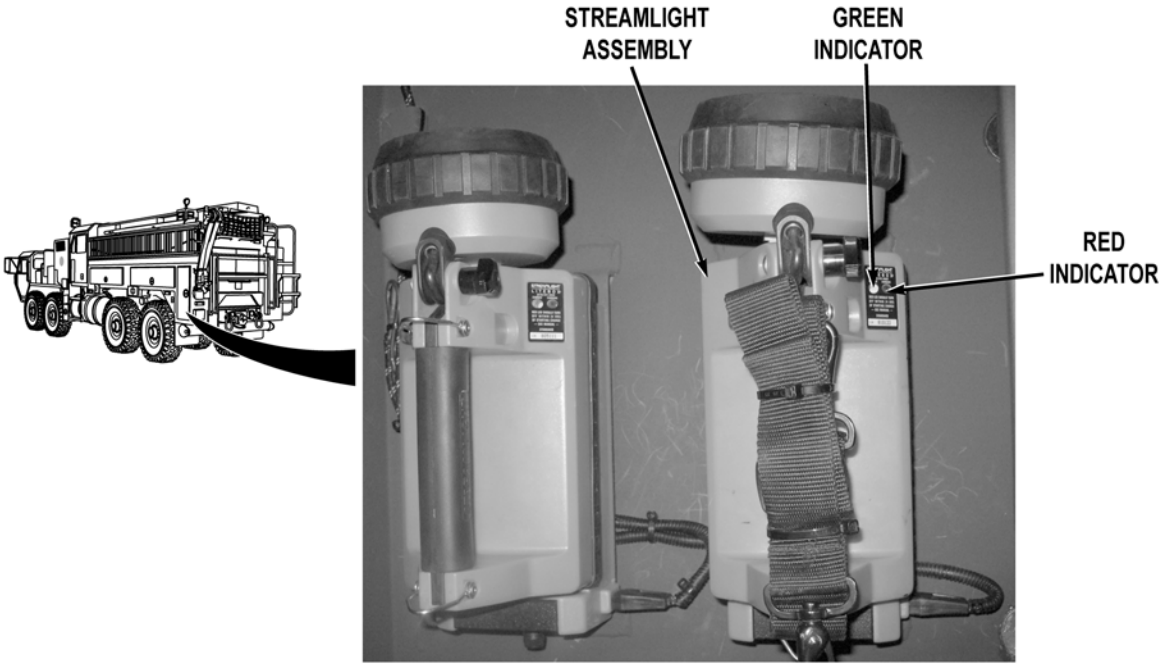
NOTE

- Battery or handheld radio with battery must be fully seated in handheld radio battery charger before charger indicator will illuminate.
- Handheld radio battery charger red indicator will illuminate when handheld radio battery pack is charging.
- Handheld radio battery charger green indicator will illuminate when handheld radio battery pack is fully charged.
- Handheld radio battery charger red indicator will flash when battery is defective.
- Handheld radio battery charger yellow indicator will flash when battery is too hot or too cold to charge.

Step 1. With handheld radios seated in handheld radio battery chargers, check if indicators on both handheld radio battery chargers illuminate.

If both handheld radio battery charger indicators illuminate, fault corrected.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



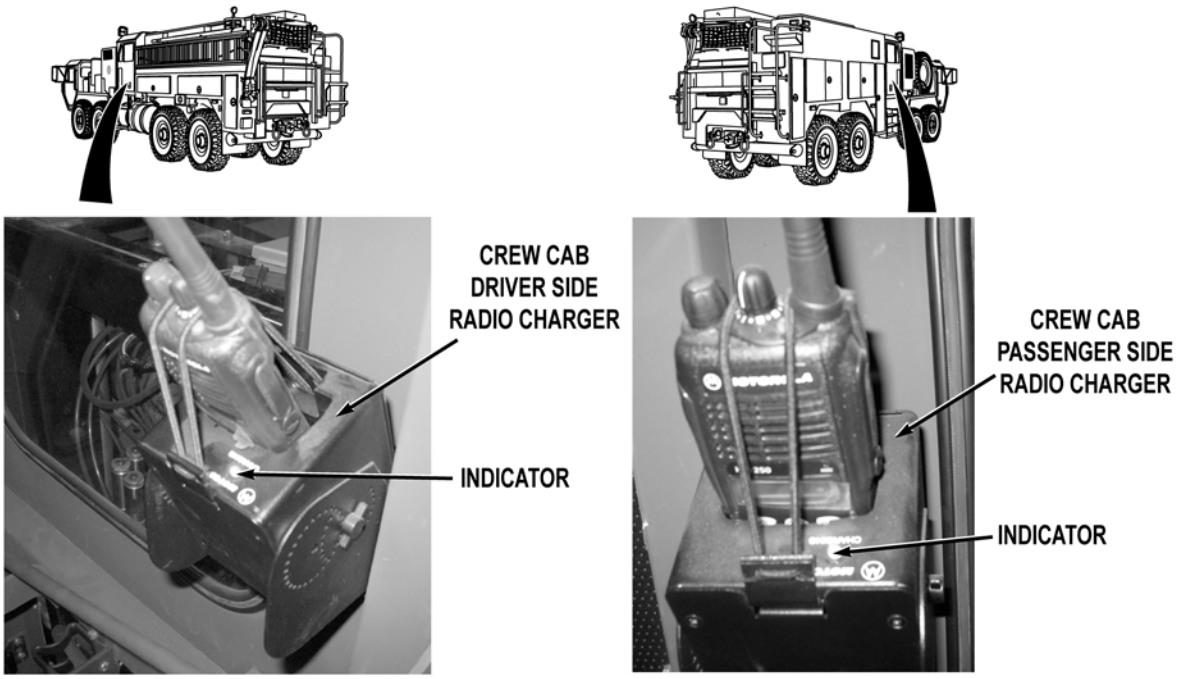
NOTE

- Streamlight assemblies must be fully seated in Streamlight chargers before charger indicator will illuminate.
- The red indicator on Streamlight chargers will illuminate when Streamlight assembly is charging.
- The green indicator on Streamlight chargers will illuminate when Streamlight assembly is fully charged.

Step 2. With Streamlight assemblies installed in chargers, check if indicators on Streamlight chargers illuminate.

If no indicators illuminate on any Streamlight chargers, go to Step 11.

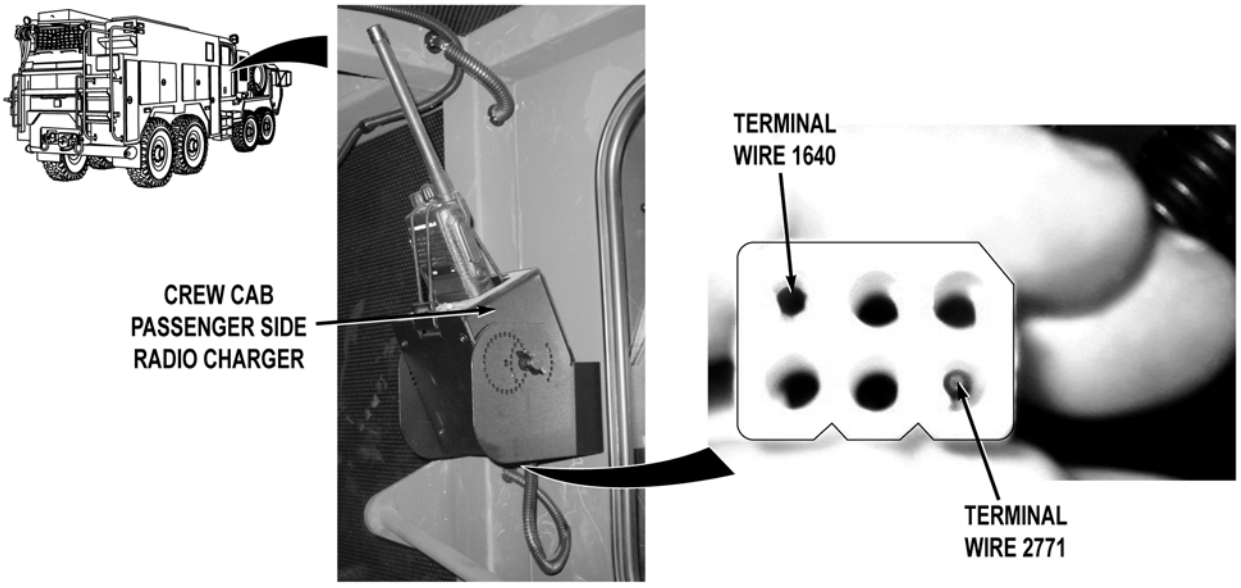
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. With handheld radios seated in handheld radio battery chargers, check if either handheld radio battery charger indicators illuminate.

If both handheld radio battery charger indicators do not illuminate, go to Step 7.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Check if crew cab wire harness handheld radio battery charger power cord connector is securely connected on non-operating handheld radio battery charger.

If power cord is not securely connected, reconnect power cord (WP 0406).

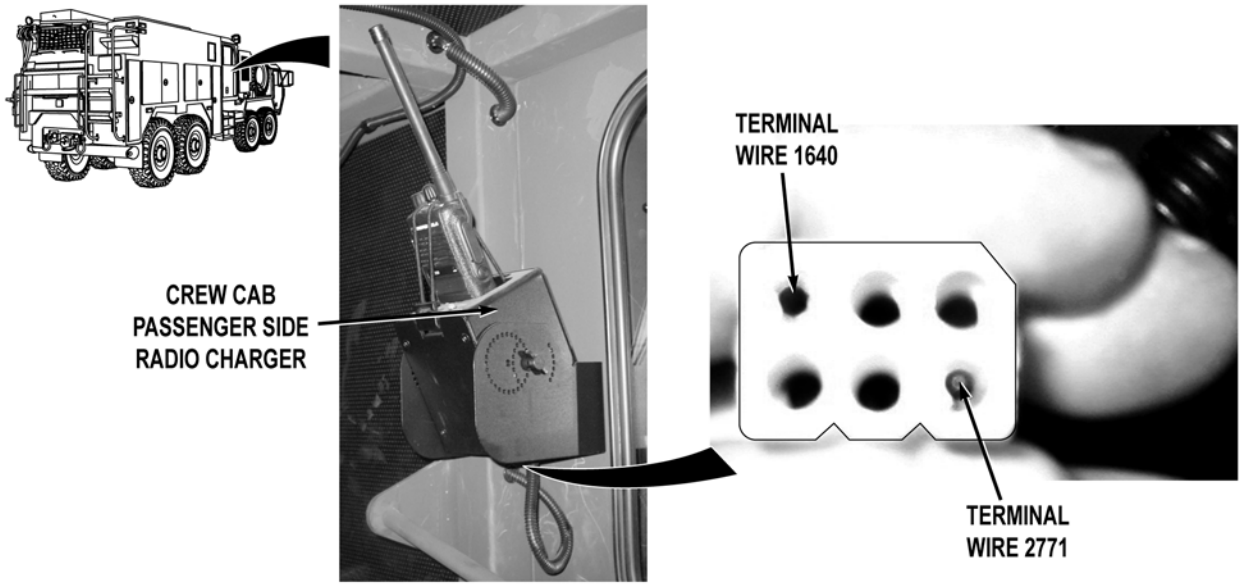
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Disconnect crew cab wire harness handheld radio battery charger power cord connector from non-operating handheld radio battery charger. Check for 10 to 14 VDC between wire 2771 (red) at crew cab wire harness handheld radio battery charger power cord connector and a known good ground.

If 10 to 14 VDC are not present, repair wire 2771 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Check for continuity across crew cab wire harness wire 1640 (black) from handheld radio battery charger power cord connector to a known good ground.

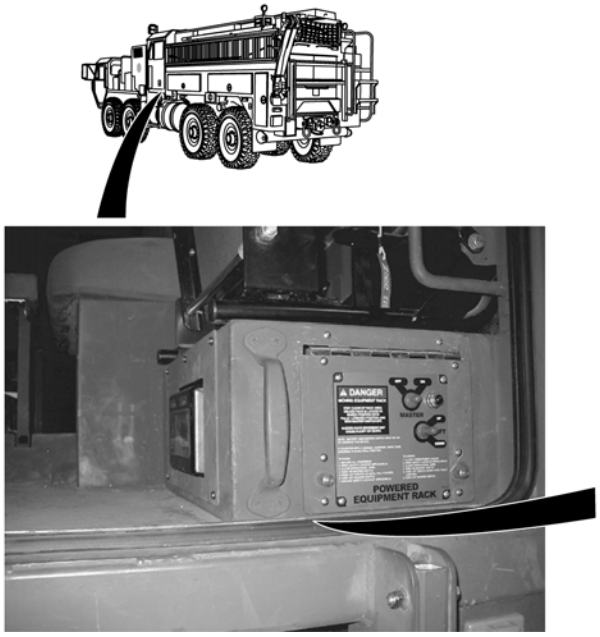
a. If there is continuity, replace non-operating battery charger (WP 0406).

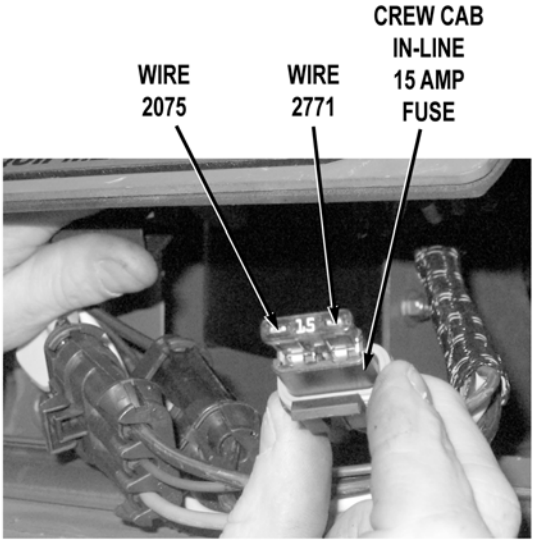
b. If there is no continuity, repair wire 1640 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace cab crew cab wire harness (WP 0446).

Step 7. Disconnect crew cab wire harness handheld radio battery charger power cord connector from either handheld radio battery charger. Check for continuity across crew cab wire harness 1640 (black) from handheld radio battery charger power cord connector to a known good ground.

If there is no continuity, repair wire 1640 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace cab crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION





NOTE

Crew cab in-line fuse is located behind ladder rack control panel.

Step 8. Remove crew cab in-line 15 amp fuse (WP 0394). Check for continuity across fuse.

If there is no continuity, replace crew cab in-line 15 amp fuse (WP 0394).

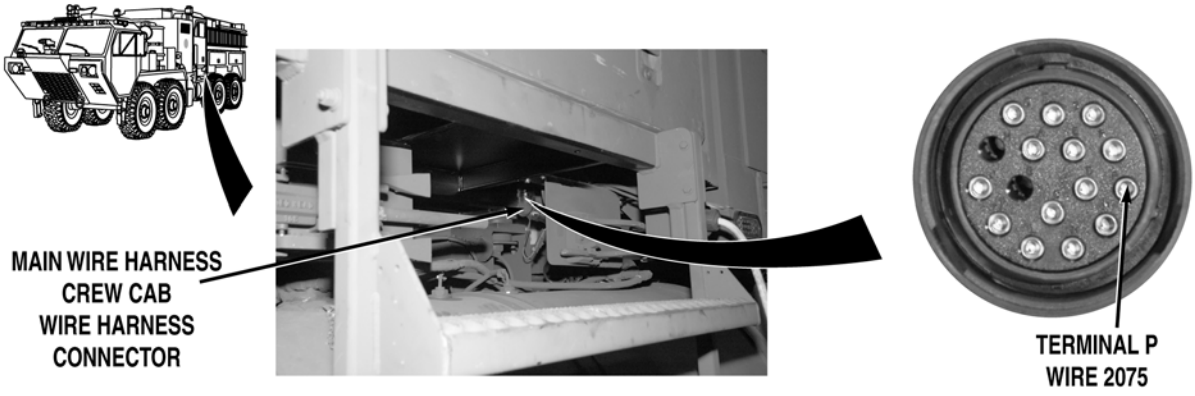
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 9. Check for 10 to 14 VDC between wire 2075 at crew cab 15 amp in-line fuse holder and a known good ground.

If 10 to 14 VDC are present, repair wire 2771 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. Install crew cab in-line 15 amp fuse (WP 0394). Disconnect main wire harness crew cab wire harness connector. Check for 10 to 14 VDC between wire 2075 at main wire harness connector, terminal P and a known good ground.

a. If 10 to 14 VDC are present, repair wire 2075 in crew cab wire harness if repairable (TM 9-2320-325-14&P), or replace crew cab wire harness (WP 0446).

b. If 10 to 14 VDC are not present, repair wire 2075 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

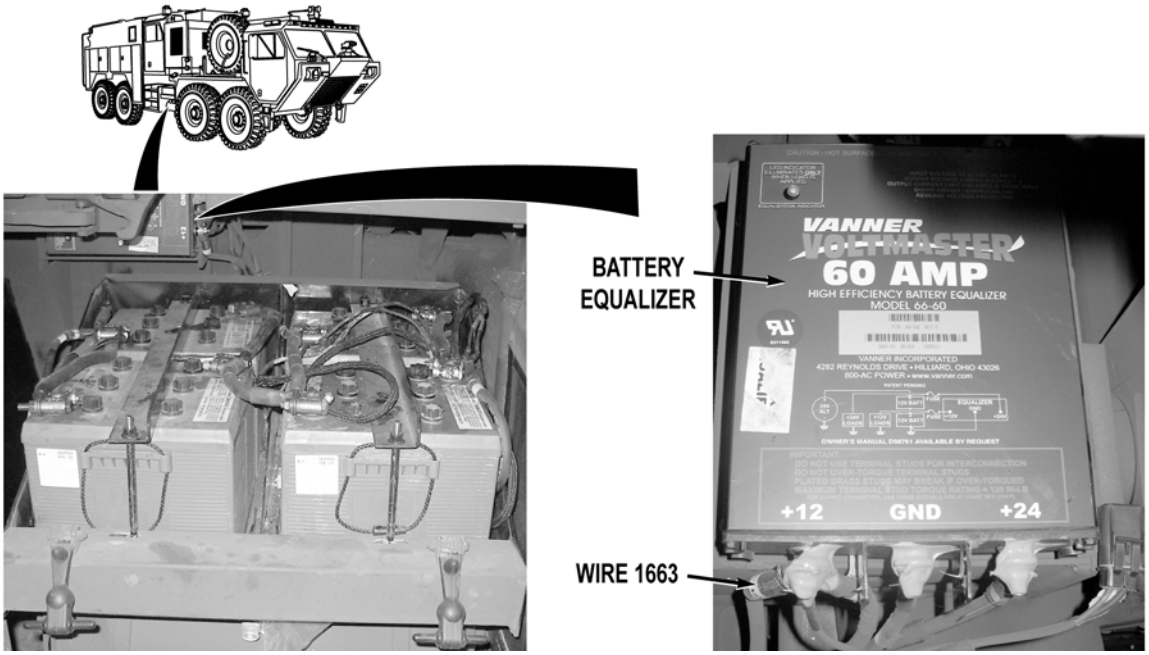
Step 11. Connect main wire harness crew cab wire harness connector. Remove main wire harness in-line 20 amp fuse (WP 0401). Check for continuity across fuse.

If there is no continuity, replace main harness in-line 20 amp fuse (WP 0401).

Step 12. Check for 10 to 14 VDC between wire 1663 at main wire harness in-line 20 amp fuse holder and a known good ground.

If 10 to 14 VDC are present, repair wire 2075 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 13. Install main wire harness in-line 20 amp fuse (WP 0401). Disconnect batteries (WP 0368). Check battery equalizer wire terminations for loose and corroded connections.

If connections are loose or corroded, clean and tighten connections or replace battery equalizer (WP 0367).

Step 14. Connect batteries (WP 0368). Check for 10 to 14 VDC between wire 1663 at 12 VDC connection on battery equalizer and a known good ground.

a. If 10 to 14 VDC are present, repair wire 1663 between battery equalizer and main wire harness in-line 20 amp fuse if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If 10 to 14 VDC are not present, repair wire 1663 between 12 VDC connection on battery equalizer and battery pack if repairable (TM 9-2320-325-14&P), or replace wire 1663 (WP 0368).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

12-VOLT FLASHLIGHT CHARGER(S) DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0367
WP 0393
WP 0401
WP 0405

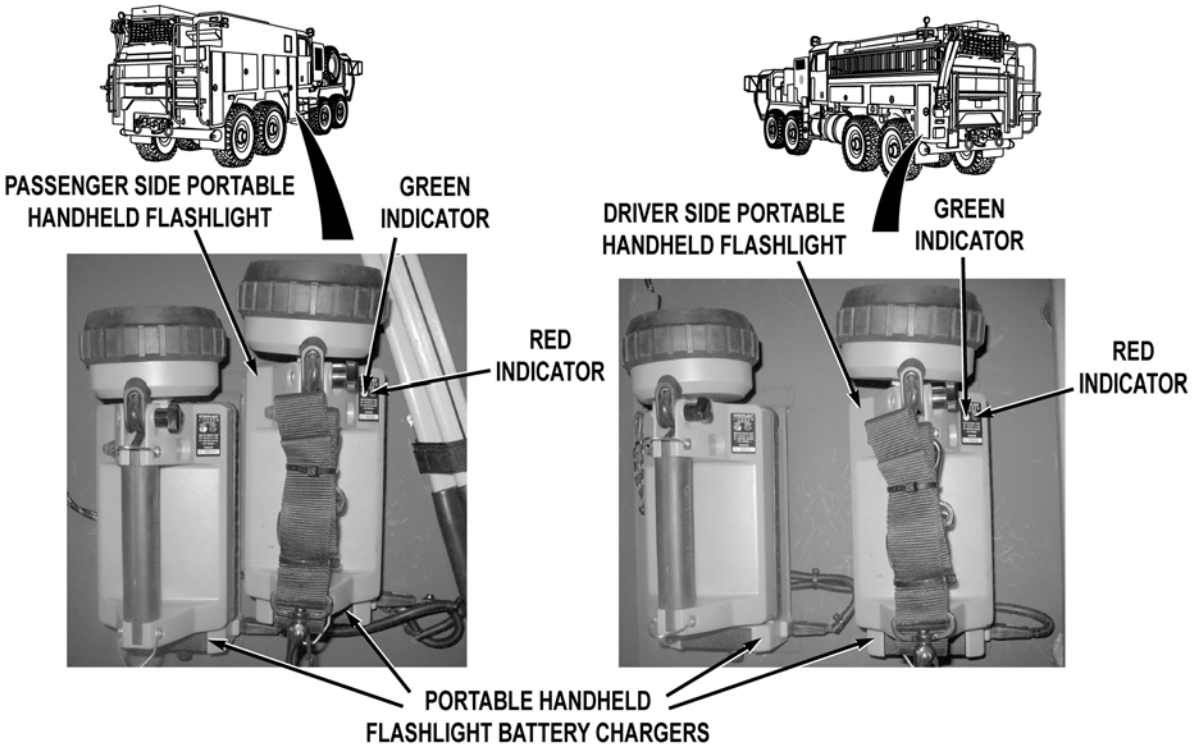
References (continued)
WP 0448
WP 0455
WP 0456

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

12-VOLT FLASHLIGHT CHARGER(S) DOES NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

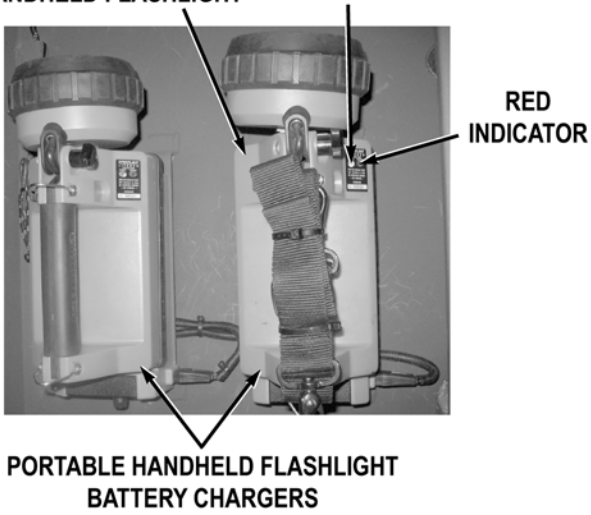
- Portable handheld flashlight must be fully seated in portable handheld flashlight battery charger before charger indicator will illuminate.
- Red indicator on portable handheld flashlight battery charger will illuminate when portable handheld flashlight assembly is charging.
- Green indicator on portable handheld flashlight battery charger will illuminate when portable handheld flashlight assembly is fully charged.

Step 1. With passenger and driver side portable handheld flashlights fully seated in portable handheld flashlight battery chargers, check if indicators on all four portable handheld flashlight battery chargers illuminate.

a. If one or both passenger side portable handheld flashlight battery chargers do not operate but driver side portable handheld flashlight chargers do, go to Step 10.

b. If all four portable handheld flashlight battery chargers do not operate, go to Step 17.

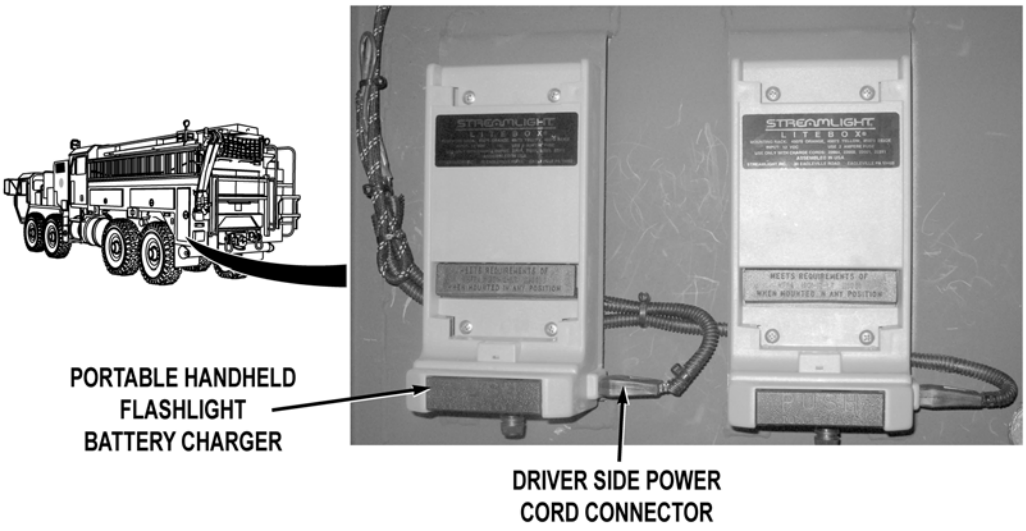
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 2. With driver side portable handheld flashlights installed in portable handheld flashlight battery chargers, check indicators on both portable handheld flashlight battery chargers on driver side for illumination.

If indicators do not illuminate on either driver side portable handheld flashlight battery charger, go to Step 7.

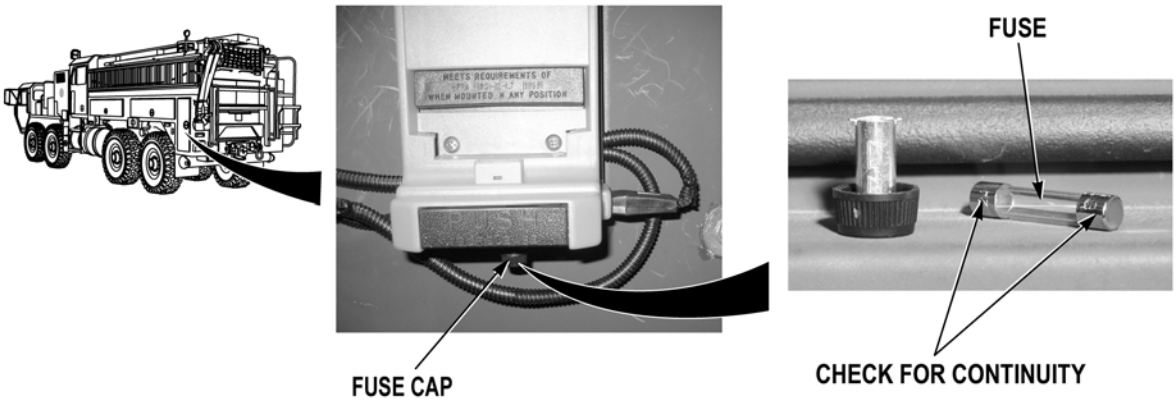
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Check if driver side power cord connector is securely connected on non-operating portable handheld flashlight battery charger.

If power cord is not securely connected, reconnect power cord (WP 0405).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



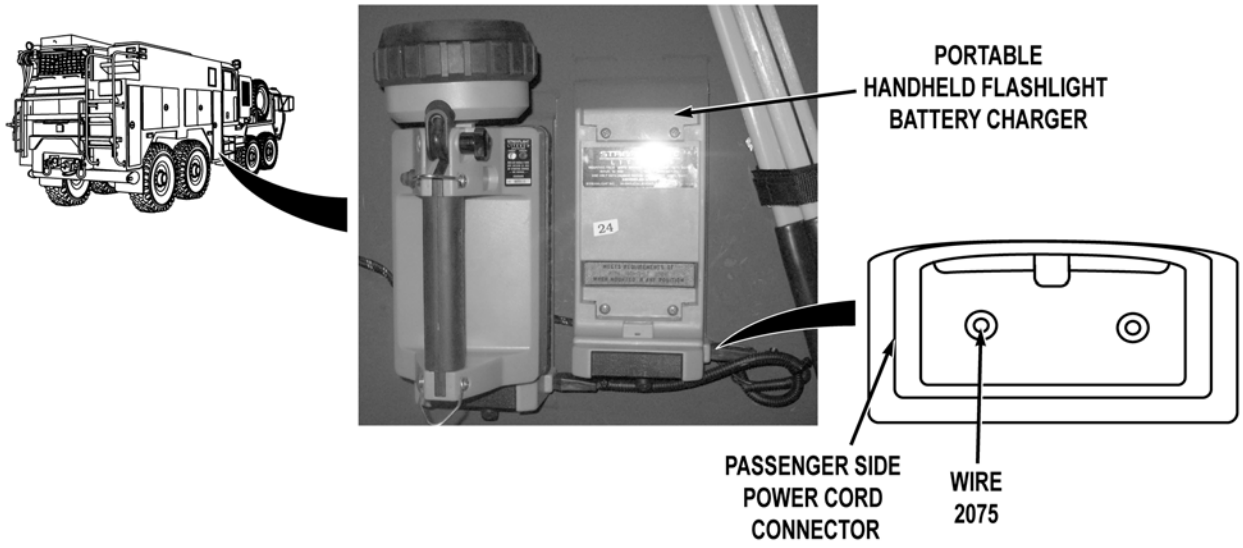
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 4. Remove fuse from base of streamlight charger (WP 0405). Check for continuity across fuse.

If there is no continuity, replace fuse (WP 0405).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Disconnect driver side power cord connector from non-operating portable handheld flashlight battery charger. Check for 10 to 14 VDC between wire 2075 at driver side power cord connector and a known good ground.

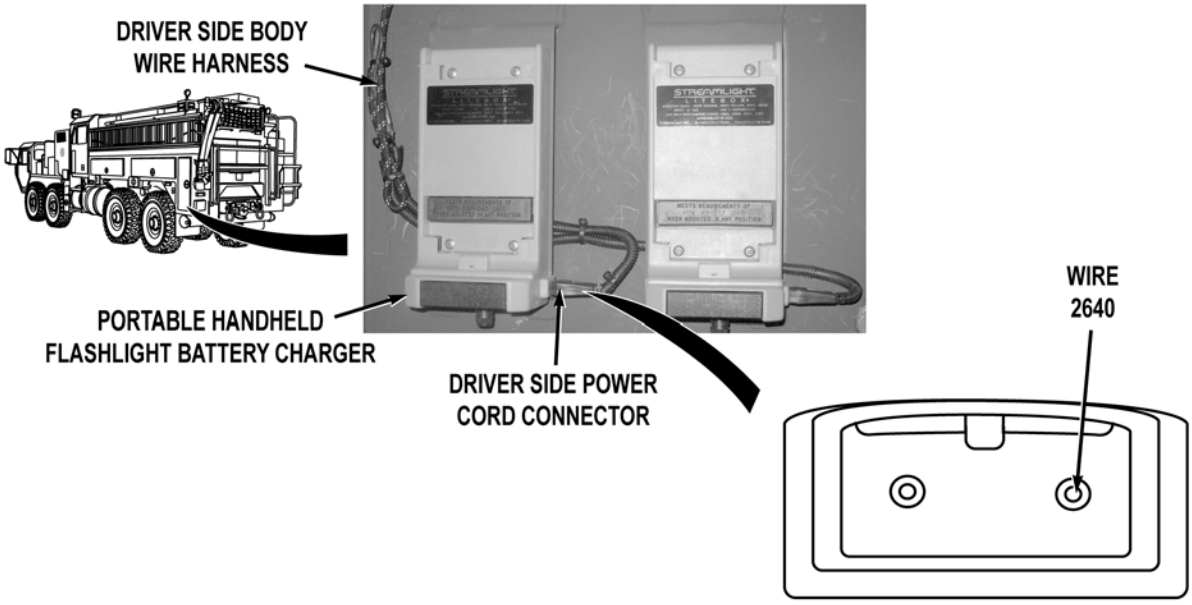
If 10 to 14 VDC are not present, repair wire 2075 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

Step 6. Check for continuity across wire 2640 from non-operating driver side power cord connector to a known good ground.

a. If there is continuity, replace non-operating portable handheld flashlight battery charger (WP 0405).

b. If there is no continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

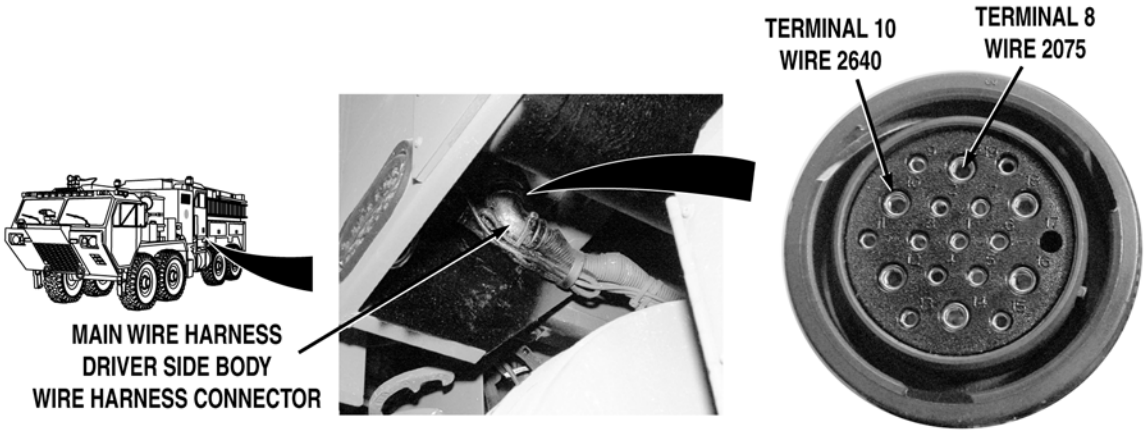
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Disconnect driver side power cord connector from either non-operating portable handheld flashlight battery charger. Check for continuity across wire 2640 from driver side power cord connector to a known good ground.

If there is no continuity, go to Step 9.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 8. Disconnect main wire harness driver side body wire harness connector. Check for 10 to 14 VDC between wire 2075 at main wire harness connector, terminal 8 and a known good ground.

a. If 10 to 14 VDC are not present, repair wire 2075 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

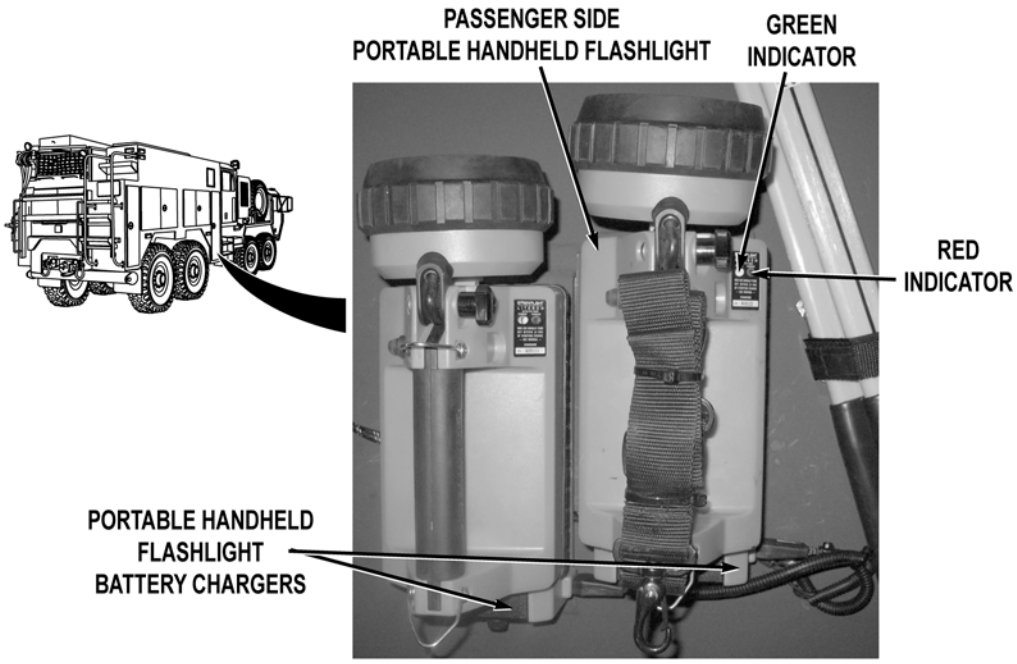
b. If 10 to 14 VDC are present, repair wire 2075 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

Step 9. Disconnect main wire harness driver side body wire harness connector. Check for continuity between wire 2640 at main wire harness connector, terminal 10 and a known good ground.

a. If continuity is not present, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If continuity is present, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

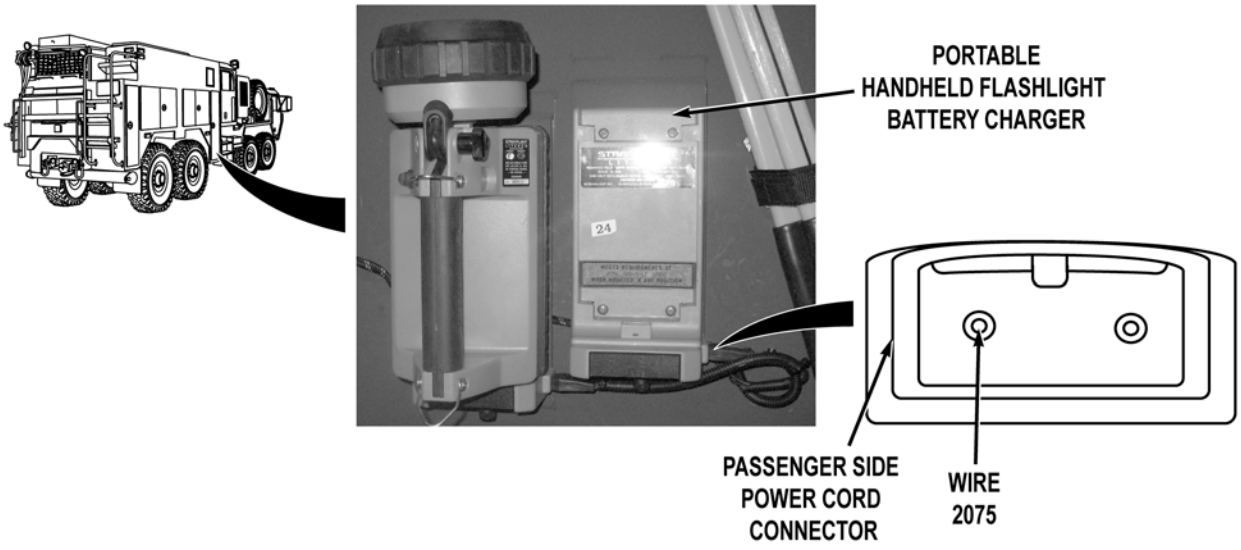
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. With passenger side portable handheld flashlights fully seated in portable handheld flashlight battery chargers, check if indicators on both passenger side portable handheld flashlight chargers illuminate.

If indicators on both passenger side portable handheld battery chargers do not illuminate, go to Step 14.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 11. Check if passenger side power cord connector is securely connected on non-operating portable handheld flashlight battery charger.

If power cord is not securely connected, reconnect power cord (WP 0405).

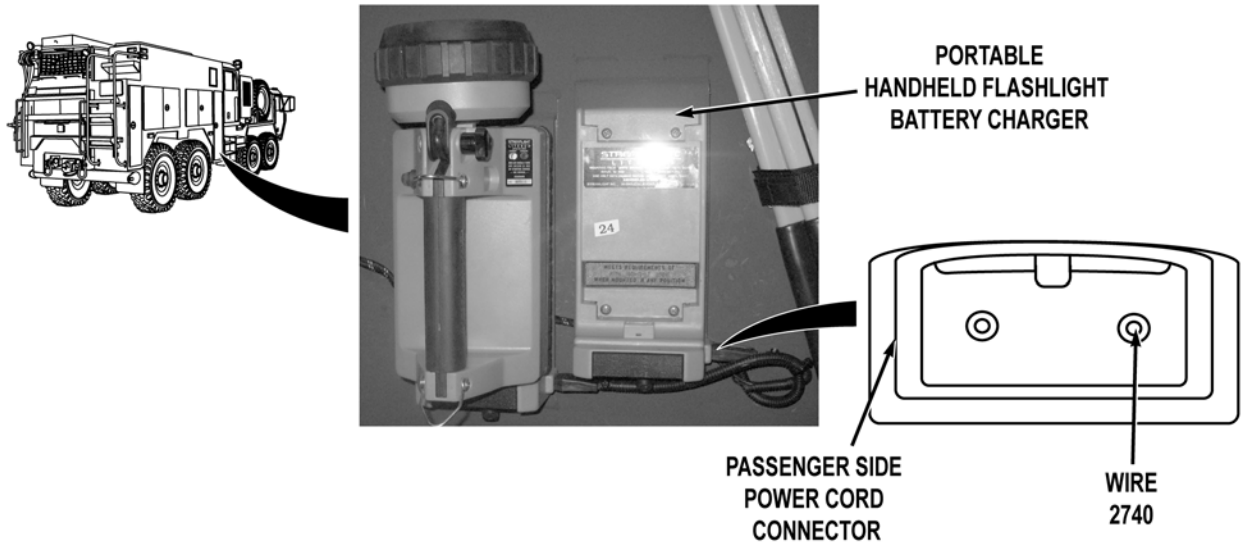
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 12. Disconnect passenger side power cord connector from non-operating passenger side portable handheld flashlight battery charger. Check for 10 to 14 VDC between wire 2075 at passenger side power cord connector and a known good ground.

If 10 to 14 VDC are not present, repair wire 2075 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 13. Check for continuity across wire 2740 from non-operating passenger side power cord connector to a known good ground.

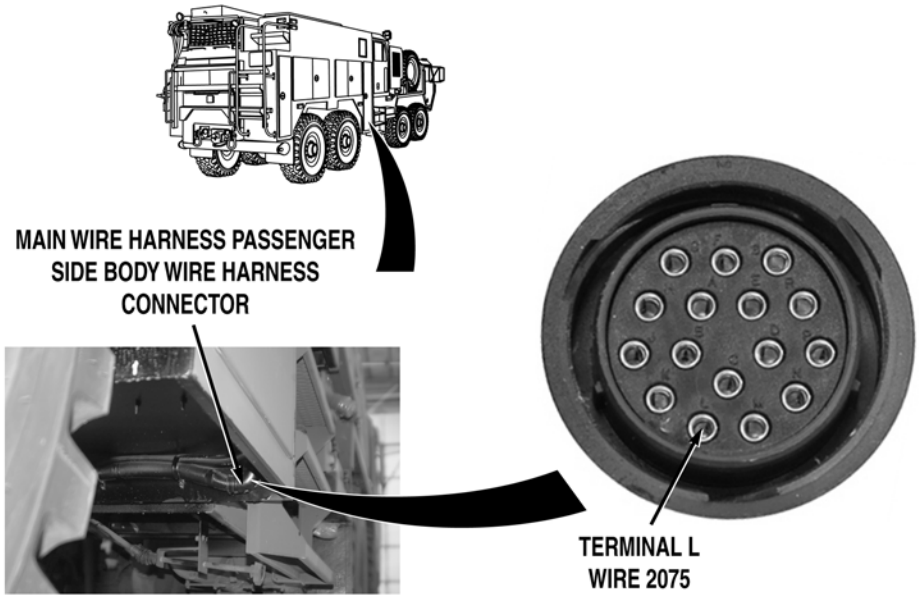
a. If there is continuity, replace non-operating portable handheld flashlight battery charger (WP 0405).

b. If there is no continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

Step 14. Disconnect passenger side power cord connector from either non-operating portable handheld flashlight battery charger. Check for continuity across wire 2740 from passenger side power cord connector to a known good ground.

If there is no continuity, go to Step 16.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

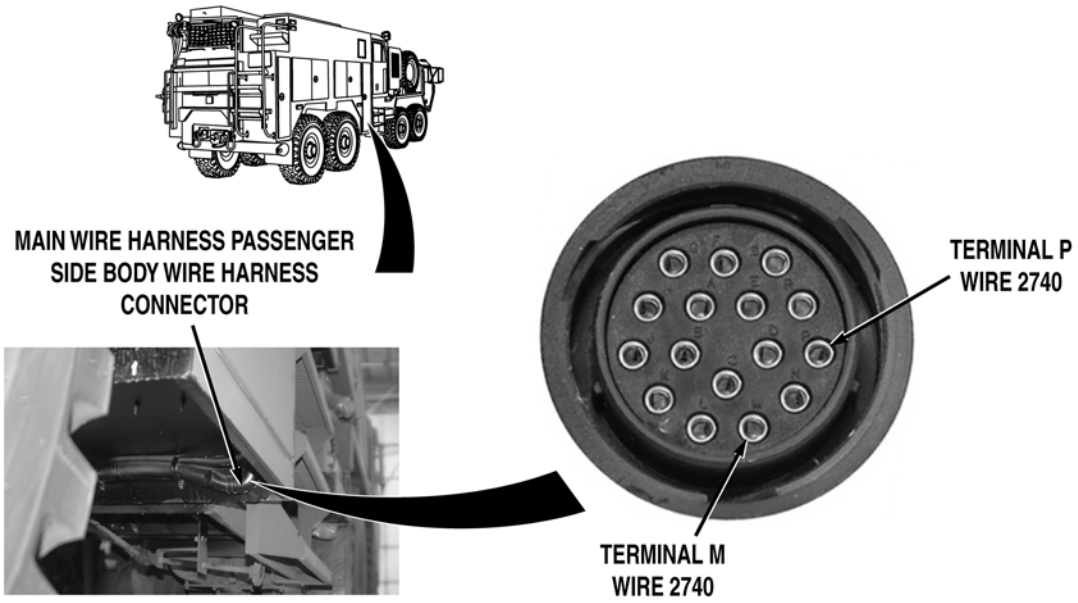


Step 15. Disconnect main wire harness passenger side body wire harness connector. Check for 10 to 14 VDC between wire 2075 at main wire harness connector, terminal L and a known good ground.

a. If 10 to 14 VDC are not present, repair wire 2075 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If 10 to 14 VDC are present, repair wire 2075 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Disconnect main wire harness passenger side body wire harness connector. Check for continuity between wires 2740 at main wire harness connector, terminal M and P and a known good ground.

a. If continuity is not present, repair wire(s) 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If continuity is present, repair wire(s) 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

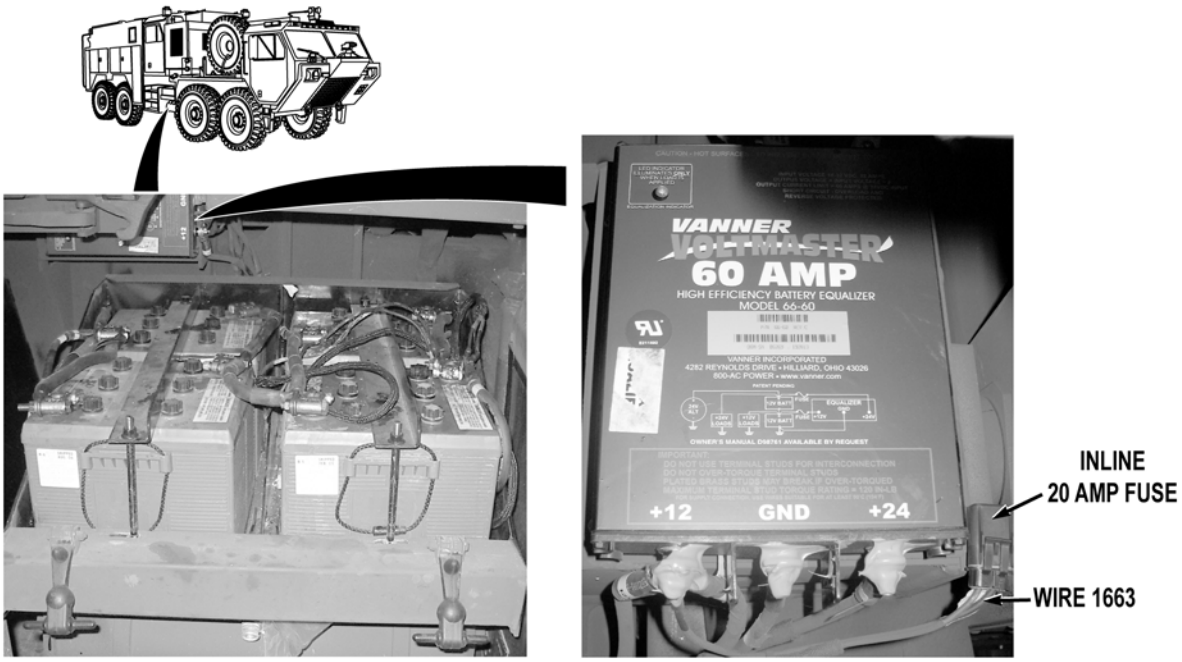
Step 17. Disconnect main wire harness passenger side body wire harness connector. Check for continuity between wires 2740 at main wire harness connector, terminal M and P and a known good ground.

If continuity is not present, repair or replace common ground connection point.

Step 18. Remove main harness, inline 20 amp fuse (WP 0394). Check for continuity across fuse.

If there is no continuity, replace main harness, inline 20 amp fuse (WP 0394).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



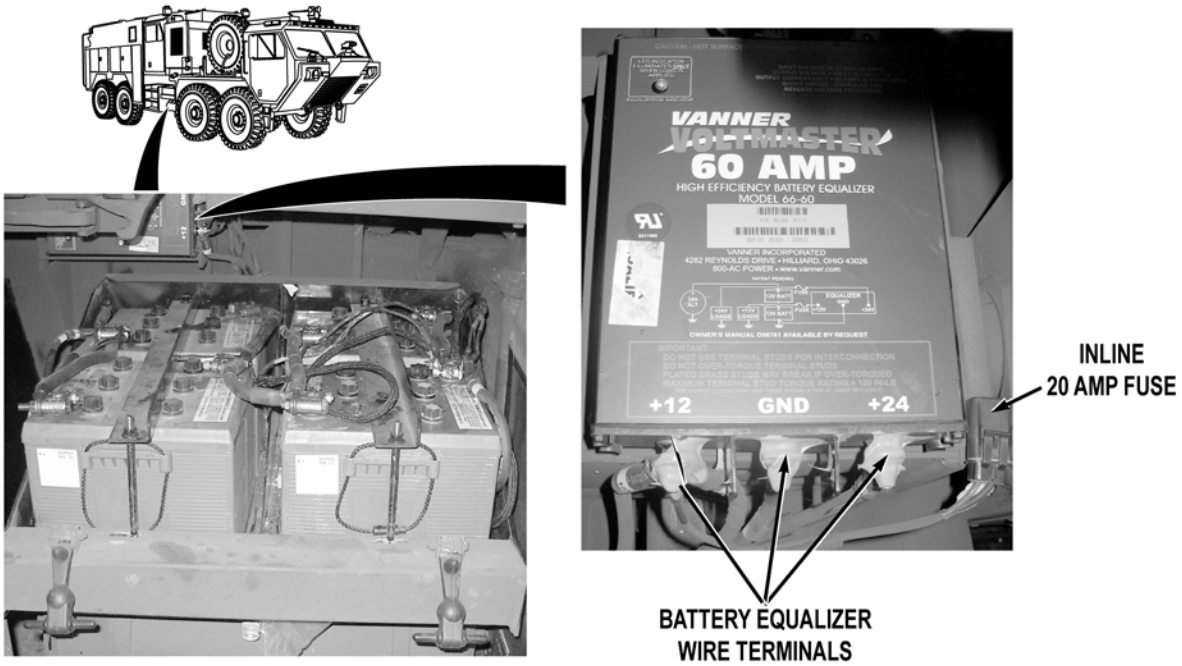
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 19. Check for 10 to 14 VDC between wire 1663 at main wire harness, inline 20 amp fuse holder and a known good ground.

If 10 to 14 VDC are present, repair wire 2075 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

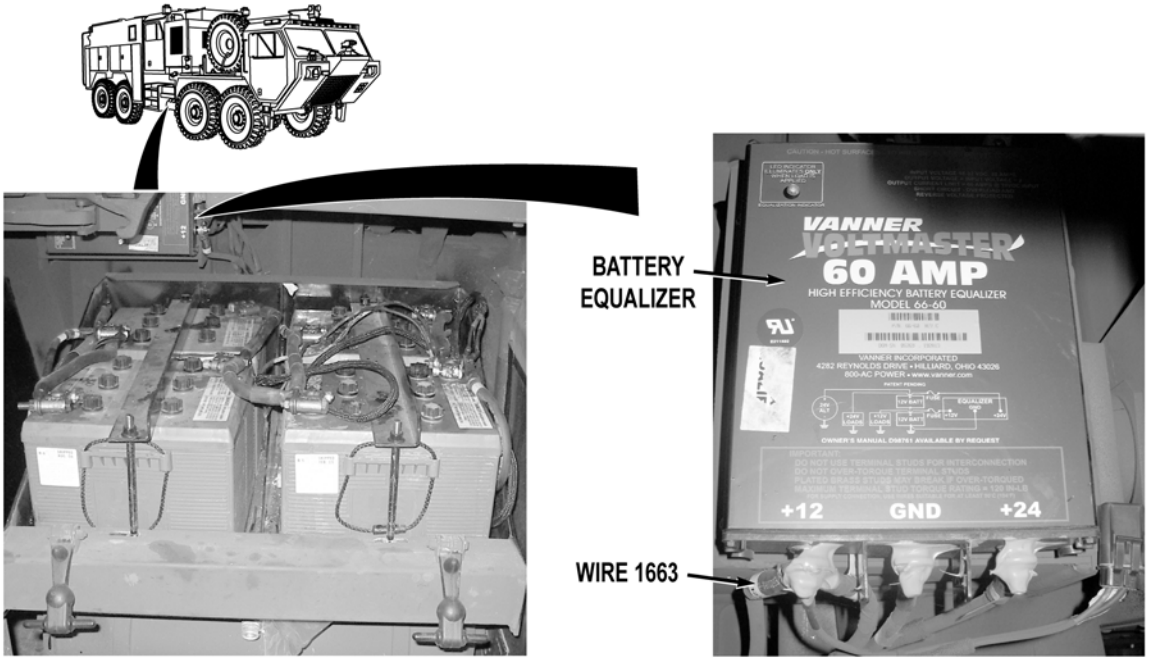
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 20. Install inline 20 amp fuse (WP 0394). Disconnect batteries (TM 9-2320-325-14&P). Check battery equalizer wire terminals for loose and corroded connections.

If connections are loose or corroded, clean and tighten connections or replace battery equalizer (WP 0367).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 21. Connect batteries (TM 9-2320-325-14&P). Check for 10 to 14 VDC between wire 1663 at 12 VDC connection on battery equalizer and a known good ground.

a. If 10 to 14 VDC are present, repair wire 1663 between battery equalizer and main harness inline 20 amp fuse if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If 10 to 14 VDC are not present, repair wire 1663 between 12 VDC connection on battery equalizer and battery pack if repairable (TM 9-2320-325-14&P), or replace wire 1663 (WP 0393).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

120-VOLT AIR COMPRESSOR DOES NOT OPERATE PROPERLY

INITIAL SETUP:

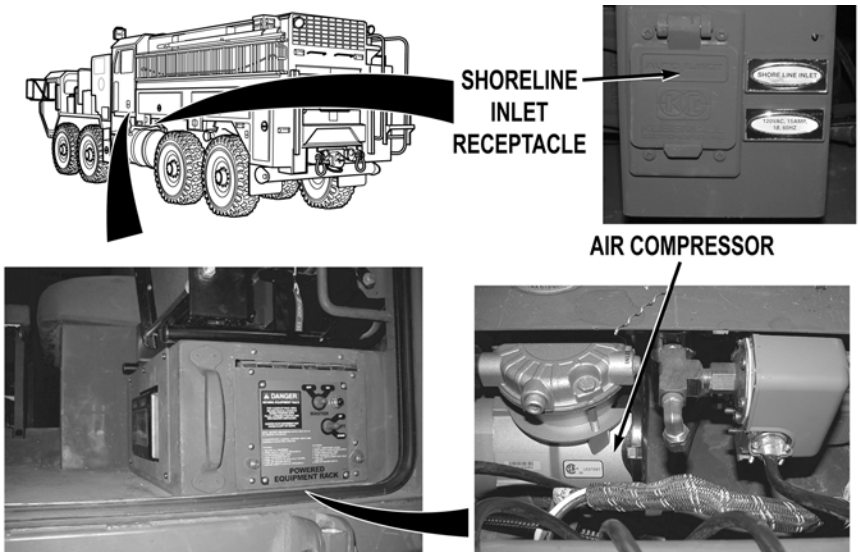
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0010
WP 0166
WP 0358
WP 0567

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

120-VOLT AIR COMPRESSOR DOES NOT OPERATE PROPERLY



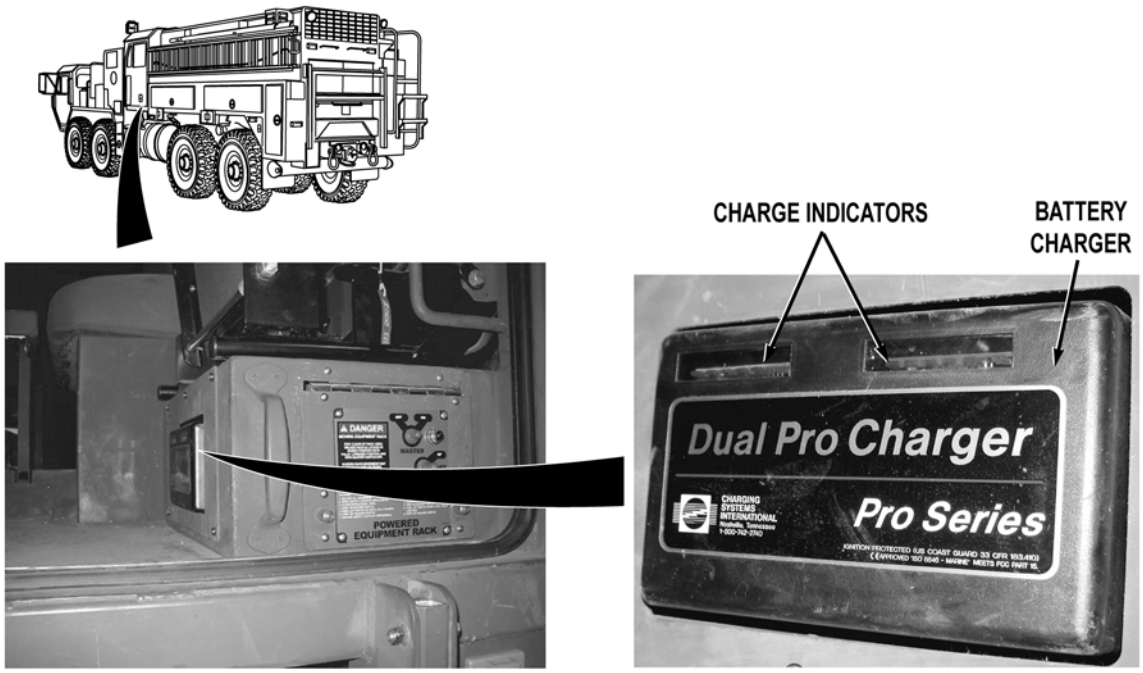
NOTE

Shoreline inlet receptacle operations can be checked for by listening for 120-volt air compressor, if vehicle air pressure is under 90 psi (620 kPa), or by checking if 24-volt battery charger charge indicators illuminate.

Step 1. Drain vehicle air reservoirs (TM 9-2320-347-10). Open driver side crew cab door. Connect shoreline inlet power cord to SHORELINE INLET receptacle and power source. Listen for 120-volt air compressor operations.

If air compressor starts, go to Step 5.

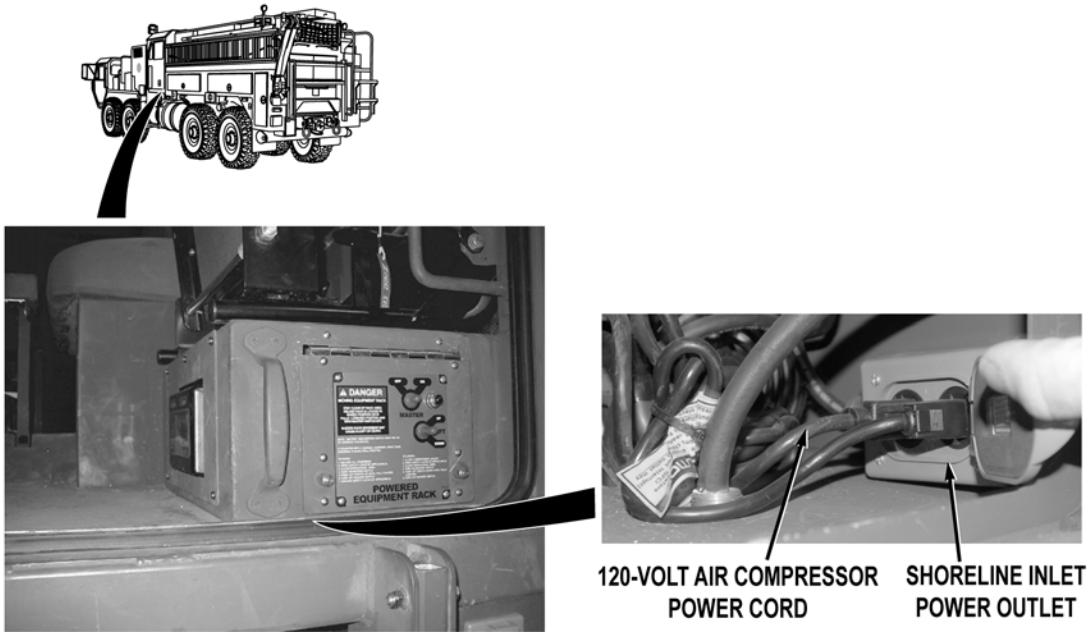
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 2. Check if 24-volt battery charger charge indicators illuminate.

If battery charger indicators do not illuminate, troubleshoot 24-Volt Battery Charger Does Not Operate (WP 0166).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



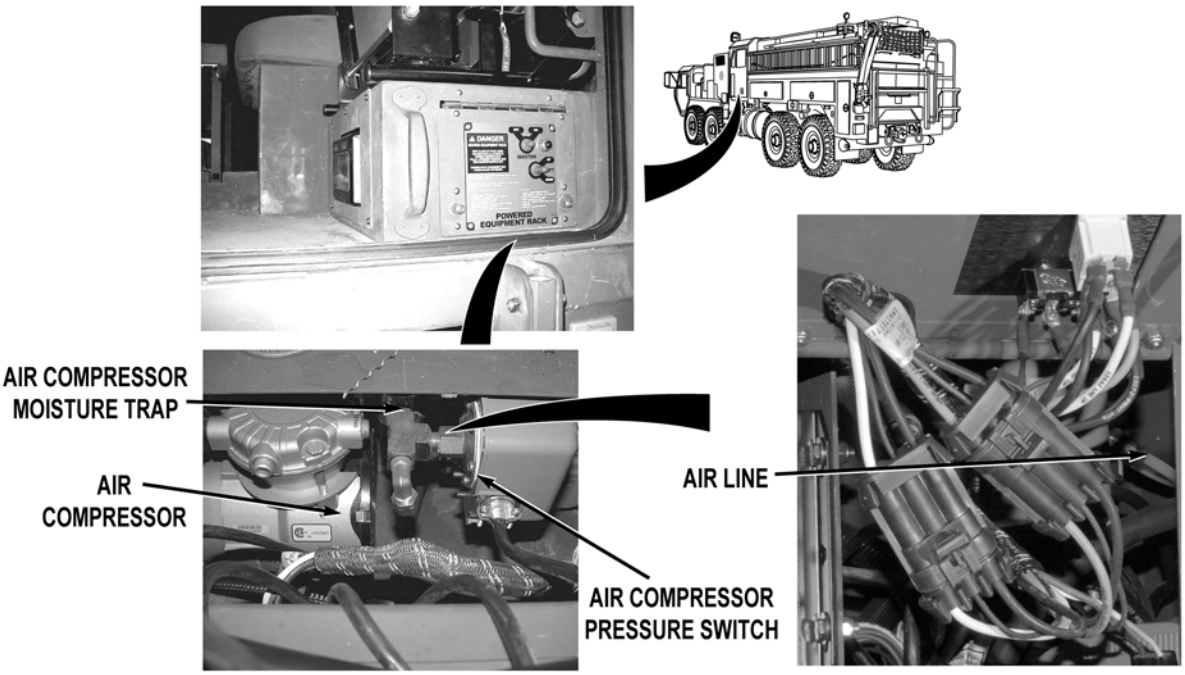
WARNING

110-volt AC power is potentially lethal. Do not work on AC wiring when it is connected to a power source. Failure to comply may cause injury or death to personnel.

Step 3. Open POWERED EQUIPMENT RACK control panel (WP 0010). Check if 120-volt air compressor power cord is plugged into shoreline inlet power outlet.

If 120-volt air compressor power cord is not plugged into shoreline inlet power outlet, plug power cord into receptacle.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

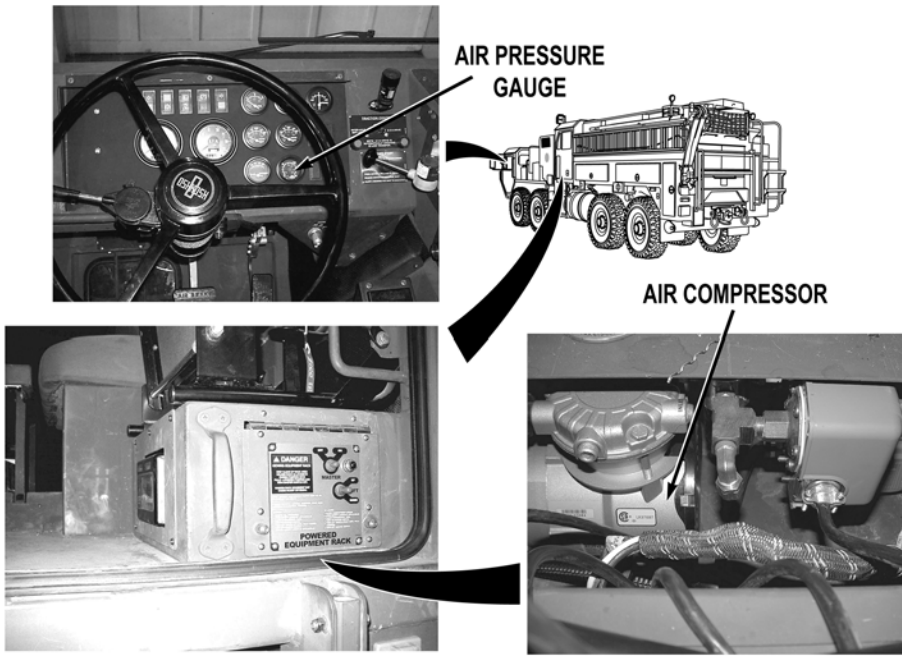


Step 4. Unplug shoreline power cord from SHORELINE INLET receptacle. Unplug 120-volt air compressor power cord from shoreline inlet power outlet. Remove cover from pressure switch and check for loose connections.

a. If power connections at pressure switch are loose, tighten connections.

b. If power connections at pressure switch are tight, replace 120-volt air compressor (WP 0358).

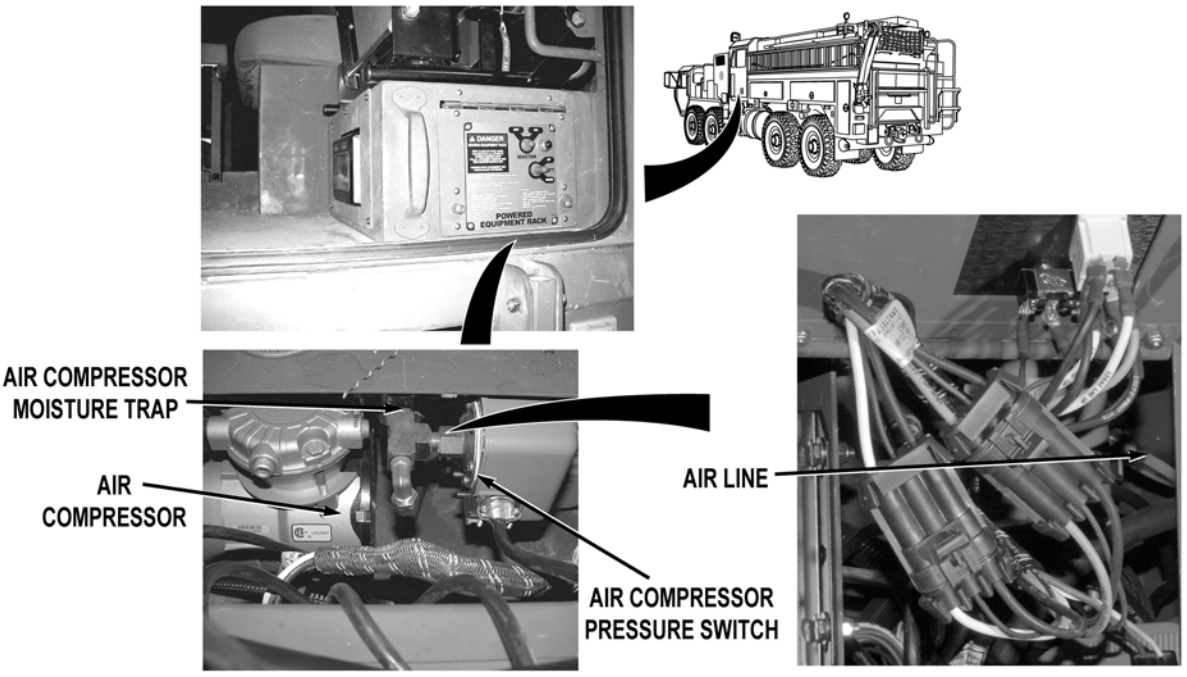
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Observe operation of air compressor. Note if 120-volt air compressor stops operating before personnel cab air pressure gauge reading reaches 120 psi (827 kPa).

If 120-volt air compressor stops operating before personnel cab air pressure gauge reading reaches 120 psi (827 kPa), go to Step 8.

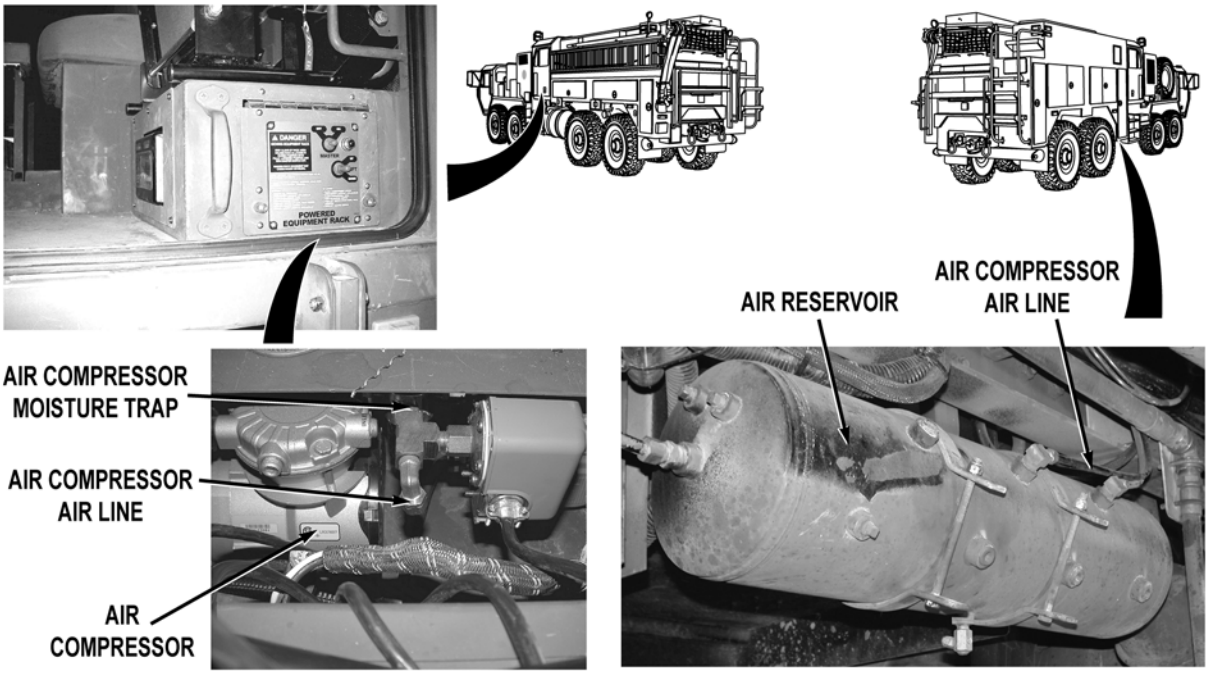
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Check air line between 120-volt air compressor moisture trap and pressure switch for leaks and damage. Listen for air leaks.

If air line leaks, tighten fittings (WP 0567). If air line leaks cannot be corrected by tightening fittings, or if air line is damaged, replace air compressor (WP 0358).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

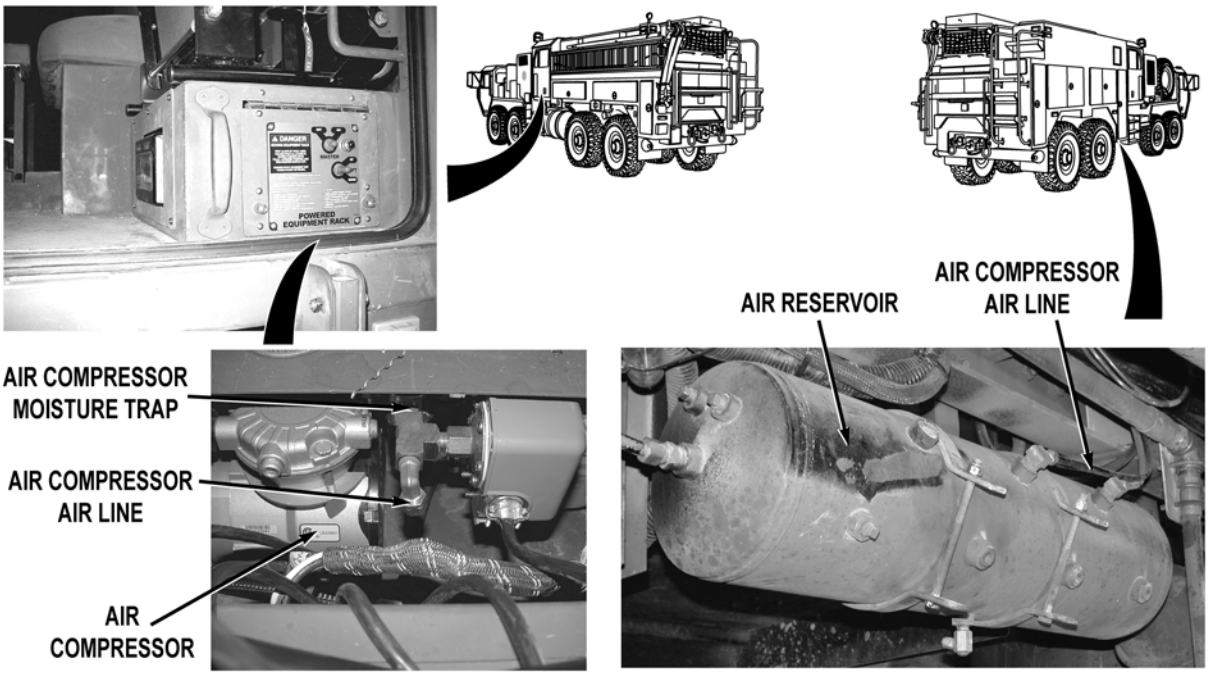


Step 7. Check air line between air compressor moisture trap and air reservoir for leaks and damage. Listen for air leaks.

a. If air line leaks or is damaged, replace air line (WP 0567).

b. If air line is free from leaks and damage, replace air compressor (WP 0358).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 8. Check air line between air compressor moisture trap and air reservoir for kinks.

a. If air line is kinked or damaged, replace air line (WP 0567).

b. If air line is not kinked or damaged, replace air compressor (WP 0358).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

120-VOLT RECEPTACLES DO NOT OPERATE

INITIAL SETUP:

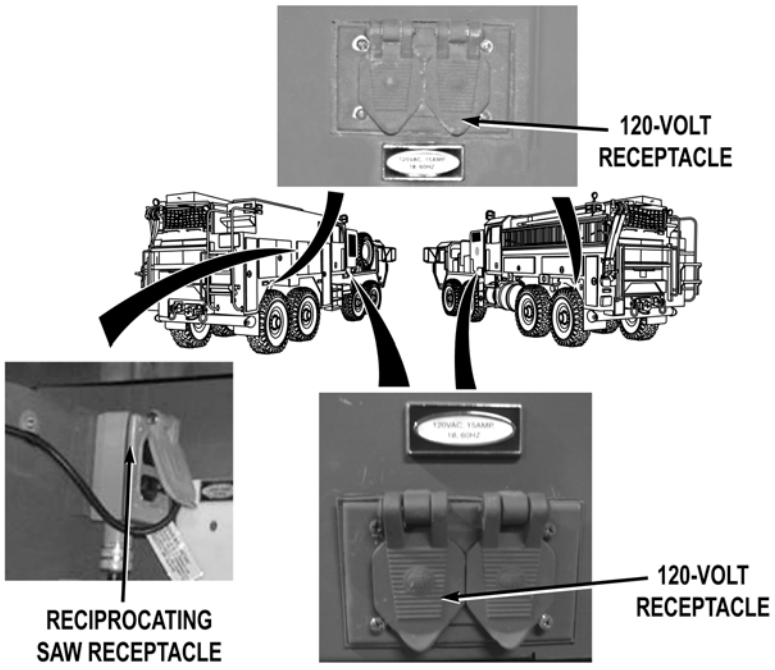
Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

References
TM 9-2320-325-14&P
WP 0021
WP 0171
WP 0360
WP 0362

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

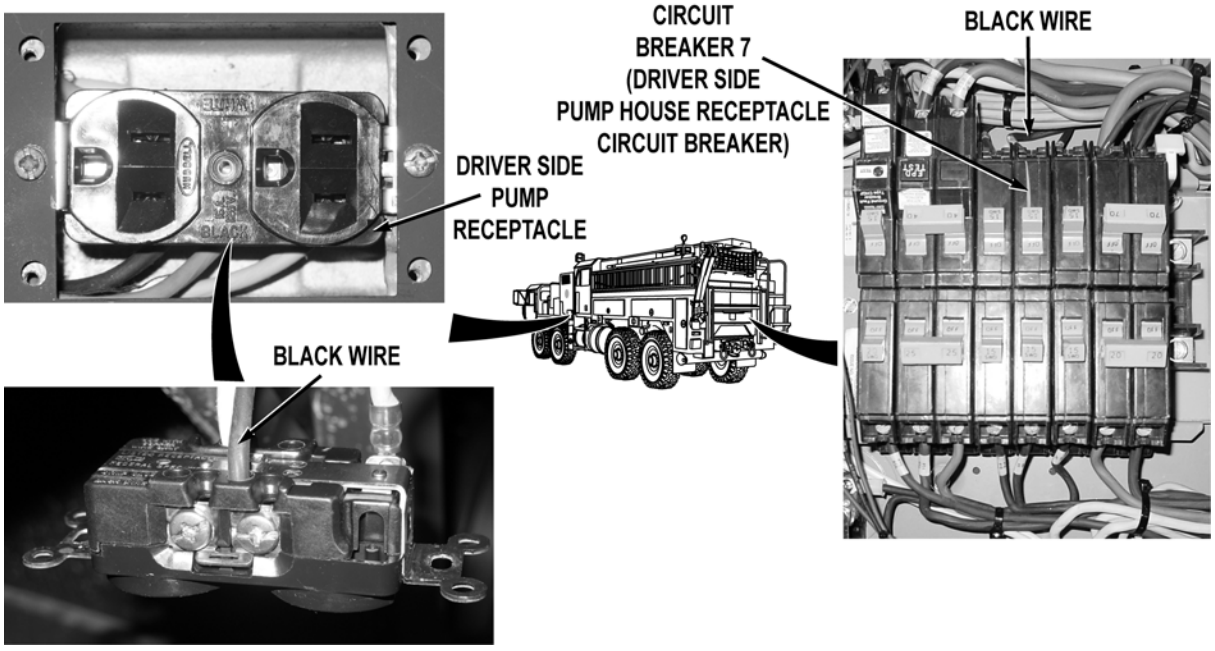
120-VOLT RECEPTACLES DO NOT OPERATE



Step 1. Start hydraulic generator (WP 0021). Check if more than one 120-volt receptacle is inoperative.

If more than one 120-volt receptacle is inoperative, troubleshoot Hydraulic Generator Does Not Operate Properly (WP 0171).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

- **110-volt AC power is potentially lethal. Do not work on AC wiring when it is connected to a power source. Failure to comply may cause injury or death to personnel.**
- **Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.**

NOTE

- Perform the following Steps on non-operating receptacle circuit as indicated in table below.
- All receptacle circuits are troubleshot the same way. Driver side pump house receptacle circuit shown.

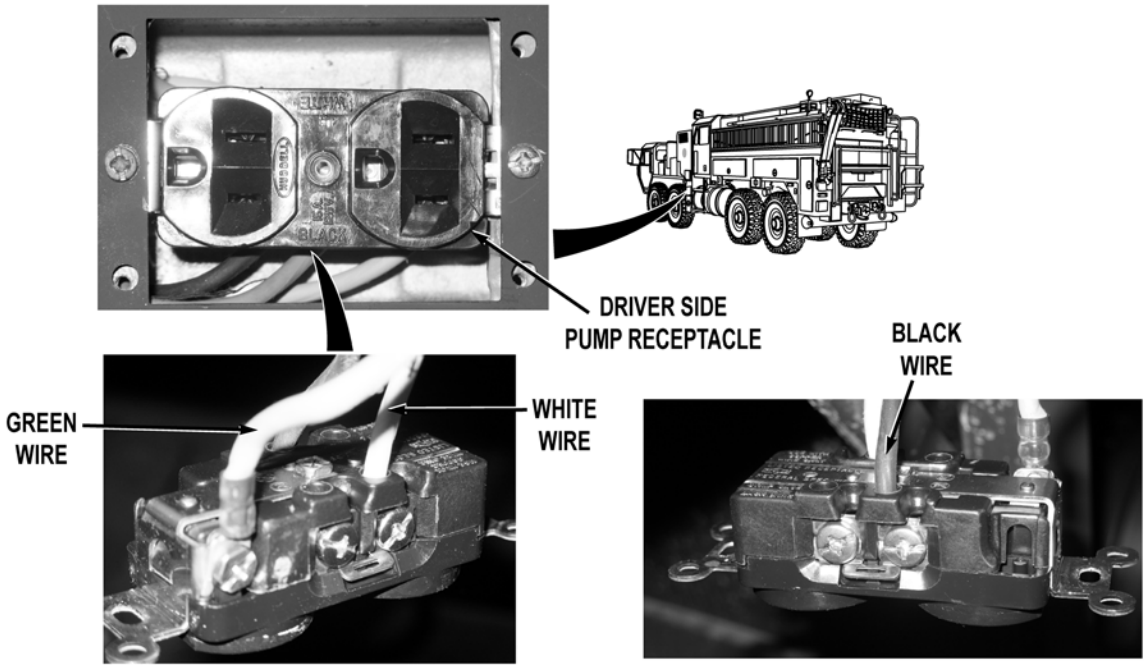
Table 1. Receptacle to Circuit Breaker List

Driver Side Pump House Receptacle	Circuit Breaker 7
Passenger Side Pump House Receptacle	Circuit Breaker 8
Driver Side Rear Receptacle	Circuit Breaker 9
Passenger Side Rear Receptacle	Circuit Breaker 10
Reciprocating Saw Receptacle	Circuit Breaker 11

Step 2. Turn off hydraulic generator (WP 0021). Shut vehicle engine OFF (TM 9-2320-347-10). Install jumperwire between black wire at appropriate circuit breaker and ground. Then check for continuity from black wire on non-operating receptacle terminal to ground.

If there is no continuity, repair black wire between receptacle and circuit breaker if repairable (TM 9-2320-325-14&P), or replace power cord between circuit breaker and receptacle (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Remove jumperwire and check for continuity from black wire at non-operating receptacle terminal to ground.

If there is continuity, repair short to ground in black wire between receptacle and circuit breaker if repairable (TM 9-2320-325-14&P), or replace power cord between circuit breaker and receptacle (WP 0361).

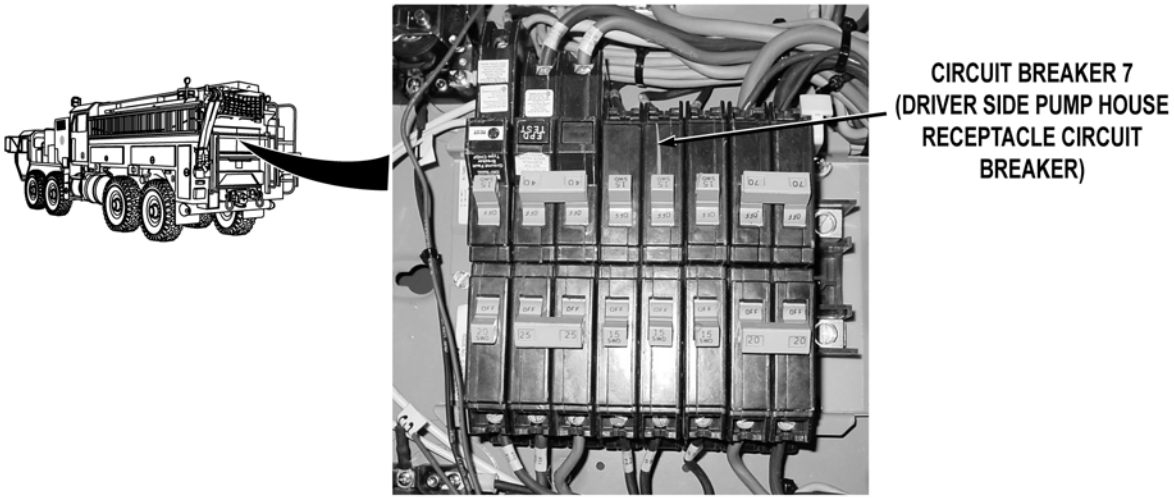
Step 4. Check for continuity from white wire at non-operating receptacle terminal to ground.

If there is no continuity, repair white wire between receptacle and circuit breaker if repairable (TM 9-2320-325-14&P), or replace power cord between circuit breaker and receptacle (WP 0361).

Step 5. Check for continuity from green wire at non-operating receptacle terminal to ground.

If there is no continuity, repair green wire between receptacle and circuit breaker if repairable (TM 9-2320-325-14&P), or replace power cord between circuit breaker and receptacle (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



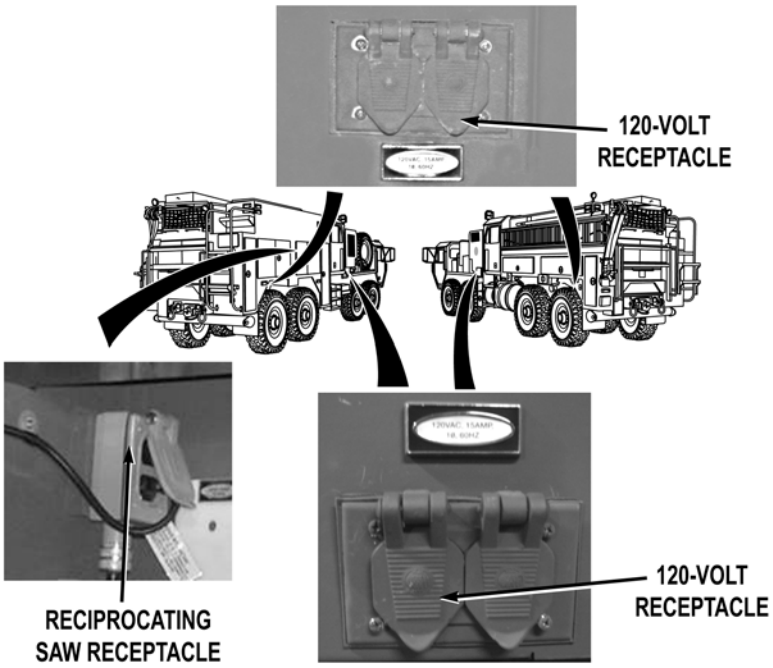
NOTE

Circuit breaker may be in ON position when tripped. To make sure circuit breaker is not tripped, reset circuit breaker by switching it to OFF position, then back to the ON position.

Step 6. Reset circuit breaker (WP 0021). Check for continuity across circuit breaker.

If there is no continuity, replace circuit breaker (WP 0362).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Start vehicle and check operation of receptacle.

a. If receptacle is not operational, replace receptacle (WP 0362).

b. If circuit breaker trips when receptacle is used, notify Supervisor of faulty COEI item.

c. If circuit breaker continues to trip when used, replace circuit breaker (WP 0360).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

120-VOLT CORD REEL RECEPTACLES DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

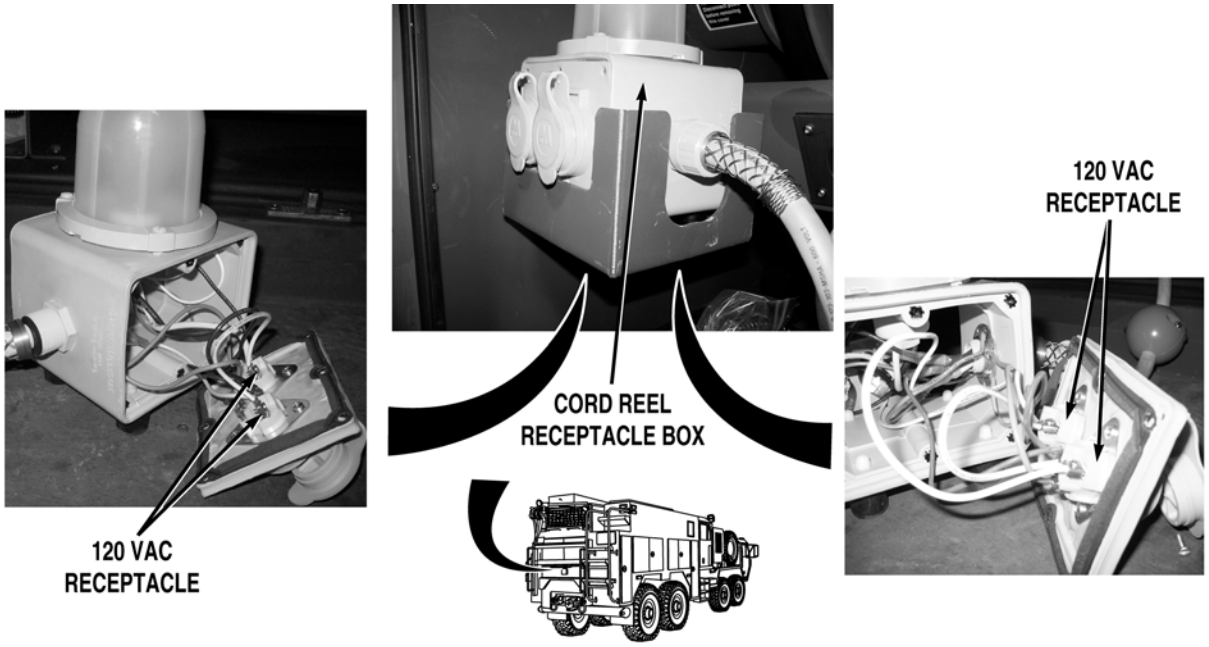
References
WP 0037
WP 0360
WP 0361
WP 0376
WP 0377

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

120-VOLT CORD REEL RECEPTACLES DO NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



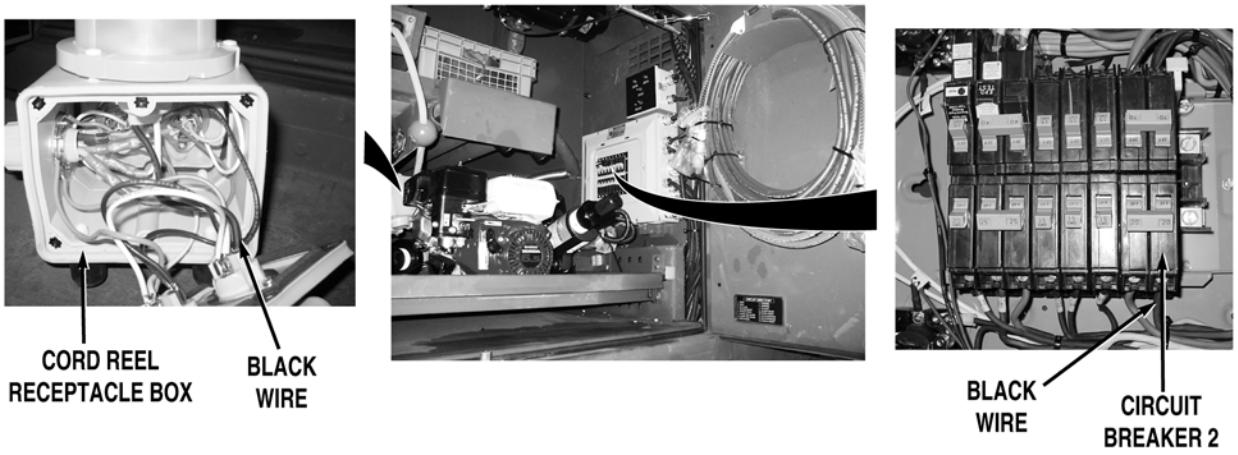
WARNING

- **Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.**
- **110-volt AC power is potentially lethal. Do not work on AC wiring when it is connected to a power source. Failure to comply may cause injury or death to personnel.**

Step 1. Remove covers from receptacle box (WP 0377). Check all 120 VAC, receptacles, and receptacle connections in cord reel receptacle box for looseness and damage.

If wires are loose, tighten loose wires. If wires are damaged, replace cord reel receptacle box (WP 0377).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



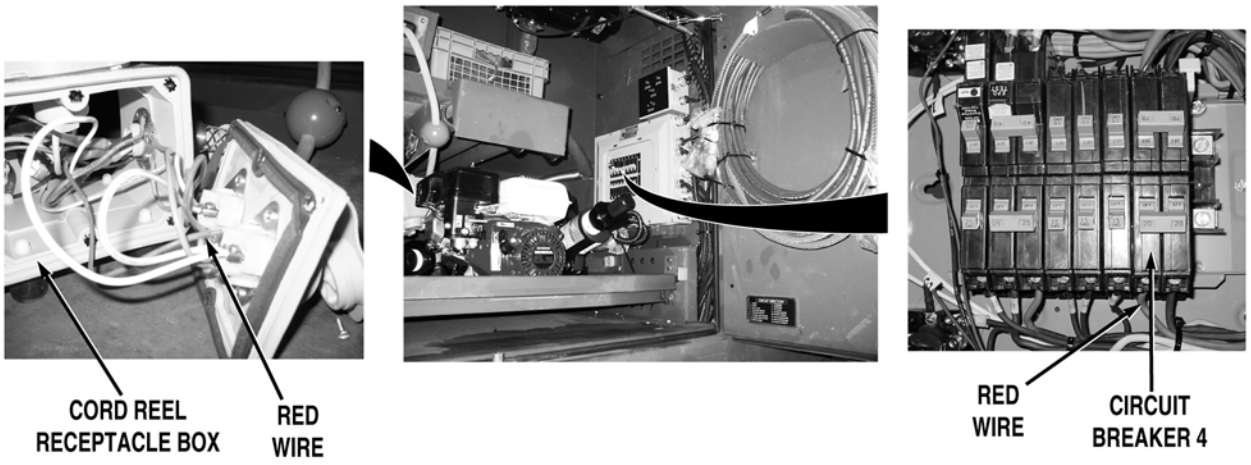
Step 2. Install jumperwire between black wire at circuit breaker 2 and a known good ground. Then check for continuity across black wire from cord reel receptacle box, black wire connection, to a known good ground.

If there is no continuity, go to Step 12.

Step 3. Remove jumperwire and check for continuity across black wire from cord reel receptacle box, black wire connection, to a known good ground.

If there is no continuity, go to Step 14.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



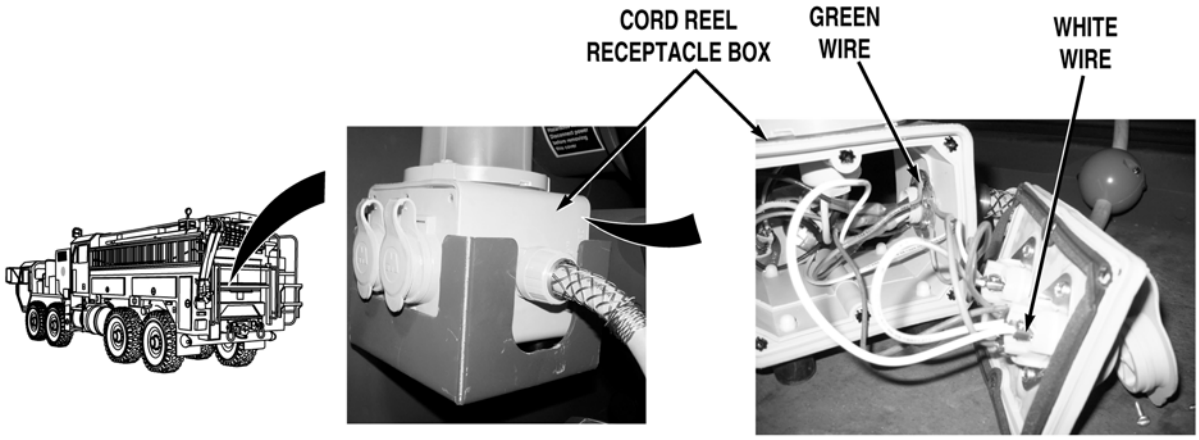
Step 4. Install jumperwire between red wire at circuit breaker 4 and a known good ground. Then check for continuity across red wire from cord reel receptacle box, red wire connection, to a known good ground.

If there is no continuity, go to Step 16.

Step 5. Remove jumperwire and check for continuity across red wire from cord reel receptacle box, red wire connection, to a known good ground.

If there is continuity, go to Step 18.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

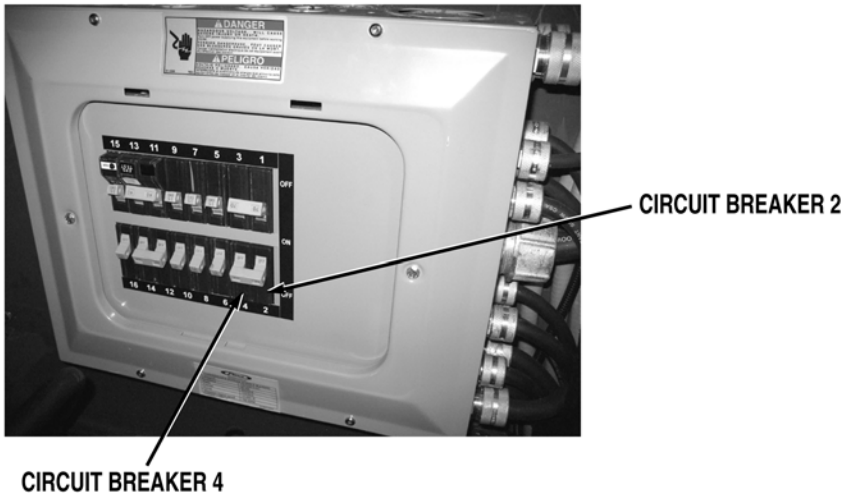


Step 6. Check for continuity across white wire from cord reel receptacle box, white wire connection, to a known good ground.

If there is no continuity, go to Step 20.

Step 7. Check for continuity across green wire from cord reel receptacle box, green wire connection, to a known good ground.

If there is no continuity, go to Step 22.



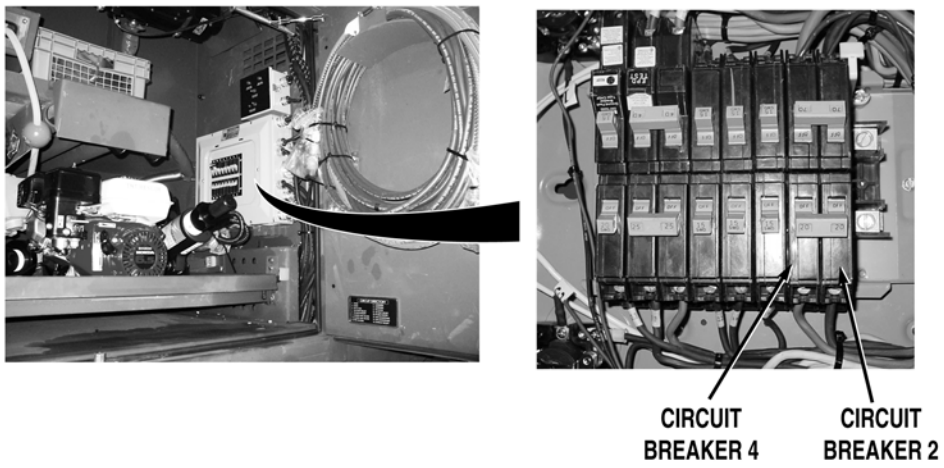
NOTE

Circuit breaker may be in ON position when tripped. To make sure circuit breaker is not tripped, reset circuit breaker by switching it to the OFF position, then back to the ON position.

Step 8. Check if circuit breakers 2 or 4 have been tripped.

If circuit breakers have been tripped, reset circuit breakers and go to Step 9.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. Check continuity across circuit breaker 2.

If there is no continuity, replace circuit breaker (WP 0360).

Step 10. Check continuity across circuit breaker 4.

If there is no continuity, replace circuit breaker (WP 0360).

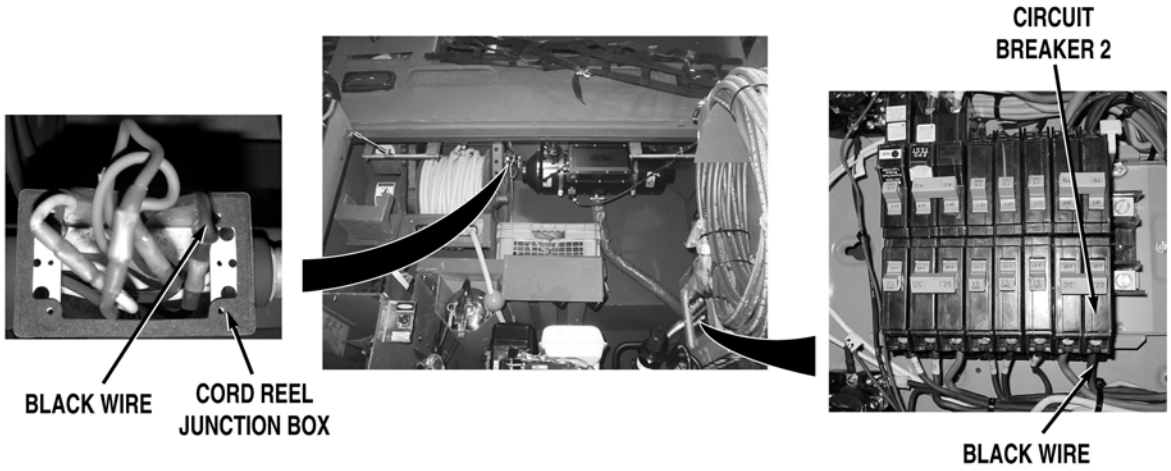
Step 11. Check cord reel receptacles for proper operation (WP 0037).

a. If receptacle(s) do not operate, replace cord reel receptacle box (WP 0377).

b. If circuit breakers 2 or 4 trip when a receptacle is being used, switch item being powered.

c. If circuit breakers 2 or 4 continue to trip, replace circuit breaker that is tripping (WP 0360).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



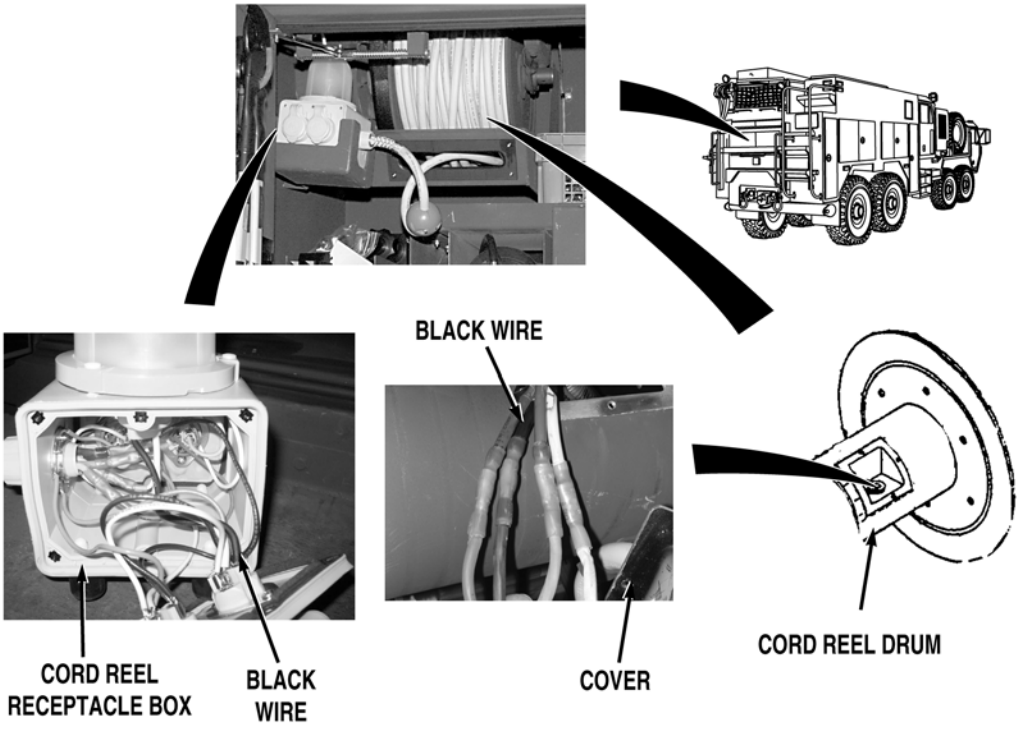
NOTE

When removing cord reel, do not cut or disconnect any wires unless instructed to do so in the procedure.

Step 12. Unstow cord reel cord (WP 0037). Cut black wire at cord reel junction box. Ensure jumperwire between black wire at circuit breaker 2 and ground is still installed. Check for continuity from black wire (going to circuit breaker 2), to a known good ground.

If there is no continuity, replace power cord from circuit breaker 2 to cord reel junction box (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

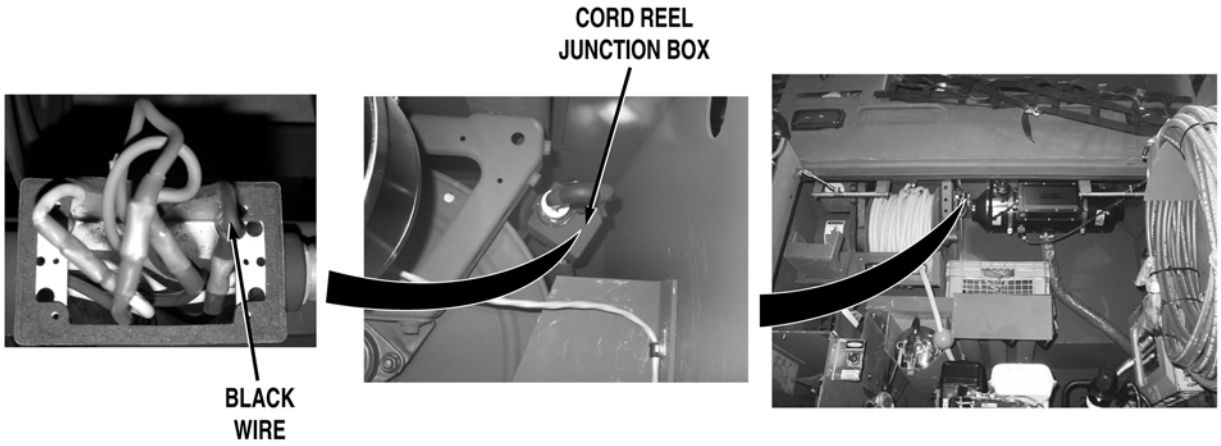


Step 13. Remove cover from cord reel drum (WP 0377). Cut black wire at cord reel drum. Install a jumperwire between black wire at cord reel drum and a known good ground. Check for continuity from black wire at cord reel receptacle box to a known good ground.

a. If continuity is present, repair cord reel (WP 0376).

b. If there is no continuity, replace cord reel cable (WP 0377).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



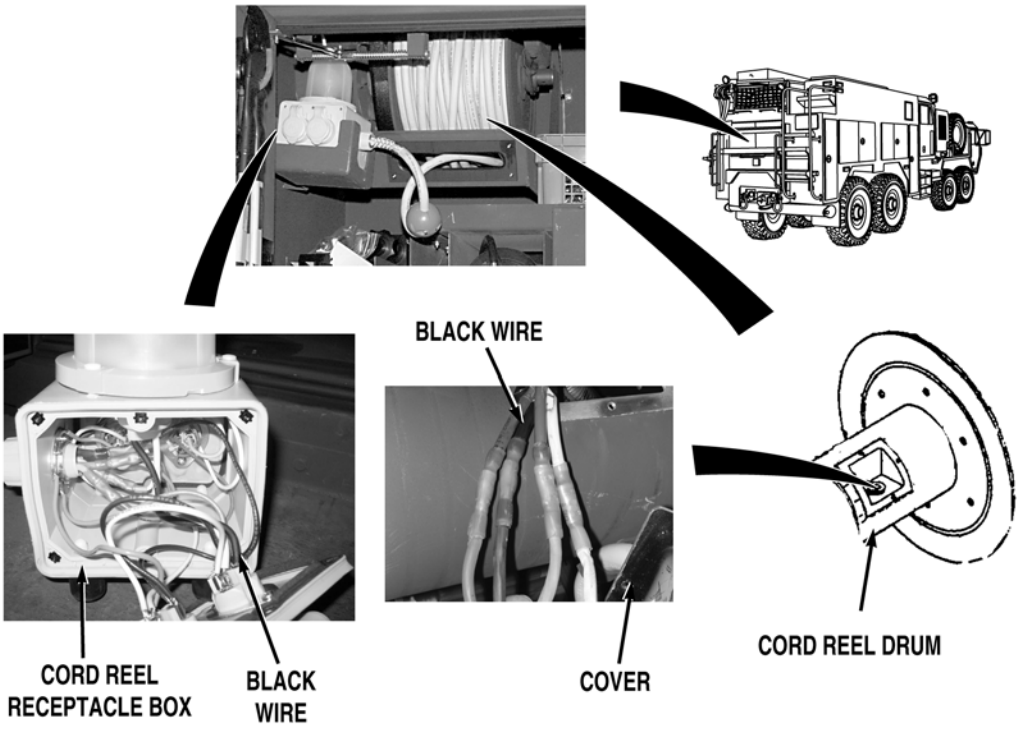
NOTE

When removing cord reel cord, do not cut or disconnect any wires unless instructed to do so in the procedure.

Step 14. Unstow cord reel cord (WP 0037). Cut black wire at cord reel junction box. Check for continuity from black wire (going to circuit breaker) at cord reel junction box, to a known good ground.

If there is continuity, replace power cord from circuit breaker 2 to cord reel junction box (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

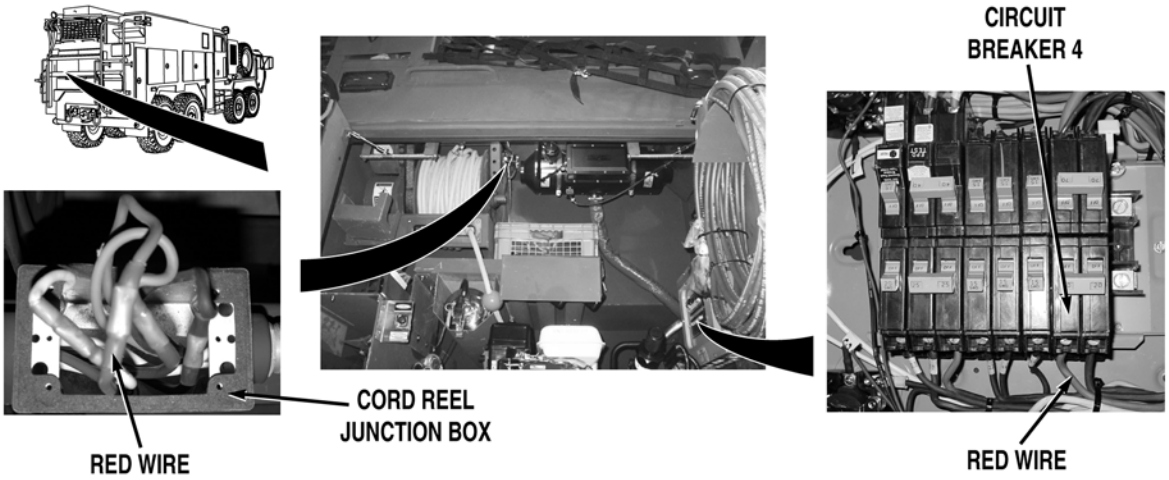


Step 15. Remove cover from cord reel drum (WP 0377). Cut black wire at cord reel drum. Check for continuity from black wire at cord reel receptacle box to a known good ground.

a. If there is continuity, replace cord reel cable (WP 0377).

b. If continuity is not present, repair cord reel (WP 0376).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



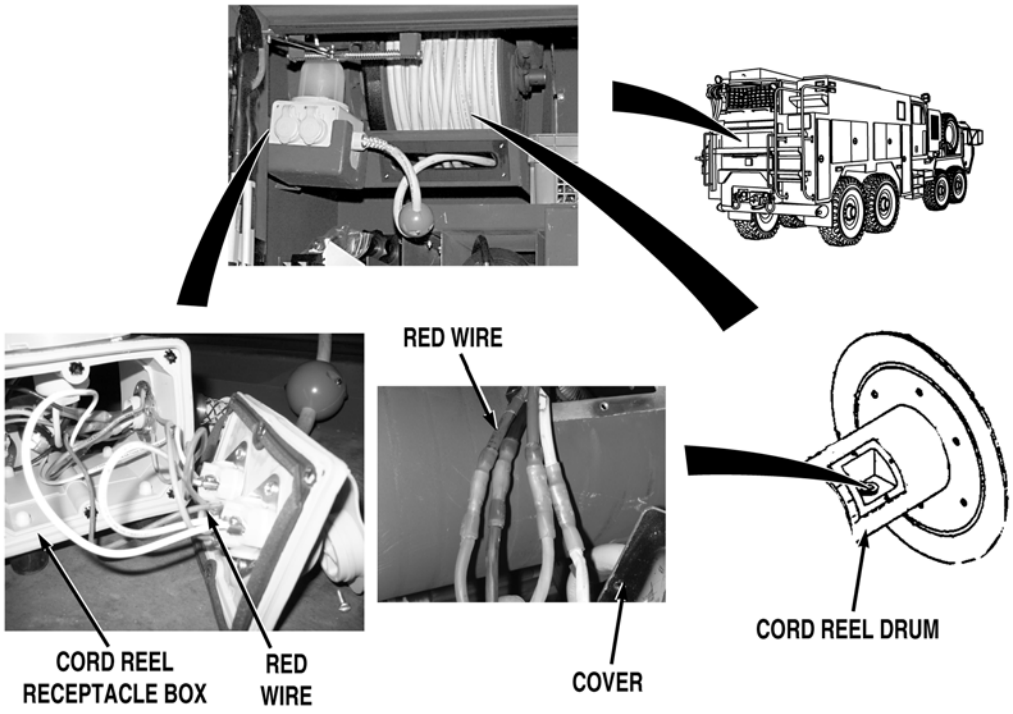
NOTE

When removing cord reel, do not cut or disconnect any wires unless instructed to do so in this procedure.

Step 16. Unstow cord reel cord (WP 0037). Cut red wire at cord reel junction box. Ensure jumperwire between red wire at circuit breaker 4 and ground is still installed. Check for continuity from red wire (going to circuit breaker) at cord reel junction box, to a known good ground.

If there is no continuity, replace power cord from circuit breaker 2 to cord reel junction box (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

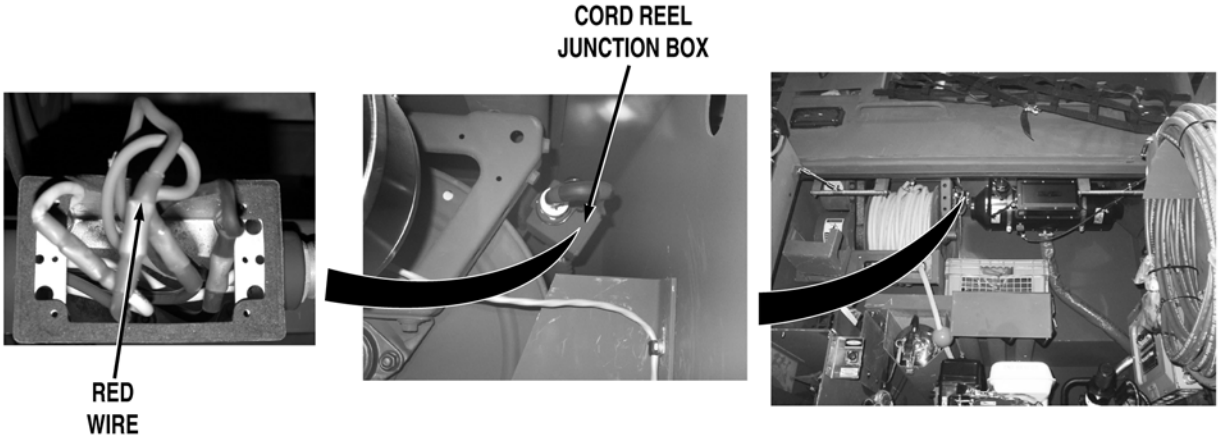


Step 17. Remove cover from cord reel drum (WP 0377). Cut red wire at cord reel drum. Install a jumperwire between red wire at cord reel drum and a known good ground. Check for continuity from red wire at cord reel receptacle box to a known good ground.

a. If continuity is present, repair cord reel (WP 0376).

b. If there is no continuity, replace cord reel cable (WP 0377).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



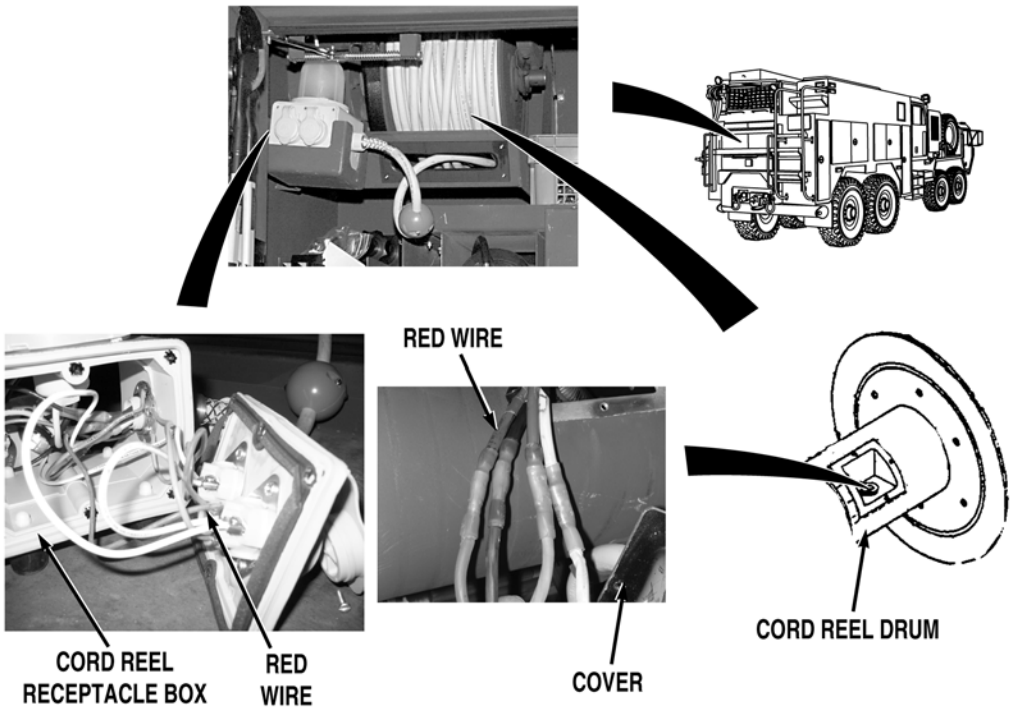
NOTE

When removing cord reel, do not cut or disconnect any wires unless instructed to do so in this procedure.

Step 18. Unstow cord reel cord (WP 0037). Cut red wire at cord reel junction box. Check for continuity from red wire (going to circuit breaker) at cord reel junction box, to a known good ground.

If there is continuity, replace power cord from circuit breaker 2 to cord reel junction box (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

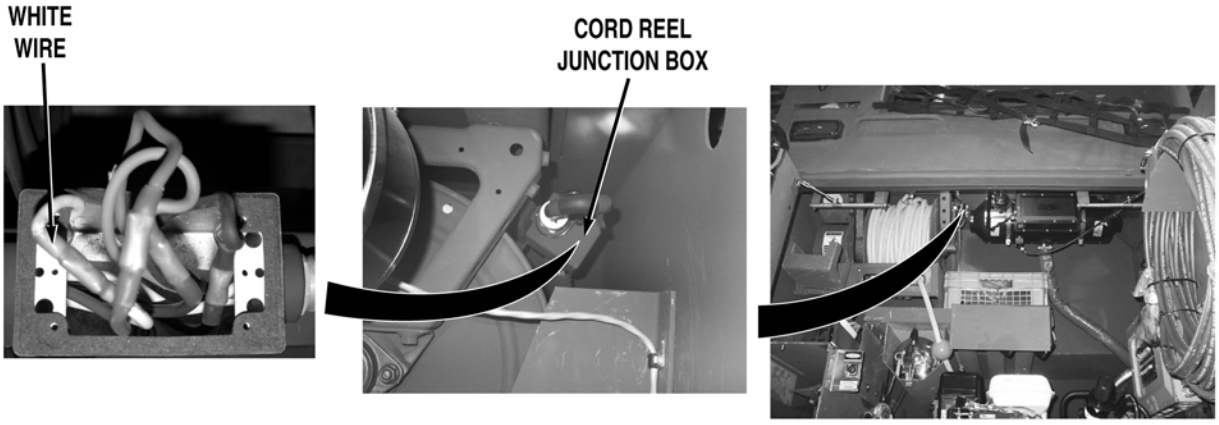


Step 19. Remove cover from cord reel drum (WP 0377). Cut red wire at cord reel drum. Check for continuity from red wire at cord reel receptacle box to a known good ground.

a. If there is continuity, replace cord reel cable (WP 0377).

b. If there is no continuity, repair cord reel (WP 0376).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



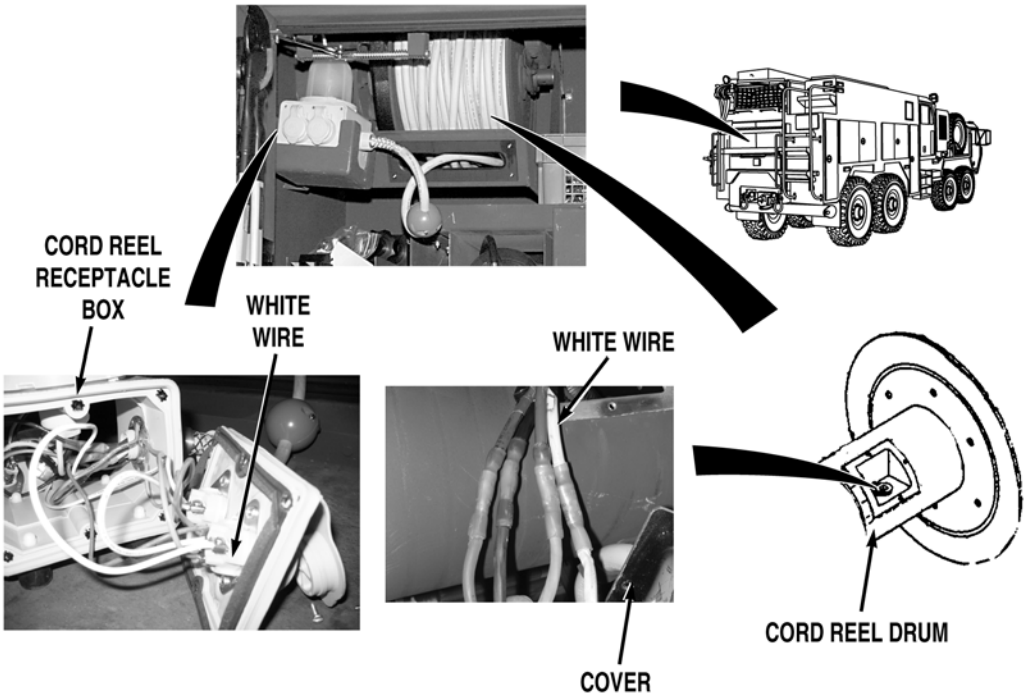
NOTE

When removing cord reel, do not cut or disconnect any wires unless instructed to do so in this procedure.

Step 20. Unstow cord reel cord (WP 0037). Cut white wire at cord reel junction box. Check for continuity from white wire (going to circuit breaker box) at cord reel junction box, to a known good ground.

If there is no continuity, replace power cord from circuit breaker box to cord reel junction box (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

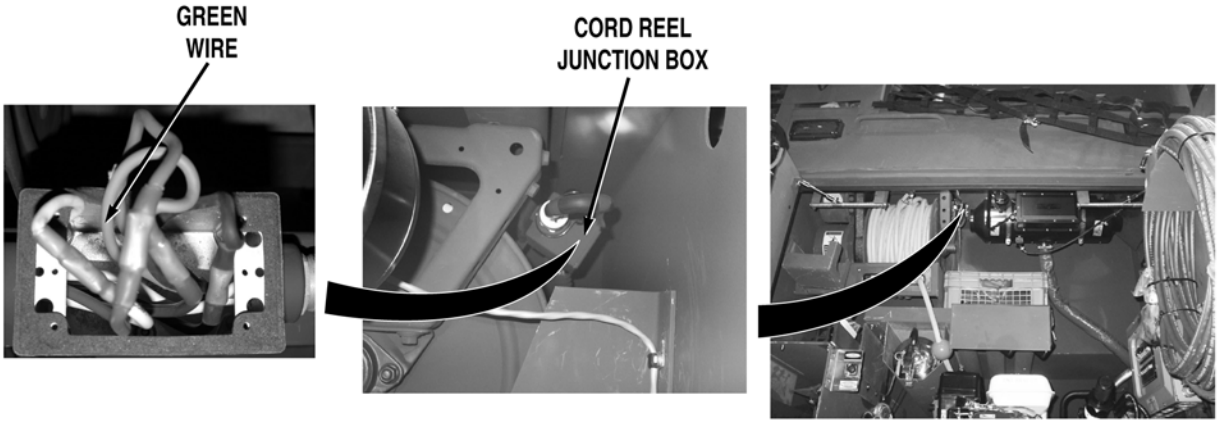


Step 21. Remove cover from cord reel drum (WP 0377). Cut white wire at cord reel drum. Install a jumperwire between white wire at cord reel drum and a known good ground. Check for continuity from white wire at cord reel receptacle box to a known good ground.

a. If continuity is present, repair cord reel (WP 0376).

b. If there is no continuity, replace cord reel cable (WP 0377).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



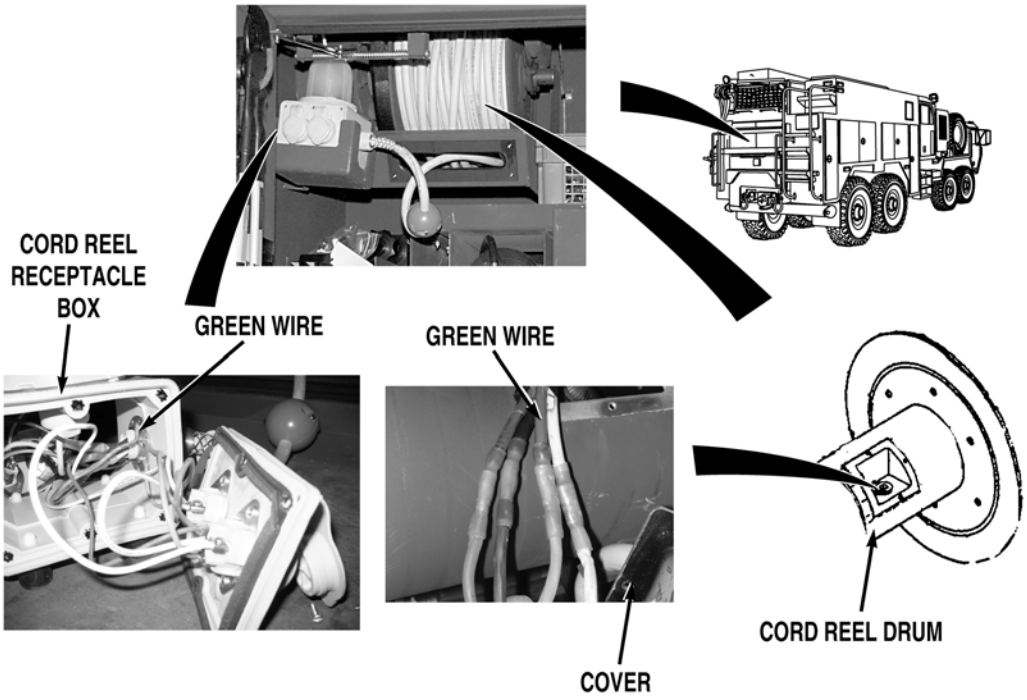
NOTE

When removing cord reel, do not cut or disconnect any wires unless instructed to do so in this procedure.

Step 22. Unstow cord reel cord (WP 0037). Check for continuity from green wire (going to circuit breaker box) at cord reel junction box, to a known good ground.

If there is no continuity, replace power cord from circuit breaker box to cord reel junction box (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 23. Remove cover from cord reel drum (WP 0377). Cut green wire at cord reel drum. Install a jumperwire between green wire at cord reel drum and a known good ground. Check for continuity from green wire at cord reel receptacle box to a known good ground.

a. If continuity is present, repair cord reel (WP 0376).

b. If there is no continuity, replace core reel cable (WP 0377).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

24-VOLT BATTERY CHARGER DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
TM 9-6140-200-14
WP 0004
WP 0180

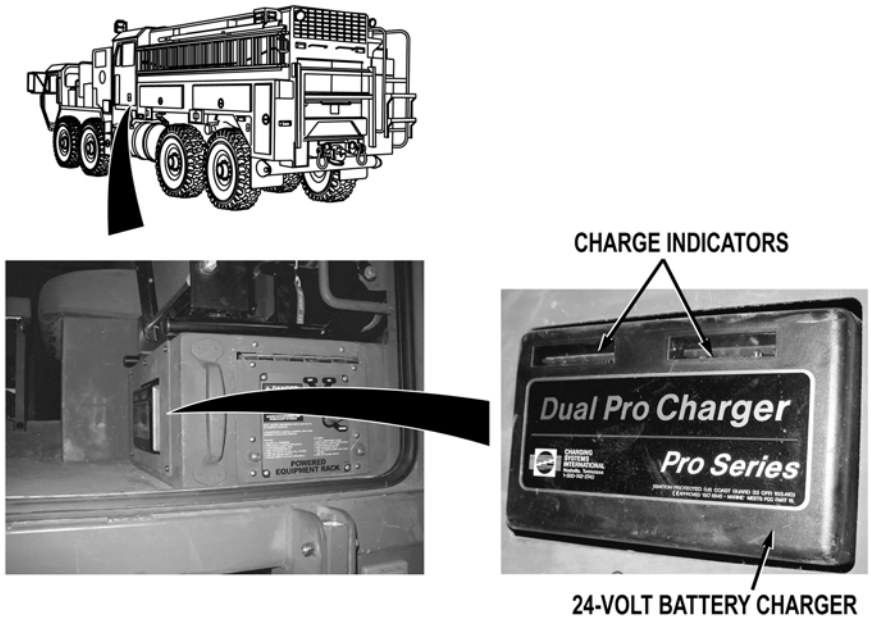
References (continued)
WP 0358
WP 0359
WP 0368

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

24-VOLT BATTERY CHARGER DOES NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 1. Connect power cord to SHORELINE INLET receptacle (WP 0004). Check if 24-volt battery charger indicators illuminate.

If 24-volt battery charger indicators do not illuminate, go to Step 6.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Wear proper eye protection when working around batteries. Do not allow smoking, flames, or hot objects around batteries. If battery is giving off gases, it can explode. Failure to comply may result in injury or death to personnel.

Step 2. Inspect all batteries for dirt, corrosion, and loose battery terminals (TM 9-2320-347-10).

If battery terminals are dirty, corroded, or loose, clean and tighten connections (TM 9-2320-325-14&P).

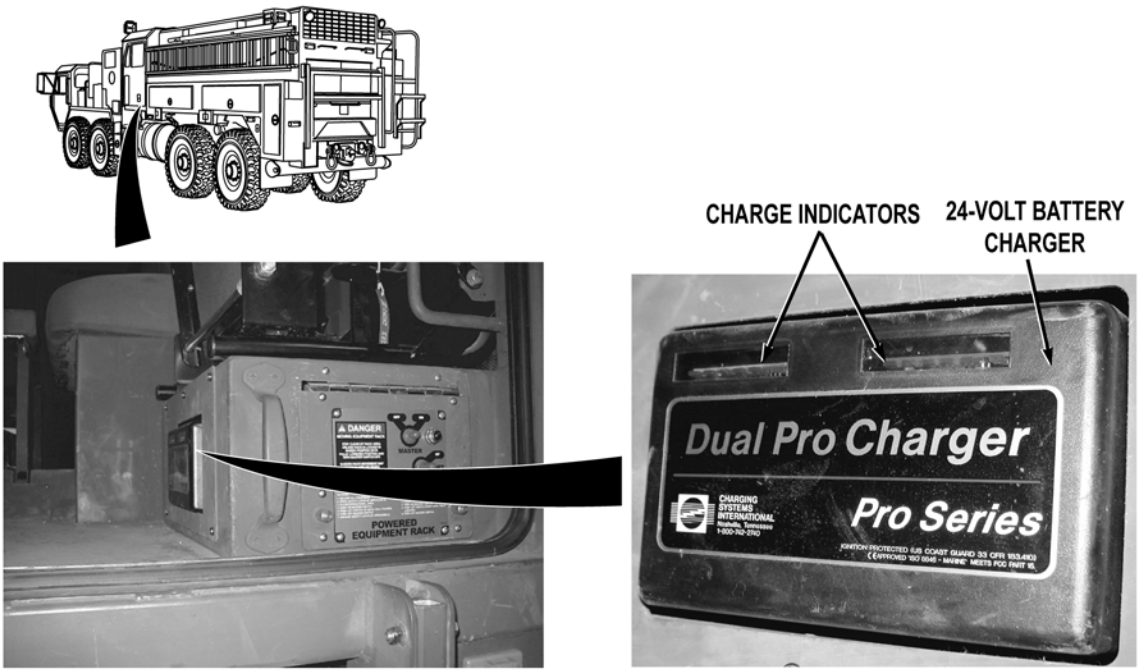
Step 3. Check all four batteries by performing specific gravity test on each battery (TM 9-6140-200-14).

If battery fails specific gravity test, replace failed battery (WP 0368).

Step 4. Check all four batteries by performing load test (TM 9-6140-200-14).

If battery fails load test, replace failed battery (WP 0368).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

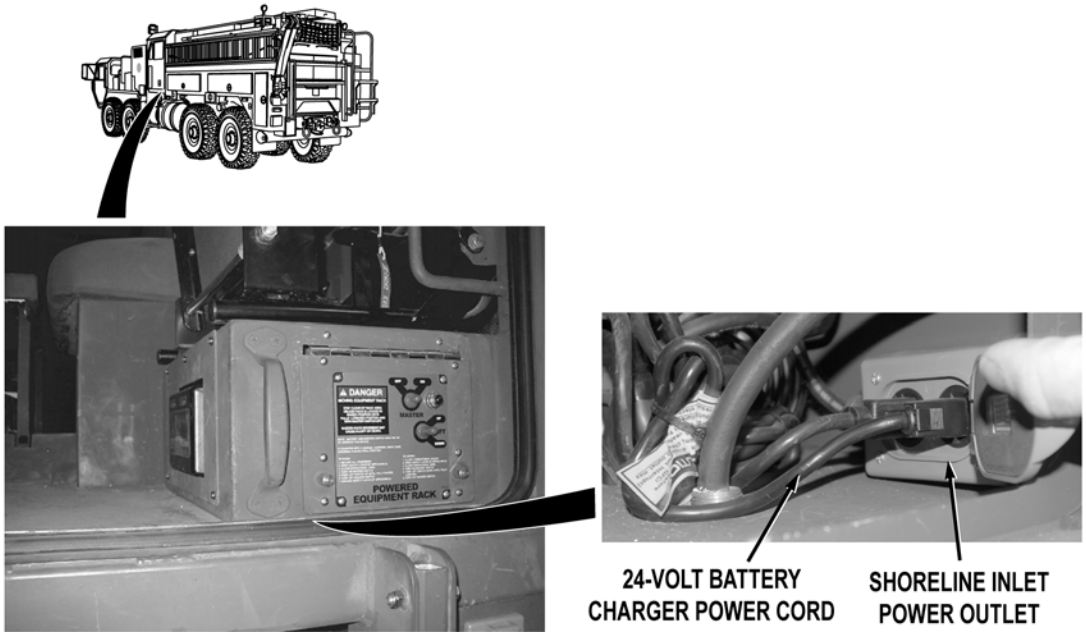
- 24-volt battery charger charge indicators will illuminate red when batteries are being charged.
- 24-volt battery charger charge indicators will illuminate green when batteries are fully charged.

Step 5. Operate 24-volt battery charger for 16 hours. Check if 24-volt battery charger charge indicators indicate vehicle batteries are fully charged.

a. If 24-volt battery charger charge indicators indicate batteries are fully charged (green indicator is illuminated), problem has been corrected.

b. If 24-volt battery charger charge indicators indicate batteries are still charging (red indicator is illuminated) after 16 hours of operation, replace 24-volt battery charger (WP 0359).

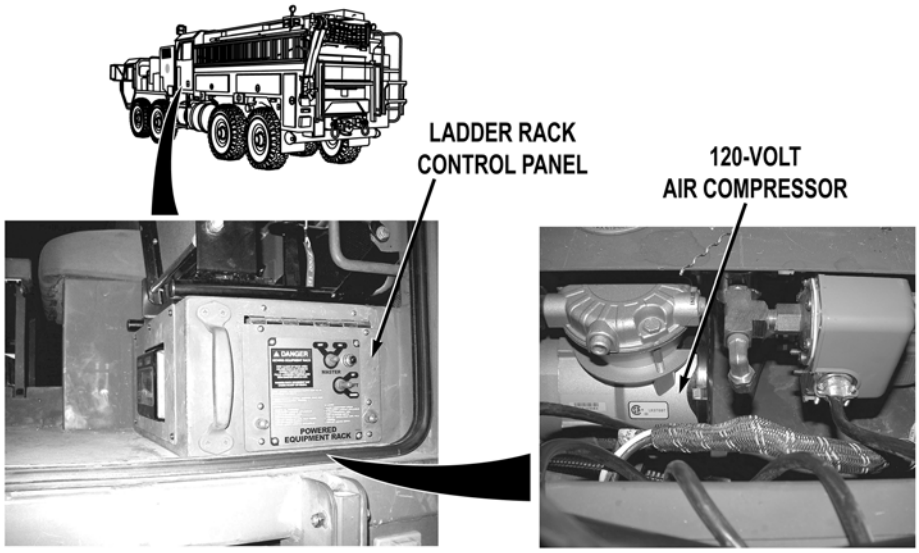
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Check if 24-volt battery charger power cord is plugged into shoreline inlet power outlet.

If 24-volt battery charger power cord is not plugged into shoreline inlet power outlet, plug power cord into shoreline inlet power outlet.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



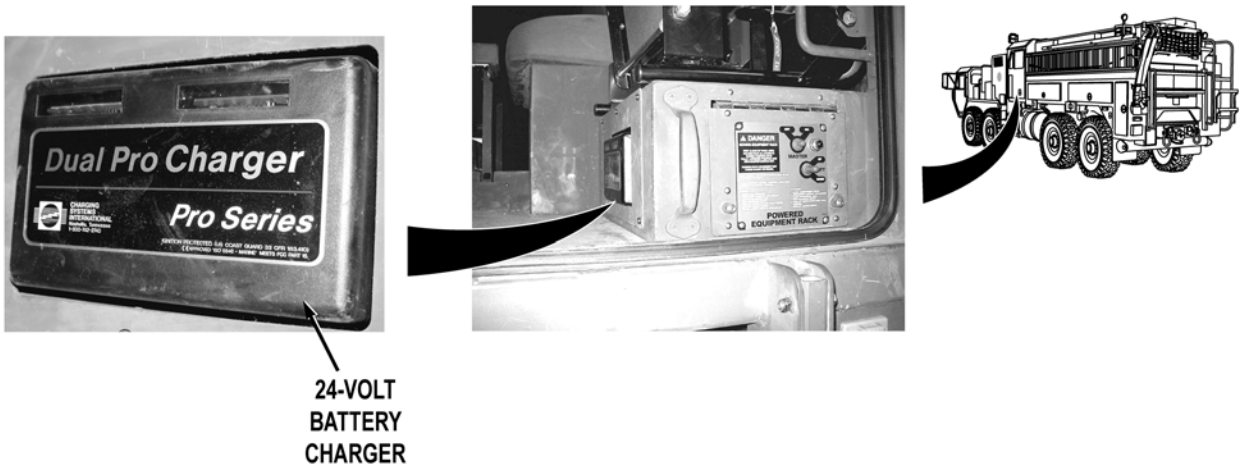
NOTE

Shoreline inlet receptacle operations can be checked by listening for 120-volt air compressor when vehicle air pressure is under 90 psi (621 kPa), or by checking if 24-volt battery charger charge indicators illuminate.

Step 7. Drain air system (TM 9-2320-347-10). Open ladder rack control panel. Connect shoreline inlet power cord to SHORELINE INLET receptacle (WP 0358). Listen for 120-volt air compressor operations.

If air compressor does not operate, go to Step 12.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



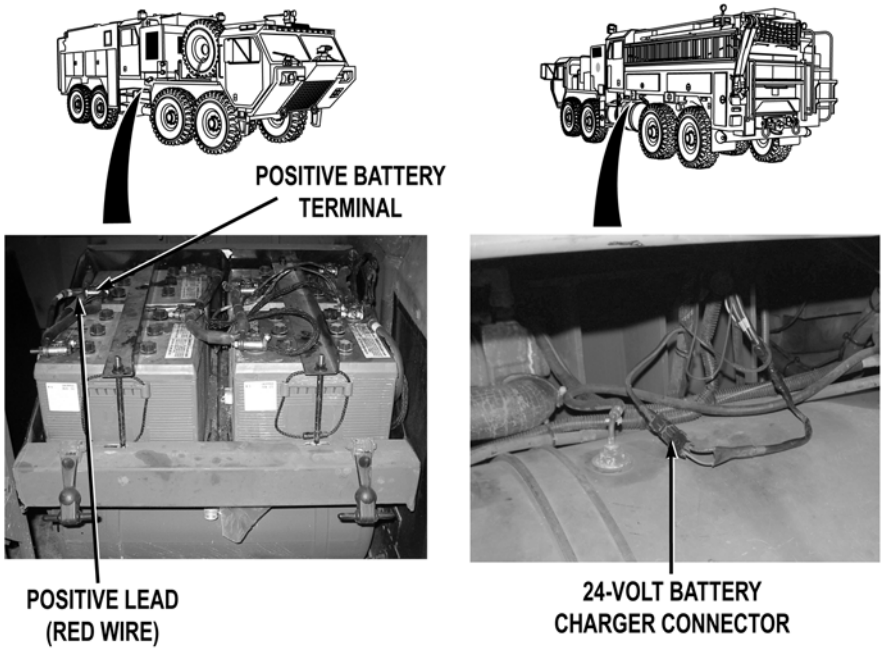
WARNING

- **Wear proper eye protection when working around batteries. Do not allow smoking, flames, or hot objects around batteries. If battery is giving off gases, it can explode. Failure to comply may result in injury or death to personnel.**
- **Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.**

Step 8. Unplug 24-volt battery charger. Check battery posts for corrosion and loose connections (TM 9-2320-347-10).

If battery posts and terminals are corroded and/or loose, clean and tighten battery terminals (TM 9-2320-325-14&P).

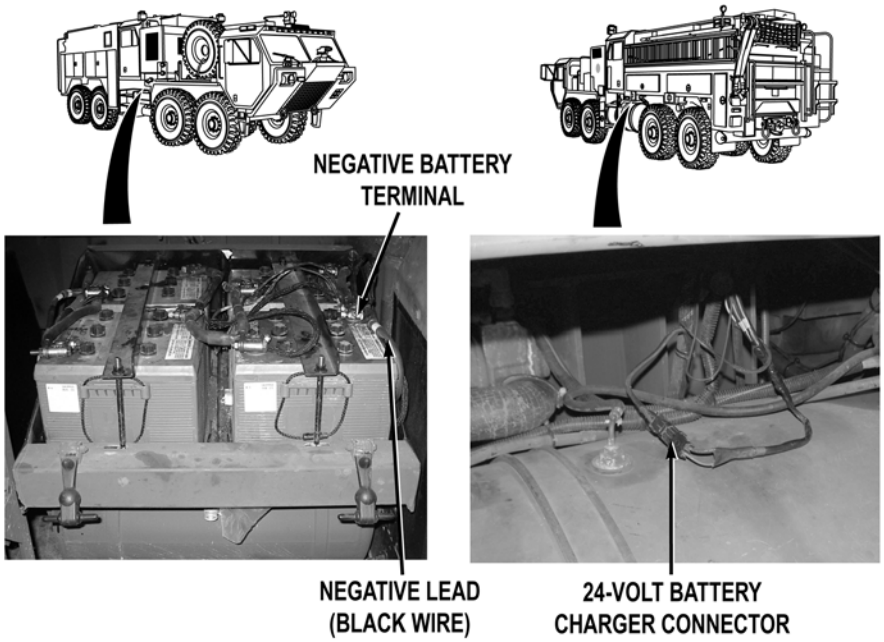
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. Disconnect batteries (TM 9-2320-325-14&P). Disconnect 24-volt battery charger connector. Check for continuity across 24-volt battery charger positive lead (red wire) from 24-volt battery charger connector to positive battery terminal.

If there is no continuity across 24-volt battery charger positive lead wire, repair 24-volt battery charger positive lead wire if repairable (TM 9-2320-325-14&P), or replace 24-volt battery charger (WP 0359).

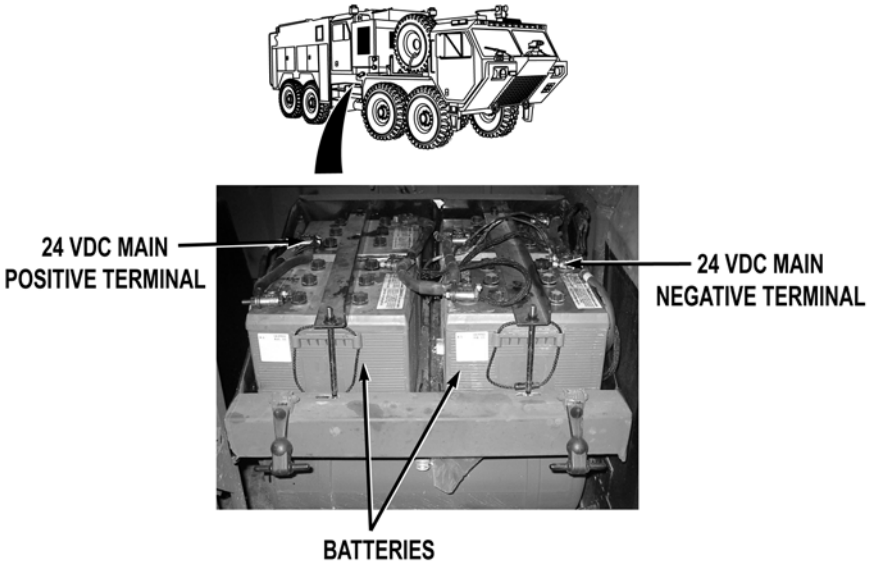
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. Disconnect batteries (TM 9-2320-325-14&P). Disconnect 24-volt battery charger connector. Check for continuity across 24-volt battery charger negative lead (black wire) from 24-volt battery charger connector to negative battery terminal.

If there is no continuity across battery charger negative lead, repair 24-volt battery charger negative lead wire if repairable (TM 9-2320-325-14&P), or replace 24-volt battery charger (WP 0359).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

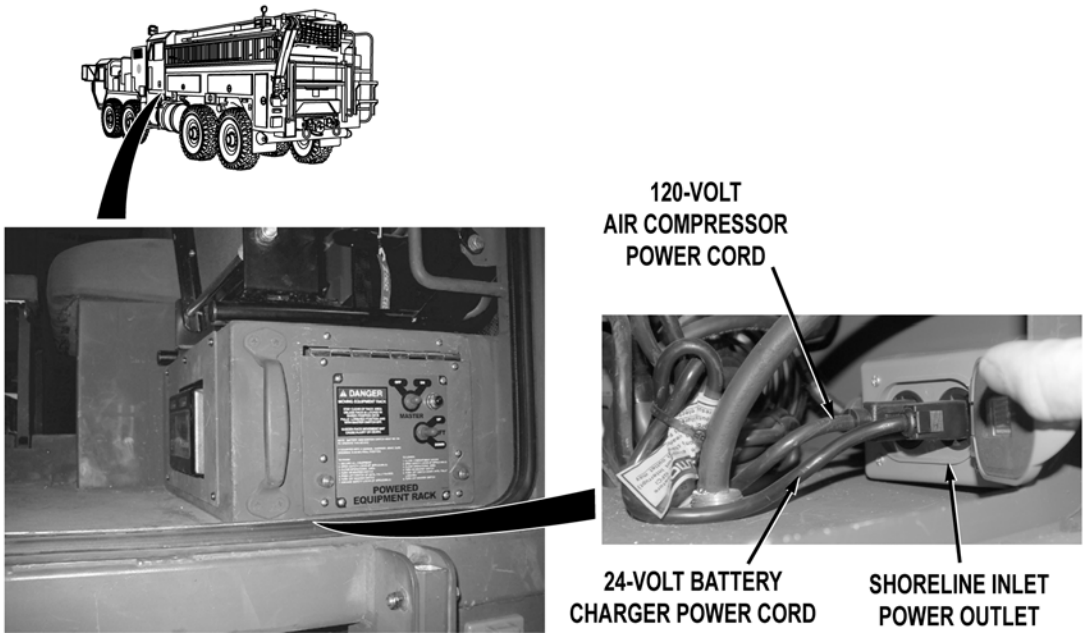
24-volt battery charger specifications suggests that charger will attempt to charge batteries unless battery voltage drops below 10 VDC in a 24 VDC system.

Step 11. Reconnect batteries (TM 9-2320-325-14&P). Check for at least 10 VDC across 24 VDC series connected batteries from 24 VDC main positive terminal to 24 VDC main negative terminal.

a. If at least 10 VDC are present, replace 24-volt battery charger (WP 0359).

b. If there are less than 10 VDC, replace batteries (WP 0368).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 12. Unplug shoreline inlet power cord (WP 0004). Drain air system (TM 9-2320-347-10). Swap 120-volt air compressor power cord with 24-volt battery charger power cord in shoreline inlet power outlet. Connect shoreline inlet power cord (WP 0004). Listen for 120-volt air compressor operations.

a. If air compressor operates, replace 24-volt battery charger (WP 0359).

b. If air compressor does not operate, troubleshoot Shoreline Inlet Receptacle Does Not Operate Properly (WP 0180).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

BATTERY EQUALIZER DOES NOT OPERATE PROPERLY

INITIAL SETUP:

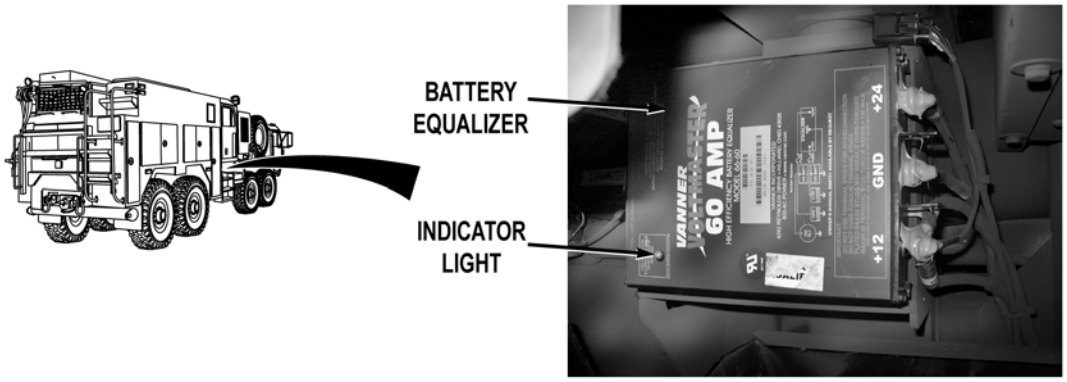
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0367
WP 0368
WP 0393

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

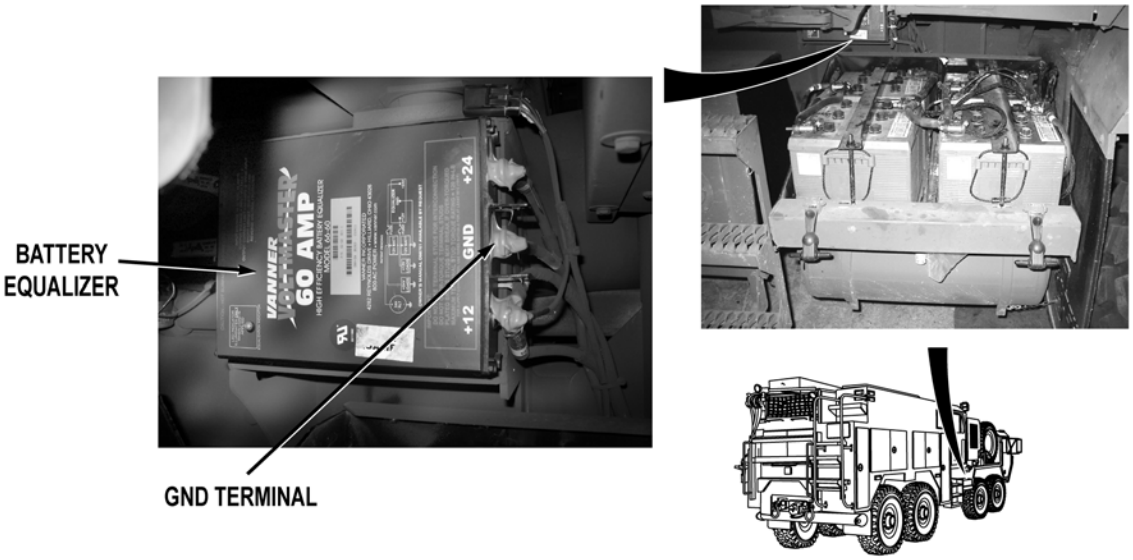
BATTERY EQUALIZER DOES NOT OPERATE PROPERLY



Step 1. Check indicator light on battery equalizer for illumination.

If indicator light on battery equalizer is illuminated, go to Step 9.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



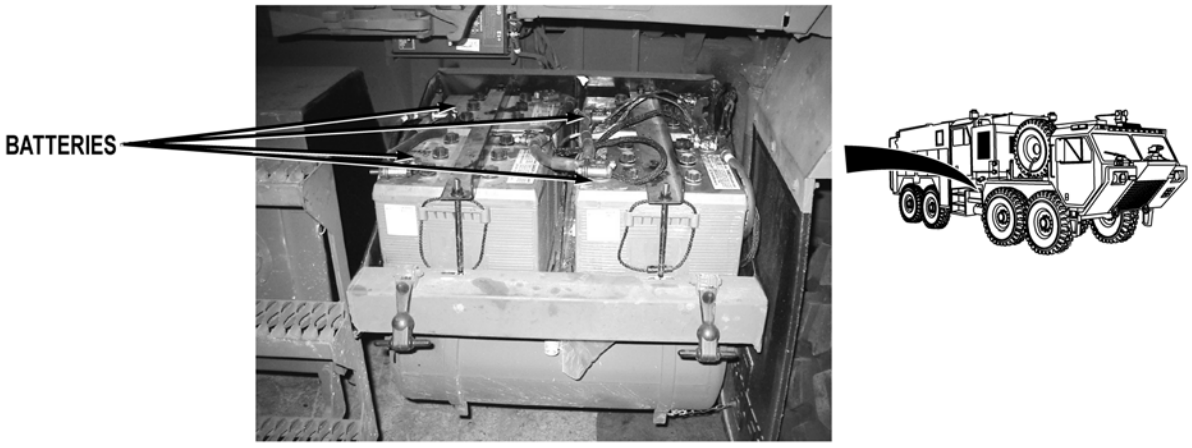
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

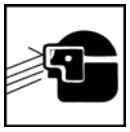
Step 2. Check connections at battery equalizer for corrosion, damage, and looseness.

If connections are corroded, damaged, or loose, clean and tighten connections (WP 0368).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



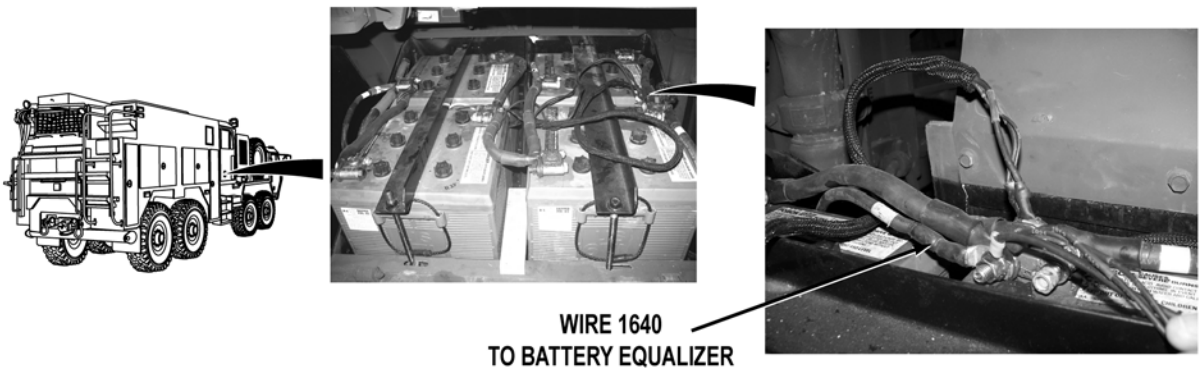
WARNING



Wear proper eye protection when working around batteries. Do not allow smoking, flames, or hot objects around batteries. If battery is giving off gases, it can explode. Failure to comply may result in injury or death to personnel.

Step 3. Inspect all batteries for dirt, corrosion, and loose battery terminals.

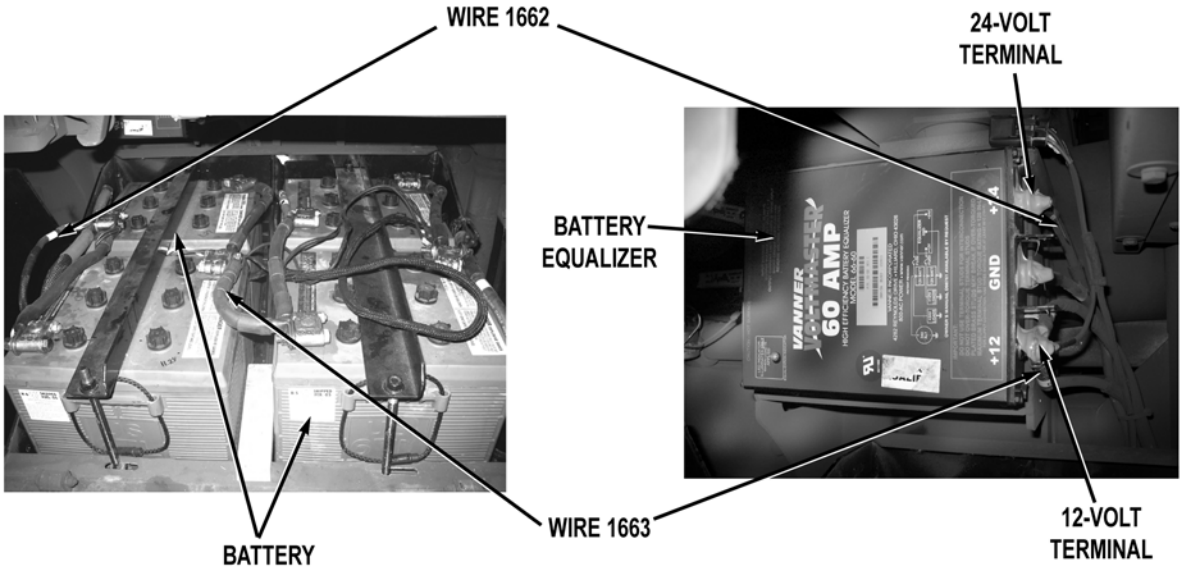
If battery terminals are dirty, corroded, or loose, clean and tighten connections (WP 0368).



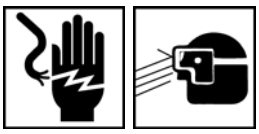
Step 4. Disconnect from battery, wire 1640 that goes to GND (ground) terminal on battery equalizer. Check for continuity across wire 1640 from battery equalizer, GND (ground) connection to connection that was removed from battery.

If there is no continuity, repair wire 1640 if repairable (TM 9-2320-325-14&P), or replace wire 1640 (WP 0393).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING



- **Wear proper eye protection when working around batteries. Do not allow smoking, flames, or hot objects around batteries. If battery is giving off gases, it can explode. Failure to comply may result in injury or death to personnel.**
- **Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.**

Step 5. Disconnect wire 1663, that goes to 12-volt terminal on battery equalizer. Check for continuity across wire 1663 from battery equalizer 12-volt terminal to connection that was removed from battery.

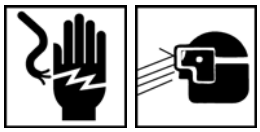
If there is no continuity, repair wire 1663 if repairable (TM 9-2320-325-14&P), or replace wire 1663 (WP 0393).

Step 6. Disconnect wire 1662, that goes to 24-volt terminal on battery equalizer. Check for continuity across wire 1662 from battery equalizer, 24-volt terminal to connection that was removed from battery.

If there is no continuity, repair wire 1662 if repairable (TM 9-2320-325-14&P), or replace wire 1662 (WP 0393).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

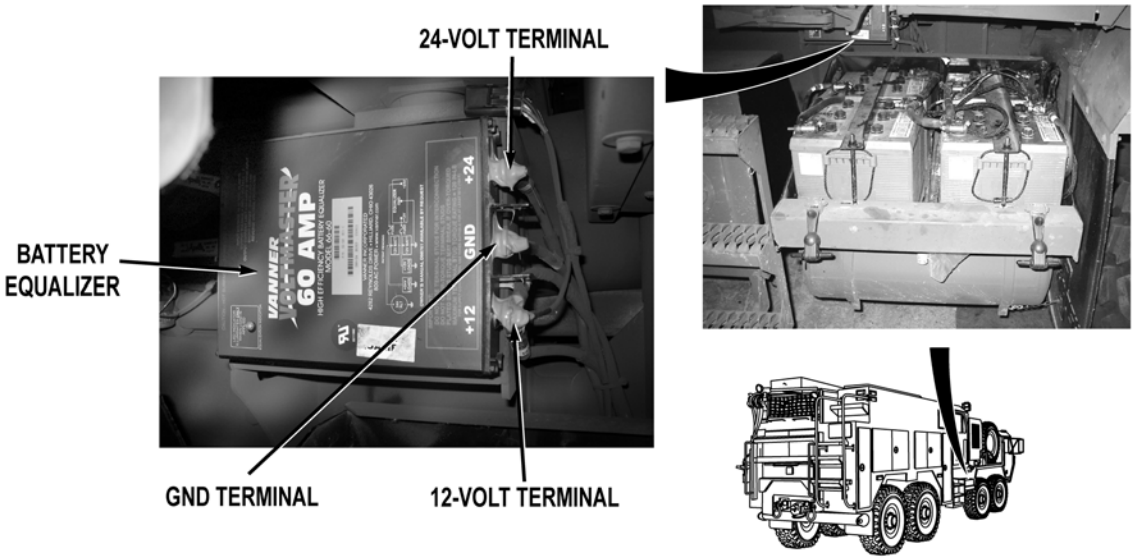


- **Wear proper eye protection when working around batteries. Do not allow smoking, flames, or hot objects around batteries. If battery is giving off gases, it can explode. Failure to comply may result in injury or death to personnel.**
- **Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.**

Step 7. If connected, disconnect shoreline power cord from vehicle (WP 0004). Disconnect all remaining wires/cables from batteries (WP 0368). Check voltage across each individual battery.

If any battery has a voltage reading of 8 volts or less, charge battery. If a battery will not take a charge, replace battery (WP 0368).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



⚠ CAUTION

When checking voltage in Step 8, red voltmeter lead must be connected to battery equalizer 24-volt terminal, and black lead must be attached to 12-volt terminal. Failure to comply may cause damage to equipment.

NOTE

- Prior to taking voltage measurements, ensure all portable handheld radios are fully seated in their chargers.
- Prior to taking voltage measurements, ensure all portable handheld flashlights are properly connected to their charging cords.

Step 8. Reconnect all wires/cables that were removed from batteries (WP 0368). Ensure all portable handheld radios and portable handheld flashlights are properly connected to their 12-volt charging power source (WP 0004). Check voltage from 12-volt terminal to GND (ground) terminal on battery equalizer. Check voltage from 24-volt terminal to 12-volt terminal on battery equalizer (using 12-volt terminal as negative connection point).

a. If voltage measurements are within 0.1 volt of each other, fault is corrected.

b. If voltage measurements differ by more than 0.1 volt, charge batteries. If voltage difference continues to exist after charging, replace battery equalizer (WP 0367).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

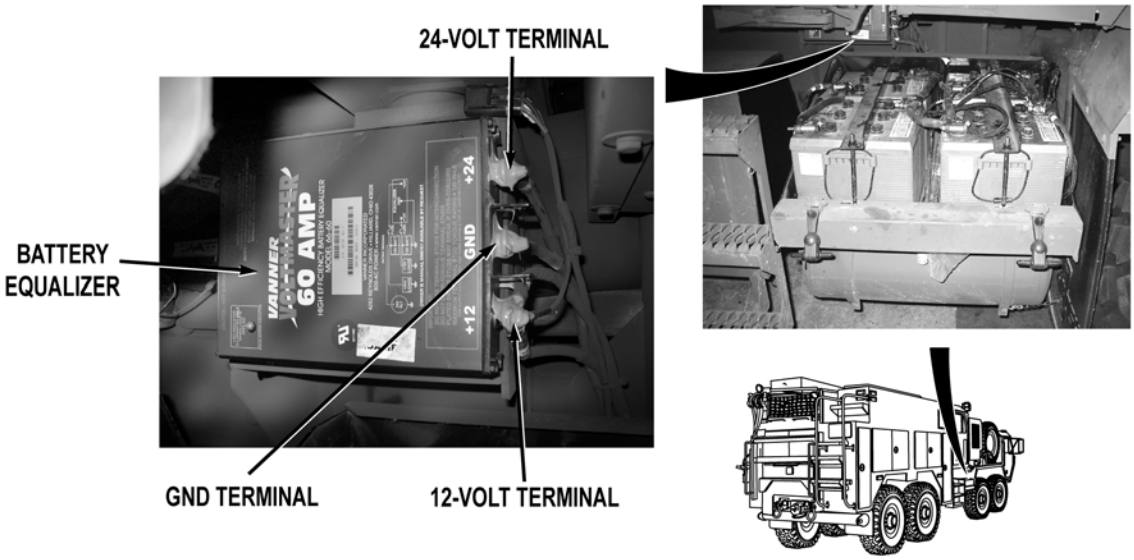
CAUTION

When checking voltage in Step 9, red voltmeter lead must be connected to battery equalizer 24-volt terminal, and black lead must be attached to 12-volt terminal. Failure to comply may cause damage to equipment.

NOTE

- Prior to taking voltage measurements, ensure all portable handheld radios are fully seated in their chargers.
- Prior to taking voltage measurements, ensure all portable handheld flashlights are properly connected to their charging cords.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. If connected, disconnect shoreline power cord from vehicle (WP 0004). Ensure all portable handheld radios and portable handheld flashlights are properly connected to their 12-volt charging power source (WP 0004). Check voltage from 12-volt terminal to GND (ground) terminal on battery equalizer. Check voltage from 24-volt terminal to 12-volt terminal on battery equalizer (using 12-volt terminal as negative connection point).

a. If voltage measurements are within 0.1 volt of each other, fault is corrected.

b. If voltage measurements differ by more than 0.1 volt, charge batteries. If voltage difference continues to exist after charging, replace battery equalizer (WP 0367).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CLEARANCE AND/OR DIRECTIONAL LIGHT(S) DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0007
WP 0010
WP 0311
WP 0342
WP 0343
WP 0349
WP 0397

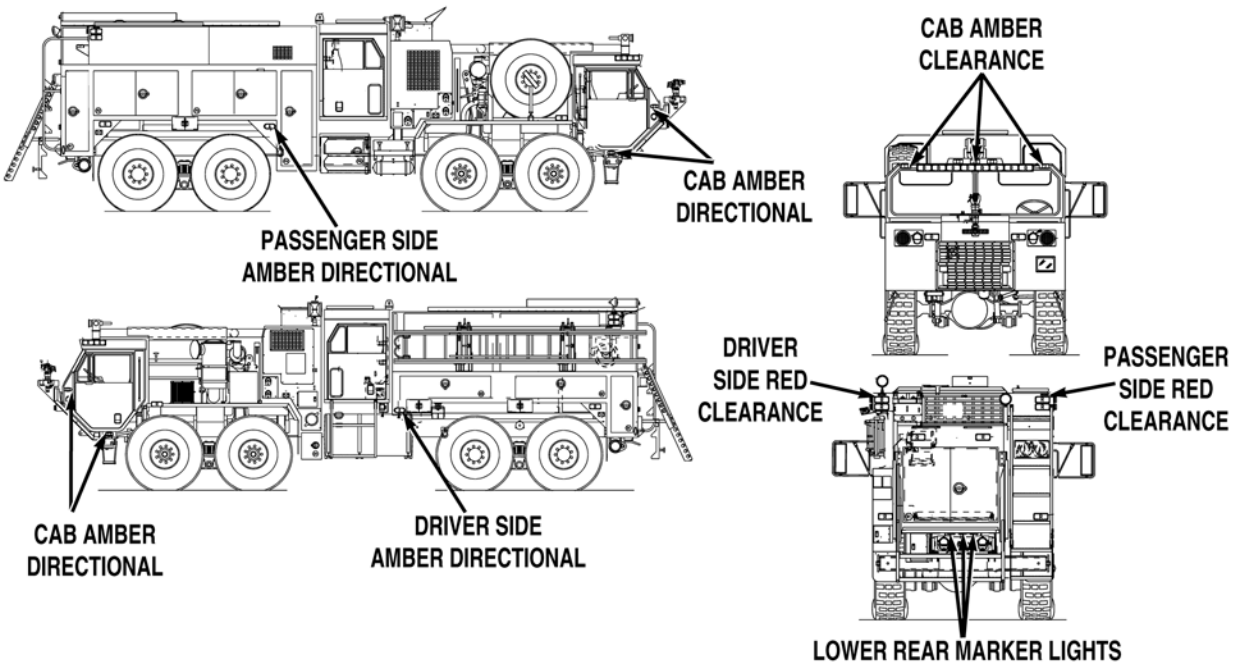
References (continued)
WP 0401
WP 0402
WP 0440
WP 0441
WP 0448
WP 0455
WP 0456
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

CLEARANCE AND/OR DIRECTIONAL LIGHT(S) DOES NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn On Clearance Lamps (TM 9-2320-347-10). Check if all clearance lights on body operate.

If all clearance lights on body operate, go to Step 28.

Step 2. Check if cab amber clearance lights operate.

If cab clearance lights do not operate, troubleshoot Clearance and Side Markers Do Not Operate (TM 9-2320-325-14&P).

Step 3. Check if at least one clearance light on body operates.

If all clearance lights on body do not operate, go to Step 20.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

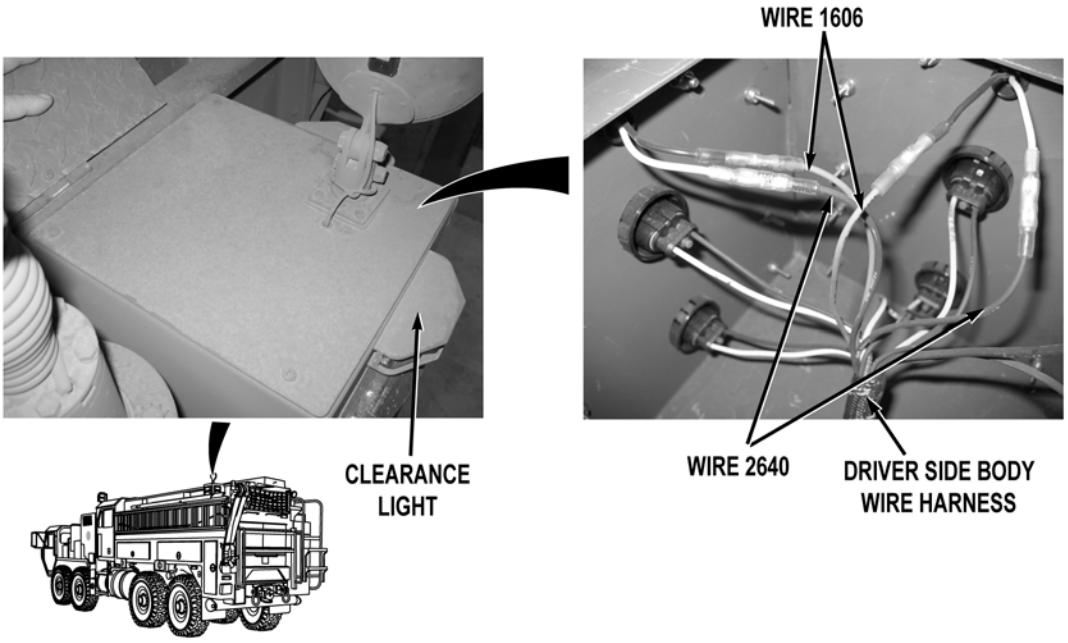
Step 4. Check if non-operating clearance light is located on driver side of body.

If non-operating clearance light is not located on driver side, go to Step 11.

Step 5. Check if at least one driver side clearance light operates.

If both driver side clearance lights do not operate, go to Step 8.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Remove light bezel cover (WP 0397). Cut wire 1606 (green) at non-operating clearance light. Check for 22 to 28 VDC between wire 1606 (green) at driver side body wire harness and a known good ground.

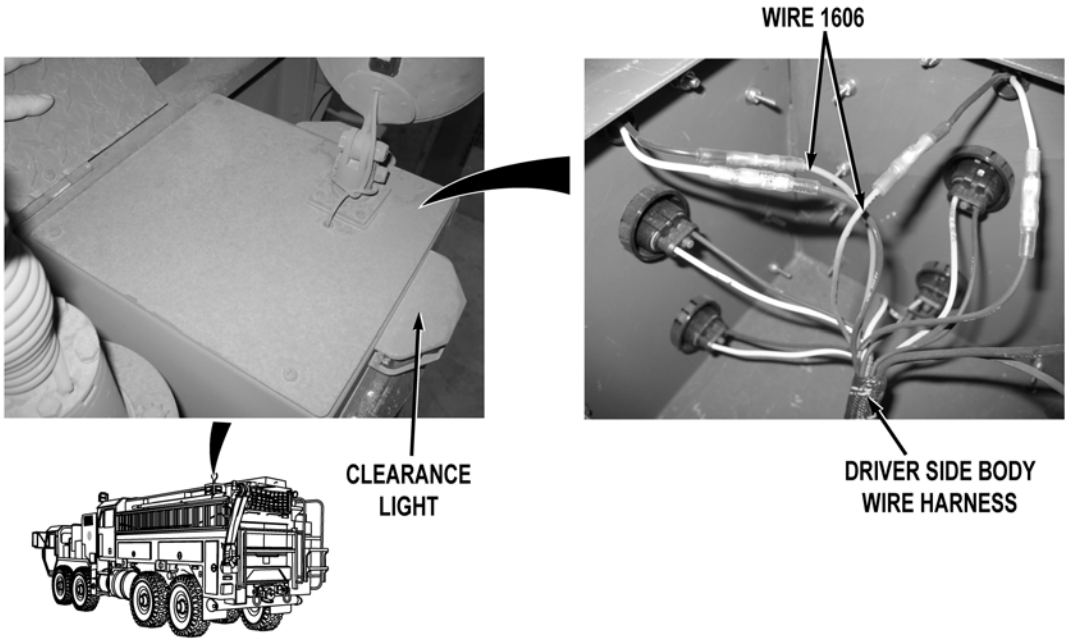
If 22 to 28 VDC are not present, repair wire 1606 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

Step 7. Turn Off Clearance Lamps (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Cut wire 2640 (black) at non-operating clearance light. Check for continuity across wire 2640 (black) from driver side body wire harness to a known good ground.

a. If there is continuity, replace non-operating clearance light (WP 0349).

b. If there is no continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



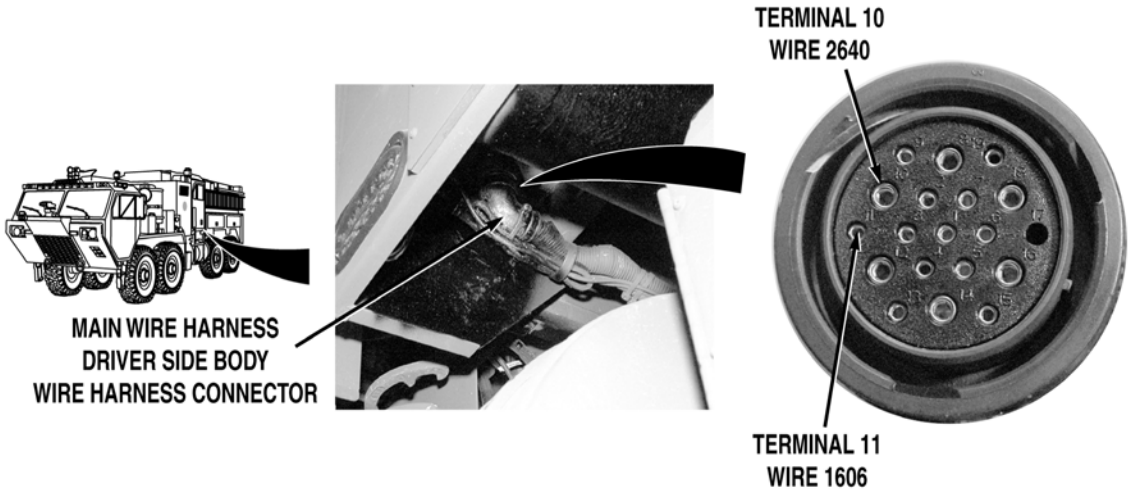
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 8. Turn Off Clearance Lights (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove light bezel cover (WP 0397). Cut wire 1606 (green) at non-operating clearance light. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn On Clearance Lights (TM 9-2320-347-10). Check for 22 to 24 VDC between wire 1606 (green) at driver side body wire harness and a known good ground.

If 22 to 28 VDC are not present, go to Step 10.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 9. Turn Off Clearance Lights (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2640 (black) from main wire harness connector, terminal 10 to a known good ground.

a. If there is continuity at both terminals, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 10. Turn Off Clearance Lights (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness driver side body wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn On Clearance Lights (TM 9-2320-347-10). With a test lead set, check for 22 to 28 VDC between wire 1606 (green) at main wire harness driver side body wire harness connector, terminal 11 and a known good ground.

a. If 22 to 28 VDC are present, repair wire 1606 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If 22 to 28 VDC are not present, repair wire 1606 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

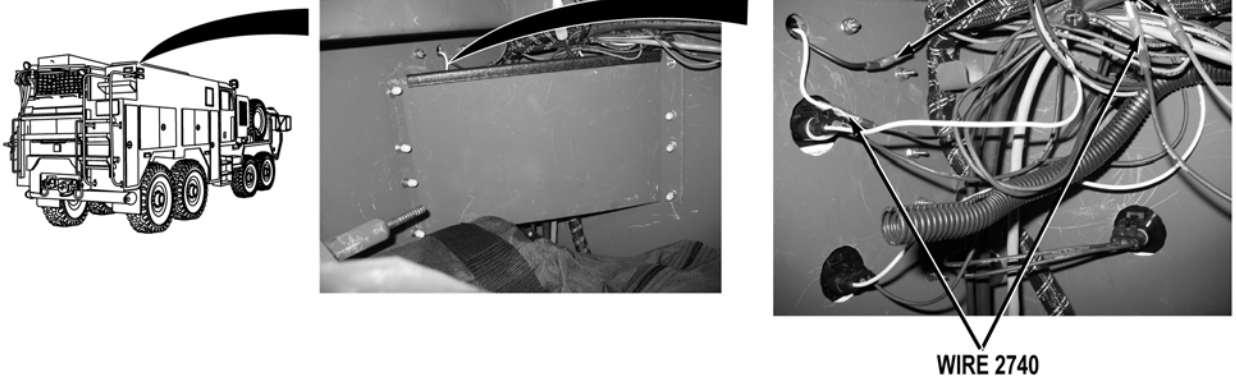
Step 11. Check if non-operating clearance lights are located on passenger side of body.

If non-operating clearance light is not located on passenger side, go to Step 18.

Step 12. Check if at least one passenger side clearance light operates.

If both passenger side clearance lights do not operate, go to Step 15.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 13. Turn Off Clearance Lights (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open passenger side top stowage hatch T1 (WP 0010). Cut wire 1606 (green) at non-operating clearance light. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn On Clearance Lights (TM 9-2320-347-10). Check for 22 to 28 VDC between wire 1606 (green) and a known good ground.

If 22 to 28 VDC are not present, repair wire 1606 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

Step 14. Turn Off Clearance Lamps (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Cut wire 2740 (black) at non-operating clearance light. Check for continuity across wire 2740 (black) and a known good ground.

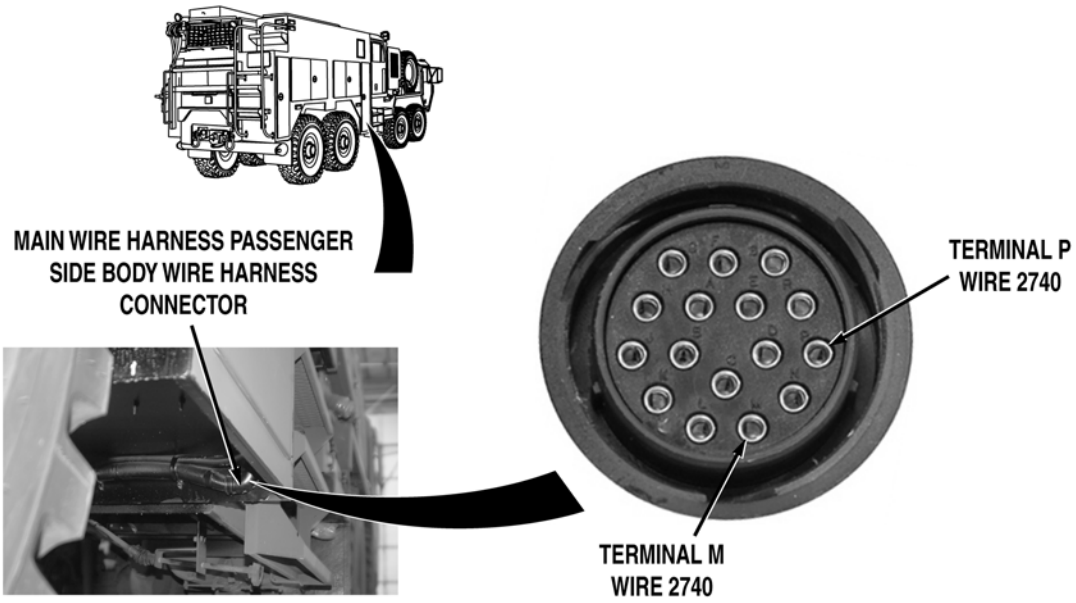
a. If there is continuity, replace non-operating clearance light (WP 0349).

b. If there is no continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

Step 15. Turn Off Clearance Lights (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open passenger side top stowage hatch T1 (WP 0010). Cut wire 1606 (black) at non-operating clearance marker. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn On Clearance Lights (TM 9-2320-347-10). Check for 22 to 28 VDC between wire 1606 (green) and a know good ground.

If 22 to 28 VDC are present, go to Step 17.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

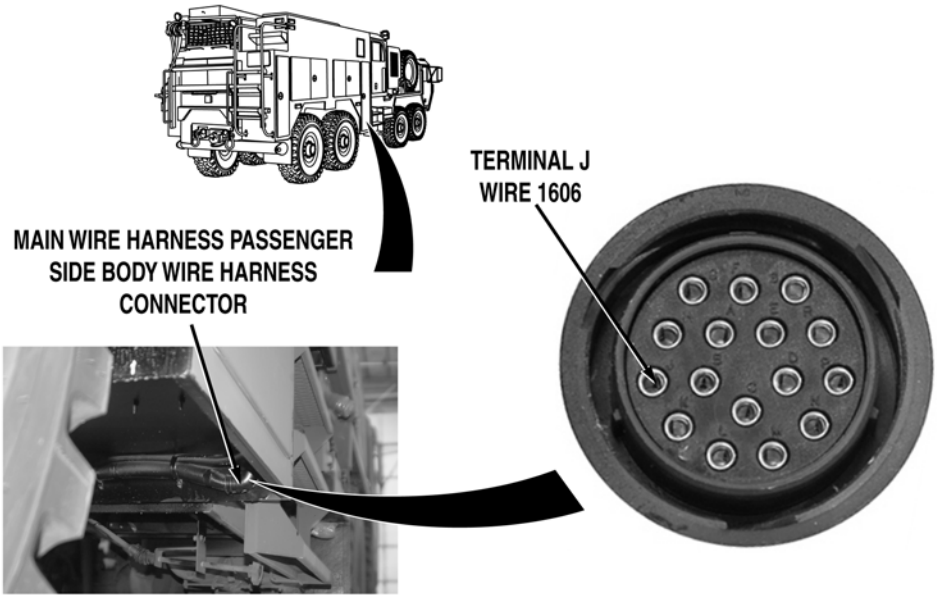
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 16. Turn Off Clearance Lamps (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2740 (black) from main wire harness connector, terminals M and P to a known good ground.

a. If there is continuity at both terminals, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity at either terminal, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

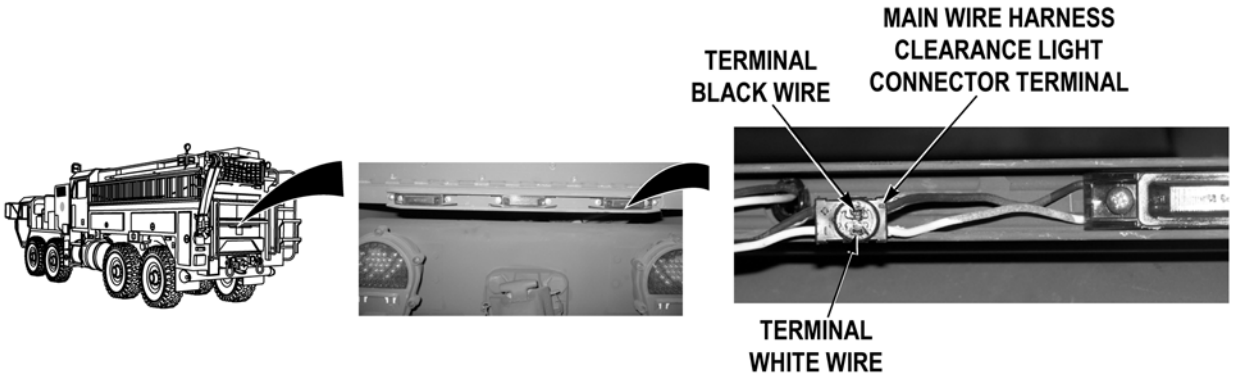
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 17. Turn Off Clearance Lights (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness passenger side body wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn On Clearance Lights (TM 9-2320-347-10). With a test lead set, check for 22 to 28 VDC between wire 1606 (green) at main wire harness connector, terminal J and a known good ground.

a. If 22 to 28 VDC are present, repair wire 1606 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If 22 to 28 VDC are not present, repair wire 1606 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 18. Remove non-operating lower rear center clearance light (WP 0342). With a test lead set, check for 22 to 28 VDC between terminal black wire at main wire harness clearance light connector terminal and a known good ground.

If 22 to 28 VDC are not present, repair black wire in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

NOTE

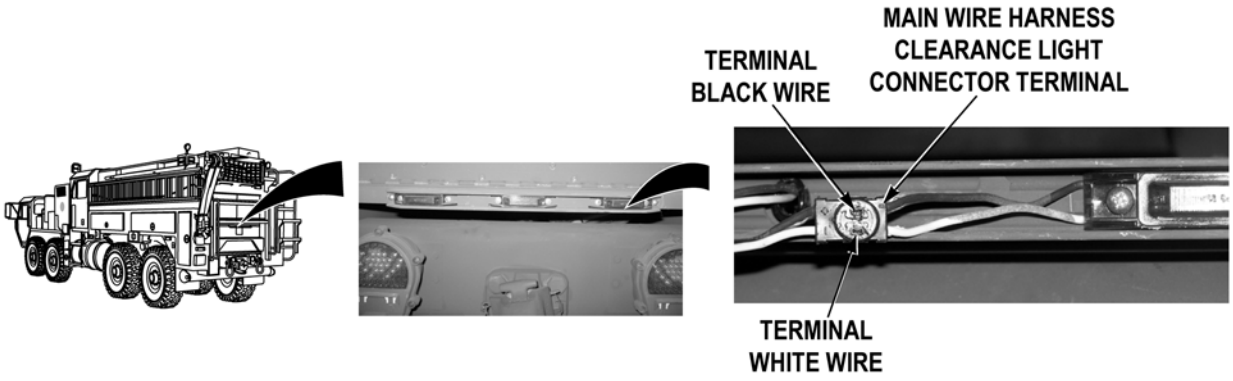
Lower center rear clearance marker LED light assembly must be inserted into connector so “+” marking on light assembly aligns with black wire. LED lights will not function if installed in reversed position.

Step 19. Turn Off Clearance Lamps (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a lead test set, check for continuity across main wire harness terminal white wire from main wire harness clearance light connector terminal and a known good ground.

a. If there is continuity, replace non-operating clearance light (WP 0342).

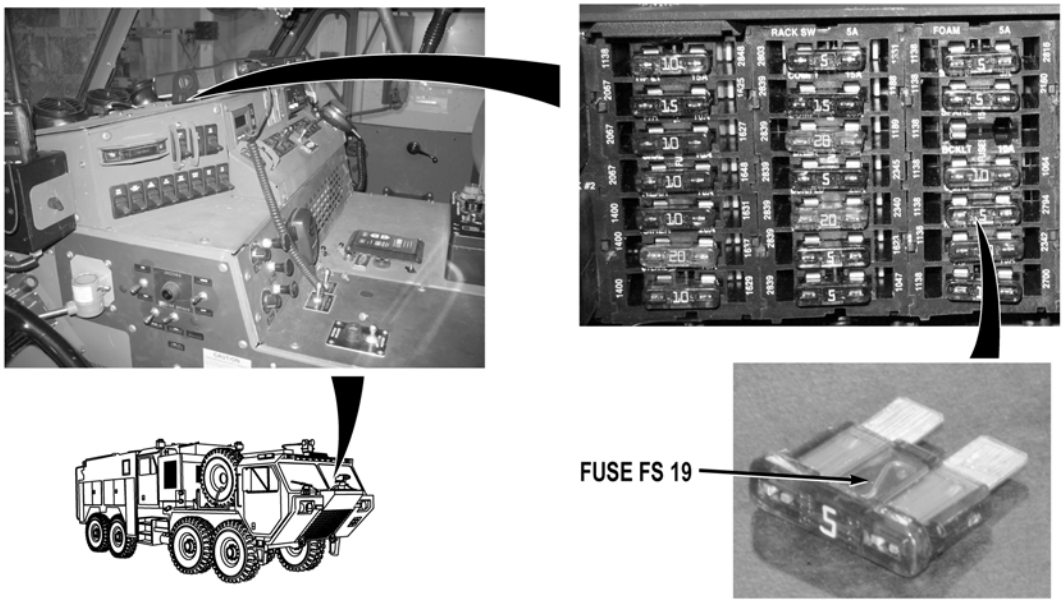
b. If there is no continuity, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 20. Check if clearance lights at side clearance/turn lights operate.

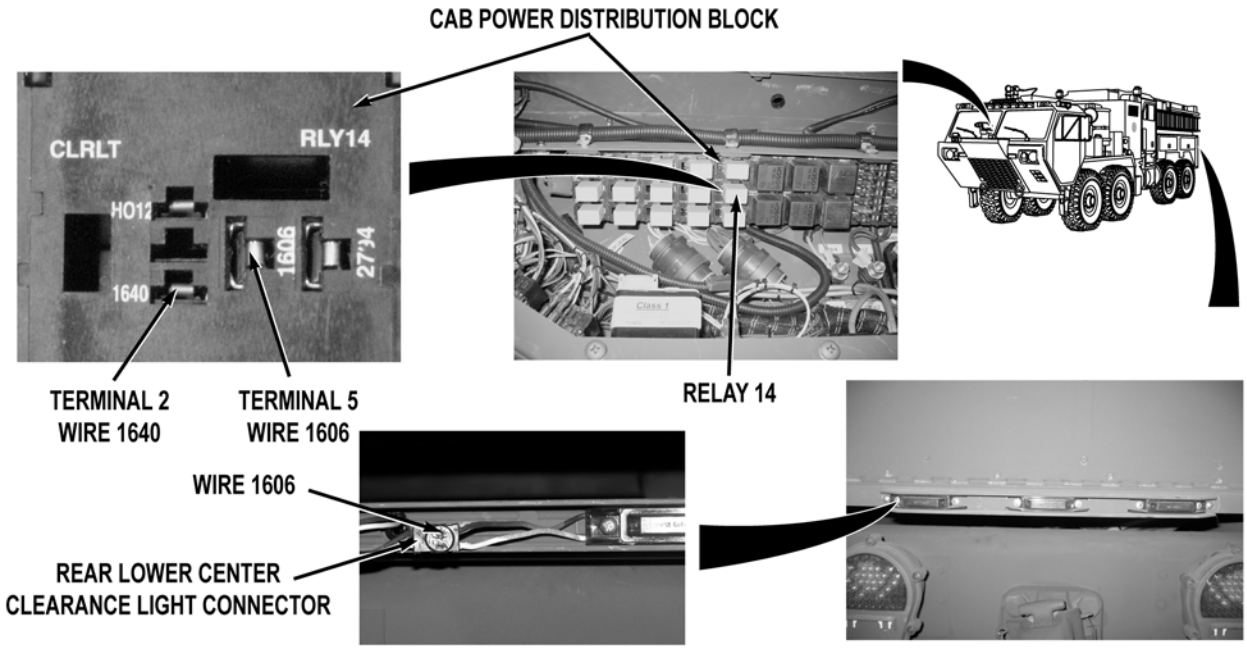
If clearance lights at side clearance/turn lights do not operate, repair wire H012 (white) in cab instrument panel wire harness (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).



Step 21. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 19 (WP 0401). With a test lead set, check for continuity across fuse FS 19.

If there is no continuity, replace fuse FS 19 (WP 0401).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



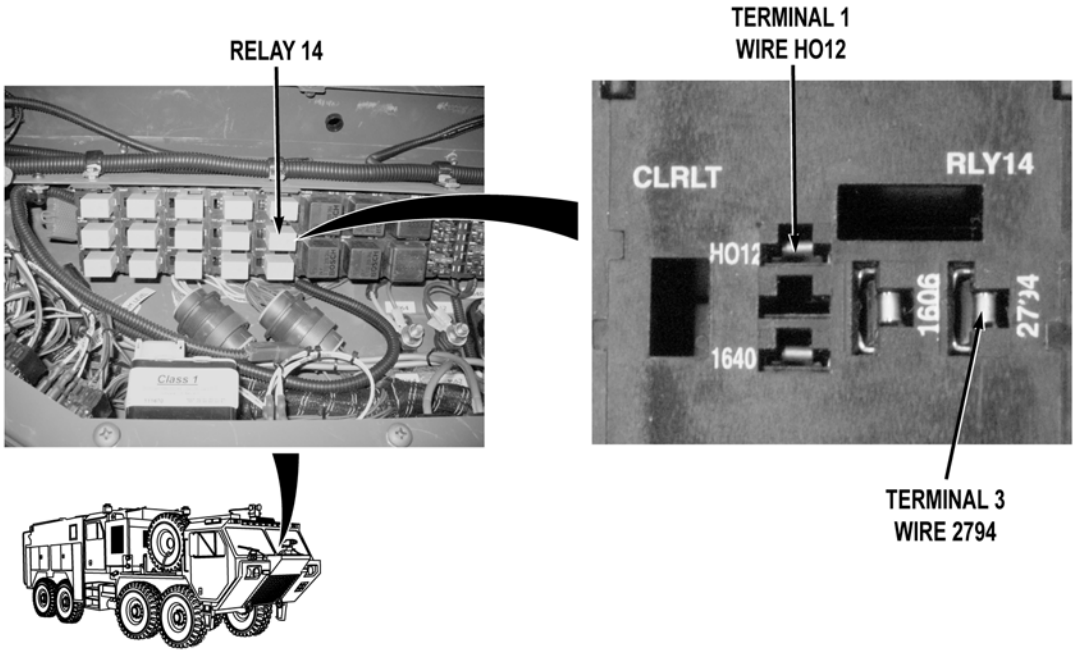
Step 22. Install fuse FS 19 (WP 0401). Remove relay 14 (WP 0402). Remove one rear lower center clearance light (WP 0342). With a test lead set, check for continuity across wire 1606 (green) from cab power distribution block relay 14 connector, terminal 5 to rear lower center clearance light connector terminal.

If there is no continuity, go to Step 27.

Step 23. With a test lead set, check for continuity across wire 1640 (black) from cab power distribution block relay 14 connector, terminal 2 to a known good ground.

If there is no continuity, replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 24. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn On Clearance Lamps (TM 9-2320-347-10). With a test lead set, check for 22 to 28 VDC between wire H012 (white) at relay 14 connector, terminal 1 and a known good ground.

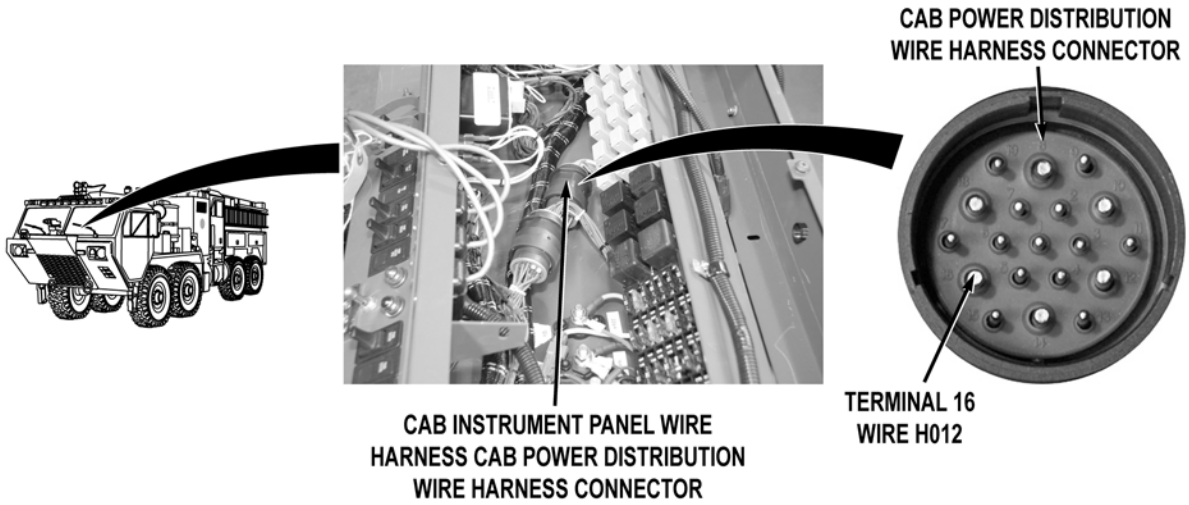
If 22 to 28 VDC are not present, go to Step 26.

Step 25. With a test lead set, check for 22 to 28 VDC between wire 2794 (red) at relay 14 connector, terminal 3 and a known good ground.

a. If 22 to 28 VDC are present, replace relay 14 (WP 0402).

b. If 22 to 28 VDC are not present, replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

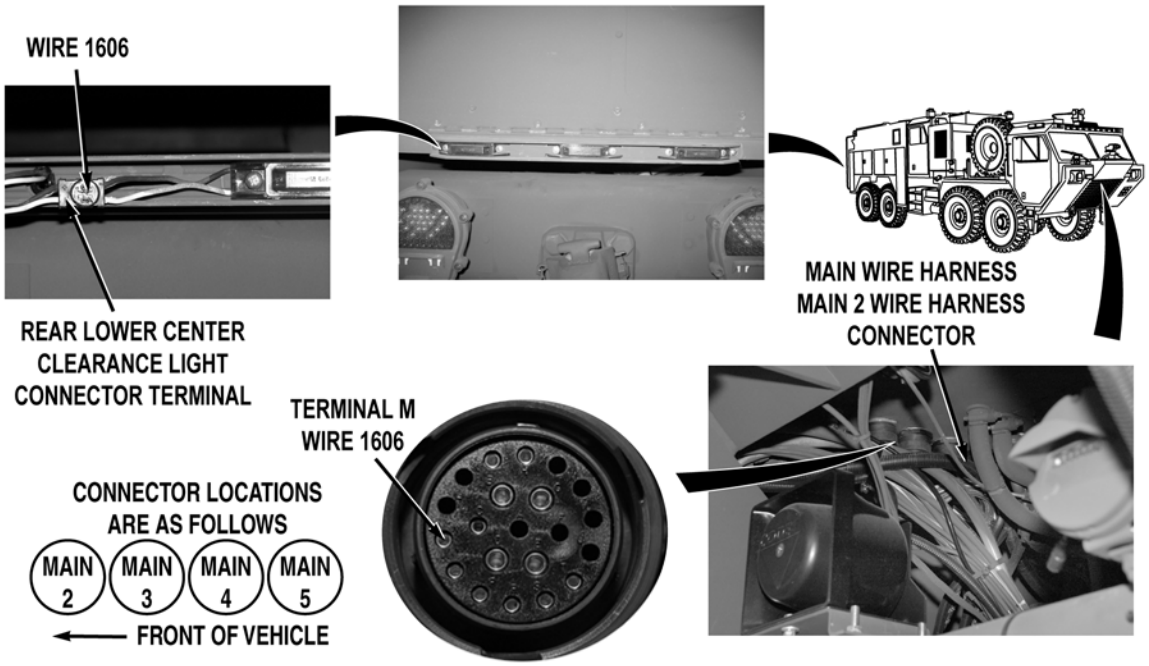
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 26. Turn Off Clearance Lights (TM 9-2320-347-10). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect cab instrument panel wire harness cab power distribution wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn On Clearance Lights (TM 9-2320-347-10). With a test lead set, check for 22 to 28 VDC between cab instrument panel wire harness wire H012 (white) at cab power distribution wire harness connector, terminal 16 and a known good ground.

a. If 22 to 28 VDC are present, repair wire H012 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If 22 to 28 VDC are not present, repair wire H012 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

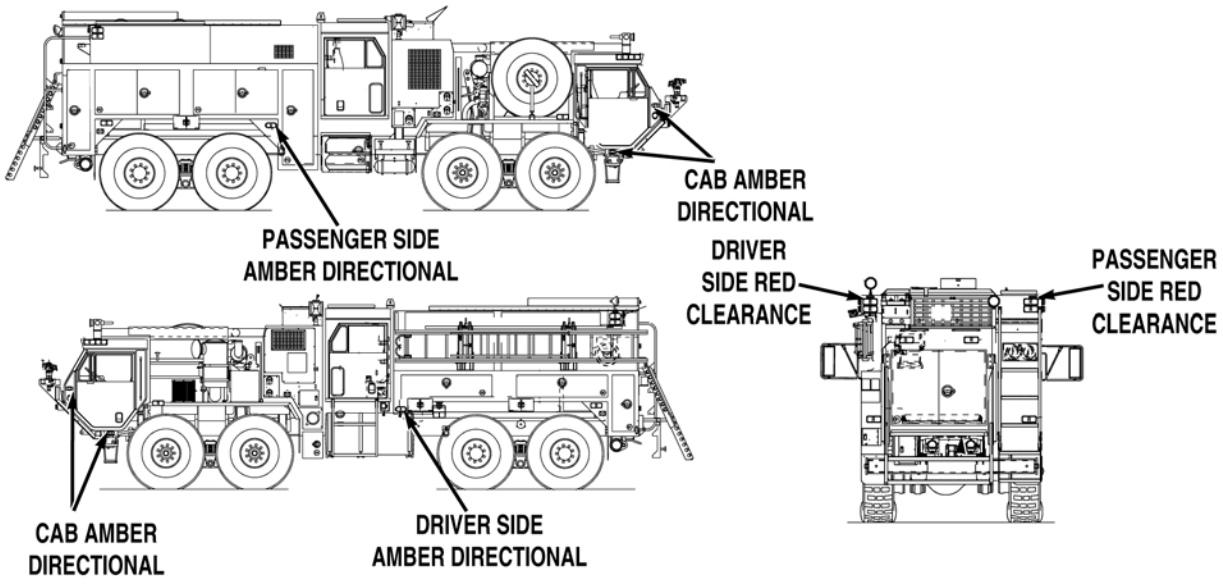


Step 27. Remove skid plate grille (WP 0550). Disconnect main wire harness main 2 wire harness connector. With a test lead set, check for continuity across wire 1606 (green) from main wire harness main 2 connector, terminal M to rear lower center clearance light connector terminal.

a. If there is continuity, repair wire 1606 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1606 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 28. Check if clearance light(s) at side clearance/turn lights operate.

If clearance light(s) at side clearance/turn lights do not operate, go to Step 37.

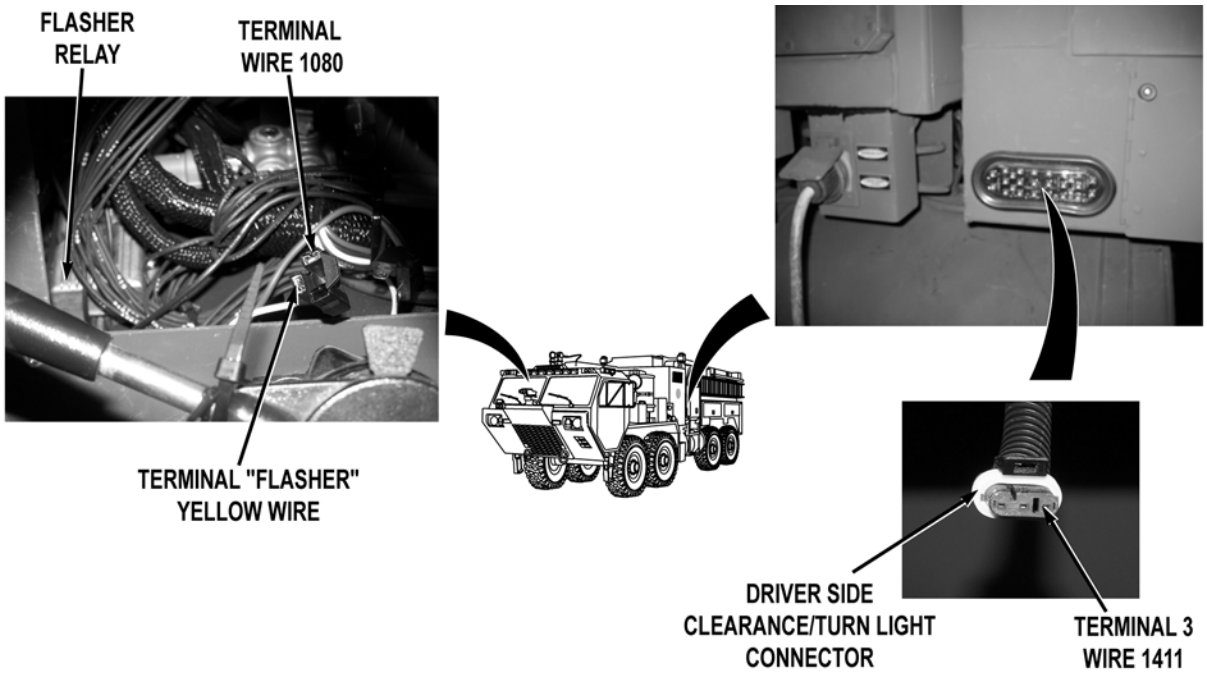
Step 29. Turn Off Clearance Lamps (TM 9-2320-347-10). Turn left turn signal on (TM 9-2320-347-10). Check if left side clearance/turn light flashes.

If left side clearance/turn light flashes, go to Step 33.

Step 30. Check if left front turn light flashes.

If left front turn signal does not flash, troubleshoot Left Front Turn Signal Does Not Operate (TM 9-2320-325-14&P).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



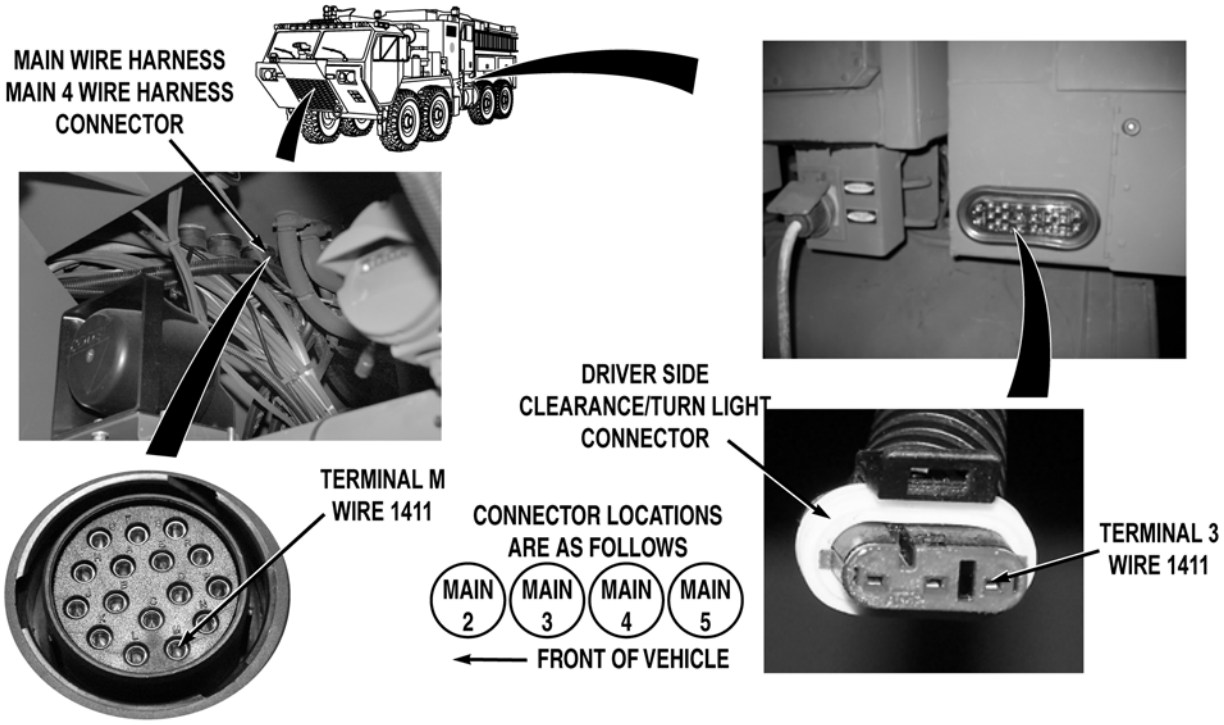
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 31. Turn battery disconnect switch to OFF position (WP 0007). Place instrument panel in service position (TM 9-2320-325-14&P). Remove flasher relay (TM 9-2320-325-14&P). Install a test lead set between flasher relay terminal wire 1080 and “Flasher’” yellow wire. Remove left side clearance/turn light (WP 0344). Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn left turn signal on (TM 9-2320-325-14&P). With a test lead set, check for 22 to 28 VDC between main wire harness wire 1411 (yellow) at driver side clearance/turn light connector, terminal 3 and a known good ground.

If 22 to 28 VDC are present, replace left side clearance/turn light (WP 0344).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 32. Remove skid plate grille (WP 0550). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness main 4 wire harness connector. With a test lead set, check for continuity across wire 1411 (yellow) from main wire harness main 4 wire harness connector, terminal M to driver side clearance/turn light connector, terminal 3.

a. If there is continuity, repair wire 1411 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If there is no continuity, repair wire 1411 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

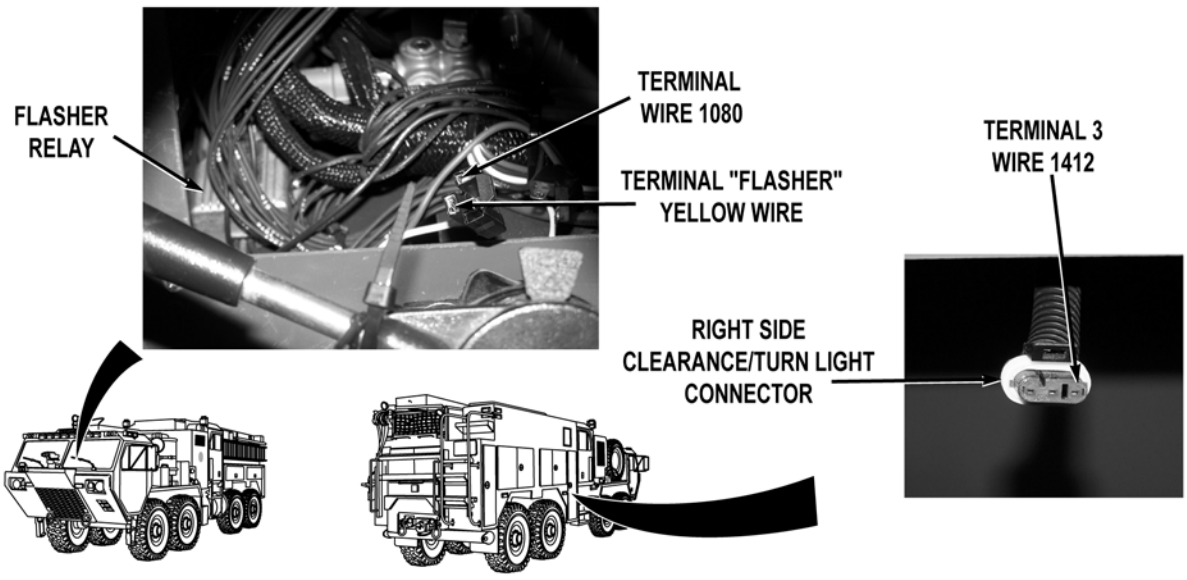
Step 33. Turn right turn signal on (TM 9-2320-347-10). Check if passenger side clearance/turn light flashes.

If passenger side clearance/turn light flashes, fault has been corrected.

Step 34. Check if passenger front turn light flashes.

If right front turn light does not flash, troubleshoot Right Front Turn Signal Does Not Operate (TM 9-2320-325-14&P).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



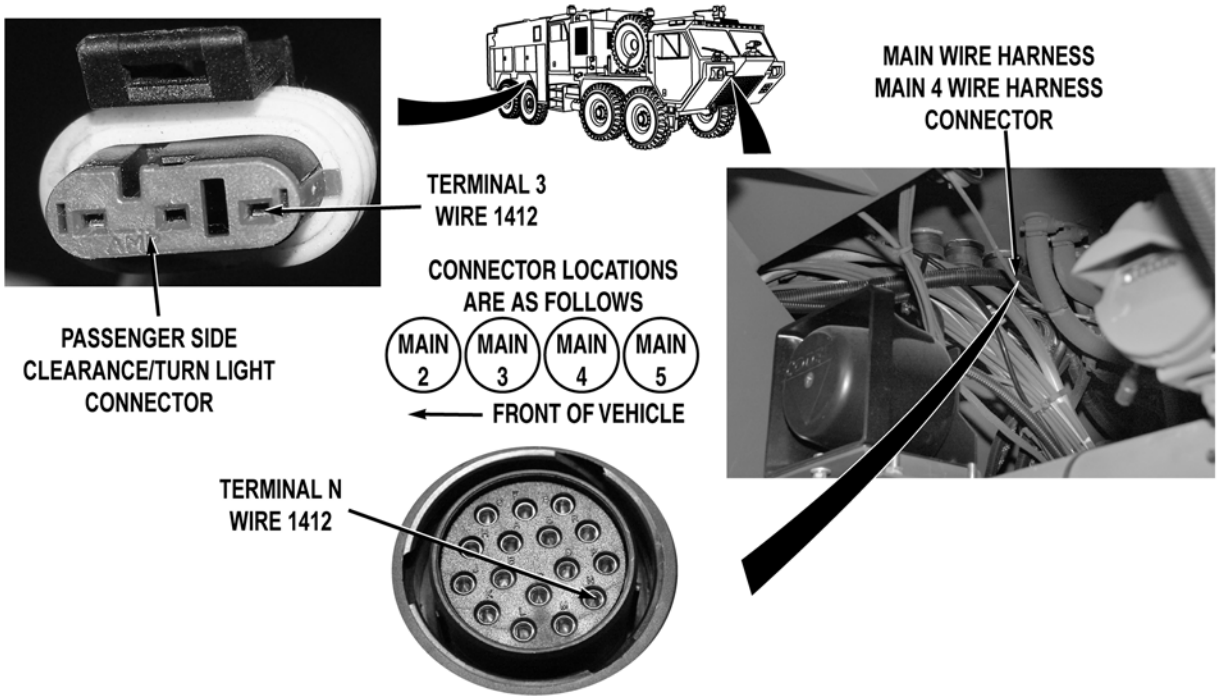
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 35. Turn battery disconnect switch to OFF position (WP 0007). Place instrument panel in service position (TM 9-2320-325-14&P). Remove flasher relay (TM 9-2320-325-14&P). Install test lead set between flasher relay terminals wire 1080 and “Flasher” yellow wire. Disconnect main wire harness from passenger side clearance/turn light connector (WP 0343). Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Turn right turn signal on (TM 9-2320-347-10). With a test lead set, check for 22 to 28 VDC between main wire harness wire 1412 (green) at passenger side clearance/turn light connector, terminal 3 and a known good ground.

If 22 to 28 VDC are present, replace passenger side clearance/turn light (WP 0343).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

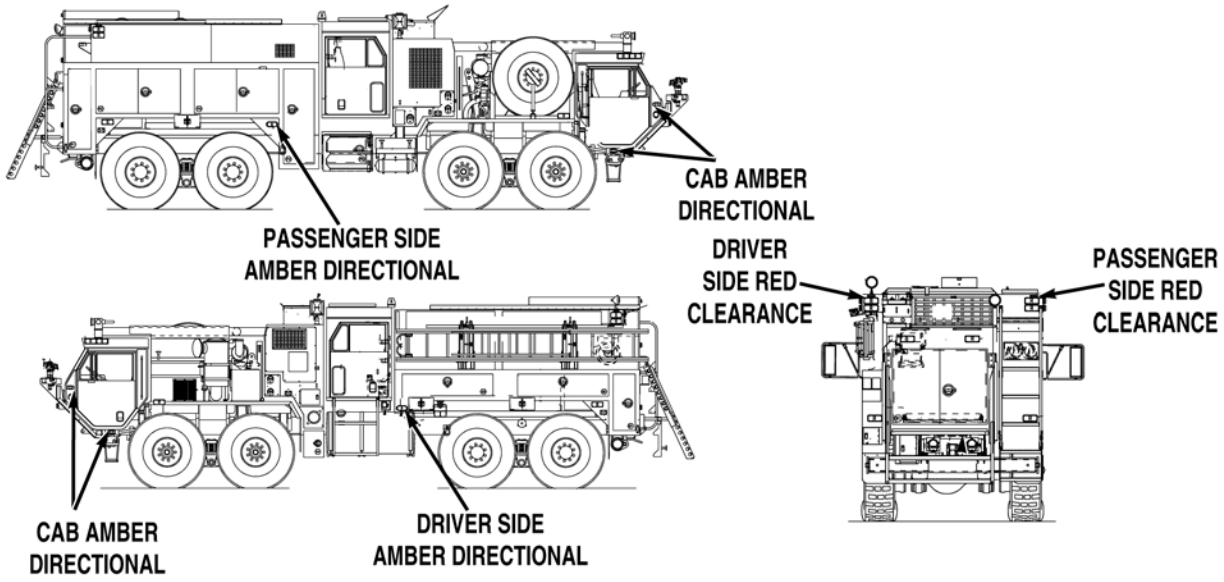


Step 36. Remove skid plate grille (WP 0550). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness main 4 wire harness connector. With a test lead set, check for continuity across wire 1412 (green) from main wire harness main 4 wire harness connector, terminal N to passenger side clearance/turn light connector terminal 3.

a. If there is continuity, repair wire 1412 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

b. If there is no continuity, repair wire 1412 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



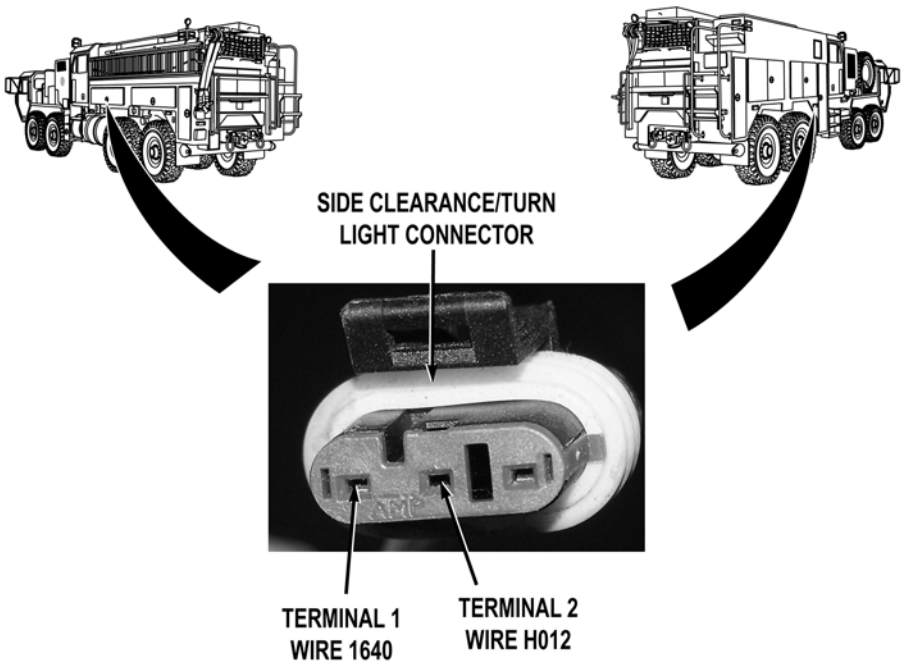
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 37. Check if at least one clearance light(s) at side clearance/turn lights operate.

If both clearance lights at side clearance/turn lights do not operate, go to Step 40.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 38. Disconnect main wire harness from non-operating side clearance/turn light connector (WP 0343). With a test lead set, check for 22 to 28 VDC between wire H012 (white) at main wire harness side clearance/turn light connector, terminal 2 and a known good ground.

If 22 to 28 VDC are not present, repair wire H012 in main wire harness (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

Step 39. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across main wire harness wire 1640 (black) from main wire harness side clearance/turn light connector, terminal 1 and a known good ground.

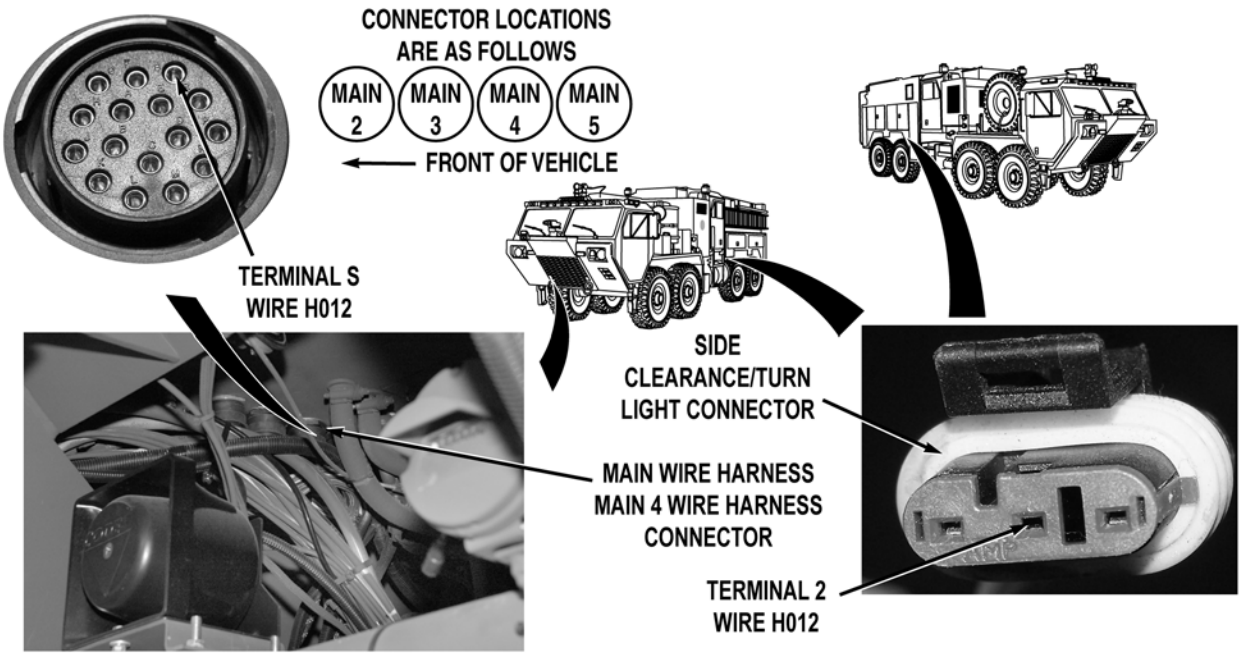
a. If there is continuity, replace non-operating side clearance/turn light (WP 0343).

b. If there is no continuity, repair wire 1640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

Step 40. Remove one non-operating side clearance/turn light (WP 0343). With a test lead set, check for 22 to 28 VDC between wire H012 (white) at main wire harness side clearance/turn light connector, terminal 2 and a known good ground.

If 22 to 28 VDC are present, repair wire 1640 if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 41. Remove skid plate grille (WP 0550). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness main 4 wire harness connector. With a test lead set, check for continuity across wire H012 (white) from main wire harness main 4 wire harness connector, terminal S to side clearance/turn light connector, terminal 2.

a. If there is continuity, repair wire H012 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire H012 in cab instrument panel wire harness if repairable (TM 9-2320-325-14&P), or replace cab instrument panel wire harness (WP 0440).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install skid plate if removed (WP 0550)
2. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CORD REEL REWIND CONTROL DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

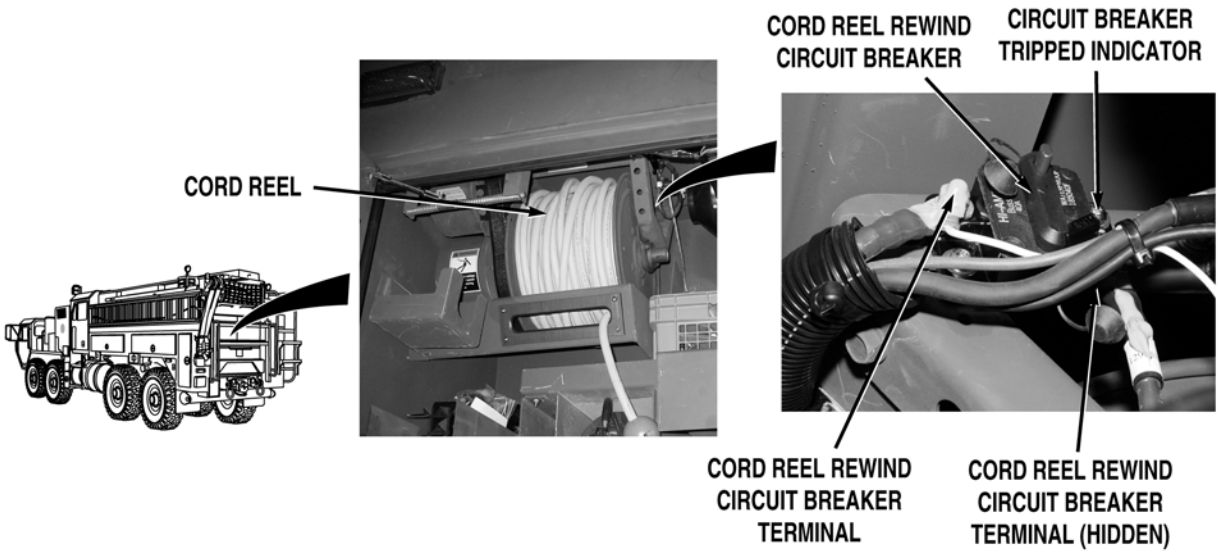
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010

References (continued)
WP 0376
WP 0380
WP 0382
WP 0383
WP 0393
WP 0394

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

CORD REEL REWIND CONTROL DOES NOT OPERATE



WARNING

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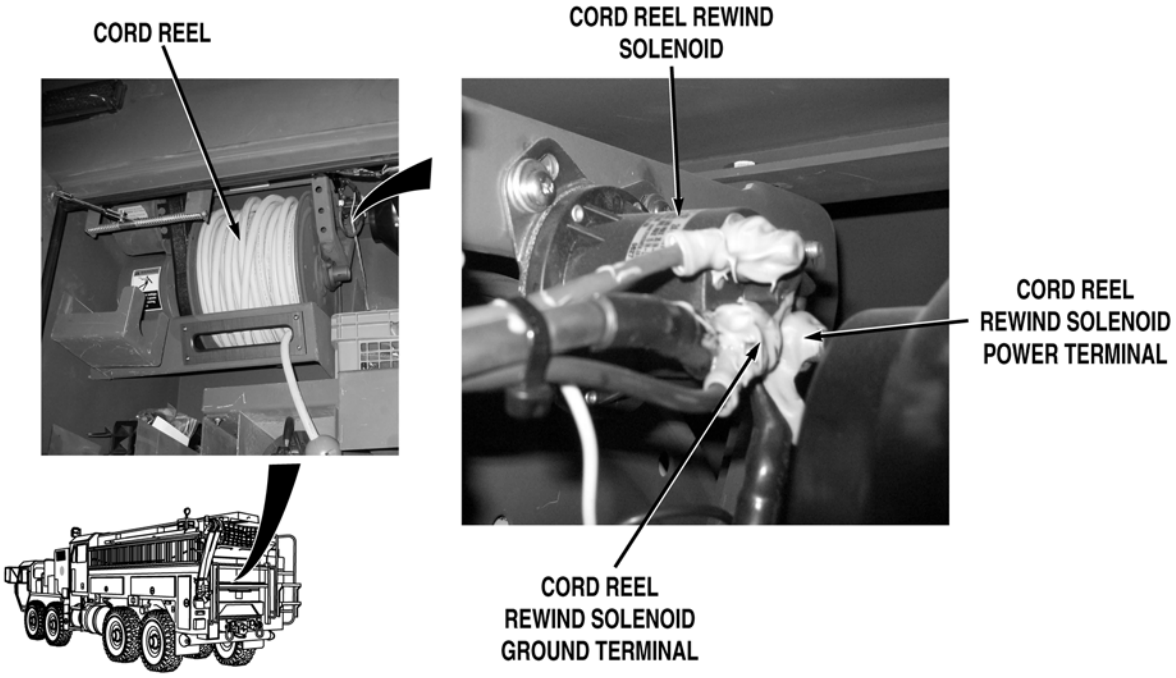
Step 1. Turn battery disconnect switch to OFF position (WP 0007). Open rear stowage compartment doors (WP 0010). Check if cord reel rewind circuit breaker is tripped.

If cord reel rewind circuit breaker is tripped, reset circuit breaker.

Step 2. Check for continuity across cord reel rewind circuit breaker from terminal to terminal.

If there is no continuity, replace cord reel rewind circuit breaker (WP 0382).

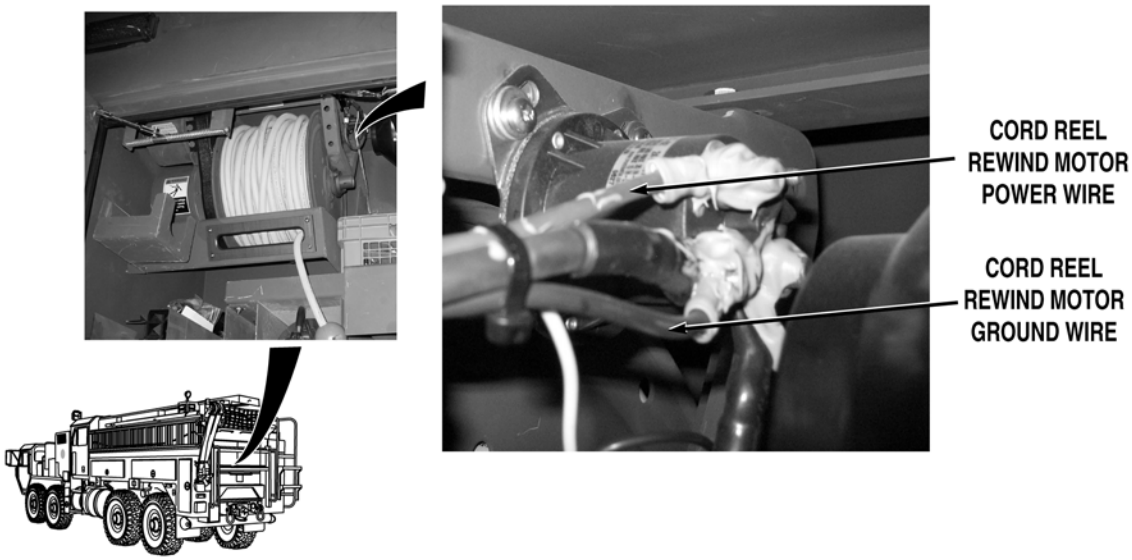


Step 3. Remove high amperage 8 gauge cable from cord reel rewind ground terminal (WP 0383). Check continuity across high amperage 8 gauge cable, from cord reel rewind solenoid ground terminal connector to a known good ground.

If there is no continuity, replace 8 gauge cable from cord rewind solenoid to ground stud (WP 0393).

Step 4. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between cord reel rewind solenoid power terminal to a known good ground.

If 22 to 28 VDC are not present, go to Step 11.



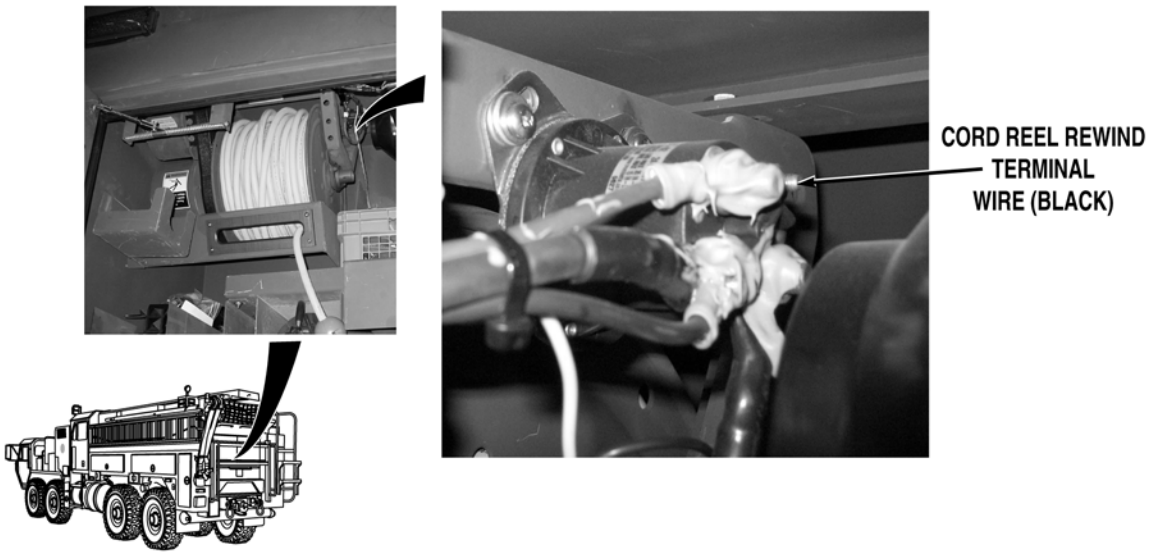
Step 5. Turn battery disconnect switch to OFF position (WP 0007). Remove cord reel rewind motor power wire from cord reel rewind solenoid (WP 0383). Turn battery disconnect switch to ON position (WP 0007). While an assistant pushes and holds CORD REEL REWIND button (WP 0004), check for 22 to 28 VDC between cord reel rewind motor power wire at cord reel rewind solenoid terminal and a known good ground. Install cord reel rewind motor power wire on cord reel rewind solenoid (WP 0383).

If 22 to 28 VDC are not present, go to Step 7.

Step 6. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across cord reel rewind motor ground wire (black) from cord reel solenoid to a known good ground.

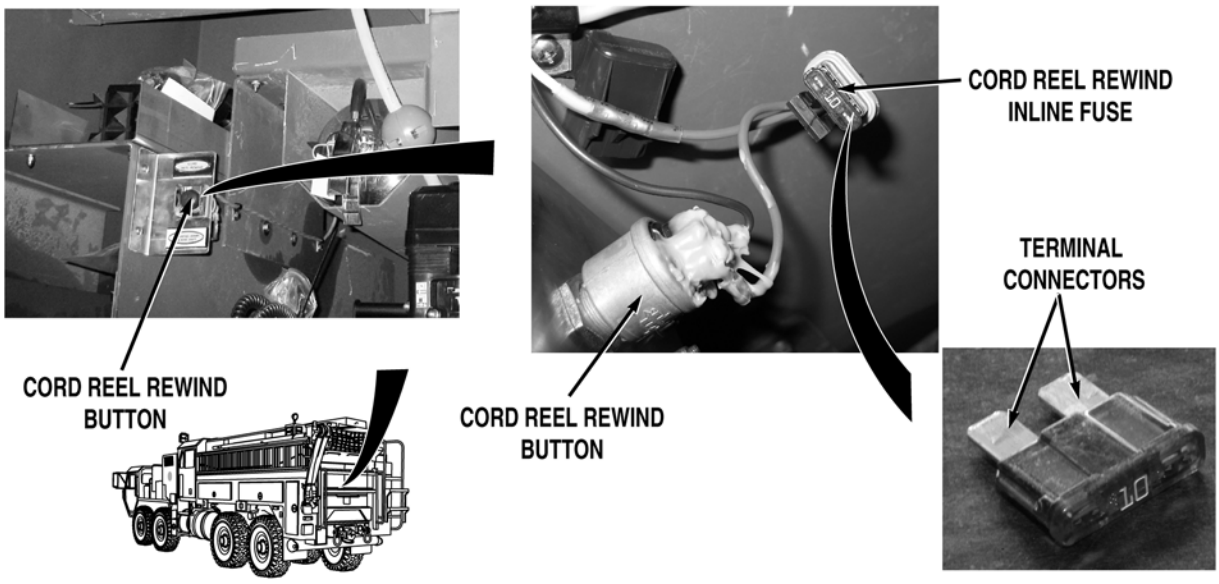
a. If there is continuity, replace cord reel motor (WP 0376).

b. If there is no continuity, repair cord reel ground wire from chassis ground terminal block to ground stud (TM 9-2320-325-14&P), or replace cord reel ground wire (WP 0393).



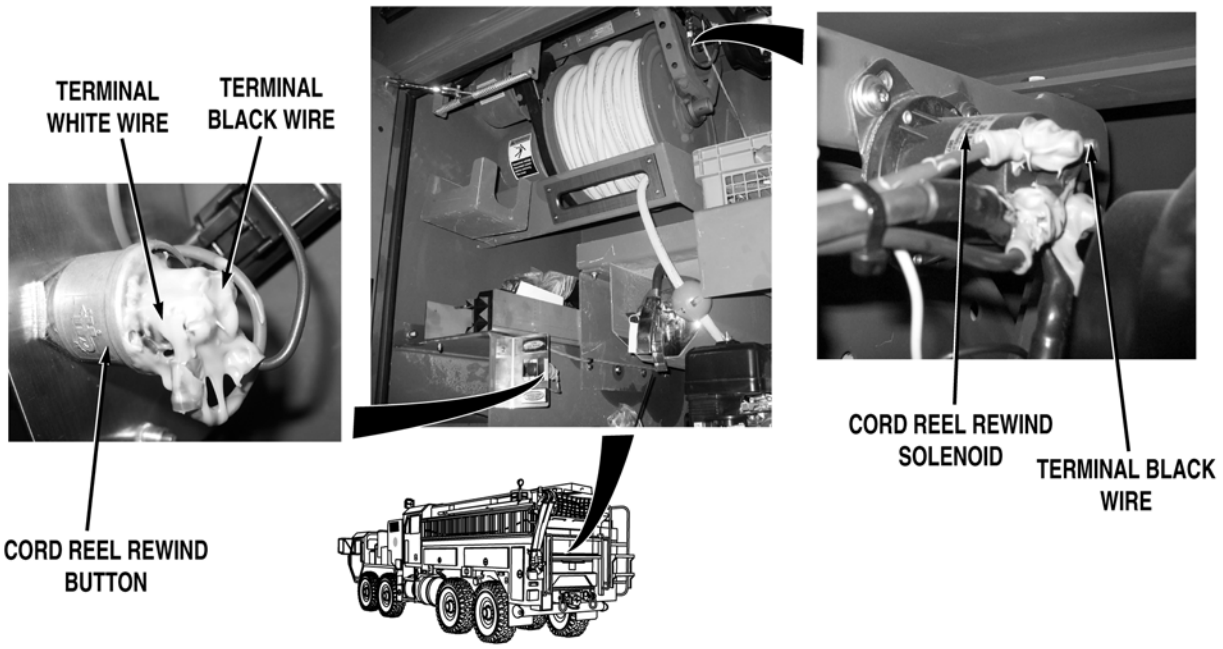
Step 7. While an assistant pushes and holds CORD REEL REWIND button (WP 0004), check for 22 to 28 VDC between black wire at cord reel rewind terminal and a known good ground.

If 22 to 28 VDC are present, replace cord reel rewind solenoid (WP 0383).



Step 8. Release CORD REEL REWIND button (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove cord reel rewind inline fuse (WP 0394). Check for continuity across terminal connectors.

If there is no continuity, replace fuse (WP 0394).



Step 9. Install cord reel inline fuse (WP 0394). Check for continuity across black wire from CORD REEL REWIND button terminal to cord reel rewind solenoid terminal.

If there is no continuity, repair black wire if repairable (TM 9-2320-325-14&P), or replace black wire (TM 9-2320-325-14&P).

WARNING

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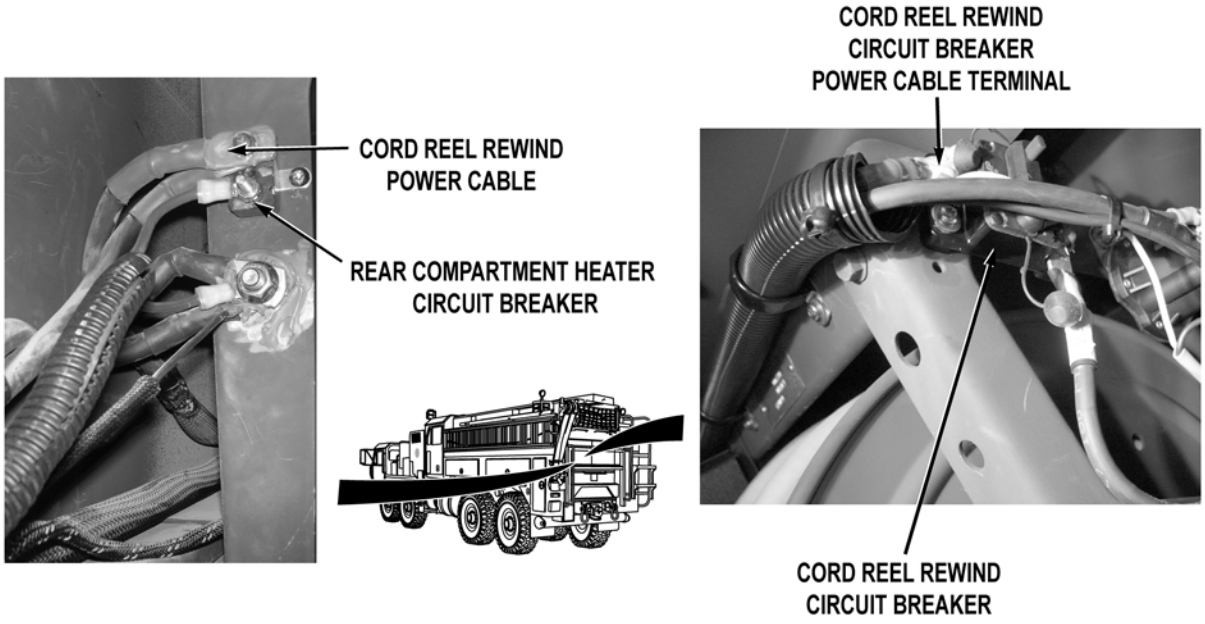
Step 10. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between white wire at CORD REEL REWIND button terminal and a known good ground.

a. If 22 to 28 VDC are present, replace CORD REEL REWIND button (WP 0380).

b. If 22 to 28 VDC are not present, repair white wire if repairable (TM 9-2320-325-14&P), or replace white wire (TM 9-2320-325-14&P).



Step 11. Check for 22 to 28 VDC between cord reel rewind motor power cable at rear compartment heater circuit breaker and a known good ground.

If 22 to 28 VDC are not present, repair high amperage 4 gauge cable if repairable (TM 9-2320-325-14&P), or replace high amperage 4 gauge cable from frame B+ stud and rear compartment heater circuit breaker (WP 0393).

Step 12. Check for 22 to 28 VDC between cord reel rewind motor power cable at cord reel rewind circuit breaker and a known good ground.

a. If 22 to 28 VDC are present, replace cord reel rewind motor power wire between cord reel rewind circuit breaker and cord reel rewind solenoid (WP 0393).

b. If 22 to 28 VDC are not present, repair wire if repairable (TM 9-2320-325-14&P), or replace cord reel rewind motor power wire between rear compartment heater circuit breaker and cord reel rewind circuit breaker (WP 0393).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

TWO-WAY RADIO DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(WP 0622, Item 27)

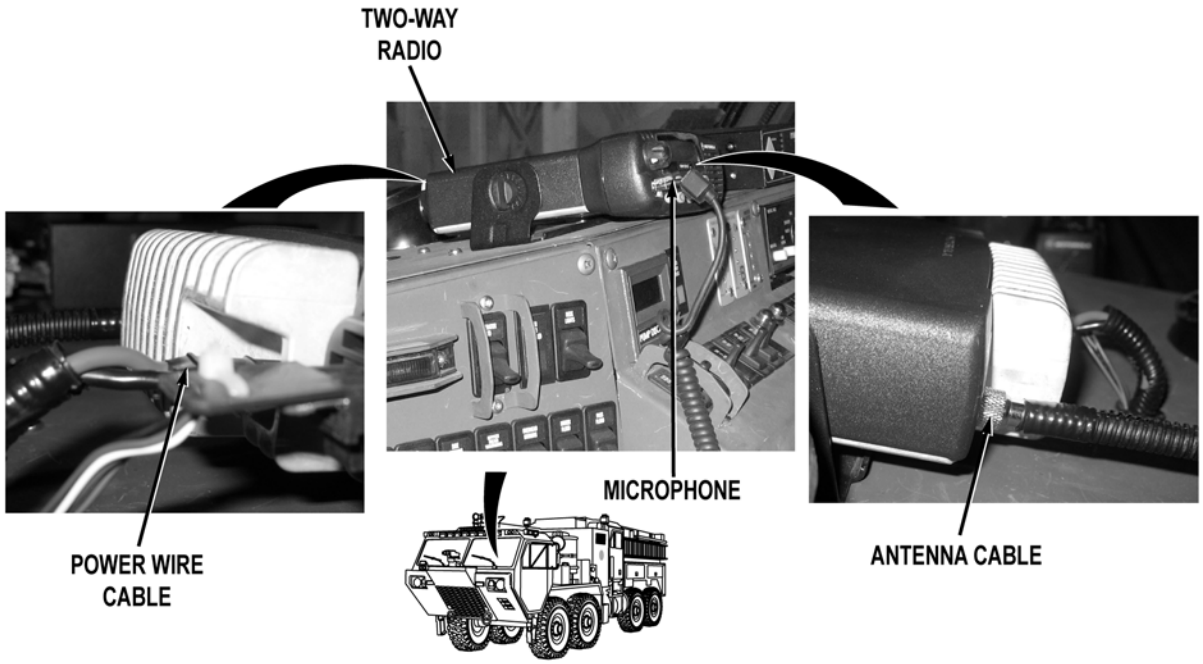
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0160
WP 0173

References (continued)
WP 0311
WP 0402
WP 0430
WP 0441

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

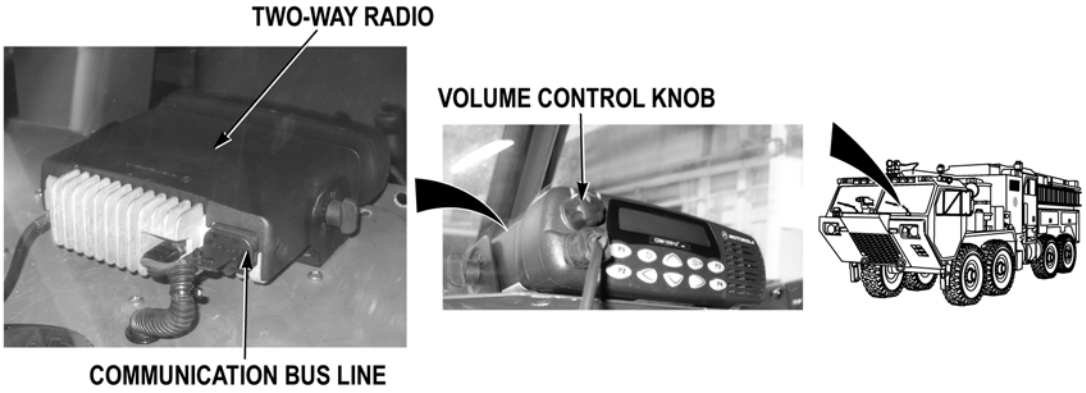
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

TWO-WAY RADIO DOES NOT OPERATE PROPERLY



Step 1. Check if two-way radio antenna cable, power wire cable, and microphone are connected to two-way radio.

If two-way radio antenna, power wire cable, or microphone are not connected to two-way radio, connect disconnected connector (WP 0430).



NOTE

Two-way radio is turned on, by pressing and releasing volume control knob.

Step 2. Turn battery disconnect switch to ON position (WP 0007). Push two-way radio volume control knob to on position (WP 0004). Check if two-way radio display illuminates.

If two-way radio display does not illuminate, go to Step 5.

NOTE

Two-way radio will enter into a self test mode after power up. If power up self test is successful, you will hear two high pitch tones. If two-way radio fails to power up, you will hear a single low pitch tone.

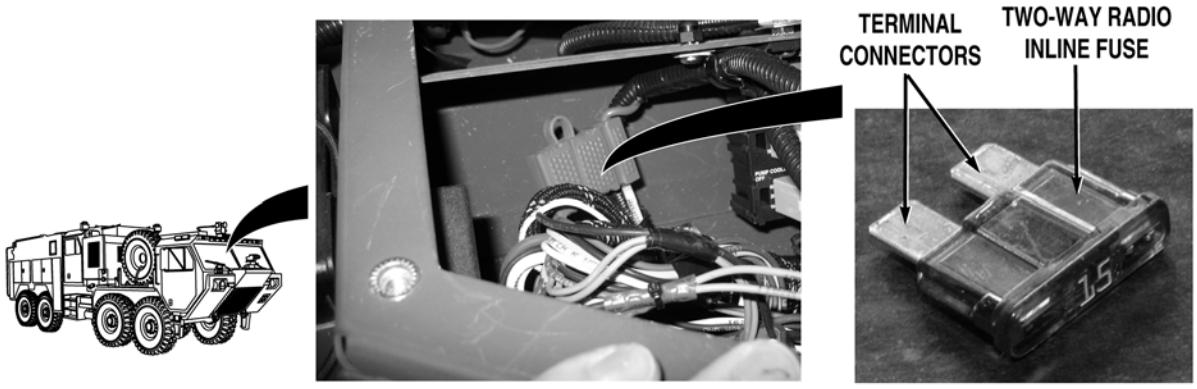
Step 3. Push two-way radio volume control knob to off position (WP 0004). Turn two-way radio volume control knob clockwise to full volume position (WP 0004). Push two-way radio volume control knob to on position (WP 0004). Check for audible two-way radio self test tones.

If two-way radio transmits a single low pitch tone, replace two-way radio (WP 0430).

Step 4. Disconnect communication bus line between two-way radio and intercom controller (WP 0430). Using two-way radio microphone, check if two-way radio transmits and receives to and from a handheld radio.

a. If two-way radio does not operate properly, replace two-way radio (WP 0430).

b. If two-way radio operates properly, troubleshoot Intercom and Headsets Do Not Operate Properly (WP 0173).

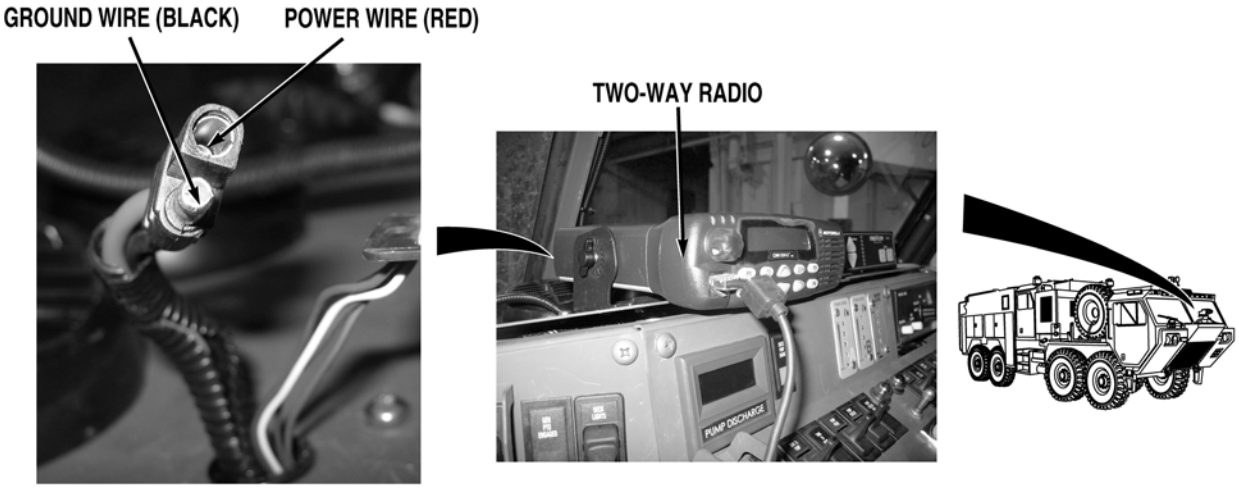


WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Turn vehicle ENGINE switch to OFF position (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove instrument panel A (WP 0311). Remove two-way radio inline fuse (WP 0430). Check for continuity across fuse.

If there is no continuity across fuse, replace fuse (WP 0430).



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

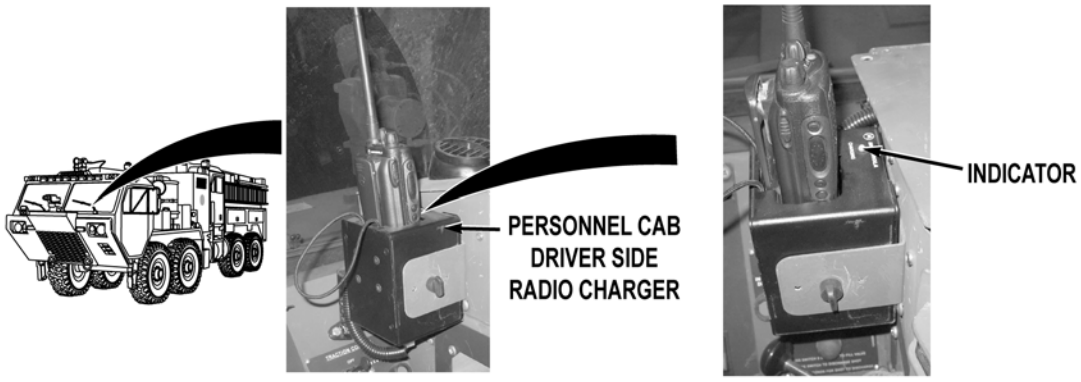
Step 6. Install two-way radio inline fuse (WP 0430). Disconnect two-way radio connector from two-way radio (WP 0430). Turn battery disconnect switch to ON position (WP 0007). Turn vehicle ENGINE switch to ON position (TM 9-2320-347-10). Check for 10 to 14 VDC between two-way radio power wire (red) connector and a known good ground.

If 10 to 14 VDC are not present, go to Step 8.

Step 7. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across two-way radio ground wire (black) from radio connector to a known good ground.

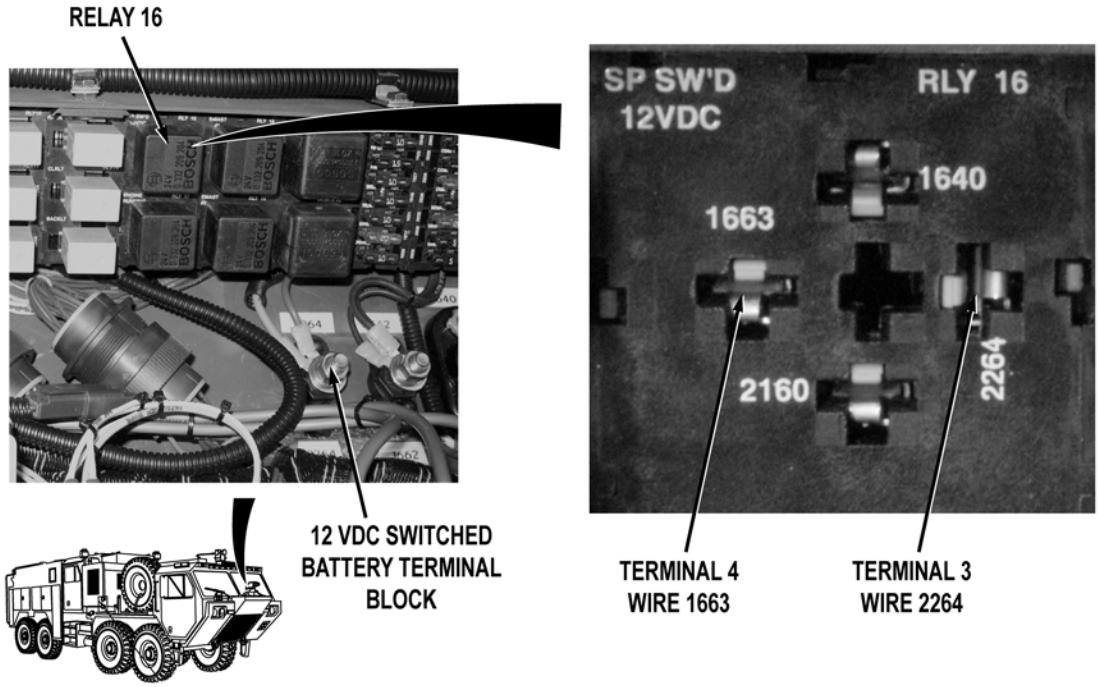
a. If there is continuity, replace two-way radio (WP 0430).

b. If there is no continuity, repair two-way radio ground wire if repairable (TM 9-2320-325-14&P), or replace two-way radio (WP 0430).



Step 8. With 12-volt handheld radio securely fastened in personnel cab 12-volt handheld radio charger, check if 12-volt handheld radio charge indicator illuminates.

If 12-volt handheld radio charge indicator does not illuminate, troubleshoot 12-Volt Handheld Radio Battery Charger(s) Does Not Operate (Personnel Cab) (WP 0160).



Step 9. Turn battery disconnect switch to OFF position (WP 0007). Remove relay 16 from cab power distribution block (WP 0402). Turn battery disconnect switch to ON position (WP 0007). Check for 10 to 14 VDC between cab power distribution wire harness wire 1663 at relay 16, terminal 4 and a known good ground.

If 10 to 14 VDC are not present, repair wire 1663 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

Step 10. Turn battery disconnect switch to OFF position (WP 0007). Check continuity across cab power distribution wire harness wire 2264 from relay 16, terminal 4 to 12 VDC switched battery terminal block.

a. If continuity is present, replace relay 16 (WP 0402).

b. If continuity is not present, repair wire 2264 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

HYDRAULIC GENERATOR DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
(TM 9-2320-325-14&P)
WP 0004
WP 0007
WP 0010
WP 0021
WP 0121
WP 0139
WP 0192
WP 0310
WP 0311

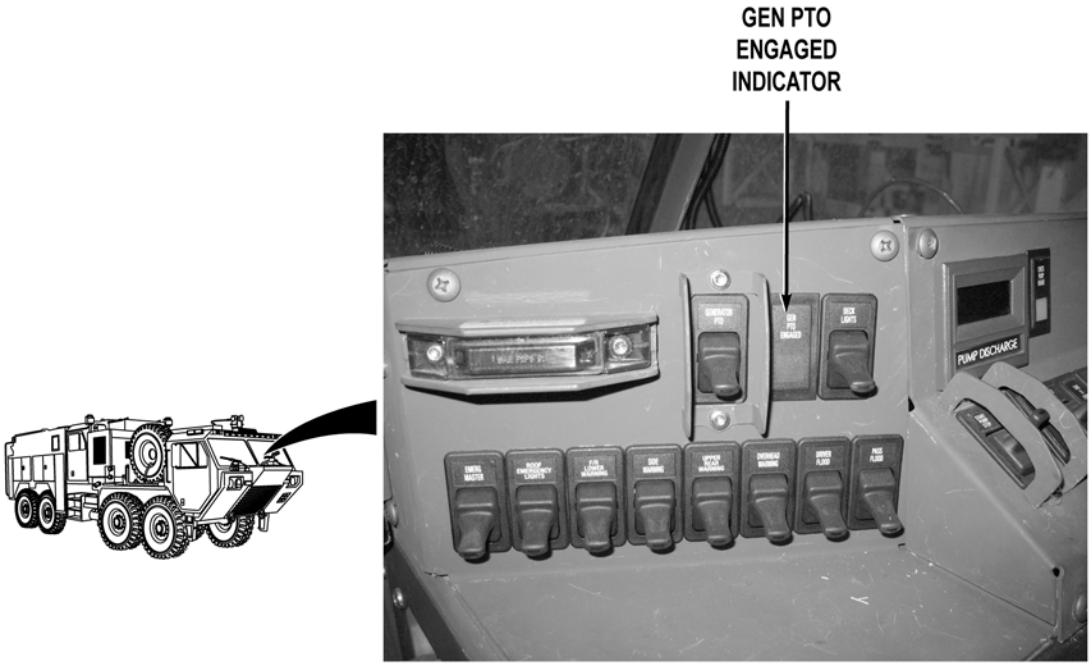
References (continued)
WP 0360
WP 0361
WP 0398
WP 0402
WP 0441
WP 0455
WP 0456
WP 0550
WP 0583
WP 0585
WP 0592

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

HYDRAULIC GENERATOR DOES NOT OPERATE PROPERLY

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



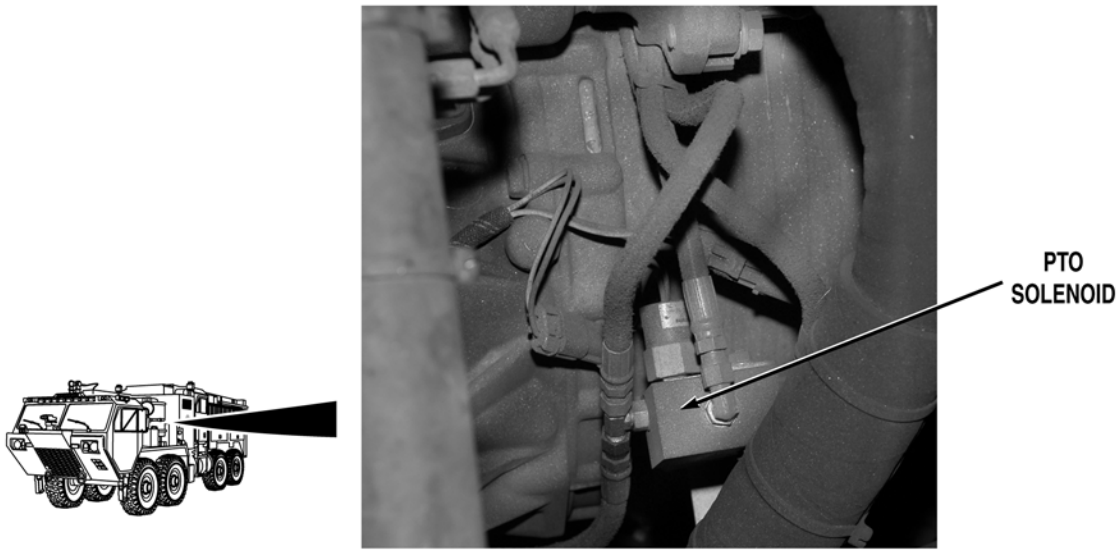
NOTE

Hydraulic generator provides power for the following components: air conditioner, cord reel, receptacles, extendable floodlights, 120-volt receptacles, water heaters, heat trace, and reciprocating saw battery charger receptacles. If any of these components operate, troubleshoot the component that does not operate before performing this procedure.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Start hydraulic generator (WP 0021). Check if GEN PTO ENGAGED indicator illuminates.

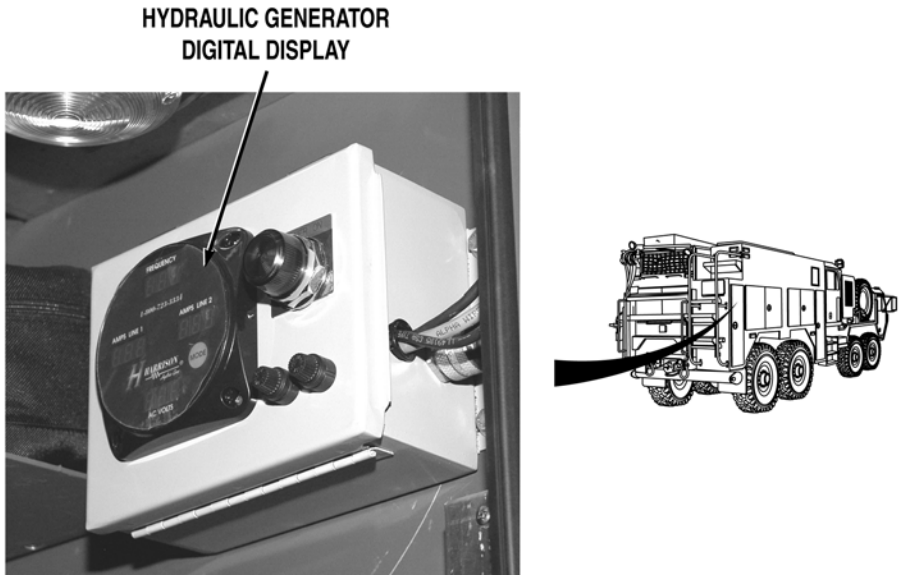
If GEN PTO ENGAGED indicator does not illuminate, troubleshoot GEN PTO ENGAGE Indicator Does Not Illuminate (Cab) (WP 0139).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 2. Turn hydraulic generator off (WP 0021). Turn vehicle engine OFF (TM 9-2320-347-10). Turn vehicle ENGINE switch to ON position (TM 9-2320-347-10). While an assistant puts GENERATOR PTO switch to ON and OFF positions (WP 0004). Check if PTO solenoid clicks or feel for vibration of PTO solenoid.

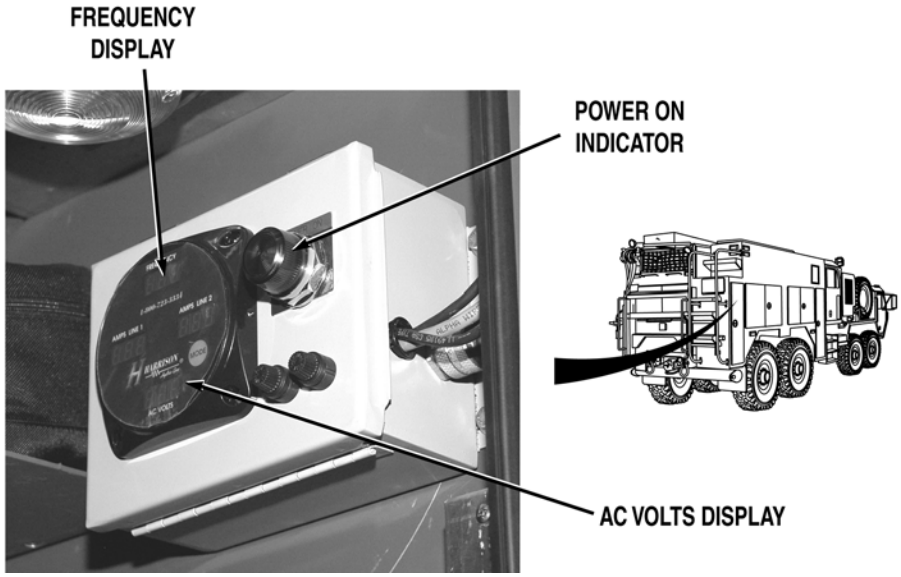
If PTO solenoid does not click or vibrate, troubleshoot Hydraulic Generator PTO Does Not Engage When Selected (WP 0121).



Step 3. Start vehicle engine (TM 9-2320-347-10). Start hydraulic generator (WP 0021). Check if hydraulic generator digital display illuminates.

If hydraulic generator digital display does not illuminate, go to Step 30.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 4. Open passenger side rear stowage compartment P1 (WP 0010). Check if 200 to 240 VAC is displayed on AC VOLTS display.

If 200 to 240 VAC are not displayed, go to Step 27.

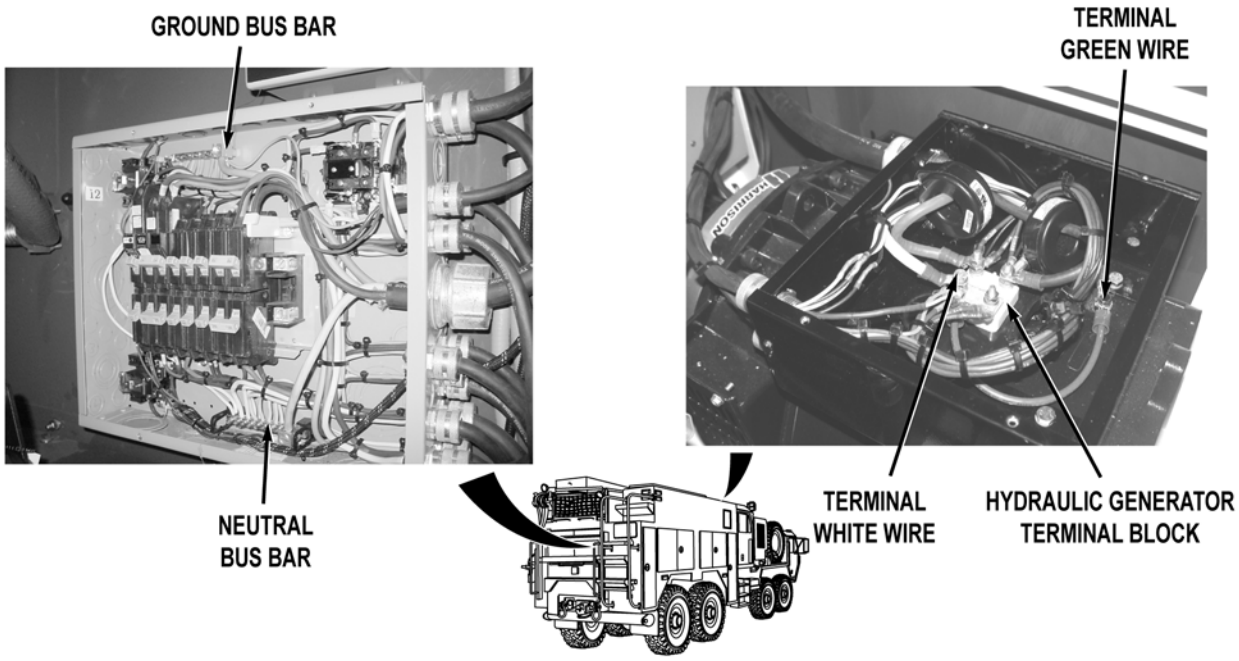
Step 5. Check if 58 to 62 hertz are displayed on FREQUENCY display.

If 58 to 62 hertz are not displayed, go to Step 19.

Step 6. Check if POWER ON indicator illuminates.

If POWER ON indicator does not illuminate, go to Step 11.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

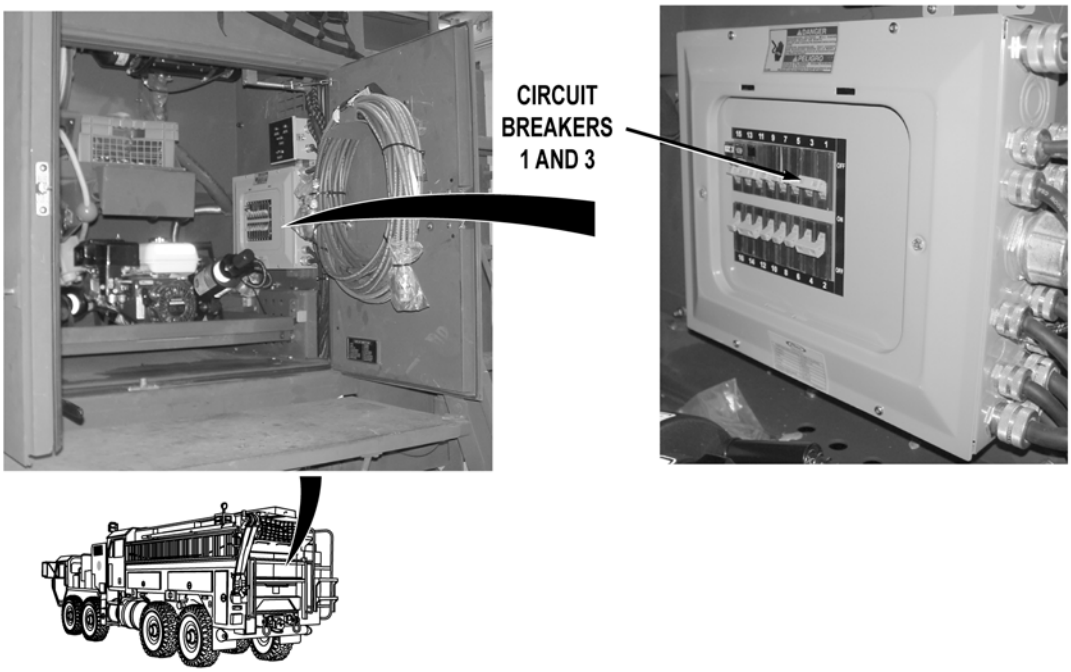
Step 7. Turn hydraulic generator off (WP 0021). Turn vehicle engine switch to OFF position (TM 9-2320-347-10). Open rear stowage compartment doors (WP 0010). Remove circuit breaker box cover (WP 0360). Remove hydraulic generator electrical box cover (WP 0583). Check for continuity across white wire, from neutral bus bar to hydraulic generator terminal block, white wire terminal.

If continuity is not present, replace hydraulic generator power cord (WP 0361).

Step 8. Check for continuity across green wire, from ground bus bar to hydraulic generator terminal block, green wire terminal.

If continuity is not present, replace hydraulic generator power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Circuit breaker may be in ON position when tripped. To make sure circuit breaker is not tripped, reset circuit breaker by switching it to the OFF position then back to ON position.

Step 9. Reset circuit breakers 1 and 3. Start hydraulic generator (WP 0021). Operate 120 VAC circuits. Check if circuit breakers 1 and 3 trip.

If circuit breakers 1 and 3 trip, replace circuit breaker (WP 0360).

WARNING

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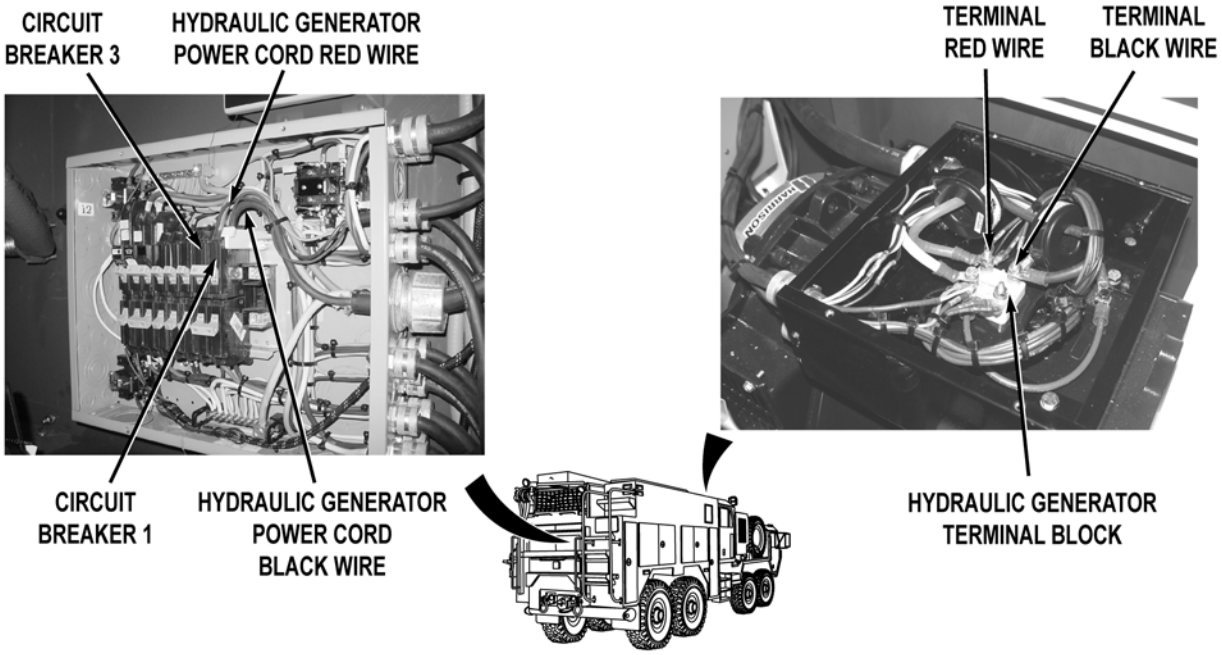
Step 10. Check the operation of all 120 VAC circuits.

a. If any 120 VAC circuits work, fault corrected.

b. If all 120 VAC circuits do not operate, replace hydraulic generator (WP 0592).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

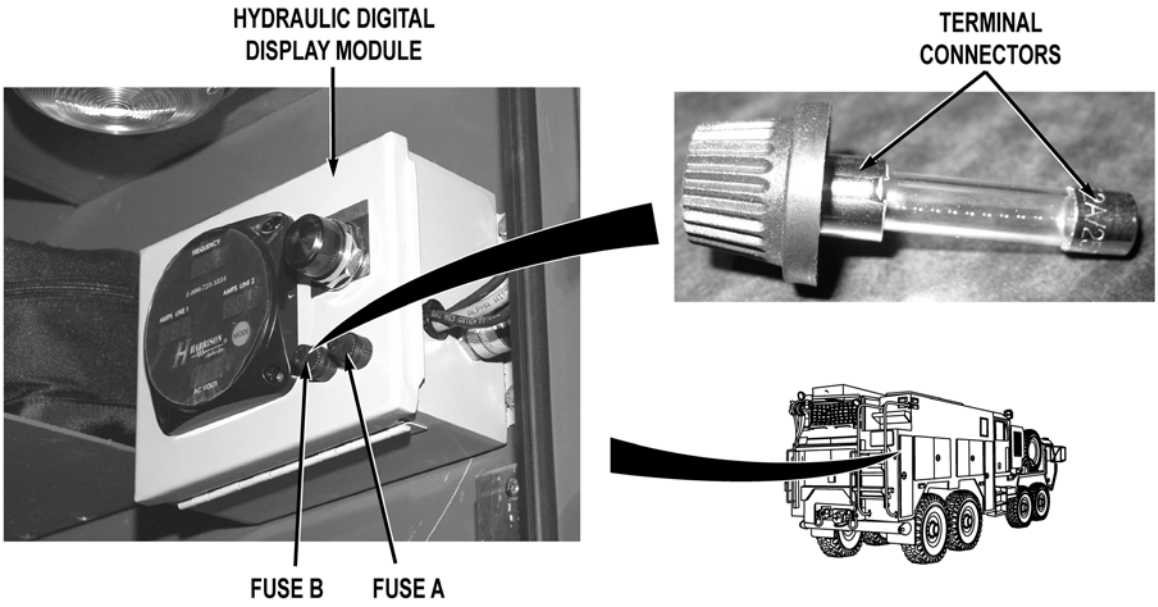
Step 11. Turn hydraulic generator off (WP 0021). Turn vehicle engine switch to OFF position (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open rear stowage compartment doors (WP 0010). Remove circuit breaker box cover (WP 0360). Remove hydraulic generator electrical box cover (WP 0583). Check for continuity across hydraulic generator power cord red wire, from circuit breaker 3 to hydraulic generator terminal block, red wire terminal.

If continuity is not present, replace hydraulic generator power cord (WP 0361).

Step 12. Check for continuity across hydraulic generator power cord black wire, from circuit breaker 1 to hydraulic generator terminal block, black wire terminal.

If continuity is not present, replace hydraulic generator power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



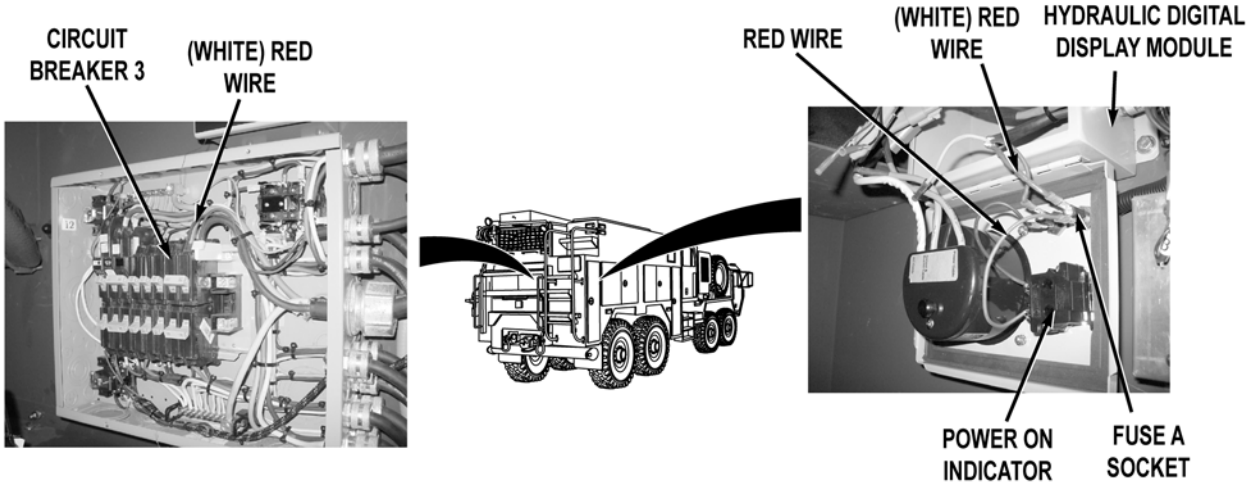
Step 13. Open passenger side rear stowage compartment P1 door (WP 0010). Remove fuse A from hydraulic digital display module (WP 0585). Check for continuity across fuse A terminal connectors.

If continuity is not present, replace fuse A (WP 0585).

Step 14. Remove fuse B from hydraulic digital display module (WP 0585). Check for continuity across fuse B terminal connectors.

If continuity is not present, replace fuse B (WP 0585).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

White wire from fuse A to circuit breaker box is covered in red tape inside circuit breaker box and hydraulic digital display module. Wire from fuse A to POWER ON light is red.

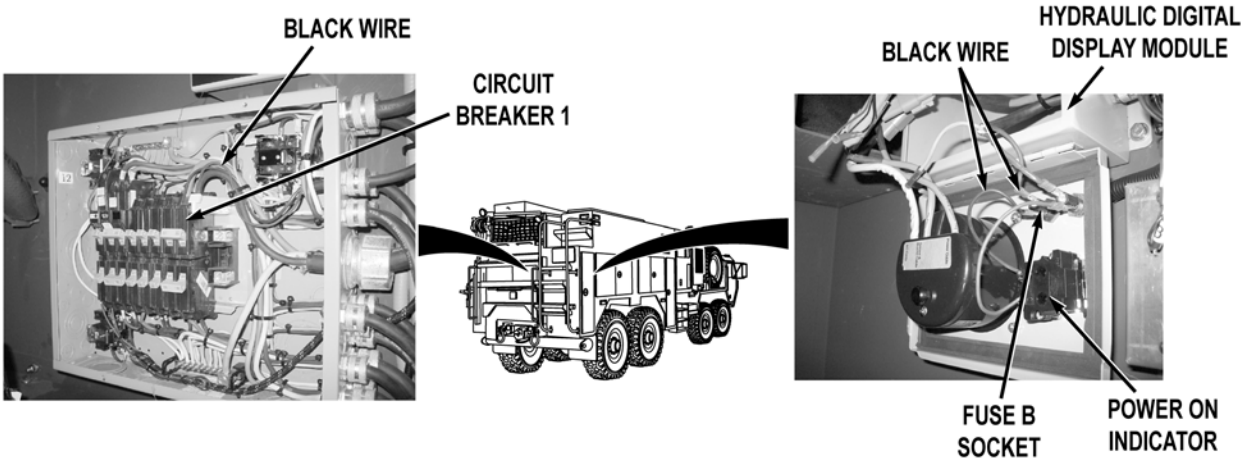
Step 15. Open hydraulic generator digital display module (WP 0585). Check for continuity across (white) red wire from circuit breaker 3 to hydraulic digital display module fuse A socket.

If continuity is not present, replace hydraulic generator digital display cord (WP 0361).

Step 16. Check for continuity across red wire from hydraulic generator display module fuse A socket to POWER ON indicator.

If continuity is not present, replace red wire (TM 9-2320-325-14&P).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Check for continuity across black wire from circuit breaker 1 to hydraulic generator digital display module fuse B socket.

If continuity is not present, replace hydraulic generator digital display cord (WP 0361).

Step 18. Check for continuity across black wire from hydraulic generator display module fuse B socket to POWER ON indicator.

a. If there is continuity, replace hydraulic generator digital display module (WP 0585).

b. If continuity is not present, replace black wire (TM 9-2320-325-14&P).

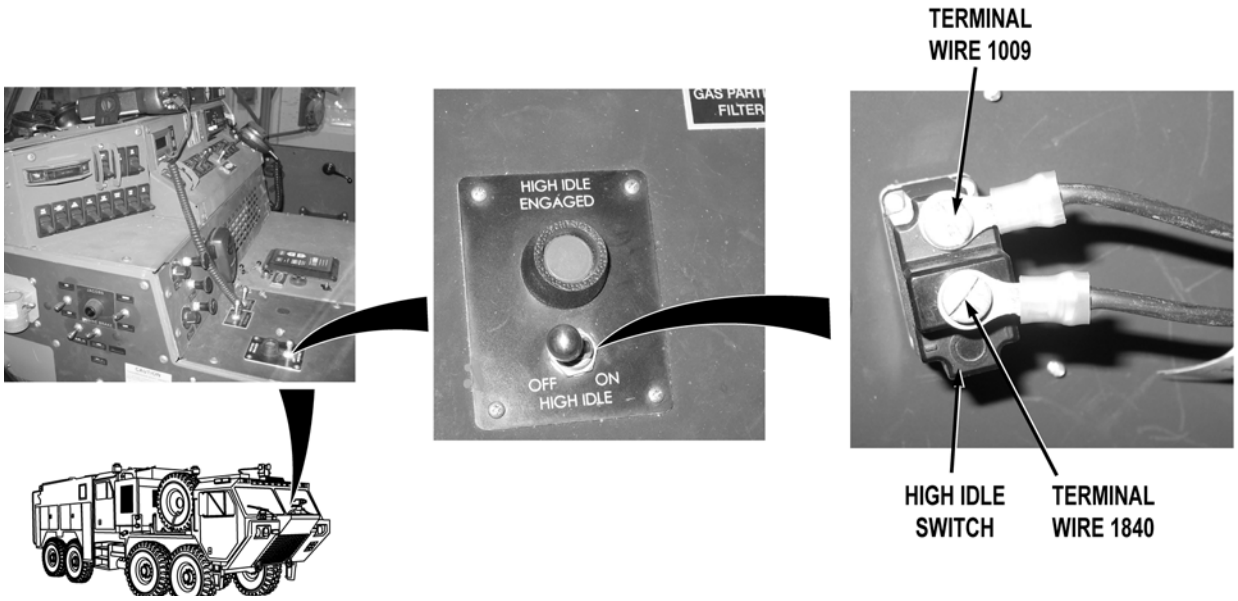
Step 19. Put HIGH IDLE switch to OFF then ON position (WP 0004). Check if engine speed increases to approximately 1,000 RPM, when HIGH IDLE switch is put to ON position.

If engine speed increases to approximately 1,000 RPM, adjust hydraulic generator compensator (WP 0192).

Step 20. Turn hydraulic generator off (WP 0021). Shut vehicle engine off (TM 9-2320-347-10). Put ENGINE switch to ON position (TM 9-2320-347-10). Release vehicle brakes (TM 9-2320-347-10). While an assistant pushes brake pedal, check if vehicle brake lights operate (TM 9-2320-347-10).

If brake lights do not operate, troubleshoot brake lights (TM 9-2320-347-10).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 21. Turn vehicle engine switch to OFF position (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel D (WP 0311). Turn battery disconnect switch to ON position (WP 0007). Put ENGINE switch to ON position (TM 9-2320-347-10). Check for 22 to 28 VDC at HIGH IDLE switch from wire 1009 (black) terminal to a known good ground.

If continuity is not present, replace wire 1009 (TM 9-2320-325-14&P).

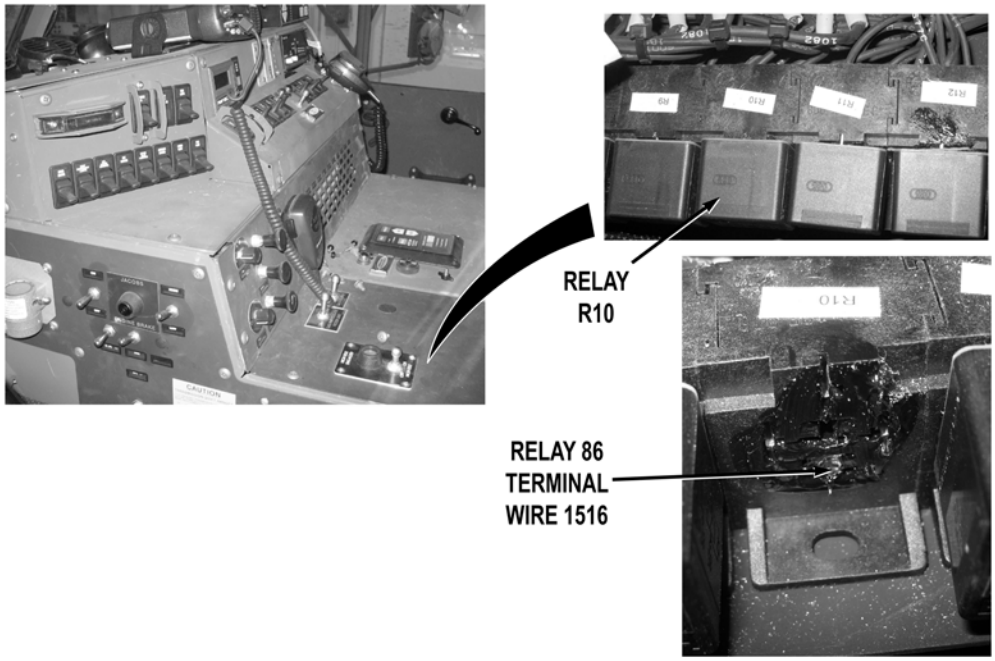
Step 22. With HIGH IDLE switch in ON position (WP 0004). Check if HIGH IDLE ENGAGED indicator illuminates (WP 0004).

If HIGH IDLE ENGAGED indicator does not illuminate (WP 0004), go to Step 25.

Step 23. Turn battery disconnect switch to OFF position (WP 0007). Turn vehicle engine switch to OFF position (TM 9-2320-347-10). While an assistant puts HIGH IDLE switch to ON position (WP 0004). Check for continuity across HIGH IDLE switch from wire 1009 terminal to wire 1840 terminal.

If continuity is not present, replace HIGH IDLE switch (WP 0310).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

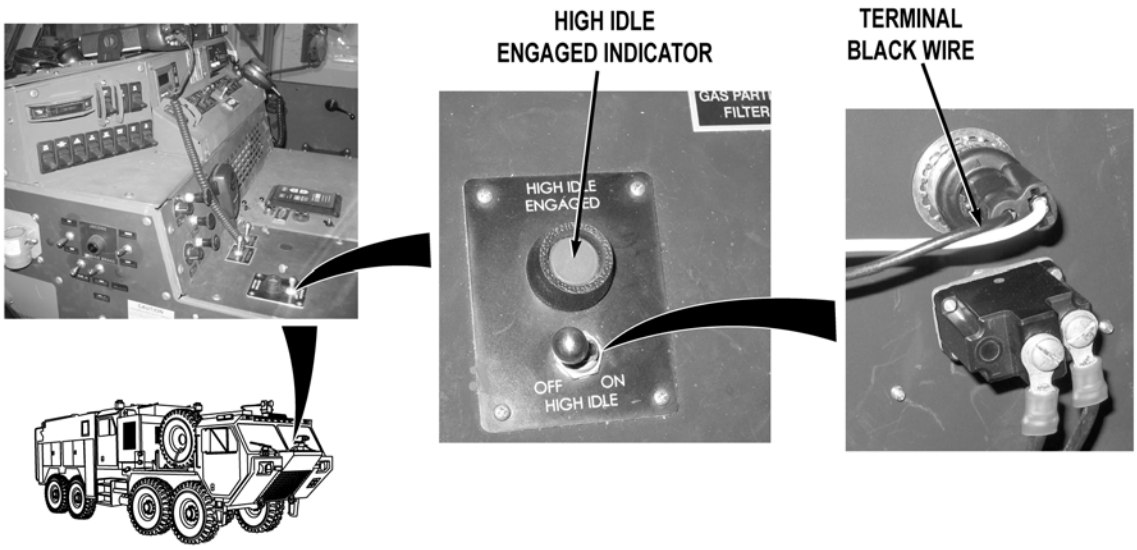
Step 24 will determine if relay or wire harness is faulty. Base HEMTT chassis wire harness has been modified, at harness connector MC45 at rear of vehicle wire 1840 and 1516 have been butt spliced together.

Step 24. Turn vehicle ENGINE switch to OFF position (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove HEMMIT relay R10 (TM 9-2320-325-14&P). Turn battery disconnect switch to ON position (WP 0007). Start vehicle ENGINE (TM 9-2320-347-10). While an assistant puts and holds HIGH IDLE switch to ON position (WP 0004), with a test lead set, check for 22 to 28 VDC from wire 1516 (black) in HEMTT relay 86 terminal to a known good ground.

a. If 22 to 28 VDC are present, replace relay R10 (TM 9-2320-325-14&P).

b. If 22 to 28 VDC are not present, troubleshoot Engine High Idle Does Not Operate (TM 9-2320-325-14&P).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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Step 25. With HIGH IDLE switch in ON position (WP 0004). Check for 22 to 28 VDC at HIGH IDLE ENGAGED indicator black wire terminal to a known good ground.

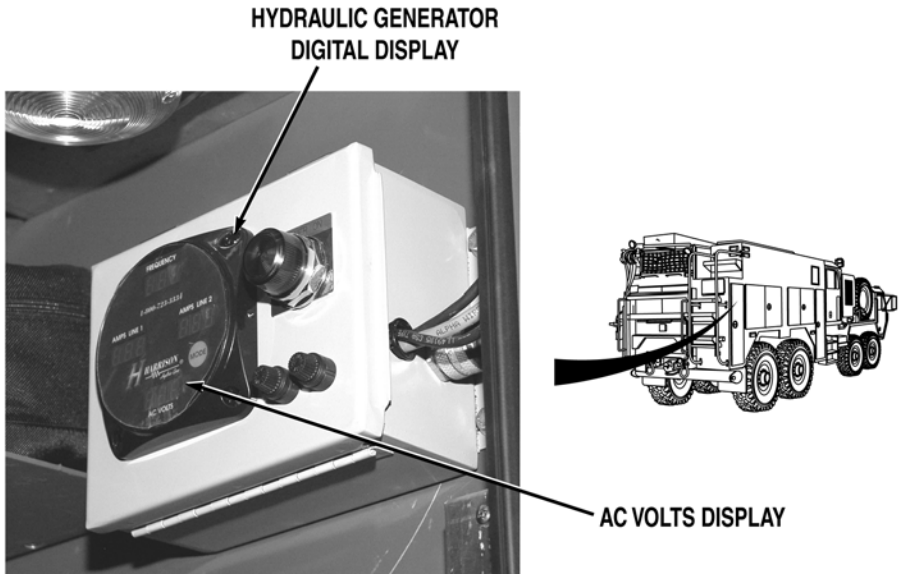
If 22 to 28 VDC are not present, replace HIGH IDLE ENGAGED indicator (WP 0310).

Step 26. Put HIGH IDLE switch to OFF position (WP 0004). Turn ENGINE switch to OFF position (TM 9-2320-347-10). Check for continuity across HIGH IDLE ENGAGED indicator.

a. If continuity is present, repair ground wire if repairable (TM 9-2320-325-14&P).

b. If continuity is not present, replace HIGH IDLE ENGAGED indicator (WP 0310).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 27. Check if AC VOLTS display on hydraulic generator digital display is greater than 0 VAC, with hydraulic generator running.

If AC VOLTS display is greater than 0 VAC, replace hydraulic generator (WP 0592).

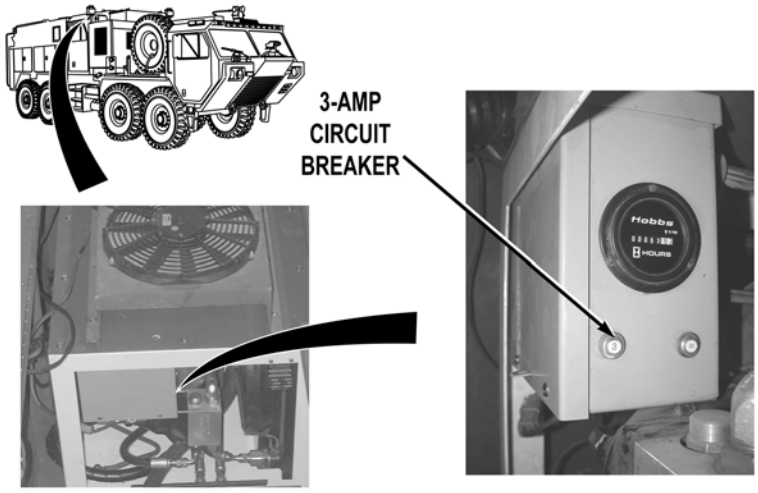
NOTE

Hydraulic generator makes a distinctive sound when it starts. Listen near the hydraulic generator to determine if the PTO engages and the hydraulic generator starts.

Step 28. Put GENERATOR PTO switch to disengage then to engage position (WP 0004). Check if hydraulic generator starts when GENERATOR PTO switch is placed in the engaged position (WP 0004).

If hydraulic generator does not start, replace hydraulic generator (WP 0592).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

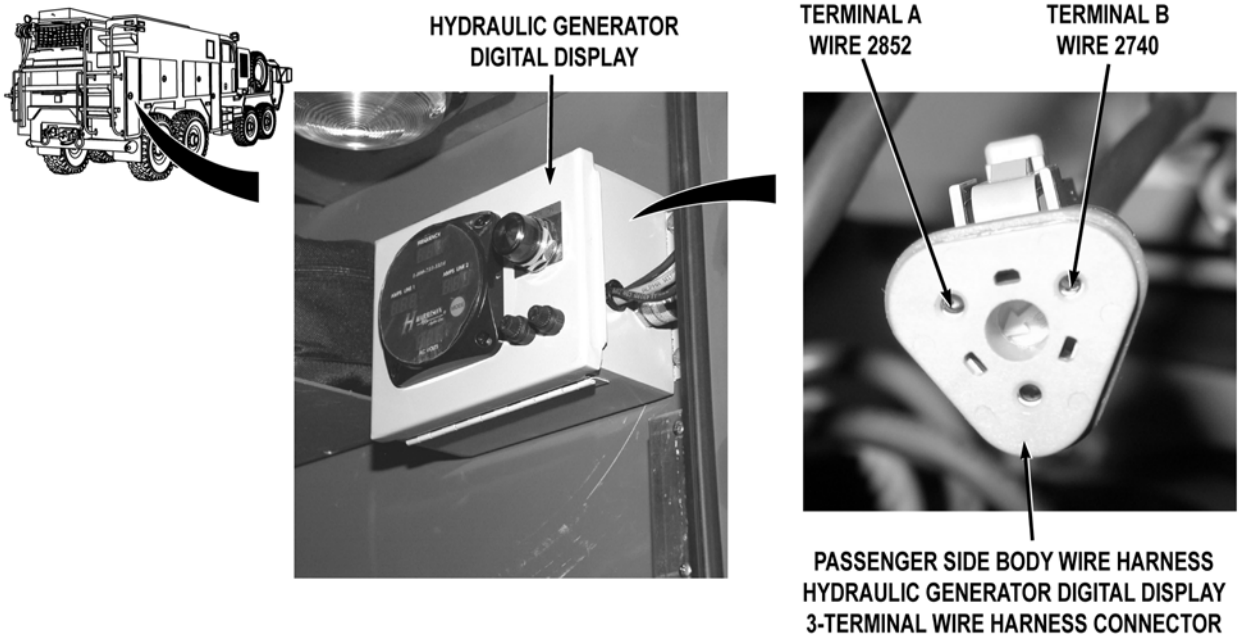


Step 29. Reset hydraulic generator 3-AMP circuit breaker. Check if 200 to 240 VAC is displayed on hydraulic generator digital AC VOLTS display (WP 0004).

a. If 200 to 240 VAC is displayed, fault corrected.

b. If 200 to 240 VAC is not displayed, replace hydraulic generator (WP 0592).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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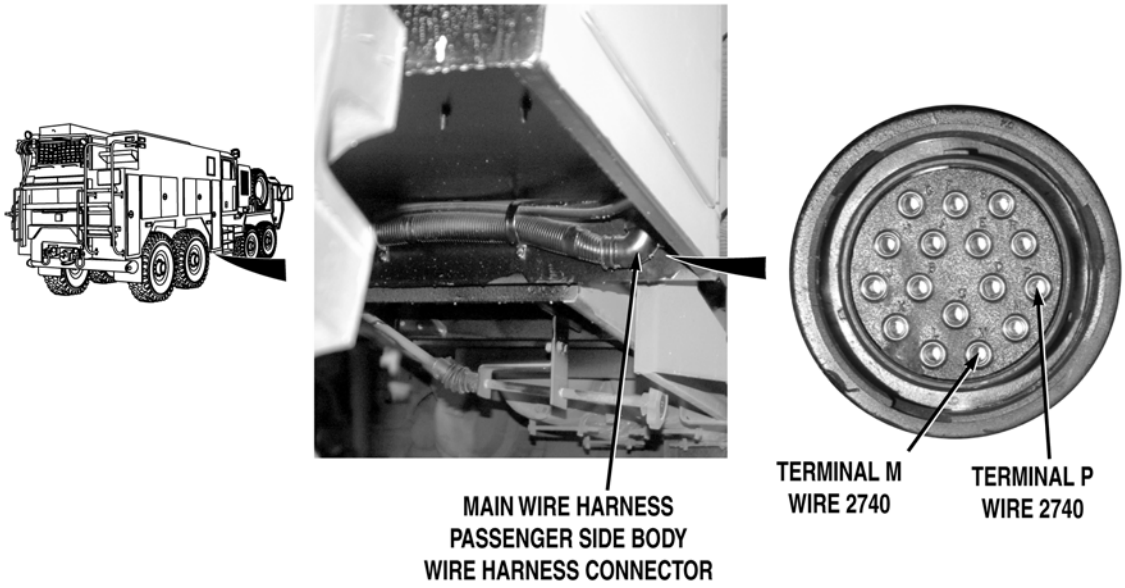
Step 30. Turn hydraulic generator off (WP 0021). Turn vehicle ENGINE switch to OFF position (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open hydraulic generator digital display. Disconnect passenger side body wire harness hydraulic generator digital display 3-terminal wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Start vehicle engine (TM 9-2320-347-10). With a test lead set, check for 22 to 28 VDC at wire 2852 (red) in passenger side body wire harness hydraulic generator digital 3-terminal connector, terminal A to a known good ground.

If 22 to 28 is not present, go to Step 33.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 31. Turn vehicle ENGINE switch to OFF position (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across passenger side body wire harness wire 2740 (black) in passenger side body wire harness hydraulic generator digital 3-terminal wire harness connector, terminal B to a known good ground.

If continuity is present, replace hydraulic generator digital display module (WP 0585).

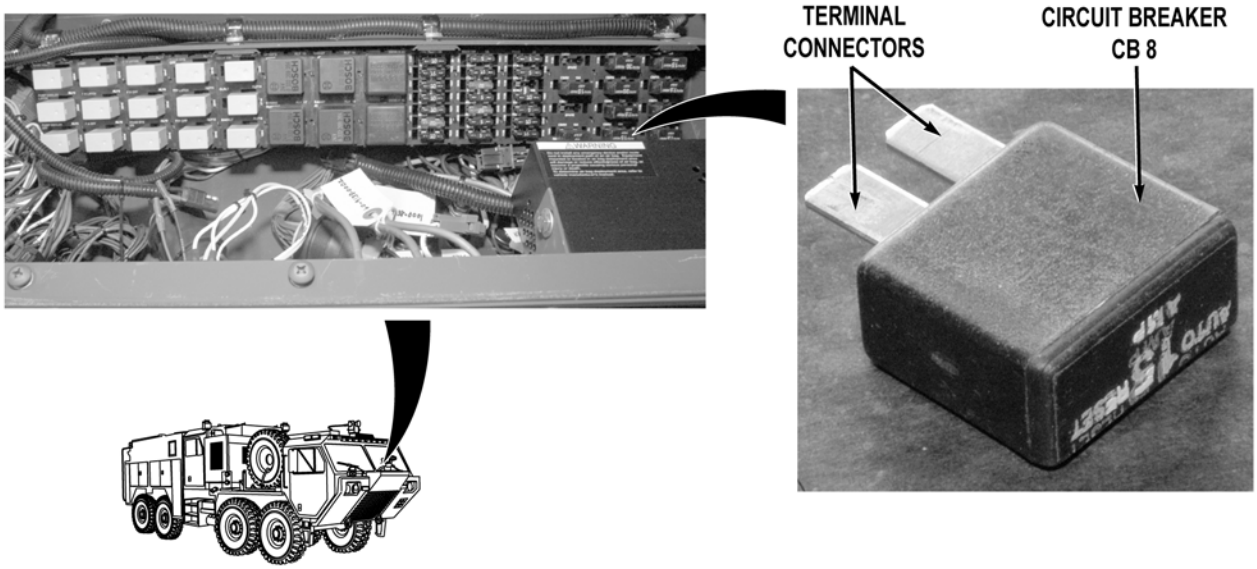


Step 32. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across wire 2740 (black) from main wire harness passenger side body wire harness connector, terminal M and P to a known good ground.

a. If continuity is present, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If continuity is not present, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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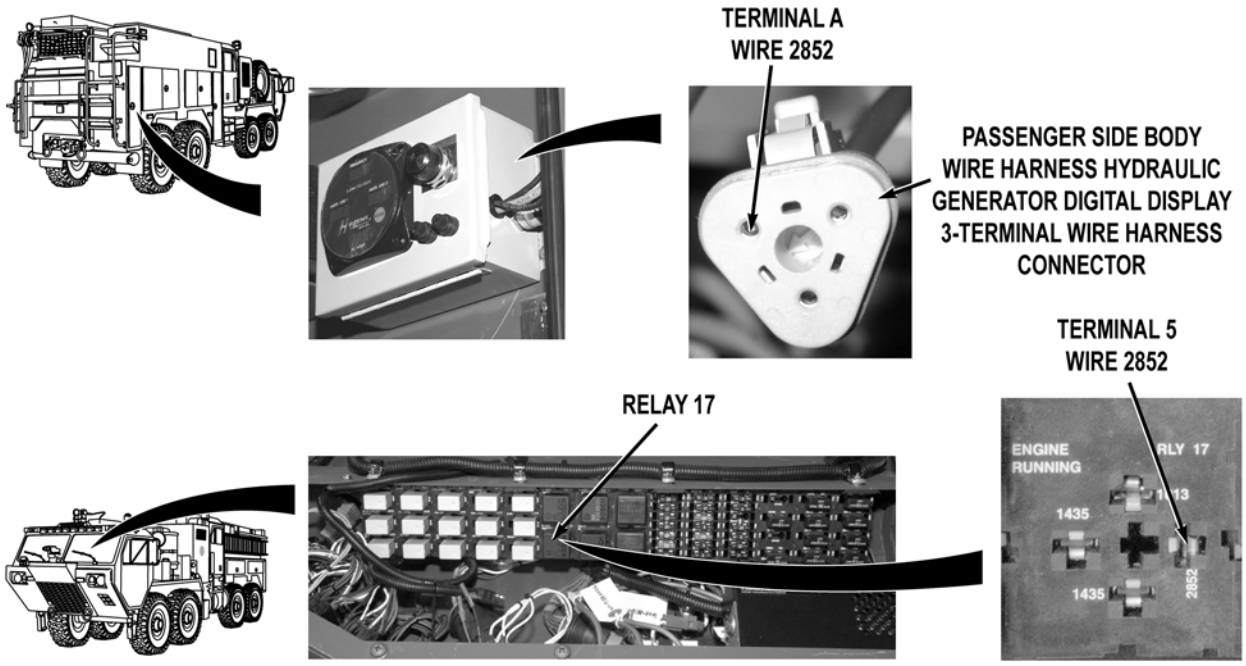
Step 33. Turn vehicle ENGINE switch to OFF position (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove circuit breaker CB 8 (WP 0398). Check for continuity across circuit breaker CB 8 terminal connectors.

If continuity is not present, replace circuit breaker (WP 0398).

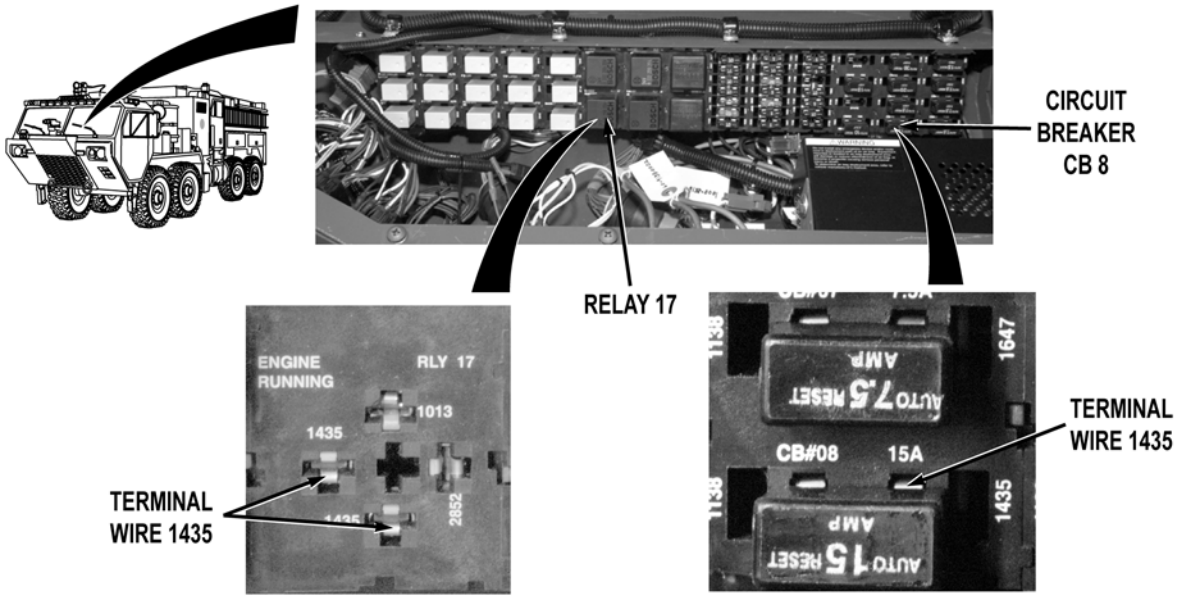
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 34. Remove relay 17 (WP 0402). With a test lead set, check for continuity across wire 2852 (red) from passenger side body wire harness hydraulic generator digital display 3-terminal wire harness connector, terminal A to relay 17, terminal 5.

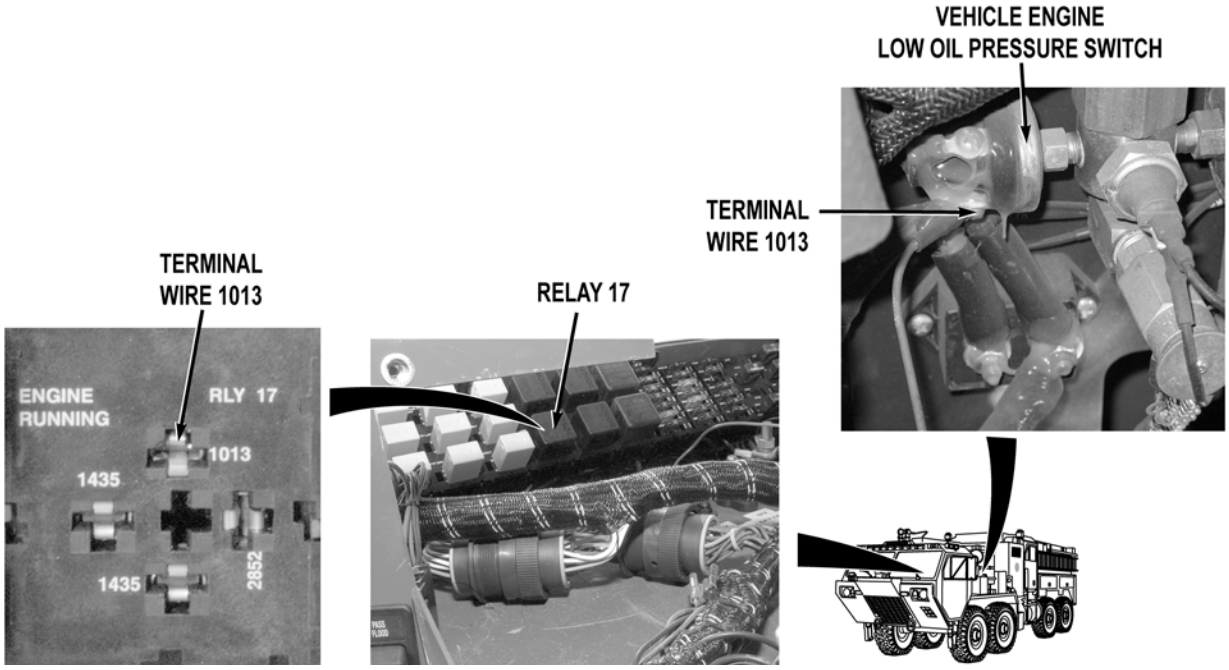
If continuity is not present, go to Step 39.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 35. Check for continuity across wire 1435 (violet) from circuit breaker CB 8 terminal to relay 17, terminal.

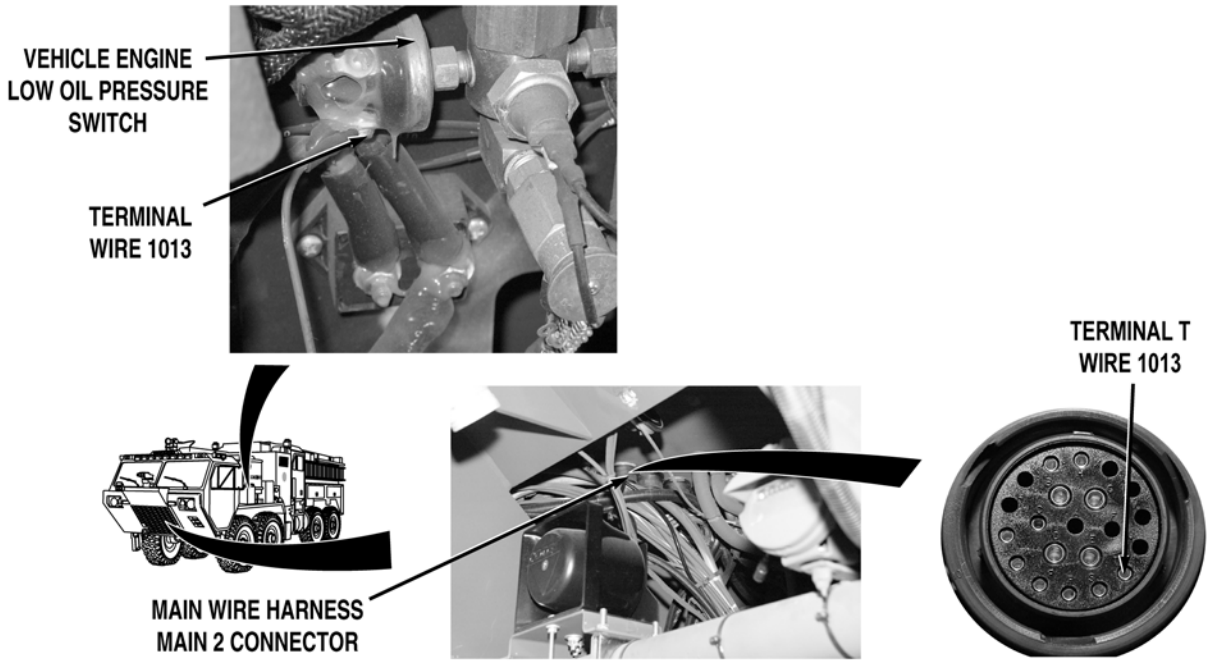
If continuity is not present, repair wire 1435 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).



MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 36. Check for continuity across wire 1013 (brown) from relay 17 terminal 1, and vehicle engine low oil pressure switch.

If continuity is present, go to Step 38.

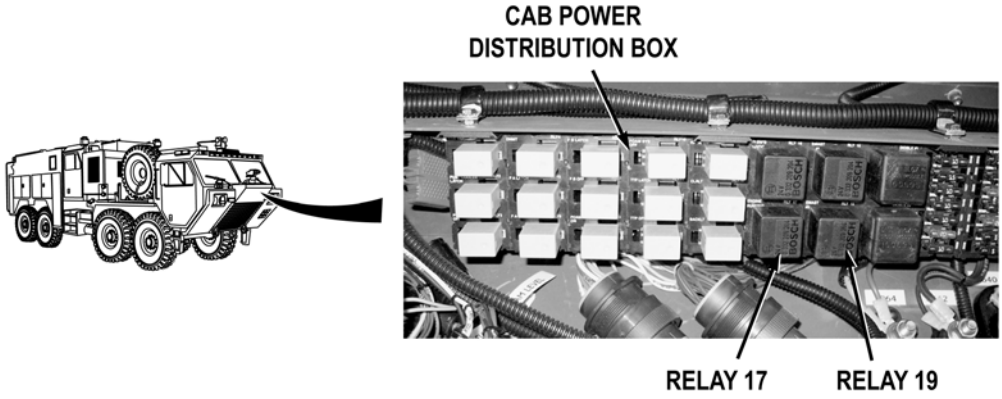


Step 37. Remove skid plate grille (WP 0550). Disconnect main wire harness main 2 connector. With a test lead set, check for continuity across wire 1013 (brown) terminal from vehicle engine low oil pressure switch to main wire harness main 2 wire harness connector, terminal T.

a. If continuity is present, repair wire 1013 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If continuity is not present, repair wire 1013 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

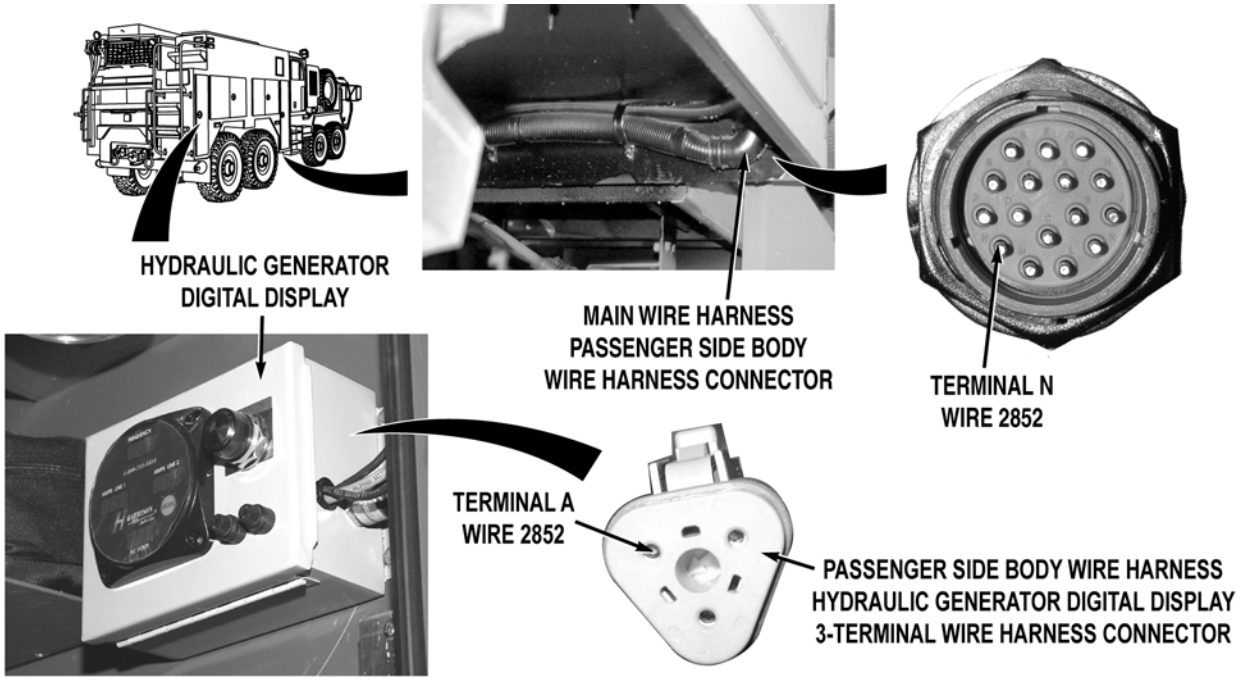
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 38. Swap relay 17 and relay 19 on cab power distribution box. Install circuit breaker CB 8 (WP 0398). Start hydraulic generator (WP 0021). Check if hydraulic generator digital module display illuminates (WP 0004).

a. If hydraulic generator digital module illuminates, replace relay 17 (WP 0398).

b. If hydraulic generator digital module display does not illuminate, replace hydraulic generator digital display module (WP 0585).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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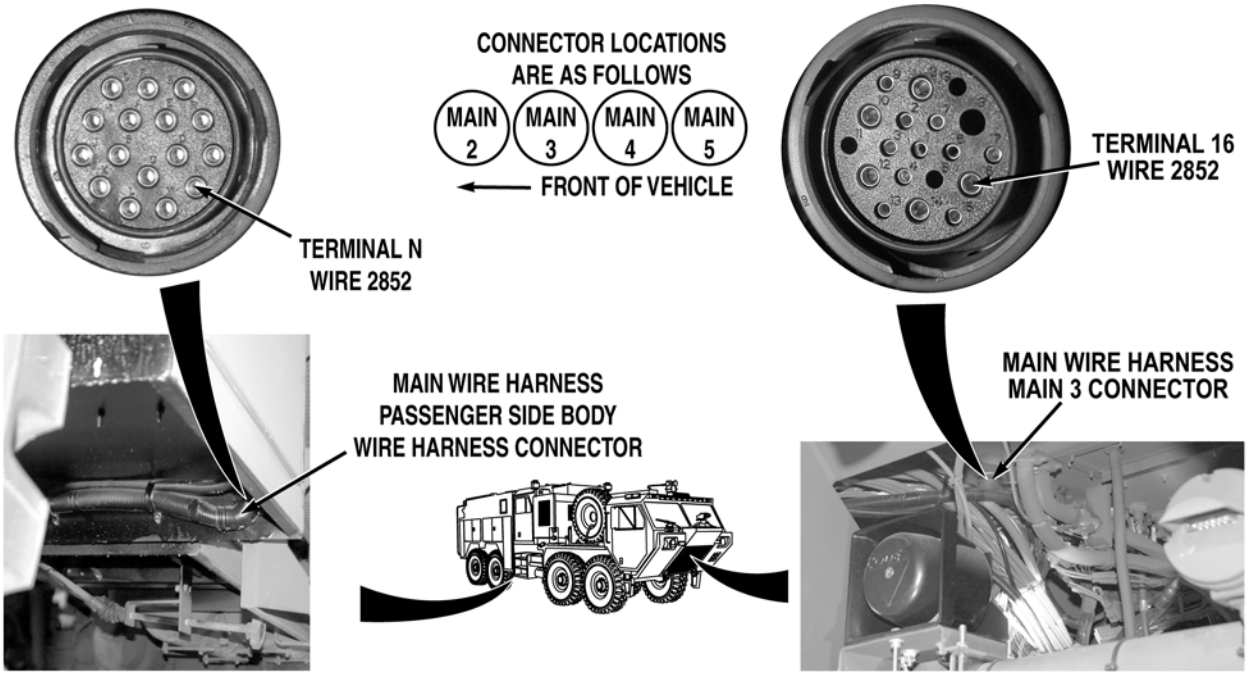
Step 39. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across wire 2852 (red) in passenger side body wire harness from passenger side body wire harness hydraulic generator digital display 3-terminal wire harness connector, terminal A to passenger side body wire harness connector, terminal N.

If continuity is not present, repair wire 2852 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 40. Remove skid plate grille (WP 0550). Disconnect main wire harness main 3 connector. With a test lead set, check for continuity across wire 2852 (red) from main wire harness passenger side body wire harness connector, terminal N to main wire harness main 3 connector wire 2852 (red), terminal 16.

a. If continuity is present, repair wire 2852 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If continuity is not present, repair wire 2852 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

HYDRAULIC GENERATOR OIL COOLING FAN DOES NOT OPERATE PROPERLY

INITIAL SETUP:

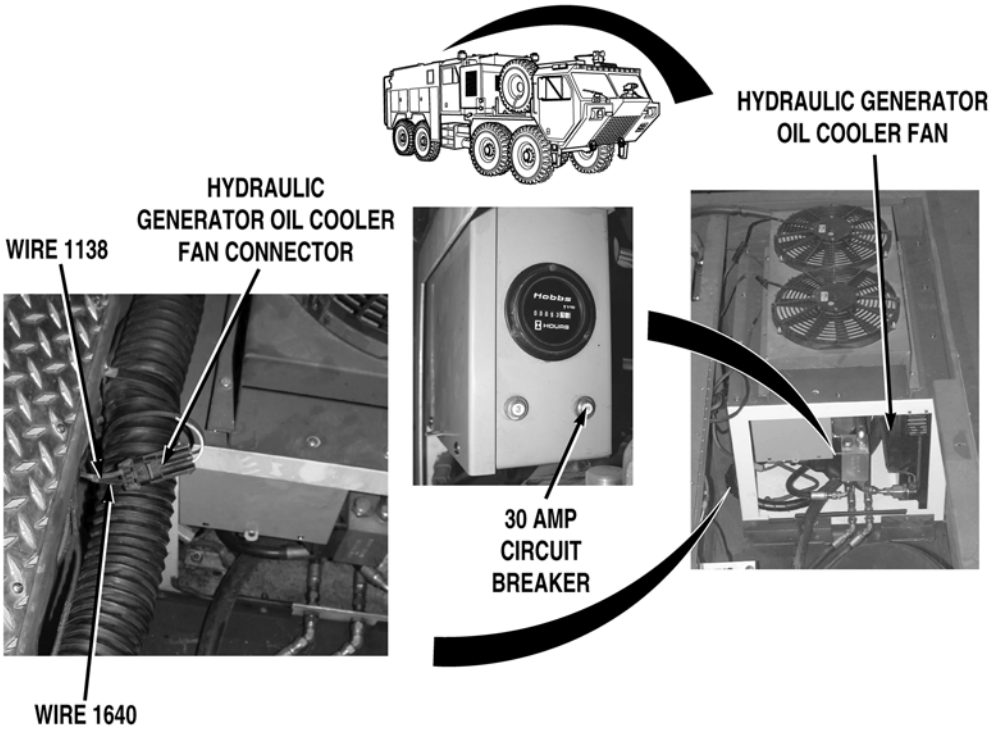
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0007
WP 0436
WP 0592

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
HYDRAULIC GENERATOR OIL COOLING FAN DOES NOT OPERATE PROPERLY		

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

- **Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.**
- **Use caution when working around hydraulic generator oil cooler fan. Fan may operate without warning. Failure to comply may result in serious injury to personnel.**

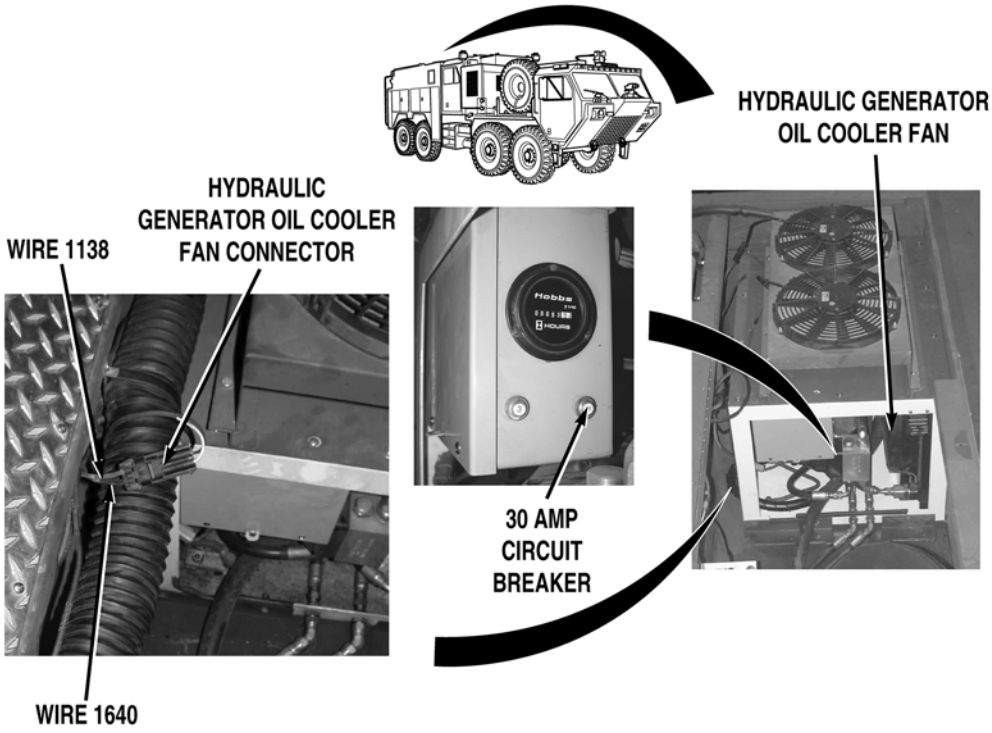
Step 1. Check if 30 amp circuit breaker is tripped.

If circuit breaker is tripped, reset circuit breaker.

Step 2. Turn battery disconnect to ON position (WP 0007). Check for 22 to 28 VDC on wire 1138 (red) at hydraulic oil cooler fan connector.

If there are not 22 to 28 VDC repair wire 1138 (red) if repairable (TM 9-2320-325-14&P), or replace body air condenser wire harness (WP 0436).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across wire 1640 (black) from hydraulic generator oil cooler fan connector to a known good ground.

a. If there is continuity, replace hydraulic generator (WP 0592).

b. If there is no continuity, repair wire 1640 (black) from hydraulic generator oil cooler fan connector to ground if repairable (TM 9-2320-325-14&P), or replace body air condenser wire harness (WP 0436).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

INTERCOM AND HEADSETS DO NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
TM 11-5820-890-10
WP 0004
WP 0007
WP 0170
WP 0311

References (continued)
WP 0394
WP 0395
WP 0422
WP 0428
WP 0430
WP 0445
WP 0454
WP 0462

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

INTERCOM AND HEADSETS DO NOT OPERATE PROPERLY

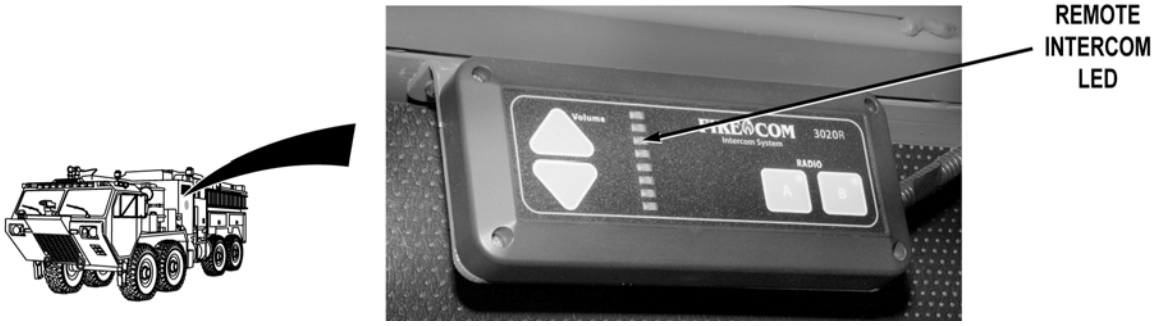
Step 1. Turn battery disconnect switch to ON position (WP 0007). Push volume control knob to on position. Check if two-way radio display illuminates.

If two-way radio display does not illuminate, troubleshoot two-way radio does not operate properly (WP 0170).

Step 2. Check if at least one intercom volume indicator LEDs illuminate (WP 0004).

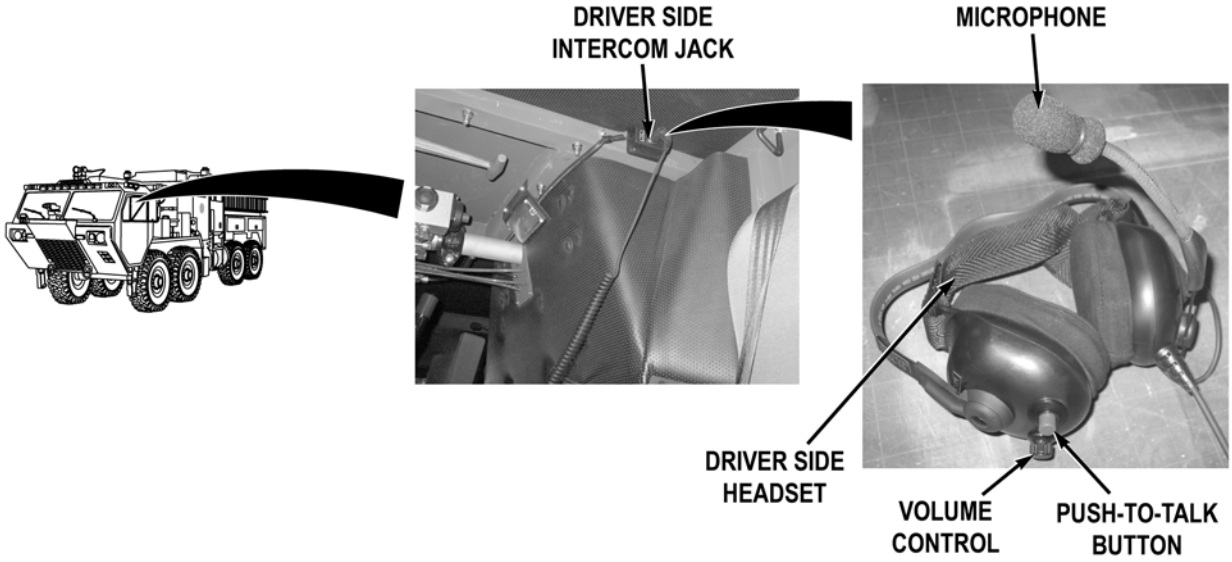
If volume indicator LEDs do not illuminate, go to Step 50.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Check if at least one remote intercom LED illuminates.

If volume indicator LEDs do not illuminate, go to Step 45.



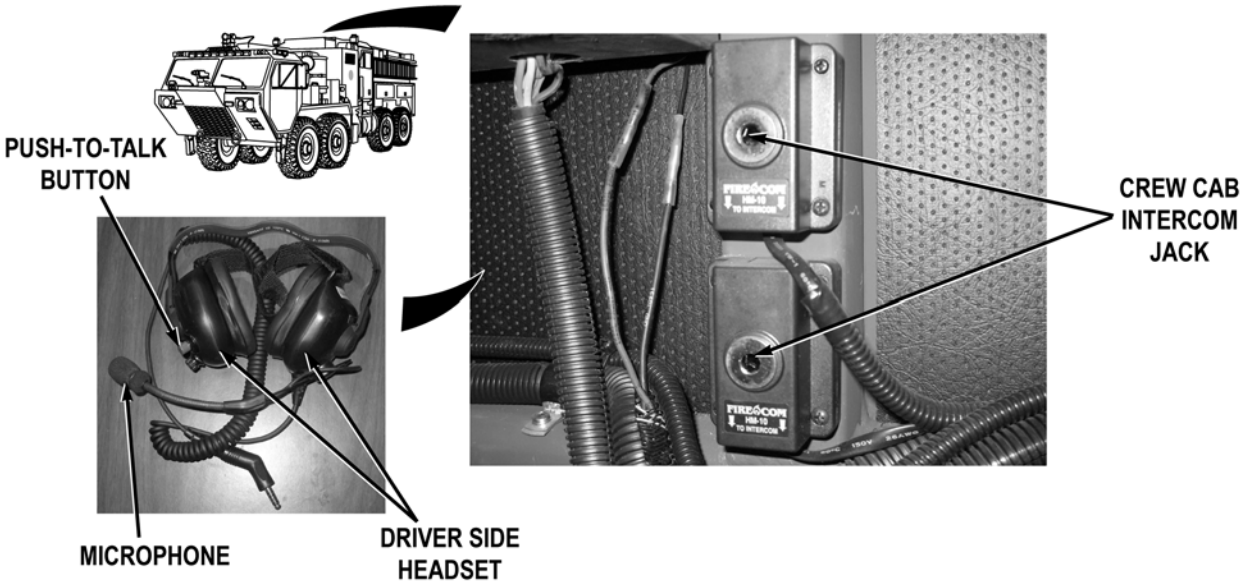
NOTE

- When connecting headset into intercom jack, ensure headset connector is completely inserted into headset jack.
- Personnel cab headsets have radio transmit capability noted by the red push-to-talk buttons. Crew cab headsets have black push-to-talk buttons and are unable to transmit radio transmissions, but can hear radio transmissions.

Step 4. Press intercom volume up and down buttons until four volume indicator LEDs are illuminated (WP 0004). Connect driver side headset into driver side intercom jack. Put on headset and adjust for comfortable fit. Set headset volume control to low volume (counterclockwise). While talking into headset microphone, (do not press push-to-talk button), check if headset microphone can be heard through headset earphones.

If driver's headset microphone can be heard through headset earphones, go to Step 8.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Disconnect driver side headset from driver side intercom jack. Connect driver side headset into any crew cab intercom jack. While talking into headset microphone, (do not press push-to-talk button), check if driver side headset microphone can be heard through headset earphones.

If driver side headset microphone cannot be heard through headset earphones, replace driver side headset.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

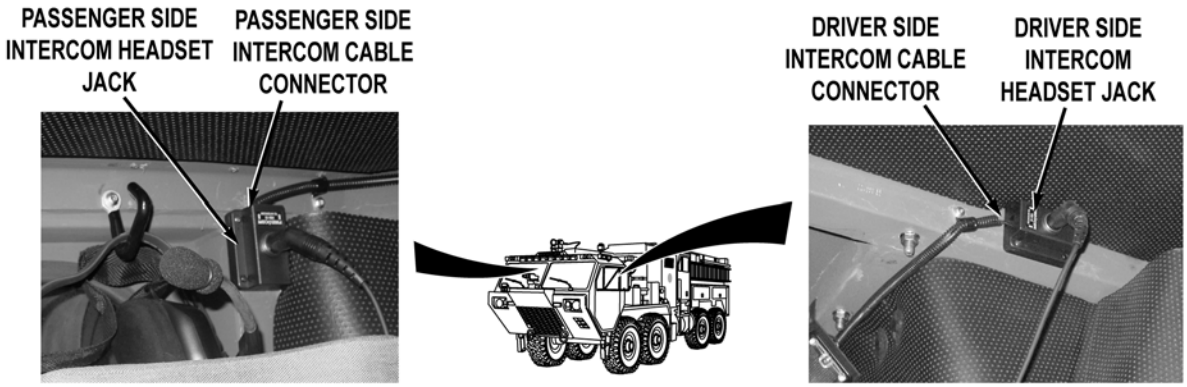
NOTE

Note position of intercom jack prior to disconnecting intercom cable to ensure proper installation.

Step 6. Disconnect driver side headset from crew cab intercom jack. Connect driver side headset into driver side intercom jack. Disconnect driver side intercom cable connector from intercom. Disconnect passenger side intercom cable connector from intercom. Connect driver side intercom cable connector into passenger side intercom cable connector at intercom. While talking into driver side headset microphone, (do not press push-to-talk button), check if headset microphone can be heard through headset earphone.

If driver's headset microphone can be heard though headset earphones, replace intercom (WP 0395).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

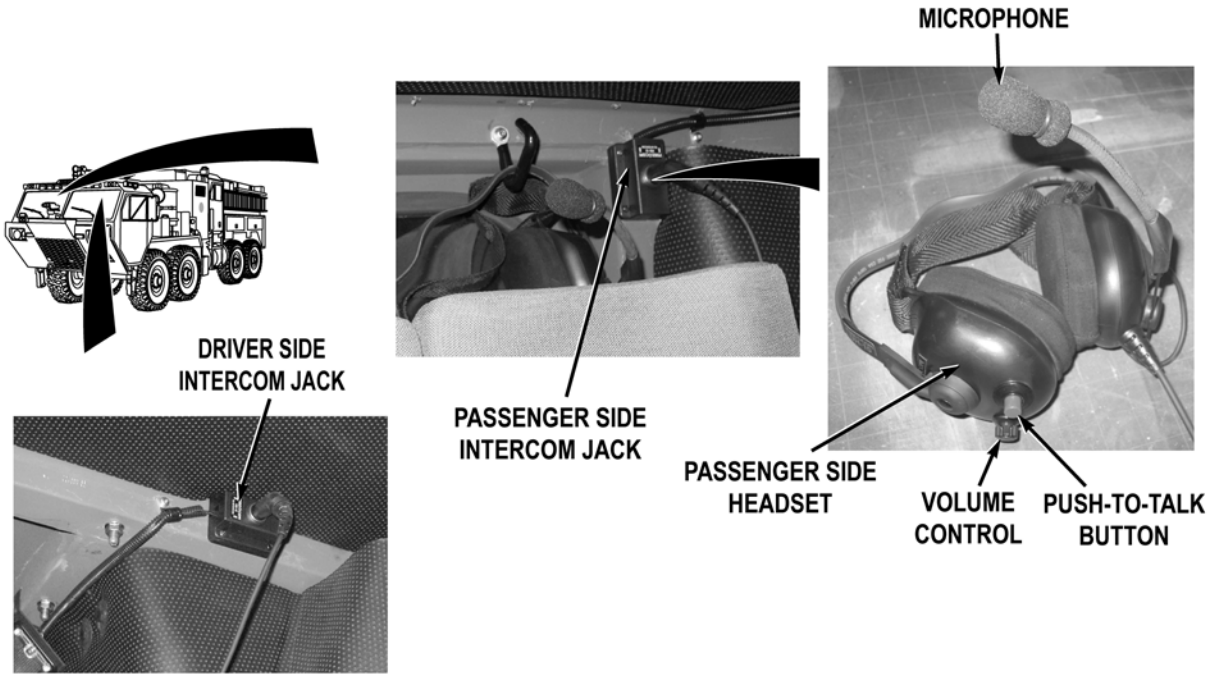


Step 7. Turn battery disconnect switch to OFF position (WP 0007). Put intercom cables to original position from previous step. Disconnect passenger side intercom cable from passenger side intercom headset jack. Disconnect driver side intercom cable from driver side intercom headset jack. Connect driver side intercom cable to passenger side intercom headset jack. Turn battery disconnect switch to ON position (WP 0007). While talking into driver side headset microphone (do not press push-to-talk button), check if driver side headset microphone can be heard through headset earphone.

a. If driver side headset microphone can be heard though headset earphones, replace driver side intercom jack (WP 0395).

b. If driver side headset microphone cannot be heard though headset earphones, replace driver side intercom cable and connectors (WP 0395).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

When connecting headset into intercom jack, ensure headset connector is completely inserted in headset jack.

Step 8. Connect passenger side headset into passenger side intercom jack. Put on headset and adjust for comfortable fit. Set headset volume control to low volume (counterclockwise). While talking into headset microphone, (do not press push-to-talk button), check if passenger side headset microphone can be heard through both headset earphones.

If passenger side headset microphone can be heard through both headset earphones, go to Step 12.

Step 9. Disconnect passenger side headset from passenger side intercom jack. Connect passenger side headset into driver side intercom jack. While talking into passenger side headset microphone, (do not press push-to-talk button), check if passenger side headset microphone can be heard through both headset earphones.

If passenger side headset microphone cannot be heard through both headset earphones, replace passenger side headset.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

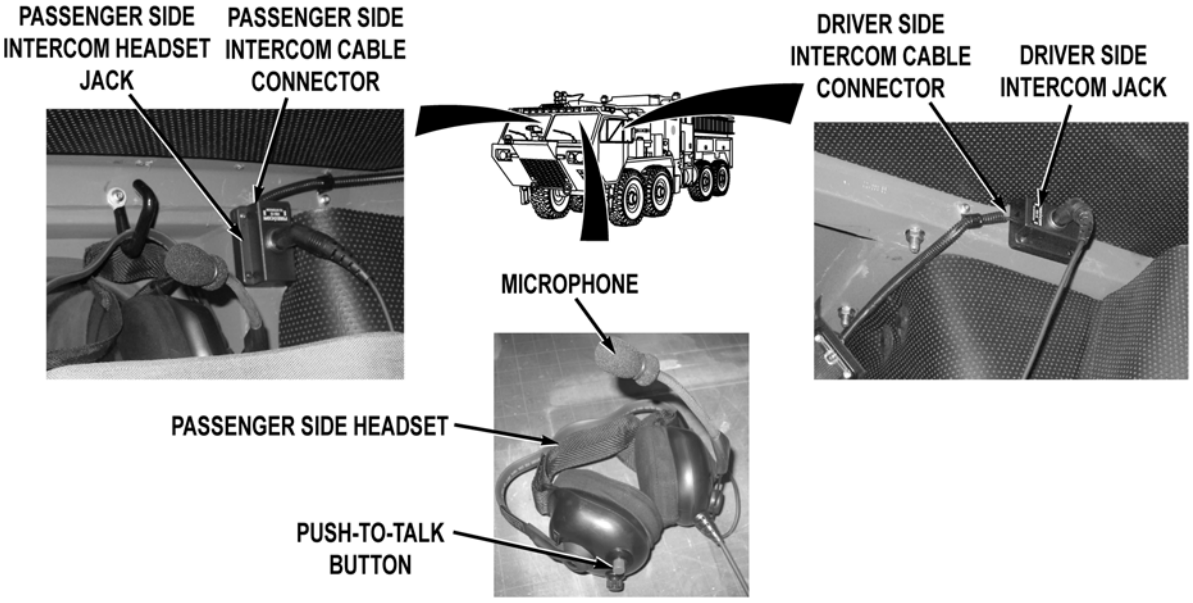
NOTE

Note position of intercom jack prior to disconnecting intercom cable to ensure proper installation.

Step 10. Disconnect passenger side headset from driver side intercom jack. Connect passenger side headset into passenger side intercom jack. Swap positions of passenger side intercom cable connector and driver side intercom cable connector on intercom. While talking into passenger side headset microphone, (do not press push-to-talk button), check if headset microphone can be heard through headset earphones.

If passenger side headset microphone can be heard through headset earphones, replace intercom (WP 0395).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

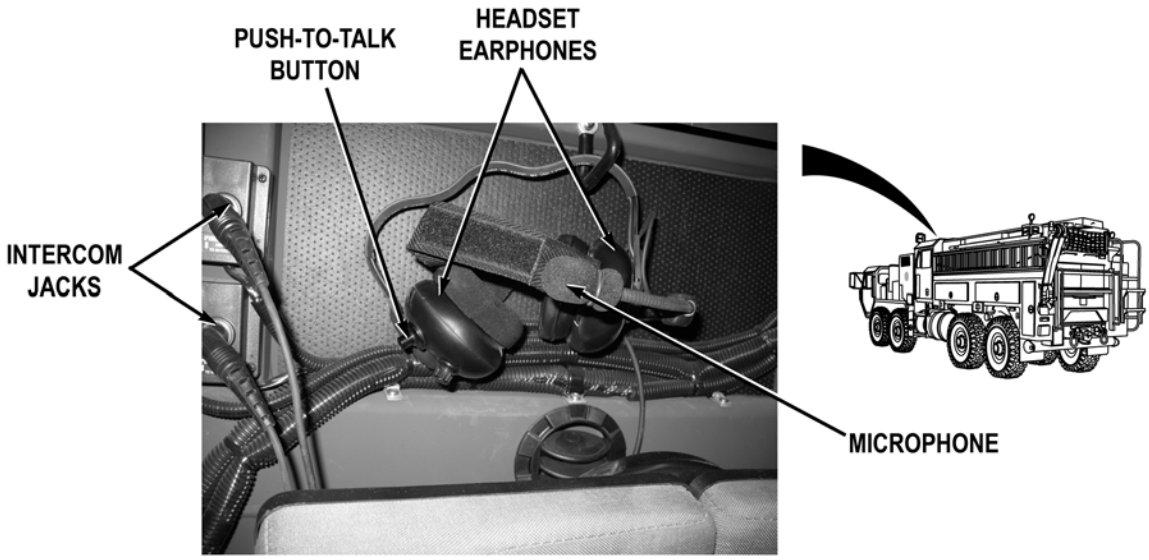


Step 11. Turn battery disconnect switch to OFF position (WP 0007). Put intercom cables to original position from previous step. Disconnect driver side intercom cable from driver side intercom headset jack. Disconnect passenger side intercom cable from passenger side intercom headset jack. Connect passenger side intercom cable to driver side intercom headset jack. Turn battery disconnect switch to ON position (WP 0007). While talking into passenger side headset microphone (do not press push-to-talk button), check if passenger side headset microphone can be heard through headset earphone.

a. If passenger side headset microphone can be heard through headset earphones, replace passenger side intercom jack (WP 0395).

b. If passenger headset microphone cannot be heard through headset earphones, replace passenger side intercom cable and connectors (WP 0395).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Note position of intercom jack prior to disconnecting intercom cable to ensure proper installation.

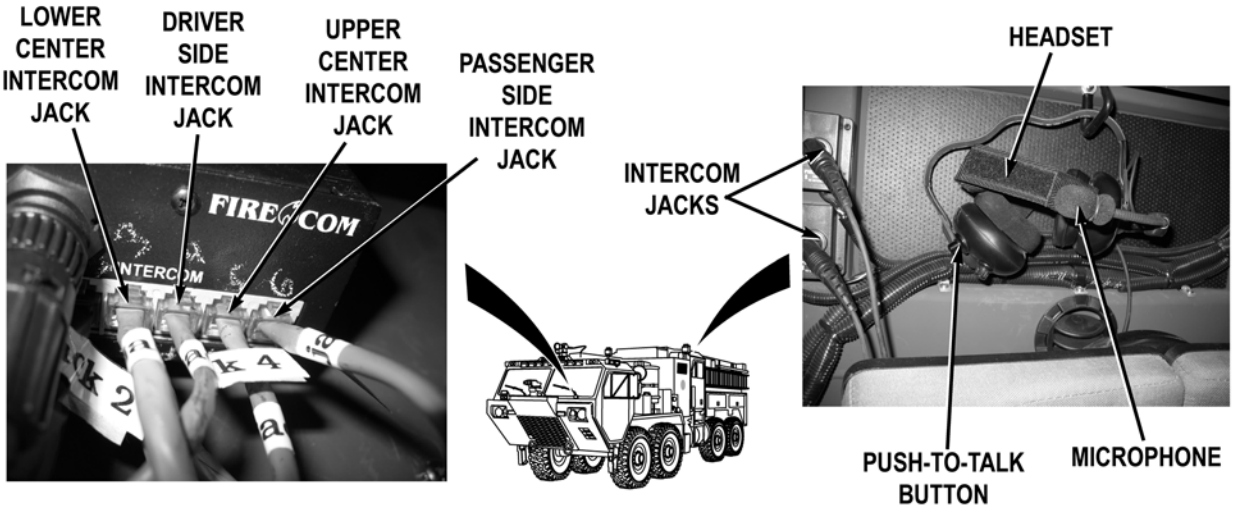
Step 12. While talking into each crew cab headset microphone, (press push-to-talk button), check if headset microphone can be heard through headset earphones.

If all crew cab headset microphones can be heard through headset earphones, go to Step 17.

Step 13. Disconnect non-working crew cab headset from non-working crew cab intercom jack. Connect non-working crew cab headset into working crew cab intercom jack. While talking into crew cab headset microphone, press push-to-talk button, and check if crew cab headset microphone can be heard through both headset earphones.

If crew cab headset microphone cannot be heard through both headset earphones, replace crew cab headset.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



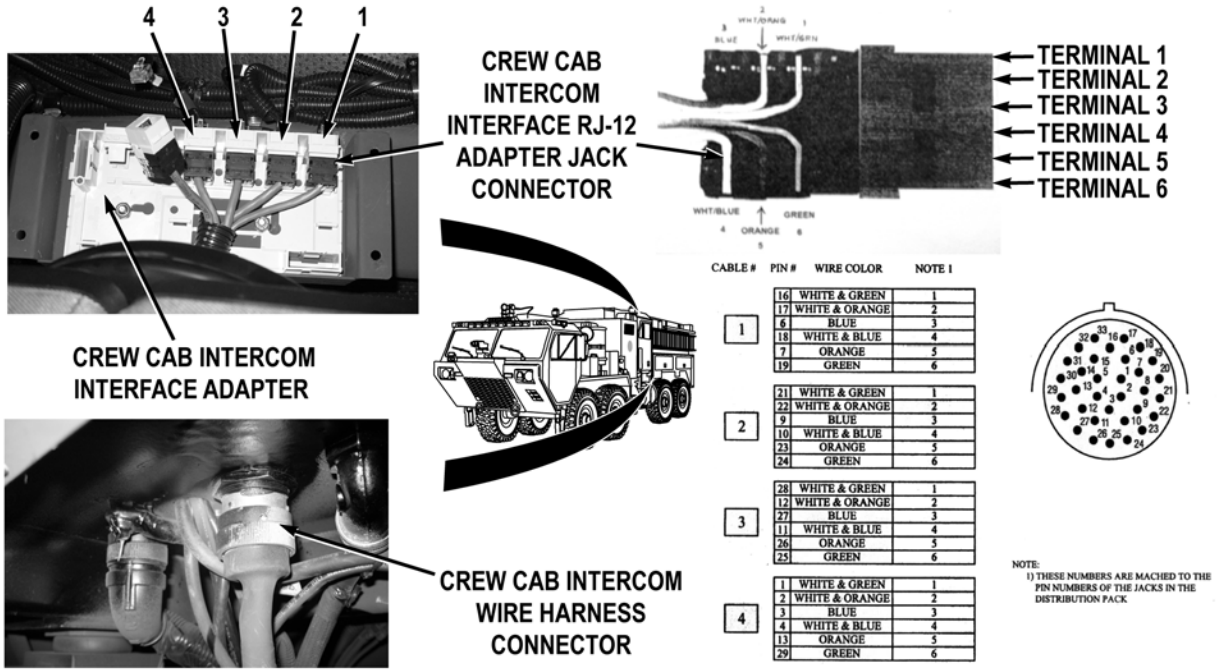
Step 14. Reconnect crew cab headset to original intercom jack. Disconnect non-working crew cab intercom cable connector from intercom (WP 0395). Connect non-working intercom cable connector into any working crew cab intercom cable connector at intercom (WP 0395). While talking into crew cab headset microphone, press push-to-talk button; and, check if headset microphone can be heard through headset earphone.

If crew cab headset microphone can be heard though headset earphones, replace intercom (WP 0395).

Step 15. Turn battery disconnect switch to OFF position (WP 0007). Disconnect non-working crew cab intercom cable connector from non-working crew cab intercom jack. Disconnect working crew cab intercom cable connector from working crew cab intercom jack (WP 0445). Connect working crew cab intercom cable connector into non-working crew cab intercom jack (WP 0445). While talking into crew cab headset microphone, press push-to-talk button, and check if headset microphone can be heard through headset earphone.

If crew cab headset microphone can be heard though headset earphones, replace crew cab intercom jack (WP 0445).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

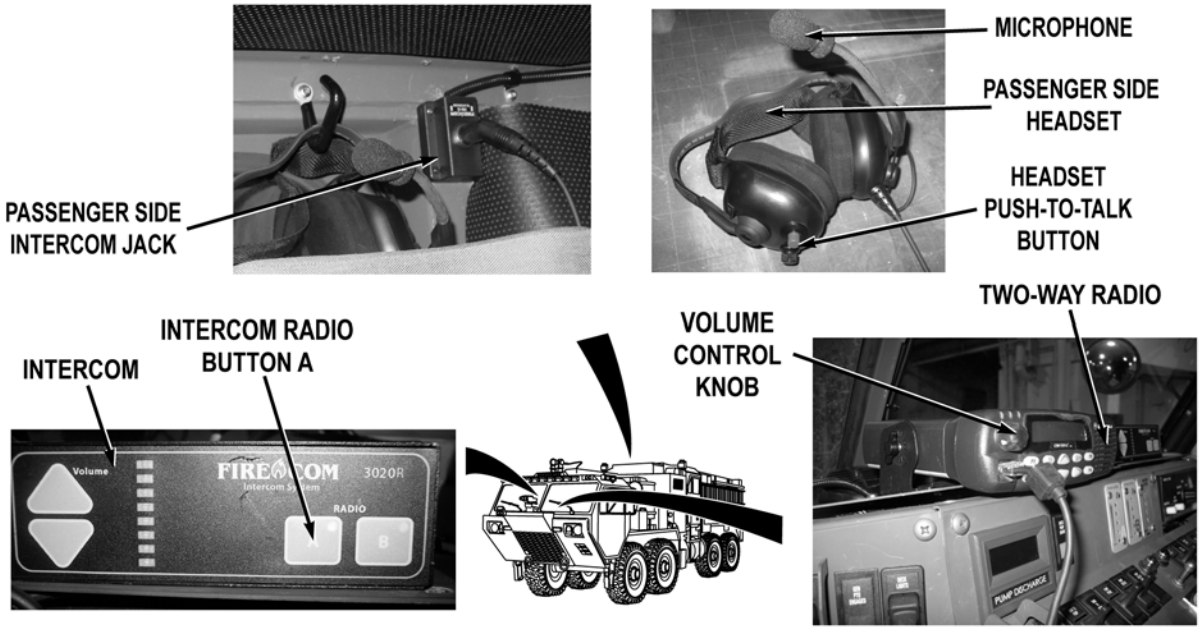
Step 16 tests RJ-12 connector in position 1. All crew cab RJ-12 connectors are tested the same way. Cable 1 lower center intercom jack. Cable 2 driver side intercom jack. Cable 3 upper center intercom jack. Cable 4 passenger side intercom jack.

Step 16. Disconnect intercom wire harness crew cab intercom connector (WP 0445). Remove crew cab intercom interface adapter (WP 0445). With a test lead set, check continuity across crew cab intercom wire harness, communication wire (white & green) from crew cab intercom wire harness connector, terminal 16 to crew cab interface RJ-12 adapter jack connector, terminal 1, communication wire (white & orange) from crew cab wire intercom harness connector, terminal 17 to crew cab interface RJ-12 adapter jack connector terminal 2, communication wire (blue) from crew cab wire intercom harness connector, terminal 6 to interface adapter jack connector terminal 3, communication wire (white & blue) from crew cab wire intercom harness connector, terminal 18 to crew cab interface RJ-12 adapter jack connector terminal 4, communication wire (orange) from crew cab wire intercom harness connector, terminal 7 to crew cab interface RJ-12 adapter jack connector terminal 5, and communication wire (green) from crew cab wire intercom harness connector, terminal 19 to interface adapter jack connector terminal 6.

a. If continuity is present, replace intercom wire harness (WP 0454).

b. If continuity is not present, replace crew cab intercom wire harness (WP 0445).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Connect passenger side headset into passenger side intercom jack. Press intercom RADIO A button to select two-way radio (WP 0004). Push two-way radio volume control knob to on position. Adjust two-way radio volume as required for normal operations. While an assistant operates two-way radio, check if two-way radio communications can be heard through headset earphones.

If two-way radio communications cannot be heard through headset earphones, go to Step 42.

NOTE

- Two-way radio transmit LED will illuminate when two-way radio keys up to transmit.
- Key up times will vary from time headset push-to-talk button is pressed until two-way radio is ready to transmit depending on intercom HK-A setting.

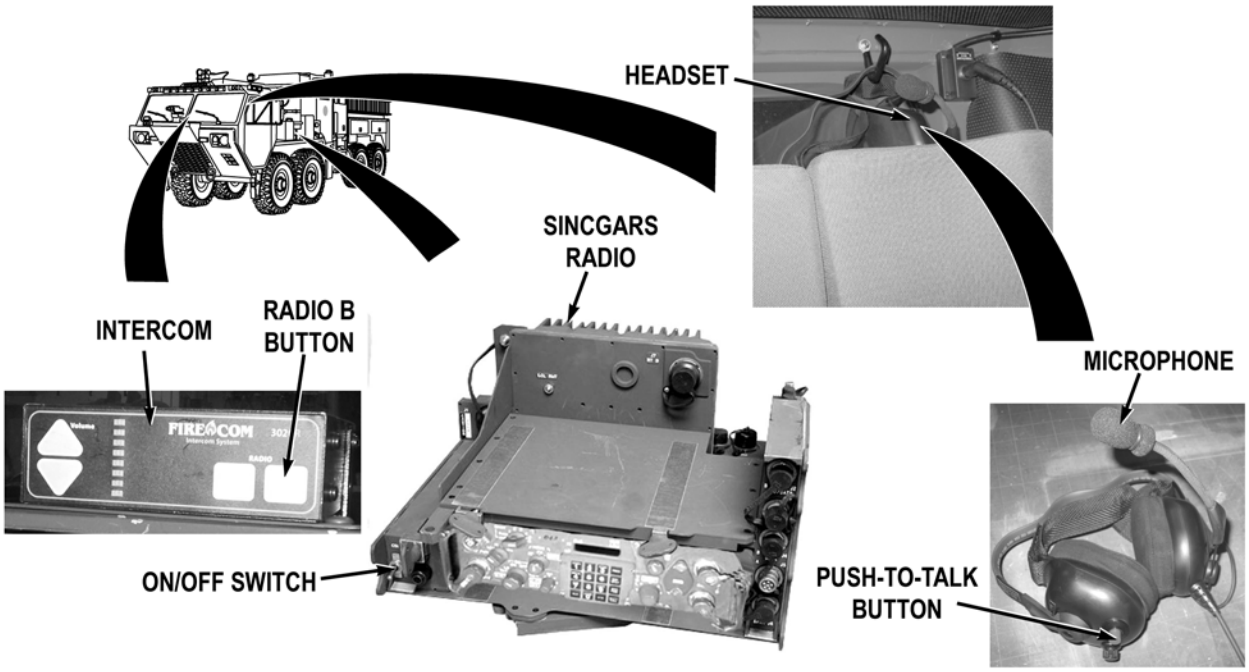
Step 18. While an assistant monitors two-way radio, press headset push-to-talk button and talk into microphone. Check if intercom keys up to transmit two-way radio.

If intercom does not key up two-way radio, go to Step 38.

Step 19. While an assistant monitors two-way radio, press headset push-to-talk button and talk into microphone. Check if headset communication can be heard at two-way radio.

If headset communications cannot be heard at two-way radio, go to Step 33.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 20. Press intercom RADIO B to select SINCGARS radio (WP 0004). Turn SINCGARS radio on (TM 9-2320-347-10). While an assistant operates SINCGARS radio, check if SINCGARS radio communications can be heard through vehicle commander's headset earphones.

If SINCGARS radio communications cannot be heard through headset earphones, go to Step 29.

NOTE

Key up times will vary from time headset push-to-talk button is pressed until SINCGARS radio is ready to transmit depending on intercom HK-B setting.

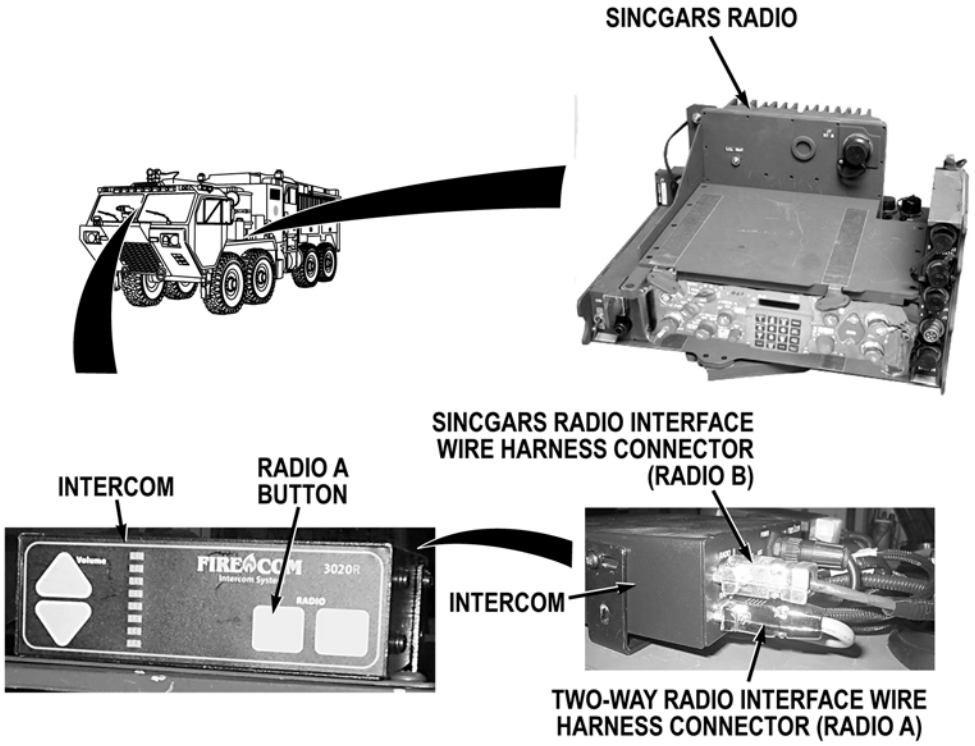
Step 21. While an assistant monitors SINCGARS radio, press headset push-to-talk button. Check if intercom keys up SINCGARS radio.

If intercom does not key up SINCGARS radio, go to Step 26.

Step 22. While an assistant monitors SINCGARS radio, press headset push-to-talk button and talk into microphone. Check if headset communication can be heard at SINCGARS radio.

If headset communications can be heard at SINCGARS radio, system is operating properly. Notify Supervisor.

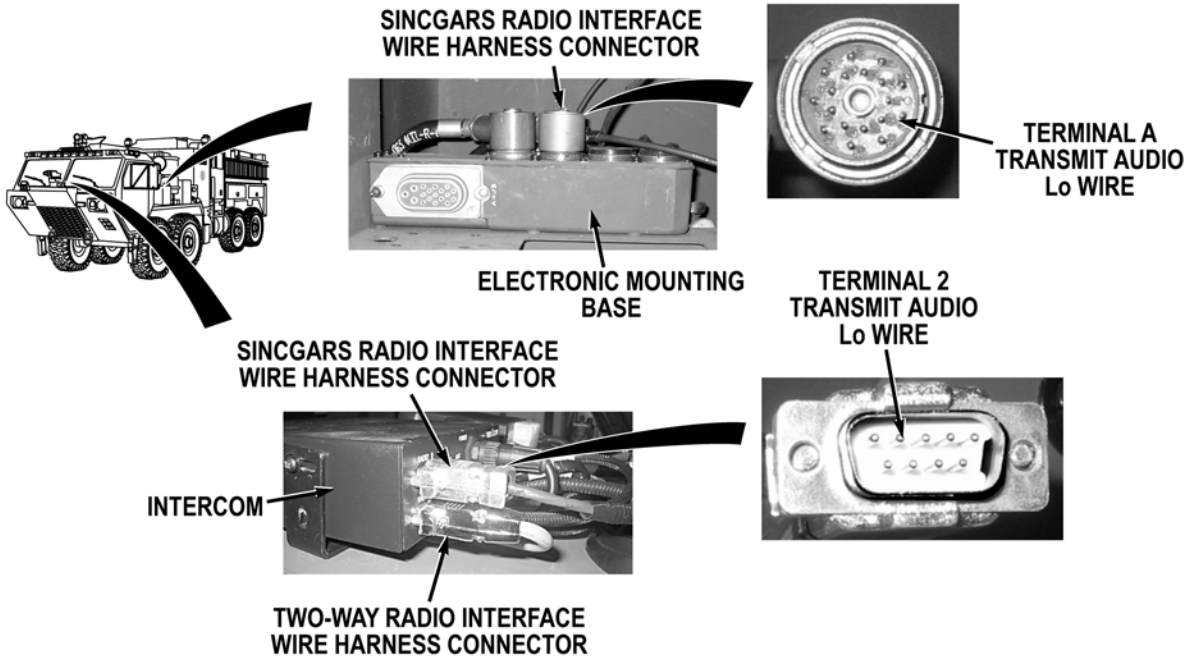
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 23. Turn battery disconnect switch to OFF position (WP 0007). Remove four screws and lift intercom away from intercom bracket (WP 0395). Disconnect SINCGARS interface wire harness connector from intercom RADIO B connector (WP 0462). Disconnect two-way radio interface wire harness connector from intercom RADIO A connector (WP 0462). Connect SINCGARS radio interface wire harness connector on intercom RADIO A connector. Turn battery disconnect switch to ON position (WP 0007). Press intercom RADIO A button (WP 0004). While an assistant operates SINCGARS radio, check if SINGARS radio communications can be heard through headset earphones.

If SINCGARS radio communications can be heard through headset earphones, replace intercom (WP 0395).

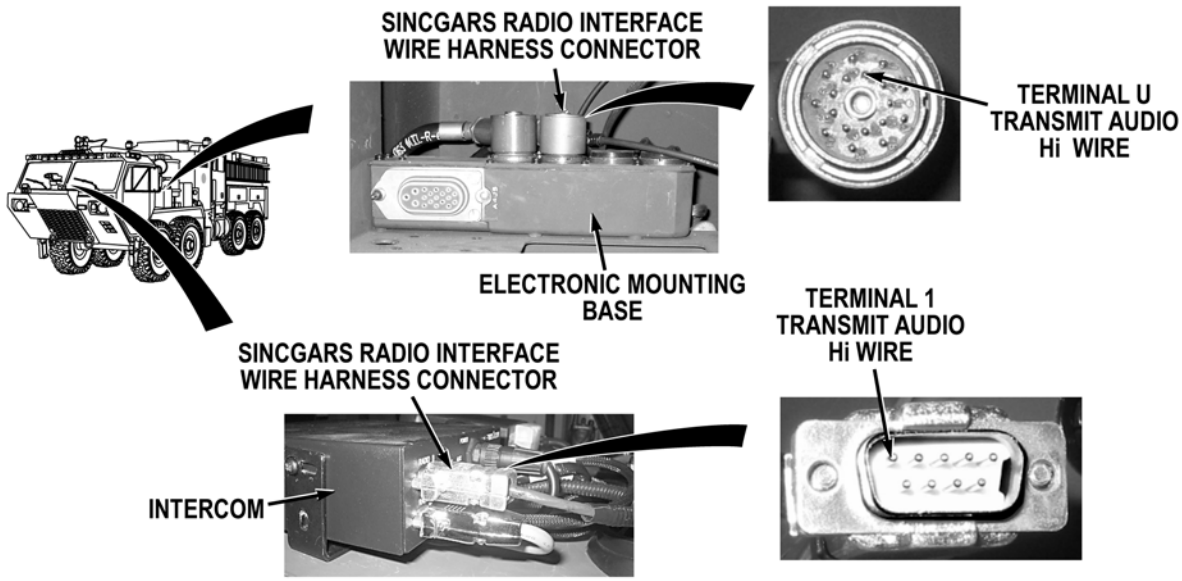
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 24. Turn battery disconnect switch to OFF position (WP 0007). Remove and install SINCGARS radio and two-way radio interface wire harnesses in original positions. Remove SINCGARS receiver transmitter and power adapter from electronic mounting base (TM 11-5820-890-10). Disconnect SINCGARS radio interface wire harness connectors from electronics mounting base and intercom (WP 0462). With a lead test set, check for continuity across SINCGARS radio interface wire harness transmit audio Lo wire (red) from intercom connector, terminal 2 to SINCGARS radio connector, terminal A.

If there is no continuity, repair transmit audio Lo wire if repairable (TM 9-2320-325-14&P), or replace SINCGARS radio interface wire harness (WP 0462).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

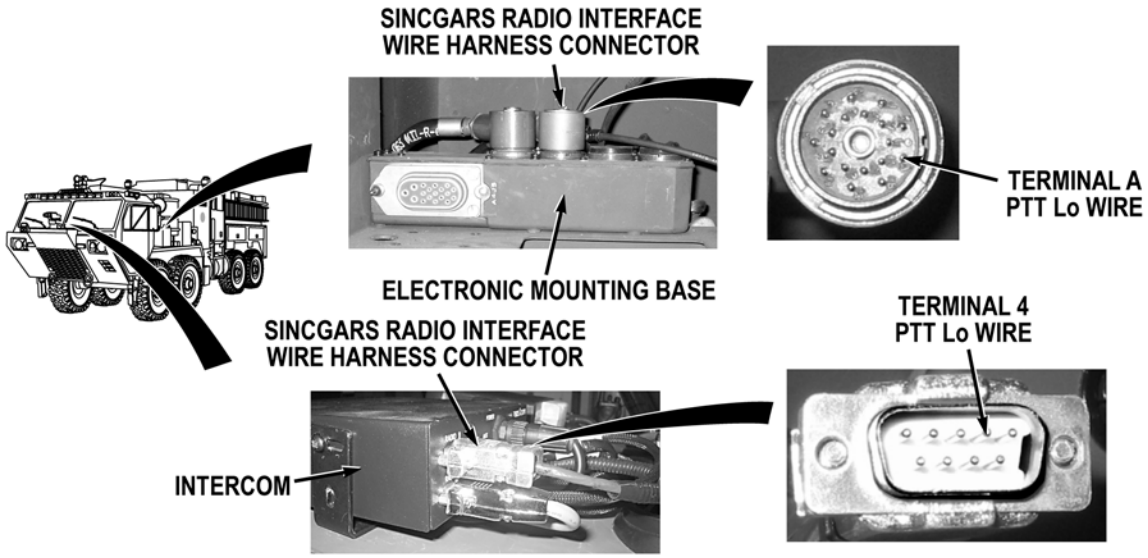


Step 25. With a lead test set, check for continuity across SINCGARS radio interface wire harness transmit audio Hi wire (brown) from intercom connector, terminal 1 to SINCGARS radio connector, terminal U.

a. If there is continuity, fault is in SINCGARS electronic mounting base, power adapter, or receiver transmitter. Notify Supervisor.

b. If there is no continuity, repair transmit audio Hi wire if repairable (TM 9-2320-325-14&P), or replace SINCGARS radio interface wire harness (WP 0462).

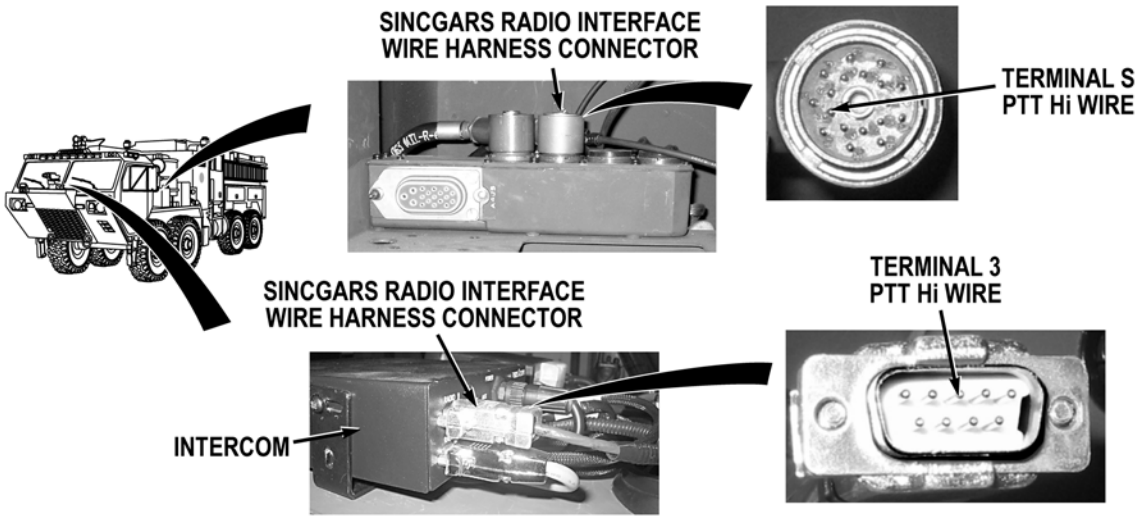
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 26. Turn battery disconnect switch to OFF position (WP 0007). Remove SINCGARS receiver transmitter and power adapter from electronic mounting base (TM 11-5820-890-10). Disconnect SINCGARS radio interface wire harness connectors from electronic mounting base and intercom (WP 0462). With a lead test set, check for continuity across SINCGARS radio interface wire harness PTT Lo wire (red) from intercom connector, terminal 4 to SINCGARS radio connector, terminal A.

If there is no continuity, repair PTT Lo wire if repairable (TM 9-2320-325-14&P), or replace SINCGARS radio interface wire harness (WP 0462).

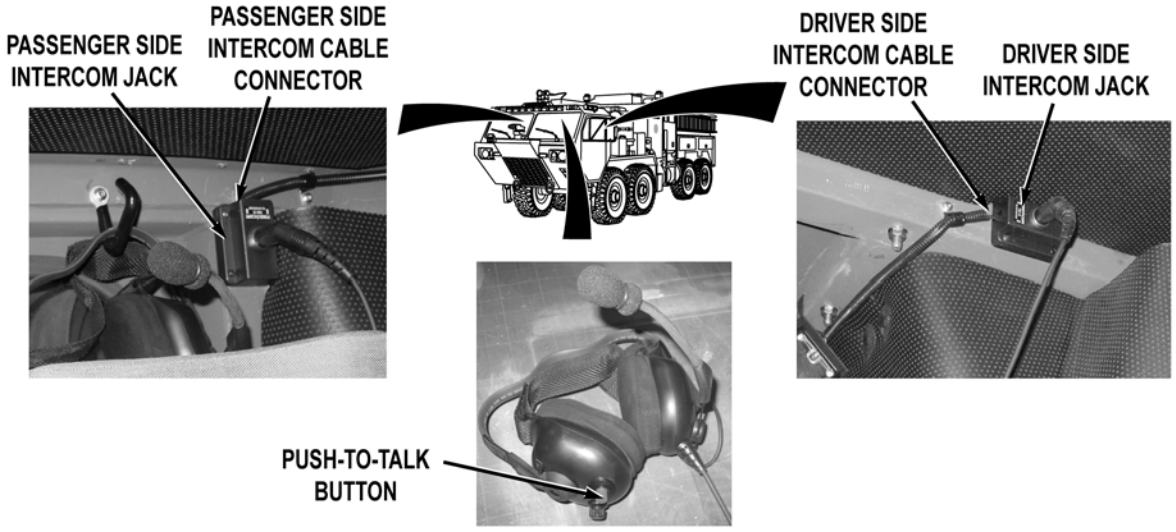
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 27. With a lead test set, check for continuity across SINCGARS radio interface wire harness connectors PTT Hi wire (orange) from intercom connector, terminal 3 to SINCGARS radio connector, terminal S.

If there is no continuity, repair PTT Hi wire if repairable (TM 9-2320-325-14&P), or replace SINCGARS radio interface wire harness (WP 0462).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

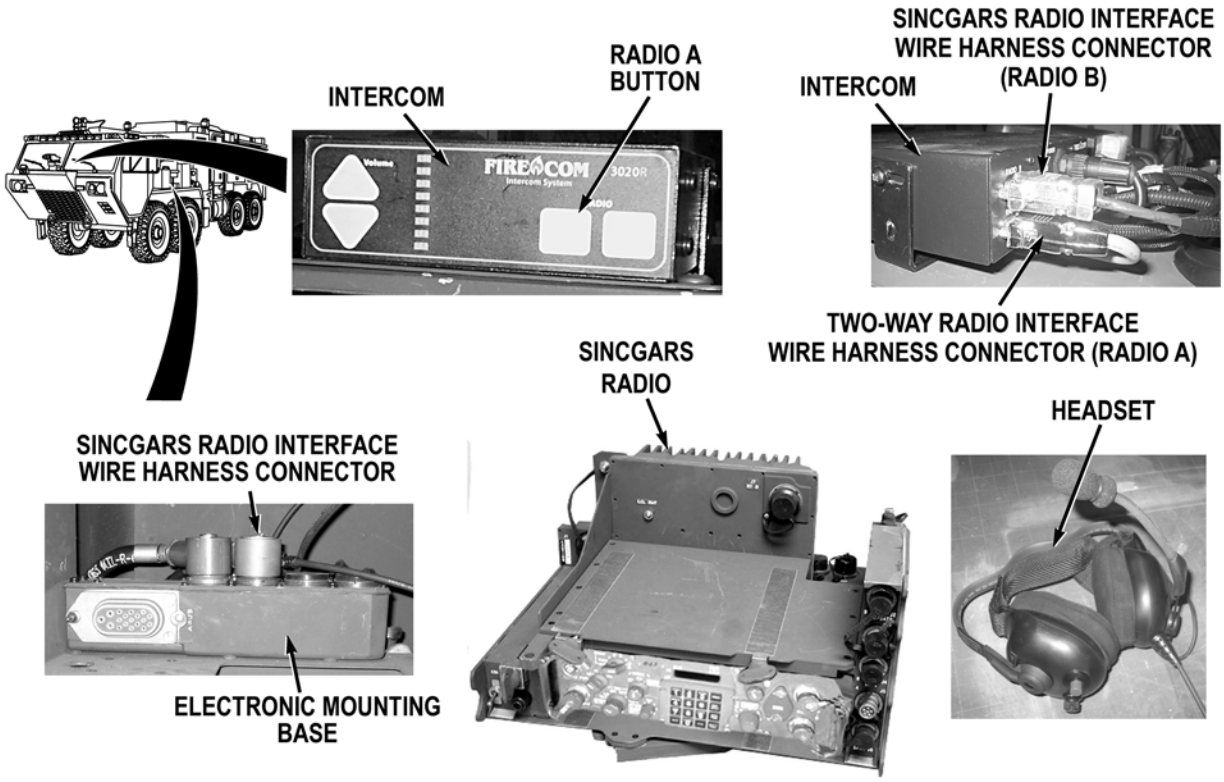


Step 28. Connect SINCGARS radio interface wire harness connectors on electronic mounting base and intercom (WP 0462). Install power adapter and SINCGARS receiver transmitter on electronic mounting base (TM 11-5820-890-10). Swap driver side intercom cable connector and passenger intercom cable connector on passenger side intercom jack and driver side intercom jack. Turn battery disconnect switch to ON position (WP 0007). While an assistant monitors SINCGARS radio, press headset push-to-talk button. Check if intercom keys up to transmit SINCGARS radio.

a. If intercom keys up SINCGARS radio, replace intercom cables and connectors (WP 0395).

b. If intercom does not key up SINCGARS radio, fault is in SINCGARS electronic mounting base, power adapter, or receiver transmitter. Notify Supervisor.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



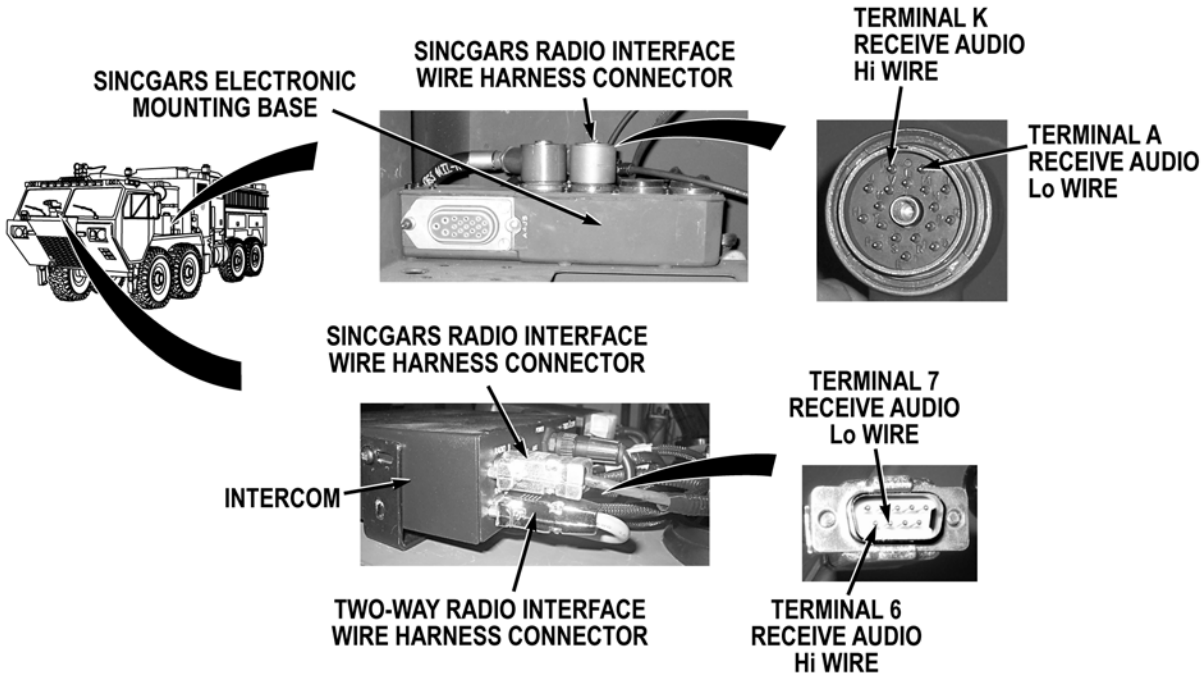
Step 29. Inspect SINCGARS radio interface wire harness connectors at intercom and SINCGARS electronic mounting base for loose connectors.

If SINCGARS interface wire harness connectors are loose, tighten connection (WP 0462).

Step 30. Remove four screws and lift intercom away from intercom bracket (WP 0395). Disconnect SINCGARS interface wire harness connector from intercom RADIO B connector (WP 0462). Disconnect two-way radio interface wire harness connector from intercom RADIO A connector (WP 0462). Connect SINCGARS radio interface wire harness connector on intercom RADIO A connector. Press intercom RADIO A button. While an assistant operates SINCGARS radio, check if SINCGARS radio communications can be heard through headset earphones.

If SINCGARS radio communications can be heard through headset earphones, replace intercom (WP 0395).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 31. Turn battery disconnect switch to OFF position (WP 0007). Remove and install SINCGARS radio and two-way radio interface wire harness connectors RADIO B and RADIO A on original positions. Remove SINCGARS receiver transmitter and power adapter from electronic mounting base (TM 11-5820-890-10). Disconnect SINCGARS radio interface wire harness connectors from electronic mounting base and intercom (WP 0462). With a lead test set, check for continuity across SINCGARS radio interface wire harness receive audio Lo wire (violet) from intercom connector, terminal 7 to SINCGARS radio interface wire harness connector, terminal A.

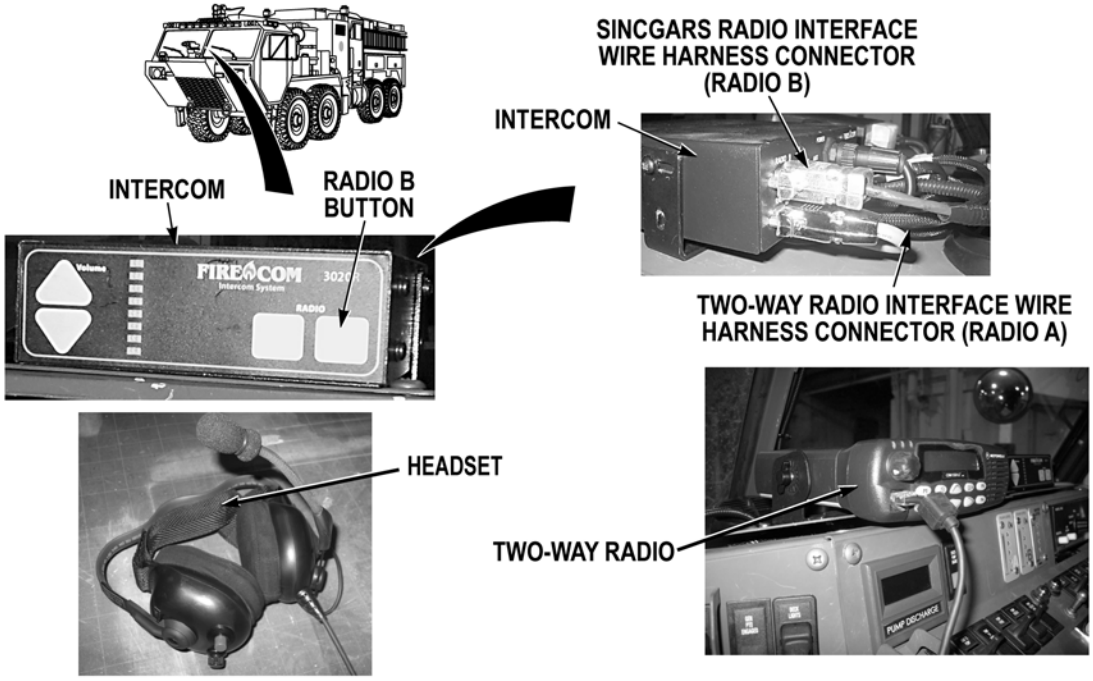
If there is no continuity, repair receive audio Lo wire if repairable (TM 9-2320-325-14&P), or replace SINCGARS radio interface wire harness (WP 0462).

Step 32. Check for continuity across SINCGARS radio interface wire harness receive audio Hi wire (blue) from intercom connector, terminal 6 to SINCGARS radio connector, terminal K.

a. If there is continuity, fault is in SINCGARS electronic mounting base, power adapter, or receiver transmitter. Notify Supervisor.

b. If there is no continuity, repair receive audio Hi wire if repairable (TM 9-2320-325-14&P), or replace SINCGARS radio interface wire harness (WP 0462).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 33. Inspect two-way radio interface wire harness connectors at intercom and two-way radio for loose connectors (WP 0462).

If two-way radio interface wire harness connectors are loose, tighten connection (WP 0462).

Step 34. Remove four screws and lift intercom away from intercom bracket (WP 0395). Disconnect SINCGARS interface wire harness connector from intercom RADIO B connector. Disconnect two-way radio interface wire harness connector from intercom RADIO A connector. Connect two-way radio interface wire harness connector on intercom RADIO B connector. Press intercom RADIO B button. While an assistant operates two-way radio, check if two-way radio communications can be heard through headset earphones.

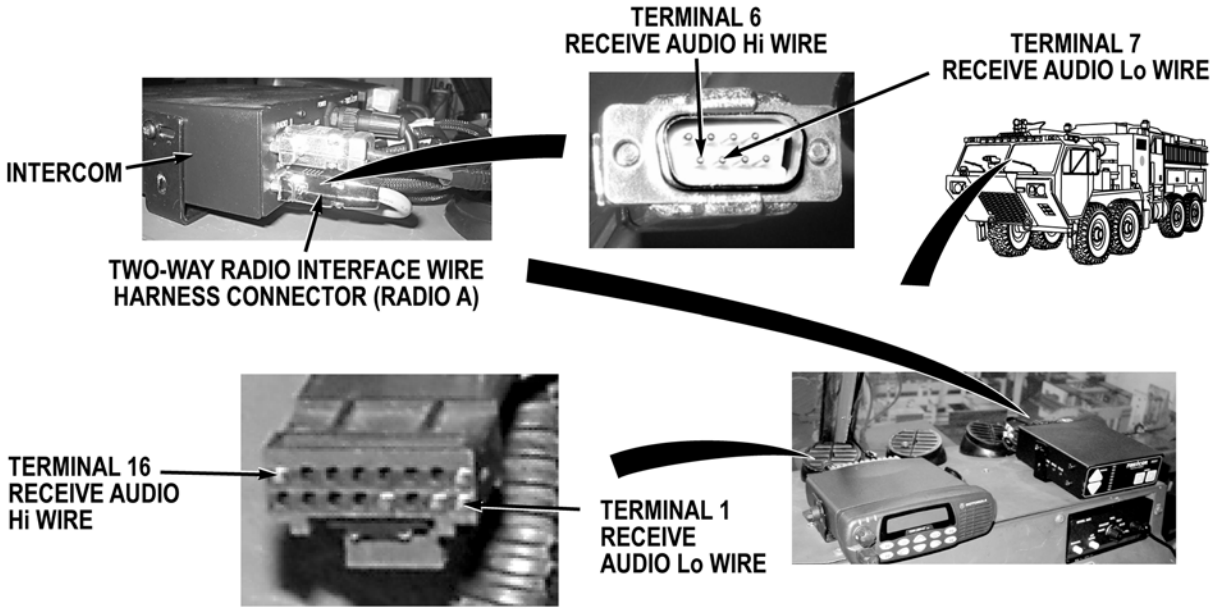
If two-way radio communications can be heard through headset earphones, replace intercom (WP 0395).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 35. Put EMERG MASTER switch to on position (WP 0004). Turn Service Drive Lights on (TM 9-2320-347-10). Remove and install two-way radio and SINCGARS interface wire harnesses in original positions. Press intercom RADIO A button. Put siren mode switch to RADIO position (WP 0004). While an assistant operates two-way radio, check if two-way radio communications can be heard through siren speaker (WP 0428).

If two-way radio communications can be heard through siren speaker, repair two-way radio interface wire harness if repairable (TM 9-2320-325-14&P), or replace two-way radio interface wire harness (WP 0462).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 36. Turn battery disconnect switch to OFF position (WP 0007). Disconnect two-way radio interface wire harness connectors from two-way radio and intercom (WP 0462). With a test lead set, check for continuity across two-way radio interface wire harness receive audio Lo wire (violet) from intercom connector (RADIO A) terminal 7, to two-way radio connector, terminal 1.

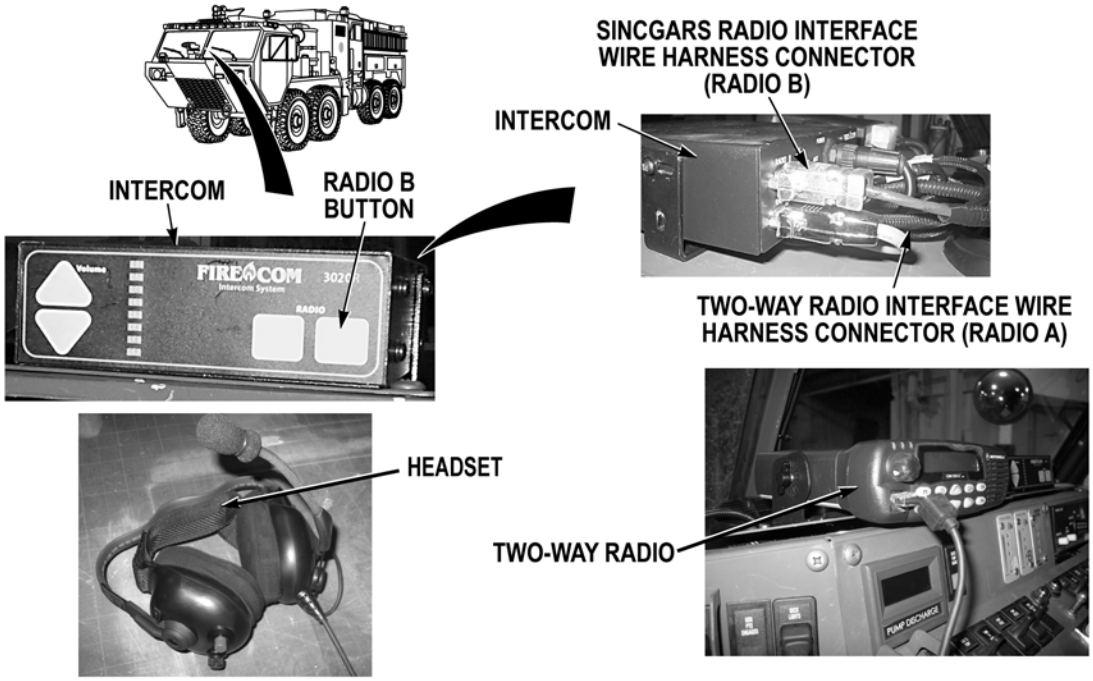
If there is no continuity, repair receive audio Lo wire if repairable (TM 9-2320-325-14&P), or replace two-way radio interface wire harness (WP 0462).

Step 37. With a test lead set, check for continuity across two-way radio interface wire harness receive audio Hi wire (blue) from intercom connector terminal 6, to two-way radio connector, terminal 16.

a. If there is continuity, replace two-way radio (WP 0430).

b. If there is no continuity, repair receive audio Hi wire if repairable (TM 9-2320-325-14&P), or replace two-way radio interface wire harness (WP 0462).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



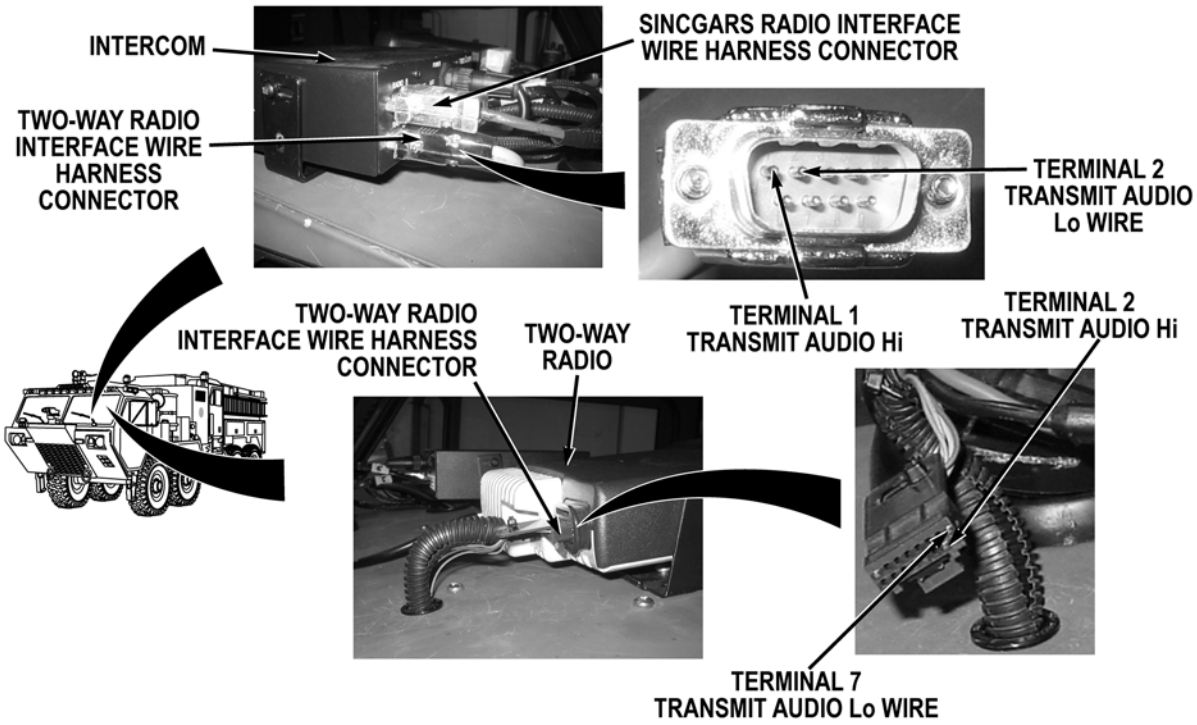
Step 38. Inspect two-way radio interface wire harness connectors at intercom and two-way radio for loose connectors (WP 0462).

If two-way radio interface wire harness connectors are loose, tighten connection (WP 0462).

Step 39. Remove four screws and lift intercom away from intercom bracket (WP 0395). Disconnect SINCGARS interface wire harness connector from intercom RADIO B connector. Disconnect two-way radio interface wire harness connector from intercom RADIO A connector. Connect two-way radio interface wire harness connector on intercom RADIO B connector. Press intercom RADIO B button. While an assistant monitors two-way radio, check if headset communications can be heard through two-way radio.

If headset communications can be heard through two-way radio, replace intercom (WP 0395).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 40. Turn battery disconnect switch to OFF position (WP 0007). Remove and install two-way radio and SINCGARS radio interface wire harness connectors in original positions. Disconnect two-way radio interface wire harness connectors from two-way radio and intercom. With a test lead set, check for continuity across two-way radio interface wire harness transmit audio Lo wire (red) from intercom connector terminal 2, to two-way radio connector, terminal 7.

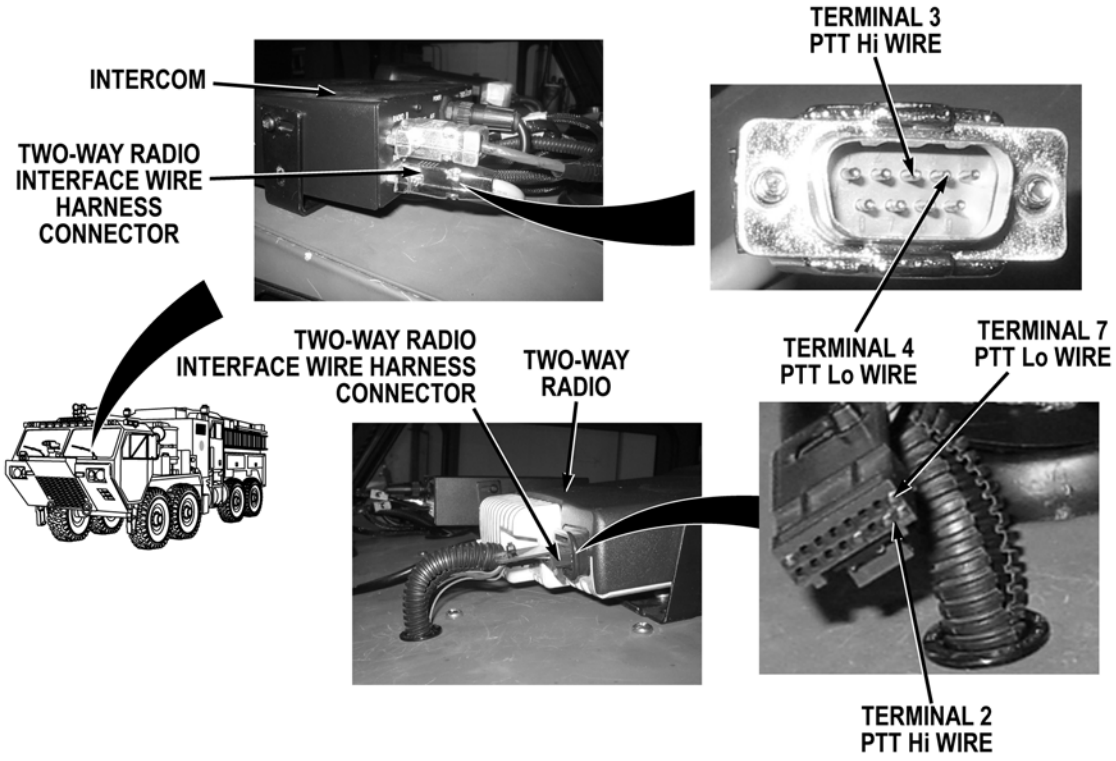
If there is no continuity, repair transmit audio Lo wire if repairable (TM 9-2320-325-14&P), or replace two-way radio interface wire harness (WP 0462).

Step 41. With a test lead set, check for continuity across two-way radio interface wire harness transmit audio Hi wire (brown) from intercom connector terminal 1, to two-way radio connector, terminal 2.

a. If there is continuity, replace two-way radio (WP 0430).

b. If there is no continuity, repair transmit audio Hi wire if repairable (TM 9-2320-325-14&P), or replace two-way radio interface wire harness (WP 0462).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



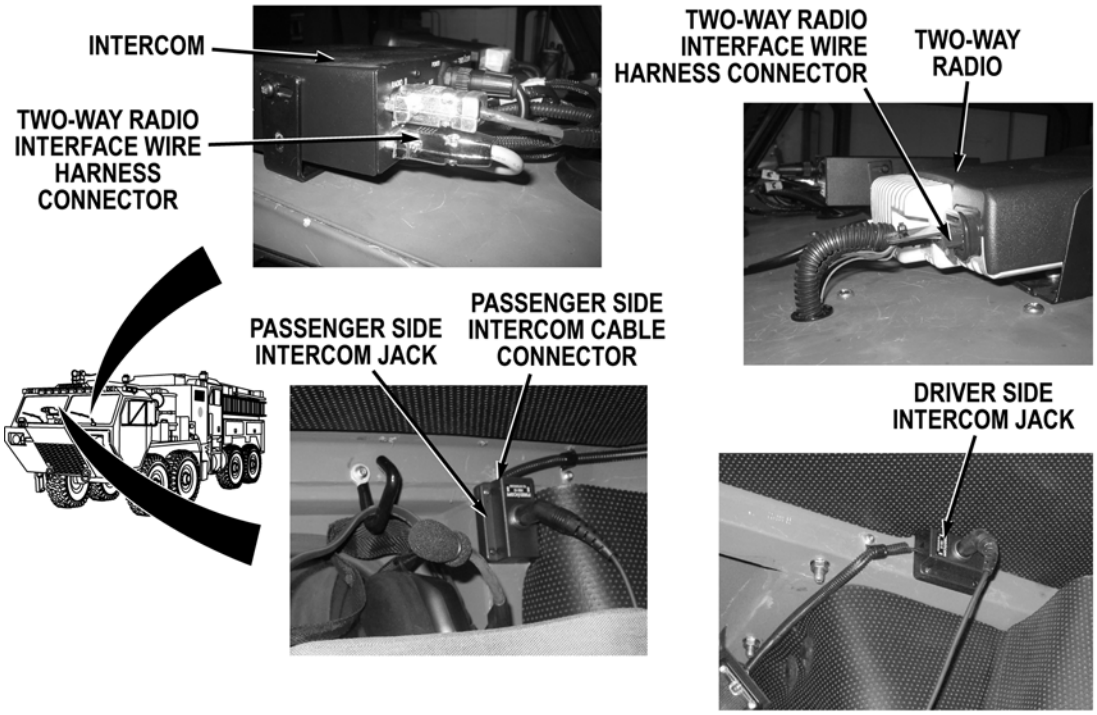
Step 42. Disconnect two-way radio interface wire harness connectors from two-way radio and intercom. With a test lead set, check for continuity across two-way radio interface wire harness PTT Lo wire (yellow) from intercom connector terminal 4, to two-way radio connector, terminal 7.

If there is no continuity, repair PTT Lo wire if repairable (TM 9-2320-325-14&P), or replace two-way radio interface wire harness (WP 0462).

Step 43. With a test lead set, check for continuity across two-way radio interface wire harness PTT Hi wire (orange) from intercom connector terminal 3, to two-way radio connector, terminal 2.

If there is no continuity, repair PTT Hi wire if repairable (TM 9-2320-325-14&P), or replace two-way radio interface wire harness (WP 0462).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 44. Connect two-way radio interface wire harness connector on two-way radio and intercom. Disconnect passenger side intercom cable connector from passenger side intercom jack. Connect passenger side intercom cable connector into driver side intercom jack. While an assistant monitors two-way radio, press headset push-to-talk button (WP 0004). Check if intercom keys up to transmit two-way radio (WP 0004).

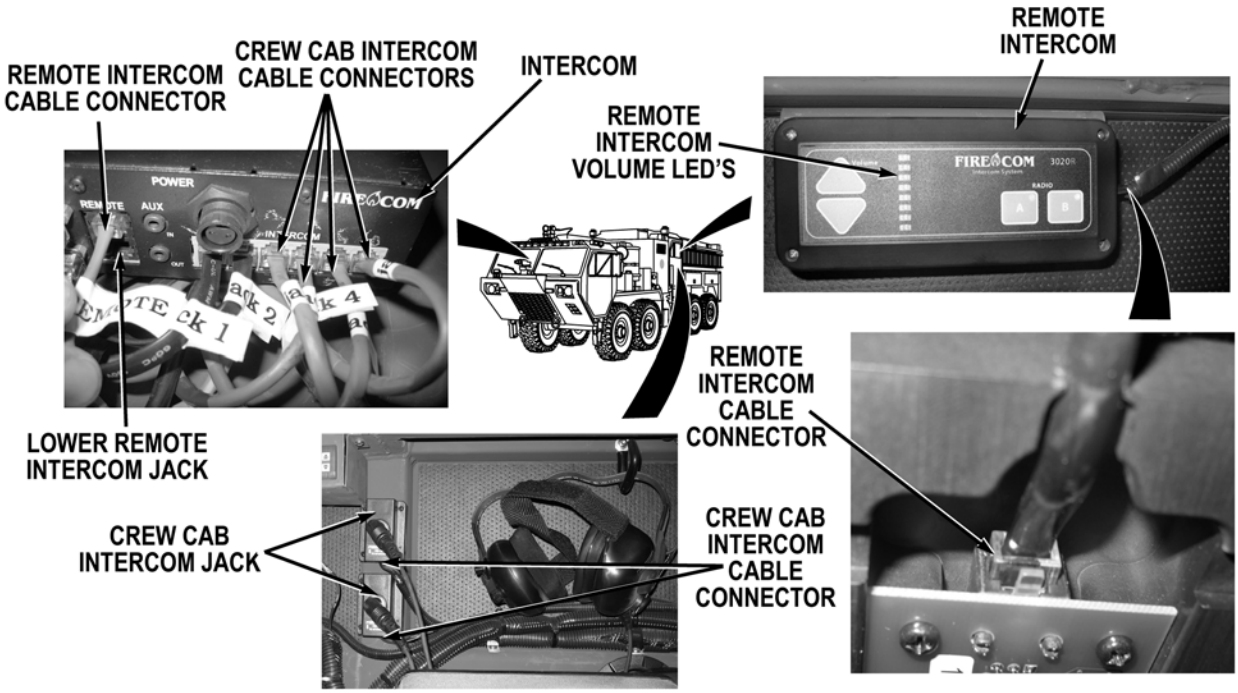
a. If intercom keys up two-way radio, replace intercom cables and connectors (WP 0395).

b. If intercom does not key up two-way radio, replace two-way radio (WP 0430).

Step 45. Inspect remote intercom cable connectors at remote intercom, interface adapter, crew cab intercom wire harness connector, and intercom for loose connections (WP 0395), (WP 0422), (WP 0445).

If connections are loose tighten or push connectors into seat.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 46. Turn battery disconnect switch to OFF position (WP 0007). Disconnect a known good intercom cable from intercom jack and interface adapter (WP 0445). Disconnect intercom cable from remote intercom head and interface adapter (WP 0422). Connect good cable into remote intercom and remote intercom interface adapter (WP 0445). Check if remote intercom volume LEDs illuminate.

If remote intercom volume LEDs illuminate, replace crew cab remote intercom cable (WP 0395).

Step 47. Put connectors to original position. Disconnect a known good intercom connector from crew cab intercom jack. Disconnect remote intercom cable connector. Disconnect matching crew cab intercom cable connector from intercom. Disconnect remote intercom cable connector from intercom. Plug intercom cable into remote jack on intercom. Plug matching intercom cable into remote intercom. Check if remote intercom volume LEDs illuminate.

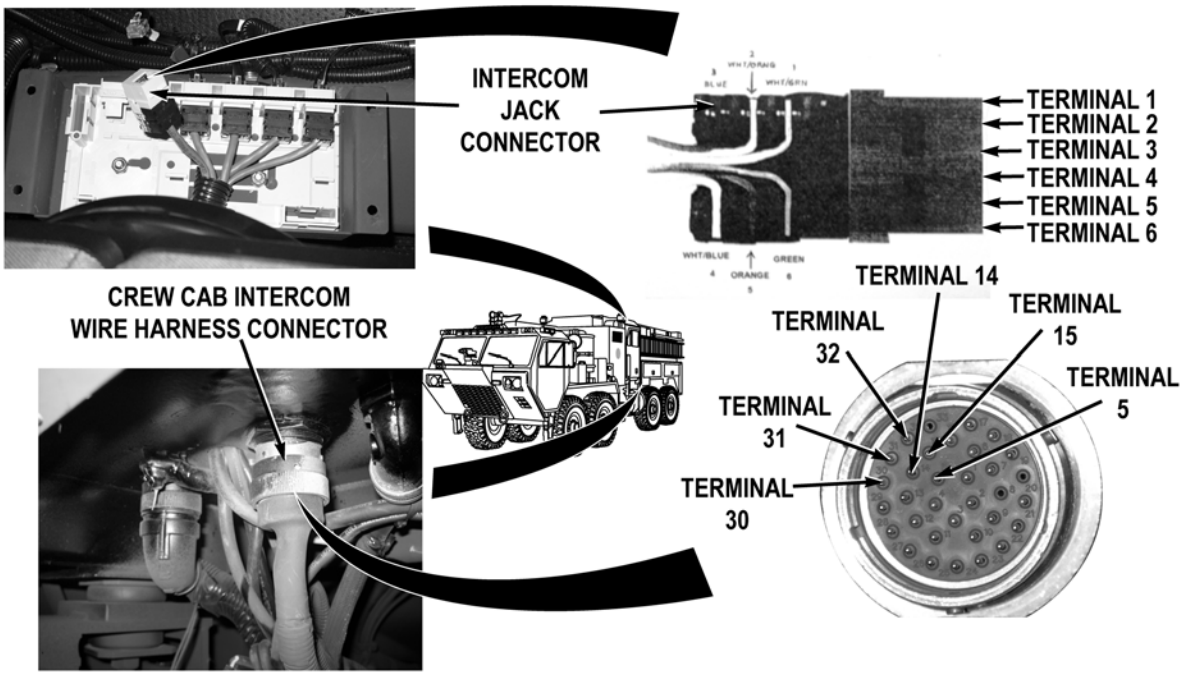
If remote intercom volume LEDs illuminate, go to Step 49.

Step 48. Put connectors to original position. Disconnect remote intercom cable connector from intercom. Connect remote intercom cable connector to lower remote jack in intercom. Check if remote intercom volume LEDs illuminate.

a. If remote intercom head volume LEDs illuminate, replace intercom (WP 0395).

b. If remote intercom head volume LEDs do not illuminate, replace remote intercom (WP 0422).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 49. Disconnect intercom wire harness crew cab connector (WP 0445). Disconnect remote intercom cable connector from interface adapter (WP 0445). With a test lead set, check continuity across crew cab intercom wire harness, communication wire (white & green) from crew cab wire intercom harness connector, terminal 30 to intercom jack connector, terminal 1, communication wire (white & orange) from crew cab wire intercom harness connector, terminal 31 to intercom jack connector terminal 2, communication wire (blue) from crew cab wire intercom harness connector, terminal 14 to intercom jack connector terminal 3, communication wire (white & blue) from crew cab wire intercom harness connector, terminal 5 to intercom jack connector terminal 4, communication wire (orange) from crew cab wire intercom harness connector, terminal 32 to intercom jack connector terminal 5, and communication wire (green) from crew cab wire intercom harness connector, terminal 15 to intercom jack connector terminal 6.

a. If there is continuity across wires, replace intercom wire harness (WP 0454).

b. If there is no continuity across any individual wire, replace crew cab intercom wire harness (WP 0445).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 50. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove inline fuse. Check for continuity across fuse.

If continuity is not present, replace intercom inline fuse.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 51. Disconnect intercom unit power wire harness connector. With a test lead set, check for 10 to 14 VDC between intercom power wire harness connector terminals 1 (ground) and 2.

a. If 10 to 14 VDC are present, replace intercom (WP 0395).

b. If 10 to 14 VDC are not present, repair intercom power wire harness wires if repairable (TM 9-2320-325-14&P), or replace intercom (WP 0395).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PASSENGER SIDE AND REAR STOWAGE COMPARTMENT LIGHT(S) DO NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

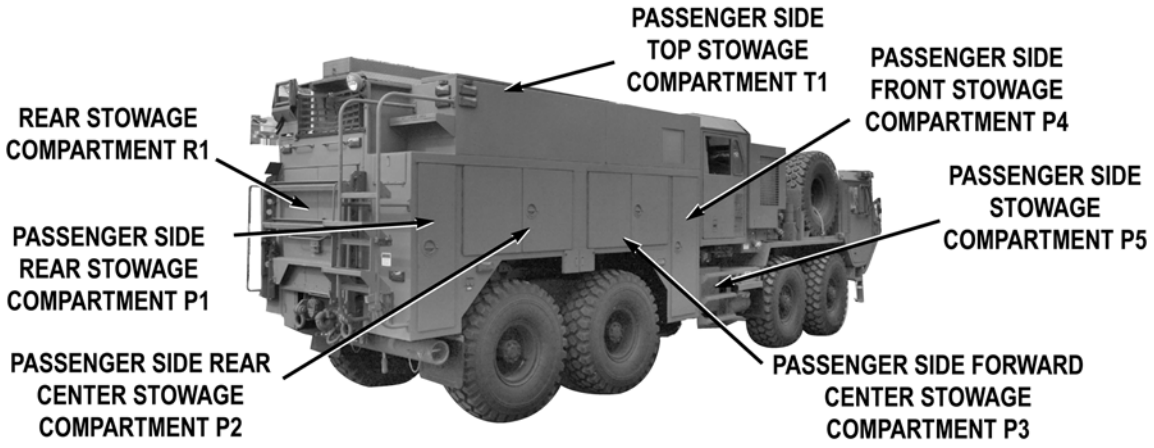
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0152
WP 0311
WP 0374

References (continued)
WP 0385
WP 0401
WP 0441
WP 0455
WP 0456
WP 0461
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

PASSENGER SIDE AND REAR STOWAGE COMPARTMENT LIGHT(S) DO NOT OPERATE



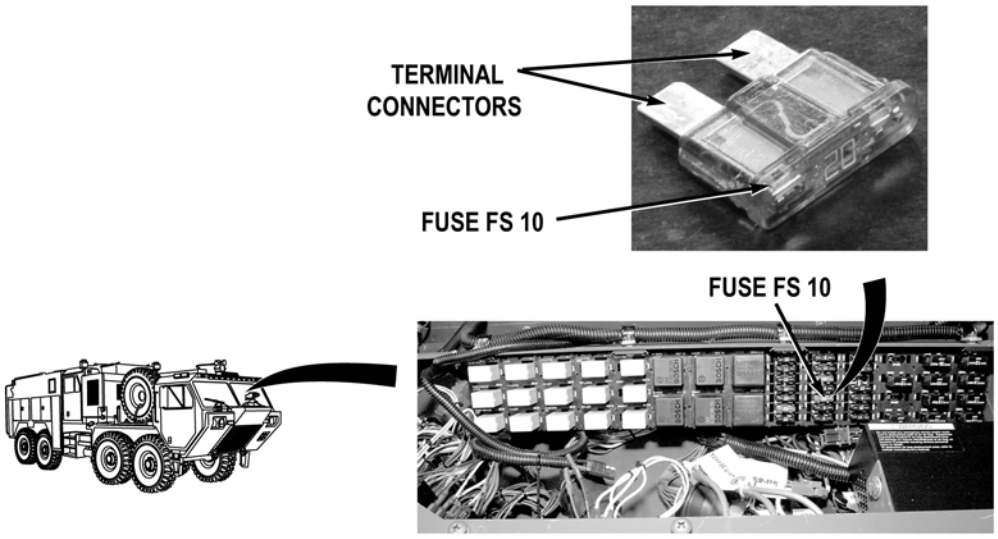
Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Open all passenger side stowage compartment doors (WP 0010). Open rear stowage compartment R1 door (WP 0010). Open upper stowage compartment hatch T1 (WP 0010). Check if at least one passenger side, rear, or upper stowage compartment light operates.

If at least one passenger side or rear stowage compartment light operates, go to Step 8.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 2. Put EMERG MASTER and F/R LOWER WARNING switches to on position (WP 0004). Check if front and rear lower warning lights operate.

If front and rear lower warning lights do not operate, troubleshoot Warning Lights (Front and Rear) Do Not Operate (WP 0152).



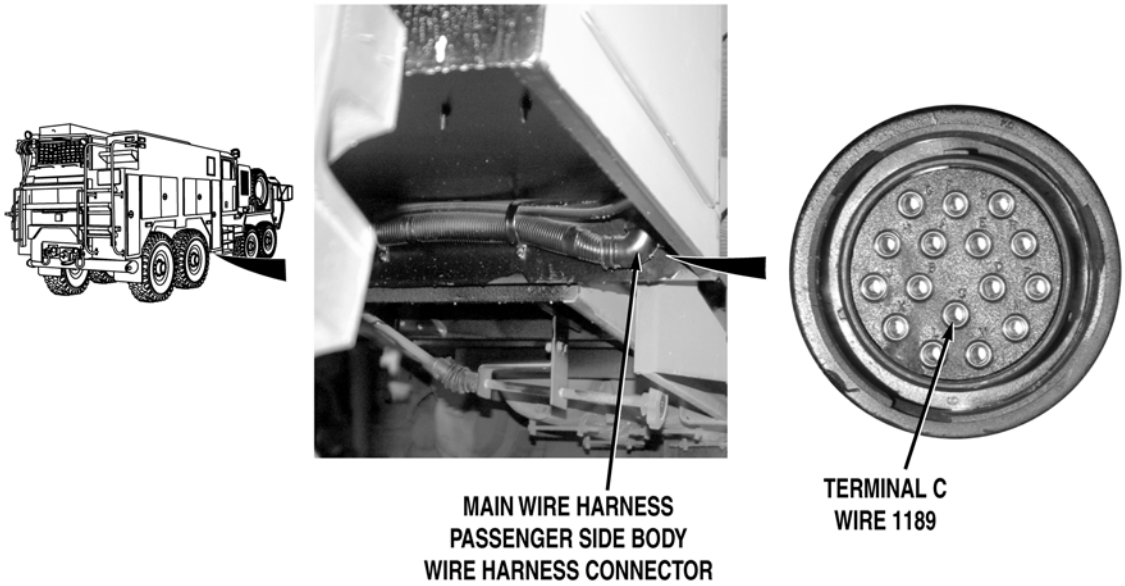
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 3. Put EMERG MASTER and F/R LOWER WARNING switches to off position (WP 0004). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 10 (WP 0401). Check for continuity across fuse FS 10 terminal connectors.

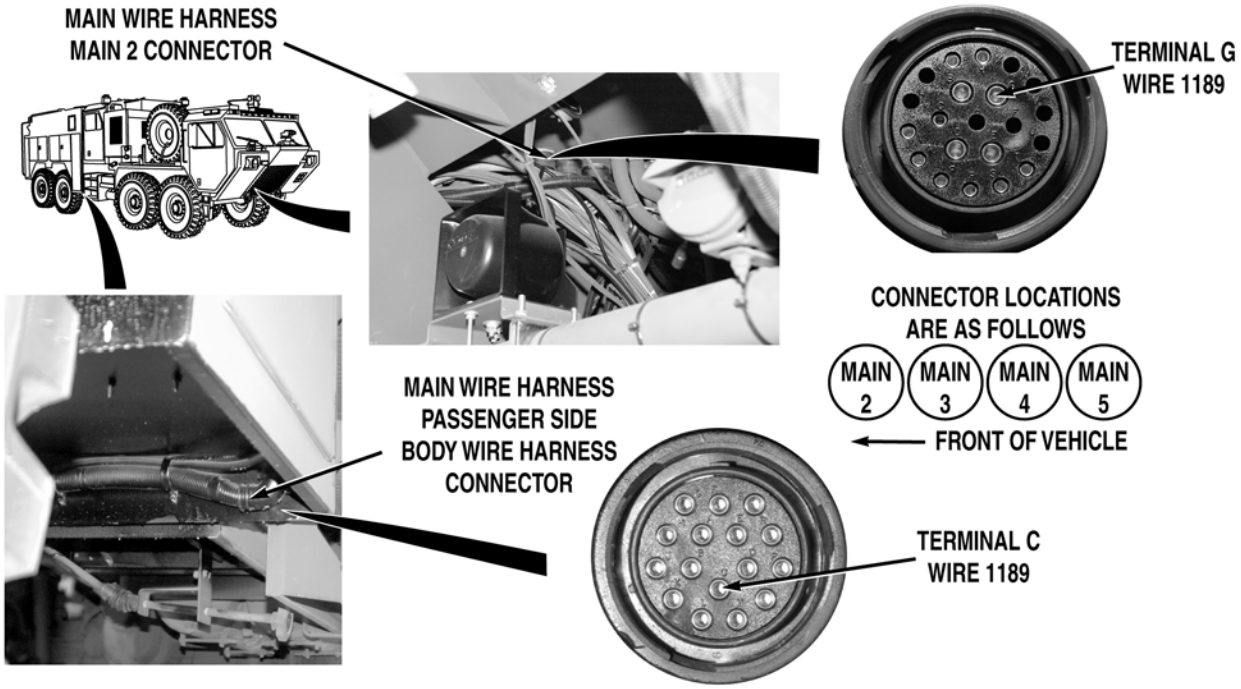
If there is no continuity, replace fuse FS 10 (WP 0401).



Step 4. Install fuse FS 10 (WP 0401). Disconnect main wire harness passenger side body wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). With a test lead set, check for 22 to 28 VDC between main wire harness wire 1189 (red) at main wire harness passenger side body wire harness connector, terminal C and a known good ground.

If 22 to 28 VDC are present, go to Step 6.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

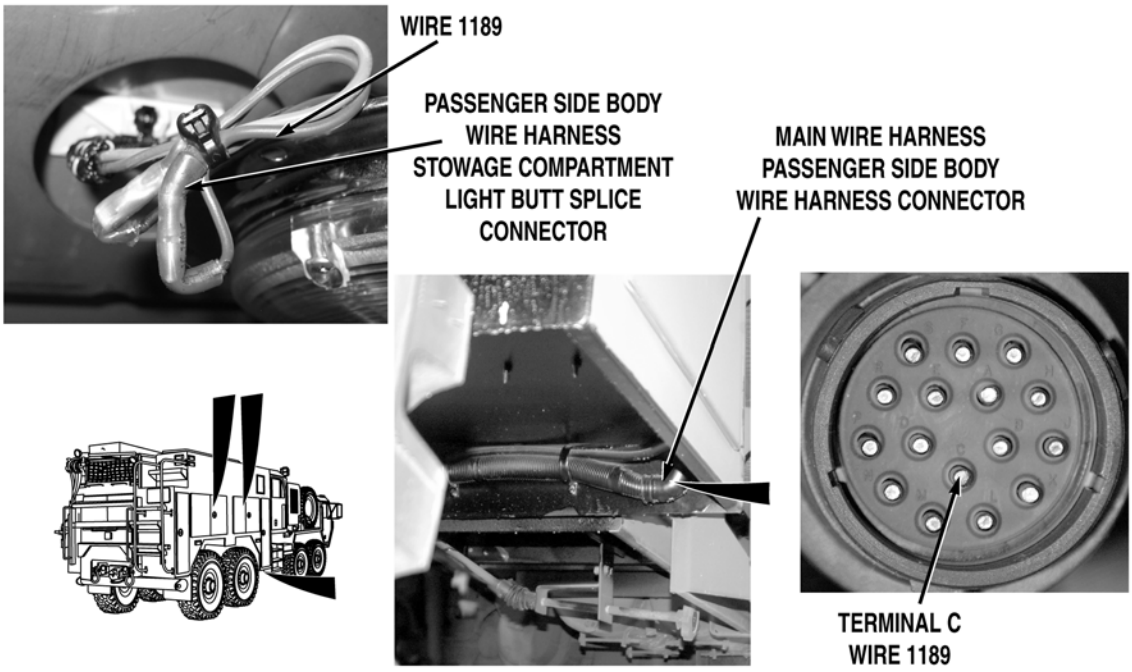
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Remove skid plate grille (WP 0550). Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness main 2 connector. With a test lead set, check for continuity across wire 1189 (red) from main wire harness main 2 connector, terminal G to main wire harness passenger side body wire harness connector, terminal C.

a. If there is continuity, repair wire 1189 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 1189 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

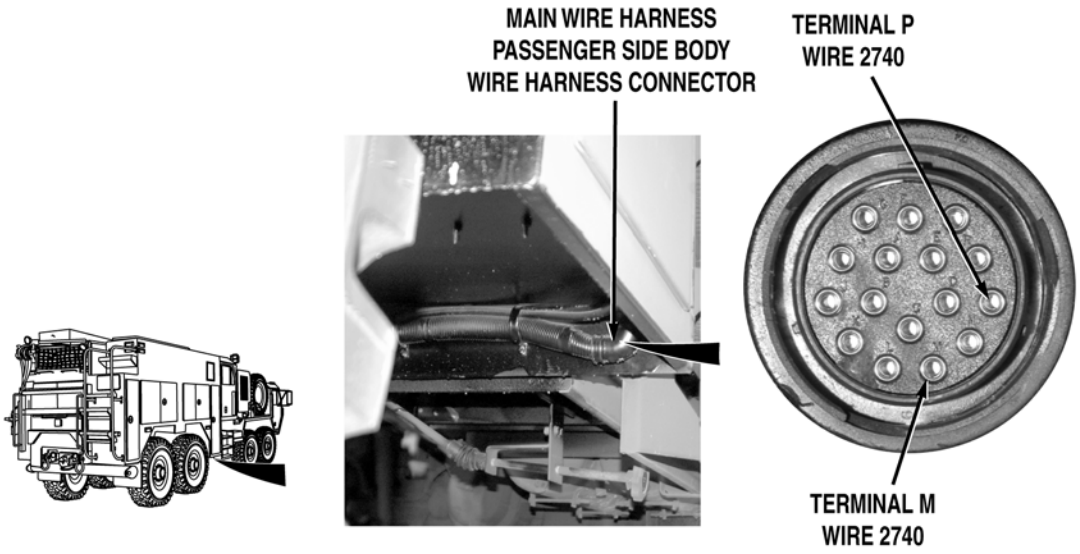
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 6. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Cut passenger side body wire harness stowage compartment light butt splice connector wire 1189 (red) at non-operating passenger side stowage compartment light. Check for continuity across passenger side body wire harness wire 1189 (red) to main wire harness passenger side body wire harness connector, terminal C.

If there is no continuity, repair wire 1189 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Check for continuity across main wire harness passenger side body wire harness wire 2740 (black) from main wire harness passenger side body wire harness connector, terminals M and P to a known good ground.

a. If there is continuity, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

Step 8. Check if non-operating stowage compartment light is located in passenger side under crew cab compartment P5.

If non-operating stowage compartment light is located in passenger side under crew cab compartment P5, go to Step 21.

Step 9. Check if non-operating stowage compartment light is located in rear stowage compartment R1.

If only rear stowage compartment R1 is non-operational, go to Step 15.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

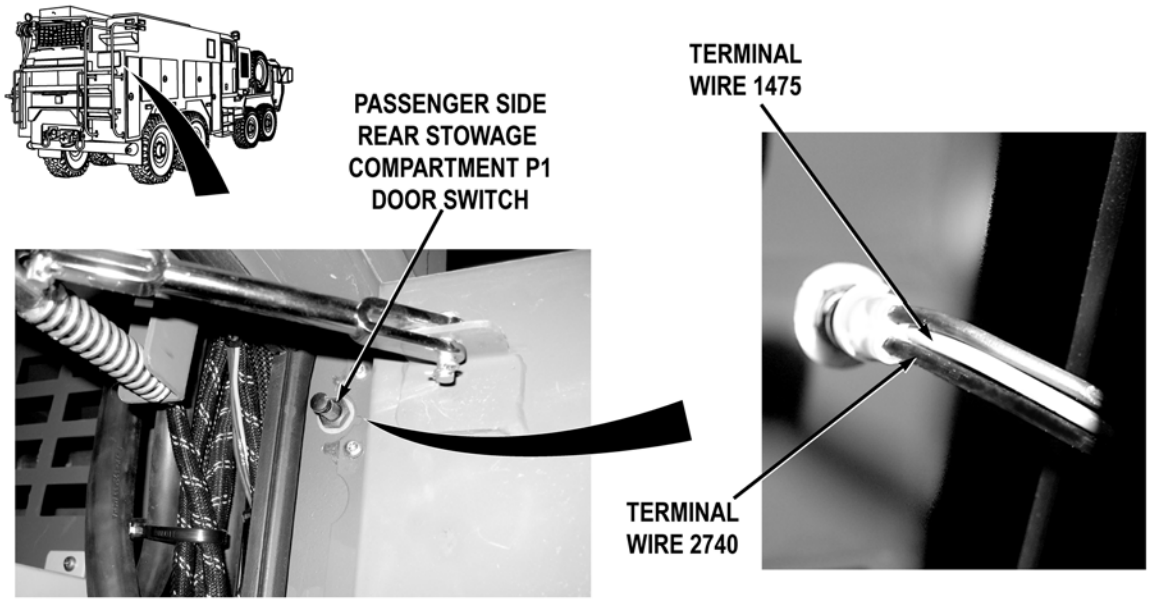
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

NOTE

- If more than one passenger side stowage compartment light is not operating, repeat Steps 10 through 14 for each non-operating stowage compartment light(s).
- Wires 1470, 1475, 1476, 1477, and 1478 are troubleshot the same way. Wire 1470 is located at top stowage compartment T1. Wire 1475 is located at passenger side stowage rear compartment P1. Wire 1476 is located at passenger side rear center stowage compartment P2. Wire 1477 is located at passenger side forward center stowage compartment P3. Wire 1478 is located at passenger side front stowage compartment P4.
- Steps 10 through 14 are used to find fault at passenger side rear stowage compartment P1 and will describe wire 1475. Repeat Steps 10 through 14 at each non-operating stowage compartment light(s) but substitute wire 1475 (text in this work package) with wire 1470, wire 1476, wire 1477, or wire 1478 as necessary.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



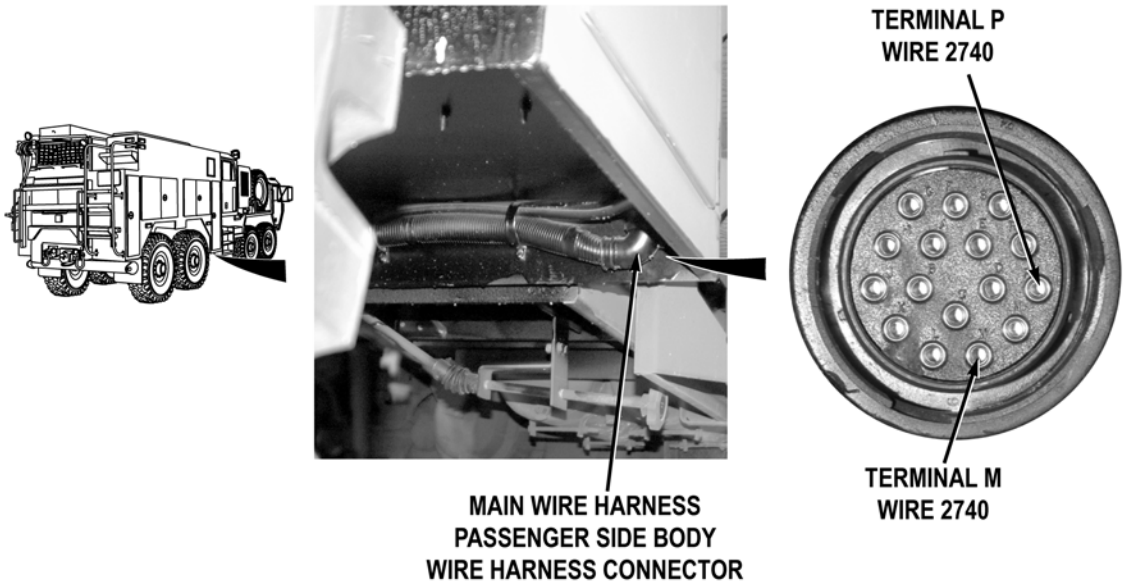
Step 10. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Close all passenger side stowage compartment doors and hatches except passenger side rear stowage compartment P1 door (WP 0010). Remove door switch (WP 0385), do not disconnect wires. Check for continuity between passenger side rear stowage compartment P1 door switch terminal wire 1475 (white) and a known good ground when switch is closed (door switch is not pressed).

If there is continuity, go to Step 13.

Step 11. Check for continuity across passenger side rear stowage compartment P1 door switch between terminal wire 1475 (white) and terminal wire 2740 (black).

If there is no continuity, replace door switch (WP 0385).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

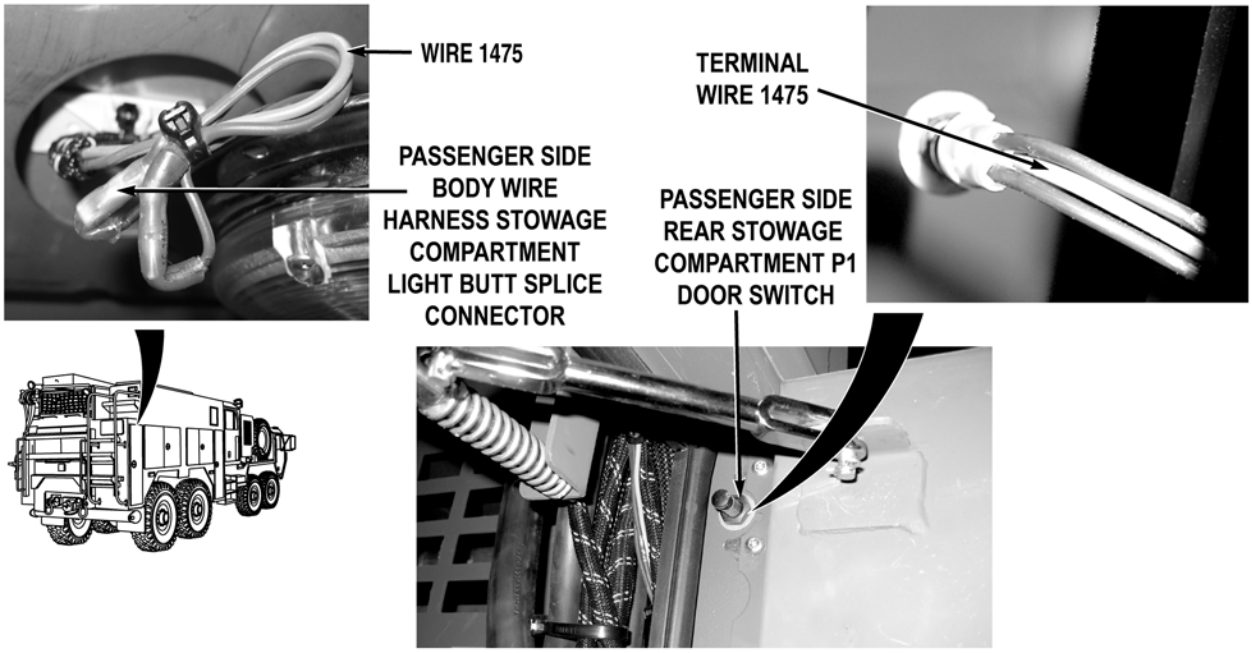


Step 12. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2740 (black) from main wire harness connector terminals M and P to a known good ground.

a. If there is continuity at both terminals, repair wire 2740 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity at either or both terminals, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

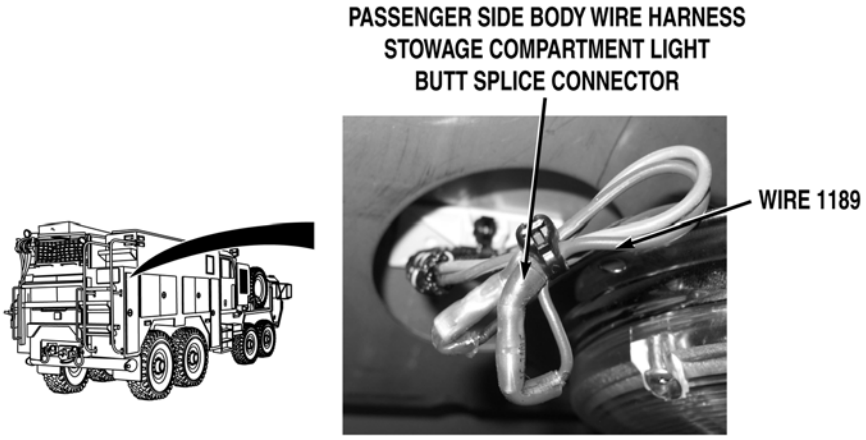
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 13. Remove light from passenger side rear stowage compartment P1 (WP 0374). Cut passenger side body wire harness stowage compartment light butt splice connector wire 1475 (white). Check for continuity across passenger side body wire harness wire 1475 (white) from stowage compartment light butt splice connector, to passenger side rear stowage compartment P1 door switch.

If there is no continuity, repair wire 1475 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

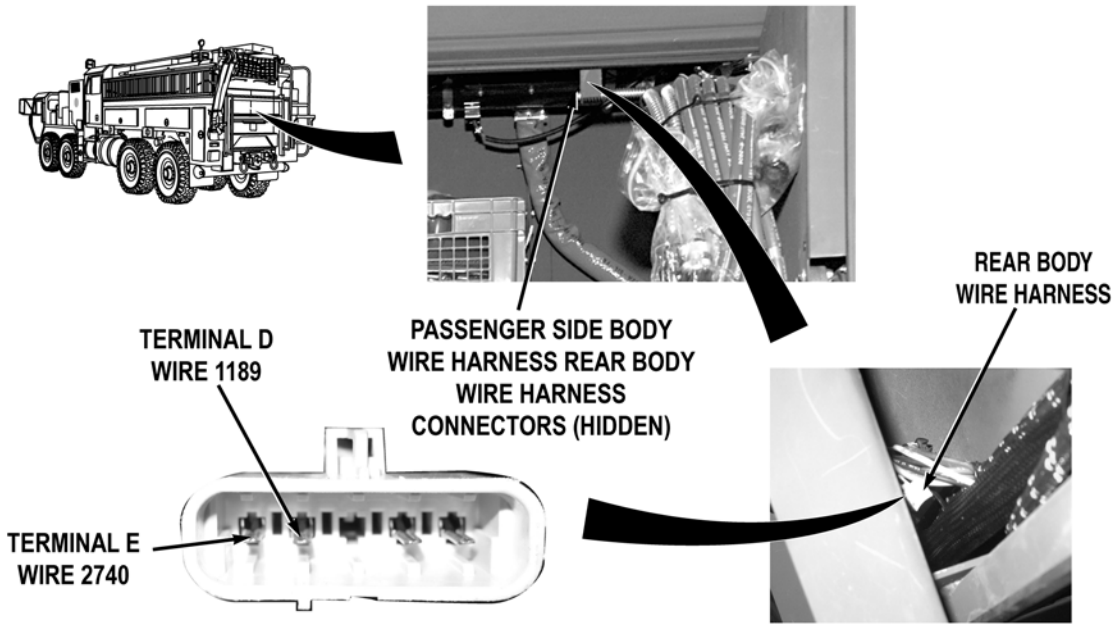


Step 14. Cut passenger side body wire harness stowage compartment light butt splice connector wire 1189 (red). Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check for 22 to 28 VDC between wire 1189 (red) at passenger side body wire harness stowage compartment light butt splice connector, and a known good ground.

a. If 22 to 28 VDC are present, replace non-operating stowage compartment light (WP 0374).

b. If 22 to 28 VDC are not present, repair wire 1189 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

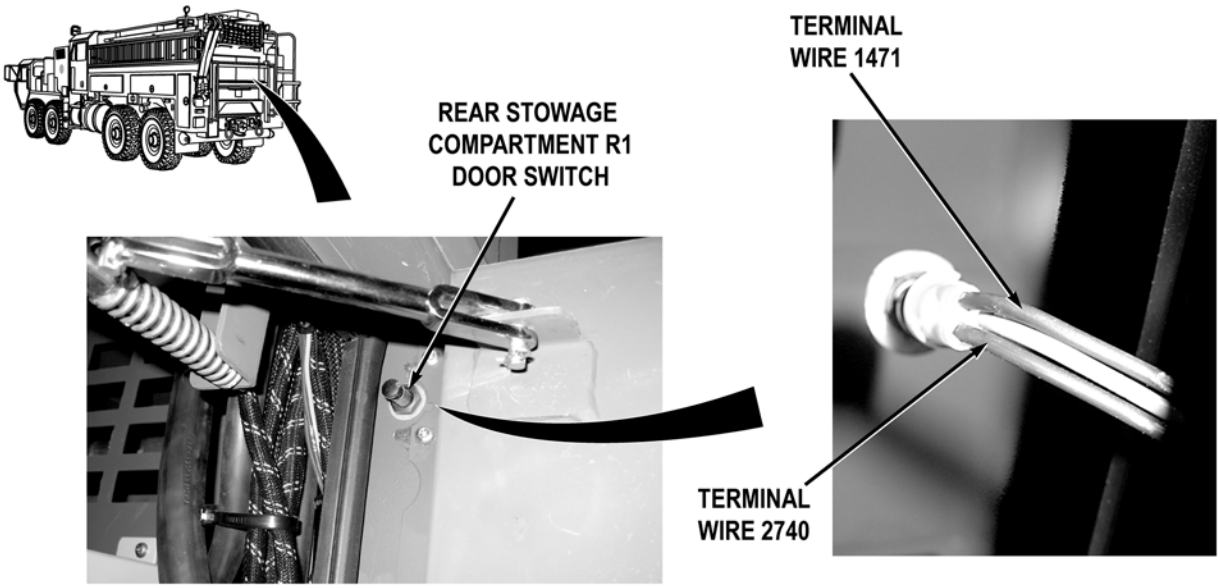
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 15. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch OFF (WP 0007). Disconnect passenger side body wire harness rear body wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Light On (TM 9-2320-347-10). With a test lead set, check for 22 to 28 VDC at wire 1189 from passenger side body wire harness rear body wire harness connector, terminal D to a known good ground.

If 22 to 28 VDC are not present, repair wire 1189 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

If wire 2740 cannot be identified at door switch, measure continuity across switch from terminal wire 1609 (gray) to both black wire terminals. Continuity should be measured between all terminals when switch is closed (door switch is not pressed).

Step 16. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove rear stowage compartment R-1 door switch (WP 0385), do not disconnect wires. Check for continuity between door switch terminal wire 1471 (black) and a known good ground when switch is closed (door switch is not pressed).

If there is continuity, go to Step 19.

Step 17. Check for continuity across door switch between terminal wire 1471 (black) and terminal wire 2740 (black).

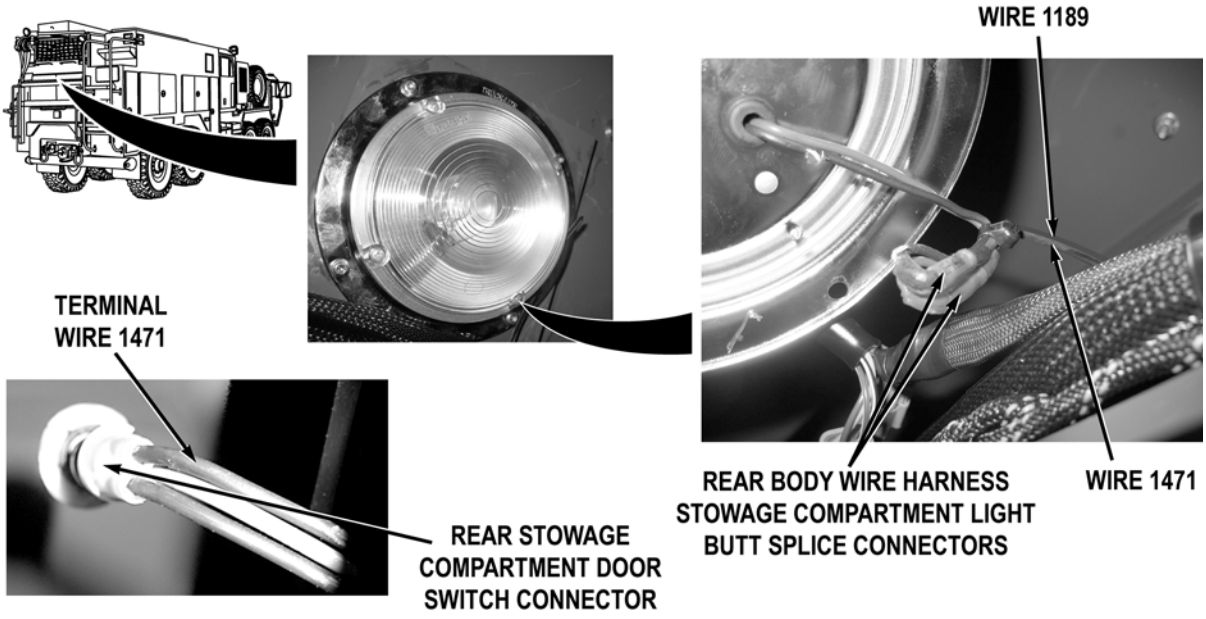
If there is no continuity, replace door switch (WP 0385).

Step 18. With a test lead set, check for continuity across main wire harness wire 2740 (black) from passenger side body wire harness rear body wire harness connector, terminal E to a known good ground.

a. If there is continuity, repair wire 2740 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

b. If there is no continuity, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 19. Remove rear stowage compartment R-1 light (WP 0374). Cut rear body wire harness stowage compartment light butt splice connector wire 1471 (black). Check for continuity across rear body wire harness wire 1471 (black) from rear stowage compartment butt splice connector, to rear stowage compartment door switch connector.

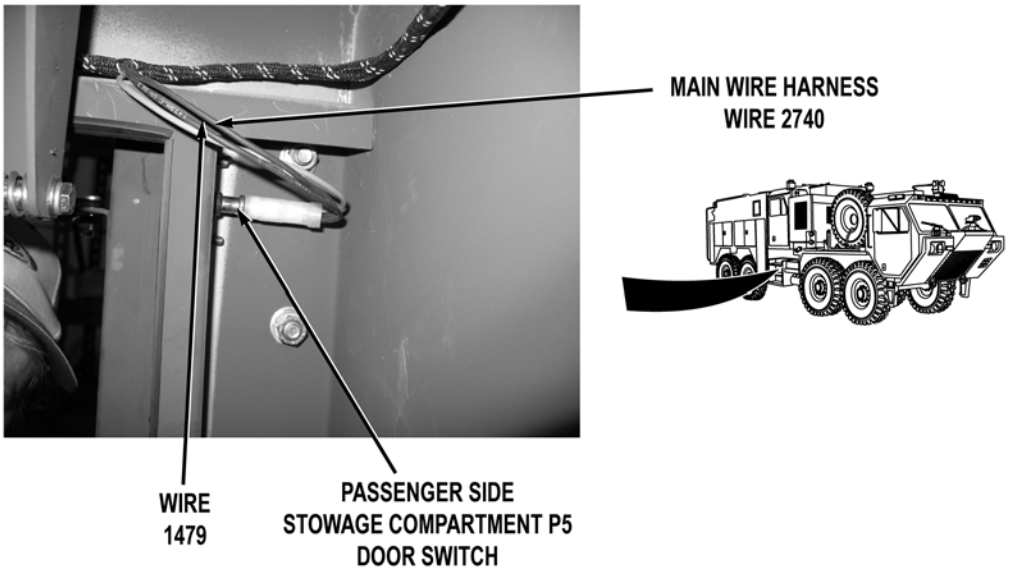
If there is no continuity, repair wire 1471 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

Step 20. Reconnect passenger wire harness rear body wire harness connector. Cut rear body wire harness stowage compartment light butt splice connector wire 1189 (red). Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check for 22 to 28 VDC between wire 1189 (red) at rear body wire harness stowage compartment light butt splice connector, and a known good ground.

a. If 22 to 28 VDC are present, replace rear stowage compartment light (WP 0374).

b. If 22 to 28 VDC are not present, repair wire 1189 in rear body wire harness if repairable (TM 9-2320-325-14&P), or replace rear body wire harness (WP 0461).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

If wire 2740 cannot be identified at door switch, measure continuity across switch from terminal wire 1609 (gray) to both black wire terminals. Continuity should be measured between all terminals when switch is closed (door switch is not pressed).

Step 21. Turn Service Drive Lights Off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove passenger side body stowage compartment door switch (WP 0385), do not disconnect wires. Check for continuity between door switch terminal wire 1479 (black) and a known good ground when switch is closed (door switch is not pressed).

If there is continuity, go to Step 24.

Step 22. Check for continuity across door switch between terminal wire 1479 (black) and terminal wire 2740 (black).

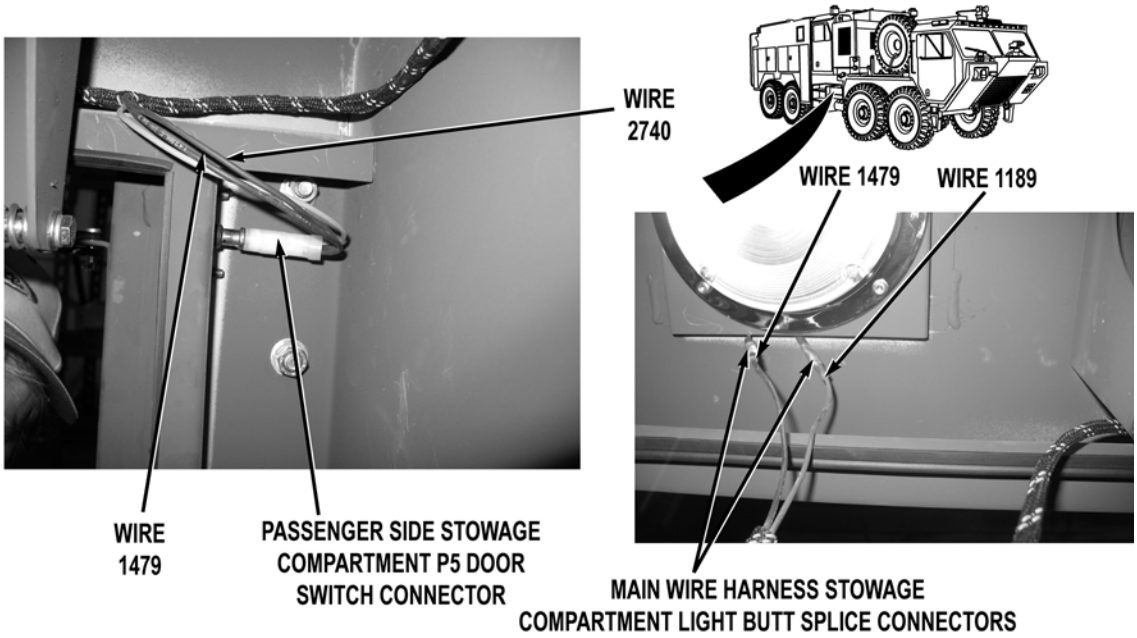
If there is no continuity, replace door switch (WP 0385).

Step 23. Disconnect passenger side stowage compartment P-5 door switch (WP 0385). With a test lead set, check for continuity across main wire harness wire 2740 (black) from passenger side stowage compartment P-5 door switch to a known good ground.

a. If there is continuity, replace door switch (WP 0385).

b. If there is no continuity, repair wire 2740 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 24. Remove passenger side stowage compartment P-5 light (WP 0374). Cut main wire harness stowage compartment light butt splice connector wire 1479 (black). Check for continuity across main wire harness wire 1479 (black) to passenger side stowage compartment P-5 door switch connector.

If there is no continuity, repair wire 1479 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

Step 25. Cut main wire harness stowage compartment light butt splice connector wire 1189 (red). Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check for 22 to 28 VDC between wire 1189 (red) and a known good ground.

a. If 22 to 28 VDC are present, replace rear stowage compartment light (WP 0374).

b. If 22 to 28 VDC are not present, repair wire 1189 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PUMP HOUSE FAN DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

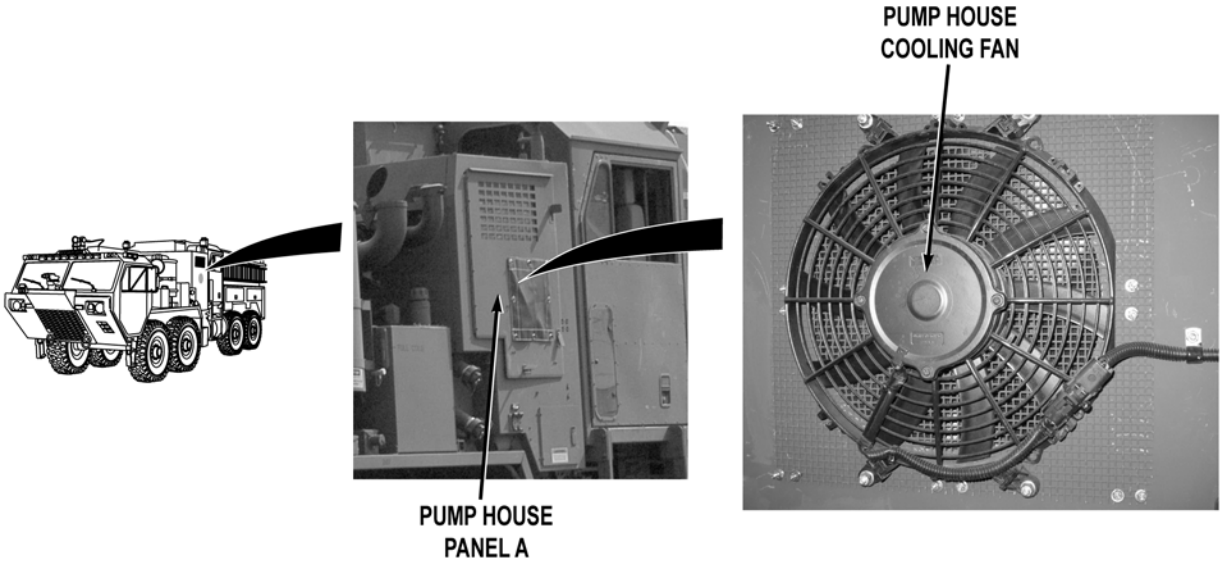
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0022
WP 0146
WP 0412

References (continued)
WP 0413
WP 0414
WP 0416
WP 0455
WP 0457
WP 0458
WP 0539
WP 0540

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

PUMP HOUSE FAN DOES NOT OPERATE PROPERLY

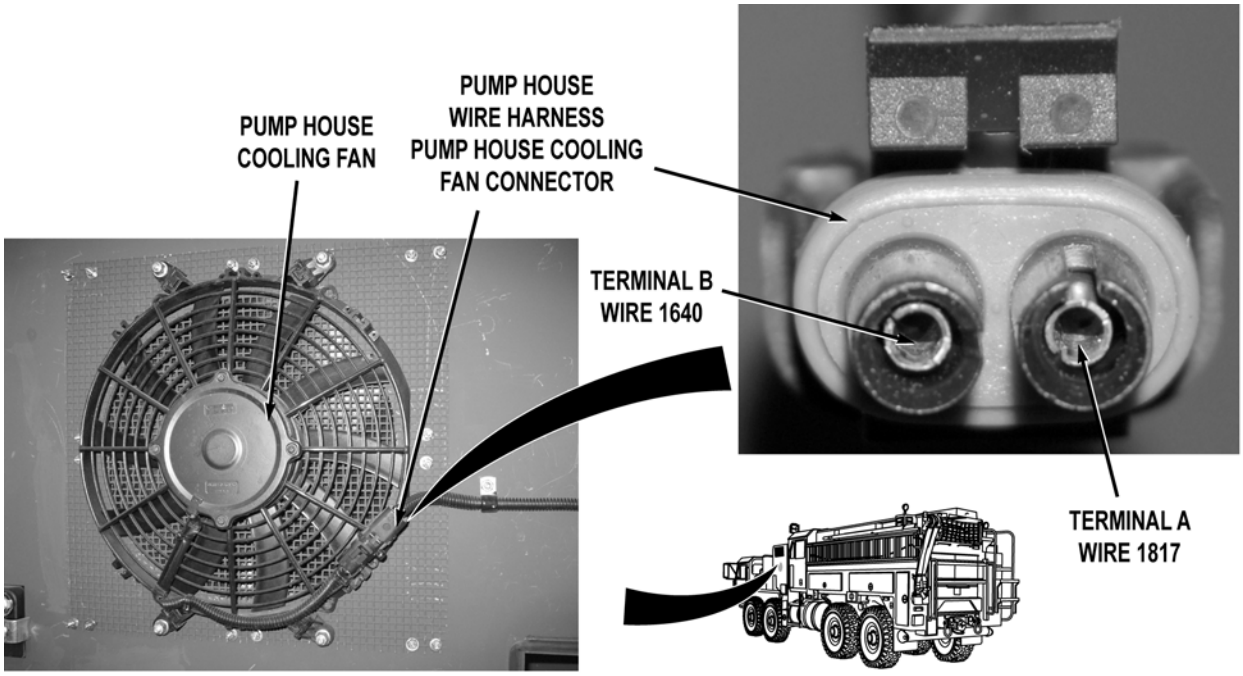


NOTE

- Pump house cooling fan operates when water pump engine is running and pump house temperature is 115ºF (46ºC) or greater.
- Pump house cooling fan operation can be checked by listening for pump house cooling fan or by feeling for air circulating from pump house panel A.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Start water pump engine (WP 0022). Allow water pump engine to heat pump house to 115ºF (46ºC) or greater. Check if pump house cooling fan operates.

If pump house cooling fan operates, fault corrected.



WARNING

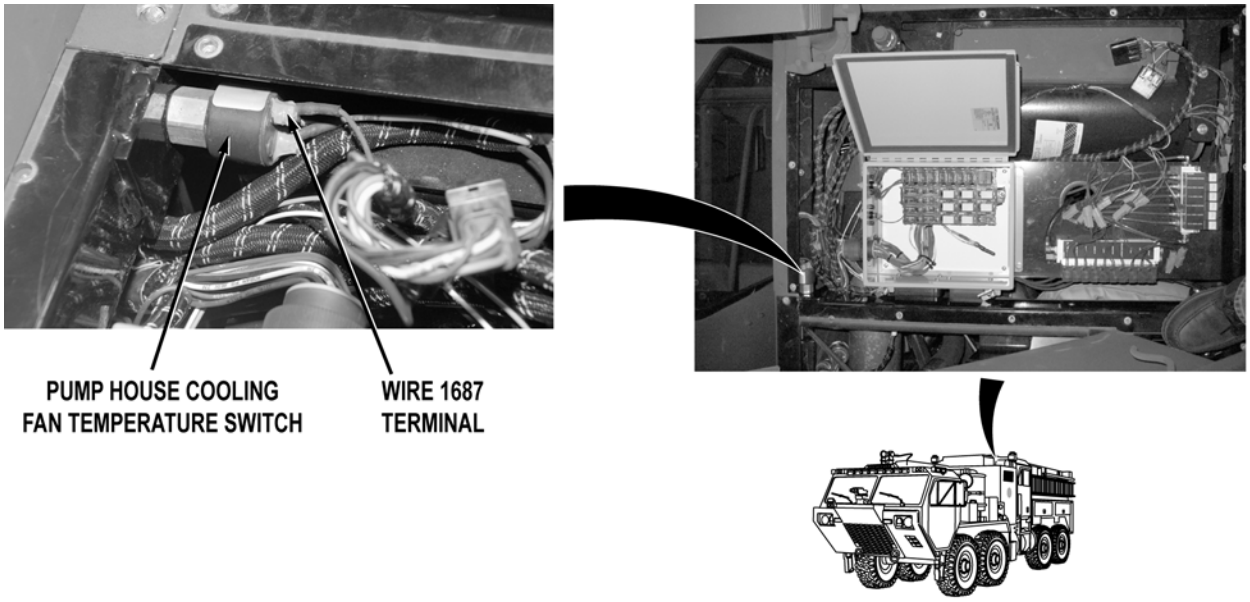
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 2. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Open pump house panel A (WP 0539). Disconnect pump house wire harness pump house cooling fan connector. Check for continuity across pump house wire harness wire 1640 (black) from pump house wire harness pump house cooling fan connector, terminal B to a known good ground.

If there is no continuity, repair wire 1640 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

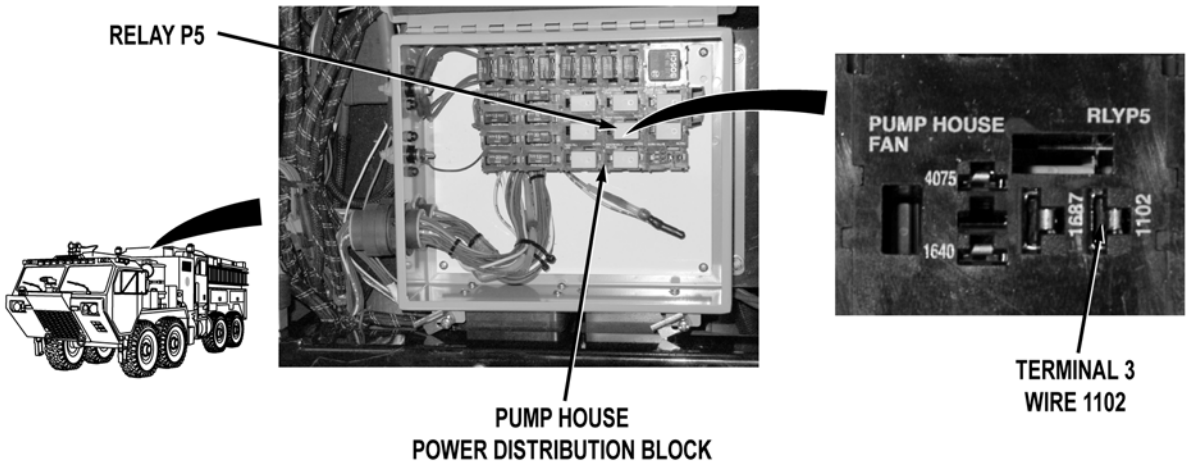
Step 3. Turn battery disconnect switch to ON position (WP 0007). Close pump house panel A (WP 0539). Start water pump engine (WP 0022). Allow water pump engine to heat pump house to 115ºF (46ºC) or greater. Open pump house panel A (WP 0539). Check for 22 to 28 VDC between wire 1817 (pink) from pump house wire harness pump house cooling fan connector, terminal A to a known good ground.

If 22 to 28 VDC are present, replace pump house cooling fan (WP 0416).



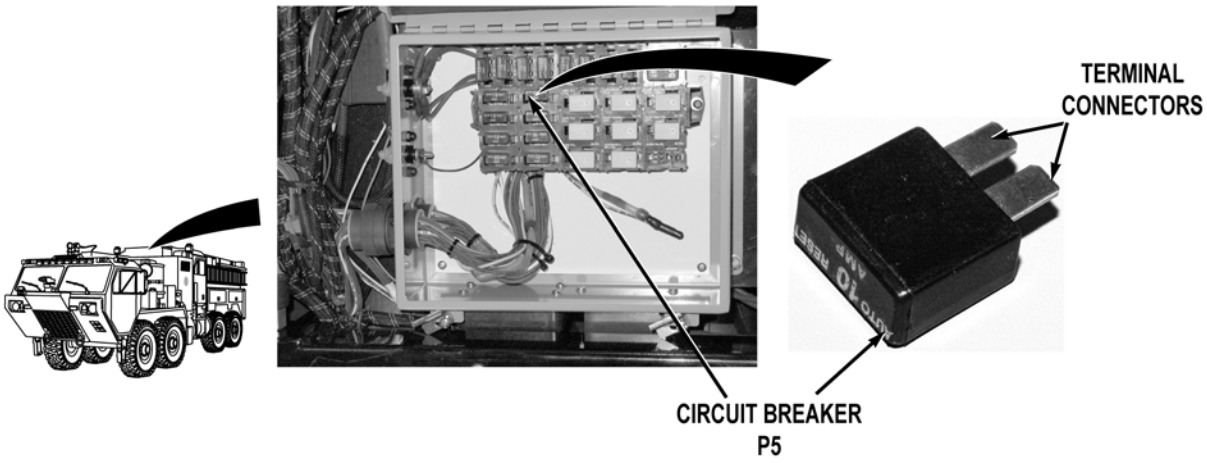
Step 4. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove pump house panel S (WP 0540). Turn battery disconnect switch to ON position (WP 0007). While an assistant starts water pump engine (WP 0022), check for 22 to 28 VDC between wire 1687 (brown) from pump house cooling fan temperature switch, terminal to a know good ground.

If 22 to 28 VDC are present, go to Step 12.



Step 5. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Remove relay P5 from pump house power distribution block (WP 0413). Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between pump house power distribution wire harness wire 1102 (blue) from pump house power distribution block relay P5, terminal 3 to a known good ground.

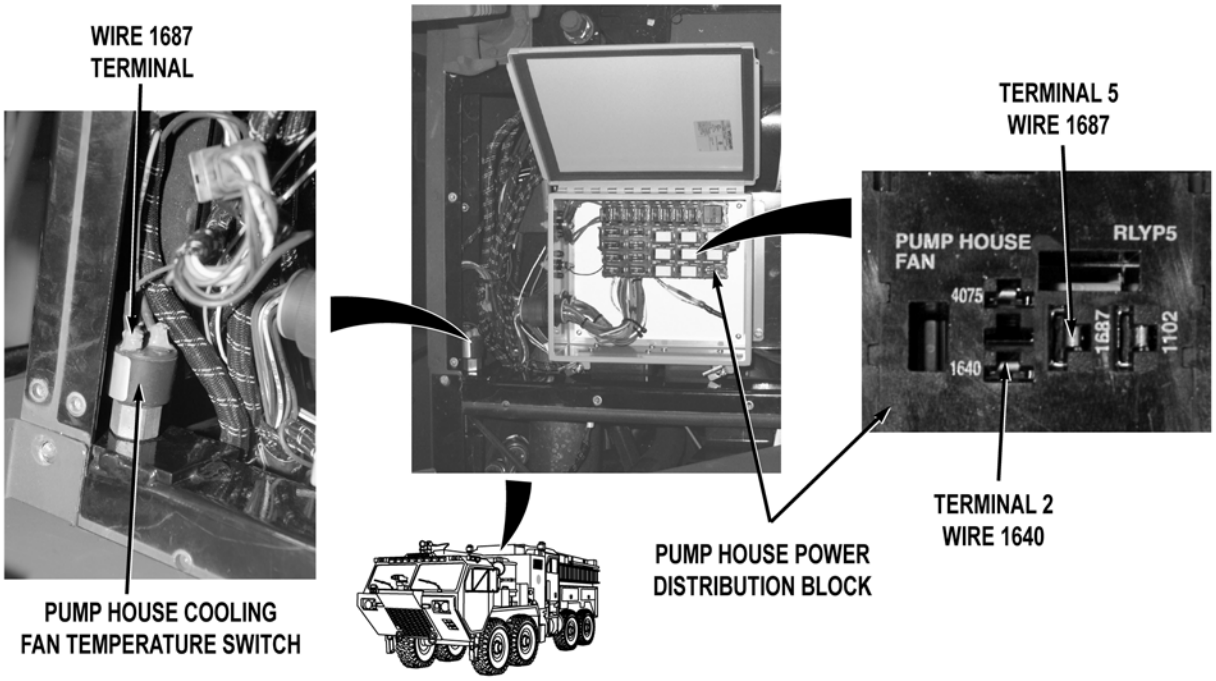
If 22 to 28 VDC are present, go to Step 7.



Step 6. Turn battery disconnect switch to OFF position (WP 0007). Remove circuit breaker P5 from pump power distribution block (WP 0412). Check for continuity across circuit breaker P5 terminal connectors.

a. If there is continuity, replace pump house power distribution wire harness and block (WP 0457).

b. If there is no continuity, replace circuit breaker P5 (WP 0412).



WARNING

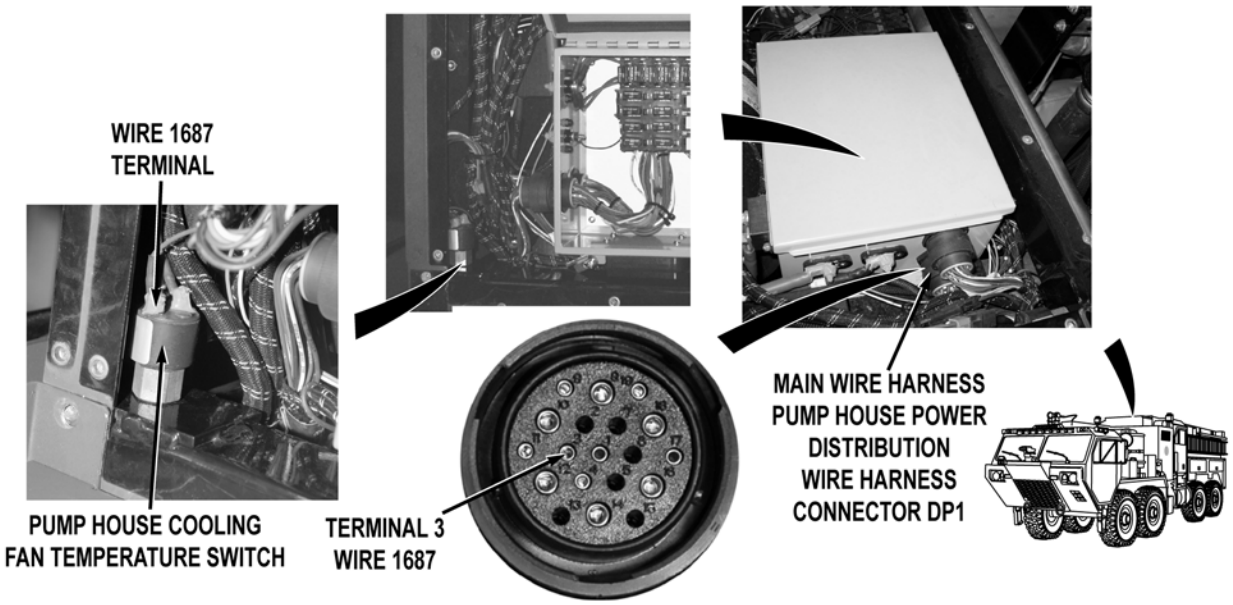
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 7. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across pump house power distribution wire harness wire 1640 (black) from pump house power distribution block relay P5, terminal 2 to a known good ground.

If there is no continuity, replace pump house power distribution wire harness and block (WP 0457).

Step 8. Check for continuity across wire 1687 (brown) from pump house power distribution block relay P5, terminal 5 to pump house cooling fan temperature switch, terminal.

If there is continuity, go to Step 10.



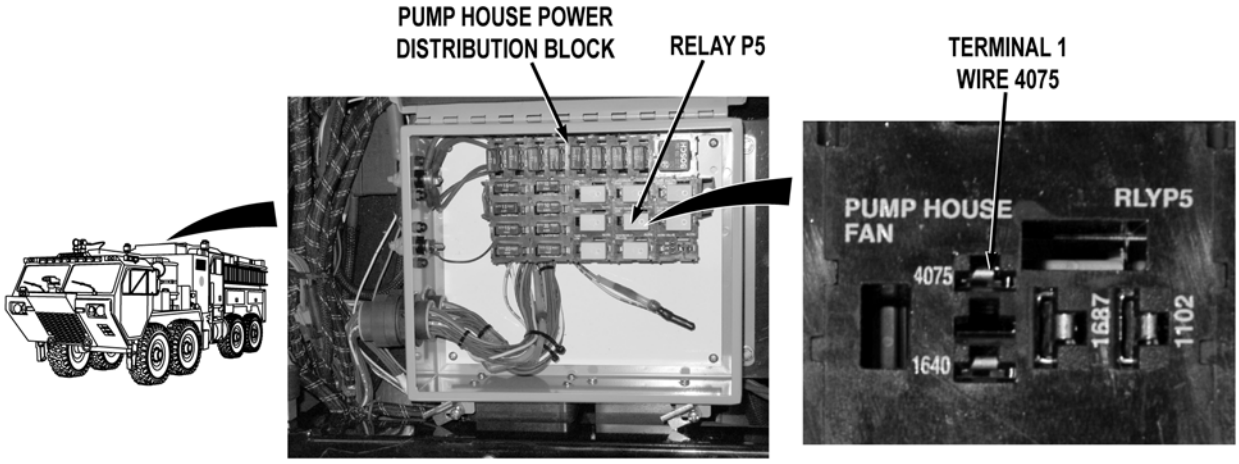
Step 9. Disconnect main wire harness pump house power distribution wire harness connector DP1. Check for continuity across main wire harness wire 1687 (brown) from main wire harness pump house power distribution wire harness connector DP1, terminal 3 to pump house cooling fan temperature switch, terminal.

a. If there is continuity, repair wire 1687 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

b. If there is no continuity, repair wire 1687 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

Step 10. Turn battery disconnect switch to ON position (WP 0007). Start water pump engine (WP 0022). Check if water pump engine pressure governor control illuminates (WP 0004).

If water pump engine pressure governor control does not illuminate, troubleshoot Water Pump Engine Pressure Governor Control Panel Does Not Operate Properly (WP 0146).



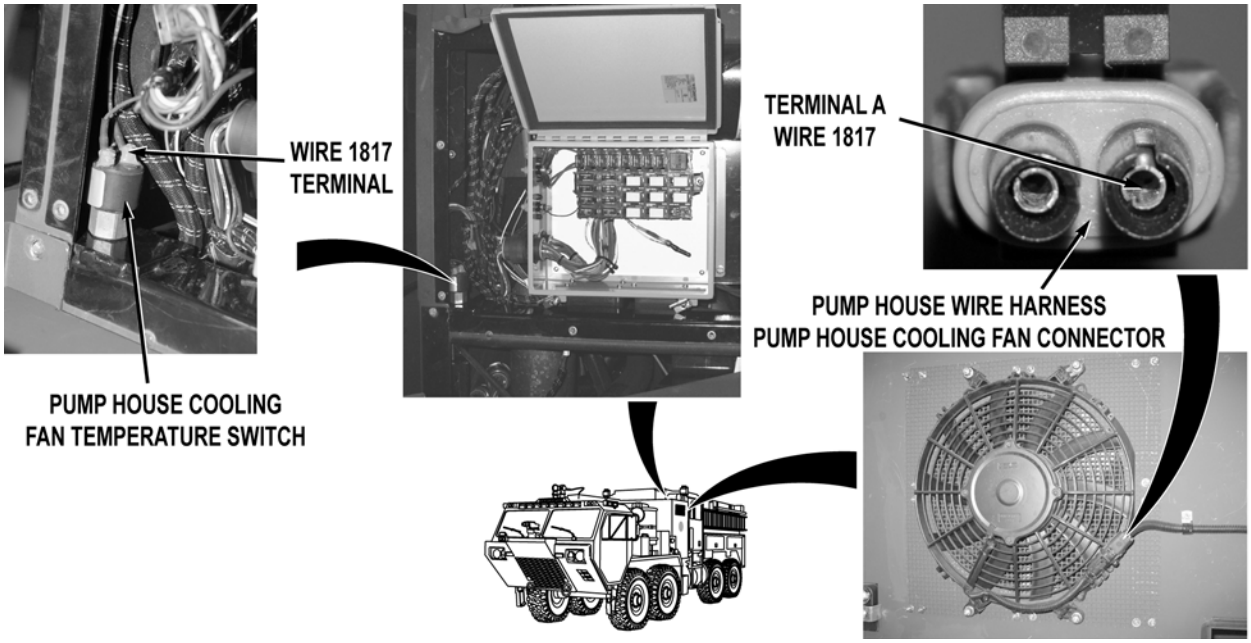
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 11. Check for 22 to 28 VDC between wire 4075 (red) from pump house power distribution block relay P5, terminal 1 to a known good ground.

a. If 22 to 28 VDC are present, replace relay P5 (WP 0413).

b. If 22 to 28 VDC are not present, replace pump house power distribution wire harness and block (WP 0457).



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 12. Stop water pump engine (WP 0022). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across pump house wire harness wire 1817 (pink) from pump house cooling fan temperature switch, terminal to pump house wire harness pump house cooling fan connector, terminal A.

a. If there is continuity, replace pump house cooling fan temperature switch (WP 0414).

b. If there is no continuity, repair wire 1817 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PUMP HOUSE OR PUMP OPERATOR'S PANEL WORK LIGHT(S) DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0019
WP 0311
WP 0325
WP 0328

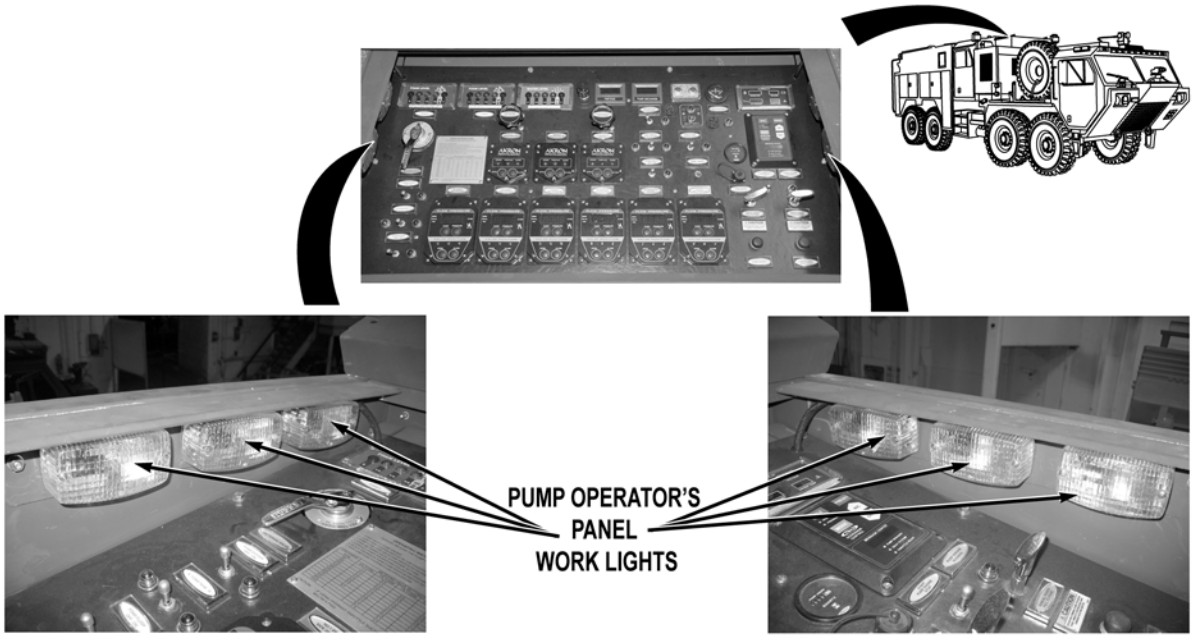
References (continued)
WP 0335
WP 0398
WP 0441
WP 0455
WP 0458
WP 0459
WP 0550

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

PUMP HOUSE OR PUMP OPERATOR'S PANEL WORK LIGHT(S) DOES NOT OPERATE

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



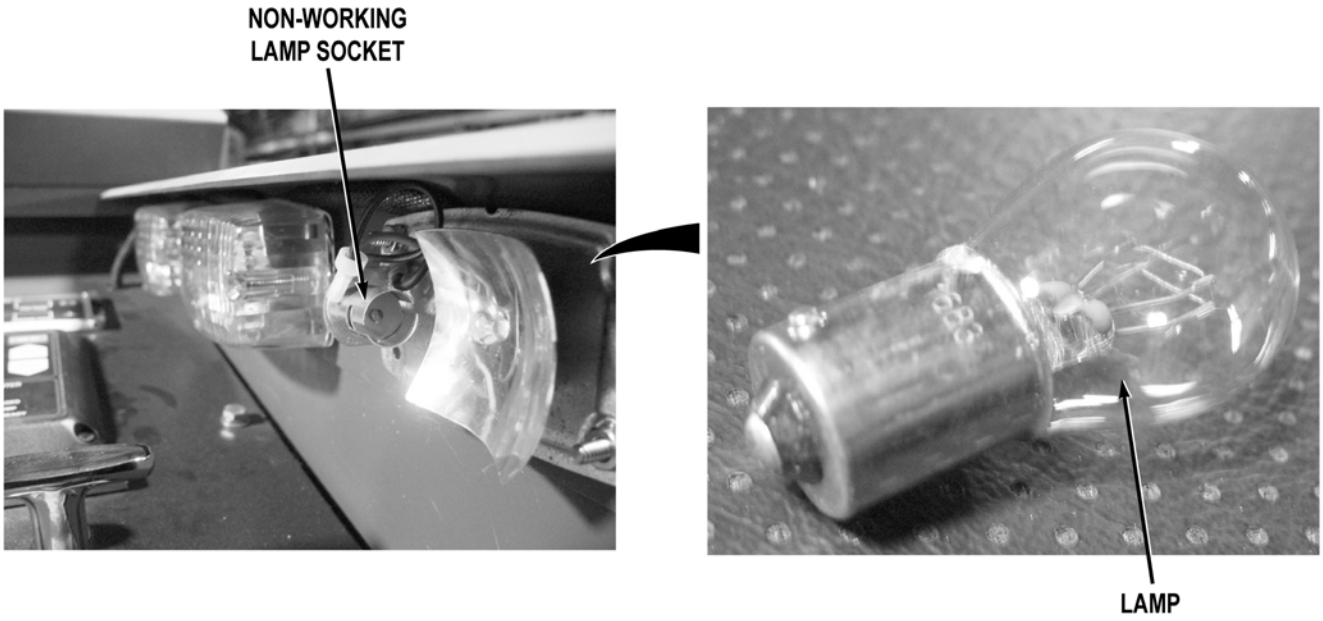
Step 1. Turn battery disconnect switch to ON position (WP 0007). Open pump operator's panel cover (WP 0019). Put pump operator's panel PANEL LIGHTS switch to on position (WP 0004). Check if all pump operator's panel work lights operate.

If all pump operator's panel work lights operate, go to Step 6.

Step 2. Check if any pump operator's panel work lights operate.

If all pump operator's panel work lights do not operate, go to Step 16.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

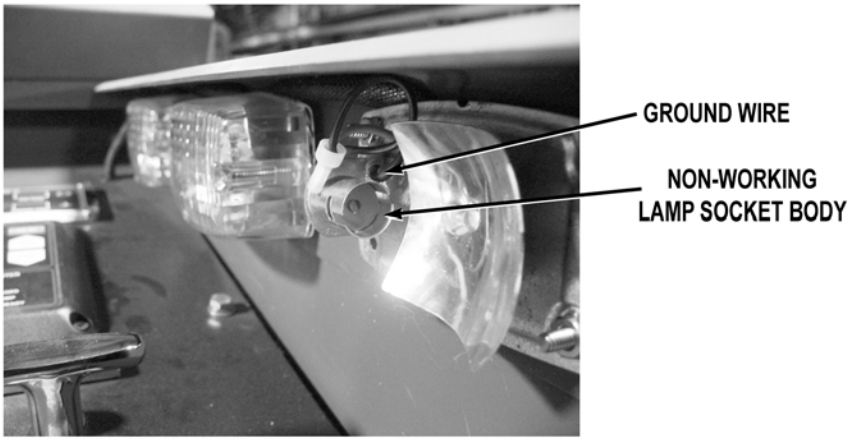
Step 3. Put pump operator's panel PANEL LIGHTS switch to OFF position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from non-working pump operator's panel work light (WP 0335). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0335).

Step 4. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel PANEL LIGHT switch to on position (WP 0004). Check for 22 to 28 VDC at non-working lamp socket to a known good ground.

If 22 to 28 VDC are not present, repair power wire if repairable (TM 9-2320-325-14&P), or replace power wire (TM 9-2320-325-14&P).

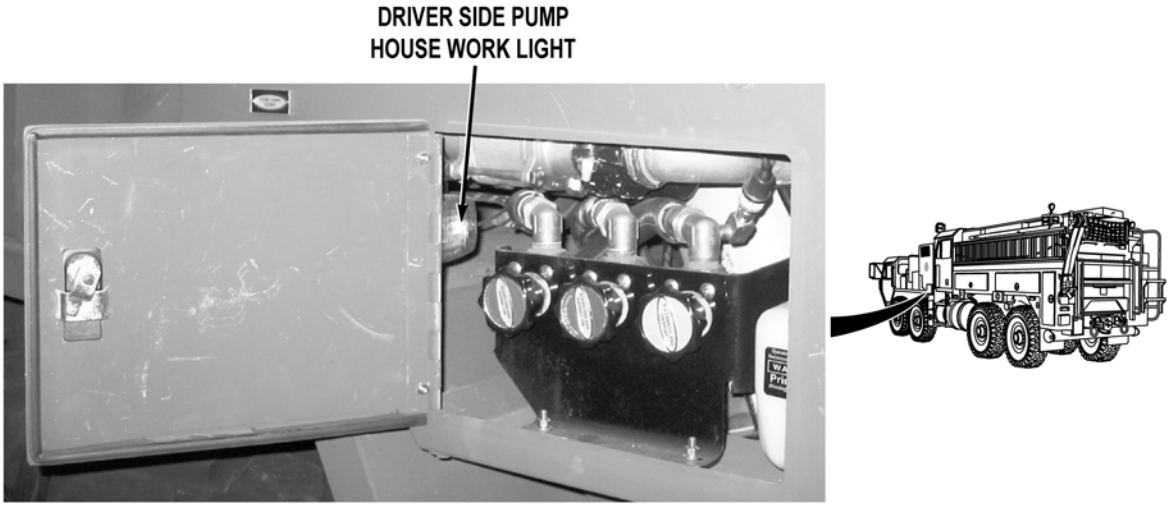
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Put pump operator's panel PANEL LIGHTS switch to off position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across ground wire from non-working lamp socket body to a known good ground.

a. If there is continuity, replace non-operating pump operator's panel work light (WP 0335).

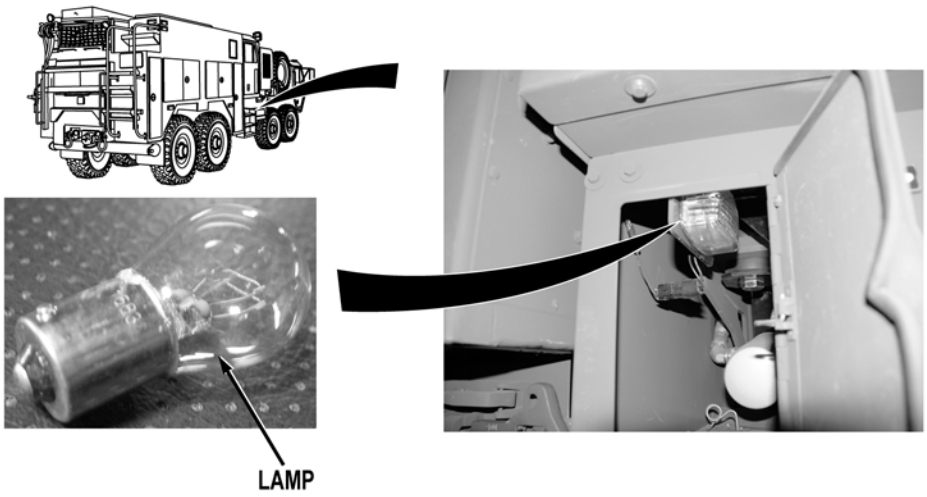
b. If there is no continuity, repair ground wire if repairable (TM 9-2320-325-14&P), or replace ground wire (TM 9-2320-325-14&P).



Step 6. Open driver side pump house access door (WP 0010). Check if driver side pump house work light operates.

If driver side pump house work light does not operate, go to Step 10.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



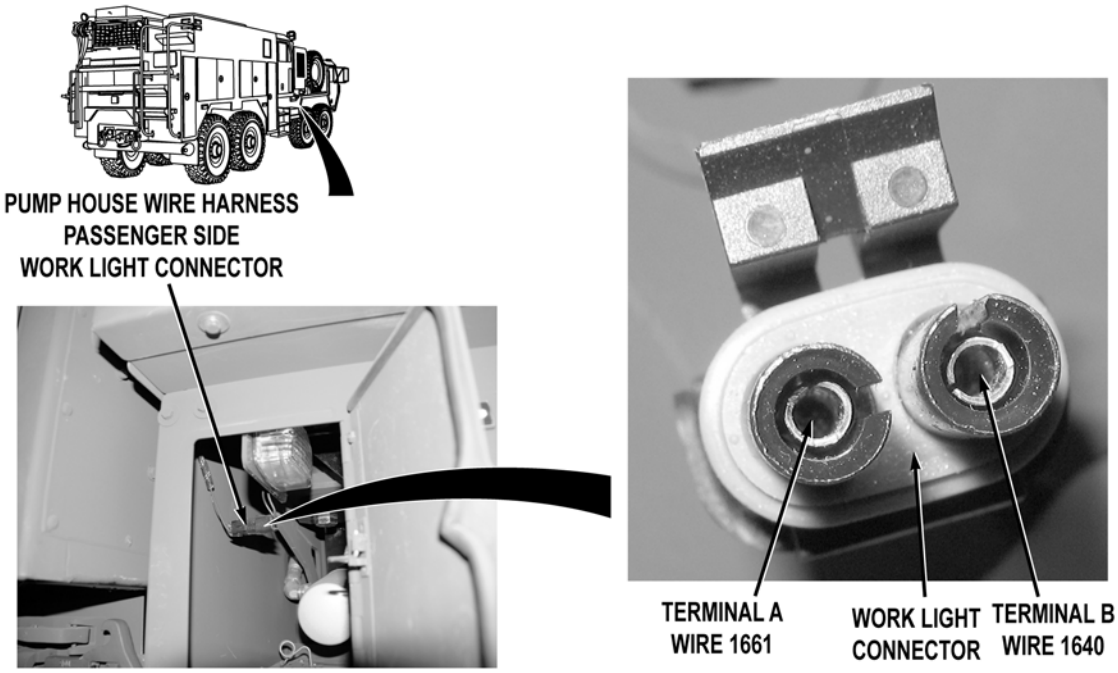
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 7. Open passenger side pump house remote oil filter access door (WP 0010). Put pump operator's panel PANEL LIGHTS switch to OFF position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from passenger side pump house work light (WP 0335). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0335).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 8. Disconnect pump house wire harness passenger side work light connector. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel PANEL LIGHTS switch to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between pump house wire harness wire 1661 (black) at work light connector, terminal A and a known good ground.

If 22 to 24 VDC are not present, repair wire 1661 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

Step 9. Put pump operator's panel PANEL LIGHTS switch to off position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across pump house wire harness wire 1640 (black) from work light connector, terminal B to a known good ground.

a. If there is continuity, replace passenger side pump house work light lamp (WP 0335).

b. If there is no continuity, repair wire 1640 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

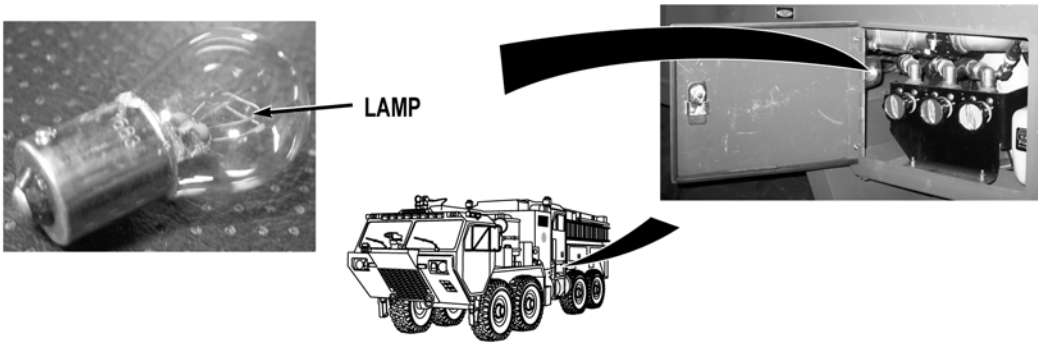
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

NOTE

Step 10 will check if pump house wire harness is receiving power. If passenger side pump house work light operates, Step 10 and Step 11 will assist in determining where power is lost to driver side work lights.

Step 10. Open passenger side pump house remote oil filter access door (WP 0010). Check if passenger side pump house work light operates.

If passenger side pump house work light does not operate, go to Step 14.



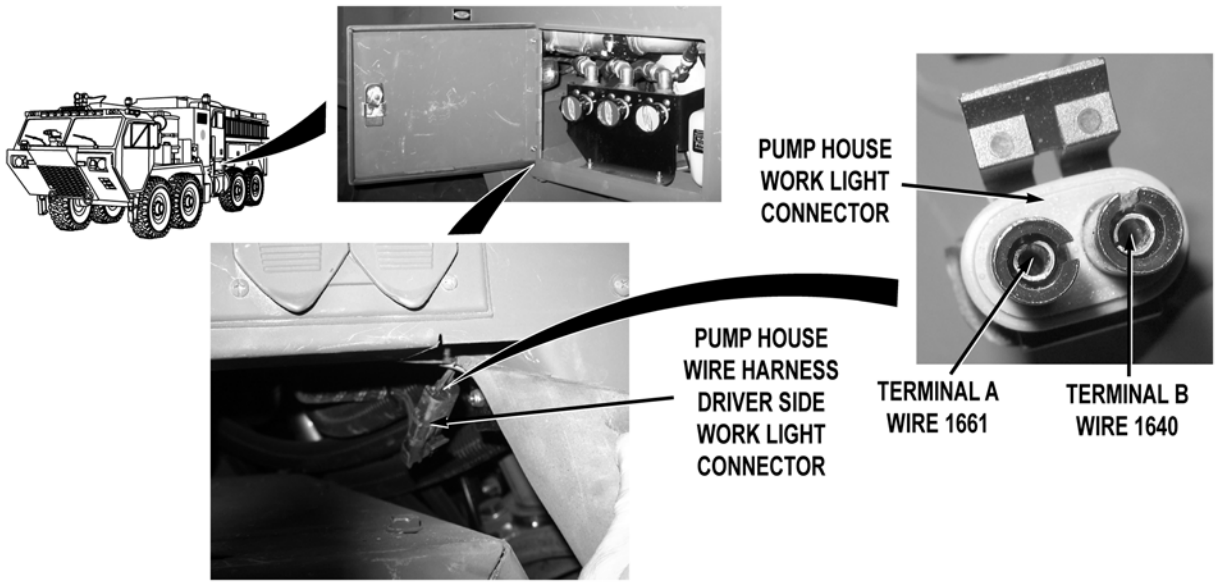
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 11. Put pump operator's panel PANEL LIGHTS switch to OFF position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Remove lamp from driver side pump house work light (WP 0335). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0335).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 12. Disconnect pump house wire harness driver side work light connector. Turn battery disconnect switch to ON position (WP 0007). Put pump operator's panel PANEL LIGHTS switch to on position (WP 0004). With a test lead set, check for 22 to 28 VDC between pump house wire harness wire 1661 (black) at pump house work light connector, terminal A and a known good ground.

If 22 to 28 VDC are not present, repair wire 1661 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

Step 13. Put pump operator's panel PANEL LIGHTS switch to off position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across pump house wire harness wire 1640 (black) from pump house work light connector, terminal B to a known good ground.

a. If there is continuity, replace pump house work light (WP 0335).

b. If there is no continuity, repair wire 1640 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

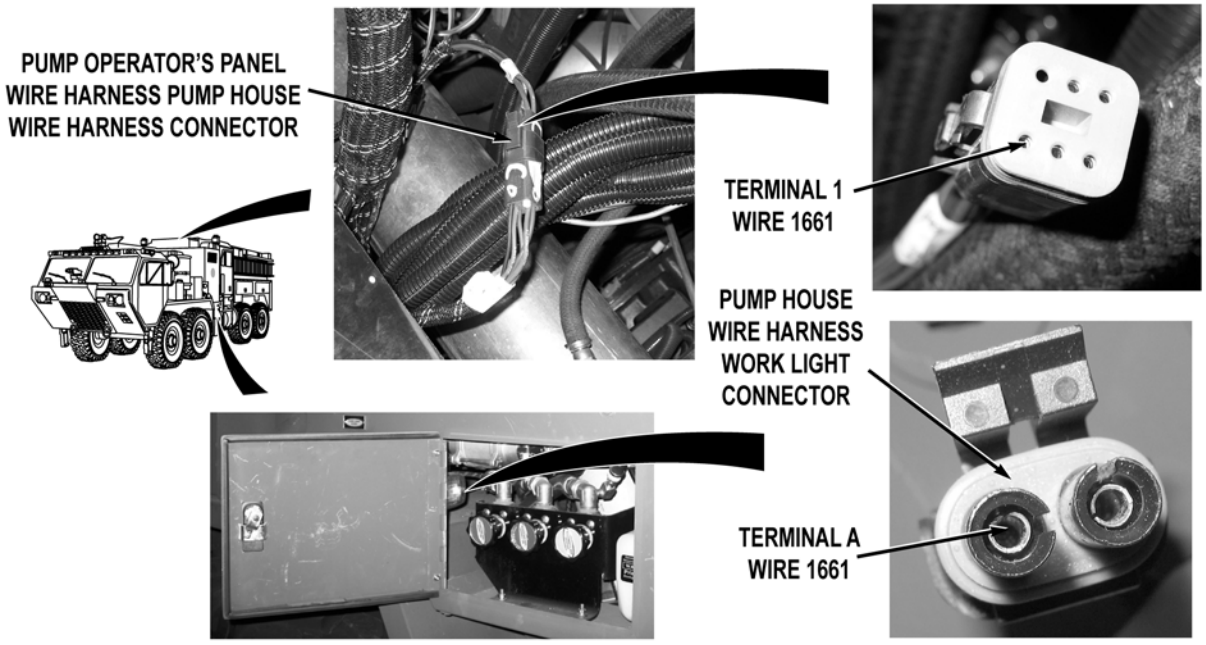
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 14. Put pump operator's panel PANEL LIGHTS switch to off position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Disconnect any pump house work light connector. With a test lead set, check for continuity across pump house wire harness wire 1640 (black) from work light connector, terminal B to a known good ground.

If there is no continuity, repair wire 1640 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 15. Disconnect pump operator's panel wire harness pump house wire harness connector. With a test lead set, check for continuity across wire 1661 (black) from pump operator's panel wire harness pump house panel wire harness connector, terminal 1 to disconnected pump house wire harness work light connector, terminal A.

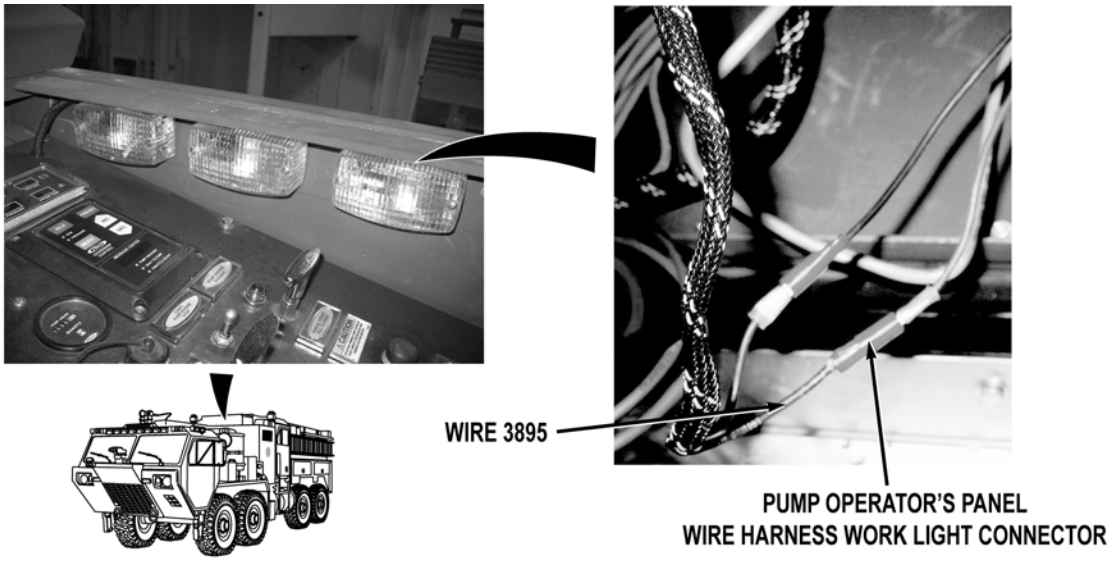
a. If there is continuity, repair wire 1661 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire (WP 0459).

b. If there is no continuity, repair wire 1661 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

Step 16. Check if pump house work lights operate.

If pump house work lights do not operate, go to Step 18.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

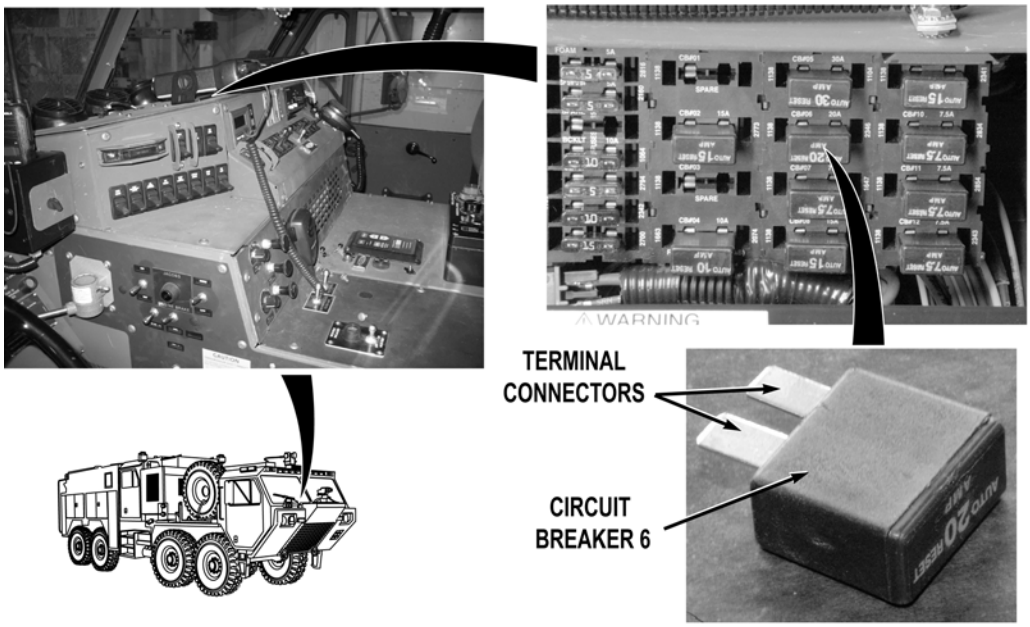


Step 17. Put pump operator's panel PANEL LIGHTS switch to off position (WP 0004). Turn battery disconnect switch to OFF position (WP 0007). Open pump operator's panel housing (WP 0325). Disconnect non-working pump operator's panel wire harness work light connector. With a test lead set, check for continuity across pump operator's panel wire harness wire 3895 (black) from work light connector terminal, to a known good ground.

a. If there is continuity, repair wire 1661 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

b. If there is no continuity, repair wire 3895 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

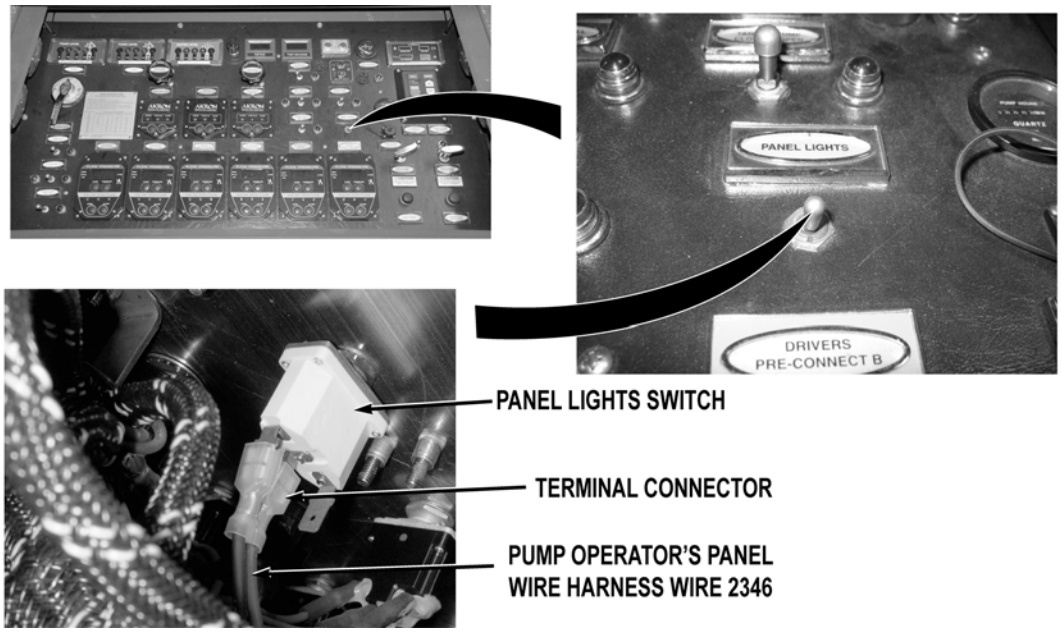
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 18. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove circuit breaker 6 (WP 0398). Check for continuity across circuit breaker 6 terminal connectors.

If there is no continuity, replace circuit breaker 6 (WP 0398).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 19. Install circuit breaker 6 (WP 0398). Open pump operator's panel housing (WP 0325). Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between pump operator's panel wire harness wire 2346 (red) at PANEL LIGHTS switch terminal connector, and a known good ground.

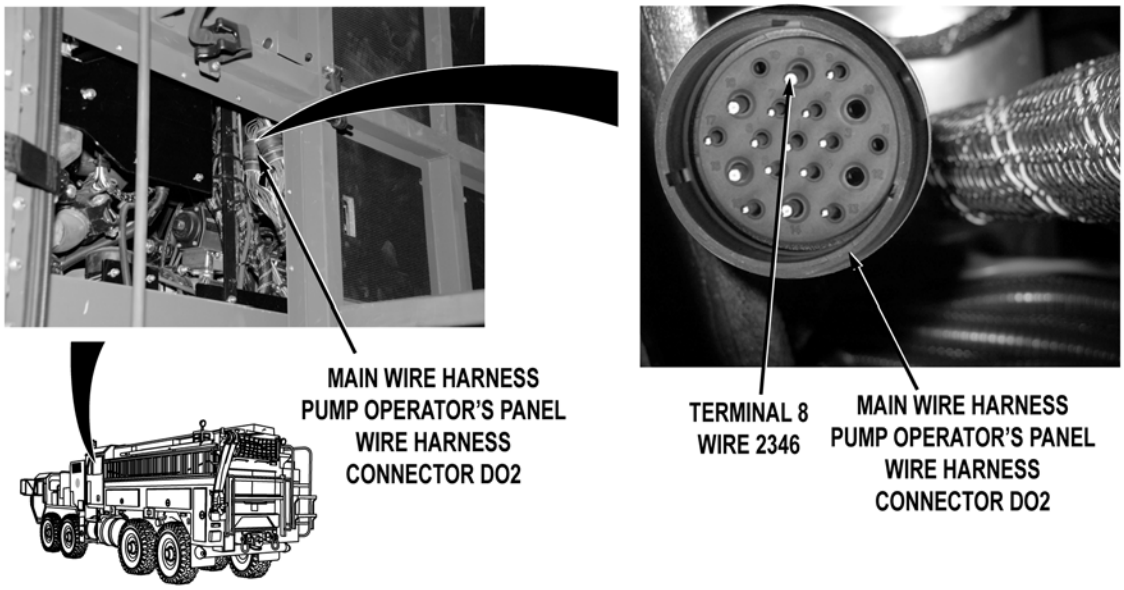
If 22 to 28 VDC are not present, go to Step 22.

Step 20. Turn battery disconnect switch to OFF position (WP 0007). Check for continuity across PANEL LIGHTS switch from terminal connector to terminal connector, when switch is put to on position.

a. If there is continuity, repair wire 1661 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

b. If there is no continuity, replace PANEL LIGHTS switch (WP 0328).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



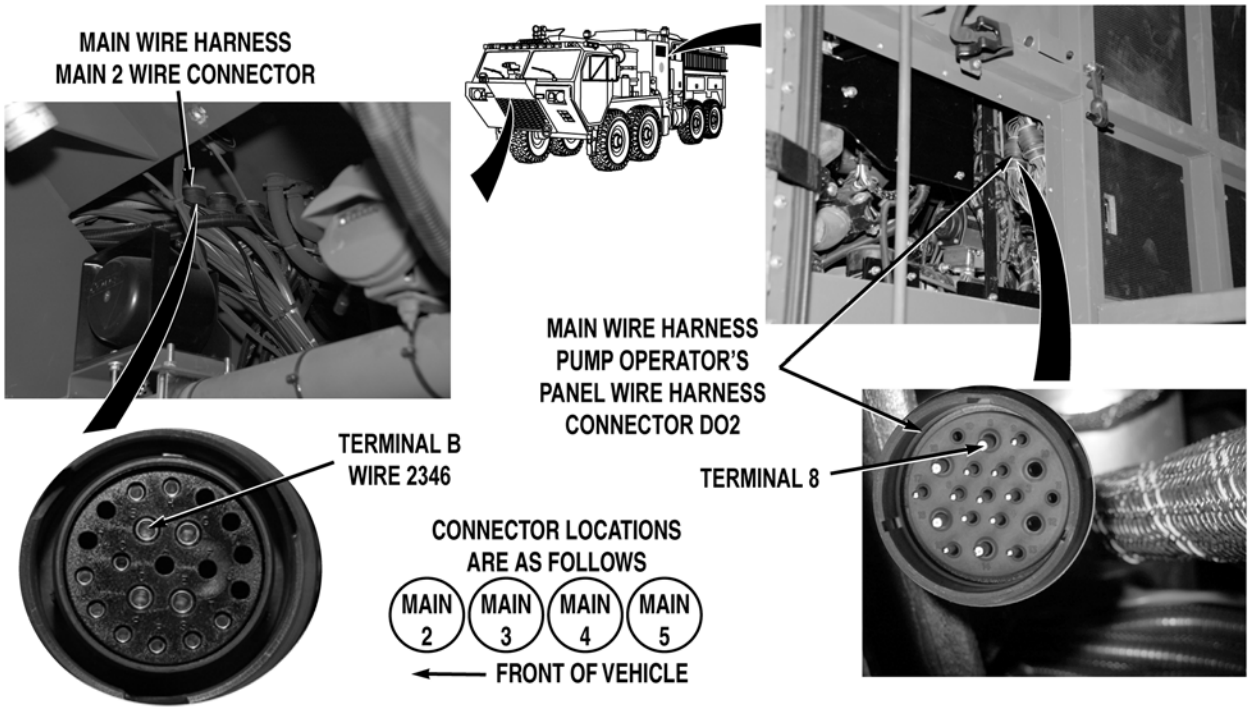
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 21. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness pump operator's panel wire harness connector DO2. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between main wire harness wire 2346 (red) at main wire harness pump operator's panel wire harness connector DO2, terminal 8 and a known good ground.

If 22 to 28 VDC are present, repair wire 2346 in pump operator's panel wire harness if repairable (TM 9-2320-325-14&P), or replace pump operator's panel wire harness (WP 0459).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 22. Turn battery disconnect switch to OFF position (WP 0007). Remove skid plate grille (WP 0550). Disconnect main wire harness main 2 wire harness connector. With a test lead set, check for continuity across main wire harness wire 2346 (red) from main wire harness main 2 wire harness connector, terminal B to main wire harness pump operator's panel wire harness connector DO2, terminal 8.

a. If there is continuity, repair wire 2346 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If there is no continuity, repair wire 2346 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DRIVER SIDE STOWAGE COMPARTMENT LIGHT(S) DOES NOT OPERATE

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

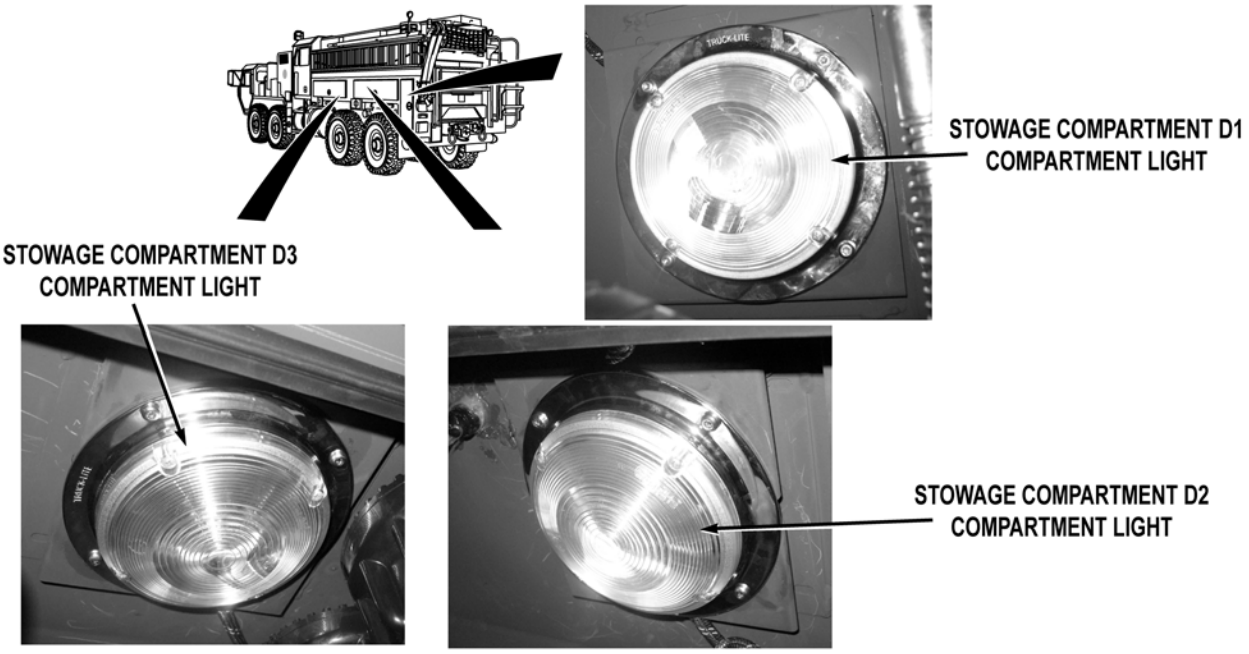
References
TM 9-2320-325-14&P
WP 0007
WP 0311
WP 0374
WP 0385

References (continued)
WP 0401
WP 0441
WP 0448
WP 0455

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

DRIVER SIDE STOWAGE COMPARTMENT LIGHT(S) DOES NOT OPERATE



Step 1. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check if compartment light in stowage compartment D1 illuminates.

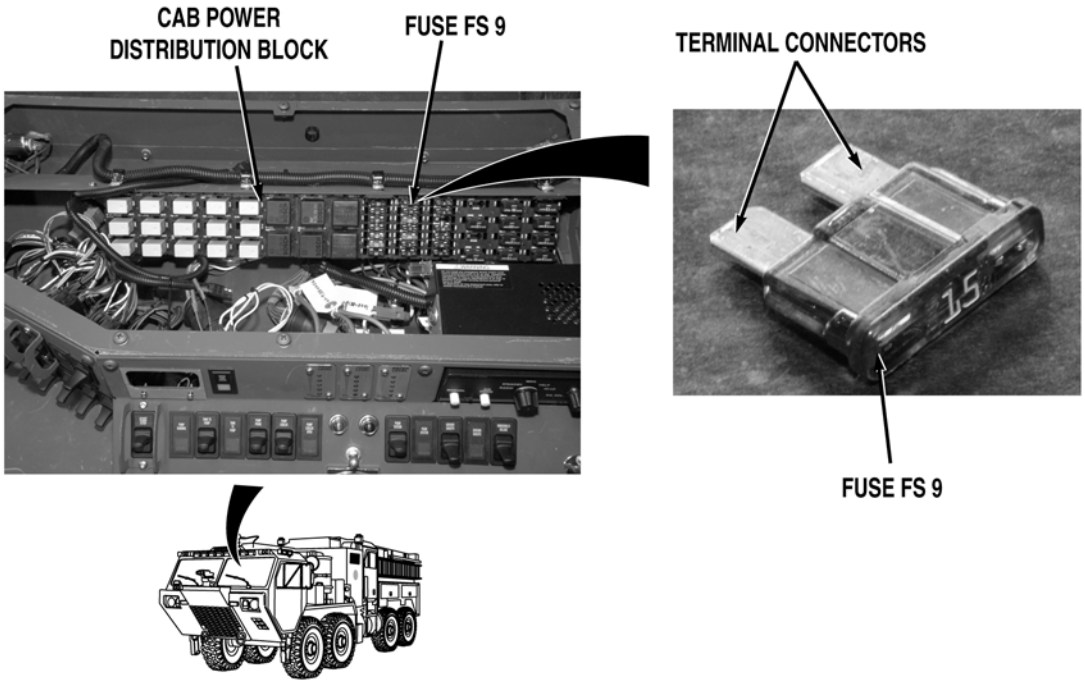
If compartment light in stowage compartment D1 does not illuminate, go to Step 9.

Step 2. Check if compartment light in stowage compartment D2 illuminates.

If compartment light in stowage compartment D2 does not illuminate, go to Step 13.

Step 3. Check if compartment light in stowage compartment D3 illuminates.

If compartment light in stowage compartment D3 does not illuminate, go to Step 17.

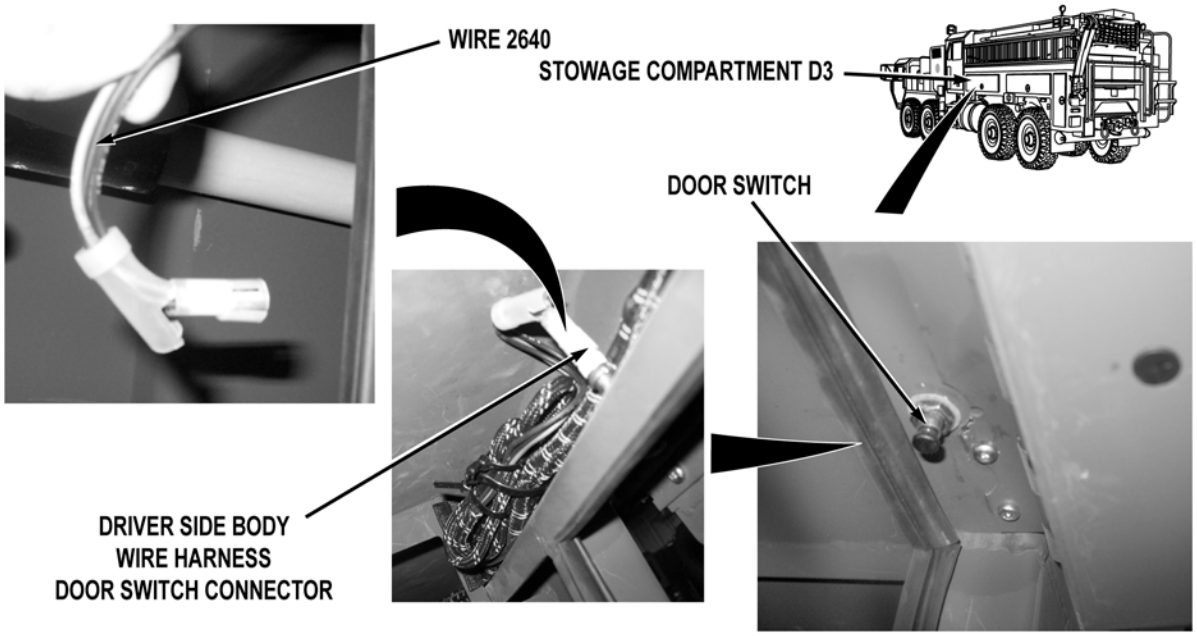


WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 4. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel A (WP 0311). Remove fuse FS 9 (WP 0401). Check for continuity across fuse.

If there is no continuity, replace fuse FS 9 (WP 0401).



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Disconnect driver side body wire harness door switch connector in stowage compartment D3 (WP 0385). Check for continuity across driver side body wire harness wire 2640 (black) and a known good ground.

If there is continuity, go to Step 7.

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 6. Connect driver side body wire harness door switch connector in stowage compartment D3 (WP 0385). Disconnect main wire harness driver side body wire harness connector. Check for continuity across wire 2640 (black) from main wire harness connector, terminal 10 to a known good ground.

a. If there is continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

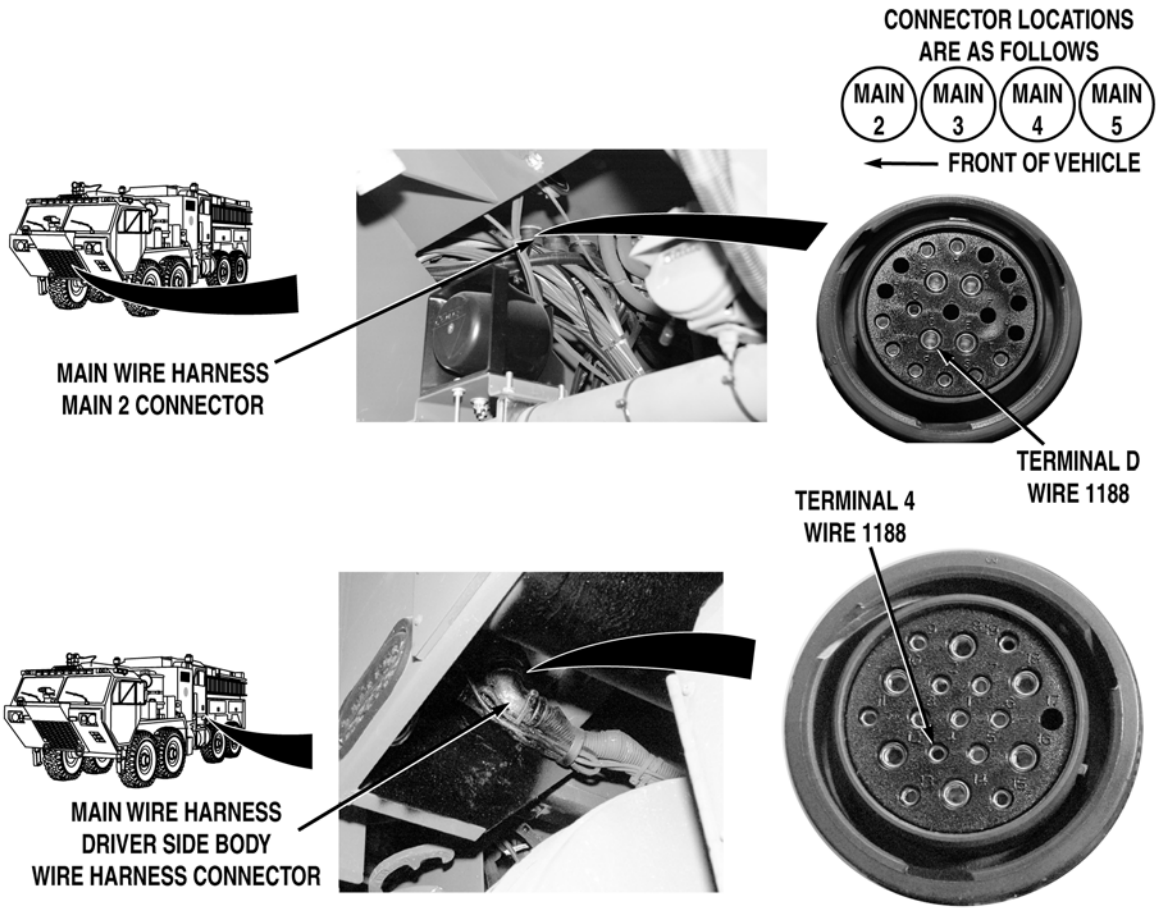
b. If there is no continuity, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 7. Connect driver side body wire harness door switch connector in stowage compartment D3 (WP 0385). Disconnect main wire harness driver side body wire harness connector. Turn battery disconnect switch to ON position (WP 0007). Turn Service Drive Lights On (TM 9-2320-347-10). Check for 22 to 28 VDC from wire 1188 (red) at main wire harness connector, terminal 4 to a known good ground.

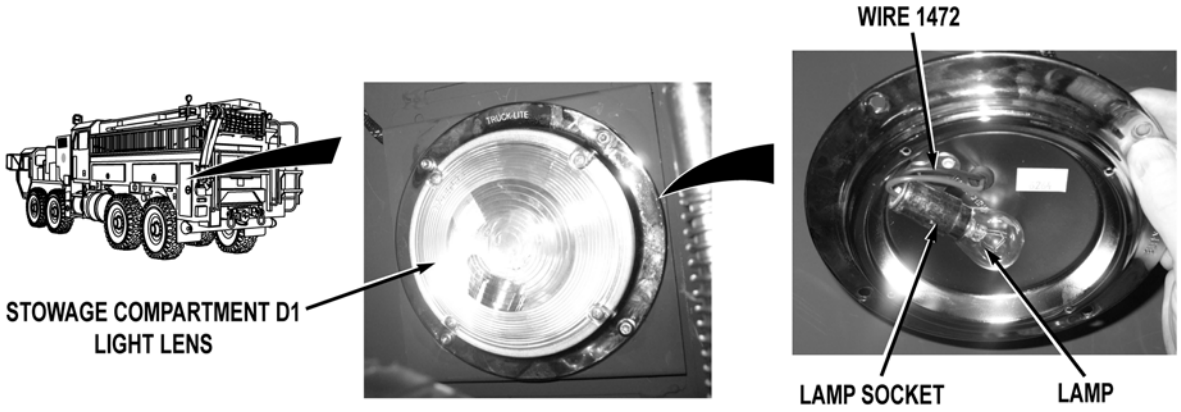
If 22 to 28 VDC are present, repair wire 1188 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).



Step 8. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness main 2 connector. With a test lead set, check for continuity across wire 1188 (black) from main wire harness main 2 connector, terminal D to main wire harness driver side body wire harness connector, terminal 4.

a. If continuity is present, repair wire 1188 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

b. If continuity is not present, repair wire 1188 in main wire harness (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).



WARNING

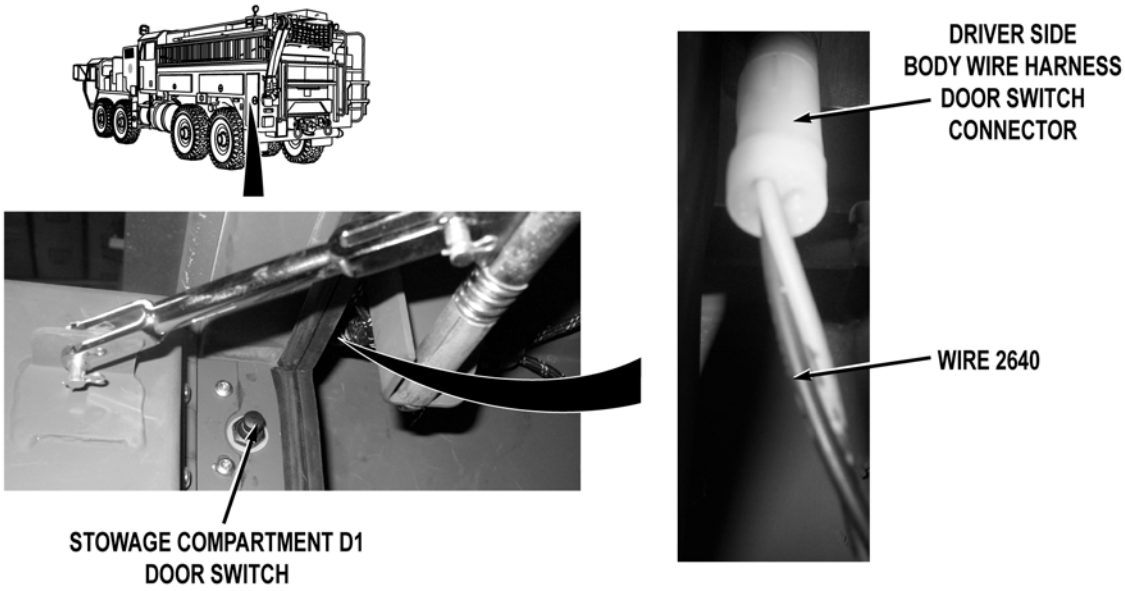
Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 9. Turn battery disconnect switch to OFF position (WP 0007). Remove stowage compartment D1 light lens and lamp from compartment light base (WP 0374). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0374).

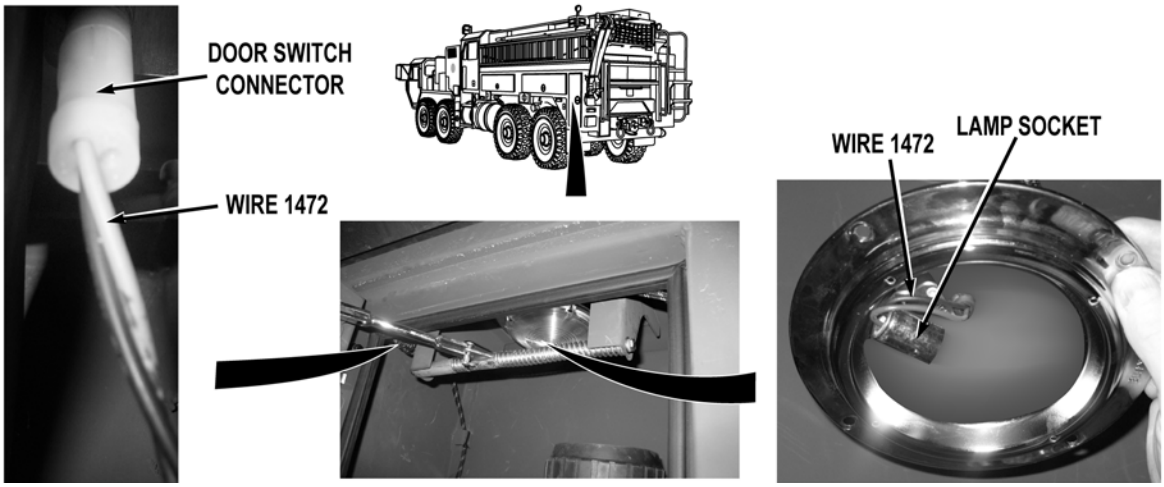
Step 10. Check for continuity across wire 1472 (black) at lamp socket to a known good ground.

If there is continuity, repair wire 1188 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).



Step 11. Disconnect driver side body wire harness door switch connector in stowage compartment D1 (WP 0385). Check for continuity across wire 2640 (black) at driver side body wire harness door switch connector to a known good ground.

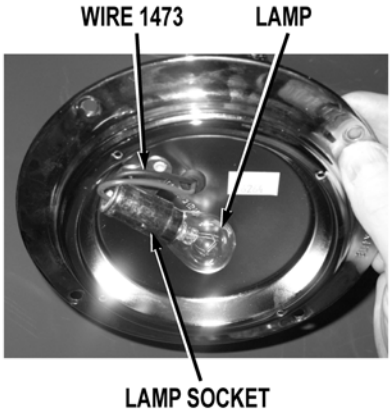
If there is no continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).



Step 12. Check for continuity from door switch connector wire 1472 (black) to lamp socket, wire 1472 (black).

a. If there is continuity, replace stowage compartment D1 door switch (WP 0385).

b. If there is no continuity, repair wire 1472 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).



WARNING

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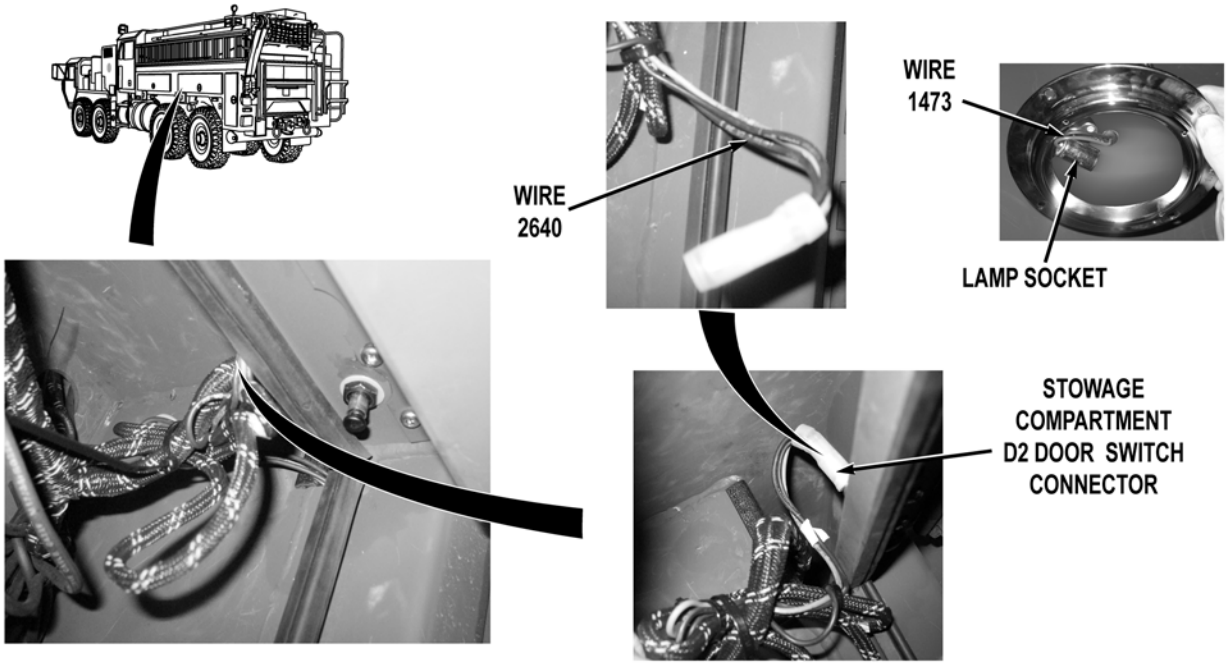
Step 13. Turn battery disconnect switch to OFF position (WP 0007). Remove stowage compartment D2 light lens and lamp from compartment light base (WP 0374). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0374).

Step 14. Check for continuity from wire 1473 (black) at lamp socket to a known good ground.

a. If there is continuity, repair wire 1188 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 1473 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).



Step 15. Disconnect driver side body wire harness door switch connector in stowage compartment D2 (WP 0385). Check for continuity across wire 2640 (black) at door switch connector to a known good ground.

If there is no continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

Step 16. Check for continuity from stowage compartment D2 door switch connector, wire 1473 (black) to lamp socket.

a. If there is continuity, replace stowage compartment D2 door switch (WP 0385).

b. If there is no continuity, repair wire 1473 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

WARNING

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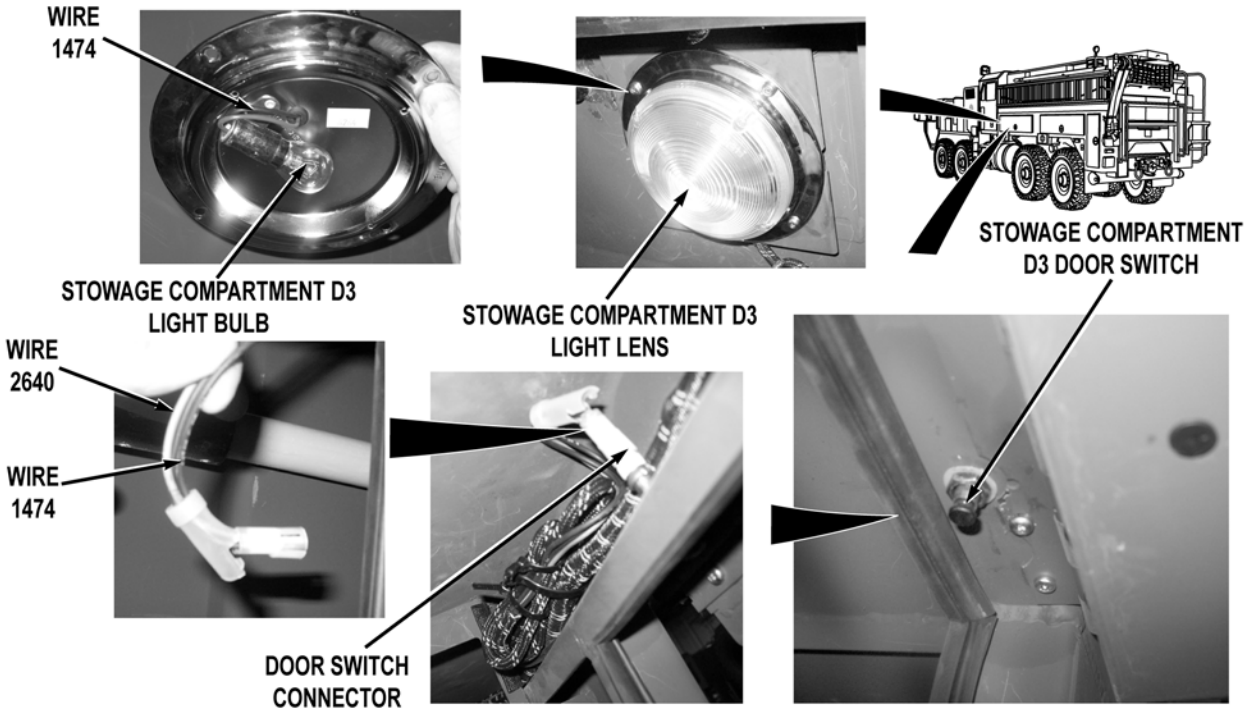
Step 17. Turn battery disconnect switch to OFF position (WP 0007). Remove stowage compartment D3 light lens and lamp from light base (WP 0374). Check for continuity across lamp.

If there is no continuity, replace lamp (WP 0374).

Step 18. Check for continuity from wire 1474 (black) at lamp socket to a known good ground.

If there is continuity, repair wire 1188 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).



Step 19. Disconnect driver side body wire harness door switch connector in stowage compartment D3 (WP 0385). Check for continuity from wire 2640 (black) at door switch connector to a known good ground.

If there is no continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

Step 20. Check for continuity from stowage compartment D3 door switch connector, wire 1474 (black) to stowage compartment light lamp socket, wire 1474.

a. If there is continuity, replace stowage compartment D3 door switch (WP 0385).

b. If there is no continuity, repair wire 1474 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

REAR STEP BUZZER DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0311
WP 0313

References (continued)
WP 0314
WP 0319
WP 0398
WP 0420
WP 0441
WP 0448
WP 0455

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

REAR STEP BUZZER DOES NOT OPERATE PROPERLY

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

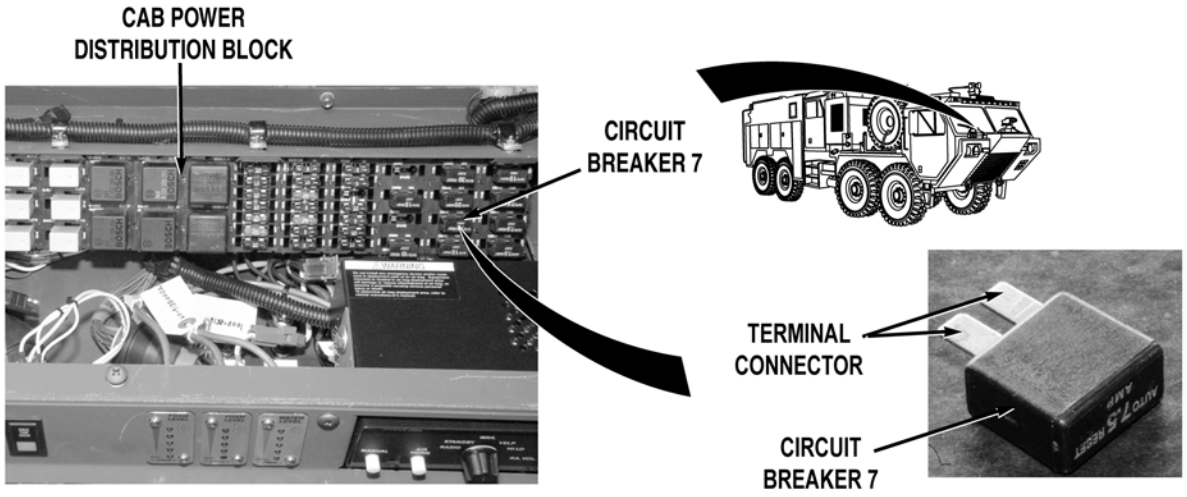
Step 1. Turn battery disconnect switch to ON position (WP 0007). While an assistant pushes rear step buzzer push button, check if rear step buzzer audio alarm operates (WP 0004).

If rear buzzer audio alarm operates, go to Step 9.

Step 2. While an assistant pushes rear step buzzer push button, check if rear step buzzer indicator illuminates.

If rear step buzzer indicator illuminates, go to Step 12.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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Step 3. Turn battery disconnect switch to OFF position (WP 0007). Remove personnel cab instrument panel A (WP 0311). Remove circuit breaker 7 from cab power distribution block (WP 0398). Check for continuity across circuit breaker.

If there is no continuity, replace circuit breaker 7 (WP 0398).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

NOTE

Rear step buzzer indicator and audio alarm connectors are in contact with two separate wire harnesses. Wire 1647 (brown) originates at cab power distribution wire harness and introduces power into the circuit. Wire 1614 (brown) originates at main wire harness and leads to rear step buzzer push button assembly through the driver side body wire harness. Circuit is complete when rear step buzzer push button assembly is pushed, applying a ground to circuit.

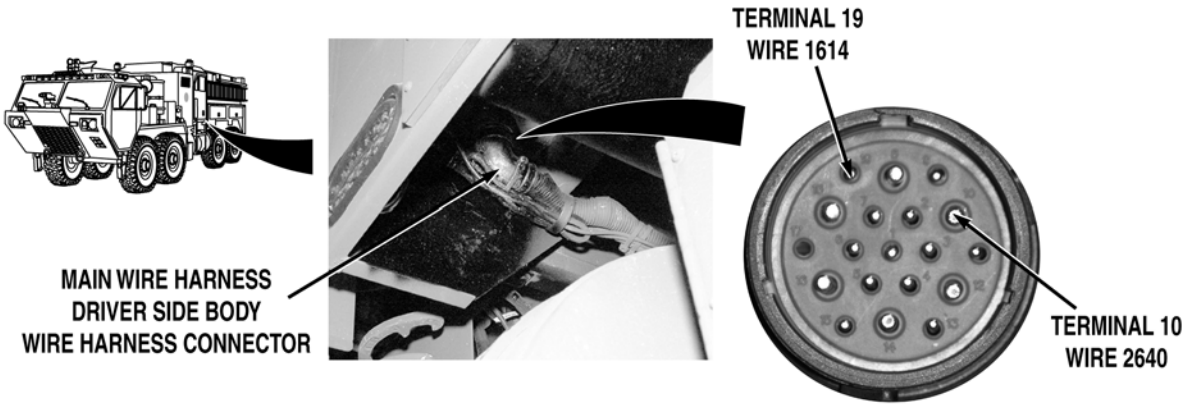
Step 4. Install circuit breaker 7 (WP 0398). Remove personnel cab instrument panel E (WP 0311). Disconnect rear step buzzer audio alarm connector. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between cab power distribution wire harness wire 1647 (brown) at rear step buzzer audio alarm connector, terminal B and a known good ground.

If 22 to 28 VDC are not present, repair wire 1647 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 5. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness driver side body wire harness connector. With a test lead set, check for continuity across main wire harness wire 2640 (black) from main wire harness driver side body wire harness connector, terminal 10 to a known good ground.

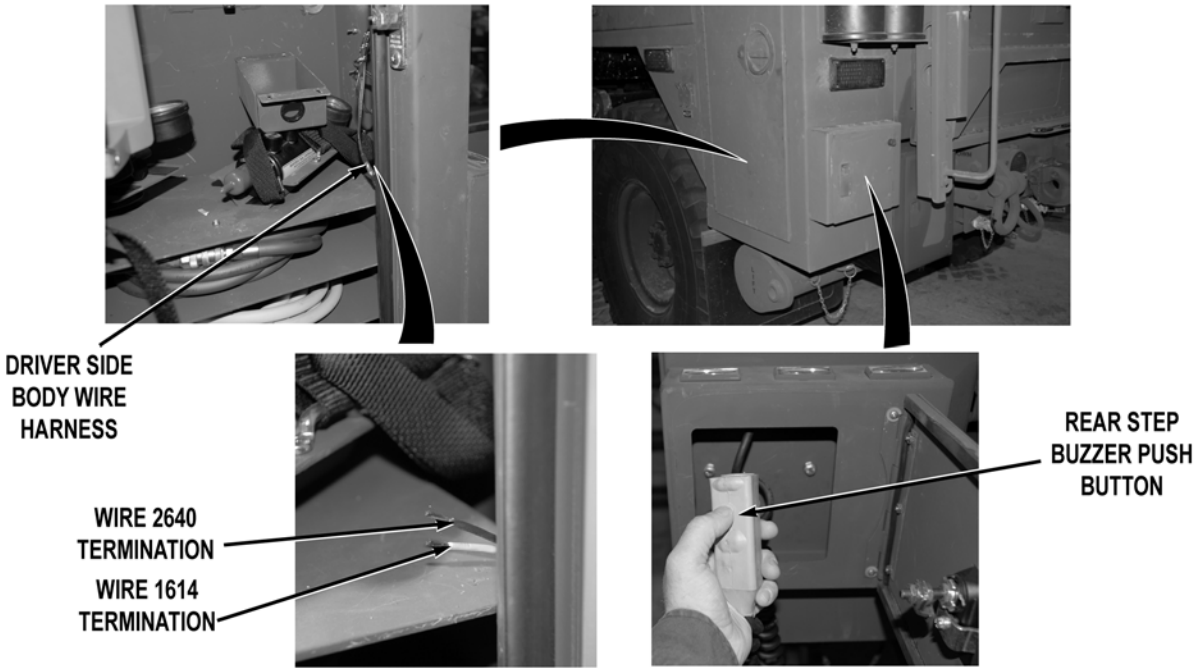
If there is no continuity, repair wire 2640 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).



Step 6. While an assistant pushes rear step buzzer push button (WP 0004), with a test lead set, check for continuity across driver side body wire harness wire 1614 (brown) and wire 2640 (black) from main wire harness driver side body wire harness connector, terminal 19 to terminal 10.

If there is continuity, repair wire 1614 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

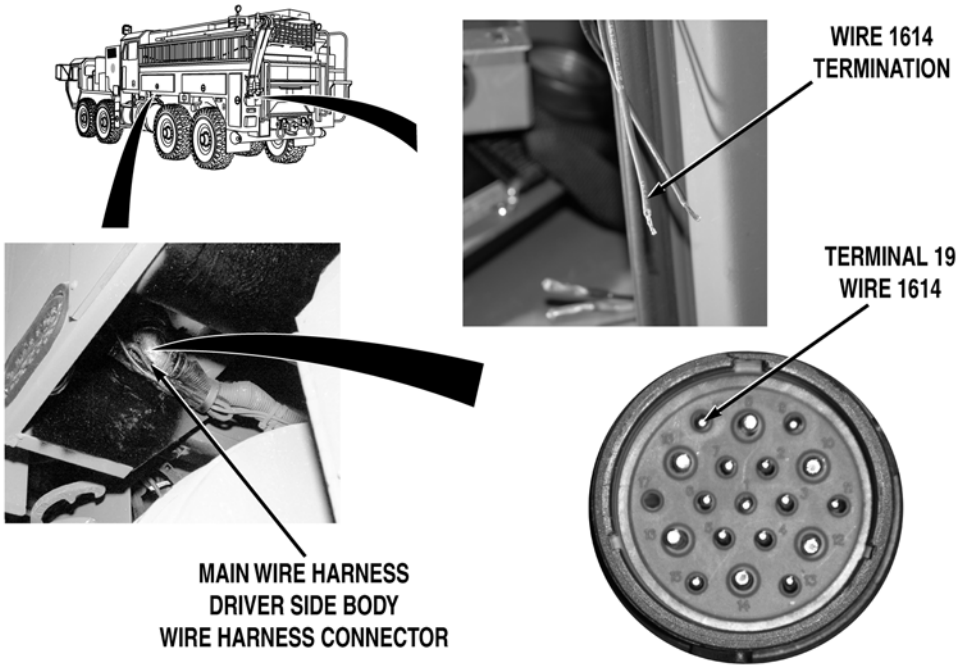
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Cut driver side body wire harness wires 1614 (brown) and 2640 (black) at rear step buzzer push button cable butt splice connectors (WP 0420). While an assistant pushes rear step buzzer push button (WP 0004), check for continuity across rear step buzzer push button cable from wire 1614 (brown) termination to wire 2640 (black) termination.

If there is no continuity, replace rear step buzzer push button assembly (WP 0420).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

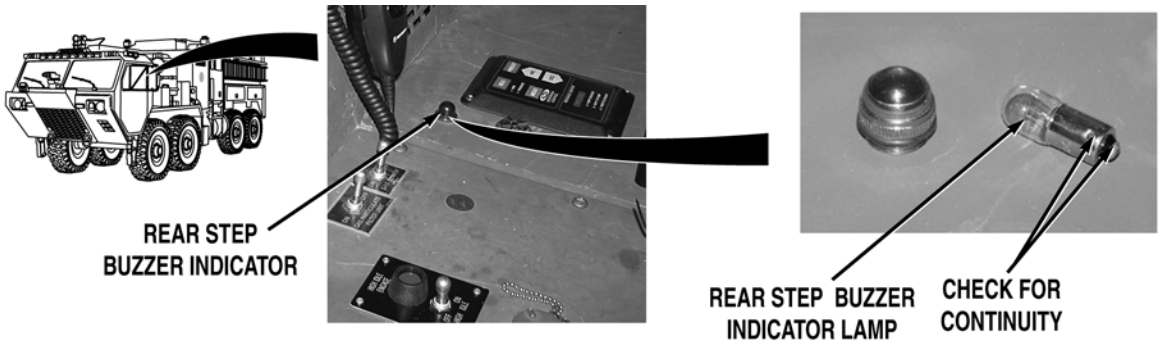


Step 8. With a test lead set, check for continuity across driver side body wire harness wire 1614 (brown) from main wire harness driver side body wire harness connector, terminal 19 to rear step buzzer push button cab wire 1614 (brown) termination.

a. If there is continuity, repair wire 2640 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

b. If there is no continuity, repair wire 1614 in driver side body wire harness if repairable (TM 9-2320-325-14&P), or replace driver side body wire harness (WP 0448).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

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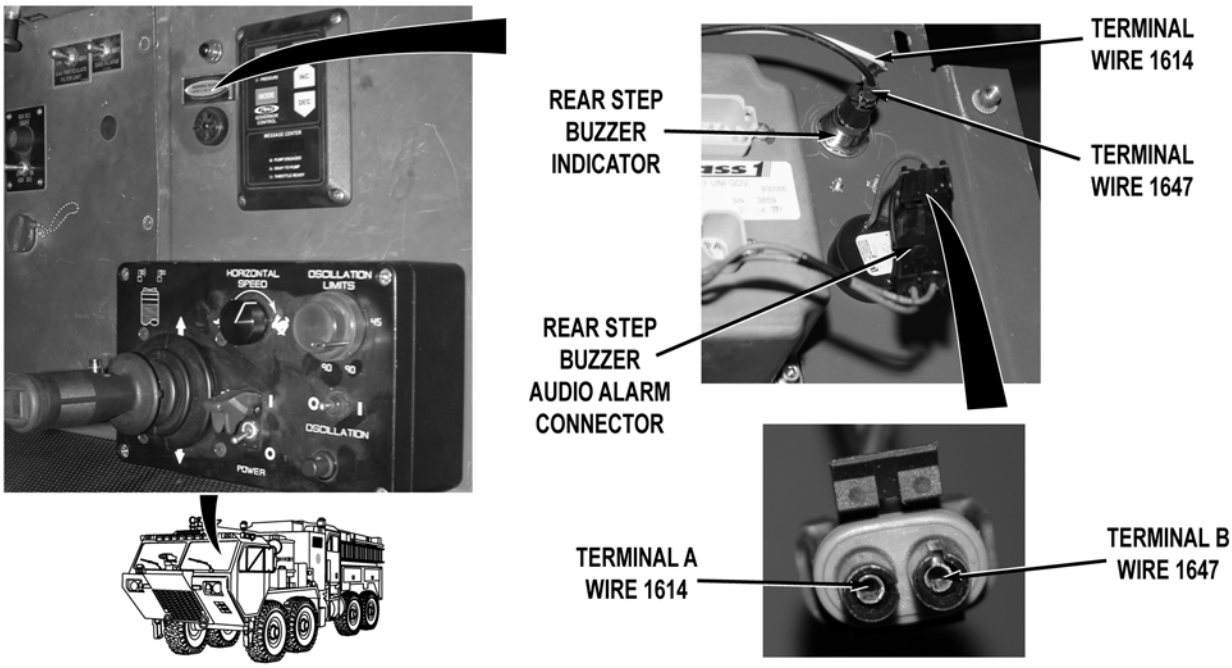
Step 9. Turn battery disconnect switch to OFF position (WP 0007). Remove rear step buzzer indicator lamp (WP 0314). Check for continuity across lamp.

If there is no continuity, replace rear step buzzer indicator lamp (WP 0314).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. Remove cab instrument panel E (WP 0311). Disconnect rear step buzzer audio alarm connector. Check for continuity across cab power distribution wire harness wire 1647 (brown) from rear step buzzer audio alarm connector, terminal B to rear step buzzer indicator, terminal.

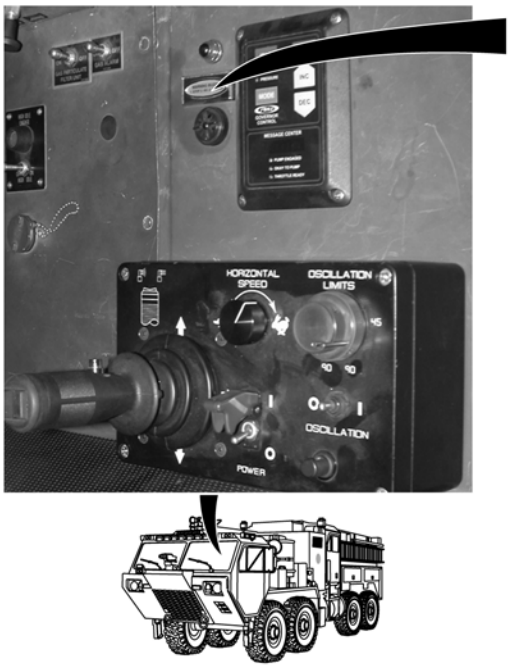
If there is no continuity, repair wire 1647 in cab power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab power distribution wire harness and block (WP 0441).

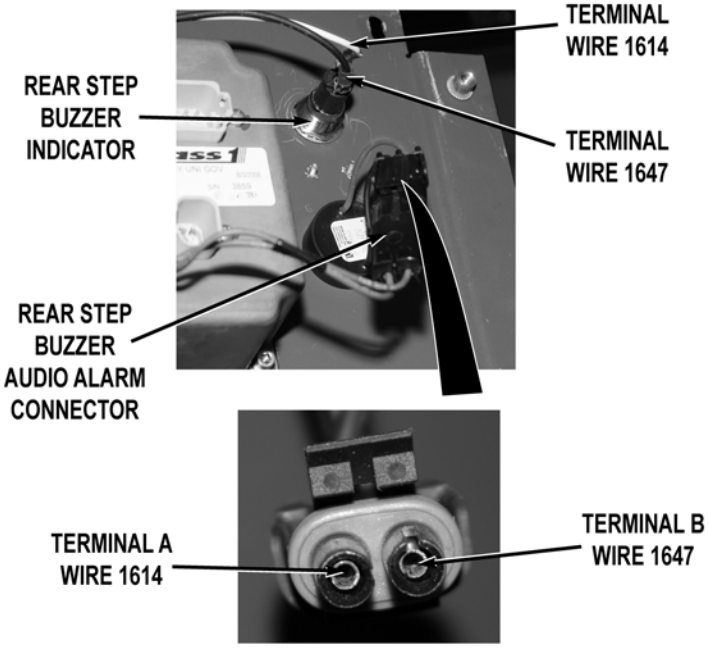
Step 11. Check for continuity across main wire harness wire 1614 (brown) from rear step buzzer audio alarm connector, terminal A to rear step buzzer indicator terminal.

a. If there is continuity, replace rear step buzzer indicator (WP 0313).

b. If there is no continuity, repair wire 1614 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION





WARNING

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Step 12. Turn battery disconnect switch to OFF position (WP 0007). Remove cab instrument panel E (WP 0311). Disconnect rear step buzzer audio alarm connector. Check for continuity across cab power distribution wire harness wire 1647 (brown) from rear step buzzer audio alarm connector, terminal B to rear step buzzer indicator, terminal.

If there is no continuity, repair wire 1647 in cab distribution wire harness if repairable (TM 9-2320-325-14&P), or replace cab distribution wire harness and block (WP 0441).

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	
Step 13.	Check for continuity across main wire harness wire 1614 (brown) from rear step buzzer audio alarm connector, terminal A to rear step buzzer indicator terminal. a. If there is continuity, replace rear step buzzer audio alarm (WP 0319). b. If there is no continuity, repair wire 1614 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

SINCGARS DO NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

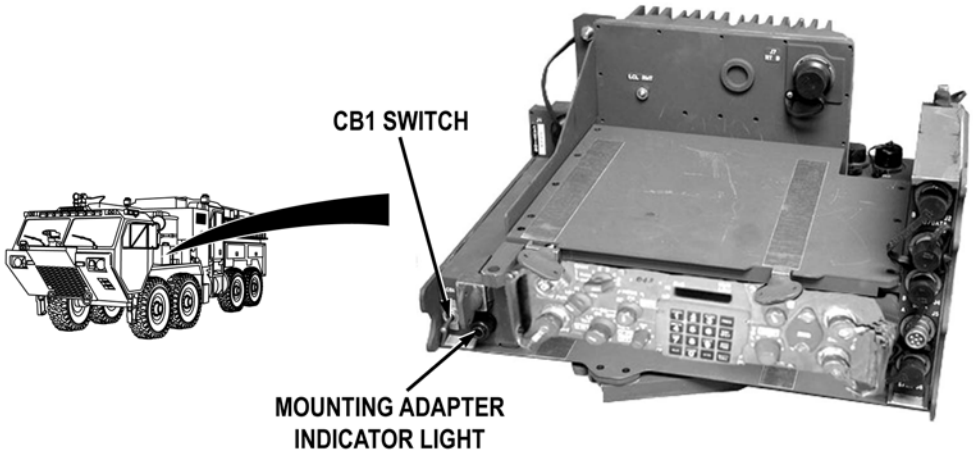
Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

References
TM 11-5280-890-10
WP 0004
WP 0007
WP 0173
WP 0384
WP 0409

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

SINCGARS DO NOT OPERATE PROPERLY

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Make sure that mounting adapter indicator lens is turned fully left (counterclockwise) before Step 1.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Put mounting adapter CB1 switch to ON position (TM 11-5280-890-10). Check if mounting adapter indicator light illuminates.

If indicator light does not illuminate, go to Step 3.

NOTE

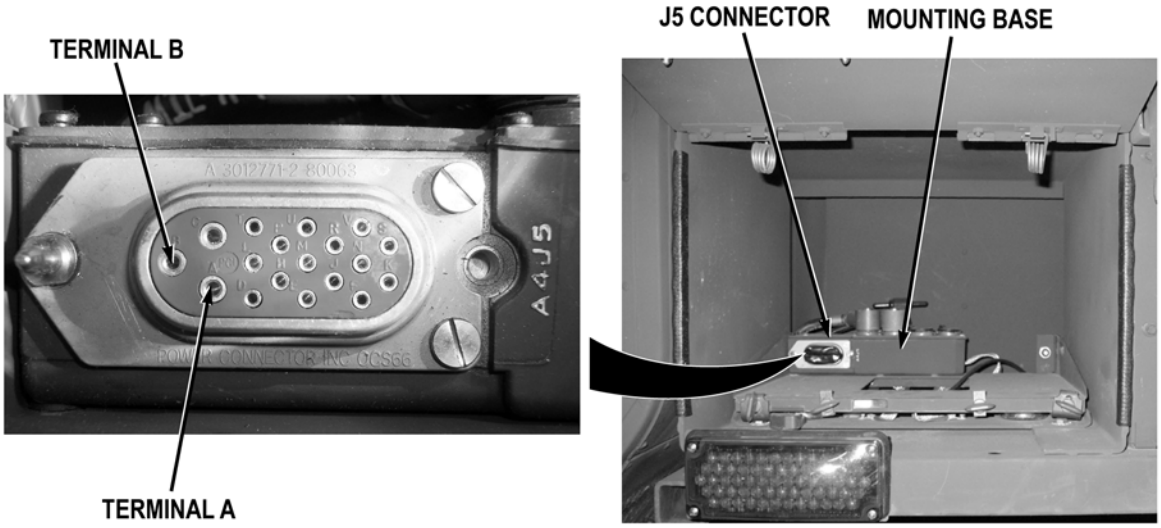
Mounting adapter indicator light will blink for approximately 3 seconds, then stay lit if mounting adapter is operating properly.

Step 2. Put mounting adapter CB1 switch to OFF, then back to ON position (TM 11-5280-890-10). Check if mounting adapter indicator continues to blink after 3 seconds.

a. If mounting adapter indicator light continues to blink after 3 seconds, notify Supervisor.

b. If mounting adapter indicator light illuminates and stays continuously illuminated after 3 seconds, go to Step 7.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

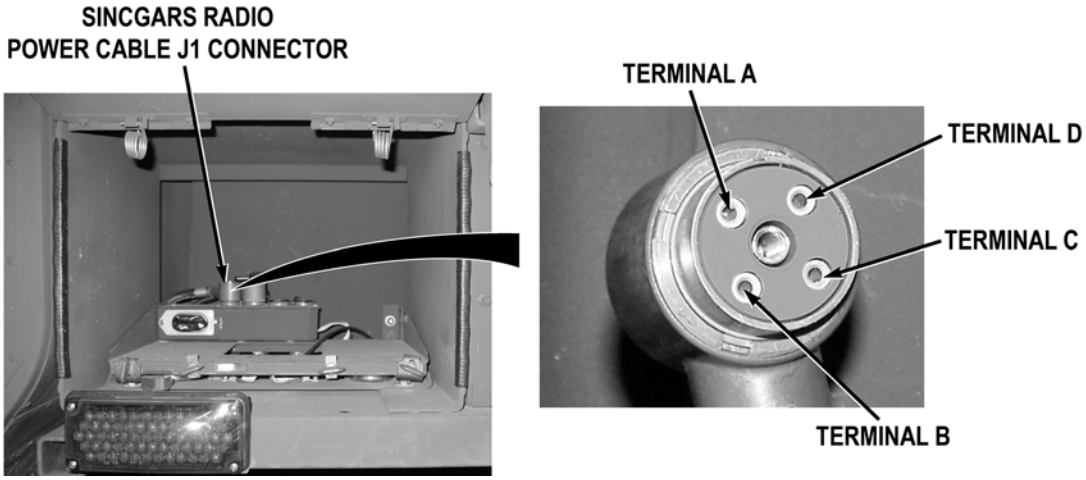
Step 3. Turn battery disconnect switch to OFF position (WP 0007). Put mounting adapter CB1 switch to OFF position (TM 11-5280-890-10). Remove SINCGARS receiver transmitter and mounting adapter from mounting base (WP 0384). With a test lead set, check for continuity across SINCGARS radio power cable and mounting base from mounting base J5 connector, terminal A and terminal B to a known good ground.

If there is no continuity at either terminal, go to Step 6.

Step 4. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between mounting base J5 connector, terminal B and a known good ground.

If 22 to 28 VDC are present at mounting base J5 connector, notify Supervisor.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 5. Turn battery disconnect switch to OFF position (WP 0007). Disconnect SINCGARS power cable J1 connector from mounting base (TM 11-5280-890-10). Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between SINCGARS power cable assembly J1 connector, terminals A and B and a known good ground.

a. If 22 to 28 VDC are present at both terminals, replace mounting base (WP 0384).

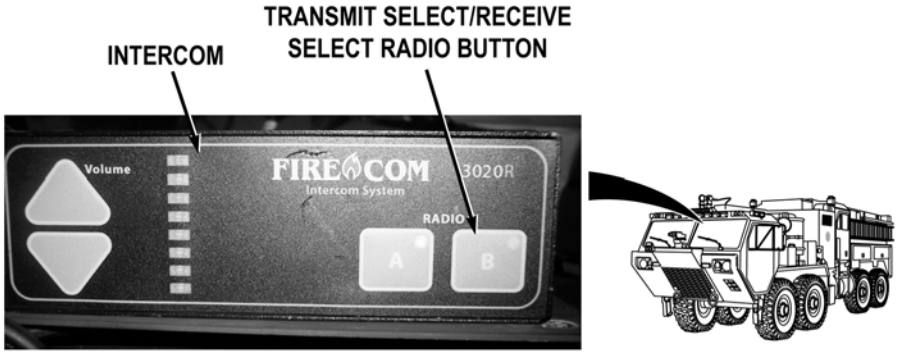
b. If 22 to 28 VDC are not present at either terminal, replace SINCGARS power cable assembly (WP 0409).

Step 6. With a test lead set, check for continuity across SINCGARS radio power cable ground wire, from SINCGARS power cable assembly J1 connector, terminals C and D to a known good ground.

a. If there is continuity at both terminals, replace mounting base (WP 0384).

b. If there is no continuity at either terminal, replace SINCGARS power cable assembly (WP 0409).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Press intercom transmit select/receive RADIO B button (WP 0004). With an intercom headset connected to driver side intercom jack (WP 0004), check if intercom system sends and receives through SINCGARS radio set (WP 0004).

If intercom system sends and receives through SINCGARS radio set, fault corrected.

Step 8. Connect handset to SINCGARS receiver transmitter (TM 11-5280-890-10). Check if SINCGARS receiver transmitter sends and receives to and from another radio set.

a. If SINCGARS receiver transmitter sends and receives to and from another radio set, troubleshoot Intercom and Headsets Do Not Operate Properly (WP 0173).

b. If SINCGARS receiver transmitter does not send and receive to and from another radio set, notify Supervisor.

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

SHORELINE INLET RECEPTACLE DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0007
WP 0425
WP 0431

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

SHORELINE INLET RECEPTACLE DOES NOT OPERATE PROPERLY

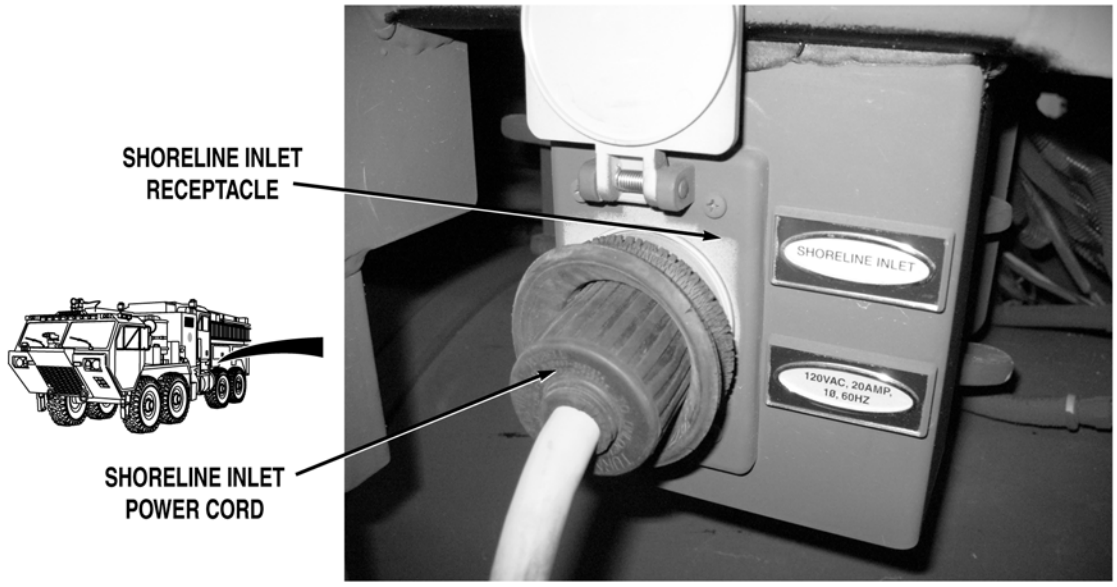
WARNING

- **110-volt AC power is potentially lethal. Do not work on AC wiring when it is connected to a power source. Failure to comply may cause injury or death to personnel.**
- **SHORELINE INLET receptacle discharges shoreline inlet power cord from receptacle with force. Ensure that area near vehicle is free of flammable liquids, combustible materials, or liquids that can conduct electricity. Shoreline inlet power cord is powered with 110 VAC when discharged from SHORELINE INLET receptacle. Failure to comply may result in injury or death to personnel or damage to equipment.**

NOTE

Periodically inspect shoreline power cord rubber connector protector. Rubber connector protector covers shoreline inlet power cord female plug with .125 in. (3.175 mm) rubber to protect connector and nearby obstructions from impact damage.

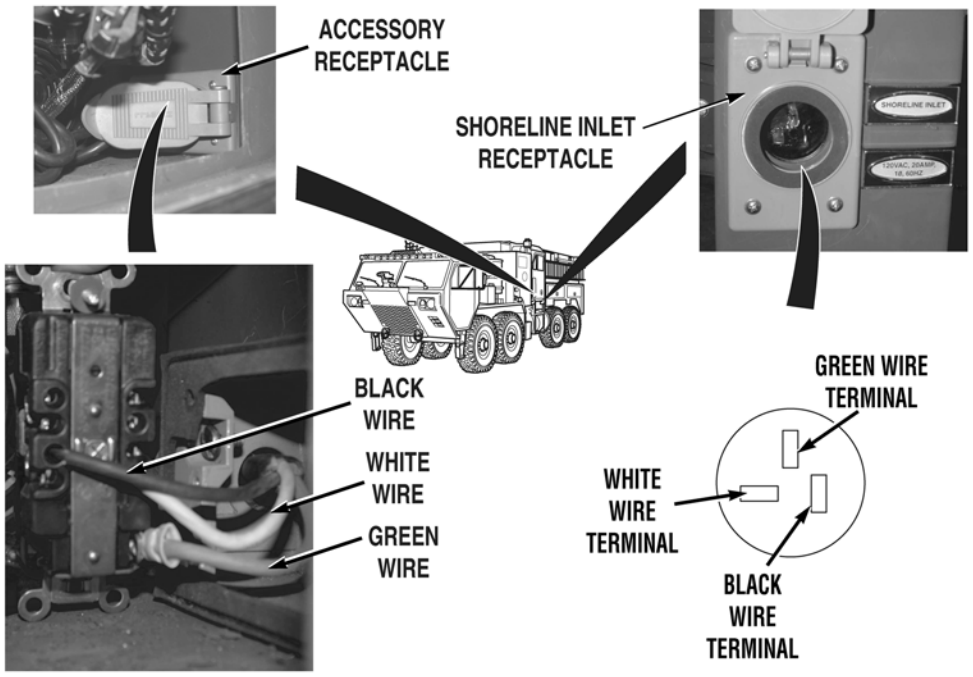
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 1. Connect shoreline inlet power cord to SHORELINE INLET receptacle. Start vehicle engine (TM 9-2320-347-10). Check if shoreline inlet power cord is discharged from SHORELINE INLET receptacle.

If shoreline inlet power cord does not fully discharge from SHORELINE INLET receptacle, go to Step 3.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

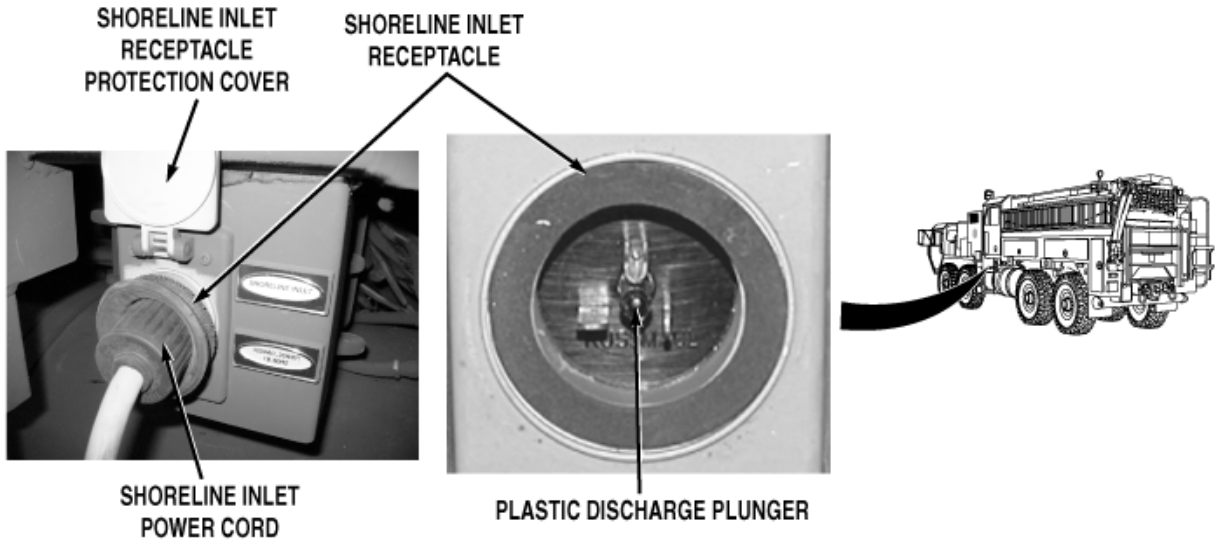


Step 2. Shut vehicle engine off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Remove accessory receptacle (WP 0431). Remove shoreline receptacle from bracket (WP 0425). Check for continuity across white wire from accessory receptacle to shoreline inlet receptacle terminal. Check for continuity across green wire from accessory receptacle to shoreline inlet receptacle terminal. Check for continuity across black wire from accessory receptacle to shoreline inlet receptacle terminal.

a. If continuity is present, replace accessory outlet (WP 0431).

b. If continuity is not present, replace shoreline inlet receptacle (WP 0425).

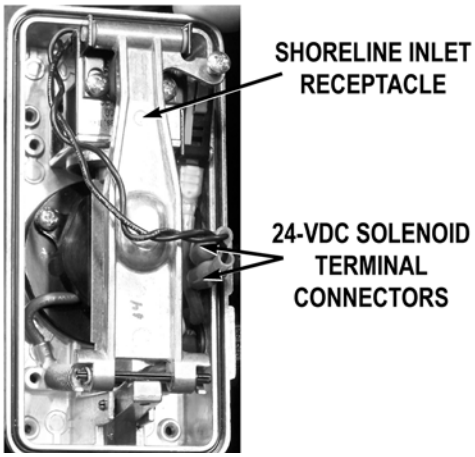
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Disconnect shoreline inlet power cord from SHORELINE INLET receptacle and power source. Open SHORELINE INLET receptacle protective cover. Inspect SHORELINE INLET receptacle plastic discharge plunger for damage.

If SHORELINE INLET receptacle plastic discharge plunger is damaged, replace SHORELINE INLET receptacle (WP 0425).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 4. Remove SHORELINE INLET receptacle from bracket (WP 0425). Remove four screws from SHORELINE INLET receptacle. Remove backplate from SHORELINE INLET receptacle. Disconnect SHORELINE INLET receptacle 24 VDC solenoid connectors. While an assistant puts ENGINE switch to START position (TM 9-2320-347-10), check for 22 to 28 VDC between SHORELINE INLET receptacle solenoid from terminal connector to terminal connector while engine is being cranked.

a. If 22 to 28 VDC are present, replace SHORELINE INLET receptacle (WP 0425).

b. If 22 to 28 VDC are not present, repair wires from SHORELINE INLET receptacle to HEMTT starter if repairable (TM 9-2320-325-14&P), or replace SHORELINE INLET receptacle (WP 0425).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PIPING HEAT TRACE DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

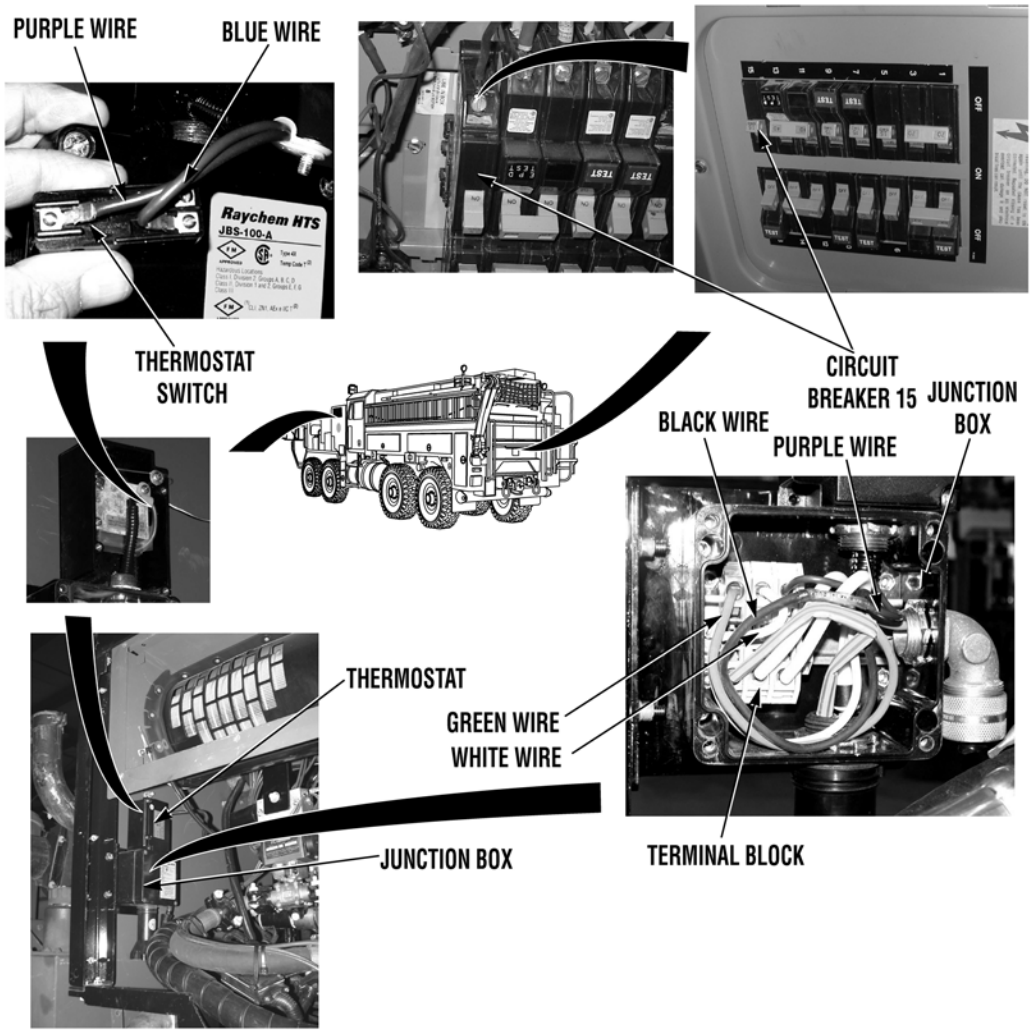
Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

References
TM 9-2320-325-14&P
TM 9-2320-347-10
WP 0021
WP 0360
WP 0605
WP 0606

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

PIPING HEAT TRACE DOES NOT OPERATE PROPERLY

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

- **Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.**
- **Turn off main circuit breakers and generator before removing covers on 120/240-volt power distribution panel or receptacles. Failure to comply may cause damage to equipment or electrical shock to personnel.**

MALFUNCTION

TEST OR INSPECTION

CORRECTIVE ACTION

Step 1. Install test lead between black wire at circuit breaker 15 and ground. Remove thermostat switch (WP 0605). Check for continuity across black/blue wire, from thermostat switch, terminal blue wire, to a known good ground.

If there is no continuity, replace black/blue wire.

Step 2. Remove test lead, and check for continuity from blue wire at thermostat switch terminal to a known good ground.

If there is continuity, replace black/blue wire.

Step 3. Check for continuity across purple wire from thermostat switch to junction box terminal block.

If there is no continuity, replace purple wire.

Step 4. Check for continuity across white wire, from junction box terminal block to a known good ground.

If there is no continuity, replace white wire.

Step 5. Check for continuity across green wire, from junction box terminal block to a known good ground.

If there is no continuity, replace green wire.

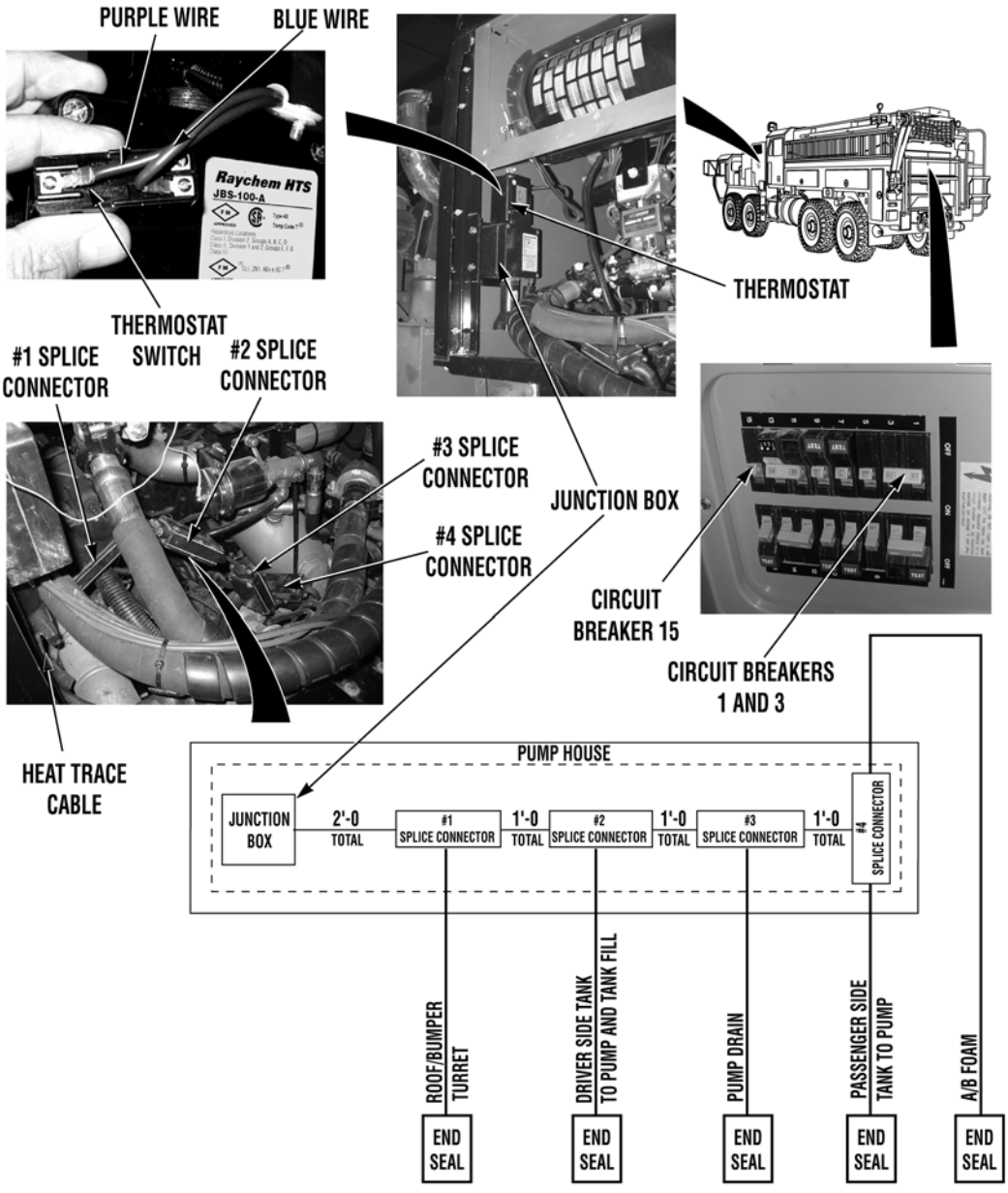
NOTE

Circuit breaker may appear to be in ON position when tripped. To make sure circuit breaker is not tripped, reset circuit breaker by switching it to OFF position then back to ON position.

Step 6. Reset circuit breaker 15, and check for continuity across circuit breaker 15.

If there is no continuity, replace circuit breaker 15 (WP 0360).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

- **120 Volts AC is present during heat trace operation. Use extreme caution when operating heat trace with trace junction and thermostat boxes open. Failure to comply may result in electrical shock or injury to personnel.**
- **Heat trace may become extremely hot during normal operations. Use caution when checking operation of heat trace. Failure to comply may result in serious burns.**

Step 7. Install test lead set between purple and blue wires at thermostat switch terminals. Start generator (WP 0021) and position circuit breakers 1, 3, and 15 to ON position. Check if circuit breaker 15 trips.

If circuit breaker 15 trips, replace circuit breaker 15 (WP 0373).

Step 8. Check if heat trace cable from junction box to # 1 splice connector is heating.

If heat trace cable between junction box and # 1 splice connector is not heating, go to Step 17.

Step 9. Check if roof/bumper turret heat trace cable is heating.

If roof/bumper heat trace cable is not heating, go to Step 17.

Step 10. Check if heat trace cable between # 1 and # 2 splice connectors is heating.

If heat trace cable between # 1 and # 2 splice connectors is not heating, go to Step 17.

Step 11. Check if driver side tank to pump and tank fill heat trace cable is heating.

If tank to pump and tank fill heat trace cable is not heating, go to Step 17.

Step 12. Check if heat trace cable between # 2 and # 3 splice connectors is heating.

If heat trace cable between # 2 and # 3 splice connectors is not heating, go to Step 17.

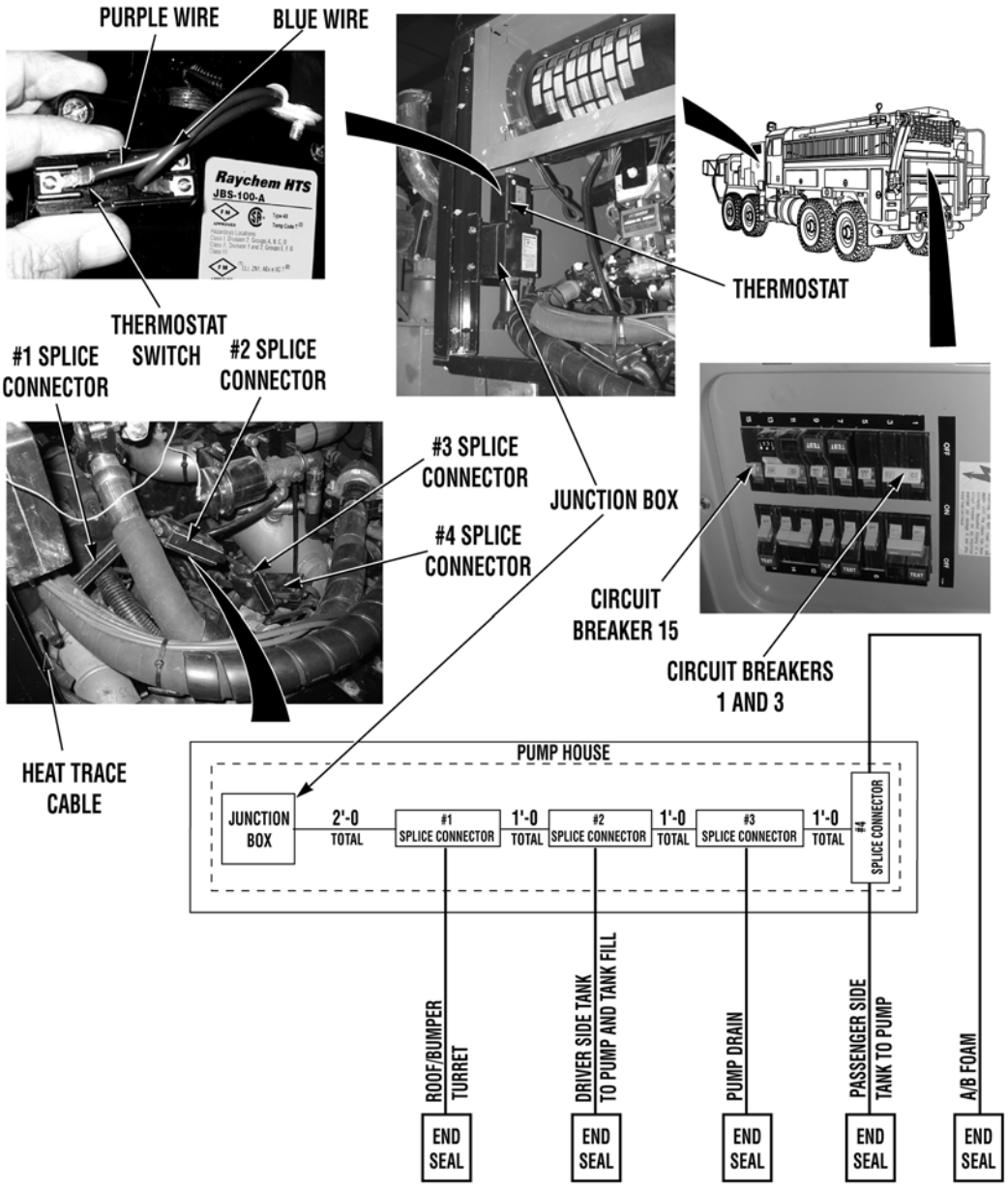
Step 13. Check if pump drain heat trace cable is heating.

If pump drain heat trace cable is not heating, go to Step 17.

Step 14. Check if heat trace cable between # 3 and # 4 splice connectors is heating.

If heat trace cable between # 3 and # 4 splice connectors is not heating, go to Step 17.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WARNING

- **120 Volts AC is present during heat trace operation. Use extreme caution when operating heat trace with trace junction and thermostat boxes open. Failure to comply may result in electrical shock or injury to personnel.**
- **Heat trace may become extremely hot during normal operations. Use caution when checking operation of heat trace. Failure to comply may result in serious burns.**

Step 15. Check if passenger side tank to pump heat trace cable is heating.

If passenger side tank to pump heat trace cable is not heating, go to Step 17.

Step 16. Check if A/B foam heat trace cable is heating.

a. If A/B foam heat trace cable is not heating, go to Step 17.

Step 17. Turn hydraulic generator OFF (WP 0021). Turn engine OFF (TM 9-2320-347-10). Open and check associated splice connectors for loose or damaged connections.

a. If connections are tight and free from damage, replace non-operating heat trace cable (WP 0606).

b. If connections are loose or damaged, tighten connections or replace splice connector (WP 0606).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PUMP HOUSE HEATER DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

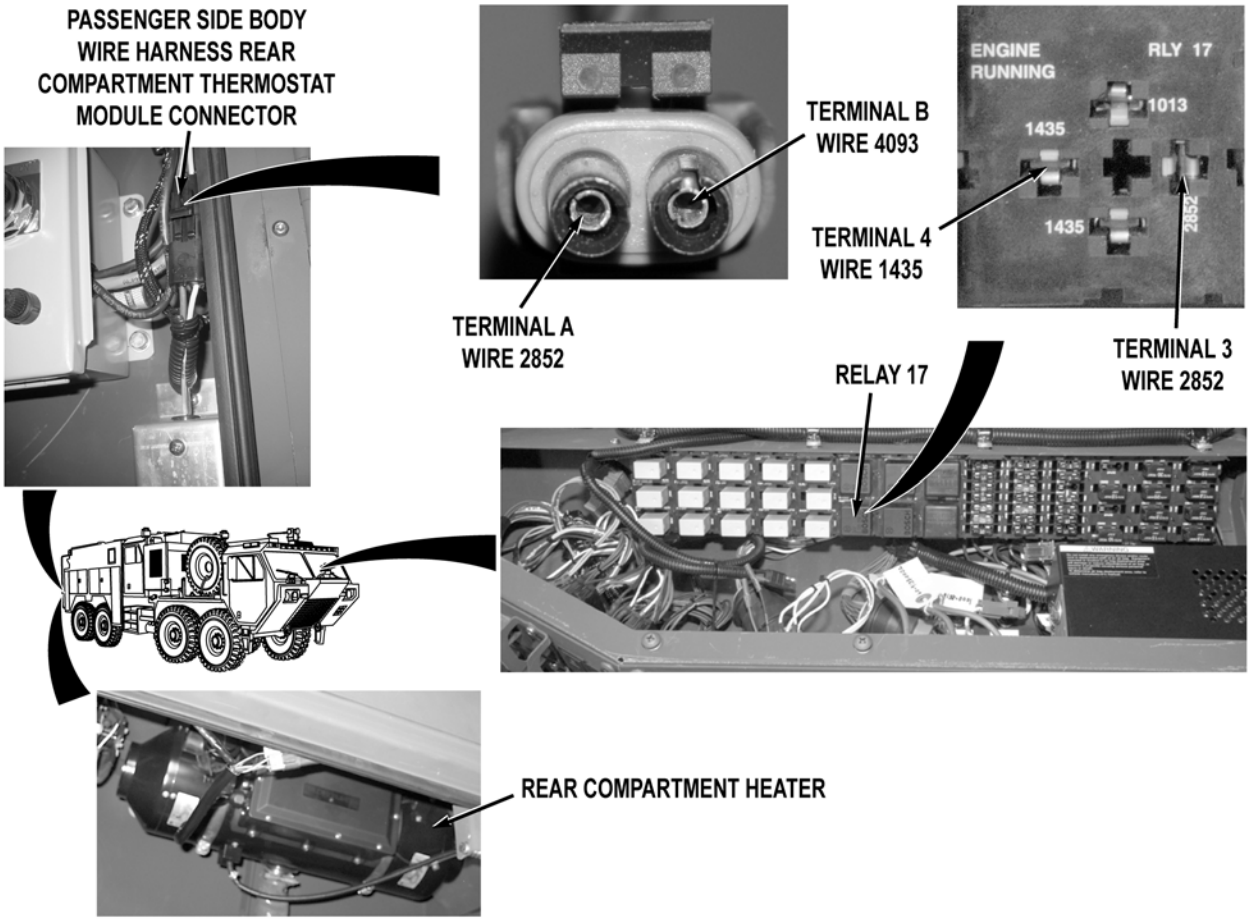
References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0183
WP 0412
WP 0415

References (continued)
WP 0455
WP 0457
WP 0458
WP 0467
WP 0468
WP 0469
WP 0539
WP 0540

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
PUMP HOUSE HEATER DOES NOT OPERATE PROPERLY		

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



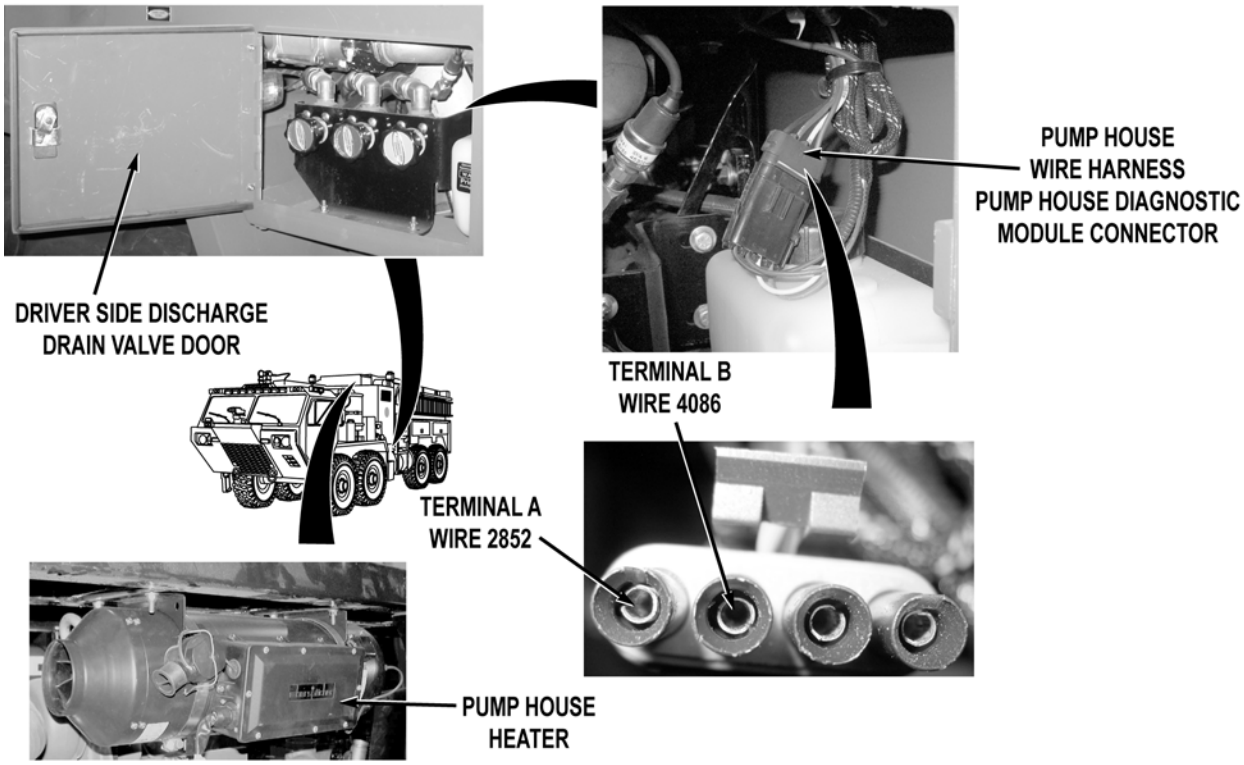
NOTE

Installing jumperwire in place of relay 17 across terminals 3 wire 2852 and 4 wire 1435 prevents having to start and stop vehicle engine during testing. Leave jumperwire in place throughout testing.

Step 1. Open passenger side rear stowage compartment doors P1 (WP 0010). Install jumperwire into passenger side body wire harness rear compartment thermostat module connector, terminal A wire 2852 and terminal B wire 4093. Turn battery disconnect switch to ON position (WP 0007). Check if rear compartment heater operates.

If rear compartment heater does not operate, troubleshoot Rear Compartment Heater Does Not Operate Properly (WP 0183).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



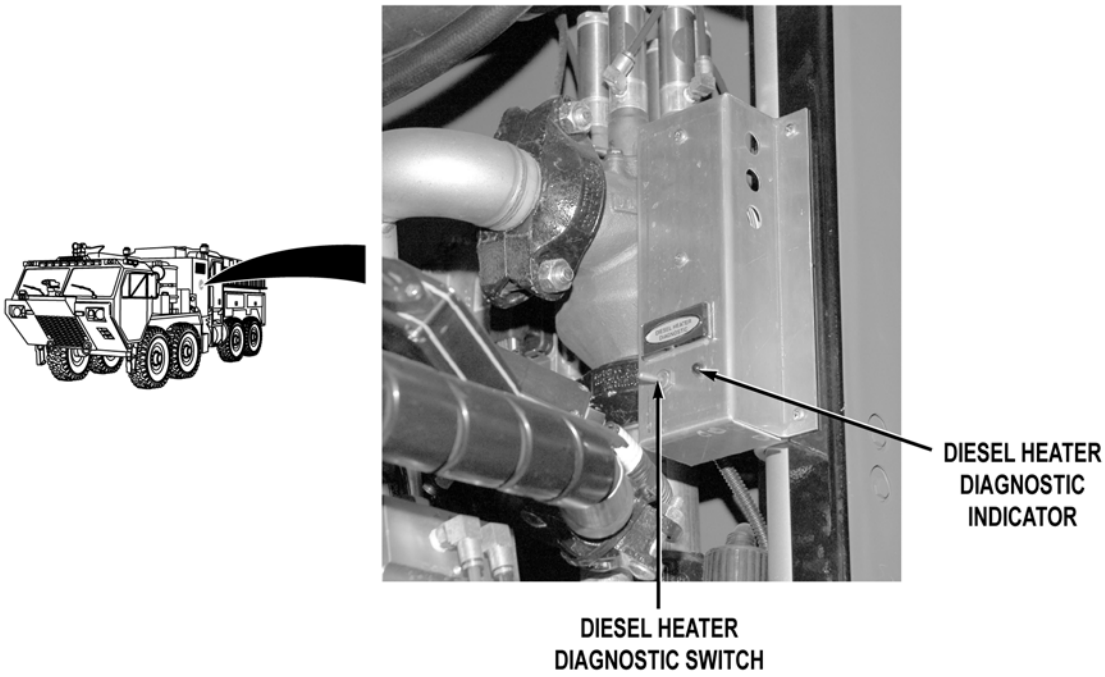
Step 2. Turn battery disconnect switch to OFF position (WP 0007). Open driver side discharge drain valve door. Install jumperwire into pump house wire harness pump house diagnostic module connector, terminal A wire 2852 and terminal B wire 4086. Turn battery disconnect switch to ON position (WP 0007). Check if pump house heater operates.

a. If pump house heater operates, go to Step 3.

b. If pump house heater attempts to start or starts and shuts down, go to Step 6.

c. If pump house heater does not attempt to start, go to Step 19.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Turn battery disconnect switch to OFF position (WP 0007). Connect pump house wire harness pump house diagnostic module connector. Open pump house panel A (WP 0539). Turn battery disconnect switch to ON position (WP 0007). Check if DIESEL HEATER DIAGNOSTIC indicator illuminates (WP 0004).

If DIESEL HEATER DIAGNOSTIC indicator does not illuminate, go to Step 16.

Step 4. Put DIESEL HEATER DIAGNOSTIC switch to test position (WP 0004). Check if DIESEL HEATER DIAGNOSTIC indicator flashes.

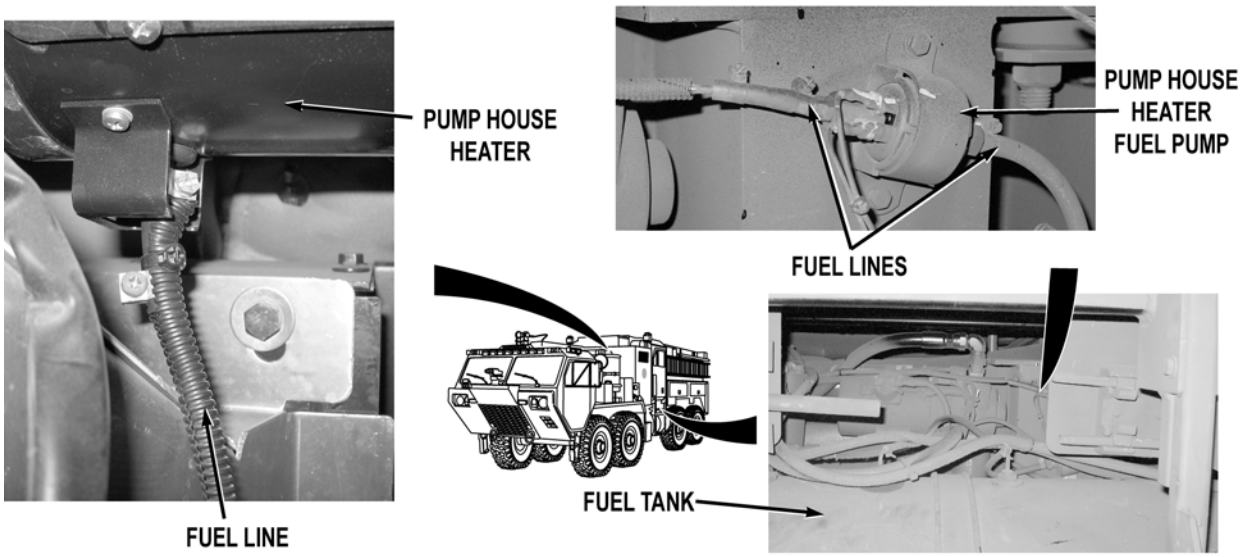
If DIESEL HEATER DIAGNOSTIC indicator flashes, go to Step 8.

Step 5. Put DIESEL HEATER DIAGNOSTIC switch to test position (WP 0004). Check if DIESEL HEATER DIAGNOSTIC indicator flashes.

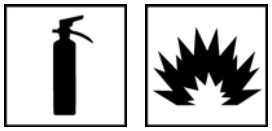
a. If DIESEL HEATER DIAGNOSTIC indicator flashes, go to Step 8.

b. If DIESEL HEATER DIAGNOSTIC indicator does not flash, replace pump house heater diagnostic module (WP 0415).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING



Fuel is very flammable and can explode easily. Keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle. Failure to comply may cause injury to death to personnel.

NOTE

- Pump house heater will make an audible clicking sound when operating.
- Jumperwire is still installed in pump house wire harness pump house diagnostic module connector.

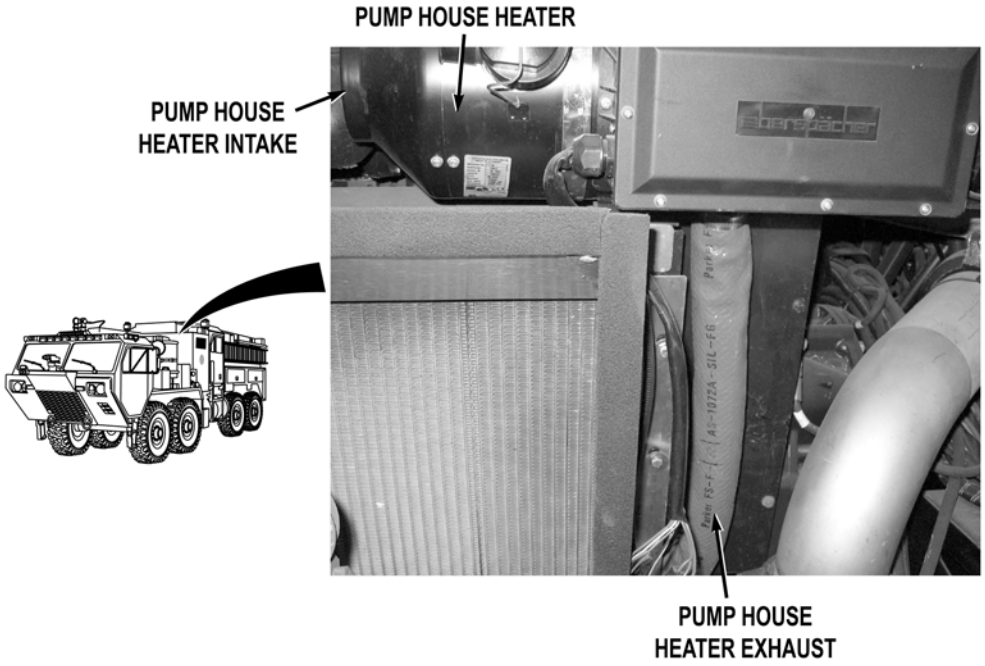
Step 6. Turn battery disconnect switch to ON position (WP 0007). Check if pump house heater fuel pump operates.

If pump house heater fuel pump does not operate, go to Step 9.

Step 7. Turn battery disconnect switch to OFF position (WP 0007). Remove jumperwire from pump house wire harness pump house heater diagnostic module connector from Step 2. Remove pump house panel G (WP 0540). Check fuel lines from pump house heater to fuel tank for leaks, kinks, or damage.

If fuel lines are leaking, kinked or damaged, replace fuel lines (WP 0468).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

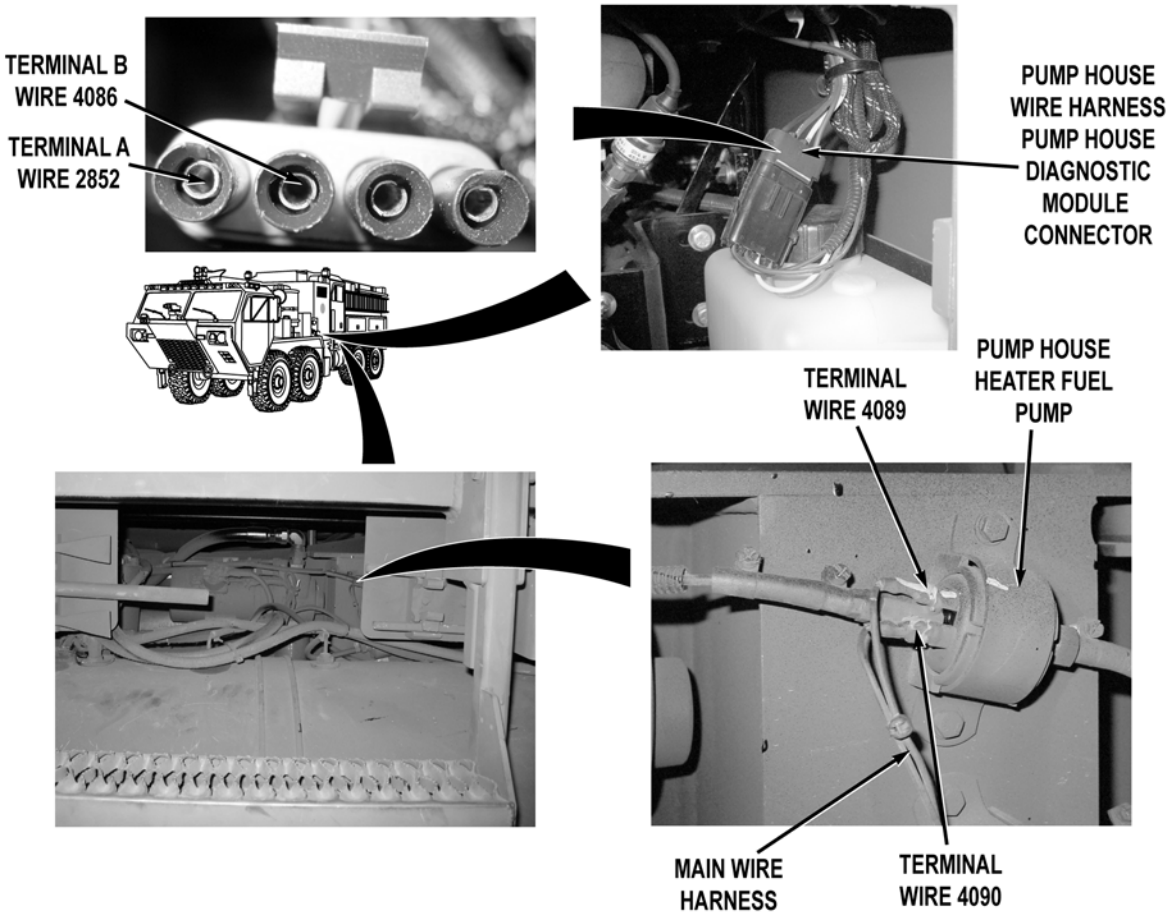


Step 8. After system cools, check pump house heater intake and exhaust for blockage.

a. If pump house heater intake or exhaust are blocked, remove blockage.

b. If pump house heater intake and exhaust are not blocked, replace pump house heater (WP 0469).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



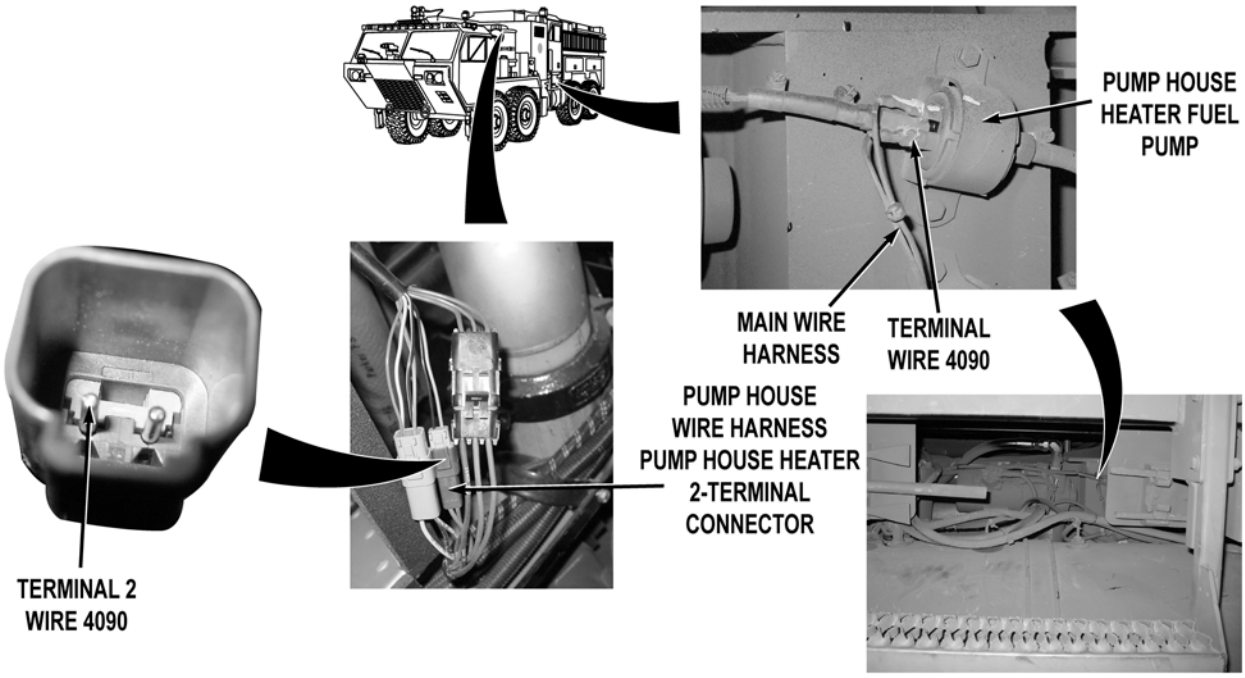
Step 9. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness wire 4089 (green) from pump house heater fuel pump terminal. Install jumperwire into pump house wire harness pump house diagnostic module connector, terminal A wire 2852 and terminal B wire 4086. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC at wire 4089 (green) between main wire harness pump house heater fuel pump wire 4089 (green), terminal and a known good ground.

If 22 to 28 VDC are not present, go to Step 13.

Step 10. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness wire 4090 (purple) connector from pump house heater fuel pump terminal. Turn battery disconnect switch to ON position (WP 0007). With jumperwire still installed, check for 22 to 28 VDC at pump house heater fuel pump wire 4090, terminal and a known good ground.

If 22 to 28 VDC are not present, replace pump house heater fuel pump (WP 0467).

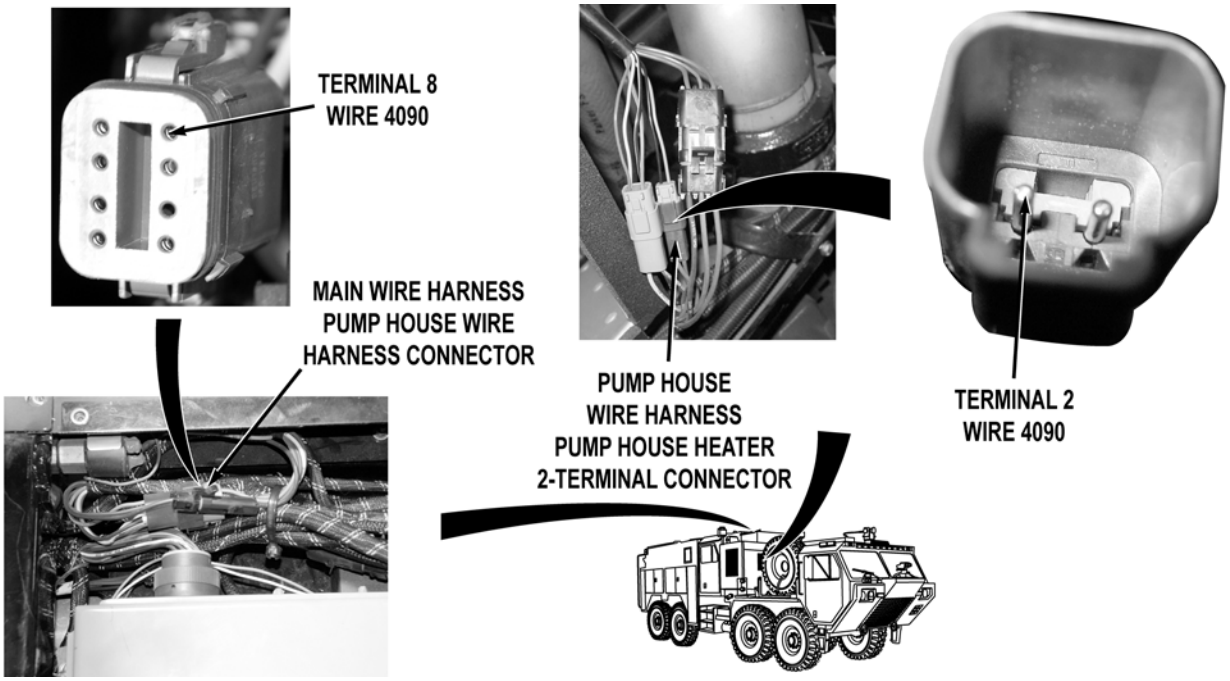
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 11. Remove pump house panel G (WP 0540). Disconnect pump house wire harness pump house heater 2-terminal connector. With a test lead set, check for continuity across wire 4090 (purple) from pump house wire harness pump house heater 2-terminal connector terminal 2, to main wire harness pump house heater fuel pump, terminal.

If there is continuity, replace pump house heater (WP 0469).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

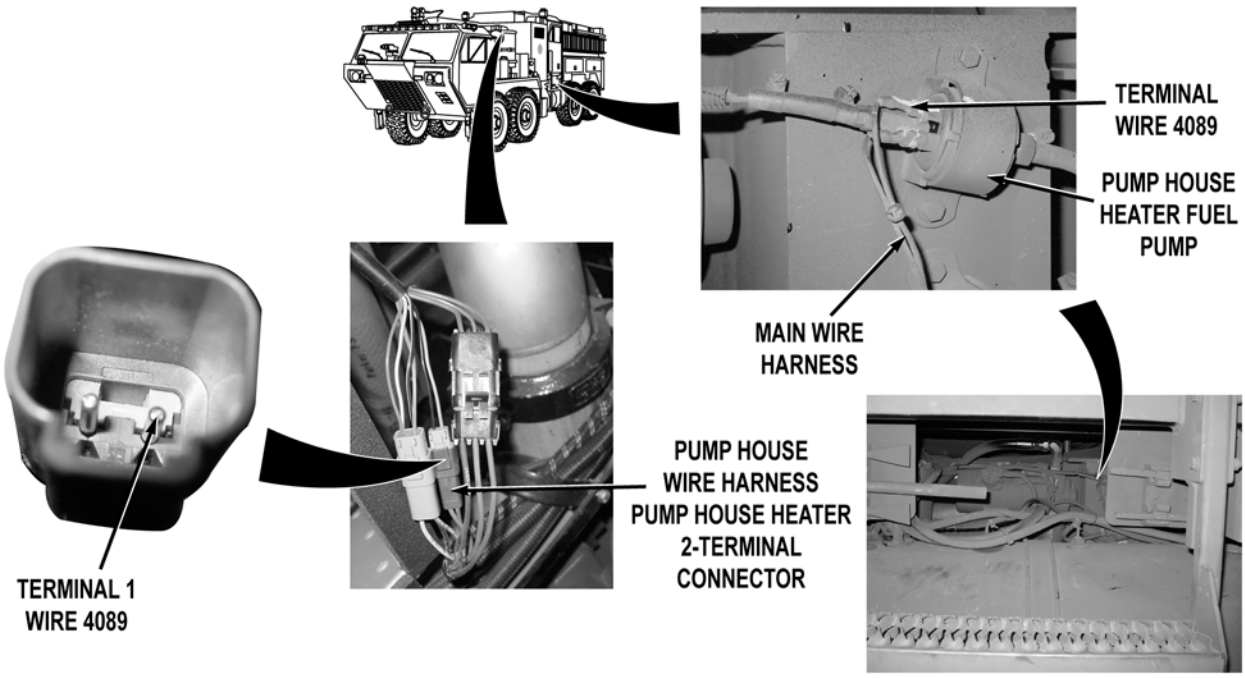


Step 12. Disconnect main wire harness pump house wire harness connector. With a test lead set, check for continuity across pump house wire harness wire 4090 (purple) from main wire harness pump house wire harness connector, terminal 8 to pump house wire harness pump house heater 2-terminal connector, terminal 2.

a. If there is continuity, repair wire 4090 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 4090 in pump house wire harness if repairable(TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

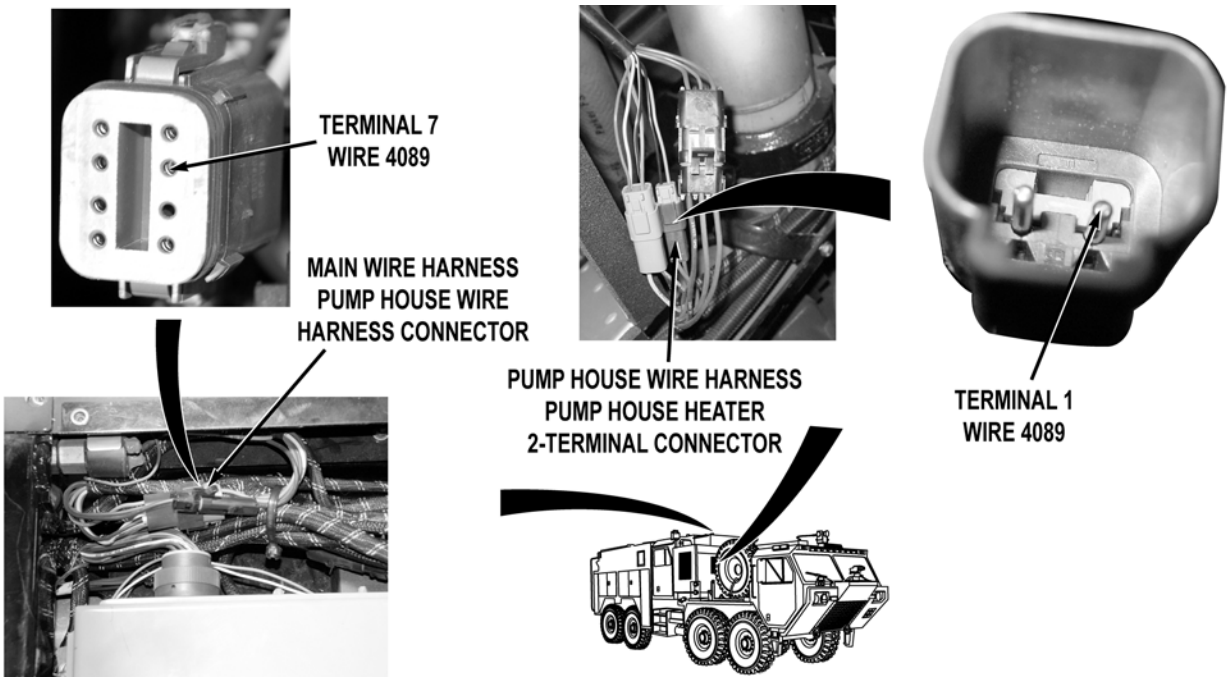
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 13. Turn battery disconnect switch to OFF position (WP 0007). Remove pump house panel G (WP 0540). Disconnect pump house wire harness pump house heater 2-terminal connector. With a test lead set, check for continuity across pump house wire harness wire 4089 (green) from pump house wire harness pump house heater 2-terminal connector, terminal 1 to main wire harness pump house heater fuel pump, terminal.

If there is continuity, replace pump house heater (WP 0469).

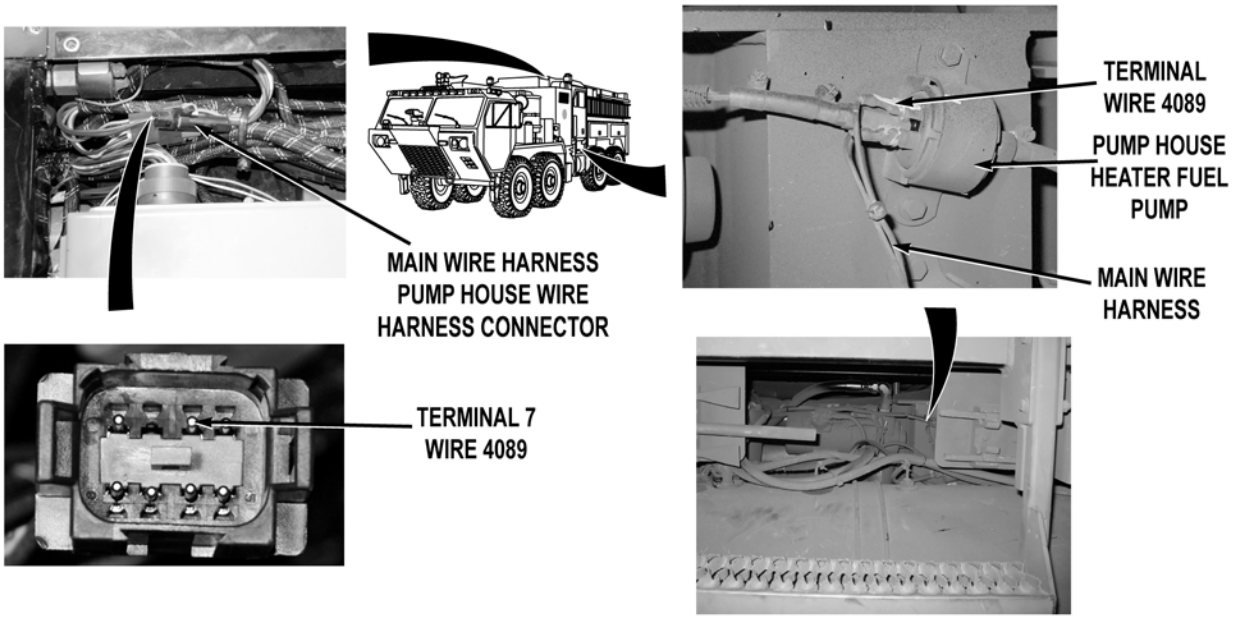
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 14. Disconnect main wire harness pump house wire harness connector. With a test lead set, check for continuity across pump house wire harness wire 4089 (green) from main wire harness pump house wire harness connector, terminal 7 to pump house wire harness pump house heater 2-terminal connector, terminal 1.

If there is no continuity, repair wire 4089 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

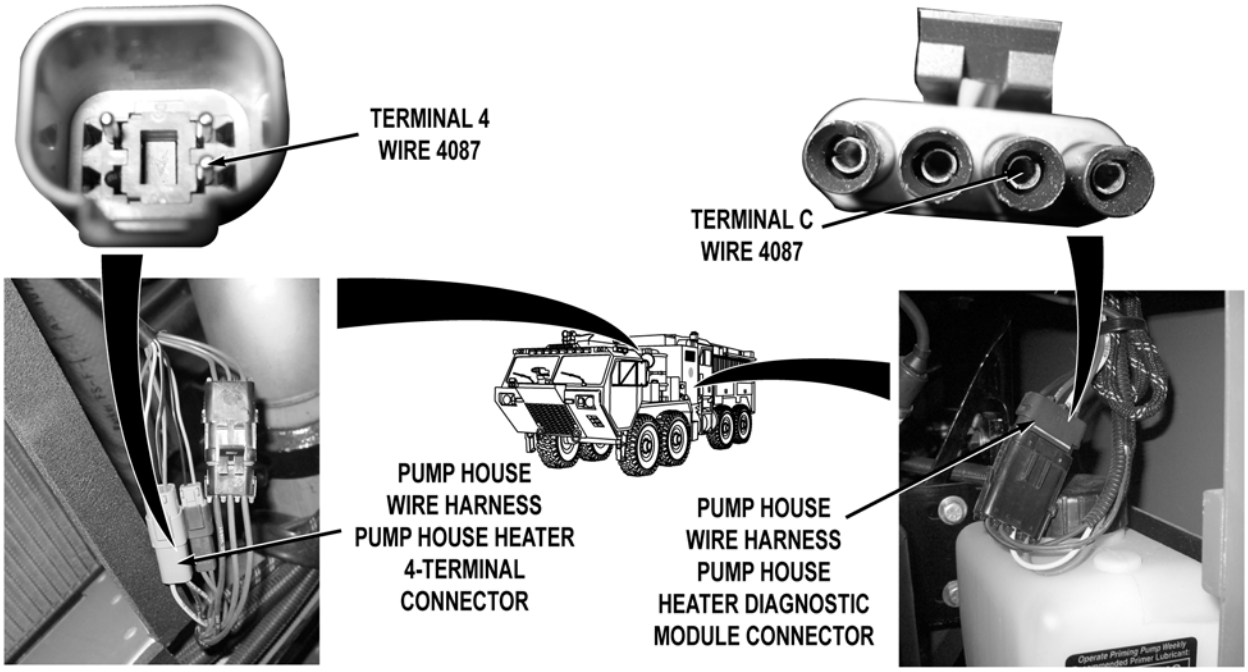


Step 15. With a test lead set, check for continuity across main wire harness wire 4089 (green) from main wire harness pump house wire harness connector, terminal 7 to main wire harness pump house heater fuel pump, terminal.

a. If there is continuity, replace pump house heater fuel pump (WP 0467).

b. If there is no continuity, repair wire 4089 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

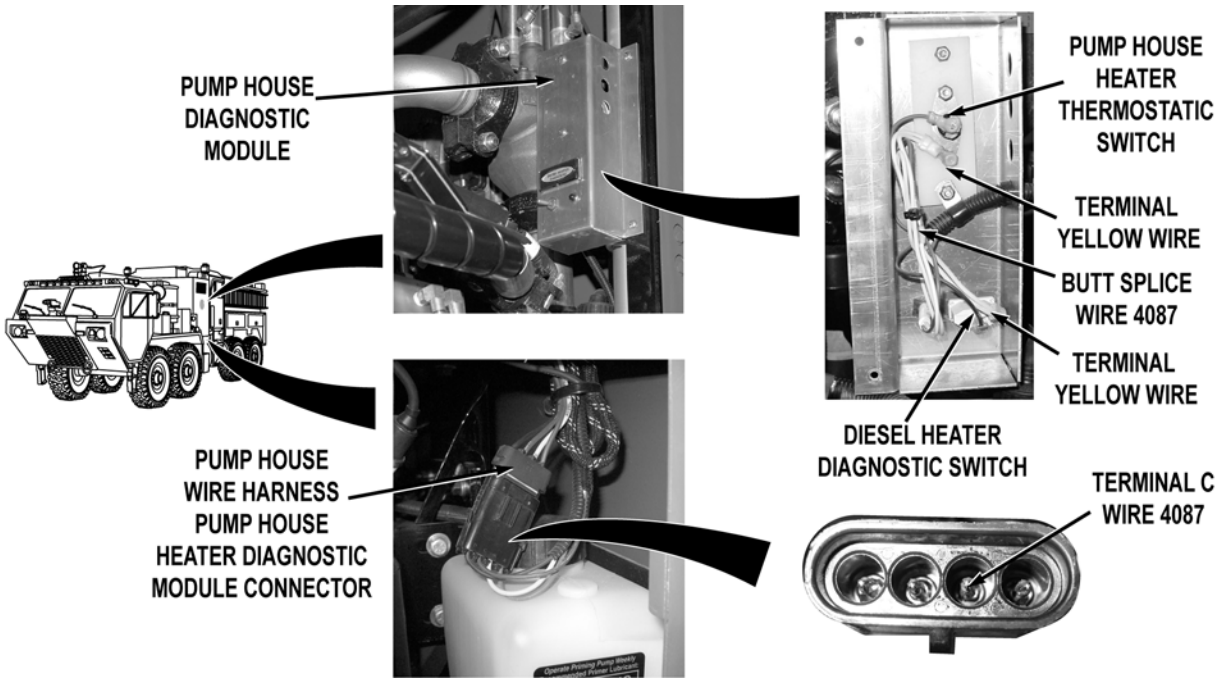
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Turn battery disconnect switch to OFF position (WP 0007). Remove jumperwire from pump house wire harness pump house heater diagnostic module connector. Remove pump house panel G (WP 0540). Disconnect pump house wire harness pump house heater 4-terminal connector. With a test lead set, check for continuity across pump house wire harness wire 4087 (blue) from pump house wire harness pump house heater diagnostic module connector, terminal C to pump house wire harness pump house heater 4-terminal connector, terminal 4.

If there is no continuity, repair wire 4087 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Remove pump house heater diagnostic module (WP 0415). Check for continuity across yellow wire from pump house heater thermostatic switch to DIESEL HEATER DIAGNOSTIC switch.

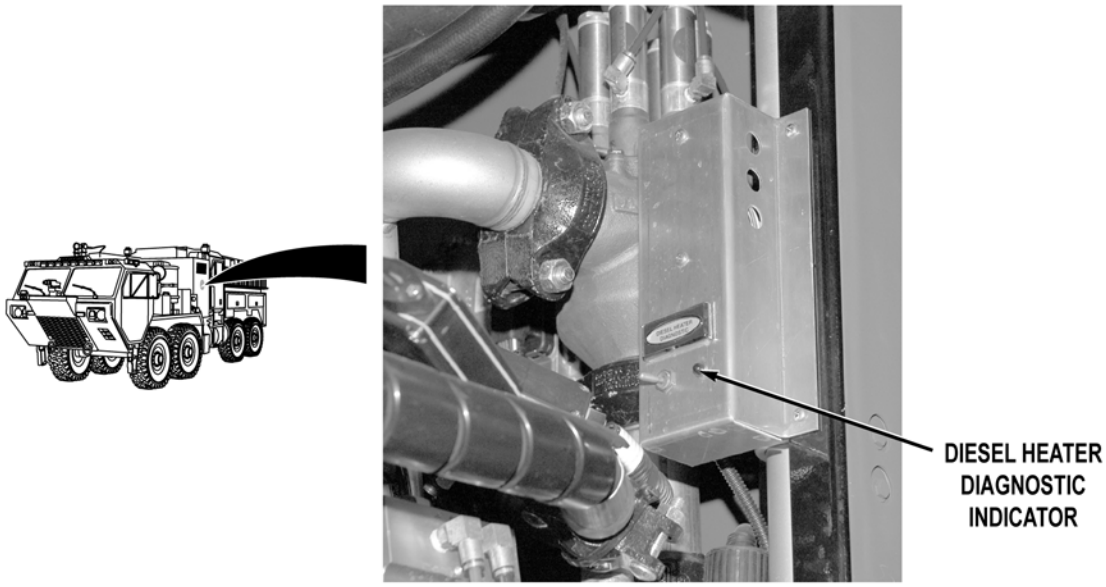
If there is no continuity, repair yellow wire if repairable (TM 9-2320-325-14&P), or replace pump house heater diagnostic module (WP 0415).

Step 18. Cut pump house heater diagnostic module wire 4087 (blue and white) at butt splice connector. Check for continuity across wire 4087 (blue) from pump house wire harness pump house heater diagnostic module connector terminal C, to pump house diagnostic module butt splice connector termination.

a. If there is continuity, replace pump house heater (WP 0469).

b. If there is no continuity, repair wire 4087 if repairable (TM 9-2320-325-14&P), or replace pump house heater diagnostic module (WP 0415).

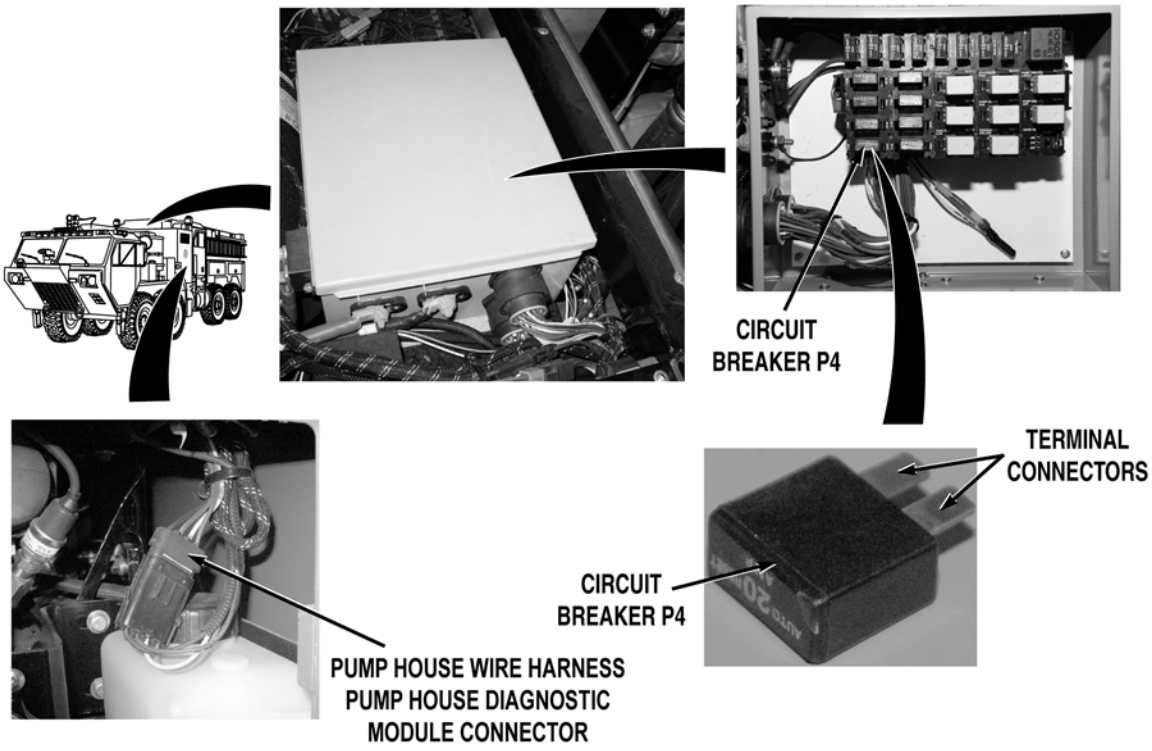
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 19. Check if DIESEL HEATER DIAGNOSTIC indicator illuminates (WP 0004).

If DIESEL HEATER DIAGNOSTIC indicator does not illuminate, go to Step 26.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



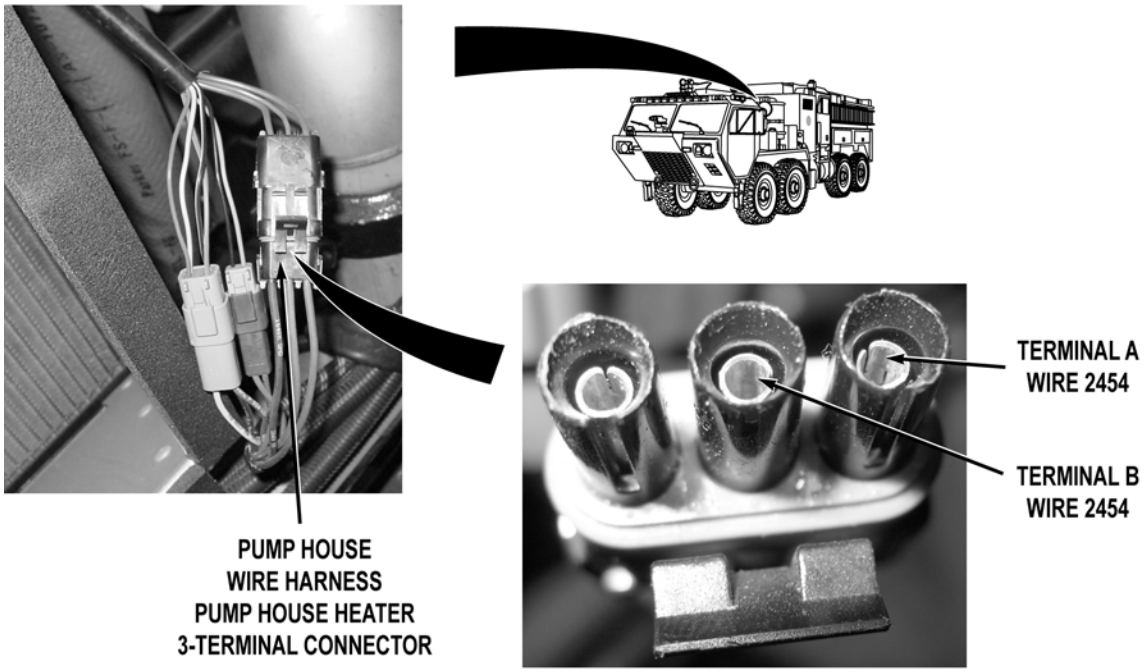
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 20. Turn battery disconnect switch to OFF position (WP 0007). Remove jumperwire from pump house wire harness pump house diagnostic module connector. Remove pump house panel S (WP 0540). Remove circuit breaker P4 (WP 0412). Check for continuity across circuit breaker P4 terminal connectors.

If there is no continuity, replace circuit breaker P4 (WP 0412).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



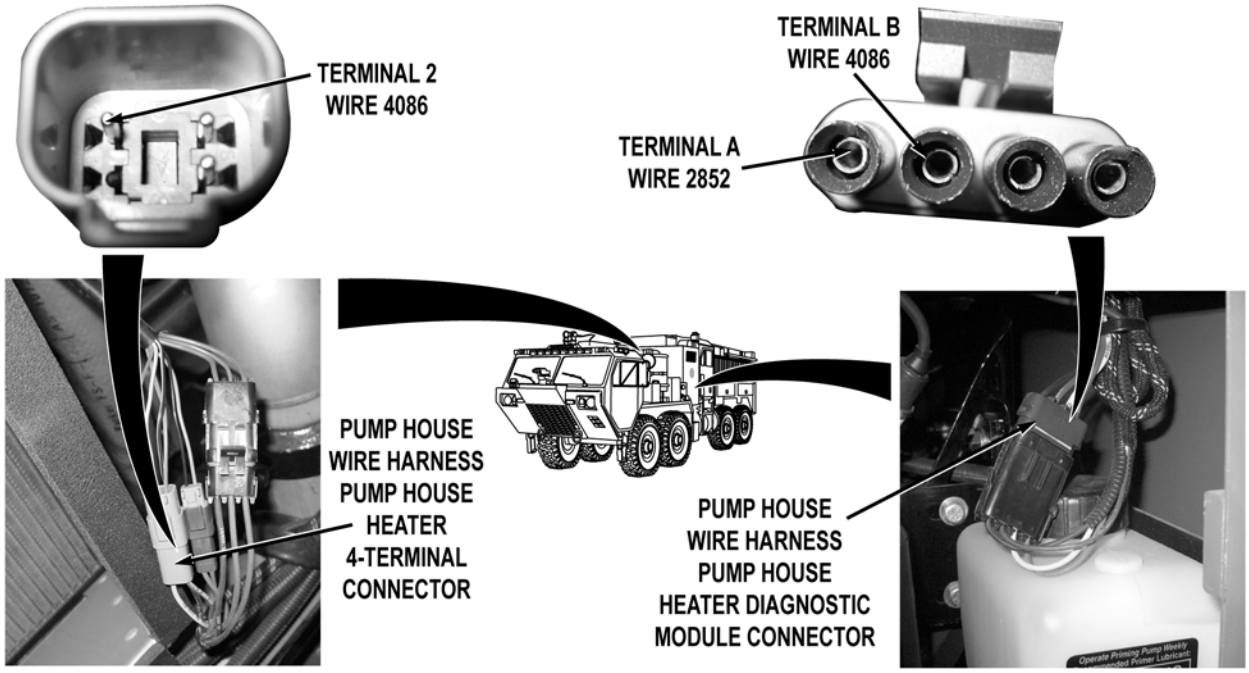
Step 21. Install circuit breaker P4 (WP 0412). Remove pump house panel G (WP 0540). Disconnect pump house wire harness pump house heater 3-terminal connector. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between wires 2454 (green) at pump house wire harness pump house heater 3-terminal connector, terminals A and B, and a known good ground.

a. If 22 to 28 VDC are not present at both terminals, go to Step 24.

b. If 22 to 28 VDC are present at one but not both terminals, repair wire 2454 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

c. If 22 to 28 VDC are present at both terminals, go to Step 22.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



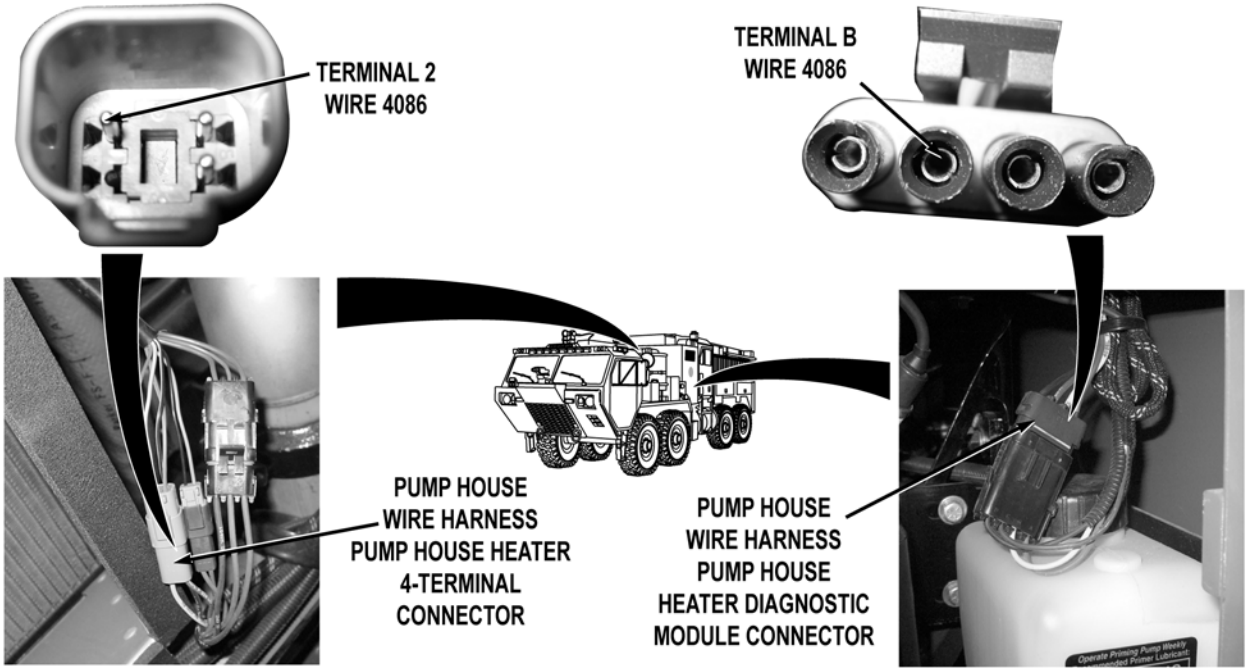
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 22. Turn battery disconnect switch to OFF position (WP 0007). Disconnect pump house wire harness pump house heater 4-terminal connector. Install jumperwire into pump house wire harness pump house heater diagnostic module connector, terminal A wire 2852 and terminal B wire 4086. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between pump house wire harness wire 4086 (yellow) at pump house wire harness pump house heater 4-terminal connector, terminal 2 and a known good ground.

If 22 to 28 VDC are present, replace pump house heater (WP 0469).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

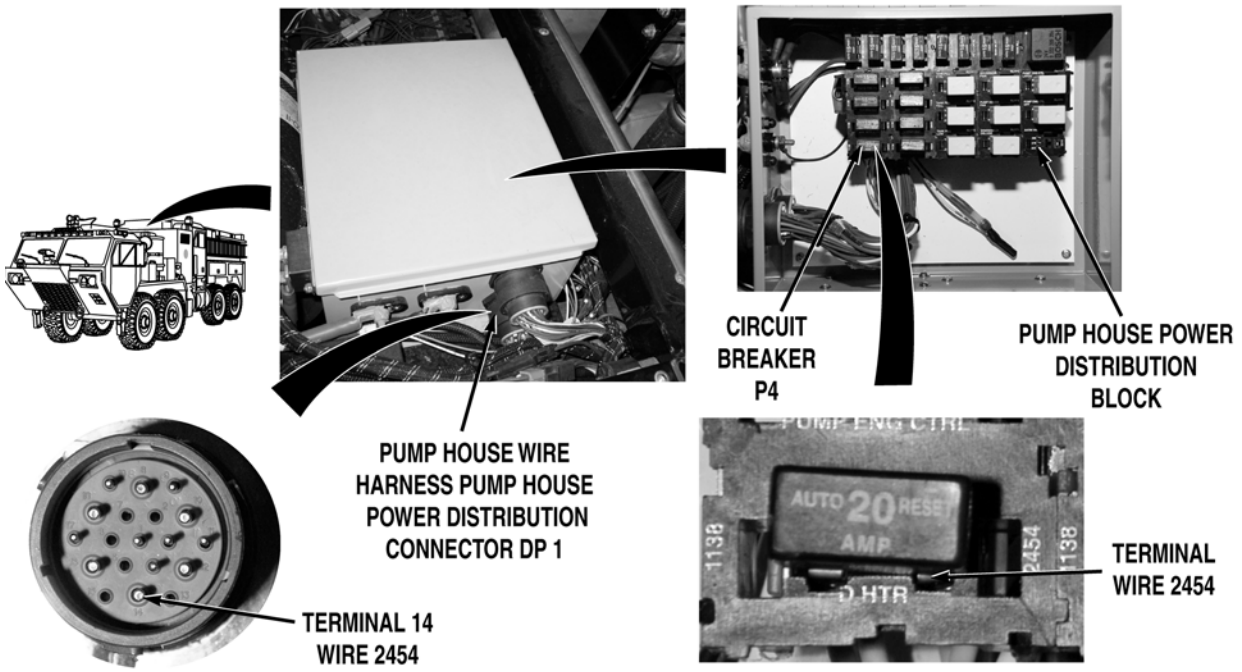


Step 23. Turn battery disconnect switch to OFF position (WP 0007). Remove jumperwire from pump house wire harness pump house heater diagnostic module connector. With a test lead set, check for continuity across pump house wire harness wire 4086 (yellow) from pump house wire harness pump house heater diagnostic module connector, terminal B to pump house wire harness pump house heater 4-terminal connector, terminal 2.

a. If there is continuity, repair wire 4068 in pump house heater diagnostic module if repairable (TM 9-2320-325-14&P), or replace pump house heater diagnostic module (WP 0415).

b. If there is no continuity, repair wire 4068 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



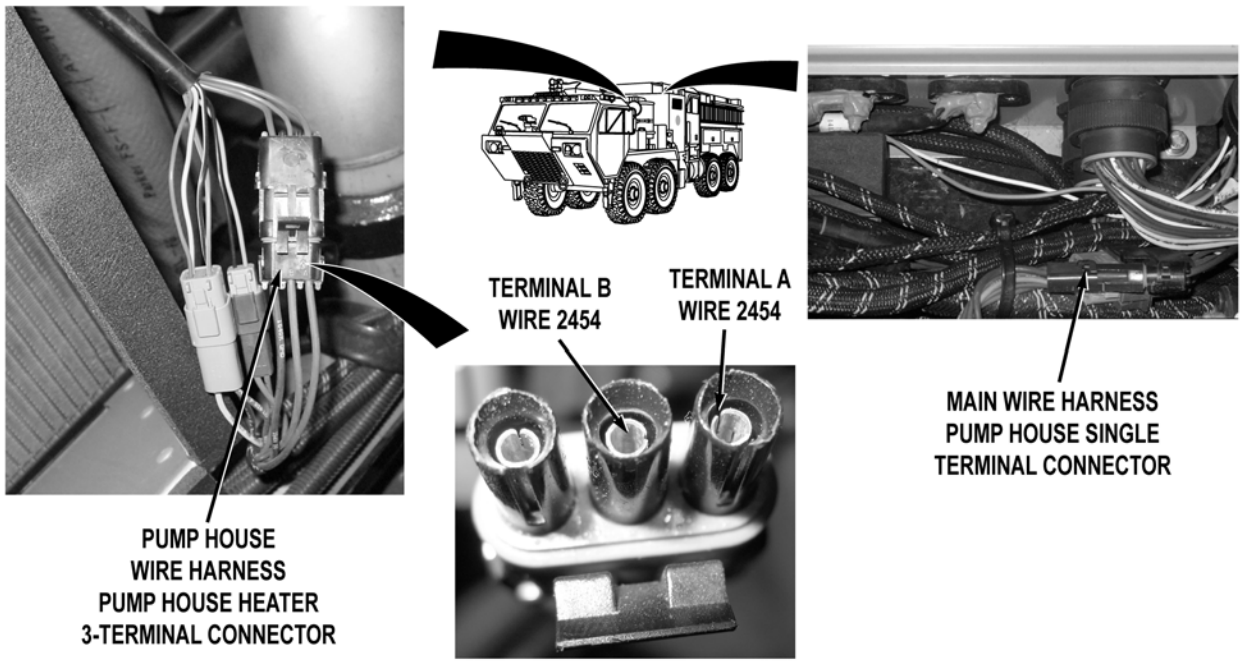
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 24. Turn battery disconnect switch to OFF position (WP 0007). Disconnect pump house wire harness pump house power distribution connector DP1. Remove circuit breaker P4 (WP 0412). With a test lead set, check for continuity across wire 2454 (green) at pump house power distribution connector DP1, terminal 14 and pump house power distribution block circuit breaker P4 wire 2454, terminal.

If continuity is not present, repair wire 2454 in pump house power distribution wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

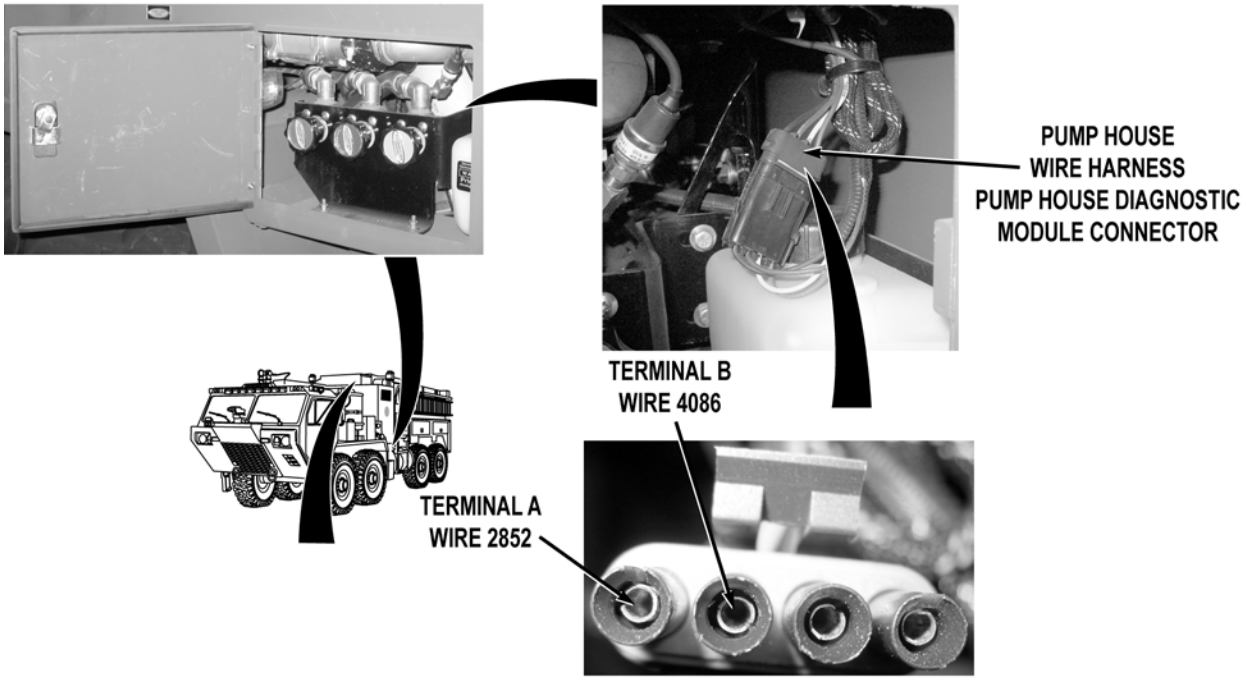


Step 25. Disconnect main wire harness pump house single terminal connector. With a test lead set, check for continuity across pump house wire harness wire 2454 (green) from main wire harness pump house single terminal connector to pump house wire harness pump house heater 3-terminal connector terminals A and B.

a. If continuity is present, repair wire 2454 in main wire harness if repairable (TM 9-2320-325-14&P), or replace pump house power distribution wire harness and block (WP 0457).

b. If continuity is not present, repair wire 2454 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

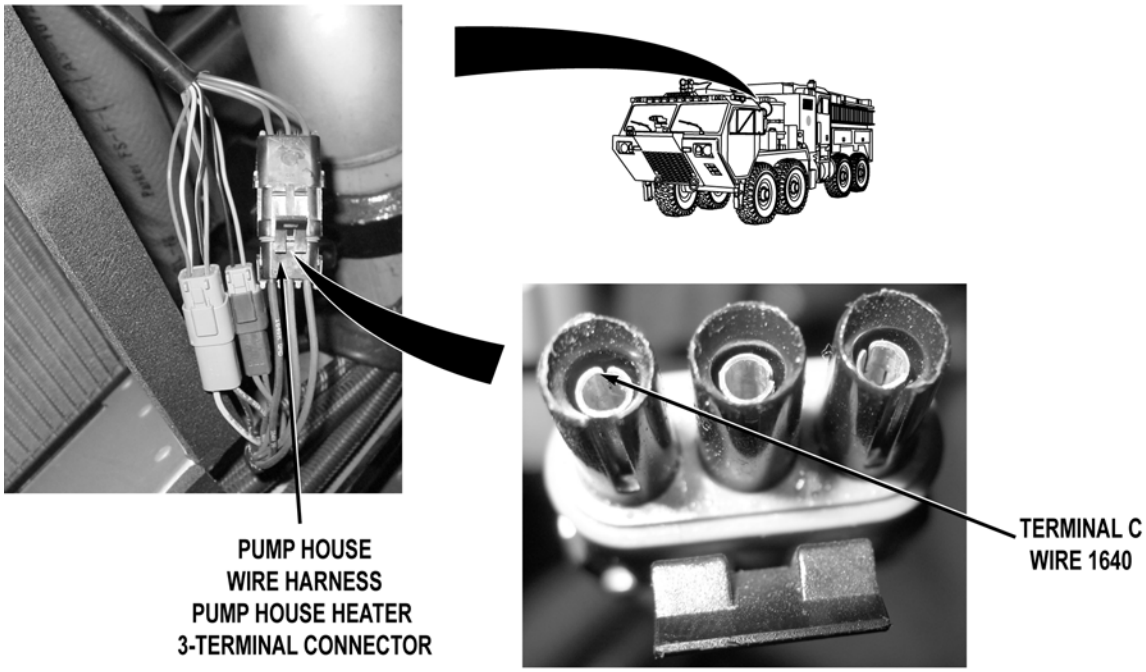
Step 26. Turn battery disconnect switch to OFF position (WP 0007). Remove jumperwire from pump house wire harness pump house diagnostic module connector. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between wire 2852 (red) at pump house wire harness pump house diagnostic module connector, terminal A and a known good ground.

If 22 to 28 VDC are not present, go to Step 32.

Step 27. Turn battery disconnect switch to OFF position (WP 0007). With a test lead set, check for continuity across pump house heater diagnostic module connector, terminal A wire 2852 and terminal B wire 4086.

If there is no continuity, go to Step 29.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

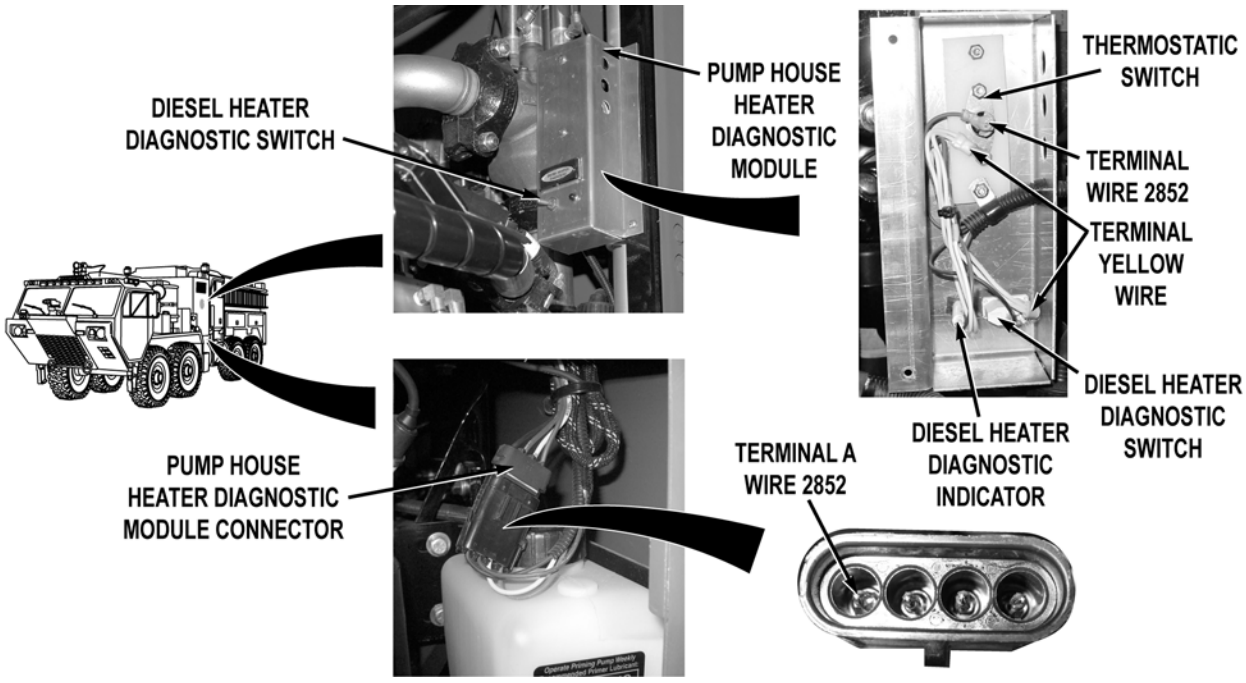


Step 28. Remove pump house panel G (WP 0540). Disconnect pump house wire harness pump house heater 3 terminal connector. With a test lead set, check for continuity across wire 1640 (black) from pump house wire harness pump house heater 3-terminal connector, terminal C to a known good ground.

a. If there is continuity, replace pump house heater (WP 0469).

b. If there is no continuity, repair wire 1640 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 29. Check for continuity across wire 2852 (red) from pump house heater diagnostic module connector, terminal A to thermostatic switch (red wire) terminal.

If there is no continuity, repair wire 2852 if repairable (TM 9-2320-325-14&P), or replace pump house heater diagnostic module (WP 0415).

Step 30. While an assistant puts DIESEL HEATER DIAGNOSTIC switch to test position (WP 0004). Check for continuity across pump house heater diagnostic module DIESEL HEATER DIAGNOSTIC switch.

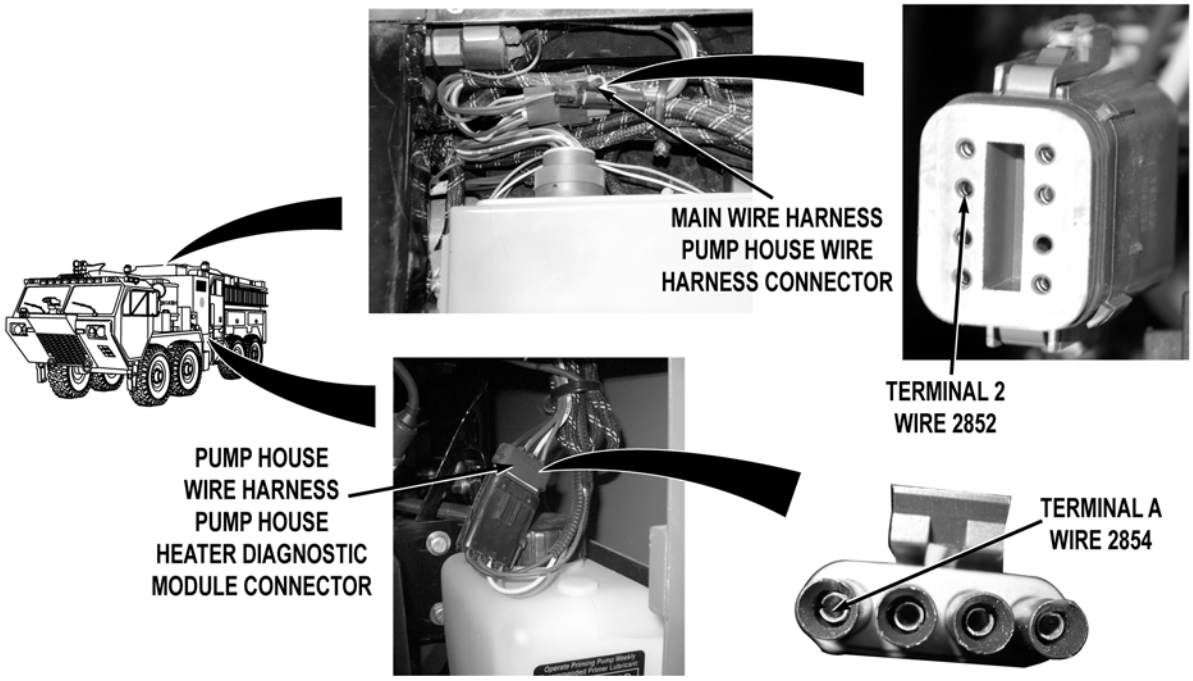
If there is no continuity, replace pump house heater diagnostic module (WP 0415).

Step 31. Check for continuity across pump house heater diagnostic module terminal yellow wire from thermostatic switch terminal to DIESEL HEATER DIAGNOSTIC switch.

a. If there is continuity, repair black jumperwire between DIESEL HEATER DIAGNOSTIC switch and DIESEL HEATER DIAGNOSTIC indicator if repairable (TM 9-2320-325-14&P), or replace pump house heater diagnostic module (WP 0415).

b. If there is no continuity, repair yellow wire if repairable (TM 9-2320-325-14&P), or replace pump house heater diagnostic module (WP 0415).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 32. Disconnect main wire harness pump house wire harness connector. With a test lead set, check for continuity across wire 2852 (red) from main wire harness pump house wire harness connector, terminal 2 to pump house wire harness pump house heater diagnostic module connector, terminal A.

a. If there is continuity, repair wire 2852 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 2852 in pump house wire harness if repairable (TM 9-2320-325-14&P), or replace pump house wire harness (WP 0458).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

REAR COMPARTMENT HEATER DOES NOT OPERATE PROPERLY

Tools and Special Tools
Lead Set, Test (WP 0622, Item 21)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0037
WP 0169
WP 0182
WP 0393

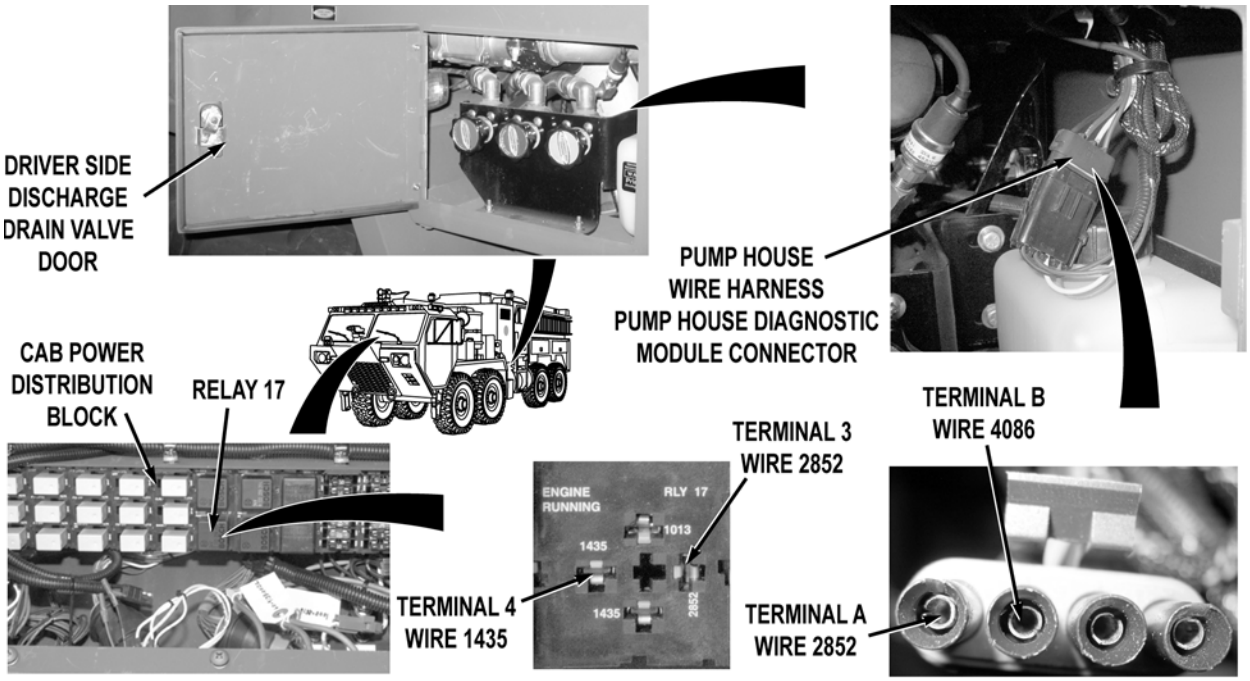
References (continued)
WP 0402
WP 0455
WP 0456
WP 0467
WP 0468
WP 0470
WP 0471
WP 0472

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

REAR COMPARTMENT HEATER DOES NOT OPERATE PROPERLY

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



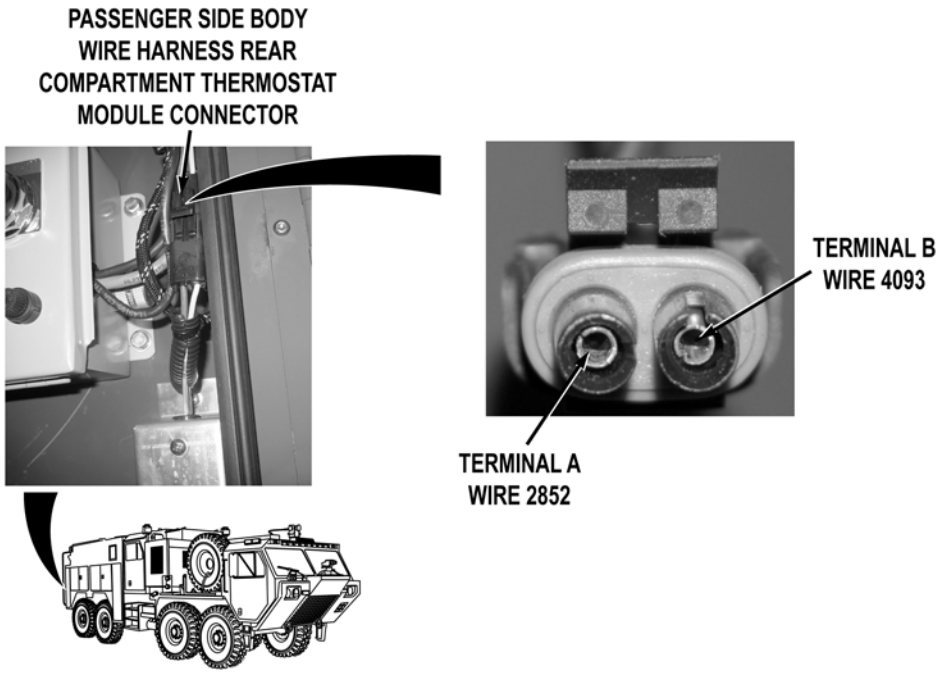
NOTE

Installing jumperwire in place of relay 17 across terminal 3 wire 2852 and terminal 4 wire 1435 on cab power distribution block prevents having to start and stop vehicle engine during testing. Leave jumperwire in place throughout testing.

Step 1. Open driver side discharge drain valve door (WP 0010). Disconnect pump house wire harness pump house diagnostic module connector. Install jumperwire across wire 2852 and wire 4086 in pump house wire harness pump house diagnostic module connector, terminal A and terminal B. Turn battery disconnect switch to ON position (WP 0007). Check if pump house heater operates.

If rear compartment heater does not operate, troubleshoot Pump House Heater Does Not Operate Properly (WP 0182).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



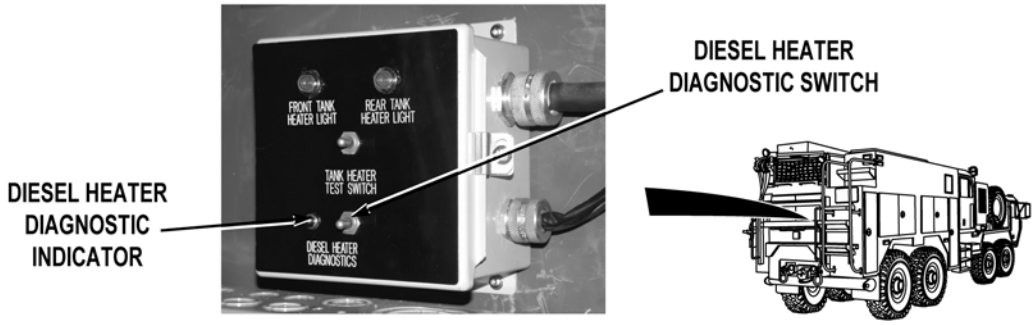
Step 2. Turn battery disconnect switch to OFF position (WP 0007). Remove jumperwire and reconnect from pump house wire harness pump house diagnostic module connector. Open passenger side stowage compartment P1 door (WP 0010). Disconnect and install a jumperwire into passenger side body wire harness rear compartment thermostat module connector, terminal A wire 2852 and terminal B wire 4093. Turn battery disconnect switch to ON position (WP 0007). Check if rear compartment heater operates.

a. If rear compartment heater operates, go to Step 3.

b. If rear compartment heater attempts to start or starts and shuts down, go to Step 6.

c. If rear compartment heater does not attempt to start, go to Step 19.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 3. Turn battery disconnect switch to OFF position (WP 0007). Remove jumperwire and reconnect passenger side wire harness rear compartment thermostat module connector from Step 2. Open rear stowage compartment R1 doors (WP 0010). Turn battery disconnect switch to ON position (WP 0007). Check if DIESEL HEATER DIAGNOSTIC indicator illuminates (WP 0004).

If DIESEL HEATER DIAGNOSTIC indicator does not illuminate, go to Step 16.

Step 4. Put DIESEL HEATER DIAGNOSTIC switch to test position (WP 0004). Check if DIESEL HEATER DIAGNOSTIC indicator flashes.

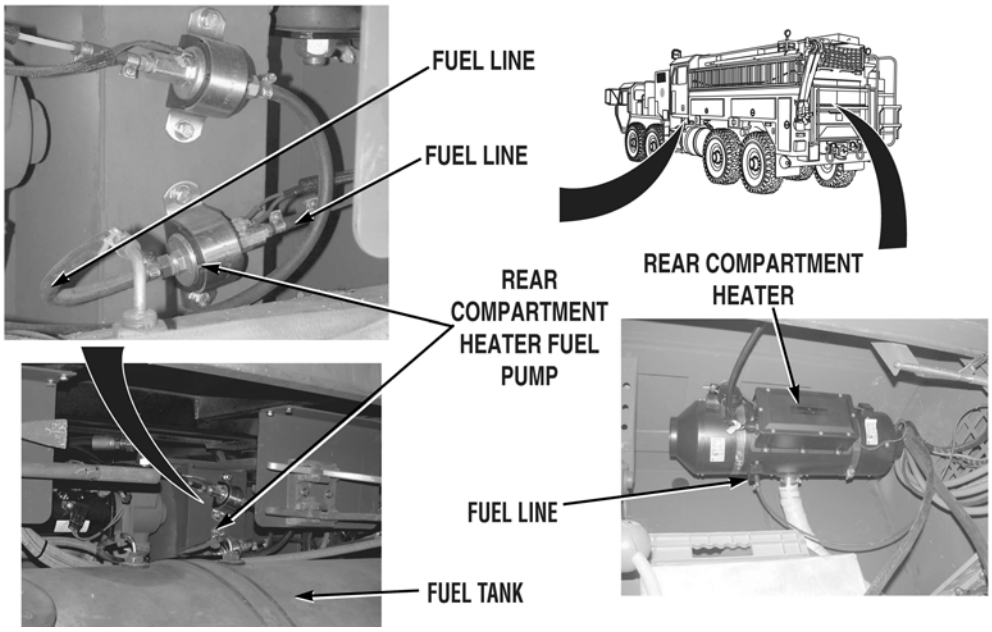
If DIESEL HEATER DIAGNOSTIC indicator flashes, go to Step 8.

Step 5. Put DIESEL HEATER DIAGNOSTIC switch to test position (WP 0004). Check if DIESEL HEATER DIAGNOSTIC indicator flashes.

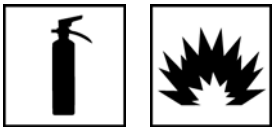
a. If DIESEL HEATER DIAGNOSTIC indicator flashes, go to Step 8.

b. If DIESEL HEATER DIAGNOSTIC indicator does not flash, replace rear compartment heater diagnostic module (WP 0470).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING



Fuel is very flammable and can explode easily. Keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle. Failure to comply may cause injury to death to personnel.

NOTE

Rear compartment heater will make an audible clicking sound when operating.

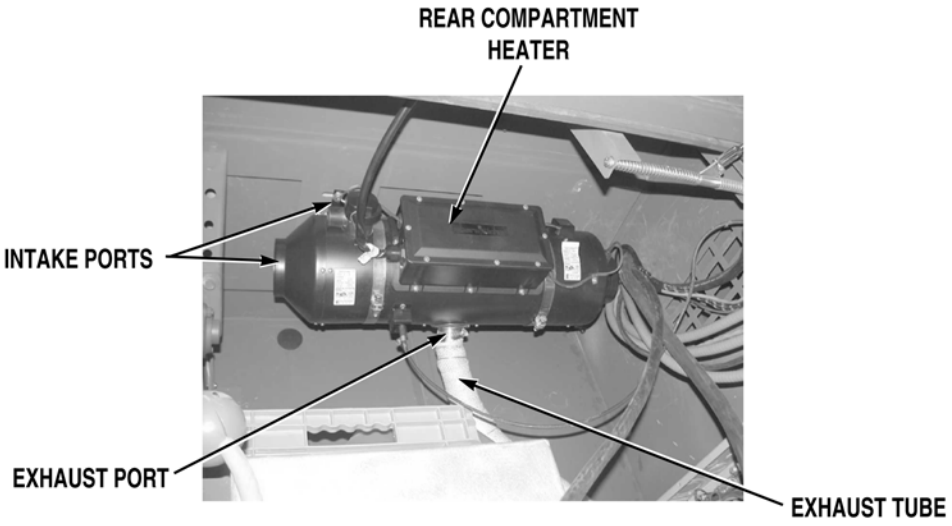
Step 6. With jumperwire in passenger side body wire harness rear compartment thermostat module connector installed from Step 2, check if rear compartment heater fuel pump operates.

If rear compartment heater fuel pump does not operate, go to Step 9.

Step 7. Turn battery disconnect switch to OFF position (WP 0007). Open rear stowage compartment R1 doors (WP 0010). Remove jumperwire from passenger side body wire harness rear compartment thermostat module connector from Step 2. Check fuel lines from rear compartment heater to fuel tank for leaks, kinks, or damage.

If fuel lines are leaking, kinked or damaged, replace fuel lines (WP 0468).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

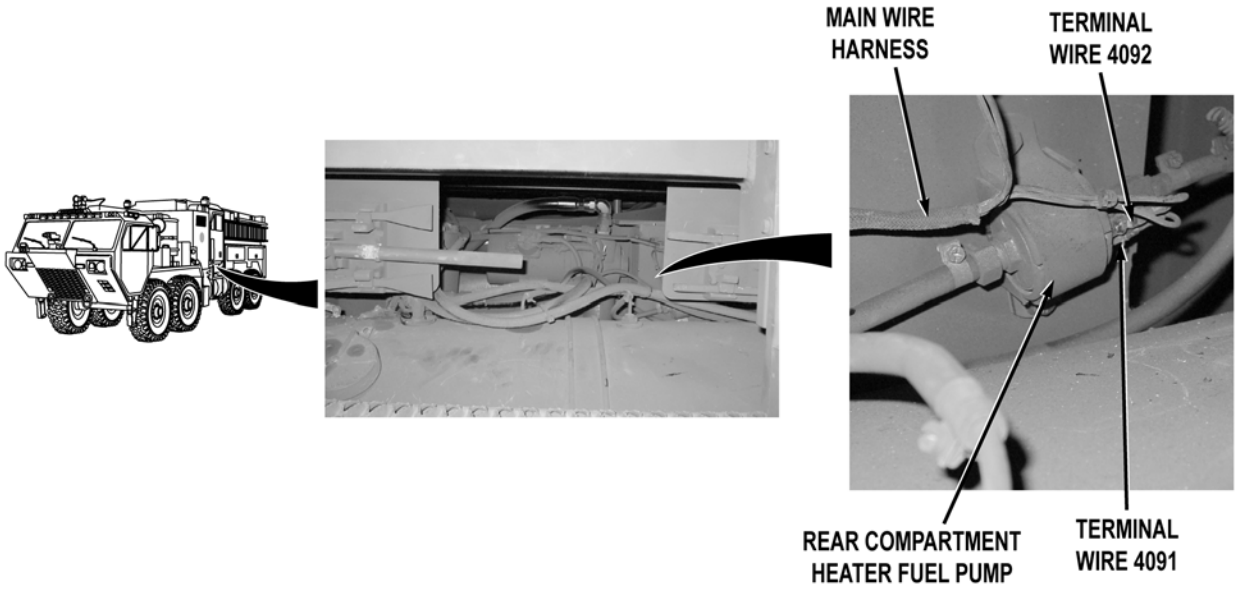


Step 8. After system cools, check rear compartment heater intake ports and exhaust port at exhaust tube for blockage on rear compartment heater.

a. If rear compartment heater intake or exhaust ports are blocked, remove blockage.

b. If rear compartment heater intake and exhaust ports are not blocked, replace rear compartment heater (WP 0471).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



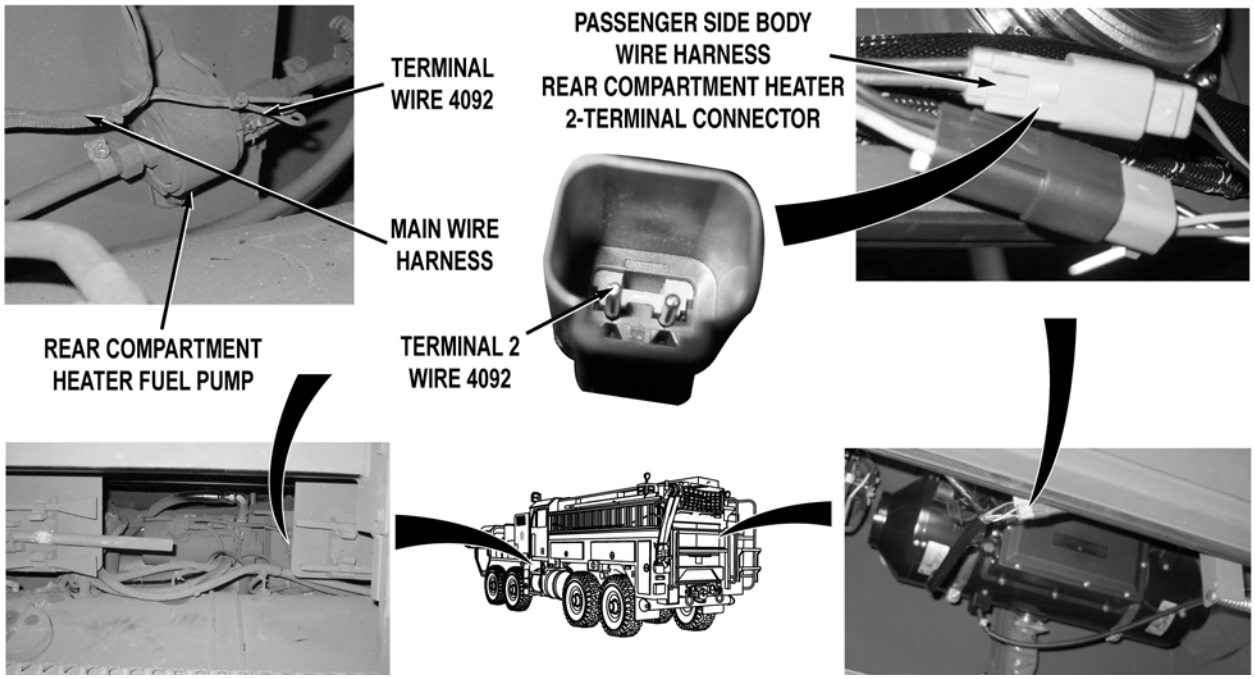
Step 9. Turn battery disconnect switch to OFF position (WP 0007). Disconnect main wire harness wire 4091(green) from rear compartment heater fuel pump terminal. Turn battery disconnect switch to ON position (WP 0007). Check for 22 to 28 VDC between main wire harness rear compartment heater fuel pump wire 4091(green), terminal and a known good ground.

If 22 to 28 VDC are not present, go to Step 13.

Step 10. Turn battery disconnect switch to OFF position (WP 0007). Connect main wire harness wire 4091(green) to rear compartment heater fuel pump. Disconnect main wire harness rear compartment heater fuel pump wire 4092 (violet) connector from rear compartment heater fuel pump terminal. Check for 22 to 28 VDC at wire 4092 (violet) connection on rear compartment heater fuel pump and a known good ground.

If 22 to 28 VDC are not present, replace rear compartment heater fuel pump (WP 0467).

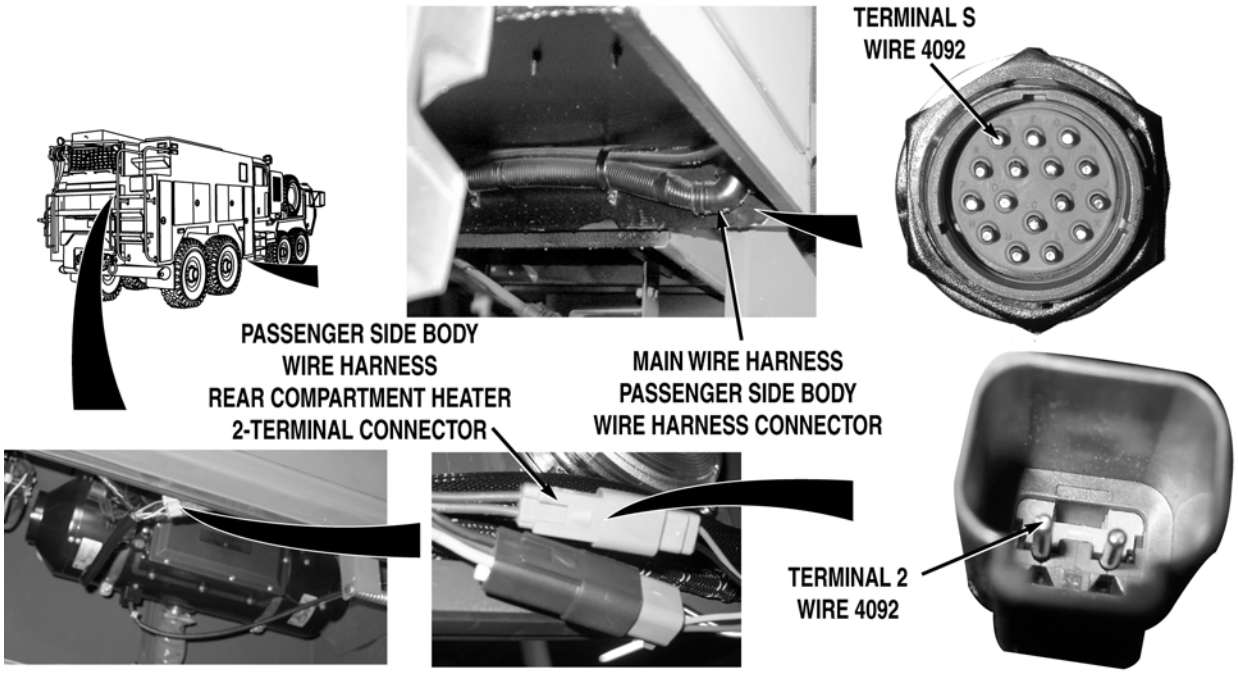
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 11. Disconnect passenger side body wire harness rear compartment heater 2-terminal connector. With a test lead set, check for continuity across wire 4092 (violet) from passenger side body wire harness rear compartment heater 2-terminal connector terminal 2, to main wire harness rear compartment heater fuel pump connector terminal.

If there is continuity, replace rear compartment heater (WP 0471).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

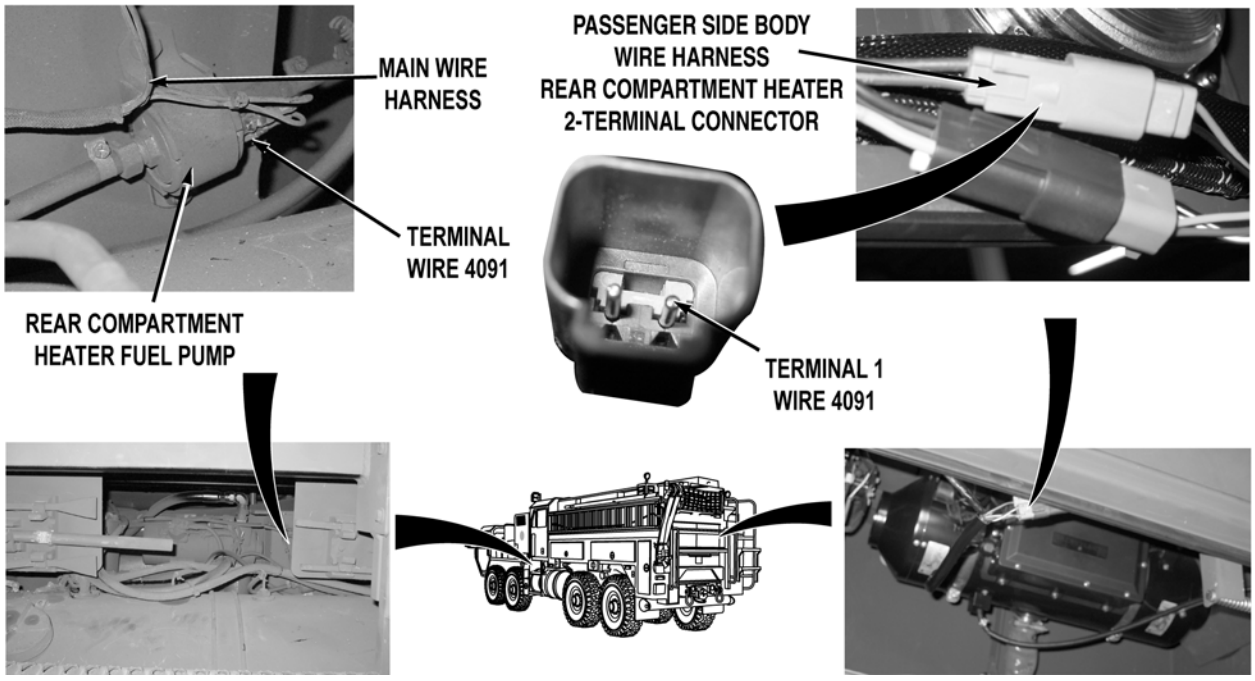


Step 12. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across passenger side body wire harness wire 4092 (violet) from main wire harness passenger side body wire harness connector, terminal S to passenger side body wire harness rear compartment heater 2-terminal connector, terminal 2.

a. If there is continuity, repair wire 4092 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 4092 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

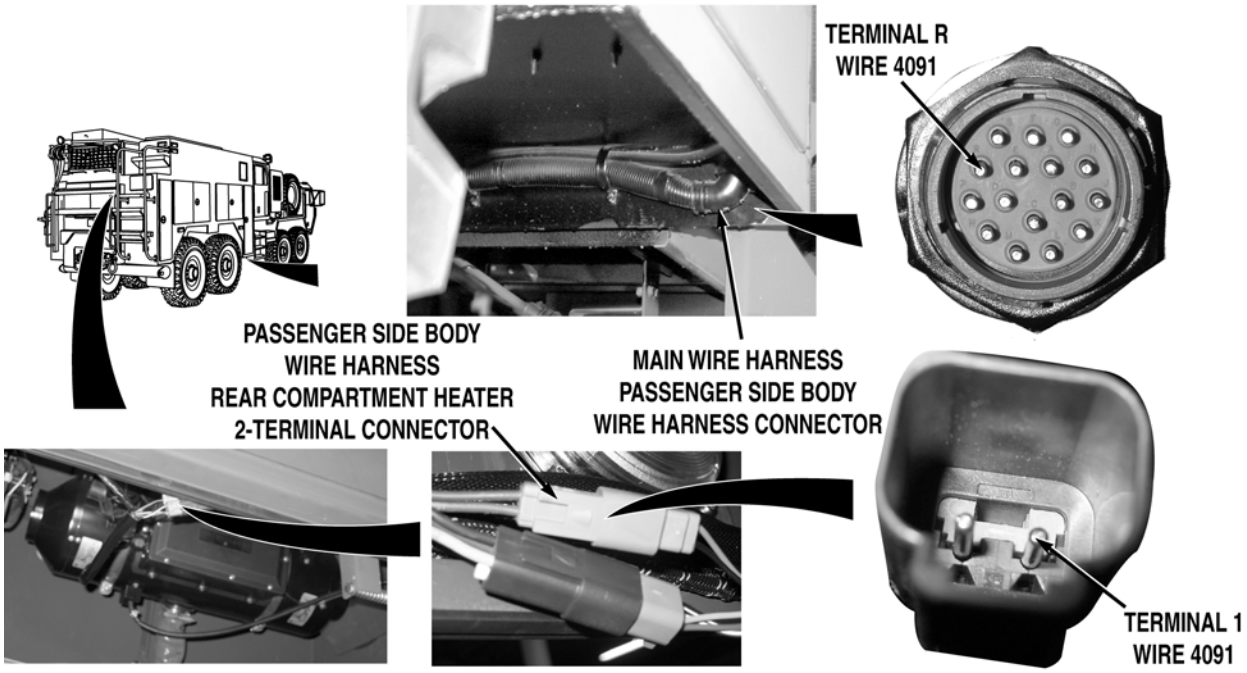
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 13. Turn battery disconnect switch to OFF position (WP 0007). Disconnect passenger side body wire harness rear compartment heater 2-terminal connector. With a test lead set, check for continuity across passenger side body wire harness wire 4091 (green) from passenger side body wire harness rear compartment heater 2-terminal connector, terminal 1 to main wire harness rear compartment heater fuel pump, terminal.

If there is continuity, replace rear compartment heater (WP 0471).

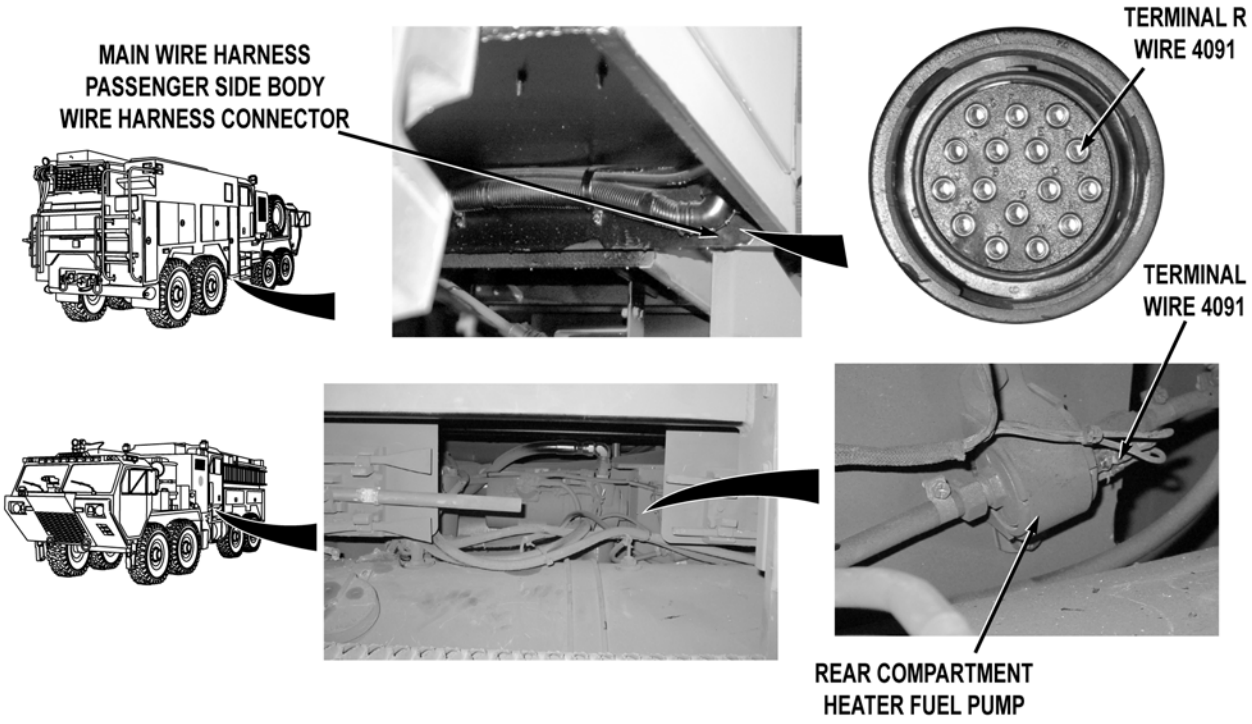
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 14. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across passenger side body wire harness wire 4091 (green) from main wire harness passenger side body wire harness connector, terminal R to passenger side body wire harness rear compartment heater 2-terminal connector, terminal 1.

If there is continuity, repair wire 4091 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

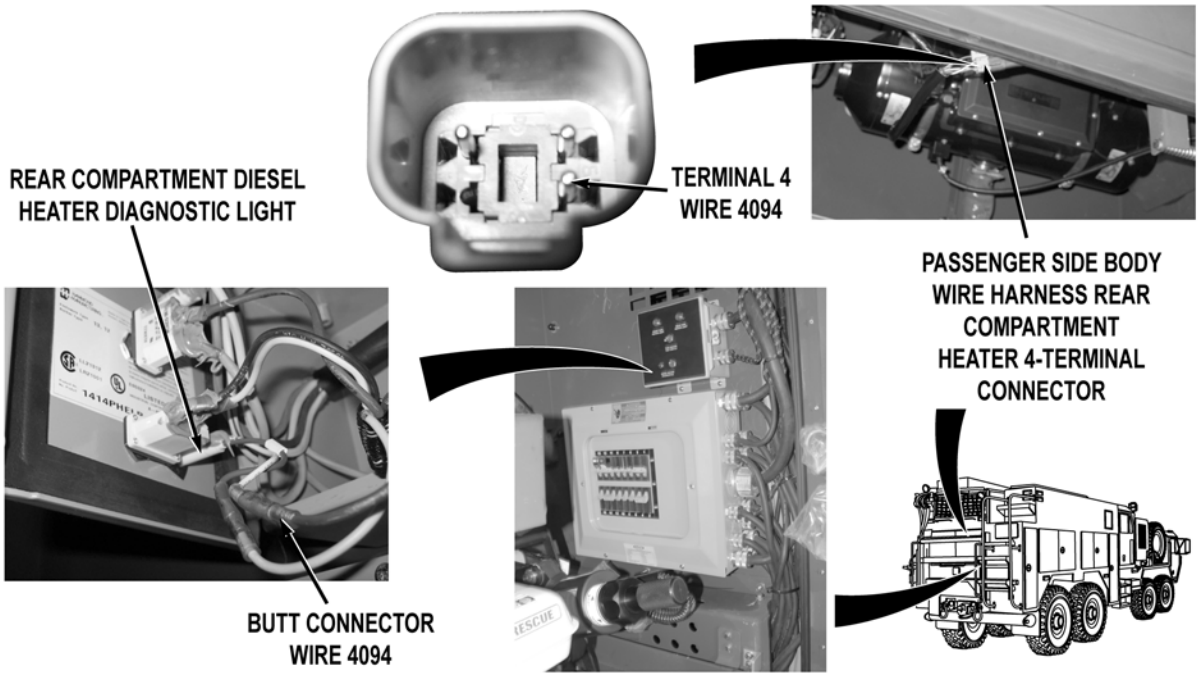


Step 15. With a test lead set, check for continuity across main wire harness wire 4091 (green) from main wire harness passenger side body wire harness connector, terminal R to main wire harness rear compartment heater fuel pump connector, terminal.

a. If continuity is present, replace rear compartment heater fuel pump (WP 0467).

b. If there is no continuity, repair wire 4091 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

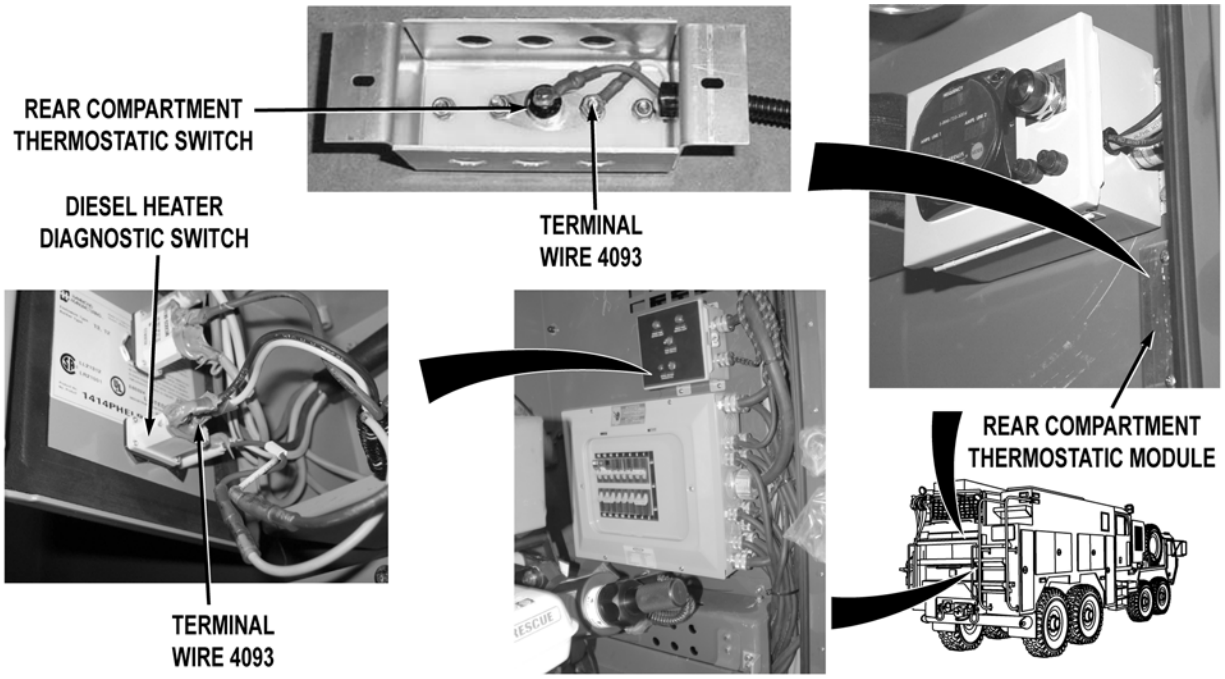
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 16. Turn battery disconnect switch to OFF position (WP 0007). Disconnect passenger side body wire harness rear compartment heater 4-terminal connector. Open rear compartment heater diagnostic module (WP 0470). Cut wire 4094 (blue) at rear compartment DIESEL HEATER DIAGNOSTIC light butt connector. With a test lead set, check for continuity across wire 4094 (blue) from rear compartment diesel heater diagnostic module wire termination to rear compartment heater 4-terminal connector, terminal 4.

If there is no continuity, repair wire 4094 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

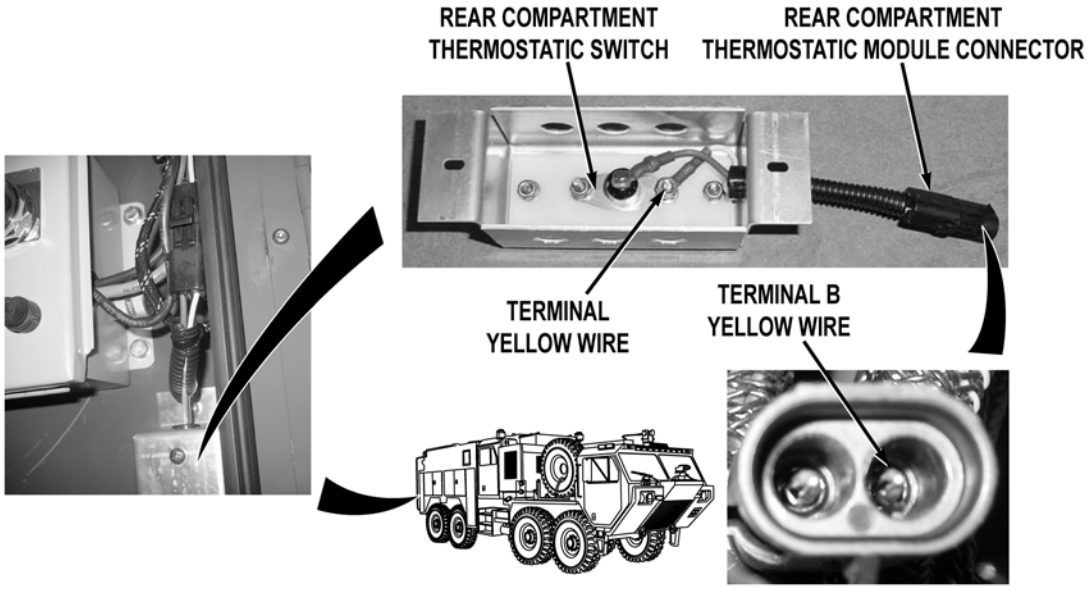
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Remove rear compartment heater thermostat module (WP 0472). Check for continuity across wire 4093 (yellow) wire from rear compartment thermostatic switch terminal in rear compartment thermostatic module to DIESEL HEATER DIAGNOSTIC switch terminal.

If there is continuity, replace rear compartment heater (WP 0471).

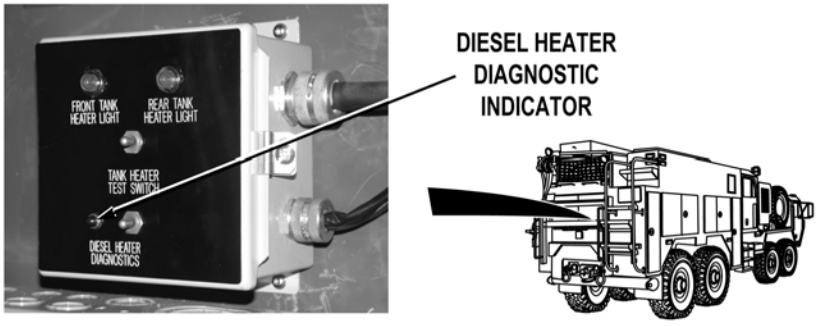
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 18. Check for continuity across yellow wire from rear compartment thermostatic switch terminal to rear compartment thermostatic module connector, terminal B.

a. If continuity is present, repair wire 4093 if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

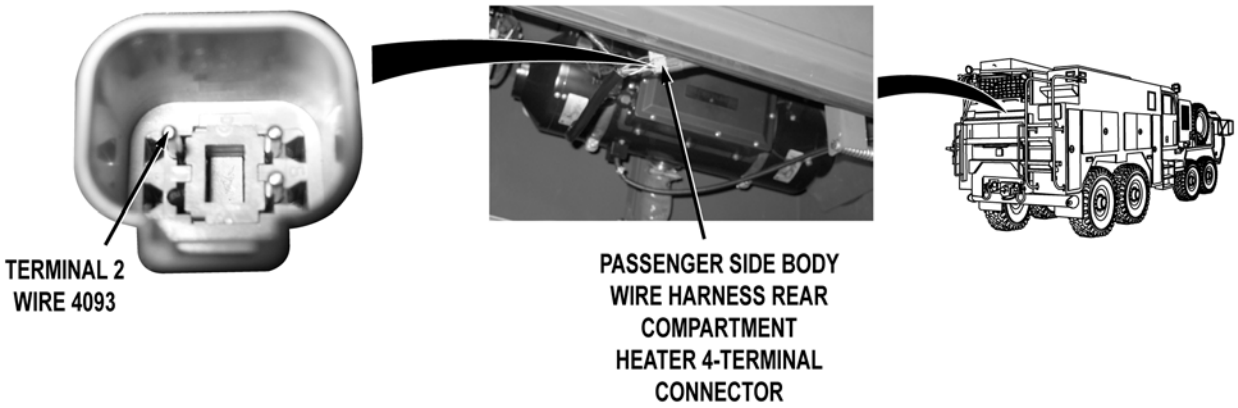
b. If continuity is not present, replace rear compartment heater thermostat module (WP 0472).



Step 19. Open rear stowage compartment R1 doors (WP 0010). Check if DIESEL HEATER DIAGNOSTIC indicator illuminates (WP 0004).

If DIESEL HEATER DIAGNOSTIC indicator does not illuminate, go to Step 23.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

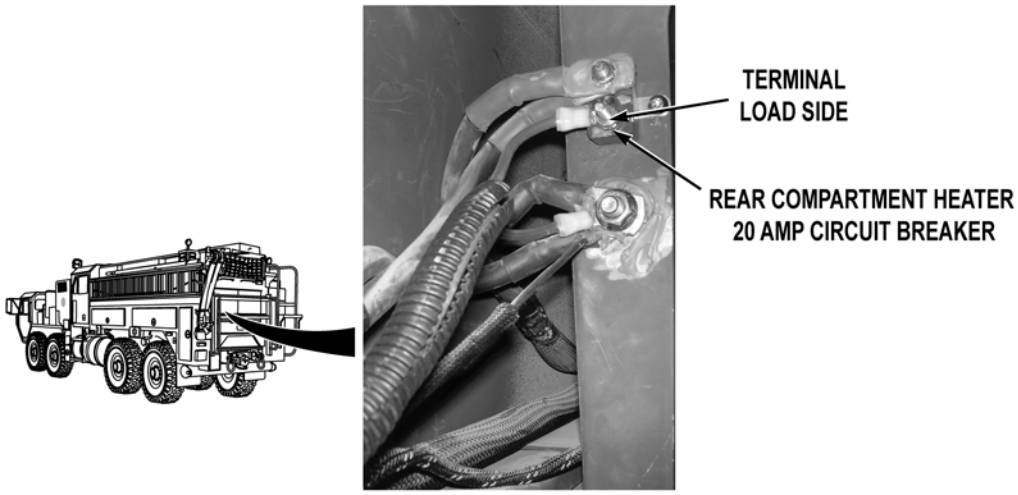
Step 20. Turn battery disconnect switch to OFF position (WP 0007). Disconnect passenger side body wire harness rear compartment heater 4-terminal connector. Check for 22 to 28 VDC at wire 4093 in 4-terminal connector, terminal 2 to a known good ground.

If 22 to 28 VDC are not present, repair wire 4093 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

Step 21. Pull cord reel cable out (WP 0037). Check if cord reel operates when CORD REEL REWIND switch is pushed (WP 0037).

If cord reel does not operate, troubleshoot Cord Reel Rewind Control Does Not Operate (WP 0169).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

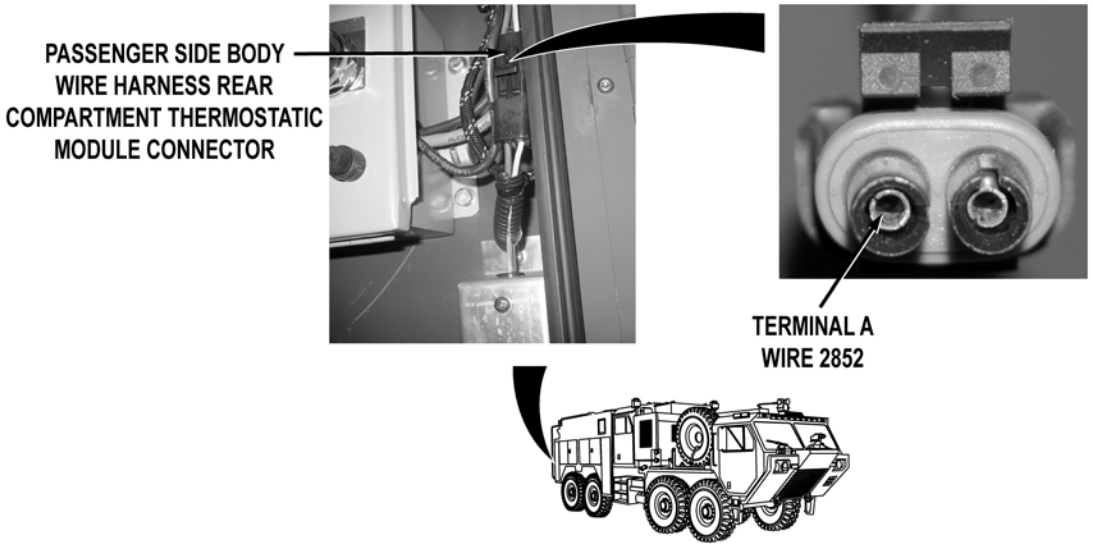


Step 22. Check for 22 to 28 VDC at rear compartment heater 20 amp circuit breaker from load side terminal to a known good ground.

a. If continuity is present, replace rear compartment heater (WP 0471).

b. If 22 to 28 VDC are not present, replace rear compartment heater 20 amp circuit breaker (WP 0393).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



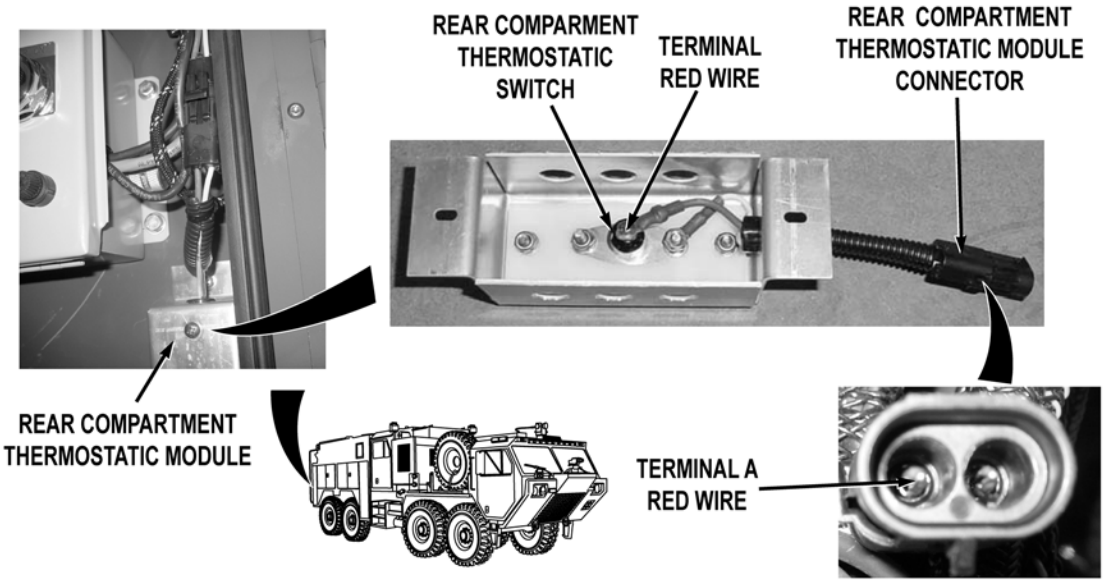
WARNING

Remove rings, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause serious injury. Jewelry and tools may short across electrical circuits and cause damage to equipment, or severe burns or electrical shock to personnel.

Step 23. Turn battery disconnect switch to OFF position (WP 0007).Remove jumperwire from passenger side body wire harness rear compartment thermostatic module connector from Step 2. Turn battery disconnect switch to ON position (WP 0007). With a test lead set, check for 22 to 28 VDC between wire 2852 (red) at passenger side body wire harness rear compartment thermostatic module connector, terminal A and a known good ground.

If 22 to 28 VDC are not present, go to Step 27.

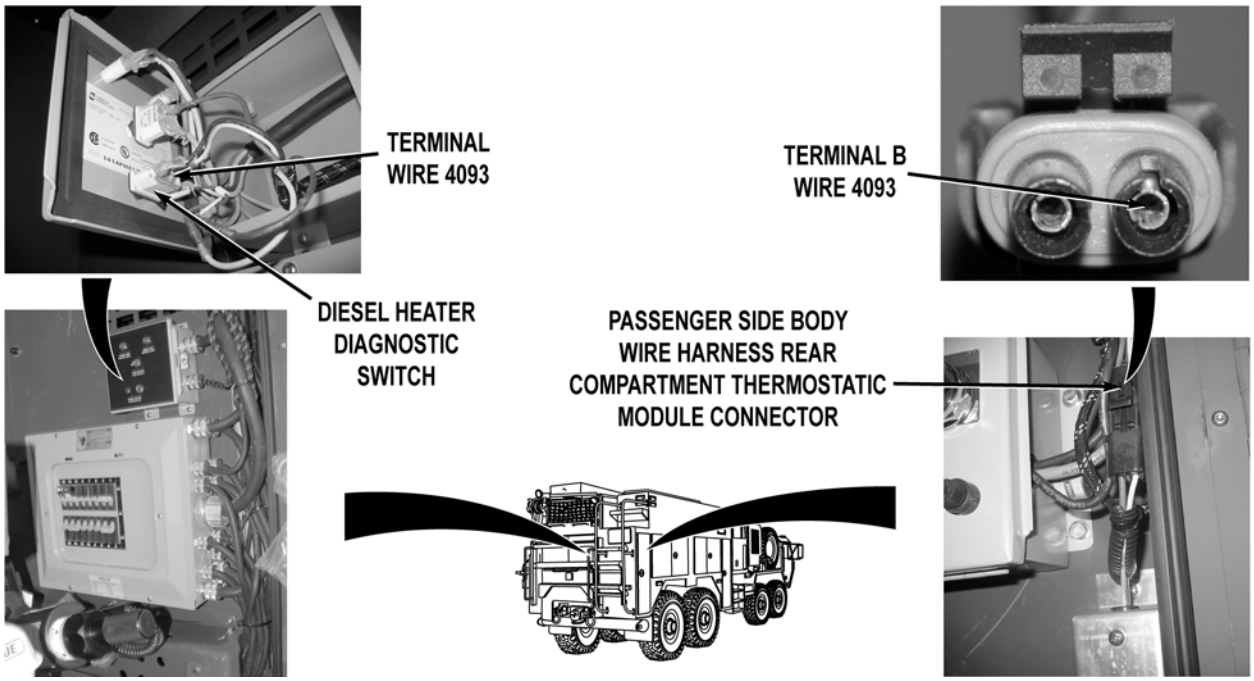
MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 24. Remove rear compartment thermostatic module (WP 0472). Check for continuity across red wire from rear compartment thermostatic switch terminal, to rear compartment thermostatic module connector, terminal A.

If there is no continuity, repair wire 2852 if repairable (TM 9-2320-325-14&P), or replace rear compartment heater thermostat (WP 0472).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 25. While an assistant puts DIESEL HEATER DIAGNOTIC switch to on position (WP 0004), check for continuity across DIESEL HEATER DIAGNOSTIC switch.

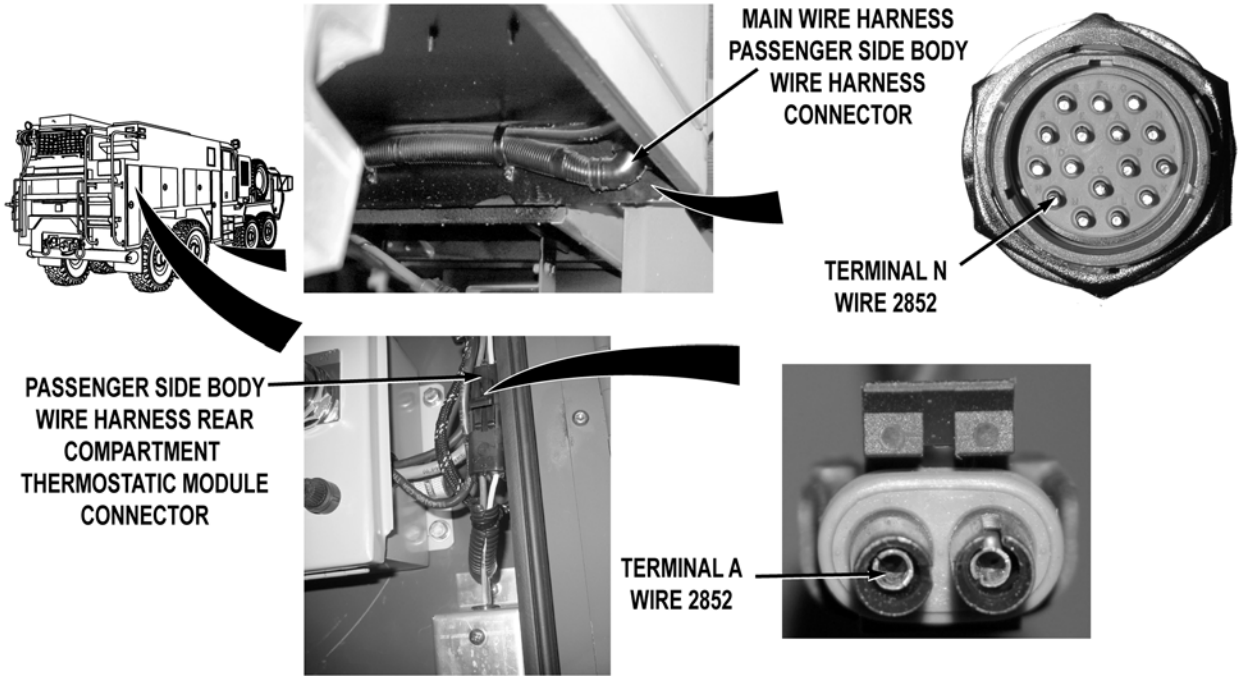
If there is no continuity, replace rear compartment heater diagnostic module (WP 0470).

Step 26. Check for continuity across wire 4093 (yellow) from passenger side body wire harness rear compartment thermostatic module connector terminal B, to DIESEL HEATER DIAGNOSTIC switch terminal.

a. If there is continuity, repair wire 4093 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If there is no continuity, repair wire 4093 (yellow) in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 27. Disconnect main wire harness passenger side body wire harness connector. With a test lead set, check for continuity across wire 2852 (red) from main wire harness passenger side body wire harness connector terminal N, to passenger side body wire harness rear compartment thermostatic module connector, terminal A.

a. If there is continuity, repair wire 2852 in main wire harness if repairable (TM 9-2320-325-14&P), or replace main wire harness (WP 0455).

b. If there is no continuity, repair wire 2852 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install relay 17 (WP 0402)
2. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER TANK HEATER DOES NOT OPERATE PROPERLY

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0004
WP 0007
WP 0010
WP 0020
WP 0021
WP 0171

References (continued)
WP 0215
WP 0300
WP 0301
WP 0302
WP 0360
WP 0361
WP 0456
WP 0470

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

WATER TANK HEATER DOES NOT OPERATE PROPERLY

NOTE

Ensure water tank is at least 1/4 full for this procedure. Water tank heaters will not operate unless water level is above water level sender in water tank.

Step 1. Turn battery disconnect switch to ON position (WP 0007). Check if water level is at or above 1/4 full on personnel cab or pump operator's panel WATER LEVEL gauge (WP 0004).

If water level is at or above 1/4 full, go to Step 7.

Step 2. Start engine (TM 9-2320-347-10). Start hydraulic generator (WP 0021). Place circuit breakers 11, and 13, and main shutoff control switch to ON position (WP 0004). Place and hold TANK HEATER TEST SWITCH in TEST position (WP 0004). Allow sufficient time for front water tank and rear water tank heaters to operate. Check if tank heater lights illuminate (WP 0004). Note results. Remove heater guard (WP 0300). Check if heaters become warm. Note results.

a. If both front tank and rear tank heaters and lights operate during test, go to Step 26.

b. If rear tank heater operates, but light does not operate, go to Step 24.

c. If front tank heater operates, but light does not operate, go to Step 22.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

d. If front tank or rear tank heater does not operate, but lights operate, go to Step 20.

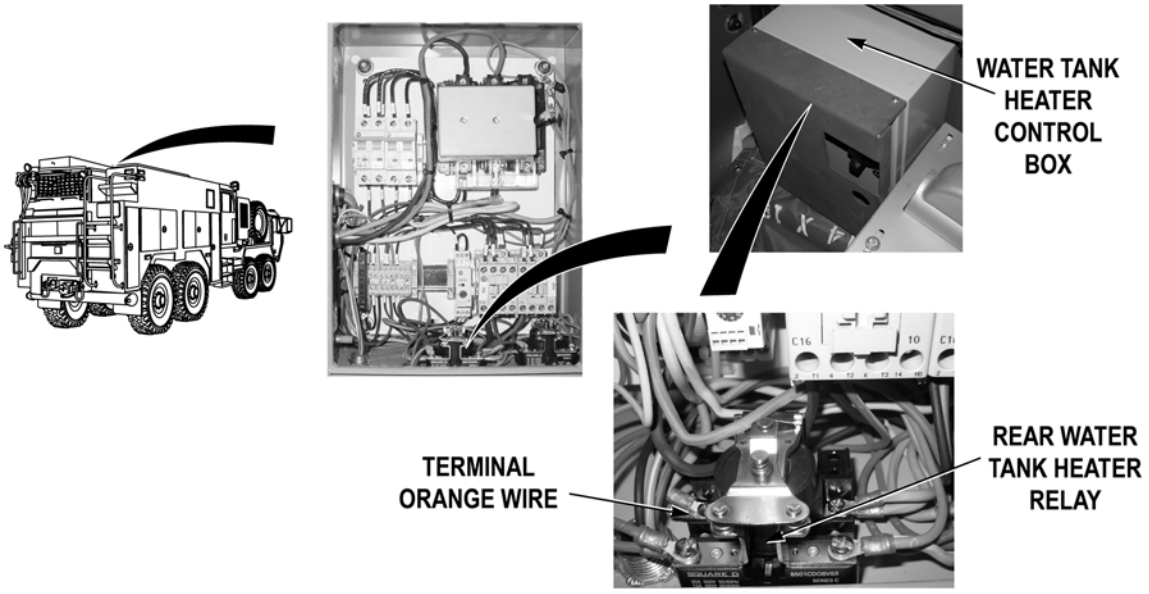
e. If front tank heater and light does not operate, go to Step 17.

f. If rear tank heater and light does not operate, go to Step 14.

g. If both front tank and rear tank heaters and lights do not operate, go to Step 3.

Step 3. Check if hydraulic generator digital display illuminates (WP 0004).

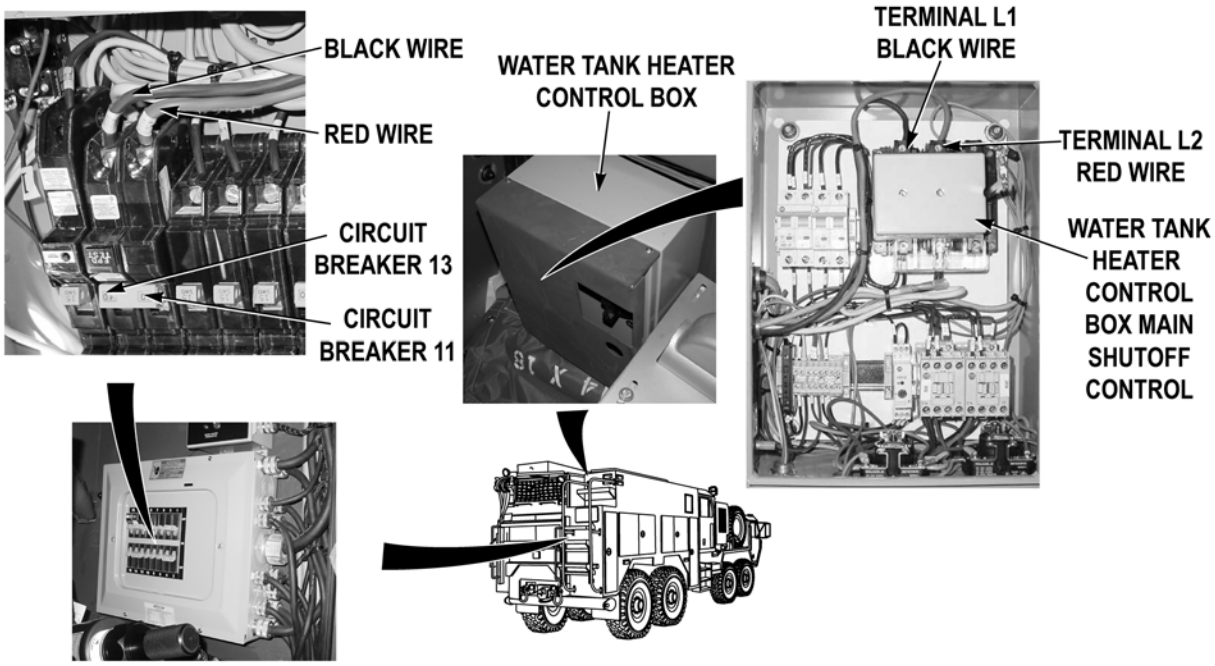
If hydraulic generator digital display does not illuminate, troubleshoot Hydraulic Generator Does Not Operate Properly (WP 0171).



Step 4. Shut hydraulic generator off (WP 0021). Shut off vehicle engine (TM 9-2320-347-10). Open water tank heater control box (WP 0301). While an assistant puts TANK HEATER TEST switch to test position (WP 0004), check for 22 to 28 VDC on orange wire at rear water tank heater relay terminal.

If 22 to 28 VDC are not present, go to Step 12.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 5. Open water tank heater control box (WP 0301). Open rear stowage compartment doors (WP 0010). Remove circuit breaker box cover (WP 0360). Remove black wire from circuit breaker 13. Install a test lead set from black wire to a known good ground. Check for continuity across black wire from water tank heater control box main shutoff control, terminal L1 to a known good ground.

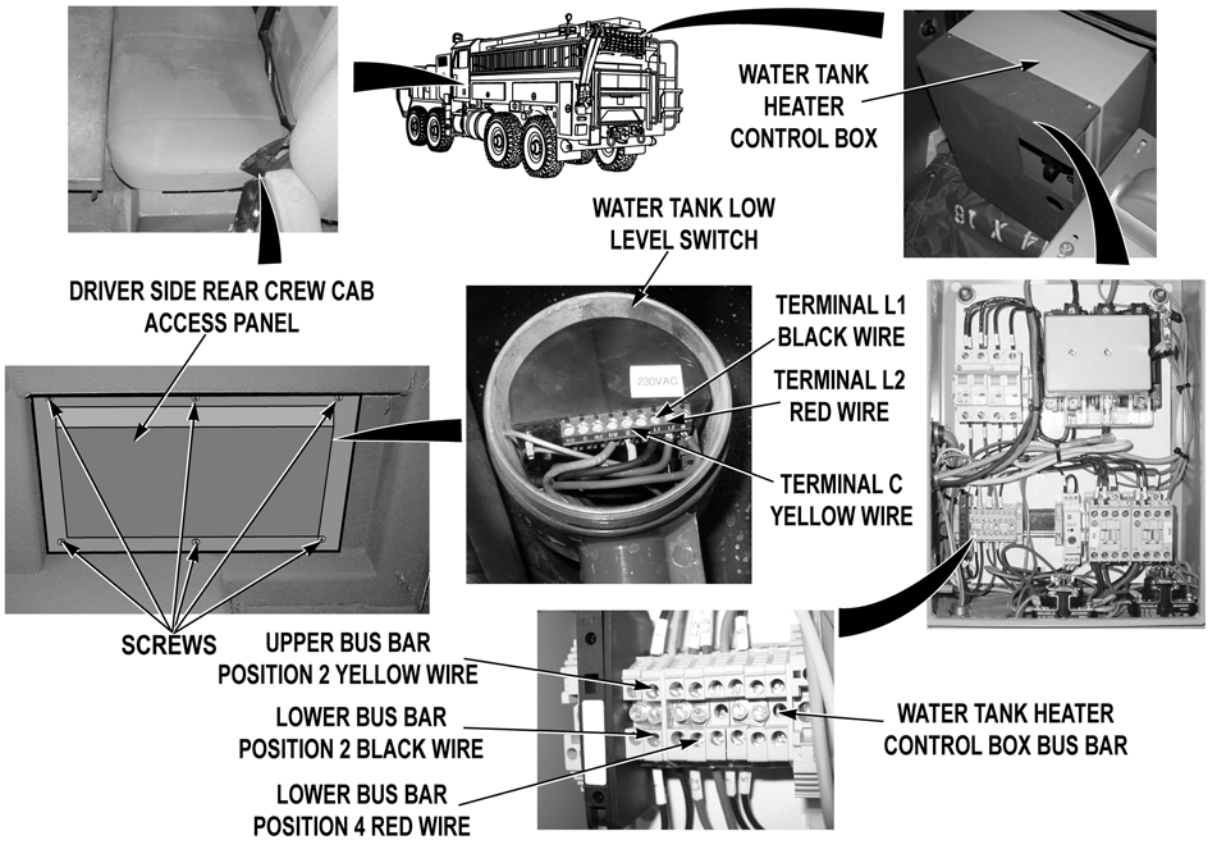
If continuity is not present, replace 120-Volt Power Cord (WP 0361).

Step 6. Remove red wire from circuit breaker 11. Install a test lead set from red wire to a known good ground. Check for continuity across red wire from water tank heater control box main shutoff control, terminal L2 to a known good ground.

a. If continuity is present, replace water tank heater control box (WP 0301).

b. If continuity is not present, replace 120-Volt Power Cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 7. Remove crew cab air conditioner/heater assembly (WP 0215). Remove six screws and driver side rear crew cab access panel. Remove cover from water tank low level switch (WP 0302). Check for continuity across red wire from water tank heater control box bus bar lower bus bar position 4, terminal to water tank low level switch, terminal L2 located in water tank heater control box.

If continuity is not present, replace water tank low level switch power cord (WP 0361).

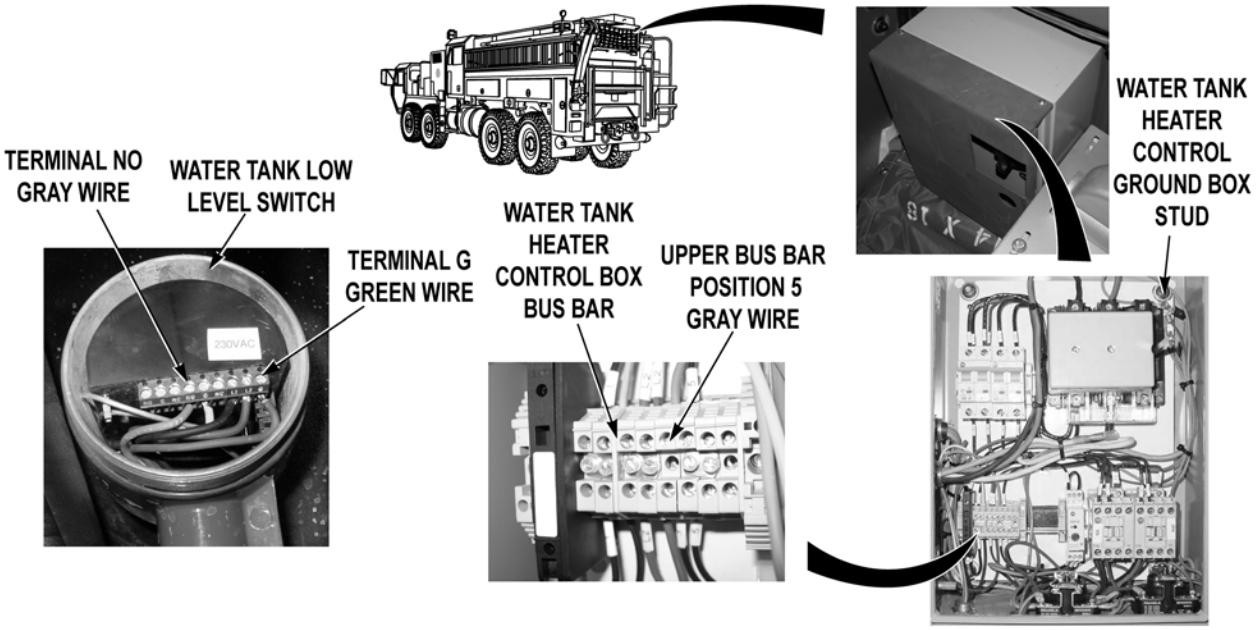
Step 8. Check for continuity across black wire from water tank heater control box bus bar lower bus bar position 2, to water tank low level switch, terminal L1.

If continuity is not present, replace water tank low level switch power cord (WP 0361).

Step 9. Check for continuity across yellow wire from water tank heater control box bus bar upper bus bar position 2, to water tank low level switch, terminal C.

If continuity is not present, replace water tank low level switch power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 10. Check for continuity across gray wire from water tank heater control box bus bar upper bus bar position 5, terminal to water tank low level switch, terminal NO.

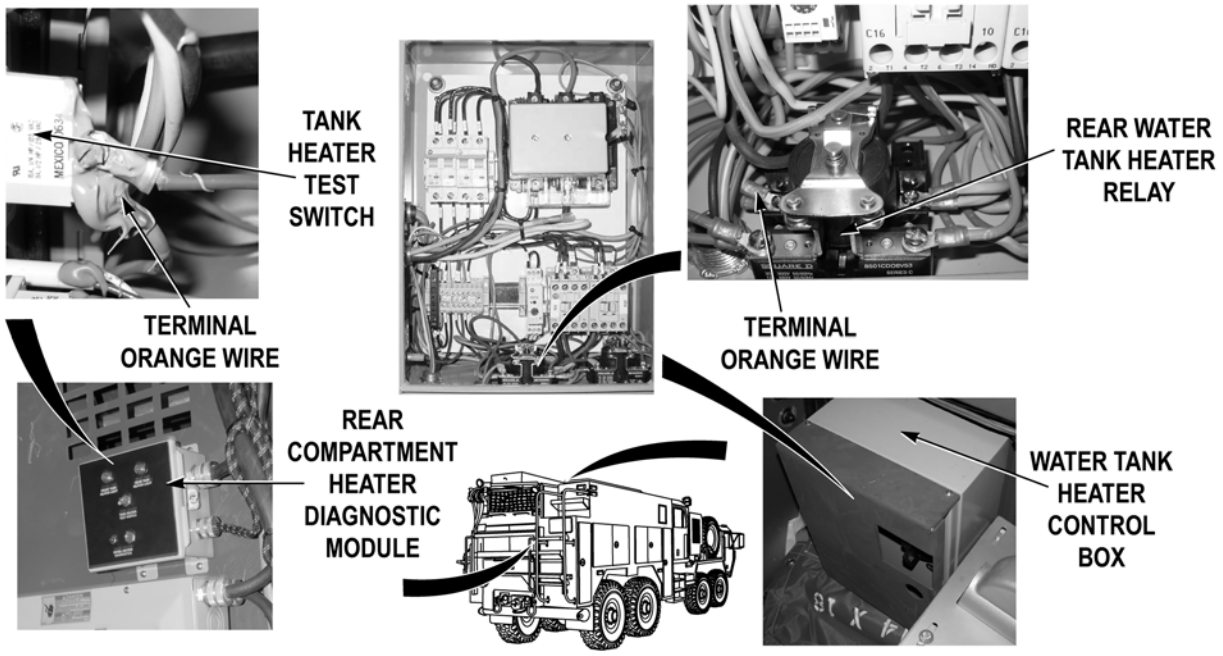
If continuity is not present, replace water tank low level switch power cord (WP 0361).

Step 11. Check for continuity across green wire from water tank heater control ground box stud, to water tank low level switch, terminal G.

a. If continuity is present, replace water tank low level switch (WP 0302).

b. If continuity is not present, replace water tank low level switch power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 12. Turn battery disconnect switch to OFF position (WP 0007). Open rear compartment heater diagnostic module (WP 0470). Check for continuity across orange wire from rear water tank heater relay terminal in water tank heater control box, to rear compartment heater diagnostic module TANK HEATER TEST SWITCH terminal.

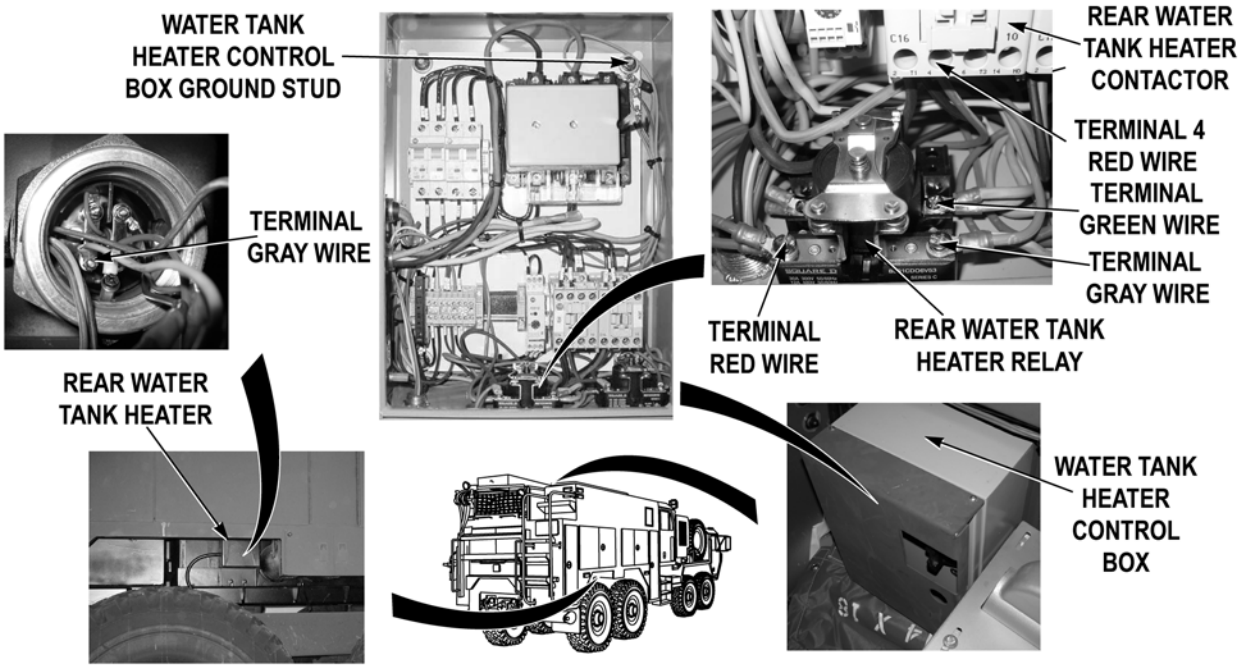
If continuity is not present, replace rear compartment heater diagnostic module power cord (WP 0361).

Step 13. While an assistant puts TANK HEATER TEST SWITCH to test position (WP 0004). Check for continuity across TANK HEATER TEST SWITCH.

a. If continuity is present, repair wire 2852 in passenger side body wire harness if repairable (TM 9-2320-325-14&P), or replace passenger side body wire harness (WP 0456).

b. If continuity is not present, replace TANK HEATER TEST SWITCH (WP 0470).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 14. Turn off hydraulic generator (WP 0021). Shut off vehicle engine (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open water tank heater control box (WP 0301). Check for continuity across red wire from rear water tank heater contactor terminal 4, to rear water tank heater relay, terminal.

If continuity is not present, repair or replace red wire (TM 9-2320-325-14&P).

Step 15. Check for continuity across green wire from rear water tank heater relay terminal, to water tank heater control box ground stud.

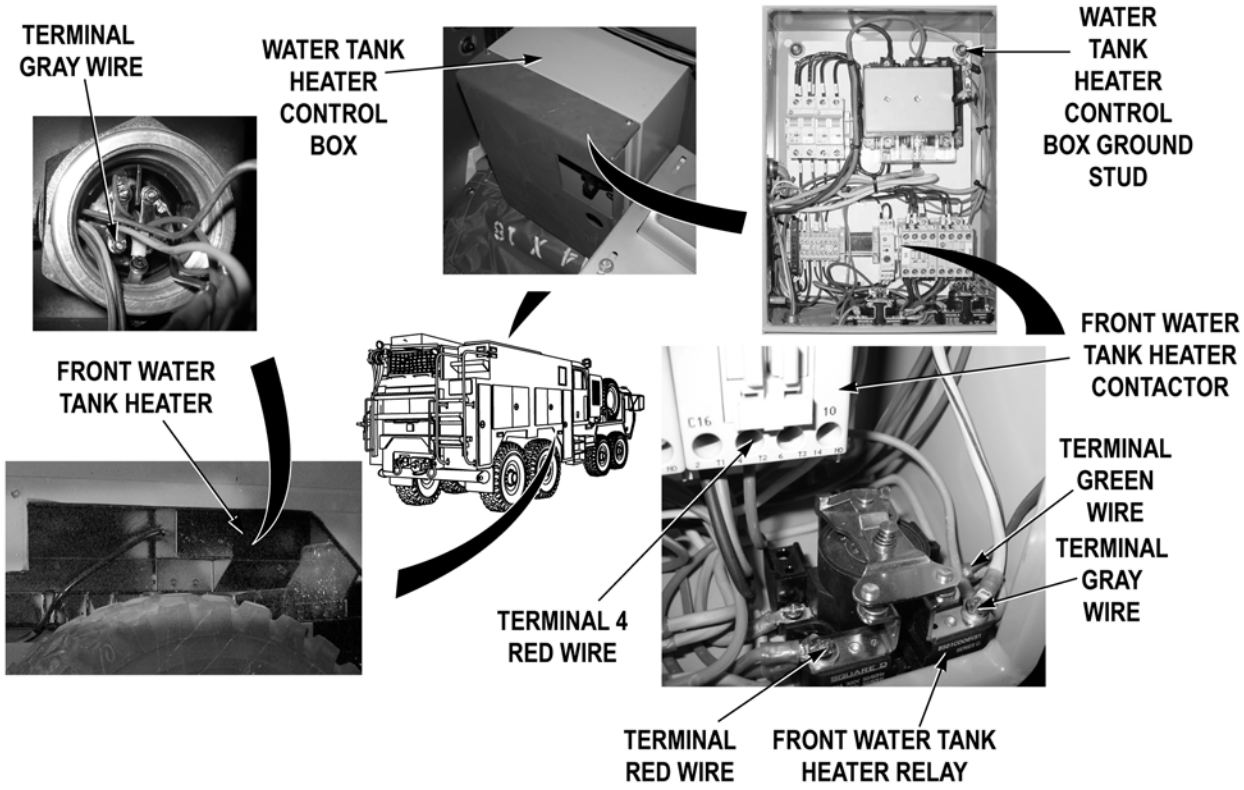
If continuity is not present, repair or replace green wire (TM 9-2320-325-14&P).

Step 16. Remove rear water tank heater guard and water tank heater cover (WP 0300). Check for continuity across gray wire from rear water tank heater relay terminal, to rear water tank heater contactor terminal.

a. If continuity is present, replace water tank heater control box (WP 0301).

b. If continuity is not present, replace rear water tank heater power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 17. Turn off hydraulic generator (WP 0021). Shut off vehicle engine (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open water tank heater control box cover (WP 0301). Check for continuity across red wire from front water tank heater contactor terminal 4, to front water tank heater relay terminal.

If continuity is not present, repair or replace red wire (TM 9-2320-325-14&P).

Step 18. Check for continuity across green wire from front water tank heater relay terminal, to water tank heater control box ground stud.

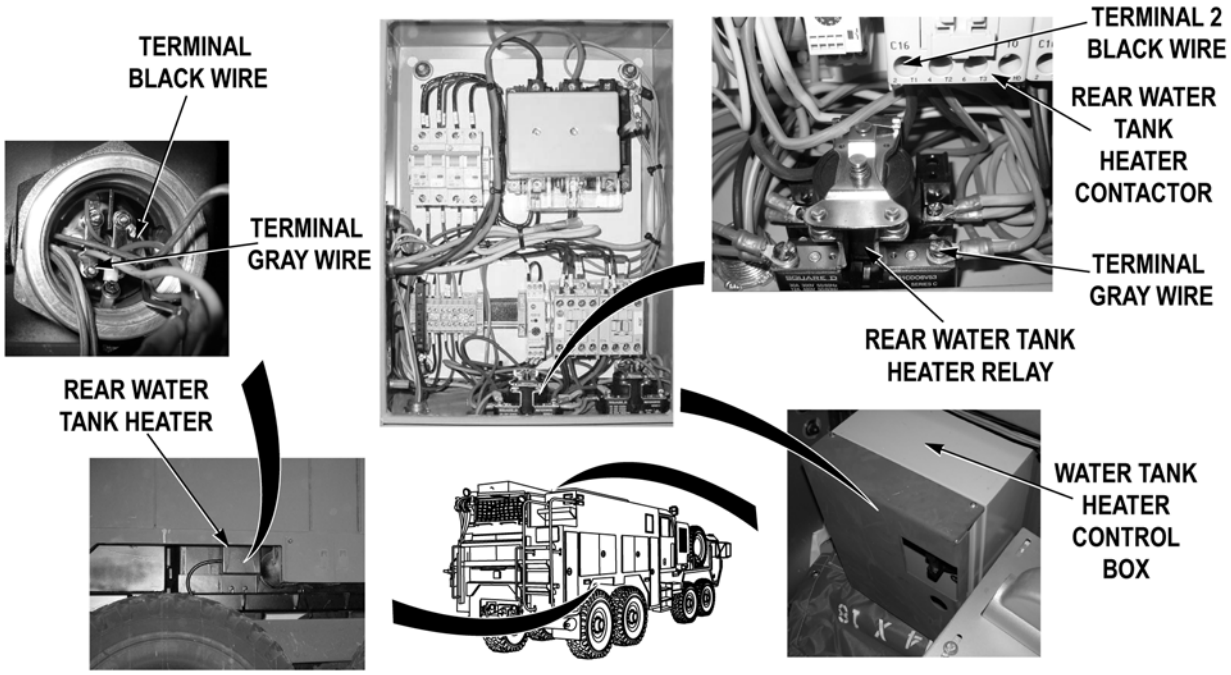
If continuity is not present, repair or replace green wire (TM 9-2320-325-14&P).

Step 19. Remove front water tank heater guard and water tank heater cap (WP 0300). Check for continuity across gray wire from front water tank heater relay terminal, to front water tank heater terminal.

a. If continuity is present, replace water tank heater control box (WP 0301).

b. If continuity is not present, replace front water tank heater power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Front and rear heater relays and contactors are similar. Rear heater relay and contactor are components used in Steps 20 and 21. Troubleshoot front heater relay and contactor the same way.

Step 20. Turn hydraulic generator off (WP 0021). Turn vehicle engine OFF (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open water tank heater control box (WP 0301). Remove rear water tank heater guard and rear water tank heater cover (WP 0300). Check for continuity across black wire from rear water tank heater contactor terminal 2, to rear water tank heater black wire terminal.

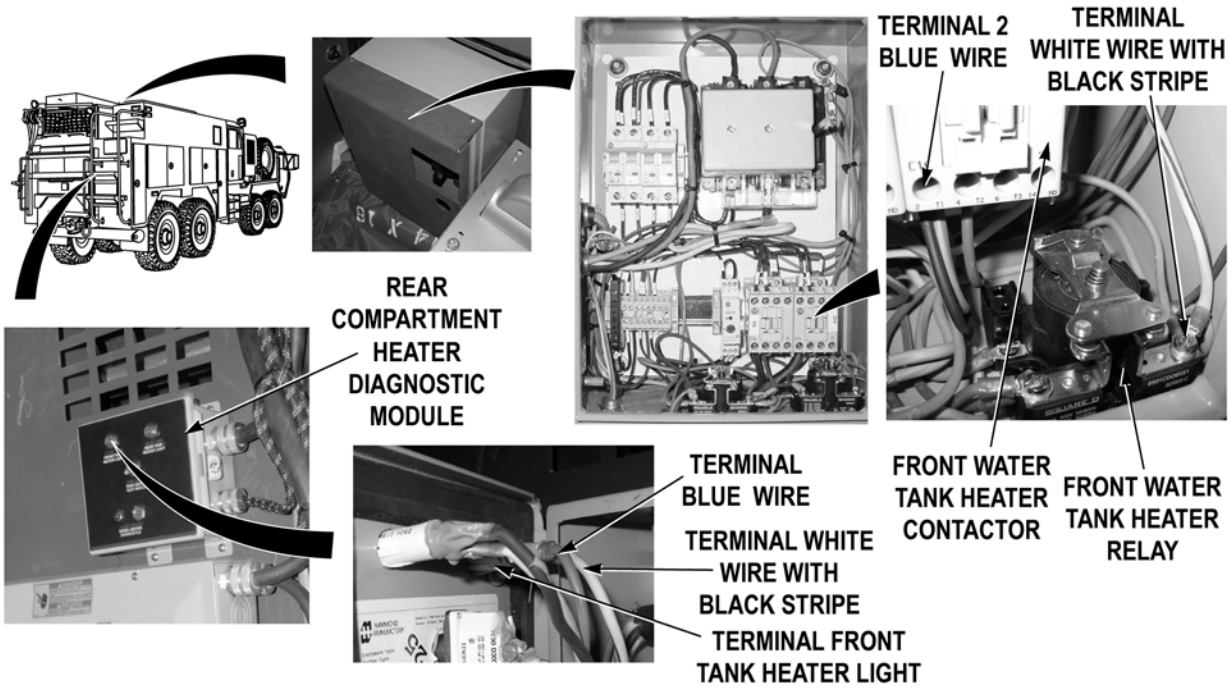
If continuity is not present, replace rear water tank heater power cord (WP 0361).

Step 21. Check for continuity across gray wire from rear water tank heater relay terminal, to rear water tank heater gray wire terminal.

a. If continuity is present, replace rear water tank heater (WP 0300).

b. If continuity is not present, replace rear water tank heater power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 22. Shut water pump engine off (WP 0021). Turn vehicle engine off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open water tank heater control box (WP 0301). Open rear compartment heater diagnostic module (WP 0470). Check for continuity across white wire with black stripe from front water tank heater relay terminal, to FRONT TANK HEATER LIGHT terminal.

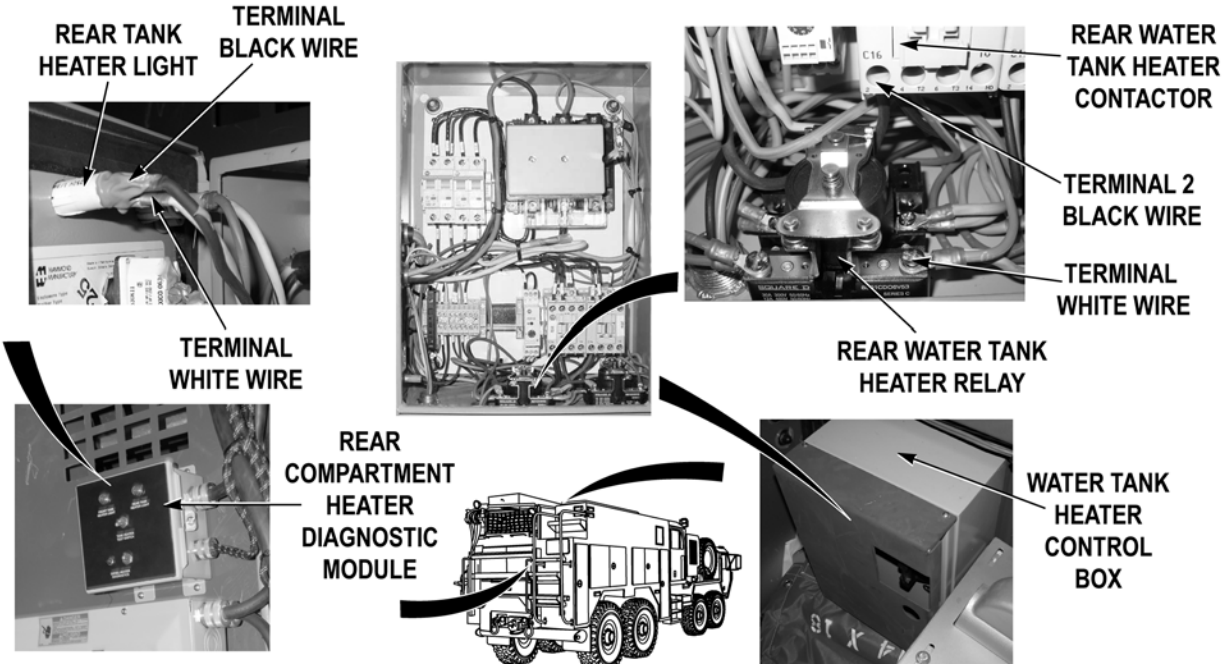
If continuity is not present, replace rear compartment heater diagnostic module power cord (WP 0361).

Step 23. Check for continuity across blue wire from front water tank heater contactor terminal 2, to FRONT TANK HEATER LIGHT terminal.

a. If continuity is present, replace front tank heater light (WP 0470).

b. If continuity is not present, replace rear compartment heater diagnostic module power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 24. Shut water pump engine off (WP 0021). Turn vehicle engine off (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open water tank heater control box (WP 0301). Open rear compartment heater diagnostic module (WP 0470). Check for continuity across white wire from rear water tank heater relay terminal, to REAR TANK HEATER LIGHT terminal.

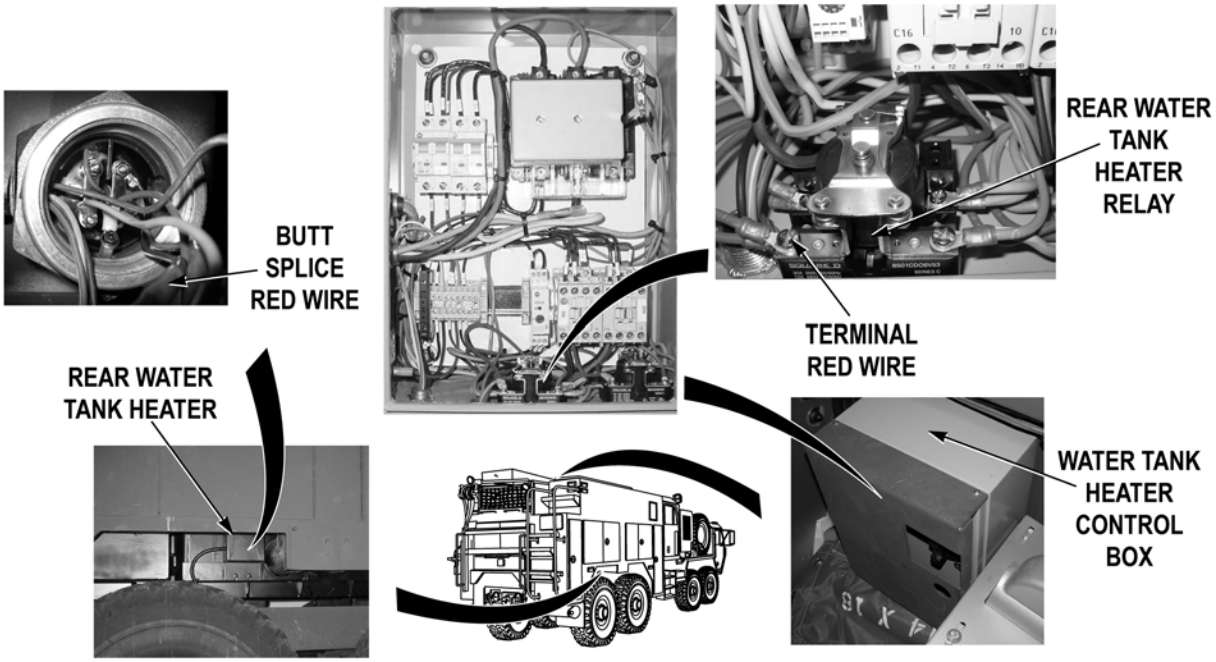
If continuity is not present, replace rear compartment heater diagnostic module power cord (WP 0361).

Step 25. Check for continuity across black wire from rear water tank heater contactor terminal 2, to REAR TANK HEATER LIGHT terminal.

a. If continuity is present, replace rear tank heater light (WP 0470).

b. If continuity is not present, replace rear compartment heater diagnostic module power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



NOTE

Water tank heaters turn ON when water in water tank is below 40ºF (4.4ºC), and turn OFF when water in water tank reaches 60ºF (15.6ºC). Ensure water in water tank is below 40ºF (4.4ºC), when performing Step 26.

Step 26. Check front water tank heater and rear water tank heater for proper operations, when water in water tank is below 40ºF (4.4ºC). Rear water tank heater shown.

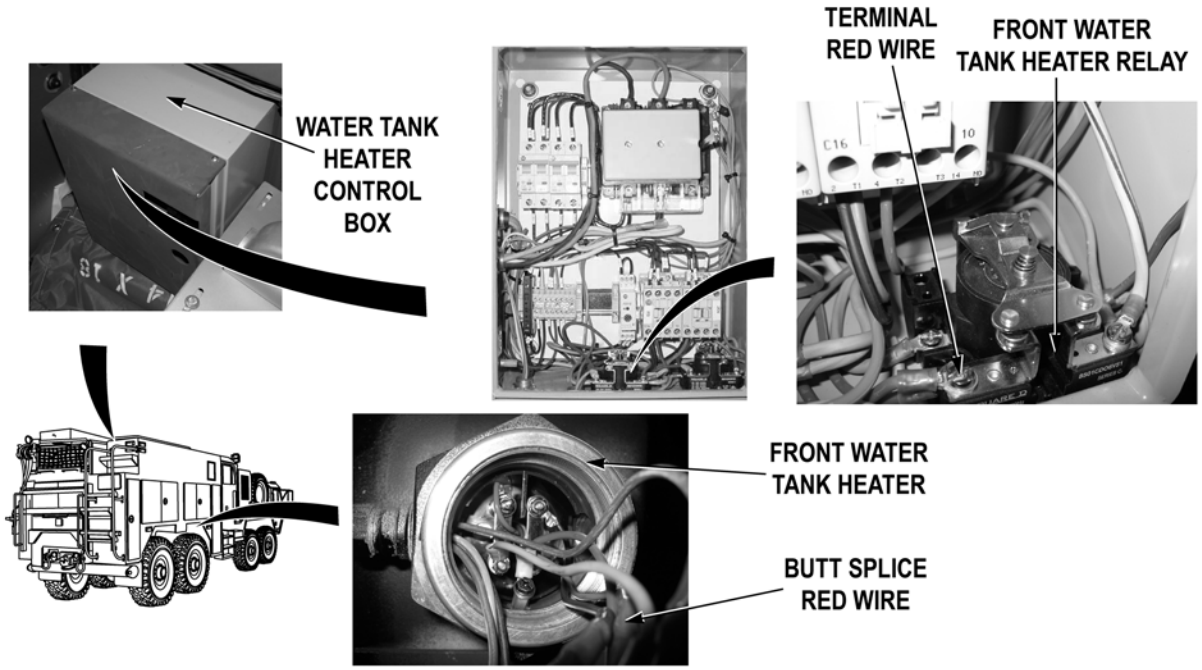
If front water tank heater does not heat up, go to Step 28.

Step 27. Turn hydraulic generator OFF (WP 0021). Turn vehicle engine OFF (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open water tank heater control box (WP 0301). Remove rear water tank heater guard and water tank heater cover (WP 0300). Cut red wire at butt splice in rear water tank heater. Check for continuity across red wire from rear water tank heater relay terminal, to rear water tank heater thermostat butt splice.

a. If there is continuity, replace rear water tank heater (WP 0300).

b. If there is no continuity, replace rear water tank power cord (WP 0361).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION



Step 28. Turn hydraulic generator OFF (WP 0021). Turn vehicle engine OFF (TM 9-2320-347-10). Turn battery disconnect switch to OFF position (WP 0007). Open water tank heater control box (WP 0301). Remove front water tank heater guard and water tank heater cover (WP 0300). Cut red wire at butt splice in front water tank heater. Check for continuity across red wire, from front water tank heater relay terminal, to front water tank heater butt splice.

a. If there is continuity, replace rear water tank heater (WP 0300).

b. If there is no continuity, replace front water tank heater power cord (WP 0361).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install crew cab air conditioner/heater assembly if removed (WP 0215)
2. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

CHAPTER 4

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

FIELD LEVEL MAINTENANCE

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

PMCS INTRODUCTION

Operator Preventive Maintenance Checks and Services (PMCS) are required inspections and care of your vehicle is necessary to keep it in proper working order. All instructions are mandatory. This section contains (PMCS) requirements for the TFFT installed enhancements. The PMCS table (WP 0186) contains checks and services necessary to make sure the enhancements are ready for operation. Using the PMCS table, perform preventive maintenance checks and services at the specified intervals.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

a. Cleanliness.

Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use solvent cleaning compound on metal surfaces and soapy water on rubber.

b. Bolts, Nuts, and Screws.

Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition and tighten or replace as necessary. If they cannot be checked with a tool, look for chipped paint, bare metal, or rust around bolt heads.

c. Welds.

Look for loose or chipped paint, rust, or gaps where parts are welded together. If a cracked weld is found, notify the Supervisor.

d. Electrical Wires and Connectors.

Look for cracked or broken insulation, exposed wires, and loose or broken connectors. Tighten loose connectors and make sure that wires are in good shape.

e. Fluid Hoses, Tubes, and Fittings.

Look for wear, damage, or leaks. Make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector may also indicate a leak. If connector or fitting is loose, tighten it. If hoses, tubes, or fittings are broken or worn out, repair or replace per applicable procedure.

f. Air System Components.

Look for worn, damaged, or leaking components. Make sure clamps and fittings are tight. If a leak comes from a loose fitting or connector, tighten it. If component is damaged or worn out, repair or replace per applicable procedure.

g. Damage.

Damage is defined as any condition that affects safety or would make the truck unserviceable for mission requirements.

PMCS WARNINGS AND CAUTIONS

Always observe the warnings and cautions appearing in your PMCS table. Warnings and cautions appear before applicable procedures. You must observe these warnings and cautions to prevent serious injury to yourself or prevent equipment being damaged.

EXPLANATION OF TABLE ENTRIES

If an item or component being inspected is inoperable or damaged, either troubleshoot by following instructions in troubleshooting section of this manual or repair and/or replace as described in related maintenance task.

When doing preventive maintenance, take along tools and supplies needed to make all checks, including a clean cloth or two.

The following is a breakdown of the PMCS table:

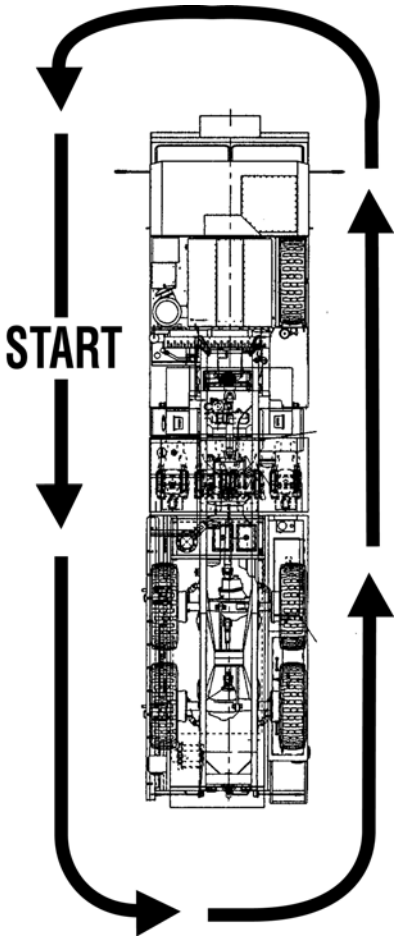
1. **Item No. Column.** Checks and services are numbered in a logical order for moving around the vehicle.
2. **Interval Column.** This column identifies when the PMCS should be performed.
   (a) Perform (A-After Operations) checks right after operating vehicle.
   (b) Perform (D-During Operations) checks during operation of vehicle.
   (c) Perform (W-Weekly) checks weekly.
   (d) Perform (M-Monthly) checks monthly.
3. **Item To Be Inspected Procedure Column.** This column identifies item to be inspected and contains all information required to do check/inspection. A digital photo is supplied to aid user in identifying items. Whenever replacement is recommended, reference is made to applicable maintenance instructions.
4. **Not Mission Capable If Column.** This column contains a brief statement of condition that would cause vehicle to be less than fully ready to perform its assigned mission.

ROUTING DIAGRAM

WARNING

Engine must be shut off and parking brake set before performing PMCS walk around. Severe injury to personnel may result.

Refer to Preventive Maintenance Checks and Services (PMCS) for TFFT Vehicle. This routing diagram will be of help to complete the PMCS. It shows vehicle PMCS routing track that matches the sequence of PMCS to be performed.



LEAKAGE CLASSIFICATION AND DEFINITION

Extreme weather conditions, periods of high use, or combat conditions may dictate that PMCS is performed more often than is required in the PMCS Tables.

As PMCS is performed, look for and be aware of an unusual amount of puddles, or unusually large puddles. Excessive puddles could indicate a leakage problem.

It is necessary to know how fluid leakage affects status of fuel, oil, coolant, and hydraulic system. The following are definitions of the type/classes of leakage necessary to know in order to determine status of the enhancement. Learn, then be familiar with them and REMEMBER - WHEN IN DOUBT, NOTIFY THE SUPERVISOR.

⚠ CAUTION

Equipment operation is allowable with minor leakage (Class I or II). Consideration must be given to the capacity in item/system being checked/inspected. When in doubt, notify Supervisor. When operating with Class I or II leaks, continue to check fluid levels as required in the PMCS. Class III leaks should be repaired per applicable procedure.

1. **Class I.** Seepage of fluid, as indicated by wetness or discoloration, not great enough to form drops.
2. **Class II.** Leakage of fluid great enough to form drops, but not enough to cause drops that fall from item being checked/inspected.
3. **Class III.** Leakage of fluid great enough to form drops that fall from item being checked/inspected.

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS), INCLUDING LUBRICATION INSTRUCTIONS

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

NOTE

- These checks are to be performed in the order listed, within designated interval.
- Perform basic HEMTT PMCS (TM 9-2320-347-10) prior to performing PMCS in this table.
- Battery disconnect switch must be in the ON position to perform PMCS checks (TM 9-2320-347-10).
- While performing PMCS, be aware of any unusual puddles under the vehicle; this could indicate a leakage problem.
- Perform Weekly if:
    - Assigned as the operator but have not operated vehicle since last weekly inspection.
    - Operating the vehicle for the first time.

Table 1. Preventive Maintenance Checks and Services.

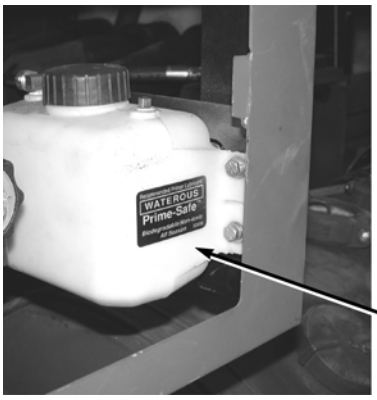
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
MAKE THE FOLLOWING WALK AROUND CHECKS:				
			WARNING  **Chock wheels prior to performing any After Operation, Weekly, or Monthly PMCS procedures.**	
1	After	Priming Pump		
			  PRIMING PUMP LUBRICANT SUPPLY TANK	
			a. Refill priming pump lubricant supply tank. Refer to Table 2, Lubrication Chart.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

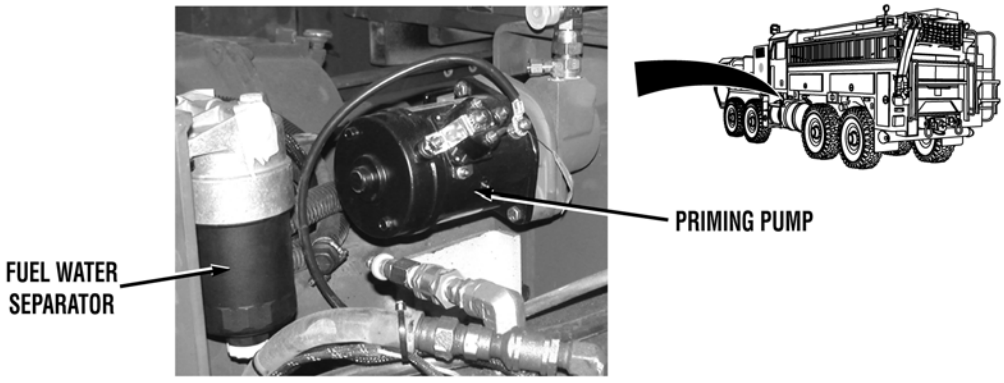
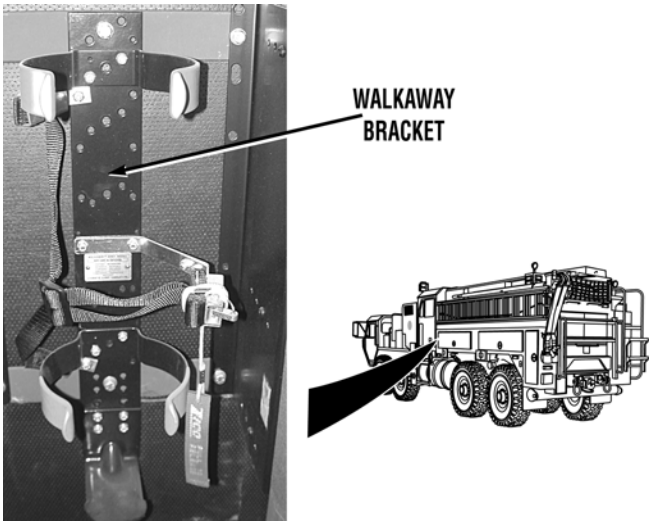
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
				
			b. Check priming pump for signs of water leaks and obvious damage.	Priming pump leaks.
2	After	Fuel Water Separator		
			Check fuel water separator for obvious damage or leaks.	Fuel water separator leaks.
3	After	Intercom System		
			Inspect cab intercom system between front cab and crew cab for proper operation.	Intercom is inoperable.
4	After	Crew Cab Doors		
			a. Check that both cab door latches open and close easily.	Crew cab door will not latch.
			b. Check that both inner and outer handles operate.	
			c. Make sure door seals are in place.	
			d. Inspect door stop for damage.	
5	After	Crew Cab Door Glass		
			a. Check that window regulators move windows up and down smoothly.	
			b. Make sure window glass is not cracked or broken.	
			c. Make sure all window seals are in place.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
6	After	Walkaway Brackets		



NOTE

There are five walkaway brackets, four in the crew cab and one in the personnel cab.

			Inspect walkaway brackets for proper operation and visible damage or looseness. Tighten as required.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

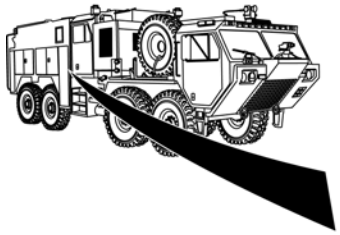
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
7	After	Air Conditioning Filter	  Inspect air conditioning filter for dirt and debris. With warm water, clean air conditioning filter as required.	
8	After	Operator Platform	Inspect operator platform for damage.	
9	After	Rubber Hook	Inspect rubber hook for damage.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
10	After	Ladders		
				
			Make sure ladders in equipment (ladder) rack are properly stowed.	
11	After	Mounting Hardware	Inspect mounting hardware for damage and/or missing parts.	
12	After	Warning Buzzer		
			 	
			a. Make sure that main cab buzzer goes off when warning buzzer button is depressed.	Warning buzzer is inoperable.

Table 1. Preventive Maintenance Checks and Services. (Continued)

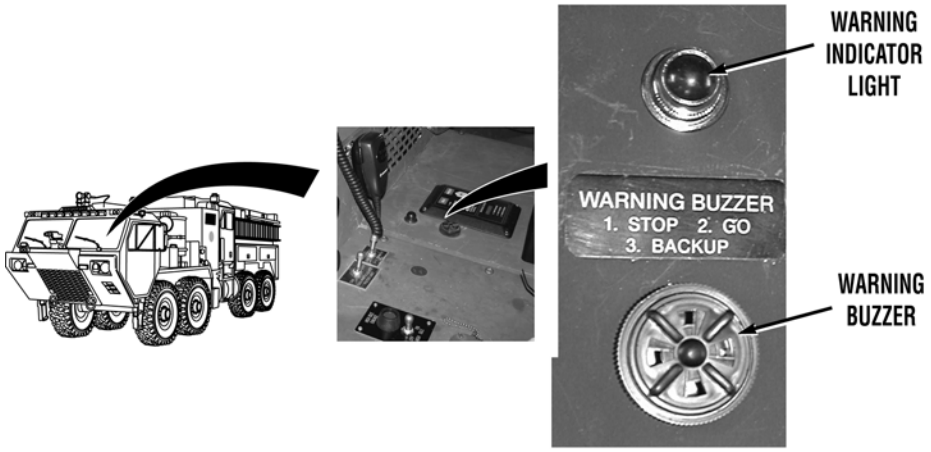
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
				
			b. Make sure that warning indicator light illuminates and warning buzzer sounds when rear step buzzer control is depressed.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
13	After	COEI and BII Items	Inventory and inspect all COEI and BII items that have been used in mission for damage, missing gaskets, and proper operation (refer to WP 0047).	

WARNING

- **Items in compartments may have shifted or come loose during operations. Use caution and be aware that items may fall out while opening doors, causing injury to personnel.**
- **When parked on side slope, items in side compartments may fall out. Use caution and be aware that items may fall out while opening doors causing injury to personnel.**
- **Side compartment doors that swing up are heavy. Make sure to have a firm grip on door when opening. Failure to comply may result in injury to personnel.**

			a. Inspect compartment doors and COEI/BII mountings for damage. b. Operate all hydraulic equipment. c. Inspect for damage. d. Inspect latches for dirt and debris.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

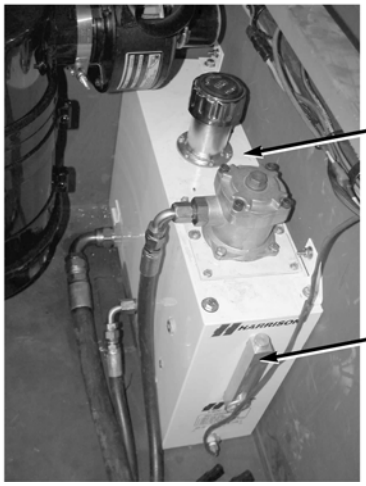
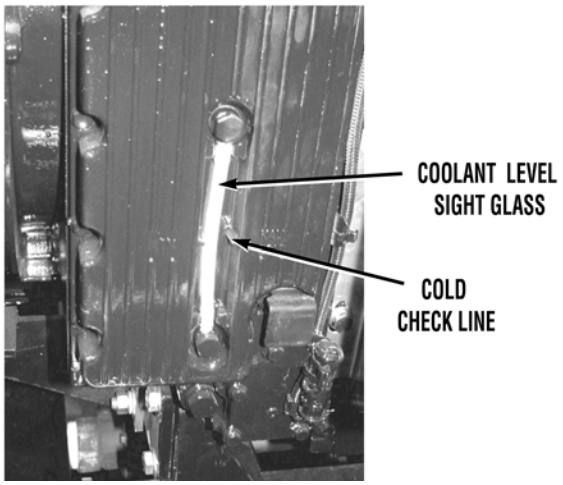
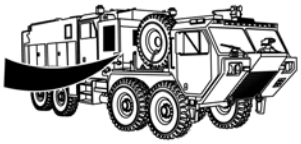
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
14	After	Hose Restraint Netting		
			Inspect hose restraint netting for excessive wear, tears, cuts, or burns.	
15	After	Generator Hydraulic Reservoir	 	
			a. Check hydraulic oil level. Fill as required. Refer to Table 2 Lubricating Chart.	
			b. Check reservoir, hoses, and fittings for leaks.	Class III leaks are evident.

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
16	After	Radiator		





WARNING

Cooling system components can become very hot during operation. Make sure cooling system components are cool prior to performing PMCS.

			a. Check radiator coolant level sight glass. Fill as required. Refer to Table 2 Lubricating Chart. b. Coolant level should be up to the maximum working or fill limit.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
17	After	Engine Oil Dipstick/Filler Tube		
			a. Check oil level. Fill as required. Refer to Table 2 Lubricating Chart. b. Inspect base of dipstick/filler tube for leaks. c. Make sure attaching hardware is tight. Tighten as required.	

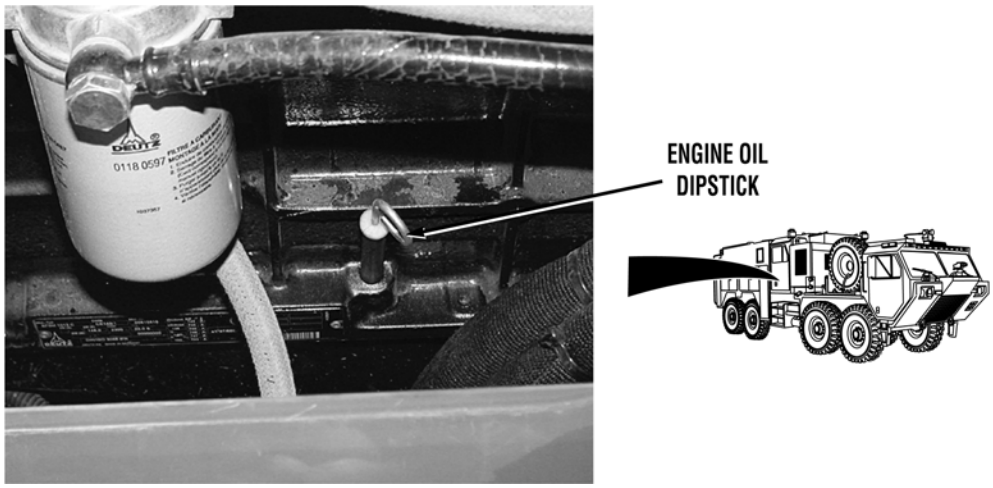


Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
18	After	Personnel Cab Lights	Check that all lamps function: 1. Front and Side Lightbars. 2. Front and Side Warning Lights.	
19	After	Siren and PA System		
			Check operation of siren and PA system mounted in cab.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
20	After	Roof and Bumper Turret, Controls		
			a. Operate roof and bumper turret functions. b. Check for proper operation through full range of motion. c. Check mounting brackets and platforms for cracks and obvious damage. d. Check that mounting hardware is not loose or missing. e. Check for leaks.	Roof and bumper turrets are inoperable.

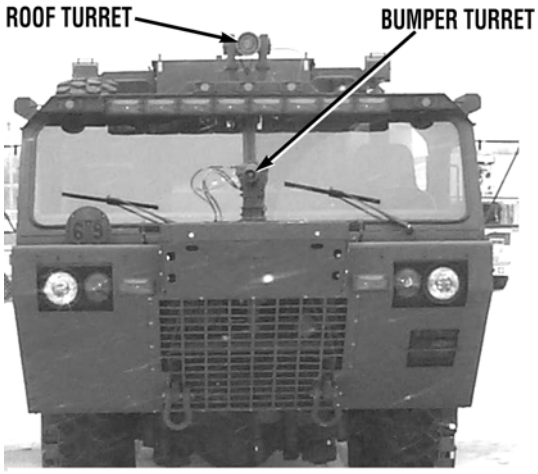
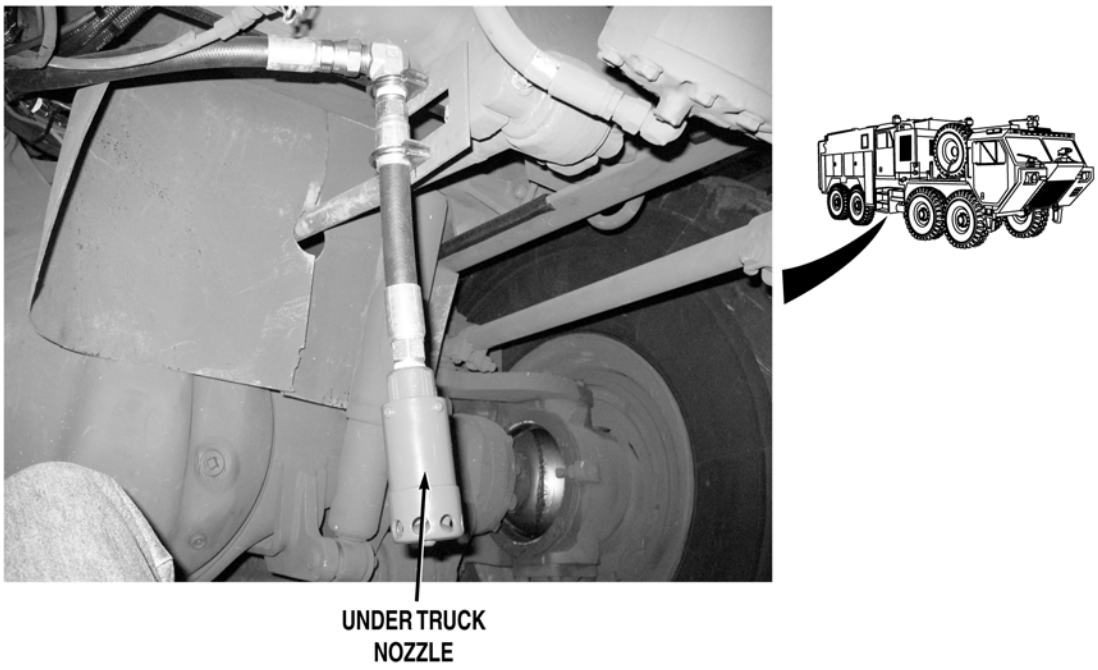


Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
21	After	Ground Sweeps		



			a. Check for proper operation. b. Check ground sweeps, hoses, and mounting brackets for cracks and obvious damage. c. Check for leaks.	Ground Sweeps are inoperable.

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
22	During	Roof Hatch		
			a. Make sure roof hatch opens and closes easily. b. Make sure hatch seal is in place.	Roof hatch will not latch.
23	During	Interior Cab Lights	Inspect all interior cab lights for proper operation.	

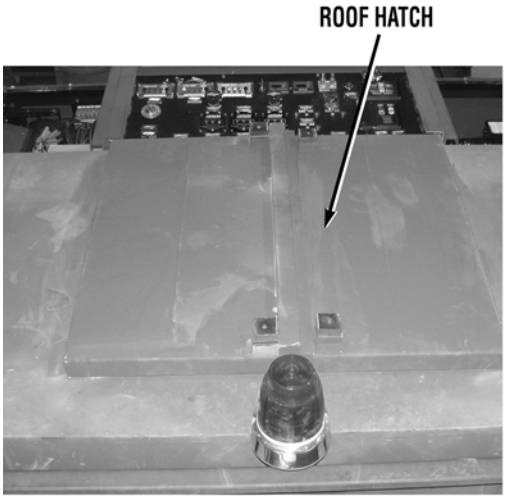
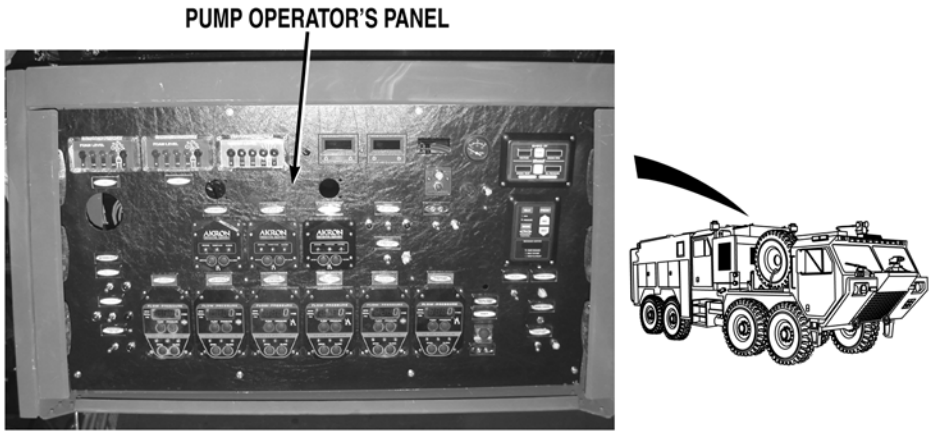


Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
24	During	Pump Operator's Panel Work Lights		



			a. Start water pump engine (WP 0022). b. Set pump operator's panel light switch to ON position.	

WARNING

Pump operator's panel lights become hot after being on for an extended period of time. Use extreme care when operating pump operator's panel not to contact pump operator's panel light. Failure to comply may result in burns to personnel.

			c. Check that side lights illuminate.	
25	During	Pump Operator's Panel Switches	Inspect pump operator's panel switches for proper operation and visible damage.	
26	During	Pump Operator's Panel Pressure Governor	Inspect pump operator's panel pressure governor for proper operation and visible damage.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

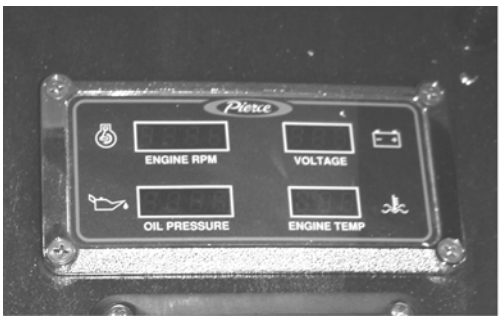
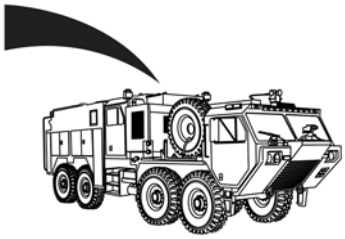
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
27	During	Gauges	Inspect gauges for visible damage. Check that all segments of water tank and foam tank level gauges illuminate when tanks are full.	Any gauge is damaged or inoperable.
28	During	Gauges, Indicators, and Warning Lights	  **NOTE** During operation, all gauges should maintain proper readings. a. Start water pump engine (WP 0022). b. Monitor all gauges, indicators, and warning lights for proper reading while operating vehicle. c. Check the following gauges for proper operation: 1. **OIL PRESSURE** - Minimum oil pressure with engine warm and low idle speed is 12 psi (83 kPa). 2. **ENGINE TEMP** - Operating range is 181 to 203ºF (83 to 95ºC). 3. **VOLTAGE** - 24-volt. 4. **FUEL GAUGE** **5. ENGINE RPM**	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
29	During	Water Pump Engine	Visually check and/or listen for excessive smoke, unusual noise, rough running, or misfiring.	
30	During	Lights	a. Check that portable worklights (120 VAC) illuminate. b. Check that extendable flood lights illuminate. c. Check that compartment lights illuminate. d. Replace or repair any inoperable light.	
31	During	Air Conditioner Condenser		
			a. Check operation of air conditioner. b. Inspect hoses for kinks, cracks, chafing, and obvious damage. c. Check condenser for dented cooling fins, leaks, and obvious damage.	

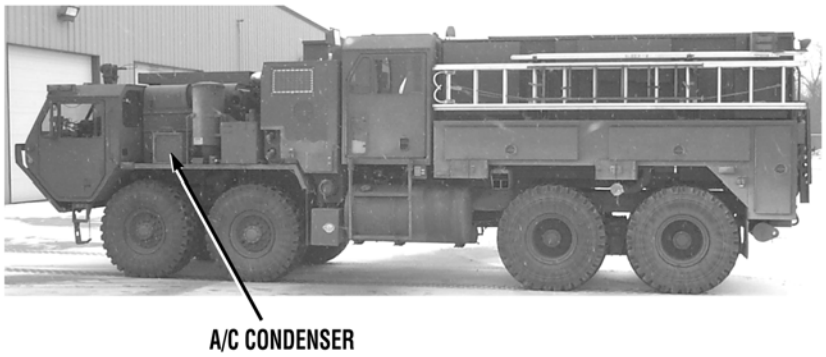
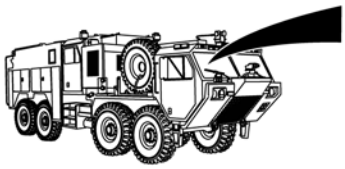
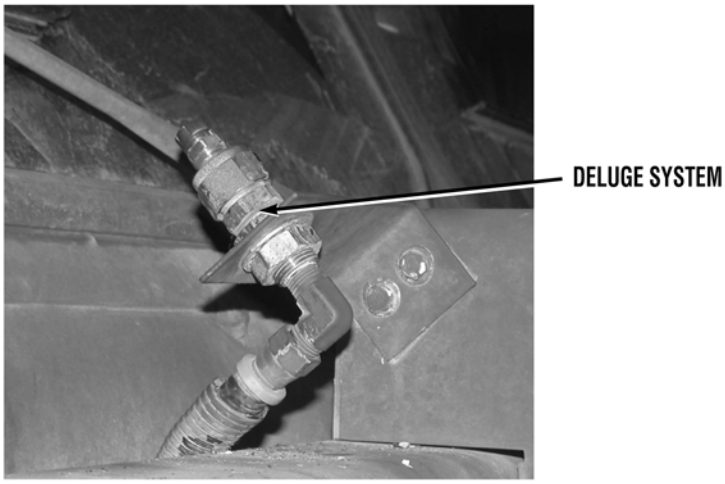


Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
32	During	Cab Center Panel Gauges, Switches, and Indicator Lights	a. Check gauges operation. b. Check for visible damage to gauges, switches, or indicator lights. c. Check switches for proper operation. d. Make sure indicator lamps illuminate.	Any gauges, switches, or indicator lights are inoperable.
33	During	Window Deluge System		





			a. Check operation of window deluge system (WP 0028). b. Inspect nozzles, hoses, and fittings for leaks and obvious damage.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
34	Weekly	Discharge Connections/ Adapters	Inspect discharge connections/adapters for visible distortion, thread damage, and cracks.	
35	Weekly	Panels, Covers, and Running Boards	Inspect driver side panels, pump operator's panel, enclosure covers, and running boards for visible damage. Check all attaching hardware for damage and/or missing parts.	
36	Weekly	Driver Main Inlet Strainer	Clean strainer and inspect for damage.	

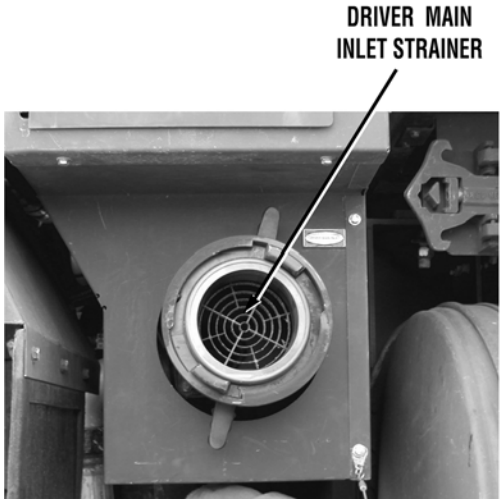
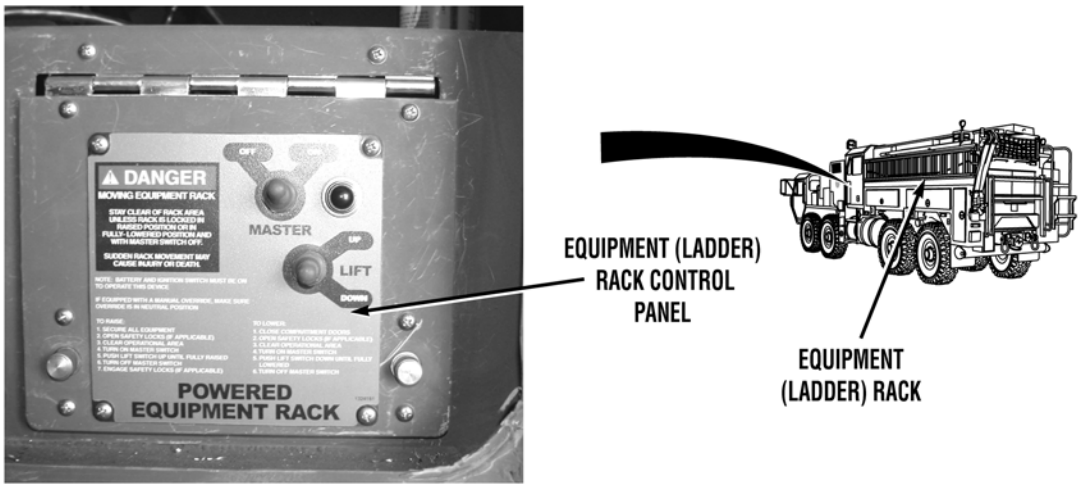


Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
37	Weekly	Powered Equipment (Ladder) Rack Control Panel		



WARNING

When moving powered equipment (ladder) rack, stay clear of rack area. Sudden rack movement may cause injury or death to personnel.

38	Weekly	COEI and BII Items	Make sure that powered equipment (ladder) rack control panel functions properly in conjunction with powered equipment (ladder) rack. a. Inventory and inspect all COEI and BII items for damage, missing gaskets, and proper operation (refer to WP 0047). b. Inspect compartment doors and COEI/BII mountings for damage, and/or missing parts. c. Operate all hydraulic equipment. d. Inspect for damage.	Equipment (ladder) rack is inoperable.

Table 1. Preventive Maintenance Checks and Services. (Continued)

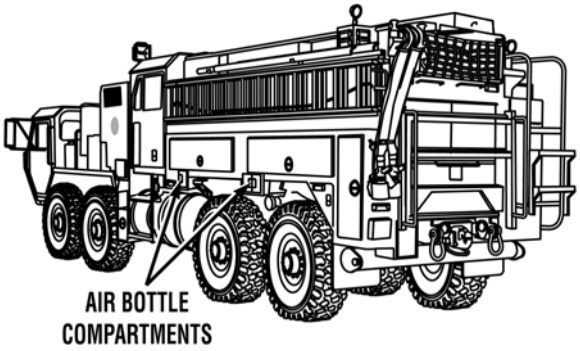
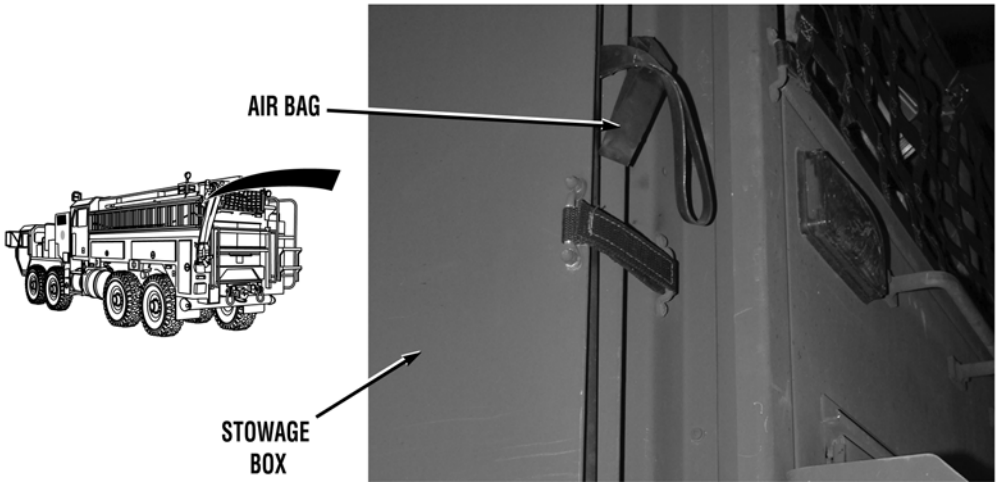
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
39	Weekly	Air Bottle Compartments and Doors		
				
40	Weekly	Air Bags and Air Bag Stowage Box	Inspect air bottle compartments and doors for visible damage and proper operation.	
				
			a. Visually inspect air bag stowage boxes for damage or loose mounting hardware. b. Inspect air bags for tears, cuts, or loose fittings.	Air bags are damaged or missing.

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
41	Weekly	Handheld Portable Flashlights		
			a. Check operation of all handheld portable flashlights. b. Check that charging bases are operable and are securely fastened to compartment wall. c. Make sure flashlight is securely stowed in each base.	

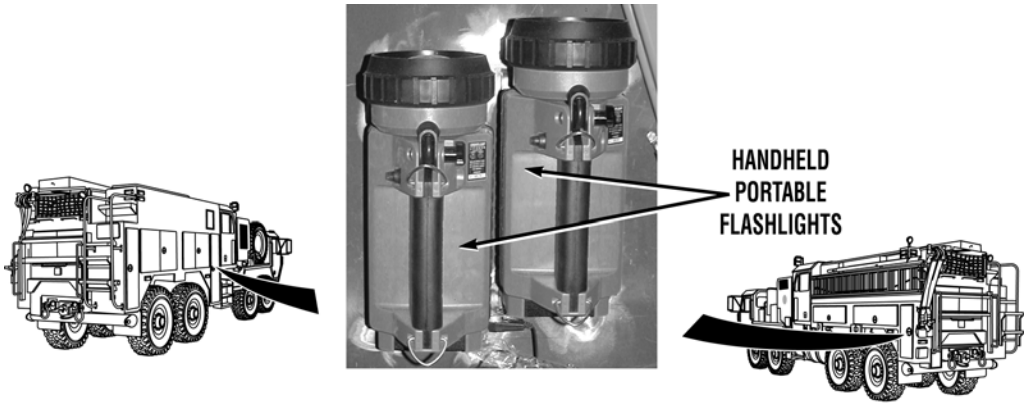


Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
42	Weekly	Rear Step Platforms and Tread Plates		
			a. Inspect rear step platforms and tread plates for visible component damage and missing or loose mounting hardware. Repair or replace any damaged components. Tighten or replace any missing or loose mounting hardware. b. Inspect rubber hooks for cracks and obvious damage. c. Inspect handrails for damage and missing or loose mounting hardware. Tighten or replace any missing or loose attaching hardware.	Mounting hardware missing from step platforms or tread plates.

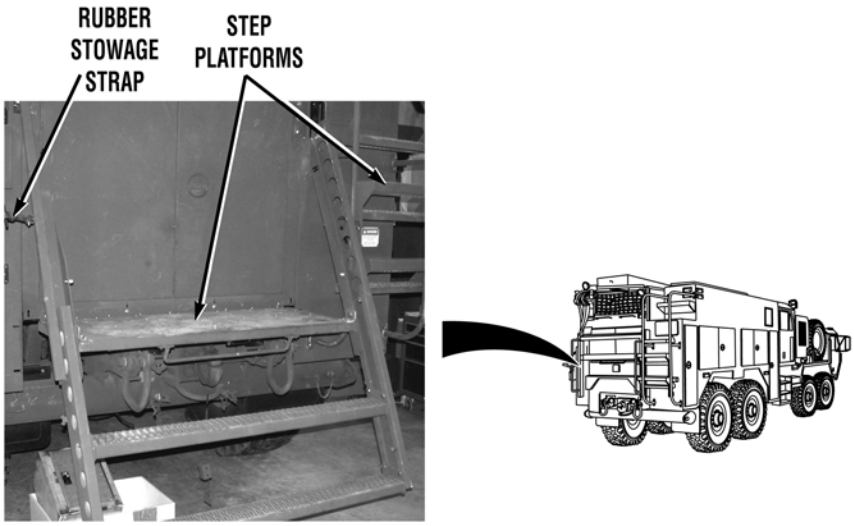
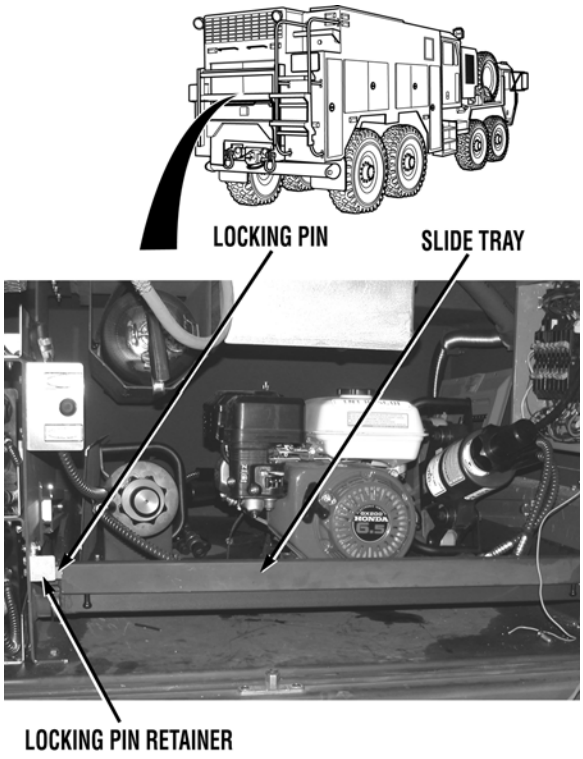


Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
43	Weekly	Slide Tray		



			a. Check that locking pins and locking pin retainers are in place. b. Check that slide tray works smoothly, and slide locks function properly.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

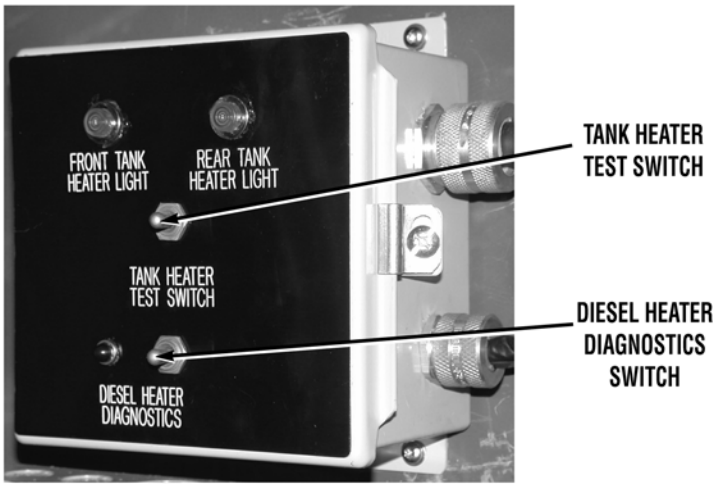
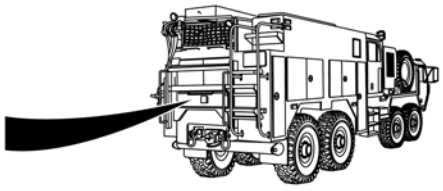
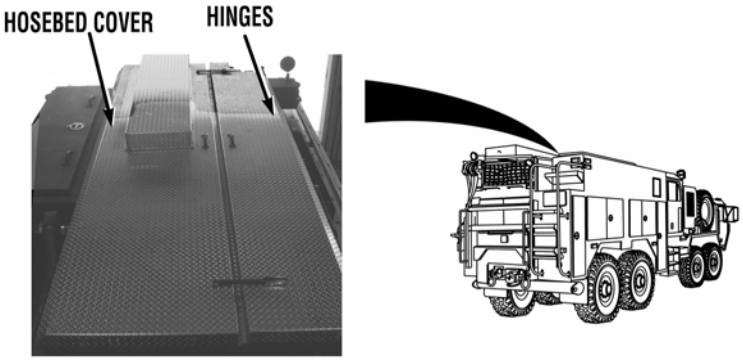
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
44	Weekly	Water Tank and Rear Compartment Heaters		
			 	
			Perform functional test to make sure all heaters are functioning properly.	Any heater is inoperable during cold weather conditions.
45	Weekly	Cord Reel Rewind Button		
			 	
			Make sure cord reel rewind button works properly.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
46	Weekly	Rear Body	Inspect rear body for dents and scratches. Paint any exposed surfaces as required.	
47	Weekly	Hose bed Cover		



WARNING

Use extreme care when walking on hose bed cover and on top of vehicle. Be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel.

			Inspect hose bed covers and hinges for damage.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
48	Weekly	Generator Inspection		
			a. Check for hydraulic oil leaks and tightness of hoses. b. Check for tightness of electrical connections. c. Check cables for damaged insulation. d. Check crew cab air conditioner condenser for dented cooling fins, kinked hoses, leaks, and obvious damage.	Class III leaks are evident.

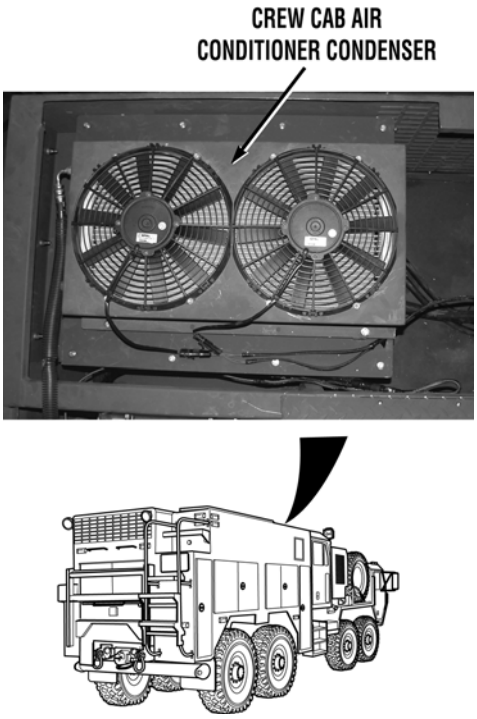
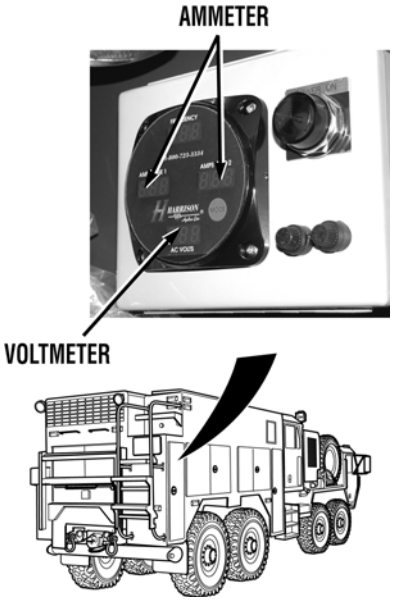


Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
49	Weekly	Generator Test		



			Start hydraulic generator (WP 0021).	Generator inoperable.

WARNING

Use extreme care when working around 120 VAC receptacles. Personnel may get electrocuted if 120 VAC receptacles are exposed to water. Failure to comply may result in injury or death to personnel.

			a. Check that ammeter and voltmeter indicate smooth 120 VAC output. b. Check operation of 120 VAC accessories (crew cab air conditioner, flood lights, and receptacles). c. Stop hydraulic generator (WP 0021).	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
50	Weekly	Panels and Covers	Inspect passenger side panels, enclosure covers, and running boards for visible damage. Check all attaching hardware for damage and/or missing parts.	
51	Weekly	Frame and Subframe	Inspect frame and subframe for damage. Check all attaching hardware for damage, looseness, and/or missing parts.	
52	Weekly	Seats and Seat Belts	a. Check operation of seat belts, and check fabric is not worn or torn. b. Make sure all seat and belt fasteners are tight. c. Make sure padded backrest inserts are present.	
53	Weekly	Handheld Portable Radios	a. Check operation of all handheld radios. b. Check that charging bases are operable and are securely fastened to cab wall. c. Make sure radio is securely stowed in each base.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

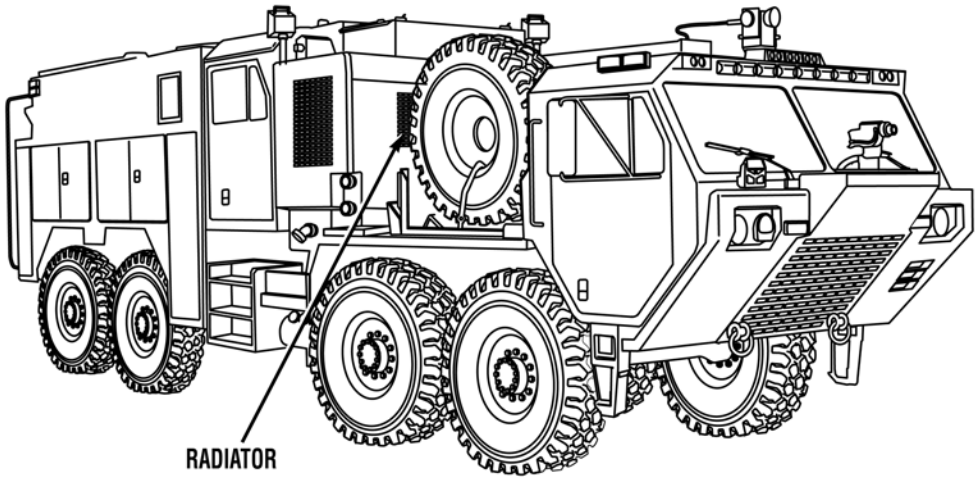
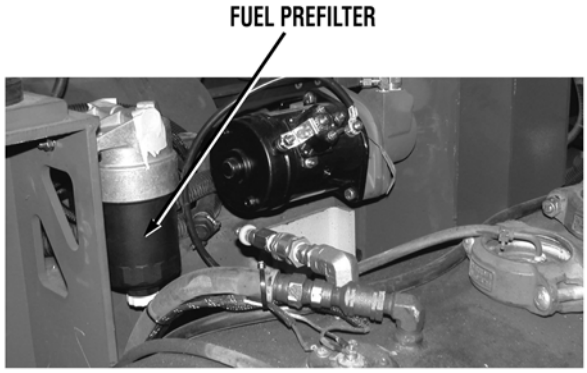
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
54	Weekly	Radiator and Radiator Hoses		
				
55	Weekly	Securing Hoses	Check radiator and radiator hoses for leaks, clogs, or damaged fins. Check for loose clamps. Make sure securing hoses are tight and secure.	Radiator or radiator hoses leak or are damaged.

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
56	Weekly	Fuel Prefilter		



WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET OF VEHICLE.

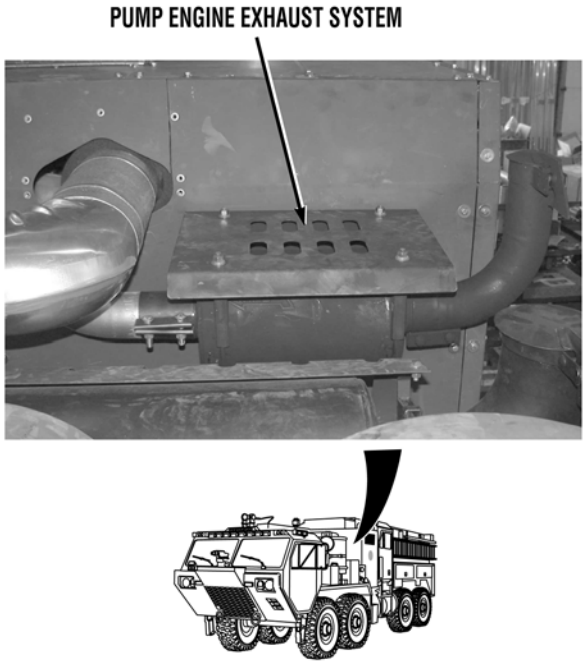
NOTE

Use a suitable container to collect water that may drain from prefilter.

			Loosen drain plug, and drain water from prefilter.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
57	Weekly	Exhaust System		



WARNING

Exhaust system can become hot during operation. Make sure all exhaust system components are cool prior to performing PMCS.

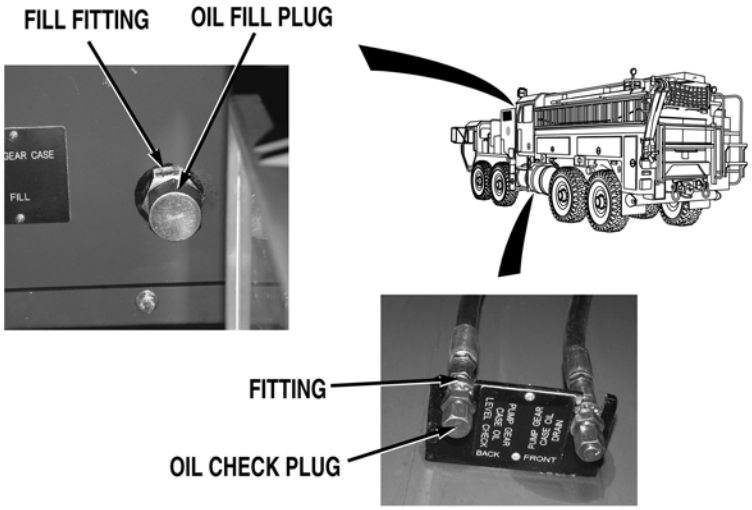
NOTE

Operation of vehicle with any exhaust leaks may violate AR 385-55.

			Check exhaust pipe, muffler, heat shield, tailpipe, rain cap, clamps, and mountings for obvious damage, looseness, exhaust leak, and carbon build up.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
58	Monthly	Water Pump Gear Case		



			Check water pump gear case oil level. 1. Remove oil fill plug from fitting. 2. Pour 16 fl oz (473.2 ml) of oil in fill fitting.

NOTE

- Let oil drain from water pump gear oil level check plug until it stops draining; when oil stops draining, the oil level is correct.
- Drain oil into suitable container.

			3. Remove water pump gear case oil level check plug from fitting. 4. Install water pump gear case oil level check plug on fitting. 5. Install oil fill plug on fill fitting.

Table 1. Preventive Maintenance Checks and Services. (Continued)

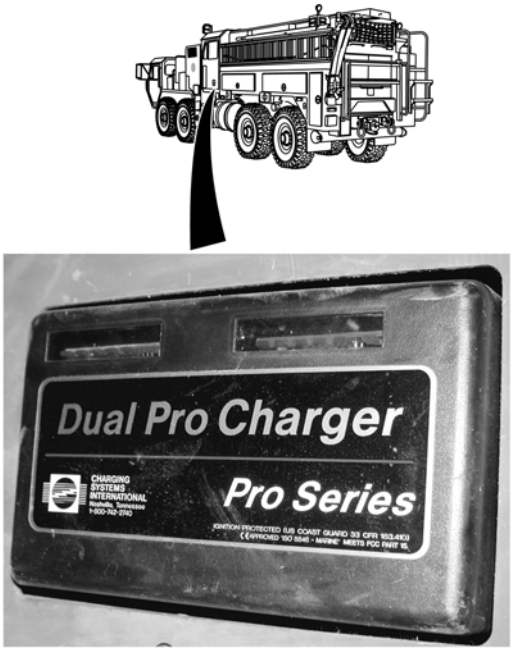
Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
59	Monthly	Battery Charger/ Air Compressor		
			NOTE • Vehicle must be plugged into off-truck electrical source to test battery charger. • Drain air system (TM 9-2320-347-10).	
			Test battery charger and air compressor to make sure they are functioning properly.	
				
60	Monthly	Rifle Mounts	Inspect rifle mounts for damage or missing hardware.	

Table 1. Preventive Maintenance Checks and Services. (Continued)

Item No.	Interval	Item To Inspect Or Service	Crewmember Procedure	Not Fully Mission Capable if:
61	Monthly	Foam Tank Assembly		

WARNING

Use extreme care when walking on hose bed cover and on top of vehicle. Be extra careful in wet, icy, or muddy conditions. Failure to comply may result in personnel slipping and falling, causing injury or death to personnel.

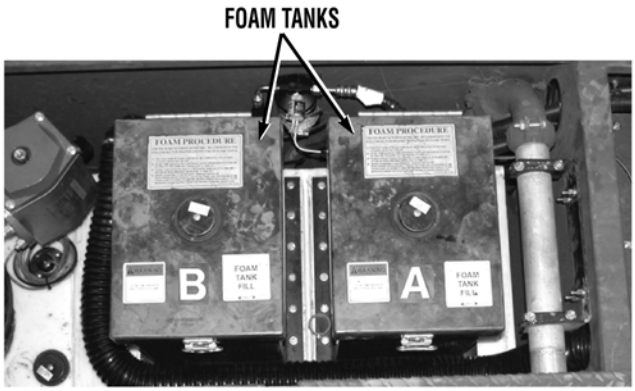
a. With foam tank empty, inspect tank interior for corrosion and clogged screens; clean as required.

NOTE

Perform Step (b) only if foam tank is full.

b. Inspect for leaks. Make sure foam tank filler doors latch properly, and door seals are in place.

c. Clean foam tank pressure/vent valves with water.



LUBRICATION INTRODUCTION

1. **Intervals (on-condition or hardtime) and the related man-hour times are based on normal operation.**

   The man-hour time specified is the time needed to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals shall be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hardtime interval if lubricants are contaminated or if operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The calendar interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hardtime intervals must be applied during the warranty period.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

2. **Cleaning fittings before lubrication.**

   Clean parts with solvent cleaning compound (SD P-D-680) or equivalent. Dry before lubricating.

3. **Lubrication after high-pressure washing.**

   After a thorough washing, lubricate all grease fittings and oil can points outside and underneath vehicle.

NOTE

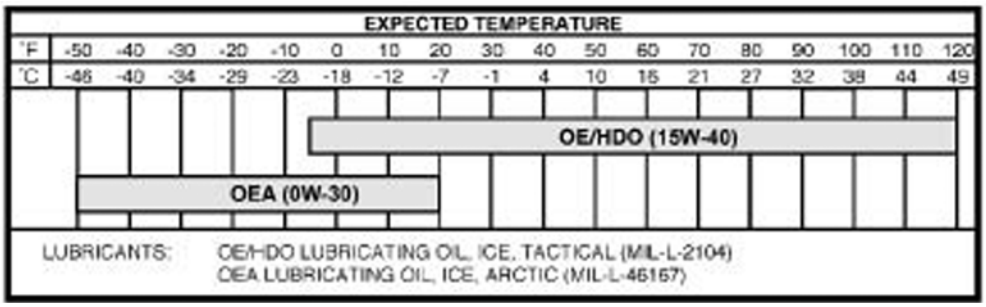
These lubrication instructions are mandatory.

Table 2. Lubricating Chart.

Item No.	Interval	Item To Be Lubricated	Procedure	Type	Quantity
1	25 hours/ 3 months 100 hours/ 12 months	Gear Case	WATER PUMP Check gear case oil level. Replace gear case oil.	75W-90 75W-90	At Least 12 oz/ (.35 l)
2	50 hours/ 6 months	Hydraulic Reservoir	GENERATOR Replace hydraulic oil and filter element.	DEXTRON II	31 qt/ (29.33 l)
3	250 hours/ 6 months		CAB AND BODY Lubricate doors, side panels, hood hinges, locks, latches, and other pivot points.	Cleaner, Lubricant A (MIL-L-63460)	As Required
4	2000 hours/ 6 months	Radiator check	RADIATOR Replace coolant.		approx. 17.3 qt/ (16.3 l)
5	As required	Priming Pump Lubricant Supply Tank	Priming Pump Lubricant Supply Tank	Water	1.5 qt/ (1.42 l)
6	500 hours/ 12 months	Engine	WATER PUMP ENGINE Replace water pump engine oil and filter element. Lubricate water pump engine using correct oil for temperature. Refer to chart below.		With filter 22 qt/ (21 l) Without filter 21 qt/ (20 l)

NOTE

- OE/HDO 15W 40 must be used in temperatures consistently above 100ºF (38ºC).
- Should the temperature fall temporarily below the limits of the oil grade selected, cold starting may be affected but the engine will not be damaged. In order to keep wear to a minimum, do not exceed application limits for extended periods of time.



END OF WORK PACKAGE

CHAPTER 5

MAINTENANCE INSTRUCTIONS

FIELD LEVEL MAINTENANCE

MAINTENANCE GENERAL INTRODUCTION

SCOPE

This work package supplements the M977A2 Series Manuals and provides general maintenance information for the TFFT.

STANDARD ARMY TOOLS AND EQUIPMENT

There are standard army tools and general mechanic's tool sets required for maintenance of this vehicle. For authorizing standard army tools and equipment, refer to the Modified Table of Organization and Equipment (MTOE) applicable to the unit. General Mechanics Tool Kit (GMTK), tools from the Standard Automotive Tool Set (SATS) and tools that are considered Special Tools will be listed under Tools and Special Tools at the beginning of the maintenance task.

SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

Special tools for Field Level Maintenance are listed in the RPSTL which is the authority for requisitioning. The Maintenance Allocation Chart (MAC) lists special tools needed for the various maintenance tasks.

REPAIR PARTS

Field and Sustainment level repair parts are listed and illustrated in the Repair Parts and Special Tools List covering Field Level Maintenance for this vehicle.

INSPECTION AND SERVICE UPON RECEIPT

Upon receipt of new, used, or reconditioned vehicle, inspect all fill valves, drain valves, and dump valves to be sure they are in proper working order. Secure, clean, and correctly adjust and/or lubricate as needed (WP 0185). Check Components of End Item (COEI) and Basic Issue Items (BII) to be sure every item is there, in good condition, and properly mounted or stowed (WP 0047).

GENERAL MAINTENANCE PROCEDURES

a. **Cleanliness.**

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**
- **Never use fuel to clean parts. Fuel is highly flammable. Serious personal injury could result if fuel ignites during cleaning.**
- **Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury to personnel.**

Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use solvent cleaning compound (WP 0625, Item 12) on metal surfaces and soapy water on rubber.

b. **Bolts, Nuts, and Screws.**

Check bolts, nuts, and screws for obvious looseness, missing, bent, or broken condition and tighten or replace as necessary. If they cannot be checked with a tool, look for chipped paint, bare metal, or rust around bolt heads.

c. **Welds.**

Look for loose or chipped paint, rust, or gaps where parts are welded together. If a bad weld is found, notify your supervisor.

d. **Electric Wires and Connectors.**

Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connectors and ensure wires are in good shape.

e. **Fluid Hoses, Tubes, and Fittings.**

Look for wear, damage, leaks, and ensure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector may also indicate a leak. If connector or fitting is loose, tighten it. If something is broken or worn out, repair or replace per applicable procedure.

f. **Damage.**

Damage is defined as any condition that affects safety or would make the vehicle unserviceable for mission requirements.

GENERAL REMOVAL INSTRUCTIONS

a. **Work Required.**

Remove parts if replacement is required. Do not disassemble a component any further than needed.

b. **Preparation.**

Before removal of any electrical, hydraulic, or air system components, ensure system component is not energized or pressurized. Disconnect battery ground cables. Relieve air system pressure before removal of fasteners (e.g., nuts, locknuts, etc.). Remove any paint on threads to prevent binding of fasteners.

c. **Identification.**

To ease assembly and installation, tag and mark shims, connectors, wires, and mating end of lines before disconnecting them. Identify similar parts to ensure correct assembly.

d. **Position of Valves.**

Before removing valve handles, mark or diagram their position when open and closed. This will help during assembly.

e. **Location.**

Before removing cable ties, cushion clamps, hoses, tubing, wire, etc., note the location, position, and routing of each to ensure correct assembly.

GENERAL CLEANING INSTRUCTIONS

a. **Cleaning Solvents.**

WARNING

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- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**
- **Never use fuel to clean parts. Fuel is highly flammable. Serious personal injury could result if fuel ignites during cleaning.**
- **Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury to personnel.**

Use only approved cleaning solvents to clean parts. Solvent cleaning compound (WP 0625, Item 12) is commonly used. Always work in a well-ventilated area.

b. **Removing Deposits.**

Soak parts in solvent cleaning compound (WP 0625, Item 12), and wash away deposits by flushing or spraying. When necessary, brush with soft bristle brush (not wire) moistened in solvent. Use compressed air to dry parts (except bearings) after cleaning. Bearings must drip and air dry.

c. **Tools.**

CAUTION

Do not use wire brushes, abrasive wheels or compounds to clean parts. Failure to comply may result in damage to equipment.

Do not use wire brushes, abrasive wheels or abrasive compounds to clean parts unless specifically approved in the detailed procedures. Parts may be scratched or altered and a highly stressed part may weaken.

d. **Ball and Roller Bearings.**

When cleaning ball or roller bearings, place them in a basket and suspend them in a container of solvent cleaning compound (WP 0625, Item 12). If needed, use a brush to remove caked grease, chips, etc. Avoid rotating bearing before solid particles are removed to prevent damaging races and balls. When bearings have been cleaned, coat them lightly with lubricating oil (WP 0625, Item 38) to remove solvent.

e. **Rubber Parts.**

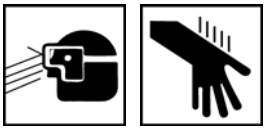
CAUTION

Do not clean tires, lubricant seals, rubber hoses, or electrical components with solvent. Failure to comply may result in damage to equipment.

Do not clean preformed packings or rubber parts in solvent cleaning compound. Wipe parts clean with a dry, cleaning cloth (WP 0625, Item 13).

f. **Exterior Parts.**

WARNING



Steam cleaning creates hazardous noise levels and severe burn potential. Eye, skin, and ear protection is required. Failure to comply may result in injury to personnel.

Steam clean all exterior parts thoroughly before removing. This will make inspection and disassembly easier.

g. **Degreasing Machine.**

CAUTION

To prevent corrosion, parts should be dipped in rust preventive within 2 hours of degreasing.

A degreasing machine may be used to remove heavy grease and oil from metal parts.

h. **Passages.**

WARNING

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- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
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- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

After degreasing, check all oil passages and cavities for dirt or blockage before coating with lubricating oil (WP 0625, Item 38). Run a thin, flexible wire through oil passages to ensure they are not clogged. Use a pressure spray gun and solvent cleaning compound (WP 0625, Item 12) to clean dirty passages.

i. **Electrical Parts.**

Electrical parts; such as coils, junction blocks, and switches, should not be soaked or sprayed with cleaning solutions. Clean these parts with a cleaning cloth (WP 0625, Item 13) moistened with solvent cleaning compound (WP 0625, Item 12).

j. **Hydraulic System.**

When cleaning hydraulic system parts, use solvent cleaning compound (WP 0625, Item 12). Clean and dry parts thoroughly to make sure no residue remains. If a coating preservative is required before assembly, apply a light film of hydraulic fluid (WP 0625, Item 36). If petroleum-free solvents are not available, use the same hydraulic fluid as used in vehicles system.

GENERAL INSPECTION INSTRUCTIONS

a. **Cleaning.**

Clean all parts before inspection. Check for defects such as physical distortion, wear, cracks, and pitting.

b. **Sealing Surfaces.**

Inspect all surfaces in contact with gaskets, packings, or seals for nicks and burring. If any defect is found, remove it before assembly.

c. **Tubing, Hoses, and Fittings.**

Inspect all hose surfaces for broken or frayed fabric. Check for breaks caused by sharp kinks or contact with other parts of the vehicle. Inspect fittings, tubing, mating surfaces, and threads for nicks, cracks, scratches, and other damage. Replace any defective part. After assembly and during initial vehicle operation periods, check for leaks.

d. **Electrical Parts.**

Inspect all wiring harnesses for broken, chafed, or burned wiring. Inspect all terminal connectors for loose connections and broken parts.

GENERAL INSTALLATION INSTRUCTIONS

a. **Preparation.**

When unpacking items, remove all packing material, barrier paper, tape, plastic bags, protective caps, and protective grease coatings. Handle and store removed components carefully.

b. **Sealing Compounds.**

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

⚠ CAUTION

Use sealing compound sparingly and only on male threads. Do not apply compound on first two threads to avoid contamination of system from compound. Do not apply compound to hose connections or fittings with preformed packings. Damage to equipment may result.

Use sealing compounds as required in each maintenance task.

c. **Torquing.**

(1) Tighten bolts, screws, washers, hoses, and fittings as required in WP 0609 or in each maintenance task.

(2) Apply a small amount of colored sealing compound to connection to mark torque point.

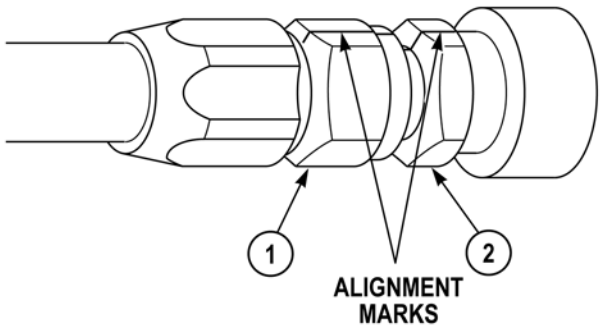
d. **Identification Tags.**

Put hoses, tubes, lines, and electrical wiring in place by matching identification tags and markings on equipment.

e. **Hoses, Air Lines, and Wiring.**

After installing hoses, air lines, and wiring, ensure that they do not contact moving parts or component edges. Secure in place, out of way, with cable ties and cushion clips.

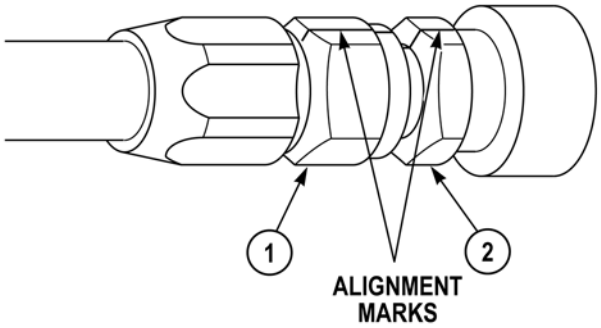
f. Hose and Fitting Tightening Procedures.



NOTE

Tighten hoses and fittings as required in WP 0609 or in each maintenance task. If a torque wrench and crowsfoot are not available or cannot be used, use the following procedure.

1. Install hose (1) on fitting (2).



NOTE

When turning effort increases, hose nut seat is in contact with fitting seat.

2. Tighten hose (1) until seated on fitting (2).

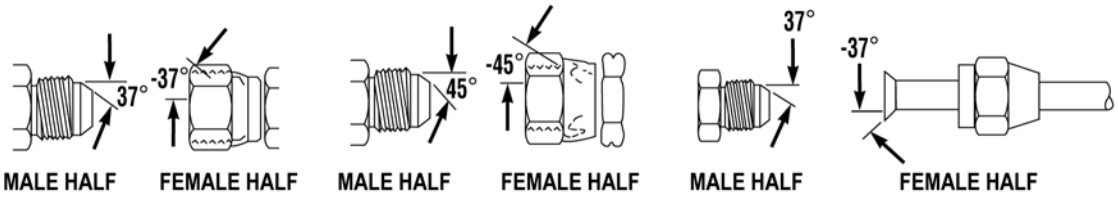
NOTE

Alignment marks allow the mechanic to count the number of flats the hose has rotated during tightening.

3. Scribe alignment mark on hose (1) and fitting (2).

4. Tighten hose nut (1) until mark on hose nut has rotated correct number of flats (refer to Table 1).

Table 1. Recommended Flats Rotation.



Dash No.	JIC 37-Degree Flared Hose and Fitting Machined Seat	SAE 45-Degree Flared Hose and Fitting Machined Seat	JIC 37-Degree Flared Tube
-4	1-1/2 - 1-3/4	1 - 1-1/4	2-1/4 - 2-3/4
-5	1 - 1-1/2	1 - 1-1/4	2-1/4 - 2-3/4
-6	1 - 1-1/2	3/4 - 1	2-1/4 - 2-3/4
-8	1-1/4 - 1-3/4	1 - 1-1/4	2-1/4 - 2-3/4
-10	1-1/4 - 1-3/4	1 - 1-1/4	2 - 1/2
-12	1 - 1-1/2	1 - 1-1/4	2 - 1/2
-16	3/4 - 1	-----	2-1/4 - 2-3/4
-20	1/2 - 3/4	-----	2 - 1/2
-24	1/2 - 3/4	-----	2 - 1/2
-32	3/4	-----	1 - 1-1/4

g. **Fastener Tightening Sequence Procedure**.

1. **Installation Torque.**

NOTE

If a component has a critical tightening sequence, it will be illustrated in that particular work package; otherwise, use the general sequence charts provided in Figure 1.

(a) Tighten nuts twice in a crisscross pattern using a torque wrench. The first time nut is torqued, apply approximately 75% of final torque value.

(b) Repeat sequence a second time until 100% of final torque value has been obtained for each nut.

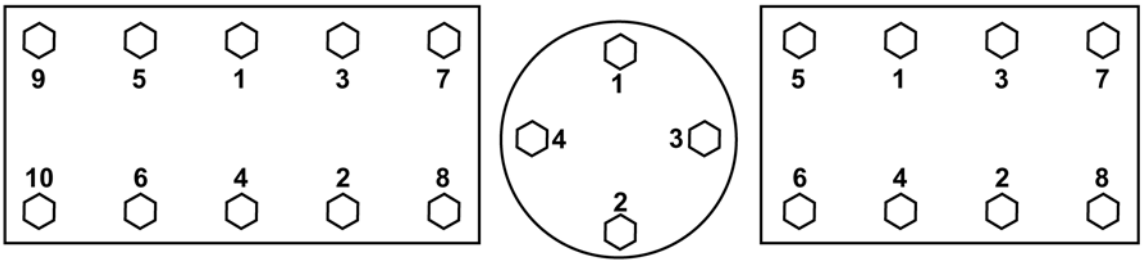


Figure 1. General Tightening Sequences.

2. **Check Torque.**

NOTE

When one or more screws are loose, check torque for all bolts on the component.

Tighten nuts in a crisscross pattern using a torque wrench. Apply 100% of final torque value.

h. **Pipe Thread Tightening Procedures.**

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly and only on male threads. Do not apply compound on first two threads to avoid contamination of system from compound. Do not apply compound to hose connections or fittings with preformed packings. Damage to equipment may result.

1. Coat threads of male fitting with sealing compound, sealant, or adhesive as indicated in each work package.

2. Position male fitting on female fitting. Tighten only finger-tight.
3. Scribe alignment mark on both fittings.

⚠ CAUTION

- **It may be necessary to tighten fitting slightly more or less than 2-1/2 turns to match position noted prior to removal. Do not loosen fitting to arrive at proper position or a leak may occur.**
- **Overtightening may cause pipe fitting to deform and damage to the joining fitting, flange, or component.**

4. Tighten male fitting 2-1/2 (3 maximum) full turns past hand-tight position.

PREPARATION FOR SHIPMENT OR STORAGE

Proper preservation of a vehicle and its individual parts for storage or shipment is vital to the life of the equipment.

a. Perform pump and blow-out procedures (WP 0044).

b. Perform preparation for storage or shipment (WP 0043).

c. For general preservation data as well as preservation procedures for vehicle specific parts, refer to Equipment Preservation Data Sheets (EPDS).

d. Refer to TM 9-2320-325-14&P for preparation for shipment or storage information.

e. Refer to TM 43-0213 Corrosion Prevention and Control (CPC) for Tactical Vehicles.

f. Refer to TB 9-2300-281-15 for overseas shipment instructions.

g. Refer to TB 9-2300-281-15 for Basic Issue Items (BII) packing instructions.

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

BUMPER TURRET AND BUMPER TURRET NOZZLE SPEED ADJUSTMENT

INITIAL SETUP:

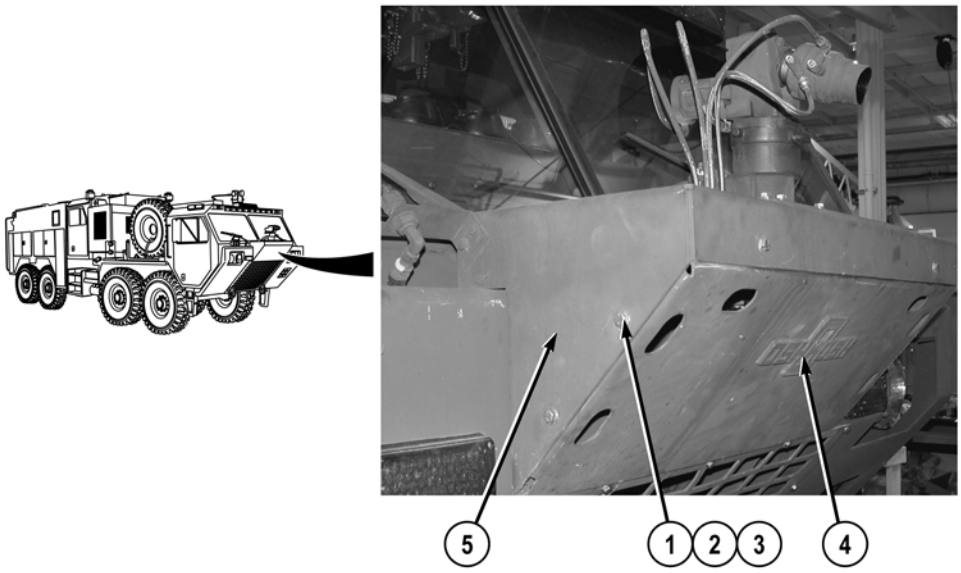
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Locknut (6)

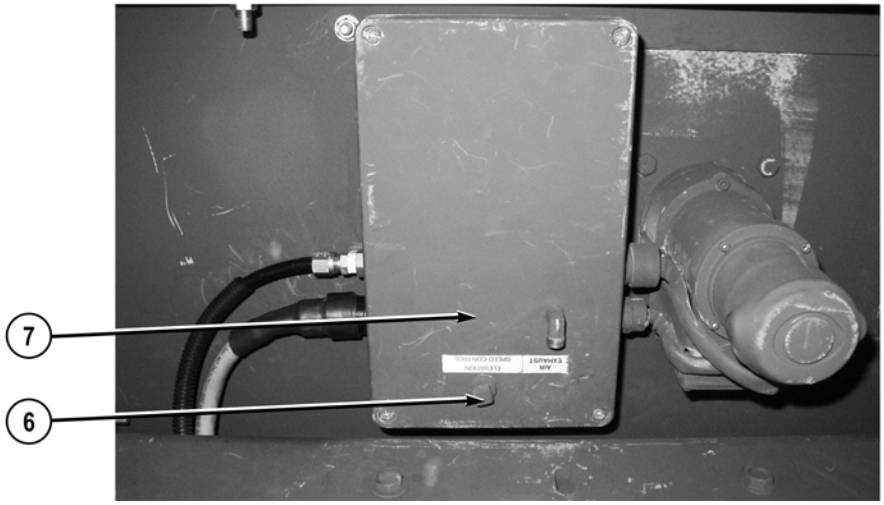
References
WP 0035
WP 0615, Fig. 168

Equipment Conditions
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

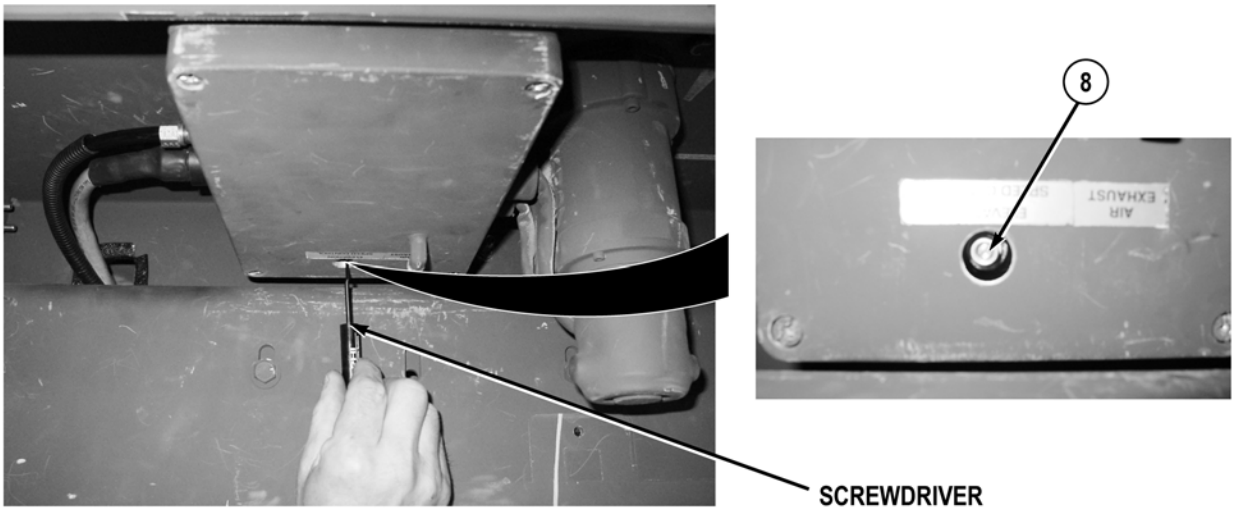
BUMPER TURRET VERTICAL SPEED ADJUSTMENT



1. Remove six locknuts (1), 12 washers (2), six screws (3), and cover (4) from bumper turret mount (5). Discard locknuts.



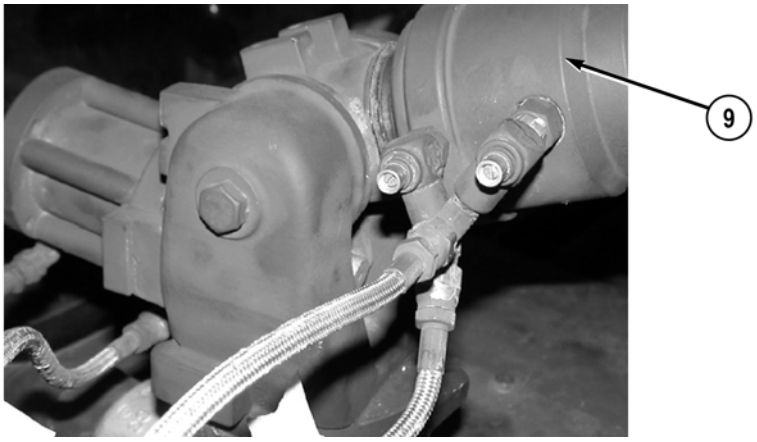
2. Remove plug (6) from junction box cover (7).



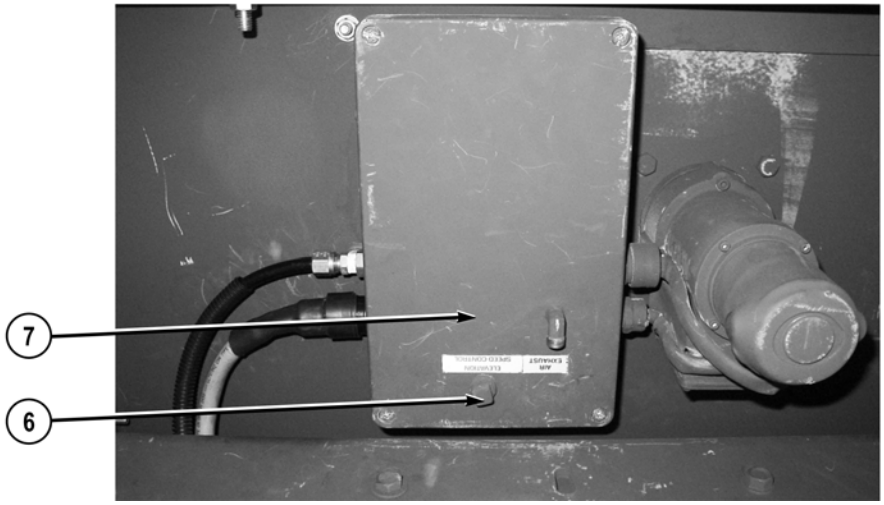
NOTE

- Vertical speed control is adjusted by using screwdriver and turning needle valve clockwise or counterclockwise in increments of 1/8 of a turn.
- To increase vertical speed, turn needle valve counterclockwise in increments of 1/8 of a turn.
- To decrease vertical speed, turn needle valve clockwise in increments of 1/8 of a turn.
- Maintain air pressure in normal operating range (85 to 120 psi [586 to 827 kPa]) to ensure accurate adjustment.

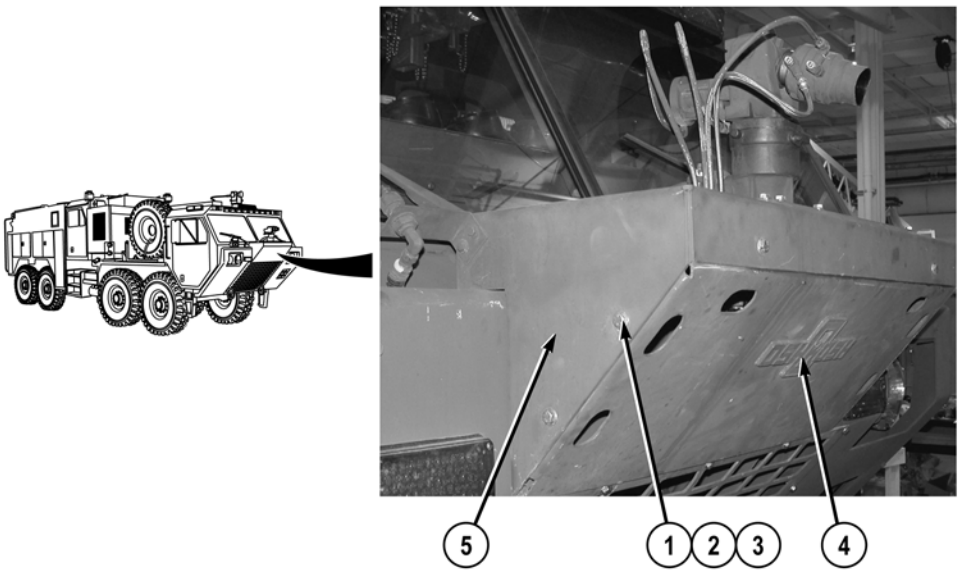
3. Using a small screwdriver, adjust needle valve (8).



4. Check vertical speed by operating bumper turret (9) (WP 0035).
5. Repeat Steps (3) and (4) until desired vertical speed is obtained.



6. Install plug (6) on junction box cover (7).



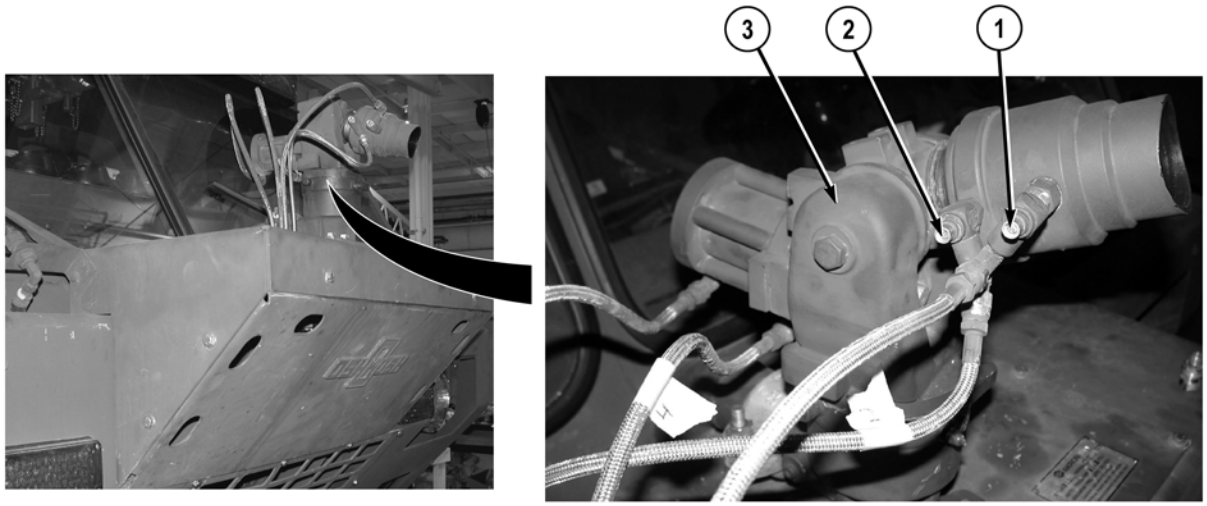
7. Install cover (4) on bumper turret mount (5) with six screws (3), 12 washers (2), and six locknuts (1).

END OF TASK

BUMPER TURRET NOZZLE SPEED ADJUSTMENT

NOTE

- Reducing speed too much may cause erratic or incorrect shift pattern operation.
- Nozzle speed control is adjusted by using a small screwdriver and turning two needle valves clockwise or counterclockwise in increments of 1/8 of a turn.
- Both needle valves must be turned in same direction and distance. Failure to comply may result in nozzle pattern sleeve drifting when pattern control rocker switch is released on joystick.
- To increase nozzle speed, turn both needle valves counterclockwise in increments of 1/8 of a turn.
- To decrease nozzle speed, turn both needle valves clockwise in increments of 1/8 of a turn.
- Needle valve closest to nozzle discharge controls fog speed.
- Needle valve closest to air cylinders controls straight stream speed.
- Maintain air pressure in normal operating range (85 to 120 psi [586 to 827 kPa]) to ensure accurate adjustment.



1. Using a small screwdriver, adjust fog needle valve (1) and straight stream needle valve (2).
2. Check nozzle speed by operating bumper turret (3) (WP 0035).
3. Repeat Steps (1) and (2) until desired nozzle speed is obtained.

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER COMPRESSOR DRIVE BELT ADJUSTMENT

INITIAL SETUP:

Tools and Special Tools
Gauge, Belt Tensioner (WP 0622, Item 16)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

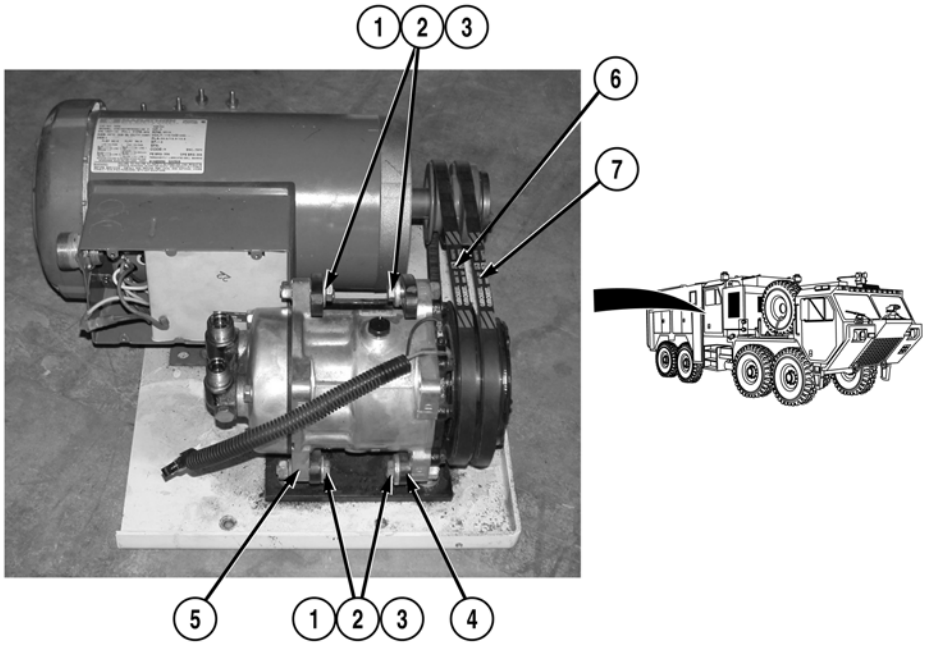
Materials/Parts
Tags, Identification (WP 0625, Item 51)

References
WP 0614, Fig. 6

Personnel Required
MOS 52C, Utilities equipment repairer

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)
Crew cab air conditioner compressor assembly removed (WP 0210)

ADJUST DRIVE BELT



1. Loosen four screws (1), washers (2), and locknuts (3) on bracket (4) and compressor (5).

CAUTION

Do not over-tighten belt. Failure to comply may result in damage to equipment.

2. Using a belt tensioner gauge, tighten two drive belts (6) and (7) to a maximum of 120 lb-ft (162.7 N•m).
3. Tighten four locknuts (3), washers (2), and screws (1) on compressor (5) and bracket (4).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install crew cab air conditioner compressor assembly (WP 0210)
2. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB DOOR/DOOR HINGE ADJUSTMENT

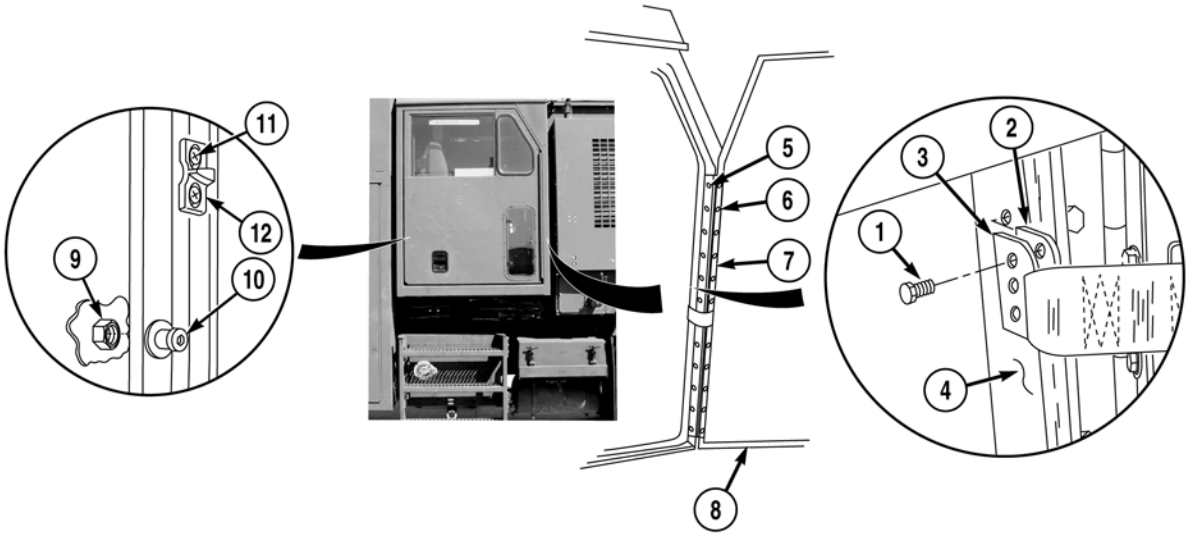
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0615, Fig. 119

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

ADJUSTMENT



NOTE

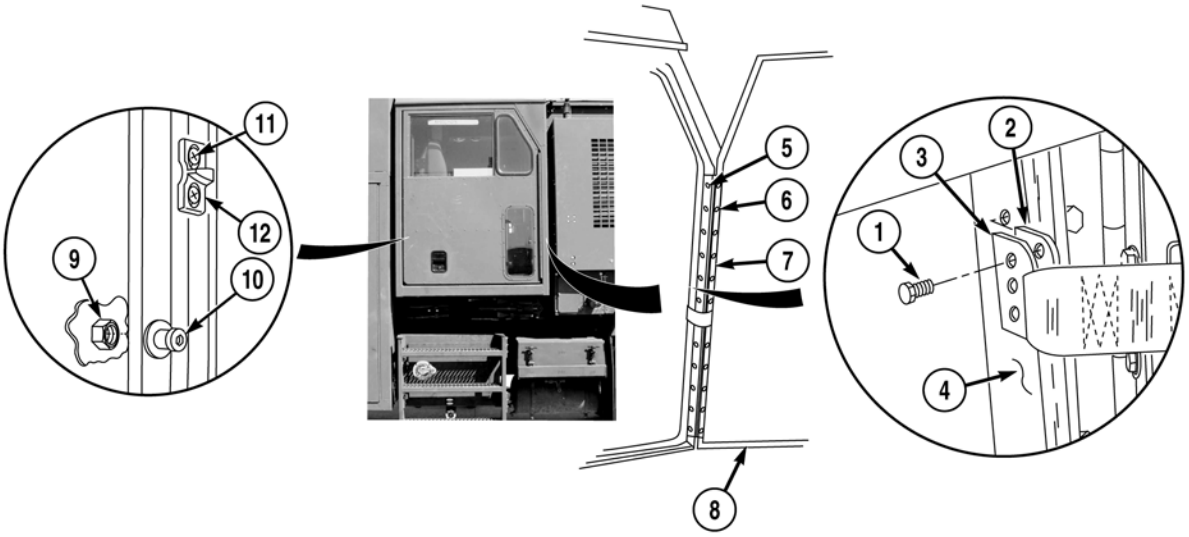
- Adjustment is performed whenever the door is replaced or will not close properly.
- Perform Step (1) if door has not been replaced.
- Perform Step (2) if door has been replaced.

1. Remove two screws (1) and spacer (2) from door strap (3) and crew cab (4).
2. Loosen 12 screws (5) and 11 screws (6) 3/4 turn from hinge (7).

NOTE

It may be necessary to open and close door several times before Step (3) can be accomplished.

3. Align position of door (8) to permit proper closing and locking.
4. Tighten 12 screws (5) and 11 screws (6).



NOTE

Perform Steps (5) through (9) if door does not close and lock properly.

5. Loosen locknut (9) and striker pin (10).
6. Loosen two screws (11) and dovetail (12).
7. Position dovetail (12) to permit proper closing and locking. Tighten two screws (11).
8. Position striker pin (10) to permit proper closing and locking. Tighten locknut (9).
9. Install door strap (3) and spacer (2) on crew cab (4) with two screws (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM LEVEL PROBE CALIBRATION

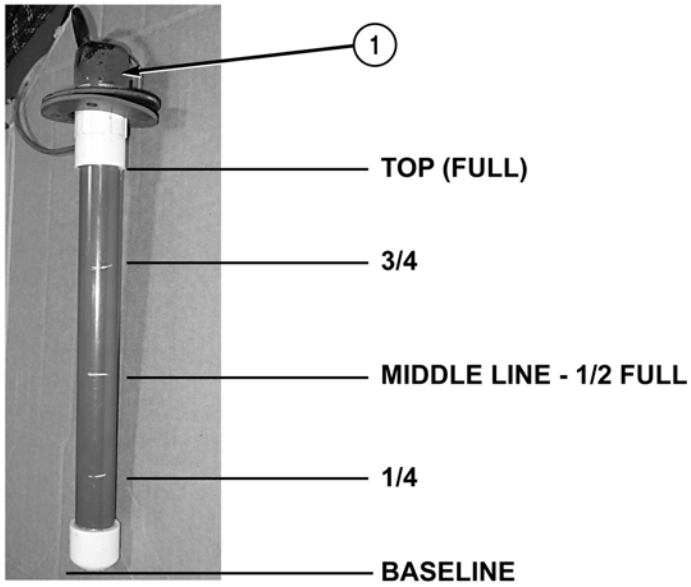
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Equipment Conditions
Foam tank level probe removed (WP 0281)
Pump operator's panel cover opened (WP 0019)

References
WP 0007
WP 0615, Fig. 51

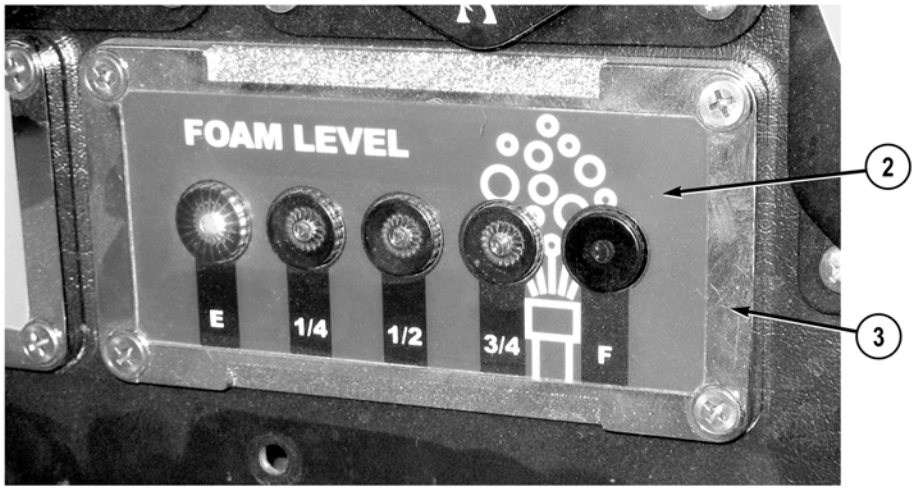
CALIBRATION



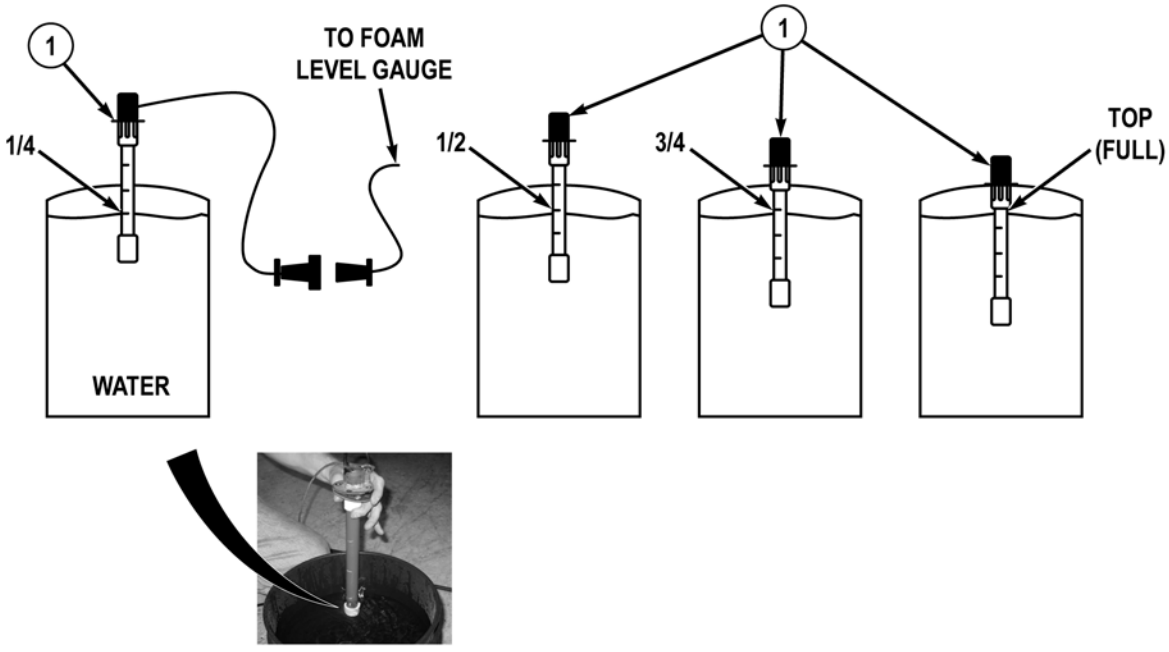
NOTE

- This calibration procedure must be performed when installing a new foam level probe or foam level gauge.
- Both foam level probes are calibrated the same way.

1. Measure distance between baseline of foam level probe (1) and top (full) of foam level probe (1).
2. Divide distance measured in Step (1) by two, and mark middle line - 1/2 full on foam level probe (1).
3. Measure distance between middle line - 1/2 full and baseline on foam level probe (1).
4. Divide distance measured in Step (3) by two, and mark 1/4 line.
5. Measure distance between middle line - 1/2 full and top (full) on foam level probe (1).
6. Divide distance measured in Step (5) by two, and mark (3/4) line.



7. Remove cover (2) from foam level gauge (3).

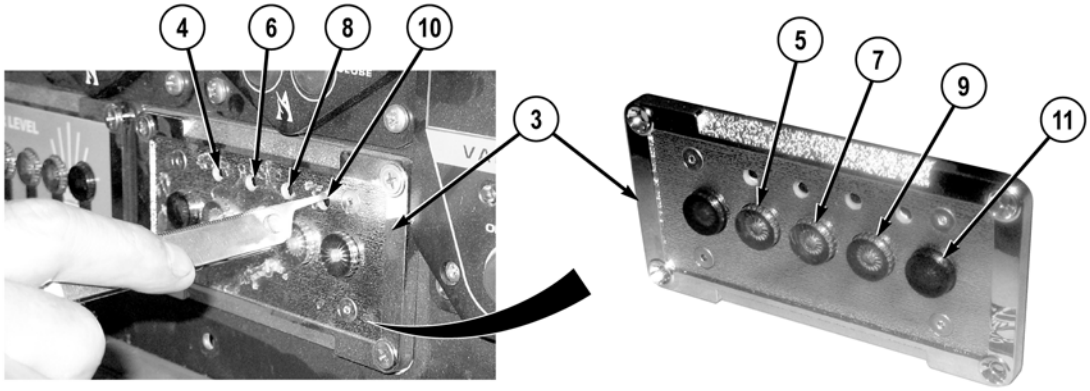


8. Turn battery disconnect switch to ON position (WP 0007).

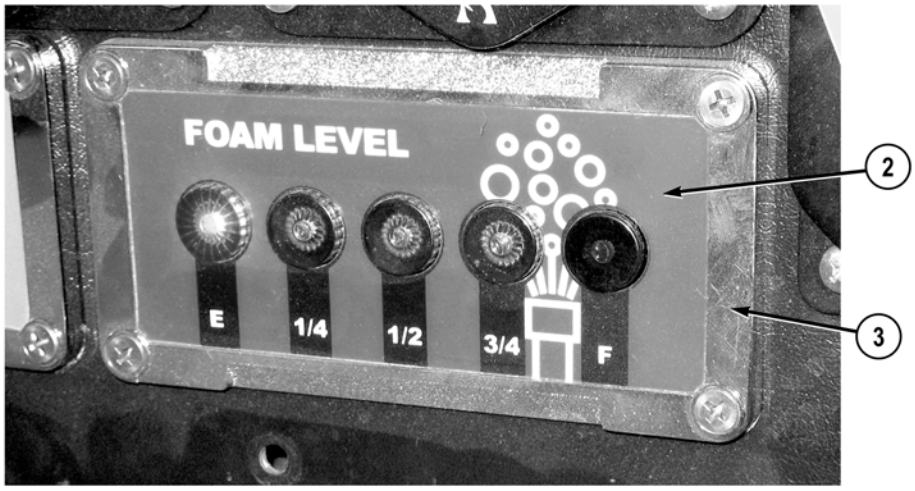
NOTE

Use any container of water deep enough to allow the level probe to be submerged to the Top (Full) position may be used.

9. Submerge foam level probe (1) in water to 1/4 mark.



10. Rotate adjusting screw (4) on foam level gauge (3) until foam level gauge 1/4 indicator lamp (5) is lit.
11. Submerge foam level probe (1) in water to middle line - 1/2 full mark.
12. Rotate adjusting screw (6) on foam level gauge (3) until foam level gauge 1/2 indicator lamp (7) is lit.
13. Submerge foam level probe (1) in water to 3/4 mark.
14. Rotate adjusting screw (8) on foam level gauge (3) until foam level gauge 3/4 indicator lamp (9) is lit.
15. Submerge foam level probe (1) in water to top (full) mark.
16. Rotate adjusting screw (10) on foam level gauge (3) until foam level gauge F indicator lamp (11) is lit.
17. Turn battery disconnect to OFF position (WP 0007).



18. Install cover (2) on foam level gauge (3).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close pump operator’s panel cover (WP 0019)
2. Install foam tank level probe (WP 0281)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

HYDRAULIC GENERATOR COMPENSATOR ADJUSTMENT

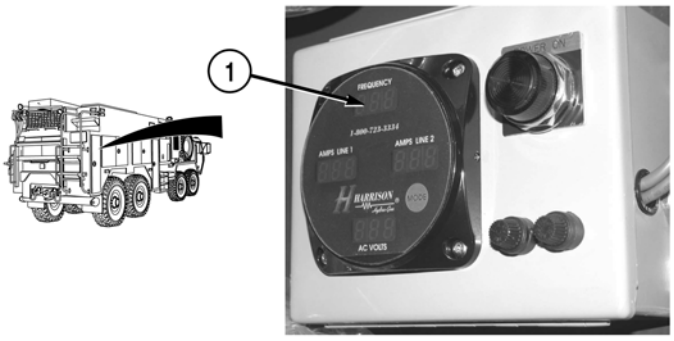
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0021
WP 0615, Fig. 179

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

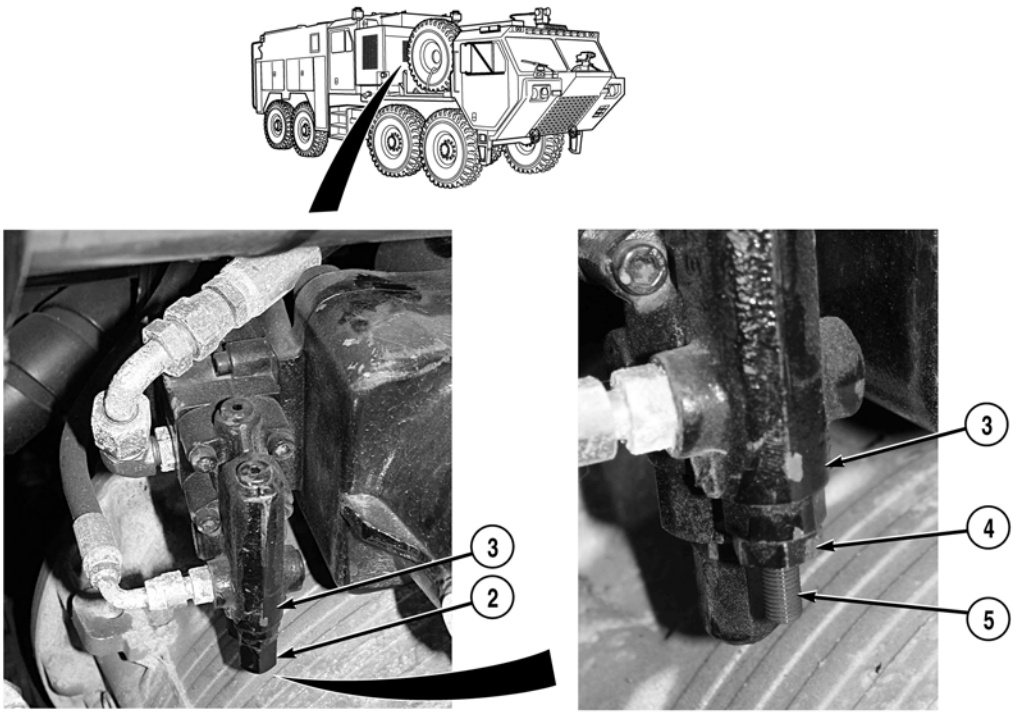
ADJUSTMENT



NOTE

Frequency should be between 59-62 hertz loaded and unloaded.

1. With no load on generator system, check frequency on display (1) (WP 0021).
2. Load generator system and check frequency again on display (1) (WP 0021).



CAUTION

Prior to adjustment, ensure generator system is unloaded and hydraulic pump is within rpm operating parameters. Failure to comply may cause damage to equipment.

3. Unload generator system (WP 0021).
4. Remove cap (2) from hydraulic compensator (3).
5. Loosen jamnut (4).
6. Holding jamnut (4), adjust adjusting screw (5) to proper setting.
7. Holding adjusting screw (5), tighten jamnut (4).
8. Install cap (2) from hydraulic compensator (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PRESSURE GOVERNOR ADJUSTMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Equipment Conditions
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)
Pump operator's panel cover opened (WP 0019)

NOTE

There are three parameters that can be adjusted to control pressure governor operations. They are RAMP, GAIN, and SENSITIVITY.

- RAMP adjusts the change in voltage when the INC (increase) or DEC (decrease) switch is pressed.
- GAIN adjusts how quickly the voltage will change independently, in response to a pressure change or when the present switch is being used. To slow the response time, decrease the value.
- SENSITIVITY adjusts how much pressure variance is allowed before the governor will respond. The present value of "5" allows for approximately 5 psi variance before the governor will adjust back to the set pressure. Rarely should this value ever exceed "7". The higher the value, the greater the variance in pressure.

NOTE

The governor control panel comes from the factory with all three of these parameters set at "5". These parameters are reset by Pierce Manufacturing as follows:

Table 1. Personnel Cab Governor Control

RAMP	6
GAIN	6
SENSITIVITY	5

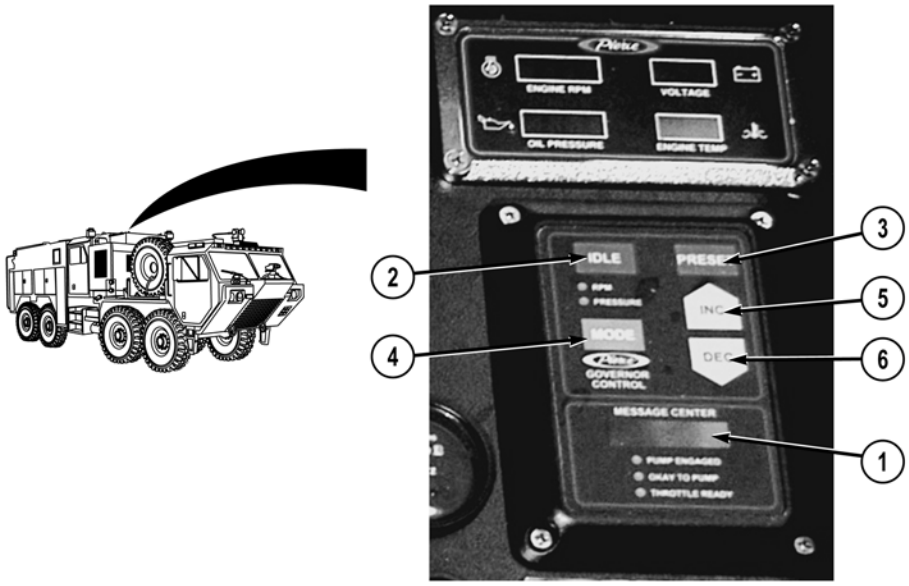
Table 2. Pump Operator's Panel Governor Control

RAMP	3
GAIN	7
SENSITIVITY	5

NOTE

Personnel cab and pump operator's panel governor controls are adjusted the same way. Pump operator's panel governor control shown.

PRESSURE GOVERNOR RAMP ADJUSTMENT



1. With MODE displayed in MESSAGE CENTER (1), press and hold IDLE switch (2) and PRESET switch (3), and press MODE switch (4).
2. Release IDLE switch (2) and PRESET switch (3) and press MODE switch (4) until RAMP is displayed in MESSAGE CENTER (1).
3. Press INC (increase) switch (5) to select RAMP.

NOTE

- Adjustments to pressure governor controls should be made in small increments.
- Note value of RAMP.

4. Press DEC (decrease) switch (6), and decrease RAMP by one count.
5. Press PRESENT switch (3).
6. Press IDLE switch (2) to exit program.

END OF TASK

PRESSURE GOVERNOR GAIN ADJUSTMENT

1. With MODE displayed in MESSAGE CENTER (1), press and hold IDLE switch (2) and PRESET switch (3), and press MODE switch (4).
2. Release IDLE switch (2) and PRESET switch (3) and press MODE switch (4) until GAIN is displayed in MESSAGE CENTER (1).
3. Press INC (increase) switch (5) to select GAIN.

NOTE

- Adjustments to pressure governor controls should be made in small increments.
- Note value of GAIN.

4. Press DEC (decrease) switch (6), and decrease GAIN by one count.
5. Press PRESET switch (3).
6. Press IDLE switch (2) to exit program.

END OF TASK

PRESSURE GOVERNOR SENSITIVITY ADJUSTMENT

1. With MODE displayed in MESSAGE CENTER (1), press and hold IDLE switch (2) and PRESET switch (3), and press MODE switch (4).
2. Release IDLE switch (2) and PRESET switch (3), and press MODE switch (4) until SENSITIVITY is displayed in MESSAGE CENTER (1).
3. Press INC (increase) switch (5) to select SENSITIVITY.

NOTE

- Adjustments to pressure governor controls should be made in small increments.
- Note value of SENSITIVITY.

4. Using INC (increase) switch (5), increase SENSITIVITY by one count.
5. Press PRESET switch (3).
6. Press IDLE switch (2) to exit program.

END OF TASK

PRESSURE GOVERNOR PRESET PSI ADJUSTMENT

NOTE

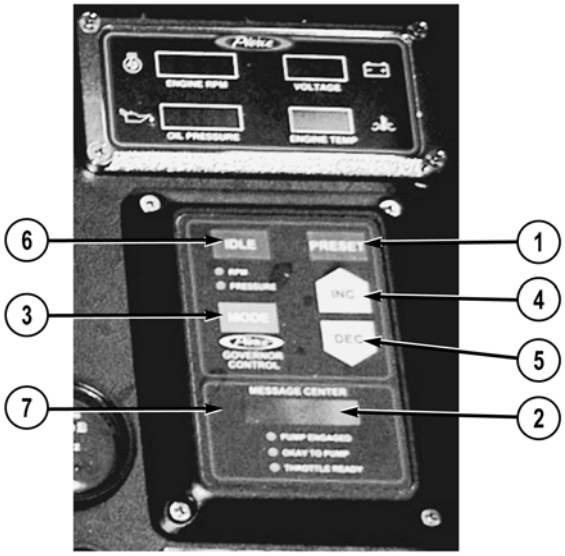
- RPM and PSI are parameters that may be preset and adjusted by the pressure governor control panel. The preset programming mode is enabled when the PRESET switch is held for 10 seconds, after power is applied to the governor control panel. RPM presets are not used.
- The RPM and PSI preset parameters are set by Pierce Manufacturing as follows:

Table 3. Personnel Cab Governor Control

RPM	None
PSI	225

Table 4. Pump Operator's Panel Governor Control

RPM	None
PSI	125



1. Press and hold PRESET switch (1) until PRESET is displayed in MESSAGE CENTER (2).
2. Press MODE switch (3) until PSI PRESET is displayed in MESSAGE CENTER (2).
3. Adjust the governor control panel PSI PRESET value by using INC switch (4) and DEC switch (5) until desired PSI is displayed.
4. Press PRESET switch (1) to store value. MESSAGE CENTER (2) will display STORING.

5. Press IDLE switch (6) to save PSI preset to memory. MESSAGE CENTER (2) will display UPDATING. When updating is complete, MODE will be displayed in MESSAGE CENTER (2), and governor control panel (7) is returned to operational conditions.
6. Press MODE switch (3) until PSI is displayed in MESSAGE CENTER (2).
7. Press PRESET switch (1) to check value of PSI PRESET.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close pump operator's panel (WP 0019)
2. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE COMPRESSION TEST

INITIAL SETUP:

Tools and Special Tools
Cap Set, Protective (WP 0622, Item 3)
Compression Tester (WP 0622, Item 4)
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
WP 0004
WP 0007
WP 0616, Repair Kits

Equipment Conditions
Water pump engine fuel injectors removed (WP 0233)
Crew cab, access panel, passenger side removed (WP 0499)
Pump house panel O removed (WP 0540)

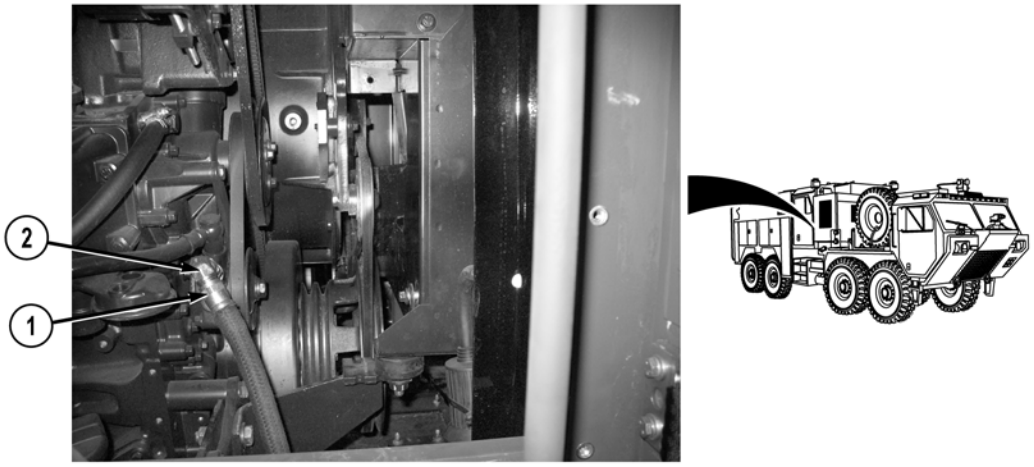
TEST

WARNING

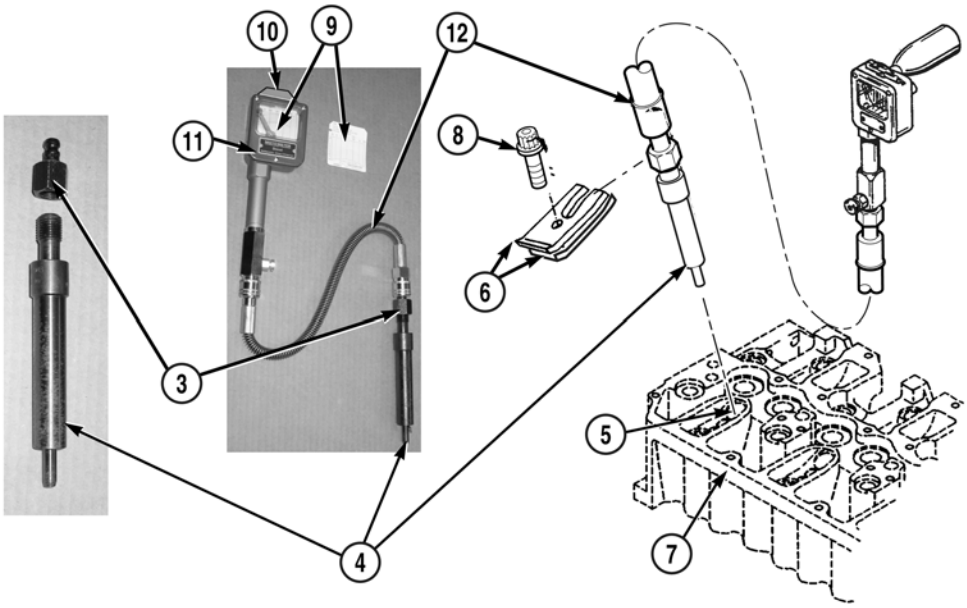
Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.

NOTE

- Fuel line must be removed before starting compression test.
- Position suitable drain pan under fitting and fuel line.
- Cap and plug fuel line upon removal.



1. Remove fuel line (1) from elbow (2).



2. Install adapter (3) on connector (4).
3. Insert connector (4) in injector port (5).
4. Install two clamping pads (6) on connector (4) and cylinder head (7) with screw (8). Tighten screw to 16 N•m.
5. Install recording chart (9) on chart holder (10).
6. Install chart holder (10) on compression tester (11).
7. Install extension hose (12) in compression tester (11).

8. Install extension hose (12) on adapter (3).
9. Turn battery disconnect switch to ON position (WP 0007).
10. With the aid of an assistant, put START PUMP SWITCH to START position (WP 0004) and record reading from compression tester (11).

NOTE

Compression pressure, as measured in this procedure, is dependent on starter speed during the measuring process and altitude at which measurement is taken. Because of this, precise compression values are difficult to specify. Use these measurements only for comparing compression pressures of all cylinders in engine. If a pressure variance of greater than 15% is discovered, notify Supervisor.

11. Remove screw (8), two camping pads (6), and connector (4) from cylinder head (7).
12. Repeat Steps (2) through (11) for remaining five cylinders.

WARNING

Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.

13. Install fuel line (1) on elbow (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install water pump engine fuel injectors (WP 0233)
2. Install pump house panel O (WP 0540)
3. Install crew cab access panel, passenger side (WP 0499)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE COOLANT/FUEL PUMP BELTS ADJUSTMENT

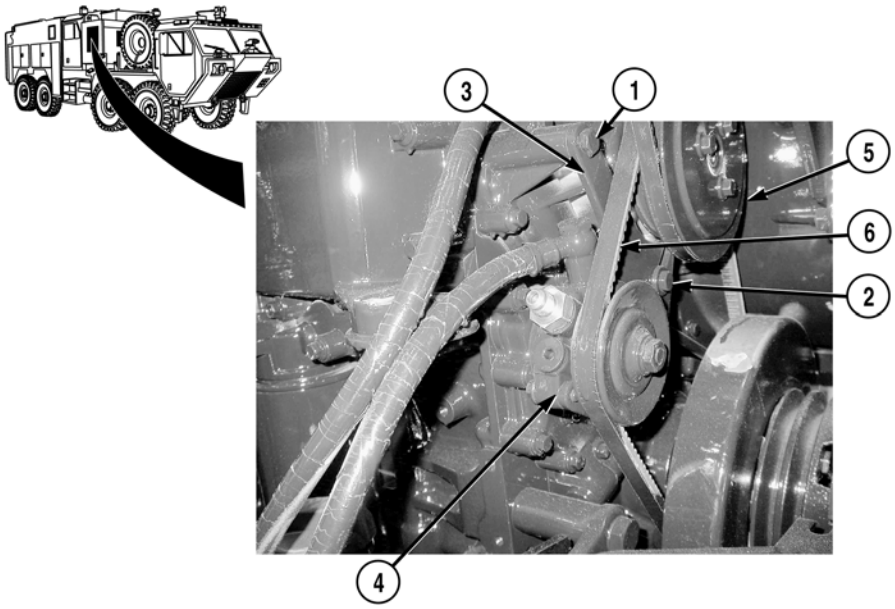
INITIAL SETUP:

Tools and Special Tools
Gauge, Belt Tensioner (WP 0622, Item 16)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

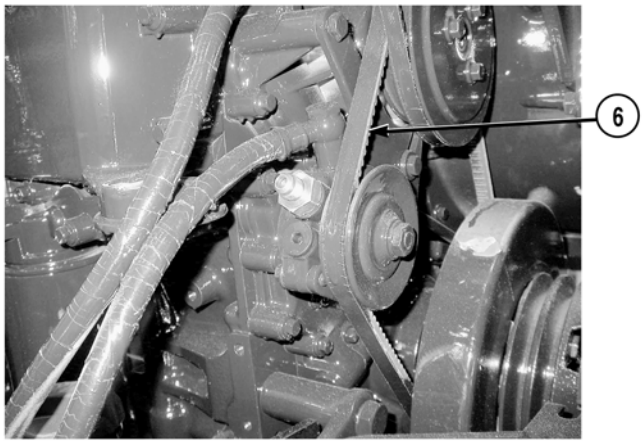
References
WP 0615, Fig. 17

Equipment Conditions
Pump house panels U and J removed (WP 0540)
Water pump engine heat exchanger removed (WP 0240)
Water pump engine alternator belt removed (WP 0224)

ADJUSTMENT



1. Loosen two screws (1) and (2) on fuel pump bracket (3).
2. Push fuel pump (4) toward coolant pump pulley (5) and tighten fuel pump drive belt (6) to 101 lb-ft (450 N•m) as indicated by V-belt tension gauge.
3. Hold fuel pump (4) in position and tighten two screws (1) and (2).



NOTE

- Use the suggested tension setting for initial tensioning. Run water pump engine under load for 15 minutes, shut down and readjust belt tension.
- Suggested belt tensions have a range of +/- 11 lb-ft (15 N•m).

4. Start pump engine and run under load for 15 minutes.
5. Shut down engine and readjust fuel pump drive belt (6) tension to 67 lb-ft (300 N•m), as indicated by V-belt tension gauge.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install water pump engine alternator belt (WP 0224)
2. Install water pump engine heat exchanger (WP 0240)
3. Install pump house panels J and U (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE VALVE LASH ADJUSTMENT AND INJECTION NOZZLE PRESSURE CHECK

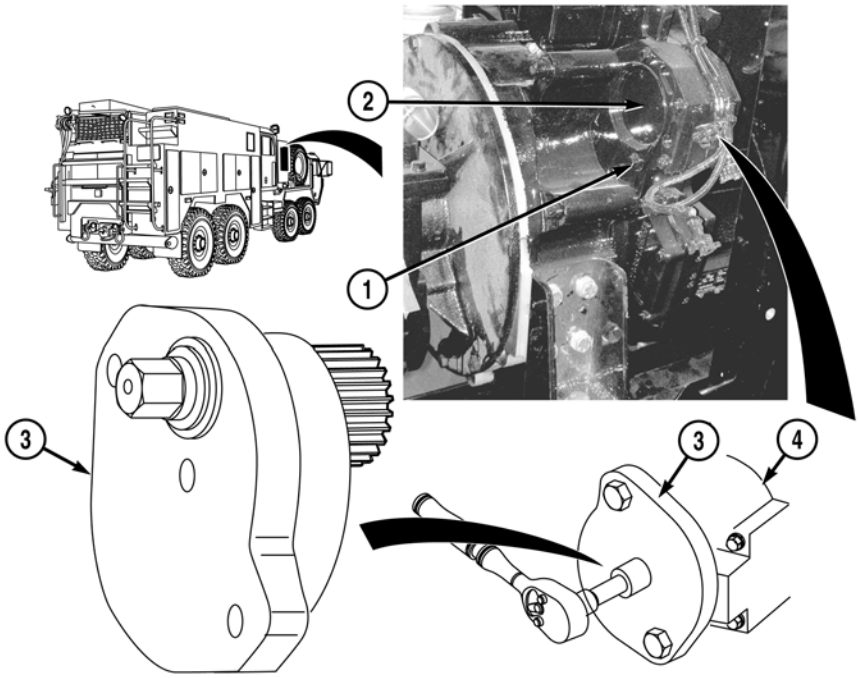
INITIAL SETUP:

Tools and Special Tools
- Compression Tester (WP 0622, Item 4)
- Compression Tester Connector (WP 0622, Item 5)
- Engine Turning Gear (WP 0622, Item 12)
- Extractor Handle, Injector (WP 0622, Item 13)
- Extractor, Injector (WP 0622, Item 14)
- Feeler Gauge (WP 0622, Item 15)
- Injector Assembly Tool (WP 0622, Item 18)
- Injector Nozzle Tester (WP 0622, Item 19)
- Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)
- Torx Tool Kit (WP 0622, Item 28)

References
- WP 0233

Equipment Conditions
- Pump house panels removed (WP 0540)
- Pump panel housing opened (WP 0325)
- Water pump engine noise panel removed (WP 0242)
- Water pump engine valve cover removed (WP 0251)

VALVE CLEARANCE ADJUSTMENT



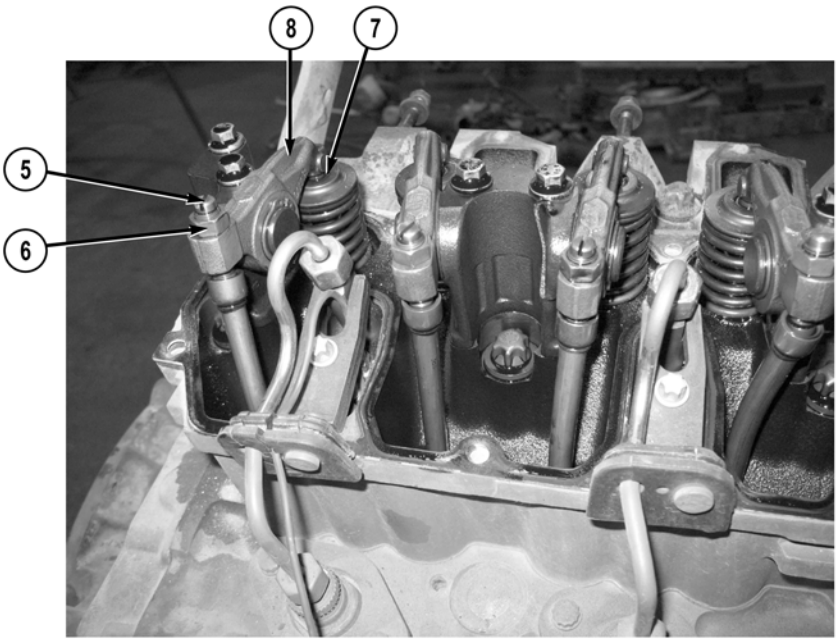
WARNING

Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply could result in serious injury to personnel.

NOTE

- Adjust valve clearance with engine cold or allow engine to cool for at least one half hour to lower engine oil temperature to 176ºF (80ºC) or less.
- Increase valve clearance by 0.0039 in. (0.1 mm) at every cylinder head gasket renewal.
- Adjust standard valve clearance after engine completes 100 hours of operation.
- Valve overlap occurs when exhaust valve is about to close and intake valve is about to open. Pushrods cannot be turned in this position.

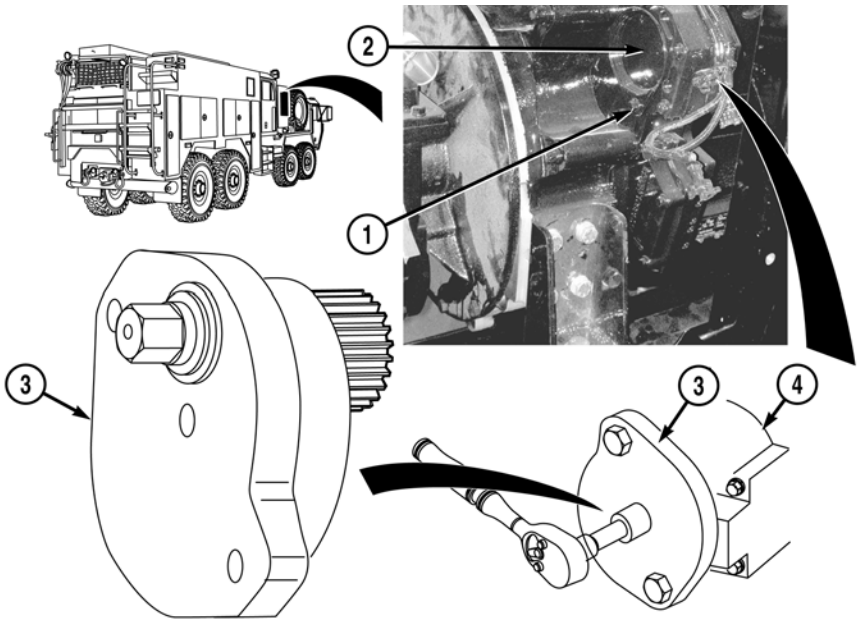
1. Remove screw (1) and timing gear cover (2) from engine, and attach turning gear tool (3) to timing gear (4).



NOTE

- Inlet and exhaust valve clearances are adjusted the same way.
- Use a 0.012 in. (0.3 mm) feeler gauge to adjust inlet valve clearance.
- Use a 0.02 in. (0.5 mm) feeler gauge to adjust exhaust valve clearance.
- Repeat Steps (2) through (5) for each valve to be adjusted.

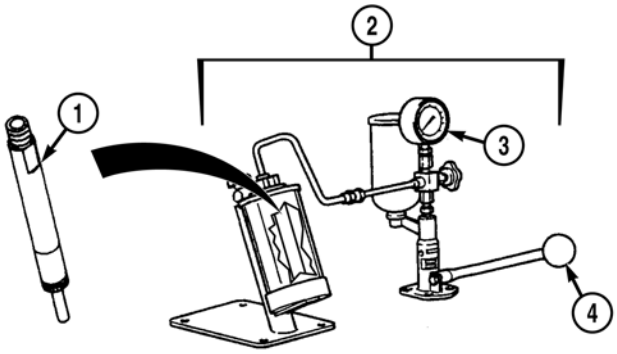
2. Hold screw (5) stationary with screwdriver, and loosen locknut (6).
3. Insert feeler gauge between valve stem (7) and rocker arm (8) to check clearance.
4. Turn screw (5) to adjust valve clearance until slight drag is felt on feeler gauge.
5. Hold screw (5) stationary with screwdriver, and tighten locknut (6) to 13 to 16 lb-ft (18 to 22 N•m).



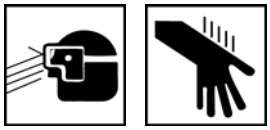
6. Remove turning gear tool (3) from timing gear (4), and reinstall timing gear cover (2) with screw (1).

END OF TASK

INJECTION NOZZLE PRESSURE CHECK



WARNING

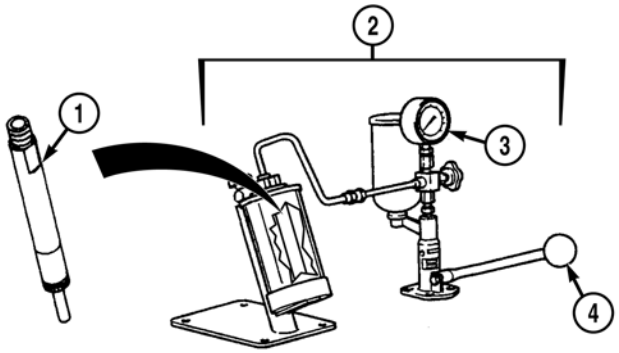


Beware of injector nozzle fuel jet. High-pressure spray can penetrate deeply into skin, causing blood poisoning. Failure to comply may result in serious injury to personnel.

NOTE

- Absolute cleanliness is required when working on injection equipment.
- Use only pure test oil or clean diesel fuel for testing.

1. Connect injector (1) to injector nozzle tester (2).
2. Switch pressure gauge (3) on.



NOTE

- Read opening pressure at the point where pressure gauge pointer stops or suddenly drops.
- If no other nozzle problems are discovered, pressure readings from 275 to 283 bars indicate nozzle can be reused.

3. Press nozzle tester lever (4) down and observe reading on pressure gauge (3).
4. Release pressure.
5. Replace injector (1) if pressure readings fall outside of the 275 to 283 bar range.

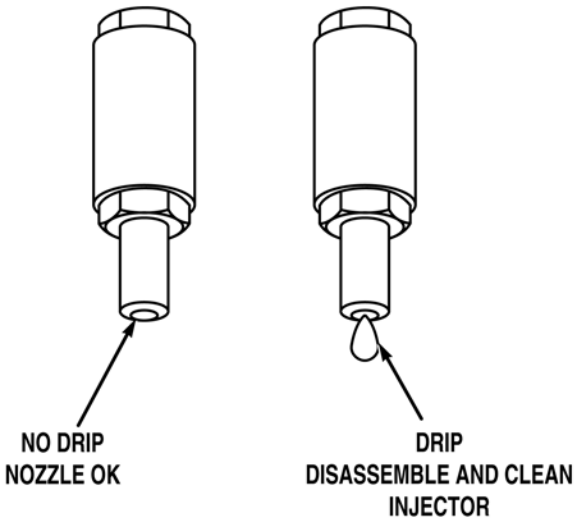
END OF TASK

INJECTION NOZZLE CLOSURE TIGHTNESS CHECK

NOTE

Dry injector nozzle thoroughly and blow out with clean compressed air before beginning this check.

1. Connect injector (1) to nozzle tester (2).
2. Switch pressure gauge (3) on.
3. Press nozzle tester lever (4) down until pressure gauge (3) reads 255 to 263 bars. Maintain this pressure for at least 10 seconds.



4. If no drips appear in 10 seconds, then injector nozzle is tight and functioning properly.
5. If nozzle drips, injector (1) must be disassembled, cleaned, and re-tested.
6. If nozzle continues to drip, injector (1) must be replaced.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install water pump engine valve cover (WP 0251)
2. Install water pump engine noise panel (WP 0242)
3. Close pump panel housing (WP 0325)
4. Install pump house panels (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER BINARY SWITCH REPLACEMENT

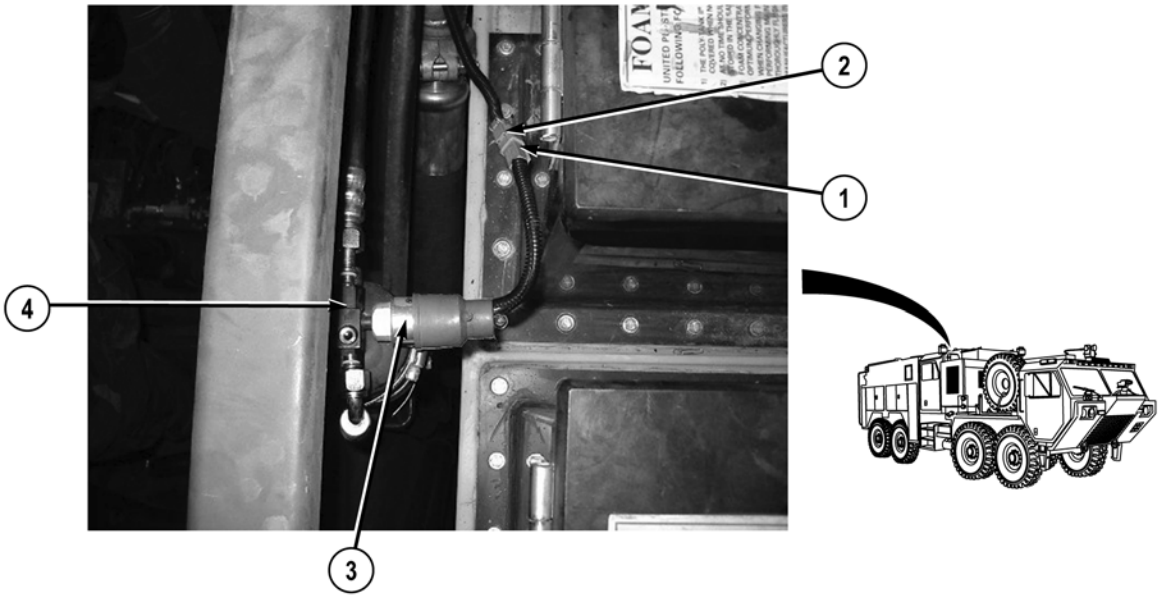
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0614, Fig. 8

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

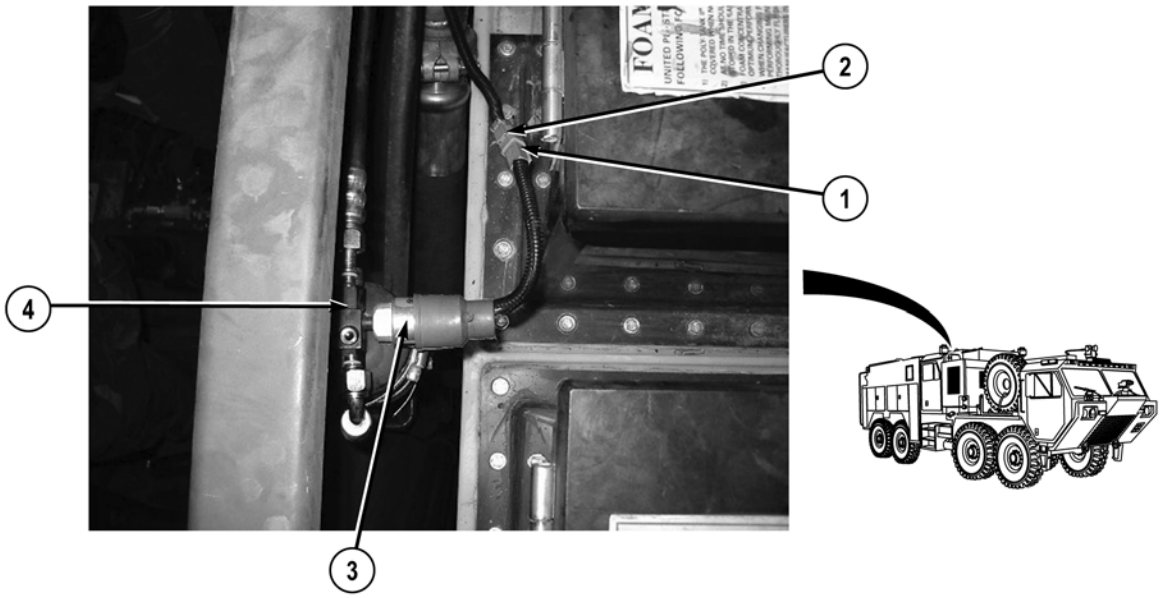
REMOVAL



1. Disconnect binary switch connector (1) from crew cab wire harness connector (2).
2. Remove binary switch (3) from dryer (4).

END OF TASK

INSTALLATION



1. Install binary switch (3) on dryer (4).
2. Connect crew cab wire harness connector (2) to binary switch connector (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER COMPRESSOR DRIVE BELT REPLACEMENT

INITIAL SETUP:

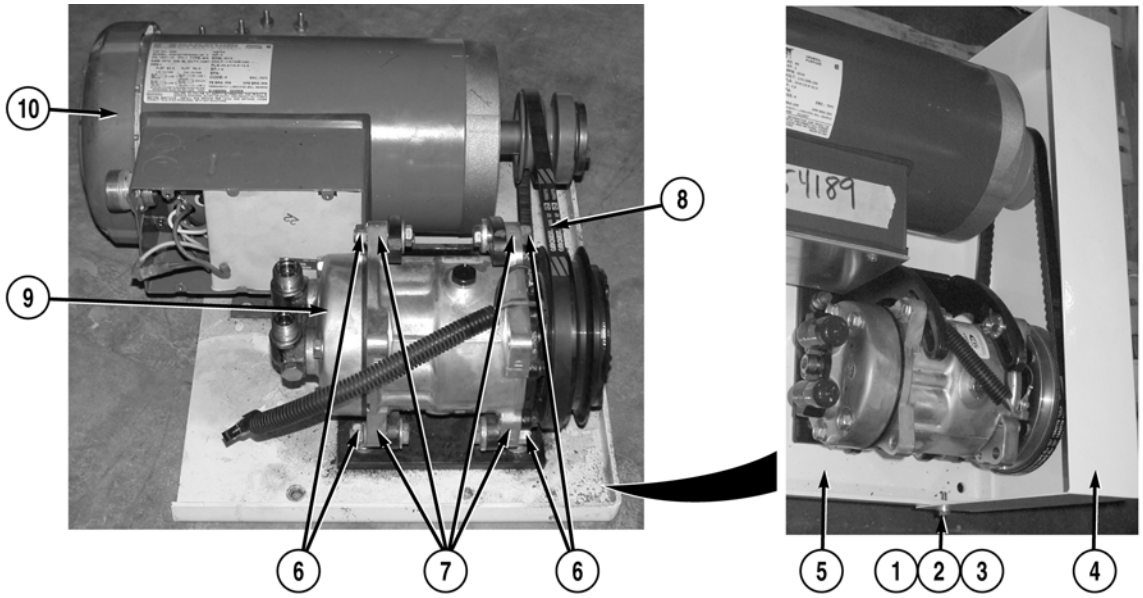
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Lockwasher (4)

References
WP 0189
WP 0614, Fig. 6

Equipment Conditions
Crew cab air conditioner compressor assembly removed (WP 0210)

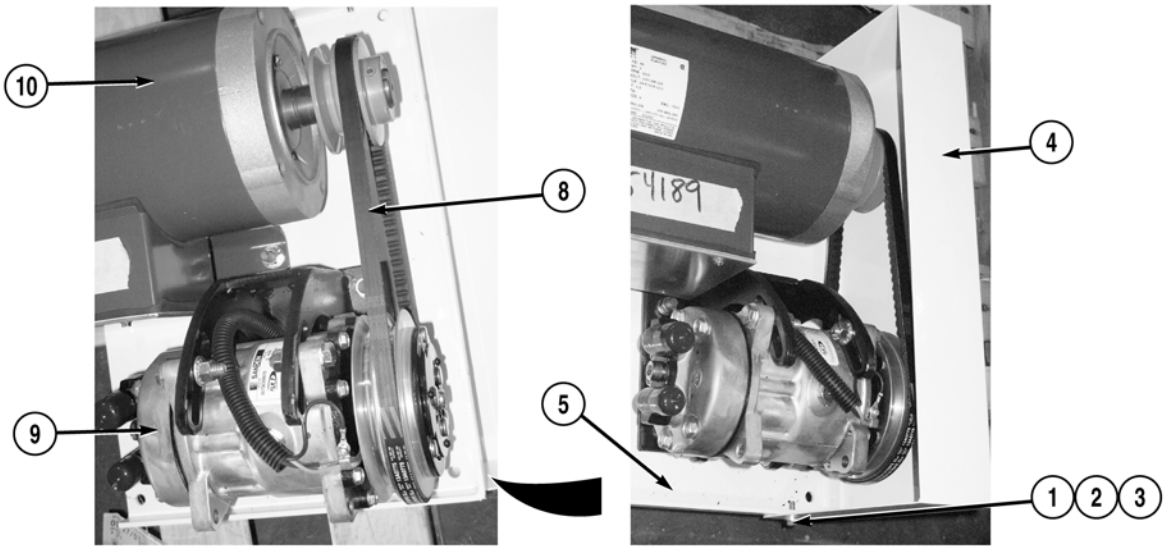
REMOVAL



1. Remove four screws (1), lockwashers (2), washers (3), and guard (4) from base (5). Discard lockwashers.
2. Loosen four locknuts (6) on bracket (7).
3. Loosen drive belt (8) by pushing motor (9) toward compressor (10).
4. Remove drive belt (8) from compressor (10) and motor (9).

END OF TASK

INSTALLATION



1. Install drive belt (8) on motor (9) and compressor (10).
2. Adjust drive belt (8) as necessary (WP 0189).
3. Install guard (4) and base (5) with four washers (3), lockwashers (2), and screws (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install crew cab air conditioner compressor assembly (WP 0210)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER CONDENSER FAN ASSEMBLIES REPLACEMENT

INITIAL SETUP:

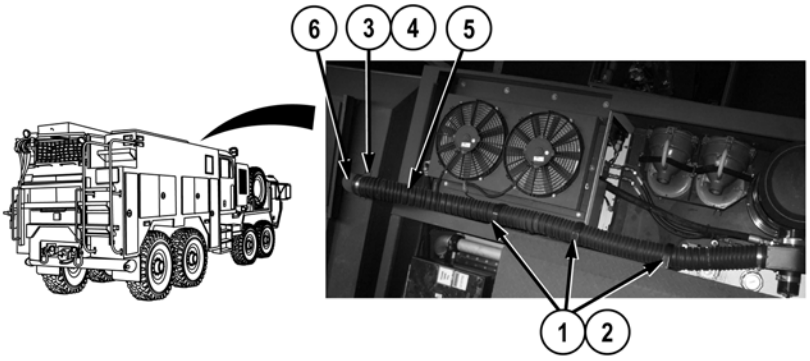
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials
Tags, Identification (WP 0625, Item 51)
Locknut (8)

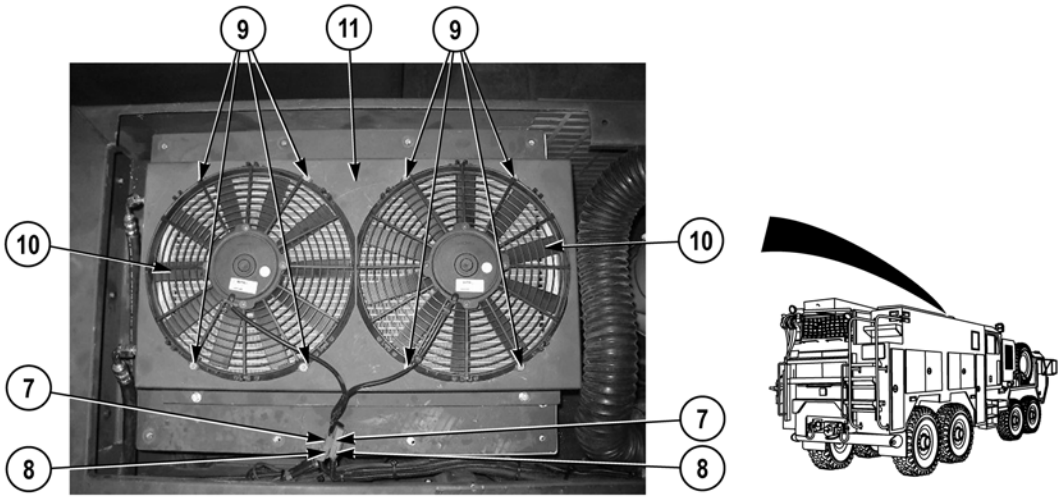
References
WP 0614, Fig. 8

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

REMOVAL



1. Remove three screws (1) and clamps (2) from vehicle.
2. Loosen screw (3) and remove clamp (4) and hose (5) from elbow (6).
3. Move hose (5) out of the way.



NOTE

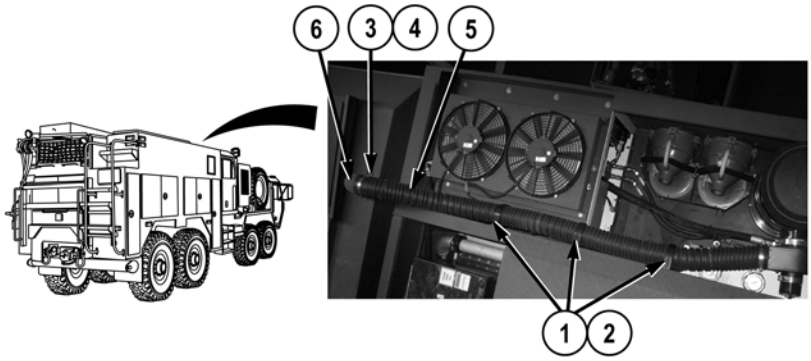
Tag and mark connectors prior to removal to ensure proper installation.

4. Disconnect two air conditioner condenser fan connectors (7) from crew cab wire harness connectors (8).
5. Remove eight locknuts (9) and two fan assemblies (10) from condenser assembly (11). Discard locknuts.

END OF TASK

INSTALLATION

1. Install two fan assemblies (10) on condenser assembly (11) with eight locknuts (9).
2. Connect two crew cab wire harness connectors (8) to air conditioner condenser fan connectors (7).



3. Install hose (5) and clamp (4) on elbow (6) and tighten screw (3).
4. Install three clamps (2) on vehicle with three screws (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER/HEATER BLOWER MOTOR REPLACEMENT

INITIAL SETUP:

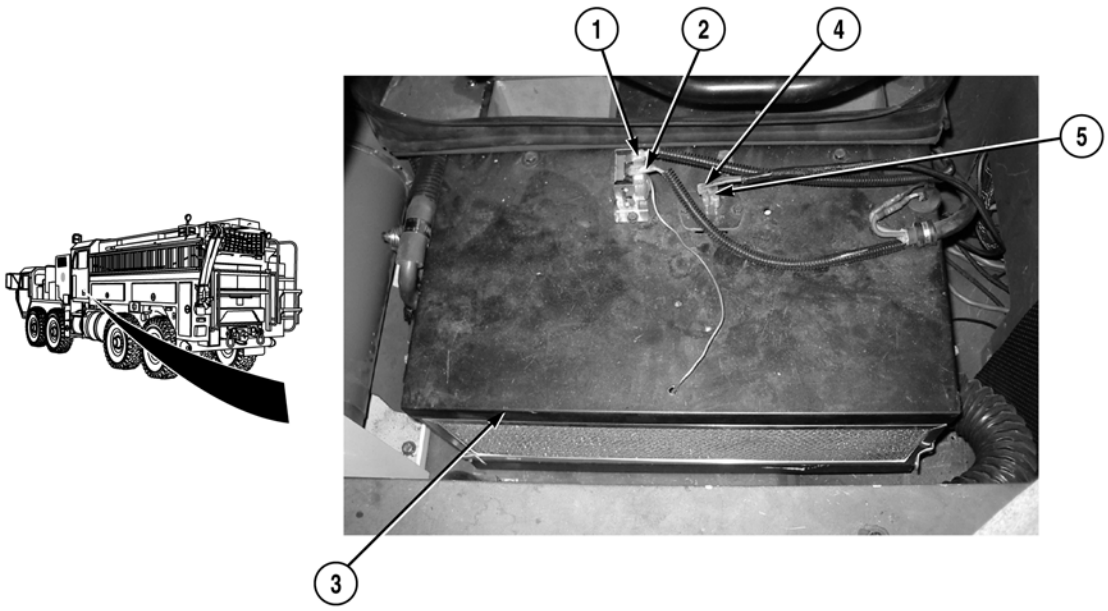
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)

References
WP 0614, Fig. 7

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)

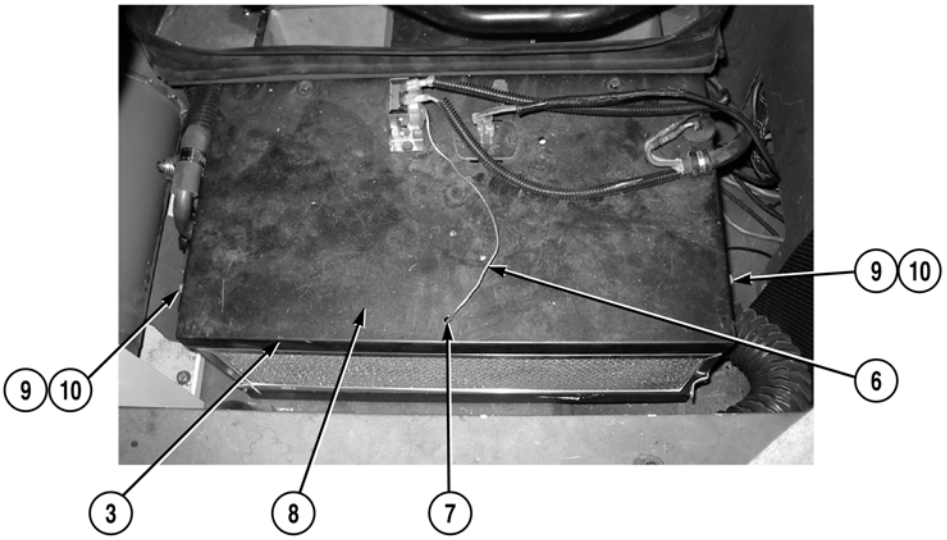
REMOVAL



NOTE

Tag and mark wires prior to removal to ensure proper installation.

1. Remove two connectors (1) and (2) from air conditioner/heater assembly (3).
2. Remove two connectors (4) and (5) from air conditioner/heater assembly (3).



CAUTION

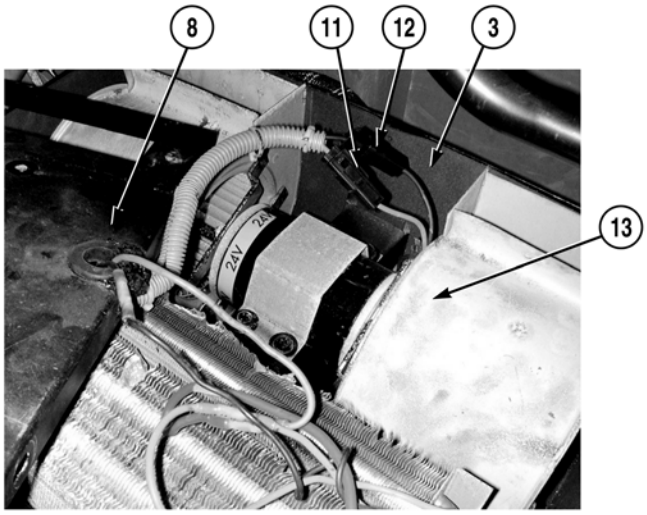
Slide temperature probe slowly from air conditioner/heater assembly. Failure to comply may result in damage to probe.

3. Remove temperature probe (6) from grommet (7) and cover (8).

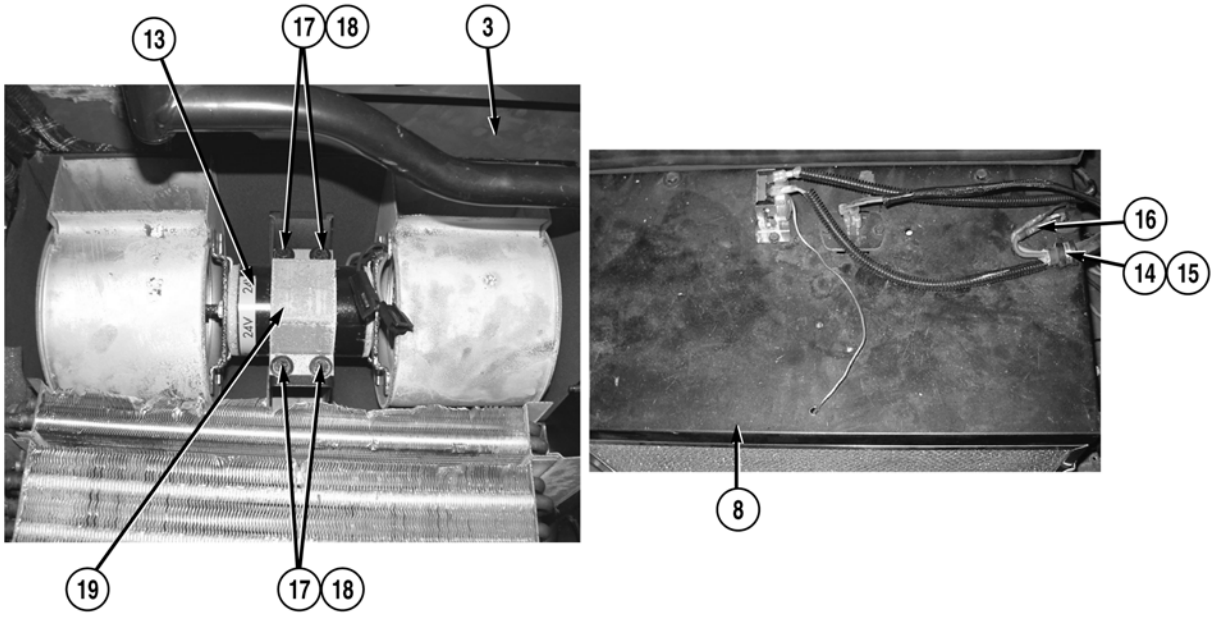
CAUTION

Wires are still attached to cover. Only lift cover enough to access wires under cover. Failure to comply may result in damage to equipment.

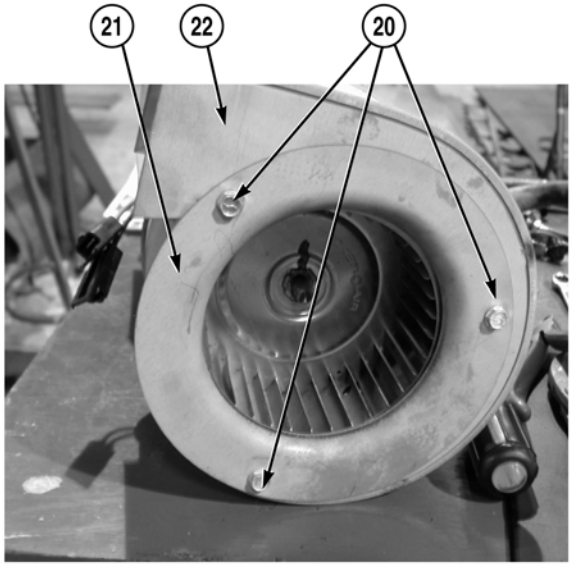
4. Remove four screws (9) and washers (10) from air conditioner/heater assembly (3).



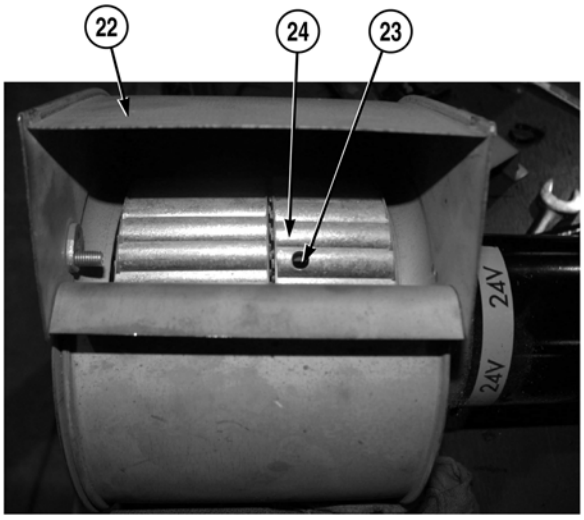
5. Lift cover (8) from air conditioner/heater assembly (3) only enough to access connectors (11) and (12), and remove two connectors (11) and (12) from blower motor assembly (13), and remove cover (8).



6. Remove screw (14), clamp (15), and wiring harness (16) from cover (8).
7. Remove four screws (17), washers (18), and motor retainer (19) from blower motor assembly (13).
8. Remove blower motor assembly (13) from air conditioner/heater assembly (3).



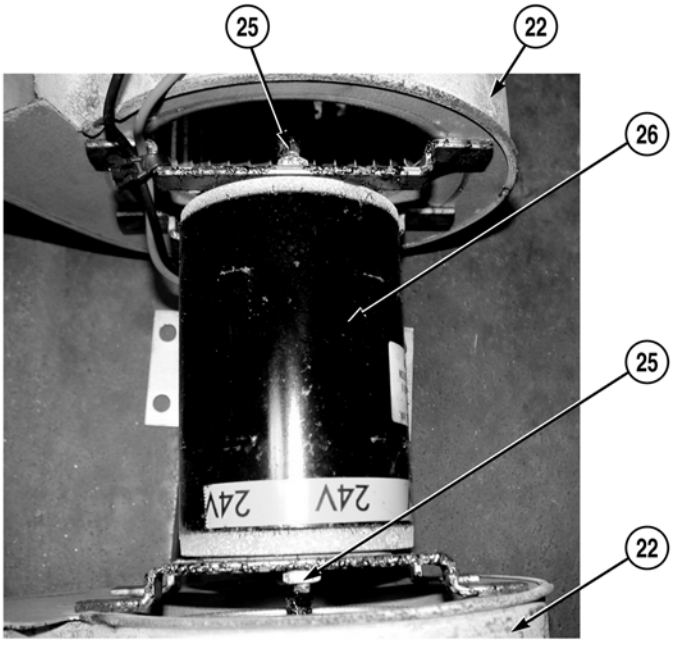
9. Remove three screws (20) and end cover (21) from blower housing (22).



NOTE

- Remove cable ties as required.
- Remove set screw for blower through end hole in blower.
- Both end covers, blowers, and blower housings are removed the same way.

10. Remove set screw (23) and blower (24) from blower housing (22).

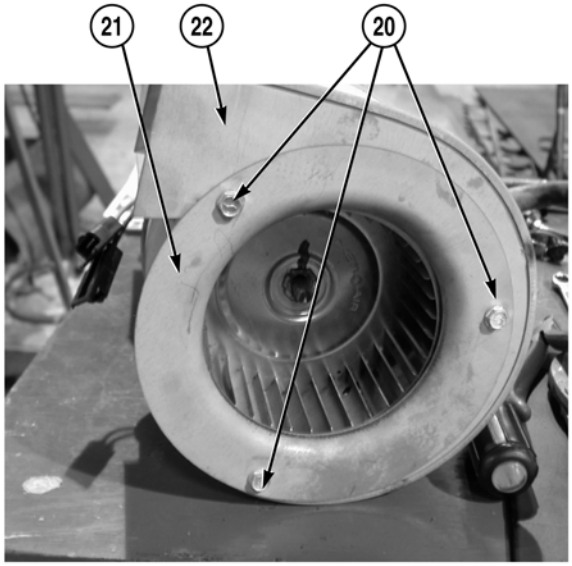


11. Remove two nuts (25) and blower housing (22) from blower motor (26).

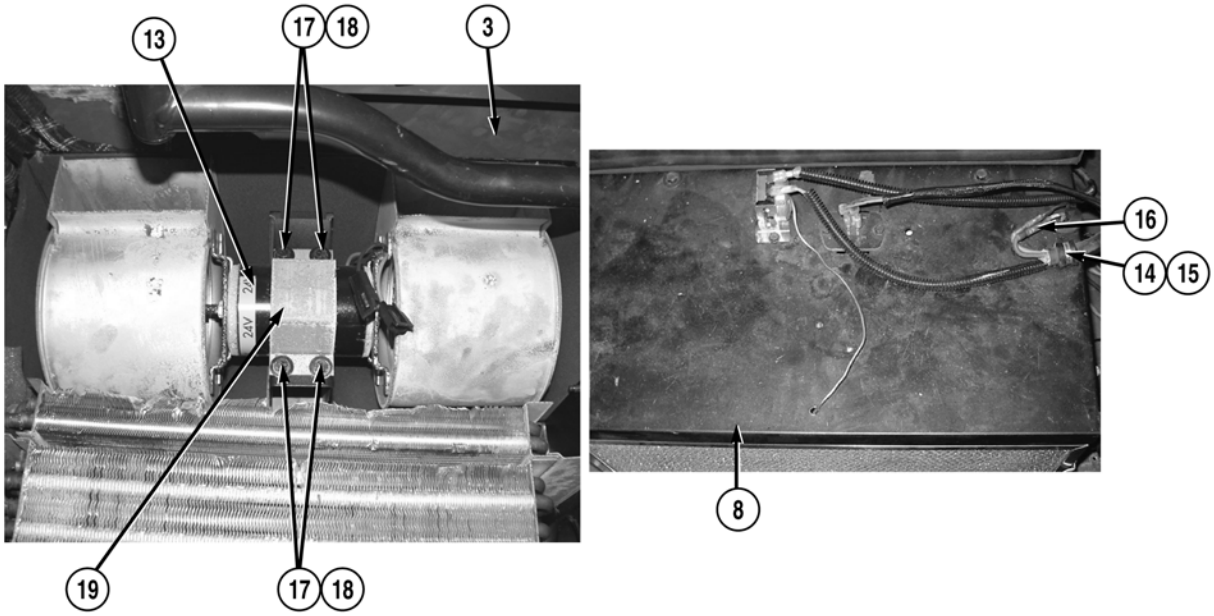
END OF TASK

INSTALLATION

1. Install set screw through access hole in blower.
    - Both end covers, blowers, and blower housings are installed the same way.
    - Ensure blowers can rotate without interference after installing blowers and end cover.
    - Install cable ties as required.
2. Install blower housing (22) on blower motor (26) with two nuts (25).
3. Install blower (24) on blower motor housing (22) with set screw (23).

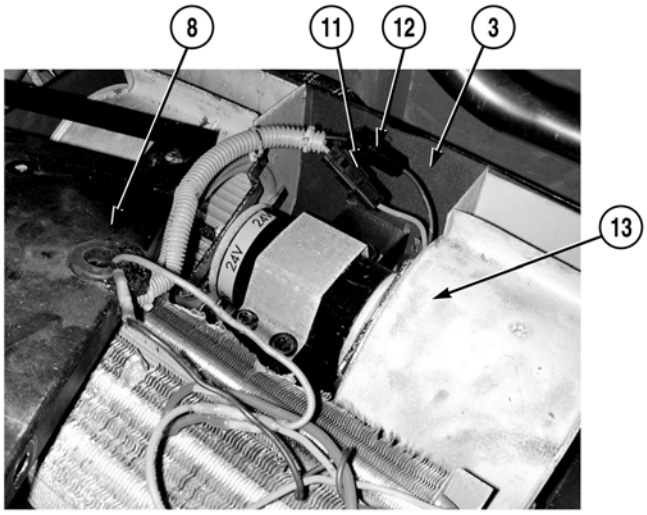


4. Install end cover (21) on blower housing (22) with three screws (20).

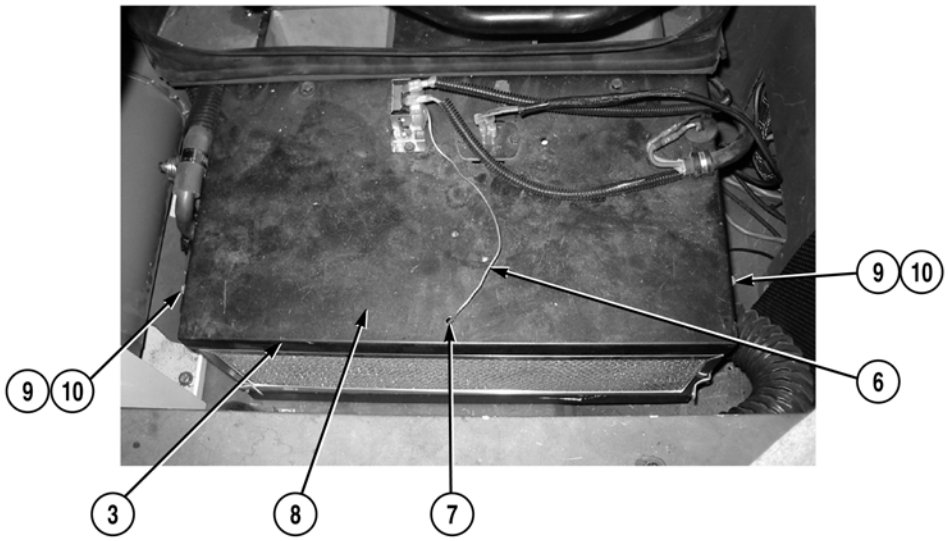


5. Install blower motor assembly (13) in air conditioner/heater assembly (3) with motor retainer (19), four washers (18), and screws (17).

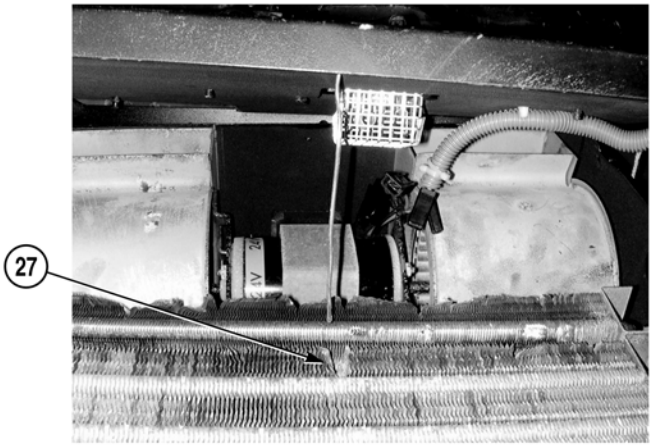
6. Install wire harness (16) and clamp (15) on cover (8) with screw (14).



7. Install two connectors (12) and (11) to blower motor assembly (13).



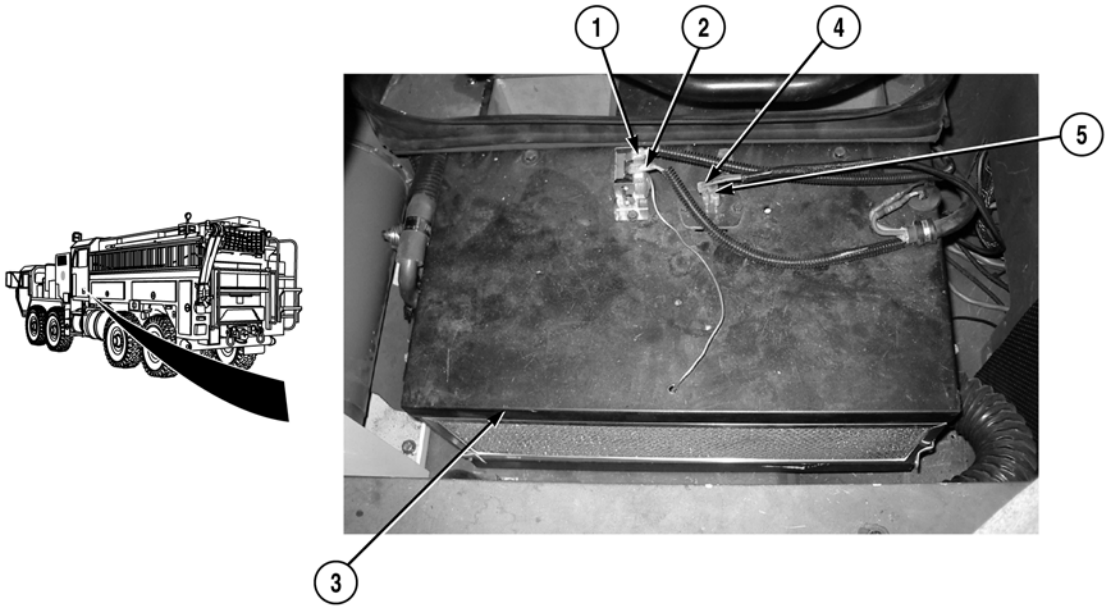
8. Install cover (8) on air conditioner/heater assembly (3) with four washers (10) and screws (9).



⚠ CAUTION

Do not puncture temperature probe. Gas in tube will leak out.

9. Carefully insert temperature probe (6) through grommet (7) and into air conditioner evaporator core (27).



10. Connect two connectors (5) and (4) to air conditioner/heater assembly (3).
11. Connect two connectors (2) and (1) to air conditioner/heater assembly (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER/HEATER CONTROL BOX REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

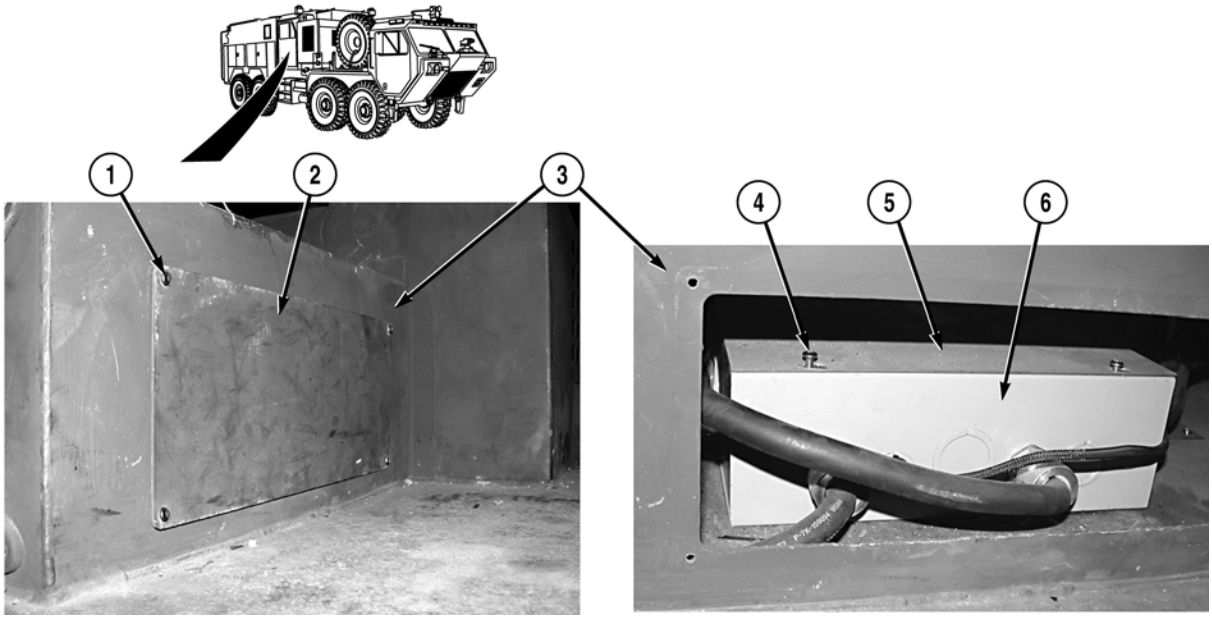
Materials/Parts
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)
Locknut (1)
Locknut (1)
Locknut (2)
Locknut (2)
Locknut (2)
Locknut (2)

Materials/Parts (continued)
Locknut (2)
Locknut (4)
Locknut (1)
Locknut (1)

References
WP 0614, Fig. 6

Equipment Conditions
Batteries disconnected (TM 9-2320-325-14&P)
SCBA (crew cab) passenger side seat removed (WP 0532)

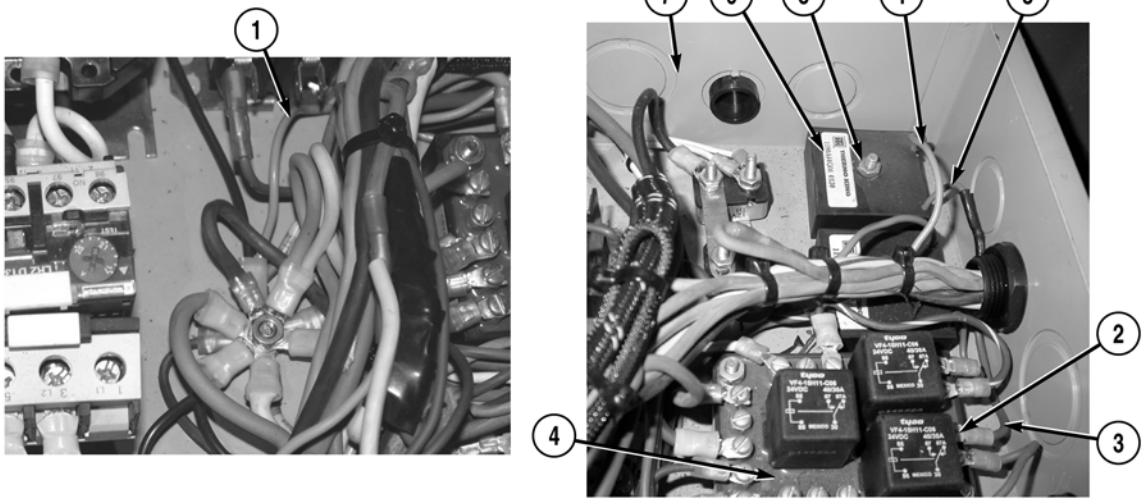
CONTROL BOX ACCESS



1. Remove four screws (1) and front access cover (2) from passenger side seat frame (3).
2. Loosen four screws (4) and remove top access cover (5) from control box (6).

END OF TASK

DELAY TIMER REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Cut wire (1) (TM 9-2320-325-14&P).
2. Loosen screw (2) and remove wire (3) from air conditioning relay module block (4).
3. Remove locknut (5) and delay timer (6) from control box (7). Discard locknut.

END OF TASK

DELAY TIMER INSTALLATION

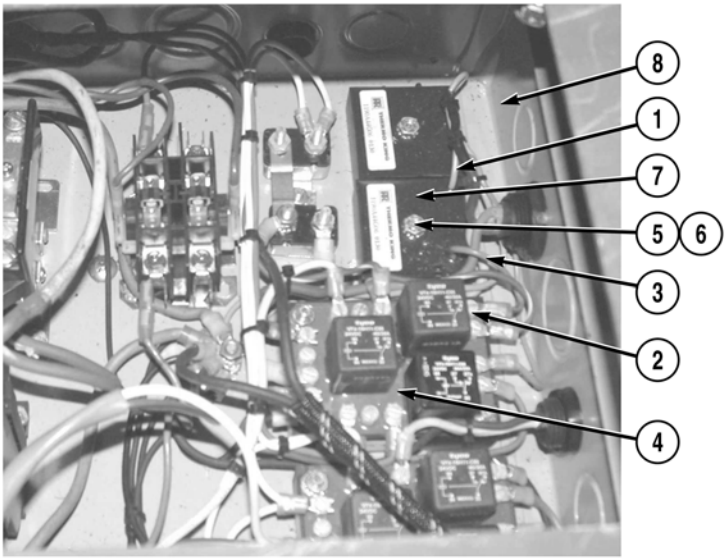
NOTE

Install cable ties as required.

1. Install delay timer (6) in control box (7) with locknut (5).
2. Install wire (3) on air conditioning relay module block (4) and tighten screw (2).
3. Repair wire (1) (TM 9-2320-325-14&P).

END OF TASK

CLUTCH TIMER REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Cut wire (1) (TM 9-2320-325-14&P).
2. Loosen screw (2) and remove wire (3) from air conditioning relay module block (4).
3. Remove locknut (5), washer (6), and clutch timer (7) from control box (8). Discard locknut.

END OF TASK

CLUTCH TIMER INSTALLATION

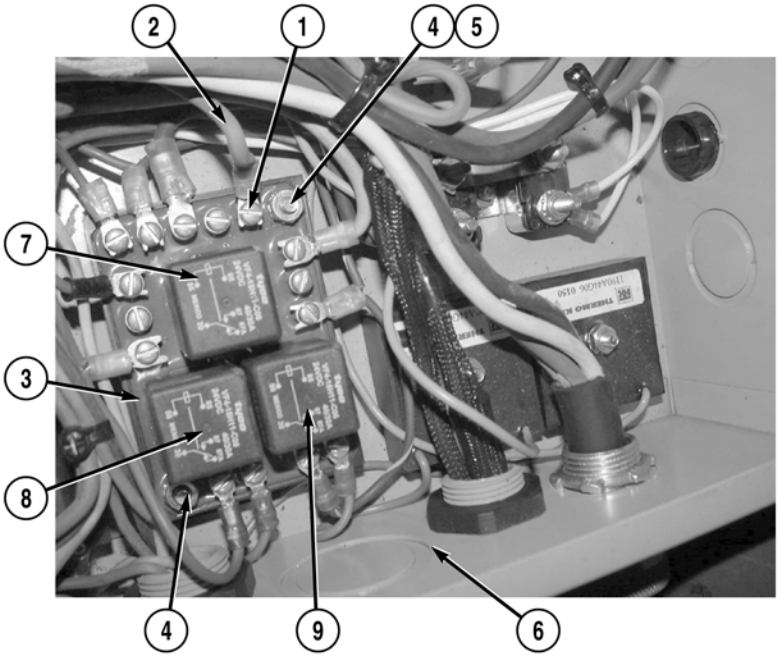
NOTE

Install cable ties as required.

1. Install clutch timer (7) in control box (8) with washer (6) and locknut (5).
2. Install wire (3) on air conditioning relay module block (4) and tighten screw (2).
3. Repair wire (1) (TM 9-2320-325-14&P).

END OF TASK

AIR CONDITIONING RELAY MODULE BLOCK REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Loosen 10 screws (1) and remove wires (2) from air conditioning relay module block (3).
2. Remove two locknuts (4), washers (5), and air conditioning relay module block (3) from control box (6). Discard locknuts.
3. Remove three relays (7), (8), and (9) from air conditioning relay module block (3).

END OF TASK

AIR CONDITIONING RELAY MODULE BLOCK INSTALLATION

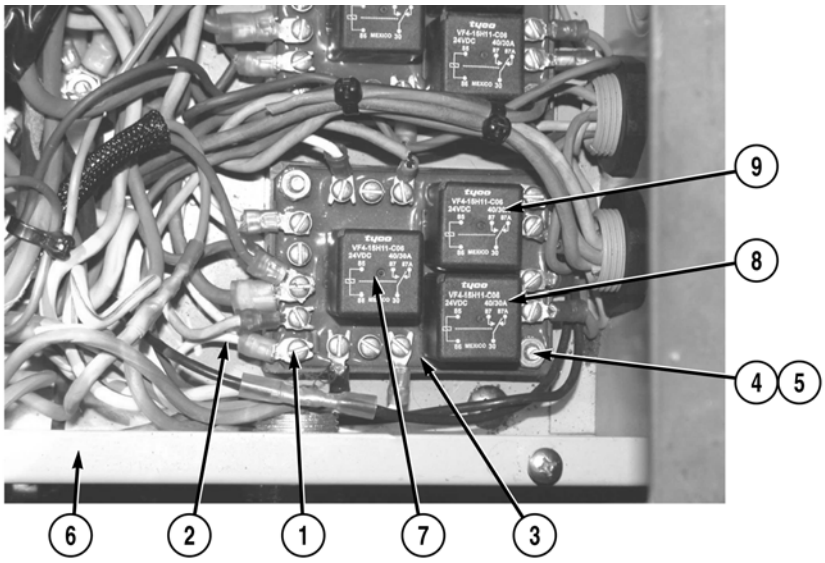
NOTE

Install cable ties as required.

1. Install three relays (7), (8), and (9) on air conditioning relay module block (3).
2. Install air conditioning relay module block (3) in control box (6) with two washers (5) and locknuts (4).
3. Install 10 wires (2) on air conditioning relay module block (3), and tighten 10 screws (1).

END OF TASK

AIR CONDITIONER/HEATER RELAY MODULE BLOCK REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Loosen 12 screws (1) and remove wires (2) from air conditioner/heater relay module block (3).
2. Remove two locknuts (4), washers (5), and air conditioner/heater relay module block (3) from control box (6). Discard locknuts.
3. Remove three relays (7), (8), and (9) from air conditioner/heater relay module block (3).

END OF TASK

AIR CONDITIONER/HEATER RELAY MODULE BLOCK INSTALLATION

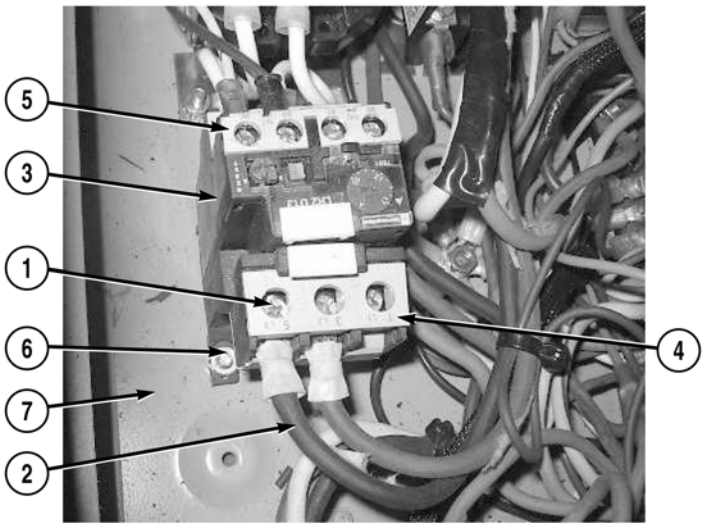
NOTE

Install cable ties as required.

1. Install three relays (7), (8), and (9) on air conditioner/heater relay module block (3).
2. Install air conditioner/heater relay module block (3) in control box (6) with two washers (5) and locknuts (4).
3. Install 12 wires (2) on air conditioner/heater relay module block (3) and tighten 12 screws (1).

END OF TASK

MOTOR OVERLOAD CONTACTOR REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Loosen six screws (1) and remove wires (2) from motor overload contactor (3).
2. Separate two contactor halves (4) and (5).
3. Remove two locknuts (6) from motor overload contactor (3) and control box (7). Discard locknuts.

END OF TASK

MOTOR OVERLOAD CONTACTOR INSTALLATION

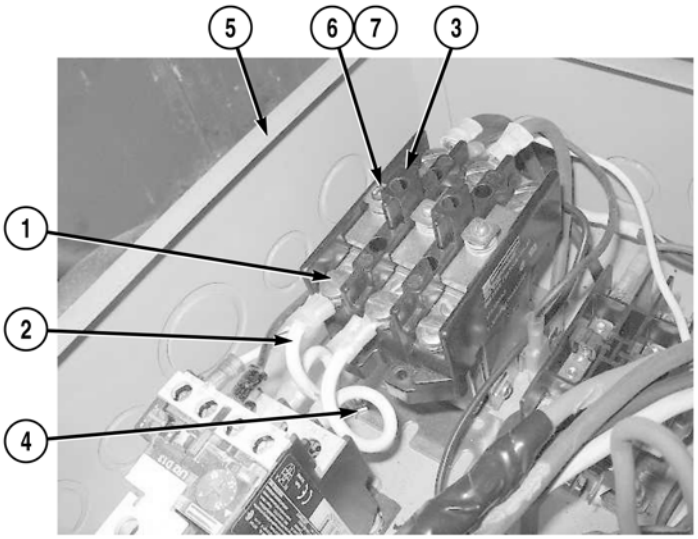
NOTE

Install cable ties as required.

1. Install motor overload contactor (3) in control box (7) with two locknuts (6).
2. Join two contactor halves (4) and (5).
3. Install six wires (2) on motor overload contactor (3), and tighten four screws (1).

END OF TASK

MOTOR CONTACTOR REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Loosen four screws (1) and remove six wires (2) from motor contactor (3).
2. Remove two locknuts (4) and motor contactor (3) from control box (5). Discard locknuts.

NOTE

Motor contactor may need to be turned to access screws.

3. Loosen two screws (6) and remove wires (7) from motor contactor (3).
4. Remove motor contactor (3) from control box (5).

END OF TASK

MOTOR CONTACTOR INSTALLATION

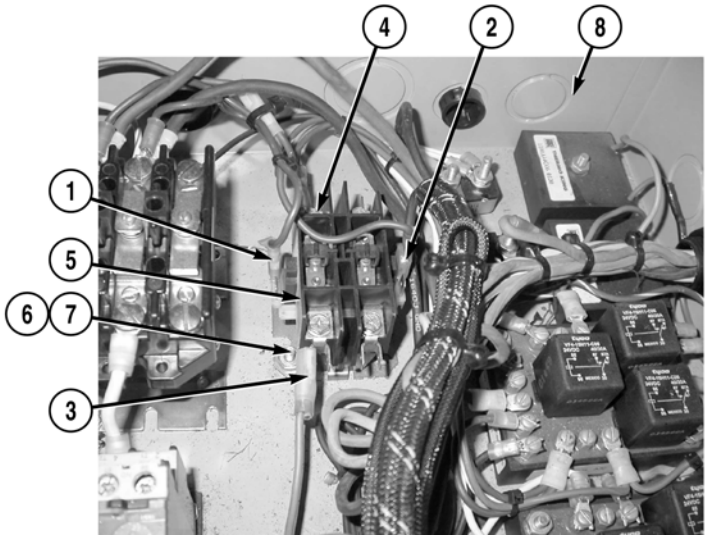
NOTE

Install cable ties as required.

1. Position motor contactor (3) in control box (5).
2. Install two wires (7) on motor contactor (3), and tighten two screws (6).
3. Install motor contactor (3) in control box (5) with two locknuts (4).
4. Install six wires (2) on motor contactor (3), and tighten four screws (1).

END OF TASK

AIR CONDITIONER CONTROL CONTACTOR REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Disconnect four connectors (1), (2), (3), and (4) from air conditioner control contactor (5).
2. Remove two locknuts (6), washers (7), and air conditioner control contactor (5) from control box (8). Discard locknuts.

END OF TASK

AIR CONDITIONER CONTROL CONTACTOR INSTALLATION

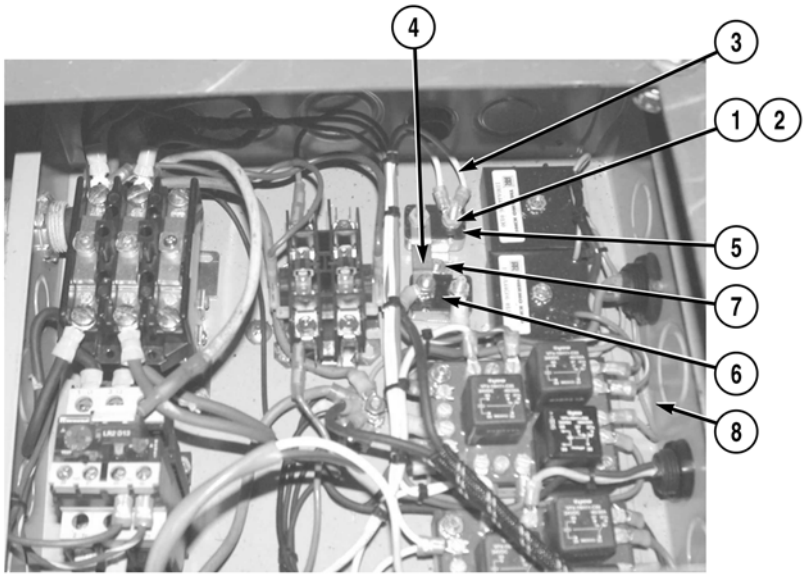
NOTE

Install cable ties as required.

1. Install air conditioner control contactor (5) in control box (8) with two washers (7) and locknuts (6).
2. Connect four connectors (1), (2), (3), and (4) to air conditioner control contactor (5).

END OF TASK

CIRCUIT BREAKER REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Remove four locknuts (1), washers (2), wires (3), and bus bar (4) from two circuit breakers (5) and (6). Discard locknuts.
2. Remove locknut (7) and two circuit breakers (5) and (6) from control box (8). Discard locknut.

END OF TASK

CIRCUIT BREAKER INSTALLATION

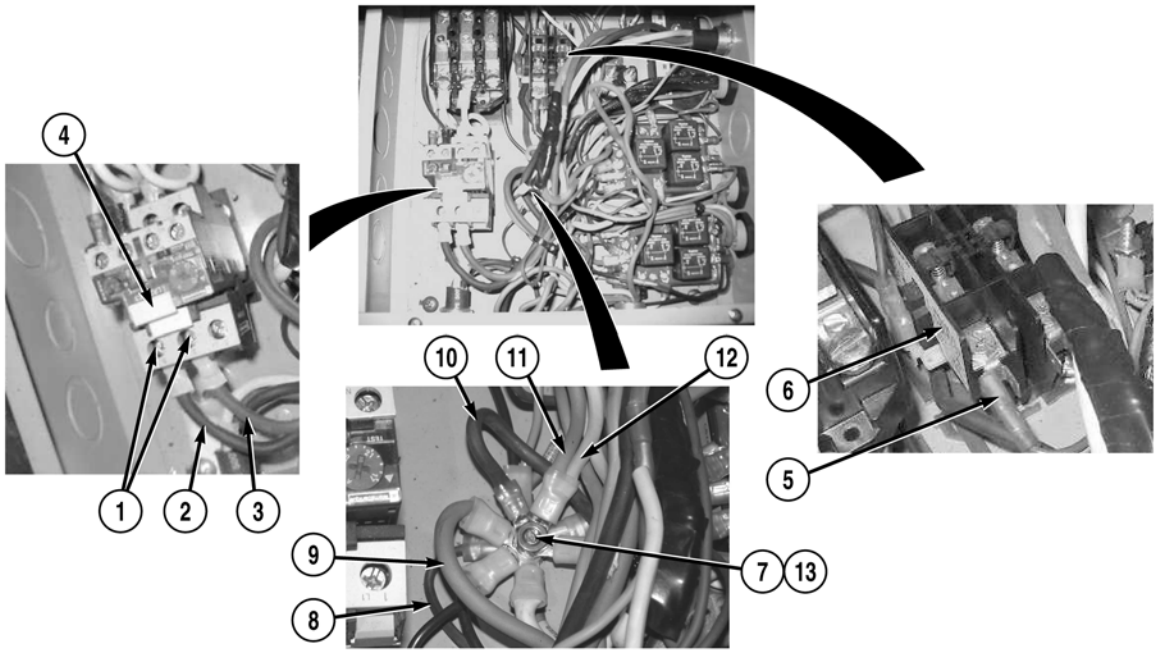
NOTE

Install cable ties as required.

1. Install two circuit breakers (5) and (6) in control box (8) with locknut (7).
2. Install bus bar (4) and four wires (3) on two circuit breakers (5) and (6) with four washers (2) and locknuts (1).

END OF TASK

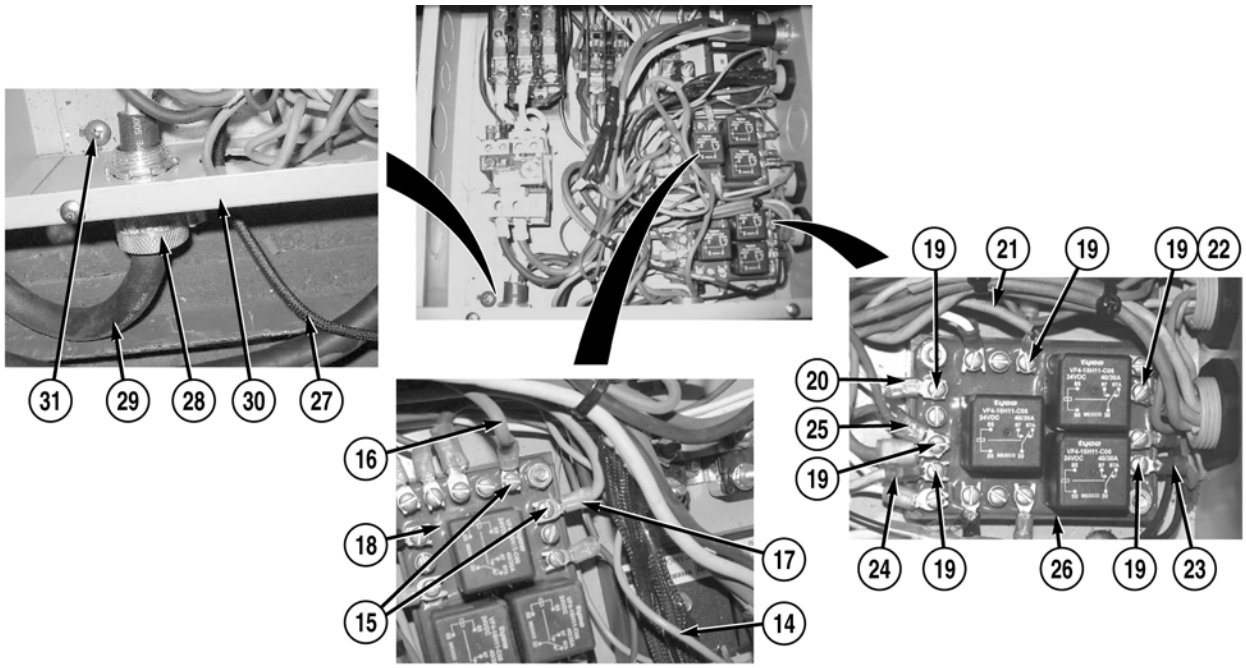
AIR CONDITIONER/HEATER CONTROL BOX REMOVAL



NOTE

- Tag and mark wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Loosen two screws (1) and remove wires (2) and (3) from motor overload contactor (4).
2. Disconnect connector (5) from air conditioner control contactor (6).
3. Remove locknut (7) and five wires (8), (9), (10), (11), and (12) from ground terminal (13). Discard locknut.



4. Cut wire (14) (TM 9-2320-325-14&P).
5. Loosen two screws (15) and remove wires (16) and (17) from air conditioner relay module block (18).
6. Loosen six screws (19) and remove wires (20), (21), (22), (23), (24), and (25) from air conditioner/heater relay module block (26).
7. Cut wire (27) (TM 9-2320-325-14&P).
8. Loosen six strain relief connectors (28) and remove cables (29) from control box (30).
9. Remove four screws (31) and control box (30) from vehicle.

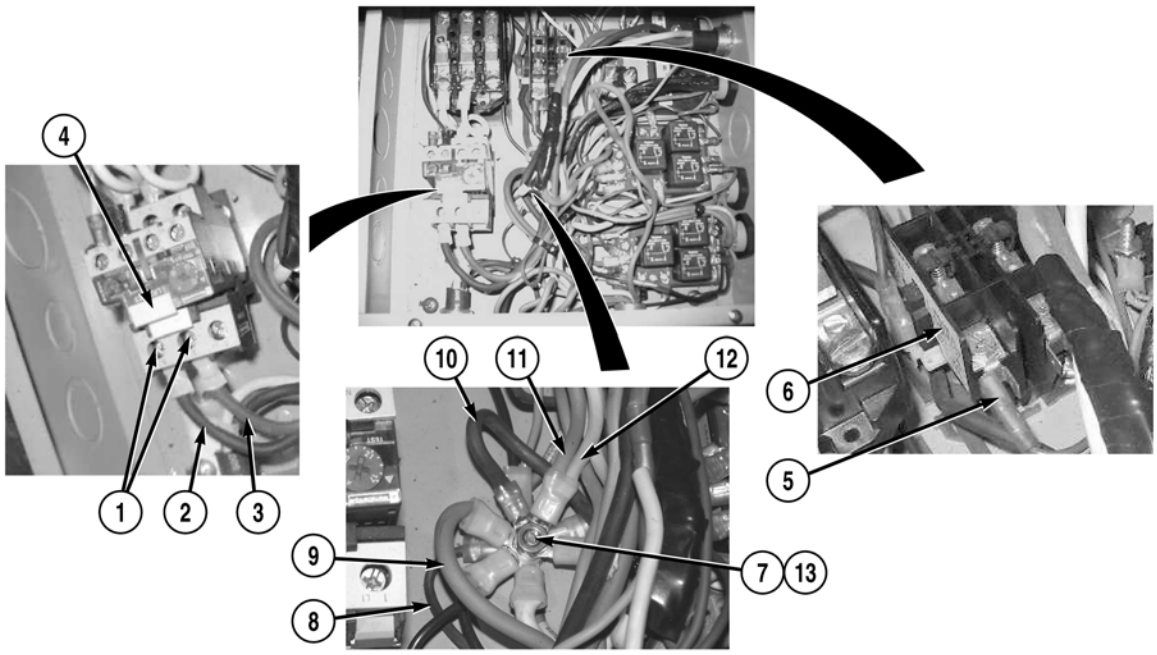
END OF TASK

AIR CONDITIONER/HEATER CONTROL BOX INSTALLATION

NOTE

Install cable ties as required.

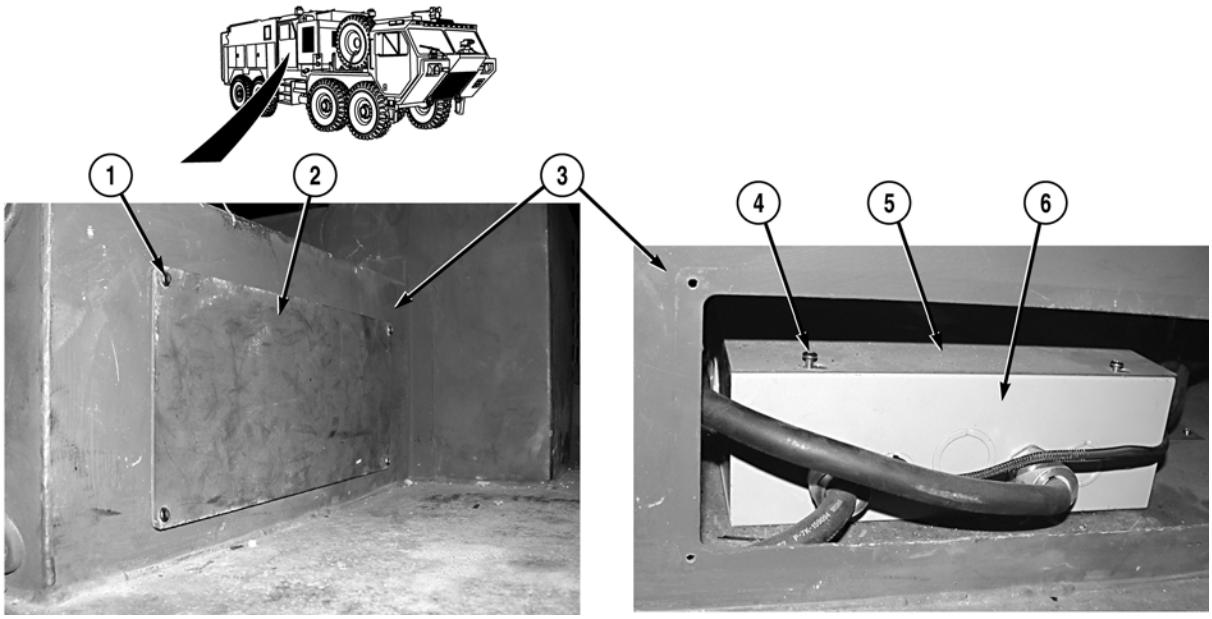
1. Install control box (30) on vehicle with four screws (31).
2. Install six cables (29) on control box (30) and tighten strain relief connectors (28).
3. Repair wire (27) (TM 9-2320-325-14&P).
4. Install six wires (20), (21), (22), (23), (24), and (25) on air conditioner/heater relay module block (26) with six screws (19).
5. Install two wires (16) and (17) on air conditioner relay module block (18) with two screws (15).
6. Repair wire (14) (TM 9-2320-325-14&P).



7. Install five wires (8), (9), (10), (11), and (12) on ground terminal (13) with locknut (7).
8. Connect connector (5) to air conditioner control contactor (6).
9. Install two wires (2) and (3) on motor overload contactor (4) with two screws (1).

END OF TASK

CONTROL BOX CLOSURE



1. Install top access cover (5) on control box (6) with four screws (4).
2. Install front access cover (2) on passenger side seat frame (3) with four screws (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install SCBA (crew cab) passenger side seat (WP 0497)
2. Connect batteries (TM 9-2320-325-14&P)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER/HEATER CONTROL PANEL REPLACEMENT

INITIAL SETUP:

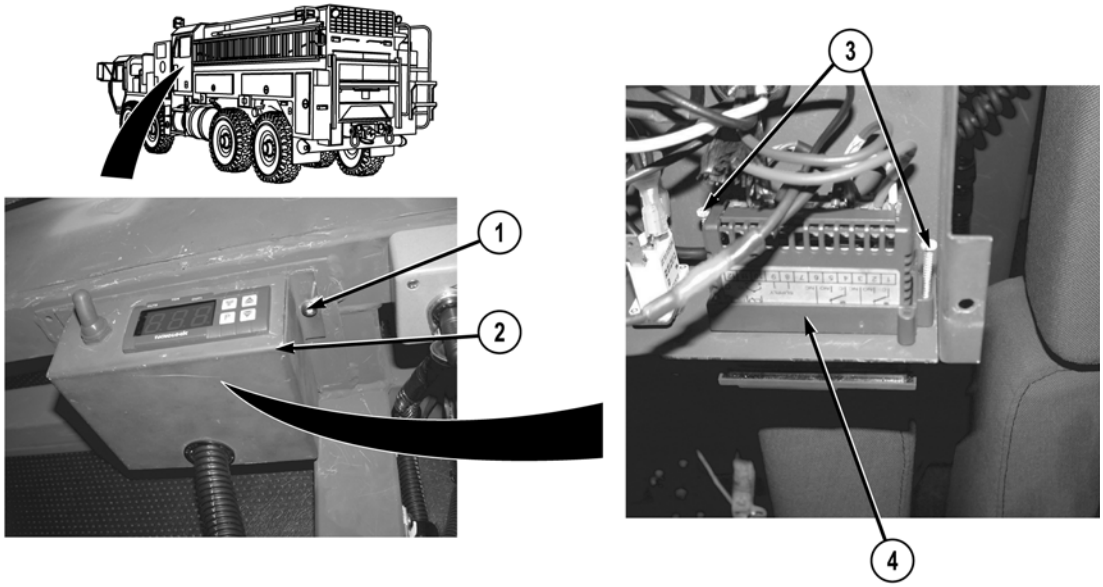
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Lockwasher (2)
Lockwasher (1)

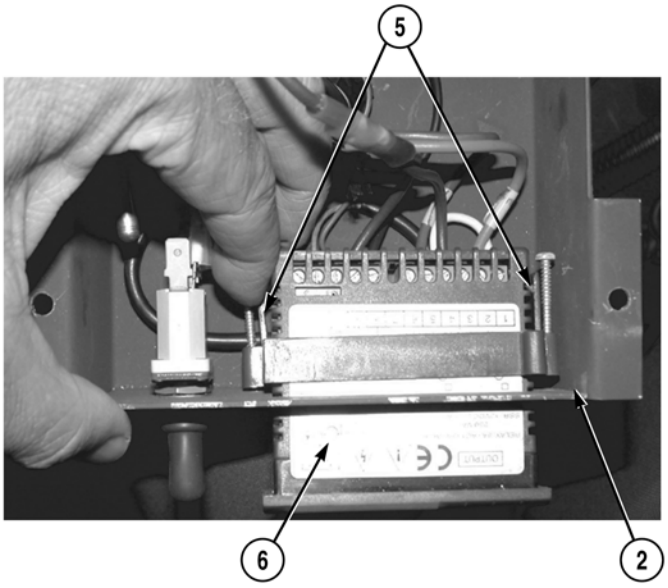
References
WP 0614, Fig. 6

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

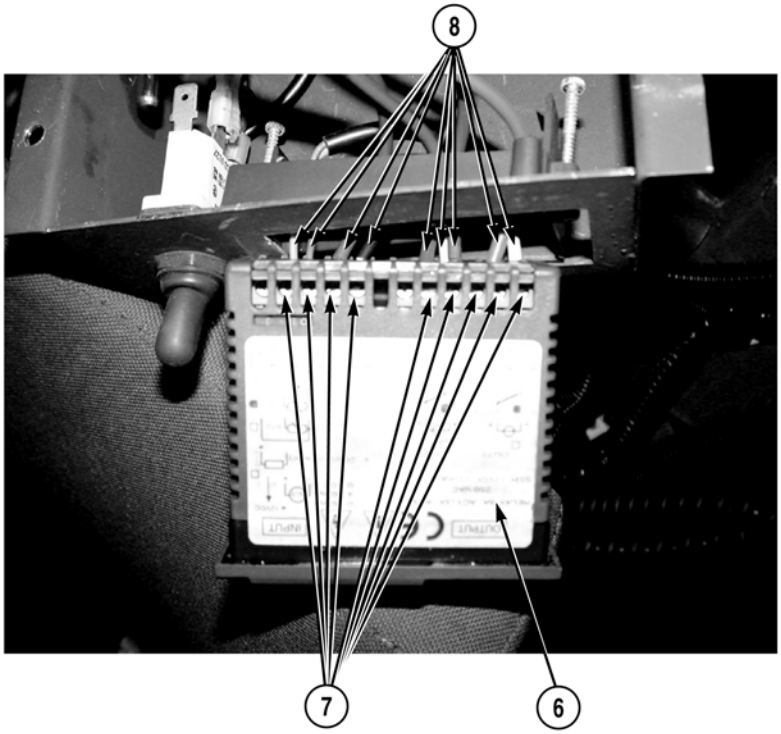
REMOVAL



1. Remove three screws (1) and panel (2) from vehicle.
2. Loosen two screws (3) from bracket (4).



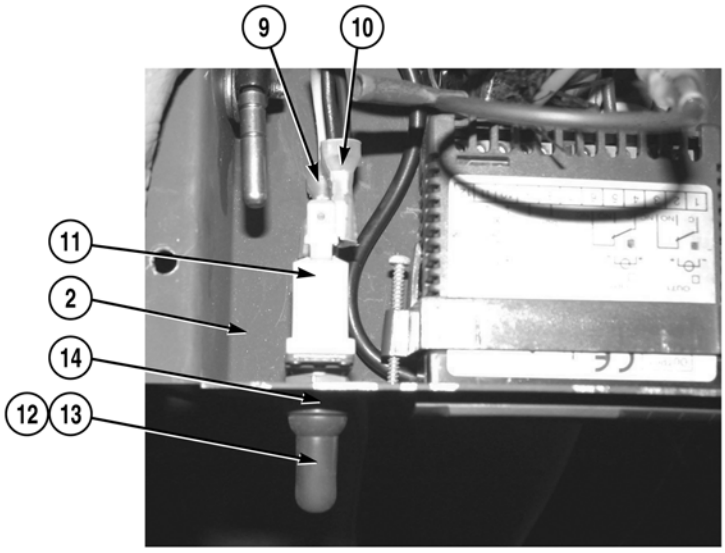
3. Release two tabs (5) and remove display (6) from panel (2).



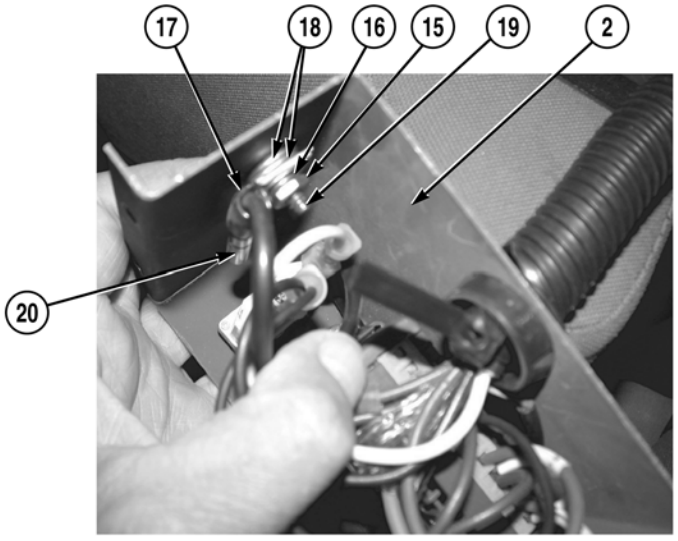
NOTE

Tag and mark wires prior to removal to ensure proper installation.

4. Loosen eight screws (7) and remove eight wires (8) from display (6).



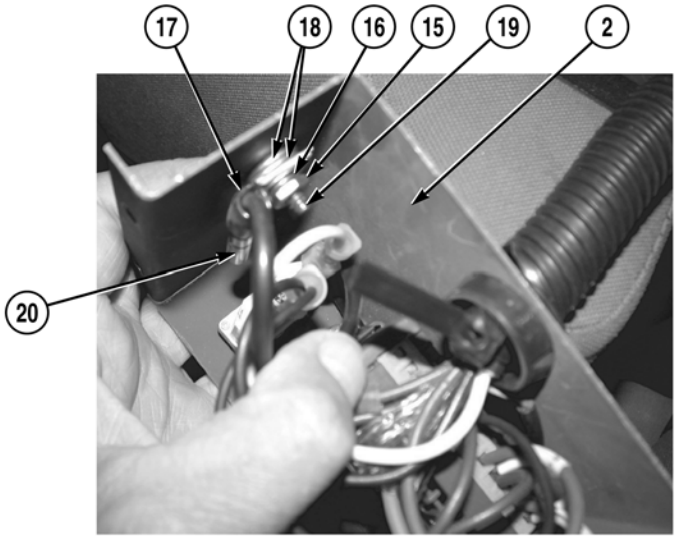
5. Remove two wires (9) and (10) from switch (11).
6. Remove rubber boot (12), nut (13), two lockwashers (14), and switch (11) from panel (2). Discard lockwashers.



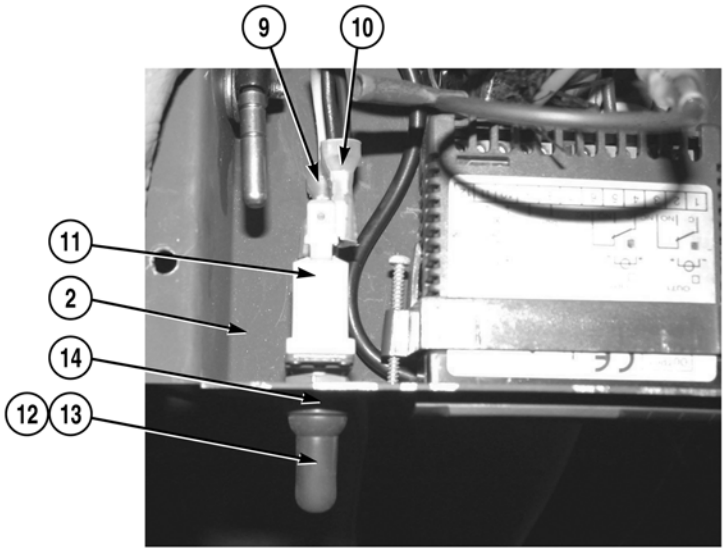
7. Remove nut (15), lockwasher (16), clamp (17), two washers (18), screw (19), and temperature sensor (20) from panel (2). Discard lockwasher.

END OF TASK

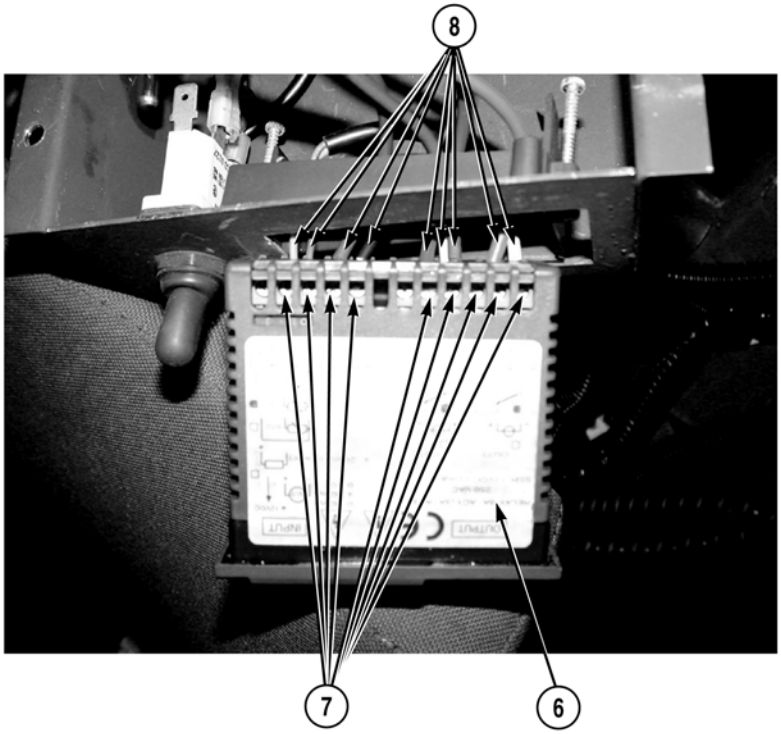
INSTALLATION



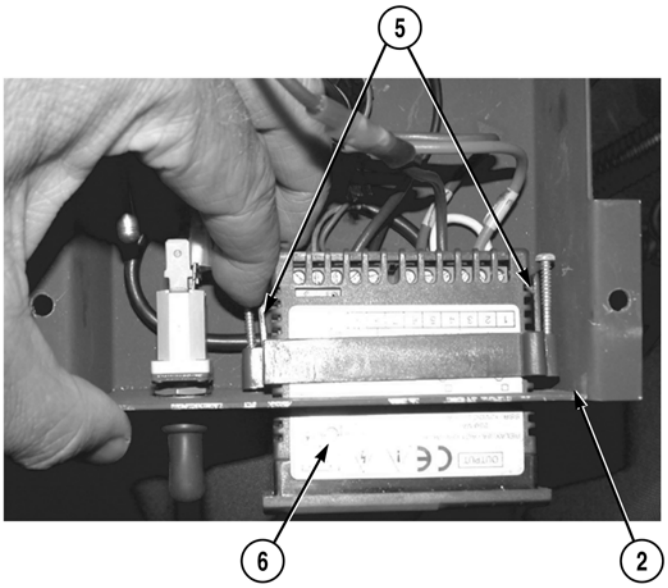
1. Install temperature sensor (20) on panel (2) with screw (19), two washers (18), clamp (17), lockwasher (16), and nut (15).



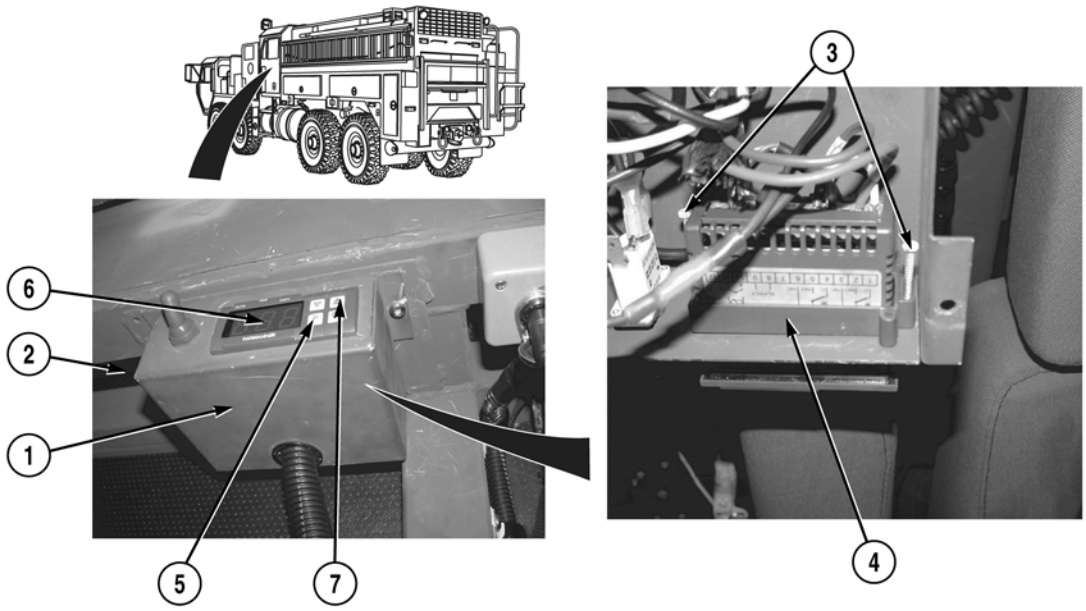
2. Install switch (11) on panel (2) with two lockwashers (14), nut (13), and rubber boot (12).
3. Install two wires (9) and (10) on switch (11).



4. Install eight wires (8) on display (6) with eight screws (7).



5. Install display (6) in panel (2) with two tabs (5).



6. Tighten two screws (3) on bracket (4).
7. Install panel (2) on vehicle with three screws (1).

NOTE

Crew cab air conditioner/heater must be programmed to initial parameters.

8. Push and hold P button (5) until “db” is shown on display screen (6).
9. Push up arrow button (7) until “ft” is shown on display screen (6).

NOTE

Display will show “nr” until temperature reading is displayed. “P” button will have to be pushed and held for approximately 15 to 20 seconds before temperature reading will be shown on display.

10. Hold P button (5) until temperature reading is shown on display screen (6).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER/HEATER FRESH AIR FAN AND FILTER REPLACEMENT

INITIAL SETUP:

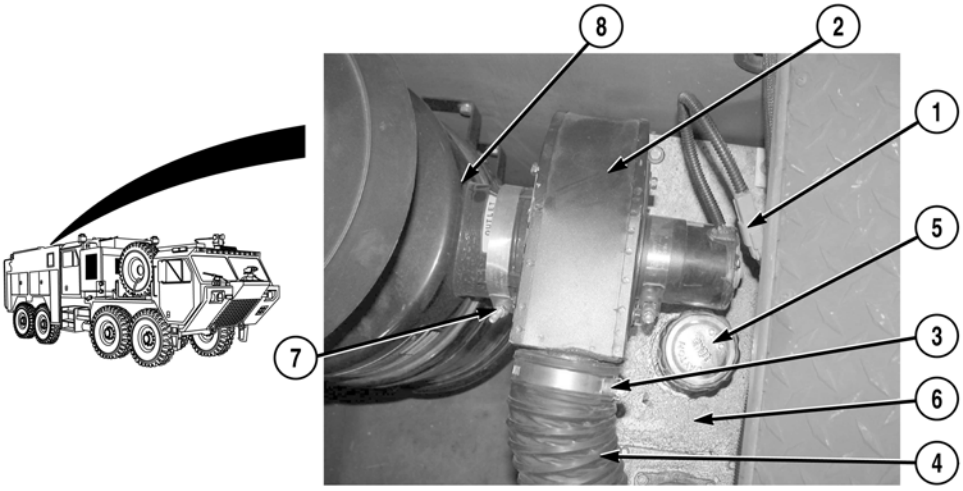
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Lockwasher (4)

References
WP 0614, Fig. 9

Equipment Conditions
Water pump engine OFF (WP 0022)
Batteries disconnected (TM 9-2320-325-14&P)

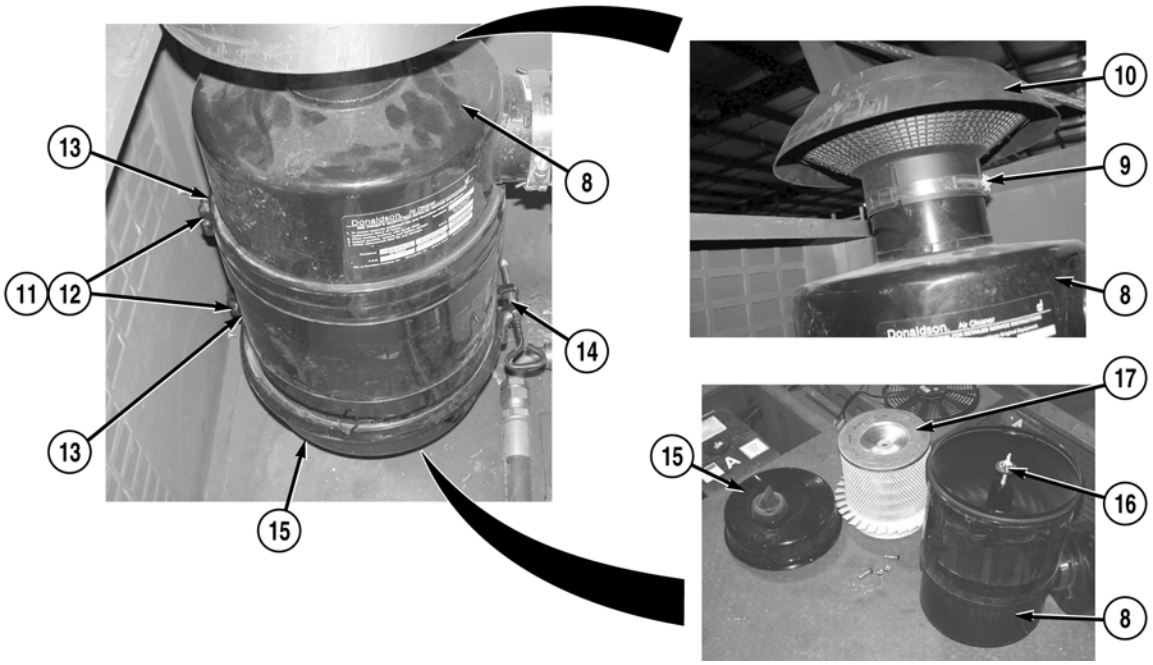
REMOVAL



NOTE

Perform Steps (1) through (4) if fan needs to be removed.

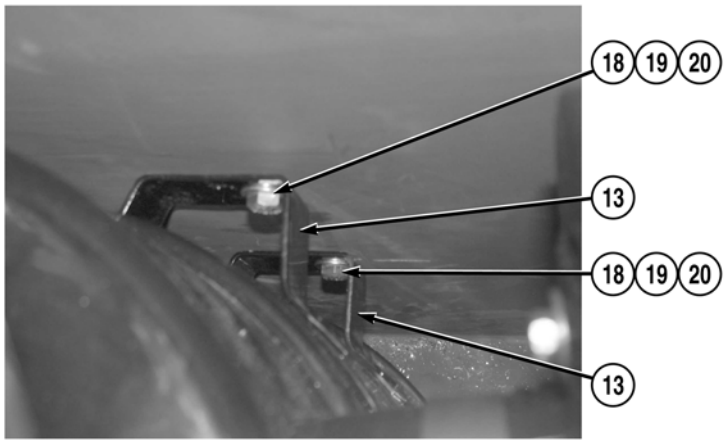
1. Disconnect connector (1) from fan (2).
2. Loosen clamp (3) and remove hose (4) and clamp (3) from fan (2).
3. Remove cap (5) from hydraulic reservoir (6).
4. Loosen clamp (7) and remove fan (2) and clamp (7) from filter housing (8).



NOTE

Perform Steps (5) through (9) if filter needs to be removed.

5. Loosen clamp (9) and remove hood (10) and clamp (9) from filter housing (8).
6. Remove two screws (11) and nuts (12) from brackets (13).
7. Remove filter housing (8) from two brackets (13).
8. Loosen clamp (14) and remove bottom cover (15) and clamp (14) from filter housing (8).
9. Remove wingnut (16) and filter (17) from filter housing (8).



NOTE

Perform Step (10) if brackets need to be removed.

10. Remove four screws (18), lockwashers (19), washers (20), and two brackets (13) from vehicle. Discard lockwashers.

END OF TASK

INSTALLATION

NOTE

Perform Step (1) if brackets need to be installed.

1. Install two brackets (13) on vehicle with four washers (20), lockwashers (19), and screws (18).

NOTE

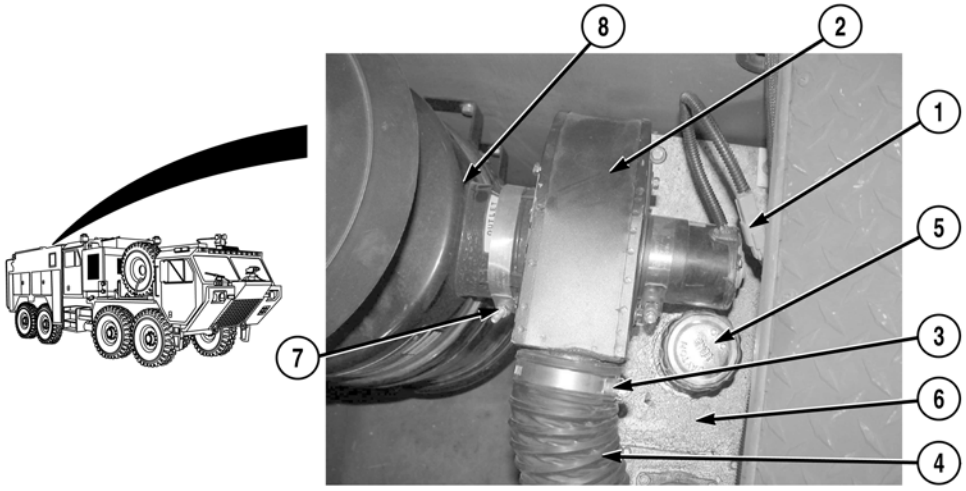
Perform Steps (2) through (6) if filter needs to be installed.

2. Install filter (17) in filter housing (8) with wingnut (16).
3. Install clamp (14) and bottom cover (15) on filter housing (8).

⚠ CAUTION

Ensure that bottom cover is 0.5 to 1 in. (12.7 to 25.4 mm) above bottom of vehicle compartment to allow drainage. Failure to comply may result in damage to equipment.

4. Position filter housing (8) in two brackets (13).
5. Install two nuts (12) and screws (11) on brackets (13).
6. Install clamp (9) and hood (10) on filter housing (8).



NOTE

Perform Steps (7) through (10) to install fan.

7. Install clamp (7) and fan (2) on filter housing (8).
8. Install cap (5) on hydraulic reservoir (6).
9. Install clamp (3) and hose (4) on fan (2).
10. Connect connector (1) to fan (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Connect batteries (TM 9-2320-325-14&P)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER/HEATER FRESH AIR RESISTOR REPLACEMENT

INITIAL SETUP:

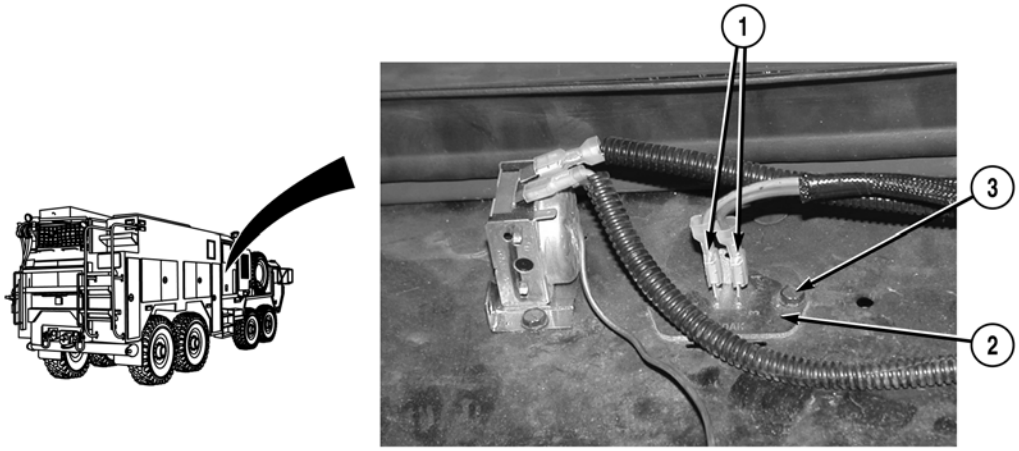
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)

References
WP 0614, Fig. 9

Equipment Conditions
Water pump engine OFF (WP 0022)
Batteries disconnected (TM 9-2320-325-14&P)
Crew cab bench seat and access panel removed (WP 0501)

REMOVAL



NOTE

Tag and mark wires prior to removal to ensure proper installation.

1. Remove two wires (1) from crew cab fresh air fan resistor (2).

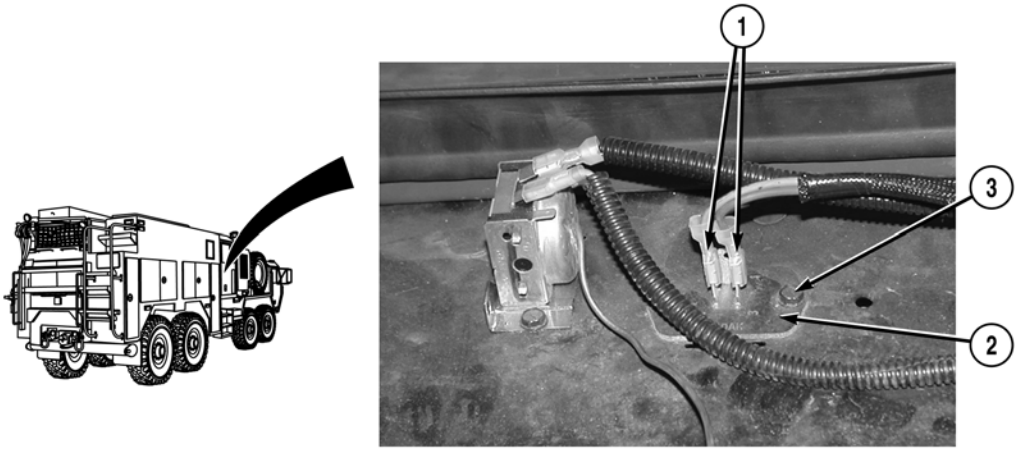
NOTE

Note position of crew cab fresh air fan resistor prior to removal to ensure proper installation.

2. Remove two screws (3) and crew cab fresh air fan resistor (2) from vehicle.

END OF TASK

INSTALLATION



NOTE

Install crew cab fresh air fan resistor as noted prior to removal.

1. Install crew cab fresh air fan resistor (2) on vehicle with two screws (3).
2. Install two wires (1) on crew cab fresh air fan resistor (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install crew cab bench seat and access panel (WP 0501)
2. Connect batteries (TM 9-2320-325-14&P)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER/HEATER LOUVERS REPLACEMENT

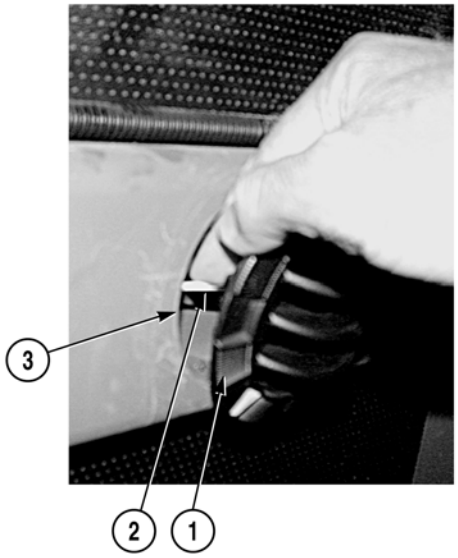
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0615, Fig. 55

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

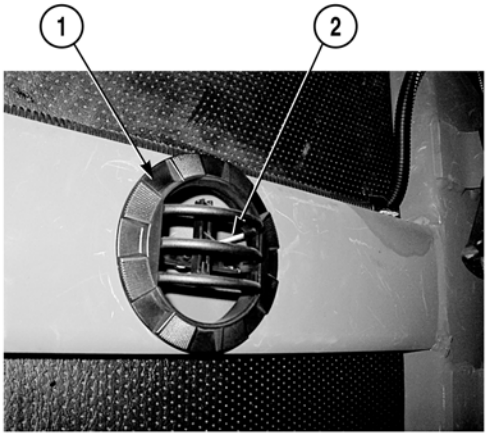
REMOVAL



1. Pull louver (1) out until one end of retainer (2) can be reached.
2. Remove retainer (2) from panel (3) and remove louver (1).

END OF TASK

INSTALLATION



1. Install louver (1) with one end of retainer (2) behind panel (3).
2. Install other end of retainer (2) behind panel (3) and slide louver (1) over until it is centered in panel (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER THERMOSTATIC SWITCH REPLACEMENT

INITIAL SETUP:

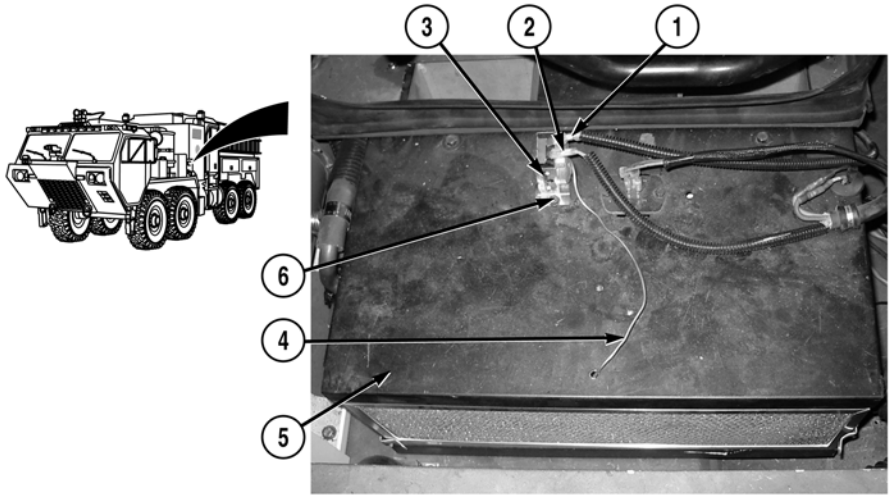
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials
Tags, Identification (WP 0625, Item 51)

References
WP 0614, Fig. 7

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

REMOVAL



NOTE

Tag and mark connectors before removal to ensure proper installation.

1. Remove two connectors (1) and (2) from thermostatic switch (3).

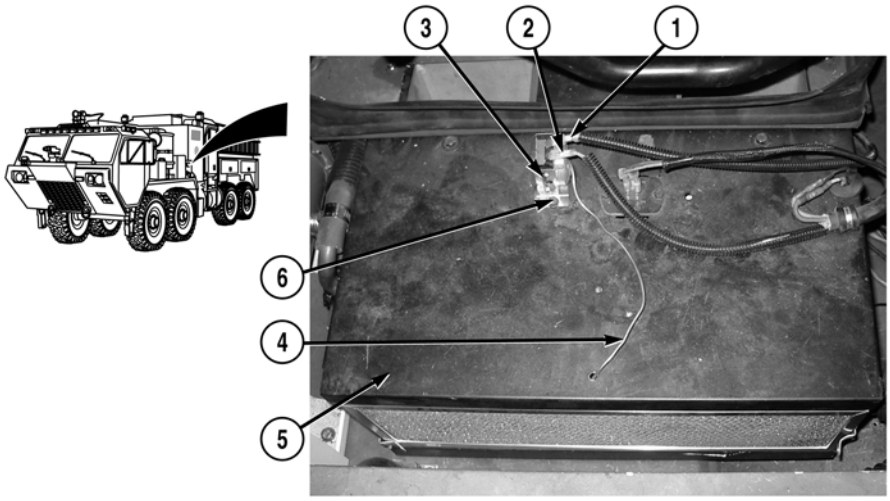
⚠ CAUTION

Slide temperature probe slowly from air conditioner/heater assembly. Failure to comply may result in damage to probe.

2. Carefully slide temperature probe (4) out of air conditioner/heater assembly (5).
3. Remove two screws (6) and thermostatic switch (3) from air conditioner/heater assembly (5).

END OF TASK

INSTALLATION



1. Install thermostatic switch (3) on air conditioner/heater assembly (5) with two screws (6).

CAUTION

Do not puncture temperature probe. Gas in tube will leak out.

2. Carefully install temperature probe (4) in air conditioner/heater assembly (5).
3. Install two connectors (2) and (1) on thermostatic switch (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB HEATER CONTROL VALVE REPLACEMENT

INITIAL SETUP:

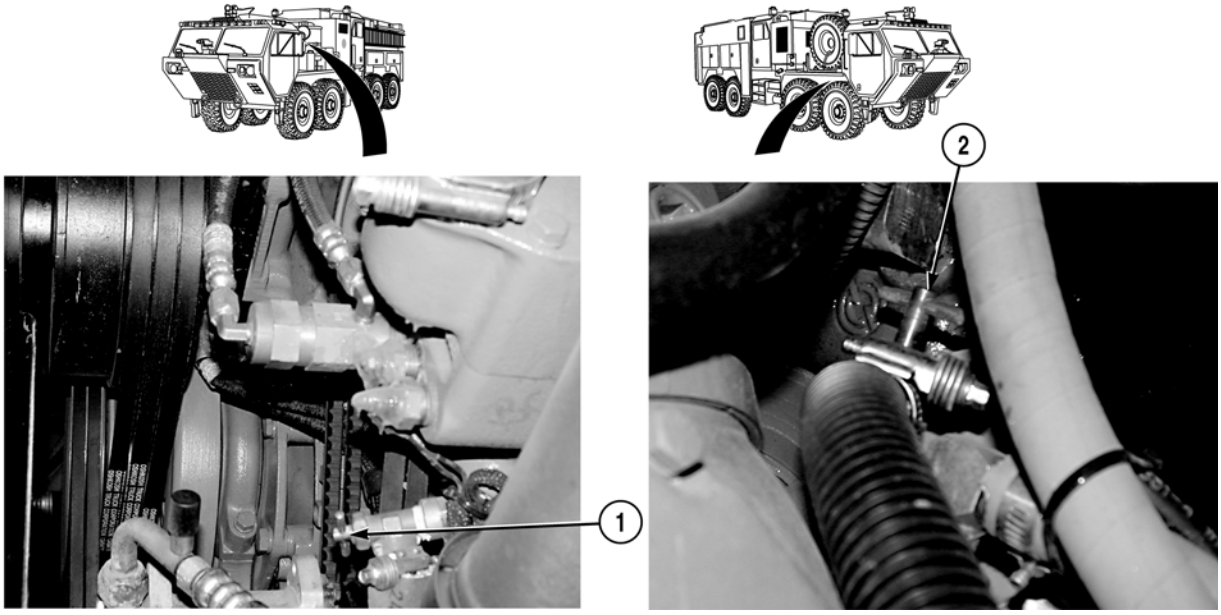
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)

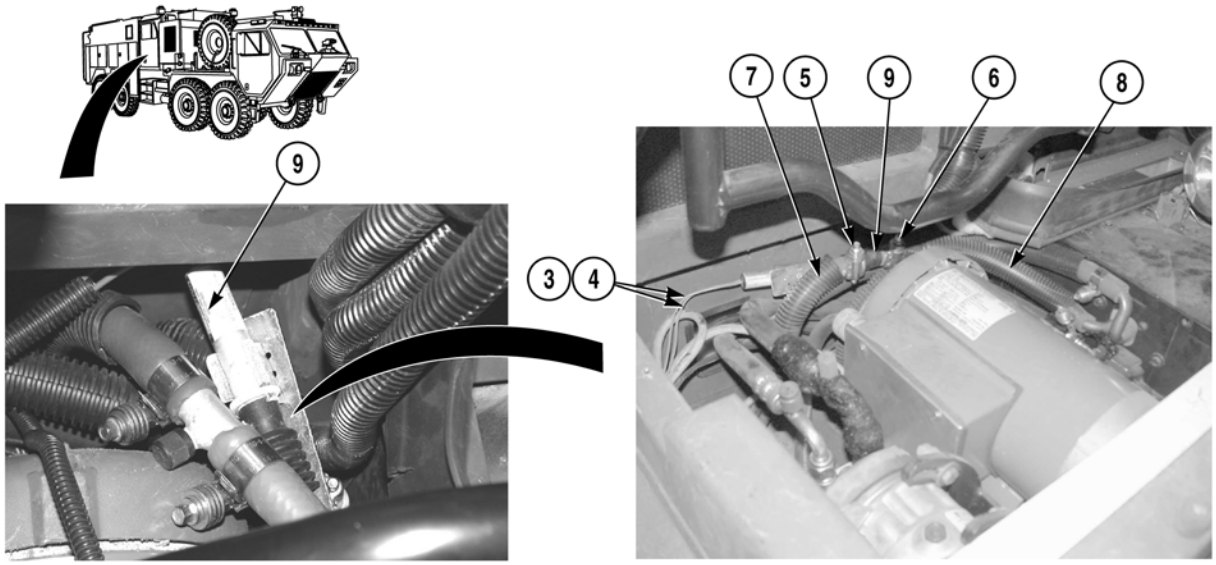
References
WP 0614, Fig. 6

Equipment Conditions
Batteries disconnected (TM 9-2320-325-14&P)
Crew cab bench seat and access panel removed (WP 0501)
Left side engine cover open and engine side panel removed (TM 9-2320-325-14&P)
Right splash guard removed (TM 9-2320-325-14&P)

REMOVAL



1. Close two valves (1) and (2).



NOTE

Tag and mark wires prior to removal to ensure proper installation.

2. Cut two wires (3) and (4) (TM 9-2320-325-14&P).

NOTE

Note position of control valve prior to removal to ensure proper installation.

3. Loosen two clamps (5) and (6) and remove hoses (7) and (8) and clamps (5) and (6) from control valve (9).

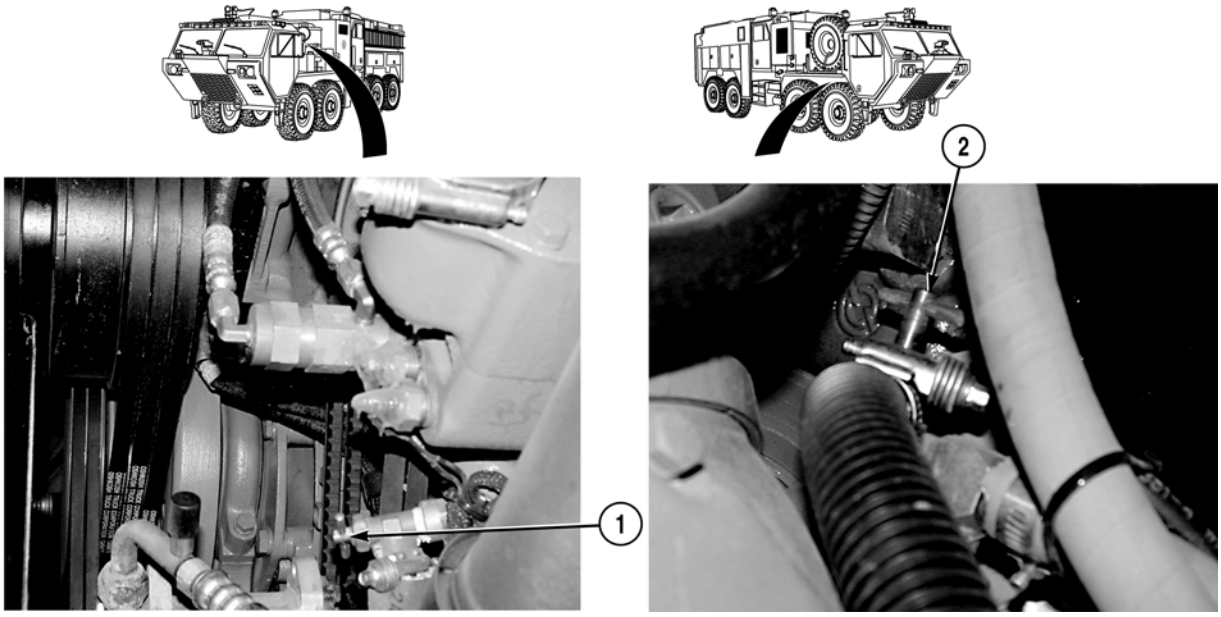
END OF TASK

INSTALLATION

NOTE

Install control valve in same position noted prior to removal.

1. Install two hoses (7) and (8) on control valve (9) with two clamps (5) and (6).
2. Repair two wires (3) and (4) (TM 9-2320-325-14&P).



3. Open two valves (1) and (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill cooling system (TM 9-2320-325-14&P)
2. Install right side splash guard (TM 9-2320-325-14&P)
3. Install engine side panel and close side engine cover (TM 9-2320-325-14&P)
4. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB HEATER CORE REPLACEMENT

INITIAL SETUP:

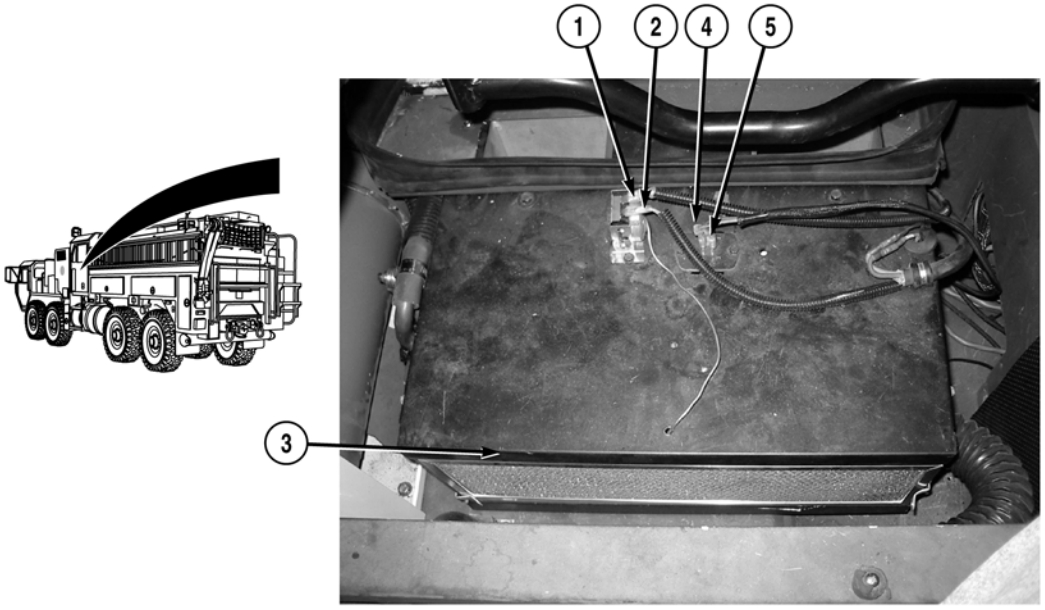
Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)

References
WP 0614, Fig. 7, 8

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)

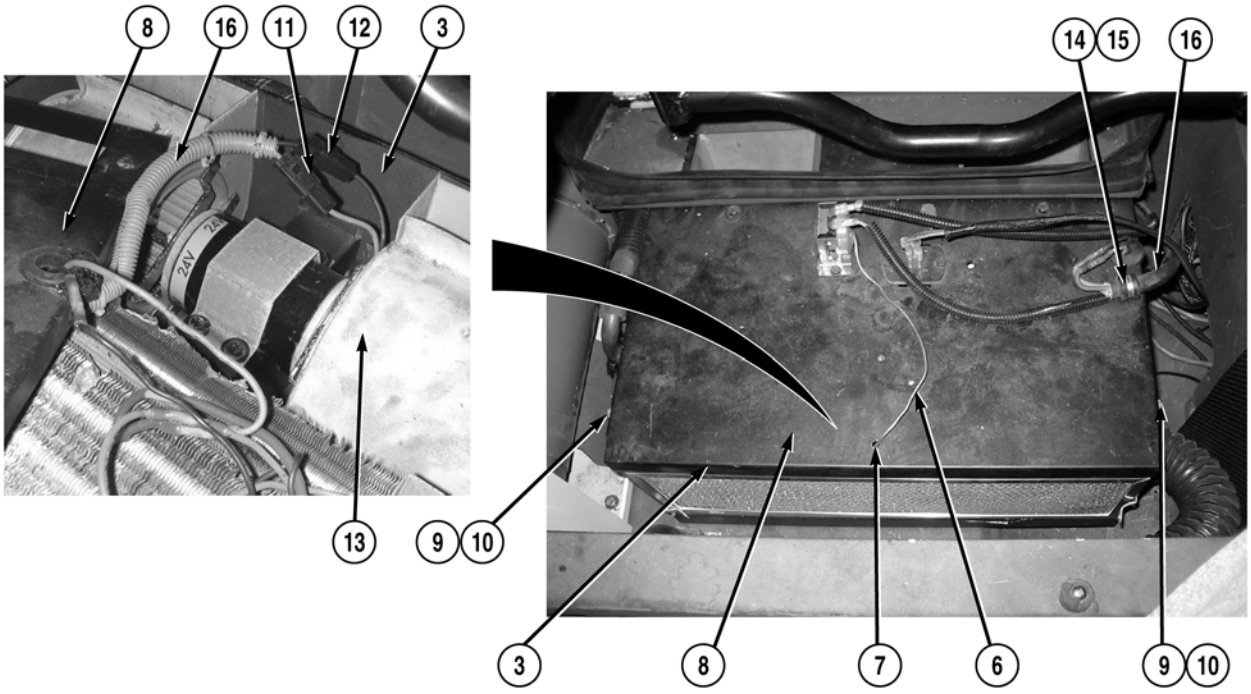
REMOVAL



NOTE

Tag and mark wires prior to removal to ensure proper installation.

1. Remove two connectors (1) and (2) from air conditioner/heater assembly (3).
2. Remove two connectors (4) and (5) from air conditioner/heater assembly (3).



CAUTION

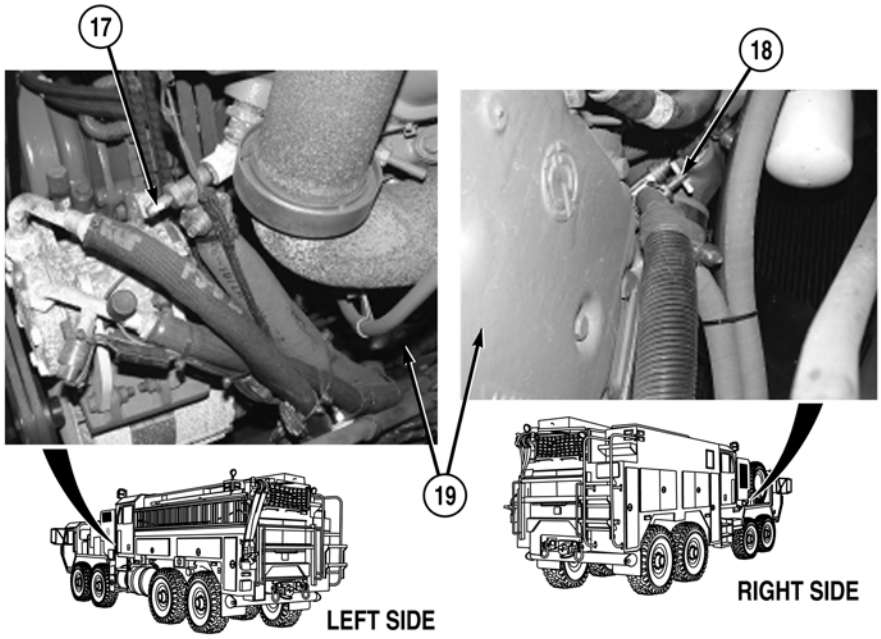
Slide temperature probe slowly from air conditioner/heater assembly. Failure to comply may result in damage to probe.

3. Remove temperature probe (6) from grommet (7) and cover (8).
4. Remove four screws (9) and washers (10) from air conditioner/heater assembly (3).

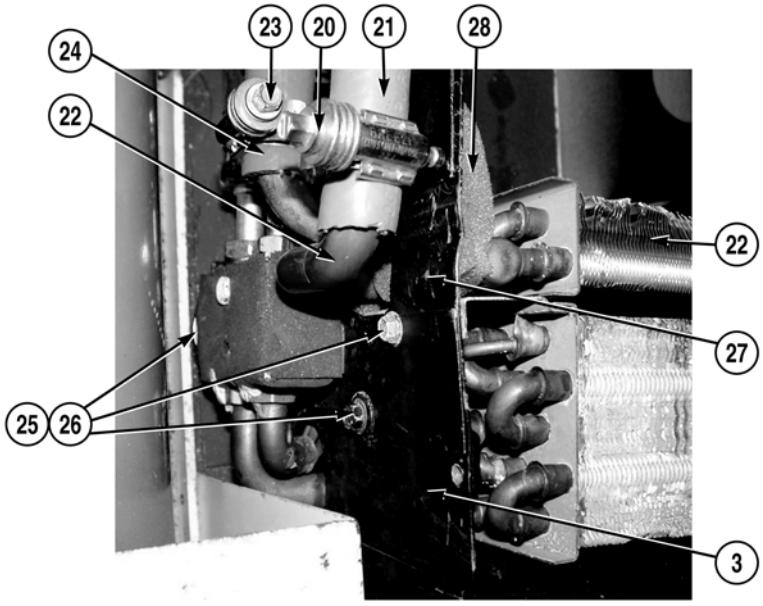
CAUTION

Wires are still connected to cover. Only lift cover enough to access wires under cover. Failure to comply may result in damage to equipment.

5. Lift cover (8) from air conditioner/heater assembly (3) only enough to access connectors (11) and (12), and remove two connectors (11) and (12) from blower motor assembly (13), and remove cover (8).
6. Remove screw (14), clamp (15), and wiring harness (16) from cover (8).



7. Close shutoff valves (17) and (18) on engine (19).

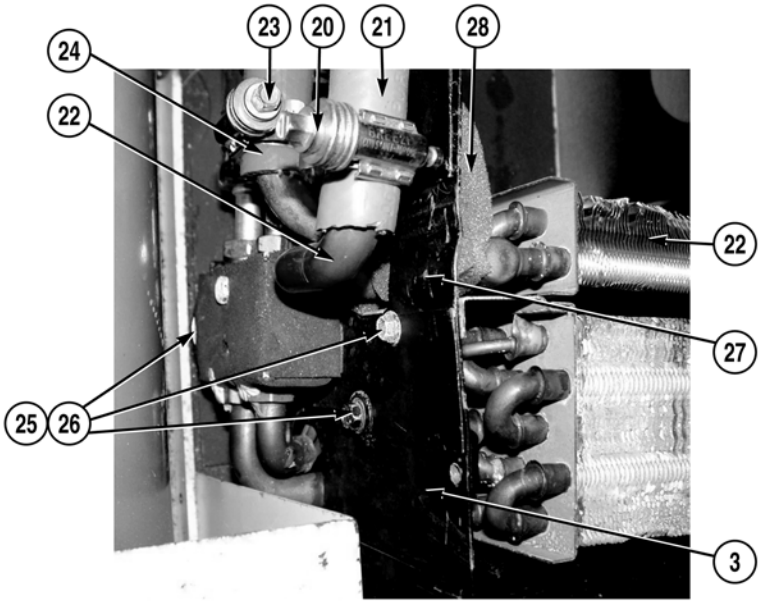


NOTE

Heater hoses and heater core will leak engine coolant. Position a suitable drain pan under hoses and heater core to catch excess coolant.

8. Loosen hose clamp (20) and remove hose (21) from heater core (22).

9. Loosen hose clamp (23) and remove hose (24) from heater core (22).



NOTE

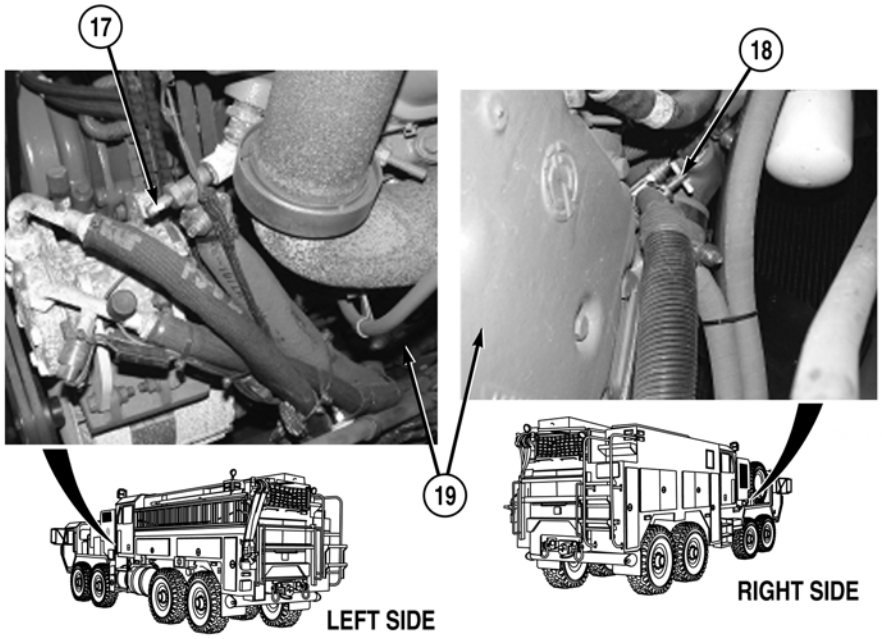
Slide cover out of air conditioner/heater assembly.

10. Remove four screws (25), washers (26), and cover (27) from air conditioner/heater assembly (3).
11. Remove heater core (22) from air conditioner/heater assembly (3).
12. Remove foam (28) from heater core (22).

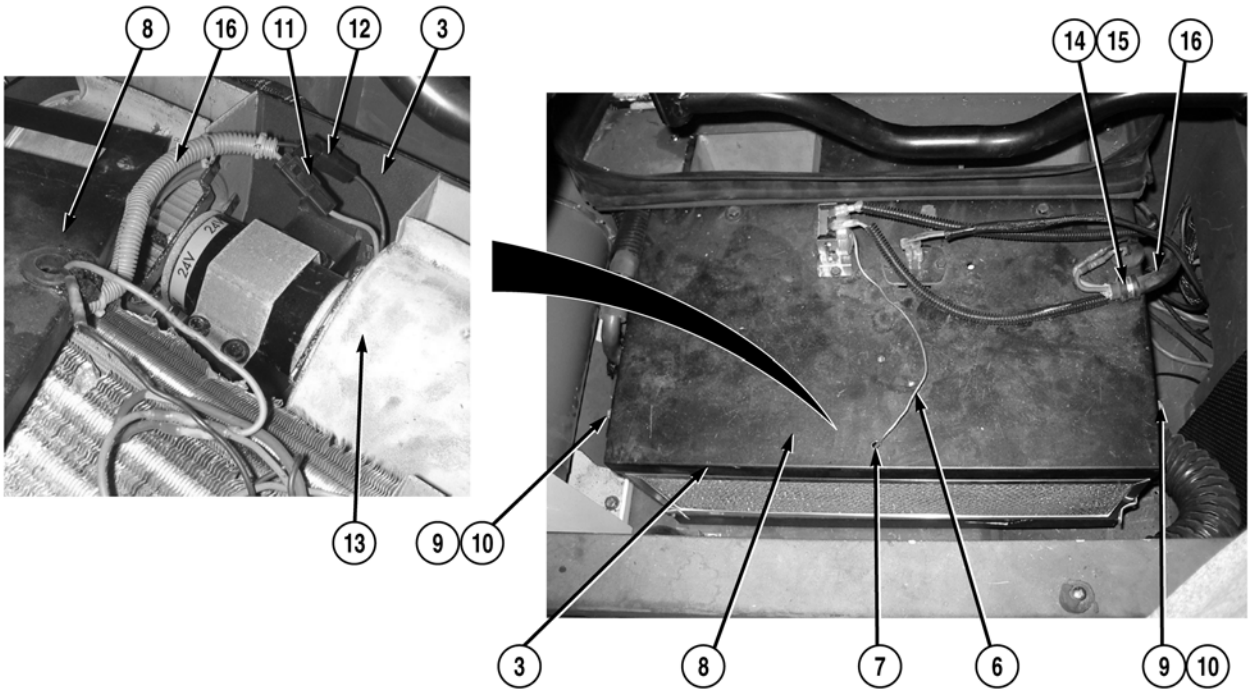
END OF TASK

INSTALLATION

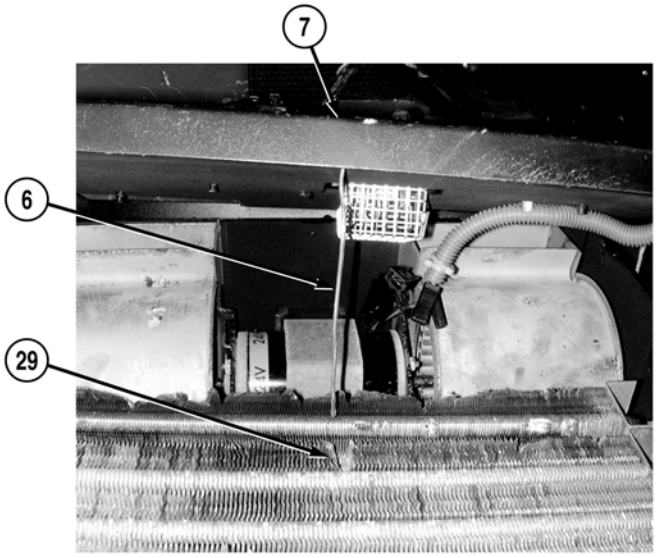
1. Install foam (28) on heater core (22).
2. Install heater core (22) in air conditioner/heater assembly (3).
3. Install cover (27) with four washers (26) and screws (25) on air conditioner/heater assembly (3).
4. Install hose (24) on heater core (22) with hose clamp (23).
5. Install hose (21) on heater core (22) with hose clamp (20).



6. Close two shutoff valves (18) and (17) on engine (19).



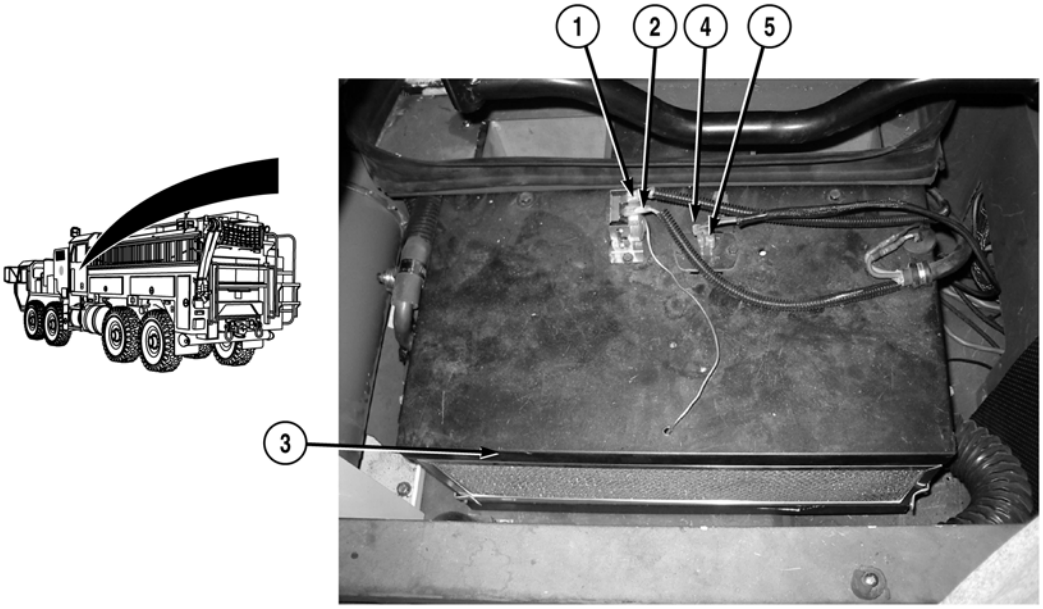
7. Install wiring harness (16) on cover (8) with clamp (15) and screw (14).
8. Install two connectors (12) and (11) on blower motor assembly (13).
9. Install cover (8) on air conditioner/heater assembly (3) with four washers (10) and screws (9).



CAUTION

Do not puncture temperature probe. Gas in tube will leak out.

10. Carefully insert temperature probe (6) through grommet (7) and into air conditioner evaporator core (29).



11. Install two connectors (5) and (4) on air conditioner/heater assembly (3).
12. Install two connectors (2) and (1) on air conditioner/heater assembly (3).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill water pump engine coolant (cooling system servicing) (WP 0479)
2. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB HEATER HOSES REPLACEMENT

INITIAL SETUP:

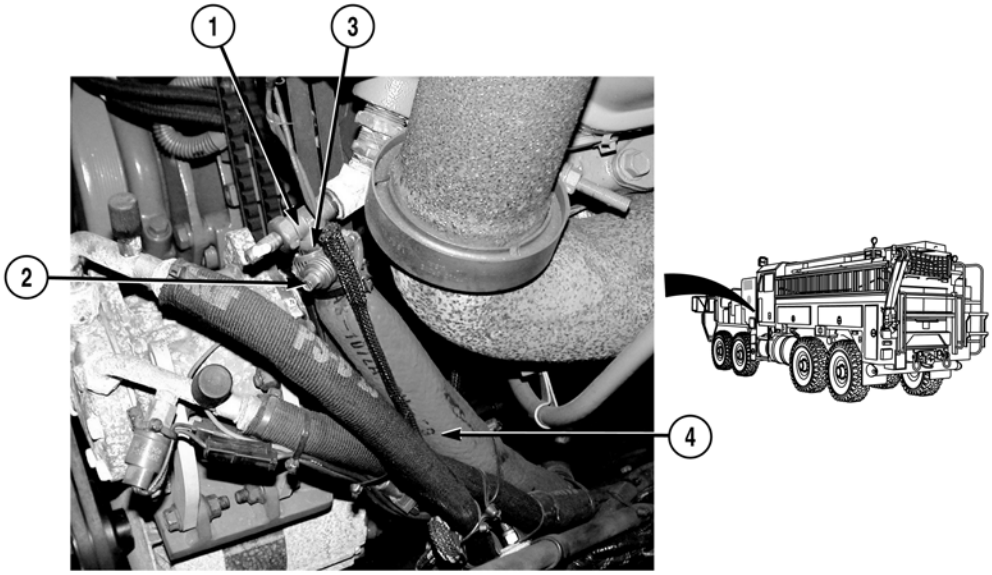
Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Ties, Cable, Plastic (WP 0625, Item 58)
Tape, Adhesive (WP 0625, Item 52)

References
WP 0614, Fig. 7

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)

REMOVAL

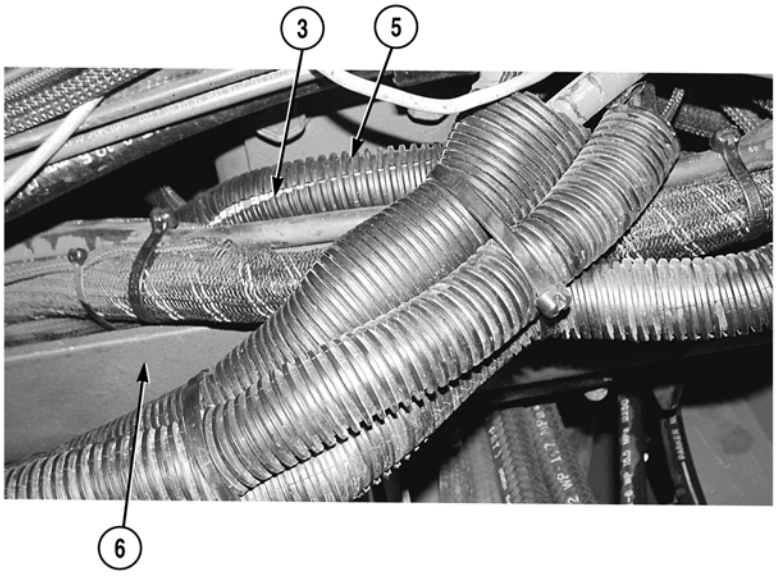


LEFT SIDE

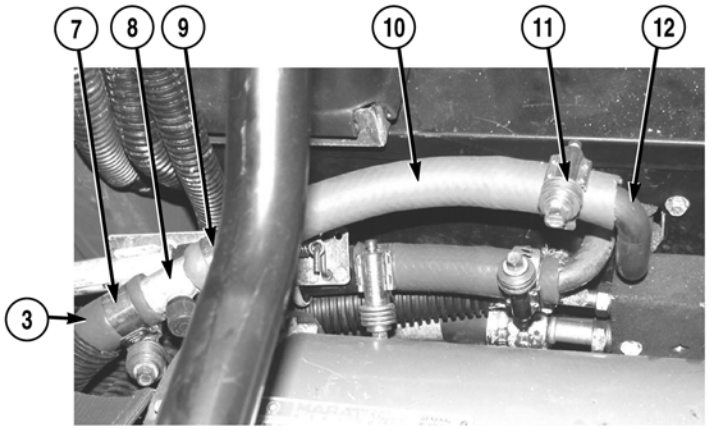
NOTE

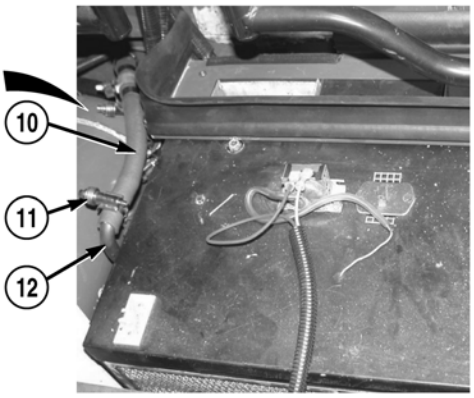
- Heater hoses will leak engine coolant. Position a suitable drain pan under hoses to catch excess coolant.
- Remove cable ties as required.
- Perform Step (1) to remove heater hose from left side of engine.
- Turn shutoff valves clockwise to close.

1. Close shutoff valve (1).
2. Loosen hose clamp (2) and remove hose (3) from shutoff valve (1).
3. Separate hose (4) from hose (3).



4. Remove hose (3) and split loom (5) from frame (6).





NOTE

Do not remove hose from crew cab down to frame. Old hose will need to be attached to new hose to pull new hose through crew cab openings.

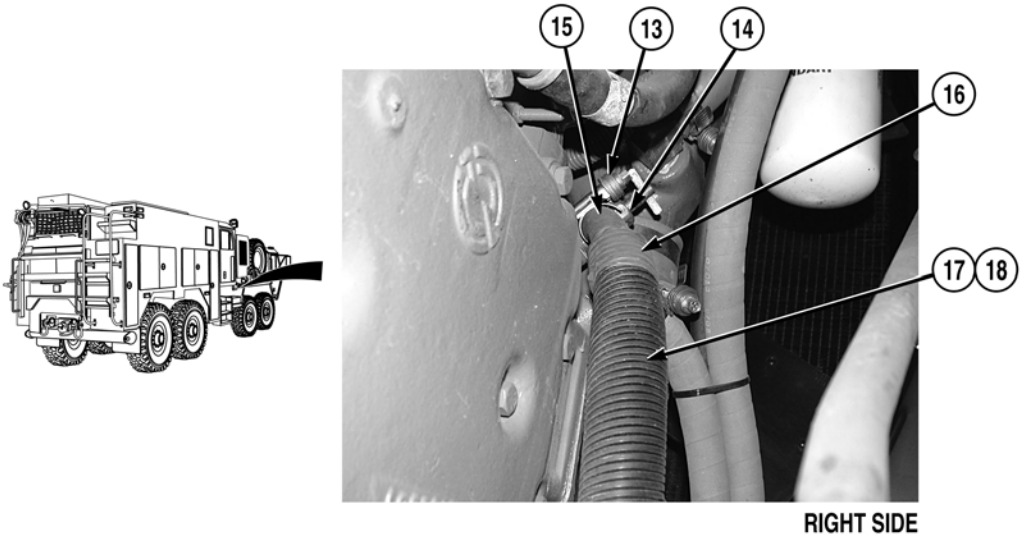
5. Loosen clamp (7) and remove hose (3) from fitting (8).

6. Loosen clamp (9) and remove hose (10) from fitting (8).

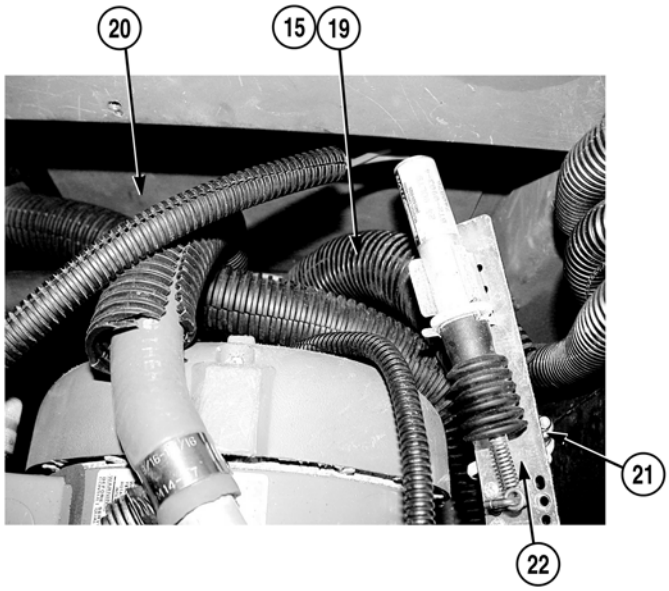
NOTE

Perform Step (7) to remove heater hose from right side of engine.

7. Loosen clamp (11) and remove hose (10) from heater core (12).



8. Close shutoff valve (13).
9. Loosen clamp (14) and remove hose (15) from shutoff valve (13).
10. Remove tape (16) from hose (14) and split loom (17).
11. Remove split loom (17) and hose (18) from hose (15).

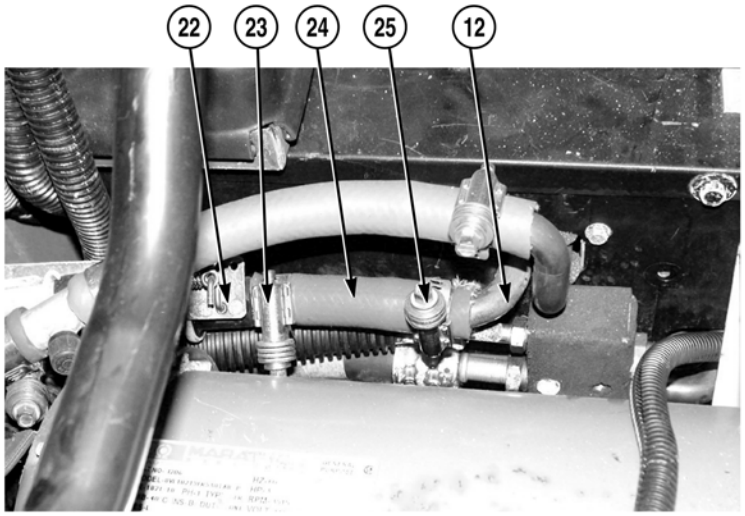


12. Remove hose (15) and split loom (19) from frame (20).

NOTE

Do not remove hose from crew cab down to frame. Old hose will need to be attached to new hose to pull new hose through crew cab openings.

13. Loosen clamp (21) and remove hose (15) from valve (22).



14. Loosen clamp (23) and remove hose (24) from valve (22).
15. Loosen clamp (25) and remove hose (24) from heater core (12).

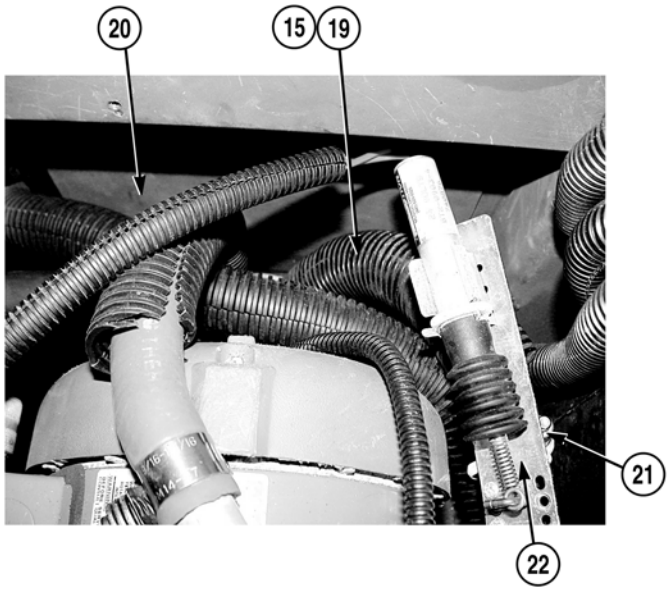
END OF TASK

INSTALLATION

NOTE

- Install cable ties as required.
- Replacement hoses must be same length as removed hoses.
- Turn shutoff valves counter-clockwise to open.

1. Install hose (24) on heater core (12) with clamp (25).
2. Install hose (24) on valve (22) with clamp (23).

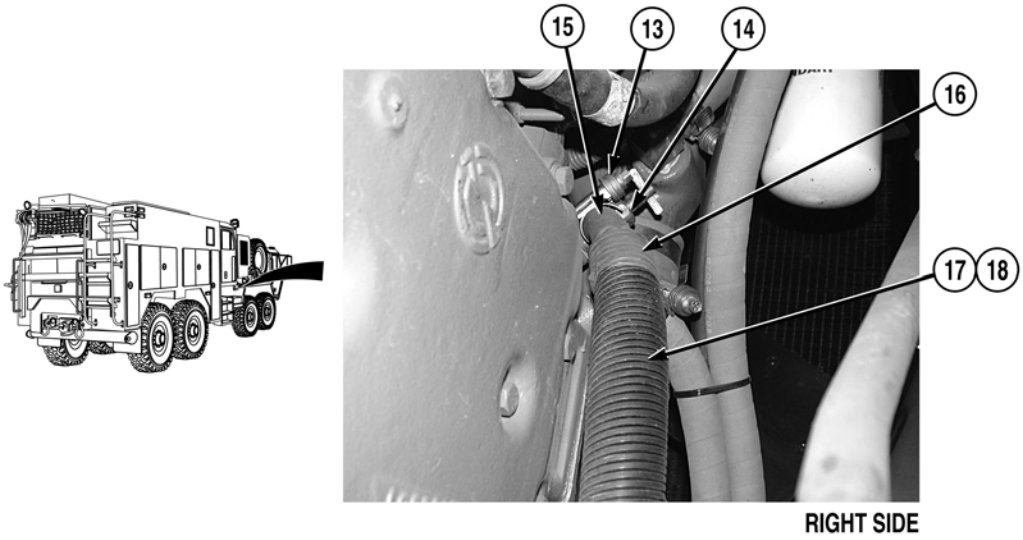


3. Install split loom (19) on hose (15).

NOTE

To ease installation, new hose from heater core to engine must be attached to old hose and pulled through crew cab floor area because openings in crew cab floor cannot be reached.

4. Cut old hose (15) and split loom (19) under crew cab and attach new hose (15) and split loom (19) to old hose with tape.
5. Pull old hose (15) and split loom (19) through crew cab floor until new hose (15) and split loom (19) can be accessed in crew cab.
6. Remove old hose (15) and split loom (19).
7. Install hose (15) on valve (22) with clamp (21).
8. Attach hose (15) and split loom (19) on frame (20).

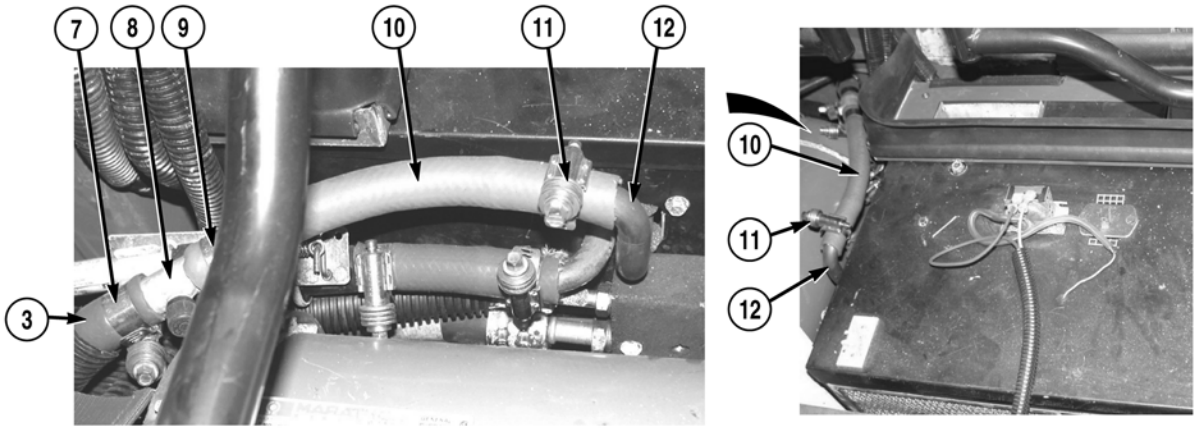


9. Install hose (18) on hose (15).
10. Install split loom (17) on hose (15) with tape (16).

NOTE

Perform Step (11) to install heater hose on right side of engine.

11. Install hose (15) on shutoff valve (13) with clamp (14).
12. Open shutoff valve (13).

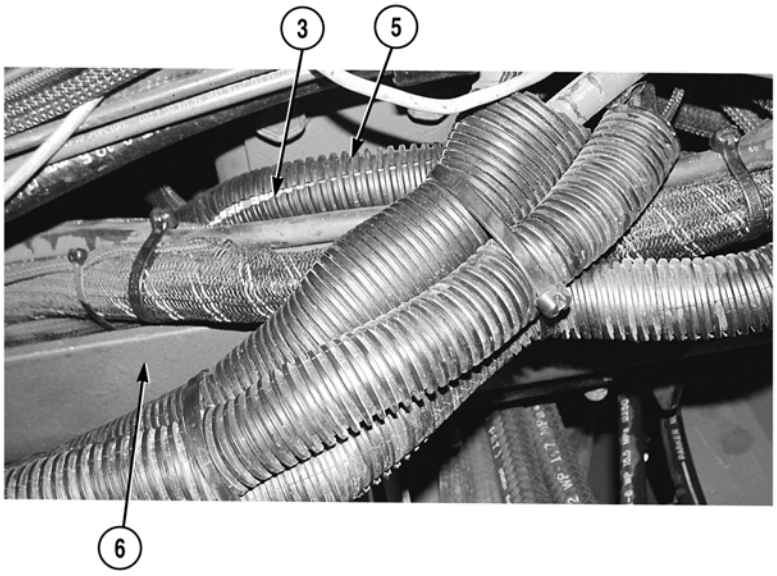


13. Install hose (10) on heater core (12) with clamp (11).
14. Install hose (10) on fitting (8) with clamp (9).
15. Install split loom (5) on hose (3).

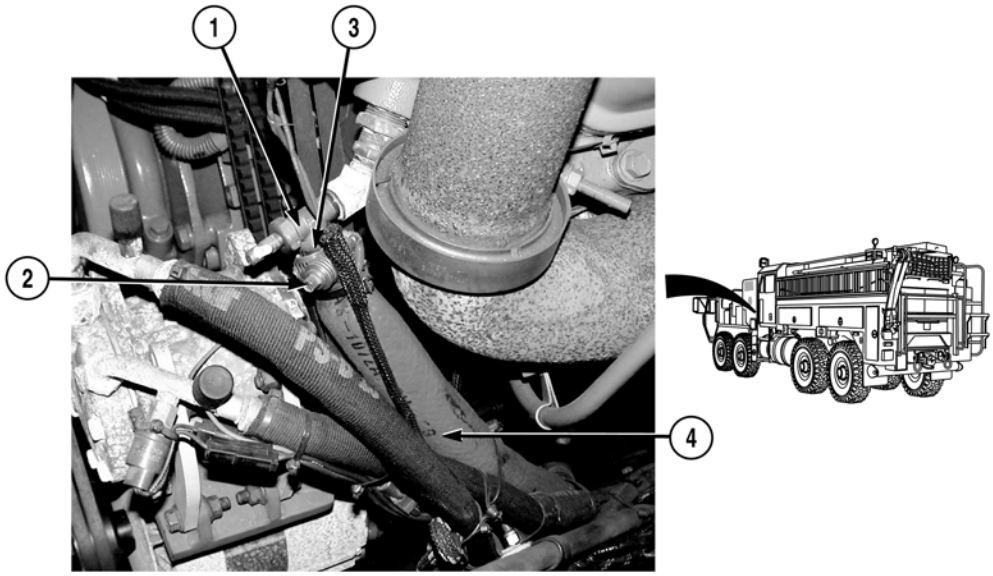
NOTE

To ease installation, new hose from heater core to engine must be attached to old hose and pulled through crew cab floor area because openings in crew cab floor cannot be reached.

16. Cut old hose (3) and split loom (5) under crew cab and attach new hose (3) and split loom (5) to old hose with tape.
17. Pull old hose (3) and split loom (5) through crew cab until new hose (3) and split loom (5) can be accessed in crew cab.
18. Remove old hose (3) and split loom (5).
19. Slide hose (3) on fitting (8) with clamp (7).



20. Attach hose (3) and split loom (5) on frame (6).



LEFT SIDE

21. Install hose (4) on hose (3).

NOTE

Perform Step (21) to install heater hose on left side of engine.

22. Install hose (3) on shutoff valve (1) with hose clamp (2).
23. Open shutoff valve (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill engine coolant (cooling system servicing) (TM 9-2320-325-14&P)
2. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER COMPRESSOR AND MOTOR ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

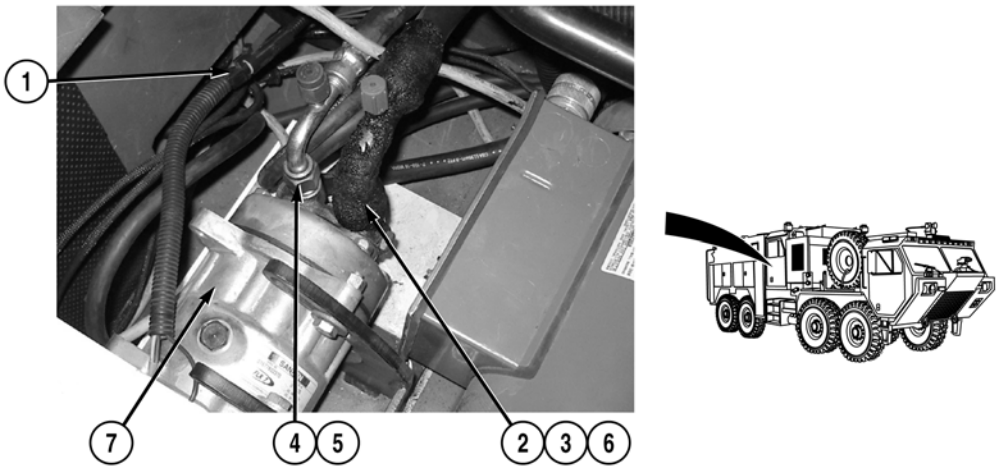
Materials/Parts
Tags, Identification (WP 0625, Item 51)
Bork Insulation Tape (WP 0625, Item 10)
Preformed Packing (1)
Preformed Packing (1)
Lockwasher (4)
Lockwasher (5)
Locknuts (4)
Lockwasher (4)
Lockwasher (4)

Personnel Required
MOS 63B, Wheeled vehicle mechanic (2)

References
TM 9-2320-325-14&P
WP 0189
WP 0614, Fig. 5

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)
Crew cab air conditioner coolant recovered (WP 0217)

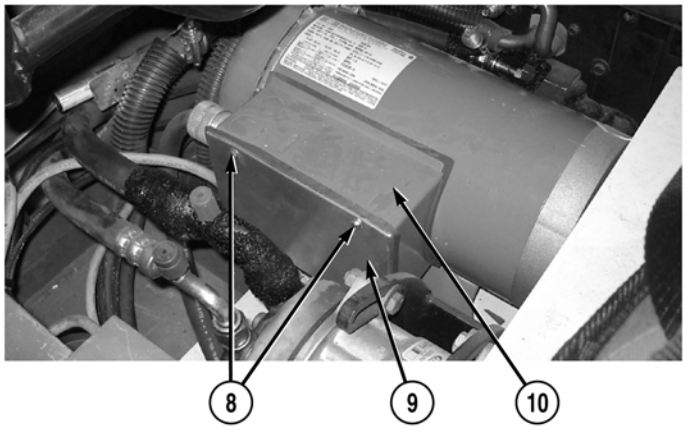
REMOVAL



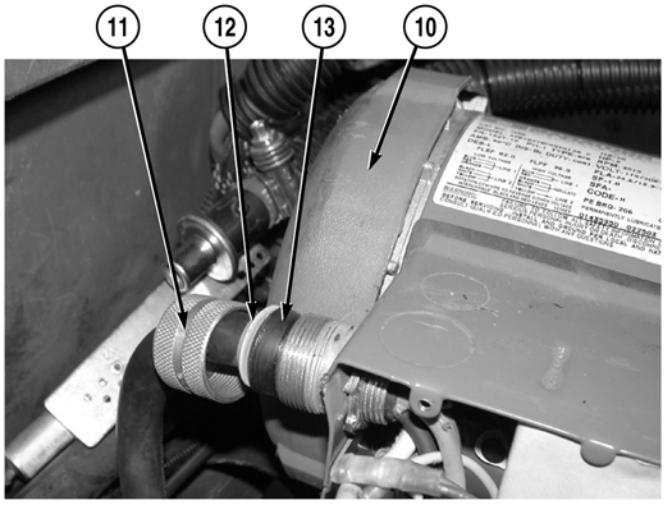
NOTE

- To remove belt guard and compressor, mounting plate with compressor and motor must be removed from crew cab floor as an assembly.
- Tag and mark connectors, wires, and hoses prior to removal to ensure proper installation.

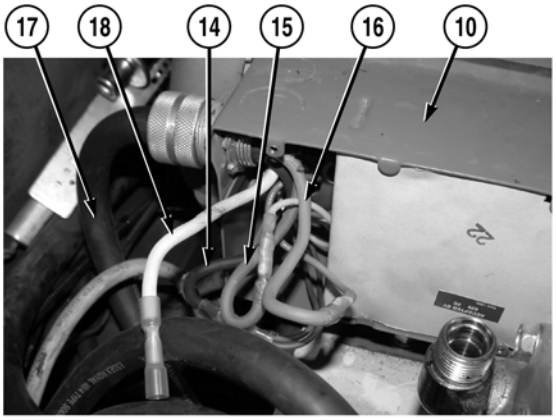
1. Disconnect connector (1).
2. Remove insulation tape (2) from hose (3).
3. Remove two hoses (3) and (4) and preformed packings (5) and (6) from air conditioner compressor (7). Discard preformed packings.



4. Remove four screws (8) and cover (9) from motor (10).



5. Remove collar (11), washer (12), and grommet (13) from motor (10).

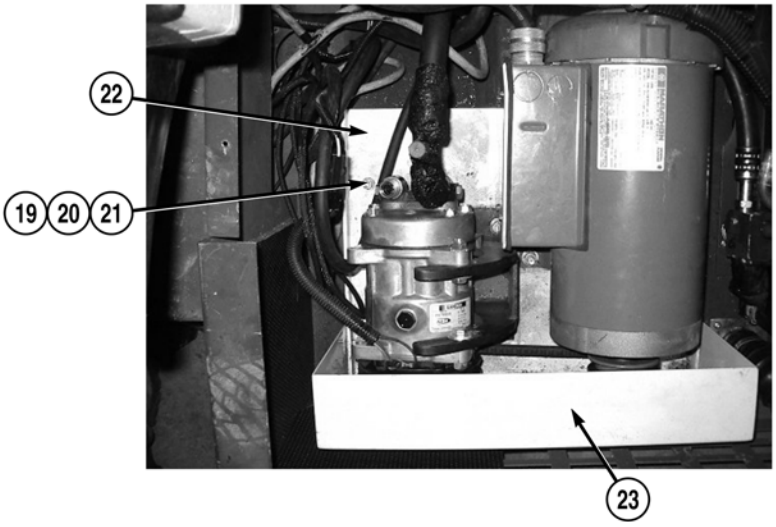


6. Cut three wires (14), (15), and (16) (TM 9-2320-325-14&P).

NOTE

Wire 18 is not connected to motor.

7. Remove cable (17) and four wires (14), (15), (16), and (18) from motor (10).

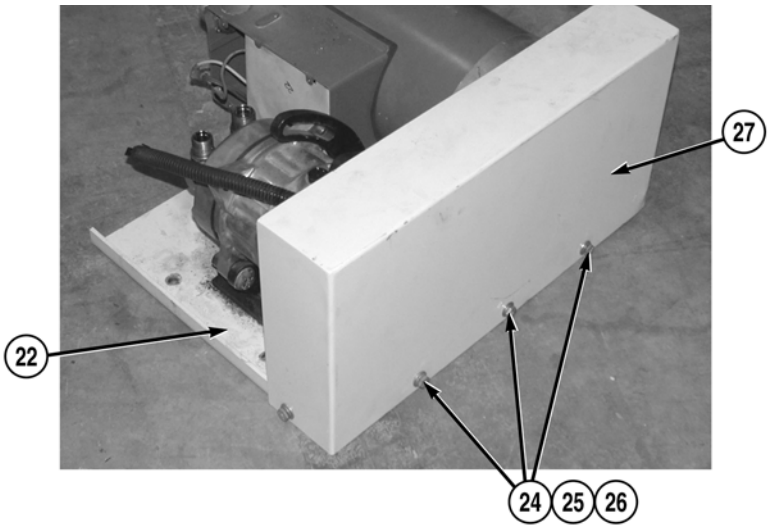


8. Remove four screws (19), lockwashers (20), and washers (21) from mounting plate (22). Discard lockwashers.

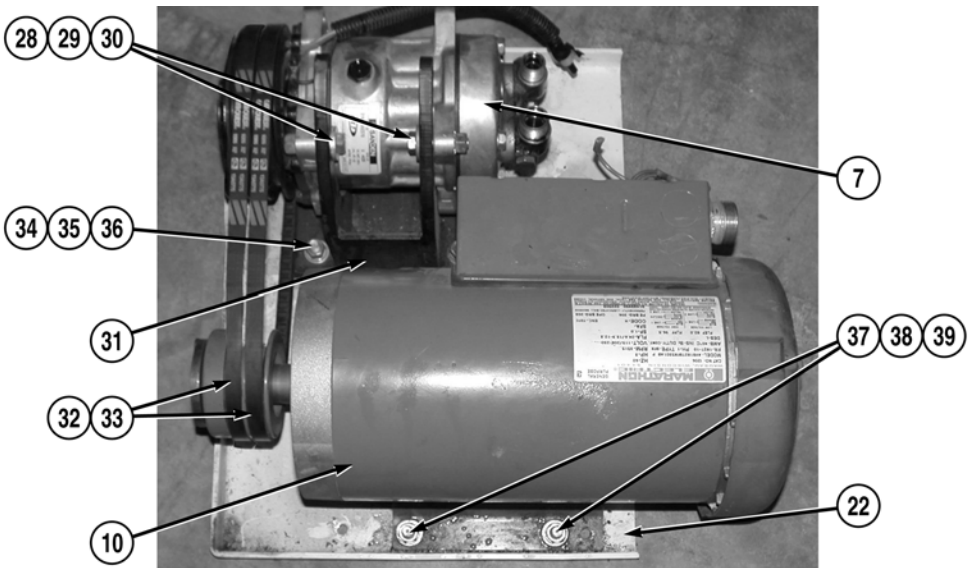
WARNING

Air conditioner compressor assembly is heavy. Do not lift or move without the aid of an assistant. Failure to comply may result in injury to personnel.

9. With the aid of an assistant, remove air conditioner compressor and motor assembly (23) from vehicle.



10. Remove five screws (24), lockwashers (25), washers (26), and belt guard (27) from mounting plate (22). Discard lockwashers.



11. Loosen four screws (28), washers (29), and locknuts (30) from bracket (31) and air conditioner compressor (7). Discard locknuts.

12. Remove two drive belts (32) and (33) from air conditioner compressor (7) and motor (10).

13. Remove four locknuts (30), washers (29), screws (28), and air conditioner compressor (7) from bracket (31). Discard locknuts.

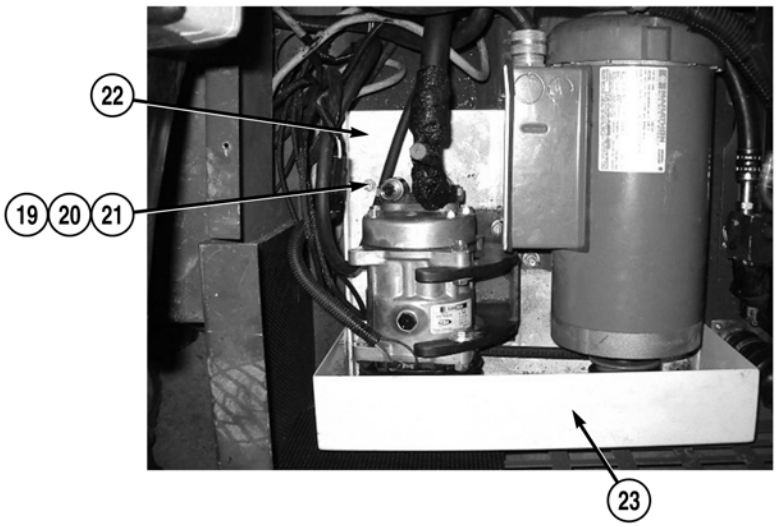
14. Remove four nuts (34), lockwashers (35), washers (36), and bracket (31) from mounting plate (22). Discard lockwashers.

15. Remove four nuts (37), lockwashers (38), washers (39), and motor (10) from mounting plate (22). Discard lockwashers.

END OF TASK

INSTALLATION

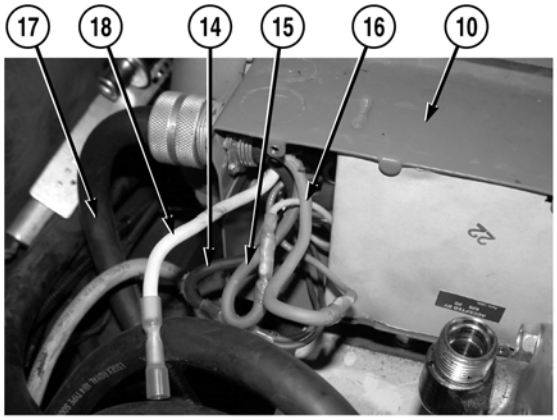
1. Install motor (10) on mounting plate (22) with four washers (39), lockwashers (38), and nuts (37).
2. Install bracket (31) on mounting plate (22) with four washers (36), lockwashers (35), and nuts (34).
3. Install air conditioner compressor (7) on bracket (31) with four screws (28), washers (29), and locknuts (30). Do not tighten locknuts.
4. Install two drive belts (33) and (32) on motor (10) and air conditioner compressor (7).
5. Tighten two drive belts (33) and (32) (WP 0189).
6. Install belt guard (27) on mounting plate (22) with five washers (26), lockwashers (25), and screws (24).



WARNING

Air conditioner compressor assembly is heavy. Do not lift or move without the aid of an assistant. Failure to comply may result in injury to personnel.

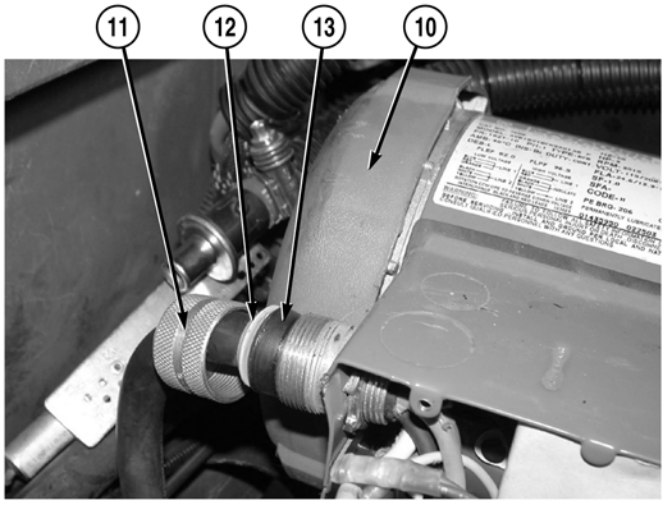
7. With the aid of an assistant, install air conditioner compressor and motor assembly (23) in vehicle.
8. Install air conditioner compressor and motor assembly (23) on vehicle with four washers (21), lockwashers (20), and screws (19).



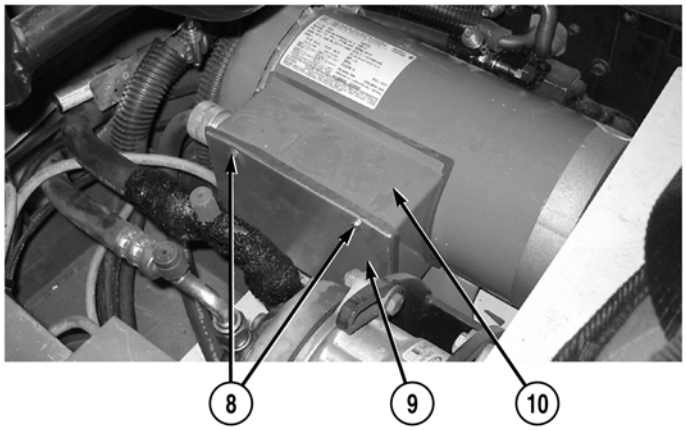
NOTE

Wire 18 does not connect to anything in motor.

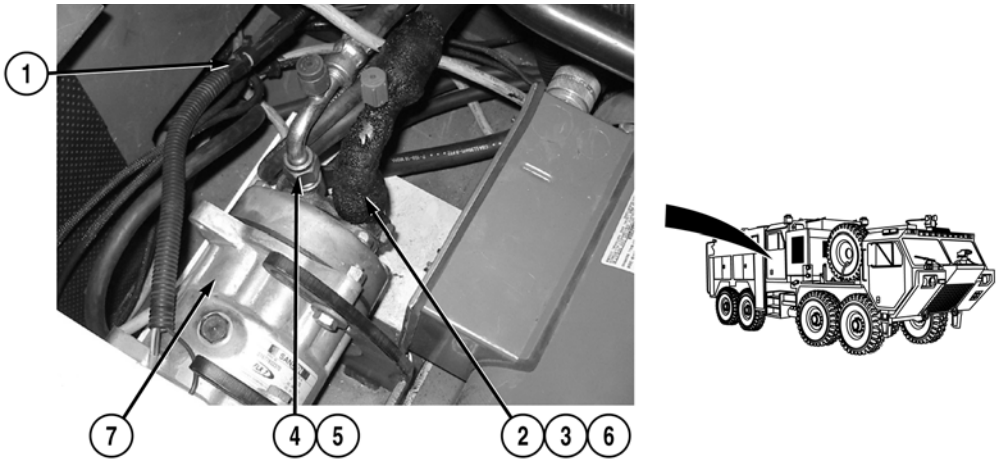
9. Install four wires (18), (16), (15), and (14) and cable (17) in motor (10).
10. Repair three wires (16), (15), and (14) (TM 9-2320-325-14&P).



11. Install grommet (13), washer (12), and collar (11) on motor (10).



12. Install cover (9) on motor (10) with four screws (8).



CAUTION

Install preformed packing on hose fittings to prevent refrigerant from leaking.

13. Install two hoses (4) and (3) and preformed packings (6) and (5) on air conditioner compressor (7).
14. Install insulation tape (2) on hose (3).
15. Connect connector (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Service/recharge crew cab air conditioner (WP 0217)
2. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER CONDENSER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

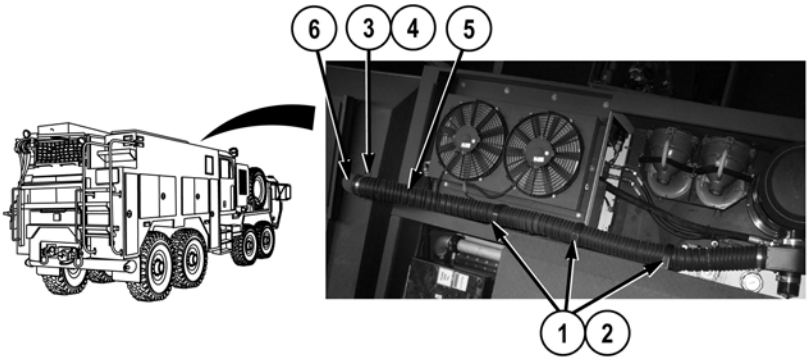
Materials/Parts
Tags, Identification (WP 0625, Item 51)
Preformed Packing (1)
Preformed Packing (1)
Locknut (4)
Locknut (8)

Personnel Required
MOS 52C Utilities Equipment Repairer

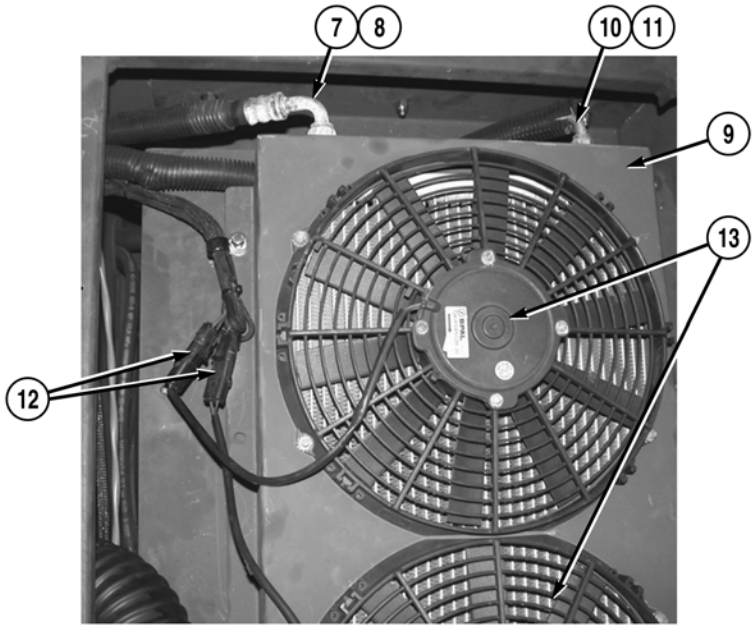
References
WP 0614, Fig. 8

Equipment Conditions
Crew cab air conditioner coolant recovered (WP 0217)

REMOVAL



1. Remove three screws (1) and loop clamps (2) from vehicle.
2. Loosen screw (3) and remove hose clamp (4) and hose (5) from elbow (6).
3. Move hose (5) out of the way.



NOTE

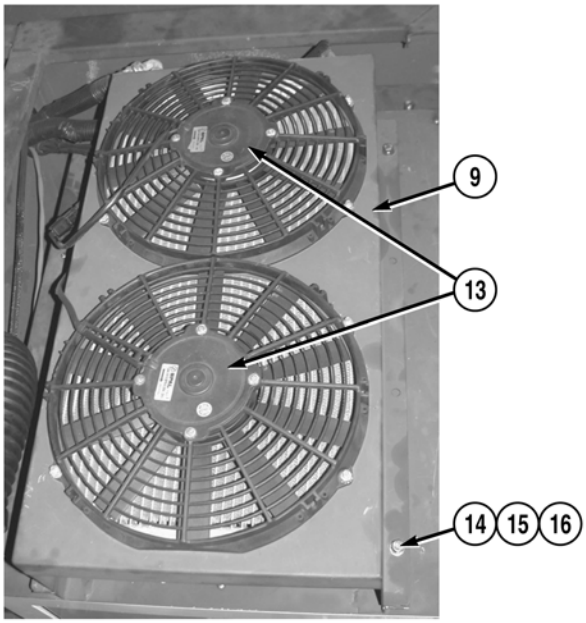
Tag and mark hoses prior to removal to ensure proper installation.

4. Remove hose (7) and preformed packing (8) from condenser assembly (9). Discard preformed packing.
5. Remove hose (10) and preformed packing (11) from condenser assembly (9). Discard preformed packing.

NOTE

Tag and mark wires prior to removal to ensure proper installation.

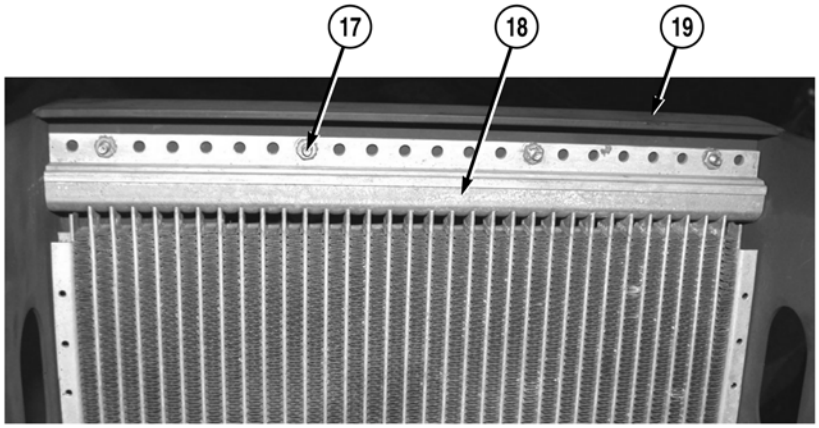
6. Disconnect two connectors (12) from fans (13).



NOTE

Note location of washers prior to removal to ensure proper installation.

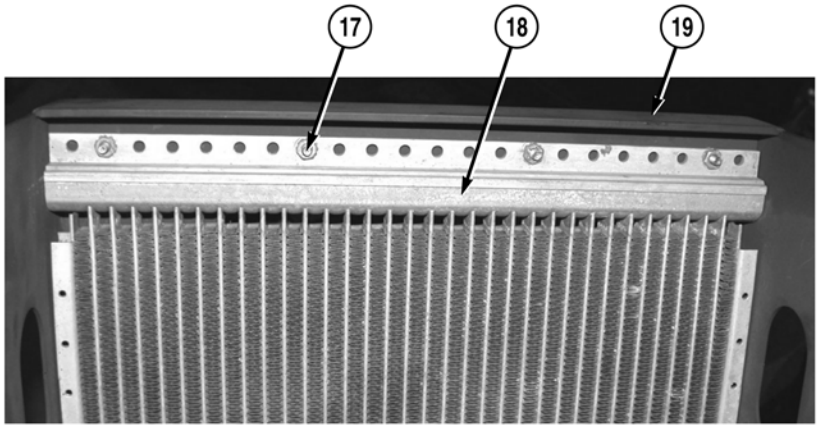
7. Remove four locknuts (14), eight washers (15), four screws (16), and condenser assembly (9) from vehicle. Discard locknuts.



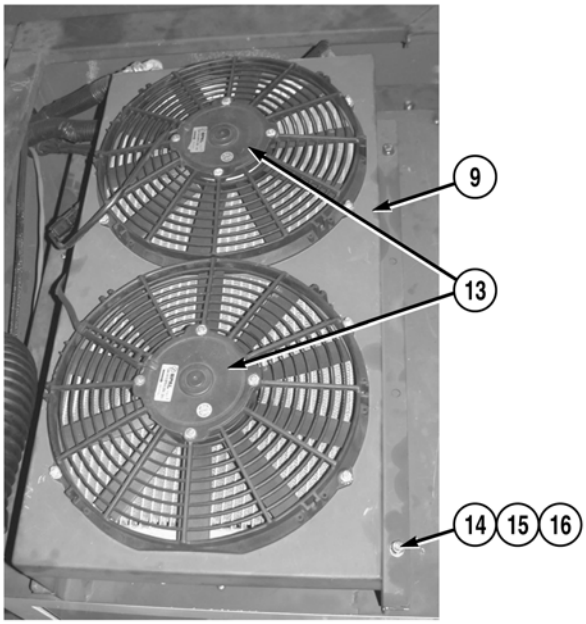
8. Remove eight locknuts (17) and condenser (18) from condenser cover (19). Discard locknuts.

END OF TASK

INSTALLATION



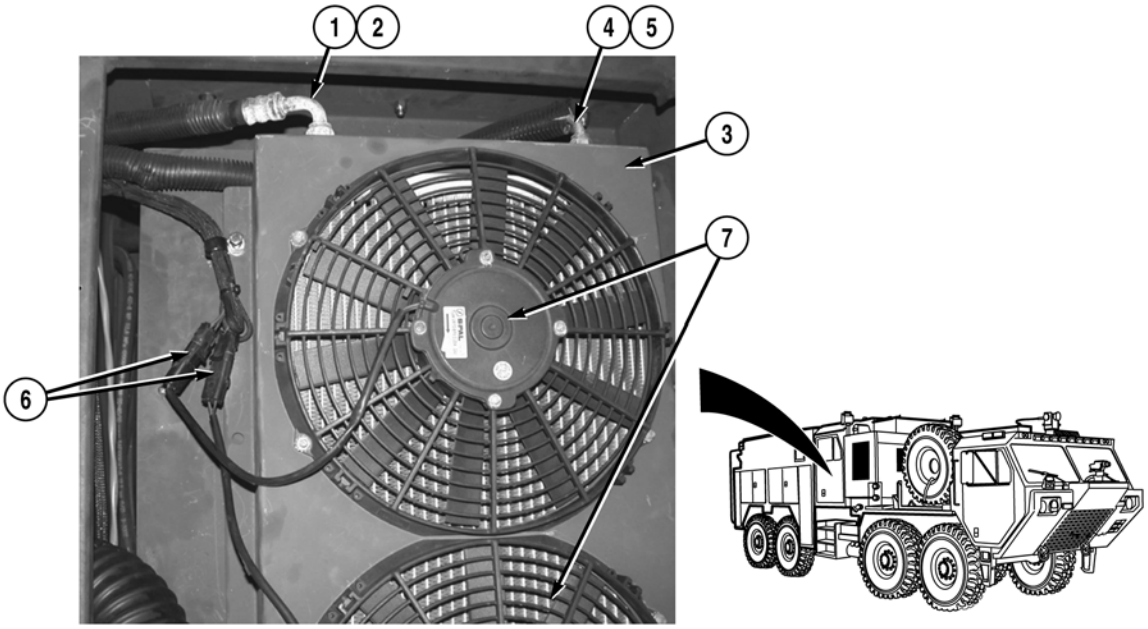
1. Install condenser (18) on condenser cover (19) with eight locknuts (17).



NOTE

Install washers as noted prior to removal.

2. Install condenser assembly (9) on vehicle with four screws (16), eight washers (15), and four locknuts (14).



3. Connect two connectors (12) on fans (13).

CAUTION

Install preformed packing on hose fittings to prevent refrigerant from leaking.

4. Install preformed packing (11) and hose (10) on condenser assembly (9).
5. Install preformed packing (8) and hose (7) on condenser assembly (9).
6. Install hose (5) and hose clamp (4) on elbow (6) by tightening screw (3).
7. Attach hose (5) to vehicle with three loop clamps (2) and screws (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Service/recharge crew cab air conditioner (WP 0217)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER DRYER REPLACEMENT

INITIAL SETUP:

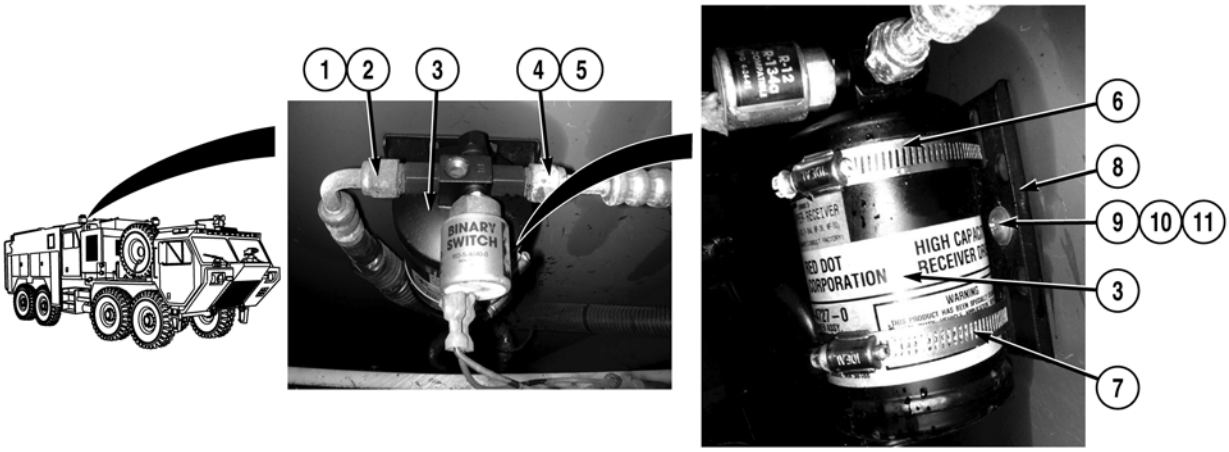
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Preformed Packing (2)
Locknut (2)

References
WP 0614, Fig. 8

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)
Crew cab air conditioner coolant recovered (WP 0217)
Crew cab air conditioner binary switch removed (WP 0197)

REMOVAL



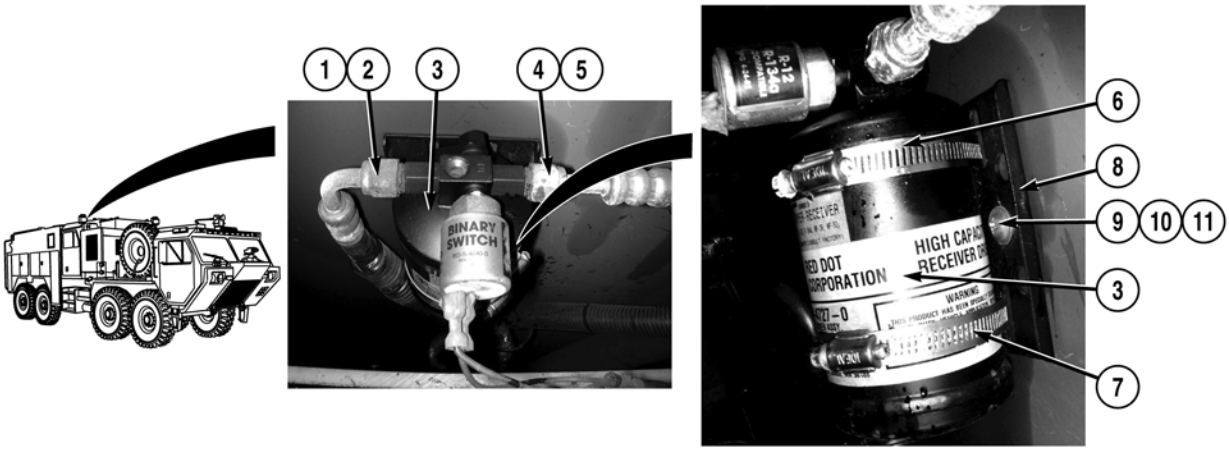
NOTE

Tag and mark hoses prior to removal to ensure proper installation.

1. Remove hose (1) and preformed packing (2) from dryer (3). Discard preformed packing.
2. Remove hose (4) and preformed packing (5) from dryer (3). Discard preformed packing.
3. Remove two clamps (6) and (7), and dryer (3) from bracket (8).
4. Remove two locknuts (9), four washers (10), two screws (11), and bracket (8) from vehicle. Discard locknuts.

END OF TASK

INSTALLATION



1. Install bracket (8) to vehicle with two screws (11), four washers (10), and two locknuts (9).
2. Install dryer (3) to bracket (8) with two clamps (7) and (6).

NOTE

Install preformed packing on hose fittings to prevent refrigerant from leaking.

3. Install hose (4) and preformed packing (5) on dryer (3).
4. Install hose (1) and preformed packing (2) on dryer (3).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install crew cab air conditioner binary switch (WP 0197)
2. Recharge crew cab air conditioner (WP 0217)
3. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER EXPANSION VALVE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

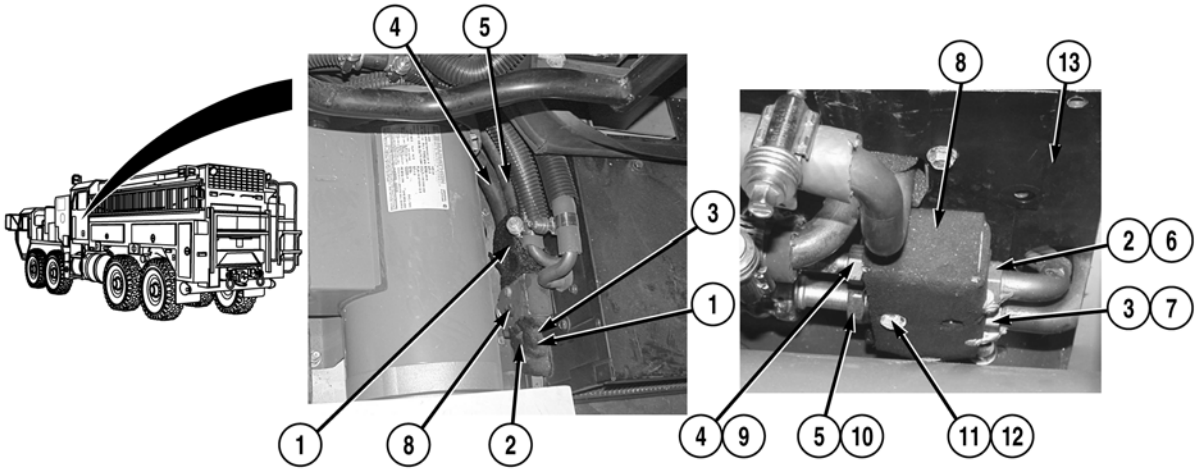
Materials/Parts
Bork Insulation Tape (WP 0625, Item 10)
Preformed Packing (2)
Preformed Packing (2)

Personnel Required
MOS 52C Utilities equipment repairer

References
WP 0614, Fig. 7

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)
Crew cab air conditioner coolant recovered (WP 0217)

REMOVAL



1. Remove insulation tape (1) from two fittings (2) and (3) and hoses (4) and (5).

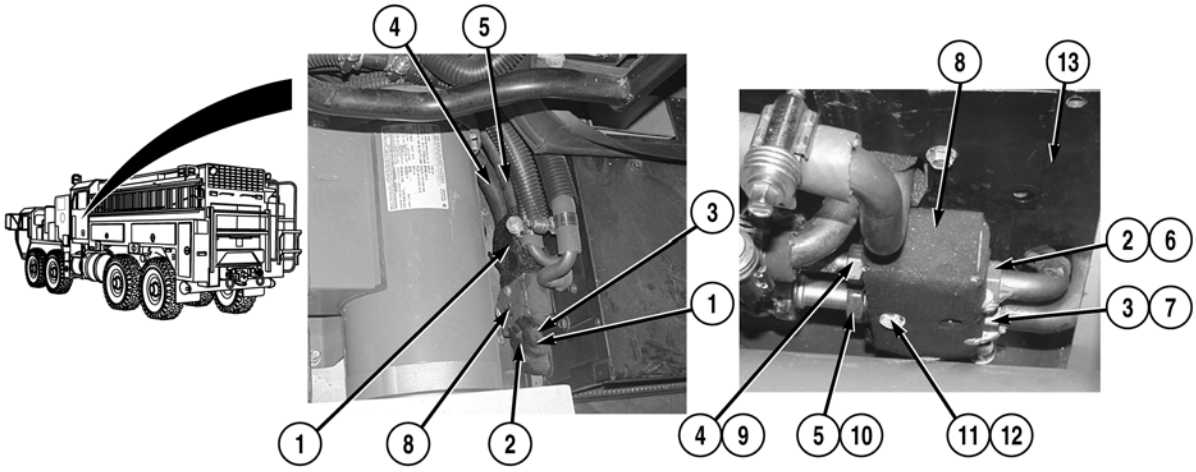
NOTE

Tag and mark hoses prior to removal to ensure proper installation.

2. Remove two fittings (2) and (3) and preformed packings (6) and (7) from expansion valve (8). Discard preformed packings.
3. Remove two hoses (4) and (5) and preformed packings (9) and (10) from expansion valve (8). Discard preformed packings.
4. Remove screw (11), washer (12), and expansion valve (8) from air conditioner/heater assembly (13).

END OF TASK

INSTALLATION



1. Install expansion valve (8) on air conditioner/heater assembly (13) with washer (12), and screw (11).

CAUTION

Install preformed packing on hose fittings to prevent refrigerant from leaking and causing damage to equipment.

2. Install two preformed packings (10) and (9) and hoses (5) and (4) on expansion valve (8).
3. Install two preformed packings (7) and (6) and fittings (3) and (2) on expansion valve (8).
4. Install insulation tape (1) on two hoses (5) and (4) and fittings (3) and (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Recharge crew cab air conditioner (WP 0217)
2. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER EVAPORATOR CORE REPLACEMENT

INITIAL SETUP:

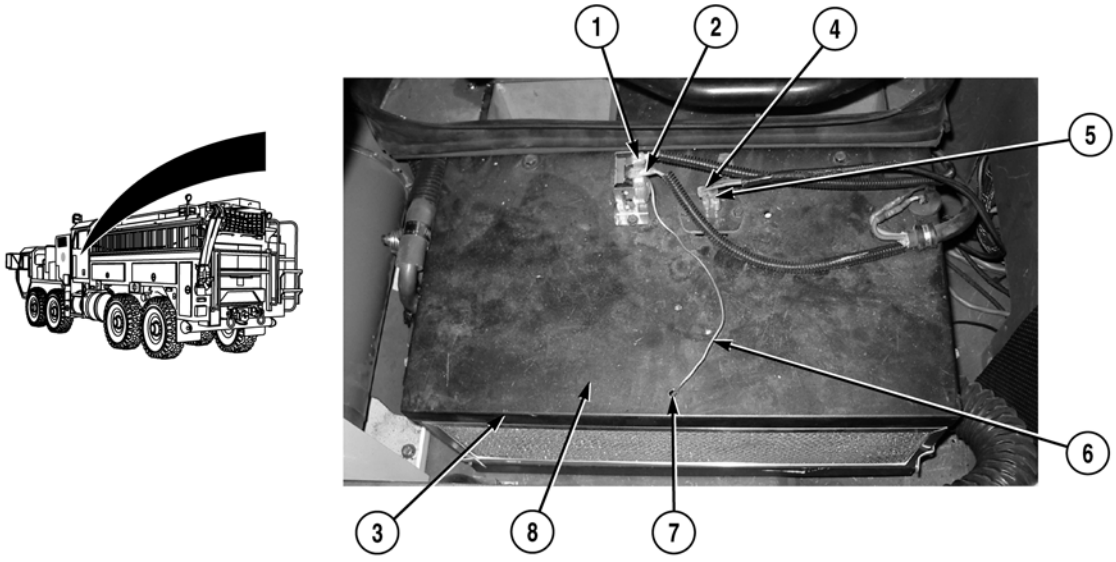
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Bork Insulation Tape (WP 0625, Item 10)
Preformed Packing (2)

References
WP 0614, Fig. 7

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)
Crew cab air conditioner coolant recovered (WP 0217)

REMOVAL



NOTE

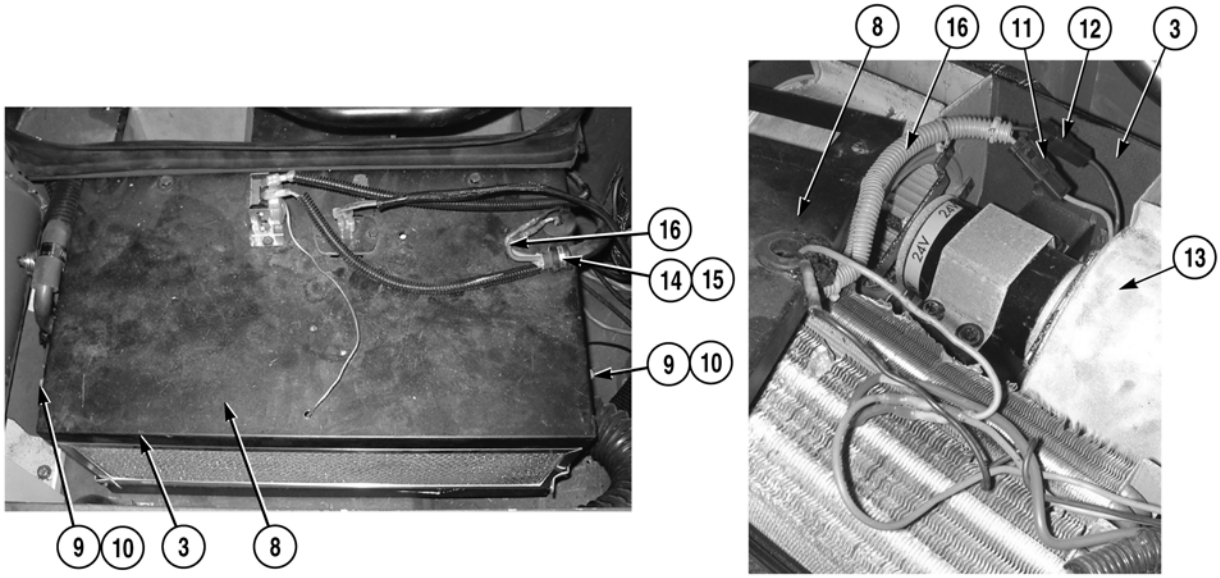
Tag and mark wires prior to removal to ensure proper installation.

1. Remove two connectors (1) and (2) from air conditioner/heater assembly (3).

⚠ CAUTION

Slide temperature probe slowly from air conditioner/heater assembly. Failure to comply may result in damage to probe.

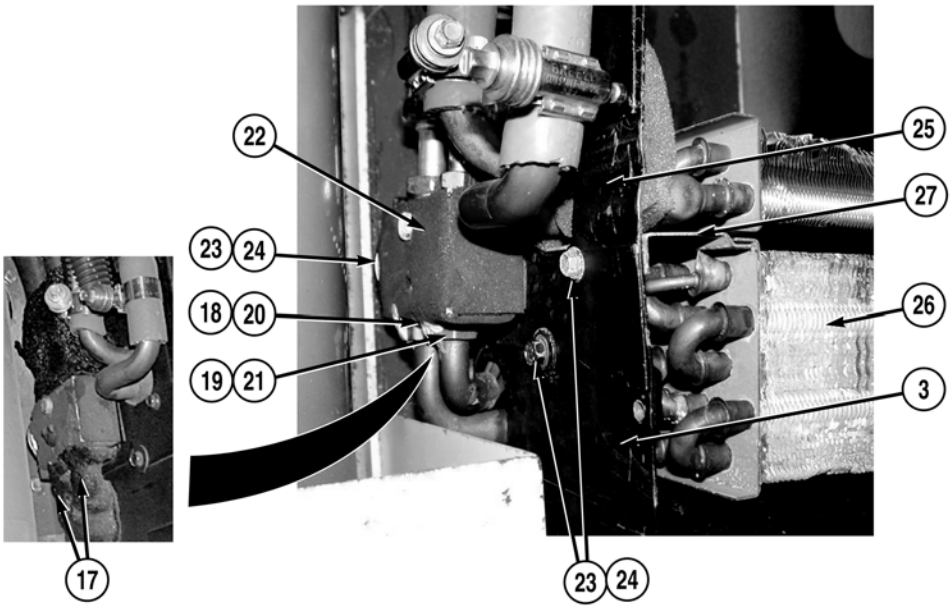
2. Remove two connectors (4) and (5) from air conditioner/heater assembly (3).
3. Remove temperature probe (6) from grommet (7) and cover (8).



CAUTION

Wires are still attached to cover. Only lift cover enough to access wires under cover. Failure to comply may result in damage to equipment.

4. Remove four screws (9) and washers (10) from air conditioner/heater assembly (3).
5. Lift cover (8) from air conditioner/heater assembly (3) only enough to access connectors (11) and (12), and remove two connectors (11) and (12) from blower motor assembly (13), and remove cover (8).
6. Remove screw (14), clamp (15), and wire harness (16) from cover (8).

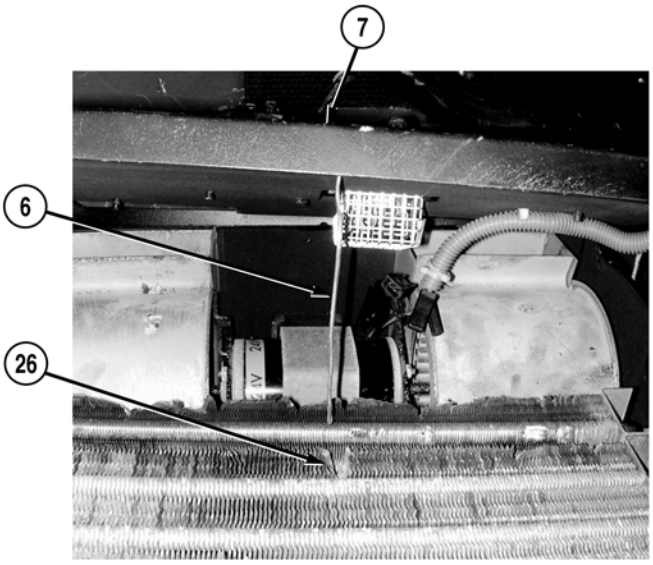


7. Remove insulation tape (17) from two fittings (18) and (19).
8. Remove two fittings (18) and (19) and preformed packings (20) and (21) from expansion valve (22). Discard preformed packings.
9. Slide cover (8) out of air conditioner/heater assembly (3).
10. Remove four screws (23), washers (24), and cover (25) from air conditioner/heater assembly (3).
11. Remove evaporator core (26) and divider (27) from air conditioner/heater assembly (3).

END OF TASK

INSTALLATION

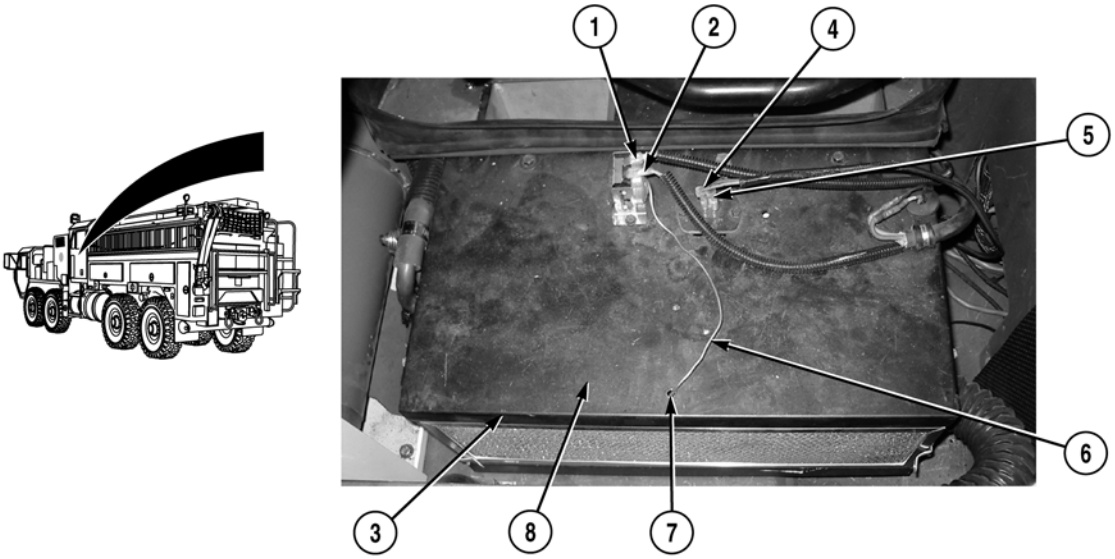
1. Install divider (27) and evaporator core (26) in air conditioner/heater assembly (3).
2. Install cover (25) on air conditioner/heater assembly (3) with four washers (24) and screws (23).
3. Install two preformed packings (21) and (20) and fittings (19) and (18) on expansion valve (22).
4. Install insulation tape (17) on two fittings (19) and (18).
5. Install wire harness (16) and clamp (15) on cover (8) with screw (14).
6. Install two connectors (12) and (11) to blower motor assembly (13).
7. Install cover (8) on air conditioner/heater assembly (3) with four washers (10) and screws (9).



CAUTION

Do not puncture temperature probe. Gas in tube will leak out.

8. Carefully insert temperature probe (6) through grommet (7) and into air conditioner evaporator core (26).



9. Install two connectors (5) and (4) on air conditioner/heater assembly (3).

10. Install two connectors (2) and (1) on air conditioner/heater assembly (3).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Recharge crew cab air conditioner (WP 0217)
2. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER/HEATER ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)
Cap Set, Protective (WP 0622, Item 3)

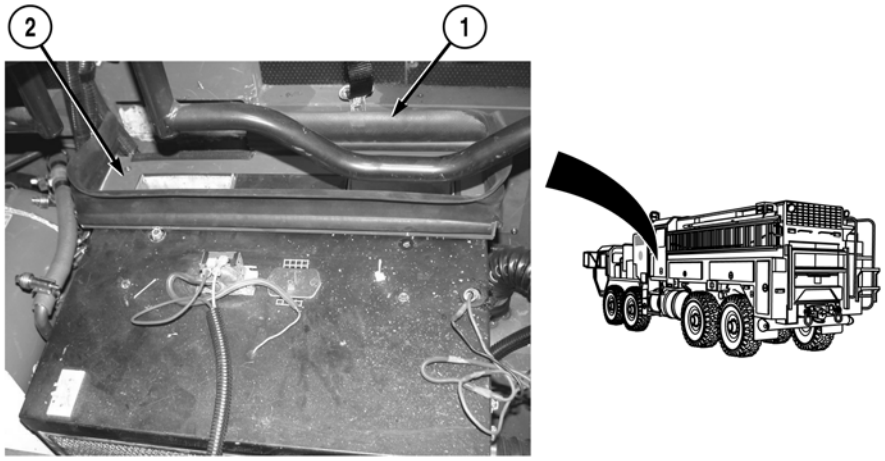
Materials/Parts
Adhesive, Sealant, Silicon, RTV (WP 0625, Item 5)
Tags, Identification (WP 0625, Item 51)
Lockwasher (4)
Preformed Packing (2)

Personnel Required
MOS 52C, Utilities equipment repairer

References
WP 0614, Fig. 7

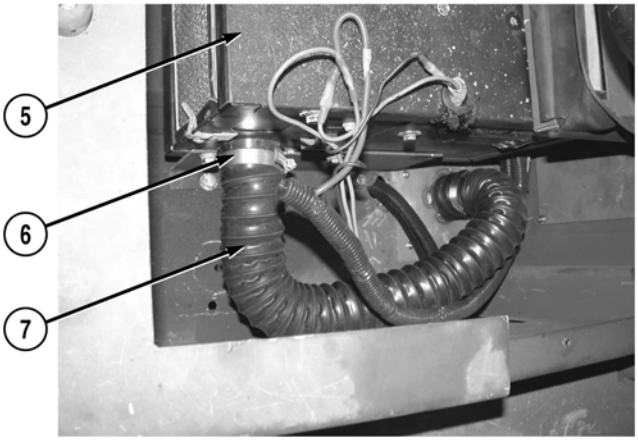
Equipment Conditions
Crew cab air conditioner coolant recovered (WP 0217)

REMOVAL

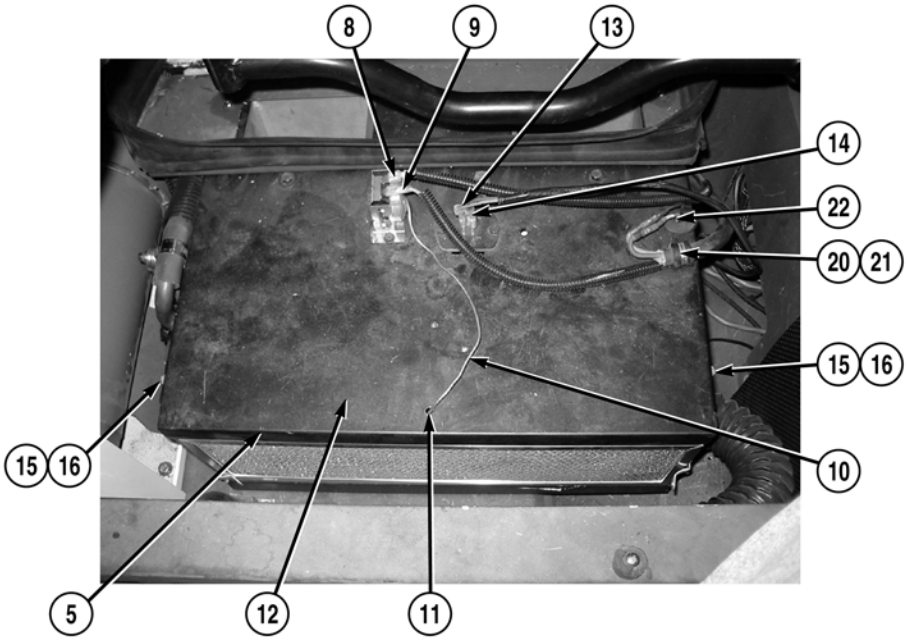


1. Remove air output seal (1) from air output seal mount (2).

2. Remove four screws (3), washers (4), and air output seal mount (2) from air conditioner/heater assembly (5).



3. Remove hose clamp (6) and air intake hose (7) from air conditioner/heater assembly (5).



NOTE

Tag and mark wires prior to removal to ensure proper installation.

4. Remove two connectors (8) and (9) from air conditioner/heater assembly (5).

CAUTION

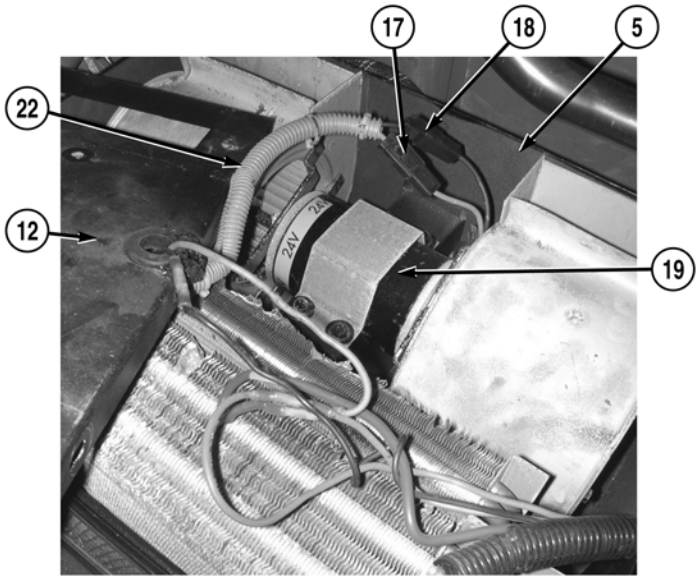
Slide temperature probe slowly from air conditioner/heater assembly. Failure to comply may result in damage to probe.

5. Remove temperature probe (10) from grommet (11) and cover (12).

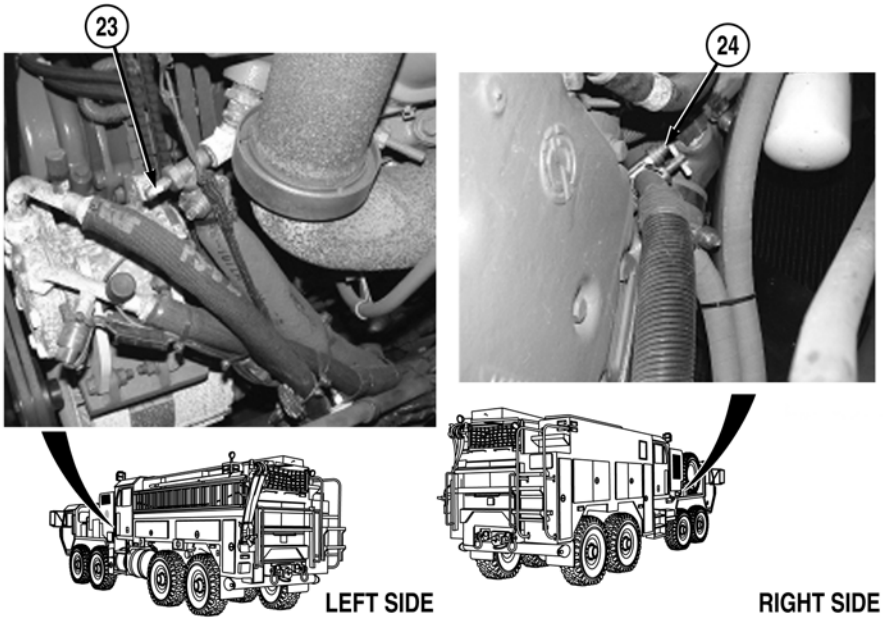
CAUTION

Wires are still attached to cover. Only lift cover enough to access wires under cover. Failure to comply may result in damage to equipment.

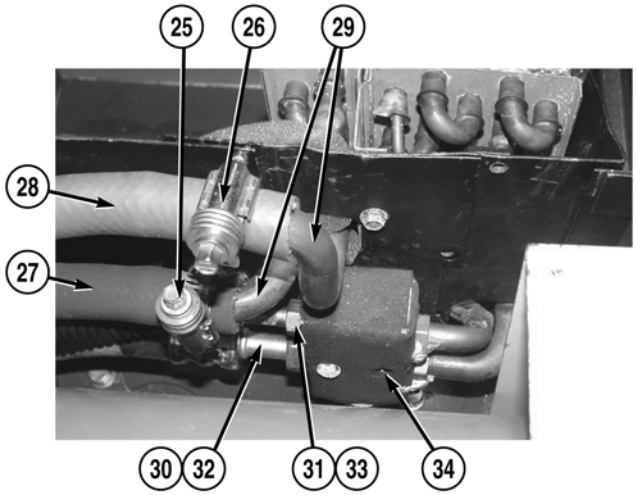
6. Remove two connectors (13) and (14) from air conditioner/heater assembly (5).
7. Remove four screws (15) and washers (16) from cover (12).



8. Lift cover (12) from air conditioner/heater assembly (5), only enough to access connectors (17) and (18), and remove two connectors (17) and (18) from blower motor assembly (19).
9. Remove cover (12) from air conditioner/heater assembly (5).
10. Remove screw (20), clamp (21), and wiring harness (22) from cover (12).



11. Close shutoff valves (23) and (24).

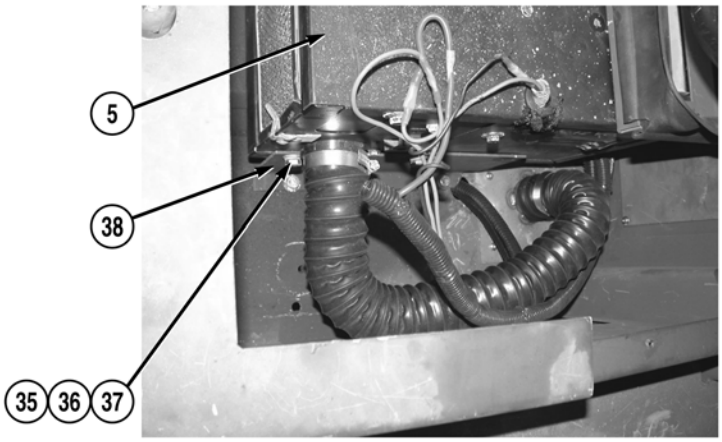


NOTE

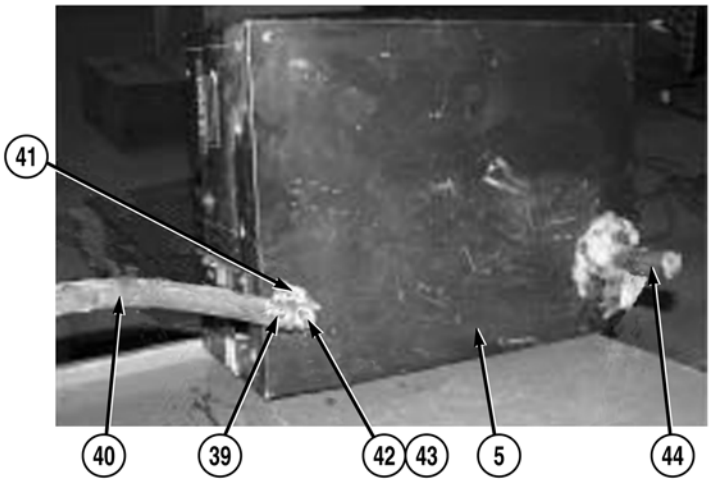
Tag and mark hoses prior to removal to ensure proper installation.

12. Remove two hose clamps (25) and (26), and heater hoses (27) and (28) from heater core (29).

13. Remove two air conditioning hoses (30) and (31) and preformed packings (32) and (33) from expansion valve (34). Discard preformed packings.



14. Remove four screws (35), washers (36), lockwashers (37) and air conditioner/heater assembly (5) from two mounting brackets (38). Discard lockwashers.

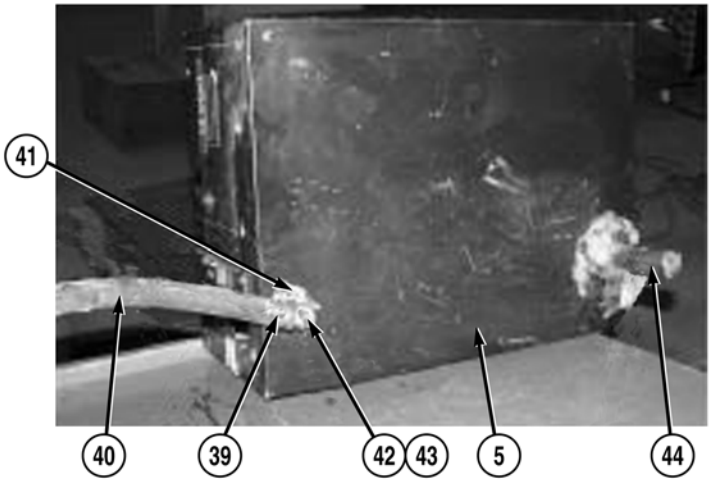


15. Remove clamp (39), drain hose (40), clamp (41), elbow (42), and drain hose (43) from air conditioner/heater assembly (5).

16. Remove drain hose (44) from air conditioner/heater assembly (5).

END OF TASK

INSTALLATION

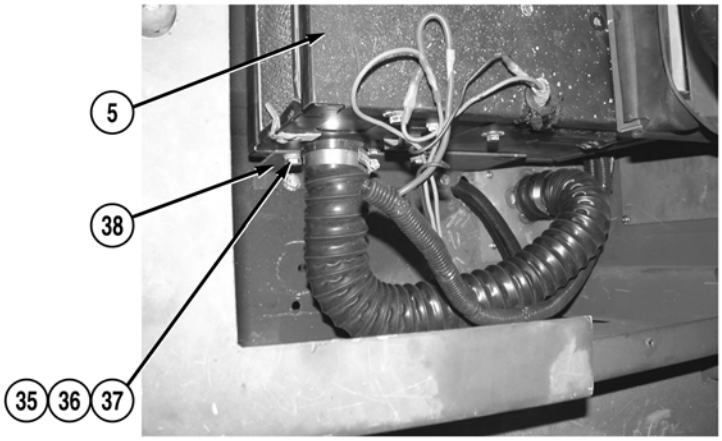


1. Install drain hose (44) on air conditioner/heater assembly (5).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

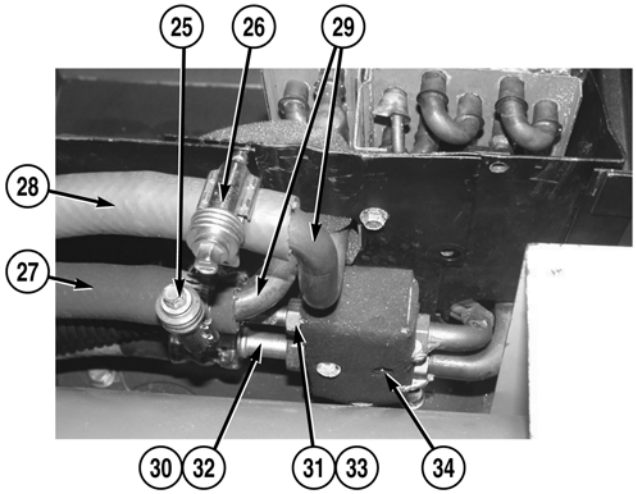
2. Apply adhesive to drain hose (44).
3. Install drain hose (43), elbow (42), clamp (41), drain hose (40), and clamp (39) on air conditioner/heater assembly (5).



NOTE

Install drain hoses in holes in crew cab floor when installing air conditioner/heater assembly.

4. Install air conditioner/heater assembly (5) on two mounting brackets (38) with four lockwashers (37), washers (36), and screws (35).

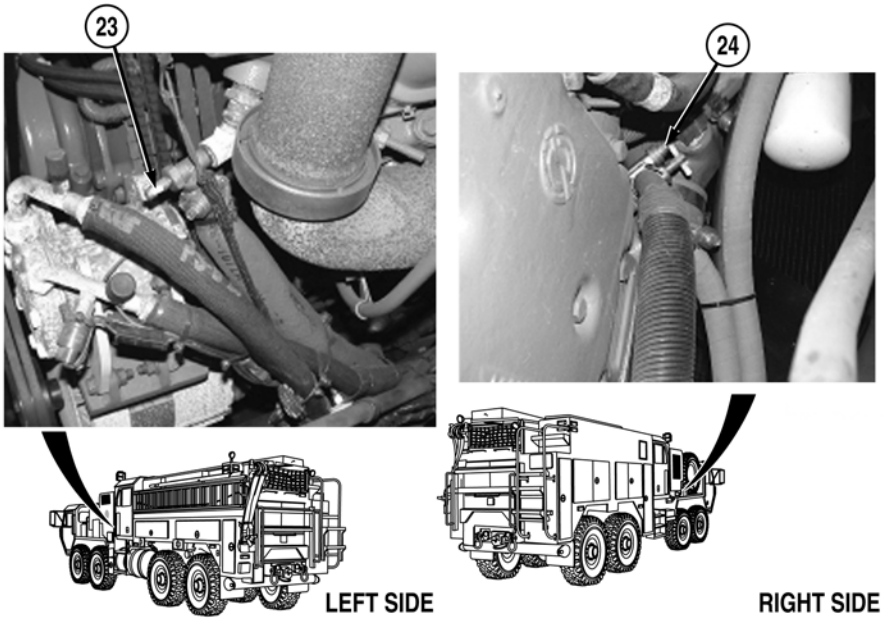


⚠ CAUTION

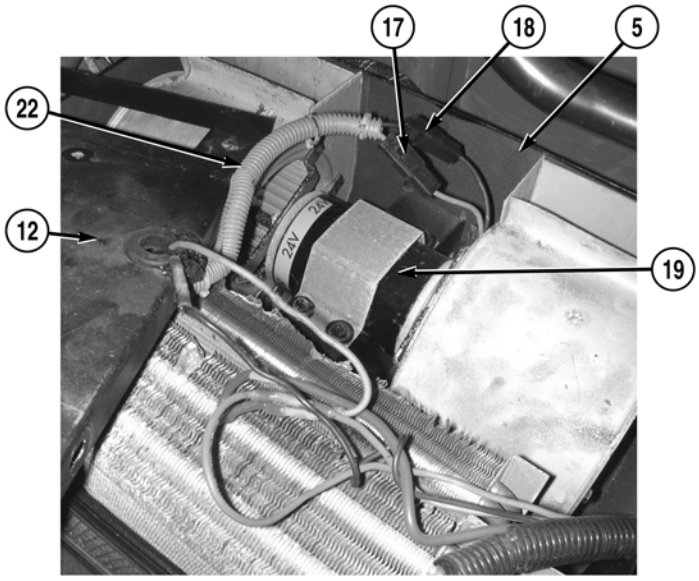
Install preformed packing on hose fittings to prevent refrigerant from leaking. Failure to comply may result in damage to probe.

5. Install two air conditioning hoses (31) and (30) and preformed packing (33) and (32) on expansion valve (34).

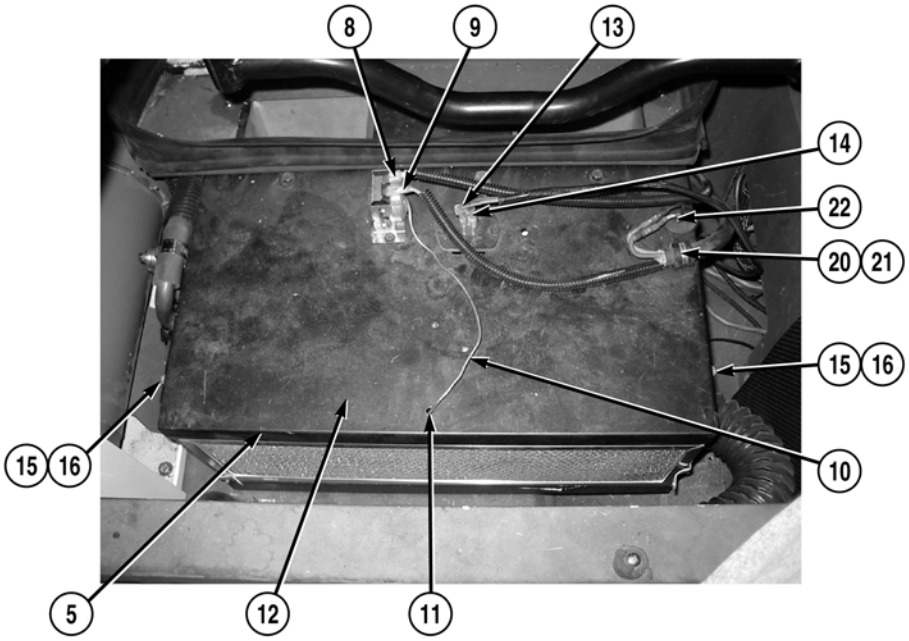
6. Install two heater hoses (28) and (27) on heater core (29) with two hose clamps (26) and (25).



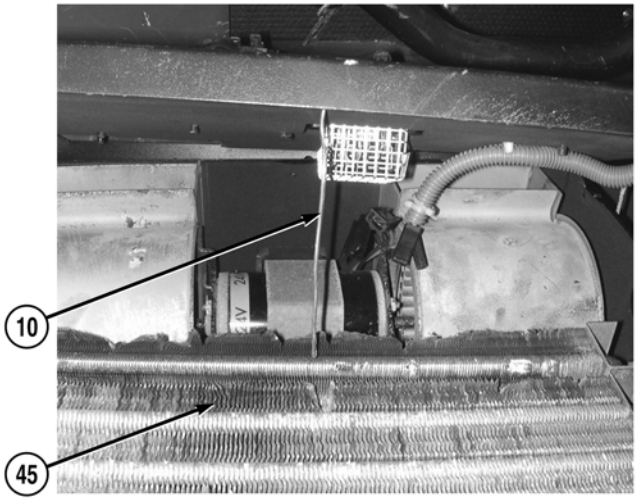
7. Open two shutoff valves (24) and (23).



8. Install wiring harness (22) and clamp (21) on cover (12) with screw (20).
9. Install connectors (18) and (17) on blower motor assembly (19).



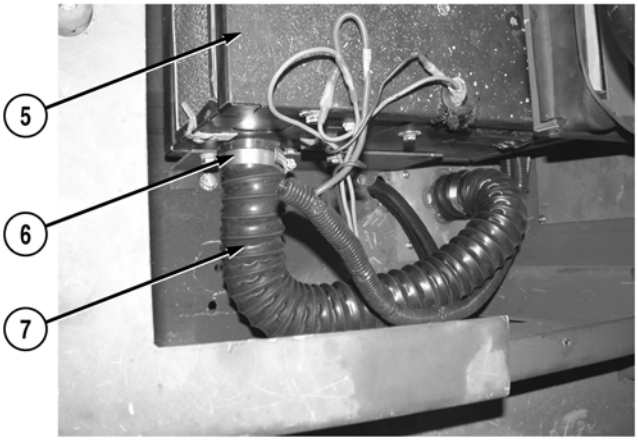
10. Install cover (12) with four washers (16) and screws (15).



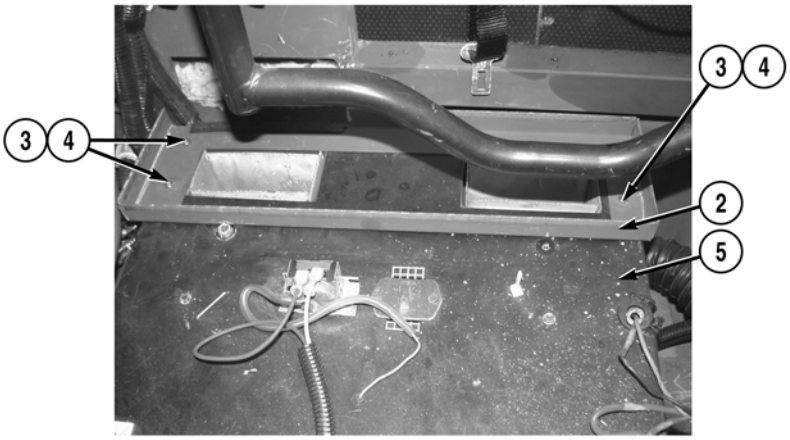
CAUTION

Do not puncture temperature probe. Gas in tube will leak out.

11. Carefully insert temperature probe (10) through grommet (11) and in air conditioner evaporator core (45).
12. Install two connectors (14) and (13) on air conditioner/heater assembly (5).
13. Install two connectors (9) and (8) on air conditioner/heater assembly (5).



14. Install air intake hose (7) with hose clamp (6) on air conditioner/heater assembly (5).



15. Install air output seal mount (2) on air conditioner/heater assembly (5) with four washers (4) and screws (3).
16. Install air output seal (1) on air output seal mount (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill engine coolant (TM 9-2320-325-14&P)
2. Service/recharge crew cab air conditioner (WP 0217)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER HOSES REPLACEMENT

INITIAL SETUP:

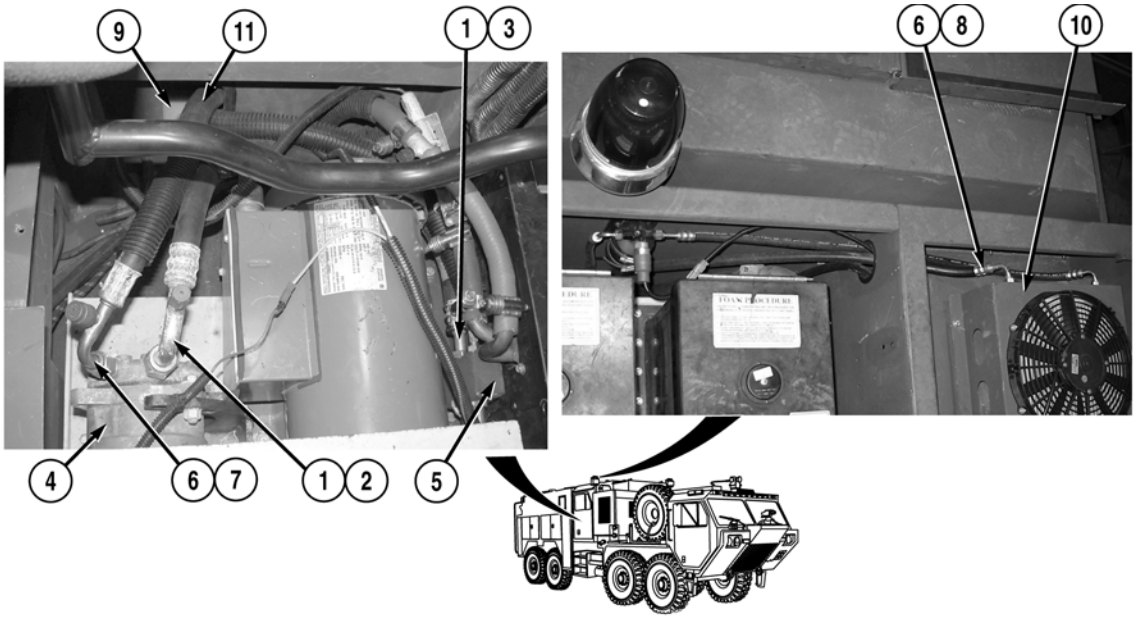
Tools and Special Tools
Cap Set, Protective (WP 0622, Item 3)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Preformed Packing (2)
Preformed Packing (2)
Preformed Packing (2)
Preformed Packing (2)

References
WP 0614, Fig. 7

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)
Crew cab air conditioner coolant recovered (WP 0217)

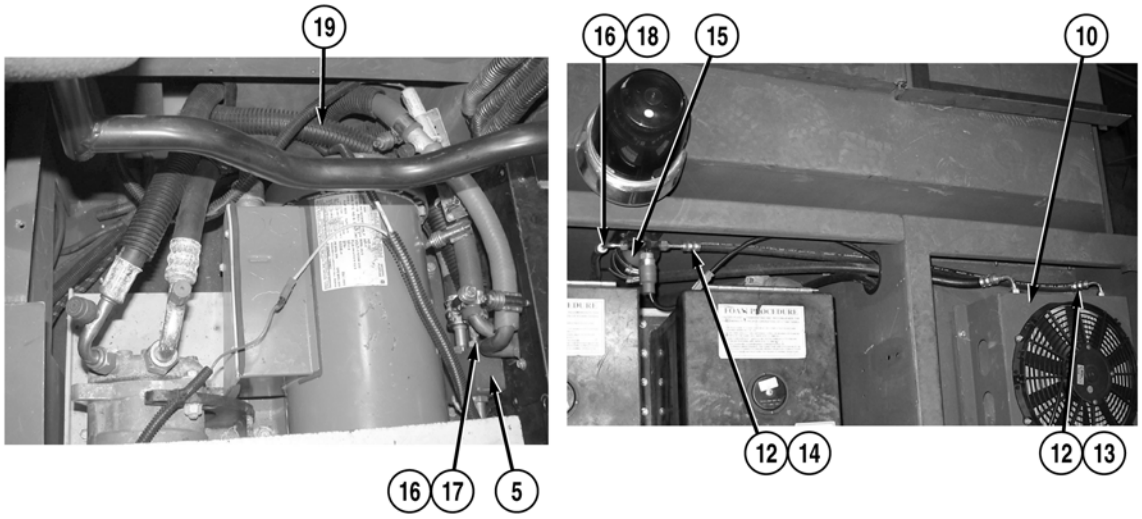
REMOVAL



NOTE

- Tag and mark hoses prior to removal to ensure proper installation.
- Cap and plug hoses upon removal.

1. Remove hose (1) and two preformed packings (2) and (3) from compressor (4) and expansion valve (5). Discard preformed packings.
2. Remove hose (6) and two preformed packings (7) and (8) from compressor (4), crew cab (9), and condenser (10). Discard preformed packings.
3. Remove split loom (11) from hose (6).



4. Remove hose (12) and two preformed packings (13) and (14) from condenser (10) and dryer (15). Discard preformed packings.
5. Remove hose (16) and two preformed packings (17) and (18) from dryer (15), crew cab (9), and expansion valve (5). Discard preformed packings.
6. Remove split loom (19) from hose (16).

END OF TASK

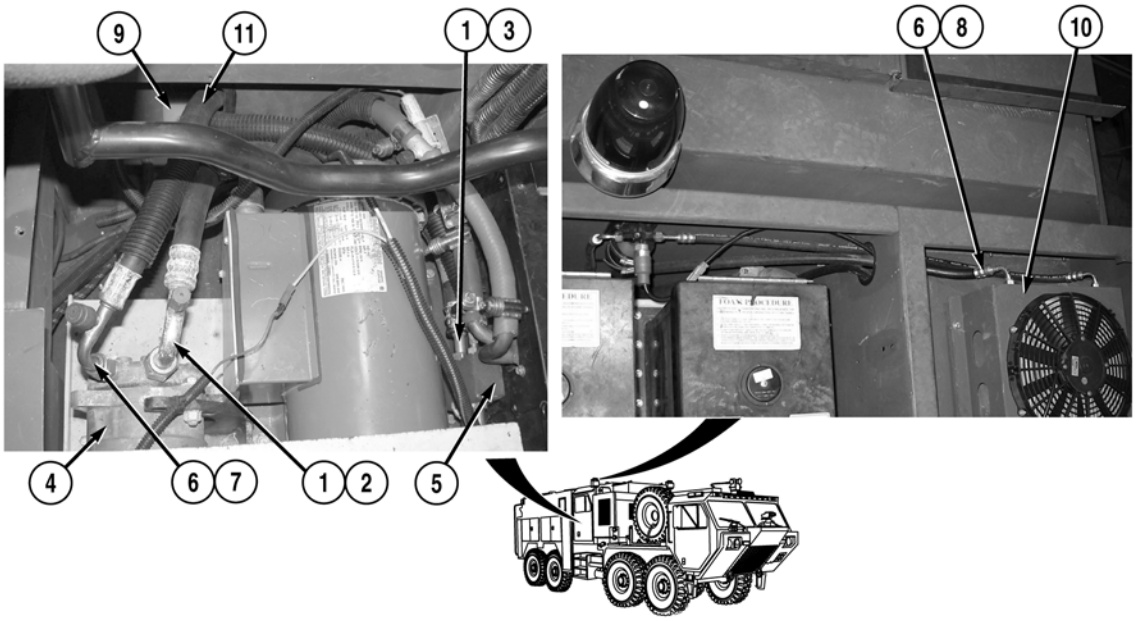
INSTALLATION

1. Install split loom (19) on hose (16).

NOTE

Ensure preformed packing is in place in hose prior to installation.

2. Install two preformed packings (18) and (17) and hose (16) on dryer (15), crew cab (9), and expansion valve (5).
3. Install two preformed packings (14) and (13) and hose (12) on dryer (15) and condenser (10).



4. Install split loom (11) on hose (6).
5. Install two preformed packings (8) and (7) and hose (6) on condenser (10), crew cab (9), and compressor (4).
6. Install two preformed packings (3) and (2) and hose (1) on expansion valve (5) and compressor (4).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Recharge crew cab air conditioner (WP 0217)
2. Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

CREW CAB AIR CONDITIONER SERVICE/RECHARGE

INITIAL SETUP:

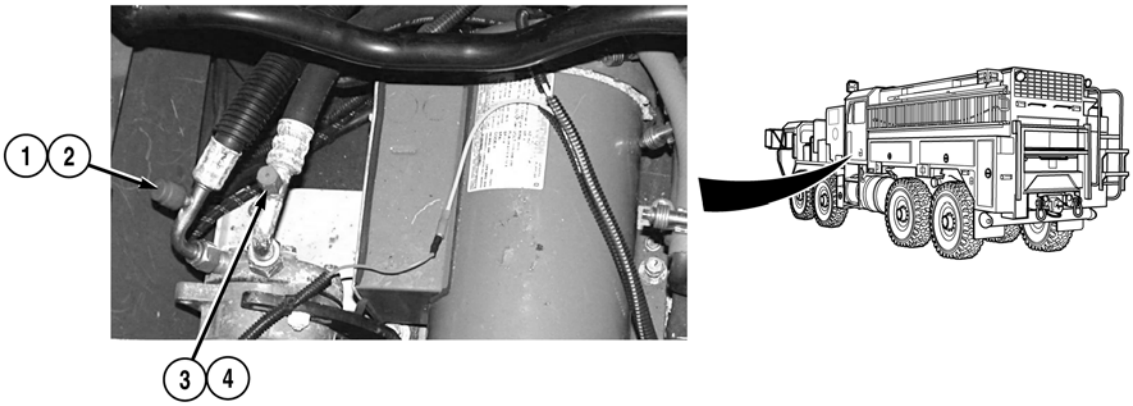
Tools and Special Tools
Leak Detector, Refrigerant (WP 0622, Item 22)
Reclaimer, Refrigerant (WP 0622, Item 24)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Refrigerant, R-134a (WP 0625, Item 41)
Refrigerant Oil, Type A (WP 0625, Item 42)

References
WP 0212
WP 0004

Equipment Conditions
Crew cab bench seat and access panel removed (WP 0501)

RECOVERY



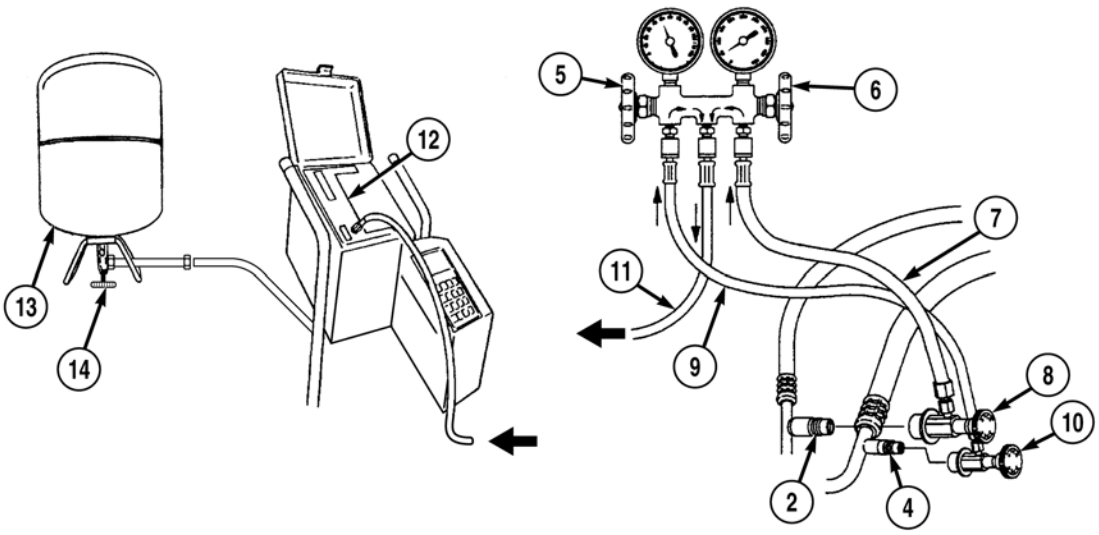
WARNING

- **Use care to prevent refrigerant from touching skin or eyes. Liquid refrigerant, when exposed to air, quickly evaporates and will freeze skin or eye tissues. Serious injury or blindness may result if you come in contact with liquid refrigerant.**
- **Refrigerant R-134a air conditioning systems should not be pressure tested or leak tested with compressed air. Combustible mixtures of air and R-134a may form, resulting in a fire or explosion, which could cause personnel injury or death.**

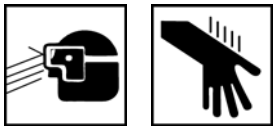
NOTE

Service valves are located under crew cab seat.

1. Remove cap (1) from service valve (2).
2. Remove cap (3) from service valve (4).



WARNING



Wear protective goggles and nonleather gloves when servicing air conditioner or injury may result.

3. Close two recover/recycling station hand valves (5) and (6).

NOTE

Push down firmly on hose connectors until a clicking sound is heard to make sure coupler is locked.

4. Connect hose (7) to hand valve (8).
5. Connect hose (7) and hand valve (8) to service valve (2).
6. Connect hose (9) to hand valve (10).
7. Connect hose (9) and hand valve (10) to service valve (4).
8. Connect center hose (11) to recovery/recycling station (12) and receiving container (13).
9. Open valve (14) on receiving container (13).
10. Turn valve (8) clockwise to open position (8).
11. Turn valve (10) clockwise to open position (10).

NOTE

Recovery/recycling station will also recover refrigerant oil from air conditioner system. Refrigerant oil will be separated from refrigerant in a container. Amount of refrigerant oil recovered must be noted. Not all refrigerant oil will be recovered, some refrigerant oil will stay in air conditioner system.

12. Recover all refrigerant from system to 10 to15 in. Hg vacuum on low-side gauge of recovery/recycling station.

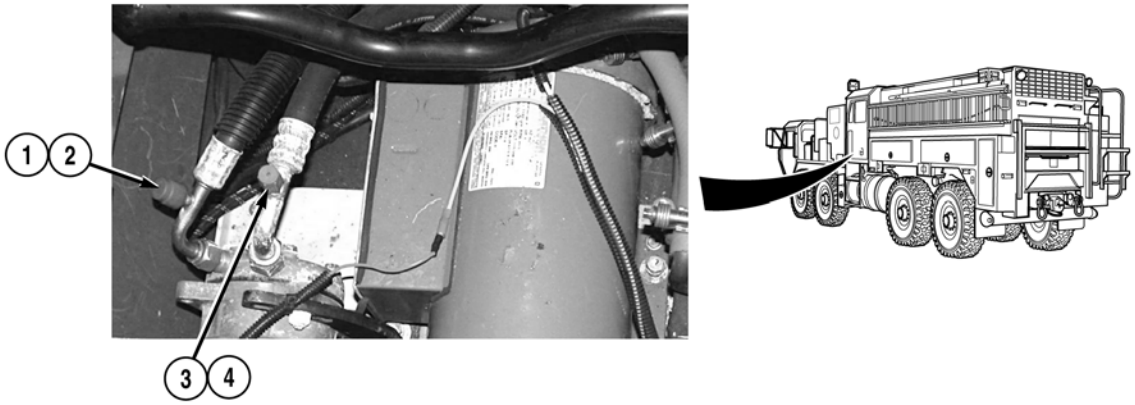
CAUTION

- **Always comply with all local regulations regarding refrigerant disposal. Failure to comply may result in penalties for improper disposal.**
- **Air conditioner dryer must be replaced each time air conditioning system refrigerant is evacuated or damage to system may result.**

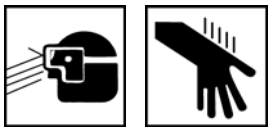
13. Replace air conditioner dryer (WP 0212).

END OF TASK

EVACUATION/RECYCLING



WARNING



Wear protective goggles and nonleather gloves when servicing air conditioner or injury may result.

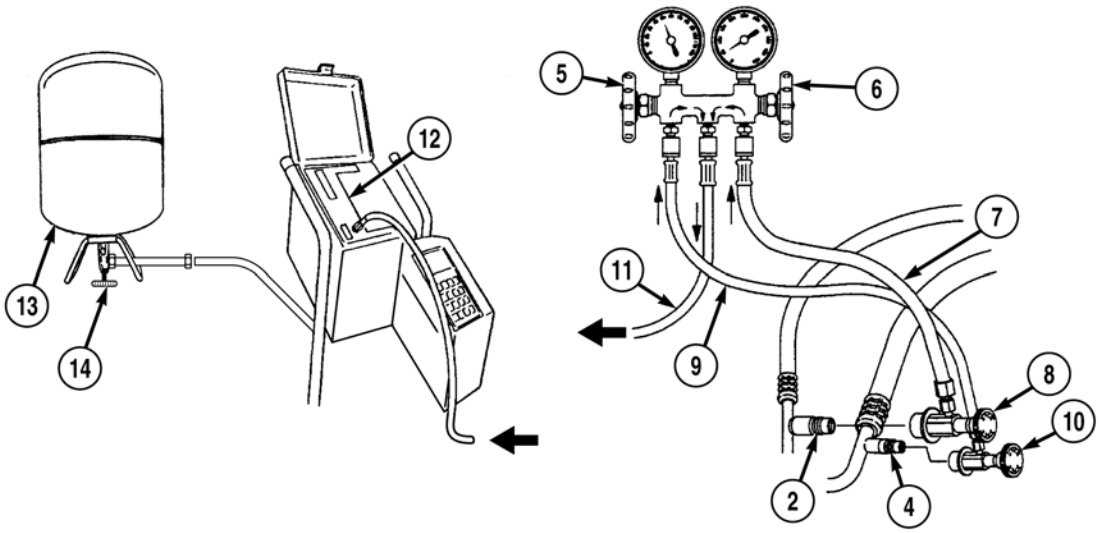
CAUTION

- **Always comply with all local regulations regarding refrigerant disposal. Failure to comply may result in penalties for improper disposal.**
- **System must have been recovered and compressor filled with correct amount of refrigerant oil.**
- **Air conditioner receiver/dryer must be replaced each time air conditioning system refrigerant is evacuated or damage to system may result.**

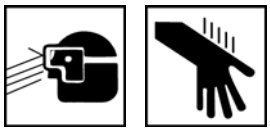
NOTE

Service valves are located under crew cab seat.

1. Remove cap (1) from service valve (2).
2. Remove cap (3) from service valve (4).



WARNING



Wear protective goggles and nonleather gloves when servicing air conditioner or injury may result.

3. Close recovery/recycling station hand valves (5) and (6).

NOTE

Push down firmly on hose connectors until a clicking sound is heard to make sure coupler is locked.

4. Connect hose (7) to hand valve (8).
5. Connect hose (7) and valve (8) to service valve (2).
6. Connect hose (9) to hand valve (10).
7. Connect hose (9) and hand valve (10) to service valve (4).
8. Connect center hose (11) to recovery/recycling station (12) and receiving container (13).
9. Open valve (14) on receiving container (13).
10. Turn coupler valve (8) to open position.
11. Turn coupler valve (10) to open position.
12. Recover all refrigerant from system to 10 to 15 in. Hg vacuum on low-side gauge of recovery/recycling station.

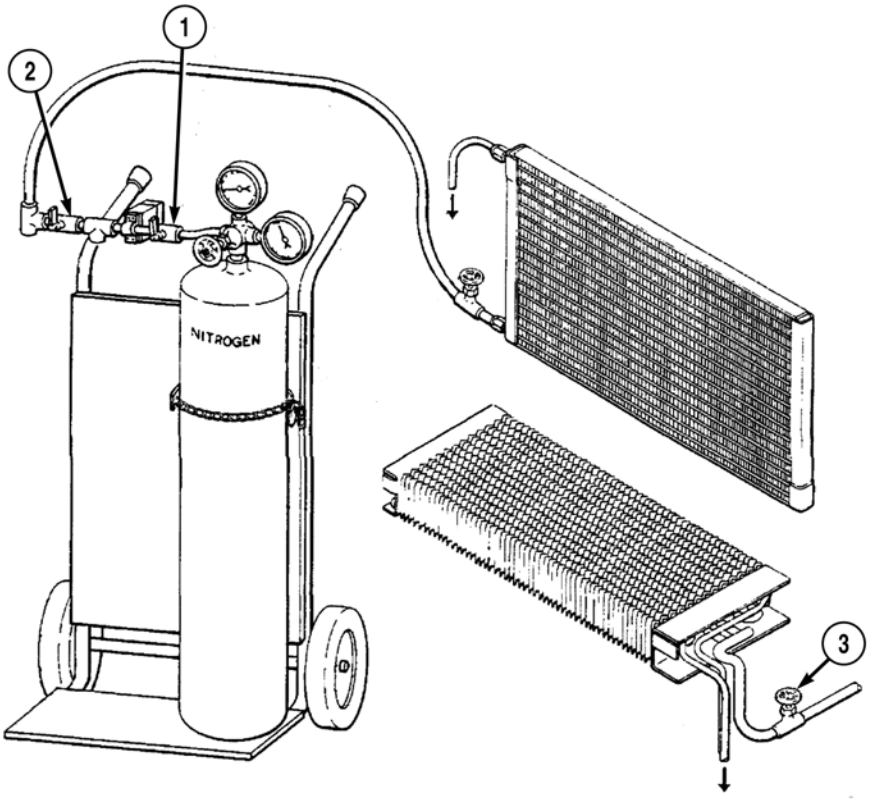
CAUTION

- **Always comply with all local regulations regarding refrigerant disposal. Failure to comply may result in penalties for improper disposal.**
- **Air conditioner receiver/dryer must be replaced each time air conditioning system refrigerant is evacuated or damage to system may result.**

13. Replace air conditioner dryer (WP 0212).

END OF TASK

PURGING



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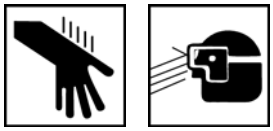
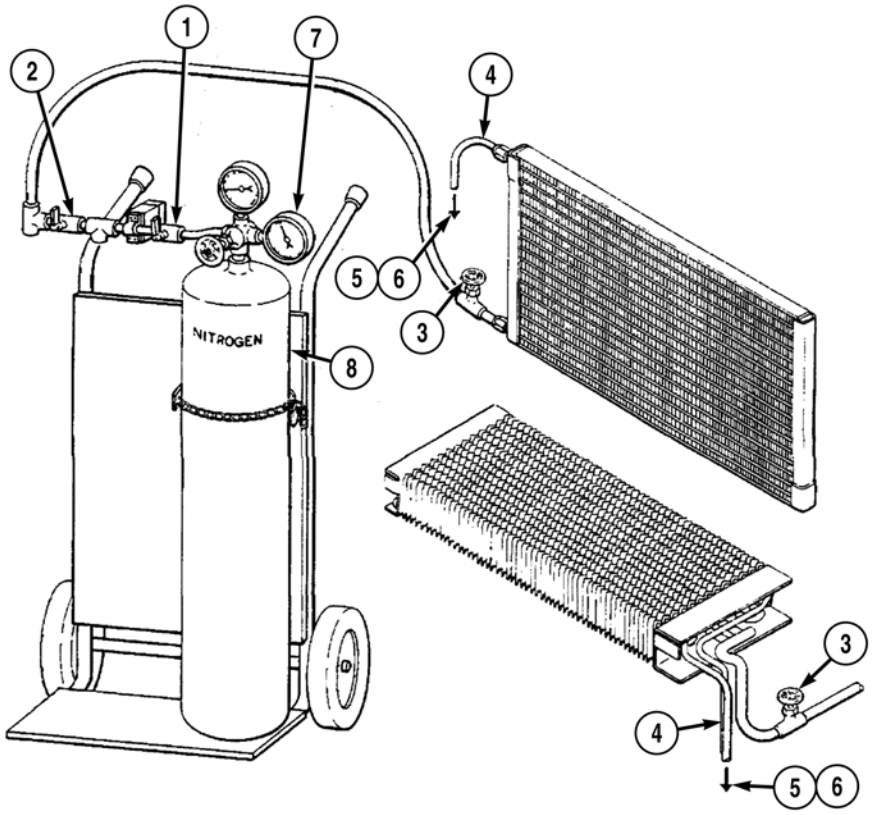


Wear protective goggles and nonleather gloves when servicing air conditioner or injury may result.

CAUTION

Dry nitrogen gas is recommended for purging. A pressure regulator is required to regulate gas pressure between 0 and 200 psi (0 and 1,379 kPa). Commercial cylinders of nitrogen contain pressures in excess of 2000 psi (13,790 kPa). This pressure must be reduced to 200 psi (1,379 kPa) for purging or damage to equipment may result.

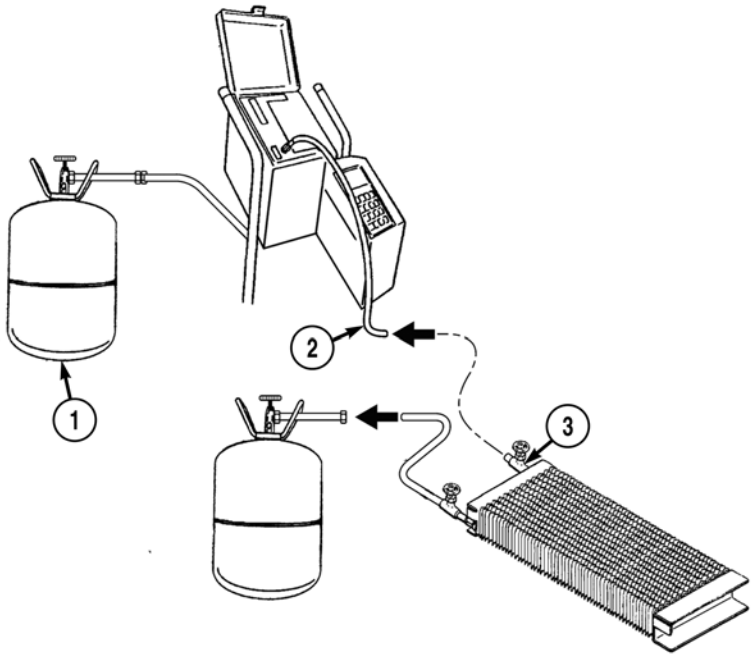
1. Recover system refrigerant (refer to a. Recovery).
2. Disconnect component to be purged from air conditioning system.
3. Install caps or plugs tightly on air conditioning system lines that were disconnected from component.
4. Close three valves (1), (2), and (3).



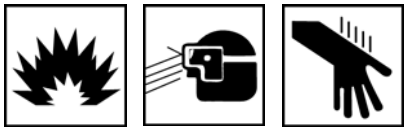
5. Connect supply line valve (3) to outlet end of component or line.
6. Connect drain line (4) to inlet end of component or line.
7. Connect outlet end of drain line (4) to recycling system container (5) or to waste container (6).
8. Adjust nitrogen bottle regulator/gauge (7) to 200 psi (1,379 kPa).
9. Open nitrogen bottle control valve (1) and purging control valve (2), then slowly open supply line valve (3). Check drain line (4) for gas flow.
10. Let nitrogen flow 200 psi (1,379 kPa) for 1 to 2 minutes. If component or line was very wet, let nitrogen flow until there is no trace of refrigerant oil or solid bits of dirt or grit flowing from drain line (4).
11. Close nitrogen bottle control valve (1) and purging control valve (2) first, then close supply line valve (3).
12. Disconnect supply line valve (3) and drain line (4). Tightly cap both ends of component or line.

END OF TASK

FLUSHING

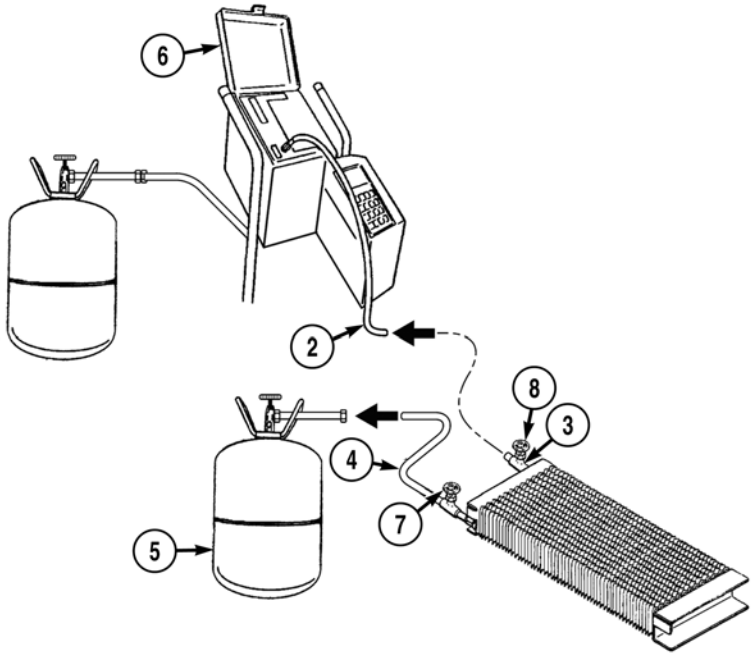


WARNING



- **Use care to prevent refrigerant from touching skin or eyes. Liquid refrigerant, when exposed to air, quickly evaporates and will freeze skin or eye tissues. Serious injury or blindness may result if you come in contact with liquid refrigerant.**
- **Refrigerant R-134a air conditioning systems should not be pressure tested or leak tested with compressed air. Combustible mixtures of air and R-134a may form, resulting in a fire or explosion, which could cause personnel injury or death.**

1. Recover system refrigerant.
2. Disconnect both ends of line or component to be purged.
3. Install caps or plugs tightly on system lines or components at disconnect points.
4. Charge or pressurize R-134a refrigerant (1) as recommended by manufacturer.
5. Connect recover/recycling station flushing supply line (2) to outlet hose (3) side of system to reverse flow system.



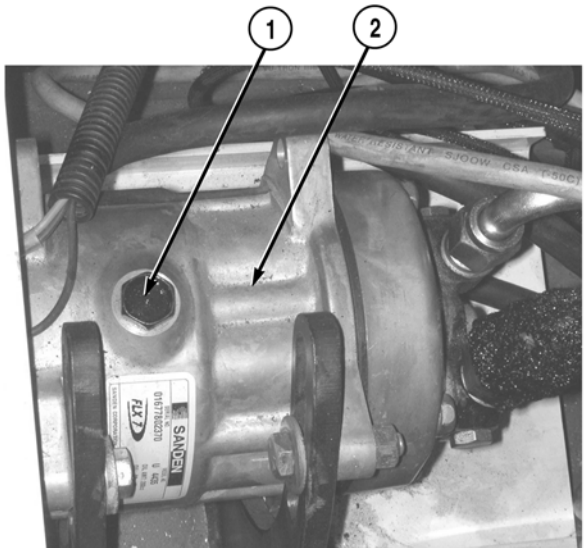
NOTE

If system is extremely contaminated, install a receiver/dryer in-line as a prefilter for recover/recycling station.

6. Connect recovery/recycling station flushing drain line (4) from inlet valve side of system to receiving container (5).
7. Turn on recover/recycling station (6) and open inlet valve (7). Allow about 2 lb. (1 kg) of R-134a to flow through system.
8. Close supply line valve (8) and wait for recover/recycling station (6) to shut off.
9. Disconnect recovery/recycling station flushing supply line (2) from outlet hose (3).
10. Disconnect recovery/recycling station flushing drain line (4) from inlet valve (7).
11. Purge system and check collection bottle for contaminants.

END OF TASK

CHARGING



WARNING

- **Use care to prevent refrigerant from touching skin or eyes. Liquid refrigerant, when exposed to air, quickly evaporates and will freeze skin or eye tissues. Serious injury or blindness may result if you come in contact with liquid refrigerant.**
- **Refrigerant R-134a air conditioning systems should not be pressure tested or leak tested with compressed air. Combustible mixtures of air and R-134a may form, resulting in a fire or explosion, which could cause personnel injury or death.**

⚠ CAUTION

- **Refrigerant oil must be added to air conditioner system before charging with refrigerant or air conditioner compressor will be damaged. Add same amount of new refrigerant oil in air conditioner compressor as was noted during recovery or evacuation. Maximum amount of refrigerant oil required for air conditioner system is 13 oz. (368.5 g).**
- **RECOVERY and EVACUATION/RECYCLING procedures must be preformed before system is charged or damage to system may result.**
- **Air conditioner system must be in a 10 to 15 in. Hg vacuum status before charging.**
- **Use care to prevent overcharging or damage to compressor may result.**

NOTE

Obtain enough refrigerant in container to fully charge system.

1. Remove plug (1) and add new refrigerant oil to air conditioner compressor (2).

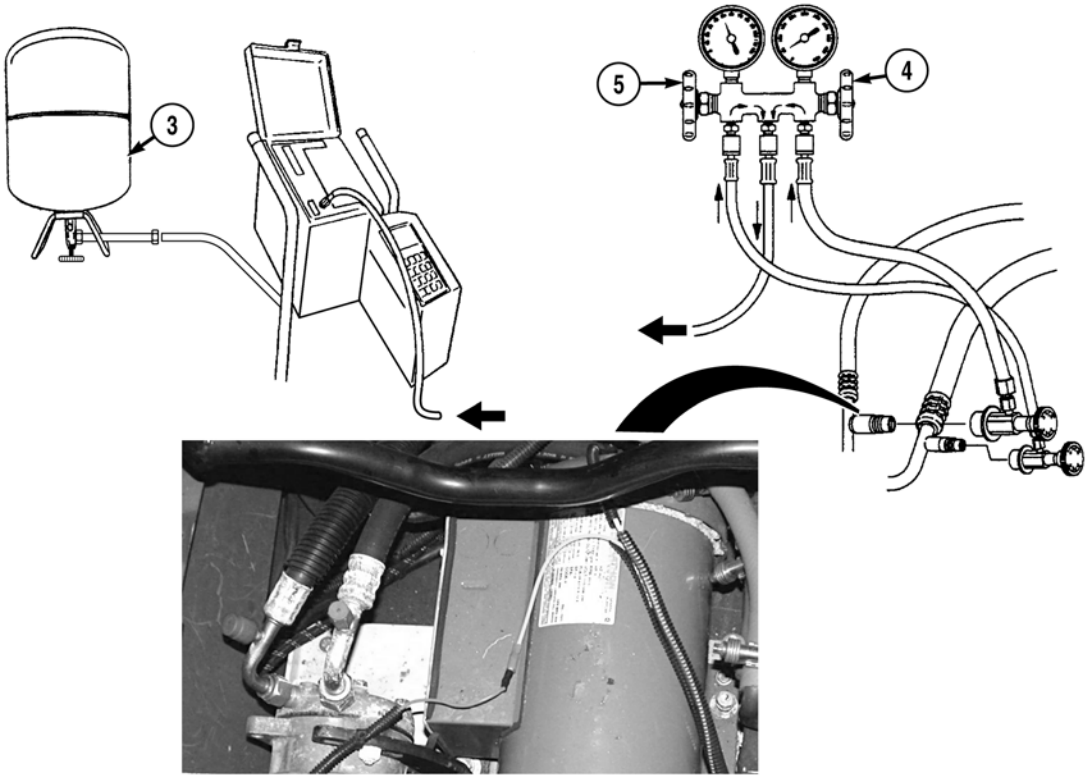
2. Position R-134a tank on a scale to make sure enough refrigerant is available to fully charge system. Weight of R-134a should be 4 lb. (1.8 kg).

3. Refer to Table 1 for proper system pressure levels at measured temperatures.

4. Charge refrigerant system as noted:

Table 1. Pressure Temperature Chart.

ºF	ºC	HFC-134a (psi)	ºF	ºC	HFC-134a (psi)
-60	-51.1	21.8	55	12.8	51.1
-55	-48.3	20.4	60	15.6	57.3
-50	-45.6	18.7	65	18.3	63.9
-45	-42.8	16.9	70	21.1	70.9
-40	-40.0	14.8	75	23.8	78.4
-35	-37.2	12.5	80	26.7	88.4
-30	-34.4	9.8	85	29.4	94.9
-25	-31.7	6.9	90	32.2	103.9
-20	-28.9	3.7	95	35.0	113.5
-15	-26.1	0.0	100	37.8	123.6
-10	-23.3	1.9	105	40.6	134.3
-5	-20.6	4.1	110	43.3	145.3
0	-17.8	6.5	115	46.1	157.6
5	-15.0	9.0	120	48.9	170.3
10	-12.2	12.0	125	51.7	183.6
15	-9.4	15.0	130	54.4	197.6
20	-6.7	18.4	135	57.2	212.4
25	-3.9	22.1	140	60.0	227.9
30	-1.1	26.1	145	62.8	244.3
35	1.7	30.4	150	65.6	261.4
40	4.4	35.0	155	68.3	279.5
45	7.2	40.0	160	71.1	298.4
50	10.0	45.3	165	73.9	318.3



NOTE

Perform Step (5) with engine off and low-side hand valve closed.

5. When charging from bulk container, position bulk container (3) upside down and open high side hand valve (4).

6. Allow refrigerant to enter system until 2 lb. to 12 oz. (0.9 kg to 340.2 g) has been added. Close high side hand valve (4).

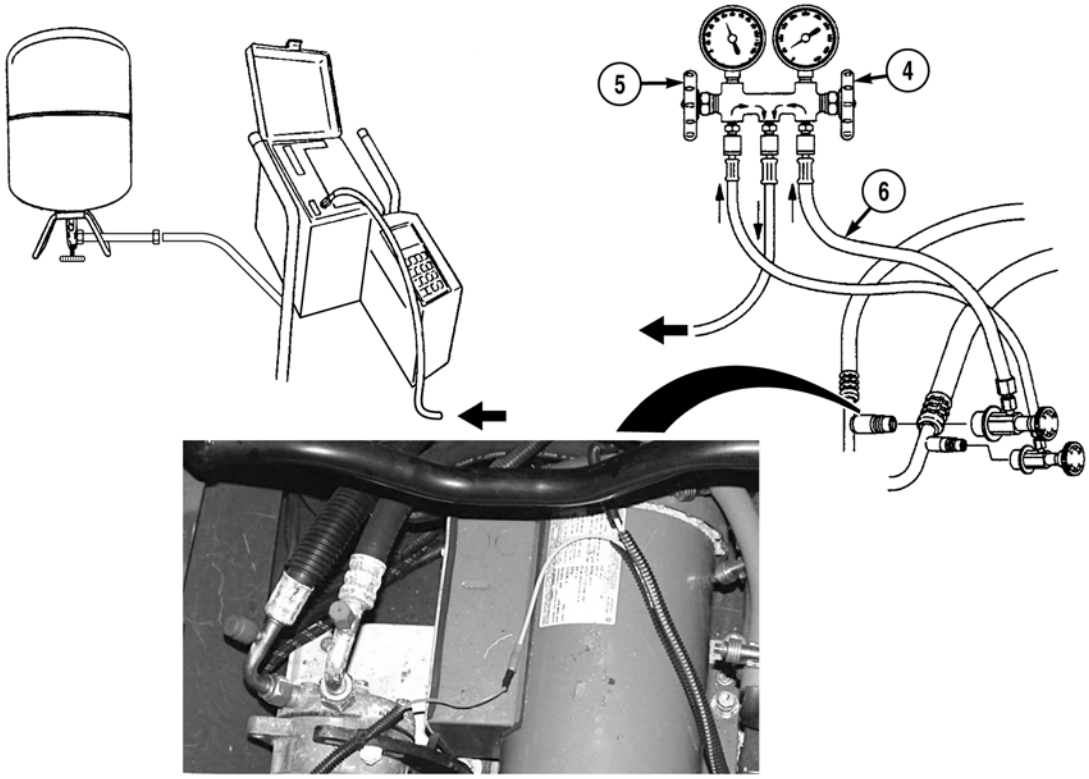
7. Start engine (TM 9-2320-347-10) and generator (WP 0004). Position cab air conditioner controls at maximum cooling and fan speed. Refrigerant compressor must engage.

8. Shut OFF engine (TM 9-2320-347-10).

NOTE

Perform Step (8) if charge did not enter system.

9. Position bulk container (3) in upright position and open low side hand valve (5) to draw vapor into system. Leave hand valve (5) open until correct weight of refrigerant has entered system. Close low-side hand valve (5).



NOTE

If refrigerant is slow to enter system because of low outside temperatures, vaporization may be quickened by placing refrigerant in tub of warm water. Temperature should not exceed 125ºF (52ºC).

10. Disconnect high-side hose (6).
11. Start engine (TM 9-2320-347-10) and generator (WP 0004).
12. Open hose valves (4) and (5) to recover refrigerant from lines.
13. Check for leaks.
14. Check operation of air conditioning system.
15. Shut OFF engine (TM 9-2320-347-10).

END OF TASK

FOLLOW-ON MAINTENANCE

Install crew cab bench seat and access panel (WP 0501)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

AIR RESERVOIR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

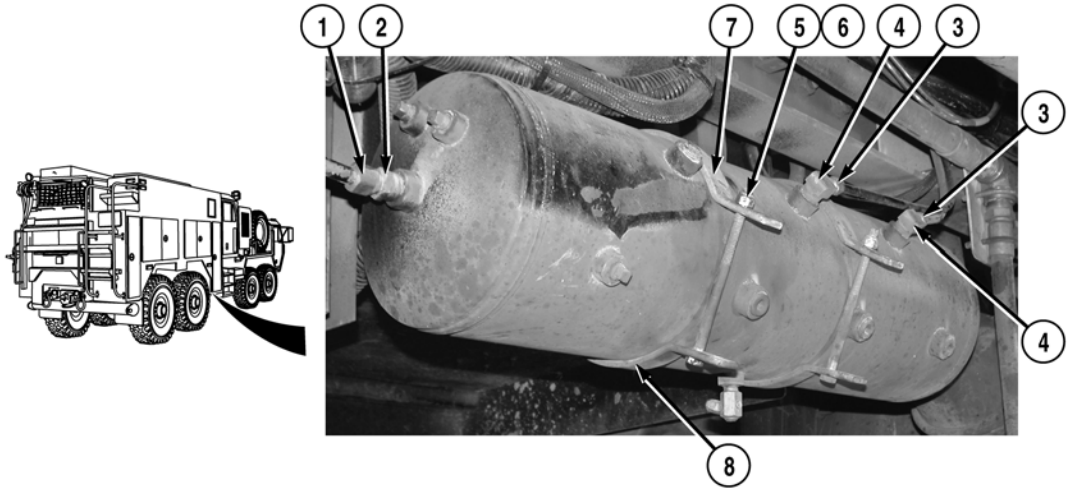
Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (2)
Locknut (2)
Locknut (2)
Locknut (2)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

Reference
WP 0615, Fig. 2

Equipment Conditions
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)
Air system drained (TM 9-2320-347-10)

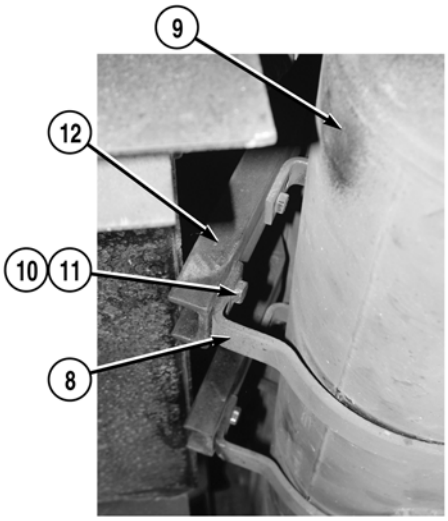
REMOVAL



NOTE

Tag and mark air lines prior to removal to ensure proper installation.

1. Remove air line (1) from fitting (2).
2. Remove two air lines (3) from elbows (4).
3. Remove two locknuts (5) and screws (6) from two upper clamps (7) and lower clamps (8). Discard locknuts.

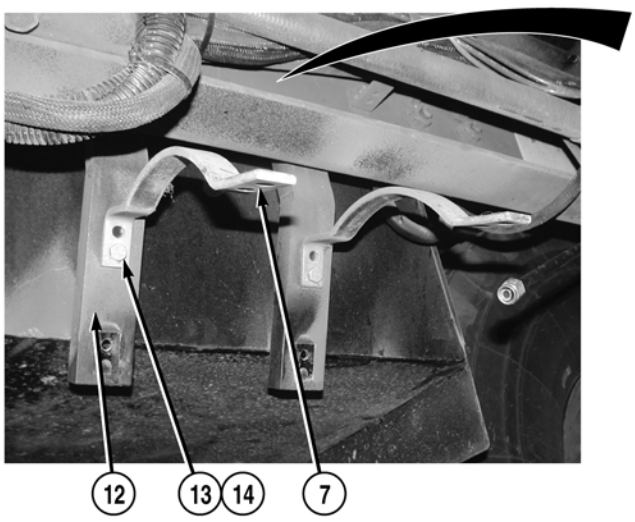


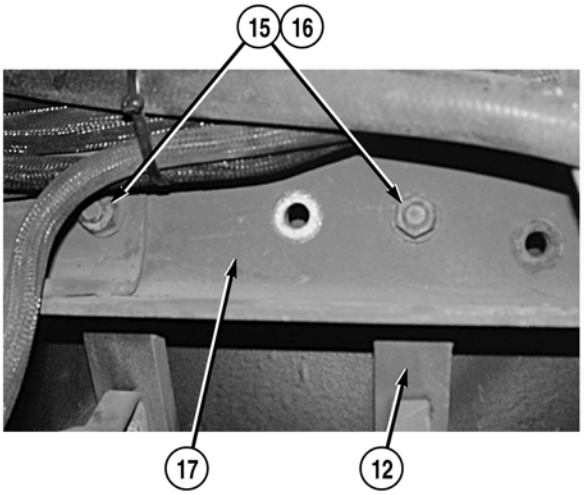
NOTE

Note position of air reservoir, prior to removal of reservoir brackets, to ensure proper installation.

4. With the aid of an assistant, remove two locknuts (10), screws (11), and lower clamps (8) from tank reservoir mounting brackets (12). Discard locknuts.

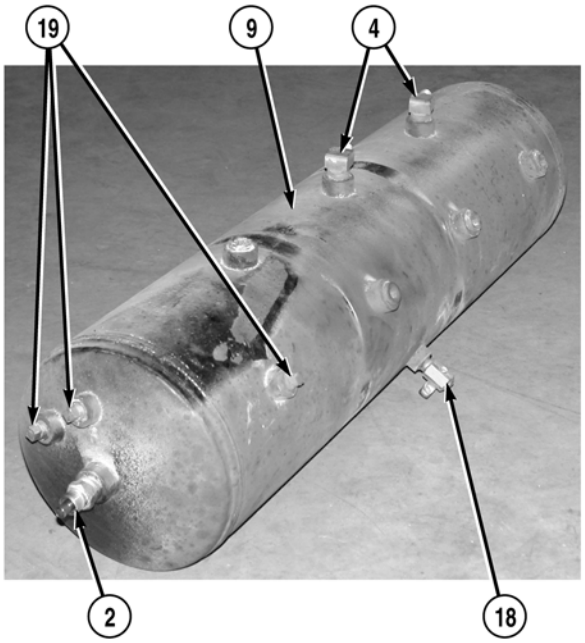
5. Remove air reservoir (9) from vehicle.

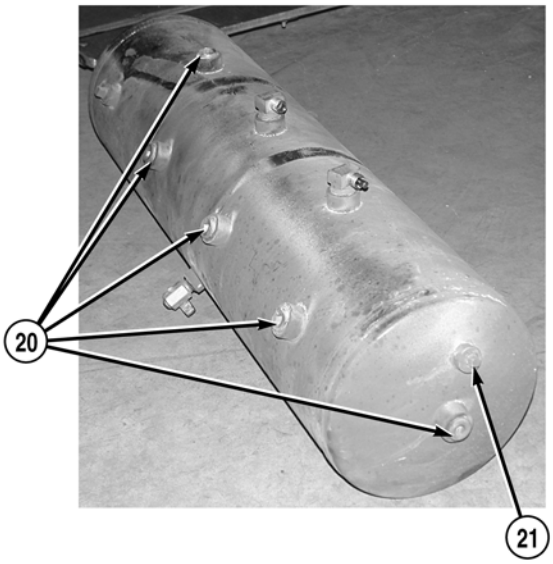




6. Remove two locknuts (13), screws (14), and upper clamps (7) from tank reservoir mounting brackets (12). Discard locknuts.

7. Remove two locknuts (15), screws (16), and tank reservoir mounting brackets (12) from frame rail (17). Discard locknuts.





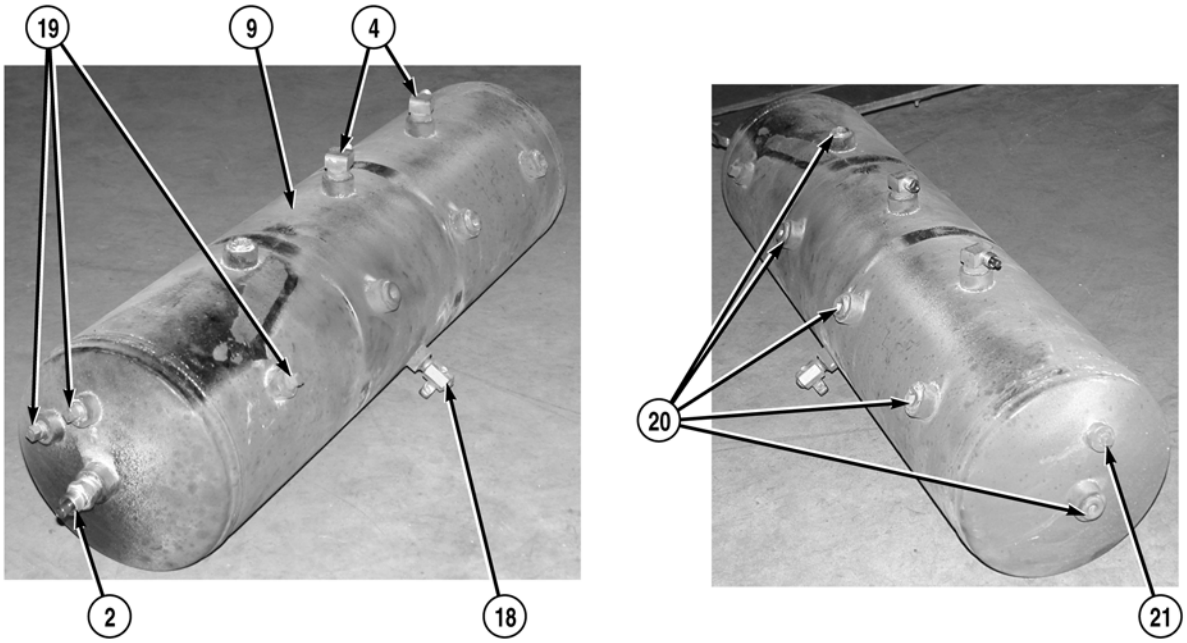
NOTE

Note position of plugs, elbows, and fittings prior to removal to ensure proper installation.

8. Remove fitting (2) from air reservoir (9).
9. Remove two elbows (4) from air reservoir (9).
10. Remove drain cock (18) from air reservoir (9).
11. Remove three plugs (19) from air reservoir (9).
12. Remove five plugs (20) from air reservoir (9).
13. Remove plug (21) from air reservoir (9).

END OF TASK

INSTALLATION



WARNING

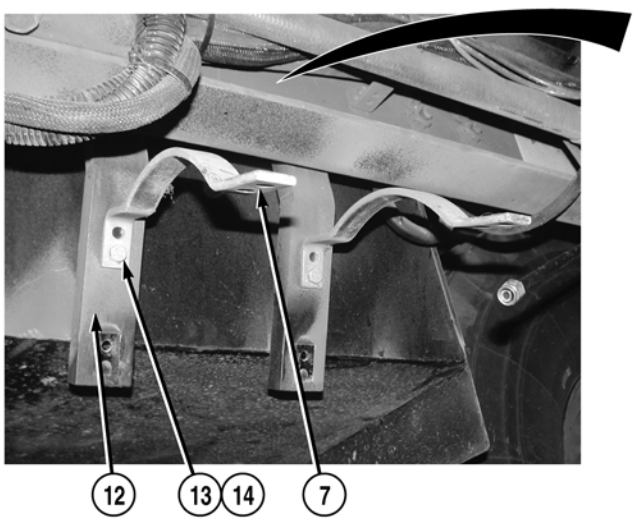
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

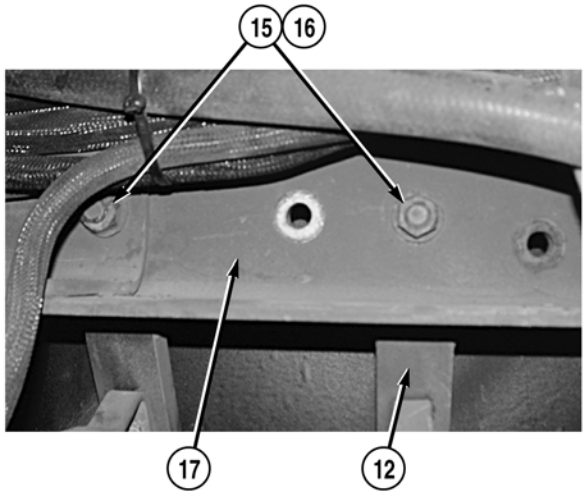
1. Install sealing compound to threads of plug (21), five plugs (20), three plugs (19), drain cock (18), two elbows (4), and fitting (2).

NOTE

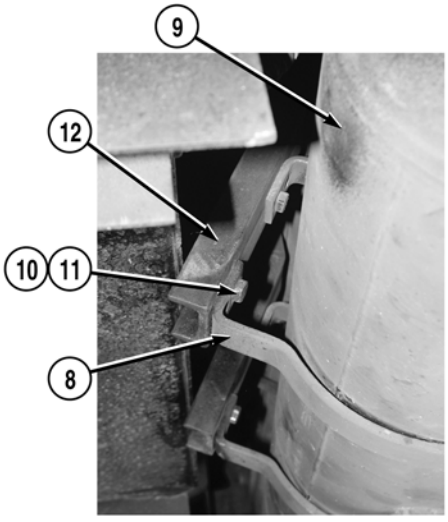
Install plugs, elbows, and fittings as noted prior to removal.

2. Install plug (21) on air reservoir (9).
3. Install five plugs (20) on air reservoir (9).
4. Install three plugs (19) on air reservoir (9).
5. Install drain cock (18) on air reservoir (9).
6. Install two elbows (4) on air reservoir (9).
7. Install fitting (2) on air reservoir (9).





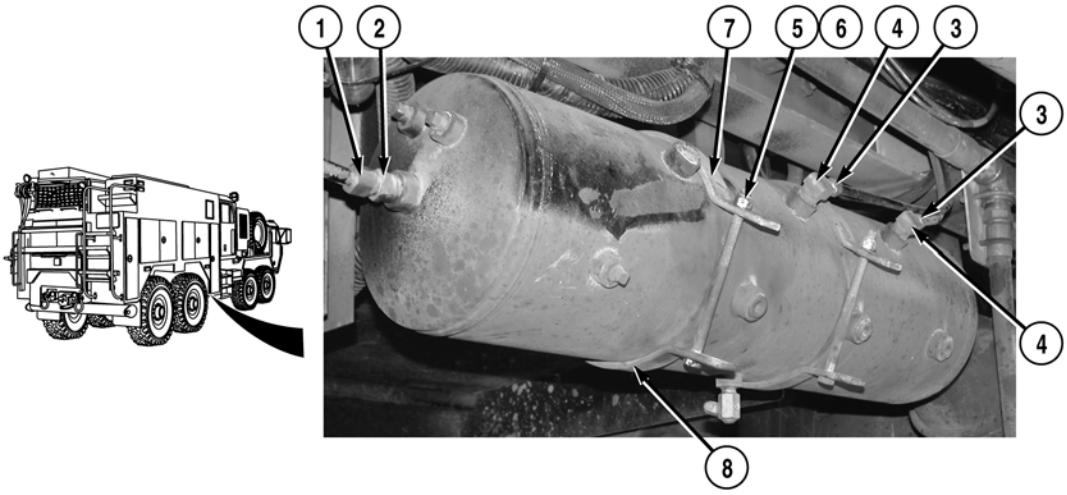
8. Install two tank reservoir mounting brackets (12) on frame rail (17) with two screws (16) and locknuts (15).
9. Install two upper clamps (7) on tank reservoir mounting brackets (12) with two screws (14) and locknuts (13).



NOTE

Install air reservoir as noted prior to removal.

10. With the aid of an assistant, install air reservoir (9) on two tank reservoir mounting brackets (12) with lower clamps (8), screws (11), and locknuts (10).
11. Install two screws (6) and locknuts (5) on two upper clamps (7) and lower clamps (8).



12. Install two air lines (3) on elbows (4).
13. Install air line (1) on fitting (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close drain valve (WP 0041)
2. Start engine (TM 9-2320-347-10)
3. Build air pressure (TM 9-2320-347-10)
4. Check reservoir for leaks (WP 0186)
5. Shut off engine (TM 9-2320-347-10)
6. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)
- Water pump engine removal kit (WP 0622 Item 30)
- Water pump guide pins (WP 0608, Item b)

Materials/Parts
- Adhesive, RTV732 (WP 0625, Item 2)
- Adhesive, Thread, Locking (WP 0625, Item 7)
- Compound, Sealing, Pipe Thread (WP 0625, Item 21)
- Tags, Identification (WP 0625, Item 51)
- Ties, Cable, Plastic (WP 0625, Item 58)
- Lockwasher (1)
- Lockwasher (4)
- Lockwasher (2)
- Lockwasher (2)
- Lockwasher (6)
- Lockwasher (4)
- Lockwasher (4)
- Lockwasher (4)
- Locknut (4)
- Lockwasher (2)
- Locknut (1)
- Lockwasher (2)
- Locknut (4)
- Lockwasher (4)
- Lockwasher (2)
- Lockwasher (6)

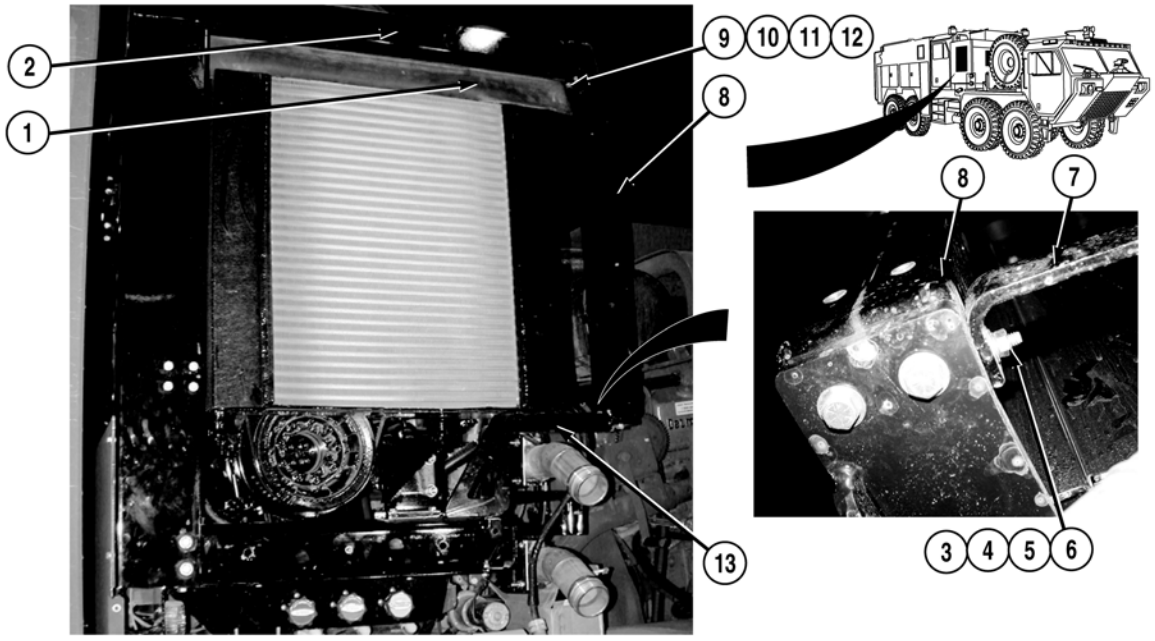
Materials/Parts (continued)
- Lockwasher (2)
- Lockwasher (4)
- Lockwasher (4)
- Lockwasher (3)
- Lockwasher (6)

Personnel Required
- MOS 63B Wheeled vehicle mechanic (3)

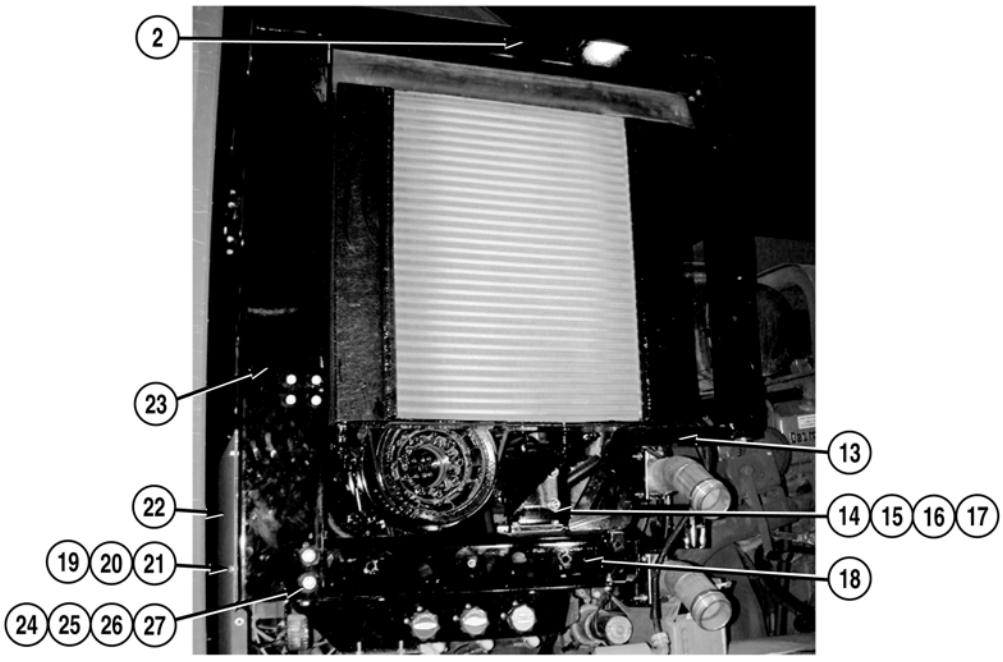
References
- WP 0483
- WP 0615, Fig. 12, 13

Equipment Conditions
- Park vehicle on level surface (TM 9-2320-347-10)
- Water pump engine air filter ducting removed (WP 0221)
- Water pump engine air cleaner assembly removed (WP 0220)
- Water pump engine exhaust pipes removed (WP 0228)
- Extendable floodlight removed (WP 0354)
- Auxiliary inlet (passenger side) removed (WP 0294)
- Pump house panels B, K, L, N, O and Q removed (WP 0540)
- Propeller shaft removed (TM 9-2320-325-14&P)
- Water pump engine oil drained (LO-9-2320-279-12)

REMOVAL



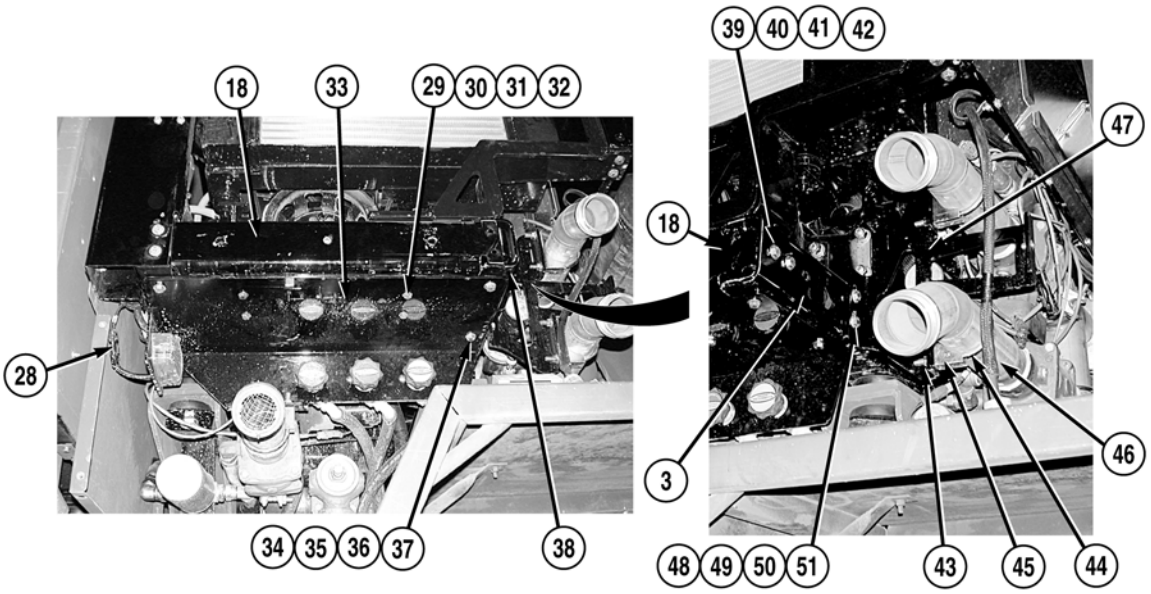
1. Remove rubber seal (1) from upper frame rail (2).
2. Remove nut (3), lockwasher (4), two washers (5), screw (6), and brace (7) from front frame rail (8). Discard lockwasher.
3. Remove four nuts (9), lockwashers (10), eight washers (11), four screws (12), and front frame rail (8) from upper frame rail (2) and rail support (13). Discard lockwashers.



4. Remove two nuts (14), lockwashers (15), four washers (16), two screws (17), and rail support (13) from crossmember (18). Discard lockwashers.

5. Remove two screws (19), lockwashers (20), and washers (21) from pump house panel P (22) and rear frame rail (23). Discard lockwashers.

6. Remove six nuts (24), lockwashers (25), 12 washers (26), six screws (27), and rear frame rail (23) from upper frame rail (2) and crossmember (18). Discard lockwashers.



NOTE

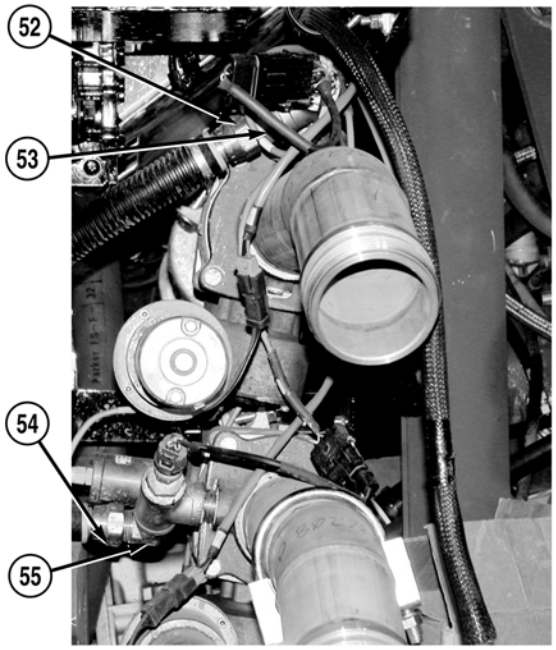
Tag and mark connectors prior to removal to ensure proper installation.

7. Disconnect connector (28).
8. Remove four nuts (29), lockwashers (30), eight washers (31), and four screws (32) from bracket (33). Discard lockwashers.
9. With the aid of an assistant, remove four nuts (34), lockwashers (35), eight washers (36), four screws (37), and bracket (33) from two lower frame rails (38). Discard lockwashers.
10. Remove four nuts (39), lockwashers (40), eight washers (41), four screws (42), and crossmember (18) from two lower frame rails (38). Discard lockwashers.
11. Remove four locknuts (43), two U-bolts (44), cradles (45), and two pipes (46) from bracket (47). Discard locknuts.

NOTE

Note position of bracket prior to removal to ensure proper installation.

12. Remove two nuts (48), lockwashers (49), four washers (50), two screws (51), and bracket (47) from lower frame rail (38). Discard lockwashers.



NOTE

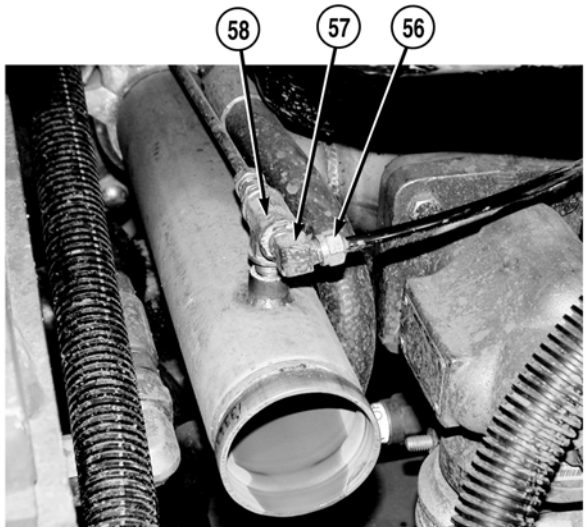
Tag and mark hoses prior to removal to ensure proper installation.

13. Remove hose (52) from fitting (53).
14. Remove hose (54) from elbow (55).

NOTE

Two hoses must be moved to make clearance for oil pan during engine removal.

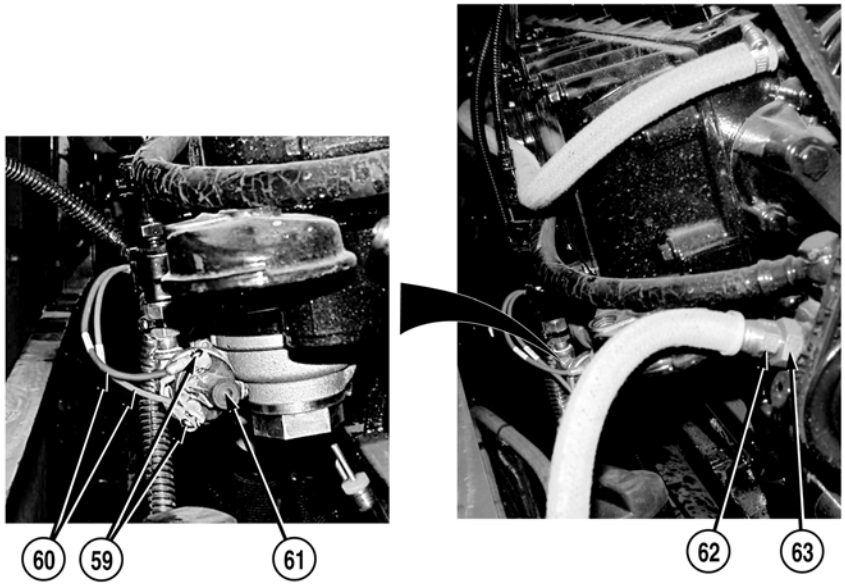
15. Pull two hoses (52) and (54) down from mounting position and reposition.



NOTE

Tag and mark air lines prior to removal to ensure proper installation.

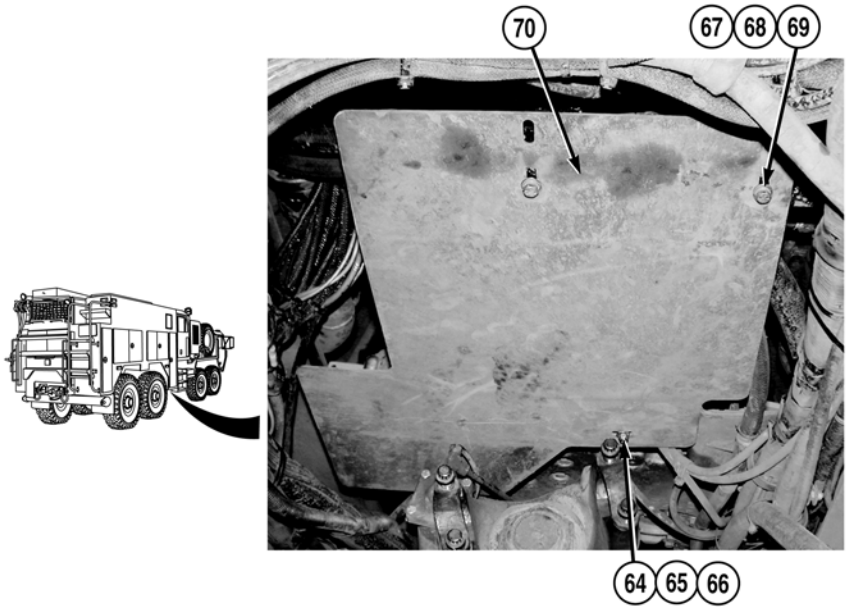
16. Remove air line (56) from elbow (57).
17. Remove elbow (57) from tee (58).



NOTE

Remove cable ties as required.

18. Remove two screws (59) and wires (60) from oil pressure switch (61).
19. Remove fuel supply hose (62) from fitting (63).

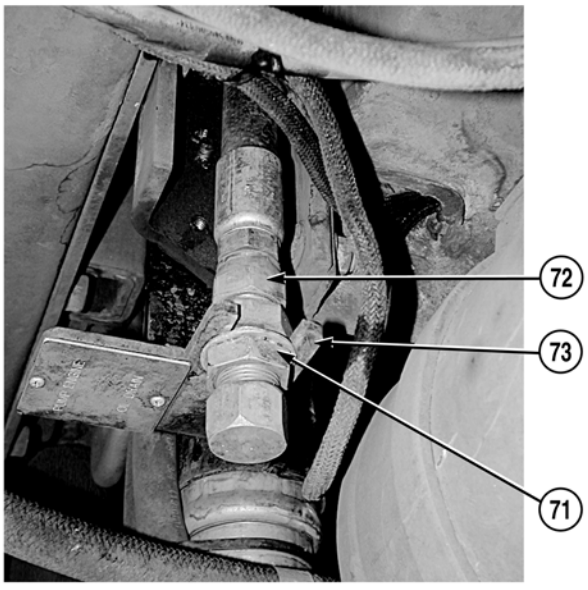


20. Remove locknut (64) and washer (65) from stud (66). Discard locknut.

NOTE

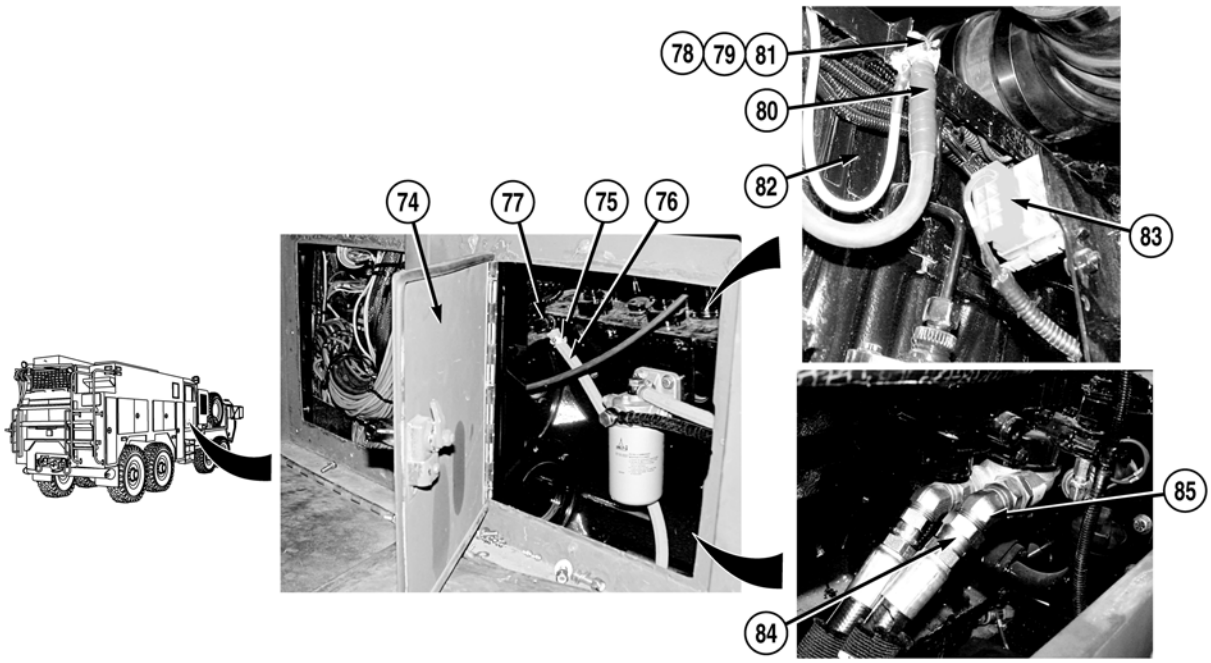
Shield removed to access lower water pump mounting screws.

21. Remove two screws (67), lockwashers (68), washers (69), and shield (70) from vehicle. Discard lockwashers.



22. Loosen jamnut (71) and remove oil drain hose (72) from bracket (73).

23. Pull oil drain hose (72) up and reposition.



24. Open door (74).
25. Loosen clamp (75) and remove fuel return line (76) from fitting (77).
26. Remove cap (78), nut (79), and cable (80) from stud (81).

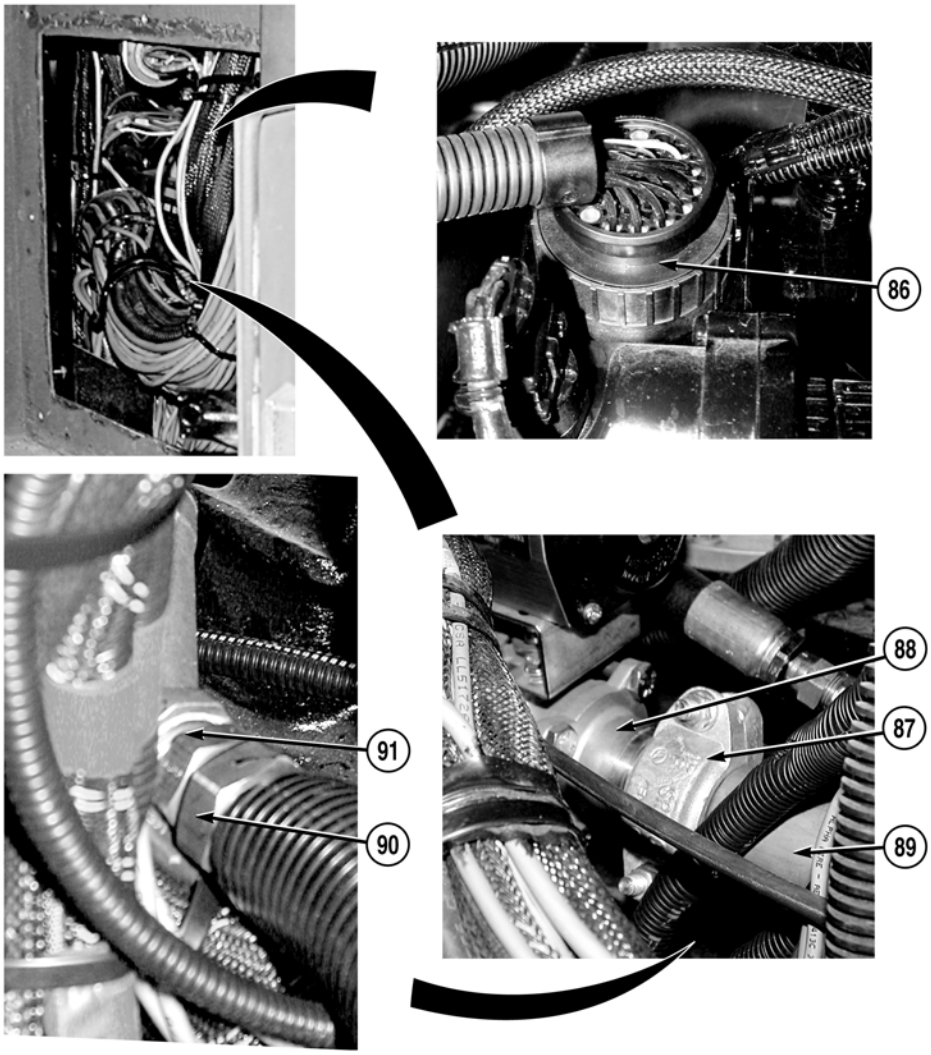
CAUTION

Use care when pulling cable from engine. Failure to comply may result in damage to glow plugs and wires.

NOTE

Note routing of cable prior to removal to ensure proper installation.

27. Pull cable (80) from engine (82).
28. Disconnect connector (83).
29. Remove two hoses (84) from elbows (85).



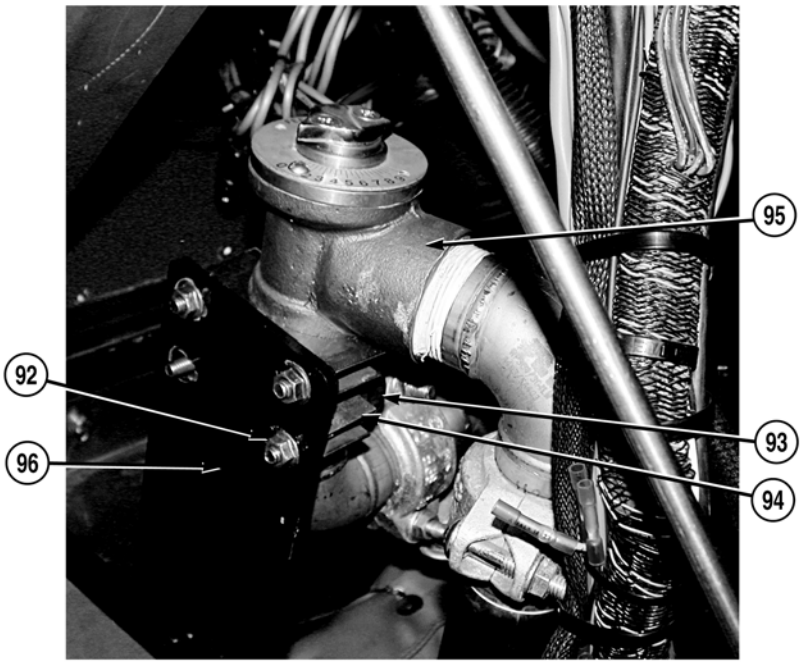
30. Disconnect connector (86).

NOTE

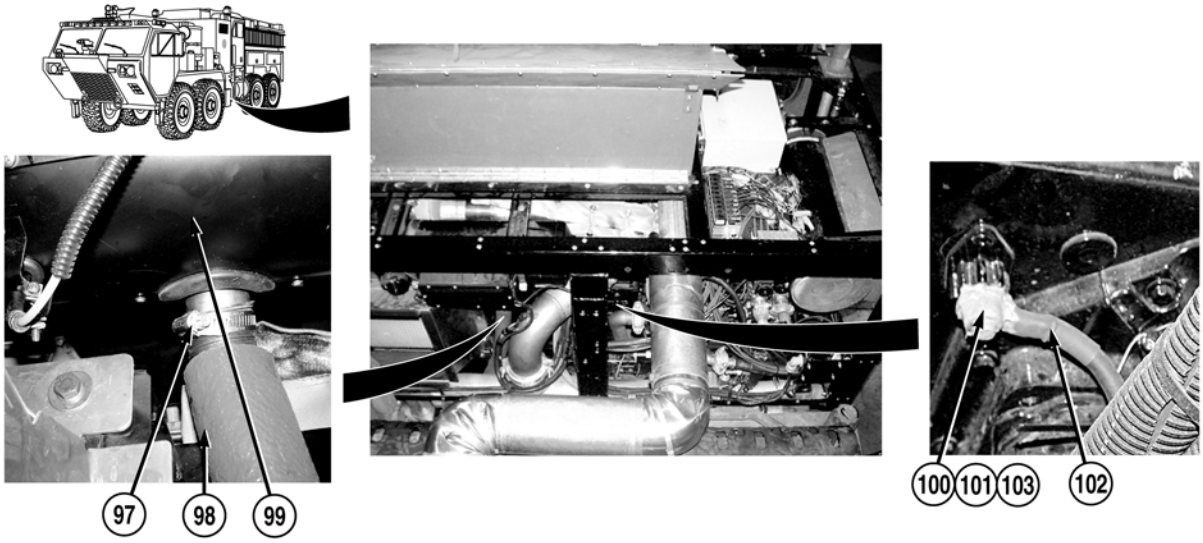
Pipe removed from ground sweeps valve to access water pump mounting screws.

31. Remove coupling (87) from ground sweeps valve (88) and pipe (89) (WP 0483).

32. Remove windshield deluge supply hose (90) from fitting (91).



33. Remove four locknuts (92), two U-bolts (93), cradles (94), and foam system manual metering valve (95) from bracket (96). Discard locknuts.

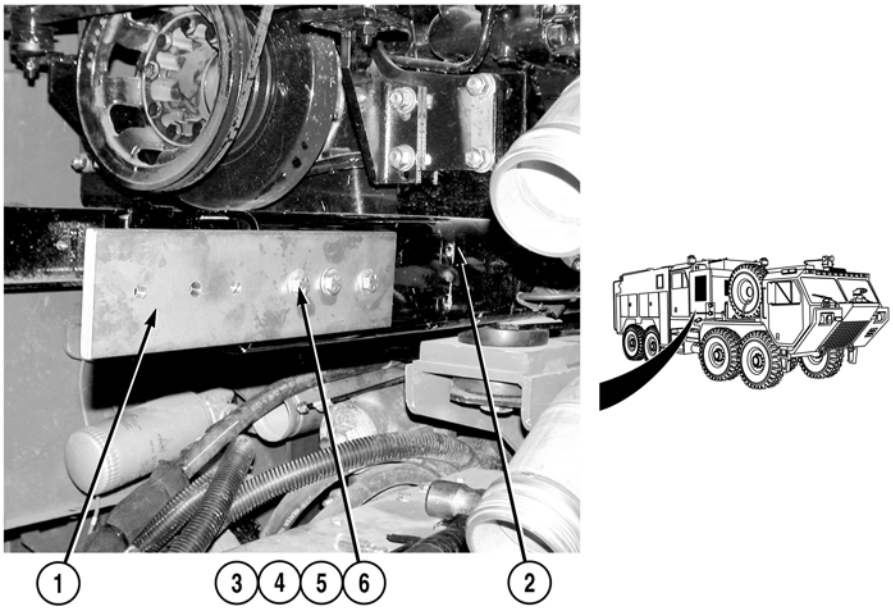


34. Loosen clamp (97) and remove pipe (98) from pump house heater assembly (99).

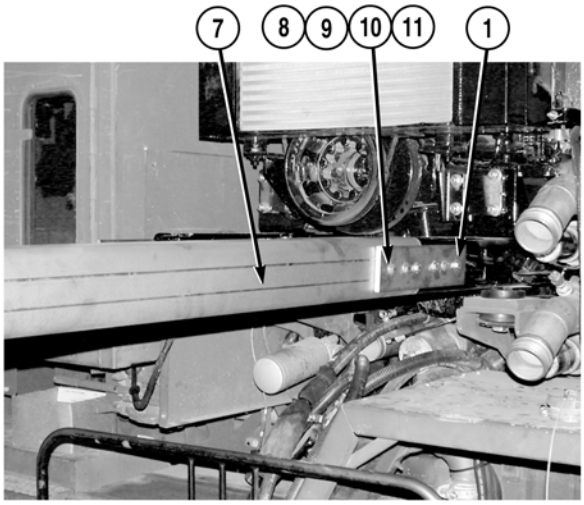
35. Remove nut (100), washer (101), and cable (102) from terminal (103).

END OF TASK

FRAME RAIL EXTENSION INSTALLATION



1. Attach two mounting brackets (1) to lower frame rails (2) with six screws (3), 12 washers (4), six lockwashers (5), and nuts (6). Do not tighten nuts.



WARNING

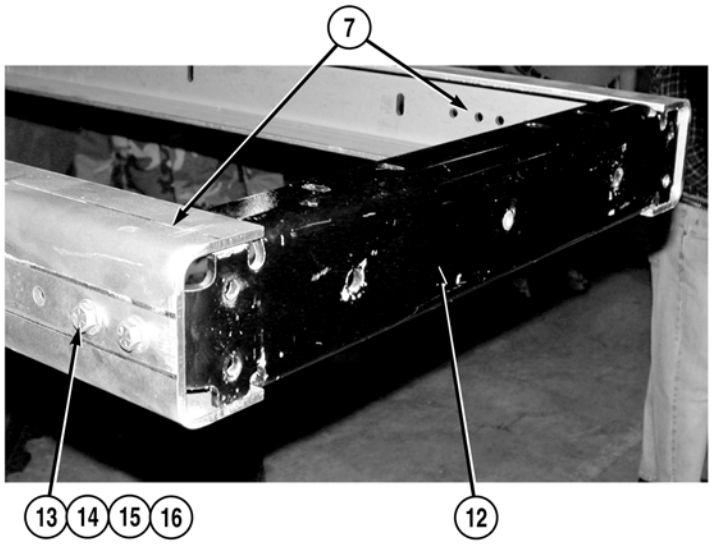
Frame rail extensions are heavy. Do not attach/remove frame rail extension to/from mounting brackets without the aid of an assistant. Failure to comply may result in injury to personnel.

2. With the aid of an assistant, install frame rail extension (7) on mounting bracket (1) with three screws (8), six washers (9), three lockwashers (10), and nuts (11). Do not tighten nuts.
3. Place level on frame rail extension (7).

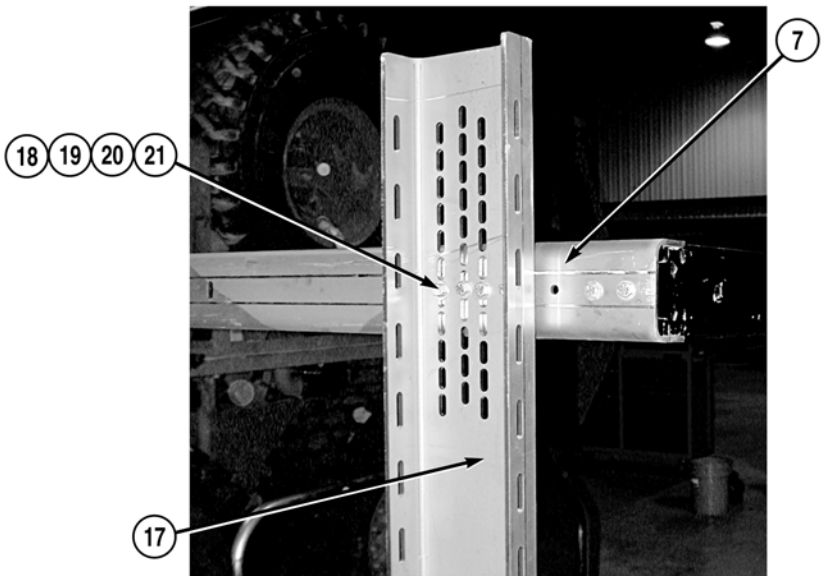
CAUTION

Top of frame rail extensions must be mounted flush and level with top of lower frame rails. Failure to comply may result in damage to equipment.

4. With the aid of an assistant, make frame rail extension (7) level while tightening three nuts (6) and (11).
5. Repeat Steps (2) through (4) to install other frame rail extension (7).



6. Install crossmember (12) on two frame rail extensions (7) with four screws (13), eight washers (14), four lockwashers (15), and nuts (16).

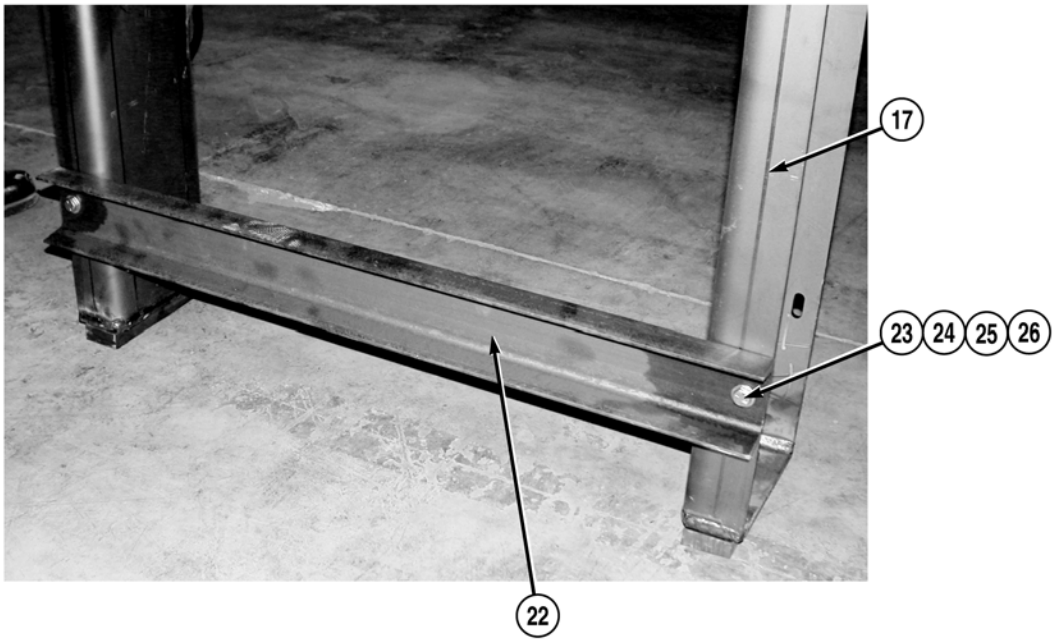


WARNING

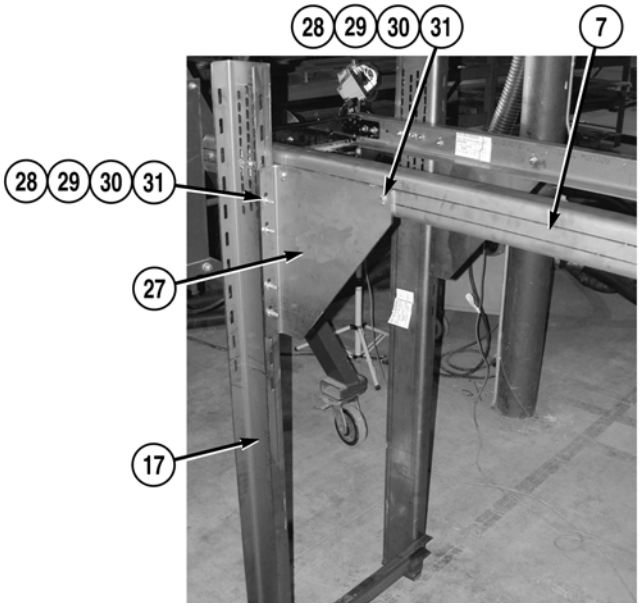
- **Minimum of two screws must be used to attach frame rail extension legs to frame rail extensions. Failure to comply may result in damage to equipment or injury to personnel.**
- **Complete foot of frame rail extension legs must come in contact with ground.**

7. Install frame rail extension leg (17) on frame rail extension (7) with four screws (18), eight washers (19), four lockwashers (20), and nuts (21).

8. Repeat Step (7) to install other frame rail extension leg.



9. Install brace (22) on two frame rail extension legs (17) with two screws (23), four washers (24), two lockwashers (25), and nuts (26).

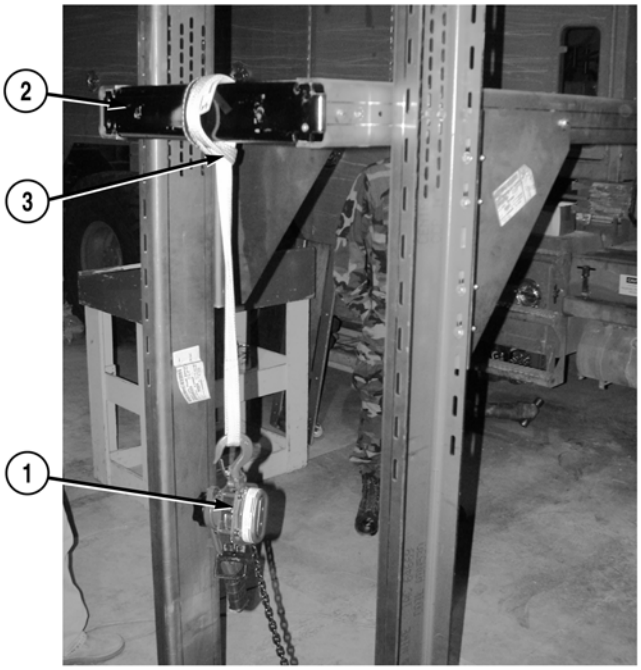


10. Install gusset (27) on frame rail extension (7) and frame rail extension leg (17) with six screws (28), 12 washers (29), six lockwashers (30), and nuts (31).

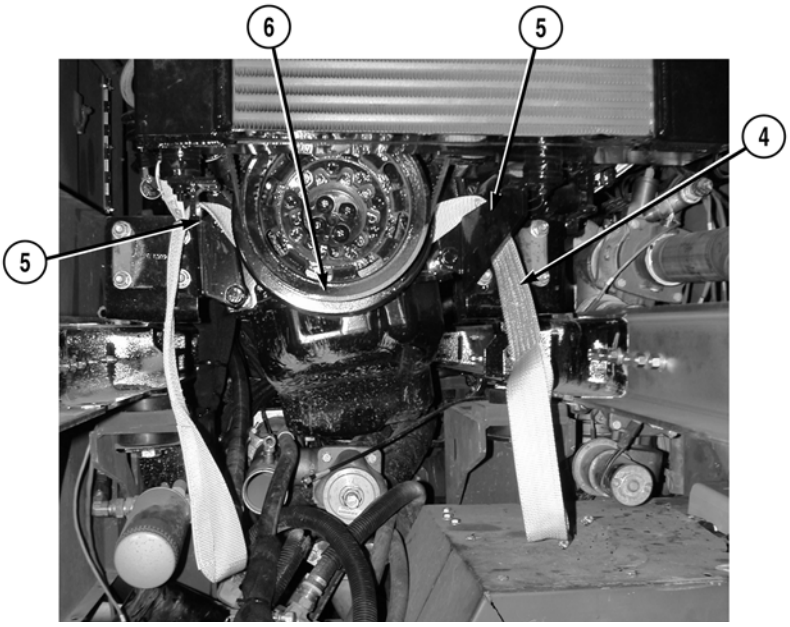
11. Repeat Step (10) to install other gusset.

END OF TASK

ENGINE REMOVAL



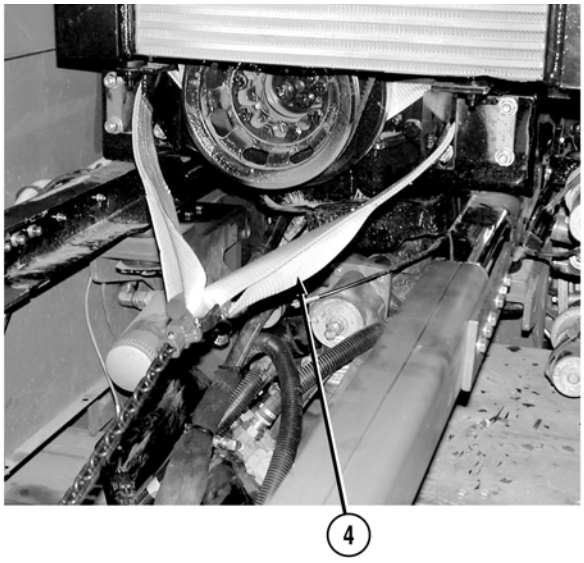
1. Attach chain hoist (1) to crossmember (2) with 3 ft. (1 m) strap (3).

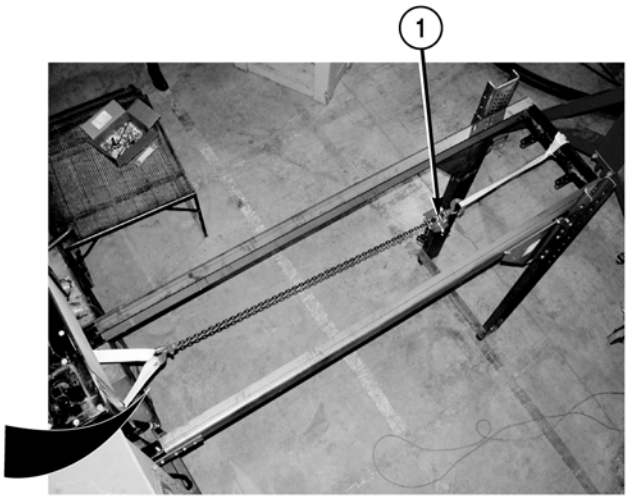


CAUTION

Engine strap must be positioned so that engine strap runs through two engine supports and under pulley assembly. Engine strap must hang over equal distance on each side of engine supports. Failure to comply my result in water pump engine not being pulled out straight which may cause damage to equipment.

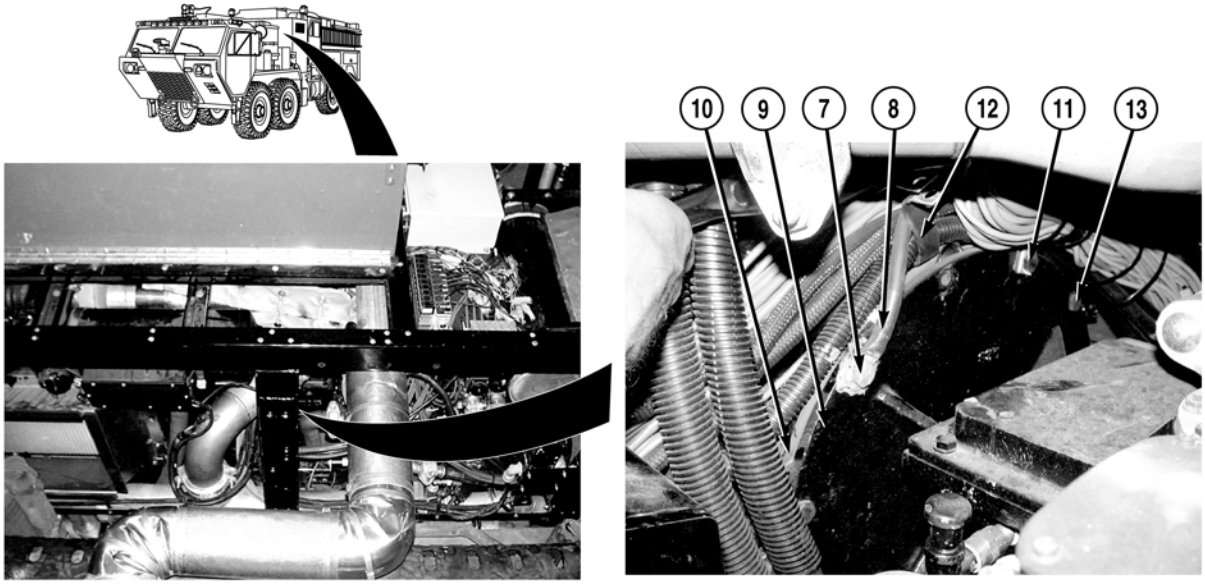
2. Position 5 ft. (2 m) engine strap (4) around two engine supports (5) and under pulley assembly (6).





3. Attach chain hoist (1) to 5 ft. (2 m) engine strap (4).

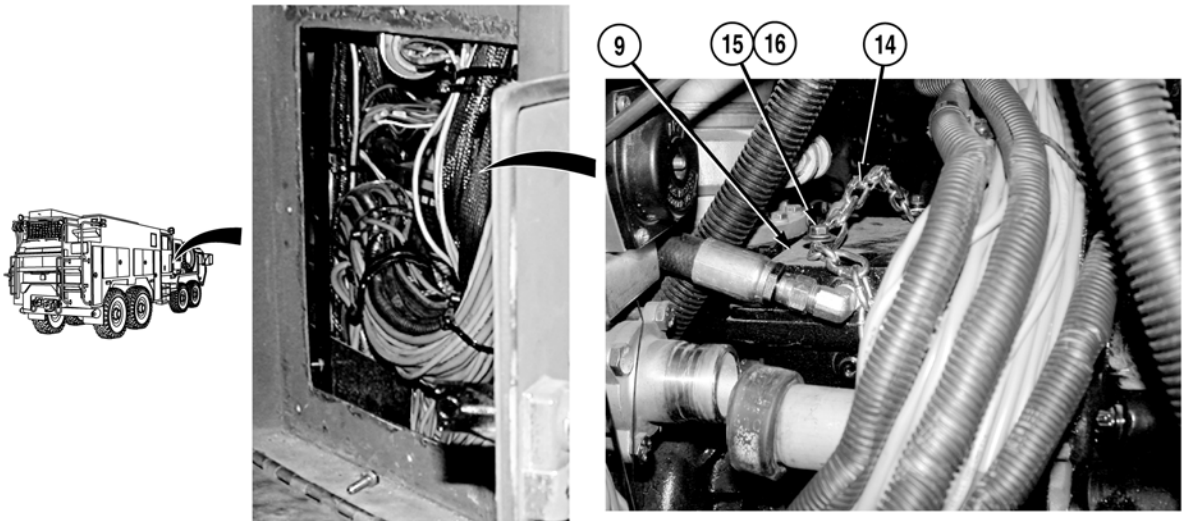
4. Do not put tension on chain hoist (1).



NOTE

There are 12 available screw holes to allow water pump to be attached to water pump engine, but only 11 are used. Note position of screws prior to removal to ensure proper installation.

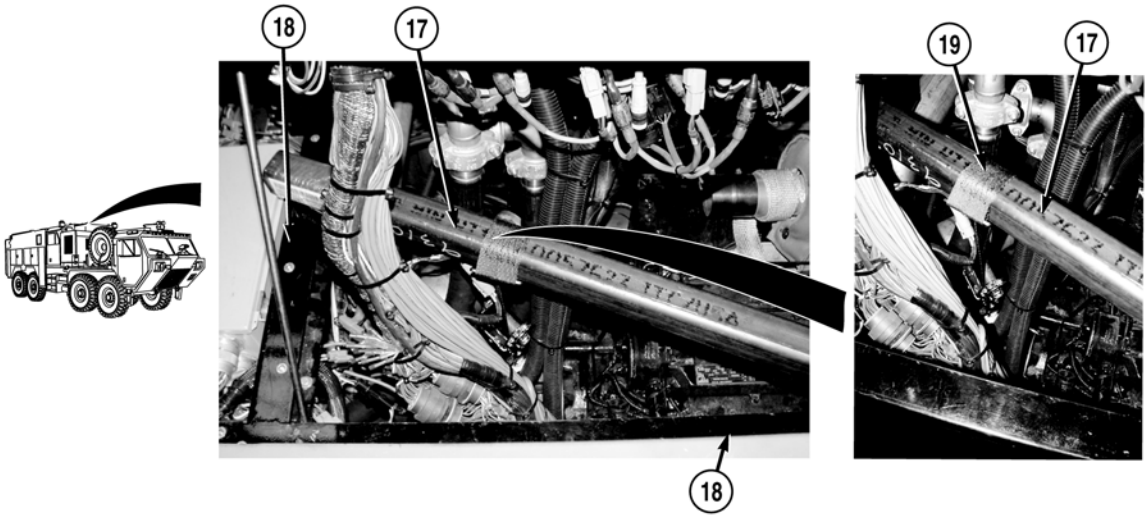
5. Remove screw (7) and cable (8) from water pump (9) and water pump engine (10).
6. Remove two screws (11) and cushion clips (12) from water pump (9) and water pump engine (10).
7. Remove eight screws (13) from water pump (9) and water pump engine (10).



CAUTION

Two screws holding chain must be installed in the corner holes closest to the pumps discharge. Failure to comply will make engine removal and installation more difficult and may cause damage to equipment.

8. Attach chain (14) to water pump (9) with four washers (15) and two screws (16).

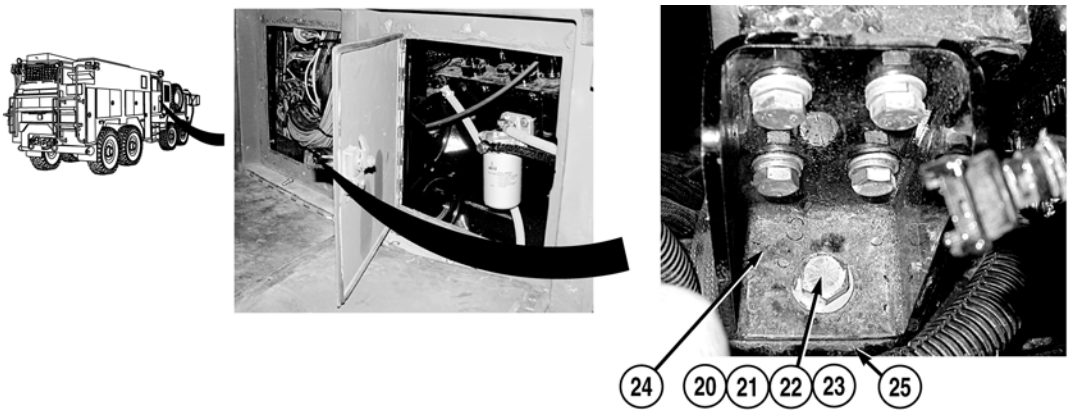


CAUTION

Water pump must be properly supported prior to removing water pump engine. Pump support bar must positioned so that ratchet strap will be able to attach to chain installed in Step (7) without contacting any components. Failure to comply may result in damage to equipment.

9. Put pump support bar (17) on two upper frame crossmembers (18).

10. Attach ratchet strap (19) to chain (14) and pump support bar (17) and put tension on ratchet strap (19).

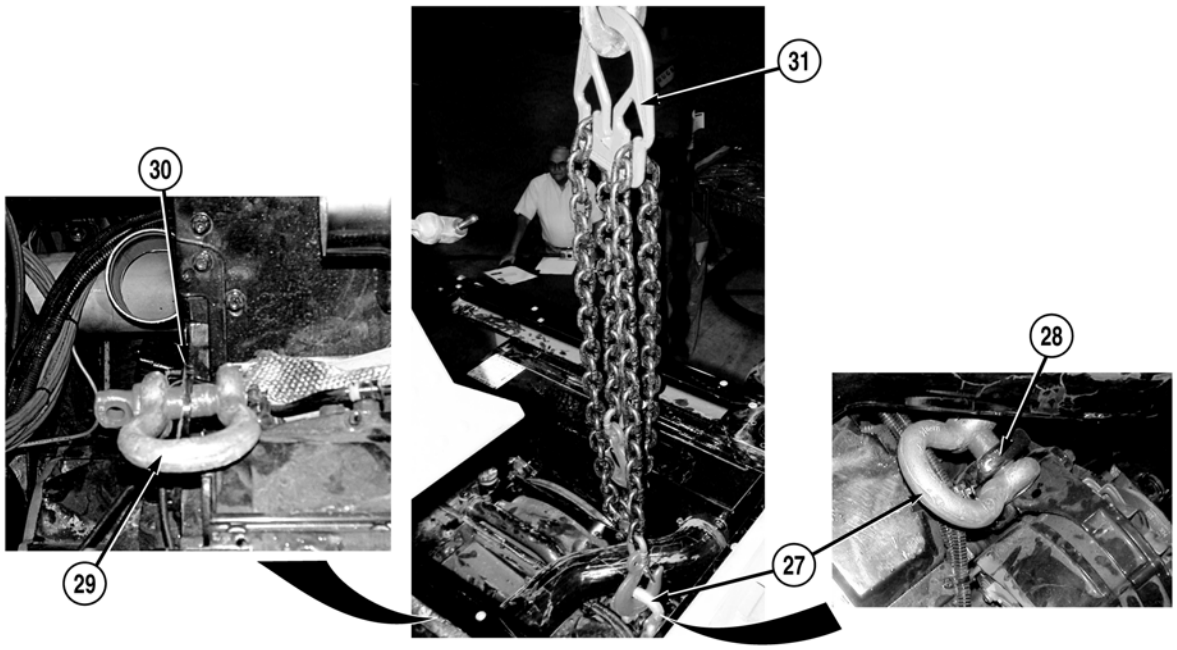


11. Remove four nuts (20), lockwashers (21), eight washers (22), and four screws (23) from engine mounts (24) and two frame rails (25). Discard lockwashers.

⚠ CAUTION

- **Make sure loose hoses and wires are secure and moved out of way so they do not snag and cause damage when water pump engine is moved.**
- **Water pump engine must be pulled out 3 in. (8 cm) before lifting water pump engine so that spline on water pump clears water pump engine. Failure to comply may result in damage to equipment.**

12. Using chain hoist (1), pull water pump engine (10) until water pump spline is no longer in water pump engine (10).

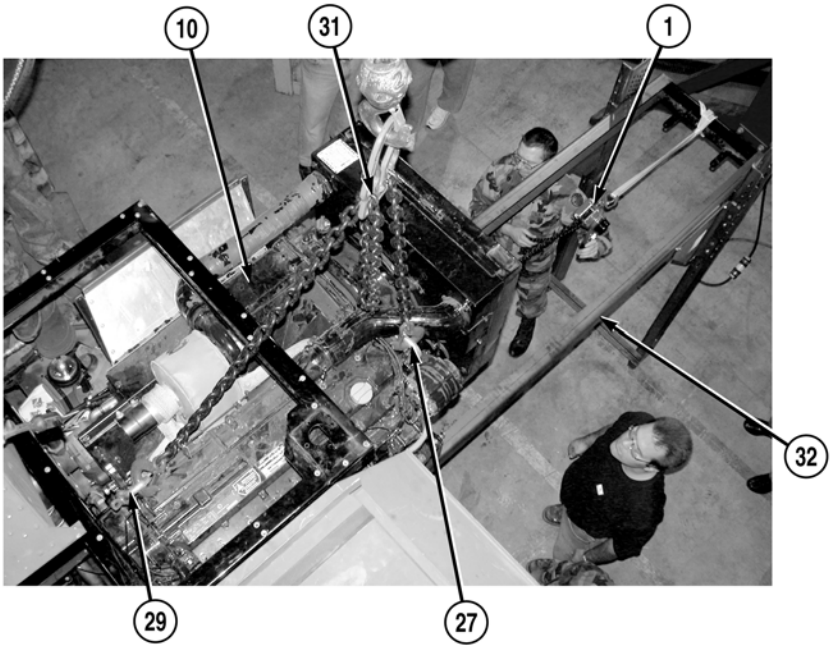


13. Install clevis (27) on front engine lift bracket (28).
14. Install clevis (29) on rear engine lift bracket (30).

WARNING

Water pump engine weighs 1,500 lb. (681 kg). Attach suitable lifting device to lifting chains prior to removal. Failure to comply may result in injury or death to personnel and damage to equipment.

15. Install water pump engine lifting chains (31) on suitable lifting device.
16. Attach water pump engine lifting chain (31) on clevis (27).



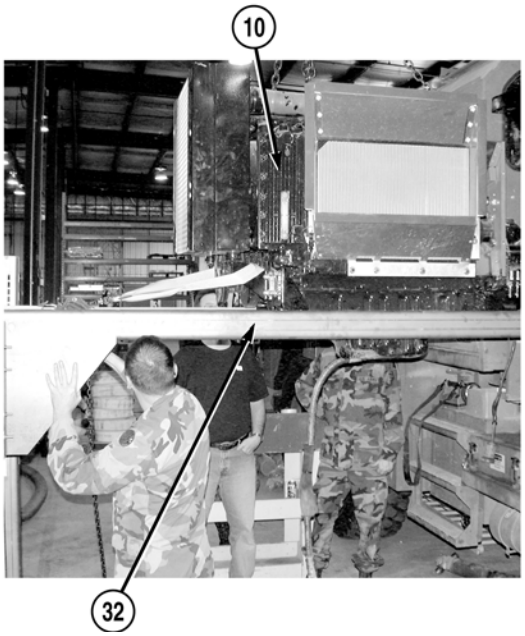
WARNING

- **Keep out from under water pump engine when removing water pump engine from pump house. Chains supporting water pump engine must be removed and repositioned on engine lift points when sliding water pump engine from pump house. Use extreme care when repositioning chains on engine lift points. If water pump engine slips, sways, or falls, serious injury or death may result.**
- **When lifting water pump engine, tabs on front and rear motor mounts must never be raised higher than the frame rails and frame rail extensions. Failure to comply may result in serious injury or death to personnel.**

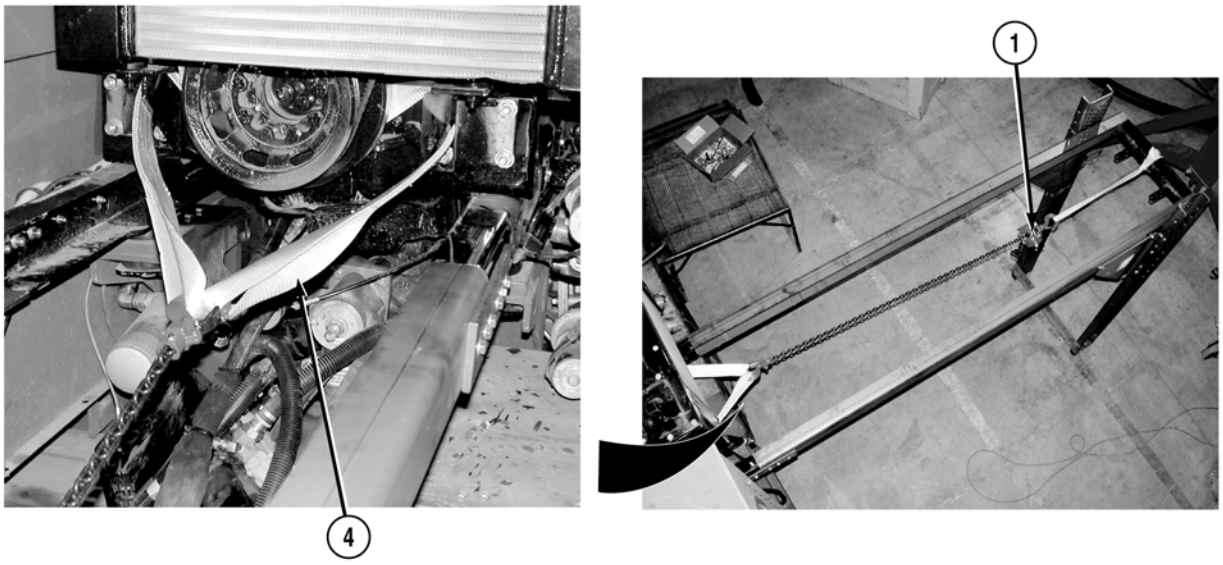
NOTE

- Install lifting hooks facing outward. Water pump engine lifting chains will need to be removed and repositioned on clevises during the removal of the water pump engine.
- Water pump engine must have front motor mounts lifted off of frame rails and frame rail extensions approximately 1/16 in. whenever possible to allow for easier removal of water pump engine.

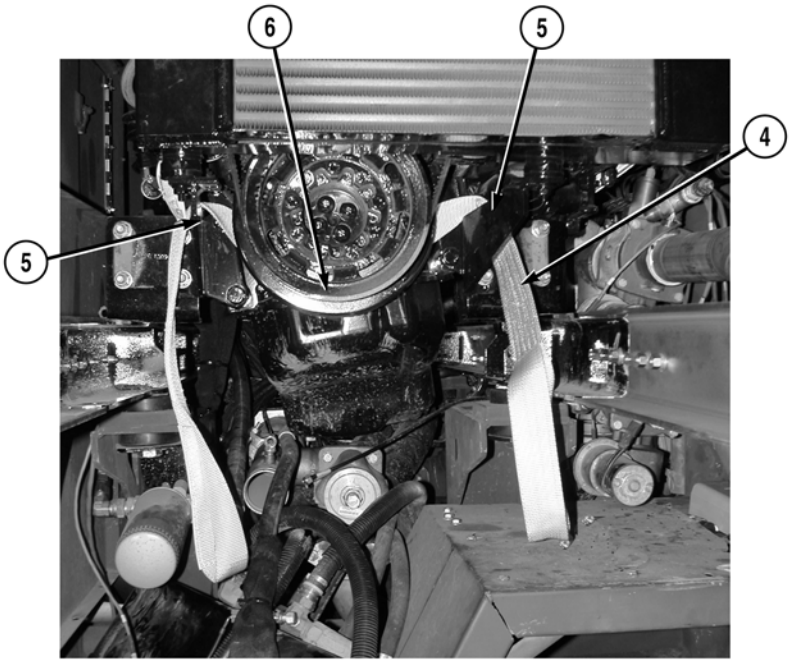
17. With the aid of two assistants, operate chain hoist (1) and guide water pump engine (10) and remove and reposition water pump engine lifting chains (31) on two clevises (27) and (29) when needed to slide water pump engine (10) completely onto two frame rail extensions (26).



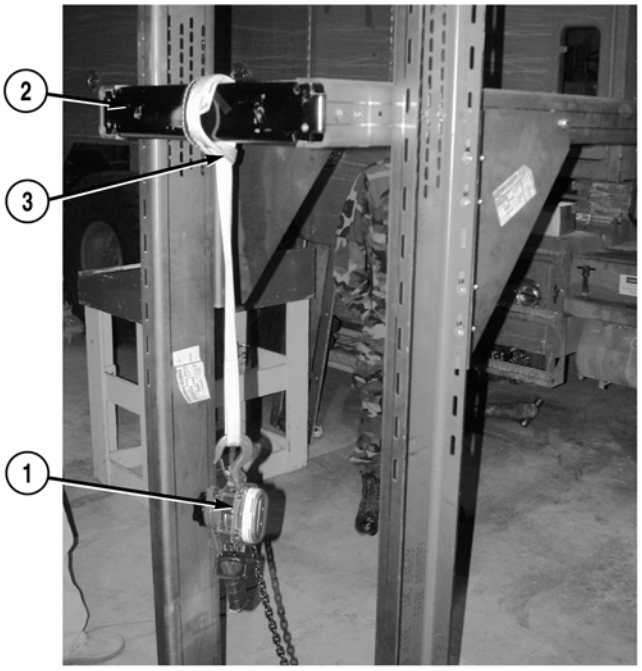
18. Lower water pump engine (10) onto two frame rail extensions (32).



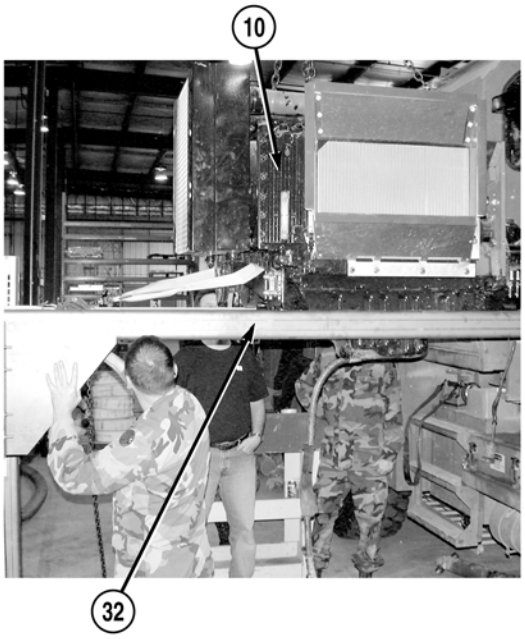
19. Remove chain hoist (1) from 5 ft. (2 m) engine strap (4).



20. Remove 5 ft. (2 m) engine strap (4) from two engine supports (5) and pulley assembly (6).



21. Remove chain hoist (1) and 3 ft. (1 m) strap (3) from crossmember (2).



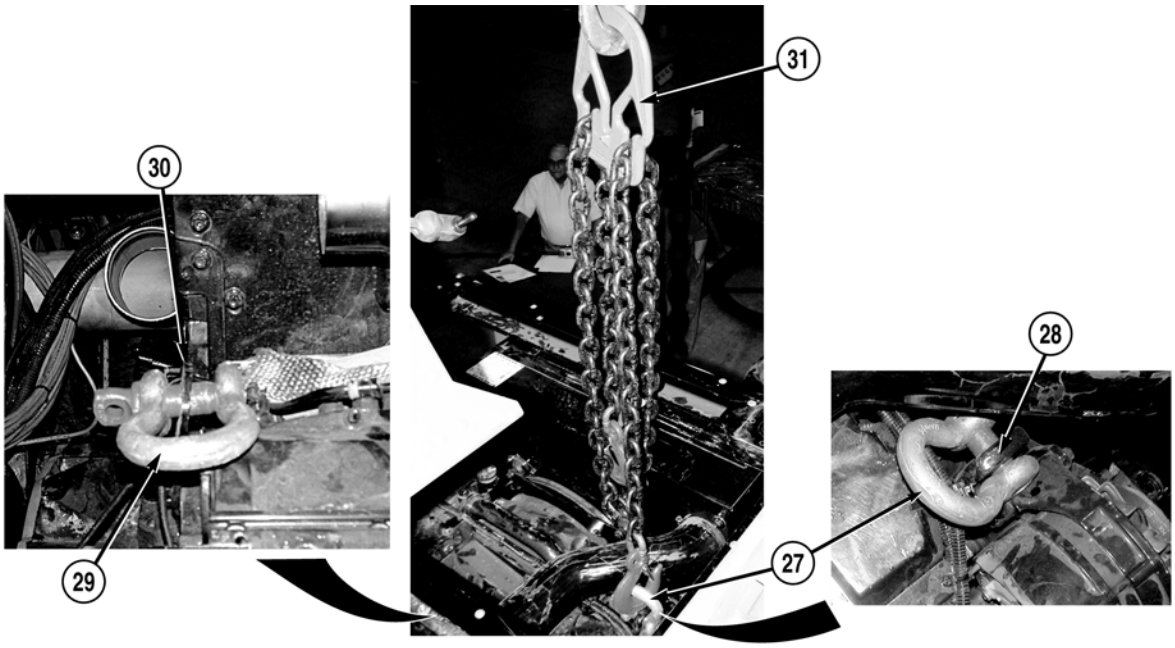
WARNING

Keep out from under water pump engine when removing from vehicle. If water pump engine slips or falls, serious injury or death may result.

CAUTION

Before lifting water pump engine from two frame rails, test by lifting water pump engine slightly to see if balanced. If water pump engine starts to tilt, lower and adjust water pump engine lifting chain lengths. Unbalanced engine may swing causing damage to equipment.

22. With the aid of an assistant, remove water pump engine (10) from two frame rail extensions (32).
23. With the aid of two assistants, guide water pump engine (10) to suitable work area.



24. Remove water pump engine lifting chains (31) from two clevises (27) and (29).
25. Remove water pump engine lifting chains (31) from suitable lifting device.
26. Remove clevis (29) from rear engine lift bracket (30).
27. Remove clevis (27) from front engine lift bracket (28).

END OF TASK

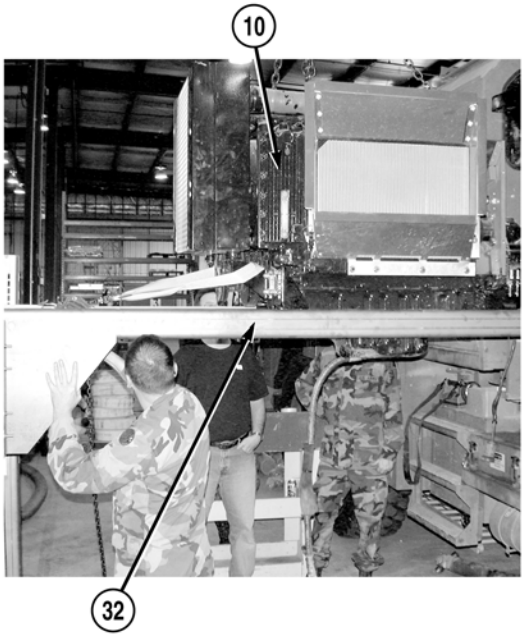
ENGINE INSTALLATION

1. Install clevis (27) on front engine lift bracket (28).
2. Install clevis (29) on rear engine lift bracket (30).

WARNING

Water pump engine weighs 1,500 lb. (681 kg). Attach suitable lifting device to lifting chains prior to installation. Failure to comply may result in injury or death to personnel and damage to equipment.

3. Install water pump engine lifting chains (31) on suitable lifting device.
4. Attach water pump engine lifting chains (31) on two clevises (27) and (29).



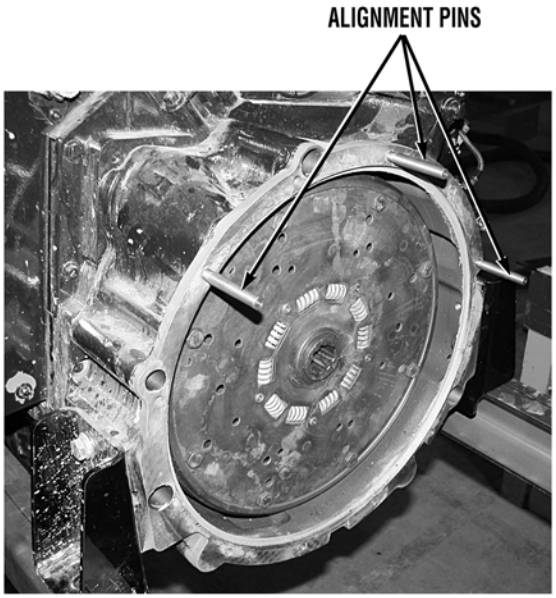
WARNING

Keep out from under water pump engine when lifting onto two frame rail extensions. If water pump engine, slips, sways, or falls serious injury or death may result.

CAUTION

Install lifting hooks facing outward. Before lifting water pump engine completely off supports, test by lifting slightly to see if balanced. If water pump engine starts to tilt, lower and adjust chain lengths. Unbalanced engine may swing causing damage to equipment.

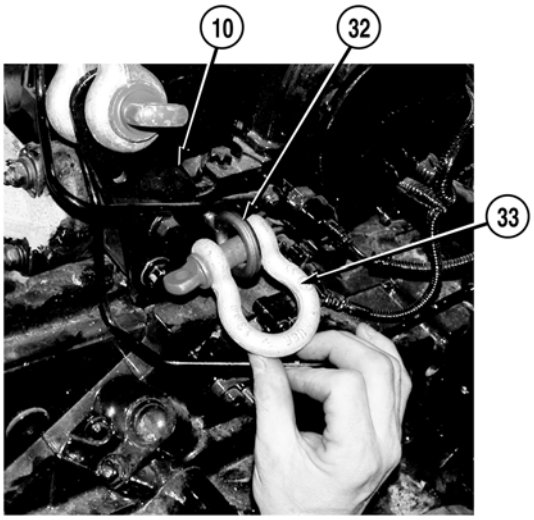
5. With the aid of an assistant, lift water pump engine (10) slightly, while checking that engine is balanced.
6. With the aid of two assistants, position water pump engine (10) on two frame rail extensions (32), while water pump engine (10) is being guarded.



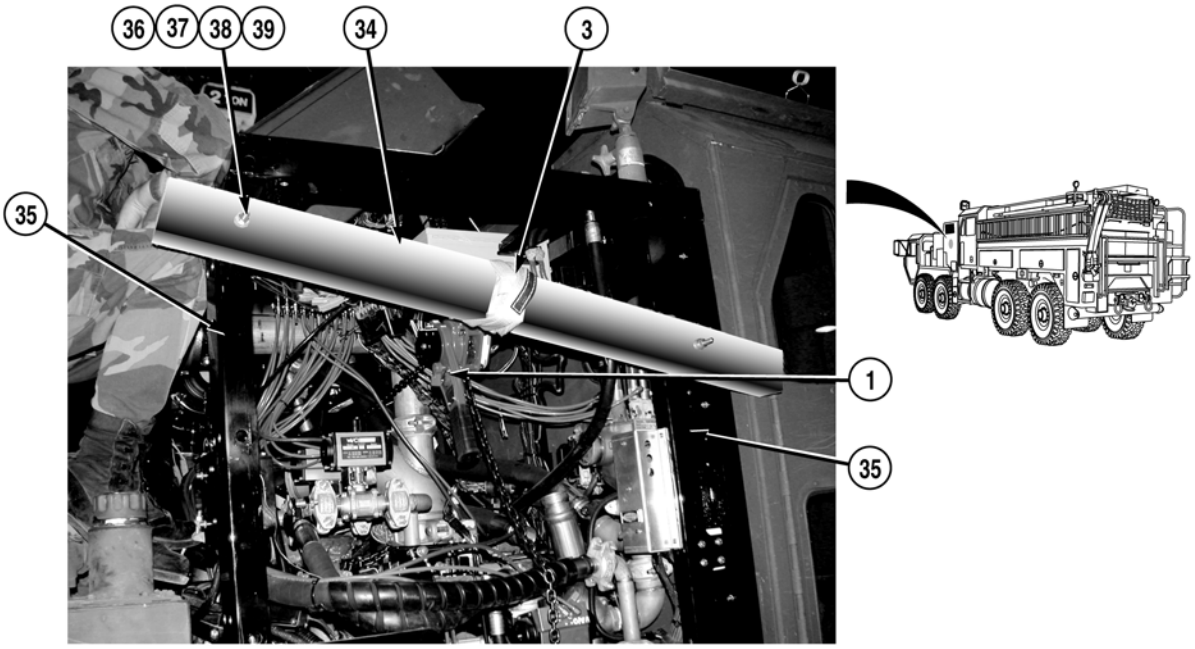
NOTE

Installing alignment pins aids in attaching water pump engine to water pump. Alignment pins should be installed on water pump engine in holes a shown.

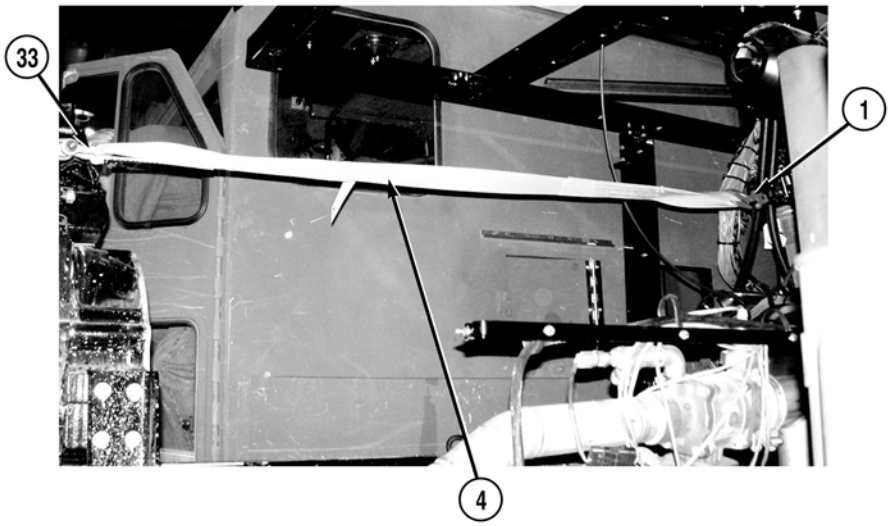
7. Install three alignment pins on water pump engine (10).



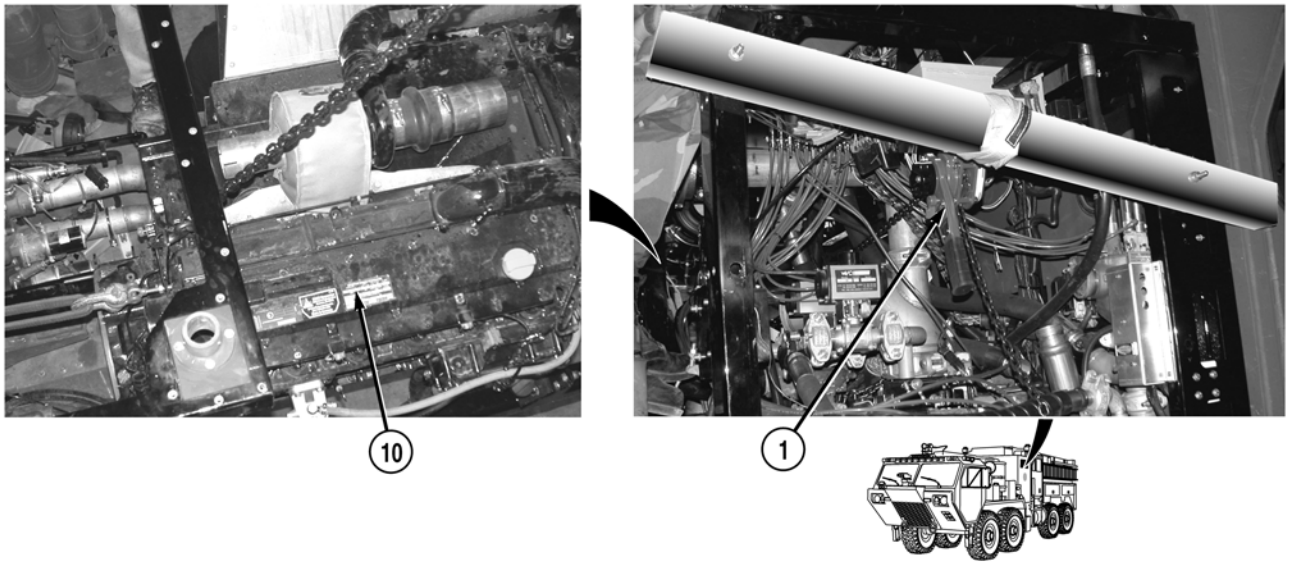
8. Install eyebolt (32) on water pump engine (10).
9. Install clevis (33) on eyebolt (32).



10. Install brace (34) on two frame rails (35) with two screws (36), four washers (37), two lockwashers (38), and nuts (39).
11. Attach chain hoist (1) on brace (34) with 3 ft. (1 m) strap (3).



12. Install 5 ft. (2 m) engine strap (4) on clevis (33).
13. Attach chain hoist (1) to 5 ft. (2 m) engine strap (4).



WARNING

Keep out from under water pump engine when installing water pump engine in pump house. Chains supporting water pump engine must be removed and repositioned on engine lift points when sliding water pump engine into pump house. Use extreme care when repositioning chains on engine lift points. If water pump engine slips, sways, or falls, serious injury or death may result.

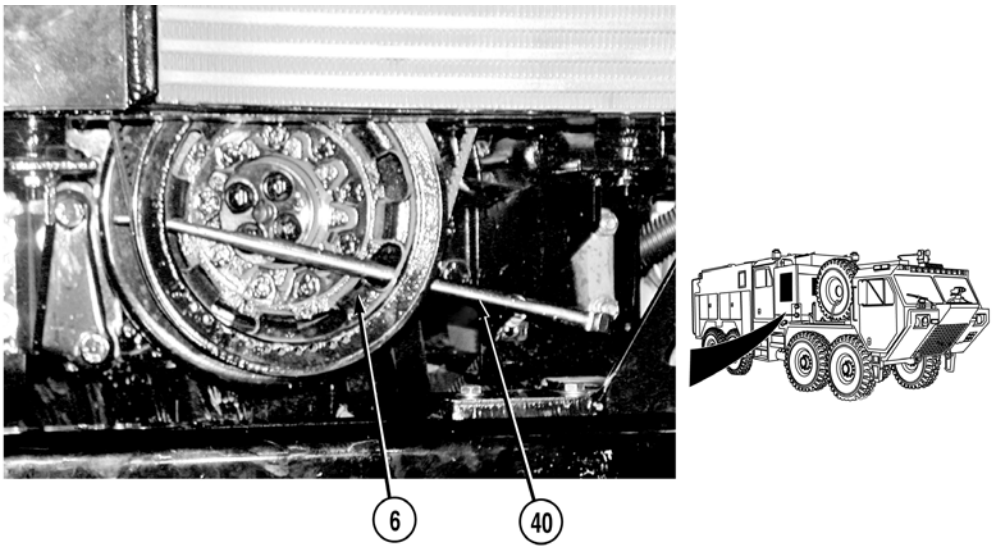
CAUTION

Make sure loose hoses and wires are secure and moved out of way so they do not snag and cause damage when water pump engine is moved.

NOTE

- Chains supporting water pump engine will need to be removed and repositioned during the installation of the water pump engine.
- Water pump engine must have rear motor mounts lifted off frame rails and frame rail extensions approximately 1/16 in. whenever possible to allow for easier installation of water pump engine.
- After water pump engine is half way in pump house, 5 ft. (2 m) engine strap may need to be removed and chain hoist will need to be attached directly to clevis to continue pulling water pump engine into pump house.

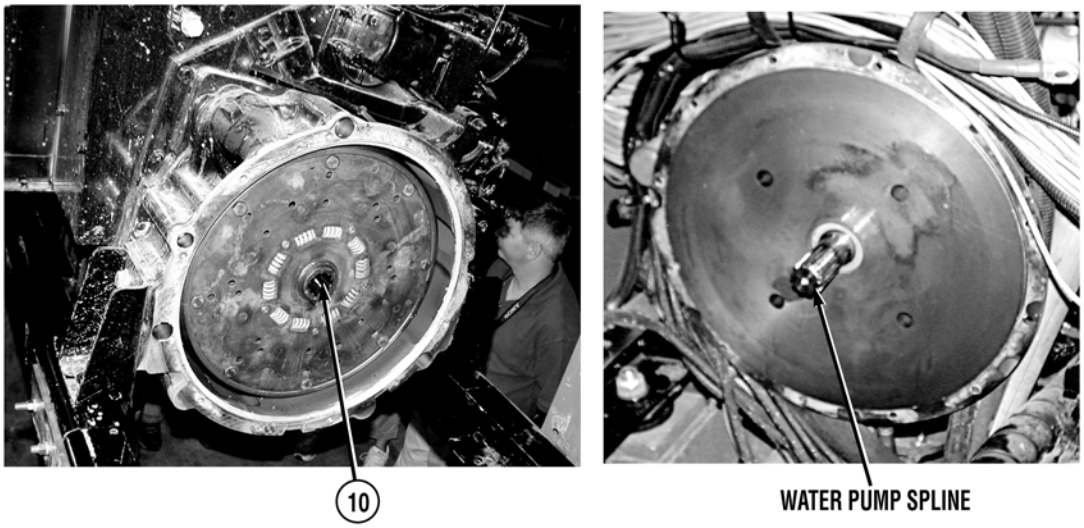
14. With the aid of two assistants, operate chain hoist (1), and guide water pump engine (10) and remove and reposition chains when needed to slide water pump engine (10) into pump house.



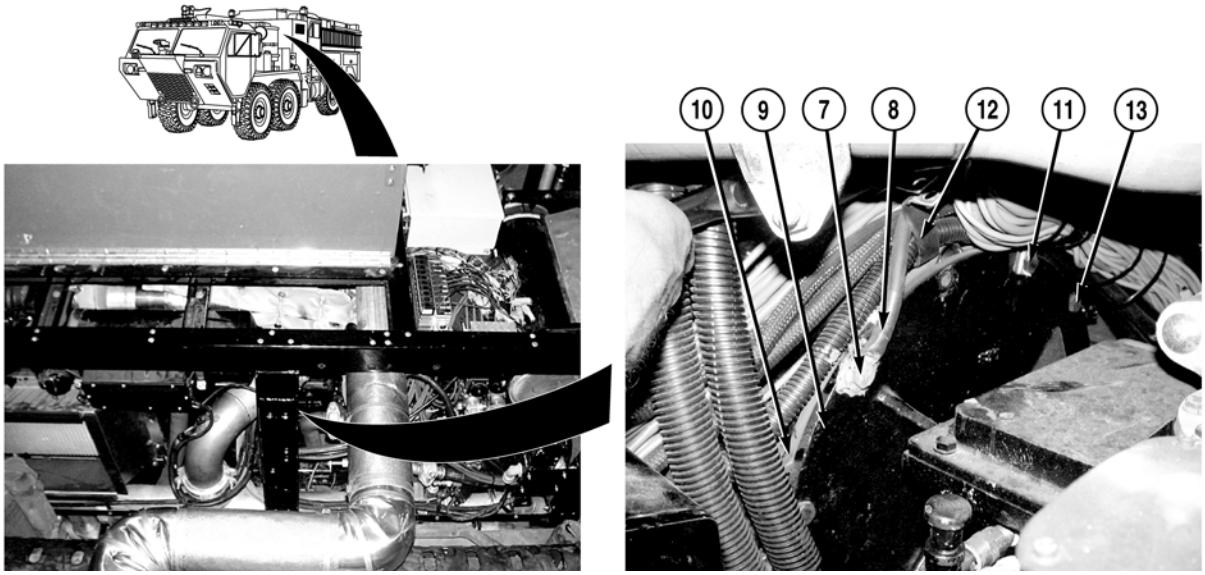
⚠ CAUTION

Stop pulling water pump engine into pump house when spline of water pump is 1 in. (3 cm) from water pump engine. If spline does not match up with engine, water pump engine pulley will have to be turned by bar to line up with water pump spline. Failure to comply may result in damage to equipment.

15. Position bar (40) in pulley assembly (6).



16. Using bar (40), turn pulley assembly (6) until water pump spline matches up with water pump engine (10).
17. Using chain hoist (1) completely pull water pump engine (10) to water pump (9).



WARNING

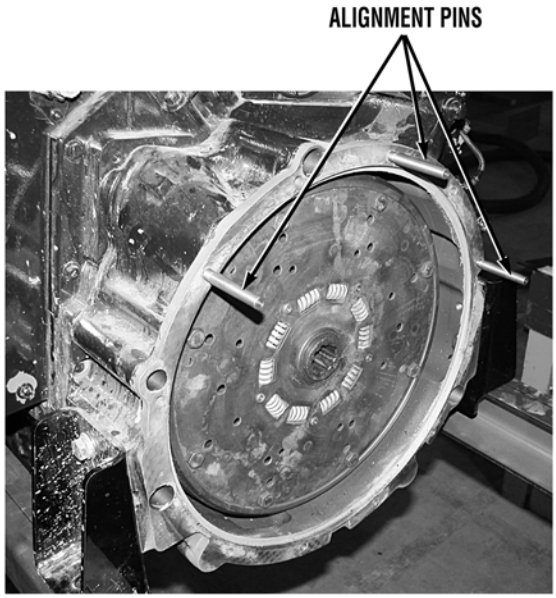
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

18. Apply thread locking adhesive to eight screws (13), two screws (11), and screw (7).

NOTE

Install screws as noted prior to removal.

19. Install water pump engine (10) on water pump (9) with seven screws (13).

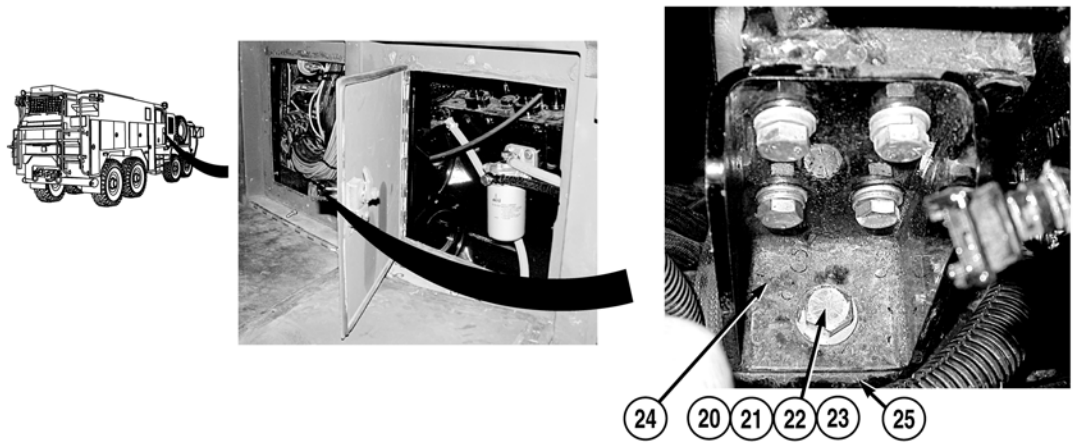


20. Remove three alignment pins from water pump engine (9).
21. Install two cushion clips (12) on water pump (9) and water pump engine (10) with two screws (11).
22. Install cable (8) on water pump (9) and water pump engine (10) with screw (7).

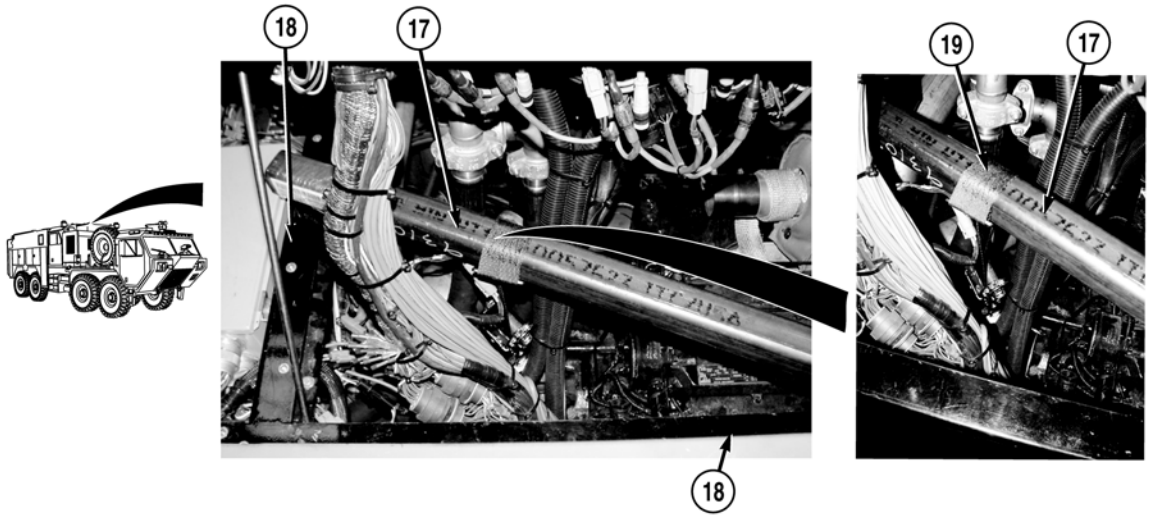
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

23. Apply electrical sealant to end of cable (8).
24. Install remaining screw (13) on water pump (9) and water pump engine (10).

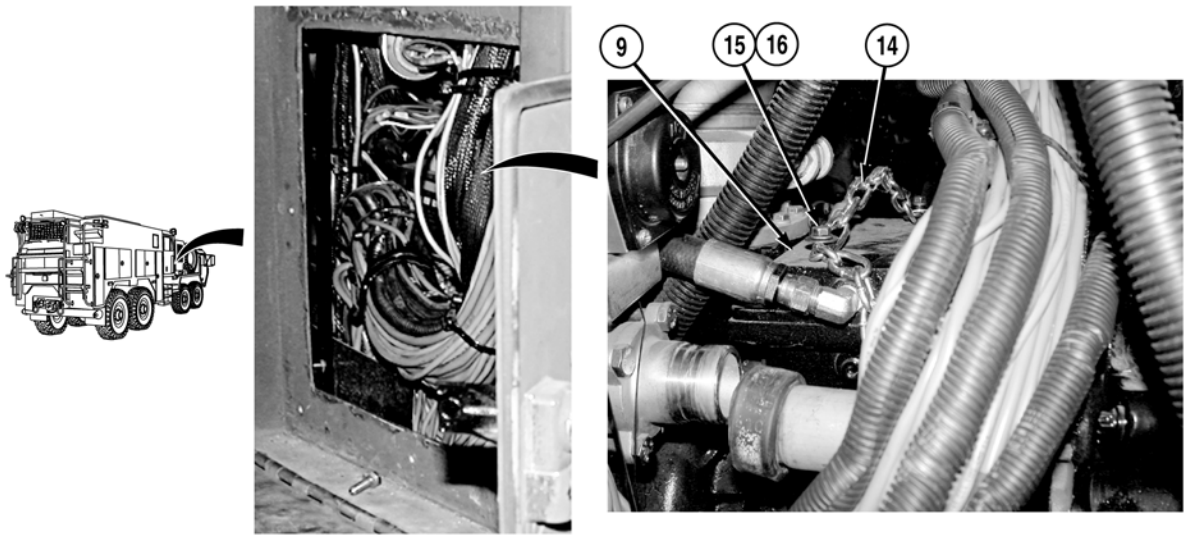


25. Install four engine mounts (24) on two frame rails (25) with four screws (23), eight washers (22), four lockwashers (21), and nuts (20).

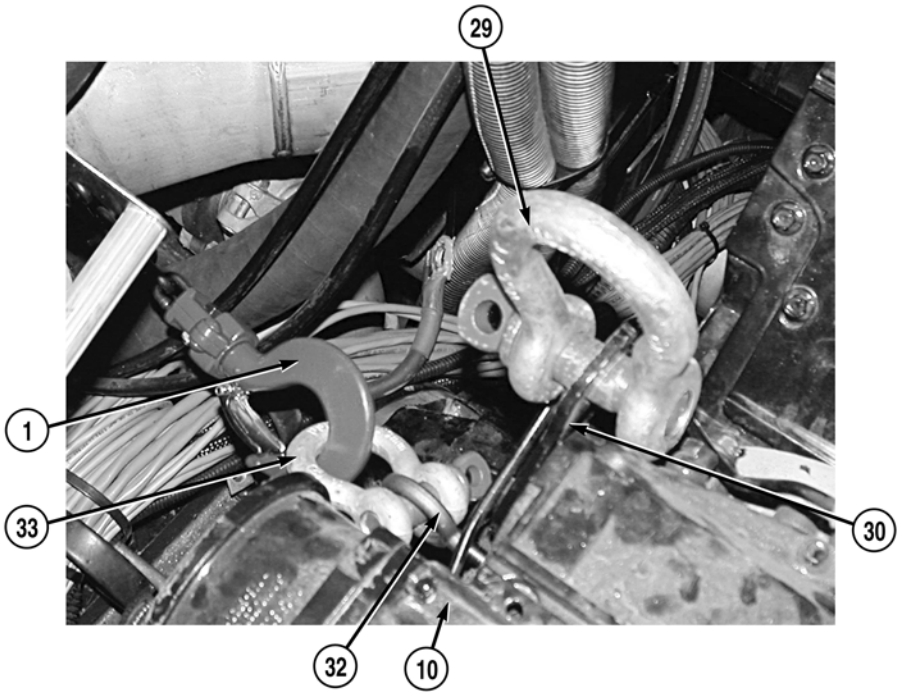


26. Remove ratchet strap (19) from chain (14) and pump support bar (17).

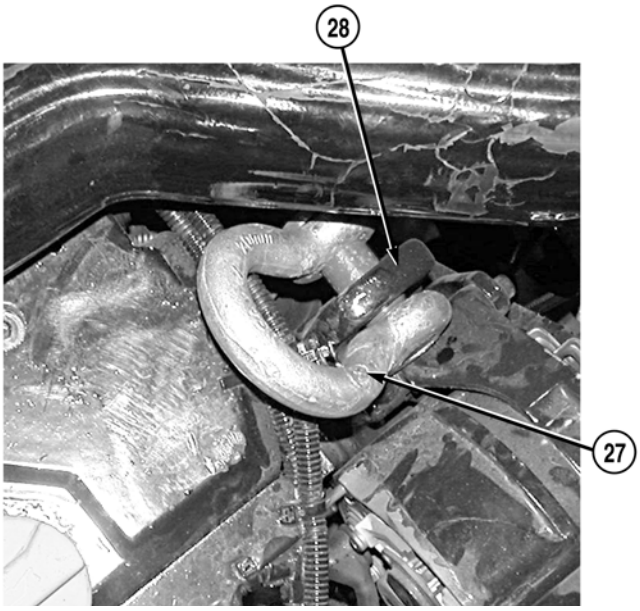
27. Remove pump support bar (17) from two upper frame crossmembers (18).



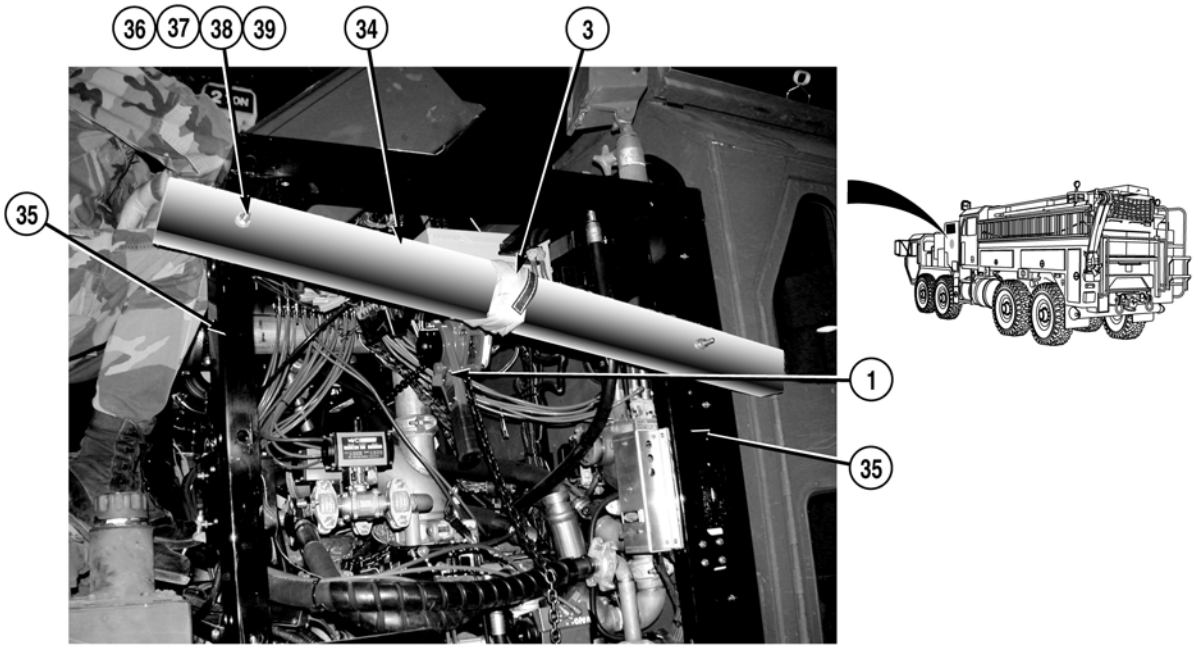
28. Remove two screws (16), four washers (15), and chain (14) from water pump (9).



29. Remove chain hoist (1) from clevis (33).
30. Remove clevis (33) from eye bolt (32).
31. Remove eyebolt (32) from water pump engine (10).
32. Remove clevis (29) from rear engine lift bracket (30).



33. Remove clevis (27) from front engine lift bracket (28).

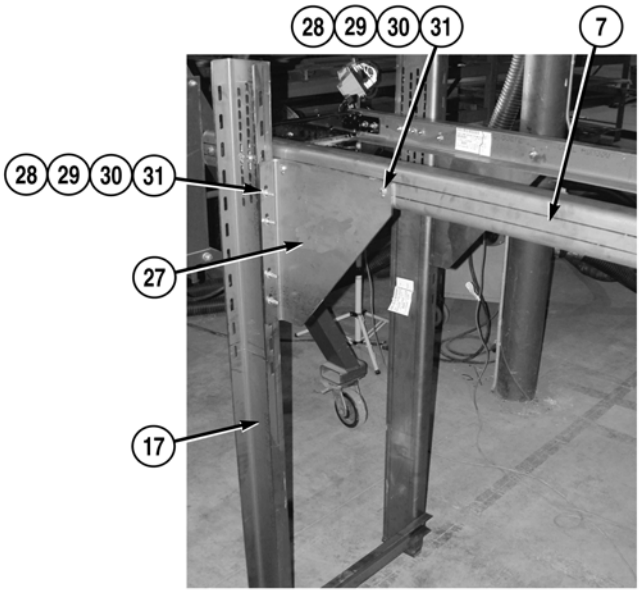


34. Remove 3 ft. (1 m) strap (3) and chain hoist (1) from brace (34).

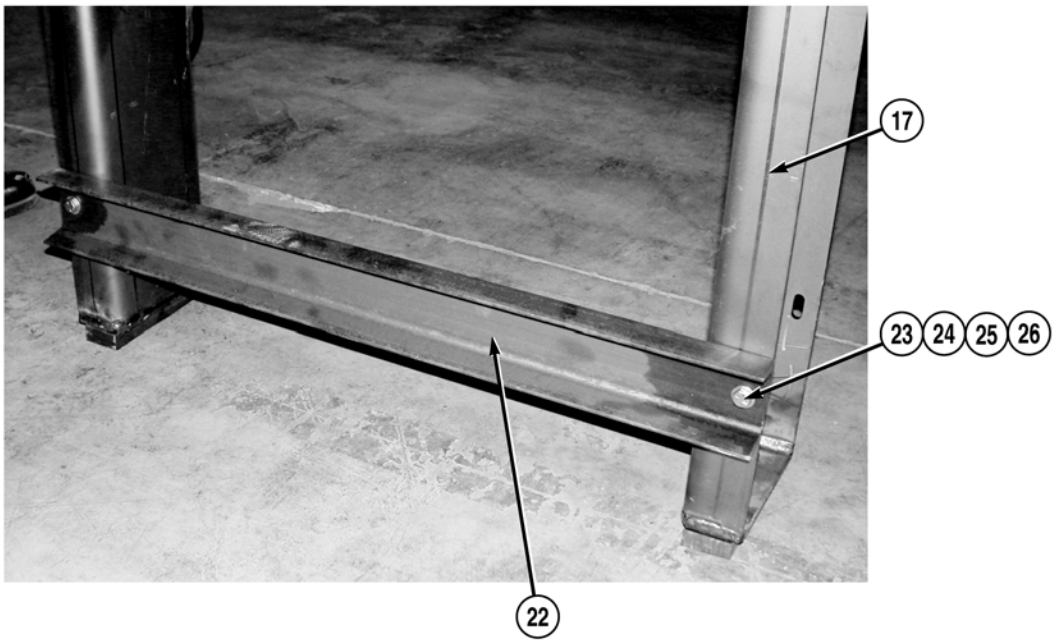
35. Remove two nuts (39), lockwashers (38), four washers (37), two screws (36), and brace (34) from two frame rails (35). Discard lockwashers.

END OF TASK

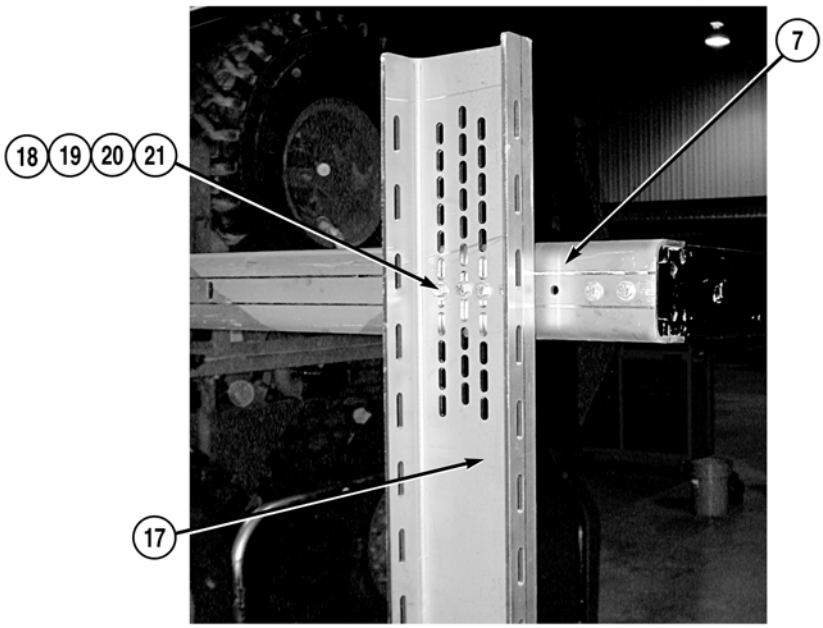
FRAME RAIL EXTENSION REMOVAL



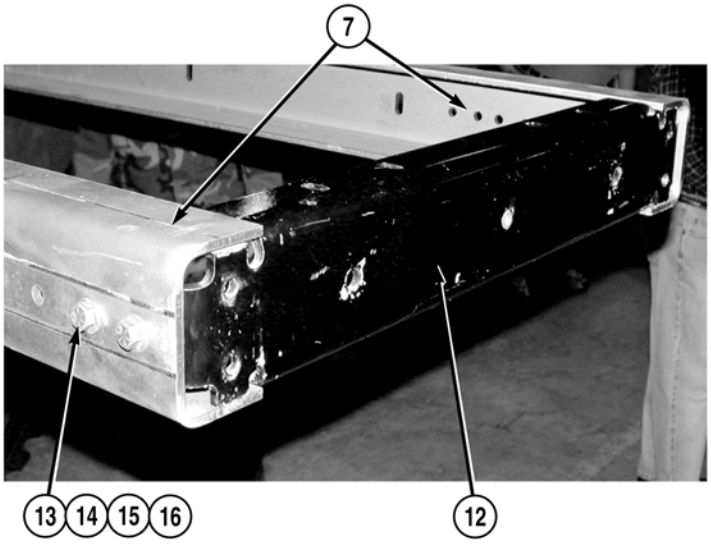
1. Remove six nuts (31), lockwashers (30), 12 washers (29), six screws (28), and gusset (27) from frame rail extension (7) and frame rail extension leg (17). Discard lockwashers.
2. Repeat Step (1) to remove other gusset.



3. Remove two nuts (26), lockwashers (25), four washers (24), two screws (23), and brace (22) from two frame rail extension legs (17). Discard lockwashers.

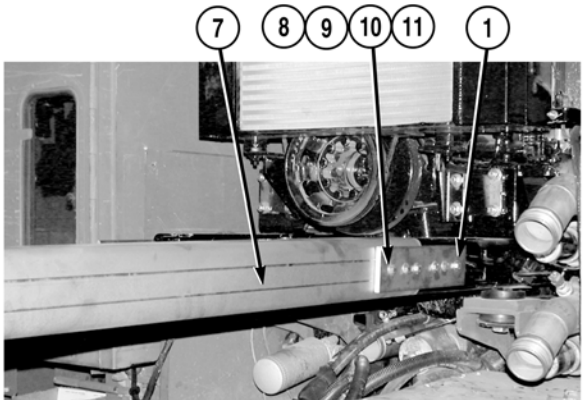


4. Remove four nuts (21), lockwashers (20), eight washers (19), four screws (18), and frame rail extension leg (17) from frame rail extension (7). Discard lockwashers.



5. Remove four nuts (16), lockwashers (15), eight washers (14), four screws (13), and crossmember (12) from two frame rail extensions (7). Discard lockwashers.

6. Repeat Step (4) to remove other frame rail extension (7).

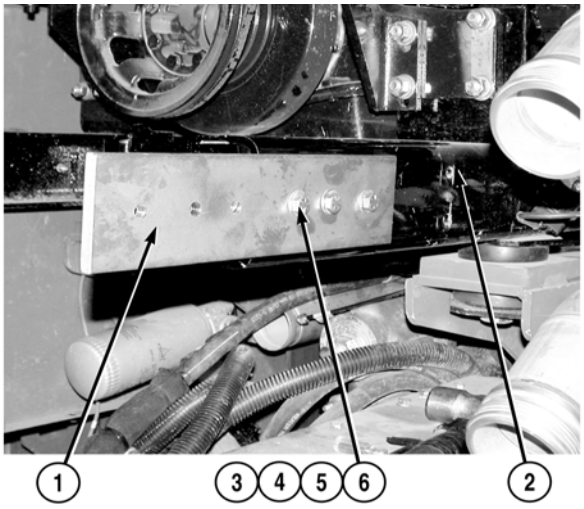


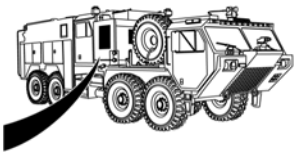
WARNING

Frame rail extensions are heavy. Do not attach/remove frame rail extension to/from mounting brackets without the aid of an assistant. Failure to comply may result in injury to personnel.

7. With the aid of an assistant, remove three nuts (11), lockwashers (10), six washers (9), three screws (8), and frame rail extension (7) from mounting bracket (1). Discard lockwashers.

8. Repeat Step (2) to remove other frame rail extension.

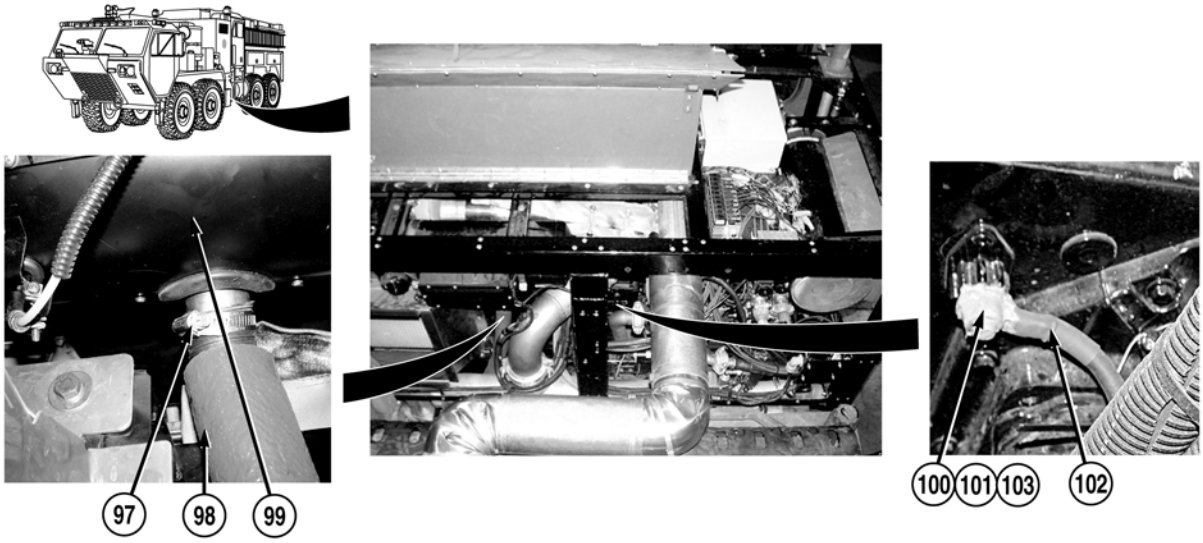




9. Remove six nuts (6), lockwashers (5), 12 washers (4), six screws (3), and two mounting brackets (1) from frame rails (2). Discard lockwashers.

END OF TASK

INSTALLATION

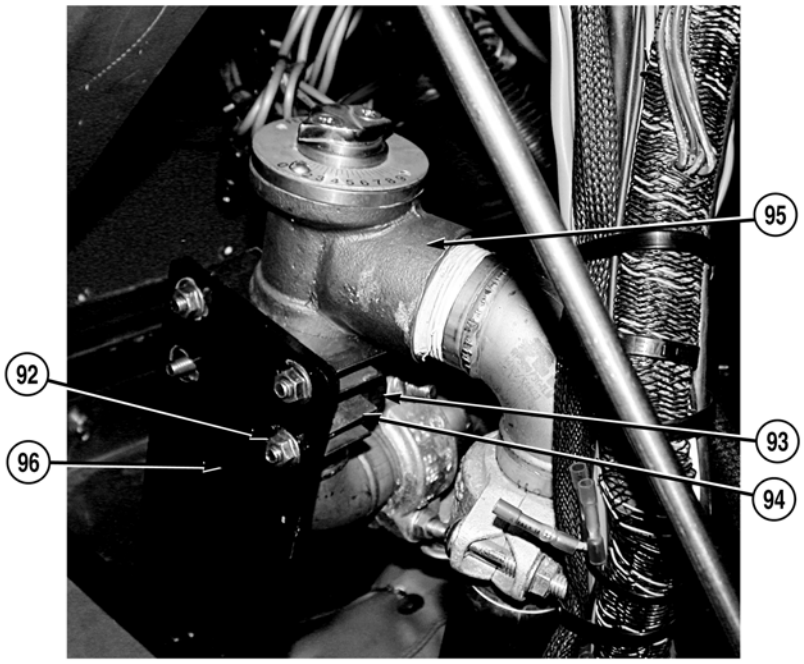


1. Install cable (102) on starter stud (103) with washer (101) and nut (100).

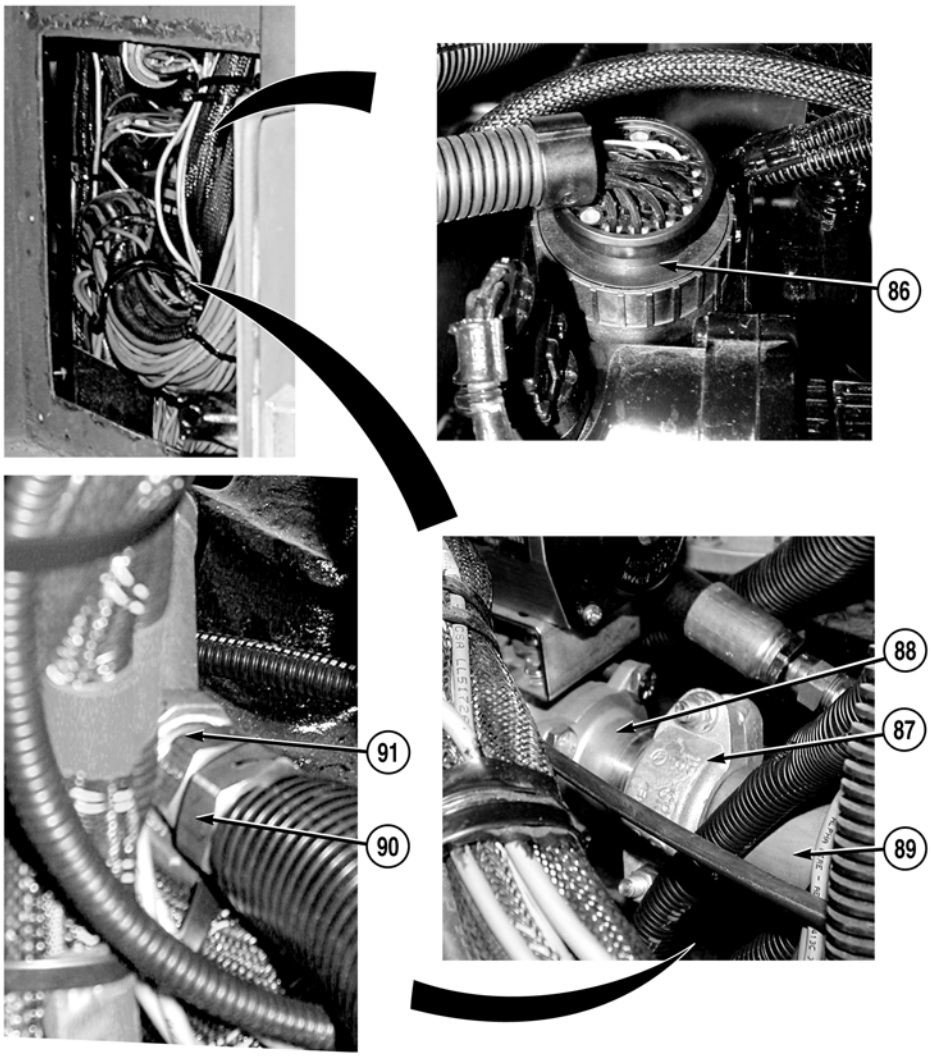
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

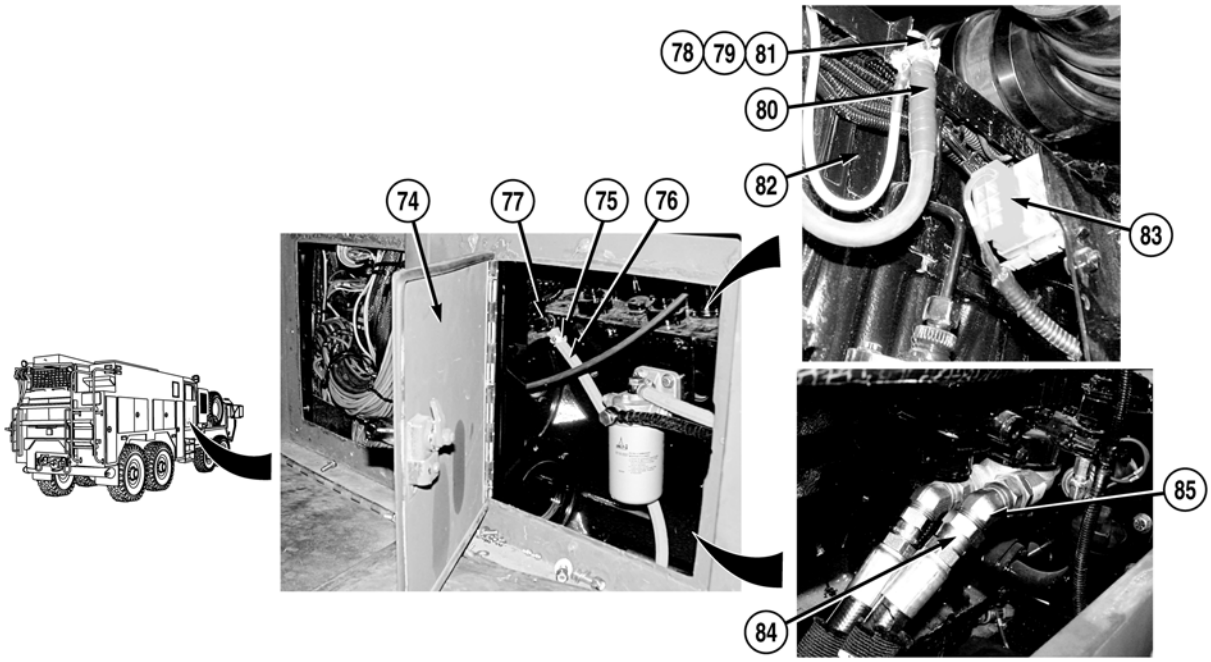
2. Apply electrical sealant to end of cable (102).
3. Install pipe (98) on pump house heater assembly (99) with clamp (97).



4. Install foam system manual metering valve (95) on bracket (96) with two cradles (94), U-bolts (93), and four locknuts (92).



5. Install windshield deluge supply hose (90) on fitting (91).
6. Install coupling (87) on ground sweeps valve (88) and pipe (89) (WP 0483).
7. Connect connector (86).



8. Install two hoses (84) on elbows (85).

NOTE

Install cable ties as required.

9. Connect connector (83).

NOTE

Route cable as noted prior to removal.

10. Install cable (80) on stud (81) and engine (82) with nut (79) and cap (78).

WARNING

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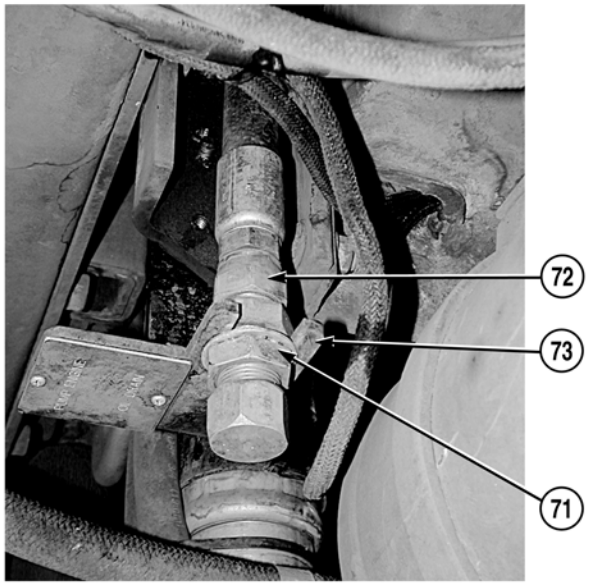
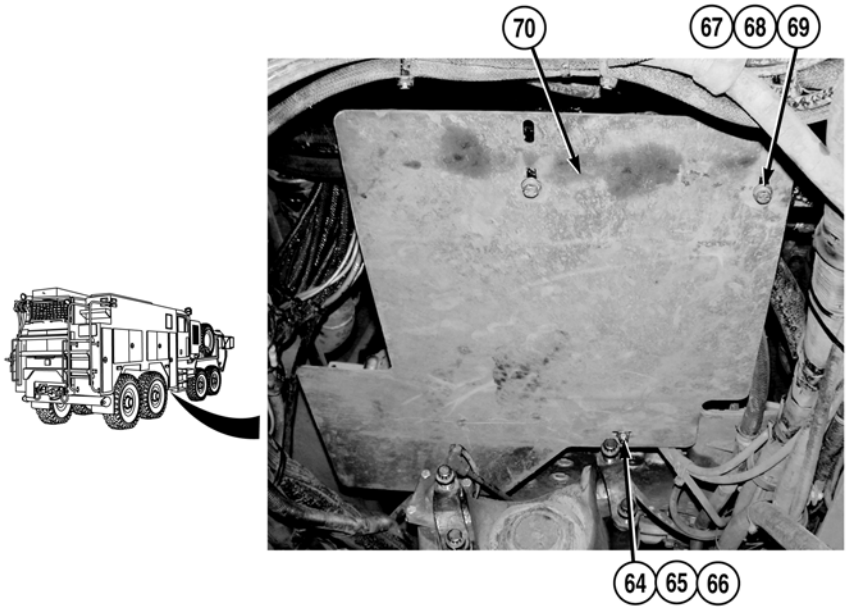
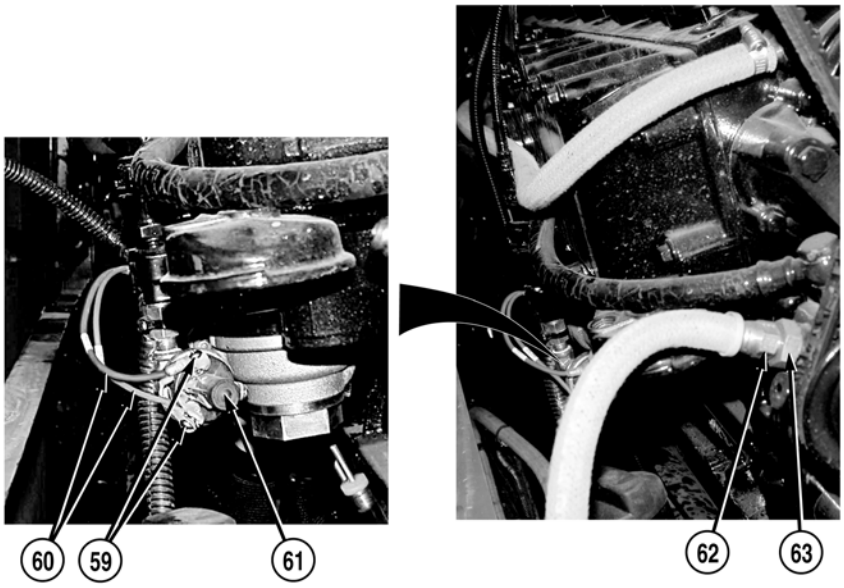
11. Apply electrical sealant to end of cable (80).
12. Install fuel return line (76) on fitting (77) with clamp (75).
13. Close door (74).



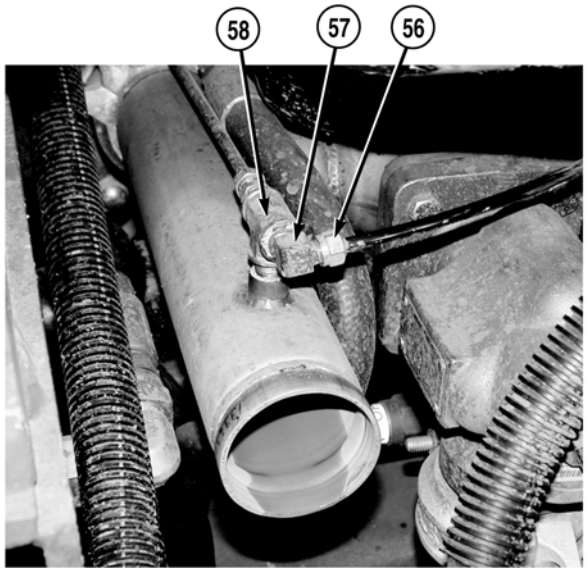
14. Position oil drain hose (72) in original position.
15. Install oil drain hose (72) on bracket (73) and tighten jamnut (71).



16. Install shield (70) on vehicle with two washers (69), lockwashers (68), and screws (67).
17. Install washer (65) and locknut (64) on stud (66).



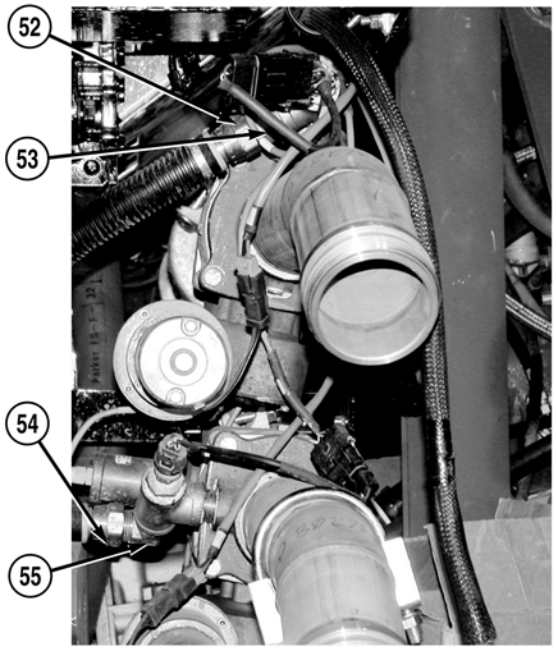
18. Install fuel supply hose (62) on fitting (63).
19. Install two wires (60) on oil pressure switch (61) with two screws (59).



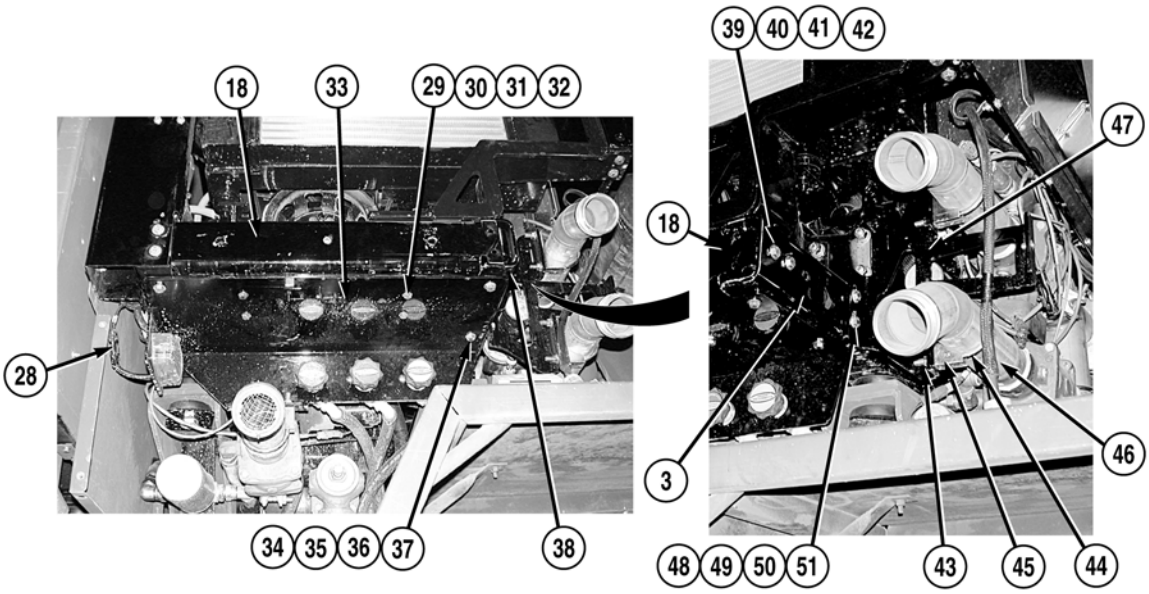
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

20. Apply sealing compound to threads of elbow (57).
21. Install elbow (57) on tee (58).
22. Install air line (56) on elbow (57).



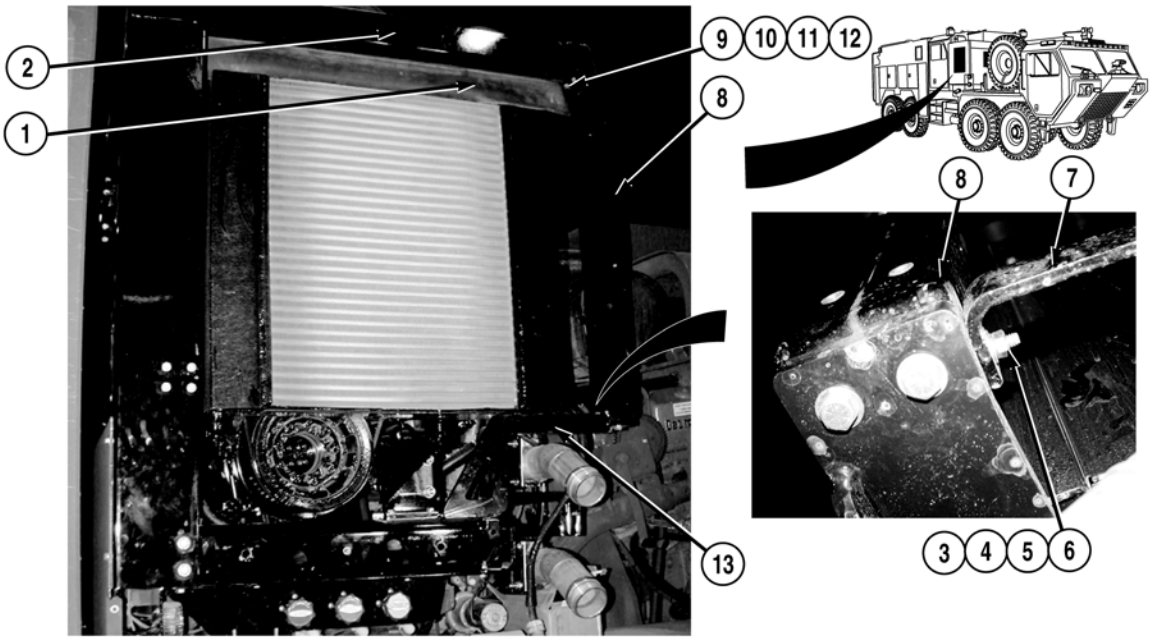
23. Install hose (54) on elbow (55).
24. Install hose (52) on fitting (53).



NOTE

Install bracket as noted prior to removal.

25. Install bracket (47) on lower frame rail (38) with two screws (51), four washers (50), two lockwashers (49), and nuts (48).
26. Install two pipes (46) on bracket (47) with two cradles (45), U-bolts (44), and four locknuts (43).
27. Install crossmember (18) on two lower frame rails (38) with four screws (42), eight washers (41), four lockwashers (40), and nuts (39).
28. With the aid of an assistant, install bracket (33) on two lower frame rails (38) with four screws (37), eight washers (36), four lockwashers (35), and nuts (34).
29. Secure bracket (33) with four screws (32), eight washers (31), four lockwashers (30), and nuts (29).
30. Connect connector (28).



31. Install rear frame rail (23) on upper frame rail (2) and crossmember (18) with six screws (27), 12 washers (26), six lockwashers (25), and nuts (24).
32. Secure pump panel P (22) to rear frame rail (23) with two washers (21), lockwashers (20), and screws (19).
33. Install rail support (13) on crossmember (18) with two screws (17), four washers (16), two lockwashers (15), and nuts (14).
34. Install front frame rail (8) on upper frame rail (2) and rail support (13) with four screws (12), eight washers (11), four lockwashers (10), and nuts (9).
35. Install brace (7) on front frame rail (8) with screw (6), two washers (5), lockwasher (4), and nut (3).
36. Install rubber seal (1) on upper frame rail (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill and check water pump engine oil (LO 9-2320-379-12)
2. Install propeller shaft (TM 9-2320-325-14&P)
3. Install pump house panels B, K, L, N, O, and Q (WP 0540)
4. Install auxiliary inlet valve (passenger side) (WP 0294)
5. Install extendable floodlight (WP 0354)
6. Install water pump engine exhaust pipes (WP 0228)
7. Install water pump engine air cleaner assembly (WP 0220)
8. Install water pump engine air filter ducting (WP 0221)
9. Bleed air out of engine fuel line (WP 0237)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE AIR CLEANER ASSEMBLY REPLACEMENT

INITIAL SETUP:

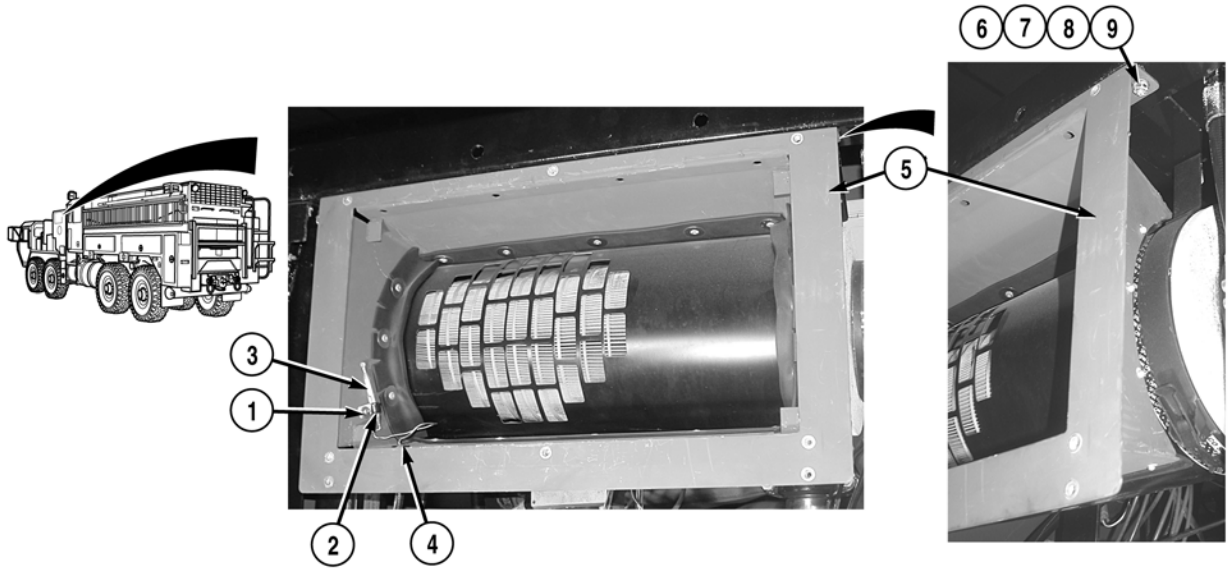
Tools and Special Tools
Drill Set, Twist (WP 0622, Item 11)
Tool Kit, Blind Rivet (WP 0622, Item 26)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Lockwasher (2)
Locknut (4)
Locknut (1)
Lockwasher (1)

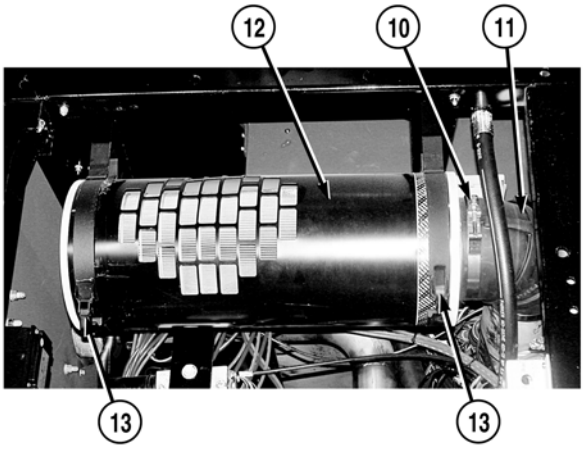
References
WP 0615, Fig. 10

Equipment Conditions
Water pump engine air intake pre-filter removed (WP 0222)

REMOVAL



1. Loosen screw (1) on cushion clip (2).
2. Remove sensor (3) from cushion clip (2).
3. Remove sensor (3) from grommet (4) and filter housing (5).
4. Remove two nuts (6), lockwashers (7), four washers (8), two screws (9), and filter housing (5) from vehicle. Discard lockwashers.

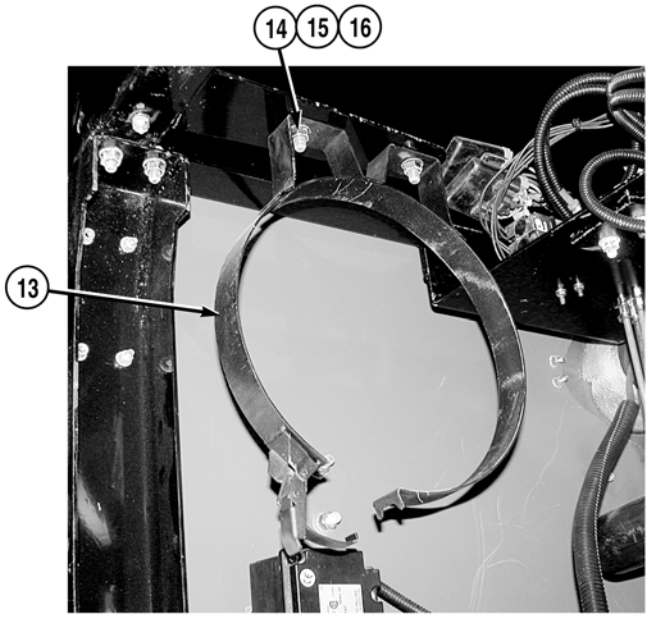


5. Loosen clamp (10) and remove elbow (11) from filter (12).

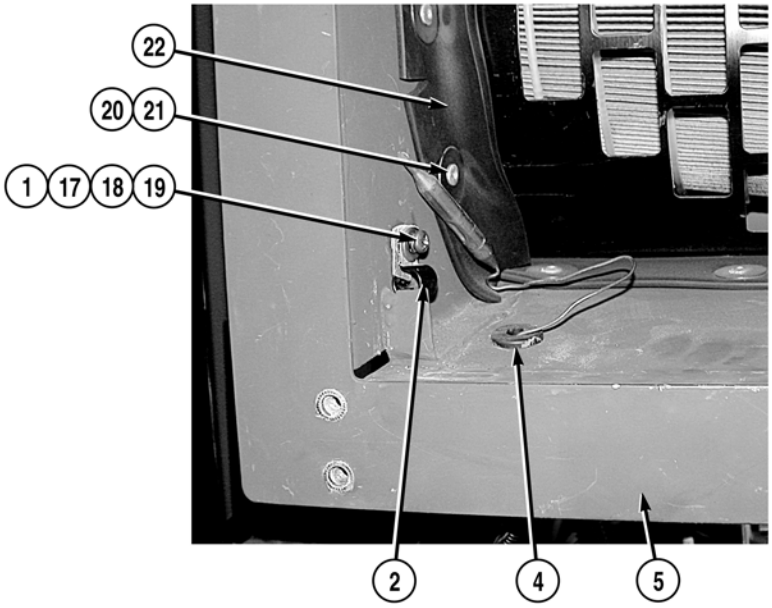
NOTE

Note position of filter prior to removal to ensure proper installation.

6. Release two clamps (13) and remove filter (12) from vehicle.



7. Remove four locknuts (14), eight washers (15), four screws (16), and two clamps (13) from vehicle. Discard locknuts.



8. Remove locknut (17), two washers (18), lockwasher (19), screw (1), and cushion clip (2) from filter housing (5). Discard locknut and lockwasher.

9. Remove grommet (4) from filter housing (5).

NOTE

Note position of four seals prior to removal to ensure proper installation.

10. Remove 16 rivets (20), washers (21), and four seals (22) from filter housing (5).

END OF TASK

INSTALLATION

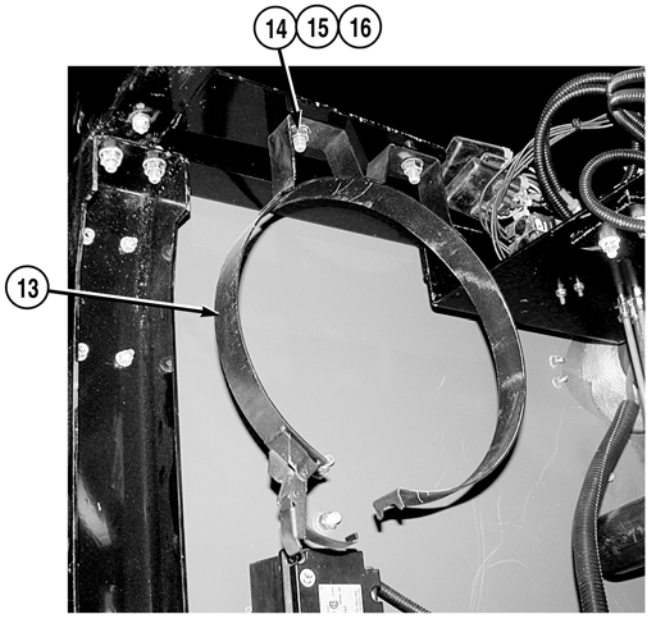
NOTE

Install four seals as noted prior to removal.

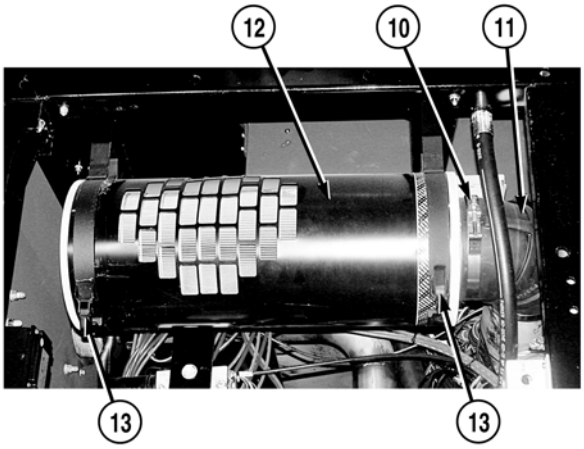
1. Install four seals (22) on filter housing (5) with 16 washers (21) and rivets (20).

2. Install grommet (4) on filter housing (5).

3. Install cushion clip (2) on filter housing (5) with screw (1), lockwasher (19), two washers (18), and locknut (17). Do not tighten screw (1).



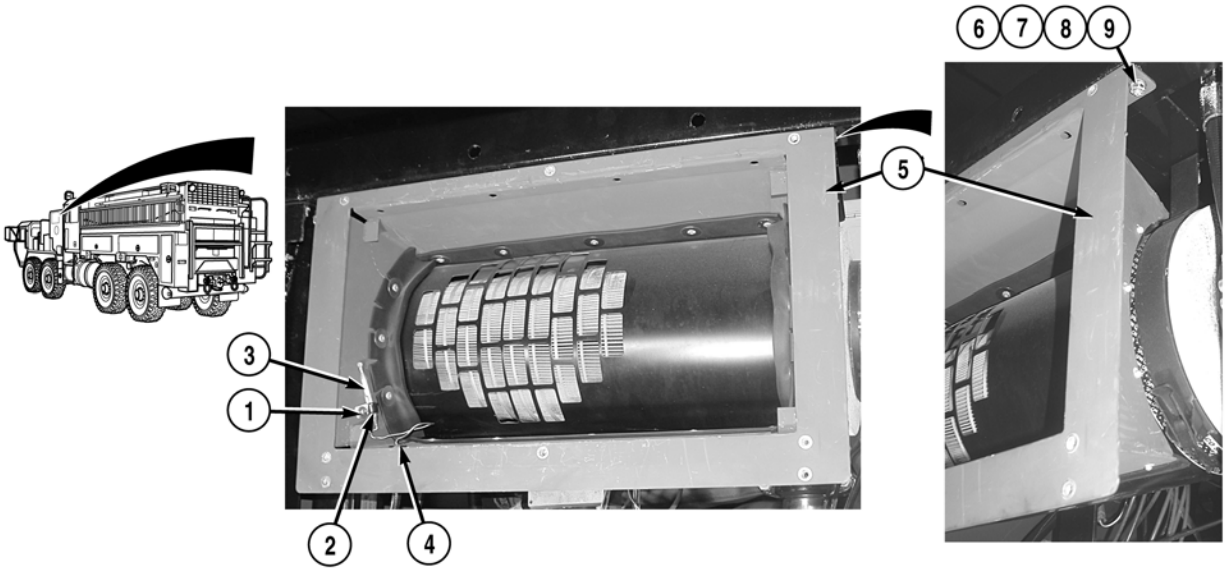
4. Install two clamps (13) on vehicle with four screws (16), eight washers (15), and four locknuts (14).



NOTE

Install filter as noted prior to removal.

5. Install filter (12) on vehicle with two clamps (13).
6. Install elbow (11) on filter (12) and tighten clamp (10).



7. Install filter housing (5) on vehicle with two screws (9), four washers (8), two lockwashers (7), and nuts (6).
8. Install sensor (3) through grommet (4).
9. Install sensor (3) on cushion clip (2) and tighten screw (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install water pump engine air intake pre-filter (WP 0222)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE AIR FILTER DUCTWORK REPLACEMENT

INITIAL SETUP:

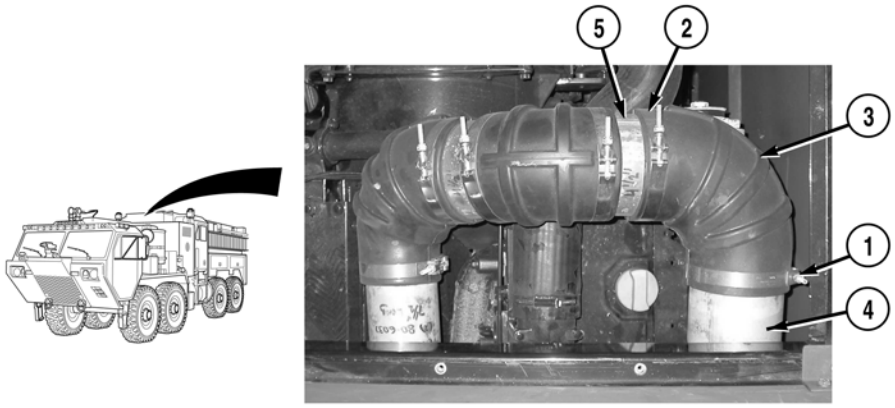
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)

References
WP 0615, Fig. 10

Equipment Conditions
Pump house panel A opened (WP 0539)
Pump house panels S and U removed (WP 0540)
Pump operator's panel housing open (WP 0325)

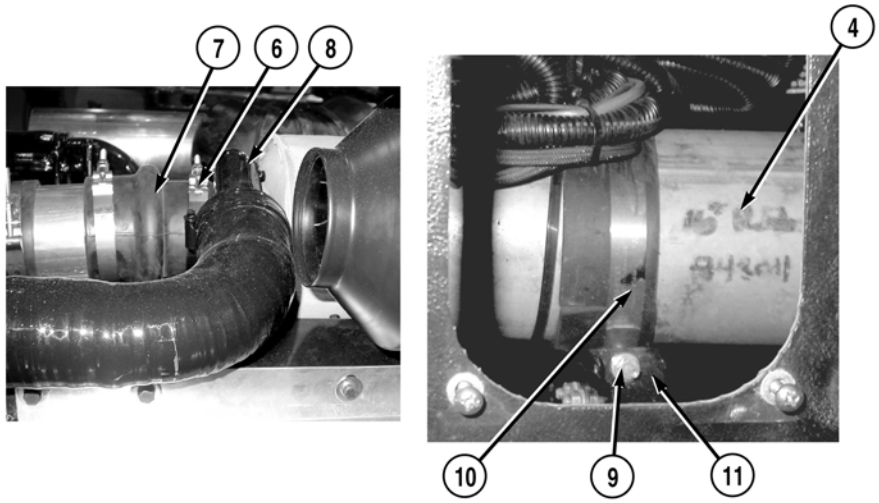
REMOVAL



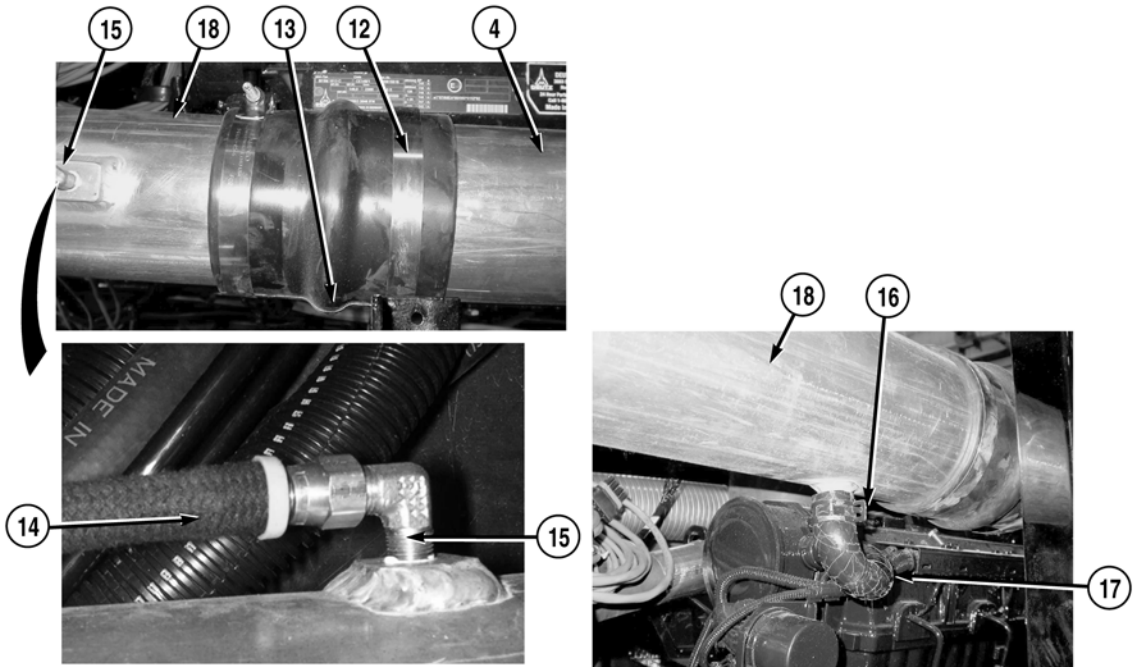
NOTE

- Note routing of ducting and position of connecting pieces before removal to ensure proper installation.
- Remove ducting in sections and disassemble sections after removal.

1. Loosen two clamps (1) and (2) and remove elbow (3) from ducts (4) and (5).



2. Loosen clamp (6) and remove union (7) from turbocharger intake (8).
3. Remove locknut (9) and clamp (10) from bracket (11). Discard locknut.

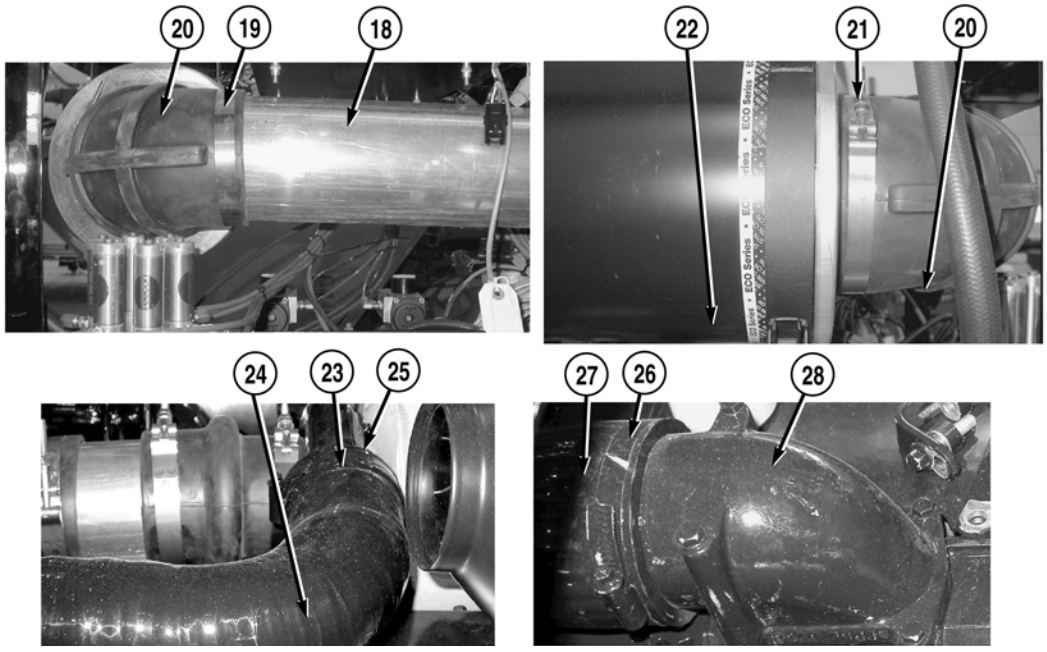


4. Loosen clamp (12) and remove duct (4) from union (13).

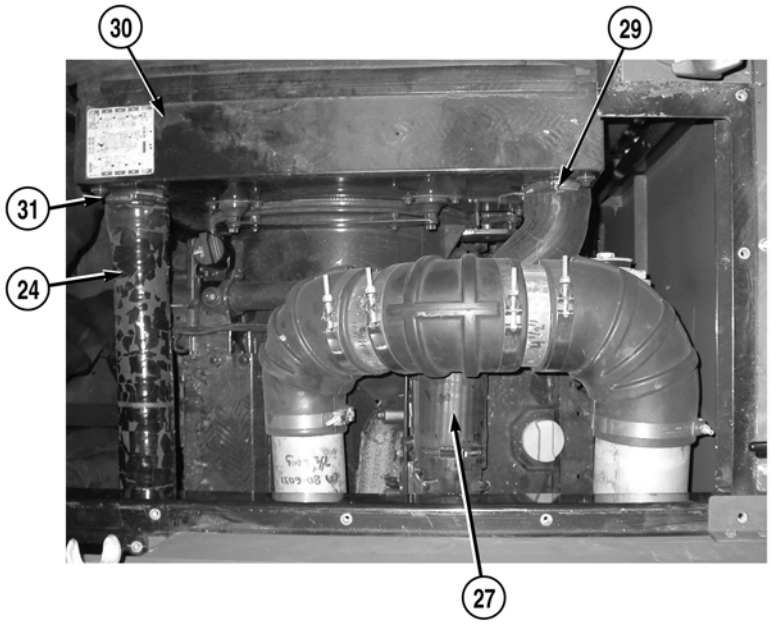
NOTE

Tag and mark hoses prior to removal to ensure proper installation.

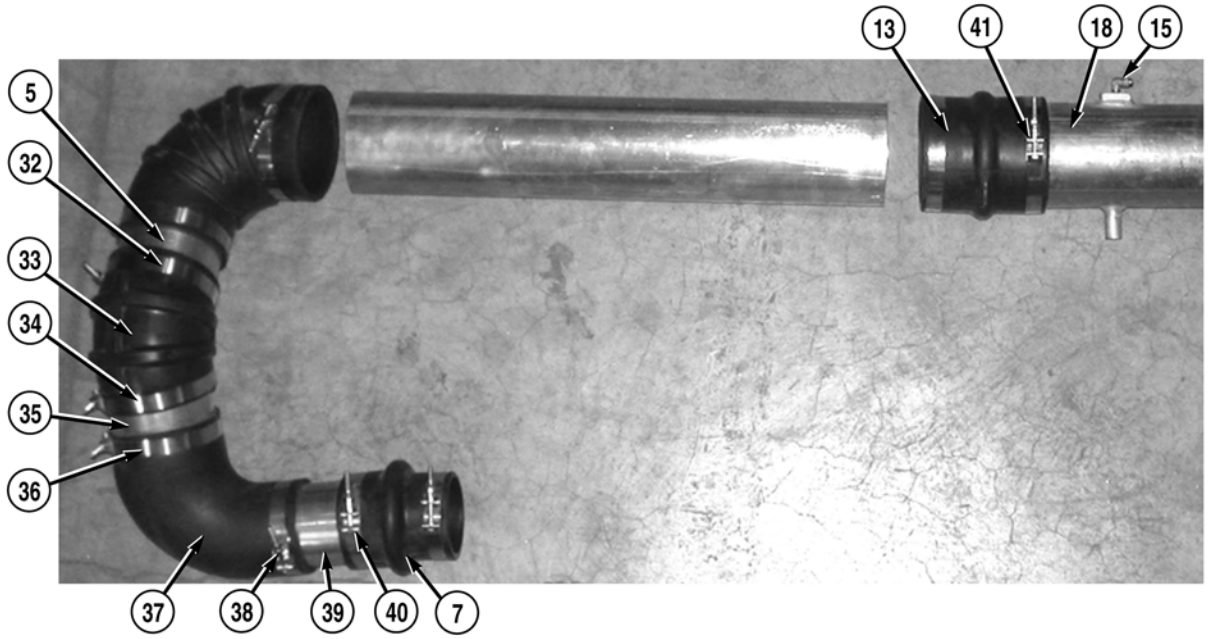
5. Remove hose (14) from elbow (15).
6. Loosen clamp (16) and remove hose (17) from duct (18).



7. Loosen clamp (19) and remove duct (18) from elbow (20).
8. Loosen clamp (21) and remove elbow (20) from air filter (22).
9. Loosen clamp (23) and remove hose (24) from turbocharger output tube (25).
10. Loosen clamp (26) and remove hose (27) from engine intake tube (28).



11. Loosen clamp (29) and remove hose (27) from charge air cooler (30).
12. Loosen clamp (31) and remove hose (24) from charge air cooler (30).



13. Loosen clamp (32) and remove duct (5) from elbow (33).
14. Loosen clamp (34) and removed elbow (33) from duct (35).
15. Loosen clamp (36) and remove duct (35) from reducing elbow (37).
16. Loosen clamp (38) and remove reducing elbow (37) from duct (39).
17. Loosen clamp (40) and remove duct (39) from union (7).
18. Loosen clamp (41) and remove union (13) from duct (18).

NOTE

Note position of elbow prior to removal to ensure proper installation.

19. Remove elbow (15) from duct (18).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

1. Apply sealing compound to threads of elbow (15).

NOTE

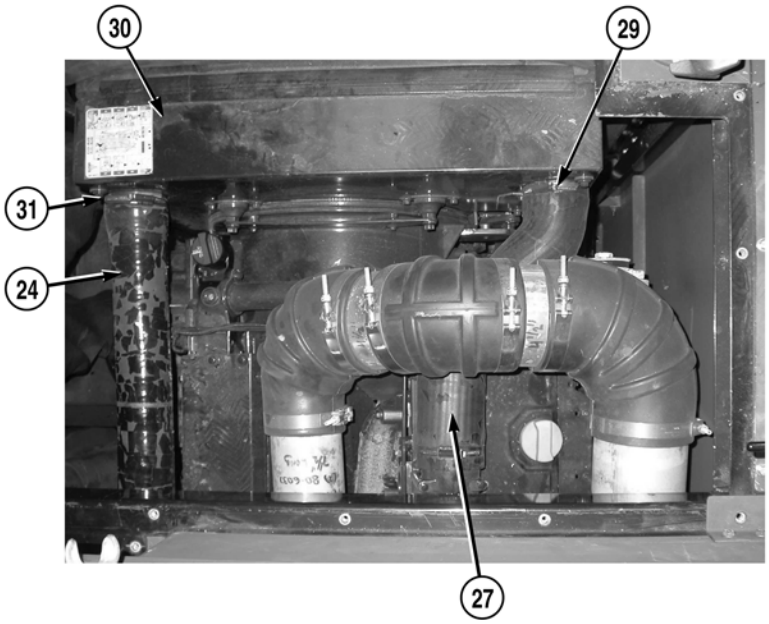
Install elbows as noted prior to removal.

2. Install elbow (15) on duct (18).

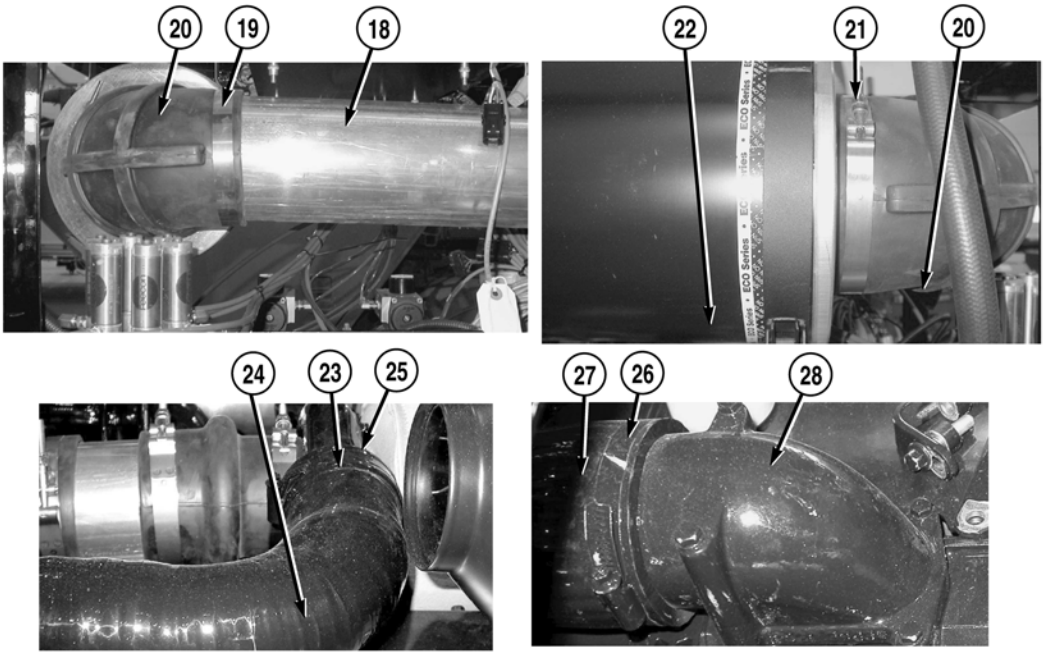
NOTE

- Install ducting as noted prior to removal.
- Assemble ducting in sections prior to installation and connect sections during installation.

3. Install union (13) on duct (18) with clamp (41).
4. Install duct (39) on union (7) with clamp (40).
5. Install reducing elbow (37) on duct (39) with clamp (38).
6. Install duct (35) on reducing elbow (37) with clamp (36).
7. Install elbow (33) on duct (35) with clamp (34).
8. Install duct (5) on elbow (33) with clamp (32).

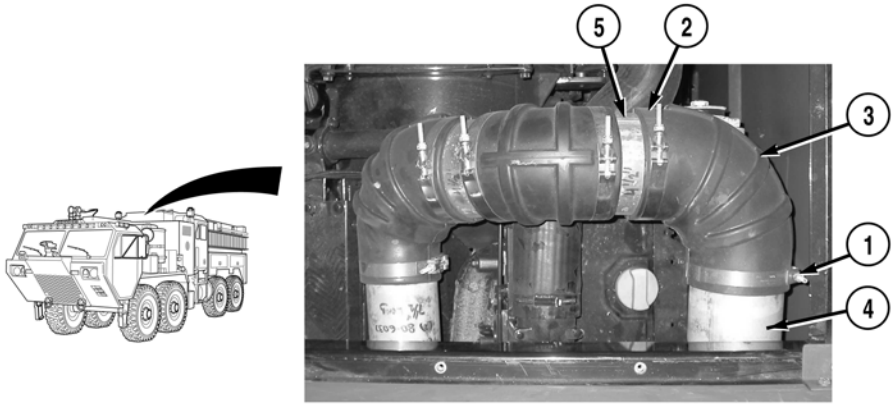


9. Install hose (24) on charge air cooler (30) with clamp (31).
10. Install hose (27) on charge air cooler (30) with clamp (29).



11. Install hose (27) on engine intake tube (28) with clamp (26).
12. Install hose (24) on turbocharger output tube (25) with clamp (23).
13. Install elbow (20) on air filter (22) with clamp (21).
14. Install duct (18) on elbow (20) with clamp (19).

15. Install hose (17) on duct (18) with clamp (16).
16. Install hose (14) on elbow (15).
17. Install duct (4) on union (13) with clamp (12).



18. Install clamp (10) on bracket (11) with locknut (9).
19. Install union (7) on turbocharger intake (8) with clamp (6).
20. Install elbow (3) on ducts (5) and (4) with two clamps (2) and (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close pump house panel A (WP 0539)
2. Install pump house panels S and U (WP 0540)
3. Close pump operator's panel housing (WP 0325)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE AIR INTAKE PRE-FILTER REPLACEMENT

INITIAL SETUP:

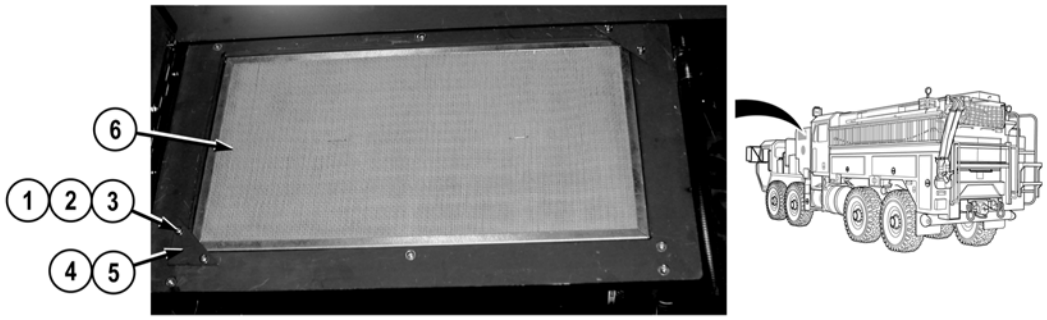
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Lockwasher (4)

References
WP 0615, Fig. 10

Equipment Conditions
Pump house panel A opened (WP 0539)

REMOVAL



Remove four screws (1), lockwashers (2), washers (3), two retainers (4), insulators (5), and air intake pre-filter (6) from vehicle. Discard lockwashers.

END OF TASK

INSTALLATION

Install air intake pre-filter (6) on vehicle with two insulators (5), retainers (4), four washers (3), lockwashers (2), and screws (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE ALTERNATOR REPLACEMENT

INITIAL SETUP:

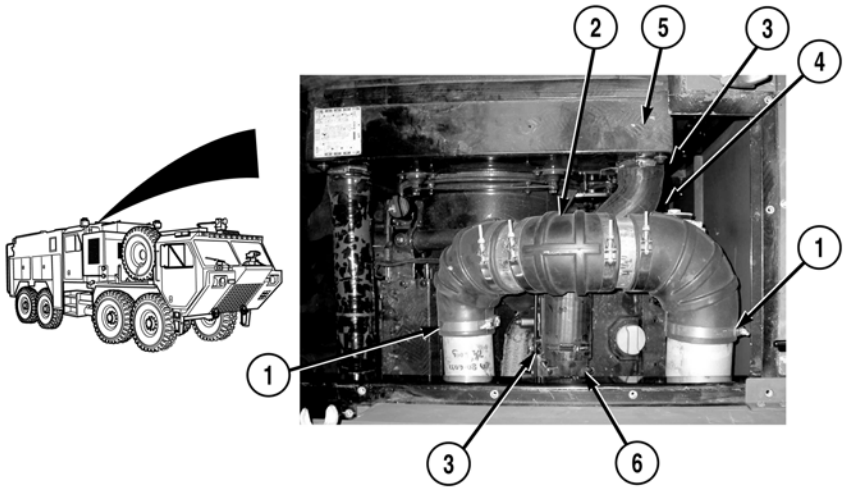
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)

References
WP 0224
WP 0615, Fig. 27, 28

Equipment Conditions
Batteries disconnected (TM 9-2320-325-14&P)
Pump house panel U removed (WP 0540)
Crew cab access panel (passenger side) removed (WP 0499)

REMOVAL



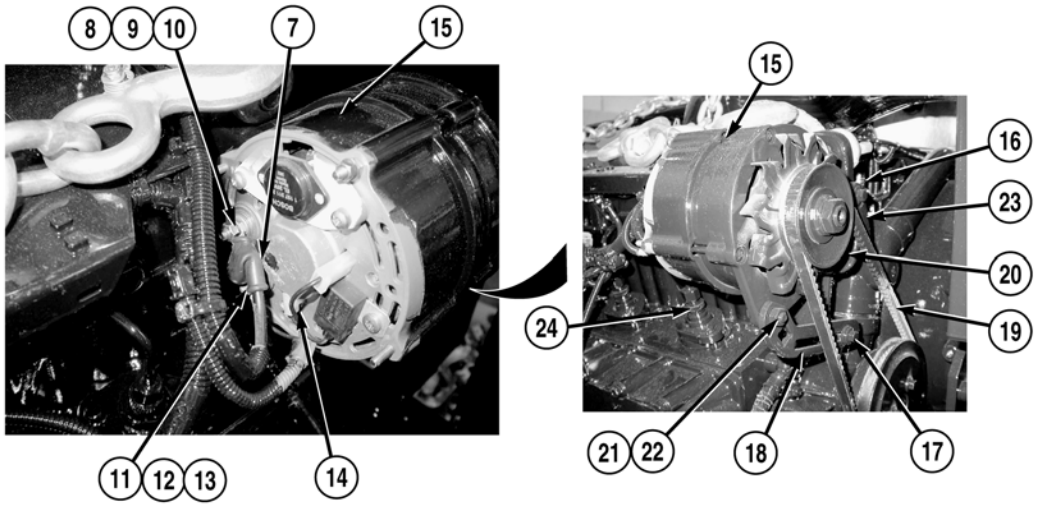
WARNING

Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply could result in serious injury to personnel.

NOTE

Remove cable ties as required.

1. Loosen two clamps (1) and remove ducting (2) from charge air ducts.
2. Loosen two clamps (3) and remove hose (4) from charge air cooler (5) and intake tubing (6).



3. Pull rubber boot (7) back from stud (8).

NOTE

- Tag and mark wires prior to removal to ensure proper installation.

4. Remove nut (9) and wire (10) from stud (8).
5. Remove nut (11) and wire (12) from stud (13).
6. Disconnect connector (14) from alternator (15).
7. Loosen screw (16) to allow alternator (15) to pivot.
8. Support alternator (15) and loosen screw (17) to allow movement of adjustment bracket (18).
9. Pivot alternator (15) to relieve tension on alternator drive belt (19).
10. Remove alternator drive belt (19) from pulley (20).
11. Remove screw (21) and nut (22) from alternator (15) and adjustment bracket (18).
12. Remove screw (16) from alternator (15) and mounting bracket (23).
13. Remove alternator (15) from water pump engine (24).

END OF TASK

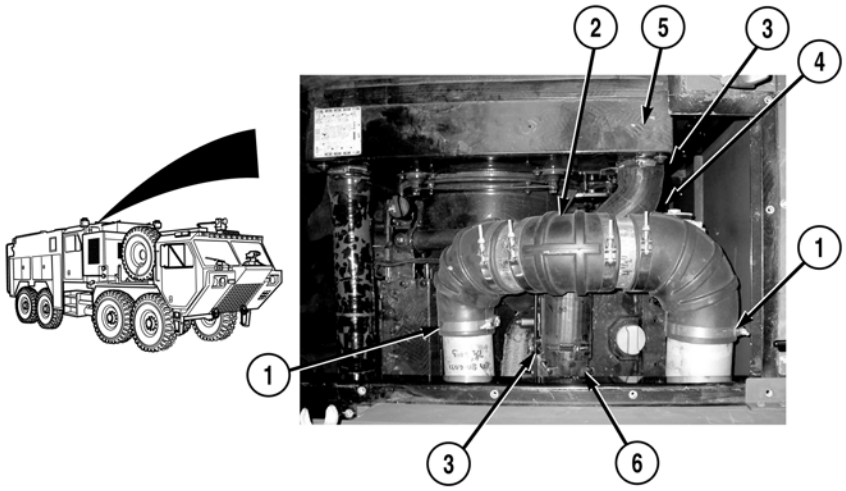
INSTALLATION

NOTE

- Install cable ties as required.
- Do not fully tighten alternator mounting screws until drive belt adjustment is complete.

1. Install alternator (15) and mounting bracket (23) on water pump engine (24) with screw (16).

2. Install screw (21) and nut (22) on alternator (15) and adjustment bracket (18).
3. Install alternator drive belt (19) on pulley (20) and adjust tension (WP 0224).
4. Secure alternator (15) and adjusting bracket (18) with nut (22) and screw (21).
5. Tighten screws (17) and (16).
6. Connect connector (14) to alternator (15).
7. Install ring terminal (12) on stud (13) with nut (11).
8. Install ring terminal (10) on stud (8) with nut (9).
9. Push rubber boot (7) over stud (8).



10. Install hose (4) on charge air cooler (5) and intake tubing (6) with two hose clamps (3).
11. Install ducting (2) on charge air ducts with two clamps (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect batteries (TM 9-2320-325-14&P)
2. Install crew cab access panel (right side) (WP 0501)
3. Install pump house panel U (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE ALTERNATOR BELT REPLACEMENT/ADJUSTMENT

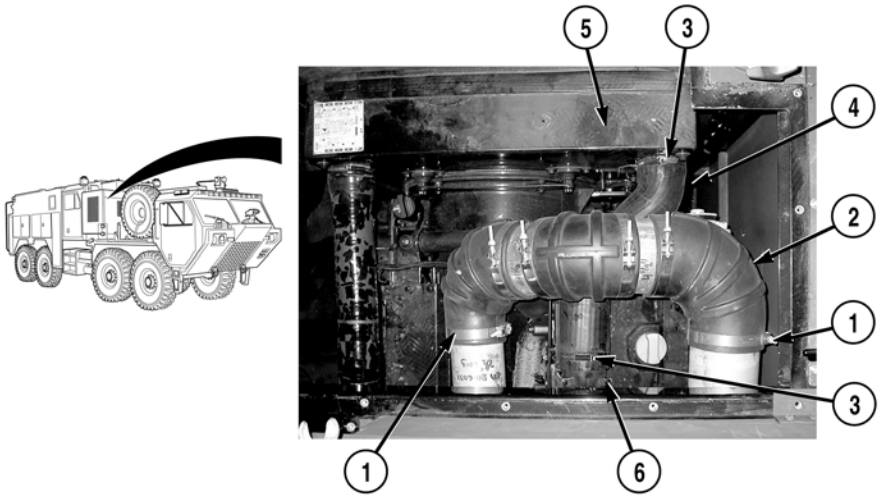
INITIAL SETUP:

Tools and Special Tools
Gauge, Belt Tensioner (WP 0622, Item 16)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Equipment Conditions
Pump house panel O removed (WP 0540)
Passenger side crew cab access panel removed (WP 0499)

References
WP 0615, Fig. 28

REMOVAL



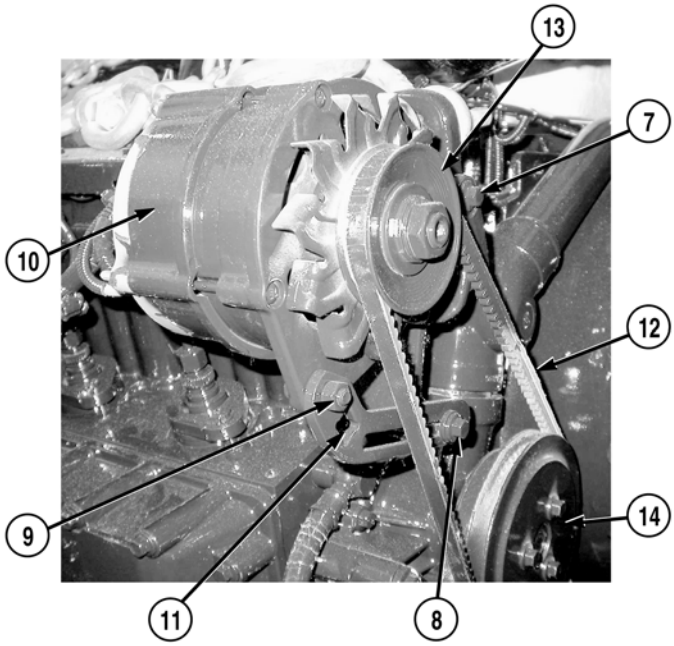
WARNING

Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply could result in serious injury to personnel.

NOTE

Note routing of belt before removing to ensure proper installation.

1. Loosen two clamps (1) and remove ducting (2) from charge air ducts.
2. Loosen two clamps (3) and remove hose (4) from charge air cooler (5) and intake tubing (6).



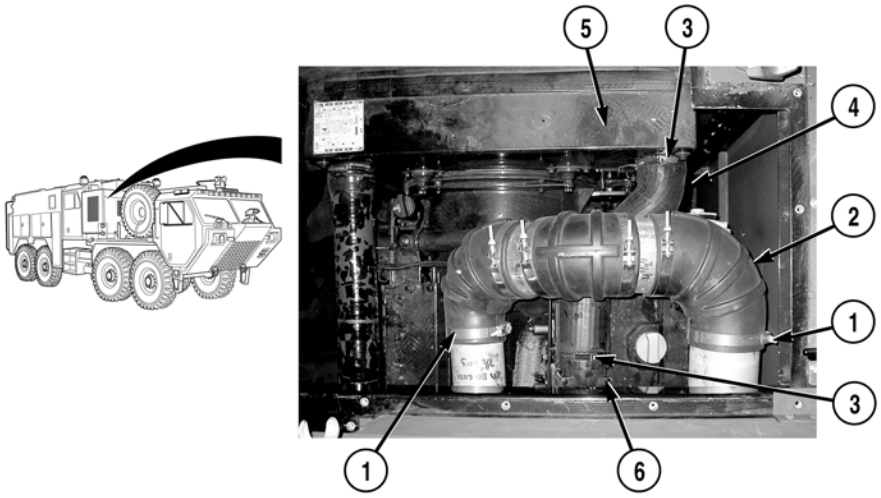
3. Loosen three screws (7), (8), and (9) slightly to allow alternator (10) to pivot.
4. Using square wrench in bracket hole (11), move alternator (10) to release tension on alternator drive belt (12).
5. Remove alternator drive belt (12) from two pulleys (13) and (14).

INSTALLATION/ADJUSTMENT

NOTE

Install belts as noted prior to removal.

1. Install alternator drive belt (12) on two pulleys (13) and (14).
2. Using square wrench in bracket hole (11), move alternator (10) to tighten alternator drive belt (12) to 101 lb-ft (450 N•m), as indicated by belt tensioner gauge.
3. Tighten three alternator bracket screws (7), (8), and (9).



4. Install hose (4) on charge air cooler (5) and intake tubing (6) with two clamps (3).
5. Install ducting (2) on charge air ducts with two clamps (1).

NOTE

- Use the suggested tension setting for initial tensioning. When belt is installed, run water pump engine under load for 15 minutes, shut down and readjust belt tension.
- Belt tension has a range of +/- 11 lb-ft (49 N).

6. Start water pump engine and run under load for 15 minutes.
7. Shut down engine and readjust alternator drive belt (12) tension to 67 lb-ft (298 N), as indicated by belt tensioner gauge.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install passenger side crew cab access panel (WP 0499)
2. Install pump house panel O (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE BATTERY CABLES REPLACEMENT

INITIAL SETUP:

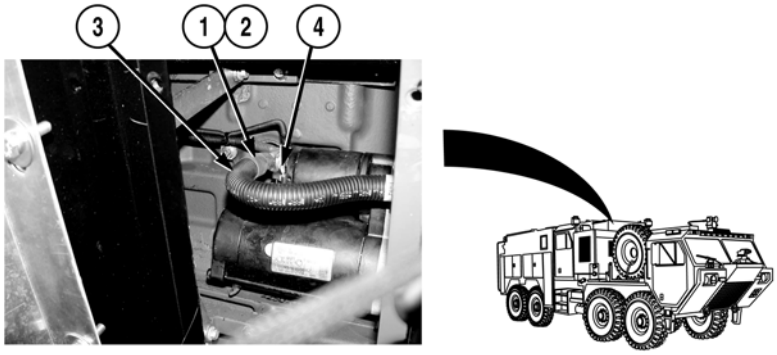
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Sealant, RTV 200 Electrical (WP 0625, Item 47)
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)
Lockwasher (5)

References
WP 0615, Fig. 25

Equipment Conditions
Pump house panels H, I and U removed (WP 0540)
Pump house heater electric connectors disconnected (WP 0209)
Pump house heater hose removed (WP 0209)
Starter motor access panel removed (WP 0248)

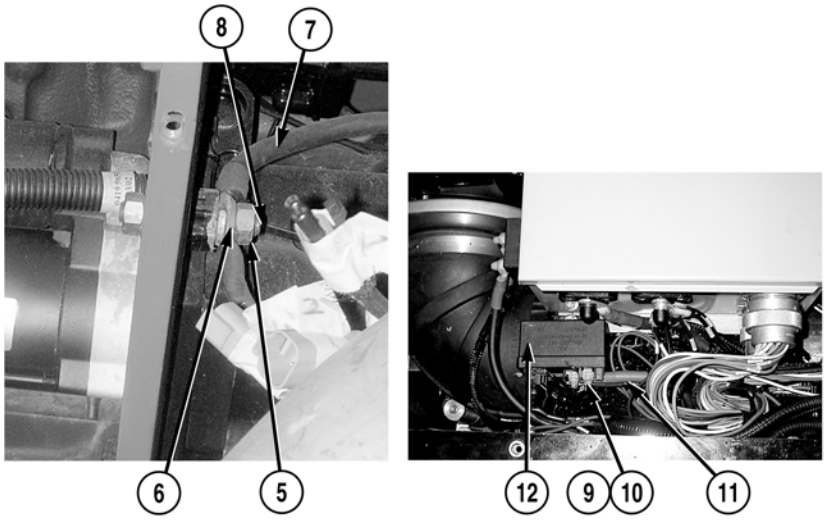
REMOVAL



NOTE

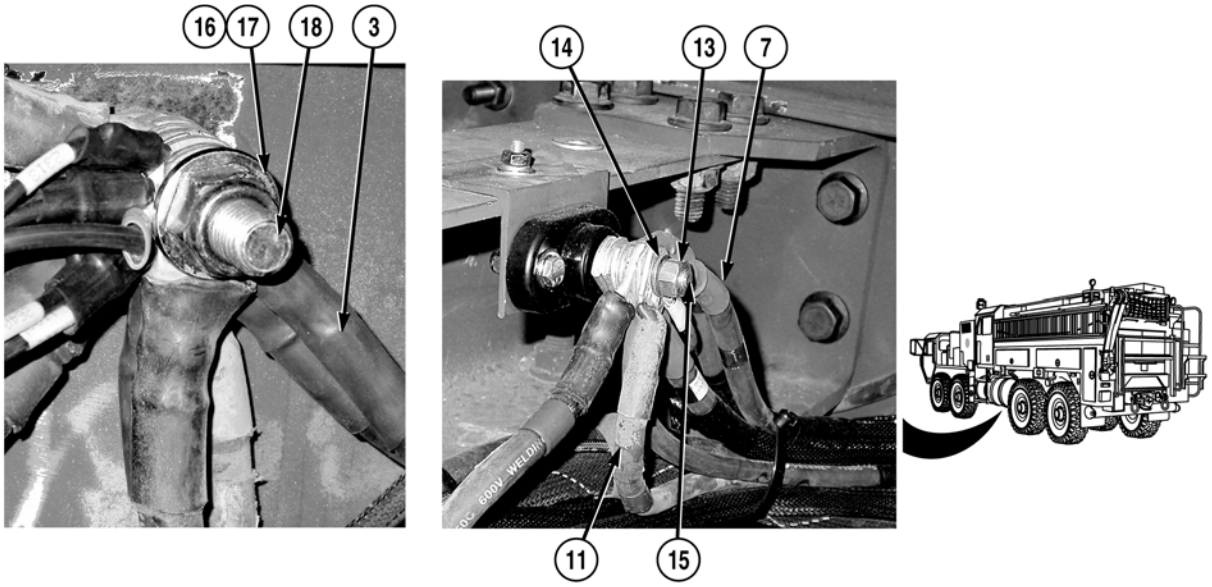
- Tag and mark cables prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Remove nut (1), lockwasher (2), and negative battery cable (3) from starter solenoid stud (4). Discard lockwasher.



2. Remove nut (5), lockwasher (6), and positive battery cable (7) from pass-through stud (8). Discard lockwasher.

3. Remove nut (9), lockwasher (10), and positive battery cable (11) from preheat control box (12). Discard lockwasher.



4. Remove nut (13), lockwasher (14), and two positive battery cables (7) and (11) from battery stud (15). Discard lockwasher.

5. Remove two positive battery cables (7) and (11) from vehicle.

6. Remove nut (16), lockwasher (17), and negative battery cable (3) from ground stud (18). Discard lockwasher.

7. Remove negative battery cable (3) from vehicle.

END OF TASK

INSTALLATION

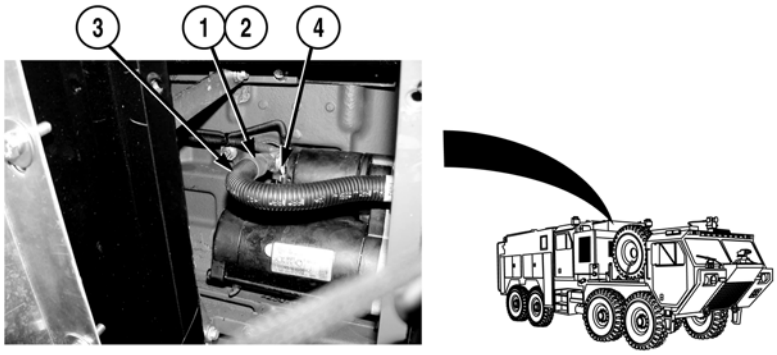
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

- Install cable ties as required.
- Apply electrical sealant to all battery cable connections after installing cables.

1. Install negative battery cable (3) on ground stud (18) with lockwasher (17) and nut (16).
2. Route negative battery cable (3) to starter motor.
3. Install two positive battery cables (11) and (7) on battery stud (15) with lockwasher (14) and nut (13).
4. Install positive battery cable (7) to starter motor pass-through stud (8).
5. Install positive battery cable (11) on preheat control box (12) with lockwasher (10) and nut (9).
6. Install positive battery cable (7) on pass-through stud (8) with lockwasher (6) and nut (5).



7. Install negative battery cable (3) on starter solenoid stud (4) with lockwasher (2) and nut (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install starter motor access panel (WP 0248)
2. Install pump house heater hose (WP 0209)
3. Connect pump house heater electric connectors (WP 0209)
4. Install pump house panels U, I, and H (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE ELECTRONIC CONTROL UNIT (ECU) REPLACEMENT

INITIAL SETUP:

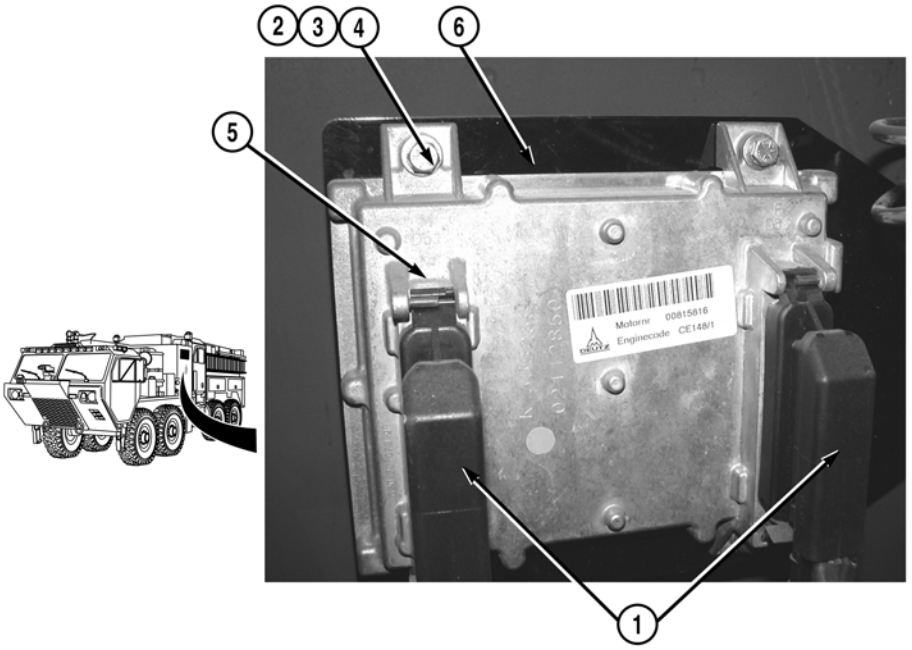
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Lockwasher (4)

References
WP 0615, Fig. 12

Equipment Conditions
Pump house panel B removed (WP 0540)

REMOVAL



NOTE

Tag and mark connectors prior to removal to ensure proper installation.

1. Disconnect two connectors (1).

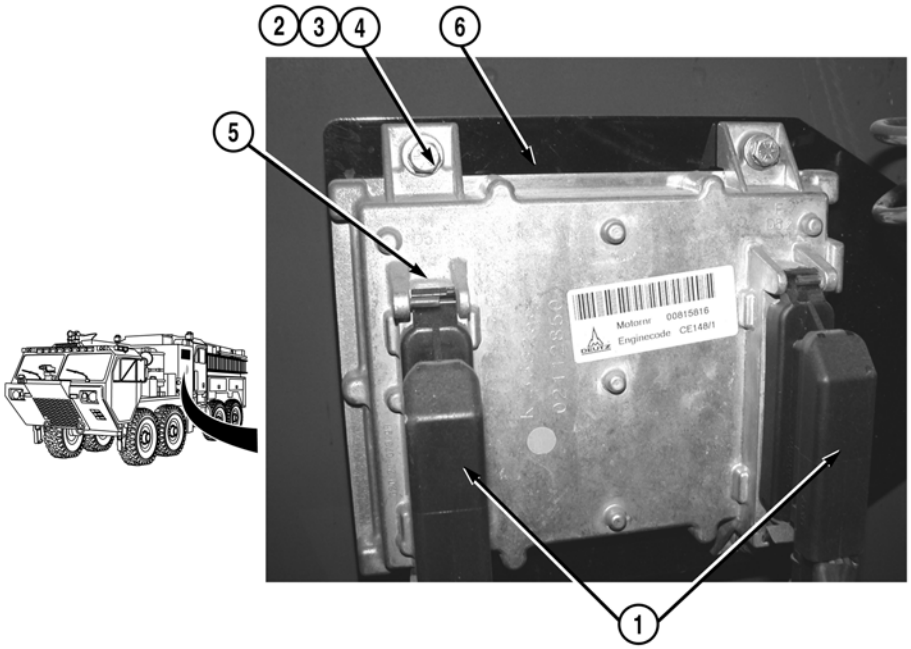
NOTE

Note position of electronic control unit prior to removal to ensure proper installation.

2. Remove four screws (2), lockwashers (3), washers (4), and electronic control unit (5) from bracket (6). Discard lockwashers.

END OF TASK

INSTALLATION



NOTE

Install electronic control unit as noted prior to removal.

1. Install electronic control unit (5) on bracket (6) with four washers (4), lockwashers (3), and screws (2).
2. Connect two connectors (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel B (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE EXHAUST MANIFOLD REPLACEMENT

INITIAL SETUP:

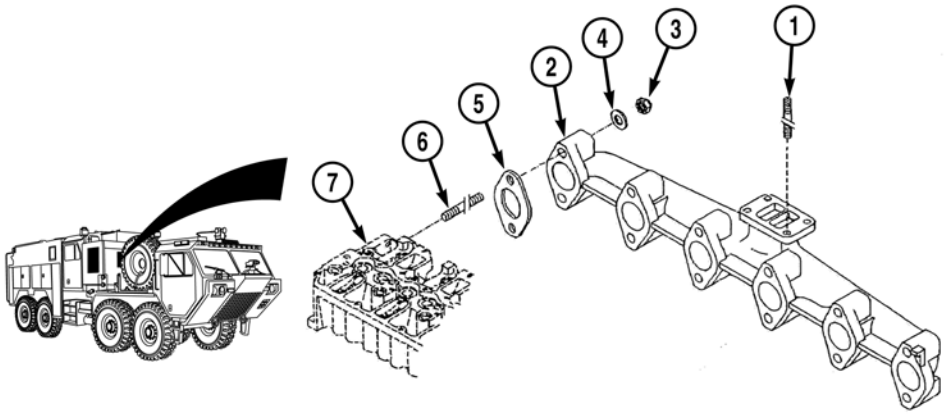
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Anti-seize (WP 0625, Item 14)
Seal, Sentry, Blue (WP 0625, Item 44)

References
WP 0615, Fig. 16

Equipment Conditions
Water pump engine turbocharger removed (WP 0250)

REMOVAL



NOTE

- Note position of studs prior to removal to ensure proper installation.
- Perform Step (1) only if studs need to be removed.

1. Remove four studs (1) from exhaust manifold (2).
2. Remove 12 nuts (3), washers (4), exhaust manifold (2), and six gaskets (5) from 12 studs (6) and engine (7).

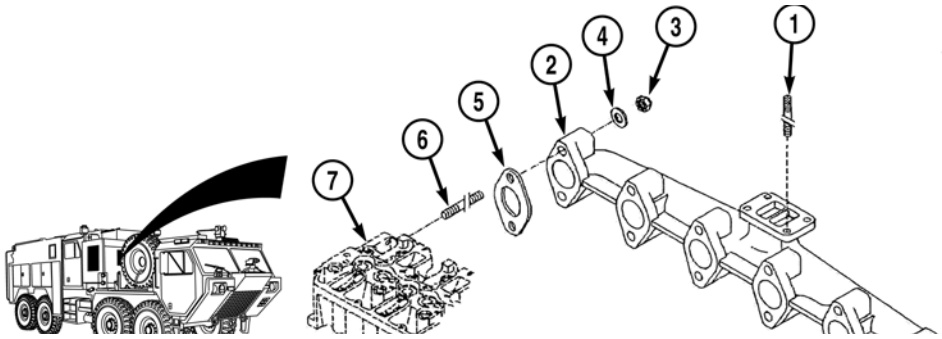
NOTE

Perform Step (3) only if studs need to be removed.

3. Remove 12 studs (6) from engine (7).

END OF TASK

INSTALLATION



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Perform Steps (1) and (2) if studs were removed.

1. Apply anti-seize compound to threads of 12 studs (6).

NOTE

Position all studs as noted prior to removal.

2. Install 12 studs (6) on engine (7).
3. Install six gaskets (5) and exhaust manifold (2) on engine (7) with 12 studs (6), washers (4), and nuts (3). Tighten 12 nuts (3) to 17 to 20 lb-ft (22.5 to 27.5 N•m).
4. Apply sealant to 12 nuts (3) to mark torque point.

NOTE

Perform Step (4) if studs were removed.

5. Install four studs (1) on exhaust manifold (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Install water pump engine turbocharger (WP 0250)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE EXHAUST PIPES REPLACEMENT

INITIAL SETUP:

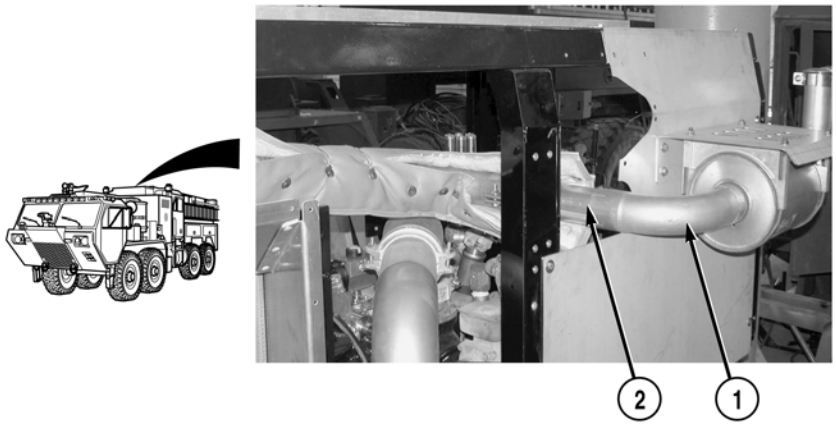
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Lockwire (WP 0625, Item 31)
Locknut (6)

References
WP 0615, Fig. 11

Equipment Conditions
Pump house panels G, H, and I removed (WP 0540)
Pump operator's panel housing opened (WP 0325)
Water pump engine muffler removed (WP 0241)
Water pump engine noise panel removed (WP 0242)

REMOVAL



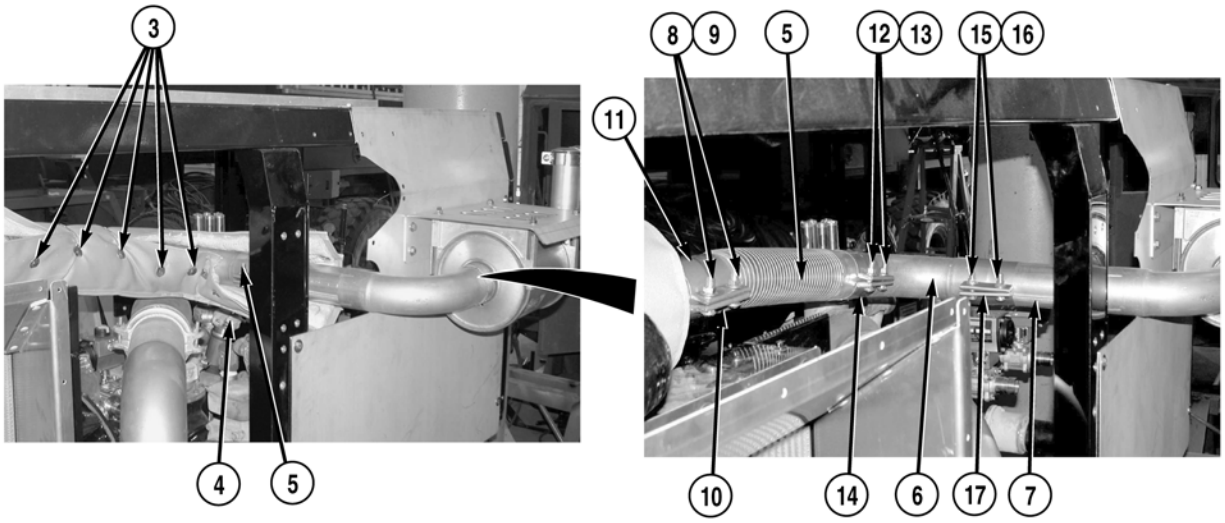
WARNING

Exhaust pipe and muffler can become very hot during vehicle operation. Be careful not to touch these parts with bare hands, or allow body to come in contact with pipe or muffler. Exhaust system parts can become hot enough to cause serious burns. Failure to comply may result in damage to equipment or injury to personnel.

NOTE

- Note routing of exhaust pipes and position of connections prior to removal to ensure proper installation.
- Remove exhaust pipe as one piece and disassemble sections after removal.

1. Remove elbow (1) from reducer (2).



2. Cut ten wires (3) and remove insulating wrap (4) from flexible tubing (5), elbow (6), and exhaust pipe (7). Discard wires.
3. Remove two locknuts (8), screws (9), clamp (10), and flexible tubing (5) from turbocharger outlet (11). Remove exhaust assembly from vehicle. Discard locknuts.
4. Remove two locknuts (12), screws (13), clamp (14), flexible tubing (5), and elbow (6) from reducer (2). Discard locknuts.
5. Remove two locknuts (15), screws (16), clamp (17), and elbow (6) from exhaust pipe (7). Discard locknuts.
6. Remove reducer (2) from exhaust pipe (7).

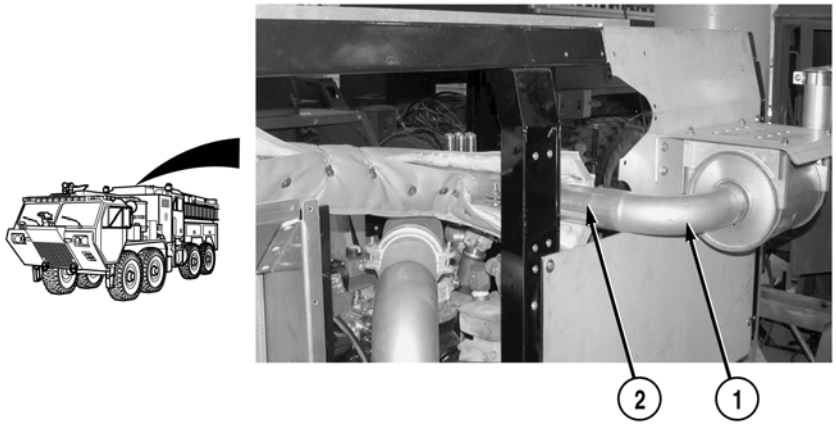
END OF TASK

INSTALLATION

NOTE

Install exhaust pipes as noted prior to removal.

1. Install reducer (2) in exhaust pipe (7).
2. Install elbow (6) on exhaust pipe (7) with clamp (17), two screws (16), and locknuts (15).
3. Install flexible tubing (5) on elbow (6) with clamp (14), two screws (13) and locknuts (12).
4. Install flexible tubing (5) on turbocharger outlet (11) with clamp (10), two screws (9), and locknuts (8).
5. Install insulating wrap (4) on flexible tubing (5), elbow (6), and exhaust pipe (7) with ten wires (3).



6. Install elbow (1) on reducer (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install water pump engine noise panel (WP 0242)
2. Install water pump engine muffler (WP 0241)
3. Close pump operator’s panel housing (WP 0325)
4. Install pump house panels G, H, and I (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE EXPANSION PLUG REPLACEMENT

INITIAL SETUP:

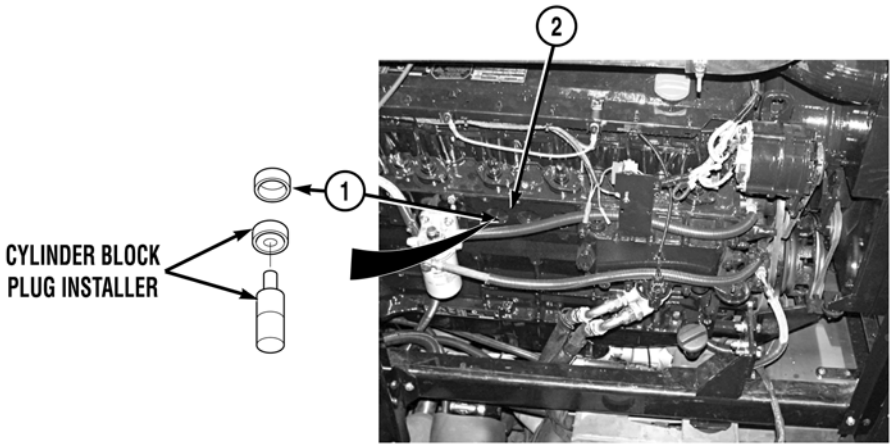
Tools and Special Tools
Core Plug Remover/Installer (WP 0622, Item 7)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Loctite 243 (WP 0625, Item 18)

References
WP 0615, Fig. 15

Equipment Conditions
Water pump engine removed (WP 0219)
Water pump engine radiator removed (WP 0481)
Water pump engine fuel filter head removed (WP 0232)
Water pump engine exhaust manifold removed (WP 0227)

REMOVAL



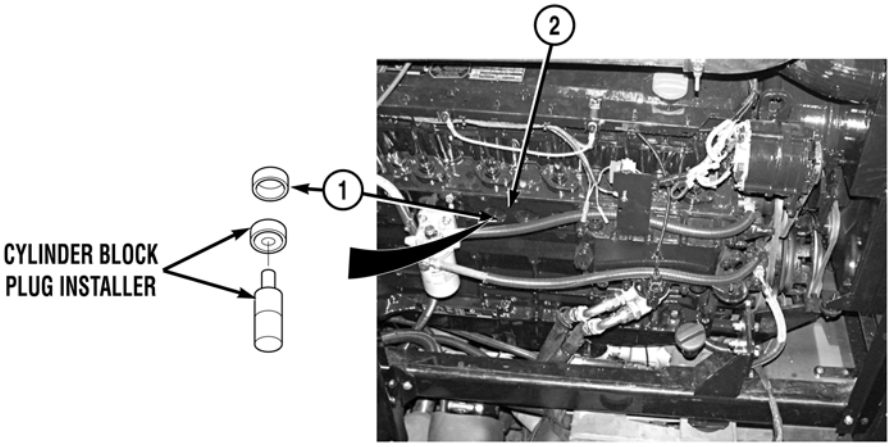
NOTE

All expansion plugs are removed the same way.

1. Remove expansion plug (1) from engine block (2).

END OF TASK

INSTALLATION



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

All expansion plugs are installed the same way.

1. Apply sealing compound on expansion plug (1).
2. Using cylinder block installer, install expansion plug (1) on engine block (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install water pump engine exhaust manifold (WP 0227)
2. Install pump engine radiator (WP 0481)
3. Install water pump engine fuel filter head (WP 0232)
4. Install water pump engine (WP 0219)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FAN BELTS REPLACEMENT/ADJUSTMENT

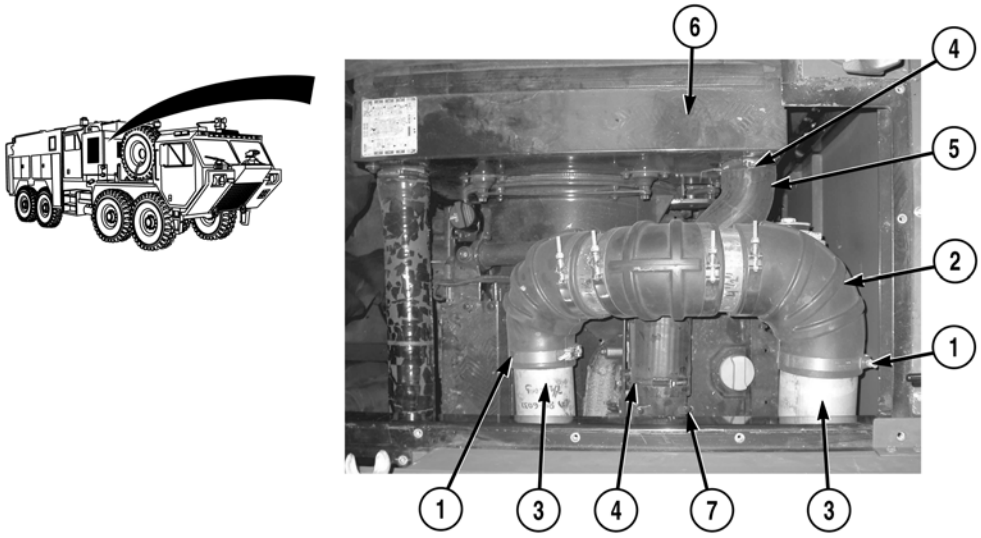
INITIAL SETUP:

Tools and Special Tools
Gauge, Belt Tensioner (WP 0622, Item 16)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0615, Fig. 10, 17

Equipment Conditions
Pump house panel U removed (WP 0540)
Pump operator's panel housing open (WP 0325)
Passenger side crew cab access panel removed (WP 0499)

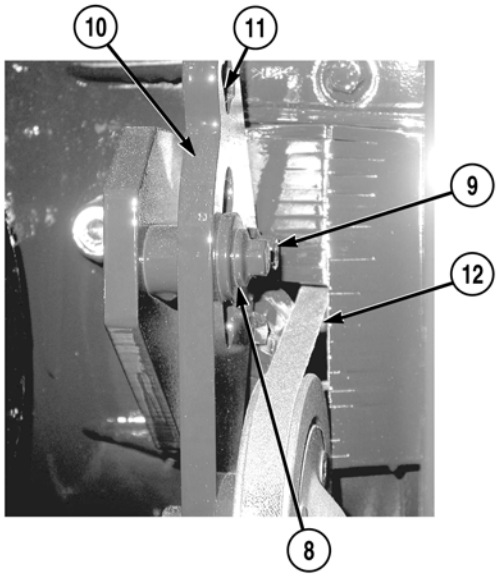
REMOVAL



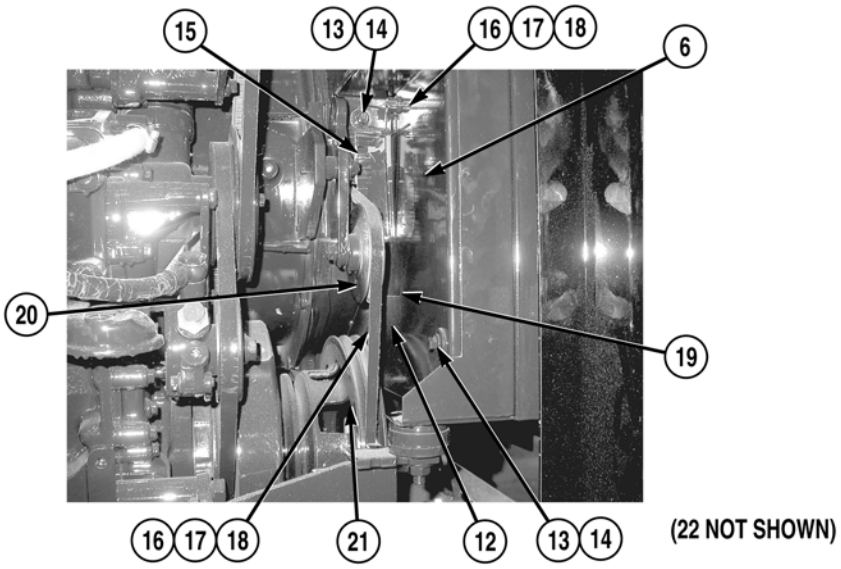
NOTE

Note routing of belt prior to removal to ensure proper installation.

1. Loosen two clamps (1) and remove ducting (2) from charge air ducts (3).
2. Loosen two clamps (4) and remove hose (5) from charge air cooler (6) and intake tube (7).



3. Loosen two screws (8) and (9), allowing tensioning pulley bracket (10) to pivot.
4. Using square wrench in pulley bracket adjusting hole (11), move tensioning pulley bracket (10) to release tension on fan belt (12).



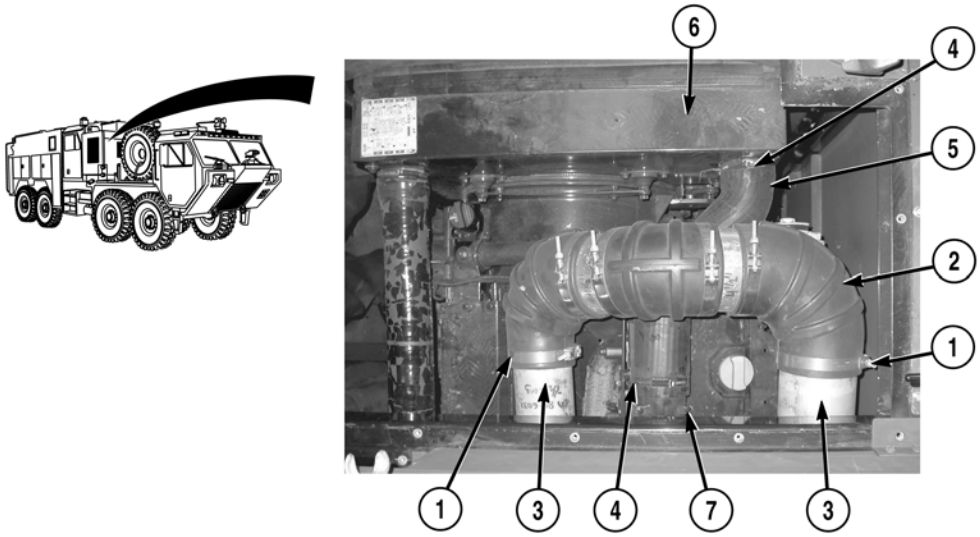
5. Remove screw (13), washer (14), and splash guard (15) from charge air cooler (6).
6. Remove three nuts (16), washers (17), screws (18), and charge air cooler backing plate (19) from charge air cooler (6).
7. Remove fan belt (12) from three pulleys (20), (21), and (22).

INSTALLATION/ADJUSTMENT

NOTE

Install belt as noted prior to removal.

1. Install fan belt (12) on three pulleys (22), (21), and (20).
2. Install charge air cooler backing plate (19) on charge air cooler (6) with three screws (18), washers (17), and nuts (16).
3. Install splash guard (15), on charge air cooler (6) with screw (13) and washer (14).
4. Using square wrench in pulley bracket adjusting hole (11), move bracket (10) to tighten fan belt (12) to 101 lb-ft (450 N•m), as indicated by belt tensioner gauge, and tighten screws (9) and (8).



5. Install hose (5) on charge air cooler (6) and intake tube (7) with two clamps (4).
6. Install ducting (2) on charge air duct (3) with two clamps (1).

NOTE

- Use the suggested tension setting for initial tensioning. When belt is installed, run water pump engine under load for 15 minutes, shut down and readjust belt tension.
- Adjust belt tension to within +/- 11 lb-ft (49 N) of recommended tension.

7. Start pump engine and run under load for 15 minutes.
8. Shut down engine and readjust belt tension to 67 lb-ft (298 N), as indicated by belt tensioner gauge.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close passenger side crew cab access panel (WP 0499)
2. Close pump operator's panel housing (WP 0325)
3. Install pump house panel U (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FUEL FILTER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Oil, Fuel, Diesel DF-2 Regular (WP 0625, Item 34)
Preformed Packing (1)

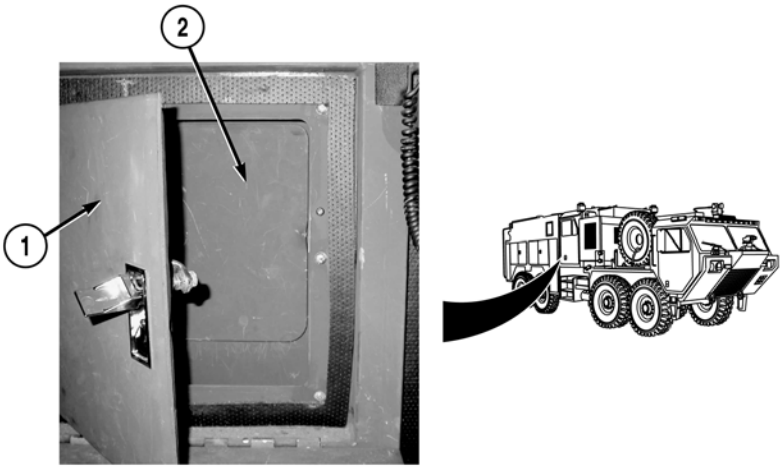
References
WP 0615, Fig. 20

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)

REMOVAL

WARNING

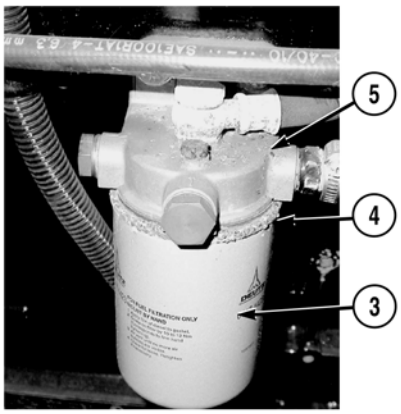
- **Fuel and oil are slippery and can cause falls. To avoid injury, wipe up spilled fuel or oil with rags.**
- **Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.**
- **Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply could result in serious injury to personnel.**



NOTE

- Fuel filter is a spin-on type.
- Access to fuel filter is gained from the crew compartment.

1. Open crew compartment access door (1).
2. Open pump house panel door (2).



3. Remove fuel filter (3), with preformed packing (4) from filter mount (5). Discard preformed packing.

⚠ CAUTION

Fuel filter will be filled with fuel. Remove with care. Avoid spilling fuel in crew cab.

4. Position suitable drain pan under fuel filter (3).

END OF TASK

INSTALLATION

1. Clean any dirt from filter mount (5) and sealing surfaces.

⚠ CAUTION

- **Pre-fill new fuel filter to avoid introducing excess air into the fuel system.**
- **Use ONLY filtered fuel to pre-fill fuel filter. Failure to comply may cause damage to equipment.**

2. Pre-fill fuel filter (3) with filtered fuel.
3. Coat fuel filter preformed packing (4) lightly with diesel fuel.
4. Install fuel filter (3) on filter mount (5), turning until preformed packing (4) contacts filter mount (5).
5. Make sure preformed packing (4) is properly seated against filter mount (5), and tighten fuel filter (3) an additional 1/2 turn.
6. Close pump house panel door (2).
7. Close crew compartment access door (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Check fuel filter for leaks (WP 0186)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FUEL FILTER HEAD REPLACEMENT

INITIAL SETUP:

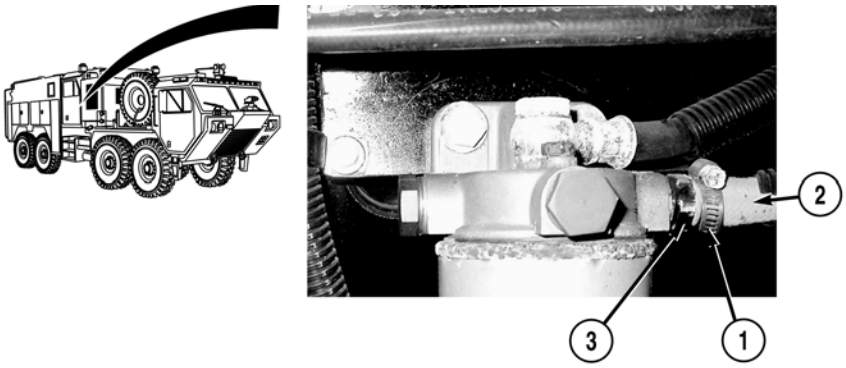
Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tape, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)
Lockwasher (2)

References
WP 0615, Fig. 19

Equipment Conditions
Fuel filter removed (WP 0231)

REMOVAL



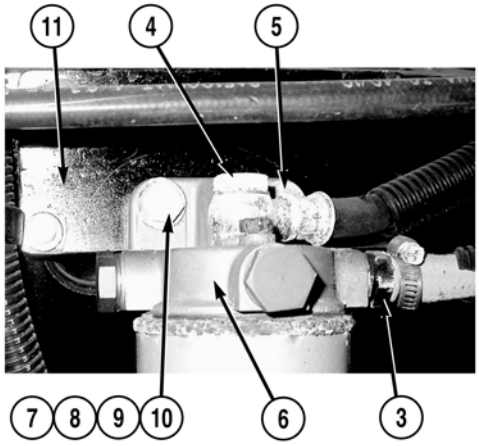
WARNING

- **Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.**
- **Fuel and oil are slippery and can cause falls. To avoid injury, wipe up spilled fuel or oil with rags.**

NOTE

- Tag and mark hoses prior to removal to ensure proper installation.
- Remove cable ties as required.
- Position suitable drain pan under fuel filter and hoses.

1. Loosen hose clamp (1) and remove hose (2) from fitting (3).



2. Remove screw (4) and fitting (5) from fuel filter head (6).
3. Remove two screws (7), lockwashers (8), four washers (9), two nuts (10), and fuel filter head (6) from mounting bracket (11). Discard lockwashers.
4. Remove fitting (3) from fuel filter head (6).

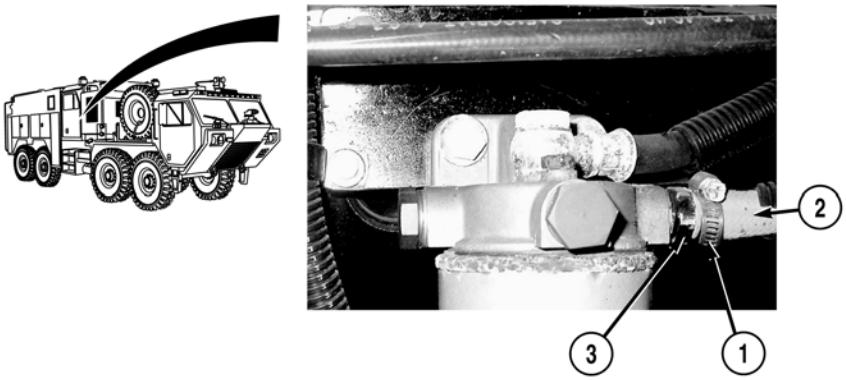
END OF TASK

INSTALLATION

NOTE

Install cable ties as required.

1. Install fitting (3) on fuel filter head (6).
2. Install fuel filter head (6) on mounting bracket (11) with two nuts (10), four washers (9), two lockwashers (8), and screws (7).
3. Install fitting (5) on fuel filter head (6) with screw (4).



4. Install hose (2) on fitting (3) and tighten hose clamp (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install fuel filter (WP 0231)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FUEL INJECTOR(S) REPLACEMENT

INITIAL SETUP:

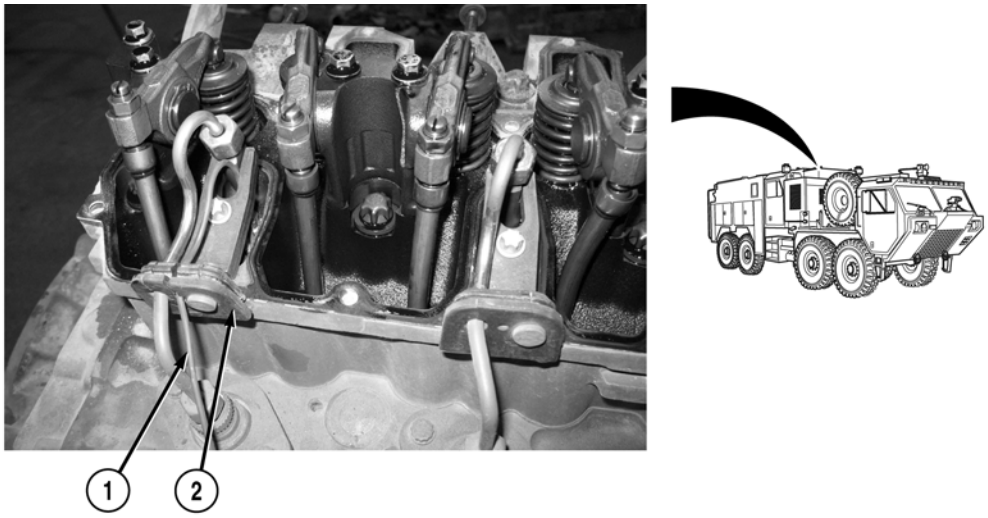
Tools and Special Tools
- Cap Set, Protective (WP 0622, Item 3)
- Extractor, Handle, Injector (WP 0622, Item 13)
- Extractor, Injector (WP 0622, Item 14)
- Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)
- Torx Tool Kit (WP 0622, Item 28)

Materials/Parts
- Grease, Automotive and Artillery (WP 0625, Item 23)
- Seal, Sentry, Blue (WP 0625, Item 44)
- Ties, Cable, Plastic (WP 0625, Item 58)
- Injector tube (6)
- Injector tube seal (6)
- Sealing ring (6)

References
- WP 0615, Fig. 18

Equipment Conditions
- Pump house panels S, T, and U removed (WP 0540)
- Pump operator's panel housing opened (WP 0325)
- Water pump engine noise panel removed (WP 0242)
- Water pump engine valve cover and gasket removed (WP 0251)

REMOVAL



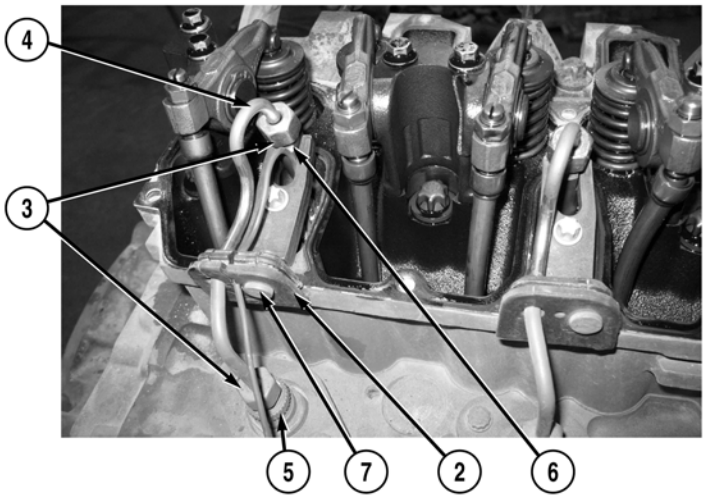
⚠ CAUTION

Fuel injector tubes must not be reused. Failure to comply may cause damage to equipment.

NOTE

All fuel injectors are removed the same way. Fuel injector for number one cylinder shown.

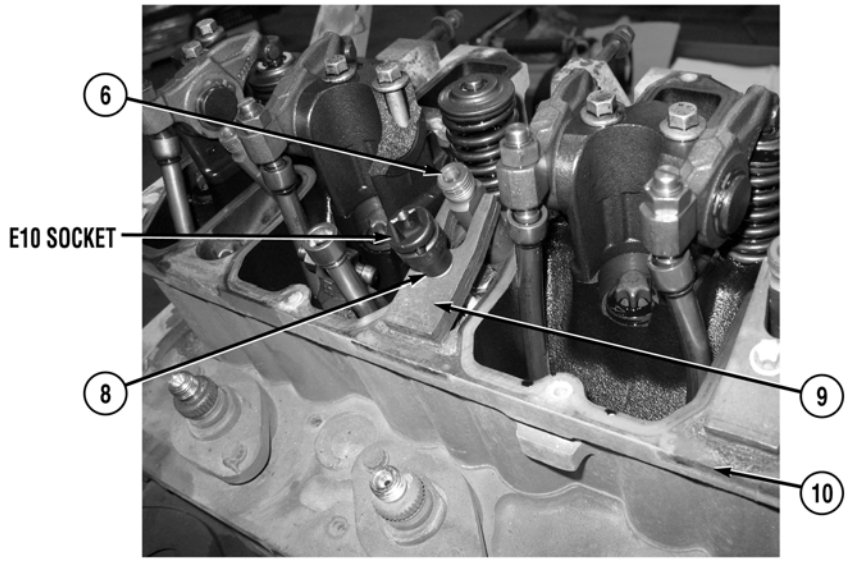
1. Remove glow plug wire (1) from tube seal (2).



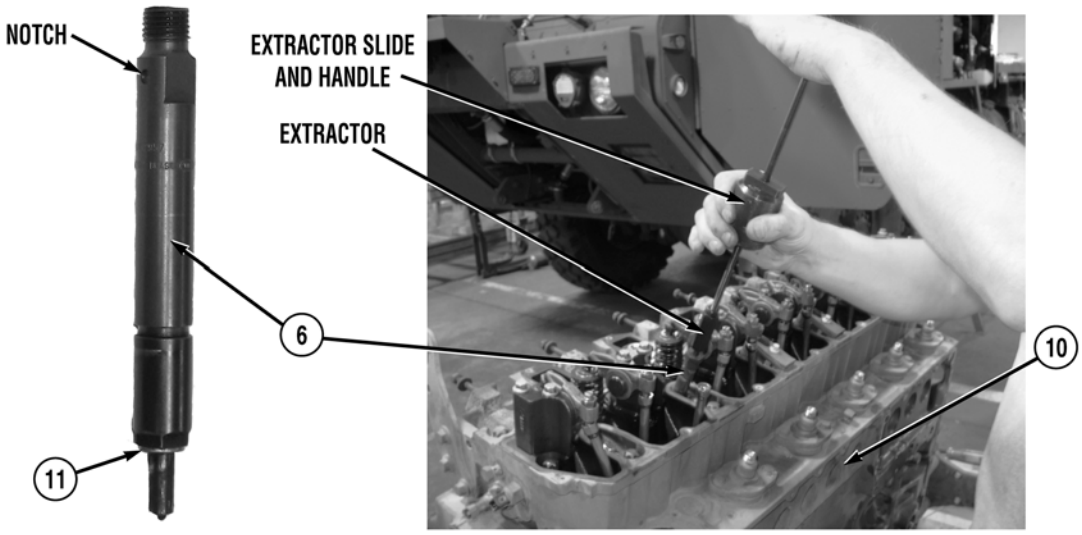
NOTE

Cap and plug fuel injectors and fuel injector pumps upon removal.

2. Remove two nuts (3) and fuel injector tube (4) from injector pump (5) and fuel injector (6).
3. Remove tube seal (2) from fuel injector tube (4). Discard fuel injector tube.
4. Remove plug (7) from tube seal (2). Discard tube seal.



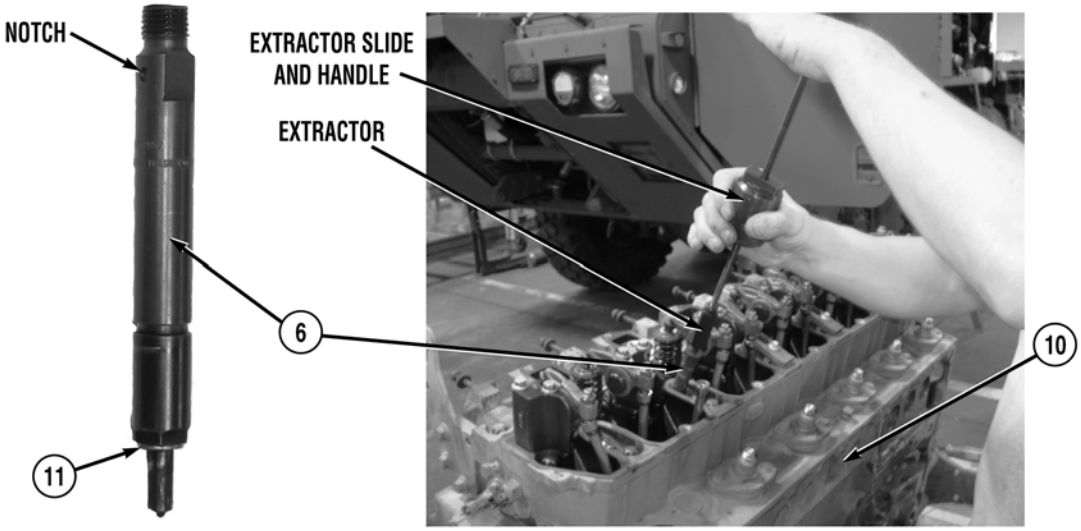
5. Using E10 socket, remove screw (8) and two clamping pads (9) from fuel injector (6) and cylinder head (10).



6. Attach extractor to extractor slide and handle, and remove fuel injector (6) from cylinder head (10).
7. Remove sealing ring (11) from fuel injector (6). Discard sealing ring.

END OF TASK

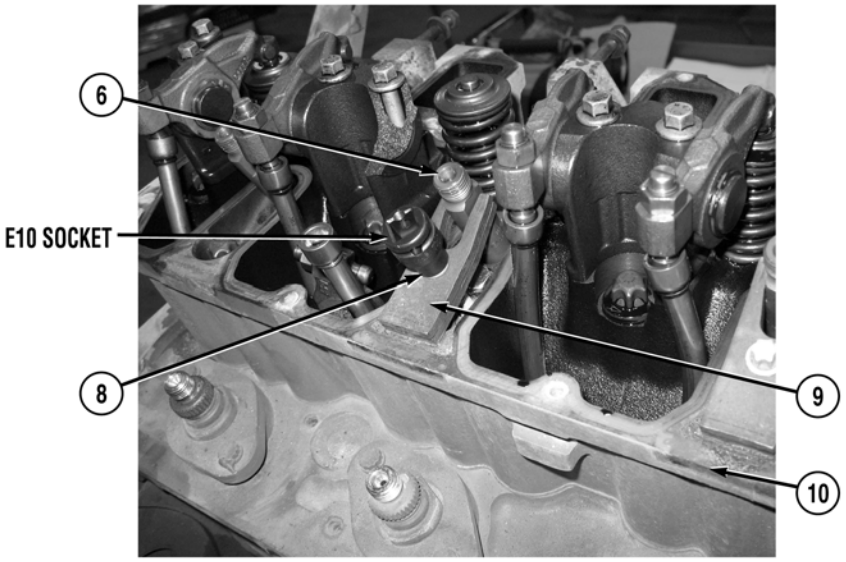
INSTALLATION



NOTE

- All fuel injectors are installed the same way. Number two cylinder shown.
- Notch on fuel injector must face away from clamping pads.
- Grease allows sealing ring to stay attached to fuel injector during installation.

1. Apply a small amount of grease on sealing ring (11) and install sealing ring (11) on fuel injector (6).
2. With notch on fuel injector (6) facing away from two clamping pads (9), install fuel injector (6) on cylinder head (10).



NOTE

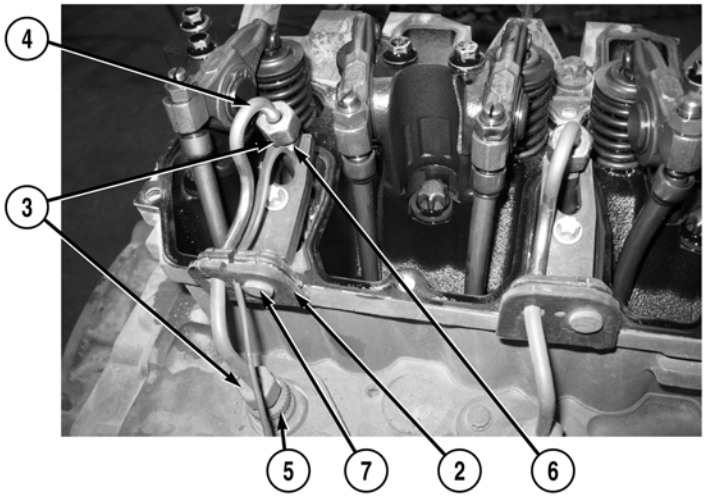
Glow plug wire is routed between forks of clamping pads.

3. Using E10 socket, install two clamping pads (9) with screw (8) on fuel injector (6) and cylinder head (10).
4. Tighten screw (8) to 12 to 15 lb-ft (16 to 21 N•m).

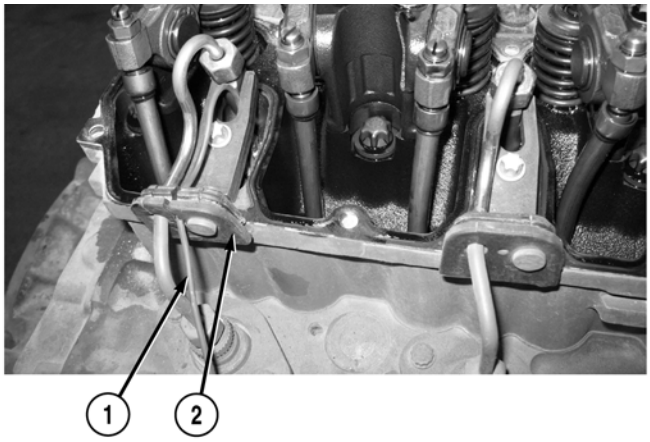
WARNING

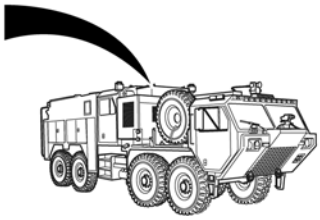
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with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

5. Apply sealant to screw (8) to mark torque point.



6. Install plug (7) in tube seal (2).
7. Install fuel injector tube (4) in tube seal (2).
8. Install fuel injector tube (4) on injector pump (5) and fuel injector (6) with two nuts (3).





9. Install glow plug wire (1) through tube seal (2).

FOLLOW-ON MAINTENANCE

1. Install water pump engine valve cover and gasket (WP 0251)
2. Install water pump engine noise panel (WP 0242)
3. Close pump operator's panel housing (WP 0325)
4. Install pump house panels U, T, and S (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FUEL LINES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Sealant, Pipe Teflon (WP 0625, Item 46)
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)
Preformed Packing (2)
Preformed Packing (2)
Preformed Packing (2)
Preformed Packing (2)

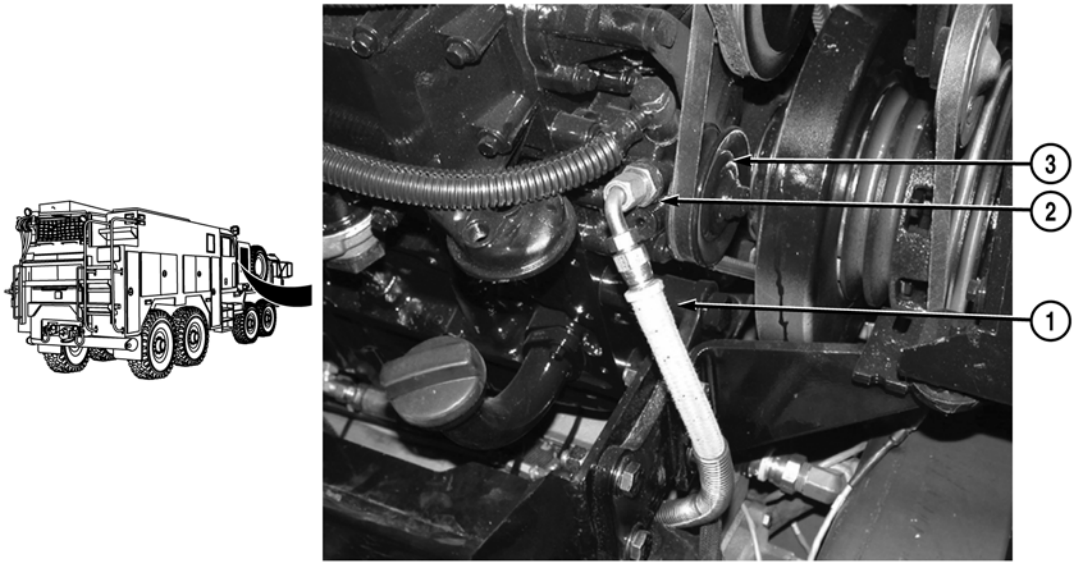
References
WP 0233
WP 0615, Fig. 17

Equipment Conditions
Pump house panels S, T, and U removed (WP 0540)
Pump panel housing opened (WP 0325)
Water pump engine valve cover gasket removed (WP 0251)
Fuel system drained and depressurized (WP 0237)
On-board tool mounting bracket(s) removed (WP 0528)
Passenger side front crew cab access panel removed (WP 0499)
Water pump engine noise panel removed (WP 0242)

REMOVAL

WARNING

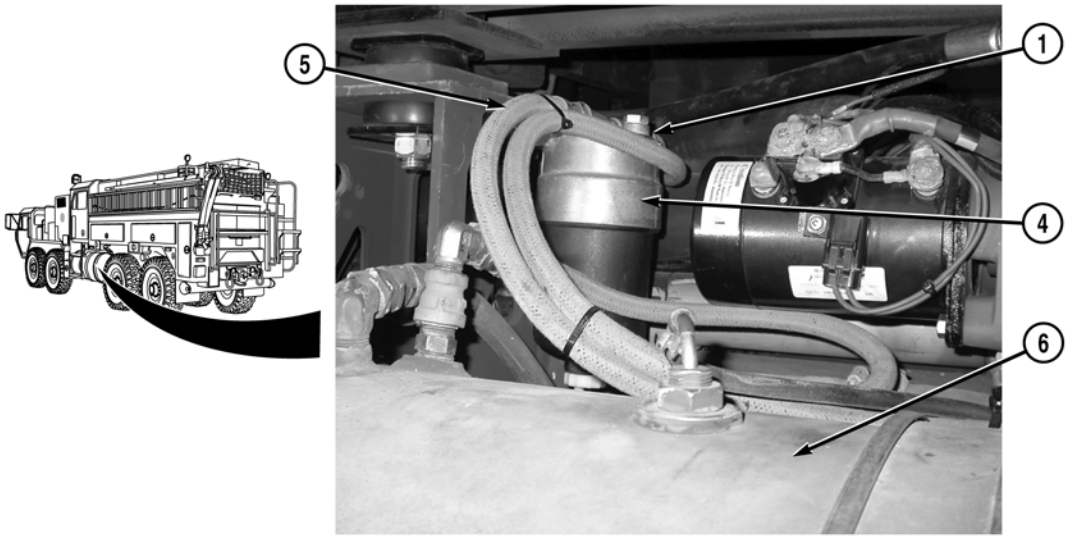
- **Fuel and oil are slippery and can cause falls. To avoid injury, wipe up spilled fuel or oil with rags.**
- **Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.**
- **Contact with fuel can irritate eyes and skin. Do not let fuel get into eyes. If fuel comes into contact with eyes, immediately rinse eyes with clear water. Wash fuel off skin with soap and water as soon as possible after contact.**
- **Wear safety goggles for eye protection when removing, cleaning, or installing fuel lines and fuel air vent lines to prevent injury or blindness.**



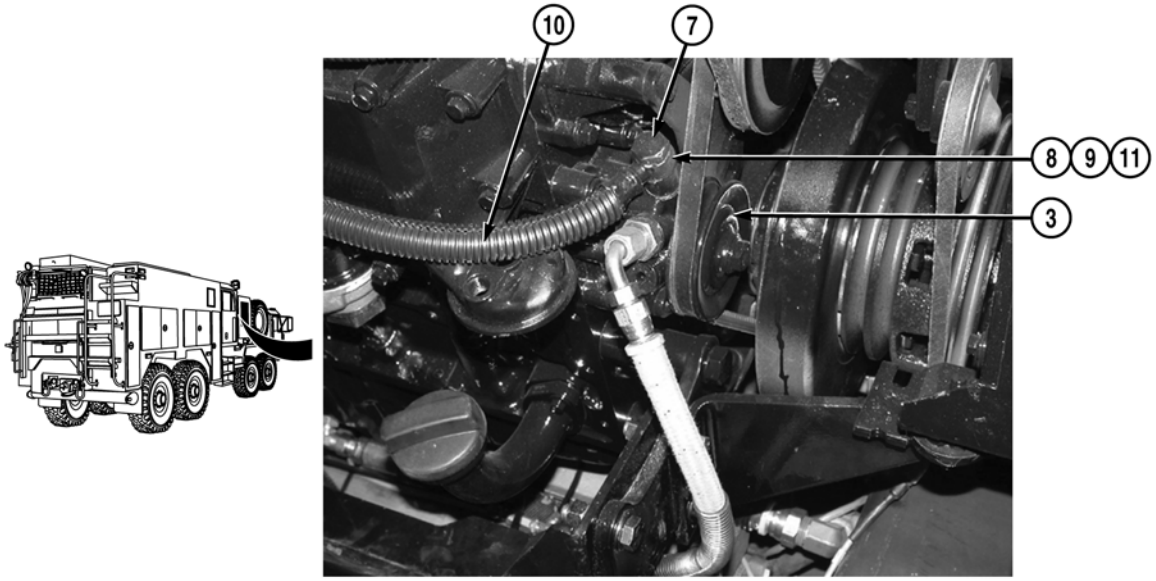
NOTE

- A small amount of residual fuel may remain in fuel hoses. Remove hoses with care and where possible, position suitable drain pan under hose being disconnected.
- Tag and mark fuel lines and hoses prior to removal to ensure proper installation.
- Remove cable ties as required.

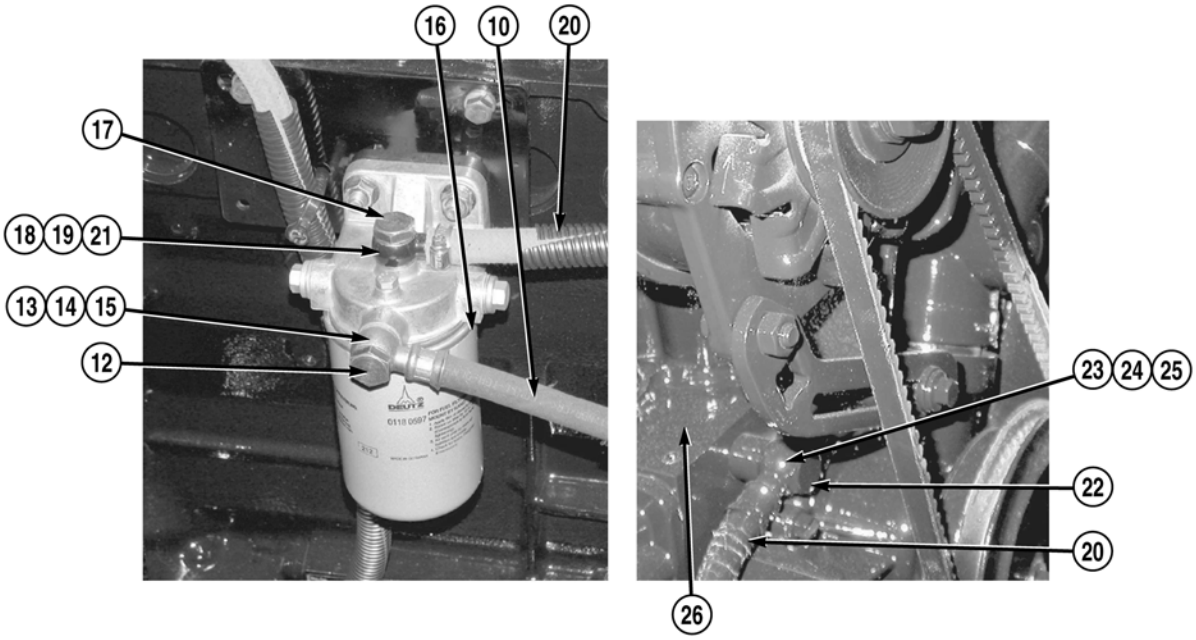
1. Remove hose (1) from fitting (2) on fuel pump (3).



2. Remove hose (1) from fuel filter (4).
3. Remove hose (5) from fuel filter (4) and fuel tank (6).



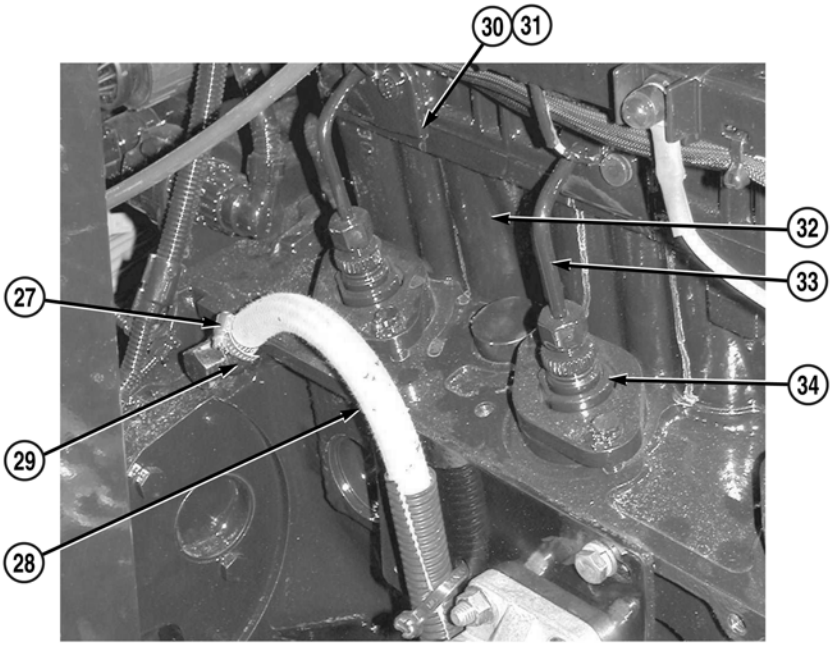
4. Remove screw (7), fitting (8), preformed packing (9), hose (10), and preformed packing (11) from fuel pump (3). Discard preformed packings.



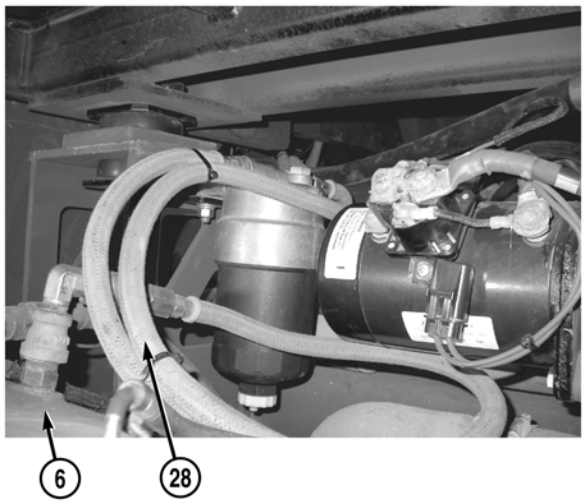
5. Remove screw (12), fitting (13), preformed packing (14), hose (10), and preformed packing (15) from fuel filter (16). Discard preformed packings.

6. Remove screw (17), fitting (18), preformed packing (19), hose (20), and preformed packing (21) from fuel filter (16). Discard preformed packings.

7. Remove screw (22), fitting (23), preformed packing (24), hose (20), and preformed packing (25) from engine block (26). Discard preformed packings.



8. Loosen clamp (27) and remove hose (28) from fitting (29).



9. Remove hose (28) from fuel tank (6).
10. Remove clamping pad (30) and bolt (31) from cylinder head (32) (WP 0233).
11. Remove six pipes (33) from fuel injection pumps (34) and fuel injectors (35) (WP 0233).

END OF TASK

INSTALLATION

NOTE

Install cable ties as required.

1. Install six pipes (33) on fuel injection pumps (34) and fuel injectors (35) (WP 0233).
2. Install clamping pad (30) and bolt (31) on cylinder head (32) (WP 0233).

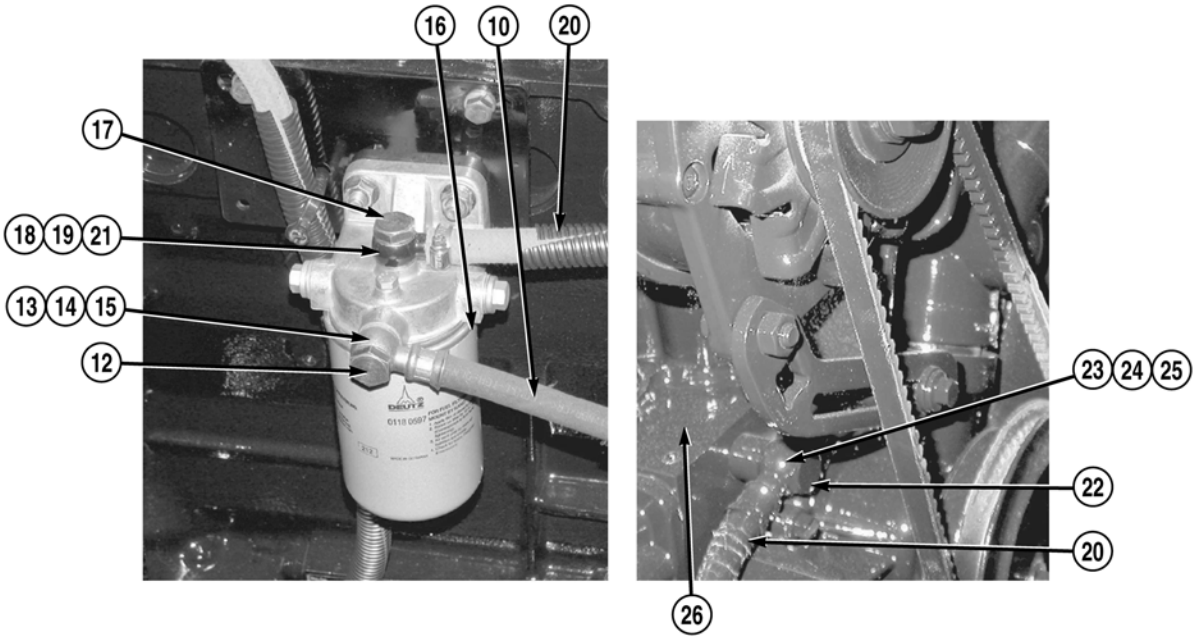
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Apply sealing compound sparingly and only to the threads of fittings.

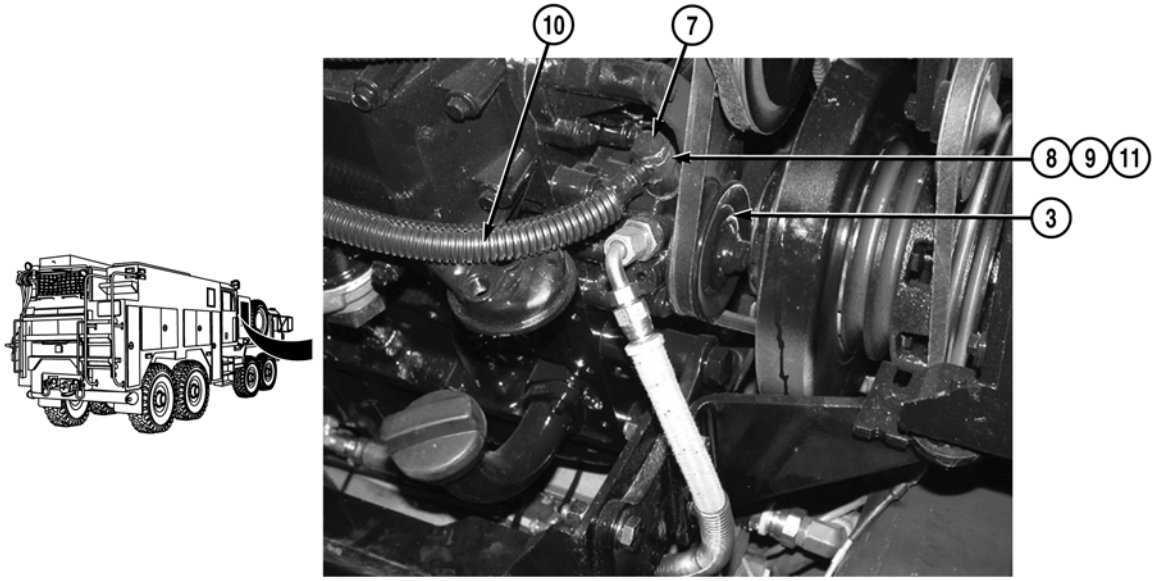
3. Apply sealing compound to threads of fitting (29), and install hose (28) on fuel tank (6).
4. Install hose (28) on fitting (29) with clamp (27).



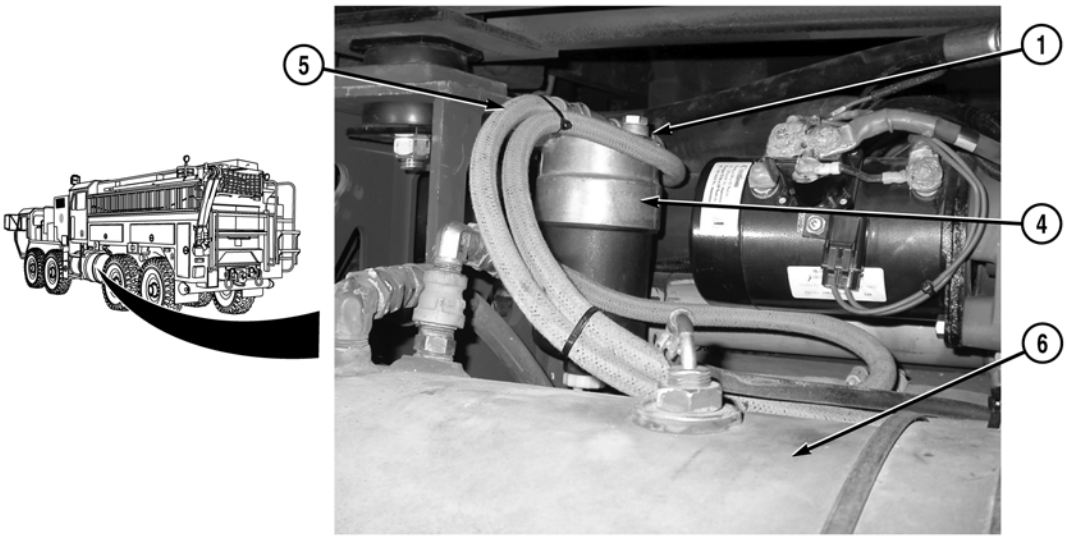
5. Install preformed packing (25), hose (20), preformed packing (24), and fitting (23) on engine block (26) with screw (22).

6. Install preformed packing (21), hose (20), preformed packing (19), and fitting (18) on fuel filter (16) with screw (12).

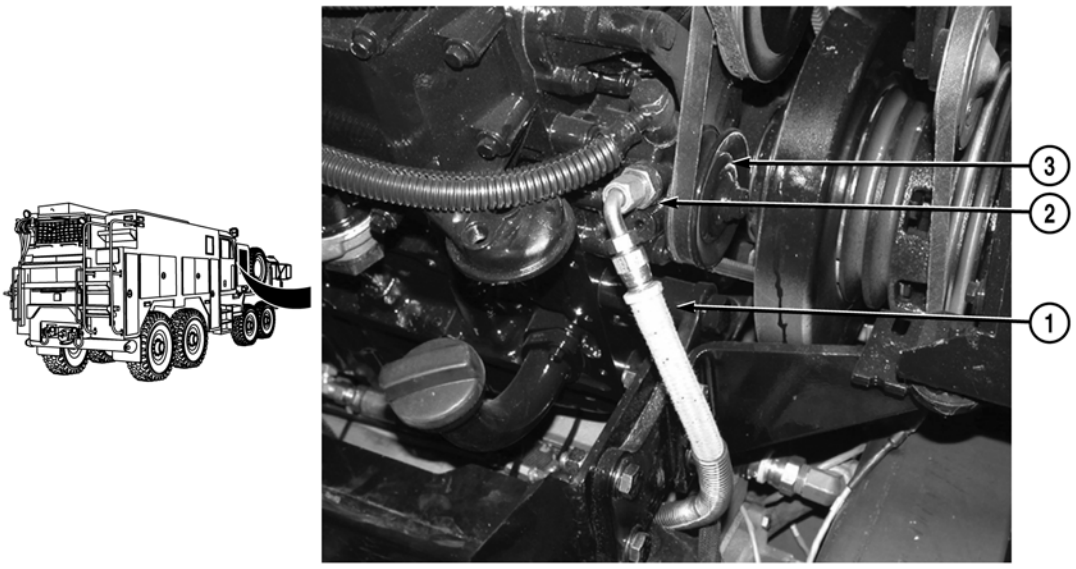
7. Install preformed packing (15), hose (10), preformed packing (14), and fitting (13) on fuel filter (16) with screw (12).



8. Install hose (10), preformed packing (11), fitting (8), preformed packing (9) on fuel pump (3) with screw (7).



9. Install hose (5) on fuel filter (4) and fuel tank (6).
10. Install hose (1) on fuel filter (4).



11. Install hose (1) on fitting (2) and fuel pump (3).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install water pump engine valve cover and gasket (WP 0251)
2. Install water pump engine noise panel (WP 0242)
3. Install pump house panels S, T, and U (WP 0540)
4. Pressurize and bleed air from fuel system (WP 0237)
5. Close pump panel housing (WP 0325)
6. Install on-board tool mounting brackets (WP 0528)
7. Install passenger side front crew cab access panel (WP 0499)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FUEL LINE CHECK VALVE(S) REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Loctite 565 (WP 0625, Item 19)
Oil, Fuel, Diesel (WP 0625, Item 33)
Tags, Identification (WP 0625, Item 51)

References
WP 0615, Fig. 18

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

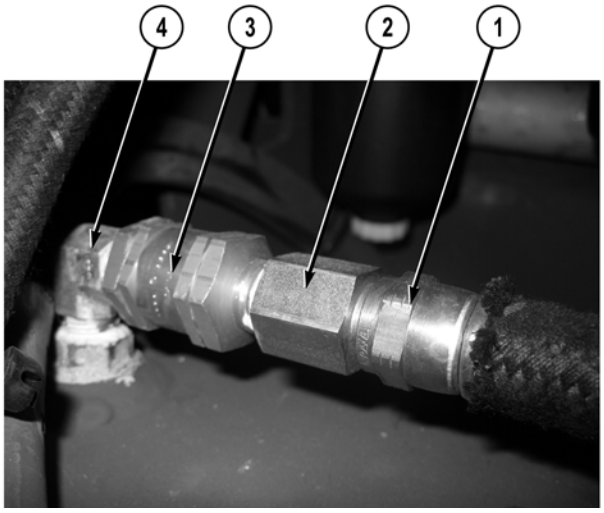
REMOVAL

WARNING

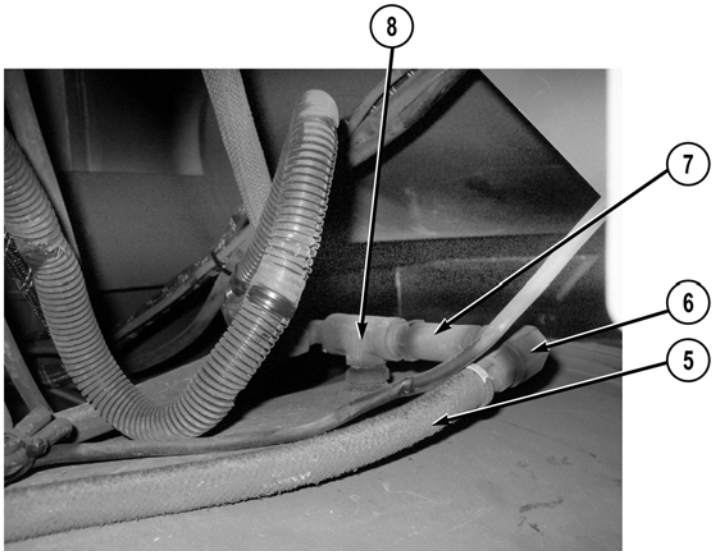
- **Fuel and oil are slippery and can cause falls. To avoid injury, wipe up spilled fuel or oil with rags.**
- **Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.**
- **Contact with fuel can irritate eyes and skin. Do not let fuel get into eyes. If fuel comes into contact with eyes, immediately rinse eyes with clear water. Wash fuel off skin with soap and water as soon as possible after contact.**
- **Wear safety goggles for eye protection when removing, cleaning, or installing fuel lines to prevent injury or blindness.**

NOTE

- Perform Steps (1) through (3) to remove supply check valve.
- Note orientation of check valve prior to removal to ensure proper installation.



1. Remove hose (1) from fitting (2).
2. Remove check valve (3) from elbow (4).
3. Remove fitting (2) from check valve (3).



NOTE

- Perform Steps (4) through (6) to remove return check valve.
- Note orientation of check valve prior to removal to ensure proper installation.

4. Remove hose (5) from elbow (6).
5. Remove check valve (7) from tee fitting (8).
6. Remove elbow (6) from check valve (7).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

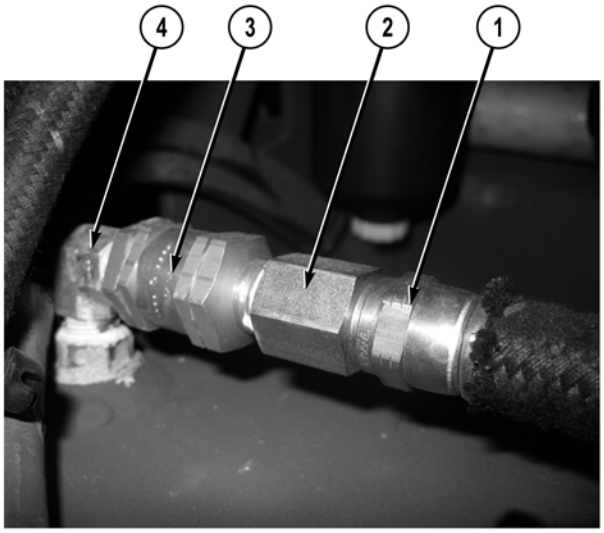
Perform Steps (1) through (4) to install return check valve.

1. Apply sealing compound to threads of check valve (7).

NOTE

Install check valve as noted prior to removal.

2. Install elbow (6) on check valve (7).
3. Install check valve (7) on tee fitting (8).
4. Install hose (5) on elbow (6).



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Perform Steps (5) through (8) to install supply check valve.

5. Apply sealing compound to threads of check valve (3).

NOTE

Install check valve as noted prior to removal.

6. Install fitting (2) on check valve (3).
7. Install check valve (3) on elbow (4).
8. Install hose (1) on fitting (2).

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FUEL PUMP REPLACEMENT

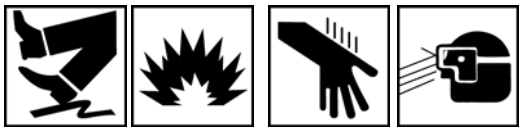
INITIAL SETUP:

Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0615, Fig. 17

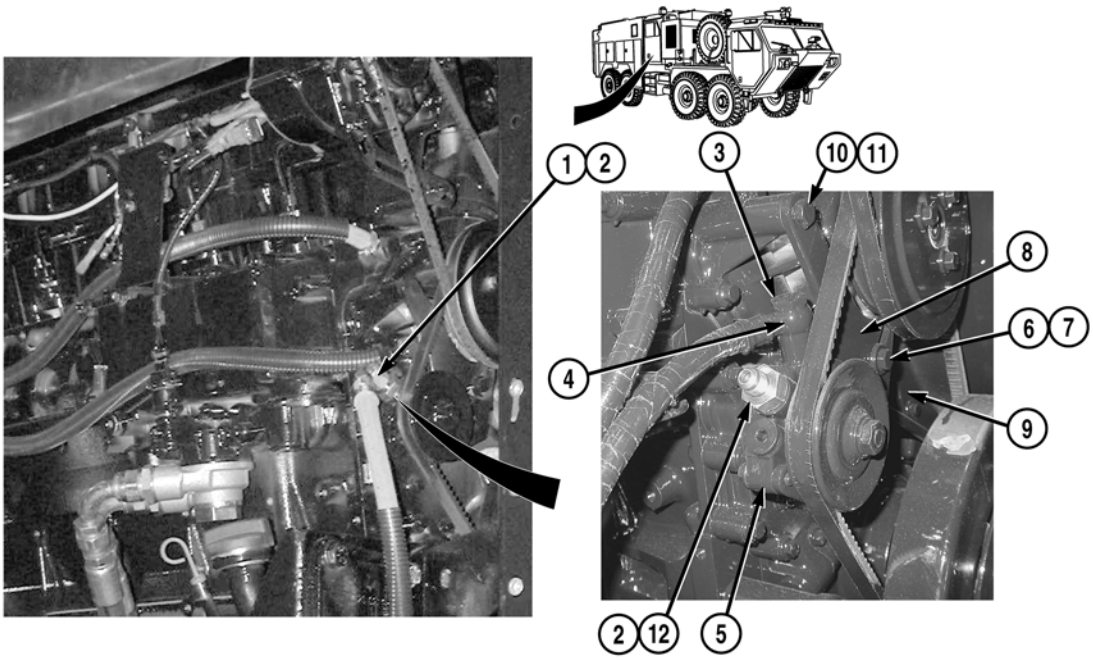
Equipment Conditions
Batteries disconnected (TM 9-2320-325-14&P)
Pump house panel S removed (WP 0540)
Alternator/fuel pump belt removed (WP 0473)
Fuel system drain and depressurized (WP 0237)
Crew cab passenger side front access panel removed (WP 0499)

WARNING



- **Fuel and oil are slippery and can cause falls. To avoid injury, wipe up spilled fuel or oil with rags.**
- **Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.**
- **Contact with fuel can irritate eyes and skin. Do not let fuel get into eyes. If fuel comes into contact with eyes, immediately rinse eyes with clear water. Wash fuel off skin with soap and water as soon as possible after contact.**
- **Wear safety goggles for eye protection when removing, cleaning, or installing fuel lines and fuel air vent lines to prevent injury or blindness.**

REMOVAL



NOTE

A small amount of fuel may leak out when removing fuel lines. Position suitable container under fuel lines to catch excess fuel.

1. Remove fuel line elbow (1) from fuel line adapter (2).
2. Remove screw (3) and fitting (4) from fuel pump (5).
3. Remove screw (6) and washer (7) from fuel pump bracket (8) and engine (9).
4. Remove screw (10), washer (11), fuel pump (5), and fuel pump bracket (8) from engine (9).
5. Remove fuel line adapter (2) and gasket (12) from fuel pump (5).

END OF TASK

INSTALLATION

NOTE

Do not fully tighten mounting screws until fuel pump drive belt has been installed and properly tensioned.

1. Install gasket (12) and fuel line adapter (2) in fuel pump (5).
2. Install fuel pump (5) and fuel pump bracket (8) on engine (9) with washer (11) and screw (10).
3. Secure fuel pump bracket (8) on engine (9) with washer (7) and screw (6).
4. Install fitting (4) on fuel pump (5) with screw (3).

CAUTION

Fuel line elbow fitting is a flare fitting. Do not overtighten. Failure to comply may cause damage to equipment, fuel leaks, and the possibility of fire.

5. Install fuel line elbow (1) on fuel line adapter (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install alternator/fuel pump belt (WP 0473)
2. Connect batteries (TM 9-2320-325-14&P)
3. Pressurize and bleed air from fuel system (WP 0237)
4. Install pump house panel S (WP 0540)
5. Install crew cab passenger side front access panel (WP 0499)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FUEL SYSTEM BLEED

INITIAL SETUP:

Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

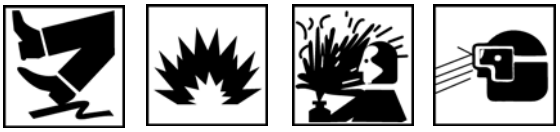
Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
WP 0022

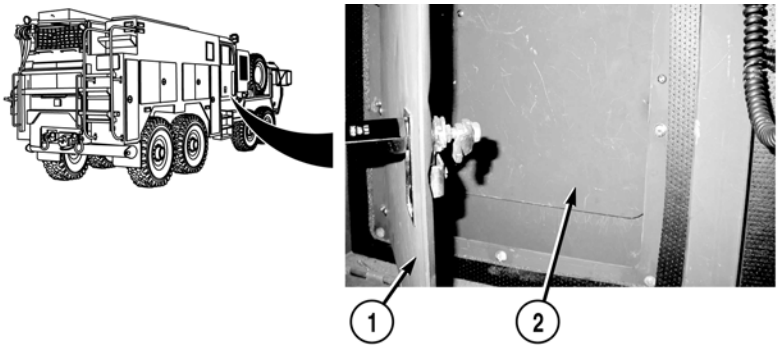
Equipment Conditions
Fuel tank filled (TM 9-2320-325-14&P)

FUEL SYSTEM BLEED

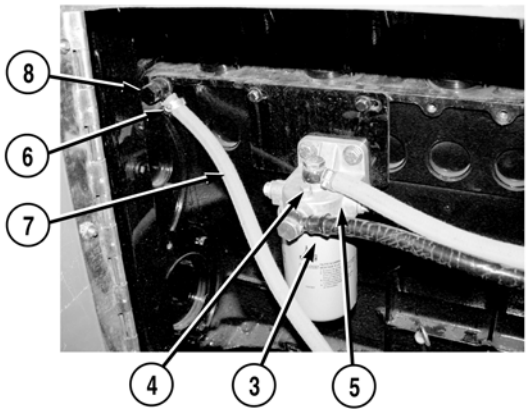
WARNING



- **Fuel and oil are slippery and can cause falls. To avoid injury, wipe up spilled fuel or oil with rags.**
- **Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.**
- **Contact with fuel can irritate eyes and skin. Do not let fuel get into eyes. If fuel comes into contact with eyes, immediately rinse eyes with clear water. Wash fuel off skin with soap and water as soon as possible after contact.**
- **Wear safety goggles for eye protection when removing, cleaning, or installing fuel lines and fuel air vent lines to prevent injury or blindness.**



1. Open crew cab access panel (1).
2. Open pump house access panel (2) to expose fuel filter assembly (3).



NOTE

- If water pump engine runs out of fuel, air can enter the fuel system, interfering with fuel flow. This procedure removes air from the fuel system, allowing fuel to reach the injectors and cylinders.
- Position suitable drain pan under fitting used to bleed fuel system.

3. Remove fuel system bleed plug (4) from fuel filter head (5).

⚠ CAUTION

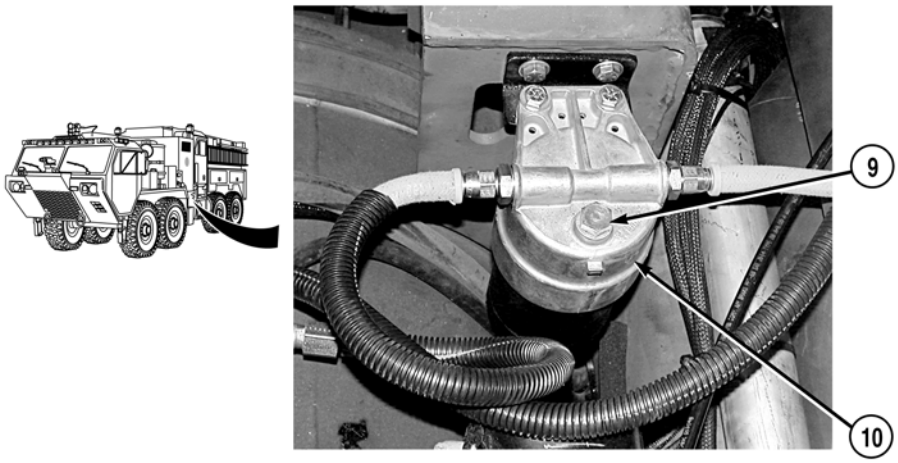
Engage starter only for short periods of time (2-3 seconds or less). Failure to comply may result in damage to the starter motor or excessive fuel spillage.

4. With the aid of an assistant hold suitable drain pan under fuel filter head (5) and engage water pump engine starter to turn fuel pump.
5. If fuel flows from fuel system bleed port, stop turning engine and install fuel system bleed plug (4) in fuel filter head (5). Wipe up any spilled fuel and attempt to start water pump engine (WP 0022).

NOTE

Bleeding the water pump engine fuel system as described in Steps (1) through (5) normally removes enough air from the fuel system to allow fuel flow and engine start. If fuel is not present at fuel filter, there is an air lock elsewhere in the system and Steps (6) through (11) may be required.

6. If water pump engine starts, go to Step (12). If water pump engine does not start, or if fuel does not flow from fuel system bleed port, install bleed plug (4) in fuel filter head (5), loosen clamp (6), and remove fuel return hose (7) from fitting (8).
7. With the aid of an assistant, hold suitable drain pan under fitting (8) and engage water pump engine starter to turn fuel pump.
8. If fuel flows from fitting (8), stop turning engine, install fuel return hose (7) on fitting (8) with clamp (6). Attempt to start water pump engine (WP 0022).



9. If water pump engine starts, go to Step (12). If water pump engine does not start, or if fuel does not flow from fitting (8), install fuel return hose (7) on fitting (8) with clamp (6) and remove fuel system bleed plug (9) from primary fuel filter head (10), located near fuel tank.
10. With the aid of an assistant, hold suitable drain pan under primary fuel filter head (10) and engage water pump engine starter to turn fuel pump.
11. If fuel flows from fuel system bleed port, stop turning engine and install fuel system bleed plug (9) in primary fuel filter head (10).
12. Wipe up any spilled fuel. Attempt to start water pump engine (WP 0022).
13. If water pump engine starts, check for fuel leaks, close pump house access panel (2) and crew cab access panel (1).
14. If water pump engine does not start, repeat fuel system bleed process or check for additional engine problems.

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE FUEL/WATER SEPARATOR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

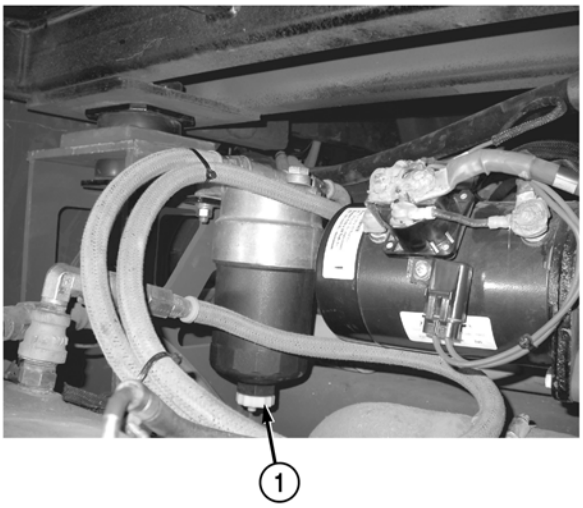
Materials/Parts
Oil, Fuel, Diesel (WP 0625, Item 33)
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)
Filter (1)
Preformed Packing (1)
Preformed Packing (1)
Preformed Packing (2)

Materials/Parts (continued)
Gasket (1)
Lockwasher (2)
Lockwasher (2)

References
WP 0615, Fig. 19

Equipment Conditions
Driver side crew cab ladder removed (WP 0514)
Driver side on-board tool mounting bracket removed (WP 0528)

REMOVAL



WARNING

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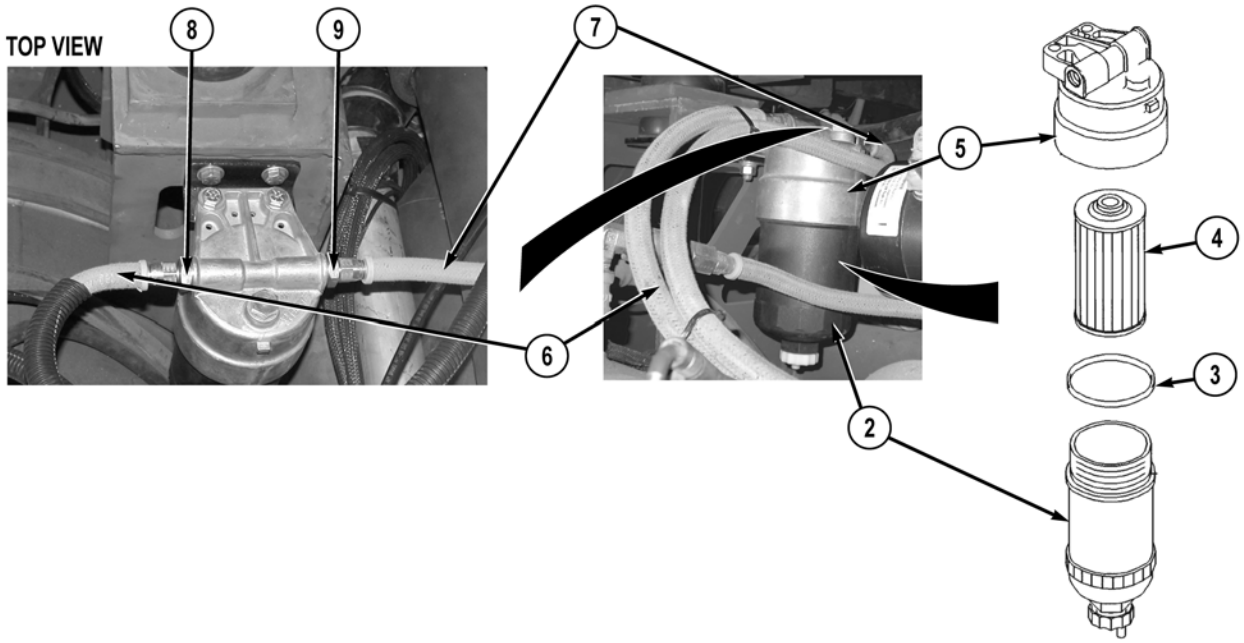
- **Fuel is very flammable and can explode easily. To avoid serious injury or death, keep fuel away from open fire and keep fire extinguisher within easy reach when working with fuel. Do not work on fuel system when engine is hot. Fuel can be ignited by hot engine. When working with fuel, post signs that read NO SMOKING WITHIN 50 FEET of vehicle.**
- **Contact with fuel can irritate eyes and skin. Do not let fuel get into eyes. If fuel comes into contact with eyes, immediately rinse eyes with clear water. Wash fuel off skin with soap and water as soon as possible after contact.**
- **Wear safety goggles for eye protection when removing, cleaning, or installing fuel lines and fuel air vent lines to prevent injury or blindness.**

NOTE

Perform Steps (1) through (4) to remove filter element.

1. Position suitable drain pan under drain valve (1).
2. Open drain valve (1) and drain fuel.
3. Close drain valve (1).

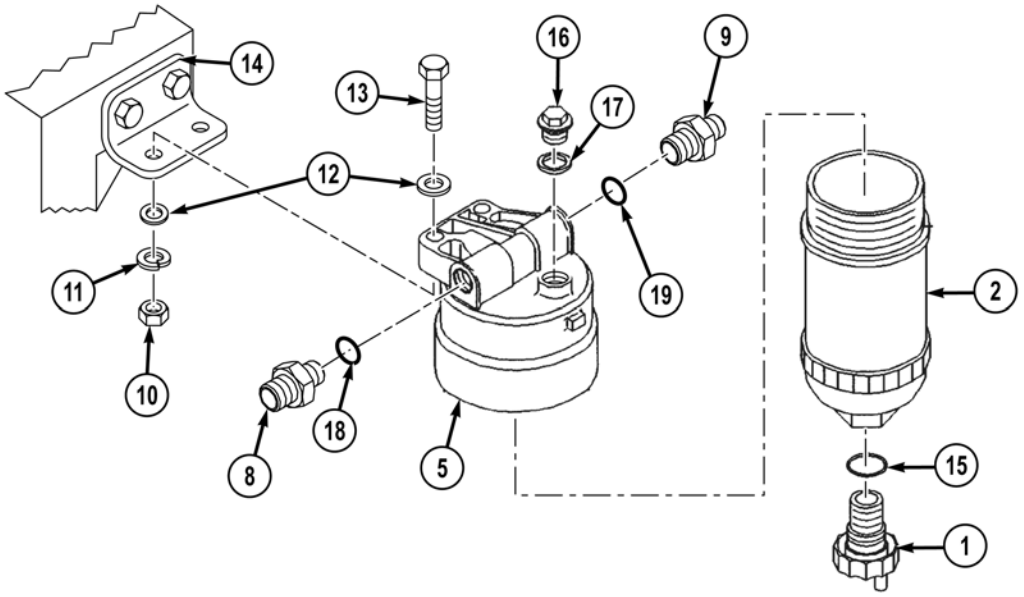


4. Remove filter housing (2), preformed packing (3), and filter element (4) from filter head (5). Discard filter and preformed packing.

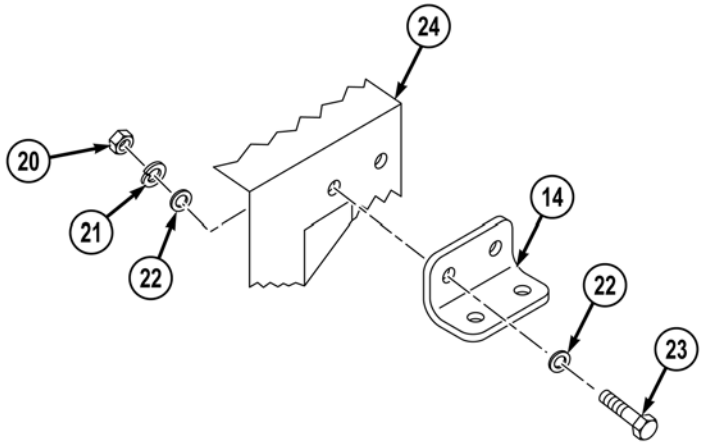
NOTE

- Perform Steps (5) through (11) to remove filter head, bracket, and drain valve.
- Remove cable ties as required.
- Tag and mark hoses prior to removal to ensure proper installation.

5. Remove two fuel hoses (6) and (7) from fittings (8) and (9).



6. Remove two nuts (10), lockwashers (11), four washers (12), two screws (13), and filter head (5) from bracket (14). Discard lockwashers.
7. Remove drain valve (1) and preformed packing (15) from filter housing (2). Discard preformed packing.
8. Remove plug (16) and gasket (17) from filter head (5). Discard gasket.
9. Remove fitting (8) and preformed packing (18) from filter head (5). Discard preformed packing.
10. Remove fitting (9) and preformed packing (19) from filter head (5). Discard preformed packing.



11. Remove two nuts (20), lockwashers (21), four washers (22), two screws (23), and bracket (14) from crew cab mount (24). Discard lockwashers.

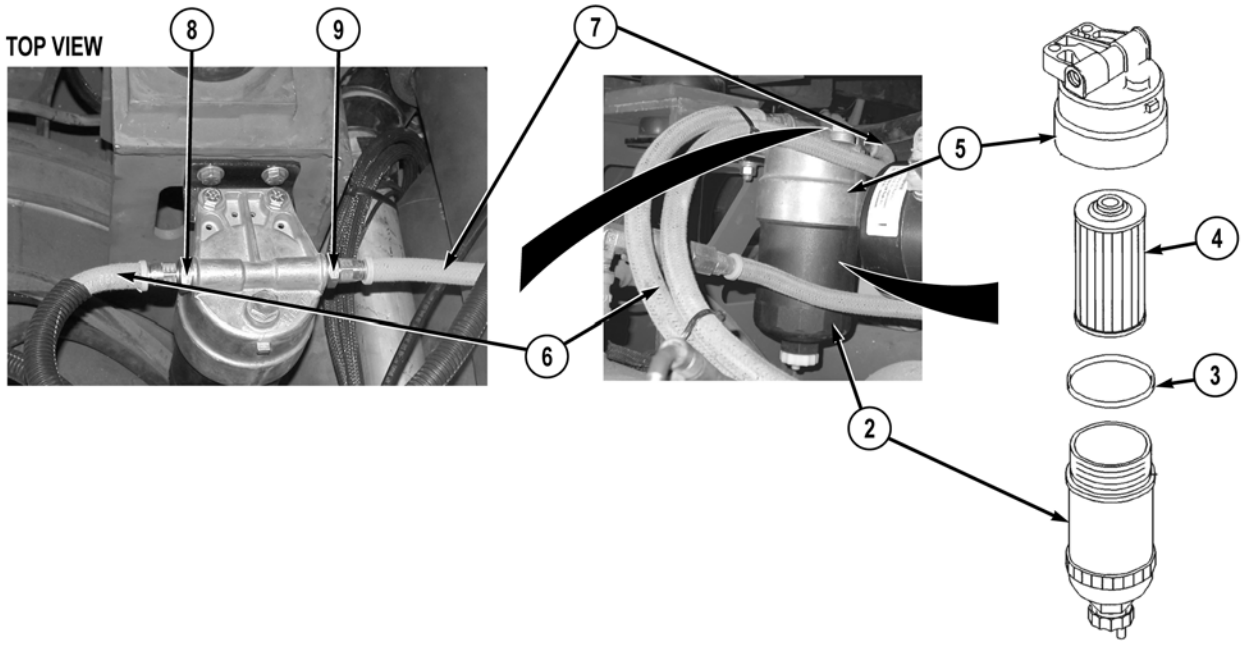
END OF TASK

INSTALLATION

NOTE

Perform Steps (1) through (6) to install filter head, bracket, and drain valve.

1. Install bracket (14) on crew cab mount (24) with two screws (23), four washers (22), two lockwashers (21), and nuts (20).
2. Lightly lubricate preformed packing (19) with diesel fuel, and install preformed packing (19) and fitting (9) on filter head (5).
3. Lightly lubricate preformed packing (18) with diesel fuel, and install preformed packing (18) and fitting (8) on filter head (5).
4. Install gasket (17) and plug (16) on filter head (5).
5. Lightly lubricate preformed packing (15) with diesel fuel, and install preformed packing (15) and drain valve (1) on filter housing (2).
6. Install filter head (5) on bracket (14) with two screws (13), four washers (12), two lockwashers (11), and nuts (10).



NOTE

Install cable ties as required.

7. Install two fuel hoses (6) and (7) on fittings (8) and (9).
8. Lightly lubricate preformed packing (3) with diesel fuel, and install preformed packing (3) and filter element (4) on filter head (5) with filter housing (2).

FOLLOW-ON MAINTENANCE

1. Install driver side on-board tool mounting bracket (WP 0528)
2. Install driver side crew cab ladder (WP 0514)
3. Pressurize and bleed air from fuel system (WP 0237)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE GLOW PLUG REPLACEMENT

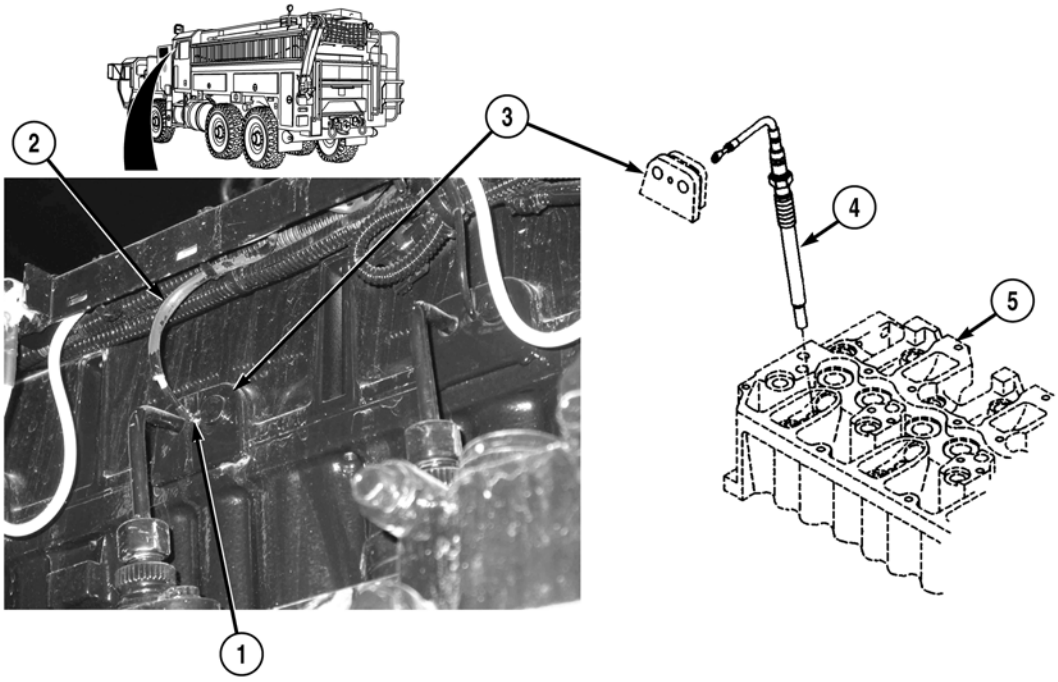
INITIAL SETUP:

Tools and Special Tools
Glow Plug Tool (WP 0622, Item 17)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0615, Fig. 14, 18

Equipment Conditions
Engine valve cover removed (WP 0251)

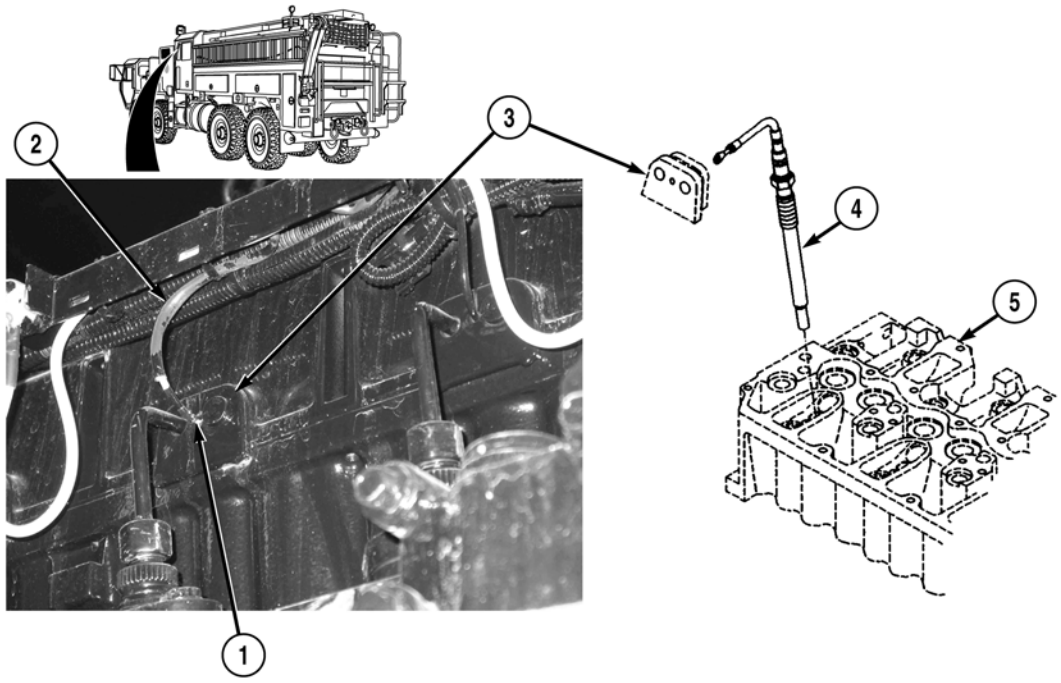
REMOVAL



1. Using glow plug tool, disconnect glow plug cable coupler (1) from glow plug cable (2).
2. Remove glow plug cable (2) from rubber seal (3).
3. Remove glow plug (4) from cylinder head (5).

END OF TASK

INSTALLATION



1. Install glow plug (4) in cylinder head (5) and tighten to 13 to 16 lb-ft (18 to 22 N•m).
2. Feed glow plug cable (2) through rubber seal (3).
3. Connect glow plug cable (2) to glow plug cable coupler (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install engine valve cover (WP 0251)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE HEAT EXCHANGER REPLACEMENT

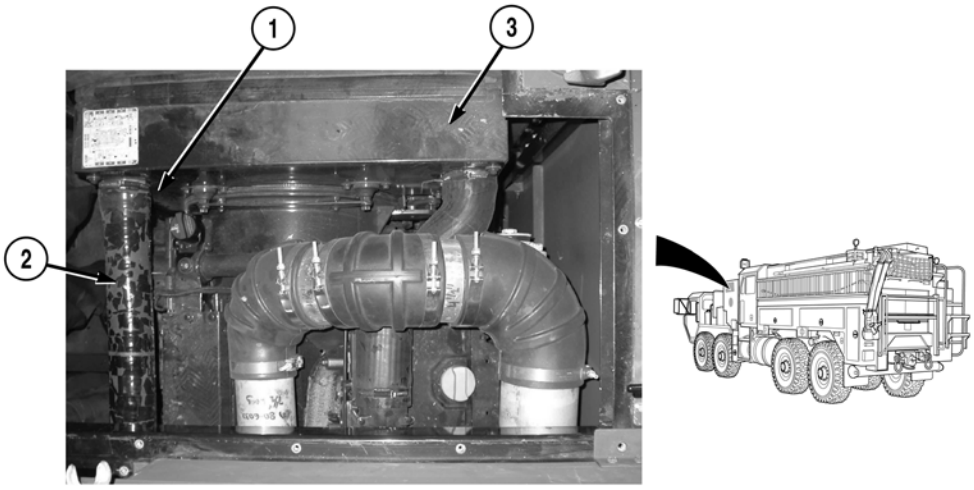
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0615, Fig. 10, 12

Equipment Conditions
Water pump engine fan belt removed (WP 0230)

REMOVAL

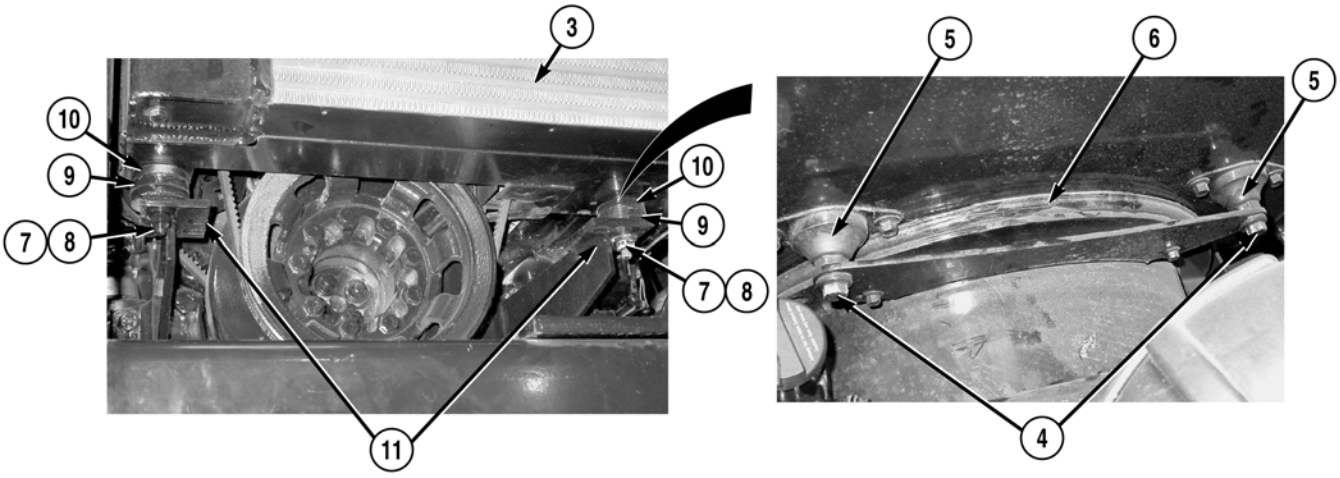


1. Remove clamp (1) and hose (2) from heat exchanger (3).

WARNING

Heat exchanger is heavy. Attach suitable lifting device when removing heat exchanger. Failure to comply may result in serious injury or death.

2. Attach suitable lifting device to heat exchanger (3).



3. Remove two screws (4) from heat exchanger mounting bumpers (5) and support bracket (6).

NOTE

Fan shroud seal may stick to heat exchanger. Gently flex fan shroud seal all the way around the fan shroud to loosen the seal before removing heat exchanger.

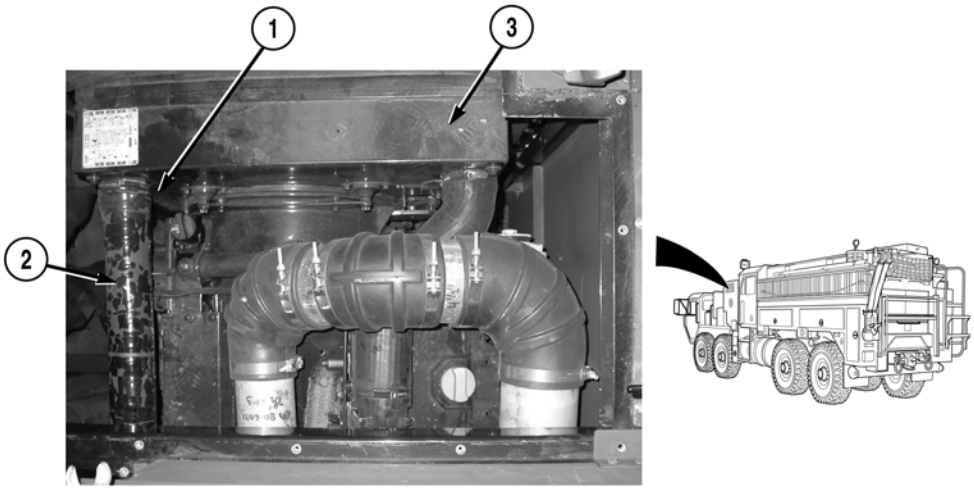
4. Using a suitable lifting device, remove two nuts (7), mounting bumpers (8), washers (9), and heat exchanger (3) from mounting studs (10) on two mounting brackets (11).

END OF TASK

INSTALLATION

1. Using a suitable lifting device, install heat exchanger (3) on mounting studs (10) on two mounting brackets (11) with washers (9), mounting bumpers (8), and nuts (7).

2. Secure heat exchanger mounting bumpers (5) to heat exchanger support bracket (6) with two screws (4).



3. Remove lifting strap and lifting devices from heat exchanger (3).
4. Install hose (2) on heat exchanger (3) with clamp (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install water pump engine fan belt (WP 0230)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE MUFFLER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

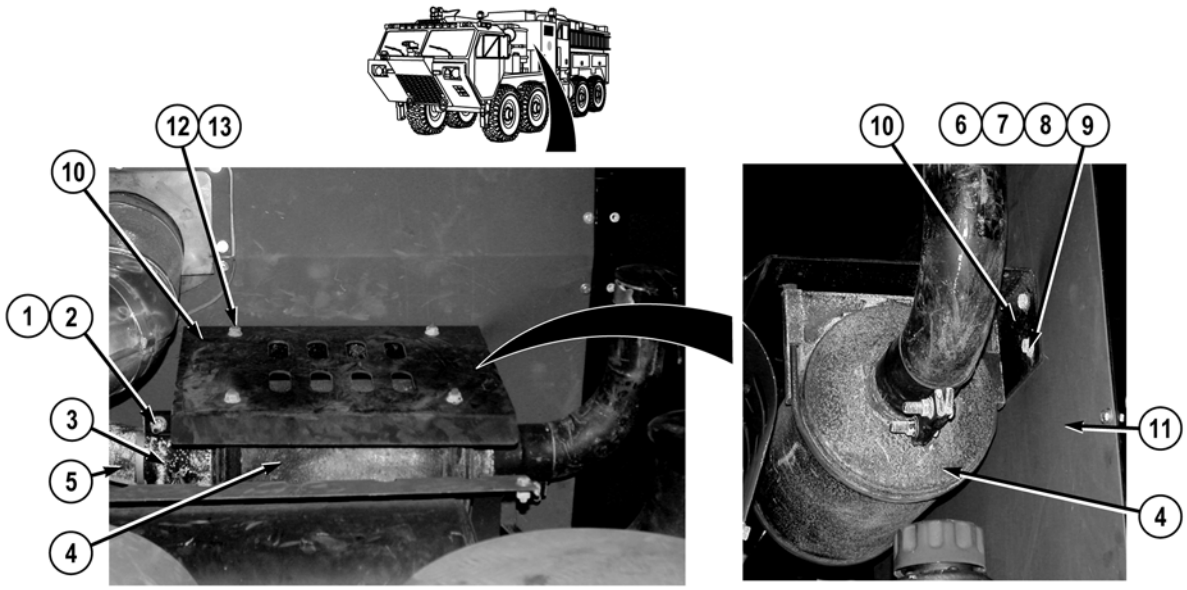
Materials/Parts
Locknut (2)
Lockwasher (4)
Locknut (8)
Locknut (2)
Locknut (1)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
WP 0615, Fig. 11

Equipment Conditions
Pump house panel A opened (WP 0539)

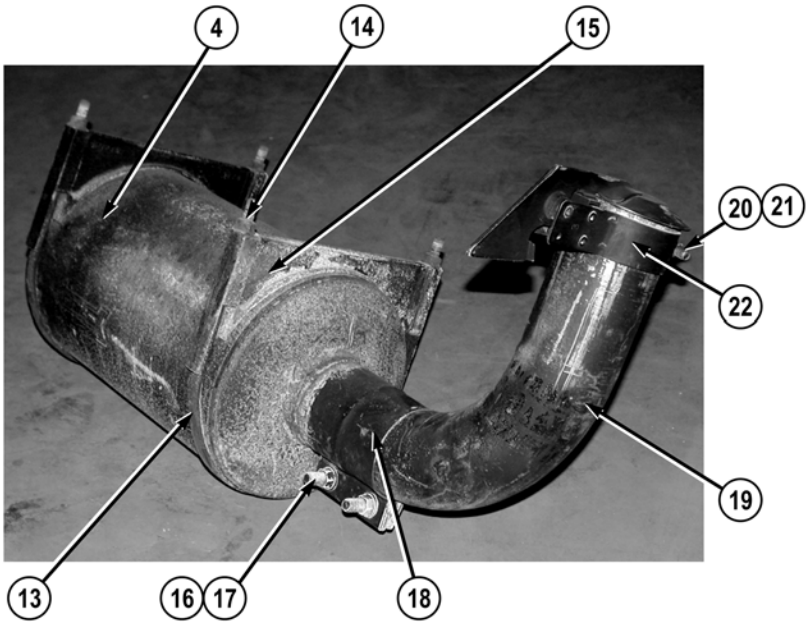
REMOVAL



WARNING

Allow muffler and exhaust pipes to cool before removing. Failure to comply may result in injury to personnel.

1. Remove two locknuts (1), screws (2), and clamp (3) from water pump engine muffler (4) and exhaust pipe (5). Discard locknuts.
2. Remove four nuts (6), lockwashers (7), eight washers (8), four screws (9), and muffler guard (10) from pump house panel I (11). Discard lockwashers.
3. Remove water pump engine muffler (4) from exhaust pipe (5).
4. Remove four locknuts (12) and muffler guard (10) from two U-bolts (13). Discard locknuts.



5. Remove four locknuts (14), two U-bolts (13), and cradles (15) from water pump engine muffler (4). Discard locknuts.
6. Remove two locknuts (16), screws (17), clamp (18), and tail pipe (19) from water pump engine muffler (4). Discard locknuts.

NOTE

Note position of rain cap prior to removal to ensure proper installation.

7. Remove locknut (20), screw (21), and rain cap (22) from tail pipe (19). Discard locknut.

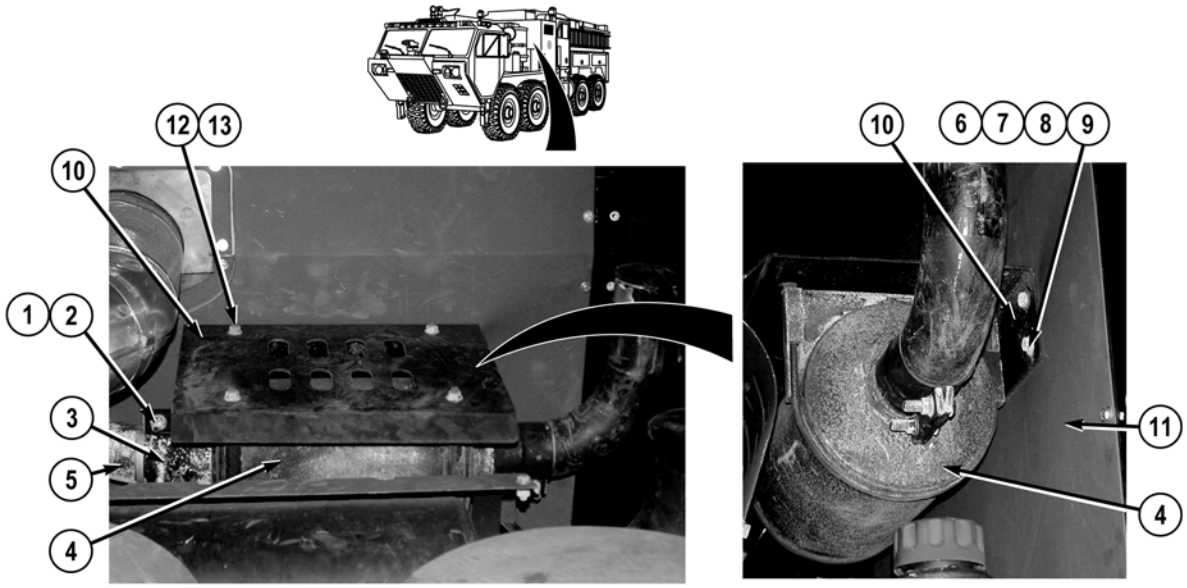
END OF TASK

INSTALLATION

NOTE

Install rain cap in same position as noted prior to removal.

1. Install rain cap (22) on tail pipe (19) with screw (21) and locknut (20).
2. Install tail pipe (19) on water pump engine muffler (4) with clamp (18), two screws (17), and locknuts (16).
3. Install two cradles (15) on water pump engine muffler (4) with two U-bolts (13) and four locknuts (14).



4. Install muffler guard (10) on two U-bolts (13) with four locknuts (12).
5. Install water pump engine muffler (4) on exhaust pipe (5).
6. Install muffler guard (10) on pump house panel I (11) with four screws (9), eight washers (8), four lockwashers (7), and nuts (6).
7. Install clamp (3) on water pump engine muffler (4) and exhaust pipe (5) with two screws (2) and locknuts (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE NOISE PANELS REPLACEMENT

INITIAL SETUP:

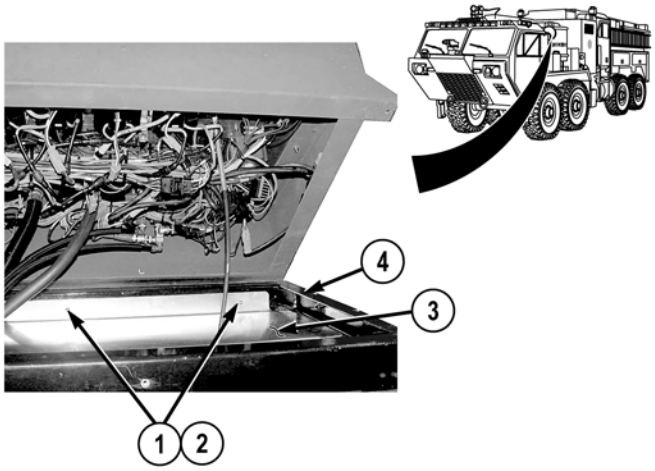
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

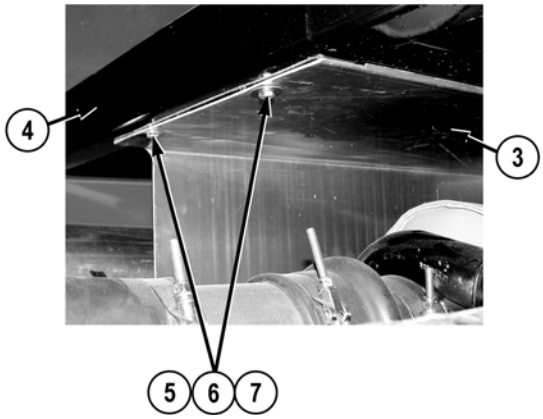
Materials/Parts
Lockwasher (6)

References
WP 0615, Fig. 12

Equipment Conditions
Pump house panels S and U removed (WP 0540)
Pump operator's panel housing opened (WP 0325)

REMOVAL





WARNING

Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply could result in serious injury to personnel.

1. Remove three screws (1) and lockwashers (2) from noise panel (3) and water pump engine frame (4). Discard lockwashers.

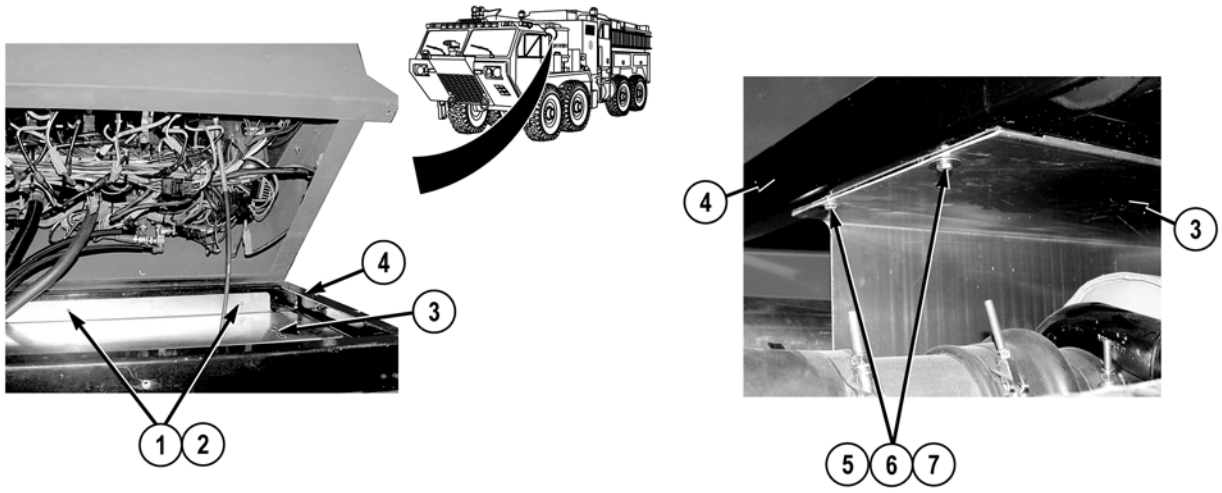
NOTE

Note position of washers prior to removal to ensure proper installation.

2. Remove three screws (5), lockwashers (6), washers (7), and noise panel (3) from water pump engine frame (4). Discard lockwashers.

END OF TASK

INSTALLATION



NOTE

Install washers as noted prior to removal.

1. Install noise panel (3) on water pump engine frame (4) with three washers (7), lockwashers (6), and screws (5).
2. Install noise panel (3) on water pump engine frame (4) with three lockwashers (2) and screws (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close pump operator’s panel housing (WP 0325)
2. Install pump house panels S and U (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE OIL DRAIN/FILL

INITIAL SETUP:

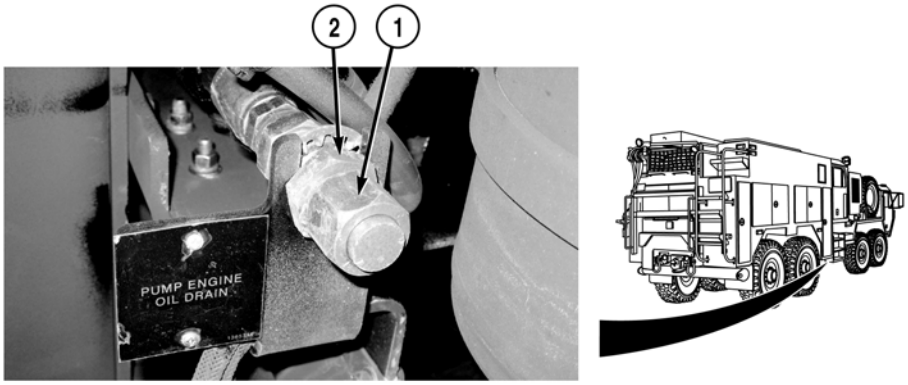
Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Oil, Lubricating, Internal Combustion Engine, Tactical Service (WP 0625, Item 37)

References
WP 0186
WP 0244
WP 0615, Fig. 22

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

DRAIN OIL



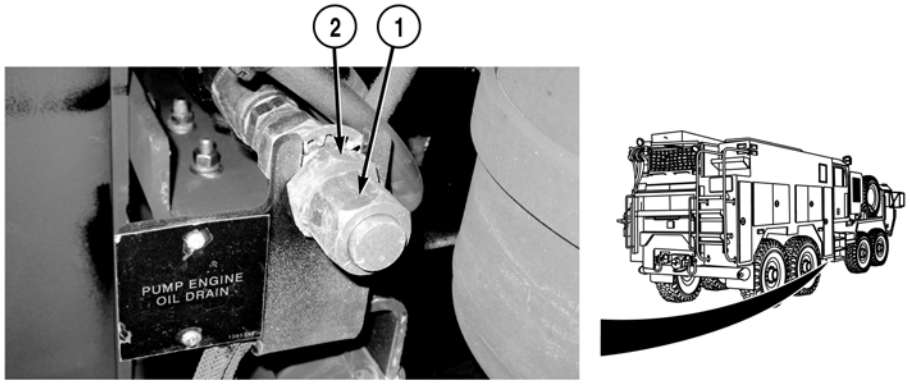
WARNING

- **Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply may result in injury or death to personnel.**
- **Do not drain oil while engine is hot. Severe injury to personnel may result.**

NOTE

Engine oil capacity is 22 qt. (21 l).

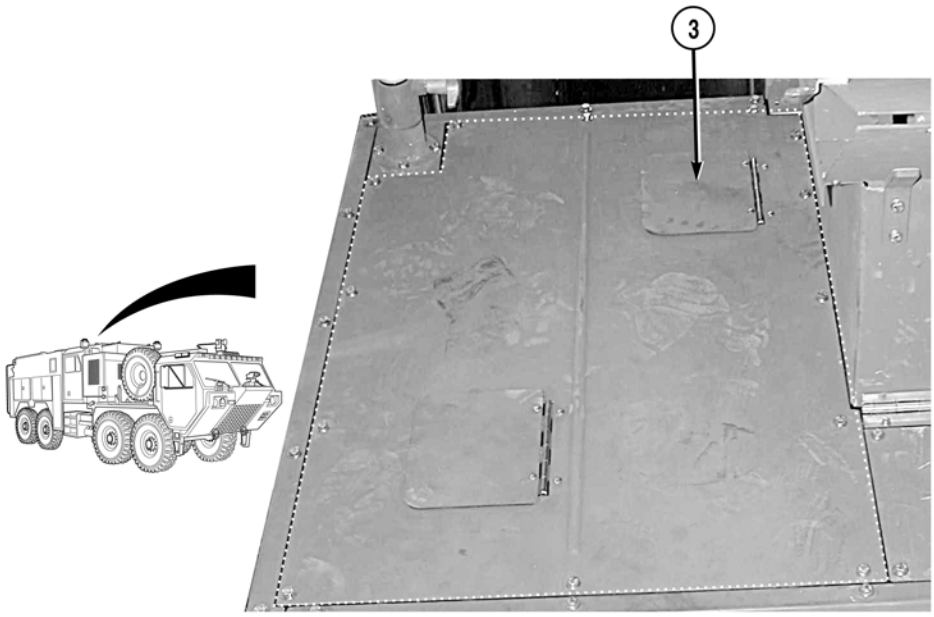
1. Position drain pan under oil drain hose plug (1).
2. Remove oil drain hose plug (1) from oil drain hose fitting (2) and completely drain engine oil.



3. Replace water pump engine oil filter per maintenance schedule (WP 0244).
4. Install oil drain hose plug (1) in oil drain hose fitting (2).

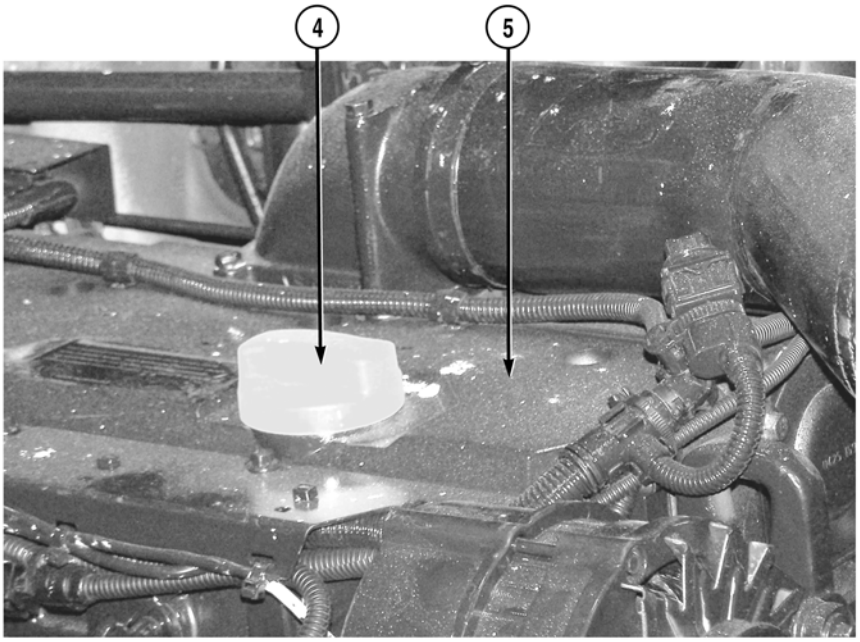
END OF TASK

OIL FILL



PUMP PANEL U

1. Open panel access door (3).



CAUTION

Ensure engine oil drain hose plug is properly installed and engine is completely drained of oil. Failure to comply may result in damage to equipment.

2. Remove engine oil fill cap (4) from engine (5).
3. Add oil to engine (5) (WP 0186).
4. Install engine oil fill cap (4) on engine (5).
5. Close panel access door (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE OIL FILTER REPLACEMENT

INITIAL SETUP:

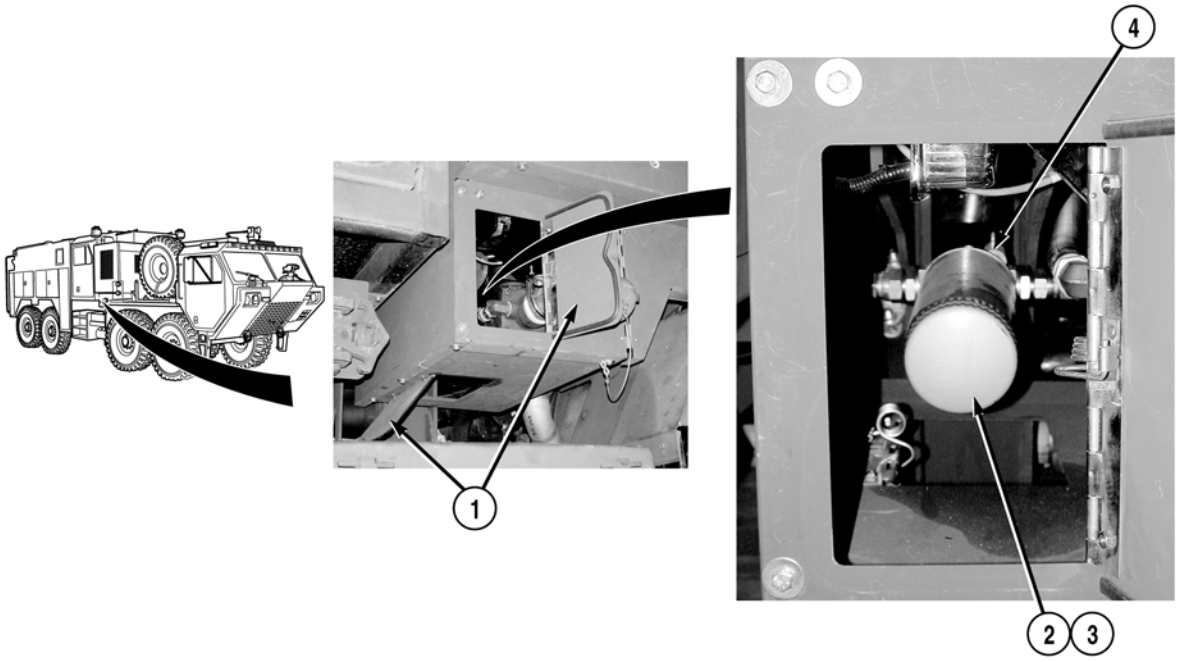
Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Oil, Lubricating (WP 0625, Item 37)

References
WP 0615, Fig. 22

Equipment Conditions
Water pump engine oil drained (WP 0243)

REMOVAL



1. Open two pump house access doors (1).

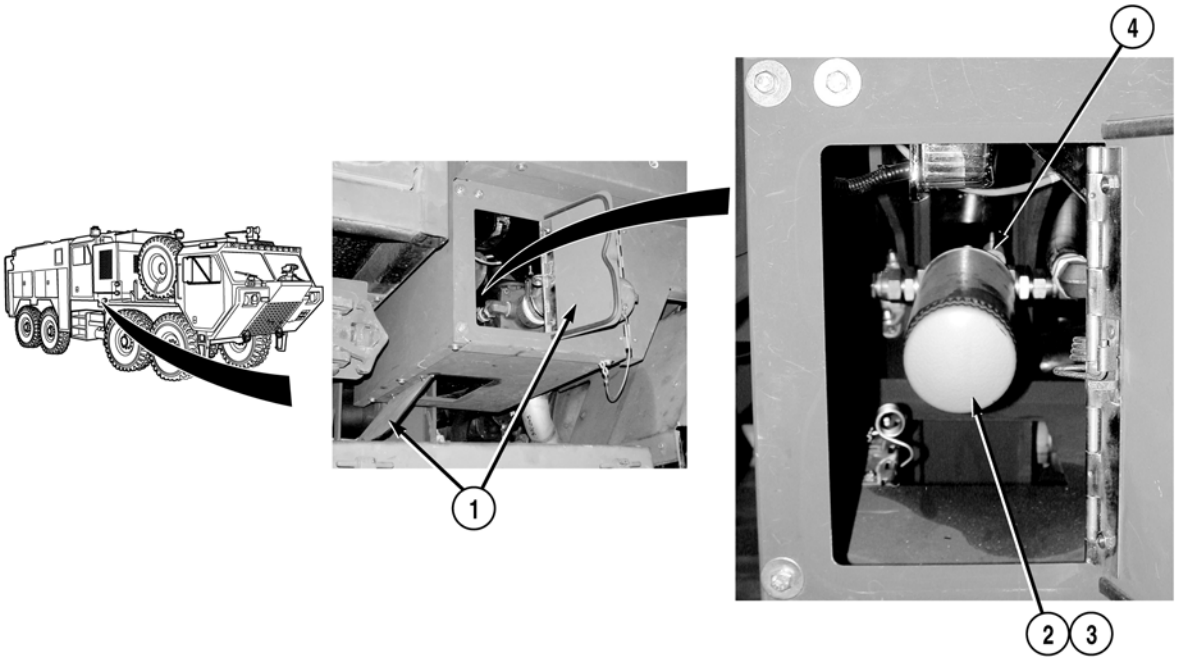
NOTE

- Place suitable container under oil filter shell.
- Oil filter is spin-on type.

2. Remove filter element (2) with gasket (3) from housing (4).

END OF TASK

INSTALLATION



1. Coat gasket (3) lightly with lubricating oil and install gasket (3) on filter element (2).
2. Install filter element (2) on housing (4), and hand tighten filter element (2).
3. Close two pump house access doors (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Fill and check water pump engine oil level (WP 0243)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE OIL PRESSURE SENDING UNIT REPLACEMENT

INITIAL SETUP:

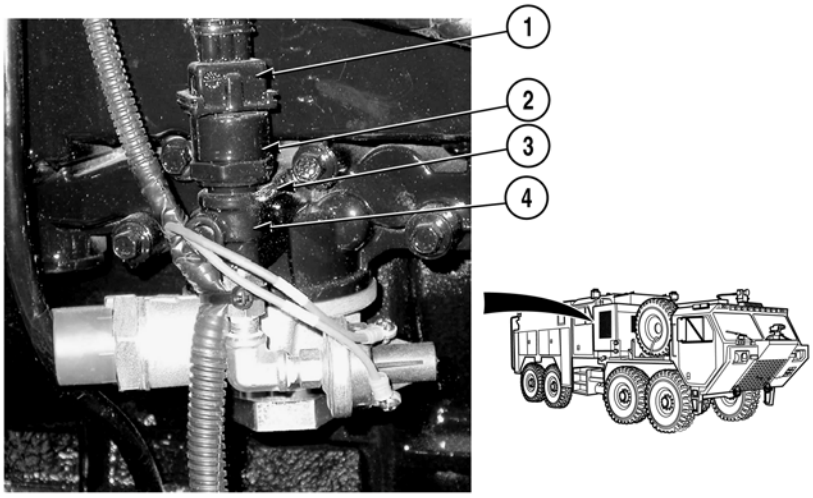
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Preformed Packing (1)

References
WP 0615, Fig. 12

Equipment Conditions
Water pump engine OFF (WP 0022)
Batteries disconnected (TM 9-2320-325-14&P)

REMOVAL



WARNING

Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply could result in serious injury to personnel.

1. Remove connector (1) from oil pressure sending unit (2).

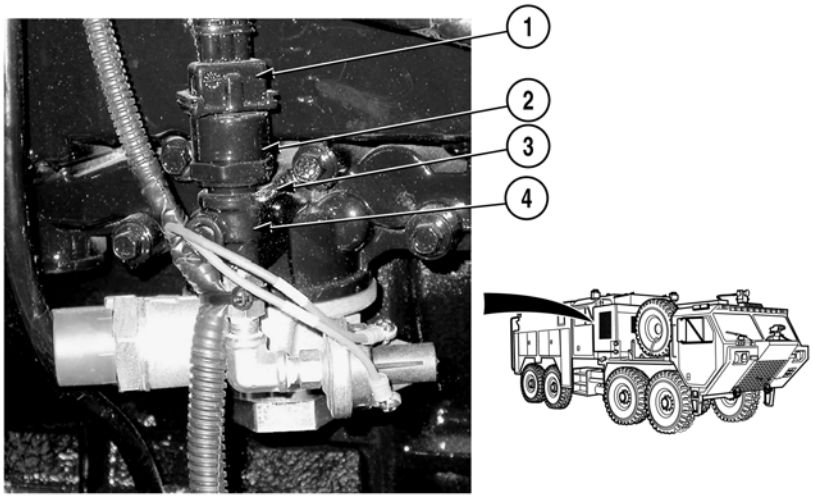
NOTE

Be sure preformed packing is removed with sending unit.

2. Remove oil pressure sending unit (2) and preformed packing (3) from base (4). Discard preformed packing.

END OF TASK

INSTALLATION



1. Install oil pressure sending unit (2) and preformed packing (3) in base (4).
2. Connect connector (1) to oil pressure sending unit (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect batteries (TM 9-2320-325-14&P)
2. Start water pump engine and check for oil leaks (WP 0022)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE OIL PRESSURE SWITCH REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)

References
WP 0615, Fig. 23

Equipment Conditions
Water pump engine OFF (WP 0022)
Batteries disconnected (TM 9-2320-325-14&P)

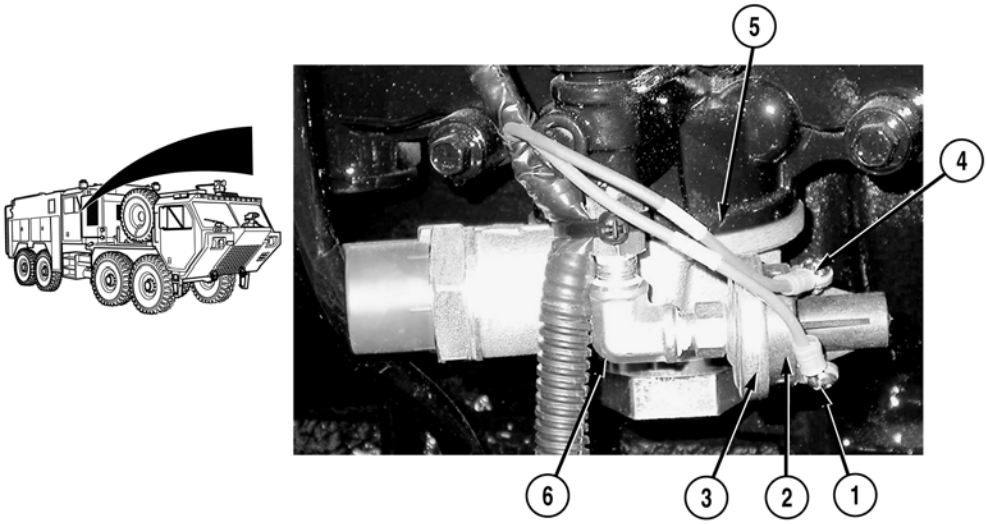
REMOVAL

WARNING

Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply could result in serious injury to personnel.

NOTE

- Remove cable ties as required.
- Tag and mark wires prior to removal to ensure proper installation.



1. Remove screw (1) and wire (2) from oil pressure switch (3).
2. Remove screw (4) and wire (5) from oil pressure switch (3).
3. Remove oil pressure switch (3) from elbow (6).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use pipe thread sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

NOTE

Install cable ties as required.

1. Apply sealing compound to oil pressure switch (3) threads.
2. Install oil pressure switch (3) on elbow (6).

3. Install wire (5) on oil pressure switch (3) with screw (4).
4. Install wire (2) on oil pressure switch (3) with screw (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Connect batteries (TM 9-2320-325-14&P)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE REMOTE OIL FILTER HEAD AND HOSE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

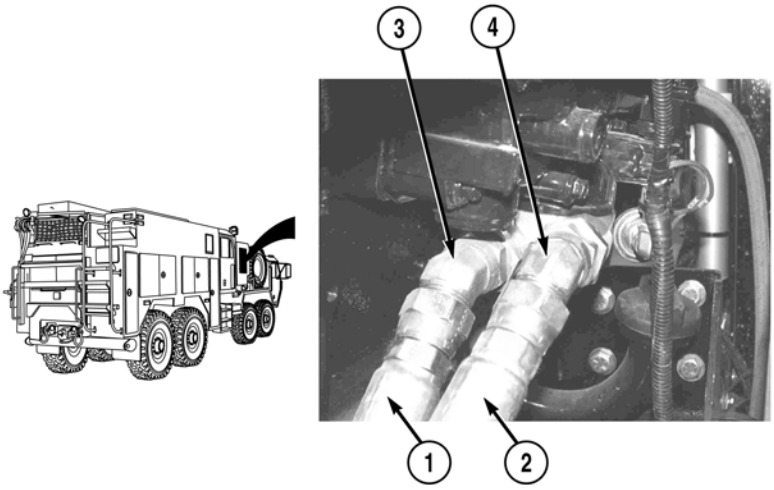
Materials/Parts
Oil, Lubricating (WP 0625, Item 37)
Preformed Packing (1)
Preformed Packing (2)

Materials/Parts (continued)
Preformed Packing (2)
Preformed Packing (2)

References
WP 0615, Fig. 12

Equipment Conditions
Pump house panel O removed (WP 0540)
Water pump engine oil filter removed (WP 0244)

REMOVAL



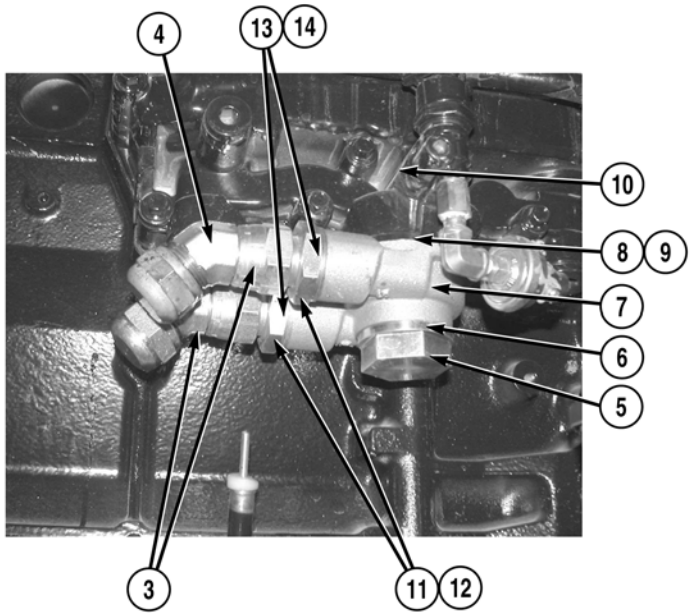
WARNING

Engine components become hot during normal operation. Allow engine to cool completely prior to performing this task. Failure to comply could result in serious injury to personnel.

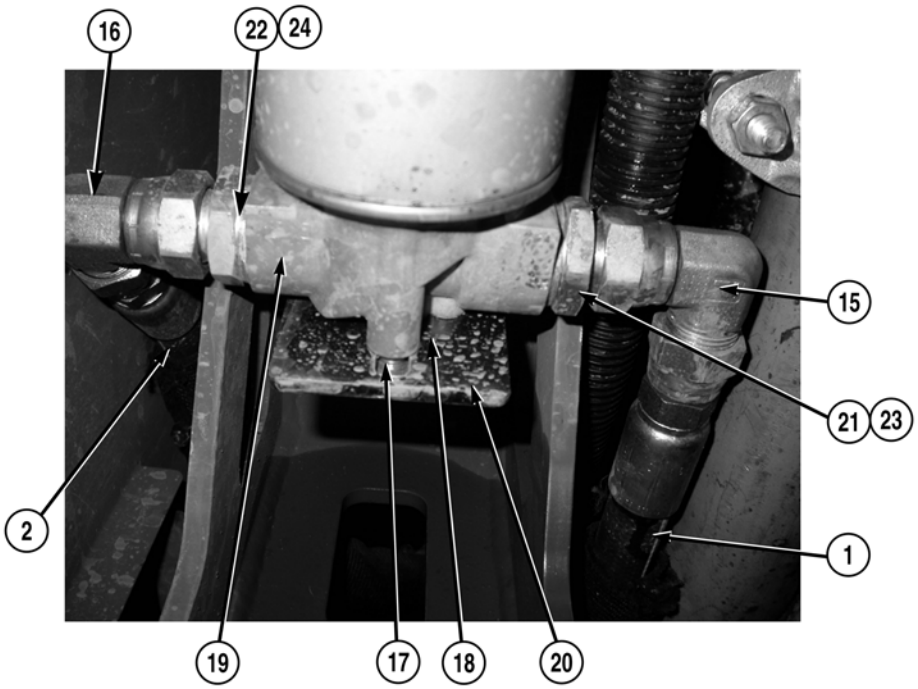
NOTE

- Note position of hoses prior to removal to ensure proper installation.
- A small amount of oil may remain in hoses and fitting. Position a suitable container under the hoses and fittings to catch any drainage.

1. Remove two hoses (1) and (2) from elbows (3) and (4).



2. Remove mounting screw (5) and preformed packing (6) from remote oil filter adapter (7). Discard preformed packing.
3. Remove remote oil filter adapter (7) and two preformed packings (8) and (9) from engine oil cooler (10). Discard preformed packing.
4. Remove two elbows (3) and (4) from adapters (11) and (12).
5. Remove two adapters (11) and (12) and preformed packings (13) and (14) from remote oil filter adapter (7). Discard preformed packing.



6. Remove two hoses (1) and (2) from elbows (15) and (16).
7. Remove two screws (17) and (18) and remote oil filter head (19) from bracket (20).
8. Remove two elbows (15) and (16) from adapters (21) and (22).
9. Remove two adapters (21) and (22) and preformed packings (23) and (24) from remote oil filter head (19). Discard preformed packings.

END OF TASK

INSTALLATION

NOTE

Apply a small amount of clean lubricating oil to preformed packings before installing.

1. Install two preformed packings (24) and (23) and adapters (22) and (21) on remote oil filter head (19).
2. Install two elbows (16) and (15) on adapters (22) and (21).
3. Install two screws (18) and (17) and remote oil filter head (19) on bracket (20).
4. Install two hoses (2) and (1) on elbows (16) and (15).

NOTE

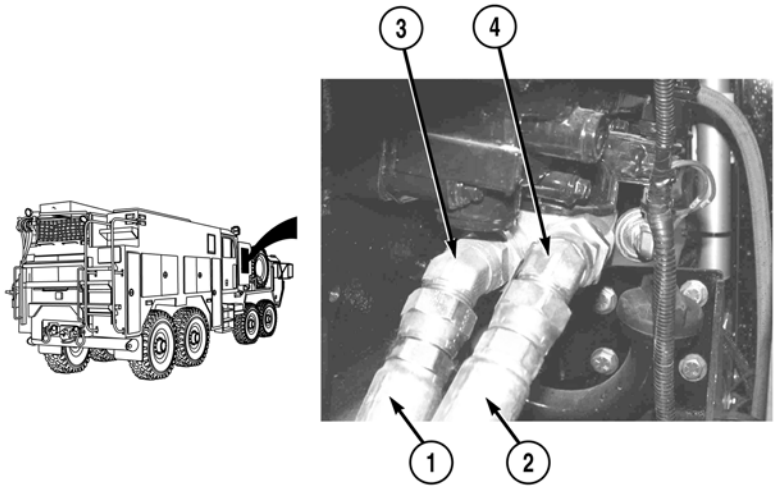
Apply a small amount of clean lubricating oil to preformed packings before installing.

5. Install two adapters (12) and (11) and preformed packings (14) and (13) on remote oil filter adapter (7).
6. Install two elbows (4) and (3) on adapters (12) and (11).

NOTE

Apply a small amount of clean lubricating oil to preformed packings before installing.

7. Install remote oil filter adapter (7) and two preformed packings (9) and (8) on engine oil cooler (10) with preformed packing (6) and mounting screw (5).



8. Install two hoses (2) and (1) on two elbows (4) and (3).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install pump house panel O (WP 0540)
2. Install water pump engine oil filter (WP 0244)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE STARTER MOTOR REPLACEMENT

INITIAL SETUP:

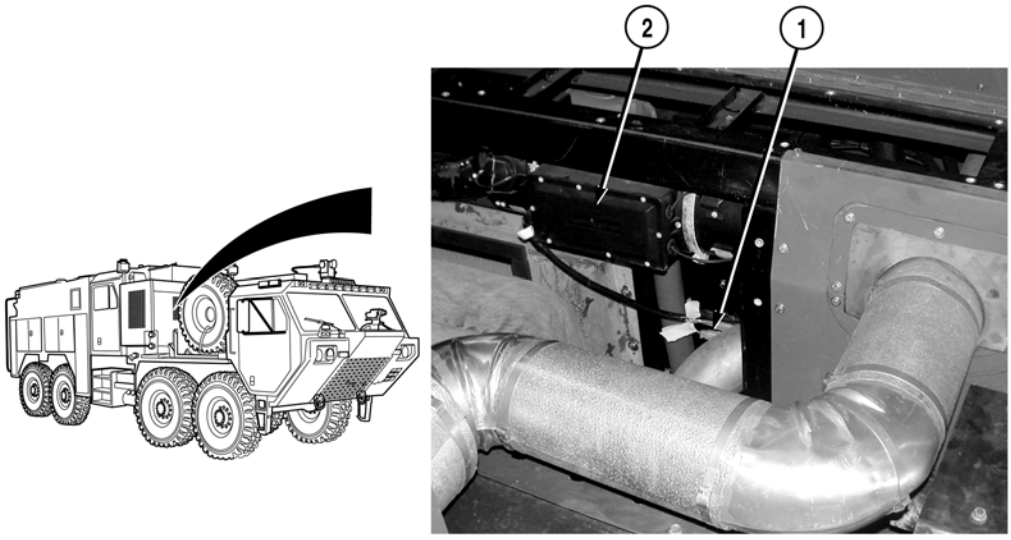
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Sealant, RTV200 Electrical (WP 0625, Item 47)
Lockwasher (1)

References
WP 0615, Fig. 25

Equipment Conditions
Pump house panel G removed (WP 0540)

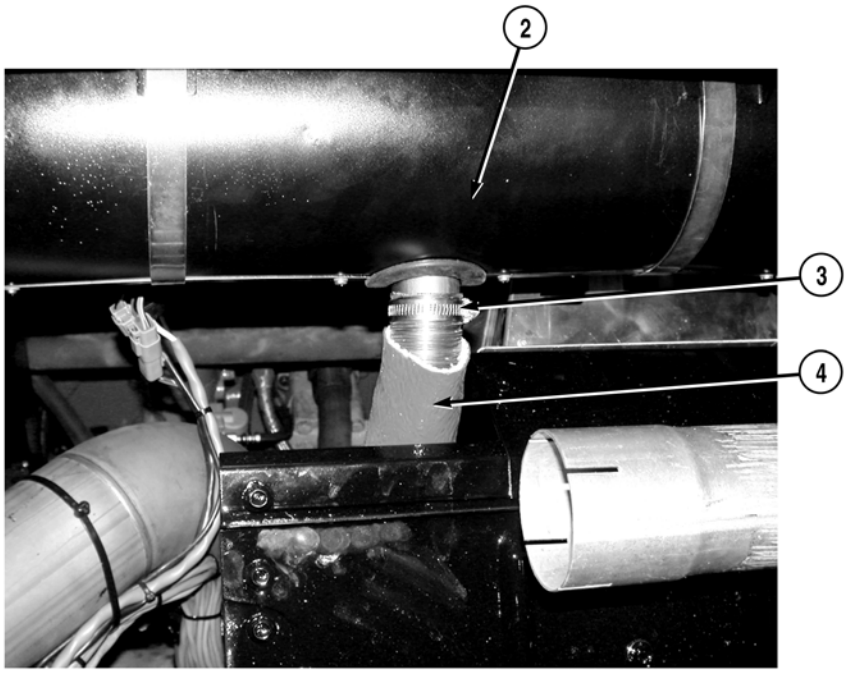
REMOVAL



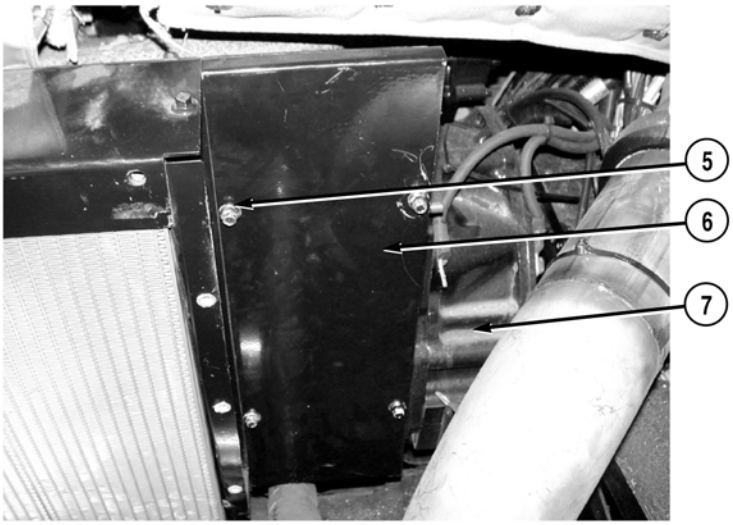
NOTE

Tag and mark connectors prior to removal to ensure proper installation.

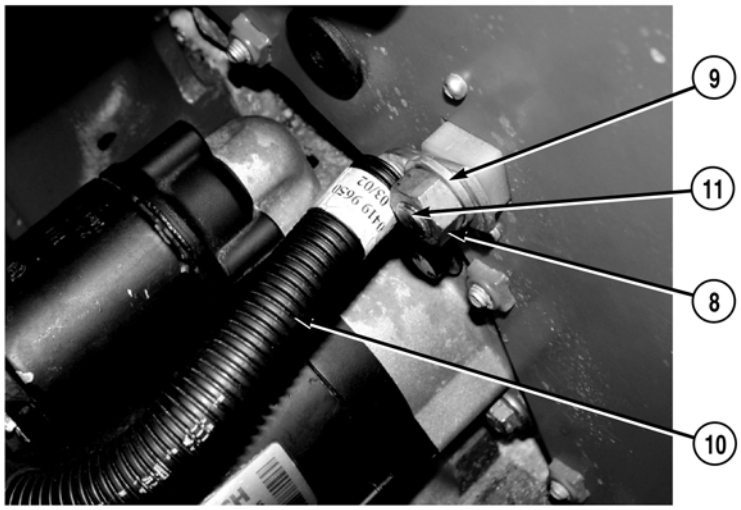
1. Disconnect three connectors (1) from pump house heater assembly (2).



2. Remove clamp (3) and hose (4) from pump house heater assembly (2).



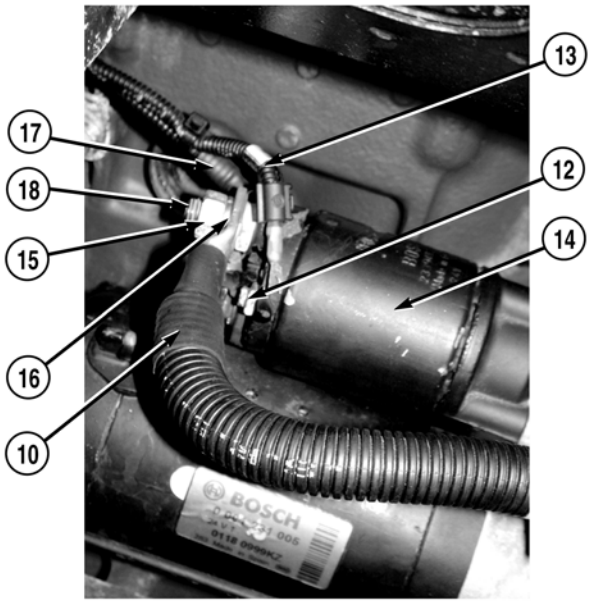
3. Remove six screws (5) and starter motor access panel (6) from engine (7).



NOTE

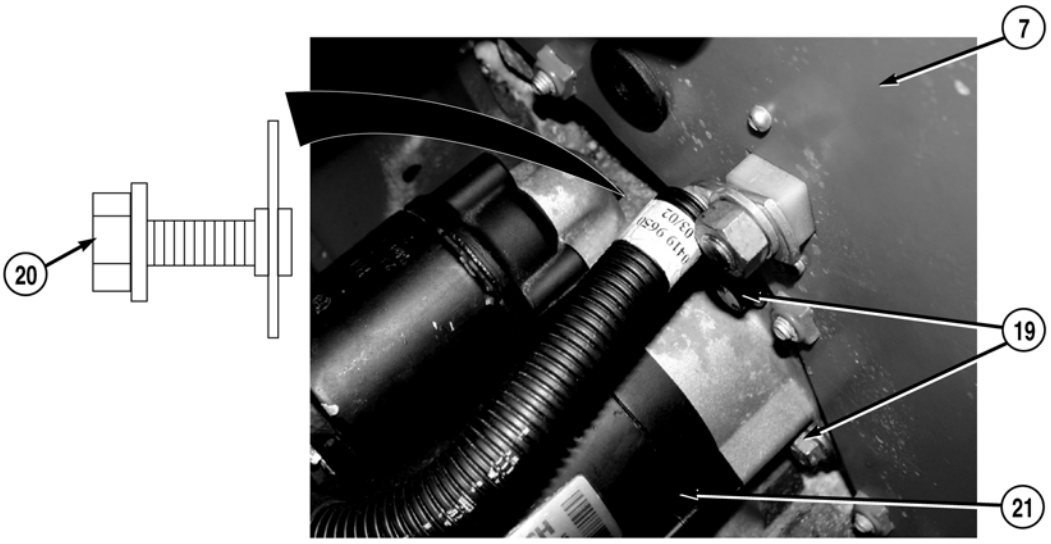
Tag and mark wires prior to removal to ensure proper installation.

4. Remove nut (8), washer (9), and wire (10) from stud (11).



5. Remove screw (12) and wire (13) from starter solenoid (14).

6. Remove nut (15), lockwasher (16), and two wires (10) and (17) from starter solenoid stud (18). Discard lockwasher.

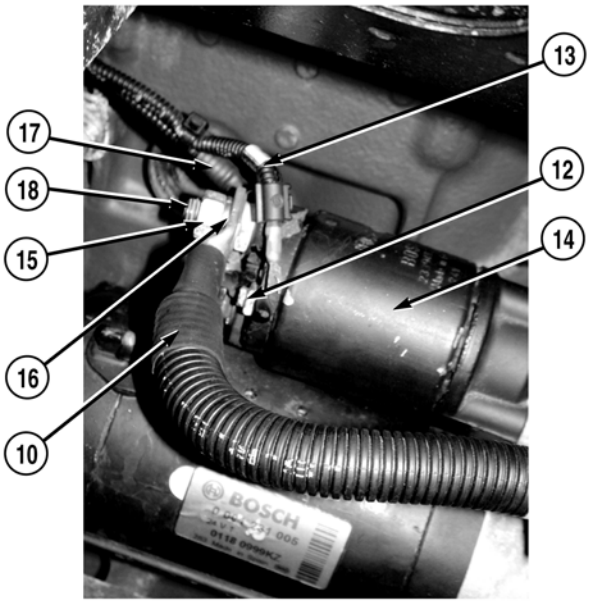


7. Remove two screws (19), nut (20), and starter motor (21) from engine (7).

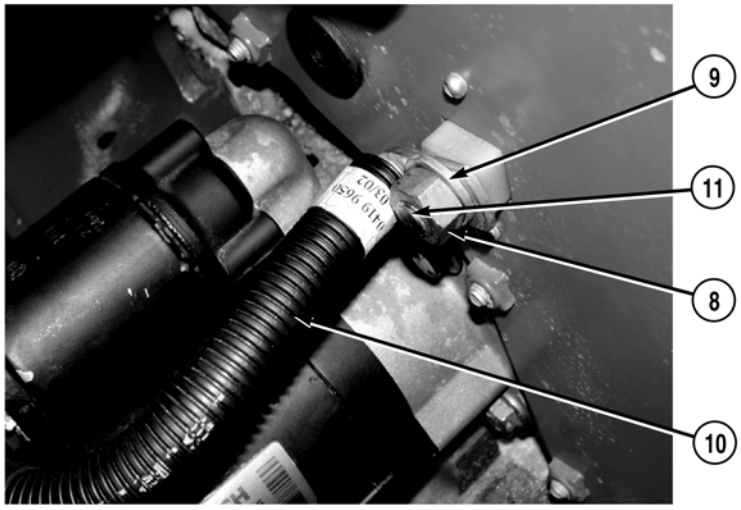
END OF TASK

INSTALLATION

1. Install starter motor (21) on engine (7) with nut (20) and two screws (19).



2. Install two wires (17) and (10) on starter solenoid stud (18) with lockwasher (16) and nut (15).
3. Install wire (13) on starter solenoid (14) with screw (12).

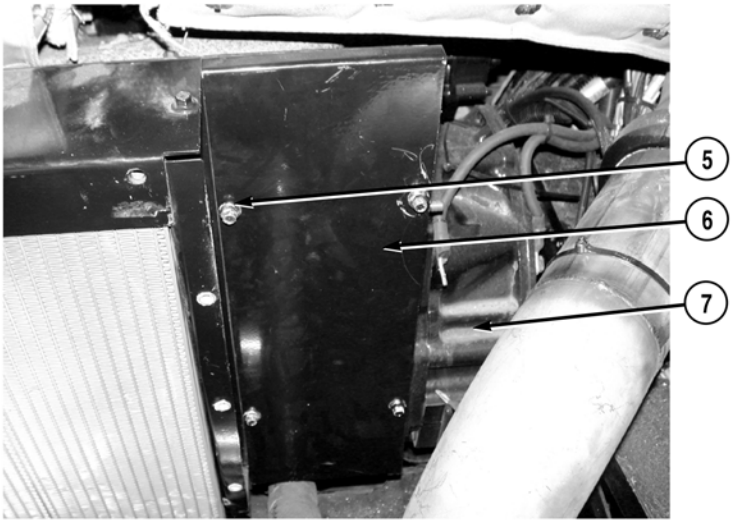


4. Install wire (10) on stud (11) with washer (9) and nut (8).

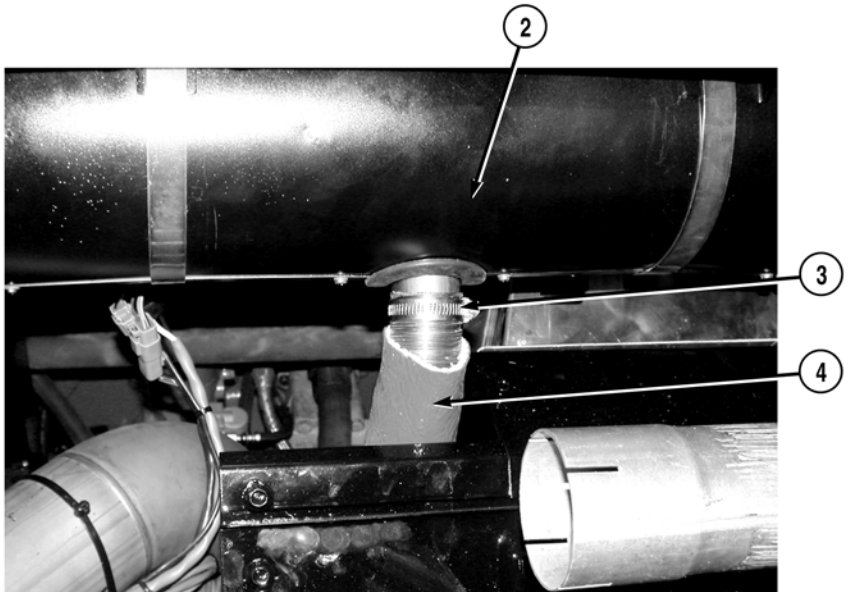
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

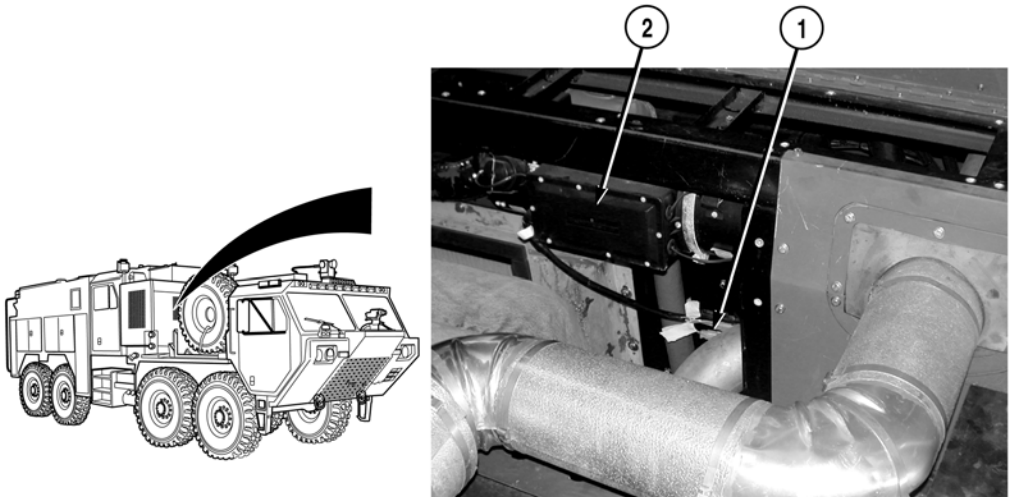
5. Apply sealant to wires (10), (17), and (13).



6. Install starter motor access panel (6) on engine (7) with six screws (5).



7. Install hose (4) on pump house heater assembly (2) with clamp (3).



8. Connect three connectors (1) to pump house heater assembly (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel G (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE THERMOSTAT REPLACEMENT

INITIAL SETUP:

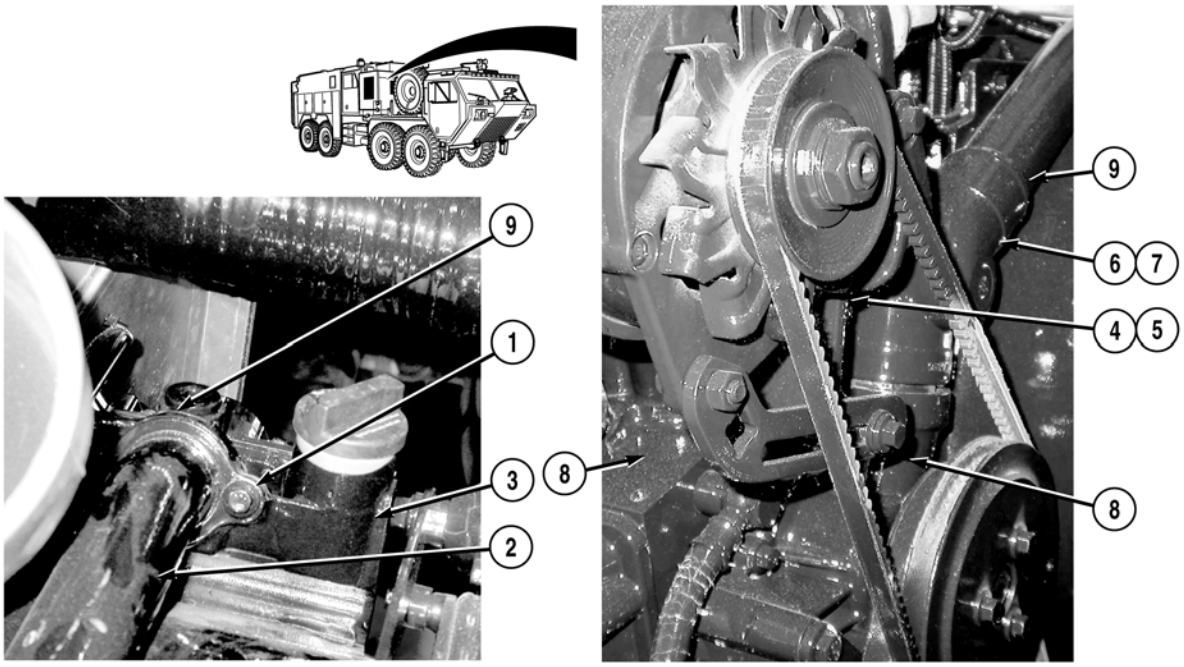
Tools and Special Tools
Assembly Tool for Coolant
Thermostat (WP 0622, Item 2)
Tool Kit, General Mechanic's: Automotive
(WP 0622, Item 27)

Materials/Parts
Preformed Packing (1)
Preformed Packing (2)
Preformed Packing (2)

References
WP 0615, Fig. 15

Equipment Conditions
Pump house panel S removed (WP 0540)
Water pump engine coolant drained (WP 0479)

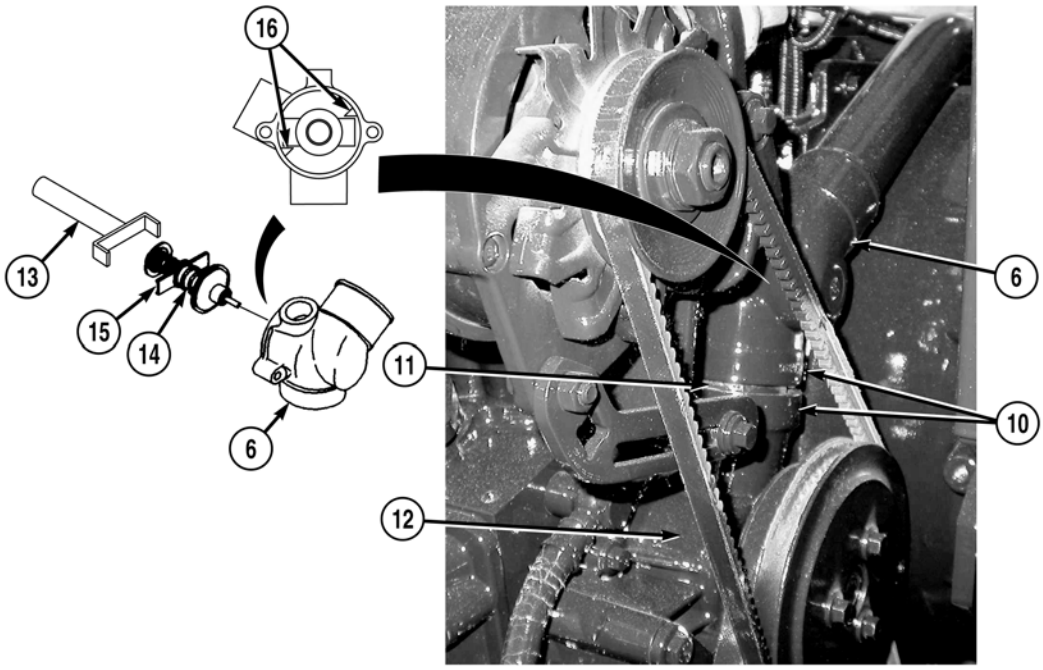
REMOVAL



WARNING

Allow engine to completely cool before handling any cooling system component or hose. Failure to comply can result in serious injury to personnel.

1. Remove screw (1) from upper coolant tube (2) and radiator tank (3).
2. Remove screw (4), washer (5), thermostat housing (6), and preformed packing (7) from engine (8). Discard preformed packing.
3. Remove upper coolant tube (2) and two preformed packings (9) from thermostat housing (6) and radiator tank (3). Discard preformed packings.



4. Remove thermostat housing (6), two preformed packings (10), and connector tube (11) from coolant pump (12). Discard preformed packings.
5. Using assembly tool (13), press down on thermostat (14) and rotate clamping yoke (15) to release thermostat from clamping tabs (16) in thermostat housing (6).

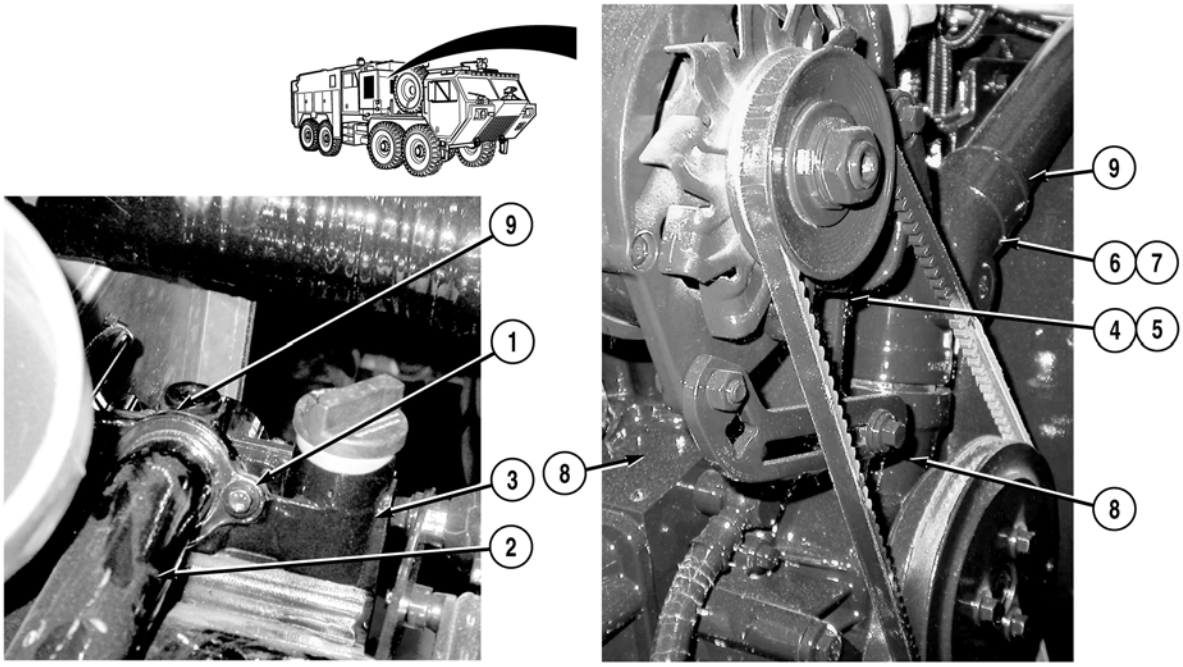
END OF TASK

INSTALLATION

NOTE

Thermostat clamping yoke must engage in thermostat housing.

1. Using assembly tool (13), install thermostat (14) in thermostat housing (6), making sure clamping yoke (15) is engaged in clamping tabs (16) in thermostat housing (6).
2. Install two preformed packings (10), connector tube (11), and thermostat housing (6) on coolant pump (12).



3. Install upper coolant tube (2) and two preformed packings (9) on thermostat housing (6) and radiator tank (3).
4. Attach thermostat housing (6) and preformed packing (7) on engine (8) with screw (4) and washer (5).
5. Secure upper coolant tube (2) on radiator tank (3) with screw (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill water pump engine cooling system (WP 0479)
2. Install pump house panel S (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE TURBOCHARGER REPLACEMENT

INITIAL SETUP:

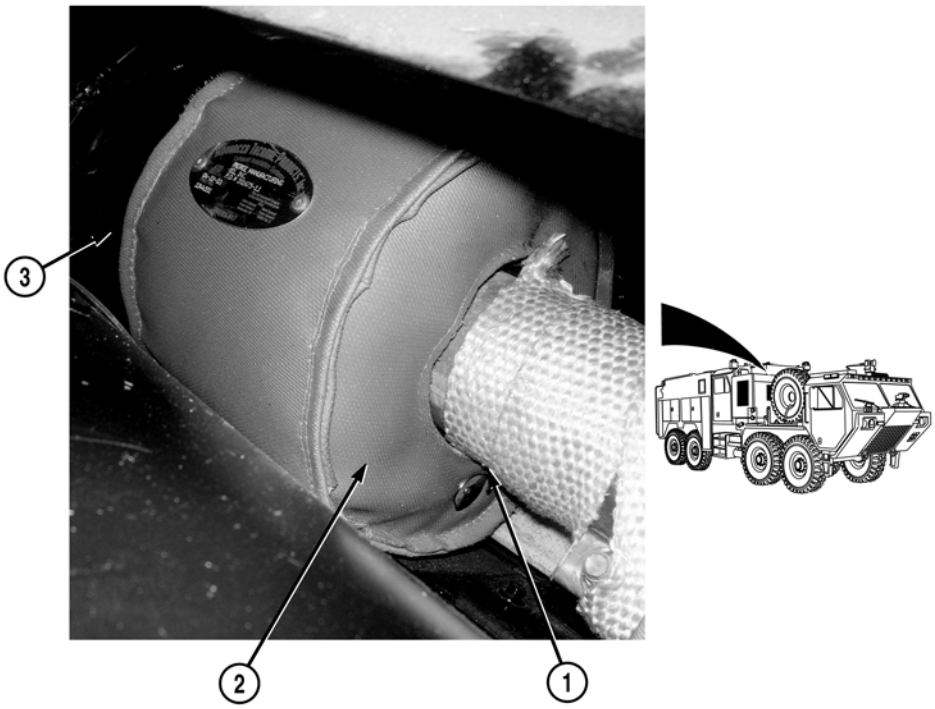
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Lockwire (WP 0625, Item 31)
Oil, Lubricating, Internal Combustion Engine, Tactical Service (WP 0625, Item 37)
Preformed Packings (12)

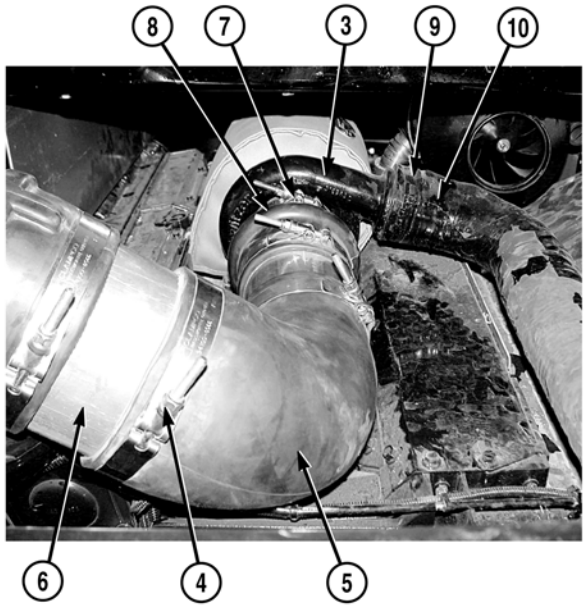
References
WP 0615, Fig. 16

Equipment Conditions
Water pump engine noise panel removed (WP 0242)
Water pump engine exhaust pipe removed from turbocharger outlet (WP 0228)
Pump house panel T and U removed (WP 0540)
Batteries disconnected (TM 9-2320-325-14&P)

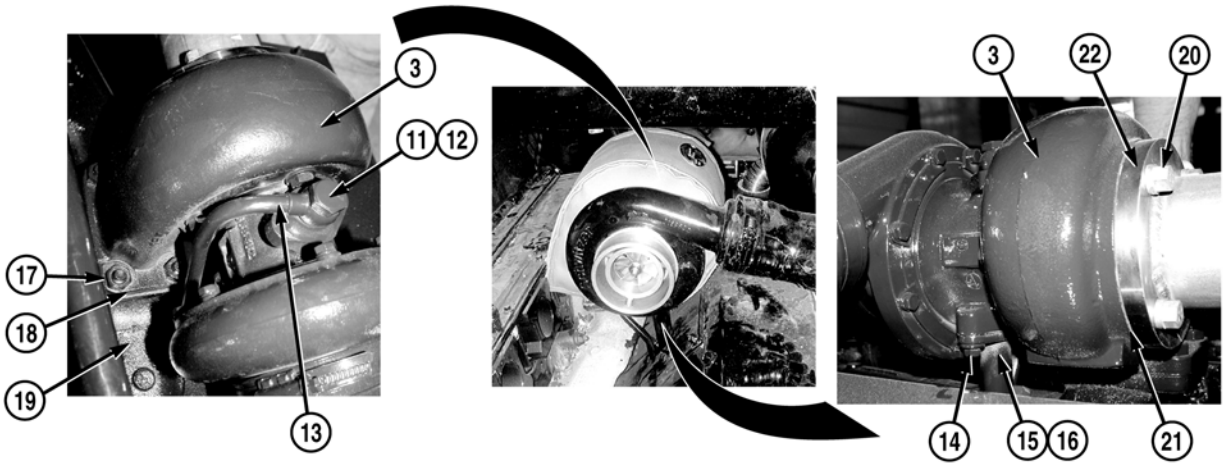
REMOVAL



1. Cut wire (1) and insulating wrap (2) from turbocharger (3).



2. Loosen clamp (4) and remove elbow (5) from duct (6).
3. Loosen clamp (7) and remove union (8) from turbocharger (3).
4. Loosen clamp (9) and remove pipe (10) from turbocharger (3).



NOTE

Note position of preformed packing prior to removal to ensure proper installation.

5. Remove screw (11), two preformed packings (12), and oil supply line (13) from turbocharger (3). Discard preformed packings.

6. Remove two screws (14), gasket (15), and oil return line (16) from turbocharger (3).
7. Remove four nuts (17), gasket (18), and turbocharger (3) from water pump engine (19).
8. Remove four screws (20), gasket (21), and turbocharger outlet (22) from turbocharger (3).

END OF TASK

INSTALLATION

1. Install gasket (21) and turbocharger outlet (22) on turbocharger (3) with four screws (20).
2. Install gasket (18) and turbocharger (3) on water pump engine (19) with four nuts (17).
3. Install gasket (15) and oil return line (16) on turbocharger (3) with two screws (14).

CAUTION

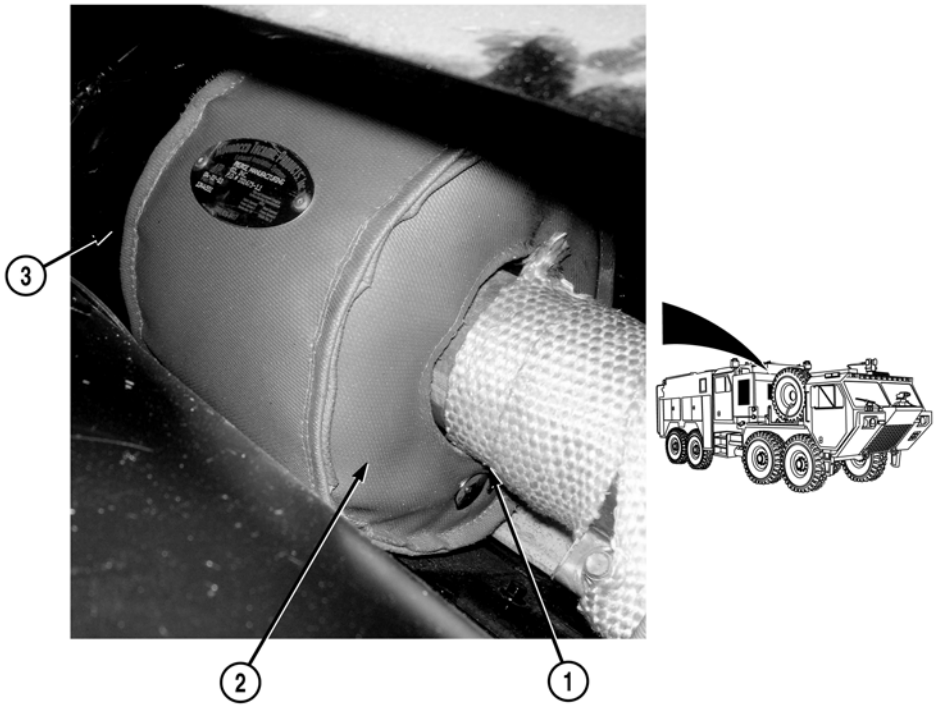
Lubricating oil must be poured into oil supply line opening to lubricate turbocharger bearings prior to installing oil supply line on turbocharger. Failure to comply may result in damage to equipment.

4. Pour lubricating oil into oil supply line (13) opening.

NOTE

Install preformed packings as noted prior to removal.

5. Install two preformed packings (12) and oil supply line (13) on turbocharger (3) with screw (11).
6. Install pipe (10) on turbocharger (3) with clamp (9).
7. Install union (8) on turbocharger (3) with clamp (7).
8. Install elbow (5) on duct (6) with clamp (4).



9. Install insulating wrap (2) on turbocharger (3) with wire (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install water pump engine exhaust pipe on turbocharger outlet (WP 0228)
2. Connect batteries (TM 9-2320-325-14&P)
3. Start water pump engine and run at idle for ten minutes (WP 0022)
4. Increase water pump engine speed and listen for smooth operation of turbocharger (WP 0024)
5. Shut off water pump engine (WP 0022)
6. Install water pump engine noise panel (WP 0242)
7. Install pump house panel T and U (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP ENGINE VALVE COVER AND GASKET REPLACEMENT

INITIAL SETUP:

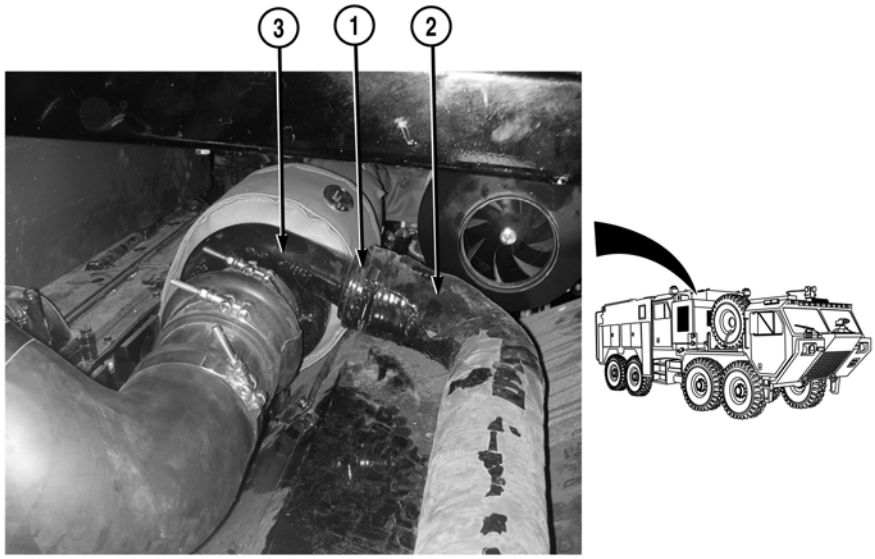
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Cloth, Cleaning (WP 0625, Item 13)
Cleaning Compound, Solvent (WP 0625, Item 12)
Gasket (1)

References
WP 0615, Fig. 14

Equipment Conditions
Water pump engine air filter ductwork removed (WP 0221)
Water pump engine noise panel removed (WP 0242)

REMOVAL



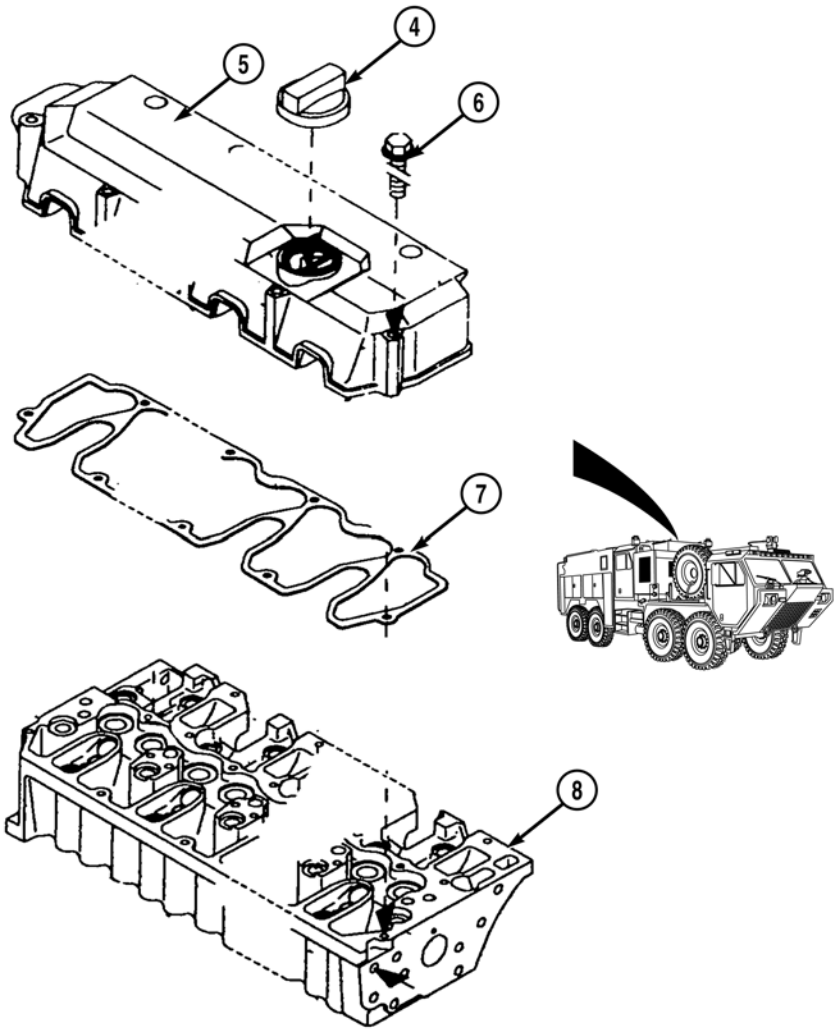
⚠ CAUTION

- **Clean area around valve cover prior to removal to keep dust or dirt from entering engine. Failure to comply may result in damage to equipment.**
- **Do not allow dirt or other contaminants to enter cylinder head or damage to equipment may result.**

NOTE

Turbocharger pipe must be moved to access valve cover.

1. Loosen clamp (1) and remove pipe (2) from turbocharger (3).



2. Remove fill plug (4) from valve cover (5).
3. Remove 13 screws (6), valve cover (5), and gasket (7) from cylinder head (8). Discard gasket.

CLEANING/INSPECTION

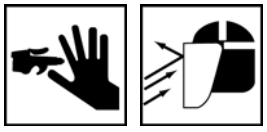
WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

1. Clean all parts with solvent cleaning compound.

WARNING

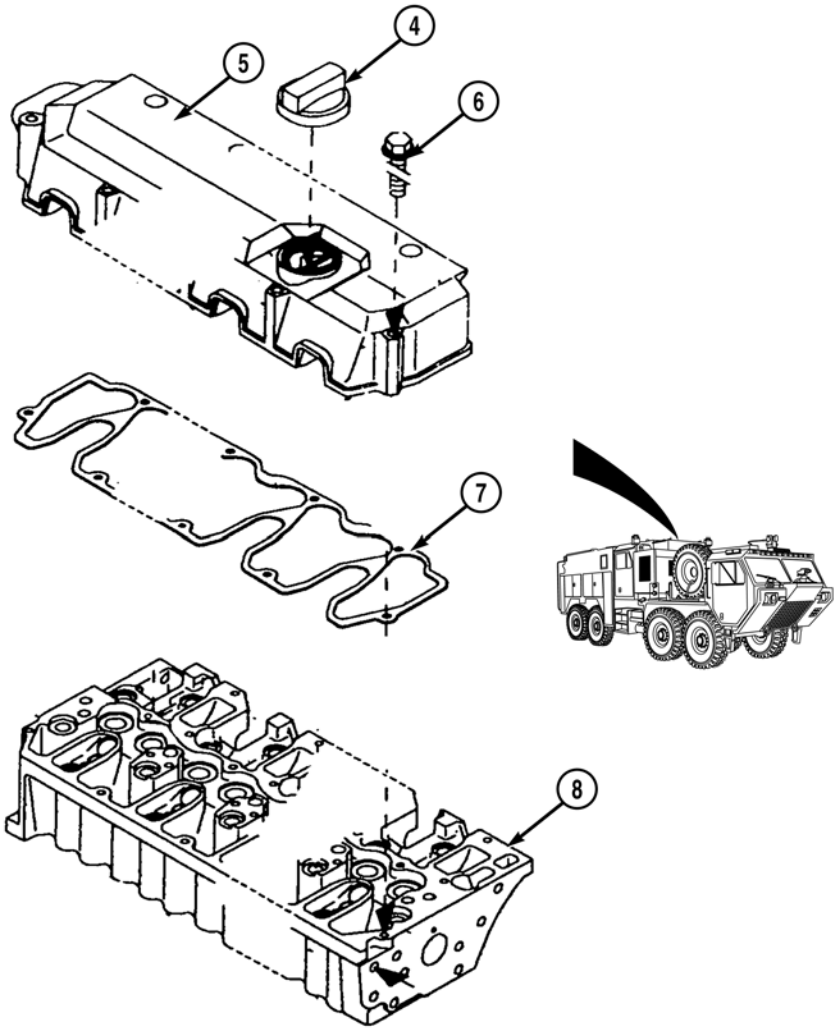


Compressed air used for cleaning and drying purposes shall not exceed 30 psi (207 kPa). Use only with chip-guarding and personal protective equipment (goggles/shield, gloves, etc.).

2. Dry all parts with compressed air.
3. Inspect all parts for holes, cracks, chips, or stripped threads. Replace damaged parts.

END OF TASK

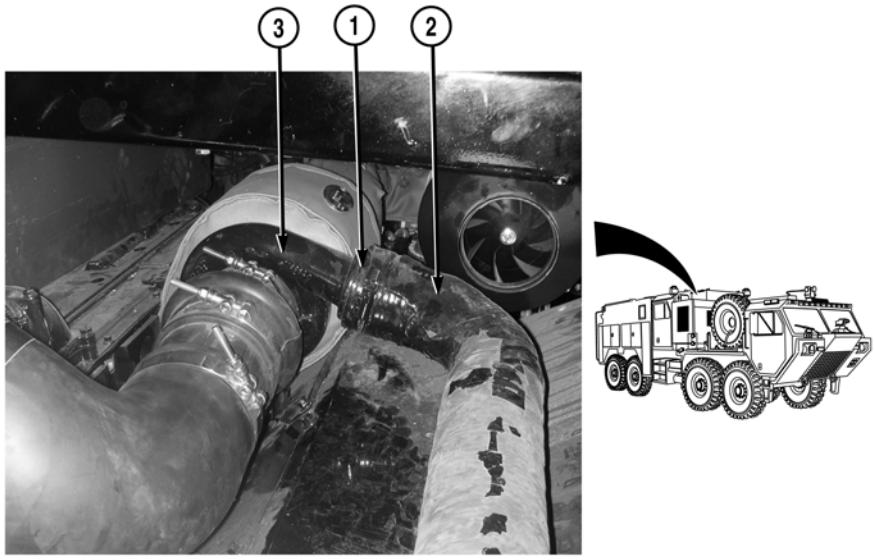
INSTALLATION



NOTE

Tighten screws evenly when installing valve cover. Do not over tighten screws.

1. Install gasket (7) and valve cover (5) on cylinder head (8) with 13 screws (6).
2. Install fill plug (4) on valve cover (5).



3. Install pipe (2) on turbocharger (3) with clamp (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install water pump engine air filter ductwork (WP 0221)
2. Install water pump engine noise panel (WP 0242)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP GEAR CASE OIL CHANGE

INITIAL SETUP:

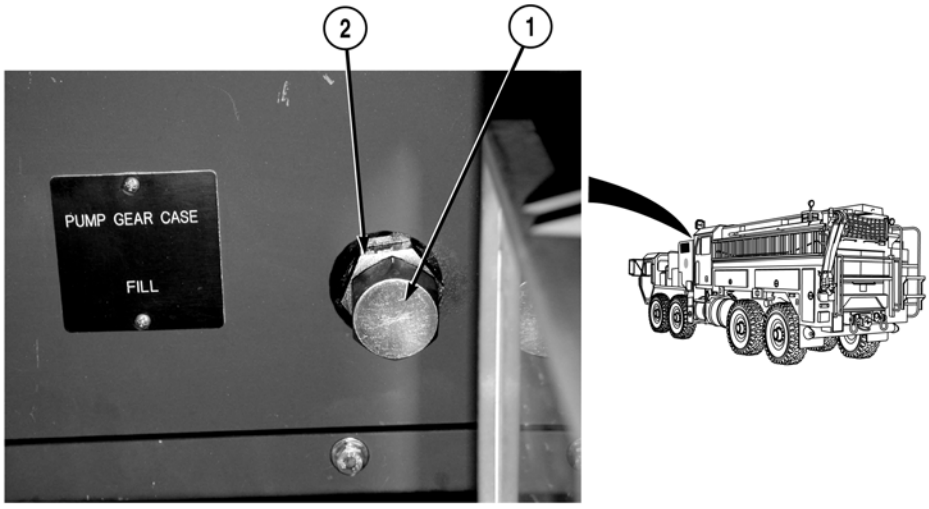
Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Oil, Gear 80 w 90 (WP 0625, Item 35)

References
WP 0615, Fig. 36

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

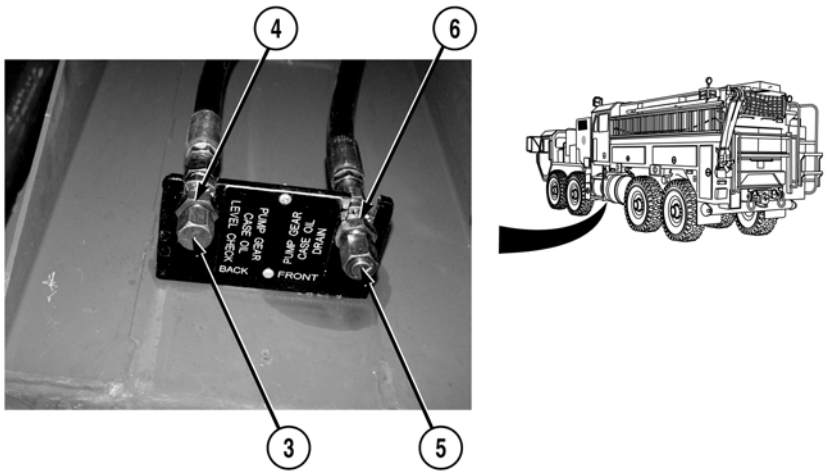
CHANGE OIL



NOTE

- Change oil every 50 hours or six months.
- Drain oil into suitable container

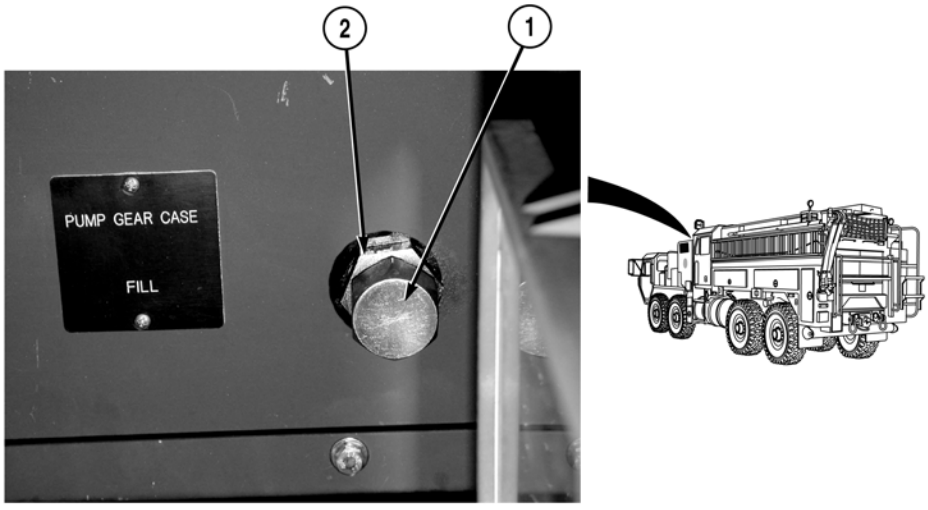
1. Remove oil fill plug (1) from fitting (2).



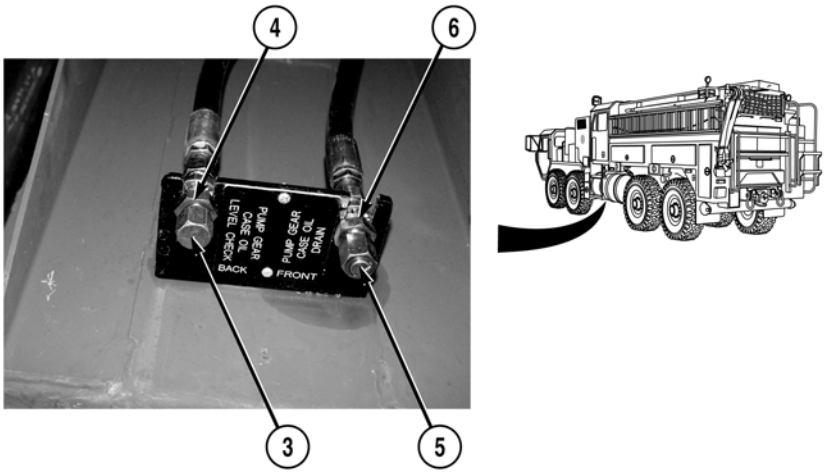
2. Remove water pump gear case oil level check plug (3) from fitting (4).
3. Remove water pump gear case oil drain plug (5) from fitting (6).
4. Drain oil from two fittings (4) and (6) until oil stops draining.
5. Install water pump gear case oil drain plug (5) on fitting (6).

NOTE

- Let oil drain from water pump gear case oil level check plug until it stops draining; when oil stops draining, the oil level is correct.
- Drain oil into suitable container.



6. Pour 16 fl. oz. (473 ml) of oil in fill fitting (2).



7. Allow excess oil to drain until oil starts draining from water pump gear case oil level check fitting (4).
8. Install water pump gear case oil level check plug (3) in fitting (4).
9. Install oil fill plug (1) in fill fitting (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP GEAR CASE OIL CHECK

INITIAL SETUP:

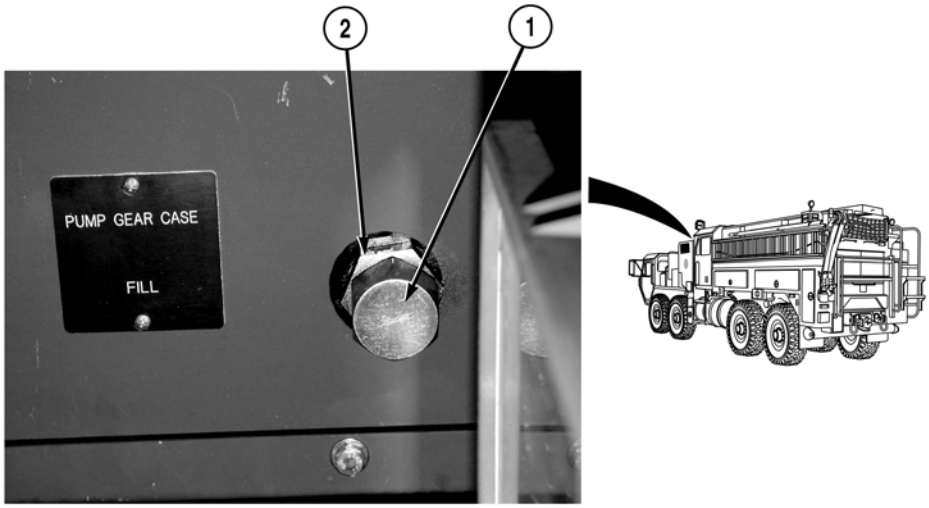
Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Oil, Gear 80 w 90 (WP 0625, Item 35)

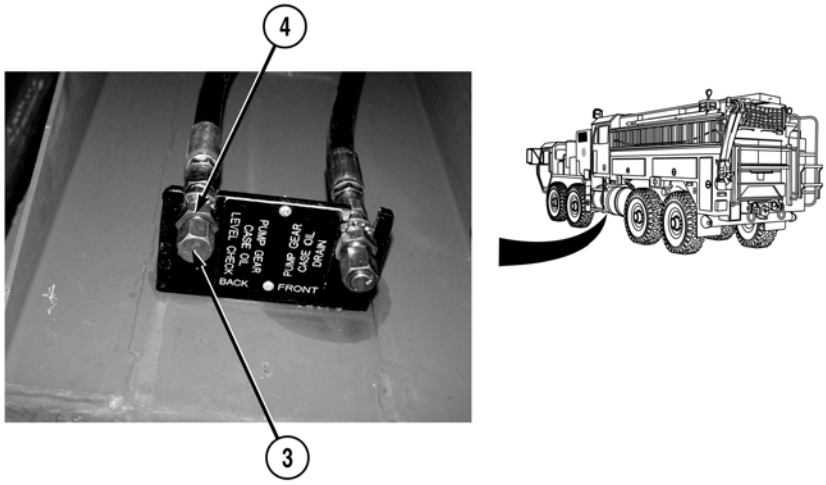
References
WP 0615, Fig. 36

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

CHECK OIL LEVEL



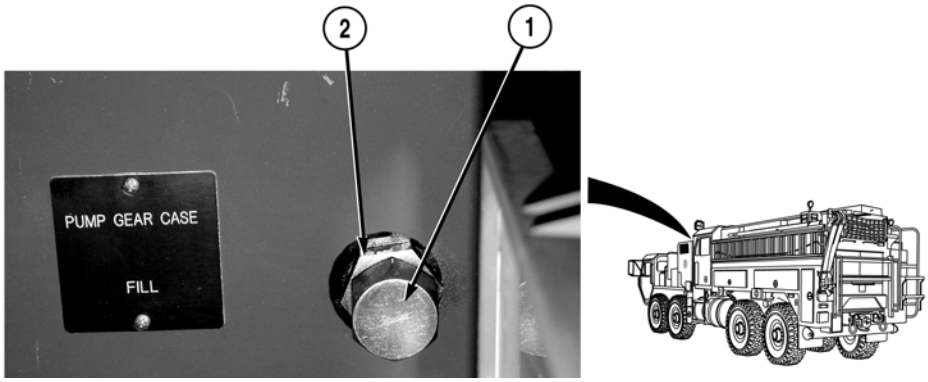
1. Remove oil fill plug (1) from fill fitting (2).
2. Pour 16 fl. oz. (473.2 ml) of oil in fill fitting (2).



NOTE

- Let oil drain from water pump gear case oil level check plug until it stops draining; when oil stops draining, the oil level is correct.
- Drain oil into suitable container.

3. Remove water pump gear case oil level check plug (3) from fitting (4).
4. Install water pump gear case oil level check plug (3) on fitting (4).



5. Install oil fill plug (1) on fill fitting (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP GEAR CASE OIL FILL HOSE REPLACEMENT

INITIAL SETUP:

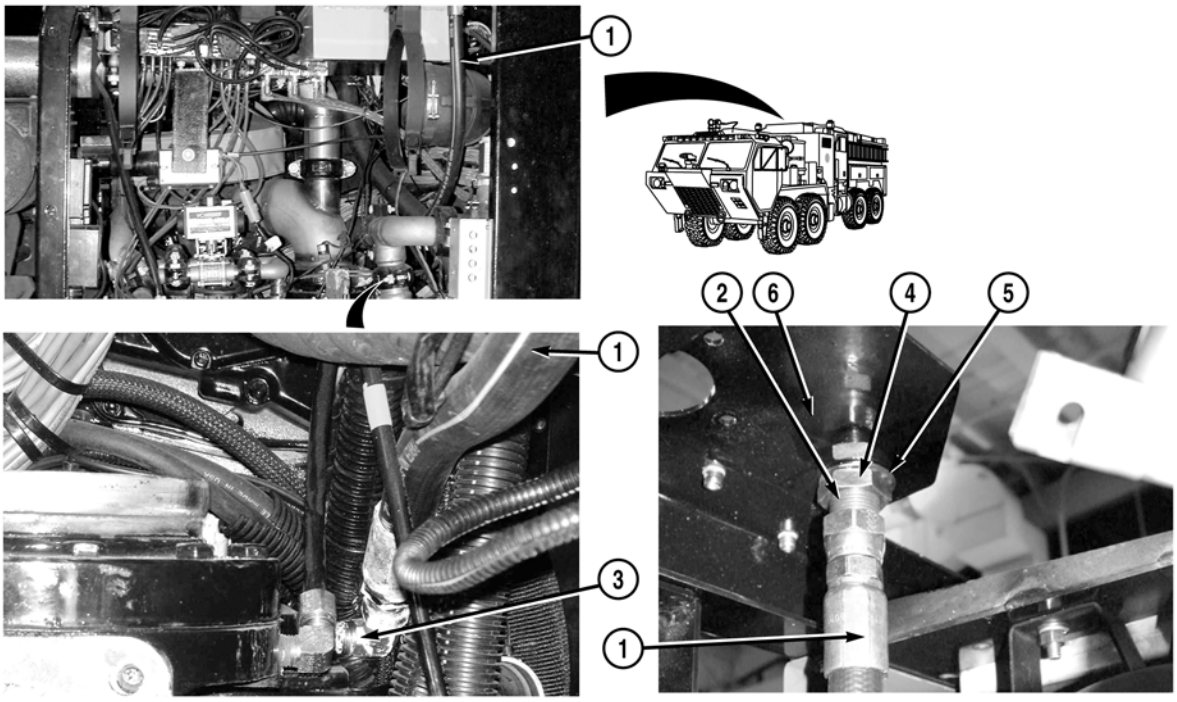
Tools and Special Tools
Drain Pan (WP 0622, Item 9)
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Lockwasher (1)

References
WP 0615, Fig. 12

Equipment Conditions
Pump house panel A opened (WP 0539)
Pump house panel S removed (WP 0540)

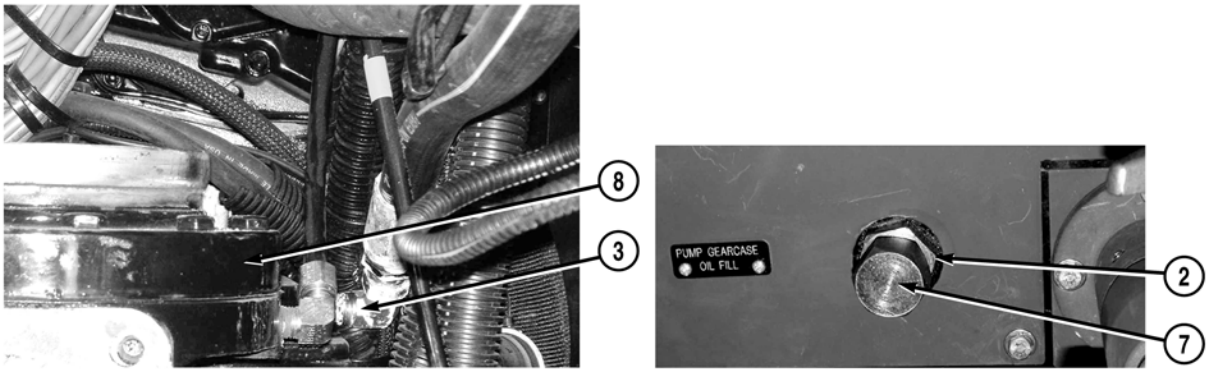
REMOVAL



NOTE

Oil may drain from hose and fitting upon removal. Position suitable drain pan under hose and fitting to catch excess.

1. Remove hose (1) from fitting (2) and elbow (3).
2. Remove nut (4), lockwasher (5), and fitting (2) from bracket (6). Discard lockwasher.



3. Remove cap (7) from fitting (2).
4. Remove elbow (3) from pump (8).

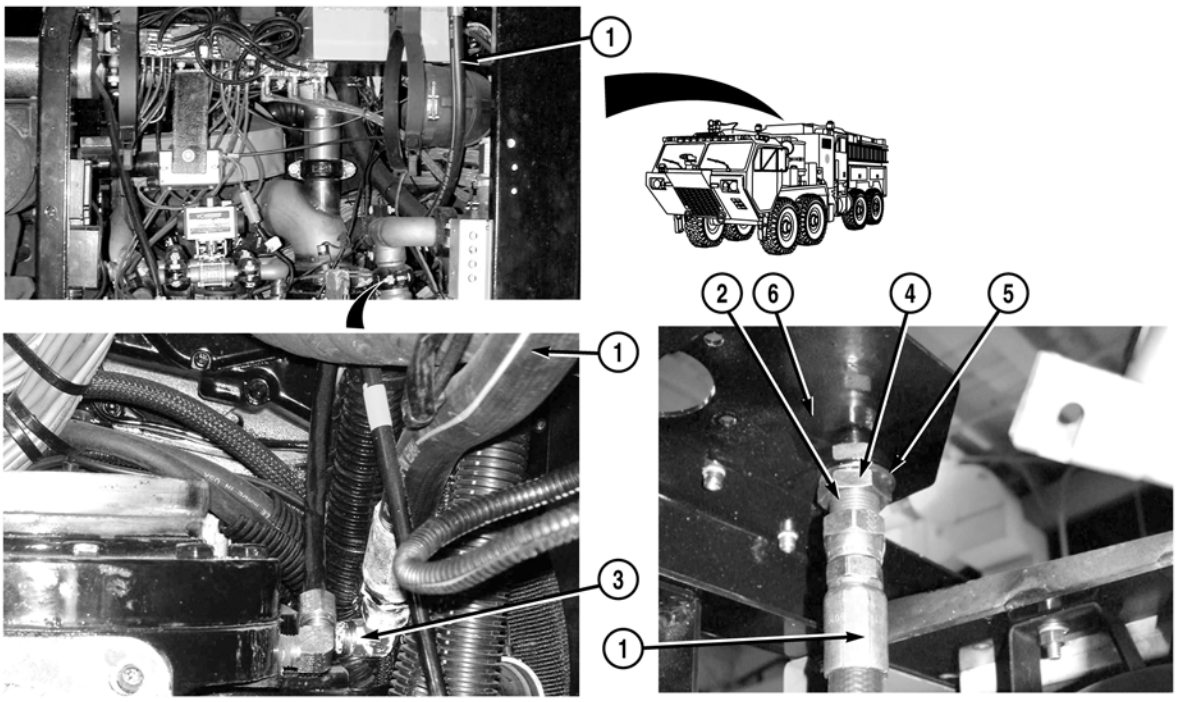
END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

1. Apply sealing compound to threads of elbow (3).
2. Install elbow (3) on pump (8).
3. Install cap (7) on fitting (2).



4. Install fitting (2) on bracket (6) with lockwasher (5) and nut (4).
5. Install hose (1) on elbow (3) and fitting (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install pump house panel S (WP 0540)
2. Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER PUMP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)
- Chain (WP 0608, Item a.)
- Water pump guide pins (WP 0608, Item b.)

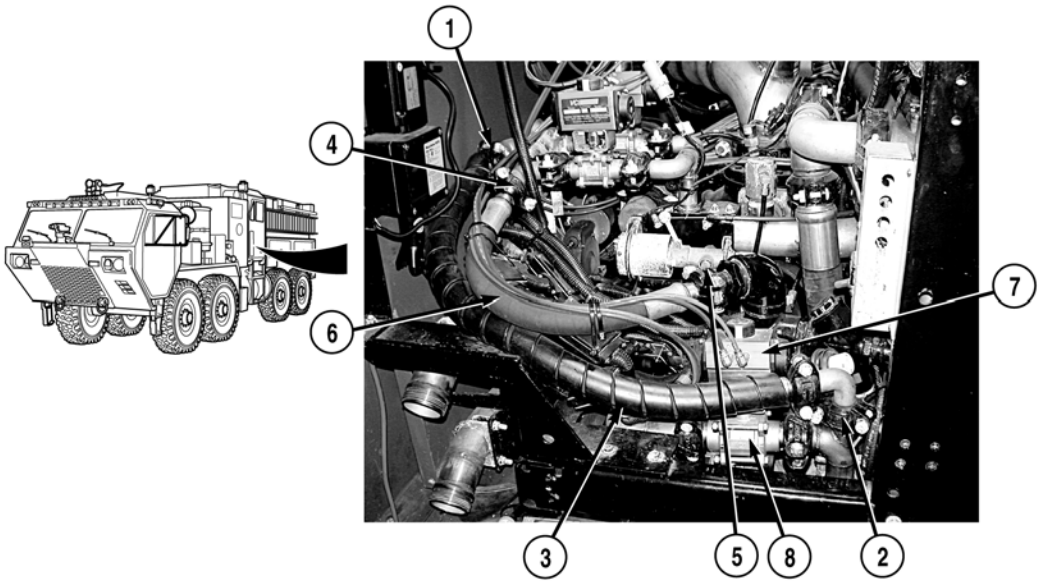
Materials/Parts
- Compound, Sealing, Pipe Thread (WP 0625 Item 21)
- Seal, Sentry, Blue (WP 0625, Item 44)
- Sealant, RTV200 Electrical (WP 0625, Item 47)
- Tags, Identification (WP 0625, Item 51)
- Ties, Cable, Plastic (WP 0625, Item 58)
- Locknut (2)
- Locknut (4)
- Locknut (2)
- Locknut (2)
- Locknut (2)
- Locknut (1)
- Lockwasher (2)
- Locknut (1)
- Locknut (4)
- Lockwasher (8)
- Lockwasher (2)
- Locknut (1)
- Locknut (4)
- Lockwasher (4)

Personnel Required
- MOS 63B Wheeled vehicle mechanic (2)

References
- WP 0284
- WP 0285
- WP 0299
- WP 0483
- WP 0576
- WP 0615, Fig. 36

Equipment Conditions
- Pump house panels C, E, G, and I removed (WP 0540)
- Water pump lubricant drained (WP 0186)
- Water pump engine air cleaner assembly removed (WP 0220)
- Water system drained (WP 0041)
- Foam system drained (WP 0273)
- Number two axle driver side tire removed (TM 9-2320-325-14&P)

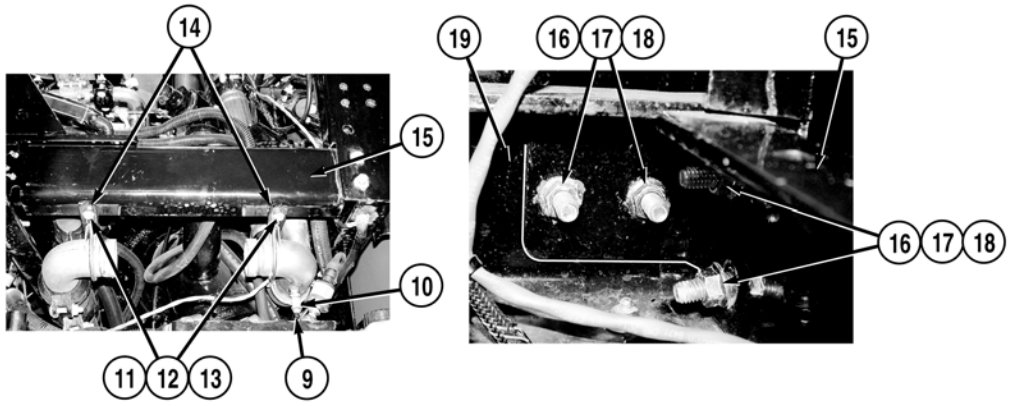
REMOVAL



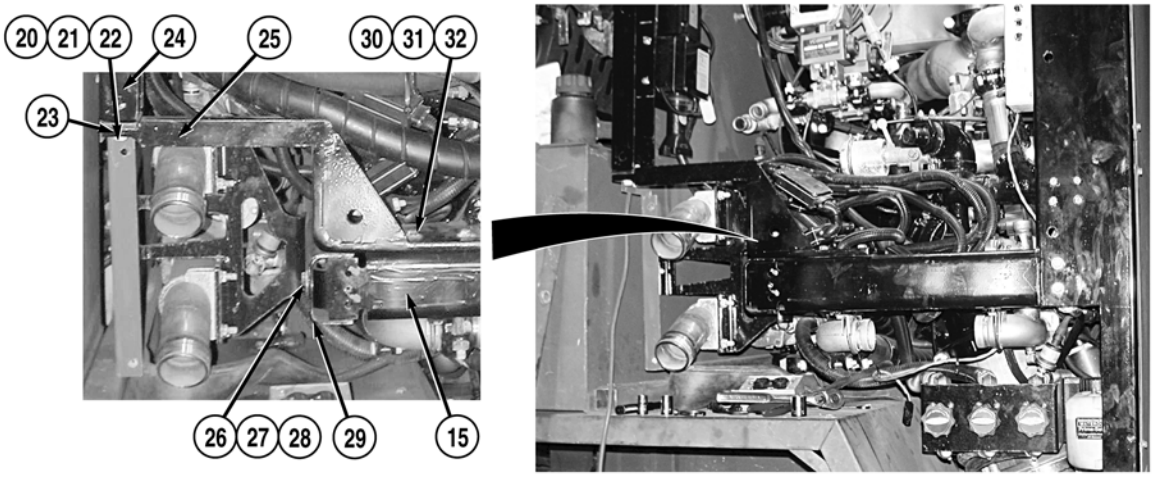
NOTE

- Tag and mark hoses and wires prior to removal to ensure proper installation.
- Remove cable ties as required.

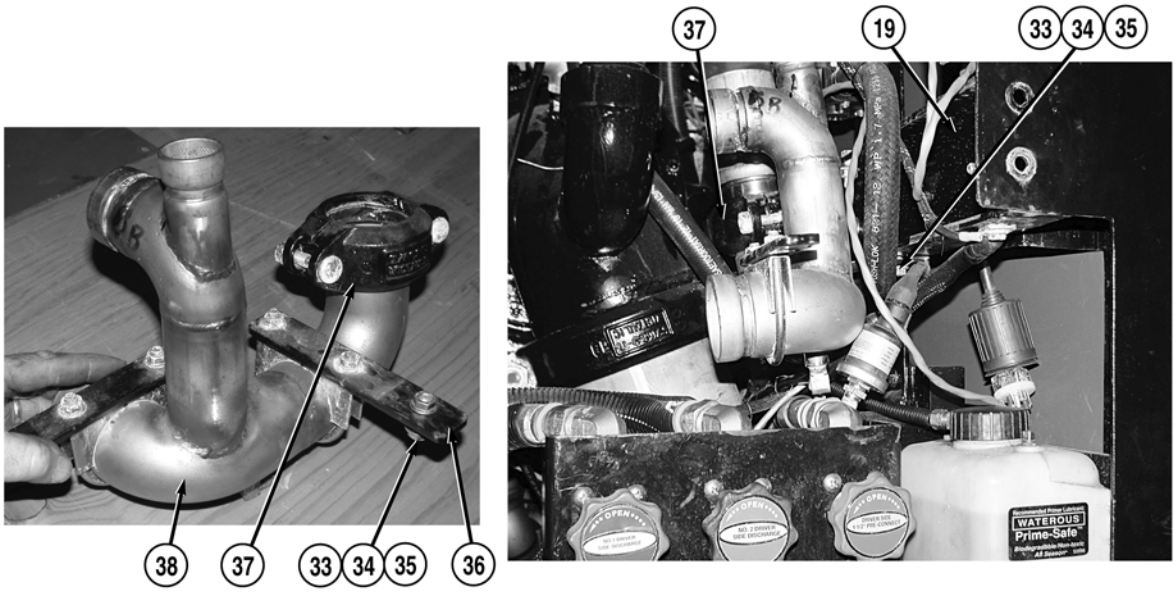
1. Remove two couplings (1) and (2) and hose assembly (3) from vehicle (WP 0483).
2. Remove two couplings (4) and (5) and hose (6) from vehicle (WP 0483).
3. Remove foam system “A” shutoff valve (7) from vehicle (WP 0284).
4. Remove foam system “B” shutoff valve (8) from vehicle (WP 0285).



5. Remove drain line (9) from elbow (10).
6. Remove two locknuts (11), washers (12), screws (13), and brackets (14) from frame member (15). Discard locknuts.
7. Remove four locknuts (16), washers (17), and screws (18) from two frame members (19) and (15). Discard locknuts.

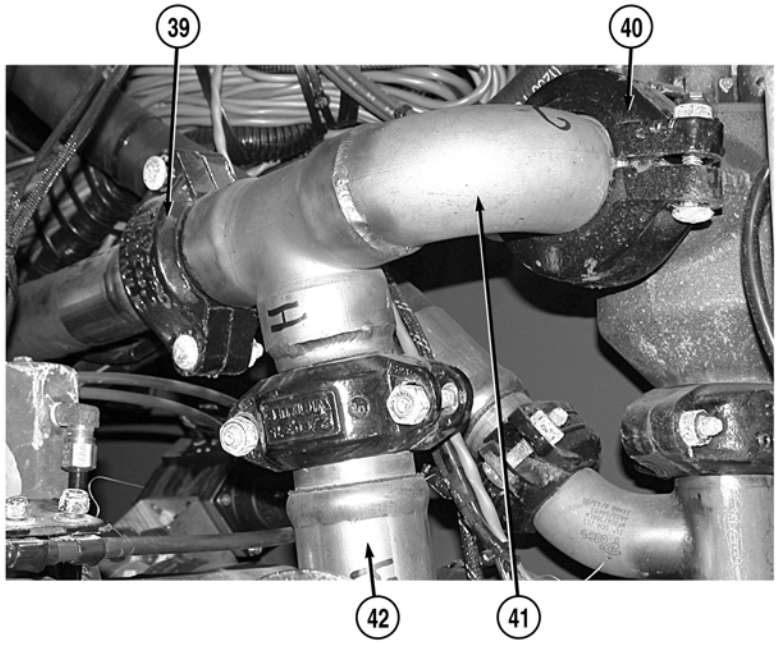


8. Remove two locknuts (20), washers (21), screws (22), and spacer (23) from frame members (24) and (25). Discard locknuts.
9. Remove two locknuts (26), washers (27), and screws (28) from frame members (29) and (15). Discard locknuts.
10. Remove two locknuts (30), washers (31), screws (32), and frame members (25) and (15) from vehicle. Discard locknuts.

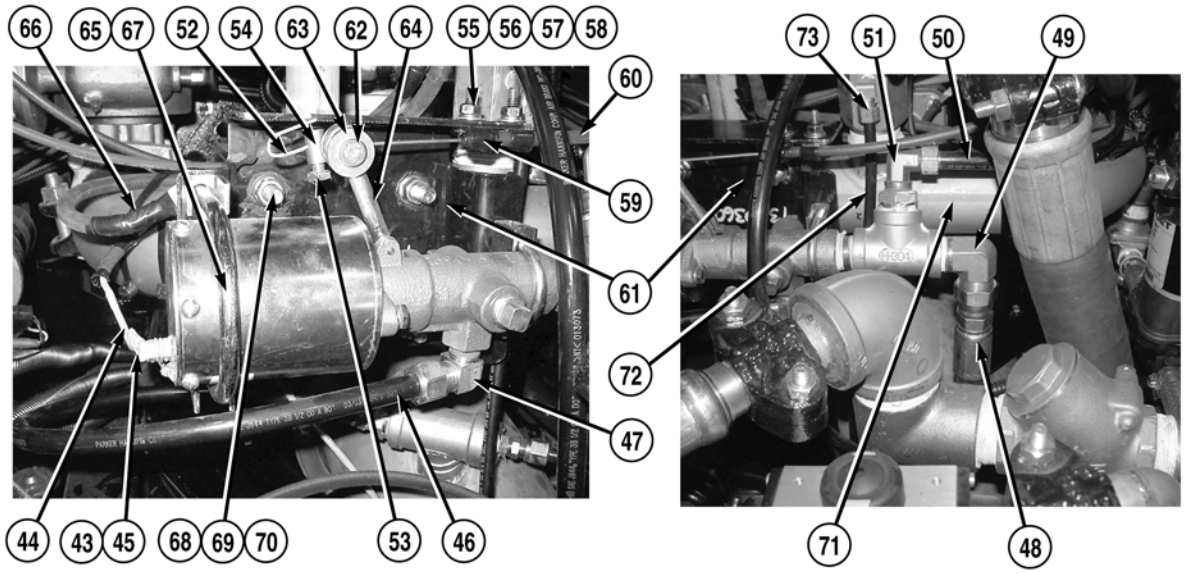


11. Remove locknut (33), washer (34), and screw (35) from bracket (36) and frame member (19). Discard locknut.

12. Remove coupling (37) and pipe (38) from vehicle (WP 0483).



13. Remove two couplings (39) and (40), pipe (41), and hose (42) from vehicle (WP 0483).



14. Remove nut (43) and wire (44) from stud (45).
15. Remove line (46) from elbow (47).
16. Remove hose (48) from elbow (49).
17. Remove line (50) from elbow (51).
18. Straighten cable wire (52).
19. Loosen screw (53) and remove retainer (54) from cable wire (52).

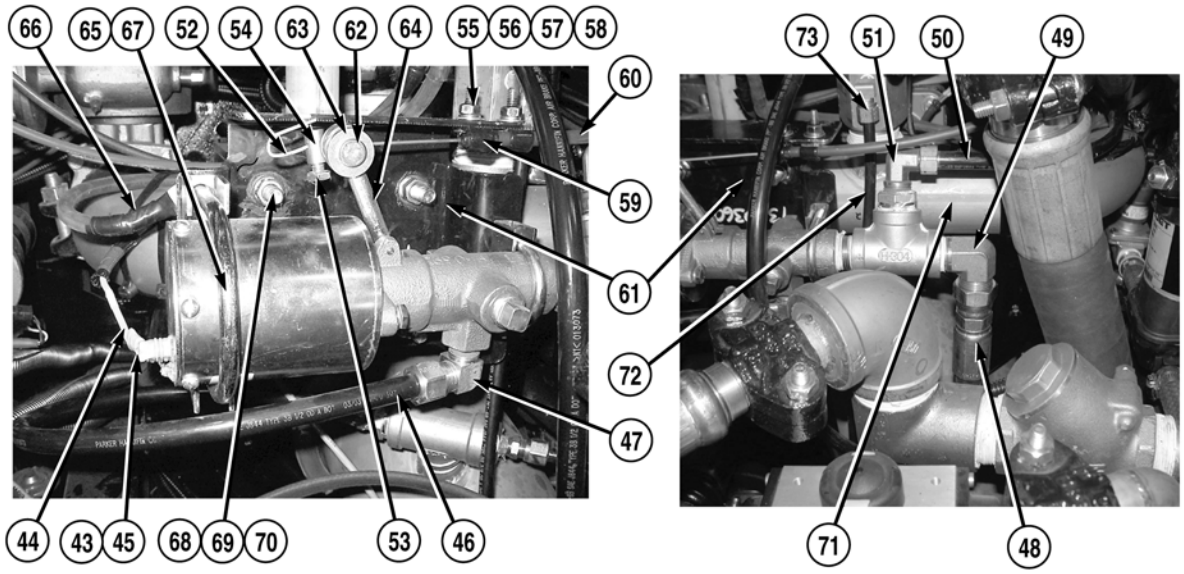
WARNING

Care must be taken when removing cable wire from arm and bracket. Wire is under tension and must be held until safely repositioned. Failure to comply may result in injury to personnel.

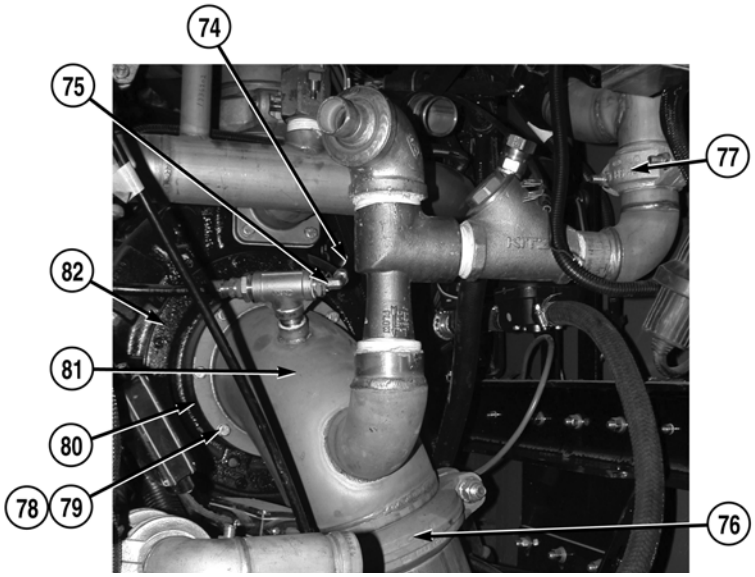
NOTE

- Note position of cable on bracket prior to removal to ensure proper installation.
- Number of washers may vary.
- Note position of washers prior to removal to ensure proper installation.

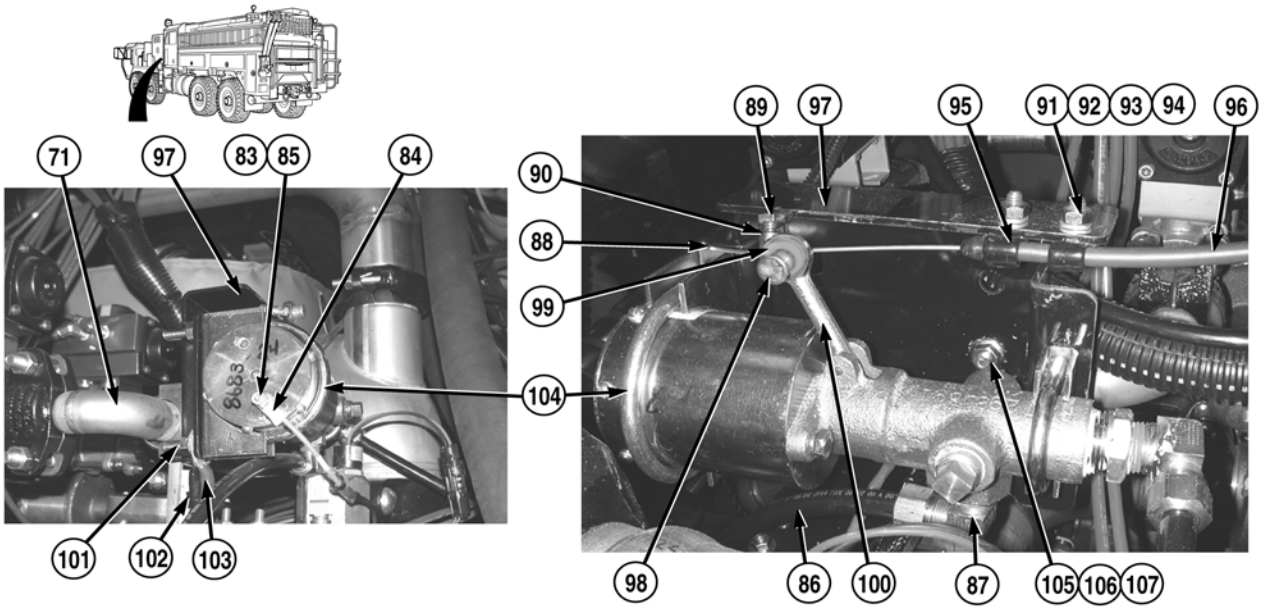
20. Remove two nuts (55), lockwashers (56), four washers (57), two screws (58), cushion clips (59), and cable (60) from bracket (61). Discard lockwashers.



21. Remove cable wire (52) from pin (62).
22. Remove pin (62) and four washers (63) from arm (64).
23. Remove locknut (65) and cable (66) from U-bolt (67). Discard locknut.
24. Remove four locknuts (68), two U-bolts (69), cradles (70), and bracket (61) from pipe assembly (71). Discard locknuts.
25. Remove drain line (72) from elbow (73).



26. Remove line (74) from elbow (75).
27. Remove two couplings (76) and (77) from vehicle (WP 0483).
28. Remove eight screws (78), lockwashers (79), gasket (80), and elbow (81) from pump (82). Discard lockwashers.



29. Remove nut (83) and wire (84) from stud (85).
30. Remove line (86) from elbow (87).
31. Straighten cable wire (88).

WARNING

Care must be taken when removing cable wire from arm and bracket. Wire is under tension and must be held until safely repositioned. Failure to comply may result in injury to personnel.

32. Loosen screw (89) and remove retainer (90) from cable wire (88).

NOTE

Note position of cable on bracket prior to removal to ensure proper installation.

33. Remove two nuts (91), lockwashers (92), four washers (93), two screws (94), cushion clips (95), and cable (96) from bracket (97). Discard lockwashers.

NOTE

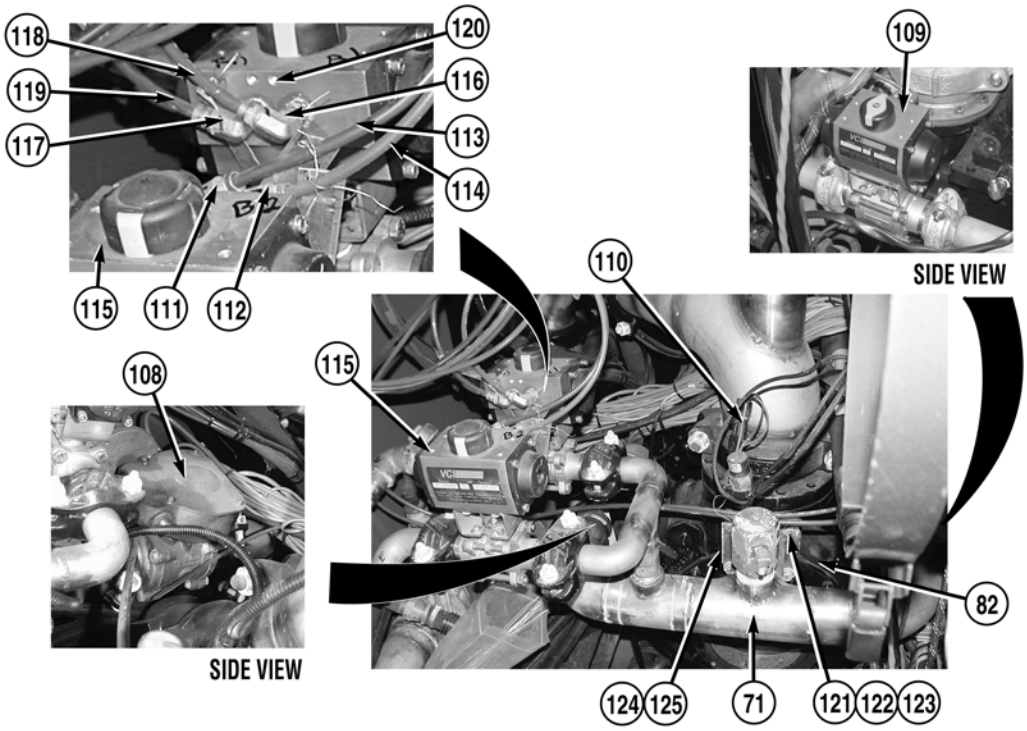
- Number of washers may vary.
- Note position of washers prior to removal to ensure proper installation.

34. Remove cable wire (88) from pin (98).

35. Remove pin (98) and washer (99) from arm (100).

36. Remove locknut (101) and two cables (102) and (103) from U-bolt (104). Discard locknut.

37. Remove four locknuts (105), two U-bolts (106), cradles (107), and bracket (97) from pipe assembly (71). Discard locknuts.



38. Remove water tank fill valve (108) (WP 0299) and ground sweeps valve (109) (WP 0576) from vehicle.

39. Disconnect connector (110).

⚠ CAUTION

Air lines may be removed directly from elbows and fittings, or may remain attached to elbows and fittings and removed as an assembly. If air lines are removed from elbows and fittings, care must be taken not to damage air line. If sealing surface or air line is damaged air line must be repaired or replaced.

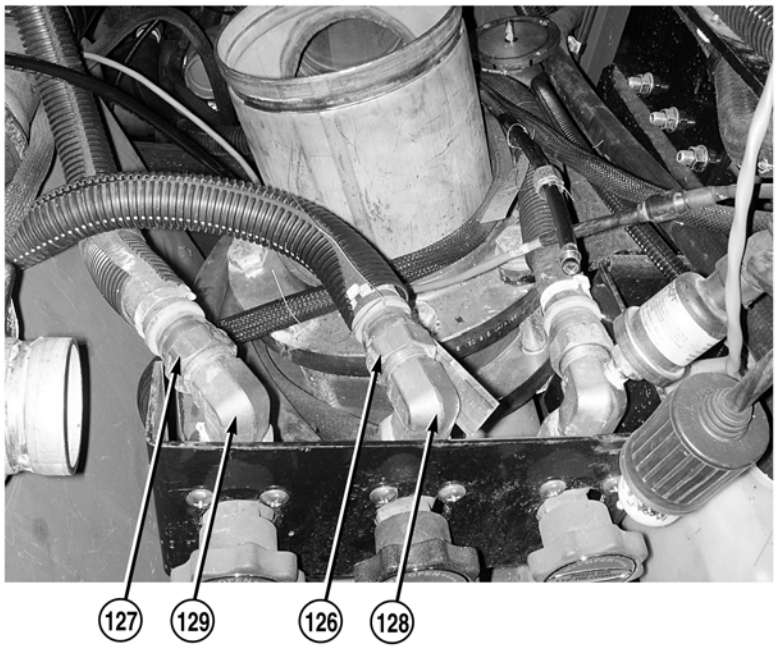
NOTE

Valves shown have air lines remain attached to elbows.

40. Remove two elbows (111) and (112) and air lines (113) and (114) from eductor valve (115).

41. Remove two elbows (116) and (117) and air lines (118) and (119) from flush valve (120).

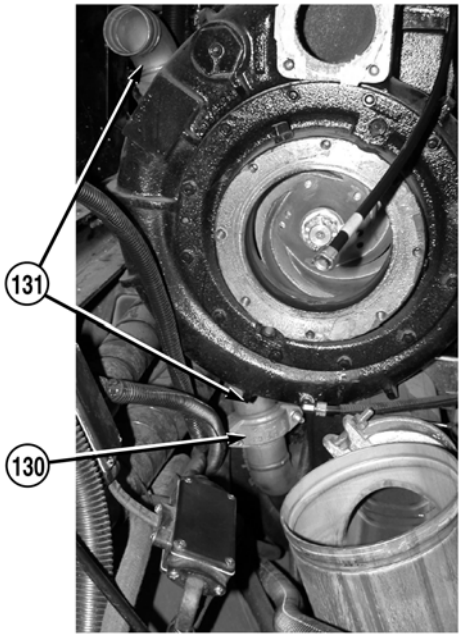
42. Remove four screws (121), lockwashers (122), washers (123), gasket (124), flange (125), and pipe assembly (71) from pump (82). Discard lockwashers.



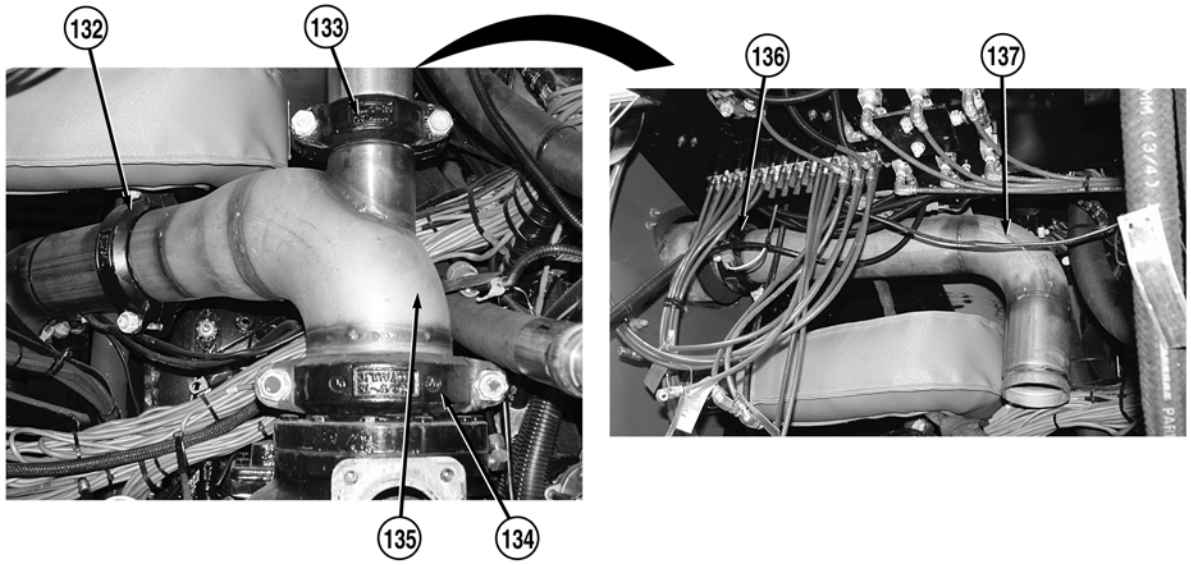
NOTE

Removing drain hoses allows easier removal of pump.

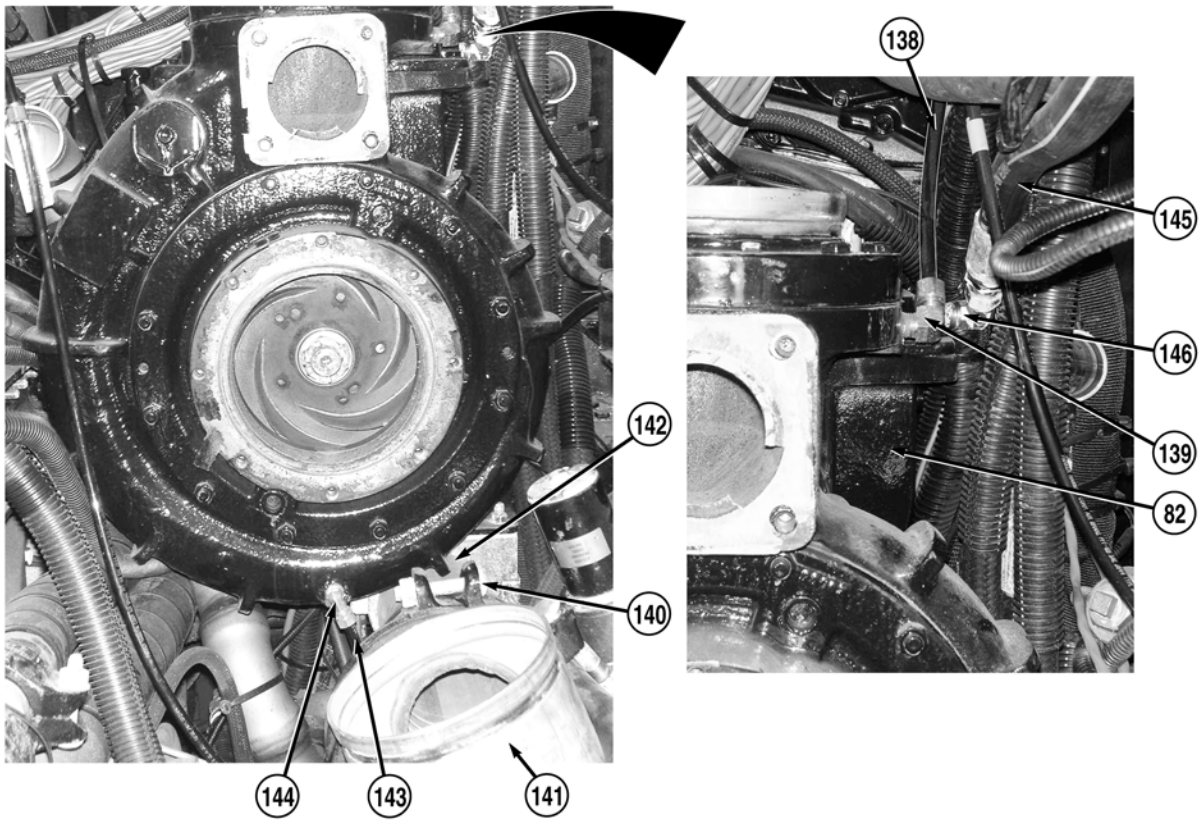
43. Remove two drain hoses (126) and (127) from elbows (128) and (129).



44. Remove coupling (130) and pipe (131) from vehicle (WP 0483).



45. Remove three couplings (132), (133), and (134) and pipe (135) from vehicle (WP 0483).
46. Remove coupling (136) and pipe (137) from vehicle (WP 0483).

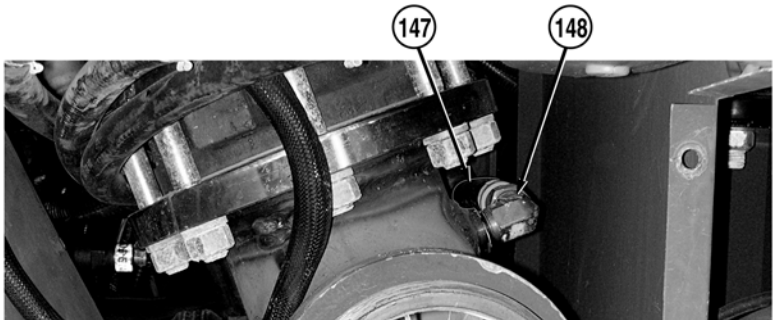


47. Remove line (138) from elbow (139).

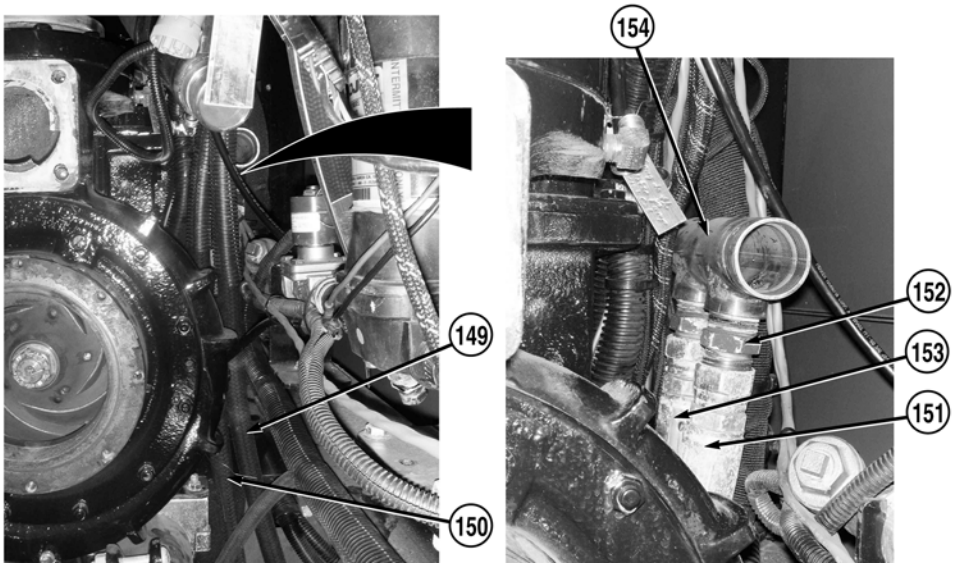
NOTE

Coupling must be removed to allow clearance when removing pump.

48. Remove coupling (140) from two pipes (141) and (142) (WP 0483).
49. Remove drain line (143) from elbow (144).
50. Remove fill line (145) from elbow (146).
51. Remove elbow (146) from pump (82).



52. Remove hose (147) from elbow (148).



NOTE

Two drain hoses routed on right side of pump extend to bottom frame rail and must be moved to gain access to ground sweep hoses.

53. Pull two hoses (149) and (150) from draining position and reposition.

NOTE

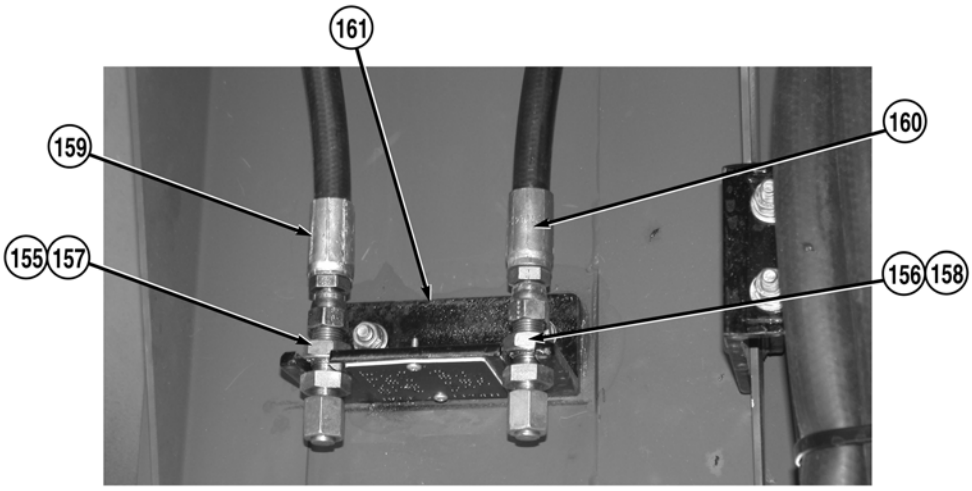
- Under truck nozzles hose must be removed from fitting in order to pull ground sweeps hose and ground sweeps components low enough to gain access to pump screws.
- Note position of ground sweeps pipe and hoses prior to removal to ensure proper installation.

54. Remove hose (151) from fitting (152) and pull downward.

NOTE

Hose remains attached to pipe.

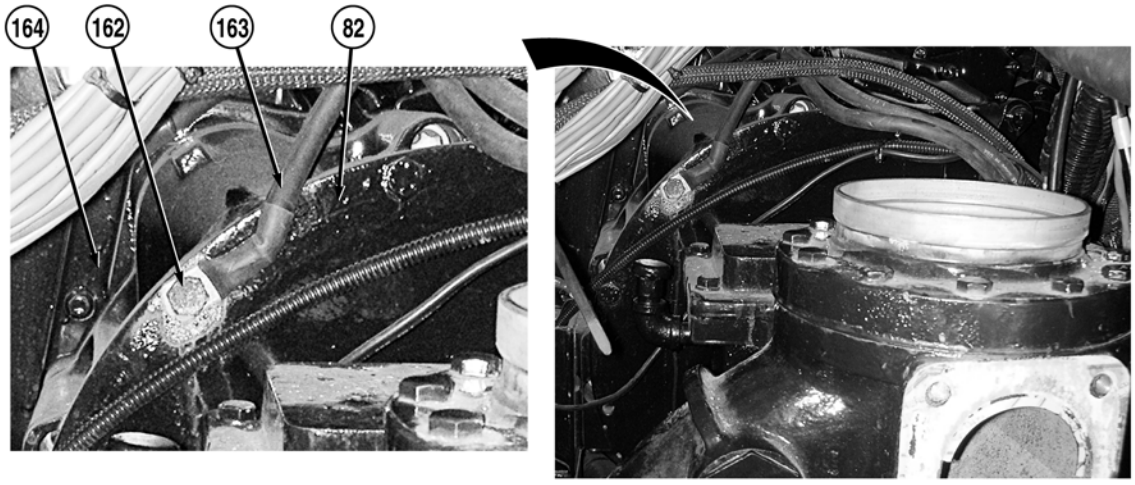
55. Pull hose (153) and pipe (154) downward.



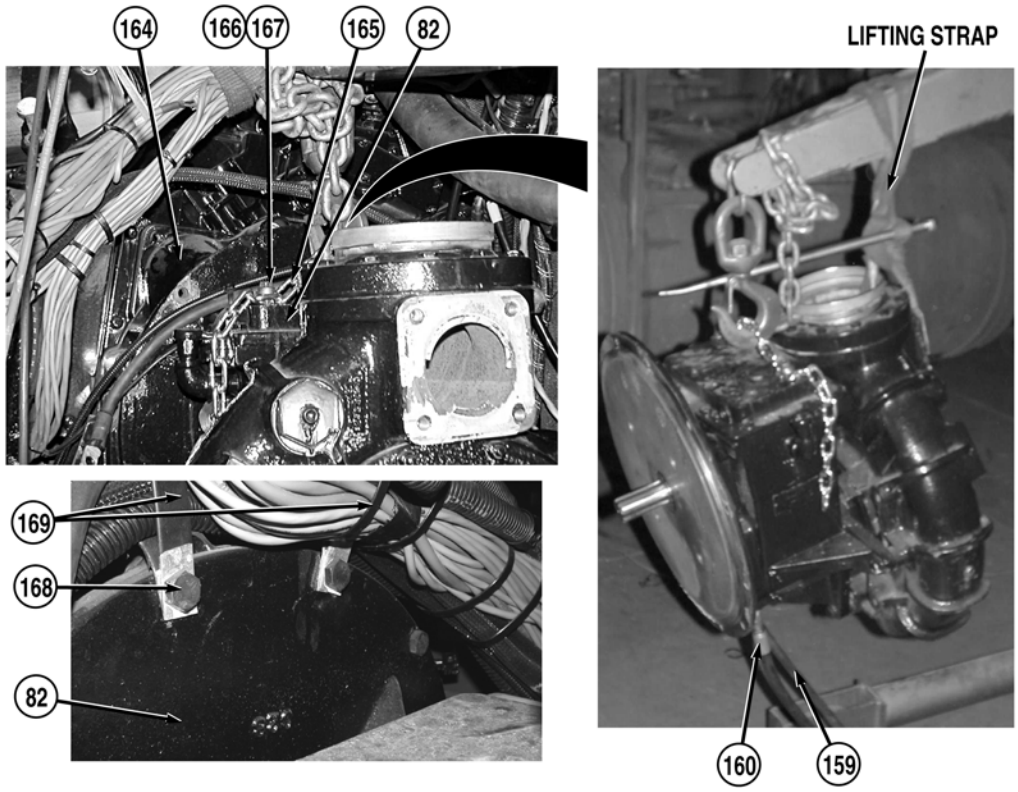
NOTE

- Drain hoses remain attached to pump until after removal of pump from vehicle.
- Note position of lockwashers prior to removal to ensure proper installation.

56. Loosen two nuts (155) and (156), lockwashers (157) and (158), and remove hoses (159) and (160) from bracket (161).



57. Remove screw (162) and wire (163) from pump (82) and engine (164).



⚠ CAUTION

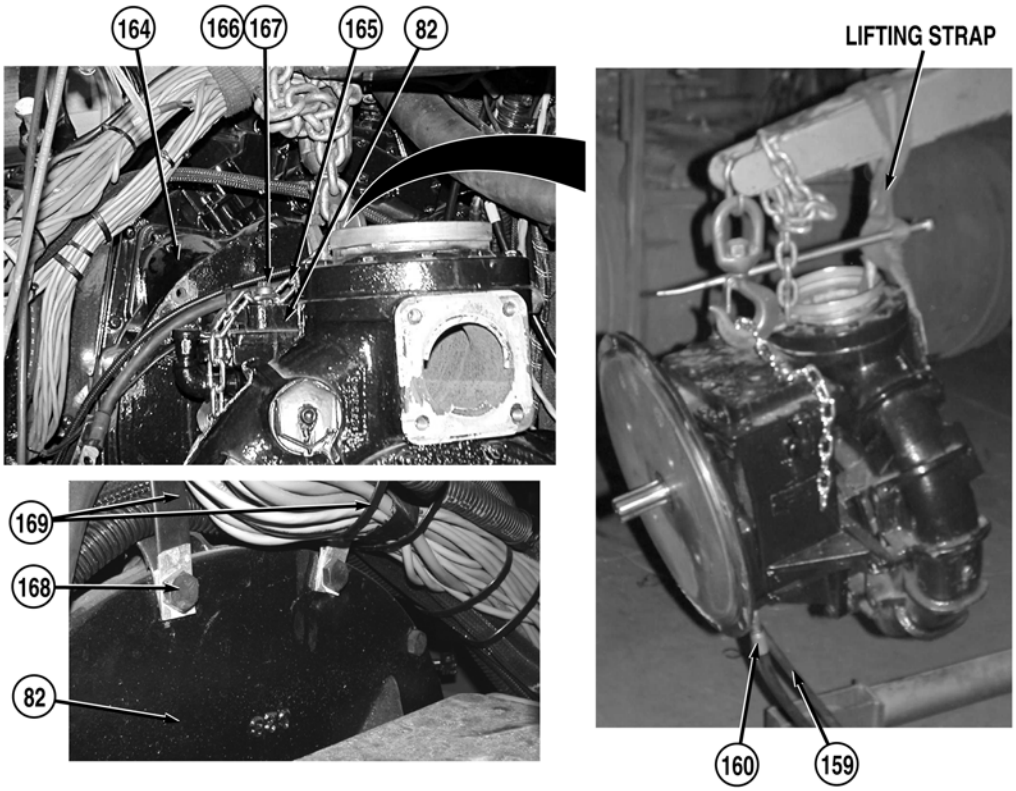
- **Two screws holding chain must be installed in the corner holes closest to the pump's top discharge. Failure to comply will make pump removal more difficult and may cause damage to equipment.**
- **Chain must be installed on pump as tight as possible, still allowing for suitable lifting device to be attached.**

58. Attach chain (165) to pump (82) with eight washers (166) and two screws (167).

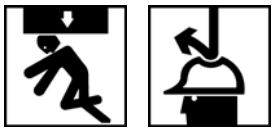
NOTE

Lifting strap attached to front of pump and around suitable lifting device helps to keep pump level during removal.

59. Attach suitable lifting device to chain (165) and lifting strap.



WARNING



Keep out from under heavy parts. Falling parts may cause serious injury or death.

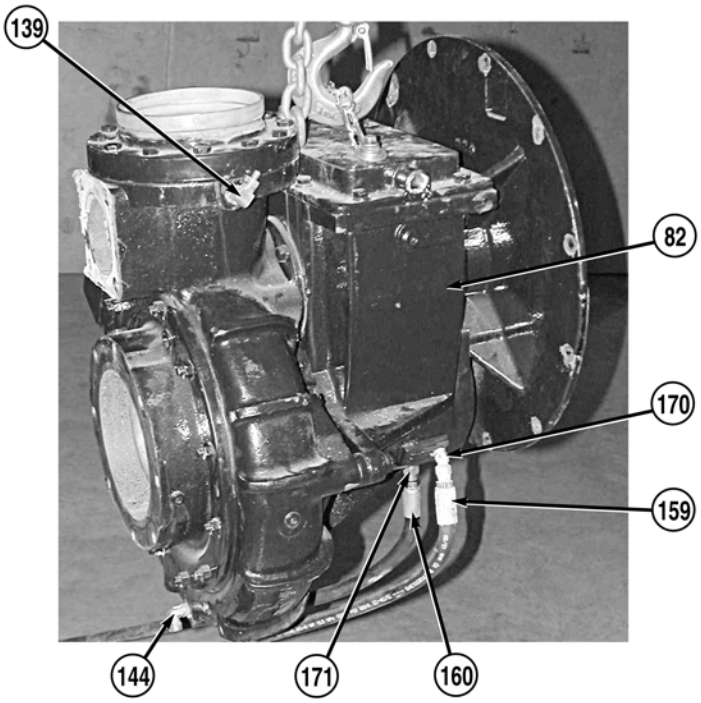
CAUTION

- **Be sure pump and suitable lifting device are clear of all hoses and harnesses to prevent damage to equipment.**
- **Two drain hoses attached to pump must be removed with pump. Failure to comply may result in damage to equipment.**

NOTE

Note position of drain hoses prior to removal to ensure proper installation.

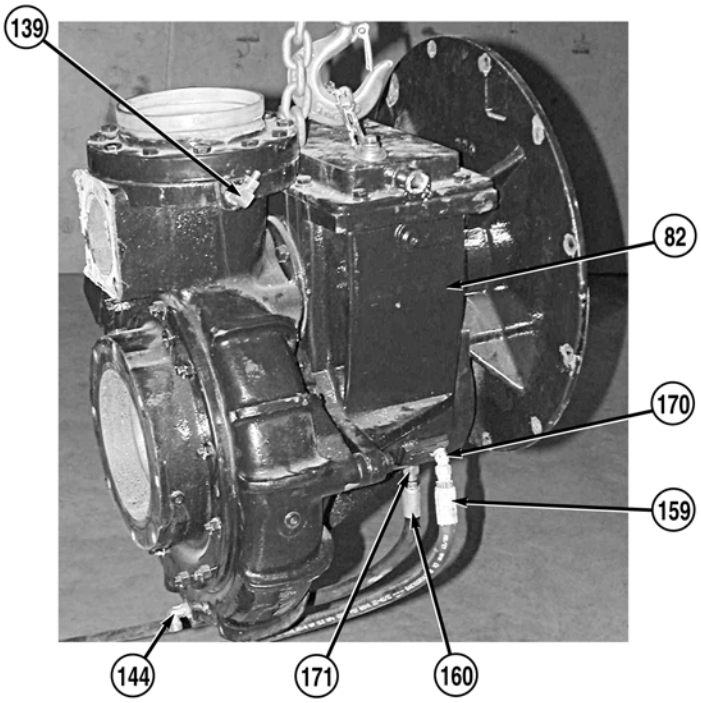
60. With the aid of an assistant, remove ten screws (168) and two cushion clips (169) from pump (82) and engine (164) and remove pump (82) and two hoses (159) and (160) from vehicle.



61. Remove hose (159) from elbow (170).
62. Remove hose (160) from fitting (171).
63. Remove fitting (171) and three elbows (139), (144), and (170) from pump (82).

END OF TASK

INSTALLATION



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

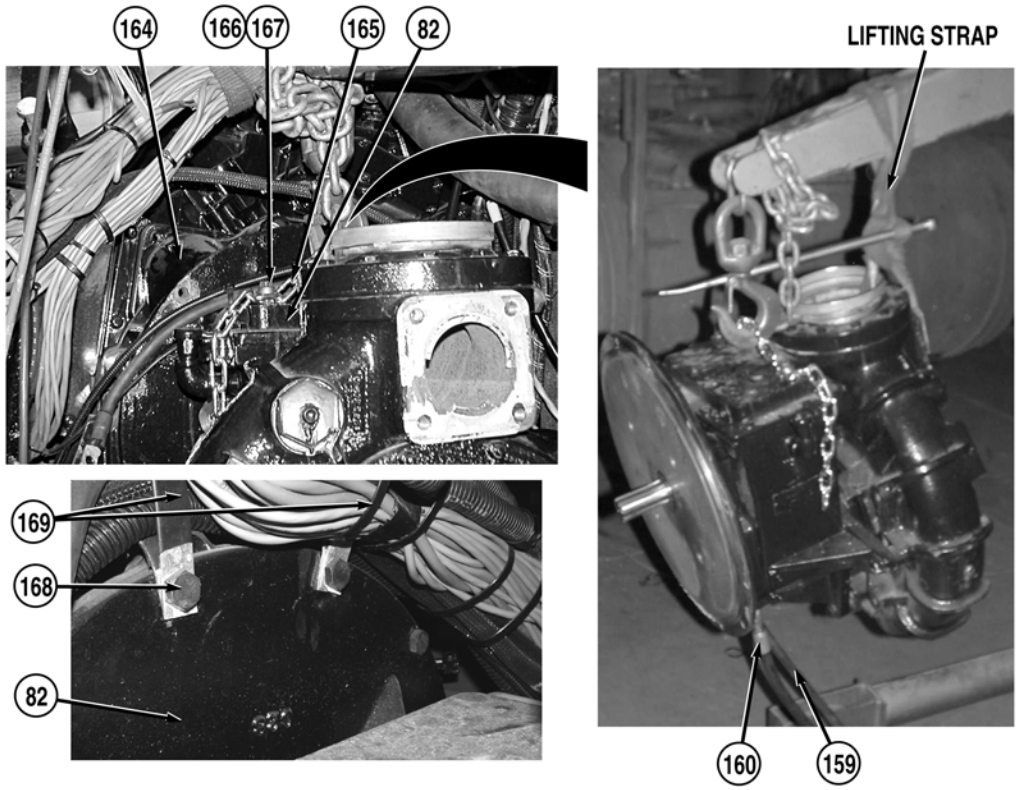
CAUTION

Use pipe thread sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

NOTE

Install cable ties as required.

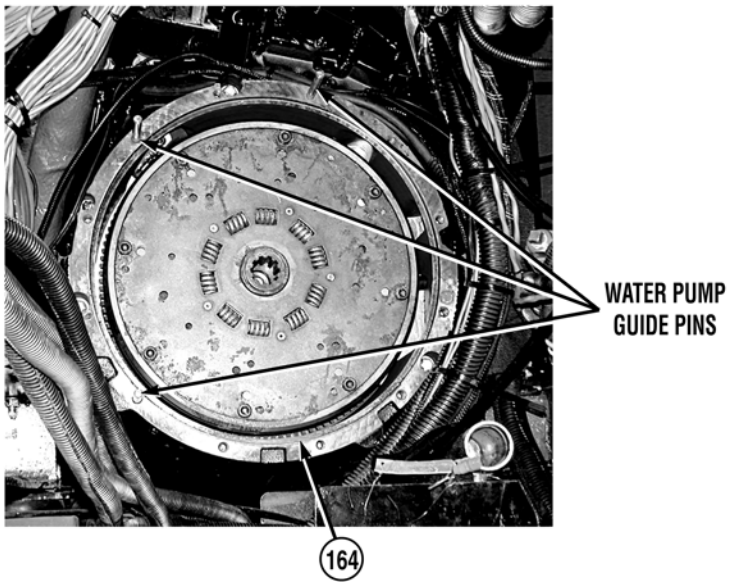
1. Apply sealing compound to threads of three elbows (139), (144), and (170) and fitting (171).
2. Install three elbows (139), (144), and (170) and fitting (171) on pump (82).
3. Install hose (160) on fitting (171).
4. Install hose (159) on elbow (170).



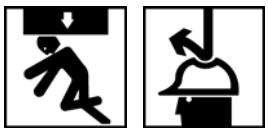
CAUTION

- **Two screws holding chain must be installed in the corner holes closest to the pump's top discharge.**
- **Chain must be installed on pump as tight as possible, still allowing for suitable lifting device to be attached. Failure to comply will make pump installation more difficult and may cause damage to equipment.**

5. Attach chain (165) on pump (82) with eight washers (166) and two screws (167).



WARNING



Keep out from under heavy parts. Falling parts may cause serious injury or death.

NOTE

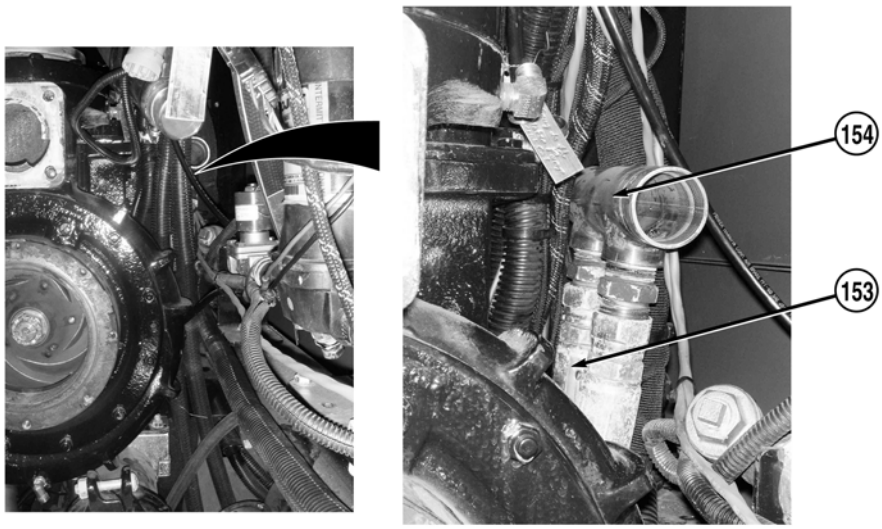
Installing water pump guide pins aids in attaching pump engine. Water pump guide pins should be installed on engine in holes as shown.

6. Install three water pump guide pins on engine (164).

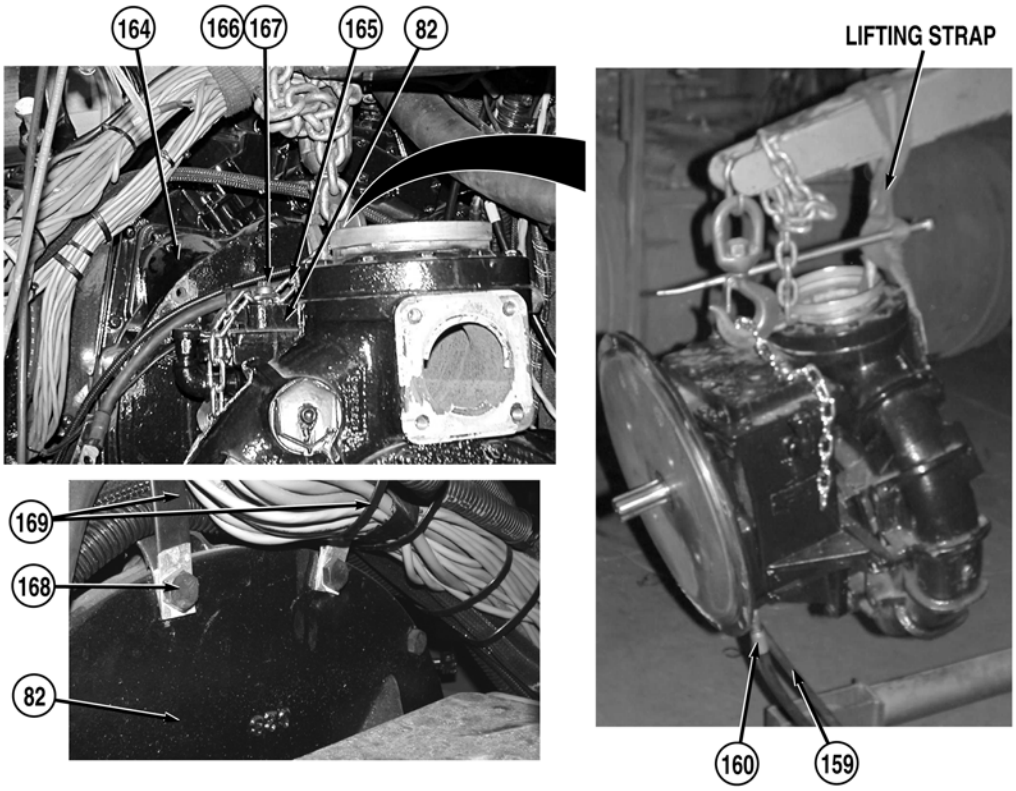
CAUTION

- **Be sure pump and suitable lifting device are clear of all hoses and harnesses to prevent damage to equipment.**
- **Two drain hoses attached to pump must be installed with pump in same position as noted prior to removal.**
- **Cable ties are temporarily used to secure hoses, pipe (154), hose (153), and wires to allow an open travel path for pump installation. Failure to comply may result in damage to equipment.**

7. Install cable ties on wires and hoses.



8. Position pipe (154) and hose (153) in original position.



9. With the aid of an assistant, position pump (82) and two hoses (159) and (160) on vehicle.

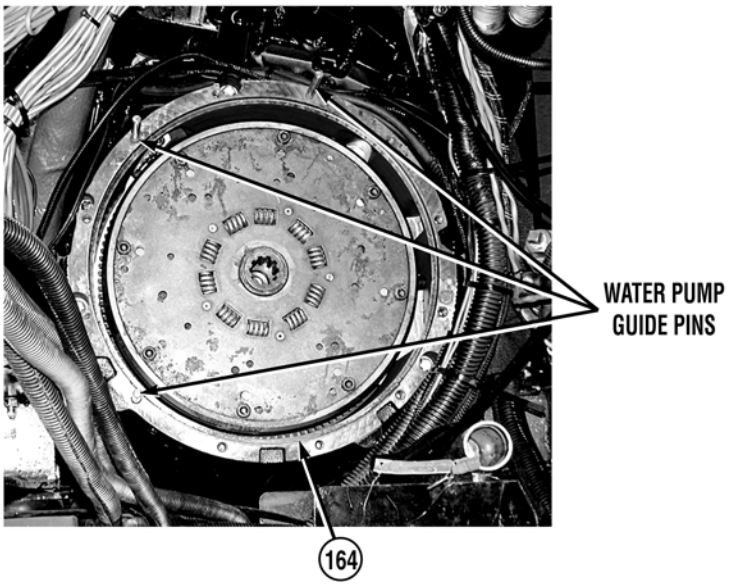
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

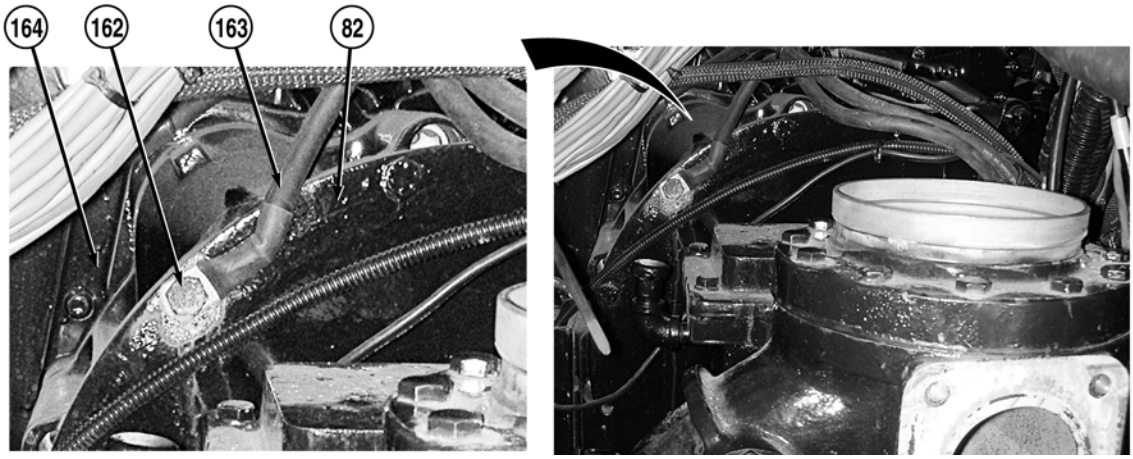
NOTE

Remaining cushion clip and screw will be installed after removal of water pump guide pins.

10. Apply thread lock adhesive to seven screws (168).
11. Install pump (82) and cushion clip (169) on engine (164) with seven screws (168). Tighten screws to 23 lb-ft (31 N•m).
12. Apply sealant to seven screws (168) to mark torque point.
13. Remove lifting strap from pump.
14. Remove two screws (167), eight washers (166), and chain (165) from pump (82).



15. Remove three water pump guide pins from engine (164).



WARNING

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16. Apply thread lock adhesive to screw (162).
17. Install wire (163) on pump (82) and engine (164) with screw (162). Tighten screw to 23 lb-ft (31 N•m).
18. Apply sealant to screw (162) to mark torque point.

WARNING

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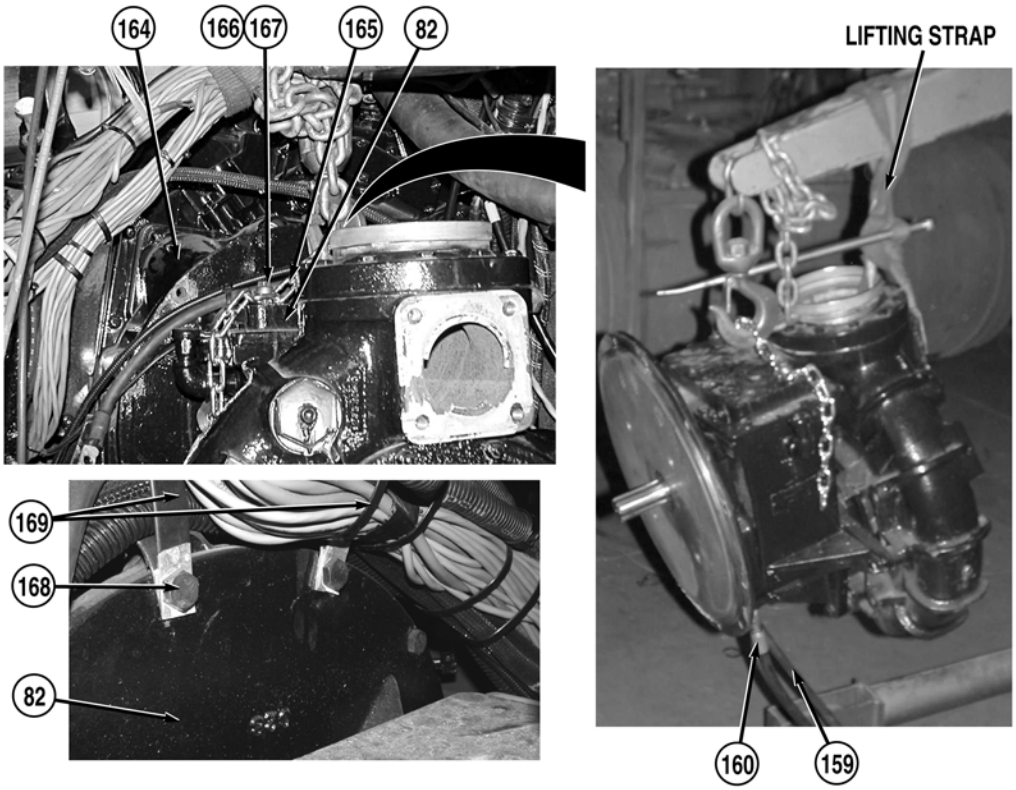
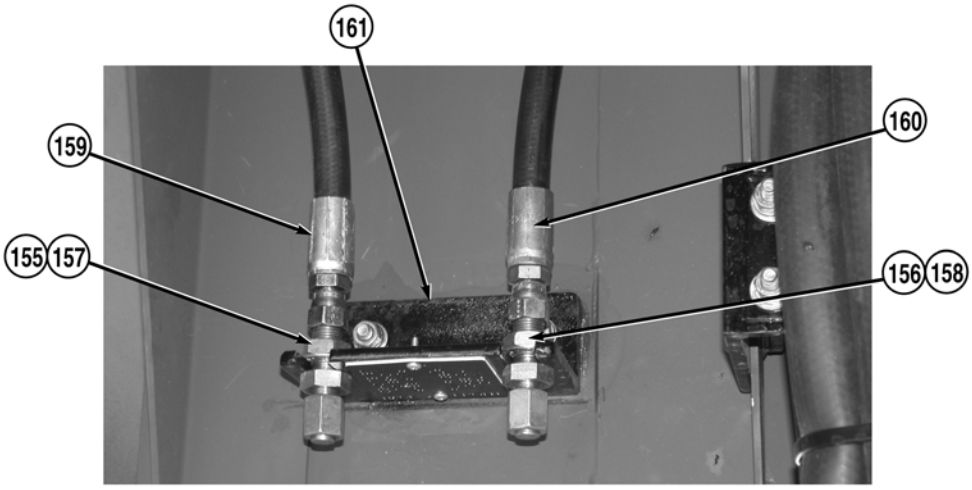
19. Apply electrical sealant on end of wire (163).



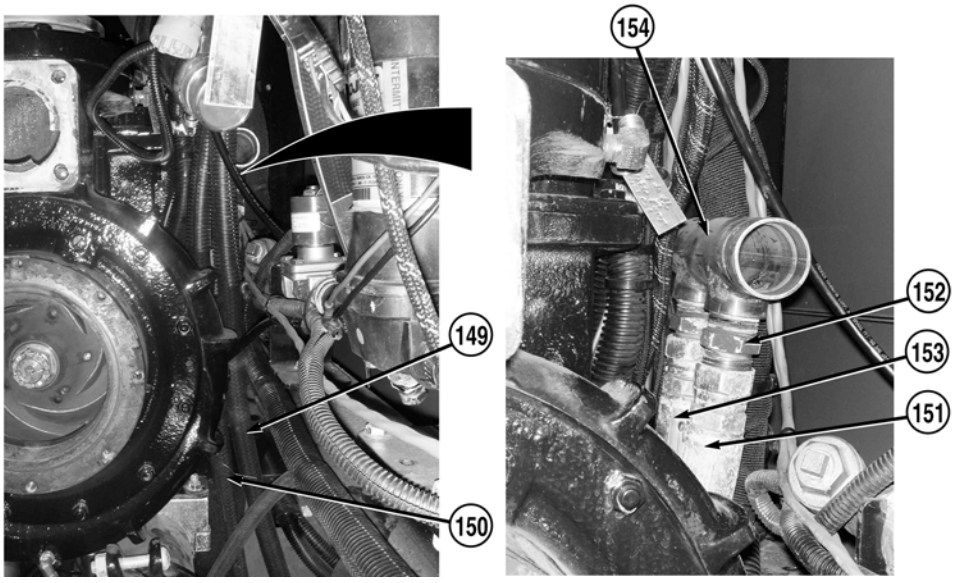
20. Apply thread lock adhesive to three screws (168).
21. Install three remaining screws (168) and cushion clip (169) on pump (82) and engine (164). Tighten screws to 23 lb-ft (31 N•m).
22. Apply sealant to three screws (168) to mark torque point.
23. Remove cable ties that were temporarily used to secure hoses and wires.



NOTE

Install lockwashers as noted prior to removal.

24. Install two hoses (159) and (160) on bracket (161) and tighten two lockwashers (157) and (158) and nuts (155) and (156).



NOTE

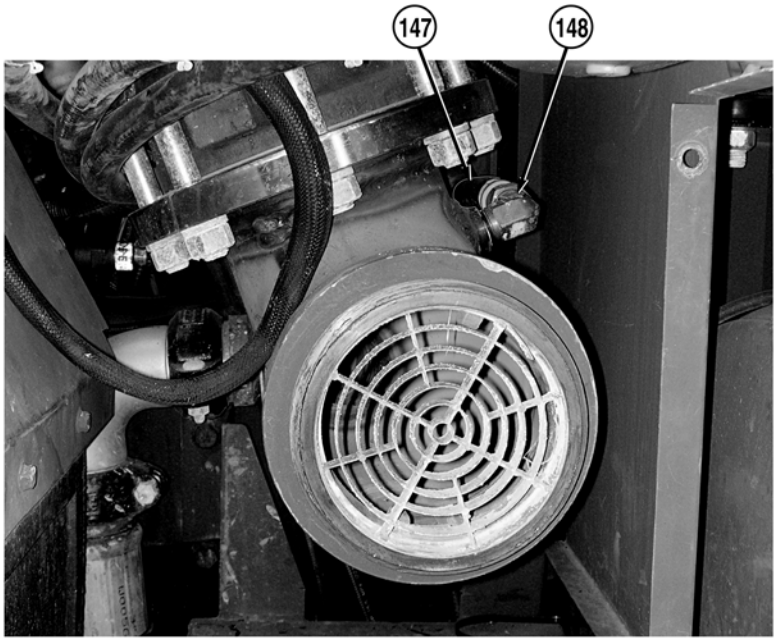
Install ground sweep pipe and hoses as noted prior to removal.

25. Install hose (151) on fitting (152).

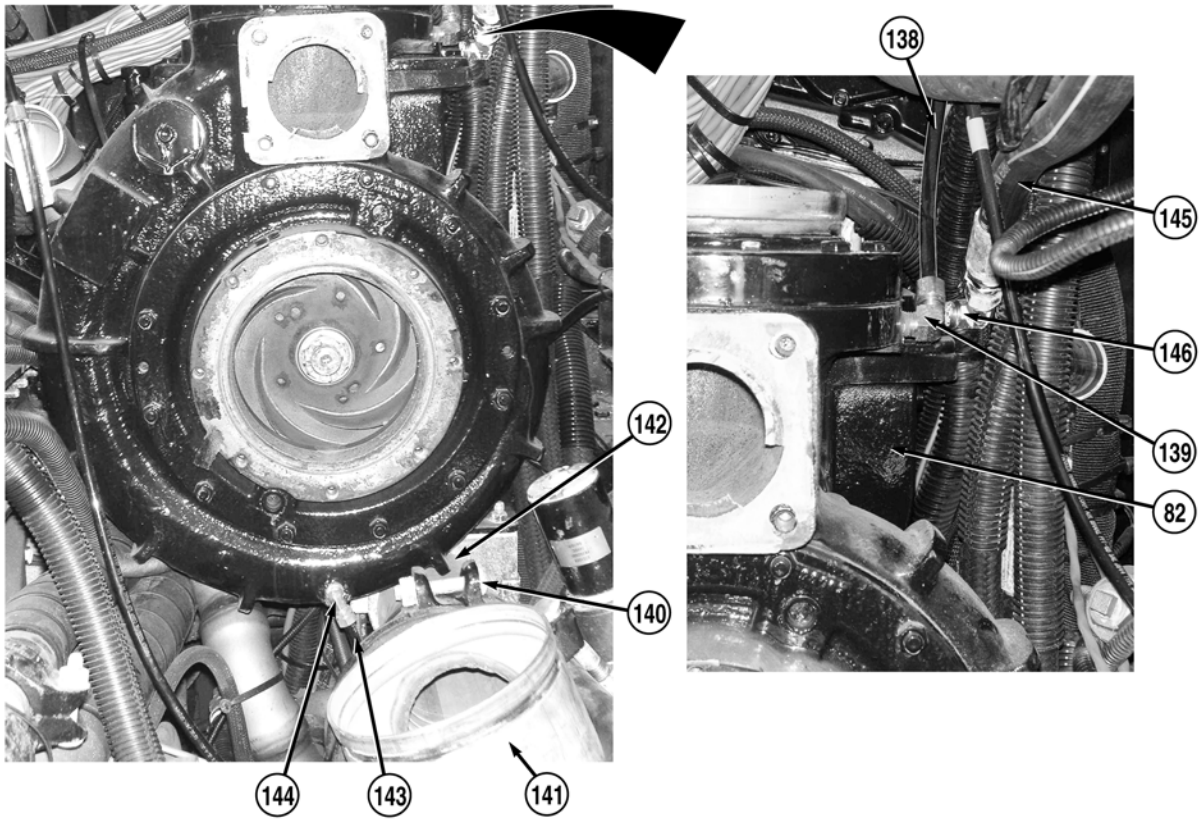
NOTE

Install two drain hoses as noted prior to removal.

26. Position two drain hoses (149) and (150) in original position.



27. Install hose (147) on elbow (148).



WARNING

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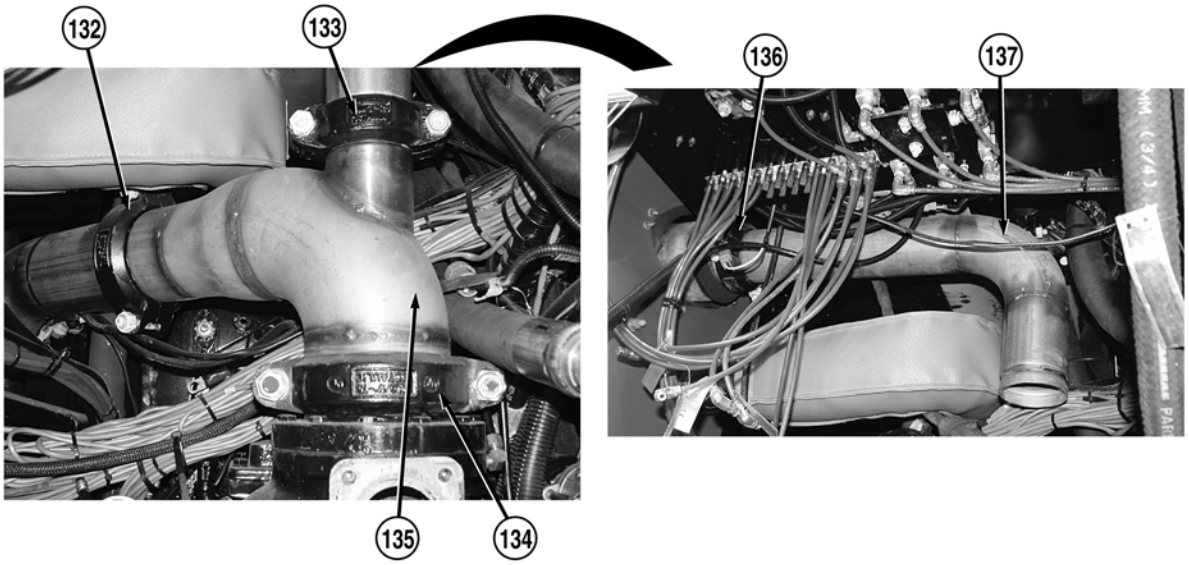
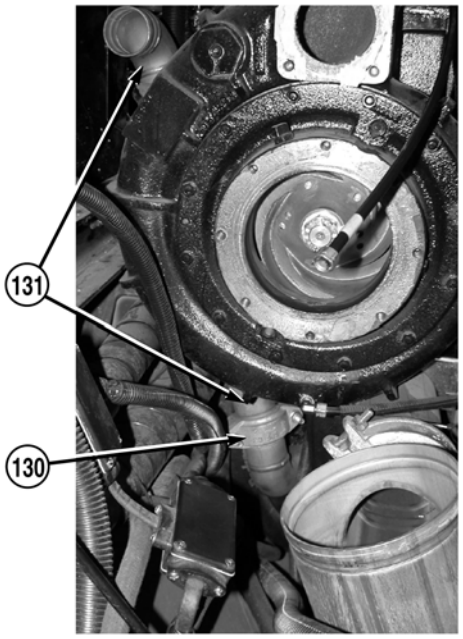
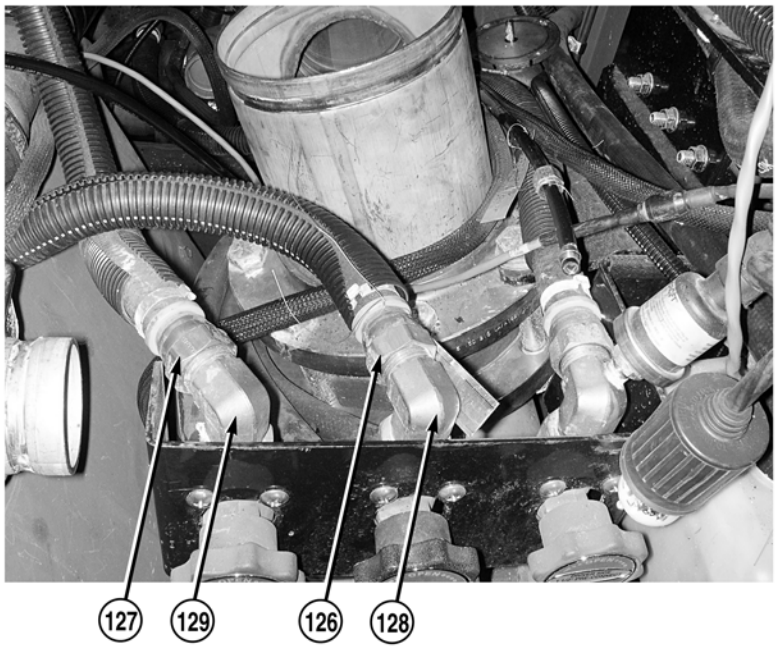
28. Apply sealing compound to threads of elbow (146).
29. Install elbow (146) on pump (82).
30. Install fill line (145) on elbow (146).
31. Install drain line (143) on elbow (144).
32. Install coupling (140) on two pipes (141) and (142) (WP 0483).
33. Install line (138) on elbow (139).



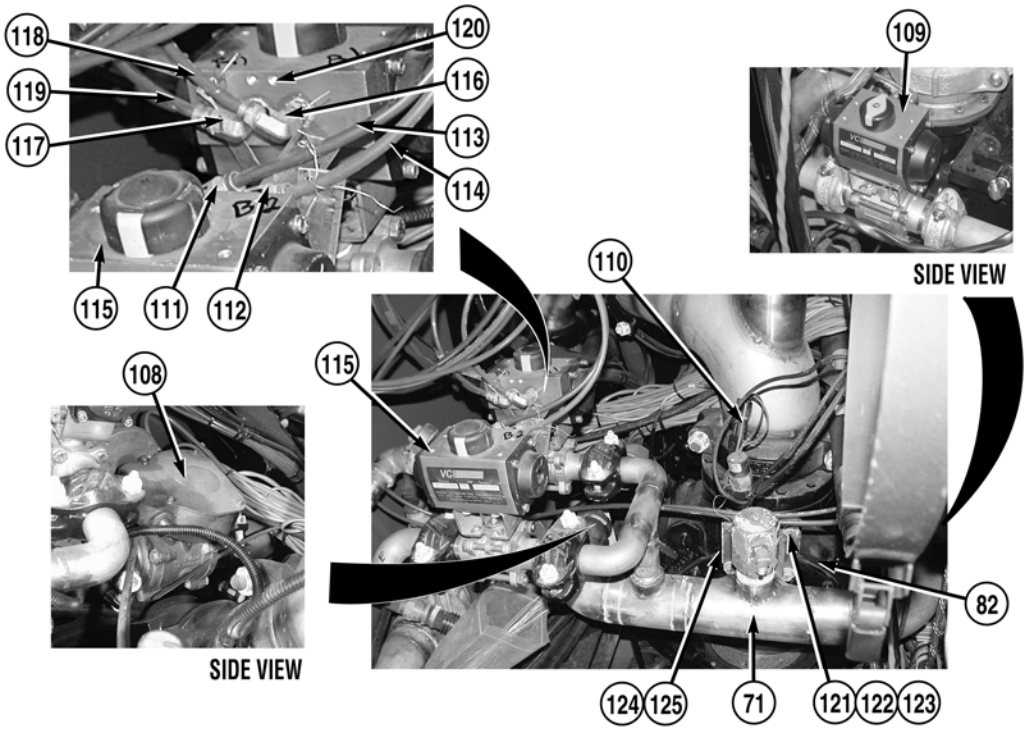
34. Install pipe (137) and coupling (136) on vehicle (WP 0483).
35. Install pipe (135) and three couplings (134), (133), and (132) on vehicle (WP 0483).



36. Install pipe (131) and coupling (130) on vehicle (WP 0483).



37. Install two drain hoses (127) and (126) on elbows (129) and (128).



38. Install gasket (124), flange (125), and pipe assembly (71) on pump (82) with four washers (123), lockwashers (122), and screws (121).

WARNING

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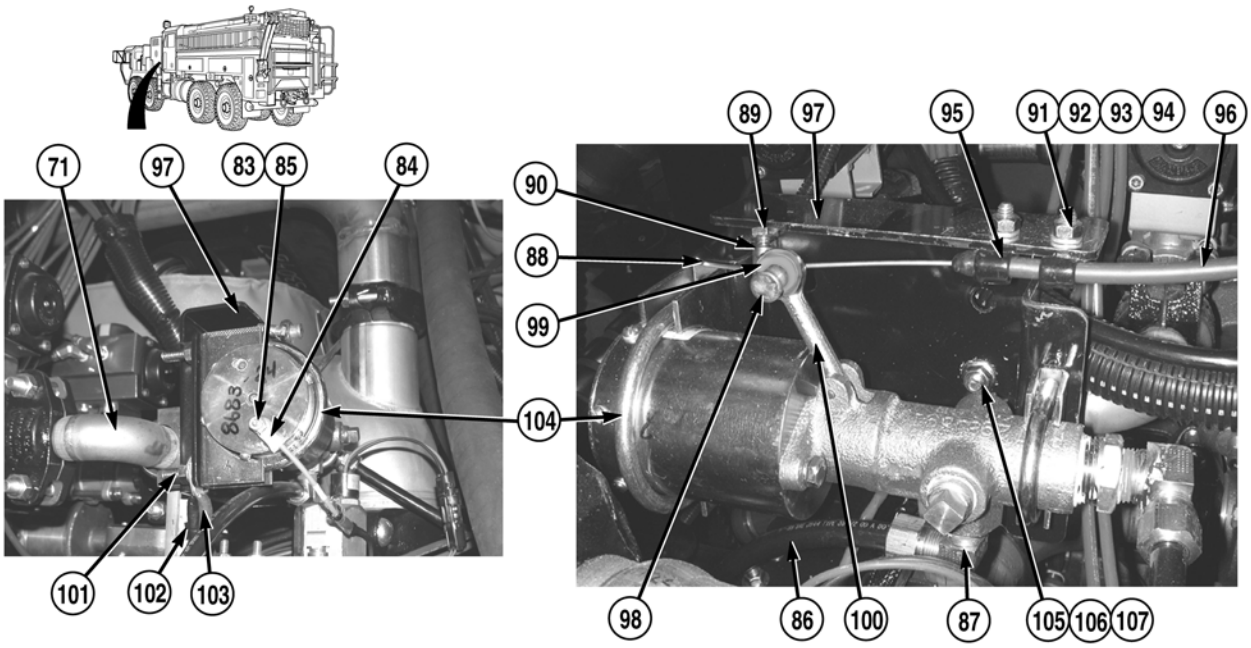
39. Apply sealing compound to threads of four elbows (111), (112), (116), and (117).

40. Install two elbows (117) and (116) and air lines (119) and (118) on flush valve (120).

41. Install two elbows (112) and (111) and air lines (114) and (113) on eductor valve (115).

42. Connect connector (110).

43. Install ground sweeps valve (109) (WP 0576) and water tank fill valve (108) (WP 0299) on vehicle.



44. Install bracket (97) on pipe assembly (71) with two cradles (107), U-bolts (106), and four locknuts (105).

45. Install two cables (103) and (102) on U-bolt (104) with locknut (101).

WARNING

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46. Apply electrical sealant on end of two cables (102) and (103).

NOTE

Install washers as noted prior to removal.

47. Position pin (98) and four washers (99) on arm (100).

WARNING

Care must be taken when installing wire on arm and bracket. Wire is under tension and must be held until safely repositioned. Failure to comply may result in injury to personnel.

NOTE

Install washers as noted prior to removal.

48. Position cable wire (88) through pin (98).

NOTE

Install cable as noted prior to removal.

49. Install cable (96) on bracket (97) with two cushion clips (95), screws (94), four washers (93), two lockwashers (92), and nuts (91).

50. Install retainer (90) on cable wire (88) and tighten screw (89).

CAUTION

Cable wire must be bent a minimum of 90 degrees. Failure to comply may allow retainer to come loose and not allow primer cable to function.

51. Bend cable wire (88).

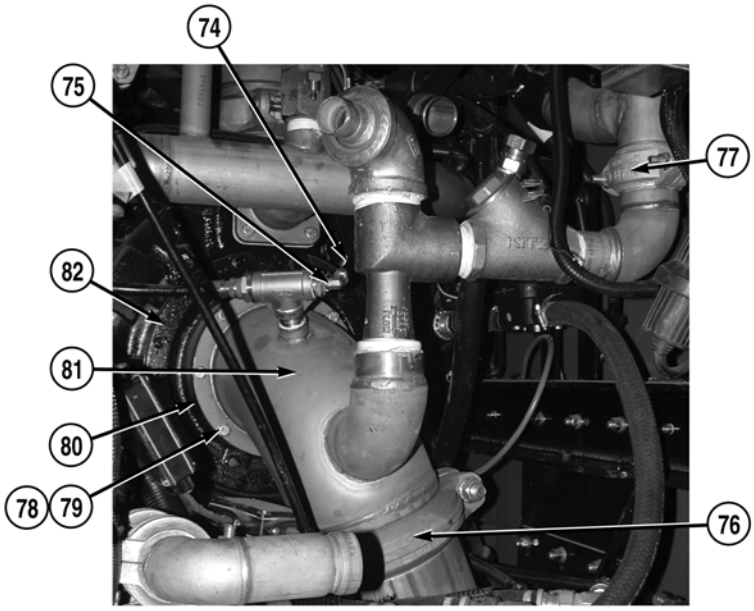
52. Install line (86) on elbow (87).

53. Install wire (84) on stud (85) with nut (83).

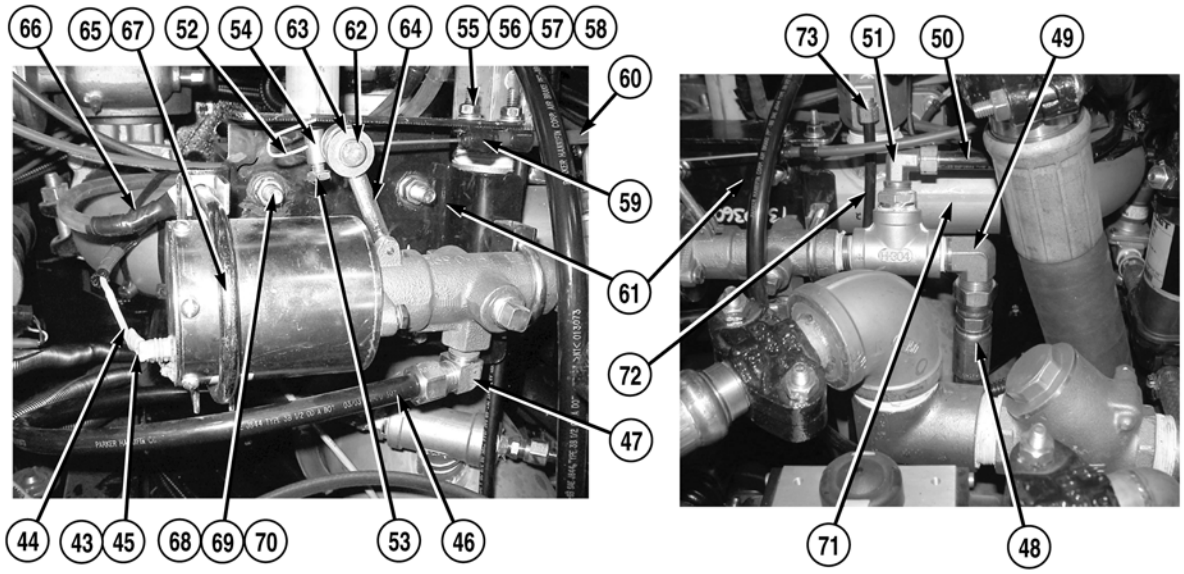
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

54. Apply electrical sealant on end of wire (84).



55. Install elbow (81) and gasket (80) on pump (82) with eight lockwashers (79) and screws (78).
56. Install two couplings (77) and (76) on vehicle (WP 0483).
57. Install line (74) on elbow (75).



58. Install drain line (72) on elbow (73).
59. Install bracket (61) on pipe assembly (71) with two cradles (70), U-bolts (69), and four locknuts (68).
60. Install cable (66) on U-bolt (67) with locknut (65).
61. Position pin (62) and four washers (63) on arm (64).

WARNING

Care must be taken when installing wire on arm and bracket. Wire is under tension and must be held until safely repositioned. Failure to comply may result in injury to personnel.

NOTE

Install washers as noted prior to removal.

62. Position cable wire (52) through pin (62).

NOTE

Install cable as noted prior to removal.

63. Install cable (60) on bracket (61) with two cushion clips (59), screws (58), four washers (57), two lockwashers (56),and nuts (55).

64. Install retainer (54) on cable wire (52) and tighten screw (53).

CAUTION

Cable wire must be bent a minimum of 90 degrees. Failure to comply may allow retainer to come loose and not allow primer cable to function.

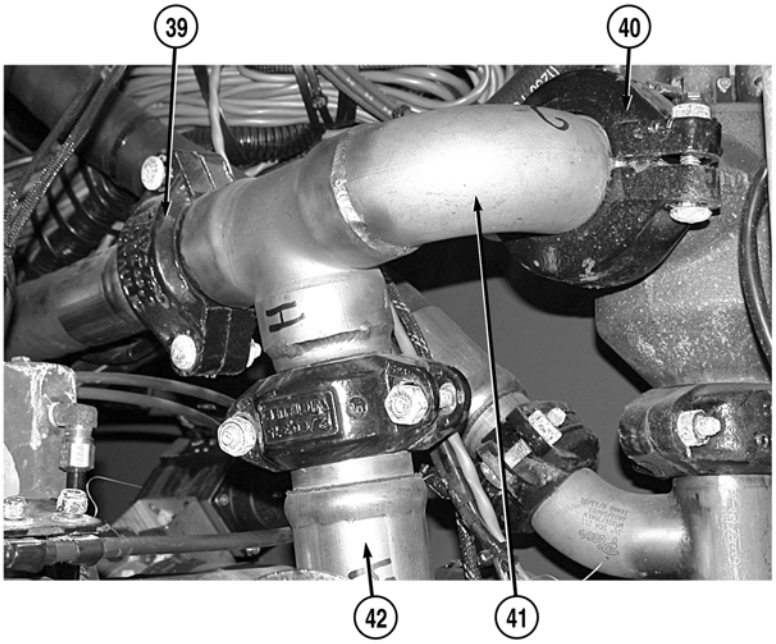
65. Bend cable wire (52).

66. Install line (50) on elbow (51).

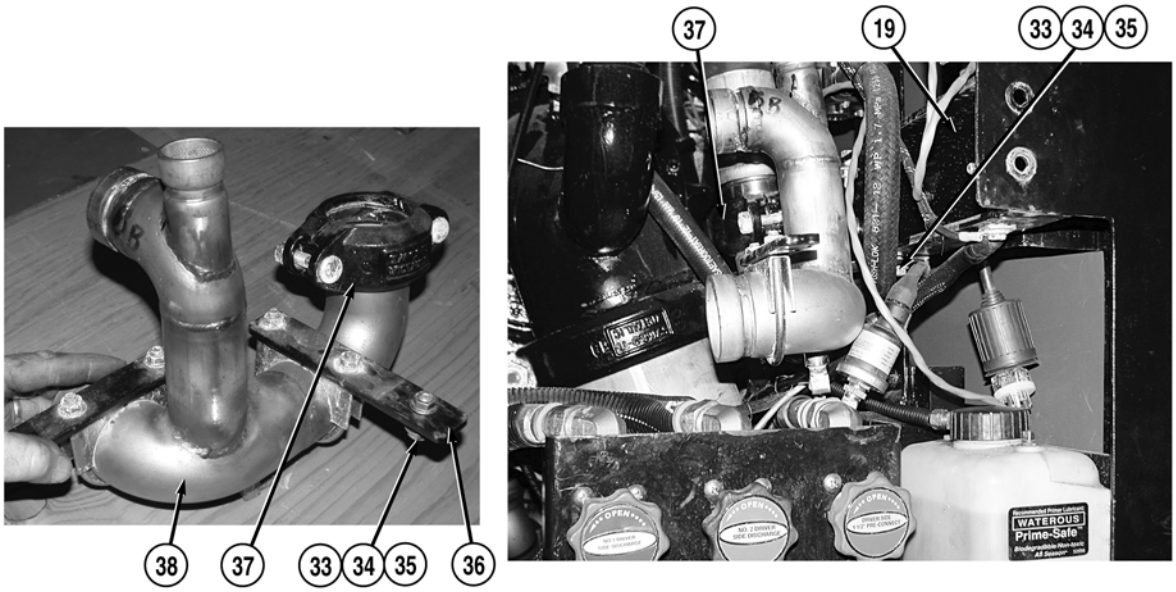
67. Install hose (48) on elbow (49).

68. Install line (46) on elbow (47).

69. Install wire (44) on stud (45) with nut (43).

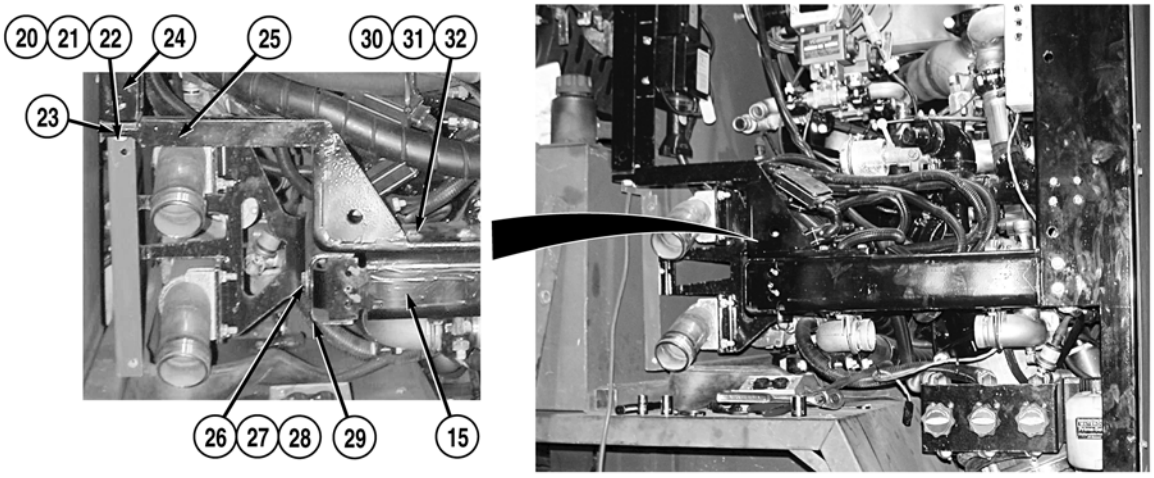


70. Install hose (42) and pipe (41) on vehicle with two couplings (39) and (40) (WP 0483).



71. Install pipe (38) on vehicle with coupling (37) (WP 0483).

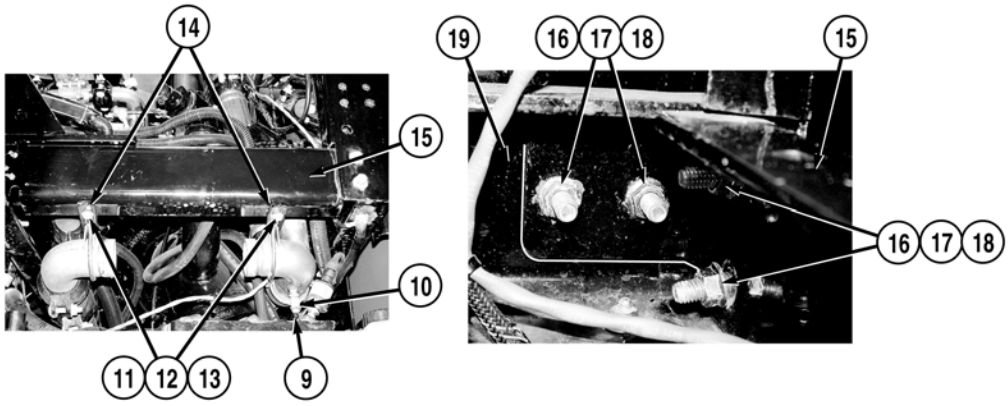
72. Install bracket (36) on frame member (19) with screw (35), washer (34), and locknut (33).



73. Position two frame members (25) and (15) on vehicle and attach frame member (15) to frame member (25) with two screws (32), washers (31), and locknuts (30).

74. Install frame member (15) on frame member (29) with two screws (28), washers (27), and locknuts (26).

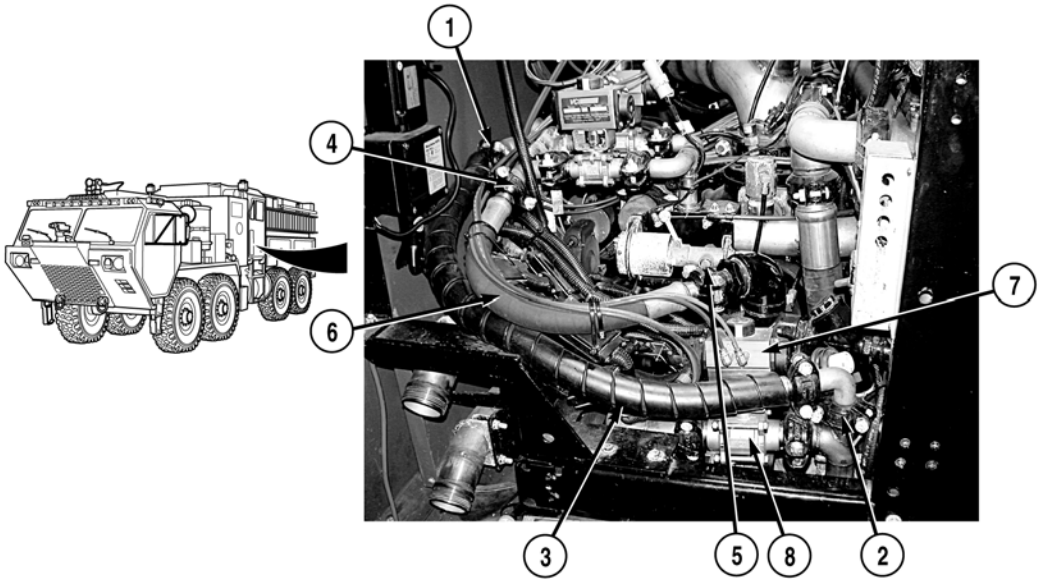
75. Install frame member (25) and spacer (23) on frame member (24) with two screws (22), washers (21), and locknuts (20).



76. Install frame member (15) on frame member (19) with four screws (18), washers (17), and locknuts (16).

77. Install two brackets (14) on frame member (15) with two screws (13), washers (12), and locknuts (11).

78. Install drain line (9) on elbow (10).



79. Install foam system “B” shutoff valve (8) on vehicle (WP 0285).
80. Install foam system “A” shutoff valve (7) on vehicle (WP 0284).
81. Install hose (6) and two couplings (4) and (5) on vehicle (WP 0483).
82. Install hose assembly (3) and two couplings (1) and (2) on vehicle (WP 0483).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install pump house panels C, E, G, and I (WP 0540)
2. Fill water pump with lubricant (WP 0186)
3. Install water pump engine air cleaner assembly (WP 0220)
4. Install number two axle driver side tire (TM 9-2320-325-14&P)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

AUXILIARY INTAKE RELIEF/DUMP VALVE (PASSENGER SIDE) REPLACEMENT

INITIAL SETUP:

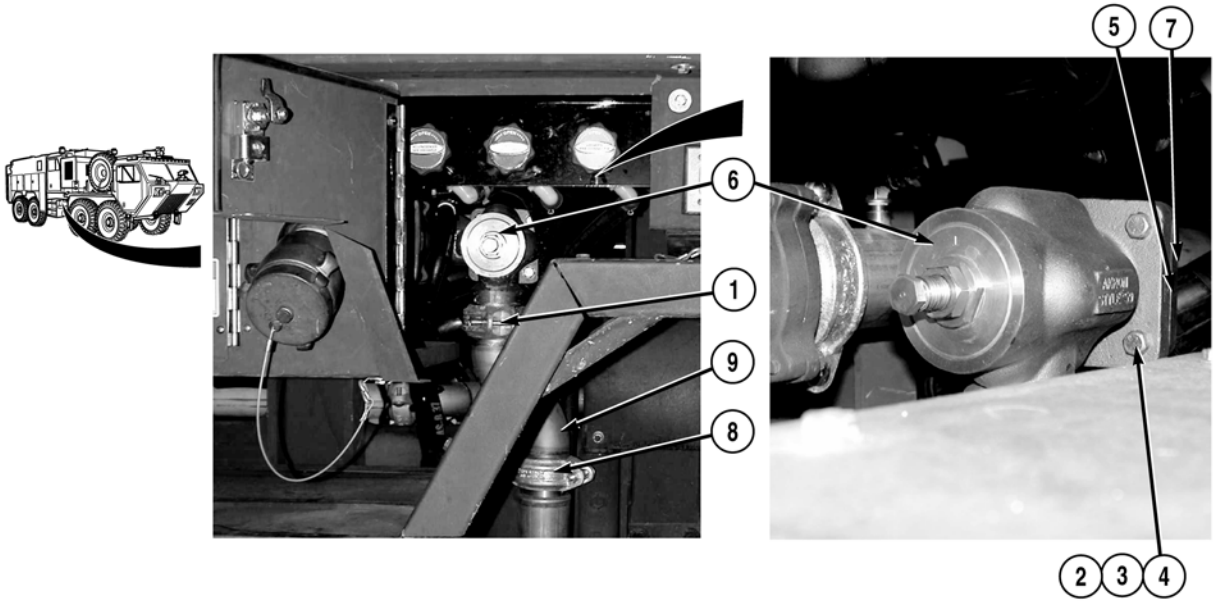
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Ties, Cable, Plastic (WP 0625, Item 58)
Lockwasher (4)
Preformed Packing (4)
Lockwasher (4)
Lockwasher (2)

References
WP 0483
WP 0615, Fig. 37

Equipment Conditions
Pump house panel K removed (WP 0540)
Water system drained (WP 0041)

REMOVAL

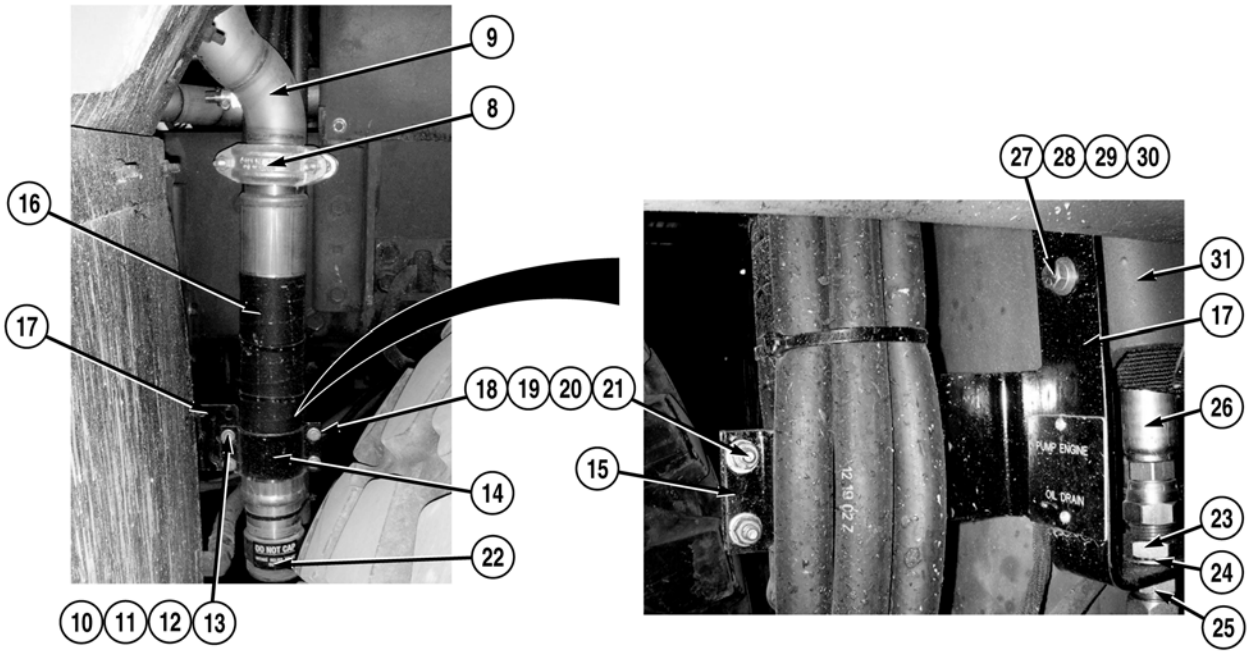


1. Remove coupling (1) from vehicle (WP 0483).
2. Remove four nuts (2), lockwashers (3), screws (4), preformed packing (5), and auxiliary intake relief/dump valve (6) from pipe (7). Discard lockwashers and preformed packings.

NOTE

- Perform Steps (3) through (6) if piping needs to be removed.
- Remove cable ties as required.

3. Remove coupling (8) and pipe (9) from vehicle (WP 0483).



4. Remove two nuts (10), lockwashers (11), four washers (12), two screws (13), brackets (14) and (15), and hose (16) from support bracket (17) and vehicle. Discard lockwashers.
5. Remove two nuts (18), lockwashers (19), four washers (20), two screws (21), and brackets (14) and (15) from hose (16). Discard lockwashers.
6. Remove fitting (22) from hose (16).

NOTE

Perform Steps (7) through (9) if support bracket needs to be removed.

7. Loosen nut (23) and lockwasher (24) on bulkhead fitting (25).
8. Remove drain hose (26) from support bracket (17).
9. Remove two nuts (27), lockwashers (28), four washers (29), two screws (30), and support bracket (17) from bracket (31). Discard lockwashers.

END OF TASK

INSTALLATION

NOTE

- Perform Steps (1) through (3) if support bracket was removed.
- Install cable ties as required.

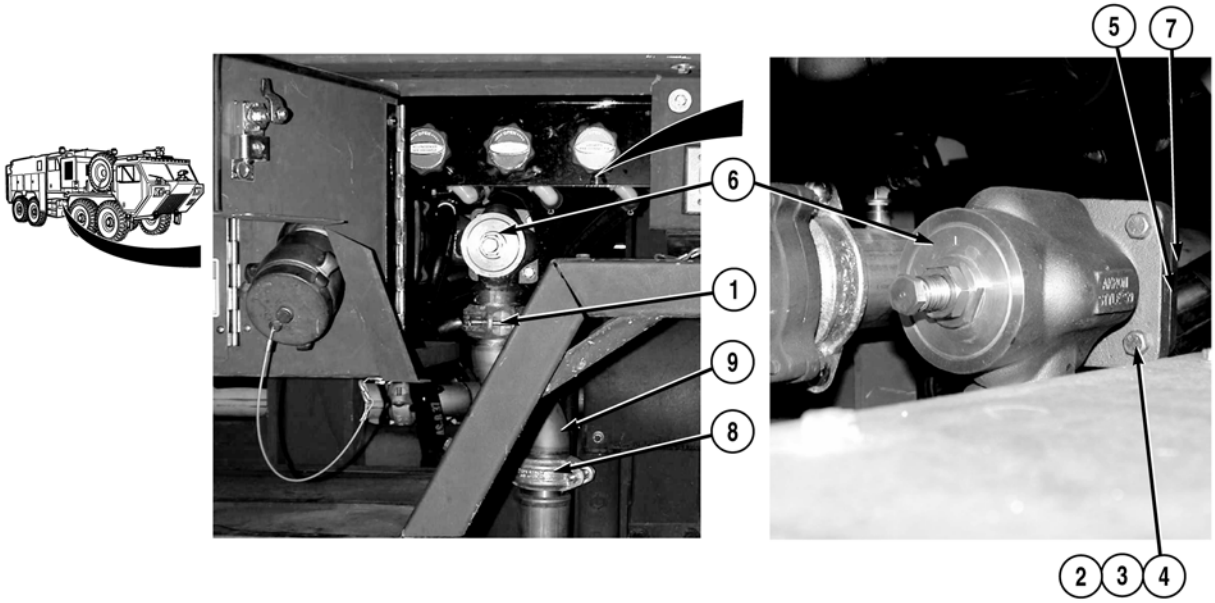
1. Install support bracket (17) on bracket (31) with two screws (30), lockwashers (28), four washers (29), and two nuts (27).
2. Install drain hose (26) on support bracket (17).

3. Tighten lockwasher (24) and nut (23) on bulkhead fitting (25).

NOTE

Perform Steps (4) through (7) if piping was removed.

4. Install fitting (22) on hose (16).
5. Install two brackets (15) and (14) on hose (16) with two screws (21), four washers (20), two lockwashers (19), and nuts (18).
6. Install hose (16) and two brackets (15) and (14) on support bracket (17) with two screws (13), four washers (12), two lockwashers (11), and nuts (10).



7. Install pipe (9) and coupling (8) on vehicle (WP 0483).
8. Install auxiliary intake relief/dump valve (6) and preformed packing (5) on pipe (7) with four screws (4), lockwashers (3), and nuts (2).
9. Install coupling (1) on vehicle (WP 0483).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install pump house panel K (WP 0540)
2. Adjust auxiliary intake relief/dump valve (WP 0257)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

HIGH PRESSURE WATER SOURCE INTAKE RELIEF VALVE SETTING

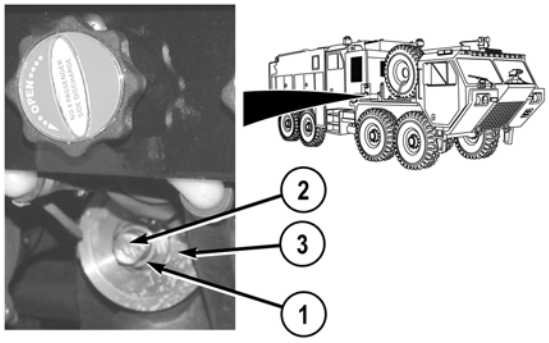
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0615, Fig. 37

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine off (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)

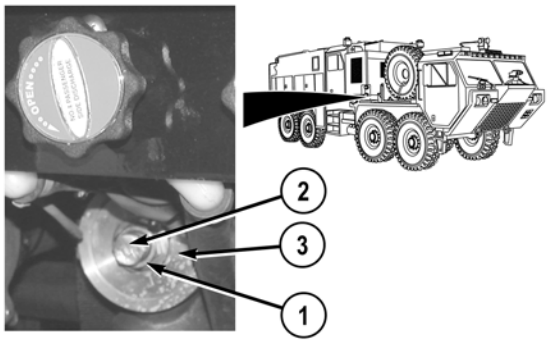
ADJUSTMENT



NOTE

If water pressure is too high, intake relief valve may need to be adjusted. After mission is complete, reset intake relief valve setting to 125 psi (862 kPa).

1. Loosen, but do not remove jamnut (1) on stem (2).
2. Loosen, but do not remove stem (2) on valve (3). Relief pressure is now set at 50 psi (345 kPa).
3. Carefully tighten stem (2) until resistance is felt.



NOTE

- One full turn of stem is equal to approximately 25 psi (172 kPa).
- To reduce intake relief valve setting, loosen stem. To increase intake relief valve setting, tighten stem.

1. Loosen or tighten stem (2) to desired intake relief valve setting.
2. Carefully tighten jamnut (1) on stem (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

MAIN INTAKE RELIEF/DUMP VALVE (DRIVER SIDE) REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

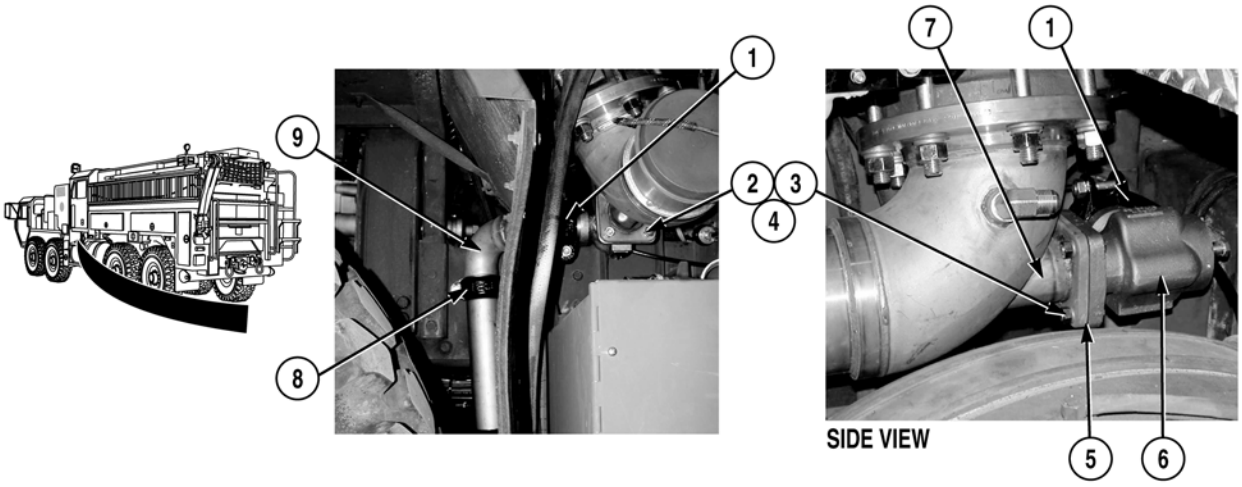
Materials/Parts
Ties, Cable, Plastic (WP 0625, Item 58)
Lockwasher (4)
Preformed Packing (4)
Lockwasher (2)
Lockwasher (2)
Lockwasher (2)

Personnel Required
MOS 63B Wheeled vehicle mechanic (2)

References
WP 0483
WP 0489
WP 0615, Fig. 37

Equipment Conditions
Pump house panel D removed (WP 0540)
Water system drained (WP 0041)

REMOVAL

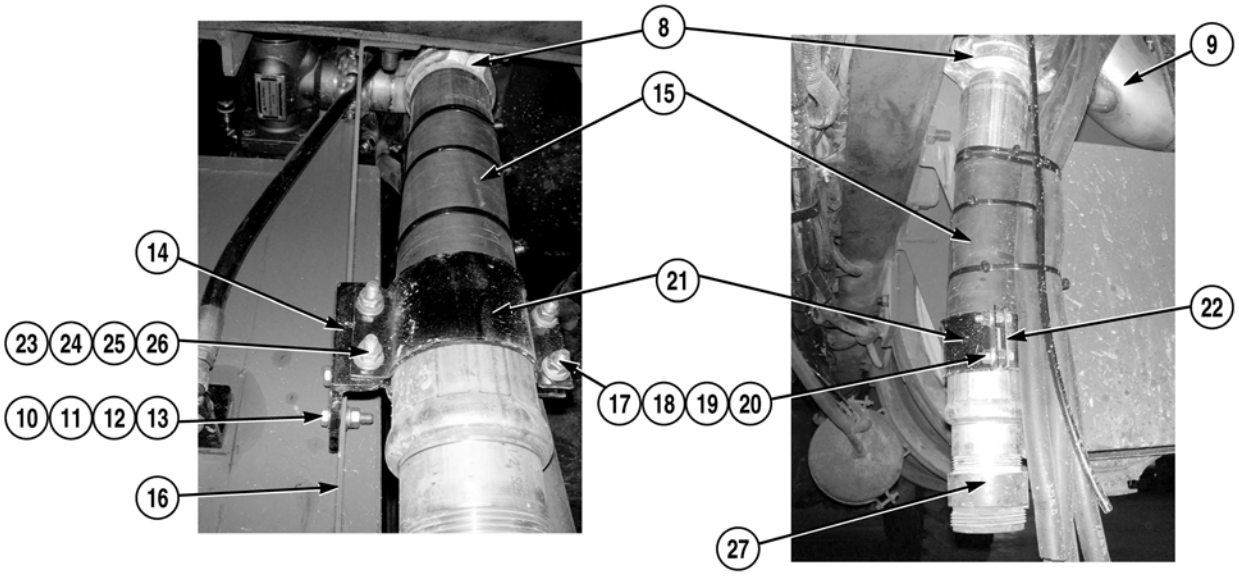


1. With the aid of an assistant, remove coupling (1) from vehicle (WP 0483).
2. Remove four nuts (2), lockwashers (3), screws (4), preformed packing (5), and main inlet relief/dump valve (6) from pipe (7). Discard lockwashers and preformed packings.

NOTE

- Perform Steps (3) through (7) if piping needs to be removed.
- Remove cable ties as required.

3. Remove coupling (8) and pipe (9) from vehicle (WP 0483).



4. Remove two nuts (10), lockwashers (11), four washers (12), two screws (13), bracket (14), and hose (15) from bracket (16). Discard lockwashers.
5. Remove two nuts (17), lockwashers (18), four washers (19), and two screws (20) from clamps (21) and (22). Discard lockwashers.
6. Remove two nuts (23), lockwashers (24), four washers (25), two screws (26), and clamps (21) and (22) from bracket (14) and hose (15). Discard lockwashers.
7. Remove adapter (27) from hose (15).

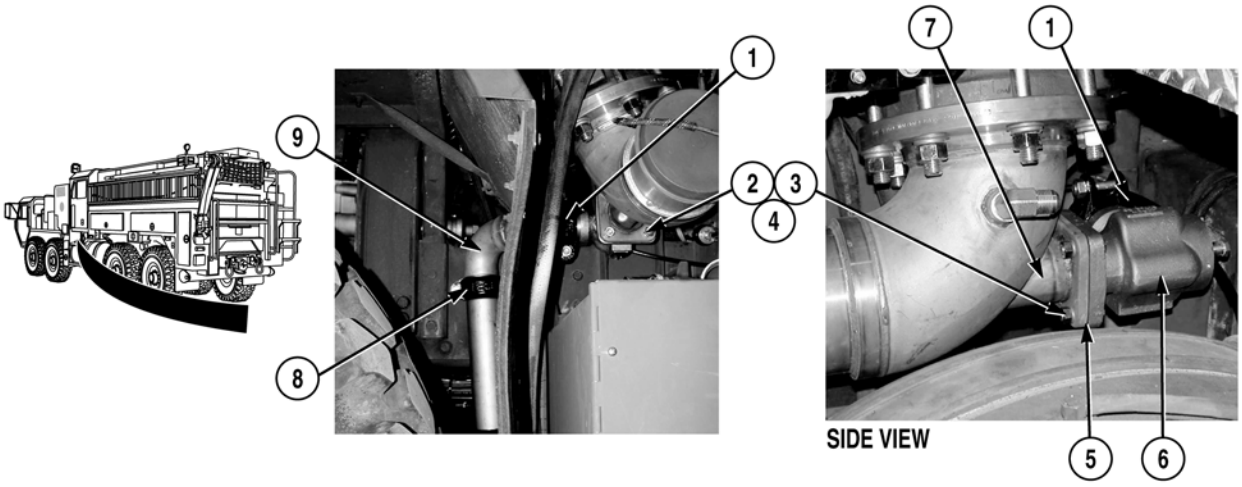
END OF TASK

INSTALLATION

NOTE

- Install cable ties as required.
- Perform Steps (1) through (5) if piping was removed.

1. With the aid of an assistant, install adapter (27) on hose (15) (WP 0489).
2. Install hose (15) on bracket (14) with two clamps (21) and (22), screws (26), four washers (25), two lockwashers (24), and nuts (23).
3. Install two screws (20), four washers (19), two lockwashers (18), and nuts (17) on two clamps (21) and (22).
4. Install bracket (14) and hose (15) on bracket (16) with two screws (13), four washers (12), two lockwashers (11), and nuts (10).



5. Install pipe (9) and coupling (8) on vehicle (WP 0483).
6. Install preformed packing (5) and main inlet relief/dump valve (6) on pipe (7) with four screws (4), lockwashers (3), and nuts (2).
7. Install coupling (1) on vehicle (WP 0483).

FOLLOW-ON MAINTENANCE

Install pump house panel D (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

THERMAL RELIEF VALVE REPLACEMENT

INITIAL SETUP:

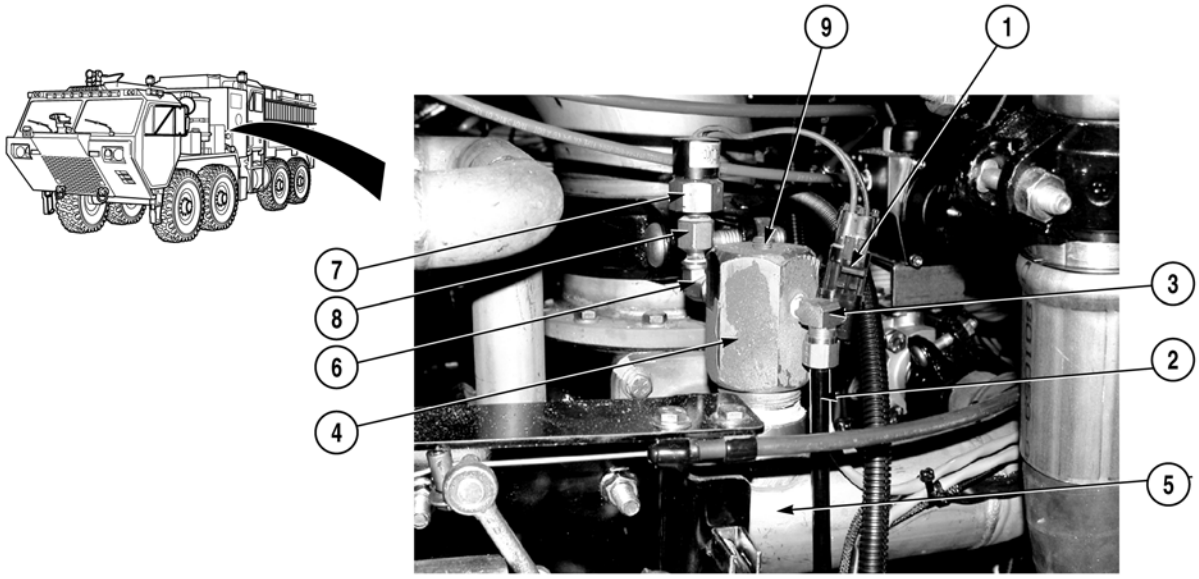
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)

Reference
WP 0489
WP 0615, Fig. 38

Equipment Conditions
Pump house panel A opened (WP 0539)
Water system drained (WP 0041)
Batteries disconnected (TM 9-2320-325-14&P)
Air system drained (TM 9-2320-347-10)

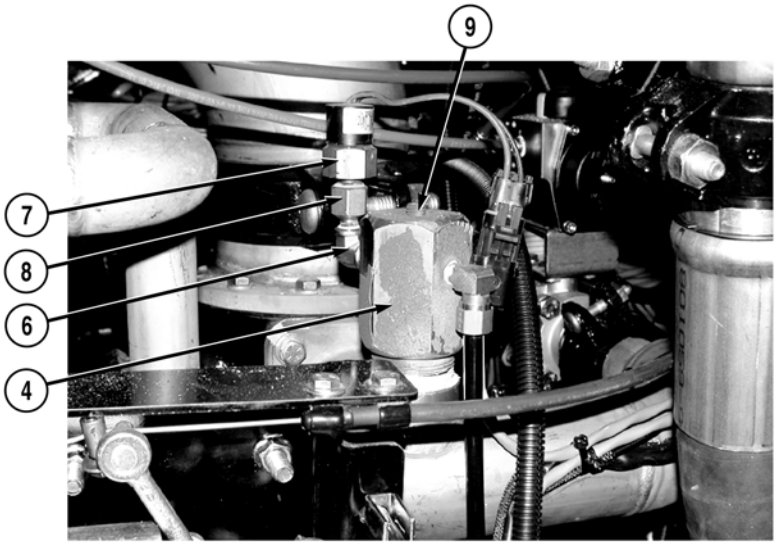
REMOVAL



NOTE

Tag and mark wires and vent line prior to removal to ensure proper installation.

1. Disconnect connector (1).
2. Remove vent line (2) from elbow (3).
3. Remove thermal relief valve (4) from pipe (5).
4. Remove elbow (6) from thermal relief valve (4).
5. Remove elbow (3) from thermal relief valve (4).



6. Remove sensor (7) from fitting (8).
7. Remove fitting (8) from elbow (6).
8. Remove plug (9) from thermal relief valve (4).

END OF TASK

INSTALLATION

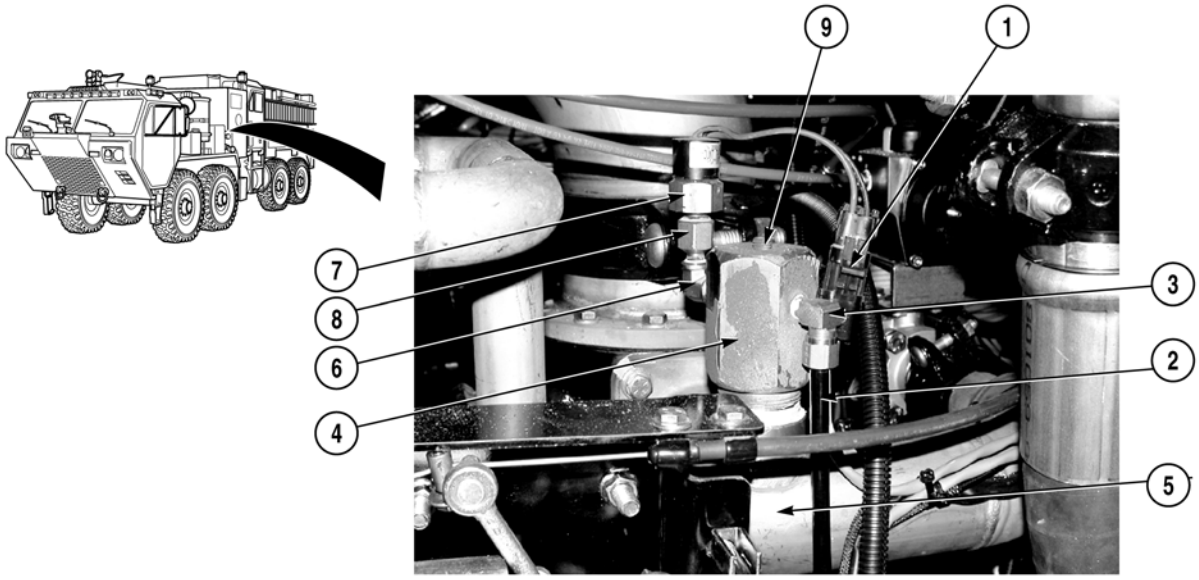
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use pipe thread sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Apply sealing compound to threads of plug (9), fitting (8), elbows (3) and (6), and sensor (7).
2. Install plug (9) on thermal relief valve (4).
3. Install fitting (8) on elbow (6).
4. Install sensor (7) on fitting (8).



5. Install elbow (6) on thermal relief valve (4).
6. Install elbow (3) on thermal relief valve (4).
7. Install thermal relief valve (4) on pipe (5) (WP 0489).
8. Install vent line (2) on elbow (3).
9. Connect connector (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect batteries (TM 9-2320-325-14&P)
2. Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PRIMER PUMP MOTOR CONTROL SOLENOID REPLACEMENT

INITIAL SETUP:

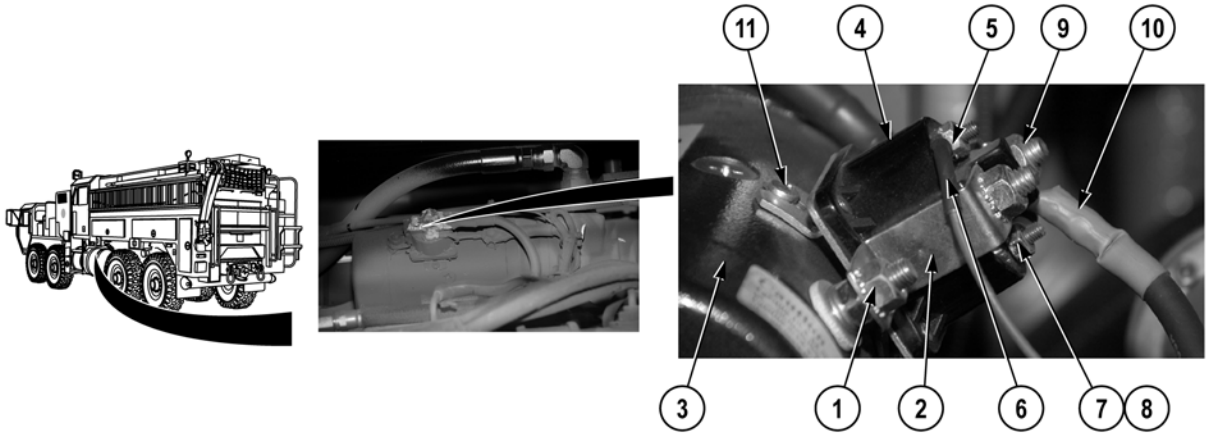
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing (WP 0625, Item 17)
Tags, Identification (WP 0625, Item 51)
Locknut (2)
Locknut (1)
Locknut (1)
Locknut (1)

References
WP 0615, Fig. 41

Equipment Conditions
Water pump engine OFF (WP 0022)
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)
Batteries disconnected (TM 9-2320-325-14&P)

REMOVAL



1. Remove two locknuts (1) and electrical strip (2) from primer pump motor (3) and primer pump control solenoid (4). Discard locknuts.

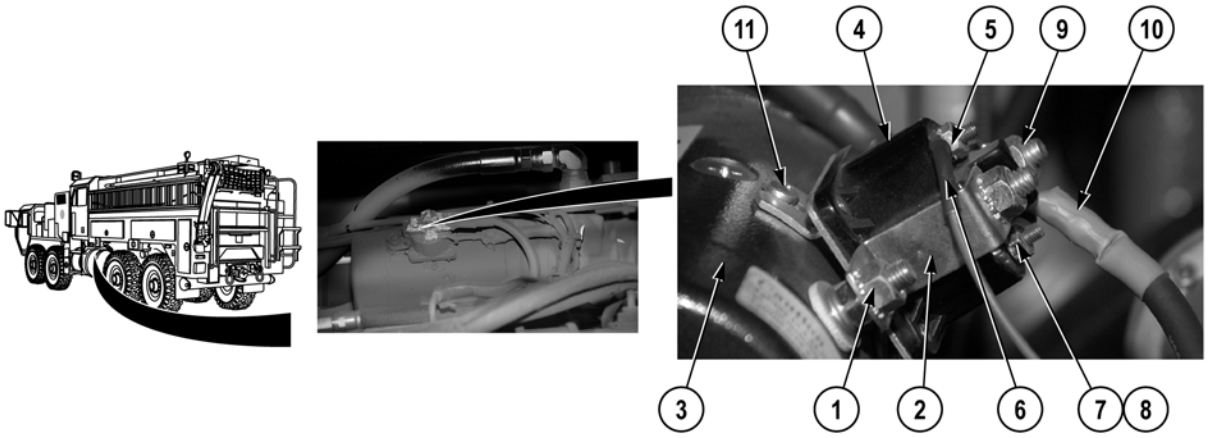
NOTE

Tag and mark wires prior to removal to ensure proper installation.

2. Remove locknut (5) and wire 2774 (6) from primer pump control solenoid (4). Discard locknut.
3. Remove locknut (7) and jumperwire (8) from primer pump control solenoid (4). Discard locknut.
4. Remove locknut (9) and power wire (10) from primer pump control solenoid (4). Discard locknut.
5. Remove two screws (11) and primer pump control solenoid (4) from primer pump motor (3).

END OF TASK

INSTALLATION



1. Install primer pump control solenoid (4) on primer pump motor (3) with two screws (11).
2. Install power wire (10) on primer pump control solenoid (4) with locknut (9).
3. Install jumperwire (8) on primer pump control solenoid (4) with locknut (7).
4. Install wire 2774 (6) on primer pump control solenoid (4) with locknut (5).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

5. Apply sealing compound to connections of power wire (10), jumperwire (8), and wire 2774 (6).
6. Install electrical strip (2) on primer pump motor (3) and primer pump control solenoid (4) with two locknuts (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect batteries (TM 9-2320-325-14&P)
2. Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

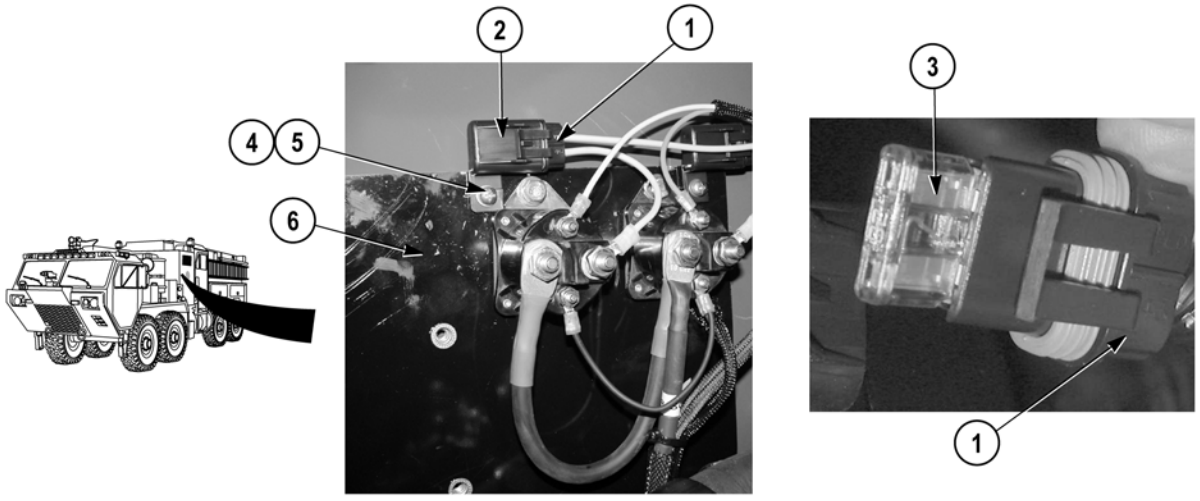
PRIMER PUMP VALVE MOTOR INLINE FUSE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Equipment Conditions
Batteries disconnected (TM 9-2320-325-14&P)
Pump house panel A opened (WP 0539)

REMOVAL



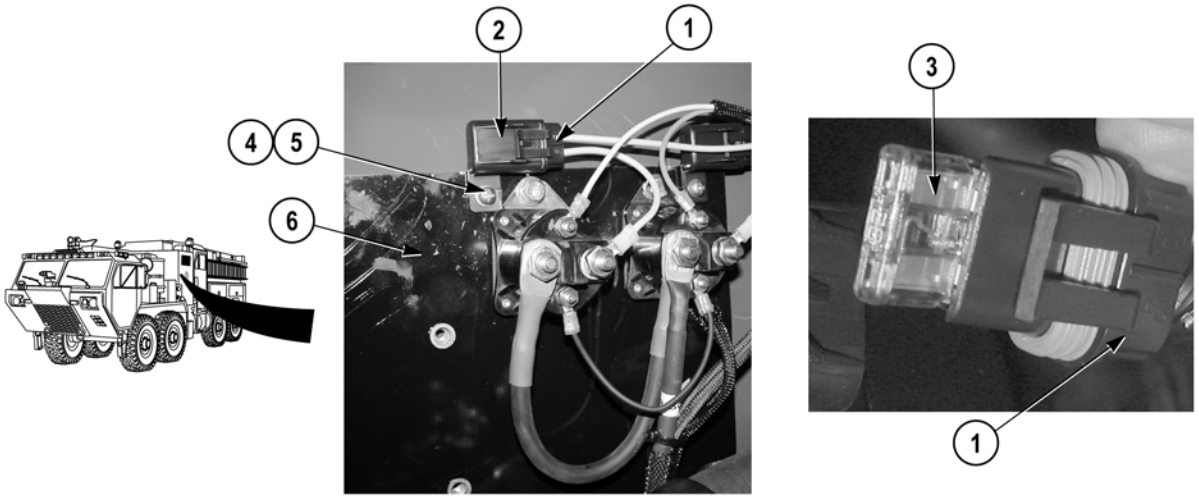
NOTE

- Both fuses are replaced the same way.
- Primer pump motor No. 1 inline fuse shown.

1. Remove fuse holder (1) from cover (2).
2. Remove fuse (3) from fuse holder (1).
3. Remove screw (4), washer (5), and cover (2) from bracket (6).

END OF TASK

INSTALLATION



1. Install cover (2) on bracket (6) with washer (5) and screw (4).
2. Install fuse (3) in fuse holder (1).
3. Install fuse holder (1) on cover (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close pump house panel A (WP 0539)
2. Connect batteries (TM 9-2320-325-14&P)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PRIMER PUMP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

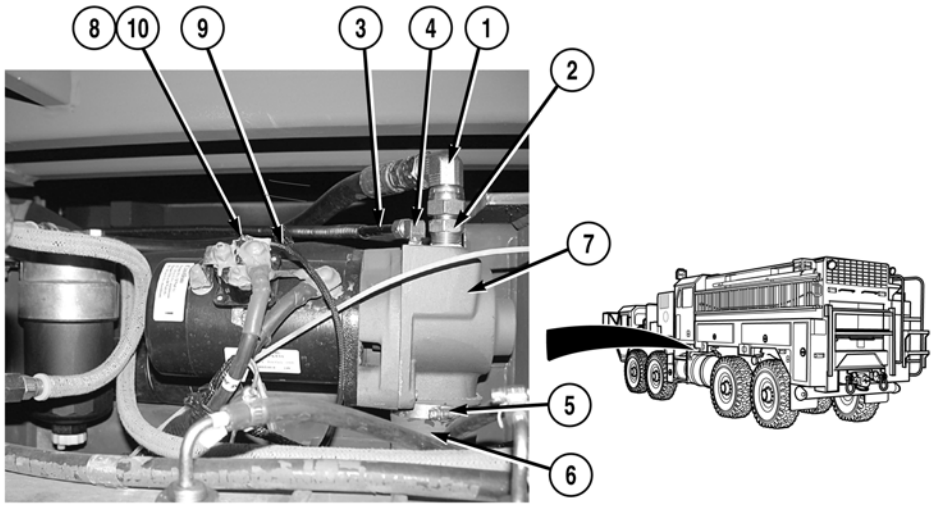
Materials/Parts
Compound, Sealing, Pipe Tread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)
Locknut (1)
Locknut (1)

Materials/Parts (continued)
Locknut (1)
Locknut (1)
Locknut (4)

References
WP 0615, Fig. 39

Equipment Conditions
Water pump engine OFF (WP 0022)
Batteries disconnected (TM 9-2320-325-14&P)
Water system drained (WP 0041)

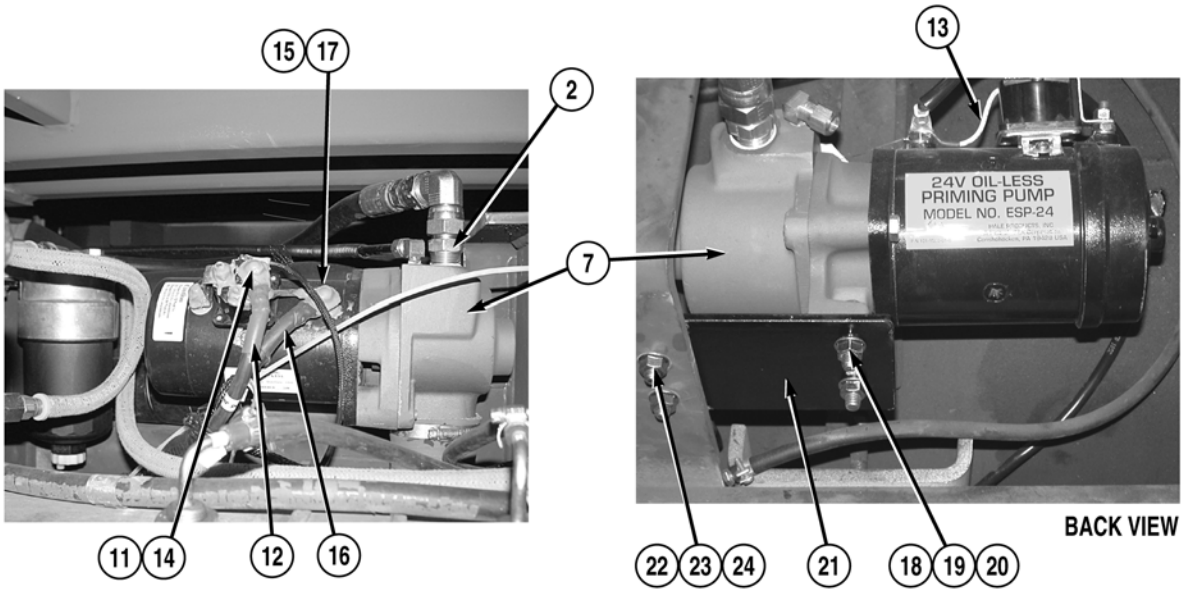
REMOVAL



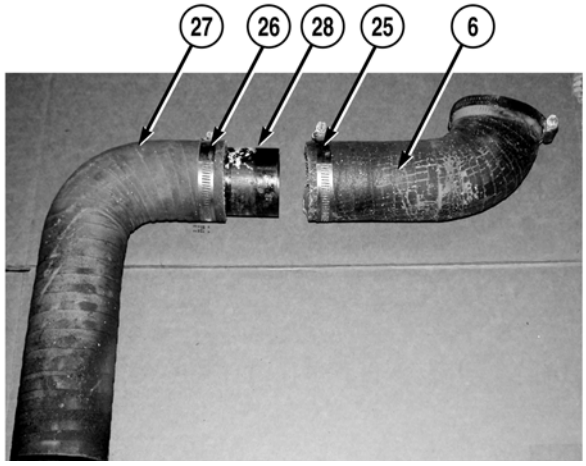
NOTE

- Tag and mark hoses and wires prior to removal to ensure proper installation.
- Remove cable ties as required.

1. Remove elbow (1) from fitting (2).
2. Remove supply line (3) from elbow (4).
3. Loosen clamp (5) and remove hose (6) from primer pump (7) and vehicle.
4. Remove locknut (8) and wire (9) from stud (10). Discard locknut.



5. Remove locknut (11) and two wires (12) and (13) from stud (14). Discard locknut.
6. Remove locknut (15) and two wires (13) and (16) from stud (17). Discard locknut.
7. Remove two locknuts (18), washers (19), screws (20), and primer pump (7) from bracket (21). Discard locknuts.
8. Remove fitting (2) and elbow (4) from primer pump (7).
9. Remove two locknuts (22), washers (23), screws (24), and bracket (21) from vehicle. Discard locknuts.



10. Loosen two clamps (25) and (26) and remove two hoses (6) and (27) from pipe (28).

END OF TASK

INSTALLATION

NOTE

Install cable ties as required.

1. Install two hoses (6) and (27) on pipe (28) and tighten two clamps (25) and (26).
2. Install bracket (21) on vehicle with two screws (24), washers (23), and locknuts (22).

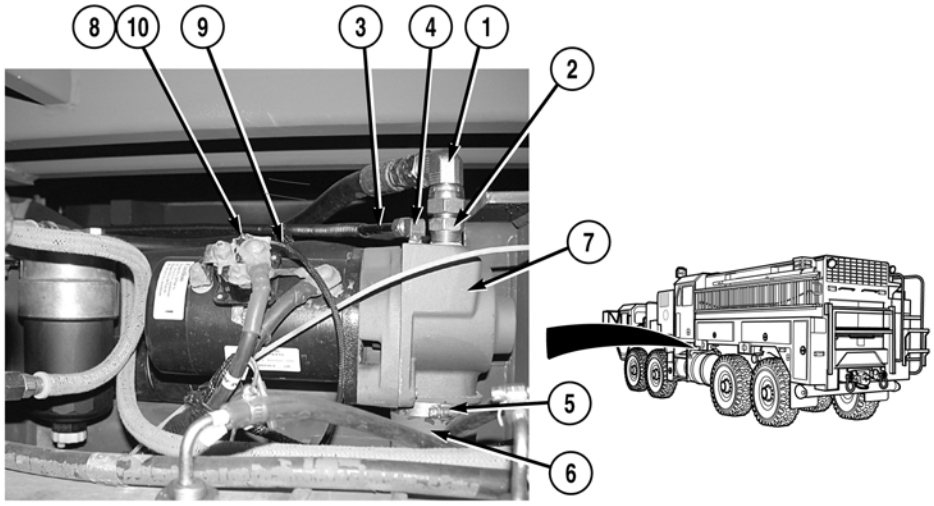
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

3. Apply sealing compound to threads of fitting (2) and elbow (4).
4. Install fitting (2) and elbow (4) on primer pump (7).
5. Install primer pump (7) on bracket (21) with two screws (20), washers (19), and locknuts (18).
6. Install two wires (13) and (16) on stud (17) with locknut (15).
7. Install two wires (12) and (13) on stud (14) with locknut (11).



8. Install wire (9) on stud (10) with locknut (8).
9. Install hose (6) on primer pump (7) with clamp (5).
10. Install supply line (3) on elbow (4).
11. Install elbow (1) on fitting (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Connect batteries (TM 9-2320-325-14&P)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PRIMER PUMP REPAIR

INITIAL SETUP:

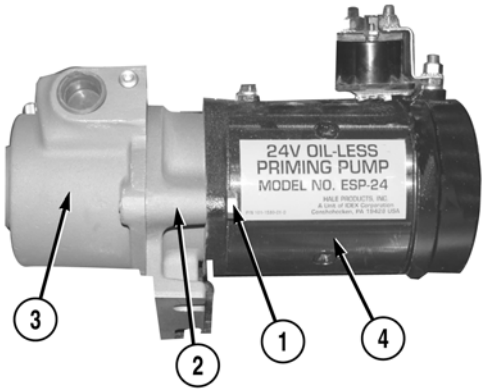
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Grease, Motor Assembly (WP 0625, Item 24)
Cleaning Compound, Solvent (WP 0625, Item 12)
Seal (1)

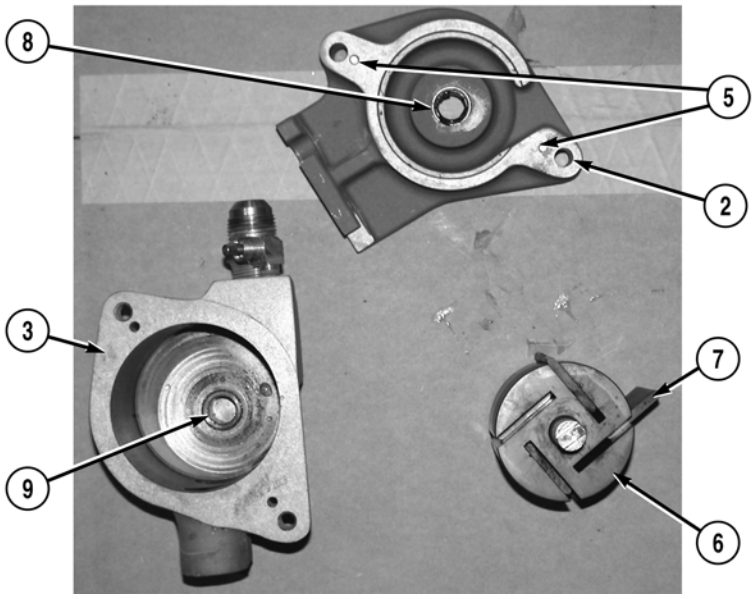
References
WP 0615, Fig. 40

Equipment Conditions
Primer pump removed (WP 0262)

DISASSEMBLY



1. Remove two screws (1), priming pump head (2), and priming pump body (3) from motor (4).



2. Remove priming pump head (2) and two locating pins (5) from priming pump body (3).
3. Remove shaft and rotor assembly (6) from priming pump body (3).
4. Remove four vanes (7) from shaft and rotor assembly (6).
5. Remove seal (8) from priming pump head (2). Discard seal.
6. Remove bearing (9) from priming pump body (3).

END OF TASK

CLEANING/INSPECTION

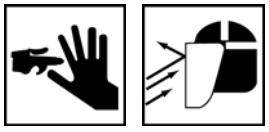
WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

1. Clean all metallic parts with solvent cleaning compound.

WARNING

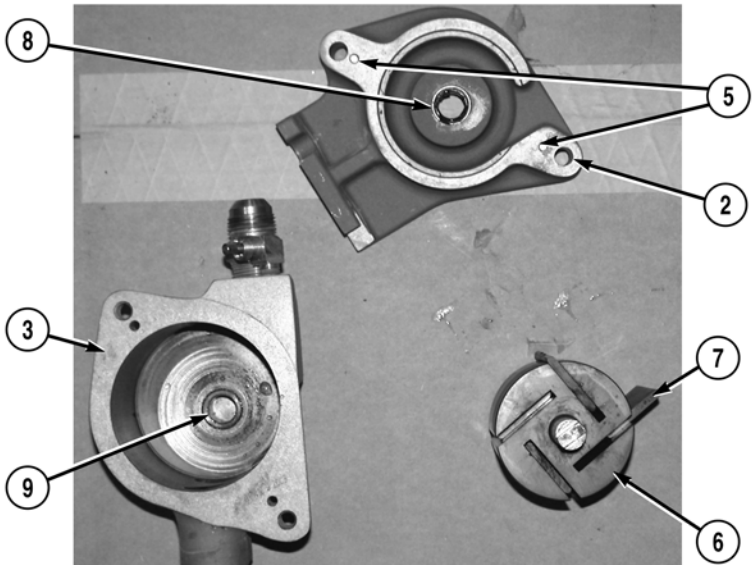


Compressed air used for cleaning purposes will not exceed 30 psi (207 kPa). Use only with effective chip guarding and personal protective equipment, goggles, shield, and gloves.

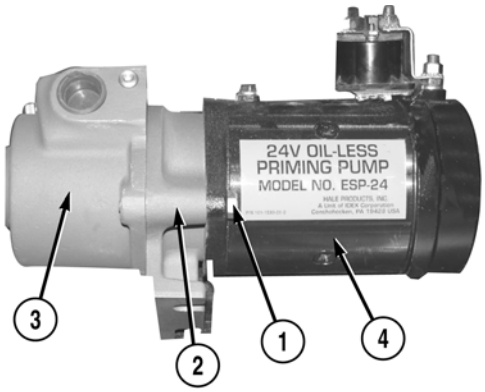
2. Dry all parts, except bearings, with compressed air.
3. Inspect all parts for damage.
4. Replace damaged parts.

END OF TASK

ASSEMBLY



1. Install bearing (9) on priming pump body (3).
2. Apply motor assembly grease on seal (8) and install seal (8) on priming pump head (2).
3. Install four vanes (7) on shaft and rotor assembly (6).
4. Install shaft and rotor assembly (6) on priming pump body (3).
5. Install two locating pins (5) and priming pump head (2) on priming pump body (3).



6. Install priming pump head (2) and priming pump body (3) on motor (4) with two screws (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install primer pump (WP 0262)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PRIMER TANK REPLACEMENT

INITIAL SETUP:

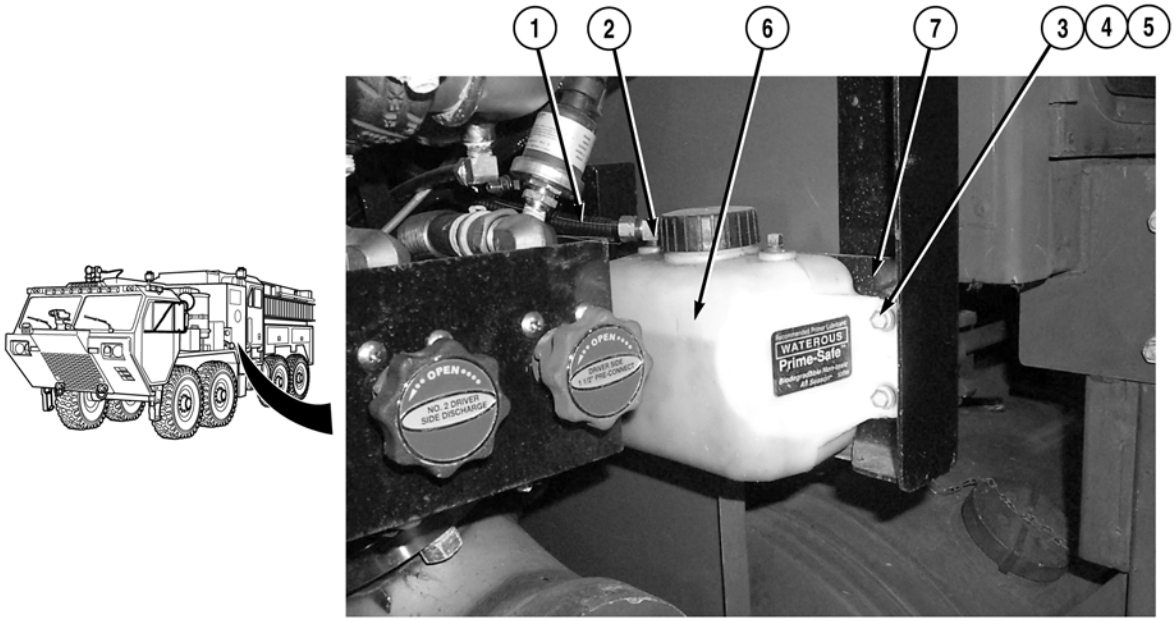
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Lockwasher (4)

References
WP 0186
WP 0615, Fig. 42

Equipment Conditions
Pump house panel B removed (WP 0540)

REMOVAL



1. Remove primer line (1) from elbow (2).
2. Remove four screws (3), lockwashers (4), washers (5), and primer tank (6) from bracket (7). Discard lockwashers.

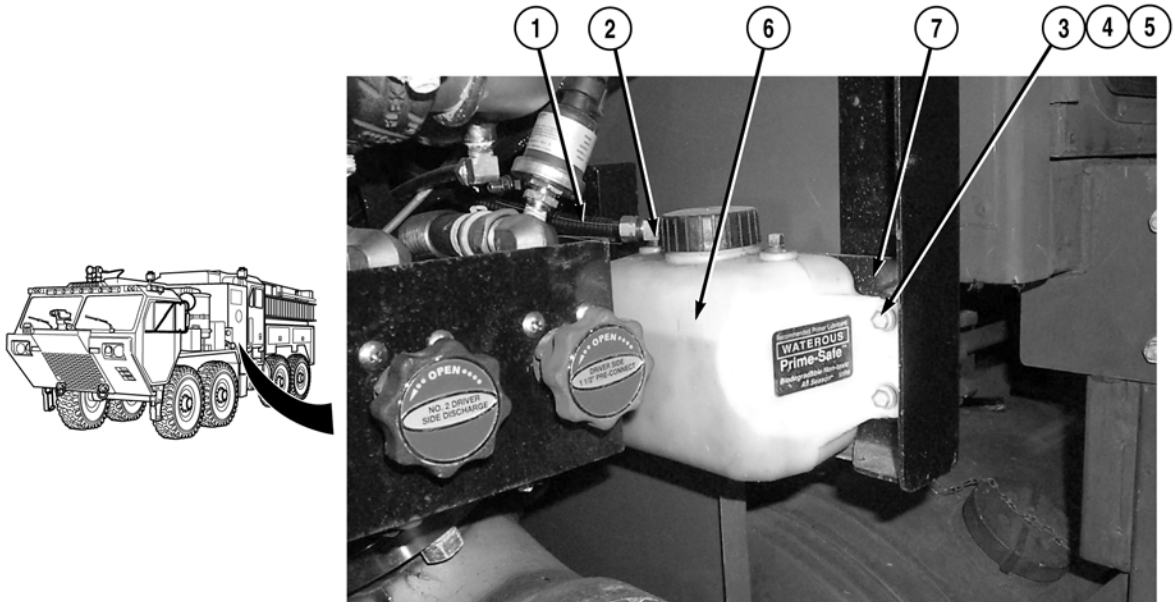
NOTE

Pick-up tube remains attached to elbow and is removed as an assembly.

3. Remove elbow (2) from primer tank (6).
4. Drain priming pump lubricant from primer tank (6).

END OF TASK

INSTALLATION



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

1. Apply thread sealing compound to threads of elbow (2).
2. Install elbow (2) on primer tank (6).
3. Install primer tank (6) on bracket (7) with four screws (3), lockwashers (4), and washers (5).
4. Install primer line (1) on elbow (2).
5. Refill primer tank (6) if required (WP 0186).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel B (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PRIMER VALVE CABLE REPLACEMENT

INITIAL SETUP:

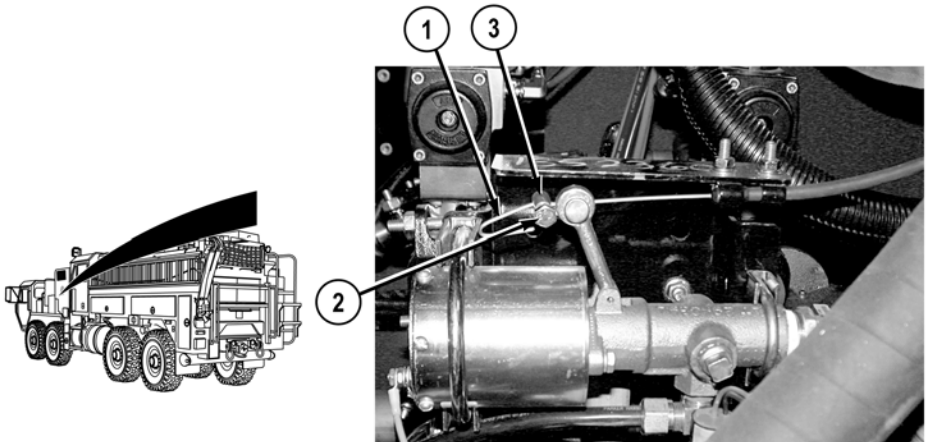
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Ties, Cable, Plastic (WP 0625, Item 58)
Lockwasher (2)

References
WP 0615, Fig. 41

Equipment Conditions
Pump operator's panel manual primer handle removed (WP 0329)
Pump house panel A opened (WP 0539)

REMOVAL



NOTE

Both primer valve cables are removed the same way. Primer valve cable No.1 shown.

1. Straighten cable wire (1).

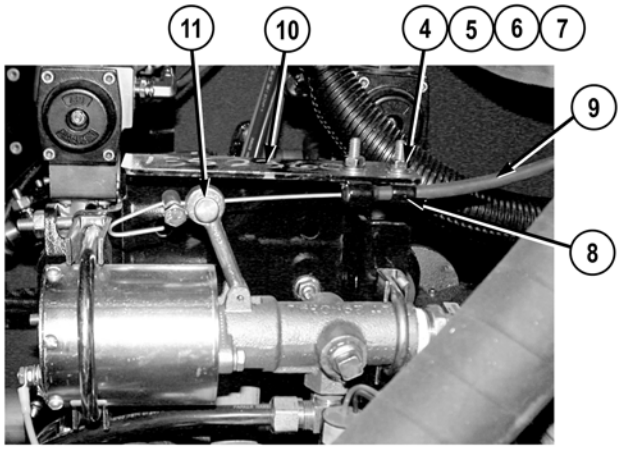
WARNING

Care must be taken when removing cable wire from arm and bracket. Wire is under tension and must be held until safely repositioned. Failure to comply may result in injury to personnel.

NOTE

Note position of retainer on cable wire prior to removal to ensure proper installation.

2. Loosen screw (2) and remove retainer (3) from cable wire (1).



NOTE

Note position of cable on bracket prior to removal to ensure proper installation.

3. Remove two nuts (4), lockwashers (5), four washers (6), two screws (7), cushion clips (8), and cable (9) from bracket (10). Discard lockwashers.
4. Remove cable wire (1) from pin (11).

NOTE

- Note routing of cable in pump house prior to removal to ensure proper installation.
- Remove cable ties as required.

5. Remove cable (9) from vehicle.

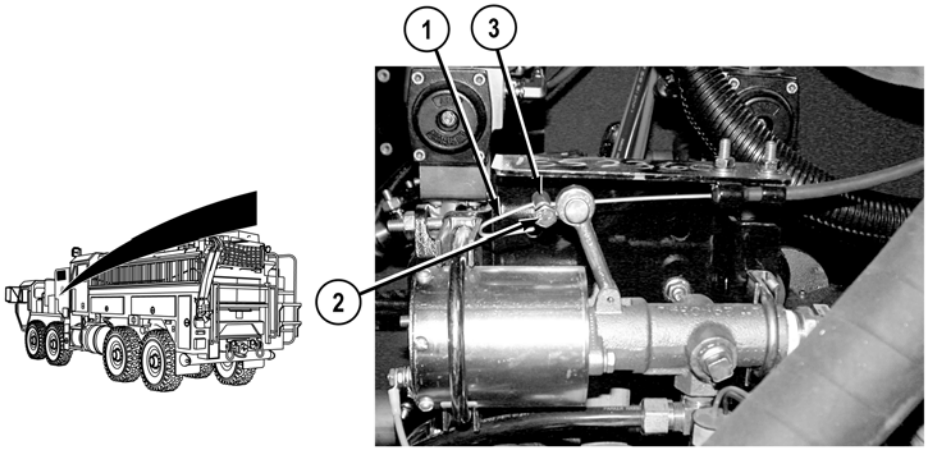
END OF TASK

INSTALLATION

NOTE

- Route cable in pump house as noted prior to removal.
- Install cable ties as required.

1. Position cable (9) on vehicle.
2. Install cable wire (1) through pin (11).
3. Install cable (9) on bracket (10) with two cushion clips (8), screws (7), four washers (6), two lockwashers (5), and nuts (4). Do not tighten screws.



NOTE

Install retainer on cable wire as noted prior to removal.

4. Install retainer (3) on cable wire (1) with screw (2).

NOTE

Cable must be pushed down all the way at pump panel before bending cable.

5. Bend cable wire (1).
6. Tighten two screws (6).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close pump house panel A (WP 0539)
2. Install pump operator’s panel manual primer handle (WP 0329)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PRIMER VALVE CONTROL SOLENOID(S) REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

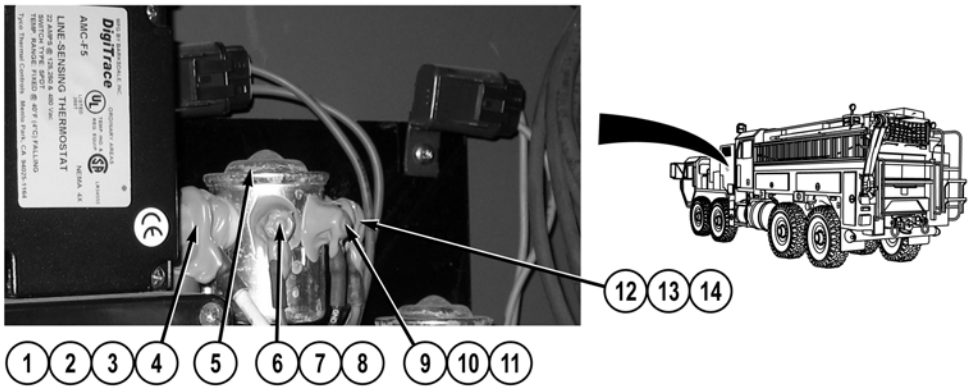
Materials/Parts
Compound Sealing (WP 0625, Item 17)
Tags, Identification (WP 0625, Item 51)

Materials/Parts (continued)
Lockwasher (8)

References
WP 0615, Fig. 41

Equipment Conditions
Pump house panel A opened (WP 0539)

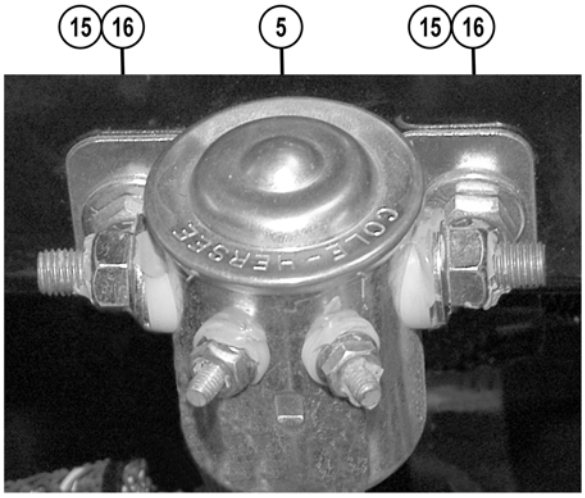
PUMP PRIMER SOLENOID REMOVAL



NOTE

Tag and mark wires prior to removal to ensure proper installation.

1. Remove nut (1), lockwasher (2), jumperwire 2768 (3), and No. 6 gauge wire (4) from pump primer solenoid (5). Discard lockwasher.
2. Remove nut (6), lockwasher (7), and wire 1590 (8) from pump primer solenoid (5). Discard lockwasher.
3. Remove nut (9), lockwasher (10), and wire 1640 (11) from pump primer solenoid (5). Discard lockwasher.
4. Remove nut (12), lockwasher (13), and wire 4064 (14) from pump primer solenoid (5). Discard lockwasher.

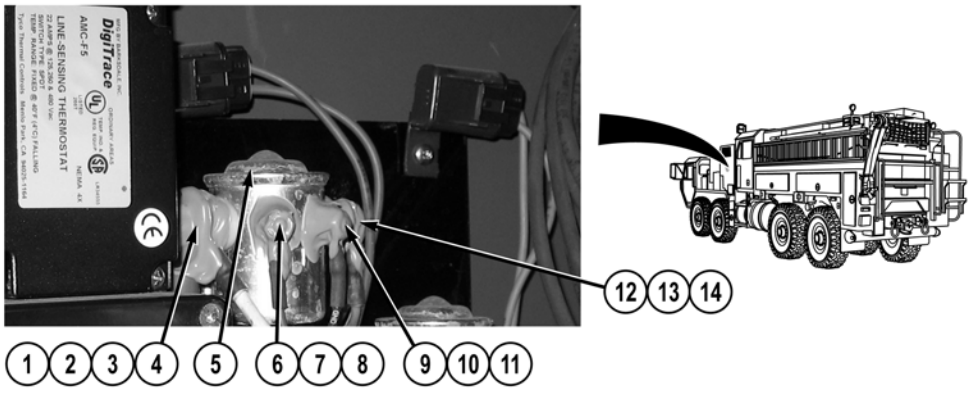


5. Remove two screws (15), washers (16), and pump primer solenoid (5) from vehicle.

END OF TASK

PUMP PRIMER SOLENOID INSTALLATION

1. Install pump primer solenoid (5) on vehicle with two washers (16) and screws (15).



2. Install wire 4064 (14) on pump primer solenoid (5) with lockwasher (13) and nut (12).
3. Install wire 1640 (11) on pump primer solenoid (5) with lockwasher (10) and nut (9).
4. Install wire 1590 (8) on pump primer solenoid (5) with lockwasher (7) and nut (6).
5. Install No. 6 gauge wire (4) and jumperwire 2768 (3) on pump primer solenoid (5) with lockwasher (2) and nut (1).

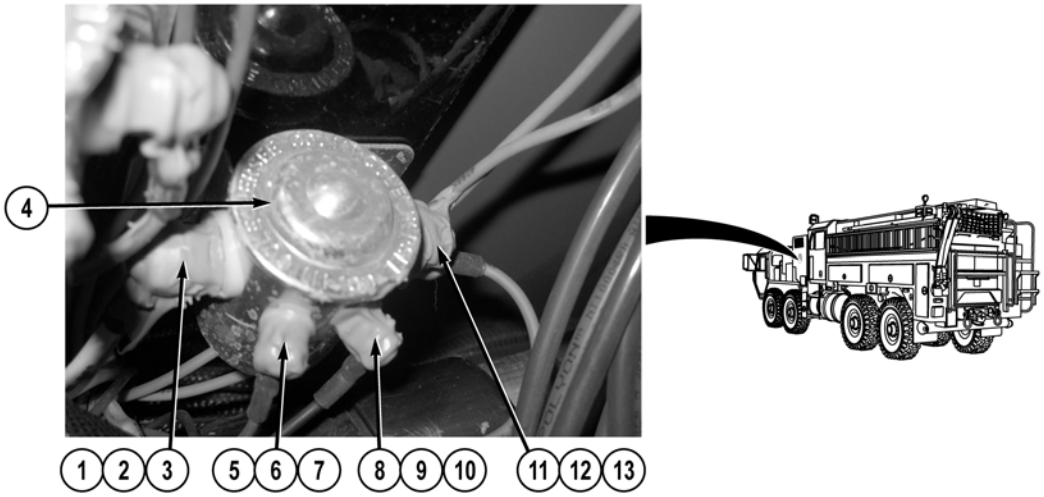
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

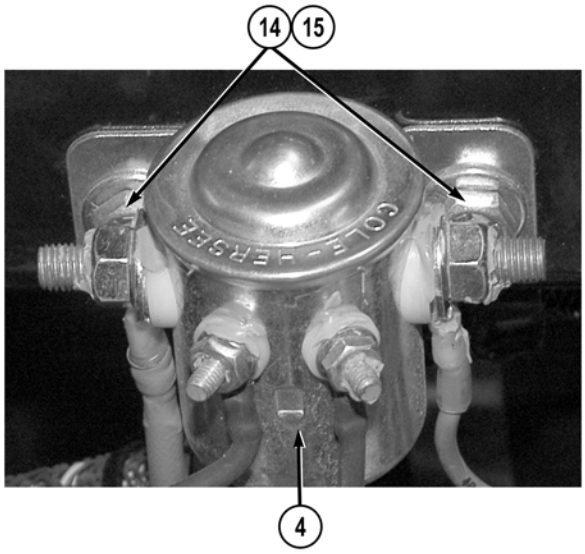
6. Apply sealing compound to electrical connections at wire 4064 (14), wire 1640 (11), wire1590 (8), and jumperwire 2768 (3).

END OF TASK

DRIVER SIDE INLET PRIME VALVE SOLENOID REMOVAL



1. Remove nut (1), lockwasher (2), and jumperwire 2768 (3) from driver side inlet prime valve solenoid (4). Discard lockwasher.
2. Remove nut (5), lockwasher (6), and wire 2788 (7) from driver side inlet prime valve solenoid (4). Discard lockwasher.
3. Remove nut (8), lockwasher (9), and wire 1640 (10) from driver side inlet prime valve solenoid (4). Discard lockwasher.
4. Remove nut (11), lockwasher (12), wire 4066 (13) from driver side inlet prime valve solenoid (4). Discard lockwasher.

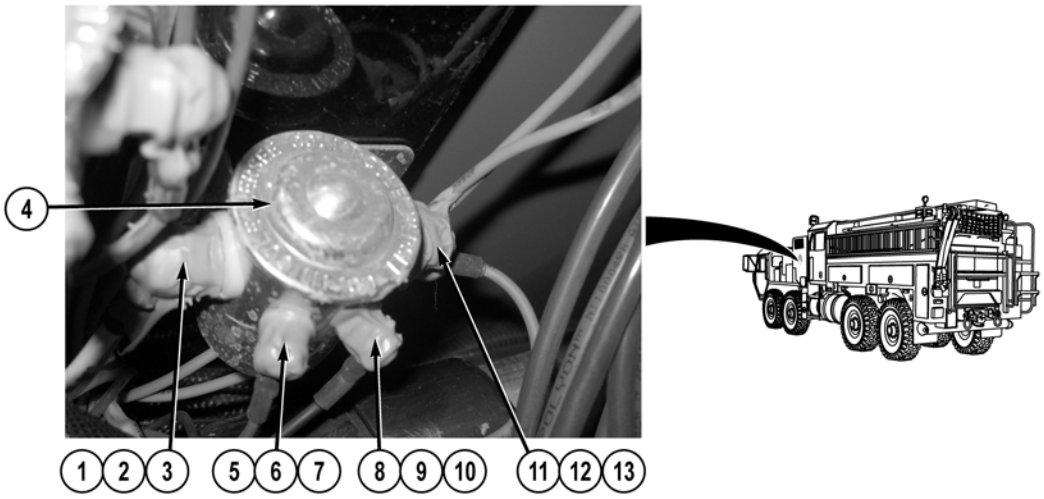


5. Remove two screws (14), washers (15), and driver side inlet prime valve solenoid (4) from vehicle.

END OF TASK

DRIVER SIDE INLET PRIME VALVE SOLENOID INSTALLATION

1. Install driver side inlet prime valve solenoid (4) on vehicle with two washers (15) and screws (14).



2. Install wire 4066 (13) on driver side inlet prime valve solenoid (4) with lockwasher (12) and nut (11).
3. Install wire 1640 (10) on driver side inlet prime valve solenoid (4) with lockwasher (9) and nut (8).
4. Install wire 2788 (7) on driver side inlet prime valve solenoid (4) with lockwasher (6) and nut (5).
5. Install jumperwire 2768 (3) on driver side inlet prime valve solenoid (4) with lockwasher (2) and nut (1).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

6. Apply sealing compound to electrical connections at wire 4066 (13), wire 1640 (10), wire 2788 (7), and jumperwire 2768 (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump house panel A (WP 0539).

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PUMP PRIMER VALVE REPLACEMENT

INITIAL SETUP:

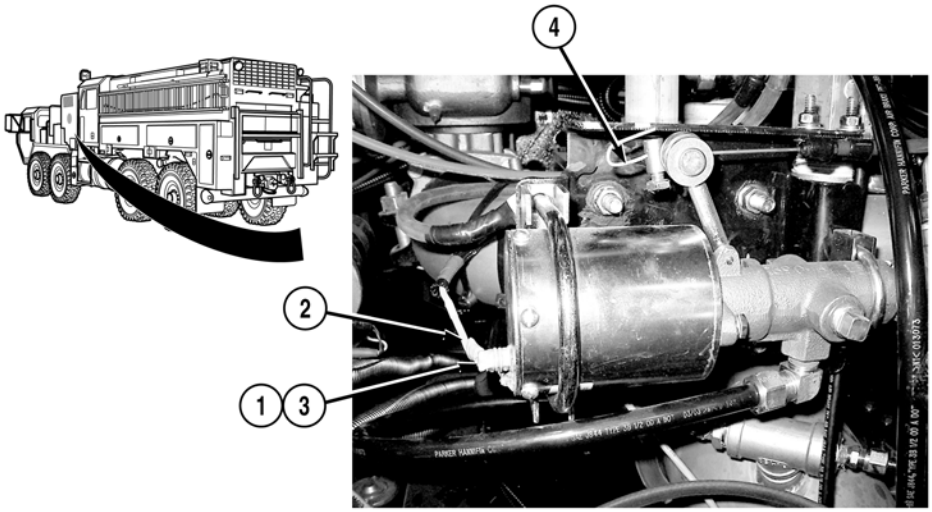
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Adhesive, RTV 732 (WP 0625, Item 2)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Lockwasher (2)
Locknut (2)
Locknut (2)
Locknut (4)

References
WP 0615, Fig. 41

Equipment Conditions
Water system drained (WP 0041)
Pump house panel A opened (WP 0539)

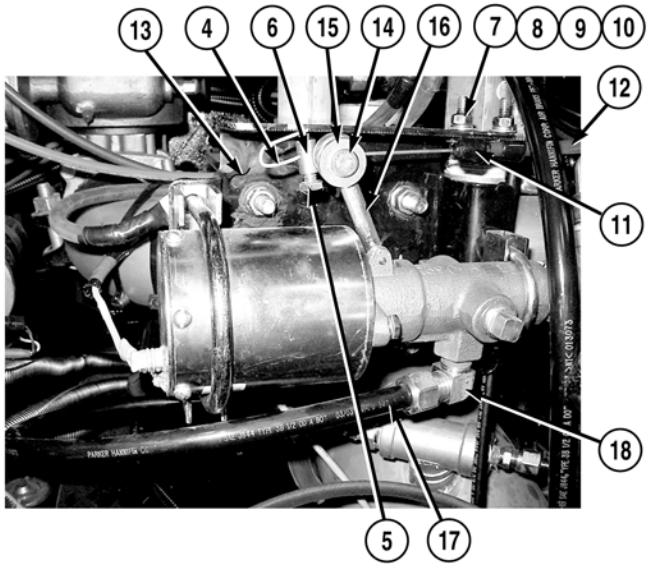
REMOVAL



NOTE

Tag and mark wires and hoses prior to removal to ensure proper installation.

1. Remove nut (1) and wire (2) from stud (3).
2. Straighten cable wire (4).



WARNING

Care must be taken when removing cable wire from arm and bracket. Wire is under tension and must be held until safely repositioned. Failure to comply may result in injury to personnel.

3. Loosen screw (5) and remove retainer (6) from cable wire (4).
4. Remove two nuts (7), lockwashers (8), four washers (9), two screws (10), cushion clips (11), and cable (12) from bracket (13). Discard lockwashers.

NOTE

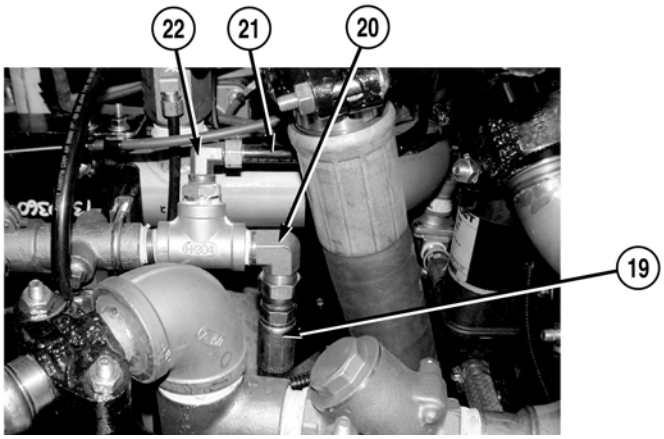
Note position of cable prior to removal to ensure proper installation.

5. Remove cable wire (4) from pin (14).

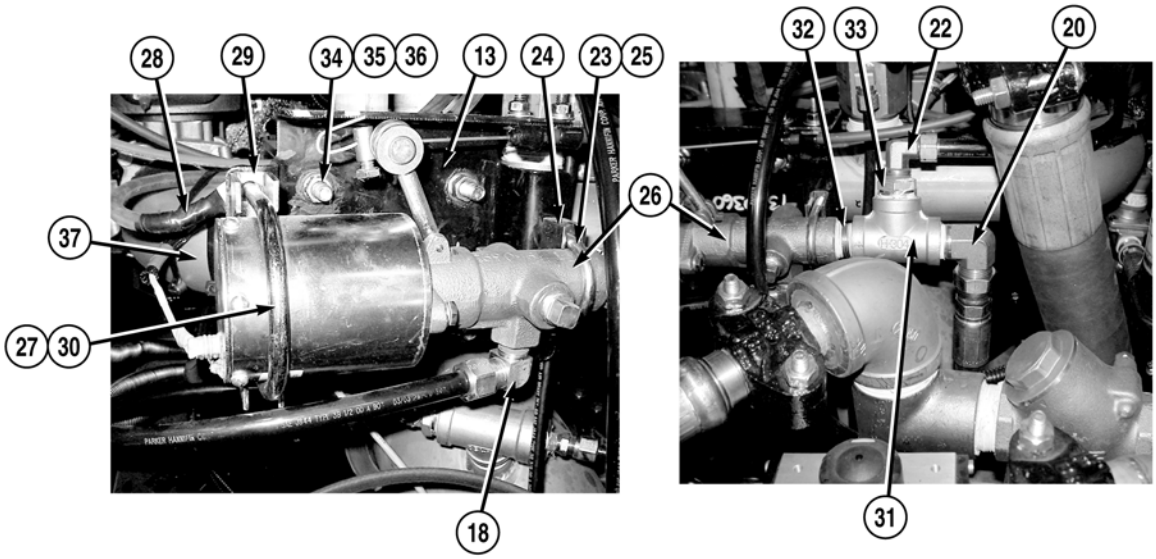
NOTE

- Number of washers may vary.
- Note position of washers prior to replacement to ensure proper installation.

6. Remove pin (14) and washer (15) from arm (16).
7. Remove line (17) from elbow (18).



8. Remove hose (19) from elbow (20).
9. Remove line (21) from elbow (22).



10. Remove two locknuts (23), cradle (24), and U-bolt (25) from bracket (13) and primer valve (26). Discard locknuts.
11. Remove two locknuts (27), cable (28), cradle (29), U-bolt (30), and primer valve (26) from bracket (13). Discard locknuts.
12. Remove elbow (18) from primer valve (26).
13. Remove tee (31) and nipple (32) from primer valve (26).
14. Remove elbow (22) from fitting (33).
15. Remove elbow (20), nipple (32), and fitting (33) from tee (31).
16. Remove four locknuts (34), two cradles (35), U-bolts (36), and bracket (13) from pipe (37). Discard locknuts.

END OF TASK

INSTALLATION

1. Install bracket (13) on pipe (37) with two U-bolts (36), cradles (35), and four locknuts (34).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

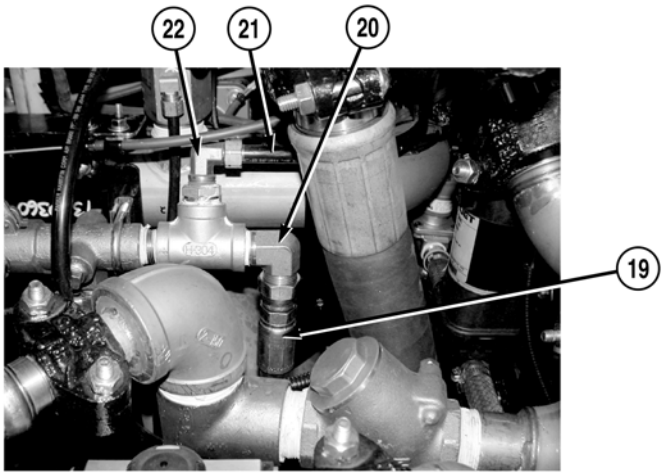
Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

2. Apply sealing compound to threads of fitting (33), nipple (32), and three elbows (18), (20), and (22).
3. Install fitting (33), nipple (32), and elbow (20) on tee (31).
4. Install elbow (22) on fitting (33).
5. Install nipple (32) and tee (31) on primer valve (26).
6. Install elbow (18) on primer valve (26).
7. Install primer valve (26) and cable (28) on bracket (13) with U-bolt (30), cradle (29), and two locknuts (27). Do not tighten locknuts.
8. Install U-bolt (25) on primer valve (26) and bracket (13) with cradle (24) and two locknuts (23).
9. Tighten two locknuts (27).

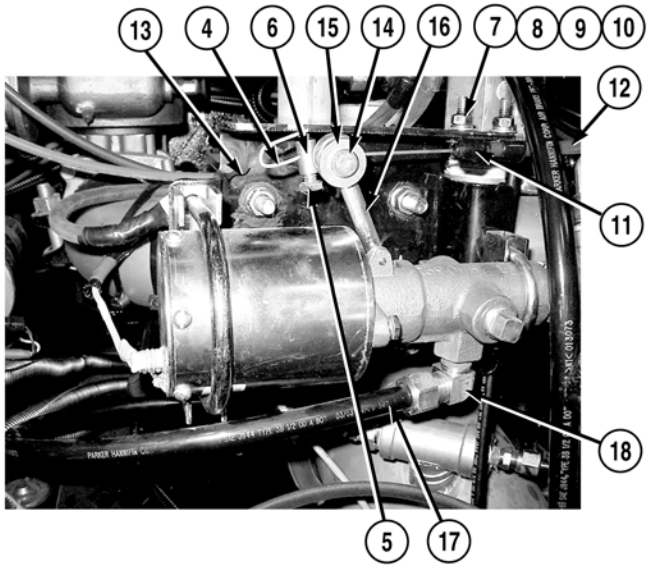
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

10. Apply electrical sealant on end of cable (28).



11. Install line (21) on elbow (22).
12. Install hose (19) on elbow (20).



13. Install line (17) on elbow (18).
14. Position pin (14) and washer (15) on arm (16).
15. Position cable wire (4) through pin (14).

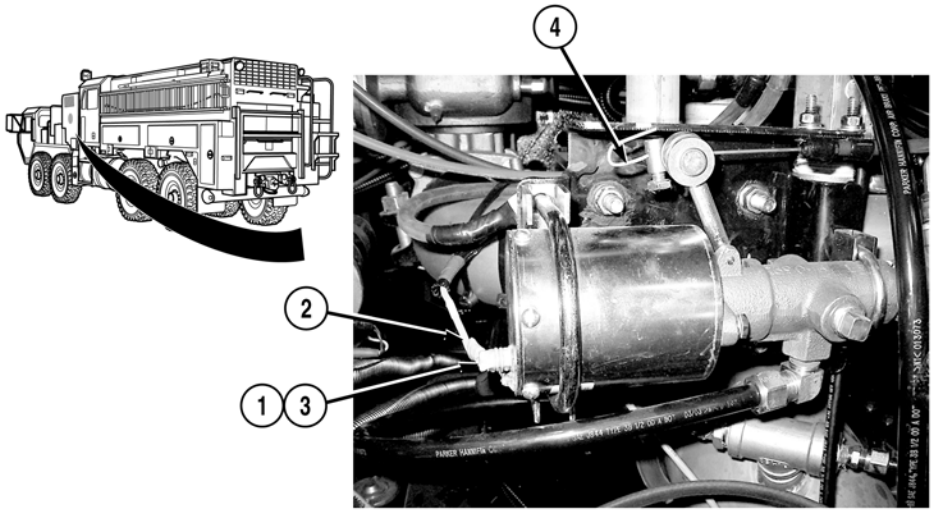
WARNING

Care must be taken when installing wire on arm and bracket. Wire is under tension and must be held until safely repositioned. Failure to comply may result in injury to personnel.

NOTE

- Install cable as noted prior to removal.
- Ensure primer handle is in closed position (pushed down) and primer valve lever is forward prior to installing cable on bracket.

16. Install cable (12) on bracket (13) with two cushion clips (11), screws (10), four washers (9), two lockwashers (8), and nuts (7).
17. Install retainer (6) on cable wire (4) and tighten screw (5).



CAUTION

Cable wire must be bent a minimum of 90 degrees. Failure to comply may allow retainer to come loose and not allow primer cable to function.

18. Bend cable wire (4).
19. Install wire (2) on stud (3) with nut (1).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

20. Apply electrical sealant on end of wire (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DRIVER MAIN INLET PRIMER VALVE REPLACEMENT

INITIAL SETUP:

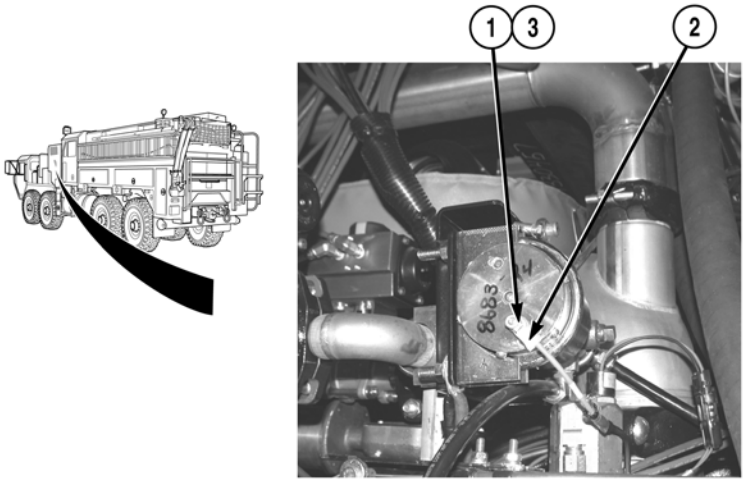
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Lockwasher (2)
Locknut (2)
Locknut (2)
Locknut (4)

References
WP 0615, Fig. 41

Equipment Conditions
Water system drained (WP 0041)
Pump house panel A opened (WP 0539)

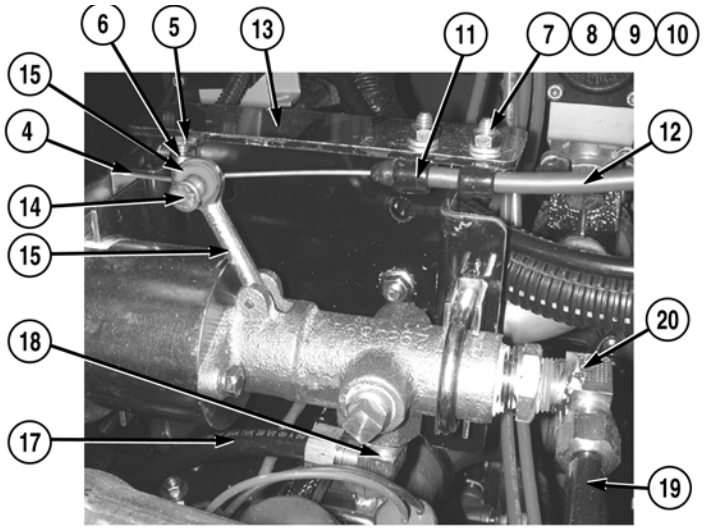
REMOVAL



NOTE

Tag and mark wires and hoses prior to removal to ensure proper installation.

1. Remove nut (1) and wire (2) from stud (3).



WARNING

Care must be taken when removing cable wire from arm and bracket. Wire is under tension and must be held until safely repositioned. Failure to comply may result in injury to personnel.

2. Straighten cable wire (4).
3. Loosen screw (5) and remove retainer (6) from cable wire (4).

NOTE

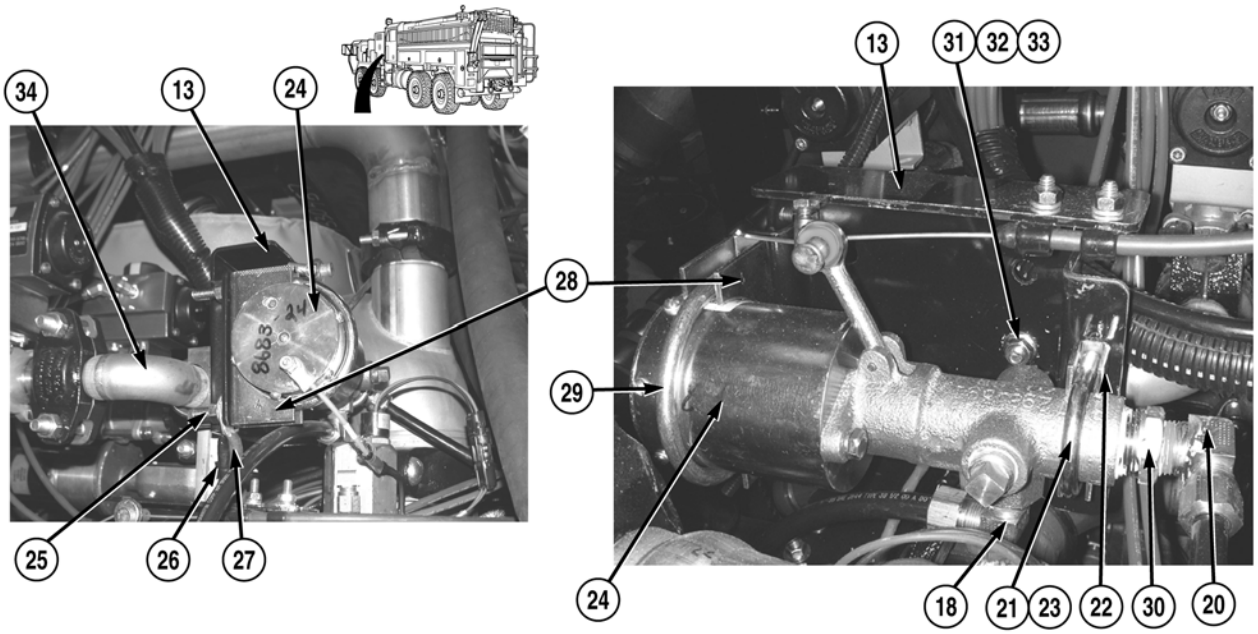
Note position of cable prior to removal to ensure proper installation.

4. Remove two nuts (7), lockwashers (8), four washers (9), two screws (10), cushion clips (11), and cable (12) from bracket (13). Discard lockwashers.
5. Remove cable wire (4) from pin (14).

NOTE

- Number of washers may vary.
- Note position of washers prior to replacement to ensure proper installation.

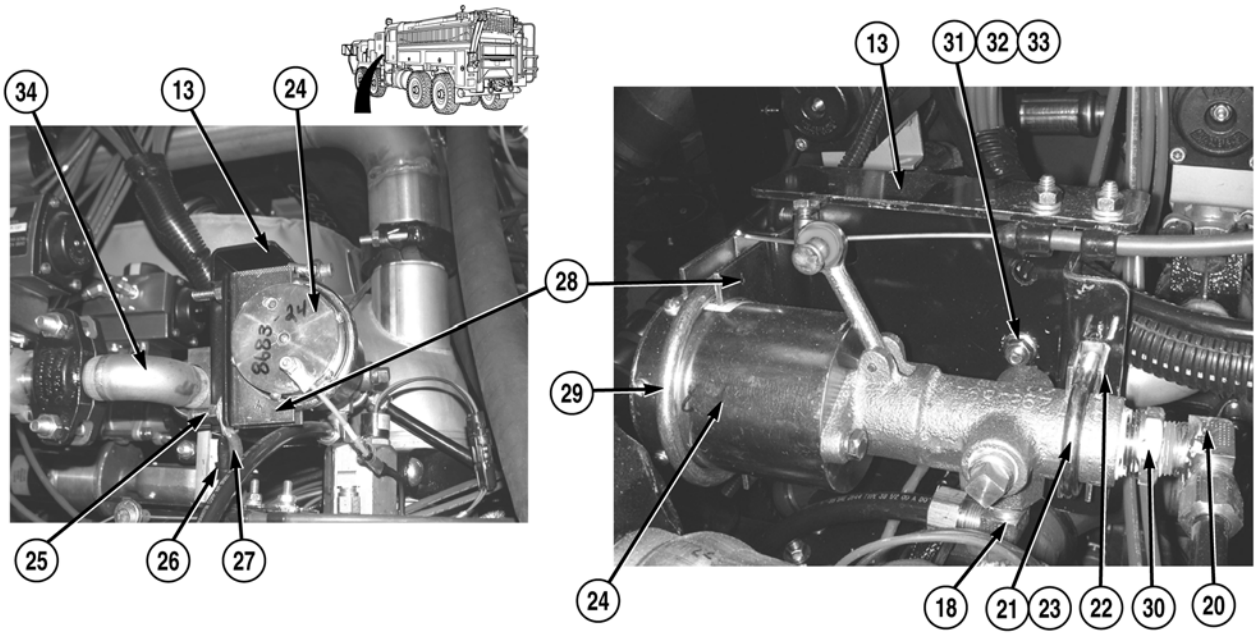
6. Remove pin (14) and washer (15) from arm (16).
7. Remove line (17) from elbow (18).
8. Remove line (19) from elbow (20).



9. Remove two locknuts (21), cradle (22), and U-bolt (23) from bracket (13) and primer valve (24). Discard locknuts.
10. Remove two locknuts (25), cables (26) and (27), cradle (28), U-bolt (29), and primer valve (24) from bracket (13). Discard locknuts.
11. Remove elbow (18) from primer valve (24).
12. Remove elbow (20) from fitting (30).
13. Remove fitting (30) from primer valve (24).
14. Remove four locknuts (31), two cradles (32), U-bolts (33), and bracket (13) from pipe (34). Discard locknuts.

END OF TASK

INSTALLATION



1. Install bracket (13) on pipe (34) with two U-bolts (33), cradles (32), and four locknuts (31).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

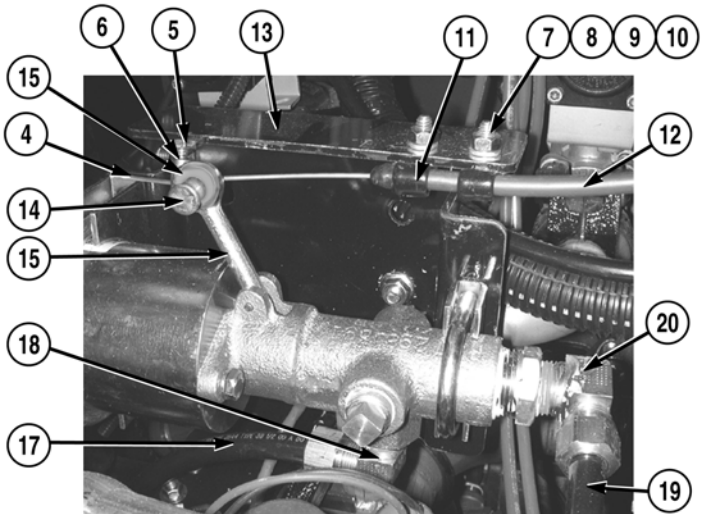
Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

2. Apply sealing compound to threads of fitting (30) and two elbows (18) and (20).
3. Install fitting (30) on primer valve (24).
4. Install elbow (20) on fitting (30).
5. Install elbow (18) on primer valve (24).
6. Install primer valve (24) on bracket (13) with U-bolt (23), cradle (22), and two locknuts (21). Do not tighten locknuts.
7. Install U-bolt (29), two cables (27) and (26), primer valve (24), and cradle (28), on bracket (13) with two locknuts (25).
8. Tighten two locknuts (21).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

9. Apply electrical sealant on ends of two cables (26) and (27).



10. Install line (19) on elbow (20).
11. Install line (17) on elbow (18).
12. Position pin (14) and four washers (15) on arm (16).
13. Position cable wire (4) through pin (14).

NOTE

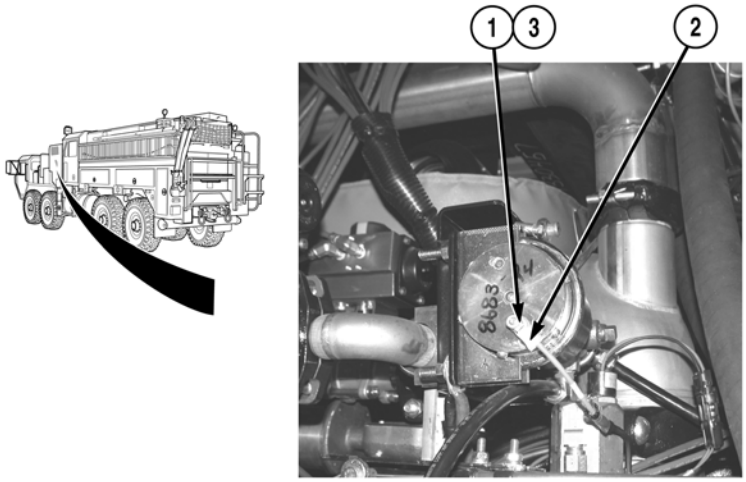
- Install cable as noted prior to removal.
- Ensure manual primer handle is in closed position (pushed down) and primer valve lever is forward prior to installing cable bracket.

14. Install cable (12) on bracket (13) with two cushion clips (11), screws (10), four washers (9), two lockwashers (8), and nuts (7).
15. Install retainer (6) on cable wire (4) and tighten screw (5).

NOTE

Cable wire must be bent a minimum of 90 degrees. Failure to comply may allow retainer to come loose and not allow primer cable to function.

16. Bend cable wire (4).



17. Install wire (2) on stud (3) with nut (1).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

18. Apply electrical sealant on end of wire (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

BUMPER TURRET AUTO DRAIN VALVE REPLACEMENT

INITIAL SETUP:

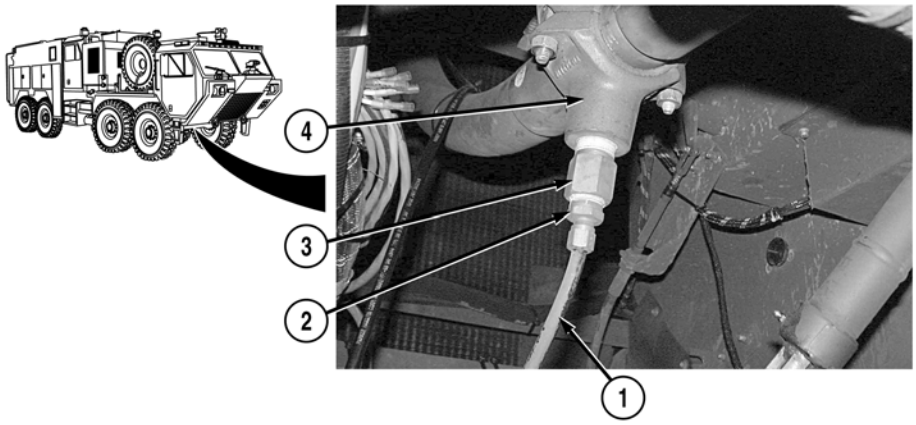
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread
(WP 0625, Item 21)

References
WP 0483
WP 0615, Fig. 167

Equipment Conditions
Skid plate grille removed (WP 0550)

REMOVAL



1. Remove drain line (1) from fitting (2).

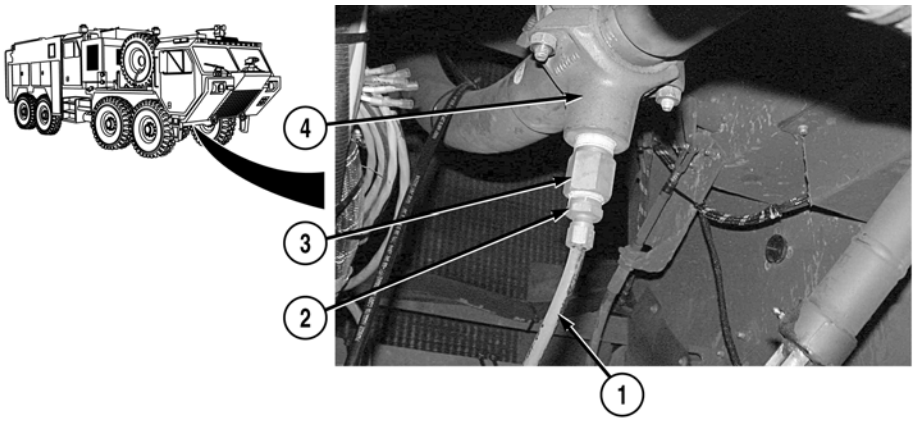
NOTE

- Note position of coupling and seal prior to removal to ensure proper installation.
- Coupling may need to be heated to remove drain valve.

2. Remove drain valve (3) and coupling (4) from vehicle (WP 0483).
3. Remove drain valve (3) from coupling (4).
4. Remove fitting (2) from drain valve (3).

END OF TASK

INSTALLATION



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Apply sealing compound to threads of fitting (2) and drain valve (3).
2. Install fitting (2) on drain valve (3).
3. Install drain valve (3) on coupling (4).

NOTE

Install coupling and seal as noted prior to removal.

4. Install drain valve (3) and coupling (4) on vehicle (WP 0483).
5. Install drain line (1) on fitting (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Install skid plate grille (WP 0550)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DRAIN VALVE, DRIVER PRE-CONNECT A REPLACEMENT

INITIAL SETUP:

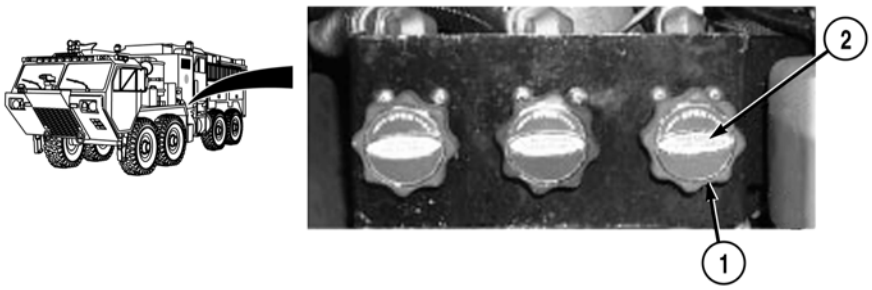
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Adhesive, Spray (WP 0625, Item 6)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)

References
WP 0615, Fig. 43

Equipment Conditions
Water system drained (WP 0041)
Pump house panel C removed (WP 0540)
Pressure transducer removed (WP 0411)

REMOVAL

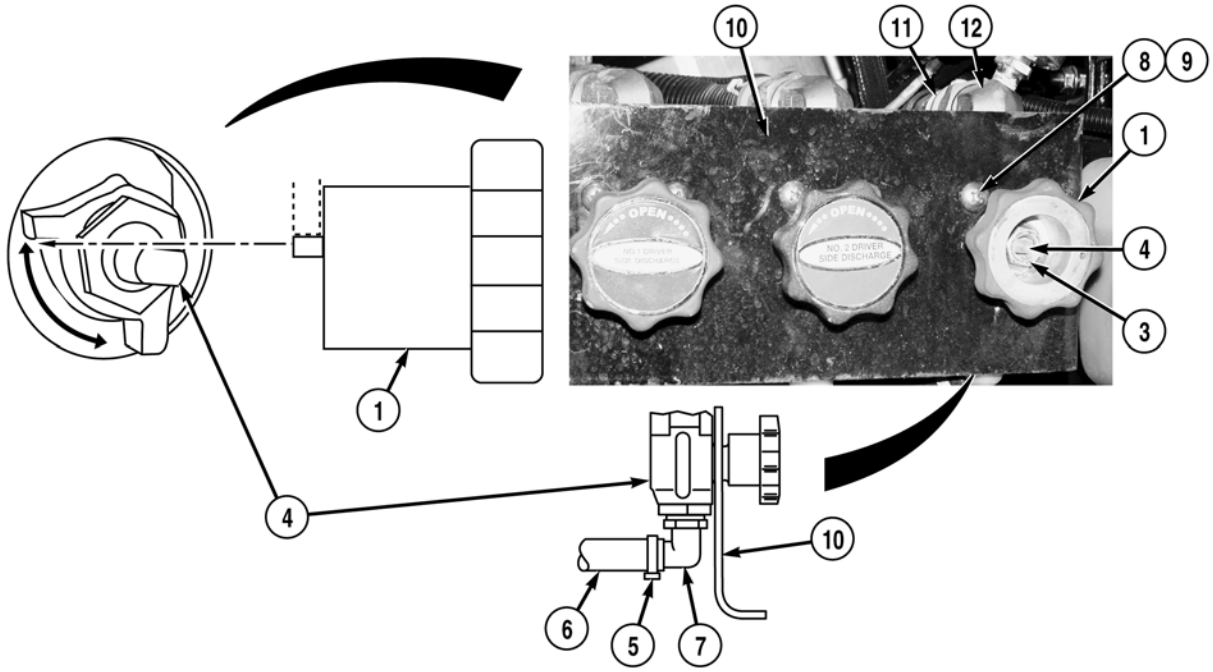


1. Turn valve handle (1) clockwise to closed position.

NOTE

- Cover is attached to valve handle with adhesive.
- Note position of cover prior to removal to ensure proper installation.

2. Pry cover (2) from valve handle (1).



NOTE

- Stop on valve handle is positioned between 90 degree indent on valve.
- Note position of valve handle on valve prior to removal to ensure proper installation.

3. Remove locknut (3) and valve handle (1) from valve (4). Discard locknut.

NOTE

- Tag and mark hoses prior to removal to ensure proper installation.
- Clamp may not be reused.

4. Remove clamp (5) and hose (6) from elbow (7).
5. Remove two screws (8), washers (9), and valve (4) from bracket (10).
6. Remove hose (11) from elbow (12).
7. Remove two elbows (7) and (12) from valve (4).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

1. Apply sealing compound to threads of elbow (12).
2. Install two elbows (7) and (12) on valve (4).
3. Install hose (11) on elbow (12).
4. Install hose (6) on elbow (7) with hose clamp (5).
5. Install valve (4) on bracket (10) with two washers (9) and screws (8).

NOTE

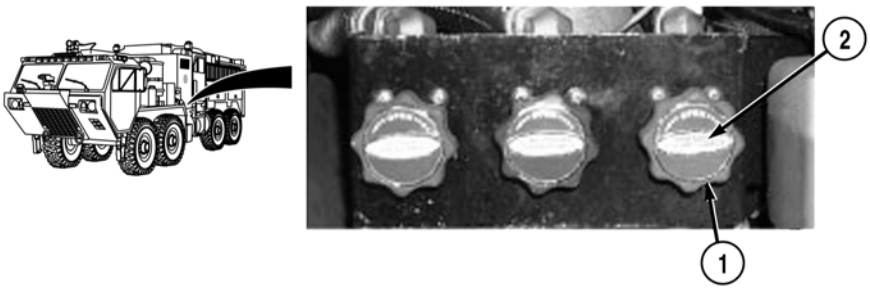
Valve handle must be installed with stop on valve handle positioned between 90 degree indent on valve.

6. Install valve handle (1) on valve (4) with locknut (3).
7. Turn valve handle (1) clockwise to the closed position.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**



8. Clean back of cover (2) with solvent cleaning compound.

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Adhesive is applied to mating surface of cover and valve handle.

9. Apply adhesive to cover (2).

NOTE

Install cover as noted prior to removal.

10. Install cover (2) on valve handle (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install pressure transducer (WP 0411)
2. Install pump house panel C (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DRAIN VALVE, DRIVER PRE-CONNECT B REPLACEMENT

INITIAL SETUP:

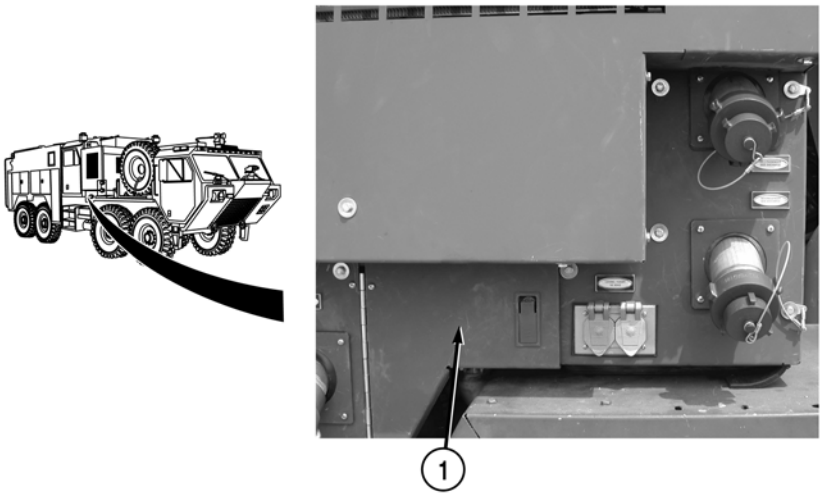
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Adhesive, Spray (WP 0625, Item 6)
Cleaning Compound, Solvent (WP 0625, Item 12)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)

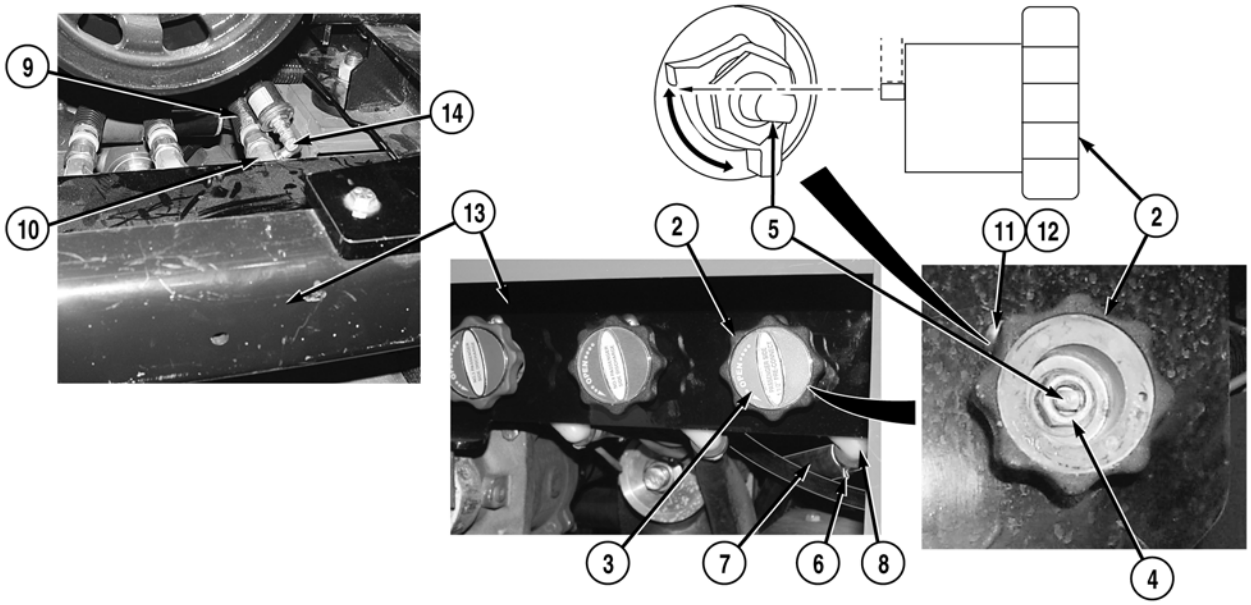
References
WP 0615, Fig. 43

Equipment Conditions
Water system drained (WP 0041)
Pump house panel J removed (WP 0540)
Pressure transducer removed (WP 0411)

REMOVAL



1. Open compartment door (1).



2. Turn valve handle (2) clockwise to closed position.

NOTE

- Cover is attached to valve handle with adhesive.
- Note position of cover prior to removal to ensure proper installation.

3. Pry cover (3) from valve handle (2).

NOTE

- Stop on valve handle is positioned between 90 degree indent on valve.
- Note position of valve handle prior to removal to ensure proper installation.

4. Remove locknut (4) and valve handle (2) from valve (5). Discard locknut.

NOTE

- Tag and mark hoses prior to removal to ensure proper installation.
- Clamp may not be re-used.

5. Remove clamp (6) and hose (7) from elbow (8).
6. Remove hose (9) from elbow (10).
7. Remove two screws (11), washers (12), and valve (5) from bracket (13).
8. Remove elbow (14) from elbow (10).
9. Remove two elbows (8) and (10) from valve (5).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Apply sealing compound to two threads of elbows (10) and (14).
2. Install two elbows (8) and (10) on valve (5).
3. Install elbow (14) on elbow (10).
4. Install valve (5) on bracket (13) with two washers (12) and screws (11).
5. Install hose (7) on elbow (8) with hose clamp (6).
6. Install hose (9) on elbow (10).

NOTE

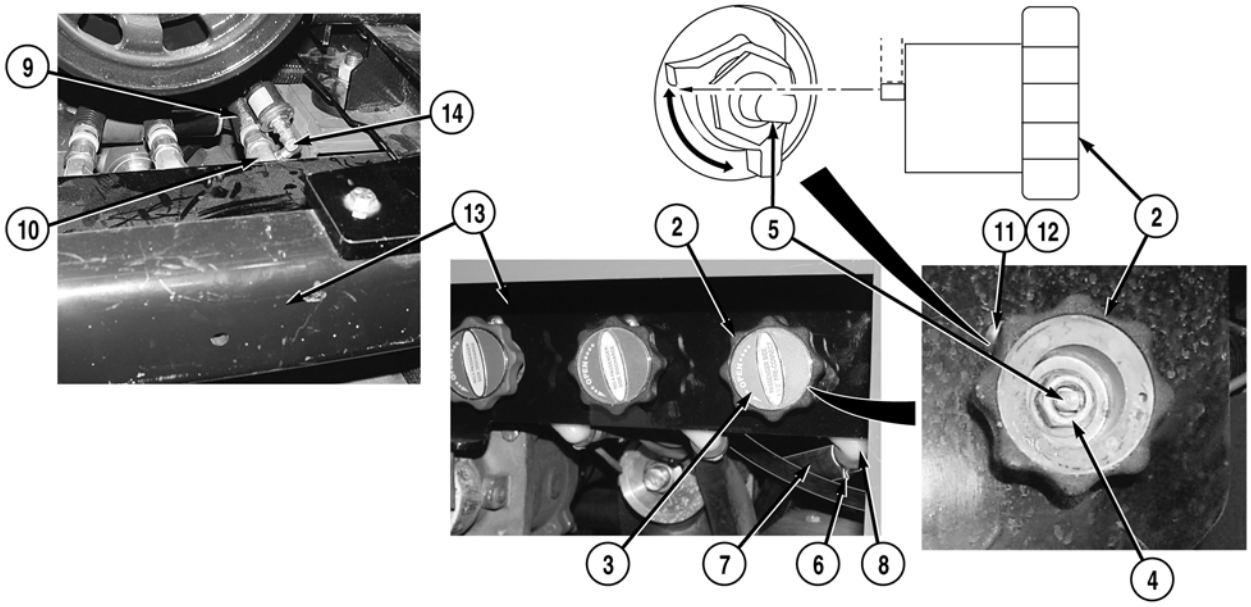
Valve handle must be installed with stop on valve handle positioned between 90 degree indent on valve.

7. Install valve handle (2) on valve (5) with locknut (4).
8. Turn valve handle (2) clockwise to the closed position.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**



9. Clean back of cover (3) with solvent cleaning compound.

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

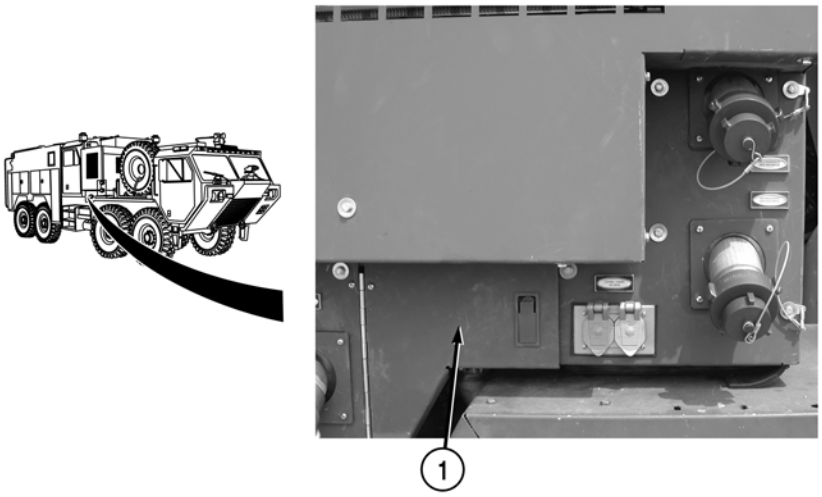
Adhesive is applied to mating surface of cover and valve handle.

10. Apply adhesive to cover (3).

NOTE

Install cover as noted prior to removal.

11. Install cover (3) on valve handle (2).



12. Close compartment door (1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install pressure transducer (WP 0411)
2. Install pump house panel J (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

DRAIN VALVE (MULTI-PORT) REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

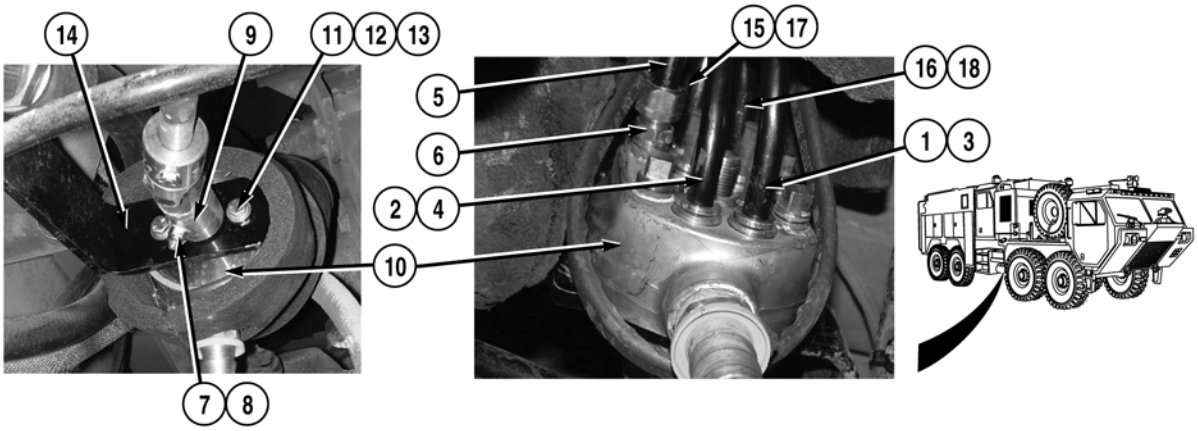
Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)
Lockwasher (2)
Locknut (3)

Materials/Parts (continued)
Lockwasher (2)
Lockwasher (4)

References
WP 0615, Fig. 45

Equipment Conditions
Water system drained (WP 0041)
Plumbing insulation removed (WP 0607)

REMOVAL



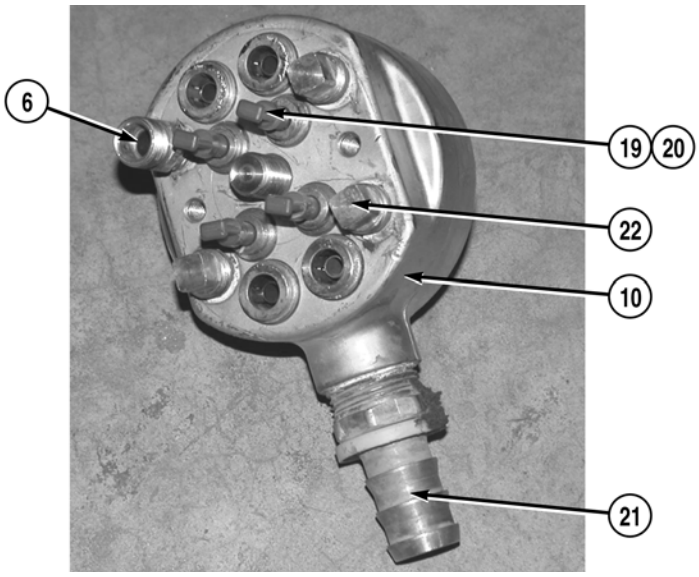
CAUTION

When removing four drain lines from push lock fittings, care must be taken not to damage sealing surfaces. If sealing surface of air line is damaged air line must be repaired or replaced.

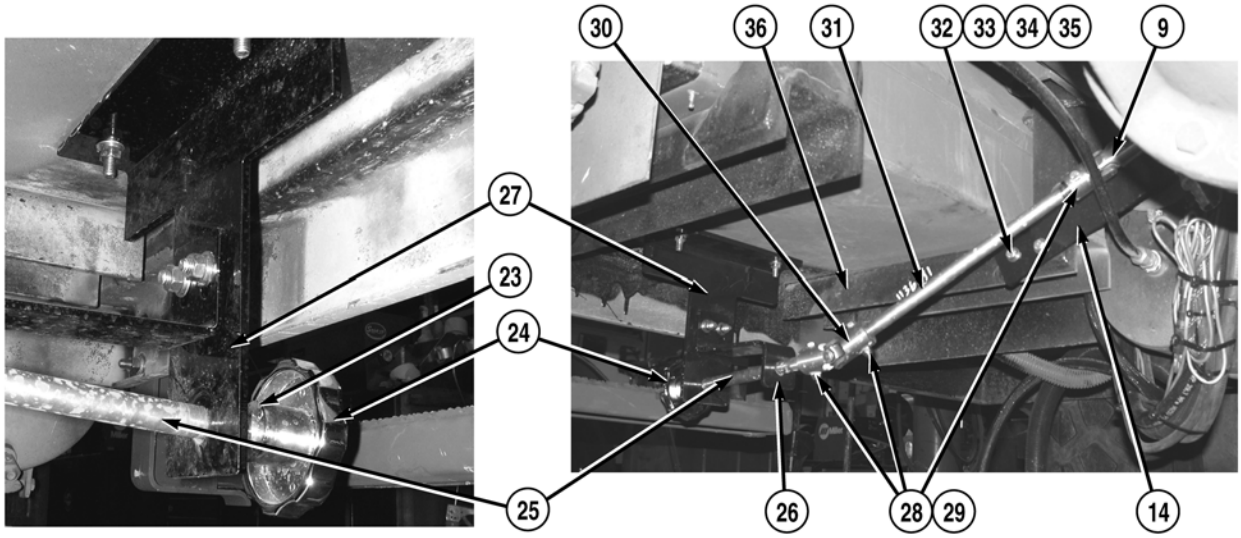
NOTE

- Tag and mark drain lines prior to removal to ensure proper installation.
- Two rear drain lines must be removed after drain valve is removed from bracket.

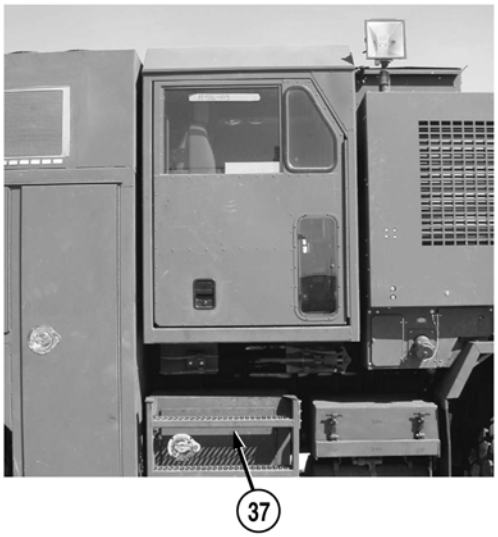
1. Remove two drain lines (1) and (2) from fittings (3) and (4).
2. Remove drain line (5) from fitting (6).
3. Remove locknut (7), screw (8), and swivel (9) from drain valve (10). Discard locknut.
4. Remove two screws (11), lockwashers (12), washers (13), and drain valve (10) from bracket (14). Discard lockwashers.
5. Remove two drain lines (15) and (16) from fittings (17) and (18).

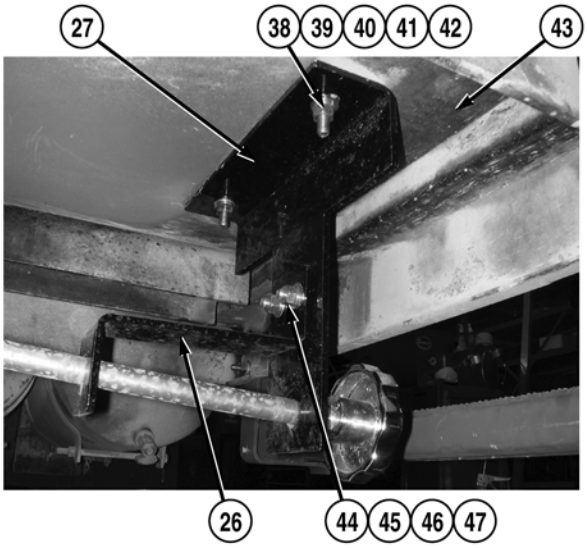


6. Remove four plastic plugs (19) from fittings (20).
7. Remove two fittings (6) and (21) and three plugs (22) from drain valve (10).



8. Remove screw (23) and handle (24) from shaft (25).
9. Remove shaft (25) from two brackets (26) and (27).
10. Remove three locknuts (28), screws (29), and two swivels (9) and (30) from shafts (31) and (25). Discard locknuts.
11. Remove two nuts (32), lockwashers (33), four washers (34), two screws (35), and bracket (14) from bracket (36). Discard lockwashers.





12. Open stowage compartment door (37).

NOTE

Note position of washers prior to removal to ensure proper installation.

13. Remove two nuts (38), lockwashers (39), four washers (40) and (41), two screws (42), and bracket (27) from stowage compartment (43). Discard lockwashers.

14. Remove two nuts (44), lockwashers (45), four washers (46), two screws (47), and bracket (26) from bracket (27). Discard lockwashers.

END OF TASK

INSTALLATION

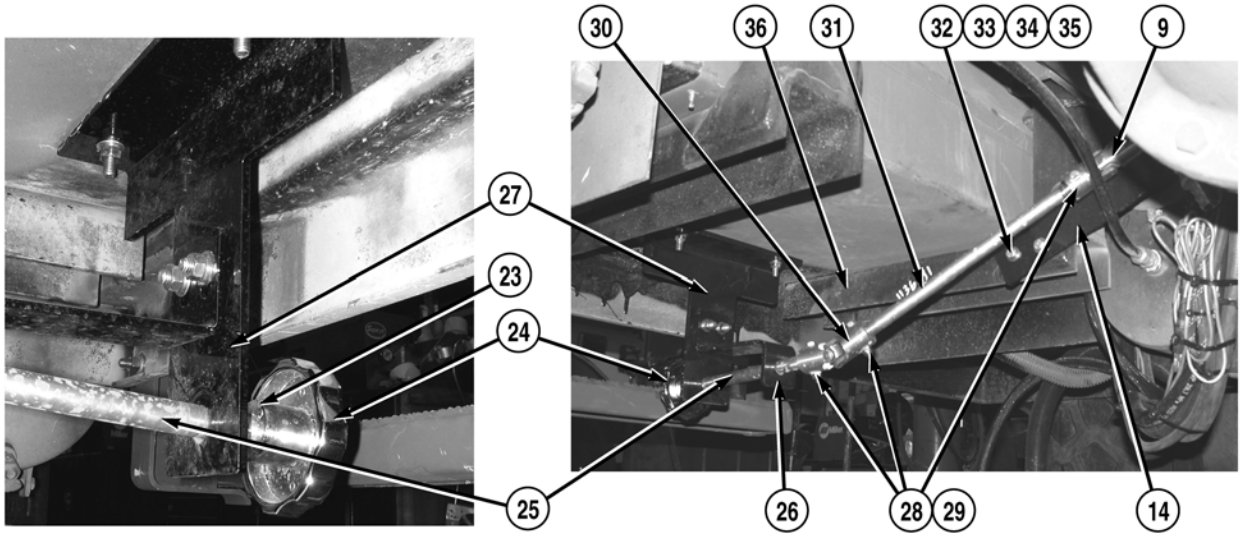
1. Install bracket (26) on bracket (27) with two screws (47), four washers (46), two lockwashers (45), and nuts (44).

NOTE

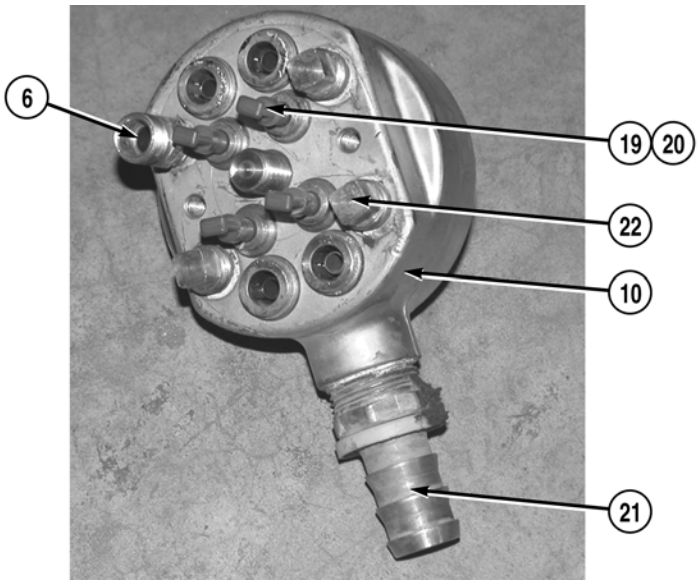
Install washers as noted prior to removal.

2. Install bracket (27) on stowage compartment (43) with two screws (42), four washers (41) and (40), two lockwashers (39), and nuts (38).

3. Close compartment door (37).



4. Install bracket (14) on bracket (36) with two screws (35), four washers (34), two lockwashers (33), and nuts (32).
5. Install two swivels (9) and (30) on shafts (31) and (25) with three screws (29) and locknuts (28).
6. Position shaft (25) on two brackets (26) and (27).
7. Install handle (24) on shaft (25) with screw (23).



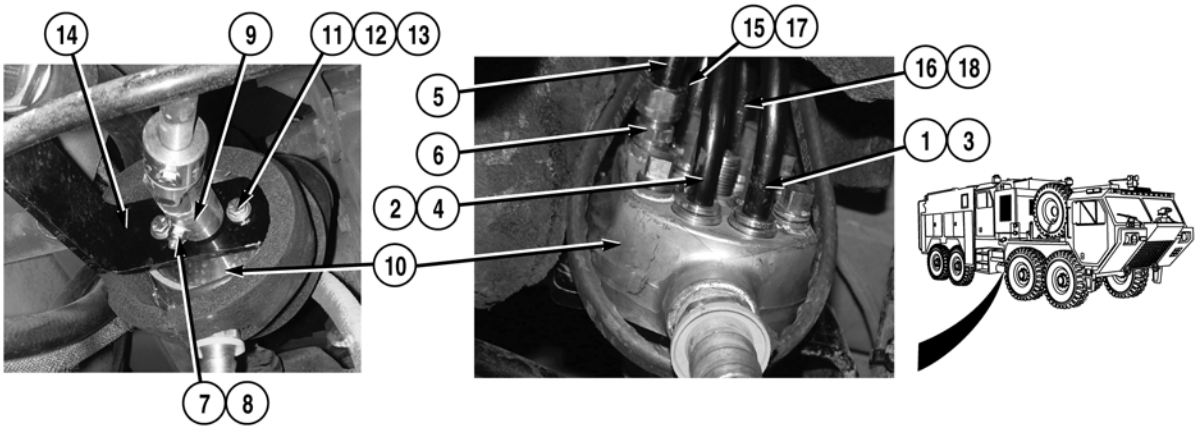
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use pipe thread sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

8. Apply sealing compound to threads of two fittings (6) and (21) and three plugs (22).
9. Install two fittings (6) and (21) and three plugs (22) on drain valve (10).
10. Install four plastic plugs (19) on fittings (20).



11. Install two drain lines (15) and (16) on fittings (17) and (18).
12. Install drain valve (10) on bracket (14) with two screws (11), lockwashers (12), and washers (13).
13. Install swivel (9) on drain valve (10) with screw (8) and locknut (7).
14. Install drain line (5) on fitting (6).
15. Install two drain lines (1) and (2) on fittings (3) and (4).

END OF TASK

FOLLOW-ON MAINTENANCE

Install plumbing insulation (WP 0607)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM "A & B" TANK DRAIN REPLACEMENT

INITIAL SETUP:

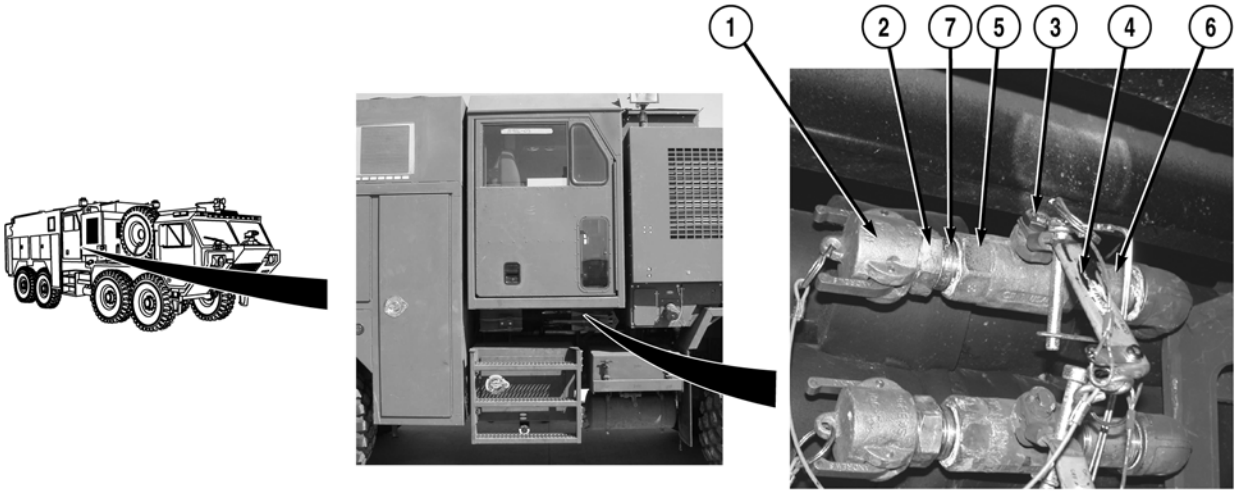
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Locknut (1)

References
WP 0615, Fig. 48

Equipment Conditions
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)
Foam tanks "A" and "B" drained (WP 0031)

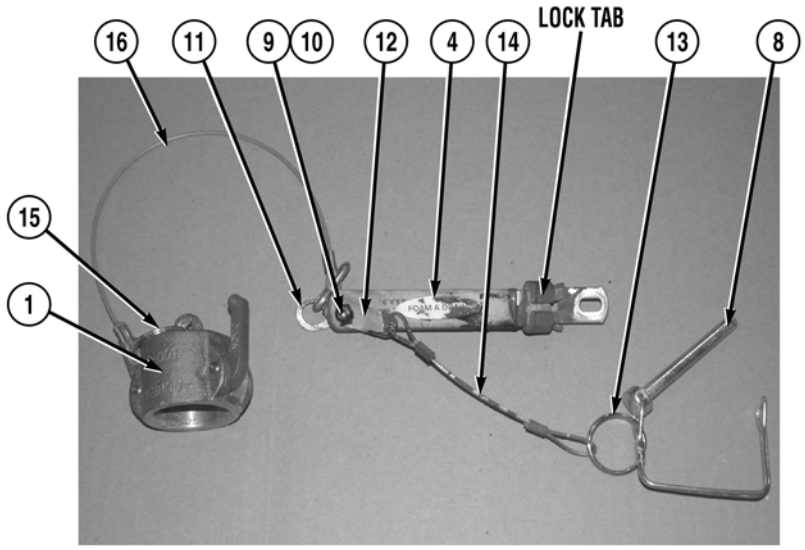
REMOVAL



NOTE

- Note position of lock tab on handle prior to removal to ensure proper installation.
- Handle on foam tank drain valve must be removed before removing tank drain valve.

1. Remove cap (1) from fitting (2).
2. Remove nut (3) and handle (4) from foam system tank drain valve (5) and vehicle.
3. Remove foam system tank drain valve (5) from nipple (6).
4. Remove foam system tank drain valve (5) and fitting (2) from nipple (7).



NOTE

Note position of lock tab on handle prior to removal to ensure proper installation.

5. Remove quick release pin (8) from handle (4).
6. Remove locknut (9), screw (10), eyelet (11), and tab (12) from handle (4). Discard locknut.
7. Remove ring (13) from quick release pin (8) and wire rope (14).
8. Remove ring (15) from wire rope (16) and cap (1).

END OF TASK

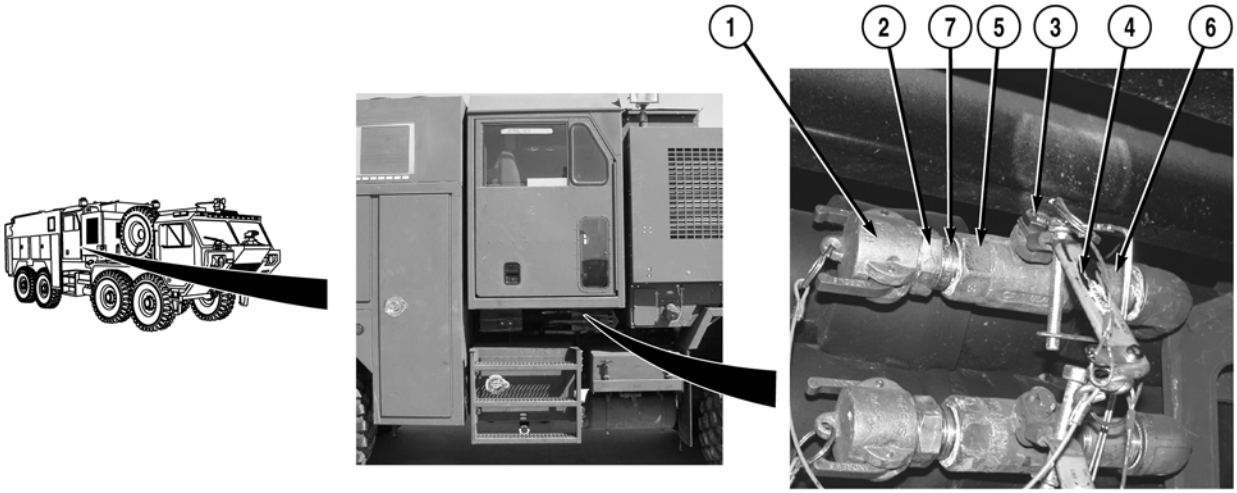
INSTALLATION

1. Install ring (15) on wire rope (16) and cap (1).
2. Install ring (13) on quick release pin (8) and wire rope (14).
3. Install eyelet (11) and tab (12) on handle (4) with screw (10) and locknut (9).

NOTE

Position lock tab on handle as noted.

4. Install quick release pin (8) on handle (4).



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

5. Apply sealing compound to threads of two nipples (6) and (7).
6. Install foam system tank drain valve (5) and fitting (2) on nipple (7).
7. Install foam system tank drain valve (5) on nipple (6).
8. Install handle (4) on foam system tank drain valve (5) with nut (3).
9. Install cap (1) on fitting (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

NO. 1 DISCHARGE DRAIN VALVE (DRIVER SIDE) REPLACEMENT

INITIAL SETUP:

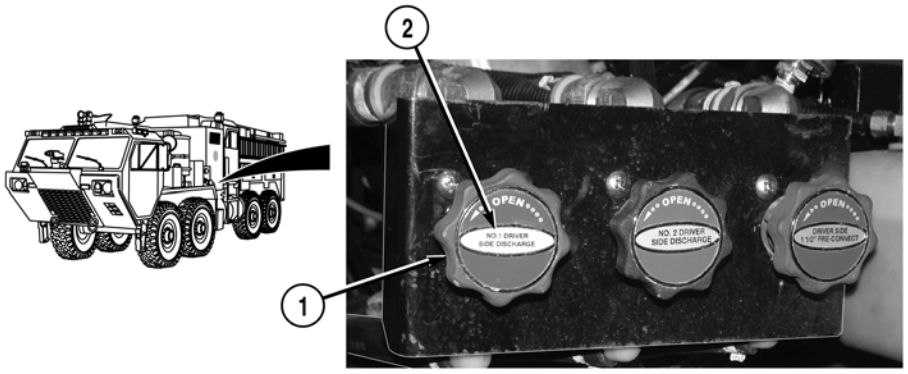
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Adhesive, Spray (WP 0625, Item 6)
Cleaning Compound, Solvent (WP 0625, Item 12)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)

References
WP 0615, Fig. 43

Equipment Conditions
Water system drained (WP 0041)
Pump house panel C removed (WP 0540)

REMOVAL

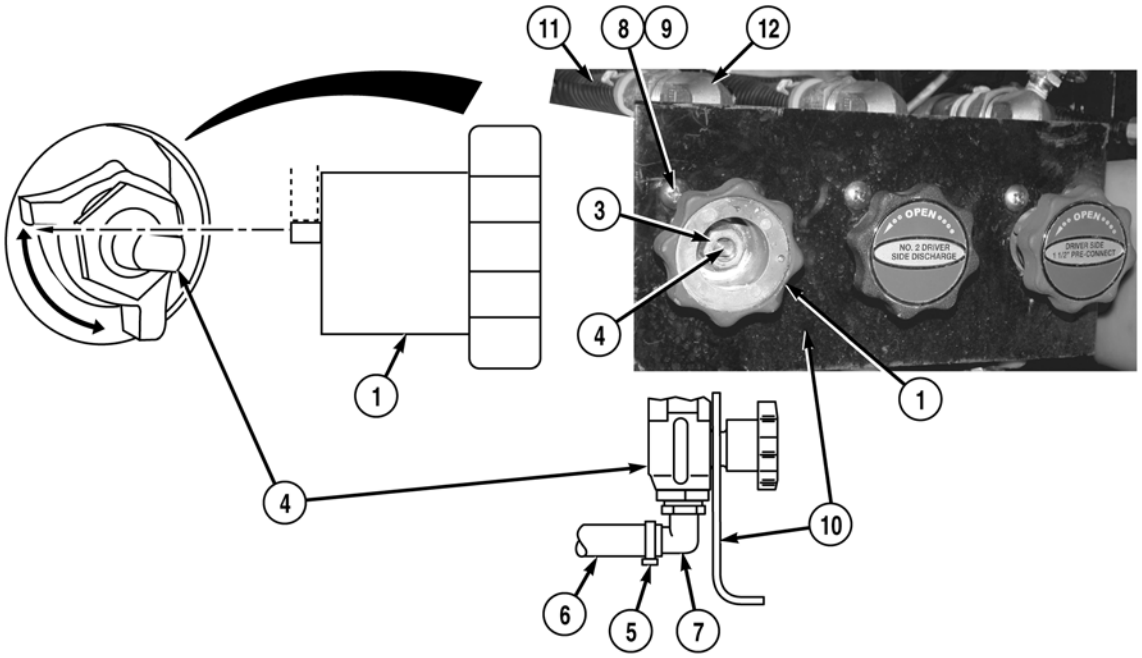


1. Turn valve handle (1) clockwise to closed position.

NOTE

- Cover is attached to valve handle with adhesive.
- Note position of cover prior to removal to ensure proper installation.

2. Remove cover (2) from valve handle (1).



NOTE

- Stop on valve handle is positioned between 90 degree indent on valve.
- Note position of valve handle on valve prior to removal to ensure proper installation.

3. Remove locknut (3) and valve handle (1) from valve (4). Discard locknut.

NOTE

- Tag and mark hoses prior to removal to ensure proper installation.
- Clamp may not be reused.

4. Remove clamp (5) and hose (6) from elbow (7).
5. Remove two screws (8), washers (9), and valve (4) from bracket (10).
6. Remove hose (11) from elbow (12).
7. Remove two elbows (7) and (12) from valve (4).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

1. Apply sealing compound to threads of elbow (12).
2. Install two elbows (7) and (12) on valve (4).
3. Install hose (11) on elbow (12).
4. Install hose (6) on elbow (7) with hose clamp (5).
5. Install valve (4) on bracket (10) with two washers (9) and screws (8).

NOTE

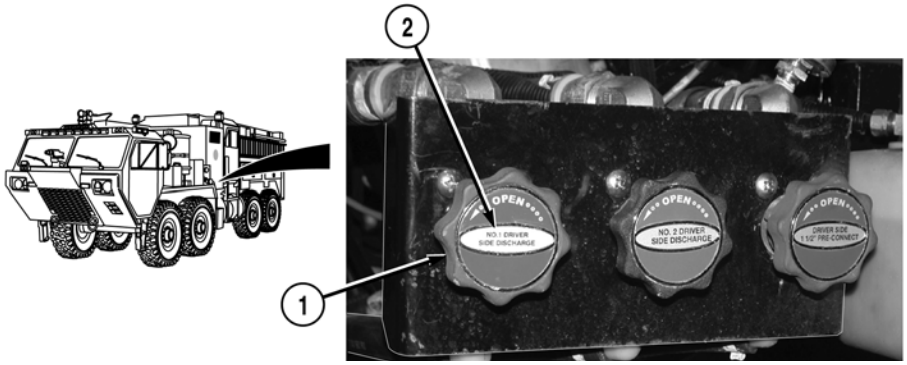
Valve handle must be installed with stop on valve handle positioned between 90 degree indent on valve handle.

6. Install valve handle (1) on valve (4) with locknut (3).
7. Turn valve handle (1) clockwise to the closed position.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**



8. Clean back of cover (2) with solvent cleaning compound.

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Adhesive is applied to mating surface of cover and valve handle.

9. Apply adhesive to cover (2).

NOTE

Install cover as noted prior to removal.

10. Install cover (2) on valve handle (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel C (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

NO. 2 DISCHARGE DRAIN VALVE (DRIVER SIDE) REPLACEMENT

INITIAL SETUP:

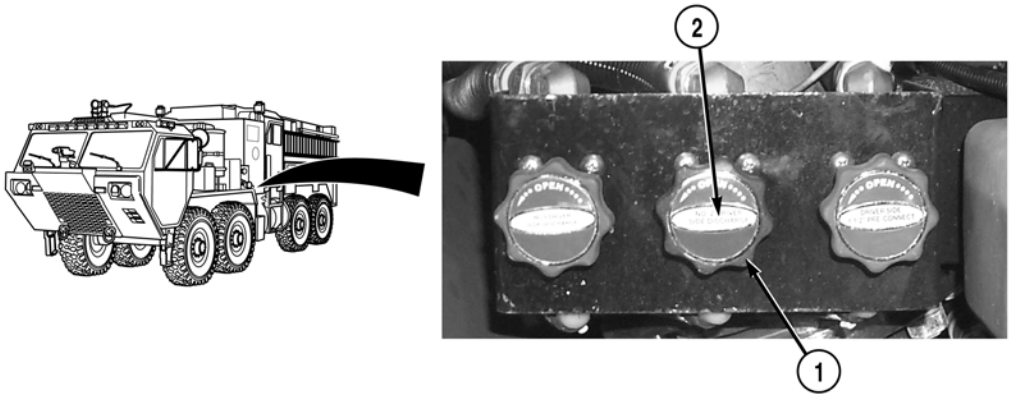
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Adhesive, Spray (WP 0625, Item 6)
Cleaning Compound, Solvent (WP 0625, Item 12)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)

References
WP 0615, Fig. 43

Equipment Conditions
Water system drained (WP 0041)
Pump house panel C removed (WP 0540)

REMOVAL

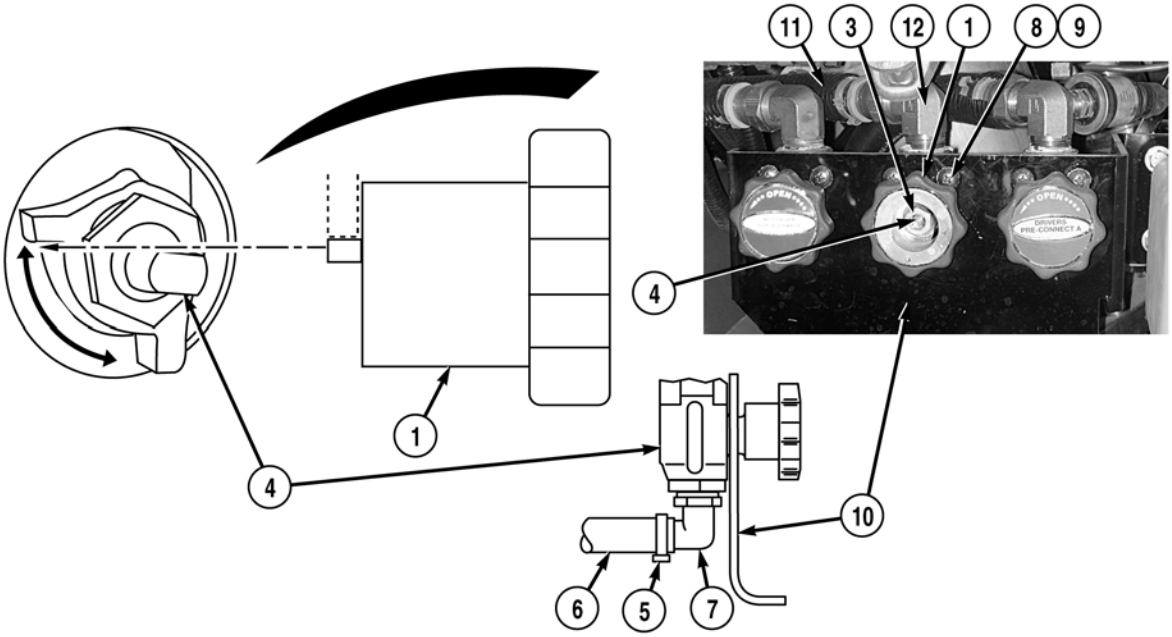


1. Turn valve handle (1) clockwise to closed position.

NOTE

- Cover is attached to valve handle with adhesive.
- Note position of cover prior to removal to ensure proper installation.

2. Pry cover (2) from valve handle (1).



NOTE

- Stop on valve handle is positioned between 90 degree indent on valve.
- Note position of valve handle on valve prior to removal to ensure proper installation.

3. Remove locknut (3) and valve handle (1) from valve (4). Discard locknut.

NOTE

- Tag and mark hoses prior to removal to ensure proper installation.
- Clamp may not be reused.

4. Remove clamp (5) and hose (6) from elbow (7).
5. Remove two screws (8), washers (9), and valve (4) from bracket (10).
6. Remove hose (11) from elbow (12).
7. Remove two elbows (7) and (12) from valve (4).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

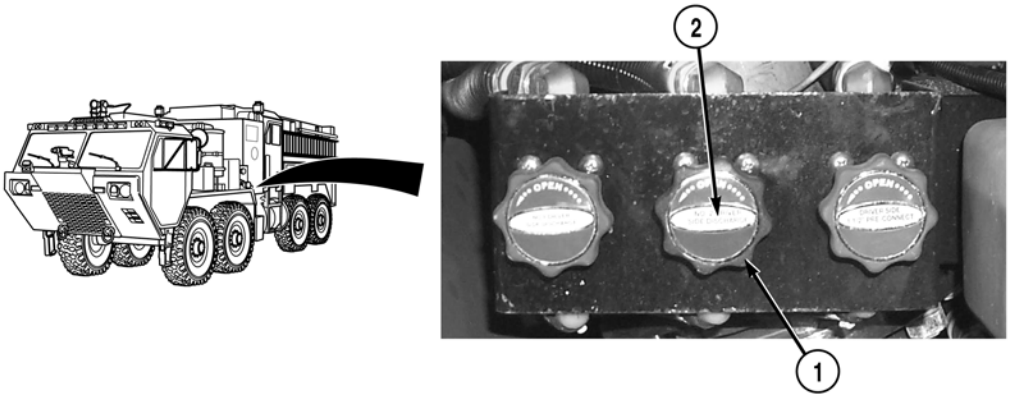
Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Apply sealing compound to threads of elbow (12).
2. Install two elbows (7) and (12) on valve (4).
3. Install hose (11) on elbow (12).
4. Install hose (6) on elbow (7) with hose clamp (5).
5. Install valve (4) on bracket (10) with two washers (9) and screws (8).

NOTE

Valve handle must be installed with stop on valve handle positioned between 90 degree indent on valve handle.

6. Install valve handle (1) on valve (4) with locknut (3).



7. Turn valve handle (1) clockwise to closed position.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

8. Clean back of cover (2) with solvent cleaning compound.

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Adhesive is applied to mating surface of cover and valve handle.

9. Apply adhesive to cover (2).

NOTE

Install cover as noted prior to removal.

10. Install cover (2) on valve handle (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel C (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

NO. 3 DISCHARGE DRAIN VALVE (PASSENGER SIDE) REPLACEMENT

INITIAL SETUP:

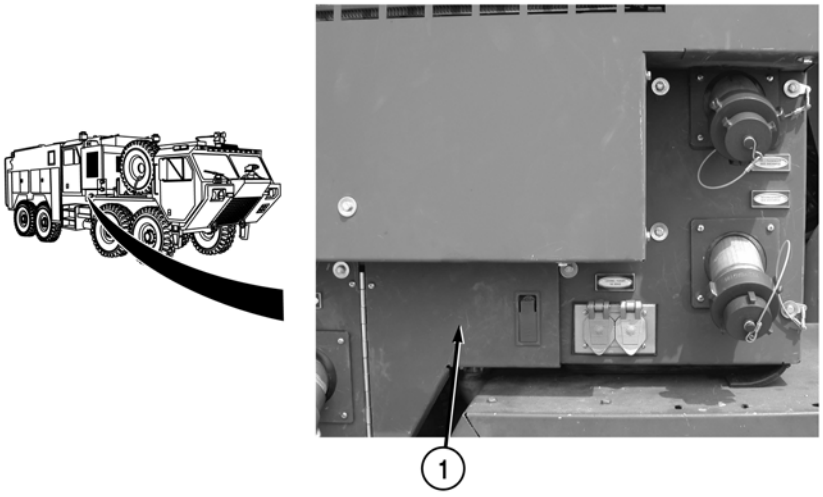
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Adhesive, Spray (WP 0625, Item 6)
Cleaning Compound, Solvent (WP 0625, Item 12)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)

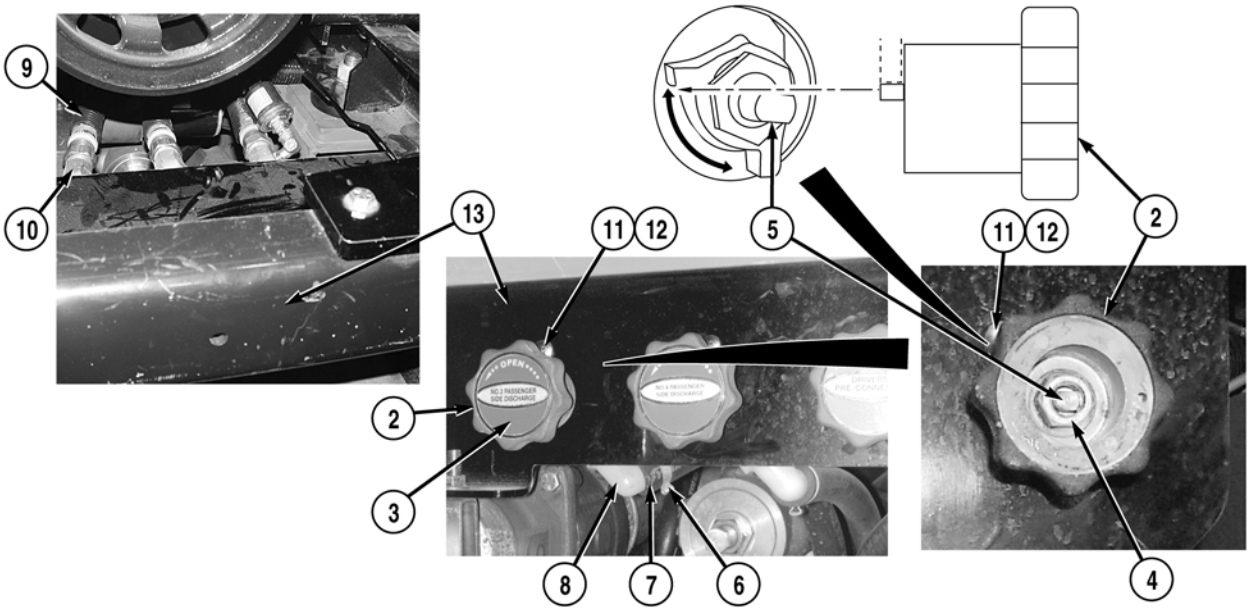
References
WP 0615, Fig. 43

Equipment Conditions
Water system drained (WP 0041)
Pump house panel J removed (WP 0540)

REMOVAL



1. Open compartment door (1).



2. Turn valve handle (2) clockwise to closed position.

NOTE

- Cover is attached to valve handle with adhesive.
- Note position of cover prior to removal to ensure proper installation.

3. Pry cover (3) from valve handle (2).

NOTE

- Stop on valve handle is positioned between 90 degree indent on valve.
- Note position of valve handle prior to removal to ensure proper installation.

4. Remove locknut (4) and valve handle (2) from valve (5). Discard locknut.

NOTE

- Tag and mark hoses prior to removal to ensure proper installation.
- Clamp may not be re-used.

5. Remove clamp (6) and hose (7) from elbow (8).
6. Remove hose (9) from elbow (10).
7. Remove two screws (11), washers (12), and valve (5) from bracket (13).
8. Remove two elbows (8) and (10) from valve (5).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

1. Apply sealing compound to threads of elbow (10).
2. Install two elbows (8) and (10) on valve (5).
3. Install valve (5) on bracket (13) with two washers (12) and screws (11).
4. Install hose (9) on elbow (10).
5. Install hose (7) on elbow (8) with hose clamp (6).

NOTE

Valve handle must be installed with stop on valve handle positioned between 90 degree indent on valve.

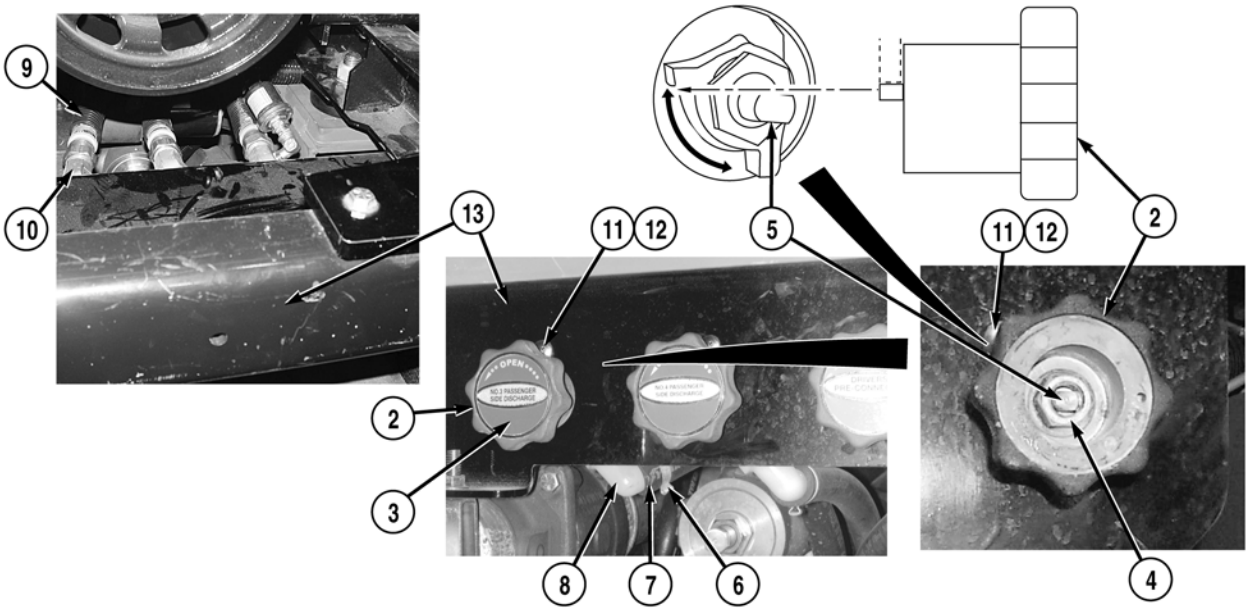
6. Install valve handle (2) on valve (5) with locknut (4).
7. Turn valve handle (2) clockwise to the closed position.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

8. Clean back of cover (3) with solvent cleaning compound.



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

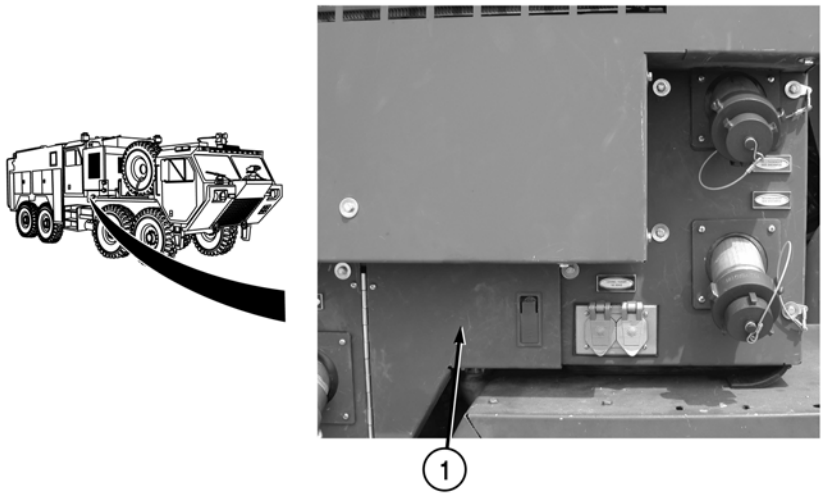
Adhesive is applied to mating surface of cover and valve handle.

9. Apply adhesive to cover (3).

NOTE

Install cover as noted prior to removal.

10. Install cover (3) on valve handle (2).



11. Close compartment door (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel J (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

NO. 4 DISCHARGE DRAIN VALVE (PASSENGER SIDE) REPLACEMENT

INITIAL SETUP:

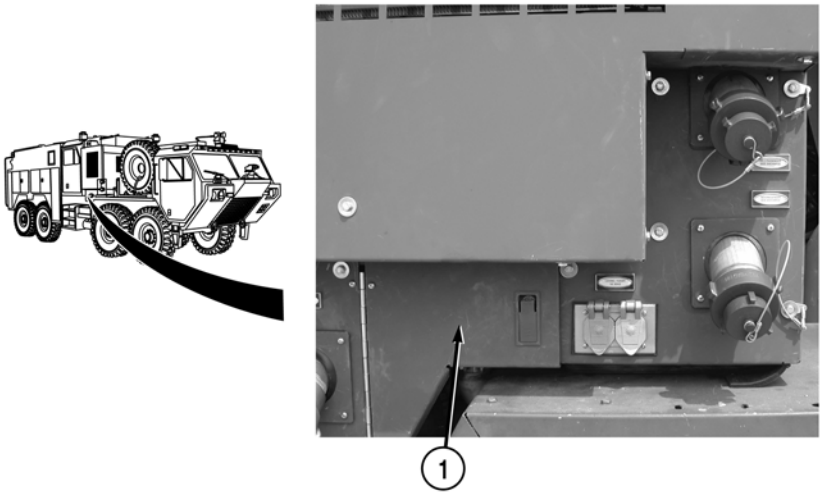
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Adhesive, Spray (WP 0625, Item 6)
Cleaning Compound, Solvent (WP 0625, Item 12)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)

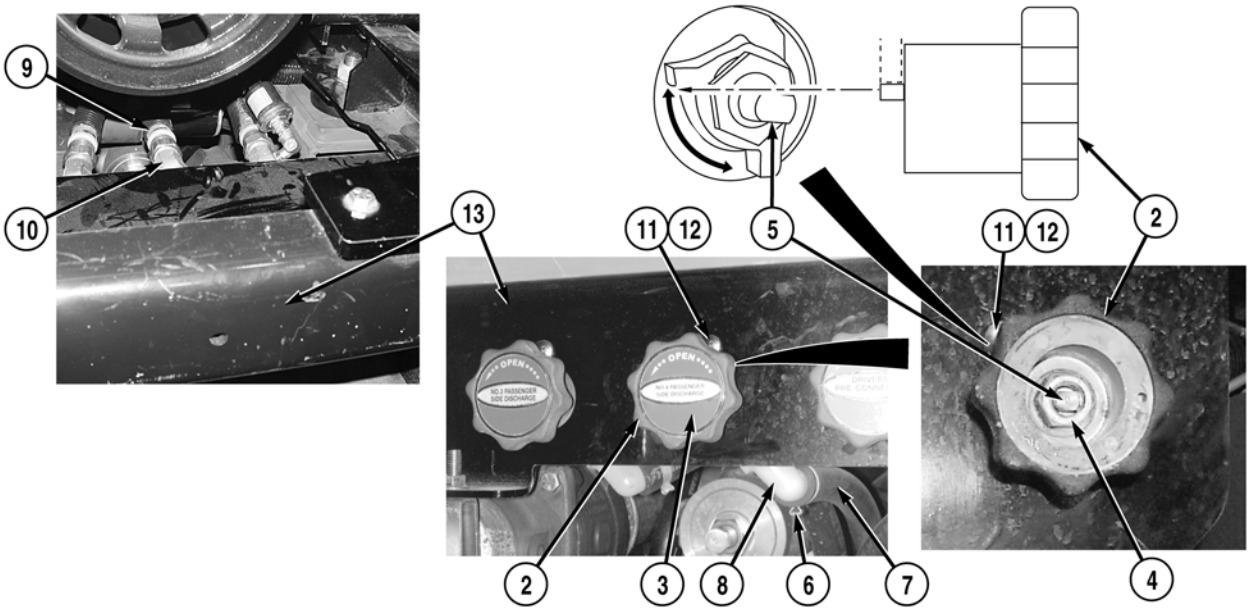
References
WP 0615, Fig. 43

Equipment Conditions
Water system drained (WP 0041)
Pump house panel J removed (WP 0540)

REMOVAL



1. Open compartment door (1).



2. Turn valve handle (2) clockwise to closed position.

NOTE

- Cover is attached to valve handle with adhesive.
- Note position of cover prior to removal to ensure proper installation.

3. Pry cover (3) from valve handle (2).

NOTE

- Stop on valve handle is positioned between 90 degree indent on valve.
- Note position of valve handle on valve prior to removal to ensure proper installation.

4. Remove locknut (4) and valve handle (2) from valve (5). Discard locknut.

NOTE

- Tag and mark hoses prior to removal to ensure proper installation.
- Clamp may not be re-used.

5. Remove clamp (6) and hose (7) from elbow (8).
6. Remove hose (9) from elbow (10).
7. Remove two screws (11), washers (12), and valve (5) from bracket (13).
8. Remove two elbows (8) and (10) from valve (5).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Apply sealing compound to threads of elbow (10).
2. Install two elbows (8) and (10) on valve (5).
3. Install valve (5) on bracket (13) with two washers (12) and screws (11).
4. Install hose (7) on elbow (8) with hose clamp (6).
5. Install hose (9) on elbow (10).

NOTE

Valve handle must be installed with stop on valve handle positioned between 90 degree indent on valve.

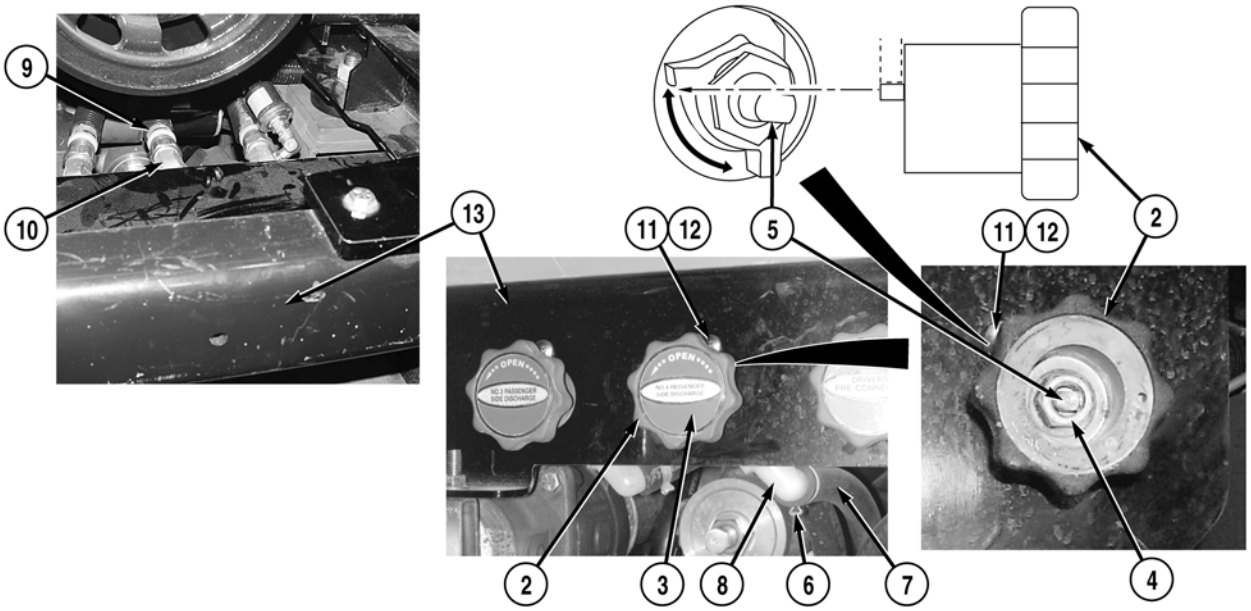
6. Install valve handle (2) on valve (5) with locknut (4).
7. Turn valve handle (2) clockwise to the closed position.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

8. Clean back of cover (3) with solvent cleaning compound.



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

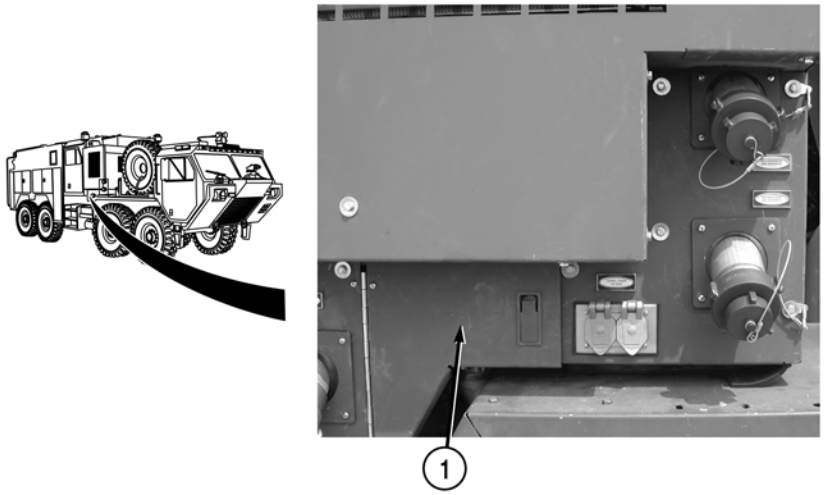
Adhesive is applied to mating surface of cover and valve handle.

9. Apply adhesive to cover (3).

NOTE

Install cover as noted prior to removal.

10. Install cover (3) on valve handle (2).



11. Close compartment door (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel J (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

PASSENGER SIDE AUXILIARY INLET AND DRIVER SIDE MAIN INLET BLEEDER VALVE REPLACEMENT

INITIAL SETUP:

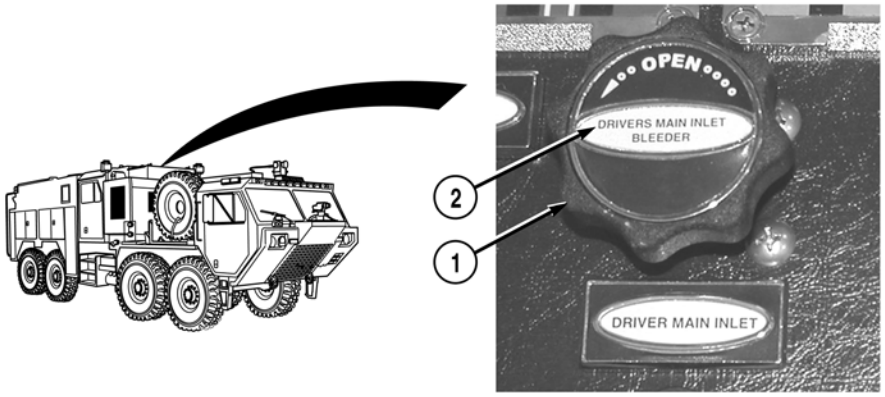
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Adhesive, Spray (WP 0625, Item 6)
Cleaning Compound, Solvent (WP 0625, Item 12)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Locknut (1)

References
WP 0325
WP 0615, Fig. 44

Equipment Conditions
Water system drained (WP 0041)
Pump operator's panel cover open (WP 0019)

REMOVAL



NOTE

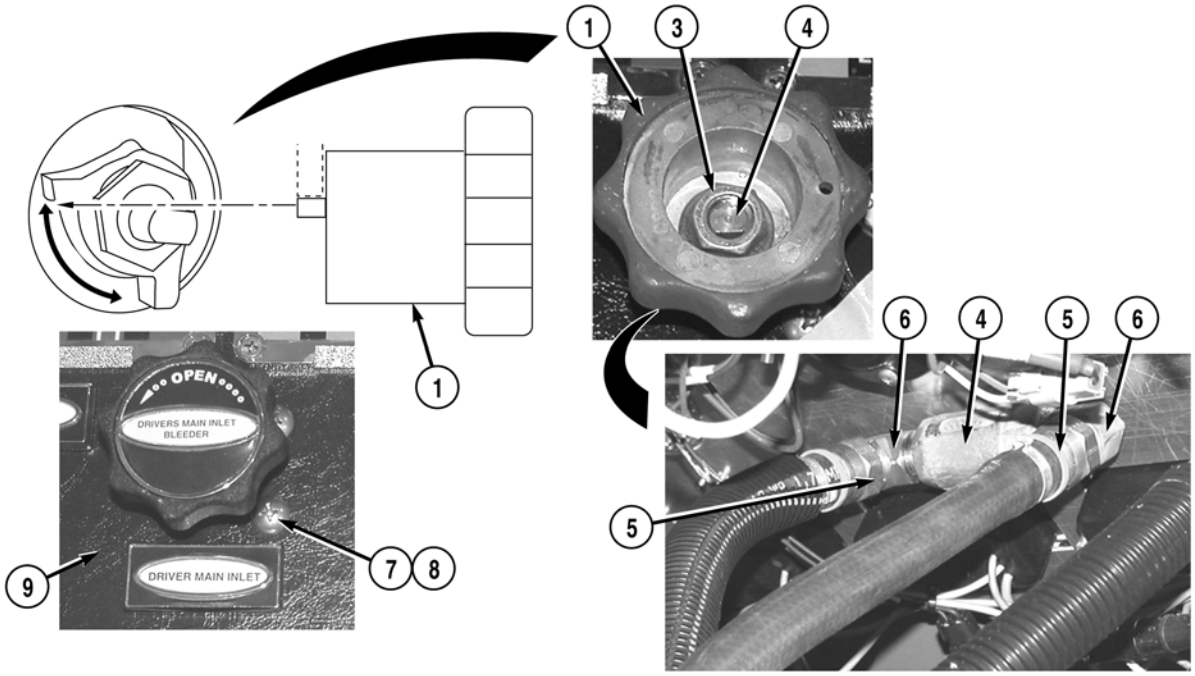
Both passenger side auxiliary inlet and driver side main inlet drain valves are replaced the same way. Driver side main inlet drain valve shown.

1. Turn valve handle (1) clockwise to closed position.

NOTE

- Cover is attached to valve handle with adhesive.
- Note position of cover prior to removal to ensure proper installation.

2. Pry cover (2) from valve handle (1).



NOTE

- Stop on valve handle is positioned between 90 degree indent on valve.
- Note position of valve handle on valve prior to removal to ensure proper installation.

3. Remove locknut (3) and valve handle (1) from valve (4). Discard locknut.
4. Open pump operator's panel housing (WP 0325).

NOTE

Tag and mark hoses prior to removal to ensure proper installation.

5. Remove two hoses (5) from elbows (6).
6. Remove two screws (7), washers (8), and valve (4) from pump panel (9).
7. Remove two elbows (6) from valve (4).

END OF TASK

INSTALLATION

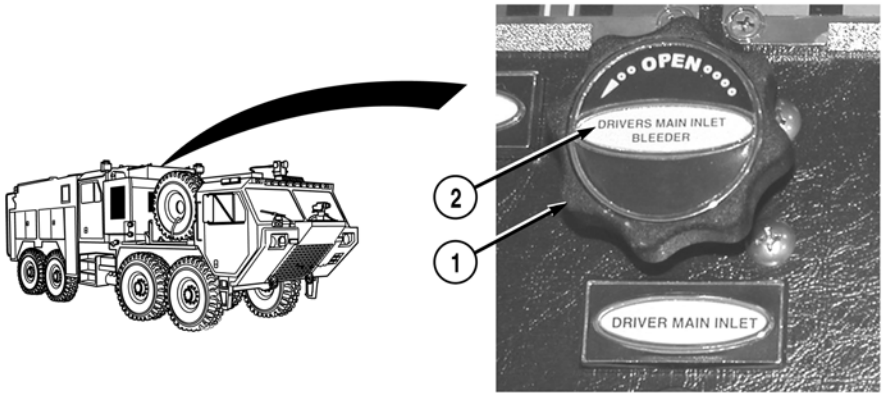
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use pipe thread sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Apply sealing compound to threads of two elbows (6).
2. Install two elbows (6) on valve (4).
3. Install valve (4) on pump panel (9) with two washers (8) and screws (7).
4. Install two hoses (5) on elbows (6).
5. Close pump operator's panel housing (WP 0325).
6. Install valve handle (1) on valve (4) with locknut (3).



7. Turn valve handle (1) clockwise to closed position.

WARNING

Solvent cleaning compound MIL-PRF-680 Type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Use respirator as needed. Accidental ingestion can cause irritation of digestive tract and respiratory tract, may cause lung and central nervous system damage. Can be fatal if swallowed. Inhalation of high/massive concentrations can cause coma or be fatal. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid for skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention. First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Keep away from open flames and other sources of ignition. Failure to follow this warning may result in injury or death to personnel.

- **The flashpoint for Type II solvent cleaning compound is 141 to 198ºF (61 to 92ºC) and Type III is 200 to 241ºF (93 to 116ºC).**
- **Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.**
- **Fire extinguishers should be placed nearby when using solvent cleaning compound. Failure to follow this warning may result in injury or death.**
- **Cloths or rags saturated with solvent cleaning compound must be disposed of IAW authorized facilities' procedures. Failure to follow this warning may result in injury.**
- **Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particle may cause injury.**

8. Clean back of cover (2) and valve handle (1) with solvent cleaning compound.

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Adhesive is applied to mating surface of cover and valve handle.

9. Apply adhesive to back of cover (2).

NOTE

Install cover as noted prior to removal.

10. Install cover (2) on valve handle (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump operator's panel cover (WP 0019)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

WATER TANK DRAIN VALVE REPLACEMENT

INITIAL SETUP:

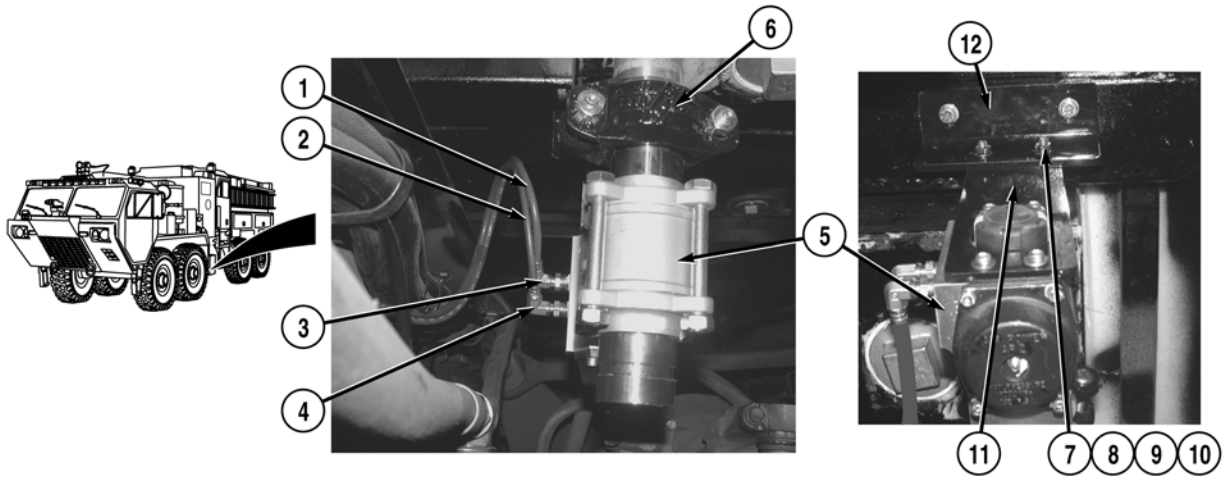
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Lockwasher (8)

References
WP 0483
WP 0615, Fig. 46

Equipment Conditions
Engine OFF (TM 9-2320-347-10)
Wheels chocked (TM 9-2320-347-10)
Air system drained (TM 9-2320-325-14&P)
Water system drained (WP 0041)

REMOVAL



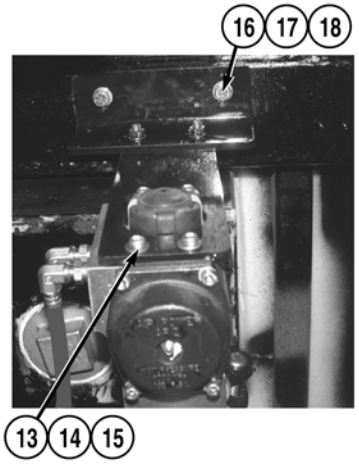
⚠ CAUTION

Air lines may be removed directly from elbows and fittings, or may remain attached to elbows and fittings and removed as an assembly. If air lines are removed from elbows and fittings, care must be taken not to damage air line. If sealing surface of air line is damaged air line must be repaired or replaced.

NOTE

- Tag and mark air lines prior to removal to ensure proper installation.
- Valve shown has air lines and elbows replaced as an assembly.

1. Remove two air lines (1) and (2) and elbows (3) and (4) from water tank drain valve (5).
2. Remove coupling (6) from water tank drain valve (5) (WP 0483).
3. Remove two nuts (7), lockwashers (8), four washers (9), two screws (10), bracket (11), and water tank drain valve (5) from bracket (12). Discard lockwashers.



4. Remove four screws (13), lockwashers (14), washers (15), and bracket (11) from water tank drain valve (5). Discard lockwashers.

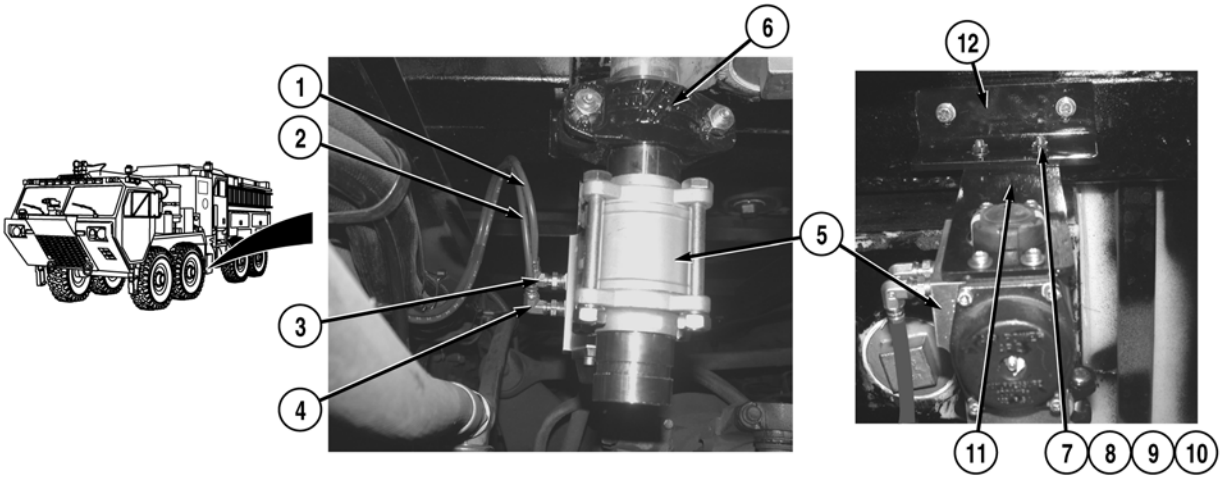
5. Remove two screws (16), lockwashers (17), washers (18), and bracket (12) from vehicle. Discard lockwashers.

END OF TASK

INSTALLATION

1. Install bracket (12) on vehicle with two screws (16), lockwashers (17), and washers (18).

2. Install bracket (11) on water tank drain valve (5) with four screws (13), lockwashers (14), and washers (15).



3. Install water tank drain valve (5) and bracket (11) on bracket (12) with two screws (10), lockwashers (8), four washers (9), and nuts (7).

4. Install coupling (6) and water tank drain valve (5) on vehicle (WP 0483).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

5. Apply sealing compound to threads of two elbows (3) and (4).
6. Install two air lines (1) and (2) and elbows (3) and (4) on water tank drain valve (5).

END OF TASK

FOLLOW-ON MAINTENANCE

Remove wheel chocks (TM 9-2320-347-10)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FLUSH CHECK VALVE REPLACEMENT

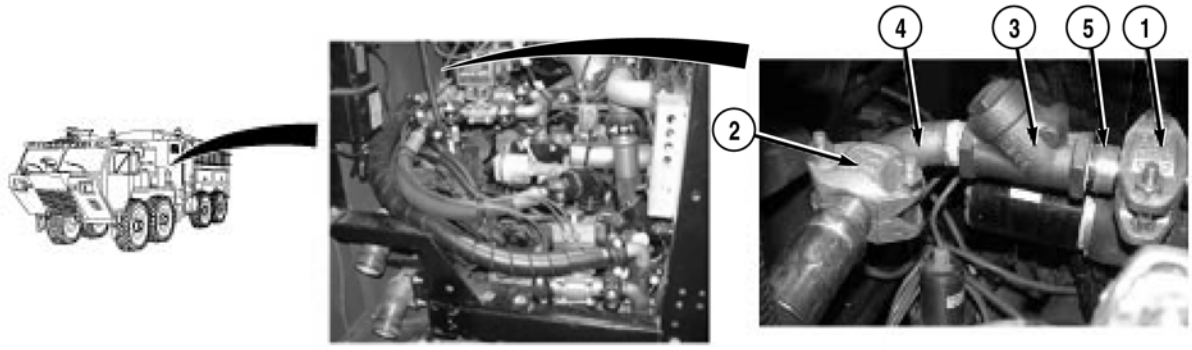
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0483
WP 0489
WP 0615, Fig. 47

Equipment Conditions
Water system drained (WP 0041)
Foam system drained (WP 0031)
Pump house panel A opened (WP 0539)

REMOVAL



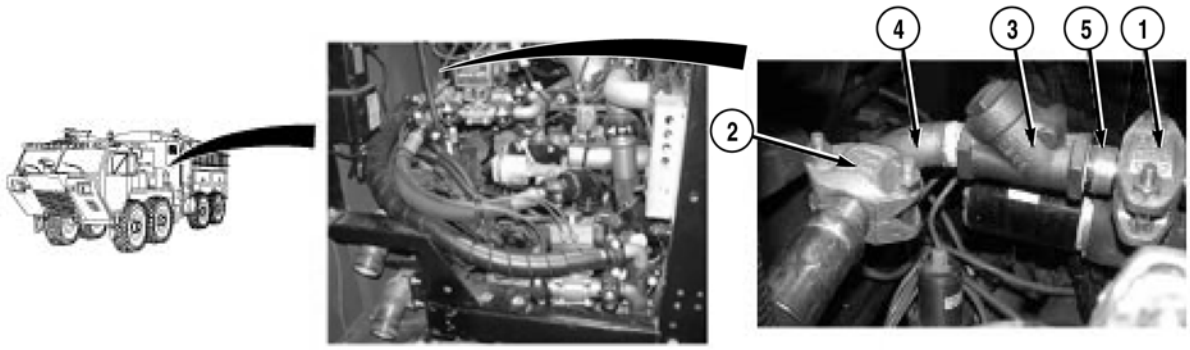
NOTE

Flush check valve and piping are replaced as an assembly.

1. Remove two couplings (1) and (2) and flush check valve (3) from vehicle (WP 0483).
2. Remove elbow (4) and pipe (5) from flush check valve (3).

END OF TASK

INSTALLATION



WARNING

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CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Install elbow (4) and pipe (5) on flush check valve (3) (WP 0489).
2. Install flush check valve (3) and two couplings (1) and (2) on vehicle (WP 0483).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM LEVEL PROBE REPLACEMENT

INITIAL SETUP:

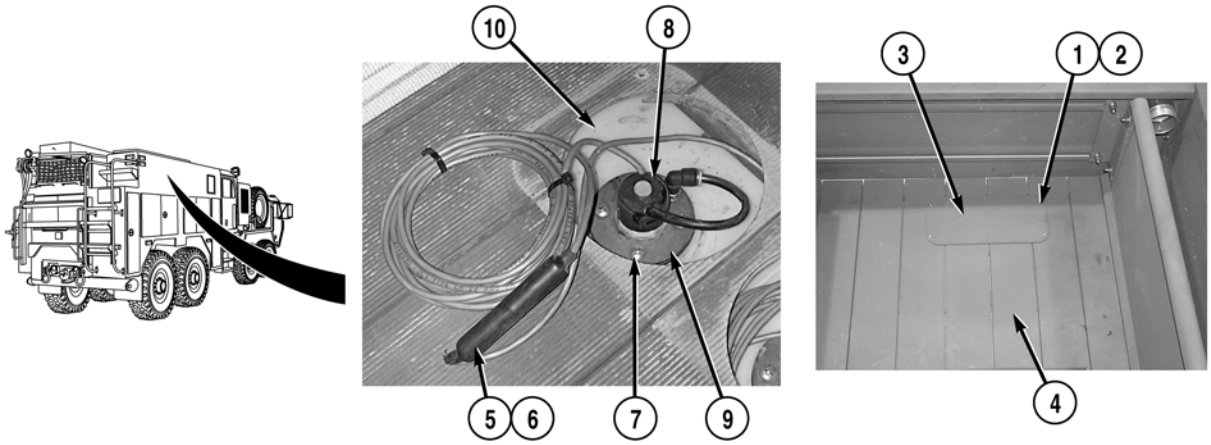
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Shrink, Heat (WP 0625, Item 48)
Ties, Cable, Plastic (WP 0625, Item 58)

References
WP 0191
WP 0615, Fig. 51, 136

Equipment Conditions
Water pump engine OFF (WP 0022)
Batteries disconnected (TM 9-2320-325-14&P)

REMOVAL



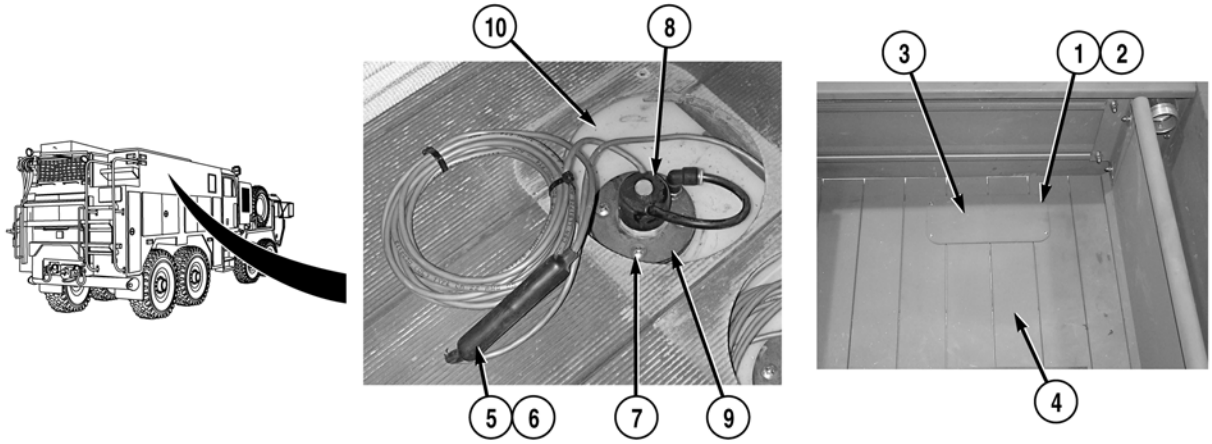
NOTE

- Both foam probes are removed the same way.
- Remove cable ties as required.
- Perform Step (1) to remove foam level probe cover.

1. Remove four screws (1), washers (2), and cover (3) from hose bed (4).
2. Remove heat shrink (5) and disconnect connector (6).
3. Remove four screws (7), foam level probe (8), and gasket (9) from tank (10).

END OF TASK

INSTALLATION



NOTE

- Both foam probes are installed the same way.
- Ensure vent tube, vent tube hole in gasket, and vent tube hole in tank are aligned.

1. Calibrate foam level probe (8) (WP 0191).
2. Install gasket (9) and foam level probe (8) on tank (10) with four screws (7).

NOTE

Install cable ties as required.

3. Connect connector (6) and install heat shrink (5).

NOTE

Perform Step (3) to install foam level probe cover.

4. Install cover (3) on hose bed (4) with four screws (1) and washers (2).

END OF TASK

FOLLOW-ON MAINTENANCE

Connect batteries (TM 9-2320-325-14&P)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM "A" CHECK VALVE REPLACEMENT

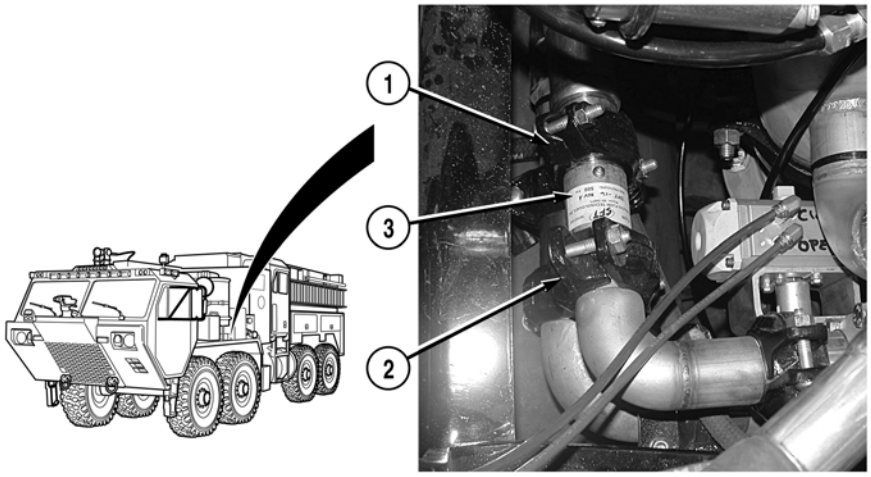
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0483
WP 0615, Fig. 47

Equipment Conditions
Pump house panel B removed (WP 0540)
Foam tank A drained (WP 0031)

REMOVAL



Remove two couplings (1) and (2) and foam system A check valve (3) from vehicle (WP 0483).

END OF TASK

INSTALLATION

Install two couplings (1) and (2) and foam system A check valve (3) on vehicle (WP 0483).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel B (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM "B" CHECK VALVE REPLACEMENT

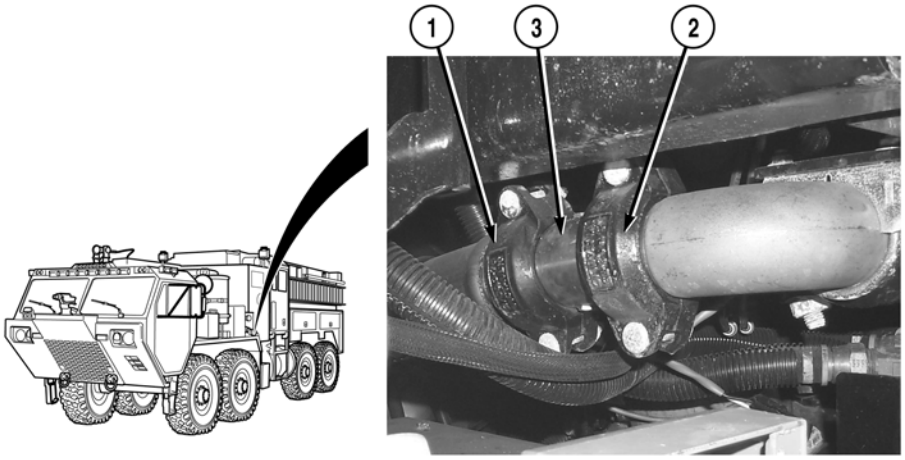
INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

References
WP 0483
WP 0615, Fig. 47

Equipment Conditions
Pump house panel B removed (WP 0540)
Foam tank B drained (WP 0031)

REMOVAL



Remove two couplings (1) and (2) and foam system B check valve (3) from vehicle (WP 0483).

END OF TASK

INSTALLATION

Install two couplings (1) and (2) and foam system B check valve (3) on vehicle (WP 0483).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel B (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM "A" SHUTOFF VALVE REPLACEMENT

INITIAL SETUP:

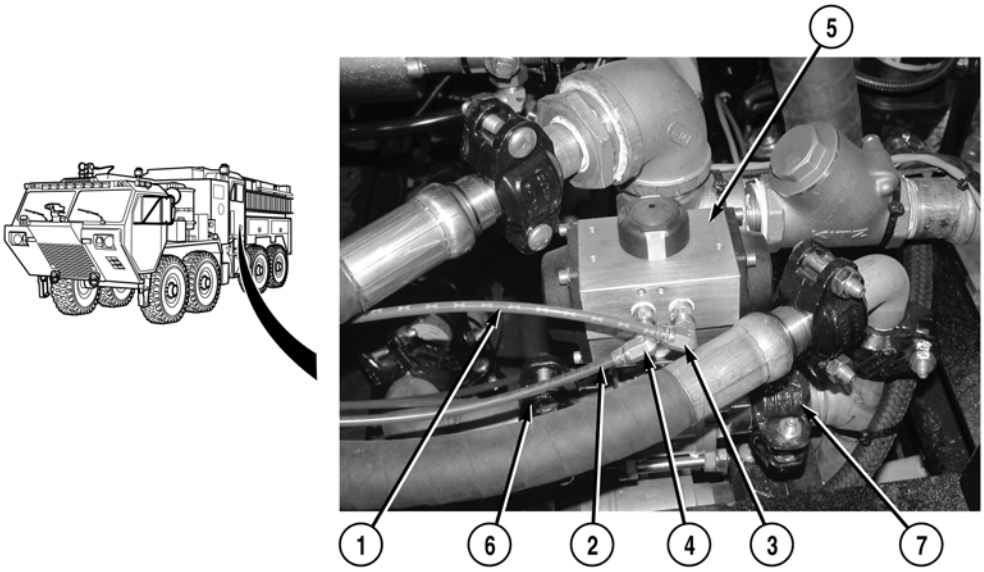
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)

References
WP 0483
WP 0615, Fig. 47

Equipment Conditions
Air system drained (TM 9-2320-347-10)
Water system drained (WP 0029)
Pump house panel B removed (WP 0540)
Foam tank "A" drained (WP 0031)

REMOVAL



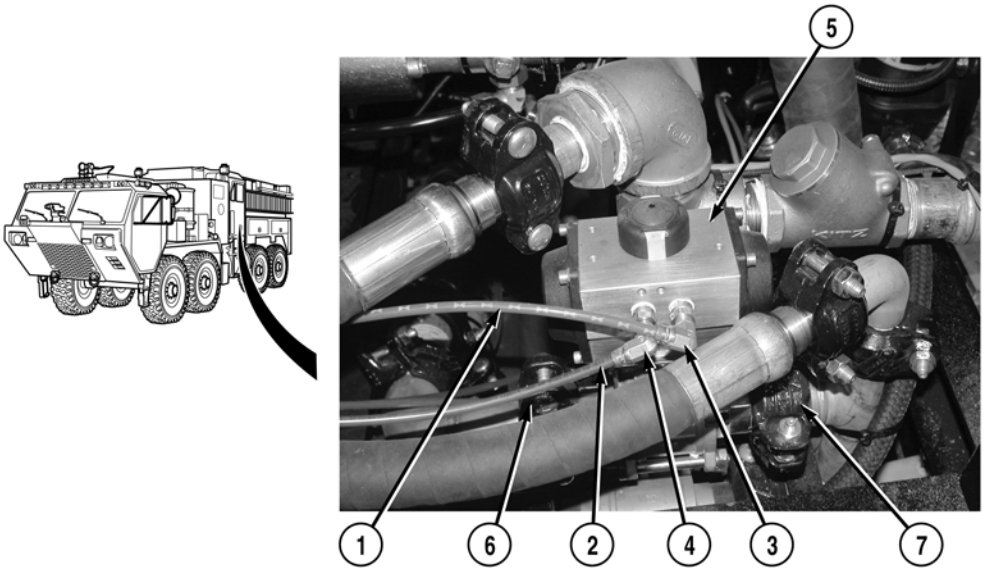
NOTE

- Tag and mark air lines prior to removal to ensure proper installation.
- Air lines remain attached to elbows.

1. Remove two air lines (1) and (2) and elbows (3) and (4) from foam system "A" shutoff valve (5).
2. Remove two couplings (6) and (7) and foam system "A" shutoff valve (5) from vehicle (WP 0483).

END OF TASK

INSTALLATION



1. Install two couplings (6) and (7) and foam system “A” shutoff valve (5) on vehicle (WP 0483).

WARNING

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CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

2. Apply sealing compound to threads of two elbows (3) and (4).

3. Install two air lines (1) and (2) and elbows (3) and (4) on foam system “A” shutoff valve (5).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel B (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM "B" SHUTOFF VALVE REPLACEMENT

INITIAL SETUP:

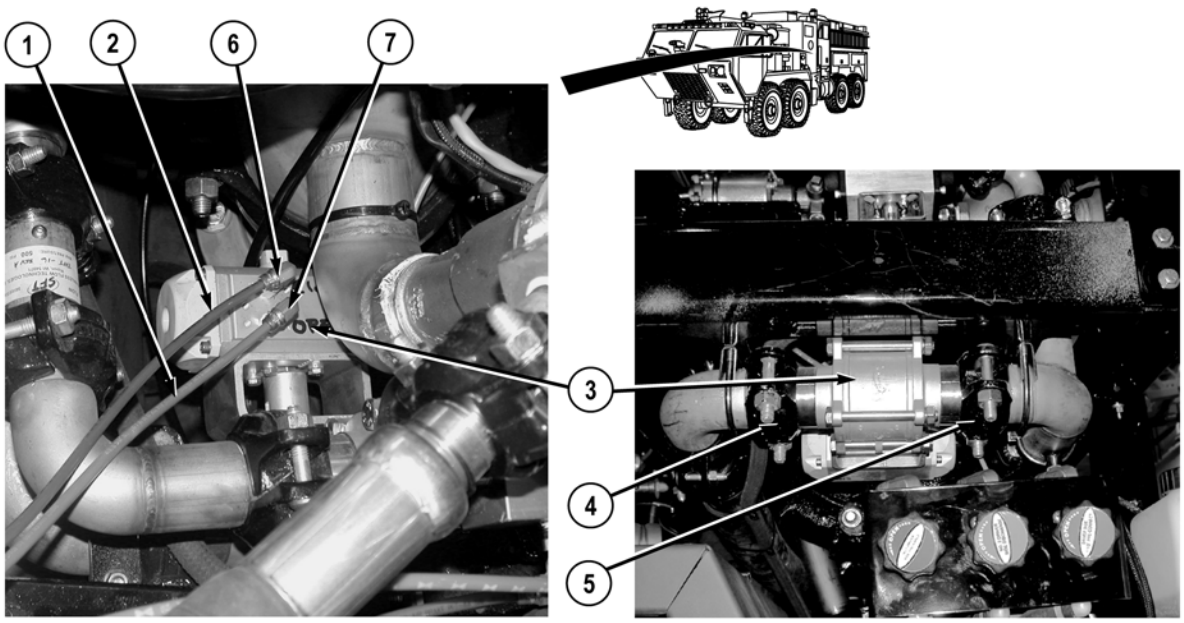
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)

References
WP 0483
WP 0615, Fig. 47

Equipment Conditions
Air system drained (TM 9-2320-347-10)
Water system drained (WP 0041)
Foam system drained (WP 0031)
Pump house panel B removed (WP 0540)

REMOVAL



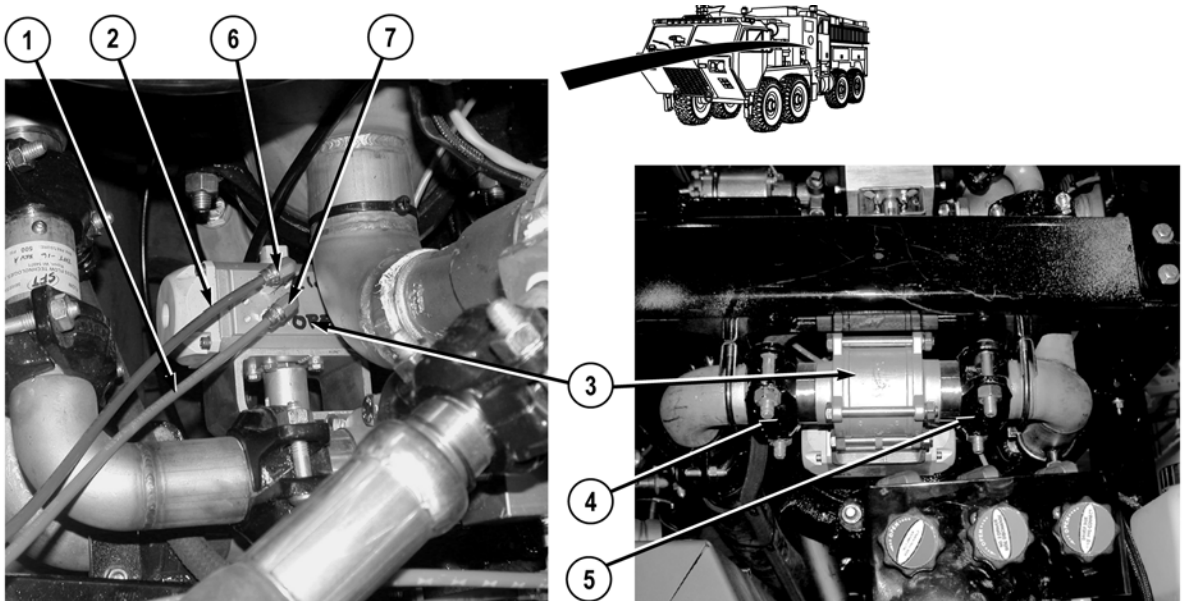
NOTE

Tag and mark air lines prior to removal to ensure proper installation.

1. Remove two air lines (1) and (2) from foam system "B" shutoff valve (3).
2. Remove two couplings (4) and (5) and foam system "B" shutoff valve (3) from vehicle (WP 0483).
3. Remove two elbows (6) and (7) from foam system "B" shutoff valve (3).

END OF TASK

INSTALLATION



WARNING

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CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Apply sealing compound to threads of two elbows (7) and (6).
2. Install two elbows (7) and (6) on foam system “B” shutoff valve (3).
3. Install foam system “B” shutoff valve (3) and two couplings (5) and (4) on vehicle (WP 0483).
4. Install two air lines (2) and (1) on foam system “B” shutoff valve (3).

END OF TASK

FOLLOW-ON MAINTENANCE

Install pump house panel B (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM EDUCTOR REPLACEMENT

INITIAL SETUP:

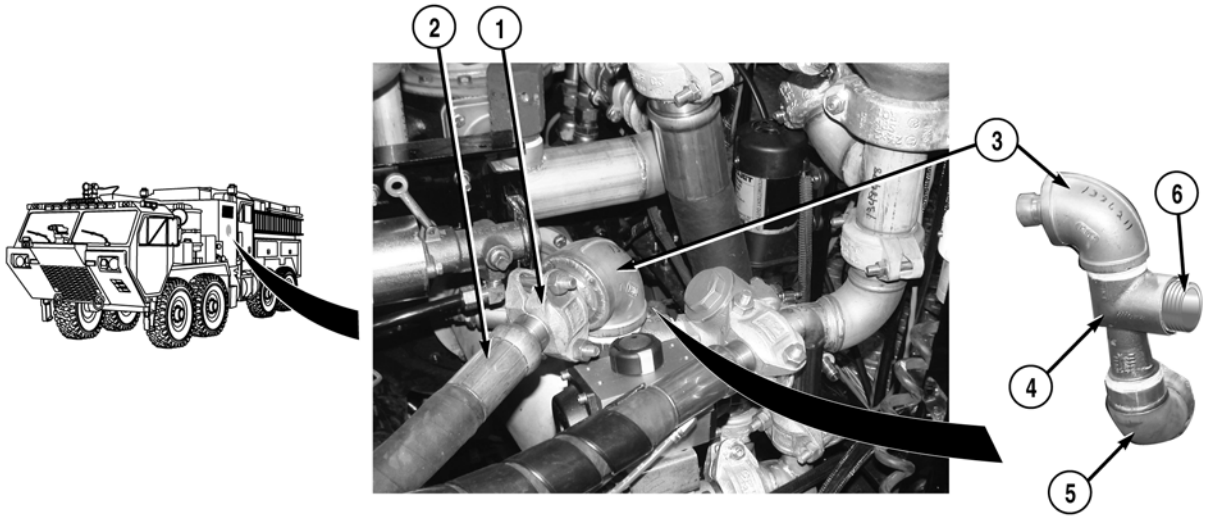
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)

References
WP 0483
WP 0489
WP 0615, Fig. 47

Equipment Conditions
Foam system inlet check valve removed (WP 0290)
Primer valve removed (WP 0267)

REMOVAL



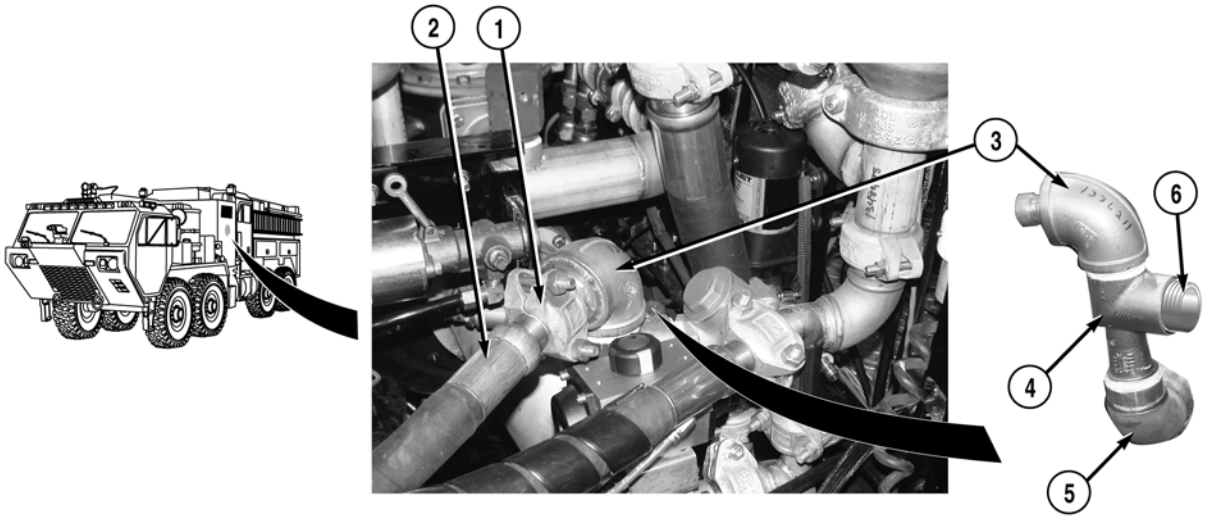
NOTE

Tag and mark hose prior to removal to ensure proper installation.

1. Remove coupling (1) and hose (2) from elbow (3) (WP 0483).
2. Remove foam system eductor (4) from pipe (5).
3. Remove elbow (3) and nipple (6) from foam system eductor (4).

END OF TASK

INSTALLATION



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use pipe thread sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Install elbow (3) and nipple (6) on foam system eductor (4) (WP 0489).
2. Install foam system eductor (4) on pipe (5) (WP 0489).
3. Install hose (2) and coupling (1) on elbow (3) (WP 0483).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install foam system inlet check valve (WP 0290)
2. Install primer valve (WP 0267)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM EDUCTOR VALVE REPLACEMENT

INITIAL SETUP:

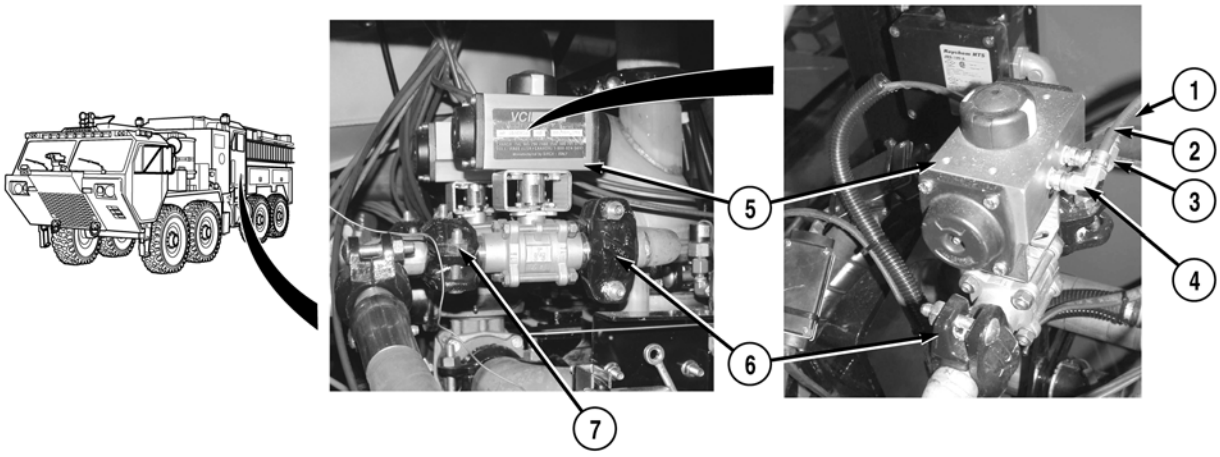
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)

References
WP 0483
WP 0615, Fig. 47

Equipment Conditions
Air system drained (TM 9-2320-347-10)
Water system drained (WP 0041)
Pump house panel A opened (WP 0539)

REMOVAL



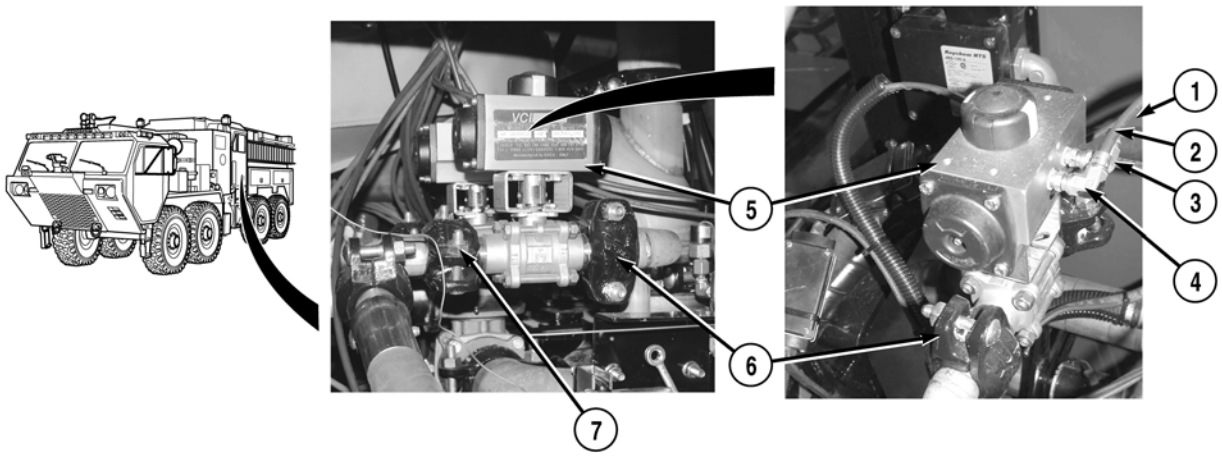
NOTE

- Tag and mark air lines prior to removal to ensure proper installation.
- Air lines remain attached to elbows.

1. Remove two air lines (1) and (2) and elbows (3) and (4) from foam system eductor valve (5).
2. Remove two couplings (6) and (7) and foam system eductor valve (5) from vehicle (WP 0483).

END OF TASK

INSTALLATION



1. Install two couplings (6) and (7) and foam system eductor valve (5) on vehicle (WP 0483).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

2. Apply sealing compound to two elbows (3) and (4).

3. Install two air lines (1) and (2) and elbows (3) and (4) on foam system eductor valve (5).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM FLOW CONTROL MANIFOLD REPLACEMENT

INITIAL SETUP:

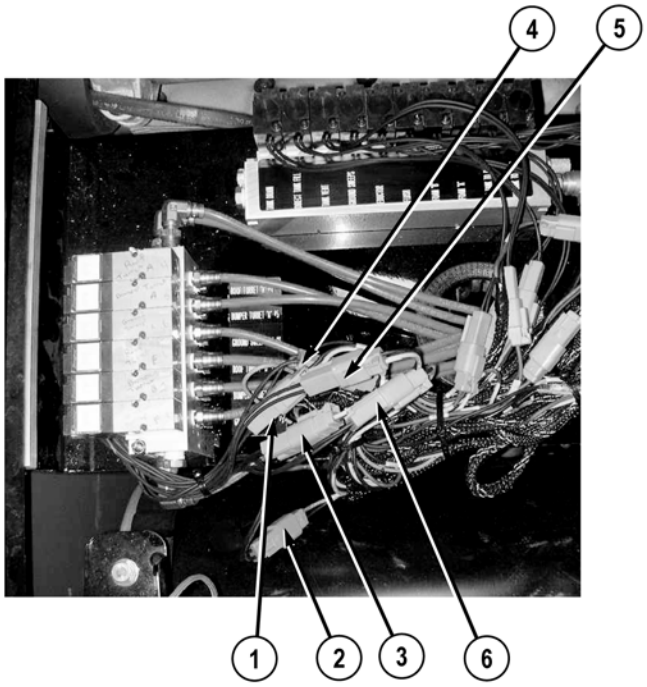
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)
Locknut (2)

References
WP 0615, Fig. 48

Equipment Conditions
Air system drained (TM 9-2320-347-10)
Pump house panel S removed (WP 0540)
Pump house panel A opened (WP 0539)

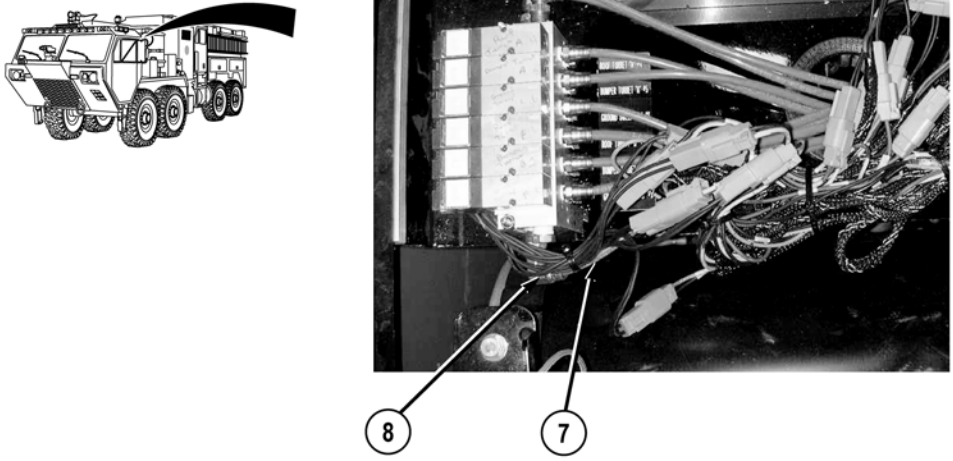
REMOVAL



NOTE

- Remove cable ties as required.
- Tag and mark connectors and air lines prior to removal to ensure proper installation.

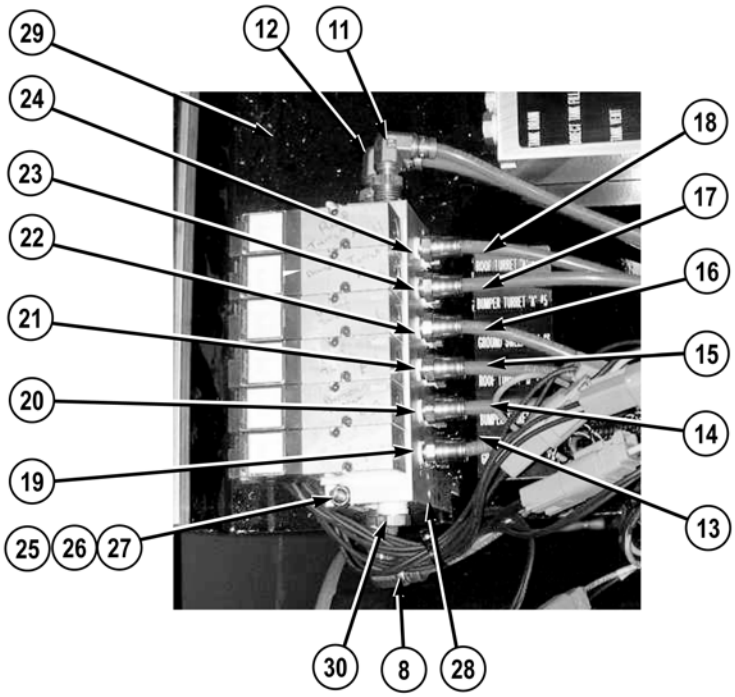
1. Disconnect six connectors (1), (2), (3), (4), (5), and (6).



CAUTION

- **Air lines may be removed directly from elbows and fittings, or may remain attached to elbows and fittings and removed as an assembly.**
- **If air lines are removed from elbows and fittings, care must be taken not to damage air line. If sealing surface of air line is damaged, air line must be repaired or replaced.**

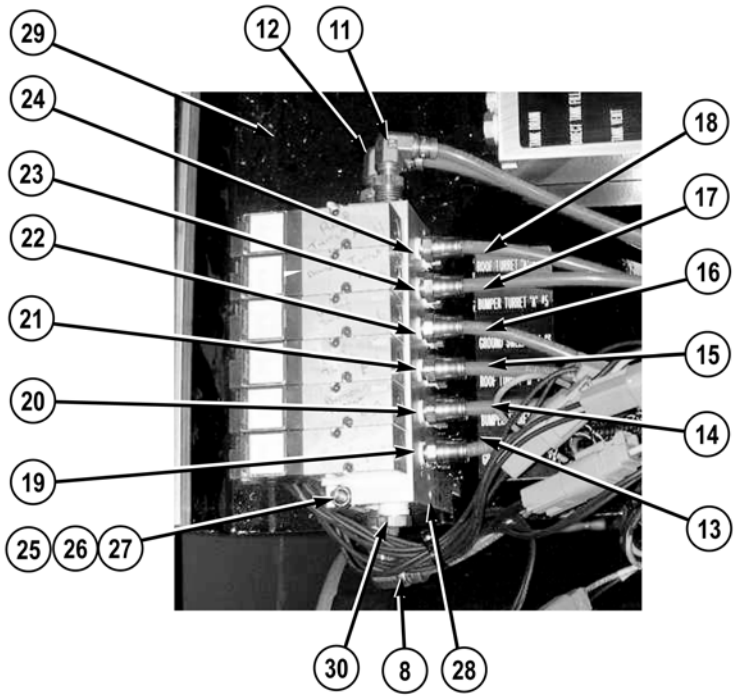
2. Remove air line (7) from elbow (8).
3. Remove two air lines (9) and (10) from elbows (11) and (12).



4. Remove six air lines (13), (14), (15), (16), (17), and (18) from fittings (19), (20), (21), (22), (23), and (24).
5. Remove two locknuts (25), washers (26), screws (27), and control valve manifold (28) from base (29). Discard locknuts.
6. Remove three elbows (8), (11), and (12), six fittings (19), (20), (21), (22), (23), and (24), and plug (30) from control valve manifold (28).

END OF TASK

INSTALLATION



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

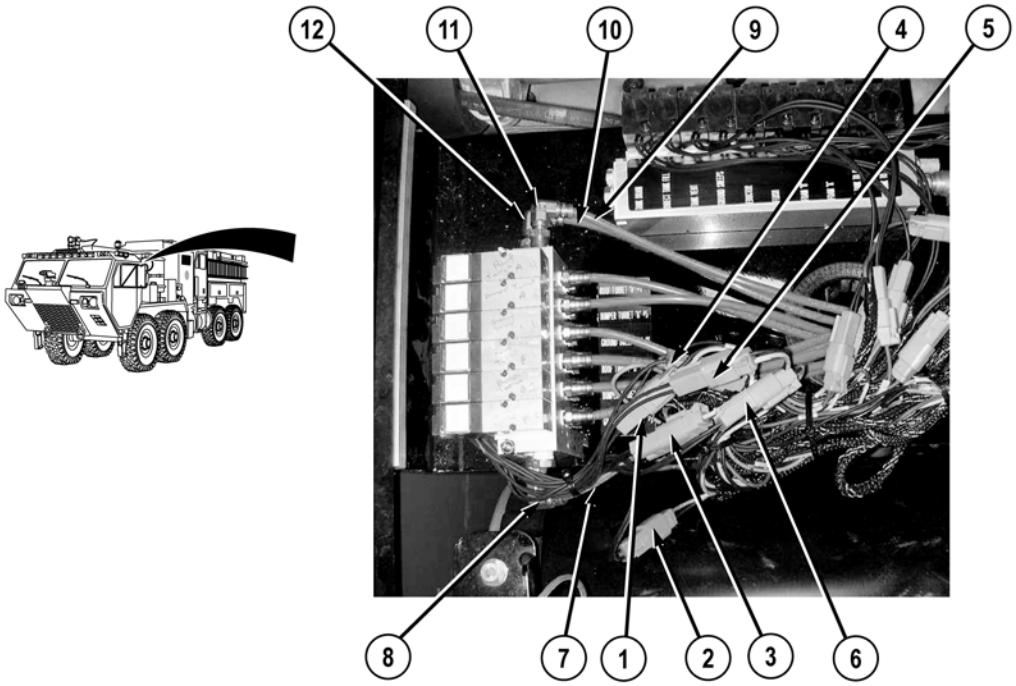
CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

NOTE

Install cable ties as required.

1. Apply sealing compound on threads of three elbows (8), (11), and (12), six fittings (19), (20), (21), (22), (23), and (24), and plug (30).
2. Install three elbows (8), (11), and (12), six fittings (19), (20), (21), (22), (23), and (24), and plug (30) on control valve manifold (28).
3. Install control valve manifold (28) on base (29) with two screws (27), washers (26), and locknuts (25).
4. Install six air lines (13), (14), (15), (16), (17), and (18) on fittings (19), (20), (21), (22), (23), and (24).



5. Install two air lines (9) and (10) on elbows (11) and (12).
6. Install air line (7) on elbow (8).
7. Connect six connectors (1), (2), (3), (4), (5), and (6).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Close pump house panel A (WP 0539)
2. Install pump house panel S (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM FLUSH VALVE REPLACEMENT

INITIAL SETUP:

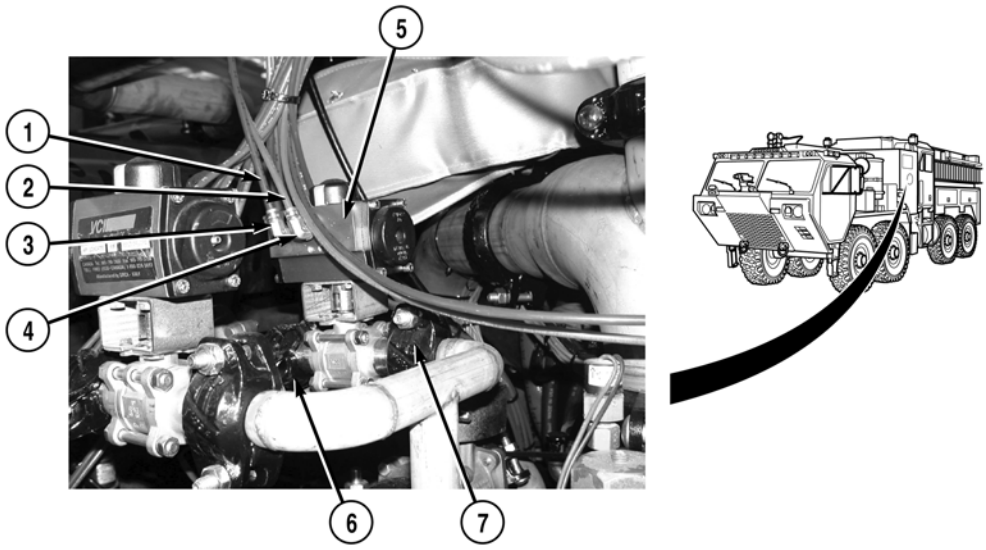
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Tags, Identification (WP 0625, Item 51)

References
WP 0483
WP 0615, Fig. 47

Equipment Conditions
Air system drained (TM 9-2320-347-10)
Water system drained (WP 0041)
Pump house panel A opened (WP 0539)

REMOVAL



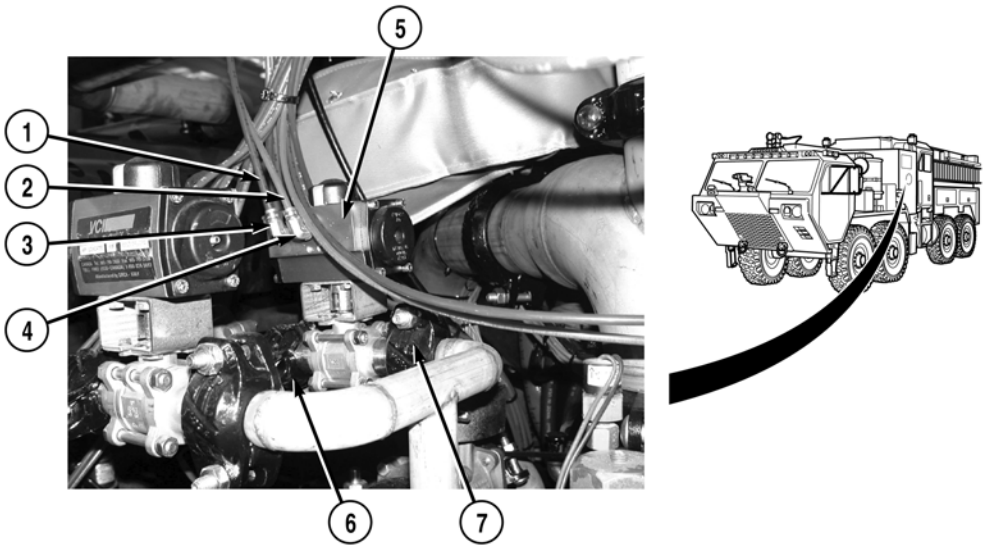
NOTE

- Tag and mark air lines prior to removal to ensure proper installation.
- Air lines remain attached to elbows.

1. Remove two air lines (1) and (2) and elbows (3) and (4) from foam system flush valve (5).
2. Remove two couplings (6) and (7) and foam system flush valve (5) from vehicle (WP 0483).

END OF TASK

INSTALLATION



1. Install two couplings (6) and (7) and foam system flush valve (5) on vehicle (WP 0483).

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

2. Apply sealing compound to threads of two elbows (3) and (4).
3. Install two air lines (1) and (2) and elbows (3) and (4) on foam system flush valve (5).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump house panel A (WP 0539)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM INLET CHECK VALVE REPLACEMENT

INITIAL SETUP:

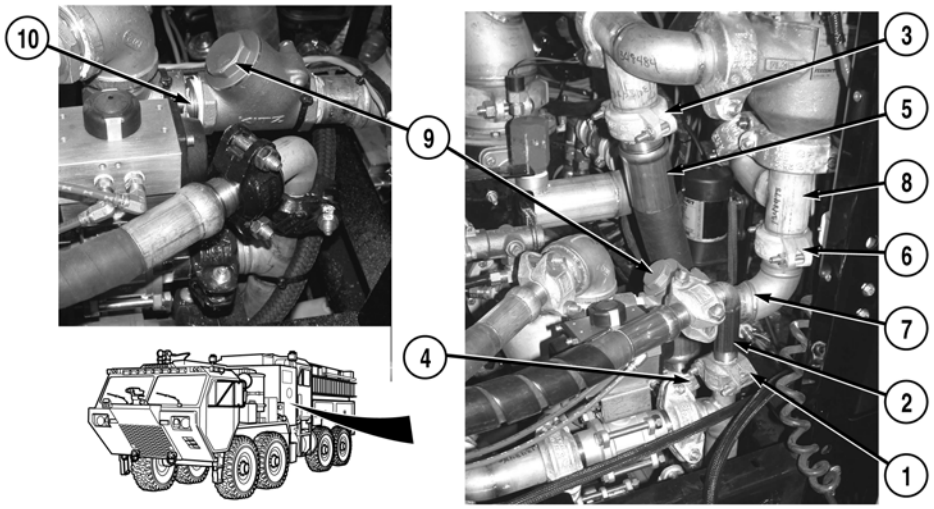
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Ties, Cable, Plastic (WP 0625, Item 58)

References
WP 0483
WP 0489
WP 0615, Fig. 47

Equipment Conditions
Water system drained (WP 0041)
Foam system "A" shutoff valve removed (WP 0284)

REMOVAL



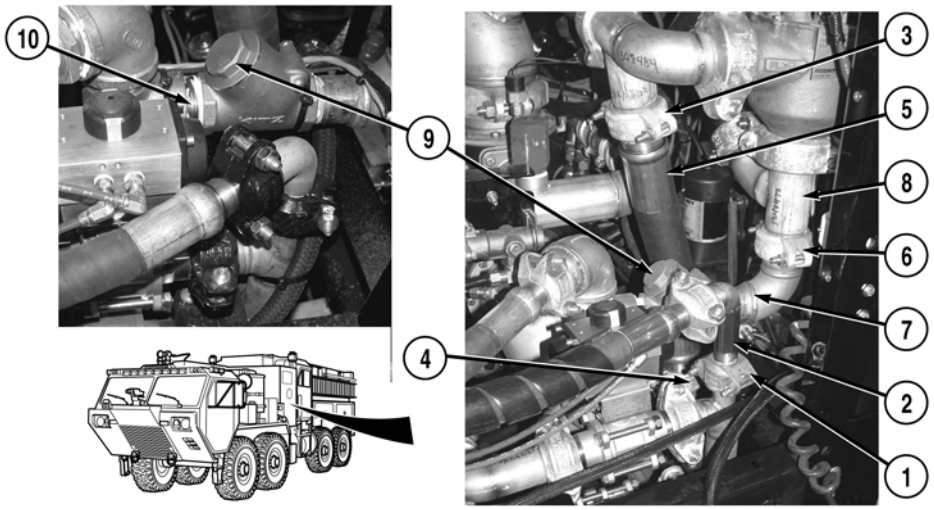
NOTE

- Remove cable ties as required.
- Tag and mark hoses prior to removal to ensure proper installation.

1. Remove coupling (1) from elbow (2) (WP 0483).
2. Remove two couplings (3) and (4) and hose (5) from vehicle (WP 0483).
3. Remove coupling (6) from elbow (7) and pipe (8) (WP 0483).
4. Remove foam system inlet check valve (9) from nipple (10).
5. Remove elbow (7) from foam system inlet check valve (9).

END OF TASK

INSTALLATION



WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Install elbow (7) on foam system inlet check valve (9) (WP 0489).
2. Install foam system inlet check valve (9) on nipple (10) (WP 0489).
3. Install coupling (6) on elbow (7) and pipe (8) (WP 0483).
4. Install hose (5) and two couplings (3) and (4) on vehicle (WP 0483).
5. Install elbow (2) and coupling (1) on vehicle (WP 0483).

END OF TASK

FOLLOW-ON MAINTENANCE

Install foam system “A” shutoff valve (WP 0284)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM MANUAL METERING VALVE REPLACEMENT

INITIAL SETUP:

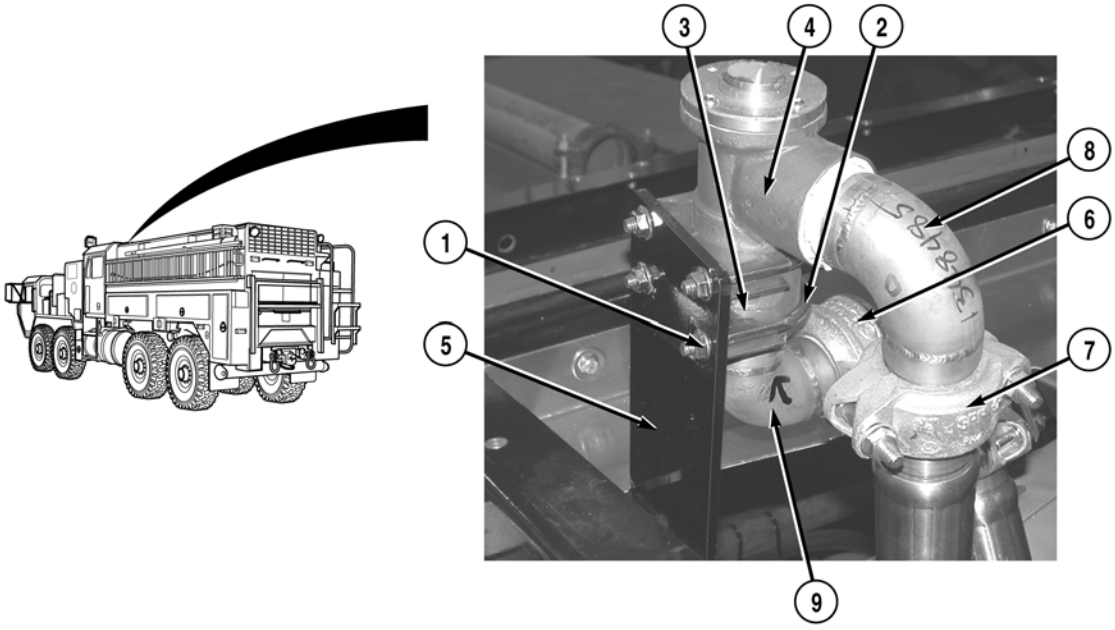
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Locknut (4)

References
WP 0483
WP 0615, Fig. 47

Equipment Conditions
Pump operator's panel housing opened (WP 0325)
Foam system drained (WP 0329)

REMOVAL



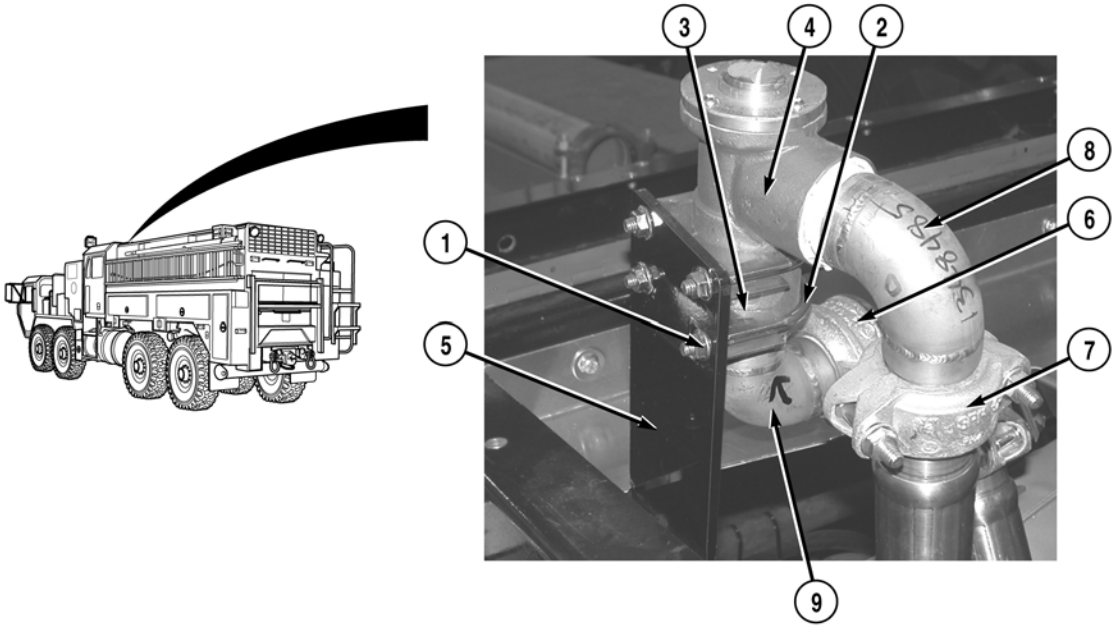
NOTE

Note position of foam system manual metering valve prior to removal to ensure proper installation.

1. Remove four locknuts (1), two U-bolts (2), cradles (3), and foam system manual metering valve (4) from bracket (5). Discard locknuts.
2. Remove two couplings (6) and (7) and foam system manual metering valve (4) from vehicle (WP 0483).
3. Remove two elbows (8) and (9) from foam system manual metering valve (4).

END OF TASK

INSTALLATION



1. Install two elbows (8) and (9) on foam system manual metering valve (4) (WP 0228).
2. Install foam system manual metering valve (4) and two couplings (6) and (7) on vehicle (WP 0483).

NOTE

Install foam system manual metering valve as noted prior to removal.

3. Install foam system manual metering valve (4) on bracket (5) with two cradles (3), U-bolts (2), and four locknuts (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Close pump operator’s panel housing (WP 0325)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM SYSTEM MULTI-METERING VALVE (AUTOMATIC) REPLACEMENT

INITIAL SETUP:

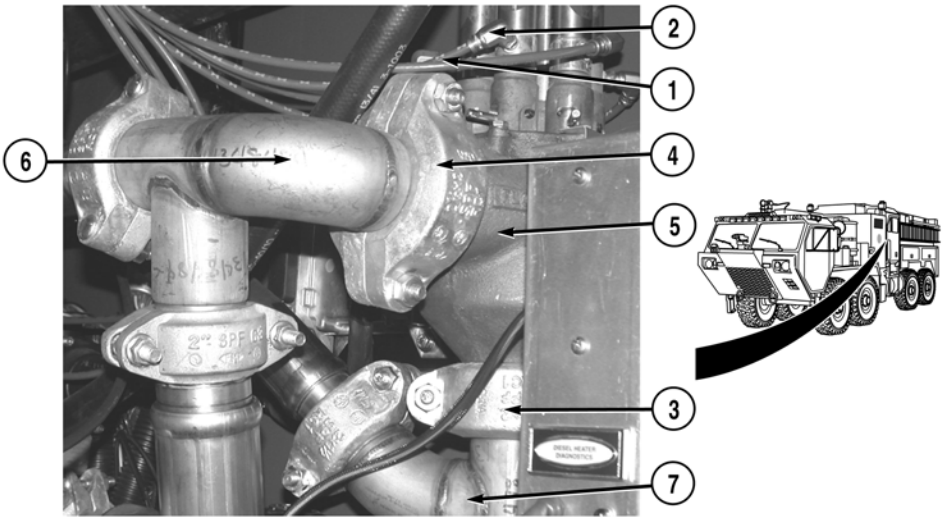
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (WP 0622, Item 27)

Materials/Parts
Tags, Identification (WP 0625, Item 51)
Compound, Sealing, Pipe Thread (WP 0625, Item 21)
Lockwasher (2)
Lockwasher (2)

References
WP 0483
WP 0615, Fig. 49

Equipment Conditions
Air system drained (TM 9-2320-347-10)
Pump house panel B removed (WP 0540)
Water system drained (WP 0041)
Foam system drained (WP 0041)
Pump house heater diagnostics module removed (WP 0415)

REMOVAL



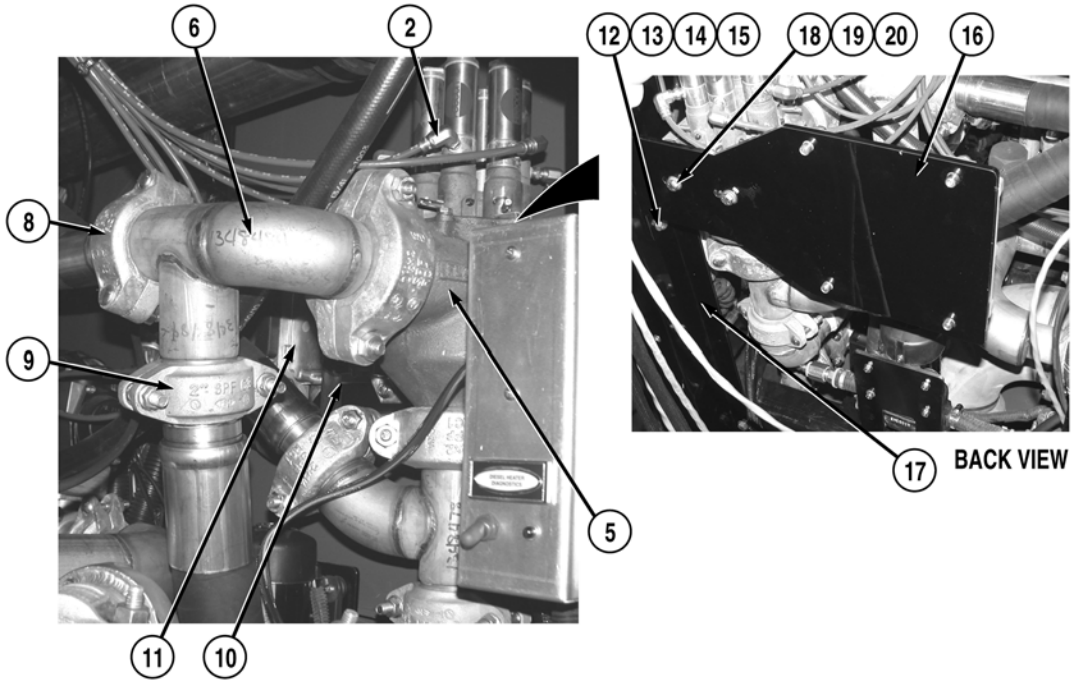
⚠ CAUTION

Air lines may be removed directly from elbows and fittings, or may remain attached to elbows and fittings and removed as an assembly. If air lines are removed from elbows and fittings care must be taken not to damage air line. If sealing surface of air line is damaged air line must be repaired or replaced.

NOTE

Tag and mark air lines prior to removal to ensure proper installation.

1. Remove six air lines (1) from elbows (2).
2. Remove two couplings (3) and (4) from multi-metering valve (5) and two tees (6) and (7) (WP 0483).



3. Remove two couplings (8) and (9) and tee (6) from vehicle (WP 0483).

4. Disconnect two connectors (10) from electronic control unit (11).

NOTE

Bracket and multi-metering valve are removed from pump house frame as an assembly.

5. Remove two nuts (12), lockwashers (13), four washers (14), two screws (15), and bracket (16) from frame (17). Discard lockwashers.

6. Remove two screws (18), lockwashers (19), washers (20), and bracket (16) from multi-metering valve (5). Discard lockwashers.

7. Remove six elbows (2) from multi-metering valve (5).

END OF TASK

INSTALLATION

WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

CAUTION

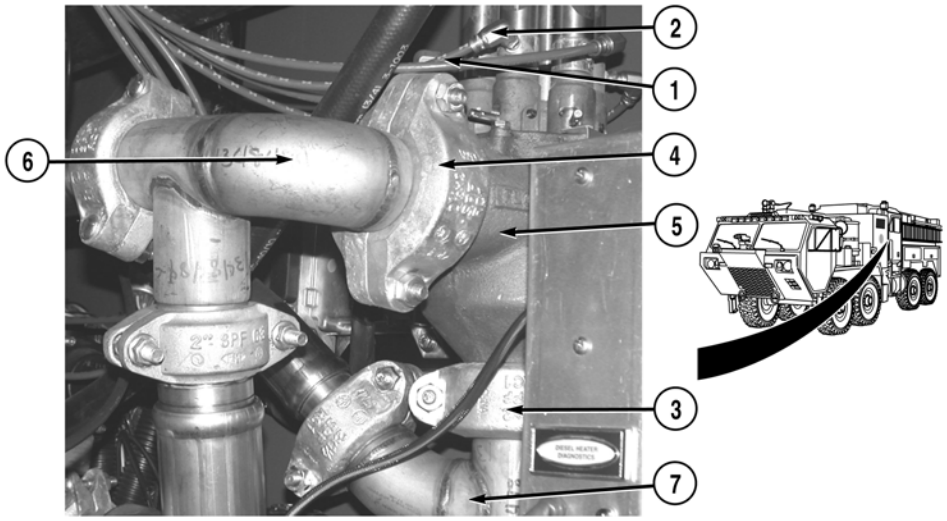
Use sealing compound sparingly only on pipe threads. Do not apply compound to hose connections. Damage to equipment may result.

1. Apply sealing compound to threads of six elbows (2).
2. Install six elbows (2) on multi-metering valve (5).
3. Install multi-metering valve (5) on bracket (16) with two washers (20) lockwashers (19) and screws (18).

NOTE

Bracket and multi-metering valve are installed on pump house frame as an assembly.

4. Install bracket (16) on frame (17) with two screws (15), four washers (14), two lockwashers (13), and nuts (12).
5. Connect two connectors (10) on electronic control unit (11).
6. Install two couplings (8) and (9) and tee (6) on vehicle (WP 0483).



7. Install two couplings (3) and (4) on multi-metering valve (5) and two tees (6) and (7) (WP 0483).
8. Install six air lines (1) on elbows (2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install pump house heater diagnostics module (WP 0415)
2. Install pump house panel B (WP 0540)

END OF TASK

END OF WORK PACKAGE

FIELD LEVEL MAINTENANCE

FOAM TANK FILL PORT EXTENSIONS AND COVERS REPLACEMENT

INITIAL SETUP:

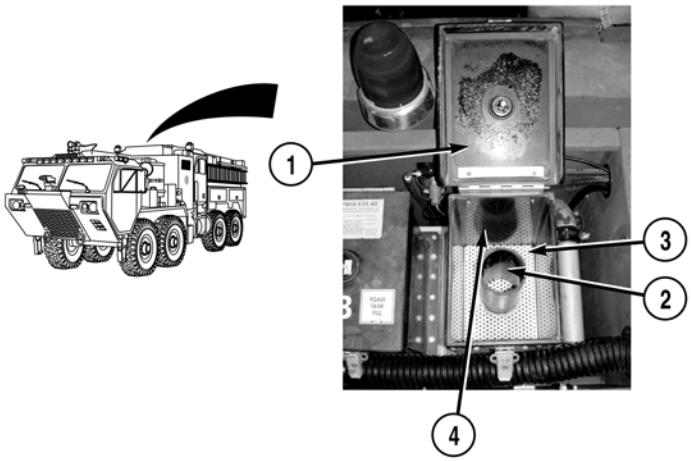
Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(WP 0622, Item 27)

Materials/Parts
Adhesive, Sealant, Silicone, RTV
(WP 0625, Item 5)

References
WP 0614, Fig. 9
WP 0615, Fig. 51

Equipment Conditions
Foam cover and water tank vent removed
(WP 0574)

REMOVAL



NOTE

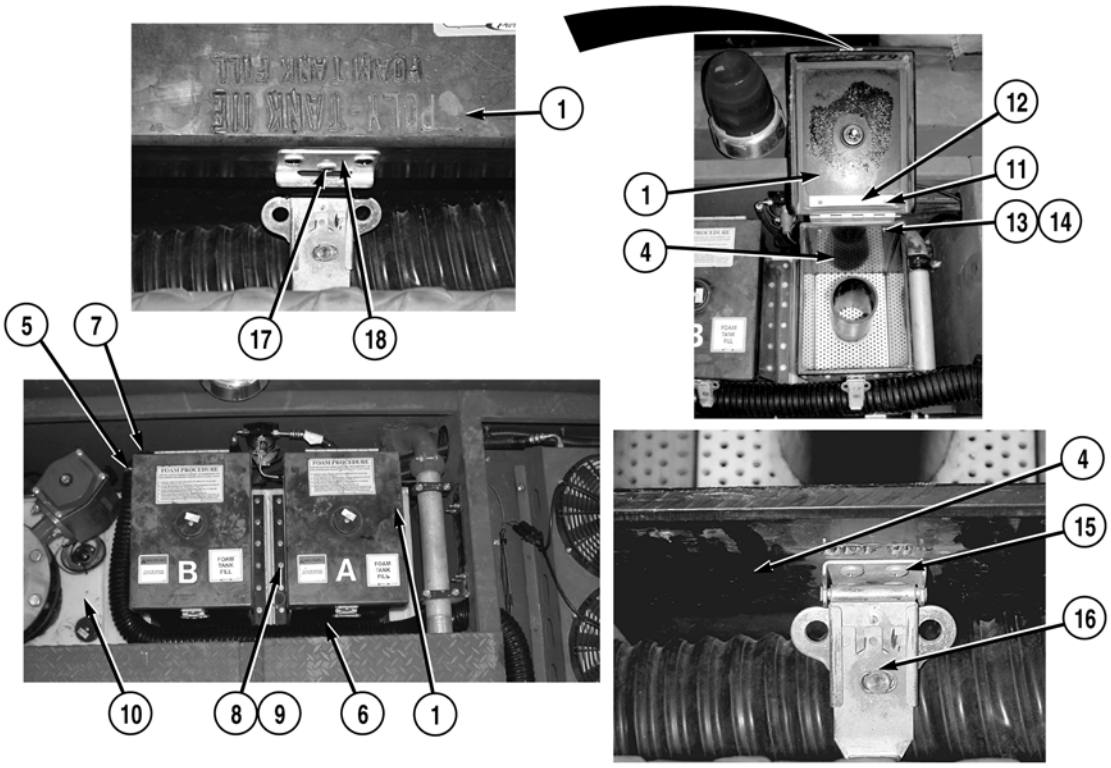
Both foam tank fill port extensions are removed the same way. Foam tank fill port extension and cover A shown.

1. Open cover (1).

NOTE

Fill tube and strainer are removed as an assembly.

2. Remove fill tube (2) and strainer (3) from fill port extension (4).



NOTE

Fresh air hose must be moved in order to remove screws at front of fill port extension.

3. Loosen clamp (5) and remove fresh air hose (6) from elbow (7).
4. Remove 20 screws (8), washers (9), and fill port extension (4) from water tank (10).
5. Remove two screws (11) and cover (1) from hinge (12).
6. Remove two locknuts (13), screws (14), and hinge (12) from fill port extension (4).
7. Remove four screws (15) and latch (16) from fill port extension (4).
8. Remove three screws (17) and latch catch (18) from cover (1).

END OF TASK

INSTALLATION

1. Install latch catch (18) on cover (1) with three screws (17).
2. Install latch (16) on fill port extension (4) with four screws (15).
3. Install hinge (12) on fill port extension (4) with two locknuts (13) and screws (14).
4. Install cover (1) on hinge (12) with two screws (11).

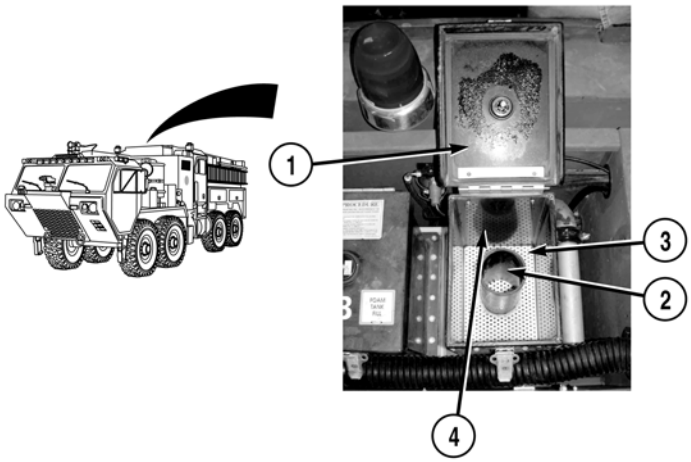
WARNING

Adhesives, solvents, and sealing 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 well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water.

NOTE

Adhesive sealant must be applied to mating surface of fill port extension and water tank.

5. Apply adhesive to fill port extension (4).
6. Install fill port extension (4) on water tank (10) with 20 washers (9) and screws (8).
7. Install fresh air hose (6) on elbow (7) and tighten clamp (5).



8. Install strainer (3) and fill tube (2) in fill port extension (4).
9. Close cover (1).

END OF TASK

FOLLOW-ON MAINTENANCE

Install foam cover and water tank vent (WP 0574)

END OF TASK

END OF WORK PACKAGE

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ALPHABETICAL INDEX (CONTINUED)

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)*	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I - ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON

** Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

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PART II - REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III - REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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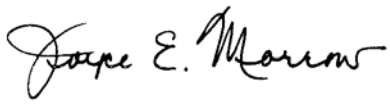
By order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army
Chief of Staff

Official:



JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
0827703

Distribution: To be distributed in accordance with the initial distribution number (IDN) 381211, requirements for TM 5-4210-249-13&P-2.

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter=10 Millimeters=0.01 Meters=0.3937 Inches
1 Meter=100 Centimeters=1000 Millimeters=39.37 Inches
1 Kilometer=1000 Meters=0.621 Miles

WEIGHTS
1 Gram=0.001 Kilograms=1000 Milligrams=0.035 Ounces
1 Kilogram=1000 Grams=2.2 Lb
1 Metric Ton=1000 Kilograms=1 Megagram=1.1 Short Tons

LIQUID MEASURE
1 Milliliter=0.001 Liters=0.0338 Fluid Ounces
1 Liter=1000 Milliliters=33.82 Fluid Ounces

SQUARE MEASURE
1 Sq Centimeter=100 Sq Millimeters=0.155 Sq Inches
1 Sq Meter=10,000 Sq Centimeters=10.76 Sq Feet
1 Sq Kilometer=1,000,000 Sq Meters=0.386 Sq Miles

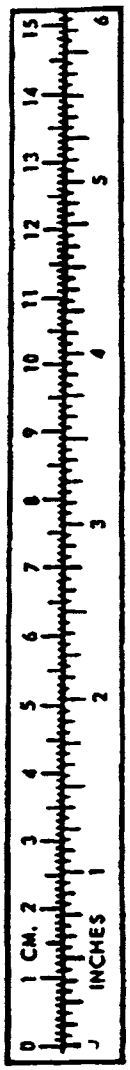
CUBIC MEASURE
1 Cu Centimeter=1000 Cu Millimeters=0.06 Cu Inches
1 Cu Meter=1,000,000 Cu Centimeters=35.31 Cu Feet

TEMPERATURE
5/9 (°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/Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621



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